

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

2020	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	2020	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°
<b>416567 2004 EB</b>										<b>360192 1991 FB</b> (continuation)									
1 2	8 36.50	+47 10.5	3.003	3.868	7.9	23.0	147 W	88	17	2 11	7 40.11	+37 2.4	1.171	2.063	15.6	21.8	146 E	82	27
1 7	8 31.06	+47 40.6	2.961	3.843	7.4	22.9	150 W	87	16	2 16	7 32.28	+36 55.8	1.169	2.027	18.3	21.8	140 E	82	27
1 12	8 25.10	+48 7.2	2.926	3.819	7.1	22.9	152 W	87	16	2 21	7 25.42	+36 41.5	1.172	1.991	20.9	21.9	134 E	82	27
1 17	8 18.71	+48 29.2	2.898	3.794	7.0	22.8	152 W	87	16	<b>5324 Lyapunov</b>									
1 22	8 12.02	+48 46.2	2.877	3.769	7.2	22.8	151 E	86	15	1 2	8 44.38	+39 3.9	3.614	4.495	6.2	22.0	150 W	84	25
1 27	8 5.20	+48 57.5	2.864	3.744	7.7	22.8	149 E	86	15	1 7	8 39.90	+39 22.1	3.599	4.505	5.4	22.0	154 W	84	25
2 1	7 58.40	+49 2.9	2.858	3.718	8.4	22.8	146 E	86	15	1 12	8 35.14	+39 38.0	3.592	4.516	4.8	22.0	157 W	85	24
2 6	7 51.80	+49 2.3	2.859	3.692	9.3	22.8	143 E	86	15	1 17	8 30.17	+39 51.0	3.592	4.527	4.4	21.9	159 W	85	24
<b>205284 2000 SQ<sub>154</sub></b>										1 22	8 25.08	+40 1.0	3.601	4.537	4.3	21.9	160 W	85	24
1 2	8 37.71	+22 28.2	2.197	3.113	7.8	21.6	154 W	67	42	1 27	8 19.98	+40 7.6	3.617	4.547	4.6	22.0	158 E	85	24
1 7	8 33.24	+22 49.1	2.169	3.114	6.0	21.5	161 W	68	41	2 1	8 14.96	+40 10.7	3.641	4.557	5.1	22.0	156 E	85	24
1 12	8 28.37	+23 10.1	2.149	3.114	4.2	21.4	167 W	68	41	2 6	8 10.12	+40 10.3	3.673	4.566	5.8	22.1	152 E	85	24
1 17	8 23.20	+23 30.7	2.136	3.114	2.4	21.3	172 W	69	40	2 11	8 5.54	+40 6.5	3.712	4.576	6.6	22.2	148 E	85	24
1 22	8 17.84	+23 50.3	2.131	3.113	1.3	21.2	176 W	69	40	2 16	8 1.29	+39 59.5	3.757	4.585	7.4	22.2	143 E	85	24
1 27	8 12.44	+24 8.4	2.134	3.113	2.4	21.3	173 E	69	40	2 21	7 57.44	+39 49.6	3.810	4.594	8.3	22.3	138 E	85	24
2 1	8 7.12	+24 24.6	2.144	3.112	4.1	21.4	167 E	69	40	<b>259464 2003 SN<sub>117</sub></b>									
2 6	8 2.03	+24 38.6	2.163	3.111	6.0	21.5	161 E	70	39	1 2	8 44.45	+23 36.3	2.035	2.945	8.7	21.8	153 W	69	40
2 11	7 57.28	+24 50.2	2.188	3.109	7.8	21.6	155 E	70	39	1 7	8 40.12	+23 55.0	1.998	2.937	6.9	21.7	159 W	69	40
2 16	7 52.98	+24 59.3	2.221	3.108	9.5	21.7	149 E	70	39	1 12	8 35.29	+24 13.9	1.967	2.928	5.0	21.5	165 W	69	40
2 21	7 49.20	+25 6.0	2.259	3.106	11.1	21.8	143 E	70	39	1 17	8 30.05	+24 32.3	1.945	2.919	3.2	21.4	171 W	70	39
<b>303174 2004 FH<sub>11</sub></b>										1 22	8 24.53	+24 49.6	1.929	2.910	1.9	21.3	174 W	70	39
1 2	8 38.81	-10 57.2	2.420	3.204	12.2	21.8	136 W	34	75	1 27	8 18.88	+25 5.2	1.922	2.901	2.5	21.3	173 E	70	39
1 12	8 30.36	-11 7.2	2.343	3.191	10.4	21.6	144 W	34	75	2 1	8 13.24	+25 18.6	1.922	2.892	4.2	21.4	167 E	70	39
1 22	8 20.72	-10 52.8	2.292	3.177	9.1	21.5	149 W	34	75	2 6	8 7.78	+25 29.4	1.930	2.882	6.2	21.5	162 E	70	39
2 1	8 10.69	-10 13.8	2.268	3.162	8.9	21.5	150 E	35	74	2 11	8 2.64	+25 37.6	1.945	2.872	8.2	21.6	156 E	71	38
2 11	8 1.19	-9 12.9	2.273	3.145	9.9	21.5	147 E	36	73	2 16	7 57.94	+25 42.9	1.966	2.862	10.1	21.7	150 E	71	38
2 21	7 53.03	-7 55.1	2.304	3.127	11.7	21.6	140 E	37	72	2 21	7 53.79	+25 45.4	1.994	2.852	11.8	21.8	144 E	71	38
<b>152679 1998 KU<sub>2</sub></b>										<b>514756 2007 EK<sub>39</sub></b>									
1 2	8 39.16	+11 17.8	2.225	3.121	8.8	21.4	151 W	56	53	1 2	8 45.56	-27 36.2	1.060	1.786	27.9	21.6	122 W	17	88
1 12	8 29.04	+11 47.6	2.200	3.153	5.3	21.2	163 W	57	52	1 7	8 41.85	-27 51.1	1.028	1.783	26.9	21.5	125 W	17	88
1 22	8 18.05	+12 24.5	2.205	3.183	2.3	21.1	172 W	57	52	1 12	8 37.32	-27 50.5	0.998	1.780	25.9	21.4	128 W	17	88
2 1	8 7.15	+13 5.0	2.243	3.212	3.8	21.2	168 E	58	51	1 17	8 32.08	-27 32.5	0.972	1.776	24.9	21.3	131 W	17	88
2 11	7 57.30	+13 45.6	2.312	3.240	7.0	21.5	156 E	59	50	1 22	8 26.33	-26 55.7	0.949	1.773	23.9	21.3	133 W	18	89
2 21	7 49.24	+14 23.5	2.410	3.266	10.1	21.7	145 E	59	50	1 27	8 20.30	-25 59.1	0.929	1.769	23.1	21.2	135 E	19	90
<b>350243 2012 TZ<sub>78</sub></b>										2 1	8 14.25	-24 42.7	0.914	1.766	22.5	21.1	137 E	20	89
1 2	8 39.67	+16 37.5	1.734	2.647	9.8	21.3	153 W	62	47	2 6	8 8.48	-23 7.2	0.903	1.762	22.1	21.1	138 E	22	87
1 12	8 30.10	+17 22.1	1.683	2.646	5.4	21.1	165 W	62	47	2 11	8 3.23	-21 14.6	0.897	1.758	22.1	21.1	138 E	24	85
1 22	8 19.01	+18 11.9	1.661	2.645	0.8	20.7	178 W	63	46	2 16	7 58.70	-19 7.2	0.895	1.754	22.5	21.1	137 E	26	83
2 1	8 7.61	+19 1.4	1.669	2.642	4.2	21.0	169 E	64	45	2 21	7 55.08	-16 48.1	0.899	1.750	23.2	21.1	136 E	28	81
2 11	7 57.23	+19 46.0	1.706	2.638	8.8	21.3	156 E	65	44	2 26	7 52.51	-14 20.9	0.908	1.745	24.2	21.1	134 E	31	78
2 21	7 48.94	+20 22.7	1.769	2.633	12.8	21.5	144 E	65	44	3 2	7 51.05	-11 49.2	0.921	1.741	25.4	21.2	131 E	33	76
<b>412869 2014 QP<sub>2</sub></b>										3 7	7 50.75	-9 16.7	0.939	1.736	26.7	21.3	128 E	36	73
1 2	8 42.50	+17 0.9	1.854	2.762	9.6	22.1	152 W	62	47	3 12	7 51.58	-6 46.3	0.961	1.732	28.1	21.4	125 E	38	71
1 12	8 33.42	+17 26.9	1.781	2.741	5.5	21.8	165 W	62	47	3 17	7 53.50	-4 20.6	0.987	1.727	29.5	21.4	121 E	41	68
1 22	8 22.66	+17 57.8	1.736	2.719	1.1	21.4	177 W	63	46	<b>197594 2004 HD<sub>49</sub></b>									
2 1	8 11.29	+18 29.4	1.721	2.696	3.8	21.6	170 E	63	46	1 2	8 45.91	+23 10.4	1.871	2.782	9.3	21.7	153 W	68	41
2 11	8 0.60	+18 57.7	1.736	2.672	8.3	21.8	157 E	64	45	1 7	8 41.29	+23 33.8	1.848	2.788	7.4	21.6	159 W	69	40
2 21	7 51.72	+19 20.3	1.777	2.647	12.5	22.0	145 E	64	45	1 12	8 36.18	+23 57.2	1.832	2.793	5.3	21.5	165 W	69	40
<b>53426 1999 SL<sub>5</sub></b>										1 17	8 30.71	+24 19.9	1.823	2.798	3.3	21.4	170 W	69	40
1 2	8 42.61	-12 52.1	1.925	2.705	15.1	21.6	134 W	32	77	1 22	8 25.01	+24 41.3	1.822	2.803	1.9	21.3	175 W	70	39
1 7	8 37.58	-13 23.5	1.877	2.689	14.2	21.5	138 W	32	77	1 27	8 19.25	+25 0.6	1.829	2.808	2.5	21.3	173 E	70	39
1 12	8 31.96	-13 48.3	1.833	2.673	13.3	21.4	141 W	31	78	2 1	8 13.58	+25 17.5	1.843	2.813	4.3	21.5	168 E	70	39
1 17	8 25.84	-14 5.7	1.797	2.656	12.6	21.3	144 W	31	78	2 6	8 8.18	+25 31.4	1.864	2.817	6.3	21.6	162 E	71	38
1 22	8 19.33	-14 15.1	1.766	2.639	12.1	21.3	146 W	31	78	2 11	8 3.17	+25 42.4	1.893	2.821	8.3	21.7	156 E	71	38
1 27	8 12.59	-14 16.0	1.742	2.621	11.9	21.2	147 E	31	78	2 16	7 58.68	+25 50.3	1.928	2.825	10.2	21.8	150 E	71	38
2 1	8 5.79	-14 8.4	1.725	2.602	12.2	21.2	146 E	31	78	2 21	7 54.79	+25 55.3	1.969	2.829	11.9	22.0	144 E	71	38
2 6	7 59.09	-13 52.5	1.715	2.584	12.7	21.2	145 E	31	78	<b>450979 2008 SO<sub>28</sub></b>									
2 11	7 52.67	-13 28.9	1.711	2.564	13.6	21.2	142 E	32	77	1 2	8 45.95	+17 25.5	1.935	2.839	9.5	22.2	152 W	62	47
2 16	7 46.68	-12 58.2	1.714	2.544	14.7	21.2	139 E	32	77	1 12	8 36.30	+17 56.0	1.898	2.856	5.4	22.0	164 W	63	46
2 21	7 41.25	-12 21.6	1.722	2.524	16.0	21.3	135 E	33	76	1 22	8 25.38	+18 29.3	1.890	2.873	1.1	21.7	177 W	63	46
2 26	7 36.49	-11																	

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

2020	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	$45^\circ$	$-26^\circ$	2020	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	$45^\circ$	$-26^\circ$
<b>390572</b> 2001 HJ <sub>21</sub> (continuation)										<b>351223</b> 2004 PG <sub>7</sub>									
2 11	8 9.70	+14 26.3	1.691	2.637	7.6	21.7	159 E	59	50	1 2	9 1.80	+20 35.9	2.007	2.892	10.2	21.7	149 W	66	43
2 21	8 0.85	+15 9.7	1.734	2.621	11.8	21.9	147 E	60	49	1 12	8 52.85	+20 59.1	1.942	2.889	6.4	21.4	161 W	66	43
<b>194175</b> 2001 TB <sub>51</sub>										<b>494997</b> 2010 HY <sub>113</sub>									
1 2	8 51.82	+11 3.8	1.918	2.801	10.7	21.5	148 W	56	53	1 2	9 2.08	+ 8 39.6	1.642	2.509	13.1	22.1	145 W	54	55
1 12	8 43.10	+11 30.9	1.871	2.815	6.9	21.3	160 W	57	52	1 12	8 54.47	+ 8 45.3	1.545	2.476	9.3	21.8	156 W	54	55
1 22	8 32.96	+12 8.0	1.851	2.828	3.1	21.1	171 W	57	52	1 22	8 44.47	+ 9 6.6	1.473	2.441	5.3	21.5	167 W	54	55
2 1	8 22.43	+12 51.1	1.862	2.840	3.1	21.1	171 E	58	51	2 1	8 33.03	+ 9 41.3	1.429	2.406	3.8	21.3	171 E	55	54
2 11	8 12.62	+13 35.9	1.904	2.851	6.8	21.4	160 E	59	50	2 11	8 21.51	+10 25.3	1.414	2.370	7.6	21.5	162 E	55	54
2 21	8 4.48	+14 18.4	1.973	2.861	10.5	21.6	148 E	59	50	2 21	8 11.29	+11 13.3	1.425	2.334	12.3	21.6	150 E	56	53
<b>353987</b> 2000 OQ <sub>19</sub>										<b>164221</b> 2004 QE <sub>20</sub>									
1 2	8 51.94	+14 0.2	2.136	3.022	9.6	21.9	149 W	59	50	1 2	9 2.46	+11 3.1	0.746	1.654	19.7	21.5	146 W	56	53
1 12	8 43.71	+14 45.8	2.077	3.025	6.0	21.7	161 W	60	49	1 12	8 48.11	+10 43.7	0.722	1.676	12.5	21.3	158 W	56	53
1 22	8 34.07	+15 38.7	2.047	3.027	2.1	21.4	173 W	61	48	1 22	8 30.80	+10 43.8	0.719	1.697	5.8	21.0	170 W	56	53
2 1	8 23.90	+16 34.4	2.049	3.028	2.4	21.4	173 E	62	47	2 1	8 13.31	+10 58.7	0.740	1.716	6.8	21.1	168 E	56	53
2 11	8 14.26	+17 28.2	2.081	3.029	6.3	21.7	160 E	62	47	2 11	7 58.55	+11 21.7	0.784	1.734	13.2	21.5	156 E	56	53
2 21	8 6.05	+18 16.6	2.143	3.028	9.9	21.9	148 E	63	46	2 21	7 48.34	+11 46.7	0.849	1.750	19.3	21.9	144 E	57	52
<b>319988</b> 2007 DK										<b>363831</b> 2005 PY <sub>16</sub>									
1 2	8 56.00	+16 9.6	1.203	2.107	14.0	22.3	149 W	61	48	1 2	9 2.84	+ 9 26.9	1.207	2.089	15.8	22.1	145 W	54	55
1 12	8 40.47	+16 44.5	1.126	2.085	8.0	21.9	163 W	62	47	1 7	8 56.48	+ 9 59.4	1.202	2.119	12.9	22.0	151 W	55	54
1 22	8 21.30	+17 26.6	1.077	2.060	1.5	21.4	177 W	62	47	1 12	8 49.53	+10 36.1	1.204	2.148	9.9	21.9	158 W	56	53
2 1	8 0.53	+18 7.5	1.059	2.031	6.3	21.6	167 E	63	46	1 17	8 42.20	+11 15.8	1.213	2.177	6.9	21.8	165 W	56	53
2 11	7 40.90	+18 40.2	1.071	1.998	13.3	21.9	152 E	64	45	1 22	8 34.70	+11 57.4	1.228	2.205	4.2	21.7	171 W	57	52
2 21	7 24.75	+19 2.2	1.109	1.961	19.6	22.2	138 E	64	45	1 27	8 27.28	+12 39.7	1.252	2.233	2.8	21.7	174 E	58	51
<b>316781</b> 1999 TJ <sub>150</sub>										<b>439936</b> 2001 SS <sub>37</sub>									
1 2	8 56.01	+11 25.2	1.689	2.570	12.0	21.7	147 W	56	53	1 2	9 5.08	+34 47.1	1.633	2.519	12.0	21.5	148 W	80	29
1 12	8 47.08	+11 55.3	1.643	2.586	7.7	21.5	159 W	57	52	1 7	8 59.96	+35 19.1	1.619	2.533	10.3	21.4	153 W	80	29
1 22	8 36.49	+12 36.4	1.625	2.601	3.5	21.3	171 W	58	51	1 12	8 54.17	+35 48.1	1.611	2.546	8.7	21.4	157 W	81	28
2 1	8 25.39	+13 23.8	1.636	2.615	3.1	21.3	172 E	58	51	1 17	8 47.87	+36 13.0	1.611	2.559	7.4	21.3	160 W	81	28
2 11	8 15.07	+14 12.3	1.677	2.628	7.2	21.5	161 E	59	50	1 22	8 41.24	+36 32.7	1.617	2.572	6.7	21.3	162 W	82	27
2 21	8 6.62	+14 57.4	1.745	2.640	11.2	21.8	149 E	60	49	1 27	8 34.49	+36 46.5	1.631	2.585	6.8	21.3	162 W	82	27
<b>398465</b> 2011 UP <sub>108</sub>										<b>483430</b> 2000 QC <sub>33</sub>									
1 2	8 59.04	+13 5.0	2.223	3.095	9.9	22.3	147 W	58	51	1 2	9 5.49	+22 9.2	1.462	2.355	12.8	21.5	148 W	67	42
1 12	8 50.97	+13 49.3	2.166	3.106	6.4	22.1	159 W	59	50	1 7	9 1.08	+22 44.4	1.442	2.366	10.4	21.4	154 W	68	41
1 22	8 41.47	+14 41.3	2.139	3.115	2.7	21.9	172 W	60	49	1 12	8 55.99	+23 20.5	1.429	2.378	8.0	21.3	160 W	68	41
2 1	8 31.40	+15 36.8	2.142	3.124	1.9	21.9	174 E	61	48	1 17	8 50.36	+23 56.5	1.422	2.389	5.6	21.2	166 W	69	40
2 11	8 21.75	+16 31.2	2.177	3.131	5.5	22.1	162 E	62	47	1 22	8 44.34	+24 31.2	1.422	2.399	3.5	21.1	171 W	70	39
2 21	8 13.39	+17 20.7	2.242	3.137	9.1	22.3	150 E	62	47	1 27	8 38.14	+25 3.4	1.429	2.410	2.6	21.1	174 W	70	39
<b>277175</b> 2005 OS <sub>14</sub>										<b>395365</b> 2011 RW <sub>11</sub>									
1 2	8 59.13	+21 18.2	1.810	2.703	10.7	21.5	149 W	66	43	1 2	9 6.75	+11 17.7	2.069	2.927	11.2	22.4	145 W	56	53
1 7	8 54.61	+21 33.4	1.783	2.709	8.7	21.4	155 W	67	42	1 12	8 59.11	+11 49.9	1.996	2.925	7.7	22.2	157 W	57	52
1 12	8 49.54	+21 49.2	1.764	2.715	6.5	21.3	162 W	67	42	1 22	8 49.73	+12 32.8	1.951	2.922	3.8	21.9	169 W	58	51
1 17	8 44.03	+22 4.9	1.751	2.721	4.4	21.2	168 W	67	42	2 1	8 39.47	+13 22.5	1.936	2.919	1.9	21.8	175 E	58	51
1 22	8 38.23	+22 19.9	1.746	2.726	2.3	21.0	174 W	67	42	2 11	8 29.38	+14 14.2	1.952	2.914	5.3	22.0	164 E	59	50
1 27	8 32.29	+22 33.5	1.749	2.732	1.4	21.0	176 E	68	41	2 21	8 20.47	+15 3.6	1.998	2.908	9.2	22.2	152 E	60	49
2 1	8 26.39	+22 45.3	1.759	2.737	3.1	21.1	171 E	68	41	<b>53319</b> 1999 JM <sub>8</sub>									
2 6	8 20.69	+22 54.9	1.776	2.742	5.2	21.3	165 E	68	41	1 2	9 7.70	+14 38.5	3.565	4.412	7.2	21.7	146 W	60	49
2 11	8 15.35	+23 1.9	1.801	2.746	7.3	21.4	159 E	68	41	1 12	9 1.12	+15 16.6	3.476	4.401	4.9	21.5	158 W	60	49
2 16	8 10.48	+23 6.4	1.833	2.751	9.3	21.5	153 E	68	41	1 22	8 53.45	+15 59.6	3.417	4.388	2.3	21.3	170 W	61	48
2 21	8 6.20	+23 8.4	1.871	2.755	11.2	21.7	147 E	68	41	2 1	8 45.18	+16 44.7	3.391	4.375	0.5	21.2	178 E	62	47
<b>451210</b> 2009 VZ <sub>78</sub>										<b>395365</b> 2011 RW <sub>11</sub>									
1 2	8 59.62	+23 3.5	1.602	2.500	11.5	21.5	150 W	68	41	2 11	8 29.38	+14 14.2	1.952	2.914	5.3	22.0	164 E	59	50
1 7	8 54.61	+23 15.2	1.581	2.509	9.3	21.4	156 W	68	41	2 21	8 20.47	+15 3.6	1.998	2.908	9.2	22.2	152 E	60	49
1 12	8 49.00	+23 26.9	1.566	2.519	7.0	21.3	162 W	68	41	<b>267504</b> 2002 KJ <sub>9</sub>									
1 17	8 42.94	+23 37.8	1.558	2.528	4.7	21.2	168 W	69	40	1 2	9 0.04	+23 31.9	1.924	2.816	10.2	21.5	149 W	69	40
1 22	8 36.58	+23 47.3	1.558	2.538	2.6	21.1	173 W	69	40	1 7	8 55.84	+24 2.9	1.886	2.810	8.4	21.4	155 W	69	40
1 27	8 30.12	+23 54.7	1.564	2.547	2.0	21.0	175 E	69	40	1 12	8 51.03	+24 34.7	1.854	2.803	6.4	21.3	161 W	70	39
2 1	8 23.77	+23 59.6	1.579	2.555	3.8	21.2	170 E	69	40	1 17	8 45.71	+25 6.4	1.829	2.797	4.5	21.1	167 W	70	39
2 6	8 17.70	+24 1.7	1.601	2.564	6.0	21.3	164 E	69	40	1 22	8 39.99	+25 37.3	1.812	2.790	2.9	21.0	172 W	71	38
2 11	8 12.08	+24 1.0	1.630	2.572	8.2	21.5	158 E	69	40	1 27	8 34.03	+26 6.5	1.803	2.782	2.6	21.0	173 E	71	38
2 16	8 7.06	+23 57.6	1.665	2.580	10.3	21.6	152 E	69	40	2 1	8 27.98	+26 33.0	1.802	2.775	3.9	21.1	169 E	72	37
2 21	8 2.72	+23 51.6	1.707	2.588	12.3	21.8	146 E	69	40	2 6	8 22.03	+26 56.4	1.808	2.767	5.8	21.2	163 E	72	37
<b>267504</b> 2002 KJ <sub>9</sub>										<b>395365</b> 2011 RW <sub>11</sub>									
1 2	9 0.04	+23 31.9	1.924																

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

2020	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	$45^\circ$	$-26^\circ$	2020	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	$45^\circ$	$-26^\circ$
<b>440174 2003 YF<sub>136</sub></b>										<b>444326 2005 WL<sub>35</sub></b>									
1 2	9 8.12	+12 57.1	1.394	2.271	14.4	21.8	145 W	58	51	1 2	9 17.05	+16 5.8	1.798	2.658	12.5	22.2	144 W	61	48
1 12	8 58.57	+13 17.2	1.362	2.301	9.5	21.6	157 W	58	51	1 12	9 8.86	+16 42.8	1.748	2.678	8.5	22.0	156 W	62	47
1 22	8 47.01	+13 47.8	1.356	2.331	4.2	21.4	170 W	59	50	1 22	8 58.70	+17 26.3	1.724	2.697	4.0	21.8	169 W	62	47
2 1	8 34.85	+14 23.7	1.377	2.360	2.4	21.3	174 E	59	50	2 1	8 47.59	+18 10.9	1.730	2.715	0.7	21.6	178 E	63	46
2 11	8 23.64	+14 59.2	1.427	2.387	7.1	21.7	163 E	60	49	2 11	8 36.80	+18 51.4	1.766	2.732	5.3	22.0	165 E	64	45
2 21	8 14.64	+15 30.2	1.504	2.414	11.6	22.0	151 E	61	48	2 21	8 27.45	+19 24.0	1.831	2.748	9.4	22.2	153 E	64	45
<b>323471 2004 LY<sub>1</sub></b>										<b>306665 2000 SO<sub>277</sub></b>									
1 2	9 8.51	+12 3.4	2.905	3.750	8.7	21.9	145 W	57	52	1 2	9 17.26	+11 33.8	2.264	3.102	11.1	21.7	142 W	57	52
1 12	9 1.85	+12 45.3	2.842	3.764	6.0	21.7	156 W	58	51	1 12	9 9.75	+11 45.9	2.167	3.082	8.0	21.5	154 W	57	52
1 22	8 54.00	+13 34.2	2.807	3.776	3.0	21.5	168 W	59	50	1 22	9 0.35	+12 7.4	2.097	3.062	4.4	21.2	166 W	57	52
2 1	8 45.57	+14 27.0	2.804	3.788	1.0	21.4	176 E	59	50	2 1	8 49.76	+12 35.5	2.057	3.040	1.6	21.0	175 E	58	51
2 11	8 37.27	+15 20.0	2.834	3.799	3.6	21.6	166 E	60	49	2 11	8 38.97	+13 6.7	2.049	3.017	4.5	21.1	166 E	58	51
2 21	8 29.74	+16 10.0	2.895	3.809	6.5	21.8	154 E	61	48	2 21	8 28.98	+13 37.5	2.072	2.993	8.3	21.3	154 E	59	50
<b>273364 2006 UU<sub>210</sub></b>										<b>446825 2001 OM<sub>50</sub></b>									
1 2	9 8.91	+15 20.3	1.813	2.683	11.9	21.9	146 W	60	49	1 2	9 17.44	+25 23.9	1.906	2.774	11.5	22.2	146 W	70	39
1 12	9 0.24	+15 43.6	1.745	2.682	7.9	21.6	158 W	61	48	1 7	9 13.33	+25 53.8	1.882	2.785	9.7	22.1	151 W	71	38
1 22	8 49.52	+16 14.0	1.704	2.680	3.4	21.3	171 W	61	48	1 12	9 8.63	+26 23.8	1.864	2.796	7.8	22.0	157 W	71	38
2 1	8 37.80	+16 47.2	1.693	2.676	1.5	21.2	176 E	62	47	1 17	9 3.42	+26 53.1	1.853	2.807	6.0	22.0	163 W	72	37
2 11	8 26.37	+17 18.3	1.712	2.671	6.1	21.5	163 E	62	47	1 22	8 57.82	+27 20.8	1.849	2.818	4.4	21.9	167 W	72	37
2 21	8 16.44	+17 44.1	1.759	2.666	10.5	21.7	151 E	63	46	1 27	8 52.00	+27 45.9	1.853	2.828	3.4	21.8	170 W	73	36
<b>453775 2011 HQ<sub>5</sub></b>										<b>235601 2004 PW<sub>56</sub></b>									
1 2	9 11.90	+21 20.7	1.640	2.518	12.5	21.5	146 W	66	43	1 2	9 18.26	+11 45.6	1.969	2.812	12.4	21.4	142 W	57	52
1 12	9 4.28	+22 37.3	1.550	2.490	8.4	21.2	158 W	68	41	1 12	9 10.71	+12 14.7	1.911	2.829	8.7	21.2	154 W	57	52
1 22	8 53.93	+24 0.8	1.486	2.461	4.1	20.9	170 W	69	40	1 22	9 1.32	+12 54.1	1.879	2.845	4.6	20.9	167 W	58	51
2 1	8 41.79	+25 22.3	1.452	2.430	3.5	20.8	171 E	70	39	2 1	8 50.97	+13 39.6	1.876	2.860	1.3	20.7	176 E	59	50
2 11	8 29.36	+26 32.9	1.446	2.399	7.9	21.0	160 E	72	37	2 11	8 40.77	+14 26.3	1.905	2.874	4.5	21.0	167 W	59	50
2 21	8 18.19	+27 26.3	1.468	2.366	12.7	21.2	148 E	72	37	2 21	8 31.75	+15 9.8	1.963	2.888	8.4	21.2	155 E	60	49
3 2	8 9.66	+28 0.3	1.513	2.333	17.0	21.3	136 E	73	36	3 2	8 24.73	+15 46.9	2.047	2.900	11.9	21.5	143 E	61	48
<b>400152 2006 VO<sub>12</sub></b>										<b>193828 2001 QC<sub>35</sub></b>									
1 2	9 12.30	+ 7 7.6	2.213	2.975	13.9	21.4	133 W	38	71	1 2	9 18.31	+17 1.9	1.769	2.629	12.7	21.4	144 W	62	47
1 12	9 3.40	+ 8 5.6	2.167	3.007	11.5	21.3	142 W	37	72	1 12	9 9.73	+17 28.6	1.722	2.652	8.6	21.2	156 W	62	47
1 22	8 53.02	+ 8 41.5	2.147	3.038	9.4	21.2	150 W	36	73	1 22	8 59.17	+18 0.5	1.702	2.675	4.0	21.0	169 W	63	46
2 1	8 42.05	+ 8 54.1	2.155	3.068	8.2	21.2	154 E	36	73	2 1	8 47.71	+18 32.5	1.712	2.697	0.8	20.8	178 E	64	45
2 11	8 31.46	+ 8 44.9	2.191	3.097	8.6	21.2	152 E	36	73	2 11	8 36.65	+19 0.0	1.752	2.718	5.3	21.1	165 E	64	45
2 21	8 22.17	+ 8 17.9	2.255	3.125	10.2	21.4	146 E	37	72	2 21	8 27.12	+19 20.0	1.820	2.737	9.5	21.4	153 E	64	45
<b>443815 1999 TH<sub>84</sub></b>										<b>363368 2002 TJ<sub>52</sub></b>									
1 2	9 12.62	+26 48.7	1.724	2.603	11.9	22.5	147 W	72	37	1 2	9 18.93	+ 7 16.5	1.965	2.793	13.0	21.4	140 W	52	57
1 7	9 8.33	+27 17.8	1.698	2.610	10.0	22.4	153 W	72	37	1 12	9 11.34	+ 7 30.4	1.922	2.827	9.5	21.2	152 W	53	56
1 12	9 3.37	+27 46.6	1.678	2.617	8.0	22.3	158 W	73	36	1 22	9 2.09	+ 7 57.8	1.905	2.861	5.7	21.0	163 W	53	56
1 17	8 57.86	+28 14.2	1.665	2.623	6.2	22.2	163 W	73	36	2 1	8 52.08	+ 8 35.4	1.917	2.894	3.0	20.9	171 E	54	55
1 22	8 51.93	+28 39.6	1.660	2.630	4.6	22.1	168 W	74	35	2 11	8 42.36	+ 9 18.9	1.959	2.926	4.6	21.1	166 E	54	55
1 27	8 45.76	+29 1.9	1.662	2.636	4.0	22.1	169 W	74	35	2 21	8 33.88	+10 3.7	2.030	2.958	8.0	21.4	155 E	55	54
2 1	8 39.54	+29 20.3	1.671	2.641	4.6	22.1	168 W	74	35	<b>387717 2003 DN<sub>4</sub></b>									
2 6	8 33.46	+29 34.3	1.687	2.647	6.1	22.2	163 E	75	34	1 2	9 19.26	-27 37.5	0.995	1.690	31.1	21.8	117 W	17	88
2 11	8 27.70	+29 43.7	1.711	2.652	8.0	22.3	158 E	75	34	1 7	9 12.20	-27 29.6	0.952	1.691	29.6	21.6	122 W	18	89
2 16	8 22.40	+29 48.6	1.741	2.657	9.9	22.5	153 E	75	34	1 12	9 3.73	-27 3.1	0.913	1.691	28.0	21.5	126 W	18	89
<b>329338 2001 JW<sub>2</sub></b>										<b>396853 2004 SG</b>									
1 2	9 13.13	+ 2 33.6	1.382	2.220	16.9	22.4	139 W	48	61	1 2	9 19.41	-17 40.6	2.097	2.778	16.9	22.4	125 W	27	82
1 12	9 0.63	+ 2 35.0	1.347	2.257	12.2	22.2	151 W	48	61	1 7	9 16.04	-18 8.2	2.065	2.789	15.9	22.4	129 W	27	82
1 22	8 46.00	+ 2 59.7	1.338	2.292	7.9	22.1	161 W	48	61	1 12	9 12.15	-18 28.8	2.038	2.800	15.0	22.3	133 W	27	82
2 1	8 30.83	+ 3 44.3	1.358	2.324	6.2	22.1	165 E	49	60	1 17	9 7.80	-18 42.0	2.016	2.810	14.0	22.3	136 W	26	83
2 11	8 16.87	+ 4 41.9	1.408	2.354	8.9	22.3	158 E	50	59	1 22	9 3.08	-18 47.1	1.999	2.821	13.1	22.2	139 W	26	83
<b>155334 2006 DZ<sub>169</sub></b>										<b>354876 2006 BG<sub>55</sub></b>									
1 2	9 14.64	+25 33.7	1.955	2.826	11.1	21.5	146 W	71	38	1 2	9 16.88	+ 9 36.2	1.482	2.335	15.1	21.9	142 W	55	54
1 7	9 10.29	+26 0.8	1.914	2.821	9.4	21.4	152 W	71	38	1 12	9 4.46	+10 51.5	1.415	2.343	10.2	21.7	155 W	56	53
1 12	9 5.26	+26 28.4	1.879	2.815	7.5	21.3	158 W	71	38	1 22	8 49.16	+12 24.6	1.376	2.348	4.7	21.4	169 W	57	52
1 17	8 59.64	+26 55.6	1.851	2.808	5.7	21.1	163 W	72	37	2 1	8 32.41	+14 6.8	1.369	2.350	2.7	21.2	174 E	59	50
1 22	8 53.55	+27 21.3	1.831	2.802	4.1	21.0	168 W	72	37	2 11	8 16.11	+15 47.4	1.394	2.349	7.9	21.5	161 E	61	48
1 27	8 47.12	+27 44.8	1.819	2.795	3.3	21.0	171 W	73	36	2 21	8 2.00	+17 17.9	1.450	2.344	13.1	21.8	147 E	62	47
2 1	8 40.54	+28 5.2	1.814	2.787	3.9	21.0	169 E	73	36										
2 6	8 33.99	+28 21.9	1.817	2.779	5.5	21.1	164 E	73	36										
2 11	8 27.63	+28 34.4	1.828	2.771	7.4	21.2	159 E	74	35										
2 16	8 21.64	+28 42.7	1.845	2.762	9.3	21.3	153 E	74	35										
2 21	8 16.15																		

