

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

20/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45° - 26°	20/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45° - 26°	
523600 2003 RC₂									185716 1998 SF₃₅ (continuation)									
7 30	1 28.23	+17 6.4	0.800	1.400	45.6	21.5	100 W	60*	9 3	3 39.24	+37 13.9	1.084	1.591	38.8	20.5	99 W	82	27
8 4	1 43.90	+15 8.7	0.734	1.372	46.3	21.3	102 W	59*	9 8	3 49.56	+36 26.9	1.018	1.572	38.8	20.4	102 W	81	28
8 9	2 0.90	+12 35.3	0.670	1.344	47.0	21.0	104 W	57*	9 13	3 59.53	+35 24.8	0.953	1.554	38.8	20.2	105 W	80	29
8 14	2 19.43	+9 18.5	0.611	1.317	47.8	20.8	106 W	54*	9 18	4 9.07	+34 5.1	0.890	1.535	38.5	20.0	108 W	79	30
8 19	2 39.77	+5 10.7	0.558	1.289	48.8	20.6	107 W	50*	9 23	4 18.09	+32 25.0	0.827	1.516	38.0	19.8	111 W	77	32
8 24	3 2.15	+0 5.6	0.512	1.261	50.0	20.4	107 W	45*	9 28	4 26.50	+30 20.9	0.767	1.497	37.3	19.6	115 W	75	34
8 29	3 26.83	-5 57.0	0.476	1.233	51.7	20.3	107 W	39*	10 3	4 34.22	+27 48.9	0.709	1.479	36.4	19.4	119 W	73	36
8 31	3 37.39	-8 36.4	0.464	1.223	52.5	20.2	106 W	36*	10 8	4 41.14	+24 44.4	0.654	1.460	35.2	19.1	123 W	70	39
9 2	3 48.36	-11 22.4	0.455	1.212	53.4	20.2	105 W	34*	10 13	4 47.14	+21 2.3	0.603	1.442	33.7	18.9	127 W	66	43
9 4	3 59.72	-14 13.6	0.447	1.201	54.4	20.1	104 W	31*	10 18	4 52.11	+16 38.0	0.557	1.424	31.9	18.7	131 W	62	47
9 6	4 11.49	-17 8.0	0.442	1.190	55.5	20.1	103 W	28*	10 23	4 55.95	+11 28.2	0.516	1.407	30.2	18.4	135 W	56	53
9 8	4 23.63	-20 3.6	0.438	1.180	56.7	20.1	102 W	25*	10 28	4 58.59	+5 32.8	0.483	1.390	28.7	18.2	138 W	51	58
9 10	4 36.14	-22 58.1	0.437	1.169	57.9	20.1	101 W	22*	11 2	4 59.97	-1 2.8	0.458	1.373	28.0	18.0	140 W	44	65
9 12	4 48.99	-25 49.3	0.437	1.159	59.1	20.1	99 W	19*	11 7	5 0.04	-8 6.5	0.441	1.357	28.3	17.9	139 W	37	72
9 14	5 2.13	-28 35.2	0.439	1.148	60.3	20.2	97 W	16*	11 9	4 59.70	-10 59.8	0.437	1.350	28.9	17.9	139 W	34	75
9 16	5 15.53	-31 13.9	0.444	1.138	61.5	20.2	96 W	14*	11 11	4 59.16	-13 53.3	0.434	1.344	29.6	17.9	138 W	31	78
9 18	5 29.14	-33 43.7	0.450	1.128	62.7	20.3	94 W	11*	11 13	4 58.40	-16 45.5	0.433	1.338	30.5	17.9	137 W	28	81
9 20	5 42.89	-36 3.6	0.457	1.118	63.9	20.3	92 W	9*	11 15	4 57.45	-19 35.0	0.433	1.332	31.5	17.9	135 W	25	84
9 22	5 56.73	-38 12.7	0.466	1.108	64.9	20.4	90 W	6*	11 17	4 56.31	-22 20.5	0.435	1.326	32.7	18.0	134 W	23	86
9 24	6 10.60	-40 10.7	0.476	1.099	65.9	20.4	88 W	4*	11 19	4 55.00	-25 0.7	0.437	1.321	33.9	18.0	132 W	20	89
9 26	6 24.43	-41 57.4	0.487	1.090	66.7	20.5	87 W	3*	11 21	4 53.52	-27 34.7	0.441	1.315	35.2	18.1	130 W	17	88
9 28	6 38.16	-43 33.1	0.499	1.080	67.5	20.5	85 W	1*	11 23	4 51.89	-30 1.6	0.446	1.310	36.6	18.1	128 W	15	86
9 30	6 51.75	-44 58.1	0.512	1.071	68.2	20.6	83 W	—	11 25	4 50.14	-32 20.9	0.452	1.304	37.9	18.2	126 W	13	84
10 2	7 5.12	-46 13.2	0.526	1.063	68.8	20.7	82 W	—	11 27	4 48.27	-34 32.1	0.459	1.299	39.2	18.2	124 W	10	81
10 4	7 18.25	-47 18.8	0.540	1.054	69.3	20.7	80 W	—	12 2	4 43.22	-39 23.6	0.480	1.286	42.3	18.4	119 W	6	77
10 6	7 31.08	-48 15.8	0.555	1.046	69.7	20.8	79 W	—	12 7	4 37.88	-43 23.9	0.503	1.275	45.0	18.6	114 E	2	73
10 8	7 43.59	-49 4.8	0.569	1.038	70.0	20.8	78 W	—	12 12	4 32.60	-46 36.4	0.529	1.265	47.2	18.7	110 E	—	69
10 10	7 55.76	-49 46.7	0.584	1.031	70.3	20.9	76 W	—	12 17	4 27.72	-49 6.7	0.556	1.255	49.0	18.8	106 E	—	67
10 12	8 7.57	-50 22.0	0.599	1.023	70.4	20.9	75 W	—	12 22	4 23.60	-51 1.0	0.582	1.247	50.4	19.0	102 E	—	65
10 14	8 19.00	-50 51.4	0.614	1.016	70.6	21.0	74 W	—	12 27	4 20.49	-52 25.3	0.608	1.240	51.4	19.1	100 E	—	64
10 16	8 30.06	-51 15.6	0.629	1.010	70.6	21.0	73 W	—	1 1	4 18.55	-53 24.9	0.632	1.234	52.2	19.2	97 E	—	63
10 18	8 40.75	-51 35.0	0.644	1.004	70.6	21.0	72 W	—	1 6	4 17.91	-54 3.9	0.655	1.229	52.8	19.3	95 E	—	62
10 23	9 5.90	-52 5.6	0.680	0.989	70.4	21.1	70 W	—	1 11	4 18.64	-54 25.5	0.675	1.226	53.2	19.3	93 E	—	62
10 28	9 28.99	-52 15.4	0.714	0.978	70.0	21.2	68 W	—	1 16	4 20.78	-54 32.4	0.693	1.224	53.4	19.4	92 E	—	61
11 2	9 50.29	-52 9.1	0.744	0.969	69.4	21.2	66 W	—										
11 7	10 10.06	-51 50.2	0.771	0.963	68.7	21.3	65 W	—										
11 12	10 28.54	-51 21.1	0.794	0.960	68.0	21.3	64 W	—										
11 17	10 45.93	-50 43.5	0.813	0.959	67.2	21.3	63 W	—										
11 22	11 2.41	-49 58.1	0.827	0.962	66.5	21.4	63 W	—										
11 27	11 18.12	-49 5.7	0.837	0.968	65.8	21.4	63 W	—										
12 2	11 33.16	-48 6.5	0.841	0.976	65.2	21.4	64 W	—										
12 7	11 47.63	-47 0.6	0.841	0.987	64.6	21.4	65 W	—										
12 12	12 1.56	-45 47.8	0.836	1.001	64.1	21.4	66 W	—										
12 17	12 14.94	-44 27.5	0.827	1.017	63.5	21.4	68 W	1										
12 22	12 27.79	-42 58.5	0.814	1.035	62.9	21.4	70 W	2										
12 27	12 40.09	-41 19.7	0.796	1.055	62.3	21.3	72 W	4										
1 1	12 51.83	-39 29.5	0.775	1.077	61.6	21.3	74 W	6										
1 6	13 2.95	-37 26.1	0.752	1.100	60.8	21.3	77 W	8										
1 11	13 13.40	-35 7.1	0.725	1.124	59.7	21.2	81 W	10										
1 16	13 23.08	-32 29.8	0.697	1.149	58.4	21.1	84 W	13										
7 30	1 28.72	+14 7.1	1.228	1.739	34.9	21.4	101 W	57*	7 30	2 29.21	-0 58.0	2.159	2.422	24.8	21.4	92 W	38*	65
8 9	1 39.62	+15 4.2	1.163	1.763	33.2	21.2	108 W	60*	8 9	2 37.33	+0 6.0	1.994	2.379	24.9	21.2	99 W	43*	64
8 19	1 47.45	+15 39.8	1.100	1.788	30.7	21.1	116 W	61	8 19	2 43.76	+1 7.8	1.832	2.335	24.5	21.0	107 W	46*	63
8 29	1 51.72	+15 51.4	1.043	1.815	27.4	20.9	124 W	61	8 29	2 48.03	+2 9.0	1.674	2.290	23.6	20.7	115 W	47	62
9 8	1 52.12	+15 36.9	0.995	1.842	23.2	20.7	134 W	61	9 8	2 49.64	+3 11.9	1.525	2.246	21.9	20.4	124 W	48	61
9 18	1 48.59	+14 55.2	0.959	1.871	18.1	20.5	145 W	60	9 18	2 47.98	+4 19.2	1.387	2.201	19.4	20.1	133 W	49	60
9 28	1 41.63	+13 47.6	0.939	1.900	12.2	20.3	156 W	59	9 28	2 42.48	+5 34.2	1.264	2.156	15.9	19.7	144 W	51	58
10 3	1 37.21	+13 6.0	0.937	1.915	9.1	20.2	162 W	58	10 8	2 32.81	+7 0.0	1.161	2.112	11.3	19.3	156 W	52	57
10 8	1 32.42	+12 20.6	0.940	1.930	5.8	20.1	169 W	57	10 18	2 19.08	+8 38.2	1.082	2.068	5.6	18.9	168 W	54	55
10 13	1 27.44	+11 32.9	0.949	1.945	2.6	19.9	175 W	57	10 28	2 2.27	+10 28.1	1.032	2.024	1.6	18.5	177 E	55	54
10 18	1 22.52	+10 44.5	0.964	1.960	1.3	19.9	177 E	56	11 2	1 53.27	+11 26.5	1.017	2.003	4.6	18.6	171 E	56	53
10 23	1 17.87	+9 57.2	0.986	1.975	4.1	20.1	172 E	55	11 7	1 44.25	+12 26.4	1.010	1.981	8.0	18.8	164 E	57	52
10 28	1 13.69	+9 12.5	1.013	1.991	7.1	20.3	166 E	54	11 12	1 35.51	+13 27.3	1.011	1.960	11.4	18.9	157 E	58	51
11 2	1 10.10	+8 32.0	1.046	2.006	9.9	20.6	160 E	54	11 17	1 27.33	+14 28.6	1.017	1.940	14.6	19.0	150 E	59	50
11 7	1 7.22	+7 56.4	1.085	2.022	12.5	20.7	154 E	53	11 22	1 19.97	+15 30.3	1.031	1.919	17.6	19.1	144 E	61	48
11 12	1 5.12	+7 26.5	1.129	2.037	14.9	20.9	148 E	52	11 27	1 13.62	+16 32.3	1.049	1.899	20.5	19.2	138 E	62	47
11 17	1 3.83	+7 2.7	1.177	2.053	17.0	21.1	143 E	52	12 7	1 4.40	+18 37.2	1.099	1.859	25.3	19.4	126 E	64	45
11 22	1 3.36	+6 45.3	1.230	2.068	18.9	21.3	137 E	52	12 17	1 0.12	+20 44.7	1.162	1.822	29.1	19.6	116 E	66	43
11 27	1 3.69	+6 34.0	1.288	2.083	20.5	21.5	132 E	52	12 27	1 0.68	+22 56.9	1.232	1.786	31.8	19.8	107 E	68	40*
9 30	4 18.60	-9 58.4	0.356	1.222	44.8	18.9	121 W	35	1 6	1 5.64	+25 14.8	1.305	1.752	33.7	19.9	99 E	70	35*
10 2	4 19.22	-8 56.4	0.338	1.215	44.2	18.8	122 W	36	1 16	1 14.61	+27 38.5	1.378	1.721	34.8	20.0	92 E	73	30*
10 4	4 19.60	-7 46.5	0.320	1.208	43.4	18.6	124 W	37	7 30	2 57.95	-21 14.1	0.921	1.395	46.6	21.3	92 W	17*	85

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

20/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°-26°	20/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°-26°
474179 1999 VS₆									206359 2003 QM₄₇								
<i>(continuation)</i>									<i>(continuation)</i>								
10 12	4 17.98	-1 16.3	0.249	1.180	38.8	17.9	132 W	44 65	11 7	7 52.35	-39 59.5	0.808	1.279	50.8	20.2	90 W	5 76*
10 14	4 16.53	+0 59.8	0.233	1.173	37.2	17.7	135 W	46 63	11 12	8 3.88	-41 0.7	0.793	1.270	51.2	20.1	90 W	4 75
10 16	4 14.52	+3 37.2	0.217	1.166	35.4	17.5	137 W	49 60	11 17	8 14.76	-41 53.0	0.777	1.263	51.5	20.1	91 W	3 74
10 18	4 11.83	+6 39.8	0.202	1.159	33.3	17.2	140 W	52 57	11 22	8 24.95	-42 35.9	0.759	1.258	51.7	20.0	91 W	2 73
10 20	4 8.32	+10 11.8	0.187	1.152	31.1	17.0	143 W	55 54	11 27	8 34.44	-43 8.8	0.739	1.253	51.9	19.9	92 W	2 73
10 22	4 3.82	+14 17.7	0.174	1.144	28.7	16.8	146 W	59 50	12 2	8 43.18	-43 31.0	0.718	1.250	51.9	19.9	93 W	1 72
10 24	3 58.07	+19 1.3	0.162	1.137	26.4	16.5	149 W	64 45	12 7	8 51.13	-43 41.5	0.694	1.249	51.9	19.8	94 W	1 72
10 26	3 50.74	+24 25.1	0.152	1.130	24.7	16.3	152 W	69 40	12 12	8 58.23	-43 38.9	0.668	1.249	51.6	19.7	96 W	1 72
10 28	3 41.32	+30 28.3	0.143	1.123	24.0	16.2	153 W	75 34	12 17	9 4.41	-43 21.1	0.641	1.250	51.2	19.6	98 W	2 73
10 29	3 35.63	+33 43.1	0.140	1.119	24.2	16.1	152 W	79 30	12 22	9 9.63	-42 45.4	0.612	1.253	50.5	19.5	101 W	2 73
10 30	3 29.14	+37 4.9	0.137	1.116	24.9	16.1	152 W	82 27	12 27	9 13.85	-41 48.4	0.581	1.257	49.4	19.4	104 W	3 74
10 31	3 21.71	+40 32.0	0.135	1.112	26.1	16.1	150 W	86 23	1 1	9 17.04	-40 26.1	0.550	1.262	48.0	19.2	107 W	5 76
11 1	3 13.18	+44 2.0	0.133	1.108	27.7	16.1	149 W	89 20	1 6	9 19.18	-38 33.2	0.519	1.269	46.1	19.0	112 W	6 77
11 2	3 3.35	+47 32.2	0.132	1.105	29.8	16.1	146 W	87 16	1 11	9 20.23	-36 3.1	0.487	1.277	43.6	18.9	116 W	9 80
11 3	2 51.98	+50 59.5	0.132	1.101	32.1	16.2	144 W	84 13	1 16	9 20.25	-32 48.2	0.457	1.287	40.3	18.6	122 W	12 83
11 4	2 38.80	+54 20.7	0.132	1.098	34.6	16.2	141 W	81 10	220091 2002 ST₃₃								
11 5	2 23.49	+57 32.3	0.133	1.094	37.3	16.3	138 E	77 6	7 30	3 39.84	+20 20.4	2.186	2.065	27.4	21.5	70 W	46* 42*
11 6	2 5.73	+60 31.0	0.135	1.091	40.1	16.4	135 E	74 3	8 9	3 55.62	+20 51.4	2.111	2.100	27.9	21.5	75 W	52* 42*
11 7	1 45.19	+63 13.2	0.137	1.087	42.9	16.5	132 E	72 1	8 19	4 9.78	+21 11.2	2.030	2.134	28.0	21.4	82 W	58* 43*
11 8	1 21.65	+65 35.9	0.140	1.084	45.6	16.6	129 E	69 —	8 29	4 22.02	+21 20.3	1.945	2.169	27.7	21.4	89 W	63* 43*
11 9	0 55.06	+67 36.2	0.143	1.080	48.2	16.8	126 E	67 —	9 8	4 32.00	+21 19.4	1.859	2.204	27.0	21.3	96 W	66* 43*
11 10	0 25.72	+69 12.2	0.147	1.077	50.8	16.9	123 E	66 —	9 18	4 39.36	+21 9.1	1.772	2.239	25.8	21.2	104 W	66 43
11 11	23 54.33	+70 22.6	0.151	1.073	53.2	17.0	120 E	65 —	9 28	4 43.72	+20 49.9	1.688	2.273	24.0	21.0	113 W	66 43
11 12	23 21.98	+71 7.7	0.155	1.070	55.4	17.1	117 E	64 —	10 8	4 44.76	+20 22.3	1.610	2.306	21.4	20.9	122 W	65 44
11 13	22 49.98	+71 29.4	0.160	1.066	57.6	17.2	115 E	64 —	10 18	4 42.30	+19 46.5	1.544	2.340	18.1	20.7	133 W	65 44
11 14	22 19.55	+71 30.6	0.165	1.063	59.6	17.4	112 E	63 —	10 28	4 36.42	+19 3.2	1.493	2.373	14.1	20.5	144 W	64 45
11 15	21 51.57	+71 15.3	0.171	1.059	61.4	17.5	110 E	64 —	11 7	4 27.63	+18 13.7	1.464	2.405	9.5	20.4	156 W	63 46
11 16	21 26.52	+70 47.3	0.176	1.056	63.1	17.6	108 E	64 —	11 12	4 22.42	+17 47.4	1.458	2.421	7.0	20.3	163 W	63 46
11 17	21 4.48	+70 10.2	0.182	1.053	64.7	17.7	106 E	65 —	11 17	4 16.88	+17 20.7	1.459	2.437	4.6	20.2	169 W	62 47
11 18	20 45.28	+69 27.0	0.188	1.049	66.2	17.8	104 E	66*	11 22	4 11.17	+16 54.1	1.468	2.452	2.3	20.0	174 W	62 47
11 19	20 28.65	+68 40.2	0.194	1.046	67.6	17.9	102 E	66*	11 27	4 5.49	+16 28.4	1.483	2.468	1.9	20.0	175 E	61 48
11 20	20 14.24	+67 51.4	0.200	1.043	68.8	18.0	100 E	66*	12 2	4 0.01	+16 4.0	1.506	2.483	3.9	20.2	170 E	61 48
11 21	20 1.74	+67 1.9	0.207	1.039	70.0	18.1	99 E	67*	12 7	3 54.88	+15 41.7	1.536	2.498	6.2	20.4	164 E	61 48
11 22	19 50.85	+66 12.6	0.213	1.036	71.0	18.2	97 E	67*	12 12	3 50.24	+15 21.9	1.572	2.513	8.4	20.6	158 E	60 49
11 23	19 41.31	+65 24.2	0.219	1.033	72.0	18.3	96 E	67*	12 17	3 46.20	+15 5.1	1.615	2.528	10.5	20.7	152 E	60 49
11 24	19 32.92	+64 36.9	0.226	1.030	72.9	18.4	94 E	66*	12 22	3 42.84	+14 51.6	1.665	2.542	12.4	20.9	146 E	60 49
11 25	19 25.50	+63 51.2	0.232	1.027	73.7	18.5	93 E	66*	12 27	3 40.22	+14 41.5	1.719	2.556	14.1	21.0	141 E	60 49
11 26	19 18.90	+63 7.0	0.239	1.024	74.5	18.5	92 E	65*	1 1	3 38.34	+14 34.9	1.779	2.571	15.7	21.2	135 E	60 49
11 27	19 12.99	+62 24.5	0.246	1.020	75.2	18.6	91 E	65*	1 6	3 37.20	+14 31.6	1.843	2.585	17.0	21.3	130 E	60 49
11 28	19 7.67	+61 43.7	0.252	1.017	75.9	18.7	90 E	64*	1 11	3 36.80	+14 31.5	1.911	2.598	18.2	21.4	125 E	60 49
11 29	19 2.87	+61 4.5	0.259	1.014	76.5	18.8	89 E	64*	142464 2002 TC₉								
11 30	18 58.51	+60 26.9	0.265	1.011	77.0	18.8	88 E	63*	7 30	4 8.67	+17 49.2	1.535	1.413	40.0	21.5	63 W	39* 42*
12 1	18 54.53	+59 50.9	0.272	1.008	77.5	18.9	87 E	62*	8 9	4 35.84	+17 18.8	1.469	1.419	41.1	21.4	67 W	43* 43*
12 2	18 50.88	+59 16.3	0.278	1.005	78.0	19.0	86 E	61*	8 19	5 2.59	+16 24.1	1.400	1.422	42.0	21.3	70 W	46* 44*
12 3	18 47.53	+58 43.1	0.284	1.003	78.4	19.0	85 E	61*	8 29	5 28.75	+15 4.1	1.328	1.424	42.9	21.2	74 W	49* 46*
12 4	18 44.44	+58 11.2	0.291	1.000	78.8	19.1	84 E	60*	8 8	5 54.21	+13 18.6	1.254	1.423	43.6	21.1	77 W	51* 48*
12 5	18 41.57	+57 40.5	0.297	0.997	79.2	19.1	84 E	59*	9 18	6 18.83	+11 7.1	1.178	1.420	44.3	21.0	81 W	52* 50*
12 6	18 38.90	+57 11.0	0.303	0.994	79.5	19.2	83 E	58*	9 28	6 42.44	+8 29.6	1.102	1.415	44.8	20.9	84 W	52* 53*
12 7	18 36.41	+56 42.5	0.310	0.991	79.8	19.2	82 E	57*	10 8	7 4.93	+5 26.6	1.026	1.408	45.2	20.7	88 W	50* 56*
12 9	18 31.90	+55 48.5	0.322	0.986	80.4	19.3	81 E	56*	10 18	7 26.17	+1 58.6	0.951	1.398	45.4	20.6	92 W	47 60*
12 11	18 27.91	+54 57.8	0.334	0.981	80.8	19.4	80 E	54*	10 28	7 45.96	+1 53.1	0.879	1.387	45.5	20.4	95 W	43 65*
12 13	18 24.35	+54 10.1	0.345	0.976	81.2	19.5	78 E	52*	11 7	8 4.19	-6 6.6	0.808	1.373	45.5	20.2	99 W	39 70*
12 15	18 21.13	+53 24.9	0.357	0.971	81.5	19.5	77 E	50*	11 17	8 20.62	-10 39.3	0.741	1.357	45.3	19.9	102 W	34 75
12 17	18 18.20	+52 41.7	0.368	0.967	81.8	19.6	77 E	48*	11 22	8 28.06	-13 1.5	0.708	1.349	45.2	19.8	104 W	32 77
12 19	18 15.51	+52 0.3	0.378	0.963	82.0	19.7	76 E	46*	11 27	8 34.95	-15 26.7	0.676	1.340	45.1	19.7	106 W	30 79
12 21	18 13.03	+51 20.1	0.388	0.959	82.1	19.7	75 E	45*	12 2	8 41.25	-17 54.3	0.646	1.331	45.0	19.6	107 W	27 82
12 23	18 10.72	+50 41.0	0.398	0.955	82.3	19.8	74 E	43*	12 7	8 46.90	-20 23.3	0.616	1.321	44.8	19.5	109 W	25 84
12 25	18 8.58	+50 2.6	0.407	0.951	82.3	19.8	73 W	43*	12 12	8 51.84	-22 52.9	0.587	1.311	44.7	19.3	110 W	22 87
12 27	18 6.58	+49 24.6	0.416	0.948	82.4	19.9	73 W	44*	12 17	8 55.98	-25 21.5	0.559	1.300	44.6	19.2	112 W	20 89
1 1	18 2.15	+47 50.6	0.436	0.941	82.4	19.9	72 W	47*	12 22	8 59.27	-27 47.8	0.532	1.290	44.5	19.1	113 W	17 88
1 6	17 58.48	+46 15.8	0.452	0.936	82.3	20.0	71 W	50*	12 27	9 1.66	-30 10.2	0.506	1.279	44.5	19.0	114 W	15 86
1 11	17 55.50	+44 38.7	0.466	0.932	82.2	20.1	70 W	53*	1 1	9 3.07	-32 26.9	0.481	1.267	44.4	18.8	116 W	13 84
1 16	17 53.15	+42 58.1	0.476	0.930	81.9	20.1	69 W	56*	1 6	9 3.43	-34 36.2	0.456	1.256	44.4	18.7	117 W	10 81
206359 2003 QM₄₇									1 11	9 2.65	-36 35.6	0.432	1.244	44.5	18.6	118 W	8 79
7 30	2 59.13	-6 24.4	1.311	1.616	38.9	21.4	87 W	30* 70*	1 16	9 0.71	-38 22.4	0.409	1.232	44.6	18.4	118 W	7 78

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

2020	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°-26°	20/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°-26°	
374158 2004 UL (continuation)									285638 2000 SO₁₀ (continuation)									
9 2	10 15.42	+14 25.2	1.093	0.197	60.1	17.6	10 W	4*	11 27	14 33.15	-16 24.5	1.364	0.609	40.8	18.8	24 W	12*	13*
9 4	10 44.04	+10 49.0	1.106	0.124	36.1	15.9	4 W	—	12 2	14 59.02	-21 43.8	1.388	0.599	37.8	18.7	22 W	8*	13*
9 6	11 14.04	+5 17.1	1.075	0.096	44.3	15.6	4 E	—	12 7	15 27.53	-26 36.9	1.416	0.599	34.7	18.7	20 W	4*	14*
9 8	11 33.41	-0 10.9	0.989	0.156	92.5	18.0	9 E	—	12 12	15 58.74	-30 52.3	1.449	0.610	31.8	18.7	19 W	—	13*
9 9	11 40.17	-2 29.2	0.947	0.193	102.6	18.9	11 E	—	12 17	16 32.38	-34 20.0	1.486	0.632	29.2	18.7	18 W	—	12*
9 10	11 46.17	-4 38.2	0.909	0.231	108.7	19.5	13 E	—	12 22	17 7.71	-36 53.7	1.527	0.662	26.9	18.8	18 W	—	11*
9 11	11 51.81	-6 42.0	0.874	0.267	112.5	20.0	14 E	—	12 27	17 43.69	-38 31.9	1.571	0.698	24.9	19.0	17 W	—	9*
9 12	11 57.30	-8 43.0	0.842	0.301	114.8	20.3	16 E	—	12 29	17 58.00	-38 56.2	1.590	0.714	24.2	19.0	17 W	—	8*
9 13	12 2.79	-10 42.8	0.813	0.334	116.2	20.5	17 E	—	12 31	18 12.16	-39 12.3	1.609	0.731	23.5	19.1	17 W	—	7*
9 14	12 8.37	-12 42.4	0.786	0.366	116.8	20.7	19 E	—	1 2	18 26.10	-39 20.8	1.629	0.748	22.8	19.1	17 W	—	7*
9 15	12 14.10	-14 42.4	0.761	0.397	117.0	20.8	21 E	—	1 4	18 39.77	-39 22.1	1.649	0.766	22.2	19.2	17 W	—	6*
9 16	12 20.06	-16 43.5	0.738	0.427	116.7	20.9	22 E	—	1 6	18 53.11	-39 16.8	1.669	0.784	21.6	19.2	17 W	—	5*
9 17	12 26.28	-18 45.7	0.717	0.456	116.1	20.9	24 E	—	1 8	19 6.09	-39 5.5	1.690	0.802	20.9	19.3	17 W	—	5*
9 18	12 32.82	-20 49.2	0.698	0.484	115.3	20.9	26 E	—	1 10	19 18.67	-38 48.6	1.711	0.821	20.3	19.3	17 W	—	4*
9 20	12 47.02	-24 59.6	0.665	0.538	112.9	20.9	30 E	—	1 12	19 30.84	-38 26.9	1.732	0.840	19.7	19.4	17 W	—	3*
9 22	13 3.01	-29 12.8	0.638	0.589	109.8	20.8	33 E	—	1 14	19 42.58	-38 0.7	1.754	0.859	19.2	19.5	17 E	—	3*
9 24	13 21.11	-33 24.8	0.617	0.637	106.2	20.7	38 E	—	1 16	19 53.89	-37 30.7	1.776	0.879	18.6	19.5	17 E	—	3*
9 26	13 41.64	-37 29.9	0.603	0.684	102.2	20.6	42 E	—	3362 Khufu									
9 28	14 4.86	-41 21.1	0.594	0.728	98.0	20.5	46 E	—	7 30	6 5.95	+16 59.1	1.919	1.251	28.6	21.5	36 W	18*	25*
9 29	14 17.51	-43 9.0	0.592	0.750	95.8	20.5	48 E	—	8 9	6 40.52	+16 40.9	1.830	1.194	31.0	21.3	37 W	21*	25*
9 30	14 30.86	-44 50.5	0.592	0.771	93.6	20.4	50 E	—	8 19	7 17.50	+15 55.6	1.742	1.130	33.4	21.2	38 W	23*	25*
10 1	14 44.88	-46 24.6	0.592	0.792	91.4	20.4	52 E	—	8 29	7 57.24	+14 38.9	1.657	1.059	35.8	21.0	38 W	24*	24*
10 2	14 59.52	-47 50.7	0.594	0.813	89.3	20.4	54 E	—	9 8	8 40.12	+12 45.9	1.579	0.981	38.0	20.8	37 W	25*	22*
10 3	15 14.71	-49 7.9	0.598	0.833	87.1	20.3	56 E	—	9 18	9 26.56	+10 12.4	1.513	0.896	39.8	20.5	35 W	24*	20*
10 4	15 30.36	-50 15.7	0.603	0.853	85.0	20.3	58 E	—	9 28	10 16.87	+6 56.0	1.464	0.806	40.7	20.3	32 W	22*	17*
10 5	15 46.37	-51 13.8	0.608	0.872	82.9	20.3	60 E	—	10 3	10 43.57	+5 1.9	1.447	0.760	40.6	20.1	30 W	20*	15*
10 6	16 2.58	-52 2.1	0.615	0.892	80.9	20.3	62 E	—	10 8	11 11.35	+2 58.0	1.436	0.715	39.9	19.9	27 W	18*	13*
10 7	16 18.87	-52 40.6	0.624	0.911	78.9	20.3	63 E	—	10 13	11 40.22	+0 45.4	1.431	0.670	38.5	19.7	25 W	16*	11*
10 8	16 35.08	-53 9.6	0.633	0.929	77.0	20.3	65 E	—	10 18	12 10.21	-1 34.2	1.433	0.628	36.1	19.5	22 W	14*	9*
10 9	16 51.08	-53 29.5	0.643	0.948	75.1	20.3	66 E	—	10 23	12 41.30	-3 58.9	1.440	0.591	32.7	19.3	19 W	11*	6*
10 10	17 6.72	-53 41.0	0.654	0.966	73.3	20.4	68 E	—	10 28	13 13.45	-6 25.8	1.452	0.560	28.1	19.1	15 W	8*	3*
10 11	17 21.91	-53 44.7	0.665	0.983	71.6	20.4	69 E	—	11 2	13 46.58	-8 51.7	1.467	0.538	22.5	18.9	12 W	5*	1*
10 12	17 36.55	-53 41.5	0.678	1.001	69.9	20.4	70 E	—	11 7	14 20.47	-11 12.7	1.486	0.527	16.3	18.6	9 W	2*	—
10 13	17 50.57	-53 32.1	0.691	1.018	68.4	20.4	72 E	—	11 12	14 54.83	-13 24.6	1.505	0.528	10.4	18.5	6 W	—	—
10 14	18 3.93	-53 17.3	0.705	1.035	66.8	20.5	73 E	—	11 17	15 29.29	-15 22.8	1.525	0.542	6.6	18.4	4 W	—	—
10 15	18 16.61	-52 57.9	0.720	1.052	65.4	20.5	74 E	—	11 22	16 3.45	-17 3.8	1.546	0.566	7.5	18.6	4 E	—	—
10 16	18 28.59	-52 34.6	0.735	1.069	64.0	20.5	75 E	—	11 27	16 36.95	-18 25.2	1.568	0.598	10.7	18.8	6 E	—	—
10 17	18 39.90	-52 8.2	0.751	1.085	62.7	20.6	75 E	—	12 2	17 9.51	-19 26.0	1.593	0.637	13.7	19.1	9 E	2*	—
10 18	18 50.54	-51 39.1	0.767	1.102	61.4	20.6	76 E	—	12 7	17 40.91	-20 6.2	1.620	0.679	16.0	19.4	11 E	3*	2*
10 19	19 0.54	-51 7.9	0.784	1.118	60.2	20.7	77 E	—	12 12	18 10.98	-20 27.2	1.651	0.724	17.5	19.6	13 E	4*	4*
10 20	19 9.94	-50 35.1	0.801	1.133	59.0	20.7	77 E	—	12 17	18 39.64	-20 30.5	1.684	0.770	18.4	19.8	14 E	5*	5*
10 21	19 18.78	-50 1.1	0.819	1.149	57.9	20.8	78 E	—	12 22	19 6.83	-20 18.3	1.720	0.816	18.8	20.0	16 E	6*	6*
10 22	19 27.08	-49 26.2	0.836	1.165	56.8	20.8	78 E	—	12 27	19 32.56	-19 52.7	1.758	0.861	18.8	20.2	16 E	7*	7*
10 23	19 34.88	-48 50.8	0.855	1.180	55.8	20.8	79 E	—	1 1	19 56.87	-19 16.1	1.798	0.905	18.5	20.3	17 E	8*	7*
10 24	19 42.23	-48 14.9	0.873	1.195	54.9	20.9	79 E	—	1 6	20 19.81	-18 30.2	1.840	0.948	18.0	20.4	17 E	8*	7*
10 25	19 49.16	-47 38.9	0.892	1.210	53.9	20.9	80 E	—	1 11	20 41.50	-17 37.0	1.882	0.989	17.4	20.6	17 E	8*	7*
10 26	19 55.69	-47 2.9	0.911	1.224	53.0	21.0	80 E	—	1 16	21 2.01	-16 37.9	1.925	1.029	16.6	20.7	17 E	8*	7*
10 27	20 1.86	-46 27.1	0.931	1.239	52.2	21.0	80 E	—	509520 2007 WB									
10 28	20 7.69	-45 51.5	0.950	1.253	51.4	21.1	80 E	—	7 30	6 23.69	+11 5.5	0.650	0.590	109.8	21.0	33 W	11*	26*
10 30	20 18.47	-44 41.3	0.990	1.282	49.8	21.2	81 E	—	8 1	6 19.97	+10 56.2	0.673	0.613	104.1	20.8	36 W	13*	28*
11 1	20 28.20	-43 33.0	1.031	1.309	48.4	21.3	81 E	1	8 3	6 17.28	+10 50.5	0.697	0.637	99.0	20.7	38 W	15*	30*
11 3	20 37.05	-42 26.8	1.072	1.336	47.1	21.4	81 E	3	8 5	6 15.45	+10 47.8	0.720	0.661	94.4	20.7	41 W	17*	31*
11 5	20 45.15	-41 22.9	1.114	1.363	45.8	21.5	80 E	4	8 7	6 14.32	+10 47.4	0.742	0.687	90.3	20.6	43 W	20*	33*
									8 9	6 13.78	+10 48.7	0.764	0.713	86.6	20.6	45 W	21*	34*
285638 2000 SO₁₀									8 14	6 14.29	+10 56.7	0.813	0.779	79.0	20.7	49 W	26*	37*
7 30	5 34.42	+47 25.0	2.081	1.576	28.1	21.4	47 W	41*	8 19	6 16.51	+11 8.3	0.856	0.846	73.0	20.8	53 W	30*	39*
8 4	5 54.85	+48 8.1	2.023	1.544	29.3	21.4	48 W	42*	8 24	6 19.61	+11 21.0	0.891	0.913	68.2	20.8	57 W	34*	41*
8 9	6 16.40	+48 41.7	1.967	1.511	30.5	21.3	49 W	43*	8 29	6 23.06	+11 33.5	0.919	0.979	64.2	20.9	61 W	38*	42*
8 14	6 39.03	+49 4.0	1.910	1.477	31.6	21.2	50 W	44*	9 3	6 26.48	+11 45.5	0.941	1.044	60.8	21.0	65 W	42*	44*
8 19	7 2.67	+49 13.0	1.855	1.442	32.8	21.1	51 W	44*	9 8	6 29.64	+11 56.8	0.956	1.107	57.9	21.1	69 W	45*	45*
8 24																		

