

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

21/22	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	21/22	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°
124192 Moletai										377939 2006 HP₅₈									
10 13	5 49.78	+23 51.0	2.231	2.763	19.6	21.4	112 W	69	40	10 13	5 59.57	+14 44.5	1.186	1.786	31.8	21.4	109 W	60	49
10 23	5 49.95	+23 38.1	2.109	2.766	17.8	21.3	122 W	69	40	10 23	6 8.26	+11 50.2	1.083	1.771	30.1	21.1	117 W	57	52
11 2	5 47.12	+23 22.8	1.999	2.767	15.3	21.1	132 W	68	41	11 2	6 13.36	+ 8 29.4	0.989	1.755	27.7	20.8	125 W	53	56
11 12	5 41.24	+23 4.5	1.906	2.768	12.2	20.8	144 W	68	41	11 12	6 14.32	+ 4 45.4	0.908	1.739	24.7	20.5	133 W	50	59
11 22	5 32.59	+22 42.4	1.836	2.767	8.4	20.6	156 W	68	41	11 22	6 10.84	+ 0 47.4	0.843	1.723	21.4	20.3	140 W	46	63
12 2	5 21.81	+22 16.1	1.792	2.766	4.1	20.3	169 W	67	42	11 27	6 7.44	- 1 12.4	0.817	1.715	19.9	20.1	144 W	44	65
12 7	5 15.93	+22 1.4	1.782	2.764	1.8	20.2	175 W	67	42	12 2	6 3.02	- 3 9.2	0.796	1.707	18.6	20.0	147 W	42	67
12 12	5 9.94	+21 46.0	1.779	2.763	0.7	20.1	178 E	67	42	12 7	5 57.73	- 5 0.0	0.780	1.699	17.7	19.9	148 W	40	69
12 17	5 4.01	+21 30.1	1.783	2.761	2.9	20.3	172 E	67	42	12 12	5 51.76	- 6 41.7	0.770	1.691	17.5	19.9	149 W	38	71
12 22	4 58.29	+21 14.2	1.795	2.759	5.1	20.4	166 E	66	43	12 17	5 45.37	- 8 11.6	0.764	1.683	17.8	19.9	148 W	37	72
12 27	4 52.94	+20 58.5	1.815	2.757	7.3	20.5	159 E	66	43	12 22	5 38.84	- 9 27.4	0.764	1.676	18.8	19.9	147 E	36	73
1 1	4 48.06	+20 43.5	1.842	2.754	9.4	20.6	153 E	66	43	12 27	5 32.47	-10 27.6	0.769	1.668	20.2	19.9	144 E	35	74
1 6	4 43.79	+20 29.7	1.875	2.751	11.3	20.8	147 E	65	44	1 1	5 26.51	-11 11.5	0.778	1.661	22.0	20.0	141 E	34	75
1 11	4 40.19	+20 17.3	1.914	2.748	13.1	20.9	141 E	65	44	1 6	5 21.25	-11 39.1	0.791	1.653	23.9	20.1	137 E	33	76
1 16	4 37.33	+20 6.7	1.959	2.745	14.7	21.0	135 E	65	44	1 11	5 16.90	-11 51.5	0.807	1.646	25.8	20.2	133 E	33	76
1 21	4 35.22	+19 57.9	2.008	2.741	16.1	21.1	129 E	65	44	1 16	5 13.60	-11 50.0	0.827	1.639	27.6	20.3	129 E	33	76
1 21	4 35.22	+19 57.9	2.008	2.741	16.1	21.1	129 E	65	44	1 21	5 11.43	-11 36.4	0.849	1.632	29.4	20.4	126 E	33	76
267759 2003 MC₇										337053 1996 XW₁									
10 13	5 50.11	-12 15.7	1.006	1.623	35.8	21.4	108 W	33	76	10 13	5 59.61	+39 59.8	0.884	1.531	38.1	21.3	109 W	85	24
10 18	5 52.65	-13 34.5	0.974	1.624	34.9	21.3	111 W	31	78	10 18	6 10.03	+38 46.3	0.811	1.499	38.2	21.1	112 W	84	25
10 23	5 54.10	-14 53.0	0.943	1.626	34.0	21.2	114 W	30	79	10 23	6 20.14	+37 12.7	0.739	1.466	38.1	20.8	115 W	82	27
10 28	5 54.38	-16 10.2	0.913	1.627	32.9	21.1	117 W	29	80	10 28	6 29.87	+35 14.2	0.670	1.433	37.9	20.5	118 W	80	29
11 2	5 53.41	-17 24.3	0.884	1.627	31.8	21.0	120 W	28	81	11 2	6 39.18	+32 44.2	0.603	1.399	37.6	20.2	121 W	78	31
11 7	5 51.11	-18 33.2	0.857	1.627	30.7	20.9	123 W	26	83	11 4	6 42.77	+31 33.5	0.576	1.386	37.4	20.1	122 W	77	32
11 12	5 47.47	-19 34.6	0.833	1.626	29.5	20.8	126 W	25	84	11 6	6 46.27	+30 15.8	0.551	1.372	37.2	20.0	123 W	75	34
11 17	5 42.51	-20 26.0	0.811	1.625	28.3	20.8	129 W	25	84	11 8	6 49.69	+28 50.2	0.526	1.359	37.0	19.9	124 W	74	35
11 22	5 36.31	-21 4.6	0.792	1.623	27.2	20.7	131 W	24	85	11 10	6 53.03	+27 16.0	0.502	1.346	36.8	19.7	126 W	72	37
11 27	5 28.99	-21 27.9	0.776	1.621	26.3	20.6	133 W	24	85	11 12	6 56.29	+25 32.1	0.478	1.332	36.5	19.6	127 W	71	38
12 2	5 20.77	-21 33.3	0.763	1.618	25.5	20.5	135 W	23	86	11 14	6 59.46	+23 37.6	0.455	1.319	36.3	19.5	128 W	69	40
12 7	5 11.95	-21 19.0	0.755	1.615	25.1	20.5	136 W	24	85	11 16	7 2.54	+21 31.3	0.433	1.306	36.1	19.3	129 W	67	42
12 12	5 2.88	-20 43.8	0.750	1.611	25.1	20.5	136 E	24	85	11 18	7 5.54	+19 12.1	0.412	1.292	35.9	19.2	130 W	64	45
12 17	4 53.95	-19 47.9	0.749	1.607	25.4	20.5	136 E	25	84	11 20	7 8.46	+16 38.7	0.392	1.279	35.8	19.1	131 W	62	47
12 22	4 45.51	-18 32.5	0.753	1.602	26.1	20.5	134 E	26	83	11 22	7 11.29	+13 50.0	0.373	1.266	35.7	18.9	132 W	59	50
12 27	4 37.86	-16 59.6	0.760	1.597	27.1	20.5	132 E	28	81	11 24	7 14.03	+10 44.7	0.355	1.253	35.9	18.8	132 W	56	53
1 1	4 31.24	-15 11.9	0.771	1.591	28.4	20.6	130 E	30	79	11 26	7 16.69	+ 7 22.1	0.338	1.240	36.2	18.7	132 W	52	57
1 6	4 25.84	-13 12.3	0.786	1.585	29.8	20.7	127 E	32	77	11 28	7 19.27	+ 3 41.4	0.323	1.227	36.7	18.6	132 W	49	60
1 11	4 21.77	-11 4.0	0.805	1.578	31.3	20.8	124 E	34	75	11 30	7 21.76	- 0 17.3	0.310	1.214	37.8	18.5	131 W	45	64
1 16	4 19.06	- 8 50.0	0.826	1.571	32.7	20.8	120 E	36	73	12 2	7 24.17	- 4 33.4	0.299	1.201	38.6	18.4	130 W	40	69
1 21	4 17.68	- 6 32.8	0.850	1.563	34.2	20.9	117 E	38	71	12 4	7 26.51	- 9 5.3	0.289	1.188	40.3	18.4	129 W	36	73
414032 2007 PJ₃₄										415761 2000 SF₂₃									
10 13	5 50.54	+16 28.4	1.643	2.215	24.7	21.5	112 W	61	48	10 13	6 2.80	+36 49.3	1.439	1.994	28.3	21.4	108 W	82	27
10 23	5 51.92	+16 24.3	1.563	2.246	22.3	21.3	121 W	61	48	10 18	6 4.68	+37 39.2	1.410	2.018	27.1	21.4	113 W	83	26
11 2	5 49.73	+16 23.0	1.493	2.276	19.0	21.1	132 W	61	48	10 23	6 5.41	+38 29.4	1.384	2.042	25.6	21.3	117 W	83	26
11 12	5 43.94	+16 25.7	1.438	2.306	15.0	20.9	143 W	61	48	10 28	6 4.92	+39 19.7	1.359	2.066	24.1	21.3	122 W	84	25
11 22	5 34.95	+16 33.1	1.404	2.335	10.4	20.7	155 W	62	47	11 2	6 3.15	+40 9.3	1.336	2.089	22.3	21.2	127 W	85	24
12 2	5 23.66	+16 44.9	1.393	2.364	5.5	20.5	167 W	62	47	1 1	8 2.90	-69 17.4	0.355	1.027	73.0	19.5	87 W	-	47
12 12	5 11.40	+17 0.8	1.411	2.392	2.5	20.4	174 E	62	47	1 3	8 4.98	-70 32.4	0.361	1.022	73.6	19.5	86 W	-	45
12 17	5 5.40	+17 10.2	1.431	2.406	4.0	20.6	170 E	62	47	1 4	8 7.24	-71 44.5	0.368	1.018	74.2	19.6	85 W	-	44
12 22	4 59.74	+17 20.5	1.457	2.420	6.2	20.7	165 E	62	47	1 5	8 9.68	-72 53.8	0.374	1.013	74.7	19.6	84 W	-	43
12 27	4 54.57	+17 31.8	1.491	2.433	8.5	20.9	159 E	63	46	1 6	8 12.36	-74 0.3	0.380	1.009	75.2	19.6	83 W	-	42
1 1	4 50.02	+17 44.0	1.531	2.447	10.6	21.0	153 E	63	46	1 7	8 15.30	-75 4.4	0.387	1.005	75.6	19.7	82 W	-	41
1 6	4 46.18	+17 57.2	1.577	2.460	12.6	21.2	147 E	63	46	1 8	8 18.56	-76 5.9	0.393	1.001	76.1	19.7	81 W	-	40
1 11	4 43.14	+18 11.4	1.629	2.473	14.5	21.3	141 E	63	46	1 9	8 22.18	-77 5.2	0.400	0.997	76.4	19.8	80 W	-	39
1 16	4 40.91	+18 26.5	1.686	2.485	16.1	21.5	136 E	63	46	1 10	8 26.24	-78 2.3	0.406	0.993	76.8	19.8	80 W	-	38
10 13	5 55.23	-19 57.3	1.475	1.985	29.0	21.4	105 W	25	84	1 11	8 30.82	-78 57.3	0.413	0.990	77.1	19.8	79 W	-	37
10 18	5 59.26	-23 23.9	1.433	1.966	29.1	21.3	107 W	22	87	1 12	8 36.05	-79 50.2	0.419	0.986	77.4	19.9	78 W	-	36
10 23	6 2.69	-26 56.9	1.397	1.946	29.1	21.2	108 W	18	89	1 13	8 42.04	-80 41.2	0.426	0.983	77.6	19.9	77 W	-	35
10 28	6 5.41	-30 33.8	1.367	1.927	29.3	21.2	108 W	14	85	1 14	8 49.00	-81 30.2	0.432	0.979	77.8	19.9	77 W	-	34
11 2	6 7.34	-34 11.9	1.343	1.908	29.5	21.1	109 W	11	82	1 15	8 57.15	-82 17.4	0.438	0.976	78.0	20.0	76 W	-	34
11 7	6 8.39	-37 47.9	1.326	1.890	29.8	21.1	108 W	7	78	1 16	9 6.83	-83 2.5	0.445	0.973	78.2	20.0	76 W	-	33
11 12	6 8.46	-41 18.6	1.314	1.871	30.2	21.1	108 W	4	75	1 17	9 18.47	-83 45.6	0.451	0.970	78.3	20.0	75 W	-	32
11 17	6 7.49	-44 40.9	1.307	1.853	30.7	21.0	107 W	-	71	1 18	9 32.65	-84 26.5	0.457	0.967	78.5	20.1	74 W	-	32
11 22	6 5.38	-47 51.8	1.305	1.836	31.2														

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

21/22	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45° - 26°	21/22	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45° - 26°	
415761 2000 SF₂₃									159560 2001 TO₁₀₃									
<i>(continuation)</i>									<i>(continuation)</i>									
11 7	6 0.07	+40 57.1	1.318	2.113	20.4	21.1	132 W	86	23	11 2	6 3.91	+42 35.7	1.795	2.512	18.6	21.2	126 W	88
11 12	5 55.70	+41 41.9	1.303	2.136	18.4	21.1	137 W	87	22	11 7	5 59.86	+43 38.2	1.768	2.533	17.1	21.2	131 W	89
11 17	5 50.12	+42 22.3	1.292	2.159	16.4	21.0	142 W	87	22	11 12	5 54.63	+44 38.3	1.747	2.553	15.6	21.1	136 W	90
11 22	5 43.45	+42 56.8	1.287	2.182	14.3	21.0	147 W	88	21	11 17	5 48.25	+45 34.6	1.731	2.574	14.1	21.0	141 W	89
11 27	5 35.88	+43 24.1	1.287	2.205	12.3	20.9	151 W	88	21	11 22	5 40.84	+46 25.5	1.720	2.594	12.6	21.0	145 W	89
12 2	5 27.68	+43 43.1	1.294	2.228	10.6	20.9	155 W	89	20	11 27	5 32.52	+47 9.6	1.717	2.613	11.2	21.0	149 W	88
12 7	5 19.15	+43 53.0	1.306	2.250	9.4	20.9	158 W	89	20	12 2	5 23.52	+47 45.6	1.720	2.632	10.1	20.9	152 W	87
12 12	5 10.63	+43 53.9	1.326	2.273	8.9	20.9	159 E	89	20	12 7	5 14.10	+48 12.5	1.730	2.651	9.4	20.9	154 W	87
12 17	5 2.46	+43 46.1	1.352	2.295	9.1	21.0	158 E	89	20	12 12	5 4.59	+48 29.9	1.747	2.670	9.2	21.0	154 E	87
12 22	4 54.92	+43 30.8	1.384	2.317	10.0	21.1	156 E	89	20	12 17	4 55.30	+48 38.1	1.772	2.688	9.5	21.0	153 E	86
12 27	4 48.22	+43 9.1	1.423	2.339	11.3	21.2	152 E	88	21	12 22	4 46.51	+48 37.7	1.803	2.706	10.2	21.1	151 E	86
1 1	4 42.53	+42 42.8	1.468	2.360	12.8	21.4	148 E	88	21	12 27	4 38.47	+48 29.7	1.842	2.723	11.2	21.2	148 E	87
1 6	4 37.95	+42 13.2	1.518	2.381	14.2	21.5	143 E	87	22	1 1	4 31.37	+48 15.6	1.886	2.740	12.3	21.3	144 E	87
									1 6	4 25.34	+47 56.7	1.937	2.757	13.5	21.4	139 E	87	
351278 2004 SB₂₀									512242 2015 XZ₂₆₁									
10 13	6 3.15	+44 42.8	1.072	1.671	34.7	21.5	108 W	90	19	10 13	6 14.72	+3 2.3	1.257	1.792	32.6	21.4	105 W	48
10 18	6 5.60	+47 4.0	1.027	1.672	33.7	21.4	111 W	88	17	10 18	6 15.05	+3 28.0	1.217	1.809	31.3	21.4	109 W	48
10 23	6 6.59	+49 34.6	0.984	1.671	32.6	21.3	115 W	85	14	10 23	6 14.29	+3 58.0	1.177	1.826	29.8	21.3	114 W	49
10 28	6 5.74	+52 14.1	0.945	1.670	31.4	21.1	119 W	83	12	10 28	6 12.34	+4 33.2	1.139	1.842	28.0	21.2	119 W	50
11 2	6 2.52	+55 0.9	0.909	1.667	30.2	21.0	122 W	80	9	10 28	6 9.12	+5 14.5	1.102	1.858	26.0	21.0	125 W	50
11 7	5 56.23	+57 52.4	0.877	1.663	28.9	20.9	126 W	77	6	11 2	6 4.60	+6 2.4	1.069	1.874	23.6	20.9	131 W	51
11 12	5 46.04	+60 43.9	0.849	1.658	27.8	20.8	129 W	74	3	11 7	6 4.60	+6 2.4	1.069	1.874	23.6	20.9	131 W	51
11 17	5 30.95	+63 28.9	0.827	1.652	26.9	20.7	131 W	72	1	11 12	5 58.74	+6 57.6	1.039	1.889	20.9	20.8	137 W	52
11 22	5 9.96	+65 58.6	0.810	1.645	26.4	20.6	132 W	69	—	11 17	5 51.60	+8 0.2	1.014	1.903	17.9	20.7	144 W	53
11 27	4 42.50	+68 2.2	0.798	1.637	26.3	20.6	133 W	67	—	11 22	5 43.27	+9 9.8	0.995	1.917	14.7	20.5	150 W	54
12 2	4 9.19	+69 28.7	0.792	1.628	26.6	20.6	132 E	66	—	11 27	5 33.91	+10 25.5	0.982	1.931	11.3	20.4	157 W	55
12 7	3 32.55	+70 10.3	0.791	1.618	27.4	20.6	131 E	65	—	12 2	5 23.77	+11 46.1	0.977	1.944	8.0	20.3	164 W	57
12 12	2 56.60	+70 6.3	0.795	1.606	28.6	20.6	129 E	65	—	12 7	5 13.15	+13 9.7	0.979	1.956	5.2	20.1	170 W	58
12 17	2 25.02	+69 23.9	0.803	1.594	30.0	20.6	126 E	66	—	12 12	5 2.44	+14 34.4	0.990	1.968	4.5	20.1	171 E	60
12 22	1 59.80	+68 14.7	0.815	1.580	31.6	20.7	123 E	67	—	12 17	4 52.00	+15 58.2	1.008	1.979	6.5	20.3	167 E	61
12 27	1 41.21	+66 50.3	0.830	1.565	33.3	20.8	119 E	68	—	12 22	4 42.17	+17 19.6	1.035	1.990	9.4	20.5	161 E	62
1 1	1 28.55	+65 20.3	0.847	1.549	35.0	20.8	115 E	70	—	12 27	4 33.22	+18 37.3	1.069	2.001	12.4	20.7	154 E	64
1 6	1 20.82	+63 51.5	0.866	1.532	36.6	20.9	112 E	71	—	1 1	4 25.37	+19 50.8	1.110	2.011	15.2	20.9	148 E	65
1 11	1 17.07	+62 28.3	0.886	1.514	38.2	21.0	108 E	73	—	1 6	4 18.77	+20 59.9	1.158	2.020	17.8	21.1	141 E	66
1 16	1 16.49	+61 13.2	0.906	1.494	39.6	21.0	104 E	74	—	1 11	4 13.48	+22 4.7	1.210	2.029	20.0	21.3	135 E	67
1 21	1 18.46	+60 7.3	0.926	1.474	41.0	21.1	101 E	75*	—	1 16	4 9.51	+23 5.6	1.268	2.037	22.0	21.4	129 E	68
354820 2005 WR₉₇									313593 2003 NQ₄									
10 13	6 3.18	+23 14.4	1.682	2.215	25.2	21.4	109 W	68	41	10 13	6 15.80	+25 30.5	2.104	2.565	22.0	21.4	106 W	71
10 23	6 5.71	+23 35.2	1.596	2.244	23.0	21.3	118 W	69	40	10 23	6 17.72	+25 5.7	2.001	2.590	20.3	21.3	115 W	70
11 2	6 4.57	+23 58.6	1.519	2.273	20.0	21.1	128 W	69	40	11 2	6 16.48	+24 39.1	1.907	2.614	18.0	21.1	126 W	70
11 12	5 59.57	+24 23.9	1.455	2.300	16.2	20.9	140 W	69	40	11 12	6 11.96	+24 10.1	1.827	2.637	14.9	20.9	137 W	69
11 22	5 50.96	+24 49.0	1.410	2.327	11.6	20.7	152 W	70	39	11 22	6 4.36	+23 38.2	1.766	2.659	11.2	20.8	149 W	69
12 2	5 39.46	+25 10.7	1.389	2.354	6.5	20.5	164 W	70	39	12 2	5 54.24	+23 2.5	1.729	2.681	6.9	20.5	161 W	68
12 7	5 33.02	+25 19.3	1.389	2.366	3.9	20.3	171 W	70	39	12 12	5 42.59	+22 23.2	1.720	2.701	2.3	20.3	174 W	67
12 12	5 26.39	+25 26.0	1.396	2.379	1.4	20.2	177 W	70	39	12 17	5 36.59	+22 2.6	1.727	2.711	0.5	20.2	179 E	67
12 17	5 19.81	+25 30.9	1.409	2.392	1.9	20.3	175 E	71	38	12 22	5 30.71	+21 41.8	1.742	2.721	2.5	20.4	173 E	67
12 22	5 13.47	+25 33.9	1.431	2.404	4.4	20.5	169 W	71	38	12 27	5 25.09	+21 21.2	1.764	2.731	4.8	20.5	167 E	66
12 27	5 7.57	+25 35.4	1.459	2.416	6.9	20.6	163 E	71	38	1 1	5 19.89	+21 1.2	1.794	2.740	6.9	20.7	160 E	66
1 1	5 2.27	+25 35.7	1.494	2.428	9.3	20.8	157 E	71	38	1 6	5 15.21	+20 42.1	1.831	2.749	9.0	20.8	154 E	66
1 6	4 57.70	+25 35.4	1.535	2.439	11.4	21.0	151 E	71	38	1 11	5 11.17	+20 24.4	1.874	2.758	10.9	20.9	148 E	65
1 11	4 53.96	+25 34.7	1.582	2.451	13.4	21.1	145 E	71	38	1 16	5 7.83	+20 8.3	1.923	2.767	12.6	21.1	142 E	65
1 16	4 51.09	+25 34.2	1.635	2.462	15.2	21.3	139 E	71	38	1 21	5 5.21	+19 54.1	1.978	2.775	14.1	21.2	136 E	65
1 21	4 49.12	+25 34.1	1.692	2.473	16.8	21.4	133 E	71	38									
355770 2008 RE₈₀									298747 2004 GU₇₆									
10 13	6 4.49	+ 2 42.2	1.192	1.766	32.7	21.3	107 W	48	61	10 13	6 17.15	+18 13.6	1.870	2.342	24.2	21.4	105 W	63
10 23	6 12.47	+ 0 6.3	1.089	1.747	31.4	21.0	114 W	45	64	10 23	6 19.64	+18 16.5	1.779	2.374	22.4	21.3	115 W	63
11 2	6 17.06	+ 3 12.0	0.994	1.725	29.7	20.8	121 W	42	67	11 2	6 18.84	+18 23.5	1.695	2.404	19.8	21.1	125 W	63
11 12	6 17.56	+ 6 28.8	0.908	1.702	27.5	20.5	127 W	39	70	11 12	6 14.55	+18 35.5	1.624	2.434	16.5	21.0	136 W	64
11 17	6 16.10	+ 8 8.1	0.870	1.690	26.3	20.3	131 W	37	72	11 22	6 6.92	+18 52.5	1.571	2.463	12.4	20.8	148 W	64
11 22	6 13.46	+ 9 45.6	0.835	1.677	25.2	20.2	134 W	35	74	12 2	5 56.48	+19 13.3	1.540	2.490	7.7	20.6	160 W	64
11 27	6 9.60	+11 19.0	0.804	1.664	24.1	20.1	136 W	34	75	12 12	5 44.26	+19 36.2	1.537	2.517	2.9	20.3	173 W	65
12 2	6 4.56	+12 45.7	0.777	1.650	23.3	19.9	139 W	32	77	12 17	5 37.92	+19 47.9	1.547	2.530	1.4	20.3	176 E	65
12 7	5 58.43	+14 2.6	0.753	1.636	22.7	19.8	140 W	31	78	12 22	5 31.68	+19 59.5	1.564	2.543	2.9	20.4	173 E	65
12 12	5 51.39	+15 6.7	0.734	1.622	22.5	19.8	141 W	30	79	12 27	5 25.70	+20 11.0	1.589	2.555	5.2	20.6	166 E	65
12 17	5 43.70	+15 55.4	0.720	1.607	22.8	19.7	141 W	29	80	1 1	5 20.16	+20 22.4	1.620	2.567	7.4	20.7	160 E	65
12 22	5 35.63	+16 26.9	0.709	1.592	23.6	19.7	140 E	29										

