

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

| Planet | <i>H</i> | <i>G</i> | <i>M</i> | ω | Ω | <i>i</i> | <i>e</i> | μ | <i>a</i> | TE | Oppos. | <i>V</i> | | |
|--------|----------|-------------------|----------|----------|-----------|-----------|-----------|----------|-----------|------------|-----------|----------|---------|------|
| 188001 | 2001 | SP ₂₄₁ | 16.4 | X | 221.13262 | 281.51131 | 86.22254 | 1.12271 | 0.0827670 | 0.24263154 | 2.5458797 | 20 | 4 26.0 | 20.0 |
| 188002 | 2001 | SQ ₂₄₁ | 16.9 | X | 279.42865 | 238.85481 | 77.22156 | 1.93036 | 0.1595794 | 0.24563618 | 2.5250763 | 20 | 4 17.3 | 20.3 |
| 188003 | 2001 | SL ₂₆₀ | 15.8 | X | 261.27404 | 37.32186 | 195.08030 | 14.12038 | 0.0283574 | 0.22923907 | 2.6440944 | 20 | — | — |
| 188004 | 2001 | SL ₂₇₁ | 17.0 | X | 306.68094 | 345.60286 | 355.63833 | 0.61753 | 0.1917639 | 0.25266174 | 2.4780481 | 20 | 6 27.8 | 19.5 |
| 188005 | 2001 | SG ₂₈₄ | 16.9 | X | 73.55646 | 208.00106 | 70.99867 | 2.72277 | 0.2249605 | 0.26762930 | 2.3847725 | 20 | 11 20.5 | 20.5 |
| 188006 | 2001 | SF ₃₁₇ | 12.7 | X | 122.86301 | 248.74375 | 210.23329 | 26.57226 | 0.0539121 | 0.08270218 | 5.2174473 | 20 | 5 5.7 | 19.8 |
| 188007 | 2001 | TN ₇ | 15.7 | X | 96.55122 | 245.18864 | 209.78504 | 13.45124 | 0.1087196 | 0.23356543 | 2.6113415 | 20 | 3 28.0 | 19.2 |
| 188008 | 2001 | TP ₂₇ | 15.7 | X | 240.71139 | 36.28600 | 225.59616 | 13.52949 | 0.0599543 | 0.22888155 | 2.6468471 | 20 | 1 5.3 | 19.8 |
| 188009 | 2001 | TH ₅₆ | 15.5 | X | 117.06677 | 173.76003 | 236.77850 | 13.04591 | 0.1497788 | 0.23085336 | 2.6317537 | 20 | 2 27.2 | 19.5 |
| 188010 | 2001 | TR ₈₃ | 15.7 | X | 8.62320 | 223.24094 | 324.62051 | 6.71413 | 0.1030490 | 0.23905568 | 2.5712048 | 20 | 3 14.3 | 18.5 |
| 188011 | 2001 | TC ₈₅ | 17.3 | X | 55.54198 | 99.81800 | 248.59563 | 0.42251 | 0.2015200 | 0.26900054 | 2.3766612 | 20 | — | — |
| 188012 | 2001 | TO ₉₈ | 17.0 | X | 219.75296 | 325.58937 | 40.83619 | 0.81426 | 0.0800628 | 0.24199728 | 2.5503261 | 20 | 4 22.6 | 20.5 |
| 188013 | 2001 | TQ ₁₂₄ | 15.6 | X | 153.95769 | 169.67569 | 230.67202 | 12.81603 | 0.1673506 | 0.23675509 | 2.5878345 | 20 | 3 27.5 | 19.9 |
| 188014 | 2001 | TP ₁₃₇ | 16.4 | X | 85.50422 | 287.04220 | 154.76301 | 14.12403 | 0.1665535 | 0.23094344 | 2.6310694 | 20 | 3 7.8 | 19.6 |
| 188015 | 2001 | TO ₁₄₂ | 16.1 | X | 353.92677 | 303.26319 | 178.79958 | 12.06635 | 0.2302488 | 0.22219879 | 2.6996549 | 20 | — | — |
| 188016 | 2001 | TS ₁₆₃ | 16.8 | X | 121.22314 | 293.64001 | 100.65650 | 2.65298 | 0.1233375 | 0.23129596 | 2.6283953 | 20 | 2 14.8 | 20.3 |
| 188017 | 2001 | TK ₁₉₅ | 16.0 | X | 159.46795 | 299.90888 | 106.62095 | 10.39337 | 0.1627222 | 0.23735289 | 2.5834875 | 20 | 4 17.8 | 20.3 |
| 188018 | 2001 | TC ₂₀₄ | 16.6 | X | 165.48082 | 263.65823 | 136.96887 | 5.58788 | 0.1882409 | 0.23913059 | 2.5706678 | 20 | 4 14.3 | 20.8 |
| 188019 | 2001 | TH ₂₀₈ | 17.2 | X | 257.26255 | 204.29674 | 143.38470 | 4.35467 | 0.1903387 | 0.24615817 | 2.5215053 | 20 | 4 30.4 | 21.0 |
| 188020 | 2001 | TH ₂₅₇ | 12.8 | X | 246.26675 | 306.51405 | 36.89492 | 19.76806 | 0.0485990 | 0.08499218 | 5.1233032 | 20 | 5 1.6 | 19.6 |
| 188021 | 2001 | UD ₃₇ | 16.4 | X | 240.01284 | 236.52501 | 112.67837 | 9.25815 | 0.2110412 | 0.24173522 | 2.5521690 | 20 | 4 16.5 | 20.6 |
| 188022 | 2001 | UD ₆₂ | 15.7 | X | 13.26547 | 273.06569 | 216.47172 | 14.31689 | 0.1369241 | 0.22614590 | 2.6681500 | 20 | 1 1.8 | 19.0 |
| 188023 | 2001 | UK ₆₂ | 17.2 | X | 54.96010 | 63.54270 | 269.75402 | 1.30560 | 0.2280382 | 0.26721317 | 2.3872477 | 20 | — | — |
| 188024 | 2001 | UO ₇₁ | 16.2 | X | 249.24543 | 121.91811 | 206.55070 | 10.50749 | 0.0933743 | 0.23894864 | 2.5719726 | 20 | 4 5.0 | 19.8 |
| 188025 | 2001 | UM ₇₆ | 15.9 | X | 215.01363 | 72.13203 | 199.12567 | 12.49540 | 0.1146361 | 0.22699547 | 2.6614885 | 20 | — | — |
| 188026 | 2001 | UE ₇₉ | 12.6 | X | 269.51960 | 113.38343 | 214.16280 | 22.16121 | 0.0419672 | 0.08246617 | 5.2273973 | 20 | 5 11.7 | 19.5 |
| 188027 | 2001 | UF ₈₄ | 15.3 | X | 175.70411 | 149.48289 | 229.32071 | 12.75287 | 0.2639228 | 0.23487940 | 2.6015935 | 20 | 3 23.9 | 20.1 |
| 188028 | 2001 | UT ₁₁₂ | 15.2 | X | 154.55748 | 331.59312 | 72.19384 | 7.47530 | 0.3293203 | 0.23302286 | 2.6153934 | 20 | 4 16.5 | 20.0 |
| 188029 | 2001 | UU ₁₁₂ | 15.9 | X | 79.73186 | 223.24612 | 226.22261 | 21.31410 | 0.0503831 | 0.22943677 | 2.6425753 | 20 | 2 12.1 | 19.9 |
| 188030 | 2001 | UV ₁₁₇ | 16.8 | X | 232.21165 | 264.36172 | 105.47664 | 2.51526 | 0.2012346 | 0.24298582 | 2.5434045 | 20 | 5 2.3 | 20.8 |
| 188031 | 2001 | UV ₁₁₈ | 16.6 | X | 164.94155 | 316.05788 | 84.38694 | 4.01322 | 0.1253442 | 0.23573074 | 2.5953259 | 20 | 4 10.4 | 20.6 |
| 188032 | 2001 | UV ₁₂₀ | 16.7 | X | 243.13907 | 169.49730 | 187.07747 | 1.76059 | 0.1997222 | 0.24333975 | 2.5409377 | 20 | 4 25.3 | 20.6 |
| 188033 | 2001 | UY ₁₂₃ | 16.2 | X | 242.83595 | 276.67730 | 73.49557 | 14.00675 | 0.2109501 | 0.24428913 | 2.5343502 | 20 | 4 21.5 | 20.4 |
| 188034 | 2001 | UY ₁₃₅ | 16.4 | X | 227.69651 | 207.62884 | 176.55062 | 5.21082 | 0.1584318 | 0.24400082 | 2.5363461 | 20 | 5 19.7 | 20.4 |
| 188035 | 2001 | UJ ₁₃₆ | 16.2 | X | 202.63383 | 320.64714 | 56.27598 | 4.90768 | 0.2916136 | 0.23943183 | 2.5685112 | 20 | 4 14.4 | 20.8 |
| 188036 | 2001 | UD ₁₅₄ | 15.6 | X | 131.64905 | 335.42516 | 58.19951 | 16.08042 | 0.1000670 | 0.22874277 | 2.6479176 | 20 | 3 2.4 | 19.7 |
| 188037 | 2001 | UH ₁₆₀ | 15.9 | X | 68.92241 | 212.56618 | 233.00815 | 21.18390 | 0.0303266 | 0.22647385 | 2.6655735 | 20 | 1 22.4 | 19.9 |
| 188038 | 2001 | UJ ₁₇₀ | 15.7 | X | 319.91204 | 246.87940 | 233.34991 | 13.20905 | 0.1460210 | 0.21429026 | 2.7656747 | 20 | — | — |
| 188039 | 2001 | UG ₁₇₄ | 16.5 | X | 271.65519 | 116.06910 | 218.23166 | 10.41594 | 0.1630630 | 0.24442028 | 2.5334435 | 20 | 4 30.9 | 20.1 |
| 188040 | 2001 | UG ₁₇₆ | 16.0 | X | 13.23014 | 10.59302 | 22.68199 | 6.12142 | 0.0661426 | 0.21423793 | 2.7661250 | 20 | 12 31.0 | 19.7 |
| 188041 | 2001 | UX ₁₈₄ | 16.0 | X | 9.14906 | 31.89185 | 67.13118 | 9.73917 | 0.1388014 | 0.22117023 | 2.7801813 | 20 | — | — |
| 188042 | 2001 | UE ₁₈₅ | 16.9 | X | 201.75057 | 236.60087 | 153.82964 | 5.14220 | 0.2000985 | 0.24391494 | 2.5369415 | 20 | 5 2.1 | 21.1 |
| 188043 | 2001 | UO ₁₉₀ | 16.1 | X | 65.07146 | 284.34664 | 224.98819 | 6.33083 | 0.0535511 | 0.24047808 | 2.5610559 | 20 | 4 18.8 | 19.3 |
| 188044 | 2001 | UA ₁₉₂ | 15.8 | X | 106.77906 | 43.92152 | 267.76687 | 11.12801 | 0.1792101 | 0.27300799 | 2.3533461 | 20 | — | — |
| 188045 | 2001 | UG ₂₁₇ | 15.9 | X | 300.29068 | 87.52549 | 60.52854 | 10.05782 | 0.1229382 | 0.21719264 | 2.7409807 | 20 | — | — |
| 188046 | 2001 | VP ₂₄ | 15.4 | X | 161.34481 | 160.21644 | 233.43376 | 13.09864 | 0.0954916 | 0.23369596 | 2.6103691 | 20 | 3 20.9 | 19.6 |
| 188047 | 2001 | VW ₂₆ | 16.7 | X | 28.02807 | 48.87026 | 294.14829 | 2.12633 | 0.2100026 | 0.26178824 | 2.4201148 | 20 | 12 19.9 | 19.7 |
| 188048 | 2001 | VU ₄₀ | 16.9 | X | 286.11139 | 273.42898 | 240.30033 | 20.31303 | 0.0562512 | 0.37342264 | 1.9098633 | 20 | — | — |
| 188049 | 2001 | VJ ₄₁ | 16.1 | X | 209.07551 | 192.51686 | 241.46618 | 1.03061 | 0.1709993 | 0.24374033 | 2.5381529 | 20 | 7 2.7 | 20.0 |
| 188050 | 2001 | VB ₅₃ | 15.5 | X | 104.36662 | 177.05324 | 241.04214 | 13.15096 | 0.1132189 | 0.22974698 | 2.6401960 | 20 | 2 15.9 | 19.3 |
| 188051 | 2001 | VF ₆₈ | 16.8 | X | 358.12193 | 204.43641 | 247.02674 | 19.78812 | 0.0765326 | 0.37806851 | 1.8941849 | 20 | — | — |
| 188052 | 2001 | VC ₇₇ | 15.4 | X | 101.12302 | 0.16495 | 68.07162 | 28.95643 | 0.1891668 | 0.23059245 | 2.6337385 | 20 | 4 1.7 | 19.8 |
| 188053 | 2001 | VM ₈₃ | 12.8 | X | 234.63160 | 137.94719 | 225.80033 | 26.92993 | 0.0858197 | 0.08285455 | 5.2110490 | 20 | 5 9.8 | 20.0 |
| 188054 | 2001 | VN ₉₁ | 16.1 | X | 19.84277 | 344.37614 | 114.46838 | 10.58184 | 0.1721465 | 0.22021136 | 2.7158737 | 20 | — | — |
| 188055 | 2001 | VA ₉₂ | 15.8 | X | 148.38757 | 287.68641 | 119.90192 | 10.16420 | 0.2395759 | 0.23393390 | 2.6085987 | 20 | 4 13.6 | 20.3 |
| 188056 | 2001 | VU ₁₀₄ | 15.6 | X | 310.16097 | 242.57608 | 43.24751 | 7.55821 | 0.1948732 | 0.24165646 | 2.5527235 | 20 | 4 13.9 | 18.5 |
| 188057 | 2001 | VB ₁₀₅ | 16.0 | X | 182.69667 | 138.42042 | 244.02540 | 8.52621 | 0.1419925 | 0.23642538 | 2.5902399 | 20 | 3 31.7 | 20.3 |
| 188058 | 2001 | VC ₁₀₆ | 16.0 | X | 28.09119 | 57.63789 | 246.02767 | 6.00309 | 0.1193239 | 0.25693244 | 2.4505115 | 20 | 10 9.9 | 18.9 |
| 188059 | 2001 | VH ₁₂₀ | 16.2 | X | 169.25505 | 293.90923 | 49.22879 | 5.13006 | 0.0791042 | 0.22655820 | 2.6649119 | 20 | 2 1.6 | 20.1 |
| 188060 | 2001 | VG ₁₂₇ | 13.2 | X | 10.78251 | 147.82895 | 76.93087 | 11.09033 | 0.0273749 | 0.08396162 | 5.1651408 | 20 | 5 16.9 | 19.9 |
| 188061 | 2001 | Loomis | 16.8 | X | 272.27814 | 162.04769 | 189.86748 | 15.76916 | 0.1791415 | 0.24630519 | 2.5205018 | 20 | 5 24.9 | 20.5 |
| 188062 | 2001 | WT ₈ | 16.5 | X | 216.70332 | 271.23500 | 98.34045 | 4.06541 | 0.1946861 | 0.23980087 | 2.5658753 | 20 | 4 19.5 | 20.8 |
| 188063 | 2001 | WV ₂₉ | 16.0 | X | 223.42893 | 130.16688 | 220.54877 | 8.72269 | 0.2249848 | 0.23808688 | 2.5781751 | 20 | 3 28.1 | 20.5 |
| 188064 | 2001 | WE ₃₂ | 16.7 | X | 132.32063 | 311.67165 | 84.16248 | 3.10432 | 0.1000841 | 0.22991125 | 2.6389383 | 20 | 2 27.4 | 20.4 |
| 188065 | 2001 | WK ₃₅ | 16.2 | X | 84.46950 | 150.26171 | 116.82832 | 7.73662 | 0.0763865 | 0.21798692 | 2.7343184 | 20 | — | — |
| 188066 | 2001 | WR ₃₉ | 15.8 | X | 46.29222 | 214.50569 | 220.33264 | 8.94996 | 0.2545725 | 0.21970304 | 2.7200612 | 20 | — | — |
| 188067 | 2001 | WO ₄₄ | 17.1 | X | 174.14862 | 250.05434 | 139.07464 | 2.91263 | 0.1383959 | 0.23562572 | 2.5960970 | 20 | 4 5.1 | 21.1 |
| 188068 | 2001 | WL ₄₇ | 16.7 | X | 227.10107 | 221.12649 | 158.29648 | 11.26415 | 0.1965775 | 0.24362171 | 2.5389767 | 20 | 5 12.3 | 21.0 |
| 188069 | 2001 | WP ₄₈ | 16.0 | X | 225.79595 | 240.91435 | 101.06221 | 12.79014 | 0.0765492 | 0.23703749 | 2.5857787 | 20 | 4 5.2 | 20.0 |
| 188070 | 2001 | WR ₄₈ | 15.8 | X | 1 | | | | | | | | | |

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

| Planet | <i>H</i> | <i>G</i> | <i>M</i> | ω | Ω | <i>i</i> | <i>e</i> | μ | <i>a</i> | TE | Oppos. | <i>V</i> | | |
|--------|----------|-------------------|----------|----------|-----------|-----------|-----------|----------|-----------|------------|-----------|----------|---------|------|
| 188081 | 2001 | XY ₈₇ | 15.3 | X | 251.95815 | 257.10184 | 104.19491 | 12.62655 | 0.3162574 | 0.24069356 | 2.5595271 | 20 | 5 3.9 | 19.8 |
| 188082 | 2001 | XV ₉₉ | 15.4 | X | 246.81548 | 258.94394 | 93.71997 | 13.06174 | 0.2125972 | 0.23816700 | 2.5775969 | 20 | 4 28.3 | 19.7 |
| 188083 | 2001 | XM ₁₂₆ | 13.0 | X | 251.99819 | 266.42234 | 83.32137 | 5.57978 | 0.0644500 | 0.07947299 | 5.3578395 | 20 | 5 15.2 | 20.1 |
| 188084 | 2001 | XV ₁₂₆ | 15.9 | X | 298.91475 | 97.89038 | 85.43696 | 9.70321 | 0.0646239 | 0.22060203 | 2.7126663 | 20 | — | — |
| 188085 | 2001 | XC ₁₂₇ | 16.7 | X | 181.93175 | 235.88970 | 134.48799 | 3.86147 | 0.1097263 | 0.23344514 | 2.6122385 | 20 | 3 19.8 | 20.7 |
| 188086 | 2001 | XK ₁₃₆ | 15.8 | X | 247.38924 | 217.86038 | 76.03432 | 14.18354 | 0.0835116 | 0.22988229 | 2.6391599 | 20 | 2 28.3 | 19.9 |
| 188087 | 2001 | XX ₁₃₆ | 16.3 | X | 276.35997 | 262.78415 | 78.06783 | 8.59986 | 0.2726596 | 0.24488302 | 2.5302510 | 20 | 5 2.8 | 20.0 |
| 188088 | 2001 | XA ₁₄₁ | 16.1 | X | 14.70365 | 353.84365 | 81.00356 | 7.40487 | 0.0358411 | 0.21644891 | 2.7472559 | 20 | — | — |
| 188089 | 2001 | XR ₁₄₆ | 16.4 | X | 194.93244 | 133.71730 | 228.80545 | 1.45175 | 0.2512445 | 0.23486211 | 2.6017211 | 20 | 3 21.5 | 21.1 |
| 188090 | 2001 | XL ₁₅₇ | 15.6 | X | 155.58560 | 230.74332 | 259.67941 | 8.92844 | 0.2183111 | 0.18632584 | 3.0358991 | 20 | 7 21.7 | 20.8 |
| 188091 | 2001 | XO ₁₅₉ | 16.0 | X | 19.70892 | 324.87444 | 109.45574 | 6.05967 | 0.1493843 | 0.21457529 | 2.7632249 | 20 | — | — |
| 188092 | 2001 | XR ₁₆₆ | 16.3 | X | 131.39832 | 270.36686 | 105.78991 | 7.48661 | 0.1643790 | 0.22526188 | 2.6751260 | 20 | 2 10.2 | 20.3 |
| 188093 | 2001 | XG ₁₇₉ | 16.6 | X | 19.85535 | 324.24610 | 103.38619 | 6.07474 | 0.1418697 | 0.21287898 | 2.7778846 | 20 | — | — |
| 188094 | 2001 | XK ₂₁₉ | 16.1 | X | 192.21877 | 276.64709 | 48.45913 | 3.73000 | 0.1066131 | 0.22925849 | 2.6439451 | 20 | 2 3.9 | 20.1 |
| 188095 | 2001 | XL ₂₃₀ | 15.9 | X | 194.75807 | 264.76094 | 73.57400 | 14.02877 | 0.0727822 | 0.22929779 | 2.6436430 | 20 | 2 27.2 | 20.1 |
| 188096 | 2001 | XY ₂₄₃ | 15.9 | X | 60.38178 | 228.18641 | 239.81973 | 13.99712 | 0.0884907 | 0.23012198 | 2.6373270 | 20 | 2 14.9 | 19.4 |
| 188097 | 2001 | YM ₆ | 15.4 | X | 108.65836 | 329.72388 | 95.61341 | 28.86604 | 0.1917771 | 0.22875113 | 2.6478531 | 20 | 4 5.1 | 19.9 |
| 188098 | 2001 | YT ₁₃ | 15.9 | X | 112.31581 | 46.27212 | 171.40752 | 2.13966 | 0.0571855 | 0.19737352 | 2.9215285 | 20 | 9 19.3 | 20.0 |
| 188099 | 2001 | YT ₄₂ | 16.4 | X | 333.85289 | 8.82710 | 71.20942 | 5.55074 | 0.1230777 | 0.20949229 | 2.8077430 | 20 | — | — |
| 188100 | 2001 | YC ₆₁ | 15.7 | X | 164.65972 | 271.83026 | 88.14733 | 12.39930 | 0.0948468 | 0.22605728 | 2.6688472 | 20 | 2 21.2 | 19.9 |
| 188101 | 2001 | YQ ₆₆ | 15.3 | X | 228.04591 | 57.54451 | 291.34318 | 10.26051 | 0.2775391 | 0.23643561 | 2.5901652 | 20 | 3 23.8 | 20.1 |
| 188102 | 2001 | YS ₁₀₂ | 15.5 | X | 340.16847 | 72.21988 | 266.44141 | 6.86859 | 0.2175762 | 0.25054167 | 2.4920078 | 20 | 9 5.5 | 17.5 |
| 188103 | 2001 | YT ₁₀₃ | 15.7 | X | 13.49369 | 332.10693 | 108.61251 | 14.90000 | 0.1777582 | 0.21400870 | 2.7680999 | 20 | — | — |
| 188104 | 2001 | YA ₁₀₆ | 16.5 | X | 168.28803 | 227.49939 | 155.07445 | 3.12949 | 0.2954128 | 0.23207243 | 2.6225293 | 20 | 3 28.6 | 21.2 |
| 188105 | 2001 | YQ ₁₁₀ | 16.2 | X | 293.45766 | 84.41919 | 264.99204 | 14.07930 | 0.1750716 | 0.24626504 | 2.5207757 | 20 | 5 24.3 | 19.1 |
| 188106 | 2001 | YX ₁₁₅ | 15.6 | X | 77.88024 | 325.09415 | 84.54513 | 10.44337 | 0.1842008 | 0.21777499 | 2.7360921 | 20 | 1 18.4 | 18.8 |
| 188107 | 2001 | YY ₁₁₇ | 16.0 | X | 164.99060 | 342.33124 | 103.55751 | 7.39732 | 0.1258211 | 0.23532013 | 2.5983441 | 20 | 6 6.4 | 20.0 |
| 188108 | 2001 | YU ₁₄₀ | 16.2 | X | 280.81899 | 73.33284 | 231.64479 | 13.31610 | 0.1207388 | 0.24047277 | 2.5610935 | 20 | 4 6.4 | 19.8 |
| 188109 | 2002 | AR ₈ | 16.5 | X | 302.53868 | 293.60285 | 151.19582 | 2.60544 | 0.0386283 | 0.20234086 | 2.8735162 | 20 | 11 24.1 | 20.3 |
| 188110 | 2002 | AM ₃₂ | 15.5 | X | 78.36214 | 317.01162 | 84.00489 | 5.60552 | 0.3154217 | 0.21896036 | 2.7262084 | 20 | 1 29.1 | 18.5 |
| 188111 | 2002 | AX ₃₆ | 15.5 | X | 175.47919 | 266.47105 | 112.72904 | 10.38286 | 0.1319654 | 0.23119799 | 2.6291378 | 20 | 3 28.9 | 19.8 |
| 188112 | 2002 | AA ₆₆ | 16.1 | X | 148.57213 | 179.86667 | 134.26986 | 4.94358 | 0.0567834 | 0.21235691 | 2.7824356 | 20 | — | — |
| 188113 | 2002 | AM ₆₇ | 16.1 | X | 47.15278 | 281.97039 | 109.44190 | 6.15522 | 0.1700878 | 0.21254879 | 2.7807608 | 20 | — | — |
| 188114 | 2002 | AF ₈₂ | 15.3 | X | 259.08688 | 108.30038 | 248.80501 | 13.74559 | 0.2137596 | 0.24282360 | 2.5445371 | 20 | 5 9.2 | 19.3 |
| 188115 | 2002 | AE ₈₃ | 15.8 | X | 97.89366 | 21.02751 | 107.06121 | 13.40245 | 0.0804041 | 0.23371368 | 2.6102371 | 20 | 5 15.7 | 19.5 |
| 188116 | 2002 | AN ₉₇ | 16.0 | X | 54.60594 | 306.78939 | 93.80680 | 6.24324 | 0.1668460 | 0.21405573 | 2.7676945 | 20 | — | — |
| 188117 | 2002 | AO ₁₇₁ | 15.9 | X | 200.50111 | 273.29884 | 98.65789 | 5.15802 | 0.2821713 | 0.23338627 | 2.6126778 | 20 | 4 8.6 | 20.7 |
| 188118 | 2002 | AW ₁₈₀ | 14.8 | X | 35.32707 | 0.79405 | 70.88252 | 27.17366 | 0.1310925 | 0.21639890 | 2.7476792 | 20 | — | — |
| 188119 | 2002 | AV ₁₈₃ | 15.6 | X | 101.51377 | 277.85124 | 145.95044 | 14.39811 | 0.2605830 | 0.22653917 | 2.6650611 | 20 | 3 21.6 | 19.5 |
| 188120 | 2002 | AB ₂₀₈ | 15.8 | X | 160.17542 | 47.47652 | 173.11866 | 6.02683 | 0.1435834 | 0.19729804 | 2.9222736 | 20 | 11 13.9 | 20.6 |
| 188121 | 2002 | BX ₁₉ | 16.1 | X | 286.42660 | 348.39468 | 128.08483 | 18.51704 | 0.1060154 | 0.20322913 | 2.8651371 | 20 | 12 9.1 | 19.9 |
| 188122 | 2002 | CH ₁₉ | 15.6 | X | 110.35793 | 322.41380 | 73.95899 | 9.57631 | 0.3274538 | 0.22208736 | 2.7005578 | 20 | 3 7.2 | 19.9 |
| 188123 | 2002 | CT ₁₉ | 16.3 | X | 304.30458 | 258.30587 | 176.54614 | 10.28372 | 0.0952839 | 0.19986822 | 2.8971671 | 20 | 11 11.3 | 19.9 |
| 188124 | 2002 | CR ₂₈ | 15.6 | X | 180.09522 | 16.20244 | 85.46343 | 6.74054 | 0.2284241 | 0.18428506 | 3.0582710 | 20 | 7 8.5 | 21.0 |
| 188125 | 2002 | CL ₆₅ | 15.8 | X | 141.22721 | 113.01822 | 41.44144 | 10.30235 | 0.0439503 | 0.18391451 | 3.0623774 | 20 | 8 5.4 | 20.4 |
| 188126 | 2002 | CN ₆₈ | 16.3 | X | 156.59405 | 80.68607 | 94.29879 | 2.46548 | 0.1773030 | 0.19043504 | 2.9920681 | 20 | 9 16.8 | 21.3 |
| 188127 | 2002 | CM ₉₄ | 15.6 | X | 26.07376 | 280.22986 | 95.47670 | 3.03101 | 0.0256080 | 0.19903813 | 2.9052167 | 20 | 12 15.9 | 19.6 |
| 188128 | 2002 | CE ₉₉ | 15.5 | X | 190.95892 | 138.15645 | 131.27967 | 6.20787 | 0.1329988 | 0.20447988 | 2.8534416 | 20 | — | — |
| 188129 | 2002 | CL ₁₀₂ | 15.7 | X | 106.20251 | 30.08986 | 146.31426 | 6.44254 | 0.1066748 | 0.17941671 | 3.1133465 | 20 | 7 25.1 | 20.3 |
| 188130 | 2002 | CB ₁₁₃ | 15.6 | X | 198.26590 | 13.18023 | 332.71518 | 10.96639 | 0.1452715 | 0.22217551 | 2.6998435 | 20 | 3 4.2 | 19.9 |
| 188131 | 2002 | CK ₁₄₉ | 16.0 | X | 56.27124 | 307.42919 | 35.18081 | 2.30638 | 0.0509799 | 0.20023953 | 2.8935845 | 20 | 12 16.2 | 20.1 |
| 188132 | 2002 | CC ₁₅₈ | 16.1 | X | 339.82218 | 342.60097 | 63.10630 | 3.02923 | 0.0499970 | 0.19978225 | 2.8979982 | 20 | 11 24.8 | 19.9 |
| 188133 | 2002 | CE ₂₁₁ | 15.5 | X | 105.03590 | 99.24783 | 143.81469 | 9.99109 | 0.0685872 | 0.18978238 | 2.9989238 | 20 | 10 15.9 | 20.0 |
| 188134 | 2002 | CE ₂₃₀ | 15.6 | X | 334.50949 | 111.62560 | 146.24347 | 1.78271 | 0.1297304 | 0.17192379 | 3.2031608 | 20 | 4 28.6 | 19.6 |
| 188135 | 2002 | CH ₂₃₃ | 15.0 | X | 112.19461 | 334.69933 | 303.36062 | 14.70605 | 0.2426994 | 0.19598489 | 2.9353124 | 20 | 12 11.2 | 20.2 |
| 188136 | 2002 | CP ₂₃₃ | 14.9 | X | 191.67129 | 314.80076 | 292.19342 | 14.83135 | 0.2116009 | 0.20335515 | 2.8639533 | 20 | — | — |
| 188137 | 2002 | CU ₂₄₆ | 15.9 | X | 115.25227 | 36.16279 | 159.51846 | 14.29440 | 0.1261705 | 0.18329634 | 3.0692589 | 20 | 8 30.4 | 20.5 |
| 188138 | 2002 | CF ₃₀₂ | 15.3 | X | 84.62634 | 103.06096 | 127.10827 | 12.46611 | 0.1896704 | 0.18394585 | 3.0620296 | 20 | 9 21.1 | 20.1 |
| 188139 | 2002 | Stanbridge | 16.2 | X | 243.80586 | 268.02425 | 143.83712 | 5.29128 | 0.0630495 | 0.18337189 | 3.0684157 | 20 | 7 20.3 | 20.5 |
| 188140 | 2002 | EW ₁₂ | 15.4 | X | 134.56539 | 324.42263 | 193.01317 | 18.07881 | 0.2182109 | 0.18145727 | 3.0899620 | 20 | 8 3.9 | 20.9 |
| 188141 | 2002 | EA ₃₆ | 16.0 | X | 170.96486 | 23.83163 | 158.46179 | 11.01844 | 0.0503158 | 0.19004756 | 2.9961337 | 20 | 10 12.8 | 20.5 |
| 188142 | 2002 | EC ₄₂ | 15.8 | X | 45.54626 | 196.04202 | 267.80822 | 3.18081 | 0.0683985 | 0.21493719 | 2.7601223 | 20 | 1 25.1 | 19.1 |
| 188143 | 2002 | EB ₅₀ | 15.9 | X | 51.77458 | 237.99026 | 291.44271 | 0.34135 | 0.1034091 | 0.17059724 | 3.2197443 | 20 | 5 6.9 | 20.1 |
| 188144 | 2002 | EH ₆₀ | 16.0 | X | 155.61539 | 204.33218 | 306.29711 | 1.88002 | 0.1058499 | 0.18407840 | 3.0605595 | 20 | 8 14.5 | 20.8 |
| 188145 | 2002 | EW ₈₁ | 15.4 | X | 87.39770 | 11.80399 | 235.78838 | 4.24168 | 0.1672709 | 0.18434748 | 3.0575806 | 20 | 10 7.2 | 20.2 |
| 188146 | 2002 | EA ₉₀ | 15.1 | X | 41.97904 | 100.57359 | 161.94858 | 11.35077 | 0.0918460 | 0.18140907 | 3.0905093 | 20 | 8 20.9 | 19.1 |
| 188147 | 2002 | EP ₉₆ | 15.6 | X | 348.98187 | 115.65801 | 182.30047 | 0.57915 | 0.1669758 | 0.17605057 | 3.1529065 | 20 | 7 16.1 | 19.0 |
| 188148 | 2002 | FG ₂₇ | 15.8 | X | 120.08591 | 128.42057 | 62.40313 | 6.52912 | 0.2129811 | 0.18421401 | 3.0590573 | 20 | 9 7.9 | 21.0 |
| 188149 | 2002 | FU ₃₀ | 15.4 | X | 178.00089 | 99.89797 | 68.77650 | 10.81296 | 0.0529763 | 0.18934073 | 3.0035856 | 20 | 10 6.3 | 20.0 |
| 188150 | 2002 | FV ₃₈ | 15.4 | X | 1 | | | | | | | | | |

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

| Planet | <i>H</i> | <i>G</i> | <i>M</i> | ω | Ω | <i>i</i> | <i>e</i> | μ | <i>a</i> | TE | Oppos. | <i>V</i> | | |
|--------|----------|-------------------|----------|----------|-----------|-----------|-----------|----------|-----------|------------|-----------|----------|---------|------|
| 188161 | 2002 | GN ₁₀₈ | 15.3 | X | 41.89503 | 139.05239 | 136.05097 | 12.67115 | 0.1213854 | 0.17866960 | 3.1220195 | 20 | 9 13.8 | 19.5 |
| 188162 | 2002 | GK ₁₀₉ | 15.1 | X | 107.54296 | 70.88764 | 75.63136 | 15.75651 | 0.1919860 | 0.17204598 | 3.2016439 | 20 | 6 28.3 | 20.2 |
| 188163 | 2002 | GR ₁₁₁ | 15.3 | X | 226.86302 | 293.58232 | 167.72711 | 12.07742 | 0.0817235 | 0.18275240 | 3.0753461 | 20 | 8 29.2 | 19.7 |
| 188164 | 2002 | GP ₁₂₂ | 15.0 | X | 341.43888 | 271.50534 | 29.90389 | 9.56757 | 0.0806623 | 0.17429966 | 3.1739861 | 20 | 7 11.4 | 19.2 |
| 188165 | 2002 | GN ₁₂₃ | 14.7 | X | 14.59482 | 287.48055 | 8.37248 | 13.28006 | 0.2909798 | 0.17483005 | 3.1675635 | 20 | 9 20.1 | 17.9 |
| 188166 | 2002 | GO ₁₂₈ | 15.2 | X | 70.19054 | 342.30087 | 231.60033 | 4.51543 | 0.1086522 | 0.17617319 | 3.1514433 | 20 | 7 28.7 | 19.7 |
| 188167 | 2002 | GT ₁₃₃ | 15.5 | X | 34.52937 | 41.10094 | 205.55337 | 12.87286 | 0.0737868 | 0.17367332 | 3.1816127 | 20 | 7 15.2 | 20.0 |
| 188168 | 2002 | GL ₁₅₁ | 15.3 | X | 284.17549 | 229.42729 | 184.14257 | 9.57431 | 0.0567975 | 0.18343758 | 3.0676831 | 20 | 9 13.3 | 19.5 |
| 188169 | 2002 | GN ₁₅₉ | 15.6 | X | 160.39725 | 269.28181 | 198.74535 | 21.16815 | 0.2656064 | 0.17817092 | 3.1278422 | 20 | 6 28.9 | 21.5 |
| 188170 | 2002 | GQ ₁₇₉ | 14.8 | X | 312.34345 | 250.99125 | 76.50678 | 16.87243 | 0.0894488 | 0.17290911 | 3.1909803 | 20 | 6 28.1 | 19.1 |
| 188171 | 2002 | GR ₁₇₉ | 15.5 | X | 86.16418 | 116.70528 | 76.78612 | 14.64426 | 0.0662169 | 0.17531248 | 3.1617498 | 20 | 7 19.1 | 20.1 |
| 188172 | 2002 | HJ ₁₃ | 14.3 | X | 71.84211 | 127.22443 | 101.57055 | 27.78867 | 0.1598537 | 0.17656952 | 3.1467257 | 20 | 9 4.4 | 19.3 |
| 188173 | 2002 | HN ₁₅ | 15.5 | X | 184.83129 | 15.12723 | 116.35465 | 2.19554 | 0.1311599 | 0.18400428 | 3.0613813 | 20 | 8 20.1 | 20.2 |
| 188174 | 2002 | JC | 17.4 | X | 316.88674 | 306.91013 | 69.39470 | 40.85659 | 0.3907279 | 1.33001740 | 0.8189006 | 20 | — | — |
| 188175 | 2002 | JS ₅ | 15.1 | X | 18.04613 | 194.26558 | 81.54464 | 15.10652 | 0.1978604 | 0.17306245 | 3.1890952 | 20 | 8 19.7 | 19.0 |
| 188176 | 2002 | JW ₈ | 14.7 | X | 5.33822 | 203.76109 | 61.16294 | 30.61557 | 0.1884861 | 0.17503944 | 3.1650369 | 20 | 6 28.8 | 18.5 |
| 188177 | 2002 | HJ ₄₇ | 14.8 | X | 99.65149 | 274.13026 | 239.64609 | 12.61004 | 0.1482893 | 0.17040163 | 3.2222078 | 20 | 6 23.6 | 19.7 |
| 188178 | 2002 | JL ₇₃ | 14.6 | X | 69.01455 | 54.34004 | 224.95676 | 22.47305 | 0.2801761 | 0.17673969 | 3.1447056 | 20 | 11 8.2 | 19.4 |
| 188179 | 2002 | JW ₇₈ | 15.3 | X | 31.80646 | 79.59440 | 217.04997 | 9.46353 | 0.2202233 | 0.17765527 | 3.1338917 | 20 | 10 7.0 | 19.3 |
| 188180 | 2002 | JC ₈₄ | 15.0 | X | 85.59925 | 329.68966 | 229.34189 | 9.88578 | 0.1139987 | 0.17411634 | 3.1714236 | 20 | 7 27.7 | 19.8 |
| 188181 | 2002 | JH ₁₀₈ | 14.7 | X | 34.97022 | 129.90178 | 143.35559 | 17.58645 | 0.1897779 | 0.17577412 | 3.1562115 | 20 | 9 10.5 | 18.7 |
| 188182 | 2002 | JA ₁₁₆ | 14.8 | X | 58.98392 | 87.69313 | 125.32725 | 22.60907 | 0.0972019 | 0.17271337 | 3.1933908 | 20 | 7 12.4 | 19.2 |
| 188183 | 2002 | JM ₁₁₈ | 15.0 | X | 91.34857 | 121.65639 | 40.48853 | 27.40847 | 0.1771764 | 0.17440393 | 3.1727209 | 20 | 6 26.7 | 20.1 |
| 188184 | 2002 | JE ₁₂₃ | 15.1 | X | 60.92455 | 63.82396 | 155.16283 | 10.77241 | 0.1295699 | 0.17336409 | 3.1853949 | 20 | 7 26.2 | 19.5 |
| 188185 | 2002 | JQ ₁₄₅ | 14.8 | X | 46.61606 | 147.77690 | 98.39860 | 22.76146 | 0.0538117 | 0.17450633 | 3.1714796 | 20 | 8 2.7 | 19.3 |
| 188186 | 2002 | LQ ₁₄ | 14.6 | X | 41.15802 | 33.56545 | 264.80276 | 13.68685 | 0.2625030 | 0.17480731 | 3.1678382 | 20 | 10 25.9 | 19.1 |
| 188187 | 2002 | LA ₂₇ | 14.6 | X | 29.00927 | 111.93827 | 222.10239 | 12.57011 | 0.2929813 | 0.17443375 | 3.1723593 | 20 | 12 1.1 | 18.7 |
| 188188 | 2002 | NW ₃₇ | 14.1 | X | 50.08041 | 180.49588 | 201.04737 | 8.11956 | 0.3121431 | 0.12340142 | 3.9956670 | 20 | — | — |
| 188189 | 2002 | PL ₈₄ | 16.3 | X | 335.19430 | 340.39799 | 17.18685 | 3.30814 | 0.1380832 | 0.27632491 | 2.3344757 | 20 | 10 4.2 | 18.2 |
| 188190 | 2002 | PV ₁₅₉ | 17.0 | X | 187.63911 | 276.16409 | 334.39327 | 7.34629 | 0.0637696 | 0.29635865 | 2.2804668 | 20 | — | — |
| 188191 | 2002 | QF ₁₆ | 16.8 | X | 269.34766 | 326.17445 | 270.68691 | 4.13893 | 0.1279830 | 0.30638863 | 2.1791525 | 20 | — | — |
| 188192 | 2002 | QE ₁₇ | 16.9 | X | 56.40723 | 212.86320 | 187.57623 | 4.55795 | 0.1462861 | 0.29352596 | 2.2423585 | 20 | — | — |
| 188193 | 2002 | QJ ₅₁ | 17.6 | X | 250.07196 | 140.72276 | 142.72365 | 3.22699 | 0.1969066 | 0.31059288 | 2.1594429 | 20 | 1 25.3 | 20.8 |
| 188194 | 2002 | RJ ₁₅ | 16.4 | X | 55.18980 | 225.19745 | 173.79887 | 6.03818 | 0.1572553 | 0.29220386 | 2.2491172 | 20 | — | — |
| 188195 | 2002 | RP ₂₁ | 17.1 | X | 115.22890 | 205.58691 | 146.74569 | 3.83219 | 0.1573423 | 0.29609827 | 2.2293528 | 20 | — | — |
| 188196 | 2002 | RU ₃₅ | 16.7 | X | 85.44104 | 152.70474 | 219.51034 | 4.59716 | 0.1988094 | 0.29414719 | 2.2392001 | 20 | — | — |
| 188197 | 2002 | RA ₅₄ | 17.5 | X | 145.54253 | 229.83663 | 131.54060 | 5.44012 | 0.1592680 | 0.30180515 | 2.2011600 | 20 | 1 25.7 | 20.3 |
| 188198 | 2002 | RX ₅₉ | 16.3 | X | 77.38362 | 144.28990 | 219.51632 | 4.30727 | 0.2033781 | 0.29142977 | 2.2530981 | 20 | — | — |
| 188199 | 2002 | RD ₉₀ | 17.6 | X | 284.95091 | 140.37725 | 170.93989 | 1.95646 | 0.1258262 | 0.31711723 | 2.1297216 | 20 | 4 18.9 | 20.0 |
| 188200 | 2002 | RA ₁₁₃ | 16.4 | X | 62.01800 | 306.28371 | 61.38400 | 5.29811 | 0.2379177 | 0.28584803 | 2.2823342 | 20 | — | — |
| 188201 | 2002 | RG ₁₄₄ | 17.2 | X | 241.16617 | 17.08593 | 234.63866 | 3.97002 | 0.1798715 | 0.30261020 | 2.1972544 | 20 | — | — |
| 188202 | 2002 | RO ₁₆₈ | 17.5 | X | 351.00588 | 210.75393 | 205.33518 | 1.37575 | 0.1598174 | 0.28409315 | 2.2917235 | 20 | — | — |
| 188203 | 2002 | RD ₂₁₃ | 16.5 | X | 176.55040 | 172.78861 | 96.31253 | 6.70210 | 0.1646574 | 0.29528962 | 2.2334210 | 20 | — | — |
| 188204 | 2002 | RO ₂₂₈ | 17.0 | X | 359.29596 | 301.05771 | 117.00568 | 9.19998 | 0.1677387 | 0.28649189 | 2.2789134 | 20 | — | — |
| 188205 | 2002 | RE ₂₃₈ | 17.2 | X | 359.23002 | 255.07941 | 145.04564 | 6.43578 | 0.0870825 | 0.28520259 | 2.2857764 | 20 | — | — |
| 188206 | 2002 | RR ₂₄₂ | 17.4 | X | 256.46751 | 23.54146 | 243.47408 | 2.49802 | 0.1743822 | 0.30878016 | 2.1678861 | 20 | 1 11.7 | 20.8 |
| 188207 | 2002 | SP ₁₀ | 16.4 | X | 316.60781 | 12.42788 | 33.45578 | 5.99710 | 0.1590065 | 0.27617021 | 2.3353474 | 20 | 11 9.8 | 18.1 |
| 188208 | 2002 | SM ₂₄ | 17.5 | X | 230.45540 | 141.82832 | 161.82078 | 3.41616 | 0.2201824 | 0.30781572 | 2.1724120 | 20 | 2 1.9 | 20.9 |
| 188209 | 2002 | SO ₂₈ | 17.1 | X | 221.09118 | 11.52601 | 85.83400 | 2.43239 | 0.1425077 | 0.26877628 | 2.3779830 | 20 | 8 20.7 | 20.3 |
| 188210 | 2002 | SP ₅₂ | 16.0 | X | 278.76392 | 339.83746 | 75.57380 | 8.10972 | 0.1959612 | 0.27145666 | 2.3623036 | 20 | 9 5.5 | 18.6 |
| 188211 | 2002 | SM ₅₇ | 16.9 | X | 98.38265 | 278.52098 | 92.73116 | 4.43486 | 0.1726764 | 0.29480112 | 2.2358876 | 20 | — | — |
| 188212 | 2002 | TL ₁₀ | 17.1 | X | 170.43459 | 114.30034 | 214.53265 | 4.37265 | 0.1999642 | 0.29928301 | 2.2135092 | 20 | 1 13.3 | 20.4 |
| 188213 | 2002 | TD ₁₈ | 17.2 | X | 209.76116 | 81.36452 | 187.90928 | 4.60282 | 0.1377211 | 0.29851630 | 2.2172977 | 20 | — | — |
| 188214 | 2002 | TO ₂₀ | 16.8 | X | 209.57473 | 72.94392 | 193.60609 | 6.66639 | 0.1330874 | 0.29740646 | 2.2228106 | 20 | — | — |
| 188215 | 2002 | TY ₂₂ | 17.3 | X | 334.57626 | 199.92790 | 193.80835 | 1.56976 | 0.1908868 | 0.27706868 | 2.3302960 | 20 | 12 4.8 | 19.1 |
| 188216 | 2002 | TS ₃₇ | 17.0 | X | 3.34930 | 209.51048 | 169.67725 | 4.65415 | 0.1821752 | 0.27930535 | 2.3178387 | 20 | — | — |
| 188217 | 2002 | TM ₄₀ | 16.7 | X | 41.44866 | 214.50184 | 167.80501 | 5.68308 | 0.1720689 | 0.28511534 | 2.2862427 | 20 | — | — |
| 188218 | 2002 | TK ₄₆ | 17.1 | X | 166.20596 | 134.48701 | 200.67666 | 5.83445 | 0.1847807 | 0.29907420 | 2.2145394 | 20 | 1 15.6 | 20.4 |
| 188219 | 2002 | TK ₅₁ | 16.2 | X | 314.51489 | 340.89330 | 37.90272 | 5.50939 | 0.1579304 | 0.26966089 | 2.3727796 | 20 | 9 23.4 | 18.1 |
| 188220 | 2002 | TP ₈₆ | 17.5 | X | 205.75318 | 123.40554 | 168.96519 | 1.63021 | 0.2311770 | 0.30251020 | 2.1977386 | 20 | — | — |
| 188221 | 2002 | TQ ₁₀₅ | 16.7 | X | 89.24316 | 231.04716 | 217.12407 | 5.52451 | 0.2148178 | 0.24508794 | 2.5288404 | 20 | 3 25.1 | 19.8 |
| 188222 | 2002 | TC ₁₀₇ | 16.8 | X | 38.99142 | 332.75721 | 37.85819 | 3.22613 | 0.1763235 | 0.28304365 | 2.2973849 | 20 | — | — |
| 188223 | 2002 | TC ₁₄₃ | 16.3 | X | 287.07962 | 291.87363 | 124.97205 | 6.27771 | 0.1546743 | 0.27241802 | 2.3567426 | 20 | 9 28.7 | 18.6 |
| 188224 | 2002 | TC ₁₄₄ | 16.6 | X | 167.80274 | 204.28981 | 135.39042 | 5.43399 | 0.2209132 | 0.30013985 | 2.2092945 | 20 | 1 26.7 | 19.9 |
| 188225 | 2002 | TY ₁₈₄ | 17.3 | X | 184.72076 | 84.42124 | 234.07482 | 3.44233 | 0.1892998 | 0.30239595 | 2.1982921 | 20 | 1 12.6 | 20.5 |
| 188226 | 2002 | TK ₂₁₅ | 16.3 | X | 258.46215 | 337.89711 | 101.83757 | 7.91788 | 0.0596867 | 0.27157232 | 2.3616328 | 20 | 10 1.6 | 19.2 |
| 188227 | 2002 | TR ₂₃₈ | 16.6 | X | 38.36656 | 136.87880 | 229.25101 | 5.62489 | 0.2001560 | 0.28194057 | 2.3033734 | 20 | — | — |
| 188228 | 2002 | TH ₂₆₇ | 16.5 | X | 230.29239 | 86.32517 | 234.03535 | 6.83552 | 0.2883312 | 0.30870657 | 2.1682306 | 20 | 2 18.1 | 20.5 |
| 188229 | 2002 | TP ₂₈₂ | 16.6 | X | 121.42368 | 107.98530 | 246.21430 | 6.46174 | 0.2224616 | 0.29468659 | 2.2364669 | 20 | — | — |
| 188230 | 2002 | TO ₃₀₀ | 16.7 | X | 239.99597 | 276.72237 | 148.21758 | 6.14924 | 0.0984655 | 0.26304516 | 2.4123992 | 20 | 8 2.8</ | |

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

| Planet | <i>H</i> | <i>G</i> | <i>M</i> | ω | Ω | <i>i</i> | <i>e</i> | μ | <i>a</i> | TE | Oppos. | <i>V</i> |
|-------------------------------|----------|----------|-----------|-----------|-----------|----------|-----------|------------|-----------|----|---------|----------|
| 188241 2002 VJ ₆₆ | 17.0 | X | 105.97209 | 291.77441 | 52.41595 | 1.66366 | 0.1225044 | 0.28990001 | 2.2610174 | 20 | — | — |
| 188242 2002 VS ₇₂ | 16.7 | X | 105.35209 | 255.83576 | 82.66270 | 7.63402 | 0.1491054 | 0.28858741 | 2.2678681 | 20 | — | — |
| 188243 2002 VH ₇₇ | 17.1 | X | 354.98992 | 237.68822 | 188.87806 | 3.39983 | 0.2487116 | 0.22518949 | 2.6756993 | 20 | — | — |
| 188244 2002 VF ₇₈ | 16.2 | X | 315.58588 | 256.98102 | 87.93158 | 6.63308 | 0.1443789 | 0.26503974 | 2.4002808 | 20 | 7 31.6 | 18.4 |
| 188245 2002 VW ₁₁₂ | 17.0 | X | 182.41201 | 334.95593 | 99.57114 | 0.71428 | 0.1669657 | 0.25526210 | 2.4611901 | 20 | 6 8.5 | 21.0 |
| 188246 2002 WE ₁₅ | 16.8 | X | 319.80433 | 280.78283 | 122.54810 | 5.30471 | 0.1509425 | 0.27275463 | 2.3548033 | 20 | 11 14.5 | 18.8 |
| 188247 2002 WS ₂₃ | 13.0 | X | 276.20198 | 234.79587 | 71.25866 | 6.84513 | 0.0551448 | 0.08251526 | 5.2253238 | 20 | 4 24.7 | 19.9 |
| 188248 2002 XC ₂₈ | 15.6 | X | 26.06915 | 219.98236 | 288.49567 | 12.09977 | 0.1817115 | 0.23902625 | 2.5714159 | 20 | 2 15.8 | 18.1 |
| 188249 2002 XU ₅₃ | 16.3 | X | 303.93364 | 125.61249 | 225.20317 | 4.76545 | 0.0759571 | 0.26182519 | 2.4198871 | 20 | 7 24.4 | 19.1 |
| 188250 2002 XA ₆₈ | 16.5 | X | 221.17458 | 251.24411 | 179.78076 | 6.45797 | 0.1370382 | 0.25918252 | 2.4363083 | 20 | 7 13.8 | 20.1 |
| 188251 2002 XK ₇₀ | 16.2 | X | 51.97189 | 64.22977 | 46.20567 | 2.71403 | 0.1677813 | 0.23711079 | 2.5852458 | 20 | 2 19.9 | 18.8 |
| 188252 2002 XP ₇₂ | 16.2 | X | 356.65681 | 82.46381 | 63.05047 | 5.98417 | 0.1806697 | 0.23238946 | 2.6201436 | 20 | — | — |
| 188253 2002 XM ₇₃ | 16.3 | X | 15.27548 | 149.90112 | 296.83062 | 6.05981 | 0.0529698 | 0.28578598 | 2.2826646 | 20 | — | — |
| 188254 2002 XN ₇₆ | 16.3 | X | 329.87895 | 315.81624 | 60.10848 | 7.12591 | 0.1671059 | 0.26861234 | 2.3789505 | 20 | 10 23.4 | 18.2 |
| 188255 2002 XX ₉₀ | 15.2 | X | 307.63102 | 280.52173 | 278.01602 | 12.16026 | 0.1167705 | 0.22831098 | 2.6512551 | 20 | — | — |
| 188256 Stothoff | 16.2 | X | 359.60542 | 285.13640 | 69.68023 | 7.83057 | 0.1283240 | 0.26914347 | 2.3758197 | 20 | 11 13.9 | 18.6 |
| 188257 2002 XM ₁₁₇ | 13.0 | X | 342.58701 | 176.48159 | 73.25048 | 15.62376 | 0.0357341 | 0.08321454 | 5.1960090 | 20 | 5 12.4 | 19.7 |
| 188258 2002 YN ₅ | 15.9 | X | 312.83496 | 278.83823 | 221.33847 | 23.01159 | 0.3428893 | 0.22023619 | 2.7156695 | 20 | — | — |
| 188259 2002 YR ₁₀ | 16.3 | X | 32.35261 | 312.44040 | 95.22887 | 7.71499 | 0.0658858 | 0.22341285 | 2.6898658 | 20 | — | — |
| 188260 2002 YU ₁₂ | 16.6 | X | 159.31186 | 263.88273 | 109.94903 | 3.69883 | 0.1656963 | 0.29812220 | 2.2192514 | 20 | 2 27.0 | 19.8 |
| 188261 2002 YP ₂₁ | 17.0 | X | 181.62993 | 240.10214 | 200.24612 | 2.08974 | 0.1586141 | 0.25365879 | 2.4715502 | 20 | 6 15.4 | 20.9 |
| 188262 2002 YX ₂₈ | 16.2 | X | 122.97361 | 38.71570 | 71.79391 | 1.93986 | 0.0859044 | 0.24624224 | 2.5209313 | 20 | 5 19.7 | 19.7 |
| 188263 2002 YT ₃₀ | 16.2 | X | 88.69499 | 72.16059 | 43.39978 | 1.89959 | 0.0347386 | 0.24222920 | 2.5486980 | 20 | 4 4.4 | 19.3 |
| 188264 2003 AF | 16.0 | X | 92.47457 | 312.52914 | 168.60964 | 4.76729 | 0.2004090 | 0.24463935 | 2.5319309 | 20 | 5 13.5 | 19.4 |
| 188265 2003 AL ₁₉ | 16.1 | X | 194.02619 | 334.31300 | 109.90227 | 11.54129 | 0.1828089 | 0.25547403 | 2.4598288 | 20 | 7 1.5 | 19.9 |
| 188266 2003 AB ₂₁ | 16.3 | X | 21.72633 | 272.66450 | 84.93716 | 6.97148 | 0.1824727 | 0.27287727 | 2.3540977 | 20 | 12 29.9 | 19.1 |
| 188267 2003 AQ ₂₆ | 16.5 | X | 314.08056 | 263.79256 | 120.97997 | 7.61456 | 0.1126781 | 0.26483126 | 2.4015403 | 20 | 10 5.3 | 18.9 |
| 188268 2003 AV ₂₆ | 16.3 | X | 317.36867 | 262.89533 | 122.39103 | 6.83801 | 0.1418446 | 0.26575804 | 2.3959538 | 20 | 10 11.4 | 18.5 |
| 188269 2003 AN ₃₃ | 15.6 | X | 268.46004 | 279.78471 | 309.73301 | 10.38676 | 0.1565081 | 0.22690773 | 2.6621745 | 20 | — | — |
| 188270 2003 AD ₃₄ | 16.3 | X | 130.02797 | 315.14911 | 136.58113 | 14.71082 | 0.1449248 | 0.24213043 | 2.5493911 | 20 | 5 14.4 | 20.4 |
| 188271 2003 AX ₄₀ | 16.6 | X | 16.94676 | 339.81243 | 167.90264 | 6.09926 | 0.1406640 | 0.23229969 | 2.6208186 | 20 | 2 2.3 | 19.2 |
| 188272 2003 AO ₄₂ | 15.8 | X | 22.61061 | 237.07383 | 280.83898 | 5.30070 | 0.3871873 | 0.23225088 | 2.6211858 | 20 | 2 27.7 | 16.5 |
| 188273 2003 AK ₄₃ | 16.4 | X | 243.62803 | 345.68733 | 64.23559 | 7.68758 | 0.0948284 | 0.25806153 | 2.4433586 | 20 | 7 19.6 | 19.8 |
| 188274 2003 AS ₄₈ | 15.9 | X | 84.41764 | 352.30845 | 91.95541 | 14.79525 | 0.1257343 | 0.23691740 | 2.5866524 | 20 | 3 8.6 | 19.4 |
| 188275 2003 AL ₄₉ | 16.4 | X | 183.38550 | 353.44849 | 93.64287 | 8.32338 | 0.1270641 | 0.25269104 | 2.4778565 | 20 | 6 26.4 | 20.2 |
| 188276 2003 AS ₅₂ | 16.2 | X | 141.96564 | 338.30402 | 50.41027 | 5.09168 | 0.2754108 | 0.24050756 | 2.5608466 | 20 | 3 16.3 | 20.4 |
| 188277 2003 AK ₅₆ | 16.1 | X | 111.74211 | 12.18179 | 97.75500 | 13.82481 | 0.0706025 | 0.24405966 | 2.5359385 | 20 | 5 8.2 | 19.7 |
| 188278 2003 AO ₇₄ | 16.4 | X | 100.09206 | 55.72784 | 52.59185 | 11.51353 | 0.0888092 | 0.24266245 | 2.5456635 | 20 | 4 20.9 | 19.8 |
| 188279 2003 AX ₇₈ | 16.0 | X | 304.95761 | 336.34102 | 287.24624 | 7.58270 | 0.2086320 | 0.23704207 | 2.5857454 | 20 | 2 29.4 | 19.6 |
| 188280 2003 AF ₈₀ | 15.4 | X | 17.52248 | 12.62610 | 120.29637 | 14.03602 | 0.1152370 | 0.22700084 | 2.6614465 | 20 | 1 17.3 | 18.3 |
| 188281 2003 AL ₈₇ | 16.2 | X | 106.51807 | 323.70585 | 143.80013 | 8.68778 | 0.1097615 | 0.24346918 | 2.5400371 | 20 | 5 1.7 | 19.8 |
| 188282 2003 AL ₉₄ | 15.2 | X | 296.28026 | 133.50441 | 65.93337 | 14.78480 | 0.1088088 | 0.22520953 | 2.6755406 | 20 | — | — |
| 188283 2003 BO ₂ | 16.5 | X | 289.04817 | 91.93170 | 144.58823 | 4.26154 | 0.1275796 | 0.22894505 | 2.6463577 | 20 | 1 22.7 | 20.1 |
| 188284 2003 BP ₂₉ | 16.4 | X | 74.63237 | 7.11502 | 227.62166 | 1.63913 | 0.1094868 | 0.25454770 | 2.4657929 | 20 | 9 8.9 | 19.5 |
| 188285 2003 BQ ₃₈ | 16.9 | X | 149.08003 | 284.69860 | 147.01423 | 4.61183 | 0.1058435 | 0.24406925 | 2.5358721 | 20 | 5 2.1 | 20.6 |
| 188286 2003 BQ ₃₉ | 16.0 | X | 140.72532 | 268.91803 | 144.46684 | 9.71564 | 0.0279667 | 0.23904340 | 2.5712929 | 20 | 3 27.9 | 19.5 |
| 188287 2003 BU ₄₉ | 16.1 | X | 83.17020 | 353.60220 | 109.11850 | 5.92361 | 0.2683955 | 0.23816338 | 2.5776229 | 20 | 4 19.1 | 19.5 |
| 188288 2003 BP ₅₈ | 16.3 | X | 28.56082 | 19.78030 | 125.91873 | 4.54526 | 0.1052830 | 0.23332613 | 2.6131267 | 20 | 2 22.9 | 19.0 |
| 188289 2003 BM ₆₅ | 16.5 | X | 72.91404 | 306.47460 | 151.86363 | 2.79114 | 0.1753226 | 0.23479319 | 2.6022302 | 20 | 3 11.4 | 19.5 |
| 188290 2003 BW ₆₅ | 16.3 | X | 73.35488 | 306.43050 | 145.79581 | 5.96920 | 0.0631353 | 0.23374713 | 2.6099881 | 20 | 2 16.4 | 19.5 |
| 188291 2003 BV ₆₇ | 16.4 | X | 265.81569 | 302.11774 | 96.69914 | 2.99612 | 0.1959377 | 0.25767698 | 2.4457889 | 20 | 7 16.8 | 19.5 |
| 188292 2003 BP ₇₁ | 15.7 | X | 31.11204 | 8.21559 | 154.91927 | 14.32505 | 0.0909144 | 0.23615868 | 2.5921897 | 20 | 3 23.6 | 18.7 |
| 188293 2003 BJ ₇₆ | 16.0 | X | 268.23269 | 180.46793 | 49.98225 | 10.99636 | 0.1418359 | 0.22535855 | 2.6743610 | 20 | — | — |
| 188294 2003 BJ ₉₂ | 15.6 | X | 356.32133 | 91.15194 | 105.25906 | 16.50075 | 0.0364873 | 0.23481495 | 2.6020694 | 20 | 3 21.0 | 19.2 |
| 188295 2003 CE ₃ | 16.2 | X | 355.32710 | 3.50964 | 162.57149 | 5.42398 | 0.1436553 | 0.23048944 | 2.6345232 | 20 | 1 20.3 | 19.2 |
| 188296 2003 CK ₄ | 16.0 | X | 99.71800 | 30.66280 | 85.20410 | 4.30457 | 0.1473378 | 0.24325461 | 2.5415306 | 20 | 5 7.5 | 19.4 |
| 188297 2003 CR ₁₈ | 16.4 | X | 317.37135 | 2.50931 | 151.70217 | 10.43188 | 0.0854739 | 0.22066789 | 2.7121266 | 20 | — | — |
| 188298 2003 EK ₉ | 16.0 | X | 337.47861 | 315.85387 | 182.13692 | 10.99336 | 0.1473855 | 0.22221725 | 2.6995054 | 20 | — | — |
| 188299 2003 ED ₂₂ | 15.8 | X | 355.00561 | 299.20155 | 179.16614 | 7.77849 | 0.3279021 | 0.22396323 | 2.6854572 | 20 | — | — |
| 188300 2003 EU ₂₅ | 16.3 | X | 254.37516 | 117.57516 | 70.53037 | 3.10746 | 0.1540051 | 0.21388362 | 2.7691790 | 20 | — | — |
| 188301 2003 EV ₃₁ | 15.6 | X | 203.43288 | 258.52614 | 312.36935 | 8.73652 | 0.1144533 | 0.21139298 | 2.7908876 | 20 | 12 17.4 | 19.7 |
| 188302 2003 EP ₃₄ | 15.8 | X | 66.56745 | 278.82785 | 176.64146 | 15.07264 | 0.0700891 | 0.22962270 | 2.6411486 | 20 | 2 9.8 | 19.3 |
| 188303 2003 EJ ₄₅ | 15.4 | X | 319.82565 | 288.85131 | 339.87418 | 14.98389 | 0.0641224 | 0.23634409 | 2.5908338 | 20 | 4 16.2 | 18.9 |
| 188304 2003 ET ₅₀ | 16.7 | X | 246.36471 | 74.67061 | 155.94029 | 5.43008 | 0.0524480 | 0.22000952 | 2.7175345 | 20 | — | — |
| 188305 2003 EU ₅₁ | 16.1 | X | 126.74220 | 233.63094 | 208.39154 | 12.24900 | 0.1489414 | 0.24084598 | 2.5584472 | 20 | 4 23.8 | 19.7 |
| 188306 2003 EL ₆₂ | 15.8 | X | 206.32333 | 115.85214 | 167.19430 | 11.17353 | 0.1158617 | 0.22032815 | 2.7149139 | 20 | — | — |
| 188307 2003 ER ₆₂ | 16.7 | X | 270.91141 | 103.73063 | 95.93432 | 9.06672 | 0.1736714 | 0.21370345 | 2.7707352 | 20 | — | — |
| 188308 2003 FF ₉ | 15.7 | X | 340.76898 | 59.23333 | 98.39399 | 15.26989 | 0.0286848 | 0.22489095 | 2.6780667 | 20 | 1 3.5 | 19.0 |
| 188309 2003 FX ₉ | 15.8 | X | 221.07254 | 105.39509 | 175.58766 | 11.20258 | 0.2348487 | 0.21824010 | 2.7322033 | 20 | 1 7.3 | 20.8 |
| 188310 2003 FJ ₁₁ | 16.6 | X | 235.62353 | 16.69619 | 109.94998 | 2.36806 | 0.1001904 | 0.21705110 | 2.7421722 | 20 | — | — |
| 188311 2003 FK ₁₉ | 16.1 | X | 264.39289 | 57.37786 | 156.58602 | 12.99349 | 0.0957819 | 0.22008631 | 2.7169023 | 20 | — | — |
| 188312 2003 FB ₃₃ | 16.8 | X | 284.61596 | 118.42738 | 55.45562 | 2.79285 | 0.0667032 | 0.21582308 | 2.7526442 | 20 | — | — |
| 188313 2003 FM ₃₆ | 15.2 | X | 15.49332 | 278.31248 | 7.06291 | 11.67549 | 0.0430547 | 0.18943208 | 3.0026199 | 20 | 8 13.8 | 19.3 |
| 188314 2003 FA ₆₂ | 15.8 | X | 122.39534 | 85.52669 | 19.70321 | 14.61522 | 0.2142856 | 0.18252575 | 3.077891 | | | |

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

| Planet | <i>H</i> | <i>G</i> | <i>M</i> | ω | Ω | <i>i</i> | <i>e</i> | μ | <i>a</i> | TE | Oppos. | <i>V</i> |
|--------------------------------------|----------|----------|-----------|-----------|-----------|----------|-----------|------------|-----------|----|---------|----------|
| 188321 2003 <i>HM</i> ₇ | 15.8 | X | 247.75547 | 257.54514 | 40.61778 | 11.69600 | 0.1810213 | 0.22257012 | 2.6966514 | 20 | 2 26.1 | 20.3 |
| 188322 2003 <i>HT</i> ₁₃ | 17.1 | X | 345.48255 | 244.72474 | 209.29870 | 19.93438 | 0.0844182 | 0.38323011 | 1.8771384 | 20 | — | — |
| 188323 2003 <i>HT</i> ₂₅ | 15.3 | X | 202.22905 | 94.22838 | 208.78655 | 11.10811 | 0.1431532 | 0.21762173 | 2.7373766 | 20 | 1 16.3 | 19.9 |
| 188324 2003 <i>JD</i> ₁₆ | 14.7 | X | 203.14582 | 215.27490 | 94.83445 | 35.95669 | 0.1836970 | 0.21531838 | 2.7568639 | 20 | 1 28.2 | 19.7 |
| 188325 2003 <i>KW</i> ₁₃ | 15.6 | X | 216.04723 | 66.98557 | 212.07389 | 15.37734 | 0.1665200 | 0.21147857 | 2.7901345 | 20 | 1 1.6 | 20.5 |
| 188326 2003 <i>NY</i> ₁ | 15.1 | X | 45.89866 | 184.36308 | 108.18569 | 18.00008 | 0.2256695 | 0.18199227 | 3.0839033 | 20 | 11 1.6 | 19.7 |
| 188327 2003 <i>NG</i> ₃ | 14.9 | X | 324.16997 | 169.94384 | 189.58765 | 17.53614 | 0.2118472 | 0.17456229 | 3.1708018 | 20 | 8 14.3 | 18.6 |
| 188328 2003 <i>NV</i> ₈ | 14.1 | X | 16.30521 | 86.74915 | 276.44121 | 20.27406 | 0.2178295 | 0.17813969 | 3.1282078 | 20 | 12 17.0 | 17.9 |
| 188329 2003 <i>OO</i> ₃ | 15.1 | X | 14.38730 | 82.95823 | 224.26367 | 7.75801 | 0.2181316 | 0.17652228 | 3.1472871 | 20 | 9 19.7 | 18.7 |
| 188330 2003 <i>OU</i> ₈ | 13.8 | X | 358.04133 | 83.08647 | 266.59018 | 14.09365 | 0.1794573 | 0.17304495 | 3.1893103 | 20 | 10 7.3 | 17.8 |
| 188331 2003 <i>OZ</i> ₃₂ | 15.4 | X | 41.93791 | 136.88460 | 138.83888 | 15.16134 | 0.2303761 | 0.17833822 | 3.1258857 | 20 | 10 2.9 | 19.7 |
| 188332 2003 <i>QD</i> ₃ | 16.0 | X | 18.39691 | 125.05665 | 182.48231 | 4.01998 | 0.2551292 | 0.17671486 | 3.1450002 | 20 | 10 6.4 | 19.5 |
| 188333 2003 <i>QF</i> ₁₀ | 16.8 | X | 153.28771 | 153.25138 | 136.88003 | 24.12572 | 0.0519402 | 0.37190102 | 1.9150692 | 20 | — | — |
| 188334 2003 <i>QU</i> ₃₀ | 16.7 | X | 176.33497 | 83.31375 | 166.40447 | 22.69948 | 0.0543140 | 0.36794618 | 1.9287674 | 20 | — | — |
| 188335 2003 <i>QD</i> ₄₈ | 14.7 | X | 322.07023 | 128.28111 | 262.10924 | 7.89152 | 0.0341339 | 0.17755609 | 3.1350587 | 20 | 10 3.8 | 19.1 |
| 188336 2003 <i>QB</i> ₅₈ | 17.1 | X | 196.04686 | 234.41224 | 95.35428 | 1.93811 | 0.1897191 | 0.26636037 | 2.3923404 | 20 | 2 10.5 | 21.1 |
| 188337 2003 <i>QD</i> ₆₆ | 15.0 | X | 26.96193 | 64.88972 | 256.00344 | 8.97608 | 0.0130557 | 0.17774348 | 3.1328548 | 20 | 9 30.5 | 19.5 |
| 188338 2003 <i>QW</i> ₁₁₂ | 17.1 | X | 152.31018 | 33.96474 | 229.26833 | 19.93095 | 0.0457039 | 0.36688907 | 1.9324705 | 20 | — | — |
| 188339 2003 <i>RQ</i> ₈ | 16.9 | X | 56.98987 | 92.85087 | 210.37332 | 25.92192 | 0.2145134 | 0.35652905 | 1.9697273 | 20 | 12 17.7 | 20.3 |
| 188340 2003 <i>SL</i> ₃₂ | 14.6 | X | 23.96275 | 302.01960 | 23.93271 | 16.60731 | 0.2239972 | 0.17671777 | 3.1449656 | 20 | 10 31.6 | 18.5 |
| 188341 2003 <i>SJ</i> ₆₁ | 14.5 | X | 6.88990 | 293.29778 | 106.69701 | 4.00877 | 0.2436806 | 0.12431417 | 3.9760846 | 20 | 12 24.0 | 19.1 |
| 188342 2003 <i>SV</i> ₈₃ | 14.5 | X | 0.94156 | 281.93300 | 145.44454 | 4.37206 | 0.2148806 | 0.12436723 | 3.9749538 | 20 | — | — |
| 188343 2003 <i>SQ</i> ₁₁₇ | 14.9 | X | 84.64948 | 293.76150 | 344.12100 | 14.55816 | 0.322268 | 0.18192789 | 3.0846308 | 20 | 11 19.4 | 20.4 |
| 188344 2003 <i>SA</i> ₁₂₃ | 15.3 | X | 63.72832 | 172.78853 | 116.99189 | 3.01759 | 0.0853397 | 0.17774396 | 3.1328491 | 20 | 10 23.5 | 19.7 |
| 188345 2003 <i>SF</i> ₂₀₈ | 15.1 | X | 100.52428 | 343.34906 | 288.13497 | 8.29309 | 0.0719620 | 0.18335152 | 3.0686431 | 20 | 11 7.7 | 19.7 |
| 188346 2003 <i>SC</i> ₃₀₂ | 14.6 | X | 63.52016 | 234.23837 | 8.37702 | 21.16697 | 0.2518603 | 0.17326201 | 3.1866460 | 20 | 9 20.0 | 19.2 |
| 188347 2003 <i>SN</i> ₃₁₀ | 15.1 | X | 309.10701 | 248.62111 | 129.40213 | 5.26514 | 0.1310718 | 0.16941979 | 3.2346450 | 20 | 8 25.3 | 19.1 |
| 188348 2003 <i>SQ</i> ₃₁₉ | 14.3 | X | 25.06111 | 294.47915 | 107.73608 | 9.16465 | 0.1323301 | 0.12396738 | 3.9834964 | 20 | — | — |
| 188349 2003 <i>TS</i> ₉ | 16.1 | X | 76.39253 | 155.51190 | 240.30528 | 68.98150 | 0.2705999 | 0.36785252 | 1.9290948 | 20 | — | — |
| 188350 2003 <i>UA</i> ₅ | 16.6 | X | 194.20942 | 269.38608 | 67.29856 | 23.41240 | 0.1059768 | 0.38020012 | 1.8870984 | 20 | 2 8.2 | 19.5 |
| 188351 2003 <i>WW</i> ₁ | 14.3 | X | 71.21104 | 273.06392 | 100.17374 | 10.00722 | 0.2032631 | 0.12594847 | 3.9416143 | 20 | — | — |
| 188352 2003 <i>XT</i> ₁₀ | 14.2 | X | 37.13828 | 112.76924 | 269.01276 | 15.86985 | 0.3595059 | 0.18278122 | 3.0750228 | 20 | — | — |
| 188353 2003 <i>XN</i> ₂₃ | 17.5 | X | 12.10932 | 61.07198 | 74.21578 | 3.21071 | 0.0951443 | 0.31041722 | 2.1602575 | 20 | — | — |
| 188354 2003 <i>YJ</i> ₁₆ | 16.2 | X | 90.73668 | 322.51135 | 62.75390 | 6.41056 | 0.1326715 | 0.30313165 | 2.1947339 | 20 | — | — |
| 188355 2003 <i>YC</i> ₄₃ | 17.6 | X | 172.67177 | 349.02800 | 159.32235 | 1.19707 | 0.1323615 | 0.27406579 | 2.3472868 | 20 | 9 5.9 | 21.1 |
| 188356 2003 <i>YC</i> ₅₀ | 17.3 | X | 236.32622 | 62.06331 | 50.08753 | 1.01500 | 0.1650770 | 0.28230558 | 2.3013874 | 20 | 9 26.6 | 20.3 |
| 188357 2003 <i>YL</i> ₇₃ | 16.9 | X | 187.61912 | 61.22698 | 38.43395 | 2.18899 | 0.1388612 | 0.27161865 | 2.3613643 | 20 | 7 18.4 | 20.5 |
| 188358 2003 <i>YQ</i> ₁₀₃ | 16.1 | X | 6.00082 | 132.79672 | 14.45383 | 4.01735 | 0.1671169 | 0.24566271 | 2.5248944 | 20 | 1 8.2 | 18.6 |
| 188359 2003 <i>YC</i> ₁₃₈ | 16.8 | X | 257.54873 | 68.91664 | 107.79269 | 7.59007 | 0.0287284 | 0.29243687 | 2.2479223 | 20 | — | — |
| 188360 2003 <i>YA</i> ₁₇₅ | 17.0 | X | 195.87907 | 148.33103 | 91.32495 | 5.89580 | 0.1347985 | 0.29177308 | 2.2513304 | 20 | — | — |
| 188361 2004 <i>AN</i> ₂ | 16.9 | X | 85.00333 | 257.47239 | 120.59613 | 5.13303 | 0.1076473 | 0.30077724 | 2.2061722 | 20 | — | — |
| 188362 2004 <i>AT</i> ₁₈ | 17.9 | X | 309.07950 | 289.97820 | 215.83164 | 1.55620 | 0.1032857 | 0.29651384 | 2.2272693 | 20 | — | — |
| 188363 2004 <i>BJ</i> ₆ | 17.3 | X | 241.55924 | 347.85981 | 144.91582 | 3.33968 | 0.1167533 | 0.28300828 | 2.2975764 | 20 | 11 10.6 | 19.9 |
| 188364 2004 <i>BH</i> ₂₃ | 16.9 | X | 64.70698 | 236.41317 | 201.64143 | 3.07075 | 0.0828811 | 0.30571661 | 2.1823448 | 20 | — | — |
| 188365 2004 <i>BF</i> ₃₁ | 17.1 | X | 162.26756 | 87.93426 | 106.96813 | 5.03062 | 0.1923868 | 0.27516279 | 2.3410440 | 20 | 10 25.9 | 20.9 |
| 188366 2004 <i>BJ</i> ₄₄ | 16.6 | X | 174.27233 | 38.01877 | 139.35028 | 6.94584 | 0.0523645 | 0.27494832 | 2.3422613 | 20 | 10 24.1 | 19.8 |
| 188367 2004 <i>BC</i> ₇₁ | 16.2 | X | 188.96870 | 274.25033 | 94.96566 | 3.38338 | 0.1712280 | 0.31505251 | 2.1390162 | 20 | 3 21.6 | 19.5 |
| 188368 2004 <i>BS</i> ₇₈ | 17.0 | X | 150.59312 | 294.35498 | 82.47001 | 1.91476 | 0.1130438 | 0.31084224 | 2.1582748 | 20 | 2 15.4 | 19.6 |
| 188369 2004 <i>BX</i> ₈₉ | 16.9 | X | 42.13859 | 174.47956 | 247.42851 | 4.20110 | 0.1067433 | 0.29892535 | 2.2152745 | 20 | — | — |
| 188370 2004 <i>BJ</i> ₁₀₀ | 17.2 | X | 105.00333 | 325.61529 | 211.60120 | 2.35104 | 0.1791729 | 0.26427609 | 2.4049025 | 20 | 8 6.9 | 20.8 |
| 188371 2004 <i>BK</i> ₁₀₁ | 17.5 | X | 233.72492 | 73.78441 | 131.90681 | 2.45984 | 0.0951424 | 0.29178360 | 2.2512763 | 20 | — | — |
| 188372 2004 <i>BQ</i> ₁₀₃ | 15.8 | X | 298.42390 | 353.33085 | 83.61104 | 25.51614 | 0.2136851 | 0.28452458 | 2.2894062 | 20 | 11 26.4 | 17.6 |
| 188373 2004 <i>BZ</i> ₁₃₂ | 13.1 | X | 277.02500 | 189.40956 | 133.45001 | 13.97546 | 0.0698958 | 0.07991176 | 5.3382093 | 20 | 5 15.0 | 20.2 |
| 188374 2004 <i>CW</i> ₃ | 17.6 | X | 148.43379 | 131.44272 | 11.57085 | 1.12355 | 0.1514819 | 0.26745551 | 2.3858054 | 20 | 8 5.2 | 21.3 |
| 188375 2004 <i>CT</i> ₆ | 17.5 | X | 218.27043 | 323.93736 | 175.72853 | 2.26543 | 0.1519345 | 0.27830751 | 2.3233756 | 20 | 10 13.1 | 20.6 |
| 188376 2004 <i>CU</i> ₁₂ | 16.7 | X | 232.32181 | 316.29184 | 184.08585 | 3.99970 | 0.1152098 | 0.28021524 | 2.3128185 | 20 | 11 7.4 | 19.4 |
| 188377 2004 <i>CD</i> ₃₇ | 16.7 | X | 157.40269 | 336.81733 | 197.63546 | 7.60346 | 0.1248943 | 0.27186879 | 2.3599156 | 20 | 9 23.4 | 20.2 |
| 188378 2004 <i>CD</i> ₅₉ | 16.9 | X | 141.23086 | 163.76460 | 56.79536 | 5.78872 | 0.2084025 | 0.27546200 | 2.3393485 | 20 | 11 6.8 | 20.9 |
| 188379 2004 <i>CA</i> ₆₀ | 17.3 | X | 163.72227 | 108.66937 | 74.23577 | 2.99431 | 0.1542055 | 0.27629260 | 2.3346577 | 20 | 10 12.7 | 20.8 |
| 188380 2004 <i>CE</i> ₇₇ | 16.6 | X | 186.28715 | 22.31587 | 161.29744 | 5.28887 | 0.1333412 | 0.27744936 | 2.3281640 | 20 | 11 7.3 | 19.9 |
| 188381 2004 <i>CD</i> ₈₁ | 17.1 | X | 141.86916 | 79.86207 | 145.77602 | 3.22461 | 0.1271376 | 0.27758366 | 2.3274130 | 20 | 11 15.4 | 20.6 |
| 188382 2004 <i>CX</i> ₈₅ | 17.4 | X | 264.39354 | 14.91741 | 130.43003 | 4.65429 | 0.0709044 | 0.28574674 | 2.2828736 | 20 | — | — |
| 188383 2004 <i>CO</i> ₈₆ | 16.8 | X | 44.28014 | 135.29761 | 131.88217 | 2.20318 | 0.1837249 | 0.26539097 | 2.3981626 | 20 | 9 28.2 | 19.5 |
| 188384 2004 <i>CK</i> ₁₀₀ | 16.7 | X | 215.66245 | 53.10023 | 92.11893 | 4.70309 | 0.1337261 | 0.27671381 | 2.3322879 | 20 | 10 21.4 | 19.8 |
| 188385 2004 <i>CX</i> ₁₀₃ | 16.7 | X | 209.72268 | 310.09516 | 214.42168 | 10.93025 | 0.1323426 | 0.28068013 | 2.3102639 | 20 | 11 8.3 | 19.6 |
| 188386 2004 <i>CD</i> ₁₁₁ | 16.8 | X | 112.54074 | 43.10728 | 215.31389 | 2.32765 | 0.1427994 | 0.27638817 | 2.3341195 | 20 | 11 27.3 | 20.2 |
| 188387 2004 <i>CQ</i> ₁₁₄ | 15.8 | X | 247.67886 | 42.39411 | 118.76756 | 22.45218 | 0.0926480 | 0.28374890 | 2.2935767 | 20 | — | — |
| 188388 2004 <i>DW</i> ₆ | 17.0 | X | 115.68467 | 246.50120 | 337.88452 | 0.87692 | 0.1369922 | 0.27071174 | 2.3666352 | 20 | 10 16.7 | 20.6 |
| 188389 2004 <i>DF</i> ₁₁ | 16.9 | X | 249.52733 | 317.80429 | 142.16200 | 5.93694 | 0.1560451 | 0.27721059 | 2.3295006 | 20 | 9 29.9 | 19.6 |
| 188390 2004 <i>DP</i> ₁₁ | 16.7 | X | 227.82162 | 327.38065 | 177.54933 | 6.59511 | 0.1888723 | 0.28074488 | 2.3099087 | 20 | 10 28.2 | 19.6 |
| 188391 2004 <i>DD</i> ₁₇ | 17.2 | X | 166.36760 | 97.27281 | 169.99296 | 7.60649 | 0.1326475 | 0.28771066 | 2.2724731 | 20 | — | — |
| 188392 2004 <i>DP</i> ₂₀ | 17.1 | X | 185.62665 | 93.46016 | | | | | | | | |

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

| Planet | <i>H</i> | <i>G</i> | <i>M</i> | ω | Ω | <i>i</i> | <i>e</i> | μ | <i>a</i> | TE | Oppos. | <i>V</i> |
|-------------------------------|----------|----------|-----------|-----------|-----------|----------|-----------|------------|-----------|----|---------|----------|
| 188401 2004 EB ₂₁ | 17.4 | X | 111.02790 | 63.44277 | 167.92901 | 1.61051 | 0.1379018 | 0.27070119 | 2.3666967 | 20 | 10 21.8 | 20.8 |
| 188402 2004 EQ ₂₂ | 17.2 | X | 173.78935 | 45.38301 | 123.79466 | 1.97872 | 0.1323255 | 0.27158124 | 2.3615811 | 20 | 10 5.0 | 20.7 |
| 188403 2004 EC ₄₄ | 16.8 | X | 116.63732 | 106.66719 | 185.37464 | 6.03032 | 0.1269589 | 0.27962817 | 2.3160545 | 20 | — | — |
| 188404 2004 EM ₄₄ | 17.1 | X | 85.49654 | 104.00591 | 177.81386 | 2.21073 | 0.1996499 | 0.27249247 | 2.3563134 | 20 | 12 3.7 | 20.8 |
| 188405 2004 EP ₅₈ | 17.1 | X | 133.08651 | 31.15217 | 82.66241 | 3.11505 | 0.1392196 | 0.25802372 | 2.4435973 | 20 | 6 10.1 | 20.4 |
| 188406 2004 ET ₆₀ | 17.0 | X | 281.01727 | 205.10398 | 255.13440 | 2.65056 | 0.1103221 | 0.28170005 | 2.3046843 | 20 | 11 27.3 | 18.9 |
| 188407 2004 EO ₇₀ | 17.4 | X | 69.31960 | 45.24070 | 201.10336 | 2.10988 | 0.1895880 | 0.26347227 | 2.4097914 | 20 | 9 30.7 | 20.6 |
| 188408 2004 EL ₇₁ | 16.9 | X | 90.05195 | 80.47924 | 176.27366 | 4.24661 | 0.1239653 | 0.26980995 | 2.3719056 | 20 | 11 1.1 | 20.2 |
| 188409 2004 EX ₇₃ | 17.1 | X | 115.59879 | 73.66241 | 191.18255 | 6.11097 | 0.1206451 | 0.27631132 | 2.3345522 | 20 | 12 8.0 | 20.6 |
| 188410 2004 EP ₇₅ | 16.9 | X | 21.25661 | 114.89602 | 139.74224 | 3.84483 | 0.1935690 | 0.25492673 | 2.4633482 | 20 | 7 30.2 | 18.9 |
| 188411 2004 ER ₇₇ | 17.3 | X | 17.11837 | 119.61093 | 9.63776 | 13.11348 | 0.2194179 | 0.24072536 | 2.5593017 | 20 | 1 1.3 | 19.9 |
| 188412 2004 EE ₇₈ | 16.7 | X | 259.20974 | 7.93128 | 85.94311 | 3.23007 | 0.1783311 | 0.27571280 | 2.3379296 | 20 | 10 1.3 | 19.2 |
| 188413 2004 EA ₈₁ | 16.5 | X | 204.48810 | 347.58016 | 104.70161 | 6.99879 | 0.0986445 | 0.26534317 | 2.3984505 | 20 | 7 29.3 | 20.0 |
| 188414 2004 EH ₁₀₃ | 17.3 | X | 94.64246 | 138.51723 | 157.49979 | 5.92242 | 0.1199574 | 0.27753061 | 2.3277096 | 20 | 12 25.8 | 20.8 |
| 188415 2004 FF | 17.1 | X | 172.26008 | 69.51621 | 69.31616 | 3.28177 | 0.1491840 | 0.26709721 | 2.3879386 | 20 | 8 24.3 | 20.7 |
| 188416 2004 FU ₁₂ | 15.4 | X | 7.62072 | 298.61055 | 276.36276 | 5.36473 | 0.1481506 | 0.18774885 | 3.0205395 | 20 | 4 24.5 | 18.8 |
| 188417 2004 FO ₂₅ | 17.3 | X | 153.18425 | 20.08783 | 149.87367 | 1.62098 | 0.1239444 | 0.26693686 | 2.3888948 | 20 | 9 14.0 | 20.9 |
| 188418 2004 FZ ₃₇ | 17.1 | X | 57.07834 | 165.76250 | 94.23877 | 2.48897 | 0.1583494 | 0.26462850 | 2.4027669 | 20 | 10 1.8 | 20.1 |
| 188419 2004 FT ₄₅ | 16.6 | X | 76.20450 | 22.96760 | 147.12698 | 5.82321 | 0.1248063 | 0.25269140 | 2.4778542 | 20 | 6 15.9 | 19.8 |
| 188420 2004 FD ₅₀ | 17.3 | X | 85.78554 | 328.27890 | 205.24756 | 3.62578 | 0.1392292 | 0.25616414 | 2.4554089 | 20 | 7 5.3 | 20.6 |
| 188421 2004 FS ₅₂ | 17.2 | X | 133.96661 | 60.44007 | 153.42554 | 6.12736 | 0.0651551 | 0.27035582 | 2.3687118 | 20 | 10 22.8 | 20.5 |
| 188422 2004 FH ₅₈ | 16.9 | X | 74.57552 | 196.21766 | 57.99828 | 1.82215 | 0.1385185 | 0.26515610 | 2.3995785 | 20 | 10 11.9 | 20.1 |
| 188423 2004 FF ₆₅ | 17.2 | X | 18.68017 | 1.01695 | 119.98172 | 3.23978 | 0.0801755 | 0.29704487 | 2.2246141 | 20 | — | — |
| 188424 2004 FS ₈₀ | 17.2 | X | 99.57084 | 112.23855 | 65.81816 | 3.34263 | 0.1391405 | 0.25824559 | 2.4421975 | 20 | 7 30.2 | 20.6 |
| 188425 2004 FC ₈₂ | 16.5 | X | 271.22353 | 326.38464 | 73.87215 | 6.79728 | 0.0877189 | 0.26834232 | 2.3805461 | 20 | 8 17.9 | 19.4 |
| 188426 2004 FX ₈₄ | 16.0 | X | 256.44675 | 358.65015 | 16.55382 | 6.46377 | 0.1522782 | 0.25805565 | 2.4433957 | 20 | 6 7.1 | 19.5 |
| 188427 2004 FX ₈₅ | 16.9 | X | 301.51369 | 12.35914 | 67.25206 | 6.37656 | 0.1254331 | 0.28203005 | 2.3028861 | 20 | 12 4.1 | 18.9 |
| 188428 2004 FU ₉₆ | 16.6 | X | 21.20257 | 316.94601 | 67.90175 | 7.14832 | 0.0439484 | 0.28320423 | 2.2965165 | 20 | — | — |
| 188429 2004 FW ₈₇ | 17.5 | X | 63.40084 | 96.15686 | 166.37636 | 4.96321 | 0.1689987 | 0.26424390 | 2.4050978 | 20 | 10 14.3 | 20.7 |
| 188430 2004 FC ₉₁ | 16.5 | X | 66.82970 | 123.43486 | 134.80089 | 8.19949 | 0.1833441 | 0.26354669 | 2.4093377 | 20 | 10 16.6 | 20.0 |
| 188431 2004 FF ₉₁ | 16.5 | X | 45.61757 | 129.33690 | 131.54686 | 6.96540 | 0.1148822 | 0.26136205 | 2.4227449 | 20 | 9 10.2 | 19.3 |
| 188432 2004 FF ₉₄ | 17.1 | X | 44.95287 | 79.54465 | 152.66157 | 3.72823 | 0.1921167 | 0.25530775 | 2.4608967 | 20 | 8 8.4 | 19.9 |
| 188433 2004 FV ₁₀₁ | 16.7 | X | 80.10207 | 45.54368 | 38.15904 | 3.34850 | 0.1078003 | 0.24243893 | 2.5472279 | 20 | 2 21.3 | 19.6 |
| 188434 2004 FQ ₁₀₈ | 16.9 | X | 133.25622 | 88.99909 | 43.38741 | 1.91322 | 0.1345519 | 0.25770052 | 2.4456399 | 20 | 7 4.9 | 20.5 |
| 188435 2004 FY ₁₁₇ | 16.9 | X | 139.13907 | 12.65485 | 171.85914 | 6.31635 | 0.0552454 | 0.26683126 | 2.3895250 | 20 | 9 16.7 | 20.2 |
| 188436 2004 FS ₁₃₁ | 16.8 | X | 125.41275 | 305.86329 | 334.48333 | 2.99300 | 0.1681772 | 0.28112675 | 2.3078165 | 20 | — | — |
| 188437 2004 FN ₁₃₄ | 16.4 | X | 194.52607 | 16.15313 | 244.07940 | 9.04376 | 0.1061509 | 0.28584088 | 2.2823723 | 20 | — | — |
| 188438 2004 FF ₁₃₅ | 16.8 | X | 105.68094 | 102.04342 | 193.81742 | 5.97587 | 0.1603008 | 0.27890950 | 2.3200313 | 20 | — | — |
| 188439 2004 FK ₁₄₀ | 16.8 | X | 65.21040 | 185.06538 | 182.38832 | 6.14115 | 0.0725898 | 0.28729895 | 2.2746436 | 20 | — | — |
| 188440 2004 FW ₁₅₆ | 17.2 | X | 179.54955 | 135.79235 | 169.28882 | 5.22534 | 0.1841489 | 0.29122168 | 2.2541713 | 20 | — | — |
| 188441 2004 GF ₁₇ | 16.2 | X | 91.54363 | 67.53667 | 143.41585 | 15.05815 | 0.1070551 | 0.25954699 | 2.4340270 | 20 | 8 30.9 | 19.5 |
| 188442 2004 GM ₂₁ | 16.4 | X | 226.50214 | 302.59061 | 214.10003 | 4.50303 | 0.1563541 | 0.21681915 | 2.7441276 | 20 | 11 2.5 | 20.3 |
| 188443 2004 GA ₃₄ | 16.5 | X | 58.93071 | 188.66333 | 89.36083 | 6.11973 | 0.2809441 | 0.26020443 | 2.4299253 | 20 | 11 11.5 | 20.2 |
| 188444 2004 GN ₄₇ | 15.9 | X | 298.75051 | 24.44440 | 28.49657 | 7.98656 | 0.0729401 | 0.20913838 | 2.8109097 | 20 | 10 7.9 | 19.5 |
| 188445 2004 HB ₅ | 16.8 | X | 180.75293 | 61.09261 | 62.66055 | 3.07668 | 0.1271642 | 0.26321233 | 2.4113776 | 20 | 8 13.2 | 20.4 |
| 188446 Louischeviolet | 16.7 | X | 199.57636 | 31.14126 | 81.19563 | 7.29450 | 0.1388551 | 0.26483404 | 2.4015235 | 20 | 8 18.9 | 20.4 |
| 188447 2004 HP ₁₂ | 17.1 | X | 188.70696 | 10.04119 | 113.34251 | 2.15347 | 0.1351182 | 0.26438654 | 2.4042326 | 20 | 8 19.9 | 20.5 |
| 188448 2004 HW ₃₅ | 16.6 | X | 38.75025 | 199.98364 | 80.74478 | 7.04445 | 0.1371628 | 0.26214501 | 2.4179185 | 20 | 10 4.2 | 19.5 |
| 188449 2004 HV ₄₁ | 17.1 | X | 177.44752 | 287.53523 | 143.33711 | 1.29496 | 0.1186469 | 0.25181676 | 2.4835884 | 20 | 5 30.1 | 20.9 |
| 188450 2004 HB ₅₅ | 15.9 | X | 299.98364 | 349.41406 | 263.99629 | 14.00812 | 0.1585663 | 0.24055112 | 2.5605374 | 20 | 2 13.8 | 19.7 |
| 188451 2004 HR ₅₉ | 16.4 | X | 137.32425 | 358.95936 | 247.39271 | 6.60638 | 0.0938985 | 0.27112746 | 2.3642154 | 20 | 12 5.4 | 19.9 |
| 188452 2004 HE ₆₂ | 17.4 | X | 317.90149 | 21.37874 | 302.86266 | 24.70960 | 0.5730576 | 0.24222913 | 2.5486985 | 20 | 3 26.8 | 21.6 |
| 188453 2004 HK ₇₈ | 16.2 | X | 88.94360 | 234.41839 | 232.72549 | 2.57556 | 0.0928830 | 0.24139332 | 2.5545783 | 20 | 3 31.9 | 19.5 |
| 188454 2004 JK ₅ | 15.4 | X | 305.00818 | 31.81809 | 259.25724 | 11.95253 | 0.2330344 | 0.24083614 | 2.5585168 | 20 | 3 30.9 | 19.0 |
| 188455 2004 JC ₁₁ | 15.8 | X | 260.52521 | 131.51667 | 174.31330 | 12.48374 | 0.1993397 | 0.23644389 | 2.5901047 | 20 | 3 9.3 | 19.9 |
| 188456 2004 JS ₁₁ | 15.3 | X | 138.18628 | 181.17721 | 160.54602 | 29.01612 | 0.0237611 | 0.22569980 | 2.6716646 | 20 | — | — |
| 188457 2004 JR ₁₅ | 15.5 | X | 206.12135 | 69.67465 | 239.27670 | 13.04830 | 0.1958031 | 0.22752262 | 2.6573759 | 20 | 1 24.3 | 20.2 |
| 188458 2004 JU ₁₆ | 17.1 | X | 312.54588 | 53.74939 | 229.61565 | 2.82936 | 0.1951445 | 0.24382312 | 2.5375784 | 20 | 4 11.7 | 19.8 |
| 188459 2004 JV ₂₂ | 15.8 | X | 267.69055 | 63.37312 | 248.06146 | 10.89608 | 0.2774015 | 0.23750807 | 2.5823621 | 20 | 3 10.6 | 20.3 |
| 188460 2004 JP ₂₆ | 16.1 | X | 308.38629 | 85.25636 | 233.62853 | 7.08782 | 0.2531345 | 0.24590185 | 2.5232572 | 20 | 5 16.7 | 18.8 |
| 188461 2004 JH ₃₀ | 17.0 | X | 185.73182 | 51.06368 | 135.26492 | 2.88549 | 0.1485631 | 0.27084206 | 2.3658760 | 20 | 11 7.2 | 20.4 |
| 188462 2004 JG ₃₄ | 16.5 | X | 303.31942 | 138.55230 | 178.25812 | 4.72286 | 0.1946665 | 0.24560329 | 2.5253016 | 20 | 5 16.7 | 19.4 |
| 188463 2004 JD ₃₅ | 16.1 | X | 303.29380 | 230.35027 | 83.49149 | 12.43007 | 0.2239393 | 0.24423430 | 2.5347295 | 20 | 5 10.0 | 19.2 |
| 188464 2004 JB ₄₅ | 16.3 | X | 167.34343 | 248.47887 | 231.26441 | 13.00365 | 0.1191828 | 0.23223377 | 2.6213145 | 20 | 3 7.3 | 20.4 |
| 188465 2004 KH ₉ | 16.5 | X | 329.60811 | 55.80076 | 124.13725 | 15.32047 | 0.1832575 | 0.24581009 | 2.5238851 | 20 | 5 26.0 | 18.8 |
| 188466 2004 KG ₁₁ | 16.3 | X | 14.40532 | 46.77208 | 116.18290 | 9.63107 | 0.1061827 | 0.23792489 | 2.5793452 | 20 | 2 23.2 | 19.1 |
| 188467 2004 LL ₃ | 15.5 | X | 268.33920 | 85.88224 | 237.96734 | 13.28394 | 0.2134363 | 0.23909910 | 2.5708935 | 20 | 4 3.6 | 19.5 |
| 188468 2004 LM ₈ | 15.8 | X | 319.58051 | 77.54471 | 263.78374 | 2.72288 | 0.1664495 | 0.24755054 | 2.5120414 | 20 | 7 27.1 | 18.2 |
| 188469 2004 LY ₉ | 16.0 | X | 290.58980 | 110.71524 | 154.21868 | 8.12667 | 0.1679064 | 0.23487874 | 2.6015983 | 20 | 2 23.3 | 19.5 |
| 188470 2004 LN ₁₃ | 16.2 | X | 330.99527 | 15.40755 | 218.12105 | 3.79586 | 0.1846936 | 0.23920662 | 2.5701231 | 20 | 3 3.9 | 19.0 |
| 188471 2004 LS ₁₃ | 15.8 | X | 10.24957 | 66.98552 | 135.86917 | 5.32414 | 0.1377058 | 0.24134285 | 2.5549344 | 20 | 4 12.5 | 18.3 |
| 188472 2004 LV ₂₄ | 15.5 | X | 207.77108 | 12.15613 | 264.58986 | 12.33223 | 0.1279872 | 0.21878398 | 2.7276734 | 20 | — | — |
| 188473 2004 LC ₂₇ | 15.8 | X | 181.83181 | 108.09157 | 204.83553 | 6.99821 | 0.2683228 | 0.21796852 | 2.7344724 | 20 | 1 15.8 | 20.7 |
| 188474 2004 NT ₃ | 16.4 | X | 168.63866 | 252.4 | | | | | | | | |