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2020	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	$45^\circ$	$-26^\circ$	2020	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	$45^\circ$	$-26^\circ$
<b>396853 2004 SG</b> (continuation)										<b>405401 2004 PH<sub>35</sub></b>									
2 16	8 38.39	-17 13.5	2.006	2.868	11.5	22.2	145 E	28	81	1 2	9 26.74	+31 54.0	1.760	2.617	12.9	21.6	144 W	77	32
2 21	8 34.11	-16 34.4	2.025	2.877	11.9	22.3	143 E	28	81	1 7	9 21.88	+32 1.5	1.713	2.606	11.2	21.4	149 W	77	32
2 26	8 30.31	-15 50.6	2.051	2.886	12.6	22.3	141 E	29	80	1 12	9 16.17	+32 7.3	1.673	2.595	9.4	21.3	154 W	77	32
<b>270659 2002 PU<sub>178</sub></b>										<b>495760 2017 CL<sub>12</sub></b>									
1 2	9 22.88	+22 10.8	1.837	2.695	12.4	22.2	144 W	67	42	1 17	9 9.70	+32 10.3	1.639	2.583	7.7	21.2	159 W	77	32
1 12	9 15.16	+23 14.4	1.772	2.699	8.6	22.0	156 W	68	41	1 22	9 2.60	+32 9.5	1.612	2.571	6.2	21.1	164 W	77	32
1 22	9 5.13	+24 20.6	1.734	2.702	4.6	21.8	167 W	69	40	1 27	8 55.05	+32 4.0	1.593	2.559	5.4	21.0	166 W	77	32
2 1	8 53.74	+25 21.8	1.725	2.704	2.9	21.6	172 E	70	39	2 1	8 47.28	+31 53.0	1.581	2.547	5.6	21.0	165 E	77	32
2 11	8 42.30	+26 11.4	1.747	2.706	6.2	21.9	163 E	71	38	2 6	8 39.51	+31 36.2	1.577	2.534	6.8	21.0	162 E	77	32
2 21	8 32.09	+26 45.3	1.797	2.706	10.1	22.1	151 E	72	37	2 11	8 31.97	+31 13.5	1.580	2.521	8.5	21.1	158 E	76	33
<b>448225 2008 VP<sub>3</sub></b>										<b>189015 1998 QH<sub>83</sub></b>									
1 2	9 23.47	+34 28.9	1.552	2.418	13.8	21.6	144 W	79	30	1 2	9 36.77	+ 5 37.7	1.796	2.591	15.4	21.4	136 W	51	58
1 7	9 19.17	+35 14.6	1.537	2.433	12.0	21.5	149 W	80	29	1 12	9 30.12	+14 19.7	1.774	2.608	13.9	21.4	140 W	59	50
1 12	9 14.06	+35 58.0	1.529	2.448	10.4	21.4	153 W	81	28	1 22	9 23.53	+14 30.3	1.674	2.585	10.2	21.1	152 W	60	49
1 17	9 8.29	+36 37.8	1.527	2.463	8.9	21.4	157 W	82	27	1 22	9 14.32	+14 50.6	1.599	2.561	5.8	20.8	165 W	60	49
1 22	9 2.02	+37 12.5	1.532	2.478	7.9	21.4	160 W	82	27	2 1	9 3.25	+15 16.9	1.552	2.537	1.1	20.4	177 W	60	49
1 27	8 55.46	+37 41.0	1.543	2.493	7.6	21.4	160 W	83	26	2 6	8 57.38	+15 30.9	1.540	2.524	1.7	20.5	176 E	61	48
2 1	8 48.84	+38 2.5	1.562	2.508	8.0	21.4	159 E	83	26	2 11	8 51.52	+15 44.5	1.535	2.511	4.2	20.6	169 E	61	48
2 6	8 42.39	+38 16.6	1.587	2.522	9.0	21.5	157 E	83	26	2 16	8 45.84	+15 57.3	1.537	2.498	6.7	20.7	163 E	61	48
2 11	8 36.31	+38 23.3	1.619	2.536	10.3	21.6	153 E	83	26	2 21	8 40.50	+16 8.7	1.546	2.485	9.1	20.8	157 E	61	48
2 16	8 30.80	+38 23.0	1.657	2.550	11.8	21.7	148 E	83	26	2 26	8 35.66	+16 18.5	1.561	2.471	11.4	20.9	150 E	61	48
2 21	8 25.97	+38 16.2	1.701	2.564	13.3	21.9	144 E	83	26	3 2	8 31.44	+16 26.3	1.583	2.458	13.6	21.0	144 E	61	48
2 26	8 21.96	+38 3.6	1.750	2.578	14.7	22.0	139 E	83	26	3 7	8 27.95	+16 32.0	1.610	2.444	15.6	21.1	139 E	62	47
<b>340795 2006 TT<sub>44</sub></b>										<b>443892 2001 XT<sub>4</sub></b>									
1 2	9 23.90	+13 59.4	1.695	2.541	13.8	22.3	142 W	59	50	1 2	9 37.17	+23 48.2	1.661	2.503	14.3	21.4	141 W	69	40
1 12	9 16.21	+14 31.7	1.632	2.552	9.8	22.0	154 W	60	49	1 7	9 33.15	+24 21.4	1.643	2.525	12.3	21.3	147 W	69	40
1 22	9 6.22	+15 14.0	1.595	2.563	5.1	21.8	167 W	60	49	1 12	9 28.41	+24 55.3	1.631	2.546	10.2	21.2	153 W	70	39
2 1	8 54.92	+16 1.2	1.587	2.572	0.5	21.5	179 E	61	48	1 17	9 23.06	+25 28.9	1.626	2.567	8.0	21.2	159 W	70	39
2 11	8 43.65	+16 47.2	1.608	2.580	4.8	21.8	167 E	62	47	1 22	9 17.24	+26 1.2	1.627	2.587	6.0	21.1	164 W	71	38
2 21	8 33.67	+17 27.1	1.658	2.587	9.4	22.1	155 E	62	47	1 27	9 11.10	+26 30.9	1.635	2.608	4.3	21.0	168 W	72	37
<b>511684 2015 BN<sub>509</sub></b>										<b>298791 2004 PZ<sub>101</sub></b>									
1 2	9 24.21	+13 25.6	0.439	1.354	26.8	20.8	142 W	58	51	1 2	9 38.97	+14 24.1	2.139	2.948	12.8	21.5	138 W	59	50
1 7	9 18.60	+14 14.5	0.384	1.325	23.0	20.3	148 W	59	50	1 12	9 32.28	+14 48.9	2.064	2.958	9.5	21.3	150 W	60	49
1 12	9 9.53	+15 26.5	0.332	1.293	18.2	19.8	156 W	60	49	1 22	9 23.52	+15 22.0	2.014	2.968	5.7	21.0	163 W	60	49
1 17	8 55.66	+17 8.4	0.283	1.259	12.0	19.2	165 W	62	47	2 1	9 13.39	+15 59.4	1.993	2.976	1.5	20.8	175 W	61	48
1 22	8 34.96	+19 27.5	0.240	1.223	4.1	18.4	175 W	64	45	2 11	9 2.88	+16 36.3	2.003	2.983	2.7	20.9	172 E	62	47
1 24	8 24.13	+20 34.7	0.224	1.208	1.0	18.0	179 W	66	43	2 21	8 53.04	+17 8.7	2.044	2.990	6.7	21.1	159 E	62	47
1 26	8 11.50	+21 48.6	0.209	1.193	4.3	18.1	175 E	67	42	3 2	8 44.79	+17 33.7	2.113	2.995	10.3	21.4	147 E	63	46
1 28	7 56.80	+23 8.4	0.195	1.177	9.0	18.1	169 E	68	41	<b>396578 2000 QG<sub>102</sub></b>									
1 30	7 39.75	+24 32.6	0.183	1.161	14.3	18.1	163 E	70	39	1 2	9 44.29	+12 57.2	1.760	2.567	15.2	21.4	137 W	58	51
2 1	7 20.11	+25 58.6	0.171	1.144	20.2	18.2	156 E	71	38	1 12	9 38.23	+13 54.3	1.706	2.597	11.4	21.2	149 W	59	50
2 3	6 57.67	+27 22.5	0.162	1.127	26.6	18.2	149 E	72	37	1 22	9 29.80	+15 3.6	1.676	2.627	6.9	21.0	161 W	60	49
2 5	6 32.43	+28 38.9	0.154	1.110	33.6	18.3	141 E	74	35	2 1	9 19.83	+16 18.7	1.674	2.656	2.2	20.8	174 W	61	48
2 7	6 4.56	+29 41.3	0.148	1.093	41.1	18.4	133 E	75	34	2 11	9 9.48	+17 32.0	1.701	2.684	2.6	20.9	173 E	63	46
2 9	5 34.60	+30 23.2	0.144	1.075	48.9	18.5	125 E	75	34	2 21	8 59.92	+18 37.0	1.759	2.711	7.0	21.2	160 E	64	45
2 11	5 3.37	+30 39.5	0.141	1.056	57.1	18.6	116 E	76	33	3 2	8 52.18	+19 29.2	1.843	2.737	10.9	21.5	148 E	64	45
2 12	4 47.60	+30 37.1	0.141	1.047	61.2	18.7	112 E	76	33	<b>301982 2000 KT<sub>4</sub></b>									
2 13	4 31.91	+30 27.7	0.141	1.038	65.3	18.8	107 E	75	34*	1 2	9 46.53	-15 43.9	2.240	2.878	17.0	21.4	121 W	29	80
2 14	4 16.43	+30 11.4	0.142	1.028	69.4	19.0	103 E	75	33*	1 12	9 41.34	-16 46.5	2.137	2.869	15.3	21.3	130 W	28	81
2 15	4 1.27	+29 48.8	0.143	1.019	73.4	19.1	99 E	75	33*	1 22	9 33.91	-17 25.7	2.053	2.859	13.4	21.1	138 W	28	81
2 16	3 46.55	+29 20.5	0.144	1.009	77.4	19.2	94 E	74	33*	2 1	9 24.73	-17 36.7	1.990	2.848	11.7	21.0	144 W	27	82
2 17	3 32.33	+28 47.0	0.146	0.999	81.4	19.4	90 E	74*	32*	2 11	9 14.65	-17 17.0	1.951	2.836	10.6	20.9	148 E	28	81
2 18	3 18.67	+28 9.3	0.148	0.989	85.2	19.5	86 E	72*	31*	2 21	9 4.67	-16 28.1	1.938	2.823	10.8	20.9	148 E	29	80
2 19	3 5.62	+27 27.9	0.151	0.979	89.0	19.7	82 E	70*	30*	<b>154656 2004 FE<sub>3</sub></b>									
2 20	2 53.18	+26 43.8	0.154	0.969	92.7	19.9	78 E	67*	29*	1 2	9 25.36	+34 3.7	2.731	3.571	9.4	21.8	144 W	79	30
2 21	2 41.37	+25 57.4	0.157	0.959	96.3	20.0	75 E	65*	28*	1 7	9 20.38	+34 27.6	2.706	3.584	8.2	21.7	149 W	79	30
2 23	2 19.57	+24 20.6	0.164	0.939	103.2	20.4	67 E	59*	25*	1 12	9 14.89	+34 49.9	2.688	3.596	7.0	21.6	154 W	80	29
2 25	2 0.04	+22 41.2	0.173	0.918	109.8	20.9	61 E	53*	22*	1 17	9 8.97	+35 9.8	2.677	3.608	5.9	21.6	158 W	80	29
2 27	1 42.54	+21 1.9	0.182	0.896	116.1	21.3	54 E	47*	19*	1 22	9 2.73	+35 26.6	2.675	3.620	5.1	21.6	161 W	80	29
2 29	1 26.81	+19 24.2	0.193	0.875	122.1	21.8	48 E	42*	16*	1 27	8 56.30	+35 39.6	2.680	3.631	4.7	21.5</			

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

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>301982 2000 KT<sub>4</sub></b> (continuation)										<b>275545 1998 UN<sub>1</sub></b> (continuation)									
3 2	8 55.82	-15 14.7	1.950	2.809	12.1	20.9	143 E	30	79	8 24	13 26.26	+ 0 1.3	1.736	1.324	35.5	21.4	49 E	20*	41*
3 12	8 48.96	-13 44.7	1.987	2.795	14.1	21.0	137 E	31	78	8 29	13 40.11	- 0 7.9	1.746	1.310	35.0	21.3	48 E	20*	40*
3 22	8 44.58	-12 6.9	2.044	2.779	16.2	21.1	129 E	33	76	9 3	13 54.18	- 0 18.3	1.755	1.296	34.7	21.3	47 E	20*	38*
4 1	8 42.93	-10 29.3	2.118	2.762	18.2	21.3	120 E	35	74	9 8	14 8.48	- 0 29.5	1.762	1.282	34.3	21.3	46 E	21*	37*
4 11	8 43.98	- 8 58.3	2.205	2.745	19.8	21.4	112 E	36	73	9 13	14 23.03	- 0 41.3	1.767	1.269	34.0	21.3	45 E	22*	35*
<b>378305 2007 FC<sub>1</sub></b>										<b>397472 2007 MV<sub>9</sub></b>									
1 2	9 47.43	+59 10.3	1.554	2.329	18.3	21.4	132 W	76	5	1 2	9 56.61	+ 8 21.3	1.890	2.653	15.9	21.5	132 W	53	56
1 7	9 42.56	+60 32.5	1.530	2.320	17.9	21.4	134 W	74	3	1 12	9 51.12	+ 8 45.6	1.825	2.683	12.5	21.3	144 W	54	55
1 12	9 35.84	+61 49.0	1.512	2.311	17.6	21.3	135 W	73	2	1 22	9 43.28	+ 9 24.9	1.783	2.712	8.5	21.1	156 W	54	55
1 17	9 27.28	+62 57.0	1.498	2.301	17.6	21.3	135 W	72	1	2	9 33.76	+10 15.6	1.768	2.740	4.2	20.9	168 W	55	54
1 22	9 17.00	+63 54.0	1.490	2.291	17.8	21.3	135 W	71	—	2 11	9 23.58	+11 12.3	1.782	2.767	1.5	20.8	176 E	56	53
1 27	9 5.35	+64 37.6	1.486	2.281	18.2	21.3	134 W	70	—	2 21	9 13.83	+12 9.0	1.826	2.793	5.2	21.1	165 E	57	52
2 1	8 52.83	+65 5.9	1.488	2.271	18.7	21.3	132 E	70	—	3 2	9 5.53	+13 0.4	1.899	2.819	9.1	21.4	153 E	58	51
2 6	8 40.09	+65 18.1	1.494	2.260	19.4	21.3	130 E	70	—	<b>191935 2005 UY<sub>2</sub></b>									
2 11	8 27.80	+65 14.5	1.504	2.249	20.3	21.4	128 E	70	—	1 2	9 57.70	+ 5 30.6	2.076	2.819	15.3	21.4	131 W	51	58
2 16	8 16.56	+64 55.9	1.518	2.237	21.2	21.4	125 E	70	—	1 12	9 53.14	+ 5 51.4	1.964	2.805	12.4	21.1	142 W	51	58
2 21	8 6.87	+64 23.9	1.536	2.225	22.1	21.4	122 E	71	—	1 22	9 46.13	+ 6 29.7	1.874	2.791	9.0	20.9	154 W	51	58
2 26	7 59.02	+63 40.5	1.557	2.213	23.0	21.5	119 E	71	—	2 1	9 37.11	+ 7 24.2	1.810	2.775	5.0	20.6	166 W	52	57
<b>276409 2002 YN<sub>2</sub></b>										2 11	9 26.90	+ 8 30.7	1.775	2.758	2.2	20.4	174 E	54	55
1 2	9 49.94	-25 23.5	1.327	1.951	27.3	21.8	114 W	20	89	2 16	9 21.67	+ 9 6.7	1.769	2.749	3.2	20.5	171 E	54	55
1 7	9 41.10	-27 28.4	1.293	1.957	26.3	21.7	118 W	18	89	2 21	9 16.53	+ 9 43.4	1.771	2.740	5.1	20.6	166 E	55	54
1 12	9 30.70	-29 24.8	1.264	1.962	25.4	21.6	121 W	16	87	2 26	9 11.64	+10 20.0	1.780	2.731	7.2	20.7	160 E	55	54
1 17	9 18.78	-31 9.3	1.240	1.967	24.5	21.6	124 W	14	85	3 2	9 7.12	+10 55.7	1.796	2.721	9.2	20.8	154 E	56	53
1 22	9 5.52	-32 38.5	1.223	1.970	23.8	21.5	126 W	12	83	3 7	9 3.09	+11 29.8	1.819	2.711	11.2	20.9	148 E	56	53
1 27	8 51.22	-33 49.2	1.213	1.972	23.4	21.5	127 W	11	82	3 12	8 59.63	+12 1.6	1.848	2.701	13.1	21.0	142 E	57	52
2 1	8 36.30	-34 39.1	1.209	1.972	23.3	21.5	128 E	10	81	3 17	8 56.81	+12 30.9	1.882	2.691	14.8	21.0	136 E	58	51
2 6	8 21.27	-35 7.2	1.211	1.972	23.4	21.5	127 W	10	81	3 22	8 54.67	+12 57.3	1.921	2.680	16.4	21.1	131 E	58	51
2 11	8 6.61	-35 14.1	1.220	1.971	23.9	21.5	126 E	10	81	3 27	8 53.24	+13 20.6	1.964	2.669	17.7	21.2	125 E	58	51
2 16	7 52.81	-35 1.5	1.235	1.968	24.5	21.6	124 E	10	81	4 1	8 52.53	+13 40.5	2.010	2.657	19.0	21.3	120 E	59	50
2 21	7 40.22	-34 31.8	1.256	1.965	25.4	21.6	122 E	10	81	4 6	8 52.53	+13 57.2	2.059	2.646	20.0	21.4	115 E	59	50
2 26	7 29.13	-33 48.4	1.281	1.960	26.3	21.7	119 E	11	82	4 11	8 53.21	+14 10.5	2.111	2.634	20.9	21.5	110 E	59	50
<b>275545 1998 UN<sub>1</sub></b>										<b>386298 2008 SR<sub>7</sub></b>									
1 2	9 53.50	-38 49.7	1.336	1.844	31.1	21.4	104 W	6	77	1 2	10 2.82	+30 42.2	0.645	1.515	26.8	21.2	136 W	76	33
1 7	9 51.76	-40 17.8	1.301	1.842	30.8	21.3	107 W	5	76	1 7	9 58.46	+30 34.5	0.607	1.506	24.0	20.9	141 W	76	33
1 12	9 48.92	-41 37.3	1.267	1.839	30.4	21.2	109 W	3	74	1 12	9 51.98	+30 24.2	0.573	1.497	20.8	20.7	147 W	75	34
1 17	9 44.96	-42 46.6	1.235	1.836	30.0	21.2	111 W	2	73	1 17	9 43.31	+30 8.9	0.542	1.488	17.2	20.4	153 W	75	34
1 22	9 39.88	-43 43.8	1.204	1.832	29.5	21.1	113 W	1	72	1 22	9 32.51	+29 45.2	0.515	1.478	13.4	20.2	160 W	75	34
1 27	9 33.77	-44 26.7	1.175	1.828	29.1	21.0	115 W	1	72	1 27	9 19.85	+29 9.8	0.494	1.468	9.8	19.9	165 W	74	35
2 1	9 26.80	-44 53.4	1.148	1.824	28.7	21.0	117 W	—	71	2 1	9 5.85	+28 19.8	0.478	1.457	7.6	19.8	169 W	73	36
2 6	9 19.19	-45 2.2	1.123	1.819	28.3	20.9	119 W	—	71	2 6	8 51.19	+27 13.8	0.467	1.445	8.6	19.7	167 E	72	37
2 11	9 11.24	-44 52.1	1.101	1.813	28.0	20.8	121 E	—	71	2 11	8 36.68	+25 52.4	0.462	1.434	12.2	19.8	162 E	71	38
2 16	9 3.25	-44 22.2	1.081	1.808	27.7	20.8	122 E	1	72	2 16	8 23.05	+24 18.1	0.463	1.422	16.8	20.0	155 E	69	40
2 21	8 55.57	-43 23.3	1.064	1.801	27.5	20.7	123 E	1	72	2 21	8 10.94	+22 34.7	0.468	1.409	21.6	20.1	148 E	68	41
2 26	8 48.53	-42 3.1	1.050	1.794	27.5	20.7	123 E	3	74	2 26	8 0.79	+20 46.5	0.478	1.396	26.2	20.3	141 E	66	43
3 2	8 42.42	-40 55.8	1.038	1.787	27.6	20.7	123 E	4	75	3 2	7 52.83	+18 57.3	0.492	1.383	30.5	20.5	135 E	64	45
3 7	8 37.45	-39 12.5	1.031	1.779	27.8	20.7	123 E	6	77	3 7	7 47.08	+17 10.2	0.508	1.369	34.4	20.6	129 E	62	47
3 12	8 33.75	-37 15.8	1.026	1.771	28.2	20.6	123 E	8	79	3 12	7 43.43	+15 26.7	0.527	1.356	37.8	20.8	123 E	60	49
3 17	8 31.38	-35 8.1	1.025	1.763	28.8	20.6	122 E	10	81	3 17	7 41.71	+13 47.9	0.547	1.342	40.9	20.9	118 E	59	50
3 22	8 30.36	-32 52.3	1.027	1.753	29.4	20.7	120 E	12	83	3 22	7 41.73	+12 13.7	0.567	1.327	43.6	21.1	113 E	57	52
3 27	8 30.66	-30 31.1	1.033	1.744	30.2	20.7	118 E	14	85	3 27	7 43.31	+10 43.8	0.589	1.313	46.0	21.2	109 E	56	53
4 1	8 32.24	-28 7.3	1.042	1.734	31.1	20.7	116 E	17	88	4 1	7 46.27	+ 9 17.6	0.610	1.298	48.0	21.3	105 E	54	55
4 6	8 35.00	-25 43.4	1.054	1.724	32.0	20.8	114 E	19	90	4 6	7 50.43	+ 7 54.1	0.630	1.284	49.8	21.4	101 E	53*	56
4 11	8 38.84	-23 21.4	1.068	1.713	32.9	20.8	112 E	22	87	4 11	7 55.64	+ 6 32.8	0.650	1.269	51.4	21.5	98 E	51*	57
4 16	8 43.66	-21 3.2	1.086	1.702	33.9	20.8	109 E	24*	85										
4 21	8 49.39	-18 50.0	1.106	1.690	34.8	20.9	106 E	26*	83										
4 26	8 55.94	-16 43.3	1.128	1.678	35.7	20.9	104 E	27*	81										
5 1	9 3.22	-14 43.8	1.152	1.666	36.5	21.0	101 E	28*	79										
5 6	9 11.16	-12 52.1	1.178	1.653	37.2	21.1	98 E	29*	77										
5 11	9 19.67	-11 8.6	1.205	1.640	37.8	21.1	95 E	29*	75										
5 16	9 28.69	- 9 33.4	1.234	1.627	38.4	21.1	92 E	29*	74										
5 21	9 38.18	- 8 6.4	1.263	1.613	38.9	21.2	90 E	28*	72*										
5 26	9 48.08	- 6 47.7	1.293	1.599	39.2	21.2	87 E	28*	71*										
5 31	9 58.35	- 5 37.1	1.324																