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

20/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	20/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°
509520 2007 WB (continuation)										308041 2004 TN (continuation)									
12 12	4 27.05	+17 19.6	1.063	2.035	6.3	21.1	167 E	62	47	10 23	13 57.88	-14 16.1	1.855	0.864	3.9	20.3	3 E	—	—
12 17	4 17.44	+17 33.3	1.119	2.071	9.3	21.3	160 E	63	46	10 28	14 19.69	-16 57.9	1.875	0.888	5.1	20.4	5 E	—	—
12 22	4 9.23	+17 46.7	1.181	2.106	12.2	21.6	153 E	63	46	11 2	14 41.61	-19 27.1	1.896	0.914	6.0	20.6	6 E	—	—
12 27	4 2.43	+18 0.1	1.250	2.141	14.6	21.9	147 E	63	46	11 7	15 3.62	-21 42.7	1.921	0.943	6.8	20.7	6 E	—	—
1 1	3 57.02	+18 14.0	1.324	2.174	16.8	22.1	140 E	63	46	11 12	15 25.70	-23 43.8	1.947	0.973	7.3	20.8	7 E	—	—
313809 2004 BH₄₁										86667 2000 FO₁₀									
7 30	6 29.21	+5 28.2	0.625	0.607	111.0	21.4	34 W	6*	28*	7 30	7 42.36	+28 13.6	0.692	0.399	135.5	21.1	16 W	10*	1*
8 1	6 31.56	+4 15.8	0.657	0.613	106.0	21.3	36 W	6*	29*	8 1	7 40.76	+26 45.2	0.739	0.380	127.3	20.3	17 W	10*	3*
8 3	6 34.39	+3 15.3	0.689	0.621	101.3	21.2	37 W	7*	31*	8 3	7 41.16	+25 15.7	0.790	0.364	118.2	19.6	18 W	11*	5*
8 5	6 37.63	+2 24.8	0.722	0.630	97.0	21.1	38 W	8*	32*	8 5	7 43.56	+23 46.4	0.845	0.354	108.4	19.1	19 W	11*	7*
8 7	6 41.21	+1 43.0	0.754	0.641	92.9	21.0	39 W	8*	33*	8 7	7 47.86	+22 18.5	0.903	0.349	98.3	18.6	20 W	11*	8*
8 9	6 45.07	+1 8.4	0.786	0.652	89.1	21.0	40 W	9*	34*	8 9	7 53.83	+20 53.0	0.962	0.349	88.3	18.3	20 W	11*	9*
8 11	6 49.15	+0 39.9	0.817	0.665	85.7	21.0	41 W	10*	34*	8 11	8 1.18	+19 30.5	1.021	0.356	78.7	18.2	20 W	11*	9*
8 13	6 53.42	+0 16.5	0.847	0.678	82.4	21.0	42 W	11*	35*	8 13	8 9.55	+18 11.4	1.079	0.367	69.9	18.0	20 W	10*	10*
8 15	6 57.83	+0 2.7	0.877	0.693	79.4	21.0	42 W	12*	36*	8 15	8 18.61	+16 55.8	1.134	0.383	62.0	18.0	20 W	9*	10*
8 17	7 2.34	+0 18.4	0.905	0.708	76.7	21.0	43 W	12*	36*	8 17	8 28.09	+15 43.7	1.187	0.403	55.1	18.0	19 W	9*	10*
8 19	7 6.94	+0 31.2	0.933	0.724	74.1	21.0	43 W	13*	37*	8 19	8 37.74	+14 34.9	1.237	0.425	49.2	18.0	19 W	8*	10*
8 24	7 18.59	+0 53.9	0.997	0.765	68.6	21.1	45 W	15*	38*	8 24	9 1.72	+11 55.8	1.351	0.489	37.9	18.2	17 W	7*	9*
8 29	7 30.30	+1 7.4	1.054	0.809	64.1	21.2	46 W	18*	38*	8 29	9 24.58	+9 32.3	1.449	0.557	30.5	18.4	16 W	5*	8*
9 3	7 41.87	+1 15.6	1.104	0.854	60.4	21.3	47 W	20*	39*	9 3	9 45.99	+7 21.3	1.535	0.625	25.6	18.7	16 W	5*	8*
9 8	7 53.20	+1 20.8	1.146	0.899	57.5	21.4	49 W	22*	40*	9 8	10 5.97	+5 20.5	1.612	0.691	22.3	18.9	15 W	4*	8*
3361 Orpheus										153344 2001 OR₁₀₆									
7 30	6 31.70	+21 58.7	1.694	0.956	31.8	21.4	30 W	17*	17*	7 30	9 1.94	+15 30.0	3.819	2.812	2.4	21.4	7 E	—	1*
8 4	6 55.99	+21 29.8	1.682	0.932	31.7	21.4	29 W	17*	16*	8 9	9 16.98	+14 12.1	3.812	2.799	0.6	21.3	2 E	—	—
8 9	7 20.54	+20 47.0	1.673	0.910	31.4	21.3	28 W	17*	15*	8 19	9 31.97	+12 49.4	3.791	2.785	1.9	21.3	5 W	—	—
8 14	7 45.23	+19 50.4	1.667	0.889	30.9	21.2	27 W	16*	14*	8 29	9 46.86	+11 22.1	3.754	2.769	4.0	21.4	11 W	3*	3*
8 19	8 9.94	+18 40.3	1.665	0.871	30.2	21.1	26 W	16*	13*	9 8	10 1.61	+9 50.9	3.703	2.753	6.0	21.5	17 W	8*	7*
8 24	8 34.56	+17 17.4	1.665	0.854	29.3	21.1	24 W	15*	12*	232772 2004 PG₆₁									
8 29	8 59.00	+15 42.8	1.669	0.841	28.2	21.0	23 W	14*	11*	7 30	9 35.11	+20 25.9	3.988	3.011	4.6	21.5	14 E	4*	5*
9 3	9 23.18	+13 57.9	1.676	0.831	27.0	21.0	22 W	13*	10*	8 9	9 49.18	+19 3.1	4.009	3.010	2.9	21.4	8 E	2*	—
9 8	9 47.03	+12 4.0	1.685	0.823	25.6	20.9	21 W	12*	9*	8 19	10 3.15	+17 38.2	4.015	3.009	1.8	21.3	5 E	—	—
9 13	10 10.53	+10 2.9	1.697	0.820	24.1	20.9	19 W	11*	8*	8 29	10 16.99	+16 11.5	4.004	3.006	2.5	21.4	8 W	1*	—
9 18	10 33.64	+7 56.3	1.712	0.820	22.5	20.8	18 W	10*	7*	9 8	10 30.65	+14 43.6	3.978	3.003	4.2	21.5	13 W	7*	—
9 23	10 56.35	+5 46.2	1.728	0.823	20.9	20.8	17 W	9*	6*	276409 2002 YN₂									
9 28	11 18.65	+3 34.2	1.746	0.830	19.4	20.8	16 W	9*	5*	7 30	9 57.05	-24 5.7	1.635	1.196	38.2	21.5	47 E	—	29*
10 3	11 40.56	+1 22.0	1.766	0.840	17.9	20.8	15 W	8*	4*	8 4	10 12.39	-24 41.9	1.597	1.149	39.3	21.4	46 E	—	28*
10 8	12 2.08	+0 48.8	1.787	0.853	16.6	20.8	14 W	7*	4*	8 9	10 28.79	-25 16.7	1.555	1.099	40.5	21.3	45 E	—	27*
10 13	12 23.25	+2 56.8	1.809	0.869	15.3	20.9	13 W	6*	3*	8 14	10 46.35	-25 48.1	1.511	1.048	41.9	21.1	44 E	—	26*
10 18	12 44.08	+5 0.9	1.832	0.887	14.3	20.9	13 W	6*	3*	8 19	11 5.19	-26 13.8	1.465	0.996	43.6	21.0	43 E	—	26*
10 23	13 4.58	+6 59.9	1.856	0.908	13.4	20.9	12 W	5*	2*	8 24	11 25.39	-26 30.5	1.417	0.942	45.5	20.9	42 E	—	26*
10 28	13 24.79	+8 52.9	1.880	0.930	12.7	21.0	12 W	5*	2*	8 29	11 47.01	-26 34.1	1.366	0.887	47.6	20.7	40 E	—	26*
11 2	13 44.71	+10 39.3	1.904	0.954	12.1	21.1	12 W	4*	2*	9 3	12 10.05	-26 19.1	1.314	0.831	50.1	20.6	39 E	—	26*
11 7	14 4.36	+12 18.6	1.929	0.978	11.7	21.1	12 W	4*	2*	9 8	12 34.41	-25 39.4	1.262	0.775	53.0	20.4	38 E	—	26*
11 12	14 23.77	+13 50.2	1.953	1.004	11.4	21.2	12 W	4*	2*	9 13	12 59.82	-24 27.4	1.208	0.720	56.3	20.2	37 E	—	27*
11 17	14 42.93	+15 14.1	1.978	1.030	11.3	21.3	12 W	4*	2*	9 18	13 25.84	-22 35.3	1.154	0.667	60.1	20.1	35 E	—	27*
11 22	15 1.84	+16 29.8	2.001	1.056	11.3	21.4	12 W	4*	2*	9 20	13 36.27	-21 37.3	1.133	0.646	61.8	20.0	35 E	—	27*
11 27	15 20.51	+17 37.4	2.024	1.083	11.5	21.4	13 W	5*	3*	9 22	13 46.63	-20 31.2	1.111	0.626	63.6	20.0	34 E	—	27*
484976 2009 UN₃										308041 2004 TN									
7 30	6 39.74	+1 47.2	1.855	1.152	29.0	21.4	33 W	1*	27*	7 30	7 40.12	+28 54.5	2.004	1.072	15.8	21.4	17 W	10*	1*
8 9	7 20.83	+2 48.2	1.825	1.093	28.8	21.3	31 W	4*	25*	8 4	8 2.63	+27 55.7	1.971	1.039	16.1	21.3	16 W	10*	—
8 19	8 2.70	+3 42.6	1.808	1.044	27.9	21.1	29 W	7*	22*	8 9	8 25.40	+26 40.9	1.940	1.005	16.1	21.2	16 W	10*	—
8 29	8 44.96	+4 29.1	1.804	1.009	26.7	21.0	27 W	9*	19*	8 14	8 48.32	+25 9.9	1.912	0.973	16.0	21.1	15 W	9*	—
9 8	9 27.27	+5 6.6	1.809	0.989	25.2	20.9	25 W	11*	16*	8 19	9 11.28	+23 22.5	1.887	0.943	15.7	21.0	15 W	9*	—
9 18	10 9.31	+5 33.4	1.822	0.986	24.0	20.9	24 W	13*	13*	8 24	9 34.20	+21 19.1	1.865	0.914	15.2	20.9	14 W	8*	—
9 28	10 50.77	+5 48.7	1.840	1.001	23.3	20.9	23 W	15*	10*	8 29	9 56.99	+19 0.5	1.845	0.888	14.4	20.8	13 W	7*	—
10 8	11 31.34	+5 52.9	1.863	1.032	23.1	21.0	24 W	17*	7*	9 3	10 19.61	+16 27.8	1.830	0.864	13.3	20.7	11 W	5*	—
10 18	12 10.75	+5 47.5	1.889	1.077	23.4	21.1	25 W	19*	5*	9 8	10 42.03	+13 42.4	1.818	0.844	12.0	20.6	10 W	4*	—
10 28	12 48.75	+5 35.5	1.918	1.133	23.9	21.3	27 W	21*	4*	9 13	11 4.25	+10 46.2	1.809	0.828	10.5	20.4	9 W	3*	—
11 7	13 25.14	+5 20.6	1.949	1.198	24.4	21.5	30 W	24*	3*	9 18	11 26.26	+7 41.4	1.804	0.816	8.7	20.3	7 W	1*	—
308041 2004 TN										276409 2002 YN₂									
7 30	7 40.12	+28 54.5	2.004	1.072	15.8	21.4	17 W	10*	1*	7 30	9 57.05	-24 5.7	1.635	1.196	38.2	21.5	47 E	—	29*
8 4	8 2.63	+27 55.7	1.971	1.039	16.1	21.3	16 W	10*	—	8 4	10 12.39	-24 41.9	1.597	1.149	39.3	21.4	46 E	—	28*
8 9	8 25.40	+26 40.9	1.940	1.005	16.1	21.2	16 W	10*	—	8 9	10 28.79	-25 16.7	1.555	1.099	40.5	21.3	45 E	—	27*
8 14	8 48.32	+25 9.9	1.912	0.973	16.0	21.1	15 W	9*	—	8 14	10 46.35	-25 48.1	1.511	1.048	41.9	21.1	44 E	—	26*
8 19	9 11.28	+23 22.5	1.887	0.943	15.7	21.0	15 W	9*	—	8 19	11 5.19	-26 13.8	1.465	0.996	43.6	21.0	43 E	—	26*
8 24	9 34.20	+21 19.1	1.865	0.914	15.2	20.9	14 W	8*	—	8 24	11 25.39	-26 30.5	1.417	0.942</					

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

20/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	20/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°
276409 2002 YN₂										512244 2015 YE₁₈									
<i>(continuation)</i>										<i>(continuation)</i>									
10 20	15 26.59	+7 54.9	0.847	0.532	89.4	19.9	32 E	26*	10*	12 7	18 0.60	-14 45.3	1.341	0.497	36.3	18.4	17 E	10*	4*
10 22	15 28.73	+10 16.8	0.832	0.543	90.2	20.0	33 E	27*	7*	12 17	19 3.95	-10 15.8	1.157	0.478	57.2	18.6	24 E	17*	6*
10 24	15 30.23	+12 34.9	0.817	0.556	90.8	20.0	34 E	28*	4*	12 27	20 11.36	-6 12.8	0.974	0.524	75.5	19.0	31 E	24*	9*
10 26	15 31.14	+14 48.3	0.803	0.571	91.1	20.0	35 E	29*	1*	1 6	21 25.21	-3 22.4	0.829	0.614	84.5	19.3	38 E	29*	15*
10 28	15 31.53	+16 56.7	0.790	0.587	91.2	20.1	36 E	30*	—	1 16	22 45.85	-1 44.1	0.748	0.720	84.1	19.4	47 E	35*	24*
11 2	15 30.57	+21 54.3	0.755	0.632	90.8	20.1	40 E	30*	—	475354 2006 CE									
11 7	15 27.46	+26 20.4	0.721	0.683	89.7	20.1	44 E	30*	—	7 30	10 8.33	-8 8.1	1.814	1.139	30.6	21.5	35 E	—	26*
11 12	15 22.78	+30 21.3	0.685	0.738	88.1	20.1	48 E	29*	—	8 9	10 34.25	-14 0.8	1.798	1.138	31.2	21.5	36 E	—	24*
11 17	15 16.87	+34 6.7	0.647	0.793	86.1	20.1	53 W	33*	—	8 19	11 2.43	-19 56.4	1.782	1.146	32.0	21.5	37 E	—	23*
11 19	15 14.17	+35 35.0	0.631	0.816	85.2	20.0	55 W	36*	—	8 29	11 33.71	-25 48.9	1.768	1.161	32.7	21.5	38 E	—	22*
11 21	15 11.27	+37 3.3	0.615	0.838	84.2	20.0	58 W	39*	—	9 8	12 8.99	-31 27.6	1.762	1.184	33.2	21.6	40 E	—	23*
11 23	15 8.14	+38 32.5	0.598	0.860	83.1	20.0	60 W	42*	—	426071 2012 CD₂₉									
11 25	15 4.74	+40 3.4	0.581	0.883	82.0	19.9	62 W	45*	—	7 30	10 30.89	+17 20.9	1.353	0.642	45.8	21.3	27 E	11*	18*
11 27	15 1.03	+41 36.8	0.564	0.905	80.8	19.9	65 W	48*	—	8 4	10 46.97	+16 13.7	1.259	0.569	52.2	21.1	26 E	11*	17*
11 29	14 56.94	+43 13.6	0.547	0.927	79.5	19.8	67 W	51*	—	8 9	11 2.54	+14 54.7	1.150	0.498	61.7	20.9	26 E	11*	17*
12 1	14 52.40	+44 54.7	0.529	0.949	78.1	19.7	70 W	54*	—	8 14	11 16.02	+13 21.6	1.027	0.433	76.0	20.8	25 E	10*	16*
12 3	14 47.28	+46 41.0	0.512	0.970	76.5	19.7	73 W	57*	—	8 19	11 23.98	+11 32.0	0.892	0.383	97.0	21.0	22 E	8*	14*
12 5	14 41.43	+48 33.6	0.494	0.992	74.8	19.6	76 W	60*	—	101961 1999 RL₃₉									
12 7	14 34.64	+50 33.2	0.477	1.013	73.0	19.5	79 W	63*	—	7 30	10 47.61	+13 55.7	3.513	2.700	11.3	21.5	31 E	12*	23*
12 8	14 30.81	+51 35.9	0.468	1.023	72.0	19.4	81 W	64*	—	8 9	11 2.15	+12 22.5	3.570	2.695	9.5	21.4	26 E	9*	18*
12 9	14 26.64	+52 40.6	0.460	1.034	71.0	19.4	83 W	66*	—	8 19	11 16.87	+10 46.8	3.614	2.689	7.6	21.4	20 E	7*	13*
12 10	14 22.06	+53 47.5	0.451	1.044	69.9	19.3	85 W	67*	—	8 29	11 31.74	+9 9.2	3.644	2.682	5.6	21.3	15 E	4*	8*
12 11	14 17.02	+54 56.4	0.443	1.055	68.7	19.3	86 W	68*	—	9 8	11 46.74	+7 30.3	3.660	2.674	3.8	21.2	10 E	2*	2*
12 12	14 11.44	+56 7.5	0.435	1.065	67.5	19.2	88 W	69*	—	9 18	12 1.86	+5 50.7	3.661	2.665	2.3	21.1	6 E	—	—
12 13	14 5.23	+57 20.6	0.426	1.075	66.3	19.1	90 W	70*	—	9 28	12 17.08	+4 11.1	3.649	2.655	2.3	21.1	6 W	—	—
12 14	13 58.29	+58 35.6	0.419	1.085	65.0	19.1	92 W	71*	—	10 8	12 32.38	+2 32.2	3.622	2.644	3.8	21.2	10 W	4*	—
12 15	13 50.47	+59 52.2	0.411	1.095	63.6	19.0	94 W	71*	—	10 18	12 47.77	+0 54.6	3.580	2.632	5.7	21.2	15 W	9*	—
12 16	13 41.64	+61 10.2	0.404	1.105	62.2	19.0	97 W	71*	—	10 28	13 3.22	-0 40.9	3.525	2.619	7.7	21.3	21 W	14*	3*
12 17	13 31.61	+62 29.0	0.397	1.115	60.7	18.9	99 W	71*	—	11 7	13 18.70	-2 13.6	3.456	2.605	9.7	21.3	26 W	19*	8*
12 18	13 20.16	+63 47.9	0.390	1.125	59.1	18.8	101 W	71*	—	11 17	13 34.20	-3 42.8	3.375	2.591	11.7	21.3	32 W	24*	12*
12 19	13 7.04	+65 6.0	0.384	1.135	57.5	18.8	103 W	70*	—	11 27	13 49.67	-5 7.5	3.280	2.575	13.6	21.3	38 W	28*	18*
12 20	12 51.97	+66 22.1	0.378	1.145	55.8	18.7	106 W	69	—	12 7	14 5.05	-6 27.2	3.174	2.559	15.5	21.3	44 W	31*	24*
12 21	12 34.65	+67 34.5	0.372	1.155	54.1	18.6	108 W	67	—	12 17	14 20.29	-7 41.1	3.058	2.541	17.3	21.3	50 W	33*	30*
12 22	12 14.82	+68 41.3	0.367	1.164	52.3	18.6	111 W	66	—	12 27	14 35.28	-8 48.4	2.931	2.523	18.9	21.2	56 W	34*	37*
12 23	11 52.25	+69 39.9	0.362	1.174	50.4	18.5	113 W	65	—	1 6	14 49.93	-9 48.6	2.797	2.504	20.4	21.1	63 W	34*	45*
12 24	11 26.92	+70 27.7	0.358	1.183	48.5	18.5	116 W	65	—	1 16	15 4.09	-10 41.3	2.655	2.484	21.7	21.1	69 W	34*	52*
12 25	10 59.02	+71 1.6	0.355	1.193	46.6	18.4	118 W	64	—	247740 2003 LY₃									
12 26	10 29.15	+71 18.9	0.352	1.202	44.7	18.3	121 W	64	—	7 30	10 56.07	-10 13.2	3.233	2.610	15.9	21.5	45 E	—	38*
12 27	9 58.20	+71 17.4	0.350	1.212	42.7	18.3	123 W	64	—	8 9	11 11.43	-11 10.7	3.287	2.583	14.4	21.5	39 E	—	32*
12 28	9 27.33	+70 56.1	0.349	1.221	40.7	18.2	126 W	64	—	8 19	11 27.33	-12 15.7	3.329	2.556	12.8	21.4	34 E	—	26*
12 29	8 57.65	+70 15.3	0.348	1.230	38.8	18.2	128 W	65	—	8 29	11 43.76	-13 26.9	3.361	2.527	11.2	21.3	29 E	—	20*
12 30	8 30.06	+69 16.5	0.348	1.239	36.9	18.2	131 W	66	—	9 8	12 0.69	-14 43.3	3.381	2.498	9.6	21.3	24 E	—	15*
12 31	8 5.09	+68 1.8	0.349	1.248	35.0	18.1	133 W	67	—	9 18	12 18.13	-16 3.8	3.389	2.469	8.0	21.2	20 E	—	10*
1 1	7 42.94	+66 34.1	0.350	1.257	33.2	18.1	136 W	68	—	9 28	12 36.08	-17 27.2	3.386	2.438	6.5	21.1	16 E	—	5*
1 2	7 23.55	+64 56.1	0.352	1.266	31.5	18.1	138 W	70	—	10 8	12 54.56	-18 52.1	3.370	2.407	5.4	21.0	13 W	—	—
1 3	7 6.68	+63 10.3	0.355	1.275	30.0	18.1	140 W	72	1	10 18	13 13.60	-20 17.5	3.344	2.376	4.8	20.9	12 W	—	3*
1 4	6 52.07	+61 19.1	0.359	1.284	28.5	18.1	141 E	74	3	10 28	13 33.21	-21 41.8	3.305	2.344	5.2	20.9	12 W	—	6*
1 5	6 39.42	+59 24.5	0.364	1.292	27.3	18.1	143 E	76	5	11 7	13 53.41	-23 3.5	3.256	2.311	6.3	20.9	15 W	—	9*
1 6	6 28.45	+57 28.1	0.369	1.301	26.1	18.1	144 E	78	7	11 17	14 14.22	-24 21.2	3.195	2.278	7.9	20.9	18 W	2*	12*
1 7	6 18.92	+55 31.2	0.375	1.310	25.2	18.1	145 E	79	8	12 7	14 57.66	-26 37.7	3.044	2.211	11.6	20.9	27 W	7*	20*
1 8	6 10.61	+53 35.1	0.382	1.318	24.5	18.1	146 E	81	10	12 17	15 20.27	-27 33.2	2.955	2.177	13.7	20.8	32 W	9*	24*
1 9	6 3.35	+51 40.5	0.389	1.327	23.9	18.2	147 E	83	12	12 27	15 43.41	-28 17.6	2.857	2.144	15.7	20.8	36 W	10*	29*
1 10	5 56.98	+49 48.3	0.398	1.335	23.5	18.2	147 E	85	14	1 6	16 7.00	-28 49.4	2.751	2.110	17.8	20.7	41 W	11*	34*
1 11	5 51.38	+47 59.0	0.406	1.343	23.3	18.3	147 E	87	16	1 16	16 30.96	-29 6.7	2.639	2.076	19.8	20.7	46 W	12*	39*
1 12	5 46.43	+46 13.0	0.416	1.352	23.2	18.3	147 E	89	18	252091 2000 UP₃₀									
1 13	5 42.07	+44 30.5	0.426	1.360	23.3	18.4	147 E	90	19	7 30	11 0.72	+4 54.6	2.553	1.853	19.5	21.5	37 E	8*	31*
1 14	5 38.20	+42 51.8	0.436	1.368	23.5	18.5	146 E	98	21	8 9	11 17.43	+3 34.6	2.519	1.748	18.0	21.3	32 E	6*	26*
1 15	5 34.77	+41 17.1	0.447	1.376	23.8	18.6	146 E	86	23	8 19	11 35.71	+2 3.4	2.469	1.638	16.5	21.0	27 E	4*	21*
1 16	5 31.72	+39 46.3	0.458	1.384	24.1	18.6	145 E	85	24	8 29	11 55.75	+0 20.8	2.401	1.523	15.0	20.8	23 E	2*	17*
										9 8	12 17.82	-1 33.4	2.316	1.404	13.6	20.4	19 E	1*	13*
										9 18	12 42.37	-3 39.6	2.216	1.280	12.4	20.1	16 E	1*	10*
										9 28	13 9.98	-5 58.1	2.102	1.151	11.7	19.7	13 E	—	7*
										10 8	13 41.49	-8 28.3	1.975	1.018	11.6	19.3	12 E	—	6*
										10 18	14 18.07	-11 8.3	1.837	0.884	13.0	18.9	11 E	1*	5*
										10 23	14 38.73	-12 30.7	1.765	0.817	14.4	18.7	12 E	1*	5*
										10 28	15 1.24	-13 53.3	1.691	0.752	16.6	18.5	13 E	2*	5*

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

20/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°-26°	2020	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°-26°
252091 2000 UP₃₀ (continuation)									162687 2000 UH₁								
12 17	20 39.55	-18 40.8	0.972	0.704	69.8	18.7	42 E	21* 30*	7 30	21 30.81	-34 46.8	1.807	2.782	7.2	23.0	160 W	10 81
12 22	21 19.52	-17 8.4	0.950	0.767	69.0	18.8	47 E	24* 34*	8 4	21 23.99	-35 31.5	1.793	2.771	6.9	23.0	161 W	9 80
12 27	21 58.39	-15 10.7	0.945	0.832	66.9	18.9	51 E	27* 37*	8 9	21 16.85	-36 11.2	1.787	2.760	7.3	23.0	160 W	9 80
1	22 35.33	-12 54.3	0.956	0.899	63.9	19.0	55 E	30* 40*	8 14	21 9.56	-36 44.8	1.787	2.748	8.3	23.0	157 E	8 79
1	6 23 9.74	-10 27.7	0.982	0.966	60.6	19.2	59 E	33* 42*	8 19	21 2.33	-37 11.7	1.795	2.736	9.7	23.1	153 E	8 79
1	11 23 41.31	-7 58.9	1.023	1.034	57.1	19.3	62 E	36* 43*	8 24	20 55.36	-37 31.4	1.809	2.723	11.2	23.2	148 E	7 78
1	16 0 10.00	-5 33.9	1.075	1.100	53.8	19.4	64 E	38* 44*	8 29	20 48.82	-37 44.1	1.830	2.710	12.8	23.2	144 E	7 78
515010 2009 SK₂									332775 2009 VO₂₄								
7 30	11 23.25	+9 15.1	1.344	1.030	48.5	21.4	49 E	2* 43*	7 30	21 32.60	-9 5.8	1.229	2.222	7.4	22.4	164 W	36 73
8 9	11 41.15	-15 53.7	1.309	0.980	50.1	21.3	48 E	— 40*	8 4	21 25.34	-9 50.7	1.223	2.229	4.6	22.3	170 W	35 74
8 19	12 1.21	-22 47.4	1.263	0.941	52.2	21.2	47 E	— 37*	8 9	21 17.87	-10 37.5	1.224	2.235	3.4	22.1	175 W	34 75
8 29	12 24.67	-29 55.5	1.204	0.917	54.9	21.1	48 E	— 34*	8 14	21 10.41	-11 25.0	1.232	2.241	2.0	22.2	173 E	34 75
9 8	12 53.69	-37 13.9	1.137	0.908	57.7	21.1	50 E	— 33*	8 19	21 3.17	-12 12.0	1.247	2.246	5.5	22.4	168 E	33 76
9 18	13 32.25	-44 31.2	1.065	0.916	60.4	21.0	52 E	— 33*	8 24	20 56.35	-12 57.1	1.269	2.250	8.3	22.6	161 E	32 77
9 28	14 26.95	-51 16.2	0.996	0.941	62.2	21.0	56 E	— 35*	8 29	20 50.16	-13 39.5	1.298	2.254	10.9	22.7	155 E	31 78
10 8	15 45.85	-56 11.9	0.939	0.979	62.8	20.9	61 E	— 40*									
10 18	17 27.03	-57 9.7	0.903	1.028	61.7	20.9	65 E	— 47*									
10 28	19 5.49	-52 54.4	0.898	1.086	59.2	21.0	70 E	— 55*									
11 7	20 20.11	-44 53.5	0.929	1.150	55.7	21.1	74 E	— 64*									
11 17	21 12.50	-35 33.6	0.996	1.218	51.9	21.2	76 E	9 69*									
11 27	21 50.73	-26 31.7	1.094	1.287	48.1	21.5	76 E	18 69*									
413260 2003 TL₄									498541 2008 GA₂₆								
7 30	11 30.27	+20 39.0	0.491	0.717	113.0	21.5	41 E	24* 26*	7 30	21 39.36	-25 0.2	2.085	3.074	5.1	23.1	164 W	20 89
8 1	11 42.80	+20 53.2	0.474	0.733	112.7	21.4	42 E	25* 27*	8 4	21 34.44	-25 26.8	2.069	3.069	3.9	23.0	168 W	20 89
8 3	11 55.60	+21 5.4	0.457	0.749	112.3	21.4	43 E	27* 27*	8 9	21 29.29	-25 51.5	2.061	3.063	3.4	22.9	170 W	19 90
8 5	12 8.68	+21 15.2	0.442	0.764	111.7	21.3	44 E	28* 28*	8 14	21 24.04	-26 13.6	2.060	3.057	4.0	23.0	168 E	19 90
8 7	12 22.05	+21 22.2	0.429	0.779	110.9	21.2	46 E	30* 29*	8 19	21 18.80	-26 32.6	2.066	3.051	5.3	23.0	164 E	18 89
8 9	12 35.68	+21 25.7	0.416	0.794	109.9	21.2	47 E	32* 29*	8 24	21 13.71	-26 48.0	2.079	3.045	6.8	23.1	159 E	18 89
8 11	12 49.56	+21 25.4	0.405	0.808	108.8	21.1	49 E	33* 30*	8 29	21 8.90	-26 59.5	2.099	3.038	8.4	23.2	154 E	18 89
8 13	13 3.66	+21 20.8	0.395	0.822	107.5	21.0	51 E	35* 31*									
8 15	13 17.96	+21 11.7	0.386	0.836	106.1	20.9	52 E	37* 33*									
8 17	13 32.40	+20 57.6	0.378	0.849	104.6	20.8	54 E	38* 33*									
8 19	13 46.94	+20 38.4	0.371	0.862	103.0	20.7	56 E	40* 34*									
189865 2003 NC									450159 2000 JJ₅								
8 24	14 23.38	+19 28.0	0.358	0.893	98.7	20.5	61 E	43* 37*	7 30	21 40.10	-29 4.5	1.748	2.733	6.5	22.8	162 W	16 87
8 29	14 59.23	+17 47.4	0.351	0.922	94.2	20.3	66 E	46* 40*	8 4	21 32.96	-29 49.6	1.716	2.708	5.6	22.7	165 W	15 86
9 3	15 33.70	+15 41.7	0.350	0.948	89.7	20.2	70 E	48* 43*	8 9	21 25.31	-30 31.7	1.691	2.683	5.5	22.6	165 W	14 85
9 8	16 6.22	+13 18.5	0.353	0.971	85.5	20.1	74 E	50* 47*	8 14	21 17.31	-31 9.6	1.673	2.658	6.5	22.6	163 E	14 85
9 13	16 36.50	+10 45.9	0.361	0.993	81.7	20.0	77 E	50* 50*	8 19	21 9.16	-31 42.2	1.663	2.631	8.1	22.7	158 E	13 84
9 18	17 4.52	+8 11.4	0.373	1.011	78.4	20.0	80 E	49* 53*	8 24	21 1.07	-32 8.7	1.661	2.604	10.0	22.7	153 E	13 84
9 23	17 30.36	+5 41.2	0.388	1.028	75.5	20.0	83 E	48* 55*	8 29	20 53.25	-32 28.5	1.665	2.576	12.1	22.8	148 E	13 84
9 28	17 54.23	+3 19.2	0.405	1.041	73.2	20.1	84 E	47* 58*									
10 3	18 16.35	+1 8.0	0.425	1.053	71.3	20.1	85 E	45* 60*									
10 8	18 36.96	+0 51.5	0.445	1.061	69.8	20.2	85 E	44* 61*									
35432 1998 BG₉									189865 2003 NC								
7 30	21 42.33	-20 58.0	2.603	3.592	4.3	24.5	165 W	24 85	7 30	21 41.58	+7 2.4	1.439	2.373	12.4	22.7	150 W	52 57
8 4	21 37.99	-21 31.5	2.577	3.579	3.0	24.4	169 W	23 86	8 9	21 22.28	+6 20.8	1.437	2.407	9.2	22.6	158 W	51 58
8 9	21 33.42	-22 4.4	2.559	3.567	2.1	24.3	173 W	23 86	8 19	21 3.31	+5 13.9	1.468	2.436	8.9	22.7	158 E	50 59
8 14	21 28.71	-22 36.2	2.548	3.553	2.4	24.3	172 E	22 87	8 29	20 46.43	+3 50.8	1.531	2.462	11.5	22.9	151 E	49 60
8 19	21 23.96	-23 6.3	2.545	3.540	3.6	24.4	167 E	22 87	9 8	20 32.86	+2 21.9	1.621	2.484	14.9	23.2	141 E	47 62
8 24	21 19.27	-23 34.2	2.550	3.526	5.0	24.5	162 E	21 88									
8 29	21 14.73	-23 59.4	2.562	3.512	6.5	24.6	157 E	21 88									
504819 2010 GL₆₇									357005 1999 HA₂								
7 30	21 44.65	+21 49.7	2.727	3.533	11.4	22.8	136 W	67 42	7 30	21 46.30	-11 12.7	3.623	4.599	3.9	24.4	162 W	34 75
8 9	21 36.94	+21 26.8	2.669	3.527	10.1	22.7	142 W	66 43	8 9	21 39.04	-12 0.3	3.574	4.582	1.5	24.2	173 W	33 76
8 19	21 28.80	+20 39.6	2.635	3.520	9.3	22.7	146 E	66 43	8 19	21 31.41	-12 49.9	3.556	4.564	1.2	24.1	175 E	32 77
8 29	21 20.90	+19 29.9	2.626	3.512	9.1	22.6	146 E	64 45	8 29	21 23.91	-13 38.8	3.569	4.545	3.7	24.3	163 E	31 78
9 8	21 13.92	+18 2.2	2.643	3.504	9.9	22.7	143 E	63 46	9 8	21 17.00	-14 24.4	3.613	4.525	6.1	24.4	152 E	31 78
326333 2000 KX₄									474532 2003 VG₁								
7 30	12 31.98	+4 27.3	2.869	2.500	20.3	21.5	59 E	23* 49*	7 30	21 47.90	-16 5.4	2.544	3.527	4.8	24.0	163 W	29 80
8 9	12 43.72	+2 35.9	2.927	2.450	19.2	21.5	53 E	20* 44*	8 9	21 36.94	-16 39.8	2.477	3.487	1.6	23.7	175 W	28 81
8 19	12 56.57	+0 40.5	2.974	2.399	17.9	21.4	47 E	17* 39*	8 19	21 28.76	-17 13.4	2.440	3.446	2.2	23.7	173 E	28 81
8 29	13 10.49	+1 18.4	3.010	2.347	16.5	21.3	41 E	14* 34*	8 29	21 18.90	-17 42.8	2.435	3.404	5.6	23.8	161 E	27 82
9 8	13 25.42	+3 20.0	3.035	2.294	14.9	21.2	36 E	12* 29*	9 8	21 9.90	-18 5.1	2.457	3.361	8.9	24.0	149 E	27 82
9 18	13 41.37	+5 23.7	3.048	2.241	13.2	21.1	31 E	10* 24*									
9 28	13 58.35	+7 28.5	3.050	2.188	11.4	21.0	25 E	7* 19*									
10 8	14 16.39	+9 33.5	3.040	2.134	9.5	20.9	21 E	5* 14*									
10 18	14 35.55	+11 37.6	3.020	2.079	7.5	20.7	16 E	3* 9*									
10 28	14 55.88	+13 39.6	2.990	2.025	5.5	20.6	11 E	1* 4*									
11 7	15 17.47	+15 37.9	2.951	1.970	3.4	20.4	7 E	—									
11 17	15 40.39	+17 30.9	2.903	1.916	1.5	20.1	3 E	—									
11 27	16 4.72	+19 16.5	2.848	1.862	1.3	20.0	2 W	—									
12 7	16 30.52	+20 52.3	2.786	1.809	3.2	20.0	6 W	—									
12 17	16 57.85	+22 16.0	2.720	1.758	5.3	20.0	10 W	1* 2*									
12 27	17 26.71	+23 24.5	2.651	1.708	7.5	20.0	13 W	2* 5*									
1	6 17 57.05	+24 15.0	2.580	1.659	9.6	20.0	16 W	3* 9*									
1	16 18 28.79	+24 44.5	2.509	1.614	11.6	19.9	19 W	3* 13*									
5335 Damocles									163295 2002 HW								
7 30	21 27.67	+8 37.5	18.034	18.921	1.5	26.2	150 W	54 55	7 30	21 53.48	-21 14.7	2.352	3.332	5.4	24.2	162 W	24 85
8 9	21 25.66	+8 32.9	17.974	18.902	1.3	26.1	155 W	54 55	8 4	21 48.59	-21 43.0	2.314	3.310	3.9	24.1	167 W	23 86
8 19	21 23.62	+8 26.0	17.943	18.882	1.2	26.1	158 E	53 56	8 9	21 43.36	-22 10.8	2.283	3.288	2.8	24.0	171 W	23 86