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

| Planet | <i>H</i> | <i>G</i> | <i>M</i> | ω | Ω | <i>i</i> | <i>e</i> | μ | <i>a</i> | TE | Oppos. | <i>V</i> |
|-------------------------------|----------|----------|-----------|-----------|-----------|----------|-----------|------------|-----------|----|---------|----------|
| 188481 2004 OG ₅ | 16.1 | X | 216.82122 | 194.93596 | 98.51797 | 4.88536 | 0.1786834 | 0.22233394 | 2.6985608 | 20 | 1 19.9 | 20.6 |
| 188482 2004 OC ₉ | 16.0 | X | 196.02949 | 152.12418 | 124.26550 | 17.12239 | 0.1643130 | 0.21684012 | 2.7439506 | 20 | — | — |
| 188483 2004 PP ₄ | 15.7 | X | 117.22274 | 186.49911 | 177.37674 | 12.24475 | 0.3119610 | 0.21097682 | 2.7945564 | 20 | 1 27.3 | 20.2 |
| 188484 2004 PJ ₆ | 16.7 | X | 335.54379 | 328.26450 | 283.97931 | 4.22315 | 0.2071760 | 0.23689626 | 2.5868064 | 20 | 4 4.2 | 19.3 |
| 188485 2004 PM ₁₀ | 15.8 | X | 111.98999 | 230.27065 | 127.38068 | 5.05438 | 0.1131586 | 0.21181488 | 2.7871803 | 20 | — | — |
| 188486 2004 PM ₁₂ | 16.4 | X | 170.17239 | 157.89145 | 140.86744 | 10.39638 | 0.1915200 | 0.21356734 | 2.7719124 | 20 | — | — |
| 188487 2004 PB ₂₂ | 16.2 | X | 152.76297 | 222.81182 | 132.43377 | 5.83096 | 0.1759059 | 0.21888296 | 2.7268511 | 20 | 2 6.6 | 20.5 |
| 188488 2004 PT ₂₄ | 16.1 | X | 124.65286 | 196.58521 | 142.62669 | 5.45413 | 0.1039392 | 0.20904252 | 2.8117689 | 20 | — | — |
| 188489 2004 PH ₃₀ | 15.8 | X | 351.44562 | 159.62517 | 155.08821 | 5.59037 | 0.1574645 | 0.18237448 | 3.0795931 | 20 | 8 14.1 | 19.2 |
| 188490 2004 PH ₃₄ | 16.5 | X | 231.13239 | 116.22729 | 137.80476 | 6.85912 | 0.2669218 | 0.21895375 | 2.7262632 | 20 | — | — |
| 188491 2004 PR ₃₄ | 16.0 | X | 168.35125 | 165.47814 | 137.95357 | 10.06953 | 0.1351991 | 0.21267156 | 2.7796905 | 20 | — | — |
| 188492 2004 PU ₃₅ | 15.9 | X | 232.69738 | 152.74125 | 170.63909 | 13.59467 | 0.2912854 | 0.22529952 | 2.6748280 | 20 | 3 2.1 | 20.6 |
| 188493 2004 PH ₄₈ | 15.9 | X | 172.94465 | 107.02886 | 176.97865 | 4.35030 | 0.0333241 | 0.21171032 | 2.7880980 | 20 | — | — |
| 188494 2004 PU ₅₀ | 16.4 | X | 335.66597 | 149.67255 | 118.17483 | 7.14484 | 0.2656986 | 0.23921096 | 2.5700920 | 20 | 4 25.4 | 18.7 |
| 188495 2004 PM ₆₆ | 16.8 | X | 249.38366 | 87.06793 | 185.64282 | 2.29842 | 0.1738645 | 0.22516388 | 2.6759022 | 20 | 1 22.4 | 21.0 |
| 188496 2004 PF ₇₅ | 15.9 | X | 272.07850 | 256.59183 | 75.82471 | 2.32767 | 0.1971140 | 0.17224773 | 3.1991432 | 20 | 4 27.7 | 20.7 |
| 188497 2004 PO ₇₅ | 15.5 | X | 215.32582 | 5.57458 | 336.73537 | 13.76049 | 0.2602360 | 0.22415336 | 2.6839384 | 20 | 3 11.2 | 20.4 |
| 188498 2004 PM ₈₃ | 15.7 | X | 127.54940 | 155.52762 | 157.63283 | 15.71471 | 0.1449785 | 0.20502396 | 2.8483912 | 20 | — | — |
| 188499 2004 PT ₉₀ | 15.0 | X | 301.04122 | 182.31949 | 182.34480 | 18.67965 | 0.1659755 | 0.17651947 | 3.1473205 | 20 | 7 17.9 | 19.4 |
| 188500 2004 PA ₉₈ | 15.1 | X | 303.16792 | 350.25977 | 35.40452 | 9.25426 | 0.0441602 | 0.18798996 | 3.0179563 | 20 | 9 10.9 | 19.2 |
| 188501 2004 PD ₁₀₁ | 15.4 | X | 196.40948 | 11.25826 | 338.54444 | 11.39975 | 0.2008124 | 0.22183660 | 2.7025926 | 20 | 3 7.6 | 20.0 |
| 188502 Darrellstrob | 16.3 | X | 343.78025 | 167.43448 | 134.12839 | 1.94097 | 0.1761223 | 0.17985982 | 3.1082309 | 20 | 7 10.7 | 19.4 |
| 188503 2004 QU ₁₈ | 15.6 | X | 44.00575 | 212.21601 | 138.77300 | 3.22612 | 0.1045890 | 0.19634180 | 2.9317541 | 20 | 12 18.4 | 19.6 |
| 188504 2004 QZ ₁₉ | 14.9 | X | 309.98043 | 222.80991 | 165.97303 | 17.89345 | 0.1920981 | 0.18062599 | 3.0994351 | 20 | 9 3.2 | 18.4 |
| 188505 2004 QV ₂₆ | 15.7 | X | 124.04143 | 230.53098 | 59.36957 | 3.83499 | 0.1765993 | 0.20003993 | 2.8955090 | 20 | — | — |
| 188506 2004 RR ₁ | 15.3 | X | 88.84923 | 75.18154 | 224.01829 | 7.48638 | 0.0766642 | 0.19501377 | 2.9450491 | 20 | 12 3.5 | 19.7 |
| 188507 2004 RF ₆ | 15.9 | X | 159.77013 | 237.22936 | 79.93853 | 10.62905 | 0.2837288 | 0.21226451 | 2.7832430 | 20 | 1 7.8 | 20.7 |
| 188508 2004 RK ₂₁ | 15.5 | X | 328.57913 | 194.87877 | 169.96121 | 8.14650 | 0.0616237 | 0.18513203 | 3.0489363 | 20 | 9 14.3 | 19.4 |
| 188509 2004 RR ₃₆ | 15.4 | X | 310.57935 | 231.18243 | 142.92263 | 16.38898 | 0.0640206 | 0.18402578 | 3.0611429 | 20 | 8 31.9 | 19.3 |
| 188510 2004 RG ₃₈ | 15.9 | X | 205.36703 | 120.63496 | 142.55692 | 8.27985 | 0.1818269 | 0.21218450 | 2.7839427 | 20 | — | — |
| 188511 2004 RR ₄₁ | 16.1 | X | 323.17220 | 288.30697 | 73.07201 | 2.18707 | 0.1792087 | 0.18282715 | 3.0745077 | 20 | 8 24.7 | 19.4 |
| 188512 2004 RD ₄₃ | 15.2 | X | 278.79440 | 211.14170 | 169.59555 | 11.77593 | 0.0925636 | 0.17891850 | 3.1191234 | 20 | 7 19.2 | 19.7 |
| 188513 2004 RK ₄₇ | 15.3 | X | 263.89101 | 237.23994 | 174.22004 | 5.37146 | 0.1279807 | 0.17918515 | 3.1160282 | 20 | 8 3.5 | 19.7 |
| 188514 2004 RW ₅₀ | 15.3 | X | 42.03580 | 113.57687 | 154.80739 | 10.41783 | 0.0618285 | 0.18207797 | 3.0829355 | 20 | 8 25.3 | 19.4 |
| 188515 2004 RC ₅₃ | 15.8 | X | 170.40868 | 141.14032 | 160.92729 | 9.45778 | 0.1603629 | 0.21096224 | 2.7946853 | 20 | — | — |
| 188516 2004 RV ₅₄ | 15.1 | X | 257.27325 | 279.46569 | 158.45404 | 11.16079 | 0.0655363 | 0.18342169 | 3.0678603 | 20 | 9 9.3 | 19.2 |
| 188517 2004 RP ₅₇ | 14.8 | X | 266.29964 | 198.33487 | 184.44254 | 17.25353 | 0.2105661 | 0.17520086 | 3.1630925 | 20 | 6 20.2 | 19.8 |
| 188518 2004 RR ₇₂ | 15.7 | X | 5.43560 | 141.44411 | 203.45587 | 2.21503 | 0.1126443 | 0.18720840 | 3.0263501 | 20 | 10 17.3 | 19.5 |
| 188519 2004 RT ₇₂ | 15.2 | X | 297.98191 | 208.56827 | 169.71409 | 10.83330 | 0.0875293 | 0.17978528 | 3.1090900 | 20 | 8 12.7 | 19.3 |
| 188520 2004 RV ₇₅ | 16.0 | X | 350.71568 | 229.05075 | 115.24133 | 2.44643 | 0.2273580 | 0.18408097 | 3.0605311 | 20 | 9 29.4 | 18.8 |
| 188521 2004 RT ₈₈ | 15.2 | X | 326.05302 | 192.07054 | 197.62644 | 12.29046 | 0.1137298 | 0.19133072 | 2.9827229 | 20 | 10 12.6 | 18.6 |
| 188522 2004 RY ₉₁ | 15.3 | X | 294.58637 | 165.01760 | 229.91702 | 8.19274 | 0.0905239 | 0.18468175 | 3.0538900 | 20 | 8 27.7 | 19.5 |
| 188523 2004 RF ₉₉ | 15.0 | X | 2.04805 | 276.48922 | 339.00670 | 14.64754 | 0.0613866 | 0.17327768 | 3.1864539 | 20 | 6 9.4 | 19.5 |
| 188524 2004 RG ₁₀₀ | 15.1 | X | 200.59531 | 284.87846 | 178.26582 | 17.01409 | 0.1025541 | 0.17759314 | 3.1346225 | 20 | 7 29.7 | 20.3 |
| 188525 2004 RM ₁₀₆ | 15.7 | X | 212.17609 | 163.17070 | 203.66644 | 8.99049 | 0.0907222 | 0.22484150 | 2.6784594 | 20 | 4 15.0 | 19.6 |
| 188526 2004 RR ₁₂₃ | 14.8 | X | 275.91461 | 170.17578 | 238.48400 | 14.34091 | 0.0518269 | 0.18337995 | 3.0683258 | 20 | 8 21.7 | 19.3 |
| 188527 2004 RG ₁₂₄ | 15.5 | X | 158.64734 | 216.16848 | 109.24066 | 14.74115 | 0.1577330 | 0.21220255 | 2.7837848 | 20 | 1 7.1 | 19.8 |
| 188528 2004 RR ₁₄₈ | 15.8 | X | 124.25356 | 105.02964 | 168.25159 | 7.88310 | 0.0363974 | 0.19735639 | 3.9216975 | 20 | 12 9.4 | 20.1 |
| 188529 2004 RB ₁₅₃ | 15.4 | X | 162.23225 | 324.80732 | 218.12595 | 9.24558 | 0.0403421 | 0.18771026 | 3.0209535 | 20 | 9 28.7 | 19.8 |
| 188530 2004 RU ₁₅₅ | 15.8 | X | 175.84518 | 70.19041 | 261.29169 | 4.62487 | 0.0027632 | 0.21525164 | 2.7574336 | 20 | 1 19.2 | 19.6 |
| 188531 2004 RQ ₁₇₇ | 15.5 | X | 359.98077 | 299.33951 | 232.06919 | 6.88984 | 0.0292264 | 0.21970622 | 2.7200349 | 20 | 2 13.5 | 19.1 |
| 188532 2004 RS ₁₉₉ | 15.5 | X | 240.22962 | 138.40875 | 230.32142 | 12.66750 | 0.3184570 | 0.22881226 | 2.6473815 | 20 | 4 28.2 | 20.2 |
| 188533 2004 RC ₂₄₂ | 16.1 | X | 53.44584 | 45.62737 | 167.77163 | 1.00858 | 0.1433158 | 0.17481145 | 3.1677882 | 20 | 7 11.7 | 20.1 |
| 188534 Mauna Kea | 16.4 | X | 74.00610 | 236.72057 | 163.12085 | 5.69460 | 0.0666685 | 0.21382185 | 2.7697123 | 20 | — | — |
| 188535 2004 RW ₂₅₃ | 15.2 | X | 335.80758 | 257.40900 | 110.24985 | 14.63955 | 0.0432222 | 0.18664277 | 3.0324613 | 20 | 10 6.2 | 19.5 |
| 188536 2004 RL ₂₉₁ | 15.0 | X | 182.30413 | 254.78253 | 185.20203 | 21.83370 | 0.1047267 | 0.16895858 | 3.2405288 | 20 | 6 14.9 | 20.5 |
| 188537 2004 RX ₂₉₁ | 15.1 | X | 280.76544 | 165.35872 | 224.11414 | 9.47147 | 0.0917162 | 0.17643465 | 3.1483291 | 20 | 7 31.3 | 19.5 |
| 188538 2004 RK ₃₀₇ | 15.0 | X | 143.57305 | 280.70580 | 191.15382 | 17.63880 | 0.0846758 | 0.17021854 | 3.2245180 | 20 | 6 13.7 | 20.2 |
| 188539 2004 RX ₃₁₅ | 15.2 | X | 290.78238 | 303.61157 | 65.49324 | 18.47853 | 0.2093869 | 0.17672322 | 3.1449010 | 20 | 7 3.5 | 19.5 |
| 188540 2004 RZ ₃₂₀ | 15.0 | X | 8.83143 | 22.43002 | 275.07630 | 7.49009 | 0.0563735 | 0.17944471 | 3.1130226 | 20 | 8 12.6 | 19.1 |
| 188541 2004 RV ₃₃₇ | 15.5 | X | 296.84238 | 317.04709 | 23.26581 | 1.80172 | 0.2031840 | 0.17268632 | 3.1937243 | 20 | 6 5.8 | 19.7 |
| 188542 2004 RF ₃₃₉ | 15.5 | X | 235.94938 | 36.71436 | 249.96196 | 7.78293 | 0.1201418 | 0.21816697 | 2.7328138 | 20 | 1 28.5 | 19.9 |
| 188543 2004 RN ₃₃₉ | 14.5 | X | 290.16774 | 219.11061 | 158.04925 | 26.86563 | 0.1551910 | 0.17356388 | 3.1829500 | 20 | 7 21.6 | 19.0 |
| 188544 2004 SC ₁₃ | 15.8 | X | 161.20038 | 189.28827 | 114.23285 | 5.38070 | 0.1830160 | 0.21015561 | 2.8018318 | 20 | — | — |
| 188545 2004 SD ₁₇ | 15.3 | X | 338.10028 | 282.86184 | 70.18362 | 11.64679 | 0.0434881 | 0.18328718 | 3.0693612 | 20 | 9 19.5 | 19.6 |
| 188546 2004 SQ ₂₉ | 14.4 | X | 318.60001 | 255.46158 | 4.34979 | 18.16234 | 0.0245328 | 0.16307344 | 3.3180319 | 20 | 4 14.4 | 19.1 |
| 188547 2004 ST ₃₆ | 15.6 | X | 188.38855 | 268.50664 | 200.26526 | 8.58976 | 0.0746912 | 0.17763060 | 3.1341819 | 20 | 7 25.5 | 20.5 |
| 188548 2004 SW ₃₉ | 15.1 | X | 331.29574 | 160.78938 | 173.27040 | 6.14442 | 0.0778321 | 0.17671219 | 3.1450318 | 20 | 8 5.5 | 19.2 |
| 188549 2004 ST ₅₉ | 14.7 | X | 166.35471 | 268.43433 | 154.30348 | 12.01237 | 0.0746460 | 0.16166574 | 3.3372651 | 20 | 5 11.6 | 19.9 |
| 188550 2004 TM ₂ | 15.8 | X | 329.79145 | 230.39449 | 148.20215 | 3.20239 | 0.1601419 | 0.18429307 | 3.0581824 | 20 | 10 2.2 | 19.1 |
| 188551 2004 TN ₂ | 15.2 | X | 33.29933 | 71.06400 | 180.96112 | 9.45584 | 0.0530058 | 0.17441212 | 3.1726216 | 20 | 7 19.4 | 19.7 |
| 188552 2004 TB ₁₄ | 15.0 | X | 190.98137 | 265.85654 | 174.15350 | 11.14680 | 0.0774079 | 0.16781409 | 3.2552457 | 20 | 6 24.2 | 20.1 |
| 188553 2004 TZ ₁₆ | 14.5 | X | 286.34468 | 85.59905 | 263.77652 | 12.30137 | 0.1706452 | 0.17010206 | 3.2259898 | 20 | 6 17.6 | 18.9 |
| 188554 200 | | | | | | | | | | | | |

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

| Planet | <i>H</i> | <i>G</i> | <i>M</i> | ω | Ω | <i>i</i> | <i>e</i> | μ | <i>a</i> | TE | Oppos. | <i>V</i> |
|--------------------------------------|----------|----------|-----------|-----------|-----------|----------|-----------|------------|-----------|----|---------|----------|
| 188561 2004 <i>TL</i> ₇₉ | 14.4 | X | 343.96934 | 113.07986 | 236.06095 | 25.80606 | 0.1515275 | 0.18029111 | 3.1032720 | 20 | 9 5.9 | 18.6 |
| 188562 2004 <i>TA</i> ₁₁₈ | 15.3 | X | 13.92153 | 194.96073 | 108.27168 | 6.31450 | 0.1335098 | 0.18051075 | 3.1007542 | 20 | 9 9.5 | 19.1 |
| 188563 2004 <i>TZ</i> ₁₁₈ | 15.3 | X | 269.80736 | 235.50633 | 167.33704 | 10.80978 | 0.0792111 | 0.17939523 | 3.1135950 | 20 | 8 6.8 | 19.8 |
| 188564 2004 <i>TO</i> ₁₂₀ | 14.8 | X | 48.60058 | 277.56822 | 21.54069 | 11.43618 | 0.2025929 | 0.18509207 | 3.0493751 | 20 | 10 31.1 | 19.0 |
| 188565 2004 <i>TR</i> ₁₂₂ | 14.9 | X | 28.66176 | 266.12002 | 14.05085 | 26.50341 | 0.1385622 | 0.17960859 | 3.1111288 | 20 | 9 12.3 | 19.1 |
| 188566 2004 <i>TD</i> ₁₂₄ | 15.7 | X | 37.11375 | 183.47111 | 146.42482 | 3.37213 | 0.1208111 | 0.19022944 | 2.9942236 | 20 | 11 15.7 | 19.8 |
| 188567 2004 <i>TM</i> ₁₂₇ | 14.8 | X | 257.97288 | 325.38614 | 48.78597 | 12.63461 | 0.1044441 | 0.17071089 | 3.2183152 | 20 | 6 12.5 | 19.5 |
| 188568 2004 <i>TL</i> ₂₂₁ | 14.9 | X | 164.57419 | 268.81867 | 184.85806 | 15.58230 | 0.0283943 | 0.16787000 | 3.2545229 | 20 | 6 12.3 | 19.9 |
| 188569 2004 <i>TO</i> ₃₀₁ | 15.5 | X | 64.74823 | 131.94472 | 181.93203 | 10.49533 | 0.1587963 | 0.19015700 | 2.9949840 | 20 | 12 4.2 | 20.1 |
| 188570 2004 <i>TR</i> ₃₄₁ | 15.0 | X | 61.95726 | 108.47684 | 212.31387 | 13.80570 | 0.1747283 | 0.19021123 | 2.9944147 | 20 | 12 10.3 | 19.6 |
| 188571 2004 <i>UD</i> ₇ | 14.6 | X | 39.39096 | 54.20714 | 225.93966 | 14.48057 | 0.1507085 | 0.18016512 | 3.1047186 | 20 | 9 13.2 | 18.9 |
| 188572 2004 <i>TV</i> ₆₂ | 15.6 | X | 317.81110 | 268.48120 | 80.92565 | 4.52885 | 0.1991231 | 0.17514299 | 3.1637892 | 20 | 7 24.8 | 19.1 |
| 188573 2004 <i>XL</i> ₁₂₆ | 15.0 | X | 334.46024 | 239.52500 | 110.45726 | 6.70349 | 0.1551199 | 0.17738972 | 3.1370185 | 20 | 9 1.8 | 18.5 |
| 188574 2004 <i>YC</i> ₂₂ | 13.5 | X | 107.91965 | 4.93050 | 126.27608 | 16.57600 | 0.0492740 | 0.08335756 | 5.1900641 | 20 | 5 28.9 | 20.6 |
| 188575 2005 <i>CF</i> ₂₃ | 16.5 | X | 2.53490 | 59.65445 | 358.46836 | 19.47270 | 0.1081495 | 0.37323252 | 1.9105118 | 20 | — | — |
| 188576 Kosenda | 17.0 | X | 177.42226 | 183.24191 | 15.59648 | 21.63733 | 0.0402286 | 0.36008129 | 1.9567515 | 20 | 12 10.2 | 19.7 |
| 188577 2005 <i>GM</i> ₁ | 16.8 | X | 83.91032 | 313.52778 | 81.85224 | 21.62494 | 0.0996618 | 0.36875735 | 1.9259378 | 20 | — | — |
| 188578 2005 <i>GV</i> ₂ | 17.1 | X | 112.22199 | 206.01567 | 20.70180 | 5.85767 | 0.1035994 | 0.28445564 | 2.2897761 | 20 | 10 16.5 | 20.4 |
| 188579 2005 <i>GW</i> ₃₉ | 16.2 | X | 356.09905 | 43.07485 | 30.23925 | 5.60831 | 0.1187525 | 0.23774586 | 2.5806399 | 20 | — | — |
| 188580 2005 <i>GV</i> ₁₇₉ | 16.7 | X | 20.94312 | 274.04773 | 137.71158 | 23.85490 | 0.1177699 | 0.37143298 | 1.9166776 | 20 | — | — |
| 188581 2005 <i>JX</i> ₁₁₉ | 16.9 | X | 75.18646 | 257.28434 | 127.37249 | 5.49913 | 0.1916629 | 0.29990621 | 2.2104418 | 20 | — | — |
| 188582 2005 <i>LV</i> ₂₈ | 17.2 | X | 164.57445 | 195.84263 | 180.36053 | 1.60803 | 0.1515222 | 0.31554714 | 2.1367804 | 20 | 3 3.5 | 20.0 |
| 188583 2005 <i>MU</i> ₅ | 17.6 | X | 206.83285 | 125.27453 | 175.74860 | 5.46196 | 0.2303197 | 0.30311133 | 2.1948319 | 20 | 1 11.2 | 21.4 |
| 188584 2005 <i>MT</i> ₃₇ | 17.2 | X | 348.39844 | 232.25582 | 131.26347 | 3.25384 | 0.1298453 | 0.27140961 | 2.3625766 | 20 | 11 7.9 | 19.4 |
| 188585 2005 <i>MF</i> ₄₁ | 17.1 | X | 179.67626 | 305.02273 | 259.42793 | 4.97671 | 0.1123898 | 0.28162903 | 2.3050717 | 20 | 11 27.9 | 20.1 |
| 188586 2005 <i>NX</i> ₁₆ | 17.5 | X | 127.39066 | 88.42775 | 233.94508 | 0.88524 | 0.1365094 | 0.29116293 | 2.2544745 | 20 | — | — |
| 188587 2005 <i>NP</i> ₂₂ | 16.6 | X | 99.20262 | 327.49884 | 276.82263 | 2.73914 | 0.0866972 | 0.27333565 | 2.3514651 | 20 | 10 20.9 | 19.8 |
| 188588 2005 <i>NO</i> ₂₉ | 17.1 | X | 16.69053 | 210.63115 | 144.35281 | 7.17894 | 0.1914306 | 0.27139172 | 2.3626805 | 20 | 12 20.9 | 19.9 |
| 188589 2005 <i>NG</i> ₃₉ | 17.1 | X | 142.29932 | 244.66975 | 64.02295 | 4.43917 | 0.2106136 | 0.29288062 | 2.2456512 | 20 | — | — |
| 188590 2005 <i>NU</i> ₄₃ | 17.0 | X | 169.38171 | 43.99948 | 121.52996 | 7.07985 | 0.0491409 | 0.27279375 | 2.3545781 | 20 | 10 2.3 | 20.2 |
| 188591 2005 <i>NJ</i> ₄₄ | 17.1 | X | 180.36051 | 355.53178 | 307.92235 | 7.45614 | 0.1895979 | 0.29843379 | 2.2177064 | 20 | — | — |
| 188592 2005 <i>NS</i> ₄₈ | 16.2 | X | 273.49923 | 203.18789 | 158.74156 | 5.79520 | 0.1986143 | 0.25614675 | 2.4555200 | 20 | 6 5.4 | 19.5 |
| 188593 2005 <i>OF</i> ₆ | 16.3 | X | 291.87111 | 273.55391 | 120.79018 | 8.04650 | 0.1294420 | 0.26308997 | 2.4121252 | 20 | 9 4.4 | 18.8 |
| 188594 2005 <i>OK</i> ₆ | 16.3 | X | 319.50667 | 243.39190 | 110.21571 | 5.35534 | 0.1676711 | 0.26186671 | 2.4196313 | 20 | 8 20.6 | 18.2 |
| 188595 2005 <i>OL</i> ₇ | 16.6 | X | 27.79147 | 148.77569 | 159.17765 | 5.67744 | 0.1105253 | 0.26972149 | 2.3724242 | 20 | 10 21.3 | 19.3 |
| 188596 2005 <i>OL</i> ₉ | 17.5 | X | 217.13926 | 201.65845 | 75.24543 | 2.02479 | 0.1878793 | 0.30158529 | 2.2022297 | 20 | — | — |
| 188597 2005 <i>OK</i> ₁₁ | 17.0 | X | 97.79346 | 210.02084 | 123.79539 | 6.79666 | 0.1654842 | 0.28554865 | 2.2839292 | 20 | — | — |
| 188598 2005 <i>OF</i> ₁₅ | 17.3 | X | 50.82040 | 256.32211 | 24.15788 | 5.38125 | 0.2278394 | 0.27159050 | 2.3615274 | 20 | 10 30.5 | 20.4 |
| 188599 2005 <i>OW</i> ₁₅ | 16.3 | X | 227.84354 | 256.12789 | 157.55158 | 9.09539 | 0.0747979 | 0.25667466 | 2.4521520 | 20 | 7 5.2 | 19.8 |
| 188600 2005 <i>PC</i> ₃ | 16.5 | X | 319.90450 | 227.13791 | 132.10633 | 3.22329 | 0.1937659 | 0.26339526 | 2.4102610 | 20 | 8 27.9 | 18.4 |
| 188601 2005 <i>PL</i> ₃ | 16.6 | X | 46.42393 | 245.66160 | 132.43615 | 2.47669 | 0.2272011 | 0.28143719 | 2.3061191 | 20 | — | — |
| 188602 2005 <i>PP</i> ₁₂ | 16.7 | X | 25.93635 | 211.40739 | 97.42639 | 7.01042 | 0.1196143 | 0.26865550 | 2.3786957 | 20 | 10 22.6 | 19.5 |
| 188603 2005 <i>PJ</i> ₁₃ | 16.5 | X | 259.34377 | 315.91537 | 109.76314 | 6.56754 | 0.0788580 | 0.26402335 | 2.4064370 | 20 | 9 6.6 | 19.5 |
| 188604 2005 <i>PO</i> ₁₃ | 16.5 | X | 130.66621 | 310.18019 | 105.57098 | 6.01839 | 0.1948862 | 0.23612057 | 2.5924686 | 20 | 4 2.3 | 20.5 |
| 188605 2005 <i>PK</i> ₁₆ | 17.0 | X | 110.47624 | 217.26033 | 124.01781 | 4.21691 | 0.1770679 | 0.28902448 | 2.2655812 | 20 | — | — |
| 188606 2005 <i>PH</i> ₁₈ | 17.2 | X | 86.19411 | 275.56224 | 61.85045 | 6.29182 | 0.1954734 | 0.28431392 | 2.2905369 | 20 | — | — |
| 188607 2005 <i>PR</i> ₂₀ | 16.9 | X | 143.96065 | 162.43388 | 139.32874 | 5.83147 | 0.1517810 | 0.29015031 | 2.2597169 | 20 | — | — |
| 188608 2005 <i>QO</i> ₂ | 16.8 | X | 348.32348 | 44.83905 | 237.57237 | 6.02001 | 0.1159520 | 0.25820240 | 2.4424698 | 20 | 6 27.9 | 19.2 |
| 188609 2005 <i>QX</i> ₂ | 16.5 | X | 116.32428 | 26.77026 | 219.86052 | 5.47546 | 0.0674077 | 0.27471749 | 2.3435731 | 20 | 11 13.3 | 19.7 |
| 188610 2005 <i>QN</i> ₄ | 16.7 | X | 114.17547 | 298.33338 | 351.29722 | 2.38010 | 0.1758059 | 0.28110845 | 2.3079166 | 20 | — | — |
| 188611 2005 <i>QW</i> ₄ | 16.5 | X | 149.02075 | 87.58276 | 116.17971 | 4.10874 | 0.2006610 | 0.29015734 | 2.2596804 | 20 | — | — |
| 188612 2005 <i>QL</i> ₈ | 16.3 | X | 79.32671 | 189.53046 | 173.88134 | 5.25122 | 0.1732861 | 0.21997967 | 2.7177803 | 20 | — | — |
| 188613 2005 <i>QR</i> ₁₃ | 16.4 | X | 33.40584 | 176.42971 | 121.73027 | 4.46367 | 0.1803406 | 0.21332168 | 2.7740400 | 20 | — | — |
| 188614 2005 <i>QV</i> ₁₇ | 17.1 | X | 67.97090 | 197.26902 | 126.62874 | 3.72096 | 0.1850758 | 0.27693597 | 2.3310404 | 20 | — | — |
| 188615 2005 <i>QS</i> ₁₇ | 16.6 | X | 95.53140 | 152.52654 | 129.30902 | 5.82041 | 0.1634338 | 0.27557634 | 2.3387013 | 20 | 12 11.5 | 20.2 |
| 188616 2005 <i>QW</i> ₁₈ | 17.4 | X | 154.88326 | 128.74290 | 155.06762 | 7.57109 | 0.2180457 | 0.28736305 | 2.2743053 | 20 | — | — |
| 188617 2005 <i>QN</i> ₂₆ | 16.3 | X | 169.37182 | 243.19205 | 165.38044 | 15.17008 | 0.1210804 | 0.23974127 | 2.5663006 | 20 | 4 26.7 | 20.4 |
| 188618 2005 <i>QE</i> ₂₇ | 16.5 | X | 21.80333 | 286.50178 | 120.36852 | 5.32416 | 0.0403226 | 0.21287874 | 2.7778867 | 20 | — | — |
| 188619 2005 <i>QL</i> ₂₉ | 17.4 | X | 107.94313 | 109.39148 | 215.59000 | 6.66985 | 0.1460174 | 0.28564730 | 2.2834033 | 20 | — | — |
| 188620 2005 <i>QX</i> ₂₉ | 15.1 | X | 326.95471 | 311.25091 | 341.23210 | 11.13481 | 0.1176531 | 0.18589722 | 3.0405638 | 20 | 5 30.5 | 19.1 |
| 188621 2005 <i>QZ</i> ₃₂ | 16.8 | X | 295.44352 | 234.81950 | 168.09901 | 2.15434 | 0.2118746 | 0.26503678 | 2.4002987 | 20 | 9 9.3 | 18.6 |
| 188622 2005 <i>QC</i> ₃₄ | 17.4 | X | 307.45205 | 169.70755 | 203.05131 | 2.10516 | 0.1425853 | 0.26195148 | 2.4191092 | 20 | 8 25.9 | 19.7 |
| 188623 2005 <i>QZ</i> ₃₅ | 17.1 | X | 4.98458 | 158.84363 | 171.59590 | 6.52202 | 0.1534336 | 0.26565175 | 2.3965928 | 20 | 10 22.1 | 19.4 |
| 188624 2005 <i>QX</i> ₄₁ | 16.6 | X | 5.67793 | 186.94210 | 173.95339 | 7.19480 | 0.2028252 | 0.27058971 | 2.3673467 | 20 | 12 14.6 | 19.3 |
| 188625 2005 <i>QX</i> ₄₂ | 17.2 | X | 263.55807 | 197.17918 | 89.49424 | 2.48856 | 0.1738486 | 0.30812571 | 2.1709547 | 20 | 2 14.1 | 20.2 |
| 188626 2005 <i>QV</i> ₄₅ | 16.4 | X | 144.22123 | 298.81285 | 113.40765 | 4.22451 | 0.1548258 | 0.23704454 | 2.5857275 | 20 | 4 6.6 | 20.3 |
| 188627 2005 <i>QS</i> ₄₉ | 16.5 | X | 23.47660 | 235.88422 | 113.32501 | 4.87925 | 0.1771520 | 0.27195251 | 2.3594313 | 20 | 12 20.1 | 19.3 |
| 188628 2005 <i>QS</i> ₅₄ | 16.9 | X | 146.22801 | 180.94731 | 150.76418 | 3.64877 | 0.2214681 | 0.29311150 | 2.2444717 | 20 | — | — |
| 188629 2005 <i>QL</i> ₅₆ | 15.6 | X | 63.28071 | 266.18446 | 156.93584 | 9.56466 | 0.2557754 | 0.22030845 | 2.7150757 | 20 | 1 18.8 | 18.3 |
| 188630 2005 <i>QD</i> ₆₉ | 16.7 | X | 135.45121 | 225.33003 | 106.94972 | 7.59040 | 0.1670862 | 0.29177379 | 2.2513268 | 20 | — | — |
| 188631 2005 <i>QX</i> ₆₉ | 16.8 | X | 102.05410 | 192.20089 | 141.76593 | 7.54884 | 0.1472975 | 0.28617448 | 2.2805982 | 20 | — | — |
| 188632 2005 <i>QG</i> ₇₇ | 16.4 | X | 292.59001 | 206.65793 | 195.41544 | 6.62785 | 0.1800733 | 0.2 | | | | |

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

| Planet | <i>H</i> | <i>G</i> | <i>M</i> | ω | Ω | <i>i</i> | <i>e</i> | μ | <i>a</i> | TE | Oppos. | <i>V</i> |
|--------------------------------------|----------|----------|-----------|-----------|-----------|----------|-----------|--------------|-----------|----|---------|----------|
| 188641 2005 <i>QB</i> ₁₆₂ | 16.4 | X | 21.19833 | 252.51596 | 56.41621 | 5.63949 | 0.0371404 | 0.26596757 | 2.3946953 | 20 | 10 1.5 | 19.2 |
| 188642 2005 <i>QL</i> ₁₇₈ | 16.5 | X | 33.55956 | 264.09759 | 141.56045 | 7.27293 | 0.0846334 | 0.21504857 | 2.7591693 | 20 | — | — |
| 188643 2005 <i>RA</i> ₁₅ | 16.7 | X | 312.29561 | 284.05803 | 171.67760 | 3.86402 | 0.0551118 | 0.21095788 | 2.7947237 | 20 | 12 22.6 | 20.2 |
| 188644 2005 <i>RJ</i> ₂₂ | 16.9 | X | 64.51591 | 133.95956 | 191.99736 | 4.48294 | 0.2300866 | 0.27553578 | 2.3389309 | 20 | — | — |
| 188645 2005 <i>RL</i> ₃₃ | 16.1 | X | 69.73136 | 213.53239 | 115.35102 | 8.82314 | 0.2271794 | 0.27623842 | 2.3349629 | 20 | — | — |
| 188646 2005 <i>RF</i> ₄₃ | 17.1 | X | 93.63422 | 59.59122 | 204.38063 | 5.03455 | 0.1791854 | 0.27134339 | 2.3629610 | 20 | 11 17.9 | 20.6 |
| 188647 2005 <i>SY</i> ₃ | 16.1 | X | 114.22930 | 143.78658 | 171.68367 | 3.75003 | 0.0879212 | 0.21392811 | 2.7687950 | 20 | — | — |
| 188648 2005 <i>SD</i> ₄ | 16.3 | X | 191.60656 | 182.83357 | 201.73170 | 13.49358 | 0.1166578 | 0.23801273 | 2.5787105 | 20 | 4 15.1 | 20.2 |
| 188649 2005 <i>SS</i> ₂₆ | 16.7 | X | 351.35147 | 170.67259 | 166.58170 | 7.49570 | 0.1112331 | 0.26267068 | 2.4146915 | 20 | 9 30.6 | 19.0 |
| 188650 2005 <i>SH</i> ₃₅ | 16.3 | X | 127.30847 | 223.28354 | 175.31971 | 8.32102 | 0.0860627 | 0.22881109 | 2.6473905 | 20 | 2 20.7 | 20.1 |
| 188651 2005 <i>SS</i> ₃₆ | 15.8 | X | 195.16601 | 253.77450 | 110.75899 | 12.14127 | 0.0488022 | 0.21956984 | 2.7211611 | 20 | — | — |
| 188652 2005 <i>SZ</i> ₄₃ | 16.6 | X | 245.79742 | 83.86267 | 238.40168 | 2.58069 | 0.0614185 | 0.23816984 | 2.5775764 | 20 | 3 27.1 | 20.2 |
| 188653 2005 <i>SH</i> ₅₉ | 16.8 | X | 162.21140 | 169.37736 | 187.65070 | 0.61225 | 0.0647739 | 0.22851193 | 2.6497006 | 20 | 2 7.6 | 20.6 |
| 188654 2005 <i>SG</i> ₆₂ | 16.2 | X | 276.62088 | 336.66383 | 49.81525 | 0.76537 | 0.0438828 | 0.18707306 | 3.0278095 | 20 | 8 2.5 | 20.2 |
| 188655 2005 <i>SR</i> ₆₂ | 16.7 | X | 255.08917 | 277.92294 | 168.67267 | 1.70810 | 0.0793274 | 0.19350142 | 2.9603742 | 20 | 9 16.3 | 20.8 |
| 188656 2005 <i>SV</i> ₆₉ | 16.6 | X | 241.38205 | 168.94848 | 125.57823 | 3.87065 | 0.0047003 | 0.23130689 | 2.6283125 | 20 | 2 22.9 | 20.0 |
| 188657 2005 <i>SW</i> ₇₁ | 17.2 | X | 150.58976 | 208.96351 | 62.29312 | 1.97314 | 0.2246621 | 0.28447217 | 2.2896874 | 20 | — | — |
| 188658 2005 <i>ST</i> ₈₄ | 17.1 | X | 326.85827 | 52.14077 | 213.65401 | 0.87551 | 0.0306379 | 0.24332686 | 2.5410274 | 20 | 5 4.1 | 20.1 |
| 188659 2005 <i>SO</i> ₉₂ | 16.4 | X | 295.32843 | 331.37515 | 225.52733 | 2.38908 | 0.0769313 | 0.22236608 | 2.6983007 | 20 | — | — |
| 188660 2005 <i>SB</i> ₉₃ | 17.3 | X | 35.27165 | 112.70128 | 214.69575 | 1.99753 | 0.1883415 | 0.26890782 | 2.3772075 | 20 | 12 7.3 | 20.2 |
| 188661 2005 <i>SY</i> ₉₆ | 16.3 | X | 69.08825 | 241.33910 | 190.87234 | 6.24769 | 0.1064560 | 0.22493371 | 2.6777274 | 20 | 1 19.9 | 19.6 |
| 188662 2005 <i>SW</i> ₁₀₃ | 15.5 | X | 115.19017 | 186.56638 | 222.22226 | 13.36513 | 0.1627659 | 0.22660650 | 2.6645332 | 20 | 2 25.8 | 19.5 |
| 188663 2005 <i>SC</i> ₁₀₅ | 16.4 | X | 201.09482 | 179.16245 | 196.11894 | 14.52797 | 0.1344782 | 0.23808659 | 2.5781772 | 20 | 4 12.9 | 20.3 |
| 188664 2005 <i>SD</i> ₁₀₉ | 17.3 | X | 68.09257 | 76.21199 | 219.62904 | 0.68017 | 0.1839183 | 0.27033570 | 2.3688294 | 20 | 12 2.7 | 20.8 |
| 188665 2005 <i>SJ</i> ₁₁₉ | 16.8 | X | 151.52669 | 207.65179 | 105.64901 | 4.77436 | 0.0821850 | 0.28754050 | 2.2733695 | 20 | — | — |
| 188666 2005 <i>SP</i> ₁₂₆ | 16.0 | X | 93.80113 | 196.61642 | 10.13644 | 10.08072 | 0.0416591 | 0.18831060 | 3.0145295 | 20 | 8 15.1 | 20.4 |
| 188667 2005 <i>SD</i> ₁₃₂ | 15.3 | X | 188.14297 | 239.31152 | 213.81471 | 14.94282 | 0.2492017 | 0.17617191 | 3.1514586 | 20 | 7 1.6 | 21.0 |
| 188668 2005 <i>SW</i> ₁₃₄ | 15.8 | X | 41.75399 | 72.28483 | 201.69846 | 3.96235 | 0.0522619 | 0.18942672 | 3.0026766 | 20 | 8 30.6 | 19.8 |
| 188669 2005 <i>SK</i> ₁₄₀ | 17.6 | X | 73.33761 | 182.76361 | 106.70288 | 2.29955 | 0.1799431 | 0.27101231 | 2.3648851 | 20 | 11 29.9 | 21.0 |
| 188670 2005 <i>SP</i> ₁₄₆ | 17.1 | X | 328.21003 | 222.76737 | 59.99568 | 0.85792 | 0.0824727 | 0.24667130 | 2.5180072 | 20 | 5 24.8 | 19.8 |
| 188671 2005 <i>SK</i> ₁₄₇ | 16.4 | X | 141.39499 | 79.08254 | 67.26115 | 1.91958 | 0.1096352 | 0.18128038 | 3.0919717 | 20 | 7 26.5 | 21.2 |
| 188672 2005 <i>SK</i> ₁₅₁ | 16.3 | X | 87.49784 | 124.55513 | 163.24424 | 2.24193 | 0.0506280 | 0.20174166 | 2.8792033 | 20 | 11 17.1 | 20.3 |
| 188673 2005 <i>SS</i> ₁₆₃ | 15.5 | X | 46.02670 | 339.42965 | 42.71025 | 8.89854 | 0.2775768 | 0.21051568 | 2.7986360 | 20 | — | — |
| 188674 2005 <i>SA</i> ₁₈₆ | 17.1 | X | 31.29004 | 250.04241 | 100.45696 | 2.70907 | 0.2033232 | 0.27191935 | 2.3596231 | 20 | — | — |
| 188675 2005 <i>SY</i> ₂₀₁ | 15.7 | X | 28.50528 | 282.85585 | 29.61125 | 21.14364 | 0.0465833 | 0.23432415 | 2.6057016 | 20 | 2 10.9 | 19.6 |
| 188676 2005 <i>SR</i> ₂₀₃ | 16.8 | X | 93.23387 | 284.71095 | 29.42189 | 3.21095 | 0.1987070 | 0.27889131 | 2.3201322 | 20 | — | — |
| 188677 2005 <i>SV</i> ₂₁₀ | 17.2 | X | 358.97192 | 204.53107 | 115.51629 | 3.14256 | 0.1905696 | 0.26214421 | 2.4179234 | 20 | 9 28.7 | 19.2 |
| 188678 2005 <i>SZ</i> ₂₁₂ | 16.7 | X | 49.04954 | 173.16977 | 211.68175 | 3.08549 | 0.1039593 | 0.21072623 | 2.7967715 | 20 | — | — |
| 188679 2005 <i>SE</i> ₂₁₃ | 15.5 | X | 76.30317 | 189.47792 | 211.06990 | 8.42094 | 0.1635126 | 0.21773729 | 2.7364079 | 20 | — | — |
| 188680 2005 <i>SO</i> ₂₁₆ | 15.6 | X | 44.25881 | 228.21969 | 188.10913 | 9.15429 | 0.1576465 | 0.21450711 | 2.7638105 | 20 | — | — |
| 188681 2005 <i>SY</i> ₂₂₀ | 15.8 | X | 287.49456 | 312.03844 | 349.06657 | 15.64473 | 0.1641708 | 0.24231395 | 2.5481037 | 20 | 4 1.2 | 19.3 |
| 188682 2005 <i>SZ</i> ₂₃₀ | 16.7 | X | 304.36433 | 301.41364 | 187.73174 | 1.31003 | 0.0946241 | 0.21099662 | 2.7943816 | 20 | — | — |
| 188683 2005 <i>SC</i> ₂₃₃ | 15.7 | X | 295.26299 | 28.84740 | 215.33393 | 13.62014 | 0.2153826 | 0.23132550 | 2.6281715 | 20 | 1 23.9 | 19.8 |
| 188684 2005 <i>SA</i> ₂₃₆ | 15.5 | X | 305.60537 | 246.41954 | 6.91772 | 6.75933 | 0.1933191 | 0.23704234 | 2.5857435 | 20 | 2 25.0 | 18.8 |
| 188685 2005 <i>SA</i> ₂₄₁ | 16.5 | X | 173.93593 | 76.18022 | 213.89605 | 11.10363 | 0.0454336 | 0.21817198 | 2.7327720 | 20 | — | — |
| 188686 2005 <i>SM</i> ₂₄₅ | 16.4 | X | 286.30782 | 338.19903 | 204.43632 | 1.48334 | 0.0253190 | 0.21822625 | 2.7323189 | 20 | — | — |
| 188687 2005 <i>ST</i> ₂₅₀ | 17.0 | X | 126.55701 | 218.56027 | 95.97650 | 3.56604 | 0.1823126 | 0.28639504 | 2.2794272 | 20 | — | — |
| 188688 2005 <i>ST</i> ₂₇₁ | 16.7 | X | 328.76860 | 313.15792 | 229.47323 | 1.99354 | 0.0742176 | 0.22787066 | 2.6546694 | 20 | — | — |
| 188689 2005 <i>SF</i> ₂₇₉ | 16.7 | X | 330.82351 | 284.04941 | 200.97393 | 4.00506 | 0.0155569 | 0.21411833 | 2.7671550 | 20 | 1 12.5 | 19.9 |
| 188690 2005 <i>TK</i> | 17.0 | X | 45.49185 | 276.43683 | 80.35072 | 3.18197 | 0.2530480 | 0.27541471 | 2.3396162 | 20 | — | — |
| 188691 2005 <i>TT</i> ₇ | 16.8 | X | 296.78050 | 108.41439 | 166.65239 | 3.00575 | 0.1465826 | 0.24020841 | 2.5629723 | 20 | 3 17.8 | 20.1 |
| 188692 2005 <i>TR</i> ₁₁ | 16.2 | X | 150.75585 | 95.67237 | 182.94502 | 3.46107 | 0.0578161 | 0.21064717 | 2.7974712 | 20 | — | — |
| 188693 2005 <i>TO</i> ₁₄ | 16.9 | X | 340.26256 | 255.75819 | 119.48955 | 7.11878 | 0.1462106 | 0.26724572 | 2.3870538 | 20 | 11 12.2 | 19.2 |
| 188694 2005 <i>TJ</i> ₁₈ | 17.4 | X | 209.41438 | 143.36514 | 174.78681 | 4.42450 | 0.1982680 | 0.30034592 | 2.2082838 | 20 | 2 2.9 | 20.9 |
| 188695 2005 <i>TC</i> ₂₄ | 16.4 | X | 203.46143 | 306.58746 | 65.34111 | 5.00786 | 0.2711023 | 0.23644370 | 2.5901061 | 20 | 4 10.0 | 21.1 |
| 188696 2005 <i>TG</i> ₂₄ | 15.6 | X | 181.83747 | 14.32792 | 52.99964 | 2.37486 | 0.1123487 | 0.17331061 | 3.1860502 | 20 | 5 29.7 | 20.7 |
| 188697 2005 <i>TJ</i> ₂₆ | 16.6 | X | 253.86118 | 111.34127 | 194.40312 | 3.30170 | 0.0696993 | 0.23441798 | 2.6050063 | 20 | 3 15.3 | 20.2 |
| 188698 2005 <i>TF</i> ₂₇ | 16.7 | X | 176.02483 | 272.50657 | 80.41988 | 1.16565 | 0.1051308 | 0.22858426 | 2.6491416 | 20 | 2 20.8 | 20.8 |
| 188699 2005 <i>TQ</i> ₃₁ | 16.3 | X | 319.60139 | 42.34280 | 170.97012 | 4.37451 | 0.0735918 | 0.23228379 | 2.6209382 | 20 | 2 7.5 | 19.7 |
| 188700 2005 <i>TM</i> ₃₉ | 16.7 | X | 155.38193 | 217.89465 | 60.20364 | 5.28766 | 0.0369529 | 0.21178871 | 2.7874100 | 20 | — | — |
| 188701 2005 <i>TD</i> ₅₀ | 15.9 | X | 215.86853 | 192.05671 | 136.77393 | 4.71916 | 0.2426311 | 0.23363587 | 2.6108166 | 20 | 2 27.7 | 20.5 |
| 188702 2005 <i>TR</i> ₅₈ | 16.7 | X | 20.14686 | 271.81586 | 138.41309 | 1.05975 | 0.0678905 | 0.20938518 | 2.8087004 | 20 | — | — |
| 188703 2005 <i>TA</i> ₆₀ | 16.4 | X | 58.80229 | 178.73686 | 220.08697 | 3.03144 | 0.0961916 | 0.21500690 | 2.7595257 | 20 | — | — |
| 188704 2005 <i>TB</i> ₆₄ | 16.3 | X | 317.76745 | 355.21500 | 188.61876 | 1.76840 | 0.0102226 | 0.22391557 | 2.6858383 | 20 | — | — |
| 188705 2005 <i>TE</i> ₇₇ | 16.3 | X | 140.05941 | 178.58822 | 208.42703 | 10.15027 | 0.0554970 | 0.22952367 | 2.6419082 | 20 | 2 15.0 | 20.2 |
| 188706 2005 <i>TR</i> ₉₀ | 16.8 | X | 165.04254 | 161.32251 | 136.08673 | 2.17842 | 0.0713044 | 0.22102814 | 2.7091788 | 20 | — | — |
| 188707 2005 <i>TR</i> ₉₈ | 16.0 | X | 21.74911 | 213.85369 | 91.83325 | 2.69482 | 0.0808014 | 0.19297486 | 2.9657570 | 20 | 9 19.8 | 19.7 |
| 188708 2005 <i>TR</i> ₉₉ | 17.1 | X | 68.43383 | 101.57075 | 228.93776 | 4.87291 | 0.2489605 | 0.27604828 | 2.3360350 | 20 | — | — |
| 188709 2005 <i>TG</i> ₁₀₁ | 16.6 | X | 72.19918 | 265.27902 | 60.00917 | 6.01405 | 0.2546166 | 0.27580249 | 2.3374227 | 20 | — | — |
| 188710 2005 <i>TR</i> ₁₀₁ | 16.9 | X | 200.67381 | 211.56412 | 106.14653 | 5.34509 | 0.2114774 | 0.29821777 | 2.2187773 | 20 | 1 27.9 | 20.5 |
| 188711 2005 <i>TA</i> ₁₂₇ | 16.8 | X | 162.52342 | 174.09702 | 200.13319 | 2.33840 | 0.0189181 | 0.23058655 | 2.6337835 | 20 | 2 24.7 | 20.3 |
| 188712 2005 <i>TR</i> ₁₃₁ | 15.6 | X | 56.33805 | 95.93711 | 70.55654 | 1.94211 | 0.0863043 | 0.16931074</ | | | | |

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

| Planet | <i>H</i> | <i>G</i> | <i>M</i> | ω | Ω | <i>i</i> | <i>e</i> | μ | <i>a</i> | TE | Oppos. | <i>V</i> | | |
|--------|----------|-------------------|----------|----------|-----------|-----------|-----------|----------|-----------|------------|-----------|----------|---------|------|
| 188721 | 2005 | UU | 15.6 | X | 347.01498 | 161.12568 | 176.03793 | 2.72465 | 0.2711350 | 0.19174151 | 2.9784613 | 20 | 9 12.3 | 17.9 |
| 188722 | 2005 | UK ₂ | 16.2 | X | 156.38747 | 297.23567 | 58.32824 | 7.97329 | 0.1888902 | 0.22622619 | 2.6675186 | 20 | 2 13.7 | 20.6 |
| 188723 | 2005 | UX ₁₄ | 16.5 | X | 112.85829 | 156.96894 | 187.51128 | 2.24067 | 0.0751122 | 0.21501867 | 2.7594251 | 20 | — | — |
| 188724 | 2005 | UC ₁₇ | 15.7 | X | 199.05348 | 72.40825 | 237.77145 | 12.95952 | 0.0781087 | 0.22439038 | 2.6820481 | 20 | 1 18.8 | 20.0 |
| 188725 | 2005 | UG ₃₅ | 15.7 | X | 179.29639 | 298.95417 | 47.23638 | 8.69377 | 0.1856531 | 0.22845072 | 2.6501739 | 20 | 2 22.8 | 20.2 |
| 188726 | 2005 | UX ₄₁ | 15.9 | X | 107.75402 | 308.00629 | 68.63066 | 12.76318 | 0.0833682 | 0.21795456 | 2.7345891 | 20 | 1 2.4 | 19.6 |
| 188727 | 2005 | UP ₄₂ | 15.3 | X | 241.32076 | 15.30352 | 38.69636 | 12.47103 | 0.1009943 | 0.18215309 | 3.0820879 | 20 | 7 18.1 | 20.0 |
| 188728 | 2005 | UT ₄₇ | 16.7 | X | 139.17820 | 178.26024 | 188.81101 | 3.44610 | 0.1729475 | 0.22446868 | 2.6814243 | 20 | 2 5.7 | 20.8 |
| 188729 | 2005 | UR ₅₁ | 15.4 | X | 190.22653 | 21.83944 | 27.93431 | 19.94481 | 0.1669900 | 0.17204988 | 3.2015956 | 20 | 5 11.6 | 20.7 |
| 188730 | 2005 | UK ₅₂ | 15.2 | X | 165.77147 | 92.86840 | 238.33240 | 13.34846 | 0.0336801 | 0.22135460 | 2.7065145 | 20 | 1 6.7 | 19.2 |
| 188731 | 2005 | US ₅₄ | 15.2 | X | 193.71794 | 320.02539 | 28.98878 | 14.85071 | 0.1669607 | 0.23108389 | 2.6300032 | 20 | 3 11.2 | 19.7 |
| 188732 | 2005 | UT ₆₃ | 16.7 | X | 128.53032 | 194.78320 | 143.47030 | 1.02660 | 0.0764483 | 0.21446186 | 2.7641992 | 20 | — | — |
| 188733 | 2005 | UT ₆₆ | 15.9 | X | 68.45968 | 246.93629 | 155.78980 | 11.99891 | 0.1587523 | 0.21726013 | 2.7404130 | 20 | — | — |
| 188734 | 2005 | UB ₇₄ | 16.3 | X | 146.39235 | 145.44992 | 211.29317 | 7.99046 | 0.1665508 | 0.22226720 | 2.6991009 | 20 | 1 27.7 | 20.5 |
| 188735 | 2005 | UQ ₇₉ | 15.0 | X | 206.27129 | 254.13899 | 205.11946 | 16.85873 | 0.2355632 | 0.17942889 | 3.1132056 | 20 | 7 21.5 | 20.6 |
| 188736 | 2005 | UF ₁₀₄ | 16.6 | X | 74.63499 | 184.96282 | 163.04694 | 2.27410 | 0.0607425 | 0.20598666 | 2.8395094 | 20 | — | — |
| 188737 | 2005 | UU ₁₁₅ | 15.3 | X | 304.47609 | 326.54941 | 35.53736 | 8.44169 | 0.0639416 | 0.18471214 | 3.0535550 | 20 | 8 9.5 | 19.4 |
| 188738 | 2005 | UA ₁₂₀ | 15.8 | X | 76.46188 | 165.55592 | 25.98705 | 7.22094 | 0.0822156 | 0.17734472 | 3.1375492 | 20 | 7 6.5 | 20.3 |
| 188739 | 2005 | UN ₁₂₃ | 16.2 | X | 165.85119 | 35.76020 | 240.70156 | 1.60536 | 0.0358583 | 0.21082337 | 2.7959123 | 20 | — | — |
| 188740 | 2005 | UU ₁₃₈ | 16.2 | X | 68.61818 | 105.27006 | 187.20337 | 1.79504 | 0.0370377 | 0.19456113 | 2.9496150 | 20 | 10 27.9 | 20.4 |
| 188741 | 2005 | UU ₁₄₁ | 16.2 | X | 158.94193 | 297.14290 | 89.34560 | 6.00442 | 0.1917154 | 0.23057717 | 2.6338549 | 20 | 3 23.7 | 20.5 |
| 188742 | 2005 | UE ₁₄₂ | 16.9 | X | 322.05517 | 191.15258 | 149.08368 | 7.08560 | 0.1533200 | 0.25386090 | 2.4702382 | 20 | 8 1.9 | 19.1 |
| 188743 | 2005 | UU ₁₄₂ | 16.1 | X | 108.72372 | 130.13549 | 35.98365 | 0.68678 | 0.0767410 | 0.17557266 | 3.1586254 | 20 | 7 12.0 | 20.6 |
| 188744 | 2005 | UO ₁₄₈ | 15.8 | X | 178.63531 | 356.01624 | 227.92887 | 14.53510 | 0.0839368 | 0.20258239 | 2.8712318 | 20 | 12 7.4 | 20.2 |
| 188745 | 2005 | UJ ₁₄₉ | 16.3 | X | 204.05698 | 313.02779 | 34.39827 | 5.57811 | 0.2881131 | 0.23537577 | 2.5979346 | 20 | 3 12.7 | 21.0 |
| 188746 | 2005 | UO ₁₆₂ | 16.2 | X | 96.18944 | 240.88590 | 152.44214 | 6.79364 | 0.0986880 | 0.22009447 | 2.7168352 | 20 | 1 9.6 | 19.8 |
| 188747 | 2005 | UU ₁₆₅ | 16.6 | X | 278.71208 | 40.77651 | 226.41788 | 2.95363 | 0.1098732 | 0.23211870 | 2.6221808 | 20 | 2 18.9 | 20.4 |
| 188748 | 2005 | UT ₁₇₁ | 16.3 | X | 198.66217 | 268.33055 | 21.17515 | 2.22395 | 0.1147530 | 0.21978494 | 2.7193854 | 20 | — | — |
| 188749 | 2005 | UO ₂₂₈ | 15.4 | X | 95.65562 | 2.95057 | 212.71561 | 8.31573 | 0.0503607 | 0.18453886 | 3.0554663 | 20 | 8 22.4 | 19.9 |
| 188750 | 2005 | UN ₂₂₉ | 16.5 | X | 30.08592 | 313.83686 | 82.08524 | 3.25891 | 0.0607281 | 0.20691993 | 2.8309650 | 20 | — | — |
| 188751 | 2005 | UV ₂₃₀ | 16.5 | X | 232.72780 | 87.62826 | 224.83191 | 2.35148 | 0.1131993 | 0.23167427 | 2.6255332 | 20 | 2 25.8 | 20.5 |
| 188752 | 2005 | UU ₂₃₁ | 15.9 | X | 233.65271 | 251.22288 | 223.17303 | 10.42745 | 0.0539476 | 0.19123999 | 2.9836662 | 20 | 9 25.1 | 20.3 |
| 188753 | 2005 | UN ₂₄₀ | 16.1 | X | 195.15833 | 170.87123 | 112.25836 | 5.25277 | 0.1281125 | 0.21805928 | 2.7337135 | 20 | — | — |
| 188754 | 2005 | UV ₂₅₅ | 16.2 | X | 52.54346 | 255.27884 | 96.96095 | 3.28704 | 0.0773360 | 0.20263491 | 2.8707357 | 20 | 12 27.8 | 20.0 |
| 188755 | 2005 | UN ₂₅₇ | 15.9 | X | 304.53941 | 290.32693 | 169.04342 | 2.19054 | 0.0274806 | 0.20297892 | 2.8674912 | 20 | 12 15.2 | 19.8 |
| 188756 | 2005 | UF ₂₆₆ | 16.0 | X | 82.50245 | 98.52308 | 140.58680 | 2.71604 | 0.0474014 | 0.18602505 | 3.0391707 | 20 | 9 8.5 | 20.1 |
| 188757 | 2005 | UA ₂₈₃ | 16.7 | X | 231.09727 | 60.40122 | 203.19897 | 12.37665 | 0.1197422 | 0.22304047 | 2.6928589 | 20 | — | — |
| 188758 | 2005 | UP ₂₉₉ | 16.1 | X | 110.86786 | 19.40602 | 166.23320 | 0.44005 | 0.1244630 | 0.17945768 | 3.1128726 | 20 | 8 13.1 | 20.8 |
| 188759 | 2005 | UZ ₂₉₉ | 16.0 | X | 85.73580 | 322.32748 | 50.57885 | 7.86535 | 0.0961361 | 0.21305750 | 2.7763326 | 20 | — | — |
| 188760 | 2005 | UU ₃₀₁ | 15.5 | X | 200.10718 | 355.35983 | 137.98863 | 5.29786 | 0.0933405 | 0.18610131 | 3.0383404 | 20 | 9 9.7 | 20.0 |
| 188761 | 2005 | UJ ₃₂₄ | 16.9 | X | 240.35541 | 170.78672 | 178.65170 | 2.94974 | 0.1872671 | 0.24055373 | 2.5605189 | 20 | 4 15.0 | 20.8 |
| 188762 | 2005 | UG ₃₃₄ | 15.3 | X | 142.52314 | 177.30082 | 70.63382 | 16.54351 | 0.1453067 | 0.19753285 | 2.9199573 | 20 | 11 29.2 | 19.9 |
| 188763 | 2005 | UQ ₃₆₄ | 16.6 | X | 94.49475 | 261.10115 | 103.56857 | 3.19979 | 0.0884790 | 0.21404117 | 2.7678200 | 20 | — | — |
| 188764 | 2005 | US ₃₈₇ | 16.0 | X | 245.77220 | 255.09802 | 125.73981 | 15.41895 | 0.2186699 | 0.24575914 | 2.5242339 | 20 | 5 30.6 | 20.2 |
| 188765 | 2005 | UZ ₃₉₁ | 16.7 | X | 285.52803 | 178.72714 | 149.03119 | 3.02173 | 0.1252627 | 0.24598265 | 2.5227046 | 20 | 5 16.9 | 19.9 |
| 188766 | 2005 | US ₃₉₇ | 17.1 | X | 26.45857 | 124.12789 | 216.28533 | 7.01128 | 0.2394729 | 0.26763433 | 2.3847426 | 20 | 12 20.2 | 20.2 |
| 188767 | 2005 | UJ ₃₉₈ | 16.3 | X | 211.60427 | 239.34150 | 96.65955 | 3.22837 | 0.1443188 | 0.23220448 | 2.6215349 | 20 | 3 6.5 | 20.4 |
| 188768 | 2005 | UE ₄₀₂ | 17.0 | X | 302.11883 | 24.72666 | 105.48972 | 1.79658 | 0.0209870 | 0.21282518 | 2.7783527 | 20 | — | — |
| 188769 | 2005 | UL ₄₀₂ | 16.1 | X | 249.55754 | 114.16599 | 61.17143 | 4.84276 | 0.0424119 | 0.20887114 | 2.8133068 | 20 | — | — |
| 188770 | 2005 | UL ₄₀₆ | 16.5 | X | 359.49734 | 244.77155 | 131.96253 | 2.95591 | 0.0723061 | 0.19918873 | 2.9037522 | 20 | 11 18.2 | 20.1 |
| 188771 | 2005 | UE ₄₁₁ | 15.6 | X | 105.64833 | 119.99644 | 65.00738 | 19.08107 | 0.0394743 | 0.17796107 | 3.1303006 | 20 | 7 31.9 | 20.4 |
| 188772 | 2005 | UF ₄₅₅ | 16.9 | X | 87.22865 | 132.96710 | 226.51775 | 5.75958 | 0.1422021 | 0.27911165 | 2.3189110 | 20 | — | — |
| 188773 | 2005 | UO ₄₆₇ | 16.4 | X | 75.79678 | 4.71855 | 284.02196 | 5.43240 | 0.1039428 | 0.26415693 | 2.4056257 | 20 | 11 21.5 | 19.8 |
| 188774 | 2005 | UP ₄₇₈ | 16.7 | X | 271.74572 | 287.02517 | 46.15623 | 1.51833 | 0.1639169 | 0.24301463 | 2.5432034 | 20 | 4 29.5 | 20.3 |
| 188775 | 2005 | UA ₄₉₇ | 16.5 | X | 81.54644 | 253.36605 | 163.11360 | 8.70539 | 0.1089949 | 0.22206151 | 2.7007674 | 20 | 1 19.2 | 20.0 |
| 188776 | 2005 | UD ₄₉₈ | 16.4 | X | 103.76121 | 226.25099 | 157.92372 | 5.32877 | 0.1234350 | 0.21968939 | 2.7201738 | 20 | 1 11.7 | 20.1 |
| 188777 | 2005 | UP ₅₀₂ | 16.4 | X | 140.34865 | 207.43617 | 151.79332 | 6.57059 | 0.0708279 | 0.22463447 | 2.6801048 | 20 | 1 17.1 | 20.2 |
| 188778 | 2005 | UE ₅₀₉ | 16.4 | X | 126.54496 | 215.04728 | 164.29267 | 6.43061 | 0.0768019 | 0.22130333 | 2.7069325 | 20 | 1 26.6 | 20.2 |
| 188779 | 2005 | UV ₅₁₃ | 16.2 | X | 81.41951 | 245.12374 | 69.08985 | 4.50755 | 0.1274881 | 0.20434774 | 2.8546716 | 20 | 12 19.9 | 20.4 |
| 188780 | 2005 | UH ₅₁₆ | 15.9 | X | 115.64700 | 189.33790 | 86.92512 | 6.06538 | 0.0802898 | 0.19788927 | 2.9164501 | 20 | 12 5.2 | 20.4 |
| 188781 | 2005 | UA ₅₁₇ | 18.1 | X | 0.60442 | 129.24278 | 175.19400 | 6.59951 | 0.1779740 | 0.25914455 | 2.4365463 | 20 | 9 1.6 | 20.1 |
| 188782 | 2005 | VD ₉ | 17.1 | X | 126.71143 | 112.67563 | 170.29915 | 2.15727 | 0.0314152 | 0.20269549 | 2.8701637 | 20 | 12 23.9 | 21.3 |
| 188783 | 2005 | VB ₂₆ | 16.0 | X | 161.31225 | 142.14580 | 15.56176 | 1.37776 | 0.0560904 | 0.19167018 | 2.9792001 | 20 | 8 30.2 | 20.2 |
| 188784 | 2005 | UV ₃₃ | 16.0 | X | 261.08604 | 213.62198 | 206.61437 | 6.32980 | 0.0787921 | 0.18439961 | 3.0570043 | 20 | 8 17.8 | 20.4 |
| 188785 | 2005 | VB ₄₁ | 16.6 | X | 260.21949 | 141.20976 | 205.51391 | 5.07040 | 0.2112903 | 0.24294128 | 2.5437153 | 20 | 4 28.7 | 20.5 |
| 188786 | 2005 | VQ ₄₂ | 15.3 | X | 265.23360 | 355.15503 | 79.70953 | 11.68977 | 0.0703940 | 0.18829909 | 3.0146523 | 20 | 9 21.6 | 19.6 |
| 188787 | 2005 | VC ₄₃ | 16.5 | X | 238.28697 | 307.75637 | 7.11592 | 1.25118 | 0.1159332 | 0.23369997 | 2.6103392 | 20 | 3 6.4 | 20.4 |
| 188788 | 2005 | VK ₅₂ | 15.8 | X | 189.47415 | 285.79828 | 64.32832 | 13.87220 | 0.2132898 | 0.23043353 | 2.6349494 | 20 | 3 10.6 | 20.5 |
| 188789 | 2005 | VL ₅₂ | 15.4 | X | 200.60487 | 242.45261 | 210.69227 | 9.18994 | 0.1540510 | 0.17690207 | 3.1427809 | 20 | 7 15.2 | 20.6 |
| 188790 | 2005 | VJ ₅₈ | 16.1 | X | 35.2130 | | | | | | | | | |

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

| Planet | <i>H</i> | <i>G</i> | <i>M</i> | ω | Ω | <i>i</i> | <i>e</i> | μ | <i>a</i> | TE | Oppos. | <i>V</i> | | |
|--------|----------|-------------------|----------|----------|-----------|-----------|-----------|----------|-----------|------------|-----------|----------|---------|------|
| 188801 | 2005 | WZ ₆₅ | 16.2 | X | 46.11602 | 302.70786 | 62.50866 | 2.97687 | 0.0742134 | 0.20233009 | 2.8736182 | 20 | — | — |
| 188802 | 2005 | WX ₆₇ | 15.1 | X | 89.89795 | 152.35773 | 78.16593 | 18.11140 | 0.1245098 | 0.18146836 | 3.0898360 | 20 | 9 25.6 | 20.1 |
| 188803 | 2005 | WZ ₇₂ | 16.7 | X | 21.25446 | 74.91624 | 272.40950 | 5.98475 | 0.1656665 | 0.26293111 | 2.4130968 | 20 | 12 10.1 | 19.5 |
| 188804 | 2005 | WP ₈₁ | 14.8 | X | 54.79040 | 149.37572 | 66.06216 | 21.41931 | 0.1037598 | 0.17207919 | 3.2012320 | 20 | 7 10.2 | 19.4 |
| 188805 | 2005 | WT ₈₈ | 15.4 | X | 254.08109 | 356.06493 | 335.02648 | 12.26470 | 0.2478011 | 0.23910188 | 2.5708736 | 20 | 3 25.9 | 19.7 |
| 188806 | 2005 | WF ₁₀₃ | 16.3 | X | 266.01766 | 177.59261 | 158.64880 | 5.92028 | 0.2088276 | 0.24350505 | 2.5397876 | 20 | 4 23.1 | 20.0 |
| 188807 | 2005 | WM ₁₁₆ | 16.2 | X | 155.58837 | 228.77329 | 151.37719 | 2.78400 | 0.2211476 | 0.22659851 | 2.6645958 | 20 | 3 12.6 | 20.4 |
| 188808 | 2005 | WS ₁₆₉ | 16.3 | X | 4.40197 | 315.38826 | 65.97360 | 2.93713 | 0.0888606 | 0.20074251 | 2.8887491 | 20 | 12 2.3 | 19.9 |
| 188809 | 2005 | YW ₁₈₁ | 16.3 | X | 113.45528 | 0.01789 | 110.95291 | 5.17073 | 0.0337250 | 0.23336740 | 2.6128186 | 20 | 5 3.5 | 19.8 |
| 188810 | 2005 | WR ₁₈₂ | 15.0 | X | 250.92983 | 14.83622 | 309.74298 | 11.64928 | 0.1930962 | 0.23668537 | 2.5883427 | 20 | 3 18.5 | 19.3 |
| 188811 | 2005 | WJ ₁₈₅ | 15.1 | X | 151.95638 | 292.88319 | 193.01792 | 9.43196 | 0.0900871 | 0.17309300 | 3.1887199 | 20 | 7 8.9 | 20.2 |
| 188812 | 2005 | WK ₁₉₀ | 15.4 | X | 200.97926 | 28.22270 | 92.78007 | 10.80918 | 0.0321455 | 0.18506102 | 3.0497161 | 20 | 9 3.4 | 19.9 |
| 188813 | 2005 | XV ₁ | 16.2 | X | 171.25339 | 157.17235 | 39.85402 | 4.66623 | 0.0958560 | 0.19721153 | 2.9231281 | 20 | 10 27.7 | 20.8 |
| 188814 | 2005 | XS ₉ | 15.6 | X | 278.69812 | 286.63779 | 276.76468 | 8.09445 | 0.0963103 | 0.21176017 | 2.7876604 | 20 | — | — |
| 188815 | 2005 | XZ ₁₂ | 16.3 | X | 116.24413 | 294.04599 | 153.85244 | 2.48162 | 0.0396764 | 0.22751477 | 2.6574370 | 20 | 4 6.4 | 19.8 |
| 188816 | 2005 | XU ₂₄ | 15.3 | X | 123.69455 | 163.09405 | 112.48653 | 3.83997 | 0.0623945 | 0.19069926 | 2.9893037 | 20 | 12 10.5 | 19.7 |
| 188817 | 2005 | XK ₃₂ | 15.2 | X | 32.65141 | 23.10684 | 244.12340 | 8.34004 | 0.0756274 | 0.17848456 | 3.1241769 | 20 | 8 8.6 | 19.5 |
| 188818 | 2005 | XY ₆₈ | 15.3 | X | 23.43367 | 210.66896 | 70.70991 | 16.05847 | 0.1903121 | 0.18176264 | 3.0865002 | 20 | 9 10.4 | 19.3 |
| 188819 | 2005 | XN ₈₇ | 14.9 | X | 195.46564 | 307.85436 | 124.28889 | 15.94936 | 0.1832716 | 0.17130579 | 3.2108599 | 20 | 6 17.6 | 20.4 |
| 188820 | 2005 | YW ₁ | 16.2 | X | 85.30450 | 296.04852 | 103.81509 | 4.78159 | 0.1818191 | 0.21658663 | 2.7460911 | 20 | 1 16.2 | 19.4 |
| 188821 | 2005 | YR ₆ | 16.7 | X | 248.05434 | 41.74562 | 285.65104 | 1.45965 | 0.0276757 | 0.22845283 | 2.6501575 | 20 | 4 10.4 | 20.4 |
| 188822 | 2005 | YT ₆₅ | 15.9 | X | 175.90010 | 206.76675 | 85.26285 | 1.85651 | 0.1408126 | 0.20549488 | 2.8440379 | 20 | — | — |
| 188823 | 2005 | YY ₈₉ | 15.3 | X | 341.53430 | 240.71432 | 112.89409 | 11.29338 | 0.1082236 | 0.18074458 | 3.0980792 | 20 | 9 23.5 | 19.2 |
| 188824 | 2005 | YZ ₉₄ | 15.3 | X | 338.79309 | 199.98556 | 146.37653 | 8.12819 | 0.1242824 | 0.17784012 | 3.1317197 | 20 | 9 4.1 | 19.0 |
| 188825 | 2005 | YA ₁₇₈ | 16.1 | X | 354.51867 | 310.08375 | 76.57271 | 15.98660 | 0.1004591 | 0.19670939 | 2.9281005 | 20 | 11 26.1 | 19.8 |
| 188826 | 2005 | YZ ₁₉₄ | 15.2 | X | 347.00849 | 240.27310 | 125.08127 | 10.84142 | 0.1044446 | 0.18596666 | 3.0398069 | 20 | 10 18.8 | 19.1 |
| 188827 | 2005 | YK ₂₂₁ | 15.5 | X | 19.65496 | 224.43782 | 82.65141 | 12.98338 | 0.1668981 | 0.18823195 | 3.0153692 | 20 | 10 4.8 | 19.4 |
| 188828 | 2005 | YH ₂₇₇ | 16.7 | X | 195.09749 | 102.78187 | 201.52834 | 0.55904 | 0.1606210 | 0.22016278 | 2.7162732 | 20 | 1 14.0 | 21.0 |
| 188829 | 2006 | AV ₁₉ | 15.1 | X | 80.73508 | 244.44352 | 93.65266 | 13.63617 | 0.1867099 | 0.19790183 | 2.9163267 | 20 | — | — |
| 188830 | 2006 | AX ₂₁ | 14.3 | X | 318.54550 | 9.82191 | 72.94709 | 10.24828 | 0.2623577 | 0.12360480 | 3.9912827 | 20 | 11 10.0 | 18.6 |
| 188831 | 2006 | AY ₇₅ | 14.8 | X | 304.45633 | 18.61182 | 68.14609 | 3.06529 | 0.1683118 | 0.12598224 | 3.9409098 | 20 | 10 30.7 | 19.6 |
| 188832 | 2006 | AZ ₇₇ | 15.7 | X | 355.55982 | 190.38826 | 145.41794 | 1.86243 | 0.1694174 | 0.17940818 | 3.1134451 | 20 | 9 21.7 | 19.0 |
| 188833 | 2006 | BS ₂₄ | 15.7 | X | 109.95759 | 168.83219 | 158.91144 | 2.30012 | 0.0692299 | 0.19756299 | 2.9196603 | 20 | — | — |
| 188834 | 2006 | BW ₃₆ | 14.9 | X | 353.62688 | 212.99052 | 124.34012 | 18.30779 | 0.1479097 | 0.18120332 | 3.0928483 | 20 | 9 25.5 | 18.7 |
| 188835 | 2006 | BP ₉₀ | 13.9 | X | 136.26073 | 305.15471 | 149.29601 | 10.56542 | 0.0325424 | 0.08290017 | 5.2091367 | 20 | 5 15.2 | 21.0 |
| 188836 | 2006 | BK ₁₅₉ | 13.6 | X | 250.18289 | 157.87572 | 181.30249 | 4.08529 | 0.0681653 | 0.08407153 | 5.1606382 | 20 | 4 30.8 | 20.6 |
| 188837 | 2006 | BN ₁₉₄ | 12.8 | X | 337.43657 | 322.02381 | 290.49069 | 4.39418 | 0.1141563 | 0.08272714 | 5.2163979 | 20 | 4 29.9 | 19.3 |
| 188838 | 2006 | BG ₂₀₁ | 14.8 | X | 11.05280 | 204.47731 | 125.10876 | 24.05434 | 0.1139549 | 0.18201060 | 3.0836963 | 20 | 10 15.2 | 19.2 |
| 188839 | 2006 | CA ₆ | 15.6 | X | 270.88414 | 310.74270 | 151.37293 | 10.57352 | 0.0474066 | 0.18284893 | 3.0742635 | 20 | 11 1.5 | 19.9 |
| 188840 | 2006 | CK ₁₆ | 15.8 | X | 111.57403 | 175.82139 | 145.18646 | 11.44020 | 0.1019817 | 0.19504111 | 2.9447738 | 20 | — | — |
| 188841 | 2006 | DZ ₃₉ | 13.5 | X | 276.01646 | 169.23202 | 136.75546 | 8.16619 | 0.1124290 | 0.08165231 | 5.2620755 | 20 | 4 18.3 | 20.5 |
| 188842 | 2006 | DP ₁₂₉ | 13.8 | X | 94.55319 | 13.99679 | 128.41377 | 9.04294 | 0.0335670 | 0.08327570 | 5.1934647 | 20 | 5 23.0 | 20.7 |
| 188843 | 2006 | DX ₁₃₁ | 13.6 | X | 272.31780 | 230.84068 | 90.55387 | 4.68386 | 0.0434806 | 0.08166006 | 5.2617423 | 20 | 5 8.3 | 20.6 |
| 188844 | 2006 | DH ₁₅₇ | 13.7 | X | 356.73827 | 92.95241 | 155.01160 | 9.63533 | 0.3190155 | 0.08197363 | 5.2483157 | 20 | 5 26.9 | 20.6 |
| 188845 | 2006 | DK ₁₈₉ | 13.1 | X | 244.01939 | 188.42007 | 170.54560 | 12.13231 | 0.0586864 | 0.08047343 | 5.3133414 | 20 | 5 19.1 | 20.3 |
| 188846 | 2006 | EV ₂₅ | 13.2 | X | 320.83059 | 116.90826 | 159.40486 | 11.27471 | 0.0145607 | 0.08386903 | 5.1689416 | 20 | 5 18.0 | 20.1 |
| 188847 | 2006 | Rhipeus | 13.7 | X | 87.40714 | 266.35946 | 232.89177 | 7.10073 | 0.0623093 | 0.08354875 | 5.1821434 | 20 | 5 12.8 | 20.5 |
| 188848 | 2006 | RM ₉₂ | 16.9 | X | 344.67227 | 301.32720 | 210.99621 | 2.71357 | 0.0507695 | 0.31302201 | 2.1482565 | 20 | — | — |
| 188849 | 2006 | SL ₁₉ | 17.6 | X | 325.58773 | 178.32510 | 239.95880 | 20.92014 | 0.0940891 | 0.36327276 | 1.9452742 | 20 | — | — |
| 188850 | 2006 | SS ₉₃ | 17.4 | X | 188.63690 | 277.16943 | 196.02127 | 1.75651 | 0.1280000 | 0.26900550 | 2.3766320 | 20 | 8 5.9 | 21.0 |
| 188851 | 2006 | SJ ₉₇ | 17.7 | X | 191.81487 | 81.74092 | 21.54137 | 1.63664 | 0.1369800 | 0.26787223 | 2.3833304 | 20 | 7 27.6 | 21.3 |
| 188852 | 2006 | SE ₁₁₇ | 17.7 | X | 318.02329 | 79.74434 | 69.61011 | 0.72841 | 0.1372499 | 0.30320806 | 2.1943651 | 20 | — | — |
| 188853 | 2006 | SE ₁₅₀ | 17.5 | X | 171.37651 | 255.38735 | 214.32427 | 4.36563 | 0.1128892 | 0.26591055 | 2.3950376 | 20 | 7 13.6 | 21.1 |
| 188854 | 2006 | SF ₁₅₁ | 17.3 | X | 59.61285 | 202.89144 | 313.62846 | 1.52110 | 0.1478284 | 0.25383462 | 2.4704087 | 20 | 5 4.1 | 19.9 |
| 188855 | 2006 | SC ₁₉₈ | 16.8 | X | 11.00377 | 14.00225 | 33.08526 | 8.47321 | 0.1010754 | 0.29620007 | 2.2288420 | 20 | — | — |
| 188856 | 2006 | SN ₂₆₁ | 17.1 | X | 290.10712 | 33.07984 | 60.89553 | 6.78477 | 0.1019875 | 0.28799849 | 2.2709587 | 20 | 12 6.9 | 19.3 |
| 188857 | 2006 | ST ₃₄₅ | 17.1 | X | 337.23262 | 167.08737 | 261.80526 | 2.40604 | 0.1093739 | 0.29218367 | 2.2492208 | 20 | — | — |
| 188858 | 2006 | TL ₁₆ | 17.2 | X | 268.67560 | 55.88587 | 28.16828 | 8.02501 | 0.1289059 | 0.28039370 | 2.3118370 | 20 | 10 10.8 | 19.4 |
| 188859 | 2006 | TC ₂₂ | 17.3 | X | 12.08335 | 358.45408 | 58.49056 | 5.37795 | 0.1503864 | 0.29508618 | 2.2344474 | 20 | — | — |
| 188860 | 2006 | TX ₂₈ | 17.5 | X | 309.79059 | 87.38090 | 36.68192 | 7.64040 | 0.0312567 | 0.29713488 | 2.2241648 | 20 | — | — |
| 188861 | 2006 | TM ₃₁ | 15.3 | X | 187.65245 | 44.41299 | 33.39431 | 9.37207 | 0.0817364 | 0.18960026 | 3.0008441 | 20 | 6 17.7 | 20.0 |
| 188862 | 2006 | TL ₄₂ | 17.3 | X | 13.05246 | 284.01445 | 223.09552 | 2.06334 | 0.0842189 | 0.31183878 | 2.1536872 | 20 | 1 11.8 | 19.4 |
| 188863 | 2006 | TG ₉₉ | 17.2 | X | 288.15719 | 93.91193 | 46.64132 | 4.98799 | 0.1108752 | 0.29498485 | 2.2349591 | 20 | — | — |
| 188864 | 2006 | UW ₁₁₆ | 17.3 | X | 161.28974 | 141.64424 | 30.58492 | 3.03465 | 0.1529370 | 0.27636982 | 2.3342228 | 20 | 9 26.2 | 20.9 |
| 188865 | 2006 | UW ₁₃₃ | 17.7 | X | 222.10659 | 96.41416 | 65.31413 | 3.57847 | 0.1400726 | 0.28404159 | 2.2920008 | 20 | 11 19.2 | 20.4 |
| 188866 | 2006 | UC ₁₅₀ | 15.9 | X | 120.99265 | 204.48188 | 135.96722 | 16.11353 | 0.1151409 | 0.23145162 | 2.6272167 | 20 | — | — |
| 188867 | 2006 | US ₁₇₄ | 17.6 | X | 262.35858 | 224.56206 | 200.58172 | 4.52807 | 0.2040574 | 0.27133546 | 2.3630070 | 20 | 8 16.5 | 20.6 |
| 188868 | 2006 | UQ ₁₈₀ | 16.2 | X | 68.45405 | 349.32365 | 138.49806 | 7.36247 | 0.2094305 | 0.24487156 | 2.5303299 | 20 | 4 22.3 | 19.2 |
| 188869 | 2006 | UE ₁₉₇ | 16.3 | X | 337.36313 | 252.69566 | 231.70908 | 1.31605 | 0.1524412 | 0.22576099 | 2.6711818 | 20 | — | — |
| 188870 | 2006 | UD ₂₃₃ | 15.6 | X | 2.99932 | 100.39681 | 98.05129 | | | | | | | |

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

| Planet | <i>H</i> | <i>G</i> | <i>M</i> | ω | Ω | <i>i</i> | <i>e</i> | μ | <i>a</i> | TE | Oppos. | <i>V</i> | | |
|--------|----------|-------------------|----------|----------|-----------|-----------|-----------|----------|-----------|------------|-----------|----------|---------|------|
| 188881 | 2006 | WT ₁₂ | 16.6 | X | 210.38393 | 184.28255 | 192.38146 | 3.48172 | 0.0915330 | 0.25249319 | 2.4791508 | 20 | 4 24.9 | 20.1 |
| 188882 | 2006 | WH ₁₃ | 17.0 | X | 188.30769 | 151.54395 | 184.11851 | 3.17391 | 0.0276268 | 0.31144510 | 2.1555018 | 20 | 1 26.6 | 19.5 |
| 188883 | 2006 | WJ ₄₄ | 17.0 | X | 163.00669 | 310.72894 | 175.65325 | 5.12259 | 0.0888731 | 0.26255075 | 2.4154268 | 20 | 7 26.6 | 20.5 |
| 188884 | 2006 | WM ₄₄ | 16.4 | X | 22.13772 | 309.85876 | 181.62983 | 5.40004 | 0.2179901 | 0.23271268 | 2.6177170 | 20 | 1 16.8 | 18.6 |
| 188885 | 2006 | WQ ₆₉ | 16.8 | X | 303.43895 | 269.83896 | 119.75778 | 7.87367 | 0.1150514 | 0.26687914 | 2.3892392 | 20 | 9 22.4 | 19.2 |
| 188886 | 2006 | WL ₈₁ | 15.9 | X | 49.97628 | 287.47757 | 219.36473 | 3.98107 | 0.2121653 | 0.24051122 | 2.5608206 | 20 | 4 13.5 | 18.2 |
| 188887 | 2006 | WD ₁₅₂ | 16.6 | X | 302.33735 | 350.86693 | 79.52329 | 6.44885 | 0.0867666 | 0.27986405 | 2.3147529 | 20 | 11 23.1 | 18.9 |
| 188888 | 2006 | WT ₁₆₉ | 16.0 | X | 32.77838 | 88.78734 | 68.54372 | 4.61267 | 0.1555478 | 0.23983149 | 2.5656569 | 20 | 3 21.6 | 18.5 |
| 188889 | 2006 | WQ ₁₉₆ | 15.7 | X | 0.64834 | 43.09529 | 60.98487 | 26.54582 | 0.1839139 | 0.22057646 | 2.7128760 | 20 | — | — |
| 188890 | 2006 | XQ | 17.1 | X | 245.71174 | 358.81094 | 92.88582 | 3.29064 | 0.1436887 | 0.27115893 | 2.3640325 | 20 | 9 13.6 | 20.0 |
| 188891 | 2006 | XH ₁₀ | 16.5 | X | 130.55628 | 33.00714 | 66.32098 | 4.59485 | 0.1461654 | 0.24732165 | 2.5135911 | 20 | 5 19.9 | 20.3 |
| 188892 | 2006 | XM ₁₉ | 16.8 | X | 264.09865 | 320.28322 | 100.25143 | 3.97574 | 0.1519875 | 0.26790063 | 2.3831620 | 20 | 8 24.2 | 19.6 |
| 188893 | 2006 | XW ₂₆ | 16.5 | X | 116.63115 | 236.34741 | 242.80324 | 2.21397 | 0.0936222 | 0.24658639 | 2.5185852 | 20 | 5 24.4 | 19.9 |
| 188894 | 2006 | XS ₅₆ | 16.7 | X | 202.98292 | 38.90498 | 81.96057 | 4.20497 | 0.0993743 | 0.26777652 | 2.3838983 | 20 | 9 6.4 | 20.1 |
| 188895 | 2006 | XW ₆₂ | 16.8 | X | 58.00458 | 216.76582 | 95.25060 | 10.96868 | 0.0617152 | 0.27413297 | 2.3469033 | 20 | 11 30.1 | 19.8 |
| 188896 | 2006 | XX ₆₈ | 15.8 | X | 180.06032 | 202.83446 | 211.49755 | 12.87765 | 0.1757455 | 0.24639220 | 2.5199084 | 20 | 5 12.3 | 19.9 |
| 188897 | 2006 | YD ₈ | 16.5 | X | 101.74482 | 346.42723 | 111.39318 | 7.03665 | 0.0779253 | 0.23824624 | 2.5770252 | 20 | 4 8.5 | 20.0 |
| 188898 | 2006 | YQ ₄₀ | 16.5 | X | 36.36554 | 290.62407 | 105.39082 | 5.45966 | 0.1320738 | 0.29152613 | 2.2526016 | 20 | — | — |
| 188899 | 2006 | YG ₄₆ | 16.4 | X | 117.24967 | 245.52105 | 196.68244 | 3.19005 | 0.1441633 | 0.23931849 | 2.5693220 | 20 | 4 12.8 | 19.9 |
| 188900 | 2007 | AL ₈ | 16.6 | X | 7.51907 | 144.37546 | 143.78311 | 4.08428 | 0.1827385 | 0.25591475 | 2.4570038 | 20 | 8 22.7 | 18.6 |
| 188901 | 2007 | AO ₈ | 16.5 | X | 204.40506 | 312.03324 | 207.24212 | 1.42771 | 0.0284308 | 0.19728441 | 2.9224082 | 20 | 10 23.0 | 20.6 |
| 188902 | 2007 | AF ₁₄ | 16.7 | X | 149.64433 | 258.11223 | 128.28999 | 6.40392 | 0.1054493 | 0.23602281 | 2.5931844 | 20 | 3 6.2 | 20.4 |
| 188903 | 2007 | AS ₁₇ | 16.0 | X | 27.31382 | 293.73596 | 137.59146 | 12.39915 | 0.1588300 | 0.21818255 | 2.7326838 | 20 | — | — |
| 188904 | 2007 | AL ₂₃ | 16.2 | X | 293.63457 | 52.10337 | 137.63627 | 7.19038 | 0.0713276 | 0.22006581 | 2.7170711 | 20 | — | — |
| 188905 | 2007 | AV ₂₅ | 16.7 | X | 293.24759 | 258.56589 | 147.66303 | 13.54648 | 0.2089603 | 0.26967230 | 2.3727127 | 20 | 9 14.1 | 18.8 |
| 188906 | 2007 | AX ₂₆ | 16.2 | X | 275.05321 | 24.57552 | 137.33416 | 5.15082 | 0.0090090 | 0.21053246 | 2.7984873 | 20 | — | — |
| 188907 | 2007 | BL ₅ | 15.9 | X | 322.60867 | 31.48320 | 109.98238 | 10.33998 | 0.0730156 | 0.21639159 | 2.7477410 | 20 | — | — |
| 188908 | 2007 | BS ₈ | 16.3 | X | 108.65778 | 341.18557 | 94.06244 | 12.84541 | 0.1446736 | 0.23592653 | 2.5938898 | 20 | 3 31.9 | 20.1 |
| 188909 | 2007 | BC ₉ | 16.2 | X | 35.70773 | 342.80635 | 94.34029 | 5.98545 | 0.1548612 | 0.22182071 | 2.7027216 | 20 | — | — |
| 188910 | 2007 | BG ₁₀ | 16.7 | X | 141.85420 | 297.58173 | 102.42245 | 7.87932 | 0.1774827 | 0.23637082 | 2.5906384 | 20 | 3 23.9 | 20.8 |
| 188911 | 2007 | BN ₁₀ | 16.2 | X | 123.74188 | 235.86292 | 123.25311 | 7.01469 | 0.0564200 | 0.22313259 | 2.6921177 | 20 | — | — |
| 188912 | 2007 | BV ₁₄ | 16.4 | X | 351.75765 | 20.24591 | 108.65226 | 5.74969 | 0.0561907 | 0.21987973 | 2.7186038 | 20 | — | — |
| 188913 | 2007 | BV ₁₅ | 16.8 | X | 79.53639 | 230.55181 | 85.62127 | 3.21395 | 0.0583797 | 0.20289128 | 2.8683169 | 20 | 12 12.9 | 20.9 |
| 188914 | 2007 | BT ₁₈ | 15.5 | X | 185.75003 | 0.97207 | 127.43472 | 12.44647 | 0.0713530 | 0.18239604 | 3.0793504 | 20 | 8 20.2 | 20.1 |
| 188915 | 2007 | BJ ₁₉ | 16.1 | X | 163.24883 | 291.42776 | 118.42603 | 16.15252 | 0.1266017 | 0.24065586 | 2.5597944 | 20 | 4 26.0 | 20.4 |
| 188916 | 2007 | BK ₄₄ | 15.9 | X | 19.95660 | 293.65715 | 150.50889 | 15.29025 | 0.0809701 | 0.21404566 | 2.7677812 | 20 | — | — |
| 188917 | 2007 | BE ₄₇ | 15.4 | X | 179.03184 | 315.81774 | 129.25555 | 12.80133 | 0.0360015 | 0.17292370 | 3.1908009 | 20 | 6 19.2 | 20.2 |
| 188918 | 2007 | BF ₅₀ | 16.0 | X | 44.51330 | 322.55234 | 107.36891 | 13.31018 | 0.1913091 | 0.22161303 | 2.7040099 | 20 | — | — |
| 188919 | 2007 | BF ₅₃ | 16.5 | X | 347.71587 | 1.64056 | 112.89433 | 7.18694 | 0.0194246 | 0.21625854 | 2.7488679 | 20 | — | — |
| 188920 | 2007 | BP ₆₄ | 16.5 | X | 217.17480 | 82.14803 | 151.37998 | 5.87728 | 0.0117756 | 0.21188093 | 2.7866011 | 20 | — | — |
| 188921 | 2007 | BV ₆₆ | 15.9 | X | 96.06091 | 163.96605 | 143.92647 | 2.60130 | 0.0446828 | 0.19978254 | 2.8979954 | 20 | 12 19.6 | 20.0 |
| 188922 | 2007 | BZ ₆₆ | 16.0 | X | 6.23418 | 282.89966 | 335.92196 | 0.41136 | 0.0523574 | 0.17034854 | 3.2228773 | 20 | 6 20.9 | 20.1 |
| 188923 | 2007 | BC ₇₄ | 15.2 | X | 173.93674 | 293.50249 | 159.38367 | 14.47852 | 0.0458959 | 0.17618556 | 3.1512958 | 20 | 6 22.8 | 20.1 |
| 188924 | 2007 | BL ₇₅ | 16.4 | X | 168.02419 | 106.14015 | 152.24807 | 10.81914 | 0.0657186 | 0.20452666 | 2.8530065 | 20 | — | — |
| 188925 | 2007 | BM ₇₆ | 15.3 | X | 102.57167 | 88.54841 | 121.36476 | 11.88975 | 0.0640382 | 0.18173920 | 3.0867655 | 20 | 8 30.6 | 19.8 |
| 188926 | 2007 | CF ₁ | 16.9 | X | 317.94956 | 239.95923 | 140.97246 | 2.75181 | 0.0212674 | 0.26710700 | 2.3878802 | 20 | 9 30.4 | 18.4 |
| 188927 | 2007 | CM ₂ | 15.3 | X | 251.13712 | 92.07138 | 157.52599 | 6.17290 | 0.0495576 | 0.14752389 | 3.5472719 | 20 | 1 16.9 | 20.5 |
| 188928 | 2007 | CV ₂ | 16.3 | X | 128.91627 | 13.62589 | 190.72330 | 2.48604 | 0.0985074 | 0.18653077 | 3.0336750 | 20 | 9 22.3 | 20.9 |
| 188929 | 2007 | CA ₉ | 16.5 | X | 332.47015 | 274.50405 | 142.10760 | 2.51704 | 0.0321883 | 0.20292002 | 2.8680460 | 20 | 11 29.2 | 20.2 |
| 188930 | 2007 | CJ ₂₀ | 16.3 | X | 337.89230 | 338.31872 | 157.09999 | 9.27446 | 0.0766728 | 0.21791916 | 2.7348852 | 20 | — | — |
| 188931 | 2007 | CB ₂₅ | 16.4 | X | 62.71505 | 286.20576 | 162.80722 | 10.39446 | 0.1604660 | 0.22792350 | 2.6542591 | 20 | 2 7.4 | 19.4 |
| 188932 | 2007 | CU ₂₈ | 16.7 | X | 350.57788 | 14.95319 | 130.88460 | 5.14659 | 0.0402269 | 0.22408376 | 2.6844942 | 20 | — | — |
| 188933 | 2007 | CC ₃₁ | 16.7 | X | 296.38278 | 167.10399 | 140.48970 | 8.13159 | 0.0961455 | 0.24393504 | 2.5368021 | 20 | 5 11.2 | 20.0 |
| 188934 | 2007 | CK ₄₂ | 16.7 | X | 257.18611 | 236.72452 | 172.58128 | 5.84853 | 0.1132973 | 0.25957466 | 2.4338540 | 20 | 7 31.7 | 19.8 |
| 188935 | 2007 | CX ₄₂ | 16.2 | X | 322.43473 | 323.24632 | 156.60227 | 4.44539 | 0.0541421 | 0.21028506 | 2.8006818 | 20 | — | — |
| 188936 | 2007 | CD ₅₈ | 15.6 | X | 93.90831 | 296.69878 | 105.22436 | 15.14465 | 0.0706195 | 0.22264013 | 2.6960860 | 20 | 1 13.6 | 18.9 |
| 188937 | 2007 | CW ₆₁ | 15.5 | X | 83.69720 | 125.79390 | 47.45342 | 7.89013 | 0.0862893 | 0.17366949 | 3.1816594 | 20 | 6 21.5 | 20.0 |
| 188938 | 2007 | DO ₁ | 15.5 | X | 102.38036 | 42.06665 | 189.06651 | 9.46264 | 0.0351920 | 0.18396744 | 3.0617901 | 20 | 9 19.4 | 19.8 |
| 188939 | 2007 | DN ₂ | 15.5 | X | 197.37538 | 307.26523 | 132.63985 | 11.53061 | 0.0975392 | 0.17628761 | 3.1500796 | 20 | 6 30.5 | 20.4 |
| 188940 | 2007 | DJ ₃ | 15.7 | X | 144.73666 | 103.02269 | 87.78690 | 5.85151 | 0.0896828 | 0.18663796 | 3.0325134 | 20 | 9 24.9 | 20.4 |
| 188941 | 2007 | DT ₇ | 16.4 | X | 177.39702 | 86.94135 | 193.04005 | 3.98223 | 0.0317726 | 0.21087577 | 2.7954492 | 20 | — | — |
| 188942 | 2007 | DD ₈ | 12.9 | X | 283.77107 | 139.70438 | 167.89393 | 19.01192 | 0.1230423 | 0.08262505 | 5.2206940 | 20 | 4 27.8 | 19.9 |
| 188943 | 2007 | DN ₄₃ | 15.4 | X | 120.99582 | 357.13973 | 167.02390 | 16.80514 | 0.0570178 | 0.17420289 | 3.1751615 | 20 | 7 19.9 | 20.4 |
| 188944 | 2007 | DW ₄₆ | 15.1 | X | 35.28342 | 290.75919 | 319.35579 | 8.35438 | 0.0474469 | 0.17491399 | 3.1665500 | 20 | 7 21.9 | 19.3 |
| 188945 | 2007 | DT ₆₀ | 15.2 | X | 122.72875 | 236.78443 | 223.40330 | 12.12011 | 0.2344506 | 0.16927035 | 3.2365485 | 20 | 5 23.2 | 20.4 |
| 188946 | 2007 | DX ₈₅ | 15.9 | X | 172.29271 | 330.87540 | 154.43251 | 4.89978 | 0.0379349 | 0.17839180 | 3.1252597 | 20 | 7 30.7 | 20.4 |
| 188947 | 2007 | DR ₈₆ | 15.8 | X | 21.90796 | 169.73167 | 145.08667 | 10.41426 | 0.0623868 | 0.18738201 | 3.0244805 | 20 | 9 30.4 | 19.8 |
| 188948 | 2007 | EW ₅ | 16.7 | X | 287.35066 | 173.05000 | 168.32764 | 3.06068 | 0.2237785 | 0.24606884 | 2.5221155 | 20 | 5 22.3 | 19.8 |
| 188949 | 2007 | EZ ₆ | 15.5 | X | 318.81846 | 181.83408 | 165.86598 | 14.90879 | 0.0915037 | 0.17789096 | 3.1311231 | 20 | 8 2.6 | 19.6 |
| 188950 | 2007 | EC ₃₁ | 15.4 | X | 33.79464 | 59.75353 | 169.89040 | 4.02005 | 0.0965477 | 0.16957717 | 3. | | | |