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

2020	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	2020	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°		
<b>282511 2004 QL<sub>20</sub></b>										<b>163694 2003 DP<sub>13</sub></b> (continuation)											
1	2	10 3.80	-15 52.4	2.183	2.785	18.1	21.5	118 W	29	80	10	3	16 45.89	-27 9.1	1.448	1.346	41.8	20.4	64 E	12*	58*
1	12	9 58.43	-17 5.6	2.107	2.809	16.3	21.3	127 W	28	81	10	8	17 7.27	-27 8.0	1.487	1.371	40.7	20.4	63 E	13*	57*
1	22	9 50.73	-17 54.8	2.048	2.833	14.1	21.2	135 W	27	82	10	13	17 28.16	-26 56.6	1.529	1.398	39.5	20.5	63 E	14*	57*
2	1	9 41.22	-18 15.5	2.009	2.855	12.1	21.1	143 W	27	82	10	18	17 48.48	-26 35.8	1.575	1.426	38.4	20.6	63 E	15*	57*
2	11	9 30.79	-18 5.8	1.995	2.876	10.6	21.1	148 E	27	82	10	23	18 8.16	-26 6.5	1.624	1.454	37.2	20.7	62 E	16*	56*
2	21	9 20.46	-17 27.4	2.006	2.897	10.2	21.1	149 E	28	81	10	28	18 27.15	-25 29.7	1.676	1.484	36.0	20.7	61 E	17*	55*
3	2	9 11.23	-16 25.2	2.044	2.916	11.1	21.2	146 E	29	80	11	2	18 45.42	-24 46.4	1.732	1.515	34.8	20.8	61 E	18*	54*
3	12	9 3.93	-15 7.2	2.106	2.934	12.7	21.3	140 E	30	79	11	7	19 2.99	-23 57.5	1.790	1.546	33.6	20.9	60 E	19*	52*
3	22	8 59.02	-13 41.8	2.190	2.952	14.5	21.5	132 E	31	78	11	12	19 19.85	-23 4.0	1.850	1.578	32.3	21.0	59 E	20*	51*
<b>338847 2003 XZ<sub>21</sub></b>										11	17	19 36.05	-22 6.5	1.913	1.611	31.1	21.1	57 E	21*	49*	
1	2	10 6.76	+13 5.8	2.036	2.789	15.3	21.4	132 W	58	51	11	22	19 51.59	-21 5.9	1.977	1.644	29.9	21.2	56 E	22*	47*
1	12	10 1.98	+13 50.2	1.939	2.789	12.2	21.2	143 W	59	50	11	27	20 6.51	-20 2.7	2.043	1.677	28.7	21.2	55 E	23*	44*
1	22	9 54.60	+14 48.0	1.864	2.789	8.5	21.0	155 W	60	49	12	2	20 20.85	-18 57.5	2.111	1.711	27.4	21.3	53 E	24*	42*
2	1	9 45.10	+15 54.7	1.816	2.787	4.2	20.7	168 W	61	48	12	7	20 34.64	-17 50.6	2.180	1.745	26.2	21.4	51 E	25*	39*
2	11	9 34.34	+17 3.8	1.798	2.784	1.0	20.4	177 E	62	47	12	12	20 47.92	-16 42.6	2.249	1.779	25.0	21.5	50 E	25*	37*
<b>416187 2002 TP<sub>65</sub></b>										1	2	10 29.85	+44 32.5	2.248	2.977	14.7	21.4	130 W	90	19	
2	16	9 28.83	+17 37.1	1.801	2.782	2.8	20.6	172 E	63	46	1	7	10 27.82	+45 38.7	2.227	2.992	13.7	21.4	134 W	89	18
2	21	9 23.44	+18 8.4	1.811	2.780	5.0	20.7	166 E	63	46	1	12	10 24.89	+46 43.9	2.212	3.008	12.9	21.4	137 W	88	17
2	26	9 18.29	+18 37.1	1.828	2.777	7.2	20.9	159 E	64	45	1	17	10 21.08	+47 46.7	2.203	3.023	12.1	21.3	140 W	87	16
3	2	9 13.54	+19 2.7	1.853	2.774	9.2	21.0	153 E	64	45	1	22	10 16.43	+48 45.7	2.200	3.037	11.5	21.3	142 W	86	15
3	7	9 9.30	+19 24.8	1.884	2.771	11.2	21.1	147 E	64	45	1	27	10 11.04	+49 39.4	2.204	3.052	11.1	21.3	144 W	85	14
3	12	9 5.65	+19 43.3	1.921	2.768	13.0	21.2	141 E	65	44	2	1	10 5.02	+50 26.6	2.213	3.066	10.9	21.3	144 W	85	14
3	17	9 2.64	+19 58.0	1.964	2.764	14.6	21.3	136 E	65	44	2	6	9 58.55	+51 6.2	2.230	3.081	10.9	21.4	144 W	84	13
3	22	9 0.33	+20 9.2	2.011	2.760	16.0	21.4	130 E	65	44	2	11	9 51.81	+51 37.4	2.252	3.094	11.2	21.4	143 W	83	12
3	27	8 58.73	+20 16.7	2.062	2.756	17.3	21.5	125 E	65	44	2	16	9 45.00	+51 59.8	2.281	3.108	11.6	21.5	141 E	83	12
<b>229986 1999 XZ<sub>121</sub></b>										2	21	9 38.34	+52 13.3	2.315	3.122	12.2	21.5	138 E	83	12	
1	2	10 11.23	+12 52.0	1.610	2.370	18.4	21.4	131 W	58	51	2	26	9 32.02	+52 18.1	2.355	3.135	12.9	21.6	135 E	83	12
1	12	10 5.71	+13 7.3	1.547	2.400	14.6	21.2	142 W	58	51	3	2	9 26.22	+52 14.7	2.401	3.148	13.6	21.7	132 E	83	12
1	22	9 57.20	+13 35.7	1.504	2.429	10.1	21.0	154 W	59	50	3	7	9 21.09	+52 3.8	2.451	3.161	14.3	21.8	128 E	83	12
2	1	9 46.42	+14 12.6	1.487	2.457	5.1	20.7	167 W	59	50	3	12	9 16.71	+51 46.2	2.506	3.173	15.0	21.8	124 E	83	12
2	11	9 34.59	+14 51.6	1.498	2.484	0.2	20.4	179 E	60	49	<b>86730 2000 GY<sub>37</sub></b>										
2	16	9 28.72	+15 9.9	1.514	2.498	2.7	20.7	173 E	60	49	1	2	10 33.56	+1 53.8	2.327	2.958	16.5	21.5	121 W	47	62
2	21	9 23.10	+15 26.6	1.538	2.511	5.2	20.9	167 E	60	49	1	12	10 31.06	+1 58.1	2.208	2.956	14.3	21.3	132 W	47	62
2	26	9 17.89	+15 41.1	1.569	2.523	7.5	21.0	160 E	61	48	1	22	10 26.19	+2 19.5	2.106	2.953	11.5	21.1	143 W	47	62
3	2	9 13.24	+15 53.0	1.606	2.536	9.8	21.2	154 E	61	48	2	1	10 19.17	+2 58.1	2.027	2.949	8.2	20.9	155 W	48	61
3	7	9 9.23	+16 2.1	1.650	2.548	11.8	21.3	148 E	61	48	2	11	10 10.50	+3 51.8	1.975	2.943	4.5	20.6	166 W	49	60
3	12	9 5.94	+16 8.4	1.699	2.560	13.6	21.5	143 E	61	48	2	21	10 0.98	+4 56.7	1.953	2.937	2.3	20.5	173 E	50	59
<b>163694 2003 DP<sub>13</sub></b>										2	26	9 56.18	+5 31.5	1.953	2.933	3.3	20.5	170 E	51	58	
1	2	10 23.64	+13 18.2	1.707	2.438	18.6	21.4	128 W	58	51	3	2	9 51.54	+6 6.8	1.961	2.929	5.0	20.6	165 E	51	58
1	12	10 21.83	+13 4.6	1.549	2.376	16.0	21.0	138 W	58	51	3	7	9 47.16	+6 41.9	1.976	2.925	6.9	20.7	159 E	52	57
1	22	10 16.66	+13 2.4	1.409	2.312	12.4	20.6	150 W	58	51	3	12	9 43.15	+7 15.9	1.999	2.921	8.8	20.8	153 E	52	57
2	1	10 7.96	+13 10.1	1.290	2.248	7.8	20.2	162 W	58	51	3	17	9 39.60	+7 48.3	2.028	2.916	10.6	20.9	148 E	53	56
2	11	9 56.10	+13 24.3	1.198	2.182	2.3	19.6	175 W	58	51	3	22	9 36.57	+8 18.5	2.063	2.911	12.2	21.0	142 E	53	56
2	16	9 49.25	+13 32.1	1.162	2.149	0.7	19.4	178 E	59	50	3	27	9 34.12	+8 46.1	2.103	2.906	13.7	21.1	136 E	54	55
2	21	9 42.04	+13 39.3	1.133	2.116	3.9	19.6	172 E	59	50	4	1	9 32.28	+9 10.8	2.148	2.901	15.1	21.2	131 E	54	55
2	26	9 34.67	+13 45.1	1.111	2.082	7.1	19.6	165 E	59	50	4	6	9 31.07	+9 32.2	2.198	2.895	16.3	21.3	125 E	55	54
3	2	9 27.42	+13 48.7	1.095	2.049	10.4	19.7	158 E	59	50	4	11	9 30.49	+9 50.5	2.251	2.890	17.4	21.4	120 E	55	54
3	7	9 20.53	+13 49.4	1.086	2.015	13.6	19.8	152 E	59	50	4	16	9 30.52	+10 5.4	2.306	2.883	18.3	21.5	115 E	55	54
3	12	9 14.23	+13 47.0	1.083	1.981	16.7	19.8	145 E	59	50	<b>194212 2001 TH<sub>114</sub></b>										
3	17	9 8.70	+13 41.1	1.084	1.947	19.7	19.9	139 E	59	50	1	2	10 34.12	+10 37.7	1.836	2.527	18.7	21.5	125 W	56	53
3	22	9 4.10	+13 31.7	1.090	1.913	22.5	20.0	133 E	59	50	1	12	10 30.67	+10 50.2	1.758	2.555	15.6	21.3	136 W	56	53
4	1	8 58.11	+13 2.0	1.112	1.844	27.5	20.1	122 E	58	51	1	22	10 24.34	+11 17.3	1.698	2.582	11.9	21.1	147 W	56	53
4	11	8 56.65	+12 18.2	1.141	1.776	31.6	20.2	112 E	57	52	2	1	10 15.54	+11 56.0	1.662	2.609	7.5	20.9	160 W	57	52
4	21	8 59.57	+11 20.6	1.175	1.708	35.0	20.3	103 E	56*	53	2	11	10 5.11	+12 40.9	1.653	2.634	2.8	20.7	173 W	58	51
5	1	9 6.55	+10 9.0	1.207	1.641	37.7	20.3	95 E	52*	54	2	21	9 54.18	+13 25.7	1.673	2.659	2.0	20.7	175 E	58	51
5	11	9 17.13	+8 42.5	1.236	1.575	39.9	20.3	88 E	47*	55	3	2	9 43.97	+14 4.7	1.723	2.683	6.6	21.0	162 E	59	50
5	21	9 30.90	+7 0.5	1.259	1.512	41.6	20.3	83 E	40*	57*	3	12	9 35.53	+14 33.7	1.800	2.706	10.6	21.3	150 E	60	49
5	31	9 47.55	+5 1.8	1.276	1.452	43.0	20.3	78 E	34*	58*	<b>188228 2002 TH<sub>267</sub></b>										
6	10	10 6.81	+2 45.8	1.286	1.395	44.3	20.3	74 E	28*	59*	1	2	10 34.65	-0 31.5	2.169	2.793	17.8	21.3	120 W	44	65
6	20	10 28.55	+0 12.3	1.290	1.344	45.3	20.2	70 E	22*	59*	1	12	10 32.10	-0 48.7	2.052	2.791	15.6	21.1	130 W	44	65
6	30	10 52.75	-2 38.3	1.288	1.299	46.3	20.2	67 E	17*	59*	1	22	10 27.00	-0 48.4	1.951	2.787	12.8	20.9	141 W	44	65
7	10	11 19.41	-5																		

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

2020	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	$45^\circ$	$-26^\circ$	2020	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	$45^\circ$	$-26^\circ$
<b>188228 2002 TH<sub>267</sub></b> (continuation)										<b>484462 2008 CM<sub>20</sub></b> (continuation)									
4 21	9 28.86	+6 23.0	2.181	2.711	20.2	21.4	111 E	51	58	2 11	13 12.65	-57 52.5	0.215	1.029	72.8	20.8	95 W	—	58
4 26	9 30.23	+6 33.4	2.238	2.704	20.9	21.4	107 E	51*	57	2 13	13 18.93	-61 18.9	0.222	1.026	73.7	20.9	94 W	—	55
<b>37336 2001 RM</b>										<b>500769 2013 CX<sub>45</sub></b>									
1 2	10 44.77	-34 3.0	3.000	3.311	17.0	21.5	100 W	11	82	1 2	11 54.97	-4 50.7	1.441	1.880	31.0	21.3	100 W	40	68*
1 12	10 41.75	-35 20.5	2.894	3.319	16.5	21.4	107 W	10	81	1 12	12 7.46	-7 18.0	1.309	1.844	30.8	21.0	106 W	38	71
1 22	10 36.34	-36 19.0	2.796	3.326	15.6	21.3	114 W	9	80	1 22	12 18.44	-9 45.3	1.184	1.810	30.1	20.8	113 W	35	74
2 1	10 28.73	-36 52.6	2.711	3.332	14.6	21.2	121 W	8	79	2 1	12 27.45	-12 10.7	1.067	1.776	28.8	20.5	120 W	33	76
2 11	10 19.38	-36 56.4	2.641	3.337	13.5	21.1	128 W	8	79	2 2	12 27.45	-12 10.7	1.067	1.776	28.8	20.5	120 W	33	76
2 21	10 9.05	-36 27.1	2.590	3.340	12.6	21.0	133 E	9	80	2 11	12 34.02	-14 31.7	0.961	1.744	26.8	20.1	127 W	30	79
3 2	9 58.66	-35 24.4	2.561	3.342	12.0	21.0	136 E	10	81	2 16	12 36.23	-15 39.4	0.912	1.729	25.5	20.0	131 W	29	80
3 12	9 49.21	-33 51.8	2.556	3.342	11.9	21.0	136 E	11	82	2 21	12 37.62	-16 44.5	0.866	1.714	24.1	19.8	135 W	28	81
3 22	9 41.45	-31 55.9	2.574	3.342	12.4	21.0	134 E	13	84	2 26	12 38.15	-17 45.9	0.823	1.700	22.4	19.6	139 W	27	82
4 1	9 35.92	-29 45.3	2.615	3.340	13.4	21.1	129 E	15	86	3 2	12 37.78	-18 42.9	0.784	1.686	20.6	19.4	143 W	26	83
4 11	9 32.84	-27 29.3	2.677	3.337	14.5	21.2	123 E	18	89	3 7	12 36.52	-19 34.3	0.749	1.672	18.7	19.2	147 W	25	84
4 21	9 32.21	-25 15.6	2.757	3.332	15.6	21.3	117 E	20	89	3 12	12 34.40	-20 19.3	0.718	1.660	16.6	19.1	151 W	25	84
5 1	9 33.85	-23 10.7	2.852	3.326	16.6	21.4	109 E	21*	87	3 17	12 31.49	-20 56.6	0.691	1.648	14.7	18.9	155 W	24	85
5 11	9 37.54	-21 18.6	2.958	3.319	17.3	21.5	102 E	21*	85	3 22	12 27.92	-21 25.2	0.668	1.636	12.9	18.8	159 W	24	85
<b>203387 2001 XK<sub>103</sub></b>										<b>58325 1994 RE<sub>11</sub></b>									
1 2	10 47.45	+17 31.7	2.249	2.912	16.3	21.4	124 W	63	46	1 2	11 18.19	-2 2.1	2.385	2.867	18.9	21.4	109 W	43	66
1 12	10 44.74	+18 7.2	2.146	2.920	13.9	21.2	134 W	63	46	1 12	11 18.29	-1 50.9	2.284	2.899	17.1	21.3	120 W	43	66
1 22	10 39.37	+18 53.4	2.062	2.928	10.9	21.0	146 W	64	45	1 22	11 16.02	-1 20.9	2.195	2.931	14.8	21.2	130 W	44	65
2 1	10 31.54	+19 46.1	2.002	2.934	7.5	20.8	157 W	65	44	2 1	11 11.44	0 31.7	2.124	2.962	11.8	21.0	142 W	44	65
2 11	10 21.85	+20 38.8	1.969	2.939	4.3	20.6	167 W	66	43	2 11	11 4.86	+0 35.2	2.074	2.992	8.3	20.8	154 W	46	63
2 21	10 11.15	+21 25.0	1.966	2.944	3.5	20.5	169 E	66	43	2 21	10 56.85	+1 56.1	2.052	3.021	4.5	20.7	166 W	47	62
3 2	10 0.53	+21 59.1	1.993	2.947	6.4	20.7	161 E	67	42	3 2	10 48.18	+3 25.1	2.060	3.050	1.3	20.5	176 E	48	61
3 12	9 51.06	+22 17.6	2.049	2.949	9.8	20.9	150 E	67	42	3 7	10 43.87	+4 10.3	2.076	3.064	2.2	20.6	173 E	49	60
3 22	9 43.55	+22 19.8	2.130	2.951	12.9	21.2	138 E	67	42	3 12	10 39.73	+4 54.9	2.099	3.077	4.0	20.7	168 E	50	59
4 1	9 38.51	+22 6.9	2.231	2.951	15.5	21.3	128 E	67	42	3 17	10 35.85	+5 37.9	2.130	3.090	5.8	20.9	162 E	51	58
<b>58325 1994 RE<sub>11</sub></b>										<b>182274 2001 KY<sub>1</sub></b>									
1 2	11 18.19	-2 2.1	2.385	2.867	18.9	21.4	109 W	43	66	1 2	11 18.42	-2 44.1	4.016	4.436	12.1	21.5	109 W	42	67
1 12	11 18.29	-1 50.9	2.284	2.899	17.1	21.3	120 W	43	66	1 12	11 17.06	-2 57.7	3.868	4.434	11.1	21.4	119 W	42	67
1 22	11 16.02	-1 20.9	2.195	2.931	14.8	21.2	130 W	44	65	1 22	11 14.16	-3 1.3	3.734	4.432	9.8	21.2	130 W	42	67
2 1	11 11.44	0 31.7	2.124	2.962	11.8	21.0	142 W	44	65	2 1	11 9.78	-2 54.3	3.619	4.429	8.0	21.1	141 W	42	67
2 11	11 4.86	+0 35.2	2.074	2.992	8.3	20.8	154 W	46	63	2 11	11 4.12	-2 36.9	3.529	4.425	6.0	20.9	152 W	42	67
2 21	10 56.85	+1 56.1	2.052	3.021	4.5	20.7	166 W	47	62	2 21	10 57.48	-2 10.0	3.466	4.421	3.7	20.8	163 W	43	66
3 2	10 48.18	+3 25.1	2.060	3.050	1.3	20.5	176 E	48	61	3 2	10 50.29	-1 35.5	3.434	4.416	2.0	20.6	171 E	43	66
3 7	10 43.87	+4 10.3	2.076	3.064	2.2	20.6	173 E	49	60	3 12	10 43.06	0 56.1	3.434	4.410	2.7	20.7	168 E	44	65
3 12	10 39.73	+4 54.9	2.099	3.077	4.0	20.7	168 E	50	59	3 22	10 36.28	0 14.7	3.465	4.403	4.9	20.8	158 E	45	64
3 17	10 35.85	+5 37.9	2.130	3.090	5.8	20.9	162 E	51	58	4 1	10 30.40	0 25.4	3.525	4.395	7.2	21.0	147 E	45	64
3 22	10 32.32	+6 18.7	2.168	3.103	7.6	21.0	156 E	51	58	4 11	10 25.78	+1 1.4	3.611	4.387	9.1	21.1	136 E	46	63
3 27	10 29.21	+6 56.6	2.213	3.116	9.3	21.1	150 E	52	57	4 21	10 22.59	+1 31.4	3.718	4.378	10.8	21.2	125 E	47	62
4 1	10 26.58	+7 31.2	2.264	3.129	10.8	21.2	144 E	53	56	5 1	10 20.96	+1 53.9	3.842	4.368	12.0	21.4	115 E	47	62
4 6	10 24.46	+8 2.2	2.321	3.141	12.2	21.3	139 E	53	56	5 11	10 20.85	+2 8.0	3.976	4.358	12.9	21.5	106 E	46*	62
4 11	10 22.88	+8 29.3	2.383	3.154	13.4	21.5	133 E	53	56	<b>484462 2008 CM<sub>20</sub></b>									
1 2	11 18.42	-2 44.1	4.016	4.436	12.1	21.5	109 W	42	67	1 2	11 50.46	+22 51.6	0.288	1.119	55.1	21.0	111 W	68	41*
1 12	11 17.06	-2 57.7	3.868	4.434	11.1	21.4	119 W	42	67	1 4	11 54.49	+20 25.6	0.275	1.113	55.4	20.9	111 W	65	43*
1 22	11 14.16	-3 1.3	3.734	4.432	9.8	21.2	130 W	42	67	1 6	11 58.44	+17 47.0	0.263	1.107	55.7	20.8	112 W	63	46*
2 1	11 9.78	-2 54.3	3.619	4.429	8.0	21.1	141 W	42	67	1 8	12 2.33	+14 54.8	0.252	1.102	56.0	20.8	112 W	60	49*
2 11	11 4.12	-2 36.9	3.529	4.425	6.0	20.9	152 W	42	67	1 10	12 6.16	+11 48.0	0.241	1.096	56.4	20.7	112 W	57	52
2 21	10 57.48	-2 10.0	3.466	4.421	3.7	20.8	163 W	43	66	1 12	12 9.94	+8 25.7	0.231	1.091	56.9	20.6	112 W	53	56
3 2	10 50.29	-1 35.5	3.434	4.416	2.0	20.6	171 E	43	66	1 17	12 19.27	-1 10.2	0.210	1.077	58.4	20.4	111 W	44	65
3 12	10 43.06	0 56.1	3.434	4.410	2.7	20.7	168 E	44	65	1 22	12 28.53	-12 20.0	0.196	1.065	60.6	20.3	109 W	33	76
3 22	10 36.28	0 14.7	3.465	4.403	4.9	20.8	158 E	45	64	1 27	12 37.98	-24 31.2	0.189	1.054	63.5	20.3	107 W	20	89
4 1	10 30.40	0 25.4	3.525	4.395	7.2	21.0	147 E	45	64	2 1	12 48.02	-36 46.3	0.191	1.045	66.8	20.4	103 W	8	79
4 11	10 25.78	+1 1.4	3.611	4.387	9.1	21.1	136 E	46	63	2 3	12 52.32	-41 27.3	0.194	1.041	68.2	20.4	101 W	4	75
4 21	10 22.59	+1 31.4	3.718	4.378	10.8	21.2	125 E	47	62	2 5	12 56.87	-45 56.2	0.198	1.038	69.5	20.5	100 W	—	70
5 1	10 20.96	+1 53.9	3.842	4.368	12.0	21.4	115 E	47	62	2 7	13 1.72	-50 10.8	0.203	1.034	70.7	20.6	98 W	—	66
5 11	10 20.85	+2 8.0	3.976	4.358	12.9	21.5	106 E	46*	62	2 9	13 6.95	-54 9.8	0.208	1.031	71.8	20.7	97 W	—	62
1 2	11 50.46	+22 51.6	0.288	1.119	55.1														

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

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>157287 2004 RS<sub>292</sub></b> (continuation)									<b>239874 2000 JN<sub>83</sub></b> (continuation)								
6 5	11 12.62	+18 51.3	2.143	2.326	25.8	21.2	87 E	54* 45	12 7	19 16.84	-23 51.9	2.528	1.778	17.3	21.5	33 E	12* 24*
6 10	11 16.75	+17 59.7	2.188	2.310	25.9	21.2	84 E	50* 46	12 17	19 44.89	-22 57.6	2.601	1.803	15.3	21.5	29 E	12* 20*
6 15	11 21.33	+17 5.9	2.232	2.294	25.9	21.2	80 E	47* 47	<b>170176 2003 MU<sub>1</sub></b>								
6 20	11 26.31	+16 10.2	2.275	2.278	25.8	21.2	77 E	43* 48*	1 2	12 7.98	+ 3 29.0	2.172	2.539	22.4	21.5	100 W	48 59*
6 25	11 31.68	+15 12.6	2.317	2.261	25.6	21.3	74 E	40* 48*	1 12	12 14.29	+ 3 5.5	2.013	2.510	21.8	21.3	109 W	48 61
6 30	11 37.40	+14 13.4	2.358	2.245	25.4	21.3	71 E	37* 49*	1 22	12 18.55	+ 2 56.8	1.861	2.479	20.5	21.0	118 W	48 61
7 5	11 43.44	+13 12.7	2.397	2.228	25.1	21.3	68 E	35* 49*	2 1	12 20.39	+ 3 4.6	1.719	2.448	18.6	20.8	128 W	48 61
7 10	11 49.79	+12 10.5	2.435	2.212	24.7	21.3	65 E	32* 48*	2 11	12 19.49	+ 3 30.2	1.590	2.416	15.8	20.5	138 W	49 60
7 15	11 56.42	+11 6.9	2.471	2.195	24.2	21.3	62 E	30* 47*	2 21	12 15.66	+ 4 13.0	1.480	2.384	12.3	20.2	149 W	49 60
7 20	12 3.33	+10 2.0	2.506	2.178	23.8	21.3	60 E	27* 46*	3 2	12 8.96	+ 5 10.8	1.392	2.351	8.0	19.8	161 W	50 59
7 25	12 10.49	+ 8 55.9	2.538	2.161	23.2	21.3	57 E	25* 45*	3 7	12 4.68	+ 5 43.5	1.357	2.334	5.7	19.7	167 W	51 58
7 30	12 17.90	+ 7 48.8	2.569	2.144	22.7	21.3	54 E	24* 44*	3 12	11 59.91	+ 6 17.5	1.329	2.317	3.5	19.5	172 W	51 58
8 4	12 25.54	+ 6 40.6	2.597	2.127	22.1	21.3	52 E	22* 42*	3 17	11 54.79	+ 6 51.7	1.308	2.300	2.5	19.4	174 W	52 57
8 9	12 33.41	+ 5 31.5	2.624	2.110	21.4	21.3	49 E	20* 40*	3 22	11 49.46	+ 7 24.9	1.293	2.283	3.9	19.4	171 E	52 57
8 14	12 41.50	+ 4 21.7	2.648	2.092	20.7	21.2	47 E	19* 38*	3 27	11 44.11	+ 7 56.0	1.285	2.265	6.3	19.5	166 E	53 56
8 19	12 49.81	+ 3 11.0	2.671	2.075	20.0	21.2	45 E	18* 36*	4 1	11 38.93	+ 8 23.7	1.284	2.248	8.9	19.6	160 E	53 56
8 24	12 58.34	+ 1 59.8	2.691	2.058	19.3	21.2	42 E	16* 34*	4 6	11 34.09	+ 8 47.1	1.289	2.230	11.5	19.7	154 E	54 55
8 29	13 7.08	+ 0 48.1	2.710	2.040	18.5	21.2	40 E	15* 32*	4 11	11 29.73	+ 9 5.6	1.300	2.213	14.0	19.8	148 E	54 55
9 3	13 16.04	+ 0 24.0	2.726	2.023	17.7	21.1	38 E	14* 30*	4 21	11 22.95	+ 9 26.0	1.336	2.177	18.5	20.0	136 E	54 55
9 8	13 25.21	+ 1 36.3	2.741	2.006	16.9	21.1	35 E	13* 28*	5 1	11 19.26	+ 9 23.4	1.388	2.141	22.4	20.1	126 E	54 55
9 13	13 34.61	+ 2 48.7	2.753	1.988	16.1	21.1	33 E	12* 26*	5 11	11 18.90	+ 8 58.6	1.451	2.105	25.4	20.3	116 E	54 55
9 18	13 44.23	+ 4 1.1	2.764	1.971	15.2	21.0	31 E	11* 24*	5 21	11 21.72	+ 8 13.9	1.522	2.070	27.8	20.4	108 E	52* 56
9 23	13 54.09	+ 5 13.3	2.773	1.954	14.3	21.0	29 E	10* 22*	5 31	11 27.48	+ 7 11.4	1.596	2.034	29.4	20.5	100 E	48* 57
9 28	14 4.17	+ 6 25.2	2.779	1.937	13.4	20.9	27 E	9* 20*	6 10	11 35.82	+ 5 53.6	1.672	1.998	30.5	20.6	93 E	43* 58
10 3	14 14.49	+ 7 36.4	2.784	1.920	12.5	20.9	25 E	8* 18*	6 20	11 46.41	+ 4 22.5	1.746	1.963	31.1	20.7	86 E	37* 60
10 8	14 25.06	+ 8 47.0	2.787	1.903	11.6	20.8	23 E	7* 15*	6 30	11 58.96	+ 2 39.6	1.818	1.928	31.3	20.8	80 E	32* 61*
10 13	14 35.88	+ 9 56.6	2.789	1.887	10.7	20.8	21 E	7* 13*	7 10	12 13.23	+ 0 46.6	1.886	1.893	31.2	20.8	75 E	27* 61*
10 18	14 46.97	+ 11 5.1	2.788	1.870	9.7	20.7	19 E	6* 11*	7 20	12 29.05	+ 1 14.7	1.950	1.860	30.8	20.8	70 E	23* 59*
10 23	14 58.31	+ 12 12.2	2.786	1.854	8.8	20.7	17 E	5* 9*	7 30	12 46.30	+ 3 23.1	2.009	1.828	30.2	20.8	65 E	20* 57*
10 28	15 9.93	+ 13 17.7	2.782	1.838	7.8	20.6	15 E	4* 7*	8 9	13 4.88	+ 5 36.7	2.064	1.797	29.4	20.8	61 E	17* 53*
11 2	15 21.82	+ 14 21.3	2.777	1.822	6.9	20.5	13 E	3* 5*	8 19	13 24.77	+ 7 53.7	2.115	1.767	28.5	20.8	56 E	15* 50*
11 7	15 33.99	+ 15 22.8	2.771	1.807	5.9	20.5	11 E	2* 3*	8 29	13 45.95	+ 10 12.1	2.161	1.740	27.4	20.8	52 E	13* 46*
11 17	15 59.19	+ 17 18.5	2.754	1.777	4.0	20.3	7 E	—	9 8	14 8.41	+ 12 29.6	2.203	1.714	26.2	20.8	49 E	12* 43*
11 27	16 25.54	+ 19 2.4	2.732	1.748	2.2	20.1	4 E	—	9 18	14 32.20	+ 14 43.6	2.242	1.690	24.9	20.7	45 E	11* 39*
12 7	16 53.00	+ 20 32.2	2.706	1.721	1.2	20.0	2 W	—	9 28	14 57.31	+ 16 51.6	2.277	1.669	23.6	20.7	42 E	10* 36*
12 17	17 21.53	+ 21 45.8	2.676	1.696	2.5	20.1	4 W	—	10 8	15 23.75	+ 18 50.2	2.311	1.651	22.1	20.7	39 E	9* 32*
12 27	17 50.99	+ 22 41.0	2.644	1.674	4.4	20.1	8 W	—	10 18	15 51.49	+ 20 36.4	2.343	1.635	20.7	20.6	35 E	8* 29*
1 6	18 21.24	+ 23 16.1	2.609	1.653	6.3	20.2	11 W	1* 4*	10 28	16 20.46	+ 22 7.1	2.373	1.623	19.1	20.6	32 E	8* 26*
1 16	18 52.09	+ 23 29.9	2.573	1.635	8.3	20.2	14 W	1* 7*	11 7	16 50.50	+ 23 19.1	2.402	1.613	17.5	20.6	29 E	7* 23*
<b>239874 2000 JN<sub>83</sub></b>									11 17	17 21.44	+ 24 9.9	2.432	1.607	15.9	20.5	26 E	7* 20*
1 2	12 7.13	+ 3 20.5	1.797	2.199	26.1	21.5	100 W	48 59*	11 27	17 53.02	+ 24 37.3	2.461	1.605	14.2	20.5	24 E	6* 16*
1 12	12 16.56	+ 2 41.0	1.650	2.168	25.5	21.2	108 W	48 61*	12 7	18 24.91	+ 24 40.1	2.490	1.606	12.5	20.5	21 E	5* 13*
1 22	12 24.09	+ 2 16.2	1.509	2.137	24.4	21.0	116 W	47 62	12 17	18 56.82	+ 24 18.2	2.519	1.610	10.8	20.4	18 E	5* 10*
1 32	12 29.26	+ 2 8.7	1.377	2.105	22.5	20.7	125 W	47 62	12 27	19 28.41	+ 23 32.1	2.549	1.618	9.0	20.4	15 E	3* 7*
2 11	12 31.66	+ 2 20.3	1.256	2.074	19.7	20.4	135 W	47 62	1 6	19 59.41	+ 22 23.6	2.579	1.629	7.2	20.3	12 E	2* 4*
2 21	12 30.90	+ 2 51.7	1.151	2.042	16.1	20.0	145 W	48 61	1 16	20 29.61	+ 20 54.9	2.608	1.644	5.4	20.3	9 E	—
3 2	12 26.79	+ 3 41.9	1.064	2.011	11.5	19.7	156 W	49 60	<b>403198 2008 RV<sub>24</sub></b>								
3 7	12 23.56	+ 4 12.5	1.028	1.995	8.9	19.5	162 W	49 60	1 2	12 8.70	+ 21 12.3	1.989	2.456	22.6	21.3	106 W	66 42*
3 12	12 19.64	+ 4 45.5	0.998	1.980	6.3	19.3	167 W	50 59	1 12	12 11.18	+ 20 59.7	1.840	2.429	21.5	21.1	115 W	66 43
3 17	12 15.16	+ 5 19.8	0.974	1.964	4.0	19.1	172 W	50 59	1 22	12 10.49	+ 20 58.4	1.699	2.401	19.7	20.8	125 W	66 43
3 22	12 10.27	+ 5 53.9	0.956	1.949	3.4	19.0	173 W	51 58	2 1	12 6.09	+ 21 5.7	1.571	2.371	17.1	20.6	135 W	66 43
3 27	12 5.18	+ 6 26.3	0.943	1.934	5.2	19.0	170 W	51 58	2 11	11 57.60	+ 21 16.3	1.460	2.341	13.8	20.3	146 W	66 43
4 1	12 0.11	+ 6 55.4	0.937	1.919	8.0	19.1	164 E	52 57	2 16	11 51.80	+ 21 20.4	1.413	2.325	12.0	20.1	151 W	66 43
4 6	11 55.28	+ 7 20.0	0.936	1.904	11.0	19.2	159 E	52 57	2 21	11 45.02	+ 21 22.0	1.372	2.310	10.1	20.0	156 W	66 43
4 11	11 50.90	+ 7 38.8	0.941	1.889	14.0	19.3	153 E	53 56	2 26	11 37.37	+ 21 19.8	1.337	2.294	8.4	19.8	160 W	66 43
4 16	11 47.14	+ 7 51.3	0.950	1.875	16.8	19.5	147 E	53 56	3 2	11 29.02	+ 21 12.5	1.310	2.278	7.1	19.7	163 W	66 43
4 21	11 44.13	+ 7 57.0	0.964	1.861	19.5	19.6	142 E	53 56	3 7	11 20.18	+ 20 58.7	1.291	2.262	6.9	19.6	164 W	66 43
5 1	11 40.80	+ 7 47.0	1.003	1.833	24.3	19.8	131 E	53 56	3 12	11 11.11	+ 20 37.9	1.279	2.245	7.8	19.6	162 E	66 43
5 11	11 41.28	+ 7 9.8	1.053	1.807	28.2	19.9	122 E	52 57	3 17	11 2.06	+ 20 9.6	1.274	2.228	9.6	19.7	158 E	65 44
5 21	11 45.45	+ 6 8.4	1.111	1.782	31.3	20.1	114 E	51* 58	3 22	10 53.31	+ 19 33.8	1.276	2.212	11.8	19.8	153 E	65 44
5 31	11 52.98	+ 4 46.2	1.174	1.758	33.5	20.3	107 E	48* 59	3 27	10 45.10	+ 18 50.9	1.286	2.195	14.1	19.9	148 E	64 45
6 10	12 3.45	+ 3 6.4	1.240	1.736	35.1	20.4	100 E	43* 61	4 1	10 37.65	+ 18 1.6	1.302	2.177	16.4	19.9	142 E	63 46
6 20	12 16.41	+ 1 12.3	1.308	1.717	36.2	20.5	94 E	38* 63	4 6	10 31.12	+ 17 6.9	1.323	2.160	18.7	20.0	136 E	62 47
6 30	12 31.55	+ 0 53.5	1.376	1.699	36.7	20.6	89 E	33* 65	4 11	10 25.59	+ 16 7.8	1.350	2.142	20.8	20.1	131 E	61 48
7 10																	



EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

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>403198 2008 RV<sub>24</sub></b> (continuation)									<b>39796 1997 TD</b> (continuation)								
8 19	12 14.91	-18 20.6	2.208	1.683	26.0	20.8	47 E	39*	4 21	11 24.48	+11 18.1	2.111	2.917	13.9	20.4	136 E	56 53
8 29	12 35.76	-21 34.6	2.231	1.653	24.9	20.8	44 E	35*	5 1	11 19.83	+11 54.6	2.186	2.885	16.6	20.6	125 E	57 52
9 8	12 58.46	-24 50.3	2.247	1.625	23.9	20.7	41 E	31*	5 11	11 17.58	+12 12.1	2.276	2.850	18.8	20.7	115 E	57 52
9 18	13 23.30	-28 5.1	2.259	1.600	23.0	20.7	39 E	28*	5 21	11 17.71	+12 12.0	2.374	2.815	20.3	20.8	105 E	56* 52
9 28	13 50.56	-31 15.1	2.267	1.577	22.2	20.6	36 E	26*	5 31	11 20.11	+11 56.2	2.477	2.778	21.3	20.9	96 E	52* 52
10 8	14 20.54	-34 15.1	2.272	1.557	21.4	20.6	35 E	24*	6 10	11 24.56	+11 26.7	2.579	2.740	21.7	21.0	88 E	46* 53
10 18	14 53.51	-36 58.6	2.277	1.540	20.6	20.5	33 E	22*	6 20	11 30.83	+10 45.5	2.679	2.700	21.8	21.1	80 E	40* 53*
10 28	15 29.55	-39 17.8	2.282	1.526	19.9	20.5	32 E	21*	6 30	11 38.71	+9 54.0	2.774	2.659	21.4	21.1	73 E	34* 53*
11 7	16 8.51	-41 4.4	2.289	1.516	19.2	20.5	30 E	20*	7 10	11 47.99	+8 53.8	2.860	2.616	20.8	21.1	66 E	29* 51*
11 12	16 28.94	-41 42.8	2.294	1.513	18.8	20.5	29 E	20*	7 20	11 58.52	+7 45.9	2.937	2.572	19.9	21.1	59 E	25* 48*
11 17	16 49.85	-42 10.3	2.300	1.510	18.3	20.5	29 E	19*	7 30	12 10.16	+6 31.3	3.004	2.527	18.7	21.1	53 E	21* 43*
11 22	17 11.13	-42 26.0	2.308	1.509	17.9	20.4	28 E	19*	8 9	12 22.82	+5 11.1	3.058	2.480	17.4	21.0	47 E	18* 38*
11 27	17 32.60	-42 29.5	2.316	1.508	17.4	20.4	27 E	19*	8 19	12 36.41	+3 46.1	3.100	2.432	15.9	21.0	41 E	16* 33*
12 2	17 54.11	-42 20.6	2.325	1.508	16.9	20.4	26 E	18*	8 29	12 50.90	+2 17.1	3.130	2.382	14.3	20.9	36 E	13* 28*
12 7	18 15.49	-41 59.3	2.336	1.509	16.4	20.4	26 E	18*	9 8	13 6.25	+0 45.0	3.146	2.331	12.6	20.8	30 E	11* 23*
12 12	18 36.60	-41 25.9	2.348	1.512	15.8	20.4	25 E	17*	9 18	13 22.47	-0 49.3	3.148	2.279	10.8	20.7	25 E	10* 18*
12 17	18 57.29	-40 41.1	2.361	1.515	15.2	20.4	24 E	16*	9 28	13 39.57	-2 24.9	3.138	2.225	9.0	20.5	20 E	8* 12*
12 22	19 17.45	-39 45.4	2.376	1.519	14.6	20.4	23 E	16*	10 8	13 57.57	+4 0.8	3.115	2.170	7.2	20.4	16 E	6* 7*
12 27	19 36.97	-38 39.9	2.392	1.524	13.9	20.4	22 E	15*	10 18	14 16.53	-5 35.9	3.080	2.114	5.5	20.2	12 E	5* 2*
1 1	19 55.81	-37 25.5	2.408	1.530	13.2	20.4	21 E	14*	10 28	14 36.50	-7 9.0	3.033	2.057	4.3	20.1	9 E	3* —
1 6	20 13.93	-36 3.2	2.426	1.537	12.5	20.4	20 E	13*	11 7	14 57.53	-8 38.7	2.976	1.999	3.9	19.9	8 E	1* —
1 11	20 31.31	-34 34.0	2.444	1.544	11.7	20.4	19 E	12*	11 17	15 19.71	-10 3.5	2.909	1.940	4.7	19.9	9 W	2* —
1 16	20 47.97	-32 59.0	2.463	1.553	10.9	20.4	17 E	11*	11 27	15 43.10	-11 21.5	2.834	1.880	6.2	19.8	12 W	6* —
									12 7	16 7.78	-12 31.0	2.752	1.819	8.1	19.8	15 W	9* —
									12 17	16 33.83	-13 29.8	2.665	1.759	10.1	19.7	18 W	12* 3*
									12 27	17 1.27	-14 15.7	2.575	1.698	12.2	19.6	21 W	13* 7*
									1 6	17 30.15	-14 46.2	2.483	1.637	14.3	19.6	24 W	15* 11*
									1 16	18 0.46	-14 59.1	2.391	1.578	16.4	19.5	27 W	15* 15*
									<b>61256 2000 OT<sub>25</sub></b>								
									1 2	12 38.48	+0 54.3	2.727	2.935	19.6	21.4	92 W	46 58*
									1 12	12 43.77	+0 34.7	2.575	2.928	19.2	21.3	101 W	46 63*
									1 22	12 47.19	+0 27.9	2.427	2.920	18.4	21.1	110 W	45 64
									2 1	12 48.47	+0 35.3	2.287	2.910	17.0	20.9	120 W	46 63
									2 11	12 47.40	+0 57.1	2.159	2.900	15.0	20.7	131 W	46 63
									2 21	12 43.85	+1 33.2	2.048	2.889	12.2	20.5	142 W	47 62
									3 2	12 37.90	+2 21.5	1.958	2.877	8.9	20.3	153 W	47 62
									3 12	12 29.92	+3 18.2	1.894	2.864	5.2	20.0	165 W	48 61
									3 17	12 25.36	+3 48.0	1.872	2.857	3.4	19.9	170 W	49 60
									3 22	12 20.56	+4 17.8	1.858	2.850	2.1	19.8	174 W	49 60
									3 27	12 15.64	+4 46.7	1.851	2.843	2.7	19.8	172 E	50 59
									4 1	12 10.73	+5 13.8	1.852	2.835	4.4	19.9	167 E	50 59
									4 6	12 5.96	+5 38.5	1.860	2.828	6.3	20.0	162 E	51 58
									4 11	12 1.44	+6 0.0	1.874	2.820	8.3	20.1	156 E	51 58
									4 21	11 53.58	+6 31.9	1.923	2.803	12.0	20.3	144 E	52 57
									5 1	11 47.78	+6 47.2	1.994	2.785	15.2	20.5	133 E	52 57
									5 11	11 44.39	+6 45.4	2.082	2.766	17.8	20.6	123 E	52 57
									5 21	11 43.46	+6 27.5	2.182	2.747	19.8	20.8	113 E	51* 58
									5 31	11 44.91	+5 55.1	2.291	2.726	21.1	20.9	104 E	48* 58
									6 10	11 48.52	+5 10.0	2.403	2.705	21.9	21.0	96 E	44* 59
									6 20	11 54.05	+4 14.0	2.516	2.682	22.3	21.1	88 E	38* 60
									6 30	12 1.27	+3 8.5	2.627	2.659	22.2	21.2	81 E	33* 61*
									7 10	12 9.95	+1 55.0	2.734	2.635	21.7	21.2	74 E	28* 60*
									7 20	12 19.91	+0 34.6	2.835	2.610	21.0	21.3	67 E	23* 56*
									7 30	12 31.00	-0 51.6	2.929	2.584	20.0	21.3	60 E	19* 52*
									8 9	12 43.10	-2 22.5	3.013	2.557	18.8	21.3	54 E	16* 47*
									8 19	12 56.11	-3 57.2	3.088	2.529	17.4	21.3	48 E	13* 42*
									8 29	13 9.98	-5 34.9	3.152	2.501	15.8	21.2	42 E	11* 36*
									9 8	13 24.65	-7 14.5	3.204	2.472	14.1	21.2	37 E	9* 31*
									9 18	13 40.09	-8 55.2	3.246	2.442	12.3	21.1	31 E	7* 25*
									9 28	13 56.30	-10 36.1	3.275	2.412	10.4	21.1	26 E	5* 20*
									10 8	14 13.26	-12 16.2	3.291	2.380	8.4	21.0	20 E	3* 14*
									10 18	14 30.97	-13 54.3	3.296	2.349	6.3	20.8	15 E	1* 9*
									10 28	14 49.46	-15 29.5	3.289	2.316	4.2	20.7	10 E	— 4*
									11 7	15 8.70	-17 0.4	3.269	2.283	2.1	20.5	5 E	— —
									11 17	15 28.74	-18 26.1	3.239	2.250	0.3	20.3	1 W	— —
									11 27	15 49.55	-19 45.2	3.197	2.216	2.4	20.4	5 W	— —
									12 7	16 11.12	-20 56.3	3.144	2.182	4.6	20.5	10 W	2* 2*
									12 17	16 33.45	-21 58.4	3.082	2.148	6.9	20.5	15 W	5* 7*
									12 27	16 56.49	-22 50.0	3.010	2.113	9.2	20.5	20 W	7* 12*
									1 6	17 20.19	-23 30.1	2.931	2.079	11.4	20.5	25 W	9* 17*
									1 16	17 44.49	-23 57.7	2.844	2.044	13.6	20.5	29 W	10* 22*
									<b>459156 2012 CY<sub>54</sub></b>								
									1 2	12 42.84	-5 25.6	1.541	1.810	32.9	21.4	89 W	40 63*
									1 12	13 2.93	-7 2.2	1.408	1.769	33.7	21.2	94 W	38 68*
									1 22	13 23.07	-8 29.1	1.281	1.730	34.2	20.9	99 W	37 72*
									2 1	13 43.09	-9 43.1	1.160	1.692	34.4	20.7	104 W	35 74
									2 11	14 2.78	-10 41.3	1.047	1.658	34.2	20.4	109 W	34 75

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

2020	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	$45^\circ$ - $26^\circ$	2020	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	$45^\circ$ - $26^\circ$
<b>459156 2012 CY<sub>54</sub></b>									<b>138911 2001 AE<sub>2</sub></b>								
<i>(continuation)</i>																	
2 16	14 12.43	-11 3.5	0.994	1.641	34.0	20.3	112 W	34 75	1 2	12 51.23	-6 36.5	0.918	1.303	48.9	21.4	86 W	38 62*
2 21	14 21.87	-11 20.6	0.943	1.625	33.6	20.1	115 W	34 75	1 12	13 19.44	-9 16.2	0.853	1.292	49.6	21.3	89 W	36 67*
2 26	14 31.05	-11 32.2	0.894	1.611	33.1	20.0	117 W	33 76	1 22	13 48.08	-11 45.3	0.789	1.281	50.1	21.1	92 W	33 72*
3 2	14 39.90	-11 37.9	0.848	1.597	32.4	19.8	120 W	33 76	2 1	14 17.07	-14 0.0	0.729	1.272	50.5	20.9	95 W	31 77*
3 12	14 56.36	-11 31.0	0.763	1.571	30.6	19.5	126 W	33 76	2 11	14 46.33	-15 56.9	0.671	1.263	50.8	20.7	97 W	29 80*
3 22	15 10.64	-10 59.1	0.689	1.550	28.1	19.2	133 W	34 75	2 21	15 15.68	-17 33.0	0.617	1.256	50.8	20.5	100 W	27 82
4 1	15 22.05	-10 3.2	0.626	1.533	24.8	18.9	140 W	35 74	3 2	15 44.74	-18 45.3	0.565	1.250	50.5	20.3	103 W	26 83
4 6	15 26.52	-9 27.7	0.600	1.526	22.8	18.7	144 W	36 73	3 7	15 59.02	-19 12.0	0.541	1.247	50.2	20.2	105 W	26 83
4 11	15 30.11	-8 48.3	0.577	1.520	20.7	18.5	148 W	36 73	3 12	16 13.07	-19 32.4	0.517	1.245	49.9	20.1	107 W	25 84
4 16	15 32.79	-8 6.2	0.557	1.516	18.5	18.4	151 W	37 72	3 17	16 26.81	-19 46.4	0.494	1.243	49.4	20.0	108 W	25 84
4 21	15 34.57	-7 22.9	0.540	1.513	16.1	18.2	155 W	38 71	3 22	16 40.12	-19 54.0	0.472	1.242	48.8	19.9	110 W	25 84
4 26	15 35.50	-6 40.2	0.528	1.511	13.8	18.1	159 W	38 71	3 27	16 52.91	-19 55.4	0.450	1.241	48.1	19.7	112 W	25 84
5 1	15 35.70	-6 0.1	0.519	1.510	11.7	18.0	162 W	39 70	4 1	17 5.07	-19 51.0	0.430	1.240	47.3	19.6	114 W	25 84
5 6	15 35.33	-5 24.5	0.514	1.511	10.1	17.9	165 W	40 69	4 6	17 16.52	-19 41.1	0.410	1.240	46.2	19.5	117 W	25 84
5 11	15 34.55	-4 55.1	0.513	1.512	9.3	17.9	166 W	40 69	4 11	17 27.15	-19 26.4	0.391	1.240	45.0	19.3	119 W	26 83
5 16	15 33.56	-4 33.3	0.515	1.515	9.6	17.9	165 W	40 69	4 21	17 45.43	-18 44.9	0.355	1.241	41.9	19.1	124 W	26 83
5 21	15 32.56	-4 20.2	0.522	1.520	10.9	18.0	163 E	41 68	5 1	17 58.81	-17 52.5	0.324	1.244	37.8	18.7	131 W	27 82
5 31	15 31.36	-4 22.5	0.546	1.532	14.9	18.2	157 E	41 68	5 11	18 6.43	-16 57.2	0.297	1.248	32.4	18.4	139 W	28 81
6 10	15 32.28	-5 1.0	0.585	1.548	19.3	18.6	150 E	40 69	5 16	18 7.84	-16 31.0	0.286	1.251	29.2	18.2	143 W	28 81
6 20	15 35.96	-6 9.0	0.637	1.569	23.3	18.9	142 E	39 70	5 21	18 7.57	-16 7.2	0.276	1.254	25.7	18.1	148 W	29 80
6 25	15 38.93	-6 51.3	0.667	1.581	25.0	19.1	139 E	38 71	5 26	18 5.68	-15 46.9	0.268	1.257	21.8	17.9	153 W	29 80
6 30	15 42.66	-7 37.7	0.701	1.594	26.5	19.2	136 E	37 72	5 31	18 2.32	-15 31.1	0.263	1.261	17.7	17.7	158 W	29 80
7 5	15 47.10	-8 27.0	0.737	1.608	27.9	19.4	132 E	37 72	6 5	17 57.76	-15 20.4	0.259	1.265	13.5	17.6	163 W	30 79
7 10	15 52.21	-9 18.2	0.777	1.623	29.1	19.6	129 E	36 73	6 10	17 52.33	-15 15.3	0.259	1.269	9.6	17.4	168 W	30 79
7 15	15 57.93	-10 10.2	0.819	1.638	30.1	19.7	126 E	35 74	6 15	17 46.40	-15 16.0	0.260	1.274	6.8	17.3	171 W	30 79
7 20	16 4.23	-11 2.5	0.863	1.655	30.9	19.9	123 E	34* 75	6 20	17 40.42	-15 22.5	0.265	1.279	7.0	17.4	171 E	30 79
7 30	16 18.40	-12 45.1	0.959	1.689	32.2	20.2	118 E	32* 77	6 25	17 34.86	-15 34.6	0.272	1.284	9.8	17.6	168 E	29 80
8 9	16 34.31	-14 21.1	1.065	1.727	32.9	20.5	112 E	30* 78	6 30	17 30.16	-15 51.7	0.282	1.289	13.5	17.8	163 E	29 80
8 19	16 51.61	-15 47.7	1.179	1.766	33.2	20.8	107 E	29* 80	7 5	17 26.61	-16 13.1	0.295	1.294	17.3	18.0	158 E	29 80
8 29	17 10.05	-17 2.6	1.302	1.807	33.1	21.0	102 E	27* 81	7 10	17 24.36	-16 37.9	0.310	1.300	21.0	18.3	153 E	28 81
9 8	17 29.35	-18 4.4	1.431	1.849	32.7	21.3	97 E	26* 82	7 15	17 23.50	-17 5.2	0.327	1.305	24.4	18.5	148 E	28 81
<b>368866 2006 QL<sub>25</sub></b>									<b>137069 1998 WQ<sub>15</sub></b>								
1 2	12 44.93	-5 17.2	1.960	2.167	27.0	21.5	88 W	40 62*	1 2	13 12.11	+2 57.2	2.691	2.789	20.6	21.5	85 W	48 52*
1 12	12 56.56	-7 20.1	1.804	2.130	27.4	21.2	95 W	38 69*	1 12	13 18.89	+2 47.2	2.582	2.822	20.3	21.4	94 W	48 57*
1 22	13 6.94	-9 22.8	1.651	2.092	27.4	21.0	102 W	36 73*	1 22	13 23.77	+2 51.2	2.473	2.855	19.7	21.3	103 W	48 61*
2 1	13 15.69	-11 25.0	1.504	2.055	26.9	20.8	109 W	34 75	2 1	13 26.47	+3 9.6	2.368	2.886	18.4	21.2	112 W	48 61
2 11	13 22.39	-13 26.7	1.365	2.018	25.8	20.5	117 W	32 77	2 11	13 26.82	+3 41.8	2.272	2.917	16.7	21.1	122 W	49 60
2 21	13 26.53	-15 27.3	1.235	1.981	24.0	20.2	126 W	30 79	2 21	13 24.68	+4 26.5	2.188	2.947	14.3	21.0	132 W	49 60
3 2	13 27.51	-17 25.2	1.118	1.945	21.4	19.8	134 W	28 81	3 2	13 20.10	+5 20.7	2.123	2.976	11.5	20.8	143 W	50 59
3 12	13 24.86	-19 17.5	1.016	1.909	18.0	19.5	144 W	26 83	3 12	13 13.36	+6 20.0	2.080	3.004	8.4	20.7	154 W	51 58
3 17	13 22.08	-20 10.2	0.971	1.891	16.0	19.3	148 W	25 84	3 22	13 4.98	+7 18.6	2.064	3.032	5.4	20.5	163 W	52 57
3 22	13 18.33	-20 59.4	0.931	1.874	14.0	19.1	153 W	24 85	4 1	12 55.72	+8 10.4	2.077	3.058	4.3	20.5	167 W	53 56
3 27	13 13.68	-21 44.2	0.896	1.857	11.9	18.9	157 W	23 86	4 11	12 46.50	+8 49.8	2.119	3.084	6.0	20.6	161 E	54 55
4 1	13 8.25	-22 23.8	0.867	1.841	10.2	18.8	161 W	23 86	4 21	12 38.13	+9 13.4	2.189	3.109	8.9	20.9	151 E	54 55
4 6	13 2.23	-22 57.5	0.842	1.824	9.0	18.6	163 W	22 87	5 1	12 31.30	+9 19.8	2.284	3.133	11.7	21.1	141 E	54 55
4 11	12 55.83	-23 24.7	0.824	1.808	8.8	18.6	164 E	22 87	5 11	12 26.40	+9 9.6	2.400	3.156	14.0	21.3	131 E	54 55
4 16	12 49.32	-23 45.3	0.811	1.793	9.8	18.6	162 E	21 88	5 21	12 23.60	+8 44.4	2.533	3.178	15.8	21.5	121 E	54 55
4 21	12 42.99	-23 59.5	0.803	1.777	11.7	18.6	159 E	21 88	<b>358046 2006 GR<sub>35</sub></b>								
4 26	12 37.12	-24 7.9	0.800	1.763	14.1	18.6	155 E	21 88	1 2	13 17.76	+6 32.6	2.004	2.162	27.0	21.5	85 W	52 48*
5 1	12 31.99	-24 11.9	0.801	1.748	16.7	18.7	150 E	21 88	1 12	13 29.98	+5 2.0	1.852	2.127	27.5	21.3	92 W	50 54*
5 6	12 27.82	-24 12.8	0.807	1.735	19.3	18.8	145 E	21 88	1 22	13 40.89	+3 34.8	1.700	2.091	27.7	21.1	99 W	49 59*
5 11	12 24.73	-24 11.9	0.817	1.721	21.9	18.9	141 E	21 88	2 1	13 50.09	+2 10.4	1.552	2.056	27.4	20.8	106 W	47 62
5 16	12 22.84	-24 10.6	0.830	1.709	24.3	19.0	136 E	21 88	2 11	13 57.14	+0 47.4	1.408	2.021	26.5	20.6	114 W	46 63
5 21	12 22.18	-24 10.0	0.847	1.697	26.5	19.1	132 E	21 88	2 21	14 1.50	+0 36.4	1.273	1.986	24.9	20.3	122 W	44 65
5 26	12 22.79	-24 11.3	0.865	1.685	28.5	19.2	127 E	21* 88	3 2	14 2.48	-2 3.7	1.147	1.952	22.3	19.9	132 W	43 66
5 31	12 24.63	-24 15.2	0.886	1.674	30.3	19.3	123 E	21* 88	3 12	13 59.46	-3 38.0	1.036	1.918	18.7	19.5	142 W	41 68
6 10	12 31.81	-24 32.6	0.932	1.655	33.4	19.4	116 E	19* 89	3 22	13 51.94	+5 22.6	0.941	1.885	13.9	19.1	153 W	40 69
6 20	12 43.20	-25 3.3	0.984	1.638	35.7	19.6	110 E	16* 89	4 1	13 39.87	-7 19.2	0.868	1.852	7.8	18.7	165 W	38 71
6 30	12 58.33	-25 46.8	1.039	1.625	37.3	19.7	104 E	14* 90	4 11	13 24.13	-9 27.0	0.819	1.821	1.0	18.1	178 W	36 73
7 10	13 16.70	-26 40.2	1.098	1.615	38.4	19.9	100 E	12* 89	4 16	13 15.43	-10 33.7	0.805	1.806	3.0	18.2	175 E	34 75
7 20	13 37.88	-27 39.8	1.159	1.609	39.0	20.0	95 E	10* 88*	4 21	13 6.57	-11 41.1	0.796	1.792	6.7	18.4	168 E	33 76
7 30	14 1.54	-28 41.5	1.223	1.606	39.2	20.1	91 E	8* 83*	4 26	12 57.89	-12 48.4	0.795	1.777	10.4	18.5	161 E	32 77
8 9	14 27.31	-29 40.9	1.290	1.607	39.1	20.2	88 E	8* 79*	5 1	12 49.74	-13 55.3	0.799	1.764	14.0	18.6	155 E	31 78
8 19	14 54.87	-30 33.5	1.361	1.612	38.7	20.3	84 E	7* 76*	5 6	12 42.38	-15 1.3	0.808	1.750	17.5	18.8	149 E	30 79
8 29	15 23.90	-31 15.5</															