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

2020	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	2020	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°										
365756 ISON										250706 2005 RR₆ (continuation)																			
7 30	21 55.07	+ 9 47.9	7.251	8.111	4.0	23.5	146 W	55	54	8 19	22 0.91	-23 23.0	1.414	2.416	4.5	21.6	169 W	22	87										
8 9	21 51.46	+ 9 35.9	7.178	8.095	3.2	23.4	153 W	55	54	8 24	21 53.78	-23 57.6	1.380	2.374	5.7	21.5	166 E	21	88										
8 19	21 47.65	+ 9 17.6	7.132	8.079	2.7	23.4	158 E	54	55	8 29	21 46.37	-24 28.8	1.352	2.332	7.9	21.6	162 E	21	88										
8 29	21 43.84	+ 8 53.8	7.115	8.062	2.6	23.4	158 E	54	55	9 3	21 38.88	-24 55.3	1.331	2.290	10.3	21.6	156 E	20	89										
9 8	21 40.23	+ 8 25.5	7.126	8.045	3.1	23.4	154 E	53	56	9 8	21 31.51	-25 16.3	1.317	2.246	13.0	21.6	150 E	20	89										
376778 2000 JY₈										450648 2006 UC₆₃																			
7 30	22 3.08	-24 0.2	3.425	4.390	4.7	23.5	159 W	21	88	7 30	22 26.31	+25 44.5	0.874	1.703	27.8	21.7	128 W	71	38										
8 9	21 55.52	-24 58.3	3.408	4.402	3.0	23.4	167 W	20	89	8 4	22 20.44	+25 44.1	0.860	1.717	25.8	21.6	132 W	71	38										
8 19	21 47.49	-25 50.6	3.421	4.412	3.0	23.4	167 E	19	90	8 9	22 13.83	+25 27.7	0.849	1.730	23.8	21.6	136 W	70	39										
8 29	21 39.54	-26 34.0	3.464	4.422	4.7	23.5	159 E	18	89	8 14	22 6.71	+24 54.6	0.842	1.744	21.9	21.5	140 W	70	39										
9 8	21 32.22	-27 6.5	3.537	4.431	6.7	23.7	149 E	18	89	8 19	21 59.33	+24 4.7	0.838	1.756	20.2	21.4	143 W	69	40										
523806 2002 WW₁₇										415975 2001 YS₂																			
7 30	22 7.77	-34 49.5	3.384	4.321	5.9	23.7	154 W	10	81	7 30	22 29.55	+23 40.3	2.027	2.788	16.3	21.7	130 W	69	40										
8 4	22 3.56	-35 18.5	3.388	4.338	5.3	23.7	157 W	10	81	8 4	22 25.72	+23 58.4	1.993	2.790	15.3	21.7	133 W	69	40										
8 9	21 59.17	-35 44.7	3.398	4.355	5.0	23.7	158 W	9	80	8 9	22 21.44	+24 9.2	1.964	2.791	14.4	21.6	137 W	69	40										
8 14	21 54.66	-36 7.8	3.416	4.371	5.0	23.7	158 W	9	80	8 14	22 16.78	+24 12.2	1.939	2.793	13.5	21.5	140 W	69	40										
8 19	21 50.11	-36 27.3	3.442	4.387	5.3	23.7	156 E	9	80	8 19	22 11.86	+24 7.0	1.920	2.794	12.6	21.5	143 W	69	40										
8 24	21 45.62	-36 43.0	3.474	4.404	5.8	23.8	154 E	8	79	8 24	22 6.80	+23 53.7	1.906	2.795	12.0	21.5	145 E	69	40										
8 29	21 41.26	-36 54.7	3.514	4.419	6.5	23.9	150 E	8	79	8 29	22 1.73	+23 32.5	1.898	2.796	11.5	21.4	146 E	69	40										
9 3	21 37.11	-37 2.5	3.560	4.435	7.2	23.9	146 E	8	79	9 3	21 56.78	+23 3.8	1.897	2.796	11.4	21.4	147 E	68	41										
213869 2003 SG₁₇₀										465293 2007 TR₃₃₀																			
7 30	22 8.47	+30 41.7	2.265	2.979	16.0	22.7	126 W	76	33	7 30	22 30.77	+ 6 0.6	3.053	3.911	9.0	21.9	143 W	51	58										
8 4	22 3.27	+30 33.6	2.229	2.981	15.2	22.7	130 W	76	33	8 9	22 25.45	+ 5 48.0	2.951	3.877	7.0	21.7	152 W	51	58										
8 9	21 57.72	+30 16.6	2.198	2.981	14.5	22.6	133 W	75	34	8 19	22 19.15	+ 5 22.0	2.873	3.843	5.0	21.5	161 W	50	59										
8 14	21 51.91	+29 50.5	2.172	2.982	13.8	22.5	136 W	75	34	8 29	22 12.33	+ 4 43.8	2.824	3.809	3.9	21.4	165 E	50	59										
8 19	21 45.97	+29 15.1	2.152	2.981	13.1	22.5	138 E	74	35	9 8	22 5.54	+ 3 56.1	2.803	3.774	4.7	21.4	162 E	49	60										
8 24	21 40.04	+28 30.7	2.138	2.981	12.7	22.5	140 E	74	35	9 18	21 59.34	+ 3 2.1	2.811	3.739	6.8	21.5	154 E	48	61										
8 29	21 34.26	+27 37.7	2.129	2.979	12.4	22.5	141 E	73	36	496174 2011 CQ₄																			
9 3	21 28.75	+26 37.0	2.128	2.978	12.4	22.4	141 E	72	37	7 30	22 32.58	-41 28.4	1.665	2.573	12.6	22.3	146 W	4	75										
9 8	21 23.64	+25 29.7	2.132	2.975	12.6	22.5	140 E	70	39	8 4	22 25.59	-42 33.0	1.678	2.597	11.8	22.3	148 W	2	73										
9 13	21 19.01	+24 16.9	2.143	2.973	13.0	22.5	138 E	69	40	8 9	22 18.05	-43 29.6	1.696	2.620	11.4	22.3	149 W	2	73										
418846 2008 WJ₆₀										446862 2001 VB₇₆																			
7 30	22 12.28	+25 8.6	0.740	1.599	28.8	22.9	131 W	70	39	7 30	22 14.17	- 3 10.3	1.004	1.959	14.2	22.6	152 W	42	67										
8 4	22 7.92	+27 5.2	0.706	1.579	28.3	22.8	132 W	72	37	8 9	21 59.94	- 3 59.9	0.969	1.964	8.2	22.3	164 W	41	68										
8 9	22 2.38	+28 54.4	0.675	1.559	28.0	22.7	134 W	74	35	8 19	21 43.89	- 5 9.1	0.959	1.967	4.1	22.1	172 E	40	69										
8 14	21 55.71	+30 33.2	0.647	1.539	27.8	22.5	135 W	76	33	8 29	21 28.14	- 6 28.2	0.975	1.967	8.0	22.3	164 E	39	70										
8 19	21 48.04	+31 58.8	0.622	1.518	28.0	22.4	135 E	77	32	9 8	21 14.71	- 7 45.8	1.016	1.964	13.9	22.6	152 E	37	72										
8 24	21 39.59	+33 8.2	0.601	1.498	28.5	22.3	135 E	78	31	351192 2004 CN₇₀																			
8 29	21 30.71	+33 59.7	0.582	1.477	29.3	22.3	134 E	79	30	7 30	22 14.70	-12 36.6	1.513	2.474	9.6	22.4	156 W	32	77										
9 3	21 21.77	+34 31.9	0.567	1.456	30.3	22.2	133 E	80	29	8 4	22 9.85	-12 53.9	1.495	2.480	7.3	22.3	162 W	32	77										
9 8	21 13.17	+34 44.5	0.554	1.436	31.7	22.2	132 E	80	29	8 9	22 4.58	-13 12.4	1.484	2.484	4.9	22.1	168 W	32	77										
9 13	21 5.32	+34 37.9	0.543	1.415	33.3	22.1	130 E	80	29	8 14	21 59.02	-13 31.5	1.479	2.489	2.4	22.0	174 W	31	78										
46862 2001 VB₇₆										434911 2006 TD₆₃																			
7 30	22 14.17	- 3 10.3	1.004	1.959	14.2	22.6	152 W	42	67	7 30	22 32.82	-18 48.1	1.670	2.615	10.2	21.6	153 W	26	83										
8 9	21 59.94	- 3 59.9	0.969	1.964	8.2	22.3	164 W	41	68	8 4	22 28.84	-19 9.8	1.630	2.599	8.4	21.4	158 W	26	83										
8 19	21 43.89	- 5 9.1	0.959	1.967	4.1	22.1	172 E	40	69	8 9	22 24.26	-19 31.9	1.596	2.584	6.4	21.3	163 W	25	84										
8 29	21 28.14	- 6 28.2	0.975	1.967	8.0	22.3	164 E	39	70	8 14	22 19.19	-19 53.7	1.568	2.568	4.7	21.1	168 W	25	84										
9 8	21 14.71	- 7 45.8	1.016	1.964	13.9	22.6	152 E	37	72	8 19	22 13.73	-20 14.3	1.547	2.552	3.5	21.0	171 W	25	84										
351192 2004 CN₇₀										428519 2008 AQ₈																			
7 30	22 14.70	-12 36.6	1.513	2.474	9.6	22.4	156 W	32	77	7 30	22 32.92	- 6 56.7	1.141	2.081	14.3	21.3	150 W	38	71										
8 4	22 9.85	-12 53.9	1.495	2.480	7.3	22.3	162 W	32	77	8 9	22 26.48	- 7 9.2	1.065	2.050	9.4	20.9	161 W	38	71										
8 9	22 4.58	-13 12.4	1.484	2.484	4.9	22.1	168 W	32	77	8 19	22 17.52	- 7 36.3	1.011	2.018	3.9	20.5	172 W	37	72										
8 14	21 59.02	-13 31.5	1.479	2.489	2.4	22.0	174 W	31	78	8 29	22 7.15	- 8 13.0	0.980	1.987	3.0	20.4	174 E	37	72										
8 19	21 53.32	-13 50.5	1.482	2.494	0.4	21.8	179 E	31	78	9 3	22 1.93	- 8 32.6	0.973	1.972	5.9	20.5	168 E	36	73										
8 24	21 47.65	-14 8.5	1.491	2.498	2.7	22.0	173 E	31	78	9 8	21 56.96	- 8 51.8	0.972	1.957	8.9	20.6	162 E	36	73										
8 29	21 42.18	-14 25.0	1.507	2.502	5.2	22.2	167 E	31	78	9 13	21 52.43	- 9 9.7	0.977	1.942	11.9	20.7	156 E	36	73										
9 3	21 37.06	-14 39.3	1.530	2.506	7.5	22.4	161 E	30	79	9 18	21 48.54	- 9 25.5	0.987	1.927	14.8	20.8	151 E	36	73										
9 8	21 32.42	-14 51.1	1.559	2.509	9.7	22.5	155 E	30	79	9 23	21 45.44	- 9 38.3	1.001	1.912	17.5	20.9	145 E	35	74										
337558 2001 SG₂₆₂										250706 2005 RR₆																			
7 30	22 14.72	-16 28.0	1.357	2.325	9.9	22.4	157 W	29	80	7 30	22 23.51	-20 55.2	1.622	2.578	9.6	22.2	155 W	24	85										
8 4	22 9.03	-16 59.9	1.307	2.296	7.5	22.2	163 W	28	81	8 4	22 18.94	-21 31.1	1.560	2.538	7.8	22.0	160 W	23	86										
8 9	22 2.52	-17 33.7	1.263	2.266	5.0	22.0	169 W	27	82	8 9	22 13.60	-22 8.4	1.504	2.498	6.0	21.8	165 W	23	86										
8 14	21 55.27	-18 8.4	1.226	2.236	2.8	21.8	174 W	27	82	8 14	22 7.56	-22 46.1	1.456	2.457	4.7	21.7	169 W	22	87										
8 19	21 47.46	-18 42.7	1.196	2.205	2.8	21.7	174 E	26	83																				
8 24	21 39.27	-19 15.4	1.173	2.174	5.3	21.8	169 E	26	83																				
8 29	21 30.96	-19 44.9	1.158	2.142	8.3	21.8	162 E	25	84																				
9 3	21 22.77	-20 10.4	1.149	2.109	11.4	21.9	156 E	25	84																				
9 8	21 14.95	-20 31.1	1.146	2.076	14.4	22.0	149 E	24	85																				
9 13	21 7.74	-20 46.4	1.149	2.042	17.4																								

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

20/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45° - 26°	2020	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45° - 26°
428519 2008 AQ ₈ (continuation)									489398 2006 VE ₂ (continuation)								
10 13	21 42.50	-9 51.5	1.096	1.855	26.3	21.3	125 E	35 74	9 13	21 52.54	+28 4.9	1.112	1.998	18.4	20.9	141 E	73 36
10 18	21 44.23	-9 44.2	1.127	1.841	27.9	21.4	120 E	35 74	9 18	21 48.14	+26 51.4	1.117	1.995	18.8	20.9	140 E	72 37
474674 2005 CZ ₆									285838 2001 FA ₁								
7 30	22 34.95	-12 3.2	1.353	2.294	12.4	22.3	151 W	33 76	9 28	21 41.98	+24 3.2	1.140	1.989	20.4	21.0	136 E	69 40
8 9	22 23.01	-11 4.5	1.247	2.236	7.6	21.9	163 W	34 75	10 3	21 40.37	+22 33.4	1.159	1.985	21.4	21.1	134 E	68 41
8 19	22 7.81	-10 1.1	1.167	2.178	2.1	21.4	176 W	35 74	10 8	21 39.78	+21 2.7	1.181	1.981	22.6	21.1	130 E	66 43
8 29	21 50.62	-8 51.1	1.116	2.118	4.7	21.4	170 E	36 73	10 13	21 40.19	+19 33.0	1.208	1.977	23.7	21.2	127 E	65 44
9 8	21 33.34	-7 34.2	1.094	2.058	11.1	21.6	157 E	37 72	10 18	21 41.57	+18 6.1	1.238	1.973	24.9	21.3	124 E	63 46
9 18	21 17.98	-6 12.0	1.097	1.997	17.3	21.7	144 E	39 70	10 23	21 43.89	+16 43.4	1.271	1.968	25.9	21.4	120 E	62 47
162214 1999 TC ₁₀									495021 2010 SH ₁₅								
7 30	22 36.10	-40 55.9	1.559	2.468	13.2	22.3	146 W	4 75	7 30	22 41.27	-21 34.3	0.321	1.305	22.3	21.8	151 W	23 86
8 4	22 30.31	-41 49.1	1.515	2.437	12.6	22.2	148 W	3 74	8 4	22 31.85	+14 19.7	1.654	2.548	13.4	21.8	144 W	59 50
8 9	22 23.49	-42 38.3	1.476	2.406	12.3	22.1	150 W	2 73	8 19	22 21.91	+12 20.7	1.592	2.541	10.1	21.6	154 W	57 52
8 14	22 15.74	-43 21.6	1.443	2.374	12.4	22.0	150 W	2 73	8 29	22 11.05	+9 47.5	1.558	2.532	7.8	21.4	160 E	55 54
8 19	22 7.23	-43 56.9	1.416	2.341	13.0	22.0	149 W	1 72	9 8	22 0.45	+6 49.7	1.554	2.521	8.1	21.4	159 E	52 57
8 24	21 58.19	-44 22.3	1.396	2.308	14.0	21.9	147 E	1 72	9 18	21 51.24	+3 40.9	1.579	2.509	11.0	21.6	152 E	49 60
8 29	21 48.92	-44 36.5	1.381	2.274	15.3	21.9	144 E	— 71	285838 2001 FA ₁								
9 3	21 39.73	-44 38.8	1.372	2.241	16.8	21.9	140 E	— 71	7 30	22 39.94	+15 41.5	1.737	2.553	16.5	22.0	134 W	61 48
9 8	21 30.91	-44 29.0	1.368	2.206	18.5	22.0	136 E	1 72	8 9	22 31.85	+14 19.7	1.654	2.548	13.4	21.8	144 W	59 50
9 13	21 22.77	-44 7.5	1.369	2.171	20.3	22.0	132 E	1 72	8 19	22 21.91	+12 20.7	1.592	2.541	10.1	21.6	154 W	57 52
9 18	21 15.55	-43 35.0	1.374	2.136	22.1	22.0	127 E	1 72	8 29	22 11.05	+9 47.5	1.558	2.532	7.8	21.4	160 E	55 54
226198 2002 UN ₃									495021 2010 SH ₁₅								
7 30	22 36.35	-24 12.2	1.245	2.193	12.6	21.7	152 W	21 88	7 30	22 41.27	-21 34.3	0.321	1.305	22.3	21.8	151 W	23 86
8 4	22 30.90	-24 50.4	1.224	2.193	10.5	21.6	157 W	20 89	8 4	22 31.85	+14 19.7	1.654	2.548	13.4	21.8	144 W	59 50
8 9	22 24.71	-25 27.0	1.208	2.193	8.5	21.5	161 W	20 89	8 9	22 28.87	-22 5.6	0.300	1.302	18.1	21.4	162 W	23 86
8 14	22 17.93	-26 0.6	1.199	2.192	7.0	21.4	165 W	19 90	8 14	22 20.46	-22 15.8	0.293	1.300	10.4	21.2	167 W	23 86
8 19	22 10.76	-26 29.7	1.196	2.191	6.5	21.4	166 W	19 90	8 19	22 11.11	-22 18.8	0.290	1.298	8.1	21.0	170 W	23 86
8 24	22 3.44	-26 52.9	1.199	2.189	7.3	21.4	164 E	18 89	8 24	22 1.41	-22 12.3	0.290	1.296	8.9	21.1	169 E	23 86
8 29	21 56.22	-27 9.5	1.209	2.187	8.9	21.5	160 E	18 89	8 29	21 52.01	-21 55.0	0.293	1.294	12.1	21.2	164 E	23 86
9 3	21 49.34	-27 18.9	1.225	2.185	10.9	21.6	156 E	18 89	9 3	21 43.48	-21 27.1	0.299	1.292	16.2	21.4	159 E	24 85
9 8	21 42.99	-27 21.0	1.247	2.182	13.1	21.7	151 E	18 89	9 8	21 36.26	-20 49.7	0.308	1.290	20.5	21.6	153 E	24 85
9 13	21 37.36	-27 16.2	1.275	2.179	15.3	21.9	145 E	18 89	9 13	21 30.65	-20 4.4	0.319	1.288	24.6	21.8	148 E	25 84
9 18	21 32.58	-27 4.8	1.308	2.175	17.3	22.0	140 E	18 89	9 18	21 26.84	-19 12.7	0.333	1.285	28.4	22.0	143 E	26 83
310574 2001 SH ₂₆₂									504928 2011 CO ₂								
7 30	22 38.23	-8 33.2	1.848	2.769	10.9	21.2	149 W	36 73	7 30	22 41.49	-41 14.9	1.744	2.642	12.7	22.5	145 W	4 75
8 9	22 31.76	-9 23.4	1.738	2.715	7.2	20.9	160 W	36 73	8 4	22 37.51	-42 46.5	1.713	2.621	12.3	22.4	147 W	2 73
8 19	22 23.28	-10 25.8	1.653	2.660	2.9	20.5	172 W	35 74	8 9	22 32.68	-44 15.5	1.688	2.600	12.2	22.3	147 W	1 72
8 29	22 13.48	-11 35.2	1.596	2.604	1.8	20.3	175 E	33 76	8 14	22 27.05	-45 39.7	1.670	2.578	12.4	22.3	147 W	— 70
9 3	22 8.40	-12 10.4	1.578	2.576	4.3	20.4	169 E	33 76	8 19	22 20.73	-46 57.3	1.658	2.556	13.0	22.3	145 W	— 69
9 8	22 3.37	-12 44.8	1.567	2.547	6.7	20.5	163 E	32 77	8 24	22 13.89	-48 6.4	1.652	2.534	13.9	22.3	143 W	— 68
9 13	21 58.54	-13 17.4	1.562	2.518	9.1	20.6	157 E	32 77	8 29	22 6.73	-49 5.6	1.653	2.512	15.0	22.3	140 E	— 67
9 18	21 54.06	-13 47.6	1.564	2.489	11.4	20.7	151 E	31 78	9 3	21 59.49	-49 54.0	1.659	2.489	16.2	22.4	136 E	— 66
9 23	21 50.07	-14 14.6	1.572	2.460	13.6	20.7	145 E	31 78	9 8	21 52.42	-50 31.1	1.670	2.466	17.5	22.4	133 E	— 65
9 28	21 46.66	-14 38.0	1.585	2.431	15.7	20.8	139 E	30 79	9 13	21 45.76	-50 56.9	1.685	2.442	18.8	22.4	129 E	— 65
10 3	21 43.93	-14 57.3	1.603	2.402	17.7	20.9	133 E	30 79	9 18	21 39.74	-51 11.9	1.705	2.418	20.1	22.5	124 E	— 65
10 8	21 41.95	-15 12.4	1.624	2.372	19.4	20.9	128 E	30 79	415776 2000 VQ ₁								
10 13	21 40.74	-15 23.1	1.649	2.342	21.1	21.0	123 E	30 79	7 30	22 43.06	-17 1.6	1.995	2.920	10.0	22.2	150 W	28 81
10 18	21 40.34	-15 29.5	1.677	2.312	22.5	21.0	117 E	30 79	8 9	22 35.34	-18 0.5	1.926	2.904	6.5	21.9	161 W	27 82
10 23	21 40.75	-15 31.5	1.707	2.282	23.7	21.1	113 E	29 80	8 19	22 25.90	-19 0.5	1.884	2.886	3.5	21.7	170 W	26 83
10 28	21 41.97	-15 29.1	1.739	2.252	24.8	21.1	108 E	30 79	8 29	22 15.58	-19 54.9	1.870	2.867	3.9	21.7	169 E	25 84
11 2	21 43.97	-15 22.6	1.772	2.221	25.8	21.2	103 E	30 79	9 8	22 5.40	-20 37.8	1.884	2.848	7.3	21.9	159 E	24 85
11 7	21 46.70	-15 11.9	1.805	2.191	26.5	21.2	99 E	30 79*	9 18	21 56.36	-21 5.5	1.926	2.827	10.9	22.1	148 E	24 85
11 12	21 50.16	-14 57.3	1.838	2.160	27.2	21.2	95 E	30 78*	381564 2008 UW ₅								
11 17	21 54.29	-14 38.7	1.871	2.130	27.7	21.2	91 E	30 75*	7 30	22 44.26	+0 10.4	1.642	2.533	13.7	22.0	144 W	45 64
11 22	21 59.07	-14 16.2	1.904	2.099	28.0	21.3	87 E	31 71*	8 9	22 34.68	+0 0.9	1.571	2.526	9.8	21.7	155 W	45 64
11 27	22 4.45	-13 49.9	1.936	2.069	28.3	21.3	83 E	31 68*	8 19	22 23.04	+0 25.9	1.523	2.516	5.7	21.5	166 W	45 64
12 2	22 10.39	-13 20.0	1.966	2.038	28.4	21.3	80 E	32 64*	8 29	22 10.37	+1 7.0	1.504	2.505	3.9	21.3	170 E	44 65
12 7	22 16.86	-12 46.4	1.995	2.007	28.5	21.3	76 E	32 60*	9 8	21 57.97	+1 56.9	1.513	2.493	7.0	21.5	162 E	43 66
12 12	22 23.83	-12 9.2	2.023	1.977	28.5	21.3	73 E	33 56*	9 18	21 47.10	+2 49.2	1.550	2.478	11.3	21.7	151 E	42 67
12 17	22 31.27	-11 28.6	2.049	1.946	28.4	21.3	70 E	34 53*	374267 2005 LW								
12 22	22 39.15	-10 44.4	2.073	1.916	28.2	21.2	67 E	34 49*	7 30	22 44.96	-8 41.3	1.381	2.303	13.7	22.2	148 W	36 73
12 27	22 47.45	-9 56.9	2.095	1.886	28.0	21.2	64 E	35 46*	8 9	22 32.54	-10 8.4	1.294	2.275	8.5	21.8	161 W	35 74
1 1	22 56.15	+9 6.0	2.115	1.856	27.7	21.2	61 E	35 43*	8 19	22 16.92	-11 51.5	1.234	2.243	2.6	21.4	174 W	33 76
1 6	23 5.22	+8 12.0	2.133	1.826	27.4	21.2	59 E	35 40*	8 29	21 59.40	-13 39.9	1.204	2.208	4.0	21.4	171 E	31 78
1 11	23 14.66	+7 14.8	2.149	1.797	27.0	21.1	56 E	35 37*	9 8	21 41.91	-15 20.7	1.205	2.169	10.4	21.7	157 E	30 79
1 16	23 24.45	+6 14.5	2.164	1.768	26.6	21.1	54 E	35 34*	9 18	21 26.39	-16 43.7	1.233	2.126	16.4	21.9	143 E	28 81
489398 2006 VE ₂									513145 2002 XY ₆₉								
7 30	22 39.22																

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20/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°-26°	20/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°-26°
471612 2012 SR45									465824 2010 FR								
7 30	22 46.18	-31 12.8	1.775	2.692	11.4	22.0	148 W	14 85	7 30	22 59.11	+24 45.6	0.323	1.228	42.8	21.4	125 W	70 39
8 4	22 40.90	-31 27.3	1.729	2.671	10.1	21.9	153 W	14 85	8 4	23 7.30	+26 17.4	0.280	1.201	43.0	21.0	126 W	71 38
8 9	22 34.87	-31 39.0	1.690	2.649	8.9	21.8	156 W	13 84	8 9	23 17.13	+27 54.5	0.238	1.173	43.4	20.6	127 W	73 36
8 14	22 28.19	-31 46.6	1.657	2.627	8.0	21.7	159 W	13 84	8 14	23 29.90	+29 40.7	0.197	1.145	44.2	20.2	128 W	75 34
8 19	22 21.00	-31 48.9	1.631	2.605	7.6	21.6	160 W	13 84	8 19	23 48.20	+31 42.5	0.157	1.115	45.9	19.7	128 W	77 32
8 24	22 13.48	-31 45.0	1.611	2.582	7.9	21.6	159 W	13 84	8 21	23 58.19	+32 37.7	0.141	1.103	46.9	19.4	127 W	78 31
8 29	22 5.84	-31 34.2	1.599	2.560	8.8	21.6	157 E	13 84	8 23	0 10.62	+33 37.5	0.126	1.091	48.3	19.2	126 W	79 30
9 3	21 58.27	-31 16.0	1.594	2.537	10.2	21.6	154 E	14 85	8 25	0 26.49	+34 41.9	0.111	1.079	50.1	19.0	125 W	80 29
9 8	21 50.99	-30 50.5	1.595	2.514	11.8	21.6	149 E	14 85	8 27	0 47.37	+35 49.4	0.097	1.066	52.7	18.7	123 W	81 28
9 13	21 44.17	-30 17.9	1.603	2.491	13.6	21.7	144 E	15 86	8 29	1 15.67	+36 53.7	0.084	1.054	56.4	18.5	120 W	82 27
9 18	21 38.00	-29 38.7	1.616	2.468	15.4	21.7	139 E	15 86	8 30	1 33.66	+37 19.6	0.077	1.048	58.8	18.4	117 W	82 27
9 23	21 32.60	-28 53.7	1.635	2.444	17.1	21.8	134 E	16 87	8 31	1 54.89	+37 36.2	0.071	1.041	61.7	18.3	115 W	83 26
377998 2006 RZ83									163758 2003 OS13								
7 30	22 49.16	+11 5.5	1.761	2.590	15.8	21.7	136 W	56 53	7 30	23 0.64	+54 24.1	1.708	2.146	27.7	21.5	101 W	81 10
8 9	22 43.97	+10 23.1	1.658	2.562	12.8	21.4	146 W	55 54	8 4	22 52.05	+55 57.7	1.660	2.130	27.7	21.4	103 W	79 8
8 19	22 36.76	+9 10.1	1.576	2.532	9.5	21.1	156 W	54 55	8 9	22 41.47	+57 22.2	1.614	2.112	27.7	21.3	105 W	78 7
8 29	22 28.20	+7 26.8	1.518	2.502	6.7	20.9	163 E	52 57	8 14	22 28.83	+58 34.8	1.571	2.094	27.7	21.2	106 W	76 5
9 8	22 19.26	+5 18.8	1.487	2.470	6.5	20.8	164 E	50 59	8 19	22 14.21	+59 32.3	1.530	2.074	27.7	21.1	108 W	75 4
9 18	22 11.02	+2 55.3	1.483	2.439	9.4	20.9	157 E	48 61	8 24	21 57.89	+60 11.9	1.492	2.053	27.8	21.1	109 E	75 4
9 28	22 4.54	+0 28.6	1.506	2.406	13.3	21.1	146 E	45 64	8 29	21 40.38	+60 30.8	1.457	2.030	28.0	21.0	109 E	74 3
10 8	22 0.58	+1 49.9	1.552	2.373	17.1	21.2	136 E	43 66	9 3	21 22.34	+60 27.6	1.425	2.007	28.2	20.9	110 E	75 4
10 18	21 59.53	-3 51.7	1.616	2.339	20.3	21.4	125 E	41 68	9 8	21 4.55	+60 1.4	1.396	1.982	28.5	20.9	110 E	75 4
380846 2006 BN7									163758 2003 OS13								
7 30	22 49.61	-44 24.4	2.699	3.557	10.1	22.3	142 W	1 72	9 13	20 47.76	+59 13.0	1.370	1.955	29.0	20.8	110 E	76 5
8 4	22 45.69	-45 15.4	2.687	3.558	9.7	22.2	144 W	- 71	9 18	20 32.60	+58 3.9	1.347	1.928	29.5	20.8	109 E	77 6
8 9	22 41.25	-46 2.7	2.681	3.559	9.4	22.2	145 W	- 70	9 23	20 19.51	+56 36.9	1.327	1.898	30.1	20.7	108 E	78 7
8 14	22 36.37	-46 45.2	2.681	3.559	9.4	22.2	145 W	- 69	9 28	20 8.68	+54 55.2	1.309	1.868	30.8	20.7	107 E	80 9
8 19	22 31.14	-47 22.3	2.687	3.560	9.5	22.2	145 W	- 69	10 3	20 0.15	+53 2.2	1.294	1.836	31.7	20.6	106 E	82 11
8 24	22 25.70	-47 53.1	2.699	3.560	9.8	22.3	143 W	- 68	10 8	19 53.82	+51 0.9	1.281	1.803	32.6	20.6	104 E	84 13
8 29	22 20.18	-48 17.3	2.718	3.560	10.3	22.3	141 E	- 68	10 13	19 49.53	+48 54.0	1.269	1.768	33.5	20.6	102 E	86 15*
9 3	22 14.72	-48 34.5	2.742	3.560	10.9	22.3	138 E	- 67	10 18	19 47.12	+46 44.0	1.259	1.731	34.6	20.5	100 E	88 17*
9 8	22 9.44	-48 44.8	2.773	3.560	11.5	22.4	135 E	- 67	10 23	19 46.40	+44 33.2	1.251	1.693	35.7	20.5	97 E	90 18*
9 13	22 4.48	-48 48.3	2.808	3.559	12.2	22.4	132 E	- 67	10 28	19 47.17	+42 23.1	1.242	1.653	36.8	20.5	95 E	87* 19*
9 18	21 59.94	-48 45.2	2.848	3.558	12.8	22.5	128 E	- 67	11 2	19 49.28	+40 15.1	1.235	1.611	38.0	20.4	92 E	85* 20*
470691 2008 TC27									523650 2011 GQ61								
7 30	22 49.68	+24 56.1	2.370	3.078	15.5	22.2	126 W	70 39	7 30	23 42.70	+6 38.7	1.264	2.050	23.0	21.6	128 W	52 57
8 4	22 44.67	+25 41.2	2.329	3.078	14.7	22.1	130 W	71 38	8 9	23 22.41	+10 6.6	1.137	2.018	19.1	21.2	139 W	55 54
8 9	22 39.09	+26 20.5	2.293	3.077	13.9	22.0	133 W	71 38	8 19	22 54.37	+13 37.3	1.043	1.983	15.0	20.8	150 W	59 50
8 14	22 33.02	+26 53.3	2.262	3.076	13.1	22.0	136 W	72 37	8 29	22 19.60	+16 45.8	0.988	1.946	13.3	20.6	154 E	62 47
8 19	22 26.55	+27 19.0	2.238	3.075	12.4	21.9	139 W	72 37	9 8	21 41.72	+19 3.9	0.977	1.906	16.5	20.6	148 E	64 45
8 24	22 19.79	+27 37.0	2.220	3.074	11.9	21.9	141 W	73 36	9 18	21 5.96	+20 18.6	1.007	1.863	22.1	20.8	136 E	65 44
8 29	22 12.90	+27 47.2	2.208	3.072	11.5	21.9	143 E	73 36	9 28	20 36.56	+20 41.2	1.069	1.819	27.6	21.1	123 E	66 43
9 3	22 6.00	+27 49.6	2.203	3.071	11.4	21.9	143 E	73 36	10 8	20 15.09	+20 35.9	1.150	1.771	31.8	21.3	111 E	66 43
9 8	21 59.25	+27 44.6	2.205	3.068	11.5	21.9	143 E	73 36	10 18	20 1.08	+20 23.0	1.240	1.721	34.7	21.5	100 E	65 43*
9 13	21 52.78	+27 32.6	2.213	3.066	11.8	21.9	142 E	73 36	7 30	23 56.33	+4 19.1	1.166	1.945	25.0	21.3	126 W	49 60
9 18	21 46.71	+27 14.4	2.227	3.063	12.3	21.9	140 E	72 37	8 9	23 56.39	+5 40.6	1.066	1.921	22.0	21.0	135 W	51 58
9 23	21 41.17	+26 50.9	2.247	3.060	12.9	21.9	137 E	72 37	8 19	23 52.89	+6 48.0	0.979	1.897	18.0	20.7	145 W	52 57
409214 2003 WV87									466513 2014 OW338								
7 30	22 50.11	-12 21.2	2.371	3.274	9.6	22.3	148 W	33 76	8 9	23 56.39	+5 40.6	1.066	1.921	22.0	21.0	135 W	51 58
8 9	22 43.22	-13 17.4	2.301	3.267	6.4	22.1	159 W	32 77	8 19	23 52.89	+6 48.0	0.979	1.897	18.0	20.7	145 W	52 57
8 19	22 34.88	-14 18.2	2.259	3.260	3.1	21.8	170 W	31 78	8 29	23 45.75	+7 37.0	0.910	1.873	13.3	20.3	155 W	53 56
8 29	22 25.74	-15 18.4	2.245	3.251	1.9	21.7	174 E	30 79	9 8	23 35.53	+8 4.5	0.859	1.850	8.4	20.0	164 W	53 56
9 8	22 16.60	-16 12.6	2.262	3.242	5.0	21.9	164 E	29 80	9 18	23 23.43	+8 9.5	0.830	1.827	6.1	19.8	169 E	53 56
9 18	22 8.25	-16 56.7	2.307	3.231	8.3	22.1	152 E	28 81									
408752 1991 TB2																	
7 30	22 57.45	+1 27.8	2.004	2.859	13.1	21.6	140 W	46 63									
8 9	22 47.96	+1 5.0	1.865	2.799	9.9	21.2	152 W	46 63									
8 19	22 35.76	+0 23.1	1.751	2.736	6.1	20.9	163 W	45 64									
8 29	22 21.43	+0 36.7	1.668	2.670	3.4	20.6	171 E	44 65									
9 8	22 6.08	+1 50.1	1.617	2.601	6.0	20.6	164 E	43 66									
9 18	21 51.02	+3 10.4	1.597	2.529	10.7	20.7	152 E	42 67									
9 28	21 37.67	+4 29.5	1.606	2.454	15.4	20.8	139 E	41 68									
10 8	21 27.10	+5 40.5	1.637	2.375	19.7	20.9	127 E	39 70									
10 18	21 19.91	+6 38.6	1.685	2.293	23.2	21.0	115 E	38 71									
10 28	21 16.32	+7 21.3	1.741	2.207	25.9	21.1	104 E	38 71									
11 7	21 16.20	+7 47.7	1.799	2.117	27.8	21.1	94 E	37 70*									
11 17	21 19.30	+7 57.9	1.854	2.023	29.1	21.1	85 E	37 64*									
11 27	21 25.30	+7 52.0	1.901	1.924	29.9	21.1	76 E	37 56*									
12 7	21 33.89	+7 30.5	1.936	1.821	30.2	21.0	68 E	37* 48*									
12 17	21 44.85	+6 53.6	1.956	1.712	30.2	20.9	61 E	37* 40*									
12 27	21 58.00	+6 1.2	1.957	1.598	30.0	20.8	54 E	36* 33*									
1 6	22 13.24	+4 53.0	1.939	1.477	29.7	20.6	48 E										