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

| Planet | <i>H</i> | <i>G</i> | <i>M</i> | ω | Ω | <i>i</i> | <i>e</i> | μ | <i>a</i> | TE | Oppos. | <i>V</i> |
|-------------------------------|----------|----------|-----------|-----------|-----------|----------|-----------|------------|-----------|----|---------|----------|
| 188961 2007 ES ₂₁₁ | 15.5 | X | 31.49708 | 92.09718 | 178.75394 | 9.12226 | 0.0341047 | 0.17662122 | 3.1461117 | 20 | 8 8.2 | 20.0 |
| 188962 2007 FP ₈ | 16.0 | X | 266.98360 | 10.56061 | 224.93600 | 5.89113 | 0.0028021 | 0.21338463 | 2.7734944 | 20 | 1 12.5 | 19.8 |
| 188963 2007 GQ ₁₃ | 15.9 | X | 303.81271 | 330.75694 | 22.53526 | 12.54950 | 0.2144081 | 0.24633231 | 2.5203168 | 20 | 7 8.7 | 18.8 |
| 188964 2007 HV ₁₉ | 15.4 | X | 6.47286 | 146.27821 | 204.60836 | 6.93074 | 0.0714485 | 0.17769308 | 3.1334471 | 20 | 10 20.7 | 19.4 |
| 188965 2007 YY ₅₆ | 12.5 | X | 326.10393 | 195.89694 | 77.75627 | 19.49079 | 0.1292904 | 0.08335311 | 5.1902489 | 20 | 5 12.9 | 19.0 |
| 188966 2008 AQ ₁₀₁ | 12.7 | X | 307.09064 | 193.55446 | 95.16647 | 12.90454 | 0.0685445 | 0.08306761 | 5.2021345 | 20 | 5 11.3 | 19.5 |
| 188967 2008 CW ₁₅₃ | 16.7 | X | 172.05702 | 84.68918 | 18.08470 | 6.07336 | 0.1033207 | 0.26834152 | 2.3805509 | 20 | 7 6.9 | 20.3 |
| 188968 2008 CN ₁₈₃ | 15.5 | X | 355.42628 | 215.90091 | 80.65290 | 2.74024 | 0.2289296 | 0.17499950 | 3.1655185 | 20 | 7 29.5 | 18.6 |
| 188969 2008 DH ₃₈ | 16.1 | X | 254.48009 | 242.31803 | 230.65482 | 1.13969 | 0.0335429 | 0.20247631 | 2.8722346 | 20 | 10 27.0 | 20.1 |
| 188970 2008 DD ₅₆ | 16.6 | X | 46.91749 | 36.95980 | 103.96666 | 3.12192 | 0.0242524 | 0.24281494 | 2.5445976 | 20 | 3 11.1 | 19.8 |
| 188971 2008 DH ₅₈ | 16.0 | X | 152.27045 | 215.78598 | 25.44656 | 3.93061 | 0.0468424 | 0.21131074 | 2.7916117 | 20 | 12 3.4 | 20.1 |
| 188972 2008 EW ₁₁ | 15.4 | X | 80.73246 | 253.39972 | 26.13740 | 12.52246 | 0.2177963 | 0.19737302 | 2.9215334 | 20 | 11 13.4 | 20.1 |
| 188973 Siufaiwing | 17.7 | X | 267.66527 | 29.47610 | 164.63159 | 5.40926 | 0.1000744 | 0.30358809 | 2.1925335 | 20 | — | — |
| 188974 2008 EB ₅₅ | 16.1 | X | 233.36110 | 55.43233 | 30.03034 | 10.22874 | 0.0753364 | 0.19078703 | 2.9883868 | 20 | 8 24.1 | 20.5 |
| 188975 2008 ET ₅₆ | 14.9 | X | 318.26550 | 140.63041 | 163.63385 | 15.99558 | 0.0387009 | 0.17937008 | 3.1138861 | 20 | 6 14.2 | 19.4 |
| 188976 2008 EP ₆₈ | 12.4 | X | 294.11864 | 193.13726 | 128.49932 | 30.57677 | 0.0742386 | 0.08273147 | 5.2162158 | 20 | 6 5.7 | 19.5 |
| 188977 2008 ER ₈₉ | 16.7 | X | 271.07978 | 245.93728 | 170.77938 | 6.42176 | 0.0841687 | 0.27852950 | 2.3221410 | 20 | 9 9.7 | 19.1 |
| 188978 2008 ER ₁₁₉ | 16.3 | X | 349.97735 | 337.79515 | 41.82628 | 2.45955 | 0.0987837 | 0.20436793 | 2.8544836 | 20 | 11 10.1 | 19.6 |
| 188979 2008 EK ₁₂₆ | 17.8 | X | 312.73839 | 276.99604 | 205.60040 | 6.11950 | 0.0982585 | 0.30078894 | 2.2061150 | 20 | — | — |
| 188980 2008 FR ₁₅ | 15.4 | X | 137.18372 | 62.59707 | 81.72141 | 10.61567 | 0.0115344 | 0.17828123 | 2.6165518 | 20 | 7 12.3 | 19.8 |
| 188981 2008 FC ₆₁ | 15.6 | X | 210.17151 | 100.69420 | 208.21979 | 11.61988 | 0.1647459 | 0.22555557 | 2.6728034 | 20 | 1 28.6 | 20.2 |
| 188982 2008 FK ₆₃ | 17.1 | X | 47.91983 | 103.06025 | 153.93775 | 6.43632 | 0.0713608 | 0.26562872 | 2.3967314 | 20 | 8 30.6 | 19.7 |
| 188983 2008 FY ₆₅ | 16.1 | X | 167.00993 | 92.75661 | 199.32523 | 6.10760 | 0.0910908 | 0.21509235 | 2.7587948 | 20 | — | — |
| 188984 2008 FV ₆₆ | 15.9 | X | 41.98276 | 128.87772 | 108.87080 | 2.38075 | 0.1537700 | 0.17514164 | 3.1638055 | 20 | 7 28.7 | 19.9 |
| 188985 2008 FD ₇₈ | 16.9 | X | 260.11726 | 84.53473 | 216.16918 | 2.81867 | 0.0653055 | 0.24351667 | 2.5397068 | 20 | 3 15.5 | 20.3 |
| 188986 2008 FY ₈₈ | 13.7 | X | 52.64229 | 108.64029 | 68.47475 | 4.65475 | 0.0437709 | 0.08349467 | 5.1843806 | 20 | 5 13.3 | 20.4 |
| 188987 2008 FY ₉₆ | 16.9 | X | 94.48003 | 95.90370 | 174.46461 | 8.94365 | 0.2065879 | 0.27300976 | 2.3533360 | 20 | 11 29.2 | 20.8 |
| 188988 2008 GQ ₃₆ | 17.6 | X | 167.95026 | 164.85430 | 75.64439 | 6.62243 | 0.1177726 | 0.28651685 | 2.2787811 | 20 | — | — |
| 188989 2008 GT ₅₆ | 17.1 | X | 358.00811 | 248.30996 | 38.02195 | 6.34254 | 0.0830696 | 0.26014655 | 2.4302857 | 20 | 7 25.1 | 19.7 |
| 188990 2008 GF ₆₅ | 16.1 | X | 25.94201 | 161.75987 | 189.15110 | 1.36160 | 0.0269040 | 0.20144139 | 2.8820637 | 20 | 11 16.1 | 20.1 |
| 188991 2008 GP ₇₂ | 17.6 | X | 46.40752 | 268.48641 | 24.04370 | 1.78705 | 0.1753489 | 0.27159624 | 2.3614942 | 20 | 11 3.2 | 20.6 |
| 188992 2008 GM ₁₁₁ | 16.0 | X | 234.25658 | 214.96967 | 50.93910 | 3.89267 | 0.1411381 | 0.22697351 | 2.6616601 | 20 | 1 2.9 | 20.1 |
| 188993 2008 GS ₁₁₈ | 16.0 | X | 236.15038 | 222.08102 | 70.28214 | 18.18043 | 0.1989241 | 0.22738455 | 2.6584516 | 20 | 2 6.9 | 20.7 |
| 188994 2008 HH ₃ | 15.9 | X | 233.87185 | 203.55299 | 53.68758 | 12.04817 | 0.0604343 | 0.22477058 | 2.6790228 | 20 | — | — |
| 188995 2008 HB ₂₀ | 15.1 | X | 355.43884 | 153.71385 | 131.86067 | 11.56583 | 0.0793593 | 0.17290202 | 3.1910675 | 20 | 7 10.3 | 19.1 |
| 188996 2008 HE ₃₃ | 17.6 | X | 274.30337 | 60.22600 | 151.81301 | 1.78114 | 0.1088010 | 0.30438754 | 2.1886928 | 20 | — | — |
| 188997 2008 HE ₃₇ | 17.1 | X | 289.85183 | 340.89794 | 237.97118 | 3.88950 | 0.0945363 | 0.30899195 | 2.1668954 | 20 | — | — |
| 188998 2008 HK ₄₄ | 17.1 | X | 212.80802 | 148.70687 | 52.61785 | 5.96658 | 0.0779165 | 0.28888908 | 2.2662890 | 20 | — | — |
| 188999 2008 HG ₄₅ | 16.3 | X | 268.25707 | 45.14597 | 156.37729 | 4.82283 | 0.0423157 | 0.21816836 | 2.7328023 | 20 | — | — |
| 189000 Alfredkubin | 17.2 | X | 102.24187 | 333.02450 | 270.02676 | 1.67268 | 0.1470091 | 0.27241185 | 2.3567783 | 20 | 10 27.6 | 20.8 |
| 189001 4889 P-L | 16.1 | X | 322.62019 | 234.54716 | 183.23753 | 14.43698 | 0.2448878 | 0.19799270 | 2.9154343 | 20 | 11 14.9 | 18.9 |
| 189002 6760 P-L | 17.1 | X | 332.86896 | 197.14455 | 158.96725 | 2.96671 | 0.2262356 | 0.26285198 | 2.4135810 | 20 | 9 25.7 | 18.5 |
| 189003 3009 T-3 | 15.2 | X | 332.53943 | 304.90409 | 34.27312 | 14.12274 | 0.2111704 | 0.18139418 | 3.0906784 | 20 | 8 16.2 | 18.7 |
| 189004 Capys | 13.3 | X | 222.72002 | 334.17946 | 27.63883 | 17.10256 | 0.1452059 | 0.08343497 | 5.1868536 | 20 | 4 21.3 | 20.6 |
| 189005 5176 T-3 | 16.0 | X | 109.48132 | 257.41935 | 103.76275 | 8.40773 | 0.2896142 | 0.21431591 | 2.7654540 | 20 | 1 15.5 | 19.8 |
| 189006 1993 VG ₇ | 16.2 | X | 302.78963 | 80.63898 | 230.37816 | 11.81396 | 0.1631969 | 0.20988941 | 2.8042003 | 20 | 5 12.7 | 19.5 |
| 189007 1995 FW ₇ | 16.2 | X | 355.05540 | 58.46968 | 124.04999 | 5.02183 | 0.1503770 | 0.23420221 | 2.6066060 | 20 | 2 11.6 | 18.7 |
| 189008 1996 FR ₃ | 16.3 | X | 239.96746 | 36.64675 | 27.25190 | 8.04860 | 0.7934827 | 0.30860906 | 2.1686873 | 20 | 6 5.8 | 21.5 |
| 189009 1997 BG ₅ | 17.4 | X | 203.97783 | 67.01061 | 274.31974 | 2.25354 | 0.2138896 | 0.30294679 | 2.1956266 | 20 | 2 26.9 | 21.0 |
| 189010 1997 KW ₃ | 16.9 | X | 89.86713 | 230.24200 | 119.11828 | 4.53107 | 0.2004770 | 0.27781611 | 2.3261145 | 20 | — | — |
| 189011 Ogmios | 19.0 | X | 78.76227 | 130.39066 | 254.43498 | 18.69828 | 0.2321105 | 0.53635192 | 1.5002702 | 20 | — | — |
| 189012 1998 FO ₉₈ | 17.2 | X | 224.93430 | 298.55470 | 284.54386 | 5.09936 | 0.3129042 | 0.29692345 | 2.2252205 | 20 | — | — |
| 189013 1998 QD ₃ | 17.0 | X | 219.34775 | 307.74293 | 335.10817 | 8.78543 | 0.2744530 | 0.29577604 | 2.2309717 | 20 | 1 2.0 | 21.0 |
| 189014 1998 QJ ₅₅ | 16.9 | X | 195.43168 | 87.54281 | 226.06909 | 3.55335 | 0.2124871 | 0.29571850 | 2.2312610 | 20 | 1 17.6 | 20.5 |
| 189015 1998 QH ₈₃ | 17.2 | X | 156.96429 | 117.02805 | 235.30122 | 5.85955 | 0.2647560 | 0.29275628 | 2.2462869 | 20 | 2 4.1 | 20.8 |
| 189016 1998 RS ₃₇ | 15.4 | X | 292.31249 | 187.36906 | 184.20839 | 12.41853 | 0.2179222 | 0.17367209 | 3.1816277 | 20 | 7 6.7 | 19.8 |
| 189017 1998 SM ₁₃₆ | 15.1 | X | 84.84238 | 293.51147 | 27.24317 | 22.29851 | 0.2626870 | 0.18802858 | 3.0175430 | 20 | — | — |
| 189018 Guokeda | 15.2 | X | 41.51026 | 141.37866 | 223.49506 | 5.58413 | 0.1758865 | 0.18535998 | 3.0464361 | 20 | — | — |
| 189019 1998 VR ₂₆ | 14.3 | X | 12.65599 | 152.61728 | 239.94965 | 13.79247 | 0.1831428 | 0.18354383 | 3.0664992 | 20 | — | — |
| 189020 1998 YU ₃ | 14.9 | X | 62.03458 | 63.49493 | 99.27341 | 9.05907 | 0.1745009 | 0.24331656 | 2.5410991 | 20 | 5 24.8 | 17.9 |
| 189021 1999 CS ₁₁ | 15.9 | X | 264.76334 | 191.42191 | 136.30477 | 17.67922 | 0.0721801 | 0.35820578 | 1.9635757 | 20 | — | — |
| 189022 1999 JA ₉₄ | 15.7 | X | 267.98189 | 170.78578 | 109.02939 | 7.24349 | 0.3425580 | 0.22510213 | 2.6763915 | 20 | 2 4.3 | 20.3 |
| 189023 1999 NV ₁₉ | 14.8 | X | 270.23176 | 115.43497 | 114.90591 | 33.50237 | 0.3421426 | 0.21995019 | 2.7180231 | 20 | — | — |
| 189024 1999 RN ₁₄₇ | 15.7 | X | 207.99412 | 10.27354 | 286.29945 | 7.17391 | 0.1974042 | 0.21329226 | 2.7742951 | 20 | 1 16.6 | 20.4 |
| 189025 1999 RG ₁₆₂ | 17.5 | X | 237.63506 | 226.87155 | 100.33125 | 1.98345 | 0.1782328 | 0.31523953 | 2.1381702 | 20 | 3 11.5 | 20.8 |
| 189026 1999 RH ₂₄₀ | 15.7 | X | 203.20882 | 277.46681 | 57.29275 | 9.83608 | 0.3214576 | 0.21584743 | 2.7523572 | 20 | 3 1.3 | 21.0 |
| 189027 1999 SS ₂₅ | 15.5 | X | 257.02256 | 347.16794 | 291.35579 | 16.99600 | 0.2063128 | 0.21793999 | 2.7347110 | 20 | 1 31.8 | 20.2 |
| 189028 1999 TM ₂₀₉ | 14.8 | X | 79.11487 | 9.08179 | 9.63828 | 19.36359 | 0.1906474 | 0.19921947 | 2.9034534 | 20 | — | — |
| 189029 1999 UA ₂₇ | 15.0 | X | 336.01515 | 132.27656 | 244.07563 | 8.23413 | 0.1497660 | 0.18639800 | 3.0351154 | 20 | 10 7.4 | 18.6 |
| 189030 1999 XU ₃ | 16.9 | X | 84.89663 | 183.52829 | 209.37741 | 5.52115 | 0.1303917 | 0.29686945 | 2.2254903 | 20 | — | — |
| 189031 1999 XF ₄₈ | 15.4 | X | 327.55740 | 278.42598 | 101.64555 | 2.40588 | 0.2127194 | 0.18370620 | 3.0646920 | 20 | 9 27.6 | 18.5 |
| 189032 2000 XA ₁₁₄ | 14.8 | X | 14.67256 | 75.53276 | 329.02428 | 14.18895 | 0.1698563 | 0.19339234 | 2.9614872 | 20 | — | — |
| 189033 2000 AC ₉ | 14.6 | X | 105.40756 | 269.11466 | 79.22727 | 16.61254 | 0.3282798 | 0.19739399 | 2.9213265 | 20 | 1 2.8 | 18.8 |
| 189034 2000 AZ ₂₂₆ | 16.6 | X | 82.13879 | 312.90375 | 308.27289 | 7.35551 | 0.0879580 | 0.26977071 | 2.3721356 | 20 | 10 20.2 | 19.9 |

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

| Planet | <i>H</i> | <i>G</i> | <i>M</i> | ω | Ω | <i>i</i> | <i>e</i> | μ | <i>a</i> | TE | Oppos. | <i>V</i> | | |
|--------|----------|-------------------|----------|----------|-----------|-----------|-----------|----------|-----------|------------|-------------|----------|---------|------|
| 189041 | 2000 | OR ₂ | 16.6 | X | 308.82534 | 16.65882 | 133.06979 | 23.82036 | 0.0598348 | 0.36881252 | 1.9257457 | 20 | — | — |
| 189042 | 2000 | OV ₃₂ | 16.2 | X | 310.15033 | 15.82639 | 259.61981 | 8.01491 | 0.2888376 | 0.23897695 | 2.5717695 | 20 | 3 9.4 | 19.8 |
| 189043 | 2000 | OR ₆₇ | 15.8 | X | 306.94863 | 231.14867 | 78.02525 | 3.66533 | 0.2812726 | 0.24216951 | 2.5491168 | 20 | 4 26.6 | 18.7 |
| 189044 | 2000 | PB ₃ | 15.4 | X | 162.74927 | 121.10732 | 239.50760 | 11.85391 | 0.2123046 | 0.22272578 | 2.6953948 | 20 | 2 18.5 | 20.2 |
| 189045 | 2000 | QL ₁₈ | 16.2 | X | 220.97378 | 157.47409 | 171.90958 | 4.68915 | 0.1709985 | 0.22984249 | 2.6394646 | 20 | 3 4.6 | 20.4 |
| 189046 | 2000 | QR ₃₀ | 16.1 | X | 258.21081 | 295.96568 | 27.44184 | 3.84845 | 0.2912203 | 0.23361599 | 2.6109648 | 20 | 3 22.2 | 20.3 |
| 189047 | 2000 | QP ₁₁₇ | 16.5 | X | 245.24137 | 62.43965 | 150.12819 | 23.21665 | 0.0476551 | 0.36580969 | 1.9362700 | 20 | — | — |
| 189048 | 2000 | QG ₁₆₉ | 17.0 | X | 326.21925 | 16.89301 | 317.24863 | 4.32134 | 0.3360621 | 0.24454171 | 2.5326048 | 20 | 7 6.7 | 18.4 |
| 189049 | 2000 | QN ₁₇₂ | 16.9 | X | 324.93771 | 66.11470 | 263.47926 | 4.72071 | 0.3161510 | 0.24468172 | 2.5316385 | 20 | 6 27.4 | 18.6 |
| 189050 | 2000 | RE ₃₂ | 15.7 | X | 296.93112 | 359.64244 | 336.28850 | 13.21896 | 0.1695439 | 0.23849904 | 2.5752040 | 20 | 6 4.2 | 19.1 |
| 189051 | 2000 | RO ₁₀₁ | 15.5 | X | 207.73385 | 154.12601 | 239.51174 | 13.96178 | 0.1022704 | 0.23222958 | 2.6213461 | 20 | 5 13.5 | 19.3 |
| 189052 | 2000 | SJ ₁₉₇ | 15.1 | X | 233.37364 | 12.71045 | 4.29350 | 11.28759 | 0.1246954 | 0.18458756 | 3.0549289 | 20 | 5 15.4 | 20.0 |
| 189053 | 2000 | SW ₂₇₁ | 15.4 | X | 285.00999 | 68.23339 | 286.32126 | 11.62183 | 0.2032989 | 0.23501386 | 2.6006010 | 20 | 6 8.9 | 18.9 |
| 189054 | 2000 | SW ₂₇₈ | 15.2 | X | 320.61480 | 269.49687 | 44.80191 | 17.08379 | 0.3670900 | 0.23869159 | 2.5738188 | 20 | 5 9.9 | 17.7 |
| 189055 | 2000 | SG ₃₃₉ | 15.5 | X | 298.84446 | 285.20211 | 64.40742 | 12.82768 | 0.3339878 | 0.24009064 | 2.5638103 | 20 | 5 30.7 | 18.7 |
| 189056 | 2000 | SU ₃₆₃ | 15.7 | X | 271.92926 | 186.96347 | 135.05112 | 11.78641 | 0.2695688 | 0.23632054 | 2.5910059 | 20 | 4 7.0 | 19.9 |
| 189057 | 2000 | TE ₂₂ | 16.8 | X | 224.48154 | 120.37980 | 277.99046 | 2.83668 | 0.2509238 | 0.23259779 | 2.6185789 | 20 | 5 26.8 | 21.2 |
| 189058 | 2000 | UT ₁₆ | 16.5 | X | 293.40955 | 91.24855 | 257.26989 | 26.23460 | 0.5118219 | 0.23933254 | 2.5692215 | 20 | 4 23.0 | 20.9 |
| 189059 | 2000 | UX ₆₃ | 15.4 | X | 245.57502 | 103.99601 | 237.89572 | 13.36563 | 0.1028977 | 0.22896171 | 2.6462293 | 20 | 4 16.1 | 19.4 |
| 189060 | 2000 | UJ ₆₈ | 15.3 | X | 238.12274 | 45.42144 | 267.06756 | 13.69224 | 0.1151461 | 0.22415455 | 2.6839289 | 20 | 2 25.9 | 19.7 |
| 189061 | 2000 | UJ ₁₁₀ | 15.7 | X | 230.02295 | 134.19483 | 263.75043 | 12.36429 | 0.1819165 | 0.23218056 | 2.6217150 | 20 | 6 5.7 | 19.8 |
| 189062 | 2000 | VA ₄₅ | 18.4 | X | 143.74236 | 287.51733 | 35.09606 | 12.85006 | 0.3872158 | 0.36826442 | 1.9276560 | 20 | — | — |
| 189063 | 2000 | VZ ₅₇ | 16.0 | X | 210.63459 | 101.29906 | 289.10622 | 3.37844 | 0.2322365 | 0.22820996 | 2.6520375 | 20 | 5 5.9 | 20.6 |
| 189064 | 2000 | WL ₁₄ | 15.4 | X | 233.24919 | 269.95377 | 52.65018 | 13.79696 | 0.1890000 | 0.22318218 | 2.6917189 | 20 | 3 14.5 | 20.0 |
| 189065 | 2000 | WR ₇₂ | 15.5 | X | 215.63538 | 161.67072 | 248.85193 | 14.57279 | 0.1162177 | 0.23211062 | 2.6222417 | 20 | 6 12.2 | 19.4 |
| 189066 | 2000 | WC ₇₄ | 15.7 | X | 257.74652 | 281.81328 | 33.47997 | 12.36323 | 0.3051374 | 0.22911218 | 2.6450706 | 20 | 3 15.5 | 20.3 |
| 189067 | 2000 | WT ₁₃₃ | 15.5 | X | 243.93814 | 18.33945 | 280.77217 | 11.01467 | 0.1760082 | 0.22317594 | 2.6917690 | 20 | 2 14.3 | 20.0 |
| 189068 | 2000 | WX ₁₇₈ | 15.7 | X | 283.88948 | 293.58736 | 48.17314 | 14.00860 | 0.2863285 | 0.23823599 | 2.5770992 | 20 | 5 8.3 | 19.3 |
| 189069 | 2000 | YZ ₂₉ | 16.0 | X | 166.82464 | 284.71419 | 128.94006 | 12.39961 | 0.1937412 | 0.22433473 | 2.6824916 | 20 | 5 4.7 | 20.7 |
| 189070 | 2001 | BB ₃₉ | 15.7 | X | 190.32861 | 324.92059 | 124.94138 | 6.19766 | 0.1289479 | 0.17439540 | 3.1728243 | 20 | 7 4.3 | 20.7 |
| 189071 | 2001 | BH ₈₃ | 14.7 | X | 98.07839 | 265.86137 | 322.44368 | 24.87815 | 0.2105478 | 0.17950962 | 3.1122721 | 20 | 9 17.4 | 20.1 |
| 189072 | 2001 | DB ₈ | 16.2 | X | 125.99119 | 236.08144 | 357.46924 | 0.60174 | 0.1271639 | 0.18113952 | 3.0935745 | 20 | 10 25.2 | 21.1 |
| 189073 | 2001 | DJ ₅₀ | 14.8 | X | 69.40081 | 247.74565 | 10.06655 | 11.51714 | 0.1460886 | 0.17761032 | 3.1344204 | 20 | 9 28.6 | 19.1 |
| 189074 | 2001 | DA ₆₅ | 15.0 | X | 70.89280 | 282.38719 | 327.15661 | 13.59366 | 0.1466515 | 0.17521749 | 3.1628924 | 20 | 9 14.9 | 19.7 |
| 189075 | 2001 | DP ₁₀₅ | 14.7 | X | 90.60685 | 40.01172 | 142.71668 | 22.85846 | 0.0961786 | 0.17187432 | 3.2037753 | 20 | 7 13.9 | 19.5 |
| 189076 | 2001 | HN | 14.2 | X | 78.18469 | 269.72260 | 45.61740 | 23.92781 | 0.0293565 | 0.18138021 | 3.0908371 | 20 | 11 27.9 | 18.7 |
| 189077 | 2001 | HE ₁₁ | 17.3 | X | 187.15355 | 213.21635 | 25.27535 | 2.03190 | 0.2116718 | 0.28736866 | 2.2742757 | 20 | — | — |
| 189078 | 2001 | KT ₃₇ | 16.5 | X | 219.41756 | 126.29009 | 113.82926 | 10.18695 | 0.1859203 | 0.29062810 | 2.2572395 | 20 | — | — |
| 189079 | 2001 | KJ ₅₉ | 15.3 | X | 50.82007 | 82.71716 | 252.48221 | 19.87933 | 0.2047587 | 0.27258154 | 2.3558000 | 20 | — | — |
| 189080 | 2001 | MO ₆ | 16.3 | X | 79.07823 | 114.55271 | 249.34270 | 5.55094 | 0.2941011 | 0.27576317 | 2.3376449 | 20 | — | — |
| 189081 | 2001 | MM ₁₆ | 16.9 | X | 127.73097 | 178.74042 | 52.19516 | 3.81547 | 0.1420751 | 0.27209883 | 2.3585854 | 20 | 11 6.7 | 20.6 |
| 189082 | 2001 | OL ₁₂ | 16.5 | X | 118.07334 | 201.99707 | 115.88315 | 7.94377 | 0.2141930 | 0.27694399 | 2.3309954 | 20 | — | — |
| 189083 | 2001 | OV ₄₆ | 16.2 | X | 88.84406 | 229.92896 | 153.47149 | 6.39748 | 0.2832945 | 0.28111068 | 2.3079044 | 20 | — | — |
| 189084 | 2001 | OP ₆₁ | 16.6 | X | 56.08427 | 215.72891 | 100.52549 | 3.51994 | 0.2361556 | 0.27015960 | 2.3698587 | 20 | 12 21.5 | 20.1 |
| 189085 | 2001 | OF ₈₉ | 17.1 | X | 121.81844 | 228.64046 | 102.19966 | 3.06912 | 0.1937400 | 0.28091880 | 2.3089552 | 20 | — | — |
| 189086 | 2001 | OT ₈₉ | 16.2 | X | 112.44272 | 128.96086 | 106.45127 | 6.65059 | 0.1615259 | 0.26890783 | 2.3772075 | 20 | 10 31.6 | 19.9 |
| 189087 | 2001 | PE ₁₅ | 16.2 | X | 59.01722 | 146.73246 | 239.95871 | 1.77499 | 0.2245783 | 0.27703024 | 2.3305115 | 20 | — | — |
| 189088 | 2001 | PO ₁₅ | 16.5 | X | 127.16444 | 268.66714 | 13.56464 | 4.88065 | 0.1631942 | 0.27716100 | 2.3297785 | 20 | — | — |
| 189089 | 2001 | PG ₄₆ | 16.0 | X | 145.54606 | 275.59303 | 1.62017 | 22.62778 | 0.2363092 | 0.27890740 | 2.3200429 | 20 | — | — |
| 189090 | 2001 | QJ ₁₇ | 16.6 | X | 58.66341 | 80.61091 | 213.17260 | 1.76094 | 0.2104758 | 0.26676914 | 2.3898959 | 20 | 11 22.9 | 20.0 |
| 189091 | 2001 | QX ₆₁ | 16.1 | X | 62.58176 | 228.24554 | 152.54760 | 6.50805 | 0.2431918 | 0.27584319 | 2.3371928 | 20 | — | — |
| 189092 | 2001 | QI ₆₅ | 16.7 | X | 91.53245 | 121.55940 | 185.30806 | 5.76043 | 0.0970049 | 0.27190905 | 2.3596827 | 20 | — | — |
| 189093 | 2001 | QL ₁₆₄ | 16.4 | X | 338.38406 | 299.12763 | 60.22790 | 3.64212 | 0.2116508 | 0.26276116 | 2.4141371 | 20 | 10 16.5 | 18.1 |
| 189094 | 2001 | QR ₁₈₀ | 16.5 | X | 62.43202 | 271.52944 | 89.27282 | 3.96761 | 0.2453131 | 0.27301389 | 2.3533122 | 20 | — | — |
| 189095 | 2001 | QH ₂₁₁ | 15.7 | X | 21.31233 | 207.46930 | 338.47704 | 11.39946 | 0.1190953 | 0.24251738 | 2.5466786 | 20 | 3 31.6 | 18.6 |
| 189096 | 2001 | QL ₂₂₂ | 16.2 | X | 44.44904 | 162.95835 | 228.40638 | 4.86703 | 0.1421623 | 0.27598993 | 2.3363643 | 20 | — | — |
| 189097 | 2001 | QA ₂₄₇ | 16.8 | X | 67.34680 | 230.27826 | 119.59467 | 2.18969 | 0.2082701 | 0.27146287 | 2.3622676 | 20 | — | — |
| 189098 | 2001 | QB ₂₇₄ | 16.9 | X | 136.67242 | 223.76046 | 62.72421 | 5.09429 | 0.2298157 | 0.27825744 | 2.3236544 | 20 | — | — |
| 189099 | 2001 | RO | 13.5 | X | 281.58050 | 166.14953 | 288.14507 | 25.38912 | 0.2857695 | 0.26036624 | 2.4289185 | 20 | 9 28.0 | 16.7 |
| 189100 | 2001 | RQ ₅₄ | 16.3 | X | 125.86087 | 238.96885 | 136.14516 | 3.32035 | 0.0131476 | 0.23338207 | 2.6127091 | 20 | 1 10.3 | 19.8 |
| 189101 | 2001 | RW ₁₁₂ | 16.6 | X | 146.34173 | 234.23709 | 329.99622 | 1.74449 | 0.1234049 | 0.26486702 | 2.4013242 | 20 | 10 19.9 | 20.1 |
| 189102 | 2001 | SY ₁₉ | 16.8 | X | 31.10468 | 260.66738 | 39.46205 | 2.34346 | 0.2037538 | 0.26200247 | 2.4187954 | 20 | 10 26.9 | 19.7 |
| 189103 | 2001 | SG ₂₈ | 17.1 | X | 357.48893 | 181.97886 | 135.28661 | 1.90378 | 0.1826795 | 0.25827379 | 2.4420197 | 20 | 9 17.7 | 19.2 |
| 189104 | 2001 | SV ₉₇ | 17.4 | X | 104.28256 | 10.21619 | 285.67931 | 1.33636 | 0.2153682 | 0.27283363 | 2.3543487 | 20 | — | — |
| 189105 | 2001 | ST ₁₀₅ | 15.8 | X | 14.48339 | 94.12938 | 260.86740 | 4.52865 | 0.1507179 | 0.26337941 | 2.4103577 | 20 | 12 8.6 | 18.4 |
| 189106 | 2001 | SG ₂₁₅ | 16.5 | X | 64.58693 | 210.29116 | 119.33779 | 3.47809 | 0.1610203 | 0.26934644 | 2.3746260 | 20 | — | — |
| 189107 | 2001 | SW ₂₈₀ | 15.9 | X | 21.20236 | 320.85864 | 18.62017 | 6.04188 | 0.1513120 | 0.26249373 | 2.4157765 | 20 | 11 25.8 | 18.8 |
| 189108 | 2001 | SW ₃₃₇ | 17.1 | X | 97.49435 | 33.03376 | 243.48730 | 1.94556 | 0.1700706 | 0.26785580 | 2.3834279 | 20 | 12 5.2 | 20.9 |
| 189109 | 2001 | TA ₄₀ | 16.8 | X | 18.40027 | 92.80354 | 296.22289 | 3.77985 | 0.2774682 | 0.26544432 | 2.3978412 | 20 | — | — |
| 189110 | 2001 | TR ₅₅ | 16.0 | X | 10.60868 | 122.40155 | 227.02205 | 11.38718 | 0.2861417 | 0.26327004 | 2.4110252</ | | | |

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

| Planet | <i>H</i> | <i>G</i> | <i>M</i> | ω | Ω | <i>i</i> | <i>e</i> | μ | <i>a</i> | TE | Oppos. | <i>V</i> |
|-------------------------------|-------------------|----------|-----------|-----------|-----------|----------|-----------|------------|-----------|----|---------|----------|
| 189121 2001 WY ₁₃ | 16.6 ^m | X | 277.42698 | 63.14968 | 84.32527 | 23.36559 | 0.0799917 | 0.36964113 | 1.9228668 | 20 | — | — |
| 189122 2001 WF ₆₀ | 15.2 | X | 314.30419 | 350.45291 | 238.20219 | 14.13976 | 0.1073653 | 0.23159819 | 2.6261081 | 20 | 2 9.8 | 19.0 |
| 189123 2001 WW ₇₀ | 16.8 | X | 141.89965 | 220.47415 | 175.32379 | 2.72350 | 0.0211746 | 0.23156007 | 2.6263963 | 20 | 2 27.1 | 20.3 |
| 189124 2001 XO ₂₁ | 15.5 | X | 67.13127 | 210.63516 | 304.35981 | 12.79403 | 0.1100320 | 0.23072645 | 2.6327187 | 20 | 5 4.4 | 19.1 |
| 189125 2001 XW ₅₅ | 16.4 | X | 46.44331 | 224.42917 | 116.04776 | 3.57949 | 0.2235374 | 0.26326422 | 2.4110608 | 20 | — | — |
| 189126 2001 XX ₈₁ | 16.2 | X | 139.39216 | 154.35638 | 236.34869 | 8.34603 | 0.0872034 | 0.22872045 | 2.6480898 | 20 | 2 22.4 | 20.1 |
| 189127 2001 XT ₈₂ | 16.2 | X | 129.92953 | 285.01585 | 115.92131 | 12.03035 | 0.2072444 | 0.22862588 | 2.6488201 | 20 | 3 17.6 | 20.4 |
| 189128 2001 XV ₁₃₃ | 16.5 | X | 358.65205 | 122.05503 | 240.34050 | 1.53660 | 0.2047395 | 0.25910077 | 2.4368207 | 20 | 11 30.9 | 18.7 |
| 189129 2001 XH ₁₇₃ | 15.5 | X | 26.55476 | 79.19494 | 276.59214 | 10.53907 | 0.2143903 | 0.25968963 | 2.4331356 | 20 | — | — |
| 189130 2001 XT ₁₈₉ | 15.3 | X | 14.48818 | 83.33266 | 272.84225 | 11.39780 | 0.2828257 | 0.25760404 | 2.4462506 | 20 | 12 29.5 | 18.1 |
| 189131 2001 XM ₂₄₉ | 16.4 | X | 194.99396 | 328.02814 | 128.34410 | 2.84048 | 0.1172671 | 0.24286070 | 2.5442780 | 20 | 7 20.7 | 20.0 |
| 189132 2001 YB ₁₉ | 16.0 | X | 286.80584 | 49.58999 | 281.67705 | 2.96890 | 0.2757163 | 0.24149580 | 2.5538555 | 20 | 4 28.0 | 19.6 |
| 189133 2001 YG ₁₁₂ | 15.4 | X | 30.41757 | 93.21180 | 263.11280 | 13.17211 | 0.2081623 | 0.26221042 | 2.4175163 | 20 | — | — |
| 189134 2002 AT ₁₁ | 16.7 | X | 250.90490 | 108.93546 | 117.85472 | 25.45821 | 0.0959460 | 0.37472332 | 1.9054413 | 20 | — | — |
| 189135 2002 AQ ₁₄₆ | 15.7 | X | 196.81649 | 161.49708 | 116.62297 | 12.46145 | 0.1533231 | 0.21415588 | 2.7668315 | 20 | — | — |
| 189136 2002 BF ₂₉ | 15.2 | X | 248.11085 | 289.45276 | 87.34483 | 13.93666 | 0.1874196 | 0.23822050 | 2.5772109 | 20 | 5 29.1 | 19.2 |
| 189137 2002 XT ₄₃ | 16.6 | X | 81.29405 | 12.45596 | 341.24529 | 19.33893 | 0.0212203 | 0.36607547 | 1.9353327 | 20 | — | — |
| 189138 2002 CL ₅₀ | 16.0 | X | 204.99826 | 6.29737 | 140.66005 | 5.95994 | 0.1573302 | 0.19339247 | 2.9614859 | 20 | 9 27.9 | 20.8 |
| 189139 2002 CL ₁₂₈ | 15.9 | X | 188.00572 | 250.55675 | 149.21103 | 15.47391 | 0.0510812 | 0.22928799 | 2.6437183 | 20 | 5 6.2 | 20.0 |
| 189140 2002 CT ₁₃₆ | 15.5 | X | 243.16982 | 352.20623 | 156.34489 | 9.73731 | 0.0743340 | 0.20073562 | 2.8888151 | 20 | 11 22.6 | 19.6 |
| 189141 2002 DO ₂ | 14.6 | X | 190.96295 | 151.68995 | 62.84415 | 22.77423 | 0.2149338 | 0.19610318 | 2.9341319 | 20 | 11 27.7 | 19.3 |
| 189142 2002 FK ₃₅ | 15.3 | X | 70.43463 | 26.66785 | 234.00428 | 8.01895 | 0.1736009 | 0.18313349 | 3.0710782 | 20 | 10 4.6 | 19.9 |
| 189143 2002 GU ₁ | 15.0 | X | 59.02937 | 108.85042 | 151.78468 | 16.80219 | 0.1329329 | 0.18028973 | 3.1032879 | 20 | 9 19.8 | 19.4 |
| 189144 2002 GF ₇ | 14.7 | X | 51.77096 | 64.67186 | 157.38649 | 26.81311 | 0.2032015 | 0.17159359 | 3.2072687 | 20 | 7 28.9 | 19.2 |
| 189145 2002 GV ₄₇ | 14.9 | X | 65.33616 | 44.53018 | 233.63111 | 12.72232 | 0.1610925 | 0.18352857 | 3.0666691 | 20 | 10 19.1 | 19.4 |
| 189146 2002 GQ ₆₈ | 15.2 | X | 145.61570 | 95.03782 | 130.92199 | 12.22253 | 0.1499023 | 0.18593203 | 3.0401843 | 20 | 11 8.7 | 20.3 |
| 189147 2002 GS ₁₄₁ | 15.3 | X | 47.30406 | 14.82621 | 214.72622 | 16.58097 | 0.1647659 | 0.17199545 | 3.2022709 | 20 | 7 22.2 | 19.8 |
| 189148 2002 GA ₁₅₇ | 15.0 | X | 11.92631 | 279.40387 | 47.64775 | 14.22318 | 0.1537882 | 0.18137300 | 3.0909191 | 20 | 10 12.7 | 18.8 |
| 189149 2002 GE ₁₇₅ | 15.2 | X | 12.36230 | 262.62613 | 46.33592 | 9.98332 | 0.0362582 | 0.18050103 | 3.1008655 | 20 | 9 8.3 | 19.5 |
| 189150 2002 HV ₇ | 15.7 | X | 206.44788 | 286.96153 | 180.31364 | 5.00872 | 0.2120487 | 0.18533002 | 3.0467644 | 20 | 8 4.7 | 20.8 |
| 189151 2002 JE ₁₂ | 15.1 | X | 100.77100 | 170.47432 | 70.16456 | 25.17363 | 0.1705235 | 0.18018454 | 3.1044954 | 20 | 10 24.8 | 20.4 |
| 189152 2002 JP ₁₄ | 14.7 | X | 63.93709 | 89.30396 | 197.20122 | 24.30756 | 0.3191621 | 0.17661052 | 3.1462387 | 20 | 11 17.3 | 19.9 |
| 189153 2002 JZ ₃₉ | 14.6 | X | 31.48173 | 210.60530 | 85.97184 | 12.87129 | 0.1400554 | 0.17967276 | 3.1103879 | 20 | 10 3.8 | 18.8 |
| 189154 2002 JO ₄₃ | 15.2 | X | 147.40837 | 23.80456 | 243.54175 | 14.48458 | 0.0795793 | 0.19230941 | 2.9725946 | 20 | 12 24.3 | 19.9 |
| 189155 2002 JK ₅₈ | 14.0 | X | 14.97940 | 72.51176 | 242.47942 | 20.63937 | 0.1664721 | 0.17476380 | 3.1683639 | 20 | 9 18.6 | 18.2 |
| 189156 2002 JO ₁₁₇ | 15.0 | X | 89.53258 | 125.78035 | 135.91630 | 13.39876 | 0.2158291 | 0.18031771 | 3.1029668 | 20 | 11 5.1 | 20.2 |
| 189157 2002 JT ₁₁₈ | 15.1 | X | 115.68365 | 351.22821 | 150.07361 | 14.49585 | 0.2042081 | 0.17289438 | 3.1911616 | 20 | 7 1.6 | 20.4 |
| 189158 2002 JZ ₁₃₁ | 16.6 | X | 61.63437 | 152.46433 | 400.33003 | 2.26695 | 0.1163803 | 0.27262274 | 2.3555626 | 20 | 4 7.4 | 19.0 |
| 189159 2002 LZ ₁₉ | 14.8 | X | 61.53398 | 45.49010 | 280.95966 | 15.77500 | 0.2274338 | 0.17832881 | 3.1259957 | 20 | 12 20.6 | 19.6 |
| 189160 2002 LV ₃₂ | 15.2 | X | 66.93079 | 150.10198 | 154.26268 | 17.27306 | 0.2410907 | 0.18081795 | 3.0972412 | 20 | 12 4.7 | 20.3 |
| 189161 2002 QF ₆ | 15.4 | X | 97.86999 | 0.63744 | 304.37416 | 24.59894 | 0.1413393 | 0.28546676 | 2.2843660 | 20 | — | — |
| 189162 2002 QQ ₁₀ | 14.8 | X | 78.13715 | 59.86641 | 308.52370 | 15.06621 | 0.2283528 | 0.18425575 | 3.0585953 | 20 | — | — |
| 189163 2002 RK ₂₅₀ | 16.6 | X | 164.46628 | 346.90576 | 320.17293 | 6.11310 | 0.1201295 | 0.29597719 | 2.2299608 | 20 | — | — |
| 189164 2002 TF ₄ | 17.3 | X | 130.98498 | 196.47563 | 159.98308 | 4.80078 | 0.1849329 | 0.29714087 | 2.2241349 | 20 | 1 5.7 | 20.0 |
| 189165 2002 TQ ₉₆ | 16.9 | X | 295.85048 | 95.55718 | 200.35415 | 6.51544 | 0.2681370 | 0.31508094 | 2.1388876 | 20 | 3 18.3 | 19.7 |
| 189166 2002 TW ₂₂₆ | 17.1 | X | 267.23903 | 139.92316 | 170.94057 | 5.63806 | 0.2631779 | 0.31257168 | 2.1503194 | 20 | 3 10.6 | 20.5 |
| 189167 2002 TU ₂₆₄ | 16.8 | X | 288.39372 | 79.04975 | 233.99964 | 5.52686 | 0.1538633 | 0.31380721 | 2.1446715 | 20 | 4 20.2 | 19.4 |
| 189168 2002 VF ₁₄ | 17.2 | X | 249.43009 | 274.80512 | 54.44958 | 6.32885 | 0.2195482 | 0.31057221 | 2.1595387 | 20 | 3 24.9 | 20.5 |
| 189169 2002 VQ ₁₇ | 16.7 | X | 84.52671 | 186.94455 | 181.62588 | 8.39016 | 0.2028274 | 0.28809976 | 2.2704265 | 20 | — | — |
| 189170 2002 VH ₆₆ | 17.6 | X | 281.31607 | 80.71784 | 260.30184 | 3.86883 | 0.3027262 | 0.31813080 | 2.1251956 | 20 | 4 28.2 | 20.5 |
| 189171 2002 VX ₈₇ | 16.8 | X | 203.19852 | 58.91398 | 277.66767 | 3.17991 | 0.1575203 | 0.30274188 | 2.1966172 | 20 | 2 19.5 | 20.2 |
| 189172 2002 VT ₁₃₃ | 17.1 | X | 232.36678 | 301.19224 | 139.56291 | 3.01128 | 0.1147876 | 0.26568663 | 2.3963831 | 20 | 8 13.7 | 20.2 |
| 189173 2002 XY ₄ | 16.9 | X | 320.38116 | 273.73206 | 268.96114 | 43.08020 | 0.5699772 | 0.39362020 | 1.8439584 | 20 | — | — |
| 189174 2002 XW ₂₇ | 18.5 | X | 335.36669 | 322.48406 | 74.10302 | 4.92278 | 0.1278929 | 0.27407665 | 2.3472248 | 20 | 12 2.4 | 18.6 |
| 189175 2002 XK ₄₉ | 17.0 | X | 204.92179 | 98.81672 | 249.76065 | 3.03724 | 0.1839974 | 0.30384530 | 2.1912960 | 20 | 3 7.1 | 20.5 |
| 189176 2002 XJ ₉₄ | 15.5 | X | 245.45014 | 213.15706 | 239.05262 | 22.30170 | 0.2558164 | 0.27042385 | 2.3683146 | 20 | 8 15.5 | 19.5 |
| 189177 2002 XW ₁₁₇ | 15.4 | X | 88.42078 | 331.00911 | 80.43498 | 12.50292 | 0.0761048 | 0.18197920 | 3.0840509 | 20 | 1 27.9 | 19.7 |
| 189178 2002 YQ ₂₅ | 16.2 | X | 109.96056 | 80.96493 | 288.50960 | 10.01927 | 0.0843286 | 0.28740008 | 2.2741099 | 20 | — | — |
| 189179 2002 YS ₂₇ | 16.1 | X | 29.39739 | 53.91504 | 89.96894 | 4.65101 | 0.1682688 | 0.23544110 | 2.5974540 | 20 | 2 24.3 | 18.5 |
| 189180 2003 AH ₈ | 17.1 | X | 73.20699 | 131.52868 | 293.03651 | 5.25696 | 0.1688260 | 0.28909004 | 2.2652386 | 20 | 1 10.4 | 19.0 |
| 189181 2003 AS ₆₆ | 15.6 | X | 331.19132 | 254.66795 | 341.30286 | 11.82344 | 0.1416619 | 0.23966972 | 2.5668113 | 20 | 3 13.9 | 18.4 |
| 189182 2003 BW ₁₂ | 16.1 | X | 174.23267 | 218.15511 | 311.68951 | 7.79019 | 0.2052224 | 0.29407274 | 2.2395781 | 20 | 2 14.4 | 19.5 |
| 189183 2003 BN ₁₆ | 16.4 | X | 67.16796 | 7.96110 | 95.56048 | 4.37089 | 0.1509179 | 0.23360909 | 2.6110161 | 20 | 3 7.4 | 19.3 |
| 189184 2003 BM ₃₂ | 16.5 | X | 357.30899 | 130.09846 | 305.53313 | 2.95560 | 0.1772242 | 0.27710699 | 2.3300812 | 20 | — | — |
| 189185 2003 CM ₇ | 15.6 | X | 46.95109 | 258.19324 | 293.53646 | 10.76962 | 0.1949675 | 0.23814225 | 2.5777754 | 20 | 6 12.3 | 18.4 |
| 189186 2003 CU ₂₅ | 15.8 | X | 6.27275 | 248.66185 | 17.91364 | 7.27104 | 0.1742276 | 0.24568293 | 2.5247559 | 20 | 7 14.9 | 18.2 |
| 189187 2003 EY ₂₄ | 15.8 | X | 290.94421 | 261.60536 | 359.08633 | 12.18241 | 0.2244572 | 0.22877059 | 2.6477029 | 20 | 2 15.7 | 19.7 |
| 189188 2003 Floraliën | 15.7 | X | 307.79861 | 94.10821 | 148.39359 | 28.01227 | 0.2479192 | 0.22639744 | 2.6661733 | 20 | 2 4.8 | 19.5 |
| 189189 2003 FN ₂₀ | 15.5 | X | 342.74846 | 245.23489 | 29.24954 | 14.27651 | 0.1450236 | 0.24084602 | 2.5584469 | 20 | 5 29.7 | 18.3 |
| 189190 2003 FR ₂₈ | 16.0 | X | 192.06173 | 157.41631 | 119.18666 | 8.97514 | 0.1320406 | 0.21293499 | 2.7773975 | 20 | — | — |
| 189191 2003 FL ₃₀ | 15.7 | X | 252.45504 | 250.40383 | 44.46809 | 6.35811 | 0.3154016 | 0.22285130 | 2.6943826 | 20 | 2 14.3 | 20.5 |
| 189192 2003 FE ₇₆ | 16.0 | X | 299.83268 | 340.33978 | 202.98744 | 14.58679 | 0.1487007 | 0.22071739 | 2.7117211 | 20 | — | — |
| 189193 2003 FO ₉₆ | 16.2 | X | 20.39805 | 187.90791 | 186.00507 | 8.01976 | 0.1644227 | 0.20641356 | 2.8355930 | 20 | 12 27.2 | 19.9 |
| 189194 2003 LX ₁ | 16.4 | | | | | | | | | | | |

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

| Planet | <i>H</i> | <i>G</i> | <i>M</i> | ω | Ω | <i>i</i> | <i>e</i> | μ | <i>a</i> | TE | Oppos. | <i>V</i> |
|-------------------------------|-------------------|----------|-----------|-----------|-----------|----------|-----------|------------|-----------|----|---------|----------|
| 189201 2003 RX ₁₄ | 14.5 ^m | X | 8.46458 | 145.93703 | 235.95057 | 20.23669 | 0.2340372 | 0.17937839 | 3.1137899 | 20 | 12 20.1 | 18.3 |
| 189202 2003 Calar Alto | 15.3 | X | 26.04523 | 86.47717 | 198.26842 | 16.60458 | 0.0658807 | 0.17097204 | 3.2150370 | 20 | 8 19.1 | 19.8 |
| 189203 2003 SL ₄₀ | 14.9 | X | 28.82705 | 36.92745 | 303.80245 | 4.25564 | 0.1684949 | 0.17805684 | 3.1291781 | 20 | 11 20.0 | 19.0 |
| 189204 2003 ST ₇₈ | 15.2 | X | 4.37723 | 126.40065 | 222.73665 | 6.42190 | 0.1697252 | 0.17571097 | 3.1569676 | 20 | 10 23.7 | 18.9 |
| 189205 2003 SY ₁₄₇ | 15.0 | X | 33.25788 | 322.19706 | 13.60165 | 18.81122 | 0.2088273 | 0.18160586 | 3.0882763 | 20 | 11 21.8 | 19.4 |
| 189206 2003 SJ ₁₅₁ | 14.8 | X | 39.09312 | 167.57035 | 153.46218 | 16.67727 | 0.0742501 | 0.17746634 | 3.1361155 | 20 | 11 1.9 | 19.4 |
| 189207 2003 SW ₁₉₆ | 14.4 | X | 96.25492 | 332.73205 | 285.46220 | 26.60929 | 0.1227974 | 0.17912418 | 3.1167352 | 20 | 10 13.4 | 19.7 |
| 189208 2003 SH ₂₀₀ | 15.2 | X | 76.65598 | 297.88606 | 20.51044 | 18.40928 | 0.1100919 | 0.18625677 | 3.0366496 | 20 | 12 11.6 | 20.0 |
| 189209 2003 SS ₂₂₄ | 14.5 | X | 98.62897 | 241.96693 | 28.61577 | 14.48908 | 0.2391084 | 0.18101031 | 3.0950464 | 20 | 11 17.3 | 19.7 |
| 189210 2003 SM ₂₆₂ | 14.6 | X | 5.96670 | 293.99551 | 21.50934 | 15.74486 | 0.0699123 | 0.17095651 | 3.2152318 | 20 | 9 10.2 | 19.0 |
| 189211 2003 UX ₁₀ | 15.3 | X | 34.28859 | 288.31919 | 47.33791 | 21.84419 | 0.2950251 | 0.17820942 | 3.1273917 | 20 | 12 6.8 | 19.8 |
| 189212 2003 UY ₂₁ | 14.7 | X | 57.63827 | 350.28149 | 290.48218 | 15.80060 | 0.2081047 | 0.17540467 | 3.1606418 | 20 | 10 12.6 | 19.6 |
| 189213 2003 UU ₁₂₂ | 15.1 | X | 348.25615 | 245.25995 | 132.41762 | 14.75595 | 0.2913602 | 0.17295664 | 3.1903958 | 20 | 11 16.6 | 18.3 |
| 189214 2003 YJ ₂₀ | 13.1 | X | 209.94395 | 291.97771 | 103.88343 | 18.73597 | 0.0333760 | 0.08141011 | 5.2725071 | 20 | 5 28.5 | 20.3 |
| 189215 2003 YF ₁₆₂ | 13.1 | X | 147.45693 | 26.39097 | 71.70552 | 22.33301 | 0.0861591 | 0.08366829 | 5.1772062 | 20 | 5 29.9 | 20.2 |
| 189216 2004 BO ₉₅ | 16.1 | X | 136.26855 | 294.86568 | 295.90059 | 10.01246 | 0.2620809 | 0.27125063 | 2.3634996 | 20 | 11 11.2 | 20.4 |
| 189217 2004 CR ₇₈ | 17.6 | X | 227.08869 | 342.15784 | 142.97945 | 2.66668 | 0.1570842 | 0.27720044 | 2.3295575 | 20 | 10 3.6 | 20.6 |
| 189218 2004 DC ₃₇ | 16.4 | X | 109.74041 | 100.91496 | 153.30445 | 7.91486 | 0.0988156 | 0.27286138 | 2.3541890 | 20 | 11 18.8 | 19.9 |
| 189219 2004 EN ₃₁ | 16.8 | X | 199.78671 | 18.79667 | 239.20283 | 6.73532 | 0.1030336 | 0.28782263 | 2.2718837 | 20 | — | — |
| 189220 2004 EP ₈₃ | 16.7 | X | 183.20665 | 87.65549 | 47.28001 | 5.59156 | 0.0862112 | 0.26696587 | 2.3887217 | 20 | 9 4.0 | 20.1 |
| 189221 2004 EN ₉₀ | 17.6 | X | 107.73732 | 305.92350 | 133.59247 | 4.40855 | 0.0246469 | 0.30470052 | 2.1871937 | 20 | 3 4.7 | 19.9 |
| 189222 2004 FC ₁₀ | 16.5 | X | 68.24584 | 278.18144 | 17.67898 | 8.97834 | 0.2229303 | 0.27082766 | 2.3659598 | 20 | 12 4.9 | 20.3 |
| 189223 2004 FG ₆₇ | 16.6 | X | 162.16868 | 137.57870 | 135.92297 | 6.08102 | 0.1569123 | 0.28268321 | 2.2993374 | 20 | — | — |
| 189224 2004 GD ₉ | 17.0 | X | 240.50418 | 297.78574 | 272.32861 | 2.39580 | 0.1079938 | 0.28506218 | 2.2865269 | 20 | — | — |
| 189225 2004 GV ₅₈ | 17.1 | X | 165.91663 | 150.61851 | 159.14249 | 6.60549 | 0.1304700 | 0.28908528 | 2.2652635 | 20 | — | — |
| 189226 2004 GA ₇₆ | 17.3 | X | 162.76682 | 59.94216 | 219.56662 | 1.27230 | 0.1997331 | 0.28334377 | 2.2957624 | 20 | — | — |
| 189227 2004 HE ₁₇ | 16.8 | X | 131.76876 | 257.11079 | 6.04494 | 5.52838 | 0.1141891 | 0.27425695 | 2.3461960 | 20 | 12 20.9 | 20.3 |
| 189228 2004 JB ₃₁ | 17.2 | X | 113.97425 | 108.75915 | 153.16016 | 1.59463 | 0.1620125 | 0.26837960 | 2.3803257 | 20 | 12 2.2 | 20.9 |
| 189229 2004 JC ₄₂ | 16.5 | X | 307.00914 | 222.43758 | 75.57908 | 4.97513 | 0.2137601 | 0.24275189 | 2.5450382 | 20 | 4 23.2 | 19.4 |
| 189230 2004 LW ₁₇ | 16.0 | X | 253.57050 | 210.07552 | 97.34111 | 7.13155 | 0.2818685 | 0.22935239 | 2.6432234 | 20 | 3 2.5 | 20.6 |
| 189231 2004 LW ₂₃ | 15.8 | X | 35.19542 | 167.56814 | 133.77127 | 6.53419 | 0.1144935 | 0.25564803 | 2.4587125 | 20 | 10 21.7 | 18.8 |
| 189232 2004 MJ ₈ | 15.3 | X | 326.81222 | 241.94813 | 71.52071 | 14.52819 | 0.2205638 | 0.24467175 | 2.5317073 | 20 | 6 20.3 | 17.4 |
| 189233 2004 NP ₂ | 16.6 | X | 359.50187 | 356.34350 | 282.05971 | 3.60502 | 0.1867544 | 0.24465884 | 2.5317964 | 20 | 7 16.8 | 18.7 |
| 189234 2004 NK ₁₆ | 16.1 | X | 346.89795 | 8.83407 | 276.41642 | 5.69099 | 0.1595788 | 0.24347828 | 2.5399738 | 20 | 6 27.9 | 18.4 |
| 189235 2004 OR ₃ | 16.0 | X | 341.96262 | 152.71131 | 128.31567 | 5.04614 | 0.1393832 | 0.24209097 | 2.5496682 | 20 | 6 12.1 | 18.4 |
| 189236 2004 OW ₁₁ | 15.9 | X | 349.95576 | 153.88837 | 124.36614 | 13.18636 | 0.2596605 | 0.24273522 | 2.5451547 | 20 | 6 21.8 | 17.6 |
| 189237 2004 PB ₅₆ | 16.4 | X | 247.26588 | 183.32577 | 177.65356 | 5.47628 | 0.2631746 | 0.23156906 | 2.6263284 | 20 | 4 30.5 | 20.8 |
| 189238 2004 PR ₉₉ | 15.7 | X | 136.33445 | 243.68515 | 85.66634 | 4.85417 | 0.1289952 | 0.21144354 | 2.7904427 | 20 | — | — |
| 189239 2004 QR ₁₂ | 15.9 | X | 349.78095 | 210.17699 | 105.80443 | 10.90027 | 0.2686154 | 0.24646459 | 2.5194149 | 20 | 9 6.8 | 17.6 |
| 189240 2004 QL ₂₅ | 14.8 | X | 354.03253 | 26.46488 | 263.48347 | 21.09582 | 0.0937053 | 0.17638967 | 3.1488643 | 20 | 7 10.5 | 18.9 |
| 189241 2004 RU ₅₇ | 15.5 | X | 134.79991 | 245.75039 | 242.85981 | 5.19238 | 0.0883031 | 0.17159087 | 3.2073026 | 20 | 6 24.9 | 20.3 |
| 189242 2004 RX ₇₇ | 15.2 | X | 298.34609 | 226.11445 | 157.75889 | 12.14491 | 0.1452159 | 0.17844672 | 3.1246185 | 20 | 8 13.3 | 19.2 |
| 189243 2004 RL ₁₇₅ | 15.8 | X | 193.02967 | 5.46141 | 277.85308 | 7.93107 | 0.2157180 | 0.21407004 | 2.7675711 | 20 | — | — |
| 189244 2004 RL ₁₈₈ | 14.9 | X | 327.93208 | 356.46883 | 311.86590 | 9.24641 | 0.1502243 | 0.17487952 | 3.1669661 | 20 | 6 22.1 | 18.7 |
| 189245 2004 RL ₁₉₉ | 15.3 | X | 177.32093 | 80.17687 | 269.86723 | 7.15676 | 0.2742967 | 0.21592881 | 2.7516656 | 20 | 2 22.5 | 20.3 |
| 189246 2004 RA ₂₀₁ | 15.5 | X | 212.52231 | 147.90082 | 243.54382 | 9.75261 | 0.2476573 | 0.22455678 | 2.6807229 | 20 | 5 8.6 | 20.2 |
| 189247 2004 RS ₂₀₉ | 15.5 | X | 114.27662 | 197.45181 | 256.95111 | 11.53165 | 0.1304679 | 0.22456145 | 2.6806858 | 20 | 4 20.9 | 19.6 |
| 189248 2004 RH ₂₉₀ | 16.1 | X | 250.16780 | 261.67545 | 23.21321 | 11.53446 | 0.1723266 | 0.22242196 | 2.6978488 | 20 | 2 12.3 | 20.6 |
| 189249 2004 RG ₃₀₇ | 15.2 | X | 228.49777 | 298.01480 | 55.05581 | 12.21374 | 0.2795990 | 0.22541321 | 2.6739286 | 20 | 4 8.5 | 20.0 |
| 189250 2004 SK ₂₃ | 15.9 | X | 192.03206 | 136.19015 | 196.37325 | 4.66014 | 0.1729795 | 0.21640929 | 2.7475912 | 20 | 2 12.8 | 20.4 |
| 189251 2004 TN ₈ | 15.1 | X | 251.04935 | 307.21681 | 24.53769 | 33.50509 | 0.2433361 | 0.22876170 | 2.6477715 | 20 | 4 5.3 | 19.5 |
| 189252 2004 TW ₁₉ | 14.9 | X | 115.76825 | 265.73729 | 94.00180 | 13.45428 | 0.1681388 | 0.20440898 | 2.8541014 | 20 | 1 5.9 | 18.9 |
| 189253 2004 TL ₁₀₀ | 15.3 | X | 235.34780 | 58.26573 | 277.83117 | 10.44985 | 0.2149711 | 0.22259525 | 2.6964485 | 20 | 3 18.1 | 20.1 |
| 189254 2004 TV ₁₀₀ | 16.5 | X | 284.25448 | 333.59851 | 217.35534 | 1.25578 | 0.0146773 | 0.20450884 | 2.8531722 | 20 | — | — |
| 189255 2004 TP ₂₄₇ | 15.8 | X | 241.00470 | 208.91610 | 131.06142 | 12.71663 | 0.1905944 | 0.22546850 | 2.6734914 | 20 | 4 8.9 | 20.3 |
| 189256 2004 UV ₄ | 14.7 | X | 36.98697 | 35.82772 | 293.65820 | 22.49578 | 0.2450362 | 0.18614402 | 3.0378756 | 20 | 11 30.7 | 19.2 |
| 189257 2004 VO ₄₈ | 16.8 | X | 3.84449 | 145.09829 | 169.94822 | 4.29371 | 0.1809289 | 0.30345861 | 2.1931571 | 20 | 10 9.5 | 18.4 |
| 189258 2004 VQ ₅₄ | 15.4 | X | 176.57126 | 73.74364 | 295.36923 | 11.30100 | 0.1748684 | 0.21866592 | 2.7286551 | 20 | 3 9.5 | 20.1 |
| 189259 2004 VR ₇₇ | 15.4 | X | 338.73908 | 224.17209 | 112.71114 | 6.06380 | 0.1700049 | 0.17549248 | 3.1595874 | 20 | 8 21.1 | 18.8 |
| 189260 2004 WY ₈ | 15.1 | X | 159.24160 | 301.25555 | 66.31452 | 9.37809 | 0.3333594 | 0.21261253 | 2.7802050 | 20 | 3 11.6 | 20.3 |
| 189261 Hiroo | 14.4 | X | 16.29213 | 274.63464 | 77.29609 | 15.96158 | 0.3681770 | 0.18150318 | 3.0894409 | 20 | 12 18.1 | 18.0 |
| 189262 2004 XL ₈₁ | 14.4 | X | 1.10910 | 279.34987 | 92.49670 | 23.18964 | 0.1279413 | 0.18022968 | 3.1039770 | 20 | 11 21.2 | 18.5 |
| 189263 2005 CA | 15.6 | X | 179.54855 | 203.93143 | 202.10528 | 16.74969 | 0.5888032 | 0.21889877 | 2.7267197 | 20 | 5 5.5 | 21.6 |
| 189264 Gerardjeong | 15.3 | X | 135.55429 | 160.52897 | 195.94982 | 9.59757 | 0.0780927 | 0.18014074 | 3.1049987 | 20 | 1 14.8 | 20.0 |
| 189265 2005 GN ₁₇₉ | 16.3 | X | 217.17087 | 252.14936 | 244.02295 | 17.92758 | 0.1050892 | 0.35527828 | 1.9743476 | 20 | 10 24.6 | 18.6 |
| 189266 2005 QD ₁₅ | 17.3 | X | 166.96399 | 161.97828 | 143.04040 | 4.30109 | 0.1962178 | 0.29407566 | 2.2395632 | 20 | — | — |
| 189267 2005 QP ₂₇ | 16.3 | X | 21.98119 | 359.52597 | 140.44138 | 5.73163 | 0.0885179 | 0.22732465 | 2.6589185 | 20 | 1 21.5 | 19.5 |
| 189268 2005 QS ₁₄₂ | 16.7 | X | 303.64858 | 268.37554 | 135.35828 | 6.69505 | 0.1131996 | 0.27189055 | 2.3597897 | 20 | 10 30.2 | 19.0 |
| 189269 2005 QN ₁₆₀ | 16.8 | X | 353.43519 | 216.49926 | 140.56290 | 6.83227 | 0.1609604 | 0.26656499 | 2.3911160 | 20 | 11 11.7 | 19.2 |
| 189270 2005 QM ₁₇₅ | 16.8 | X | 309.89235 | 189.71224 | 179.34808 | 4.29746 | 0.1445108 | 0.26020062 | 2.4299490 | 20 | 8 24.3 | 19.1 |
| 189271 2005 RR ₂₁ | 16.8 | X | 127.54888 | 24.94491 | 249.14027 | 2.23105 | 0.1511723 | 0.27968517 | 2.3157398 | 20 | 12 31.0 | 20.3 |
| 189272 2005 RF ₂₄ | 16.2 | X | 130.93926 | 28.46748 | 305.09270 | 4.94483 | 0.1862958 | 0.28557948 | 2.2837648 | 20 | — | — |
| 189273 2005 RY ₂₆ | 15.4 | X | 246.36665 | 120.12076 | 240.33590 | 10.49666 | 0.2176513 | 0.24035236 | 2.5619489 | 20 | 4 30.4 | 19.6 |

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

| Planet | <i>H</i> | <i>G</i> | <i>M</i> | ω | Ω | <i>i</i> | <i>e</i> | μ | <i>a</i> | TE | Oppos. | <i>V</i> |
|--------------------------------------|----------|----------|-----------|-----------|-----------|----------|-----------|------------|-----------|----|---------|----------|
| 189281 2005 <i>SJ</i> ₂₆₂ | 16.4 | X | 78.08512 | 23.73374 | 292.91020 | 5.85397 | 0.1436309 | 0.27785437 | 2.3259010 | 20 | — | — |
| 189282 2005 <i>TJ</i> ₁₂ | 16.5 | X | 118.49649 | 301.42975 | 33.84733 | 7.97183 | 0.1448871 | 0.28432919 | 2.2904549 | 20 | — | — |
| 189283 2005 <i>TX</i> ₁₄ | 15.8 | X | 48.43755 | 42.70180 | 276.20049 | 12.68665 | 0.3124310 | 0.27087327 | 2.3656943 | 20 | 12 25.6 | 19.5 |
| 189284 2005 <i>TZ</i> ₂₈ | 17.2 | X | 113.95031 | 179.12226 | 134.03889 | 6.50428 | 0.2382104 | 0.28256277 | 2.2999908 | 20 | — | — |
| 189285 2005 <i>TN</i> ₅₄ | 16.4 | X | 97.17266 | 228.19727 | 93.02090 | 5.95994 | 0.2237101 | 0.27918847 | 2.3184856 | 20 | — | — |
| 189286 2005 <i>TW</i> ₈₀ | 17.4 | X | 31.29908 | 114.31056 | 213.22411 | 9.11929 | 0.1393418 | 0.26820011 | 2.3813876 | 20 | 11 25.3 | 20.4 |
| 189287 2005 <i>TR</i> ₁₇₂ | 16.6 | X | 168.88214 | 43.36695 | 301.76294 | 5.31555 | 0.1972194 | 0.29606280 | 2.2295309 | 20 | 2 1.9 | 19.8 |
| 189288 2005 <i>TB</i> ₁₉₄ | 16.1 | X | 141.20637 | 212.29840 | 75.63038 | 3.75658 | 0.1554242 | 0.21287630 | 2.7779079 | 20 | — | — |
| 189289 2005 <i>UT</i> ₁₁ | 15.8 | X | 161.34902 | 203.43899 | 91.49850 | 5.71434 | 0.0404524 | 0.21302917 | 2.7765788 | 20 | — | — |
| 189290 2005 <i>UO</i> ₆₅ | 15.3 | X | 148.54804 | 289.28031 | 185.31450 | 15.79151 | 0.1862129 | 0.17308113 | 3.1888658 | 20 | 6 26.5 | 20.9 |
| 189291 2005 <i>US</i> ₇₃ | 17.0 | X | 131.98569 | 106.48372 | 214.91456 | 5.24265 | 0.1560633 | 0.28232930 | 2.3012586 | 20 | — | — |
| 189292 2005 <i>UB</i> ₈₇ | 17.2 | X | 151.92126 | 117.60273 | 173.45040 | 2.18835 | 0.1691347 | 0.28257933 | 2.2999009 | 20 | — | — |
| 189293 2005 <i>UY</i> ₁₈₀ | 17.2 | X | 120.81491 | 131.21042 | 187.94218 | 1.73198 | 0.2206939 | 0.28032718 | 2.3122027 | 20 | — | — |
| 189294 2005 <i>UY</i> ₁₈₁ | 16.6 | X | 25.72667 | 345.42270 | 53.23057 | 2.79372 | 0.0779147 | 0.20531238 | 2.8457230 | 20 | — | — |
| 189295 2005 <i>UP</i> ₂₂₈ | 16.4 | X | 333.38425 | 271.13033 | 169.73104 | 2.08655 | 0.0245740 | 0.20395732 | 2.8583134 | 20 | 12 29.9 | 20.1 |
| 189296 2005 <i>UT</i> ₄₀₇ | 16.4 | X | 155.53929 | 231.86276 | 96.71292 | 4.11527 | 0.2467456 | 0.28830172 | 2.2693661 | 20 | 1 5.7 | 19.7 |
| 189297 2005 <i>UG</i> ₄₅₇ | 16.1 | X | 179.10192 | 178.76450 | 150.75607 | 6.73104 | 0.0351823 | 0.22352997 | 2.6889262 | 20 | 1 21.8 | 20.0 |
| 189298 2005 <i>VX</i> ₆ | 16.6 | X | 131.38384 | 301.30392 | 45.20596 | 10.61618 | 0.2038876 | 0.28589617 | 2.2820780 | 20 | — | — |
| 189299 2005 <i>VO</i> ₁₂₀ | 16.7 | X | 154.15788 | 84.56331 | 242.79133 | 6.21773 | 0.2082451 | 0.28634755 | 2.2796792 | 20 | — | — |
| 189300 2005 <i>VU</i> ₁₂₃ | 16.0 | X | 127.25638 | 9.56737 | 318.00146 | 11.96261 | 0.2434072 | 0.28299348 | 2.2976565 | 20 | — | — |
| 189301 2005 <i>WA</i> ₄₄ | 16.1 | X | 169.01553 | 37.29331 | 253.04333 | 2.84566 | 0.0738905 | 0.21228267 | 2.7830842 | 20 | — | — |
| 189302 2005 <i>WW</i> ₈₁ | 16.4 | X | 57.70393 | 138.67230 | 265.06606 | 3.97482 | 0.2531972 | 0.27964472 | 2.3159631 | 20 | — | — |
| 189303 2005 <i>WV</i> ₉₀ | 15.5 | X | 83.41192 | 294.04473 | 64.49298 | 12.95342 | 0.0586480 | 0.20623148 | 2.8372618 | 20 | — | — |
| 189304 2005 <i>WU</i> ₁₁₅ | 15.2 | X | 264.02034 | 32.90450 | 273.22354 | 13.68296 | 0.0861758 | 0.22717071 | 2.6601195 | 20 | 3 19.3 | 19.4 |
| 189305 2005 <i>WT</i> ₁₉₀ | 15.5 | X | 282.64964 | 205.93052 | 75.23212 | 19.10512 | 0.1768744 | 0.23350477 | 2.6117938 | 20 | 3 15.7 | 19.7 |
| 189306 2005 <i>XO</i> ₂₉ | 14.6 | X | 191.27862 | 257.49768 | 272.86493 | 17.04152 | 0.1147264 | 0.18081199 | 3.0973092 | 20 | 10 4.4 | 19.8 |
| 189307 2005 <i>YW</i> ₁₃₀ | 16.0 | X | 171.76274 | 228.61684 | 171.81544 | 4.41482 | 0.0986801 | 0.21328698 | 2.7743409 | 20 | 2 9.9 | 20.3 |
| 189308 2005 <i>YB</i> ₁₈₅ | 16.0 | X | 268.61984 | 182.70027 | 117.53796 | 5.44470 | 0.3042301 | 0.24071011 | 2.5594098 | 20 | 5 7.3 | 20.0 |
| 189309 2005 <i>YJ</i> ₂₁₃ | 15.8 | X | 52.42646 | 20.48863 | 315.11654 | 9.21519 | 0.2638246 | 0.26347003 | 2.4098050 | 20 | — | — |
| 189310 Polydama | 12.9 | X | 6.23131 | 42.03399 | 197.51554 | 10.51638 | 0.0750442 | 0.08192829 | 5.2505217 | 20 | 5 28.6 | 19.5 |
| 189311 2006 <i>BL</i> ₁₂₆ | 16.6 | X | 52.67640 | 210.91366 | 167.07518 | 2.06767 | 0.0961032 | 0.19187574 | 2.9770720 | 20 | — | — |
| 189312 Jamezsalay | 15.6 | X | 46.40906 | 188.35392 | 123.19839 | 2.83505 | 0.1883091 | 0.17707343 | 3.1407530 | 20 | 11 11.8 | 19.9 |
| 189313 2006 <i>SA</i> ₇₃ | 17.2 | X | 225.68131 | 247.73589 | 177.67420 | 6.09857 | 0.1175569 | 0.26825658 | 2.3810534 | 20 | 7 13.9 | 20.6 |
| 189314 2006 <i>TK</i> ₂₃ | 17.5 | X | 23.51738 | 56.24325 | 49.01293 | 3.66667 | 0.1076686 | 0.30631919 | 2.1794818 | 20 | — | — |
| 189315 2006 <i>UV</i> ₁₁ | 16.5 | X | 166.62961 | 293.62152 | 141.21518 | 2.20319 | 0.0962171 | 0.18465564 | 3.0541779 | 20 | 5 24.1 | 21.1 |
| 189316 2006 <i>UQ</i> ₃₃₆ | 16.6 | X | 356.93764 | 166.10719 | 103.22455 | 3.12858 | 0.1656287 | 0.26067321 | 2.4270112 | 20 | 6 26.0 | 18.5 |
| 189317 2006 <i>WE</i> ₈₈ | 16.6 | X | 22.73262 | 345.95622 | 180.23797 | 5.00052 | 0.1874293 | 0.23977311 | 2.5660733 | 20 | 3 11.3 | 18.9 |
| 189318 2006 <i>WM</i> ₂₀₁ | 14.9 | X | 336.16706 | 173.51184 | 130.03916 | 16.54289 | 0.1128155 | 0.17741417 | 3.1367303 | 20 | 7 3.1 | 18.8 |
| 189319 2006 <i>XH</i> ₇₁ | 16.2 | X | 314.12352 | 217.20740 | 127.52876 | 5.99301 | 0.2462181 | 0.26389755 | 2.4072017 | 20 | 7 10.2 | 17.9 |
| 189320 2006 <i>YC</i> ₁₄ | 16.9 | X | 189.59437 | 52.47031 | 177.61781 | 5.07249 | 0.1080582 | 0.28697277 | 2.2763669 | 20 | — | — |
| 189321 2006 <i>YU</i> ₄₇ | 14.6 | X | 28.29275 | 322.91547 | 287.99930 | 26.66938 | 0.2061718 | 0.17584308 | 3.1553862 | 20 | 7 25.9 | 18.4 |
| 189322 2007 <i>AL</i> ₁ | 16.3 | X | 16.74515 | 0.11837 | 116.64851 | 6.03026 | 0.1273173 | 0.22444095 | 2.6816452 | 20 | — | — |
| 189323 2007 <i>AO</i> ₁₄ | 16.6 | X | 236.58852 | 303.66566 | 304.30261 | 5.86268 | 0.0806828 | 0.29354457 | 2.2422637 | 20 | — | — |
| 189324 2007 <i>AN</i> ₂₈ | 16.3 | X | 302.81557 | 15.33825 | 144.32726 | 3.26370 | 0.0315720 | 0.21587339 | 2.7521365 | 20 | — | — |
| 189325 2007 <i>AA</i> ₂₉ | 16.1 | X | 280.42219 | 191.93219 | 223.51326 | 2.45974 | 0.0398347 | 0.19010951 | 2.9954827 | 20 | 9 13.8 | 20.2 |
| 189326 2007 <i>BN</i> ₁ | 15.7 | X | 82.62591 | 69.46914 | 117.77578 | 16.64766 | 0.1625579 | 0.17398348 | 3.1778304 | 20 | 7 19.1 | 20.4 |
| 189327 2007 <i>BP</i> ₆₈ | 16.8 | X | 130.99745 | 128.13730 | 153.37913 | 6.20836 | 0.0982617 | 0.27518617 | 2.3409114 | 20 | — | — |
| 189328 2007 <i>CW</i> ₅₃ | 16.4 | X | 51.38714 | 89.66435 | 108.95418 | 6.57901 | 0.0895127 | 0.24126584 | 2.5554780 | 20 | 6 13.3 | 19.4 |
| 189329 2007 <i>DU</i> ₄₆ | 16.6 | X | 211.76488 | 255.80643 | 300.03597 | 4.79559 | 0.0937307 | 0.27476125 | 2.3433243 | 20 | 12 26.2 | 19.6 |
| 189330 2007 <i>DS</i> ₅₆ | 15.2 | X | 344.27471 | 154.48473 | 153.69032 | 10.21221 | 0.0762714 | 0.17595575 | 3.1540391 | 20 | 7 22.4 | 19.3 |
| 189331 2007 <i>DR</i> ₇₇ | 16.9 | X | 100.88911 | 180.51907 | 285.95730 | 3.20559 | 0.0838992 | 0.30835248 | 2.1698902 | 20 | 4 9.5 | 19.4 |
| 189332 2007 <i>EW</i> ₃₉ | 16.5 | X | 331.57582 | 86.63261 | 172.23993 | 6.20297 | 0.1227583 | 0.23457086 | 2.6038743 | 20 | 4 23.2 | 19.3 |
| 189333 2007 <i>EJ</i> ₇₉ | 15.1 | X | 80.98024 | 297.99849 | 1.79831 | 8.78482 | 0.1253638 | 0.18505206 | 3.0498146 | 20 | 11 26.6 | 19.9 |
| 189334 2007 <i>GM</i> ₅₆ | 16.4 | X | 198.41818 | 269.87887 | 138.09523 | 5.01533 | 0.0760374 | 0.23337751 | 2.6127431 | 20 | 5 24.6 | 20.2 |
| 189335 2007 <i>HS</i> ₆₁ | 15.1 | X | 294.42018 | 350.61948 | 108.21982 | 10.52846 | 0.0345677 | 0.18799012 | 3.0179545 | 20 | 11 29.1 | 19.2 |
| 189336 2007 <i>TF</i> ₄₂₆ | 16.3 | X | 261.89609 | 315.03917 | 155.92875 | 3.69848 | 0.1052921 | 0.22735022 | 2.6587191 | 20 | 10 30.5 | 19.6 |
| 189337 2007 <i>TM</i> ₄₂₆ | 15.4 | X | 80.69153 | 355.75548 | 58.92640 | 7.01784 | 0.0955422 | 0.17807265 | 3.1289929 | 20 | 1 24.8 | 19.6 |
| 189338 2007 <i>VZ</i> ₂₆ | 16.6 | X | 354.35290 | 345.13060 | 65.73376 | 5.15739 | 0.0997439 | 0.22719938 | 2.6598958 | 20 | — | — |
| 189339 2007 <i>VK</i> ₈₅ | 16.1 | X | 320.06447 | 151.80697 | 232.60788 | 10.46253 | 0.0564849 | 0.22536976 | 2.6742723 | 20 | 10 1.3 | 19.5 |
| 189340 2007 <i>VD</i> ₂₆₅ | 17.0 | X | 73.96061 | 296.19792 | 271.48221 | 3.71837 | 0.0765537 | 0.28094157 | 2.3088305 | 20 | 7 29.4 | 19.9 |
| 189341 2007 <i>VJ</i> ₃₀₉ | 15.6 | X | 121.76139 | 259.66727 | 71.77574 | 7.39086 | 0.1477817 | 0.16983268 | 3.2294002 | 20 | — | — |
| 189342 2007 <i>VY</i> ₃₁₀ | 16.9 | X | 109.70445 | 39.09664 | 97.38917 | 7.28957 | 0.0999567 | 0.26645888 | 2.3917507 | 20 | 6 9.9 | 20.2 |
| 189343 2007 <i>WV</i> ₅₇ | 17.2 | X | 5.91750 | 259.26314 | 283.50127 | 1.84250 | 0.1356261 | 0.25771391 | 2.4455552 | 20 | 2 27.7 | 19.6 |
| 189344 2007 <i>XO</i> ₅₃ | 15.8 | X | 112.51242 | 326.04768 | 305.59006 | 8.57504 | 0.1168164 | 0.21658525 | 2.7461028 | 20 | 11 30.6 | 20.1 |
| 189345 2007 <i>YG</i> ₆₄ | 17.0 | X | 173.18656 | 271.72906 | 137.84552 | 8.53442 | 0.0805993 | 0.25986430 | 2.4320452 | 20 | 4 29.6 | 20.6 |
| 189346 2008 <i>AP</i> ₁₁₄ | 17.0 | X | 58.11396 | 258.38124 | 318.53965 | 1.57706 | 0.1601702 | 0.26889454 | 2.3772858 | 20 | 8 2.8 | 19.7 |
| 189347 Qian | 15.4 | X | 221.05710 | 92.09443 | 299.44092 | 9.16921 | 0.0906607 | 0.18938147 | 3.0031548 | 20 | 5 25.4 | 20.1 |
| 189348 2008 <i>BR</i> ₄₃ | 17.2 | X | 216.10700 | 192.33694 | 345.57976 | 5.20153 | 0.1135717 | 0.29758535 | 2.2219196 | 20 | 12 9.9 | 19.9 |
| 189349 2008 <i>CX</i> ₁₉₁ | 16.5 | X | 36.07062 | 24.81083 | 318.10041 | 5.08030 | 0.1677531 | 0.21057381 | 2.7981210 | 20 | 12 10.7 | 20.3 |
| 189350 2008 <i>CJ</i> ₁₉₄ | 16.3 | X | 167.06170 | 284.98236 | 356.15542 | 4.64854 | 0.0262845 | 0.22039857 | 2.7143356 | 20 | — | — |
| 189351 2008 <i>CX</i> ₁₉₄ | 16.5 | X | 244.75283 | 67.40747 | 161.83849 | 2.86818 | 0.0682691 | 0.22647593 | 2.6655573 | 20 | — | — |
| 189352 2008 <i>CS</i> ₁₉₆ | 16.0 | X | 250.72322 | 212.86788 | 157.17036 | 10.86559 | 0.1029147 | 0.18819665 | 3.0157462 | 20 | 6 2.5 | |

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

| Planet | <i>H</i> | <i>G</i> | <i>M</i> | ω | Ω | <i>i</i> | <i>e</i> | μ | <i>a</i> | TE | Oppos. | <i>V</i> |
|-------------------------------|----------|----------|-----------|-----------|-----------|----------|-----------|------------|-----------|----|---------|----------|
| 189361 2008 DP ₈₁ | 17.1 | X | 69.94568 | 16.39060 | 183.93873 | 2.20400 | 0.0420132 | 0.26147697 | 2.4220350 | 20 | 7 6.2 | 20.1 |
| 189362 2008 DC ₈₃ | 15.6 | X | 50.23688 | 178.49898 | 15.50156 | 5.75930 | 0.0722248 | 0.17645406 | 3.1480982 | 20 | 5 31.5 | 19.8 |
| 189363 2008 EV ₃₅ | 15.7 | X | 71.72142 | 225.80899 | 3.35174 | 10.16419 | 0.0612680 | 0.18880816 | 3.0092311 | 20 | 8 18.5 | 20.0 |
| 189364 2008 EM ₁₁₂ | 16.8 | X | 292.55367 | 243.89203 | 305.82337 | 3.38944 | 0.1718811 | 0.22839563 | 2.6506000 | 20 | — | — |
| 189365 2008 EL ₁₄₇ | 16.3 | X | 24.93821 | 106.57847 | 128.16233 | 2.96713 | 0.0118971 | 0.17834822 | 3.1257689 | 20 | 6 13.8 | 20.6 |
| 189366 2008 EU ₁₄₇ | 16.7 | X | 271.48425 | 78.22258 | 141.86270 | 2.81076 | 0.1390874 | 0.22841249 | 2.6504695 | 20 | — | — |
| 189367 2008 EG ₁₄₉ | 16.1 | X | 132.32987 | 262.16283 | 191.62936 | 15.02292 | 0.2306710 | 0.17706253 | 3.1408819 | 20 | 5 23.6 | 21.5 |
| 189368 2008 ER ₁₄₉ | 16.1 | X | 218.47609 | 187.78275 | 133.47361 | 0.61242 | 0.0350404 | 0.24037867 | 2.5617619 | 20 | 2 25.2 | 19.5 |
| 189369 2008 EO ₁₅₀ | 15.0 | X | 50.98169 | 343.52886 | 242.53260 | 15.10716 | 0.1263921 | 0.18041478 | 3.1018536 | 20 | 7 18.3 | 19.4 |
| 189370 2008 EG ₁₅₁ | 16.7 | X | 77.96832 | 114.60538 | 128.23693 | 9.07897 | 0.2058991 | 0.26728945 | 2.3867934 | 20 | 10 12.2 | 20.4 |
| 189371 2008 EU ₁₅₂ | 15.9 | X | 266.23079 | 323.54109 | 70.74909 | 5.82300 | 0.2175866 | 0.18823810 | 3.0153035 | 20 | 7 4.5 | 20.3 |
| 189372 2008 ES ₁₅₃ | 15.3 | X | 21.66901 | 137.99722 | 106.77140 | 10.50525 | 0.0399477 | 0.17773202 | 3.1329895 | 20 | 6 24.4 | 19.5 |
| 189373 2008 FG ₂₆ | 16.3 | X | 286.62874 | 87.62006 | 21.92271 | 3.69834 | 0.0525174 | 0.20990415 | 2.8040691 | 20 | 12 3.2 | 19.9 |
| 189374 2008 FG ₆₉ | 16.8 | X | 332.82664 | 86.68959 | 78.52695 | 2.94065 | 0.1364326 | 0.22892993 | 2.6464742 | 20 | — | — |
| 189375 2008 FD ₇₀ | 15.4 | X | 345.76381 | 83.22742 | 173.67166 | 1.28134 | 0.1201686 | 0.16578949 | 3.2816937 | 20 | 5 16.7 | 19.4 |
| 189376 2008 FS ₇₈ | 16.1 | X | 208.65307 | 186.89567 | 340.29528 | 1.29075 | 0.0160239 | 0.20392642 | 2.8586022 | 20 | 11 9.2 | 20.0 |
| 189377 2008 FT ₇₈ | 13.1 | X | 278.78691 | 87.52269 | 195.09453 | 9.27803 | 0.0081536 | 0.08334694 | 5.1905050 | 20 | 4 5.5 | 19.9 |
| 189378 2008 FL ₁₀₂ | 15.8 | X | 118.44034 | 236.88687 | 96.17578 | 7.57583 | 0.0583652 | 0.21432714 | 2.7653574 | 20 | — | — |
| 189379 2008 FP ₁₀₃ | 16.0 | X | 346.20695 | 306.07735 | 143.85425 | 5.81290 | 0.1262997 | 0.21509121 | 2.7588046 | 20 | — | — |
| 189380 2008 FF ₁₂₃ | 17.2 | X | 141.76505 | 176.21225 | 40.67966 | 3.62010 | 0.1133972 | 0.27707419 | 2.3302651 | 20 | 11 3.2 | 20.6 |
| 189381 2008 FJ ₁₂₆ | 16.9 | X | 194.43467 | 235.60909 | 194.85729 | 8.95846 | 0.1786675 | 0.25889315 | 2.4381234 | 20 | 6 14.4 | 20.9 |
| 189382 2008 GF ₂₅ | 15.8 | X | 116.72311 | 326.27040 | 182.49833 | 16.94413 | 0.1482592 | 0.18016735 | 3.1046929 | 20 | 7 5.3 | 20.9 |
| 189383 2008 GE ₂₇ | 16.2 | X | 198.26806 | 19.39981 | 324.12384 | 4.69374 | 0.2118054 | 0.24319314 | 2.5419588 | 20 | 2 29.7 | 20.6 |
| 189384 2008 GN ₃₈ | 16.5 | X | 280.67072 | 64.47987 | 144.97999 | 2.99387 | 0.1426506 | 0.22332591 | 2.6905639 | 20 | — | — |
| 189385 2008 GF ₃₉ | 16.3 | X | 38.25424 | 329.76187 | 82.08001 | 7.25353 | 0.0290528 | 0.21265111 | 2.7798687 | 20 | — | — |
| 189386 2008 GX ₄₉ | 12.8 | X | 285.17892 | 256.59115 | 55.46585 | 12.53271 | 0.0451819 | 0.08461588 | 5.1384815 | 20 | 5 11.4 | 19.5 |
| 189387 2008 GL ₈₃ | 16.1 | X | 113.34611 | 227.74887 | 86.88200 | 5.57140 | 0.0542854 | 0.21088599 | 2.7953588 | 20 | — | — |
| 189388 2008 GY ₉₆ | 16.1 | X | 343.20263 | 93.93409 | 41.75940 | 14.17445 | 0.1874516 | 0.22784346 | 2.6548807 | 20 | — | — |
| 189389 2008 GN ₁₀₉ | 15.9 | X | 45.06067 | 300.30950 | 212.68652 | 13.27370 | 0.0951941 | 0.23890630 | 2.5722765 | 20 | 3 27.4 | 18.9 |
| 189390 2008 GQ ₁₂₄ | 16.5 | X | 11.86631 | 27.21219 | 88.13250 | 6.05166 | 0.1847133 | 0.23294068 | 2.6160086 | 20 | — | — |
| 189391 2008 HQ ₁₂ | 15.6 | X | 29.67740 | 351.63812 | 240.87609 | 3.55251 | 0.1156918 | 0.16996761 | 3.2276909 | 20 | 6 26.4 | 19.6 |
| 189392 2008 HD ₃₉ | 16.5 | X | 335.89772 | 233.75670 | 205.48987 | 4.91732 | 0.0594813 | 0.21445272 | 2.7642778 | 20 | — | — |
| 189393 2008 HP ₃₉ | 17.2 | X | 151.75005 | 308.69970 | 205.24620 | 8.29666 | 0.0420778 | 0.26883757 | 2.3776216 | 20 | 8 18.0 | 20.6 |
| 189394 2008 HU ₄₄ | 17.7 | X | 81.29869 | 280.01421 | 359.09110 | 4.06556 | 0.1604275 | 0.27526681 | 2.3404542 | 20 | 11 22.5 | 21.2 |
| 189395 2008 HL ₅₇ | 15.4 | X | 73.29140 | 126.01637 | 119.06855 | 13.42120 | 0.1389935 | 0.18326698 | 3.0695867 | 20 | 9 21.6 | 20.0 |
| 189396 Sielewicz | 16.1 | X | 234.69654 | 62.54670 | 183.63966 | 6.92290 | 0.0706877 | 0.22005108 | 2.7171923 | 20 | — | — |
| 189397 2008 JM ₁₈ | 16.8 | X | 308.25223 | 172.98489 | 163.88287 | 4.52465 | 0.2395312 | 0.25057108 | 2.4918129 | 20 | 6 15.6 | 19.3 |
| 189398 Soemmerring | 16.5 | X | 265.80696 | 182.36621 | 125.61398 | 4.99016 | 0.1587853 | 0.23704868 | 2.5856973 | 20 | 3 24.1 | 20.2 |
| 189399 2008 JV ₂₁ | 15.9 | X | 222.08505 | 53.83425 | 178.83058 | 9.03523 | 0.0234727 | 0.21505361 | 2.7591261 | 20 | — | — |
| 189400 2008 JY ₃₄ | 15.4 | X | 116.15515 | 255.61451 | 328.68195 | 8.68653 | 0.2097280 | 0.19076113 | 2.9886573 | 20 | 10 7.7 | 20.6 |
| 189401 2008 KH ₄ | 15.6 | X | 256.64973 | 328.60274 | 130.72240 | 10.78121 | 0.0636638 | 0.19051910 | 2.9911880 | 20 | 10 10.8 | 19.9 |
| 189402 2008 KG ₇ | 16.2 | X | 283.41681 | 29.94148 | 108.50925 | 16.39499 | 0.0877462 | 0.20648312 | 2.8349562 | 20 | — | — |
| 189403 2008 KW ₁₃ | 15.2 | X | 49.17448 | 118.81802 | 164.55832 | 12.69661 | 0.1721798 | 0.18215061 | 3.0821158 | 20 | 10 11.9 | 19.4 |
| 189404 2008 KV ₃₁ | 16.0 | X | 235.96887 | 15.06260 | 190.41598 | 8.93498 | 0.0890174 | 0.21107152 | 2.7937205 | 20 | — | — |
| 189405 2008 KP ₃₅ | 15.2 | X | 12.28122 | 207.50997 | 124.41138 | 11.97155 | 0.0734970 | 0.18466845 | 3.0540367 | 20 | 10 11.8 | 19.4 |
| 189406 4835 P-1 | 15.7 | X | 157.89304 | 261.63337 | 161.86700 | 3.30362 | 0.1545986 | 0.19123430 | 2.9837254 | 20 | 5 4.3 | 20.5 |
| 189407 3283 T-2 | 16.2 | X | 155.28864 | 189.23325 | 161.83568 | 9.86487 | 0.1835996 | 0.21983013 | 2.7190127 | 20 | 2 3.2 | 20.5 |
| 189408 1989 CA ₃ | 14.8 | X | 178.90873 | 276.04847 | 258.50915 | 8.44165 | 0.1826342 | 0.17627204 | 3.1502650 | 20 | 9 28.5 | 20.1 |
| 189409 1992 SC ₁₀ | 16.1 | X | 66.14260 | 146.30503 | 156.61869 | 0.99690 | 0.1907575 | 0.17997409 | 3.1069151 | 20 | 11 23.7 | 20.8 |
| 189410 1993 FO ₅₁ | 15.0 | X | 276.20253 | 54.16250 | 12.47851 | 4.68086 | 0.2793232 | 0.23683246 | 2.5872709 | 20 | 8 25.6 | 18.1 |
| 189411 1993 TZ ₂₆ | 16.9 | X | 6.91793 | 193.10979 | 153.33648 | 2.72235 | 0.1839985 | 0.25735573 | 2.4478238 | 20 | 11 19.4 | 19.4 |
| 189412 1993 TZ ₄₃ | 17.0 | X | 6.84403 | 170.55623 | 189.90275 | 2.72481 | 0.1928585 | 0.25865992 | 2.4395887 | 20 | 12 10.2 | 19.5 |
| 189413 1994 PA ₁₆ | 17.3 | X | 118.91783 | 198.79042 | 152.22642 | 1.98286 | 0.1723024 | 0.28147127 | 2.3059329 | 20 | — | — |
| 189414 1994 UG ₆ | 16.6 | X | 77.73795 | 2.04339 | 10.47596 | 5.56014 | 0.1437722 | 0.27631125 | 2.3345527 | 20 | — | — |
| 189415 1995 UF ₁₈ | 17.4 | X | 176.40478 | 157.07966 | 215.54792 | 3.43206 | 0.2089776 | 0.29970337 | 2.2114390 | 20 | 3 13.9 | 20.8 |
| 189416 1995 WU ₁₄ | 16.1 | X | 197.03395 | 95.72136 | 219.62908 | 6.32267 | 0.0261515 | 0.21451928 | 2.7637059 | 20 | 1 24.9 | 20.1 |
| 189417 1996 BG ₁₀ | 16.1 | X | 144.08102 | 125.44166 | 279.55222 | 8.36735 | 0.3138527 | 0.21264621 | 2.7799114 | 20 | 4 3.8 | 21.2 |
| 189418 1996 EL ₆ | 15.8 | X | 11.58640 | 84.43542 | 334.29585 | 0.77245 | 0.0187095 | 0.19249579 | 2.9706756 | 20 | — | — |
| 189419 1996 EY ₉ | 17.0 | X | 111.14357 | 178.04623 | 112.88324 | 2.24938 | 0.1793577 | 0.26916537 | 2.3756909 | 20 | — | — |
| 189420 1996 GJ ₁₀ | 17.0 | X | 95.20018 | 90.49190 | 146.91689 | 1.79227 | 0.1475324 | 0.25853592 | 2.4403687 | 20 | 10 12.6 | 20.5 |
| 189421 1997 LK ₅ | 16.8 | X | 124.48055 | 176.93978 | 120.72736 | 7.78116 | 0.2247264 | 0.27607165 | 2.3359032 | 20 | — | — |
| 189422 1997 OB ₂ | 14.6 | X | 33.49999 | 22.57532 | 131.61058 | 14.65922 | 0.1735220 | 0.17881683 | 3.1203056 | 20 | 11 24.8 | 19.1 |
| 189423 1997 PP ₂ | 14.2 | X | 339.06357 | 53.17267 | 310.37039 | 21.67608 | 0.0807433 | 0.17443059 | 3.1723977 | 20 | 9 13.9 | 18.7 |
| 189424 1997 SK ₂ | 16.4 | X | 51.80736 | 278.20047 | 69.37382 | 5.46947 | 0.1634604 | 0.26546457 | 2.3977193 | 20 | — | — |
| 189425 1997 SF ₉ | 16.4 | X | 54.54065 | 70.53363 | 252.04767 | 3.09331 | 0.1664059 | 0.26281570 | 2.4138031 | 20 | 12 18.8 | 19.6 |
| 189426 1997 SF ₃₃ | 14.7 | X | 347.89978 | 95.88941 | 272.07151 | 8.07895 | 0.0816706 | 0.17424371 | 3.1746655 | 20 | 10 11.2 | 18.9 |
| 189427 1997 TE ₅ | 16.5 | X | 36.68748 | 28.11397 | 326.10128 | 3.74388 | 0.2089707 | 0.26647528 | 2.3916526 | 20 | — | — |
| 189428 1998 HB ₂ | 18.1 | X | 257.52201 | 189.58576 | 143.60851 | 4.16192 | 0.2054768 | 0.31262574 | 2.1500715 | 20 | 4 6.8 | 21.1 |
| 189429 1998 HS ₁₁₈ | 15.2 | X | 269.25895 | 64.41856 | 154.40678 | 14.33141 | 0.1921456 | 0.21205571 | 2.7850697 | 20 | — | — |
| 189430 1998 HH ₁₄₅ | 17.0 | X | 242.72637 | 111.08331 | 164.77187 | 5.13554 | 0.2448064 | 0.30229639 | 2.1987747 | 20 | 1 8.7 | 20.8 |
| 189431 1998 OV ₅ | 16.9 | X | 200.88299 | 125.99830 | 191.22148 | 2.72452 | 0.1694552 | 0.29702807 | 2.2246979 | 20 | 1 25.3 | 20.3 |
| 189432 1998 QJ ₂₉ | 17.5 | X | 126.67352 | 95.72430 | 289.69123 | 4.59673 | 0.1858839 | 0.29232146 | 2.2485139 | 20 | 2 8.4 | 20.4 |
| 189433 1998 QR ₄₉ | 16.6 | X | 172.35815 | 224.02978 | 126.63259 | 5.67409 | 0.1963627 | 0.29442513 | 2.2377907 | 20 | 2 12.4 | 19.9 |
| 189434 1998 QR ₈₇ | 14.9 | X | 83.44515 | 121.96501 | 234.33752 | 13.64825 | 0.2076328 | 0.19201010 | 2.9756830 | 20 | — | |

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

| Planet | H | G | M | ω | Ω | i | e | μ | a | TE | Oppos. | V | | |
|--------|------|-------------------|------|----------|-----------|-----------|-----------|----------|-----------|------------|-----------|----|---------|------|
| 189441 | 1998 | SG ₈₄ | 15.3 | X | 105.42472 | 157.88375 | 174.40669 | 13.18849 | 0.1629764 | 0.19212778 | 2.9744678 | 20 | — | — |
| 189442 | 1998 | SP ₉₃ | 15.1 | X | 66.51731 | 325.37360 | 10.53596 | 9.99090 | 0.0818140 | 0.18702706 | 3.0283060 | 20 | 12 20.8 | 19.6 |
| 189443 | 1998 | SP ₁₂₂ | 16.2 | X | 153.09992 | 356.77257 | 3.60431 | 6.73574 | 0.1639844 | 0.29092875 | 2.2556841 | 20 | 2 6.1 | 19.4 |
| 189444 | 1998 | SG ₁₅₄ | 17.0 | X | 162.43543 | 180.32578 | 136.08962 | 3.18224 | 0.1664448 | 0.28867094 | 2.2674306 | 20 | — | — |
| 189445 | 1998 | TJ ₇ | 14.5 | X | 61.72493 | 29.34569 | 307.39371 | 20.71866 | 0.1650913 | 0.18527199 | 3.0474006 | 20 | 12 29.3 | 19.2 |
| 189446 | 1998 | VV ₈ | 16.3 | X | 131.73015 | 56.63612 | 309.39769 | 3.87062 | 0.2311905 | 0.28837398 | 2.2689870 | 20 | 1 27.5 | 19.3 |
| 189447 | 1998 | WK ₇ | 14.7 | X | 342.26503 | 193.02808 | 274.76325 | 24.05514 | 0.2442085 | 0.27333608 | 2.3514626 | 20 | — | — |
| 189448 | 1998 | VV ₂₇ | 15.2 | X | 84.81347 | 62.08395 | 225.09956 | 14.16424 | 0.2277429 | 0.18220366 | 3.0815176 | 20 | 11 27.2 | 20.2 |
| 189449 | 1998 | XV ₂₈ | 14.8 | X | 48.82835 | 107.39247 | 247.84352 | 7.66653 | 0.1544500 | 0.18263412 | 3.0766737 | 20 | 12 31.8 | 19.2 |
| 189450 | 1999 | BT ₂₈ | 16.4 | X | 73.69606 | 60.78316 | 300.42698 | 4.47312 | 0.2549715 | 0.27312213 | 2.3526905 | 20 | — | — |
| 189451 | 1999 | ED | 17.3 | X | 18.09601 | 283.75911 | 162.35101 | 23.37189 | 0.0799359 | 0.36488213 | 1.9395500 | 20 | — | — |
| 189452 | 1999 | EZ ₇ | 16.2 | X | 313.88012 | 263.57496 | 16.59708 | 4.12725 | 0.2552252 | 0.23386596 | 2.6091039 | 20 | 3 31.9 | 19.4 |
| 189453 | 1999 | FX ₉₆ | 16.5 | X | 346.57172 | 120.98424 | 165.01033 | 3.02425 | 0.1337979 | 0.24215452 | 2.5492200 | 20 | 6 28.9 | 19.1 |
| 189454 | 1999 | JL ₁₀₀ | 15.5 | X | 278.83417 | 85.31169 | 175.68888 | 12.82452 | 0.2378238 | 0.22495352 | 2.6775701 | 20 | 1 28.1 | 19.9 |
| 189455 | 1999 | NH ₅₇ | 15.1 | X | 277.12721 | 84.72781 | 275.96510 | 11.55518 | 0.1657759 | 0.22818212 | 2.6522532 | 20 | 6 12.5 | 18.5 |
| 189456 | 1999 | RX ₃ | 15.1 | X | 189.97874 | 94.81576 | 297.87329 | 8.20173 | 0.2492372 | 0.22071073 | 2.7117756 | 20 | 4 20.2 | 20.1 |
| 189457 | 1999 | RS ₃₀ | 14.7 | X | 152.26488 | 80.98893 | 344.69496 | 25.05461 | 0.2784519 | 0.21572034 | 2.7534381 | 20 | 4 23.6 | 20.0 |
| 189458 | 1999 | RO ₃₁ | 16.0 | X | 166.47087 | 240.15174 | 121.92030 | 6.05729 | 0.1759109 | 0.21383990 | 2.7695565 | 20 | 2 28.8 | 20.5 |
| 189459 | 1999 | RC ₈₅ | 16.6 | X | 150.80977 | 183.47245 | 198.86676 | 1.23216 | 0.2319603 | 0.21278835 | 2.7786733 | 20 | 3 12.1 | 21.1 |
| 189460 | 1999 | RQ ₉₈ | 15.8 | X | 161.04007 | 189.89111 | 169.76141 | 9.07480 | 0.2837644 | 0.21177113 | 2.7880909 | 20 | 2 25.1 | 20.7 |
| 189461 | 1999 | RA ₁₂₁ | 14.7 | X | 120.01211 | 93.49937 | 309.97126 | 13.81679 | 0.2498898 | 0.21212226 | 2.7844872 | 20 | 3 6.6 | 19.2 |
| 189462 | 1999 | RC ₁₄₀ | 15.5 | X | 159.00159 | 88.40612 | 300.78996 | 7.89419 | 0.2430871 | 0.21552028 | 2.7551418 | 20 | 3 23.5 | 20.3 |
| 189463 | 1999 | RL ₁₄₁ | 15.6 | X | 199.81346 | 29.32742 | 307.18741 | 10.79892 | 0.2174439 | 0.21676930 | 2.7445482 | 20 | 2 22.6 | 20.4 |
| 189464 | 1999 | RT ₁₆₇ | 15.5 | X | 215.67825 | 189.37734 | 156.60092 | 9.21158 | 0.1428534 | 0.21882569 | 2.7273268 | 20 | 3 23.6 | 19.8 |
| 189465 | 1999 | RO ₂₀₀ | 15.3 | X | 249.38972 | 14.73199 | 304.60122 | 13.02817 | 0.2011991 | 0.21998522 | 2.7177347 | 20 | 3 10.2 | 20.0 |
| 189466 | 1999 | RG ₂₀₂ | 15.2 | X | 129.74880 | 134.19852 | 254.17432 | 7.84542 | 0.1596747 | 0.21028386 | 2.8006925 | 20 | 2 19.3 | 19.6 |
| 189467 | 1999 | RO ₂₁₉ | 15.3 | X | 162.01553 | 188.57220 | 228.72786 | 9.88165 | 0.2432488 | 0.21854763 | 2.7296396 | 20 | 5 1.8 | 19.9 |
| 189468 | 1999 | RT ₂₂₃ | 15.7 | X | 185.90430 | 49.41588 | 276.34864 | 8.24202 | 0.1598225 | 0.21187535 | 2.7866500 | 20 | 1 30.3 | 20.4 |
| 189469 | 1999 | SH ₉ | 15.4 | X | 213.50266 | 237.62756 | 96.47832 | 10.69552 | 0.2627932 | 0.21782165 | 2.7357014 | 20 | 3 7.5 | 20.4 |
| 189470 | 1999 | TB ₈ | 14.9 | X | 244.57619 | 15.00477 | 312.16252 | 14.43599 | 0.2702757 | 0.22474767 | 2.6792048 | 20 | 6 22.1 | 19.4 |
| 189471 | 1999 | TU ₇₆ | 17.6 | X | 306.27341 | 61.66027 | 215.95177 | 2.21365 | 0.1703015 | 0.31420226 | 2.1428734 | 20 | 3 22.4 | 19.6 |
| 189472 | 1999 | TS ₁₆₀ | 15.8 | X | 118.88067 | 169.05528 | 212.08346 | 7.79080 | 0.0621785 | 0.20819840 | 2.8193638 | 20 | 1 18.7 | 19.9 |
| 189473 | 1999 | TK ₂₁₉ | 16.0 | X | 162.27457 | 132.35648 | 230.19727 | 7.52891 | 0.1696608 | 0.21151899 | 2.7897790 | 20 | 2 20.8 | 20.7 |
| 189474 | 1999 | TP ₂₁₉ | 15.6 | X | 201.90052 | 89.34434 | 240.87984 | 7.41222 | 0.1604451 | 0.21319001 | 2.7751821 | 20 | 2 16.8 | 20.3 |
| 189475 | 1999 | TS ₂₄₉ | 15.4 | X | 216.76759 | 311.00162 | 336.83797 | 6.74840 | 0.2301267 | 0.21144836 | 2.7904002 | 20 | 1 14.9 | 20.3 |
| 189476 | 1999 | TF ₂₅₆ | 15.8 | X | 179.51631 | 7.40191 | 314.80874 | 4.18664 | 0.1608518 | 0.21080640 | 2.7960624 | 20 | 1 22.9 | 20.2 |
| 189477 | 1999 | TT ₃₁₃ | 16.4 | X | 59.67028 | 281.61403 | 158.62547 | 2.32797 | 0.0398903 | 0.20325217 | 2.8649206 | 20 | 1 15.4 | 20.1 |
| 189478 | 1999 | UR ₇ | 15.4 | X | 155.69215 | 158.66716 | 212.48857 | 8.75158 | 0.1631242 | 0.20942951 | 2.8083041 | 20 | 2 25.0 | 20.0 |
| 189479 | 1999 | UO ₉ | 14.8 | X | 169.92628 | 72.92128 | 351.18856 | 30.82835 | 0.2324990 | 0.21648508 | 2.7469499 | 20 | 4 29.9 | 20.2 |
| 189480 | 1999 | UG ₂₃ | 15.4 | X | 169.54783 | 76.15603 | 277.66024 | 7.55167 | 0.1796214 | 0.21218921 | 2.7839014 | 20 | 2 17.7 | 20.1 |
| 189481 | 1999 | UD ₃₈ | 15.9 | X | 118.79914 | 229.34122 | 196.42649 | 8.28872 | 0.2689889 | 0.21208534 | 2.7848103 | 20 | 4 9.1 | 20.4 |
| 189482 | 1999 | UT ₄₇ | 15.6 | X | 183.94640 | 128.98040 | 265.30804 | 6.98184 | 0.2115986 | 0.21722201 | 2.7407336 | 20 | 4 18.7 | 20.4 |
| 189483 | 1999 | VG ₇₆ | 16.2 | X | 177.89349 | 117.64619 | 179.73714 | 1.98876 | 0.0382047 | 0.20034354 | 2.8925830 | 20 | — | — |
| 189484 | 1999 | VY ₁₅₉ | 15.5 | X | 146.49285 | 165.19491 | 221.21082 | 8.72559 | 0.1704551 | 0.21100839 | 2.7942778 | 20 | 3 5.9 | 20.0 |
| 189485 | 1999 | VY ₁₆₄ | 16.6 | X | 289.76425 | 45.33558 | 242.29895 | 4.06800 | 0.1393105 | 0.31177213 | 2.1539941 | 20 | 3 17.5 | 19.2 |
| 189486 | 1999 | XS ₈ | 14.8 | X | 256.77775 | 174.72594 | 235.24621 | 13.69442 | 0.2287823 | 0.22611734 | 2.6683747 | 20 | 5 23.1 | 18.7 |
| 189487 | 1999 | XM ₇₉ | 17.6 | X | 132.73633 | 187.81687 | 250.67554 | 0.79546 | 0.1130287 | 0.30688477 | 2.1768032 | 20 | 4 18.2 | 20.4 |
| 189488 | 1999 | XS ₁₀₆ | 15.0 | X | 186.76100 | 139.62236 | 236.70553 | 12.36004 | 0.1739143 | 0.21462722 | 2.7627792 | 20 | 3 28.9 | 19.8 |
| 189489 | 1999 | XX ₂₁₆ | 15.4 | X | 5.62682 | 92.43983 | 287.59811 | 8.54503 | 0.0517682 | 0.18288240 | 3.0738885 | 20 | 11 22.8 | 19.6 |
| 189490 | 1999 | XT ₂₁₇ | 16.1 | X | 48.90795 | 339.59634 | 59.77060 | 1.01708 | 0.1133002 | 0.19174765 | 2.9783976 | 20 | — | — |
| 189491 | 1999 | XY ₂₂₄ | 15.2 | X | 275.68928 | 188.02748 | 287.46745 | 12.64928 | 0.2164464 | 0.18324210 | 3.0698645 | 20 | 10 22.9 | 19.4 |
| 189492 | 1999 | XZ ₂₅₃ | 15.2 | X | 62.39167 | 86.61596 | 279.61794 | 7.14017 | 0.0899171 | 0.18916370 | 3.0054593 | 20 | — | — |
| 189493 | 1999 | XL ₂₅₇ | 12.0 | X | 241.47928 | 179.64768 | 281.29406 | 11.50398 | 0.0884667 | 0.08269743 | 5.2176471 | 20 | 8 29.5 | 19.2 |
| 189494 | 1999 | YY ₃ | 14.3 | X | 169.57000 | 77.12377 | 335.76399 | 24.14246 | 0.3185365 | 0.21324784 | 2.7746803 | 20 | 4 22.0 | 19.9 |
| 189495 | 1999 | YO ₆ | 14.6 | X | 53.08809 | 5.29853 | 36.97650 | 18.08760 | 0.1411140 | 0.19501582 | 2.9450284 | 20 | — | — |
| 189496 | 2000 | AW ₃₆ | 15.0 | X | 28.85577 | 83.41116 | 295.98239 | 14.18245 | 0.0497450 | 0.18652102 | 3.0337807 | 20 | 12 24.8 | 19.3 |
| 189497 | 2000 | AQ ₄₄ | 15.4 | X | 62.58602 | 8.21603 | 318.36663 | 4.15078 | 0.0442775 | 0.18231959 | 3.0802111 | 20 | 11 28.8 | 19.7 |
| 189498 | 2000 | AW ₄₆ | 14.8 | X | 17.31150 | 138.04808 | 283.54441 | 9.54374 | 0.1036446 | 0.19035059 | 2.9929530 | 20 | — | — |
| 189499 | 2000 | AV ₉₂ | 14.8 | X | 73.86897 | 155.08774 | 272.44705 | 16.09535 | 0.2900479 | 0.20451198 | 2.8531431 | 20 | 2 15.1 | 18.5 |
| 189500 | 2000 | AK ₁₂₅ | 15.4 | X | 68.07777 | 280.38532 | 139.48614 | 8.33008 | 0.3458287 | 0.19869585 | 2.9085521 | 20 | 2 14.2 | 18.4 |
| 189501 | 2000 | AU ₁₇₉ | 14.7 | X | 169.80462 | 138.81293 | 255.42313 | 11.64927 | 0.3136671 | 0.21062189 | 2.7976951 | 20 | 4 8.9 | 20.1 |
| 189502 | 2000 | AZ ₂₁₇ | 15.0 | X | 88.68666 | 356.29412 | 283.70883 | 7.87129 | 0.0605534 | 0.18074099 | 3.0981203 | 20 | 11 3.1 | 19.6 |
| 189503 | 2000 | AH ₂₂₈ | 16.1 | X | 7.93211 | 97.96868 | 289.65686 | 1.31427 | 0.1111380 | 0.18280892 | 3.0747122 | 20 | 12 12.9 | 20.0 |
| 189504 | 2000 | CZ ₅₃ | 15.3 | X | 211.12298 | 205.93580 | 305.48302 | 4.07631 | 0.1342179 | 0.17481386 | 3.1677591 | 20 | 10 5.0 | 20.3 |
| 189505 | 2000 | CF ₈₀ | 16.8 | X | 170.84287 | 51.76923 | 152.36725 | 6.91268 | 0.1815955 | 0.27042827 | 2.3682888 | 20 | 11 13.8 | 20.6 |
| 189506 | 2000 | CO ₁₁₇ | 15.2 | X | 11.29494 | 280.76768 | 133.21062 | 3.12384 | 0.0849635 | 0.18680247 | 3.0307328 | 20 | — | — |
| 189507 | 2000 | DY ₇ | 16.9 | X | 175.71903 | 207.43936 | 144.90132 | 4.05428 | 0.1862217 | 0.29670151 | 2.2263300 | 20 | 2 17.0 | 20.3 |
| 189508 | 2000 | DL ₁₄ | 15.4 | X | 294.59081 | 281.34226 | 147.95580 | 2.18097 | 0.1045982 | 0.17551902 | 3.1592689 | 20 | 10 12.5 | 19.4 |
| 189509 | 2000 | DZ ₂₀ | 14.6 | X | 312.91725 | 89.39665 | 323.29074 | 10.88110 | 0.0541662 | 0.17693273 | 3.1424718 | 20 | 10 16.4 | 19.0 |
| 189510 | 2000 | DX ₅₃ | 16.8 | X | 95.76852 | 242.79821 | 178. | | | | | | | |