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

2020	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	$45^\circ$ - $26^\circ$	20/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	$45^\circ$ - $26^\circ$	
<b>358046 2006 GR<sub>35</sub></b> (continuation)									<b>464508 2016 BR<sub>77</sub></b> (continuation)									
5 21	12 26.97	-18 13.2	0.863	1.713	26.1	19.1	132 E	27 82	9 23	18 3.21	-35 2.1	1.433	1.756	34.8	20.5	91 E	10* 80*	
5 31	12 23.11	-20 18.7	0.916	1.691	30.5	19.4	122 E	24* 84	9 28	18 15.62	-33 40.8	1.487	1.768	34.5	20.6	88 E	11* 79*	
6 10	12 24.30	-22 25.4	0.977	1.671	33.7	19.6	114 E	21* 86	10 3	18 27.84	-32 20.6	1.543	1.780	34.1	20.7	86 E	12* 79*	
6 20	12 30.07	-24 34.9	1.042	1.655	36.0	19.8	107 E	16* 89	10 8	18 39.86	-31 1.4	1.601	1.793	33.6	20.8	84 E	14* 77*	
6 30	12 39.96	-26 48.0	1.110	1.641	37.5	19.9	101 E	11* 89	10 13	18 51.70	-29 43.1	1.660	1.806	33.1	20.9	82 E	15* 75*	
7 10	12 53.52	-29 4.3	1.178	1.630	38.4	20.1	96 E	7* 87*	10 18	19 3.37	-28 25.6	1.720	1.820	32.5	21.0	79 E	16* 73*	
7 20	13 10.42	-31 21.9	1.246	1.622	38.8	20.2	91 E	4* 81*	10 23	19 14.87	-27 8.8	1.781	1.834	31.9	21.0	77 E	18* 71*	
7 30	13 30.50	-33 38.4	1.314	1.618	38.8	20.3	87 E	1* 75*	10 28	19 26.19	-25 52.5	1.843	1.848	31.2	21.1	75 E	19* 68*	
8 9	13 53.57	-35 50.5	1.382	1.617	38.5	20.4	83 E	— 71*	11 2	19 37.35	-24 36.7	1.906	1.862	30.5	21.2	72 E	20* 65*	
8 19	14 19.55	-37 53.7	1.450	1.619	38.0	20.5	80 E	— 66*	11 7	19 48.34	-23 21.2	1.969	1.877	29.7	21.2	70 E	21* 62*	
8 29	14 48.32	-39 43.6	1.519	1.625	37.3	20.6	77 E	— 63*	11 12	19 59.18	-22 5.9	2.032	1.892	28.9	21.3	68 E	22* 59*	
9 8	15 19.65	-41 14.9	1.589	1.634	36.4	20.7	74 E	— 60*	11 17	20 9.88	-20 50.8	2.096	1.908	28.1	21.4	65	24* 56*	
9 18	15 53.19	-42 22.6	1.661	1.646	35.4	20.7	72 E	— 58*	11 22	20 20.44	-19 35.8	2.160	1.923	27.2	21.4	63 E	25* 53*	
9 28	16 28.43	-43 2.5	1.736	1.661	34.2	20.8	69 E	— 57*	11 27	20 30.85	-18 20.8	2.223	1.939	26.3	21.5	61 E	26* 49*	
10 8	17 4.65	-43 11.7	1.814	1.679	33.0	20.9	66 E	— 55*	<b>451092 2009 BC<sub>186</sub></b>									
10 18	17 41.09	-42 48.7	1.896	1.700	31.6	21.0	63 E	— 54*	1 2	13 26.76	+10 23.7	1.582	1.789	33.2	21.4	85 W	55 44*	
10 28	18 17.02	-41 54.6	1.982	1.723	30.1	21.1	60 E	1* 52*	1 12	13 38.92	+ 8 53.8	1.513	1.824	32.6	21.4	91 W	54 50*	
11 7	18 51.78	-40 31.6	2.071	1.748	28.5	21.2	57 E	2* 50*	1 22	13 48.35	+ 7 36.6	1.441	1.861	31.5	21.3	98 W	53 55*	
11 17	19 24.95	-38 43.4	2.163	1.775	26.8	21.2	54 E	4* 48*	2 1	13 54.60	+ 6 32.0	1.370	1.899	29.9	21.2	106 W	52 57*	
11 27	19 56.30	-36 34.5	2.258	1.804	25.1	21.3	51 E	6* 45*	2 11	13 57.24	+ 5 38.6	1.300	1.937	27.5	21.0	115 W	51 58	
12 7	20 25.74	-34 9.1	2.355	1.834	23.2	21.4	47 E	8* 41*	2 21	13 55.85	+ 4 54.7	1.237	1.977	24.2	20.9	125 W	50 59	
12 17	20 53.35	-31 31.4	2.452	1.866	21.3	21.4	44 E	10* 37*	3 2	13 50.17	+ 4 17.2	1.185	2.016	20.1	20.7	136 W	49 60	
1	2	13 21.69	-20 4.6	2.062	2.035	27.8	21.4	75 W	25 63*	3 12	13 40.40	+ 3 42.3	1.149	2.056	15.2	20.5	147 W	49 60
1 12	13 37.34	-23 29.0	1.923	2.002	28.9	21.3	80 W	22 71*	3 22	13 27.31	+ 3 5.5	1.135	2.096	9.7	20.3	159 W	48 61	
1 22	13 52.80	-27 1.8	1.786	1.970	29.9	21.1	85 W	18 79*	4 1	13 12.32	+ 2 23.1	1.146	2.137	4.8	20.2	170 W	47 62	
2 1	14 7.93	-30 43.5	1.654	1.937	30.6	20.9	91 W	14 84*	4 11	12 57.32	+ 1 32.5	1.185	2.176	5.1	20.3	169 E	47 62	
2 11	14 22.57	-34 34.5	1.528	1.906	31.0	20.7	96 W	10 81	4 21	12 44.04	+ 0 33.5	1.251	2.216	9.7	20.6	158 E	46 63	
2 21	14 36.49	-38 35.0	1.409	1.876	31.1	20.5	101 W	6 77	5 1	12 33.68	- 0 33.2	1.342	2.255	14.1	21.0	147	44 65	
3 2	14 49.27	-42 44.1	1.299	1.846	30.9	20.3	107 W	2 73	5 11	12 26.80	- 1 46.3	1.455	2.294	17.7	21.3	136 E	43 66	
3 7	14 55.08	-44 51.2	1.248	1.832	30.8	20.2	109 W	— 71	<b>85762 1998 TH<sub>4</sub></b>									
3 12	15 0.41	-46 59.6	1.200	1.818	30.5	20.1	112 W	— 69	1 2	13 32.50	-12 3.6	2.414	2.358	23.7	21.5	75 W	33 58*	
3 17	15 5.15	-49 8.7	1.154	1.805	30.2	20.0	114 W	— 67	1 12	13 45.90	-13 16.3	2.259	2.329	24.7	21.3	82 W	32 65*	
3 22	15 9.16	-51 17.6	1.111	1.792	29.9	19.9	116 W	— 65	1 22	13 58.50	-14 21.2	2.102	2.298	25.3	21.2	89 W	31 73*	
3 27	15 12.31	-53 25.4	1.071	1.779	29.5	19.8	119 W	— 63	2 1	14 10.03	-15 16.9	1.945	2.268	25.6	21.0	96 W	30 78*	
4 1	15 14.43	-55 30.8	1.035	1.767	29.1	19.7	121 W	— 60	2 11	14 20.19	-16 2.0	1.792	2.236	25.4	20.8	103 W	29 80	
4 6	15 15.38	-57 32.4	1.001	1.755	28.7	19.6	123 W	— 58	2 21	14 28.61	-16 35.0	1.642	2.204	24.7	20.5	111 W	28 81	
4 11	15 14.97	-59 28.4	0.970	1.744	28.3	19.5	124 W	— 57	3 2	14 34.84	-16 53.9	1.500	2.171	23.3	20.3	120 W	28 81	
4 16	15 13.04	-61 17.1	0.943	1.733	28.0	19.4	126 W	— 55	3 12	14 38.44	-16 56.8	1.368	2.138	21.1	20.0	129 W	28 81	
4 21	15 9.44	-62 56.2	0.918	1.723	27.7	19.3	127 W	— 53	3 22	14 38.98	-16 41.5	1.249	2.105	18.1	19.6	139 W	28 81	
4 26	15 4.15	-64 23.1	0.896	1.714	27.4	19.3	128 W	— 52	4 1	14 36.18	-16 5.9	1.146	2.071	14.1	19.3	150 W	29 80	
5 1	14 57.30	-65 35.8	0.878	1.705	27.2	19.2	129 W	— 50	4 11	14 30.13	-15 9.5	1.062	2.037	9.1	18.9	161 W	30 79	
5 3	14 54.18	-66 0.5	0.871	1.701	27.2	19.2	130 W	— 50	4 16	14 26.05	-14 34.1	1.029	2.020	6.3	18.7	167 W	30 79	
5 5	14 50.89	-66 22.4	0.865	1.698	27.1	19.2	130 W	— 50	4 21	14 21.42	-13 54.5	1.001	2.003	3.3	18.4	173 W	31 78	
5 7	14 47.46	-66 41.6	0.859	1.695	27.1	19.1	130 E	— 49	4 26	14 16.41	-13 11.8	0.979	1.986	0.3	18.1	179 W	32 77	
5 9	14 43.93	-66 58.0	0.854	1.692	27.1	19.1	130 E	— 49	5 1	14 11.23	-12 27.1	0.964	1.969	3.1	18.3	174 E	33 76	
5 11	14 40.33	-67 11.4	0.849	1.689	27.1	19.1	130 E	— 49	5 6	14 6.10	-11 42.1	0.954	1.952	6.3	18.4	168	33 76	
5 13	14 36.71	-67 21.9	0.844	1.686	27.1	19.1	131 E	— 49	5 11	14 1.22	-10 58.0	0.950	1.935	9.5	18.6	161 E	34 75	
5 15	14 33.12	-67 29.5	0.840	1.683	27.1	19.1	131 E	— 49	5 16	13 56.78	-10 16.5	0.952	1.918	12.7	18.7	155 E	35 74	
5 17	14 29.61	-67 34.1	0.837	1.680	27.2	19.1	131 E	— 48	5 21	13 52.97	- 9 38.7	0.958	1.901	15.7	18.8	149 E	35 74	
5 19	14 26.22	-67 35.9	0.833	1.678	27.2	19.0	131 E	— 48	5 26	13 49.92	- 9 5.9	0.969	1.884	18.5	18.9	144 E	36 73	
5 21	14 23.02	-67 34.7	0.830	1.675	27.3	19.0	131 E	— 48	5 31	13 47.75	- 8 39.0	0.985	1.868	21.2	19.0	138 E	36 73	
5 23	14 20.03	-67 30.9	0.828	1.673	27.4	19.0	130 E	— 48	6 10	13 46.22	- 8 4.6	1.025	1.835	25.8	19.1	128 E	37 72	
5 25	14 17.31	-67 24.3	0.826	1.671	27.5	19.0	130 E	— 49	6 20	13 48.51	- 7 56.1	1.075	1.803	29.5	19.3	119	37* 72	
5 27	14 14.89	-67 15.2	0.824	1.669	27.6	19.0	130 E	— 49	6 30	13 54.47	- 8 12.2	1.132	1.772	32.4	19.5	111 E	35* 72	
5 29	14 12.79	-67 3.8	0.823	1.667	27.7	19.0	130 E	— 49	7 10	14 3.77	- 8 49.3	1.192	1.743	34.5	19.6	104 E	32* 73	
5 31	14 11.06	-66 50.0	0.822	1.665	27.9	19.0	130 E	— 49	7 20	14 16.03	- 9 43.1	1.254	1.715	36.0	19.7	98	30* 74	
6 5	14 8.35	-66 6.8	0.821	1.661	28.3	19.0	129 E	— 50	7 30	14 30.97	-10 49.9	1.317	1.688	36.9	19.8	92 E	28* 75	
6 10	14 8.04	-65 12.5	0.823	1.657	28.7	19.0	128 E	— 51	8 9	14 48.27	-12 5.3	1.379	1.664	37.5	19.9	87 E	26* 75*	
6 15	14 10.07	-64 9.0	0.827	1.655	29.2	19.1	127 E	— 52	8 19	15 7.71	-13 25.3	1.440	1.642	37.6	20.0	82	24* 73*	
6 20	14 14.29	-62 58.0	0.834	1.653	29.7	19.1	126 E	— 53	8 29	15 29.14	-14 46.1	1.500	1.622	37.5	20.0	78 E	23* 70*	
6 25	14 20.49	-61 41.1	0.843	1.652	30.2	19.1	125 E	— 54	9 8	15 52.37	-16 3.8	1.559	1.605	37.1	20.1	74 E	22* 67*	
6 30	14 28.40	-60 19.6	0.854	1.651	30.8	19.2	124 E	— 56	9 18	16 17.23	-17 14.6	1.618	1.591	36.5	20.1	70 E	21* 63*	
7 5	14 37.74	-58 54.6	0.868	1.652	31.4	19.2	122 E	— 57	9 28	16 43.59	-18 14.9	1.676	1.579	35.7	20.2	67 E	21* 60*	
7 10	14 48.23	-57 26.7	0.884	1.653	31.9	19.3	121 E	— 59	10 8	17 11.21	-19 1.5	1.735	1.571	34.7	20.2	64 E	21* 5	

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

20/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°-26°	2020	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°-26°	
<b>253822 2003 YT<sub>57</sub></b> (continuation)									<b>468730 2010 MN<sub>51</sub></b> (continuation)									
2 11	13 51.84	+ 4 55.5	2.566	3.130	16.4	21.0	116 W	50 59	5 1	20 51.44	+28 28.3	0.881	1.206	55.1	20.5	79 W	61*	35*
2 21	13 51.65	+ 5 42.4	2.445	3.131	14.8	20.8	126 W	51 58	5 11	21 17.46	+28 33.3	0.851	1.208	55.5	20.5	80 W	61*	35
3 2	13 49.13	+ 6 39.5	2.340	3.131	12.7	20.7	136 W	52 57	5 16	21 29.88	+28 24.5	0.833	1.211	55.7	20.4	81 W	61*	36
3 12	13 44.33	+ 7 43.2	2.255	3.130	10.2	20.5	146 W	53 56	5 21	21 41.91	+28 7.4	0.813	1.215	55.7	20.4	83 W	61*	36
3 17	13 41.13	+ 8 16.0	2.222	3.129	8.9	20.4	151 W	53 56	5 26	21 53.55	+27 41.3	0.791	1.221	55.6	20.3	84 W	62*	36
3 22	13 37.48	+ 8 48.4	2.195	3.128	7.7	20.3	155 W	54 55	5 31	22 4.79	+27 4.9	0.767	1.227	55.5	20.3	86 W	62*	37
3 27	13 33.43	+ 9 19.6	2.174	3.126	6.6	20.3	159 W	54 55	6 5	22 15.65	+26 17.1	0.742	1.235	55.2	20.2	88 W	62*	38
4 1	13 29.07	+ 9 48.9	2.161	3.125	5.8	20.2	161 W	55 54	6 10	22 26.12	+25 16.4	0.714	1.244	54.7	20.1	90 W	62*	39
4 6	13 24.51	+10 15.4	2.155	3.123	5.6	20.2	162 W	55 54	6 15	22 36.15	+24 1.0	0.686	1.253	54.0	20.0	93 W	63*	40
4 11	13 19.85	+10 38.4	2.156	3.121	6.0	20.2	161 W	56 53	6 20	22 45.70	+22 28.6	0.656	1.264	53.1	19.9	96 W	63*	42
4 21	13 10.65	+11 12.1	2.179	3.116	8.0	20.3	154 E	56 53	6 25	22 54.71	+20 36.2	0.626	1.275	51.9	19.8	99 W	62*	43
5 1	13 2.29	+11 26.8	2.230	3.110	10.7	20.5	145 E	56 53	6 30	23 3.14	+18 20.9	0.596	1.288	50.3	19.7	103 W	61*	46
5 11	12 55.45	+11 21.8	2.303	3.104	13.2	20.6	135 E	56 53	7 5	23 10.91	+15 39.1	0.567	1.301	48.4	19.6	107 W	60*	48
5 21	12 50.54	+10 58.5	2.395	3.096	15.4	20.8	126 E	56 53	7 10	23 17.96	+12 27.4	0.538	1.314	46.0	19.4	112 W	57*	52
5 31	12 47.77	+10 19.2	2.503	3.088	17.1	20.9	116 E	55* 54	7 15	23 24.15	+ 8 42.6	0.512	1.329	43.0	19.2	117 W	54*	55
6 10	12 47.14	+ 9 26.4	2.620	3.078	18.4	21.1	107 E	53* 55	7 20	23 29.38	+ 4 22.4	0.489	1.344	39.6	19.1	122 W	49	60
6 20	12 48.54	+ 8 23.0	2.744	3.068	19.1	21.2	99 E	48* 56	7 25	23 33.53	- 0 33.4	0.470	1.359	35.8	18.9	129 W	44	65
6 30	12 51.79	+ 7 10.9	2.871	3.057	19.4	21.3	91 E	43* 57	7 30	23 36.49	- 6 1.2	0.456	1.375	31.7	18.7	135 W	39	70
7 10	12 56.69	+ 5 52.3	2.997	3.044	19.4	21.4	83 E	38* 58*	8 1	23 37.32	- 8 19.6	0.452	1.381	30.0	18.7	137 W	37	72
7 20	13 3.03	+ 4 28.6	3.121	3.031	18.9	21.4	76 E	33* 58*	8 3	23 37.95	-10 41.1	0.449	1.387	28.3	18.6	140 W	34	75
7 30	13 10.67	+ 3 1.1	3.239	3.017	18.2	21.5	68 E	29* 55*	8 5	23 38.37	-13 4.8	0.447	1.394	26.7	18.6	142 W	32	77
<b>12259 2000 OH<sub>44</sub></b>									<b>454225 2013 JQ<sub>28</sub></b>									
1 2	13 40.40	- 8 38.9	3.009	2.902	19.0	21.5	74 W	36 54*	8 7	23 38.56	-15 30.0	0.447	1.400	25.2	18.5	144 W	29	80
1 12	13 49.59	- 9 13.3	2.859	2.895	19.7	21.4	82 W	36 62*	8 9	23 38.54	-17 55.5	0.447	1.407	23.8	18.5	146 W	27	82
1 22	13 57.52	- 9 37.6	2.706	2.886	19.9	21.3	90 W	35 69*	8 11	23 38.30	-20 20.3	0.449	1.414	22.6	18.5	148 W	25	84
2 1	14 3.91	- 9 50.5	2.552	2.877	19.8	21.1	99 W	35 74*	8 13	23 37.84	-22 43.3	0.452	1.420	21.5	18.5	149 W	22	87
2 11	14 8.48	- 9 50.8	2.402	2.866	19.1	21.0	108 W	35 74	8 15	23 37.16	-25 3.7	0.457	1.427	20.7	18.5	150 W	20	89
2 21	14 10.95	- 9 37.6	2.258	2.854	17.9	20.8	118 W	35 74	8 17	23 36.26	-27 20.3	0.462	1.434	20.1	18.5	151 W	18	89
3 2	14 11.07	- 9 9.8	2.125	2.842	16.0	20.6	128 W	36 73	8 19	23 35.16	-29 32.3	0.469	1.440	19.8	18.6	151 W	15	86
3 12	14 8.69	- 8 27.4	2.007	2.829	13.5	20.3	139 W	37 72	8 21	23 33.87	-31 39.0	0.477	1.447	19.8	18.6	151 W	13	84
3 22	14 3.83	- 7 31.3	1.908	2.814	10.3	20.1	150 W	37 72	8 23	23 32.40	-33 39.6	0.485	1.454	19.9	18.6	151 W	11	82
4 1	13 56.78	- 6 24.1	1.834	2.799	6.6	19.9	161 W	39 70	8 25	23 30.78	-35 33.7	0.495	1.461	20.3	18.7	150 W	9	80
4 6	13 52.60	- 5 47.7	1.807	2.791	4.6	19.7	167 W	39 70	8 27	23 29.00	-37 21.0	0.506	1.468	20.8	18.8	149 W	8	79
4 11	13 48.12	- 5 10.4	1.787	2.783	2.9	19.6	172 W	40 69	8 29	23 27.11	-39 1.1	0.518	1.475	21.4	18.9	148 W	6	77
4 16	13 43.45	- 4 33.0	1.774	2.774	2.1	19.5	174 W	40 69	9 3	23 21.99	-42 39.7	0.552	1.492	23.3	19.1	144 W	2	73
4 21	13 38.72	- 3 56.5	1.769	2.766	3.2	19.6	171 E	41 68	9 8	23 16.60	-45 34.2	0.591	1.509	25.4	19.3	140 W	—	70
4 26	13 34.04	- 3 21.6	1.770	2.757	5.2	19.7	166 E	42 67	9 13	23 11.32	-47 47.8	0.633	1.526	27.3	19.5	136 E	—	68
5 1	13 29.55	- 2 49.2	1.779	2.748	7.2	19.8	160 E	42 67	9 18	23 6.53	-49 25.0	0.679	1.543	29.0	19.8	132 E	—	67
5 11	13 21.58	- 1 54.8	1.816	2.729	11.1	20.0	149 E	43 66	9 23	23 2.53	-50 30.5	0.727	1.560	30.5	20.0	128 E	—	65
5 21	13 15.51	- 1 17.0	1.876	2.709	14.6	20.2	137 E	44 65	9 28	22 59.57	-51 9.6	0.778	1.577	31.7	20.2	124 E	—	65
5 31	13 11.76	- 0 57.6	1.954	2.688	17.5	20.3	127 E	44 65	10 3	22 57.75	-51 26.5	0.830	1.594	32.7	20.4	121 E	—	65
6 10	13 10.50	- 0 56.5	2.046	2.667	19.8	20.5	117 E	44* 65	10 8	22 57.09	-51 25.3	0.884	1.610	33.4	20.6	117 E	—	65
6 20	13 11.66	- 1 12.0	2.147	2.644	21.4	20.6	108 E	41* 65	10 13	22 57.57	-51 8.8	0.939	1.627	34.0	20.7	114 E	—	65
6 30	13 15.10	- 1 42.2	2.253	2.621	22.5	20.7	100 E	38* 66	10 18	22 59.13	-50 39.8	0.994	1.643	34.4	20.9	111 E	—	65
7 10	13 20.60	- 2 24.8	2.362	2.597	23.0	20.8	92 E	34* 66	10 23	23 1.71	-50 0.3	1.050	1.659	34.7	21.0	108 E	—	66
7 20	13 27.93	- 3 17.7	2.469	2.572	23.1	20.9	84 E	30* 67*	10 28	23 5.18	-49 12.1	1.107	1.674	34.9	21.2	106 E	—	67
7 30	13 36.90	- 4 18.9	2.573	2.546	22.9	21.0	77 E	27* 65*	11 2	23 9.45	-48 16.7	1.163	1.690	34.9	21.3	103 E	—	68
8 9	13 47.32	- 5 26.6	2.672	2.520	22.3	21.0	70 E	24* 61*	11 7	23 14.39	-47 15.1	1.220	1.705	34.9	21.4	100 E	—	69
8 19	13 59.05	- 6 39.0	2.765	2.492	21.4	21.0	64 E	21* 56*	<b>468730 2010 MN<sub>51</sub></b>									
8 29	14 11.99	- 7 54.8	2.850	2.464	20.3	21.0	58 E	19* 51*	1 2	14 11.49	+13 12.4	1.352	1.473	40.4	21.5	76 W	58*	34*
9 8	14 26.02	- 9 12.3	2.925	2.435	19.0	21.0	52 E	17* 45*	1 12	14 41.21	+11 51.2	1.298	1.464	41.2	21.4	79 W	57*	38*
9 18	14 41.10	-10 30.3	2.991	2.406	17.5	21.0	46 E	15* 39*	1 22	15 9.58	+10 36.3	1.248	1.459	41.7	21.3	81 W	56*	42*
9 28	14 57.16	-11 47.3	3.047	2.376	15.9	21.0	41 E	14* 34*	2 1	15 36.27	+ 9 28.9	1.200	1.459	42.1	21.3	83 W	54*	46*
10 8	15 14.15	-13 2.0	3.092	2.345	14.2	20.9	35 E	12* 28*	2 11	16 0.94	+ 8 28.9	1.154	1.465	42.2	21.2	86 W	53*	50*
10 18	15 32.06	-14 13.0	3.126	2.314	12.3	20.8	30 E	10* 23*	2 21	16 23.32	+ 7 35.3	1.108	1.475	42.1	21.1	89 W	53	54*
10 28	15 50.85	-15 19.0	3.149	2.283	10.4	20.7	25 E	9* 17*	3 2	16 43.04	+ 6 46.4	1.061	1.490	41.6	21.0	93 W	52	56*
11 7	16 10.48	-16 18.5	3.160	2.251	8.5	20.6	20 E	9* 17*	3 12	16 59.75	+ 5 58.6	1.012	1.510	40.7	20.9	98 W	51	58*
11 17	16 30.92	-17 10.3	3.161	2.218	6.5	20.5	15 E	7* 11*	3 22	17 13.08	+ 5 7.7	0.962	1.534	39.3	20.8	103 W	50	59
11 27	16 52.13	-17 53.0	3.150	2.185	4.5	20.4	10 E	5* 6*	4 1	17 22.51	+ 4 8.0	0.912	1.561	37.1	20.7	109 W	49	60
12 7	17 14.04	-18 25.4	3.130	2.152	2.8	20.2	6 E	3* 1*	4 11	17 27.57	+ 2 51.9	0.864	1.592	34.1	20.5	117 W	48	61
12 17	17 36.60	-18 46.2	3.099	2.119	2.1	20.1	5 W	—	4 21	17 27.80	+ 1 11.9	0.819	1.626	30.1	20.3	126 W	46	63
12 27	17 59.73	-18 54.6	3.059	2.086	3.3	20.2	7 W	—	4 26	17 26.00	+ 0 10.4	0.800	1.644	27.7	20.2	131 W	45	64
1 6	18 23.33	-18 49.6	3.010	2.053	5.2	20.2	11 W	4* 1*	5 1	17 22.93	- 0 59.7	0.784	1.662	24.9	20.1	136 W	44	65
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EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

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>235756 2004 VC</b>									<b>169675 2002 JM<sub>97</sub></b>									<i>(continuation)</i>								
1	2	14 12.39	-28 41.0	1.329	1.214	45.2	21.5	61 W	16*	54*	7	16	18 22.44	-66 28.7	0.290	1.233	37.0	15.8	133 E	-	50					
1	7	14 31.43	-28 26.4	1.282	1.195	46.6	21.4	62 W	16*	55*	7	18	18 30.94	-67 26.3	0.292	1.231	37.9	15.8	132 E	-	49					
1	12	14 51.20	-27 58.1	1.234	1.175	48.1	21.3	63 W	17*	55*	7	20	18 40.28	-68 17.1	0.295	1.230	38.7	15.8	131 E	-	48					
1	17	15 11.73	-27 14.6	1.186	1.155	49.7	21.2	63 W	17*	56*	7	22	18 50.45	-69 0.8	0.298	1.229	39.4	15.9	130 E	-	47					
1	22	15 33.03	-26 13.9	1.140	1.134	51.3	21.2	64 W	18*	57*	7	24	19 1.38	-69 37.2	0.301	1.228	40.0	15.9	129 E	-	46					
1	27	15 55.10	-24 54.1	1.096	1.113	52.9	21.1	64 W	20*	57*	7	26	19 12.98	-70 6.1	0.304	1.228	40.5	16.0	128 E	-	46					
2	1	16 17.91	-23 13.4	1.054	1.092	54.6	21.0	65 W	21*	57*	7	28	19 25.10	-70 27.3	0.308	1.228	40.9	16.0	128 E	-	46					
2	6	16 41.42	-21 10.6	1.015	1.070	56.4	20.9	65 W	23*	56*	7	30	19 37.59	-70 40.8	0.312	1.228	41.3	16.0	127 E	-	45					
2	11	17 5.58	-18 44.9	0.981	1.049	58.1	20.9	64 W	24*	55*	7	31	19 43.91	-70 44.7	0.314	1.229	41.4	16.0	127 E	-	45					
2	16	17 30.29	-15 56.7	0.952	1.027	59.7	20.8	64 W	26*	54*	8	1	19 50.25	-70 46.7	0.316	1.229	41.5	16.1	127 E	-	45					
2	21	17 55.45	-12 47.7	0.929	1.006	61.3	20.7	63 W	29*	52*	8	2	19 56.59	-70 46.8	0.318	1.230	41.6	16.1	126 E	-	45					
2	26	18 20.93	-9 21.2	0.913	0.985	62.8	20.7	62 W	31*	50*	8	3	20 2.89	-70 45.1	0.320	1.231	41.7	16.1	126 E	-	45					
3	2	18 46.60	-5 42.2	0.904	0.964	64.0	20.7	61 W	33*	48*	8	4	20 9.14	-70 41.6	0.322	1.232	41.7	16.1	126 E	-	45					
3	7	19 12.34	+1 56.9	0.903	0.945	64.9	20.7	60 W	34*	45*	8	5	20 15.31	-70 36.3	0.324	1.233	41.8	16.1	126 E	-	45					
3	12	19 38.03	+1 47.8	0.911	0.926	65.5	20.6	58 W	36*	42*	8	6	20 21.38	-70 29.2	0.326	1.234	41.8	16.2	126 E	-	46					
3	17	20 3.58	+5 25.2	0.926	0.908	65.7	20.6	56 W	37*	39*	8	7	20 27.34	-70 20.5	0.329	1.235	41.8	16.2	126 E	-	46					
3	22	20 28.89	+8 49.6	0.948	0.892	65.5	20.7	55 W	37*	36*	8	8	20 33.17	-70 10.1	0.331	1.237	41.8	16.2	126 E	-	46					
3	27	20 53.90	+11 56.7	0.976	0.878	64.9	20.7	53 W	37*	34*	8	9	20 38.85	-69 58.1	0.333	1.238	41.8	16.2	126 E	-	46					
4	1	21 18.53	+14 43.6	1.009	0.866	63.9	20.7	51 W	37*	31*	8	11	20 49.72	-69 29.6	0.338	1.241	41.7	16.2	126 E	-	47					
4	6	21 42.77	+17 8.9	1.045	0.856	62.6	20.7	49 W	36*	29*	8	13	20 59.91	-68 55.4	0.344	1.245	41.5	16.3	126 E	-	47					
4	11	22 6.60	+19 12.5	1.085	0.848	61.0	20.7	48 W	35*	27*	8	15	21 9.36	-68 16.0	0.349	1.249	41.3	16.3	126 E	-	48					
4	16	22 30.01	+20 55.2	1.126	0.843	59.2	20.7	46 W	34*	26*	8	17	21 18.08	-67 31.7	0.355	1.253	41.0	16.3	126 E	-	48					
4	21	22 52.99	+22 18.2	1.167	0.840	57.3	20.7	45 W	33*	25*	8	19	21 26.10	-66 43.0	0.361	1.258	40.7	16.4	126 E	-	49					
4	26	23 15.52	+23 23.1	1.208	0.840	55.4	20.7	43 W	31*	24*	8	21	21 33.43	-65 50.4	0.367	1.263	40.4	16.4	126 E	-	50					
5	1	23 37.61	+24 11.5	1.248	0.843	53.4	20.8	42 W	30*	23*	8	23	21 40.14	-64 54.1	0.373	1.268	40.0	16.5	126 E	-	51					
5	6	23 59.27	+24 44.8	1.286	0.849	51.6	20.8	41 W	29*	23*	8	25	21 46.27	-63 54.6	0.380	1.274	39.6	16.5	127 E	-	52					
5	11	0 20.49	+25 4.7	1.321	0.857	49.9	20.8	40 W	27*	23*	8	27	21 51.88	-62 52.2	0.387	1.281	39.1	16.5	127 E	-	53					
5	16	0 41.30	+25 12.7	1.353	0.867	48.3	20.9	40 W	26*	23*	8	29	21 57.01	-61 47.3	0.394	1.287	38.7	16.6	127 E	-	54					
5	21	1 1.69	+25 9.9	1.383	0.880	46.9	20.9	39 W	25*	23*	8	31	22 1.72	-60 40.2	0.402	1.294	38.2	16.6	128 E	-	55					
5	26	1 21.67	+24 57.3	1.409	0.894	45.8	20.9	39 W	24*	24*	9	2	22 6.04	-59 31.1	0.410	1.301	37.7	16.7	128 E	-	56					
5	31	1 41.24	+24 35.7	1.431	0.910	44.8	21.0	39 W	23*	24*	9	4	22 10.02	-58 20.3	0.418	1.309	37.3	16.7	128 E	-	58					
6	5	2 0.42	+24 5.9	1.450	0.928	44.0	21.0	39 W	22*	25*	9	6	22 13.71	-57 8.1	0.427	1.317	36.8	16.7	129 E	-	59					
6	10	2 19.22	+23 28.5	1.466	0.947	43.4	21.1	40 W	22*	26*	9	8	22 17.14	-55 54.6	0.436	1.325	36.3	16.8	129 E	-	60					
6	15	2 37.64	+22 44.1	1.479	0.966	43.0	21.1	40 W	21*	27*	9	10	22 20.34	-54 40.1	0.445	1.333	35.9	16.8	129 E	-	61					
6	20	2 55.71	+21 52.9	1.489	0.987	42.7	21.2	41 W	21*	28*	9	12	22 23.34	-53 24.8	0.455	1.342	35.4	16.9	129 E	-	63					
6	25	3 13.41	+20 55.2	1.496	1.008	42.6	21.2	42 W	21*	29*	9	14	22 26.18	-52 8.9	0.466	1.351	35.0	16.9	130 E	-	64					
6	30	3 30.76	+19 51.4	1.500	1.029	42.5	21.3	43 W	21*	31*	9	16	22 28.88	-50 52.6	0.477	1.361	34.6	17.0	130 E	-	65					
7	5	3 47.76	+18 41.5	1.502	1.051	42.5	21.3	44 W	21*	32*	9	18	22 31.47	-49 35.9	0.488	1.370	34.2	17.0	130 E	-	66					
7	10	4 4.43	+17 25.9	1.502	1.073	42.6	21.4	46 W	22*	33*	9	23	22 37.55	-46 24.3	0.519	1.395	33.4	17.2	130 E	-	70					
7	15	4 20.78	+16 4.7	1.500	1.094	42.6	21.4	47 W	22*	35*	9	28	22 43.28	-43 14.4	0.553	1.421	32.7	17.4	130 E	2	73					
7	20	4 36.79	+14 37.9	1.497	1.115	42.7	21.5	48 W	23*	36*	10	3	22 48.81	-40 8.5	0.590	1.449	32.2	17.5	129 E	5	76					
<b>169675 2002 JM<sub>97</sub></b>									<b>175706 1996 FG<sub>3</sub></b>																	
1	2	14 16.86	-3 42.0	2.353	2.353	22.8	21.5	68 W	41*	44*	10	8	22 54.25	-37 8.1	0.631	1.478	31.9	17.7	129 E	8	79					
1	12	14 32.62	-4 55.4	2.359	2.288	24.4	21.3	74 W	40*	51*	10	13	22 59.67	-34 14.0	0.676	1.507	31.7	17.9	127 E	11	82					
1	22	14 48.42	-6 4.0	2.176	2.222	25.8	21.1	80 W	39	58*	10	18	23 5.15	-31 26.9	0.724	1.538	31.6	18.1	126 E	14	85					
2	1	15 4.19	-7 7.9	1.993	2.156	27.1	20.9	86 W	38	64*	10	28	23 16.46	-26 15.1	0.832	1.601	31.6	18.5	122 E	19	90					
2	11	15 19.85	-8 7.1	1.812	2.089	28.2	20.6	92 W	37	70*	11	7	23 28.27	-21 32.9	0.954	1.666	31.7	18.9	118 E	23	86					
2	21	15 35.32	-9 2.4	1.635	2.021	29.0	20.4	98 W	36	73*	11	17	23 40.59	-17 18.0	1.088	1.733	31.7	19.2	113 E	28	81					
3	2	15 50.46	-9 54.7	1.463	1.953	29.5	20.1	104 W	35	74	11	27	23 53.45	-13 26.8	1.235	1.801	31.4	19.6	108 E	32	77					
3	12	16 5.14	-10 46.2	1.298	1.884	29.7	19.7	110 W	34	75	12	7	0 6.76	-9 56.2	1.392	1.869	31.0	19.9	102 E	35	74*					
3	22	16 19.21	-11 39.8	1.141	1.816	29.5	19.4	116 W	33	76	12	17	0 20.46	-6 42.9	1.558	1.938	30.3	20.2	97 E	38	69*					
4	1	16 32.44	-12 40.1	0.994	1.748	28.8	19.0	123 W	32	77	12	27	0 34.53	-3 44.2	1.730	2.006	29.4	20.5	91 E	41	62*					
4	6	16 38.69	-13 14.8	0.924	1.714	28.2	18.7	126 W	32	77	1	6	0 48.90	-0 58.4	1.908	2.074	28.2	20.7	85 E	44	56*					
4	11	16 44.66	-13 53.8	0.857	1.681	27.5	18.5	129 W	31	78	1	16	1 3.53	+1 36.3	2.089	2.141	26.9	21.0	80 E	47	50*					
4	16	16 50.31	-14 38.6	0.793	1.648	26.6	18.3	133 W	30	79	<b>175706 1996 FG<sub>3</sub></b>															
4	21	16 55.61	-15 30.6	0.732	1.615	25.5	18.0	136 W	29	80	1	2	14 18.90	-15 29.2	1.423	1.315	41.9	21.4	63 W	29*	49*					
4	26	17 0.53	-16 31.5	0.675	1.583	24.2	17.8	140 W	28	81	1	7	14 34.48	-16 49.9	1.375	1.298	43.1	21.3	64 W	28*	51*					
5	1	17 5.04	-17 43.4	0.621	1.552	22.6	17.5	144 W	27	82	1	12	14 50.75	-18 8.8	1.327	1.279	44.3	21.2	65 W	27*	53*					
5	6	17 9.13	-19 8.7	0.570	1.521	20.9	17.2	147 W	26	83	1	17	15 7.82	-19 25.2	1.279	1.259	45.6	21.2	66 W	25*	55*					
5	11	17 12.80	-20 49.8	0.523	1.491	18.9	16.9	151 W	24	85	1	22	15 25.77	-20 38.2	1.233	1.239	46.9	21.1	67 W	24*	57*					
5	16	17 16.02	-22 49.4	0.480	1.462	16.7</																				