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

20/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	20/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°
466513 2014 OW₃₃₈										438010 2003 WT₂₅									
<i>(continuation)</i>										<i>(continuation)</i>									
9 23	23 17.27	+ 8 4.4	0.824	1.815	7.4	19.8	167 E	53	56	1 11	23 58.34	+17 46.9	2.407	2.383	23.7	21.4	77 E	62*	30*
9 28	23 11.40	+ 7 55.5	0.824	1.804	9.7	19.9	162 E	53	56	1 16	0 5.34	+17 44.5	2.452	2.366	23.5	21.4	73 E	61*	28*
10 3	23 6.05	+ 7 44.0	0.828	1.793	12.5	20.0	157 E	53	56	407338 2010 RQ₃₀									
10 8	23 1.45	+ 7 31.0	0.838	1.782	15.4	20.1	152 E	53	56	8 9	0 28.26	- 0 55.2	1.415	2.211	20.5	21.5	130 W	44	65
10 13	22 57.74	+ 7 17.9	0.852	1.771	18.1	20.2	146 E	52	57	8 19	0 24.10	- 1 58.5	1.300	2.183	16.9	21.2	141 W	43	66
10 18	22 55.07	+ 7 5.8	0.870	1.761	20.8	20.4	141 E	52	57	8 29	0 16.24	- 3 27.2	1.204	2.153	12.3	20.8	153 W	42	67
10 23	22 53.52	+ 6 56.0	0.892	1.751	23.2	20.5	136 E	52	57	9 8	0 4.88	- 5 17.5	1.130	2.121	6.8	20.4	166 W	40	69
10 28	22 53.10	+ 6 49.2	0.917	1.741	25.4	20.6	131 E	52	57	9 13	23 58.08	- 6 17.9	1.103	2.103	4.1	20.2	171 W	39	70
11 2	22 53.80	+ 6 46.2	0.945	1.731	27.4	20.7	127 E	52	57	9 18	23 50.75	- 7 19.9	1.083	2.085	2.8	20.1	174 W	38	71
11 7	22 55.58	+ 6 47.3	0.975	1.721	29.2	20.8	122 E	52	57	9 23	23 43.11	- 8 21.3	1.070	2.066	4.6	20.1	171 E	37	72
11 12	22 58.39	+ 6 52.7	1.007	1.712	30.7	20.9	118 E	52	57	9 28	23 35.41	- 9 20.1	1.064	2.047	7.6	20.2	164 E	36	73
11 17	23 2.16	+ 7 2.7	1.041	1.703	32.0	21.0	114 E	52	57	10 3	23 27.90	-10 14.5	1.065	2.027	10.8	20.3	158 E	35	74
11 22	23 6.84	+ 7 17.4	1.076	1.695	33.1	21.1	110 E	52	57	10 8	23 20.82	-11 3.0	1.072	2.006	13.9	20.5	151 E	34	75
11 27	23 12.36	+ 7 36.7	1.112	1.687	34.1	21.2	107 E	53	56*	10 13	23 14.38	-11 44.4	1.085	1.984	16.9	20.6	145 E	33	76
12 2	23 18.63	+ 8 0.3	1.149	1.679	34.8	21.3	103 E	53	55*	10 18	23 8.77	-12 18.1	1.103	1.962	19.8	20.7	138 E	33	76
12 7	23 25.59	+ 8 28.1	1.187	1.672	35.5	21.3	100 E	53	54*	10 23	23 4.12	-12 43.5	1.125	1.938	22.4	20.8	132 E	32	77
12 12	23 33.18	+ 8 59.8	1.224	1.665	35.9	21.4	97 E	54	52*	10 28	23 0.53	-13 0.7	1.151	1.915	24.7	20.9	126 E	32	77
12 17	23 41.37	+ 9 35.2	1.263	1.658	36.3	21.5	94 E	55	50*	11 2	22 58.01	-13 10.1	1.180	1.890	26.8	20.9	121 E	32	77
302800 2003 AA										11 7	22 56.57	-13 12.1	1.210	1.865	28.7	21.0	115 E	32	77
8 9	0 9.30	-33 46.3	0.839	1.727	23.5	21.3	137 W	11	82	11 12	22 56.19	-13 7.1	1.243	1.839	30.3	21.1	110 E	32	77
8 14	0 11.59	-36 20.0	0.810	1.708	23.0	21.2	139 W	9	80	11 17	22 56.83	-12 55.6	1.276	1.812	31.7	21.2	106 E	32	77
8 19	0 12.89	-38 57.8	0.786	1.690	22.8	21.1	140 W	6	77	11 22	22 58.44	-12 38.0	1.309	1.785	32.9	21.2	101 E	32	77*
8 24	0 13.10	-41 36.1	0.767	1.671	23.1	21.0	140 W	3	74	11 27	23 0.96	-12 14.9	1.342	1.756	33.9	21.3	97 E	33	75*
8 29	0 12.16	-44 10.6	0.752	1.652	23.7	21.0	139 W	1	72	12 2	23 4.32	-11 46.5	1.374	1.727	34.8	21.3	93 E	33	72*
9 3	0 10.05	-46 37.2	0.742	1.633	24.8	21.0	137 W	—	69	12 7	23 8.45	-11 13.4	1.404	1.698	35.5	21.3	89 E	34	69*
9 8	0 6.80	-48 51.6	0.736	1.614	26.2	21.0	135 W	—	67	12 12	23 13.32	-10 35.8	1.434	1.667	36.0	21.4	85 E	34	65*
9 13	0 2.51	-50 50.2	0.733	1.595	27.8	21.0	132 W	—	65	12 17	23 18.87	-9 53.7	1.461	1.636	36.5	21.4	81 E	35	62*
9 18	23 57.39	-52 29.9	0.734	1.576	29.6	21.0	129 W	—	64	12 22	23 25.05	-9 7.6	1.486	1.604	36.9	21.4	78 E	36	58*
9 23	23 51.76	-53 48.4	0.738	1.557	31.4	21.0	126 E	—	62	12 27	23 31.83	-8 17.6	1.509	1.572	37.2	21.4	75 E	37	54*
9 28	23 46.02	-54 44.9	0.743	1.538	33.2	21.1	123 E	—	61	1 1	23 39.17	-7 23.8	1.529	1.539	37.4	21.4	72 E	38*	51*
10 3	23 40.59	-55 19.3	0.751	1.519	34.9	21.1	120 E	—	61	1 6	23 47.04	-6 26.4	1.546	1.505	37.6	21.3	69 E	38*	48*
10 8	23 35.83	-55 32.3	0.759	1.500	36.6	21.2	116 E	—	60	1 11	23 55.43	-5 25.5	1.561	1.471	37.7	21.3	66 E	39*	45*
10 13	23 32.07	-55 25.2	0.768	1.482	38.2	21.2	113 E	—	61	1 16	0 4.33	-4 21.2	1.572	1.436	37.8	21.3	64 E	39*	42*
10 18	23 29.57	-54 59.3	0.778	1.463	39.6	21.3	111 E	—	61	360211 1999 CS₄₅									
10 23	23 28.48	-54 16.2	0.788	1.446	41.0	21.3	108 E	—	62	8 9	0 31.70	-3 8.7	1.959	2.726	16.5	21.3	130 W	42	67
10 28	23 28.86	-53 17.6	0.797	1.428	42.2	21.3	105 E	—	63	8 19	0 30.62	-3 58.1	1.827	2.684	13.9	21.0	140 W	41	68
11 2	23 30.66	-52 4.9	0.806	1.411	43.3	21.4	103 E	—	64	8 29	0 27.12	-5 3.8	1.714	2.642	10.8	20.8	151 W	40	69
11 7	23 33.78	-50 39.2	0.815	1.394	44.3	21.4	101 E	—	65	9 8	0 21.31	-6 22.4	1.624	2.599	7.1	20.4	161 W	39	70
11 12	23 38.11	-49 1.3	0.823	1.378	45.3	21.4	99 E	—	67	9 13	0 17.65	-7 4.8	1.588	2.577	5.3	20.3	166 W	38	71
11 17	23 43.55	-47 11.8	0.830	1.362	46.1	21.4	97 E	—	69	9 18	0 13.58	-7 48.2	1.559	2.555	3.8	20.2	170 W	37	72
11 22	23 49.97	-45 11.2	0.836	1.347	46.9	21.4	95 E	—	71	9 23	0 9.23	-8 31.2	1.537	2.533	3.5	20.1	171 W	36	73
11 27	23 57.26	-43 0.2	0.842	1.333	47.6	21.4	93 E	2	73	9 28	0 4.72	-9 12.8	1.522	2.511	4.7	20.1	168 E	36	73
12 2	0 5.27	-40 39.1	0.847	1.320	48.3	21.5	92 E	4	75	10 3	0 0.19	-9 51.7	1.513	2.489	6.6	20.2	163 E	35	74
12 7	0 13.92	-38 8.1	0.852	1.307	48.9	21.5	90 E	7	78	10 8	23 55.77	-10 27.0	1.511	2.467	8.7	20.3	158 E	35	74
12 12	0 23.13	-35 27.5	0.857	1.296	49.4	21.5	89 E	10	80*	10 13	23 51.62	-10 57.7	1.516	2.444	10.9	20.3	152 E	34	75
12 17	0 32.84	-32 37.8	0.861	1.285	49.9	21.5	88 E	12	81*	10 18	23 47.85	-11 23.1	1.526	2.422	13.1	20.4	147 E	34	75
12 22	0 42.99	-29 39.4	0.866	1.276	50.3	21.5	87 E	15	81*	10 28	23 41.96	-11 56.1	1.563	2.377	17.0	20.6	136 E	33	76
12 27	0 53.54	-26 33.2	0.872	1.268	50.7	21.5	86 E	18	79*	11 7	23 38.73	-12 4.5	1.616	2.331	20.4	20.7	125 E	33	76
438010 2003 WT₂₅										11 17	23 38.46	-11 49.1	1.682	2.286	23.0	20.8	115 E	33	76
8 9	0 16.79	+32 9.3	2.223	2.811	19.0	21.4	115 W	77	32	11 27	23 41.18	-11 11.8	1.756	2.241	25.0	20.9	106 E	34	75
8 14	0 15.31	+32 44.8	2.162	2.801	18.4	21.4	119 W	78	31	12 7	23 46.70	-10 15.6	1.834	2.195	26.4	21.0	98 E	35	73*
8 19	0 13.16	+33 15.4	2.104	2.790	17.7	21.3	123 W	78	31	12 17	23 54.74	-9 2.8	1.913	2.150	27.2	21.1	90 E	36	67*
8 24	0 10.35	+33 40.2	2.050	2.780	16.9	21.2	127 W	79	30	12 27	0 5.05	-7 35.7	1.990	2.106	27.6	21.1	83 E	37	60*
8 29	0 6.92	+33 58.5	1.999	2.769	16.0	21.1	131 W	79	30	1 6	0 17.32	-5 56.5	2.063	2.062	27.6	21.2	76 E	39	54*
9 3	0 2.90	+34 9.5	1.953	2.757	15.1	21.0	135 W	79	30	1 16	0 31.36	-4 7.0	2.132	2.019	27.2	21.2	70 E	40*	47*
9 8	23 58.37	+34 12.6	1.911	2.746	14.1	20.9	138 W	79	30	455407 2003 ER									
9 13	23 53.42	+34 7.2	1.874	2.734	13.3	20.8	141 W	79	30	8 9	0 36.23	+ 0 19.2	0.739	1.580	30.3	21.4	128 W	45	64
9 18	23 48.18	+33 52.8	1.843	2.722	12.5	20.7	144 W	79	30	8 14	0 36.30	- 3 9.9	0.716	1.596	27.2	21.3	134 W	42	67
9 23	23 42.78	+33 29.4	1.817	2.710	11.9	20.7	146 E	78	31	8 19	0 35.13	- 6 56.6	0.699	1.611	23.9	21.2	140 W	38	71
9 28	23 37.40	+32 57.2	1.797	2.697	11.5	20.6	148 E	78	31	8 24	0 32.73	-10 56.2	0.688	1.625	20.6	21.1	146 W	34	75
10 3	23 32.18	+32 16.8	1.784	2.685	11.4	20.6	148 E	77	32	8 29	0 29.14	-15 2.0	0.684	1.640	17.7	21.0	150 W	30	79
10 8	23 27.27	+31 29.0	1.776	2.672	11.7	20.6	147 E	76	33	9 3	0 24.45	-19 5.9	0.687	1.654	15.5	20.9	154 W	26	83
10 13	23 22.82	+30 35.0	1.775	2.659	12.3	20.6	14												

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

20/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°-26°	20/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°-26°	
474129 1995 SM₃₀ (continuation)									365436 2010 LZ₁₁₀									
9 13	0 10.20	+16 54.1	1.065	2.028	11.4	20.0	156 W	62 47	8 9	1 33.95	-1 54.2	1.104	1.788	30.9	21.4	115 W	43*	66
9 18	0 0.89	+18 15.7	1.030	2.002	10.2	19.8	159 W	63 46	8 19	1 40.38	-2 43.4	1.049	1.812	27.9	21.2	123 W	42	67
9 23	23 50.72	+19 33.0	1.002	1.977	9.8	19.7	160 E	65 44	8 29	1 43.01	-3 53.5	1.002	1.837	24.1	21.1	132 W	41	68
9 28	23 39.97	+20 44.3	0.982	1.951	10.6	19.7	159 E	66 43	9 8	1 41.68	-5 19.6	0.967	1.864	19.7	20.9	141 W	40	69
10 3	23 28.95	+21 48.5	0.969	1.925	12.3	19.7	156 E	67 42	9 18	1 36.54	-6 53.0	0.948	1.891	14.8	20.7	151 W	38	71
10 8	23 18.02	+22 44.6	0.963	1.900	14.7	19.7	151 E	68 41	9 28	1 28.36	-8 21.4	0.948	1.919	10.4	20.6	160 W	37	72
10 13	23 7.55	+23 32.5	0.963	1.875	17.3	19.8	146 E	69 40	10 8	1 18.52	-9 31.4	0.969	1.948	8.4	20.6	164 W	35	74
10 18	22 57.87	+24 12.8	0.969	1.850	20.0	19.9	141 E	69 40	10 18	1 8.64	-10 13.1	1.013	1.977	10.2	20.8	159 E	35	74
10 23	22 49.28	+24 46.7	0.981	1.826	22.6	19.9	135 E	70 39	10 28	1 0.32	-10 21.7	1.079	2.006	13.9	21.1	151 E	35	74
10 28	22 41.97	+25 15.9	0.996	1.801	25.1	20.0	130 E	70 39	11 7	0 54.63	-9 58.3	1.165	2.036	17.7	21.4	141 E	35	74
11 2	22 36.05	+25 41.9	1.015	1.778	27.4	20.1	125 E	71 38	162911 2001 LL₅									
11 7	22 31.57	+26 6.4	1.037	1.754	29.4	20.2	120 E	71 38	8 9	2 2.39	+26 0.1	0.828	1.404	45.5	21.3	99 W	70*	38
11 12	22 28.54	+26 30.7	1.061	1.731	31.2	20.3	115 E	72 37	8 14	2 14.14	+27 52.5	0.778	1.384	46.1	21.1	100 W	73*	36
11 17	22 26.93	+26 56.3	1.086	1.709	32.7	20.3	111 E	72 37*	8 19	2 26.51	+29 48.4	0.728	1.362	46.6	21.0	102 W	75*	34
11 22	22 26.69	+27 24.2	1.111	1.687	34.1	20.4	107 E	72 36*	8 24	2 39.68	+31 47.8	0.681	1.340	47.3	20.8	103 W	77	32
11 27	22 27.74	+27 55.2	1.137	1.665	35.3	20.4	103 E	73 34*	8 29	2 53.86	+33 50.7	0.634	1.317	48.0	20.6	104 W	79	30
12 2	22 30.00	+28 29.9	1.163	1.645	36.2	20.5	100 E	74 32*	9 3	3 9.35	+35 57.3	0.589	1.294	48.9	20.4	105 W	81	28
12 7	22 33.41	+29 8.7	1.187	1.625	37.1	20.5	96 E	74 30*	9 8	3 26.52	+38 7.0	0.546	1.269	49.9	20.3	106 W	83	26
12 12	22 37.91	+29 51.7	1.211	1.606	37.7	20.6	93 E	75 27*	9 13	3 45.83	+40 18.7	0.505	1.244	51.1	20.1	106 W	85	24
12 17	22 43.46	+30 39.2	1.234	1.587	38.3	20.6	91 E	76 25*	9 18	4 7.91	+42 30.1	0.466	1.218	52.5	19.9	106 W	88	21
12 22	22 50.03	+31 31.4	1.255	1.570	38.8	20.6	88 E	76* 22*	9 20	4 17.68	+43 21.7	0.451	1.207	53.2	19.8	106 W	88	21
12 27	22 57.58	+32 28.0	1.275	1.554	39.1	20.6	86 E	77* 20*	9 22	4 28.07	+44 12.2	0.436	1.197	53.9	19.8	105 W	89	20
1 1	23 6.10	+33 28.8	1.294	1.539	39.5	20.7	84 E	76* 17*	9 24	4 39.14	+45 1.3	0.422	1.186	54.7	19.7	105 W	90	19
1 6	23 15.59	+34 33.4	1.311	1.524	39.7	20.7	82 E	75* 15*	9 26	4 50.97	+45 48.3	0.408	1.175	55.6	19.6	105 W	89	18
1 11	23 26.06	+35 41.6	1.326	1.511	39.9	20.7	80 E	74* 13*	9 28	5 3.60	+46 32.5	0.395	1.164	56.5	19.6	104 W	88	17
1 16	23 37.56	+36 52.8	1.341	1.500	40.0	20.7	79 E	73* 11*	9 30	5 17.10	+47 13.2	0.382	1.153	57.6	19.5	104 W	88	17
162913 2001 MT₁₈									10 2	5 31.52	+47 49.4	0.370	1.142	58.7	19.4	103 W	87	16
8 9	1 6.55	+7 4.9	1.224	1.926	27.5	21.3	119 W	52 57	10 4	5 46.89	+48 20.0	0.358	1.131	59.9	19.4	102 W	87	16
8 14	1 6.18	+6 42.0	1.167	1.923	26.0	21.1	124 W	52 57	10 6	6 3.22	+48 43.8	0.347	1.120	61.2	19.3	101 W	86	15
8 19	1 4.78	+6 10.9	1.113	1.918	24.2	21.0	129 W	51 58	10 8	6 20.51	+48 59.4	0.336	1.108	62.6	19.3	100 W	86	15*
8 24	1 2.27	+5 30.7	1.062	1.912	22.1	20.8	135 W	51 58	10 10	6 38.69	+49 5.4	0.326	1.097	64.1	19.2	99 W	86	15*
8 29	0 58.61	+4 41.2	1.015	1.906	19.7	20.6	141 W	50 59	10 12	6 57.66	+49 0.2	0.317	1.086	65.7	19.2	98 W	86	15*
9 3	0 53.75	+3 42.1	0.971	1.898	16.9	20.4	147 W	49 60	10 14	7 17.28	+48 42.4	0.308	1.075	67.4	19.2	96 W	86*	15*
9 8	0 47.70	+2 33.4	0.933	1.889	13.8	20.2	153 W	48 61	10 16	7 37.38	+48 10.8	0.300	1.063	69.2	19.2	94 W	86*	15*
9 13	0 40.52	+1 15.9	0.901	1.879	10.4	20.0	160 W	46 63	10 18	7 57.72	+47 24.3	0.293	1.052	71.1	19.1	93 W	86*	15*
9 18	0 32.33	-0 9.0	0.874	1.868	6.7	19.8	167 W	45 64	10 20	8 18.08	+46 22.2	0.287	1.041	73.1	19.1	91 W	84*	15*
9 23	0 23.34	-1 39.3	0.855	1.856	3.2	19.5	174 W	43 66	10 22	8 38.21	+45 4.4	0.282	1.029	75.2	19.1	89 W	83*	15*
9 28	0 13.84	-3 12.0	0.843	1.843	2.9	19.5	175 E	42 67	10 24	8 57.91	+43 30.9	0.277	1.018	77.3	19.2	87 W	81*	16*
10 3	0 4.16	-4 43.9	0.838	1.829	6.5	19.6	168 E	40 69	10 26	9 16.99	+41 42.7	0.274	1.007	79.5	19.2	85 W	79*	16*
10 8	23 54.63	-6 11.8	0.840	1.813	10.5	19.8	161 E	39 70	10 28	9 35.31	+39 40.8	0.272	0.996	81.7	19.2	83 W	77*	17*
10 13	23 45.61	-7 32.9	0.849	1.797	14.4	19.9	153 E	37 72	10 30	9 52.76	+37 26.9	0.270	0.985	83.9	19.3	80 W	74*	17*
10 18	23 37.39	-8 45.0	0.863	1.780	18.2	20.1	146 E	36 73	11 1	10 9.30	+35 2.8	0.270	0.974	86.0	19.3	78 W	72*	18*
10 23	23 30.21	-9 46.6	0.884	1.761	21.7	20.2	139 E	35 74	11 3	10 24.91	+32 30.5	0.271	0.963	88.2	19.4	76 W	69*	19*
10 28	23 24.24	-10 36.9	0.908	1.741	24.9	20.3	133 E	34 75	11 5	10 39.61	+29 52.3	0.273	0.952	90.2	19.5	74 W	67*	20*
11 7	23 16.19	-11 44.7	0.966	1.698	30.2	20.6	120 E	33 76	11 7	10 53.43	+27 10.1	0.275	0.942	92.1	19.5	72 W	64*	21*
11 17	23 13.25	-12 12.6	1.032	1.651	34.4	20.8	110 E	33 76	11 9	11 6.42	+24 26.0	0.279	0.932	93.9	19.6	70 W	62*	22*
11 27	23 14.98	-12 7.0	1.099	1.598	37.5	20.9	100 E	33 76*	11 11	11 18.65	+21 41.8	0.284	0.921	95.5	19.7	68 W	59*	22*
12 7	23 20.69	-11 34.1	1.162	1.541	39.7	21.0	91 E	33 71*	11 13	11 30.18	+18 58.9	0.290	0.911	97.0	19.8	66 W	57*	23*
12 17	23 29.75	-10 38.5	1.218	1.479	41.4	21.1	84 E	34 64*	11 15	11 41.07	+16 18.7	0.297	0.902	98.3	19.9	64 W	55*	24*
12 27	23 41.66	-9 23.7	1.263	1.412	42.7	21.1	77 E	36 57*	11 17	11 51.40	+13 42.3	0.305	0.892	99.4	20.0	63 W	52*	25*
1 6	23 56.01	-7 5.2	1.295	1.339	43.8	21.1	70 E	37* 50*	11 19	12 1.22	+11 10.5	0.313	0.883	100.3	20.0	62 W	50*	26*
1 16	0 12.55	-6 56.1	1.312	1.262	44.9	21.0	65 E	38* 45*	11 21	12 10.60	+8 43.8	0.323	0.874	101.0	20.1	60 W	48*	28*
357635 2005 GW₈									11 23	12 19.59	+6 22.6	0.333	0.866	101.5	20.2	59 W	46*	29*
8 9	1 11.85	+27 34.9	2.158	2.656	21.2	21.4	108 W	73 36	11 25	12 28.25	+4 7.1	0.344	0.858	101.8	20.3	58 W	44*	30*
8 14	1 13.45	+27 46.3	2.079	2.637	20.8	21.3	112 W	73 36	11 27	12 36.63	+1 57.5	0.355	0.850	101.9	20.3	57 W	42*	31*
8 19	1 14.48	+27 52.9	2.002	2.617	20.2	21.2	117 W	73 36	12 2	12 56.62	-3 1.5	0.387	0.833	101.6	20.4	56 W	38*	33*
8 24	1 14.91	+27 54.0	1.927	2.597	19.5	21.1	121 W	73 36	12 7	13 15.67	-7 26.3	0.422	0.818	100.3	20.5	55 W	34*	35*
8 29	1 14.70	+27 49.1	1.855	2.578	18.6	21.0	126 W	73 36	12 12	13 34.22	-11 20.0	0.459	0.807	98.3	20.6	54 W	31*	37*
9 3	1 13.85	+27 37.3	1.787	2.558	17.5	20.8	130 W	73 36	12 17	13 52.56	-14 45.9	0.498	0.799	95.8	20.6	54 W	28*	39*
9 8	1 12.33	+27 17.9	1.722	2.537	16.3	20.7	135 W	72 37	12 22	14 10.89	-17 46.9	0.539	0.796	93.0	20.7	54 W	25*	41*
9 13	1 10.16	+26 50.3	1.661	2.517	14.8	20.5	140 W	72 37	12 27	14 29.35	-20 25.6	0.580	0.796	89.8	20.7	54 W	23*	43*
9 18	1 7.37	+26 13.6	1.605	2.497	13.3	20.4	145 W	71 38	1 1	14 48.02	-22 44.0	0.621	0.800	86.6	20.7	54 W	21*	45*
9 28	1 0.19	+24 31.6	1.509	2.455	9.8	20.1	155 W	70 39	1 6	15 6.90	-24 43.9	0.661	0.808	83.4	20.8	55 W	19*	46*
10 8	0 51.59	+22 1																

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

20/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45° - 26°	20/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45° - 26°
275589 1999 VE₂₀ (continuation)									164714 1998 FN₉₁ (continuation)								
11 17	3 25.69	+14 50.4	0.484	1.472	2.8	18.1	176 E	60 49	10 13	5 16.68	+28 54.1	1.261	1.953	26.5	20.2	119 W	74 35
11 22	3 21.31	+14 51.7	0.483	1.467	5.9	18.2	171 E	60 49	10 18	5 18.80	+29 37.0	1.207	1.944	25.3	20.0	124 W	75 34
11 27	3 17.27	+14 56.4	0.486	1.462	9.6	18.4	166 E	60 49	10 23	5 19.93	+30 21.3	1.155	1.935	23.9	19.9	128 W	75 34
12 2	3 13.88	+15 4.9	0.493	1.459	13.4	18.6	160 E	60 49	10 28	5 19.97	+31 7.0	1.106	1.925	22.2	19.7	133 W	76 33
12 7	3 11.38	+15 17.8	0.504	1.456	17.0	18.7	154 E	60 49	11 2	5 18.84	+31 53.6	1.061	1.916	20.4	19.6	138 W	77 32
12 17	3 9.73	+15 57.0	0.537	1.453	23.4	19.1	144 E	61 48	11 7	5 16.47	+32 40.6	1.020	1.907	18.3	19.4	143 W	78 31
12 27	3 13.15	+16 53.6	0.581	1.454	28.6	19.4	135 E	62 47	11 12	5 12.82	+33 27.1	0.983	1.897	16.0	19.2	148 W	78 31
1 6	3 21.47	+18 3.2	0.636	1.458	32.6	19.7	127 E	63 46	11 17	5 7.91	+34 11.6	0.951	1.888	13.6	19.1	153 W	79 30
1 16	3 34.15	+19 20.4	0.699	1.465	35.5	20.0	120 E	64 45	11 22	5 1.83	+34 52.8	0.924	1.878	11.1	18.9	158 W	80 29
220006 2002 PS₈₇									417966 2007 TX₁₁₉								
8 9	2 25.44	+37 24.6	2.714	2.899	20.5	21.5	90 W	77* 27	8 9	4 0.12	+17 57.0	1.770	1.798	33.0	21.5	75 W	49* 45*
8 19	2 29.52	+39 19.6	2.590	2.902	20.2	21.4	98 W	84* 25	8 19	4 18.09	+19 3.3	1.700	1.825	33.1	21.4	80 W	55* 44*
8 29	2 31.13	+41 10.3	2.470	2.904	19.6	21.3	105 W	86 23	8 29	4 34.40	+20 0.3	1.626	1.852	32.9	21.4	86 W	60* 44*
9 8	2 29.87	+42 53.9	2.357	2.905	18.6	21.1	113 W	88 21	9 8	4 48.70	+20 49.6	1.551	1.881	32.4	21.3	92 W	64* 43
9 18	2 25.34	+44 25.9	2.254	2.905	17.2	21.0	121 W	89 20	9 18	5 0.56	+21 33.2	1.474	1.910	31.3	21.2	99 W	67 42
9 28	2 17.41	+45 39.9	2.165	2.904	15.5	20.8	129 W	89 18	9 28	5 9.49	+22 12.9	1.398	1.940	29.6	21.1	107 W	67 42
10 8	2 6.34	+46 28.9	2.094	2.902	13.7	20.7	137 W	89 18	10 8	5 14.98	+22 50.5	1.324	1.970	27.3	20.9	115 W	68 41
10 18	1 52.95	+46 46.3	2.044	2.899	12.1	20.6	143 W	88 17	10 18	5 16.54	+23 27.0	1.258	2.001	24.2	20.7	125 W	68 41
10 28	1 38.63	+46 28.7	2.018	2.895	11.1	20.5	146 E	89 18	10 28	5 13.80	+24 2.2	1.201	2.031	20.1	20.5	135 W	69 40
11 7	1 25.04	+45 37.9	2.016	2.890	11.1	20.5	146 E	89 18	11 7	5 6.81	+24 34.4	1.160	2.062	15.3	20.3	147 W	70 39
11 17	1 13.65	+44 20.9	2.040	2.884	12.2	20.6	142 E	89 20	11 12	5 1.87	+24 48.3	1.147	2.077	12.5	20.2	153 W	70 39
11 27	1 5.47	+42 48.4	2.088	2.877	13.9	20.7	136 E	88 21	11 17	4 56.15	+25 0.2	1.139	2.092	9.7	20.1	159 W	70 39
12 7	1 0.90	+41 11.6	2.156	2.870	15.7	20.8	128 E	86 23	11 22	4 49.83	+25 9.7	1.137	2.108	6.8	20.0	165 W	70 39
12 17	0 59.89	+39 39.8	2.241	2.861	17.4	20.9	120 E	85 24	11 27	4 43.16	+25 16.6	1.142	2.123	3.9	19.9	172 W	70 39
12 27	1 2.16	+38 19.5	2.340	2.851	18.7	21.1	111 E	83 25*	12 2	4 36.39	+25 20.9	1.153	2.138	1.6	19.8	177 W	70 39
1 6	1 7.27	+37 14.4	2.448	2.840	19.7	21.2	103 E	82 24*	12 7	4 29.77	+25 22.8	1.171	2.153	2.9	19.9	174 E	70 39
1 16	1 14.83	+36 25.6	2.561	2.829	20.3	21.3	95 E	81 23*	12 12	4 23.52	+25 22.7	1.196	2.168	5.6	20.1	168 W	70 39
297839 2002 BE₁₇									465749 2009 WO₆								
8 9	2 26.53	-6 59.8	2.782	3.181	18.0	21.5	104 W	37* 71	8 9	4 0.67	-5 2.3	1.866	1.975	30.4	21.3	81 W	30* 67*
8 19	2 29.47	-8 30.2	2.682	3.206	17.0	21.4	112 W	36* 73	8 19	4 19.59	-4 10.2	1.711	1.905	31.9	21.1	85 W	35* 67*
8 29	2 30.37	-10 13.3	2.591	3.230	15.5	21.3	121 W	35 74	8 29	4 38.66	-3 18.4	1.559	1.836	33.4	20.9	89 W	38* 67*
9 8	2 29.10	-12 6.0	2.516	3.253	13.8	21.2	130 W	33 76	9 8	4 57.90	-2 23.5	1.411	1.768	34.7	20.6	92 W	41* 66*
9 18	2 25.67	-14 3.3	2.459	3.275	11.9	21.1	138 W	31 78	9 18	5 17.30	-1 21.2	1.265	1.701	36.0	20.3	96 W	44* 65
9 28	2 20.22	-15 58.4	2.426	3.297	10.0	21.0	145 W	29 80	9 23	5 27.07	-0 45.2	1.195	1.668	36.5	20.2	98 W	44* 65
10 8	2 13.14	-17 43.9	2.417	3.317	8.8	20.9	149 W	27 82	9 28	5 36.89	+0 4.6	1.125	1.636	37.0	20.0	100 W	45 64
10 18	2 5.01	-19 12.3	2.437	3.337	8.6	20.9	150 W	26 83	10 3	5 46.79	+0 42.0	1.057	1.605	37.5	19.9	102 W	46 63
10 28	1 56.56	-20 17.7	2.483	3.356	9.4	21.0	146 E	25 84	10 8	5 56.79	+1 36.2	0.990	1.574	37.9	19.7	105 W	47 62
11 7	1 48.58	-20 57.2	2.555	3.374	10.9	21.0	140 E	24 85	10 13	6 6.90	+2 39.8	0.925	1.544	38.2	19.5	107 W	48 61
11 17	1 41.73	-21 10.5	2.650	3.391	12.5	21.3	132 E	24 85	10 18	6 17.15	+3 55.0	0.862	1.516	38.4	19.3	109 W	49 60
11 27	1 36.53	-20 59.7	2.764	3.408	14.0	21.5	123 E	24 85	10 23	6 27.60	+5 24.8	0.801	1.488	38.5	19.1	111 W	50 59
112221 2002 KH₄									164714 1998 FN₉₁								
8 9	3 23.11	+37 6.1	3.189	3.160	18.4	21.5	79 W	68* 27*	12 9	8 36.23	+41 26.3	0.423	1.307	33.9	17.3	132 W	86 23
8 19	3 27.45	+37 4.8	3.056	3.176	18.6	21.4	87 W	76* 27	12 11	8 44.48	+43 50.9	0.419	1.304	34.1	17.3	132 W	89 20
8 29	3 29.52	+36 55.0	2.919	3.192	18.3	21.3	96 W	82* 27	12 13	8 53.14	+46 14.7	0.417	1.300	34.3	17.3	132 W	89 18
9 8	3 29.05	+36 34.2	2.782	3.206	17.6	21.2	106 W	82 27	12 15	9 2.24	+48 36.4	0.416	1.297	34.7	17.3	131 W	86 15
9 18	3 25.81	+35 59.3	2.651	3.218	16.3	21.0	116 W	81 28	12 17	9 11.81	+50 54.7	0.416	1.295	35.1	17.3	131 W	84 13
9 28	3 19.72	+35 6.4	2.532	3.230	14.4	20.9	127 W	80 29	12 19	9 21.85	+53 8.5	0.417	1.293	35.5	17.3	130 W	82 11
10 8	3 10.94	+33 51.7	2.429	3.240	11.9	20.7	138 W	79 30	12 21	9 32.39	+55 16.7	0.419	1.291	36.0	17.3	129 W	80 9
10 18	2 59.96	+32 12.5	2.351	3.249	8.9	20.5	150 W	77 32	12 23	9 43.42	+57 18.4	0.423	1.290	36.6	17.4	129 W	78 7
10 28	2 47.60	+30 8.7	2.302	3.257	5.7	20.3	161 W	75 34	12 25	9 54.95	+59 12.7	0.427	1.289	37.2	17.4	128 W	76 5
11 2	2 41.24	+28 58.7	2.291	3.261	4.4	20.3	165 W	74 35	12 27	10 6.94	+60 59.2	0.433	1.289	37.8	17.5	127 W	74 3
11 7	2 34.94	+27 44.5	2.288	3.264	3.6	20.2	168 E	73 36	12 29	10 19.36	+62 37.3	0.439	1.289	38.3	17.5	126 W	72 1
11 12	2 28.84	+26 27.1	2.294	3.267	3.9	20.2	167 E	71 38									
11 17	2 23.07	+25 8.0	2.310	3.269	5.0	20.3	163 E	70 39									
11 22	2 17.73	+23 48.4	2.334	3.271	6.4	20.4	158 E	69 40									
11 27	2 12.92	+22 29.9	2.367	3.273	8.0	20.5	152 E	67 42									
12 2	2 8.69	+21 13.5	2.408	3.275	9.6	20.6	146 E	66 43									
12 7	2 5.08	+20 0.4	2.456	3.276	11.0	20.7	140 E	65 44									
12 12	2 2.12	+18 51.3	2.511	3.277	12.4	20.8	135 E	64 45									
12 17	1 59.80	+17 47.0	2.572	3.278	13.6	20.9	129 E	63 46									
12 22	1 58.14	+16 47.7	2.638	3.278	14.6	21.0	123 E	62 47									
12 27	1 57.09	+15 53.8	2.709	3.278	15.5	21.1	117 E	61 48									
1 1	1 56.65	+15 5.3	2.782	3.278	16.2	21.2	112 E	60 49*									
1 6	1 56.76	+14 22.0	2.859	3.278	16.7	21.3											

