



EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

Table with columns for date (20/21), alpha2000, delta2000, Delta, r, beta, V, psi, and longitude/latitude (45/-26). It is divided into sections for 156720 2002 TY66, 8037 1993 HO1, 286889 2002 PO21, 436774 2012 KY3, and 335323 2005 QV108, each with a '(continuation)' label.



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20/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	$45^\circ$	$-26^\circ$	2020	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	$45^\circ$	$-26^\circ$
<b>142563 2002 TR<sub>69</sub></b> (continuation)										<b>338292 2002 UA<sub>31</sub></b> (continuation)									
10 8	12 33.42	-8 52.4	2.088	1.100	5.5	19.4	6 W	—	—	4 27	3 54.94	+9 36.2	0.762	0.439	111.0	20.9	24 E	7*	17*
10 13	12 50.08	-11 30.7	2.091	1.107	6.2	19.4	7 W	—	1*	4 29	3 53.64	+11 23.2	0.724	0.427	119.9	21.3	22 E	6*	14*
										<b>140333 2001 TD<sub>2</sub></b>									
										3 2	1 40.66	+26 31.6	1.237	1.018	51.0	21.4	53 E	47*	13*
										3 7	1 53.55	+27 30.8	1.220	0.978	52.3	21.3	51 E	45*	12*
										3 12	2 7.03	+28 26.8	1.197	0.935	53.9	21.2	49 E	43*	12*
										3 17	2 21.15	+29 18.1	1.168	0.891	55.9	21.1	48 E	42*	11*
										3 22	2 35.88	+30 2.7	1.132	0.845	58.4	21.0	46 E	40*	11*
										3 27	2 51.18	+30 38.0	1.090	0.798	61.5	20.9	45 E	39*	10*
										4 1	3 6.89	+31 0.6	1.041	0.750	65.5	20.8	43 E	37*	10*
										4 6	3 22.76	+31 5.7	0.984	0.702	70.6	20.7	41 E	35*	10*
										4 11	3 38.28	+30 46.9	0.920	0.655	77.0	20.6	40 E	33*	11*
										4 16	3 52.67	+29 55.7	0.850	0.610	85.2	20.6	37 E	31*	11*
										4 21	4 4.68	+28 20.6	0.775	0.569	95.6	20.6	34 E	27*	12*
										4 26	4 12.49	+25 47.5	0.699	0.535	108.6	20.9	30 E	22*	12*
										<b>376861 2001 TH<sub>7</sub></b>									
										3 2	11 38.12	+13 36.6	2.501	3.474	3.7	22.4	167 W	59	50
										3 7	11 33.87	+14 4.0	2.494	3.474	3.0	22.4	170 W	59	50
										3 12	11 29.51	+14 29.6	2.494	3.474	3.2	22.4	169 W	59	50
										3 17	11 25.16	+14 53.0	2.502	3.474	4.1	22.5	165 E	60	49
										3 22	11 20.89	+15 13.5	2.518	3.474	5.4	22.6	161 E	60	49
										3 27	11 16.80	+15 30.8	2.541	3.473	6.9	22.6	155 E	61	48
										4 1	11 12.99	+15 44.6	2.571	3.472	8.3	22.7	150 E	61	48
										<b>465098 2006 UQ<sub>217</sub></b>									
										3 2	11 41.05	+32 25.3	3.546	4.447	5.9	23.0	152 W	77	32
										3 7	11 37.01	+32 53.1	3.537	4.436	6.1	23.0	152 W	78	31
										3 12	11 32.85	+33 17.1	3.536	4.425	6.4	23.0	150 W	78	31
										3 17	11 28.66	+33 37.1	3.542	4.413	7.0	23.0	147 E	79	30
										3 22	11 24.50	+33 52.6	3.554	4.401	7.6	23.0	144 E	79	30
										3 27	11 20.46	+34 3.5	3.574	4.389	8.3	23.1	140 E	79	30
										4 1	11 16.61	+34 9.8	3.599	4.377	9.1	23.1	136 E	79	30
										<b>396626 2001 TX<sub>236</sub></b>									
										3 2	11 42.55	+6 51.1	1.846	2.822	4.4	22.5	167 W	52	57
										3 7	11 37.83	+7 24.2	1.832	2.819	2.5	22.3	173 W	52	57
										3 12	11 32.95	+7 56.9	1.825	2.816	1.7	22.3	175 W	53	56
										3 17	11 28.01	+8 28.4	1.826	2.813	3.0	22.4	171 E	53	56
										3 22	11 23.16	+8 58.0	1.834	2.810	5.0	22.5	166 E	54	55
										3 27	11 18.52	+9 24.7	1.849	2.807	7.1	22.6	160 E	54	55
										4 1	11 14.22	+9 48.1	1.871	2.803	9.0	22.7	154 E	55	54
										<b>401099 2011 UZ<sub>189</sub></b>									
										3 2	11 42.57	+13 1.3	1.823	2.796	4.8	22.3	166 W	58	51
										3 7	11 37.67	+13 34.1	1.807	2.789	3.8	22.3	169 W	59	50
										3 12	11 32.58	+14 4.9	1.798	2.781	3.8	22.3	169 W	59	50
										3 17	11 27.41	+14 33.0	1.797	2.773	5.0	22.3	166 W	60	49
										3 22	11 22.32	+14 57.5	1.803	2.764	6.7	22.4	161 E	60	49
										3 27	11 17.43	+15 17.9	1.815	2.756	8.6	22.5	156 E	60	49
										4 1	11 12.88	+15 33.5	1.835	2.747	10.4	22.6	150 E	61	48
										<b>496334 2013 PL<sub>3</sub></b>									
										3 2	11 43.71	-6 19.8	2.753	3.705	4.9	22.7	161 W	39	70
										3 12	11 35.93	-5 33.7	2.737	3.722	2.4	22.5	171 W	39	70
										3 22	11 28.08	-4 41.6	2.753	3.737	2.7	22.5	170 E	40	69
										4 1	11 20.83	-3 47.9	2.799	3.752	5.3	22.7	160 E	41	68
										4 11	11 14.70	-2 56.8	2.874	3.767	7.9	22.9	149 E	42	67
										<b>396967 2005 RZ<sub>51</sub></b>									
										3 2	11 44.02	-1 55.7	1.480	2.448	6.4	22.4	164 W	43	66
										3 12	11 33.43	-0 54.7	1.424	2.416	1.8	22.0	176 W	44	65
										3 22	11 22.12	+0 15.1	1.397	2.383	4.5	22.1	169 E	45	64
										4 1	11 11.45	+1 25.3	1.397	2.348	9.7	22.3	157 E	46	63
										4 11	11 2.67	+2 27.3	1.423	2.313	14.6	22.5	144 E	47	62
										<b>401000 2011 QV<sub>13</sub></b>									
										3 2	11 45.32	+3 35.0	1.997	2.969	4.5	22.5	166 W	49	60
										3 7	11 40.79	+4 9.3	1.984	2.970	2.5	22.3	172 W	49	60
										3 12	11 36.11	+4 44.0	1.978	2.971	0.7	22.2	178 W	50	59
										3 17	11 31.39	+5 18.4	1.980	2.972	1.9	22.3	174 E	50	59
										3 22	11 26.73	+5 51.7	1.990	2.973	3.9	22.4	168 E	51	58
										3 27	11 22.27	+6 23.0	2.007	2.973	5.9	22.5	162 E	51	58
										4 1	11 18.11	+6 51.6	2.031	2.973	7.8	22.7	156 E	52	57
										<b>280742 2005 LY<sub>42</sub></b>									
										3 2	11 47.79	+0 35.7	1.625	2.594	5.8	22.2	165 W	46	63
										3 7	11 42.73	+1 4.3	1.596	2.580	3.5	22.0	171 W	46	63
										3 12	11 37.35	+1 35.0	1.573	2.566	1.0	21.8	177 W	47	62
										3 17	11 31.80	+2 6.8	1.558	2.551	1.6	21.8	176 E	47	62