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

| Planet | <i>H</i> | <i>G</i> | <i>M</i> | ω | Ω | <i>i</i> | <i>e</i> | μ | <i>a</i> | TE | Oppos. | <i>V</i> |
|-------------------------------|----------|----------|-----------|-----------|-----------|----------|-----------|------------|-----------|----|---------|----------|
| 189521 2000 OB ₇ | 16.5 | X | 151.45987 | 23.33672 | 323.30549 | 19.83910 | 0.0564441 | 0.37227498 | 1.9137865 | 20 | — | — |
| 189522 2000 OH ₂₂ | 16.3 | X | 236.34732 | 79.39385 | 157.95740 | 24.26955 | 0.0533180 | 0.36933832 | 1.9239176 | 20 | — | — |
| 189523 2000 OM ₃₁ | 16.1 | X | 342.42683 | 79.67466 | 242.68636 | 4.28642 | 0.1445580 | 0.24701556 | 2.5156671 | 20 | 8 15.2 | 18.5 |
| 189524 2000 OV ₃₄ | 16.5 | X | 344.48855 | 157.76477 | 149.67190 | 14.65541 | 0.2422950 | 0.24559382 | 2.5253666 | 20 | 7 26.9 | 18.4 |
| 189525 2000 PT ₃ | 17.3 | X | 102.41151 | 82.88559 | 299.95275 | 21.96419 | 0.1679220 | 0.36868897 | 1.9261759 | 20 | — | — |
| 189526 2000 PW ₄ | 16.0 | X | 352.12890 | 345.93124 | 309.24088 | 10.62695 | 0.2522050 | 0.24528906 | 2.5274579 | 20 | 7 30.2 | 17.2 |
| 189527 2000 PX ₆ | 16.9 | X | 118.99313 | 77.14815 | 280.27581 | 17.46876 | 0.0973646 | 0.36799311 | 1.9286034 | 20 | — | — |
| 189528 2000 QL ₃₃ | 15.9 | X | 251.99774 | 264.04332 | 114.68620 | 13.53303 | 0.1853120 | 0.23732743 | 2.5836723 | 20 | 6 5.6 | 19.9 |
| 189529 2000 QA ₃₄ | 16.4 | X | 202.15770 | 292.39057 | 319.48381 | 18.92590 | 0.0466026 | 0.36817887 | 1.9279546 | 20 | — | — |
| 189530 2000 QH ₅₈ | 15.9 | X | 281.92857 | 217.19868 | 139.88571 | 14.81935 | 0.0979003 | 0.24136276 | 2.5547939 | 20 | 6 26.4 | 19.4 |
| 189531 2000 QV ₇₀ | 16.1 | X | 311.35902 | 180.76191 | 147.61660 | 15.98907 | 0.2063887 | 0.24161771 | 2.5529964 | 20 | 6 16.1 | 19.2 |
| 189532 2000 QK ₇₈ | 16.0 | X | 300.80253 | 64.15436 | 328.79275 | 6.35887 | 0.2407484 | 0.24520766 | 2.5280172 | 20 | 8 26.5 | 18.3 |
| 189533 2000 QZ ₈₄ | 15.7 | X | 327.57026 | 31.62914 | 281.32321 | 4.65003 | 0.1798734 | 0.24288526 | 2.5441064 | 20 | 6 27.7 | 18.1 |
| 189534 2000 QH ₉₂ | 16.4 | X | 316.14202 | 32.80354 | 301.58289 | 3.63876 | 0.2026497 | 0.24236829 | 2.5477229 | 20 | 7 3.9 | 18.7 |
| 189535 2000 QS ₉₄ | 15.8 | X | 279.91845 | 298.69665 | 90.13980 | 4.96602 | 0.2776183 | 0.24244970 | 2.5471525 | 20 | 7 7.9 | 19.1 |
| 189536 2000 QF ₉₅ | 16.6 | X | 298.15114 | 69.52023 | 281.26606 | 2.37259 | 0.3120885 | 0.24139630 | 2.5545573 | 20 | 6 4.4 | 19.5 |
| 189537 2000 QK ₁₀₈ | 16.1 | X | 357.86181 | 242.58688 | 61.64752 | 4.67827 | 0.1917173 | 0.24583661 | 2.5237035 | 20 | 8 29.3 | 18.2 |
| 189538 2000 QK ₁₁₈ | 16.3 | X | 282.93710 | 70.65418 | 327.35076 | 12.37479 | 0.2028023 | 0.24321475 | 2.5418082 | 20 | 8 8.9 | 19.3 |
| 189539 2000 QG ₁₃₀ | 15.0 | X | 265.44073 | 71.24297 | 345.90725 | 4.55538 | 0.3009446 | 0.23641286 | 2.5903313 | 20 | 7 25.3 | 18.6 |
| 189540 2000 QZ ₁₆₄ | 15.8 | X | 350.66668 | 49.47923 | 235.78963 | 6.01255 | 0.2076731 | 0.24296130 | 2.5433576 | 20 | 7 5.3 | 17.8 |
| 189541 2000 QJ ₁₇₃ | 15.3 | X | 162.37423 | 159.67372 | 315.69300 | 13.36006 | 0.0884207 | 0.24084836 | 2.5584303 | 20 | 7 12.9 | 19.1 |
| 189542 2000 QM ₂₁₈ | 16.6 | X | 312.58314 | 185.64227 | 144.58558 | 3.46720 | 0.1261812 | 0.24355707 | 2.5394260 | 20 | 7 1.6 | 19.2 |
| 189543 2000 RH | 16.3 | X | 56.88195 | 18.12176 | 354.29878 | 20.01690 | 0.0773966 | 0.35896819 | 1.9607945 | 20 | — | — |
| 189544 2000 RV ₁₁ | 16.8 | X | 163.01160 | 169.19926 | 172.88681 | 23.67154 | 0.0755073 | 0.37180015 | 1.9154156 | 20 | — | — |
| 189545 2000 RT ₃₆ | 16.0 | X | 289.00112 | 214.90863 | 192.71048 | 8.16659 | 0.3317484 | 0.24148083 | 2.5539611 | 20 | 8 5.4 | 19.0 |
| 189546 2000 RW ₃₆ | 16.6 | X | 258.26541 | 198.35054 | 195.93320 | 4.94517 | 0.3274529 | 0.23634297 | 2.5908420 | 20 | 6 13.7 | 20.7 |
| 189547 2000 RN ₄₄ | 15.3 | X | 288.71991 | 110.21521 | 324.06161 | 10.74763 | 0.2064971 | 0.24578303 | 2.5240703 | 20 | 10 4.4 | 18.1 |
| 189548 2000 RJ ₄₇ | 16.0 | X | 293.06393 | 117.86165 | 229.96615 | 4.84264 | 0.3095513 | 0.23869217 | 2.5738146 | 20 | 5 24.7 | 19.2 |
| 189549 2000 RA ₆₇ | 15.7 | X | 324.31385 | 340.78441 | 9.56746 | 7.62611 | 0.2759896 | 0.24313210 | 2.5423842 | 20 | 8 13.8 | 17.4 |
| 189550 2000 RD ₇₀ | 15.6 | X | 290.73925 | 335.78360 | 2.20926 | 13.78778 | 0.1961587 | 0.23754945 | 2.5820622 | 20 | 5 21.5 | 19.1 |
| 189551 2000 RF ₇₄ | 16.0 | X | 303.95916 | 311.15461 | 39.40093 | 6.87828 | 0.3153126 | 0.24108320 | 2.5567685 | 20 | 6 12.6 | 18.7 |
| 189552 2000 RL ₇₇ | 16.8 | X | 280.48008 | 234.94485 | 194.50380 | 30.13800 | 0.5348508 | 0.24074392 | 2.5591702 | 20 | 7 19.3 | 21.4 |
| 189553 2000 ST ₂ | 15.4 | X | 286.54640 | 106.00215 | 250.49391 | 12.40391 | 0.1045988 | 0.23991830 | 2.5650380 | 20 | 6 29.2 | 18.7 |
| 189554 2000 SO ₂₆ | 15.6 | X | 218.07654 | 100.82775 | 300.25163 | 13.89768 | 0.0574961 | 0.23713153 | 2.5850951 | 20 | 6 7.4 | 19.5 |
| 189555 2000 SY ₃₇ | 16.3 | X | 283.60294 | 200.44604 | 140.17473 | 4.76110 | 0.2502538 | 0.23788118 | 2.5796612 | 20 | 5 13.3 | 19.8 |
| 189556 2000 SQ ₄₇ | 15.6 | X | 306.73223 | 99.87341 | 256.87411 | 7.91335 | 0.1157378 | 0.24376070 | 2.5380115 | 20 | 7 29.9 | 18.6 |
| 189557 2000 SU ₇₆ | 16.4 | X | 244.02401 | 200.69972 | 200.57109 | 4.90221 | 0.1002144 | 0.23878388 | 2.5731556 | 20 | 7 4.3 | 20.0 |
| 189558 2000 SL ₈₁ | 16.0 | X | 309.18829 | 140.67894 | 149.42524 | 3.43214 | 0.2000387 | 0.23538524 | 2.5978649 | 20 | 4 17.8 | 19.1 |
| 189559 2000 SY ₉₀ | 15.9 | X | 271.52194 | 74.25289 | 292.69963 | 13.80965 | 0.1715257 | 0.23786796 | 2.5797567 | 20 | 6 13.2 | 19.5 |
| 189560 2000 SV ₉₂ | 15.8 | X | 355.18626 | 41.98678 | 252.97401 | 8.60086 | 0.1387711 | 0.24299392 | 2.5433479 | 20 | 7 28.2 | 18.5 |
| 189561 2000 SN ₁₁₅ | 16.3 | X | 286.94528 | 144.95019 | 187.01040 | 6.30004 | 0.1880556 | 0.23595313 | 2.5936949 | 20 | 5 15.2 | 19.7 |
| 189562 2000 SX ₂₁₂ | 16.2 | X | 304.70512 | 238.16443 | 128.48347 | 6.32970 | 0.3241649 | 0.24196235 | 2.5505716 | 20 | 7 7.5 | 18.7 |
| 189563 2000 SG ₂₂₂ | 15.6 | X | 286.13390 | 174.01851 | 167.97395 | 14.36415 | 0.3016106 | 0.23648460 | 2.5898074 | 20 | 5 12.5 | 19.4 |
| 189564 2000 SG ₂₄₅ | 16.3 | X | 277.74633 | 206.23377 | 137.58034 | 7.34704 | 0.1461588 | 0.23748420 | 2.5825351 | 20 | 5 26.1 | 19.8 |
| 189565 2000 SG ₂₇₃ | 15.8 | X | 265.25723 | 70.74246 | 267.81055 | 10.63307 | 0.0921726 | 0.23292260 | 2.6161439 | 20 | 5 6.9 | 19.5 |
| 189566 2000 SQ ₂₇₈ | 16.3 | X | 257.45071 | 122.97503 | 352.95260 | 3.71700 | 0.2141836 | 0.23522065 | 2.5990766 | 20 | 6 2.0 | 20.0 |
| 189567 2000 SW ₃₁₀ | 15.5 | X | 292.90771 | 10.64984 | 314.47528 | 14.31034 | 0.2120958 | 0.23627449 | 2.5913425 | 20 | 5 2.5 | 19.2 |
| 189568 2000 SN ₃₁₁ | 15.7 | X | 321.85813 | 34.83699 | 281.26249 | 12.57349 | 0.1044960 | 0.24128004 | 2.5553778 | 20 | 6 30.0 | 18.2 |
| 189569 2000 SQ ₃₁₂ | 16.4 | X | 245.29915 | 137.26623 | 262.84491 | 11.92524 | 0.1971526 | 0.23664918 | 2.5886066 | 20 | 6 22.4 | 20.2 |
| 189570 2000 SW ₃₁₆ | 15.7 | X | 5.43547 | 357.92886 | 306.36404 | 14.61365 | 0.1018427 | 0.24455081 | 2.5325420 | 20 | 8 26.4 | 18.7 |
| 189571 2000 SX ₃₁₇ | 15.3 | X | 206.66622 | 54.69039 | 327.84410 | 22.32399 | 0.0893623 | 0.23131705 | 2.6282356 | 20 | 4 15.9 | 19.8 |
| 189572 2000 SV ₃₅₁ | 16.6 | X | 99.50926 | 270.96977 | 45.39906 | 22.20040 | 0.0598728 | 0.35808918 | 1.9640020 | 20 | — | — |
| 189573 2000 TV ₂₃ | 16.1 | X | 321.31338 | 52.54169 | 281.67435 | 11.82428 | 0.1676453 | 0.24207433 | 2.5497849 | 20 | 7 18.1 | 18.6 |
| 189574 2000 TT ₄₃ | 16.1 | X | 340.58593 | 174.21166 | 126.92433 | 8.61670 | 0.2825857 | 0.24237745 | 2.5476587 | 20 | 6 30.7 | 17.5 |
| 189575 2000 UG ₁₄ | 16.1 | X | 257.14847 | 340.88175 | 51.90293 | 6.57754 | 0.3447006 | 0.23747451 | 2.5826054 | 20 | 6 8.3 | 20.4 |
| 189576 2000 UT ₂₉ | 16.0 | X | 298.68511 | 285.68266 | 54.57530 | 13.97098 | 0.2398617 | 0.23744987 | 2.5827841 | 20 | 6 1.5 | 19.0 |
| 189577 2000 UR ₄₂ | 15.9 | X | 216.67366 | 324.51078 | 56.83953 | 8.57178 | 0.1800607 | 0.22959316 | 2.6413751 | 20 | 5 4.2 | 20.1 |
| 189578 2000 US ₆₀ | 16.0 | X | 240.99761 | 138.71861 | 242.90887 | 5.68371 | 0.1002709 | 0.23347210 | 2.6120374 | 20 | 6 4.7 | 19.7 |
| 189579 2000 UQ ₆₈ | 15.2 | X | 145.67696 | 252.78627 | 230.16314 | 21.38151 | 0.0592590 | 0.23228296 | 2.6209444 | 20 | 6 26.6 | 19.3 |
| 189580 2000 UX ₆₉ | 16.3 | X | 284.20349 | 55.63121 | 269.28571 | 3.56905 | 0.3236210 | 0.23541514 | 2.5976449 | 20 | 4 10.3 | 20.4 |
| 189581 2000 UL ₇₆ | 16.0 | X | 286.68542 | 289.74029 | 73.75801 | 12.35219 | 0.3335172 | 0.23878282 | 2.5731632 | 20 | 6 2.8 | 19.3 |
| 189582 2000 VC ₁₄ | 16.8 | X | 278.97326 | 144.67194 | 209.19616 | 3.87182 | 0.2834581 | 0.23633122 | 2.5909279 | 20 | 5 19.4 | 20.5 |
| 189583 2000 VT ₃₄ | 16.3 | X | 306.26551 | 148.09461 | 227.54250 | 6.87809 | 0.3451290 | 0.24092336 | 2.5578993 | 20 | 7 18.7 | 18.8 |
| 189584 2000 VR ₅₄ | 16.2 | X | 267.29650 | 62.43031 | 303.54688 | 3.59530 | 0.2906850 | 0.23542794 | 2.5975508 | 20 | 5 20.3 | 20.3 |
| 189585 2000 VW ₅₄ | 15.6 | X | 341.59654 | 58.71377 | 323.86375 | 3.52474 | 0.1922018 | 0.24648290 | 2.5192901 | 20 | 11 19.4 | 17.8 |
| 189586 2000 WC ₅ | 15.8 | X | 291.26827 | 76.53450 | 297.07510 | 6.23089 | 0.2062136 | 0.23836715 | 2.5761537 | 20 | 7 15.6 | 18.7 |
| 189587 2000 WR ₇ | 16.3 | X | 224.32394 | 261.35184 | 117.94940 | 6.89940 | 0.1958314 | 0.22992564 | 2.6388282 | 20 | 5 9.2 | 20.7 |
| 189588 2000 WY ₇ | 16.5 | X | 240.29353 | 205.45329 | 187.67488 | 7.03324 | 0.2278622 | 0.23334598 | 2.6129785 | 20 | 6 6.1 | 20.7 |
| 189589 2000 WO ₁₆ | 15.5 | X | 320.02123 | 103.75377 | 255.96139 | 3.16323 | 0.2277439 | 0.24063194 | 2.5599641 | 20 | 8 17.8 | 17.7 |
| 189590 2000 WP ₂₄ | 16.0 | X | 271.50525 | 181.91921 | 165.84616 | 5.88103 | 0.2831851 | 0.23406117 | 2.6076530 | 20 | 5 4.8 | 19.9 |
| 189591 2000 WY ₃₇ | 16.4 | X | 236.60679 | 248.50352 | 122.61711 | 6.34542 | 0.2417117 | 0.23065494 | 2.6332628 | 20 | 5 6.6 | 20.8 |
| 189592 2000 WP ₃₉ | 16.5 | X | 267.08771 | 286.06576 | 95.92651 | 12.94232 | 0.3163731 | 0.23541759 | 2.5976269 | 20 | 6 8.6 | 20.5 |
| 189593 2000 WL ₇₃ | 15.7 | X | 276.29083 | 73.12249 | 235.9338 | 7.71547 | 0.0781293 | 0.24605494 | 2.5222104 | 20 | 11 6.8 | |

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

| Planet | <i>H</i> | <i>G</i> | <i>M</i> | ω | Ω | <i>i</i> | <i>e</i> | μ | <i>a</i> | TE | Oppos. | <i>V</i> |
|-------------------------------|----------|----------|-----------|-----------|-----------|----------|-----------|------------|-----------|----|---------|----------|
| 189601 2000 WR ₁₅₅ | 15.4 | X | 335.86789 | 25.40521 | 318.36123 | 7.37657 | 0.2762988 | 0.24256613 | 2.5463374 | 20 | 9 2.5 | 16.8 |
| 189602 2000 XC ₂ | 15.0 | X | 151.22528 | 192.09493 | 266.99367 | 21.31941 | 0.0634177 | 0.22780182 | 2.6552042 | 20 | 6 5.5 | 18.9 |
| 189603 2000 XN ₅ | 15.8 | X | 182.66892 | 93.15690 | 295.17585 | 11.21266 | 0.1529221 | 0.22450964 | 2.6810982 | 20 | 4 5.9 | 20.4 |
| 189604 2000 XE ₁₇ | 14.9 | X | 316.42378 | 100.25504 | 285.14980 | 12.42795 | 0.2542046 | 0.24183730 | 2.5514508 | 20 | 9 10.5 | 17.2 |
| 189605 2000 XG ₂₃ | 15.6 | X | 241.22757 | 63.56107 | 295.61230 | 10.54935 | 0.2200574 | 0.22911734 | 2.6450309 | 20 | 4 20.5 | 20.2 |
| 189606 2000 XV ₃₁ | 15.6 | X | 303.41682 | 21.16417 | 332.96643 | 6.95363 | 0.2067425 | 0.23564717 | 2.5959395 | 20 | 7 8.9 | 18.5 |
| 189607 2000 XR ₃₆ | 14.7 | X | 8.08564 | 344.80574 | 349.46879 | 13.78487 | 0.1815816 | 0.24382393 | 2.5375727 | 20 | 10 23.4 | 17.6 |
| 189608 2000 XX ₃₆ | 15.4 | X | 286.77672 | 61.41422 | 322.21372 | 12.28950 | 0.1756615 | 0.23730842 | 2.5838102 | 20 | 7 29.7 | 18.5 |
| 189609 2000 XX ₃₉ | 14.5 | X | 203.94777 | 110.46099 | 315.01758 | 17.25513 | 0.2064640 | 0.23073076 | 2.6326860 | 20 | 6 15.9 | 19.2 |
| 189610 2000 YE ₄₄ | 15.5 | X | 138.44732 | 309.10865 | 101.74193 | 7.68553 | 0.0420712 | 0.21614555 | 2.7498258 | 20 | 3 21.6 | 19.5 |
| 189611 2000 YE ₄₉ | 15.5 | X | 122.40542 | 128.38474 | 286.93029 | 6.74944 | 0.1534228 | 0.21542422 | 2.7559608 | 20 | 3 14.4 | 19.6 |
| 189612 2000 YM ₉₇ | 14.6 | X | 210.43899 | 84.41557 | 296.80793 | 10.71426 | 0.2526618 | 0.22333378 | 2.6905007 | 20 | 4 20.5 | 19.6 |
| 189613 2000 YD ₁₀₀ | 15.7 | X | 295.84912 | 235.18718 | 133.90249 | 13.22656 | 0.3032073 | 0.23933360 | 2.5692139 | 20 | 6 29.4 | 18.9 |
| 189614 2000 YV ₁₄₃ | 15.4 | X | 167.01831 | 248.92993 | 143.50565 | 13.47787 | 0.1993230 | 0.21924108 | 2.7238808 | 20 | 4 8.9 | 20.1 |
| 189615 2001 AF ₂₅ | 15.4 | X | 277.50572 | 18.06890 | 50.39960 | 4.62817 | 0.2101754 | 0.23659691 | 2.5889878 | 20 | 9 11.9 | 18.3 |
| 189616 2001 BQ ₁₇ | 13.1 | X | 248.35947 | 121.07696 | 341.04477 | 4.33995 | 0.0950387 | 0.08527358 | 5.1120261 | 20 | 9 11.3 | 20.0 |
| 189617 2001 BV ₂₃ | 14.9 | X | 156.51663 | 277.04320 | 300.74283 | 12.73620 | 0.1832552 | 0.18605316 | 3.0388646 | 20 | 10 30.3 | 20.2 |
| 189618 2001 BD ₄₁ | 14.6 | X | 115.84879 | 101.03629 | 138.43331 | 17.22671 | 0.2708495 | 0.18062394 | 3.0994586 | 20 | 11 5.2 | 20.3 |
| 189619 2001 BW ₅₇ | 15.6 | X | 148.25529 | 246.86982 | 148.34012 | 4.28119 | 0.1028411 | 0.21260657 | 2.7802569 | 20 | 3 16.6 | 19.7 |
| 189620 2001 BH ₆₃ | 15.3 | X | 101.47549 | 136.95147 | 286.27387 | 6.83934 | 0.2138140 | 0.21152050 | 2.7897657 | 20 | 3 9.1 | 19.4 |
| 189621 2001 CL ₆ | 15.7 | X | 74.26937 | 137.79996 | 330.17188 | 13.69505 | 0.1882100 | 0.21160029 | 2.7890644 | 20 | 3 24.6 | 19.3 |
| 189622 2001 DZ ₅₂ | 14.7 | X | 87.43820 | 262.76173 | 341.06761 | 23.71175 | 0.2107954 | 0.17577721 | 3.1561745 | 20 | 9 28.4 | 19.9 |
| 189623 2001 DK ₆₃ | 15.2 | X | 170.56292 | 327.99445 | 320.41215 | 9.81440 | 0.0413984 | 0.19680038 | 2.9271980 | 20 | — | — |
| 189624 2001 DF ₈₂ | 16.4 | X | 194.09848 | 299.00429 | 113.32352 | 1.18222 | 0.2816686 | 0.22322805 | 2.6913502 | 20 | 5 20.2 | 21.3 |
| 189625 2001 FX ₁₀₇ | 15.1 | X | 208.12779 | 224.01921 | 319.29238 | 10.01245 | 0.1019755 | 0.18520507 | 3.0481346 | 20 | 11 12.2 | 19.9 |
| 189626 2001 HV ₂₅ | 17.0 | X | 234.03413 | 249.74168 | 33.87768 | 7.27861 | 0.1440774 | 0.29933961 | 2.2132302 | 20 | 1 15.9 | 20.4 |
| 189627 2001 HJ ₅₄ | 14.9 | X | 173.35633 | 18.49809 | 180.97235 | 5.82032 | 0.1370580 | 0.17888071 | 3.1195627 | 20 | 10 29.5 | 19.8 |
| 189628 2001 KE ₄ | 14.1 | X | 65.53061 | 102.83815 | 233.88024 | 20.54530 | 0.1731287 | 0.17579803 | 3.1559253 | 20 | 12 26.5 | 19.1 |
| 189629 2001 KH ₄₃ | 16.9 | X | 233.40311 | 117.05789 | 119.97752 | 6.02136 | 0.1645274 | 0.29197469 | 2.2502939 | 20 | — | — |
| 189630 2001 LE ₆ | 17.7 | X | 178.87297 | 201.51544 | 290.56057 | 12.63186 | 0.6932126 | 0.74419835 | 1.2059896 | 20 | 8 16.4 | 19.7 |
| 189631 2001 LX ₈ | 17.1 | X | 160.70564 | 142.14650 | 180.51127 | 4.97771 | 0.2585205 | 0.28907278 | 2.2653288 | 20 | 1 3.4 | 20.6 |
| 189632 2001 NK ₅ | 17.5 | X | 131.26915 | 218.09173 | 101.77225 | 7.43105 | 0.2449876 | 0.28200404 | 2.3030277 | 20 | — | — |
| 189633 2001 OW ₆ | 16.4 | X | 98.43160 | 145.52257 | 221.91623 | 3.35408 | 0.1600827 | 0.28027259 | 3.1252030 | 20 | — | — |
| 189634 2001 OV ₁₄ | 15.9 | X | 56.81304 | 222.08490 | 143.59749 | 23.91939 | 0.1905670 | 0.27338632 | 2.3511745 | 20 | — | — |
| 189635 2001 OW ₁₈ | 16.6 | X | 163.18034 | 206.29187 | 113.98571 | 7.69836 | 0.2225915 | 0.28674601 | 2.2775668 | 20 | — | — |
| 189636 2001 OY ₁₈ | 16.8 | X | 120.07387 | 188.45315 | 132.61595 | 5.47384 | 0.1740769 | 0.28072425 | 2.3100219 | 20 | — | — |
| 189637 2001 OT ₂₀ | 15.6 | X | 171.90637 | 318.55399 | 289.02106 | 23.40927 | 0.2623397 | 0.27825096 | 2.3236904 | 20 | — | — |
| 189638 2001 OP ₂₁ | 15.8 | X | 105.07281 | 38.63282 | 323.79222 | 5.94516 | 0.1279766 | 0.27961239 | 2.3161416 | 20 | — | — |
| 189639 2001 OA ₂₅ | 16.4 | X | 161.73947 | 106.54684 | 221.08008 | 7.94631 | 0.2473023 | 0.28599865 | 2.2815328 | 20 | 1 8.9 | 20.1 |
| 189640 2001 OO ₄₇ | 16.4 | X | 168.92341 | 348.43977 | 306.15625 | 9.89791 | 0.2203071 | 0.28407111 | 2.2918420 | 20 | — | — |
| 189641 2001 OY ₄₈ | 17.0 | X | 86.35225 | 232.05401 | 115.72833 | 5.68612 | 0.2522062 | 0.27635125 | 2.3343273 | 20 | — | — |
| 189642 2001 OA ₆₆ | 16.3 | X | 127.32951 | 13.16110 | 309.26835 | 6.19389 | 0.1425526 | 0.27961908 | 2.3161047 | 20 | — | — |
| 189643 2001 OH ₇₀ | 16.4 | X | 96.75935 | 182.67899 | 169.08478 | 3.77015 | 0.2629724 | 0.27734574 | 2.3287438 | 20 | — | — |
| 189644 2001 OM ₇₀ | 16.9 | X | 100.30105 | 149.54938 | 196.71167 | 2.36775 | 0.2610717 | 0.27768662 | 2.3268376 | 20 | — | — |
| 189645 2001 OQ ₈₅ | 16.7 | X | 189.20935 | 40.69783 | 272.23988 | 6.61339 | 0.1728008 | 0.28930304 | 2.2641266 | 20 | 1 10.7 | 20.2 |
| 189646 2001 OB ₉₁ | 17.0 | X | 111.31204 | 61.27175 | 285.60176 | 7.70537 | 0.1811683 | 0.28153165 | 2.3056032 | 20 | — | — |
| 189647 2001 OB ₉₇ | 16.9 | X | 110.13247 | 233.07173 | 100.44559 | 4.85877 | 0.2493688 | 0.27907097 | 2.3191363 | 20 | — | — |
| 189648 2001 OY ₁₀₂ | 16.0 | X | 180.89825 | 166.84744 | 179.05748 | 27.00994 | 0.2440350 | 0.28880916 | 2.2667071 | 20 | 2 14.3 | 20.1 |
| 189649 2001 OS ₁₀₆ | 15.6 | X | 57.58829 | 139.80291 | 243.61806 | 4.96113 | 0.2532016 | 0.27402270 | 2.3475329 | 20 | — | — |
| 189650 2001 OA ₁₀₇ | 15.9 | X | 65.47057 | 28.82692 | 317.02654 | 5.78450 | 0.1252597 | 0.27159562 | 2.3614978 | 20 | — | — |
| 189651 2001 PU ₄ | 16.8 | X | 134.65641 | 14.72014 | 306.84631 | 9.04723 | 0.2271125 | 0.28291237 | 2.2980956 | 20 | — | — |
| 189652 2001 PE ₂₆ | 17.0 | X | 118.76358 | 226.90815 | 102.18646 | 3.15844 | 0.2386379 | 0.27925660 | 2.3181085 | 20 | — | — |
| 189653 2001 PR ₅₂ | 16.6 | X | 37.88906 | 289.45011 | 107.57280 | 7.16006 | 0.1891967 | 0.27408517 | 2.3471762 | 20 | — | — |
| 189654 2001 QJ ₁₁ | 16.6 | X | 181.35766 | 124.25483 | 152.51102 | 26.44775 | 0.2181373 | 0.28339861 | 2.2954662 | 20 | — | — |
| 189655 2001 QK ₃₆ | 16.7 | X | 62.42778 | 78.01942 | 314.07855 | 6.46743 | 0.1775627 | 0.27971530 | 2.3155735 | 20 | — | — |
| 189656 2001 QZ ₅₀ | 16.6 | X | 141.08554 | 268.75635 | 67.13534 | 3.37562 | 0.1978189 | 0.28429976 | 2.2906130 | 20 | — | — |
| 189657 2001 QB ₅₄ | 16.4 | X | 55.03738 | 260.35181 | 128.63525 | 5.23979 | 0.1773115 | 0.27651775 | 2.3333902 | 20 | — | — |
| 189658 2001 QJ ₉₇ | 16.5 | X | 61.16372 | 71.02111 | 306.27198 | 4.65671 | 0.2463430 | 0.27379805 | 2.3488168 | 20 | — | — |
| 189659 2001 QG ₁₁₅ | 16.6 | X | 129.87875 | 112.02419 | 188.09205 | 8.71506 | 0.2322036 | 0.27768252 | 2.3268605 | 20 | — | — |
| 189660 2001 QV ₁₃₅ | 15.7 | X | 7.21059 | 123.86821 | 262.30097 | 5.85611 | 0.1457462 | 0.26586616 | 2.3953042 | 20 | — | — |
| 189661 2001 QL ₁₅₅ | 16.7 | X | 127.97706 | 33.61505 | 276.93142 | 3.73707 | 0.2394045 | 0.27910102 | 2.3189698 | 20 | — | — |
| 189662 2001 QR ₁₇₀ | 16.7 | X | 69.62968 | 33.17608 | 320.97924 | 1.68316 | 0.1883686 | 0.27438890 | 2.3454438 | 20 | — | — |
| 189663 2001 QO ₁₈₈ | 17.2 | X | 143.15025 | 151.76110 | 131.84756 | 3.27349 | 0.1338587 | 0.27846403 | 2.3225049 | 20 | — | — |
| 189664 2001 QW ₂₃₃ | 17.1 | X | 89.19018 | 109.26960 | 226.99419 | 0.51750 | 0.1419369 | 0.27453689 | 2.3446008 | 20 | — | — |
| 189665 2001 RY ₆ | 16.7 | X | 49.53078 | 220.05801 | 148.68103 | 1.56199 | 0.2028304 | 0.27074893 | 2.3664185 | 20 | — | — |
| 189666 2001 RF ₅₀ | 16.0 | X | 78.53106 | 147.52697 | 243.43854 | 6.43009 | 0.1074791 | 0.27978225 | 2.3152041 | 20 | — | — |
| 189667 2001 RN ₆₄ | 15.9 | X | 42.18976 | 179.20137 | 224.82400 | 7.53160 | 0.2696187 | 0.27334122 | 2.3514331 | 20 | — | — |
| 189668 2001 RJ ₈₀ | 16.7 | X | 42.30902 | 250.32091 | 121.10681 | 4.99303 | 0.2033473 | 0.26979455 | 2.3719959 | 20 | — | — |
| | | | | | | | | | | | | |

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

| Planet | <i>H</i> | <i>G</i> | <i>M</i> | ω | Ω | <i>i</i> | <i>e</i> | μ | <i>a</i> | TE | Oppos. | <i>V</i> | | |
|--------|----------|-------------------|----------|----------|-----------|-----------|-----------|----------|------------|------------|-----------|----------|---------|------|
| 189681 | 2001 | SV ₈₂ | 17.1 | X | 175.29667 | 59.84144 | 196.34020 | 2.99068 | 0.1299893 | 0.27835421 | 2.3231157 | 20 | — | — |
| 189682 | 2001 | SV ₈₃ | 16.7 | X | 342.97276 | 148.55276 | 334.77952 | 7.04466 | 0.0590123 | 0.28027592 | 2.3124847 | 20 | — | — |
| 189683 | 2001 | SR ₉₉ | 17.0 | X | 156.53172 | 285.17370 | 324.90273 | 1.38131 | 0.2433499 | 0.27447643 | 2.3449451 | 20 | 12 22.8 | 20.9 |
| 189684 | 2001 | SY ₁₁₀ | 16.3 | X | 42.15788 | 57.46108 | 305.52491 | 4.21091 | 0.2437252 | 0.26672778 | 2.3901430 | 20 | — | — |
| 189685 | 2001 | SY ₁₁₃ | 16.3 | X | 15.37987 | 95.14306 | 337.29488 | 5.55664 | 0.1343569 | 0.27351450 | 2.3504399 | 20 | — | — |
| 189686 | 2001 | SB ₁₂₈ | 17.3 | X | 109.71434 | 63.41420 | 239.62121 | 0.68809 | 0.1867801 | 0.27393113 | 2.3480560 | 20 | — | — |
| 189687 | 2001 | SC ₁₄₄ | 16.8 | X | 317.72186 | 227.21878 | 195.40374 | 5.92422 | 0.0993646 | 0.26550260 | 2.3974903 | 20 | 12 4.2 | 19.3 |
| 189688 | 2001 | SU ₁₆₀ | 16.1 | X | 93.53326 | 37.32712 | 307.18074 | 2.76011 | 0.1756992 | 0.27401412 | 2.3475819 | 20 | — | — |
| 189689 | 2001 | SY ₂₂₂ | 16.7 | X | 145.37284 | 133.82294 | 142.61013 | 3.43275 | 0.1607084 | 0.27444540 | 2.3451219 | 20 | — | — |
| 189690 | 2001 | SY ₂₂₇ | 17.4 | X | 49.54317 | 177.25118 | 179.88140 | 1.22278 | 0.1916862 | 0.26966924 | 2.3727307 | 20 | — | — |
| 189691 | 2001 | SU ₂₅₈ | 16.5 | X | 190.73593 | 276.40401 | 273.48057 | 3.47662 | 0.0882718 | 0.26741259 | 2.3860606 | 20 | 11 20.9 | 19.7 |
| 189692 | 2001 | SR ₂₆₀ | 16.8 | X | 87.45281 | 151.86646 | 182.33931 | 1.79838 | 0.1516053 | 0.27225170 | 2.3577024 | 20 | — | — |
| 189693 | 2001 | SO ₂₇₀ | 15.9 | X | 125.57026 | 236.24001 | 120.06799 | 12.32657 | 0.2338671 | 0.28125097 | 2.3071369 | 20 | 1 9.1 | 18.9 |
| 189694 | 2001 | SF ₂₇₆ | 16.5 | X | 31.45611 | 99.46764 | 309.51357 | 20.97438 | 0.3068876 | 0.27028620 | 2.3691186 | 20 | — | — |
| 189695 | 2001 | SH ₂₇₈ | 16.1 | X | 54.24845 | 64.71449 | 309.65603 | 4.45753 | 0.1551982 | 0.27074195 | 2.3664592 | 20 | — | — |
| 189696 | 2001 | SQ ₂₈₀ | 16.2 | X | 64.20652 | 177.11465 | 185.98825 | 1.93556 | 0.2257642 | 0.27171979 | 2.3607783 | 20 | — | — |
| 189697 | 2001 | TY ₃ | 17.5 | X | 56.30700 | 53.02236 | 302.75289 | 1.59625 | 0.2334695 | 0.27015242 | 2.3699006 | 20 | — | — |
| 189698 | 2001 | TG ₂₄ | 16.8 | X | 43.68576 | 30.47283 | 325.08308 | 1.88757 | 0.1847210 | 0.26854528 | 2.3793465 | 20 | — | — |
| 189699 | 2001 | TK ₂₉ | 17.0 | X | 287.72558 | 214.32850 | 225.89427 | 1.99022 | 0.0734802 | 0.26201690 | 2.4187065 | 20 | 11 7.7 | 19.4 |
| 189700 | 2001 | TA ₄₅ | 19.0 | X | 234.63091 | 126.61308 | 204.92732 | 10.72223 | 0.1913962 | 0.55698378 | 1.4629889 | 20 | 2 15.4 | 20.5 |
| 189701 | 2001 | TX ₅₂ | 16.6 | X | 20.35429 | 279.93705 | 111.55378 | 3.05532 | 0.2010691 | 0.26838570 | 2.3802896 | 20 | — | — |
| 189702 | 2001 | TQ ₈₅ | 14.5 | X | 200.48968 | 47.63627 | 235.71276 | 8.68506 | 0.2452508 | 0.12548302 | 3.9513552 | 20 | 1 4.8 | 21.2 |
| 189703 | 2001 | TS ₉₆ | 17.0 | X | 37.64762 | 32.63948 | 321.39604 | 2.03406 | 0.1943391 | 0.26674733 | 2.3900262 | 20 | — | — |
| 189704 | 2001 | TN ₁₁₀ | 16.6 | X | 80.54496 | 24.49625 | 316.76000 | 3.69334 | 0.1721819 | 0.27098026 | 2.3650715 | 20 | — | — |
| 189705 | 2001 | TP ₁₂₂ | 15.8 | X | 66.85391 | 41.94472 | 290.20840 | 7.31713 | 0.1470490 | 0.26656592 | 2.3911104 | 20 | — | — |
| 189706 | 2001 | TE ₁₃₄ | 16.6 | X | 98.40905 | 197.43530 | 125.87064 | 7.00206 | 0.2385513 | 0.27261286 | 2.3556196 | 20 | — | — |
| 189707 | 2001 | TD ₁₄₈ | 16.2 | X | 334.97295 | 296.49088 | 152.95877 | 6.85612 | 0.10592969 | 0.26972492 | 2.3724041 | 20 | — | — |
| 189708 | 2001 | TH ₁₄₉ | 16.4 | X | 321.87981 | 296.86016 | 134.31745 | 5.50032 | 0.1739159 | 0.26398518 | 2.4066690 | 20 | 12 27.8 | 18.3 |
| 189709 | 2001 | TC ₁₅₈ | 16.8 | X | 38.88586 | 238.91028 | 112.93192 | 4.83813 | 0.1697766 | 0.26587805 | 2.3952328 | 20 | — | — |
| 189710 | 2001 | TH ₁₆₈ | 16.9 | X | 43.51616 | 66.42321 | 297.48631 | 6.29401 | 0.2567295 | 0.26779109 | 2.3838118 | 20 | — | — |
| 189711 | 2001 | TT ₁₇₃ | 17.4 | X | 73.12014 | 157.19887 | 156.31144 | 1.75771 | 0.1833430 | 0.26766231 | 2.3845764 | 20 | 12 28.7 | 20.9 |
| 189712 | 2001 | TE ₁₈₃ | 15.9 | X | 102.88324 | 35.73768 | 256.17212 | 6.42680 | 0.1998684 | 0.26786412 | 2.3833785 | 20 | 12 29.4 | 19.7 |
| 189713 | 2001 | TD ₁₉₈ | 16.8 | X | 73.98301 | 270.78360 | 42.51548 | 6.81474 | 0.1371372 | 0.26900971 | 2.3766072 | 20 | 12 25.8 | 20.4 |
| 189714 | 2001 | TL ₂₂₉ | 13.9 | X | 180.14925 | 174.90760 | 128.22686 | 10.17232 | 0.1381853 | 0.12480925 | 3.9655632 | 20 | 1 10.6 | 20.2 |
| 189715 | 2001 | UX ₁₂ | 16.3 | X | 22.85243 | 268.14506 | 118.35302 | 2.08858 | 0.1838080 | 0.26631282 | 2.3926252 | 20 | — | — |
| 189716 | 2001 | UT ₁₄ | 16.2 | X | 348.64503 | 279.08425 | 101.99872 | 2.98848 | 0.1809050 | 0.26059756 | 2.4274809 | 20 | 12 6.6 | 18.5 |
| 189717 | 2001 | UD ₄₁ | 16.9 | X | 80.15327 | 233.03828 | 109.78108 | 3.06615 | 0.2175469 | 0.27197581 | 2.3592965 | 20 | — | — |
| 189718 | 2001 | UV ₄₆ | 16.7 | X | 58.90558 | 269.24021 | 66.04689 | 3.56128 | 0.2020743 | 0.26705645 | 2.3881815 | 20 | — | — |
| 189719 | 2001 | UW ₉₆ | 17.0 | X | 97.20013 | 250.73384 | 52.87033 | 3.28383 | 0.2292337 | 0.27001273 | 2.3707180 | 20 | — | — |
| 189720 | 2001 | UA ₁₅₅ | 15.9 | X | 43.25606 | 230.21086 | 101.46283 | 3.06755 | 0.2111524 | 0.26239907 | 2.4163575 | 20 | 12 23.4 | 19.3 |
| 189721 | 2001 | UL ₁₅₈ | 17.0 | X | 22.09234 | 270.79294 | 99.99235 | 2.17478 | 0.1828971 | 0.26441571 | 2.4040558 | 20 | — | — |
| 189722 | 2001 | UN ₁₆₇ | 16.0 | X | 9.03674 | 9.57762 | 8.72389 | 13.52951 | 0.2269077 | 0.26305607 | 2.4123325 | 20 | — | — |
| 189723 | 2001 | UB ₁₇₈ | 16.0 | X | 22.98412 | 66.87911 | 229.20174 | 7.06783 | 0.1130339 | 0.25341972 | 2.4731044 | 20 | 9 18.7 | 18.8 |
| 189724 | 2001 | VA ₁₃ | 15.7 | X | 346.14756 | 121.52908 | 288.67421 | 10.01101 | 0.2333878 | 0.26286491 | 2.4135019 | 20 | — | — |
| 189725 | 2001 | VB ₃₀ | 16.4 | X | 33.54361 | 2.82807 | 22.85335 | 2.55770 | 0.1903516 | 0.26694691 | 2.3888348 | 20 | — | — |
| 189726 | 2001 | VD ₅₅ | 16.0 | X | 55.78154 | 65.19652 | 267.03278 | 5.57960 | 0.1407096 | 0.26539494 | 2.3981387 | 20 | 12 29.8 | 19.2 |
| 189727 | 2001 | VJ ₇₇ | 16.1 | X | 274.41072 | 325.93881 | 153.78025 | 6.94962 | 0.1733391 | 0.26042242 | 2.4285691 | 20 | 11 30.6 | 18.5 |
| 189728 | 2001 | VW ₁₁₀ | 16.1 | X | 142.07364 | 205.79442 | 295.59815 | 3.76721 | 0.1121282 | 0.24349910 | 2.5398290 | 20 | 7 23.9 | 19.8 |
| 189729 | 2001 | VW ₈ | 16.4 | X | 31.06668 | 237.59629 | 108.43860 | 4.35393 | 0.1998429 | 0.26275917 | 2.4141493 | 20 | 12 26.4 | 19.6 |
| 189730 | 2001 | VW ₁₁ | 16.1 | X | 42.77860 | 244.88911 | 91.52447 | 6.71939 | 0.2189717 | 0.26386592 | 2.4073941 | 20 | 12 30.1 | 19.4 |
| 189731 | 2001 | WE ₄₇ | 16.5 | X | 34.68638 | 79.49900 | 250.83146 | 2.67319 | 0.1866565 | 0.26156969 | 2.4214627 | 20 | 12 8.3 | 19.4 |
| 189732 | 2001 | WG ₆₀ | 16.6 | X | 66.90404 | 292.16985 | 29.42892 | 2.09077 | 0.1841173 | 0.26523017 | 2.3991317 | 20 | — | — |
| 189733 | 2001 | XU ₂ | 14.9 | X | 1.75799 | 91.47014 | 16.10733 | 22.99603 | 0.1630199 | 0.26722765 | 2.3871614 | 20 | — | — |
| 189734 | 2001 | XV ₁₆ | 16.5 | X | 334.28811 | 114.53483 | 309.51247 | 4.72647 | 0.1695797 | 0.26130427 | 2.4231021 | 20 | — | — |
| 189735 | 2001 | XJ ₅₅ | 16.6 | X | 42.62741 | 267.41349 | 86.18600 | 5.56393 | 0.2088748 | 0.26408740 | 2.4060479 | 20 | — | — |
| 189736 | 2001 | XP ₅₅ | 16.2 | X | 357.04820 | 188.16623 | 152.53505 | 1.61507 | 0.1826117 | 0.25520192 | 2.4615770 | 20 | 10 22.6 | 18.3 |
| 189737 | 2001 | XA ₇₁ | 16.3 | X | 50.65541 | 120.51656 | 207.77883 | 1.96033 | 0.2064858 | 0.26398965 | 2.4066417 | 20 | 12 26.6 | 19.9 |
| 189738 | 2001 | XO ₇₁ | 16.4 | X | 309.23531 | 285.44816 | 131.56962 | 6.69472 | 0.1288212 | 0.25821608 | 2.4423835 | 20 | 11 9.9 | 18.8 |
| 189739 | 2001 | XV ₇₅ | 17.0 | X | 22.95068 | 257.82348 | 116.84741 | 3.59672 | 0.1991842 | 0.26553930 | 2.3972694 | 20 | — | — |
| 189740 | 2001 | XA ₈₀ | 16.2 | X | 341.83427 | 243.73574 | 144.96645 | 6.93761 | 0.1404493 | 0.25919565 | 2.4362260 | 20 | 11 30.6 | 18.7 |
| 189741 | 2001 | XG ₉₇ | 16.7 | X | 3.43600 | 3.77764 | 9.91444 | 2.17469 | 0.2123654 | 0.26083736 | 2.4259929 | 20 | 12 26.9 | 19.4 |
| 189742 | 2001 | XM ₁₂₀ | 16.1 | X | 112.53457 | 227.61161 | 76.68849 | 7.26726 | 0.2501800 | 0.27116246 | 2.3640119 | 20 | — | — |
| 189743 | 2001 | XZ ₁₃₄ | 16.6 | X | 131.42757 | 2.13669 | 139.48129 | 1.01207 | 0.0226885 | 0.24213814 | 2.5493370 | 20 | 7 4.9 | 19.9 |
| 189744 | 2001 | XF ₁₉₉ | 16.1 | X | 41.98179 | 333.23776 | 190.86182 | 3.31205 | 0.0967865 | 0.22670721 | 2.6637441 | 20 | 4 10.9 | 19.3 |
| 189745 | 2001 | XR ₂₄₀ | 15.6 | X | 60.95812 | 229.50388 | 288.68968 | 10.87488 | 0.0930242 | 0.23001109 | 2.6381746 | 20 | 4 27.5 | 19.1 |
| 189746 | 2001 | YV ₄₁ | 15.7 | X | 25.60517 | 61.99203 | 301.63617 | 5.20018 | 0.2224638 | 0.26267250 | 2.4146804 | 20 | — | — |
| 189747 | 2001 | YM ₄₅ | 15.6 | X | 31.16870 | 53.20714 | 281.81464 | 4.30194 | 0.2092838 | 0.25906976 | 2.4370152 | 20 | 12 12.6 | 18.7 |
| 189748 | 2001 | YR ₅₂ | 15.6 | X | 243.88919 | 155.38363 | 271.23622 | 12.88854 | 0.0370980 | 0.24687271 | 2.5166375 | 20 | 8 12.9 | 19.1 |
| 189749 | 2001 | YS ₈₄ | 16.0 | X | 248.11926 | 131.51033 | 286.62579 | 9.27942 | 0.0997246 | 0.24434416 | 2.5339697 | 20 | 8 1.1 | 19.4 |
| 189750 | 2001 | YT ₁₀₉ | 16.4 | X | 20.18859 | 71.90734 | 305.24032 | 1.62797 | 0.2029801 | 0.25981747 | 2.4323374 | 20 | — | — |
| 189751 | 2001 | YJ ₁₂₁ | 15.8 | X | 14.85542 | 37.73938 | 307.95292 | 7.46834 | 0. | | | | | |

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

| Planet | <i>H</i> | <i>G</i> | <i>M</i> | ω | Ω | <i>i</i> | <i>e</i> | μ | <i>a</i> | TE | Oppos. | <i>V</i> |
|-------------------------------|-------------------|----------|-----------|-----------|------------|----------|-----------|------------|-----------|----|---------|----------|
| 189761 2002 AR ₁₅₅ | 15.3 ^m | X | 132.73031 | 296.02997 | 149.58061 | 22.04057 | 0.0548318 | 0.22555820 | 2.6727826 | 20 | 5 2.2 | 19.6 |
| 189762 2002 AF ₁₅₇ | 16.3 | X | 222.37706 | 217.82328 | 234.17453 | 2.24940 | 0.1135690 | 0.24330489 | 2.5411804 | 20 | 8 13.9 | 19.9 |
| 189763 2002 AV ₁₆₀ | 16.6 | X | 193.31268 | 251.29261 | 190.84410 | 3.32805 | 0.1489764 | 0.23773911 | 2.5806887 | 20 | 6 28.6 | 20.8 |
| 189764 2002 AS ₁₉₁ | 16.4 | X | 54.69027 | 58.44878 | 274.53545 | 5.41345 | 0.1444837 | 0.26134475 | 2.4228519 | 20 | 12 29.1 | 19.6 |
| 189765 2002 BC ₁₁ | 14.4 | X | 165.28683 | 242.86068 | 337.59471 | 15.23799 | 0.2828857 | 0.19214405 | 2.9742999 | 20 | 11 6.9 | 20.1 |
| 189766 2002 BK ₁₉ | 15.4 | X | 167.98491 | 283.27487 | 132.17086 | 22.49249 | 0.0722754 | 0.22780716 | 2.6551627 | 20 | 5 7.6 | 19.8 |
| 189767 2002 CH ₃ | 15.4 | X | 259.68575 | 225.61462 | 1.34138 | 8.26981 | 0.1369835 | 0.21073187 | 2.7967216 | 20 | — | — |
| 189768 2002 CF ₄₀ | 16.9 | X | 201.70525 | 32.97764 | 290.85564 | 17.42936 | 0.0529977 | 0.38119171 | 1.8838244 | 20 | 1 17.4 | 18.7 |
| 189769 2002 CT ₇₁ | 15.4 | X | 232.07635 | 318.06404 | 333.295589 | 11.73707 | 0.1314216 | 0.21800461 | 2.7341705 | 20 | 2 3.3 | 19.7 |
| 189770 2002 CL ₇₃ | 16.2 | X | 243.01723 | 13.92881 | 331.68029 | 2.72905 | 0.0486319 | 0.22903621 | 2.6456554 | 20 | 4 25.1 | 19.9 |
| 189771 2002 CY ₇₄ | 15.4 | X | 284.44227 | 265.41834 | 326.68571 | 8.25018 | 0.1558211 | 0.21472274 | 2.7619598 | 20 | 1 12.6 | 19.5 |
| 189772 2002 CQ ₇₈ | 12.6 | X | 256.21593 | 109.37026 | 343.55098 | 8.17367 | 0.0229814 | 0.08481620 | 5.1303875 | 20 | 9 17.7 | 19.5 |
| 189773 2002 CN ₁₂₃ | 15.7 | X | 113.43961 | 149.42883 | 315.30374 | 13.29638 | 0.0104261 | 0.22769898 | 2.6560036 | 20 | 4 12.4 | 19.6 |
| 189774 2002 CY ₁₂₄ | 15.6 | X | 307.73148 | 271.44615 | 306.77059 | 8.25656 | 0.0620778 | 0.21734598 | 2.7396914 | 20 | 2 2.5 | 19.1 |
| 189775 2002 CQ ₁₃₀ | 13.1 | X | 227.83874 | 319.88710 | 160.98097 | 3.86107 | 0.0393323 | 0.08374834 | 5.1739067 | 20 | 9 17.3 | 20.1 |
| 189776 2002 CM ₁₄₀ | 15.6 | X | 208.96860 | 270.40107 | 154.82731 | 25.90986 | 0.1077640 | 0.23645692 | 2.5900095 | 20 | 6 27.3 | 20.0 |
| 189777 2002 CK ₁₇₅ | 15.7 | X | 253.69324 | 163.24319 | 120.28428 | 12.22330 | 0.1053841 | 0.22173904 | 2.7033852 | 20 | 2 16.3 | 19.7 |
| 189778 2002 CW ₂₀₀ | 16.3 | X | 235.52360 | 169.95459 | 140.84294 | 4.31911 | 0.0266131 | 0.22143384 | 2.7058687 | 20 | 3 6.8 | 20.0 |
| 189779 2002 CJ ₂₀₃ | 16.4 | X | 249.19140 | 33.42367 | 349.84067 | 1.89713 | 0.0500717 | 0.23467249 | 2.6031225 | 20 | 6 24.0 | 19.8 |
| 189780 2002 CA ₂₇₅ | 16.9 | X | 214.42911 | 278.05912 | 149.84038 | 3.56665 | 0.1784224 | 0.23676020 | 2.5877973 | 20 | 6 29.2 | 21.1 |
| 189781 2002 CF ₂₇₈ | 15.5 | X | 234.27846 | 29.50277 | 232.06197 | 7.17904 | 0.1781830 | 0.21182319 | 2.7871075 | 20 | — | — |
| 189782 2002 CC ₂₉₉ | 16.6 | X | 256.55153 | 256.56853 | 155.77848 | 2.74844 | 0.0911977 | 0.24317064 | 2.5421156 | 20 | 8 7.1 | 20.0 |
| 189783 2002 CC ₃₀₂ | 15.9 | X | 107.20945 | 147.91870 | 314.28313 | 3.04548 | 0.0333590 | 0.22451288 | 2.6810724 | 20 | 4 10.3 | 19.6 |
| 189784 2002 DE ₂ | 16.9 | X | 328.16696 | 27.85990 | 95.71101 | 23.94236 | 0.0721548 | 0.36869237 | 1.9261641 | 20 | — | — |
| 189785 2002 DG ₃ | 16.4 | X | 146.29829 | 307.18228 | 9.96627 | 20.66729 | 0.0927376 | 0.36981663 | 1.9222584 | 20 | — | — |
| 189786 2002 DX ₃ | 14.9 | X | 219.69113 | 97.48479 | 97.46541 | 25.58482 | 0.2545273 | 0.19890677 | 2.9064956 | 20 | 12 2.5 | 19.7 |
| 189787 2002 EA ₂ | 16.9 | X | 22.20903 | 202.16874 | 55.17039 | 1.80307 | 0.0038398 | 0.23667916 | 2.5883880 | 20 | 7 12.1 | 20.1 |
| 189788 2002 ER ₂₇ | 16.1 | X | 138.23759 | 321.73374 | 150.61488 | 6.39050 | 0.0868569 | 0.22927753 | 2.6437987 | 20 | 6 9.9 | 20.1 |
| 189789 2002 EV ₄₆ | 15.4 | X | 107.43700 | 113.18974 | 136.68124 | 10.10484 | 0.3059496 | 0.18457751 | 3.0550398 | 20 | 11 10.8 | 20.9 |
| 189790 2002 EU ₁₂₇ | 16.1 | X | 213.29500 | 184.79158 | 158.93366 | 6.03438 | 0.0742781 | 0.22214142 | 2.7001198 | 20 | 3 19.9 | 20.1 |
| 189791 2002 EW ₁₄₀ | 16.3 | X | 255.54966 | 119.94415 | 142.74902 | 3.32605 | 0.1445220 | 0.21270599 | 2.7793905 | 20 | 1 20.0 | 20.7 |
| 189792 2002 EG ₁₄₁ | 15.8 | X | 183.36546 | 217.71687 | 157.61667 | 14.50901 | 0.0854804 | 0.22233448 | 2.6985564 | 20 | 3 29.1 | 19.9 |
| 189793 2002 ET ₁₄₈ | 15.6 | X | 171.25598 | 300.91550 | 0.42058 | 8.91003 | 0.1173180 | 0.20457617 | 2.8525462 | 20 | — | — |
| 189794 2002 EN ₁₅₄ | 15.7 | X | 208.63390 | 351.58058 | 351.45213 | 4.78496 | 0.0664126 | 0.21994546 | 2.7180621 | 20 | 3 13.3 | 19.5 |
| 189795 McGehee | 15.8 | X | 209.30313 | 179.29128 | 143.19117 | 6.46794 | 0.0628271 | 0.21618444 | 2.7494960 | 20 | 2 18.5 | 19.9 |
| 189796 2002 GL ₂ | 15.2 | X | 226.12759 | 265.09771 | 38.38385 | 30.05597 | 0.2737090 | 0.21625656 | 2.7488847 | 20 | 2 21.8 | 20.7 |
| 189797 2002 GV ₅₀ | 15.4 | X | 208.18738 | 87.78522 | 129.44567 | 2.59650 | 0.0705229 | 0.19689809 | 2.9262295 | 20 | 12 31.8 | 19.6 |
| 189798 2002 GH ₁₃₁ | 16.3 | X | 317.02223 | 280.65403 | 39.32517 | 0.52948 | 0.0853077 | 0.22727068 | 2.6593395 | 20 | 6 28.8 | 19.5 |
| 189799 2002 GL ₁₃₉ | 16.1 | X | 124.53265 | 205.04262 | 201.60139 | 3.97123 | 0.0766159 | 0.21498578 | 2.7597065 | 20 | 2 27.8 | 20.0 |
| 189800 2002 GJ ₁₄₉ | 15.0 | X | 349.55892 | 327.82582 | 17.01308 | 11.35212 | 0.1754095 | 0.18096594 | 3.0955523 | 20 | 9 24.9 | 18.3 |
| 189801 2002 JT ₄₅ | 15.6 | X | 110.06531 | 44.08293 | 220.27584 | 9.72621 | 0.1925211 | 0.18505488 | 3.0497836 | 20 | 11 20.4 | 20.6 |
| 189802 2002 JH ₈₁ | 15.4 | X | 187.39580 | 205.41180 | 222.95782 | 12.02017 | 0.1471473 | 0.22691619 | 2.6621083 | 20 | 6 5.5 | 19.7 |
| 189803 2002 JW ₈₇ | 15.2 | X | 68.67747 | 92.91751 | 235.44066 | 8.93207 | 0.1569876 | 0.18606126 | 3.0387764 | 20 | 12 22.7 | 19.8 |
| 189804 2002 JH ₁₀₁ | 15.0 | X | 123.21888 | 59.80361 | 176.21283 | 22.79733 | 0.1427553 | 0.18110818 | 3.0939313 | 20 | 10 29.5 | 20.2 |
| 189805 2002 JU ₁₁₄ | 15.4 | X | 299.22158 | 10.12388 | 169.31679 | 8.53766 | 0.1466603 | 0.20220477 | 2.8748054 | 20 | — | — |
| 189806 2002 JX ₁₄₈ | 15.8 | X | 111.69319 | 87.62601 | 332.86505 | 3.36541 | 0.0972269 | 0.21143638 | 2.7905056 | 20 | 3 4.8 | 19.6 |
| 189807 2002 KR ₁₂ | 15.3 | X | 91.59856 | 219.95862 | 100.90866 | 16.51113 | 0.2028169 | 0.18616263 | 3.0376732 | 20 | — | — |
| 189808 2002 KU ₁₄ | 15.1 | X | 117.71936 | 85.96990 | 142.45890 | 17.21714 | 0.1844385 | 0.17969902 | 3.1100849 | 20 | 10 20.2 | 20.5 |
| 189809 2002 LO ₁₉ | 14.8 | X | 174.35696 | 321.48380 | 252.23395 | 11.91980 | 0.1633199 | 0.18618086 | 3.0374749 | 20 | 11 13.9 | 19.9 |
| 189810 2002 LJ ₃₂ | 15.3 | X | 72.12457 | 118.79818 | 169.98126 | 10.67680 | 0.1668790 | 0.17976630 | 3.1093089 | 20 | 11 12.6 | 20.1 |
| 189811 2002 LB ₅₃ | 15.3 | X | 65.14208 | 68.90649 | 233.77333 | 6.78207 | 0.2149257 | 0.17966012 | 3.1105338 | 20 | 11 25.1 | 20.0 |
| 189812 2002 NQ ₄ | 14.2 | X | 287.71891 | 119.69688 | 281.27752 | 15.22295 | 0.0911070 | 0.16896341 | 3.2404670 | 20 | 8 20.5 | 18.8 |
| 189813 2002 NB ₁₂ | 14.6 | X | 282.83563 | 127.16460 | 286.49660 | 7.49381 | 0.0922821 | 0.16988247 | 3.2287693 | 20 | 9 2.3 | 19.1 |
| 189814 2002 NU ₂₂ | 14.7 | X | 5.85754 | 118.17167 | 274.56244 | 16.08324 | 0.1551319 | 0.17864297 | 3.1223297 | 20 | 12 20.7 | 18.5 |
| 189815 2002 NK ₂₈ | 14.3 | X | 118.20861 | 295.73869 | 298.00453 | 21.39026 | 0.1337854 | 0.17671723 | 3.1449720 | 20 | 10 6.4 | 19.8 |
| 189816 2002 NT ₂₈ | 14.1 | X | 81.53707 | 43.96175 | 311.50919 | 16.73345 | 0.1271800 | 0.18420134 | 3.0591976 | 20 | — | — |
| 189817 2002 NW ₃₀ | 14.6 | X | 15.48993 | 107.03393 | 278.99723 | 12.99606 | 0.1422376 | 0.17865782 | 3.1221567 | 20 | 12 24.8 | 18.6 |
| 189818 2002 NL ₃₃ | 14.0 | X | 2.51099 | 99.40401 | 289.90725 | 11.62729 | 0.1910969 | 0.17065059 | 3.2190732 | 20 | 12 19.9 | 17.9 |
| 189819 2002 NC ₆₀ | 15.1 | X | 210.36387 | 359.56982 | 137.31853 | 5.55474 | 0.1274434 | 0.17231603 | 3.1982980 | 20 | 9 20.8 | 20.0 |
| 189820 2002 OG ₇ | 14.6 | X | 48.30243 | 163.48087 | 173.54532 | 14.87283 | 0.1885237 | 0.17404641 | 3.1770643 | 20 | 12 13.8 | 19.4 |
| 189821 2002 OC ₁₈ | 15.1 | X | 339.91728 | 155.32400 | 253.90656 | 10.20349 | 0.0743943 | 0.17660745 | 3.1462751 | 20 | 11 24.1 | 19.2 |
| 189822 2002 PR ₅₇ | 14.4 | X | 3.60567 | 89.65897 | 286.57680 | 7.33818 | 0.2281991 | 0.17096390 | 3.2151391 | 20 | 12 2.4 | 18.1 |
| 189823 2002 PU ₇₆ | 14.8 | X | 345.30866 | 115.21177 | 322.49968 | 25.89366 | 0.2076135 | 0.18014746 | 3.1049215 | 20 | — | — |
| 189824 2002 PE ₉₉ | 14.6 | X | 350.17885 | 27.26074 | 348.81157 | 16.36562 | 0.0914035 | 0.17073522 | 3.2180094 | 20 | 10 21.3 | 18.9 |
| 189825 2002 QC ₁₆ | 14.9 | X | 356.05481 | 56.89584 | 293.23385 | 11.79294 | 0.1111117 | 0.17058055 | 3.2199544 | 20 | 9 28.6 | 19.1 |
| 189826 2002 RN ₁₇₇ | 17.8 | X | 297.08327 | 30.67299 | 255.25865 | 2.40088 | 0.1558254 | 0.31611428 | 2.1342239 | 20 | 3 22.8 | 20.1 |
| 189827 2002 TE ₅₃ | 16.8 | X | 222.15756 | 324.19464 | 30.49536 | 3.60290 | 0.2048225 | 0.30874460 | 2.1 | | | |

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

| Planet | <i>H</i> | <i>G</i> | <i>M</i> | ω | Ω | <i>i</i> | <i>e</i> | μ | <i>a</i> | TE | Oppos. | <i>V</i> |
|-------------------------------|----------|----------|-----------|-----------|-----------|----------|-----------|------------|-----------|----|---------|----------|
| 189841 2003 BS ₁₄ | 16.3 | X | 103.74693 | 71.70210 | 135.79421 | 3.26444 | 0.1473146 | 0.25417364 | 2.4682115 | 20 | 9 12.6 | 19.9 |
| 189842 2003 BA ₅₂ | 16.8 | X | 15.80941 | 262.13642 | 156.50818 | 6.56984 | 0.1067666 | 0.27697611 | 2.3308152 | 20 | — | — |
| 189843 2003 BK ₆₅ | 16.9 | X | 337.34499 | 344.34816 | 147.26687 | 3.19894 | 0.1042927 | 0.28030648 | 2.3123166 | 20 | — | — |
| 189844 2003 DO ₇ | 16.7 | X | 190.68420 | 33.06341 | 152.26316 | 3.52326 | 0.1228319 | 0.26278287 | 2.4140042 | 20 | 11 12.2 | 20.1 |
| 189845 2003 EA ₁₂ | 16.0 | X | 39.00657 | 238.81256 | 318.68357 | 3.99734 | 0.2084372 | 0.23720837 | 2.5845368 | 20 | 6 7.7 | 18.6 |
| 189846 2003 ES ₃₀ | 16.2 | X | 333.68806 | 67.14061 | 171.47507 | 9.12949 | 0.1960511 | 0.23313394 | 2.6145626 | 20 | 3 16.9 | 18.9 |
| 189847 2003 EW ₃₄ | 16.8 | X | 43.85330 | 313.31767 | 281.44538 | 2.20097 | 0.1738814 | 0.24362489 | 2.5389547 | 20 | 8 5.8 | 19.7 |
| 189848 Eivissa | 16.2 | X | 328.02124 | 112.73056 | 136.68747 | 7.52014 | 0.2263498 | 0.23152448 | 2.6266655 | 20 | 3 19.8 | 19.1 |
| 189849 2003 FX ₃ | 15.7 | X | 325.67959 | 77.36986 | 178.80373 | 29.14843 | 0.3090591 | 0.23137142 | 2.6278238 | 20 | 3 7.0 | 18.8 |
| 189850 2003 FE ₆₈ | 16.0 | X | 302.33514 | 119.14160 | 158.81033 | 13.37786 | 0.1463077 | 0.23167276 | 2.6255446 | 20 | 4 1.7 | 19.4 |
| 189851 2003 FT ₇₄ | 15.5 | X | 306.45772 | 171.41915 | 68.12907 | 13.91463 | 0.1003070 | 0.22654786 | 2.6649930 | 20 | 2 28.8 | 19.3 |
| 189852 2003 FB ₈₁ | 15.6 | X | 261.29438 | 238.64864 | 50.97322 | 8.59811 | 0.3147642 | 0.22365018 | 2.6879626 | 20 | 2 15.5 | 20.4 |
| 189853 2003 FF ₁₀₂ | 16.0 | X | 117.88557 | 316.29864 | 201.41472 | 14.48846 | 0.0358613 | 0.24326878 | 2.5414318 | 20 | 7 8.2 | 19.8 |
| 189854 2003 FR ₁₀₅ | 16.7 | X | 16.39363 | 78.26800 | 138.61826 | 4.80180 | 0.1323571 | 0.23530502 | 2.5984553 | 20 | 5 15.0 | 19.4 |
| 189855 2003 GQ ₉ | 15.6 | X | 269.88226 | 224.83908 | 50.17120 | 13.15772 | 0.1512493 | 0.22353732 | 2.6888672 | 20 | 2 22.9 | 19.9 |
| 189856 2003 GV ₃₅ | 15.8 | X | 325.34444 | 198.17355 | 86.63784 | 11.02447 | 0.1847391 | 0.23720938 | 2.5845294 | 20 | 5 12.6 | 18.5 |
| 189857 2003 GV ₅₅ | 15.8 | X | 290.79813 | 154.23599 | 157.43434 | 14.98394 | 0.2259185 | 0.23058216 | 2.6338169 | 20 | 4 20.4 | 19.6 |
| 189858 2003 HX ₁ | 15.8 | X | 282.68112 | 21.50123 | 232.05937 | 4.46092 | 0.1632712 | 0.22234071 | 2.6985061 | 20 | 1 31.9 | 20.0 |
| 189859 2003 HB ₁₇ | 12.7 | X | 221.32921 | 275.00168 | 226.27529 | 7.90520 | 0.0448928 | 0.08209896 | 5.2429731 | 20 | 9 29.9 | 19.8 |
| 189860 2003 HF ₂₇ | 15.8 | X | 299.88545 | 75.94483 | 186.57282 | 9.98736 | 0.0465313 | 0.22754826 | 2.6571763 | 20 | 3 21.1 | 19.4 |
| 189861 2003 HW ₃₄ | 16.2 | X | 311.31790 | 118.17796 | 157.33812 | 2.61305 | 0.0847394 | 0.23331162 | 2.6132350 | 20 | 4 18.9 | 19.5 |
| 189862 2003 HB ₃₈ | 15.6 | X | 25.01000 | 106.51059 | 216.10848 | 7.17112 | 0.2763013 | 0.24383885 | 2.5374692 | 20 | 11 25.7 | 18.8 |
| 189863 2003 HC ₅₂ | 15.8 | X | 220.24102 | 242.33723 | 59.80829 | 18.59687 | 0.1979896 | 0.21771529 | 2.7365923 | 20 | 2 6.4 | 20.8 |
| 189864 2003 JO ₉ | 15.7 | X | 210.71064 | 251.72961 | 60.01999 | 15.23327 | 0.2354797 | 0.21510589 | 2.7586791 | 20 | 2 10.3 | 20.8 |
| 189865 2003 NC | 19.3 | X | 89.11871 | 224.19604 | 288.51745 | 21.61166 | 0.0540866 | 0.59128723 | 1.4058437 | 20 | 8 10.1 | 22.6 |
| 189866 2003 PK ₁ | 15.4 | X | 179.27354 | 40.57933 | 312.41053 | 8.37351 | 0.1681998 | 0.21088958 | 2.7953271 | 20 | 2 25.6 | 20.0 |
| 189867 2003 QV ₂ | 15.5 | X | 59.82733 | 117.49438 | 260.04119 | 3.74619 | 0.1567346 | 0.19153639 | 2.9805874 | 20 | — | — |
| 189868 2003 QW ₃ | 15.6 | X | 103.13113 | 170.81429 | 147.27082 | 11.39569 | 0.2908906 | 0.19168400 | 2.9790570 | 20 | — | — |
| 189869 2003 QO ₁₅ | 15.4 | X | 341.23996 | 160.62589 | 252.70911 | 5.33526 | 0.1909417 | 0.18269375 | 3.0760042 | 20 | 12 9.7 | 18.5 |
| 189870 2003 QO ₂₁ | 14.3 | X | 242.66625 | 107.64265 | 9.21591 | 15.64078 | 0.0723247 | 0.17685571 | 3.1433301 | 20 | 10 6.4 | 18.9 |
| 189871 2003 QV ₂₂ | 15.2 | X | 353.10508 | 140.99469 | 259.04819 | 3.52787 | 0.1708702 | 0.18250926 | 3.0780768 | 20 | 12 12.1 | 18.7 |
| 189872 2003 QY ₂₂ | 14.6 | X | 15.00530 | 59.91645 | 307.82904 | 8.74457 | 0.1135352 | 0.18184459 | 3.0855728 | 20 | 11 27.0 | 18.7 |
| 189873 2003 QO ₃₁ | 15.1 | X | 48.16589 | 47.54900 | 310.93018 | 7.97026 | 0.0844816 | 0.18827921 | 3.0148646 | 20 | 12 28.1 | 19.3 |
| 189874 2003 QY ₄₇ | 15.6 | X | 96.76821 | 135.89737 | 222.41849 | 9.34323 | 0.1764357 | 0.19468140 | 2.9484000 | 20 | — | — |
| 189875 2003 QT ₆₀ | 14.8 | X | 17.04762 | 280.25274 | 149.35409 | 9.42273 | 0.0755202 | 0.19011341 | 2.9954417 | 20 | — | — |
| 189876 2003 QE ₆₄ | 14.7 | X | 57.82532 | 304.42132 | 52.53749 | 11.89216 | 0.2080836 | 0.18370607 | 3.0258395 | 20 | — | — |
| 189877 2003 QR ₉₄ | 15.2 | X | 30.69419 | 243.91862 | 132.95650 | 12.59743 | 0.1314349 | 0.18613315 | 3.0379939 | 20 | — | — |
| 189878 2003 QY ₉₅ | 15.0 | X | 38.58506 | 339.46816 | 24.47746 | 12.85646 | 0.1529458 | 0.18510256 | 3.0492598 | 20 | — | — |
| 189879 2003 RT | 14.5 | X | 32.53683 | 345.19965 | 37.25405 | 11.70253 | 0.1511139 | 0.18479073 | 3.0526893 | 20 | — | — |
| 189880 2003 RV ₄ | 15.3 | X | 80.08135 | 15.93050 | 321.29988 | 5.17325 | 0.2220591 | 0.18688162 | 3.0298769 | 20 | — | — |
| 189881 2003 RG ₁₁ | 14.7 | X | 96.01968 | 25.24748 | 281.26744 | 8.53849 | 0.1461403 | 0.18725578 | 3.0258395 | 20 | 12 23.5 | 19.5 |
| 189882 2003 RZ ₁₂ | 14.8 | X | 312.73410 | 266.80492 | 170.51306 | 15.74495 | 0.1906984 | 0.18064328 | 3.0992374 | 20 | 11 17.7 | 18.4 |
| 189883 2003 RV ₁₃ | 14.9 | X | 85.24529 | 77.15851 | 242.85085 | 14.88051 | 0.0668241 | 0.18615440 | 3.0377627 | 20 | 12 20.2 | 19.4 |
| 189884 2003 RF ₁₆ | 15.2 | X | 63.72154 | 83.24079 | 285.24242 | 9.29929 | 0.1023412 | 0.19140116 | 2.9819911 | 20 | — | — |
| 189885 2003 RO ₁₇ | 14.8 | X | 269.12791 | 149.76124 | 300.58718 | 9.51917 | 0.1799216 | 0.17397150 | 3.1779763 | 20 | 9 16.6 | 19.4 |
| 189886 2003 RY ₁₇ | 15.8 | X | 67.72283 | 241.12826 | 95.97015 | 3.13023 | 0.1331685 | 0.18685690 | 3.0301442 | 20 | 12 29.9 | 20.2 |
| 189887 2003 RF ₂₂ | 14.7 | X | 66.77318 | 42.96222 | 279.71357 | 8.09168 | 0.1340300 | 0.18376406 | 3.0640487 | 20 | 12 11.3 | 19.2 |
| 189888 2003 SQ ₁₇ | 15.1 | X | 338.99487 | 219.26368 | 201.81654 | 7.50265 | 0.1389029 | 0.18157856 | 3.0885858 | 20 | 12 12.4 | 18.8 |
| 189889 2003 SF ₂₅ | 15.0 | X | 75.13534 | 9.40990 | 287.78328 | 9.16416 | 0.0497414 | 0.18199315 | 3.0838933 | 20 | 11 6.9 | 19.6 |
| 189890 2003 SY ₂₅ | 14.9 | X | 101.88868 | 104.71368 | 171.14316 | 9.32580 | 0.1058608 | 0.18210608 | 3.0826183 | 20 | 11 21.3 | 19.7 |
| 189891 2003 SR ₂₈ | 14.7 | X | 35.57379 | 52.36879 | 339.97487 | 8.16531 | 0.0730369 | 0.18689422 | 3.0297407 | 20 | — | — |
| 189892 2003 SZ ₂₉ | 15.2 | X | 291.08689 | 289.61334 | 221.40179 | 1.80369 | 0.0350053 | 0.19207868 | 2.9749747 | 20 | — | — |
| 189893 2003 SZ ₃₅ | 14.7 | X | 316.86013 | 269.95289 | 118.15075 | 6.37012 | 0.1543820 | 0.17245541 | 3.1965745 | 20 | 9 20.8 | 18.4 |
| 189894 2003 SX ₃₈ | 14.9 | X | 76.52626 | 74.18586 | 289.88797 | 9.74973 | 0.1068809 | 0.18902493 | 3.0069300 | 20 | — | — |
| 189895 2003 SD ₄₀ | 14.3 | X | 318.62676 | 104.47674 | 322.26953 | 14.57358 | 0.1273522 | 0.17777103 | 3.1325311 | 20 | 11 7.8 | 18.4 |
| 189896 2003 SU ₄₇ | 15.7 | X | 33.69001 | 99.73442 | 280.38270 | 8.60534 | 0.2219075 | 0.18635990 | 3.0355291 | 20 | — | — |
| 189897 2003 SS ₅₀ | 15.1 | X | 109.65955 | 41.45737 | 195.65764 | 12.38217 | 0.1435393 | 0.17908959 | 3.1171365 | 20 | 10 15.4 | 20.0 |
| 189898 2003 SO ₅₄ | 15.1 | X | 89.28827 | 62.76178 | 231.62290 | 9.13347 | 0.0743307 | 0.18273929 | 3.0754931 | 20 | 11 25.5 | 19.7 |
| 189899 2003 SG ₅₅ | 15.3 | X | 104.25188 | 339.24887 | 335.54612 | 11.20346 | 0.1394436 | 0.18851474 | 3.0123529 | 20 | — | — |
| 189900 2003 SD ₆₃ | 15.5 | X | 74.99625 | 120.50314 | 234.03396 | 5.99437 | 0.1471820 | 0.18942899 | 3.0026525 | 20 | — | — |
| 189901 2003 SQ ₈₆ | 14.8 | X | 125.34935 | 45.71043 | 241.19172 | 11.16421 | 0.0663907 | 0.18484240 | 3.0521203 | 20 | 12 23.5 | 19.5 |
| 189902 2003 SN ₉₅ | 15.0 | X | 40.32224 | 70.62873 | 294.45478 | 4.05876 | 0.0504919 | 0.18303505 | 3.0721792 | 20 | 12 20.1 | 19.2 |
| 189903 2003 SW ₉₅ | 15.1 | X | 318.40433 | 100.69006 | 321.97014 | 5.19975 | 0.1697037 | 0.17719250 | 3.1393458 | 20 | 11 3.5 | 18.7 |
| 189904 2003 SM ₉₉ | 15.8 | X | 51.90042 | 44.39339 | 298.83510 | 5.76541 | 0.2516264 | 0.18273846 | 3.0755024 | 20 | — | — |
| 189905 2003 SO ₉₉ | 14.8 | X | 57.71102 | 7.33180 | 324.64638 | 10.00545 | 0.0693523 | 0.18097967 | 3.0953957 | 20 | 12 1.9 | 19.4 |
| 189906 2003 SU ₁₀₀ | 15.2 | X | 25.50661 | 82.18433 | 219.21310 | 3.18014 | 0.1541447 | 0.17254723 | 3.1954404 | 20 | 9 23.2 | 19.2 |
| 189907 2003 SH ₁₀₈ | 14.7 | X | 32.54281 | 25.76561 | 299.51207 | 5.33928 | 0.1085499 | 0.17534864 | 3.1613151 | 20 | 10 26.6 | 19.0 |
| 189908 2003 SQ ₁₀₉ | 14.7 | X | 3.55758 | 108.69900 | 268.59887 | 5.18269 | 0.1868005 | 0.17838130 | 3.1253824 | 20 | 11 30.9 | 18.3 |
| 189909 2003 SB ₁₁₀ | 14.8 | X | 358.09467 | 129.43361 | 248.33711 | 3.93691 | 0.1350668 | 0.17665707 | 3.1456860 | 20 | 11 16.2 | 18.7 |
| 189910 2003 SO ₁₁₀ | 14.9 | X | 15.31508 | 134.01386 | 217.22851 | 5.92836 | 0.1598598 | 0.17564822 | 3.1577195 | 20 | 11 13.0 | 18.8 |
| 189911 2003 ST ₁₁₅ | 15.5 | X | 53.73479 | 168.47868 | 153.24283 | 10.80026 | 0.0892598 | 0.18130330 | 3.0917112 | 20 | 11 21.8 | 20.0 |
| 189912 2003 SJ ₁₁₇ | 14.7 | X | 238.92081 | 263.76893 | 205.78236 | 12.79944 | 0.1140591 | 0.17089654 | 3.2159839 | 20 | 9 14.9 | 19.6 |
| 189913 2003 SR ₁₁₇ | 14.9 | X | 71.55255 | 85.55150 | 226.04632 | 10.17409 | 0.0853966 | 0.18087407 | 3.0966004 | 20 | 11 27.4 | 19.3 |
| 189914 2003 SZ ₁₁₈ | 15.8 | X | 247.21160 | 6.63836 | 148.95370 | 1.87488 | 0. | | | | | |

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

| Planet | H | G | M | ω | Ω | i | e | μ | a | TE | Oppos. | V | |
|--------|------|-------------------|------|----------|-----------|-----------|-----------|----------|-----------|------------|-----------|------------|------|
| 189921 | 2003 | SW ₁₅₄ | 15.4 | X | 33.78573 | 328.53354 | 359.12795 | 10.28050 | 0.2143854 | 0.17737767 | 3.1371605 | 20 11 14.9 | 19.7 |
| 189922 | 2003 | SW ₁₆₀ | 15.0 | X | 69.25515 | 103.29040 | 158.05970 | 5.97675 | 0.1141901 | 0.17507357 | 3.1646255 | 20 9 28.7 | 19.4 |
| 189923 | 2003 | SD ₁₆₉ | 15.0 | X | 15.99737 | 212.50519 | 125.80349 | 5.92206 | 0.1367529 | 0.17654891 | 3.1469706 | 20 10 28.2 | 19.0 |
| 189924 | 2003 | SM ₁₇₂ | 14.9 | X | 219.26878 | 236.39773 | 352.94195 | 9.15136 | 0.0333759 | 0.19298003 | 2.9657040 | 20 — | — |
| 189925 | 2003 | SC ₁₇₄ | 15.4 | X | 54.79157 | 145.78446 | 140.30883 | 7.31820 | 0.1287062 | 0.17561443 | 3.1581245 | 20 10 15.3 | 19.8 |
| 189926 | 2003 | SP ₁₈₃ | 14.7 | X | 334.05461 | 152.92146 | 251.18651 | 6.60589 | 0.0366348 | 0.17863013 | 3.1224794 | 20 11 8.9 | 18.8 |
| 189927 | 2003 | SH ₁₉₁ | 15.0 | X | 90.92109 | 88.25942 | 174.29807 | 11.59503 | 0.1542331 | 0.17782981 | 3.1318408 | 20 10 29.9 | 19.9 |
| 189928 | 2003 | SV ₁₉₁ | 14.5 | X | 36.26701 | 81.96777 | 276.99685 | 9.43673 | 0.1548699 | 0.18128264 | 3.0919460 | 20 12 21.9 | 18.7 |
| 189929 | 2003 | SW ₁₉₁ | 14.7 | X | 94.54942 | 339.78908 | 326.18772 | 10.05542 | 0.1292877 | 0.18253857 | 3.0777473 | 20 12 19.4 | 19.6 |
| 189930 | | Jeanneherbert | 15.6 | X | 189.61768 | 199.43055 | 207.74326 | 4.89801 | 0.1118774 | 0.21133088 | 2.7914343 | 20 5 12.8 | 19.8 |
| 189931 | 2003 | SE ₂₀₂ | 14.9 | X | 161.65014 | 33.25331 | 182.54938 | 22.18945 | 0.0279537 | 0.18109459 | 3.0940862 | 20 11 11.0 | 19.7 |
| 189932 | 2003 | SX ₂₀₃ | 16.1 | X | 351.35729 | 204.29857 | 178.02074 | 2.39731 | 0.1482541 | 0.17790143 | 3.1310002 | 20 11 13.3 | 19.7 |
| 189933 | 2003 | SW ₂₀₈ | 15.0 | X | 304.34867 | 178.06145 | 132.59893 | 7.72952 | 0.0364979 | 0.19010196 | 2.9955621 | 20 — | — |
| 189934 | 2003 | SW ₂₁₃ | 14.7 | X | 332.45654 | 273.17677 | 108.90059 | 26.84027 | 0.0999826 | 0.17384756 | 3.1794865 | 20 10 23.5 | 19.3 |
| 189935 | 2003 | SH ₂₃₀ | 15.6 | X | 44.08805 | 239.43433 | 139.78859 | 9.63777 | 0.1357094 | 0.18822247 | 3.0154704 | 20 — | — |
| 189936 | 2003 | SO ₂₄₃ | 15.6 | X | 255.97243 | 33.20670 | 133.67086 | 0.75532 | 0.1190111 | 0.18636810 | 3.0354401 | 20 12 20.1 | 19.6 |
| 189937 | 2003 | SK ₂₇₀ | 15.0 | X | 21.81888 | 211.99962 | 165.53174 | 11.37953 | 0.1867577 | 0.18087351 | 3.0966069 | 20 12 29.7 | 19.2 |
| 189938 | 2003 | SS ₂₇₅ | 15.1 | X | 62.66282 | 125.88236 | 187.86706 | 9.63077 | 0.0887872 | 0.17878739 | 3.1206481 | 20 11 20.9 | 19.6 |
| 189939 | 2003 | SF ₂₈₆ | 15.0 | X | 303.57903 | 153.19456 | 273.80605 | 6.86115 | 0.1977537 | 0.17471045 | 3.1690090 | 20 10 8.1 | 18.7 |
| 189940 | 2003 | SV ₂₉₁ | 14.6 | X | 27.34060 | 42.38653 | 292.18969 | 8.78319 | 0.0652420 | 0.17563829 | 3.1578385 | 20 10 23.9 | 19.1 |
| 189941 | 2003 | SJ ₂₉₄ | 15.4 | X | 359.40663 | 194.09078 | 188.71980 | 10.78179 | 0.2115727 | 0.17601138 | 3.1533745 | 20 12 4.5 | 19.1 |
| 189942 | 2003 | SC ₂₉₇ | 14.9 | X | 139.54821 | 321.98974 | 276.76035 | 8.75592 | 0.0249168 | 0.18250852 | 3.0780851 | 20 11 9.0 | 19.4 |
| 189943 | 2003 | SD ₂₉₇ | 14.8 | X | 60.42806 | 18.20619 | 304.02099 | 10.56938 | 0.0379622 | 0.18293690 | 3.0732780 | 20 11 18.6 | 19.3 |
| 189944 | | Leblanc | 14.9 | X | 320.70197 | 105.05093 | 275.54172 | 10.97243 | 0.0432203 | 0.17360438 | 3.1824550 | 20 9 16.0 | 19.5 |
| 189945 | 2003 | TP ₃ | 14.7 | X | 323.70477 | 321.52736 | 64.26422 | 18.68521 | 0.1650824 | 0.17101558 | 3.2144914 | 20 10 8.2 | 18.8 |
| 189946 | 2003 | TO ₁₀ | 14.6 | X | 110.99336 | 11.85916 | 310.64468 | 17.32524 | 0.0418190 | 0.18828300 | 3.0148241 | 20 — | — |
| 189947 | 2003 | TF ₁₇ | 15.3 | X | 12.11856 | 74.92756 | 262.21096 | 1.29551 | 0.1132100 | 0.17413840 | 3.1759453 | 20 10 14.3 | 19.3 |
| 189948 | | Richswanson | 15.7 | X | 62.13976 | 89.67147 | 215.93301 | 8.80514 | 0.2351658 | 0.17836545 | 3.1255676 | 20 11 27.9 | 20.4 |
| 189949 | 2003 | UY ₄ | 14.5 | X | 324.51397 | 250.60690 | 142.40405 | 26.86964 | 0.2428489 | 0.17127186 | 3.2112839 | 20 10 9.9 | 18.2 |
| 189950 | 2003 | UC ₇ | 16.8 | X | 206.15244 | 225.97055 | 32.91789 | 21.16233 | 0.0537081 | 0.37086720 | 1.9186265 | 20 — | — |
| 189951 | 2003 | UX ₂₃ | 15.4 | X | 274.99657 | 63.80352 | 36.50403 | 1.50511 | 0.1444202 | 0.17252821 | 3.1956752 | 20 10 16.9 | 19.7 |
| 189952 | 2003 | UM ₃₅ | 14.7 | X | 306.39004 | 260.50315 | 161.35361 | 17.09145 | 0.1130403 | 0.17494851 | 3.1661334 | 20 10 23.2 | 18.9 |
| 189953 | 2003 | UA ₅₆ | 15.5 | X | 346.93045 | 211.96700 | 180.32047 | 11.16152 | 0.0896424 | 0.17746894 | 3.1360849 | 20 11 16.6 | 19.6 |
| 189954 | 2003 | UA ₅₉ | 14.6 | X | 59.54255 | 39.39884 | 268.30571 | 14.92211 | 0.1761373 | 0.17711040 | 3.1403159 | 20 11 18.6 | 19.3 |
| 189955 | 2003 | UQ ₆₀ | 14.9 | X | 296.47489 | 341.48121 | 47.89111 | 8.03303 | 0.1275482 | 0.16972262 | 3.2307963 | 20 8 24.2 | 19.2 |
| 189956 | 2003 | UX ₆₂ | 15.1 | X | 24.93875 | 214.85244 | 127.12575 | 8.20759 | 0.1663709 | 0.17726395 | 3.1385022 | 20 11 19.1 | 19.2 |
| 189957 | 2003 | UZ ₆₂ | 14.8 | X | 343.19890 | 231.25180 | 141.66072 | 9.98179 | 0.0782596 | 0.17427404 | 3.1742972 | 20 10 18.1 | 19.0 |
| 189958 | 2003 | UK ₆₄ | 15.2 | X | 65.86280 | 236.56486 | 116.21105 | 11.69489 | 0.1260214 | 0.18310831 | 3.0712597 | 20 — | — |
| 189959 | 2003 | UQ ₆₅ | 15.2 | X | 23.69222 | 179.70899 | 155.99123 | 10.99908 | 0.1182866 | 0.17481844 | 3.1677037 | 20 11 3.3 | 19.5 |
| 189960 | 2003 | UE ₇₅ | 14.8 | X | 154.60322 | 349.76200 | 250.72480 | 8.20248 | 0.0353338 | 0.18130099 | 3.0917373 | 20 11 29.7 | 19.2 |
| 189961 | 2003 | UJ ₈₇ | 16.7 | X | 19.50657 | 125.77615 | 321.85016 | 18.15496 | 0.0838435 | 0.37032133 | 1.9205114 | 20 — | — |
| 189962 | 2003 | UF ₁₂₄ | 14.8 | X | 23.29123 | 155.92960 | 212.30614 | 14.44547 | 0.0369210 | 0.18335135 | 3.0686450 | 20 12 1.5 | 19.1 |
| 189963 | 2003 | UA ₁₄₃ | 14.7 | X | 346.52868 | 173.56212 | 238.30287 | 11.59223 | 0.1574121 | 0.17814830 | 3.1281070 | 20 12 13.1 | 18.3 |
| 189964 | 2003 | UB ₁₉₀ | 15.0 | X | 22.46366 | 78.50800 | 255.44816 | 3.46479 | 0.1578248 | 0.17339856 | 3.1849728 | 20 10 31.0 | 19.0 |
| 189965 | 2003 | UB ₁₉₄ | 15.7 | X | 90.67990 | 163.87459 | 146.12674 | 2.78535 | 0.1213363 | 0.18313591 | 3.0710511 | 20 12 19.6 | 20.3 |
| 189966 | 2003 | UV ₂₀₀ | 15.1 | X | 15.00708 | 203.66061 | 115.47992 | 2.48734 | 0.1295758 | 0.17115624 | 3.2127300 | 20 9 28.7 | 19.0 |
| 189967 | 2003 | UL ₂₂₀ | 15.2 | X | 47.70553 | 50.62430 | 249.08524 | 4.17695 | 0.1890669 | 0.17328989 | 3.1863042 | 20 10 27.5 | 19.7 |
| 189968 | 2003 | UG ₂₅₆ | 15.4 | X | 341.48557 | 236.55946 | 160.11420 | 3.84021 | 0.1362864 | 0.17501625 | 3.1653164 | 20 11 14.0 | 19.1 |
| 189969 | 2003 | UP ₂₇₆ | 14.4 | X | 42.28068 | 107.44114 | 230.17787 | 22.25847 | 0.1331087 | 0.17746078 | 3.1361810 | 20 11 29.4 | 18.8 |
| 189970 | 2003 | WJ ₇₄ | 15.0 | X | 38.15514 | 66.45469 | 289.66125 | 10.28417 | 0.3117519 | 0.17721868 | 3.1390367 | 20 — | — |
| 189971 | 2003 | WF ₈₆ | 14.5 | X | 38.96402 | 129.15659 | 285.87916 | 14.06450 | 0.1950591 | 0.18734090 | 3.0249229 | 20 — | — |
| 189972 | 2003 | WB ₁₅₄ | 17.0 | X | 101.08165 | 259.36627 | 90.86941 | 25.16358 | 0.0814901 | 0.36392777 | 1.9429394 | 20 — | — |
| 189973 | 2003 | XE ₁₁ | 17.5 | X | 201.15216 | 173.17259 | 223.49003 | 26.96038 | 0.3771319 | 0.39345777 | 1.8444659 | 20 5 1.4 | 20.6 |
| 189974 | 2003 | XU ₃₄ | 14.9 | X | 71.03400 | 359.43406 | 343.28417 | 10.15623 | 0.2904841 | 0.18238444 | 3.0794810 | 20 — | — |
| 189975 | 2003 | YN ₆₂ | 16.2 | X | 236.36264 | 353.21219 | 100.14096 | 4.23581 | 0.1374950 | 0.21785745 | 2.7354017 | 20 8 29.3 | 20.1 |
| 189976 | 2004 | BU ₂₇ | 16.0 | X | 26.09038 | 74.29785 | 85.94901 | 0.68564 | 0.0790891 | 0.18899909 | 3.0072041 | 20 3 14.3 | 19.6 |
| 189977 | 2004 | CB ₃₂ | 14.6 | X | 323.57688 | 338.75646 | 211.97787 | 2.71255 | 0.0323346 | 0.12489563 | 3.9637345 | 20 2 5.8 | 20.1 |
| 189978 | 2004 | CL ₇₇ | 17.6 | X | 336.44675 | 286.91780 | 316.01468 | 2.51922 | 0.0962998 | 0.31281953 | 2.1491834 | 20 4 1.2 | 19.4 |
| 189979 | 2004 | DG ₁₈ | 16.8 | X | 238.29970 | 13.20946 | 259.03739 | 3.31298 | 0.1622890 | 0.29869282 | 2.2164241 | 20 1 3.5 | 20.0 |
| 189980 | 2004 | DH ₂₄ | 16.2 | X | 202.62328 | 292.37325 | 308.82751 | 3.27472 | 0.1806862 | 0.28634469 | 2.2796944 | 20 — | — |
| 189981 | 2004 | DM ₃₁ | 16.8 | X | 250.18122 | 257.60974 | 4.03299 | 5.31737 | 0.2056727 | 0.29863130 | 2.2167285 | 20 — | — |
| 189982 | 2004 | EE ₂₀ | 17.3 | X | 237.31557 | 113.21142 | 171.09657 | 4.86373 | 0.1513721 | 0.29981968 | 2.2108670 | 20 1 17.3 | 20.7 |
| 189983 | 2004 | ER ₄₄ | 17.3 | X | 185.16115 | 215.79060 | 82.69236 | 2.53508 | 0.1997871 | 0.29243116 | 2.2479516 | 20 — | — |
| 189984 | 2004 | EX ₆₇ | 16.9 | X | 251.40677 | 346.94080 | 282.62495 | 5.68340 | 0.1636826 | 0.30023529 | 2.2088262 | 20 1 12.0 | 20.0 |
| 189985 | 2004 | FL ₂ | 16.6 | X | 192.73828 | 29.32982 | 250.69951 | 4.16307 | 0.2469530 | 0.28833127 | 2.2692111 | 20 — | — |
| 189986 | 2004 | FR ₃ | 17.2 | X | 189.12185 | 60.30944 | 182.60502 | 8.15436 | 0.2255226 | 0.28302274 | 2.2974981 | 20 — | — |
| 189987 | 2004 | FP ₅ | 16.7 | X | 168.21209 | 219.49355 | 51.91656 | 7.41774 | 0.2305264 | 0.28448995 | 2.2895920 | 20 — | — |
| 189988 | 2004 | FR ₂₈ | 16.6 | X | 215.34158 | 260.88667 | 30.66617 | 8.31885 | 0.1694984 | 0.29668963 | 2.2263895 | 20 1 8.3 | 20.2 |
| 189989 | 2004 | FX ₈₀ | 16.1 | X | 182.77755 | 235.02691 | 68.88221 | 8.45820 | 0.1612924 | 0.29039247 | 2.2584604 | 20 — | — |
| 189990 | 2004 | FF ₁₄₆ | 16.3 | X | 131.72994 | 227.64599 | 70.35167 | 7.85476 | 0.1188705 | 0.27998432 | 2.3140900 | 20 — | — |
| 189991 | 2004 | GR | 16.6 | X | 184.61232 | 90.22093 | 194.95407 | 6.77701 | 0.1141569 | 0.28764757 | 2.2728054 | 20 — | — |
| 189992 | 2004 | GA ₂₂ | 17.0 | X | 204.51957 | 25.53455 | 228.46911 | | | | | | |