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

20/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°-26°	2020	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°-26°
<b>175706 1996 FG<sub>3</sub></b>									<b>500787 2013 EJ<sub>107</sub></b>								
<i>(continuation)</i>									<i>(continuation)</i>								
5 1	0 7.78	+0 48.6	1.098	0.703	63.7	20.1	39 W	9* 32*	4 1	17 20.05	-27 41.5	0.924	1.578	36.4	19.5	110 W	17 88
5 6	0 32.44	+3 41.5	1.146	0.692	60.7	20.1	37 W	8* 30*	4 11	17 40.38	-32 26.2	0.829	1.548	35.9	19.2	115 W	13 84
5 11	0 56.81	+6 27.7	1.197	0.686	57.4	20.0	35 W	8* 28*	4 21	18 1.09	-37 54.7	0.747	1.521	35.0	18.9	120 W	7 78
5 16	1 20.95	+9 5.4	1.250	0.686	53.9	20.0	33 W	8* 26*	4 26	18 11.60	-40 55.2	0.713	1.509	34.5	18.8	122 W	4 75
5 21	1 44.90	+11 32.9	1.303	0.691	50.2	20.0	32 W	8* 25*	5 1	18 22.24	-44 5.3	0.682	1.499	34.0	18.7	124 W	1 72
5 31	2 32.25	+15 51.9	1.408	0.717	43.3	20.1	29 W	8* 21*	5 6	18 33.04	-47 23.3	0.656	1.489	33.5	18.5	126 W	- 69
6 10	3 18.67	+19 17.4	1.508	0.759	37.4	20.2	27 W	9* 19*	5 11	18 44.02	-50 46.8	0.633	1.480	33.1	18.4	127 W	- 65
6 20	4 3.82	+21 47.2	1.598	0.812	32.8	20.3	26 W	9* 17*	5 16	18 55.16	-54 12.5	0.616	1.472	32.8	18.4	128 W	- 62
6 25	4 25.78	+22 41.9	1.640	0.842	31.0	20.4	25 W	10* 16*	5 21	19 6.42	-57 36.8	0.602	1.465	32.7	18.3	129 W	- 58
6 30	4 47.28	+23 23.8	1.679	0.872	29.6	20.5	25 W	10* 15*	5 26	19 17.76	-60 55.6	0.593	1.460	32.7	18.3	129 W	- 55
7 5	5 8.26	+23 53.6	1.716	0.903	28.4	20.6	25 W	11* 15*	5 31	19 29.11	-64 4.7	0.587	1.456	32.9	18.2	129 W	- 52
7 10	5 28.71	+24 12.1	1.750	0.934	27.5	20.7	25 W	12* 14*	6 5	19 40.36	-67 0.6	0.585	1.453	33.2	18.2	128 W	- 49
7 15	5 48.61	+24 20.3	1.781	0.966	26.7	20.8	25 W	13* 14*	6 10	19 51.28	-69 40.6	0.587	1.451	33.5	18.3	128 W	- 46
7 20	6 7.94	+24 18.8	1.810	0.996	26.2	20.9	26 W	14* 14*	6 12	19 55.48	-70 39.5	0.588	1.451	33.7	18.3	128 W	- 45
7 25	6 26.70	+24 8.6	1.836	1.027	25.9	21.0	26 W	15* 14*	6 14	19 59.54	-71 35.5	0.590	1.451	33.9	18.3	127 W	- 44
7 30	6 44.88	+23 50.5	1.858	1.056	25.7	21.0	27 W	16* 14*	6 16	20 3.43	-72 28.3	0.592	1.451	34.0	18.3	127 W	- 44
8 4	7 2.49	+23 25.2	1.879	1.085	25.6	21.1	28 W	17* 14*	6 18	20 7.11	-73 17.9	0.594	1.451	34.2	18.3	127 W	- 43
8 9	7 19.55	+22 53.4	1.896	1.113	25.6	21.2	28 W	18* 14*	6 20	20 10.55	-74 4.2	0.597	1.451	34.4	18.3	126 W	- 42
8 14	7 36.08	+22 15.9	1.910	1.140	25.7	21.3	29 W	19* 14*	6 22	20 13.72	-74 47.1	0.600	1.452	34.5	18.3	126 W	- 41
8 19	7 52.11	+21 33.1	1.922	1.166	26.0	21.3	30 W	21* 15*	6 24	20 16.58	-75 26.7	0.603	1.453	34.7	18.3	126 W	- 41
8 24	8 7.65	+20 45.7	1.931	1.190	26.3	21.4	31 W	22* 15*	6 26	20 19.09	-76 2.8	0.607	1.454	34.8	18.4	125 W	- 40
8 29	8 22.72	+19 54.2	1.936	1.214	26.6	21.5	33 W	23* 16*	6 28	20 21.23	-76 35.5	0.611	1.455	35.0	18.4	125 W	- 39
<b>189118 2001 VD<sub>47</sub></b>									<b>500787 2013 EJ<sub>107</sub></b>								
1 2	14 20.59	-22 28.5	3.691	3.324	15.0	21.5	61 W	22* 51*	7 2	20 24.29	-77 30.5	0.620	1.458	35.2	18.4	124 W	- 38
1 12	14 30.30	-23 27.7	3.542	3.310	16.0	21.4	68 W	22* 59*	7 4	20 25.17	-77 52.9	0.624	1.460	35.3	18.4	124 W	- 38
1 22	14 39.05	-24 22.6	3.385	3.295	16.9	21.3	76 W	21* 68*	7 6	20 25.61	-78 11.9	0.629	1.462	35.4	18.5	124 W	- 38
2 1	14 46.63	-25 12.9	3.223	3.279	17.4	21.2	85 W	20* 78*	7 8	20 25.18	-78 39.5	0.639	1.467	35.5	18.5	123 W	- 37
2 11	14 52.77	-25 57.7	3.058	3.262	17.6	21.1	93 W	19* 87*	7 10	20 24.37	-78 48.2	0.645	1.469	35.6	18.5	123 W	- 37
2 21	14 57.21	-26 36.3	2.894	3.244	17.4	21.0	102 W	18 89	7 14	20 23.22	-78 53.5	0.651	1.472	35.6	18.6	123 W	- 37
3 2	14 59.65	-27 7.4	2.735	3.226	16.7	20.8	111 W	18 89	7 16	20 21.79	-78 55.4	0.656	1.475	35.6	18.6	122 W	- 37
3 12	14 59.87	-27 29.6	2.583	3.206	15.5	20.6	121 W	18 89	7 18	20 20.16	-78 53.9	0.662	1.478	35.7	18.6	122 W	- 37
3 22	14 57.67	-27 41.0	2.445	3.186	13.7	20.4	131 W	17 88	7 20	20 18.39	-78 49.0	0.668	1.482	35.7	18.6	122 W	- 37
4 1	14 53.03	-27 39.1	2.323	3.165	11.4	20.2	141 W	17 88	7 21	20 17.48	-78 45.3	0.672	1.483	35.7	18.7	122 W	- 37
4 11	14 46.16	-27 21.9	2.223	3.143	8.6	20.0	152 W	18 89	7 22	20 16.57	-78 40.8	0.675	1.485	35.6	18.7	122 W	- 37
4 21	14 37.52	-26 48.4	2.148	3.120	5.7	19.8	162 W	18 89	7 23	20 15.67	-78 35.5	0.678	1.487	35.6	18.7	121 W	- 37
4 26	14 32.77	-26 25.5	2.121	3.108	4.4	19.7	166 W	19 90	7 24	20 14.79	-78 29.4	0.681	1.489	35.6	18.7	121 W	- 38
5 1	14 27.88	-25 58.9	2.101	3.096	3.6	19.6	169 E	19 90	7 25	20 13.93	-78 22.4	0.684	1.491	35.6	18.7	121 E	- 38
5 6	14 22.98	-25 29.1	2.088	3.083	3.7	19.6	169 E	20 89	7 26	20 13.11	-78 14.7	0.688	1.493	35.6	18.7	121 E	- 38
5 11	14 18.18	-24 56.7	2.083	3.071	4.7	19.6	166 E	20 89	7 27	20 12.32	-78 6.3	0.691	1.495	35.6	18.7	121 E	- 38
5 16	14 13.60	-24 22.4	2.084	3.058	6.2	19.7	161 E	21 88	7 28	20 11.59	-77 57.0	0.695	1.497	35.6	18.7	121 E	- 38
5 21	14 9.35	-23 46.9	2.093	3.045	7.8	19.8	156 E	21 88	7 29	20 10.90	-77 47.0	0.698	1.499	35.5	18.8	121 E	- 38
5 26	14 5.52	-23 11.2	2.108	3.032	9.4	19.9	151 E	22 87	7 30	20 10.27	-77 36.3	0.702	1.501	35.5	18.8	121 E	- 38
5 31	14 2.18	-22 36.0	2.129	3.019	11.0	19.9	145 E	22 87	8 1	20 9.20	-77 12.7	0.709	1.505	35.5	18.8	121 E	- 39
6 5	13 59.40	-22 2.1	2.156	3.005	12.5	20.0	140 E	23 86	8 3	20 8.38	-76 46.4	0.716	1.510	35.4	18.8	120 E	- 39
6 10	13 57.21	-21 30.1	2.188	2.992	13.9	20.1	135 E	23 86	8 5	20 7.83	-76 17.5	0.724	1.514	35.3	18.9	120 E	- 40
6 20	13 54.65	-20 33.7	2.266	2.964	16.4	20.2	125 E	24* 85	8 7	20 7.55	-75 46.0	0.732	1.519	35.3	18.9	120 E	- 40
6 30	13 54.57	-19 49.7	2.357	2.935	18.3	20.3	115 E	23* 84	8 9	20 7.53	-75 12.1	0.740	1.524	35.2	18.9	120 E	- 41
7 10	13 56.84	-19 19.3	2.457	2.905	19.7	20.5	106 E	22* 83	8 14	20 8.62	-73 37.5	0.761	1.537	35.0	19.0	119 E	- 42
7 20	14 1.27	-19 2.3	2.562	2.874	20.5	20.6	97 E	20* 83	8 19	20 11.16	-71 50.1	0.784	1.551	34.8	19.1	119 E	- 44
7 30	14 7.67	-18 57.6	2.669	2.843	20.9	20.6	89 E	18* 81*	8 24	20 14.95	-69 51.6	0.808	1.566	34.6	19.1	118 E	- 46
8 9	14 15.82	-19 3.8	2.775	2.810	20.9	20.7	82 E	16* 75*	8 29	20 19.74	-67 44.1	0.835	1.582	34.4	19.2	118 E	- 48
8 19	14 25.55	-19 19.1	2.877	2.777	20.5	20.7	74 E	14* 68*	9 3	20 25.29	-65 29.1	0.864	1.598	34.2	19.3	117 E	- 51
8 29	14 36.70	-19 41.7	2.972	2.743	19.8	20.8	67 E	13* 61*	9 8	20 31.42	-63 8.3	0.895	1.615	34.1	19.4	116 E	- 53
9 8	14 49.14	-20 9.7	3.060	2.709	18.9	20.8	60 E	11* 54*	9 13	20 37.96	-60 43.2	0.929	1.633	34.0	19.5	115 E	- 55
9 18	15 2.77	-20 41.4	3.139	2.674	17.7	20.7	54 E	10* 48*	9 18	20 44.85	-58 15.0	0.966	1.651	33.8	19.6	114 E	- 58
9 28	15 17.49	-21 15.0	3.207	2.638	16.3	20.7	48 E	9* 42*	9 23	20 52.00	-55 45.1	1.005	1.670	33.7	19.7	112 E	- 60
10 8	15 33.23	-21 48.8	3.265	2.601	14.7	20.7	41 E	8* 35*	9 28	20 59.35	-53 14.7	1.047	1.689	33.6	19.8	111 E	- 63
10 18	15 49.94	-22 21.3	3.310	2.564	13.0	20.6	35 E	6* 29*	10 3	21 6.84	-50 44.8	1.092	1.708	33.5	20.0	109 E	- 65
10 28	16 7.54	-22 50.7	3.342	2.526	11.2	20.5	30 E	5* 23*	10 8	21 14.43	-48 16.3	1.140	1.728	33.4	20.1	108 E	- 68
11 7	16 25.98	-23 15.6	3.362	2.488	9.3	20.4	24 E	4									

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

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>428086 2006 NM</b>										<b>385843 2006 JY<sub>25</sub></b>									
<i>(continuation)</i>																			
2 11	15 50.43	-34 38.0	2.081	2.124	27.1	20.7	79 W	10	72*	1 2	14 51.31	+0 44.1	0.301	0.882	100.6	21.3	62 W	44*	34*
2 21	16 11.80	-36 11.6	1.897	2.046	28.7	20.5	84 W	9	76*	1 7	14 40.36	+3 26.7	0.306	0.926	91.5	21.0	70 W	48*	40*
3 2	16 34.31	-37 40.2	1.715	1.967	30.2	20.2	89 W	7	77*	1 12	14 30.63	+5 57.2	0.310	0.970	83.3	20.8	78 W	51*	44*
3 7	16 46.05	-38 21.9	1.626	1.927	31.0	20.1	92 W	7	77*	1 17	14 21.28	+8 22.1	0.313	1.013	75.8	20.7	86 W	53	48*
3 12	16 58.16	-39 1.7	1.539	1.887	31.7	20.0	94 W	6	77*	1 22	14 11.51	+10 46.8	0.315	1.054	68.6	20.5	94 W	56	50*
3 17	17 10.67	-39 39.2	1.453	1.847	32.4	19.8	96 W	5	76	1 27	14 0.65	+13 14.4	0.316	1.095	61.6	20.4	102 W	58	50*
3 22	17 23.62	-40 13.9	1.369	1.807	33.1	19.7	98 W	5	76	2 1	13 48.14	+15 45.6	0.317	1.134	54.6	20.3	110 W	61	48
3 27	17 37.04	-40 45.3	1.286	1.767	33.7	19.5	101 W	4	75	2 6	13 33.60	+18 18.1	0.318	1.172	47.6	20.2	119 W	63	46
4 1	17 50.98	-41 12.8	1.206	1.726	34.4	19.3	103 W	4	75	2 11	13 16.90	+20 47.3	0.322	1.208	40.7	20.1	127 W	66	43
4 6	18 5.50	-41 35.5	1.129	1.686	35.1	19.1	105 W	3	74	2 16	12 58.14	+23 6.3	0.329	1.244	33.9	20.0	135 W	68	41
4 11	18 20.67	-41 52.4	1.053	1.645	35.8	19.0	106 W	3	74	2 21	12 37.78	+25 7.1	0.340	1.277	27.6	19.9	143 W	70	39
4 16	18 36.54	-42 2.4	0.980	1.605	36.5	18.8	108 W	3	74	2 26	12 16.65	+26 42.0	0.355	1.309	22.3	19.9	150 W	72	37
4 21	18 53.17	-42 3.9	0.910	1.565	37.3	18.6	109 W	3	74	3 2	11 55.82	+27 46.6	0.376	1.340	18.6	20.0	154 W	73	36
4 26	19 10.62	-41 54.9	0.843	1.525	38.1	18.4	111 W	3	74	3 7	11 36.36	+28 20.4	0.402	1.369	17.0	20.1	156 W	73	36
5 1	19 28.93	-41 32.9	0.778	1.486	39.0	18.2	112 W	3	74	3 12	11 19.05	+28 26.9	0.432	1.397	17.6	20.3	155 E	73	36
5 6	19 48.16	-40 55.0	0.717	1.447	40.0	18.0	113 W	4	75	3 17	11 4.33	+28 11.2	0.468	1.423	19.6	20.6	151 E	73	36
5 11	20 8.35	-39 57.5	0.659	1.408	41.1	17.8	113 W	4	76	3 22	10 52.36	+27 38.6	0.508	1.448	22.2	20.9	147 E	73	36
5 16	20 29.49	-38 36.1	0.604	1.371	42.5	17.5	114 W	5	77	4 1	10 43.06	+26 54.1	0.552	1.472	24.8	21.2	142 E	72	37
5 21	20 51.52	-36 45.7	0.554	1.335	44.0	17.3	114 W	7	79	4 6	10 36.23	+26 1.6	0.600	1.494	27.2	21.5	137 E	71	38
5 26	21 14.34	-34 20.4	0.507	1.300	45.7	17.1	113 W	9	82	<b>71997 2000 WD<sub>178</sub></b>									
5 31	21 37.83	-31 14.0	0.465	1.266	47.8	16.9	112 W	12	85	1 2	14 53.23	-11 6.5	3.124	2.712	17.6	21.5	57 W	32*	40*
6 5	22 1.82	-27 20.7	0.427	1.234	50.2	16.8	111 W	15	89	1 12	15 6.68	-11 59.8	2.980	2.689	19.1	21.4	63 W	32*	47*
6 10	22 26.13	-22 36.8	0.396	1.204	52.9	16.6	109 W	19	87	1 22	15 19.59	-12 46.2	2.829	2.665	20.4	21.3	70 W	32*	55*
6 15	22 50.51	-17 2.1	0.371	1.176	56.0	16.5	106 W	24	81	2 1	15 31.76	-13 25.4	2.672	2.639	21.4	21.2	77 W	32*	63*
6 20	23 14.72	-10 42.4	0.352	1.150	59.3	16.5	103 W	29	75	2 11	15 42.98	-13 57.4	2.512	2.613	22.1	21.1	85 W	31	71*
6 22	23 24.31	-8 0.6	0.347	1.141	60.6	16.5	102 W	32	72	2 21	15 53.00	-14 22.1	2.350	2.587	22.5	20.9	92 W	31	77*
6 24	23 33.84	+5 14.7	0.343	1.132	62.0	16.4	101 W	34	69	3 2	16 1.51	-14 39.7	2.189	2.559	22.4	20.7	100 W	30	79
6 26	23 43.28	+2 26.0	0.340	1.123	63.3	16.5	99 W	37	66	3 12	16 8.17	-14 50.6	2.032	2.530	21.8	20.5	109 W	30	79
6 28	23 52.63	+0 24.2	0.338	1.115	64.5	16.5	98 W	39	64	3 22	16 12.63	-14 55.4	1.881	2.501	20.7	20.3	117 W	30	79
6 30	0 1.89	+3 14.6	0.337	1.108	65.7	16.5	97 W	42	61	4 1	16 14.48	-14 54.5	1.739	2.471	18.9	20.0	127 W	30	79
7 2	0 11.06	+6 3.7	0.337	1.101	66.9	16.5	95 W	44	58	4 11	16 13.41	-14 48.9	1.611	2.440	16.3	19.8	137 W	30	79
7 4	0 20.12	+8 50.3	0.339	1.094	67.9	16.5	94 W	47	55	4 21	16 9.22	-14 39.5	1.500	2.408	13.0	19.5	147 W	30	79
7 6	0 29.07	+11 33.4	0.341	1.088	68.9	16.6	93 W	49	52	5 1	16 1.98	-14 27.6	1.409	2.376	8.9	19.1	159 W	31	78
7 8	0 37.91	+14 11.8	0.345	1.083	69.8	16.6	92 W	52	50	5 11	15 52.19	-14 15.1	1.342	2.343	4.4	18.8	170 W	31	78
7 10	0 46.63	+16 44.8	0.349	1.078	70.5	16.7	91 W	54	47	5 16	15 46.62	-14 9.3	1.319	2.327	2.6	18.6	174 W	31	78
7 15	1 7.91	+22 39.8	0.363	1.069	71.8	16.8	88 W	59	41	5 21	15 40.80	-14 4.4	1.301	2.310	2.9	18.6	173 E	31	78
7 20	1 28.40	+27 51.9	0.381	1.064	72.4	16.9	87 W	64	36	5 26	15 34.91	-14 0.6	1.291	2.293	5.0	18.7	169 E	31	78
7 25	1 48.04	+32 21.0	0.401	1.063	72.3	17.0	86 W	68	32	5 31	15 29.14	-13 58.6	1.287	2.276	7.5	18.8	163 E	31	78
7 30	2 6.81	+36 10.0	0.423	1.066	71.6	17.1	85 W	71	28	6 5	15 23.67	-13 58.6	1.289	2.258	10.0	18.9	157 E	31	78
8 4	2 24.66	+39 23.5	0.445	1.073	70.4	17.2	85 W	74	25	6 10	15 18.66	-14 1.1	1.296	2.241	12.5	19.0	151 E	31	78
8 9	2 41.54	+42 6.6	0.468	1.084	68.8	17.2	86 W	77	22	6 20	15 10.52	-14 14.5	1.328	2.206	17.2	19.1	140 E	31	78
8 14	2 57.33	+44 23.9	0.490	1.098	67.0	17.3	87 W	80	20	6 30	15 5.52	-14 40.3	1.376	2.171	21.1	19.3	130 E	30	79
8 19	3 11.88	+46 19.5	0.511	1.116	64.9	17.4	88 W	82	18	7 10	15 3.99	-15 18.7	1.438	2.135	24.4	19.5	120 E	29	79
8 24	3 25.07	+47 56.8	0.530	1.138	62.7	17.4	89 W	83	16	7 20	15 5.90	-16 8.4	1.508	2.100	26.8	19.6	111 E	27	80
8 29	3 36.74	+49 18.6	0.548	1.162	60.3	17.5	91 W	85	15	7 30	15 11.10	-17 7.9	1.583	2.064	28.6	19.7	103 E	25	81
9 3	3 46.78	+50 27.6	0.564	1.188	57.9	17.5	94 W	85	14	8 9	15 19.32	-18 14.8	1.660	2.028	29.8	19.8	96 E	23	82
9 8	3 55.03	+51 25.5	0.579	1.217	55.3	17.6	96 W	84	13	8 19	15 30.28	-19 26.6	1.738	1.993	30.5	19.9	89 E	21	81*
9 13	4 1.32	+52 13.6	0.592	1.249	52.6	17.6	99 W	83	12	8 29	15 43.77	-20 41.0	1.813	1.958	30.8	20.0	83 E	19	76*
9 18	4 5.50	+52 52.5	0.603	1.281	49.9	17.6	103 W	82	11	9 8	15 59.55	-21 55.0	1.886	1.923	30.7	20.0	77 E	17	71*
9 23	4 7.46	+53 22.3	0.613	1.316	47.0	17.6	106 W	82	11	9 18	16 17.48	-23 6.2	1.955	1.890	30.2	20.0	71 E	16	65*
9 28	4 7.17	+53 42.4	0.622	1.352	44.0	17.6	110 W	81	10	9 28	16 37.40	-24 11.9	2.019	1.857	29.6	20.1	66 E	15	60*
10 3	4 4.64	+53 52.0	0.632	1.389	40.9	17.6	115 W	81	10	10 8	16 59.17	-25 9.1	2.078	1.825	28.7	20.1	61 E	14	55*
10 8	4 0.00	+53 49.7	0.641	1.426	37.7	17.6	119 W	81	10	10 18	17 22.64	-25 55.1	2.133	1.794	27.7	20.0	57 E	14	51*
10 13	3 53.45	+53 33.8	0.651	1.465	34.4	17.6	124 W	81	10	10 28	17 47.66	-26 27.2	2.183	1.765	26.6	20.0	53 E	13	46*
10 18	3 45.35	+53 2.8	0.663	1.504	31.0	17.6	129 W	82	11	11 7	18 14.02	-26 43.0	2.228	1.737	25.3	20.0	48 E	13	42*
10 20	3 41.79	+52 45.8	0.668	1.520	29.7	17.6	131 W	82	11	11 17	18 41.50	-26 40.2	2.269	1.712	23.9	20.0	45 E	13	38*
10 22	3 38.09	+52 26.3	0.674	1.536	28.3	17.6	133 W	83	12	11 27	19 9.86	-26 17.1	2.306	1.689	22.5	19.9	41 E	13	33*
10 24	3 34.30	+52 4.1	0.680	1.551	27.0	17.6	135 W	83	12	12 7	19 38.81	-25 32.7	2.340	1.668	21.0	19.9	37 E	13	29*
10 26	3 30.45	+51 39.3	0.687	1.567	25.7	17.6	137 W	83	12	12 17	20 8.10	-24 26.6	2.372	1.650	19.5	19.8	34 E	13	25*
10 28	3 26.58	+51 12.1	0.694	1.583	24.4	17.6	139 W	84	13	12 27	20 37.47	-22 59.2	2.401	1.635	17.9	19.8	31 E	12	22*
11 2	3 17.04	+49 53.6	0.715	1.624	21.3	17.7	144 W	85	14	1 6	21 6.69	-21 11.7	2.428	1.622	16.3	19.8	28 E	12	18*
11 7	3 8.07	+48 22.4	0.740	1.664	18.6</														