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

20/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	20/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°										
465749 2009 WO₆ (continuation)										171665 2000 KK₂₃ (continuation)																			
12 31	10 32.14	+64 7.1	0.446	1.290	38.9	17.5	125 W	71	—	12 12	4 14.41	+20 40.1	1.434	2.399	6.0	20.3	165 E	66	43	12 17	4 9.13	+20 36.8	1.467	2.412	8.4	20.4	159 E	66	43
1 2	10 45.20	+65 28.3	0.453	1.290	39.4	17.6	124 W	70	—	12 22	4 4.52	+20 34.3	1.508	2.425	10.7	20.6	153 E	66	43	12 27	4 0.67	+20 33.0	1.554	2.437	12.8	20.7	147 E	66	43
1 4	10 58.44	+66 41.1	0.462	1.292	39.9	17.7	123 W	68	—	1 1	3 57.65	+20 33.3	1.605	2.449	14.6	20.9	141 E	66	43	1 6	3 55.46	+20 35.2	1.662	2.461	16.3	21.0	135 E	66	43
1 6	11 11.74	+67 45.9	0.471	1.293	40.4	17.7	122 W	67	—	1 11	3 54.12	+20 38.9	1.723	2.473	17.7	21.2	130 E	66	43	1 16	3 53.61	+20 44.5	1.788	2.485	18.9	21.3	125 E	66	43
1 8	11 24.95	+68 43.1	0.480	1.296	40.8	17.8	121 W	66	—	264242 2010 TO₁₃₁																			
1 10	11 37.95	+69 33.0	0.489	1.298	41.1	17.8	120 W	65	—	8 9	4 23.06	+19 36.8	1.809	1.734	33.2	21.5	69 W	47*	42*	8 19	4 44.59	+20 24.9	1.742	1.755	33.6	21.4	74 W	52*	42*
1 12	11 50.59	+70 16.2	0.499	1.301	41.4	17.9	119 W	65	—	8 29	5 4.81	+21 0.7	1.673	1.777	33.9	21.4	79 W	57*	42*	9 8	5 23.42	+21 26.0	1.601	1.801	33.8	21.3	84 W	62*	42*
1 14	12 2.73	+70 53.4	0.510	1.304	41.7	17.9	118 W	64	—	9 18	5 40.07	+21 42.9	1.526	1.826	33.4	21.2	90 W	65*	42*	9 28	5 54.34	+21 53.8	1.450	1.852	32.5	21.1	96 W	67*	42*
1 16	12 14.26	+71 25.2	0.520	1.308	41.9	18.0	117 W	64	—	10 8	6 5.80	+22 1.5	1.375	1.879	31.1	21.0	104 W	67	42	10 18	6 13.96	+22 8.6	1.301	1.907	29.1	20.8	112 W	67	42
162679 2000 TK₁										10 28	6 18.29	+22 17.7	1.232	1.936	26.2	20.7	121 W	67	42	11 7	6 18.43	+22 30.3	1.171	1.965	22.6	20.5	130 W	68	41
8 9	4 10.25	+29 43.5	1.607	1.591	37.0	21.3	71 W	56*	33*	11 17	6 14.18	+22 46.7	1.123	1.995	18.0	20.3	142 W	68	41	11 27	6 5.83	+23 5.1	1.093	2.025	12.5	20.1	154 W	68	41
8 14	4 22.70	+31 20.0	1.532	1.563	38.2	21.2	73 W	59*	32*	12 2	6 0.42	+23 14.3	1.085	2.040	9.6	20.0	160 W	68	41	12 7	5 54.42	+23 22.8	1.084	2.055	6.5	19.8	166 W	68	41
8 19	4 35.98	+33 0.0	1.457	1.533	39.5	21.1	74 W	62*	30*	12 7	5 48.05	+23 30.3	1.089	2.070	3.4	19.7	173 W	69	40	12 12	5 41.56	+23 36.6	1.100	2.085	0.3	19.5	179 W	69	40
8 24	4 50.28	+34 43.7	1.382	1.501	40.8	21.0	76 W	65*	28*	12 17	5 35.23	+23 41.7	1.119	2.099	2.8	19.7	174 E	69	40	12 22	5 29.29	+23 45.7	1.143	2.114	5.7	20.0	168 E	69	40
8 29	5 5.81	+36 31.1	1.309	1.468	42.2	20.9	77 W	68*	27*	1 1	5 23.95	+23 48.8	1.175	2.129	8.5	20.2	161 E	69	40	1 6	5 19.36	+23 51.3	1.212	2.144	11.1	20.4	155 E	69	40
9 3	5 22.89	+38 21.7	1.237	1.434	43.6	20.7	79 W	70*	25*	1 11	5 15.64	+23 53.6	1.255	2.159	13.5	20.5	149 E	69	40	1 16	5 12.85	+23 55.9	1.303	2.174	15.6	20.7	143 E	69	40
9 8	5 41.87	+40 14.6	1.167	1.398	45.2	20.6	80 W	72*	23*	381946 2010 DP₂₀																			
9 13	6 3.20	+42 8.2	1.100	1.360	46.8	20.4	80 W	74*	21*	8 9	4 25.49	+44 51.7	1.793	1.675	33.8	21.5	67 W	60*	18*	8 14	4 41.44	+45 43.3	1.756	1.670	34.3	21.5	68 W	62*	17*
9 18	6 27.39	+43 59.3	1.036	1.321	48.7	20.3	81 W	75*	18*	8 19	4 57.57	+46 28.8	1.718	1.666	34.8	21.4	70 W	64*	16*	8 24	5 13.82	+47 8.2	1.679	1.662	35.2	21.4	71 W	65*	15*
9 20	6 37.99	+44 42.1	1.011	1.304	49.4	20.2	81 W	75*	17*	8 29	5 30.11	+47 41.2	1.641	1.657	35.7	21.3	73 W	67*	15*	9 3	5 46.38	+48 7.9	1.602	1.653	36.1	21.3	75 W	69*	14*
9 22	6 49.19	+45 23.2	0.987	1.288	50.3	20.2	81 W	75*	16*	9 8	6 2.54	+48 28.3	1.562	1.649	36.4	21.2	76 W	70*	14*	9 13	6 18.50	+48 42.7	1.522	1.645	36.8	21.2	78 W	72*	14*
9 24	7 1.00	+46 2.3	0.964	1.271	51.1	20.1	81 W	74*	15*	9 18	6 34.18	+48 51.2	1.481	1.641	37.1	21.1	80 W	74*	13*	9 18	6 34.18	+48 51.2	1.481	1.641	37.1	21.1	80 W	74*	13*
9 26	7 13.48	+46 38.7	0.941	1.254	52.0	20.1	80 W	74*	14*	9 23	6 49.46	+48 54.2	1.440	1.638	37.4	21.1	82 W	75*	13*	9 28	7 4.27	+48 52.0	1.399	1.634	37.6	21.0	84 W	77*	13*
9 28	7 26.63	+47 11.9	0.919	1.237	52.9	20.0	80 W	74*	13*	10 3	7 18.52	+48 45.0	1.357	1.630	37.8	20.9	86 W	79*	13*	10 8	7 32.15	+48 33.7	1.314	1.627	37.9	20.9	88 W	81*	14*
9 30	7 40.48	+47 41.0	0.899	1.220	53.9	20.0	80 W	73*	12*	10 13	7 45.05	+48 18.7	1.271	1.624	37.9	20.8	91 W	83*	14*	10 18	7 57.14	+48 0.5	1.228	1.620	37.9	20.7	93 W	85*	14*
10 2	7 55.02	+48 5.3	0.879	1.202	54.9	19.9	79 W	72*	11*	10 23	8 8.34	+47 39.5	1.184	1.617	37.8	20.6	95 W	87*	15*	10 28	8 18.58	+47 16.2	1.140	1.614	37.5	20.5	98 W	88	15*
10 4	8 10.25	+48 23.9	0.860	1.184	55.9	19.9	79 W	71*	10*	11 2	8 27.77	+46 51.0	1.095	1.612	37.2	20.4	101 W	88	16*	11 7	8 35.82	+46 24.4	1.051	1.609	36.7	20.3	104 W	89	17*
10 6	8 26.13	+48 35.9	0.842	1.165	57.0	19.8	78 W	71*	9*	11 12	8 42.63	+45 56.5	1.007	1.607	36.1	20.2	107 W	89	18*	11 17	8 48.07	+45 27.5	0.963	1.604	35.2	20.1	111 W	90	18*
10 8	8 42.61	+48 40.4	0.825	1.147	58.2	19.8	77 W	70*	8*	11 22	8 52.02	+44 57.3	0.919	1.602	34.2	20.0	114 W	90	19*	11 27	8 54.35	+44 25.4	0.877	1.601	32.9	19.8	118 W	89	20
10 10	8 59.59	+48 36.6	0.810	1.128	59.4	19.7	76 W	68*	8*	12 2	8 54.93	+43 51.2	0.836	1.599	31.3	19.7	123 W	89	20	12 7	8 53.63	+43 13.5	0.796	1.597	29.5	19.5	127 W	88	21
10 12	9 16.97	+48 23.5	0.795	1.109	60.6	19.7	75 W	67*	7*	12 12	8 50.32	+42 30.8	0.759	1.596	27.3	19.3	132 W	88	21	12 17	8 44.93	+41 41.0	0.725	1.595	24.7	19.2	137 W	87	22
10 14	9 34.64	+48 0.5	0.782	1.089	61.9	19.7	74 W	66*	6*	12 22	8 37.50	+40 41.4	0.694	1.594	21.8	19.0	143 W	86	23	1 1	8 28.19	+39 29.4	0.667	1.593	18.5	18.8	149 W	84	25
10 16	9 52.44	+47 27.0	0.771	1.070	63.2	19.6	73 W	65*	5*	1 1	8 17.32	+38 2.4	0.645	1.593	14.9	18.6	155 W	83	26	1 6	8 5.33	+36 19.1	0.629	1.592	11.4	18.4	161 W	81	28
10 18	10 10.22	+46 42.6	0.761	1.050	64.5	19.6	72 W	63*	4*	1 11	7 52.80	+34 19.5	0.619	1.592	8.3	18.2	167 W	79	30	1 16	7 40.37	+32 5.6	0.616	1.592	7.0	18.2	169 E	77	32
10 20	10 27.84	+45 47.2	0.752	1.030	65.8	19.6	71 W	62*	3*	162510 2000 QW₆₉																			
10 22	10 45.15	+44 40.9	0.745	1.009	67.2	19.5	69 W	61*	2*	8 9	5 53.51	+52 24.5	2.051	1.670	29.4	21.5	54 W	48*	5*	8 14	6 14.48	+53 2.6	2.012	1.657	30.1	21.4	55 W	49*	4*
10 24	11 2.04	+43 23.8	0.739	0.989	68.6	19.5	68 W	59*	2*	8 19	6 36.05	+53 31.1	1.972	1.643	30.8	21.4	56 W	50*	3*	8 24	6 58.09	+53 49.4	1.933	1.628	31.5	21.3	57 W	50*	2*
10 26	11 18.41	+41 56.6	0.735	0.968	69.9	19.5	66 W	58*	1*	8 29	7 20.44	+53 56.7	1.893	1.613	32.2	21.3	58 W	51*	1*	9 3	7 42.94	+53 52.8	1.854	1.597	32.9	21.2	59 W	51*	1*
10 28	11 34.17	+40 19.8	0.732	0.947	71.3	19.5	64 W	56*	1*	9 8	8 5.41	+53 37.5	1.815	1.581	33.6	21.2	60 W	52*	—	9 13	8 27.67	+53 10.8	1.776	1.564	34.3	21.1	61 W	52*	—
10 30	11 49.28	+38 34.3	0.732	0.926	72.6	19.5	63 W	54*	—	9 18	8 49.55	+52 32.9	1.737	1.546	35.0	21.1	62 W	53*	—	9 23	8 49.55								

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

20/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	20/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°
162510 2000 QW₆₉ (continuation)										215588 2003 HF₂									
10 8	10 10.77	+48 17.8	1.580	1.469	38.0	20.9	65 W	55*	—	8 9	7 38.24	+21 24.6	0.865	0.414	98.7	20.7	24 W	14*	12*
10 13	10 29.18	+46 50.9	1.540	1.449	38.8	20.8	66 W	56*	—	8 11	7 50.21	+20 42.6	0.919	0.394	92.1	20.5	23 W	13*	11*
10 18	10 46.79	+45 15.8	1.501	1.428	39.7	20.7	66 W	57*	—	8 13	8 2.48	+19 58.1	0.975	0.378	84.8	20.2	22 W	12*	10*
10 23	11 3.62	+43 33.1	1.460	1.406	40.6	20.7	67 W	58*	1*	8 15	8 15.12	+19 10.6	1.031	0.367	76.8	20.0	21 W	11*	9*
10 28	11 19.71	+41 42.9	1.420	1.385	41.5	20.6	67 W	59*	2*	8 17	8 28.09	+18 19.9	1.088	0.362	68.4	19.8	19 W	10*	8*
11 2	11 35.10	+39 45.5	1.379	1.362	42.4	20.5	68 W	60*	3*	8 19	8 41.31	+17 26.2	1.143	0.363	60.0	19.6	18 W	9*	7*
11 7	11 49.85	+37 40.9	1.337	1.340	43.5	20.4	68 W	61*	5*	8 21	8 54.64	+16 29.6	1.197	0.369	51.8	19.5	17 W	8*	6*
11 12	12 4.03	+35 29.0	1.295	1.317	44.5	20.4	69 W	62*	7*	8 23	9 7.93	+15 30.8	1.249	0.382	44.3	19.5	15 W	7*	5*
11 17	12 17.68	+33 9.5	1.252	1.294	45.7	20.3	69 W	63*	9*	8 25	9 21.02	+14 30.4	1.297	0.399	37.5	19.5	14 W	6*	4*
11 22	12 30.88	+30 41.8	1.209	1.271	46.9	20.2	70 W	64*	11*	8 27	9 33.80	+13 29.1	1.343	0.419	31.6	19.5	13 W	5*	3*
11 27	12 43.69	+28 5.3	1.165	1.248	48.1	20.1	70 W	64*	14*	8 29	9 46.20	+12 27.4	1.387	0.443	26.5	19.5	11 W	4*	2*
12 2	12 56.19	+25 18.7	1.121	1.225	49.5	20.0	71 W	64*	17*	9 3	10 15.25	+ 9 54.6	1.486	0.511	17.1	19.7	9 W	1*	—
12 7	13 8.47	+22 21.0	1.076	1.201	50.9	19.9	71 W	63*	20*	9 8	10 41.54	+ 7 27.7	1.575	0.585	11.2	19.9	6 W	—	—
12 12	13 20.63	+19 10.6	1.032	1.178	52.4	19.9	71 W	61*	23*	9 13	11 5.36	+ 5 8.7	1.656	0.659	7.6	20.1	5 W	—	—
12 17	13 32.76	+15 45.9	0.988	1.156	54.0	19.8	72 W	59*	27*	9 18	11 27.10	+ 2 58.5	1.731	0.732	5.5	20.4	4 W	—	—
12 22	13 44.96	+12 4.9	0.944	1.134	55.6	19.7	72 W	56*	31*	9 28	12 5.63	- 0 56.2	1.870	0.871	3.9	20.8	3 W	—	—
12 27	13 57.39	+ 8 5.5	0.902	1.112	57.3	19.6	72 W	52*	36*	10 8	12 39.28	- 4 19.5	1.993	0.999	4.2	21.3	4 W	—	—
1	14 10.20	+ 3 45.7	0.861	1.092	59.1	19.5	72 W	48*	41*	10 18	13 9.50	- 7 16.1	2.100	1.114	5.4	21.7	6 W	—	—
1	14 23.62	- 0 56.1	0.824	1.072	60.8	19.4	72 W	44*	46*	10 28	13 37.20	- 9 49.5	2.192	1.219	7.0	22.1	9 W	2*	—
1	14 37.87	- 6 0.5	0.789	1.053	62.6	19.3	72 W	39*	50*	504256 2006 VD₁₃									
1	14 53.25	-11 26.9	0.759	1.035	64.3	19.3	72 W	34*	55*	8 9	7 41.55	+26 3.0	1.881	1.044	23.5	21.5	24 W	17*	8*
434380 2004 UX₅										8 14	8 4.25	+24 32.8	1.873	1.029	23.3	21.4	24 W	16*	8*
8 9	6 7.73	+32 46.4	2.190	1.650	26.1	21.5	46 W	37*	19*	8 19	8 26.51	+22 49.6	1.869	1.018	22.9	21.4	23 W	16*	8*
8 14	6 23.93	+33 27.1	2.150	1.640	26.9	21.4	47 W	39*	18*	8 24	8 48.24	+20 54.8	1.868	1.009	22.4	21.4	22 W	15*	7*
8 19	6 40.46	+34 2.6	2.111	1.630	27.8	21.4	49 W	41*	18*	8 29	9 9.38	+18 50.0	1.870	1.005	21.9	21.3	22 W	15*	7*
8 24	6 57.30	+34 32.4	2.072	1.620	28.6	21.4	50 W	43*	17*	9 3	9 29.92	+16 37.0	1.875	1.004	21.4	21.3	21 W	14*	7*
8 29	7 14.39	+34 56.2	2.035	1.612	29.3	21.4	51 W	44*	17*	9 8	9 49.84	+14 17.6	1.882	1.006	20.8	21.3	21 W	13*	7*
9 3	7 31.71	+35 13.9	1.997	1.603	30.1	21.3	53 W	46*	16*	9 13	10 9.17	+11 53.4	1.893	1.012	20.2	21.3	20 W	13*	7*
9 8	7 49.20	+35 25.3	1.961	1.596	30.8	21.3	54 W	48*	16*	9 18	10 27.93	+ 9 26.3	1.905	1.021	19.7	21.3	20 W	12*	7*
9 13	8 6.81	+35 30.3	1.926	1.589	31.4	21.3	55 W	49*	15*	9 23	10 46.15	+ 6 57.7	1.920	1.034	19.2	21.4	20 W	12*	8*
9 18	8 24.46	+35 28.9	1.891	1.583	32.1	21.2	57 W	51*	15*	9 28	11 3.85	+ 4 29.1	1.936	1.049	18.8	21.4	20 W	12*	8*
9 23	8 42.09	+35 21.2	1.858	1.578	32.7	21.2	58 W	52*	14*	10 3	11 21.10	+ 2 1.8	1.954	1.068	18.5	21.4	20 W	12*	8*
9 28	8 59.64	+35 7.3	1.825	1.574	33.3	21.2	59 W	53*	14*	85774 1998 UT₁₈									
10 3	9 17.04	+34 47.5	1.793	1.570	33.8	21.2	61 W	55*	14*	8 9	7 58.96	+24 22.9	1.840	0.953	21.3	21.5	20 W	13*	6*
10 8	9 34.25	+34 22.2	1.763	1.567	34.3	21.1	62 W	56*	14*	8 14	8 22.95	+23 46.2	1.840	0.946	20.9	21.4	19 W	12*	5*
10 13	9 51.20	+33 51.7	1.733	1.565	34.8	21.1	63 W	57*	14*	8 19	8 46.73	+22 55.3	1.841	0.942	20.3	21.4	19 W	12*	3*
10 18	10 7.83	+33 16.7	1.703	1.563	35.2	21.1	65 W	59*	14*	8 24	9 10.17	+21 51.0	1.846	0.941	19.7	21.4	18 W	12*	2*
10 23	10 24.11	+32 37.7	1.675	1.563	35.6	21.0	66 W	60*	14*	8 29	9 33.14	+20 34.4	1.852	0.943	19.1	21.4	18 W	12*	1*
10 28	10 39.98	+31 55.2	1.647	1.563	35.9	21.0	67 W	61*	14*	9 3	9 55.57	+19 6.8	1.861	0.947	18.5	21.4	17 W	11*	—
11 2	10 55.43	+31 9.9	1.619	1.564	36.3	21.0	69 W	63*	15*	9 8	10 17.40	+17 29.8	1.872	0.954	17.8	21.4	17 W	11*	—
11 7	11 10.43	+30 22.4	1.592	1.566	36.6	21.0	70 W	64*	16*	9 13	10 38.60	+15 44.9	1.885	0.963	17.2	21.4	16 W	10*	—
11 12	11 24.96	+29 33.3	1.566	1.569	36.8	20.9	72 W	65*	17*	9 18	10 59.15	+13 53.7	1.899	0.975	16.6	21.4	16 W	10*	—
11 17	11 38.98	+28 43.4	1.539	1.573	37.0	20.9	73 W	66*	18*	9 23	11 19.06	+11 57.9	1.916	0.989	16.1	21.5	16 W	10*	—
11 22	11 52.48	+27 53.3	1.512	1.577	37.2	20.9	75 W	67*	19*	9 28	11 38.34	+ 9 58.9	1.933	1.005	15.6	21.5	16 W	10*	—
11 27	12 5.45	+27 3.6	1.485	1.582	37.4	20.9	77 W	68*	20*	349068 2006 YT₁₃									
12 2	12 17.88	+26 14.7	1.459	1.588	37.5	20.8	78 W	69*	22*	8 9	8 8.62	+16 23.9	2.271	1.328	12.3	21.4	16 W	5*	8*
12 7	12 29.74	+25 27.1	1.432	1.594	37.5	20.8	80 W	69*	24*	8 19	8 40.14	+16 51.2	2.184	1.263	14.5	21.3	18 W	9*	8*
12 12	12 41.03	+24 41.5	1.404	1.602	37.5	20.8	82 W	69*	26*	8 29	9 13.97	+17 2.1	2.092	1.196	16.9	21.2	20 W	12*	7*
12 17	12 51.71	+23 58.2	1.376	1.610	37.5	20.7	84 W	69*	28*	9 8	9 50.51	+16 52.5	1.999	1.126	19.3	21.0	22 W	15*	6*
12 22	13 1.77	+23 17.7	1.348	1.618	37.4	20.7	86 W	68*	30*	9 18	10 30.15	+16 17.0	1.906	1.056	21.7	20.9	23 W	17*	4*
12 27	13 11.16	+22 40.2	1.319	1.627	37.2	20.7	89 W	68*	33*	9 28	11 13.16	+15 8.2	1.820	0.987	24.0	20.7	24 W	18*	1*
1	13 19.88	+22 5.9	1.289	1.637	36.9	20.6	91 W	67*	35*	10 8	11 59.58	+13 17.9	1.745	0.920	25.7	20.5	24 W	17*	—
1	13 27.87	+21 35.2	1.259	1.648	36.5	20.6	94 W	67*	37*	10 18	12 49.10	+10 38.3	1.686	0.860	26.8	20.3	23 W	16*	—
1	13 35.09	+21 8.1	1.229	1.659	36.1	20.5	96 W	66*	39*	10 28	13 40.91	+ 7 6.5	1.649	0.810	26.6	20.1	21 W	13*	—
1	13 41.48	+20 44.9	1.199	1.670	35.5	20.5	99 W	66*	41*	11 2	14 7.30	+ 5 2.3	1.639	0.791	26.1	20.0	21 W	12*	—
412977 1990 UO										11 7	14 33.82	+ 2 48.0	1.636	0.776	25.2	20.0	19 W	10*	—
8 9	7 13.49	+11 59.6	1.382	0.715	45.2	21.2	30 W	12*	22*	11 12	15 0.31	+ 0 25.9	1.640	0.765	23.9	19.9	18 W	9*	—
8 14	7 47.67	+10 17.7	1.339	0.626	46.3	20.9	27 W	9*	19*	11 17	15 26.62	- 2 1.1	1.649	0.760	22.3	19.9	17 W	7*	—
8 19	8 25.17	+ 8 20.7	1.310	0.534	45.7	20.5	22 W	6*	15*	11 22	15 52.64	- 4 29.9	1.664	0.761	20.5	19.8	16 E	6*	—
8 24	9 6.33	+ 6 15.2	1.294	0.441	42.0	19.9	17 W	2*	11*	11 27	16 18.30	- 6 57.1	1.683	0.767	18.5	19.8	14 E	5*	—
8 29	9 51.68	+ 4 14.7	1.290	0.355	32.6	19.2	11 W	—	5*	12 2	16 43.52	- 9 19.9	1.707	0.778	16.4	19.8	13 E	5*	—
9 31	10 11.09	+ 3 32.7	1.289	0.326	26.8	18.8	8 W	—	2*	12 7	17 8.29	-11 35.4	1.734	0.793	14.3	19.8	11 E	4*	—
9 4	10 31.19	+ 2 57.1	1.287	0.303	20.5	18.5	6 W	—	—	12 12	17 32.58	-13 41.6	1.764	0.813	12.2	19.8	10 E	3*	—
9 9	10 51.81	+ 2 29.4	1.282	0.289	16.6	18.2	5 W	—	—										

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

20/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	20/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°
163243 2002 FB₃ (continuation)										6456 Golombek									
8 13	8 18.09	+19 44.4	0.911	0.321	99.2	17.4	18 W	10*	7*	8 9	9 38.35	+12 50.6	3.920	2.914	2.1	21.4	6 E	—	—
8 14	8 18.38	+18 54.8	0.939	0.329	93.4	17.3	19 W	10*	8*	8 19	9 52.18	+11 29.3	3.904	2.892	0.5	21.3	1 W	—	—
8 15	8 19.30	+18 6.2	0.967	0.339	87.9	17.2	20 W	10*	9*	8 29	10 6.03	+10 4.0	3.871	2.869	2.1	21.4	6 W	—	—
8 16	8 20.75	+17 19.0	0.995	0.349	82.8	17.1	20 W	10*	10*	9 8	10 19.88	+8 35.0	3.822	2.844	4.2	21.5	12 W	4*	3*
8 17	8 22.65	+16 33.3	1.023	0.361	78.2	17.1	20 W	10*	10*	9 18	10 33.69	+7 2.5	3.757	2.818	6.3	21.5	18 W	10*	7*
8 18	8 24.91	+15 49.2	1.050	0.374	73.9	17.1	21 W	10*	11*	101465 1998 WL₁₂									
8 19	8 27.47	+15 6.6	1.076	0.387	70.0	17.1	21 W	10*	11*	8 9	9 39.62	+11 50.3	3.866	2.862	2.5	21.5	7 E	—	1*
8 21	8 33.25	+13 46.2	1.128	0.415	63.3	17.1	21 W	10*	12*	8 19	9 54.13	+10 33.0	3.888	2.877	0.8	21.4	2 E	—	—
8 23	8 39.63	+12 31.5	1.176	0.443	57.7	17.2	22 W	10*	13*	8 29	10 8.42	+9 12.9	3.894	2.891	1.9	21.5	5 W	—	—
8 25	8 46.36	+11 21.8	1.221	0.473	53.1	17.3	22 W	10*	13*	9 8	10 22.45	+7 50.6	3.885	2.903	3.9	21.6	11 W	3*	3*
8 27	8 53.27	+10 16.5	1.264	0.503	49.2	17.4	22 W	10*	14*	9 18	10 36.20	+6 26.6	3.860	2.915	5.8	21.7	17 W	9*	7*
8 29	9 0.25	+9 15.1	1.304	0.532	46.0	17.5	22 W	9*	14*	171839 2001 JM₁									
9 3	9 17.60	+6 55.1	1.395	0.604	39.9	17.7	23 W	9*	14*	8 9	9 49.85	+4 28.3	1.993	1.039	13.7	21.5	14 E	—	6*
9 8	9 34.46	+4 50.2	1.473	0.672	35.8	17.9	23 W	10*	15*	8 14	10 9.31	+3 4.5	1.981	1.029	13.9	21.4	14 E	—	7*
9 13	9 50.66	+2 56.4	1.540	0.736	33.0	18.2	23 W	10*	15*	8 19	10 28.94	+1 38.4	1.971	1.020	14.0	21.4	14 E	—	7*
9 18	10 6.21	+1 11.1	1.598	0.795	31.1	18.4	24 W	10*	16*	8 24	10 48.73	+0 10.6	1.963	1.013	14.2	21.4	14 E	—	7*
9 23	10 21.15	+0 27.3	1.648	0.849	29.8	18.5	25 W	11*	16*	8 29	11 8.65	+1 17.8	1.957	1.009	14.3	21.4	14 E	—	7*
9 28	10 35.55	+2 0.3	1.690	0.899	28.9	18.7	26 W	12*	17*	9 3	11 28.71	+2 46.1	1.953	1.007	14.4	21.4	14 E	—	8*
10 3	10 49.50	+3 28.6	1.725	0.945	28.4	18.8	27 W	13*	18*	9 8	11 48.87	+4 13.4	1.951	1.007	14.5	21.4	14 E	—	8*
10 8	11 3.08	+4 53.1	1.753	0.987	28.2	18.9	28 W	14*	19*	9 13	12 9.12	+5 38.8	1.951	1.010	14.5	21.4	15 E	—	8*
10 18	11 29.35	+7 32.3	1.792	1.059	28.4	19.1	30 W	16*	20*	9 18	12 29.45	+7 1.5	1.954	1.014	14.6	21.4	15 E	—	8*
10 28	11 54.82	+10 0.7	1.807	1.117	29.1	19.3	33 W	18*	23*	9 23	12 49.82	+8 20.6	1.958	1.021	14.6	21.4	15 E	—	9*
11 7	12 19.93	+12 19.7	1.801	1.161	30.3	19.4	36 W	20*	25*	9 28	13 10.21	+9 35.5	1.965	1.030	14.5	21.4	15 E	—	9*
11 17	12 45.06	+14 30.3	1.775	1.193	31.9	19.5	40 W	21*	28*	10 3	13 30.60	+10 45.4	1.974	1.041	14.4	21.5	15 E	—	9*
11 27	13 10.59	+16 32.2	1.730	1.213	33.7	19.5	43 W	22*	31*	85158 Phyllistrapp									
12 7	13 36.96	+18 24.9	1.669	1.220	35.8	19.5	46 W	22*	35*	8 9	9 50.42	+10 33.0	3.998	3.004	3.3	21.4	10 E	—	4*
12 17	14 4.67	+20 7.0	1.593	1.215	38.1	19.5	50 W	22*	38*	8 19	10 3.96	+9 13.9	4.019	3.011	1.5	21.3	4 E	—	—
12 22	14 19.19	+20 53.3	1.551	1.208	39.4	19.4	51 W	22*	40*	8 29	10 17.39	+7 51.9	4.023	3.016	1.2	21.3	4 W	—	—
12 27	14 34.29	+21 35.9	1.505	1.198	40.7	19.4	53 W	22*	42*	9 8	10 30.66	+6 27.6	4.011	3.020	3.0	21.4	9 W	1*	2*
1	14 50.05	+22 14.2	1.457	1.185	42.1	19.3	54 W	21*	44*	9 18	10 43.74	+5 1.5	3.983	3.024	4.9	21.5	15 W	7*	6*
1	15 6.61	+22 47.5	1.407	1.169	43.7	19.3	55 W	21*	46*	162161 1999 DK₃									
1	15 24.09	+23 15.0	1.356	1.150	45.3	19.2	56 W	20*	47*	8 9	9 59.43	+14 14.6	2.813	1.825	5.8	21.3	11 E	—	4*
162694 2000 UH₁₁										8 19	10 22.04	+13 59.3	2.768	1.767	4.0	21.1	7 E	—	—
8 9	8 55.71	+32 11.5	1.703	0.790	22.0	21.3	17 W	9*	—	8 29	10 45.69	+13 35.7	2.711	1.709	3.3	21.0	6 E	—	—
8 14	9 22.96	+29 52.4	1.671	0.748	21.6	21.1	16 W	8*	—	9 8	11 10.47	+13 4.2	2.644	1.650	4.5	20.9	7 E	—	—
8 19	9 49.90	+27 0.8	1.641	0.705	20.7	20.9	14 W	5*	—	9 18	11 36.54	+12 25.3	2.569	1.592	6.7	20.9	11 W	3*	—
8 24	10 16.35	+23 36.5	1.612	0.663	19.3	20.7	13 E	4*	—	9 28	12 4.06	+11 39.2	2.487	1.535	9.2	20.8	14 W	6*	—
8 29	10 42.18	+19 39.8	1.585	0.621	17.5	20.5	11 E	3*	—	10 8	12 33.19	+10 46.4	2.401	1.479	11.7	20.8	17 W	10*	—
9 3	11 7.35	+15 11.8	1.558	0.583	15.5	20.2	9 E	3*	—	10 18	13 4.14	+9 47.0	2.314	1.425	14.2	20.7	21 W	13*	—
9 8	11 31.90	+10 15.2	1.531	0.550	14.3	20.0	8 E	2*	—	10 28	13 37.02	+8 41.5	2.229	1.374	16.6	20.6	23 W	15*	—
9 13	11 55.92	+4 54.1	1.502	0.524	15.3	19.9	8 E	—	1*	11 7	14 11.92	+7 30.4	2.151	1.327	18.8	20.5	25 W	17*	—
9 18	12 19.61	+0 45.4	1.469	0.507	19.3	19.9	10 E	—	3*	11 17	14 48.81	+6 14.4	2.082	1.284	20.6	20.5	27 W	19*	—
9 23	12 43.23	+6 35.0	1.433	0.503	25.6	20.1	12 E	—	6*	11 27	15 27.46	+4 55.4	2.026	1.247	22.0	20.4	28 W	20*	—
9 28	13 7.14	+12 25.5	1.394	0.511	32.6	20.2	16 E	—	9*	12 7	16 7.50	+3 35.2	1.986	1.217	22.8	20.3	29 W	21*	—
10 3	13 31.84	+18 7.3	1.352	0.530	39.3	20.4	20 E	—	12*	12 17	16 48.37	+2 16.7	1.964	1.195	23.1	20.2	28 W	21*	—
10 8	13 57.90	+23 31.8	1.311	0.558	45.1	20.6	23 E	—	15*	12 27	17 29.38	+1 3.1	1.960	1.182	22.8	20.2	28 W	21*	—
10 13	14 25.94	+28 31.6	1.273	0.593	49.7	20.8	27 E	—	18*	1	16 18 9.85	+0 3.0	1.973	1.178	21.9	20.2	27 W	20*	—
10 18	14 56.51	+32 59.2	1.239	0.632	53.0	21.0	30 E	—	21*	1	16 18 49.21	+0 59.3	1.998	1.183	20.6	20.2	25 W	19*	—
10 23	15 29.96	+36 47.1	1.211	0.674	55.3	21.2	34 E	—	25*	40315 1999 LS									
10 28	16 6.32	+39 47.6	1.189	0.717	56.5	21.3	37 E	—	28*	8 9	10 9.34	+22 45.6	3.624	2.654	5.4	21.5	14 E	7*	2*
11 2	16 45.08	+41 53.7	1.175	0.759	57.0	21.4	40 E	—	31*	8 19	10 26.08	+21 46.3	3.617	2.635	4.5	21.4	12 E	6*	—
376771 2000 DH₁₇										8 29	10 42.98	+20 44.2	3.596	2.615	4.5	21.4	12 E	4*	—
8 9	9 13.34	+13 14.0	3.062	2.050	1.3	21.5	3 W	—	—	9 8	11 0.01	+19 39.9	3.560	2.594	5.4	21.4	14 W	5*	—
8 19	9 35.16	+11 56.8	3.021	2.013	2.3	21.5	5 W	—	—	9 18	11 17.17	+18 34.4	3.510	2.572	6.9	21.4	18 W	10*	—
8 29	9 57.26	+10 30.3	2.971	1.977	4.2	21.5	8 W	—	1*	9 28	11 34.45	+17 28.7	3.447	2.549	8.6	21.4	22 W	15*	—
9 8	10 19.66	+8 55.3	2.915	1.941	6.2	21.5	12 W	4*	3*	10 8	11 51.85	+16 23.7	3.372	2.525	10.4	21.4	27 W	21*	—
9 18	10 42.38	+7 12.7	2.852	1.906	8.3	21.6	16 W	8*	5*	10 18	12 9.37	+15 20.7	3.285	2.499	12.3	21.4	32 W	26*	1*
321025 2008 ME₁										10 28	12 27.01	+14 20.9	3.187	2.473	14.1	21.4	37 W	31*	4*
8 9	9 13.37	+22 54.4	3.989	2.986	2.4	21.4	7 W	—	—	11 7	12 44.75	+13 25.6	3.079	2.446	16.0	21.4	43 W	37*	8*
8 19	9 27.21	+21 18.9	3.929	2.940	3.6	21.5	11 W	5*	—	11 17	13 2.60	+12 36.4	2.963	2.417	17.7	21.3	48 W	42*	12*
8 29	9 41.02	+19 39.2	3.852	2.894	5.4	21.5	16 W	10*	—	11 27	13 20.53	+11 54.9	2.839	2.388	19.4	21.2	53 W	46*	16*
9 8	9 54.78	+17 55.4	3.760	2.846	7.4	21.5	21 W	15*	4*	12 7	13 38.49	+11 22.6	2.710	2.357	21.0	21.2	59 W	50*	21*
9 18	10 8.45	+16 7.4	3.653	2.798	9.5	21.5	27 W	21*	8*	12 17	13 56.46	+11 1.4	2.576	2.326	22.4	21.1	64 W	52*	26*
9 28	10 21.99	+14 15.1	3.532	2.748	11.5	21.4	33 W	26*	12*	12 27	14 14.33	+10 53.1	2.439	2.294	23.7	21.0	70 W	54*	31*
10 8	10 35.35	+12 18.5	3.398	2.697	13.5	21.4	39 W	31*	16*	1	16 14 32.02	+10 59.3	2.300	2.261	24.9	20.8	75 W	56*	36*
10 18	10 4																		