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

| Planet | <i>H</i> | <i>G</i> | <i>M</i> | ω | Ω | <i>i</i> | <i>e</i> | μ | <i>a</i> | TE | Oppos. | <i>V</i> | | |
|--------|------------|-------------------|----------|----------|-----------|-----------|-----------|----------|-----------|------------|-----------|----------|---------|------|
| 190001 | 2004 | HL ₄₅ | 16.9 | X | 200.30583 | 221.44379 | 38.57070 | 4.20026 | 0.1300922 | 0.28410531 | 2.2916581 | 20 | — | — |
| 190002 | 2004 | JP ₁₄ | 16.7 | X | 48.57589 | 195.93006 | 104.34250 | 5.25265 | 0.2549024 | 0.26089651 | 2.4256261 | 20 | 11 25.6 | 20.2 |
| 190003 | 2004 | JR ₂₆ | 16.4 | X | 189.04935 | 330.23216 | 253.99531 | 3.70530 | 0.1199889 | 0.27601178 | 2.3362410 | 20 | 12 31.9 | 19.5 |
| 190004 | 2004 | KM ₆ | 17.3 | X | 81.77869 | 166.57200 | 127.23764 | 3.23225 | 0.2076928 | 0.26796107 | 2.3828036 | 20 | 12 14.7 | 21.1 |
| 190005 | 2004 | KQ ₁₇ | 13.0 | X | 276.46198 | 264.10635 | 195.67920 | 18.76175 | 0.0699850 | 0.08256656 | 5.2231592 | 20 | 10 13.0 | 19.8 |
| 190006 | 2004 | LL ₁₁ | 16.5 | X | 160.35127 | 136.99244 | 87.85173 | 10.53548 | 0.1462306 | 0.27127118 | 2.3633803 | 20 | 11 30.7 | 20.1 |
| 190007 | 2004 | LM ₁₃ | 16.6 | X | 122.76315 | 148.85109 | 117.51071 | 3.38280 | 0.1575589 | 0.26913035 | 2.3758969 | 20 | 12 15.5 | 20.4 |
| 190008 | 2004 | LT ₁₃ | 16.7 | X | 35.68679 | 177.78185 | 133.07742 | 3.19122 | 0.2225508 | 0.25901025 | 2.4373884 | 20 | 11 19.7 | 19.8 |
| 190009 | 2004 | LV ₁₈ | 16.6 | X | 144.43907 | 283.55088 | 287.43562 | 6.28033 | 0.2027551 | 0.26768771 | 2.3844255 | 20 | 10 24.5 | 20.7 |
| 190010 | 2004 | MM ₇ | 16.2 | X | 24.54805 | 292.42765 | 49.10717 | 5.52340 | 0.2311665 | 0.25822469 | 2.4423292 | 20 | 12 15.5 | 19.3 |
| 190011 | 2004 | NR ₁ | 15.8 | X | 83.95462 | 135.50623 | 115.99601 | 15.16748 | 0.1002080 | 0.25533710 | 2.4607081 | 20 | 10 20.1 | 19.6 |
| 190012 | 2004 | NV ₄ | 16.2 | X | 14.99482 | 137.18320 | 170.74760 | 6.82867 | 0.1179480 | 0.25064868 | 2.4912985 | 20 | 9 26.7 | 18.9 |
| 190013 | 2004 | NW ₁₂ | 16.2 | X | 71.06114 | 183.41925 | 120.41528 | 8.17501 | 0.0930360 | 0.26223849 | 2.4173438 | 20 | 12 6.1 | 19.7 |
| 190014 | 2004 | NH ₂₂ | 15.9 | X | 357.83913 | 7.42040 | 339.33168 | 6.06651 | 0.1701009 | 0.25459098 | 2.4655134 | 20 | 10 27.6 | 18.5 |
| 190015 | 2004 | NA ₂₇ | 16.6 | X | 345.89306 | 49.52890 | 244.75854 | 2.50610 | 0.1550910 | 0.24432694 | 2.5340887 | 20 | 7 10.2 | 18.7 |
| 190016 | 2004 | OT ₉ | 15.8 | X | 283.75899 | 299.12739 | 73.10008 | 7.24461 | 0.2597362 | 0.24241321 | 2.5474081 | 20 | 6 22.6 | 18.9 |
| 190017 | 2004 | PY ₁₅ | 16.4 | X | 280.04353 | 46.11641 | 290.39214 | 3.97316 | 0.1355060 | 0.23565685 | 2.5958684 | 20 | 5 18.0 | 19.9 |
| 190018 | 2004 | PU ₁₆ | 15.6 | X | 63.78933 | 292.54565 | 294.32655 | 11.30204 | 0.0249763 | 0.24529877 | 2.5273912 | 20 | 7 30.3 | 18.7 |
| 190019 | 2004 | PW ₃₅ | 15.9 | X | 295.62595 | 137.99638 | 169.23932 | 14.14327 | 0.2297810 | 0.23402562 | 2.6079171 | 20 | 4 18.8 | 19.5 |
| 190020 | 2004 | PY ₅₅ | 16.4 | X | 287.80499 | 191.72616 | 177.05310 | 7.11282 | 0.3361374 | 0.23876508 | 2.5732907 | 20 | 6 11.6 | 19.8 |
| 190021 | 2004 | PZ ₅₅ | 15.4 | X | 224.61547 | 342.18265 | 342.56732 | 14.69678 | 0.2522405 | 0.22338950 | 2.6900533 | 20 | 2 29.6 | 20.2 |
| 190022 | 2004 | PX ₅₈ | 17.0 | X | 297.41912 | 148.28472 | 195.33002 | 3.51594 | 0.1832833 | 0.24072929 | 2.5592739 | 20 | 6 15.9 | 20.0 |
| 190023 | 2004 | PP ₈₃ | 15.7 | X | 223.90299 | 343.12195 | 350.83059 | 12.10637 | 0.1584608 | 0.22517132 | 2.6758432 | 20 | 3 13.5 | 19.8 |
| 190024 | 2004 | PB ₁₀₂ | 16.3 | X | 282.13853 | 159.41217 | 183.88774 | 11.15066 | 0.1691256 | 0.23581238 | 2.5947269 | 20 | 5 27.0 | 19.9 |
| 190025 | 2004 | PO ₁₀₃ | 15.6 | X | 176.21090 | 198.36753 | 205.93132 | 11.12062 | 0.1456756 | 0.22280124 | 2.6947862 | 20 | 4 26.1 | 19.9 |
| 190026 | Iskorosten | | 15.8 | X | 259.09540 | 29.34905 | 297.09568 | 12.34403 | 0.2708214 | 0.22991482 | 2.6389110 | 20 | 3 20.9 | 20.5 |
| 190027 | 2004 | QB ₁₃ | 15.5 | X | 30.60061 | 117.81840 | 121.70930 | 15.80895 | 0.0569996 | 0.24022953 | 2.5628221 | 20 | 7 4.8 | 18.6 |
| 190028 | 2004 | QG ₁₄ | 16.6 | X | 85.37593 | 128.38239 | 185.41977 | 9.36845 | 0.2997701 | 0.26258746 | 2.4152016 | 20 | — | — |
| 190029 | 2004 | QE ₁₇ | 15.1 | X | 274.04589 | 11.69275 | 324.85367 | 32.99099 | 0.1721903 | 0.23051949 | 2.6342943 | 20 | 4 13.9 | 19.7 |
| 190030 | 2004 | RC ₁ | 16.3 | X | 346.51897 | 214.23981 | 72.83180 | 7.63241 | 0.1969563 | 0.24411629 | 2.5355462 | 20 | 7 9.8 | 18.4 |
| 190031 | 2004 | RW ₁₇ | 16.4 | X | 313.13632 | 100.15371 | 174.19701 | 2.84340 | 0.1149758 | 0.23257310 | 2.6187642 | 20 | 4 15.2 | 19.5 |
| 190032 | 2004 | RG ₄₁ | 15.1 | X | 231.65647 | 224.79236 | 160.68420 | 15.26469 | 0.0334290 | 0.17179919 | 3.2047093 | 20 | 6 7.8 | 20.0 |
| 190033 | 2004 | RM ₅₄ | 15.5 | X | 246.10160 | 168.42826 | 165.26473 | 15.24125 | 0.1113180 | 0.22829171 | 2.6514043 | 20 | 4 10.9 | 19.5 |
| 190034 | 2004 | RZ ₆₁ | 17.1 | X | 242.59235 | 162.64366 | 207.29920 | 0.63245 | 0.1729857 | 0.23279962 | 2.6170652 | 20 | 5 14.3 | 21.0 |
| 190035 | 2004 | RY ₆₃ | 16.3 | X | 309.77222 | 146.91737 | 172.06375 | 6.18019 | 0.1543047 | 0.23762084 | 2.5815450 | 20 | 6 6.4 | 19.3 |
| 190036 | 2004 | RM ₇₅ | 16.5 | X | 166.10837 | 261.08223 | 144.32493 | 1.90539 | 0.2033803 | 0.22239579 | 2.6980604 | 20 | 4 20.3 | 21.1 |
| 190037 | 2004 | RF ₇₈ | 16.0 | X | 140.93411 | 276.49027 | 133.61362 | 4.04658 | 0.1774722 | 0.21886941 | 2.7269636 | 20 | 4 3.3 | 20.2 |
| 190038 | 2004 | RR ₈₈ | 16.0 | X | 257.01354 | 84.95787 | 219.34493 | 8.07582 | 0.1814900 | 0.22488876 | 2.6780841 | 20 | 3 4.1 | 20.3 |
| 190039 | 2004 | RR ₈₈ | 16.8 | X | 311.47918 | 129.98129 | 208.32807 | 5.66401 | 0.2344992 | 0.24327924 | 2.5413590 | 20 | 6 24.3 | 19.3 |
| 190040 | 2004 | RY ₁₀₃ | 15.7 | X | 189.71466 | 111.78144 | 251.91000 | 4.95165 | 0.0387215 | 0.22213887 | 2.7001404 | 20 | 3 15.3 | 19.6 |
| 190041 | 2004 | RO ₁₀₆ | 15.7 | X | 187.23058 | 56.91067 | 322.00225 | 5.62149 | 0.0708894 | 0.22180229 | 2.7028713 | 20 | 4 1.2 | 19.7 |
| 190042 | 2004 | RW ₁₁₂ | 15.5 | X | 308.24187 | 6.26356 | 282.44838 | 14.22602 | 0.1548521 | 0.23086849 | 2.6316388 | 20 | 4 13.8 | 19.1 |
| 190043 | 2004 | RY ₁₁₂ | 15.5 | X | 231.18681 | 16.41670 | 311.00101 | 14.24508 | 0.1126548 | 0.22201030 | 2.7011828 | 20 | 3 9.4 | 19.9 |
| 190044 | 2004 | RB ₁₁₃ | 15.5 | X | 225.01428 | 81.18804 | 275.93655 | 11.26507 | 0.2867606 | 0.22618850 | 2.6678150 | 20 | 3 31.4 | 20.6 |
| 190045 | 2004 | RC ₁₂₄ | 16.0 | X | 182.08064 | 117.15332 | 291.21970 | 11.23966 | 0.1637893 | 0.22734175 | 2.6587852 | 20 | 5 2.5 | 20.5 |
| 190046 | 2004 | RZ ₁₅₀ | 16.1 | X | 241.33908 | 217.27378 | 153.87020 | 4.24488 | 0.1351114 | 0.23034100 | 2.6356549 | 20 | 5 19.5 | 20.1 |
| 190047 | 2004 | RH ₁₅₂ | 15.9 | X | 208.63999 | 129.61258 | 275.99765 | 13.82099 | 0.1021728 | 0.23448924 | 2.6044784 | 20 | 5 29.9 | 20.0 |
| 190048 | 2004 | RU ₁₅₉ | 15.6 | X | 265.71804 | 332.17832 | 310.90457 | 10.51602 | 0.1592854 | 0.22330313 | 2.6907469 | 20 | 2 19.1 | 19.8 |
| 190049 | 2004 | RJ ₁₆₈ | 17.2 | X | 331.79942 | 130.15015 | 191.79367 | 2.96104 | 0.2326014 | 0.24394623 | 2.5367246 | 20 | 7 16.3 | 19.1 |
| 190050 | 2004 | RF ₁₇₁ | 16.8 | X | 325.84605 | 84.16102 | 177.78690 | 4.73736 | 0.2083933 | 0.23495166 | 2.6010600 | 20 | 4 3.4 | 19.4 |
| 190051 | 2004 | RL ₁₇₄ | 15.8 | X | 61.37640 | 1.19643 | 184.75993 | 14.03403 | 0.0923951 | 0.23506119 | 2.6002519 | 20 | 6 11.3 | 19.3 |
| 190052 | 2004 | RP ₁₈₁ | 16.1 | X | 179.18908 | 69.54056 | 300.64059 | 5.20155 | 0.0516502 | 0.22169189 | 2.7037685 | 20 | 3 11.9 | 20.2 |
| 190053 | 2004 | RH ₁₈₂ | 16.3 | X | 306.27426 | 78.84263 | 210.31845 | 4.41929 | 0.3049588 | 0.23487114 | 2.6016545 | 20 | 3 23.8 | 19.6 |
| 190054 | 2004 | RO ₂₀₀ | 16.3 | X | 267.54770 | 32.32293 | 327.29961 | 3.44549 | 0.3144954 | 0.23304342 | 2.6152396 | 20 | 5 9.4 | 20.6 |
| 190055 | 2004 | RK ₂₂₀ | 15.9 | X | 213.45220 | 46.27147 | 287.08524 | 13.06667 | 0.1676457 | 0.22018305 | 2.7161065 | 20 | 2 26.9 | 20.6 |
| 190056 | 2004 | RQ ₂₄₉ | 16.1 | X | 215.15238 | 279.65535 | 172.43915 | 6.30273 | 0.0995111 | 0.24345654 | 2.5401250 | 20 | 8 6.8 | 19.8 |
| 190057 | Nakagawa | | 16.2 | X | 229.05936 | 10.00833 | 277.34994 | 3.86381 | 0.1186688 | 0.21530709 | 2.7569601 | 20 | 1 24.9 | 20.4 |
| 190058 | 2004 | RS ₂₅₇ | 16.3 | X | 172.62144 | 233.47788 | 195.24073 | 9.85931 | 0.1857617 | 0.22651592 | 2.6652435 | 20 | 5 24.5 | 20.8 |
| 190059 | 2004 | RW ₃₀₆ | 15.7 | X | 297.05085 | 203.42727 | 147.79226 | 6.90750 | 0.3691564 | 0.23594498 | 2.5937546 | 20 | 5 26.6 | 19.1 |
| 190060 | 2004 | RA ₃₀₇ | 15.5 | X | 241.49927 | 284.00773 | 75.12345 | 10.02264 | 0.2898727 | 0.22667841 | 2.6639697 | 20 | 4 23.9 | 20.1 |
| 190061 | 2004 | RP ₃₁₄ | 16.4 | X | 295.98433 | 155.37111 | 139.51992 | 2.56465 | 0.0976770 | 0.23031427 | 2.6358589 | 20 | 4 21.6 | 19.7 |
| 190062 | 2004 | RZ ₃₁₅ | 15.9 | X | 229.50649 | 324.10842 | 1.41218 | 7.70807 | 0.1505947 | 0.22359864 | 2.6883756 | 20 | 3 10.3 | 20.2 |
| 190063 | 2004 | RS ₃₁₈ | 15.9 | X | 312.43052 | 334.62706 | 255.47073 | 5.27667 | 0.1178117 | 0.22322363 | 2.6913857 | 20 | 2 12.8 | 19.4 |
| 190064 | 2004 | RU ₃₂₀ | 16.0 | X | 309.06242 | 351.93034 | 256.75128 | 6.66836 | 0.1233219 | 0.22570202 | 2.6716470 | 20 | 2 29.9 | 19.7 |
| 190065 | 2004 | RY ₃₂₀ | 16.1 | X | 204.30566 | 66.07536 | 282.19399 | 5.25253 | 0.0899743 | 0.22242537 | 2.6978212 | 20 | 3 11.9 | 20.4 |
| 190066 | 2004 | RV ₃₂₂ | 16.0 | X | 313.11446 | 67.72729 | 231.21761 | 9.57555 | 0.0769937 | 0.23246186 | 2.6195996 | 20 | 5 24.8 | 19.1 |
| 190067 | 2004 | RX ₃₂₇ | 15.6 | X | 277.63327 | 45.06211 | 283.50795 | 12.49816 | 0.1921742 | 0.22812059 | 2.6527301 | 20 | 4 22.1 | 19.6 |
| 190068 | 2004 | RR ₃₃₂ | 15.6 | X | 241.89924 | 235.20002 | 82.90638 | 14.87838 | 0.1067437 | 0.22341655 | 2.6898361 | 20 | 3 23.8 | 19.9 |
| 190069 | 2004 | RU ₃₃₂ | 15.3 | X | 196.76935 | 237.45181 | 102.03858 | 14.25244 | 0.1967247 | 0.21908287 | 2.7251920 | 20 | | |

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

| Planet | <i>H</i> | <i>G</i> | <i>M</i> | ω | Ω | <i>i</i> | <i>e</i> | μ | <i>a</i> | TE | Oppos. | <i>V</i> |
|--------------------------------------|----------|----------|-----------|-----------|-----------|----------|-----------|------------|-----------|----|---------|----------|
| 190081 2004 <i>TB</i> ₅₀ | 16.0 | X | 138.04650 | 53.51362 | 315.60285 | 3.18775 | 0.1112420 | 0.20939792 | 2.8085865 | 20 | 2 3.2 | 20.0 |
| 190082 2004 <i>TP</i> ₅₁ | 16.4 | X | 219.43402 | 68.58315 | 316.80395 | 1.26080 | 0.2150452 | 0.22656293 | 2.6648748 | 20 | 5 8.5 | 20.9 |
| 190083 2004 <i>TB</i> ₇₉ | 15.5 | X | 215.31601 | 136.15866 | 227.53292 | 11.91628 | 0.1919776 | 0.22433766 | 2.6824683 | 20 | 4 7.8 | 20.1 |
| 190084 2004 <i>TO</i> ₈₃ | 16.0 | X | 256.68023 | 78.50290 | 197.14412 | 5.30050 | 0.0890986 | 0.21853082 | 2.7297796 | 20 | 2 8.5 | 20.1 |
| 190085 2004 <i>TQ</i> ₁₁₀ | 15.8 | X | 211.44649 | 160.98239 | 173.69999 | 13.19277 | 0.2082192 | 0.21840793 | 2.7308035 | 20 | 3 2.3 | 20.4 |
| 190086 2004 <i>TW</i> ₁₁₂ | 15.4 | X | 261.14499 | 27.35555 | 277.32373 | 12.89990 | 0.1916165 | 0.22318184 | 2.6917217 | 20 | 3 3.9 | 19.9 |
| 190087 2004 <i>TR</i> ₁₃₂ | 15.4 | X | 230.53115 | 149.85355 | 116.45182 | 6.99630 | 0.0891335 | 0.21099121 | 2.7944294 | 20 | 1 3.6 | 19.5 |
| 190088 2004 <i>TU</i> ₁₃₃ | 15.5 | X | 240.06541 | 254.38923 | 65.10827 | 5.89986 | 0.1562181 | 0.22019882 | 2.7159919 | 20 | 3 14.9 | 19.8 |
| 190089 2004 <i>TS</i> ₁₃₅ | 15.7 | X | 155.86648 | 112.20380 | 261.02191 | 4.93680 | 0.0742800 | 0.21437083 | 2.7649817 | 20 | 2 20.9 | 19.9 |
| 190090 2004 <i>TN</i> ₁₃₅ | 15.6 | X | 272.15371 | 76.98007 | 237.07601 | 8.18984 | 0.1538892 | 0.22686484 | 2.6625100 | 20 | 4 4.6 | 19.5 |
| 190091 2004 <i>TU</i> ₁₃₅ | 15.3 | X | 209.20683 | 86.15355 | 246.20680 | 7.15918 | 0.0810458 | 0.21768890 | 2.7368134 | 20 | 2 26.3 | 19.6 |
| 190092 2004 <i>TO</i> ₁₄₃ | 15.7 | X | 257.22431 | 342.31211 | 11.95264 | 4.50274 | 0.2469157 | 0.23089130 | 2.6314654 | 20 | 4 30.4 | 20.0 |
| 190093 2004 <i>TH</i> ₁₄₈ | 16.3 | X | 323.66896 | 325.69378 | 337.50768 | 3.62843 | 0.1746211 | 0.17236403 | 3.1977042 | 20 | 6 3.4 | 20.1 |
| 190094 2004 <i>TL</i> ₁₆₁ | 16.3 | X | 130.96521 | 130.13337 | 212.48831 | 1.10924 | 0.0614621 | 0.20365015 | 2.8611869 | 20 | — | — |
| 190095 2004 <i>TR</i> ₁₇₂ | 15.5 | X | 126.03369 | 120.83024 | 289.89808 | 7.82238 | 0.1657352 | 0.21351824 | 2.7723373 | 20 | 3 13.7 | 19.8 |
| 190096 2004 <i>TY</i> ₁₉₂ | 16.3 | X | 190.28676 | 188.44994 | 158.93311 | 2.50673 | 0.0770791 | 0.21793121 | 2.7347844 | 20 | 2 28.3 | 20.4 |
| 190097 2004 <i>TY</i> ₂₂₁ | 15.9 | X | 199.13956 | 223.30478 | 144.77211 | 12.40802 | 0.2016951 | 0.22237998 | 2.6981883 | 20 | 4 5.5 | 20.6 |
| 190098 2004 <i>TF</i> ₂₂₇ | 16.4 | X | 180.04831 | 46.74879 | 295.93571 | 2.47555 | 0.1010321 | 0.21469525 | 2.7621956 | 20 | 2 12.7 | 20.5 |
| 190099 2004 <i>TA</i> ₂₄₁ | 15.1 | X | 237.62429 | 122.00376 | 241.91395 | 12.19578 | 0.1849493 | 0.22797622 | 2.6538499 | 20 | 4 29.3 | 19.4 |
| 190100 2004 <i>TS</i> ₂₆₀ | 15.7 | X | 138.28370 | 119.67219 | 144.61983 | 1.47226 | 0.0216077 | 0.20970623 | 2.8058331 | 20 | 1 17.5 | 19.6 |
| 190101 2004 <i>TR</i> ₂₆₄ | 15.8 | X | 37.32341 | 152.85352 | 251.02828 | 1.13303 | 0.0233922 | 0.19738218 | 2.9214431 | 20 | — | — |
| 190102 2004 <i>TK</i> ₂₆₈ | 16.2 | X | 203.23770 | 109.44522 | 203.81700 | 8.48839 | 0.1494366 | 0.21363507 | 2.7713264 | 20 | 1 29.8 | 20.9 |
| 190103 2004 <i>TP</i> ₂₈₅ | 15.7 | X | 275.58339 | 18.54859 | 285.03486 | 12.13003 | 0.1425838 | 0.22587240 | 2.6703034 | 20 | 3 23.2 | 19.8 |
| 190104 2004 <i>TU</i> ₂₈₇ | 15.3 | X | 233.57612 | 310.34081 | 44.41357 | 13.93737 | 0.2740516 | 0.22495775 | 2.6775366 | 20 | 4 13.4 | 20.0 |
| 190105 2004 <i>TM</i> ₂₉₀ | 16.6 | X | 275.45121 | 343.57650 | 134.13058 | 1.82560 | 0.0471776 | 0.22374994 | 2.6871635 | 20 | 4 3.9 | 20.2 |
| 190106 2004 <i>TV</i> ₃₀₈ | 15.7 | X | 86.91795 | 212.58542 | 242.59732 | 6.83224 | 0.1931355 | 0.21246366 | 2.7815035 | 20 | 3 29.4 | 19.5 |
| 190107 2004 <i>TY</i> ₃₃₃ | 16.0 | X | 132.03582 | 11.06176 | 226.00861 | 8.45913 | 0.0910338 | 0.18353068 | 3.0666456 | 20 | 11 2.9 | 20.3 |
| 190108 2004 <i>TQ</i> ₃₄₅ | 15.6 | X | 83.59753 | 178.98949 | 211.91293 | 1.40770 | 0.0768876 | 0.20291578 | 2.8680860 | 20 | — | — |
| 190109 2004 <i>TX</i> ₃₅₅ | 15.8 | X | 269.02623 | 237.34190 | 137.79076 | 14.31333 | 0.2395678 | 0.23416946 | 2.6068490 | 20 | 6 12.8 | 19.7 |
| 190110 2004 <i>TV</i> ₃₅₆ | 15.9 | X | 230.31253 | 213.73501 | 115.84274 | 8.53742 | 0.2058967 | 0.22416312 | 2.6838605 | 20 | 3 15.4 | 20.4 |
| 190111 2004 <i>TJ</i> ₃₅₆ | 16.3 | X | 304.45176 | 207.30732 | 87.54483 | 5.45471 | 0.2499864 | 0.23307123 | 2.6150316 | 20 | 4 10.7 | 19.7 |
| 190112 2004 <i>TV</i> ₃₆₆ | 16.0 | X | 329.37024 | 351.09057 | 145.25263 | 2.67680 | 0.0123928 | 0.20094292 | 2.8868290 | 20 | — | — |
| 190113 2004 <i>UX</i> ₂ | 15.9 | X | 199.98827 | 216.60243 | 128.21751 | 9.70222 | 0.1842810 | 0.21975806 | 2.7195989 | 20 | 3 8.5 | 20.5 |
| 190114 2004 <i>VH</i> ₁₂ | 15.1 | X | 120.24955 | 71.02376 | 282.09190 | 11.97075 | 0.0912873 | 0.20168909 | 2.8797035 | 20 | — | — |
| 190115 2004 <i>VY</i> ₁₃ | 15.7 | X | 245.43938 | 40.28450 | 285.93959 | 11.80781 | 0.1936288 | 0.22259321 | 2.6964650 | 20 | 3 15.6 | 20.3 |
| 190116 2004 <i>VU</i> ₃₅ | 15.3 | X | 183.52710 | 64.56859 | 242.95929 | 9.21029 | 0.1698079 | 0.20497391 | 2.8488549 | 20 | 1 8.7 | 20.1 |
| 190117 2004 <i>VB</i> ₅₇ | 15.6 | X | 281.16847 | 296.78177 | 74.24171 | 13.80432 | 0.2949490 | 0.23863142 | 2.5742515 | 20 | 6 11.5 | 18.9 |
| 190118 2004 <i>VR</i> ₆₀ | 15.8 | X | 212.12544 | 271.77080 | 62.21204 | 8.26233 | 0.2377532 | 0.21705793 | 2.7421147 | 20 | 3 6.6 | 20.7 |
| 190119 2004 <i>VA</i> ₆₄ | 17.1 | X | 23.87213 | 19.94427 | 225.52038 | 29.92989 | 0.8906356 | 0.25464490 | 2.4651654 | 20 | 1 11.6* | 18.5 |
| 190120 2004 <i>VS</i> ₇₂ | 15.1 | X | 203.33682 | 292.75230 | 245.44746 | 11.49548 | 0.0922289 | 0.18229213 | 3.0805205 | 20 | 11 3.5 | 19.8 |
| 190121 2004 <i>WJ</i> ₈ | 16.2 | X | 124.07383 | 249.41296 | 128.56670 | 1.29931 | 0.0496076 | 0.20601135 | 2.8392826 | 20 | 1 21.6 | 20.2 |
| 190122 2004 <i>WZ</i> ₉ | 15.4 | X | 94.91824 | 242.92311 | 155.91131 | 11.21337 | 0.1415360 | 0.20448750 | 2.8533707 | 20 | 1 23.3 | 19.2 |
| 190123 2004 <i>XQ</i> ₆ | 15.7 | X | 281.09136 | 25.42988 | 334.76576 | 5.62630 | 0.2842447 | 0.23330233 | 2.6133044 | 20 | 5 28.5 | 19.5 |
| 190124 2004 <i>XR</i> ₁₆ | 15.5 | X | 358.35423 | 321.31416 | 107.90385 | 11.55616 | 0.1487079 | 0.19130629 | 2.9829769 | 20 | — | — |
| 190125 2004 <i>XZ</i> ₁₇₇ | 15.0 | X | 146.81346 | 352.79727 | 248.05495 | 10.17880 | 0.0554027 | 0.18275852 | 3.0752774 | 20 | 11 21.7 | 19.6 |
| 190126 2004 <i>XY</i> ₁₉₀ | 15.8 | X | 167.24298 | 311.45316 | 332.46836 | 1.12919 | 0.0685288 | 0.19517761 | 2.9434007 | 20 | — | — |
| 190127 2004 <i>YY</i> ₂ | 14.8 | X | 1.47966 | 323.74033 | 82.87693 | 11.53761 | 0.1003956 | 0.18404653 | 3.0609129 | 20 | 12 26.2 | 18.8 |
| 190128 2004 <i>YY</i> ₃₀ | 15.1 | X | 53.92211 | 203.00914 | 201.07444 | 9.31737 | 0.0950547 | 0.19623654 | 2.9328023 | 20 | — | — |
| 190129 2005 <i>CP</i> ₄ | 15.8 | X | 17.17262 | 282.18981 | 135.74214 | 9.79481 | 0.3133866 | 0.18777591 | 3.0202493 | 20 | — | — |
| 190130 2005 <i>CR</i> ₂₅ | 14.9 | X | 5.97156 | 234.08673 | 130.62134 | 17.56959 | 0.1569839 | 0.17441781 | 3.1725526 | 20 | 11 20.2 | 19.1 |
| 190131 2005 <i>CJ</i> ₆₀ | 14.5 | X | 29.78039 | 67.15287 | 294.77499 | 16.38810 | 0.2185991 | 0.17765833 | 3.1338557 | 20 | 12 26.5 | 18.8 |
| 190132 2005 <i>JY</i> ₁ | 17.1 | X | 6.29377 | 36.20468 | 73.82168 | 24.03242 | 0.0463144 | 0.37334230 | 1.9101373 | 20 | — | — |
| 190133 2005 <i>LU</i> ₃₅ | 15.4 | X | 3.03392 | 296.69645 | 211.93435 | 9.61314 | 0.0638118 | 0.18049907 | 3.1008879 | 20 | 1 24.5 | 19.6 |
| 190134 2005 <i>NF</i> ₆₀ | 17.0 | X | 288.99246 | 179.31307 | 21.45705 | 0.93252 | 0.1354237 | 0.23605647 | 2.5929379 | 20 | — | — |
| 190135 2005 <i>QE</i> ₃₀ | 17.2 | X | 353.03208 | 216.92661 | 259.85595 | 6.23449 | 0.6894130 | 0.34403574 | 2.0171290 | 20 | — | — |
| 190136 2005 <i>QW</i> ₅₀ | 17.4 | X | 259.59741 | 269.13074 | 19.44415 | 3.62543 | 0.1865693 | 0.30735951 | 2.1745611 | 20 | 2 12.2 | 20.5 |
| 190137 2005 <i>QM</i> ₁₅₇ | 16.8 | X | 158.84523 | 206.94945 | 171.16166 | 7.71332 | 0.1478659 | 0.29843186 | 2.2177160 | 20 | 2 29.9 | 20.0 |
| 190138 2005 <i>RW</i> ₂₇ | 16.2 | X | 127.18846 | 40.54168 | 292.70675 | 6.43825 | 0.1343410 | 0.28517009 | 2.2859500 | 20 | — | — |
| 190139 Hansküng | 17.5 | X | 104.90623 | 209.34512 | 254.70860 | 4.80111 | 0.1096742 | 0.30329046 | 2.1939676 | 20 | 4 16.4 | 20.1 |
| 190140 2005 <i>ST</i> ₂₆ | 17.2 | X | 245.34751 | 257.95923 | 48.22162 | 2.79820 | 0.1102738 | 0.30519579 | 2.1848269 | 20 | 2 26.4 | 20.1 |
| 190141 2005 <i>SU</i> ₆₃ | 17.1 | X | 253.09205 | 293.76756 | 18.42944 | 1.34475 | 0.1859769 | 0.30795217 | 2.1717702 | 20 | 3 6.4 | 20.2 |
| 190142 2005 <i>SX</i> ₁₀₉ | 16.7 | X | 178.31269 | 349.92320 | 198.98553 | 6.14797 | 0.0838595 | 0.26658426 | 2.3910007 | 20 | 11 6.9 | 20.1 |
| 190143 2005 <i>SD</i> ₁₃₀ | 17.3 | X | 212.38730 | 289.73342 | 32.25681 | 4.12783 | 0.2005026 | 0.30149656 | 2.2026617 | 20 | 2 12.8 | 20.8 |
| 190144 2005 <i>SR</i> ₁₅₁ | 16.7 | X | 125.92919 | 198.01612 | 135.91110 | 2.13212 | 0.0086507 | 0.28404411 | 2.2919872 | 20 | — | — |
| 190145 2005 <i>SN</i> ₁₆₄ | 16.7 | X | 219.68706 | 249.53179 | 105.74831 | 4.25619 | 0.1870504 | 0.30644838 | 2.1788692 | 20 | 4 1.7 | 20.0 |
| 190146 2005 <i>SH</i> ₁₇₄ | 17.4 | X | 181.51570 | 181.79403 | 207.69920 | 6.06696 | 0.1193364 | 0.30743979 | 2.1741825 | 20 | 4 6.7 | 20.4 |
| 190147 2005 <i>SA</i> ₁₉₁ | 17.4 | X | 198.38854 | 191.16002 | 158.92982 | 2.21025 | 0.1736732 | 0.30294222 | 2.1956487 | 20 | 3 4.8 | 20.6 |
| 190148 2005 <i>SS</i> ₁₉₇ | 16.9 | X | 253.46057 | 241.74076 | 60.71969 | 4.63992 | 0.1501455 | 0.30809167 | 2.1711146 | 20 | 2 27.9 | 20.0 |
| 190149 2005 <i>SU</i> ₁₉₈ | 17.7 | X | 10.15503 | 312.61821 | 183.53283 | 1.86701 | 0.0792576 | 0.29575684 | 2.2310682 | 20 | — | — |
| 190150 2005 <i>SM</i> ₂₁₄ | 17.0 | X | 197.16592 | 30.23234 | 135.63332 | 3.74462 | 0.1136916 | 0.30009499 | 2.2095147 | 20 | 2 25.5 | 20.1 |
| 190151 2005 <i>SR</i> ₂₅₇ | 16.9 | X | 210.30107 | 93.38100 | 248.16597 | 1.25428 | 0.1855301 | 0.30224881 | 2.1990055 | 20 | 3 4.0 | 20.2 |
| 190152 2005 <i>TG</</i> | | | | | | | | | | | | |

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

| Planet | <i>H</i> | <i>G</i> | <i>M</i> | ω | Ω | <i>i</i> | <i>e</i> | μ | <i>a</i> | TE | Oppos. | <i>V</i> |
|-------------------------------|----------|----------|-----------|-----------|-----------|----------|-----------|------------|-----------|----|---------|----------|
| 190161 2005 TJ ₁₇₄ | 16.6 | X | 155.08834 | 56.16582 | 304.66803 | 3.98200 | 0.4527180 | 0.29431593 | 2.2383442 | 20 | 2 26.0 | 20.9 |
| 190162 2005 UM ₄₅ | 17.0 | X | 243.90094 | 160.82098 | 147.66999 | 2.92786 | 0.1457174 | 0.30339639 | 2.1934569 | 20 | 2 24.5 | 20.0 |
| 190163 2005 UY ₅₄ | 16.8 | X | 121.29551 | 115.49960 | 256.61279 | 5.30480 | 0.1330260 | 0.28850368 | 2.2683069 | 20 | 1 7.8 | 19.4 |
| 190164 2005 UB ₆₀ | 16.4 | X | 204.54972 | 313.21629 | 51.53645 | 5.56476 | 0.1874717 | 0.30324268 | 2.1941981 | 20 | 3 31.3 | 19.9 |
| 190165 2005 US ₁₁₅ | 17.3 | X | 145.21804 | 39.81944 | 288.65316 | 1.86879 | 0.1871573 | 0.28753378 | 2.2734050 | 20 | — | — |
| 190166 2005 UP ₁₅₆ | 17.2 | X | 338.79462 | 91.21607 | 193.38424 | 4.20863 | 0.4700511 | 0.32037098 | 2.1152771 | 20 | 3 31.9 | 18.4 |
| 190167 2005 UW ₁₅₈ | 17.0 | X | 237.50110 | 209.54579 | 116.31502 | 7.07078 | 0.2122942 | 0.30697677 | 2.1763682 | 20 | 3 10.2 | 20.5 |
| 190168 2005 UE ₁₇₀ | 17.4 | X | 167.31449 | 54.24649 | 273.36499 | 1.96171 | 0.1654939 | 0.29055291 | 2.2576289 | 20 | 1 7.8 | 20.6 |
| 190169 2005 UD ₁₉₀ | 17.5 | X | 97.40205 | 327.07244 | 296.54847 | 0.47537 | 0.1600918 | 0.26404643 | 2.4062967 | 20 | 11 17.8 | 21.0 |
| 190170 2005 UT ₂₁₅ | 16.7 | X | 58.74890 | 223.52795 | 203.51581 | 5.23409 | 0.0885039 | 0.28548335 | 2.2842775 | 20 | — | — |
| 190171 2005 UA ₂₁₆ | 17.0 | X | 224.91925 | 148.67802 | 166.49184 | 2.77641 | 0.1748757 | 0.30036861 | 2.2081726 | 20 | 2 13.4 | 20.3 |
| 190172 2005 UQ ₂₃₀ | 17.2 | X | 75.57731 | 259.15318 | 142.04699 | 3.27380 | 0.1628657 | 0.28350518 | 2.2948909 | 20 | — | — |
| 190173 2005 UJ ₃₅₄ | 16.7 | X | 143.22872 | 73.55116 | 273.81648 | 3.81600 | 0.1899699 | 0.28958499 | 2.2626568 | 20 | 1 10.3 | 19.8 |
| 190174 2005 UA ₃₆₄ | 16.7 | X | 78.60084 | 138.08930 | 127.08261 | 3.18289 | 0.1848564 | 0.26116801 | 2.4239449 | 20 | 10 31.9 | 20.1 |
| 190175 2005 UR ₃₆₈ | 16.6 | X | 64.08648 | 129.45265 | 136.16543 | 2.91248 | 0.1555779 | 0.25720665 | 2.4487696 | 20 | 10 16.3 | 20.0 |
| 190176 2005 UM ₃₉₀ | 17.4 | X | 152.79696 | 102.76379 | 161.48112 | 1.93013 | 0.1543576 | 0.27705476 | 2.3303741 | 20 | — | — |
| 190177 2005 UQ ₃₉₇ | 16.9 | X | 137.07769 | 214.48847 | 130.43224 | 2.45939 | 0.0854240 | 0.28840005 | 2.2688502 | 20 | — | — |
| 190178 2005 UQ ₄₁₁ | 16.5 | X | 83.17479 | 293.66314 | 71.46925 | 7.05252 | 0.1402840 | 0.27890992 | 2.3200290 | 20 | — | — |
| 190179 2005 UT ₄₁₁ | 16.3 | X | 56.67413 | 195.20194 | 93.27683 | 4.17845 | 0.1368888 | 0.25937788 | 2.4350848 | 20 | 11 4.4 | 19.6 |
| 190180 2005 UC ₄₇₈ | 17.4 | X | 138.78452 | 251.50648 | 126.48856 | 4.73044 | 0.1789762 | 0.29345978 | 2.2426956 | 20 | 2 13.2 | 20.3 |
| 190181 2005 VM ₁₆ | 17.0 | X | 89.64373 | 166.91662 | 202.42124 | 3.17783 | 0.1112767 | 0.28237446 | 2.3010132 | 20 | — | — |
| 190182 2005 VZ ₄₂ | 16.8 | X | 95.96892 | 137.30604 | 227.56654 | 4.94986 | 0.1544140 | 0.28123460 | 2.3072264 | 20 | — | — |
| 190183 2005 VX ₇₃ | 17.1 | X | 147.95272 | 138.33355 | 205.27500 | 4.72447 | 0.1966895 | 0.28805191 | 2.2706780 | 20 | 1 10.9 | 20.4 |
| 190184 2005 VT ₇₈ | 16.4 | X | 92.50994 | 140.75704 | 266.99953 | 6.74404 | 0.2106290 | 0.28688083 | 2.2768532 | 20 | 1 26.7 | 18.7 |
| 190185 2005 UO ₃₀ | 16.7 | X | 55.26997 | 19.58005 | 281.69247 | 4.00322 | 0.2111791 | 0.26148210 | 2.4220033 | 20 | 11 27.1 | 20.1 |
| 190186 2005 WM ₃₁ | 16.6 | X | 252.40818 | 173.56854 | 318.71131 | 1.89097 | 0.1285881 | 0.26054796 | 2.4277890 | 20 | 11 16.5 | 19.6 |
| 190187 2005 WB ₃₉ | 15.3 | X | 293.76133 | 350.06186 | 250.28843 | 14.44739 | 0.2204126 | 0.22233751 | 2.6985319 | 20 | 1 18.5 | 19.6 |
| 190188 2005 WF ₇₃ | 16.9 | X | 154.07414 | 261.01581 | 104.54233 | 4.88939 | 0.2451248 | 0.29345732 | 2.2427081 | 20 | 2 20.0 | 20.4 |
| 190189 2005 WA ₇₆ | 16.9 | X | 154.55242 | 60.97236 | 271.54189 | 2.61895 | 0.2457272 | 0.28766263 | 2.2727260 | 20 | 1 9.4 | 20.3 |
| 190190 2005 WD ₈₈ | 15.9 | X | 313.80421 | 156.76022 | 104.57584 | 5.33795 | 0.0898072 | 0.22615114 | 2.6681087 | 20 | 4 5.0 | 19.3 |
| 190191 2005 WG ₁₀₃ | 16.7 | X | 93.51976 | 221.86615 | 115.78610 | 6.26753 | 0.1479034 | 0.27770042 | 2.3267605 | 20 | — | — |
| 190192 2005 WJ ₁₄₇ | 17.4 | X | 157.71008 | 179.01458 | 153.92655 | 7.08547 | 0.2506792 | 0.29001820 | 2.2604030 | 20 | 1 12.5 | 20.9 |
| 190193 2005 WM ₁₅₈ | 17.1 | X | 104.23672 | 112.40864 | 297.93930 | 2.79492 | 0.2300615 | 0.28838095 | 2.2689504 | 20 | 2 21.1 | 19.6 |
| 190194 2005 WF ₁₇₈ | 15.7 | X | 254.11571 | 166.14839 | 89.01129 | 14.53430 | 0.0902240 | 0.21406109 | 2.7676482 | 20 | 1 14.5 | 19.8 |
| 190195 2005 WT ₁₇₉ | 16.9 | X | 66.71949 | 89.50216 | 304.79798 | 6.07551 | 0.1352000 | 0.28035128 | 2.3120702 | 20 | — | — |
| 190196 2005 XE ₂₇ | 16.2 | X | 0.40698 | 266.05573 | 69.04815 | 3.30258 | 0.2027961 | 0.25397835 | 2.4694766 | 20 | 10 24.7 | 18.4 |
| 190197 2005 XS ₂₉ | 16.2 | X | 145.35290 | 290.15697 | 211.31815 | 6.71736 | 0.0650545 | 0.24251896 | 2.5466675 | 20 | 7 23.6 | 19.9 |
| 190198 2005 XO ₈₄ | 15.6 | X | 125.67700 | 246.25982 | 247.55336 | 10.71593 | 0.0700869 | 0.23685308 | 2.5871207 | 20 | 6 21.1 | 19.2 |
| 190199 2005 YH ₁₁₁ | 15.6 | X | 218.53019 | 16.21694 | 254.31039 | 4.93144 | 0.0224700 | 0.20906579 | 2.8115603 | 20 | — | — |
| 190200 2005 YZ ₁₃₈ | 16.1 | X | 197.16383 | 12.00459 | 296.21042 | 6.15451 | 0.1128991 | 0.21199667 | 2.7855867 | 20 | 1 20.4 | 20.5 |
| 190201 2005 YX ₁₄₅ | 15.1 | X | 257.46999 | 194.87642 | 309.12982 | 10.85421 | 0.0528317 | 0.18955949 | 3.0012743 | 20 | 12 1.9 | 19.4 |
| 190202 2005 YS ₁₅₅ | 15.9 | X | 86.98313 | 301.71072 | 139.40536 | 10.39268 | 0.0715115 | 0.21661718 | 2.7458330 | 20 | 2 25.5 | 19.4 |
| 190203 2005 YA ₁₅₈ | 16.4 | X | 267.93241 | 87.17924 | 158.55444 | 2.19400 | 0.1637530 | 0.21170539 | 2.7881412 | 20 | 1 10.3 | 20.8 |
| 190204 2005 YV ₁₆₃ | 16.5 | X | 75.02469 | 11.92142 | 282.55739 | 4.22980 | 0.1874025 | 0.26402444 | 2.4064303 | 20 | 12 6.7 | 20.3 |
| 190205 2005 YP ₂₀₇ | 16.7 | X | 334.36422 | 248.50378 | 154.77286 | 3.37985 | 0.1757922 | 0.25885061 | 2.4383905 | 20 | 12 10.2 | 18.8 |
| 190206 2005 YC ₂₃₃ | 16.0 | X | 286.62590 | 307.07371 | 295.39026 | 3.60625 | 0.0605433 | 0.21781411 | 2.7357645 | 20 | 2 6.5 | 19.8 |
| 190207 2005 YF ₂₆₉ | 15.3 | X | 127.03080 | 44.81667 | 311.27840 | 13.99695 | 0.1549594 | 0.20488594 | 2.8496703 | 20 | 1 13.9 | 19.4 |
| 190208 2006 AQ | 18.1 | X | 306.69934 | 105.47008 | 325.75677 | 4.08704 | 0.4860228 | 0.33488671 | 2.0537021 | 20 | — | — |
| 190209 2006 AA ₂₁ | 15.3 | X | 177.11874 | 222.95577 | 336.22061 | 19.06222 | 0.2322410 | 0.18029573 | 3.1032189 | 20 | 10 19.0 | 20.9 |
| 190210 2006 AS ₆₆ | 15.3 | X | 92.59585 | 92.64400 | 134.16274 | 9.71834 | 0.1503572 | 0.17215823 | 3.2002521 | 20 | 9 18.2 | 20.2 |
| 190211 2006 BY ₂₀ | 15.6 | X | 246.77588 | 28.16081 | 134.72083 | 11.10635 | 0.0554741 | 0.18977842 | 2.9989657 | 20 | 12 13.6 | 19.9 |
| 190212 2006 BV ₄₅ | 15.7 | X | 310.58487 | 289.81753 | 157.31779 | 2.11496 | 0.0434283 | 0.18580289 | 3.0415928 | 20 | 12 3.3 | 19.7 |
| 190213 2006 BL ₆₆ | 15.3 | X | 9.34222 | 183.43147 | 92.96832 | 3.65300 | 0.2090968 | 0.16359506 | 3.3109752 | 20 | 7 29.1 | 18.9 |
| 190214 2006 BQ ₉₀ | 15.1 | X | 39.42859 | 177.05428 | 148.70764 | 11.53411 | 0.2154569 | 0.17580682 | 3.1558201 | 20 | 11 25.8 | 19.6 |
| 190215 2006 BR ₉₂ | 15.7 | X | 56.42234 | 136.36684 | 317.61101 | 5.32107 | 0.0263407 | 0.20859654 | 2.8157752 | 20 | 1 27.0 | 19.4 |
| 190216 2006 BD ₁₁₄ | 15.8 | X | 97.13838 | 142.32144 | 125.91452 | 4.16961 | 0.0838579 | 0.17987796 | 3.1080219 | 20 | 11 4.7 | 20.5 |
| 190217 2006 BY ₂₀₉ | 15.0 | X | 61.73188 | 196.06602 | 140.87289 | 17.12830 | 0.1171143 | 0.18511361 | 3.0491385 | 20 | 12 22.4 | 19.7 |
| 190218 2006 BV ₂₂₃ | 16.0 | X | 99.92687 | 244.75930 | 144.19978 | 2.73548 | 0.0986787 | 0.20529597 | 2.8458746 | 20 | 1 12.1 | 19.6 |
| 190219 2006 CG ₅₃ | 15.7 | X | 85.05728 | 352.94727 | 313.79431 | 1.91239 | 0.1214893 | 0.18573545 | 3.0423290 | 20 | 12 10.5 | 20.3 |
| 190220 2006 CC ₅₄ | 15.1 | X | 103.14810 | 273.51939 | 32.50879 | 11.35170 | 0.0488381 | 0.18964328 | 3.0003902 | 20 | 12 22.7 | 19.7 |
| 190221 2006 DM ₁₂ | 15.4 | X | 244.95532 | 12.18385 | 159.26641 | 1.36302 | 0.1259902 | 0.18612632 | 3.0380682 | 20 | 12 9.9 | 19.5 |
| 190222 2006 DE ₃₄ | 16.0 | X | 48.64149 | 255.54890 | 145.41964 | 2.26392 | 0.0726430 | 0.19153845 | 2.9805659 | 20 | — | — |
| 190223 2006 DA ₃₅ | 15.4 | X | 241.19166 | 338.58037 | 171.50149 | 8.55706 | 0.0904980 | 0.18006727 | 3.1058432 | 20 | 11 15.1 | 19.9 |
| 190224 2006 DW ₆₆ | 15.3 | X | 7.33439 | 223.20479 | 208.29940 | 8.33070 | 0.0780592 | 0.19190984 | 2.9767193 | 20 | — | — |
| 190225 2006 DA ₈₂ | 15.7 | X | 357.00311 | 304.06598 | 158.44105 | 2.08469 | 0.0839839 | 0.19560259 | 2.9391357 | 20 | — | — |
| 190226 2006 DL ₁₂₀ | 15.3 | X | 301.28707 | 286.05620 | 144.08462 | 10.46701 | 0.0735291 | 0.17985959 | 3.1082336 | 20 | 10 30.5 | 19.5 |
| 190227 2006 DV ₂₀₁ | 14.5 | X | 83.08377 | 167.40208 | 128.98248 | 23.24005 | 0.0799347 | 0.17973483 | 3.1096718 | 20 | 11 23.6 | 19.5 |
| 190228 2006 EB ₁₀ | 15.8 | X | 18.52740 | 219.75569 | 168.16881 | 16.59544 | 0.0889537 | 0.18397766 | 3.0616767 | 20 | 12 25.7 | 20.2 |
| 190229 2006 OO ₅ | 12.4 | X | 179.17175 | 260.61701 | 282.00743 | 12.24211 | 0.0108339 | 0.08279286 | 5.2136369 | 20 | 9 29.2 | 19.5 |
| 190230 2006 TD ₁₀₄ | 16.2 | X | 267.00890 | 157.30732 | 162.24789 | 9.09672 | 0.0830584 | 0.18441807 | 3.0568003 | 20 | 4 20.0 | 20.7 |
| 190231 2006 UC ₁₄₃ | 16.6 | X | 83.70432 | 188.77058 | 260.41867 | 5.13732 | 0.1124800 | 0.24182074 | 2.5515672 | 20 | 3 1.3 | 19.9 |
| 190232 2006 VF ₅₄ | 17.1 | X | 193.67008 | 108.37631 | 31.35365 | 7.09103 | 0.0564507 | 0.27307766 | 2.3529458 | 20 | 9 25.8 | 20.2 |
| 190233 2007 AK ₂ | 17.0 | X | 157.62915 | 55.72973 | 302.76666 | 18.35067 | 0.0891618 | 0.37852975 | 1.8926459 | 20 | 1 16.0 | 18.7 |

ELEMENTS AND OPPOSITION DATES IN 2020
ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

| Planet | <i>H</i> | <i>G</i> | <i>M</i> | ω | Ω | <i>i</i> | <i>e</i> | μ | <i>a</i> | TE | Oppos. | <i>V</i> |
|-------------------------------|----------|----------|-----------|-----------|-----------|----------|-----------|------------|-----------|----|---------|----------|
| 190241 2007 DS ₅₇ | 16.6 | X | 129.08929 | 267.43488 | 337.48371 | 3.92213 | 0.1360483 | 0.26365034 | 2.4087062 | 20 | 11 22.7 | 20.4 |
| 190242 2007 DA ₆₀ | 16.4 | X | 155.89524 | 94.85548 | 153.87249 | 6.49793 | 0.0864904 | 0.27007697 | 2.3703420 | 20 | 12 28.2 | 19.8 |
| 190243 2007 EJ ₃₆ | 14.8 | X | 107.21964 | 160.19646 | 68.71393 | 12.57184 | 0.2047755 | 0.17828067 | 3.1265584 | 20 | 10 13.1 | 20.0 |
| 190244 2007 EZ ₆₇ | 16.8 | X | 148.27574 | 76.95148 | 158.31690 | 4.45310 | 0.1025480 | 0.26437932 | 2.4042764 | 20 | 12 2.1 | 20.3 |
| 190245 2007 EW ₇₄ | 15.8 | X | 67.91767 | 40.15689 | 207.96422 | 1.50699 | 0.1669978 | 0.17291427 | 3.1909169 | 20 | 9 16.0 | 20.4 |
| 190246 2007 EN ₁₃₉ | 16.5 | X | 68.70578 | 177.61265 | 155.67386 | 12.63598 | 0.2307004 | 0.26787842 | 2.3832937 | 20 | — | — |
| 190247 2007 EG ₁₇₃ | 16.1 | X | 337.28686 | 22.76231 | 204.54018 | 3.74366 | 0.0193567 | 0.22685207 | 2.6626099 | 20 | 3 29.1 | 19.6 |
| 190248 2007 EJ ₁₈₂ | 15.2 | X | 81.89415 | 0.70845 | 239.35245 | 3.69128 | 0.1253429 | 0.17271987 | 3.1933107 | 20 | 9 15.4 | 20.0 |
| 190249 2007 ED ₂₀₀ | 16.0 | X | 237.94158 | 144.32931 | 140.75053 | 9.77459 | 0.1453153 | 0.21660410 | 2.7459436 | 20 | 1 29.3 | 20.4 |
| 190250 2007 EZ ₂₁₇ | 16.4 | X | 244.14942 | 90.68618 | 179.32505 | 1.56909 | 0.1975628 | 0.21668292 | 2.7452776 | 20 | 1 14.6 | 20.9 |
| 190251 2007 GL | 15.6 | X | 41.08194 | 95.26606 | 201.21964 | 4.82416 | 0.1497498 | 0.17433111 | 3.1736044 | 20 | 10 10.2 | 19.7 |
| 190252 2007 GA ₃₃ | 15.5 | X | 69.61799 | 135.84739 | 134.19115 | 2.75649 | 0.1535859 | 0.17513117 | 3.1639316 | 20 | 10 14.9 | 20.1 |
| 190253 2007 GX ₃₃ | 15.2 | X | 254.54715 | 193.67720 | 62.93650 | 14.72823 | 0.1540352 | 0.21164210 | 2.7886971 | 20 | 1 12.6 | 19.8 |
| 190254 2007 GR ₄₄ | 15.6 | X | 31.62259 | 282.70265 | 104.36344 | 2.65064 | 0.0986434 | 0.19099892 | 2.9861763 | 20 | — | — |
| 190255 2007 HG | 15.6 | X | 214.26205 | 240.78951 | 83.02502 | 5.55923 | 0.1154783 | 0.21629155 | 2.7485882 | 20 | 2 26.3 | 19.9 |
| 190256 2007 HV ₃₂ | 15.7 | X | 25.26258 | 355.44674 | 318.42970 | 3.54006 | 0.1503314 | 0.17224577 | 3.1991677 | 20 | 10 7.7 | 19.9 |
| 190257 2007 EG ₄₀ | 14.6 | X | 84.11294 | 203.50569 | 45.66021 | 25.74298 | 0.0574035 | 0.17333461 | 3.1857562 | 20 | 10 5.3 | 19.5 |
| 190258 2007 HC ₆₇ | 15.6 | X | 222.24484 | 49.98244 | 155.63222 | 7.26482 | 0.2098922 | 0.19303440 | 2.9651471 | 20 | 12 16.4 | 20.3 |
| 190259 2007 JX ₆ | 15.6 | X | 213.18099 | 335.43183 | 220.96075 | 4.49565 | 0.0459293 | 0.18952856 | 3.0016009 | 20 | 12 13.9 | 19.9 |
| 190260 2007 JM ₁₂ | 15.6 | X | 119.73291 | 13.51328 | 333.38844 | 1.18940 | 0.0748045 | 0.20022514 | 2.8937231 | 20 | — | — |
| 190261 2007 JV ₄₄ | 15.5 | X | 56.56932 | 215.06139 | 125.28936 | 2.95552 | 0.0548786 | 0.18208201 | 3.0828900 | 20 | 12 10.5 | 19.8 |
| 190262 2007 LA ₃₇ | 14.5 | X | 240.19345 | 316.83797 | 137.64661 | 17.74080 | 0.0867818 | 0.17022675 | 3.2244144 | 20 | 9 6.4 | 19.3 |
| 190263 2007 MF ₄ | 14.8 | X | 345.40093 | 305.42572 | 91.98488 | 11.46153 | 0.0711910 | 0.18045053 | 3.1014440 | 20 | 11 20.9 | 18.9 |
| 190264 2007 NE ₂ | 12.2 | X | 318.07873 | 174.41076 | 220.53499 | 13.13708 | 0.1125475 | 0.08172656 | 5.2588876 | 20 | 9 12.8 | 18.8 |
| 190265 2007 TC ₁₄₉ | 16.1 | X | 260.69288 | 343.50660 | 32.09747 | 4.66696 | 0.0824469 | 0.21100862 | 2.7942757 | 20 | 6 23.1 | 19.9 |
| 190266 2007 UU ₃₂ | 15.9 | X | 289.44731 | 285.57232 | 147.21522 | 14.19318 | 0.1367149 | 0.22290175 | 2.6939760 | 20 | 10 19.4 | 19.2 |
| 190267 2007 VL ₆ | 13.5 | X | 301.34566 | 204.41759 | 190.28843 | 0.51527 | 0.0677402 | 0.08268043 | 5.2183622 | 20 | 8 30.3 | 20.1 |
| 190268 2007 XU ₃ | 12.5 | X | 9.76458 | 162.52101 | 195.03230 | 18.55811 | 0.0767986 | 0.08306984 | 5.2020415 | 20 | 10 16.0 | 19.1 |
| 190269 2008 EL ₆₄ | 16.6 | X | 139.86623 | 75.80926 | 215.68978 | 5.14125 | 0.0417626 | 0.21726786 | 2.7403480 | 20 | — | — |
| 190270 2008 FM ₁₀₁ | 16.3 | X | 79.09477 | 271.03222 | 131.07748 | 7.28171 | 0.0257494 | 0.22348569 | 2.6892813 | 20 | — | — |
| 190271 2008 HG ₅ | 16.0 | X | 64.41658 | 60.02475 | 201.06683 | 9.12376 | 0.0896584 | 0.18857120 | 3.0117516 | 20 | 9 17.9 | 20.3 |
| 190272 2008 NO ₂ | 16.0 | X | 15.65217 | 123.30936 | 119.59635 | 27.40209 | 0.1668058 | 0.24325211 | 2.5415479 | 20 | 6 27.8 | 18.8 |
| 190273 2822 P-L | 17.0 | X | 125.47628 | 54.66516 | 13.35978 | 6.12400 | 0.1789195 | 0.28871626 | 2.2671933 | 20 | 4 4.4 | 20.0 |
| 190274 3117 P-L | 17.5 | X | 234.81622 | 49.08105 | 280.43362 | 4.89141 | 0.2526834 | 0.30712924 | 2.1756479 | 20 | 3 5.6 | 21.2 |
| 190275 4275 P-L | 16.3 | X | 311.86205 | 186.36029 | 191.80394 | 12.52094 | 0.2316430 | 0.24557263 | 2.5255119 | 20 | 8 26.7 | 18.7 |
| 190276 4548 P-L | 17.1 | X | 256.71565 | 301.00017 | 4.06903 | 7.51756 | 0.3401792 | 0.30776932 | 2.1726303 | 20 | 2 21.2 | 20.9 |
| 190277 6227 P-L | 16.7 | X | 239.63200 | 32.42199 | 304.31361 | 2.95812 | 0.2918295 | 0.22548780 | 2.6733389 | 20 | 3 21.9 | 21.5 |
| 190278 2217 T-2 | 16.5 | X | 236.63505 | 150.11875 | 180.52775 | 1.72621 | 0.1767895 | 0.22374515 | 2.6872019 | 20 | 3 20.5 | 20.9 |
| 190279 5143 T-2 | 17.4 | X | 114.30714 | 35.52146 | 307.49002 | 7.35641 | 0.2003621 | 0.28024506 | 2.3126544 | 20 | — | — |
| 190280 2142 T-3 | 16.1 | X | 32.23938 | 34.90678 | 255.26884 | 5.21059 | 0.2052578 | 0.25207497 | 2.4818921 | 20 | 10 10.6 | 19.0 |
| 190281 3525 T-3 | 16.0 | X | 26.29358 | 140.73219 | 262.28690 | 0.49203 | 0.2306203 | 0.18759017 | 3.0222427 | 20 | — | — |
| 190282 1989 UQ ₃ | 16.2 | X | 40.56215 | 169.75151 | 203.88489 | 11.83303 | 0.2964539 | 0.25990337 | 2.4318015 | 20 | — | — |
| 190283 Schielicke | 16.8 | X | 200.09994 | 26.61593 | 317.41782 | 4.44747 | 0.1222183 | 0.29290390 | 2.2455321 | 20 | 2 27.9 | 20.5 |
| 190284 1991 TN ₁₆ | 17.4 | X | 102.14658 | 242.90833 | 146.14265 | 3.30028 | 0.1662646 | 0.28468433 | 2.2885497 | 20 | 1 9.9 | 19.8 |
| 190285 1993 FH ₈ | 15.3 | X | 351.05779 | 171.83304 | 14.09030 | 13.53113 | 0.2418033 | 0.21669628 | 2.7451647 | 20 | 2 6.1 | 18.3 |
| 190286 1993 FV ₉ | 16.0 | X | 180.96991 | 300.96484 | 165.08404 | 11.80876 | 0.2259328 | 0.22988896 | 2.6391088 | 20 | 7 14.7 | 20.7 |
| 190287 1993 FR ₅₄ | 15.6 | X | 215.72998 | 245.58080 | 140.14732 | 6.98170 | 0.0418405 | 0.22320581 | 2.6915289 | 20 | 5 18.6 | 19.5 |
| 190288 1994 PG ₁₂ | 16.5 | X | 137.17373 | 7.56493 | 320.51555 | 5.49420 | 0.1877940 | 0.28182883 | 2.3039821 | 20 | — | — |
| 190289 1994 PR ₁₅ | 16.0 | X | 173.56690 | 32.58189 | 317.66399 | 6.99355 | 0.2332649 | 0.21069660 | 2.7970337 | 20 | 2 21.2 | 20.7 |
| 190290 1994 SZ | 15.7 | X | 219.68198 | 168.93998 | 191.35734 | 11.48140 | 0.1397463 | 0.21514188 | 2.7583714 | 20 | 4 13.4 | 19.9 |
| 190291 1995 OD ₆ | 17.8 | X | 278.11576 | 311.74771 | 327.96795 | 6.99158 | 0.0837262 | 0.30432880 | 2.1889744 | 20 | 3 1.1 | 20.6 |
| 190292 1995 OO ₇ | 15.8 | X | 241.07140 | 64.32416 | 328.12829 | 10.66964 | 0.3088095 | 0.22911178 | 2.6450737 | 20 | 5 27.1 | 20.5 |
| 190293 1995 OU ₁₀ | 16.0 | X | 138.99316 | 148.63497 | 327.10259 | 11.93399 | 0.1297262 | 0.22917832 | 2.6445616 | 20 | 6 18.1 | 20.3 |
| 190294 1995 QC ₆ | 12.7 | X | 268.01721 | 144.91132 | 296.24717 | 13.42256 | 0.0999249 | 0.08107838 | 5.2868788 | 20 | 9 2.7 | 19.8 |
| 190295 1995 SQ ₂₇ | 17.1 | X | 128.81677 | 241.94054 | 190.12042 | 4.70032 | 0.1038987 | 0.29927323 | 2.2135575 | 20 | 4 4.0 | 19.7 |
| 190296 1995 SG ₄₆ | 17.3 | X | 337.79063 | 35.10681 | 161.98777 | 6.07480 | 0.0911188 | 0.30071257 | 2.2064884 | 20 | 1 28.2 | 19.7 |
| 190297 1995 UL ₄₃ | 15.7 | X | 271.09391 | 257.70632 | 27.43472 | 5.29277 | 0.1346612 | 0.22080377 | 2.7110138 | 20 | 3 5.4 | 19.6 |
| 190298 1995 WV ₃₃ | 17.4 | X | 116.88156 | 258.50030 | 193.01533 | 5.01514 | 0.0789344 | 0.29910255 | 2.2143995 | 20 | 4 12.6 | 19.8 |
| 190299 1996 AK ₃ | 15.6 | X | 148.05642 | 304.86722 | 112.32266 | 10.31191 | 0.1506294 | 0.21328657 | 2.7743444 | 20 | 4 20.2 | 20.1 |
| 190300 1996 RV | 15.3 | X | 224.92076 | 183.12114 | 209.30520 | 35.29945 | 0.2448112 | 0.23636782 | 2.5906604 | 20 | 5 19.4 | 20.0 |
| 190301 1996 RA ₁₄ | 12.8 | X | 71.54753 | 106.81618 | 174.50253 | 7.46881 | 0.0465580 | 0.08327312 | 5.1935719 | 20 | 10 2.2 | 19.6 |
| 190302 1996 XE ₂₁ | 15.7 | X | 341.49577 | 65.40224 | 275.47396 | 9.19489 | 0.1457421 | 0.24244221 | 2.5472049 | 20 | 9 6.8 | 18.5 |
| 190303 1997 AH ₁₀ | 16.5 | X | 241.22724 | 262.14331 | 119.49547 | 4.56012 | 0.2218016 | 0.23093145 | 2.6311604 | 20 | 5 24.2 | 20.7 |
| 190304 1997 EP ₄ | 16.1 | X | 212.42431 | 278.02621 | 60.09405 | 0.84676 | 0.0802349 | 0.21306526 | 2.7762652 | 20 | 3 12.0 | 20.1 |
| 190305 1997 LJ ₁ | 15.9 | X | 213.12200 | 76.33837 | 188.21273 | 9.07936 | 0.1799562 | 0.19804732 | 2.9148983 | 20 | — | — |
| 190306 1997 MB ₆ | 15.0 | X | 235.05115 | 305.94919 | 225.98137 | 9.78022 | 0.0380597 | 0.18409120 | 3.0604177 | 20 | 12 10.2 | 19.3 |
| 190307 1997 RA ₁₃ | 15.7 | X | 90.05022 | 62.52869 | 181.45756 | 5.38192 | 0.1336526 | 0.17364820 | 3.1819195 | 20 | 10 2.2 | 20.4 |
| 190308 1997 SZ ₅ | 16.0 | X | 67.62510 | 142.86772 | 150.98281 | 1.81068 | 0.1631683 | 0.17664199 | 3.1458650 | 20 | 11 11.0 | 20.6 |
| 190309 1997 SX ₁₃ | 12.6 | X | 330.84107 | 100.86625 | 280.54105 | 4.63579 | 0.0832741 | 0.08364086 | 5.1783379 | 20 | 9 18.7 | 19.1 |
| 190310 De Martin | 15.2 | X | 50.49652 | 160.37981 | 196.09890 | 16.89865 | 0.2356840 | 0.17843327 | 3.1247755 | 20 | — | — |
| 190311 1997 TM ₂ | 12.7 | X | 244.39742 | 122.52798 | 349.52550 | 4.19096 | 0.0901025 | 0.08259596 | 5.2219194 | 20 | 9 18.6 | 19.6 |
| 190312 1997 TK ₂₇ | 16.7 | X | 333.36819 | 280.92097 | 145.52383 | 3.64060 | 0.1079123 | 0.26315161 | 2.4117486 | 20 | — | — |
| 190313 1997 UP ₁₂ | 16.7 | X | 44.74585 | 103.19088 | 249.28565 | 0.06561 | 0.1959593 | 0.26379932 | 2.4077992 | 20 | — | — |
| 190314 1997 VU ₁ | 15.0 | X | 342.06349 | 350.48069 | 37.01696 | 15.56753 | 0.2006569 | 0.17162536 | 3.2068729 | 20 | 11 2.7 | 18.4 |
| 1 | | | | | | | | | | | | |

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

| Planet | H | G | M | ω | Ω | i | e | μ | a | TE | Oppos. | V |
|-------------------------------|------|-----|-----------|-----------|-----------|----------|-----------|------------|-----------|----|---------|------|
| 190321 1998 HH ₄₂ | 16.1 | X | 170.60270 | 328.54497 | 149.71630 | 5.43374 | 0.1661017 | 0.23471701 | 2.6027932 | 20 | 7 22.6 | 20.3 |
| 190322 1998 HZ ₈₃ | 15.6 | X | 241.41773 | 174.91897 | 105.63540 | 4.39287 | 0.1906410 | 0.21415928 | 2.7668023 | 20 | 1 25.8 | 20.1 |
| 190323 1998 KR ₅ | 15.7 | X | 253.34032 | 82.83002 | 138.77535 | 8.27792 | 0.1633025 | 0.20936594 | 2.8088725 | 20 | — | — |
| 190324 1998 OC ₁₃ | 17.5 | X | 190.92137 | 356.37027 | 328.68946 | 4.90447 | 0.2185539 | 0.29531417 | 2.2332972 | 20 | 1 29.6 | 21.1 |
| 190325 1998 QQ ₆₀ | 15.2 | X | 44.42023 | 76.92761 | 315.00400 | 16.19787 | 0.1870150 | 0.19151153 | 2.9808453 | 20 | — | — |
| 190326 1998 QD ₆₉ | 16.6 | X | 204.21016 | 172.84611 | 192.47256 | 8.50635 | 0.1946104 | 0.30022440 | 2.2088797 | 20 | 3 29.4 | 20.1 |
| 190327 1998 QE ₈₅ | 16.4 | X | 201.35679 | 170.18348 | 216.12426 | 7.11401 | 0.2500561 | 0.30081571 | 2.2059841 | 20 | 4 22.1 | 19.9 |
| 190328 1998 RA ₁₂ | 17.0 | X | 166.10247 | 203.99919 | 177.34607 | 6.83670 | 0.1307203 | 0.29503994 | 2.2346809 | 20 | 3 12.1 | 19.9 |
| 190329 1998 RK ₁₄ | 16.1 | X | 59.55117 | 264.96754 | 163.41919 | 2.09279 | 0.0864181 | 0.19882906 | 2.9072529 | 20 | 1 5.3 | 19.7 |
| 190330 1998 RO ₂₅ | 17.1 | X | 170.39186 | 356.99441 | 352.45263 | 5.86859 | 0.1621414 | 0.29423614 | 2.2387488 | 20 | 2 8.5 | 20.4 |
| 190331 1998 RL ₄₁ | 16.6 | X | 198.24550 | 25.88801 | 326.13969 | 3.34372 | 0.1906368 | 0.29749335 | 2.2223777 | 20 | 3 7.0 | 20.1 |
| 190332 1998 RC ₆₀ | 16.7 | X | 185.18890 | 26.51861 | 330.18228 | 4.04417 | 0.2089930 | 0.29565085 | 2.2316014 | 20 | 3 2.4 | 20.1 |
| 190333 Jirous | 15.3 | X | 136.47497 | 298.29512 | 344.45251 | 13.95243 | 0.1710780 | 0.19172846 | 2.9785964 | 20 | — | — |
| 190334 1998 SM ₅₉ | 17.2 | X | 129.14549 | 211.93115 | 164.27702 | 5.08593 | 0.2030671 | 0.28982866 | 2.2613884 | 20 | 2 2.0 | 20.1 |
| 190335 1998 SJ ₇₆ | 15.9 | X | 136.41361 | 138.96929 | 222.36311 | 7.25567 | 0.2586312 | 0.19995659 | 2.8963135 | 20 | 2 5.5 | 20.7 |
| 190336 1998 SD ₈₃ | 17.3 | X | 141.18987 | 32.41213 | 321.47930 | 1.72576 | 0.1851161 | 0.28981422 | 2.2614635 | 20 | 1 16.3 | 20.2 |
| 190337 1998 SE ₉₆ | 14.9 | X | 79.74135 | 321.87754 | 22.27258 | 9.41926 | 0.0668700 | 0.18956889 | 3.0011742 | 20 | — | — |
| 190338 1998 SZ ₁₀₈ | 16.4 | X | 173.37749 | 119.83127 | 223.89727 | 5.67572 | 0.1714176 | 0.29227707 | 2.2487416 | 20 | 2 1.3 | 19.8 |
| 190339 1998 SC ₁₁₇ | 17.1 | X | 170.14829 | 351.05289 | 339.08195 | 5.55826 | 0.2903066 | 0.29129038 | 2.2538169 | 20 | 1 23.9 | 20.8 |
| 190340 1998 SX ₁₆₈ | 17.2 | X | 144.47176 | 189.62312 | 163.29130 | 6.39293 | 0.1899465 | 0.28931783 | 2.2640495 | 20 | 1 18.2 | 20.4 |
| 190341 1998 TS ₁₅ | 15.8 | X | 160.85440 | 320.98267 | 334.01428 | 2.56613 | 0.0602769 | 0.19122491 | 2.9838231 | 20 | — | — |
| 190342 1998 TJ ₂₀ | 16.9 | X | 149.10287 | 308.50927 | 28.70156 | 7.08759 | 0.0945315 | 0.28669392 | 2.2778427 | 20 | — | — |
| 190343 1998 TZ ₂₄ | 15.7 | X | 183.44397 | 6.67347 | 197.32826 | 10.12357 | 0.0551449 | 0.18362645 | 3.0655793 | 20 | 11 18.8 | 20.3 |
| 190344 1998 TO ₂₉ | 15.2 | X | 55.66148 | 287.03526 | 30.22369 | 11.08922 | 0.0801579 | 0.18055458 | 3.1002524 | 20 | 11 12.8 | 19.6 |
| 190345 1998 UR ₁₄ | 16.7 | X | 138.38436 | 282.08641 | 50.65616 | 5.28928 | 0.1566397 | 0.28510053 | 2.8633219 | 20 | — | — |
| 190346 1998 UG ₃₃ | 16.5 | X | 152.22851 | 302.60076 | 47.29652 | 7.20043 | 0.2857734 | 0.29088653 | 2.2559024 | 20 | 2 3.8 | 20.2 |
| 190347 1998 VD ₁₉ | 15.1 | X | 38.02551 | 328.74630 | 49.20742 | 9.79713 | 0.1347279 | 0.18546154 | 3.0453238 | 20 | — | — |
| 190348 1998 VE ₂₈ | 14.4 | X | 131.86393 | 110.54534 | 261.05056 | 9.64484 | 0.2611460 | 0.19713135 | 2.9239207 | 20 | 2 12.7 | 19.3 |
| 190349 1998 WL ₇ | 14.6 | X | 80.31212 | 149.23740 | 269.67012 | 24.72985 | 0.2562683 | 0.28204730 | 2.3027922 | 20 | 1 22.9 | 17.0 |
| 190350 1998 WD ₂₈ | 16.5 | X | 68.02772 | 262.97102 | 230.84625 | 7.64201 | 0.1956536 | 0.24579438 | 2.5239926 | 20 | 4 16.8 | 19.4 |
| 190351 1998 XV ₁ | 12.8 | X | 357.23484 | 145.74486 | 216.76903 | 6.15509 | 0.0504668 | 0.08521181 | 5.1144962 | 20 | 10 3.3 | 19.4 |
| 190352 1998 XC ₂₃ | 12.8 | X | 173.98338 | 296.00753 | 241.06641 | 6.11848 | 0.0333066 | 0.08245818 | 5.2277348 | 20 | 9 20.8 | 19.9 |
| 190353 1998 XK ₉₉ | 12.5 | X | 295.30859 | 194.80350 | 232.97924 | 18.67462 | 0.0704993 | 0.08422753 | 5.1542641 | 20 | 9 24.4 | 19.4 |
| 190354 1998 YC ₂₀ | 15.6 | X | 326.58801 | 327.50472 | 84.87779 | 2.68887 | 0.1602381 | 0.17480230 | 3.1678987 | 20 | 11 7.8 | 19.0 |
| 190355 1999 AR ₆ | 16.5 | X | 117.33138 | 81.58959 | 303.41975 | 7.40195 | 0.1488491 | 0.28599708 | 2.2815412 | 20 | 1 23.6 | 19.0 |
| 190356 1999 BY ₂₈ | 17.2 | X | 333.77523 | 136.13633 | 296.07879 | 0.61317 | 0.1330463 | 0.26782492 | 2.3836111 | 20 | — | — |
| 190357 1999 CG ₁₁ | 14.9 | X | 284.43817 | 295.53545 | 160.78690 | 26.56566 | 0.2379373 | 0.17249830 | 3.1960446 | 20 | 10 16.0 | 19.2 |
| 190358 1999 CK ₁₄₇ | 15.2 | X | 198.26954 | 268.54110 | 341.70148 | 8.16236 | 0.0430970 | 0.17464273 | 3.1698281 | 20 | — | — |
| 190359 1999 FJ ₃ | 15.4 | X | 347.91315 | 307.95879 | 177.84263 | 23.52684 | 0.2187539 | 0.27394051 | 2.3480024 | 20 | — | — |
| 190360 1999 FL ₇₀ | 17.0 | X | 269.49628 | 308.82197 | 200.01644 | 1.04231 | 0.1078222 | 0.26419189 | 2.4054134 | 20 | — | — |
| 190361 1999 FM ₈₂ | 16.4 | X | 349.06210 | 109.67898 | 165.14635 | 13.49984 | 0.1964586 | 0.23819445 | 2.5773988 | 20 | 6 15.6 | 19.0 |
| 190362 1999 JX ₉₉ | 15.4 | X | 23.08230 | 124.61174 | 119.16892 | 10.41256 | 0.1628225 | 0.23725434 | 2.5842029 | 20 | 7 10.5 | 17.8 |
| 190363 1999 JL ₁₃₄ | 15.9 | X | 270.85731 | 154.81468 | 139.00235 | 14.33413 | 0.1667286 | 0.22832620 | 2.6511373 | 20 | 3 12.3 | 19.9 |
| 190364 1999 LJ ₄ | 15.1 | X | 349.26258 | 91.79648 | 126.30067 | 28.80877 | 0.3229394 | 0.23210926 | 2.6222519 | 20 | 3 1.6 | 17.6 |
| 190365 1999 RS ₂₃ | 15.7 | X | 181.11730 | 227.50431 | 158.47647 | 9.00335 | 0.1632684 | 0.21722434 | 2.7407141 | 20 | 4 10.5 | 20.3 |
| 190366 1999 RW ₃₉ | 15.9 | X | 227.69388 | 12.10493 | 347.26853 | 4.46668 | 0.2827783 | 0.21981557 | 2.7191328 | 20 | 4 9.6 | 20.8 |
| 190367 1999 RE ₅₄ | 15.5 | X | 260.61979 | 333.44824 | 341.51855 | 11.58804 | 0.1886226 | 0.22333314 | 2.6905058 | 20 | 3 20.4 | 19.8 |
| 190368 1999 RM ₅₆ | 15.6 | X | 124.32705 | 123.81290 | 160.31839 | 9.53930 | 0.3124988 | 0.21218035 | 2.7839789 | 20 | 4 30.9 | 20.6 |
| 190369 1999 RT ₇₂ | 15.8 | X | 155.45908 | 201.40997 | 316.21185 | 13.99539 | 0.1613670 | 0.21221901 | 2.7836408 | 20 | 2 15.1 | 20.2 |
| 190370 1999 RZ ₇₈ | 15.2 | X | 23.93520 | 200.35984 | 345.91146 | 16.18613 | 0.1092140 | 0.22056908 | 2.7129365 | 20 | 4 5.6 | 18.5 |
| 190371 1999 RX ₈₁ | 15.9 | X | 202.16728 | 152.26494 | 226.96786 | 3.03707 | 0.2456653 | 0.21939467 | 2.7226093 | 20 | 4 16.4 | 20.7 |
| 190372 1999 RW ₈₂ | 15.9 | X | 157.63277 | 42.86995 | 345.76018 | 8.76161 | 0.2749006 | 0.21407920 | 2.7674922 | 20 | 3 25.5 | 20.8 |
| 190373 1999 RY ₈₄ | 15.9 | X | 153.09975 | 39.94911 | 333.90296 | 3.38749 | 0.2188973 | 0.21235098 | 2.7824874 | 20 | 3 3.2 | 20.4 |
| 190374 1999 RG ₈₆ | 15.6 | X | 212.84220 | 16.81805 | 11.66197 | 11.87138 | 0.1931192 | 0.22170224 | 2.7036844 | 20 | 5 4.9 | 20.2 |
| 190375 1999 RY ₉₈ | 15.3 | X | 264.58442 | 338.51925 | 14.17476 | 25.84945 | 0.1197916 | 0.22396303 | 2.6854588 | 20 | 5 12.5 | 19.5 |
| 190376 1999 RE ₁₀₄ | 15.3 | X | 265.85314 | 352.68566 | 312.31028 | 14.02774 | 0.1907773 | 0.22132376 | 2.7067658 | 20 | 3 9.9 | 19.7 |
| 190377 1999 RE ₁₀₇ | 15.8 | X | 141.93869 | 238.61183 | 152.12566 | 9.81288 | 0.1678629 | 0.21243029 | 2.7817948 | 20 | 3 10.8 | 20.2 |
| 190378 1999 RN ₁₀₈ | 15.6 | X | 253.35468 | 43.76794 | 288.45232 | 6.91658 | 0.1823524 | 0.22216969 | 2.6998907 | 20 | 4 3.2 | 19.9 |
| 190379 1999 RQ ₁₂₃ | 15.6 | X | 205.78811 | 151.43326 | 223.25083 | 8.17668 | 0.3243671 | 0.21922489 | 2.7240149 | 20 | 4 11.5 | 20.6 |
| 190380 1999 RS ₁₂₃ | 15.8 | X | 208.91827 | 285.61041 | 100.42064 | 3.03187 | 0.1476404 | 0.22178642 | 2.7030002 | 20 | 5 4.6 | 20.0 |
| 190381 1999 RJ ₁₃₂ | 15.5 | X | 205.60011 | 73.97124 | 294.56833 | 6.46880 | 0.1885810 | 0.22038170 | 2.7144741 | 20 | 4 4.6 | 20.1 |
| 190382 1999 RY ₁₃₄ | 15.6 | X | 193.59597 | 205.87827 | 169.57432 | 9.54057 | 0.1576357 | 0.21968088 | 2.7202441 | 20 | 4 8.0 | 20.0 |
| 190383 1999 RN ₁₅₁ | 15.4 | X | 282.86586 | 40.55721 | 0.96600 | 5.20650 | 0.2788251 | 0.23184957 | 2.6242096 | 20 | 7 30.7 | 18.5 |
| 190384 1999 RZ ₁₈₁ | 16.2 | X | 203.87852 | 344.60818 | 347.14455 | 4.72660 | 0.1674068 | 0.21532285 | 2.7568256 | 20 | 2 23.8 | 20.6 |
| 190385 1999 RP ₂₀₂ | 15.4 | X | 136.57156 | 189.48441 | 229.51052 | 8.63040 | 0.2524298 | 0.21346585 | 2.7727909 | 20 | 4 13.2 | 20.0 |
| 190386 1999 RU ₂₀₂ | 15.5 | X | 258.05353 | 89.00745 | 234.24623 | 8.17185 | 0.2177832 | 0.22159373 | 2.7045670 | 20 | 3 25.2 | 19.9 |
| 190387 1999 RL ₂₀₉ | 15.6 | X | 203.84701 | 63.54498 | 264.34455 | 6.93133 | 0.2055714 | 0.21376912 | 2.7701678 | 20 | 2 15.9 | 20.4 |
| 190388 1999 RW ₂₄₇ | 15.7 | X | 202.08951 | 33.18759 | 343.54274 | 5.60742 | 0.0410548 | 0.22058316 | 2.7128211 | 20 | 4 16.1 | 19.6 |
| 190389 1999 SC ₁₅ | 15.4 | X | 227.78231 | 60.54540 | 310.58248 | 10.15278 | 0.1744829 | 0.22151070 | 2.7052428 | 20 | 4 26.9 | 20.0 |
| 190390 1999 TD ₆₀ | 16.0 | X | 267.81627 | 325.45528 | 336.92563 | 3.03905 | 0.0460744 | 0.21932848 | 2.7231571 | 20 | 3 31.7 | 19.9 |
| 190391 1999 TL ₇₇ | 16.1 | X | 63.13384 | 149.00627 | 262.73825 | 1.01419 | 0.0559095 | 0.20135675 | 2.8828713 | 20 | — | — |
| 190392 1999 TL ₈₂ | 15.7 | X | 151.31730 | 181.84338 | 189.45410 | 9.35992 | 0.1643249 | 0.21100372 | 2.7943190 | 20 | 2 22.0 | 20.1 |
| 190393 1999 TO ₁₀₁ | 15.4 | X | 167.50598 | 251.61391 | 160.21058 | 16.53389 | 0.3042969 | 0.21551910 | 2.7551518 | 20 | 5 5.5 | 20.7 |
| 190394 1999 TS ₁₀₈ | 15.6 | | | | | | | | | | | |

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

| Planet | <i>H</i> | <i>G</i> | <i>M</i> | ω | Ω | <i>i</i> | <i>e</i> | μ | <i>a</i> | TE | Oppos. | <i>V</i> |
|--------------------------------------|----------|----------|-----------|-----------|-----------|----------|-----------|------------|-----------|----|---------|----------|
| 190401 1999 <i>TL</i> ₁₄₅ | 15.7 | X | 173.19138 | 23.99772 | 15.38656 | 3.68057 | 0.0972066 | 0.21726382 | 2.7403821 | 20 | 4 14.9 | 19.8 |
| 190402 1999 <i>TK</i> ₁₆₈ | 15.9 | X | 128.10438 | 70.22239 | 321.59982 | 3.26660 | 0.1124662 | 0.20976361 | 2.8053214 | 20 | 2 19.7 | 20.0 |
| 190403 1999 <i>TV</i> ₁₉₁ | 15.5 | X | 187.22629 | 91.47465 | 273.12400 | 7.61822 | 0.2297807 | 0.21403740 | 2.7678524 | 20 | 3 15.8 | 20.5 |
| 190404 1999 <i>TA</i> ₁₉₂ | 15.2 | X | 226.35074 | 6.80492 | 347.61962 | 12.60892 | 0.1748499 | 0.21783303 | 2.7356061 | 20 | 4 5.4 | 19.8 |
| 190405 1999 <i>TF</i> ₁₉₃ | 15.4 | X | 224.52142 | 76.73122 | 286.64663 | 8.14633 | 0.1720886 | 0.21822786 | 2.7323055 | 20 | 4 15.2 | 20.0 |
| 190406 1999 <i>TR</i> ₁₉₄ | 15.3 | X | 230.59810 | 355.44129 | 11.55114 | 14.67815 | 0.2243557 | 0.21944647 | 2.7221809 | 20 | 4 22.1 | 19.9 |
| 190407 1999 <i>TK</i> ₂₃₁ | 15.7 | X | 192.20633 | 219.15153 | 124.14454 | 6.22060 | 0.1677110 | 0.21385514 | 2.7694248 | 20 | 2 28.5 | 20.3 |
| 190408 1999 <i>TM</i> ₂₄₅ | 15.6 | X | 218.88831 | 173.90953 | 171.86040 | 11.86699 | 0.2602805 | 0.21704442 | 2.7422285 | 20 | 3 21.2 | 20.5 |
| 190409 1999 <i>TR</i> ₂₄₆ | 16.1 | X | 235.57702 | 140.06477 | 192.49681 | 4.61998 | 0.1181589 | 0.21948830 | 2.7218350 | 20 | 3 25.9 | 20.2 |
| 190410 1999 <i>TX</i> ₂₅₃ | 16.0 | X | 327.31379 | 42.08473 | 206.60655 | 4.93322 | 0.0163408 | 0.22009643 | 2.7168190 | 20 | 4 14.1 | 19.5 |
| 190411 1999 <i>TF</i> ₂₅₄ | 15.9 | X | 148.55174 | 45.50411 | 330.31218 | 4.25646 | 0.0939994 | 0.21233894 | 2.7821995 | 20 | 2 20.4 | 20.1 |
| 190412 1999 <i>TN</i> ₂₆₇ | 15.2 | X | 126.98818 | 106.00453 | 293.67424 | 11.08258 | 0.1313710 | 0.21084188 | 2.7957487 | 20 | 2 25.9 | 19.5 |
| 190413 1999 <i>TN</i> ₂₈₄ | 15.6 | X | 158.05803 | 195.98309 | 172.50772 | 8.79805 | 0.2401549 | 0.21008853 | 2.8024282 | 20 | 3 2.0 | 20.2 |
| 190414 1999 <i>TF</i> ₃₁₉ | 16.1 | X | 222.28119 | 132.30328 | 184.97166 | 9.01567 | 0.1538061 | 0.21446103 | 2.7642063 | 20 | 2 20.7 | 20.8 |
| 190415 1999 <i>UP</i> ₁ | 15.9 | X | 149.65826 | 340.53692 | 38.74013 | 8.97920 | 0.2513007 | 0.21120355 | 2.7925561 | 20 | 3 13.0 | 20.7 |
| 190416 1999 <i>UH</i> ₈ | 15.6 | X | 255.86267 | 324.21631 | 40.91543 | 11.84818 | 0.1741376 | 0.22202826 | 2.7010371 | 20 | 5 20.5 | 19.8 |
| 190417 1999 <i>UU</i> ₁₂ | 15.6 | X | 197.91983 | 59.73478 | 357.71889 | 8.71787 | 0.2473403 | 0.22110810 | 2.7085256 | 20 | 5 27.7 | 20.5 |
| 190418 1999 <i>UO</i> ₃₅ | 15.6 | X | 158.58736 | 219.53339 | 195.03539 | 16.80798 | 0.3591918 | 0.21353392 | 2.7722015 | 20 | 5 2.0 | 20.9 |
| 190419 1999 <i>VO</i> ₅₄ | 16.0 | X | 181.37085 | 154.21038 | 212.33324 | 3.52089 | 0.2235366 | 0.21347143 | 2.7727426 | 20 | 3 16.5 | 20.8 |
| 190420 1999 <i>VZ</i> ₇₀ | 16.0 | X | 152.54177 | 312.24287 | 76.15647 | 2.98416 | 0.2399305 | 0.21046046 | 2.7991255 | 20 | 3 22.9 | 20.7 |
| 190421 1999 <i>VN</i> ₇₉ | 15.5 | X | 123.49272 | 151.22034 | 255.87379 | 8.00615 | 0.1558157 | 0.21001254 | 2.8031041 | 20 | 3 5.7 | 19.8 |
| 190422 1999 <i>VG</i> ₉₂ | 16.2 | X | 216.65254 | 145.87272 | 270.65582 | 11.54526 | 0.2263502 | 0.21832690 | 2.7314791 | 20 | 3 27.4 | 21.0 |
| 190423 1999 <i>VZ</i> ₁₀₇ | 15.8 | X | 132.41663 | 64.58925 | 305.95399 | 1.11738 | 0.0880237 | 0.20401488 | 2.8577758 | 20 | 1 27.7 | 19.9 |
| 190424 1999 <i>VA</i> ₁₁₄ | 15.2 | X | 145.95905 | 107.00791 | 275.29298 | 7.16116 | 0.2415518 | 0.21055235 | 2.7983110 | 20 | 3 5.6 | 20.0 |
| 190425 1999 <i>VU</i> ₁₃₇ | 16.0 | X | 180.55304 | 101.35101 | 236.43343 | 1.06805 | 0.0758177 | 0.20684235 | 2.8316728 | 20 | 2 7.2 | 20.3 |
| 190426 1999 <i>VW</i> ₁₃₈ | 17.2 | X | 272.96482 | 197.75805 | 87.15549 | 4.27512 | 0.1898224 | 0.30920034 | 2.1659216 | 20 | 2 20.7 | 20.3 |
| 190427 1999 <i>VV</i> ₁₅₀ | 15.8 | X | 179.71036 | 353.43214 | 16.62048 | 4.47703 | 0.0865456 | 0.21103944 | 2.7940036 | 20 | 3 17.7 | 20.0 |
| 190428 1999 <i>VS</i> ₁₅₉ | 15.7 | X | 168.61703 | 329.52671 | 21.51731 | 8.35311 | 0.2357232 | 0.21076668 | 2.7964137 | 20 | 2 22.6 | 20.5 |
| 190429 1999 <i>VB</i> ₁₈₀ | 15.5 | X | 173.44350 | 236.80236 | 173.69724 | 13.69769 | 0.2080104 | 0.21520472 | 2.7578344 | 20 | 5 5.0 | 20.3 |
| 190430 1999 <i>VB</i> ₁₈₉ | 15.2 | X | 170.00684 | 197.47013 | 224.51718 | 13.60205 | 0.1350772 | 0.21505373 | 2.7591251 | 20 | 5 11.9 | 19.4 |
| 190431 1999 <i>VZ</i> ₁₉₄ | 15.0 | X | 311.32242 | 35.50014 | 287.54609 | 12.37010 | 0.1910449 | 0.22670588 | 2.6637545 | 20 | 6 8.1 | 18.1 |
| 190432 1999 <i>WO</i> ₁₇ | 15.9 | X | 166.01169 | 163.75760 | 225.52362 | 4.08497 | 0.1256617 | 0.21448226 | 2.7640240 | 20 | 3 26.7 | 20.2 |
| 190433 1999 <i>XC</i> ₅₉ | 15.7 | X | 101.35612 | 98.26402 | 323.70072 | 0.69405 | 0.0542829 | 0.20509480 | 2.8477352 | 20 | 2 17.8 | 19.6 |
| 190434 1999 <i>XX</i> ₇₈ | 15.1 | X | 231.21085 | 103.19193 | 243.52316 | 7.65859 | 0.1865069 | 0.21482513 | 2.7610821 | 20 | 4 1.3 | 19.6 |
| 190435 1999 <i>XN</i> ₁₄₆ | 15.0 | X | 313.07928 | 70.41508 | 77.30857 | 3.17614 | 0.0761685 | 0.19649086 | 2.9302711 | 20 | — | — |
| 190436 1999 <i>XT</i> ₁₈₁ | 15.3 | X | 157.22590 | 123.77595 | 312.80820 | 7.23611 | 0.3001896 | 0.21437527 | 2.7649435 | 20 | 5 22.2 | 20.4 |
| 190437 1999 <i>XS</i> ₁₈₂ | 15.0 | X | 78.74675 | 171.01037 | 279.92326 | 14.18023 | 0.1010461 | 0.20545499 | 2.8444060 | 20 | 2 24.1 | 19.0 |
| 190438 1999 <i>XD</i> ₁₉₃ | 15.3 | X | 163.49708 | 65.57155 | 321.85878 | 6.66210 | 0.2457113 | 0.20982285 | 2.8047933 | 20 | 3 26.5 | 20.2 |
| 190439 1999 <i>XQ</i> ₂₀₃ | 15.1 | X | 107.48730 | 328.98264 | 71.13053 | 15.79999 | 0.2588177 | 0.20244379 | 2.8725421 | 20 | 3 5.7 | 19.7 |
| 190440 1999 <i>XV</i> ₂₁₇ | 16.0 | X | 99.57794 | 39.26513 | 331.64203 | 1.07181 | 0.0836262 | 0.19417670 | 2.9535067 | 20 | — | — |
| 190441 1999 <i>XB</i> ₂₂₀ | 15.9 | X | 149.86858 | 40.72866 | 0.39589 | 8.60392 | 0.2058778 | 0.21063728 | 2.7975588 | 20 | 3 31.3 | 20.6 |
| 190442 1999 <i>XE</i> ₂₂₅ | 13.0 | X | 264.40631 | 115.59158 | 354.04810 | 0.84586 | 0.1470783 | 0.08269206 | 5.2178729 | 20 | 9 30.3 | 19.9 |
| 190443 1999 <i>XS</i> ₂₄₆ | 17.8 | X | 80.54664 | 164.20669 | 334.39164 | 1.25537 | 0.1138001 | 0.30759236 | 2.1734635 | 20 | 5 3.4 | 19.9 |
| 190444 1999 <i>YM</i> ₉ | 14.9 | X | 160.60811 | 86.67270 | 339.24206 | 5.20576 | 0.2673656 | 0.21116467 | 2.7928988 | 20 | 5 10.6 | 20.0 |
| 190445 1999 <i>YB</i> ₁₀ | 16.0 | X | 77.37908 | 281.23774 | 144.17227 | 2.75136 | 0.0543482 | 0.20300867 | 2.8672110 | 20 | 1 22.1 | 19.6 |
| 190446 2000 <i>AL</i> ₈ | 12.4 | X | 310.80200 | 52.69318 | 345.71963 | 7.45237 | 0.1093899 | 0.08372249 | 5.1749714 | 20 | 9 11.2 | 18.8 |
| 190447 2000 <i>AR</i> ₁₁ | 15.3 | X | 33.70034 | 120.47391 | 306.32034 | 4.10917 | 0.1216901 | 0.19623893 | 2.9327785 | 20 | — | — |
| 190448 2000 <i>AO</i> ₃₅ | 16.8 | X | 152.35566 | 162.23485 | 286.97932 | 3.05833 | 0.0987048 | 0.30887538 | 2.1674405 | 20 | 5 25.6 | 19.6 |
| 190449 2000 <i>AO</i> ₅₂ | 14.9 | X | 192.67574 | 178.38523 | 249.74055 | 12.47887 | 0.2223023 | 0.21944522 | 2.7221913 | 20 | 6 8.2 | 19.6 |
| 190450 2000 <i>AZ</i> ₇₈ | 15.4 | X | 168.24532 | 277.66747 | 144.79623 | 5.79869 | 0.2696212 | 0.21321921 | 2.7749287 | 20 | 5 15.6 | 20.4 |
| 190451 2000 <i>AX</i> ₁₄₆ | 16.4 | X | 192.16979 | 317.64672 | 125.42746 | 24.42915 | 0.2299804 | 0.31221143 | 2.1519732 | 20 | 6 30.1 | 20.1 |
| 190452 2000 <i>AS</i> ₂₁₁ | 15.5 | X | 76.18813 | 55.12619 | 312.38115 | 17.11968 | 0.1952450 | 0.18989838 | 2.9977026 | 20 | — | — |
| 190453 2000 <i>AQ</i> ₂₃₅ | 15.6 | X | 267.95876 | 344.87190 | 171.90245 | 1.06363 | 0.1133855 | 0.18601182 | 3.0393148 | 20 | 12 23.4 | 19.6 |
| 190454 2000 <i>BR</i> ₁₂ | 15.8 | X | 165.10016 | 169.86734 | 27.60020 | 0.77661 | 0.1085149 | 0.17448045 | 3.1717932 | 20 | 10 18.5 | 20.6 |
| 190455 2000 <i>BU</i> ₁₃ | 15.4 | X | 29.46056 | 273.24430 | 133.06001 | 9.59946 | 0.1266696 | 0.18841012 | 3.0134679 | 20 | — | — |
| 190456 2000 <i>BC</i> ₃₂ | 14.9 | X | 307.47262 | 306.88563 | 153.27763 | 8.90539 | 0.1272336 | 0.18383076 | 3.0633075 | 20 | 12 11.1 | 18.7 |
| 190457 2000 <i>BR</i> ₃₂ | 15.2 | X | 33.88232 | 113.91183 | 305.30822 | 9.38749 | 0.1091863 | 0.19116713 | 2.9844243 | 20 | — | — |
| 190458 2000 <i>BG</i> ₄₀ | 12.6 | X | 15.51340 | 231.57758 | 97.16135 | 4.55683 | 0.0576581 | 0.08092326 | 5.2936326 | 20 | 9 21.1 | 19.3 |
| 190459 2000 <i>CN</i> ₇ | 14.5 | X | 86.91332 | 37.98940 | 334.55539 | 9.50206 | 0.0989858 | 0.19098953 | 2.9862741 | 20 | — | — |
| 190460 2000 <i>CO</i> ₉ | 14.8 | X | 41.18484 | 121.51360 | 288.41744 | 8.81831 | 0.0989000 | 0.19147635 | 2.9812103 | 20 | — | — |
| 190461 2000 <i>CP</i> ₃₉ | 16.7 | X | 348.22546 | 51.03796 | 138.16945 | 5.97724 | 0.0989466 | 0.29485085 | 2.2356362 | 20 | 2 3.3 | 18.8 |
| 190462 2000 <i>CY</i> ₄₁ | 16.8 | X | 182.25023 | 101.59257 | 288.63989 | 4.57946 | 0.1206648 | 0.30346315 | 2.1931352 | 20 | 4 6.7 | 20.0 |
| 190463 2000 <i>CE</i> ₅₇ | 15.4 | X | 92.82381 | 88.44178 | 347.59571 | 11.20748 | 0.1769285 | 0.20105045 | 2.8857986 | 20 | 3 13.2 | 19.2 |
| 190464 2000 <i>CU</i> ₅₉ | 15.2 | X | 320.26268 | 308.82299 | 147.37864 | 12.98578 | 0.0861723 | 0.18426909 | 3.0584477 | 20 | 12 26.8 | 19.3 |
| 190465 2000 <i>CS</i> ₇₈ | 17.0 | X | 173.59274 | 87.69543 | 154.06766 | 6.14629 | 0.2413132 | 0.27562321 | 2.3384362 | 20 | 12 26.8 | 20.9 |
| 190466 2000 <i>CH</i> ₁₀₂ | 15.0 | X | 325.27250 | 312.81835 | 164.14240 | 14.14879 | 0.1293626 | 0.18669274 | 3.0319202 | 20 | — | — |
| 190467 2000 <i>CP</i> ₁₁₁ | 15.1 | X | 266.78769 | 148.30508 | 337.83856 | 16.18534 | 0.1198606 | 0.18004092 | 3.1061463 | 20 | 11 4.7 | 19.7 |
| 190468 2000 <i>CQ</i> ₁₃₈ | 16.9 | X | 183.37684 | 120.52074 | 140.09764 | 6.79083 | 0.0966073 | 0.28241720 | 2.3007810 | 20 | — | — |
| 190469 2000 <i>DC</i> ₁₀ | 15.3 | X | 41.58698 | 62.16784 | 328.78385 | 8.95708 | 0.1955870 | 0.18727452 | 3.0256377 | 20 | — | — |
| 190470 2000 <i>DX</i> ₁₀ | 16.3 | X | 292.30269 | 350.61019 | 131.93372 | 0.97088 | 0.1418289 | 0.18313838 | 3.0710234 | 20 | 12 12.5 | 20.0 |
| 190471 2000 <i>DG</i> ₂₇ | 14.9 | X | 315.26255 | 309.02467 | 160.62146 | 9.58462 | 0.1194359 | 0.18438306 | | | | |