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

21/22	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	21/22	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°
439877 1999 XM₁₄₁ (continuation)										302169 2001 TD₄₅ (continuation)									
11 24	8 17.51	+22 19.9	0.307	1.172	46.8	19.1	120 W	67	42	10 27	5 57.53	+48 13.5	0.545	1.354	39.3	20.8	120 W	87	16
11 26	8 28.34	+24 8.0	0.290	1.160	47.5	18.9	120 W	69	40	10 29	5 48.32	+49 32.4	0.534	1.362	37.6	20.7	123 W	85	14
11 28	8 40.45	+26 6.4	0.274	1.148	48.3	18.8	120 W	71	38	10 31	5 37.84	+50 49.8	0.525	1.369	36.0	20.7	126 W	84	13
11 30	8 54.08	+28 15.2	0.260	1.135	49.4	18.7	119 W	73	36	11 2	5 25.98	+52 4.2	0.516	1.375	34.3	20.6	129 W	83	12
12 2	9 9.54	+30 33.6	0.246	1.123	50.7	18.6	118 W	76	33	11 4	5 12.67	+53 13.9	0.508	1.381	32.7	20.5	131 W	82	11
12 4	9 27.16	+33 0.0	0.234	1.111	52.3	18.5	117 W	78	31*	11 6	4 57.90	+54 17.0	0.502	1.386	31.1	20.4	134 W	81	10
12 6	9 47.29	+35 31.2	0.223	1.099	54.3	18.4	115 W	81	28*	11 8	4 41.72	+55 11.4	0.497	1.392	29.7	20.4	136 W	80	9
12 8	10 10.29	+38 2.2	0.214	1.087	56.6	18.4	113 W	83	26*	11 10	4 24.26	+55 55.1	0.493	1.396	28.3	20.3	138 W	79	8
12 10	10 36.40	+40 26.0	0.207	1.074	59.3	18.4	110 W	85	23*	11 12	4 5.77	+56 26.4	0.490	1.400	27.2	20.3	140 W	79	8
12 12	11 5.64	+42 34.1	0.202	1.062	62.4	18.4	107 W	88	20*	11 13	3 56.25	+56 36.9	0.490	1.402	26.7	20.3	140 W	78	7
12 13	11 21.34	+43 29.4	0.200	1.056	64.0	18.4	106 W	88	18*	11 14	3 46.60	+56 43.9	0.489	1.404	26.3	20.3	141 W	78	7
12 14	11 37.66	+44 17.4	0.199	1.050	65.6	18.4	104 W	89	17*	11 15	3 36.87	+56 47.2	0.489	1.405	26.0	20.3	141 W	78	7
12 15	11 54.48	+44 57.1	0.198	1.044	67.3	18.5	102 W	90	15*	11 16	3 27.14	+56 46.8	0.490	1.407	25.7	20.3	142 W	78	7
12 16	12 11.66	+45 27.7	0.198	1.037	69.1	18.5	100 W	90	14*	11 17	3 17.44	+56 42.7	0.490	1.408	25.5	20.3	142 E	78	7
12 17	12 29.03	+45 48.9	0.198	1.031	70.8	18.5	98 W	89	12*	11 18	3 7.83	+56 35.0	0.491	1.410	25.4	20.3	142 E	78	7
12 18	12 46.42	+46 0.4	0.199	1.025	72.6	18.6	96 W	89	11*	11 19	2 58.38	+56 23.7	0.493	1.411	25.4	20.3	142 E	79	8
12 19	13 3.63	+46 2.2	0.201	1.019	74.3	18.6	94 W	87*	10*	11 20	2 49.11	+56 9.1	0.495	1.412	25.4	20.3	142 E	79	8
12 20	13 20.51	+45 54.9	0.202	1.013	76.0	18.7	92 W	85*	9*	11 21	2 40.09	+55 51.3	0.497	1.413	25.5	20.3	142 E	79	8
12 21	13 36.91	+45 38.9	0.205	1.007	77.7	18.8	91 W	83*	7*	11 22	2 31.34	+55 30.6	0.499	1.414	25.7	20.3	142 E	79	8
12 22	13 52.70	+45 15.1	0.207	1.001	79.3	18.9	89 W	81*	6*	11 24	2 14.77	+54 41.0	0.505	1.415	26.3	20.4	141 E	80	9
12 23	14 7.79	+44 44.4	0.210	0.995	80.9	18.9	87 W	79*	6*	11 26	1 59.59	+53 42.5	0.513	1.416	27.1	20.4	139 E	81	10
12 24	14 22.12	+44 7.8	0.214	0.989	82.4	19.0	85 W	78*	5*	11 28	1 45.87	+52 37.1	0.522	1.416	28.0	20.5	138 E	82	11
12 25	14 35.66	+43 26.3	0.218	0.983	83.8	19.1	83 W	76*	4*	11 30	1 33.61	+51 26.7	0.532	1.416	29.1	20.6	136 E	84	13
12 26	14 48.40	+42 40.7	0.222	0.977	85.2	19.2	82 W	74*	3*	12 2	1 22.76	+50 13.4	0.543	1.416	30.3	20.6	134 E	85	14
12 27	15 0.34	+41 52.0	0.227	0.971	86.5	19.3	80 W	72*	3*	12 4	1 13.23	+48 58.6	0.555	1.415	31.6	20.7	131 E	86	15
12 28	15 11.52	+41 0.9	0.231	0.965	87.7	19.3	79 W	71*	2*	12 6	1 4.93	+47 43.6	0.568	1.413	32.8	20.8	129 E	87	16
12 29	15 21.96	+40 8.1	0.237	0.959	88.9	19.4	77 W	70*	2*	12 8	0 57.73	+46 29.7	0.582	1.411	34.1	20.9	127 E	89	18
12 30	15 31.72	+39 14.1	0.242	0.953	90.0	19.5	76 W	68*	2*	12 10	0 51.54	+45 17.5	0.596	1.409	35.3	21.0	124 E	90	19
12 31	15 40.82	+38 19.5	0.248	0.947	91.0	19.6	74 W	67*	2*	12 12	0 46.24	+44 7.8	0.611	1.406	36.5	21.1	122 E	89	20
1 1	15 49.33	+37 24.6	0.253	0.942	91.9	19.6	73 W	66*	2*	12 14	0 41.73	+43 0.9	0.627	1.403	37.7	21.1	119 E	88	21*
1 3	16 4.73	+35 35.1	0.266	0.930	93.6	19.8	71 W	64*	2*	12 16	0 37.92	+41 57.2	0.643	1.399	38.8	21.2	117 E	87	22*
1 5	16 18.25	+33 47.4	0.278	0.919	95.0	19.9	69 W	62*	2*	12 18	0 34.74	+40 56.7	0.660	1.395	39.9	21.3	115 E	86	23*
1 7	16 30.21	+32 2.4	0.292	0.908	96.2	20.1	67 W	60*	2*	12 20	0 32.12	+39 59.7	0.677	1.390	40.9	21.4	112 E	85	23*
1 9	16 40.86	+30 20.6	0.305	0.897	97.1	20.2	65 W	58*	3*	12 22	0 30.00	+39 6.0	0.694	1.385	41.9	21.4	110 E	84	24*
1 11	16 50.44	+28 42.1	0.320	0.887	97.9	20.3	63 W	57*	4*	12 27	0 26.52	+37 6.3	0.737	1.370	44.0	21.6	105 E	82	24*
1 13	16 59.13	+27 6.7	0.334	0.877	98.5	20.4	62 W	56*	5*	1 1	0 25.17	+35 26.0	0.780	1.352	45.9	21.8	99 E	80	24*
1 15	17 7.09	+25 34.3	0.349	0.867	98.9	20.5	61 W	54*	6*	1 6	0 25.47	+34 3.3	0.822	1.331	47.5	21.9	94 E	79	24*
1 17	17 14.44	+24 4.5	0.364	0.858	99.2	20.6	59 W	53*	7*	1 11	0 27.04	+32 56.0	0.863	1.306	48.8	22.0	90 E	78*	23*
1 19	17 21.31	+22 37.2	0.379	0.849	99.3	20.6	58 W	52*	9*	1863 Antinous									
1 21	17 27.78	+21 12.0	0.394	0.840	99.3	20.7	57 W	51*	10*	10 13	7 7.52	+42 15.1	3.282	3.529	16.3	21.5	96 W	87	21*
107888 2001 FY₉₂										10 23	7 10.46	+43 4.0	3.122	3.511	15.9	21.4	105 W	88	21*
10 13	6 24.88	+26 21.6	2.409	2.821	20.1	21.4	104 W	71	38	11 2	7 10.80	+43 58.9	2.969	3.493	15.0	21.2	114 W	89	20
10 23	6 28.63	+26 44.4	2.256	2.800	19.1	21.2	113 W	72	37	11 12	7 8.11	+44 58.0	2.827	3.472	13.8	21.0	123 W	90	19
11 2	6 29.75	+27 11.2	2.111	2.777	17.5	21.0	123 W	72	37	11 22	7 2.09	+45 57.6	2.700	3.451	12.1	20.9	133 W	89	18
11 12	6 27.89	+27 41.9	1.979	2.753	15.2	20.7	133 W	73	36	12 2	6 52.63	+46 52.2	2.594	3.428	10.1	20.7	142 W	88	17
11 22	6 22.84	+28 15.5	1.865	2.728	12.2	20.5	144 W	73	36	12 12	6 40.01	+47 34.6	2.513	3.403	8.2	20.5	150 W	87	16
12 2	6 14.67	+28 49.0	1.773	2.703	8.6	20.2	156 W	74	35	12 22	6 25.06	+47 57.5	2.460	3.377	7.1	20.4	155 W	87	16
12 7	6 9.54	+29 4.6	1.736	2.690	6.6	20.0	162 W	74	35	12 27	6 17.12	+48 0.0	2.445	3.364	7.0	20.4	155 E	87	16
12 12	6 3.86	+29 18.6	1.706	2.676	4.5	19.9	168 W	74	35	1 1	6 9.13	+47 56.0	2.437	3.350	7.4	20.4	154 E	87	16
12 17	5 57.76	+29 30.6	1.684	2.663	2.8	19.8	172 W	75	34	1 6	6 1.29	+47 45.6	2.437	3.335	8.1	20.4	152 E	87	16
12 22	5 51.42	+29 40.2	1.669	2.649	2.4	19.7	173 E	75	34	1 11	5 53.81	+47 29.2	2.445	3.321	9.0	20.5	148 E	88	17
12 27	5 45.01	+29 47.1	1.662	2.635	3.9	19.8	169 E	75	34	1 16	5 46.88	+47 7.3	2.459	3.306	10.1	20.5	144 E	88	17
1 1	5 38.73	+29 51.4	1.662	2.621	6.0	19.9	164 E	75	34	1 21	5 40.62	+46 40.8	2.480	3.290	11.2	20.6	139 E	88	17
1 6	5 32.77	+29 53.0	1.670	2.607	8.2	20.0	158 E	75	34	481755 2008 JM₃									
1 11	5 27.31	+29 52.5	1.684	2.592	10.4	20.1	152 E	75	34	10 13	7 17.70	+37 4.7	1.236	1.636	37.5	21.4	94 W	82*	26*
1 16	5 22.49	+29 50.0	1.704	2.577	12.4	20.2	146 E	75	34	10 18	7 30.06	+38 22.4	1.194	1.633	37.3	21.4	96 W	83	25*
1 21	5 18.42	+29 46.3	1.730	2.562	14.3	20.2	140 E	75	34	10 23	7 42.35	+39 42.9	1.153	1.631	37.1	21.3	99 W	85	24*
508808 2000 UK₁₉										10 28	7 54.52	+41 6.6	1.113	1.630	36.7	21.2	101 W	86	22*
10 13	6 34.36	+26 54.5	1.775	2.208	26.2	21.5	102 W	72	37*	11 2	8 6.52	+42 33.8	1.075	1.628	36.3	21.1	104 W	88	21*
10 23	6 39.63	+27 57.4	1.698	2.250	24.4	21.3	111 W	73	36	11 7	8 18.27	+44 4.9	1.039	1.627	35.8	21.0	106 W	89	20*
11 2	6 41.41	+29 7.6	1.626	2.292	22.0	21.1	120 W	74	35	11 12	8 29.70	+45 40.0	1.005	1.626	35.1	20.9	109 W	89	18*
11 12	6 39.34	+30 24.2	1.565	2.333	18.8	21.1	131 W	75	34	11 17	8 40.73	+47 19.2	0.973	1.625	34.4	20.8	112 W	88	17*
11 22	6 3																		

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

21/22	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	21/22	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°
481755 2008 JM₃										429463 2010 WY₃₉									
<i>(continuation)</i>										<i>(continuation)</i>									
1 19	9 9.35	+68 10.1	0.811	1.636	26.9	20.2	131 W	67	—	1 6	8 9.21	+19 6.6	1.389	2.353	6.2	20.3	165 W	64	45
1 21	9 4.71	+68 24.4	0.814	1.637	27.0	20.2	131 W	67	—	1 11	8 3.52	+19 39.1	1.393	2.370	3.5	20.1	171 W	65	44
107673 2001 FV₆										153271 2001 CL₄₂									
10 13	7 22.42	+26 55.7	2.975	3.158	18.4	21.4	91 W	72*	36*	10 13	8 2.26	+43 40.9	1.924	2.111	28.1	21.5	86 W	80*	17*
10 23	7 27.19	+27 5.6	2.837	3.166	18.0	21.3	100 W	72	37*	10 18	8 9.63	+44 18.3	1.875	2.120	28.0	21.4	90 W	84*	17*
11 2	7 29.78	+27 20.8	2.701	3.173	17.1	21.2	109 W	72	37	10 23	8 16.42	+44 59.0	1.825	2.129	27.8	21.4	93 W	87*	17*
11 12	7 29.91	+27 42.0	2.573	3.179	15.7	21.0	119 W	73	36	10 28	8 22.57	+45 43.4	1.776	2.137	27.5	21.3	97 W	89	17*
11 22	7 27.38	+28 8.5	2.457	3.184	13.7	20.9	130 W	73	36	11 2	8 28.00	+46 31.9	1.726	2.144	27.1	21.3	101 W	88	16*
12 2	7 22.12	+28 38.9	2.359	3.188	11.2	20.7	141 W	74	35	11 7	8 32.59	+47 24.7	1.678	2.151	26.5	21.2	104 W	88	16*
12 12	7 14.26	+29 10.3	2.283	3.191	8.1	20.5	153 W	74	35	11 12	8 36.24	+48 22.1	1.630	2.157	25.8	21.1	108 W	87	15*
12 17	7 9.51	+29 25.2	2.255	3.192	6.4	20.4	159 W	74	35	11 17	8 38.84	+49 24.0	1.585	2.162	25.0	21.0	112 W	86	14*
12 22	7 4.31	+29 39.0	2.234	3.192	4.8	20.3	164 W	75	34	11 22	8 40.24	+50 30.2	1.541	2.167	24.1	20.9	116 W	84	13*
12 27	6 58.79	+29 51.1	2.221	3.193	3.2	20.2	170 W	75	34	11 27	8 40.28	+51 40.2	1.499	2.172	23.1	20.9	120 W	83	12
1 1	6 53.07	+30 1.2	2.215	3.193	2.2	20.1	173 W	75	34	12 2	8 38.78	+52 53.0	1.461	2.175	22.0	20.8	124 W	82	11
1 6	6 47.29	+30 9.0	2.218	3.193	2.7	20.1	171 E	75	34	12 7	8 35.56	+54 7.2	1.427	2.178	20.8	20.7	128 W	81	10
1 11	6 41.61	+30 14.3	2.228	3.193	4.1	20.2	167 E	75	34	12 12	8 30.46	+55 21.0	1.396	2.180	19.6	20.6	132 W	80	9
1 16	6 36.16	+30 17.1	2.246	3.193	5.8	20.3	161 E	75	34	12 17	8 23.38	+56 31.7	1.370	2.182	18.5	20.5	135 W	78	7
1 21	6 31.06	+30 17.5	2.272	3.192	7.4	20.4	155 E	75	34	12 22	8 14.27	+57 36.6	1.349	2.183	17.5	20.5	138 W	77	6
312974 1999 CU₈										133027 2002 XJ₄									
10 13	7 41.35	+ 7 51.2	1.940	2.086	28.4	21.5	84 W	52*	52*	10 13	8 11.27	+30 4.4	1.871	1.982	29.8	21.4	81 W	71*	29*
10 23	7 53.99	+ 7 55.9	1.790	2.056	28.9	21.3	91 W	53	54*	10 23	8 27.19	+30 41.1	1.773	2.001	29.8	21.3	88 W	75*	30*
11 2	8 5.31	+ 8 10.8	1.639	2.025	29.1	21.1	98 W	53	55*	11 2	8 41.20	+31 28.6	1.674	2.018	29.3	21.2	95 W	76	30*
11 12	8 14.98	+ 8 42.1	1.489	1.993	28.6	20.8	105 W	54	55*	11 12	8 52.86	+32 31.0	1.575	2.034	28.4	21.1	103 W	78	30*
11 22	8 22.59	+ 9 37.5	1.342	1.960	27.5	20.5	114 W	55	54	11 22	9 1.69	+33 51.8	1.479	2.048	26.8	20.9	111 W	79	30*
12 2	8 27.63	+11 6.5	1.203	1.925	25.5	20.2	123 W	56	53	12 2	9 7.06	+35 33.2	1.390	2.062	24.6	20.7	119 W	81	28
12 7	8 28.96	+12 7.2	1.137	1.908	24.0	20.0	128 W	57	52	12 12	9 8.23	+37 34.7	1.312	2.074	21.8	20.5	129 W	83	26
12 12	8 29.40	+13 20.6	1.075	1.890	22.3	19.8	133 W	58	51	12 22	9 4.56	+39 50.7	1.248	2.086	18.4	20.3	138 W	85	24
12 17	8 28.85	+14 48.1	1.016	1.873	20.2	19.6	139 W	60	49	12 27	9 0.76	+41 0.9	1.223	2.091	16.6	20.2	143 W	86	23
12 22	8 27.22	+16 30.7	0.962	1.855	17.8	19.4	145 W	62	47	1 1	8 55.64	+42 9.8	1.203	2.095	14.9	20.1	147 W	87	22
12 27	8 24.43	+18 29.0	0.913	1.837	15.0	19.2	151 W	63	46	1 6	8 49.26	+43 15.1	1.188	2.100	13.4	20.1	150 W	88	21
1 1	8 20.41	+20 42.7	0.870	1.818	11.9	18.9	158 W	66	43	1 11	8 41.80	+44 14.1	1.180	2.104	12.3	20.0	153 W	89	20
1 6	8 15.14	+23 10.5	0.834	1.800	8.6	18.7	164 W	68	41	1 16	8 33.49	+45 4.7	1.178	2.108	11.7	20.0	154 W	90	19
1 11	8 8.67	+25 49.6	0.805	1.781	5.5	18.4	170 W	71	38	1 21	8 24.64	+45 44.9	1.182	2.111	11.7	20.0	154 W	89	18
1 16	8 1.13	+28 35.8	0.783	1.763	4.4	18.3	172 W	74	35	371467 2006 SF₄₀₉									
1 21	7 52.73	+31 24.1	0.770	1.744	6.8	18.3	168 E	76	33	10 13	8 18.62	+15 44.2	1.518	1.607	37.1	21.4	76 W	57*	41*
432036 2008 WR₆₁										382760 2003 NY									
10 13	7 46.18	+14 37.4	2.760	2.832	20.5	21.5	84 W	59*	45*	10 23	8 41.81	+14 41.1	1.451	1.620	37.3	21.4	81 W	58*	42*
10 23	7 51.85	+13 30.3	2.652	2.867	20.3	21.4	92 W	59	49*	11 2	9 3.27	+13 37.4	1.385	1.635	37.2	21.3	85 W	59*	44*
11 2	7 55.37	+12 24.5	2.544	2.901	19.6	21.3	101 W	57	51*	11 12	9 22.71	+12 37.6	1.318	1.654	36.8	21.2	90 W	58	47*
11 12	7 56.51	+11 21.7	2.440	2.935	18.4	21.2	110 W	56	53	11 22	9 39.86	+11 46.5	1.251	1.676	35.9	21.1	96 W	57	49*
11 22	7 55.14	+10 23.8	2.344	2.967	16.7	21.1	120 W	55	54	12 2	9 54.39	+11 9.0	1.184	1.701	34.4	20.9	103 W	56	52*
12 2	7 51.20	+ 9 32.4	2.261	2.999	14.4	21.0	131 W	55	54	12 12	10 5.89	+10 50.1	1.120	1.728	32.3	20.8	110 W	56	53*
12 12	7 44.82	+ 8 49.6	2.196	3.030	11.6	20.8	142 W	54	55	12 22	10 13.93	+10 54.4	1.060	1.758	29.4	20.6	119 W	56	53
12 22	7 36.39	+ 8 17.0	2.154	3.060	8.6	20.7	152 W	53	56	1 1	10 18.11	+11 25.4	1.007	1.789	25.7	20.5	128 W	56	53
1 1	7 26.57	+ 7 55.6	2.140	3.090	5.7	20.6	162 W	53	56	1 11	10 18.14	+12 24.4	0.965	1.822	21.0	20.3	138 W	57	52
1 11	7 16.23	+ 7 45.8	2.156	3.118	4.5	20.5	166 E	53	56	1 21	10 14.14	+13 48.0	0.939	1.857	15.4	20.1	150 W	59	50
1 21	7 6.35	+ 7 46.6	2.203	3.146	6.1	20.7	160 E	53	56	164207 2004 GU₉									
315186 Schade										164207 2004 GU₉									
10 13	7 48.20	+27 51.8	1.916	2.093	28.4	21.5	86 W	71*	33*	10 13	8 30.02	+19 21.4	2.336	2.282	24.9	21.4	75 W	59*	36*
10 23	7 59.89	+27 37.2	1.831	2.129	27.8	21.4	93 W	73	34*	10 23	8 45.57	+18 3.2	2.168	2.232	26.1	21.2	81 W	61*	39*
11 2	8 8.81	+27 28.2	1.745	2.165	26.8	21.3	101 W	72	36*	11 2	9 0.38	+16 39.0	1.998	2.180	27.0	21.0	87 W	62*	42*
11 12	8 14.56	+27 27.1	1.660	2.200	25.1	21.2	110 W	72	36*	11 12	9 14.26	+15 9.7	1.831	2.128	27.7	20.8	93 W	60	45*
11 22	8 16.77	+27 35.3	1.580	2.235	22.7	21.0	119 W	73	36	11 22	9 27.03	+13 35.9	1.666	2.076	28.0	20.5	100 W	59	49*
12 2	8 15.12	+27 52.5	1.510	2.269	19.6	20.9	130 W	73	36	12 2	9 38.43	+11 58.6	1.506	2.024	27.8	20.3	107 W	57	52*
12 12	8 9.48	+28 16.4	1.454	2.303	15.7	20.7	141 W	73	36	12 12	9 48.11	+10 19.0	1.352	1.971	27.1	19.9	114 W	55	54
12 22	8 0.17	+28 42.1	1.418	2.336	11.2	20.5	153 W	74	35	12 22	9 55.70	+ 8 38.3	1.208	1.919	25.8	19.6	122 W	54	55
12 27	7 54.38	+28 53.6	1.409	2.352	8.8	20.4	159 W	74	35	1 1	10 0.72	+ 6 58.2	1.074	1.867	23.7	19.2	130 W	52	57
1 1	7 48.05	+29 3.2	1.406	2.368	6.4	20.3	165 W	74	35	1 11	10 2.63	+ 5 21.1	0.953	1.816	20.7	18.8	139 W	50	59
1 6	7 41.36	+29 10.0	1.410	2.384	4.2	20.2	170 W	74	35	1 21	10 1.04	+ 3 49.6	0.848	1.765	16.8	18.4	149 W	49	60
1 11	7 34.5																		

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

21/22	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	21/22	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°
455736 2005 HC₃										168044 2005 SG									
<i>(continuation)</i>										<i>(continuation)</i>									
1 11	16 28.81	+ 1 15.6	1.630	1.242	37.0	20.8	50 W	38*	23*	11 17	14 0.55	- 1 46.4	1.524	0.793	35.3	20.9	28 W	21*	5*
1 21	17 1.90	- 1 3.7	1.624	1.245	37.2	20.8	50 W	36*	27*	11 22	14 19.52	- 5 48.0	1.524	0.771	34.3	20.8	26 W	19*	7*
482796 2013 QJ₁₀										138258 2000 GD₂									
10 13	11 18.61	+ 9 9.0	1.402	0.783	43.8	21.4	33 W	26*	12*	10 13	12 25.26	+14 54.6	0.777	0.446	106.2	20.7	25 W	18*	—
10 18	11 41.90	+ 5 11.2	1.393	0.742	43.6	21.3	31 W	23*	12*	10 15	12 26.33	+15 28.6	0.816	0.463	98.7	20.6	27 W	20*	—
10 23	12 5.91	+ 1 1.5	1.389	0.702	42.7	21.1	29 W	21*	12*	10 17	12 27.99	+15 42.3	0.854	0.481	92.2	20.4	29 W	22*	—
10 28	12 30.87	- 3 16.5	1.391	0.663	41.2	20.9	26 W	18*	11*	10 19	12 30.13	+15 39.9	0.892	0.501	86.5	20.4	30 W	23*	—
11 2	12 57.07	- 7 37.7	1.399	0.628	39.0	20.8	23 W	14*	11*	10 21	12 32.67	+15 24.8	0.929	0.521	81.5	20.4	31 W	25*	—
11 7	13 24.77	-11 55.8	1.412	0.597	35.8	20.6	21 W	11*	10*	10 23	12 35.53	+14 59.9	0.964	0.542	77.1	20.4	32 W	26*	—
11 12	13 54.25	-16 3.1	1.430	0.573	31.8	20.4	18 W	7*	9*	10 25	12 38.65	+14 27.4	0.997	0.563	73.3	20.4	33 W	27*	—
11 17	14 25.65	-19 50.6	1.452	0.558	27.1	20.3	15 W	3*	8*	10 27	12 41.95	+13 49.0	1.029	0.585	69.0	20.5	34 W	27*	1*
11 22	14 58.93	-23 8.9	1.476	0.552	22.2	20.1	12 W	—	6*	10 29	12 45.41	+13 6.0	1.059	0.606	67.0	20.5	34 W	28*	1*
11 27	15 33.78	-25 49.9	1.503	0.556	17.4	20.0	10 W	—	4*	10 31	12 48.99	+12 19.7	1.087	0.627	64.4	20.6	35 W	29*	2*
12 2	16 9.62	-27 47.6	1.531	0.570	13.6	20.0	8 W	—	1*	11 2	12 52.65	+11 30.7	1.113	0.649	62.1	20.6	35 W	29*	3*
12 7	16 45.67	-28 59.7	1.560	0.592	11.2	20.0	7 W	—	—	11 7	13 2.07	+ 9 20.6	1.171	0.700	57.6	20.7	37 W	31*	6*
12 12	17 21.08	-29 27.8	1.590	0.622	10.4	20.1	7 E	—	—	11 12	13 11.69	+ 7 4.5	1.218	0.749	54.3	20.9	38 W	32*	9*
12 17	17 55.14	-29 16.3	1.622	0.657	10.6	20.3	7 E	—	—	11 17	13 21.41	+ 4 45.9	1.256	0.795	51.9	21.0	39 W	32*	11*
12 22	18 27.37	-28 31.2	1.655	0.695	11.3	20.5	8 E	—	2*	11 22	13 31.18	+ 2 26.6	1.285	0.838	50.2	21.1	41 W	33*	14*
12 27	18 57.50	-27 19.4	1.690	0.735	11.9	20.7	9 E	—	3*	11 27	13 41.01	+ 0 7.5	1.306	0.878	49.1	21.2	42 W	33*	17*
1 1	19 25.47	-25 47.1	1.727	0.776	12.4	20.9	10 E	—	3*	12 2	13 50.90	- 2 10.9	1.319	0.915	48.3	21.3	44 W	33*	20*
1 6	19 51.33	-23 59.8	1.765	0.817	12.5	21.0	10 E	—	4*	12 7	14 0.86	- 4 28.8	1.326	0.948	47.9	21.4	46 W	33*	24*
1 11	20 15.25	-22 2.1	1.803	0.858	12.5	21.2	11 E	1*	4*	12 12	14 10.93	- 6 46.1	1.327	0.979	47.7	21.5	47 W	32*	27*
1 16	20 37.41	-19 57.6	1.842	0.898	12.3	21.3	11 E	2*	3*	455795 2005 SF									
1 21	20 58.03	-17 49.0	1.881	0.936	11.9	21.4	11 E	3*	3*	10 13	12 26.94	+ 2 16.6	2.013	1.080	13.9	21.3	15 W	9*	—
538212 2016 CA₁₃₆										10 23	13 6.31	- 1 45.8	1.907	0.975	14.7	21.0	14 W	8*	—
10 13	11 26.26	+ 3 43.2	0.650	0.530	115.0	21.5	29 W	21*	13*	11 2	13 50.25	- 6 11.4	1.816	0.874	14.3	20.6	13 W	7*	—
10 15	11 21.66	+ 4 5.7	0.676	0.555	107.9	21.2	32 W	23*	15*	11 12	14 39.50	-10 50.1	1.742	0.785	12.3	20.2	10 W	4*	—
10 17	11 18.31	+ 4 20.6	0.702	0.581	101.6	21.1	35 W	26*	17*	11 17	15 6.29	-13 8.6	1.714	0.747	10.5	20.0	8 W	2*	—
10 19	11 15.99	+ 4 29.4	0.728	0.608	96.0	21.0	37 W	28*	18*	11 22	15 34.53	-15 22.2	1.691	0.716	8.2	19.8	6 W	—	—
10 21	11 14.52	+ 4 33.3	0.753	0.637	91.1	20.9	40 W	30*	20*	11 27	16 4.17	-17 26.9	1.674	0.693	5.6	19.6	4 W	—	—
10 23	11 13.74	+ 4 33.2	0.777	0.666	86.8	20.9	42 W	32*	21*	12 2	16 35.04	-19 18.4	1.662	0.679	3.9	19.4	3 E	—	—
10 25	11 13.50	+ 4 30.0	0.801	0.695	83.0	20.9	44 W	33*	23*	12 7	17 6.87	-20 52.4	1.656	0.675	5.0	19.5	3 E	—	—
10 27	11 13.69	+ 4 24.5	0.823	0.725	79.6	21.0	46 W	35*	24*	12 12	17 39.29	-22 5.2	1.656	0.682	7.9	19.6	5 E	—	—
10 29	11 14.21	+ 4 17.1	0.844	0.755	76.6	21.0	48 W	36*	25*	12 17	18 11.85	-22 54.3	1.662	0.699	11.0	19.8	8 E	—	1*
10 31	11 14.99	+ 4 8.4	0.864	0.785	73.8	21.0	49 W	37*	27*	12 22	18 44.08	-23 18.7	1.673	0.726	13.7	20.0	10 E	1*	3*
11 2	11 15.96	+ 3 58.6	0.883	0.816	71.4	21.1	51 W	38*	28*	12 27	19 15.56	-23 19.0	1.691	0.759	15.9	20.2	12 E	2*	5*
11 7	11 18.88	+ 3 31.6	0.923	0.891	66.2	21.2	55 W	41*	31*	1 1	19 45.91	-22 57.1	1.716	0.799	17.5	20.4	14 E	3*	6*
11 12	11 22.10	+ 3 3.4	0.956	0.965	62.0	21.3	59 W	43*	34*	1 6	20 14.85	-22 15.7	1.746	0.843	18.5	20.6	16 E	4*	8*
11 17	11 25.24	+ 2 36.2	0.982	1.038	58.5	21.4	64 W	45*	37*	1 11	20 42.22	-21 18.1	1.782	0.891	19.0	20.8	17 E	6*	9*
11 22	11 28.06	+ 2 11.3	1.000	1.109	55.5	21.5	68 W	46*	40*	1 16	21 7.94	-20 7.9	1.823	0.941	19.1	20.9	18 E	7*	10*
141525 2002 FV₅										1 21	21 32.02	-18 48.3	1.869	0.993	18.9	21.1	19 E	7*	10*
10 13	11 48.60	+14 25.9	0.807	0.507	96.2	19.5	30 W	24*	3*	484517 2008 EC₆₉									
10 15	11 51.61	+16 11.7	0.834	0.541	90.4	19.5	33 W	27*	3*	10 13	12 31.56	+14 28.7	2.763	1.899	12.5	21.4	24 W	17*	—
10 17	11 55.13	+17 40.7	0.861	0.576	85.4	19.5	35 W	29*	2*	10 23	12 55.29	+12 5.4	2.648	1.818	14.4	21.3	27 W	20*	—
10 19	11 59.00	+18 55.8	0.888	0.610	81.1	19.5	37 W	31*	2*	11 2	13 20.21	+ 9 33.9	2.530	1.737	16.3	21.2	30 W	23*	—
10 21	12 3.14	+19 59.4	0.914	0.644	77.3	19.5	39 W	33*	2*	11 12	13 46.48	+ 6 54.4	2.413	1.656	18.3	21.1	32 W	26*	1*
10 23	12 7.45	+20 53.6	0.938	0.677	74.1	19.6	41 W	34*	2*	11 22	14 14.27	+ 4 7.3	2.299	1.575	20.3	20.9	34 W	28*	4*
10 25	12 11.87	+21 39.9	0.962	0.709	71.2	19.7	42 W	36*	2*	12 2	14 43.80	+ 1 13.5	2.189	1.495	22.3	20.7	35 W	29*	7*
10 27	12 16.36	+22 19.9	0.984	0.741	68.7	19.7	44 W	38*	2*	12 12	15 15.26	- 1 45.4	2.087	1.417	24.2	20.6	36 W	29*	10*
10 29	12 20.88	+22 54.5	1.006	0.772	66.4	19.8	45 W	39*	2*	12 22	15 48.83	- 4 46.7	1.994	1.342	26.0	20.4	37 W	28*	14*
10 31	12 25.41	+23 24.8	1.026	0.803	64.4	19.9	47 W	40*	2*	1 1	16 24.68	- 7 46.6	1.913	1.272	27.6	20.3	37 W	26*	17*
11 2	12 29.92	+23 51.5	1.045	0.833	62.6	19.9	48 W	42*	2*	1 6	16 43.48	- 9 14.4	1.878	1.239	28.4	20.2	37 W	25*	19*
11 7	12 41.03	+24 46.6	1.086	0.904	58.9	20.1	51 W	45*	3*	1 11	17 2.87	-10 39.7	1.846	1.207	29.0	20.1	37 W	24*	20*
11 12	12 51.79	+25 30.7	1.121	0.972	55.9	20.2	54 W	48*	4*	1 16	17 22.84	-12 1.7	1.817	1.178	29.6	20.0	36 W	22*	22*
11 17	13 2.12	+26 8.8	1.149	1.037	53.5	20.3	57 W	51*	5*	1 21	17 43.38	-13 19.3	1.793	1.152	30.1	20.0	36 W	21*	23*
11 22	13 12.00	+26 44.4	1.171	1.098	51.5	20.4	60 W	54*	6*	458116 2010 DA									
11 27	13 21.41	+27 20.1	1.187	1.155	49.8	20.5	63 W	57*	7*	10 13	13 2.19	- 2 14.2	1.714	0.729	8.2	21.3	6 W	—	—
12 2	13 30.32	+27 58.0	1.198	1.210	48.3	20.6	66 W	60*	9*	10 23	13 54.50	- 5 42.8	1.596	0.614	9.3	20.8	6 E	—	—
12 7	13 38.72	+28 39.7	1.204	1.261	47.0	20.													