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

20/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45° - 26°	20/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45° - 26°		
79721 1998 SE₁₁₂ (continuation)									418797 2008 VF (continuation)										
10 28	12 31.51	-1 50.0	3.398	2.551	10.1	21.3	27 W	19*	11*	12 22	1 6.35	-7 58.3	0.506	1.192	54.0	20.4	101 E	37	72*
11 7	12 47.32	-3 26.7	3.305	2.527	12.2	21.3	33 W	23*	15*	12 27	1 13.97	-9 16.8	0.544	1.186	55.3	20.6	98 E	36	72*
11 17	13 3.17	-5 1.5	3.201	2.502	14.2	21.3	38 W	27*	20*	1 1	1 21.82	-10 16.4	0.581	1.178	56.4	20.7	94 E	35	71*
11 27	13 19.03	-6 33.3	3.086	2.477	16.1	21.3	44 W	30*	25*	1 6	1 29.86	-11 1.0	0.617	1.168	57.3	20.9	91 E	34	70*
12 7	13 34.85	-8 1.4	2.962	2.451	18.0	21.2	50 W	32*	31*	1 11	1 38.10	-11 33.6	0.651	1.157	58.1	21.0	88 E	33	69*
12 17	13 50.59	-9 24.9	2.829	2.423	19.7	21.2	56 W	33*	38*	238072 2003 FW₇									
12 27	14 6.15	-10 42.9	2.688	2.396	21.3	21.1	62 W	34*	45*	8 9	11 7.54	+10 48.8	3.265	2.412	11.2	21.5	28 E	9*	20*
1 6	14 21.45	-11 54.6	2.542	2.367	22.7	21.0	69 W	33*	52*	8 19	11 23.54	+8 50.0	3.284	2.380	9.3	21.4	22 E	6*	15*
1 16	14 36.35	-12 59.2	2.391	2.338	24.0	20.9	75 W	32	59*	8 27	11 39.94	+6 47.3	3.292	2.348	7.4	21.3	17 E	4*	11*
418797 2008 VF									80356 1999 XM₁₂₄										
8 9	11 0.93	+56 33.3	0.468	0.761	108.8	21.4	45 E	36*	-	8 9	11 16.58	+1 59.6	3.496	2.699	11.7	21.5	33 E	4*	27*
8 14	11 5.08	+60 42.8	0.463	0.792	104.6	21.2	49 E	37*	-	8 19	11 30.66	+0 26.7	3.555	2.692	9.8	21.4	27 E	2*	21*
8 19	11 7.10	+64 18.2	0.459	0.823	100.4	21.0	53 E	38*	-	8 29	11 45.02	-1 9.1	3.601	2.685	7.9	21.4	21 E	-	15*
8 24	11 7.20	+67 23.7	0.453	0.854	96.5	20.9	57 E	38*	-	9 8	11 59.63	-2 47.3	3.633	2.677	5.9	21.3	16 E	-	10*
8 29	11 5.58	+70 4.9	0.446	0.884	92.8	20.8	61 E	39*	-	9 18	12 14.47	-4 27.2	3.650	2.667	3.8	21.2	10 E	-	4*
9 3	11 2.43	+72 27.8	0.437	0.914	89.4	20.7	65 E	39*	-	9 28	12 29.55	-6 8.3	3.654	2.657	1.9	21.1	5 E	-	-
9 8	10 57.85	+74 38.8	0.425	0.942	86.1	20.5	69 W	40*	-	10 8	12 44.83	-7 49.9	3.643	2.646	1.2	21.0	3 W	-	-
9 13	10 51.65	+76 44.7	0.411	0.970	83.0	20.4	73 W	43*	-	10 18	13 0.32	-9 31.4	3.617	2.633	2.9	21.1	8 W	-	1*
9 18	10 42.89	+78 52.9	0.394	0.996	79.9	20.3	77 W	45*	-	10 28	13 16.00	-11 12.0	3.577	2.620	5.0	21.2	13 W	4*	5*
9 19	10 40.63	+79 19.4	0.391	1.001	79.3	20.2	78 W	45*	-	11 7	13 31.85	-12 51.0	3.523	2.606	7.1	21.2	19 W	9*	9*
9 20	10 38.14	+79 46.3	0.387	1.006	78.6	20.2	79 W	46*	-	11 17	13 47.87	-14 28.0	3.455	2.591	9.2	21.3	25 W	13*	14*
9 21	10 35.35	+80 13.7	0.383	1.011	78.0	20.2	80 W	46*	-	11 27	14 0.01	-16 2.0	3.374	2.575	11.3	21.3	31 W	17*	19*
9 22	10 32.22	+80 41.6	0.379	1.016	77.4	20.1	81 W	46*	-	12 7	14 20.23	-17 32.6	3.280	2.558	13.3	21.3	37 W	19*	25*
9 23	10 28.65	+81 10.1	0.375	1.021	76.7	20.1	82 W	47*	-	12 17	14 36.49	-18 59.1	3.175	2.540	15.2	21.3	43 W	21*	31*
9 24	10 24.57	+81 39.2	0.371	1.026	76.1	20.1	83 W	47*	-	12 27	14 52.72	-20 20.9	3.059	2.521	17.1	21.2	49 W	22*	38*
9 25	10 19.84	+82 8.9	0.367	1.030	75.4	20.0	84 W	47*	-	1 6	15 59.76	-20 23.8	2.492	1.904	20.9	20.7	44 W	20*	33*
9 26	10 14.28	+82 39.2	0.363	1.035	74.7	20.0	85 W	47*	-	1 16	16 24.74	-21 56.7	2.385	1.872	22.9	20.6	48 W	19*	39*
9 27	10 7.67	+83 10.2	0.359	1.040	74.1	19.9	86 W	48*	-	394392 2007 EP₈₈									
9 28	9 59.70	+83 41.7	0.354	1.044	73.4	19.9	87 W	48*	-	8 9	11 24.43	-9 47.0	1.681	1.129	35.9	21.4	41 E	-	34*
9 29	9 49.90	+84 13.7	0.350	1.049	72.7	19.9	88 W	48*	-	8 19	11 41.12	-10 44.5	1.638	1.005	35.9	21.0	36 E	-	28*
9 30	9 37.63	+84 46.0	0.346	1.053	71.9	19.8	89 W	48*	-	8 29	11 59.18	-11 41.8	1.556	0.856	36.8	20.6	30 E	-	23*
10 1	9 21.95	+85 18.3	0.341	1.057	71.2	19.8	90 W	48*	-	9 8	12 18.76	-12 25.6	1.427	0.675	39.9	20.0	25 E	-	18*
10 2	9 1.42	+85 50.0	0.337	1.062	70.5	19.7	91 W	48*	-	9 13	12 29.01	-12 31.6	1.339	0.568	43.5	19.6	23 E	-	15*
10 3	8 33.99	+86 20.1	0.332	1.066	69.7	19.7	92 W	48*	-	9 18	12 39.04	-12 10.6	1.231	0.445	50.1	19.1	20 E	-	13*
10 4	7 56.86	+86 47.0	0.328	1.070	68.9	19.6	93 W	48*	-	9 23	12 46.86	-10 41.6	1.093	0.299	65.0	18.4	16 E	-	9*
10 5	7 2.24	+87 7.8	0.323	1.074	68.1	19.6	94 W	48*	-	9 28	12 39.64	-5 2.2	0.926	0.127	123.5	19.0	6 E	-	-
10 6	6 4.94	+87 18.8	0.318	1.078	67.3	19.5	96 W	48*	-	9 29	12 31.34	-2 36.1	0.908	0.101	156.8	23.3	2 E	-	-
10 7	4 56.42	+87 16.3	0.314	1.082	66.5	19.5	97 W	48	-	9 30	12 20.56	+0 8.2	0.918	0.097	147.8	21.3	3 W	-	-
10 8	3 52.87	+86 59.1	0.309	1.086	65.6	19.4	98 W	48	-	10 1	12 11.76	+1 24.9	0.955	0.118	109.8	17.9	6 W	-	-
10 9	3 1.64	+86 29.2	0.304	1.090	64.7	19.4	99 W	49	-	10 2	12 6.69	+2 1.6	1.001	0.151	85.5	17.4	9 W	3*	-
10 10	2 23.23	+85 49.7	0.300	1.094	63.8	19.3	101 W	49	-	10 3	12 4.24	+2 6.8	1.047	0.186	70.5	17.4	10 W	4*	-
10 11	1 54.95	+85 2.8	0.295	1.098	62.9	19.3	102 W	50	-	10 4	12 3.37	+1 56.0	1.090	0.222	60.6	17.6	11 W	5*	-
10 12	1 33.95	+84 10.3	0.291	1.101	61.9	19.2	103 W	51	-	10 5	12 3.45	+1 37.0	1.130	0.256	53.7	17.8	12 W	6*	-
10 13	1 18.06	+83 12.9	0.286	1.105	60.9	19.2	105 W	52	-	10 6	12 4.12	+1 13.4	1.167	0.289	48.6	18.0	13 W	6*	1*
10 14	1 5.79	+82 11.2	0.282	1.108	59.9	19.1	106 E	53	-	10 7	12 5.18	+0 47.5	1.201	0.321	44.8	18.1	13 W	7*	2*
10 15	0 56.16	+81 5.6	0.277	1.112	58.9	19.1	107 E	54	-	10 8	12 6.51	+0 20.3	1.234	0.352	41.7	18.3	14 W	7*	2*
10 16	0 48.46	+79 56.0	0.273	1.115	57.8	19.0	109 E	55	-	10 10	12 9.65	-0 35.4	1.292	0.409	37.4	18.6	14 W	8*	3*
10 17	0 42.24	+78 42.7	0.269	1.119	56.7	18.9	110 E	56	-	10 12	12 13.16	-1 30.9	1.345	0.463	34.4	18.9	15 W	8*	4*
10 18	0 37.16	+77 25.7	0.265	1.122	55.5	18.9	112 E	58	-	10 14	12 16.85	-2 25.2	1.393	0.514	32.4	19.1	16 W	9*	5*
10 19	0 32.98	+76 4.8	0.261	1.125	54.4	18.8	113 E	59	-	10 16	12 20.62	-3 17.8	1.436	0.561	30.9	19.4	17 W	9*	6*
10 20	0 29.52	+74 40.2	0.257	1.128	53.2	18.8	115 E	60	-	10 18	12 24.43	-4 8.8	1.476	0.606	29.8	19.6	18 W	10*	7*
10 21	0 26.64	+73 11.8	0.253	1.131	52.0	18.7	116 E	62	-	10 23	12 33.87	-6 8.9	1.561	0.709	28.2	20.0	20 W	11*	9*
10 22	0 24.25	+71 39.7	0.250	1.134	50.7	18.6	118 E	63	-	10 28	12 43.10	-7 59.7	1.631	0.801	27.6	20.3	22 W	12*	11*
10 23	0 22.26	+70 3.7	0.246	1.137	49.5	18.6	120 E	65	-	11 2	12 52.05	-9 43.0	1.688	0.883	27.5	20.6	24 W	14*	13*
10 24	0 20.61	+68 24.1	0.243	1.140	48.2	18.5	121 E	67	-	11 7	13 0.74	-11 20.0	1.733	0.958	27.7	20.8	27 W	15*	15*
10 25	0 19.26	+66 40.9	0.240	1.143	46.9	18.5	123 E	68	-	11 12	13 9.18	-12 51.9	1.768	1.027	28.2	21.0	29 W	16*	18*
10 26	0 18.15	+64 54.1	0.238	1.146	45.6	18.4	125 E	70	-	11 17	13 17.38	-14 19.6	1.794	1.090	28.2	21.2	32 W	17*	21*
10 27	0 17.25	+63 3.9	0.235	1.148	44.3	18.4	126 E	72	1	11 22	13 25.36	-15 43.8	1.811	1.148	29.4	21.4	35 W	18*	23*
10 28	0 16.55	+61 10.6	0.233	1.151	43.1	18.3	128 E	74	3										
10 30	0 15.62	+57 15.1	0.230	1.156	40.6	18.2	131 E	78	7										
11 1	0 15.22	+53 9.9	0.227	1.161	38.3	18.1	134 E	82	11										
11 3	0 15.23	+48 57.9	0.226	1.165	36.3	18.1	136 E	86	15										
11 5	0 15.60	+44 42.4	0.227	1.170	34.7	18.1	138 E	90	19										
11 7	0 16.26	+40 27.0	0.229	1.174	33.6	18.0	139 E	85	24										
11 9	0 17.17	+36 15.5	0.232	1.177	33.0	18.1	140 E	81	28										
11 11	0 18.30	+32 11.0	0.237	1.181	32.9	18.1	140 E	77	32										
11 13	0 19.62	+28 16.6	0.243	1.184	33.3	18.2	139 E	73	36										
11 15	0 21.12	+24 34.5	0.251	1.187	34.1	18.3	138 E	70	39										
11 17	0 22.77	+21 6.2																	

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

20/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	2020	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°										
113681 2002 TL₁₁₀										517064 2013 CM₃₆ (continuation)																			
8 9	11 24.83	+10 7.4	3.203	2.402	12.9	21.5	32 E	12*	24*	9 3	21 40.16	-51 59.1	2.848	3.616	11.7	23.3	133 E	—	64	9 8	21 34.34	-51 43.9	2.870	3.603	12.3	23.3	130 E	—	64
8 19	11 40.74	+8 24.3	3.230	2.369	11.0	21.4	27 E	9*	19*	337866 2001 WL₁₅																			
8 29	11 57.15	+6 37.5	3.244	2.335	9.2	21.3	22 E	7*	14*	8 9	22 13.16	-17 13.7	1.811	2.806	4.9	22.7	166 W	28	81	8 14	22 7.75	-17 54.0	1.790	2.795	3.1	22.6	171 W	27	82
9 8	12 14.02	+4 47.6	3.247	2.301	7.3	21.2	17 E	5*	9*	8 19	22 2.05	-18 33.7	1.776	2.785	2.2	22.5	174 W	26	83	8 24	21 56.22	-19 11.9	1.770	2.773	3.3	22.6	171 E	26	83
9 18	12 31.40	+2 55.4	3.237	2.265	5.4	21.1	12 E	3*	4*	8 29	21 50.40	-19 47.6	1.772	2.762	5.2	22.7	166 E	25	84	9 3	21 44.73	-20 20.1	1.780	2.749	7.2	22.8	160 E	25	84
9 28	12 49.28	+1 1.5	3.216	2.229	3.7	20.9	8 E	2*	—	9 8	21 39.36	-20 48.8	1.796	2.737	9.3	22.9	154 E	24	85	376964 2002 HD									
10 8	13 7.70	-0 53.2	3.183	2.192	2.7	20.8	6 E	—	—	8 9	22 21.59	-51 59.2	2.743	3.594	10.1	22.5	142 W	—	64	8 14	22 15.51	-52 25.1	2.748	3.593	10.2	22.5	141 W	—	64
10 18	13 26.70	-2 47.7	3.140	2.154	3.2	20.8	7 W	—	—	8 19	22 9.19	-52 44.4	2.758	3.592	10.5	22.5	140 W	—	63	8 24	22 2.79	-52 56.6	2.774	3.591	10.8	22.6	138 E	—	63
10 28	13 46.32	-4 41.2	3.086	2.115	4.8	20.8	10 W	4*	—	8 29	21 56.48	-53 1.5	2.796	3.590	11.3	22.6	136 E	—	63	9 3	21 50.41	-52 59.3	2.823	3.588	11.9	22.6	133 E	—	63
11 7	14 6.60	-6 32.3	3.022	2.076	6.7	20.8	14 W	8*	—	9 8	21 44.73	-52 50.2	2.855	3.587	12.4	22.7	130 E	—	63	455146 1993 FS									
11 17	14 27.61	-8 20.1	2.950	2.037	8.8	20.8	18 W	12*	2*	8 9	22 24.83	-0 54.8	1.506	2.473	9.1	23.1	157 W	44	65	8 14	22 19.78	-1 38.1	1.507	2.494	6.8	23.0	163 W	43	66
11 27	14 49.38	-10 3.1	2.870	1.996	11.0	20.8	23 W	15*	7*	8 19	22 14.56	-2 24.5	1.515	2.515	4.6	22.9	168 W	43	66	8 24	22 9.32	-3 12.9	1.530	2.535	3.2	22.9	172 E	42	67
12 7	15 11.95	-11 39.9	2.783	1.956	13.2	20.7	27 W	18*	11*	8 29	22 4.22	-4 2.0	1.552	2.555	3.3	22.9	172 E	41	68	9 3	21 59.39	-4 50.8	1.581	2.575	4.9	23.1	167 E	40	69
12 17	15 35.37	-13 9.1	2.691	1.916	15.4	20.7	31 W	20*	16*	9 8	21 54.94	-5 38.3	1.617	2.595	6.8	23.2	162 E	39	70	523807 2003 LG									
12 27	15 59.66	-14 29.0	2.593	1.875	17.5	20.7	35 W	21*	21*	8 9	22 27.31	-16 54.8	2.305	3.288	5.2	23.3	163 W	28	81	8 14	22 21.88	-17 36.4	2.284	3.282	3.6	23.2	168 W	27	82
1 6	16 24.83	-15 38.1	2.492	1.835	19.7	20.6	39 W	22*	26*	8 19	22 16.16	-18 17.4	2.270	3.276	2.4	23.1	172 W	27	82	8 24	22 10.29	-18 57.2	2.265	3.269	2.4	23.1	172 E	26	83
1 16	16 50.88	-16 34.9	2.389	1.795	21.8	20.5	43 W	22*	31*	8 29	22 4.37	-19 34.8	2.267	3.262	3.7	23.2	168 E	25	84	9 3	21 58.53	-20 9.7	2.278	3.254	5.3	23.3	163 E	25	84
101496 1998 XM₃										455149 1995 LF																			
8 9	11 27.05	+7 55.2	4.303	3.496	9.1	21.5	33 E	10*	26*	8 9	22 35.22	-11 23.3	1.423	2.402	8.2	23.8	160 W	34	75	8 14	22 29.96	-12 4.2	1.429	2.426	5.6	23.8	166 W	33	76
8 19	11 37.56	+6 36.0	4.385	3.506	7.3	21.5	26 E	7*	19*	8 19	22 24.49	-12 45.0	1.442	2.449	3.1	23.7	173 W	32	77	8 24	22 18.96	-13 24.4	1.461	2.472	1.2	23.6	177 W	32	77
8 29	11 48.28	+5 16.1	4.450	3.516	5.6	21.4	20 E	4*	13*	8 29	22 13.55	-14 1.6	1.488	2.494	2.5	23.7	174 E	31	78	9 3	22 8.41	-14 35.7	1.521	2.516	4.8	23.9	168 E	30	79
9 8	11 59.16	+3 55.8	4.498	3.525	3.7	21.4	13 E	2*	7*	9 8	22 3.67	-15 6.0	1.561	2.538	7.1	24.1	162 E	30	79	9 13	21 59.43	-15 32.1	1.608	2.560	9.2	24.3	156 E	29	80
9 18	12 10.15	+2 35.6	4.528	3.532	2.0	21.3	7 E	—	—	369296 2009 SU₁₉																			
9 28	12 21.19	+1 16.1	4.539	3.539	0.9	21.2	3 E	—	—	8 9	22 35.48	-2 4.8	2.984	3.932	6.0	23.7	156 W	43	66	8 19	22 25.71	-3 5.3	2.945	3.939	3.2	23.5	167 W	42	67
10 8	12 32.21	-0 2.3	4.532	3.545	2.3	21.3	8 W	2*	—	8 29	22 15.46	-4 12.0	2.940	3.945	1.6	23.4	174 E	41	68	9 8	22 5.42	-5 20.6	2.968	3.949	3.8	23.6	165 E	40	69
10 18	12 43.19	-1 19.0	4.505	3.550	4.1	21.4	15 W	8*	1*	9 18	21 56.20	-6 27.0	3.029	3.951	6.6	23.8	153 E	39	70	523810 2008 RG₉₈									
10 28	12 54.03	-2 33.5	4.460	3.555	5.9	21.5	22 W	15*	6*	8 9	22 35.96	-11 12.4	2.892	3.861	5.1	22.8	160 W	34	75	8 19	22 26.43	-11 59.7	2.849	3.854	2.1	22.5	172 W	33	76
319988 2007 DK										452639 2005 UY₆																			
8 9	11 34.90	-0 15.0	1.189	0.733	58.0	21.3	38 E	6*	32*	8 9	22 44.89	-11 25.4	2.711	3.671	5.9	23.7	158 W	34	75	8 19	22 34.03	-12 22.1	2.712	3.713	2.7	23.5	170 W	33	76
8 14	11 52.70	-1 51.6	1.119	0.697	62.8	21.2	38 E	6*	32*	8 19	22 16.34	-12 47.1	2.838	3.845	1.3	22.5	175 E	32	77	8 29	22 6.38	-13 30.8	2.860	3.835	4.3	22.7	163 E	31	78
8 19	12 11.21	-3 27.3	1.045	0.667	68.5	21.1	38 E	6*	32*	9 8	21 57.21	-14 7.8	2.912	3.824	7.3	22.9	151 E	31	78	438116 2005 NX₄₄									
8 24	12 30.37	-4 59.6	0.966	0.644	74.8	21.1	38 E	6*	32*	8 9	22 45.04	+23 20.6	3.261	4.044	10.2	23.7	135 W	68	41	8 14	22 48.35	+20 57.3	3.168	4.019	8.8	23.5	143 W	68	41
8 29	12 50.10	-6 25.2	0.885	0.631	81.7	21.1	38 E	7*	32*	8 19	22 34.73	+23 18.0	3.168	4.019	10.2	23.7	135 W	68	41	8 29	22 23.53	+22 54.1	3.103	3.993	7.8	23.4	148 E	68	41
9 3	13 10.33	-7 40.9	0.802	0.628	88.9	21.1	38 E	8*	32*	9 8	22 12.13	+22 9.4	3.066	3.965	7.5	23.4	149 E	67	42	9 3	21 34.13	-14 38.2	0.839	1.821	10.7	23.6	160 E	30	79
9 8	13 31.11	-8 43.9	0.720	0.634	95.9	21.2	39 E	9*	33*	9 18	22 1.26	+21 6.6	3.060	3.935	8.2	23.4	146 E	66	43	9 8	21 27.67	-16 5.4	0.852	1.811	14.3	23.8	154 E	29	80
9 13	13 52.63	-9 32.2	0.641	0.651	102.3	21.3	39 E	10*	33*	474613 2004 TL₁₉																			
9 18	14 15.35	-10 4.4	0.565	0.676	107.8	21.4	40 E	12*	33*	8 9	22 47.31	+20 4.0	0.700	1.602	25.2	22.3	138 W	65	44	8 14	22 48.91	+21 42.1	0.604	1.538	23.4	21.8	143 W	67	42
461585 2004 RR₁₁₀										517064 2013 CM₃₆																			
8 9	13 4.33	-4 26.5	2.426	2.109	24.6	21.5	60 E	18*	53*	8 9	22 12.37	-51 32.5	2.818	3.676	9.6	23.2	143 W	—	64	8 14	22 6.03	-51 51.4	2.812	3.664	9.8	23.2	142 W	—	64
8 19	13 20.91	-4 54.4	2.478	2.061	23.5	21.5	54 E	17*	47*	8 19	22 59.48	-52 3.7	2.812	3.652	10.1	23.2	141 W	—	64	8 24	21 52.87	-52 9.2	2.819	3.640	10.5	23.2	139 E	—	64
8 29	13 38.67	-5 29.1	2.522	2.012	22.3	21.4	49 E	16*	42*	8 29	21 44.21	+4 0.0	4.353	5.296	4.2	24.9	157 E	49	60	9 8	21 46.38	-52 7.6	2.830	3.628	11.1	23.2	136 E	—	64
9 8	13 57.58	-6 8.4	2.556	1.964	21.0	21.3	44 E	15*	37*	457662 2009 DZ																			
9 18	14 17.62	-6 50.0	2.580	1.917	19.5	21.3	40 E	14*	33*	8 9	22 10.13	-6 49.3	0.864	1.860	8.6	23.6	164 W	38	71	8 14	22 3.38	-8 18.1	0.846	1.853	5.0	23.4	171 W	37	72
9 28	14 38.81	-7 32.0	2.596	1.871	18.1	21.2	35 E	14*	28*	8 19	22 56.12	-9 52.3	0.834	1.846	1.6	23.1	177 W	35	74	8 24	21 48.63	-11 29.0	0.829	1.838</					

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

20/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°-26°	2020	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°-26°
474613 2004 TL₁₉ (continuation)									496895 2001 AF₄₇								
8 29	22 48.80	+22 38.0	0.520	1.475	21.5	21.4	148 W	68 41	8 9	23 22.32	-39 28.4	1.980	2.861	12.1	21.5	144 W	6 77
9 3	22 48.34	+22 44.8	0.482	1.445	20.6	21.1	150 E	68 41	8 14	23 17.71	-40 12.3	1.957	2.852	11.5	21.4	146 W	5 76
9 8	22 47.82	+22 34.1	0.447	1.416	19.9	20.9	151 E	68 41	8 19	23 12.45	-40 51.7	1.940	2.843	11.2	21.4	147 W	4 75
9 13	22 47.42	+22 3.5	0.415	1.388	19.5	20.7	153 E	67 42	8 24	23 6.66	-41 25.5	1.929	2.834	11.1	21.4	147 W	4 75
9 18	22 47.41	+21 10.5	0.386	1.361	19.4	20.5	153 E	66 43	8 29	23 0.47	-41 52.2	1.924	2.824	11.3	21.4	147 W	3 74
9 23	22 48.12	+19 53.4	0.361	1.336	19.7	20.3	153 E	65 44	9 3	22 54.06	-42 11.2	1.925	2.814	11.8	21.4	145 W	3 74
9 28	22 49.87	+18 11.4	0.338	1.312	20.4	20.1	153 E	63 46	9 8	22 47.60	-42 21.8	1.932	2.804	12.5	21.4	143 E	3 74
10 3	22 52.98	+16 4.2	0.317	1.289	21.5	20.0	152 E	61 48	9 13	22 41.27	-42 23.6	1.945	2.793	13.3	21.4	140 E	3 74
10 8	22 57.73	+13 32.8	0.300	1.268	23.1	19.9	150 E	59 50	9 18	22 35.25	-42 16.7	1.963	2.782	14.3	21.5	137 E	3 74
10 13	23 4.34	+10 39.5	0.286	1.250	25.0	19.8	148 E	56 53	9 23	22 29.71	-42 1.4	1.986	2.772	15.3	21.5	133 E	3 74
10 18	23 13.03	+7 28.5	0.275	1.233	27.1	19.8	146 E	52 57	9 28	22 24.78	-41 38.2	2.014	2.760	16.3	21.6	129 E	3 74
10 23	23 23.91	+4 6.0	0.268	1.219	29.5	19.8	143	49 60	10 3	22 20.56	-41 7.8	2.047	2.749	17.3	21.7	125 E	4 75
10 28	23 36.96	+0 40.2	0.263	1.207	31.8	19.8	140	46 63	361809 2008 CD₄₈								
11 2	23 52.01	+2 40.6	0.262	1.198	34.1	19.8	137 E	42 67	8 9	23 22.69	-2 1.4	2.461	3.349	9.8	21.9	146 W	43 66
11 7	0 8.78	-5 47.5	0.265	1.192	36.3	19.9	135 E	39 70	8 19	23 17.09	-3 2.5	2.360	3.316	6.8	21.7	157 W	42 67
11 12	0 26.89	-8 32.7	0.270	1.188	38.2	20.0	132 E	36 73	8 29	23 10.08	-4 15.5	2.286	3.283	3.4	21.4	169 W	41 68
11 17	0 45.93	-10 50.0	0.279	1.187	39.8	20.1	130	34 75	9 8	23 2.20	-5 35.9	2.242	3.249	0.3	21.1	179 E	39 70
11 22	1 5.47	-12 35.8	0.291	1.189	41.0	20.2	128 E	32 77	9 18	22 54.11	-6 58.2	2.227	3.214	4.1	21.3	167 E	38 71
11 27	1 25.06	-13 49.4	0.306	1.193	41.9	20.3	126 E	31 78	9 28	22 46.60	-8 16.2	2.242	3.178	7.7	21.5	155 E	37 72
12 2	1 44.32	-14 32.1	0.324	1.200	42.4	20.5	125 E	30 79	514560 2017 XP								
12 7	2 2.97	-14 46.8	0.344	1.210	42.6	20.7	124 E	30 79	8 9	23 35.24	-43 33.6	1.847	2.699	14.1	21.7	140 W	1 72
12 12	2 20.83	-14 36.8	0.367	1.223	42.6	20.8	123 E	30 79	8 14	23 30.76	-44 21.0	1.821	2.687	13.7	21.6	141 W	1 72
12 17	2 37.86	-14 6.0	0.392	1.237	42.4	21.0	122 E	31 78	8 19	23 25.48	-45 3.5	1.801	2.674	13.4	21.6	142 W	— 71
12 22	2 54.05	-13 18.1	0.420	1.254	42.1	21.1	121 E	32 77	8 24	23 19.48	-45 39.3	1.786	2.661	13.3	21.6	143 W	— 70
12 27	3 9.43	-12 17.0	0.451	1.274	41.6	21.3	121 E	33 76	8 29	23 12.94	-46 7.2	1.777	2.648	13.5	21.5	142 W	— 70
1 1	3 24.06	-11 6.0	0.483	1.295	41.1	21.5	120 E	34 75	9 3	23 6.02	-46 26.1	1.774	2.635	14.0	21.5	141 W	— 70
507847 2014 GM₁									9 8	22 58.95	-46 35.1	1.776	2.622	14.6	21.6	139 E	— 69
8 9	22 49.70	-18 24.0	2.482	3.441	6.5	22.5	158 W	27 82	9 13	22 51.93	-46 33.7	1.783	2.608	15.4	21.6	137 E	— 69
8 19	22 41.23	-19 22.6	2.416	3.410	3.9	22.2	167 W	26 83	9 18	22 45.19	-46 22.0	1.795	2.594	16.2	21.6	134 E	— 70
8 29	22 31.71	-20 17.6	2.380	3.377	3.2	22.1	169 W	25 84	9 23	22 38.94	-46 0.2	1.812	2.580	17.2	21.7	131 E	— 70
9 8	22 21.91	-21 3.8	2.375	3.344	5.6	22.2	161 E	24 85	9 28	22 33.35	-45 29.0	1.834	2.566	18.1	21.7	127 E	— 71
9 18	22 12.65	-21 37.3	2.397	3.309	8.6	22.4	151 E	23 86	10 3	22 28.56	-44 49.2	1.859	2.551	19.1	21.8	123 E	— 71
420577 2012 HU₂₄									441304 2008 AU₂₆								
8 9	22 52.92	+24 25.5	2.096	2.887	14.8	22.0	133 W	69 40	8 9	23 36.09	+1 40.5	0.462	1.405	26.9	21.2	141 W	47 62
8 19	22 44.77	+24 20.9	2.040	2.896	12.8	21.9	141 W	69 40	8 14	23 34.88	+2 10.8	0.437	1.397	23.9	21.0	146 W	47 62
8 29	22 35.54	+23 46.1	2.006	2.904	11.0	21.8	147 W	69 40	8 19	23 32.32	+2 34.0	0.415	1.390	20.6	20.7	151 W	48 61
9 8	22 26.16	+22 42.3	1.995	2.911	10.0	21.8	150 E	68 41	8 24	23 28.42	+2 49.6	0.395	1.382	17.0	20.5	156 W	48 61
9 18	22 17.56	+21 14.4	2.010	2.917	10.2	21.8	149 E	66 43	8 29	23 23.31	+2 57.1	0.378	1.375	13.1	20.2	162 W	48 61
9 28	22 10.59	+19 30.2	2.051	2.923	11.6	21.9	144 E	65 44	9 8	23 10.31	+2 48.2	0.355	1.360	6.3	19.8	171 W	48 61
454075 2012 UJ₁₅₃									9 18	22 55.87	+2 12.2	0.346	1.345	9.2	19.9	168 E	47 62
8 9	22 53.47	+1 22.3	1.727	2.656	10.9	22.4	150 W	46 63	9 28	22 43.55	+1 23.5	0.351	1.331	17.6	20.2	156 E	46 63
8 19	22 44.50	+0 34.1	1.676	2.656	6.9	22.2	162 W	46 63	10 3	22 39.14	+1 0.1	0.358	1.324	21.8	20.3	151 E	46 63
8 29	22 34.32	+0 29.5	1.653	2.655	3.4	21.9	171 W	45 64	10 8	22 36.20	+0 039.8	0.368	1.317	25.8	20.5	145 E	46 63
9 8	22 23.97	-1 42.5	1.657	2.652	4.3	22.0	169 E	43 66	10 13	22 34.83	+0 24.0	0.379	1.311	29.4	20.7	140 E	45 64
9 18	22 14.50	-2 57.6	1.690	2.648	8.2	22.2	158 E	42 67	10 18	22 35.07	+0 13.9	0.393	1.304	32.7	20.8	135 E	45 64
9 28	22 6.89	-4 7.8	1.749	2.643	12.1	22.5	147 E	41 68	10 23	22 36.91	+0 10.2	0.409	1.298	35.6	21.0	131 E	45 64
343166 2009 SO₁₀₃									10 28	22 40.24	+0 13.4	0.425	1.293	38.1	21.1	127 E	45 64
8 9	23 0.02	+19 24.4	2.198	3.015	13.4	22.2	136 W	64 45	11 2	22 44.94	+0 23.5	0.443	1.287	40.4	21.3	123 E	45 64
8 19	22 50.68	+18 41.8	2.089	2.979	11.1	22.0	146 W	64 45	11 7	22 50.88	+0 40.3	0.462	1.282	42.4	21.4	119 E	46 63
8 29	22 39.76	+17 28.6	2.005	2.941	8.9	21.8	153 W	62 47	349925 2009 WC₂₆								
9 8	22 28.11	+15 45.6	1.949	2.901	8.0	21.6	157 E	61 48	8 9	23 37.10	+9 15.2	1.980	2.808	14.2	21.8	137 W	54 55
9 18	22 16.75	+13 37.8	1.924	2.859	9.0	21.6	154 E	59 50	8 19	23 27.40	+8 16.5	1.951	2.864	10.6	21.7	149 W	53 56
9 28	22 6.72	+11 14.2	1.927	2.815	11.5	21.7	146 E	56 53	8 29	23 16.33	+6 58.9	1.948	2.918	6.8	21.6	160 W	52 57
380198 2000 YZ₂₇									9 8	23 4.83	+5 27.8	1.975	2.970	3.8	21.5	169 E	50 59
8 9	23 9.82	-45 33.1	2.905	3.756	9.6	22.3	142 W	— 70	9 18	22 53.88	+3 50.5	2.033	3.019	4.4	21.6	167 E	49 60
8 14	23 5.10	-46 7.4	2.897	3.757	9.3	22.3	143 W	— 70	9 28	22 44.37	+2 15.0	2.122	3.067	7.5	21.9	156 E	47 62
8 19	22 59.96	-46 37.1	2.895	3.757	9.2	22.3	143 W	— 69	504711 2009 SP₁₇₁								
8 24	22 54.52	-47 1.3	2.900	3.757	9.3	22.3	143 W	— 69	8 9	23 38.95	+39 38.5	1.133	1.815	30.3	22.2	115 W	85 24
8 29	22 48.89	-47 19.7	2.910	3.757	9.6	22.3	142 W	— 69	8 14	23 35.35	+40 18.1	1.089	1.808	29.5	22.1	119 W	85 24
9 3	22 43.19	-47 31.7	2.927	3.756	9.9	22.4	140 E	— 68	8 19	23 30.55	+40 46.1	1.047	1.801	28.5	21.9	122 W	86 23
9 8	22 37.56	-47 37.1	2.950	3.756	10.4	22.4	138 E	— 68	8 24	23 24.58	+41 0.1	1.008	1.793	27.4	21.8	125 W	86 23
9 13	22 32.11	-47 36.1	2.978	3.755	11.0	22.4	135 E	— 68	8 29	23 17.57	+40 57.8	0.971	1.784	26.3	21.7	129 W	86 23
9 18	22 26.97	-47 28.7	3.011	3.754	11.6	22.5	132 E	— 69	9 3	23 9.69	+40 37.1	0.937	1.774	25.2	21.6	132 W	86 23
423747 2006 CX									9 8	23 1.20	+39 56.0	0.906	1.764	24.1	21.4	134 E	85 24
8 9	23 16.63	-32 23.5	1.275	2.202	14.1	21.9	148 W	13 84	9 13	22 52.41	+38 53.2	0.879	1.753	23.2	21.3	137 E	84 25
8 14	23 7.77	-32 34.8	1.259	2.206	12.4	21.9	152 W	12 83	9 18	22 43.71	+37 28.2	0.857	1.741	22.6	21.2	138 E	82 27
8 19	22 58.15	-32 39.0	1.249	2.209	11.0	21.8	155 W	12 83	9 23	22 35.48	+35 41.9	0.839	1.728	22.3	21.2	139 E	81 28
8 24	22 48.04	-															