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

| Planet | <i>H</i> | <i>G</i> | <i>M</i> | ω | Ω | <i>i</i> | <i>e</i> | μ | <i>a</i> | TE | Oppos. | <i>V</i> | | |
|--------|----------|-------------------|----------|----------|-----------|-----------|-----------|----------|-----------|-------------|-----------|----------|---------|------|
| 190481 | 2000 | DN ₁₁₁ | 15.3 | X | 344.28008 | 108.50112 | 332.61123 | 12.81657 | 0.1591522 | 0.18471465 | 3.0535274 | 20 | — | — |
| 190482 | 2000 | DU ₁₁₃ | 15.1 | X | 45.75575 | 34.22968 | 324.29110 | 15.80378 | 0.1274137 | 0.18206476 | 3.0830847 | 20 | 12 31.4 | 19.6 |
| 190483 | 2000 | EC ₂ | 16.2 | X | 211.75069 | 45.66005 | 350.64472 | 5.63090 | 0.1328800 | 0.30590956 | 2.1814270 | 20 | 5 17.0 | 19.4 |
| 190484 | 2000 | ET ₂ | 17.0 | X | 103.56810 | 107.34915 | 336.32888 | 5.88062 | 0.1158831 | 0.29699397 | 2.2248682 | 20 | 3 17.9 | 19.5 |
| 190485 | 2000 | EE ₃ | 16.9 | X | 218.20639 | 97.41041 | 164.54750 | 7.43280 | 0.0938486 | 0.28442036 | 2.2899654 | 20 | — | — |
| 190486 | 2000 | EO ₉ | 15.2 | X | 311.44087 | 314.61571 | 168.18390 | 9.45153 | 0.0907332 | 0.18380327 | 3.0636130 | 20 | — | — |
| 190487 | 2000 | EM ₁₀ | 16.9 | X | 287.81671 | 151.35150 | 53.62233 | 0.39826 | 0.0303865 | 0.28693229 | 2.2765810 | 20 | — | — |
| 190488 | 2000 | EF ₅₈ | 16.6 | X | 73.87445 | 150.80415 | 319.46461 | 2.60689 | 0.1190900 | 0.29532600 | 2.2332376 | 20 | 3 11.7 | 18.9 |
| 190489 | 2000 | EW ₆₁ | 15.2 | X | 210.51247 | 355.84796 | 181.98673 | 16.29294 | 0.0895593 | 0.17451006 | 3.1714344 | 20 | 11 13.4 | 20.1 |
| 190490 | 2000 | EU ₁₇₂ | 16.4 | X | 159.96440 | 50.80718 | 333.79371 | 5.65757 | 0.2275251 | 0.30042180 | 2.2079120 | 20 | 3 15.5 | 19.8 |
| 190491 | 2000 | FJ ₁₀ | 20.9 | X | 220.18372 | 232.36095 | 189.76578 | 5.28135 | 0.2345456 | 0.65041998 | 1.3192896 | 20 | 7 6.5 | 21.1 |
| 190492 | 2000 | FL ₄₂ | 14.9 | X | 45.64531 | 37.76750 | 46.99065 | 9.47452 | 0.0337012 | 0.18700304 | 3.0285653 | 20 | 1 6.1 | 19.1 |
| 190493 | 2000 | GO ₁₁ | 17.0 | X | 148.23239 | 100.90510 | 176.97172 | 3.74096 | 0.2271501 | 0.27361346 | 2.3498731 | 20 | — | — |
| 190494 | 2000 | GG ₄₂ | 16.9 | X | 212.14083 | 344.13712 | 209.67679 | 6.83766 | 0.1027884 | 0.27265598 | 2.3553712 | 20 | 12 21.6 | 20.0 |
| 190495 | 2000 | GN ₄₅ | 16.0 | X | 102.74551 | 273.79119 | 35.86500 | 6.25321 | 0.2284356 | 0.26991711 | 2.3712778 | 20 | — | — |
| 190496 | 2000 | GC ₅₅ | 16.6 | X | 116.14891 | 235.57970 | 28.64554 | 4.79022 | 0.1565117 | 0.26652517 | 2.3913541 | 20 | 12 5.6 | 20.5 |
| 190497 | 2000 | GT ₁₀₁ | 16.5 | X | 165.43994 | 253.05839 | 335.78917 | 4.07725 | 0.1866891 | 0.27032880 | 2.3688697 | 20 | 12 6.3 | 20.4 |
| 190498 | 2000 | GB ₁₁₁ | 16.2 | X | 140.04028 | 302.87020 | 344.26244 | 6.30187 | 0.1444281 | 0.27404196 | 2.3474229 | 20 | — | — |
| 190499 | 2000 | GP ₁₁₁ | 17.0 | X | 343.00654 | 290.37061 | 217.57587 | 3.82870 | 0.1170760 | 0.28599329 | 2.2815614 | 20 | — | — |
| 190500 | 2000 | GX ₁₁₁ | 15.2 | X | 256.79160 | 334.82545 | 184.52483 | 10.59081 | 0.1723355 | 0.17814511 | 3.1281443 | 20 | 12 2.6 | 19.6 |
| 190501 | 2000 | GV ₁₄₅ | 17.7 | X | 147.38884 | 354.62242 | 257.60907 | 0.66294 | 0.1482604 | 0.27024240 | 2.3693746 | 20 | 12 20.9 | 21.3 |
| 190502 | 2000 | GT ₁₇₀ | 17.0 | X | 149.45936 | 3.73337 | 266.88724 | 1.81418 | 0.1859698 | 0.27221464 | 2.3579163 | 20 | — | — |
| 190503 | 2000 | GT ₁₇₇ | 17.2 | X | 187.38752 | 213.24884 | 32.52287 | 2.56738 | 0.1415308 | 0.27425242 | 2.3462218 | 20 | — | — |
| 190504 | 2000 | Hermanotto | 17.2 | X | 195.92431 | 58.35167 | 151.23299 | 2.64997 | 0.1329497 | 0.27248538 | 2.3563542 | 20 | 12 18.8 | 20.3 |
| 190505 | 2000 | HS ₄ | 16.8 | X | 280.84941 | 335.00983 | 180.47301 | 5.46569 | 0.1298047 | 0.27723235 | 2.3293788 | 20 | — | — |
| 190506 | 2000 | HO ₁₈ | 16.6 | X | 214.33988 | 291.32433 | 52.40881 | 4.94179 | 0.1721492 | 0.29059245 | 2.2574241 | 20 | 3 14.6 | 20.1 |
| 190507 | 2000 | HU ₂₆ | 16.5 | X | 105.34030 | 46.36811 | 203.77886 | 1.75359 | 0.1639135 | 0.26301163 | 2.4126042 | 20 | 11 8.9 | 20.1 |
| 190508 | 2000 | HM ₄₃ | 17.0 | X | 105.43129 | 64.41454 | 242.56817 | 0.99532 | 0.1734603 | 0.26847644 | 2.3797533 | 20 | — | — |
| 190509 | 2000 | HX ₄₇ | 16.9 | X | 191.88382 | 14.99641 | 208.90780 | 6.55404 | 0.1170943 | 0.27159060 | 2.3615269 | 20 | — | — |
| 190510 | 2000 | HH ₆₀ | 16.6 | X | 77.58262 | 282.84764 | 20.96732 | 2.49129 | 0.2135993 | 0.26464562 | 2.4026633 | 20 | 12 22.8 | 20.4 |
| 190511 | 2000 | HL ₇₂ | 16.8 | X | 107.20321 | 330.91294 | 328.33309 | 1.69553 | 0.2100156 | 0.26827158 | 2.3809646 | 20 | — | — |
| 190512 | 2000 | JE ₂₂ | 16.4 | X | 69.93632 | 257.01123 | 35.36645 | 7.53487 | 0.2538905 | 0.26104966 | 2.4246774 | 20 | 12 3.9 | 20.3 |
| 190513 | 2000 | JT ₂₅ | 16.6 | X | 3.85333 | 173.18828 | 11.85335 | 6.94524 | 0.0489906 | 0.29079628 | 2.2563691 | 20 | 3 2.8 | 18.9 |
| 190514 | 2000 | JO ₄₂ | 17.1 | X | 120.94887 | 69.49087 | 183.54780 | 2.35720 | 0.1600243 | 0.26490318 | 2.4011057 | 20 | 11 27.2 | 20.8 |
| 190515 | 2000 | JO ₄₉ | 17.0 | X | 111.71073 | 345.84007 | 265.89828 | 1.98069 | 0.1788642 | 0.26298668 | 2.4127568 | 20 | 11 16.9 | 21.0 |
| 190516 | 2000 | JT ₇₃ | 15.7 | X | 150.81447 | 100.72749 | 87.31185 | 13.59399 | 0.1422415 | 0.26151244 | 2.4218160 | 20 | 10 11.1 | 19.7 |
| 190517 | 2000 | KE ₈ | 16.9 | X | 79.65829 | 144.01482 | 129.23146 | 3.93651 | 0.1803565 | 0.25940459 | 2.4349176 | 20 | 11 14.9 | 20.6 |
| 190518 | 2000 | KF ₄₃ | 17.0 | X | 49.21133 | 272.47408 | 54.58159 | 2.17760 | 0.1887093 | 0.26277809 | 2.4140334 | 20 | 12 21.3 | 20.3 |
| 190519 | 2000 | NR ₁₇ | 16.6 | X | 345.76787 | 237.08385 | 68.15465 | 4.99243 | 0.2916311 | 0.24578915 | 2.5240284 | 20 | 7 30.5 | 17.8 |
| 190520 | 2000 | PN ₂₆ | 15.6 | X | 281.40785 | 38.94163 | 1.66217 | 12.40583 | 0.2838137 | 0.24071712 | 2.5593601 | 20 | 7 30.2 | 18.9 |
| 190521 | 2000 | QV ₂₁ | 16.9 | X | 299.77035 | 201.44100 | 151.82364 | 4.41247 | 0.1939702 | 0.24219130 | 2.5489639 | 20 | 7 2.1 | 19.6 |
| 190522 | 2000 | QM ₄₄ | 16.2 | X | 311.49220 | 216.30951 | 146.26627 | 7.00322 | 0.1319633 | 0.24579971 | 2.5239562 | 20 | 8 17.5 | 18.8 |
| 190523 | 2000 | QK ₉₃ | 16.0 | X | 298.83305 | 234.94776 | 161.45251 | 16.02123 | 0.3060296 | 0.24337881 | 2.5406658 | 20 | 8 13.6 | 18.4 |
| 190524 | 2000 | QJ ₁₀₈ | 16.3 | X | 270.88838 | 67.45170 | 354.25455 | 6.67194 | 0.2659120 | 0.24336754 | 2.5407443 | 20 | 8 14.2 | 19.5 |
| 190525 | 2000 | QX ₁₂₄ | 16.0 | X | 23.76515 | 30.54739 | 37.47752 | 3.03018 | 0.1780453 | 0.26297065 | 2.4128548 | 20 | — | — |
| 190526 | 2000 | QC ₁₇₀ | 16.5 | X | 298.80903 | 73.87932 | 298.67411 | 3.90806 | 0.1842277 | 0.24333359 | 2.5409805 | 20 | 7 31.3 | 18.9 |
| 190527 | 2000 | QB ₁₈₀ | 16.4 | X | 272.36818 | 50.70421 | 348.39682 | 11.86366 | 0.3093726 | 0.24156247 | 2.5533856 | 20 | 7 9.7 | 20.2 |
| 190528 | 2000 | QA ₁₈₁ | 15.2 | X | 290.04836 | 136.55786 | 277.93576 | 4.54729 | 0.3006883 | 0.24044743 | 2.5612735 | 20 | 8 23.8 | 17.9 |
| 190529 | 2000 | QD ₁₈₄ | 16.0 | X | 289.98688 | 46.12103 | 349.73428 | 4.26519 | 0.1724996 | 0.24665056 | 2.5181483 | 20 | 8 22.9 | 18.6 |
| 190530 | 2000 | QS ₁₈₉ | 16.2 | X | 228.13672 | 298.50712 | 50.42586 | 5.45667 | 0.1248900 | 0.28251346 | 2.3002584 | 20 | 4 5.7 | 19.5 |
| 190531 | 2000 | QS ₁₉₄ | 16.5 | X | 18.46600 | 29.27795 | 282.65642 | 5.53592 | 0.1332056 | 0.25002531 | 2.4954377 | 20 | 10 6.3 | 19.5 |
| 190532 | 2000 | QQ ₂₁₅ | 16.4 | X | 317.31795 | 349.64963 | 9.59704 | 7.54711 | 0.2603507 | 0.24410431 | 2.5356292 | 20 | 8 11.5 | 18.3 |
| 190533 | 2000 | RN ₅ | 15.7 | X | 280.34952 | 355.83752 | 0.00783 | 7.82589 | 0.2049748 | 0.23737701 | 2.5833125 | 20 | 6 3.6 | 19.2 |
| 190534 | 2000 | RH ₈ | 16.9 | X | 103.69044 | 238.65898 | 181.00087 | 21.42272 | 0.1143729 | 0.237185169 | 1.9152386 | 20 | 1 27.1 | 19.0 |
| 190535 | 2000 | RM ₂₈ | 16.2 | X | 310.91290 | 13.69093 | 326.10239 | 3.95897 | 0.2502080 | 0.24129022 | 2.5553060 | 20 | 6 22.9 | 18.6 |
| 190536 | 2000 | RQ ₃₅ | 17.0 | X | 73.47400 | 74.04449 | 359.94718 | 20.76370 | 0.0901966 | 0.36829792 | 1.9275391 | 20 | — | — |
| 190537 | 2000 | RS ₄₅ | 15.9 | X | 299.63874 | 29.69202 | 341.39676 | 4.60679 | 0.2555404 | 0.24090301 | 2.5580433 | 20 | 7 19.0 | 18.6 |
| 190538 | 2000 | RS ₄₈ | 16.3 | X | 168.92940 | 131.53786 | 217.02937 | 20.55357 | 0.0887961 | 0.36917995 | 1.9244678 | 20 | 1 11.2 | 19.1 |
| 190539 | 2000 | RX ₆₀ | 15.9 | X | 288.22911 | 77.29741 | 320.65861 | 6.21600 | 0.3011791 | 0.24079587 | 2.5588021 | 20 | 7 29.9 | 18.9 |
| 190540 | 2000 | RE ₆₇ | 15.9 | X | 292.47231 | 156.88694 | 191.63814 | 17.97024 | 0.2085570 | 0.23865914 | 2.5740521 | 20 | 6 10.9 | 19.4 |
| 190541 | 2000 | RO ₇₇ | 16.0 | X | 127.21135 | 147.29198 | 230.73626 | 25.58191 | 0.2163237 | 0.36685524 | 1.9325893 | 20 | 1 14.2 | 18.7 |
| 190542 | 2000 | RR ₇₈ | 17.1 | X | 0.07504 | 108.88330 | 183.78093 | 6.74430 | 0.1414370 | 0.24339371 | 2.5405621 | 20 | 8 5.2 | 19.7 |
| 190543 | 2000 | RM ₈₀ | 17.3 | X | 309.72136 | 37.61460 | 313.44952 | 6.18273 | 0.3616522 | 0.24300603 | 2.5432634 | 20 | 6 15.9 | 19.8 |
| 190544 | 2000 | RQ ₈₇ | 16.7 | X | 290.40203 | 162.01357 | 217.05393 | 2.43633 | 0.1687746 | 0.24239267 | 2.5475520 | 20 | 7 28.0 | 19.7 |
| 190545 | 2000 | RZ ₈₉ | 16.2 | X | 8.94427 | 96.98035 | 208.59754 | 5.47841 | 0.1677088 | 0.246657051 | 2.5186933 | 20 | 9 15.9 | 18.8 |
| 190546 | 2000 | SW ₁₄ | 15.8 | X | 277.73680 | 206.83187 | 112.25677 | 12.73848 | 0.1571777 | 0.23450749 | 2.6043433 | 20 | 4 25.6 | 19.6 |
| 190547 | 2000 | SA ₁₉ | 16.0 | X | 10.14471 | 26.26128 | 301.35174 | 3.91725 | 0.0061141 | 0.24732455 | 2.5135714 | 20 | 9 29.7 | 19.2 |
| 190548 | 2000 | SU ₂₈ | 16.2 | X | 301.64128 | 148.77611 | 240.23577 | 7.14336 | 0.3138034 | 0.24306871 | 2.5428262 | 20 | 8 4.6 | 18.7 |
| 190549 | 2000 | SP ₃₇ | 15.5 | X | 1.56665 | 348.69536 | 41.64599 | 6.32427 | 0.1235697 | 0.25332897 | 2.4736950 | 20 | 12 30.4 | 18.4 |
| 190550 | 2000 | SD ₄₄ | 16.5 | X | 323.85017 | 217.74438 | 351.66679 | 18 | | | | | | |

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

| Planet | <i>H</i> | <i>G</i> | <i>M</i> | ω | Ω | <i>i</i> | <i>e</i> | μ | <i>a</i> | TE | Oppos. | <i>V</i> |
|-------------------------------|-------------------|----------|-----------|-----------|-----------|-----------|-----------|------------|-----------|----|---------|----------|
| 190561 2000 SY ₉₉ | 16.0 ^m | X | 297.78323 | 63.82963 | 323.94028 | 12.048891 | 0.1795055 | 0.24272714 | 2.5452112 | 20 | 8 21.6 | 18.5 |
| 190562 2000 SP ₁₀₆ | 16.9 | X | 319.23024 | 3.44567 | 21.98193 | 1.37186 | 0.1692247 | 0.24610446 | 2.5218721 | 20 | 10 5.1 | 19.1 |
| 190563 2000 SL ₁₂₃ | 15.9 | X | 293.13050 | 178.01005 | 182.35536 | 12.40882 | 0.1997555 | 0.23881443 | 2.5729361 | 20 | 6 29.5 | 19.3 |
| 190564 2000 SU ₁₂₈ | 15.4 | X | 132.41288 | 176.34306 | 11.75329 | 5.87794 | 0.0770282 | 0.24236880 | 2.5477193 | 20 | 9 12.6 | 19.0 |
| 190565 2000 SU ₁₃₁ | 15.0 | X | 28.41304 | 278.63532 | 323.27569 | 27.13720 | 0.1330724 | 0.23887070 | 2.5725320 | 20 | 7 22.4 | 18.2 |
| 190566 2000 SJ ₁₃₂ | 16.0 | X | 206.56405 | 107.58698 | 317.94731 | 16.42155 | 0.1905496 | 0.23445743 | 2.6047141 | 20 | 6 19.5 | 20.6 |
| 190567 2000 SL ₁₃₇ | 16.8 | X | 307.46505 | 353.45306 | 330.01669 | 6.08509 | 0.3231270 | 0.24025273 | 2.5626570 | 20 | 5 6.5 | 19.9 |
| 190568 2000 SQ ₁₈₃ | 17.1 | X | 335.18122 | 179.90410 | 145.56627 | 8.51314 | 0.2602904 | 0.24442447 | 2.5534146 | 20 | 7 30.3 | 18.5 |
| 190569 2000 SY ₁₉₀ | 16.1 | X | 329.99920 | 96.40944 | 214.91155 | 9.51247 | 0.1799882 | 0.23971390 | 2.5664959 | 20 | 6 28.9 | 18.7 |
| 190570 2000 SO ₂₀₃ | 16.8 | X | 268.71582 | 216.70471 | 197.33560 | 3.14317 | 0.1511307 | 0.24264600 | 2.5457785 | 20 | 8 16.1 | 20.0 |
| 190571 2000 SH ₂₀₆ | 16.8 | X | 308.74444 | 182.39097 | 185.49967 | 5.05579 | 0.2232985 | 0.24209193 | 2.5496614 | 20 | 8 5.1 | 19.2 |
| 190572 2000 SK ₂₀₉ | 15.8 | X | 241.95837 | 354.29514 | 67.56190 | 6.69100 | 0.2290801 | 0.23826714 | 2.5768746 | 20 | 7 14.9 | 19.7 |
| 190573 2000 SN ₂₁₁ | 15.8 | X | 264.19061 | 307.62108 | 75.13453 | 8.13367 | 0.2099134 | 0.23772628 | 2.5807816 | 20 | 6 19.2 | 19.5 |
| 190574 2000 SR ₂₂₇ | 15.8 | X | 242.27725 | 190.44745 | 175.99931 | 13.27559 | 0.1829289 | 0.23124700 | 2.6287663 | 20 | 5 11.2 | 20.0 |
| 190575 2000 SC ₂₄₃ | 16.8 | X | 201.76942 | 280.58075 | 84.17149 | 3.51926 | 0.1880982 | 0.27941906 | 2.3172099 | 20 | 3 29.8 | 20.6 |
| 190576 2000 SZ ₂₇₀ | 16.7 | X | 294.48603 | 239.52576 | 106.72375 | 4.77818 | 0.2522850 | 0.23847023 | 2.5754113 | 20 | 6 3.5 | 19.7 |
| 190577 2000 SE ₂₇₂ | 15.7 | X | 333.67849 | 31.63588 | 331.36236 | 15.44911 | 0.1892762 | 0.24584764 | 2.5234281 | 20 | 9 24.5 | 18.1 |
| 190578 2000 SQ ₂₇₄ | 16.4 | X | 51.68245 | 306.98841 | 33.74855 | 10.32909 | 0.2688329 | 0.25406251 | 2.4689312 | 20 | — | — |
| 190579 2000 SB ₂₈₇ | 15.8 | X | 204.30664 | 128.46042 | 316.13784 | 10.52066 | 0.2450557 | 0.23323420 | 2.6138133 | 20 | 7 8.9 | 20.4 |
| 190580 2000 SB ₂₉₅ | 15.9 | X | 259.15127 | 60.80830 | 310.54353 | 3.74732 | 0.3478806 | 0.23490528 | 2.6014023 | 20 | 5 13.2 | 20.2 |
| 190581 2000 SE ₂₉₆ | 14.7 | X | 308.83670 | 121.29018 | 264.78507 | 10.38494 | 0.1987062 | 0.24113370 | 2.5564116 | 20 | 9 1.7 | 17.4 |
| 190582 2000 SO ₂₉₉ | 17.0 | X | 295.61048 | 42.46705 | 335.33012 | 4.13074 | 0.2688087 | 0.24179243 | 2.5517664 | 20 | 7 19.0 | 19.8 |
| 190583 2000 SD ₃₀₉ | 16.1 | X | 305.48942 | 8.51462 | 4.67774 | 6.87950 | 0.1757234 | 0.24129407 | 2.5522787 | 20 | 8 18.4 | 18.7 |
| 190584 2000 SH ₃₁₁ | 15.3 | X | 355.35196 | 24.23045 | 295.93457 | 12.03706 | 0.2455151 | 0.24316869 | 2.5421291 | 20 | 9 12.2 | 17.5 |
| 190585 2000 SF ₃₃₉ | 16.0 | X | 292.13224 | 338.87812 | 357.87755 | 15.46226 | 0.3134638 | 0.24142860 | 2.5543294 | 20 | 7 23.8 | 19.2 |
| 190586 2000 SX ₃₅₄ | 16.3 | X | 318.92461 | 313.50071 | 35.50297 | 12.71777 | 0.2200250 | 0.24396116 | 2.5366210 | 20 | 8 7.3 | 18.8 |
| 190587 2000 SQ ₃₆₁ | 16.3 | X | 283.24130 | 340.00437 | 44.65501 | 7.32520 | 0.2214774 | 0.24135892 | 2.5548210 | 20 | 7 17.8 | 19.5 |
| 190588 2000 SN ₃₆₃ | 15.8 | X | 189.38651 | 54.70240 | 300.49950 | 8.73475 | 0.2361165 | 0.17619954 | 3.1511292 | 20 | 3 9.0 | 21.4 |
| 190589 2000 TY ₃ | 16.3 | X | 354.91012 | 286.82243 | 357.48551 | 4.54114 | 0.0265948 | 0.23892421 | 2.5721480 | 20 | 7 12.5 | 19.5 |
| 190590 2000 TU ₁₀ | 16.8 | X | 317.12219 | 346.95835 | 357.18060 | 1.55210 | 0.1860879 | 0.24144699 | 2.5541997 | 20 | 7 24.3 | 19.1 |
| 190591 2000 TA ₁₅ | 16.9 | X | 265.90722 | 235.46950 | 141.23563 | 0.75264 | 0.1767682 | 0.23698995 | 2.5861245 | 20 | 6 18.1 | 20.5 |
| 190592 2000 TQ ₃₅ | 17.2 | X | 297.86850 | 352.77515 | 23.38184 | 0.59781 | 0.2104240 | 0.24155152 | 2.5534628 | 20 | 7 30.8 | 19.6 |
| 190593 2000 TH ₄₄ | 16.0 | X | 122.91590 | 199.28365 | 99.88461 | 5.74578 | 0.1798517 | 0.21105698 | 2.7938488 | 20 | — | — |
| 190594 2000 TY ₆₁ | 15.3 | X | 296.97894 | 287.53415 | 110.98199 | 10.03011 | 0.0197810 | 0.24507027 | 2.5289620 | 20 | 10 1.4 | 18.7 |
| 190595 2000 TP ₆₂ | 16.4 | X | 11.68199 | 207.11493 | 218.91970 | 6.34688 | 0.1772610 | 0.25682987 | 2.4511640 | 20 | — | — |
| 190596 2000 UP ₂ | 15.8 | X | 205.43315 | 344.02271 | 56.58841 | 15.27082 | 0.2453722 | 0.22917106 | 2.6446175 | 20 | 5 15.2 | 20.3 |
| 190597 2000 UD ₂₄ | 15.7 | X | 282.42438 | 329.64858 | 63.40670 | 13.29130 | 0.1744631 | 0.23963565 | 2.5670545 | 20 | 8 8.9 | 19.0 |
| 190598 2000 UY ₄₅ | 15.9 | X | 162.30720 | 223.36873 | 218.83414 | 11.02959 | 0.1752095 | 0.22743150 | 2.6580856 | 20 | 5 31.2 | 20.3 |
| 190599 2000 UR ₅₀ | 15.4 | X | 266.91767 | 183.03383 | 218.47280 | 7.11451 | 0.1896382 | 0.23679847 | 2.5875185 | 20 | 7 19.4 | 19.1 |
| 190600 2000 UL ₇₀ | 15.9 | X | 279.79626 | 350.90095 | 3.18256 | 4.65776 | 0.1990669 | 0.23592303 | 2.5939155 | 20 | 5 31.8 | 19.3 |
| 190601 2000 UP ₇₅ | 16.2 | X | 310.50943 | 184.93005 | 165.02594 | 4.90111 | 0.2177881 | 0.23943299 | 2.5685029 | 20 | 7 12.9 | 18.7 |
| 190602 2000 UZ ₇₉ | 15.2 | X | 286.00697 | 75.24690 | 241.25234 | 28.42631 | 0.3166452 | 0.23182153 | 2.6244212 | 20 | 3 28.1 | 19.7 |
| 190603 2000 UV ₈₀ | 16.8 | X | 234.67271 | 105.92134 | 286.45473 | 1.62930 | 0.2192862 | 0.23237576 | 2.6202466 | 20 | 5 30.7 | 21.1 |
| 190604 2000 UG ₈₉ | 15.9 | X | 272.38855 | 273.87179 | 63.25888 | 13.22727 | 0.1818508 | 0.23263392 | 2.6183078 | 20 | 5 5.7 | 19.6 |
| 190605 2000 UH ₉₁ | 16.5 | X | 302.46274 | 93.74370 | 294.91170 | 2.91253 | 0.2443215 | 0.24263106 | 2.5458831 | 20 | 8 21.5 | 18.7 |
| 190606 2000 UO ₉₉ | 15.6 | X | 326.58648 | 67.93523 | 303.10222 | 3.79826 | 0.1374730 | 0.24286152 | 2.5442722 | 20 | 9 26.2 | 18.2 |
| 190607 2000 UJ ₁₀₉ | 15.9 | X | 232.53365 | 283.95624 | 99.41104 | 8.21454 | 0.2307395 | 0.23169319 | 2.6253902 | 20 | 5 18.7 | 20.3 |
| 190608 2000 VD ₂₄ | 16.0 | X | 214.83915 | 136.35425 | 248.81537 | 2.33297 | 0.1529793 | 0.22904880 | 2.6455585 | 20 | 5 7.4 | 20.2 |
| 190609 2000 VH ₂₄ | 15.8 | X | 309.75079 | 346.94586 | 52.69947 | 5.54186 | 0.1980285 | 0.24383102 | 2.5375235 | 20 | 10 5.7 | 18.0 |
| 190610 2000 VY ₃₆ | 15.4 | X | 281.82107 | 232.02648 | 183.85561 | 4.20170 | 0.2930669 | 0.23858767 | 2.5745661 | 20 | 8 13.8 | 18.4 |
| 190611 2000 VN ₃₈ | 17.1 | X | 290.48096 | 236.17202 | 152.59427 | 1.16904 | 0.1487703 | 0.24118799 | 2.5560279 | 20 | 8 15.4 | 20.0 |
| 190612 2000 VZ ₄₆ | 16.5 | X | 243.57834 | 66.57962 | 314.06045 | 3.64572 | 0.3174157 | 0.23304896 | 2.6151982 | 20 | 5 14.8 | 21.0 |
| 190613 2000 VJ ₄₉ | 15.3 | X | 209.78231 | 200.66830 | 246.46784 | 4.35344 | 0.2366377 | 0.23278846 | 2.6171488 | 20 | 7 14.9 | 19.7 |
| 190614 2000 VJ ₅₄ | 15.5 | X | 272.78313 | 112.38865 | 293.64061 | 3.93241 | 0.2177278 | 0.23887922 | 2.5724709 | 20 | 7 31.0 | 18.6 |
| 190615 2000 VN ₅₉ | 15.0 | X | 228.19651 | 85.89482 | 2.26059 | 10.95790 | 0.2708805 | 0.23314789 | 2.6144583 | 20 | 8 3.2 | 19.4 |
| 190616 2000 WA ₇ | 15.5 | X | 286.91940 | 53.98104 | 301.24738 | 10.49593 | 0.2973040 | 0.23503780 | 2.6004244 | 20 | 5 26.9 | 19.2 |
| 190617 Alexandergerst | 16.4 | X | 280.65302 | 165.56691 | 236.85216 | 4.48582 | 0.2903548 | 0.23963428 | 2.5670643 | 20 | 7 24.2 | 19.6 |
| 190618 2000 WM ₁₈ | 16.1 | X | 211.58188 | 288.00338 | 130.60268 | 3.14936 | 0.2011137 | 0.23109441 | 2.6299233 | 20 | 6 13.5 | 20.4 |
| 190619 2000 WM ₂₅ | 16.1 | X | 149.80882 | 208.61867 | 270.16154 | 2.15706 | 0.0390180 | 0.23070510 | 2.6328812 | 20 | 6 28.4 | 19.8 |
| 190620 2000 WC ₃₉ | 16.1 | X | 286.22832 | 224.79218 | 154.01800 | 5.05343 | 0.2577194 | 0.23740163 | 2.5831339 | 20 | 7 5.4 | 19.3 |
| 190621 2000 WJ ₄₆ | 15.7 | X | 151.20795 | 217.24513 | 227.60220 | 8.96821 | 0.1929713 | 0.22544340 | 2.6736898 | 20 | 5 25.2 | 20.0 |
| 190622 2000 WT ₄₉ | 16.0 | X | 128.90585 | 120.85670 | 204.79116 | 20.80050 | 0.0882473 | 0.36033875 | 1.9558194 | 20 | — | — |
| 190623 2000 WD ₅₈ | 16.5 | X | 264.83254 | 309.95068 | 85.32194 | 5.41021 | 0.2903084 | 0.23585150 | 2.5944399 | 20 | 6 25.8 | 20.3 |
| 190624 2000 WW ₆₈ | 15.3 | X | 299.53891 | 76.09214 | 267.78330 | 13.44982 | 0.1349844 | 0.23723199 | 2.5843652 | 20 | 6 27.3 | 18.3 |
| 190625 2000 WB ₈₅ | 15.7 | X | 317.36263 | 72.63696 | 309.41530 | 2.29635 | 0.2284260 | 0.24220053 | 2.5488992 | 20 | 9 18.4 | 17.4 |
| 190626 2000 WS ₉₁ | 16.0 | X | 26.17889 | 337.00454 | 20.33754 | 2.30429 | 0.1030392 | 0.24769200 | 2.5110849 | 20 | 12 16.3 | 19.2 |
| 190627 2000 WP ₉₄ | 15.2 | X | 302.97149 | 123.31409 | 255.89987 | 12.78250 | 0.1880330 | 0.23907404 | 2.5710731 | 20 | 8 10.9 | 18.1 |
| 190628 2000 WW ₁₁₂ | 15.8 | X | 310.78488 | 13.36386 | 9.82203 | 2.80639 | 0.1757766 | 0.24090715 | 2.5580141 | 20 | 9 11.7 | 18.0 |
| 190629 2000 WT ₁₁₄ | 15.9 | X | 261.30934 | 29.23635 | 15.70918 | 4.14486 | 0.2733716 | 0.23617148 | 2.5920960 | 20 | 7 7.6 | 19.8 |
| 190630 2000 WJ ₁₂₄ | 15.9 | X | 175.95474 | 267.22678 | 177.46624 | 13.68672 | 0.1797041 | 0.22827409 | 2.6515408 | 20 | 6 15.8 | 20.5 |
| 190631 2000 WT ₁₂₉ | 16.1 | X | 187.81929 | 73.04493 | 353.17749 | 1.27443 | 0.1280547 | 0.22934390 | 2.6432886 | 20 | 6 3.1 | 20.1 |
| 190632 2000 WT ₁₃₁ | 15.6 | X | 248.11991 | 224.57378 | 194.05767 | 13.77074 | 0.1086248 | 0.23631408 | 2.5910531 | 20 | 7 29.0 | 19.5 |
| 190633 2000 WH ₁₃₅ | 15.0 | X | 285.89770 | 1.04675 | 49.73318 | 13.74324 | 0 | | | | | |

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

| Planet | <i>H</i> | <i>G</i> | <i>M</i> | ω | Ω | <i>i</i> | <i>e</i> | μ | <i>a</i> | TE | Oppos. | <i>V</i> | | |
|--------|----------|--------------------------|----------|----------|-----------|-----------|-----------|----------|-----------|------------|-----------|----------|---------|------|
| 190641 | 2000 | <i>XD</i> ₃ | 15.6 | X | 333.09292 | 40.01046 | 314.07904 | 10.60607 | 0.0901687 | 0.24118074 | 2.5560792 | 20 | 9 10.9 | 18.5 |
| 190642 | 2000 | <i>XX</i> ₅ | 14.9 | X | 266.07265 | 154.98901 | 281.24194 | 11.01558 | 0.1556141 | 0.24051422 | 2.5607993 | 20 | 9 5.9 | 18.4 |
| 190643 | 2000 | <i>XH</i> ₈ | 15.6 | X | 183.65761 | 134.14226 | 295.43856 | 10.70592 | 0.1792418 | 0.22643689 | 2.6658636 | 20 | 6 2.5 | 20.1 |
| 190644 | 2000 | <i>XS</i> ₉ | 15.2 | X | 282.66728 | 53.67269 | 0.82796 | 11.57159 | 0.2922203 | 0.23773162 | 2.5807429 | 20 | 8 18.9 | 18.3 |
| 190645 | 2000 | <i>XC</i> ₁₈ | 16.2 | X | 220.66678 | 75.03514 | 322.13655 | 10.55980 | 0.1942459 | 0.23055926 | 2.6339913 | 20 | 5 23.5 | 20.7 |
| 190646 | 2000 | <i>XD</i> ₂₀ | 15.8 | X | 209.83448 | 7.18596 | 41.60418 | 13.90040 | 0.1579064 | 0.22965247 | 2.6409203 | 20 | 5 30.3 | 20.2 |
| 190647 | 2000 | <i>XH</i> ₂₄ | 15.7 | X | 228.79459 | 81.58977 | 358.27602 | 8.95532 | 0.1931596 | 0.23449542 | 2.6044327 | 20 | 7 30.6 | 19.8 |
| 190648 | 2000 | <i>XS</i> ₂₄ | 15.5 | X | 201.54659 | 4.55003 | 48.08699 | 11.67432 | 0.1760708 | 0.22816891 | 2.6523555 | 20 | 5 27.6 | 19.9 |
| 190649 | 2000 | <i>XF</i> ₂₆ | 15.0 | X | 274.53098 | 88.70070 | 304.62757 | 12.28703 | 0.1712520 | 0.23562407 | 2.5961092 | 20 | 7 23.9 | 18.2 |
| 190650 | 2000 | <i>XN</i> ₄₀ | 15.5 | X | 179.13560 | 118.62769 | 350.09761 | 12.60550 | 0.2166832 | 0.23087062 | 2.6316226 | 20 | 7 21.4 | 20.1 |
| 190651 | 2000 | <i>XM</i> ₄₆ | 15.3 | X | 133.70299 | 130.33600 | 348.27209 | 13.19231 | 0.2048006 | 0.22552764 | 2.6730240 | 20 | 6 21.7 | 19.9 |
| 190652 | 2000 | <i>XW</i> ₄₆ | 15.6 | X | 160.49941 | 110.86313 | 345.11530 | 14.67895 | 0.1544799 | 0.22552116 | 2.6730752 | 20 | 6 14.3 | 20.2 |
| 190653 | 2000 | <i>XD</i> ₄₈ | 15.6 | X | 226.58185 | 358.44120 | 51.03136 | 15.78663 | 0.1393668 | 0.23094252 | 2.6310763 | 20 | 6 19.3 | 19.8 |
| 190654 | 2000 | <i>XJ</i> ₄₈ | 15.8 | X | 235.15266 | 81.93057 | 311.75098 | 13.29679 | 0.1652300 | 0.23055321 | 2.6340374 | 20 | 6 6.3 | 20.1 |
| 190655 | 2000 | <i>YT</i> ₂₅ | 15.6 | X | 156.25842 | 88.96051 | 302.38279 | 5.09984 | 0.0882986 | 0.21691967 | 2.7432797 | 20 | 3 15.5 | 19.7 |
| 190656 | 2000 | <i>YH</i> ₄₀ | 15.7 | X | 99.02921 | 240.20872 | 225.24968 | 2.41543 | 0.1313508 | 0.21732624 | 2.7398573 | 20 | 4 20.2 | 19.5 |
| 190657 | 2000 | <i>YJ</i> ₄₀ | 15.4 | X | 163.30873 | 289.11583 | 116.11980 | 11.60316 | 0.1596174 | 0.22000446 | 2.7175762 | 20 | 4 20.6 | 20.0 |
| 190658 | 2000 | <i>YA</i> ₄₄ | 16.2 | X | 210.07696 | 274.33898 | 148.87615 | 1.43836 | 0.1529267 | 0.22799053 | 2.6537388 | 20 | 6 20.6 | 20.2 |
| 190659 | 2000 | <i>YF</i> ₅₇ | 15.3 | X | 256.94872 | 248.94221 | 100.16987 | 15.82819 | 0.2730308 | 0.22804343 | 2.6533284 | 20 | 4 29.4 | 19.9 |
| 190660 | 2000 | <i>YE</i> ₆₇ | 15.4 | X | 136.01314 | 244.45393 | 207.17244 | 10.81966 | 0.1670831 | 0.22247211 | 2.6974434 | 20 | 5 18.6 | 19.7 |
| 190661 | 2000 | <i>YT</i> ₈₄ | 16.2 | X | 149.52782 | 308.99526 | 133.20766 | 2.93685 | 0.1727945 | 0.22297497 | 2.6933863 | 20 | 5 19.8 | 20.6 |
| 190662 | 2000 | <i>YD</i> ₈₆ | 15.1 | X | 305.21289 | 85.53283 | 268.21465 | 12.13396 | 0.2493345 | 0.23535838 | 2.5980626 | 20 | 7 2.1 | 17.7 |
| 190663 | 2000 | <i>YF</i> ₈₈ | 15.9 | X | 314.57585 | 155.44633 | 205.99133 | 1.45603 | 0.2162402 | 0.23657867 | 2.5891208 | 20 | 8 9.2 | 18.0 |
| 190664 | 2000 | <i>YX</i> ₉₀ | 16.2 | X | 301.83014 | 272.27580 | 97.73878 | 5.50963 | 0.3381016 | 0.23754725 | 2.5820781 | 20 | 7 4.2 | 18.7 |
| 190665 | 2000 | <i>YG</i> ₉₈ | 12.8 | X | 242.38388 | 151.14419 | 314.45425 | 4.18225 | 0.2323372 | 0.08295833 | 5.2067020 | 20 | 8 28.7 | 20.1 |
| 190666 | 2000 | <i>YB</i> ₉₉ | 15.4 | X | 234.33465 | 300.49860 | 114.64937 | 7.33238 | 0.1182474 | 0.22894513 | 2.6463571 | 20 | 7 9.1 | 19.3 |
| 190667 | 2000 | <i>YD</i> ₁₀₈ | 16.4 | X | 230.70067 | 308.38810 | 85.72849 | 7.88907 | 0.2698354 | 0.22970075 | 2.6405503 | 20 | 5 26.6 | 20.9 |
| 190668 | 2000 | <i>YK</i> ₁₁₂ | 16.1 | X | 236.18379 | 19.86131 | 28.72896 | 3.59131 | 0.2627598 | 0.23089769 | 2.6314169 | 20 | 6 17.9 | 20.5 |
| 190669 | 2000 | <i>YJ</i> ₁₁₇ | 12.2 | X | 256.99818 | 329.12939 | 117.52627 | 21.88193 | 0.0377481 | 0.08242834 | 5.2289965 | 20 | 9 16.3 | 19.3 |
| 190670 | 2001 | <i>AI</i> ₁₉ | 16.0 | X | 233.67065 | 51.14417 | 329.47561 | 1.89448 | 0.1472716 | 0.22678099 | 2.6631663 | 20 | 5 20.7 | 20.2 |
| 190671 | 2001 | <i>AS</i> ₂₂ | 15.8 | X | 174.83266 | 28.29730 | 33.15636 | 3.44989 | 0.2131800 | 0.22405332 | 2.6847373 | 20 | 5 16.1 | 20.4 |
| 190672 | 2001 | <i>AR</i> ₂₆ | 16.4 | X | 245.28396 | 34.61957 | 15.42522 | 5.49479 | 0.3302037 | 0.23375533 | 2.6099271 | 20 | 6 21.7 | 20.8 |
| 190673 | 2001 | <i>AZ</i> ₄₅ | 15.4 | X | 204.93631 | 115.64594 | 337.52333 | 30.32059 | 0.2519259 | 0.23251455 | 2.6192038 | 20 | 7 29.8 | 20.3 |
| 190674 | 2001 | <i>BZ</i> ₁₈ | 12.6 | X | 307.14038 | 326.80034 | 85.52634 | 5.29217 | 0.0832235 | 0.08562744 | 5.0979325 | 20 | 9 28.0 | 19.1 |
| 190675 | 2001 | <i>BU</i> ₂₀ | 15.6 | X | 164.83194 | 279.62462 | 125.35993 | 13.94142 | 0.2129336 | 0.21815528 | 2.7329115 | 20 | 4 24.4 | 20.5 |
| 190676 | 2001 | <i>BO</i> ₃₄ | 15.3 | X | 253.86110 | 118.16883 | 315.88278 | 5.42369 | 0.3196544 | 0.23302746 | 2.6153590 | 20 | 7 31.5 | 19.1 |
| 190677 | 2001 | <i>BQ</i> ₆₁ | 15.0 | X | 219.44092 | 282.63089 | 178.88517 | 28.01934 | 0.3696098 | 0.23142234 | 2.6274383 | 20 | 7 29.9 | 20.3 |
| 190678 | 2001 | <i>BQ</i> ₆₃ | 15.5 | X | 90.97186 | 301.47496 | 153.95292 | 7.77460 | 0.1678336 | 0.21291870 | 2.7757391 | 20 | 4 5.2 | 19.2 |
| 190679 | 2001 | <i>BE</i> ₇₃ | 15.5 | X | 189.14944 | 264.61846 | 143.67214 | 13.03610 | 0.1869207 | 0.22358035 | 2.6885222 | 20 | 5 16.3 | 20.2 |
| 190680 | 2001 | <i>CM</i> ₂ | 15.2 | X | 153.67697 | 113.74295 | 333.08950 | 8.74511 | 0.1116073 | 0.21908973 | 2.7251351 | 20 | 5 23.4 | 19.5 |
| 190681 | 2001 | <i>CW</i> ₂₃ | 12.7 | X | 239.82462 | 320.08735 | 156.36569 | 7.44157 | 0.0715930 | 0.08279101 | 5.2137146 | 20 | 9 22.2 | 19.7 |
| 190682 | 2001 | <i>CF</i> ₃₁ | 15.2 | X | 151.09434 | 21.05078 | 59.82511 | 10.87728 | 0.1531321 | 0.21801792 | 2.7340592 | 20 | 5 17.9 | 19.5 |
| 190683 | 2001 | <i>CR</i> ₄₇ | 15.5 | X | 65.52292 | 146.84413 | 352.85058 | 8.94925 | 0.0976274 | 0.21499919 | 2.7595917 | 20 | 4 12.0 | 19.0 |
| 190684 | 2001 | <i>DW</i> ₁₅ | 15.2 | X | 188.71005 | 223.10380 | 7.89101 | 10.81413 | 0.0639769 | 0.19009070 | 2.9956804 | 20 | 12 26.2 | 19.8 |
| 190685 | 2001 | <i>DF</i> ₂₅ | 16.0 | X | 0.81799 | 163.00878 | 336.21266 | 14.63684 | 0.0798729 | 0.20343351 | 2.8632178 | 20 | 1 10.1 | 19.8 |
| 190686 | 2001 | <i>DG</i> ₃₆ | 15.5 | X | 178.53609 | 253.40362 | 140.69614 | 10.24375 | 0.2845487 | 0.21940081 | 2.7225585 | 20 | 4 21.3 | 20.6 |
| 190687 | 2001 | <i>DW</i> ₄₀ | 15.5 | X | 122.49034 | 299.05630 | 140.08435 | 7.91940 | 0.1838435 | 0.21400465 | 2.7681348 | 20 | 4 23.4 | 19.8 |
| 190688 | 2001 | <i>DB</i> ₈₉ | 16.1 | X | 205.71786 | 33.35478 | 159.97364 | 5.95812 | 0.1057401 | 0.18542838 | 3.0456869 | 20 | 11 25.7 | 20.8 |
| 190689 | 2001 | <i>DO</i> ₉₃ | 12.6 | X | 265.72043 | 292.05605 | 157.47559 | 20.14336 | 0.1538088 | 0.08308672 | 5.2013367 | 20 | 9 9.4 | 19.5 |
| 190690 | 2001 | <i>DO</i> ₁₀₅ | 15.7 | X | 164.00294 | 260.74079 | 157.07566 | 5.60128 | 0.1601223 | 0.21870487 | 2.7283311 | 20 | 5 3.3 | 20.1 |
| 190691 | 2001 | <i>EG</i> ₃ | 15.6 | X | 140.50759 | 272.37900 | 149.25907 | 9.56469 | 0.3067524 | 0.21578006 | 2.7529300 | 20 | 4 27.6 | 20.6 |
| 190692 | 2001 | <i>EC</i> ₇ | 15.2 | X | 157.85691 | 60.45767 | 151.57121 | 11.63387 | 0.1650197 | 0.18026143 | 3.1036126 | 20 | 11 1.5 | 20.5 |
| 190693 | 2001 | <i>ED</i> ₁₃ | 14.5 | X | 129.13903 | 155.53748 | 69.06404 | 30.15701 | 0.2261676 | 0.17757068 | 3.1348869 | 20 | 11 2.1 | 20.2 |
| 190694 | 2001 | <i>EX</i> ₂₄ | 14.7 | X | 201.07997 | 149.41501 | 75.95694 | 12.81827 | 0.0595177 | 0.18858798 | 3.0115729 | 20 | — | — |
| 190695 | 2001 | <i>FX</i> ₁ | 14.7 | X | 170.97375 | 54.55428 | 3.36291 | 31.38092 | 0.1669068 | 0.21622209 | 2.7491769 | 20 | 4 23.2 | 19.7 |
| 190696 | 2001 | <i>FT</i> ₁₄ | 15.7 | X | 194.62065 | 6.69477 | 189.44781 | 4.25490 | 0.1789835 | 0.18321194 | 3.0702014 | 20 | 11 11.4 | 20.6 |
| 190697 | 2001 | <i>FQ</i> ₁₆ | 14.8 | X | 187.31819 | 156.07559 | 62.35666 | 2.36399 | 0.1288530 | 0.18400250 | 3.0614011 | 20 | 12 3.3 | 19.6 |
| 190698 | 2001 | <i>FG</i> ₃₀ | 15.0 | X | 110.83830 | 195.20494 | 72.34162 | 9.16506 | 0.1169404 | 0.18097930 | 3.0954000 | 20 | 11 19.9 | 19.7 |
| 190699 | 2001 | <i>FR</i> ₃₀ | 17.0 | X | 283.73860 | 259.87885 | 34.25727 | 4.88566 | 0.2014040 | 0.30992614 | 2.1625388 | 20 | 3 14.5 | 19.7 |
| 190700 | 2001 | <i>FO</i> ₄₅ | 14.7 | X | 189.34661 | 209.41767 | 13.97809 | 9.50323 | 0.0359325 | 0.18510302 | 3.0492548 | 20 | 12 18.4 | 19.2 |
| 190701 | 2001 | <i>FZ</i> ₅₆ | 14.5 | X | 100.47938 | 213.04631 | 9.64979 | 23.20885 | 0.2310082 | 0.17516582 | 3.1635143 | 20 | 9 27.9 | 19.7 |
| 190702 | 2001 | <i>FN</i> ₈₅ | 15.7 | X | 61.76106 | 308.00459 | 26.86094 | 5.27044 | 0.1511886 | 0.18121320 | 3.0927359 | 20 | 12 21.7 | 20.3 |
| 190703 | 2001 | <i>FW</i> ₁₂₃ | 15.1 | X | 5.41893 | 132.68268 | 358.90881 | 12.73114 | 0.0648347 | 0.19864733 | 2.9090257 | 20 | 1 8.5 | 19.1 |
| 190704 | 2001 | <i>FY</i> ₁₂₅ | 14.7 | X | 259.21464 | 102.81659 | 22.59670 | 17.00359 | 0.0779447 | 0.18130766 | 3.0916616 | 20 | 11 3.7 | 19.1 |
| 190705 | 2001 | <i>FW</i> ₁₄₆ | 15.0 | X | 269.48118 | 199.84891 | 329.49780 | 9.47779 | 0.0181995 | 0.18998310 | 2.9968113 | 20 | — | — |
| 190706 | 2001 | <i>FK</i> ₁₅₈ | 15.1 | X | 272.91244 | 117.54436 | 306.11429 | 2.63640 | 0.3280887 | 0.23336805 | 2.6128138 | 20 | 8 6.6 | 18.6 |
| 190707 | 2001 | <i>FC</i> ₁₅₉ | 17.0 | X | 0.31322 | 120.17552 | 119.10687 | 1.93933 | 0.1009259 | 0.31389639 | 2.1442652 | 20 | 5 14.3 | 18.5 |
| 190708 | 2001 | <i>FB</i> ₁₆₈ | 16.4 | | | | | | | | | | | |

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

| Planet | <i>H</i> | <i>G</i> | <i>M</i> | ω | Ω | <i>i</i> | <i>e</i> | μ | <i>a</i> | TE | Oppos. | <i>V</i> | | |
|--------|----------|--------------------------|----------|----------|-----------|-----------|-----------|----------|-----------|------------|-----------|----------|---------|------|
| 190721 | 2001 | <i>OK</i> ₂₃ | 16.4 | X | 95.35974 | 325.91640 | 18.56679 | 7.54074 | 0.1286132 | 0.27976025 | 2.3153255 | 20 | — | — |
| 190722 | 2001 | <i>ON</i> ₃₉ | 16.3 | X | 99.55192 | 285.93445 | 86.73613 | 6.22122 | 0.1815484 | 0.28070527 | 2.3101260 | 20 | — | — |
| 190723 | 2001 | <i>OL</i> ₆₁ | 16.6 | X | 146.88873 | 18.14761 | 343.80483 | 6.76741 | 0.1389284 | 0.28843524 | 2.2686657 | 20 | 1 29.3 | 19.7 |
| 190724 | 2001 | <i>OP</i> ₆₄ | 17.3 | X | 171.06375 | 357.51026 | 19.69151 | 2.02190 | 0.2146381 | 0.29368522 | 2.2415477 | 20 | 3 17.3 | 20.8 |
| 190725 | 2001 | <i>OO</i> ₇₂ | 15.7 | X | 68.22015 | 33.05411 | 348.40968 | 4.32150 | 0.2416068 | 0.27503345 | 2.3417779 | 20 | — | — |
| 190726 | 2001 | <i>OC</i> ₉₅ | 15.8 | X | 52.81418 | 79.44737 | 336.39633 | 4.50722 | 0.1327160 | 0.27769079 | 2.3268143 | 20 | — | — |
| 190727 | 2001 | <i>OP</i> ₉₇ | 16.0 | X | 182.68824 | 85.34484 | 288.91315 | 4.97190 | 0.2118777 | 0.29342569 | 2.2428693 | 20 | 3 20.3 | 19.8 |
| 190728 | 2001 | <i>OL</i> ₉₈ | 17.8 | X | 217.42518 | 291.60854 | 1.03519 | 2.51759 | 0.2602744 | 0.29131705 | 2.2536793 | 20 | 1 12.0 | 21.6 |
| 190729 | 2001 | <i>PD</i> ₃ | 16.3 | X | 188.71969 | 48.60353 | 260.66355 | 7.16209 | 0.1663508 | 0.28681891 | 2.2771809 | 20 | 1 5.5 | 19.7 |
| 190730 | 2001 | <i>PY</i> ₁₃ | 16.7 | X | 177.39819 | 165.22420 | 154.98064 | 7.83797 | 0.1675549 | 0.28736804 | 2.2742790 | 20 | 1 8.5 | 20.2 |
| 190731 | 2001 | <i>PW</i> ₁₄ | 16.6 | X | 144.96672 | 181.35919 | 156.28620 | 6.71760 | 0.2123401 | 0.28440192 | 2.2900644 | 20 | 1 3.1 | 19.8 |
| 190732 | 2001 | <i>PJ</i> ₁₇ | 16.8 | X | 152.18529 | 194.16554 | 105.50173 | 12.28842 | 0.1866101 | 0.28208060 | 2.3026110 | 20 | — | — |
| 190733 | 2001 | <i>PE</i> ₂₂ | 16.5 | X | 100.37072 | 222.95520 | 110.56914 | 7.70875 | 0.1564442 | 0.27700825 | 2.3306349 | 20 | — | — |
| 190734 | 2001 | <i>PP</i> ₂₃ | 17.0 | X | 110.18828 | 35.72152 | 343.61743 | 5.52686 | 0.1836558 | 0.28386723 | 2.2929392 | 20 | 1 12.9 | 19.6 |
| 190735 | 2001 | <i>PP</i> ₂₉ | 16.4 | X | 124.46337 | 214.89411 | 135.29197 | 23.74060 | 0.2300097 | 0.28371145 | 2.2937785 | 20 | — | — |
| 190736 | 2001 | <i>PM</i> ₄₃ | 15.9 | X | 86.61819 | 117.95390 | 312.21869 | 23.89988 | 0.2823107 | 0.28625575 | 2.2801665 | 20 | 2 23.9 | 18.5 |
| 190737 | 2001 | <i>PD</i> ₅₁ | 17.0 | X | 166.00457 | 66.23619 | 262.99794 | 10.98262 | 0.2642446 | 0.28721248 | 2.2751001 | 20 | 1 15.3 | 20.7 |
| 190738 | 2001 | <i>PR</i> ₅₃ | 16.6 | X | 109.50917 | 24.25782 | 22.68247 | 6.98959 | 0.1702274 | 0.28762376 | 2.2729308 | 20 | 2 18.3 | 19.3 |
| 190739 | 2001 | <i>PL</i> ₆₀ | 17.2 | X | 202.80291 | 342.76111 | 289.11982 | 4.22565 | 0.1718134 | 0.28676855 | 2.2774475 | 20 | — | — |
| 190740 | 2001 | <i>PI</i> ₆₀ | 17.1 | X | 198.61683 | 104.09866 | 161.79383 | 6.04156 | 0.1662029 | 0.28537315 | 2.2848655 | 20 | — | — |
| 190741 | 2001 | <i>QJ</i> ₁ | 17.2 | X | 87.01799 | 228.67415 | 149.26923 | 2.38516 | 0.2550434 | 0.27908866 | 2.3190383 | 20 | — | — |
| 190742 | 2001 | <i>QH</i> ₆ | 17.0 | X | 122.84925 | 222.75672 | 140.16064 | 5.52257 | 0.1813227 | 0.28390948 | 2.2927117 | 20 | 1 6.1 | 19.7 |
| 190743 | 2001 | <i>QW</i> ₆ | 16.6 | X | 196.72895 | 108.59634 | 158.02289 | 9.16318 | 0.1496540 | 0.28411250 | 2.2916194 | 20 | — | — |
| 190744 | 2001 | <i>QE</i> ₇ | 17.1 | X | 199.94809 | 320.08815 | 322.31778 | 7.21487 | 0.1760892 | 0.28680491 | 2.2772550 | 20 | — | — |
| 190745 | 2001 | <i>QZ</i> ₈ | 17.2 | X | 155.47671 | 166.43514 | 141.17376 | 7.47013 | 0.2475304 | 0.28329401 | 2.2960312 | 20 | — | — |
| 190746 | 2001 | <i>QD</i> ₁₅ | 16.4 | X | 226.94159 | 326.76788 | 347.80981 | 6.59592 | 0.1260596 | 0.29396529 | 2.2401238 | 20 | 2 18.1 | 19.7 |
| 190747 | 2001 | <i>QW</i> ₃₆ | 16.6 | X | 142.85067 | 80.13178 | 297.69855 | 5.16644 | 0.1789367 | 0.28942884 | 2.2634705 | 20 | 2 15.9 | 19.8 |
| 190748 | 2001 | <i>QZ</i> ₃₆ | 16.7 | X | 356.85949 | 221.27451 | 313.83724 | 6.52639 | 0.0165968 | 0.29380364 | 2.2409454 | 20 | 2 6.7 | 19.2 |
| 190749 | 2001 | <i>QT</i> ₄₃ | 17.9 | X | 148.67378 | 330.95040 | 344.73320 | 2.23970 | 0.2449931 | 0.28365125 | 2.2941030 | 20 | — | — |
| 190750 | 2001 | <i>QE</i> ₅₄ | 17.0 | X | 143.82812 | 194.02426 | 96.87728 | 4.25966 | 0.2218914 | 0.27964996 | 2.3159341 | 20 | — | — |
| 190751 | 2001 | <i>QM</i> ₅₈ | 16.7 | X | 137.24740 | 244.85860 | 97.41196 | 4.56973 | 0.1739262 | 0.28281741 | 2.2986100 | 20 | — | — |
| 190752 | 2001 | <i>QR</i> ₆₁ | 16.7 | X | 147.77745 | 161.92156 | 154.11839 | 6.07384 | 0.1466923 | 0.28238051 | 2.3009803 | 20 | — | — |
| 190753 | 2001 | <i>QI</i> ₆₂ | 16.3 | X | 57.65911 | 72.06390 | 314.18916 | 6.49047 | 0.1224590 | 0.27680851 | 2.3317559 | 20 | — | — |
| 190754 | 2001 | <i>QL</i> ₇₉ | 16.7 | X | 145.95087 | 337.88301 | 353.11466 | 4.49114 | 0.2676017 | 0.28058146 | 2.3108055 | 20 | 1 3.4 | 20.1 |
| 190755 | 2001 | <i>QS</i> ₈₃ | 15.9 | X | 137.09395 | 20.17816 | 319.88445 | 5.81950 | 0.1500209 | 0.27971291 | 2.3155867 | 20 | — | — |
| 190756 | 2001 | <i>QO</i> ₉₃ | 15.6 | X | 82.58494 | 347.98210 | 28.03938 | 25.68434 | 0.2612766 | 0.27344541 | 2.3508358 | 20 | — | — |
| 190757 | 2001 | <i>QT</i> ₉₃ | 16.3 | X | 116.62609 | 115.00605 | 209.53159 | 2.57160 | 0.2202352 | 0.27462397 | 2.3441052 | 20 | — | — |
| 190758 | 2001 | <i>QH</i> ₉₆ | 18.4 | X | 58.24895 | 130.39482 | 178.60708 | 13.95288 | 0.3645411 | 0.42604682 | 1.7491666 | 20 | — | — |
| 190759 | 2001 | <i>QC</i> ₁₁₂ | 16.5 | X | 81.10803 | 170.26572 | 198.69459 | 5.72034 | 0.2531809 | 0.27381969 | 2.3486931 | 20 | — | — |
| 190760 | 2001 | <i>QG</i> ₁₁₆ | 16.3 | X | 108.11175 | 78.37397 | 281.20390 | 6.11178 | 0.1556349 | 0.27973555 | 2.3154617 | 20 | — | — |
| 190761 | 2001 | <i>QI</i> ₁₃₀ | 17.0 | X | 131.82624 | 71.43026 | 258.02295 | 5.85224 | 0.1365407 | 0.28121025 | 2.3073596 | 20 | — | — |
| 190762 | 2001 | <i>QO</i> ₁₃₄ | 16.5 | X | 94.01377 | 66.24024 | 283.08841 | 7.28086 | 0.1341242 | 0.27574326 | 2.3377574 | 20 | — | — |
| 190763 | 2001 | <i>QU</i> ₁₃₅ | 16.0 | X | 40.18198 | 112.81767 | 281.85526 | 5.84473 | 0.2073316 | 0.27135051 | 2.3629197 | 20 | — | — |
| 190764 | 2001 | <i>QN</i> ₁₃₇ | 16.0 | X | 129.21859 | 32.89674 | 323.60380 | 6.00216 | 0.1677436 | 0.28030444 | 2.3123278 | 20 | 1 5.3 | 18.9 |
| 190765 | 2001 | <i>QE</i> ₁₅₀ | 16.1 | X | 45.10101 | 333.75666 | 84.90081 | 5.77070 | 0.2005045 | 0.27475545 | 2.3433573 | 20 | — | — |
| 190766 | 2001 | <i>QU</i> ₁₅₄ | 17.2 | X | 175.30272 | 38.19195 | 247.80509 | 4.75180 | 0.1655775 | 0.28318874 | 2.2966002 | 20 | — | — |
| 190767 | 2001 | <i>QV</i> ₁₅₈ | 16.8 | X | 181.85882 | 324.29692 | 332.40467 | 4.93137 | 0.1894645 | 0.28513149 | 2.2861564 | 20 | — | — |
| 190768 | 2001 | <i>QV</i> ₁₆₇ | 16.9 | X | 111.33153 | 266.14271 | 114.11301 | 7.03318 | 0.1526407 | 0.28420456 | 2.2911245 | 20 | 1 9.5 | 19.5 |
| 190769 | 2001 | <i>QI</i> ₁₉₆ | 16.5 | X | 72.16511 | 109.17148 | 274.50453 | 7.37103 | 0.1573596 | 0.27644000 | 2.3338277 | 20 | — | — |
| 190770 | 2001 | <i>QA</i> ₂₀₅ | 16.8 | X | 73.03119 | 192.43042 | 254.31340 | 4.75162 | 0.1515790 | 0.28696905 | 2.2763865 | 20 | 2 8.8 | 19.0 |
| 190771 | 2001 | <i>QZ</i> ₂₀₇ | 16.7 | X | 150.36905 | 263.35856 | 12.00375 | 3.62039 | 0.1724459 | 0.27833083 | 2.3232459 | 20 | — | — |
| 190772 | 2001 | <i>QI</i> ₂₂₂ | 16.5 | X | 54.25264 | 101.14136 | 302.47317 | 10.59988 | 0.1130114 | 0.27941928 | 2.3172086 | 20 | — | — |
| 190773 | 2001 | <i>QL</i> ₂₃₆ | 17.2 | X | 114.84419 | 157.59050 | 156.57950 | 2.87521 | 0.2444897 | 0.27666359 | 2.3325701 | 20 | — | — |
| 190774 | 2001 | <i>QI</i> ₂₄₀ | 17.3 | X | 102.87225 | 347.00274 | 3.29229 | 0.84501 | 0.1500205 | 0.27839659 | 2.3228800 | 20 | — | — |
| 190775 | 2001 | <i>QK</i> ₂₄₁ | 16.7 | X | 112.19886 | 286.68054 | 351.69167 | 6.41222 | 0.2235059 | 0.27186173 | 2.3599565 | 20 | 12 22.3 | 20.8 |
| 190776 | 2001 | <i>QY</i> ₂₄₇ | 17.1 | X | 156.78484 | 168.97413 | 194.80765 | 1.20155 | 0.2422971 | 0.28572501 | 2.2829893 | 20 | 2 18.8 | 20.7 |
| 190777 | 2001 | <i>QK</i> ₂₄₉ | 17.4 | X | 121.35114 | 278.67806 | 104.89566 | 0.63260 | 0.2382629 | 0.28238777 | 2.3009409 | 20 | 2 9.5 | 20.5 |
| 190778 | 2001 | <i>QD</i> ₂₆₀ | 16.5 | X | 7.29163 | 139.12239 | 274.48430 | 3.80421 | 0.2123434 | 0.26988620 | 2.3714588 | 20 | — | — |
| 190779 | 2001 | <i>QL</i> ₂₇₆ | 16.0 | X | 57.07550 | 326.96651 | 84.90475 | 7.01238 | 0.0939324 | 0.28044687 | 2.3115448 | 20 | — | — |
| 190780 | 2001 | <i>QA</i> ₂₇₉ | 16.4 | X | 41.79215 | 323.05602 | 92.97010 | 6.44565 | 0.1751129 | 0.27743575 | 2.3282401 | 20 | — | — |
| 190781 | 2001 | <i>QO</i> ₂₈₅ | 17.2 | X | 120.40124 | 249.96437 | 99.34840 | 5.74249 | 0.1890634 | 0.28213444 | 2.3023180 | 20 | — | — |
| 190782 | 2001 | <i>QT</i> ₂₈₅ | 16.7 | X | 124.52072 | 275.76775 | 65.96212 | 7.41713 | 0.1664372 | 0.28085009 | 2.3093318 | 20 | — | — |
| 190783 | 2001 | <i>QO</i> ₂₉₀ | 16.3 | X | 264.14265 | 231.26485 | 339.16903 | 6.09333 | 0.1080580 | 0.28627359 | 2.2800718 | 20 | — | — |
| 190784 | 2001 | <i>QL</i> ₂₉₄ | 17.3 | X | 131.44742 | 77.66090 | 233.36213 | 2.14683 | 0.1820441 | 0.28014804 | 2.3131883 | 20 | — | — |
| 190785 | 2001 | <i>RB</i> ₅ | 16.3 | X | 61.63816 | 39.02172 | 318.18967 | 4.54090 | 0.1335768 | 0.27299361 | 2.3534288 | 20 | — | — |
| 190786 | 2001 | <i>RL</i> ₇ | 17.0 | X | 140.16539 | 136.26805 | 158.28403 | 11.06747 | 0.1838227 | 0.27899379 | 2.3195640 | 20 | — | — |
| 190787 | 2001 | <i>RR</i> ₁₃ | 16.8 | X | 37.81635 | 80.43486 | 323.66877 | 5.04865 | 0.1276071 | 0.27471354 | 2.3435956 | 20 | — | — |
| 190788 | 2001 | <i>RT</i> ₁₇ | 18.3 | X | 126.42891 | 199.60211 | 350.00516 | 20.10878 | 0.7920341 | 0.69020263 | 1.2680946 | 20 | 10 3.9 | 21.2 |
| 190789 | 2001 | <i>RE</i> ₁₉ | 16.6 | X | 125.56960 | 188.91836 | 194.09108 | 2.01770 | 0.1536000 | 0.28621962 | 2.2803584 | 20 | 1 31.6 | 19.5 |
| 190790 | 2001 | <i>RQ</i> ₂₀ | 16.9 | | | | | | | | | | | |

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

| Planet | <i>H</i> | <i>G</i> | <i>M</i> | ω | Ω | <i>i</i> | <i>e</i> | μ | <i>a</i> | TE | Oppos. | <i>V</i> | | |
|--------|----------|-------------------|----------|----------|-----------|-----------|-----------|----------|-----------|------------|-----------|----------|--------|------|
| 190801 | 2001 | RF ₇₀ | 16.3 | X | 116.61222 | 65.88800 | 254.18584 | 3.91855 | 0.1839616 | 0.27547103 | 2.3392973 | 20 | — | — |
| 190802 | 2001 | RB ₇₉ | 16.2 | X | 78.11456 | 5.74265 | 356.75207 | 7.36013 | 0.1576944 | 0.27326550 | 2.3518675 | 20 | — | — |
| 190803 | 2001 | RA ₈₆ | 17.7 | X | 125.36374 | 160.16184 | 160.35554 | 1.57710 | 0.2428576 | 0.27837984 | 2.3229732 | 20 | — | — |
| 190804 | 2001 | RM ₈₆ | 16.5 | X | 59.51964 | 171.96228 | 191.16946 | 5.24789 | 0.1204013 | 0.27232656 | 2.3572703 | 20 | — | — |
| 190805 | 2001 | RJ ₉₀ | 16.7 | X | 134.41074 | 270.43724 | 40.10801 | 6.64403 | 0.1132638 | 0.27711379 | 2.3300431 | 20 | — | — |
| 190806 | 2001 | RL ₉₃ | 17.1 | X | 145.35411 | 266.37919 | 23.94936 | 5.26862 | 0.2770260 | 0.27824082 | 2.3237469 | 20 | — | — |
| 190807 | 2001 | RY ₉₅ | 16.5 | X | 140.97419 | 48.35523 | 29.24516 | 4.37389 | 0.1087705 | 0.29279283 | 2.2461000 | 20 | 4 27.1 | 19.5 |
| 190808 | 2001 | RJ ₁₀₁ | 16.7 | X | 120.62596 | 231.92956 | 114.38410 | 4.93105 | 0.1515138 | 0.28107590 | 2.3080948 | 20 | — | — |
| 190809 | 2001 | RY ₁₀₄ | 16.7 | X | 148.93961 | 270.02140 | 15.21197 | 10.00451 | 0.1454817 | 0.27780350 | 2.3261850 | 20 | — | — |
| 190810 | 2001 | RE ₁₁₁ | 16.5 | X | 354.36606 | 338.78006 | 145.50784 | 5.44929 | 0.1342358 | 0.28077100 | 2.3097655 | 20 | — | — |
| 190811 | 2001 | RM ₁₁₃ | 16.7 | X | 83.34006 | 259.20599 | 144.24920 | 3.98333 | 0.1540808 | 0.28147624 | 2.3059058 | 20 | — | — |
| 190812 | 2001 | RU ₁₁₄ | 16.4 | X | 94.44738 | 22.29421 | 10.14271 | 6.38253 | 0.1070533 | 0.28220656 | 2.3019258 | 20 | — | — |
| 190813 | 2001 | RZ ₁₂₂ | 17.1 | X | 82.78779 | 351.32212 | 28.30415 | 1.56318 | 0.1556962 | 0.27833873 | 2.3232019 | 20 | — | — |
| 190814 | 2001 | RZ ₁₂₅ | 16.7 | X | 198.46380 | 344.73829 | 28.90696 | 4.72990 | 0.1704085 | 0.29471666 | 2.2363147 | 20 | 4 5.2 | 20.1 |
| 190815 | 2001 | RU ₁₃₅ | 16.8 | X | 66.79640 | 220.98837 | 161.60379 | 10.36607 | 0.1236203 | 0.27590945 | 2.3368186 | 20 | — | — |
| 190816 | 2001 | RO ₁₄₂ | 17.0 | X | 91.30910 | 327.41060 | 50.03705 | 2.58902 | 0.2594189 | 0.27806734 | 2.3247132 | 20 | — | — |
| 190817 | 2001 | RC ₁₅₅ | 16.7 | X | 334.43084 | 304.35053 | 136.05302 | 5.16440 | 0.1970599 | 0.26844698 | 2.3799274 | 20 | — | — |
| 190818 | 2001 | SR ₂ | 16.5 | X | 140.37815 | 4.74402 | 28.90686 | 5.44207 | 0.1927452 | 0.28652294 | 2.2787488 | 20 | 3 10.1 | 19.8 |
| 190819 | 2001 | SP ₁₄ | 16.8 | X | 39.95879 | 302.99563 | 172.06905 | 7.13781 | 0.1631470 | 0.28531263 | 2.2851886 | 20 | 1 17.2 | 18.6 |
| 190820 | 2001 | SY ₁₄ | 16.8 | X | 100.25537 | 50.56725 | 3.44842 | 6.39293 | 0.1662845 | 0.28443930 | 2.2898638 | 20 | 2 13.9 | 19.3 |
| 190821 | 2001 | SJ ₁₆ | 18.0 | X | 114.64662 | 321.02497 | 59.17640 | 0.78532 | 0.2207823 | 0.28231789 | 2.3013205 | 20 | 1 25.5 | 20.7 |
| 190822 | 2001 | SE ₂₂ | 16.5 | X | 20.13472 | 208.28841 | 213.67002 | 2.18669 | 0.1996423 | 0.27283166 | 2.3543600 | 20 | — | — |
| 190823 | 2001 | ST ₂₂ | 16.8 | X | 37.15118 | 139.20639 | 264.17407 | 1.50063 | 0.2012954 | 0.27308265 | 2.3529172 | 20 | — | — |
| 190824 | 2001 | SD ₂₃ | 16.5 | X | 354.86599 | 301.99997 | 190.18740 | 1.36455 | 0.1435339 | 0.27982752 | 2.3149544 | 20 | — | — |
| 190825 | 2001 | SL ₂₄ | 17.1 | X | 140.38223 | 114.23451 | 212.95088 | 1.61664 | 0.1921112 | 0.28063242 | 2.3105258 | 20 | — | — |
| 190826 | 2001 | SH ₃₄ | 17.0 | X | 2.24130 | 249.52114 | 171.31547 | 4.07277 | 0.1142038 | 0.27009315 | 2.3702473 | 20 | — | — |
| 190827 | 2001 | SJ ₃₉ | 17.0 | X | 37.04673 | 316.40117 | 94.04261 | 2.51545 | 0.1859623 | 0.27300446 | 2.3533664 | 20 | — | — |
| 190828 | 2001 | SJ ₄₇ | 16.8 | X | 236.63867 | 292.88796 | 39.84103 | 5.61830 | 0.1457740 | 0.29465938 | 2.2366045 | 20 | 3 22.5 | 20.0 |
| 190829 | 2001 | SK ₄₈ | 16.7 | X | 43.35211 | 309.49288 | 99.25253 | 3.19791 | 0.1552603 | 0.27442501 | 2.3452380 | 20 | — | — |
| 190830 | 2001 | SZ ₅₆ | 16.6 | X | 68.87524 | 170.15374 | 177.67358 | 10.17431 | 0.1760415 | 0.27070840 | 2.3666547 | 20 | — | — |
| 190831 | 2001 | SX ₆₅ | 16.3 | X | 5.98099 | 279.82175 | 163.52516 | 6.25889 | 0.1544032 | 0.27130308 | 2.3631951 | 20 | — | — |
| 190832 | 2001 | SX ₆₇ | 16.4 | X | 26.83331 | 285.67094 | 130.27155 | 5.78535 | 0.2073657 | 0.27061417 | 2.3672040 | 20 | — | — |
| 190833 | 2001 | SY ₇₁ | 16.7 | X | 60.40777 | 275.09535 | 113.37665 | 3.26414 | 0.2142531 | 0.27312264 | 2.3526875 | 20 | — | — |
| 190834 | 2001 | SD ₇₂ | 16.3 | X | 72.71688 | 297.49819 | 99.84199 | 3.42552 | 0.2395800 | 0.27543053 | 2.3395267 | 20 | — | — |
| 190835 | 2001 | SD ₇₅ | 16.2 | X | 103.81340 | 61.12354 | 286.73554 | 2.96269 | 0.1838676 | 0.27618686 | 2.3352535 | 20 | — | — |
| 190836 | 2001 | SP ₈₀ | 17.2 | X | 140.11207 | 141.62637 | 192.55627 | 2.64287 | 0.0959837 | 0.28336111 | 2.2956688 | 20 | — | — |
| 190837 | 2001 | ST ₉₀ | 16.6 | X | 49.00739 | 123.03973 | 331.72065 | 4.49263 | 0.1835414 | 0.28262933 | 2.2996296 | 20 | 1 9.0 | 18.2 |
| 190838 | 2001 | SE ₁₀₁ | 17.0 | X | 33.55396 | 222.25013 | 215.85037 | 1.01147 | 0.0981462 | 0.27843997 | 2.3226387 | 20 | — | — |
| 190839 | 2001 | SE ₁₀₄ | 17.4 | X | 122.26266 | 311.19434 | 335.79071 | 2.81277 | 0.1790998 | 0.27398984 | 2.3477206 | 20 | — | — |
| 190840 | 2001 | SA ₁₀₅ | 16.6 | X | 72.85811 | 178.82261 | 240.71779 | 6.14294 | 0.1809956 | 0.27966071 | 2.3158748 | 20 | 1 5.3 | 18.5 |
| 190841 | 2001 | SO ₁₀₅ | 15.9 | X | 325.51976 | 123.82814 | 331.98269 | 4.69264 | 0.1828573 | 0.26730255 | 2.3867155 | 20 | — | — |
| 190842 | 2001 | SS ₁₀₆ | 15.9 | X | 79.56674 | 42.13728 | 330.94678 | 6.27590 | 0.1302780 | 0.27428989 | 2.3460081 | 20 | — | — |
| 190843 | 2001 | SM ₁₁₄ | 16.7 | X | 48.50677 | 227.13874 | 209.16719 | 4.99526 | 0.2178890 | 0.27777677 | 2.3263342 | 20 | — | — |
| 190844 | 2001 | ST ₁₂₃ | 17.3 | X | 161.60866 | 7.26093 | 283.53766 | 1.92742 | 0.1698954 | 0.28076391 | 2.3098044 | 20 | — | — |
| 190845 | 2001 | SY ₁₃₀ | 17.4 | X | 91.92658 | 58.35718 | 309.16124 | 1.75763 | 0.2045543 | 0.27772110 | 2.3266450 | 20 | — | — |
| 190846 | 2001 | SP ₁₃₂ | 17.4 | X | 101.28091 | 355.85721 | 328.46290 | 2.18701 | 0.2435668 | 0.27524643 | 2.3405697 | 20 | — | — |
| 190847 | 2001 | SX ₁₃₆ | 17.2 | X | 106.71810 | 348.47701 | 340.71430 | 2.37731 | 0.1871306 | 0.27579345 | 2.3374738 | 20 | — | — |
| 190848 | 2001 | SS ₁₄₃ | 17.0 | X | 134.44429 | 36.52751 | 257.46159 | 2.29942 | 0.1428064 | 0.27590092 | 2.3368668 | 20 | — | — |
| 190849 | 2001 | SS ₁₅₃ | 16.7 | X | 10.38331 | 90.78259 | 353.42374 | 2.30162 | 0.1671540 | 0.27330296 | 2.3516525 | 20 | — | — |
| 190850 | 2001 | SL ₁₆₁ | 16.7 | X | 346.08730 | 231.90978 | 226.64357 | 4.07159 | 0.1637026 | 0.27169132 | 2.3609432 | 20 | — | — |
| 190851 | 2001 | SR ₁₇₂ | 16.9 | X | 178.35124 | 137.40427 | 158.46220 | 2.64251 | 0.0749934 | 0.28050523 | 2.3112242 | 20 | — | — |
| 190852 | 2001 | SB ₁₈₈ | 17.0 | X | 237.36478 | 94.69402 | 156.83512 | 5.27887 | 0.1364129 | 0.28675080 | 2.2775415 | 20 | — | — |
| 190853 | 2001 | SB ₁₉₄ | 17.0 | X | 71.47477 | 228.82837 | 179.66845 | 3.58265 | 0.0667043 | 0.28102126 | 2.3083940 | 20 | — | — |
| 190854 | 2001 | SO ₂₀₀ | 16.9 | X | 328.77879 | 267.22681 | 180.93647 | 0.91506 | 0.1463183 | 0.27001708 | 2.3706925 | 20 | — | — |
| 190855 | 2001 | SA ₂₀₄ | 17.1 | X | 99.79277 | 238.01776 | 133.99693 | 3.19247 | 0.1771126 | 0.27967100 | 2.3158180 | 20 | — | — |
| 190856 | 2001 | SZ ₂₃₁ | 16.5 | X | 330.37071 | 75.98270 | 22.11310 | 4.39441 | 0.1301534 | 0.26943003 | 2.3741348 | 20 | — | — |
| 190857 | 2001 | SW ₂₆₅ | 16.3 | X | 61.40206 | 287.72036 | 21.30680 | 7.10439 | 0.1364530 | 0.26405920 | 2.4062192 | 20 | 12 4.7 | 19.8 |
| 190858 | 2001 | SP ₂₇₁ | 16.9 | X | 23.80812 | 169.87656 | 241.06681 | 0.98822 | 0.2304339 | 0.27078416 | 2.3662132 | 20 | — | — |
| 190859 | 2001 | SE ₂₇₈ | 16.0 | X | 164.46140 | 2.53397 | 324.62896 | 6.17068 | 0.1471712 | 0.28125004 | 2.3071420 | 20 | 1 4.7 | 19.2 |
| 190860 | 2001 | SZ ₂₇₈ | 16.5 | X | 51.31896 | 27.01212 | 10.26931 | 5.27751 | 0.2274220 | 0.27250516 | 2.3562402 | 20 | — | — |
| 190861 | 2001 | SC ₂₈₀ | 16.3 | X | 90.80766 | 153.40132 | 196.46047 | 6.70658 | 0.1675153 | 0.27344454 | 2.3508408 | 20 | — | — |
| 190862 | 2001 | SK ₂₈₀ | 16.2 | X | 47.01464 | 335.91596 | 32.13585 | 6.30161 | 0.1511580 | 0.26906056 | 2.3763077 | 20 | — | — |
| 190863 | 2001 | SS ₂₈₀ | 16.6 | X | 41.85223 | 352.40886 | 25.16719 | 1.78104 | 0.1922950 | 0.26965775 | 2.3727980 | 20 | — | — |
| 190864 | 2001 | SE ₃₂₆ | 16.6 | X | 148.08639 | 73.02181 | 162.79059 | 4.93456 | 0.0527302 | 0.26696201 | 2.3887447 | 20 | 12 4.9 | 19.9 |
| 190865 | 2001 | TA ₁₉ | 16.8 | X | 130.83468 | 306.40485 | 44.99767 | 6.47016 | 0.2623063 | 0.28229593 | 2.3014399 | 20 | 1 13.6 | 20.0 |
| 190866 | 2001 | TX ₄₅ | 16.4 | X | 155.41426 | 101.72192 | 202.15273 | 5.69323 | 0.2976185 | 0.27833052 | 2.3232476 | 20 | — | — |
| 190867 | 2001 | TT ₄₈ | 15.8 | X | 307.46358 | 156.02764 | 8.50732 | 25.04467 | 0.1802303 | 0.27563633 | 2.3383620 | 20 | — | — |
| 190868 | 2001 | TF ₅₀ | 16.7 | X | 56.89236 | 214.37204 | 161.84453 | 6.81302 | 0.1583718 | 0.27274337 | 2.3548681 | 20 | — | — |
| 190869 | 2001 | TB ₅₆ | 17.0 | X | 68.02990 | 229.23031 | 132.61599 | 3.19625 | 0.2081040 | 0.27247590 | 2.3564089 | 20 | — | — |
| 190870 | 2001 | TA ₆₈ | 16.1 | X | 25.03269 | 227.14671 | 163.44007 | 2.49510 | 0.1301572 | 0.26789357 | 2.3832038 | 20 | — | — |
| 190871 | 2001 | TK ₇₄ | 17.0 | X | 73.92229 | 116.73816 | 234.18600 | 1.50502 | 0.2366055 | 0.27144058 | 2.3623969 | 20 | — | — |
| 190872 | 2001 | TL ₈₂ | 16.3 | X | 110.56135 | 334.93418 | 309.27600 | 5.45657 | | | | | | |

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

| Planet | <i>H</i> | <i>G</i> | <i>M</i> | ω | Ω | <i>i</i> | <i>e</i> | μ | <i>a</i> | TE | Oppos. | <i>V</i> |
|--------------------------------------|----------|----------|-----------|-----------|-----------|----------|-----------|------------|-----------|----|---------|----------|
| 190881 2001 <i>TF</i> ₁₆₈ | 15.7 | X | 116.98398 | 90.75698 | 292.40363 | 6.49508 | 0.1202696 | 0.27972181 | 2.3155376 | 20 | 1 17.0 | 18.4 |
| 190882 2001 <i>TT</i> ₁₆₉ | 15.7 | X | 181.51751 | 265.27270 | 27.46829 | 22.63434 | 0.1683225 | 0.27706005 | 2.3303444 | 20 | — | — |
| 190883 2001 <i>TT</i> ₁₈₃ | 16.8 | X | 111.22415 | 253.00137 | 29.16494 | 5.35418 | 0.1519055 | 0.26801805 | 2.3824659 | 20 | 12 23.9 | 20.6 |
| 190884 2001 <i>TT</i> ₁₈₄ | 16.6 | X | 272.25947 | 167.62153 | 344.61138 | 3.88584 | 0.0602337 | 0.26979362 | 2.3720013 | 20 | — | — |
| 190885 2001 <i>TQ</i> ₁₈₉ | 16.5 | X | 14.59683 | 46.69797 | 339.66332 | 4.36221 | 0.2439615 | 0.26566610 | 2.3965066 | 20 | — | — |
| 190886 2001 <i>TD</i> ₂₀₁ | 16.1 | X | 108.83408 | 219.64117 | 137.57397 | 7.34348 | 0.1377931 | 0.27817683 | 2.3241032 | 20 | — | — |
| 190887 2001 <i>TB</i> ₂₁₂ | 17.0 | X | 329.25174 | 119.70520 | 351.60473 | 1.16821 | 0.1395779 | 0.27114829 | 2.3640944 | 20 | — | — |
| 190888 2001 <i>TO</i> ₂₁₆ | 16.2 | X | 85.76438 | 53.92064 | 297.71673 | 6.14673 | 0.1343942 | 0.27214518 | 2.3583176 | 20 | — | — |
| 190889 2001 <i>TA</i> ₂₁₉ | 16.3 | X | 94.42265 | 173.05939 | 134.75485 | 8.48305 | 0.2607363 | 0.27040428 | 2.3684288 | 20 | — | — |
| 190890 2001 <i>TB</i> ₂₄₁ | 16.3 | X | 331.06944 | 109.37074 | 306.16902 | 5.70449 | 0.0908894 | 0.26172346 | 2.4205141 | 20 | 12 14.6 | 18.9 |
| 190891 2001 <i>UU</i> ₁ | 15.9 | X | 121.60994 | 262.59150 | 57.44708 | 13.67541 | 0.2257826 | 0.27548579 | 2.3392138 | 20 | — | — |
| 190892 2001 <i>UA</i> ₄ | 16.7 | X | 65.22467 | 217.49432 | 179.81779 | 1.58229 | 0.2028776 | 0.27393893 | 2.3480115 | 20 | — | — |
| 190893 2001 <i>UW</i> ₅ | 16.7 | X | 17.47271 | 319.06366 | 84.72135 | 5.86749 | 0.1872553 | 0.26631205 | 2.3926298 | 20 | — | — |
| 190894 2001 <i>UW</i> ₈ | 16.7 | X | 58.05863 | 51.17045 | 304.68796 | 5.69965 | 0.1320812 | 0.27033294 | 2.3688455 | 20 | — | — |
| 190895 2001 <i>UO</i> ₉ | 16.6 | X | 26.11895 | 265.02940 | 138.19300 | 4.04107 | 0.1099269 | 0.26951807 | 2.3736178 | 20 | — | — |
| 190896 2001 <i>UG</i> ₂₁ | 15.7 | X | 49.47366 | 138.44418 | 264.42496 | 6.14482 | 0.1122056 | 0.27584600 | 2.3371769 | 20 | — | — |
| 190897 2001 <i>UH</i> ₂₄ | 16.5 | X | 133.78571 | 51.61515 | 264.50742 | 6.60613 | 0.1408006 | 0.27653270 | 2.3333061 | 20 | — | — |
| 190898 2001 <i>UH</i> ₃₁ | 16.1 | X | 141.29595 | 226.88316 | 85.78756 | 9.01118 | 0.2239465 | 0.27798527 | 2.3251708 | 20 | — | — |
| 190899 2001 <i>UO</i> ₄₀ | 17.1 | X | 9.51042 | 272.64674 | 129.23159 | 2.01505 | 0.1831622 | 0.26741760 | 2.3860309 | 20 | — | — |
| 190900 2001 <i>UW</i> ₄₄ | 16.9 | X | 37.64320 | 341.03077 | 42.48635 | 3.14483 | 0.2137758 | 0.26922448 | 2.3753431 | 20 | — | — |
| 190901 2001 <i>UX</i> ₅₄ | 16.4 | X | 22.37323 | 54.75946 | 358.68370 | 6.96616 | 0.0983551 | 0.27311485 | 2.3527322 | 20 | — | — |
| 190902 2001 <i>UC</i> ₆₀ | 16.6 | X | 7.85761 | 164.65146 | 263.04571 | 1.25644 | 0.1513206 | 0.26976482 | 2.3721702 | 20 | — | — |
| 190903 2001 <i>UN</i> ₇₃ | 16.9 | X | 2.22057 | 244.23264 | 164.91680 | 2.33153 | 0.1964854 | 0.26681071 | 2.3896477 | 20 | — | — |
| 190904 2001 <i>UQ</i> ₇₈ | 16.7 | X | 37.31457 | 340.91301 | 37.61646 | 8.22882 | 0.1230248 | 0.26886245 | 2.3774749 | 20 | — | — |
| 190905 2001 <i>UX</i> ₇₈ | 17.1 | X | 88.07790 | 248.25209 | 77.60588 | 3.43403 | 0.2442111 | 0.27133397 | 2.3630157 | 20 | — | — |
| 190906 2001 <i>UN</i> ₈₃ | 17.1 | X | 68.51729 | 254.26957 | 109.19600 | 2.69529 | 0.2166175 | 0.27118254 | 2.3638953 | 20 | — | — |
| 190907 2001 <i>UD</i> ₈₇ | 16.5 | X | 339.65966 | 203.46962 | 238.83141 | 0.87214 | 0.1370312 | 0.26687321 | 2.3892746 | 20 | — | — |
| 190908 2001 <i>US</i> ₉₁ | 16.5 | X | 285.47157 | 330.54773 | 151.18298 | 6.76228 | 0.0550947 | 0.26532358 | 2.3985686 | 20 | — | — |
| 190909 2001 <i>UT</i> ₉₈ | 17.4 | X | 62.16747 | 223.66377 | 150.70424 | 3.02236 | 0.1999873 | 0.27168008 | 2.3610083 | 20 | — | — |
| 190910 2001 <i>UC</i> ₁₀₅ | 16.9 | X | 105.27230 | 233.67746 | 69.29117 | 2.82720 | 0.2195757 | 0.27092407 | 2.3653985 | 20 | — | — |
| 190911 2001 <i>UR</i> ₁₁₃ | 16.9 | X | 38.52158 | 163.79137 | 207.93917 | 5.95955 | 0.1278527 | 0.26799885 | 2.3825796 | 20 | — | — |
| 190912 2001 <i>UN</i> ₁₁₃ | 16.9 | X | 99.55562 | 122.81822 | 177.53589 | 1.14741 | 0.1880512 | 0.26873569 | 2.3782225 | 20 | — | — |
| 190913 2001 <i>UQ</i> ₁₁₈ | 16.4 | X | 44.33002 | 193.02603 | 160.61095 | 2.43873 | 0.1897684 | 0.26626272 | 2.3929253 | 20 | — | — |
| 190914 2001 <i>UG</i> ₁₁₉ | 17.0 | X | 84.92465 | 272.82924 | 67.93677 | 3.17900 | 0.2452362 | 0.27135145 | 2.3629142 | 20 | — | — |
| 190915 2001 <i>UO</i> ₁₁₉ | 16.7 | X | 97.29689 | 126.05882 | 212.29389 | 3.99801 | 0.1452415 | 0.27131633 | 2.3631181 | 20 | — | — |
| 190916 2001 <i>UD</i> ₁₂₃ | 16.2 | X | 55.37591 | 162.63735 | 231.24586 | 6.18810 | 0.1087893 | 0.27095693 | 2.3652073 | 20 | — | — |
| 190917 2001 <i>US</i> ₁₂₆ | 16.5 | X | 267.14817 | 218.42731 | 299.42250 | 0.58074 | 0.1242819 | 0.26954518 | 2.3734587 | 20 | — | — |
| 190918 2001 <i>UD</i> ₁₃₉ | 16.0 | X | 140.49976 | 253.87594 | 4.08111 | 8.48765 | 0.1873230 | 0.26796772 | 2.3827642 | 20 | 12 19.9 | 20.0 |
| 190919 2001 <i>UP</i> ₁₄₂ | 16.7 | X | 270.23533 | 325.54023 | 175.36547 | 1.90529 | 0.1421050 | 0.26474143 | 2.4020835 | 20 | 12 27.9 | 18.9 |
| 190920 2001 <i>UW</i> ₁₄₄ | 17.4 | X | 117.65123 | 134.87386 | 182.36423 | 1.85764 | 0.1949423 | 0.27308703 | 2.3528920 | 20 | — | — |
| 190921 2001 <i>UT</i> ₁₅₁ | 16.8 | X | 51.78676 | 163.26675 | 225.57417 | 0.76790 | 0.1867147 | 0.27060827 | 2.3672384 | 20 | — | — |
| 190922 2001 <i>UC</i> ₁₅₄ | 16.9 | X | 105.51286 | 287.65798 | 62.05367 | 1.86456 | 0.2440939 | 0.27452263 | 2.3446820 | 20 | — | — |
| 190923 2001 <i>UD</i> ₁₅₈ | 16.9 | X | 1.42938 | 269.45666 | 155.75932 | 1.39157 | 0.1717295 | 0.26710070 | 2.3879177 | 20 | — | — |
| 190924 2001 <i>UW</i> ₁₅₈ | 17.1 | X | 73.37029 | 250.51717 | 100.17179 | 3.49877 | 0.2074132 | 0.26989563 | 2.3714037 | 20 | — | — |
| 190925 2001 <i>UF</i> ₁₈₈ | 16.5 | X | 8.38674 | 240.82563 | 147.24111 | 6.49124 | 0.1117267 | 0.26433120 | 2.4045682 | 20 | — | — |
| 190926 2001 <i>UK</i> ₁₉₇ | 17.1 | X | 116.44557 | 74.41087 | 219.20020 | 4.06126 | 0.2359213 | 0.27424320 | 2.3462744 | 20 | — | — |
| 190927 2001 <i>US</i> ₂₀₆ | 16.4 | X | 64.45625 | 240.85182 | 90.58273 | 8.04075 | 0.1291373 | 0.26844706 | 2.3799269 | 20 | — | — |
| 190928 2001 <i>UL</i> ₂₁₁ | 16.9 | X | 103.78858 | 312.50435 | 331.37557 | 1.91982 | 0.0742718 | 0.26682071 | 2.3895880 | 20 | 12 15.5 | 20.3 |
| 190929 2001 <i>VF</i> ₃ | 16.6 | X | 64.70643 | 288.28104 | 355.31108 | 3.29081 | 0.1624554 | 0.26045737 | 2.4283519 | 20 | 11 8.4 | 19.9 |
| 190930 2001 <i>VF</i> ₅ | 16.6 | X | 294.08397 | 149.82473 | 290.57323 | 1.43602 | 0.1865142 | 0.25975665 | 2.4327170 | 20 | 11 6.7 | 18.8 |
| 190931 2001 <i>VS</i> ₅ | 16.9 | X | 97.58040 | 347.12239 | 334.34352 | 1.97391 | 0.1894155 | 0.27100319 | 2.3649381 | 20 | — | — |
| 190932 2001 <i>VX</i> ₆ | 17.0 | X | 73.54429 | 33.15876 | 303.34263 | 1.48943 | 0.1851757 | 0.26896315 | 2.3768815 | 20 | — | — |
| 190933 2001 <i>VY</i> ₁₂ | 16.0 | X | 356.56169 | 62.25862 | 339.04602 | 8.52301 | 0.0989618 | 0.26283021 | 2.4137143 | 20 | — | — |
| 190934 2001 <i>VT</i> ₁₈ | 16.5 | X | 29.31020 | 154.19387 | 228.88312 | 2.23565 | 0.1460385 | 0.26725471 | 2.3870003 | 20 | — | — |
| 190935 2001 <i>VH</i> ₂₂ | 16.5 | X | 85.98496 | 344.99478 | 27.48176 | 2.76912 | 0.2158425 | 0.27437269 | 2.3455361 | 20 | — | — |
| 190936 2001 <i>VZ</i> ₂₅ | 16.5 | X | 1.58410 | 312.69242 | 90.47602 | 3.51064 | 0.1901468 | 0.26466165 | 2.4025662 | 20 | — | — |
| 190937 2001 <i>VT</i> ₂₉ | 16.3 | X | 123.64059 | 93.73664 | 251.67441 | 4.34898 | 0.2679707 | 0.27678349 | 2.3318964 | 20 | — | — |
| 190938 2001 <i>VA</i> ₃₂ | 16.8 | X | 35.50680 | 32.30622 | 4.35312 | 0.98063 | 0.1814785 | 0.26821062 | 2.3813253 | 20 | — | — |
| 190939 2001 <i>VD</i> ₃₃ | 16.5 | X | 359.52320 | 327.63698 | 40.66752 | 3.29708 | 0.1900491 | 0.25963238 | 2.4334932 | 20 | 12 8.3 | 18.8 |
| 190940 2001 <i>VF</i> ₃₆ | 15.8 | X | 191.54597 | 262.26600 | 262.52615 | 5.14142 | 0.1015756 | 0.25332716 | 2.4737068 | 20 | 10 14.8 | 19.5 |
| 190941 2001 <i>VA</i> ₃₉ | 16.1 | X | 225.88424 | 143.93429 | 29.62780 | 2.48663 | 0.2377968 | 0.25870267 | 2.4393200 | 20 | 11 19.6 | 19.4 |
| 190942 2001 <i>VP</i> ₄₀ | 16.7 | X | 305.43620 | 110.50499 | 344.61619 | 2.01677 | 0.1767821 | 0.26101949 | 2.4248642 | 20 | 12 27.3 | 18.5 |
| 190943 2001 <i>VB</i> ₄₁ | 17.0 | X | 61.29095 | 68.70071 | 317.09351 | 0.45158 | 0.1904906 | 0.27067230 | 2.3668651 | 20 | — | — |
| 190944 2001 <i>VH</i> ₄₅ | 15.7 | X | 344.20849 | 169.12768 | 260.44142 | 6.53302 | 0.1519206 | 0.26307277 | 2.4122304 | 20 | — | — |
| 190945 2001 <i>VC</i> ₄₇ | 15.4 | X | 190.50159 | 210.45036 | 268.12452 | 12.05193 | 0.1928818 | 0.24387352 | 2.5372287 | 20 | 8 6.2 | 19.8 |
| 190946 2001 <i>VS</i> ₄₉ | 16.7 | X | 5.65821 | 97.68556 | 340.63973 | 6.77667 | 0.1990488 | 0.27041390 | 2.3683727 | 20 | — | — |
| 190947 2001 <i>VK</i> ₅₂ | 17.0 | X | 100.81908 | 13.16782 | 1.58974 | 3.45732 | 0.1879757 | 0.27761762 | 2.3272232 | 20 | — | — |
| 190948 2001 <i>VT</i> ₅₅ | | | | | | | | | | | | |