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2020	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	20/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°		
<b>366450 2002 AU<sub>11</sub></b>																					
3	2	12 50.63	-41 20.0	2.961	3.615	13.1	21.8	124 W	4	75	6	15	11 26.07	-31 48.9	1.582	2.029	29.5	21.2	100 E	6*	84
<b>129558 1996 XQ<sub>8</sub></b>																					
3	2	12 50.85	+9 29.1	2.000	2.904	9.7	21.6	151 W	54	55	8	24	13 31.24	-28 49.3	1.680	1.508	36.5	20.9	62 E	—	53*
<b>443854 2001 RM<sub>51</sub></b>																					
3	2	12 51.34	-7 21.0	1.786	2.671	11.7	22.2	147 W	38	71	11	7	17 57.62	-21 31.6	1.557	1.102	39.0	20.2	46 E	12*	39*
<b>346961 2010 CU<sub>1</sub></b>																					
3	2	12 52.20	-0 34.4	1.580	2.482	11.8	21.4	149 W	44	65	12	27	21 11.12	-0 21.9	1.608	1.176	37.5	20.3	47 E	36*	20*
<b>217025 2001 OK<sub>14</sub></b>																					
3	2	12 52.34	-18 15.7	2.604	3.430	10.5	21.4	141 W	27	82	3	2	12 53.40	-17 48.0	2.099	2.936	12.3	22.5	141 W	27	82
<b>188452 2004 HE<sub>62</sub></b>																					
3	2	12 52.60	-40 44.8	2.026	2.715	17.5	22.0	125 W	4	75	3	2	12 53.63	-16 4.1	1.675	2.531	14.0	21.5	142 W	29	80
<b>366455 2002 AZ<sub>126</sub></b>																					
3	2	12 53.10	-11 44.6	2.690	3.544	9.4	22.2	144 W	33	76	5	31	12 7.09	+1 45.0	1.606	2.187	25.6	21.5	111 E	46*	62
<b>501934 2014 XT<sub>3</sub></b>																					
3	2	12 53.40	-17 48.0	2.099	2.936	12.3	22.5	141 W	27	82	3	2	12 53.95	+7 27.0	1.689	2.594	11.1	22.2	150 W	52	57
<b>497676 2006 SR<sub>2</sub></b>																					
3	2	12 53.63	-16 4.1	1.675	2.531	14.0	21.5	142 W	29	80	3	7	12 50.44	+7 58.1	1.650	2.584	9.3	22.1	155 W	53	56
<b>495123 2011 WM<sub>21</sub></b>																					
3	2	12 53.95	+7 27.0	1.689	2.594	11.1	22.2	150 W	52	57	4	6	12 20.76	+10 44.6	1.553	2.518	7.7	21.8	160 E	56	53