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

21/22	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	21/22	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°
458116 2010 DA (continuation)										256155 2006 VO₄₄									
11 27	18 3.20	-21 33.5	1.136	0.502	60.1	21.1	26 E	10*	18*	10 13	13 33.76	-0 37.9	4.076	3.094	2.8	21.5	9 E	3*	—
12 2	18 43.58	-23 33.7	1.083	0.548	65.0	21.4	30 E	11*	22*	10 23	13 46.65	-2 12.0	4.043	3.065	3.0	21.5	9 W	1*	—
124158 2001 OV₂										215757 2004 FU₆₄									
10 13	13 2.66	-11 26.0	3.718	2.724	1.6	21.4	4 W	—	—	10 13	13 40.61	-14 29.6	2.584	1.609	6.0	21.4	10 E	—	3*
10 23	13 18.11	-12 59.0	3.678	2.696	2.9	21.5	8 W	—	2*	10 23	14 4.33	-17 53.0	2.540	1.559	4.8	21.2	7 E	—	—
11 2	13 33.92	-14 31.6	3.623	2.667	4.9	21.5	13 W	3*	6*	11 2	14 30.04	-21 15.6	2.491	1.509	4.4	21.1	7 E	—	—
11 12	13 50.08	-16 3.1	3.555	2.637	6.9	21.6	19 W	8*	10*	11 12	14 58.13	-24 34.1	2.437	1.460	5.0	21.0	7 W	—	—
11 22	14 6.56	-17 32.6	3.472	2.606	9.0	21.6	24 W	12*	15*	11 22	15 28.98	-27 43.5	2.380	1.412	6.3	20.9	9 W	—	—
413044 2001 QU₁₀₈										155684 2000 JT₅₄									
10 13	13 4.57	-11 21.6	3.197	2.203	1.9	21.5	4 W	—	—	10 13	13 41.61	-9 55.7	3.123	2.138	3.5	21.4	8 E	—	1*
10 23	13 25.11	-12 18.2	3.149	2.162	2.8	21.5	6 W	—	—	10 23	14 2.00	-11 38.5	3.091	2.098	1.4	21.2	3 E	—	—
11 2	13 46.29	-13 11.3	3.090	2.121	4.8	21.5	10 W	2*	2*	11 2	14 23.26	-13 18.3	3.050	2.058	0.9	21.0	2 W	—	—
11 12	14 8.15	-13 58.9	3.022	2.081	7.0	21.5	15 W	6*	5*	11 12	14 45.42	-14 53.4	3.000	2.018	3.0	21.1	6 W	—	—
11 22	14 30.70	-14 38.8	2.944	2.041	9.3	21.5	20 W	10*	8*	11 22	15 8.51	-16 22.0	2.942	1.978	5.2	21.2	10 W	3*	1*
481025 2004 VA₁										75015 1999 UW₄									
10 13	13 5.49	-12 2.8	1.662	0.673	7.0	21.3	5 W	—	—	10 13	13 19.73	-9 47.4	3.618	2.622	1.1	21.3	3 E	—	—
10 18	13 33.45	-13 49.6	1.616	0.627	7.0	21.0	4 E	—	—	10 23	13 35.69	-11 24.7	3.597	2.605	1.3	21.3	3 W	—	—
10 23	14 3.46	-15 26.0	1.568	0.585	9.1	20.9	5 E	—	—	11 2	13 51.98	-13 0.2	3.562	2.587	3.4	21.5	9 W	1*	1*
10 28	14 35.53	-16 47.0	1.520	0.550	13.6	20.9	7 E	—	1*	11 12	14 8.59	-14 33.2	3.513	2.568	5.6	21.5	15 W	6*	5*
11 2	15 9.47	-17 47.6	1.471	0.526	19.9	20.9	10 E	—	4*	11 22	14 25.48	-16 3.0	3.450	2.548	7.8	21.6	20 W	10*	10*
11 7	15 44.89	-18 23.7	1.420	0.514	27.3	21.0	14 E	—	7*	323179 2003 HR₃₂									
11 12	16 21.21	-18 33.1	1.368	0.516	34.9	21.2	17 E	5*	10*	10 13	13 20.62	-12 19.6	2.613	1.622	3.1	21.4	5 E	—	—
11 17	16 57.85	-18 15.7	1.317	0.532	42.1	21.4	21 E	8*	13*	10 23	13 43.94	-14 43.1	2.515	1.523	2.4	21.2	4 W	—	—
75015 1999 UW₄										273292 2006 SP₃₆									
10 13	13 19.73	-9 47.4	3.618	2.622	1.1	21.3	3 E	—	—	10 13	13 41.70	-4 34.4	3.126	2.142	3.7	21.5	8 E	1*	—
10 23	13 35.69	-11 24.7	3.597	2.605	1.3	21.3	3 W	—	—	10 23	14 1.38	-6 31.8	3.100	2.112	2.6	21.4	6 E	—	—
11 2	13 51.98	-13 0.2	3.562	2.587	3.4	21.5	9 W	1*	1*	11 2	14 21.73	-8 26.1	3.064	2.081	3.1	21.3	6 W	—	—
11 12	14 8.59	-14 33.2	3.513	2.568	5.6	21.5	15 W	6*	5*	11 12	14 42.76	-10 16.0	3.020	2.050	4.6	21.4	10 W	4*	—
11 22	14 25.48	-16 3.0	3.450	2.548	7.8	21.6	20 W	10*	10*	11 22	15 4.51	-12 0.2	2.967	2.019	6.6	21.4	13 W	7*	—
323179 2003 HR₃₂										124329 2001 QU₉₈									
10 13	13 20.62	-12 19.6	2.613	1.622	3.1	21.4	5 E	—	—	10 13	13 43.77	-7 9.3	3.821	2.836	2.7	21.5	8 E	—	1*
10 23	13 43.94	-14 43.1	2.515	1.523	2.4	21.2	4 W	—	—	10 23	13 58.66	-8 26.4	3.810	2.818	1.3	21.3	4 E	—	—
11 2	14 9.79	-17 10.7	2.406	1.420	3.6	21.0	5 W	—	—	11 2	14 13.86	-9 41.0	3.783	2.798	2.2	21.4	6 W	—	—
11 12	14 38.84	-19 39.7	2.287	1.311	5.5	20.8	7 W	—	1*	11 12	14 29.36	-10 52.0	3.740	2.778	4.1	21.5	12 W	5*	—
11 22	15 11.91	-22 5.3	2.163	1.198	7.4	20.6	9 W	—	3*	11 22	14 45.10	-11 58.8	3.683	2.757	6.2	21.5	17 W	10*	4*
12 2	15 50.07	-24 18.8	2.037	1.080	9.1	20.3	10 W	—	4*	20860 2000 VS₃₄									
12 7	16 11.43	-25 16.8	1.974	1.019	9.7	20.2	10 W	—	4*	10 13	13 46.17	-12 48.9	4.048	3.070	3.2	21.4	10 E	—	4*
12 12	16 34.49	-26 5.9	1.913	0.958	10.2	20.0	10 W	—	4*	10 23	14 0.25	-13 54.0	4.023	3.030	1.2	21.2	4 E	—	—
12 17	16 59.38	-26 42.7	1.853	0.896	10.3	19.8	9 W	—	3*	11 2	14 14.78	-14 58.2	3.980	2.990	1.1	21.1	3 W	—	—
12 22	17 26.19	-27 3.5	1.795	0.835	10.0	19.5	8 W	—	2*	11 12	14 29.73	-16 0.6	3.921	2.949	3.1	21.2	9 W	1*	1*
12 27	17 54.91	-27 4.1	1.741	0.775	9.2	19.3	7 W	—	1*	11 22	14 45.07	-17 0.3	3.846	2.906	5.2	21.3	16 W	6*	6*
1 1	18 25.47	-26 39.6	1.689	0.717	7.7	19.0	6 W	—	—	12 2	15 0.78	-17 56.5	3.755	2.863	7.4	21.3	22 W	11*	11*
1 6	18 57.65	-25 45.6	1.642	0.664	5.6	18.6	4 W	—	—	12 12	15 16.80	-18 48.2	3.650	2.820	9.5	21.3	28 W	14*	17*
1 11	19 31.09	-24 18.0	1.598	0.617	4.0	18.3	2 E	—	—	12 22	15 33.07	-19 34.6	3.531	2.775	11.5	21.3	34 W	17*	23*
1 16	20 5.33	-22 14.8	1.557	0.580	6.4	18.3	4 E	—	—	1 1	15 49.56	-20 14.9	3.400	2.729	13.6	21.2	41 W	19*	30*
1 21	20 39.82	-19 36.3	1.520	0.555	12.0	18.4	7 E	—	—	1 11	16 6.18	-20 48.3	3.257	2.683	15.5	21.2	47 W	20*	37*
100926 1998 MQ										10145 1994 CK₁									
10 13	13 26.00	-13 40.8	3.333	2.345	2.9	21.4	7 E	—	—	10 13	13 57.04	-15 6.5	3.086	2.127	6.2	21.5	13 E	—	7*
10 23	13 43.81	-14 41.2	3.311	2.319	1.6	21.2	4 W	—	—	10 23	14 15.48	-16 41.7	3.036	2.056	4.0	21.2	8 E	—	2*
11 2	14 2.06	-15 39.1	3.274	2.291	2.8	21.3	6 W	—	—	11 2	14 35.19	-18 16.9	2.971	1.982	2.0	21.0	4 E	—	—
11 12	14 20.75	-16 33.2	3.222	2.260	5.0	21.3	11 W	3*	4*	11 12	14 56.33	-19 50.4	2.892	1.905	1.9	20.8	4 W	—	—
11 22	14 39.91	-17 22.1	3.156	2.228	7.3	21.4	17 W	7*	7*	11 22	15 19.08	-21 20.5	2.800	1.825	3.9	20.8	7 W	—	1*
12 2	14 59.53	-18 4.3	3.076	2.194	9.7	21.4	22 W	11*	12*	12 2	15 43.68	-22 44.8	2.697	1.741	6.3	20.7	11 W	1*	4*
12 12	15 19.63	-18 38.2	2.983	2.158	12.2	21.4	27 W	14*	16*	12 12	16 10.40	-24 0.5	2.585	1.654	8.9	20.7	15 W	3*	8*
12 22	15 40.19	-19 2.2	2.878	2.120	14.6	21.3	33 W	17*	21*	12 22	16 39.51	-25 3.5	2.465	1.563	11.5	20.5	18 W	4*	11*
1 1	16 1.21	-19 14.7	2.762	2.079	17.0	21.3	38 W	19*	27*	1 1	17 11.37	-25 48.7	2.341	1.469	14.1	20.4	21 W	5*	14*
1 11	16 22.67	-19 13.7	2.637	2.037	19.4	21.2	43 W	20*	33*	162361 2000 AF₆									
1 21	16 44.53	-18 57.3	2.504	1.993	21.7	21.1	49 W	22*	38*	10 13	13 33.51	-8 30.2	1.771	0.783	6.8	21.4	5 E	—	—
162361 2000 AF₆										10 18	13 55.32	-10 37.9	1.724	0.741	8.2	21.3	6 E	—	—
10 13	13 33.51	-8 30.2	1.771	0.783	6.8	21.4	5 E	—	—	10 23	14 18.52	-12 46.2	1.676	0.700	10.3	21.2	7 E	—	1*
10 18	13 55.32	-10 37.9	1.724	0.741	8.2	21.3	6 E	—	—	10 28	14 43.30	-14 53.2	1.625	0.659	13.0	21.1	9 E	—	—
10 23	14 18.52	-12 46.2	1.676	0.700	10.3	21.2	7 E	—	1*	11 2	15 9.85	-16 56.4	1.571	0.620	16.5	21.0	10 E	—	—
10 28	14 43.30	-14 53.2	1.625	0.659	13.0	21.1	9 E	—	—	11 7	15 38.29	-18 52.5	1.514	0.585	21.1	21.0	12 E	—	—
11 2	15 9.85	-16 56.4	1.571	0.620	16.5	21.0	10 E	—	—	11 12	16 8.69	-20 37.2	1.454	0.555	26.7	20.9	15 E	1*	8*
11 7	15 38.29	-18 52.5	1.514	0.585	21.1	21.0	12 E	—	—	11 17	16 40.96	-22 5.6	1.389	0.532	33.3	20.9	17 E	3*	11*
11 12	16 8.69	-20 37.2	1.454	0.555	26.7	20.9	15 E	1*	8*	11 22	17 14.83	-23 12.6	1.322	0.519	40.7	21.0	20 E	4*	13*
11 17	16 40.96	-22 5.6	1.389	0.532	33.3	20.9	17 E	3*	11*	11 27	17 49.91	-23 53.7	1.252	0.517	48.4	21.1	23 E	6*	16*
11 22	17 14.83	-23 12.6	1.322	0.519	40.7	21.0	20 E	4*	13*	12 2	18								

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

21/22	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	21/22	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°
370688 2004 GD₂₈										394935 2008 WA₁₃₃ (continuation)									
10 13	14 5.48	-12 10.4	2.792	1.839	7.5	21.4	14 E	—	8*	11 22	16 53.44	-17 48.1	2.820	1.885	7.9	21.1	15 E	6*	6*
10 23	14 29.20	-13 1.0	2.740	1.767	5.5	21.2	10 E	—	3*	12 2	17 18.86	-18 41.9	2.811	1.855	6.0	21.0	11 E	4*	2*
11 2	14 54.47	-13 45.7	2.679	1.696	3.7	20.9	6 E	—	—	12 12	17 45.15	-19 20.9	2.796	1.826	4.2	20.8	8 E	1*	—
11 12	15 21.38	-14 21.7	2.610	1.626	2.8	20.7	5 E	—	—	12 22	18 12.20	-19 43.7	2.776	1.798	2.5	20.7	5 E	—	—
11 22	15 50.03	-14 45.3	2.537	1.556	3.4	20.6	5 E	—	—	1 1	18 39.88	-19 49.0	2.752	1.772	1.9	20.6	3 W	—	—
12 2	16 20.51	-14 53.0	2.461	1.489	5.0	20.5	8 W	1*	—	1 11	19 8.03	-19 36.2	2.724	1.747	3.0	20.6	5 W	—	—
12 12	16 52.84	-14 40.9	2.385	1.425	6.9	20.5	10 W	4*	—	1 21	19 36.48	-19 5.1	2.693	1.725	4.7	20.6	8 W	—	1*
12 22	17 26.95	-14 5.3	2.311	1.365	8.8	20.4	12 W	6*	—	282470 2004 FY₁₄₃									
1 1	18 2.72	-13 3.2	2.243	1.311	10.5	20.3	14 W	8*	—	10 13	15 25.21	-14 57.2	2.241	1.511	21.3	21.5	33 E	11*	27*
1 11	18 39.90	-13 32.9	2.183	1.263	12.0	20.2	16 W	9*	—	10 23	15 55.89	-16 36.7	2.269	1.506	19.9	21.5	31 E	10*	24*
1 21	19 18.15	-9 34.6	2.134	1.223	13.2	20.2	17 W	10*	—	11 2	16 27.42	-17 58.2	2.299	1.506	18.5	21.4	29 E	10*	21*
238851 2005 VS₃										11 12	16 59.61	-18 58.9	2.331	1.511	17.0	21.4	26 E	10*	18*
10 13	14 34.43	-16 28.8	3.142	2.247	9.5	21.5	22 E	2*	16*	12 2	17 32.17	-19 36.7	2.366	1.519	15.4	21.4	24 E	10*	15*
10 23	14 54.25	-17 44.5	3.148	2.215	7.5	21.4	17 E	—	11*	12 12	18 4.81	-19 50.5	2.404	1.532	13.8	21.4	22 E	9*	12*
11 2	15 14.91	-18 55.4	3.144	2.182	5.4	21.2	12 E	—	6*	12 22	18 37.24	-19 40.1	2.445	1.549	12.1	21.4	19 E	9*	9*
11 12	15 36.40	-19 59.8	3.128	2.149	3.3	21.1	7 E	—	1*	12 22	19 9.15	-19 6.6	2.487	1.570	10.3	21.4	17 E	8*	6*
11 22	15 58.70	-20 56.0	3.103	2.116	1.1	20.8	2 E	—	—	1 1	19 40.30	-18 11.7	2.531	1.594	8.5	21.4	14 E	6*	3*
12 2	16 21.78	-21 42.5	3.068	2.083	1.2	20.8	2 W	—	—	1 11	20 10.50	-16 57.7	2.575	1.621	6.7	21.4	11 E	4*	—
12 12	16 45.60	-22 17.6	3.024	2.050	3.4	20.9	7 W	—	—	1 21	20 39.61	-15 27.8	2.619	1.651	4.8	21.4	8 E	2*	—
12 22	17 10.08	-22 39.7	2.971	2.017	5.6	20.9	12 W	2*	4*	486813 2014 JL₁₅									
1 1	17 35.15	-22 47.4	2.911	1.984	7.8	21.0	16 W	4*	8*	10 13	15 32.68	-14 55.9	2.417	1.701	19.7	21.5	35 E	12*	28*
1 11	18 0.69	-22 39.4	2.845	1.952	10.1	21.0	20 W	6*	12*	10 23	15 59.09	-16 50.1	2.445	1.684	18.2	21.4	32 E	11*	25*
1 21	18 26.58	-22 14.9	2.772	1.921	12.3	21.0	24 W	8*	17*	11 2	16 26.62	-18 30.4	2.472	1.669	16.5	21.4	29 E	10*	21*
308306 Dainere										11 12	16 55.18	-19 54.1	2.497	1.658	14.8	21.3	25 E	9*	18*
10 13	14 58.01	-7 21.6	3.345	2.489	10.2	21.5	26 E	12*	17*	11 22	17 24.60	-20 59.0	2.521	1.650	13.1	21.3	22 E	8*	14*
10 23	15 13.70	-9 17.9	3.331	2.426	8.4	21.3	21 E	10*	12*	12 2	17 54.70	-21 43.0	2.545	1.645	11.3	21.2	19 E	6*	11*
11 2	15 30.45	-11 11.5	3.303	2.362	6.5	21.2	16 E	7*	6*	12 12	18 25.26	-22 5.0	2.567	1.644	9.5	21.2	16 E	5*	8*
11 12	15 48.30	-13 1.8	3.263	2.298	4.6	21.0	11 E	4*	—	12 22	18 55.97	-22 4.3	2.589	1.645	7.7	21.1	13 E	3*	5*
11 22	16 7.27	-14 47.9	3.211	2.233	3.0	20.8	7 E	1*	—	1 1	19 26.61	-21 41.3	2.611	1.650	5.8	21.0	10 E	1*	2*
12 2	16 27.40	-16 28.7	3.148	2.169	2.5	20.6	6 W	—	—	1 11	19 56.90	-20 57.1	2.631	1.658	4.0	21.0	7 E	—	—
12 12	16 48.74	-18 3.3	3.074	2.104	3.8	20.6	8 W	2*	—	1 21	20 26.63	-19 53.4	2.651	1.670	2.1	20.9	4 E	—	—
12 22	17 11.35	-19 30.6	2.991	2.039	5.8	20.6	12 W	4*	2*	152864 1999 XT₁₄₃									
1 1	17 35.29	-20 49.1	2.900	1.975	8.0	20.6	16 W	6*	7*	10 13	15 39.80	-18 35.5	2.805	2.102	16.8	21.4	37 E	10*	31*
1 11	18 0.61	-21 57.6	2.803	1.912	10.3	20.5	20 W	7*	12*	10 23	15 59.98	-19 45.8	2.828	2.059	15.0	21.4	32 E	8*	26*
1 21	18 27.35	-22 54.3	2.702	1.850	12.6	20.4	24 W	7*	17*	11 2	16 21.39	-20 49.4	2.841	2.014	13.2	21.3	28 E	7*	21*
159495 2000 UV₁₆										11 12	16 44.02	-21 44.2	2.844	1.970	11.3	21.1	23 E	6*	16*
10 13	15 5.31	-20 19.2	2.568	1.777	16.4	21.5	30 E	3*	24*	11 22	17 7.83	-22 28.2	2.837	1.925	9.3	21.0	18 E	4*	11*
10 23	15 29.89	-21 47.4	2.552	1.715	14.8	21.3	26 E	3*	20*	12 2	17 32.78	-22 59.4	2.821	1.880	7.3	20.9	14 E	2*	7*
11 2	15 56.34	-23 6.9	2.527	1.654	13.2	21.2	22 E	2*	16*	12 12	17 58.80	-23 16.0	2.798	1.835	5.3	20.7	10 E	—	3*
11 12	16 24.75	-24 14.1	2.497	1.594	11.7	21.0	19 E	1*	13*	12 22	18 25.78	-23 15.9	2.767	1.791	3.2	20.5	6 E	—	—
11 22	16 55.11	-25 4.7	2.461	1.535	10.2	20.8	16 E	—	10*	1 1	18 53.61	-22 57.6	2.730	1.748	1.2	20.3	2 E	—	—
12 2	17 27.38	-25 34.1	2.421	1.478	8.7	20.7	13 E	—	7*	1 11	19 22.15	-22 19.7	2.688	1.705	0.9	20.1	2 W	—	—
12 12	18 1.42	-25 37.6	2.381	1.425	7.4	20.5	11 E	—	4*	1 21	19 51.25	-21 21.4	2.642	1.664	2.9	20.2	5 W	—	—
12 22	18 36.93	-25 11.0	2.340	1.375	6.1	20.3	9 E	—	2*	363829 2005 PQ₆									
1 1	19 13.55	-24 10.8	2.301	1.330	5.0	20.1	7 E	—	—	10 13	15 53.57	-1 34.5	3.204	2.531	14.9	21.5	41 E	25*	27*
1 11	19 50.84	-22 35.3	2.267	1.291	4.0	20.0	5 E	—	—	10 23	16 8.68	-3 32.9	3.235	2.490	13.3	21.4	35 E	23*	22*
1 21	20 28.31	-20 24.4	2.239	1.259	3.1	19.9	4 E	—	—	11 2	16 24.73	-5 24.2	3.255	2.447	11.7	21.3	30 E	20*	16*
455550 2004 JO₂										11 12	16 41.65	-7 7.7	3.265	2.405	10.0	21.2	25 E	17*	10*
10 13	15 6.68	-12 39.5	2.657	1.843	15.0	21.5	29 E	10*	22*	11 22	16 59.41	-8 42.9	3.263	2.362	8.4	21.1	20 E	14*	4*
10 23	15 28.55	-13 27.6	2.627	1.767	13.4	21.3	24 E	9*	17*	12 2	17 17.95	-10 9.2	3.250	2.319	6.8	21.0	16 E	10*	—
11 2	15 52.09	-14 9.8	2.585	1.690	11.7	21.1	20 E	8*	12*	12 12	17 37.25	-11 26.3	3.226	2.275	5.4	20.9	13 E	6*	—
11 12	16 17.42	-14 43.4	2.533	1.612	10.3	20.9	17 E	7*	7*	12 22	17 57.25	-12 33.8	3.190	2.232	4.8	20.8	11 W	2*	—
11 22	16 44.64	-15 5.2	2.473	1.533	9.0	20.7	14 E	6*	3*	1 1	18 17.93	-13 31.5	3.144	2.188	5.1	20.7	11 W	5*	—
12 2	17 13.87	-15 11.7	2.405	1.455	8.1	20.5	12 E	6*	—	1 11	18 39.23	-14 19.3	3.086	2.145	6.3	20.7	14 W	7*	1*
12 12	17 45.22	-14 59.4	2.333	1.377	7.6	20.3	11 E	5*	—	1 21	19 1.11	-14 57.3	3.019	2.102	8.1	20.7	17 W	9*	6*
12 22	18 18.71	-14 24.3	2.259	1.302	7.6	20.1	10 E	4*	—	393393 2000 RN₁₉									
1 1	18 54.34	-13 23.2	2.186	1.230	7.9	19.9	10 E	3*	—	10 13	16 4.49	-18 58.3	2.304	1.719	23.4	21.5	43 E	13*	37*
1 11	19 32.03	-11 53.6	2.118	1.163	8.5	19.7	10 E	2*	—	10 23	16 31.28	-19 49.2	2.341	1.699	22.0	21.5	40 E	12*	33*
1 21	20 11.60	-9 54.7	2.058	1.103	9.0	19.6	10 E	1*	—	11 2	16 59.07	-20 25.5	2.375	1.682	20.5	21.4	36 E	12*	29*
157111 2004 LU₂₃										11 12	17 27.72	-20 45.2	2.407	1.667	18.9	21.4	33 E	12*	25*
10 13	15 15.46	-16 58.6	3.140	2.347	12.8	21.5	31 E	8*	25*	11 22	17 57.00	-20 46.1	2.437	1.655	17.3	21.3	30 E	12*	21*
10 23	15 34.01	-18 1.5	3.163	2.311	10.9	21.4	26 E	6*	20*	12 2	18 26.69	-20 27.2	2.466	1.646	15.6	21.3	27 E	12*	17*
11 2	15 53.46	-18 59.3	3.175	2.275	8.9	21.3	21 E	5*	14*	12 12	18 56.57	-19 47.7	2.494	1.640	13.9	21.3	24 E	11*	13*
11 12	16 13.79	-19 50.5	3.176	2.239	6.9	21.2	16 E	3*	9*	12 22	19 26.38	-18 48.0	2.522	1.638	12.2	21.2	21 E	10*	10*
11 22	16 34.96	-20 33.7	3.165	2.202	4.8	21.0	11 E	1*	4*	1 1	19 55.92	-17 28.8	2.549	1.639	10.5	21.2	18 E	9*	6*
12 2	16 56.92	-21 7.3	3.144</																