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

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>259221 2003 BA<sub>21</sub></b>										<b>267494 2002 JB<sub>9</sub></b>											
<i>(continuation)</i>										<i>(continuation)</i>											
2	6	20 26.93	-24 44.6	1.124	0.297	55.3	18.7	14 W	—	8*	5	17	19 25.11	-14 7.2	0.319	1.223	42.6	15.5	125 W	31	78
2	11	21 21.61	-16 14.3	1.168	0.195	19.5	16.9	4 W	—	—	5	19	19 37.25	-17 10.9	0.283	1.197	43.9	15.2	125 W	28	81
2	16	22 17.47	-6 18.6	1.137	0.217	42.2	17.7	8 E	2*	—	5	21	19 52.93	-21 1.7	0.250	1.170	45.9	15.0	124 W	24*	85
2	21	23 6.36	+1 43.3	1.063	0.331	68.1	19.2	18 E	12*	—	5	22	20 2.64	-23 18.7	0.235	1.157	47.1	14.9	123 W	22*	87
2	23	23 24.71	+4 27.7	1.039	0.381	71.8	19.6	21 E	15*	1*	5	23	20 14.00	-25 52.0	0.220	1.144	48.7	14.7	122 W	19*	90
2	25	23 42.75	+7 0.3	1.020	0.429	73.7	19.9	25 E	19*	3*	5	24	20 27.44	-28 42.4	0.206	1.131	50.6	14.6	120 W	16*	87
2	27	0 0.61	+9 22.3	1.006	0.476	74.3	20.1	28 E	22*	5*	5	25	20 43.50	-31 49.6	0.194	1.118	52.9	14.5	118 W	12*	84
2	29	0 18.31	+11 34.2	0.997	0.521	74.1	20.3	30 E	24*	6*	5	26	21 2.86	-35 11.4	0.183	1.105	55.7	14.4	116 W	9*	81
3	2	0 35.85	+13 35.9	0.993	0.565	73.2	20.4	33 E	27*	8*	5	27	21 26.33	-38 42.4	0.173	1.092	59.0	14.4	113 W	4*	77
3	7	1 18.73	+17 55.6	1.002	0.669	69.6	20.7	39 E	33*	11*	5	28	21 54.75	-42 12.3	0.166	1.078	62.8	14.4	109 W	—	74
3	12	1 59.48	+21 12.1	1.034	0.764	65.1	20.9	44 E	38*	15*	5	29	22 28.74	-45 25.9	0.161	1.065	67.1	14.4	104 W	—	71
3	17	2 37.26	+23 31.1	1.084	0.852	60.4	21.1	48 E	41*	17*	5	30	23 8.23	-48 4.0	0.158	1.052	71.8	14.5	100 W	—	67*
3	22	3 11.58	+25 2.5	1.148	0.934	56.1	21.3	51 E	43*	20*	5	31	23 51.89	-49 48.1	0.151	1.039	76.6	14.7	95 W	—	63*
3	27	3 42.36	+25 57.2	1.222	1.011	52.0	21.5	53 E	45*	22*	6	1	0 37.02	-50 27.3	0.161	1.026	81.4	14.8	90 W	—	58*
<b>427580 2003 QC<sub>29</sub></b>										<b>267494 2002 JB<sub>9</sub></b>											
1	2	15 33.07	-14 26.7	2.067	1.562	27.1	21.5	46 W	26*	32*	6	2	1 20.32	-50 2.9	0.166	1.012	85.9	15.0	85 W	—	54*
1	12	16 5.07	-15 34.6	1.986	1.530	28.9	21.4	49 W	25*	36*	6	3	1 59.22	-48 47.5	0.173	0.999	90.1	15.3	80 W	—	49*
1	22	16 37.96	-16 21.4	1.912	1.504	30.6	21.3	51 W	25*	39*	6	4	2 32.53	-46 58.2	0.182	0.986	93.8	15.5	76 W	—	45*
2	1	17 11.44	-16 44.7	1.844	1.482	32.2	21.2	53 W	24*	43*	6	5	3 0.30	-44 51.0	0.193	0.973	97.0	15.7	72 W	—	41*
2	11	17 45.12	-16 43.0	1.783	1.466	33.6	21.2	55 W	24*	46*	6	6	3 23.18	-42 37.8	0.205	0.960	99.8	16.0	69 W	—	37*
2	21	18 18.58	-16 16.6	1.728	1.456	34.9	21.1	57 W	23*	49*	6	7	3 42.02	-40 26.2	0.218	0.947	102.1	16.2	66 W	—	34*
3	2	18 51.40	-15 27.0	1.679	1.452	36.0	21.1	59 W	23*	51*	6	8	3 57.61	-38 20.4	0.232	0.934	104.0	16.4	63 W	—	32*
3	12	19 23.17	-14 16.9	1.636	1.454	36.9	21.1	62 W	23*	54*	6	9	4 10.63	-36 22.5	0.247	0.921	105.5	16.6	61 W	—	30*
3	22	19 53.60	-12 50.4	1.595	1.463	37.7	21.1	64 W	24*	56*	6	10	4 21.60	-34 33.1	0.263	0.908	106.8	16.8	59 W	—	28*
4	1	20 22.42	-11 11.7	1.558	1.478	38.3	21.0	66 W	24*	58*	6	11	4 30.93	-32 52.1	0.279	0.895	107.8	16.9	57 W	—	27*
4	11	20 49.46	+9 25.6	1.522	1.498	38.8	21.0	69 W	25*	61*	6	12	4 38.95	-31 19.1	0.296	0.882	108.5	17.1	55 W	—	26*
4	21	21 14.59	+7 36.8	1.485	1.523	39.0	21.0	73 W	26*	63*	6	13	4 45.90	-29 53.2	0.313	0.869	109.1	17.2	54 W	—	25*
5	1	21 37.71	+5 49.4	1.448	1.554	39.0	21.0	76 W	27*	65*	6	14	4 51.97	-28 33.7	0.331	0.856	109.5	17.3	53 W	—	24*
5	11	21 58.71	+4 7.8	1.409	1.589	38.8	21.0	80 W	29*	66*	6	15	4 57.32	-27 20.0	0.349	0.844	109.7	17.4	51 W	—	23*
5	21	22 17.50	+2 35.4	1.368	1.627	38.3	21.0	85 W	32*	66*	6	16	5 2.07	-26 11.2	0.367	0.831	109.9	17.5	50 W	—	23*
5	31	22 33.90	+1 16.1	1.324	1.669	37.4	20.9	90 W	35*	65	6	17	5 6.32	-25 6.9	0.385	0.819	109.9	17.6	49 W	—	22*
6	10	22 47.72	+0 13.2	1.278	1.714	36.1	20.9	96 W	38*	64	6	18	5 10.14	-24 6.3	0.403	0.806	109.7	17.6	48 W	—	22*
6	20	22 58.72	+0 29.8	1.232	1.761	34.3	20.8	103 W	41*	64	6	19	5 13.60	-23 9.1	0.422	0.794	109.5	17.7	47 W	—	22*
6	30	23 6.59	+0 49.3	1.186	1.809	31.8	20.7	110 W	44*	63	6	20	5 16.74	-22 14.6	0.440	0.782	109.2	17.7	47 W	—	22*
7	10	23 11.09	+0 42.1	1.143	1.859	28.6	20.6	119 W	46*	63	6	22	5 22.28	-20 32.7	0.478	0.759	108.4	17.8	45 W	—	22*
7	20	23 12.01	+0 6.0	1.107	1.911	24.7	20.5	128 W	45	64	6	24	5 27.02	-18 58.0	0.516	0.736	107.2	17.8	44 W	—	22*
7	30	23 9.36	+0 59.7	1.081	1.963	19.9	20.3	139 W	44	65	6	26	5 31.18	-17 28.2	0.555	0.714	105.8	17.8	43 W	—	22*
8	9	23 3.56	+2 31.5	1.071	2.016	14.4	20.2	150 W	42	67	6	28	5 34.90	-16 1.8	0.594	0.693	104.1	17.8	41 W	—	23*
8	14	22 59.72	+3 25.1	1.073	2.042	11.4	20.1	156 W	42	67	6	30	5 38.31	-14 37.5	0.633	0.674	102.1	17.8	40 W	—	23*
8	19	22 55.42	+4 22.1	1.080	2.068	8.4	20.0	163 W	41	68	7	2	5 41.50	-13 14.2	0.672	0.656	99.9	17.7	39 W	—	24*
8	24	22 50.84	+5 20.9	1.094	2.095	5.4	19.9	169 W	40	69	7	4	5 44.57	-11 51.1	0.712	0.639	97.5	17.7	39 W	—	25*
8	29	22 46.18	+6 19.8	1.114	2.122	2.3	19.8	175 W	39	70	7	6	5 47.58	-10 27.8	0.751	0.625	94.8	17.6	38 W	—	25*
9	3	22 41.60	+7 17.2	1.140	2.148	0.8	19.8	178 E	38	71	7	8	5 50.60	-9 3.8	0.790	0.612	92.0	17.6	37 W	—	26*
9	8	22 37.27	+8 11.6	1.172	2.175	3.6	20.1	172 E	37	72	7	10	5 53.66	-7 38.9	0.829	0.602	89.0	17.5	36 W	—	26*
9	13	22 33.33	+9 2.0	1.211	2.201	6.2	20.3	166 E	36	73	7	15	6 1.80	-4 2.8	0.926	0.587	81.1	17.4	35 W	—	27*
9	18	22 29.90	+9 47.3	1.255	2.227	8.8	20.5	160 E	35	74	7	20	6 10.92	-0 23.6	1.018	0.588	73.0	17.3	34 W	—	27*
9	23	22 27.09	+10 26.9	1.306	2.254	11.0	20.7	155 E	35	74	7	25	6 21.14	+3 13.2	1.103	0.606	65.6	17.3	33 W	1*	27*
9	28	22 24.94	+11 0.5	1.362	2.280	13.1	20.9	149 E	34	75	7	30	6 32.36	+6 41.8	1.182	0.639	59.2	17.4	33 W	6*	26*
10	3	22 23.50	+11 28.0	1.424	2.306	15.0	21.1	143 E	34	75	8	4	6 44.35	+9 58.1	1.252	0.683	54.0	17.5	33 W	11*	25*
10	8	22 22.75	+11 49.5	1.489	2.332	16.6	21.3	138 E	33	76	8	9	6 56.89	+12 59.9	1.314	0.735	50.1	17.7	34 W	15*	24*
10	13	22 22.69	+12 5.2	1.560	2.358	18.0	21.5	133 E	33	76	8	14	7 9.75	+15 46.6	1.368	0.793	47.2	17.9	35 W	20*	23*
<b>267494 2002 JB<sub>9</sub></b>										<b>267494 2002 JB<sub>9</sub></b>											
1	2	15 55.73	+4 34.3	3.176	2.654	16.5	21.4	50 W	41*	19*	8	19	7 22.78	+18 19.2	1.416	0.855	45.0	18.0	37 W	24*	22*
1	12	16 9.03	+3 47.0	2.994	2.569	18.4	21.3	56 W	43*	26*	8	24	7 27.83	+20 39.0	1.457	0.920	43.4	18.2	39 W	28*	21*
1	22	16 22.41	+3 7.1	2.801	2.481	20.3	21.1	61 W	44*	34*	8	29	7 48.82	+22 47.5	1.493	0.985	42.2	18.4	41 W	31*	20*
2	1	16 35.79	+2 34.4	2.599	2.390	22.3	20.9	67 W	45*	41*	9	3	8 1.69	+24 46.5	1.523	1.051	41.2	18.5	43 W	35*	19*
2	11	16 49.13	+2 8.3	2.388	2.297	24.2	20.7	73 W	46*	48*	9	8	8 14.40	+26 37.5	1.549	1.117	40.5	18.7	46 W	38*	18*
2	21	17 2.38	+1 48.0	2.172	2.200	26.1	20.5	79 W	46*	54*	9	13	8 26.90	+28 22.0	1.571	1.183	39.8	18.8	49 W	42*	17*
3	2	17 15.49	+1 32.3	1.952	2.101	28.0	20.2	84 W	46*	58*	9	18	8 39.17	+30 1.6	1.588	1.248	39.2	18.9	52 W	45*	16*
3	12	17 28.43	+1 19.1	1.729	1.998	29.8	19.9	90 W	46*	62*	9	23	8 51.17	+31 37.4	1.602	1.312	38.7	19.1	55 W	48*	16*
3	22	17 41.24	+1 5.2	1.505	1.891	31.6	19.5	96 W	46*	63*	9	28	9 2.89	+33 10.9	1						





EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

2020	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	2020	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°
<b>480883 2001 YE<sub>4</sub></b>										<b>513170 2004 KH<sub>15</sub></b> (continuation)									
1 2	17 41.66	-24 47.2	1.187	0.347	47.0	20.6	15 W	2*	8*	5 27	19 4.95	+12 26.5	0.173	1.125	46.4	17.9	127 W	57	52
1 4	18 2.01	-24 42.4	1.214	0.330	39.7	20.3	12 W	1*	6*	5 29	18 57.61	+ 8 39.3	0.157	1.124	42.3	17.6	132 W	54	55
1 6	18 22.75	-24 25.7	1.241	0.318	31.4	20.0	10 W	—	3*	5 31	18 48.67	+ 4 1.2	0.143	1.124	37.3	17.2	138 W	49	60
1 8	18 43.69	-23 56.8	1.264	0.312	22.4	19.8	7 W	—	1*	6 1	18 43.49	+ 1 19.8	0.137	1.124	34.4	17.1	141 W	46	63
1 10	19 4.59	-23 16.0	1.284	0.312	13.2	19.5	4 W	—	—	6 2	18 37.75	- 1 38.0	0.131	1.124	31.3	16.9	145 W	43	66
1 12	19 25.16	-22 24.4	1.301	0.319	4.3	19.2	1 W	—	—	6 3	18 31.40	- 4 53.1	0.125	1.123	27.8	16.7	149 W	40	69
1 14	19 45.15	-21 23.6	1.313	0.331	4.1	19.3	1 E	—	—	6 4	18 24.37	- 8 25.7	0.120	1.123	24.1	16.5	153 W	37	72
1 16	20 4.40	-20 15.4	1.323	0.348	11.3	19.7	4 E	—	—	6 5	18 16.56	-12 15.5	0.116	1.123	20.2	16.3	158 W	33	76
1 18	20 22.81	-19 1.6	1.330	0.369	17.4	20.1	6 E	—	—	6 6	18 7.89	-16 21.0	0.112	1.122	16.1	16.1	162 W	29	80
1 20	20 40.36	-17 43.8	1.335	0.393	22.5	20.4	9 E	2*	—	6 7	17 58.26	-20 39.6	0.109	1.122	12.1	15.9	167 W	24	85
1 22	20 57.05	-16 23.3	1.340	0.418	26.6	20.6	11 E	4*	1*	6 8	17 47.58	-25 7.2	0.108	1.121	9.0	15.7	170 W	20	89
1 24	21 12.95	-15 1.1	1.345	0.444	29.8	20.9	13 E	5*	3*	6 9	17 35.73	-29 38.7	0.107	1.121	8.1	15.7	171 W	15	86
1 26	21 28.10	-13 38.0	1.349	0.471	32.4	21.1	15 E	7*	4*	6 10	17 22.63	-34 8.1	0.107	1.120	10.2	15.7	169 W	11	82
1 28	21 42.56	-12 14.8	1.354	0.498	34.5	21.3	17 E	9*	5*	6 11	17 8.19	-38 29.0	0.107	1.119	14.1	15.9	164 E	7	78
1 30	21 56.40	-10 51.9	1.360	0.525	36.0	21.4	18 E	11*	6*	6 12	16 52.38	-42 35.4	0.109	1.119	18.4	16.1	160 E	2	73
<b>189865 2003 NC</b>																			
1 2	17 42.26	-28 32.8	0.870	0.274	106.3	20.1	16 W	—	9*	6 13	16 35.18	-46 22.4	0.112	1.118	22.9	16.3	155 E	—	70
1 3	17 43.85	-28 59.8	0.908	0.278	97.4	19.8	16 W	—	10*	6 14	16 16.68	-49 46.1	0.116	1.117	27.2	16.5	150 E	—	66
1 4	17 46.30	-29 20.4	0.945	0.285	89.1	19.6	17 W	—	11*	6 15	15 57.02	-52 44.3	0.120	1.116	31.2	16.7	145 E	—	63
1 5	17 49.48	-29 35.3	0.983	0.295	81.4	19.5	17 W	—	11*	6 16	15 36.46	-55 16.3	0.125	1.116	35.0	16.9	141 E	—	61
1 6	17 53.24	-29 45.0	1.020	0.306	74.4	19.4	17 W	—	11*	6 17	15 15.30	-57 22.5	0.130	1.115	38.5	17.0	137 E	—	59
1 7	17 57.43	-29 50.4	1.056	0.320	68.2	19.3	18 W	—	12*	6 18	14 53.95	-59 4.4	0.136	1.114	41.7	17.2	133 E	—	57
1 8	18 1.95	-29 52.1	1.091	0.335	62.6	19.3	18 W	—	12*	6 19	14 32.81	-60 24.4	0.143	1.113	44.6	17.4	130 E	—	56
1 9	18 6.68	-29 50.6	1.125	0.352	57.7	19.4	18 W	—	12*	6 20	14 12.25	-61 25.1	0.149	1.112	47.2	17.6	127 E	—	55
1 10	18 11.55	-29 46.5	1.158	0.369	53.4	19.4	18 W	—	12*	6 21	13 52.60	-62 9.3	0.156	1.111	49.5	17.7	124 E	—	54
1 11	18 16.49	-29 40.1	1.189	0.387	49.6	19.5	17 W	—	11*	6 22	13 34.10	-62 40.0	0.164	1.110	51.7	17.9	121 E	—	53
1 12	18 21.44	-29 31.9	1.219	0.406	46.2	19.5	17 W	—	11*	6 23	13 16.90	-62 59.7	0.171	1.109	53.6	18.1	119 E	—	53
1 14	18 31.29	-29 11.2	1.277	0.445	40.7	19.7	17 W	—	11*	6 24	13 1.05	-63 10.7	0.179	1.108	55.4	18.2	116 E	—	53
1 16	18 40.89	-28 46.0	1.331	0.484	36.4	19.8	17 W	—	11*	6 25	12 46.57	-63 15.0	0.187	1.106	56.9	18.3	114 E	—	53
1 18	18 50.16	-28 17.8	1.381	0.523	33.0	20.0	17 W	—	11*	6 26	12 33.40	-63 14.2	0.195	1.105	58.4	18.5	112 E	—	53
1 20	18 59.05	-27 47.5	1.428	0.563	30.3	20.1	17 W	—	11*	6 27	12 21.46	-63 9.7	0.203	1.104	59.7	18.6	110 E	—	53
1 22	19 7.56	-27 15.6	1.472	0.601	28.2	20.3	17 W	—	11*	6 28	12 10.65	-63 2.5	0.211	1.103	60.9	18.7	109 E	—	53
1 27	19 27.24	-25 52.3	1.574	0.695	24.6	20.6	17 W	—	11*	6 29	12 0.88	-62 53.3	0.219	1.101	61.9	18.8	107 E	—	53*
2 1	19 44.84	-24 26.9	1.663	0.785	22.6	21.0	18 W	—	12*	6 30	11 52.03	-62 42.9	0.228	1.100	62.9	18.9	106 E	—	53*
2 6	20 0.70	-23 1.6	1.742	0.870	21.6	21.3	19 W	1*	13*	7 1	11 44.02	-62 31.8	0.236	1.098	63.8	19.0	104 E	—	53*
2 11	20 15.10	-21 37.4	1.812	0.951	21.2	21.5	20 W	2*	14*	7 2	11 36.76	-62 20.2	0.244	1.097	64.7	19.1	103 E	—	53*
1 2	17 56.14	+27 2.9	0.312	0.826	111.3	21.0	52 W	38*	—	7 3	11 30.16	-62 8.5	0.253	1.096	65.4	19.2	102 E	—	52*
1 4	17 57.54	+28 48.1	0.331	0.830	107.9	20.9	53 W	40*	—	7 4	11 24.15	-61 56.8	0.261	1.094	66.1	19.3	100 E	—	52*
1 6	17 58.98	+30 15.8	0.349	0.834	104.7	20.9	55 W	42*	—	7 5	11 18.67	-61 45.3	0.269	1.093	66.7	19.4	99 E	—	52*
1 8	18 0.44	+31 28.7	0.368	0.839	101.9	20.9	57 W	44*	—	7 6	11 13.66	-61 34.2	0.278	1.091	67.3	19.5	98 E	—	51*
1 10	18 1.95	+32 29.3	0.387	0.844	99.3	20.9	58 W	46*	—	7 7	11 9.06	-61 23.4	0.286	1.089	67.9	19.6	97 E	—	51*
1 12	18 3.50	+33 19.5	0.405	0.848	96.9	20.9	59 W	47*	—	7 8	11 4.85	-61 13.1	0.294	1.088	68.4	19.6	96 E	—	50*
1 14	18 5.10	+34 0.9	0.423	0.853	94.8	20.9	60 W	49*	—	7 9	11 0.97	-61 3.2	0.303	1.086	68.8	19.7	95 E	—	50*
1 16	18 6.74	+34 34.9	0.441	0.858	92.7	20.9	61 W	50*	—	7 10	10 57.39	-60 53.8	0.311	1.084	69.3	19.8	94 E	—	49*
1 18	18 8.44	+35 2.7	0.458	0.864	90.9	20.9	61 W	51*	—	7 11	10 54.08	-60 44.9	0.319	1.082	69.7	19.8	93 E	—	49*
1 20	18 10.18	+35 25.2	0.474	0.869	89.1	20.9	62 W	52*	—	7 12	10 51.02	-60 36.5	0.327	1.081	70.0	19.9	92 E	—	48*
1 22	18 11.96	+35 43.2	0.490	0.875	87.5	20.9	63 W	53*	—	7 13	10 48.17	-60 28.6	0.335	1.079	70.4	20.0	92 E	—	48*
1 27	18 16.58	+36 12.6	0.528	0.889	83.9	21.0	64 W	55*	—	7 14	10 45.53	-60 21.2	0.343	1.077	70.7	20.0	91 E	—	47*
2 1	18 21.39	+36 25.7	0.561	0.904	80.9	21.1	65 W	57*	1*	7 15	10 43.07	-60 14.2	0.351	1.075	71.0	20.1	90 E	—	46*
2 6	18 26.33	+36 27.7	0.590	0.919	78.3	21.1	66 W	59*	4*	7 16	10 40.77	-60 7.7	0.359	1.073	71.3	20.1	89 E	—	46*
2 11	18 31.38	+36 22.0	0.614	0.934	76.1	21.1	67 W	60*	7*	7 17	10 38.62	-60 1.7	0.366	1.071	71.5	20.2	88 E	—	45*
2 16	18 36.51	+36 11.4	0.633	0.949	74.3	21.2	68 W	61*	10*	7 18	10 36.61	-59 56.1	0.374	1.069	71.8	20.2	88 E	—	44*
2 21	18 41.67	+35 57.7	0.647	0.964	72.7	21.2	69 W	63*	13*	7 19	10 34.71	-59 50.9	0.382	1.067	72.0	20.3	87 E	—	44*
2 26	18 46.82	+35 42.3	0.657	0.979	71.4	21.2	70 W	64*	15*	7 20	10 32.93	-59 46.1	0.389	1.065	72.2	20.3	86 E	—	43*
3 2	18 51.91	+35 25.8	0.661	0.993	70.4	21.3	71 W	64*	18*	7 22	10 29.67	-59 37.5	0.404	1.061	72.6	20.4	85 E	—	42*
3 7	18 56.90	+35 8.6	0.661	1.007	69.5	21.3	72 W	65*	20*	7 24	10 26.74	-59 30.3	0.418	1.056	73.0	20.5	84 E	—	40*
3 12	19 1.78	+34 50.8	0.656	1.020	68.8	21.2	73 W	66*	22*	7 26	10 24.08	-59 24.3	0.432	1.052	73.3	20.5	83 E	—	39*
3 17	19 6.52	+34 32.8	0.647	1.033	68.2	21.2	75 W	67*	24*	7 28	10 21.65	-59 19.2	0.445	1.047	73.5	20.6	82 E	—	38*
3 22	19 11.09	+34 14.5	0.633	1.045	67.8	21.2	76 W	68*	26*	7 30	10 19.41	-59 15.0	0.458	1.043	73.8	20.7	81 E	—	36*
3 27	19 15.41	+33 55.5	0.615	1.057	67.4	21.1	78 W	69*	28*	8 1	10 17.33	-59 11.5	0.471	1.038	74.0	20.7	79 E	—	35*
4 1	19 19.44	+33 35.3	0.593	1.067	67.1	21.1	80 W	69*	29*	8 3	10 15.38	-59 8.4	0.483	1.033	74.3	20.8	78 E	—	33*
4 6	19 23.14	+33 12.9	0.568	1.077	66.8	21.0	82 W	70*	30*	8 5	10 13.55	-59 5.8	0.494	1.028	74.5	20.8	78 E	—	32*
4 11	19 26.47	+32 47.3	0.539	1.086	66.6	20.9	84 W	71*	31*	8 7	10 11.81	-59 3.4	0.505	1.023	74.7	20.9			

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

20/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°-26°	2020	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°-26°
<b>513170 2004 KH<sub>15</sub></b> (continuation)									<b>484795 2009 DE<sub>47</sub></b>								
11 7	11 22.29	-23 16.5	0.367	0.799	110.8	21.3	49 W	16* 42*	1 2	19 6.29	-33 49.2	2.253	1.305	8.7	21.4	12 E	— 3*
11 12	11 47.39	-15 54.2	0.357	0.798	112.3	21.3	48 W	23* 37*	1 12	19 43.62	-32 44.6	2.225	1.275	8.7	21.4	11 E	— 2*
11 17	12 14.61	-8 16.1	0.357	0.798	112.0	21.3	48 W	30* 32*	1 22	20 20.91	-31 1.0	2.192	1.242	8.9	21.3	11 E	— 1*
11 22	12 43.06	0 58.7	0.368	0.800	109.8	21.2	50 W	36* 27*	2 1	20 57.84	-28 38.4	2.156	1.205	9.2	21.2	11 E	— —
11 27	13 11.75	+ 5 24.5	0.388	0.805	106.3	21.1	52 W	42* 21*	2 11	21 34.19	-25 37.4	2.117	1.166	9.5	21.1	11 W	— —
12 2	13 39.83	+10 35.0	0.417	0.811	102.0	21.1	54 W	46* 17*	2 21	22 9.91	-21 59.6	2.077	1.123	9.8	21.0	11 W	— —
12 7	14 6.62	+14 30.2	0.453	0.819	97.4	21.0	55 W	49* 13*	3 2	22 45.05	-17 47.2	2.036	1.078	9.8	20.8	11 W	— —
12 12	14 31.73	+17 18.3	0.492	0.828	93.0	21.1	57 W	51* 11*	3 12	23 19.83	-13 2.8	1.995	1.031	9.6	20.7	10 W	— —
12 17	14 55.00	+19 11.5	0.534	0.839	88.7	21.1	58 W	52* 9*	3 22	23 54.59	-7 50.2	1.956	0.984	9.0	20.5	9 W	— —
12 22	15 16.42	+20 22.1	0.576	0.850	84.9	21.1	59 W	53* 9*	4 1	0 29.81	-2 14.1	1.920	0.938	7.9	20.3	7 W	— —
12 27	15 36.13	+21 0.4	0.618	0.863	81.4	21.2	60 W	54* 9*	4 6	0 47.78	+ 0 40.8	1.903	0.916	7.2	20.2	7 W	— —
1 1	15 54.32	+21 14.7	0.658	0.877	78.2	21.2	61 W	55* 10*	4 11	1 6.10	+ 3 39.0	1.886	0.894	6.3	20.1	6 W	— —
1 6	16 11.19	+21 11.5	0.696	0.891	75.4	21.3	61 W	55* 11*	4 16	1 24.88	+ 6 39.2	1.871	0.874	5.3	20.0	5 W	— —
1 11	16 26.93	+20 55.8	0.731	0.906	73.0	21.4	62 W	55* 13*	4 21	1 44.23	+ 9 39.9	1.857	0.856	4.2	19.9	4 W	— —
1 16	16 41.67	+20 31.1	0.762	0.921	70.8	21.4	62 W	55* 15*	4 26	2 4.25	+12 39.5	1.843	0.839	3.2	19.8	3 W	— —
<b>401998 2003 MO</b>																	
1 2	18 3.88	-18 9.5	2.321	1.369	8.0	21.5	11 W	4* —	5 1	2 25.06	+15 35.8	1.831	0.825	2.6	19.7	2 W	— —
1 7	18 18.37	-17 49.7	2.236	1.295	9.6	21.3	13 W	5* 2*	5 6	2 46.76	+18 26.6	1.819	0.813	3.0	19.7	2 W	— —
1 12	18 33.85	-17 23.3	2.149	1.219	11.3	21.2	14 W	6* 4*	5 11	3 9.47	+21 9.3	1.809	0.803	4.2	19.7	3 W	— —
1 17	18 50.48	-16 49.1	2.059	1.139	13.0	21.0	15 W	7* 5*	5 16	3 33.25	+23 40.9	1.801	0.797	5.8	19.7	5 E	— —
1 22	19 8.45	-16 5.7	1.967	1.056	14.8	20.8	16 W	7* 6*	5 21	3 58.15	+25 58.4	1.793	0.794	7.6	19.8	6 E	— —
1 27	19 27.98	-15 11.4	1.874	0.969	16.5	20.6	16 W	7* 6*	5 26	4 24.12	+27 58.6	1.788	0.794	9.5	19.9	7 E	1*
2 1	19 49.37	-14 4.2	1.781	0.878	18.2	20.3	16 W	7* 7*	5 31	4 51.09	+29 38.7	1.784	0.797	11.2	20.0	9 E	3*
2 6	20 12.99	-12 41.9	1.688	0.782	19.6	20.0	15 W	7* 6*	6 5	5 18.85	+30 56.1	1.782	0.804	12.9	20.0	10 E	4*
2 11	20 39.33	-11 1.9	1.596	0.682	20.5	19.6	14 W	6* 5*	6 10	5 47.17	+31 48.8	1.782	0.813	14.5	20.1	12 E	6*
2 16	21 9.06	-9 2.1	1.506	0.576	20.6	19.1	12 W	4* 2*	6 15	6 15.72	+32 15.8	1.784	0.825	15.8	20.2	13 E	7*
2 21	21 43.07	-6 41.8	1.418	0.466	18.9	18.5	9 W	2* —	6 20	6 44.15	+32 17.0	1.789	0.840	17.0	20.3	14 E	8*
2 26	22 22.67	-4 5.8	1.328	0.357	15.9	17.6	6 W	1* —	6 25	7 12.12	+31 53.2	1.796	0.856	18.0	20.4	15 E	8* 1*
3 2	23 9.04	-1 37.6	1.222	0.267	26.9	17.2	7 E	1* —	6 30	7 39.31	+31 6.2	1.806	0.875	18.7	20.5	16 E	9* 2*
3 3	23 19.01	-1 14.0	1.197	0.256	32.8	17.2	8 E	2* —	7 5	8 5.49	+29 58.4	1.818	0.895	19.3	20.5	17 E	9* 4*
3 4	23 29.09	0 54.1	1.170	0.249	39.8	17.3	9 E	3* —	7 10	8 30.50	+28 32.4	1.832	0.916	19.6	20.6	18 E	9* 5*
3 5	23 39.18	0 38.7	1.141	0.245	47.4	17.4	10 E	4* —	7 15	8 54.27	+26 51.2	1.849	0.939	19.7	20.7	18 E	9* 7*
3 6	23 49.18	0 28.0	1.111	0.246	55.3	17.6	12 E	5* 1*	7 20	9 16.78	+24 57.8	1.868	0.961	19.7	20.8	19 E	9* 8*
3 7	23 58.99	0 22.3	1.080	0.251	63.2	17.8	13 E	6* 3*	7 25	9 38.07	+22 54.7	1.889	0.985	19.5	20.8	19 E	9* 9*
3 8	0 8.55	0 21.4	1.049	0.259	70.5	18.0	14 E	7* 4*	7 30	9 58.21	+20 44.4	1.912	1.008	19.2	20.9	19 E	8* 10*
3 9	0 17.85	0 24.8	1.017	0.272	77.2	18.3	15 E	7* 6*	8 4	10 17.28	+18 29.0	1.935	1.032	18.8	21.0	19 E	8* 10*
3 10	0 26.88	0 31.9	0.986	0.287	83.1	18.6	17 E	8* 7*	8 9	10 35.41	+16 10.3	1.961	1.055	18.3	21.0	19 E	7* 11*
3 11	0 35.68	0 42.3	0.956	0.304	88.2	18.8	18 E	9* 8*	8 14	10 52.68	+13 49.8	1.987	1.078	17.6	21.1	19 E	6* 11*
3 12	0 44.28	0 55.3	0.926	0.323	92.5	19.1	19 E	9* 10*	8 19	11 9.22	+11 28.5	2.013	1.101	16.9	21.1	18 E	6* 11*
3 14	1 1.12	-1 27.3	0.871	0.363	98.9	19.5	21 E	10* 13*	8 24	11 25.12	+9 7.6	2.040	1.123	16.2	21.2	18 E	5* 11*
3 16	1 17.76	-2 5.2	0.821	0.407	103.0	19.8	23 E	10* 15*	8 29	11 40.46	+6 47.7	2.067	1.145	15.4	21.2	18 E	4* 11*
3 18	1 34.54	-2 46.8	0.775	0.451	105.4	20.0	26 E	11* 18*	9 3	11 55.33	+4 29.6	2.094	1.166	14.5	21.3	17 E	3* 10*
3 20	1 51.71	-3 31.0	0.735	0.495	106.5	20.2	29 E	11* 21*	9 8	12 9.82	+2 13.6	2.121	1.187	13.6	21.3	16 E	3* 10*
3 22	2 9.45	-4 16.6	0.699	0.540	106.4	20.2	31 E	12* 24*	9 13	12 23.98	+0 0.2	2.147	1.206	12.7	21.3	15 E	2* 9*
3 24	2 27.89	-5 2.7	0.668	0.583	105.5	20.3	34 E	13* 27*	9 18	12 37.90	-2 10.4	2.172	1.225	11.8	21.3	14 E	1* 8*
3 26	2 47.10	-5 48.4	0.641	0.626	103.9	20.2	38 E	14* 30*	9 23	12 51.63	-4 18.0	2.197	1.243	10.8	21.4	13 E	— 7*
3 28	3 7.07	-6 32.6	0.619	0.668	101.7	20.2	41 E	15* 34*	9 28	13 5.21	-6 22.3	2.220	1.260	9.9	21.4	12 E	— 6*
3 30	3 27.74	-7 14.5	0.601	0.709	99.0	20.1	45 E	16* 38*	10 3	13 18.70	-8 23.2	2.241	1.276	8.9	21.4	11 E	— 5*
4 1	3 48.97	-7 52.9	0.588	0.749	95.9	20.1	48 E	17* 41*	10 8	13 32.14	-10 20.6	2.262	1.291	7.9	21.4	10 E	— 4*
4 3	4 10.59	-8 26.9	0.580	0.789	92.6	20.0	52 E	18* 45*	10 13	13 45.08	-12 14.4	2.281	1.305	7.0	21.4	9 E	— 3*
4 5	4 32.36	-8 55.8	0.576	0.827	89.1	19.9	56 E	19* 49*	10 18	13 59.59	-14 4.5	2.298	1.318	6.1	21.4	8 E	— 2*
4 7	4 54.02	-9 19.2	0.576	0.865	85.5	19.9	60 E	21* 52*	10 23	14 12.64	-15 50.7	2.313	1.331	5.2	21.4	7 E	— 1*
4 9	5 15.32	-9 36.7	0.580	0.902	81.9	19.9	63 E	22* 56*	10 28	14 26.31	-17 32.9	2.326	1.342	4.4	21.4	6 E	— —
4 11	5 36.02	-9 48.6	0.589	0.939	78.3	19.8	67 E	23* 59*	11 2	14 40.11	-19 11.0	2.337	1.352	3.8	21.4	5 W	— —
4 13	5 55.92	-9 55.3	0.602	0.975	74.8	19.9	70 E	24* 62*	11 7	14 54.09	-20 44.9	2.347	1.361	3.4	21.4	5 W	— —
4 15	6 14.88	-9 57.5	0.617	1.010	71.6	19.9	73 E	25* 64*	11 12	15 8.26	-22 14.4	2.354	1.369	3.3	21.4	5 W	— —
4 17	6 32.80	-9 55.9	0.636	1.044	68.5	19.9	75 E	26* 66*	11 17	15 22.66	-23 39.3	2.359	1.376	3.6	21.4	5 W	— —
4 19	6 49.65	-9 51.2	0.658	1.078	65.6	20.0	78 E	27* 68*	11 22	15 37.29	-24 59.4	2.362	1.383	4.1	21.4	6 W	— —
4 21	7 5.42	-9 44.3	0.683	1.111	62.9	20.0	80 E	27* 69*	11 27	15 52.18	-26 14.5	2.362	1.388	4.8	21.5	7 W	— —
4 26	7 40.34	-9 21.4	0.753	1.192	57.1	20.2	84 E	29* 71*	<b>287646 2003 KD<sub>7</sub></b>								
5 1	8 9.58	-8 56.0	0.835	1.270	52.4	20.5	87 E	29* 72*	1 2	19 7.51	-18 45.9	2.612	1.639	3.9	21.4	6 E	— —
5 6	8 34.23	-8 32.5	0.924														