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

| Planet | H | G | M | ω | Ω | i | e | μ | a | TE | Oppos. | V |
|-------------------------------|------|---|-----------|-----------|-----------|----------|-----------|------------|-----------|----|---------|--------|
| 190961 2001 WB ₃₉ | 16.2 | X | 22.31250 | 287.45286 | 119.37370 | 5.58542 | 0.2181676 | 0.26719976 | 2.3873276 | 20 | — | — |
| 190962 2001 WX ₄₄ | 16.4 | X | 100.40354 | 198.00617 | 157.13638 | 7.09928 | 0.1499305 | 0.27469515 | 2.3437002 | 20 | — | — |
| 190963 2001 WD ₄₈ | 16.0 | X | 312.07850 | 324.39444 | 90.31630 | 11.97845 | 0.1413549 | 0.25897689 | 2.4375978 | 20 | 11 13.2 | 18.4 |
| 190964 2001 XC | 15.1 | X | 338.04921 | 92.64364 | 330.44057 | 7.98475 | 0.2063710 | 0.25925111 | 2.4358785 | 20 | — | — |
| 190965 2001 XF ₅ | 16.9 | X | 31.82219 | 276.89938 | 157.50531 | 1.67147 | 0.2191888 | 0.27203536 | 2.3589522 | 20 | — | — |
| 190966 2001 XT ₁₅ | 16.7 | X | 53.29083 | 265.48529 | 201.83622 | 1.83591 | 0.1702238 | 0.27819206 | 2.3240184 | 20 | 2 6.8 | 18.5 |
| 190967 2001 XW ₃₃ | 16.6 | X | 292.59750 | 328.22194 | 117.32610 | 2.16758 | 0.1561893 | 0.25767766 | 2.4457846 | 20 | 11 15.5 | 18.9 |
| 190968 2001 XZ ₃₅ | 15.9 | X | 330.99141 | 71.07876 | 334.02384 | 7.21673 | 0.1107178 | 0.25983980 | 2.4321908 | 20 | 11 28.7 | 18.5 |
| 190969 2001 XF ₃₈ | 16.6 | X | 46.22065 | 81.40846 | 316.53814 | 8.82521 | 0.2012318 | 0.26971627 | 2.3724548 | 20 | — | — |
| 190970 2001 XS ₄₁ | 16.4 | X | 49.66250 | 359.31385 | 4.48126 | 8.11755 | 0.0776736 | 0.26271323 | 2.4144307 | 20 | — | — |
| 190971 2001 XY ₅₁ | 16.2 | X | 334.03849 | 354.00428 | 96.10087 | 2.43129 | 0.1494534 | 0.26512018 | 2.3997952 | 20 | — | — |
| 190972 2001 XD ₆₃ | 15.8 | X | 336.19905 | 138.83929 | 247.94813 | 5.41147 | 0.1374717 | 0.25546110 | 2.4599118 | 20 | 11 13.4 | 18.2 |
| 190973 2001 XR ₇₇ | 17.5 | X | 281.43403 | 340.86782 | 119.67387 | 3.30544 | 0.0284999 | 0.31284436 | 2.1490697 | 20 | 12 14.9 | 19.8 |
| 190974 2001 XA ₇₉ | 17.3 | X | 108.41996 | 204.29704 | 176.34531 | 2.47866 | 0.1629100 | 0.27717163 | 2.3297190 | 20 | 1 8.6 | 19.9 |
| 190975 2001 XQ ₉₃ | 16.8 | X | 69.20724 | 304.87466 | 25.26519 | 2.37531 | 0.2274004 | 0.26724837 | 2.3870380 | 20 | — | — |
| 190976 2001 XU ₉₅ | 17.0 | X | 321.85377 | 61.41013 | 28.17202 | 0.08334 | 0.1766283 | 0.26285644 | 2.4135537 | 20 | — | — |
| 190977 2001 XG ₉₈ | 16.4 | X | 37.33584 | 25.47119 | 21.73527 | 3.04011 | 0.1460740 | 0.26847157 | 2.3797820 | 20 | — | — |
| 190978 2001 XD ₁₀₁ | 15.8 | X | 91.42231 | 100.22847 | 297.00407 | 6.93730 | 0.1282158 | 0.27416338 | 2.3467298 | 20 | 1 1.3 | 18.3 |
| 190979 2001 XY ₁₄₄ | 16.9 | X | 16.93516 | 173.16993 | 192.55341 | 2.23817 | 0.1949880 | 0.26141491 | 2.4224183 | 20 | — | — |
| 190980 2001 XA ₁₄₉ | 17.0 | X | 355.84886 | 178.54279 | 224.59558 | 0.69281 | 0.1807191 | 0.26224121 | 2.4173271 | 20 | — | — |
| 190981 2001 XQ ₁₅₀ | 16.7 | X | 39.06363 | 116.38624 | 242.23331 | 2.90195 | 0.2078176 | 0.26360704 | 2.4089699 | 20 | — | — |
| 190982 2001 XL ₁₅₁ | 16.5 | X | 64.23023 | 70.50155 | 262.35484 | 5.77882 | 0.1499315 | 0.26251713 | 2.4156330 | 20 | — | — |
| 190983 2001 XA ₁₇₂ | 16.8 | X | 329.12577 | 219.11539 | 173.31607 | 2.49478 | 0.2191075 | 0.25664668 | 2.4523302 | 20 | 11 14.4 | 18.5 |
| 190984 2001 XM ₁₇₃ | 16.9 | X | 319.55579 | 170.31681 | 251.38151 | 1.38960 | 0.1923851 | 0.25788994 | 2.4444423 | 20 | 12 6.2 | 18.8 |
| 190985 2001 XB ₁₇₇ | 16.4 | X | 342.46769 | 254.38579 | 123.77751 | 6.59369 | 0.1508948 | 0.25500730 | 2.4628293 | 20 | 11 16.8 | 18.9 |
| 190986 2001 XR ₁₈₉ | 16.7 | X | 2.54891 | 290.76962 | 102.08818 | 2.06599 | 0.1700805 | 0.25952653 | 2.4341549 | 20 | — | — |
| 190987 2001 XG ₂₀₃ | 16.6 | X | 323.65684 | 315.75777 | 120.18140 | 6.76162 | 0.0739018 | 0.26277646 | 2.4140434 | 20 | 12 30.3 | 19.2 |
| 190988 2001 XD ₂₁₅ | 16.2 | X | 122.40389 | 186.24991 | 217.09471 | 5.90834 | 0.2270896 | 0.27938466 | 2.3174000 | 20 | 3 3.8 | 19.4 |
| 190989 2001 XC ₂₂₃ | 16.8 | X | 52.46914 | 41.19535 | 304.98931 | 3.75545 | 0.2712036 | 0.26673138 | 2.3901215 | 20 | — | — |
| 190990 2001 XL ₂₂₃ | 16.6 | X | 340.98579 | 264.42984 | 174.97494 | 6.73873 | 0.1972756 | 0.26558516 | 2.3969934 | 20 | — | — |
| 190991 2001 XQ ₂₃₈ | 15.8 | X | 273.50231 | 82.78882 | 5.85742 | 1.89571 | 0.1454174 | 0.25413226 | 2.4684794 | 20 | 10 15.5 | 18.6 |
| 190992 2001 XH ₂₃₉ | 16.2 | X | 64.54600 | 14.37952 | 24.15745 | 2.83689 | 0.2168520 | 0.27181558 | 2.3602236 | 20 | — | — |
| 190993 2001 XO ₂₄₁ | 17.1 | X | 341.30399 | 201.74956 | 213.76650 | 0.65907 | 0.1764614 | 0.26321027 | 2.4113902 | 20 | — | — |
| 190994 2001 XN ₂₄₉ | 16.5 | X | 66.72498 | 141.34318 | 196.83467 | 1.72189 | 0.2284275 | 0.26726395 | 2.3869452 | 20 | — | — |
| 190995 2001 YP | 15.8 | X | 102.07962 | 269.40697 | 252.43943 | 12.71009 | 0.1248831 | 0.23751136 | 2.5823383 | 20 | 7 5.5 | 19.6 |
| 190996 2001 YY ₁₀ | 16.8 | X | 273.04697 | 155.89922 | 274.41579 | 1.32682 | 0.2106517 | 0.25070146 | 2.4909488 | 20 | 9 6.3 | 19.8 |
| 190997 2001 YD ₁₅ | 17.0 | X | 298.04141 | 164.81086 | 261.40541 | 0.47768 | 0.1664054 | 0.25616785 | 2.4553852 | 20 | 10 25.6 | 19.3 |
| 190998 2001 YC ₁₈ | 15.7 | X | 355.37668 | 157.13836 | 98.90518 | 15.82079 | 0.0665476 | 0.23596604 | 2.5936003 | 20 | 6 4.1 | 18.8 |
| 190999 2001 YV ₂₂ | 16.8 | X | 68.12543 | 9.37146 | 327.92534 | 1.57613 | 0.2522950 | 0.26749579 | 2.3855659 | 20 | — | — |
| 191000 2001 YV ₂₇ | 16.7 | X | 62.78111 | 289.40819 | 58.41916 | 3.13573 | 0.2198249 | 0.26601524 | 2.3944092 | 20 | — | — |
| 191001 2001 YP ₅₃ | 16.2 | X | 38.19805 | 67.78850 | 42.72960 | 3.12877 | 0.1666611 | 0.27513475 | 2.3412030 | 20 | 1 11.2 | 18.1 |
| 191002 2001 YV ₆₇ | 15.8 | X | 58.54019 | 70.32477 | 291.07152 | 5.95464 | 0.1349597 | 0.26387353 | 2.4073478 | 20 | — | — |
| 191003 2001 YW ₈₅ | 16.5 | X | 137.36607 | 172.95104 | 324.82205 | 4.69361 | 0.2418281 | 0.23688121 | 2.5869159 | 20 | 7 21.5 | 20.8 |
| 191004 2001 YQ ₈₇ | 16.4 | X | 354.72603 | 108.72665 | 289.44648 | 11.57317 | 0.1887019 | 0.25969648 | 2.4330928 | 20 | — | — |
| 191005 2001 YB ₉₅ | 15.9 | X | 22.55118 | 64.31878 | 321.27083 | 6.23870 | 0.1444831 | 0.26250390 | 2.4157141 | 20 | — | — |
| 191006 2001 YE ₁₀₉ | 16.4 | X | 7.47822 | 328.08169 | 28.00882 | 2.01570 | 0.2511643 | 0.25871073 | 2.4392693 | 20 | 12 14.5 | 19.0 |
| 191007 2001 YF ₁₁₁ | 16.6 | X | 306.73932 | 268.61062 | 160.15074 | 5.98607 | 0.0929179 | 0.25803191 | 2.4435455 | 20 | 11 22.4 | 19.2 |
| 191008 2001 YG ₁₂₂ | 16.0 | X | 289.75609 | 105.55366 | 322.72932 | 5.28517 | 0.1008835 | 0.25587801 | 2.4572390 | 20 | 10 17.8 | 18.9 |
| 191009 2001 YS ₁₃₂ | 16.2 | X | 319.67014 | 102.46236 | 333.92005 | 6.55972 | 0.0991070 | 0.26091332 | 2.4255220 | 20 | 12 25.6 | 18.8 |
| 191010 2002 AO ₁₀ | 16.2 | X | 105.08057 | 63.27504 | 109.85992 | 3.56972 | 0.0511887 | 0.23887215 | 2.5725216 | 20 | 7 16.9 | 19.7 |
| 191011 2002 AM ₁₅ | 15.7 | X | 52.94932 | 352.37706 | 21.72988 | 13.03725 | 0.2073311 | 0.26436948 | 2.4043360 | 20 | — | — |
| 191012 2002 AZ ₂₉ | 16.3 | X | 319.09236 | 60.92717 | 18.79645 | 5.42711 | 0.2127243 | 0.25847355 | 2.4407613 | 20 | — | — |
| 191013 2002 AF ₄₅ | 16.5 | X | 34.93889 | 231.16927 | 236.24617 | 5.04430 | 0.2368632 | 0.26166520 | 2.4208733 | 20 | — | — |
| 191014 2002 AY ₄₅ | 16.6 | X | 308.37231 | 93.17335 | 169.85039 | 2.88068 | 0.1139320 | 0.24564120 | 2.5205418 | 20 | 8 13.3 | 19.3 |
| 191015 2002 AQ ₅₁ | 16.7 | X | 216.47046 | 194.71822 | 257.04500 | 0.65711 | 0.1239301 | 0.24320599 | 2.5418692 | 20 | 8 6.5 | 20.5 |
| 191016 2002 AX ₆₃ | 15.9 | X | 26.96440 | 21.67116 | 147.37239 | 13.03125 | 0.0870559 | 0.22203898 | 2.7009501 | 20 | 3 27.2 | 19.2 |
| 191017 2002 AM ₇₆ | 16.4 | X | 292.26830 | 300.26911 | 86.32919 | 7.27055 | 0.0716478 | 0.24676535 | 2.5173674 | 20 | 8 31.3 | 19.4 |
| 191018 2002 AU ₈₂ | 16.2 | X | 303.47702 | 262.02787 | 176.76629 | 5.44724 | 0.1211129 | 0.25743633 | 2.4473129 | 20 | 11 29.3 | 18.6 |
| 191019 2002 AG ₉₀ | 15.6 | X | 164.92024 | 215.62583 | 277.82453 | 9.54037 | 0.1214146 | 0.23886453 | 2.5725764 | 20 | 8 3.9 | 19.7 |
| 191020 2002 AR ₉₃ | 17.4 | X | 342.41235 | 109.36033 | 325.63558 | 0.60893 | 0.1549474 | 0.26162826 | 2.4211012 | 20 | — | — |
| 191021 2002 AV ₁₀₄ | 16.5 | X | 186.66680 | 170.04651 | 311.17985 | 2.32036 | 0.0386613 | 0.24288129 | 2.5441342 | 20 | 8 17.7 | 20.0 |
| 191022 2002 AL ₁₁₀ | 15.7 | X | 141.55082 | 95.11093 | 77.51151 | 3.43339 | 0.0953046 | 0.24187529 | 2.5511836 | 20 | 9 3.6 | 19.5 |
| 191023 2002 AZ ₁₁₁ | 16.6 | X | 47.33829 | 36.53878 | 31.99832 | 1.72589 | 0.1647259 | 0.26915517 | 2.3757509 | 20 | — | — |
| 191024 2002 AF ₁₃₉ | 16.0 | X | 115.47690 | 198.64565 | 325.29549 | 13.86319 | 0.0327696 | 0.23657074 | 2.5891787 | 20 | 7 18.4 | 19.6 |
| 191025 2002 AC ₁₄₉ | 16.4 | X | 30.77768 | 56.08781 | 357.89609 | 2.57350 | 0.2580711 | 0.27005054 | 2.3704967 | 20 | — | — |
| 191026 2002 AW ₁₅₉ | 17.0 | X | 316.76671 | 267.78504 | 146.98990 | 3.38005 | 0.1764835 | 0.25351972 | 2.4724540 | 20 | 11 17.9 | 19.0 |
| 191027 2002 AJ ₁₆₀ | 16.0 | X | 153.10485 | 17.16713 | 143.82802 | 7.35026 | 0.1078632 | 0.24099384 | 2.5574005 | 20 | 8 30.9 | 19.7 |
| 191028 2002 AS ₁₆₈ | 12.7 | X | 258.18172 | 308.28462 | 145.36618 | 20.06387 | 0.0908580 | 0.08513634 | 5.1175182 | 20 | 9 15.7 | 19.6</ |

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

| Planet | <i>H</i> | <i>G</i> | <i>M</i> | ω | Ω | <i>i</i> | <i>e</i> | μ | <i>a</i> | TE | Oppos. | <i>V</i> |
|-------------------------------|----------|----------|-----------|-----------|-----------|----------|-----------|------------|-----------|----|---------|----------|
| 191041 2002 CY ₂₇ | 15.7 | X | 109.18257 | 177.98178 | 342.76450 | 7.36820 | 0.1289472 | 0.23498459 | 2.6008170 | 20 | 7 16.1 | 19.5 |
| 191042 2002 CE ₃₀ | 15.7 | X | 45.34533 | 357.27182 | 25.71231 | 6.37827 | 0.1487059 | 0.26174257 | 2.4203963 | 20 | — | — |
| 191043 2002 CP ₃₁ | 15.8 | X | 186.39404 | 134.71125 | 1.75707 | 7.66651 | 0.1488654 | 0.24332569 | 2.5410356 | 20 | 9 2.4 | 19.7 |
| 191044 2002 CQ ₃₁ | 15.5 | X | 12.14463 | 297.28893 | 342.95728 | 14.23666 | 0.0890713 | 0.23763717 | 2.5814267 | 20 | 8 10.1 | 18.5 |
| 191045 2002 CG ₃₂ | 15.9 | X | 105.21945 | 213.36212 | 343.79948 | 12.03080 | 0.1019181 | 0.23851859 | 2.5750632 | 20 | 8 26.2 | 19.6 |
| 191046 2002 CN ₃₉ | 15.9 | X | 219.05113 | 290.75118 | 154.88504 | 4.35330 | 0.1202596 | 0.23902827 | 2.5714014 | 20 | 7 31.9 | 19.6 |
| 191047 2002 CS ₄₂ | 15.5 | X | 312.57343 | 319.28029 | 265.84421 | 10.52805 | 0.0772663 | 0.21744408 | 2.7388673 | 20 | 2 11.2 | 19.3 |
| 191048 2002 CM ₅₅ | 15.6 | X | 325.94300 | 242.97181 | 330.80823 | 9.60693 | 0.1113721 | 0.21769450 | 2.7367665 | 20 | 2 15.1 | 18.9 |
| 191049 2002 CE ₅₆ | 15.3 | X | 326.67541 | 225.25038 | 327.59799 | 8.28693 | 0.1397993 | 0.21417303 | 2.7666838 | 20 | 1 17.6 | 18.8 |
| 191050 2002 CE ₆₄ | 15.7 | X | 122.84364 | 103.23244 | 6.71237 | 14.61227 | 0.0341075 | 0.22891868 | 2.6465609 | 20 | 5 7.1 | 19.6 |
| 191051 2002 CK ₆₄ | 15.4 | X | 239.78634 | 70.76248 | 358.28046 | 15.34916 | 0.2114074 | 0.24299984 | 2.5433067 | 20 | 7 29.2 | 19.5 |
| 191052 2002 CC ₇₀ | 15.9 | X | 8.74860 | 288.62041 | 346.01214 | 5.57518 | 0.0792504 | 0.23648895 | 2.5897757 | 20 | 7 23.3 | 18.8 |
| 191053 2002 CS ₇₂ | 15.2 | X | 280.51581 | 269.36321 | 319.78213 | 12.11099 | 0.1662805 | 0.21386227 | 2.7693633 | 20 | 1 4.3 | 19.5 |
| 191054 2002 CZ ₈₀ | 12.6 | X | 283.16446 | 334.08901 | 84.60756 | 3.18390 | 0.0326708 | 0.08369207 | 5.1762253 | 20 | 9 10.8 | 19.4 |
| 191055 2002 CC ₈₁ | 16.0 | X | 324.47526 | 126.19230 | 141.87193 | 9.25399 | 0.0575899 | 0.22713494 | 2.6603988 | 20 | 5 5.1 | 19.5 |
| 191056 2002 CL ₉₈ | 15.3 | X | 292.76737 | 64.94069 | 151.28046 | 12.46221 | 0.1221366 | 0.21250588 | 2.7111351 | 20 | 1 5.3 | 19.4 |
| 191057 2002 CD ₁₀₀ | 15.8 | X | 257.74990 | 205.42373 | 150.01674 | 13.94145 | 0.0664124 | 0.22995071 | 2.6388636 | 20 | 5 29.1 | 19.7 |
| 191058 2002 CO ₁₀₅ | 15.9 | X | 173.23392 | 318.09029 | 153.23681 | 3.60561 | 0.1141209 | 0.23468882 | 2.6030017 | 20 | 7 16.7 | 19.9 |
| 191059 2002 CM ₁₀₈ | 16.9 | X | 82.82535 | 58.54511 | 354.32848 | 21.02580 | 0.1347510 | 0.37460804 | 1.9058322 | 20 | — | — |
| 191060 2002 CT ₁₁₁ | 12.7 | X | 237.37751 | 118.15011 | 354.45563 | 5.23714 | 0.0647606 | 0.08378387 | 5.1724436 | 20 | 9 15.2 | 19.7 |
| 191061 2002 CM ₁₁₈ | 17.0 | X | 200.27558 | 309.53144 | 119.36239 | 1.78919 | 0.0461563 | 0.23659159 | 2.5890266 | 20 | 6 23.9 | 20.5 |
| 191062 2002 CD ₁₃₁ | 16.3 | X | 210.74611 | 111.28476 | 312.33111 | 11.22854 | 0.0169074 | 0.23532174 | 2.5983322 | 20 | 7 3.9 | 19.8 |
| 191063 2002 CJ ₁₃₇ | 15.8 | X | 56.04405 | 20.05700 | 153.22408 | 12.55292 | 0.1212539 | 0.22855072 | 2.6494007 | 20 | 5 23.3 | 19.3 |
| 191064 2002 CL ₁₃₈ | 15.7 | X | 173.55795 | 303.37555 | 146.58967 | 22.26336 | 0.0726581 | 0.23517858 | 2.5993866 | 20 | 6 22.0 | 19.9 |
| 191065 2002 CA ₁₃₉ | 16.3 | X | 282.15314 | 271.40178 | 179.96823 | 6.54466 | 0.1720062 | 0.25262193 | 2.4783084 | 20 | 11 1.3 | 18.7 |
| 191066 2002 CO ₁₄₃ | 16.8 | X | 344.96598 | 158.94376 | 234.08678 | 1.71848 | 0.2163734 | 0.25660865 | 2.4525725 | 20 | 12 20.7 | 18.9 |
| 191067 2002 CJ ₁₄₉ | 16.1 | X | 272.10405 | 93.28904 | 309.19945 | 1.85591 | 0.1286737 | 0.24328012 | 2.5413529 | 20 | 8 9.6 | 19.5 |
| 191068 2002 CL ₁₄₉ | 13.6 | X | 218.24854 | 30.94743 | 96.82734 | 3.74747 | 0.0442216 | 0.08491392 | 5.1264506 | 20 | 9 15.8 | 20.1 |
| 191069 2002 CA ₁₅₁ | 16.5 | X | 221.56162 | 328.78104 | 120.53588 | 1.96117 | 0.1508478 | 0.24130373 | 2.5552106 | 20 | 8 6.4 | 20.3 |
| 191070 2002 CC ₁₅₁ | 16.7 | X | 280.83699 | 92.02503 | 330.08248 | 7.73447 | 0.1930546 | 0.24728380 | 2.5138475 | 20 | 9 8.8 | 19.3 |
| 191071 2002 CJ ₁₅₅ | 16.0 | X | 39.76282 | 252.76200 | 344.29308 | 6.32020 | 0.0504960 | 0.23702392 | 2.5858774 | 20 | 7 15.6 | 19.2 |
| 191072 2002 CT ₁₇₇ | 16.9 | X | 235.29572 | 315.56267 | 117.45498 | 2.24586 | 0.0811790 | 0.24286365 | 2.5442573 | 20 | 8 9.5 | 20.1 |
| 191073 2002 CZ ₂₀₃ | 16.4 | X | 171.32257 | 127.43658 | 341.10455 | 8.70640 | 0.0947298 | 0.23606285 | 2.5928911 | 20 | 7 13.5 | 20.3 |
| 191074 2002 CP ₂₀₄ | 16.2 | X | 241.85652 | 59.16348 | 335.60398 | 7.94486 | 0.0712975 | 0.23565761 | 2.5958628 | 20 | 6 27.9 | 19.9 |
| 191075 2002 CM ₂₀₈ | 12.5 | X | 310.55259 | 231.14683 | 153.83600 | 31.73875 | 0.1017345 | 0.08279626 | 5.2134944 | 20 | 8 27.4 | 19.1 |
| 191076 2002 CE ₂₀₉ | 16.1 | X | 148.84395 | 336.04883 | 119.52893 | 3.81949 | 0.0235250 | 0.22966842 | 2.6407981 | 20 | 5 26.5 | 19.7 |
| 191077 2002 CA ₂₁₀ | 16.3 | X | 42.98503 | 225.11765 | 358.32829 | 1.30932 | 0.1249876 | 0.23034565 | 2.6356195 | 20 | 7 10.4 | 19.2 |
| 191078 2002 CE ₂₁₆ | 12.7 | X | 293.11071 | 270.50971 | 140.07561 | 6.59886 | 0.0619240 | 0.08238710 | 5.2307413 | 20 | 9 9.3 | 19.4 |
| 191079 2002 CN ₂₂₀ | 16.4 | X | 112.86157 | 177.17889 | 4.88094 | 4.34960 | 0.0960425 | 0.23507386 | 2.6001585 | 20 | 8 14.0 | 20.1 |
| 191080 2002 CS ₂₂₇ | 15.4 | X | 330.94741 | 107.19232 | 177.15168 | 9.68516 | 0.1526952 | 0.23086983 | 2.6316286 | 20 | 5 26.1 | 18.3 |
| 191081 2002 CX ₂₃₁ | 15.5 | X | 178.33315 | 352.69073 | 99.68658 | 12.95040 | 0.1049859 | 0.23509711 | 2.5999871 | 20 | 6 27.9 | 19.5 |
| 191082 2002 CO ₂₄₅ | 17.0 | X | 152.45227 | 324.82620 | 153.25933 | 0.53741 | 0.1459927 | 0.23288175 | 2.6164498 | 20 | 7 5.3 | 21.1 |
| 191083 2002 CR ₂₄₈ | 16.2 | X | 103.51262 | 334.79608 | 204.77464 | 4.57759 | 0.1811341 | 0.23371852 | 2.6102011 | 20 | 8 5.9 | 20.3 |
| 191084 2002 CZ ₂₄₉ | 16.4 | X | 307.82324 | 36.16783 | 239.37357 | 1.24518 | 0.0293429 | 0.22573276 | 2.6714045 | 20 | 4 21.1 | 19.7 |
| 191085 2002 CS ₂₇₃ | 16.1 | X | 220.97298 | 180.10861 | 148.52648 | 6.98621 | 0.0512170 | 0.22161480 | 2.7043955 | 20 | 3 10.8 | 20.0 |
| 191086 2002 CB ₂₈₀ | 16.1 | X | 265.46754 | 161.12726 | 251.16972 | 6.12582 | 0.2241516 | 0.24494017 | 2.5298574 | 20 | 7 27.7 | 19.6 |
| 191087 2002 CK ₂₈₁ | 16.1 | X | 331.28551 | 121.49529 | 138.32088 | 8.23291 | 0.0635307 | 0.22877968 | 2.6476328 | 20 | 5 2.9 | 19.5 |
| 191088 2002 CP ₂₈₆ | 12.9 | X | 302.28473 | 238.04696 | 155.53040 | 8.17630 | 0.0849829 | 0.08225796 | 5.2362146 | 20 | 8 28.3 | 19.6 |
| 191089 2002 CS ₂₉₁ | 12.5 | X | 290.95691 | 263.07424 | 163.90541 | 11.60601 | 0.1187573 | 0.08387064 | 5.1688754 | 20 | 9 18.0 | 19.0 |
| 191090 2002 CS ₃₀₂ | 15.7 | X | 280.73580 | 87.72266 | 180.49892 | 14.49023 | 0.0992506 | 0.22020567 | 2.7159205 | 20 | 2 24.7 | 19.6 |
| 191091 2002 CU ₃₁₂ | 16.5 | X | 272.13227 | 169.01633 | 244.95664 | 1.56083 | 0.1718349 | 0.24492563 | 2.5299575 | 20 | 8 18.2 | 19.7 |
| 191092 2002 CP ₃₁₄ | 16.4 | X | 65.88129 | 226.13430 | 310.48854 | 8.39661 | 0.0341018 | 0.22891899 | 2.6465585 | 20 | 5 24.3 | 20.0 |
| 191093 2002 EF | 15.5 | X | 2.17471 | 150.10519 | 189.30201 | 2.59283 | 0.1459392 | 0.24301622 | 2.5431924 | 20 | 10 21.8 | 18.0 |
| 191094 2002 EA ₃ | 20.1 | X | 316.72781 | 259.41299 | 349.39973 | 32.16240 | 0.6414770 | 0.32048337 | 2.1147825 | 20 | 1 6.3 | 24.7 |
| 191095 2002 ER ₅ | 16.8 | X | 302.30592 | 49.94516 | 172.07030 | 23.03126 | 0.0458687 | 0.37699065 | 1.8977937 | 20 | 1 4.7 | 19.4 |
| 191096 2002 EO ₆ | 16.6 | X | 206.98877 | 185.79534 | 183.08517 | 3.31213 | 0.1175821 | 0.22198262 | 2.7014073 | 20 | 4 11.8 | 20.6 |
| 191097 2002 EJ ₁₀ | 15.2 | X | 151.56873 | 141.32798 | 323.88818 | 21.71453 | 0.0439077 | 0.23095137 | 2.6310092 | 20 | 6 13.5 | 19.4 |
| 191098 2002 EK ₁₁ | 16.5 | X | 278.33157 | 44.13729 | 161.41932 | 22.95145 | 0.0510123 | 0.37343364 | 1.9098258 | 20 | — | — |
| 191099 2002 EQ ₁₁ | 16.3 | X | 319.14246 | 338.66476 | 223.25190 | 20.26012 | 0.0520345 | 0.37763770 | 1.8956253 | 20 | — | — |
| 191100 2002 EH ₁₄ | 17.4 | X | 179.63963 | 187.95510 | 161.81021 | 23.89783 | 0.0151754 | 0.38092024 | 1.8847193 | 20 | 1 20.7 | 19.8 |
| 191101 2002 EO ₁₄ | 15.9 | X | 110.85280 | 151.73940 | 321.57343 | 13.92331 | 0.0511032 | 0.22644593 | 2.6657926 | 20 | 4 27.0 | 19.9 |
| 191102 2002 EW ₁₄ | 12.7 | X | 242.67252 | 148.85544 | 310.15582 | 2.85158 | 0.0383623 | 0.08305802 | 5.2025349 | 20 | 9 7.6 | 19.7 |
| 191103 2002 EF ₄₂ | 13.1 | X | 263.06282 | 93.76619 | 355.87504 | 1.28643 | 0.0636919 | 0.08286700 | 5.2105269 | 20 | 9 17.2 | 20.1 |
| 191104 2002 ET ₄₄ | 12.9 | X | 270.17257 | 235.41187 | 207.83714 | 6.59778 | 0.1095141 | 0.08336908 | 5.1895858 | 20 | 9 10.4 | 19.8 |
| 191105 2002 EM ₄₈ | 16.3 | X | 323.15021 | 67.87411 | 166.52869 | 1.33800 | 0.0269130 | 0.22700695 | 2.6613987 | 20 | 5 25.5 | 19.6 |
| 191106 2002 ED ₅₆ | 16.1 | X | 227.83928 | 31.68164 | 314.95605 | 6.24076 | 0.0218993 | 0.22525431 | 2.6751860 | 20 | 4 8.4 | 19.9 |
| 191107 2002 ER ₅₇ | 12.7 | X | 301.38336 | 96.50367 | 311.47302 | 4.99927 | 0.059744 | | | | | |

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

| Planet | <i>H</i> | <i>G</i> | <i>M</i> | ω | Ω | <i>i</i> | <i>e</i> | μ | <i>a</i> | TE | Oppos. | <i>V</i> | | | |
|--------|----------|--------------------------|----------|----------|-----------|-----------|-----------|----------|-----------|------------|-----------|----------|----|------|------|
| 191121 | 2002 | <i>EF</i> ₁₃₁ | 16.0 | X | 278.30590 | 88.09137 | 163.04417 | 5.15932 | 0.0648370 | 0.21715847 | 2.7412682 | 20 | 2 | 6.7 | 19.9 |
| 191122 | 2002 | <i>EU</i> ₁₃₁ | 16.2 | X | 230.01762 | 330.25498 | 4.58573 | 4.37150 | 0.1177379 | 0.22006830 | 2.7170506 | 20 | 3 | 23.4 | 20.2 |
| 191123 | 2002 | <i>EB</i> ₁₃₅ | 16.5 | X | 180.24115 | 118.13219 | 317.71156 | 1.66288 | 0.1027466 | 0.22988417 | 2.6391455 | 20 | 6 | 8.0 | 20.6 |
| 191124 | 2002 | <i>EL</i> ₁₃₇ | 16.0 | X | 260.93890 | 263.67437 | 23.78689 | 3.01715 | 0.0360784 | 0.21819099 | 2.7326133 | 20 | 3 | 7.6 | 19.8 |
| 191125 | 2002 | <i>EG</i> ₁₃₈ | 16.4 | X | 25.27463 | 80.11566 | 150.58667 | 2.04065 | 0.0308415 | 0.22818644 | 2.6522197 | 20 | 6 | 11.1 | 19.6 |
| 191126 | 2002 | <i>EU</i> ₁₃₈ | 16.3 | X | 175.01650 | 235.40992 | 147.02549 | 5.50744 | 0.0127045 | 0.21998274 | 2.7177551 | 20 | 3 | 24.9 | 19.9 |
| 191127 | 2002 | <i>FC</i> ₁ | 16.2 | X | 315.24189 | 8.90890 | 192.64638 | 5.57837 | 0.1531878 | 0.21140665 | 2.7907672 | 20 | 1 | 9.5 | 20.1 |
| 191128 | 2002 | <i>FM</i> ₂ | 15.3 | X | 284.60559 | 352.11849 | 349.33779 | 14.72001 | 0.0935280 | 0.23108567 | 2.6299897 | 20 | 6 | 5.4 | 19.1 |
| 191129 | 2002 | <i>FP</i> ₁₀ | 15.8 | X | 41.49813 | 151.22827 | 43.66132 | 5.55778 | 0.1594649 | 0.22503357 | 2.6769351 | 20 | 5 | 31.4 | 18.6 |
| 191130 | 2002 | <i>FE</i> ₃₅ | 15.0 | X | 120.94372 | 205.07795 | 76.88674 | 11.74906 | 0.3404134 | 0.18845209 | 3.0130204 | 20 | 12 | 22.7 | 20.6 |
| 191131 | 2002 | <i>GH</i> ₅ | 16.9 | X | 110.85804 | 353.05768 | 22.66665 | 21.01111 | 0.0771317 | 0.36892935 | 1.9253392 | 20 | — | — | — |
| 191132 | 2002 | <i>GK</i> ₂₃ | 16.0 | X | 125.01598 | 56.15632 | 94.64663 | 3.34084 | 0.1412557 | 0.23015260 | 2.6370931 | 20 | 7 | 19.9 | 20.1 |
| 191133 | 2002 | <i>GF</i> ₃₃ | 15.7 | X | 16.38574 | 242.75788 | 0.48529 | 12.74878 | 0.0977406 | 0.22913589 | 2.6448881 | 20 | 6 | 19.5 | 19.0 |
| 191134 | 2002 | <i>GH</i> ₃₃ | 16.1 | X | 125.38991 | 151.07596 | 4.24301 | 13.31145 | 0.1045821 | 0.23390353 | 2.6088245 | 20 | 7 | 27.9 | 20.2 |
| 191135 | 2002 | <i>GG</i> ₄₃ | 16.2 | X | 210.33847 | 232.22707 | 209.81692 | 2.31802 | 0.1154107 | 0.23353798 | 2.6115461 | 20 | 7 | 17.6 | 20.2 |
| 191136 | 2002 | <i>GC</i> ₄₅ | 15.8 | X | 154.30873 | 71.77375 | 10.30512 | 2.38816 | 0.0095551 | 0.22306595 | 2.6926538 | 20 | 5 | 13.0 | 19.3 |
| 191137 | 2002 | <i>GT</i> ₅₆ | 15.7 | X | 312.36567 | 218.00672 | 345.40035 | 6.93589 | 0.2284301 | 0.21039309 | 2.7997230 | 20 | — | — | — |
| 191138 | 2002 | <i>GX</i> ₇₀ | 15.4 | X | 174.36544 | 105.19220 | 170.02535 | 10.82468 | 0.1988342 | 0.19705219 | 2.9247036 | 20 | — | — | — |
| 191139 | 2002 | <i>GG</i> ₇₆ | 15.6 | X | 319.17353 | 177.06706 | 213.28595 | 3.26871 | 0.1547560 | 0.24102755 | 2.5571621 | 20 | 10 | 11.1 | 17.9 |
| 191140 | 2002 | <i>GM</i> ₈₆ | 15.5 | X | 134.86944 | 283.80534 | 141.61514 | 5.58568 | 0.0823470 | 0.21740598 | 2.7391873 | 20 | 4 | 7.5 | 19.5 |
| 191141 | 2002 | <i>GP</i> ₈₇ | 15.4 | X | 112.63384 | 84.46759 | 176.58914 | 10.37352 | 0.2421418 | 0.18486414 | 3.0518810 | 20 | 11 | 22.5 | 20.8 |
| 191142 | 2002 | <i>GM</i> ₁₀₂ | 16.0 | X | 109.55344 | 259.53286 | 207.62879 | 7.07136 | 0.0478182 | 0.22158022 | 2.7046769 | 20 | 4 | 24.1 | 19.6 |
| 191143 | 2002 | <i>GS</i> ₁₀₂ | 15.4 | X | 203.32064 | 12.35478 | 14.28677 | 5.96590 | 0.0561509 | 0.22308422 | 2.6925068 | 20 | 4 | 30.6 | 19.4 |
| 191144 | 2002 | <i>GH</i> ₁₁₃ | 15.8 | X | 275.17935 | 82.44487 | 168.46961 | 12.72199 | 0.1070348 | 0.21192883 | 2.7861812 | 20 | 1 | 28.3 | 20.0 |
| 191145 | 2002 | <i>GH</i> ₁₁₉ | 15.8 | X | 169.89752 | 312.06220 | 150.04088 | 12.12978 | 0.1421803 | 0.23118741 | 2.6292180 | 20 | 7 | 1.6 | 20.1 |
| 191146 | 2002 | <i>GT</i> ₁₂₈ | 15.8 | X | 64.91319 | 267.76225 | 224.65176 | 4.69629 | 0.0306165 | 0.21807622 | 2.7335719 | 20 | 3 | 24.7 | 19.4 |
| 191147 | 2002 | <i>GS</i> ₁₃₀ | 16.6 | X | 130.24145 | 317.32457 | 3.00142 | 6.42750 | 0.1230383 | 0.25288877 | 2.4765647 | 20 | — | — | — |
| 191148 | 2002 | <i>GW</i> ₁₄₀ | 15.2 | X | 223.47996 | 218.58798 | 207.51451 | 16.61122 | 0.1924992 | 0.23038880 | 2.6352904 | 20 | 7 | 2.1 | 19.7 |
| 191149 | 2002 | <i>GO</i> ₁₄₈ | 15.8 | X | 81.56411 | 104.91271 | 326.74328 | 3.44332 | 0.0506703 | 0.21175672 | 2.7876907 | 20 | 2 | 3.2 | 19.3 |
| 191150 | 2002 | <i>GG</i> ₁₄₉ | 16.1 | X | 201.56528 | 155.41359 | 184.11072 | 6.03471 | 0.0408040 | 0.21384940 | 2.7694744 | 20 | 3 | 1.0 | 20.2 |
| 191151 | 2002 | <i>GA</i> ₁₇₃ | 15.8 | X | 76.37305 | 320.92654 | 165.34456 | 13.14589 | 0.0797446 | 0.21768787 | 2.7368221 | 20 | 4 | 12.9 | 19.4 |
| 191152 | 2002 | <i>HP</i> ₂ | 15.8 | X | 347.32831 | 265.40068 | 38.66260 | 3.49958 | 0.0734082 | 0.23115783 | 2.6294423 | 20 | 7 | 29.0 | 18.9 |
| 191153 | 2002 | <i>HS</i> ₄ | 16.7 | X | 80.32312 | 266.10191 | 183.33028 | 22.85672 | 0.1017769 | 0.37706058 | 1.8975590 | 20 | 1 | 28.5 | 18.7 |
| 191154 | 2002 | <i>HA</i> ₁₁ | 15.2 | X | 110.57721 | 60.80303 | 30.66086 | 15.82598 | 0.0694992 | 0.21881850 | 2.7273866 | 20 | 4 | 10.1 | 19.0 |
| 191155 | 2002 | <i>JO</i> ₃₆ | 15.0 | X | 142.15912 | 59.11481 | 179.52799 | 7.22047 | 0.2525120 | 0.18581636 | 3.0414459 | 20 | 11 | 18.3 | 20.4 |
| 191156 | 2002 | <i>JG</i> ₃₈ | 15.0 | X | 252.69026 | 103.20813 | 221.20957 | 16.30160 | 0.1748881 | 0.21516654 | 2.7581607 | 20 | 3 | 25.3 | 19.5 |
| 191157 | 2002 | <i>JH</i> ₃₈ | 15.9 | X | 143.84642 | 264.35048 | 227.61482 | 4.00095 | 0.1490483 | 0.22903164 | 2.6456907 | 20 | 7 | 13.9 | 20.1 |
| 191158 | 2002 | <i>JX</i> ₄₃ | 16.1 | X | 35.87061 | 232.50691 | 223.96386 | 20.56128 | 0.0878450 | 0.37117622 | 1.9175614 | 20 | — | — | — |
| 191159 | 2002 | <i>JG</i> ₇₁ | 15.1 | X | 237.78801 | 163.19840 | 80.99172 | 12.14615 | 0.0932323 | 0.20231458 | 2.8737651 | 20 | — | — | — |
| 191160 | 2002 | <i>JV</i> ₇₃ | 14.8 | X | 56.41359 | 209.44774 | 101.55457 | 14.42970 | 0.2759076 | 0.17836650 | 3.1255553 | 20 | 12 | 4.8 | 19.6 |
| 191161 | 2002 | <i>JY</i> ₈₆ | 15.9 | X | 186.92242 | 289.58564 | 304.40015 | 1.18437 | 0.0847417 | 0.19284501 | 2.9670881 | 20 | 12 | 26.3 | 20.4 |
| 191162 | 2002 | <i>JN</i> ₁₂₂ | 14.6 | X | 105.89291 | 172.28650 | 103.28240 | 20.87834 | 0.2457439 | 0.18525942 | 3.0475384 | 20 | 12 | 5.7 | 20.0 |
| 191163 | 2002 | <i>JN</i> ₁₂₅ | 15.9 | X | 216.89265 | 28.71060 | 299.57288 | 0.65481 | 0.0925307 | 0.21144052 | 2.7904692 | 20 | 3 | 3.7 | 20.0 |
| 191164 | 2002 | <i>JD</i> ₁₄₈ | 16.0 | X | 172.21469 | 40.02403 | 206.32687 | 2.60121 | 0.1537822 | 0.19192620 | 2.9765502 | 20 | 12 | 21.6 | 20.8 |
| 191165 | 2002 | <i>JR</i> ₁₄₈ | 16.1 | X | 93.59756 | 245.46751 | 204.38294 | 2.34908 | 0.0648161 | 0.21529932 | 2.7570265 | 20 | 3 | 13.9 | 19.7 |
| 191166 | 2002 | <i>KQ</i> ₂ | 15.6 | X | 16.96191 | 306.09768 | 214.07029 | 3.94824 | 0.0570927 | 0.21348045 | 2.7276644 | 20 | 2 | 24.2 | 19.1 |
| 191167 | 2002 | <i>LK</i> ₆ | 15.5 | X | 347.05786 | 326.51130 | 173.79141 | 6.80597 | 0.0840687 | 0.20302992 | 2.8670109 | 20 | — | — | — |
| 191168 | 2002 | <i>LX</i> ₂₉ | 14.9 | X | 83.26993 | 206.25598 | 96.10525 | 13.33752 | 0.1211175 | 0.18342349 | 3.0678403 | 20 | 12 | 4.8 | 19.6 |
| 191169 | 2002 | <i>LJ</i> ₃₆ | 14.4 | X | 39.63361 | 117.32649 | 261.98400 | 10.70269 | 0.1420366 | 0.18074252 | 3.0981028 | 20 | — | — | — |
| 191170 | 2002 | <i>MF</i> ₃ | 15.2 | X | 63.76381 | 143.27469 | 168.11350 | 17.42106 | 0.2338849 | 0.17911769 | 3.1168105 | 20 | 12 | 7.7 | 20.3 |
| 191171 | 2002 | <i>MF</i> ₅ | 15.2 | X | 72.10715 | 178.61001 | 107.92082 | 10.25934 | 0.1959706 | 0.17577474 | 3.1562040 | 20 | 11 | 13.5 | 20.1 |
| 191172 | 2002 | <i>MH</i> ₅ | 14.9 | X | 137.26705 | 300.73289 | 322.46668 | 14.80691 | 0.0539522 | 0.18129822 | 3.0917689 | 20 | 12 | 6.8 | 19.8 |
| 191173 | 2002 | <i>ND</i> ₁₁ | 14.9 | X | 52.92901 | 78.88306 | 280.89073 | 10.52126 | 0.1332052 | 0.18128539 | 3.0919148 | 20 | — | — | — |
| 191174 | 2002 | <i>NF</i> ₁₂ | 15.0 | X | 57.88288 | 90.35250 | 278.63253 | 8.14767 | 0.1794514 | 0.18237417 | 3.0795966 | 20 | — | — | — |
| 191175 | 2002 | <i>NT</i> ₂₁ | 14.6 | X | 25.76329 | 65.25955 | 290.73515 | 16.41416 | 0.1143341 | 0.17562077 | 3.1580486 | 20 | 11 | 26.1 | 19.1 |
| 191176 | 2002 | <i>NA</i> ₃₂ | 14.1 | X | 341.51513 | 163.91051 | 214.13919 | 21.78018 | 0.2405315 | 0.16944338 | 3.2343447 | 20 | 10 | 20.2 | 17.2 |
| 191177 | 2002 | <i>NX</i> ₃₅ | 14.7 | X | 17.21664 | 200.01565 | 220.68648 | 7.39365 | 0.1522189 | 0.18265360 | 3.0764549 | 20 | — | — | — |
| 191178 | 2002 | <i>NS</i> ₃₆ | 15.3 | X | 36.04114 | 169.14182 | 164.36843 | 10.23725 | 0.0706805 | 0.17472560 | 3.1688258 | 20 | 11 | 10.1 | 19.7 |
| 191179 | 2002 | <i>NR</i> ₄₃ | 14.9 | X | 87.14515 | 319.44123 | 336.40691 | 15.17995 | 0.0863279 | 0.17688111 | 3.1430292 | 20 | 11 | 20.4 | 19.8 |
| 191180 | 2002 | <i>NA</i> ₄₇ | 14.9 | X | 14.51386 | 79.44973 | 315.18396 | 14.33784 | 0.2333988 | 0.17951330 | 3.1122296 | 20 | — | — | — |
| 191181 | 2002 | <i>NZ</i> ₅₂ | 15.3 | X | 142.93219 | 265.37183 | 79.87758 | 2.12416 | 0.2366207 | 0.19141336 | 2.9818643 | 20 | 1 | 25.5 | 20.1 |
| 191182 | 2002 | <i>NR</i> ₅₃ | 14.9 | X | 46.82281 | 46.33291 | 308.15033 | 5.60664 | 0.0502151 | 0.17894133 | 3.1188580 | 20 | 12 | 14.0 | 19.3 |
| 191183 | 2002 | <i>NZ</i> ₅₅ | 14.6 | X | 335.24681 | 114.16298 | 274.55654 | 8.92997 | 0.1006171 | 0.17257948 | 3.1950423 | 20 | 10 | 18.3 | 18.7 |
| 191184 | 2002 | <i>NC</i> ₅₆ | 14.9 | X | 355.70063 | 296.97065 | 109.39992 | 17.70435 | 0.2283656 | 0.17876739 | 3.1208808 | 20 | 12 | 30.8 | 18.3 |
| 191185 | 2002 | <i>OK</i> ₁₀ | 14.9 | X | 18.77123 | 40.93041 | 310.13393 | 13.47339 | 0.1718206 | 0.17241391 | 3.1970874 | 20 | 11 | 14.6 | 19.2 |
| 191186 | 2002 | <i>OW</i> ₁₀ | 14.9 | X | 62.21913 | 66.46835 | 297.87509 | 13.15844 | 0.1502654 | 0.18081178 | 3.0973116 | 20 | — | — | — |
| 191187 | 2002 | <i>OH</i> | | | | | | | | | | | | | |

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

| Planet | <i>H</i> | <i>G</i> | <i>M</i> | ω | Ω | <i>i</i> | <i>e</i> | μ | <i>a</i> | TE | Oppos. | <i>V</i> |
|-------------------------------|----------|----------|-----------|-----------|-----------|----------|------------|------------|-----------|----|---------|----------|
| 191201 2002 PN ₇₁ | 14.8 | X | 83.65224 | 156.23975 | 168.76141 | 15.75549 | 0.0819715 | 0.18087168 | 3.0966277 | 20 | 12 25.7 | 19.7 |
| 191202 2002 PJ ₈₂ | 14.1 | X | 354.70690 | 227.43833 | 155.24917 | 13.14306 | 0.1529815 | 0.17195522 | 3.2027703 | 20 | 11 20.9 | 18.1 |
| 191203 2002 PT ₉₄ | 14.5 | X | 333.69758 | 251.95102 | 128.29826 | 11.03456 | 0.0616315 | 0.16839426 | 3.2477645 | 20 | 10 13.3 | 18.9 |
| 191204 2002 PN ₉₇ | 14.3 | X | 44.31786 | 43.33907 | 343.55445 | 17.70790 | 0.2592699 | 0.17886275 | 3.1197715 | 20 | — | — |
| 191205 2002 PS ₁₀₅ | 15.4 | X | 44.23491 | 192.69273 | 206.29381 | 9.04431 | 0.3701444 | 0.17998065 | 3.1068397 | 20 | — | — |
| 191206 2002 PP ₁₀₉ | 14.7 | X | 195.35648 | 244.67698 | 281.70576 | 15.50546 | 0.1121724 | 0.17227439 | 3.1988134 | 20 | 10 2.7 | 20.0 |
| 191207 2002 PH ₁₆₉ | 15.8 | X | 112.79435 | 7.87532 | 61.72983 | 2.93691 | 0.0882421 | 0.19782132 | 2.9171179 | 20 | 3 19.4 | 19.9 |
| 191208 2002 QU ₂₈ | 15.1 | X | 97.68424 | 225.71450 | 47.54855 | 4.54676 | 0.1231613 | 0.17613928 | 3.1518479 | 20 | 11 12.5 | 19.9 |
| 191209 2002 QE ₃₂ | 14.5 | X | 30.75170 | 17.56392 | 351.10242 | 13.98837 | 0.1483417 | 0.17520650 | 3.1630247 | 20 | 12 24.8 | 19.0 |
| 191210 2002 QR ₄₁ | 15.1 | X | 56.05280 | 303.59931 | 112.17423 | 6.02787 | 0.3044530 | 0.18521487 | 3.0480270 | 20 | 1 11.9 | 18.0 |
| 191211 2002 QC ₅₈ | 14.9 | X | 268.06420 | 154.62266 | 319.04060 | 5.88655 | 0.0226243 | 0.17393988 | 3.1783614 | 20 | 11 7.8 | 19.4 |
| 191212 2002 QV ₁₁₆ | 15.9 | X | 64.87173 | 326.38300 | 40.84059 | 2.63307 | 0.1953292 | 0.18027484 | 3.1034587 | 20 | — | — |
| 191213 2002 RA ₁ | 14.9 | X | 19.05239 | 356.98285 | 27.30906 | 12.65166 | 0.1267221 | 0.17869637 | 3.1217077 | 20 | 12 25.1 | 19.2 |
| 191214 2002 RO ₃₀ | 14.6 | X | 4.92856 | 78.15350 | 314.15978 | 8.09210 | 0.0698098 | 0.17385227 | 3.1794290 | 20 | 12 6.9 | 19.0 |
| 191215 2002 RA ₃₉ | 14.5 | X | 31.81688 | 34.76473 | 351.26648 | 10.86816 | 0.1578585 | 0.17784054 | 3.1317148 | 20 | — | — |
| 191216 2002 RJ ₄₀ | 14.9 | X | 92.20804 | 344.06873 | 354.33328 | 9.89448 | 0.1317111 | 0.18076166 | 3.0978841 | 20 | — | — |
| 191217 2002 RQ ₄₃ | 15.0 | X | 336.77937 | 318.60762 | 75.82477 | 2.40899 | 0.1827739 | 0.16920015 | 3.2374437 | 20 | 11 1.5 | 18.4 |
| 191218 2002 RY ₅₀ | 15.0 | X | 6.55055 | 54.64838 | 311.18074 | 2.56511 | 0.1685836 | 0.16880208 | 3.2425313 | 20 | 11 15.7 | 19.0 |
| 191219 2002 RC ₇₁ | 15.1 | X | 307.58533 | 166.36991 | 274.63422 | 9.01427 | 0.1410347 | 0.17156863 | 3.2075797 | 20 | 11 9.1 | 19.0 |
| 191220 2002 RU ₇₄ | 15.8 | X | 189.45296 | 274.27803 | 159.99747 | 4.31032 | 0.0791758 | 0.20817508 | 3.2195743 | 20 | 6 16.5 | 20.1 |
| 191221 2002 RL ₈₅ | 14.3 | X | 12.38856 | 54.81075 | 1.01691 | 10.82657 | 0.2034555 | 0.17535993 | 3.1611794 | 20 | — | — |
| 191222 2002 RY ₈₈ | 15.6 | X | 349.03672 | 294.41022 | 41.68215 | 1.13275 | 0.1107675 | 0.16365433 | 3.3101757 | 20 | 9 5.1 | 19.7 |
| 191223 2002 RK ₁₂₄ | 15.2 | X | 111.04128 | 344.68013 | 56.56495 | 11.06612 | 0.1356243 | 0.19160424 | 2.9798836 | 20 | 2 22.5 | 19.7 |
| 191224 2002 RK ₁₄₆ | 14.8 | X | 176.08499 | 15.91992 | 177.04057 | 10.92409 | 0.1238821 | 0.16975068 | 3.2304401 | 20 | 10 24.4 | 20.0 |
| 191225 2002 RN ₁₅₀ | 14.4 | X | 16.07801 | 14.98621 | 241.03737 | 8.57230 | 0.07919393 | 0.15399690 | 3.4471596 | 20 | 6 29.7 | 19.2 |
| 191226 2002 RC ₁₇₀ | 15.0 | X | 0.71401 | 26.46413 | 329.60773 | 20.59134 | 0.0525065 | 0.16940204 | 3.2348709 | 20 | 10 4.9 | 19.7 |
| 191227 2002 RA ₂₃₉ | 15.0 | X | 76.35409 | 76.94478 | 129.80399 | 3.90261 | 0.1500138 | 0.17194577 | 3.2028878 | 20 | 11 9.3 | 19.7 |
| 191228 2002 RN ₂₄₂ | 15.5 | X | 62.05544 | 160.02730 | 205.48494 | 6.26494 | 0.1762429 | 0.17249915 | 3.1960341 | 20 | 10 28.9 | 20.2 |
| 191229 2002 RQ ₂₄₆ | 15.2 | X | 45.45376 | 3.63705 | 355.80282 | 10.22112 | 0.0817287 | 0.17736689 | 3.1372877 | 20 | 12 22.5 | 19.8 |
| 191230 2002 SG ₁ | 14.7 | X | 71.05074 | 330.05988 | 22.66554 | 14.28535 | 0.1921026 | 0.17839688 | 3.1252005 | 20 | — | — |
| 191231 2002 SR ₆ | 15.2 | X | 348.66345 | 52.96154 | 37.72926 | 6.91175 | 0.2087302 | 0.17487464 | 3.1670250 | 20 | — | — |
| 191232 2002 SL ₁₈ | 14.9 | X | 71.86715 | 319.84661 | 349.64751 | 22.04467 | 0.2517563 | 0.17565613 | 3.1576247 | 20 | 12 9.9 | 20.3 |
| 191233 2002 SX ₄₅ | 15.6 | X | 25.24301 | 148.30012 | 178.23465 | 2.03151 | 0.3392455 | 0.16631347 | 3.2747974 | 20 | 11 21.9 | 19.6 |
| 191234 2002 TX ₁₇ | 17.3 | X | 315.38805 | 195.61624 | 96.54384 | 2.80696 | 0.1659435 | 0.31842964 | 2.1238657 | 20 | 5 2.2 | 18.9 |
| 191235 2002 TB ₁₂₂ | 14.8 | X | 29.21654 | 177.18029 | 218.01062 | 12.72582 | 0.2188080 | 0.17716337 | 3.1396899 | 20 | — | — |
| 191236 2002 TT ₁₃₉ | 17.0 | X | 186.92164 | 77.83023 | 336.34292 | 5.92153 | 0.1631394 | 0.31114782 | 2.1568745 | 20 | 5 14.6 | 20.3 |
| 191237 2002 TA ₁₇₅ | 14.5 | X | 275.02504 | 255.44284 | 163.58313 | 17.43396 | 0.1495152 | 0.15976562 | 3.3636734 | 20 | 8 22.4 | 19.1 |
| 191238 2002 UP ₂₇ | 15.2 | X | 354.42461 | 110.70234 | 128.15064 | 10.15988 | 0.0808947 | 0.18139352 | 3.0906858 | 20 | 1 2.5 | 19.3 |
| 191239 2002 VW ₁₃ | 17.9 | X | 292.09449 | 273.36713 | 58.56548 | 2.20884 | 0.1827874 | 0.31793162 | 2.1260831 | 20 | 5 20.7 | 20.1 |
| 191240 2002 VX ₁₆ | 17.4 | X | 178.66454 | 85.50463 | 325.46363 | 3.65854 | 0.0878554 | 0.30936898 | 2.1651345 | 20 | 5 1.0 | 20.2 |
| 191241 2002 VN ₁₀₃ | 17.4 | X | 123.72282 | 127.32428 | 305.64290 | 4.15237 | 0.1213351 | 0.30287891 | 2.1959546 | 20 | 3 29.4 | 20.2 |
| 191242 2002 XA ₃₅ | 16.5 | X | 101.46467 | 306.19859 | 277.55985 | 19.28813 | 0.0472131 | 0.37418145 | 1.9072804 | 20 | 9 27.3 | 19.3 |
| 191243 2002 XJ ₆₀ | 16.9 | X | 163.24991 | 282.82963 | 99.21481 | 3.78791 | 0.1256201 | 0.30097461 | 2.2052076 | 20 | 3 11.3 | 20.0 |
| 191244 2002 YC ₄ | 16.3 | X | 197.58490 | 61.03197 | 305.28533 | 6.68019 | 0.2193017 | 0.30163727 | 2.2019767 | 20 | 3 21.7 | 20.1 |
| 191245 2002 YL ₉ | 16.8 | X | 218.70327 | 114.92033 | 270.51524 | 4.96901 | 0.1463362 | 0.30819067 | 2.1706496 | 20 | 5 9.5 | 20.0 |
| 191246 2002 YV ₁₅ | 16.6 | X | 151.77492 | 84.66269 | 297.70887 | 6.56883 | 0.1430982 | 0.29578285 | 2.2309374 | 20 | 2 25.9 | 19.7 |
| 191247 2002 YM ₂₉ | 16.5 | X | 69.11217 | 143.18251 | 307.74216 | 5.31907 | 0.0596200 | 0.29113874 | 2.2545994 | 20 | 1 28.9 | 18.9 |
| 191248 2002 YO ₂₉ | 16.8 | X | 268.79200 | 205.34297 | 139.16764 | 2.69791 | 0.1821926 | 0.27467845 | 2.3437952 | 20 | — | — |
| 191249 2003 AS ₃₈ | 16.9 | X | 11.93903 | 248.47145 | 235.77898 | 4.79781 | 0.1267173 | 0.28611562 | 2.2809110 | 20 | — | — |
| 191250 2003 AL ₆₉ | 16.9 | X | 119.57264 | 159.71630 | 246.24224 | 5.96874 | 0.1511170 | 0.29432586 | 2.2382938 | 20 | 2 20.1 | 19.8 |
| 191251 2003 AV ₉₀ | 16.9 | X | 41.85831 | 76.73306 | 8.82220 | 6.89716 | 0.0466844 | 0.28502403 | 2.2867309 | 20 | — | — |
| 191252 2003 BS ₂ | 16.8 | X | 252.91181 | 42.48382 | 149.91612 | 5.49486 | 0.0768271 | 0.27430008 | 2.3459500 | 20 | — | — |
| 191253 2003 BE ₉ | 16.7 | X | 66.76365 | 273.17728 | 161.50501 | 5.67229 | 0.1071256 | 0.28769555 | 2.2725527 | 20 | 1 6.1 | 18.9 |
| 191254 2003 BO ₉ | 17.1 | X | 134.33178 | 230.31703 | 155.46588 | 7.09778 | 0.1605659 | 0.29317675 | 2.2441387 | 20 | 2 15.1 | 20.0 |
| 191255 2003 BP ₁₈ | 17.0 | X | 123.91855 | 88.40290 | 314.05354 | 8.89227 | 0.2187642 | 0.29315868 | 2.2442309 | 20 | 3 1.5 | 20.2 |
| 191256 2003 BW ₂₇ | 17.2 | X | 32.16545 | 315.02226 | 158.96365 | 10.63448 | 0.1569848 | 0.28776521 | 2.2721859 | 20 | — | — |
| 191257 2003 BE ₃₃ | 17.0 | X | 34.64033 | 329.88729 | 125.72052 | 2.00232 | 0.0314831 | 0.28512413 | 2.2861957 | 20 | — | — |
| 191258 2003 BV ₃₃ | 16.7 | X | 168.16198 | 35.37028 | 309.45101 | 3.54305 | 0.1932157 | 0.29062268 | 2.2572676 | 20 | 2 1.6 | 19.9 |
| 191259 2003 BL ₃₇ | 16.8 | X | 77.65929 | 273.38236 | 149.43510 | 4.54920 | 0.2136819 | 0.28550976 | 2.2841366 | 20 | 1 24.1 | 18.5 |
| 191260 2003 BM ₄₉ | 16.8 | X | 71.09322 | 337.12574 | 105.19215 | 4.17516 | 0.1238525 | 0.29009961 | 2.2599801 | 20 | 1 27.8 | 18.8 |
| 191261 2003 BK ₅₃ | 16.7 | X | 179.37466 | 281.62616 | 273.46382 | 1.30845 | 0.1613161 | 0.26289066 | 2.4133443 | 20 | 11 8.2 | 20.2 |
| 191262 2003 BW ₅₄ | 15.9 | X | 52.01080 | 343.14892 | 311.32912 | 13.60318 | 0.1430107 | 0.25969091 | 2.4331276 | 20 | 10 30.7 | 19.5 |
| 191263 2003 BK ₆₀ | 17.1 | X | 320.07234 | 356.20659 | 150.85254 | 1.77722 | 0.0639030 | 0.28070226 | 2.3101425 | 20 | — | — |
| 191264 2003 BA ₆₁ | 16.7 | X | 215.15839 | 259.01621 | 261.01680 | 1.08274 | 0.1283010 | 0.26457246 | 2.4031062 | 20 | 11 5.5 | 20.0 |
| 191265 2003 BU ₇₇ | 16.9 | X | 152.17943 | 221.87688 | 188.26411 | 5.77016 | 0.1322928 | 0.29782733 | 2.2207160 | 20 | 4 4.9 | 19.9 |
| 191266 2003 BG ₈₂ | 16.8 | X | 196.42777 | 200.76948 | 339.63115 | 0.75521 | 0.1219307 | 0.26349768 | 2.4096364 | 20 | 11 10.9 | 20.1 |
| 191267 2003 CO ₃ | 16.3 | X | 219.36792 | 211.40140 | 319.22009 | 5.23400 | 0.0607646 | 0.26413339 | 2.4057686 | 20 | 12 3.8 | 19.5 |
| 191268 2003 CM ₂₄ | 17.3 | X | 100.81648 | 258.01542 | 131.81431 | 4.53298 | 0.1384635 | 0.28439842 | 2.2900832 | 20 | 1 4.5 | 19.6 |
| 191269 2003 DB ₂ | 16.7 | X | 83.95917 | 114.20555 | 144.85541 | 6.57352 | 0.0965239 | 0.25753727 | 2.4466733 | 20 | 10 24.9 | 20.1 |
| 191270 2003 DN ₁₃ | 16.1 | X | 127.06660 | 100.35258 | 131.95020 | 10.01724 | 0.1420625 | 0.25872109 | 2.4392042 | 20 | 11 9.2 | 20.1 |
| 191271 2003 ER ₅ | 16.5 | X | 298.33082 | 358.58280 | 171.50329 | 4.18721 | 0.1692919 | 0.27594345 | 2.3366266 | 20 | — | — |
| 191272 2003 EM ₆ | 16.9 | X | 46.05616 | 69.36767 | 8.28725 | 3.07504 | 0.1234949 | 0.28260520 | 2.2997605 | 20 | — | — |
| 191273 2003 EA ₁₃ | 17.2 | X | 218.31938 | 1.51541 | 206.08295 | 0.63403 | 0.1324483 | 0.27020724 | 2.3695801 | 20 | — | — |
| 191274 2003 EJ ₁₃ | 16.8 | X | 65.36347 | 103.94944 | 311.09382 | 5.65379 | | | | | | |

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

| Planet | <i>H</i> | <i>G</i> | <i>M</i> | ω | Ω | <i>i</i> | <i>e</i> | μ | <i>a</i> | TE | Oppos. | <i>V</i> |
|-------------------------------|----------|----------|-----------|-----------|-----------|----------|-----------|------------|-----------|----|---------|----------|
| 191281 2003 EN ₆₂ | 16.1 | X | 98.18959 | 37.73115 | 146.35934 | 10.22451 | 0.0719491 | 0.24403609 | 2.5361018 | 20 | 7 25.3 | 19.6 |
| 191282 Feustel | 16.4 | X | 115.12449 | 87.34993 | 150.50836 | 2.61876 | 0.1492245 | 0.25388828 | 2.4700606 | 20 | 11 1.6 | 20.2 |
| 191283 2003 FX ₁₂ | 16.3 | X | 342.52364 | 231.48295 | 36.59089 | 3.67733 | 0.1080125 | 0.23734693 | 2.5835307 | 20 | 5 25.3 | 19.0 |
| 191284 2003 FA ₃₆ | 16.7 | X | 172.02071 | 41.59944 | 181.79061 | 3.01480 | 0.1253044 | 0.26148019 | 2.4220152 | 20 | 12 9.2 | 20.2 |
| 191285 2003 FU ₅₇ | 15.9 | X | 39.24717 | 258.36928 | 48.79599 | 7.48113 | 0.1032755 | 0.25377056 | 2.4708244 | 20 | 10 30.9 | 18.8 |
| 191286 2003 FY ₅₇ | 16.6 | X | 145.19559 | 197.02247 | 33.74738 | 6.62819 | 0.0910816 | 0.25886841 | 2.4382787 | 20 | 11 20.6 | 20.1 |
| 191287 2003 FD ₇₅ | 15.9 | X | 323.21093 | 135.72813 | 105.36439 | 7.66577 | 0.2311695 | 0.22748184 | 2.6576935 | 20 | 2 29.6 | 19.1 |
| 191288 2003 FZ ₇₇ | 16.5 | X | 68.60587 | 92.57761 | 142.16404 | 3.11277 | 0.0903232 | 0.24600811 | 2.5225305 | 20 | 8 29.3 | 19.6 |
| 191289 2003 FR ₉₄ | 16.0 | X | 352.94113 | 136.97962 | 89.06748 | 7.72844 | 0.1191641 | 0.23111986 | 2.6297303 | 20 | 4 16.8 | 18.9 |
| 191290 2003 FR ₁₀₂ | 16.2 | X | 359.10602 | 83.57648 | 181.26338 | 12.72982 | 0.2718134 | 0.23708682 | 2.5854200 | 20 | 6 25.1 | 18.2 |
| 191291 2003 FH ₁₀₃ | 12.7 | X | 264.07953 | 246.19282 | 182.28184 | 11.63289 | 0.0752235 | 0.08182043 | 5.2548649 | 20 | 8 21.9 | 19.7 |
| 191292 2003 FF ₁₀₇ | 16.1 | X | 49.99582 | 46.86839 | 183.74450 | 12.19956 | 0.1262558 | 0.24078120 | 2.5589060 | 20 | 7 29.9 | 19.5 |
| 191293 2003 FK ₁₀₇ | 15.3 | X | 239.76453 | 210.13639 | 50.72400 | 9.29736 | 0.2452647 | 0.21570773 | 2.7535454 | 20 | — | — |
| 191294 2003 FM ₁₀₈ | 16.3 | X | 5.91542 | 147.56200 | 119.76084 | 5.98780 | 0.1921528 | 0.23996507 | 2.5647047 | 20 | 7 14.0 | 18.4 |
| 191295 2003 FX ₁₁₂ | 15.8 | X | 4.94243 | 15.65318 | 359.97486 | 14.94021 | 0.1124365 | 0.26158887 | 2.4213443 | 20 | 12 14.6 | 19.0 |
| 191296 2003 FQ ₁₂₈ | 16.8 | X | 26.64897 | 290.77560 | 315.43734 | 3.11316 | 0.1453102 | 0.23993688 | 2.5649055 | 20 | 7 19.4 | 19.5 |
| 191297 2003 GP ₂ | 17.2 | X | 42.49727 | 333.31813 | 247.72496 | 1.75263 | 0.1700712 | 0.23969831 | 2.5660072 | 20 | 7 13.5 | 19.9 |
| 191298 2003 GG ₈ | 16.9 | X | 355.38633 | 95.11542 | 174.97024 | 3.80375 | 0.1416003 | 0.23871622 | 2.5736418 | 20 | 6 22.3 | 19.3 |
| 191299 2003 GH ₉ | 16.6 | X | 31.31545 | 73.38420 | 165.14781 | 5.48993 | 0.1636381 | 0.23852671 | 2.5750048 | 20 | 7 17.8 | 19.4 |
| 191300 2003 GS ₉ | 16.4 | X | 27.73868 | 60.13691 | 176.03440 | 5.99162 | 0.2409483 | 0.23672723 | 2.5880375 | 20 | 7 19.5 | 19.0 |
| 191301 2003 GP ₁₂ | 16.0 | X | 319.72461 | 281.60242 | 359.27201 | 10.98107 | 0.2873060 | 0.23321032 | 2.6139917 | 20 | 4 3.3 | 18.8 |
| 191302 2003 GD ₃₂ | 16.5 | X | 283.73706 | 243.88982 | 55.57582 | 6.23978 | 0.1747347 | 0.28900641 | 2.2656756 | 20 | 3 28.3 | 19.5 |
| 191303 2003 GU ₃₅ | 12.4 | X | 279.63001 | 3.02840 | 62.31328 | 15.01309 | 0.0235642 | 0.08545356 | 5.1048456 | 20 | 9 21.9 | 19.3 |
| 191304 2003 GD ₄₄ | 15.5 | X | 350.32678 | 131.18165 | 117.51605 | 13.97931 | 0.1380373 | 0.23273564 | 2.6175448 | 20 | 5 15.7 | 18.5 |
| 191305 2003 HQ ₂₀ | 16.4 | X | 135.40396 | 32.86351 | 194.84915 | 2.00774 | 0.1350540 | 0.25359681 | 2.4719529 | 20 | 11 7.2 | 20.0 |
| 191306 2003 HV ₂₀ | 15.8 | X | 93.13950 | 6.38847 | 201.70017 | 14.16049 | 0.0891215 | 0.24324253 | 2.5416146 | 20 | 8 19.4 | 19.6 |
| 191307 2003 HW ₂₁ | 16.1 | X | 249.23936 | 48.55127 | 201.14559 | 8.52619 | 0.2858038 | 0.21551520 | 2.7551851 | 20 | — | — |
| 191308 2003 HX ₂₉ | 16.0 | X | 68.19010 | 328.07705 | 257.54067 | 2.81475 | 0.1738330 | 0.24174555 | 2.5520963 | 20 | 8 26.5 | 19.5 |
| 191309 2003 HQ ₃₀ | 15.9 | X | 253.18321 | 223.02010 | 41.62380 | 6.88744 | 0.2561516 | 0.21743069 | 2.7389797 | 20 | 1 13.7 | 20.6 |
| 191310 2003 HM ₃₂ | 15.8 | X | 291.07910 | 53.02150 | 228.84589 | 10.73605 | 0.1584445 | 0.22672878 | 2.6635751 | 20 | 3 14.6 | 19.6 |
| 191311 2003 HV ₃₇ | 16.1 | X | 29.45723 | 242.95896 | 344.76716 | 3.92763 | 0.1836038 | 0.23572934 | 2.5953362 | 20 | 7 2.1 | 18.6 |
| 191312 2003 HX ₃₈ | 16.0 | X | 321.07327 | 281.55516 | 330.20847 | 11.66742 | 0.2715129 | 0.22865970 | 2.6485588 | 20 | 2 29.4 | 19.3 |
| 191313 2003 HJ ₄₁ | 15.9 | X | 50.01396 | 252.98048 | 323.46638 | 11.89723 | 0.1180535 | 0.23962578 | 2.5671250 | 20 | 7 13.2 | 19.0 |
| 191314 2003 HC ₄₄ | 16.4 | X | 5.34094 | 91.40812 | 156.09156 | 5.58820 | 0.1198987 | 0.23564616 | 2.5959469 | 20 | 6 7.9 | 19.2 |
| 191315 2003 HT ₄₆ | 15.9 | X | 357.42052 | 7.99737 | 211.32331 | 9.82571 | 0.1484048 | 0.22916798 | 2.6446412 | 20 | 4 8.5 | 18.6 |
| 191316 2003 HZ ₄₇ | 16.1 | X | 72.94420 | 216.91826 | 10.31966 | 13.78812 | 0.0969617 | 0.24402556 | 2.5361747 | 20 | 8 30.8 | 19.6 |
| 191317 2003 HT ₅₅ | 16.2 | X | 314.94101 | 125.30917 | 189.50697 | 12.23471 | 0.1736117 | 0.23542224 | 2.5975927 | 20 | 6 6.5 | 19.3 |
| 191318 2003 HK ₅₇ | 15.9 | X | 270.52128 | 113.39213 | 159.24462 | 16.08166 | 0.2269813 | 0.21991411 | 2.7183204 | 20 | 2 5.7 | 20.3 |
| 191319 2003 JW ₇ | 16.0 | X | 275.31446 | 203.58938 | 70.97318 | 12.72942 | 0.1527032 | 0.22355673 | 2.6887116 | 20 | 2 27.5 | 20.2 |
| 191320 2003 JZ ₁₂ | 15.7 | X | 81.88921 | 357.68641 | 203.67394 | 13.50276 | 0.1774808 | 0.23849690 | 2.5752194 | 20 | 8 7.9 | 19.7 |
| 191321 2003 JF ₁₈ | 15.8 | X | 309.92893 | 119.92362 | 189.19802 | 12.91606 | 0.2070772 | 0.23138349 | 2.6277324 | 20 | 5 15.7 | 18.9 |
| 191322 2003 KJ | 15.8 | X | 263.39331 | 131.09891 | 173.92072 | 9.12954 | 0.2426420 | 0.22392866 | 2.6857336 | 20 | 3 7.9 | 20.1 |
| 191323 2003 KN | 16.5 | X | 264.00939 | 174.17113 | 166.77746 | 2.62615 | 0.1131246 | 0.22988952 | 2.6391046 | 20 | 5 8.6 | 20.2 |
| 191324 2003 KA ₄ | 15.4 | X | 292.78617 | 71.12542 | 276.64687 | 10.05011 | 0.3362391 | 0.23204896 | 2.6227061 | 20 | 5 18.5 | 19.1 |
| 191325 2003 LQ ₂ | 15.5 | X | 11.06397 | 348.45678 | 240.92713 | 10.47304 | 0.0873519 | 0.23074434 | 2.6325826 | 20 | 5 20.5 | 18.6 |
| 191326 2003 MV ₅ | 15.3 | X | 234.73824 | 51.83463 | 261.51038 | 14.25084 | 0.1864779 | 0.21551857 | 2.7551564 | 20 | 2 20.4 | 20.2 |
| 191327 2003 MO ₁₂ | 15.3 | X | 224.40820 | 85.78207 | 234.67267 | 11.52464 | 0.1223363 | 0.21332681 | 2.7739955 | 20 | 2 24.6 | 19.9 |
| 191328 2003 OT ₆ | 15.7 | X | 317.55619 | 83.22589 | 159.83231 | 13.07418 | 0.2200052 | 0.22336526 | 2.6902479 | 20 | 2 22.8 | 18.9 |
| 191329 2003 OJ ₁₈ | 15.9 | X | 223.58508 | 143.27460 | 205.95968 | 8.24501 | 0.2393047 | 0.21606158 | 2.7505382 | 20 | 3 27.6 | 20.7 |
| 191330 2003 OX ₂₈ | 15.6 | X | 127.89206 | 258.42850 | 118.81726 | 3.09965 | 0.0866732 | 0.20370434 | 2.8606795 | 20 | 1 30.7 | 19.7 |
| 191331 2003 OZ ₂₈ | 15.8 | X | 157.01733 | 334.68410 | 13.38318 | 1.93203 | 0.0839999 | 0.20432841 | 2.8548516 | 20 | 1 27.6 | 20.0 |
| 191332 2003 PK ₇ | 15.3 | X | 209.48564 | 31.28152 | 303.13996 | 6.09728 | 0.1589887 | 0.21133564 | 2.7913923 | 20 | 2 29.6 | 20.0 |
| 191333 2003 QR ₁ | 15.6 | X | 67.61922 | 44.06307 | 327.35338 | 8.62384 | 0.3138748 | 0.19024656 | 2.9940440 | 20 | — | — |
| 191334 2003 QB ₂ | 15.6 | X | 92.75692 | 101.00891 | 292.57655 | 0.83732 | 0.0935524 | 0.19870742 | 2.9084392 | 20 | 1 9.2 | 19.5 |
| 191335 2003 QC ₅ | 15.2 | X | 81.45341 | 30.09474 | 322.29987 | 9.78141 | 0.0810349 | 0.19214856 | 2.9742533 | 20 | — | — |
| 191336 2003 QS ₇ | 15.8 | X | 157.62602 | 202.14151 | 146.72794 | 1.80169 | 0.1606502 | 0.20391051 | 2.8587509 | 20 | 2 3.7 | 20.2 |
| 191337 2003 QN ₁₁ | 15.1 | X | 132.34973 | 38.47426 | 343.23082 | 14.73882 | 0.1525352 | 0.20498066 | 2.8487923 | 20 | 2 19.7 | 19.4 |
| 191338 2003 QD ₁₃ | 15.2 | X | 93.72985 | 209.94211 | 147.29185 | 12.88192 | 0.1278396 | 0.19277023 | 2.9678504 | 20 | — | — |
| 191339 2003 QJ ₁₉ | 15.3 | X | 124.04897 | 312.98067 | 351.94226 | 7.45874 | 0.0829441 | 0.19161185 | 2.9798048 | 20 | — | — |
| 191340 2003 QT ₂₂ | 14.9 | X | 38.39995 | 75.83556 | 308.36287 | 9.18102 | 0.1188052 | 0.18810929 | 3.0166798 | 20 | — | — |
| 191341 Lánzos | 16.6 | X | 138.22603 | 324.95569 | 359.04930 | 2.19130 | 0.1218022 | 0.19758103 | 2.9194825 | 20 | — | — |
| 191342 2003 QK ₃₂ | 15.5 | X | 155.79049 | 336.14769 | 333.05445 | 4.89819 | 0.0557950 | 0.19764465 | 2.9188560 | 20 | — | — |
| 191343 2003 QF ₃₃ | 15.4 | X | 222.26706 | 6.43755 | 296.35365 | 8.26210 | 0.1426625 | 0.21128318 | 2.7918544 | 20 | 2 4.9 | 19.9 |
| 191344 2003 QK ₃₃ | 14.8 | X | 230.18865 | 192.64114 | 181.55334 | 14.14672 | 0.1670414 | 0.21905985 | 2.7253829 | 20 | 5 10.5 | 19.3 |
| 191345 2003 QN ₃₃ | 15.0 | X | 20.14333 | 254.66652 | 161.31287 | 11.14759 | 0.0949198 | 0.19097798 | 2.9863946 | 20 | — | — |
| 191346 2003 QH ₃₉ | 15.5 | X | 158.51234 | 302.29195 | 44.62750 | 2.11707 | 0.0857833 | 0.20302330 | 2.8670733 | 20 | 1 28.3 | 19.8 |
| 191347 2003 QZ ₄₁ | 15.2 | X | 8.00353 | 214.30943 | 182.87178 | 13.97592 | 0.2539135 | 0.18217052 | 3.0818913 | 20 | — | — |
| 191348 2003 QL ₄₂ | 15.2 | X | 24.59549 | 208.28991 | 176.41882 | 12.08832 | 0.1728473 | 0.18438184 | 3.0572007 | 20 | — | — |
| 191349 2003 QF ₄₆ | 15.6 | X | 119.18132 | 157.05827 | 145.82494 | 4.76695 | 0.1704934 | 0.19141602 | 2.9818368 | 20 | — | — |
| 191350 2003 QF ₄₈ | 15.3 | X | 197.80385 | 303.91090 | 300.45241 | 10.76963 | 0.1405032 | 0.19515568 | 2.9436212 | 20 | — | — |
| 191351 2003 QY ₅₈ | 15.1 | X | 54.19058 | 196.40856 | 143.24687 | 15.82004 | 0.1403234 | 0.18470675 | 3.0536144 | 20 | 12 20.1 | 19.7 |
| 191352 2003 QS ₆₆ | 14.9 | X | 46.97897 | 347.56925 | 345.08225 | 4.32324 | 0.1542352 | 0.18169625 | 3.0872519 | 20 | 12 2.4 | 19.3 |
| 191353 2003 QL ₆₇ | 14.4 | X | 347.32351 | 334.15662 | 46.54500 | 18.04123 | 0.2037919 | 0.17422481 | 3.1748951 | 20 | 11 6.5 | 17.8 |
| 191354 2003 QD ₆₉ | 15.8 | X | 71.73312 | 103.27523 | 335.7014 | | | | | | | |

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

| Planet | <i>H</i> | <i>G</i> | <i>M</i> | ω | Ω | <i>i</i> | <i>e</i> | μ | <i>a</i> | TE | Oppos. | <i>V</i> |
|-------------------------------|----------|----------|-----------|-----------|-----------|----------|-----------|------------|-----------|----|---------|----------|
| 191361 2003 QD ₈₇ | 15.7 | X | 100.12962 | 46.33425 | 302.48958 | 2.05384 | 0.0928195 | 0.19423602 | 2.9529054 | 20 | — | — |
| 191362 2003 QG ₈₇ | 15.8 | X | 117.71600 | 20.71178 | 337.55500 | 1.28731 | 0.1573613 | 0.19794887 | 2.9158646 | 20 | 1 6.2 | 19.9 |
| 191363 2003 QS ₉₃ | 15.6 | X | 204.16491 | 10.85274 | 341.01449 | 12.39889 | 0.2132614 | 0.21280577 | 2.7785216 | 20 | 3 15.7 | 20.4 |
| 191364 2003 QQ ₉₄ | 15.0 | X | 198.95770 | 9.24486 | 357.39812 | 17.70756 | 0.1563052 | 0.21274228 | 2.7790744 | 20 | 3 28.9 | 19.6 |
| 191365 2003 QA ₁₀₂ | 15.8 | X | 34.63394 | 70.33591 | 321.58195 | 3.22599 | 0.0754530 | 0.19072047 | 2.9890822 | 20 | — | — |
| 191366 2003 QB ₁₀₇ | 15.4 | X | 261.47533 | 337.91613 | 337.83798 | 12.67675 | 0.1619579 | 0.21840784 | 2.7308042 | 20 | 3 24.0 | 19.6 |
| 191367 2003 QD ₁₁₃ | 15.1 | X | 340.30203 | 281.97288 | 139.74211 | 25.99417 | 0.2901794 | 0.17918384 | 3.1160434 | 20 | 12 29.1 | 18.4 |
| 191368 2003 RQ ₅ | 14.8 | X | 344.93030 | 108.77253 | 291.69097 | 15.05147 | 0.2366506 | 0.17761227 | 3.1343975 | 20 | 11 30.7 | 18.1 |
| 191369 2003 RR ₇ | 15.5 | X | 177.34853 | 3.50215 | 22.35634 | 15.13039 | 0.2096930 | 0.21134999 | 2.7912660 | 20 | 4 6.9 | 20.2 |
| 191370 2003 RO ₉ | 14.7 | X | 47.95425 | 168.71846 | 234.38166 | 9.24511 | 0.0676550 | 0.19242245 | 2.9714303 | 20 | — | — |
| 191371 2003 RS ₉ | 14.6 | X | 116.42831 | 57.23166 | 232.36271 | 9.53592 | 0.0140144 | 0.18312398 | 3.0711845 | 20 | 12 14.7 | 19.1 |
| 191372 2003 RP ₁₃ | 14.6 | X | 79.51120 | 37.65208 | 331.52891 | 14.85982 | 0.1328475 | 0.19039570 | 2.9924802 | 20 | — | — |
| 191373 2003 RD ₁₄ | 15.1 | X | 18.20267 | 208.97993 | 182.07573 | 9.95225 | 0.1092353 | 0.18513579 | 3.0488950 | 20 | 12 31.2 | 19.3 |
| 191374 2003 RK ₁₄ | 15.2 | X | 43.19761 | 82.38523 | 313.93138 | 7.98261 | 0.1075886 | 0.19003120 | 2.9963056 | 20 | — | — |
| 191375 2003 RO ₂₆ | 14.7 | X | 1.48405 | 215.88953 | 132.28643 | 27.54435 | 0.1395350 | 0.17497297 | 3.1658384 | 20 | 10 25.5 | 19.1 |
| 191376 2003 RZ ₂₆ | 15.7 | X | 134.81502 | 170.52640 | 164.06157 | 2.28998 | 0.0860643 | 0.19690054 | 2.9262052 | 20 | — | — |
| 191377 2003 SQ ₂₆ | 15.6 | X | 43.30768 | 208.61748 | 209.58053 | 1.74146 | 0.0652116 | 0.19407167 | 2.9545722 | 20 | — | — |
| 191378 2003 SJ ₄ | 15.0 | X | 49.62283 | 338.29400 | 7.31431 | 10.85959 | 0.1503243 | 0.18262957 | 3.0767248 | 20 | 12 21.2 | 19.6 |
| 191379 2003 SY ₇ | 15.9 | X | 104.09128 | 117.88092 | 190.57174 | 16.41987 | 0.1779678 | 0.18706296 | 3.0279185 | 20 | — | — |
| 191380 2003 SH ₈ | 15.9 | X | 37.05573 | 164.00561 | 223.00097 | 0.87005 | 0.1296749 | 0.18642383 | 3.0348351 | 20 | — | — |
| 191381 2003 SD ₁₇ | 15.6 | X | 184.28033 | 352.09219 | 30.84733 | 2.61038 | 0.1000846 | 0.20987370 | 2.8043402 | 20 | 4 7.1 | 19.9 |
| 191382 2003 SR ₁₈ | 16.7 | X | 126.89846 | 347.84923 | 341.32968 | 3.83946 | 0.2087627 | 0.19513220 | 2.9438574 | 20 | — | — |
| 191383 2003 SM ₂₂ | 15.8 | X | 26.11153 | 172.65846 | 262.50416 | 1.35822 | 0.2838177 | 0.18773537 | 3.0206841 | 20 | — | — |
| 191384 2003 SZ ₂₇ | 15.2 | X | 145.07220 | 82.20739 | 227.22257 | 4.06078 | 0.0767809 | 0.19286549 | 2.9668780 | 20 | — | — |
| 191385 2003 SZ ₃₉ | 15.6 | X | 52.27573 | 159.47513 | 220.51213 | 6.40950 | 0.2199866 | 0.18758246 | 3.0223254 | 20 | — | — |
| 191386 2003 SK ₄₀ | 14.8 | X | 53.32536 | 5.99128 | 331.67503 | 8.41835 | 0.1762817 | 0.18171775 | 3.0870084 | 20 | 12 19.4 | 19.4 |
| 191387 2003 SO ₄₀ | 14.9 | X | 81.34270 | 136.12043 | 231.27751 | 8.68919 | 0.1287864 | 0.19029186 | 2.9935687 | 20 | — | — |
| 191388 2003 SO ₄₀ | 14.8 | X | 73.88520 | 101.22924 | 261.53432 | 11.22641 | 0.1186581 | 0.18773119 | 3.0207289 | 20 | — | — |
| 191389 2003 SQ ₄₂ | 15.5 | X | 222.61934 | 90.29799 | 289.73378 | 8.00947 | 0.2256161 | 0.21844636 | 2.7304832 | 20 | 5 2.0 | 20.2 |
| 191390 2003 SH ₄₄ | 15.7 | X | 81.15875 | 44.28378 | 315.84041 | 5.74060 | 0.1633860 | 0.19035645 | 2.9928915 | 20 | — | — |
| 191391 2003 SR ₄₄ | 15.1 | X | 345.69401 | 79.59730 | 353.43284 | 24.69817 | 0.2420857 | 0.18264279 | 3.0765764 | 20 | — | — |
| 191392 2003 SC ₄₅ | 15.3 | X | 39.28590 | 159.79700 | 180.58273 | 4.60624 | 0.1159536 | 0.18051876 | 3.1006624 | 20 | 11 28.2 | 19.5 |
| 191393 2003 SO ₄₇ | 14.6 | X | 308.07488 | 90.03816 | 343.99245 | 20.78858 | 0.0952151 | 0.17878502 | 3.1206756 | 20 | 10 28.9 | 19.0 |
| 191394 2003 SN ₄₈ | 15.3 | X | 99.68279 | 67.69466 | 240.66655 | 9.58594 | 0.0291637 | 0.18487043 | 3.0518118 | 20 | 12 19.1 | 19.7 |
| 191395 2003 SQ ₄₈ | 14.7 | X | 347.20502 | 64.42301 | 333.83645 | 14.42111 | 0.0509415 | 0.18015213 | 3.1048678 | 20 | 11 16.1 | 19.2 |
| 191396 2003 SB ₅₀ | 15.8 | X | 104.83451 | 176.35875 | 194.67970 | 12.09650 | 0.1431742 | 0.19717236 | 2.9235153 | 20 | 1 2.9 | 20.0 |
| 191397 2003 ST ₅₉ | 15.3 | X | 63.14405 | 20.49225 | 14.90452 | 2.82542 | 0.1167584 | 0.19380229 | 2.9573095 | 20 | — | — |
| 191398 2003 SH ₆₃ | 15.3 | X | 101.76871 | 200.75497 | 131.79751 | 9.75297 | 0.0877071 | 0.19072738 | 2.9890099 | 20 | — | — |
| 191399 2003 SO ₆₇ | 14.8 | X | 329.92737 | 240.78810 | 178.20739 | 23.41207 | 0.2407131 | 0.17563849 | 3.1578361 | 20 | 11 25.4 | 18.4 |
| 191400 2003 SZ ₇₀ | 15.2 | X | 96.93389 | 70.42434 | 249.66392 | 7.95693 | 0.1063901 | 0.18797623 | 3.0181032 | 20 | — | — |
| 191401 2003 SZ ₇₃ | 15.0 | X | 286.90073 | 255.10063 | 193.12605 | 14.18836 | 0.1688815 | 0.17619834 | 3.1511434 | 20 | 10 16.8 | 19.0 |
| 191402 2003 SM ₇₆ | 15.2 | X | 44.26354 | 23.97000 | 12.77851 | 3.58775 | 0.0958863 | 0.18723814 | 3.0260296 | 20 | — | — |
| 191403 2003 SB ₇₈ | 15.5 | X | 35.56406 | 159.57024 | 208.72739 | 8.71910 | 0.2299264 | 0.18375001 | 3.0642049 | 20 | — | — |
| 191404 2003 SZ ₇₉ | 15.8 | X | 2.56815 | 147.01304 | 286.64814 | 3.25277 | 0.2568263 | 0.18561763 | 3.0436163 | 20 | — | — |
| 191405 2003 SZ ₈₁ | 14.8 | X | 148.90408 | 187.62816 | 10.65611 | 9.42390 | 0.0427086 | 0.17483091 | 3.1675531 | 20 | 10 2.9 | 19.4 |
| 191406 2003 SD ₈₂ | 16.1 | X | 137.97595 | 228.16178 | 69.60796 | 1.58934 | 0.2007682 | 0.19181401 | 2.9777106 | 20 | — | — |
| 191407 2003 SJ ₈₆ | 14.9 | X | 100.05911 | 115.34227 | 258.60628 | 10.80917 | 0.0735168 | 0.19440584 | 2.9511855 | 20 | — | — |
| 191408 2003 SP ₈₆ | 14.8 | X | 30.37337 | 105.08814 | 291.13693 | 9.52476 | 0.1560439 | 0.18535608 | 3.0464788 | 20 | — | — |
| 191409 2003 SJ ₈₈ | 15.8 | X | 76.78863 | 41.83759 | 9.94750 | 1.72855 | 0.1164602 | 0.19585843 | 2.9365757 | 20 | 1 14.0 | 19.4 |
| 191410 2003 SS ₉₂ | 15.2 | X | 290.50521 | 271.89642 | 210.38619 | 3.96235 | 0.1239472 | 0.18219504 | 3.0816147 | 20 | 12 11.1 | 19.0 |
| 191411 2003 SW ₉₃ | 15.2 | X | 95.14881 | 337.68547 | 351.96580 | 3.84351 | 0.1163501 | 0.18612846 | 3.0380450 | 20 | — | — |
| 191412 2003 SX ₁₀₃ | 16.1 | X | 65.56093 | 271.49145 | 95.15691 | 0.87738 | 0.2156749 | 0.18802732 | 3.0175565 | 20 | — | — |
| 191413 2003 SQ ₁₀₄ | 14.8 | X | 109.66875 | 102.76235 | 235.88444 | 10.40338 | 0.0477545 | 0.19211871 | 2.9745614 | 20 | — | — |
| 191414 2003 SW ₁₀₉ | 14.8 | X | 305.03264 | 114.40245 | 350.00892 | 11.64568 | 0.0616178 | 0.18180142 | 3.0860612 | 20 | 12 13.9 | 19.1 |
| 191415 2003 SA ₁₁₀ | 14.6 | X | 309.07094 | 133.34089 | 270.92826 | 3.84084 | 0.1491852 | 0.17215229 | 3.2003257 | 20 | 9 24.2 | 18.5 |
| 191416 2003 SZ ₁₁₉ | 15.6 | X | 4.05230 | 192.99182 | 189.03673 | 1.73561 | 0.0839160 | 0.18136654 | 3.0909924 | 20 | 11 27.4 | 19.4 |
| 191417 2003 SU ₁₃₇ | 15.6 | X | 92.82634 | 301.83614 | 351.92207 | 2.32748 | 0.0761176 | 0.17908470 | 3.1171932 | 20 | 11 27.3 | 20.1 |
| 191418 2003 SW ₁₃₈ | 14.5 | X | 289.37246 | 106.49171 | 315.50655 | 7.16692 | 0.1808445 | 0.17134167 | 3.2104116 | 20 | 9 10.8 | 18.6 |
| 191419 2003 SZ ₁₃₈ | 14.6 | X | 72.57247 | 359.52479 | 350.31150 | 9.15111 | 0.1425931 | 0.18553826 | 3.0444842 | 20 | — | — |
| 191420 2003 SN ₁₃₉ | 15.3 | X | 56.90679 | 299.44559 | 56.49306 | 9.86140 | 0.1094144 | 0.18473642 | 3.0532876 | 20 | — | — |
| 191421 2003 SM ₁₄₆ | 14.6 | X | 137.52511 | 330.92034 | 315.36990 | 8.78889 | 0.1243056 | 0.18644644 | 3.0345897 | 20 | — | — |
| 191422 2003 SW ₁₄₆ | 14.9 | X | 56.61838 | 144.41397 | 225.34229 | 10.06546 | 0.1138619 | 0.18536162 | 3.0464181 | 20 | — | — |
| 191423 2003 SX ₁₄₆ | 15.3 | X | 331.81851 | 89.49238 | 320.11105 | 6.08381 | 0.1958156 | 0.17670599 | 3.1451054 | 20 | 11 11.4 | 18.7 |
| 191424 2003 SA ₁₄₇ | 14.5 | X | 51.14736 | 303.43526 | 2.52886 | 19.88150 | 0.0415560 | 0.17354260 | 3.1832101 | 20 | 10 14.3 | 19.1 |
| 191425 2003 SO ₁₄₈ | 15.8 | X | 57.67790 | 37.64081 | 347.54470 | 5.89684 | 0.2312084 | 0.18822877 | 3.0154032 | 20 | — | — |
| 191426 2003 SR ₁₄₉ | 14.8 | X | 157.75508 | 119.92520 | 124.55523 | 10.63659 | 0.0562453 | 0.18576137 | 3.0420460 | 20 | 12 9.8 | 19.4 |
| 191427 2003 SC ₁₅₄ | 14.8 | X | 357.89960 | 1.35251 | 93.64669 | 9.67357 | 0.0125769 | 0.19275244 | 2.9680380 | 20 | — | — |
| 191428 2003 SC ₁₅₅ | 14.9 | X | 357.97937 | 197.94966 | 203.79488 | 9.40051 | 0.0989481 | 0.18141580 | 3.0904328 | 20 | 12 14.5 | 19.0 |
| 191429 2003 SL ₁₅₇ | 15.8 | X | 237.86688 | 310.00281 | 47.37181 | 4.66181 | 0.0850495 | 0.21416629 | 2.7667419 | 20 | 5 2.3 | 19.6 |
| 191430 2003 SH ₁₅₉ | 15.0 | X | 97.59596 | 82.38244 | 276.64176 | 10.80934 | 0.0722240 | 0.19655684 | 2.9296154 | 20 | — | — |
| 191431 2003 SZ ₁₅₉ | 15.1 | X | 44.66801 | 256.19430 | 141.11835 | 12.36577 | 0.1090320 | 0.18933947 | 3.0035990 | 20 | — | — |
| 191432 2003 SJ ₁₆₃ | 15.5 | X | 344.95314 | 271.51239 | 190.21854 | 13.44727 | 0.1170703 | 0.18634571 | 3.0356832 | 20 | — | — |
| 191433 2003 SW ₁₆₈ | 15.3 | X | 334.01437 | 131.06758 | 322.65464 | 8.35664 | 0.2894187 | 0.18254545 | 3.0776670 | 20 | — | — |
| 191434 2003 SZ ₁₇₂ | 15.5 | X | 127.19453 | 127.68870 | 161.38567 | 10.83017 | 0.0493460 | 0.18736304 | 3.0246847 | 20 | 12 28.6 | 20.1 |
| 191435 2003 SX ₁₇₅ | 15.8 | X | 163.16649 | 24. | | | | | | | | |

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

| Planet | <i>H</i> | <i>G</i> | <i>M</i> | ω | Ω | <i>i</i> | <i>e</i> | μ | <i>a</i> | TE | Oppos. | <i>V</i> |
|-------------------------------|----------|----------|-----------|-----------|-----------|----------|-----------|------------|-----------|----|---------|----------|
| 191441 2003 ST ₁₈₅ | 14.7 | X | 105.52275 | 296.64464 | 319.34281 | 8.31090 | 0.0622970 | 0.17981968 | 3.1086934 | 20 | 10 22.6 | 19.4 |
| 191442 2003 SG ₁₈₉ | 14.6 | X | 355.48320 | 109.90155 | 345.78005 | 8.69844 | 0.0753684 | 0.18944837 | 3.0024479 | 20 | — | — |
| 191443 2003 SG ₁₉₂ | 14.8 | X | 31.67710 | 318.80989 | 17.03215 | 9.35733 | 0.0755445 | 0.17520254 | 3.1630723 | 20 | 11 3.3 | 19.1 |
| 191444 2003 SV ₁₉₃ | 15.5 | X | 25.36803 | 88.61686 | 317.91056 | 8.88725 | 0.1412800 | 0.18728437 | 3.0255316 | 20 | — | — |
| 191445 2003 SG ₁₉₄ | 15.5 | X | 28.56775 | 337.55537 | 34.72273 | 2.81705 | 0.0849006 | 0.18112588 | 3.0937297 | 20 | 12 18.1 | 19.6 |
| 191446 2003 SK ₁₉₉ | 14.9 | X | 57.38958 | 67.87499 | 223.66711 | 9.01338 | 0.1775344 | 0.17498367 | 3.1657094 | 20 | 10 28.5 | 19.3 |
| 191447 2003 SV ₂₀₁ | 14.9 | X | 71.83922 | 116.26174 | 203.83252 | 10.06893 | 0.2033104 | 0.18080333 | 3.0974081 | 20 | 12 20.2 | 19.8 |
| 191448 2003 SC ₂₀₃ | 15.5 | X | 177.96904 | 273.12794 | 247.30913 | 2.12466 | 0.0681178 | 0.19131367 | 2.9829002 | 20 | — | — |
| 191449 2003 ST ₂₀₈ | 15.3 | X | 41.29176 | 138.11318 | 213.14484 | 9.01498 | 0.0502615 | 0.18437806 | 3.0572425 | 20 | 12 5.3 | 19.6 |
| 191450 2003 SU ₂₁₀ | 15.4 | X | 105.72955 | 140.64804 | 241.00541 | 9.68759 | 0.1651177 | 0.19941977 | 2.9015089 | 20 | 1 18.7 | 19.6 |
| 191451 2003 SD ₂₁₂ | 15.0 | X | 345.37517 | 329.32362 | 99.79798 | 11.85143 | 0.0918796 | 0.18589020 | 3.0406404 | 20 | 12 30.7 | 18.7 |
| 191452 2003 SL ₂₁₆ | 15.1 | X | 14.43389 | 294.96587 | 91.08340 | 2.30181 | 0.2060028 | 0.18015050 | 3.1048866 | 20 | — | — |
| 191453 2003 SZ ₂₁₇ | 15.1 | X | 98.61037 | 287.56564 | 35.26065 | 3.50557 | 0.1114338 | 0.18531021 | 3.0469815 | 20 | — | — |
| 191454 2003 SL ₂₂₁ | 16.8 | X | 267.58452 | 38.11043 | 183.95495 | 21.93929 | 0.0787222 | 0.37426665 | 1.9069909 | 20 | — | — |
| 191455 2003 ST ₂₂₅ | 14.9 | X | 337.59824 | 254.01993 | 196.41942 | 12.80259 | 0.1490430 | 0.18241046 | 3.0791881 | 20 | — | — |
| 191456 2003 SR ₂₂₆ | 15.8 | X | 107.06625 | 128.35760 | 205.57706 | 4.73460 | 0.2825586 | 0.18973777 | 2.9993940 | 20 | — | — |
| 191457 2003 ST ₂₃₁ | 15.1 | X | 68.05902 | 283.37073 | 26.00426 | 11.72169 | 0.1074651 | 0.18153398 | 3.0890915 | 20 | 11 20.9 | 19.7 |
| 191458 2003 SS ₂₃₆ | 16.0 | X | 104.17388 | 180.00970 | 206.95084 | 1.37038 | 0.0878759 | 0.19768392 | 2.9184695 | 20 | 1 14.8 | 19.9 |
| 191459 2003 SL ₂₅₄ | 14.9 | X | 21.28069 | 98.81324 | 279.33784 | 7.56382 | 0.0672100 | 0.17990818 | 3.1076739 | 20 | 12 13.3 | 19.1 |
| 191460 2003 SE ₂₅₈ | 15.5 | X | 66.92632 | 166.84294 | 182.96438 | 9.62025 | 0.0243158 | 0.18623853 | 3.0368478 | 20 | 12 30.1 | 19.9 |
| 191461 2003 SD ₂₆₆ | 15.4 | X | 330.34238 | 196.64587 | 187.40451 | 9.26864 | 0.0722722 | 0.17420025 | 3.1751935 | 20 | 10 9.9 | 19.3 |
| 191462 2003 SF ₂₆₆ | 16.0 | X | 168.87014 | 205.95765 | 205.30306 | 3.23995 | 0.0957878 | 0.21055689 | 2.7982708 | 20 | 4 26.2 | 20.2 |
| 191463 2003 SJ ₂₆₆ | 15.5 | X | 22.04400 | 205.07445 | 201.12067 | 10.14997 | 0.1356758 | 0.18535554 | 3.0445140 | 20 | — | — |
| 191464 2003 SL ₂₆₉ | 15.0 | X | 9.33889 | 326.14804 | 92.74749 | 3.20858 | 0.0876543 | 0.18575165 | 3.0421522 | 20 | — | — |
| 191465 2003 SY ₂₆₉ | 15.6 | X | 77.75273 | 253.15566 | 80.86226 | 7.77790 | 0.2903129 | 0.18570305 | 3.0426829 | 20 | — | — |
| 191466 2003 SB ₂₇₃ | 15.0 | X | 66.76514 | 326.62289 | 348.22434 | 7.81621 | 0.1376946 | 0.17974415 | 3.1095643 | 20 | 11 30.2 | 19.7 |
| 191467 2003 SD ₂₈₀ | 14.8 | X | 206.96979 | 160.93274 | 356.29197 | 16.08194 | 0.0604228 | 0.17648828 | 3.1476913 | 20 | 10 12.1 | 19.6 |
| 191468 2003 SB ₂₈₂ | 15.4 | X | 96.95586 | 266.54683 | 64.69048 | 5.25846 | 0.1815227 | 0.18826186 | 3.0150498 | 20 | — | — |
| 191469 2003 SL ₂₈₆ | 14.8 | X | 12.70064 | 112.21653 | 260.38544 | 9.97816 | 0.1312254 | 0.17931653 | 3.1145059 | 20 | 12 2.6 | 18.7 |
| 191470 2003 SM ₂₈₆ | 14.9 | X | 44.06739 | 304.71553 | 354.93202 | 26.17941 | 0.2118429 | 0.17506730 | 3.1647011 | 20 | 10 16.0 | 19.6 |
| 191471 2003 SE ₂₈₉ | 15.5 | X | 67.83829 | 162.88466 | 162.28644 | 12.23051 | 0.0803890 | 0.18229783 | 3.0804563 | 20 | 12 10.1 | 20.1 |
| 191472 2003 ST ₂₉₁ | 15.0 | X | 137.54071 | 338.87457 | 339.93727 | 9.72034 | 0.1167296 | 0.19203044 | 2.9754728 | 20 | — | — |
| 191473 2003 SL ₂₉₂ | 14.9 | X | 148.28854 | 346.67143 | 273.49411 | 8.63784 | 0.0414716 | 0.18362152 | 3.0656342 | 20 | 12 16.5 | 19.5 |
| 191474 2003 SO ₂₉₂ | 15.0 | X | 321.13495 | 104.44060 | 325.11942 | 10.04207 | 0.1137427 | 0.17911489 | 3.1168430 | 20 | 11 19.3 | 19.0 |
| 191475 2003 SU ₂₉₂ | 14.5 | X | 322.63297 | 152.36775 | 261.23259 | 16.07178 | 0.1992045 | 0.17567195 | 3.1574351 | 20 | 10 26.8 | 18.2 |
| 191476 2003 SX ₂₉₆ | 15.0 | X | 111.60777 | 107.23864 | 245.34964 | 15.57063 | 0.1291869 | 0.19480719 | 2.9471307 | 20 | — | — |
| 191477 2003 SE ₂₉₇ | 15.7 | X | 124.99204 | 218.33455 | 148.63765 | 2.26053 | 0.0439807 | 0.20059572 | 2.8901582 | 20 | 1 9.2 | 19.8 |
| 191478 2003 SP ₃₀₃ | 15.0 | X | 25.10817 | 352.98898 | 341.45054 | 10.75870 | 0.1168266 | 0.17555254 | 3.1588667 | 20 | 10 26.6 | 19.3 |
| 191479 2003 SR ₃₀₈ | 14.8 | X | 73.39531 | 348.49781 | 272.58423 | 12.46453 | 0.0351460 | 0.17081913 | 3.2169554 | 20 | 9 13.6 | 19.6 |
| 191480 2003 SR ₃₁₀ | 14.7 | X | 11.03645 | 232.30166 | 96.57527 | 17.45748 | 0.1299312 | 0.17350415 | 3.1836804 | 20 | 10 13.9 | 19.0 |
| 191481 2003 SH ₃₁₂ | 14.6 | X | 299.88109 | 267.00405 | 176.87724 | 15.90475 | 0.0776754 | 0.17705793 | 3.1409363 | 20 | 11 12.7 | 18.9 |
| 191482 2003 SJ ₃₁₂ | 15.0 | X | 12.11540 | 272.99820 | 133.35615 | 4.32804 | 0.1131936 | 0.18412809 | 3.0600089 | 20 | — | — |
| 191483 2003 SH ₃₁₉ | 14.8 | X | 91.18011 | 294.07853 | 1.28300 | 16.42179 | 0.2178416 | 0.18104841 | 3.0946123 | 20 | 12 8.0 | 20.1 |
| 191484 2003 TA ₁ | 14.3 | X | 54.48650 | 343.19932 | 295.87112 | 19.23085 | 0.0882958 | 0.17304427 | 3.1893185 | 20 | 9 15.8 | 19.1 |
| 191485 2003 TO ₂ | 15.9 | X | 27.16479 | 225.65913 | 198.46654 | 4.60917 | 0.1004484 | 0.18709302 | 3.0275941 | 20 | — | — |
| 191486 2003 TL ₇ | 14.9 | X | 94.33527 | 324.87900 | 54.39170 | 16.06260 | 0.1843937 | 0.19473612 | 2.9478477 | 20 | 1 8.0 | 19.0 |
| 191487 2003 TM ₇ | 14.9 | X | 53.88837 | 241.79514 | 92.12550 | 11.12552 | 0.1149096 | 0.18192584 | 3.0846540 | 20 | 12 8.2 | 19.2 |
| 191488 2003 TN ₁₅ | 14.6 | X | 71.41125 | 247.30682 | 74.36385 | 15.45636 | 0.1684318 | 0.18074923 | 3.0980262 | 20 | 12 17.6 | 19.2 |
| 191489 2003 TP ₁₆ | 15.2 | X | 62.41812 | 68.23081 | 248.41971 | 4.01424 | 0.1516943 | 0.17954926 | 3.1118141 | 20 | 11 30.9 | 19.7 |
| 191490 2003 TQ ₂₀ | 14.8 | X | 342.45762 | 73.47430 | 335.95875 | 11.74365 | 0.1466075 | 0.17840500 | 3.1251057 | 20 | 11 30.1 | 18.7 |
| 191491 2003 TF ₂₁ | 15.2 | X | 70.99974 | 163.57555 | 140.88596 | 6.56802 | 0.1568911 | 0.17962573 | 3.1109308 | 20 | 11 27.7 | 19.9 |
| 191492 2003 TH ₅₇ | 15.1 | X | 336.04436 | 109.28167 | 301.98167 | 10.63546 | 0.0789662 | 0.17776177 | 3.1326398 | 20 | 11 19.5 | 19.3 |
| 191493 2003 TT ₅₇ | 15.2 | X | 105.25316 | 356.17297 | 314.29020 | 14.19236 | 0.1656803 | 0.18845477 | 3.0129919 | 20 | — | — |
| 191494 Berndkoch | 15.0 | X | 341.42554 | 67.12983 | 327.37015 | 13.97117 | 0.0840205 | 0.17502842 | 3.1651697 | 20 | 11 1.9 | 19.3 |
| 191495 2003 UN ₁₁ | 15.2 | X | 357.39638 | 58.88922 | 323.92535 | 21.26939 | 0.1602881 | 0.17682836 | 3.1436542 | 20 | 11 18.0 | 19.4 |
| 191496 2003 UU ₂₁ | 15.0 | X | 329.91083 | 118.28459 | 293.14799 | 10.68257 | 0.2303564 | 0.17586958 | 3.1550693 | 20 | 11 8.3 | 18.3 |
| 191497 2003 UL ₂₇ | 14.5 | X | 31.95431 | 234.60151 | 143.55543 | 11.50893 | 0.2077583 | 0.18050966 | 3.1007667 | 20 | — | — |
| 191498 2003 UB ₃₇ | 14.9 | X | 98.70004 | 347.66593 | 350.92187 | 11.13086 | 0.1187182 | 0.18617956 | 3.0374890 | 20 | — | — |
| 191499 2003 UA ₄₁ | 14.5 | X | 97.50296 | 124.54140 | 213.26326 | 8.40682 | 0.1342247 | 0.18561202 | 3.0436776 | 20 | — | — |
| 191500 2003 UR ₄₇ | 15.2 | X | 6.47647 | 26.34553 | 343.03789 | 6.12612 | 0.2168904 | 0.17641971 | 3.1485069 | 20 | 11 27.9 | 18.9 |
| 191501 2003 UA ₄₈ | 15.2 | X | 23.08655 | 136.15547 | 228.08523 | 8.88488 | 0.0484549 | 0.18030240 | 3.1031425 | 20 | 11 26.9 | 19.5 |
| 191502 2003 UL ₄₈ | 15.1 | X | 36.23095 | 261.25576 | 103.04222 | 6.06262 | 0.1434611 | 0.17978710 | 3.1090691 | 20 | 12 26.2 | 19.4 |
| 191503 2003 UW ₄₈ | 15.0 | X | 32.21195 | 161.28590 | 178.01250 | 5.66609 | 0.1360607 | 0.17559938 | 3.1583050 | 20 | 11 19.9 | 19.2 |
| 191504 2003 UL ₅₄ | 15.1 | X | 78.13912 | 66.20166 | 271.50941 | 9.56992 | 0.1193888 | 0.18234238 | 3.0799545 | 20 | — | — |
| 191505 2003 UQ ₅₇ | 15.0 | X | 260.74960 | 141.79581 | 325.11828 | 5.00821 | 0.1295583 | 0.17416193 | 3.1756592 | 20 | 10 6.6 | 19.5 |
| 191506 2003 UT ₆₃ | 15.0 | X | 139.11724 | 192.15632 | 99.38188 | 11.30949 | 0.0738318 | 0.18652559 | 3.0337312 | 20 | — | — |
| 191507 2003 UK ₆₅ | 15.0 | X | 357.33015 | 336.24247 | 89.25150 | 10.82473 | 0.1474541 | 0.18314962 | 3.0708978 | 20 | — | — |
| 191508 2003 UA ₇₃ | 15.7 | X | 282.78929 | 76.16691 | 33.08315 | 2.15346 | 0.0550464 | 0.17576121 | 3.1563661 | 20 | 11 19.5 | 19.9 |
| 191509 2003 UD ₈₃ | 15.3 | X | 47.34015 | 235.85130 | 180.93956 | 9.79272 | 0.1655092 | 0.18807736 | 3.0170212 | 20 | — | — |
| 191510 2003 UK ₈₅ | 15.4 | X | 243.18471 | 1.03884 | 147.67179 | 2.45428 | 0.1474439 | 0.17489785 | 3.1667449 | 20 | 11 5.9 | 20.0 |
| 191511 2003 UT ₈₆ | 14.8 | X | 320.42300 | 259.18871 | 123.01525 | 7.74944 | 0.0628803 | 0.16888723 | 3.2414414 | 20 | 9 25.3 | 19.1 |
| 191512 2003 UA ₈₇ | 15.8 | X | 18.35735 | 207.19368 | 148.80453 | 6.11603 | 0.1939882 | 0.17549583 | 3.1595472 | 20 | 11 29.3 | 19.8 |
| 191513 2003 UJ ₈₉ | 15.9 | X | 129.79014 | 249.50219 | 318.94436 | 1.15315 | 0.0942665 | 0.17299649 | 3.1899057 | 20 | 9 26.1 | 20.8 |
| 191514 2003 UQ ₉₂ | 14.9 | X | 37.65655 | 34 | | | | | | | | |