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

21/22	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45° - 26°	2021	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45° - 26°	
511064 2013 TH₅ (continuation)									488789 2004 XK₅₀									
12 22	20 18.13	-4 10.0	1.792	1.191	30.9	20.6	38 E	29* 15*	10 23	3 1.98	-42 13.7	1.740	2.440	19.8	23.4	124 W	3	74
1 1	20 52.42	-1 17.0	1.752	1.148	31.7	20.5	38 E	30* 12*	10 28	2 51.96	-42 38.3	1.741	2.435	19.9	23.4	123 W	2	73
1 11	21 28.93	+1 54.1	1.716	1.116	32.7	20.4	38 E	31* 9*	11 2	2 41.67	-42 48.2	1.748	2.429	20.2	23.4	122 W	2	73
1 21	22 7.62	+5 17.3	1.687	1.098	33.7	20.3	38 E	32* 8*	11 7	2 31.39	-42 43.1	1.759	2.423	20.5	23.5	121 E	2	73
385571 Otrera									470585 2008 JQ₁₄									
10 23	2 44.12	+16 6.7	28.372	29.339	0.5	23.5	166 W	61 48	11 12	2 21.42	-42 23.1	1.774	2.415	21.0	23.5	119 E	3	74
11 2	2 43.01	+16 1.7	28.348	29.339	0.1	23.4	176 W	61 48	11 17	2 12.03	-41 48.9	1.795	2.407	21.5	23.5	117 E	3	74
11 12	2 41.87	+15 56.7	28.355	29.339	0.2	23.5	173 E	61 48	11 22	2 3.42	-41 1.9	1.819	2.398	22.1	23.6	114 E	4	75
11 22	2 40.77	+15 51.7	28.392	29.339	0.6	23.5	163 E	61 48	452302 1995 YR₁									
12 2	2 39.75	+15 47.0	28.459	29.339	0.9	23.6	153 E	61 48	10 23	3 2.59	+10 49.7	2.768	3.727	4.7	24.5	162 W	56	53
461501 2003 FT₃									11 2	2 54.06	+9 49.5	2.746	3.731	2.1	24.3	172 W	55	54
10 23	2 44.68	+11 52.6	1.946	2.923	4.5	22.8	167 W	57 52	11 12	2 45.28	+8 51.3	2.756	3.734	2.7	24.4	170 E	54	55
10 28	2 39.34	+11 23.0	1.962	2.950	2.6	22.7	172 W	56 53	11 22	2 36.94	+7 59.1	2.798	3.735	5.5	24.5	159 E	53	56
11 2	2 34.01	+10 53.9	1.986	2.976	1.3	22.6	176 W	56 53	12 2	2 29.66	+7 16.0	2.870	3.736	8.3	24.7	147 E	52	57
11 7	2 28.82	+10 26.2	2.017	3.003	2.4	22.8	173 E	55 54	442037 2010 PR₆₆									
11 12	2 23.89	+10 0.3	2.056	3.028	4.3	23.0	167 E	55 54	10 23	3 6.09	+12 32.1	2.081	3.040	6.0	24.9	161 W	58	51
11 17	2 19.32	+9 36.9	2.103	3.054	6.1	23.1	161 E	55 54	11 2	2 52.24	+11 28.9	2.033	3.021	2.2	24.6	173 W	56	53
11 22	2 15.20	+9 16.3	2.157	3.079	7.9	23.3	155 E	54 55	11 12	2 37.74	+10 24.0	2.020	2.999	3.4	24.6	170 E	55	54
385695 Cleve									11 22	2 23.82	+9 23.3	2.042	2.975	7.5	24.9	157 E	54	55
10 23	2 47.06	+11 33.5	28.594	29.560	0.5	23.0	166 W	57 52	12 2	2 11.58	+8 32.3	2.095	2.948	11.4	25.1	144 E	54	55
11 2	2 45.98	+11 28.1	28.570	29.558	0.2	23.0	175 W	56 53	42037 2010 PR₆₆									
11 12	2 44.88	+11 22.9	28.577	29.557	0.3	23.0	172 E	56 53	10 23	3 7.83	+38 40.5	3.264	4.139	7.4	25.5	148 W	84	25
11 22	2 43.80	+11 18.1	28.615	29.555	0.6	23.0	162 E	56 53	10 28	3 2.82	+38 28.5	3.255	4.158	6.5	25.5	152 W	83	26
12 2	2 42.80	+11 13.9	28.682	29.554	0.9	23.1	152 E	56 53	11 2	2 57.67	+38 12.4	3.253	4.177	5.6	25.4	156 W	83	26
488465 1998 HK₁									11 7	2 52.48	+37 52.3	3.259	4.196	5.0	25.4	158 W	83	26
10 23	2 52.87	+15 8.6	1.997	2.967	5.3	23.9	164 W	60 49	11 12	2 47.37	+37 28.6	3.273	4.215	4.7	25.4	160 E	82	27
10 28	2 47.68	+14 35.5	1.991	2.975	3.2	23.8	170 W	60 49	11 17	2 42.42	+37 1.8	3.294	4.233	4.8	25.4	159 E	82	27
11 2	2 42.37	+14 1.6	1.992	2.984	1.1	23.6	177 W	59 50	11 22	2 37.73	+36 32.4	3.323	4.251	5.2	25.5	157 E	82	27
11 7	2 37.05	+13 27.6	2.002	2.991	1.3	23.7	176 E	58 51	11 27	2 33.38	+36 0.9	3.360	4.269	5.8	25.5	154 E	81	28
11 12	2 31.87	+12 54.2	2.019	2.999	3.3	23.8	170 E	58 51	528756 2009 AS									
11 17	2 26.95	+12 22.2	2.044	3.006	5.3	24.0	164 E	57 52	10 23	3 8.41	+9 29.2	2.022	2.978	6.4	22.7	161 W	54	55
11 22	2 22.40	+11 52.3	2.077	3.013	7.2	24.1	158 E	57 52	11 2	2 58.31	+8 41.5	1.962	2.946	3.2	22.4	171 W	54	55
462329 2008 JZ₃₀									11 12	2 47.35	+7 55.8	1.933	2.911	3.7	22.4	169 E	53	56
10 23	2 54.29	-14 13.7	2.359	3.258	8.8	23.5	150 W	31 78	11 22	2 36.59	+7 17.2	1.935	2.876	7.3	22.6	158 E	52	57
10 28	2 49.66	-14 49.6	2.376	3.277	8.6	23.5	150 W	30 79	12 2	2 27.02	+6 49.8	1.966	2.839	11.1	22.7	146 E	52	57
11 2	2 44.96	-15 19.8	2.401	3.296	8.7	23.6	150 W	30 79	373618 2002 FM									
11 7	2 40.30	-15 43.7	2.432	3.315	9.1	23.6	148 E	29 80	10 23	3 10.69	+42 44.2	3.741	4.583	7.3	22.9	144 W	88	21
11 12	2 35.77	-16 1.2	2.471	3.333	9.7	23.7	145 E	29 80	10 28	3 6.18	+42 47.1	3.715	4.586	6.6	22.9	148 W	88	21
11 17	2 31.49	-16 12.3	2.515	3.352	10.4	23.8	142 E	29 80	11 2	2 3.46	+42 46.1	3.695	4.588	6.0	22.8	151 W	88	21
11 22	2 27.51	-16 17.1	2.566	3.369	11.2	23.9	138 E	29 80	11 7	2 56.61	+42 41.0	3.682	4.590	5.5	22.8	153 W	88	21
503966 2004 RX₁₀₉									11 12	2 51.73	+42 32.1	3.677	4.592	5.3	22.8	155 E	88	21
10 23	3 0.63	+2 23.8	2.474	3.427	5.6	23.2	160 W	47 62	11 17	2 46.93	+42 19.4	3.679	4.594	5.2	22.8	155 E	87	22
10 28	2 55.02	+1 41.0	2.483	3.449	4.6	23.2	164 W	47 62	11 22	2 42.28	+42 3.4	3.688	4.595	5.4	22.8	154 E	87	22
11 2	2 49.35	+1 0.5	2.501	3.471	4.1	23.2	165 W	46 63	11 27	2 37.88	+41 44.4	3.705	4.596	5.9	22.8	152 E	87	22
11 7	2 43.71	+0 23.1	2.528	3.492	4.4	23.2	164 E	45 64	293726 2007 RQ₁₇									
11 12	2 38.22	+0 10.7	2.563	3.512	5.3	23.3	161 E	45 64	10 23	3 13.52	+22 13.8	0.535	1.502	14.9	23.0	157 W	67	42
11 17	2 32.98	+0 40.5	2.606	3.532	6.5	23.4	156 E	44 65	10 28	3 3.23	+21 41.9	0.548	1.528	10.1	22.9	164 W	67	42
11 22	2 28.07	-1 6.1	2.656	3.552	7.8	23.5	151 E	44 65	11 2	2 53.03	+21 4.8	0.566	1.554	5.5	22.8	171 W	66	43
420286 2011 RZ									11 7	2 43.39	+20 24.6	0.589	1.580	2.7	22.7	176 E	65	44
10 23	3 1.57	+67 58.1	2.489	3.133	15.6	23.9	122 W	67 -	11 12	2 34.71	+19 43.8	0.619	1.605	5.1	23.0	172 E	65	44
10 25	2 56.71	+68 5.1	2.482	3.137	15.4	23.9	123 W	67 -	11 17	2 27.24	+19 4.7	0.653	1.629	8.8	23.3	165 E	64	45
10 27	2 51.71	+68 10.3	2.476	3.141	15.2	23.9	124 W	67 -	11 22	2 21.14	+18 29.2	0.693	1.653	12.3	23.6	159 E	63	46
10 29	2 46.59	+68 13.6	2.470	3.145	15.0	23.9	125 W	67 -	523602 2004 LH									
10 31	2 41.38	+68 15.1	2.465	3.149	14.8	23.9	126 W	67 -	10 23	3 16.07	+47 0.7	1.476	2.327	16.0	22.3	140 W	88	17
11 2	2 36.13	+68 14.6	2.461	3.153	14.7	23.9	126 W	67 -	10 28	3 7.55	+45 59.6	1.447	2.331	14.2	22.2	145 W	89	18
11 4	2 30.86	+68 12.2	2.458	3.156	14.5	23.9	127 E	67 -	11 2	2 58.68	+44 45.1	1.425	2.333	12.6	22.2	149 W	90	19
11 6	2 25.62	+68 7.8	2.455	3.160	14.4	23.9	128 E	67 -	11 7	2 49.79	+43 17.5	1.410	2.336	11.1	22.1	153 W	88	21
11 8	2 20.42	+68 1.6	2.453	3.164	14.2	23.9	128 E	67 -	11 12	2 41.20	+41 38.1	1.402	2.338	10.2	22.0	155 E	87	22
11 10	2 15.32	+67 53.4	2.453	3.167	14.1	23.9	129 E	67 -	11 17	2 33.18	+39 49.2	1.402	2.339	9.9	22.0	156 E	85	24
11 12	2 10.33	+67 43.4	2.452	3.171	14.0	23.9	129 E	67 -	11 22	2 25.97	+37 53.2	1.410	2.341	10.4	22.1	155 E	83	26
11 14	2 5.49	+67 31.7	2.453	3.174	14.0	23.9	129 E	67 -	11 27	2 19.70	+35 53.2	1.426	2.341	11.6	22.1	152 E	81	28
11 16	2 0.82	+67 18.3	2.455	3.177	13.9	23.9	130 E	68 -	12 2	2 14.48	+33 52.2	1.449	2.342	13.1	22.2	147 E	79	30
11 18	1 56.35	+67 3.2	2.457	3.180	13.8	23.9	130 E	68 -	12									

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

2021	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	2021	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°
377127 2003 EV₅₂										497578 2006 FA₄₇									
10 23	3 28.87	+49 40.1	2.667	3.458	11.4	22.8	137 W	85	14	10 23	3 47.75	+6 33.4	1.957	2.865	9.8	22.2	150 W	52	57
10 28	3 22.52	+50 2.3	2.640	3.461	10.6	22.8	140 W	85	14	11 2	3 38.43	+5 46.1	1.938	2.893	6.5	22.0	161 W	51	58
11 2	3 15.66	+50 18.1	2.619	3.464	9.9	22.7	143 W	85	14	11 12	3 28.07	+5 5.9	1.947	2.919	4.5	22.0	167 W	50	59
11 7	3 8.44	+50 26.9	2.605	3.468	9.3	22.7	145 W	85	14	11 22	3 17.73	+4 37.0	1.986	2.944	5.7	22.1	163 E	50	59
11 12	3 1.04	+50 28.7	2.597	3.470	8.9	22.7	147 E	85	14	12 2	3 8.35	+4 22.1	2.054	2.968	8.6	22.3	153 E	49	60
11 17	2 53.67	+50 23.4	2.597	3.473	8.7	22.7	148 E	85	14	303248 2004 QV₁₆									
11 22	2 46.50	+50 11.5	2.603	3.475	8.8	22.7	147 E	85	14	10 23	3 48.38	-2 55.9	1.727	2.620	11.9	22.0	147 W	42	67
11 27	2 39.71	+49 53.4	2.615	3.478	9.1	22.7	146 E	85	14	10 28	3 42.59	-4 4.0	1.719	2.633	10.5	21.9	151 W	41	68
481052 2005 HD₄										11 2	3 36.39	-5 8.2	1.718	2.646	9.5	21.9	154 W	40	69
10 23	3 30.64	+21 43.7	0.867	1.813	14.1	22.5	154 W	67	42	11 7	3 29.91	-6 7.2	1.725	2.658	8.9	21.9	155 W	39	70
10 28	3 23.69	+19 55.0	0.843	1.811	10.4	22.3	161 W	65	44	11 12	3 23.33	-6 59.8	1.739	2.670	9.0	21.9	155 W	38	71
11 2	3 15.97	+17 57.0	0.825	1.808	6.5	22.1	168 W	63	46	11 17	3 16.80	-7 45.2	1.761	2.681	9.6	22.0	153 E	37	72
11 7	3 7.79	+15 52.2	0.814	1.804	2.6	21.8	175 W	61	48	11 22	3 10.49	-8 22.7	1.790	2.691	10.6	22.1	150 E	37	72
11 12	2 59.49	+13 44.2	0.811	1.799	2.4	21.8	176 E	59	50	11 27	3 4.53	-8 52.2	1.827	2.701	11.8	22.2	146 E	36	73
11 17	2 51.43	+11 37.1	0.815	1.794	6.3	22.0	168 E	57	52	12 2	2 59.05	-9 13.5	1.869	2.710	13.1	22.3	141 E	36	73
11 22	2 43.90	+9 34.9	0.826	1.789	10.4	22.2	161 E	55	54	12 7	2 54.14	-9 27.0	1.918	2.719	14.4	22.4	137 E	36	73
11 27	2 37.16	+7 41.2	0.843	1.782	14.2	22.4	154 E	53	56	464508 2016 BR₇₇									
295650 2008 SD₃₀₅										10 23	3 49.36	+51 46.7	2.076	2.847	14.8	21.7	133 W	83	12
10 23	3 31.29	+10 39.1	1.621	2.558	9.4	21.4	155 W	56	53	10 28	3 43.12	+52 6.9	2.050	2.855	13.8	21.6	137 W	83	12
10 28	3 26.51	+10 11.2	1.607	2.566	7.3	21.3	161 W	55	54	11 2	3 36.15	+52 19.2	2.030	2.862	12.9	21.6	140 W	83	12
11 2	3 21.35	+9 43.4	1.600	2.575	5.3	21.2	166 W	55	54	11 7	3 28.62	+52 23.0	2.016	2.869	12.0	21.5	143 W	83	12
11 7	3 15.95	+9 16.7	1.601	2.583	3.7	21.1	170 W	54	55	11 12	3 20.79	+52 17.7	2.007	2.876	11.3	21.5	145 W	83	12
11 12	3 10.47	+8 51.6	1.608	2.591	3.3	21.1	171 W	54	55	11 17	3 12.91	+52 3.4	2.005	2.883	10.9	21.5	147 E	83	12
11 17	3 5.08	+8 28.8	1.623	2.599	4.5	21.2	168 E	53	56	11 22	3 5.24	+51 40.5	2.009	2.889	10.7	21.5	147 E	83	12
11 22	2 59.92	+8 9.1	1.645	2.606	6.3	21.3	163 E	53	56	11 27	2 58.00	+51 9.7	2.019	2.895	10.8	21.5	147 E	84	13
11 27	2 55.12	+7 52.8	1.674	2.613	8.3	21.5	157 E	53	56	12 2	2 51.41	+50 32.0	2.036	2.901	11.2	21.6	145 E	84	13
12 2	2 50.80	+7 40.3	1.710	2.620	10.3	21.6	152 E	53	56	12 7	2 45.62	+49 48.7	2.059	2.907	11.8	21.6	143 E	85	14
12 7	2 47.04	+7 31.8	1.752	2.627	12.1	21.7	146 E	53	56	12 12	2 40.76	+49 1.5	2.089	2.912	12.6	21.7	140 E	86	15
12 12	2 43.94	+7 27.5	1.800	2.634	13.8	21.9	140 E	52	57	240320 2003 HS₄₂									
483989 2006 CY₁₀										10 23	3 50.32	+22 44.3	0.698	1.634	18.2	21.3	149 W	68	41
10 23	3 32.83	+21 44.8	1.717	2.644	9.8	24.4	153 W	67	42	10 28	3 42.07	+23 52.8	0.678	1.635	14.6	21.1	155 W	69	40
11 2	3 21.00	+21 28.1	1.639	2.612	5.4	24.1	166 W	66	43	11 2	3 32.37	+24 58.1	0.663	1.636	10.9	21.0	162 W	70	39
11 12	3 7.32	+20 59.5	1.590	2.579	1.3	23.7	177 E	66	43	11 7	3 21.53	+25 58.1	0.654	1.636	7.5	20.8	168 W	71	38
11 22	2 53.19	+20 21.7	1.572	2.543	5.1	23.9	167 E	65	44	11 12	3 9.99	+26 50.8	0.651	1.636	5.6	20.7	171 W	72	37
12 2	2 40.13	+19 40.1	1.584	2.506	10.0	24.1	154 E	65	44	11 17	2 58.29	+27 35.0	0.654	1.636	6.7	20.8	169 E	73	36
162452 2000 HO₁₄										11 22	2 46.97	+28 10.4	0.664	1.635	9.8	20.9	164 E	73	36
10 23	3 36.92	+18 0.9	1.725	2.651	9.7	22.2	153 W	63	46	11 27	2 36.51	+28 37.7	0.679	1.634	13.4	21.1	157 E	74	35
10 28	3 31.64	+17 33.2	1.718	2.671	7.5	22.1	160 W	63	46	12 2	2 27.32	+28 58.1	0.699	1.633	17.0	21.3	151 E	74	35
11 2	3 26.02	+17 3.9	1.717	2.691	5.1	22.1	166 W	62	47	12 7	2 19.69	+29 13.7	0.724	1.631	20.4	21.5	145 E	74	35
11 7	3 20.21	+16 33.6	1.725	2.710	2.8	21.9	172 W	62	47	12 12	2 13.79	+29 26.5	0.753	1.629	23.4	21.7	139 E	74	35
11 12	3 14.38	+16 3.1	1.740	2.729	0.8	21.8	178 W	61	48	153957 2002 AB₂₉									
11 17	3 8.68	+15 33.1	1.762	2.748	2.1	22.0	174 E	61	48	10 23	3 53.86	-43 59.0	1.876	2.501	20.6	22.2	118 W	1	72
11 22	3 3.25	+15 4.3	1.793	2.766	4.3	22.2	168 E	60	49	10 28	3 46.00	-44 49.5	1.830	2.460	20.9	22.1	118 W	—	71
11 27	2 58.23	+14 37.4	1.830	2.784	6.4	22.3	162 E	60	49	11 2	3 37.02	-45 29.6	1.788	2.417	21.3	22.0	118 W	—	71
12 2	2 53.70	+14 12.9	1.875	2.802	8.4	22.5	155 E	59	50	11 7	3 27.07	-45 57.0	1.751	2.374	22.8	21.9	117 W	—	70
480858 2001 PT₉										11 12	3 16.35	-46 9.7	1.717	2.330	22.4	21.9	116 W	—	70
10 23	3 41.29	+32 9.4	1.225	2.129	14.8	23.7	147 W	77	32	11 17	3 5.17	-46 6.1	1.687	2.285	23.1	21.8	115 E	—	70
10 28	3 33.25	+32 5.7	1.199	2.132	12.3	23.6	153 W	77	32	11 22	2 53.83	-45 45.3	1.661	2.240	24.0	21.8	113 E	—	70
11 2	3 24.37	+31 53.9	1.179	2.134	9.8	23.4	159 W	77	32	11 27	2 42.67	-45 6.7	1.639	2.194	24.9	21.7	111 E	—	71
11 7	3 14.93	+31 33.7	1.166	2.135	7.6	23.3	163 W	77	32	12 2	2 32.00	-44 10.5	1.620	2.147	25.8	21.7	108 E	1	72
11 12	3 5.25	+31 5.2	1.161	2.136	6.2	23.3	167 E	76	33	12 7	2 22.13	-42 57.3	1.605	2.099	26.9	21.6	106 E	2	73
11 17	2 55.67	+30 29.3	1.162	2.136	6.3	23.3	166 E	75	34	12 12	2 13.26	-41 28.5	1.592	2.050	27.9	21.6	103 E	4	75
11 22	2 46.52	+29 47.3	1.171	2.135	7.9	23.3	163 E	75	34	366617 2003 OS₆									
11 27	2 38.07	+29 1.0	1.187	2.133	10.2	23.5	158 E	74	35	10 23	3 56.57	+14 40.0	2.087	2.984	9.9	22.3	149 W	60	49
403247 2008 XO₂										11 2	3 48.11	+13 52.4	2.009	2.964	6.4	22.1	161 W	59	50
10 23	3 42.82	+21 41.4	1.281	2.205	12.6	22.2	151 W	67	42	11 12	3 38.01	+13 1.7	1.960	2.943	2.9	21.8	171 W	58	51
10 28	3 36.24	+21 44.3	1.258	2.208	9.9	22.1	157 W	67	42	11 22	3 27.21	+12 12.0	1.942	2.920	3.2	21.8	170 E	57	52
11 2	3 28.94	+21 43.7	1.241	2.212	7.1	21.9	164 W	67	42	12 2	3 16.75	+11 27.5	1.954	2.897	7.0	22.0	159 E	56	53
11 7	3 21.14	+21 39.7	1.231	2.214	4.3	21.8	170 W	67	42	12 12	3 7.64	+10 52.6	1.995	2.872	10.7	22.2	147 E	56	53
11 12	3 13.08	+21 32.5	1.228	2.217	1.8	21.6	176 W	67	42	470317 2007 PJ₂₁									
11 17	3 5.03	+21 22.6	1.233	2.218	2.7	21.7	174 E	66	43	10 23	3 56.84	+37 6.6	2.245	3.087	11.6	21.7	142 W	82	27
11 22	2 57.24	+21 10.7	1.245	2.220	5.4	21.8	168 E	66	43	10 28	3 51.95	+37 11.4	2.228	3.106	10.1	21.7	147 W	82	27
11 27	2 49.95	+20 57.6	1.264	2.221	8.3	22.0	161 E	66	43	11 2	3 46.59	+37 11.5	2.216	3.124	8.7	21.6	152 W	82	27
12 2	2 43.35	+20 44.3	1.289	2.221	11.0	22.2	155 E	66	43	11 7	3 40.89	+37 6.6	2.211	3.143	7.4	21.5	156 W	82	27
12 7	2 37.60	+20 31.8	1.321	2.221	13.5	22.3	148 E	66	43	11 12	3 34.99	+36 56.8	2.214						