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

2020	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45° - 26°	20/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45° - 26°
304153 2006 OU₁₀									474171 1999 TY₁₉₃								
8 9	23 48.09	+ 6 59.9	1.485	2.324	17.6	21.5	136 W	52 57	8 19	0 20.22	- 3 14.0	1.720	2.597	13.7	21.4	143 W	42 67
8 19	23 35.67	+ 8 25.4	1.394	2.310	13.8	21.2	147 W	53 56	8 29	0 14.76	- 3 40.9	1.607	2.551	10.2	21.1	154 W	41 68
8 29	23 19.75	+ 9 35.0	1.329	2.294	9.7	21.0	157 W	55 54	9 8	0 6.80	- 4 17.6	1.517	2.504	6.0	20.8	165 W	41 68
9 8	23 1.47	+10 24.4	1.292	2.277	7.1	20.8	164 E	55 54	9 18	23 56.85	- 4 59.7	1.453	2.456	1.9	20.4	175 W	40 69
9 18	22 42.60	+10 51.6	1.286	2.257	8.6	20.8	160 E	56 53	9 23	23 51.43	- 5 20.7	1.432	2.432	2.4	20.4	174 E	40 69
9 28	22 25.19	+10 59.5	1.309	2.236	12.8	21.0	150 E	56 53	9 28	23 45.91	- 5 40.4	1.417	2.408	4.6	20.5	169 E	39 70
10 8	22 10.90	+10 55.0	1.359	2.213	17.2	21.2	139 E	56 53	10 3	23 40.46	- 5 58.1	1.409	2.384	7.1	20.6	163 E	39 70
10 18	22 0.67	+10 46.3	1.429	2.189	21.0	21.4	128 E	56 53	10 8	23 35.24	- 6 12.8	1.408	2.359	9.6	20.6	157 E	39 70
354127 2002 BP₂₆									474171 1999 TY₁₉₃								
8 9	23 59.55	- 9 34.6	1.264	2.141	17.8	22.3	140 W	35 74	10 13	23 30.39	- 6 24.0	1.413	2.334	12.1	20.7	151 E	39 70
8 19	23 44.28	- 9 13.8	1.221	2.170	12.4	22.1	153 W	36 73	10 18	23 26.08	- 6 31.1	1.423	2.310	14.4	20.8	145 E	38 71
8 29	23 26.01	- 8 54.8	1.204	2.198	6.2	21.8	166 W	36 73	10 23	23 22.40	- 6 33.7	1.439	2.285	16.6	20.9	139 E	38 71
9 8	23 6.54	- 8 32.9	1.224	2.224	1.3	21.5	177 E	36 73	10 28	23 19.47	- 6 31.4	1.459	2.260	18.6	20.9	133 E	38 71
9 18	22 47.99	- 8 5.2	1.261	2.247	6.6	22.0	165 E	37 72	11 2	23 17.32	- 6 24.4	1.483	2.235	20.5	21.0	128 E	39 70
9 28	22 32.22	- 7 30.3	1.335	2.268	12.0	22.3	152 E	37 72	11 7	23 16.00	- 6 12.4	1.511	2.210	22.2	21.1	123 E	39 70
337283 2000 WR₆₇									474171 1999 TY₁₉₃								
8 19	0 4.40	+10 47.8	1.830	2.684	14.1	22.0	140 W	56 53	11 12	23 15.51	- 5 55.8	1.541	2.184	23.7	21.1	118 E	39 70
8 29	23 58.83	+10 31.3	1.717	2.642	10.9	21.7	150 W	56 53	11 17	23 15.85	- 5 34.5	1.573	2.159	25.0	21.2	113 E	39 70
9 8	23 51.15	+ 9 53.5	1.626	2.599	7.3	21.4	161 W	55 54	11 22	23 17.02	- 5 8.8	1.608	2.134	26.1	21.3	108 E	40 69
9 18	23 41.96	+ 8 55.1	1.562	2.556	4.2	21.1	169 E	54 55	11 27	23 18.97	- 4 38.7	1.643	2.109	27.0	21.3	104 E	40 69*
9 28	23 32.22	+ 7 40.1	1.524	2.511	5.1	21.0	167 E	53 56	12 2	23 21.66	- 4 4.6	1.678	2.084	27.8	21.4	100 E	41 67*
10 8	23 23.09	+ 6 16.1	1.514	2.466	9.0	21.2	157 E	51 58	12 7	23 25.07	- 3 26.7	1.714	2.059	28.4	21.4	96 E	42 65*
10 18	23 15.64	+ 4 52.0	1.530	2.420	13.3	21.3	146 E	50 59	12 12	23 29.13	- 2 45.0	1.750	2.033	28.9	21.4	92 E	42 62*
10 28	23 10.71	+ 3 36.3	1.567	2.374	17.3	21.5	135 E	49 60	12 17	23 33.84	- 1 59.8	1.786	2.008	29.3	21.5	88 E	43 59*
476438 2008 EB₉									409224 2003 YK₃₄								
8 19	0 4.63	- 2 3.3	0.641	1.584	21.0	21.5	146 W	43 66	8 19	0 22.88	+ 5 51.9	1.893	2.735	14.2	21.4	139 W	51 58
8 24	23 54.51	- 0 49.6	0.631	1.598	16.9	21.3	153 W	44 65	8 29	0 19.33	+ 5 33.4	1.766	2.683	11.2	21.1	149 W	51 58
8 29	23 43.36	+ 0 20.4	0.628	1.613	12.7	21.2	159 W	45 64	9 8	0 13.59	+ 4 58.3	1.661	2.632	7.5	20.7	160 W	50 59
9 3	23 31.58	+ 1 25.7	0.630	1.627	8.6	21.0	166 W	46 63	9 18	0 6.04	+ 4 7.9	1.581	2.580	3.3	20.4	172 W	49 60
9 8	23 19.60	+ 2 25.0	0.638	1.641	5.4	20.9	171 W	47 62	9 23	0 1.81	+ 3 38.1	1.551	2.554	1.4	20.2	176 W	49 60
9 13	23 7.91	+ 3 17.7	0.653	1.655	5.0	21.0	172 E	48 61	9 28	23 57.43	+ 3 6.3	1.528	2.527	2.1	20.2	175 E	48 61
9 18	22 56.95	+ 4 3.5	0.673	1.668	7.7	21.2	167 E	49 60	10 3	23 53.05	+ 2 33.3	1.512	2.501	4.4	20.3	169 E	48 61
9 23	22 47.10	+ 4 42.8	0.700	1.681	11.2	21.4	161 E	50 59	10 8	23 48.79	+ 2 0.1	1.502	2.475	6.7	20.4	163 E	47 62
9 28	22 38.61	+ 5 16.5	0.733	1.694	14.6	21.7	155 E	50 59	10 13	23 44.79	+ 1 27.6	1.499	2.449	9.1	20.4	157 E	46 63
10 3	22 31.62	+ 5 45.6	0.770	1.707	17.7	21.9	149 E	51 58	10 18	23 41.18	+ 0 56.9	1.502	2.423	11.4	20.5	151 E	46 63
10 8	22 26.16	+ 6 11.1	0.812	1.719	20.5	22.1	143 E	51 58	10 23	23 38.09	+ 0 28.8	1.511	2.397	13.7	20.6	145 E	45 64
411165 2010 DF₁									409224 2003 YK₃₄								
8 19	0 7.01	+60 46.1	0.056	1.025	75.1	18.2	102 W	74 3	10 28	23 35.61	+ 0 4.1	1.525	2.371	15.8	20.7	140 E	45 64
8 20	23 58.47	+51 15.0	0.054	1.033	66.1	17.9	111 W	84 13	11 2	23 33.80	- 0 16.6	1.544	2.345	17.7	20.7	134 E	45 64
8 21	23 52.59	+41 12.0	0.054	1.040	56.7	17.6	121 W	86 23	11 7	23 32.72	- 0 32.8	1.567	2.319	19.5	20.8	129 E	44 65
8 22	23 48.29	+31 13.3	0.055	1.048	47.4	17.4	130 W	76 33	11 12	23 32.40	- 0 44.2	1.593	2.294	21.1	20.8	124 E	44 65
8 23	23 44.97	+21 53.3	0.057	1.055	38.8	17.3	139 W	67 42	11 17	23 32.84	- 0 50.7	1.622	2.268	22.5	20.9	119 E	44 65
8 24	23 42.33	+13 34.5	0.062	1.063	31.5	17.2	147 W	59 50	11 22	23 34.06	- 0 52.2	1.653	2.242	23.8	21.0	114 E	44 65
8 25	23 40.16	+ 6 25.0	0.067	1.071	25.5	17.2	153 W	51 58	11 27	23 36.02	- 0 48.6	1.686	2.217	24.8	21.0	109 E	44 65
8 26	23 38.33	+ 0 22.3	0.073	1.078	20.9	17.3	158 W	45 64	12 2	23 38.71	- 0 40.1	1.721	2.192	25.8	21.1	105 E	44 65*
8 27	23 36.76	- 4 41.3	0.080	1.086	17.6	17.4	161 W	40 69	12 7	23 42.09	- 0 26.9	1.756	2.167	26.5	21.1	101 E	45 63*
8 28	23 35.39	- 8 55.2	0.087	1.094	15.6	17.6	163 W	36 73	12 12	23 46.14	- 0 9.1	1.792	2.142	27.2	21.1	97 E	45 62*
8 29	23 34.18	-12 28.1	0.095	1.102	14.6	17.7	164 W	33 76	12 17	23 50.81	+ 0 13.1	1.828	2.118	27.7	21.2	93 E	45 59*
8 30	23 33.09	-15 27.7	0.103	1.110	14.3	17.9	164 W	30 79	12 22	23 56.08	+ 0 39.5	1.864	2.093	28.0	21.2	89 E	46 56*
8 31	23 32.11	-18 0.1	0.112	1.117	14.6	18.1	164 W	27 82	12 27	0 1.92	+ 1 9.8	1.900	2.070	28.3	21.2	86 E	46 54*
9 1	23 31.20	-20 10.3	0.121	1.125	15.1	18.3	163 W	25 84	1 1	0 8.28	+ 1 43.7	1.935	2.046	28.4	21.2	82 E	47 51*
9 2	23 30.37	-22 2.2	0.130	1.133	15.8	18.5	162 W	23 86	1 6	0 15.13	+ 2 21.0	1.969	2.023	28.5	21.3	79 E	47 48*
9 3	23 29.61	-23 39.1	0.139	1.141	16.6	18.7	161 W	21 88	1 11	0 22.46	+ 3 1.5	2.002	2.000	28.5	21.3	76 E	48* 44*
9 4	23 28.89	-25 3.3	0.148	1.149	17.4	18.9	160 W	20 89	1 16	0 30.24	+ 3 44.9	2.034	1.978	28.3	21.3	73 E	48* 42*
9 5	23 28.22	-26 16.9	0.158	1.157	18.1	19.0	159 W	19 90	490112 2008 UD₄₉								
9 6	23 27.59	-27 21.5	0.167	1.165	18.9	19.2	158 W	18 89	8 19	0 33.50	- 6 17.7	1.284	2.160	17.5	21.2	140 W	39 70
9 7	23 27.00	-28 18.3	0.177	1.173	19.6	19.4	157 W	17 88	8 29	0 30.76	- 6 41.1	1.184	2.121	13.7	20.9	150 W	38 71
9 8	23 26.45	-29 8.5	0.187	1.181	20.2	19.5	156 W	16 87	9 8	0 24.92	- 7 13.0	1.104	2.081	9.3	20.5	161 W	38 71
9 9	23 25.93	-29 52.9	0.197	1.188	20.8	19.7	155 W	15 86	9 18	0 16.38	- 7 47.2	1.046	2.042	5.0	20.2	170 W	37 72
9 10	23 25.44	-30 32.2	0.207	1.196	21.4	19.8	154 W	14 85	9 23	0 11.39	- 8 2.4	1.025	2.023	4.2	20.1	171 W	37 72
9 11	23 24.98	-31 7.1	0.217	1.204	22.0	19.9	153 W	14 85	9 28	0 6.16	- 8 14						

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

2020	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45° - 26°	20/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45° - 26°
154275 2002 SR₄₁									275792 2001 QH₁₄₂								
<i>(continuation)</i>																	
9 8	0 9.55	+35 27.4	0.532	1.440	28.9	20.8	136 W	80 29	8 19	1 8.14	+43 30.9	1.214	1.809	32.1	21.5	108 W	89 20
9 13	23 57.39	+36 8.2	0.492	1.416	27.6	20.5	139 W	81 28	8 24	1 4.61	+45 40.8	1.186	1.816	31.3	21.4	111 W	89 18
9 18	23 42.58	+36 27.2	0.455	1.391	26.6	20.3	142 E	81 28	8 29	0 59.45	+47 44.5	1.160	1.822	30.4	21.3	114 W	87 16
9 23	23 25.30	+36 17.4	0.423	1.365	26.4	20.1	143 E	81 28	9 3	0 52.55	+49 39.6	1.137	1.829	29.5	21.3	117 W	85 14
9 28	23 6.08	+35 32.5	0.394	1.336	27.2	19.9	142 E	81 28	9 8	0 43.81	+51 23.6	1.118	1.834	28.6	21.2	119 W	84 13
9 30	22 58.01	+35 3.5	0.384	1.325	27.8	19.9	142 E	80 29	9 13	0 33.27	+52 53.3	1.102	1.839	27.8	21.2	121 W	82 11
10 2	22 49.81	+34 27.9	0.374	1.313	28.7	19.8	141 E	79 30	9 18	0 21.09	+54 5.8	1.089	1.844	27.0	21.1	123 W	81 10
10 4	22 41.55	+33 45.6	0.366	1.301	29.9	19.8	140 W	79 30	9 23	0 7.65	+54 58.6	1.080	1.848	26.4	21.1	125 W	80 9
10 6	22 33.28	+32 56.5	0.357	1.288	31.2	19.7	138 E	78 31	9 28	23 53.49	+55 30.0	1.074	1.852	25.9	21.1	126 E	79 8
10 8	22 25.07	+32 0.9	0.350	1.275	32.7	19.7	136 E	77 32	10 3	23 39.24	+55 39.6	1.073	1.856	25.5	21.1	127 E	79 8
10 13	22 5.21	+29 14.5	0.334	1.242	37.3	19.7	131 E	74 35	10 8	23 25.59	+55 28.2	1.075	1.859	25.3	21.1	127 E	80 9
10 18	21 46.91	+25 54.5	0.322	1.208	42.9	19.7	124 E	71 38	10 13	23 13.14	+54 57.7	1.081	1.861	25.3	21.1	127 E	80 9
10 23	21 30.68	+22 9.9	0.313	1.172	49.0	19.8	117 E	67 42	10 18	23 2.37	+54 11.0	1.090	1.863	25.5	21.1	126 E	81 10
10 28	21 16.58	+18 9.9	0.307	1.134	55.6	19.8	110 E	63 46	10 23	22 53.58	+53 11.7	1.103	1.864	25.8	21.1	125 E	82 11
11 2	21 4.40	+14 1.4	0.302	1.095	62.5	19.9	102 E	59 50*	10 28	22 46.88	+52 3.5	1.119	1.865	26.2	21.2	124 E	83 12
11 7	20 53.72	+ 9 48.4	0.298	1.054	69.8	20.0	94	55 52*	11 2	22 42.26	+50 49.8	1.138	1.866	26.8	21.2	122 E	84 13
11 12	20 44.01	+ 5 32.1	0.295	1.011	77.4	20.2	86	51 52*	11 7	22 39.59	+49 33.6	1.160	1.866	27.3	21.3	120 E	85 14
11 17	20 34.60	+ 1 11.2	0.292	0.968	85.5	20.4	77	46* 50*	11 12	22 38.73	+48 17.3	1.185	1.866	28.0	21.4	118 E	87 16
11 22	20 24.66	+ 3 17.4	0.289	0.923	94.4	20.6	69	41* 46*	11 17	22 39.52	+47 2.8	1.212	1.865	28.6	21.4	116 E	88 17
11 27	20 13.19	+ 7 57.8	0.286	0.877	104.2	20.9	60	35* 41*	11 22	22 41.80	+45 51.9	1.240	1.864	29.2	21.5	113 E	89 18*
12 2	19 59.07	+12 52.5	0.285	0.831	115.2	21.5	50	28* 35*	469369 2001 QO₁₄₆								
8 19	1 1.27	+12 9.4	0.888	1.703	28.2	21.3	127 W	57 52	8 19	1 18.48	+ 2 52.8	1.303	2.074	23.0	21.4	127 W	48 61
8 24	1 4.18	+11 2.2	0.845	1.697	26.3	21.2	132 W	56 53	8 29	1 17.03	+ 1 57.3	1.256	2.110	19.0	21.2	137 W	47 62
8 29	1 6.27	+ 9 40.1	0.806	1.690	24.1	21.0	137 W	55 54	9 8	1 12.34	+ 0 44.8	1.224	2.146	14.4	21.0	148 W	46 63
9 3	1 7.48	+ 8 2.7	0.770	1.684	21.6	20.8	142 W	53 56	9 18	1 4.92	+ 0 38.5	1.213	2.182	9.3	20.8	159 W	44 65
9 8	1 7.80	+ 6 10.0	0.738	1.678	18.8	20.6	148 W	51 58	9 28	0 55.78	+ 2 3.4	1.225	2.219	4.6	20.7	170 W	43 66
9 13	1 7.21	+ 4 2.5	0.711	1.672	15.7	20.4	153 W	49 60	10 8	0 46.21	+ 3 19.5	1.263	2.255	4.2	20.7	171 E	42 67
9 18	1 5.74	+ 1 42.1	0.689	1.666	12.5	20.2	159 W	47 62	10 18	0 37.51	+ 4 18.3	1.327	2.291	8.3	21.1	161 E	41 68
9 23	1 3.51	+ 0 48.2	0.672	1.660	9.5	20.1	164 W	44 65	10 28	0 30.78	+ 4 54.8	1.415	2.327	12.5	21.4	150 E	40 69
9 28	1 0.64	+ 3 24.3	0.661	1.655	7.1	19.9	168 W	42 67	478574 2012 TS₇₈								
10 3	0 57.34	+ 6 1.2	0.657	1.649	6.8	19.9	169 W	39 70	8 19	1 18.52	+11 49.9	1.165	1.975	23.1	21.4	130 W	33 76
10 8	0 53.80	+ 8 33.8	0.658	1.644	8.7	20.0	166 E	36 73	8 24	1 11.96	+11 44.4	1.136	1.991	20.7	21.3	136 W	33 76
10 13	0 50.26	+10 57.0	0.665	1.639	11.8	20.1	160 E	34 75	8 29	1 4.19	+11 38.7	1.112	2.008	18.0	21.2	142 W	33 76
10 18	0 46.96	+13 6.7	0.677	1.634	15.1	20.3	155 E	32 77	9 3	0 55.28	+11 31.9	1.093	2.023	15.1	21.1	149 W	33 76
10 23	0 44.13	+14 59.6	0.695	1.630	18.4	20.4	149 E	30 79	9 8	0 45.41	+11 23.0	1.080	2.038	12.1	20.9	155 W	34 75
10 28	0 41.97	+16 34.1	0.717	1.625	21.5	20.6	143 E	28 81	9 13	0 34.79	+11 10.9	1.074	2.052	9.1	20.8	161 W	34 75
11 2	0 40.61	+17 49.7	0.743	1.621	24.3	20.7	138 E	27 82	9 18	0 23.72	+10 55.0	1.076	2.066	6.6	20.7	166 W	34 75
11 7	0 40.12	+18 47.0	0.772	1.617	26.8	20.9	133 E	26 83	9 23	0 12.53	+10 34.5	1.085	2.079	5.3	20.7	169 W	34 75
11 12	0 40.55	+19 27.0	0.804	1.614	28.9	21.0	128 E	26 83	9 28	0 1.58	+10 9.3	1.103	2.091	6.1	20.8	167 E	35 74
11 17	0 41.92	+19 50.8	0.838	1.610	30.8	21.2	123 E	25 84	10 3	23 51.19	+ 9 39.5	1.128	2.103	8.3	21.0	162 E	35 74
11 22	0 44.22	+20 0.2	0.874	1.607	32.4	21.3	119 E	25 84	10 8	23 41.60	+ 9 5.7	1.161	2.115	10.9	21.1	156 E	36 73
11 27	0 47.40	+19 56.7	0.911	1.604	33.8	21.4	115 E	25 84	10 13	23 33.02	+ 8 28.5	1.201	2.126	13.5	21.3	150 E	37 72
517179 2013 RY₃									10 18	23 25.58	+ 7 48.4	1.247	2.136	15.9	21.5	144 E	37 72
8 19	1 5.55	+ 7 50.4	1.826	2.576	18.0	21.5	128 W	53 56	10 23	23 19.34	+ 7 5.9	1.300	2.145	18.1	21.7	138 E	38 71
8 29	1 4.49	+ 6 20.2	1.704	2.550	15.2	21.2	139 W	51 58	259698 2003 YJ₂₃								
9 8	1 0.91	+ 4 22.9	1.601	2.523	11.6	20.9	150 W	49 60	8 19	1 26.71	+ 6 15.1	1.628	2.347	21.0	21.4	124 W	51 58
9 18	0 54.96	+ 2 1.2	1.522	2.495	7.3	20.6	161 W	47 62	8 29	1 27.68	+ 6 1.1	1.500	2.312	18.5	21.2	133 W	51 58
9 28	0 47.17	+ 0 37.5	1.470	2.467	3.1	20.3	172 W	44 65	9 8	1 25.80	+ 5 29.2	1.387	2.277	15.3	20.8	144 W	50 59
10 3	0 42.86	+ 1 59.6	1.455	2.452	2.5	20.2	174 W	43 66	9 18	1 20.93	+ 4 39.5	1.292	2.242	11.1	20.5	155 W	50 59
10 8	0 38.45	+ 3 21.2	1.447	2.437	4.1	20.3	170 E	42 67	9 28	1 13.31	+ 3 34.8	1.219	2.206	6.2	20.1	166 W	49 60
10 13	0 34.07	+ 4 40.7	1.447	2.423	6.4	20.4	164 E	40 69	10 3	1 8.70	+ 2 58.6	1.192	2.187	3.7	19.9	172 W	48 61
10 18	0 29.88	+ 5 56.1	1.454	2.408	8.9	20.5	158 E	39 70	10 8	1 3.71	+ 2 21.2	1.171	2.169	1.9	19.8	176 W	47 62
10 23	0 26.02	+ 7 6.1	1.468	2.392	11.3	20.6	152 E	38 71	10 13	0 58.53	+ 1 43.7	1.157	2.151	3.3	19.8	173 E	47 62
10 28	0 22.61	+ 8 9.4	1.488	2.377	13.5	20.7	146 E	37 72	10 18	0 53.32	+ 1 7.5	1.149	2.132	5.9	19.9	167 E	46 63
11 2	0 19.76	+ 9 5.3	1.514	2.362	15.7	20.8	140 E	36 73	10 23	0 48.31	+ 0 34.0	1.148	2.114	8.8	20.0	161 E	46 63
11 7	0 17.55	+ 9 53.1	1.544	2.346	17.6	20.9	134 E	35 74	10 28	0 43.66	+ 0 4.4	1.152	2.095	11.6	20.1	155 E	45 64
11 12	0 16.01	+10 32.9	1.579	2.330	19.3	21.0	129 E	34 75	11 2	0 39.55	+ 0 20.4	1.163	2.077	14.3	20.2	149 E	45 64
11 17	0 15.20	+11 4.4	1.618	2.315	20.9	21.1	123 E	34 75	11 7	0 36.10	+ 0 39.6	1.178	2.058	16.8	20.3	143 E	44 65
11 22	0 15.12	+11 28.1	1.660	2.299	22.2	21.2	118 E	34 75	11 17	0 31.59	+ 0 59.5	1.222	2.021	21.3	20.5	132 E	44 65
11 27	0 15.78	+11 44.3	1.704	2.283	23.4	21.3	113 E	33 76	11 27	0 30.62							

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

20/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45° - 26°	20/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45° - 26°
469503 2003 DY₉ (continuation)									491567 2012 RG₃ (continuation)								
11 27	23 55.90	+ 9 48.2	1.545	2.185	23.6	21.0	118 E	55 54	10 3	1 7.41	-26 31.7	0.987	1.914	15.8	20.2	149 W	18 89
12 7	23 56.34	+10 47.1	1.627	2.149	25.8	21.1	108 E	56 53*	10 8	0 58.76	-27 48.0	0.972	1.886	17.1	20.2	146 W	17 88
12 17	0 0.09	+11 58.3	1.715	2.112	27.4	21.2	99 E	57 49*	10 13	0 49.64	-28 51.7	0.962	1.858	18.9	20.2	143 E	16 87
12 27	0 6.78	+13 21.6	1.803	2.076	28.3	21.3	92 E	58 44*	10 18	0 40.39	-29 40.7	0.957	1.828	21.0	20.2	139 E	15 86
1 6	0 16.06	+14 56.1	1.889	2.040	28.7	21.4	84 E	60 39*	10 23	0 31.36	-30 13.5	0.957	1.798	23.4	20.3	134 E	15 86
1 16	0 27.64	+16 40.8	1.971	2.004	28.6	21.4	78 E	61* 33*	10 28	0 22.87	-30 29.9	0.962	1.767	25.8	20.3	129 E	15 86
317404 2002 PT₁₃₂									27002 1998 DV₉								
8 19	1 31.44	+ 7 14.7	1.469	2.184	23.0	21.4	122 W	52 57	8 19	1 41.69	- 0 24.4	1.274	2.005	25.3	21.3	122 W	45 64
8 29	1 29.98	+ 6 50.5	1.409	2.220	19.6	21.3	132 W	52 57	8 29	1 45.29	- 1 36.1	1.141	1.958	22.9	20.9	131 W	43 66
9 8	1 25.34	+ 6 8.3	1.365	2.255	15.4	21.1	143 W	51 58	9 8	1 45.64	- 3 17.5	1.022	1.909	19.7	20.5	140 W	42 67
9 18	1 17.88	+ 5 10.9	1.339	2.290	10.6	20.9	155 W	50 59	9 18	1 42.11	- 5 28.8	0.918	1.857	15.7	20.1	150 W	40 69
9 28	1 8.43	+ 4 3.9	1.336	2.324	5.4	20.7	167 W	49 60	9 23	1 38.75	- 6 44.3	0.873	1.831	13.6	19.9	155 W	38 71
10 8	0 58.18	+ 2 55.2	1.360	2.358	1.3	20.5	177 W	48 61	9 28	1 34.34	- 8 4.5	0.833	1.804	11.7	19.7	159 W	37 72
10 18	0 48.42	+ 1 53.2	1.411	2.391	5.5	20.9	167 E	47 62	10 3	1 28.91	- 9 27.4	0.799	1.776	10.4	19.5	161 W	36 73
10 28	0 40.30	+ 1 5.0	1.488	2.424	10.1	21.2	155 E	46 63	10 8	1 22.59	-10 50.6	0.771	1.748	10.2	19.4	162 W	34 75
11 7	0 34.59	+ 0 34.8	1.589	2.456	13.9	21.6	143 E	46 63	10 13	1 15.53	-12 11.1	0.748	1.720	11.4	19.3	160 W	33 76
271518 2004 GT₂₈									439885 2000 CD₃₂								
8 19	1 34.89	-13 10.7	1.812	2.545	18.7	21.4	126 W	32 77	8 19	1 54.77	-13 47.9	1.488	2.194	23.2	21.5	122 W	31 78
8 29	1 32.45	-13 45.7	1.695	2.515	16.4	21.1	135 W	31 78	8 29	1 57.07	-16 40.5	1.403	2.187	20.9	21.3	129 W	28 81
9 8	1 26.84	-14 24.8	1.595	2.484	13.6	20.9	144 W	31 78	9 8	1 56.05	-19 51.5	1.335	2.179	18.6	21.1	137 W	25 84
9 18	1 18.09	-15 1.1	1.515	2.453	10.7	20.6	153 W	30 79	9 18	1 51.49	-23 8.9	1.286	2.169	16.5	20.9	142 W	22 87
9 28	1 6.69	-15 25.9	1.459	2.421	8.6	20.4	159 W	30 79	9 28	1 43.56	-26 15.3	1.259	2.158	15.4	20.8	145 W	19 90
10 3	1 0.29	-15 31.1	1.441	2.405	8.3	20.4	160 W	29 80	10 8	1 33.04	-28 51.8	1.255	2.146	15.9	20.8	144 W	16 87
10 8	0 53.65	-15 30.2	1.430	2.388	8.8	20.4	159 E	29 80	10 18	1 21.26	-30 42.9	1.273	2.132	17.6	20.9	140 E	14 85
10 13	0 46.93	-15 22.6	1.425	2.372	9.9	20.4	156 E	30 79	10 28	1 9.91	-31 40.0	1.311	2.117	20.1	21.0	133 E	13 84
10 18	0 40.34	-15 7.7	1.427	2.355	11.4	20.4	152 E	30 79	11 7	1 0.55	-31 43.9	1.365	2.100	22.6	21.2	125 E	13 84
10 23	0 34.07	-14 45.5	1.436	2.338	13.1	20.5	148 E	30 79	11 17	0 54.23	-31 1.4	1.431	2.083	24.9	21.3	118 E	14 85
10 28	0 28.29	-14 16.0	1.450	2.321	15.0	20.6	143 E	31 78	11 27	0 51.44	-29 41.7	1.507	2.064	26.7	21.5	110 E	15 86
11 2	0 23.14	-13 39.7	1.470	2.304	16.8	20.6	138 E	31 78	523824 2016 RO₁								
11 7	0 18.72	-12 57.2	1.495	2.287	18.6	20.7	133 E	32 77	8 19	2 2.52	+39 13.2	0.783	1.405	44.7	21.4	102 W	84 25
11 12	0 15.10	-12 9.1	1.525	2.269	20.2	20.8	128 E	33 76	8 24	2 17.20	+41 22.8	0.738	1.380	45.5	21.3	103 W	86 23
11 17	0 12.33	-11 16.0	1.558	2.252	21.7	20.9	123 E	34 75	8 29	2 33.13	+43 30.5	0.696	1.356	46.3	21.1	104 W	89 20
11 22	0 10.42	-10 18.6	1.595	2.234	23.0	21.0	118 E	35 74	9 3	2 50.57	+45 34.8	0.655	1.332	47.2	21.0	104 W	89 18
11 27	0 9.38	- 9 17.6	1.635	2.217	24.2	21.0	113 E	36 73	9 8	3 9.79	+47 33.5	0.616	1.308	48.2	20.8	105 W	87 16
12 2	0 9.17	- 8 13.4	1.676	2.199	25.1	21.1	109 E	37 72	9 13	3 31.10	+49 23.7	0.579	1.284	49.2	20.7	105 W	86 15
12 7	0 9.76	- 7 6.5	1.719	2.182	26.0	21.2	104 E	38 71*	9 18	3 54.77	+51 1.6	0.543	1.260	50.4	20.5	105 W	84 13
12 12	0 11.10	- 5 57.3	1.764	2.164	26.6	21.2	100 E	39 69*	9 23	4 21.02	+52 22.3	0.510	1.237	51.6	20.4	105 W	83 12
12 17	0 13.16	- 4 46.1	1.809	2.146	27.1	21.3	96 E	40 66*	9 28	4 49.94	+53 20.0	0.478	1.215	53.0	20.3	105 W	82 11
12 22	0 15.89	- 3 33.1	1.855	2.128	27.5	21.3	92 E	41 63*	9 30	5 2.23	+53 35.2	0.466	1.206	53.5	20.2	104 W	81 10
12 27	0 19.24	- 2 18.6	1.900	2.110	27.8	21.4	88 E	43 59*	10 2	5 14.91	+53 45.2	0.454	1.197	54.1	20.2	104 W	81 10
1 1	0 23.17	- 1 2.8	1.945	2.093	27.9	21.4	84 E	44 55*	10 4	5 27.92	+53 49.5	0.443	1.189	54.7	20.1	104 W	81 10
1 6	0 27.65	+ 0 14.2	1.990	2.075	27.9	21.4	81 E	45 52*	10 6	5 41.23	+53 47.8	0.432	1.180	55.3	20.0	104 W	81 10
1 11	0 32.62	+ 1 32.4	2.034	2.057	27.8	21.4	77 E	47* 48*	488621 2002 TR₂₅₉								
1 16	0 38.08	+ 2 51.5	2.076	2.039	27.6	21.5	74 E	48* 44*	8 19	1 37.17	+14 43.2	1.479	2.152	24.5	21.4	118 W	60 49
488621 2002 TR₂₅₉									439885 2000 CD₃₂								
8 19	1 37.17	+14 43.2	1.479	2.152	24.5	21.4	118 W	60 49	8 19	1 54.77	-13 47.9	1.488	2.194	23.2	21.5	122 W	31 78
8 24	1 40.67	+14 39.9	1.408	2.128	23.7	21.2	122 W	60 49	8 29	1 57.07	-16 40.5	1.403	2.187	20.9	21.3	129 W	28 81
8 29	1 43.64	+14 30.4	1.340	2.104	22.7	21.0	127 W	60 49	9 8	1 56.05	-19 51.5	1.335	2.179	18.6	21.1	137 W	25 84
9 3	1 46.04	+14 14.2	1.275	2.080	21.5	20.9	131 W	59 50	9 18	1 51.49	-23 8.9	1.286	2.169	16.5	20.9	142 W	22 87
9 8	1 47.81	+13 50.7	1.213	2.057	20.1	20.7	135 W	59 50	9 28	1 43.56	-26 15.3	1.259	2.158	15.4	20.8	145 W	19 90
9 13	1 48.93	+13 19.5	1.155	2.033	18.4	20.5	140 W	58 51	10 8	1 33.04	-28 51.8	1.255	2.146	15.9	20.8	144 W	16 87
9 18	1 49.33	+12 40.0	1.101	2.010	16.5	20.3	145 W	58 51	10 18	1 21.26	-30 42.9	1.273	2.132	17.6	20.9	140 E	14 85
9 28	1 48.02	+10 55.5	1.006	1.964	11.9	19.9	156 W	56 53	10 28	1 9.91	-31 40.0	1.311	2.117	20.1	21.0	133 E	13 84
10 8	1 44.09	+ 8 39.0	0.932	1.920	6.5	19.5	167 W	54 55	11 7	1 0.55	-31 43.9	1.365	2.100	22.6	21.2	125 E	13 84
10 18	1 38.24	+ 5 58.2	0.881	1.877	2.1	19.0	176 W	51 58	11 17	0 54.23	-31 1.4	1.431	2.083	24.9	21.3	118 E	14 85
10 23	1 34.98	+ 4 33.4	0.865	1.856	4.2	19.1	172 E	50 59	11 27	0 51.44	-29 41.7	1.507	2.064	26.7	21.5	110 E	15 86
10 28	1 31.74	+ 3 9.1	0.855	1.835	7.4	19.2	166 E	48 61	523824 2016 RO₁								
11 2	1 28.74	+ 1 47.6	0.850	1.815	10.7	19.3	160 E	47 62	8 19	2 2.52	+39 13.2	0.783	1.405	44.7	21.4	102 W	84 25
11 7	1 26.15	+ 0 31.4	0.851	1.795	13.9	19.4	154 E	46 63	8 24	2 17.20	+41 22.8	0.738	1.380	45.5	21.3	103 W	86 23
11 12	1 24.15	+ 0 37.4	0.856	1.777	17.0	19.5	148 E	44 65	8 29	2 33.13	+43 30.5	0.696	1.356	46.3	21.1	104 W	89 20
11 17	1 22.87	- 1 37.2	0.867	1.758	20.0	19.6	143 E	43 66	9 3	2 50.57	+45 34.8	0.655	1.332	47.2	21.0	104 W	89 18
11 22	1 22.44	- 2 26.9	0.881	1.741	22.7	19.7	137 E	43 66	9 8	3 9.79	+47 33.5	0.616	1.308	48.2	20.8	105 W	87 16
11 27	1 22.93	- 3 5.8	0.899	1.724	25.1	19.8	132 E	42 67	9 13	3 31.10	+49 23.7	0.579	1.284	49.2	20.7	105 W	86 15
12 7	1 26.74	- 3 51.6	0.943	1.692	29.3	20.0	123 E	41 68	9 18	3 54.77	+51 1.6	0.543	1.260	50.4	20.5	105 W	84 13
12 17	1 34.27	- 3 57.4	0.995	1.664	32.6	20.2	114 E	41 68	9 23	4 21.02	+52 22.3	0.510	1.237	51.6	20.4	105 W	83 12
12 27	1 45.28	- 3 28.4	1.052	1.639	35.0	20.3	107 E	42 67	9 28	4 49.94	+53 20.0	0.478	1.215	53.0	20.3	105 W	82 11
1 1	1 51.96	- 3 3.0	1.082														

