

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°
465166 2007 EL									465166 2007 EL (continuation)								
3 22	17 45.85	-60 45.1	0.800	1.309	49.5	21.4	93 W	55*	10 16	0 12.23	+60 1.6	0.569	1.415	34.2	20.4	127 E	75 4
3 24	18 0.44	-62 11.6	0.791	1.302	49.9	21.4	93 W	54*	10 18	0 1.37	+60 6.6	0.581	1.423	34.1	20.5	127 E	75 4
3 26	18 16.36	-63 33.4	0.783	1.294	50.4	21.4	92 W	52*	10 20	23 51.19	+60 5.1	0.595	1.431	34.1	20.6	126 E	75 4
3 28	18 33.69	-64 49.5	0.776	1.286	50.9	21.4	92 W	51*	10 22	23 41.78	+59 58.0	0.608	1.439	34.1	20.6	126 E	75 4
3 30	18 52.53	-65 58.7	0.770	1.278	51.4	21.4	92 W	50*	10 24	23 33.18	+59 46.3	0.623	1.447	34.1	20.7	125 E	75 4
4 1	19 12.87	-66 59.9	0.764	1.271	51.8	21.3	91 W	48*	10 26	23 25.41	+59 30.6	0.637	1.454	34.2	20.8	125 E	75 4
4 3	19 34.66	-67 51.7	0.760	1.263	52.3	21.3	91 W	47*	10 28	23 18.47	+59 11.9	0.652	1.462	34.2	20.8	124 E	76 5
4 5	19 57.72	-68 33.1	0.756	1.255	52.8	21.3	90 W	46*	10 30	23 12.33	+58 50.7	0.668	1.470	34.3	20.9	123 E	76 5
4 7	20 21.80	-69 3.2	0.753	1.248	53.3	21.3	90 W	45*	11 1	23 6.96	+58 27.7	0.683	1.478	34.4	20.9	123 E	77 6
4 9	20 46.51	-69 21.3	0.750	1.241	53.8	21.3	89 W	44*	11 3	23 2.33	+58 3.4	0.699	1.486	34.5	21.0	122 E	77 6
4 11	21 11.38	-69 27.3	0.748	1.233	54.3	21.3	88 W	43*	11 5	22 58.40	+57 38.2	0.716	1.494	34.6	21.1	121 E	77 6
4 12	21 23.74	-69 25.7	0.747	1.230	54.6	21.3	88 W	43*	11 7	22 55.13	+57 12.4	0.732	1.502	34.7	21.1	120 E	78 7
4 13	21 35.96	-69 21.2	0.747	1.226	54.8	21.3	88 W	42*	11 9	22 52.46	+56 46.5	0.749	1.509	34.8	21.2	120 E	78 7
4 14	21 47.99	-69 13.9	0.746	1.222	55.0	21.3	87 W	42*	11 11	22 50.35	+56 20.7	0.767	1.517	34.9	21.3	119 E	79 8
4 15	21 59.78	-69 3.8	0.746	1.219	55.3	21.3	87 W	41*	11 13	22 48.78	+55 55.2	0.784	1.525	34.9	21.3	118 E	79 8
4 16	22 11.29	-68 51.2	0.746	1.215	55.5	21.3	87 W	41*	11 15	22 47.69	+55 30.1	0.801	1.532	35.0	21.4	117 E	79 8
4 17	22 22.48	-68 36.0	0.746	1.212	55.8	21.3	86 W	41*	11 17	22 47.06	+55 5.7	0.819	1.540	35.1	21.4	116 E	80 9
4 18	22 33.33	-68 18.6	0.746	1.208	56.0	21.3	86 W	40*	277572 2005 YR₁₈₆								
4 19	22 43.81	-67 59.0	0.746	1.205	56.2	21.3	86 W	40*	3 22	17 47.25	-8 18.3	1.455	1.829	32.9	21.4	95 W	37* 72*
4 20	22 53.91	-67 37.4	0.746	1.202	56.4	21.3	85 W	40*	4 1	18 1.56	-8 5.2	1.336	1.810	32.9	21.2	101 W	37* 72*
4 21	23 3.62	-67 14.0	0.746	1.198	56.7	21.3	85 W	40*	4 11	18 14.04	-7 51.6	1.219	1.791	32.9	21.0	107 W	37* 72*
4 23	23 21.86	-66 22.3	0.747	1.192	57.1	21.3	84 W	39*	4 21	18 24.29	-7 41.7	1.107	1.770	31.3	20.7	114 W	37 72
4 25	23 38.55	-65 25.1	0.749	1.185	57.5	21.3	84 W	39*	5 1	18 31.78	-7 41.3	0.999	1.750	29.5	20.4	121 W	37 72
4 27	23 53.77	-64 23.4	0.750	1.179	57.9	21.3	83 W	39*	5 6	18 34.33	-7 46.9	0.949	1.739	28.3	20.2	125 W	37 72
4 29	0 7.63	-63 18.4	0.752	1.173	58.3	21.3	82 W	39*	5 11	18 35.98	-7 57.8	0.900	1.728	26.8	20.1	130 W	37 72
5 1	0 20.24	-62 10.6	0.754	1.167	58.7	21.3	82 W	38*	5 16	18 36.66	-8 14.9	0.853	1.717	25.1	19.9	134 W	37 72
5 3	0 31.73	-61 0.9	0.756	1.161	59.1	21.3	81 W	38*	5 21	18 36.28	-8 39.6	0.810	1.706	23.1	19.7	139 W	36 73
5 5	0 42.21	-59 49.7	0.758	1.155	59.4	21.3	80 W	39*	5 26	18 34.78	-9 13.0	0.769	1.695	20.7	19.5	144 W	36 73
5 7	0 51.80	-58 37.6	0.760	1.149	59.7	21.3	80 W	39*	5 31	18 32.15	-9 56.1	0.732	1.684	18.1	19.3	149 W	35 74
5 9	1 0.59	-57 24.8	0.763	1.144	60.0	21.4	79 W	39*	6 5	18 28.38	-10 49.7	0.700	1.673	15.2	19.1	154 W	34 75
5 11	1 8.67	-56 11.7	0.765	1.139	60.3	21.4	78 W	39*	6 10	18 23.51	-11 54.2	0.671	1.662	12.1	18.9	160 W	33 76
5 13	1 16.13	-54 58.6	0.767	1.134	60.6	21.4	78 W	40*	6 20	18 10.94	-14 34.5	0.628	1.639	5.9	18.4	170 W	30 79
5 15	1 23.03	-53 45.5	0.769	1.129	60.9	21.4	77 W	40*	6 30	17 56.08	-17 47.7	0.607	1.617	6.8	18.4	169 E	27 82
5 17	1 29.43	-52 32.7	0.771	1.124	61.2	21.4	77 W	41*	7 10	17 41.54	-21 15.6	0.607	1.595	14.0	18.6	158 E	24 85
5 19	1 35.39	-51 20.2	0.773	1.120	61.4	21.4	76 W	42*	7 15	17 35.23	-22 58.8	0.614	1.584	17.8	18.8	152 E	22 87
5 21	1 40.94	-50 8.1	0.774	1.116	61.7	21.4	76 W	42*	7 20	17 29.94	-24 38.9	0.626	1.573	21.4	18.9	146 E	20 89
5 23	1 46.14	-48 56.5	0.775	1.112	61.9	21.4	76 W	43*	7 25	17 25.93	-26 14.4	0.641	1.562	24.7	19.0	140 E	19 90
5 25	1 51.02	-47 45.3	0.777	1.108	62.1	21.4	75 W	44*	7 30	17 23.35	-27 44.6	0.660	1.552	27.7	19.2	135 E	17 88
5 27	1 55.60	-46 34.5	0.777	1.105	62.3	21.4	75 W	45*	8 9	17 22.72	-30 27.8	0.705	1.531	32.8	19.4	125 E	15 86
5 29	1 59.92	-45 24.2	0.778	1.102	62.5	21.4	75 W	46*	8 19	17 28.11	-32 47.4	0.758	1.512	36.8	19.7	117 E	12 83
5 31	2 4.00	-44 14.2	0.778	1.099	62.7	21.4	74 W	47*	8 29	17 39.20	-34 43.9	0.815	1.494	39.6	19.9	109 E	10* 81
6 5	2 13.30	-41 20.7	0.777	1.093	63.1	21.4	74 W	50*	9 3	17 46.69	-35 33.3	0.845	1.485	40.7	20.0	106 E	9* 80
6 10	2 21.54	-38 28.4	0.774	1.088	63.5	21.4	73 W	52*	9 8	17 55.35	-36 16.7	0.875	1.477	41.6	20.1	103 E	9* 80
6 15	2 28.94	-35 36.7	0.769	1.085	63.8	21.4	73 W	55*	9 13	18 5.10	-36 53.8	0.905	1.469	42.3	20.2	100 E	8* 79
6 20	2 35.64	-32 44.5	0.761	1.084	64.1	21.4	74 W	59*	9 18	18 15.87	-37 24.3	0.935	1.462	42.9	20.2	98 E	8* 79
6 25	2 41.75	-29 50.9	0.751	1.084	64.3	21.3	74 W	62*	9 23	18 27.57	-37 47.9	0.965	1.455	43.4	20.3	95 E	7* 78
6 30	2 47.36	-26 54.5	0.738	1.087	64.4	21.3	75 W	65*	9 28	18 40.10	-38 4.4	0.995	1.449	43.7	20.4	93 E	7* 78
7 5	2 52.53	-23 54.0	0.723	1.091	64.5	21.3	76 W	68*	10 3	18 53.37	-38 13.4	1.025	1.443	43.9	20.4	91 E	7* 77
7 10	2 57.32	-20 48.2	0.706	1.096	64.5	21.2	77 W	70*	10 8	19 7.26	-38 14.6	1.054	1.437	44.0	20.5	89 E	7 77
7 15	3 1.74	-17 35.8	0.687	1.104	64.3	21.2	78 W	73*	10 13	19 21.70	-38 7.6	1.083	1.432	44.1	20.5	87 E	7 76*
7 20	3 5.76	-14 15.2	0.666	1.112	64.0	21.1	80 W	76*	10 18	19 36.59	-37 52.4	1.112	1.428	44.0	20.6	85 E	7 75*
7 25	3 9.37	-10 45.0	0.645	1.123	63.6	21.1	82 W	79*	10 23	19 51.84	-37 28.8	1.141	1.424	43.9	20.6	83 E	8 75*
7 30	3 12.50	-7 3.2	0.622	1.134	62.9	21.0	84 W	82*	10 28	20 7.35	-36 56.8	1.170	1.421	43.8	20.7	82 E	8 74*
8 4	3 15.09	+3 7.9	0.598	1.147	62.0	20.9	87 W	85*	11 2	20 23.02	-36 16.4	1.198	1.418	43.6	20.7	80 E	9 73*
8 9	3 17.05	+1 2.7	0.575	1.161	60.8	20.8	90 W	88*	11 7	20 38.77	-35 27.7	1.227	1.416	43.3	20.8	79 E	10 72*
8 14	3 18.21	+5 30.2	0.552	1.176	59.3	20.7	93 W	91*	11 12	20 54.53	-34 30.9	1.255	1.415	43.0	20.8	77 E	10 71*
8 19	3 18.39	+10 16.0	0.530	1.192	57.6	20.6	96 W	94*	11 17	21 10.26	-33 26.4	1.283	1.414	42.7	20.8	76 E	12 70*
8 24	3 17.31	+15 20.4	0.510	1.209	55.4	20.5	100 W	97*	11 22	21 25.89	-32 14.4	1.312	1.414	42.3	20.9	74 E	13 68*
8 29	3 14.67	+20 42.4	0.493	1.227	53.0	20.4	104 W	100*	11 27	21 41.37	-30 55.5	1.341	1.414	41.9	20.9	73 E	14 67*
9 3	3 10.07	+26 18.8	0.480	1.245	50.3	20.3	108 W	103*	12 2	21 56.67	-29 30.2	1.370	1.415	41.4	21.0	72 E	15 65*
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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°	
248107 2004 RA₁₀₉										137802 1999 YT										
<i>(continuation)</i>										<i>(continuation)</i>										
5 6	18 59.47	-32 54.7	1.113	1.861	27.2	20.2	122 W	12	83	5 16	18 43.60	+ 9 43.3	1.302	2.053	23.9	20.2	125 W	55	54	
5 11	19 4.19	-33 14.0	1.060	1.846	26.2	20.0	126 W	12	83	5 21	18 41.31	+ 9 54.5	1.244	2.036	22.9	20.0	129 W	55	54	
5 16	19 8.10	-33 34.3	1.010	1.832	25.0	19.9	130 W	11	82	5 26	18 38.02	+ 9 58.2	1.189	2.017	21.7	19.9	133 W	55	54	
5 21	19 11.11	-33 55.6	0.962	1.818	23.6	19.7	134 W	11	82	5 31	18 33.71	+ 9 52.9	1.138	1.999	20.5	19.7	136 W	55	54	
5 26	19 13.15	-34 17.7	0.918	1.804	22.0	19.6	138 W	11	82	6 5	18 28.39	+ 9 36.8	1.090	1.980	19.1	19.5	140 W	55	54	
5 31	19 14.16	-34 40.1	0.877	1.791	20.2	19.4	142 W	10	81	6 10	18 22.12	+ 9 8.5	1.047	1.960	17.8	19.4	144 W	54	55	
6 5	19 14.10	-35 2.3	0.839	1.777	18.2	19.2	147 W	10	81	6 15	18 14.97	+ 8 26.3	1.009	1.940	16.7	19.3	147 W	53	56	
6 10	19 12.96	-35 23.5	0.805	1.765	16.0	19.0	151 W	10	81	6 20	18 7.09	+ 7 29.3	0.976	1.920	15.8	19.1	149 W	52	57	
6 15	19 10.74	-35 42.7	0.776	1.752	13.8	18.9	156 W	9	80	6 30	17 50.00	+ 4 48.6	0.929	1.878	15.8	19.0	150 E	50	59	
6 20	19 7.51	-35 58.6	0.750	1.740	11.6	18.7	160 W	9	80	7 10	17 32.88	+ 1 11.0	0.906	1.835	18.4	19.0	145 E	46	63	
6 25	19 3.41	-36 9.9	0.729	1.729	9.6	18.5	164 W	9	80	7 20	17 17.81	- 3 7.7	0.907	1.791	22.7	19.0	137 E	42	67	
6 30	18 58.66	-36 15.3	0.713	1.717	8.2	18.4	166 W	9	80	7 25	17 11.60	- 5 26.0	0.915	1.768	25.0	19.1	133 E	40	69	
7 5	18 53.52	-36 14.0	0.702	1.707	8.0	18.4	167 E	9	80	7 30	17 6.50	- 7 46.7	0.929	1.745	27.4	19.2	128 E	37	72	
7 10	18 48.30	-36 5.4	0.695	1.697	9.1	18.4	165 E	9	80	8 4	17 2.58	-10 7.4	0.946	1.722	29.7	19.3	123 E	35	74	
7 15	18 43.29	-35 49.3	0.692	1.687	11.1	18.4	161 E	9	80	8 9	16 59.89	-12 26.6	0.968	1.699	31.8	19.3	118 E	33*	76	
7 20	18 38.81	-35 26.1	0.694	1.678	13.6	18.5	157 E	10	81	8 14	16 58.43	-14 42.8	0.991	1.675	33.7	19.4	113 E	30*	79	
7 25	18 35.14	-34 56.5	0.701	1.669	16.2	18.6	153 E	10	81	8 19	16 58.22	-16 55.2	1.018	1.651	35.5	19.5	109 E	28*	81	