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Table with columns for time (20/21), ecliptic longitude (alpha2000), ecliptic latitude (delta2000), distance (Delta), semi-major axis (r), eccentricity (beta), magnitude (V), phase angle (psi), and ecliptic longitude/latitude (-45 to -26 degrees). It contains three main sections of data for different minor planets: 177953 2006 MQ6, 414032 2007 PJ34, 408768 1998 SQ49, 401824 1998 QG71, 215476 2002 RP134, and 164670 1996 XM6. Each section includes a list of observations with associated parameters and coordinates.

















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20/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	$45^\circ$ – $26^\circ$	20/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	$45^\circ$ – $26^\circ$
<b>306769 2001 BX<sub>2</sub> (continuation)</b>																	
8 29	16 19.69	-34 34.0	1.452	1.813	33.8	19.8	93 E	8* 80*	7 20	16 8.74	+ 2 48.8	1.704	2.371	22.0	20.3	119 E	48 61
9 8	16 35.48	-34 31.1	1.504	1.763	34.8	19.9	87 E	8* 77*	7 25	16 8.04	+ 1 43.5	1.738	2.356	23.0	20.4	115 E	47* 62
9 18	16 54.42	-34 27.5	1.552	1.714	35.4	19.9	81 E	8* 72*	7 30	16 8.09	+ 0 36.4	1.774	2.341	23.9	20.4	111 E	45* 63
<b>323182 2003 MQ<sub>5</sub> (continuation)</b>																	
8 9	16 10.34	- 1 41.1	1.852	2.310	25.3	20.5	103 E	42* 66	8 9	16 10.34	- 1 41.1	1.852	2.310	25.3	20.5	103 E	42* 66
8 19	16 15.32	- 3 59.5	1.936	2.278	26.2	20.6	96 E	39* 68	8 19	16 15.32	- 3 59.5	1.936	2.278	26.2	20.6	96 E	39* 68
<b>242196 2003 PT<sub>9</sub></b>																	
3 2	16 53.70	+ 2 29.6	2.813	2.981	19.4	21.5	90 W	47* 60*	3 2	16 53.70	+ 2 29.6	2.813	2.981	19.4	21.5	90 W	47* 60*
3 12	17 0.48	+ 3 41.3	2.671	2.967	19.4	21.4	97 W	49* 60*	3 7	17 2.63	-48 53.8	2.011	2.201	26.8	21.4	87 W	- 66*
<b>163335 2002 LJ</b>																	
3 2	16 59.57	-48 38.1	2.076	2.195	26.6	21.5	83 W	- 65*	3 2	16 59.57	-48 38.1	2.076	2.195	26.6	21.5	83 W	- 65*
3 7	17 2.63	-48 53.8	2.011	2.201	26.8	21.4	87 W	- 66*	3 7	17 2.63	-48 53.8	2.011	2.201	26.8	21.4	87 W	- 66*

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20/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45° -26°	20/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45° -26°		
<b>163335 2002 LJ</b>									<b>170880 2004 PH<sub>85</sub></b>										
<i>(continuation)</i>									<i>(continuation)</i>										
12 23	19 8.19	-0 3.1	1.126	0.526	60.9	18.0	28 E	22*	9 18	18 0.35	-21 1.7	1.278	1.691	36.3	20.0	95 E	24*	85*	
<b>88938 2001 TR<sub>33</sub></b>									<b>488640 2003 FR<sub>6</sub></b>										
3 2	17 1.02	-27 20.0	2.145	2.278	25.7	21.4	85 W	18*	79*	3 2	17 14.03	-0 17.6	0.965	1.315	48.6	21.3	85 W	44*	60*
<b>170880 2004 PH<sub>85</sub></b>									<b>462102 2007 PN<sub>24</sub></b>										
3 12	17 20.55	-17 47.8	1.983	2.234	26.4	21.2	91 W	27*	80*	3 2	17 18.33	-33 33.3	1.641	1.773	33.5	21.4	81 W	11*	74*