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

20/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°-26°	20/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°-26°	
523824 2016 RO₁									377114 2002 XL₂₉									
<i>(continuation)</i>																		
10 8	5 54.77	+53 39.6	0.421	1.172	56.0	20.0	104 W	81	10 8	19 2 28.60	-13 6.8	2.525	3.069	17.6	21.4	113 W	32*	77
10 10	6 8.48	+53 24.5	0.410	1.164	56.6	19.9	103 W	82	11 8	29 2 29.31	-14 9.2	2.404	3.055	16.4	21.2	122 W	31	78
10 12	6 22.29	+53 2.0	0.400	1.156	57.3	19.9	103 W	82	11 9	8 2 27.64	-15 19.3	2.296	3.041	14.7	21.0	130 W	30	79
10 14	6 36.12	+52 32.0	0.390	1.148	58.0	19.8	103 W	82	11* 9	18 2 23.48	-16 32.5	2.205	3.026	12.9	20.9	138 W	28	81
10 16	6 49.89	+51 54.1	0.381	1.140	58.7	19.8	102 W	83	12* 9	28 2 16.90	-17 42.1	2.135	3.010	11.1	20.7	145 W	27	82
10 18	7 3.52	+51 8.0	0.372	1.133	59.4	19.8	102 W	84	13* 10	8 2 8.26	-18 40.6	2.089	2.993	9.8	20.6	150 W	26	83
10 20	7 16.95	+50 13.7	0.363	1.126	60.1	19.7	101 W	85	14* 10	18 1 58.19	-19 20.4	2.068	2.975	9.5	20.6	150 W	26	83
10 22	7 30.10	+49 11.1	0.354	1.119	60.8	19.7	101 W	86	14* 10	28 1 47.62	-19 35.3	2.074	2.957	10.6	20.6	147 E	25	84
10 24	7 42.93	+48 0.1	0.346	1.112	61.6	19.6	101 W	87	15* 11	7 1 37.56	-19 22.6	2.106	2.937	12.5	20.7	140 E	26	83
10 26	7 55.40	+46 0.8	0.339	1.105	62.3	19.6	100 W	88	17* 11	17 1 28.89	-18 42.5	2.160	2.916	14.6	20.8	132 E	26	83
10 28	8 7.45	+45 13.4	0.332	1.099	63.0	19.5	100 W	90	18* 11	27 1 22.30	-17 38.1	2.234	2.895	16.6	20.9	123 E	27	82
11 2	8 35.68	+41 0.5	0.315	1.084	64.8	19.5	98 W	86	21* 12	7 1 18.14	-16 14.0	2.324	2.872	18.2	21.1	114 E	29	80
11 7	9 1.07	+36 2.8	0.302	1.071	66.6	19.4	97 W	81	26* 12	17 1 16.50	-14 34.8	2.424	2.849	19.4	21.2	105 E	30	79
11 12	9 23.68	+30 27.6	0.292	1.060	68.2	19.4	96 W	75	30* 12	27 1 17.28	-12 44.6	2.532	2.825	20.2	21.3	97 E	32	75*
11 17	9 43.74	+24 24.2	0.285	1.051	69.6	19.3	95 W	69	36* 1	6 1 20.30	-10 47.1	2.643	2.800	20.6	21.4	89 E	34	69*
11 19	9 51.11	+21 53.3	0.284	1.048	70.1	19.3	94 W	67	38* 1	16 1 25.30	-8 44.8	2.754	2.774	20.5	21.4	81 E	36	61*
11 21	9 58.14	+19 20.4	0.282	1.046	70.5	19.3	94 W	64	9058 1992 JB									
11 23	10 4.85	+16 46.2	0.281	1.043	70.9	19.3	94 W	62	8 19	2 37.26	+24 33.2	1.517	1.984	30.0	21.5	101 W	69*	39
11 25	10 11.26	+14 11.3	0.281	1.041	71.2	19.3	93 W	59	8 24	2 41.87	+24 44.1	1.448	1.971	29.7	21.4	105 W	70	39
11 27	10 17.39	+11 36.6	0.281	1.040	71.4	19.3	93 W	57	8 29	2 45.91	+24 50.4	1.379	1.958	29.2	21.2	109 W	70	39
12 2	10 31.60	+ 5 14.5	0.284	1.037	71.8	19.4	92 W	50	9 3	2 49.32	+24 51.7	1.312	1.944	28.5	21.1	113 W	70	39
12 7	10 44.38	- 0 54.1	0.289	1.037	71.7	19.4	92 W	44	9 8	2 52.00	+24 47.2	1.246	1.929	27.6	20.9	117 W	70	39
12 12	10 55.90	- 6 42.6	0.296	1.039	71.3	19.4	92 W	38	9 13	2 53.87	+24 36.2	1.182	1.914	26.5	20.8	122 W	70	39
12 17	11 6.24	-12 6.9	0.305	1.043	70.4	19.5	93 W	33	9 18	2 54.83	+24 17.8	1.119	1.898	25.2	20.6	127 W	69	40
12 22	11 15.48	-17 5.1	0.314	1.050	69.3	19.5	93 W	28	9 23	2 54.80	+23 51.2	1.060	1.881	23.5	20.4	132 W	69	40
12 27	11 23.68	-21 37.0	0.325	1.058	67.9	19.6	94 W	23	9 28	2 53.69	+23 15.2	1.003	1.864	21.6	20.2	137 W	68	41
1 1	11 30.83	-25 43.3	0.336	1.069	66.3	19.6	96 W	19	10 3	2 51.47	+22 28.8	0.950	1.847	19.3	20.0	142 W	67	42
1 6	11 36.88	-29 25.4	0.346	1.082	64.5	19.6	97 W	16	10 8	2 48.08	+21 30.9	0.901	1.829	16.6	19.8	148 W	67	42
1 11	11 41.74	-32 44.6	0.356	1.096	62.5	19.7	99 W	12	10 18	2 37.91	+18 57.9	0.818	1.791	10.2	19.3	161 W	64	45
1 16	11 45.28	-35 41.4	0.366	1.112	60.4	19.7	101 W	9	10 28	2 24.07	+15 36.1	0.758	1.750	2.4	18.7	176 W	61	48
154302 2002 UQ₃									11 7	2 8.53	+11 39.5	0.724	1.708	6.3	18.7	169 E	57	52
8 19	2 9.58	+35 55.3	1.484	1.969	30.1	21.2	103 W	81	11 12	2 0.91	+ 9 36.5	0.718	1.686	10.7	18.9	162 E	55	54
8 24	2 14.20	+36 26.7	1.399	1.938	30.1	21.1	106 W	81	11 17	1 53.85	+ 7 35.8	0.717	1.663	15.1	19.0	154 E	53	56
8 29	2 18.32	+36 54.4	1.315	1.906	30.0	20.9	109 W	82	11 22	1 47.64	+ 5 41.5	0.722	1.640	19.2	19.1	147 E	51	58
9 3	2 21.88	+37 17.5	1.231	1.873	29.7	20.7	113 W	82	11 27	1 42.49	+ 3 56.7	0.732	1.617	23.2	19.3	140 E	49	60
9 8	2 24.76	+37 35.2	1.149	1.839	29.3	20.5	117 W	83	12 2	1 38.55	+ 2 23.5	0.746	1.593	26.8	19.4	133 E	47	62
9 13	2 26.86	+37 46.1	1.069	1.804	28.6	20.3	121 W	83	12 7	1 35.89	+ 1 3.0	0.763	1.568	30.1	19.5	127 E	46	63
9 18	2 28.02	+37 48.6	0.990	1.769	27.8	20.1	125 W	83	12 17	1 34.47	- 0 58.6	0.805	1.519	35.7	19.7	116 E	44	65
9 23	2 28.13	+37 40.4	0.913	1.733	26.6	19.8	129 W	83	12 27	1 38.03	- 2 11.5	0.849	1.467	40.1	19.9	106 E	43	66*
9 28	2 27.04	+37 18.9	0.839	1.696	25.2	19.5	134 W	82	1 6	1 45.98	- 2 43.9	0.893	1.415	43.5	20.0	98 E	42	65*
10 3	2 24.61	+36 40.6	0.768	1.658	23.4	19.2	139 W	82	1 16	1 57.77	- 2 43.9	0.932	1.362	46.3	20.1	91 E	42	62*
10 8	2 20.72	+35 41.0	0.699	1.619	21.1	18.9	144 W	81	365435 2010 LA₁₀₄									
10 13	2 15.24	+34 14.1	0.635	1.580	18.5	18.6	150 W	79	8 19	3 6.09	+ 5 28.6	1.540	1.988	30.0	21.4	100 W	49*	59
10 18	2 8.15	+32 13.0	0.576	1.540	15.3	18.2	156 W	77	8 29	3 14.16	+ 5 6.3	1.464	2.018	28.4	21.3	108 W	50	59
10 23	1 59.51	+29 29.8	0.521	1.499	12.0	17.8	162 W	74	9 8	3 19.18	+ 4 29.6	1.393	2.048	26.2	21.2	116 W	49	60
10 28	1 49.53	+25 56.7	0.473	1.458	9.3	17.4	166 E	71	9 18	3 20.77	+ 3 40.1	1.329	2.077	23.3	21.0	125 W	49	60
11 2	1 38.52	+21 27.2	0.432	1.415	9.6	17.2	166 E	66	9 28	3 18.70	+ 2 41.1	1.275	2.107	19.7	20.8	135 W	48	61
11 7	1 26.91	+15 59.4	0.398	1.373	14.1	17.1	160 E	61	10 8	3 13.07	+ 1 37.9	1.238	2.136	15.5	20.7	145 W	47	62
11 12	1 15.19	+ 9 38.2	0.373	1.329	21.0	17.1	151 E	55	10 18	3 4.35	+ 0 37.6	1.219	2.165	11.1	20.5	155 W	46	63
11 17	1 3.89	+ 2 38.0	0.357	1.285	29.1	17.2	141 E	48	10 23	2 59.14	+ 0 11.1	1.219	2.179	9.1	20.4	160 W	45	64
11 19	0 59.61	- 0 16.3	0.353	1.268	32.5	17.2	136 E	45	10 28	2 53.60	+ 0 11.6	1.224	2.193	7.7	20.4	163 W	45	64
11 21	0 55.49	- 3 11.9	0.350	1.250	35.9	17.3	132 E	42	11 2	2 47.91	+ 0 29.6	1.237	2.208	7.1	20.4	164 W	45	64
11 23	0 51.55	- 6 7.3	0.349	1.232	39.3	17.3	128 E	39	11 7	2 42.25	- 0 42.2	1.255	2.222	7.5	20.5	163 E	44	65
11 25	0 47.82	- 9 1.2	0.348	1.214	42.7	17.4	123 E	36	11 17	2 31.79	- 0 49.9	1.312	2.249	10.5	20.7	156 E	44	65
11 27	0 44.29	-11 52.5	0.349	1.197	46.0	17.5	119 E	33	11 27	2 23.43	- 0 33.6	1.392	2.276	14.1	21.0	146 E	44	65
11 29	0 40.98	-14 40.1	0.350	1.179	49.2	17.5	115 E	30	12 7	2 17.92	+ 0 4.4	1.493	2.303	17.4	21.3	136 E	45	64
12 1	0 37.88	-17 23.3	0.353	1.161	52.4	17.6	111 E	28	12 17	2 15.48	+ 1 0.1	1.612	2.329	20.0	21.6	126 E	46	63
12 3	0 34.98	-20 1.6	0.356	1.143	55.4	17.7	107 E	25	414586 2009 UV₁₈									
12 5	0 32.29	-22 34.7	0.359	1.125	58.3	17.7	104 E	22	8 19	3 9.81	+ 9 15.5	2.558	2.887	20.3	21.4	98 W	53*	55
12 7	0 29.78	-25 2.3	0.364	1.108	61.2	17.8	100 E	20	8 29	3 15.74	+ 9 19.2	2.360	2.820	20.1	21.1	107 W	54	55
12 12	0 24.24	-30 47.9	0.376	1.064	67.7	18.0	92 E	14	9 8	3 19.98	+ 9 14.1	2.168	2.751	19.4	20.9	115 W	54	55
12 17	0 19.46	-36 2.9	0.390	1.020	73.6	18.2	84 E	9	9 18	3 22.14	+ 8 59.8	1.985	2.682	18.0	20.6	124 W	54	55
12 22	0 14.94	-40 52.7	0.404	0.978	78.9	18.3	77 E	4	9 28	3 21.82	+ 8 36.2	1.814	2.611	16.0	20.2	134 W	54	55
12 27	0 9.99	-45 23.1	0.417	0.937	83.7	18.5	71 E	-	10 8	3 18.67	+ 8 4.0	1.660	2.539	13.3	19.9	144 W	53	56
12 29																		

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

20/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	20/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°
414586 2009 UV₁₈										246336 2007 TW₂₄₄									
<i>(continuation)</i>										<i>(continuation)</i>									
12 7	2 15.95	+ 5 6.1	1.249	2.086	18.5	19.0	138 E	50	59	11 12	4 51.66	+32 21.0	1.288	2.214	11.8	20.4	153 W	77	32
12 17	2 8.22	+ 5 29.7	1.262	2.008	23.3	19.1	126 E	50	59	11 17	4 45.34	+32 18.1	1.282	2.231	9.4	20.3	158 W	77	32
12 27	2 4.25	+ 6 17.0	1.288	1.929	27.4	19.2	116 E	51	58	11 22	4 38.56	+32 10.0	1.282	2.247	7.0	20.2	164 W	77	32
1 6	2 4.28	+ 7 26.1	1.321	1.850	30.7	19.3	106 E	52	56*	11 27	4 31.56	+31 57.0	1.289	2.264	5.1	20.1	168 W	77	32
1 16	2 8.27	+ 8 54.8	1.356	1.772	33.4	19.3	97 E	54	53*	12 2	4 24.60	+31 39.4	1.302	2.280	4.3	20.1	170 E	77	32
248590 2006 CS										452302 1995 YR₁									
8 19	3 25.18	-17 21.5	2.256	2.635	22.2	21.4	100 W	26*	81	8 19	4 24.56	+10 13.6	0.257	1.002	85.0	20.4	80 W	47*	53*
8 29	3 34.40	-20 37.6	2.082	2.557	22.3	21.2	106 W	24*	85	8 21	4 2.92	+ 8 27.2	0.253	1.033	78.0	20.2	88 W	49*	56*
9 8	3 42.35	-24 29.0	1.923	2.477	22.2	21.0	112 W	21	88	8 23	3 40.87	+ 6 33.4	0.251	1.065	71.0	20.0	95 W	50*	57
9 18	3 48.57	-28 55.2	1.782	2.395	22.2	20.7	116 W	16	87	8 25	3 18.70	+ 4 34.7	0.251	1.096	64.0	19.9	103 W	49*	59
9 28	3 52.50	-33 51.1	1.661	2.311	22.4	20.5	118 W	11	82	8 27	2 56.70	+ 2 34.3	0.254	1.126	57.0	19.7	111 W	48	61
10 3	3 53.41	-36 27.3	1.609	2.269	22.7	20.4	119 W	9	80	8 29	2 35.21	+ 0 35.4	0.260	1.156	50.3	19.7	118 W	46	63
10 8	3 53.48	-39 6.8	1.563	2.226	23.1	20.3	119 W	6	77	8 31	2 14.51	+ 1 18.6	0.267	1.185	43.8	19.6	126 W	44	65
10 13	3 52.61	-41 47.5	1.522	2.182	23.7	20.2	119 W	3	74	9 2	1 54.84	+ 3 5.4	0.278	1.214	37.8	19.6	133 W	42	67
10 18	3 50.68	-44 26.8	1.487	2.138	24.4	20.1	118 W	1	72	9 4	1 36.38	+ 4 43.2	0.290	1.242	32.1	19.5	139 W	40	69
10 23	3 47.61	-47 2.2	1.457	2.094	25.3	20.1	116 W	-	69	9 6	1 19.23	+ 6 10.9	0.305	1.270	26.9	19.5	145 W	39	70
10 28	3 43.32	-49 30.9	1.431	2.049	26.3	20.0	114 W	-	66	9 8	1 3.44	+ 7 28.5	0.322	1.298	22.1	19.6	151 W	38	71
11 2	3 37.76	-51 50.4	1.410	2.003	27.4	20.0	112 W	-	64	9 13	0 29.82	-10 0.2	0.371	1.365	12.7	19.7	163 W	35	74
11 7	3 30.94	-53 58.1	1.393	1.957	28.6	19.9	109 W	-	62	9 18	0 3.77	-11 41.5	0.431	1.430	7.8	19.9	169 W	33	76
11 12	3 22.91	-55 51.9	1.379	1.911	29.8	19.9	106 W	-	60	9 23	23 43.97	-12 45.5	0.498	1.493	9.0	20.4	167 E	32	77
11 17	3 13.82	-57 30.0	1.367	1.864	31.1	19.9	103 E	-	58	9 28	23 29.15	-13 23.2	0.572	1.553	12.5	20.9	160 E	32	77
11 22	3 3.94	-58 51.1	1.356	1.817	32.3	19.8	100 E	-	57	10 3	23 18.20	-13 42.4	0.652	1.611	15.9	21.4	154 E	31	78
11 27	2 53.61	-59 54.7	1.346	1.769	33.6	19.8	97 E	-	56	10 8	23 10.28	-13 48.7	0.737	1.668	18.8	21.8	147 E	31	78
11 29	2 49.44	-60 15.3	1.342	1.750	34.1	19.8	96 E	-	56	10 13	23 4.74	-13 45.5	0.825	1.722	21.1	22.2	142 E	31	78
12 1	2 45.29	-60 33.1	1.339	1.730	34.6	19.8	95 E	-	55	8 19	4 29.65	+17 56.6	0.939	1.225	53.8	21.5	78 W	52*	45*
12 3	2 41.19	-60 48.3	1.335	1.711	35.1	19.7	94 E	-	55	8 24	4 50.75	+18 32.3	0.914	1.207	54.9	21.4	77 W	54*	44*
12 5	2 37.15	-61 0.8	1.331	1.692	35.6	19.7	93 E	-	55	8 29	5 12.30	+18 59.2	0.892	1.190	55.9	21.4	77 W	55*	43*
12 7	2 33.22	-61 10.8	1.326	1.672	36.1	19.7	91 E	-	55	9 3	5 34.22	+19 16.5	0.873	1.174	56.8	21.3	77 W	55*	43*
12 9	2 29.40	-61 18.3	1.322	1.653	36.6	19.7	90 E	-	55	9 8	5 56.39	+19 23.9	0.856	1.159	57.7	21.3	76 W	56*	42*
12 11	2 25.74	-61 23.4	1.317	1.634	37.1	19.7	89 E	-	55	9 13	6 18.69	+19 21.0	0.842	1.145	58.5	21.2	76 W	57*	41*
12 13	2 22.24	-61 26.2	1.312	1.614	37.6	19.6	88 E	-	55	9 18	6 40.99	+19 7.7	0.830	1.133	59.2	21.2	76 W	57*	41*
12 15	2 18.94	-61 26.8	1.307	1.594	38.1	19.6	87 E	-	55	9 23	7 3.14	+18 44.5	0.820	1.122	59.8	21.2	75 W	57*	40*
12 17	2 15.84	-61 25.3	1.301	1.575	38.6	19.6	86 E	-	55	9 28	7 25.03	+18 11.8	0.813	1.114	60.3	21.1	75 W	57*	40*
12 22	2 9.12	-61 13.1	1.285	1.526	39.8	19.5	83 E	-	55	10 3	7 46.55	+17 30.4	0.807	1.106	60.7	21.1	75 W	57*	40*
12 27	2 3.95	-60 50.2	1.266	1.477	41.1	19.5	81 E	-	55	10 8	8 7.62	+16 41.2	0.803	1.101	60.9	21.1	74 W	57*	39*
1 1	2 0.43	-60 18.2	1.243	1.428	42.5	19.4	79 E	-	56*	10 13	8 28.17	+15 45.2	0.800	1.098	61.1	21.1	74 W	56*	39*
1 6	1 58.55	-59 38.1	1.216	1.379	44.0	19.3	77 E	-	56*	10 18	8 48.11	+14 43.6	0.798	1.096	61.1	21.1	74 W	56*	40*
1 11	1 58.30	-58 50.6	1.185	1.330	45.6	19.2	75 E	-	56*	10 23	9 7.41	+13 37.5	0.797	1.097	61.0	21.1	75 W	56*	40*
1 16	1 59.63	-57 56.4	1.149	1.282	47.3	19.1	73 E	-	56*	10 28	9 26.04	+12 28.1	0.796	1.099	60.8	21.1	75 W	55*	40*
490013 2008 SV₂₄₃										361532 2007 HF₄₄									
8 19	4 9.41	+ 5 22.3	1.363	1.626	38.3	21.5	85 W	44*	58*	11 2	9 43.99	+11 16.5	0.796	1.103	60.4	21.1	75 W	55*	41*
8 29	4 26.19	+ 7 9.1	1.278	1.627	38.4	21.3	90 W	49*	57*	11 7	10 1.28	+10 3.6	0.796	1.109	60.0	21.1	76 W	54*	42*
9 8	4 41.35	+ 8 58.9	1.190	1.629	38.0	21.2	95 W	53*	55	11 12	10 17.87	+ 8 50.4	0.795	1.117	59.5	21.1	77 W	53*	42*
9 18	4 54.45	+10 55.9	1.103	1.633	37.1	21.0	101 W	56	53	11 17	10 33.78	+ 7 37.9	0.794	1.127	58.9	21.1	78 W	52*	44*
9 28	5 4.91	+13 5.6	1.016	1.637	35.5	20.8	108 W	58	51	11 22	10 49.00	+ 6 26.8	0.792	1.138	58.3	21.1	79 W	51*	45*
10 8	5 12.06	+15 34.5	0.933	1.642	33.1	20.5	116 W	61	48	11 27	11 3.53	+ 5 18.0	0.789	1.151	57.6	21.1	80 W	50	46*
10 18	5 14.97	+18 28.9	0.857	1.648	29.5	20.2	125 W	63	46	12 2	11 17.39	+ 4 12.0	0.786	1.165	56.8	21.1	81 W	49	48*
10 23	5 14.51	+20 7.0	0.822	1.651	27.3	20.1	130 W	65	44	12 7	11 30.55	+ 3 9.5	0.781	1.181	55.9	21.1	83 W	48	50*
10 28	5 12.62	+21 52.7	0.791	1.655	24.8	19.9	136 W	67	42	12 12	11 43.02	+ 2 11.1	0.775	1.198	55.0	21.0	85 W	47	52*
11 2	5 9.21	+23 45.2	0.763	1.658	21.9	19.8	141 W	69	40	12 17	11 54.75	+ 1 17.3	0.768	1.215	54.0	21.0	87 W	46	54*
11 7	5 4.19	+25 43.2	0.740	1.662	18.8	19.6	147 W	71	38	12 22	12 5.72	+ 0 28.6	0.759	1.234	52.9	21.0	89 W	45	57*
11 12	4 57.57	+27 44.3	0.722	1.666	15.6	19.5	153 W	73	36	12 27	12 15.90	+ 0 14.3	0.749	1.253	51.6	21.0	92 W	45	59*
11 17	4 49.42	+29 45.5	0.710	1.671	12.3	19.3	159 W	75	34	1 1	12 25.25	+ 0 51.3	0.738	1.274	50.3	20.9	94 W	44	61*
11 22	4 39.98	+31 42.9	0.704	1.675	9.4	19.2	164 W	77	32	1 6	12 33.72	+ 1 21.7	0.726	1.294	48.9	20.9	97 W	44	63*
11 27	4 29.60	+33 33.0	0.704	1.680	7.6	19.1	167 W	79	30	1 11	12 41.23	+ 1 45.2	0.713	1.316	47.3	20.8	101 W	43	65*
12 2	4 18.74	+35 12.4	0.710	1.685	7.9	19.2	166 E	80	29	1 16	12 47.70	+ 2 1.1	0.699	1.337	45.5	20.8	104 W	43	66*
12 7	4 7.89	+36 38.9	0.723	1.689	10.0	19.3	163 E	82	27	361565 2007 RB₅₅									
12 12	3 57.60	+37 51.6	0.743	1.694	12.9	19.5	157 E	83	26	8 19	4 39.41	+ 6 28.1							

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

20/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°-26°	20/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°-26°
361565 2007 RB₅₅ (continuation)									228572 2001 YY₄ (continuation)								
11 12	6 56.79	-21 37.3	1.113	1.743	31.8	19.9	112 W	23 86	10 18	9 5.01	+27 43.5	1.460	1.532	38.8	20.9	74 W	65* 27*
11 17	7 0.57	-23 44.3	1.085	1.732	31.7	19.8	113 W	21 88	10 23	9 19.76	+27 0.9	1.421	1.525	39.3	20.8	76 W	66* 27*
11 22	7 3.57	-25 46.9	1.058	1.721	31.5	19.7	114 W	19 90	10 28	9 34.25	+26 14.6	1.382	1.520	39.7	20.8	78 W	67* 28*
11 27	7 5.74	-27 43.3	1.035	1.710	31.4	19.7	116 W	17 88	11 2	9 48.43	+25 25.1	1.344	1.514	40.1	20.7	79 W	68* 29*
12 2	7 7.08	-29 31.6	1.013	1.701	31.2	19.6	117 W	15 86	11 7	10 2.28	+24 32.9	1.306	1.510	40.4	20.7	81 W	68* 30*
12 7	7 7.57	-31 9.9	0.994	1.692	31.1	19.6	118 W	14 85	11 12	10 15.79	+23 38.3	1.269	1.506	40.7	20.6	83 W	68* 31*
12 12	7 7.23	-32 36.3	0.977	1.685	30.9	19.5	118 W	12 83	11 17	10 28.90	+22 41.9	1.232	1.503	40.9	20.5	84 W	67* 32*
12 17	7 6.11	-33 48.7	0.961	1.678	30.8	19.5	119 W	11 82	11 22	10 41.60	+21 44.2	1.195	1.500	41.1	20.5	86 W	67* 34*
12 22	7 4.32	-34 45.4	0.948	1.672	30.7	19.4	120 W	10 81	11 27	10 53.86	+20 45.7	1.159	1.499	41.1	20.4	88 W	66 36*
12 27	7 2.00	-35 25.0	0.936	1.667	30.5	19.4	121 W	10 81	12 7	11 16.95	+18 47.8	1.089	1.498	41.1	20.3	92 W	64 39*
1 1	6 59.32	-35 46.2	0.926	1.663	30.4	19.3	121 W	9 80	12 17	11 37.91	+16 52.2	1.020	1.500	40.7	20.1	97 W	62 43*
1 6	6 56.46	-35 48.3	0.918	1.660	30.3	19.3	122 E	9 80	12 27	11 56.35	+15 2.3	0.953	1.504	39.7	20.0	102 W	60 47*
1 11	6 53.64	-35 30.7	0.911	1.658	30.2	19.3	122 E	9 80	1 6	12 11.89	+13 20.9	0.888	1.512	38.3	19.8	108 W	58 50*
1 16	6 51.09	-34 53.4	0.907	1.656	30.1	19.3	122 E	10 81	1 16	12 23.95	+11 50.4	0.825	1.523	36.0	19.6	114 W	57 52
151364 2002 DN₃									480881 2001 XT₁₀₂								
8 19	5 16.35	+31 10.4	2.217	2.026	27.1	21.5	66 W	54* 29*	8 19	6 27.62	+26 10.1	2.310	1.832	25.1	21.5	50 W	38* 26*
8 29	5 35.94	+32 33.3	2.110	2.025	28.2	21.4	71 W	61* 29*	8 29	6 53.59	+24 31.2	2.193	1.790	27.0	21.4	54 W	42* 28*
9 8	5 55.02	+33 54.1	2.000	2.023	29.0	21.3	77 W	67* 28*	9 8	7 19.38	+22 27.2	2.077	1.750	29.0	21.3	57 W	45* 30*
9 18	6 13.35	+35 14.7	1.887	2.021	29.6	21.2	83 W	73* 27*	9 18	7 44.85	+19 57.4	1.961	1.712	30.8	21.2	61 W	48* 32*
9 28	6 30.63	+36 37.7	1.772	2.017	29.8	21.1	89 W	79* 27*	9 28	8 9.88	+17 1.0	1.848	1.675	32.6	21.0	64 W	50* 35*
10 8	6 46.53	+38 6.0	1.658	2.012	29.6	20.9	95 W	83* 26*	10 8	8 34.40	+13 37.9	1.739	1.641	34.2	20.9	67 W	51* 38*
10 18	7 0.57	+39 42.9	1.546	2.007	29.0	20.7	102 W	85 24*	10 18	8 58.37	+9 48.4	1.635	1.610	35.7	20.8	71 W	51* 42*
10 28	7 12.13	+41 31.4	1.437	2.000	27.9	20.5	109 W	87 22	10 28	9 21.71	+5 33.7	1.537	1.582	37.1	20.6	74 W	49* 46*
11 7	7 20.50	+43 33.8	1.336	1.993	26.3	20.3	117 W	89 20	11 7	9 44.43	+0 55.6	1.446	1.558	38.3	20.5	77 W	46* 51*
11 12	7 23.19	+44 40.5	1.289	1.989	25.2	20.2	121 W	90 19	11 17	10 6.51	-4 3.0	1.362	1.538	39.3	20.4	80 W	41 57*
11 17	7 24.69	+45 50.4	1.244	1.985	24.0	20.1	125 W	89 18	11 22	10 17.29	-6 38.6	1.323	1.530	39.7	20.3	81 W	38 60*
11 22	7 24.86	+47 2.8	1.203	1.981	22.7	20.0	129 W	88 17	11 27	10 27.89	-9 17.6	1.286	1.522	40.0	20.2	83 W	36 63*
11 27	7 23.58	+48 16.7	1.165	1.976	21.3	19.9	133 W	87 16	12 2	10 38.31	-11 59.3	1.252	1.516	40.3	20.2	84 W	33 67*
12 2	7 20.73	+49 30.5	1.131	1.971	19.9	19.7	137 W	85 14	12 7	10 48.54	-14 42.8	1.219	1.511	40.6	20.1	86 W	30 70*
12 7	7 16.20	+50 42.2	1.102	1.966	18.5	19.6	141 W	84 13	12 12	10 58.56	-17 27.4	1.188	1.507	40.7	20.1	87 W	28 74*
12 12	7 9.98	+51 49.4	1.077	1.961	17.2	19.5	144 W	83 12	12 17	11 8.35	-20 12.0	1.159	1.505	40.8	20.0	89 W	25 78*
12 17	7 2.14	+52 49.2	1.058	1.956	16.1	19.4	147 W	82 11	12 22	11 17.88	-22 55.8	1.132	1.503	40.9	20.0	90 W	22 81*
12 22	6 52.90	+53 38.8	1.043	1.950	15.4	19.4	148 W	81 10	12 27	11 27.14	-25 37.7	1.107	1.503	40.8	19.9	92 W	19 85*
12 27	6 42.62	+54 15.7	1.035	1.944	15.2	19.4	149 W	81 10	1 1	11 36.08	-28 16.8	1.084	1.504	40.7	19.9	93 W	17 87*
12 29	6 38.32	+54 26.5	1.033	1.942	15.2	19.4	149 W	81 10	1 6	11 44.67	-30 52.2	1.061	1.507	40.6	19.8	95 W	14 85*
12 31	6 33.96	+54 35.0	1.032	1.939	15.4	19.4	148 E	80 9	1 11	11 52.84	-33 22.9	1.041	1.510	40.3	19.8	96 W	12 83
1 2	6 29.59	+54 41.0	1.032	1.937	15.6	19.4	148 E	80 9	1 16	12 0.52	-35 48.0	1.021	1.515	40.0	19.7	98 W	9 80
1 4	6 25.23	+54 44.6	1.032	1.934	15.9	19.4	147 E	80 9	8 19	6 30.71	+37 14.4	2.167	1.726	27.2	21.5	51 W	44* 17*
1 6	6 20.93	+54 45.7	1.034	1.932	16.3	19.4	147 E	80 9	8 24	6 47.37	+37 39.0	2.126	1.716	28.0	21.5	53 W	46* 16*
1 8	6 16.72	+54 44.5	1.036	1.929	16.7	19.4	146 E	80 9	8 29	7 4.24	+37 57.6	2.085	1.706	28.7	21.4	54 W	48* 16*
1 10	6 12.63	+54 40.9	1.039	1.927	17.2	19.4	145 E	80 9	9 3	7 21.27	+38 10.1	2.045	1.697	29.4	21.4	56 W	49* 15*
1 12	6 8.70	+54 35.1	1.043	1.924	17.7	19.4	143 E	80 9	9 8	7 38.39	+38 16.2	2.006	1.688	30.1	21.4	57 W	51* 15*
1 14	6 4.96	+54 27.2	1.048	1.922	18.3	19.5	142 E	81 10	9 13	7 55.55	+38 16.1	1.968	1.680	30.8	21.3	59 W	53* 14*
1 16	6 1.43	+54 17.2	1.053	1.919	18.9	19.5	141 E	81 10	9 18	8 12.68	+38 9.8	1.930	1.673	31.4	21.3	60 W	54* 14*
8 19	5 30.67	+24 19.7	1.831	1.639	33.3	21.5	63 W	47* 34*	9 23	8 29.70	+37 57.4	1.893	1.667	31.9	21.3	62 W	55* 14*
8 29	5 57.83	+25 3.9	1.765	1.644	34.2	21.4	66 W	52* 34*	9 28	8 46.55	+37 39.2	1.857	1.661	32.5	21.2	63 W	57* 14*
9 8	6 24.36	+25 33.1	1.698	1.653	35.0	21.4	70 W	57* 34*	10 3	9 3.19	+37 15.6	1.821	1.656	33.0	21.2	64 W	58* 14*
9 18	6 49.95	+25 49.2	1.631	1.664	35.5	21.3	74 W	61* 34*	10 8	9 19.54	+36 46.8	1.786	1.652	33.5	21.1	66 W	60* 14*
9 28	7 14.26	+25 54.8	1.563	1.678	35.8	21.3	78 W	65* 34*	10 13	9 35.57	+36 13.4	1.752	1.648	34.0	21.1	67 W	61* 14*
10 8	7 37.00	+25 53.2	1.493	1.695	35.8	21.2	83 W	68* 35*	10 18	9 51.21	+35 35.9	1.718	1.646	34.4	21.1	69 W	63* 14*
10 18	7 57.84	+25 48.3	1.423	1.714	35.5	21.1	88 W	70* 35*	10 23	10 6.44	+34 54.9	1.684	1.644	34.8	21.0	70 W	64* 15*
10 28	8 16.39	+25 44.5	1.352	1.736	34.8	21.0	94 W	71 36*	10 28	10 21.20	+34 10.9	1.651	1.643	35.1	21.0	72 W	66* 16*
11 7	8 32.29	+25 46.1	1.282	1.760	33.6	20.9	101 W	71 37*	11 2	10 35.49	+33 24.6	1.619	1.642	35.4	21.0	74 W	67* 16*
11 17	8 45.07	+25 57.7	1.213	1.785	31.8	20.7	108 W	71 38*	11 7	10 49.28	+32 36.4	1.586	1.643	35.7	20.9	75 W	69* 17*
11 27	8 54.21	+26 23.2	1.149	1.813	29.3	20.6	116 W	71 38	11 12	11 2.55	+31 47.2	1.553	1.644	35.9	20.9	77 W	70* 18*
12 7	8 59.23	+27 4.7	1.090	1.841	26.0	20.4	125 W	72 37	11 17	11 15.26	+30 57.4	1.521	1.646	36.1	20.9	79 W	71* 20*
12 17	8 59.65	+28 1.9	1.042	1.872	21.9	20.2	135 W	73 36	11 22	11 27.40	+30 7.7	1.488	1.649	36.2	20.8	81 W	72* 21*
12 22	8 58.06	+28 35.1	1.023	1.887	19.5	20.1	140 W	74 35	11 27	11 38.95	+29 18.6	1.456	1.653	36.3	20.8	83 W	73* 23*
12 27	8 55.33	+29 10.0	1.008	1.903	17.0	20.0	146 W	74 35	12 2	11 49.89	+28 30.6	1.423	1.657	36.3	20.7	85 W	73* 24*
1 1	8 51.51																