7 30	18 32.50	-34 21.6	0.711	1.662	18.9	18.7	148 E	11	82	8 29	17 1.42	-21 6.5	1.074	1.603	38.3	19.6	101 E	23*	85	
8 4	18 31.03	-33 42.7	0.725	1.654	21.4	18.8	143 E	11	82	9 8	17 9.17	-24 58.3	1.133	1.554	40.3	19.7	93 E	19*	87*	
8 9	18 30.80	-33 0.8	0.742	1.648	23.8	19.0	139 E	12	83	9 18	17 21.20	-28 30.1	1.190	1.506	41.7	19.8	86 E	15*	80*	
8 14	18 31.81	-32 16.9	0.763	1.642	26.0	19.1	135 E	13	84	9 28	17 37.33	-31 42.0	1.244	1.458	42.6	19.8	80 E	12*	73*	
8 19	18 34.06	-31 31.7	0.786	1.636	28.0	19.2	131 E	13	84	10 8	17 57.40	-34 32.8	1.291	1.411	43.1	19.9	75 E	9*	68*	
8 24	18 37.49	-30 45.7	0.812	1.632	29.8	19.3	127 E	14	85	10 18	18 21.36	-37 0.8	1.330	1.366	43.4	19.9	70 E	7*	63*	
8 29	18 42.05	-29 59.2	0.840	1.628	31.3	19.4	123 E	15	86	10 28	18 49.20	-39 2.5	1.361	1.322	43.4	19.9	66 E	5*	59*	
9 3	18 47.61	-29 12.3	0.869	1.625	32.7	19.5	120 E	16	87	11 7	19 20.77	-40 33.2	1.383	1.282	43.5	19.8	63 E	4*	56*	
9 8	18 54.08	-28 25.1	0.901	1.622	33.8	19.6	116 E	17	88	11 17	19 55.88	-41 26.8	1.395	1.246	43.5	19.8	60 E	3*	53*	
9 13	19 1.36	-27 37.2	0.935	1.620	34.8	19.7	113 E	17	88	11 22	20 14.62	-41 37.6	1.398	1.229	43.6	19.8	59 E	3*	53*	
9 18	19 9.37	-26 48.7	0.970	1.619	35.6	19.8	110 E	18	89	11 27	20 34.04	-41 36.5	1.399	1.214	43.7	19.7	58 E	3*	52*	
9 23	19 18.02	-25 59.2	1.006	1.619	36.3	19.9	107 E	19	90	12 2	20 54.03	-41 22.7	1.398	1.200	43.8	19.7	57 E	3*	51*	
9 28	19 27.23	-25 8.6	1.044	1.619	36.8	20.0	105 E	20	89	12 7	21 14.48	-40 55.3	1.396	1.188	43.9	19.7	57 E	4*	51*	
10 3	19 36.91	-24 16.6	1.083	1.621	37.1	20.1	102 E	21	88	12 12	21 35.27	-40 13.6	1.392	1.177	44.1	19.7	56 E	4*	50*	
10 8	19 46.98	-23 23.1	1.124	1.623	37.4	20.2	100 E	22	87	12 17	21 56.26	-39 17.2	1.387	1.169	44.3	19.6	56 E	5*	50*	
10 18	20 8.06	-21 30.7	1.208	1.629	37.6	20.4	95 E	23	85*	12 22	22 17.31	-38 5.8	1.382	1.161	44.5	19.6	56 E	6*	50*	
10 28	20 30.07	-19 30.7	1.297	1.637	37.4	20.5	90 E	25	80*	12 27	22 38.30	-36 39.1	1.376	1.156	44.7	19.6	56 E	8*	50*	
11 7	20 52.62	-17 22.8	1.389	1.649	36.8	20.7	86 E	28	74*	1	22 59.12	-34 57.5	1.370	1.153	44.9	19.6	56 E	9*	50*	
11 17	21 15.45	-15 7.5	1.485	1.663	36.0	20.8	82 E	30	68*	1	6	23 19.66	-33 1.2	1.365	1.152	45.0	19.6	56 E	11*	50*
11 27	21 38.38	-12 45.2	1.585	1.680	35.0	21.0	78 E	32	62*	1	11	23 39.87	-30 51.0	1.361	1.152	45.1	19.6	56 E	13*	49*
12 7	22 1.26	-10 17.3	1.687	1.699	33.8	21.1	74 E	35	55*	1	16	23 59.70	-28 27.9	1.359	1.155	45.2	19.6	56 E	15*	49*
12 17	22 24.02	-7 44.9	1.792	1.720	32.5	21.2	70 E	37*	49*	279120 2009 ON₁₀										
12 27	22 46.62	-5 9.3	1.899	1.743	31.0	21.3	66 E	39*	43*	3 22	18 25.75	-33 30.1	2.079	2.245	26.3	21.3	86 W	10*	78*	
1	6	23 9.03	-2 32.1	2.007	1.768	29.3	21.4	62 E	41*	38*	4 1	18 42.99	-34 6.4	1.922	2.202	27.0	21.1	92 W	10*	81*
176102 2001 BB₆₁										4 11	18 59.34	-34 43.2	1.768	2.160	27.3	20.9	99 W	9*	81	
3 22	17 54.67	+ 0 39.5	2.729	2.950	19.7	21.4	93 W	45*	63*	4 21	19 14.53	-35 22.6	1.618	2.117	27.3	20.7	105 W	9*	81	
4 1	18 0.11	+ 1 51.6	2.594	2.942	19.5	21.3	100 W	47*	62	5 1	19 28.19	-36 6.6	1.475	2.074	26.8	20.4	112 W	9*	80	
4 11	18 3.56	+ 3 8.0	2.462	2.932	19.0	21.2	108 W	48	61	5 6	19 34.32	-36 31.0	1.407	2.052	26.4	20.3	115 W	8*	79	
4 21	18 4.80	+ 4 26.1	2.338	2.922	18.0	21.0	116 W	49	60	5 11	19 39.92	-36 57.3	1.340	2.031	25.8	20.2	119 W	8*	79	
5 1	18 3.65	+ 5 42.1	2.225	2.911	16.7	20.8	124 W	51	58	5 16	19 44.90	-37 25.8	1.276	2.009	25.1	20.0	122 W	8*	79	
5 11	18 0.07	+ 6 51.4	2.126	2.899	15.1	20.7	132 W	52	57	5 21	19 49.20	-37 56.5	1.215	1.988	24.3	19.8	126 W	7*	78	
5 21	17 54.16	+ 7 48.4	2.045	2.886	13.3	20.5	139 W	53	56	5 26	19 52.72	-38 29.4	1.157	1.966	23.3	19.7	130 W	7	78	
5 31	17 46.26	+ 8 27.6	1.984	2.871	11.8	20.4	145 W	53	56	5 31	19 55.39	-39 4.5	1.101	1.945	22.1	19.5	134 W	6	77	
6 10	17 36.99	+ 8 43.8	1.946	2.856	10.9	20.3	148 W	54	55	6 5	19 57.12	-39 41.3	1.049	1.924	20.9	19.4	138 W	5	76	
6 20	17 27.14	+ 8 34.0	1.932	2.841	11.1	20.3	147 E	54	55	6 10	19 57.86	-40 19.3	1.001	1.903	19.4	19.2	141 W	5	76	
6 30	17 17.65	+ 7 57.7	1.942	2.824	12.4	20.4	143 E	53	56	6 15	19 57.51	-40 57.8	0.956	1.882	17.9	19.0	145 W	4	75	
7 10	17 9.40	+ 6 57.3	1.974	2.806	14.3	20.4	137 E	52	57	6 20	19 56.02	-41 35.5	0.916	1.862	16.4	18.8	149 W	3	74	
7 20	17 3.05	+ 5 37.4	2.027	2.787	16.3	20.5	130 E	51	58	6 25	19 53.39	-42 11.0	0.879	1.841	14.8	18.7	152 W	3	74	
7 30	16 59.03	+ 4 3.2	2.097	2.768	18.2	20.7	122 E	49	60	6 30	19 49.67	-42 42.5	0.847	1.821	13.5	18.5	155 W	2	73	
8 9	16 57.53	+ 2 20.4	2.180	2.747	19.8	20.8	114 E	47*	62	7 5	19 44.98	-43 8.2	0.820	1.801	12.5	18.4	157 W	2	73	
8 19	16 58.53	+ 0 33.6	2.273	2.726	20.9	20.9	106 E	45*	63	7 10	19 39.50	-43 26.2	0.797	1.782	12.2	18.3	158 W	2	73	
8 29	17 1.93	+ 1 13.5	2.372	2.704	21.7	21.0	98 E	43*	65	7 15	19 33.47	-43 34.9	0.779	1.763	12.5	18.2	158 E	1	72	
9 8	17 7.54	+ 2 57.8	2.475	2.680	22.1	21.1	91 E	40*	67*	7 20	19 27.20	-43 32.9	0.766	1.744	13.6	18.2	156 E	1	72	
9 18	17 15.16	+ 4 37.3	2.579	2.656	22.1	21.1	83 E	38*	65*	7 25	19 21.08	-43 19.5	0.757	1.726	15.2	18.2	153 E	2	73	
9 28	17 24.59	+ 6 10.2	2.681	2.632																

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°
279120 2009 ON₁₀ (continuation)									396593 2001 HC (continuation)								
10 23	20 31.58	-22 28.1	1.074	1.525	40.6	19.5	95 E	23 86*	7 2	4 53.86	-47 57.6	0.414	0.995	81.1	19.9	75 W	- 40*
10 28	20 42.83	-20 56.2	1.106	1.523	40.7	19.5	93 E	24 83*	7 4	5 5.49	-45 57.5	0.414	0.979	83.1	19.9	73 W	- 40*
11 2	20 54.31	-19 22.7	1.140	1.522	40.7	19.6	91 E	26 80*	7 6	5 16.31	-43 52.6	0.414	0.963	85.3	20.0	71 W	- 39*
11 7	21 5.98	-17 47.5	1.174	1.523	40.6	19.7	89 E	27 77*	7 8	5 26.42	-41 43.2	0.415	0.947	87.4	20.0	68 W	- 39*
11 17	21 29.76	-14 33.0	1.247	1.527	40.2	19.8	85 E	30 70*	7 10	5 35.87	-39 29.7	0.417	0.930	89.6	20.1	66 W	- 38*
11 27	21 53.91	-11 14.0	1.325	1.536	39.5	19.9	82 E	34 64*	7 12	5 44.74	-37 12.3	0.420	0.913	91.9	20.2	64 W	- 38*
12 7	22 18.21	-7 52.3	1.407	1.549	38.6	20.0	79 E	37 57*	7 14	5 53.10	-34 51.5	0.422	0.895	94.1	20.2	61 W	- 38*
12 17	22 42.59	-4 29.8	1.495	1.566	37.4	20.2	75 E	41 51*	7 16	6 1.01	-32 27.5	0.426	0.877	96.4	20.3	59 W	- 37*
12 27	23 6.97	-1 8.5	1.587	1.588	36.1	20.3	72 E	44* 45*	7 18	6 8.53	-30 0.4	0.430	0.858	98.7	20.4	57 W	- 37*
1 6	23 31.32	+ 2 9.6	1.683	1.612	34.6	20.4	69 E	46* 40*	7 20	6 15.71	-27 30.7	0.435	0.839	101.0	20.5	54 W	- 36*
1 16	23 55.66	+ 5 22.5	1.783	1.640	33.1	20.5	65 E	48* 35*	7 25	6 32.54	-21 5.9	0.451	0.790	106.6	20.7	48 W	- 35*
7341 1991 VK									434632 2005 WE								
3 22	18 40.39	-26 47.5	2.271	2.358	24.8	21.5	83 W	16* 77*	3 22	18 59.87	-42 29.3	0.676	1.108	62.5	21.4	80 W	- 67*
4 1	18 48.79	-26 43.0	2.171	2.399	24.6	21.4	91 W	17* 84*	3 27	19 31.02	-41 25.3	0.656	1.087	64.4	21.3	79 W	- 66*
4 11	18 54.62	-26 40.5	2.070	2.437	24.0	21.3	99 W	18* 89	4 1	20 1.93	-39 47.3	0.638	1.066	66.4	21.3	78 W	- 65*
4 21	18 57.54	-26 41.0	1.968	2.474	22.7	21.2	108 W	18* 89	4 6	20 32.09	-37 35.5	0.624	1.045	68.4	21.3	76 W	1* 65*
5 1	18 57.22	-26 45.1	1.872	2.508	20.8	21.1	118 W	18* 89	4 11	21 1.10	-34 51.5	0.613	1.025	70.4	21.3	74 W	1* 64*
5 11	18 53.42	-26 52.3	1.785	2.540	18.1	20.9	128 W	18 89	4 16	21 28.72	-31 38.8	0.606	1.005	72.3	21.3	73 W	2* 63*
5 21	18 46.08	-27 0.8	1.713	2.570	14.8	20.7	140 W	18 89	4 21	21 54.83	-28 1.5	0.603	0.985	74.2	21.3	71 W	4* 63*
5 31	18 35.44	-27 7.6	1.660	2.597	10.7	20.5	152 W	18 89	4 26	22 19.43	-24 4.8	0.603	0.966	75.9	21.3	69 W	5* 62*
6 10	18 22.24	-27 9.1	1.632	2.623	6.2	20.3	164 W	18 89	5 1	22 42.63	-19 53.9	0.608	0.948	77.3	21.3	67 W	7* 60*
6 15	18 15.04	-27 6.8	1.629	2.635	3.8	20.2	170 W	18 89	5 6	23 4.62	-15 34.3	0.616	0.931	78.5	21.3	65 W	9* 59*
6 20	18 7.67	-27 2.3	1.632	2.647	1.8	20.1	175 W	18 89	5 11	23 25.60	-11 11.0	0.628	0.916	79.3	21.4	63 W	11* 57*
6 25	18 0.32	-26 55.5	1.644	2.658	1.9	20.1	175 E	18 89	5 16	23 45.79	-6 48.6	0.644	0.902	79.8	21.4	61 W	13* 55*
6 30	17 53.19	-26 46.7	1.662	2.668	4.0	20.3	170 E	18 89	5 21	0 5.38	-2 31.1	0.663	0.890	79.9	21.4	60 W	15* 53*
7 5	17 46.44	-26 36.0	1.688	2.678	6.2	20.5	163 E	18 89	5 26	0 24.55	+ 1 38.2	0.685	0.880	79.6	21.5	59 W	18* 50*
7 10	17 40.23	-26 24.0	1.720	2.688	8.3	20.6	157 E	19 90	3 22	19 6.36	-20 34.5	1.944	1.959	29.6	21.5	76 W	21* 70*
7 15	17 34.66	-26 11.2	1.760	2.697	10.4	20.7	151 E	19 90	4 1	19 27.06	-19 32.3	1.806	1.922	30.9	21.3	81 W	22* 74*
7 20	17 29.83	-25 57.9	1.805	2.705	12.2	20.9	146 E	19 90	4 11	19 47.24	-18 17.8	1.669	1.885	32.0	21.1	86 W	23* 78*
7 25	17 25.79	-25 44.7	1.856	2.713	13.9	21.0	140 E	19 90	4 21	20 6.78	-16 51.7	1.536	1.848	32.9	20.9	91 W	24* 80*
7 30	17 22.58	-25 32.0	1.911	2.721	15.4	21.1	134 E	19 90	5 1	20 25.53	-15 14.7	1.406	1.811	33.6	20.7	96 W	26* 79
8 4	17 20.18	-25 20.0	1.971	2.728	16.8	21.2	129 E	20 89	5 11	20 43.37	-13 28.1	1.282	1.775	34.0	20.5	101 W	28* 77
8 9	17 18.60	-25 9.0	2.035	2.734	17.9	21.4	124 E	20 89	5 21	21 0.12	-11 33.1	1.164	1.740	34.0	20.2	106 W	31* 76
8 14	17 17.79	-24 59.0	2.102	2.741	18.9	21.5	119 E	20 89	5 31	21 15.55	-9 31.7	1.052	1.705	33.6	20.0	111 W	34* 74