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

2021	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	21/22	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	
372342 2009 DF₉₇																				
10 23	3 57.71	+31 7.0	2.122	2.988	11.2	22.0	144 W	76	33	10 23	4 19.89	+12 26.3	1.688	2.556	13.5	21.4	143 W	57	52	
10 28	3 52.96	+31 10.9	2.097	2.999	9.5	21.9	150 W	76	33	11 2	4 11.63	+11 47.1	1.640	2.572	9.5	21.2	155 W	57	52	
11 2	3 47.70	+31 11.0	2.078	3.009	7.9	21.8	155 W	76	33	11 12	4 1.30	+11 9.2	1.616	2.587	5.4	21.0	166 W	56	53	
11 7	3 42.05	+31 7.1	2.066	3.020	6.2	21.8	161 W	76	33	11 22	3 50.02	+10 36.6	1.622	2.601	3.6	20.9	171 W	56	53	
11 12	3 36.16	+30 59.3	2.062	3.030	4.8	21.7	165 W	76	33	12 2	3 39.03	+10 13.0	1.656	2.614	6.4	21.1	163 E	55	54	
11 17	3 30.18	+30 47.7	2.065	3.039	3.8	21.6	168 W	76	33	12 12	3 29.51	+10 1.4	1.718	2.626	10.3	21.3	151 E	55	54	
11 22	3 24.26	+30 32.6	2.075	3.049	3.8	21.7	168 E	76	33	12 22	3 22.33	+10 3.4	1.806	2.637	13.9	21.6	140 E	55	54	
11 27	3 18.55	+30 14.7	2.094	3.058	4.8	21.7	165 E	75	34	215489 2002 TG₅₇										
12 2	3 13.19	+29 54.5	2.120	3.067	6.1	21.8	161 E	75	34	10 23	4 23.19	+24 51.7	1.935	2.782	12.9	21.4	141 W	70	39	
12 7	3 8.29	+29 32.8	2.153	3.076	7.7	22.0	155 E	75	34	11 2	4 14.74	+24 47.8	1.887	2.808	9.2	21.2	153 W	70	39	
12 12	3 3.95	+29 10.4	2.193	3.084	9.2	22.1	150 E	74	35	11 12	4 4.30	+24 34.4	1.865	2.833	5.1	21.0	165 W	70	39	
12 17	3 0.25	+28 48.1	2.239	3.092	10.7	22.2	144 E	74	35	11 22	3 52.95	+24 12.1	1.872	2.858	1.5	20.8	176 W	69	40	
420187 2011 GA₅₅																				
10 23	4 5.54	+34 18.2	1.680	2.535	14.1	22.1	141 W	79	30	12 2	3 41.87	+23 43.6	1.909	2.882	4.0	21.1	168 E	69	40	
10 28	3 59.60	+34 16.8	1.666	2.558	12.2	22.0	147 W	79	30	12 12	3 32.20	+23 12.9	1.976	2.904	7.9	21.4	156 E	68	41	
11 2	3 53.05	+34 9.7	1.658	2.580	10.2	21.9	153 W	79	30	12 22	3 24.77	+22 44.6	2.070	2.926	11.3	21.6	144 E	68	41	
11 7	3 46.07	+33 56.9	1.656	2.602	8.2	21.8	158 W	79	30	252373 2001 SA₂₇₀										
11 12	3 38.86	+33 38.3	1.661	2.623	6.5	21.8	163 W	79	30	10 23	4 27.51	-2 35.9	1.353	2.199	17.5	21.3	138 W	42	67	
11 17	3 31.65	+33 14.3	1.674	2.644	5.3	21.8	166 W	78	31	10 28	4 20.68	-4 27.2	1.310	2.187	15.9	21.2	143 W	41	68	
11 22	3 24.64	+32 45.8	1.695	2.664	5.1	21.8	166 E	78	31	11 2	4 12.74	-6 19.9	1.275	2.174	14.5	21.0	147 W	39	70	
11 27	3 18.01	+32 13.6	1.722	2.684	5.9	21.9	164 E	77	32	11 7	4 3.78	-8 11.2	1.247	2.159	13.6	20.9	149 W	37	72	
12 2	3 11.93	+31 38.8	1.757	2.704	7.3	22.0	160 E	77	32	11 12	3 54.00	-9 58.3	1.227	2.144	13.3	20.9	150 W	35	74	
12 7	3 6.53	+31 2.6	1.800	2.723	8.9	22.2	155 E	76	33	11 17	3 43.62	-11 38.0	1.216	2.127	13.8	20.9	149 W	33	76	
12 12	3 1.90	+30 26.2	1.849	2.742	10.6	22.3	149 E	75	34	11 22	3 32.93	-13 7.7	1.213	2.109	15.0	20.9	147 E	32	77	
12 17	2 58.09	+29 50.6	1.904	2.760	12.1	22.4	144 E	75	34	11 27	3 22.22	-14 25.1	1.219	2.090	16.7	20.9	143 E	31	78	
421974 2014 QA₂₉₇																				
10 23	4 9.90	+22 36.6	1.300	2.189	15.2	21.9	145 W	68	41	12 2	3 11.81	-15 28.8	1.231	2.070	18.7	21.0	138 E	30	79	
11 2	4 0.41	+22 23.7	1.272	2.219	10.1	21.7	157 W	67	42	12 7	3 1.98	-16 18.0	1.250	2.048	20.8	21.1	132 E	29	80	
11 12	3 48.70	+22 0.0	1.269	2.249	4.6	21.5	170 W	67	42	12 12	2 52.97	-16 53.1	1.275	2.026	22.9	21.1	127 E	28	81	
11 22	3 36.38	+21 28.2	1.292	2.279	1.5	21.3	177 E	66	43	12 17	2 44.97	-17 14.9	1.304	2.002	24.8	21.2	121 E	28	81	
12 2	3 25.10	+20 53.4	1.343	2.307	6.6	21.8	164 E	66	43	12 22	2 38.08	-17 24.8	1.337	1.976	26.6	21.3	116 E	28	81	
12 12	3 16.19	+20 21.8	1.420	2.336	11.4	22.1	152 E	65	44	12 27	2 32.35	-17 24.2	1.372	1.950	28.2	21.4	111 E	28	81	
364205 2006 QQ₁₀₄																				
10 23	4 10.79	+15 53.0	2.170	3.043	10.7	22.1	145 W	61	48	1	1	2 27.80	-17 14.6	1.410	1.922	29.5	21.5	105 E	28	81
11 2	4 2.84	+15 4.1	2.115	3.054	7.2	21.9	157 W	60	49	523732 2014 PG₅₁										
11 12	3 53.36	+14 12.6	2.088	3.065	3.6	21.7	169 W	59	50	10 23	4 29.65	+27 50.7	0.804	1.687	22.7	22.3	139 W	73	36	
11 22	3 43.25	+13 22.2	2.092	3.075	2.2	21.6	173 E	58	51	10 28	4 23.55	+27 46.2	0.759	1.674	19.7	22.1	145 W	73	36	
12 2	3 33.47	+12 36.6	2.126	3.083	5.3	21.8	163 E	58	51	11 2	4 15.57	+27 34.6	0.718	1.661	16.3	21.9	152 W	73	36	
12 12	3 24.91	+11 59.7	2.190	3.091	8.8	22.0	151 E	57	52	11 7	4 5.74	+27 14.2	0.682	1.646	12.5	21.6	159 W	72	37	
488738 2004 RM₁₆₂																				
10 23	4 13.81	+28 21.4	1.361	2.232	15.8	21.5	142 W	73	36	11 12	3 54.27	+26 43.4	0.652	1.630	8.5	21.3	166 W	72	37	
10 28	4 9.39	+28 7.7	1.343	2.249	13.5	21.4	148 W	73	36	11 17	3 41.49	+26 1.1	0.628	1.613	4.7	21.0	172 W	71	38	
11 2	4 4.23	+27 49.6	1.331	2.266	11.0	21.3	154 W	73	36	11 22	3 27.89	+25 7.2	0.610	1.595	4.4	20.9	173 E	70	39	
11 7	3 58.50	+27 27.0	1.325	2.282	8.5	21.2	160 W	72	37	11 27	3 14.07	+24 3.1	0.599	1.575	8.4	21.1	167 E	69	40	
11 12	3 52.40	+27 0.3	1.325	2.298	5.9	21.1	166 W	72	37	12 2	3 0.67	+22 51.2	0.594	1.555	13.2	21.2	159 E	68	41	
11 17	3 46.15	+26 29.9	1.332	2.314	3.7	21.0	171 W	71	38	12 7	2 48.26	+21 35.3	0.595	1.533	18.2	21.3	151 E	67	42	
11 22	3 39.96	+25 56.7	1.346	2.331	2.7	21.0	174 E	71	38	12 12	2 37.35	+20 19.6	0.602	1.510	23.0	21.5	143 E	65	44	
11 27	3 34.04	+25 21.6	1.367	2.346	4.0	21.1	171 E	70	39	12 17	2 28.20	+19 7.7	0.613	1.486	27.5	21.6	136 E	64	45	
12 2	3 28.56	+24 45.7	1.395	2.362	6.2	21.3	165 E	70	39	163051 2001 YJ₄										
12 7	3 23.69	+24 10.2	1.430	2.377	8.4	21.4	159 E	69	40	10 23	4 30.90	+24 7.0	2.275	3.102	12.0	21.4	140 W	69	40	
12 12	3 19.55	+23 36.0	1.472	2.393	10.6	21.6	153 E	69	40	11 2	4 23.17	+23 38.3	2.155	3.064	8.9	21.1	151 W	69	40	
12 17	3 16.20	+23 4.1	1.519	2.408	12.7	21.8	148 E	68	41	11 12	4 13.08	+22 59.3	2.062	3.026	5.2	20.8	164 W	68	41	
353985 2000 JW₆₀																				
10 23	4 16.39	+23 0.6	1.961	2.821	12.2	22.3	143 W	68	41	11 22	4 1.36	+22 10.5	1.999	2.985	1.1	20.4	177 W	67	42	
11 2	4 7.91	+22 38.5	1.903	2.834	8.5	22.1	155 W	68	41	11 27	3 55.21	+21 43.0	1.979	2.964	1.2	20.4	176 E	67	42	
11 12	3 57.53	+22 7.7	1.872	2.846	4.3	21.9	168 W	67	42	12 2	3 49.05	+21 14.0	1.967	2.943	3.4	20.5	170 E	66	43	
11 22	3 46.30	+21 29.9	1.870	2.857	0.6	21.6	178 E	66	43	12 7	3 43.04	+20 44.2	1.964	2.922	5.5	20.6	163 E	66	43	
12 2	3 35.36	+20 48.6	1.898	2.867	4.5	22.0	167 E	66	43	12 12	3 37.34	+20 14.4	1.968	2.899	7.6	20.7	157 E	65	44	
12 12	3 25.83	+20 8.4	1.957	2.876	8.5	22.2	154 E	65	44	12 17	3 32.06	+19 45.1	1.979	2.877	9.7	20.8	151 E	65	44	
377608 2005 RB₃₄																				
10 23	4 18.46	+ 5 5.6	1.404	2.276	15.4	22.1	143 W	50	59	12 22	3 27.32	+19 17.1	1.997	2.854	11.6	20.9	144 E	64	45	
10 28	4 13.75	+ 4 37.2	1.394	2.298	13.2	22.0	148 W	50	59	12 27	3 23.20	+18 50.9	2.021	2.831	13.4	21.0	138 E	64	45	

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

21/22	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	21/22	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°
523813 2008 VB₁										333980 2000 RL₁₂									
<i>(continuation)</i>																			
1 1	h 11.05	m +30 26.5	0.445	1.263	42.7	20.9	119 E	75	34	10 23	h 5 29.47	m +61 59.8	2.863	3.417	15.2	21.5	116 W	73	2
1 6	2 7.88	+30 56.8	0.457	1.241	46.4	21.0	114 E	76	33*	10 28	5 25.07	+62 51.0	2.831	3.431	14.6	21.5	119 W	72	1
1 11	2 6.82	+31 31.3	0.468	1.220	49.6	21.1	109 E	77	32*	11 2	5 19.33	+63 38.4	2.803	3.444	14.0	21.4	123 W	71	—
1 16	2 7.67	+32 10.4	0.479	1.198	52.6	21.2	105 E	77	30*	11 7	5 12.24	+64 20.9	2.780	3.457	13.4	21.4	126 W	71	—
1 21	2 10.26	+32 54.0	0.489	1.176	55.3	21.3	101 E	78	29*	11 12	5 3.88	+64 57.2	2.761	3.469	12.8	21.4	129 W	70	—
523665 2012 RF₁₅																			
10 23	4 38.74	+25 52.5	0.721	1.603	24.7	21.4	138 W	71	38	11 17	4 54.40	+65 26.0	2.748	3.481	12.3	21.3	131 W	70	—
10 28	4 33.42	+26 16.6	0.719	1.629	21.2	21.3	144 W	71	38	11 22	4 44.02	+65 46.5	2.740	3.493	11.8	21.3	133 W	69	—
11 2	4 26.89	+26 35.7	0.721	1.656	17.5	21.2	150 W	72	37	11 27	4 33.05	+65 57.8	2.738	3.505	11.5	21.3	135 W	69	—
11 7	4 19.39	+26 49.0	0.727	1.682	13.7	21.1	156 W	72	37	12 2	4 21.85	+65 59.6	2.741	3.517	11.3	21.3	136 E	69	—
11 12	4 11.28	+26 56.3	0.739	1.709	9.9	21.0	163 W	72	37	12 7	4 10.80	+65 51.9	2.751	3.528	11.2	21.3	136 E	69	—
11 17	4 2.93	+26 57.5	0.755	1.736	6.4	21.0	169 W	72	37	12 12	3 50.63	+65 10.4	2.787	3.549	11.4	21.4	135 E	70	—
11 22	3 54.74	+26 53.2	0.778	1.763	3.9	20.9	173 W	72	37	12 22	3 42.05	+64 38.7	2.815	3.560	11.6	21.4	133 E	70	—
11 27	3 47.04	+26 44.5	0.807	1.789	4.3	21.1	172 E	72	37	12 27	3 34.72	+64 1.5	2.847	3.570	12.0	21.5	131 E	71	—
12 2	3 40.11	+26 32.5	0.841	1.816	6.9	21.3	167 E	72	37	4486 Mitra									
12 7	3 34.18	+26 18.7	0.881	1.842	9.8	21.6	161 E	71	38	10 23	5 45.11	+22 49.6	3.014	3.652	13.2	21.5	123 W	68	41
12 12	3 29.38	+26 4.5	0.927	1.869	12.6	21.8	156 E	71	38	11 2	5 40.26	+22 49.4	2.887	3.647	11.3	21.3	134 W	68	41
12 17	3 25.78	+25 51.1	0.978	1.895	15.1	22.1	150 E	71	38	11 12	5 33.10	+22 47.6	2.780	3.641	8.8	21.1	146 W	68	41
12 22	3 23.38	+25 39.4	1.033	1.921	17.3	22.3	144 E	71	38	11 22	5 23.93	+22 43.4	2.699	3.634	5.9	20.9	158 W	68	41
163070 2002 AO₇																			
10 23	4 39.42	+39 8.0	1.281	2.093	20.3	21.4	133 W	84	25	12 2	5 13.28	+22 35.9	2.648	3.625	2.6	20.7	170 W	68	41
10 28	4 38.69	+39 22.6	1.205	2.052	19.0	21.2	138 W	84	25	12 12	5 1.89	+22 25.2	2.631	3.614	0.9	20.5	177 E	67	42
11 2	4 36.82	+39 32.8	1.132	2.012	17.5	21.0	142 W	85	24	12 22	4 50.70	+22 12.0	2.646	3.602	4.3	20.8	164 E	67	42
11 7	4 33.73	+39 37.1	1.064	1.971	15.8	20.8	147 W	85	24	1 1	4 40.55	+21 57.9	2.694	3.588	7.5	21.0	151 E	67	42
11 12	4 29.40	+39 33.8	1.000	1.931	14.0	20.5	152 W	85	24	1 11	4 32.15	+21 45.1	2.770	3.573	10.3	21.1	139 E	67	42
11 17	4 23.86	+39 21.4	0.942	1.890	12.1	20.3	156 W	84	25	1 21	4 25.95	+21 35.4	2.870	3.557	12.7	21.3	128 E	67	42
11 22	4 17.20	+38 57.8	0.889	1.848	10.4	20.0	160 W	84	25	496970 2002 QV₅									
11 27	4 9.59	+38 21.3	0.841	1.807	9.3	19.8	163 E	83	26	10 23	5 56.98	+30 51.4	1.539	2.210	23.0	21.5	120 W	76	33
12 2	4 1.29	+37 30.5	0.799	1.766	9.4	19.7	163 E	83	26	11 2	5 54.80	+31 27.7	1.479	2.250	19.7	21.3	130 W	76	33
12 7	3 52.66	+36 24.5	0.763	1.724	10.8	19.6	161 E	81	28	11 12	5 48.50	+31 59.5	1.433	2.290	15.7	21.1	141 W	77	32
12 12	3 44.13	+35 3.8	0.733	1.683	13.4	19.5	157 E	80	29	11 22	5 38.54	+32 22.1	1.406	2.329	11.2	21.0	153 W	77	32
12 17	3 36.13	+33 29.8	0.708	1.642	16.6	19.5	151 E	78	31	12 2	5 26.00	+32 30.5	1.404	2.368	6.6	20.8	164 W	78	31
12 22	3 29.02	+31 44.8	0.689	1.600	20.3	19.5	146 E	77	32	12 12	5 12.48	+32 22.3	1.429	2.406	3.8	20.7	171 E	77	32
12 27	3 23.11	+29 51.9	0.674	1.559	24.1	19.5	140 E	75	34	12 22	4 59.85	+31 58.9	1.482	2.443	6.3	21.0	164 E	77	32
1 1	3 18.65	+27 54.4	0.663	1.519	28.0	19.6	134 E	73	36	1 1	4 49.57	+31 25.6	1.562	2.480	10.3	21.3	153 E	76	33
1 6	3 15.80	+25 55.6	0.656	1.479	31.7	19.6	128 E	71	38	347812 2002 MW₃									
1 11	3 14.62	+23 58.1	0.651	1.439	35.4	19.6	122 E	69	40	10 23	5 58.74	+11 54.9	2.508	3.116	16.2	21.4	119 W	57	52
1 16	3 15.11	+22 4.2	0.649	1.400	38.9	19.6	117 E	67	42	11 2	5 55.55	+11 36.6	2.428	3.154	14.0	21.3	130 W	57	52
1 21	3 17.22	+20 14.8	0.647	1.363	42.2	19.7	112 E	65	44*	11 12	5 49.98	+11 22.3	2.365	3.191	11.4	21.2	140 W	56	53
362483 2010 SE₃₄																			
10 23	5 0.25	+30 8.7	1.972	2.740	15.6	21.4	132 W	75	34	11 22	5 42.37	+11 13.4	2.324	3.227	8.4	21.1	151 W	56	53
11 2	4 53.59	+30 31.3	1.901	2.760	12.5	21.2	143 W	76	33	12 2	5 33.26	+11 11.1	2.311	3.262	5.4	20.9	162 W	56	53
11 12	4 44.09	+30 44.0	1.853	2.780	8.8	21.1	155 W	76	33	12 12	5 23.43	+11 16.0	2.327	3.297	3.5	20.9	168 W	56	53
11 22	4 32.59	+30 43.9	1.831	2.798	5.0	20.9	166 W	76	33	12 22	5 13.78	+11 28.5	2.374	3.330	4.7	21.0	164 E	56	53
12 2	4 20.29	+30 30.1	1.838	2.816	3.1	20.8	171 E	76	33	1 1	5 5.12	+11 48.0	2.452	3.362	7.4	21.2	154 E	57	52
12 12	4 8.55	+30 4.7	1.875	2.833	5.7	21.0	163 E	75	34	1 11	4 58.12	+12 13.8	2.557	3.394	10.1	21.4	143 E	57	52
12 22	3 58.62	+29 32.1	1.941	2.849	9.3	21.2	152 E	75	34	90791 1994 PG₃₂									
1 1	3 51.29	+28 57.8	2.033	2.864	12.5	21.5	141 E	74	35	10 23	6 0.25	+28 55.0	2.220	2.842	17.8	21.4	119 W	74	35
527305 2007 TG₃₈₅																			
10 23	5 14.29	+39 43.9	1.356	2.129	21.2	21.3	129 W	75	34	11 2	5 57.61	+29 5.7	2.113	2.851	15.5	21.3	130 W	74	35
11 2	5 9.02	+30 35.1	1.304	2.160	17.2	21.2	140 W	76	33	11 12	5 51.84	+29 13.7	2.022	2.859	12.6	21.1	141 W	74	35
11 12	4 59.72	+31 16.4	1.271	2.192	12.5	21.0	151 W	76	33	11 22	5 43.16	+29 16.3	1.953	2.866	9.1	20.8	153 W	74	35
11 22	4 47.40	+31 42.3	1.260	2.222	7.6	20.8	163 W	77	32	12 2	5 32.20	+29 10.9	1.909	2.872	5.2	20.6	165 W	74	35
12 2	4 33.67	+31 49.3	1.275	2.253	4.3	20.7	170 W	77	32	12 12	5 19.97	+28 55.5	1.896	2.877	2.0	20.4	174 W	74	35
12 12	4 20.51	+31 38.3	1.318	2.283	6.4	20.9	165 E	77	32	12 17	5 13.79	+28 44.2	1.900	2.879	2.6	20.5	172 E	74	35
12 22	4 9.70	+31 14.8	1.387	2.313	10.6	21.2	154 E	76	33	12 22	5 7.79	+28 30.7	1.913	2.880	4.3	20.6	167 E	74	35
1 1	4 2.30	+30 46.2	1.480	2.342	14.6	21.5	143 E	76	33	12 27	5 2.12	+28 15.5	1.933	2.882	6.3	20.7	161 E	73	36
420577 2012 HU₂₄																			
10 23	5 22.56	+20 48.9	1.652	2.399	19.0	21.3	128 W	66	43	1 1	4 56.91	+27 59.1	1.960	2.883	8.2	20.8	155 E	73	36
11 2	5 20.24	+19 13.2	1.531	2.369	16.0	21.0	139 W	64	45	1 6	4 52.29	+27 42.1	1.994	2.883	10.0	20.9	149 E	73	36
11 12	5 14.52	+17 22.4	1.428	2.338	12.2	20.7	150 W	62	47	1 11	4 48.34	+27 25.0	2.034	2.884	11.7	21.1	143 E		