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

20/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	2020	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°
<b>498918 2009 BF</b>										<b>324331 2006 OE<sub>12</sub></b>									
										<i>(continuation)</i>									
1 2	19 13.74	-25 52.4	2.239	1.267	5.2	21.5	7 E	—	1*	2 11	21 30.43	-15 22.1	2.638	1.652	0.9	21.0	2 W	—	—
1 7	19 28.48	-23 38.6	2.247	1.270	3.6	21.4	5 E	—	—	2 21	21 58.01	-13 6.1	2.634	1.651	2.7	21.2	5 W	—	—
1 12	19 42.64	-21 20.9	2.255	1.274	2.2	21.3	3 E	—	—	3 2	22 25.01	-10 40.1	2.630	1.652	4.5	21.3	8 W	—	2*
1 17	19 56.30	-18 59.7	2.261	1.279	1.7	21.3	2 E	—	—	3 12	22 51.44	-8 6.7	2.623	1.657	6.3	21.4	11 W	—	5*
1 22	20 9.52	-16 35.4	2.266	1.285	2.6	21.4	3 W	—	—	3 22	23 17.33	-5 28.8	2.616	1.664	8.1	21.5	14 W	—	8*
<b>369539 2011 AP<sub>5</sub></b>										<b>326646 2002 TE</b>									
1 2	19 14.11	-24 12.3	3.322	2.347	2.7	21.3	6 E	—	—	1 2	19 50.03	-17 58.5	2.596	1.671	9.1	21.5	16 E	7*	5*
1 12	19 34.02	-22 49.6	3.300	2.317	0.5	21.1	1 E	—	—	1 12	20 18.98	-17 17.9	2.599	1.652	7.3	21.4	12 E	5*	2*
1 22	19 53.87	-21 16.6	3.266	2.286	2.1	21.2	5 W	—	—	1 22	20 48.06	-16 18.9	2.600	1.636	5.4	21.3	9 E	2*	—
2 1	20 13.61	-19 33.2	3.219	2.255	4.4	21.3	10 W	—	4*	2 1	21 17.11	-15 3.0	2.600	1.623	3.5	21.2	6 E	—	—
2 11	20 33.18	-17 39.3	3.161	2.224	6.7	21.3	15 W	2*	9*	2 11	21 46.02	-13 32.0	2.598	1.613	1.7	21.0	3 E	—	—
2 21	20 52.57	-15 34.8	3.092	2.192	9.0	21.4	20 W	4*	14*	2 21	22 14.68	-11 48.0	2.595	1.607	0.5	20.9	1 E	—	—
3 2	21 11.75	-13 19.7	3.013	2.160	11.4	21.4	25 W	7*	19*	3 2	22 43.03	-9 53.5	2.592	1.604	2.2	21.0	3 W	—	—
3 12	21 30.72	-10 54.3	2.926	2.128	13.6	21.4	30 W	9*	24*	3 12	23 11.04	-7 51.4	2.588	1.604	3.9	21.2	6 W	—	—
3 22	21 49.50	-8 18.4	2.831	2.095	15.9	21.3	35 W	11*	28*	3 22	23 38.70	-5 44.5	2.584	1.609	5.7	21.3	9 W	—	3*
4 1	22 8.09	-5 32.4	2.730	2.063	18.0	21.3	40 W	13*	33*	4 1	0 6.01	-3 35.4	2.580	1.616	7.5	21.3	12 W	—	6*
4 11	22 26.54	-2 36.3	2.624	2.031	20.2	21.2	44 W	16*	37*	4 11	0 32.97	-1 27.2	2.574	1.627	9.2	21.4	15 W	—	9*
4 21	22 44.88	+0 29.7	2.514	1.999	22.2	21.2	49 W	19*	41*	<b>471006 2009 SK<sub>235</sub></b>									
5 1	23 3.18	+3 45.5	2.402	1.967	24.1	21.1	53 W	22*	44*	1 2	19 52.58	-25 37.6	2.637	1.708	8.7	21.5	15 E	2*	8*
5 11	23 21.48	+7 10.6	2.289	1.936	26.0	21.0	57 W	25*	46*	1 12	20 21.56	-24 0.1	2.626	1.676	7.0	21.3	12 E	—	5*
5 21	23 39.87	+10 44.8	2.175	1.905	27.7	20.9	61 W	30*	47*	1 22	20 50.50	-22 2.0	2.612	1.646	5.3	21.2	9 E	—	3*
5 31	23 58.40	+14 27.5	2.063	1.875	29.3	20.8	65 W	34*	46*	2 1	21 19.26	-19 44.6	2.596	1.620	3.8	21.1	6 E	—	—
6 10	0 17.18	+18 17.9	1.954	1.847	30.8	20.7	69 W	40*	44*	2 11	21 47.72	-17 9.5	2.579	1.596	2.5	20.9	4 E	—	—
6 20	0 36.30	+22 15.0	1.847	1.819	32.2	20.6	72 W	46*	41*	2 21	22 15.85	-14 19.1	2.562	1.576	2.1	20.9	3 E	—	—
6 30	0 55.84	+26 17.1	1.745	1.793	33.4	20.5	76 W	52*	38*	3 2	22 43.63	-11 15.8	2.545	1.559	2.9	20.9	5 W	—	—
7 5	1 5.80	+28 19.5	1.695	1.780	33.9	20.4	78 W	56*	36	3 12	23 11.08	-8 2.8	2.530	1.547	4.2	20.9	7 W	—	—
7 10	1 15.90	+30 22.4	1.647	1.768	34.4	20.3	79 W	60*	34	3 22	23 38.26	-4 43.2	2.515	1.538	5.6	21.0	9 W	—	2*
7 15	1 26.16	+32 25.5	1.599	1.756	34.9	20.3	81 W	63*	32	4 1	0 5.23	-1 20.1	2.503	1.533	7.1	21.0	11 W	—	5*
7 20	1 36.58	+34 28.5	1.554	1.745	35.3	20.2	83 W	67*	30	4 11	0 32.06	+2 2.9	2.492	1.533	8.6	21.1	13 W	—	7*
7 25	1 47.16	+36 30.9	1.509	1.734	35.7	20.1	84 W	71*	27	4 21	0 58.84	+5 22.7	2.482	1.537	10.0	21.2	15 W	—	9*
7 30	1 57.91	+38 32.2	1.466	1.724	36.0	20.1	86 W	74*	25	5 1	1 25.63	+8 36.2	2.474	1.546	11.5	21.2	18 W	—	12*
8 4	2 8.83	+40 32.2	1.424	1.714	36.3	20.0	88 W	78*	23	5 11	1 52.47	+11 40.5	2.466	1.558	13.0	21.3	20 W	2*	14*
8 9	2 19.92	+42 30.2	1.383	1.705	36.5	19.9	89 W	81*	21	5 21	2 19.41	+14 33.1	2.458	1.574	14.4	21.4	23 W	4*	16*
8 14	2 31.17	+44 26.0	1.344	1.696	36.7	19.9	91 W	84*	20	5 31	2 46.44	+17 11.7	2.450	1.594	15.8	21.4	25 W	7*	18*
8 19	2 42.54	+46 18.9	1.305	1.688	36.8	19.8	93 W	87*	18	6 10	3 13.52	+19 34.5	2.441	1.618	17.2	21.5	28 W	10*	20*
8 24	2 53.99	+48 8.4	1.268	1.681	36.9	19.7	94 W	87*	16	<b>380152 1999 YO<sub>4</sub></b>									
8 29	3 5.49	+49 54.1	1.232	1.674	36.9	19.7	96 W	85*	14	1 2	19 56.24	-32 25.1	3.255	2.339	7.5	21.4	18 E	—	12*
9 3	3 16.98	+51 35.4	1.198	1.668	36.8	19.6	98 W	83	12	1 12	20 17.46	-30 43.4	3.248	2.305	5.8	21.3	14 E	—	7*
9 8	3 28.37	+53 12.1	1.164	1.663	36.7	19.5	100 W	82	11	1 22	20 38.50	-28 52.4	3.231	2.271	4.6	21.2	11 E	—	3*
9 13	3 39.55	+54 43.6	1.131	1.658	36.5	19.4	102 W	80	9	2 1	20 59.31	-26 52.2	3.201	2.235	4.2	21.1	10 E	—	—
9 18	3 50.37	+56 9.7	1.099	1.654	36.2	19.4	104 W	79	8	2 11	21 19.85	-24 42.9	3.161	2.200	4.9	21.1	11 W	—	2*
9 23	4 0.68	+57 29.7	1.068	1.650	35.8	19.3	106 W	78	7	2 21	21 40.11	-22 24.8	3.110	2.164	6.4	21.1	14 W	—	6*
9 28	4 10.29	+58 43.5	1.038	1.648	35.4	19.2	108 W	76	5	3 2	22 0.09	-19 58.1	3.049	2.128	8.2	21.1	18 W	—	11*
10 3	4 19.00	+59 50.6	1.008	1.646	34.8	19.1	110 W	75	4	3 12	22 19.80	-17 23.2	2.979	2.092	10.3	21.1	22 W	—	15*
10 8	4 26.57	+60 50.6	0.980	1.645	34.2	19.1	112 W	74	3	3 22	22 39.28	-14 40.2	2.901	2.056	12.4	21.1	26 W	—	20*
10 13	4 32.75	+61 43.0	0.953	1.645	33.4	19.0	115 W	73	2	4 1	22 58.56	-11 49.5	2.816	2.020	14.5	21.1	31 W	—	24*
10 18	4 37.28	+62 26.8	0.927	1.645	32.5	18.9	118 W	73	2	4 11	23 17.70	-8 51.4	2.724	1.984	16.7	21.1	35 W	3*	29*
10 23	4 39.94	+63 1.1	0.902	1.646	31.4	18.8	120 W	72	1	4 21	23 36.77	-5 45.8	2.628	1.949	18.8	21.0	39 W	5*	33*
10 28	4 40.63	+63 24.4	0.879	1.648	30.3	18.7	123 W	72	1	5 1	23 55.83	+2 33.0	2.526	1.914	21.0	21.0	43 W	8*	37*
11 2	4 39.29	+63 35.1	0.857	1.651	29.0	18.6	126 W	71	—	5 11	0 14.96	+0 46.9	2.422	1.880	23.0	20.9	47 W	12*	40*
11 7	4 36.01	+63 31.4	0.838	1.654	27.6	18.5	129 W	71	—	5 21	0 34.26	+4 14.0	2.315	1.847	25.1	20.8	51 W	15*	43*
11 9	4 34.21	+63 25.4	0.831	1.656	27.1	18.5	131 W	72	1	5 31	0 53.82	+7 48.0	2.208	1.815	27.0	20.7	54 W	20*	45*
11 11	4 32.16	+63 16.6	0.824	1.657	26.5	18.5	132 W	72	1	6 10	1 13.77	+11 28.8	2.100	1.784	28.9	20.6	58 W	25*	45*
11 13	4 29.88	+63 5.0	0.818	1.659	25.9	18.4	133 W	72	1	6 20	1 34.25	+15 16.2	1.994	1.755	30.6	20.5	62 W	31*	44*
11 15	4 27.43	+62 50.3	0.812	1.661	25.3	18.4	134 W	72	1	6 30	1 55.37	+19 9.3	1.890	1.727	32.2	20.4	65 W	37*	43*
11 17	4 24.82	+62 32.6	0.807	1.663	24.7	18.4	135 W	72	1	7 10	2 17.33	+23 7.4	1.789	1.702	33.7	20.3	68 W	44*	40*
11 19	4 22.11	+62 11.7	0.802	1.665	24.1	18.4	137 W	73	2	7 20	2 40.31	+27 9.1	1.693	1.679	35.1	20.2	72 W	52*	36*
11 21	4 19.33	+61 47.6	0.798	1.667	23.5	18.3	138 W	73	2	7 25	2 52.23	+29 10.7	1.646	1.669	35.7	20.2	73 W	55*	35*
11 23	4 16.53	+61 20.3	0.794	1.669															

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

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>380152 1999 YO<sub>4</sub></b>										<b>120482 1992 TA</b>											
<i>(continuation)</i>										<i>(continuation)</i>											
11 7	7 59.11	+61 32.7	0.998	1.631	34.8	19.0	110 W	73	2*	9 28	8 44.85	+43 45.3	1.351	1.315	44.1	19.7	66 W	60*	9*		
11 12	8 8.95	+62 22.1	0.980	1.639	33.9	18.9	113 W	73	2*	10 3	9 6.83	+43 1.0	1.340	1.315	44.3	19.7	67 W	60*	9*		
11 17	8 16.85	+63 9.5	0.963	1.647	32.9	18.9	115 W	72	1	10 8	9 27.83	+42 5.7	1.329	1.316	44.4	19.7	67 W	61*	9*		
11 22	8 22.51	+63 54.6	0.947	1.656	31.9	18.8	118 W	71	—	10 13	9 47.75	+41 1.1	1.318	1.319	44.5	19.7	68 W	61*	9*		
11 27	8 25.70	+64 36.9	0.933	1.665	30.8	18.8	120 W	70	—	10 18	10 6.56	+39 48.9	1.308	1.322	44.5	19.7	68 W	62*	9*		
12 2	8 26.18	+65 15.2	0.921	1.675	29.6	18.7	123 W	70	—	10 28	10 40.80	+37 7.7	1.286	1.333	44.5	19.7	70 W	64*	11*		
12 7	8 23.78	+65 48.0	0.910	1.686	28.3	18.7	126 W	69	—	11 7	11 10.78	+34 13.2	1.262	1.348	44.5	19.7	72 W	66*	13*		
12 12	8 18.42	+66 12.7	0.902	1.698	27.1	18.6	128 W	69	—	11 17	11 36.86	+31 14.2	1.233	1.368	44.3	19.6	75 W	69*	16*		
12 17	8 10.24	+66 26.4	0.896	1.710	25.8	18.6	131 W	69	—	11 27	11 59.33	+28 17.0	1.198	1.391	44.0	19.6	78 W	70*	21*		
12 19	8 6.26	+66 28.1	0.895	1.715	25.3	18.6	132 W	69	—	12 7	12 18.43	+25 25.7	1.157	1.417	43.5	19.6	82 W	70*	26*		
12 21	8 1.95	+66 27.4	0.894	1.720	24.9	18.6	133 W	69	—	12 17	12 34.23	+22 43.2	1.110	1.447	42.8	19.5	87 W	68	31*		
12 23	7 57.34	+66 24.0	0.893	1.725	24.4	18.6	134 W	69	—	12 27	12 46.55	+20 10.9	1.056	1.479	41.6	19.4	93 W	65	38*		
12 25	7 52.48	+66 17.8	0.894	1.731	24.0	18.6	134 W	69	—	1	6	12 55.08	+17 48.7	0.998	1.513	39.9	19.3	100 W	63	44*	
12 27	7 47.45	+66 8.7	0.894	1.736	23.6	18.6	135 W	69	—	1	16	12 59.27	+15 36.2	0.938	1.548	37.3	19.1	107 W	61	48*	
12 29	7 42.29	+65 56.6	0.895	1.741	23.2	18.6	136 W	69	—	<b>469449 2002 OW<sub>19</sub></b>											
12 31	7 37.06	+65 41.5	0.897	1.747	22.8	18.6	136 W	69	—	1	2	20 14.43	-17 33.5	2.857	1.973	10.4	21.4	21 E	11*	10*	
1	2	7 31.84	+65 23.2	0.900	1.752	22.5	18.6	137 W	70	—	1	12	20 18.32	-15 31.7	2.847	1.926	8.4	21.3	17 E	9*	5*
1	4	7 26.68	+65 1.9	0.903	1.758	22.2	18.6	137 W	70	—	1	22	20 57.76	-13 16.9	2.828	1.879	6.5	21.1	13 E	6*	—
1	6	7 21.63	+64 37.6	0.907	1.764	22.0	18.6	138 W	70	—	2	1	21 19.94	-10 48.8	2.800	1.833	4.8	21.0	9 E	3*	—
1	8	7 16.74	+64 10.3	0.911	1.770	21.8	18.6	138 W	71	—	2	11	21 42.47	-8 7.6	2.764	1.787	3.6	20.8	6 E	—	—
1	10	7 12.07	+63 40.1	0.916	1.775	21.6	18.6	138 E	71	—	2	21	22 5.39	-5 13.5	2.722	1.742	3.5	20.7	6 W	—	—
1	12	7 7.65	+63 7.3	0.922	1.781	21.5	18.6	138 E	72	1	3	2	22 28.77	-2 7.3	2.676	1.699	4.5	20.7	8 W	2*	—
1	14	7 3.51	+62 32.0	0.929	1.787	21.5	18.6	138 E	72	1	3	12	22 52.69	+1 9.9	2.626	1.657	6.1	20.7	10 W	4*	—
1	16	6 59.68	+61 54.3	0.936	1.793	21.5	18.7	138 E	73	2	3	22	23 17.30	+4 36.6	2.574	1.617	7.8	20.7	13 W	5*	3*
<b>374684 2006 QD<sub>64</sub></b>										4	1	23 42.74	+8 10.5	2.522	1.580	9.5	20.6	15 W	7*	6*	
1	2	19 58.40	-17 0.5	2.558	1.649	10.5	21.5	18 E	9*	6*	4	11	0 9.19	+11 48.7	2.472	1.545	11.2	20.6	17 W	8*	8*
1	12	20 27.48	-15 53.6	2.582	1.649	8.7	21.4	15 E	7*	3*	4	21	0 36.84	+15 27.7	2.424	1.514	12.8	20.6	20 W	10*	9*
1	22	20 56.18	-14 30.1	2.605	1.652	6.8	21.4	12 E	5*	—	5	1	1 5.88	+19 2.8	2.380	1.487	14.3	20.6	21 W	11*	11*
2	1	21 24.40	-12 52.2	2.626	1.658	5.0	21.3	8 E	2*	—	5	11	1 36.49	+22 28.6	2.341	1.464	15.6	20.5	23 W	13*	11*
2	11	21 52.04	-11 2.4	2.647	1.666	3.1	21.2	5 E	—	—	5	21	2 8.78	+25 39.2	2.307	1.446	16.7	20.5	24 W	14*	12*
2	21	22 19.08	-9 3.2	2.665	1.678	1.3	21.1	2 E	—	—	5	31	2 42.78	+28 28.1	2.279	1.433	17.8	20.5	26 W	15*	12*
3	2	22 45.50	-6 57.4	2.682	1.691	1.0	21.1	2 W	—	—	6	5	3 0.37	+29 42.5	2.267	1.428	18.3	20.5	26 W	16*	12*
3	12	23 11.33	-4 47.5	2.696	1.708	2.7	21.3	5 W	—	—	6	10	3 18.32	+30 49.1	2.257	1.425	18.7	20.5	27 W	17*	12*
3	22	23 36.59	-2 36.2	2.707	1.726	4.6	21.4	8 W	—	2*	6	15	3 36.58	+31 47.4	2.247	1.423	19.1	20.5	27 W	17*	11*
<b>468727 2010 JE<sub>87</sub></b>										6	20	3 55.10	+32 36.8	2.239	1.423	19.5	20.5	28 W	18*	11*	
1	2	20 0.66	-23 50.2	1.391	0.534	32.5	21.4	17 E	4*	9*	6	25	4 13.80	+33 16.9	2.232	1.424	19.9	20.5	28 W	19*	11*
1	7	20 34.42	-23 31.3	1.321	0.516	40.0	21.4	20 E	6*	12*	6	30	4 32.60	+33 47.3	2.226	1.426	20.3	20.5	29 W	20*	11*
1	12	21 8.72	-22 41.9	1.247	0.509	48.2	21.5	23 E	8*	15*	7	5	4 51.40	+34 8.0	2.221	1.430	20.6	20.5	30 W	21*	11*
1	17	21 42.98	-21 19.3	1.171	0.515	56.3	21.6	26 E	10*	17*	7	10	5 10.13	+34 18.8	2.217	1.435	21.0	20.5	30 W	22*	11*
1	22	22 16.73	-19 22.6	1.097	0.532	63.7	21.8	29 E	13*	20*	7	15	5 28.70	+34 20.0	2.213	1.442	21.4	20.6	31 W	23*	11*
<b>120482 1992 TA</b>										7	20	5 47.02	+34 11.8	2.209	1.450	21.7	20.6	32 W	24*	11*	
1	2	20 8.06	-34 58.3	3.012	2.126	9.7	21.5	21 E	—	15*	7	25	6 5.00	+33 54.7	2.206	1.459	22.1	20.6	33 W	25*	11*
1	12	20 31.19	-33 1.7	3.015	2.098	8.1	21.4	17 E	—	11*	7	30	6 22.58	+33 29.1	2.202	1.469	22.5	20.6	34 W	26*	12*
1	22	20 53.90	-30 54.8	3.008	2.069	6.7	21.3	14 E	—	7*	8	4	6 39.70	+32 55.6	2.198	1.480	22.9	20.7	35 W	27*	12*
2	1	21 16.17	-28 37.8	2.991	2.039	5.9	21.2	12 E	—	4*	8	9	6 56.32	+32 14.9	2.194	1.493	23.3	20.7	36 W	28*	12*
2	11	21 37.99	-26 11.4	2.962	2.007	5.8	21.1	12 E	—	—	8	14	7 12.41	+31 27.5	2.190	1.506	23.8	20.7	37 W	29*	13*
2	21	21 59.39	-23 35.8	2.924	1.974	6.5	21.1	13 W	—	3*	8	19	7 27.94	+30 34.2	2.185	1.521	24.2	20.7	38 W	31*	13*
3	2	22 20.41	-20 51.5	2.876	1.940	7.9	21.1	16 W	—	7*	8	24	7 42.90	+29 35.6	2.178	1.536	24.6	20.8	39 W	32*	14*
3	12	22 41.11	-17 58.8	2.819	1.905	9.7	21.1	19 W	—	11*	8	29	7 57.27	+28 32.3	2.171	1.553	25.1	20.8	41 W	33*	15*
3	22	23 1.57	-14 58.0	2.754	1.870	11.6	21.1	22 W	—	15*	9	3	8 11.06	+27 25.1	2.163	1.570	25.6	20.8	42 W	35*	16*
4	1	23 21.87	-11 49.2	2.680	1.833	13.7	21.0	26 W	—	19*	9	8	8 24.29	+26 14.3	2.153	1.588	26.1	20.9	44 W	36*	17*
4	11	23 42.11	-8 32.7	2.601	1.796	15.9	21.0	29 W	—	23*	9	13	8 36.96	+25 0.7	2.142	1.606	26.5	20.9	46 W	38*	18*
4	21	0 2.41	-5 8.2	2.515	1.720	18.1	21.0	33 W	1*	27*	9	18	8 49.08	+23 44.6	2.130	1.626	27.0	20.9	47 W	40*	19*
5	1	0 22.90	-1 36.0	2.425	1.758	20.3	20.9	36 W	4*	30*	9	23	9 0.66	+22 26.5	2.115	1.645	27.5	20.9	49 W	41*	20*
5	11	0 43.75	+2 4.2	2.331	1.682	22.5	20.8	40 W	8*	33*	9	28	9 11.71	+21 6.9	2.099	1.666	27.9	21.0	51 W	43*	22*
5	21	1 5.15	+5 52.3	2.234	1.644	24.8	20.8	43 W	11*	36*	10	3	9 22.25	+19 46.0	2.082	1.687	28.4	21.0	53 W	45*	23*
5	31	1 27.32	+9 48.2	2.137	1.606	27.0	20.7	46 W	15*	37*	10	8	9 32.29	+18 24.3	2.062	1.708	28.8	21.0	55 W	46*	25*
6	10	1 50.52	+13 51.2	2.040	1.569	29.1	20.6	49 W	20*	38*	10	13	9 41.83	+17 2.0	2.041	1.730	29.2	21.0	58 W	48*	27*
6	20	2 15.11	+18 0.4	1.945	1.533	31.2	20.5	51 W	26*	37*	10	18	9 50.89	+15 39.3	2.018	1.752	29.6	21.0	60 W	49*	29*
6	30	2 41.46	+22 13.6	1.853	1.498	33.2	20.4	54 W	31*	35*	10	23	9 59.45	+14 16.6	1.993	1.774	29.9	21.0	63 W	51*	31*
7	5	2 55.44	+24 20.6	1.809	1.481	34.2	20.4	55 W	34*	34*	10	28	10 7.51	+12 54.1	1.966	1.797	30.2	21.0	65 W	52*	33*
7	10	3 10.05	+26 27.2	1.766	1.465	35.1	2														