396593 2001 HC									421450 2014 MF₅₅								
3 22	18 50.94	-33 8.6	1.004	1.298	49.3	21.4	81 W	10* 73*	3 22	19 6.36	-20 34.5	1.944	1.959	29.6	21.5	76 W	21* 70*
3 27	19 3.63	-34 35.5	0.964	1.304	49.5	21.3	83 W	8* 74*	4 1	19 27.06	-19 32.3	1.806	1.922	30.9	21.3	81 W	22* 74*
4 1	19 16.69	-36 6.9	0.923	1.309	49.6	21.3	86 W	7* 75*	4 11	19 47.24	-18 17.8	1.669	1.885	32.0	21.1	86 W	23* 78*
4 6	19 30.23	-37 43.4	0.881	1.311	49.7	21.2	88 W	5* 75*	4 21	20 6.78	-16 51.7	1.536	1.848	32.9	20.9	91 W	24* 80*
4 11	19 44.39	-39 26.1	0.839	1.311	49.8	21.1	90 W	3* 75*	5 1	20 25.53	-15 14.7	1.406	1.811	33.6	20.7	96 W	26* 79
4 16	19 59.33	-41 15.5	0.797	1.309	50.0	21.0	93 W	1* 74*	5 11	20 43.37	-13 28.1	1.282	1.775	34.0	20.5	101 W	28* 77
4 21	20 15.26	-43 12.6	0.756	1.305	50.1	20.8	95 W	- 72*	5 21	21 0.12	-11 33.1	1.164	1.740	34.0	20.2	106 W	31* 76
4 26	20 32.46	-45 17.6	0.715	1.299	50.4	20.7	96 W	- 70*	5 31	21 15.55	-9 31.7	1.052	1.705	33.6	20.0	111 W	34* 74
5 1	20 51.31	-47 30.6	0.676	1.290	50.6	20.6	98 W	- 68*	6 10	21 29.43	-7 26.1	0.948	1.673	32.8	19.7	117 W	37* 71
5 6	21 12.32	-49 50.8	0.638	1.279	51.1	20.4	99 W	- 66*	6 20	21 41.43	-5 19.6	0.852	1.641	31.4	19.4	123 W	40* 69
5 11	21 36.17	-52 16.0	0.602	1.267	51.6	20.3	100 W	- 64*	6 30	21 51.15	-3 16.3	0.766	1.612	29.4	19.0	129 W	42 67
5 13	21 46.69	-53 14.9	0.589	1.261	51.9	20.3	101 W	- 63*	7 5	21 55.05	-2 17.6	0.726	1.598	28.1	18.9	132 W	43 66
5 15	21 57.86	-54 13.6	0.575	1.255	52.3	20.2	101 W	- 62*	7 10	21 58.24	-1 21.7	0.689	1.585	26.6	18.7	136 W	44 65
5 17	22 9.75	-55 11.9	0.562	1.248	52.7	20.2	101 W	- 61*	7 15	22 0.67	-0 29.8	0.655	1.572	24.9	18.5	139 W	45 64
5 19	22 22.43	-56 9.2	0.550	1.241	53.1	20.1	101 W	- 59*	7 20	22 2.30	+ 0 17.2	0.624	1.560	23.0	18.3	143 W	45 64
5 21	22 35.95	-57 4.8	0.538	1.234	53.6	20.1	101 W	- 58*	7 25	22 3.13	+ 0 58.1	0.595	1.549	20.9	18.2	147 W	46 63
5 23	22 50.39	-57 58.2	0.526	1.226	54.2	20.0	101 W	- 57*	7 30	22 3.18	+ 1 31.9	0.570	1.539	18.7	18.0	151 W	47 62
5 25	23 5.81	-58 48.4	0.515	1.219	54.8	20.0	101 W	- 56*	8 4	22 2.51	+ 1 57.8	0.549	1.529	16.3	17.8	155 W	47 62
5 27	23 22.23	-59 34.6	0.505	1.210	55.5	19.9	100 W	- 55*	8 9	22 1.20	+ 2 14.8	0.530	1.520	14.0	17.6	159 W	47 62
5 29	23 39.69	-60 15.6	0.495	1.202	56.2	19.9	100 W	- 54*									
5 31	23 58.16	-60 50.4	0.486	1.192	57.1	19.9	99 W	- 53*									
6 2	0 17.58	-61 17.8	0.477	1.183	58.0	19.8	99 W	- 52*									
6 4	0 37.83	-61 36.7	0.469	1.173	59.0	19.8	98 W	- 51*									
6 6	0 58.76	-61 46.0	0.461	1.163	60.0	19.8	97 W	- 50*									
6 8	1 20.14	-61 45.0	0.454	1.153	61.2	19.8	96 W	- 49*									
6 10	1 41.72	-61 32.9	0.448	1.142	62.4	19.8	95 W	- 48*									
6 11	1 52.50	-61 22.5	0.445	1.136	63.1	19.8	94 W	- 48*									
6 12	2 3.22	-61 9.2	0.442	1.130	63.8	19.8	93 W	- 47*									

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°
421450 2014 MF₅₅ (continuation)									306722 2000 WF₁₀₇ (continuation)								
8 19	21 57.20	+ 2 20.6	0.505	1.505	10.1	17.4	165 W	47 62	5 1	19 55.00	-12 26.5	2.100	2.516	23.0	20.7	102 W	31* 76
8 29	21 52.79	+ 1 50.2	0.495	1.494	9.8	17.3	165 E	47 62	5 11	20 1.55	-12 54.3	1.930	2.472	22.5	20.5	110 W	31* 77
9 8	21 49.84	+ 0 53.0	0.500	1.487	13.6	17.4	160 E	46 63	5 21	20 6.11	-13 39.1	1.768	2.428	21.3	20.2	119 W	31* 78
9 13	21 49.42	+ 0 18.8	0.508	1.484	16.1	17.6	156 E	45 64	5 31	20 8.29	-14 45.8	1.616	2.383	19.5	19.9	128 W	30 79
9 18	21 49.89	+ 0 16.7	0.520	1.483	18.7	17.7	152 E	45 64	6 10	20 7.73	-16 19.2	1.478	2.338	16.7	19.6	139 W	29 80
9 23	21 51.37	+ 0 51.3	0.535	1.483	21.2	17.8	148 E	44 65	6 20	20 4.08	-18 22.8	1.357	2.292	13.0	19.2	150 W	27 82
9 28	21 53.90	+ 1 23.4	0.553	1.484	23.6	18.0	144 E	44 65	6 30	19 57.17	-20 56.8	1.259	2.246	8.4	18.8	161 W	24 85
10 3	21 57.47	+ 1 51.5	0.574	1.486	25.8	18.1	140 E	43 66	7 5	19 52.56	-22 23.7	1.220	2.223	5.8	18.6	167 W	23 86
10 8	22 2.01	+ 2 14.7	0.597	1.488	27.7	18.3	136 E	43 66	7 10	19 47.25	-23 55.6	1.187	2.199	3.2	18.4	173 W	21 88
10 18	22 13.78	+ 2 43.9	0.653	1.497	31.1	18.6	129 E	42 67	7 15	19 41.37	-25 30.9	1.161	2.176	1.9	18.2	176 W	19 90
10 28	22 28.63	+ 2 47.8	0.719	1.509	33.6	18.9	123 E	42 67	7 20	19 35.07	-27 7.6	1.142	2.153	3.9	18.3	172 E	18 89
11 7	22 45.81	+ 2 26.7	0.793	1.525	35.3	19.2	117 E	43 66	7 25	19 28.55	-28 43.7	1.131	2.130	6.8	18.4	166 E	16 87
11 17	23 4.67	+ 1 43.1	0.876	1.545	36.5	19.4	112 E	43 66	7 30	19 22.05	-30 17.0	1.126	2.106	9.9	18.5	159 E	15 86
11 27	23 24.73	+ 0 39.8	0.967	1.567	37.1	19.7	107 E	44 65*	8 4	19 15.79	-31 46.0	1.128	2.083	12.8	18.6	153 E	13 84
12 7	23 45.57	+ 0 39.2	1.064	1.592	37.3	20.0	102 E	46 63*	8 9	19 10.02	-33 9.3	1.136	2.060	15.7	18.7	147 E	12 83
12 17	0 6.91	+ 2 10.2	1.169	1.620	37.1	20.2	97 E	47 59*	8 14	19 4.94	-34 26.0	1.149	2.037	18.4	18.8	141 E	11 82
12 27	0 28.59	+ 3 49.9	1.280	1.650	36.5	20.4	93 E	49 55*	8 19	19 0.75	-35 35.7	1.167	2.014	20.8	18.9	135 E	9 80
1 6	0 50.46	+ 5 34.7	1.396	1.682	35.8	20.6	88 E	51 51*	8 24	18 57.61	-36 38.3	1.189	1.991	23.1	19.0	129 E	8 79
1 16	1 12.46	+ 7 21.8	1.516	1.715	34.8	20.8	84 E	52 47*	8 29	18 55.62	-37 34.2	1.215	1.968	25.1	19.0	124 E	7 78
349694 2008 XF₃									306722 2000 WF₁₀₇ (continuation)								
3 22	19 8.48	+ 7 52.7	2.515	2.446	23.1	21.4	75 W	33* 62*	9 8	18 55.30	-39 7.2	1.273	1.923	28.5	19.2	115 E	6 77
4 1	19 21.90	+ 7 46.8	2.347	2.400	24.3	21.3	81 W	33* 67*	9 18	18 59.94	-40 18.0	1.337	1.879	31.0	19.3	106 E	5 76
4 11	19 34.53	+ 7 42.8	2.178	2.354	25.2	21.1	87 W	34* 71*	9 28	19 9.37	-41 8.9	1.403	1.836	32.7	19.4	98 E	4 75
4 21	19 46.20	+ 7 43.8	2.009	2.307	25.8	20.9	94 W	35* 72	10 3	19 15.75	-41 27.4	1.436	1.816	33.3	19.5	95 E	4 75
5 1	19 56.70	+ 7 53.7	1.842	2.260	26.0	20.7	101 W	35* 72	10 8	19 23.15	-41 41.2	1.468	1.795	33.8	19.5	91 E	3 74*
5 11	20 5.82	+ 8 17.4	1.678	2.213	25.7	20.4	108 W	36* 72	10 13	19 31.51	-41 50.1	1.499	1.775	34.2	19.5	88 E	3 73*
5 16	20 9.77	+ 8 36.3	1.598	2.189	25.3	20.3	112 W	36* 73	10 18	19 40.78	-41 54.1	1.530	1.756	34.4	19.6	85 E	3 72*
5 21	20 13.25	+ 9 1.0	1.520	2.166	24.8	20.1	116 W	36* 73	10 23	19 50.89	-41 52.9	1.560	1.737	34.6	19.6	82 E	3 71*
5 26	20 16.22	+ 9 32.6	1.444	2.142	24.1	20.0	120 W	35* 74	10 28	20 1.77	-41 46.3	1.588	1.718	34.7	19.6	80 E	3 70*
5 31	20 18.63	+ 10 12.1	1.371	2.119	23.2	19.8	125 W	35* 74	11 2	20 13.32	-41 34.0	1.615	1.700	34.7	19.6	77 E	3 68*
6 5	20 20.43	+ 11 0.5	1.300	2.095	22.0	19.6	129 W	34 75	11 7	20 25.49	-41 15.8	1.641	1.683	34.7	19.6	75 E	4 67*
6 10	20 21.58	+ 11 59.1	1.233	2.072	20.6	19.5	134 W	33 76	11 12	20 38.21	-40 51.4	1.666	1.667	34.6	19.6	73 E	4 65*
6 15	20 22.00	+ 13 8.9	1.170	2.048	19.0	19.3	139 W	32 77	11 17	20 51.40	-40 20.5	1.689	1.651	34.4	19.7	71 E	5 64*
6 20	20 21.65	+ 14 30.8	1.111	2.025	17.0	19.1	144 W	30 79	11 22	21 4.99	-39 42.9	1.711	1.636	34.2	19.7	69 E	5 62*
6 30	20 18.45	+ 17 53.4	1.008	1.979	12.2	18.6	156 W	27 82	11 27	21 18.92	-38 58.6	1.732	1.622	34.0	19.7	67 E	6* 61*
7 10	20 11.88	+ 22 6.2	0.929	1.934	6.6	18.2	167 W	23 86	12 2	21 33.10	-38 7.5	1.752	1.609	33.8	19.7	65 E	7* 59*
7 20	20 2.23	+ 26 56.6	0.877	1.890	3.4	17.8	174 W	18 89	12 7	21 47.48	-37 9.3	1.771	1.597	33.5	19.7	64 E	8* 58*
7 25	19 56.56	+ 29 28.4	0.861	1.868	5.9	17.9	169 E	16 87	12 12	22 1.99	-36 4.3	1.790	1.586	33.2	19.7	62 E	9* 56*
7 30	19 50.61	+ 31 59.4	0.852	1.847	9.3	18.0	163 E	13 84	12 17	22 16.60	-34 52.4	1.807	1.576	32.9	19.7	61 E	10* 54*
8 4	19 44.64	+ 34 25.8	0.851	1.826	12.9	18.1	156 E	11 82	12 22	22 31.26	-33 33.8	1.825	1.567	32.6	19.7	59 E	11* 53*
8 9	19 38.93	+ 36 44.3	0.855	1.806	16.3	18.2	150 E	8 79	12 27	22 45.91	-32 8.8	1.842	1.559	32.3	19.7	58 E	12* 51*
8 14	19 33.77	+ 38 52.4	0.865	1.786	19.6	18.3	144 E	6 77	1 1	23 0.51	-30 37.8	1.858	1.553	31.9	19.7	57 E	14* 50*
8 19	19 29.44	+ 40 48.5	0.880	1.766	22.6	18.4	138 E	4 75	1 6	23 15.06	-29 1.0	1.876	1.547	31.6	19.7	55 E	15* 48*
8 24	19 26.21	+ 42 31.8	0.899	1.747	25.4	18.5	132 E	2 73	1 11	23 29.52	-27 18.8	1.893	1.543	31.2	19.7	54 E	16* 47*
8 29	19 24.30	+ 44 2.5	0.922	1.729	27.8	18.6	127 E	1 72	1 16	23 43.88	-25 31.9	1.911	1.540	30.8	19.7	53 E	17* 45*
9 3	19 23.82	+ 45 21.1	0.947	1.711	30.0	18.7	122 E	— 71	459561 2013 GM₉₂								
9 8	19 24.86	+ 46 28.4	0.975	1.694	31.9	18.8	117 E	— 70	3 22	19 20.00	-21 24.5	1.545	1.575	37.2	21.4	73 W	19* 67*
9 13	19 27.46	+ 47 24.9	1.004	1.678	33.5	18.9	113 E	— 69	4 1	19 48.28	-20 1.8	1.469	1.566	38.3	21.3	76 W	20* 70*
9 18	19 31.63	+ 48 11.6	1.034	1.663	34.8	19.0	109 E	— 68	4 11	20 15.37	-18 22.4	1.396	1.561	39.1	21.2	79 W	21* 73*
9 23	19 37.34	+ 48 48.8	1.065	1.648	35.9	19.1	106 E	— 67	4 21	20 41.05	-16 29.9	1.326	1.559	39.7	21.2	83 W	22* 75*
9 28	19 44.52	+ 49 17.2	1.096	1.634	36.8	19.2	102 E	— 67	5 1	21 5.07	-14 28.1	1.258	1.562	40.1	21.1	86 W	23* 77*
10 3	19 53.06	+ 49 36.9	1.127	1.621	37.5	19.2	99 E	— 66	5 11	21 27.24	-12 21.5	1.194	1.567	40.1	20.9	90 W	26* 76*
10 8	20 2.86	+ 49 48.0	1.157	1.610	38.1	19.3	96 E	— 66	5 21	21 47.36	-10 14.2	1.132	1.577	39.8	20.8	95 W	28* 74