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

21/22	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	21/22	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°
215476 2002 RP₁₃₄										168730 2000 OX₅₁									
10 23	6 10.36	+24 58.1	1.838	2.457	21.1	21.4	117 W	70	39	10 23	6 42.56	+17 40.9	1.901	2.419	22.9	21.4	109 W	63	46
11 2	6 8.58	+25 27.4	1.762	2.494	18.4	21.3	128 W	70	39	11 2	6 43.54	+17 1.6	1.812	2.450	20.8	21.3	119 W	62	47
11 12	6 3.29	+25 58.0	1.701	2.530	15.0	21.1	139 W	71	38	11 12	6 41.25	+16 25.0	1.733	2.481	18.0	21.1	129 W	61	48
11 22	5 54.75	+26 27.6	1.659	2.566	10.9	20.9	151 W	71	38	11 22	6 35.72	+15 52.3	1.669	2.510	14.5	20.9	140 W	61	48
12 2	5 43.66	+26 52.6	1.642	2.601	6.4	20.7	163 W	72	37	12 2	6 27.26	+15 24.9	1.626	2.539	10.5	20.7	152 W	60	49
12 12	5 31.17	+27 10.0	1.653	2.635	2.0	20.5	175 W	72	37	12 12	6 16.61	+15 3.6	1.607	2.567	6.2	20.6	164 W	60	49
12 22	5 18.76	+27 18.7	1.694	2.668	3.7	20.7	170 E	72	37	12 22	6 4.94	+14 49.2	1.617	2.594	3.3	20.4	171 W	60	49
1 1	5 7.81	+27 19.9	1.764	2.700	7.9	21.0	158 E	72	37	12 27	5 59.13	+14 44.7	1.634	2.607	3.8	20.5	170 E	60	49
1 11	4 59.37	+27 16.5	1.861	2.731	11.7	21.3	146 E	72	37	1 1	5 53.55	+14 42.0	1.657	2.620	5.4	20.6	165 E	60	49
144901 2004 WG₁										429094 2009 SG₂									
10 23	6 15.92	+31 58.3	1.672	2.287	23.1	21.4	116 W	77	32	10 23	7 29.84	+62 26.1	0.624	1.282	49.3	21.5	102 W	73	1*
10 28	6 14.12	+32 33.9	1.628	2.303	21.7	21.3	121 W	78	31	10 28	7 49.37	+65 31.3	0.616	1.288	48.5	21.4	104 W	69	—
11 2	6 11.17	+33 10.3	1.587	2.319	20.1	21.2	126 W	78	31	11 2	8 10.61	+68 31.3	0.609	1.294	47.7	21.4	105 W	66	—
11 7	6 7.04	+33 46.9	1.550	2.334	18.4	21.1	132 W	79	30	11 7	8 34.00	+71 24.5	0.604	1.298	47.1	21.4	106 W	64	—
11 12	6 1.72	+34 22.6	1.517	2.348	16.4	21.0	138 W	79	30	11 12	9 0.21	+74 8.8	0.600	1.302	46.5	21.3	107 W	61	—
11 17	5 55.26	+34 56.4	1.489	2.361	14.3	20.9	144 W	80	29	11 17	9 30.25	+76 42.7	0.597	1.306	46.0	21.3	108 W	58	—
11 22	5 47.74	+35 27.0	1.467	2.374	12.1	20.8	150 W	80	29	11 22	10 5.72	+79 4.0	0.595	1.308	45.6	21.3	109 W	56	—
11 27	5 39.30	+35 53.2	1.452	2.386	9.8	20.7	156 W	81	28	11 27	10 49.06	+81 10.7	0.595	1.310	45.3	21.3	109 W	54	—
12 2	5 30.14	+36 13.8	1.444	2.397	7.7	20.6	161 W	81	28	12 2	11 44.02	+82 59.6	0.595	1.311	45.1	21.3	110 W	52*	—
12 7	5 20.53	+36 27.8	1.443	2.408	6.1	20.6	165 W	81	28	12 7	12 55.69	+84 25.8	0.595	1.312	45.0	21.3	110 W	50*	—
12 12	5 10.77	+36 34.9	1.450	2.418	5.5	20.6	166 E	82	27	12 12	14 27.57	+85 22.3	0.597	1.311	45.0	21.3	110 W	49*	—
12 17	5 1.18	+36 35.1	1.465	2.428	6.2	20.6	165 E	82	27	12 17	16 13.15	+85 43.5	0.598	1.310	45.1	21.3	109 W	47*	—
12 22	4 52.05	+36 28.9	1.488	2.437	7.8	20.8	160 E	81	28	12 22	17 54.34	+85 32.4	0.600	1.308	45.3	21.3	109 W	46*	—
12 27	4 43.62	+36 17.3	1.518	2.445	9.8	20.9	155 E	81	28	12 27	19 19.25	+85 0.4	0.602	1.306	45.6	21.3	108 E	47*	—
1 1	4 36.09	+36 1.4	1.555	2.453	11.8	21.0	149 E	81	28	1 1	20 28.76	+84 17.9	0.604	1.302	45.9	21.3	108 E	49*	—
1 6	4 29.62	+35 42.7	1.598	2.460	13.7	21.2	144 E	81	28	1 6	21 27.86	+83 30.9	0.606	1.299	46.3	21.3	107 E	50*	—
1 11	4 24.28	+35 22.4	1.647	2.466	15.5	21.3	138 E	80	29	1 11	22 20.50	+82 41.1	0.607	1.294	46.8	21.3	106 E	51*	—
1 16	4 20.09	+35 1.7	1.701	2.472	17.1	21.4	132 E	80	29	1 16	23 9.09	+81 48.1	0.608	1.288	47.3	21.4	106 E	52*	—
1 21										1 21	23 54.89	+80 50.3	0.609	1.282	47.9	21.4	105 E	53*	—
141079 2001 XS₃₀										216556 2001 VF₁₆									
10 23	6 27.92	+23 43.1	1.527	2.125	25.5	21.4	113 W	69	40	10 23	7 30.89	+28 28.7	0.955	1.488	41.3	21.5	99 W	73	35*
10 28	6 24.38	+23 19.0	1.462	2.128	24.1	21.3	119 W	68	41	10 28	7 39.68	+27 49.4	0.914	1.487	40.7	21.4	102 W	73	36*
11 2	6 19.50	+22 52.9	1.398	2.129	22.5	21.1	125 W	68	41	11 2	7 47.68	+27 7.3	0.873	1.487	40.0	21.2	105 W	72	37*
11 7	6 13.17	+22 24.1	1.339	2.129	20.4	21.0	131 W	67	42	11 7	7 54.80	+26 22.8	0.832	1.486	39.2	21.1	109 W	71	38*
11 12	6 5.35	+21 52.0	1.284	2.127	18.1	20.8	138 W	67	42	11 12	8 0.94	+25 36.0	0.792	1.484	38.1	21.0	112 W	71	38
11 17	5 56.04	+21 16.1	1.234	2.124	15.3	20.6	145 W	66	43	11 17	8 6.02	+24 47.1	0.753	1.483	36.8	20.8	116 W	70	39
11 22	5 45.31	+20 35.6	1.192	2.120	12.3	20.4	153 W	66	43	11 22	8 9.94	+23 56.3	0.715	1.481	35.2	20.7	120 W	69	40
11 27	5 33.33	+19 50.1	1.158	2.114	8.9	20.2	161 W	65	44	11 27	8 12.57	+23 3.7	0.678	1.480	33.4	20.5	124 W	68	41
12 2	5 20.35	+18 59.8	1.132	2.107	5.4	20.0	168 W	64	45	12 2	8 13.78	+22 9.4	0.643	1.478	31.3	20.3	129 W	67	42
12 7	5 6.73	+18 5.1	1.116	2.099	2.5	19.8	175 W	63	46	12 12	8 11.50	+20 15.9	0.579	1.473	25.9	19.9	139 W	65	44
12 12	4 52.90	+17 7.4	1.109	2.089	3.8	19.9	172 E	62	47	12 22	8 2.59	+18 15.8	0.528	1.468	19.0	19.5	151 W	63	46
12 17	4 39.33	+16 8.3	1.113	2.078	7.3	20.1	164 E	61	48	1 1	7 47.49	+16 10.3	0.491	1.462	10.9	19.1	164 W	61	48
12 22	4 26.43	+15 9.7	1.126	2.065	11.0	20.2	156 E	60	49	1 6	7 38.21	+15 7.1	0.480	1.458	7.1	18.9	169 W	60	49
12 27	4 14.53	+14 13.8	1.147	2.051	14.5	20.4	148 E	59	50	1 11	7 28.37	+14 5.3	0.474	1.455	5.3	18.7	172 W	59	50
1 1	4 3.89	+13 22.1	1.176	2.036	17.8	20.5	141 E	58	51	1 16	7 18.48	+13 6.1	0.473	1.451	7.4	18.8	169 E	58	51
1 6	3 54.67	+12 36.0	1.212	2.019	20.7	20.7	133 E	58	51	1 21	7 9.06	+12 11.3	0.477	1.447	11.4	19.0	163 E	57	52
1 11	3 46.94	+11 56.2	1.253	2.000	23.3	20.8	126 E	57	52	428601 2008 ET₉₂									
1 16	3 40.69	+11 23.0	1.299	1.980	25.6	20.9	120 E	56	53	10 23	7 47.68	+12 38.0	1.784	2.087	28.4	21.4	93 W	58	50*
1 21	3 35.85	+10 56.3	1.347	1.959	27.4	21.0	113 E	56	53	11 2	8 0.83	+12 54.2	1.634	2.050	28.5	21.2	100 W	58	50*
498541 2008 GA₂₆										11 12	8 12.60	+13 24.7	1.487	2.014	28.0	20.9	107 W	58	51*
10 23	6 33.62	+27 33.6	1.079	1.719	32.5	21.3	112 W	73	36	11 22	8 22.64	+14 16.0	1.347	1.978	26.9	20.6	115 W	59	50
11 2	6 50.19	+28 37.2	0.972	1.687	31.2	21.0	118 W	74	35	12 2	8 30.56	+15 35.9	1.214	1.942	25.0	20.3	124 W	61	48
11 12	7 4.69	+29 50.8	0.875	1.656	29.3	20.7	125 W	75	34	12 7	8 33.55	+16 29.2	1.152	1.924	23.7	20.1	128 W	61	48
11 22	7 16.47	+31 17.8	0.789	1.628	26.6	20.3	132 W	76	33	12 12	8 35.80	+17 32.8	1.094	1.907	22.2	20.0	133 W	63	46
11 27	7 21.11	+32 6.9	0.750	1.615	24.9	20.2	136 W	77	32	12 17	8 37.26	+18 47.5	1.039	1.889	20.4	19.8	138 W	64	45
12 2	7 24.77	+32 59.7	0.715	1.603	23.1	20.0	140 W	78	31	12 22	8 37.86	+20 13.8	0.988	1.872	18.3	19.6	143 W	65	44
12 7	7 27.37	+33 55.8	0.683	1.592	21.0	19.8	145 W	79	30	12 27	8 37.54	+21 51.9	0.943	1.856	15.9	19.4	149 W	67	42
12 12	7 28.85	+34 54.3	0.655	1.582	18.8	19.6	149 W	80	29	1 1	8 36.25	+23 41.5	0.902	1.839	13.4	19.2	154 W	69	40
12 17	7 29.20	+35 53.8	0.631	1.572	16.6	19.5	153 W	81	28	1 6	8 33.98	+25 41.3	0.868	1.823	10.7	19.0	160 W	71	38
12 22	7 28.43	+36 52.5	0.611	1.563	14.4	19.3	157 W	82	27	1 11	8 30.77	+27 49.1	0.840	1.807	8.3	18.8	165 W	73	36
12 27	7 26.63	+37 48.5	0.595	1.556	12.5	19.2	160 W	83	26	1 16	8 26.72	+30 2.0	0.818	1.792	6.7	18.6	168 W	75	34
1 1	7 23.96	+38 39.2	0.583	1.549	11.1	19.1	162 W	84	25	1 21	8 21.98	+32 16.3	0.803	1.777	6.9	18.6	168 W	77	32
1 6	7 20.66	+39 22.5	0.576	1.543	10.8	19.0	163 W	84	25	361537 2007 JH₁₆									
1 11	7 17.08	+39 56.2	0.573	1.5															

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

21/22	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45° - 26°	21/22	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45° - 26°		
361537 2007 JH₁₆ (continuation)									426071 2012 CD₂₉										
12 2	8 52.81	+5 5.4	1.016	1.688	32.0	20.6	115 W	50 59	10 23	9 26.90	-17 56.4	0.574	0.901	81.5	21.3	64 W	24*	55*	
12 7	8 54.44	+6 12.3	0.970	1.692	30.3	20.5	120 W	51 58	10 28	9 17.96	-18 54.4	0.580	0.961	75.8	21.3	70 W	25*	61*	
12 12	8 55.00	+7 33.2	0.926	1.697	28.3	20.3	125 W	53 56	11 2	9 9.34	-19 50.7	0.582	1.018	70.8	21.2	76 W	25*	67*	
12 17	8 54.42	+9 9.6	0.884	1.701	25.9	20.2	131 W	54 55	11 7	9 0.40	-20 44.9	0.580	1.072	66.1	21.2	82 W	24	72*	
12 22	8 52.61	+11 2.2	0.847	1.705	23.1	20.0	137 W	56 53	11 12	8 50.60	-21 35.3	0.576	1.123	61.7	21.2	88 W	23	78*	
12 27	8 49.50	+13 11.4	0.813	1.709	19.9	19.8	144 W	58 51	11 17	8 39.54	-22 19.6	0.569	1.172	57.4	21.1	94 W	23	84*	
1 1	8 45.04	+15 36.3	0.785	1.712	16.3	19.6	151 W	61 48	11 22	8 26.88	-22 54.7	0.562	1.218	53.0	21.0	100 W	22	87	
1 6	8 39.25	+18 14.9	0.764	1.715	12.5	19.4	158 W	63 46	11 27	8 12.41	-23 16.8	0.555	1.261	48.7	20.9	106 W	22	87	
1 11	8 32.25	+21 3.2	0.749	1.718	8.5	19.2	165 W	66 43	12 2	7 56.08	-23 21.1	0.549	1.301	44.3	20.9	113 W	22	87	
1 16	8 24.23	+23 56.1	0.741	1.720	4.8	19.0	172 W	69 40	12 7	7 38.04	-23 2.8	0.545	1.340	39.8	20.8	119 W	22	87	
1 21	8 15.47	+26 47.7	0.742	1.723	3.9	19.0	173 W	72 37	12 12	7 18.76	-22 17.8	0.545	1.376	35.5	20.7	126 W	23	86	
35432 1998 BG₉									459458 2012 XR₁₃₄										
10 23	8 13.11	+6 18.9	0.877	1.274	51.1	21.4	86 W	51*	53*	10 23	9 32.80	+3 59.1	1.254	1.239	47.0	21.2	66 W	44*	42*
11 2	8 55.30	+5 24.1	0.816	1.227	53.7	21.3	85 W	50*	53*	10 28	9 55.08	+1 37.3	1.181	1.173	49.9	21.1	65 W	42*	43*
11 12	9 39.12	+4 26.1	0.769	1.189	55.9	21.1	84 W	49	52*	11 2	10 19.56	-1 1.2	1.115	1.105	53.1	20.9	63 W	40*	42*
11 22	10 23.73	+3 30.2	0.737	1.161	57.7	21.0	83 W	49	51*	11 7	10 46.54	-3 55.5	1.059	1.035	56.5	20.7	61 W	37*	42*
12 2	11 8.02	+2 41.4	0.717	1.144	58.8	21.0	83 W	48	51*	11 12	11 16.24	-7 2.6	1.015	0.963	60.0	20.6	57 W	34*	41*
12 12	11 50.76	+2 5.0	0.708	1.139	59.1	21.0	83 W	47	51*	11 17	11 48.82	-10 16.6	0.984	0.891	63.4	20.5	54 W	31*	39*
12 22	12 30.88	+1 44.7	0.707	1.146	58.5	20.9	84 W	47	52*	11 22	12 24.23	-13 28.6	0.968	0.818	66.6	20.3	49 W	27*	36*
1 1	13 7.55	+1 43.3	0.710	1.166	57.2	21.0	85 W	47	53*	11 24	12 39.12	-14 42.3	0.966	0.788	67.6	20.3	48 W	25*	35*
1 11	13 40.13	+2 2.8	0.716	1.196	55.2	21.0	88 W	47	55*	11 26	12 54.40	-15 53.2	0.968	0.759	68.5	20.2	46 W	24*	33*
1 21	14 8.21	+2 44.0	0.721	1.237	52.7	21.0	92 W	48	57*	11 28	13 10.01	-17 0.6	0.972	0.730	69.2	20.2	44 W	22*	32*
508940 2004 RQ₁₆₅									100333 1995 SN₅										
10 23	8 13.53	+24 57.6	1.552	1.836	32.8	21.5	89 W	70*	36*	10 23	9 47.24	+37 47.7	3.045	2.948	19.0	21.4	75 W	69*	15*
11 2	8 28.20	+24 27.7	1.483	1.869	31.9	21.4	96 W	69	38*	11 2	9 59.54	+37 49.6	2.906	2.935	19.6	21.3	82 W	76*	17*
11 12	8 39.79	+24 4.7	1.414	1.904	30.4	21.3	103 W	69	39*	11 12	10 10.43	+38 2.6	2.764	2.922	19.8	21.2	89 W	82*	19*
11 22	8 47.94	+23 51.8	1.347	1.941	28.3	21.1	112 W	69	40*	11 22	10 19.64	+38 28.6	2.622	2.908	19.7	21.1	97 W	83	21*
12 2	8 52.27	+23 51.3	1.285	1.979	25.4	21.0	121 W	69	40	12 2	10 26.83	+39 9.1	2.482	2.893	19.3	21.0	105 W	84	23*
12 12	8 52.44	+24 4.2	1.232	2.018	21.7	20.8	131 W	69	40	12 12	10 31.59	+40 4.8	2.348	2.876	18.4	20.8	113 W	85	23*
12 22	8 48.40	+24 28.5	1.193	2.057	17.2	20.7	142 W	69	40	12 22	10 33.46	+41 14.8	2.224	2.859	17.1	20.6	121 W	86	23*
1 1	8 40.52	+24 59.4	1.171	2.098	12.1	20.5	153 W	70	39	1 1	10 31.95	+42 36.2	2.113	2.841	15.5	20.4	129 W	88	21
1 6	8 35.41	+25 15.2	1.169	2.118	9.3	20.4	160 W	70	39	1 6	10 29.79	+43 19.3	2.064	2.831	14.6	20.4	133 W	88	21
1 11	8 29.77	+25 29.9	1.172	2.139	6.6	20.3	165 W	70	39	1 11	10 26.64	+44 2.7	2.019	2.822	13.7	20.3	137 W	89	20
1 16	8 23.81	+25 42.5	1.182	2.159	4.1	20.2	171 W	71	38	1 16	10 22.50	+44 45.0	1.981	2.812	12.8	20.2	141 W	90	19
1 21	8 17.77	+25 52.5	1.199	2.180	2.7	20.2	174 W	71	38	1 21	10 17.41	+45 24.7	1.947	2.802	12.0	20.1	144 W	90	19
313477 2002 TA₁₈₀									88609 2001 QP₂₉₆										
10 23	8 15.23	+39 11.1	2.626	2.844	20.5	21.5	92 W	84*	22*	10 23	9 37.90	+18 2.0	2.908	2.710	20.0	21.5	69 W	56*	32*
11 2	8 22.02	+39 58.1	2.533	2.885	19.8	21.4	101 W	85	23*	11 2	9 48.74	+17 19.3	2.778	2.715	20.8	21.4	76 W	60*	35*
11 12	8 26.03	+40 54.8	2.444	2.924	18.6	21.3	109 W	86	23*	11 12	9 58.23	+16 42.8	2.643	2.718	21.2	21.3	84 W	62*	39*
11 22	8 26.94	+42 0.0	2.363	2.963	17.0	21.2	118 W	87	22	11 22	10 6.16	+16 14.7	2.505	2.721	21.3	21.2	92 W	61	43*
12 2	8 24.44	+43 10.8	2.294	3.001	15.0	21.1	128 W	88	21	12 2	10 12.27	+15 56.9	2.366	2.722	20.9	21.1	100 W	61	46*
12 12	8 18.38	+44 21.9	2.241	3.039	12.7	21.0	137 W	89	20	12 12	10 16.25	+15 51.4	2.230	2.723	19.9	20.9	110 W	61	48*
12 22	8 9.01	+45 25.8	2.211	3.075	10.3	20.9	146 W	90	19	12 22	10 17.82	+15 59.8	2.101	2.722	18.4	20.7	119 W	61	48*
1 1	7 57.00	+46 14.3	2.205	3.111	8.4	20.9	153 W	89	18	1 1	10 16.69	+16 23.0	1.984	2.721	16.1	20.5	130 W	61	48
1 11	7 43.51	+46 40.7	2.227	3.146	7.6	20.9	155 W	88	17	1 11	10 12.69	+17 0.4	1.882	2.718	13.1	20.3	141 W	62	47
1 21	7 30.10	+46 41.8	2.278	3.181	8.3	21.0	152 E	88	17	1 21	10 5.89	+17 49.4	1.802	2.714	9.5	20.1	153 W	63	46
137052 T_{jelvar}									100333 1995 SN₅										
10 23	8 34.86	+27 52.3	2.080	2.234	26.4	21.4	86 W	72*	31*	10 23	9 47.24	+37 47.7	3.045	2.948	19.0	21.4	75 W	69*	15*
11 2	8 42.46	+28 28.6	1.916	2.217	26.5	21.2	94 W	73	33*	11 2	9 59.54	+37 49.6	2.906	2.935	19.6	21.3	82 W	76*	17*
11 12	8 47.64	+29 24.0	1.750	2.194	26.1	21.0	103 W	74	34*	11 12	10 10.43	+38 2.6	2.764	2.922	19.8	21.2	89 W	82*	19*
11 22	8 49.68	+30 43.4	1.587	2.167	24.9	20.7	113 W	76	33*	11 22	10 19.64	+38 28.6	2.622	2.908	19.7	21.1	97 W	83	21*
12 2	8 47.55	+32 31.6	1.430	2.135	22.8	20.4	123 W	78	31	12 2	10 26.83	+39 9.1	2.482	2.893	19.3	21.0	105 W	84	23*
12 7	8 44.49	+33 37.5	1.357	2.117	21.3	20.2	129 W	79	30	12 12	10 31.59	+40 4.8	2.348	2.876	18.4	20.8	113 W	85	23*
12 12	8 39.84	+34 51.1	1.287	2.097	19.6	20.0	134 W	80	29	12 22	10 33.46	+41 14.8	2.224	2.859	17.1	20.6	121 W	86	23*
12 17	8 33.38	+36 11.5	1.222	2.076	17.7	19.8	140 W	81	28	1 1	10 31.95	+42 36.2	2.113	2.841	15.5	20.4	129 W	88	21
12 22	8 24.90	+37 37.2	1.163	2.054	15.5	19.6	146 W	83	26	1 6	10 29.79	+43 19.3	2.064	2.831	14.6	20.4	133 W	88	21
12 27	8 14.22	+39 5.6	1.111	2.031	13.3	19.4	152 W	84	25	1 11	10 26.64	+44 2.7	2.019	2.822	13.7	20.3	137 W	89	20
1 1	8 1.25	+40 32.9	1.066	2.006	11.4	19.3	156 W	86	23	1 16	10 22.50	+44 45.0	1.981	2.812	12.8	20.2	141 W	90	19
1 6	7 46.02	+41 54.4	1.030	1.979	10.3	19.1	159 W	87	22	1 21	10 17.41	+45 24.7	1.947	2.802	12.0	20.1	144 W	90	19
1 11	7 28.84	+43 4.9	1.002	1.952	10.5	19.0	159 W	88	21										
1 16	7 10.21	+43 59.6	0.983	1.922	12.2	19.0	156 E	89	20										
1 21	6 50.88	+44 35.1	0.973	1.891	14.9	19.1	150 E	90	19										
505463 2013 TV₉₂									88609 2001 QP₂₉₆										
10 23	8 49.17	+22 21.9	1.293	1.502	40.9	21.4	81 W	65*	35*	10 23	9 37.90	+18 2.0	2.908	2.710	20.0	21.5	69 W	56*	32*
11 2	9 15.53	+21 6.3	1.237	1.512	40.8	21.4	85 W	66*	37*	11 2	9 48.74	+17 19.3	2.778	2.715	20.8	21.4	76 W	60*	35*
11 12	9 39.63																		

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

21/22	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°-26°	21/22	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°-26°
471323 2011 KW₁₅									230111 2001 BE₁₀ (continuation)								
10 23	11 50.00	+16 32.3	0.657	0.655	98.6	21.1	41 W	35* 8*	11 17	12 4.61	+14 32.5	0.561	0.862	85.2	20.5	60 W	51* 22*
10 25	11 47.92	+15 8.8	0.673	0.669	95.6	21.1	42 W	36* 10*	11 22	12 6.37	+12 20.3	0.563	0.895	81.9	20.5	64 W	52* 27*
10 27	11 46.46	+13 43.5	0.689	0.683	92.8	21.1	43 W	37* 12*	11 27	12 8.96	+10 0.4	0.560	0.925	79.1	20.4	67 W	52* 31*
10 29	11 45.54	+12 17.1	0.705	0.697	90.2	21.0	45 W	38* 15*	12 2	12 12.11	+7 33.9	0.555	0.953	76.6	20.4	70 W	51* 36*
10 31	11 45.10	+10 50.1	0.720	0.713	87.7	21.0	46 W	38* 17*	12 12	12 19.22	+2 22.0	0.533	1.004	72.5	20.3	76 W	47* 46*
11 2	11 45.08	+9 23.1	0.735	0.729	85.3	21.0	47 W	39* 19*	12 22	12 26.37	-3 19.1	0.501	1.046	68.9	20.1	83 W	42 56*
11 7	11 46.48	+5 47.3	0.770	0.771	80.1	21.1	50 W	39* 24*	1	12 32.48	-9 38.9	0.462	1.079	65.7	19.9	89 W	35 67*
11 12	11 49.40	+2 16.6	0.800	0.815	75.6	21.1	53 W	39* 29*	1	6 12 34.75	-13 7.3	0.440	1.092	64.1	19.8	92 W	32 73*
11 17	11 53.31	-1 7.8	0.827	0.860	71.8	21.2	56 W	39* 33*	1	11 12 36.23	-16 50.8	0.418	1.103	62.6	19.6	95 W	28 79*
11 22	11 57.82	+4 25.5	0.849	0.905	68.5	21.2	58 W	37* 38*	1	16 12 36.71	-20 51.5	0.395	1.112	61.0	19.5	98 W	24 85
11 27	12 2.66	-7 36.7	0.867	0.950	65.6	21.3	61 W	36* 42*	1	21 12 35.89	-25 11.6	0.373	1.119	59.5	19.3	101 W	20 89
12 2	12 7.59	-10 41.9	0.881	0.994	63.1	21.4	64 W	34* 47*	143487 2003 CR₂₀								
12 7	12 12.45	-13 41.6	0.891	1.038	60.9	21.4	67 W	31* 52*	10 23	12 28.86	-3 33.8	1.960	1.096	19.4	21.3	21 W	13* 9*
12 12	12 17.08	-16 36.4	0.898	1.080	58.8	21.4	70 W	28* 56*	11 2	13 9.80	-7 22.2	1.835	0.970	21.1	21.0	21 W	12* 8*
12 17	12 21.35	-19 26.7	0.901	1.122	57.0	21.5	73 W	26 61*	11 12	13 57.26	-11 24.6	1.727	0.846	21.5	20.6	18 W	10* 6*
202683 2006 US₂₁₆									11 22	14 52.55	-15 24.1	1.644	0.729	19.6	20.1	14 W	7* 4*
10 23	11 57.01	-1 22.8	1.244	0.622	52.4	21.2	30 W	20* 15*	11 27	15 23.43	-17 14.0	1.613	0.677	17.3	19.8	12 W	4* 2*
10 28	12 29.01	-4 31.8	1.239	0.557	51.6	20.9	26 W	17* 12*	12 2	15 56.45	-18 50.9	1.589	0.633	14.0	19.5	9 W	2* —
11 2	13 4.07	-7 50.5	1.242	0.487	48.9	20.5	22 W	13* 9*	12 7	16 31.38	-20 9.6	1.572	0.600	9.5	19.2	6 W	— —
11 7	13 42.95	-11 14.3	1.253	0.414	43.0	20.0	17 W	8* 6*	12 12	17 7.80	-21 5.0	1.561	0.580	4.6	18.9	3 W	— —
11 12	14 26.68	-14 36.6	1.268	0.344	31.3	19.3	10 W	3* 1*	12 17	17 45.05	-21 33.2	1.557	0.575	4.1	18.8	2 W	— —
11 17	15 16.17	-17 45.2	1.274	0.292	10.9	18.3	3 W	— —	12 22	18 22.35	-21 32.4	1.558	0.587	9.2	19.1	5 E	— —
11 22	16 10.13	-20 18.7	1.253	0.281	17.2	18.4	5 E	— —	12 27	18 58.92	-21 3.4	1.566	0.613	14.2	19.4	9 E	1* —
11 24	16 31.94	-21 4.9	1.235	0.291	28.0	18.8	8 E	— 1*	1	1 19 34.08	-20 9.1	1.582	0.652	18.1	19.7	12 E	4* 3*
11 26	16 53.39	-21 41.3	1.213	0.308	37.6	19.2	11 E	2* 4*	1	6 20 7.40	-18 53.9	1.605	0.699	20.9	20.0	15 E	6* 5*
11 28	17 14.31	-22 8.1	1.189	0.330	45.5	19.5	14 E	2* 7*	1	11 20 38.60	-17 22.7	1.636	0.754	22.6	20.2	17 E	8* 7*
11 30	17 34.63	-22 25.7	1.165	0.355	51.9	19.8	16 E	4* 9*	1	16 21 7.61	-15 40.5	1.674	0.812	23.5	20.5	19 E	10* 8*
12 2	17 54.34	-22 34.8	1.141	0.383	56.9	20.1	19 E	6* 11*	1	21 21 34.47	-13 51.6	1.720	0.873	23.6	20.7	21 E	12* 9*
12 4	18 13.48	-22 35.9	1.119	0.412	60.8	20.3	21 E	7* 13*	217837 2001 LC								
12 6	18 32.08	-22 29.7	1.099	0.441	63.6	20.5	24 E	9* 15*	10 23	12 30.67	-5 18.1	0.916	0.348	92.6	20.1	20 W	12* 9*
12 8	18 50.16	-22 16.7	1.081	0.470	65.7	20.7	26 E	10* 17*	10 28	13 0.10	-4 53.7	1.064	0.343	68.9	19.5	19 W	12* 6*
12 10	19 7.75	-21 57.5	1.065	0.499	67.1	20.8	28 E	12* 19*	11 2	13 31.81	-5 39.3	1.203	0.379	48.3	19.4	17 W	10* 2*
12 12	19 24.84	-21 32.4	1.051	0.527	68.1	20.9	30 E	13* 20*	11 7	14 2.70	-7 2.2	1.325	0.440	34.0	19.5	14 W	8* —
12 17	20 5.43	-20 7.8	1.028	0.595	68.8	21.1	34 E	16* 24*	11 12	14 31.38	-8 36.3	1.431	0.514	25.1	19.8	13 W	7* —
12 22	20 42.95	-18 18.5	1.017	0.656	68.1	21.3	38 E	20* 26*	11 17	14 57.63	-10 8.2	1.525	0.591	19.6	20.1	12 W	6* —
12 27	21 17.39	-16 12.6	1.018	0.712	66.6	21.4	42 E	23* 28*	11 22	15 21.72	-11 32.6	1.611	0.667	16.2	20.3	11 W	5* —
1	21 48.86	-13 57.4	1.029	0.762	64.6	21.6	44 E	26* 30*	11 27	15 43.96	-12 47.5	1.689	0.741	14.0	20.6	10 W	4* —
24443 2000 OG									12 2	16 4.64	-13 52.9	1.762	0.812	12.6	20.8	10 W	4* —
10 23	12 5.94	-15 11.7	0.814	0.437	101.1	17.8	26 W	8* 18*	12 7	16 23.99	-14 49.0	1.830	0.880	11.8	21.1	11 W	5* —
10 25	12 6.01	-15 8.9	0.862	0.456	92.8	17.7	27 W	10* 20*	12 12	16 42.20	-15 36.5	1.892	0.944	11.4	21.3	11 W	5* —
10 27	12 7.41	-15 5.3	0.909	0.478	85.6	17.6	29 W	11* 21*	12 17	16 59.42	-16 16.2	1.950	1.005	11.3	21.5	11 W	5* —
10 29	12 9.82	-15 1.6	0.954	0.503	79.4	17.6	30 W	12* 22*	215588 2003 HF₂								
10 31	12 12.97	-14 58.3	0.998	0.530	74.0	17.6	31 W	13* 22*	10 23	12 37.98	-5 28.9	0.766	0.364	119.0	21.4	19 W	10* 7*
11 2	12 16.64	-14 55.5	1.040	0.559	69.4	17.7	32 W	14* 23*	10 25	12 36.79	-5 24.8	0.817	0.373	107.4	20.8	21 W	12* 9*
11 7	12 27.12	-14 51.2	1.136	0.636	60.4	17.9	34 W	17* 24*	10 27	12 37.65	-5 31.3	0.870	0.387	96.9	20.5	23 W	14* 10*
11 12	12 38.35	-14 49.5	1.219	0.717	54.3	18.1	36 W	19* 25*	10 29	12 40.15	-5 46.4	0.923	0.405	87.8	20.4	24 W	15* 11*
11 17	12 49.56	-14 49.3	1.290	0.799	50.0	18.3	38 W	20* 27*	10 31	12 43.87	-6 7.9	0.974	0.427	79.9	20.3	25 W	16* 12*
11 22	13 0.41	-14 49.4	1.351	0.880	46.9	18.6	41 W	22* 28*	11 2	12 48.48	-6 34.0	1.024	0.451	73.2	20.3	26 W	16* 12*
11 27	13 10.75	-14 49.0	1.402	0.959	44.7	18.8	43 W	24* 30*	11 4	12 53.69	-7 3.2	1.071	0.478	67.4	20.3	26 W	17* 13*
12 2	13 20.50	-14 47.3	1.445	1.037	43.0	18.9	46 W	25* 32*	11 6	12 59.31	-7 34.3	1.117	0.506	62.6	20.4	27 W	17* 13*
12 12	13 38.09	-14 38.0	1.506	1.187	40.8	19.3	52 W	28* 38*	11 8	13 5.18	-8 6.5	1.159	0.535	58.5	20.5	27 W	17* 14*
12 22	13 53.09	-14 18.0	1.540	1.329	39.2	19.5	59 W	30* 44*	11 10	13 11.20	-8 39.0	1.200	0.564	55.0	20.6	28 W	18* 14*
1	14 5.40	-13 44.6	1.550	1.464	37.9	19.7	66 W	31* 51*	11 12	13 17.29	-9 11.5	1.238	0.594	52.0	20.7	28 W	18* 14*
1	14 14.83	-12 54.9	1.540	1.592	36.5	19.8	75 W	32 59*	11 17	13 32.52	-10 31.0	1.324	0.669	46.3	20.9	29 W	18* 15*
1	21 14.21	-11 46.2	1.516	1.714	34.8	19.9	84 W	33 66*	11 22	13 47.43	-11 45.9	1.398	0.741	42.5	21.1	30 W	19* 17*
288592 2004 JW₂₀									11 27	14 1.87	-12 55.3	1.462	0.812	39.8	21.4	32 W	19* 18*
10 23	12 12.69	-7 23.3	1.108	0.455	63.8	21.5	24 W	13* 14*	12 2	14 15.78	-13 58.9	1.517	0.880	38.0	21.6	33 W	20* 20*
10 28	12 34.10	-10 9.4	1.219	0.500	52.1	21.5	23 W	12* 14*	434326 2004 JG₆								
11 2	12 55.99	-12 32.8	1.319	0.554	43.4	21.7	23 W	11* 13*	10 23	12 49.21	+0 42.4	0.833	0.345	108.0	19.7	19 W	13* 2*
11 7	13 17.59	-14 35.7	1.408	0.612	37.1	21.9	22 W	10* 13*	10 24	12 49.53	+1 13.8	0.856	0.356	102.3	19.6	20 W	14* 2*
11 12	13 38.56	-16 20.6	1.486	0.672	32.7	22.1	21 W	9* 13*	10 25	12 50.28	+1 38.1	0.879	0.368	97.1	19.4	22 W	15* 3*
230111 2001 BE₁₀									10 26	12 51.39	+1 56.1	0.903	0.380	92.4	19.4	22 W	16* 3*
10 23	12 22.79	+21 22.1	0.505	0.681	113.1	21.1	39 W	32* —	10 27	12 52.81	+2 8.7	0.926	0.393	88.0	19.3	23 W	17* 3*
10 25	12 18.80	+21 19.0	0.511	0.696	109.9	21.0	41 W	35* 1*	10 28	12 54.49	+2 16.4	0.949	0.406	84.1	19.3	24 W	18* 4*
10 27	12 15.35	+21 7.7	0.518	0.711	106.9	20.9	43 W	37* 3*	10 30	12 58.49	+2 19.8	0.994	0.432	77.2	19.3	25 W	19* 4*
10 29	12 12.44	+20 49.5	0.524	0.726	104.0	20.8	45 W	39* 5*	10 31	13 0.73	+2 16.7	1.016	0.446	74.3	19.3	26 W	19* 4*
10 31	12																