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

| Planet | <i>H</i> | <i>G</i> | <i>M</i> | ω | Ω | <i>i</i> | <i>e</i> | μ | <i>a</i> | TE | Oppos. | <i>V</i> |
|--------------------------------------|----------|----------|-----------|-----------|-----------|----------|-----------|------------|-----------|----|---------|----------|
| 191521 2003 <i>UJ</i> ₁₅₂ | 15.3 | X | 74.23769 | 20.06459 | 331.28037 | 3.49304 | 0.0597625 | 0.18405693 | 3.0607975 | 20 | — | — |
| 191522 2003 <i>US</i> ₁₅₈ | 15.5 | X | 353.92296 | 341.49889 | 49.44389 | 2.38380 | 0.1778558 | 0.17605257 | 3.1528826 | 20 | 11 30.1 | 19.0 |
| 191523 2003 <i>UD</i> ₁₇₃ | 14.6 | X | 261.53204 | 248.61448 | 225.76058 | 8.46496 | 0.0580351 | 0.17458691 | 3.1705036 | 20 | 10 28.6 | 18.9 |
| 191524 2003 <i>UN</i> ₁₇₇ | 15.2 | X | 63.58682 | 161.47877 | 177.06461 | 11.31969 | 0.1407678 | 0.18075659 | 3.0979421 | 20 | 12 26.4 | 20.0 |
| 191525 2003 <i>UW</i> ₁₈₃ | 15.4 | X | 340.63241 | 205.74445 | 199.25864 | 4.12752 | 0.1115704 | 0.17654299 | 3.1470410 | 20 | 11 22.2 | 19.2 |
| 191526 2003 <i>UV</i> ₁₈₆ | 15.0 | X | 114.43131 | 355.02482 | 325.98213 | 8.31264 | 0.0695640 | 0.18548632 | 3.0450526 | 20 | — | — |
| 191527 2003 <i>UA</i> ₁₉₃ | 15.8 | X | 78.44144 | 328.80330 | 316.93460 | 2.59884 | 0.0458228 | 0.17724862 | 3.1386831 | 20 | 10 28.1 | 20.2 |
| 191528 2003 <i>UV</i> ₁₉₃ | 15.2 | X | 305.12169 | 358.97661 | 91.61419 | 2.95102 | 0.1090753 | 0.17862269 | 3.1225661 | 20 | 11 24.2 | 19.1 |
| 191529 2003 <i>UX</i> ₁₉₆ | 15.7 | X | 52.99616 | 290.80863 | 64.54906 | 2.39461 | 0.0844834 | 0.18152137 | 3.0892345 | 20 | 12 27.9 | 19.9 |
| 191530 2003 <i>UX</i> ₁₉₇ | 15.1 | X | 160.54710 | 192.22605 | 49.40937 | 5.35558 | 0.1050058 | 0.18144801 | 3.0900672 | 20 | 12 5.2 | 20.0 |
| 191531 2003 <i>UQ</i> ₁₉₈ | 15.1 | X | 62.99685 | 280.03704 | 99.94158 | 3.96968 | 0.2011459 | 0.18766114 | 3.0214807 | 20 | — | — |
| 191532 2003 <i>UV</i> ₁₉₉ | 16.0 | X | 27.16984 | 225.04983 | 139.36715 | 2.17324 | 0.2136353 | 0.18000867 | 3.1065172 | 20 | 12 24.8 | 20.1 |
| 191533 2003 <i>UV</i> ₂₀₈ | 15.0 | X | 65.41482 | 95.61478 | 207.98143 | 10.21813 | 0.0376373 | 0.17369180 | 3.1813870 | 20 | 11 3.2 | 19.5 |
| 191534 2003 <i>UJ</i> ₂₁₁ | 14.9 | X | 349.98231 | 178.64305 | 235.81993 | 9.88043 | 0.0602477 | 0.17805988 | 3.1291424 | 20 | 12 14.5 | 19.1 |
| 191535 2003 <i>UE</i> ₂₁₈ | 15.5 | X | 74.97669 | 256.49695 | 51.95762 | 16.70753 | 0.2896593 | 0.18095896 | 3.0956320 | 20 | 12 16.2 | 20.8 |
| 191536 2003 <i>UY</i> ₂₂₂ | 14.8 | X | 29.93050 | 293.14096 | 37.65533 | 14.02570 | 0.2926985 | 0.17388874 | 3.1789845 | 20 | 11 25.4 | 19.1 |
| 191537 2003 <i>UZ</i> ₂₂₃ | 14.4 | X | 264.45136 | 73.84261 | 26.47307 | 12.93109 | 0.0394965 | 0.17220177 | 3.1997126 | 20 | 10 17.9 | 18.9 |
| 191538 2003 <i>UR</i> ₂₂₇ | 15.1 | X | 276.47720 | 112.82536 | 335.15239 | 4.26892 | 0.1284408 | 0.17164594 | 3.2066165 | 20 | 10 4.1 | 19.4 |
| 191539 2003 <i>UZ</i> ₂₃₀ | 14.9 | X | 1.95097 | 344.70691 | 27.22420 | 9.72797 | 0.0760660 | 0.17391453 | 3.1786702 | 20 | 11 7.5 | 19.0 |
| 191540 2003 <i>UF</i> ₂₃₆ | 15.0 | X | 233.42501 | 316.77690 | 151.55965 | 6.01339 | 0.1145773 | 0.16970656 | 3.2310001 | 20 | 9 10.6 | 19.7 |
| 191541 2003 <i>UF</i> ₂₃₈ | 14.5 | X | 299.06919 | 357.27967 | 76.15191 | 11.98465 | 0.0827045 | 0.17248053 | 3.1962642 | 20 | 10 29.5 | 18.8 |
| 191542 2003 <i>UM</i> ₂₄₄ | 15.0 | X | 168.83657 | 3.31013 | 207.75599 | 12.21046 | 0.0822516 | 0.17454612 | 3.1709976 | 20 | 11 8.6 | 19.8 |
| 191543 2003 <i>UJ</i> ₂₄₉ | 15.5 | X | 44.91809 | 341.89112 | 3.81227 | 5.77799 | 0.1649151 | 0.17977670 | 3.1091889 | 20 | 12 17.1 | 19.9 |
| 191544 2003 <i>UA</i> ₂₅₅ | 15.7 | X | 85.17916 | 150.35426 | 148.69432 | 0.98970 | 0.1585770 | 0.17977532 | 3.1092048 | 20 | 12 4.4 | 20.5 |
| 191545 2003 <i>UZ</i> ₂₆₁ | 15.4 | X | 54.43376 | 168.50596 | 176.52916 | 1.47234 | 0.2655838 | 0.17992666 | 3.1074611 | 20 | — | — |
| 191546 2003 <i>UV</i> ₂₆₈ | 15.8 | X | 312.80915 | 246.55029 | 201.78729 | 1.12547 | 0.1106605 | 0.17773695 | 3.1329315 | 20 | 12 2.7 | 19.6 |
| 191547 2003 <i>UB</i> ₂₆₉ | 14.5 | X | 86.76665 | 249.32126 | 62.05995 | 23.26676 | 0.1519817 | 0.17961139 | 3.1110964 | 20 | 12 16.8 | 19.5 |
| 191548 2003 <i>UG</i> ₂₇₈ | 15.1 | X | 20.72161 | 30.50195 | 309.97788 | 2.57970 | 0.0389930 | 0.17378607 | 3.1802365 | 20 | 10 21.7 | 19.4 |
| 191549 2003 <i>UZ</i> ₂₉₃ | 14.8 | X | 303.93073 | 296.11587 | 125.08550 | 17.97428 | 0.1246374 | 0.17280182 | 3.1923010 | 20 | 10 20.7 | 19.1 |
| 191550 2003 <i>UL</i> ₂₉₉ | 16.5 | X | 315.63111 | 267.49097 | 174.07642 | 1.46525 | 0.0778181 | 0.17881373 | 3.1203416 | 20 | 11 30.3 | 20.4 |
| 191551 2003 <i>VK</i> ₁ | 15.3 | X | 23.96145 | 119.42818 | 276.47981 | 14.89347 | 0.2235499 | 0.18206082 | 3.0831291 | 20 | — | — |
| 191552 2003 <i>VC</i> ₈ | 16.2 | X | 204.06861 | 57.26300 | 330.74970 | 3.42769 | 0.1145384 | 0.21005312 | 2.8027431 | 20 | 5 1.4 | 20.5 |
| 191553 2003 <i>WV</i> ₁₄ | 15.9 | X | 316.58755 | 312.64202 | 154.24126 | 0.33727 | 0.1244784 | 0.17966357 | 3.1104940 | 20 | — | — |
| 191554 2003 <i>WC</i> ₁₅ | 15.3 | X | 190.53714 | 168.06352 | 50.63859 | 2.58969 | 0.0582382 | 0.17910666 | 3.1169385 | 20 | 12 11.3 | 19.9 |
| 191555 2003 <i>WC</i> ₂₀ | 15.4 | X | 332.49464 | 300.91292 | 29.17519 | 14.19831 | 0.0805026 | 0.22029715 | 2.7151686 | 20 | 8 15.5 | 18.9 |
| 191556 2003 <i>WM</i> ₄₄ | 14.8 | X | 307.12403 | 152.64207 | 311.01940 | 9.40594 | 0.0648761 | 0.17807497 | 3.1289656 | 20 | 12 15.6 | 19.0 |
| 191557 2003 <i>WT</i> ₆₃ | 15.9 | X | 30.33725 | 125.68056 | 270.24463 | 0.09369 | 0.2512090 | 0.18228697 | 3.0805786 | 20 | — | — |
| 191558 2003 <i>WO</i> ₆₅ | 14.6 | X | 45.44462 | 245.13954 | 68.51629 | 17.16675 | 0.2144696 | 0.17233371 | 3.1980793 | 20 | 11 17.1 | 19.0 |
| 191559 2003 <i>WE</i> ₆₉ | 15.2 | X | 353.39249 | 195.17466 | 242.43982 | 9.66186 | 0.1909567 | 0.17972988 | 3.1097289 | 20 | — | — |
| 191560 2003 <i>WR</i> ₆₉ | 16.0 | X | 12.27353 | 289.02259 | 115.22701 | 2.59351 | 0.1787558 | 0.17947125 | 3.1127157 | 20 | — | — |
| 191561 2003 <i>WT</i> ₇₄ | 15.1 | X | 62.20570 | 82.84834 | 294.40045 | 13.37053 | 0.1898069 | 0.18359705 | 3.0659066 | 20 | — | — |
| 191562 2003 <i>WD</i> ₈₁ | 15.0 | X | 339.56398 | 338.25656 | 56.72979 | 11.60519 | 0.1824585 | 0.17252664 | 3.1956946 | 20 | 11 9.1 | 18.3 |
| 191563 2003 <i>WJ</i> ₁₀₂ | 15.1 | X | 345.19858 | 154.81230 | 282.09090 | 3.30700 | 0.1504707 | 0.17959569 | 3.1112777 | 20 | — | — |
| 191564 2003 <i>WZ</i> ₁₁₂ | 15.1 | X | 318.76613 | 80.30665 | 320.38613 | 3.83932 | 0.1133201 | 0.16988608 | 3.2287235 | 20 | 10 8.5 | 19.0 |
| 191565 2003 <i>WJ</i> ₁₂₈ | 15.0 | X | 70.85919 | 355.90901 | 338.08704 | 14.29091 | 0.2487756 | 0.18224163 | 3.0810895 | 20 | — | — |
| 191566 2003 <i>WN</i> ₁₃₉ | 16.5 | X | 93.57510 | 96.16334 | 252.81924 | 18.21404 | 0.0789004 | 0.36091661 | 1.9537312 | 20 | — | — |
| 191567 2003 <i>WX</i> ₁₄₆ | 16.8 | X | 334.80636 | 199.44266 | 232.75404 | 4.08262 | 0.2306404 | 0.23513993 | 2.5996714 | 20 | — | — |
| 191568 2003 <i>WR</i> ₁₅₁ | 15.7 | X | 5.97313 | 330.54469 | 61.29775 | 2.25142 | 0.1933279 | 0.17829249 | 3.1264202 | 20 | 12 24.5 | 19.4 |
| 191569 2003 <i>WV</i> ₁₅₃ | 16.9 | X | 275.58089 | 145.89698 | 12.10516 | 19.92523 | 0.0516746 | 0.36006920 | 1.9567953 | 20 | — | — |
| 191570 2003 <i>WQ</i> ₁₆₂ | 15.5 | X | 17.31190 | 231.63493 | 173.51832 | 8.84764 | 0.1068900 | 0.18029568 | 3.1032196 | 20 | — | — |
| 191571 2003 <i>WX</i> ₁₇₀ | 14.7 | X | 0.00599 | 275.73018 | 128.78074 | 13.20382 | 0.1770353 | 0.17839798 | 3.1251876 | 20 | 12 29.1 | 18.5 |
| 191572 2003 <i>WU</i> ₁₈₉ | 14.9 | X | 340.57350 | 262.75242 | 186.82080 | 21.76211 | 0.1224249 | 0.17996765 | 3.1069893 | 20 | — | — |
| 191573 2003 <i>XZ</i> ₁₀ | 14.6 | X | 354.67655 | 108.10560 | 265.44647 | 9.84126 | 0.1591466 | 0.17502933 | 3.1651588 | 20 | 11 4.9 | 18.4 |
| 191574 2003 <i>XF</i> ₁₄ | 17.0 | X | 137.99033 | 87.94264 | 316.79872 | 16.23663 | 0.1073047 | 0.37905720 | 1.8908898 | 20 | 2 24.1 | 18.9 |
| 191575 2003 <i>XP</i> ₂₅ | 16.1 | X | 245.68787 | 254.18908 | 193.09454 | 6.95212 | 0.1077253 | 0.22241286 | 2.6979224 | 20 | 9 2.9 | 19.9 |
| 191576 2003 <i>XM</i> ₃₀ | 15.7 | X | 280.65487 | 28.38301 | 74.87588 | 0.94699 | 0.0514292 | 0.17218209 | 3.1999565 | 20 | 11 9.5 | 19.9 |
| 191577 2003 <i>XU</i> ₃₂ | 16.0 | X | 302.98767 | 249.55427 | 166.41234 | 1.80202 | 0.1645619 | 0.16980952 | 3.2296939 | 20 | 9 29.6 | 19.7 |
| 191578 2003 <i>XH</i> ₃₅ | 14.5 | X | 57.60539 | 10.87898 | 8.32141 | 10.03559 | 0.0892377 | 0.18197522 | 3.0840959 | 20 | — | — |
| 191579 2003 <i>YB</i> ₆ | 14.6 | X | 89.64624 | 351.19633 | 340.64919 | 9.53500 | 0.2284925 | 0.18281221 | 3.0746753 | 20 | — | — |
| 191580 2003 <i>YR</i> ₅₃ | 15.9 | X | 332.58412 | 342.42242 | 83.63941 | 0.77422 | 0.1400585 | 0.17490280 | 3.1666851 | 20 | 12 5.5 | 19.6 |
| 191581 2003 <i>YC</i> ₆₄ | 15.9 | X | 19.16566 | 266.89613 | 168.44712 | 0.54668 | 0.1619308 | 0.18017920 | 3.1045569 | 20 | — | — |
| 191582 2003 <i>Kikadolfi</i> | 15.3 | X | 322.69862 | 343.20575 | 65.04565 | 4.86496 | 0.1187197 | 0.17260031 | 3.1947853 | 20 | 10 27.9 | 19.2 |
| 191583 2003 <i>YF</i> ₁₀₅ | 14.8 | X | 28.75881 | 240.14174 | 120.92521 | 9.34522 | 0.2794004 | 0.17597630 | 3.1537935 | 20 | 12 31.3 | 19.0 |
| 191584 2004 <i>BA</i> ₁₄₃ | 16.0 | X | 122.29379 | 45.15411 | 326.19176 | 5.66589 | 0.2159232 | 0.18622027 | 3.0370463 | 20 | 2 4.6 | 20.6 |
| 191585 2004 <i>CO</i> ₆₃ | 15.1 | X | 43.50733 | 59.51579 | 15.75914 | 9.98474 | 0.0862838 | 0.17822421 | 3.1272186 | 20 | — | — |
| 191586 2004 <i>DJ</i> ₄₉ | 16.6 | X | 82.77975 | 254.48117 | 127.82359 | 23.99780 | 0.1311420 | 0.36279796 | 1.9469710 | 20 | — | — |
| 191587 2004 <i>EJ</i> ₆ | 17.6 | X | 280.78960 | 291.53461 | 327.05501 | 2.01175 | 0.1526412 | 0.30216807 | 2.1993972 | 20 | 1 28.8 | 20.6 |
| 191588 2004 <i>EO</i> ₇₃ | 17.2 | X | 211.82994 | 80.50979 | 171.78898 | 4.93730 | 0.2286974 | 0.28681020 | 2.2772270 | 20 | — | — |
| 191589 2004 <i>FQ</i> ₅ | 15.8 | X | 226.73348 | 181.56876 | 151.46806 | 21.73729 | 0.2729022 | 0.30565504 | 2.1826378 | 20 | 3 7.0 | 19.5 |
| 191590 2004 <i>FN</i> ₂₉ | 17.2 | X | 311.94525 | 160.62770 | 61.52210 | 4.63219 | 0.1025383 | 0.29921965 | 2.2138217 | 20 | 1 26.6 | 19.8 |
| 191591 2004 <i>FR</i> ₃₈ | 17.0 | X | 290.79438 | 350.45654 | 276.04532 | 2.72047 | 0.1494582 | 0.30310327 | 2.1948709 | 20 | 2 18.9 | 19.9 |
| 191592 2004 <i>FX</i> ₄₆ | 16.8 | X | | | | | | | | | | |

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

| Planet | <i>H</i> | <i>G</i> | <i>M</i> | ω | Ω | <i>i</i> | <i>e</i> | μ | <i>a</i> | TE | Oppos. | <i>V</i> |
|-------------------------------|----------|----------|-----------|-----------|-----------|----------|-----------|------------|-----------|----|----------|----------|
| 191601 2004 GY ₁₃ | 16.4 | X | 143.01500 | 207.87656 | 93.26970 | 8.04549 | 0.1297519 | 0.28147573 | 2.3059086 | 20 | — | — |
| 191602 2004 GB ₃₀ | 18.1 | X | 236.30519 | 67.61795 | 170.80175 | 2.63886 | 0.1556388 | 0.28858174 | 2.2678978 | 20 | — | — |
| 191603 2004 GH ₃₇ | 16.8 | X | 214.42464 | 26.29136 | 221.40024 | 5.96195 | 0.1377405 | 0.28555901 | 2.2838740 | 20 | — | — |
| 191604 2004 GL ₄₈ | 17.3 | X | 229.92975 | 19.38804 | 269.51777 | 0.51804 | 0.1607691 | 0.29481926 | 2.2357959 | 20 | 1 17.3 | 20.7 |
| 191605 2004 GA ₅₉ | 17.0 | X | 186.53594 | 280.08701 | 59.00365 | 5.13381 | 0.2125970 | 0.29455871 | 2.2371141 | 20 | 2 13.6 | 20.6 |
| 191606 2004 GN ₇₄ | 16.7 | X | 188.08070 | 178.46359 | 129.41239 | 4.89806 | 0.1749754 | 0.29125633 | 2.2539925 | 20 | 1 3.5 | 20.0 |
| 191607 2004 HD ₇ | 16.9 | X | 133.37693 | 156.58843 | 138.75230 | 9.63926 | 0.2115010 | 0.27542554 | 2.3395549 | 20 | — | — |
| 191608 2004 HP ₁₀ | 16.1 | X | 202.55397 | 152.35911 | 57.44367 | 13.22745 | 0.1178103 | 0.27735117 | 2.3287134 | 20 | 12 29.7 | 19.3 |
| 191609 2004 HA ₁₈ | 16.7 | X | 261.55476 | 36.69447 | 222.73606 | 8.35340 | 0.1356963 | 0.29455045 | 2.2371559 | 20 | 1 10.2 | 20.1 |
| 191610 2004 HW ₂₄ | 17.3 | X | 248.41149 | 270.10873 | 351.93036 | 6.78546 | 0.2103874 | 0.29414623 | 2.2392050 | 20 | — | — |
| 191611 2004 HU ₄₅ | 16.4 | X | 97.77956 | 234.59595 | 42.26993 | 13.50394 | 0.1901143 | 0.26761220 | 2.3848740 | 20 | 12 4.8 | 20.4 |
| 191612 2004 HT ₄₈ | 17.1 | X | 247.53832 | 250.98062 | 337.54654 | 6.08921 | 0.1886816 | 0.28784522 | 2.2717648 | 20 | — | — |
| 191613 2004 HS ₅₀ | 16.9 | X | 199.66394 | 134.76753 | 131.42825 | 7.32069 | 0.0699604 | 0.28582836 | 2.2824390 | 20 | — | — |
| 191614 2004 JH ₆ | 17.0 | X | 289.93269 | 237.21706 | 14.09082 | 7.39489 | 0.1419734 | 0.29826916 | 2.2185224 | 20 | 2 3.1 | 19.9 |
| 191615 2004 JE ₇ | 16.8 | X | 301.96193 | 228.28029 | 322.84120 | 7.16203 | 0.1658733 | 0.29291330 | 2.2454841 | 20 | — | — |
| 191616 2004 JO ₂₂ | 16.9 | X | 173.33118 | 243.91975 | 58.18195 | 7.32293 | 0.1274500 | 0.28451856 | 2.2894385 | 20 | — | — |
| 191617 2004 NW ₂₄ | 17.2 | X | 243.85910 | 202.67530 | 39.74149 | 3.15602 | 0.1113410 | 0.28906961 | 2.2653454 | 20 | — | — |
| 191618 2004 JB ₄₂ | 17.2 | X | 232.14611 | 334.76389 | 262.14268 | 2.06525 | 0.1265596 | 0.28490886 | 2.2873471 | 20 | — | — |
| 191619 2004 KJ ₇ | 17.1 | X | 105.88204 | 33.04631 | 261.16845 | 1.73593 | 0.1886238 | 0.27060138 | 2.3627286 | 20 | — | — |
| 191620 2004 LH ₅ | 15.9 | X | 56.95076 | 154.89467 | 207.93887 | 12.19891 | 0.2374081 | 0.26516067 | 2.3995510 | 20 | — | — |
| 191621 2004 MN ₃ | 17.2 | X | 83.95858 | 334.17189 | 285.12561 | 0.57005 | 0.1572887 | 0.25880382 | 2.4386843 | 20 | 10 28.9 | 20.6 |
| 191622 2004 MK ₈ | 17.0 | X | 99.54919 | 265.03151 | 4.48251 | 1.38745 | 0.1619225 | 0.26167956 | 2.4207848 | 20 | 11 26.6 | 20.9 |
| 191623 2004 NB ₁ | 16.4 | X | 124.21307 | 119.46449 | 140.75941 | 6.55988 | 0.1137336 | 0.26477198 | 2.4018988 | 20 | 12 8.9 | 20.0 |
| 191624 2004 NJ ₁ | 15.9 | X | 121.62884 | 256.08709 | 330.32257 | 8.27609 | 0.2038416 | 0.26010652 | 2.4305350 | 20 | 10 22.5 | 20.1 |
| 191625 2004 NO ₃ | 17.1 | X | 54.92859 | 232.79262 | 59.94433 | 1.28076 | 0.1433138 | 0.25784795 | 2.4447076 | 20 | 11 7.1 | 20.1 |
| 191626 2004 NF ₁₅ | 16.4 | X | 17.44108 | 74.94240 | 274.53932 | 5.45045 | 0.1718785 | 0.25751314 | 2.4468262 | 20 | 12 7.1 | 19.1 |
| 191627 2004 NF ₁₆ | 16.5 | X | 95.61678 | 146.59353 | 156.38359 | 2.59670 | 0.1749256 | 0.26495735 | 2.4007784 | 20 | — | — |
| 191628 2004 NE ₁₇ | 17.0 | X | 165.84558 | 75.08685 | 176.50919 | 2.80394 | 0.1562280 | 0.27019654 | 2.3696426 | 20 | — | — |
| 191629 2004 NJ ₁₇ | 16.3 | X | 342.19589 | 173.32127 | 145.74878 | 4.72452 | 0.1796513 | 0.24683392 | 2.5169011 | 20 | 8 11.6 | 18.2 |
| 191630 2004 NE ₂₂ | 16.6 | X | 0.11712 | 276.15012 | 83.28901 | 8.17159 | 0.1419574 | 0.25754010 | 2.4466554 | 20 | 11 20.4 | 19.1 |
| 191631 2004 NN ₂₇ | 16.0 | X | 3.25722 | 87.88530 | 265.94791 | 5.43789 | 0.1503109 | 0.25526914 | 2.4611448 | 20 | 11 15.9 | 18.7 |
| 191632 2004 NW ₂₇ | 17.4 | X | 6.02735 | 165.00078 | 171.74042 | 1.91922 | 0.2382418 | 0.25286243 | 2.4767367 | 20 | 11 11.4 | 19.7 |
| 191633 2004 OB ₁₂ | 16.8 | X | 54.36099 | 294.50348 | 356.35781 | 5.52912 | 0.1731521 | 0.25735045 | 2.4478573 | 20 | 11 5.9 | 20.3 |
| 191634 2004 PQ ₃ | 16.7 | X | 115.83356 | 335.56548 | 20.38928 | 2.17539 | 0.2475553 | 0.27352205 | 2.3503966 | 20 | — | — |
| 191635 2004 PD ₅ | 16.0 | X | 3.03151 | 134.28660 | 235.74330 | 5.96308 | 0.1269809 | 0.25773013 | 2.4454526 | 20 | 12 6.6 | 18.8 |
| 191636 2004 PF ₉ | 16.5 | X | 308.75855 | 21.58005 | 322.07647 | 12.69402 | 0.2801912 | 0.24190472 | 2.5509767 | 20 | 6 19.6 | 19.4 |
| 191637 2004 PX ₁₈ | 15.9 | X | 40.29705 | 170.27669 | 149.58169 | 11.77377 | 0.0918098 | 0.25547515 | 2.4598216 | 20 | 11 19.6 | 19.3 |
| 191638 2004 PO ₂₀ | 16.6 | X | 22.69837 | 178.13778 | 158.49145 | 6.83613 | 0.1101757 | 0.25546365 | 2.4598956 | 20 | 11 19.1 | 19.6 |
| 191639 2004 PU ₂₃ | 16.5 | X | 326.55817 | 331.08422 | 73.13504 | 1.97696 | 0.3011296 | 0.25258980 | 2.4785185 | 20 | 12 1.7 | 17.5 |
| 191640 2004 PK ₂₄ | 16.7 | X | 70.21023 | 208.52203 | 127.46381 | 3.63452 | 0.1323187 | 0.26370344 | 2.4083828 | 20 | — | — |
| 191641 2004 PL ₂₄ | 16.7 | X | 332.39789 | 309.25637 | 323.50586 | 12.78775 | 0.2585667 | 0.23970676 | 2.5665468 | 20 | 4 14.7 | 19.5 |
| 191642 2004 PV ₂₉ | 16.3 | X | 20.78026 | 124.43380 | 144.63364 | 7.39058 | 0.2168728 | 0.24523984 | 2.5277961 | 20 | 8 24.2 | 18.6 |
| 191643 2004 PX ₃₄ | 17.1 | X | 110.09068 | 26.74657 | 328.46856 | 0.66094 | 0.2038398 | 0.27155505 | 2.3617330 | 20 | — | — |
| 191644 2004 PZ ₃₆ | 16.7 | X | 49.88821 | 157.14933 | 164.88504 | 3.63661 | 0.1588474 | 0.25796131 | 2.4439913 | 20 | 12 11.3 | 20.0 |
| 191645 2004 PQ ₃₈ | 16.9 | X | 79.16386 | 177.08486 | 179.64055 | 1.12027 | 0.2006996 | 0.26671670 | 2.3902092 | 20 | — | — |
| 191646 2004 PP ₄₀ | 16.5 | X | 94.32482 | 170.38777 | 186.25939 | 5.84368 | 0.1417298 | 0.26884281 | 2.3775907 | 20 | — | — |
| 191647 2004 PK ₄₃ | 16.4 | X | 96.88139 | 329.74081 | 293.20976 | 5.74445 | 0.1066540 | 0.25783250 | 2.4448053 | 20 | 11 9.9 | 20.0 |
| 191648 2004 PP ₄₅ | 16.2 | X | 340.73391 | 223.80063 | 91.42797 | 4.90749 | 0.1610888 | 0.24335599 | 2.5408246 | 20 | 8 2.9 | 18.4 |
| 191649 2004 PK ₄₆ | 16.2 | X | 315.62589 | 20.32982 | 311.65196 | 8.77694 | 0.0735241 | 0.24209044 | 2.5496718 | 20 | 7 17.1 | 19.2 |
| 191650 2004 PC ₅₁ | 16.4 | X | 121.67611 | 259.31287 | 5.15724 | 4.67471 | 0.1647248 | 0.26370813 | 2.4083542 | 20 | 12 10.7 | 20.3 |
| 191651 2004 PU ₅₆ | 16.4 | X | 97.88249 | 66.06041 | 233.37951 | 5.26598 | 0.1342661 | 0.26369044 | 2.4084620 | 20 | 12 30.6 | 20.0 |
| 191652 2004 PF ₅₇ | 16.7 | X | 136.93963 | 110.32074 | 166.86270 | 6.73038 | 0.1198108 | 0.26718312 | 2.3874266 | 20 | — | — |
| 191653 2004 PN ₆₉ | 16.3 | X | 13.95984 | 12.21011 | 273.55595 | 6.60119 | 0.1020230 | 0.24471279 | 2.5314243 | 20 | 8 16.5 | 19.2 |
| 191654 2004 PQ ₇₁ | 16.4 | X | 263.50298 | 80.03519 | 320.43389 | 15.34342 | 0.2348091 | 0.24214308 | 2.5493023 | 20 | 7 12.1 | 20.0 |
| 191655 2004 PT ₇₃ | 16.6 | X | 53.95066 | 353.02433 | 16.84536 | 2.36100 | 0.2249556 | 0.26383255 | 2.4075970 | 20 | — | — |
| 191656 2004 PY ₈₁ | 16.9 | X | 326.88419 | 197.44716 | 141.34200 | 7.85381 | 0.1875234 | 0.24429015 | 2.5343431 | 20 | 8 6.3 | 19.1 |
| 191657 2004 PK ₈₄ | 16.4 | X | 232.35739 | 256.21427 | 150.00690 | 5.99514 | 0.3080605 | 0.23222036 | 2.6214155 | 20 | 6 9.1 | 21.1 |
| 191658 2004 PG ₉₁ | 16.3 | X | 302.53281 | 197.06146 | 166.51578 | 13.78853 | 0.2981144 | 0.23890474 | 2.5722877 | 20 | 7 3.0 | 19.3 |
| 191659 2004 PK ₁₀₁ | 16.0 | X | 227.21136 | 339.65625 | 350.77251 | 14.44661 | 0.2073452 | 0.22394419 | 2.6856094 | 20 | 3 10.6 | 20.6 |
| 191660 2004 PL ₁₀₁ | 16.4 | X | 274.75179 | 188.74524 | 191.89680 | 10.27368 | 0.2702345 | 0.23714300 | 2.5850117 | 20 | 6 20.5 | 20.1 |
| 191661 2004 PP ₁₀₁ | 15.2 | X | 280.54715 | 339.24290 | 354.91825 | 13.22016 | 0.2834981 | 0.23302404 | 2.6153846 | 20 | 4 20.1 | 19.3 |
| 191662 2004 PU ₁₀₂ | 15.5 | X | 224.78642 | 54.72812 | 328.45796 | 13.10407 | 0.2952723 | 0.23004034 | 2.6379509 | 20 | 4 30.7 | 20.5 |
| 191663 2004 PG ₁₀₃ | 15.6 | X | 194.94348 | 56.07536 | 333.32697 | 8.79085 | 0.1216631 | 0.22484763 | 2.6784107 | 20 | 4 20.8 | 20.0 |
| 191664 2004 PQ ₁₀₃ | 15.7 | X | 178.34964 | 44.00868 | 323.24975 | 7.25535 | 0.1377061 | 0.21787941 | 2.7352179 | 20 | 3 11.2 | 20.2 |
| 191665 2004 PA ₁₀₄ | 15.9 | X | 220.92774 | 49.25039 | 344.11224 | 12.80637 | 0.2609327 | 0.22806236 | 2.6531816 | 20 | 5 13.0 | 20.7 |
| 191666 2004 PQ ₁₁₂ | 16.5 | X | 18.36762 | 55.87276 | 311.21876 | 10.27231 | 0.1773858 | 0.25966237 | 2.4333059 | 20 | — | — |
| 191667 2004 QZ | 16.1 | X | 247.14619 | 85.37835 | 285.25558 | 8.80754 | 0.1872797 | 0.23190305 | 2.6238061 | 20 | 5 17.1 | 20.3 |
| 191668 2004 QF ₄ | 16.4 | X | 261.04817 | 272.88648 | 116.22145 | 5.20627 | 0.2386732 | 0.23612117 | 2.5924642 | 20 | 6 20.4 | 20.0 |
| 191669 2004 QD ₁₁ | 16.3 | X | 354.37546 | 218.47161 | 69.04182 | 5.43914 | 0.2063420 | 0.24356447 | 2.5393745 | 20 | 7 21.6 | 18.2 |
| 191670 2004 QV ₁₁ | 16.2 | X | 351.88446 | 169.59455 | 101.89436 | 9.55797 | 0.1348962 | 0.24006522 | 2.5639913 | 20 | 6 17.7 | 18.8 |
| 191671 2004 QC ₂₀ | 15.4 | X | 134.36583 | 262.20282 | 130.60803 | 9.70805 | 0.1722994 | 0.21070326 | 2.7969748 | 20 | 3 7.6 | 19.7 |
| 191672 2004 RT ₁₀ | 17.1 | X | 78.61630 | 166.12671 | 180.38966 | 1.53163 | 0.1926432 | 0.26348894 | 2.4096897 | 20 | — | — |
| 191673 2004 RR ₁₉ | 16.5 | X | 109.90652 | 317.46076 | 46.25680 | 8.09775 | 0.1442302 | 0.27072388 | 2.3665645 | 20 | — | — |
| 191674 2004 RG ₃₅ | 16.2 | X | 256.44105 | 348.40753 | 87.83570 | 3.84938 | 0.1928953 | 0.24559242 | 2.5253762 | 20 | 8 26.4</ | |

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

| Planet | <i>H</i> | <i>G</i> | <i>M</i> | ω | Ω | <i>i</i> | <i>e</i> | μ | <i>a</i> | TE | Oppos. | <i>V</i> |
|-------------------------------|----------|----------|-----------|-----------|-----------|----------|-----------|------------|-----------|----|---------|----------|
| 191681 2004 RJ ₇₅ | 16.2 | X | 295.69993 | 158.73747 | 164.82416 | 7.96831 | 0.2024033 | 0.23549344 | 2.5970691 | 20 | 5 14.6 | 19.5 |
| 191682 2004 RG ₇₆ | 16.4 | X | 289.32379 | 198.07691 | 126.90751 | 4.34210 | 0.2003184 | 0.23442699 | 2.6049395 | 20 | 5 7.4 | 19.8 |
| 191683 2004 RX ₇₆ | 16.1 | X | 10.98228 | 8.74941 | 40.93934 | 4.47800 | 0.2289018 | 0.25822235 | 2.4423440 | 20 | — | — |
| 191684 2004 RK ₇₈ | 16.6 | X | 335.75625 | 257.95169 | 48.84986 | 5.75060 | 0.2010080 | 0.23988720 | 2.5652597 | 20 | 7 4.8 | 18.8 |
| 191685 2004 RO ₇₉ | 15.8 | X | 216.90919 | 352.87157 | 20.77295 | 9.41167 | 0.1824670 | 0.22638469 | 2.6662734 | 20 | 4 22.7 | 20.1 |
| 191686 2004 RA ₈₆ | 16.0 | X | 43.71037 | 211.45790 | 172.28507 | 9.26728 | 0.2200206 | 0.26530006 | 2.3987104 | 20 | — | — |
| 191687 2004 RK ₉₅ | 16.5 | X | 322.00405 | 75.16711 | 260.54858 | 3.45889 | 0.0893026 | 0.24394449 | 2.5367366 | 20 | 7 30.2 | 19.2 |
| 191688 2004 RC ₁₀₇ | 16.8 | X | 343.55500 | 100.21964 | 201.46148 | 2.75137 | 0.1178094 | 0.24134766 | 2.5549005 | 20 | 7 17.1 | 19.5 |
| 191689 2004 RZ ₁₃₆ | 16.6 | X | 294.78762 | 34.17698 | 278.34219 | 1.22051 | 0.0925776 | 0.23304989 | 2.6151912 | 20 | 5 13.2 | 19.8 |
| 191690 2004 RY ₁₄₂ | 15.7 | X | 181.10089 | 152.96533 | 307.95269 | 12.83149 | 0.0785878 | 0.23578064 | 2.5949597 | 20 | 7 14.0 | 19.5 |
| 191691 2004 RK ₁₄₄ | 16.0 | X | 297.03020 | 76.78315 | 218.37661 | 13.11318 | 0.1218274 | 0.23115844 | 2.6294377 | 20 | 4 17.5 | 19.4 |
| 191692 2004 RN ₁₄₉ | 16.1 | X | 58.35804 | 232.43779 | 1.49759 | 5.77508 | 0.1441989 | 0.24228429 | 2.5483117 | 20 | 8 23.6 | 19.3 |
| 191693 2004 RG ₁₅₀ | 16.3 | X | 288.29619 | 288.67177 | 79.78063 | 4.59682 | 0.0685311 | 0.23944296 | 2.5684316 | 20 | 7 26.9 | 19.5 |
| 191694 2004 RL ₁₅₁ | 16.4 | X | 305.07295 | 287.09274 | 30.29451 | 5.41007 | 0.2522112 | 0.23610898 | 2.5925534 | 20 | 5 8.6 | 19.5 |
| 191695 2004 RK ₁₅₄ | 15.9 | X | 0.83217 | 353.42453 | 283.68394 | 7.15564 | 0.0917919 | 0.23917692 | 2.5703358 | 20 | 7 12.3 | 18.5 |
| 191696 2004 RB ₁₆₀ | 15.7 | X | 197.81556 | 66.71648 | 322.20523 | 10.46284 | 0.0879737 | 0.22444060 | 2.6816480 | 20 | 4 22.7 | 19.9 |
| 191697 2004 RN ₁₆₂ | 15.3 | X | 228.65460 | 88.39412 | 320.81136 | 21.94314 | 0.1467675 | 0.23394018 | 2.6085520 | 20 | 6 25.6 | 19.6 |
| 191698 2004 RV ₁₆₃ | 16.3 | X | 8.57100 | 308.12853 | 331.69939 | 14.64204 | 0.1811023 | 0.24243276 | 2.5472712 | 20 | 8 11.5 | 18.6 |
| 191699 2004 RX ₁₆₇ | 16.5 | X | 316.01459 | 125.83794 | 198.65283 | 12.02828 | 0.1868921 | 0.23709719 | 2.5853446 | 20 | 6 19.7 | 19.5 |
| 191700 2004 RG ₁₆₈ | 16.3 | X | 73.80231 | 17.40105 | 236.21729 | 8.59563 | 0.1908307 | 0.25354689 | 2.4722774 | 20 | 10 11.8 | 20.0 |
| 191701 2004 RP ₁₆₉ | 16.7 | X | 313.17903 | 33.27585 | 261.80051 | 1.52746 | 0.1762285 | 0.23613821 | 2.5923395 | 20 | 5 3.4 | 19.5 |
| 191702 2004 RQ ₁₇₀ | 15.5 | X | 298.28946 | 314.12914 | 354.02954 | 12.30649 | 0.1831296 | 0.22829417 | 2.6513852 | 20 | 4 23.1 | 19.0 |
| 191703 2004 RB ₁₇₂ | 16.6 | X | 316.96436 | 147.14884 | 234.46684 | 1.38763 | 0.0831647 | 0.24683753 | 2.5168766 | 20 | 9 28.4 | 19.2 |
| 191704 2004 RF ₁₇₂ | 16.3 | X | 265.64793 | 159.07800 | 201.00164 | 3.96121 | 0.1560231 | 0.23376551 | 2.6098513 | 20 | 5 29.8 | 20.0 |
| 191705 2004 RR ₁₈₈ | 15.8 | X | 230.35098 | 124.88918 | 285.14170 | 7.93515 | 0.0630481 | 0.23529811 | 2.5985062 | 20 | 7 4.5 | 19.3 |
| 191706 2004 RX ₁₈₈ | 15.9 | X | 128.91963 | 90.89863 | 218.01738 | 8.97602 | 0.2337593 | 0.26746324 | 2.3857594 | 20 | — | — |
| 191707 2004 RY ₁₉₂ | 16.3 | X | 240.68929 | 46.89453 | 340.39000 | 11.17866 | 0.2044020 | 0.23192125 | 2.6236688 | 20 | 5 29.1 | 20.7 |
| 191708 2004 RQ ₁₉₄ | 15.9 | X | 237.66295 | 355.33464 | 344.97455 | 4.85590 | 0.1423978 | 0.22647318 | 2.6655788 | 20 | 4 3.3 | 20.0 |
| 191709 2004 RT ₁₉₄ | 16.3 | X | 299.84134 | 9.48081 | 322.02256 | 3.72725 | 0.1766627 | 0.23619710 | 2.5919086 | 20 | 6 2.7 | 19.3 |
| 191710 2004 RW ₁₉₅ | 15.9 | X | 261.30058 | 352.77705 | 307.68879 | 7.95717 | 0.1154663 | 0.22456328 | 2.6806712 | 20 | 3 10.5 | 20.0 |
| 191711 2004 RQ ₁₉₆ | 15.8 | X | 156.09074 | 214.92333 | 238.33639 | 8.37587 | 0.0483467 | 0.22945245 | 2.6424549 | 20 | 6 2.5 | 19.4 |
| 191712 2004 RT ₁₉₆ | 16.1 | X | 18.19306 | 321.13347 | 317.70225 | 7.52208 | 0.1884066 | 0.24248056 | 2.5469364 | 20 | 8 26.9 | 18.7 |
| 191713 2004 RE ₁₉₉ | 15.4 | X | 176.26227 | 14.96405 | 354.46529 | 13.64382 | 0.1705642 | 0.21722424 | 2.7407149 | 20 | 3 15.0 | 19.8 |
| 191714 2004 RX ₁₉₉ | 15.7 | X | 209.10563 | 26.33206 | 338.59400 | 8.32322 | 0.2506174 | 0.22194343 | 2.7017253 | 20 | 4 2.1 | 20.5 |
| 191715 2004 RG ₂₀₁ | 15.5 | X | 258.58794 | 47.72869 | 330.61212 | 11.17316 | 0.2037326 | 0.23034464 | 2.6356272 | 20 | 6 6.7 | 19.6 |
| 191716 2004 RK ₂₀₆ | 15.8 | X | 16.91860 | 215.27041 | 192.39610 | 22.63144 | 0.2782632 | 0.26142377 | 2.4223636 | 20 | — | — |
| 191717 2004 RZ ₂₁₄ | 16.0 | X | 186.27769 | 131.60551 | 293.28361 | 11.90341 | 0.1479815 | 0.22929860 | 2.6436368 | 20 | 5 29.9 | 20.4 |
| 191718 2004 RL ₂₁₈ | 15.8 | X | 285.29862 | 11.05265 | 305.69722 | 12.37062 | 0.1780582 | 0.23084781 | 2.6317960 | 20 | 4 16.3 | 19.7 |
| 191719 2004 RO ₂₂₀ | 15.9 | X | 252.91576 | 58.93883 | 309.14284 | 10.95408 | 0.1837428 | 0.23109973 | 2.6298830 | 20 | 5 18.9 | 20.1 |
| 191720 2004 RG ₂₂₄ | 16.2 | X | 313.33388 | 275.99310 | 60.80955 | 8.47188 | 0.1505811 | 0.23987326 | 2.5653590 | 20 | 7 10.3 | 18.9 |
| 191721 2004 RP ₂₂₈ | 16.0 | X | 302.81487 | 214.11764 | 311.35949 | 1.99580 | 0.0998032 | 0.20286874 | 2.8685293 | 20 | — | — |
| 191722 2004 RZ ₂₂₉ | 16.7 | X | 251.33518 | 81.52710 | 348.73199 | 1.54173 | 0.1474390 | 0.23957508 | 2.5674872 | 20 | 8 16.4 | 20.2 |
| 191723 2004 RE ₂₃₇ | 16.6 | X | 166.18804 | 142.44193 | 262.06845 | 2.20766 | 0.0304573 | 0.22561288 | 2.6723508 | 20 | 4 9.4 | 20.4 |
| 191724 2004 RJ ₂₄₆ | 16.8 | X | 332.16897 | 109.54821 | 238.74848 | 1.60722 | 0.1176530 | 0.24301460 | 2.5432036 | 20 | 9 4.4 | 19.4 |
| 191725 2004 RM ₂₇₆ | 16.4 | X | 239.53750 | 307.67150 | 161.70321 | 5.79874 | 0.1030600 | 0.25111806 | 2.4881931 | 20 | 10 2.4 | 19.6 |
| 191726 2004 RV ₂₈₇ | 16.7 | X | 290.35121 | 144.42818 | 181.38341 | 3.56464 | 0.2373720 | 0.23399315 | 2.6081583 | 20 | 4 27.7 | 20.2 |
| 191727 2004 RK ₂₉₃ | 16.7 | X | 196.06052 | 235.82279 | 165.15670 | 2.37168 | 0.1305234 | 0.22840872 | 2.6504987 | 20 | 5 10.9 | 20.9 |
| 191728 2004 RK ₃₀₅ | 16.7 | X | 232.49063 | 256.11214 | 160.15228 | 9.33371 | 0.1837686 | 0.23494734 | 2.6010919 | 20 | 7 1.4 | 20.8 |
| 191729 2004 RZ ₃₀₆ | 16.0 | X | 212.21588 | 200.84850 | 196.42796 | 13.78941 | 0.2493678 | 0.22571160 | 2.6715715 | 20 | 5 17.6 | 20.8 |
| 191730 2004 RL ₃₀₉ | 16.1 | X | 277.91509 | 25.68319 | 336.87461 | 14.27025 | 0.1105500 | 0.23591079 | 2.5940052 | 20 | 6 26.9 | 19.7 |
| 191731 2004 RZ ₃₀₉ | 16.2 | X | 310.33683 | 146.04596 | 214.19074 | 10.60607 | 0.2408266 | 0.23902525 | 2.5714230 | 20 | 7 21.9 | 18.9 |
| 191732 2004 RD ₃₁₀ | 15.6 | X | 197.26586 | 144.12251 | 235.64495 | 3.82102 | 0.1726411 | 0.22149101 | 2.7054031 | 20 | 4 13.7 | 20.0 |
| 191733 2004 RV ₃₁₂ | 16.2 | X | 312.15175 | 116.67656 | 191.71511 | 9.67644 | 0.1131590 | 0.23547455 | 2.5972080 | 20 | 6 1.5 | 19.4 |
| 191734 2004 RQ ₃₂₃ | 15.6 | X | 122.22849 | 133.83039 | 312.39934 | 8.86471 | 0.1298160 | 0.21975513 | 2.7196313 | 20 | 4 18.2 | 19.8 |
| 191735 2004 RN ₃₂₅ | 15.5 | X | 194.54521 | 8.00696 | 15.07150 | 14.79147 | 0.1975868 | 0.22005371 | 2.7171707 | 20 | 4 14.3 | 20.1 |
| 191736 2004 RV ₃₂₅ | 15.8 | X | 211.23370 | 38.96367 | 333.08227 | 8.99274 | 0.1335603 | 0.22317782 | 2.6917540 | 20 | 4 14.8 | 20.2 |
| 191737 2004 RE ₃₂₆ | 15.7 | X | 203.53075 | 95.80932 | 329.93504 | 11.62859 | 0.1541810 | 0.22677030 | 2.6632500 | 20 | 6 17.5 | 20.2 |
| 191738 2004 RR ₃₃₃ | 15.7 | X | 308.72478 | 176.04408 | 144.21829 | 14.26818 | 0.0903738 | 0.23659571 | 2.5889966 | 20 | 6 16.9 | 19.1 |
| 191739 2004 RO ₃₃₈ | 16.5 | X | 302.44185 | 268.14876 | 48.72519 | 2.95065 | 0.1897100 | 0.23420312 | 2.6065993 | 20 | 5 15.2 | 19.5 |
| 191740 2004 SB ₁₂ | 16.3 | X | 253.01660 | 207.29541 | 128.37052 | 15.60257 | 0.2253821 | 0.22994944 | 2.6386461 | 20 | 4 12.9 | 20.8 |
| 191741 2004 SC ₁₂ | 15.9 | X | 235.66405 | 280.31325 | 98.91379 | 12.95409 | 0.1806265 | 0.23170528 | 2.6252989 | 20 | 5 21.6 | 20.1 |
| 191742 2004 SA ₁₃ | 15.4 | X | 329.26733 | 231.00597 | 129.15101 | 10.73623 | 0.0872892 | 0.18524242 | 3.0477248 | 20 | 9 11.1 | 19.2 |
| 191743 2004 SZ ₁₃ | 15.9 | X | 224.95278 | 222.07573 | 194.96293 | 12.92667 | 0.2469756 | 0.23142921 | 2.6273863 | 20 | 6 19.8 | 20.6 |
| 191744 2004 SX ₁₅ | 16.1 | X | 284.34071 | 301.88797 | 90.18742 | 6.41258 | 0.1561253 | 0.24191535 | 2.5509020 | 20 | 8 10.9 | 19.0 |
| 191745 2004 SM ₂₀ | 16.3 | X | 284.31330 | 176.99008 | 204.80904 | 2.36938 | 0.2294114 | 0.23801518 | 2.5786929 | 20 | 7 11.6 | 19.3 |
| 191746 2004 SQ ₂₂ | 15.0 | X | 281.54280 | 125.66859 | 237.83685 | 12.24827 | 0.1992502 | 0.23196354 | 2.6233500 | 20 | 6 16.6 | 18.5 |
| 191747 2004 SV ₂₉ | 15.8 | X | 20.16103 | 237.72779 | 9.57773 | | | | | | | |

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

| Planet | <i>H</i> | <i>G</i> | <i>M</i> | ω | Ω | <i>i</i> | <i>e</i> | μ | <i>a</i> | TE | Oppos. | <i>V</i> | | |
|--------|----------|--------------------------|----------|----------|-----------|-----------|-----------|----------|-----------|------------|-----------|----------|--------|------|
| 191761 | 2004 | <i>TK</i> ₂₃ | 16.5 | X | 283.51762 | 33.24539 | 295.40943 | 1.73316 | 0.0389290 | 0.23135460 | 2.6279512 | 20 | 5 28.0 | 19.9 |
| 191762 | 2004 | <i>TU</i> ₃₄ | 16.5 | X | 321.37954 | 138.00398 | 170.18677 | 4.32200 | 0.1554003 | 0.23598833 | 2.5934369 | 20 | 6 10.9 | 19.2 |
| 191763 | 2004 | <i>TB</i> ₄₂ | 16.2 | X | 241.71913 | 42.06209 | 262.10082 | 2.76787 | 0.0980168 | 0.21817378 | 2.7327570 | 20 | 2 26.9 | 20.3 |
| 191764 | 2004 | <i>TH</i> ₄₅ | 16.9 | X | 210.46017 | 61.81244 | 343.63709 | 1.03215 | 0.1133711 | 0.22834495 | 2.6509922 | 20 | 5 31.2 | 20.7 |
| 191765 | 2004 | <i>TF</i> ₄₈ | 16.3 | X | 151.37740 | 178.20871 | 199.37983 | 4.24053 | 0.0846727 | 0.21389919 | 2.7690446 | 20 | 2 23.3 | 20.3 |
| 191766 | 2004 | <i>TF</i> ₅₀ | 15.9 | X | 262.35567 | 288.73048 | 22.38622 | 12.51969 | 0.3030391 | 0.22594834 | 2.6697050 | 20 | 3 13.6 | 20.4 |
| 191767 | 2004 | <i>TH</i> ₅₁ | 16.5 | X | 302.23916 | 23.20259 | 348.56419 | 1.83189 | 0.1789963 | 0.23895402 | 2.5719340 | 20 | 8 6.7 | 19.2 |
| 191768 | 2004 | <i>TJ</i> ₅₁ | 16.0 | X | 223.58020 | 99.23773 | 304.42813 | 2.05300 | 0.1069546 | 0.22908158 | 2.6453061 | 20 | 6 12.8 | 19.8 |
| 191769 | 2004 | <i>TB</i> ₅₃ | 16.4 | X | 108.61866 | 125.27358 | 242.81799 | 1.03256 | 0.0796364 | 0.20355668 | 2.8620627 | 20 | — | — |
| 191770 | 2004 | <i>TA</i> ₅₅ | 16.2 | X | 332.26242 | 102.72186 | 166.15755 | 2.22690 | 0.0510291 | 0.22563519 | 2.6721746 | 20 | 5 15.6 | 19.5 |
| 191771 | 2004 | <i>TH</i> ₆₈ | 16.2 | X | 194.48221 | 286.47087 | 163.86662 | 10.19454 | 0.1852361 | 0.23167277 | 2.6255445 | 20 | 7 8.1 | 20.7 |
| 191772 | 2004 | <i>TE</i> ₇₁ | 15.8 | X | 192.52957 | 26.04098 | 354.56283 | 6.00524 | 0.0475931 | 0.22283405 | 2.6945217 | 20 | 4 10.1 | 19.8 |
| 191773 | 2004 | <i>TM</i> ₇₃ | 16.7 | X | 173.24624 | 67.35366 | 12.58682 | 0.74413 | 0.1021351 | 0.22690634 | 2.6621854 | 20 | 6 5.9 | 20.7 |
| 191774 | 2004 | <i>TA</i> ₇₆ | 16.7 | X | 56.73999 | 322.46502 | 63.06765 | 3.09387 | 0.2294435 | 0.26130360 | 2.4231062 | 20 | — | — |
| 191775 | 2004 | <i>TQ</i> ₇₇ | 15.8 | X | 158.79142 | 176.04479 | 220.63162 | 8.51321 | 0.1311256 | 0.21835356 | 2.7312568 | 20 | 3 27.9 | 20.1 |
| 191776 | 2004 | <i>TC</i> ₇₉ | 16.5 | X | 319.41970 | 355.40816 | 343.17881 | 4.49573 | 0.2353782 | 0.23952168 | 2.5678688 | 20 | 7 13.5 | 18.6 |
| 191777 | 2004 | <i>TE</i> ₈₅ | 16.6 | X | 86.33232 | 57.83163 | 191.36566 | 1.49615 | 0.0702725 | 0.24629409 | 2.5205775 | 20 | 10 7.3 | 20.1 |
| 191778 | 2004 | <i>TA</i> ₈₆ | 16.7 | X | 240.32893 | 94.40821 | 190.93288 | 2.25818 | 0.1547665 | 0.21856722 | 2.7294765 | 20 | 1 30.9 | 21.2 |
| 191779 | 2004 | <i>TT</i> ₉₁ | 16.6 | X | 263.26885 | 106.95015 | 215.00134 | 4.11859 | 0.0812036 | 0.22570436 | 2.6716286 | 20 | 4 16.1 | 20.3 |
| 191780 | 2004 | <i>TA</i> ₉₉ | 16.7 | X | 149.98912 | 326.60084 | 173.34360 | 3.64762 | 0.1193799 | 0.23315070 | 2.6144374 | 20 | 7 29.5 | 20.8 |
| 191781 | 2004 | <i>TS</i> ₉₉ | 16.5 | X | 267.68398 | 277.19739 | 63.56916 | 2.89345 | 0.1573696 | 0.23051530 | 2.6343262 | 20 | 5 6.3 | 20.2 |
| 191782 | 2004 | <i>TW</i> ₁₁₃ | 16.4 | X | 13.12244 | 47.54045 | 52.04006 | 3.40706 | 0.1480560 | 0.26269442 | 2.4145460 | 20 | — | — |
| 191783 | 2004 | <i>TX</i> ₁₁₅ | 16.1 | X | 263.31472 | 149.88891 | 180.43224 | 12.95258 | 0.1862305 | 0.22843526 | 2.6502934 | 20 | 4 15.9 | 20.1 |
| 191784 | 2004 | <i>TP</i> ₁₂₂ | 16.4 | X | 308.71726 | 40.38126 | 244.92835 | 2.08430 | 0.1451163 | 0.23003087 | 2.6380234 | 20 | 4 17.7 | 19.6 |
| 191785 | 2004 | <i>TP</i> ₁₂₄ | 16.6 | X | 22.71213 | 230.54967 | 67.09458 | 2.98298 | 0.0581276 | 0.24458214 | 2.5323257 | 20 | 9 16.0 | 19.7 |
| 191786 | 2004 | <i>TZ</i> ₁₂₅ | 16.7 | X | 267.94995 | 167.49003 | 186.82500 | 3.52513 | 0.0849395 | 0.23305000 | 2.6151904 | 20 | 6 4.4 | 20.2 |
| 191787 | 2004 | <i>TZ</i> ₁₂₆ | 16.0 | X | 115.05355 | 289.58470 | 193.49428 | 11.46140 | 0.2219394 | 0.22344081 | 2.6896415 | 20 | 6 11.3 | 20.4 |
| 191788 | 2004 | <i>TQ</i> ₁₃₁ | 16.3 | X | 277.30033 | 271.76227 | 80.97149 | 5.65232 | 0.3079830 | 0.23404088 | 2.6078037 | 20 | 5 13.4 | 20.0 |
| 191789 | 2004 | <i>TG</i> ₁₃₂ | 15.6 | X | 193.44544 | 196.05669 | 175.21525 | 6.28574 | 0.0803562 | 0.21995642 | 2.7179718 | 20 | 4 1.9 | 19.5 |
| 191790 | 2004 | <i>TC</i> ₁₃₄ | 15.4 | X | 212.16218 | 221.74158 | 207.02428 | 11.90413 | 0.2750278 | 0.22892751 | 2.6464928 | 20 | 6 21.8 | 20.2 |
| 191791 | 2004 | <i>TM</i> ₁₃₄ | 15.5 | X | 183.37051 | 240.67242 | 218.40654 | 12.17093 | 0.1723185 | 0.22806791 | 2.6531385 | 20 | 7 7.9 | 20.1 |
| 191792 | 2004 | <i>TV</i> ₁₃₆ | 16.6 | X | 310.22510 | 23.69740 | 344.67727 | 4.91007 | 0.1984630 | 0.24139354 | 2.5545767 | 20 | 8 15.8 | 18.9 |
| 191793 | 2004 | <i>TK</i> ₁₅₄ | 16.5 | X | 11.65035 | 41.52456 | 108.05474 | 0.54359 | 0.0139608 | 0.21360954 | 2.7715473 | 20 | 2 6.0 | 20.2 |
| 191794 | 2004 | <i>TO</i> ₁₆₁ | 15.7 | X | 229.31642 | 146.15312 | 215.59227 | 7.84001 | 0.0894803 | 0.22447733 | 2.6813554 | 20 | 4 27.4 | 19.6 |
| 191795 | 2004 | <i>TK</i> ₁₇₀ | 16.0 | X | 239.55879 | 287.53296 | 62.64708 | 9.03775 | 0.1459056 | 0.22629470 | 2.6669802 | 20 | 4 21.4 | 20.1 |
| 191796 | 2004 | <i>TQ</i> ₁₇₈ | 16.9 | X | 289.85583 | 119.63598 | 192.31587 | 2.04213 | 0.1835051 | 0.23274851 | 2.6174483 | 20 | 4 21.8 | 20.1 |
| 191797 | 2004 | <i>TQ</i> ₂₀₃ | 16.2 | X | 256.19781 | 109.65424 | 248.79404 | 2.19607 | 0.1797952 | 0.22845887 | 2.6501108 | 20 | 5 12.9 | 20.0 |
| 191798 | 2004 | <i>TA</i> ₂₀₅ | 15.7 | X | 108.30833 | 7.21838 | 41.57526 | 9.89995 | 0.0897093 | 0.20887218 | 2.8146002 | 20 | 2 19.5 | 19.7 |
| 191799 | 2004 | <i>TL</i> ₂₀₅ | 15.5 | X | 172.62164 | 155.98041 | 221.82764 | 8.54464 | 0.1901908 | 0.21647249 | 2.7470564 | 20 | 3 20.2 | 20.2 |
| 191800 | 2004 | <i>TC</i> ₂₁₁ | 16.3 | X | 250.37708 | 348.29734 | 12.76328 | 4.35124 | 0.2129530 | 0.23009824 | 2.6375084 | 20 | 5 5.8 | 20.4 |
| 191801 | 2004 | <i>TC</i> ₂₁₉ | 16.4 | X | 120.64768 | 211.59602 | 242.14637 | 2.12674 | 0.0521601 | 0.22148421 | 2.7054584 | 20 | 4 20.3 | 20.2 |
| 191802 | 2004 | <i>TZ</i> ₂₂₀ | 15.9 | X | 188.91304 | 339.43691 | 103.27324 | 3.33289 | 0.1414465 | 0.23228560 | 2.6209246 | 20 | 6 25.4 | 20.0 |
| 191803 | 2004 | <i>TJ</i> ₂₂₃ | 15.6 | X | 144.04064 | 269.00716 | 139.76050 | 15.60195 | 0.1341339 | 0.21553037 | 2.7550558 | 20 | 4 4.6 | 20.0 |
| 191804 | 2004 | <i>TX</i> ₂₂₃ | 16.5 | X | 344.86329 | 90.66996 | 210.83065 | 7.84318 | 0.1654587 | 0.23961813 | 2.5671797 | 20 | 7 16.9 | 19.1 |
| 191805 | 2004 | <i>TS</i> ₂₂₉ | 17.0 | X | 284.88661 | 108.27498 | 193.71739 | 5.32207 | 0.2390824 | 0.22935155 | 2.6432299 | 20 | 3 25.4 | 20.7 |
| 191806 | 2004 | <i>TG</i> ₂₄₇ | 15.4 | X | 217.95894 | 245.08434 | 134.64306 | 12.02124 | 0.1934184 | 0.22667105 | 2.6640273 | 20 | 5 6.3 | 20.0 |
| 191807 | 2004 | <i>TX</i> ₂₄₇ | 15.8 | X | 287.93919 | 186.46925 | 157.85275 | 14.32831 | 0.1809494 | 0.23335071 | 2.6129432 | 20 | 6 5.1 | 19.4 |
| 191808 | 2004 | <i>TX</i> ₂₆₁ | 16.1 | X | 203.67071 | 233.99909 | 227.93338 | 3.64292 | 0.1867390 | 0.23419473 | 2.6066615 | 20 | 7 30.9 | 20.3 |
| 191809 | 2004 | <i>TO</i> ₂₆₃ | 16.1 | X | 46.16276 | 256.49981 | 298.21953 | 2.03888 | 0.0132164 | 0.22519886 | 2.6756251 | 20 | 5 19.9 | 19.7 |
| 191810 | 2004 | <i>TY</i> ₂₇₆ | 15.5 | X | 124.59916 | 346.00028 | 42.98623 | 9.89275 | 0.1505680 | 0.20986877 | 2.8043842 | 20 | 2 22.0 | 19.8 |
| 191811 | 2004 | <i>TJ</i> ₂₇₉ | 15.8 | X | 332.19828 | 46.49893 | 221.19137 | 8.22265 | 0.0727509 | 0.22973059 | 2.6403216 | 20 | 5 11.3 | 18.8 |
| 191812 | 2004 | <i>TV</i> ₂₈₀ | 16.6 | X | 198.17088 | 251.87964 | 82.70704 | 0.49266 | 0.0787116 | 0.21349987 | 2.7724963 | 20 | 2 21.6 | 20.6 |
| 191813 | 2004 | <i>TK</i> ₂₈₆ | 16.7 | X | 343.01429 | 53.56944 | 32.90524 | 2.34417 | 0.1786386 | 0.25579299 | 2.4577835 | 20 | — | — |
| 191814 | 2004 | <i>TI</i> ₂₉₂ | 15.9 | X | 246.41986 | 348.67164 | 338.09131 | 10.66328 | 0.2253814 | 0.22338781 | 2.6900668 | 20 | 3 18.6 | 20.4 |
| 191815 | 2004 | <i>TR</i> ₂₉₄ | 15.8 | X | 86.60969 | 212.81831 | 194.78011 | 5.45206 | 0.0636816 | 0.20610598 | 2.8384134 | 20 | 1 12.0 | 19.6 |
| 191816 | 2004 | <i>TO</i> ₂₉₅ | 16.2 | X | 246.54435 | 107.40129 | 258.03994 | 1.88080 | 0.1616195 | 0.22766554 | 2.6562637 | 20 | 5 13.5 | 20.1 |
| 191817 | 2004 | <i>TY</i> ₃₀₂ | 15.6 | X | 201.03373 | 269.48125 | 71.28995 | 4.95680 | 0.1307164 | 0.21788660 | 2.7351577 | 20 | 3 4.8 | 19.9 |
| 191818 | 2004 | <i>TU</i> ₃₀₆ | 15.7 | X | 243.44624 | 349.00751 | 311.42071 | 7.64148 | 0.0659476 | 0.21934773 | 2.7229978 | 20 | 2 26.1 | 19.7 |
| 191819 | 2004 | <i>TV</i> ₃₂₁ | 15.7 | X | 247.40057 | 99.76531 | 239.71472 | 11.12316 | 0.2219997 | 0.22491212 | 2.6778987 | 20 | 4 3.3 | 20.2 |
| 191820 | 2004 | <i>TO</i> ₃₂₆ | 16.2 | X | 267.17439 | 32.97856 | 298.47573 | 12.99849 | 0.1916482 | 0.22940427 | 2.6428249 | 20 | 4 12.1 | 20.4 |
| 191821 | 2004 | <i>TT</i> ₃₅₉ | 16.0 | X | 208.32587 | 247.29456 | 133.10149 | 5.93009 | 0.0752306 | 0.22448806 | 2.6812700 | 20 | 5 1.2 | 20.0 |
| 191822 | 2004 | <i>TT</i> ₃₆₁ | 15.7 | X | 283.79172 | 141.26456 | 156.51314 | 14.98692 | 0.1071266 | 0.22555267 | 2.6728263 | 20 | 4 10.7 | 19.5 |
| 191823 | 2004 | <i>UX</i> ₁ | 15.0 | X | 98.93838 | 146.16974 | 279.17791 | 15.06963 | 0.1974479 | 0.21038984 | 2.7997519 | 20 | 3 1.8 | 19.3 |
| 191824 | 2004 | <i>UA</i> ₃ | 16.0 | X | 214.85103 | 246.04250 | 148.26923 | 13.17812 | 0.1952852 | 0.22747111 | 2.6577771 | 20 | 5 20.6 | 20.6 |
| 191825 | 2004 | <i>UV</i> ₅ | 16.0 | X | 30.50684 | 300.75182 | 252.59268 | 3.32976 | 0.0128074 | 0.22347559 | 2.6893623 | 20 | 4 26.3 | 19.5 |
| 191826 | 2004 | <i>UZ</i> ₇ | 15.6 | X | 300.24891 | 96.30462 | 255.69028 | 5.01131 | 0.1697000 | 0.23567559 | 2.5957308 | 20 | 7 4.7 | 18.5 |
| 191827 | 2004 | <i>UW</i> ₉ | 15.6 | X | 221.48250 | 244.40146 | 95.17381 | 14.15073 | 0.1922644 | 0.22091117 | 2.7101351 | 20 | 3 24.5 | 20.4 |
| 191828 | 2004 | <i>VF</i> ₉ | 16.5 | X | 301.71471 | 216.04967 | | | | | | | | |

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

| Planet | <i>H</i> | <i>G</i> | <i>M</i> | ω | Ω | <i>i</i> | <i>e</i> | μ | <i>a</i> | TE | Oppos. | <i>V</i> |
|-------------------------------|----------|----------|-----------|-----------|-----------|----------|-----------|------------|-----------|----|---------|----------|
| 191841 2004 VO ₂₀ | 16.1 | X | 52.16242 | 254.74334 | 212.89771 | 1.11524 | 0.0582635 | 0.20926265 | 2.8097967 | 20 | 2 9.0 | 19.7 |
| 191842 2004 VL ₂₄ | 15.2 | X | 7.25052 | 47.31493 | 19.30465 | 11.16253 | 0.1112302 | 0.19094070 | 2.9867833 | 20 | — | — |
| 191843 2004 VD ₂₆ | 15.9 | X | 257.12571 | 89.72167 | 279.58885 | 3.21102 | 0.1633475 | 0.22940302 | 2.6428344 | 20 | 5 30.1 | 19.8 |
| 191844 2004 VY ₂₆ | 16.2 | X | 188.95985 | 48.92187 | 331.50602 | 4.13933 | 0.1311394 | 0.21896062 | 2.7262062 | 20 | 4 6.4 | 20.6 |
| 191845 2004 VG ₃₄ | 15.8 | X | 317.49195 | 66.17381 | 119.73851 | 2.96491 | 0.0146204 | 0.20632048 | 2.8364458 | 20 | 1 14.4 | 19.5 |
| 191846 2004 VO ₃₇ | 16.5 | X | 209.91174 | 273.79795 | 54.18544 | 1.12155 | 0.0708739 | 0.21387500 | 2.7692535 | 20 | 2 26.2 | 20.6 |
| 191847 2004 VB ₃₉ | 16.6 | X | 185.29121 | 163.29221 | 216.99169 | 0.99016 | 0.0906515 | 0.21803607 | 2.7339076 | 20 | 4 3.7 | 20.6 |
| 191848 2004 VP ₄₇ | 16.0 | X | 149.79180 | 203.90952 | 175.10476 | 4.55608 | 0.0879427 | 0.21076159 | 2.7964587 | 20 | 2 24.6 | 20.1 |
| 191849 2004 VZ ₄₈ | 15.9 | X | 154.75927 | 225.85842 | 143.33445 | 4.93509 | 0.1162215 | 0.21073688 | 2.7966773 | 20 | 2 21.4 | 20.0 |
| 191850 2004 VV ₅₄ | 16.1 | X | 266.56056 | 320.33088 | 18.51016 | 3.12489 | 0.3134890 | 0.22945179 | 2.6424600 | 20 | 4 13.9 | 20.3 |
| 191851 2004 VE ₅₇ | 15.8 | X | 206.54515 | 220.50811 | 144.63999 | 14.84385 | 0.2171478 | 0.22352855 | 2.6889376 | 20 | 4 8.3 | 20.6 |
| 191852 2004 VZ ₅₈ | 16.5 | X | 203.23002 | 128.15608 | 234.08177 | 2.51606 | 0.1909370 | 0.21971761 | 2.7199409 | 20 | 3 28.4 | 21.1 |
| 191853 2004 VH ₅₉ | 16.3 | X | 171.64959 | 69.03996 | 306.41678 | 3.40553 | 0.0860523 | 0.21480836 | 2.7612258 | 20 | 3 13.3 | 20.4 |
| 191854 2004 VV ₆₁ | 15.6 | X | 208.39664 | 313.35140 | 71.80599 | 14.96191 | 0.1670071 | 0.22558332 | 2.6725842 | 20 | 5 5.0 | 20.0 |
| 191855 2004 VX ₆₁ | 15.7 | X | 264.31590 | 189.09611 | 170.85615 | 13.44105 | 0.1623424 | 0.23139060 | 2.6276786 | 20 | 5 28.9 | 19.7 |
| 191856 2004 Almirán | 16.1 | X | 199.29645 | 344.64178 | 28.04175 | 5.60073 | 0.1775212 | 0.21924178 | 2.7238750 | 20 | 4 8.3 | 20.6 |
| 191857 2004 Illéserszöbet | 15.9 | X | 90.99195 | 62.06422 | 344.79879 | 4.24583 | 0.1059143 | 0.20245231 | 2.7224616 | 20 | 1 25.4 | 19.6 |
| 191858 2004 WV ₄ | 16.3 | X | 177.98784 | 31.63013 | 6.76824 | 2.23304 | 0.0859440 | 0.21735410 | 2.7396231 | 20 | 4 18.4 | 20.5 |
| 191859 2004 WJ ₇ | 15.5 | X | 202.96721 | 124.04058 | 270.91282 | 4.95752 | 0.0258480 | 0.22263552 | 2.6961232 | 20 | 5 12.8 | 19.2 |
| 191860 2004 WX ₈ | 15.5 | X | 327.80769 | 15.98338 | 26.20853 | 2.82432 | 0.1797647 | 0.24518628 | 2.5281642 | 20 | 11 18.3 | 17.5 |
| 191861 2004 XK ₈ | 15.7 | X | 315.62097 | 121.12121 | 205.88343 | 3.35743 | 0.2328274 | 0.23413807 | 2.6070820 | 20 | 6 15.6 | 18.2 |
| 191862 2004 XQ ₁₀ | 15.5 | X | 152.65756 | 164.58978 | 275.05414 | 8.05814 | 0.1460454 | 0.21702707 | 2.7423746 | 20 | 5 16.1 | 19.9 |
| 191863 2004 XG ₁₉ | 17.2 | X | 222.97166 | 46.74466 | 50.49265 | 4.09080 | 0.1322297 | 0.29684579 | 2.2256086 | 20 | 8 27.9 | 20.2 |
| 191864 2004 XV ₂₂ | 16.4 | X | 209.55458 | 198.13990 | 192.72778 | 2.04502 | 0.2391131 | 0.22352460 | 2.6889692 | 20 | 5 6.9 | 21.0 |
| 191865 2004 XO ₂₈ | 15.0 | X | 294.30662 | 64.77535 | 68.16943 | 3.50024 | 0.1181401 | 0.18614077 | 3.0379110 | 20 | — | — |
| 191866 2004 XW ₃₁ | 15.8 | X | 234.83760 | 234.18948 | 303.61668 | 0.77307 | 0.0501139 | 0.18625959 | 3.0366189 | 20 | 12 15.7 | 20.1 |
| 191867 2004 XJ ₃₄ | 14.8 | X | 6.44282 | 87.10198 | 288.34537 | 17.46739 | 0.1062832 | 0.17987316 | 3.1080773 | 20 | 11 22.6 | 19.0 |
| 191868 2004 XD ₇₂ | 14.8 | X | 290.14122 | 261.09149 | 221.28494 | 7.74158 | 0.1122420 | 0.18631757 | 3.0359889 | 20 | 12 12.9 | 18.6 |
| 191869 2004 XT ₇₂ | 16.3 | X | 217.80077 | 79.64900 | 326.33019 | 4.18837 | 0.1600167 | 0.22627956 | 2.6670992 | 20 | 6 5.1 | 20.5 |
| 191870 2004 XT ₇₆ | 15.7 | X | 182.80703 | 239.04553 | 136.37483 | 2.23591 | 0.1653209 | 0.21701444 | 2.7424810 | 20 | 3 28.7 | 20.2 |
| 191871 2004 XP ₈₁ | 14.9 | X | 237.85285 | 279.91178 | 254.43166 | 9.25374 | 0.0596194 | 0.18409847 | 3.0603371 | 20 | 12 13.3 | 19.2 |
| 191872 2004 XW ₈₂ | 15.6 | X | 44.40769 | 135.65236 | 266.30889 | 8.95036 | 0.1019708 | 0.19308399 | 2.9646394 | 20 | — | — |
| 191873 2004 XR ₈₃ | 14.7 | X | 92.06115 | 233.99430 | 90.92306 | 11.13163 | 0.0752655 | 0.18596244 | 3.0398528 | 20 | — | — |
| 191874 2004 XR ₈₉ | 15.7 | X | 130.89477 | 348.52324 | 8.49316 | 1.76944 | 0.0281581 | 0.20002444 | 2.8956585 | 20 | 1 2.5 | 19.6 |
| 191875 2004 XY ₉₂ | 16.3 | X | 248.75294 | 90.63214 | 34.66942 | 4.02074 | 0.1273110 | 0.24221375 | 2.5488064 | 20 | 10 29.4 | 19.3 |
| 191876 2004 XC ₉₇ | 16.1 | X | 11.25626 | 229.88332 | 64.98155 | 4.53788 | 0.0422092 | 0.22733210 | 2.6588604 | 20 | 8 22.1 | 19.4 |
| 191877 2004 XQ ₁₀₁ | 15.5 | X | 315.98838 | 167.63589 | 296.06823 | 8.37682 | 0.0851172 | 0.18398227 | 3.0611625 | 20 | 12 29.8 | 19.3 |
| 191878 2004 XA ₁₀₃ | 15.8 | X | 322.23209 | 12.65817 | 36.92671 | 8.75680 | 0.2653574 | 0.24291614 | 2.5438908 | 20 | 11 17.0 | 17.3 |
| 191879 2004 XQ ₁₀₇ | 15.3 | X | 162.04832 | 81.64773 | 294.38809 | 11.98219 | 0.2192064 | 0.21142772 | 2.7905818 | 20 | 3 7.7 | 20.2 |
| 191880 2004 XJ ₁₀₈ | 15.5 | X | 181.48347 | 123.91063 | 47.85599 | 5.28662 | 0.1452826 | 0.23412824 | 2.6071550 | 20 | 10 11.0 | 19.5 |
| 191881 2004 XM ₁₀₈ | 14.8 | X | 34.14995 | 312.66891 | 83.67158 | 10.78353 | 0.0839877 | 0.18787040 | 3.0192366 | 20 | — | — |
| 191882 2004 XS ₁₀₈ | 15.5 | X | 54.26201 | 102.14041 | 214.86213 | 10.33878 | 0.0999172 | 0.19541180 | 2.9410486 | 20 | — | — |
| 191883 2004 XC ₁₄₄ | 15.4 | X | 318.42321 | 143.40320 | 221.90364 | 13.13186 | 0.2071470 | 0.23865733 | 2.5740652 | 20 | 8 20.2 | 18.0 |
| 191884 2004 XA ₁₄₅ | 15.7 | X | 267.06517 | 225.65717 | 206.21626 | 7.65821 | 0.1837360 | 0.23767235 | 2.5811720 | 20 | 8 31.0 | 19.0 |
| 191885 2004 XJ ₁₅₇ | 15.7 | X | 36.46028 | 305.52999 | 131.04498 | 3.22116 | 0.0808693 | 0.19484062 | 2.9467936 | 20 | — | — |
| 191886 2004 XR ₁₆₁ | 15.3 | X | 112.89560 | 89.42217 | 288.24466 | 13.57907 | 0.1696837 | 0.20313520 | 2.8660203 | 20 | 1 23.3 | 19.3 |
| 191887 2004 XU ₁₇₃ | 15.3 | X | 303.76870 | 359.45995 | 18.89724 | 16.77809 | 0.1920664 | 0.23662343 | 2.5887944 | 20 | 8 26.7 | 18.3 |
| 191888 2004 XP ₁₈₂ | 15.5 | X | 216.72351 | 203.17508 | 205.10644 | 12.31301 | 0.1875378 | 0.22642688 | 2.6659422 | 20 | 6 6.2 | 20.0 |
| 191889 2004 YK ₁₉ | 16.4 | X | 65.15035 | 256.95593 | 109.02624 | 3.02794 | 0.1764198 | 0.18757090 | 3.0224497 | 20 | — | — |
| 191890 2004 YA ₂₁ | 14.5 | X | 323.59893 | 275.09242 | 122.13427 | 11.18468 | 0.0092445 | 0.17099108 | 3.2147984 | 20 | 10 22.7 | 19.2 |
| 191891 2004 YA ₂₉ | 15.6 | X | 301.27566 | 357.62189 | 142.56526 | 3.22163 | 0.1305225 | 0.18822174 | 3.0154782 | 20 | — | — |
| 191892 2005 AZ ₁₁ | 15.1 | X | 40.36161 | 231.37845 | 124.14399 | 10.51645 | 0.0777996 | 0.17983518 | 3.1085148 | 20 | 12 12.7 | 19.5 |
| 191893 2005 AS ₁₇ | 14.6 | X | 166.61002 | 263.45957 | 300.09249 | 10.85641 | 0.0813094 | 0.17139740 | 3.2097156 | 20 | 10 22.4 | 19.7 |
| 191894 2005 AN ₂₀ | 15.2 | X | 298.80170 | 336.06715 | 118.73978 | 10.32667 | 0.0468124 | 0.17793280 | 3.1306321 | 20 | 11 26.9 | 19.6 |
| 191895 2005 AL ₃₁ | 15.0 | X | 49.44549 | 228.79146 | 119.78540 | 14.26488 | 0.1194832 | 0.18146664 | 3.0898556 | 20 | 12 21.3 | 19.5 |
| 191896 2005 AH ₅₁ | 15.0 | X | 270.68100 | 300.47130 | 160.53194 | 7.45168 | 0.1322293 | 0.17436286 | 3.1732191 | 20 | 10 16.0 | 19.3 |
| 191897 2005 AW ₅₅ | 14.8 | X | 61.53255 | 17.84565 | 308.79595 | 5.40899 | 0.0913368 | 0.17819823 | 3.1275226 | 20 | 12 3.1 | 19.3 |
| 191898 2005 AJ ₇₉ | 16.1 | X | 198.14165 | 324.80210 | 40.42679 | 2.52257 | 0.0915405 | 0.20705099 | 2.8297702 | 20 | 3 30.9 | 20.5 |
| 191899 2005 BP ₁ | 15.1 | X | 107.43401 | 47.98533 | 310.80614 | 10.07562 | 0.1148953 | 0.18999471 | 2.9966893 | 20 | — | — |
| 191900 2005 BX ₆ | 15.6 | X | 304.56604 | 321.87119 | 55.98020 | 5.69507 | 0.2803365 | 0.23441734 | 2.6050110 | 20 | 8 4.5 | 18.1 |
| 191901 2005 BK ₂₀ | 15.1 | X | 329.06293 | 80.44702 | 340.49529 | 11.13500 | 0.0881604 | 0.17655934 | 3.1468467 | 20 | 11 19.8 | 19.3 |
| 191902 2005 BU ₄₅ | 14.9 | X | 311.35509 | 100.32215 | 310.45447 | 9.73313 | 0.0487547 | 0.17194772 | 3.2028635 | 20 | 10 11.6 | 19.4 |
| 191903 2005 CE ₂₇ | 14.6 | X | 314.53945 | 283.57461 | 110.98050 | 7.01255 | 0.0566828 | 0.16761305 | 3.2578481 | 20 | 10 3.0 | 19.0 |
| 191904 2005 CU ₃₇ | 14.9 | X | 74.44121 | 208.05755 | 307.48619 | 1.83289 | 0.0593879 | 0.14772208 | 3.5440985 | 20 | 5 14.3 | 19.8 |
| 191905 2005 CF ₅₇ | 16.0 | X | 298.61831 | 118.77566 | 8.18192 | 1.31684 | 0.1218772 | 0.18101243 | 3.0950223 | 20 | 12 29.3 | 19.6 |
| 191906 2005 EY ₃₅ | 15.0 | X | 308.21179 | 138.66847 | 319.72082 | 8.89238 | 0.1256675 | 0.17420007 | 3.1751957 | 20 | 12 5.1 | 19.0 |
| 191907 2005 EN ₁₁₅ | 15.1 | X | 348.53794 | 3.63224 | 157.03096 | 10.12011 | 0.0805328 | 0.18831099 | 3.0145254 | 20 | 1 18.1 | 19 |

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

| Planet | <i>H</i> | <i>G</i> | <i>M</i> | ω | Ω | <i>i</i> | <i>e</i> | μ | <i>a</i> | TE | Oppos. | <i>V</i> |
|-------------------------------|----------|----------|-----------|-----------|-----------|----------|-----------|------------|-----------|----|---------|----------|
| 191921 2005 SQ ₃₃ | 16.4 | X | 214.37986 | 26.53471 | 146.13671 | 5.63756 | 0.1764535 | 0.26799437 | 2.3826062 | 20 | 11 17.5 | 19.7 |
| 191922 2005 SB ₄₈ | 17.4 | X | 80.56254 | 163.67802 | 313.40523 | 2.44551 | 0.0661701 | 0.30146499 | 2.2028155 | 20 | 3 23.4 | 19.6 |
| 191923 2005 SU ₅₁ | 17.5 | X | 198.25167 | 306.96205 | 29.64171 | 3.36302 | 0.1755667 | 0.29981107 | 2.2109094 | 20 | 2 18.3 | 20.9 |
| 191924 2005 SG ₆₄ | 16.8 | X | 173.49522 | 5.36652 | 15.74836 | 4.46679 | 0.1732238 | 0.30234393 | 2.1985443 | 20 | 3 22.2 | 19.9 |
| 191925 2005 SS ₆₆ | 18.2 | X | 307.09357 | 130.22932 | 205.49216 | 0.23167 | 0.1082875 | 0.32094778 | 2.1127420 | 20 | 7 7.9 | 20.0 |
| 191926 2005 SA ₈₃ | 18.2 | X | 184.29554 | 209.89207 | 194.33996 | 5.22409 | 0.0292958 | 0.30924500 | 2.1657131 | 20 | 4 30.1 | 20.8 |
| 191927 2005 SV ₈₉ | 17.2 | X | 228.37548 | 268.18718 | 12.64961 | 3.13124 | 0.1938621 | 0.29693270 | 2.2251743 | 20 | 1 5.8 | 20.7 |
| 191928 2005 SR ₁₀₅ | 17.2 | X | 273.14030 | 217.73956 | 113.22271 | 3.32493 | 0.2194792 | 0.31302490 | 2.1482432 | 20 | 4 19.1 | 20.1 |
| 191929 2005 SN ₂₁₇ | 15.2 | X | 17.15633 | 272.02045 | 43.15493 | 10.67604 | 0.0849572 | 0.19336707 | 2.9617453 | 20 | 9 29.1 | 19.1 |
| 191930 2005 SC ₂₅₇ | 18.3 | X | 288.89487 | 185.90947 | 143.55608 | 2.87579 | 0.1396827 | 0.31744302 | 2.1282641 | 20 | 5 20.6 | 20.6 |
| 191931 2005 TU ₉₉ | 16.8 | X | 251.31745 | 318.53905 | 352.50938 | 4.43021 | 0.1473629 | 0.30544588 | 2.1836341 | 20 | 3 6.3 | 19.8 |
| 191932 2005 TE ₁₀₄ | 16.6 | X | 338.10244 | 169.27914 | 338.03194 | 6.64152 | 0.0768427 | 0.28594906 | 2.2817966 | 20 | — | — |
| 191933 2005 TL ₁₀₅ | 17.0 | X | 150.63767 | 30.39050 | 313.14401 | 6.00217 | 0.2407894 | 0.29106994 | 2.2549546 | 20 | 1 15.6 | 20.1 |
| 191934 2005 TX ₁₀₇ | 17.6 | X | 240.00401 | 14.87336 | 203.39954 | 0.55170 | 0.1642878 | 0.28337252 | 2.2956071 | 20 | — | — |
| 191935 2005 UY ₂ | 16.7 | X | 260.10384 | 123.58317 | 171.61324 | 7.86629 | 0.3235762 | 0.30529742 | 2.1843419 | 20 | 2 9.3 | 20.6 |
| 191936 2005 UM ₄ | 17.0 | X | 182.96490 | 350.69658 | 19.36068 | 6.39309 | 0.2050159 | 0.30095879 | 2.2052849 | 20 | 3 18.7 | 20.5 |
| 191937 2005 UV ₁₆ | 17.2 | X | 289.22369 | 8.48018 | 184.98207 | 2.48548 | 0.1001928 | 0.28487093 | 2.2875501 | 20 | — | — |
| 191938 2005 UA ₁₇ | 16.9 | X | 180.47718 | 17.79911 | 313.32898 | 3.75115 | 0.2012903 | 0.29493385 | 2.2352167 | 20 | 1 26.9 | 20.3 |
| 191939 2005 UV ₂₃ | 17.6 | X | 189.54094 | 64.38882 | 231.20874 | 3.20918 | 0.1708640 | 0.29030376 | 2.2589205 | 20 | — | — |
| 191940 2005 UV ₂₅ | 16.8 | X | 221.91353 | 6.49624 | 218.97387 | 5.27217 | 0.1262554 | 0.27951310 | 2.3166901 | 20 | — | — |
| 191941 2005 UE ₄₀ | 16.6 | X | 151.42053 | 296.90337 | 53.98708 | 7.23932 | 0.1646185 | 0.29022856 | 2.2593107 | 20 | 1 22.7 | 19.8 |
| 191942 2005 UH ₄₃ | 17.0 | X | 163.54542 | 0.51839 | 336.28659 | 4.12471 | 0.1621934 | 0.29172833 | 2.2515606 | 20 | 1 15.9 | 20.1 |
| 191943 2005 UM ₄₆ | 17.0 | X | 169.50563 | 174.68558 | 210.54662 | 5.92806 | 0.1504788 | 0.29915160 | 2.2141574 | 20 | 3 20.5 | 20.4 |
| 191944 2005 UG ₄₈ | 16.8 | X | 283.05095 | 240.24534 | 68.01985 | 5.68256 | 0.1597177 | 0.31026526 | 2.1609628 | 20 | 4 8.9 | 19.5 |
| 191945 2005 UG ₇₂ | 16.9 | X | 238.40866 | 320.31079 | 348.33897 | 7.14251 | 0.1826675 | 0.30268231 | 2.1969054 | 20 | 2 18.6 | 20.3 |
| 191946 2005 UL ₈₆ | 17.0 | X | 203.81969 | 225.89379 | 64.48992 | 2.57741 | 0.1548318 | 0.29198137 | 2.2502596 | 20 | — | — |
| 191947 2005 UZ ₁₀₀ | 16.9 | X | 263.49661 | 145.60097 | 186.22402 | 5.67312 | 0.1480312 | 0.30938462 | 2.1650615 | 20 | 4 17.6 | 19.7 |
| 191948 2005 UL ₁₀₅ | 17.3 | X | 163.82116 | 169.23213 | 142.31306 | 3.36490 | 0.1704816 | 0.28627267 | 2.2800767 | 20 | — | — |
| 191949 2005 UW ₁₀₅ | 16.3 | X | 191.04309 | 185.71274 | 70.11349 | 7.58194 | 0.0763914 | 0.27811408 | 2.3244528 | 20 | — | — |
| 191950 2005 UY ₁₁₁ | 16.7 | X | 330.75457 | 233.52689 | 246.19780 | 4.26869 | 0.1818176 | 0.27404380 | 2.3474124 | 20 | — | — |
| 191951 2005 UG ₁₁₂ | 16.6 | X | 249.65171 | 255.11456 | 327.05161 | 1.72421 | 0.0688885 | 0.28099424 | 2.3085419 | 20 | — | — |
| 191952 2005 UF ₁₁₇ | 17.0 | X | 180.50968 | 297.96925 | 41.20695 | 6.72557 | 0.2193688 | 0.29541252 | 2.2328015 | 20 | 2 9.5 | 20.7 |
| 191953 2005 UJ ₁₂₃ | 17.2 | X | 288.12406 | 25.43253 | 248.64397 | 1.07177 | 0.1579826 | 0.30339423 | 2.1934673 | 20 | 2 25.3 | 19.9 |
| 191954 2005 UQ ₁₅₃ | 17.4 | X | 65.94181 | 333.96061 | 347.04574 | 0.77273 | 0.0396850 | 0.26688420 | 2.3892090 | 20 | 12 15.6 | 20.5 |
| 191955 2005 UB ₁₅₅ | 17.0 | X | 168.91451 | 274.88971 | 48.85462 | 7.34268 | 0.2294351 | 0.29052992 | 2.2577480 | 20 | 1 10.8 | 20.6 |
| 191956 2005 UG ₁₇₇ | 17.0 | X | 127.89027 | 40.79373 | 246.06426 | 5.23632 | 0.2050532 | 0.27523312 | 2.3406452 | 20 | — | — |
| 191957 2005 UP ₂₂₇ | 17.2 | X | 272.57827 | 101.58326 | 201.11738 | 3.48206 | 0.1531384 | 0.30555767 | 2.1831015 | 20 | 3 16.9 | 20.0 |
| 191958 2005 UY ₂₂₈ | 17.2 | X | 261.34844 | 145.25088 | 147.48552 | 1.65847 | 0.1259189 | 0.30077061 | 2.2062046 | 20 | 2 24.1 | 20.1 |
| 191959 2005 UL ₂₄₁ | 17.7 | X | 53.52298 | 251.28288 | 201.58124 | 2.03286 | 0.0916878 | 0.28771011 | 2.2724760 | 20 | 1 8.4 | 19.9 |
| 191960 2005 UY ₃₅₆ | 16.9 | X | 294.49755 | 354.67244 | 158.99565 | 6.84116 | 0.0684370 | 0.27761626 | 2.3272308 | 20 | — | — |
| 191961 2005 UV ₄₄₂ | 17.4 | X | 0.83140 | 268.36149 | 215.44107 | 1.83286 | 0.1096088 | 0.28477725 | 2.2880518 | 20 | — | — |
| 191962 2005 UJ ₄₈₃ | 17.1 | X | 306.03646 | 148.03062 | 106.33641 | 0.21506 | 0.0639696 | 0.30251316 | 2.1977243 | 20 | 3 8.3 | 19.5 |
| 191963 2005 UV ₃ | 17.2 | X | 214.96581 | 143.74156 | 187.50542 | 7.63793 | 0.2252974 | 0.30082683 | 2.2059297 | 20 | 2 22.9 | 20.8 |
| 191964 2005 VF ₇ | 16.5 | X | 114.51496 | 94.68636 | 317.27480 | 22.34205 | 0.3012318 | 0.28997705 | 2.2606169 | 20 | 3 7.1 | 20.0 |
| 191965 2005 VB ₁₅ | 16.0 | X | 68.57566 | 120.03335 | 295.06509 | 23.95513 | 0.1366658 | 0.28342742 | 2.2953107 | 20 | — | — |
| 191966 2005 VU ₁₇ | 17.0 | X | 191.13055 | 174.63971 | 190.10308 | 6.74951 | 0.1917834 | 0.30157885 | 2.2022610 | 20 | 3 16.5 | 20.4 |
| 191967 2005 VV ₃₃ | 16.9 | X | 149.08801 | 211.03332 | 115.59573 | 3.65425 | 0.1588573 | 0.28507559 | 2.2864552 | 20 | — | — |
| 191968 2005 VA ₄₃ | 16.8 | X | 188.47179 | 254.36259 | 70.49412 | 3.77010 | 0.1797262 | 0.29231874 | 2.2485279 | 20 | 1 26.2 | 20.2 |
| 191969 2005 VD ₆₁ | 17.7 | X | 141.92850 | 229.95148 | 166.92231 | 5.41021 | 0.1356985 | 0.29673431 | 2.2261660 | 20 | 3 6.7 | 20.6 |
| 191970 2005 WF ₃ | 17.4 | X | 189.40347 | 215.20803 | 165.03172 | 5.65269 | 0.1737313 | 0.30256977 | 2.1974501 | 20 | 4 5.7 | 20.7 |
| 191971 2005 WK ₁₄ | 17.1 | X | 162.40675 | 324.33366 | 265.19766 | 0.68018 | 0.0897272 | 0.26534085 | 2.3984646 | 20 | 12 9.8 | 20.4 |
| 191972 2005 WV ₁₈ | 17.1 | X | 249.49044 | 269.57145 | 226.56378 | 0.49761 | 0.1453273 | 0.26018627 | 2.4300384 | 20 | 11 15.4 | 20.0 |
| 191973 2005 WC ₂₀ | 17.0 | X | 340.05365 | 280.79883 | 18.12330 | 3.74940 | 0.0444854 | 0.31269656 | 2.1497468 | 20 | 7 15.7 | 19.1 |
| 191974 2005 WG ₃₁ | 16.8 | X | 133.58632 | 19.91798 | 8.00564 | 1.83704 | 0.2424508 | 0.29208930 | 2.2497052 | 20 | 2 27.9 | 20.0 |
| 191975 2005 WN ₃₂ | 16.9 | X | 89.74355 | 309.99364 | 65.17214 | 4.31494 | 0.1983854 | 0.28112569 | 2.3078222 | 20 | — | — |
| 191976 2005 WR ₅₇ | 16.8 | X | 267.58784 | 296.71326 | 174.40285 | 5.77864 | 0.0921911 | 0.26095706 | 2.4252509 | 20 | 11 18.2 | 19.5 |
| 191977 2005 WW ₅₈ | 16.6 | X | 150.56616 | 100.98104 | 239.41596 | 5.02661 | 0.2217381 | 0.28781582 | 2.2719195 | 20 | 1 12.3 | 19.9 |
| 191978 2005 WB ₆₀ | 16.9 | X | 91.79925 | 87.88377 | 329.77481 | 5.17533 | 0.1541247 | 0.28834565 | 2.2691356 | 20 | 2 1.6 | 19.0 |
| 191979 2005 WZ ₆₂ | 17.1 | X | 194.11001 | 183.62499 | 167.11767 | 4.82089 | 0.2298370 | 0.29867525 | 2.2165110 | 20 | 3 2.9 | 20.6 |
| 191980 2005 WB ₆₇ | 17.0 | X | 54.27037 | 171.91680 | 242.34955 | 5.42455 | 0.1650560 | 0.28005830 | 2.3136824 | 20 | — | — |
| 191981 2005 WR ₇₁ | 17.0 | X | 45.36993 | 152.30453 | 284.42045 | 4.76386 | 0.1297855 | 0.28145779 | 2.3060065 | 20 | — | — |
| 191982 2005 WV ₈₉ | 17.0 | X | 219.89878 | 153.68012 | 171.51882 | 5.12979 | 0.2234083 | 0.30050984 | 2.2074807 | 20 | 2 20.4 | 20.8 |
| 191983 2005 WV ₉₄ | 17.2 | X | 128.64769 | 102.51288 | 187.58128 | 1.05997 | 0.1784064 | 0.27094891 | 2.3652540 | 20 | — | — |
| 191984 2005 WQ ₁₀₇ | 15.3 | X | 145.32866 | 305.48094 | 282.87191 | 2.14812 | 0.0531346 | 0.18266641 | 3.0763112 | 20 | 11 4.8 | 19.9 |
| 191985 2005 WB ₁₁₁ | 17.0 | X | 83.52701 | 86.64016 | 186.56311 | 0.78519 | 0.1626611 | 0.25960559 | 2.4336607 | 20 | 11 16.0 | 20.7 |
| 191986 2005 WB ₁₄₀ | 16.7 | X | 203.27796 | 92.90340 | 329.64314 | 0.96478 | 0.0376881 | 0.23670161 | 2.5882243 | 20 | 6 19.7 | 20.3 |
| 191987 2005 WK ₁₄₄ | 17.0 | X | 300.76349 | 297.76046 | 167.02747 | 5.16959 | 0.1691855 | 0.26507846 | 2.4000470 | 20 | — | — |
| 191988 2005 WK ₁₅₃ | 16.9 | X | 75.52648 | 333.51344 | 331.22563 | 1.76465 | 0.1700834 | 0.26510339 | 2.3998966 | 20 | 12 18.7 | 20.4 |
| 191989 2005 WS ₂₀₀ | 16.6 | X | 103.27917 | 92.93674 | 170.56429 | 1.14048 | 0.1527607 | 0.25816865 | 2.4426826 | 20 | 11 22.2 | 20.3 |
| 191990 2005 WZ ₂₀₈ | 17.2 | X | 171.12962 | 218.18191 | 50.69378 | 0.53665 | 0.1355561 | 0.27630352 | 2.3345962 | 20 | — | — |
| 191991 2005 XR ₁ | 16.5 | X | 233.54546 | 9.70603 | 340.36645 | 3.60369 | 0.1649149 | 0.30308217 | 2.1949727 | 20 | 4 5.9 | 19.7 |
| 191992 2005 XJ ₃ | 16.8 | X | 201.35961 | 252.21643 | 102.89679 | 1.11720 | 0.2021942 | 0.29884364 | 2.2156783 | 20 | 3 14.8 | 20.2 |
| 191993 2005 XX ₇ | 16.9 | X | 191.41871 | 146.12333 | 232.03237 | 6.29021 | 0.2141284 | 0.30046708 | 2.2076901 | 20 | 4 2.1 | 20.5 |
| 191994 2005 XV ₂₁ | 16.7 | X | | | | | | | | | | |