10 13	20 13.81	+ 49 50.3	1.187	1.599	38.5	19.3	94 E	— 66	5 31	22 5.15	-8 11.0	1.072	1.590	39.0	20.7	99 W	31* 72
10 18	20 25.77	+ 49 43.8	1.217	1.589	38.8	19.4	91 E	— 66	6 10	22 20.36	-6 16.2	1.014	1.606	37.7	20.6	105 W	35* 70
10 23	20 38.62	+ 49 28.4	1.246	1.580	39.0	19.4	89 E	— 67*	6 20	22 32.64	-4 34.5	0.959	1.625	35.8	20.4	111 W	38* 69
10 28	20 52.20	+ 49 3.9	1.274	1.573	39.1	19.5	87 E	— 67*	6 30	22 41.57	-3 10.8	0.908	1.647	33.2	20.3	118 W	41* 67
11 2	21 6.37	+ 48 30.1	1.302	1.567	39.1	19.5	85 E	— 67*	7 10	22 46.82	-2 9.4	0.863	1.672	29.7	20.1	125 W	43 66
11 7	21 20.99	+ 47 47.0	1.329	1.561	39.1	19.5	83 E	— 67*	7 20	22 48.09	-1 34.7	0.825	1.699	25.3	19.9	134 W	43 66
11 12	21 35.91	+ 46 54.6	1.3														

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°
315020 2007 BG₄₉										468025 2013 MN₆									
3 22	19 58.20	-28 34.0	1.270	1.253	46.5	21.5	66 W	9*	59*	3 22	20 11.74	-23 31.2	2.043	1.798	29.2	21.4	62 W	12*	56*
3 27	20 17.78	-27 37.8	1.256	1.252	46.9	21.5	66 W	9*	60*	4 1	20 36.79	-21 28.9	1.933	1.769	30.9	21.3	65 W	13*	59*
4 1	20 36.74	-26 32.8	1.243	1.252	47.2	21.4	67 W	9*	60*	4 11	21 1.19	-19 8.8	1.825	1.740	32.5	21.2	69 W	15*	63*
4 6	20 55.06	-25 20.3	1.230	1.254	47.5	21.4	67 W	9*	61*	4 21	21 24.88	-16 32.0	1.719	1.714	34.0	21.1	73 W	17*	66*
4 11	21 12.69	-24 1.2	1.219	1.257	47.7	21.4	68 W	9*	62*	5 1	21 47.77	-13 39.6	1.617	1.690	35.4	20.9	76 W	19*	69*
4 16	21 29.62	-22 36.6	1.208	1.262	47.9	21.4	69 W	10*	63*	5 11	22 9.82	-10 33.2	1.518	1.668	36.6	20.8	80 W	22*	71*
4 21	21 45.84	-21 7.7	1.198	1.268	48.0	21.4	70 W	10*	64*	5 21	22 30.99	-7 14.4	1.423	1.649	37.6	20.7	83 W	26*	70*
4 26	22 1.35	-19 35.5	1.188	1.276	48.1	21.4	71 W	11*	64*	5 31	22 51.18	-3 45.0	1.333	1.633	38.3	20.5	87 W	30*	68*
5 1	22 16.16	-18 0.9	1.178	1.285	48.1	21.4	72 W	12*	66*	6 10	23 10.31	0 7.1	1.248	1.619	38.8	20.4	91 W	35*	64
5 6	22 30.28	-16 24.8	1.168	1.295	48.0	21.4	73 W	13*	67*	6 20	23 28.26	+ 3 37.0	1.168	1.609	39.0	20.2	95 W	41*	60
5 11	22 43.74	-14 47.9	1.157	1.306	47.9	21.4	74 W	14*	68*	6 30	23 44.78	+ 7 24.4	1.092	1.603	38.8	20.1	99 W	47*	57
5 16	22 56.55	-13 10.8	1.146	1.319	47.8	21.4	75 W	16*	68*	7 10	23 59.62	+11 12.1	1.023	1.599	38.2	19.9	103 W	54*	53
5 21	23 8.73	-11 34.3	1.134	1.332	47.6	21.4	76 W	17*	69*	7 15	0 6.31	+13 4.9	0.990	1.599	37.7	19.8	106 W	57*	51
5 26	23 20.27	-9 58.9	1.122	1.347	47.4	21.4	78 W	19*	70*	7 20	0 12.41	+14 56.3	0.958	1.599	37.1	19.7	108 W	60*	49
5 31	23 31.19	-8 25.1	1.109	1.362	47.1	21.4	80 W	21*	70*	7 25	0 17.88	+16 45.6	0.928	1.600	36.4	19.6	111 W	62*	47
6 5	23 41.48	-6 53.3	1.095	1.379	46.7	21.4	82 W	23*	69*	7 30	0 22.64	+18 32.2	0.900	1.603	35.5	19.6	113 W	64	45
6 10	23 51.16	-5 23.7	1.080	1.396	46.3	21.3	83 W	25*	69*	8 4	0 26.64	+20 15.2	0.873	1.606	34.5	19.5	116 W	65	44
6 15	0 0.21	-3 56.7	1.064	1.414	45.7	21.3	86 W	28*	68*	8 9	0 29.80	+21 53.8	0.848	1.610	33.5	19.4	119 W	67	42
6 20	0 8.61	-2 32.6	1.048	1.433	45.1	21.3	88 W	31*	67	8 14	0 32.04	+23 27.0	0.825	1.614	31.9	19.3	123 W	68	41
6 25	0 16.32	-1 11.7	1.030	1.452	44.4	21.3	90 W	34*	65	8 19	0 33.29	+24 53.5	0.804	1.620	30.4	19.2	126 W	70	39
6 30	0 23.31	+ 0 5.8	1.011	1.471	43.6	21.2	93 W	37*	64	8 24	0 33.52	+26 11.9	0.785	1.626	28.8	19.1	129 W	71	38
7 5	0 29.56	+ 1 19.7	0.992	1.491	42.7	21.2	96 W	40*	63	8 29	0 32.73	+27 20.9	0.769	1.633	27.0	19.0	133 W	72	37
7 10	0 35.02	+ 2 29.9	0.972	1.512	41.6	21.2	99 W	43*	62	9 3	0 30.94	+28 19.2	0.756	1.641	25.1	18.9	136 W	73	36
7 15	0 39.64	+ 3 36.0	0.952	1.532	40.4	21.1	102 W	45*	60	9 8	0 28.23	+29 5.4	0.745	1.650	23.1	18.8	140 W	74	35
7 20	0 43.33	+ 4 37.9	0.931	1.553	39.0	21.1	106 W	48*	59	9 13	0 24.72	+29 38.3	0.738	1.659	21.1	18.8	144 W	75	34
7 25	0 46.04	+ 5 35.1	0.911	1.574	37.5	21.0	109 W	50*	58	9 18	0 20.58	+29 57.0	0.734	1.669	19.2	18.7	147 W	75	34
7 30	0 47.71	+ 6 27.3	0.891	1.596	35.7	20.9	114 W	51*	58	9 23	0 16.07	+30 1.1	0.734	1.679	17.5	18.7	150 W	75	34
8 4	0 48.28	+ 7 14.4	0.871	1.617	33.7	20.8	118 W	52	57	9 28	0 11.47	+29 51.3	0.739	1.691	16.1	18.7	152 E	75	34
8 9	0 47.69	+ 7 55.7	0.853	1.638	31.5	20.8	122 W	53	56	10 3	0 7.03	+29 28.7	0.747	1.702	15.2	18.7	154 E	74	35
8 14	0 45.91	+ 8 30.9	0.836	1.660	29.0	20.7	127 W	54	55	10 8	0 3.02	+28 55.0	0.760	1.715	14.9	18.7	154 E	74	35
8 19	0 42.93	+ 8 59.3	0.822	1.681	26.3	20.6	133 W	54	55	10 13	23 59.65	+28 12.1	0.778	1.728	15.1	18.8	153 E	73	36
8 24	0 38.77	+ 9 20.6	0.810	1.703	23.3	20.5	138 W	54	55	10 18	23 57.08	+27 22.7	0.800	1.741	15.9	18.9	151 E	72	37
8 29	0 33.53	+ 9 34.3	0.802	1.724	20.1	20.4	144 W	55	54	10 23	23 55.46	+26 29.2	0.826	1.755	17.0	19.0	149 E	71	38
9 8	0 20.47	+ 9 39.1	0.798	1.766	13.4	20.2	156 W	55	54	10 28	23 54.83	+25 34.3	0.857	1.769	18.3	19.1	146 E	71	38
9 18	0 5.47	+ 9 16.0	0.814	1.808	6.9	20.1	167 W	54	55	11 2	23 55.20	+24 40.1	0.891	1.784	19.8	19.3	143 E	70	39
9 28	23 50.84	+ 8 33.3	0.853	1.849	5.1	20.1	170 E	54	55	11 7	23 56.54	+23 48.2	0.930	1.799	21.2	19.5	139 E	69	40
10 3	23 44.35	+ 8 8.5	0.882	1.869	7.3	20.3	166 E	53	56	11 12	23 58.79	+22 59.9	0.973	1.815	22.6	19.6	135 E	68	41
10 8	23 38.67	+ 7 43.5	0.916	1.889	9.9	20.5	161 E	53	56	11 17	0 1.91	+22 16.1	1.019	1.830	23.9	19.8	131 E	67	42
10 13	23 33.92	+ 7 19.6	0.956	1.909	12.6	20.8	155 E	52	57	11 22	0 5.83	+21 37.7	1.069	1.847	25.0	19.9	128 E	67	42
10 18	23 30.19	+ 6 57.9	1.001	1.928	15.1	21.0	150 E	52	57	11 27	0 10.46	+21 5.0	1.121	1.863	26.0	20.1	124 E	66	43
10 23	23 27.52	+ 6 39.4	1.050	1.947	17.3	21.2	144 E	52	57	12 7	0 21.55	+20 16.6	1.235	1.896	27.6	20.4	117 E	65	44
10 28	23 25.88	+ 6 24.8	1.104	1.966	19.3	21.4	139 E	51	58	12 17	0 34.65	+19 49.6	1.358	1.930	28.6	20.7	110 E	65	44*
										12 27	0 49.34	+19 41.9	1.490	1.965	29.1	20.9	103 E	65	43*
										1 6	1 5.23	+19 49.9	1.627	2.001	29.2	21.1	97 E	65	40*
										1 16	1 22.09	+20 10.4	1.770	2.036	28.9	21.4	91 E	65	38*
388188 2006 DP₁₄										467460 2006 JF₄₂									
3 22	20 4.94	-32 9.6	1.129	1.155	51.7	21.4	65 W	5*	58*	3 22	20 12.33	-22 22.1	1.071	1.055	55.9	21.5	61 W	13*	55*
3 27	20 34.71	-30 30.0	1.058	1.087	55.4	21.2	64 W	5*	56*	3 27	20 31.03	-21 41.4	1.036	1.046	57.3	21.4	62 W	13*	56*
4 1	21 6.75	-28 9.8	0.996	1.016	59.6	21.1	61 W	4*	54*	4 1	20 50.64	-20 50.1	1.001	1.032	58.9	21.4	62 W	12*	56*
4 6	21 40.79	-25 1.8	0.945	0.942	64.1	20.9	58 W	4*	51*	4 6	21 11.28	-19 46.5	0.965	1.015	60.7	21.3	62 W	12*	56*
4 11	22 16.37	-21 1.7	0.908	0.864	68.8	20.8	54 W	3*	47*	4 11	21 33.11	-18 28.6	0.930	0.993	62.7	21.3	62 W	12*	56*
4 16	22 52.87	-16 10.8	0.889	0.783	73.5	20.7	48 W	3*	42*	4 16	21 56.27	-16 54.2	0.897	0.968	65.0	21.2	61 W	11*	55*
4 21	23 29.67	-10 38.0	0.889	0.698	77.5	20.6	43 W	3*	36*	4 21	22 20.87	-15 1.0	0.867	0.938	67.6	21.1	60 W	11*	54*
4 26	0 6.38	+ 4 38.9	0.912	0.609	80.1	20.4	37 W	3*	31*	4 26	22 47.02	-12 46.8	0.840	0.903	70.4	21.1	58 W	10*	52*
5 1	0 43.02	+ 1 28.3	0.960	0.519	79.9	20.2	30 W	3*	24*	5 1	23 14.76	-10 10.3	0.820	0.865	73.4	21.0	55 W	10*	49*
5 3	0 57.79	+ 3 53.7	0.985	0.483	78.6	20.0	28 W	3*	22*	5 6	23 44.07	-7 11.0	0.806	0.821	76.6	21.0	52 W	9*	46*
5 5	1 12.73	+ 6 16.9	1.015	0.448	76.4	19.9	26 W	3*	19*	5 11	0 14.90	-3 50.7	0.802	0.772	79.8	20.9	49 W	8*	43*
5 7	1 27.95	+ 8 37.2	1.048	0.414	73.1	19.6	23 W	3*	17*										

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°	
467460 2006 JF₄₂ (continuation)									457768 2009 KN₄ (continuation)									
7 15	9 5.82	+18 33.3	1.401	0.577	38.7	20.3	21 E	5* 13*	6 30	3 36.30	+24 57.6	1.456	0.959	44.1	20.7	41 W	23*	26*
7 20	9 36.92	+16 2.7	1.425	0.644	39.7	20.6	24 E	6* 17*	7 5	3 57.62	+26 16.5	1.487	0.978	42.8	20.8	41 W	25*	25*
7 25	10 4.80	+13 27.7	1.453	0.704	39.7	20.8	26 E	7* 19*	7 10	4 18.60	+27 21.0	1.519	1.000	41.6	20.8	41 W	26*	24*
7 30	10 30.03	+10 53.1	1.484	0.760	39.1	21.0	28 E	7* 21*	7 15	4 39.12	+28 11.7	1.549	1.026	40.4	20.9	41 W	27*	23*
8 4	10 53.07	+ 8 21.7	1.518	0.810	38.2	21.2	30 E	7* 23*	7 20	4 59.13	+28 49.5	1.579	1.054	39.4	21.0	41 W	28*	22*
8 9	11 14.31	+ 5 55.3	1.554	0.855	37.2	21.3	31 E	7* 24*	7 25	5 18.52	+29 15.4	1.607	1.085	38.5	21.0	42 W	30*	22*
8 14	11 34.08	+ 3 34.6	1.590	0.895	36.0	21.4	31 E	7* 25*	7 30	5 37.26	+29 30.5	1.633	1.117	37.8	21.1	42 W	31*	21*
381823 2009 VZ₈₀									380321 2002 HF₈									
3 22	20 14.06	-32 7.7	2.236	2.004	26.5	21.5	64 W	4* 56*	3 22	20 40.09	-20 55.2	1.580	1.291	39.0	21.4	55 W	11*	49*
4 1	20 40.33	-32 20.4	2.108	1.967	28.1	21.3	68 W	3* 60*	4 1	21 20.52	-18 33.4	1.526	1.252	40.7	21.3	55 W	10*	49*
4 11	21 7.01	-32 27.5	1.982	1.932	29.6	21.2	72 W	3* 63*	4 11	22 0.41	-15 39.1	1.486	1.220	42.1	21.2	55 W	10*	49*
4 21	21 34.05	-32 29.6	1.860	1.897	31.0	21.1	77 W	2* 67*	4 21	22 39.29	-12 19.6	1.459	1.197	43.1	21.2	54 W	10*	48*
5 1	22 1.35	-32 28.0	1.742	1.863	32.2	20.9	81 W	2* 70*	5 1	23 16.82	- 8 43.8	1.444	1.183	43.7	21.1	54 W	10*	48*
5 11	22 28.79	-32 23.6	1.631	1.831	33.3	20.8	84 W	1* 74*	5 11	23 52.78	- 5 1.1	1.440	1.180	44.0	21.1	54 W	11*	48*