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

21/22	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°-26°	21/22	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°-26°	
434326 2004 JG₆ (continuation)									530151 2011 AW₅₅									
11 17	13 47.65	-2 10.1	1.296	0.659	48.3	19.9	30 W	23* 9*	10 23	13 33.53	-18 52.1	1.605	0.638	13.4	21.3	9 W	—	1*
11 22	14 2.08	-3 53.6	1.350	0.712	45.2	20.0	31 W	23* 10*	10 28	14 4.39	-21 19.5	1.564	0.599	14.0	21.2	8 W	—	—
11 27	14 16.45	-5 37.9	1.394	0.759	43.1	20.2	32 W	23* 12*	11 2	14 37.95	-23 22.3	1.525	0.567	15.9	21.0	9 E	—	—
12 2	14 30.78	-7 21.4	1.429	0.801	41.6	20.3	33 W	24* 14*	11 7	15 13.94	-24 50.5	1.488	0.544	19.5	21.0	11 E	—	3*
12 12	14 59.49	-10 42.5	1.474	0.871	40.2	20.5	35 W	23* 18*	11 12	15 51.70	-25 35.1	1.452	0.534	24.4	21.1	13 E	—	7*
12 22	15 28.73	-13 53.2	1.492	0.921	40.0	20.7	37 W	23* 22*	11 17	16 30.23	-25 31.1	1.418	0.537	29.8	21.2	16 E	—	10*
1	15 59.16	-16 52.4	1.486	0.955	40.6	20.8	39 W	21* 27*	11 22	17 8.44	-24 38.8	1.388	0.553	35.1	21.4	19 E	2*	12*
1 11	16 31.49	-19 38.4	1.461	0.971	41.9	20.8	41 W	19* 31*	375103 2007 TD₇₁									
1 21	17 6.58	-22 8.5	1.421	0.970	43.7	20.8	43 W	17* 34*	10 23	13 35.65	+15 38.9	2.050	1.250	21.3	21.5	27 W	15*	—
431760 2008 HE									11 2	14 2.28	+10 17.6	2.020	1.206	20.9	21.4	26 W	16*	—
10 23	12 54.66	-8 34.5	1.280	0.394	37.1	18.1	14 W	5* 5*	11 12	14 28.63	+4 47.9	1.989	1.162	20.6	21.2	24 W	17*	—
10 25	12 59.44	-9 9.1	1.342	0.454	33.3	18.4	15 W	6* 5*	11 22	14 55.20	-0 49.0	1.954	1.119	20.5	21.1	23 W	17*	—
10 27	13 4.31	-9 42.1	1.399	0.511	30.6	18.7	15 W	6* 6*	12 2	15 22.64	-6 32.5	1.916	1.076	20.8	21.0	23 W	15*	2*
10 29	13 9.13	-10 13.4	1.452	0.566	28.7	18.9	16 W	7* 7*	12 12	15 51.69	-12 21.3	1.873	1.037	21.5	20.9	23 W	15*	7*
10 31	13 13.87	-10 43.1	1.501	0.618	27.3	19.2	17 W	8* 7*	12 22	16 23.36	-18 12.4	1.827	1.001	22.8	20.8	23 W	12*	12*
11 2	13 18.49	-11 11.2	1.547	0.669	26.3	19.4	17 W	8* 8*	1	16 58.94	-23 58.9	1.780	0.971	24.5	20.7	24 W	8*	16*
11 7	13 29.49	-12 15.7	1.649	0.787	24.8	19.8	19 W	10* 9*	1 11	17 39.93	-29 27.3	1.735	0.947	26.5	20.7	26 W	3*	19*
11 12	13 39.70	-13 12.9	1.737	0.897	24.2	20.2	22 W	11* 11*	1 21	18 27.81	-34 14.9	1.696	0.932	28.6	20.7	27 W	—	21*
11 17	13 49.17	-14 4.1	1.813	0.999	24.1	20.5	24 W	13* 13*	252558 2001 WT₁									
11 22	13 57.99	-14 50.1	1.879	1.096	24.2	20.8	27 W	15* 16*	10 23	13 42.08	-8 1.4	1.727	0.738	5.1	21.2	4 W	—	—
11 27	14 6.20	-15 31.6	1.935	1.188	24.6	21.0	30 W	17* 18*	10 28	14 7.05	-10 43.0	1.703	0.711	3.3	20.9	2 W	—	—
12 2	14 13.85	-16 9.3	1.982	1.276	25.0	21.3	33 W	18* 21*	11 2	14 33.19	-13 22.2	1.680	0.689	2.5	20.8	2 E	—	—
12 7	14 20.97	-16 43.4	2.020	1.359	25.5	21.5	36 W	20* 24*	11 7	15 0.56	-15 55.5	1.660	0.672	4.4	20.8	3 E	—	—
215188 2000 NM									11 12	15 29.14	-18 19.0	1.642	0.661	7.5	20.9	5 E	—	—
10 23	13 4.91	-24 27.8	4.148	3.209	5.2	21.5	17 W	— 9*	11 17	15 58.86	-20 28.2	1.626	0.657	11.0	21.0	7 E	—	1*
11 2	13 18.59	-25 41.3	4.069	3.153	6.1	21.4	20 W	— 14*	11 22	16 29.57	-22 19.2	1.612	0.659	14.5	21.1	10 E	—	3*
11 12	13 32.63	-26 57.5	3.973	3.094	7.5	21.4	24 W	1* 18*	11 27	17 1.04	-23 48.1	1.602	0.668	17.8	21.3	12 E	—	6*
11 22	13 47.01	-28 15.4	3.860	3.035	9.1	21.4	29 W	5* 23*	12 2	17 32.96	-24 52.2	1.594	0.683	20.8	21.4	14 E	1*	8*
12 2	14 1.71	-29 34.7	3.732	2.974	10.9	21.3	35 W	8* 28*	425755 2011 CP₄									
12 12	14 16.72	-30 54.6	3.589	2.911	12.7	21.2	40 W	9* 34*	10 23	13 43.63	-8 52.0	1.291	0.302	9.4	19.8	3 W	—	—
12 22	14 31.98	-32 14.4	3.433	2.846	14.5	21.2	46 W	10* 40*	10 25	14 0.48	-10 30.3	1.232	0.240	7.0	19.1	2 E	—	—
1	14 47.48	-33 33.8	3.266	2.780	16.3	21.1	53 W	10* 46*	10 27	14 19.08	-12 22.2	1.158	0.176	19.8	18.7	3 E	—	—
1 11	15 3.15	-34 52.2	3.088	2.711	18.1	21.0	59 W	10* 53*	10 29	14 37.48	-14 28.1	1.057	0.126	57.1	18.9	6 E	—	—
1 21	15 18.92	-36 9.2	2.902	2.642	19.7	20.8	65 W	9* 59*	10 31	14 46.13	-16 20.6	0.929	0.128	116.9	21.2	7 E	—	1*
418849 2008 WM₆₄									368231 2001 UR₁₆									
10 23	13 30.30	-75 28.7	0.575	0.907	80.9	22.0	64 W	— 23*	10 23	13 51.16	-19 14.6	3.389	2.408	3.3	21.5	8 E	—	—
10 28	13 27.61	-78 0.2	0.551	0.912	81.6	22.0	65 W	— 25*	11 2	14 10.62	-20 4.4	3.344	2.362	2.9	21.4	7 W	—	—
11 2	13 24.19	-80 33.9	0.523	0.917	82.2	21.9	66 W	— 26*	11 12	14 30.74	-20 50.1	3.285	2.315	4.0	21.4	9 W	—	3*
11 7	13 19.57	-83 14.0	0.492	0.923	82.9	21.8	68 W	— 27*	11 22	14 51.54	-21 29.9	3.215	2.267	5.9	21.4	14 W	2*	7*
11 12	13 11.43	-86 5.1	0.458	0.930	83.7	21.7	69 W	— 27*	12 2	15 13.00	-22 1.8	3.134	2.220	8.0	21.4	18 W	6*	10*
11 17	12 17.05	-89 12.7	0.422	0.937	84.3	21.5	71 W	— 26*	12 12	15 35.13	-22 23.9	3.042	2.173	10.3	21.4	23 W	9*	14*
11 22	1 35.58	-87 8.9	0.383	0.945	84.9	21.4	72 E	— 29	12 22	15 57.87	-22 34.0	2.942	2.125	12.6	21.3	28 W	12*	19*
11 27	1 21.96	-82 52.7	0.344	0.953	85.4	21.2	74 E	— 33	1	16 21.20	-22 30.0	2.833	2.078	14.9	21.3	33 W	14*	24*
12 2	1 16.06	-77 35.6	0.304	0.962	85.6	20.9	76 E	— 38	1 11	16 45.04	-22 9.6	2.717	2.031	17.2	21.2	38 W	16*	29*
12 7	1 12.12	-70 48.8	0.265	0.970	85.4	20.6	79 E	— 45	1 21	17 9.30	-21 30.7	2.597	1.985	19.5	21.1	42 W	17*	34*
12 12	1 9.24	-61 51.3	0.229	0.979	84.6	20.3	82 E	— 54	430820 2005 GJ₇₃									
12 14	1 8.31	-57 28.7	0.216	0.983	84.0	20.2	83 E	— 59	10 23	13 57.16	-8 2.2	2.703	1.712	2.2	21.4	4 E	—	—
12 16	1 7.50	-52 34.3	0.205	0.987	83.3	20.0	85 E	— 63	11 2	14 22.24	-10 43.7	2.671	1.683	2.5	21.3	4 W	—	—
12 18	1 6.78	-47 6.0	0.194	0.990	82.5	19.9	86 E	— 69	11 12	14 48.36	-13 19.3	2.636	1.656	3.8	21.4	6 W	—	—
12 20	1 6.18	-41 3.6	0.185	0.994	81.5	19.8	88 E	4 75*	11 22	15 15.59	-15 46.2	2.599	1.631	5.5	21.4	9 W	3*	—
12 22	1 5.67	-34 29.6	0.179	0.998	80.4	19.7	89 E	11 81*	12 2	15 43.96	-18 1.5	2.561	1.609	7.3	21.4	12 W	4*	2*
12 23	1 5.46	-31 2.5	0.176	1.000	79.8	19.6	90 E	14 84*	12 12	16 13.49	-20 2.3	2.522	1.590	9.1	21.4	15 W	6*	5*
12 24	1 5.28	-27 30.1	0.174	1.001	79.2	19.6	91 E	17 85*	12 22	16 44.08	-21 45.4	2.483	1.574	10.9	21.4	18 W	6*	9*
12 25	1 5.12	-23 53.7	0.173	1.003	78.5	19.5	92 E	21 83*	1	17 15.63	-23 8.1	2.445	1.562	12.7	21.5	20 W	7*	12*
12 26	1 4.99	-20 14.9	0.173	1.005	77.9	19.5	92 E	25 81*	1 11	17 47.92	-24 8.2	2.407	1.552	14.4	21.5	23 W	7*	16*
12 27	1 4.89	-16 35.1	0.173	1.007	77.3	19.5	93 E	28 77*	1 21	18 20.68	-24 44.0	2.371	1.547	16.2	21.5	26 W	7*	19*
12 28	1 4.82	-12 56.1	0.173	1.009	76.7	19.5	93 E	32 74*	301962 2000 ET₂₆									
12 29	1 4.78	-9 19.6	0.175	1.010	76.2	19.5	94 E	36 70*	10 23	13 59.71	-24 31.2	4.161	3.202	4.1	21.5	13 E	—	2*
12 30	1 4.77	-5 46.9	0.177	1.012	75.6	19.5	94 E	39 67*	11 2	14 13.05	-26 3.6	4.198	3.234	3.6	21.5	12 W	—	3*
12 31	1 4.79	-2 19.5	0.179	1.014	75.1	19.5	95 E	43 63*	11 12	14 26.45	-27 35.0	4.217	3.265	4.2	21.6	14 W	—	7*
1	4.84	+1 1.5	0.182	1.016	74.6	19.5	95 E	46 60*	11 22	14 39.83	-29 5.0	4.218	3.295	5.4	21.7	18 W	—	12*
1 2	4.92	+4 15.2	0.186	1.018	74.2	19.6	95 E	49 56*	12 2	14 53.14	-30 33.6	4.202	3.324	6.9	21.7	24 W	1*	18*
1 3	5.04	+7 21.0	0.191	1.019	73.8	19.6	96 E	52 53*	164457 2006 DN₈₉									
1 4	5.19	+10 18.5	0.195	1.021	73.4	19.7	96 E	55 50*	10 23	14 3.93	-6 8.8	3.371	2.384	2.6	21.4	6 E	—	—
1 5	5.37	+13 7.3	0.200	1.023	73.0	19.7	96 E	58 47*	11 2	14 22.44	-7 27.2	3.330	2.349	3.1	21.4	7 W	—	—
1 6	5.59	+15 47.6	0.206	1.025	72.7	19.8	96 E	61 44*	11 12	14 41.56	-8 41.2	3.276	2.313	4.7	21.4	11 W	5*	—
1 7	5.83	+18 19.3	0.212	1.027	72.4	19.8	96 E	63 41*	11 22									

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

21/22	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	21/22	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°
52689 1998 FF₂										159111 2004 VG₁₅									
10 23	14 7.69	-16 40.9	2.180	1.198	5.7	21.4	7 E	—	—	10 23	14 28.92	-7 45.9	3.382	2.409	4.2	21.4	10 E	3*	1*
10 28	14 24.99	-18 27.8	2.164	1.183	5.6	21.4	7 E	—	—	11 2	14 47.13	-9 5.4	3.357	2.376	3.0	21.3	7 E	1*	—
11 2	14 42.93	-20 10.5	2.149	1.169	5.5	21.3	7 E	—	—	11 12	15 5.96	-10 20.1	3.320	2.341	3.1	21.3	7 W	—	—
11 7	15 1.53	-21 48.0	2.135	1.156	5.5	21.3	6 E	—	—	11 22	15 25.41	-11 28.7	3.272	2.307	4.4	21.3	10 W	4*	—
11 12	15 20.80	-23 19.0	2.122	1.144	5.6	21.3	6 E	—	—	12 2	15 45.46	-12 30.1	3.212	2.272	6.3	21.3	15 W	8*	—
11 17	15 40.74	-24 42.3	2.111	1.134	5.6	21.2	6 E	—	—	12 12	16 6.10	-13 23.1	3.143	2.236	8.3	21.3	19 W	12*	4*
11 22	16 1.33	-25 56.6	2.101	1.125	5.7	21.2	6 E	—	—	12 22	16 27.28	-14 6.4	3.064	2.201	10.4	21.3	24 W	15*	9*
11 27	16 22.52	-27 0.7	2.092	1.117	5.8	21.2	7 E	—	—	1	16 48.97	-14 39.1	2.977	2.165	12.5	21.3	29 W	17*	15*
12 2	16 44.25	-27 53.4	2.086	1.112	5.8	21.2	7 E	—	—	1 11	17 11.11	-15 0.2	2.883	2.129	14.6	21.3	33 W	19*	20*
12 7	17 6.44	-28 33.7	2.081	1.108	5.9	21.2	7 E	—	—	1 21	17 33.61	-15 8.8	2.782	2.094	16.7	21.2	38 W	20*	26*
12 12	17 28.96	-29 0.7	2.078	1.106	5.9	21.2	7 E	—	—	496018 2008 NU									
12 17	17 51.68	-29 14.0	2.077	1.105	5.9	21.2	7 E	—	—	10 23	14 35.07	-21 31.8	2.738	1.795	8.2	21.4	15 E	—	8*
12 22	18 14.46	-29 13.2	2.078	1.107	5.9	21.2	7 E	—	—	11 2	15 1.58	-23 0.6	2.693	1.731	6.5	21.2	11 E	—	5*
12 27	18 37.15	-28 58.4	2.081	1.110	5.8	21.2	7 E	—	—	11 12	15 29.95	-24 19.1	2.642	1.669	5.0	21.0	8 E	—	2*
1	18 59.61	-28 29.9	2.086	1.115	5.7	21.2	6 E	—	—	11 22	16 0.22	-25 22.8	2.589	1.609	3.6	20.8	6 E	—	—
1	19 21.72	-27 48.4	2.094	1.121	5.5	21.2	6 E	—	—	12 2	16 32.38	-26 7.0	2.534	1.552	2.7	20.7	4 E	—	—
1 11	19 43.36	-26 54.7	2.102	1.129	5.3	21.2	6 E	—	—	12 12	17 6.29	-26 26.6	2.478	1.498	2.7	20.5	4 W	—	—
1 16	20 4.43	-25 49.8	2.113	1.139	5.0	21.2	6 E	—	—	12 22	17 41.67	-26 16.8	2.425	1.448	3.4	20.5	5 W	—	—
1 21	20 24.90	-24 35.0	2.126	1.150	4.7	21.2	6 E	—	—	1	18 18.15	-25 33.9	2.376	1.403	4.6	20.4	7 W	—	—
85546 1997 XH₁										1 11	18 55.25	-24 15.2	2.332	1.365	5.7	20.4	8 W	—	2*
10 23	14 14.28	-14 45.2	3.763	2.778	2.5	21.4	7 E	—	1*	1 21	19 32.42	-22 20.5	2.294	1.333	6.9	20.3	9 W	—	3*
11 2	14 29.95	-16 6.3	3.744	2.752	0.5	21.2	2 E	—	—	90367 2003 LC₅									
11 12	14 46.08	-17 24.9	3.709	2.725	1.9	21.3	5 W	—	—	10 23	14 36.45	-7 45.1	2.606	1.646	7.2	21.5	12 E	5*	3*
11 22	15 2.63	-18 40.0	3.659	2.697	4.1	21.3	11 W	2*	3*	11 2	14 58.75	-10 2.2	2.613	1.640	5.3	21.4	9 E	2*	—
12 2	15 19.59	-19 51.0	3.595	2.668	6.2	21.4	17 W	7*	8*	11 12	15 21.61	-12 10.9	2.609	1.628	3.8	21.3	6 E	—	—
12 12	15 36.92	-20 57.3	3.516	2.638	8.4	21.4	23 W	10*	13*	11 22	15 45.13	-14 10.5	2.591	1.612	3.7	21.3	6 W	—	—
12 22	15 54.55	-21 58.0	3.424	2.608	10.5	21.4	29 W	13*	19*	12 2	16 9.45	-16 0.1	2.562	1.592	4.9	21.3	8 W	2*	—
1	16 12.46	-22 52.7	3.321	2.576	12.6	21.4	35 W	14*	26*	12 12	16 34.69	-17 38.7	2.521	1.566	6.9	21.3	11 W	4*	—
1 11	16 30.55	-23 40.8	3.205	2.544	14.6	21.4	41 W	16*	32*	12 22	17 0.95	-19 5.1	2.469	1.536	9.2	21.3	14 W	6*	4*
1 21	16 48.74	-24 22.0	3.080	2.511	16.6	21.3	47 W	16*	39*	1	17 28.38	-20 18.0	2.406	1.501	11.6	21.3	18 W	7*	8*
387816 2004 FM₁₇										1 11	17 57.12	-21 15.7	2.334	1.461	14.1	21.3	21 W	8*	13*
10 23	14 14.30	-10 38.1	2.031	1.047	5.8	21.5	6 E	—	—	1 21	18 27.30	-21 56.2	2.254	1.417	16.6	21.2	24 W	8*	17*
11 2	14 50.04	-13 15.0	2.001	1.018	5.3	21.4	5 E	—	—	112495 2002 PQ₁₀									
11 12	15 27.77	-15 37.1	1.965	0.983	5.1	21.3	5 E	—	—	10 23	14 53.80	-15 3.6	3.228	2.288	6.9	21.5	16 E	2*	10*
11 22	16 7.85	-17 38.7	1.924	0.944	5.2	21.1	5 E	—	—	11 2	15 13.27	-16 20.9	3.224	2.258	4.8	21.3	11 E	—	4*
12 2	16 50.58	-19 13.2	1.879	0.901	5.5	21.0	5 E	—	—	11 12	15 33.50	-17 32.4	3.209	2.227	2.7	21.2	6 E	—	—
12 12	17 36.13	-20 12.8	1.830	0.855	6.3	20.9	5 E	—	—	11 22	15 54.47	-18 36.7	3.183	2.196	0.8	21.0	2 E	—	—
12 22	18 24.46	-20 29.3	1.778	0.808	7.8	20.7	6 E	—	—	12 2	16 16.15	-19 32.5	3.145	2.164	2.0	21.0	4 W	—	—
1	19 15.32	-19 55.2	1.725	0.762	10.1	20.6	8 E	1*	—	12 12	16 38.53	-20 18.4	3.098	2.132	4.2	21.1	9 W	2*	—
1 11	20 8.17	-18 24.8	1.669	0.721	13.7	20.6	10 E	3*	—	12 22	17 1.53	-20 53.0	3.042	2.099	6.4	21.1	14 W	5*	5*
1 21	21 2.26	-15 56.9	1.613	0.688	18.5	20.6	13 E	5*	3*	1	17 25.11	-21 15.3	2.976	2.067	8.7	21.1	18 W	7*	9*
267940 2004 EM₂₀										1 11	17 49.18	-21 24.1	2.903	2.034	10.9	21.1	23 W	9*	14*
10 23	14 15.11	-19 11.7	1.623	0.666	15.0	21.3	10 E	—	3*	1 21	18 13.64	-21 18.7	2.823	2.002	13.1	21.1	27 W	10*	19*
10 28	14 42.46	-21 29.8	1.561	0.621	18.9	21.2	12 E	—	5*	65706 1992 NA									
11 2	15 12.46	-23 32.7	1.498	0.583	23.8	21.1	14 E	—	7*	10 23	15 2.57	-23 57.5	3.155	2.258	9.3	21.4	21 E	—	15*
11 7	15 45.13	-25 11.7	1.432	0.552	29.8	21.1	16 E	—	10*	11 2	15 22.31	-25 10.0	3.126	2.192	7.4	21.2	16 E	—	10*
11 12	16 20.20	-26 17.2	1.364	0.533	36.7	21.1	19 E	—	13*	11 12	15 43.41	-26 18.9	3.083	2.124	5.5	21.0	12 E	—	5*
11 17	16 57.06	-26 40.1	1.296	0.526	44.1	21.2	22 E	—	16*	11 22	16 5.95	-27 21.8	3.028	2.055	3.9	20.8	8 E	—	1*
11 22	17 34.82	-26 14.7	1.230	0.534	51.3	21.3	25 E	—	18*	12 2	16 29.99	-28 16.4	2.962	1.985	3.2	20.7	6 W	—	—
11 27	18 12.53	-24 59.8	1.167	0.554	57.5	21.4	28 E	—	21*	12 12	16 55.59	-29 0.1	2.886	1.914	3.8	20.6	7 W	—	1*
154652 2004 EP₂₀										12 22	17 22.79	-29 29.7	2.800	1.841	5.5	20.5	10 W	—	4*
10 23	14 15.46	-5 33.6	2.193	1.218	7.0	21.3	9 E	3*	—	1	17 51.61	-29 41.7	2.708	1.768	7.5	20.4	14 W	—	8*
11 2	14 46.40	-7 49.7	2.127	1.153	7.0	21.2	8 E	2*	—	1 11	18 22.00	-29 32.6	2.611	1.693	9.6	20.4	17 W	—	11*
11 12	15 19.91	-10 3.5	2.053	1.082	7.4	21.0	8 E	1*	—	1 21	18 53.86	-28 58.3	2.511	1.619	11.8	20.3	20 W	—	14*
11 22	15 56.54	-12 11.6	1.974	1.006	7.9	20.7	8 E	1*	—	209035 2003 NJ₁									
12 2	16 36.92	-14 9.5	1.892	0.925	8.3	20.5	8 E	—	—	10 23	15 5.36	-15 57.6	3.368	2.449	7.6	21.4	19 E	3*	13*
12 7	16 58.74	-15 2.6	1.850	0.883	8.5	20.4	8 E	—	—	11 2	15 23.16	-17 25.7	3.366	2.412	5.5	21.3	13 E	—	7*
12 12	17 21.74	-15 50.4	1.808	0.841	8.6	20.2	7 E	—	—	11 12	15 41.80	-18 49.1	3.350	2.374	3.3	21.1	8 E	—	2*
12 17	17 45.98	-16 31.9	1.766	0.799	8.7	20.0	7 E	—	—	11 22	16 1.27	-20 6.9	3.322	2.336	1.2	20.9	3 E	—	—
12 22	18 11.53	-17 5.6	1.725	0.758	8.9	19.9	7 E	—	—	12 2	16 21.56	-21 17.8	3.282	2.297	1.1	20.8	3 W	—	—
12 27	18 38.41	-17 30.0	1.684	0.718	9.5	19.7	7 E	—	—	12 12	16 42.67	-22 20.8	3.230	2.258	3.3	20.9	8 W	—	—
1	19 6.61	-17 43.7	1.643	0.680	10.8	19.6	7 E	—	—	12 22	17 4.54	-23 14.8	3.168	2.219	5.6	21.0	13 W	2*	5*
1 6	19 36.07	-17 45.0	1.603	0.647	12.9	19.5	8 E	—	—	1	17 27.15	-23 58.7	3.095	2.180	7.9	21.0	18 W	5*	10*
1 11	20 6.66	-17 32.4	1.563	0.619	16.0	19.5	10 E	—	—	1 11	17 50.45	-24 31.6	3.014	2.140	10.2	21.0	23 W	6*	15*
1 16	20 38.16	-17 4.8	1.523	0.597	20.1	19.5	12 E	—	—	1 21	18 14.36	-24 52.6	2.925	2.100	12.4	21.0	27 W	7*	20*
1 21	21 10.31	-16 21.1	1.483	0.585	24.9	19.5	15 E	—	—	218818 2006 SA₂₆₃									