5 21	22 56.24	-32 17.9	1.525	1.800	34.2	20.6	88 W	1* 77*	5 21	0 27.14	- 1 20.4	1.442	1.188	44.0	21.2	55 W	13*	48*
5 31	23 23.47	-32 12.5	1.427	1.771	34.9	20.5	91 W	2* 80*	5 31	0 59.86	+ 2 11.2	1.450	1.205	43.7	21.2	55 W	15*	48*
6 5	23 36.92	-32 10.3	1.380	1.757	35.2	20.4	93 W	2* 82*	6 10	1 30.96	+ 5 28.1	1.459	1.232	43.3	21.2	56 W	18*	47*
6 10	23 50.22	-32 8.6	1.336	1.744	35.5	20.3	95 W	3* 83*	6 20	2 0.47	+ 8 26.9	1.468	1.267	42.8	21.3	58 W	22*	47*
6 15	0 3.33	-32 7.8	1.293	1.731	35.7	20.2	96 W	3* 83*	6 30	2 28.36	+11 5.6	1.475	1.309	42.3	21.4	60 W	26*	47*
6 20	0 16.19	-32 8.1	1.251	1.719	35.8	20.1	98 W	4* 84*	7 10	2 54.58	+13 23.7	1.477	1.357	41.8	21.4	63 W	31*	46*
6 25	0 28.74	-32 9.7	1.212	1.707	35.9	20.0	100 W	5* 84	68347 2001 KB₆₇									
6 30	0 40.92	-32 12.8	1.174	1.696	36.0	20.0	101 W	6* 84	3 22	20 45.90	-27 40.6	0.648	0.827	84.1	21.5	56 W	5*	49*
7 5	0 52.69	-32 17.4	1.138	1.686	36.0	19.9	103 W	7* 84	3 27	20 51.31	-25 10.0	0.666	0.863	80.4	21.5	58 W	7*	52*
7 10	1 3.98	-32 23.7	1.104	1.677	36.0	19.8	104 W	8* 84	4 1	20 57.43	-22 39.6	0.681	0.898	77.2	21.5	61 W	10*	55*
7 15	1 14.72	-32 31.9	1.070	1.668	35.8	19.7	106 W	8* 83	4 6	21 3.93	-20 9.8	0.691	0.933	74.4	21.5	64 W	13*	58*
7 20	1 24.81	-32 42.1	1.039	1.660	35.7	19.6	108 W	9* 83	4 11	21 10.58	-17 40.4	0.698	0.967	72.0	21.6	67 W	15*	60*
7 25	1 34.18	-32 54.3	1.008	1.653	35.4	19.6	109 W	10* 83	464742 2003 PB									
7 30	1 42.74	-33 8.3	0.979	1.646	35.1	19.5	111 W	11* 83	3 22	20 49.25	-13 2.5	2.075	1.634	28.1	21.5	51 W	16*	44*
8 4	1 50.41	-33 23.7	0.951	1.640	34.7	19.4	113 W	11* 83	4 1	21 15.81	-10 52.9	2.010	1.629	29.6	21.5	54 W	17*	47*
8 9	1 57.09	-33 40.5	0.925	1.636	34.2	19.3	115 W	11* 82	4 11	21 41.57	- 8 34.0	1.947	1.628	31.0	21.4	57 W	18*	50*
8 14	2 2.69	-33 58.1	0.900	1.632	33.6	19.2	117 W	11* 82	4 21	22 6.50	- 6 8.9	1.884	1.629	32.2	21.4	60 W	20*	52*
8 19	2 7.09	-34 15.8	0.875	1.629	32.9	19.2	119 W	11* 82	5 1	22 30.56	- 3 40.4	1.822	1.633	33.3	21.4	63 W	22*	55*
8 24	2 10.19	-34 32.6	0.853	1.626	32.1	19.1	121 W	10 81	5 11	22 53.72	- 1 11.7	1.760	1.640	34.3	21.3	66 W	24*	57*
8 29	2 11.91	-34 47.2	0.832	1.625	31.2	19.0	124 W	10 81	5 21	23 15.96	+ 1 14.5	1.698	1.651	35.2	21.3	70 W	26*	58*
9 3	2 12.21	-34 58.1	0.812	1.625	30.1	18.9	126 W	10 81	5 31	23 37.19	+ 3 35.4	1.635	1.663	35.8	21.2	74 W	30*	58*
9 8	2 11.03	-35 3.5	0.794	1.625	29.0	18.8	128 W	10 81	6 10	23 57.34	+ 5 48.4	1.572	1.679	36.2	21.2	78 W	34*	58*
9 13	2 8.36	-35 1.4	0.779	1.627	27.8	18.8	131 W	10 81	6 20	0 16.27	+ 7 51.3	1.507	1.697	36.4	21.1	82 W	38*	56*
9 18	2 4.26	-34 49.4	0.765	1.629	26.6	18.7	133 W	10 81	6 30	0 33.77	+ 9 41.7	1.441	1.717	36.2	21.0	87 W	43*	54
9 23	1 58.87	-34 25.1	0.755	1.632	25.4	18.6	136 W	11 82	7 10	0 49.63	+11 17.4	1.375	1.740	35.7	21.0	92 W	49*	53
9 28	1 52.39	-33 46.2	0.748	1.636	24.2	18.6	138 W	11 82	7 20	1 3.50	+12 36.5	1.308	1.764	34.8	20.9	98 W	54*	51
10 3	1 45.13	-32 51.3	0.744	1.641	23.2	18.5	140 W	12 83	7 30	1 15.00	+13 36.3	1.242	1.790	33.3	20.7	105 W	58*	50
10 8	1 37.40	-31 39.3	0.745	1.647	22.4	18.5	141 W	13 84	8 9	1 23.69	+14 14.7	1.177	1.817	31.2	20.6	112 W	59	50
10 13	1 29.56	-30 10.3	0.749	1.653	21.9	18.5	142 W	15 86	8 19	1 29.12	+14 29.1	1.117	1.846	28.3	20.4	120 W	59	50
10 18	1 21.95	-28 25.0	0.758	1.660	21.7	18.6	142 E	17 88	8 29	1 30.91	+14 16.7	1.065	1.876	24.6	20.2	129 W	59	50
10 23	1 14.91	-26 25.4	0.772	1.669	21.9	18.6	141 E	19 90	8 29	1 28.94	+13 36.2	1.023	1.906	20.0	20.0	140 W	59	50
10 28	1 8.70	-24 14.0	0.791	1.677	22.5	18.7	140 E	21 88	9 18	1 23.46	+12 28.1	0.996	1.938	14.5	19.8	151 W	57	52
11 2	1 3.49	-21 53.9	0.815	1.687	23.3	18.8	138 E	23 86	9 23	1 19.64	+11 44.9	0.990	1.954	11.5	19.7	157 W	57	52
11 7	0 59.37	-19 28.2	0.844	1.697	24.3	18.9	135 E	26 83	9 28	1 15.32	+10 57.0	0.989	1.970	8.4	19.6	163 W	56	53
11 12	0 56.37	-16 59.7	0.877	1.708	25.4	19.0	132 E	28 81	10 3	1 10.67	+10 5.8	0.993	1.986	5.2	19.5	170 W	55	54
11 17	0 54.50	-14 30.6	0.915	1.720	26.5	19.2	129 E	30 79	10 8	1 5.90	+ 9 12.8	1.004	2.002	2.2	19.4	176 W	54	55
11 22	0 53.72	-12 2.9	0.957	1.732	27.5	19.3	126 E	33 76	10 13	1 1.21	+ 8 19.7	1.021	2.018	1.5	19.4	177 E	53	56
11 27	0 53.96	- 9 38.2	1.003	1.745	28.5	19.5	123 E	35 74	10 18	0 56.78	+ 7 28.2	1.044	2.034	4.4	19.6	171 E	52	57
12 2	0 55.15	- 7 17.4	1.053	1.758	29.3	19.6	119 E	38 71	10 23	0 52.80	+ 6 39.9	1.074	2.051	7.2	19.8	165 E	52	57
12 7	0 57.19	- 5 1.2	1.107	1.772	30.1	19.8	116 E	40 69	10 28	0 49.41	+ 5 56.1	1.109	2.067	10.0	20.0	159 E	51	58
12 17	1 3.55	- 0 43.6	1.222	1.801	31.1	20.0	109 E	44 65	11 2	0 46.71	+ 5 17.8	1.150	2.083	12.5	20.2	153 E	50	59
12 27	1 12.49	+ 3 14.1	1.347	1.832	31.6	20.3	103 E	48 60*	11 7	0 44.74	+ 4 45.6	1.196	2.100	14.7	20.4	147 E	50	59
1 6	1 23.53	+ 6 52.9	1.480	1.865	31.6	20.6	96 E	52 54*	11 17	0 43.10	+ 4 0.3	1.302	2.132	18.6	20.8	137 E	49	60
1 16	1 36.31	+10 14.5	1.619	1.898	31.2	20.8	90 E	55 48*	11 27	0 44.50	+ 3 40.4	1.425	2.165	21.4	21.1	127 E	49	60
457768 2009 KN₄									12 7	0 48.63	+ 3 43.3	1.560	2.197	23.4	21.4	118 E	49	60
3 22	20 27.59	-24 53.2	1.542	1.330	39.7	21.4	59 W	9* 52*	12 17	0 55.10	+ 4 5.3	1.704	2.229	24.7	21.6	109 E	49	60*
3 27	20 47.87	-23 20.9	1.491	1.292	41.2	21.3	59 W	9* 52*	367676 2010 JV₈₁									
4 1	21 8.44	-21 34.8	1.444	1.255	42.7	21.2	58 W	9* 52*	3 22	21 3.47	-11 39.2	2.181	1.667	25.9	21.5	47 W	16*	40*
4 6	21 29.25	-19 34.7	1.402	1.218	44.2	21.2	58 W	10* 52*	4 1	21 30.01	- 9 44.6	2.110	1.655	27.5	21.4	50 W	16*	43*
4 11	21 50.26	-17 20.7	1.364	1.182	45.7	21.1	58 W	10* 51*	4 11	21 56.10	- 7 41.7	2.041	1.645	29.1	21.4	53 W	17*	46*
4 16	22 11.43	-14 53.5	1.332	1.147	47.0	21.0	5											

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°
367676 2010 JV₈₁									357333 2003 NJ₇								
<i>(continuation)</i>																	
7 10	1 24.88	+9 27.0	1.435	1.682	37.0	20.9	85 W	43* 55	3 22	21 35.43	-21 31.4	2.162	1.583	25.3	21.4	43 W	3* 36*
7 20	1 43.49	+10 25.5	1.367	1.699	36.7	20.8	90 W	48* 54	4 1	22 5.33	-19 10.5	2.081	1.550	27.3	21.4	45 W	3* 39*
7 30	2 0.37	+11 4.9	1.299	1.719	36.0	20.7	95 W	52* 53	4 11	22 34.99	-16 32.0	2.004	1.519	29.1	21.3	47 W	4* 41*
8 9	2 15.14	+11 23.7	1.231	1.740	34.9	20.6	101 W	55* 53	4 21	23 4.41	-13 38.0	1.931	1.490	30.9	21.2	50 W	5* 43*
8 19	2 27.33	+11 20.7	1.165	1.763	33.1	20.5	108 W	56* 53	5 1	23 33.57	-10 31.3	1.862	1.464	32.5	21.2	51 W	6* 45*
8 29	2 36.42	+10 54.7	1.103	1.788	30.6	20.3	116 W	56 53	5 11	0 2.51	-7 14.9	1.799	1.441	34.1	21.1	53 W	8* 47*
9 8	2 41.93	+10 5.6	1.046	1.814	27.4	20.1	124 W	55 54	5 21	0 31.27	-3 52.1	1.740	1.421	35.6	21.0	55 W	10* 48*
9 18	2 43.49	+8 54.6	0.998	1.842	23.2	19.9	134 W	54 55	5 31	0 59.90	-0 26.5	1.686	1.406	36.9	21.0	56 W	13* 49*
9 28	2 40.99	+7 25.0	0.964	1.870	18.3	19.7	144 W	52 57	6 10	1 28.43	+2 58.3	1.637	1.395	38.1	20.9	58 W	16* 50*
10 3	2 38.33	+6 35.4	0.952	1.885	15.6	19.6	150 W	52 57	6 20	1 56.90	+6 18.7	1.591	1.388	39.1	20.9	60 W	21* 49*
10 8	2 34.87	+5 44.1	0.946	1.899	12.8	19.5	155 W	51 58	6 30	2 25.31	+9 31.3	1.548	1.386	40.1	20.8	61 W	26* 48*
10 13	2 30.73	+4 52.5	0.944	1.914	10.0	19.4	161 W	50 59	7 10	2 53.63	+12 33.1	1.508	1.389	40.8	20.8	63 W	31* 47*
10 18	2 26.10	+4 2.1	0.949	1.929	7.5	19.4	165 W	49 60	7 20	3 21.80	+15 21.9	1.468	1.396	41.5	20.8	65 W	37* 45*
10 23	2 21.19	+3 14.7	0.959	1.945	5.7	19.3	169 W	48 61	7 30	3 49.67	+17 55.7	1.429	1.408	41.9	20.8	68 W	42* 44*
10 28	2 16.23	+2 31.8	0.975	1.960	5.4	19.3	169 W	48 61	8 9	4 17.09	+20 13.7	1.390	1.423	42.2	20.7	71 W	48* 42*
11 2	2 11.43	+1 54.6	0.997	1.975	6.8	19.5	166 E	47 62	8 19	4 43.83	+22 16.0	1.349	1.443	42.3	20.7	74 W	54* 40*
11 7	2 6.98	+1 24.0	1.025	1.991	8.9	19.7	162 E	46 63	8 29	5 9.57	+24 3.5	1.307	1.466	42.2	20.7	77 W	59* 39*
11 17	1 59.72	+0 44.7	1.098	2.022	13.6	20.0	151 E	46 63	9 8	5 34.01	+25 38.3	1.262	1.493	41.9	20.6	81 W	64* 37*
11 27	1 55.34	+0 35.2	1.191	2.053	17.7	20.4	141 E	46 63	9 18	5 56.74	+27 3.2	1.215	1.522	41.2	20.6	86 W	69* 36*
12 7	1 54.14	+0 52.2	1.301	2.084	20.9	20.7	131 E	46 63	9 28	6 17.30	+28 22.1	1.166	1.553	40.2	20.5	91 W	73* 35*
12 17	1 55.99	+1 30.9	1.425	2.115	23.3	21.0	122 E	47 62	10 8	6 35.19	+29 39.2	1.114	1.587	38.7	20.4	97 W	75 34*
12 27	2 0.60	+2 26.3	1.559	2.146	24.9	21.3	113 E	47 62	10 13	6 42.95	+30 18.6	1.089	1.604	37.7	20.3	100 W	75 34*
324524 2006 VZ₁₀₈									10 18	6 49.79	+30 59.3	1.063	1.622	36.6	20.3	104 W	76 33*
3 22	21 11.59	-14 52.4	2.257	1.717	24.6	21.5	46 W	12* 40*	10 23	6 55.64	+31 41.7	1.037	1.640	35.3	20.2	108 W	77 32
4 1	21 37.48	-12 31.1	2.177	1.697	26.4	21.4	49 W	13* 43*	10 28	7 0.39	+32 26.2	1.012	1.658	33.9	20.1	112 W	77 32
4 11	22 2.91	-9 58.5	2.099	1.680	28.0	21.4	52 W	14* 46*	11 2	7 3.96	+33 13.2	0.988	1.677	32.2	20.1	116 W	78 31
4 21	22 27.88	-7 16.8	2.023	1.666	29.7	21.3	55 W	16* 48*	11 7	7 6.24	+34 2.5	0.966	1.696	30.4	20.0	120 W	79 30
5 1	22 52.37	-4 28.7	1.948	1.655	31.1	21.3	58 W	17* 51*	11 12	7 7.13	+34 54.1	0.945	1.715	28.3	19.9	125 W	80 29
5 11	23 16.39	-1 36.8	1.875	1.647	32.5	21.2	61 W	20* 53*	11 17	7 6.54	+35 47.1	0.926	1.734	26.0	19.8	130 W	81 28
5 21	23 39.96	+1 16.4	1.804	1.641	33.7	21.2	64 W	23* 54*	11 27	7 4.43	+36 40.7	0.910	1.753	23.6	19.7	135 W	82 27
5 31	0 3.03	+4 8.1	1.735	1.639	34.8	21.1	67 W	26* 55*	12 2	7 0.80	+37 33.4	0.898	1.772	20.9	19.6	140 W	83 26
6 10	0 25.58	+6 55.8	1.666	1.641	35.7	21.0	71 W	30* 55*	12 7	6 55.71	+38 23.3	0.890	1.791	18.2	19.5	145 W	83 26
6 20	0 47.55	+9 37.1	1.599	1.645	36.5	21.0	74 W	35* 53*	12 12	6 49.31	+39 8.6	0.886	1.811	15.5	19.5	151 W	84 25
6 30	1 8.81	+12 9.6	1.532	1.653	37.0	20.9	78 W	40* 52*	12 17	6 41.81	+39 47.2	0.888	1.830	12.9	19.4	155 W	85 24
7 10	1 29.20	+14 31.5	1.466	1.663	37.2	20.8	82 W	46* 49	12 22	6 33.52	+40 17.2	0.895	1.849	10.7	19.4	160 W	85 24
7 20	1 48.51	+16 41.1	1.400	1.677	37.2	20.8	86 W	52* 47	12 27	6 24.86	+40 37.5	0.908	1.868	9.3	19.4	162 W	86 23
7 30	2 6.39	+18 36.9	1.334	1.693	36.8	20.7	91 W	58* 45	12 27	6 16.23	+40 47.6	0.926	1.887	9.0	19.4	162 E	86 23
8 9	2 22.50	+20 17.9	1.268	1.712	36.0	20.6	97 W	63* 44	1 1	6 8.04	+40 48.0	0.951	1.907	9.9	19.5	161 E	86 23
8 19	2 36.34	+21 43.1	1.203	1.733	34.7	20.4	103 W	67* 42	1 6	6 0.63	+40 39.6	0.982	1.925	11.5	19.7	157 E	86 23
8 29	2 47.36	+22 51.3	1.140	1.757	32.8	20.3	109 W	68* 41	1 11	5 54.26	+40 23.8	1.018	1.944	13.5	19.9	153 E	85 24
9 8	2 55.00	+23 41.3	1.081	1.782	30.2	20.1	117 W	69 40	1 16	5 49.11	+40 2.4	1.059	1.963	15.5	20.0	148 E	85 24
9 18	2 58.69	+24 11.4	1.028	1.809	26.8	20.0	126 W	69 40	331699 2002 RT₄₅								
9 28	2 58.08	+24 18.9	0.984	1.838	22.5	19.8	135 W	69 40	3 22	21 45.38	-14 59.8	2.501	1.823	19.7	21.5	38 W	7* 32*
10 8	2 53.30	+24 1.7	0.953	1.868	17.3	19.6	146 W	69 40	4 1	22 10.20	-12 51.4	2.415	1.794	21.7	21.4	42 W	8* 36*
10 13	2 49.53	+23 43.3	0.944	1.884	14.4	19.5	152 W	69 40	4 11	22 34.87	-10 33.6	2.328	1.767	23.6	21.4	45 W	9* 39*
10 18	2 45.04	+23 18.7	0.939	1.899	11.4	19.4	158 W	68 41	4 21	22 59.45	-8 7.9	2.242	1.741	25.5	21.3	48 W	10* 42*
10 23	2 40.05	+22 48.3	0.940	1.915	8.4	19.3	164 W	68 41	5 1	23 23.93	-5 36.3	2.157	1.718	27.2	21.3	51 W	12* 45*
10 28	2 34.78	+22 13.2	0.947	1.931	5.6	19.2	169 W	67 42	5 11	23 48.34	-3 0.9	2.073	1.697	28.9	21.2	54 W	13* 48*
11 2	2 29.50	+21 34.6	0.959	1.948	3.5	19.1	173 W	67 42	5 21	0 12.72	-0 23.7	1.991	1.678	30.5	21.1	57 W	16* 50*
11 7	2 24.43	+20 53.9	0.977	1.964	3.8	19.2	173 E	66 43	5 31	0 37.06	+2 12.9	1.911	1.663	32.0	21.1	60 W	19* 51*
11 12	2 19.77	+20 12.6	1.002	1.981	6.0	19.4	168 E	65 44	6 10	1 1.38	+4 46.7	1.834	1.650	33.4	21.0	63 W	22* 52*
11 17	2 15.72	+19 32.2	1.033	1.998	8.6	19.6	163 E	65 44	6 20	1 25.65	+7 15.4	1.758	1.640	34.6	20.9	66 W	27* 53*
11 22	2 12.41	+18 54.3	1.069	2.015	11.1	19.8	157 E	64 45	6 30	1 49.79	+9 36.7	1.684	1.634	35.6	20.9	69 W	32* 52*
11 27	2 9.93	+18 20.0	1.111	2.032	13.5	19.9	151 E	63 46	7 10	2 13.72	+11 48.5	1.612	1.631	36.5	20.8	73 W	37* 51*
12 7	2 7.57	+17 24.8	1.209	2.066	17.7	20.3	140 E	62 47	7 20	2 37.30	+13 49.2	1.541	1.631	37.2	20.7	76 W	43* 50*
12 17	2 8.61	+16 49.6	1.324	2.100	20.9	20.6	130 E	62 47	7 30	3 0.30	+15 37.3	1.472	1.635	37.7	20.6	80 W	48* 48*
12 27	2 12.77	+16 34.4	1.454	2.135	23.2	21.0	121 E	62 47	8 9	3 22.47	+17 12.0	1.403	1.641	37.9	20.5	84 W	54* 47*
1 6	2 19.59	+16 36.6	1.594	2.169	24.8	21.2	113 E	62 47*	8 19	3 43.49	+18 33.0	1.334	1.651	37.8	20.4	88 W	59* 45
1 16	2 28.63	+16 53.0	1.741	2.204	25.6	21.5	104 E	62 46*	8 29	4 2.92	+19 40.6	1.267	1.664	37.3	20.3	93 W	63* 44
200754 2001 WA₂₅									9 8	4 20.31	+20 36.0	1.200	1.680	36.3	20.2	99 W	65* 43
3 22	21 31.78	-13 17.8	1.706	1.150	34.3	21.5	41 W	10* 34*	9 18	4 35.12	+21 20.4	1.135	1.699	34.8	20.1	105 W	66 43
4 1	22 11.33	-8 11.9	1.634	1.075	36.4	21.3	40 W	11* 33*	9 28	4 46.70	+21 55.8	1.072	1.720	32.7	19.9	112 W	67 42
4 11	22 52.33	-2 29.3	1.583	1.006	37.9	21.1	38 W	12* 31*	10 8	4 54.47	+22 24.0	1.014	1.744	29.7	19.7	120 W	67 42
4 21	23 35.06	+3 35.8	1.555	0.945	38.5	21.0	36 W	12* 28*	10 18	4 57.84	+22 46.3	0.963	1.770	25.9	19.5	129 W	68 41
5 1	0 19.75	+9 42.3	1.551	0.895	37.9	20.8	33 W	13* 25*	10 28	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°
277570 2005 YP₁₈₀									516803 2010 JG₈₈								
3 22	21 51.02	-13 11.9	1.500	0.910	40.2	21.5	36 W	7* 30*	3 22	22 30.72	+ 6 45.6	1.646	0.847	29.2	21.5	24 W	15* 12*
4 1	22 43.66	- 7 41.6	1.441	0.795	41.7	21.1	32 W	6* 26*	3 27	22 54.59	+ 8 29.5	1.669	0.846	27.4	21.5	23 W	14* 11*
4 11	23 40.22	- 1 12.6	1.418	0.684	40.5	20.7	26 W	4* 20*	4 1	23 18.24	+10 4.2	1.695	0.848	25.6	21.5	22 W	13* 10*
4 21	0 41.02	+ 5 46.9	1.433	0.589	34.6	20.3	19 W	2* 13*	4 6	23 41.58	+11 29.1	1.722	0.855	23.7	21.5	20 W	11* 9*
4 26	1 13.13	+ 9 14.5	1.452	0.554	29.3	20.0	16 W	1* 9*	4 11	0 4.57	+12 43.7	1.752	0.865	21.8	21.5	19 W	10* 8*
5 1	1 46.32	+12 31.5	1.478	0.532	22.6	19.8	12 W	— 5*	4 16	0 27.16	+13 48.2	1.782	0.879	20.1	21.5	18 W	9*
5 6	2 20.38	+15 30.5	1.507	0.526	15.2	19.5	8 W	— 1*	141432 2002 CQ₁₁								
5 11	2 54.92	+18 5.0	1.538	0.535	7.8	19.3	4 W	— —	3 22	22 32.72	- 9 51.0	1.395	0.654	40.8	21.4	25 W	3* 19*
5 16	3 29.41	+20 10.5	1.571	0.560	2.2	19.2	1 W	— —	3 27	23 2.51	- 6 58.2	1.412	0.621	37.9	21.2	22 W	2* 16*
5 21	4 3.31	+21 45.3	1.605	0.597	5.3	19.5	3 E	— —	4 1	23 32.40	- 3 54.6	1.435	0.593	33.9	21.1	19 W	— 13*
5 26	4 36.15	+22 49.8	1.642	0.643	9.3	19.9	6 E	— —	4 6	0 2.36	+ 0 44.0	1.462	0.573	29.1	20.9	16 W	— 10*
5 31	5 7.58	+23 26.6	1.682	0.694	12.1	20.3	8 E	— 1*	4 11	0 32.34	+ 2 29.2	1.492	0.562	23.5	20.7	13 W	— 7*
6 5	5 37.36	+23 39.1	1.725	0.749	14.0	20.6	10 E	1* 3*	4 16	1 2.29	+ 5 40.0	1.523	0.560	17.6	20.6	10 W	— 4*
6 10	6 5.38	+23 31.1	1.772	0.806	15.1	20.8	12 E	2* 4*	4 21	1 32.12	+ 8 43.5	1.555	0.568	11.7	20.4	7 W	— 1*
6 15	6 31.61	+23 6.4	1.821	0.864	15.6	21.0	13 E	2* 6*	4 26	2 1.69	+11 35.1	1.587	0.586	6.3	20.3	4 W	— —
6 20	6 56.11	+22 28.4	1.873	0.921	15.6	21.2	14 E	2* 7*	5 1	2 30.90	+14 11.3	1.619	0.611	1.8	20.2	1 W	— —
6 25	7 18.95	+21 40.0	1.927	0.978	15.3	21.4	15 E	2* 8*	5 6	2 59.64	+16 29.5	1.651	0.643	2.6	20.4	2 E	— —
322763 2001 FA₇									5 11	3 27.80	+18 28.3	1.683	0.679	5.6	20.7	4 E	— —
3 22	21 58.80	-26 33.2	2.496	1.861	20.5	21.5	41 W	— 33*	5 16	3 55.30	+20 7.3	1.717	0.717	7.9	20.0	6 E	— —
4 1	22 22.87	-23 56.7	2.364	1.790	22.9	21.3	44 W	— 36*	5 21	4 22.07	+21 26.9	1.751	0.758	9.6	21.2	7 E	— —
4 11	22 47.14	-21 1.8	2.230	1.718	25.4	21.2	47 W	— 40*	5 26	4 48.04	+22 27.7	1.787	0.799	10.8	21.5	8 E	— 1*
4 21	23 11.78	-17 46.6	2.096	1.644	28.0	21.0	50 W	1* 43*	139622 2001 QQ₁₄₂								
5 1	23 36.99	-14 8.8	1.963	1.569	30.6	20.9	53 W	3* 46*	3 22	22 57.77	-11 59.7	2.203	1.323	15.7	21.5	21 W	— 15*
5 11	0 3.03	-10 5.9	1.833	1.492	33.4	20.7	54 W	6* 48*	4 1	23 29.65	- 8 54.8	2.140	1.276	17.5	21.4	23 W	— 16*
5 21	0 30.29	- 5 35.1	1.710	1.415	36.3	20.5	56 W	9* 50*	4 11	0 2.30	- 5 34.0	2.080	1.229	19.0	21.3	24 W	— 17*
5 31	0 59.21	+ 0 34.5	1.596	1.339	39.2	20.3	57 W	13* 50*	4 21	0 35.92	- 1 59.9	2.025	1.183	20.4	21.2	24 W	— 18*
6 10	1 30.44	+ 0 56.1	1.494	1.263	42.2	20.1	57 W	18* 48*	5 1	1 10.71	+ 1 43.4	1.977	1.138	21.5	21.1	24 W	— 18*
6 15	1 47.16	+ 7 51.7	1.448	1.226	43.7	20.0	56 W	20* 46*	5 11	1 46.87	+ 5 30.5	1.937	1.097	22.2	21.0	24 W	— 18*
6 20	2 4.79	+10 53.1	1.407	1.190	45.1	19.9	56 W	23* 44*	5 21	2 24.61	+ 9 15.1	1.905	1.060	22.6	20.9	24 W	— 18*
6 25	2 23.43	+13 58.6	1.371	1.155	46.5	19.9	55 W	25* 42*	5 31	3 4.07	+12 48.8	1.884	1.028	22.6	20.8	23 W	1* 17*
6 30	2 43.23	+17 6.0	1.340	1.121	47.8	19.8	55 W	28* 40*	6 10	3 45.26	+16 2.8	1.872	1.004	22.1	20.7	22 W	2* 15*
7 5	3 4.32	+20 12.5	1.314	1.089	49.0	19.7	54 W	30* 37*	6 20	4 28.08	+18 47.7	1.870	0.988	21.4	20.7	21 W	3* 14*
7 10	3 26.83	+23 14.5	1.295	1.059	50.0	19.6	53 W	32* 34*	6 30	5 12.15	+20 55.1	1.876	0.980	20.4	20.6	20 W	5* 12*
7 15	3 50.84	+26 7.9	1.281	1.031	50.7	19.6	52 W	34* 31*	7 10	5 56.90	+22 18.7	1.890	0.983	19.3	20.6	19 W	6* 10*
7 20	4 16.38	+28 48.0	1.274	1.006	51.3	19.5	51 W	36* 28*	7 20	6 41.59	+22 55.3	1.911	0.994	18.3	20.6	18 W	7* 8*
7 25	4 43.38	+31 10.0	1.273	0.984	51.6	19.5	49 W	37* 25*	7 30	7 25.41	+22 45.6	1.937	1.015	17.4	20.7	17 W	8* 7*
7 30	5 11.66	+33 9.4	1.279	0.965	51.5	19.5	48 W	38* 22*	8 9	8 7.66	+21 53.6	1.966	1.043	16.8	20.8	17 W	9* 6*
8 4	5 40.92	+34 42.4	1.289	0.951	51.2	19.4	47 W	38* 19*	8 19	8 47.88	+20 25.6	1.998	1.077	16.4	20.8	18 W	10* 5*
8 9	6 10.74	+35 46.6	1.306	0.940	50.5	19.4	46 W	38* 16*	8 29	9 25.79	+18 29.4	2.031	1.116	16.4	21.0	18 W	11* 4*
8 14	6 40.62	+36 20.9	1.326	0.934	49.6	19.4	45 W	38* 14*	9 8	10 1.38	+16 12.4	2.063	1.159	16.6	21.1	19 W	13* 4*
8 19	7 10.02	+36 25.9	1.351	0.932	48.5	19.4	44 W	37* 12*	9 18	10 34.76	+13 41.8	2.093	1.204	17.0	21.2	21 W	14* 4*
8 24	7 38.46	+36 3.8	1.378	0.935	47.2	19.4	43 W	36* 10*	9 28	11 6.14	+11 3.5	2.120	1.251	17.6	21.3	22 W	16* 4*
8 29	8 5.57	+35 17.6	1.408	0.942	45.8	19.5	42 W	36* 9*	10 8	11 35.77	+ 8 22.5	2.142	1.298	18.5	21.5	24 W	18* 5*
9 3	8 31.11	+34 11.2	1.440	0.954	44.3	19.5	41 W	35* 8*	162004 1991 VE								