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

21/22	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	21/22	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°
252882 2002 JM₆₈										268812 2006 VS₂₇									
10 23	15 16.66	-21 58.8	3.135	2.256	10.1	21.5	23 E	—	17*	10 23	16 15.99	-19 56.6	2.511	1.806	19.0	21.5	36 E	10*	30*
11 2	15 36.16	-23 50.6	3.202	2.283	7.9	21.5	18 E	—	12*	11 2	16 41.57	-20 44.8	2.541	1.782	17.3	21.4	32 E	10*	25*
11 12	15 56.05	-25 33.0	3.259	2.309	5.8	21.4	14 E	—	8*	11 12	17 8.13	-21 19.0	2.565	1.759	15.6	21.3	28 E	9*	21*
11 22	16 16.27	-27 5.9	3.303	2.334	3.9	21.4	9 E	—	3*	11 22	17 35.50	-21 37.2	2.585	1.738	13.8	21.3	25 E	9*	17*
12 2	16 36.80	-28 29.3	3.336	2.359	2.8	21.4	7 E	—	—	12 2	18 3.56	-21 37.8	2.600	1.718	12.0	21.2	21 E	8*	13*
12 12	16 57.57	-29 43.1	3.355	2.383	3.2	21.4	8 W	—	1*	12 12	18 32.12	-21 19.5	2.611	1.700	10.2	21.1	18 E	7*	9*
514568 1994 RC										7474 1992 TC									
10 23	15 22.67	-21 6.9	1.712	0.904	27.0	21.5	24 E	2*	18*	10 23	16 21.50	-21 48.9	2.100	1.447	24.9	21.5	38 E	10*	31*
10 28	15 47.88	-22 29.5	1.690	0.899	28.3	21.5	25 E	3*	19*	11 2	16 50.94	-23 15.7	2.103	1.405	23.7	21.4	35 E	9*	28*
11 2	16 14.03	-23 38.0	1.672	0.900	29.5	21.5	26 E	4*	20*	11 12	17 22.30	-24 23.1	2.099	1.364	22.6	21.3	32 E	8*	25*
11 7	16 40.92	-24 30.2	1.658	0.906	30.5	21.5	28 E	5*	21*	11 22	17 55.48	-25 6.7	2.091	1.323	21.5	21.2	29 E	8*	22*
11 12	17 8.33	-25 4.2	1.650	0.917	31.4	21.5	29 E	6*	22*	12 2	18 30.34	-25 22.4	2.078	1.283	20.6	21.0	27 E	8*	20*
31662 1999 HP₁₁										121863 2000 CO₇₅									
10 23	15 34.22	-29 34.4	1.509	0.823	37.7	21.4	30 E	—	24*	10 23	16 22.01	-14 47.2	3.192	2.474	14.1	21.5	37 E	15*	29*
10 28	15 59.27	-30 51.7	1.454	0.791	40.4	21.3	31 E	—	24*	11 2	16 39.18	-15 32.8	3.236	2.446	12.3	21.4	32 E	14*	23*
11 2	16 26.32	-31 50.4	1.399	0.765	43.3	21.2	32 E	—	26*	11 12	17 22.30	-16 11.3	3.267	2.417	10.4	21.3	26 E	12*	17*
11 7	16 55.27	-32 24.8	1.343	0.744	46.6	21.2	33 E	—	27*	11 22	17 55.48	-25 6.7	3.286	2.388	8.4	21.3	21 E	10*	11*
11 12	17 25.86	-32 29.4	1.287	0.729	49.9	21.1	34 E	2*	28*	12 2	18 3.56	-25 6.2	3.293	2.358	6.5	21.1	16 E	7*	5*
11 17	17 57.65	-31 58.9	1.234	0.723	53.3	21.1	36 E	4*	30*	12 12	17 35.15	-17 3.4	3.287	2.327	4.6	21.0	11 E	4*	—
11 22	18 30.08	-30 49.8	1.184	0.723	56.4	21.1	38 E	7*	31*	12 22	18 15.45	-17 16.3	3.268	2.295	3.0	20.9	7 E	1*	—
11 27	19 2.57	-29 0.7	1.138	0.732	59.0	21.1	40 E	10*	33*	1 1	18 36.27	-17 6.3	3.238	2.263	2.7	20.8	6 W	—	—
12 2	19 34.54	-26 32.5	1.098	0.748	61.1	21.2	42 E	13*	34*	1 11	18 57.42	-16 44.7	3.197	2.231	3.9	20.8	9 W	3*	—
12 7	20 5.57	-23 28.7	1.066	0.770	62.5	21.2	44 E	17*	35*	1 21	19 18.83	-16 11.4	3.145	2.197	5.8	20.9	13 W	5*	3*
12 12	20 35.37	-19 55.0	1.041	0.798	63.1	21.2	46 E	21*	35*	400559 2008 WN₆₆									
12 17	21 3.80	-15 58.5	1.026	0.831	63.0	21.3	49 E	26*	35*	10 23	16 30.47	-30 55.6	2.365	1.756	22.3	21.5	42 E	3*	36*
12 22	21 30.86	-11 47.3	1.019	0.867	62.2	21.3	51 E	30*	35*	11 2	16 57.60	-32 36.7	2.395	1.730	20.8	21.4	38 E	2*	32*
12 27	21 56.59	-7 29.3	1.022	0.906	61.0	21.4	54 E	34*	34*	11 12	17 26.66	-33 59.2	2.421	1.706	19.4	21.4	35 E	1*	29*
1 1	22 21.11	-3 11.9	1.034	0.947	59.3	21.5	56 E	38*	32*	11 22	17 57.48	-34 59.6	2.441	1.685	18.0	21.3	32 E	—	26*
185643 2040 P-L										194175 2001 TB₅₁									
10 23	15 43.44	-23 6.9	2.884	2.077	13.7	21.5	30 E	3*	24*	10 23	16 32.84	-18 44.9	2.479	1.832	20.4	21.5	40 E	14*	33*
11 2	16 5.92	-24 11.4	2.905	2.048	11.8	21.4	25 E	2*	19*	11 2	16 57.72	-19 31.7	2.511	1.804	18.8	21.4	36 E	13*	29*
11 12	16 29.42	-25 6.4	2.918	2.019	9.8	21.3	20 E	1*	14*	11 12	17 23.66	-20 4.9	2.538	1.779	17.2	21.4	32 E	12*	24*
11 22	16 53.87	-25 50.0	2.921	1.990	7.8	21.2	16 E	—	10*	11 22	17 50.48	-20 22.5	2.561	1.755	15.5	21.3	28 E	11*	20*
12 2	17 19.20	-26 20.4	2.917	1.961	5.8	21.0	12 E	—	6*	12 2	18 18.06	-20 22.9	2.579	1.733	13.8	21.2	25 E	11*	15*
12 12	17 45.29	-26 35.8	2.904	1.933	3.8	20.9	8 E	—	2*	12 12	18 46.20	-20 4.7	2.594	1.713	12.0	21.2	21 E	10*	11*
12 22	18 12.00	-26 34.9	2.885	1.905	2.1	20.7	4 E	—	—	12 22	19 37.49	-35 17.7	2.483	1.636	14.3	21.2	24 E	—	18*
1 1	18 39.17	-26 16.5	2.858	1.878	1.8	20.7	3 W	—	—	1 1	20 11.84	-34 23.6	2.493	1.625	13.2	21.1	22 E	—	16*
1 11	19 6.66	-25 39.9	2.826	1.851	3.3	20.7	6 W	—	—	1 11	20 45.90	-32 59.5	2.503	1.618	12.2	21.1	20 E	—	14*
1 21	19 34.26	-24 44.8	2.788	1.826	5.2	20.8	10 W	—	4*	1 21	21 19.22	-31 7.6	2.513	1.614	11.4	21.0	19 E	—	13*
282511 2004 QL₂₀										454100 2013 BO₇₃									
10 23	16 6.07	-19 40.3	3.012	2.255	14.2	21.5	34 E	9*	27*	10 23	17 40.99	-26 25.6	0.407	0.840	100.0	21.4	56 E	14*	50*
11 2	16 25.70	-19 44.9	3.038	2.217	12.3	21.4	28 E	9*	22*	10 25	17 54.81	-26 10.2	0.392	0.850	99.8	21.3	57 E	15*	51*
11 12	16 46.12	-19 42.5	3.052	2.178	10.3	21.3	23 E	8*	16*	10 27	18 9.22	-25 48.1	0.378	0.860	99.4	21.3	59 E	16*	52*
11 22	17 7.25	-19 31.5	3.055	2.139	8.3	21.2	18 E	6*	10*	10 29	18 24.22	-25 18.5	0.364	0.871	98.7	21.2	60 E	17*	53*
12 2	17 29.04	-19 10.1	3.046	2.100	6.3	21.0	14 E	5*	4*	10 31	18 39.81	-24 40.8	0.352	0.881	97.9	21.1	62 E	18*	55*
12 12	17 51.41	-18 36.8	3.026	2.061	4.5	20.9	9 E	3*	—	11 2	18 55.96	-23 54.2	0.341	0.893	96.8	21.0	63 E	19*	56*
12 22	18 14.27	-17 50.2	2.997	2.022	3.2	20.7	7 E	—	—	11 4	19 12.62	-22 58.2	0.331	0.904	95.4	20.9	65 E	21*	58*
1 1	18 37.56	-16 49.2	2.958	1.984	3.2	20.7	6 W	—	—	11 6	19 29.74	-21 52.5	0.322	0.916	93.9	20.8	67 E	22*	59*
1 11	19 1.20	-15 32.8	2.910	1.945	4.5	20.7	9 W	3*	—	11 8	19 47.23	-20 37.0	0.314	0.929	92.0	20.7	69 E	24*	61*
1 21	19 25.11	-14 0.4	2.856	1.908	6.4	20.7	13 W	6*	1*	11 10	20 4.98	-19 11.8	0.308	0.941	90.0	20.6	72 E	26*	62*
235601 2004 PW₅₆										398465 2011 UP₁₀₈									
10 23	16 9.48	-19 6.5	2.725	1.987	16.5	21.5	35 E	10*	28*	10 23	16 14.21	-16 12.6	2.397	1.687	20.0	21.4	35 E	13*	28*
11 2	16 32.37	-20 1.0	2.749	1.954	14.7	21.4	30 E	9*	23*	11 2	16 40.91	-17 37.5	2.410	1.653	18.5	21.4	32 E	12*	24*
11 12	16 56.33	-20 44.8	2.766	1.922	12.9	21.3	26 E	8*	18*	11 12	17 8.99	-18 47.7	2.420	1.622	17.0	21.3	29 E	11*	20*
11 22	17 21.25	-21 15.8	2.775	1.891	11.0	21.2	21 E	7*	14*	11 22	17 38.32	-19 40.2	2.428	1.594	15.5	21.2	26 E	11*	17*
12 2	17 47.03	-21 32.3	2.778	1.861	9.1	21.1	17 E	6*	9*	12 2	18 8.74	-20 12.6	2.434	1.569	13.9	21.1	23 E	10*	13*
12 12	18 13.56	-21 32.8	2.775	1.832	7.2	21.0	13 E	4*	5*	12 12	18 40.04	-20 22.9	2.439	1.548	12.4	21.0	20 E	8*	10*
12 22	18 40.68	-21 15.9	2.766	1.804	5.2	20.8	10 E	2*	1*	12 22	19 11.94	-20 9.7	2.445	1.531	10.8	20.9	17 E	7*	7*
1 1	19 8.22	-20 41.0	2.753	1.778	3.3	20.7	6 E	—	—	1 1	19 44.14	-19 32.5	2.451	1.518	9.2	20.9	14 E	6*	5*
1 11	19 36.03	-19 47.6	2.735	1.754	1.5	20.5	3 E	—	—	1 11	20 16.38	-18 32.0	2.458	1.509	7.6	20.8	12 E	4*	2*
1 21	20 3.94	-18 36.1	2.714	1.732	1.3	20.4	2 W	—	—	1 21	20 48.36	-17 9.7	2.467	1.504	6.0	20.7	9 E	2*	—

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

21/22	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45° - 26°	2021	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45° - 26°
454100 2013 BO ₇₃ (continuation)									509594 2008 DA ₃₈								
12 7	23 35.52	+5 0.1	0.376	1.122	59.3	20.4	102 E	50 58*	11 2	3 46.58	+13 29.9	3.089	4.040	4.6	23.4	161 W	58 51
12 12	0 3.02	+8 18.7	0.413	1.156	55.7	20.5	104 E	53 55*	11 12	3 38.97	+12 55.1	3.040	4.021	2.1	23.2	171 W	58 51
12 17	0 27.38	+11 4.8	0.456	1.190	52.8	20.7	106 E	56 52*	11 22	3 30.95	+12 21.6	3.023	4.002	2.2	23.2	171 E	57 52
12 22	0 49.14	+13 23.4	0.502	1.224	50.5	20.9	106 E	58 50*	12 2	3 23.12	+11 51.6	3.038	3.982	4.7	23.3	161 E	57 52
12 27	1 8.80	+15 19.6	0.553	1.257	48.6	21.1	106 E	60 48*	12 12	3 16.10	+11 27.7	3.083	3.961	7.3	23.5	149 E	56 53
1 1	1 26.79	+16 58.1	0.606	1.289	47.1	21.3	106 E	62 46*	455204 2001 FY ₆								
508791 2000 EH ₁₀₄									11 2	3 53.30	+11 42.0	2.295	3.242	6.3	22.4	159 W	57 52
11 2	3 23.38	+18 36.1	2.432	3.404	4.0	23.0	166 W	64 45	11 12	3 43.92	+10 57.0	2.284	3.262	3.3	22.3	169 W	56 53
11 12	3 13.82	+18 10.5	2.380	3.370	0.4	22.6	179 W	63 46	11 22	3 34.21	+10 16.1	2.304	3.281	3.1	22.3	170 E	55 54
11 22	3 3.96	+17 41.9	2.360	3.335	3.3	22.8	169 E	63 46	12 2	3 25.00	+9 42.8	2.356	3.299	5.9	22.5	160 E	55 54
12 2	2 54.67	+17 13.3	2.371	3.299	6.8	23.0	157 E	62 47	12 12	3 17.07	+9 19.7	2.436	3.315	8.9	22.7	148 E	54 55
12 12	2 46.73	+16 48.5	2.410	3.262	10.1	23.1	144 E	62 47	483668 2005 GH ₉₇								
359369 2009 YG									11 2	3 53.60	+38 35.5	3.936	4.818	6.0	23.4	150 W	84 25
11 2	3 24.35	+13 33.5	2.152	3.125	4.3	22.9	166 W	59 50	11 7	3 49.75	+38 35.1	3.906	4.815	5.2	23.3	154 W	84 25
11 12	3 12.31	+12 42.3	2.094	3.081	1.6	22.7	175 W	58 51	11 12	3 45.71	+38 31.8	3.882	4.812	4.5	23.3	158 W	84 25
11 22	2 59.84	+11 51.1	2.069	3.036	4.7	22.8	166 E	57 52	11 17	3 41.55	+38 25.6	3.867	4.809	4.0	23.2	160 W	83 26
12 2	2 47.99	+11 4.6	2.077	2.988	8.7	23.0	153 E	56 53	11 22	3 37.35	+38 16.7	3.859	4.806	3.7	23.2	162 E	83 26
12 12	2 37.76	+10 27.4	2.113	2.938	12.4	23.1	140 E	55 54	11 27	3 33.18	+38 5.0	3.858	4.802	3.8	23.2	161 E	83 26
9767 Midsomer Norton									12 2	3 29.14	+37 50.9	3.865	4.799	4.2	23.2	159 E	83 26
11 2	3 28.78	+46 53.3	3.463	4.317	7.5	22.5	145 W	88 17	12 7	3 25.28	+37 34.7	3.880	4.795	4.8	23.3	156 E	83 26
11 7	3 23.65	+46 52.8	3.423	4.299	6.9	22.5	148 W	88 17	285990 2001 SK ₉								
11 12	3 18.32	+46 47.7	3.389	4.280	6.5	22.4	151 W	88 17	11 2	3 57.11	-2 24.4	2.258	3.169	8.4	22.7	152 W	43 66
11 17	3 12.89	+46 37.9	3.362	4.261	6.2	22.4	152 E	88 17	11 7	3 51.17	-3 8.9	2.237	3.164	7.6	22.6	155 W	42 67
11 22	3 7.47	+46 23.3	3.343	4.242	6.2	22.3	152 E	89 18	11 12	3 44.94	-3 50.3	2.224	3.158	7.1	22.6	157 W	41 68
11 27	3 2.19	+46 4.4	3.331	4.223	6.4	22.3	151 E	89 18	11 17	3 38.54	-4 27.6	2.219	3.151	7.2	22.6	157 W	41 68
12 2	2 57.14	+45 41.5	3.326	4.204	6.9	22.3	149 E	89 18	11 22	3 32.09	-5 0.3	2.223	3.144	7.8	22.6	155 E	40 69
12 7	2 52.44	+45 15.0	3.328	4.185	7.5	22.4	146 E	90 19	11 27	3 25.73	-5 27.8	2.234	3.136	8.7	22.6	151 E	40 69
12 12	2 48.17	+44 45.7	3.337	4.165	8.2	22.4	143 E	90 19	12 2	3 19.58	-5 49.7	2.253	3.127	9.9	22.7	147 E	39 70
399446 2002 GF ₁									12 7	3 13.77	-6 5.7	2.280	3.118	11.1	22.8	142 E	39 70
11 2	3 33.75	+18 23.4	1.909	2.876	5.5	24.6	164 W	63 46	480854 2001 AO ₂								
11 7	3 28.14	+18 5.4	1.890	2.871	3.3	24.5	170 W	63 46	11 2	4 1.68	-2 15.2	2.313	3.220	8.5	23.0	151 W	43 66
11 12	3 22.31	+17 46.1	1.878	2.867	1.2	24.3	177 W	63 46	11 12	3 52.47	-2 49.3	2.228	3.162	7.1	22.9	157 W	42 67
11 17	3 16.40	+17 26.0	1.874	2.862	1.1	24.3	177 E	62 47	11 22	3 42.09	-3 9.1	2.172	3.104	7.2	22.8	157 E	42 67
11 22	3 10.57	+17 5.6	1.878	2.857	3.3	24.5	170 E	62 47	12 2	3 31.40	-3 10.8	2.145	3.044	9.1	22.8	151 E	42 67
11 27	3 4.95	+16 45.5	1.890	2.851	5.5	24.6	164 E	62 47	12 12	3 21.35	-2 52.3	2.146	2.983	11.8	22.8	142 E	42 67
12 2	2 59.67	+16 26.3	1.909	2.845	7.6	24.7	157 E	61 48	196068 2002 TW ₅₅								
508796 2000 KN ₄₄									11 2	4 1.78	+74 19.8	2.399	3.007	16.8	23.2	119 W	61 -
11 2	3 35.31	-1 1.6	1.922	2.863	7.7	22.8	157 W	44 65	11 4	3 52.32	+74 39.2	2.398	3.015	16.6	23.2	120 W	60 -
11 12	3 23.42	-1 6.9	1.853	2.807	6.6	22.6	161 W	44 65	11 6	3 42.36	+74 55.7	2.399	3.024	16.4	23.2	120 W	60 -
11 22	3 10.61	-0 54.7	1.813	2.750	8.1	22.6	157 E	44 65	11 8	3 31.97	+75 9.1	2.400	3.032	16.3	23.2	121 W	60 -
12 2	2 58.03	-0 22.5	1.804	2.691	11.2	22.6	148 E	45 64	11 10	3 21.25	+75 19.2	2.402	3.041	16.1	23.2	122 W	60 -
12 12	2 46.85	+0 30.4	1.821	2.631	14.7	22.7	137 E	46 63	11 12	3 10.31	+75 26.1	2.404	3.049	16.0	23.2	122 W	60 -
427580 2003 QC ₂₉									11 13	3 4.79	+75 28.2	2.406	3.053	15.9	23.2	122 E	60 -
11 2	3 35.46	+8 10.0	2.711	3.669	4.7	23.1	162 W	53 56	11 14	2 59.27	+75 29.5	2.408	3.057	15.8	23.2	123 E	60 -
11 12	3 26.91	+7 29.0	2.708	3.684	3.0	23.0	169 W	52 57	11 15	2 53.75	+75 30.0	2.410	3.061	15.8	23.2	123 E	59 -
11 22	3 18.28	+6 54.4	2.736	3.699	4.0	23.1	165 E	52 57	11 16	2 48.26	+75 29.7	2.413	3.065	15.7	23.2	123 E	60 -
12 2	3 10.25	+6 28.7	2.795	3.712	6.5	23.3	155 E	51 58	11 17	2 42.80	+75 28.5	2.415	3.069	15.7	23.2	123 E	60 -
12 12	3 3.41	+6 13.5	2.883	3.724	9.0	23.5	144 E	51 58	11 18	2 37.40	+75 26.6	2.418	3.073	15.6	23.2	123 E	60 -
163067 2002 AP ₃									11 19	2 32.06	+75 23.8	2.421	3.077	15.6	23.2	123 E	60 -
11 2	3 38.74	+12 17.4	1.910	2.873	5.9	24.0	163 W	57 52	11 20	2 26.80	+75 20.3	2.424	3.081	15.5	23.2	123 E	60 -
11 12	3 26.51	+11 39.0	1.851	2.836	2.6	23.7	173 W	57 52	11 21	2 21.63	+75 16.1	2.428	3.085	15.5	23.2	123 E	60 -
11 22	3 13.50	+11 2.5	1.824	2.797	4.4	23.7	167 E	56 53	11 22	2 16.57	+75 11.1	2.431	3.089	15.5	23.2	124 E	60 -
12 2	3 0.91	+10 32.0	1.828	2.755	8.6	23.9	155 E	56 53	11 24	2 6.79	+74 59.1	2.439	3.096	15.4	23.2	124 E	60 -
12 12	2 49.91	+10 11.8	1.861	2.712	12.7	24.1	143 E	55 54	11 26	1 57.54	+74 44.5	2.448	3.104	15.4	23.3	123 E	60 -
386720 2009 XC ₂									11 28	1 48.87	+74 27.5	2.458	3.112	15.4	23.3	123 E	61 -
11 2	3 39.40	-11 16.8	2.773	3.657	8.1	22.6	149 W	34 75	11 30	1 40.80	+74 8.5	2.469	3.119	15.4	23.3	123 E	61 -
11 12	3 30.08	-11 47.0	2.731	3.623	7.8	22.5	150 W	33 76	12 2	1 33.37	+73 47.7	2.480	3.127	15.4	23.3	123 E	61 -
11 22	3 20.33	-11 58.4	2.717	3.587	8.6	22.5	147 E	33 76	12 7	1 17.52	+72 49.5	2.513	3.145	15.4	23.3	122 E	62 -
12 2	3 10.88	-11 48.8	2.731	3.551	10.1	22.6	141 E	33 76	12 12	1 5.37	+71 45.2	2.550	3.163	15.6	23.4	120 E	63 -
12 12	3 2.45	-11 18.3	2.771	3.513	11.9	22.7	133 E	34 75	12 17	0 56.51	+70 38.1	2.592	3.180	15.8	23.4	118 E	64 -
511137 2013 XM ₂₄									12 22	0 50.43	+69 30.6	2.638	3.197	16.0	23.5	116 E	65 -
11 2	3 42.55	-36 46.8	1.651	2.371	19.9	23.0	126 W	8 79	162416 2000 EH ₂₆								
11 7	3 34.01	-36 49.6	1.652	2.373	19.8	23.0	126 W	8 79	11 2	4 8.30	+20 45.0	1.806	2.740	8.7	25.8	155 W	66 43
11 12	3 25.29	-36 38.6	1.658	2.374	19.8	23.0	126 W	8 79	11 7	4 2.43	+20 28.3	1.780	2.739	6.5	2		