9 8	8 54.97	+32 48.4	1.472	0.970	42.9	19.5	41 W	35* 7*	3 22	23 4.38	- 5 21.1	0.825	0.311	114.8	19.7	16 W	1* 10*
9 13	9 17.14	+31 13.0	1.505	0.989	41.5	19.6	41 W	35* 7*	3 24	23 9.91	- 5 31.1	0.894	0.301	101.2	19.0	17 W	— 11*
9 18	9 37.67	+29 28.4	1.537	1.012	40.2	19.6	41 W	35* 7*	3 26	23 17.35	- 5 22.0	0.964	0.299	87.5	18.6	17 W	— 11*
9 23	9 56.66	+27 37.4	1.568	1.038	39.0	19.7	41 W	35* 7*	3 28	23 26.33	- 4 55.7	1.035	0.306	74.6	18.3	17 W	— 11*
9 28	10 14.24	+25 42.5	1.598	1.066	38.0	19.8	41 W	35* 8*	3 30	23 36.35	- 4 15.6	1.102	0.321	63.0	18.2	17 W	— 11*
10 3	10 30.56	+23 45.5	1.626	1.097	37.1	19.9	41 W	35* 8*	4 1	23 46.92	- 3 25.8	1.166	0.343	53.1	18.2	16 W	— 10*
10 8	10 45.73	+21 48.0	1.652	1.129	36.3	19.9	42 W	36* 9*	4 3	23 57.66	- 2 29.7	1.226	0.368	45.0	18.2	15 W	— 9*
10 13	10 59.89	+19 51.1	1.676	1.163	35.7	20.0	43 W	37* 10*	4 5	0 8.34	+ 1 30.2	1.281	0.397	38.3	18.3	14 W	— 8*
10 18	11 13.13	+17 55.6	1.697	1.199	35.2	20.1	44 W	38* 12*	4 7	0 18.78	+ 0 29.2	1.333	0.428	32.9	18.4	13 W	— 7*
10 28	11 37.20	+14 11.4	1.730	1.272	34.6	20.2	47 W	40* 15*	4 9	0 28.93	+ 0 31.8	1.381	0.460	28.6	18.5	13 W	— 7*
11 7	11 58.54	+10 38.6	1.750	1.348	34.3	20.4	50 W	42* 19*	4 11	0 38.74	+ 1 32.1	1.426	0.492	25.1	18.6	12 W	— 6*
11 17	12 17.54	+ 7 18.5	1.757	1.425	34.2	20.5	54 W	44* 24*	4 16	1 1.82	+ 3 56.5	1.527	0.573	19.0	18.9	11 W	— 5*
11 27	12 34.38	+ 4 11.7	1.750	1.502	34.3	20.6	59 W	45* 30*	4 21	1 23.02	+ 6 9.5	1.617	0.650	15.4	19.2	10 W	— 4*
12 7	12 49.18	+ 1 17.9	1.730	1.578	34.3	20.7	64 W	45* 36*	4 26	1 42.63	+ 8 10.6	1.697	0.724	13.2	19.4	9 W	— 3*
12 17	13 1.89	- 1 23.4	1.697	1.653	34.1	20.8	70 W	43* 44*	5 1	2 0.95	+10 0.4	1.770	0.793	12.0	19.7	9 W	— 3*
12 27	13 12.34	- 3 52.4	1.653	1.727	33.7	20.8	77 W	41* 52*	5 6	2 18.20	+11 39.8	1.836	0.858	11.4	19.9	10 W	— 4*
1 6	13 20.27	- 6 9.7	1.600	1.799	33.0	20.8	85 W	39 61*	5 11	2 34.58	+13 9.9	1.895	0.919	11.2	20.1	10 W	— 4*
1 16	13 25.32	- 8 15.5	1.539	1.869	31.7	20.7	93 W	37 69*	5 16	2 50.23	+14 31.5	1.949	0.976	11.4	20.3	11 W	— 5*
162361 2000 AF₆									5 21	3 5.28	+15 45.4	1.997	1.028	11.7	20.5	12 W	— 6*
3 22	22 18.11	-10 7.2	1.145	0.552	60.5	21.3	29 W	5* 23*	5 26	3 19.82	+16 52.3	2.040	1.078	12.2	20.6	13 W	— 7*
3 27	22 49.46	- 7 23.5	1.209	0.530	54.3	21.1	26 W	3* 20*	5 31	3 33.93	+17 52.8	2.078	1.124	12.9	20.8	14 W	— 8*
4 1	23 20.21	- 4 30.9	1.277	0.519	47.2	21.0	22 W	2* 16*	6 5	3 47.65	+18 47.4	2.110	1.166	13.6	20.9	16 W	1* 9*
4 6	23 50.33	- 1 33.7	1.344	0.518	39.5												

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°
458368 2010 WJ (continuation)										369984 1998 QR₅₂									
4 16	0 37.93	+20 16.2	2.207	1.286	13.6	21.4	18 W	11*	2*	4 1	1 27.21	+19 28.7	2.006	1.106	16.7	21.4	19 E	12*	—
4 21	0 55.59	+21 44.6	2.208	1.286	13.6	21.4	17 W	11*	3*	4 6	1 44.53	+20 58.9	1.989	1.083	16.6	21.4	18 E	12*	—
4 26	1 13.45	+23 6.8	2.211	1.286	13.5	21.5	17 W	11*	3*	4 11	2 2.55	+22 24.5	1.970	1.059	16.6	21.3	18 E	11*	—
5 1	1 31.50	+24 22.0	2.215	1.289	13.4	21.5	17 W	11*	3*	4 16	2 21.32	+23 44.4	1.950	1.035	16.7	21.2	17 E	11*	—
5 6	1 49.70	+25 29.7	2.221	1.292	13.4	21.5	17 W	10*	3*	4 21	2 40.90	+24 57.3	1.929	1.011	16.8	21.1	17 E	11*	—
5 11	2 8.01	+26 29.4	2.227	1.297	13.3	21.5	17 W	10*	3*	4 26	3 1.31	+26 1.9	1.907	0.986	17.0	21.1	17 E	11*	—
5 16	2 26.39	+27 20.7	2.234	1.302	13.2	21.5	17 W	10*	3*	5 1	3 22.55	+26 56.5	1.883	0.960	17.3	21.0	16 E	10*	—
388189 2006 DS₁₄										454100 2013 BO₇₃									
3 22	23 21.43	-1 50.8	1.525	0.582	19.7	21.2	11 W	—	5*	3 22	23 26.81	-5 15.6	1.732	0.780	14.6	21.5	11 W	—	5*
4 1	0 22.83	+0 3.9	1.555	0.574	11.5	21.0	7 W	—	—	3 27	23 49.98	-0 37.7	1.754	0.790	12.5	21.5	10 W	—	4*
4 11	1 23.57	+2 15.0	1.582	0.595	10.4	21.0	6 E	—	—	4 1	0 12.58	+0 9.6	1.779	0.805	10.7	21.5	9 W	—	3*
4 21	2 22.29	+4 37.5	1.607	0.640	15.4	21.4	10 E	—	3*	4 6	0 34.65	+2 47.6	1.806	0.824	9.0	21.5	7 W	—	1*
5 1	3 18.17	+7 0.4	1.637	0.699	19.8	21.8	14 E	—	7*	4 11	0 56.21	+5 20.1	1.835	0.846	7.5	21.5	6 W	—	—
152671 1998 HL₃										494690 2004 JQ₁									
3 22	23 29.45	-3 10.6	1.683	0.721	13.6	21.3	10 W	—	4*	4 1	0 6.60	-13 50.5	1.507	0.668	31.4	21.4	20 W	—	10*
3 27	23 54.97	-0 37.7	1.691	0.716	11.1	21.2	8 W	—	2*	4 6	0 35.61	-10 48.6	1.528	0.658	28.5	21.3	18 W	—	7*
4 1	0 20.38	+1 55.2	1.703	0.717	8.4	21.1	6 W	—	—	4 11	1 3.42	+7 30.9	1.556	0.657	25.3	21.2	16 W	—	4*
4 6	0 45.64	+4 25.7	1.716	0.722	5.8	21.0	4 W	—	—	4 16	1 29.95	+4 3.4	1.587	0.663	21.9	21.2	14 W	—	2*
4 11	1 10.74	+6 51.2	1.733	0.733	3.3	20.9	2 W	—	—	4 21	1 55.26	+0 31.9	1.622	0.676	18.6	21.2	12 W	—	—
4 16	1 35.64	+9 9.7	1.751	0.748	1.4	20.9	1 W	—	—	4 26	2 19.44	+2 58.1	1.660	0.696	15.4	21.2	11 E	—	—
4 21	2 0.32	+11 19.2	1.771	0.767	1.6	21.0	1 E	—	—	5 1	2 42.63	+6 22.2	1.699	0.722	12.6	21.2	9 E	—	—
4 26	2 24.74	+13 18.4	1.794	0.789	3.2	21.2	2 E	—	—	5 6	3 4.96	+9 37.0	1.740	0.752	10.1	21.2	8 E	—	—
5 1	2 48.86	+15 6.1	1.818	0.815	4.6	21.4	4 E	—	—	5 11	3 26.60	+12 40.2	1.781	0.785	8.0	21.3	6 E	—	—
477327 2009 TB₈										516734 2009 FG₁									
4 1	1 50.52	+16 19.0	2.134	1.248	16.3	21.3	21 E	14*	4*	4 1	0 41.31	-27 26.5	1.721	1.021	31.2	21.5	32 W	—	8*
4 6	2 5.60	+17 16.5	2.089	1.191	16.1	21.2	19 E	13*	3*	4 6	0 51.32	-23 36.1	1.731	1.001	30.1	21.4	30 W	—	9*
4 11	2 21.62	+18 12.8	2.041	1.134	16.0	21.0	18 E	12*	3*	4 11	1 0.67	-19 45.7	1.738	0.980	29.1	21.3	28 W	—	10*
4 16	2 38.68	+19 7.0	1.992	1.076	16.2	20.8	17 E	11*	3*	4 16	1 9.53	-15 54.6	1.742	0.961	28.2	21.3	27 W	—	11*
4 21	2 56.88	+19 58.0	1.939	1.019	16.5	20.7	17 E	10*	3*	4 21	1 18.05	-12 2.0	1.743	0.943	27.5	21.2	26 W	—	13*
4 26	3 16.32	+20 44.3	1.885	0.963	17.2	20.5	16 E	9*	4*	4 26	1 26.37	+8 7.0	1.740	0.927	27.0	21.2	25 W	—	14*
5 1	3 37.08	+21 24.2	1.830	0.908	18.2	20.3	16 E	9*	4*	5 1	1 34.62	+4 8.6	1.733	0.912	26.8	21.1	24 W	—	16*
5 6	3 59.25	+21 55.6	1.772	0.855	19.7	20.2	17 E	9*	5*	5 6	1 42.96	+0 5.8	1.723	0.899	27.1	21.1	24 W	—	17*
5 11	4 22.86	+22 16.0	1.714	0.806	21.7	20.1	17 E	8*	7*	5 11	1 51.53	+4 2.3	1.708	0.888	27.7	21.0	24 W	—	18*
5 16	4 47.93	+22 23.0	1.655	0.761	24.3	19.9	18 E	8*	8*	5 16	2 0.51	+8 16.4	1.691	0.880	28.7	21.0	25 W	1*	19*
5 21	5 14.40	+22 13.8	1.595	0.722	27.7	19.8	19 E	8*	10*	5 21	2 10.09	+12 37.0	1.670	0.873	29.9	21.0	26 W	5*	19*
5 26	5 42.15	+21 46.2	1.535	0.692	31.6	19.8	21 E	8*	12*	5 26	2 20.51	+17 4.2	1.648	0.870	31.4	21.0	27 W	8*	19*
5 31	6 10.96	+20 58.0	1.475	0.671	36.1	19.8	23 E	8*	14*	5 31	2 32.03	+21 37.7	1.624	0.869	33.1	21.0	28 W	12*	18*
6 5	6 40.59	+19 48.5	1.417	0.661	40.9	19.8	25 E	8*	17*	6 5	2 44.98	+26 16.3	1.601	0.871	34.7	21.1	29 W	16*	16*
6 10	7 10.75	+18 17.7	1.362	0.663	45.6	19.8	28 E	8*	20*	6 10	2 59.78	+30 58.0	1.578	0.875	36.3	21.1	31 W	20*	14*
6 15	7 41.21	+16 26.7	1.312	0.677	49.8	19.9	31 E	8*	23*	6 15	3 16.95	+35 39.6	1.558	0.882	37.8	21.1	32 W	23*	12*
6 20	8 11.75	+14 17.5	1.268	0.701	53.2	20.0	34 E	8*	26*	6 20	3 37.10	+40 16.1	1.541	0.891	39.0	21.1	33 W	26*	9*
6 25	8 42.21	+11 52.9	1.232	0.735	55.6	20.1	37 E	9*	29*	6 25	4 0.96	+44 40.9	1.528	0.903	39.9	21.2	35 W	28*	5*
6 30	9 12.42	+9 16.3	1.206	0.776	56.9	20.2	40 E	9*	33*	6 30	4 29.28	+48 44.9	1.522	0.916	40.5	21.2	36 W	30*	1*
7 5	9 42.24	+6 31.6	1.190	0.823	57.3	20.3	43 E	9*	36*	7 5	5 2.71	+52 17.2	1.521	0.932	40.7	21.3	37 W	31*	—
7 10	10 11.48	+3 43.2	1.185	0.873	56.8	20.4	46 E	9*	39*	7 10	5 41.38	+55 5.6	1.527	0.949	40.6	21.3	37 W	30*	—
7 15	10 39.97	+0 55.6	1.192	0.927	55.7	20.5	49 E	9*	42*	7 15	6 24.49	+56 58.8	1.540	0.967	40.2	21.4	38 W	29*	—
7 20	11 7.57	-1 47.2	1.209	0.982	54.0	20.6	52 E	9*	45*	7 20	7 9.99	+57 49.7	1.559	0.987	39.6	21.4	38 W	28*	—
7 25	11 34.11	-4 21.7	1.238	1.039	52.1	20.8	54 E	9*	48*	7 25	7 55.02	+57 38.2	1.585	1.007	38.6	21.5	38 W	26*	—
8 4	12 23.67	-8 57.0	1.322	1.154	47.8	21.0	57 E	10*	51*	477326 2009 TQ₇									
8 9	12 46.60	-10 55.6	1.377	1.211	45.6	21.1	59 E	10*	53*	4 1	0 50.61	+7 54.0	2.757	1.762	2.3	21.5	4 E	—	—
8 14	13 8.32	-12 41.6	1.438	1.268	43.4	21.3	59 E	10*	53*	4 11	1 15.39	+9 51.6	2.791	1.790	1.0	21.4	2 W	—	—
8 19	13 28.89	-14 15.5	1.505	1.324	41.3	21.4	60 E	11*	54*	4 21	1 39.86	+11 40.7	2.821	1.820	2.1	21.6	4 W	—	—
474424 2002 YZ₁										477326 2009 TQ₇									
4 1	1 51.87	+15 28.5	2.802	1.897	10.6	21.5	20 E	14*	4*	5 1	2 59.03	+23 36.7	2.787	1.806	5.8	21.2	10 E	4*	—
4 11	2 13.00	+18 15.9	2.804	1.865	8.8	21.4	17 E	10*	1*	5 11	3 24.14	+26 5.8	2.770	1.778	4.9	21.1	9 E	2*	—
4 21	2 35.35	+20 59.3	2.799	1.835	7.2	21.3	13 E	7*	—	5 21	3 50.79	+28 23.7	2.748	1.752	4.7	21.0	8 W	1*	—
5 1	2 59.03	+23 36.7	2.787	1.806	5.8	21.2	10 E	4*	—	5 31	4 19.05	+30 27.5	2.722	1.728	5.3	21.0	9 W	3*	—
5 11	3 24.14	+26 5.8	2.770	1.778	4.9	21.1	9 E	2*	—	6 10	4 48.90	+32 13.7	2.694	1.707	6.3	21.0	11 W	5*	—
5 21	3 50.79	+28 23.7	2.748	1.752	4.7	21.0	8 W	1*	—	6 20	5 20.28	+33 38.9	2.664	1.687	7.6	21.0	13 W	7*	—
5 31	4 19.05	+30 27.5	2.722	1.728	5.3	21.0	9 W	3*	—	6 30	5 52.98	+34 39.7	2.632	1.671	9.0	21.0	15 W	9*	—
6 10	4 48.90	+32 13.7	2.694	1.707	6.3	21.0	11 W	5*	—	7 10	6 26.69	+							

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°
474424 2002 YZ₁										152948 2000 FP₃₂									
<i>(continuation)</i>										<i>(continuation)</i>									
7 30	7 35.40	+34 52.6	2.541	1.638	13.1	21.1	21 W	15*	—	11 27	12 46.53	- 2 54.0	2.103	1.705	27.6	20.9	53 W	37*	31*
8 9	8 9.43	+33 58.1	2.512	1.634	14.3	21.1	24 W	17*	—	12 7	13 8.84	- 5 13.7	2.045	1.723	28.7	20.9	57 W	37*	36*
8 19	8 42.66	+32 36.4	2.485	1.632	15.6	21.1	26 W	20*	—	12 17	13 30.48	- 7 24.6	1.982	1.743	29.8	20.9	62 W	36*	41*
8 29	9 14.73	+30 50.6	2.458	1.634	16.7	21.1	28 W	22*	—	12 27	13 51.30	- 9 25.1	1.916	1.766	30.6	20.9	66 W	35*	47*
9 8	9 45.42	+28 44.3	2.433	1.640	17.9	21.1	30 W	24*	1*	1 6	14 11.17	-11 14.3	1.847	1.790	31.3	20.8	71 W	34*	54*
9 18	10 14.65	+26 21.8	2.407	1.648	19.0	21.2	32 W	26*	2*	1 16	14 29.90	-12 51.4	1.774	1.817	31.8	20.8	77 W	32	61*
9 28	10 42.36	+23 47.4	2.380	1.659	20.2	21.2	35 W	29*	3*	489337 2006 UM									
10 8	11 8.61	+21 5.1	2.352	1.674	21.3	21.2	37 W	31*	5*	4 1	2 27.06	+15 40.8	1.947	1.165	23.8	21.4	28 E	20*	12*
10 18	11 33.47	+18 18.4	2.322	1.691	22.4	21.2	40 W	34*	7*	4 6	2 43.36	+17 43.5	1.927	1.138	24.0	21.3	28 E	20*	11*
10 28	11 57.01	+15 30.6	2.287	1.711	23.6	21.3	44 W	37*	10*	4 11	3 0.50	+19 44.0	1.907	1.113	24.3	21.3	27 E	20*	10*
11 7	12 19.32	+12 44.5	2.249	1.733	24.7	21.3	47 W	40*	14*	4 16	3 18.57	+21 41.2	1.887	1.091	24.6	21.2	27 E	19*	10*
11 17	12 40.46	+10 2.1	2.206	1.757	25.9	21.3	51 W	43*	18*	4 21	3 37.61	+23 33.6	1.868	1.072	25.1	21.2	27 E	19*	10*
11 27	13 0.43	+ 7 25.5	2.156	1.783	26.9	21.3	55 W	45*	22*	4 26	3 57.65	+25 19.4	1.849	1.056	25.6	21.1	27 E	19*	9*
12 7	13 19.25	+ 4 55.9	2.101	1.811	27.9	21.3	59 W	46*	28*	5 1	4 18.73	+26 56.7	1.832	1.043	26.2	21.1	27 E	20*	9*
12 17	13 36.87	+ 2 34.1	2.039	1.841	28.8	21.3	64 W	46*	35*	5 6	4 40.82	+28 23.6	1.817	1.033	26.8	21.1	28 E	20*	10*
12 27	13 53.17	+ 0 21.0	1.970	1.871	29.5	21.3	70 W	45*	42*	5 11	5 3.86	+29 38.0	1.803	1.028	27.5	21.1	28 E	20*	10*
1 6	14 8.01	- 1 43.6	1.896	1.903	30.0	21.3	75 W	43*	49*	5 16	5 27.78	+30 37.9	1.792	1.026	28.2	21.1	29 E	20*	10*
1 16	14 21.18	- 3 39.6	1.816	1.936	30.2	21.2	82 W	41	57*	5 21	5 52.41	+31 21.5	1.784	1.027	28.8	21.1	29 E	21*	11*
153792 2001 VH₇₅										474190 1999 XX₁₄									
4 1	1 53.96	+16 46.6	2.206	1.328	16.0	21.4	21 E	15*	4*	4 1	2 39.30	+ 4 29.1	2.813	2.001	14.1	21.5	29 E	15*	20*
4 11	2 21.75	+18 25.2	2.113	1.204	15.2	21.1	18 E	12*	3*	4 11	2 58.27	+ 7 8.0	2.826	1.961	12.3	21.4	25 E	10*	16*
4 21	2 53.30	+19 58.9	2.006	1.077	14.9	20.7	16 E	9*	3*	4 21	3 18.21	+ 9 42.0	2.831	1.921	10.5	21.2	20 E	6*	13*
5 1	3 29.51	+21 19.8	1.886	0.946	15.7	20.3	15 E	8*	3*	5 1	3 39.17	+12 9.8	2.827	1.881	8.6	21.1	16 E	3*	9*
5 6	3 49.66	+21 51.7	1.821	0.881	16.6	20.1	14 E	7*	3*	5 11	4 1.17	+14 30.4	2.816	1.842	6.7	21.0	12 E	—	6*
5 11	4 11.35	+22 15.0	1.753	0.816	18.1	19.9	15 E	6*	4*	5 21	4 24.28	+16 42.5	2.799	1.804	4.7	20.8	8 E	—	2*
5 16	4 34.70	+22 27.4	1.682	0.753	20.4	19.7	15 E	6*	5*	5 31	4 48.55	+18 44.4	2.774	1.766	2.8	20.6	5 E	—	—
5 21	4 59.78	+22 25.8	1.608	0.693	23.7	19.5	16 E	6*	7*	6 10	5 14.00	+20 34.8	2.744	1.731	1.4	20.5	2 E	—	—
5 26	5 26.60	+22 6.9	1.530	0.639	28.2	19.4	17 E	6*	9*	6 20	5 40.67	+22 11.7	2.709	1.696	2.1	20.5	4 W	—	—
5 31	5 55.05	+21 27.8	1.449	0.594	34.2	19.3	19 E	6*	11*	6 30	6 8.55	+23 33.5	2.670	1.664	3.9	20.5	6 W	—	—
6 5	6 24.90	+20 26.0	1.365	0.561	41.5	19.2	22 E	6*	14*	7 10	6 37.59	+24 38.2	2.628	1.634	5.9	20.5	10 W	2*	1*
6 10	6 55.81	+19 0.8	1.278	0.544	49.8	19.3	24 E	6*	17*	7 20	7 7.71	+25 24.0	2.584	1.607	7.9	20.5	13 W	5*	2*
6 15	7 27.46	+17 13.2	1.191	0.546	58.3	19.4	27 E	7*	20*	7 30	7 38.79	+25 49.4	2.537	1.582	9.8	20.6	15 W	8*	3*
6 20	7 59.64	+15 5.2	1.107	0.565	65.9	19.5	31 E	7*	23*	8 9	8 10.62	+25 53.2	2.491	1.561	11.8	20.6	18 W	12*	3*
6 25	8 32.40	+12 38.9	1.029	0.600	71.8	19.7	34 E	7*	27*	8 19	8 43.02	+25 34.8	2.445	1.543	13.6	20.6	21 W	15*	3*
6 30	9 5.91	+ 9 55.8	0.962	0.646	75.6	19.8	38 E	8*	31*	8 29	9 15.72	+24 54.1	2.400	1.529	15.3	20.6	24 W	18*	3*
7 10	10 15.66	+ 3 47.5	0.868	0.762	76.9	20.0	47 E	10*	40*	9 8	9 48.46	+23 52.1	2.358	1.519	17.0	20.6	26 W	20*	3*
7 20	11 27.72	- 2 44.8	0.837	0.890	72.0	20.1	56 E	12*	50*	9 18	10 21.02	+22 30.4	2.318	1.514	18.5	20.6	29 W	23*	3*
7 30	12 37.41	- 8 39.2	0.870	1.021	64.4	20.2	65 E	14*	58*	9 28	10 53.17	+20 51.5	2.281	1.512	19.9	20.6	31 W	25*	2*
8 4	13 9.71	-11 6.1	0.907	1.086	60.4	20.3	69 E	15*	62*	10 8	11 24.74	+18 58.8	2.247	1.515	21.2	20.6	33 W	27*	3*
8 9	13 39.77	-13 9.9	0.957	1.150	56.6	20.5	71 E	16*	65*	10 18	11 55.59	+16 55.9	2.217	1.522	22.4	20.6	36 W	30*	3*
8 14	14 7.46	-14 51.6	1.017	1.213	53.2	20.6	73 E	17*	67*	10 28	12 25.62	+14 46.8	2.189	1.534	23.5	20.6	38 W	32*	4*
8 19	14 32.82	-16 13.8	1.085	1.275	50.0	20.8	75 E	18*	68*	11 7	12 54.75	+12 35.6	2.164	1.549	24.5	20.7	40 W	34*	6*
8 24	14 56.01	-17 19.5	1.160	1.336	47.1	20.9	76 E	18*	69*	11 17	13 22.95	+10 26.0	2.140	1.568	25.4	20.7	43 W	37*	8*
8 29	15 17.25	-18 11.6	1.240	1.396	44.6	21.1	76 E	19*	70*	11 27	13 50.15	+ 8 21.6	2.116	1.590	26.3	20.7	46 W	39*	11*
9 3	15 36.75	-18 52.6	1.326	1.454	42.2	21.3	76 E	19*	69*	12 7	14 16.32	+ 6 25.1	2.091	1.616	27.2	20.8	48 W	41*	15*
9 8	15 54.76	-19 24.5	1.415	1.511	40.1	21.4	75 E	19*	69*	12 17	14 41.42	+ 4 38.9	2.063	1.644	28.0	20.8	52 W	42*	20*
369986 1998 SO										239849 1999 VO₁₁									
4 1	1 55.69	+ 1 35.8	1.159	0.383	56.3	20.9	19 E	5*	12*	4 1	2 42.23	+16 34.9	1.782	1.072	29.4	21.3	32 E	23*	14*
4 3	2 1.02	+ 2 43.4	1.100	0.344	64.3	20.8	18 E	5*	11*	4 6	2 58.21	+18 35.5	1.746	1.029	30.2	21.2	31 E	23*	13*
4 5	2 5.08	+ 4 3.4	1.036	0.305	74.8	20.7	17 E	5*	10*	4 11	3 15.32	+20 36.1	1.707	0.989	31.2	21.1	31 E	23*	13*
4 7	2 6.88	+ 5 39.5	0.969	0.270	89.0	20.8	16 E	4*	9*	4 16	3 33.70	+22 35.4	1.667	0.951	32.4	21.0	31 E	23*	12*
4 9	2 4.92	+ 7 35.1	0.901	0.241	107.8	21.3	13 E	3*	6*	4 21	3 53.48	+24 31.5	1.625	0.916	33.9	20.9	31 E	23*	12*
152948 2000 FP₃₂										239849 1999 VO₁₁									
4 1	2 25.51	+14 27.6	2.862	2.027	13.1	21.5	27 E	10*	12*	4 26	4 14.77	+26 22.4	1.582	0.886	35.7	20.8	31 E	23*	12*
4 11	2 46.54	+16 13.4	2.880	1.994	11.3	21.4	23 E	15*	9*	5 1	4 37.68	+28 5.1	1.539	0.860	37.8	20.7	32 E	23*	12*
4 21	3 8.54	+17 53.7	2.889	1.962	9.4	21.3	19 E	11*	7*	5 6	5 2.27	+29 36.4	1.496	0.840	40.0	20.7	32 E	24*	13*
5 1	3 31.52	+19 26.7	2.890	1.931	7.5	21.2	15 E	7*	4*	5 11	5 28.55	+30 52.5	1.453	0.827	42.4	20.6	33 E	25*	13*
5 11	3 55.47	+20 50.6	2.884	1.900	5.6	21.0	11 E	3*	2*	5 16	5 56.44	+31 49.2	1.412	0.820	44.8	20.6	35 E	26*	14*
5 21	4 20.38	+22 3.3	2.871	1.870	3.7	20.9	7 E	—	—	5 21	6 25.75	+32 22.7	1.373	0.819	47.1	20.6	36 E	27*	16*
5 31	4 46.22	+23 2.9	2.853	1.842	1.9	20.7	3 E	—	—	5 26	6 56.17	+32 29.2	1.338	0.826	49.2	20.7	38 E	28*	17*
6 10	5 12.88	+23 47.7	2.829	1.814	0.4	20.5	1 W	—	—	5 31	7 27.26	+32 6.0	1.307	0.840	50.9	20.7	40 E	28*	19*
6 20	5 40.29	+24 15.8	2.802	1.788	2.0	20.6	3 W	—	—	6 5	7 58.55	+31 12.0	1.281	0.860	52.2	20.7	42 E	29*	22*
6 30	6 8.31	+24 25.9	2.770	1.764	3.8	20.7	7 W	—	—	6 10	8 29.50	+29 47.4	1.262	0.885	53.0	20.8	44 E	29*	24*
7 10	6 36.76	+24 16.9	2.736	1.742	5.6	20.7	10 W	1*	1*	6 15	8 59.68	+27 54.4	1.250	0.915	53.3	20.8	46 E	30*	27*
7 20	7 5.47	+23 48																	

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°
239849 1999 VO ₁₁ (continuation)										283460 2001 PD ₁									
7 15	11 31.39	+10 55.5	1.347	1.160	47.1	21.3	57 E	25*	44*	4 1	13 30.44	-18 26.7	2.281	3.245	5.5	23.1	162 W	27	82
7 20	11 51.59	+7 54.4	1.390	1.206	45.4	21.5	58 E	24*	46*	4 11	13 20.66	-17 35.4	2.246	3.239	2.9	22.9	171 W	27	82
490136 2008 UE ₁₂₈										410650 2008 SQ ₁									
4 1	2 42.48	+16 38.5	2.658	1.885	16.3	21.5	32 E	24*	14*	4 1	13 33.94	-18 45.8	2.687	3.646	5.1	23.9	161 W	26	83
4 11	3 3.50	+19 9.0	2.671	1.842	14.6	21.4	28 E	20*	11*	4 11	13 25.22	-17 55.9	2.697	3.689	2.6	23.8	170 W	27	82
4 21	3 26.02	+21 33.8	2.675	1.800	12.9	21.3	24 E	16*	8*	4 21	13 10.78	-16 34.4	2.241	3.231	3.7	22.9	168 E	28	81
5 1	3 50.14	+23 50.8	2.672	1.760	11.3	21.2	20 E	13*	6*	5 1	13 1.66	-15 28.9	2.267	3.222	6.8	23.1	158 E	30	79
5 11	4 15.91	+25 57.4	2.663	1.721	9.8	21.0	17 E	10*	3*	5 11	12 54.04	-14 25.1	2.320	3.212	9.9	23.3	147 E	31	78
5 21	4 43.42	+27 50.5	2.648	1.684	8.4	20.9	14 E	7*	1*	417634 2006 XG ₁									
5 31	5 12.66	+29 26.7	2.629	1.650	7.2	20.8	12 E	6*	—	4 1	13 37.42	-0 21.7	2.931	3.907	3.7	24.1	166 W	45	64
6 10	5 43.58	+30 42.5	2.607	1.618	6.4	20.7	10 E	4*	—	4 11	13 28.32	+0 12.5	2.919	3.912	2.3	24.0	171 W	45	64
6 20	6 16.01	+31 34.3	2.584	1.590	6.0	20.6	9 E	3*	—	4 21	13 19.15	+0 41.6	2.938	3.916	3.9	24.2	165 E	46	63
6 30	6 49.69	+31 58.7	2.560	1.565	6.0	20.6	9 E	3*	—	5 1	13 10.53	+1 2.8	2.988	3.918	6.5	24.3	154 E	46	63
7 10	7 24.23	+31 53.3	2.537	1.545	6.4	20.6	10 E	3*	—	5 11	13 3.00	+1 14.1	3.067	3.920	8.9	24.5	143 E	46	63
7 20	7 59.17	+31 16.8	2.516	1.529	7.0	20.5	11 E	3*	—	445830 2012 CL ₁₉									
7 30	8 34.05	+30 9.0	2.497	1.517	7.8	20.5	12 W	4*	—	4 1	13 43.39	-4 25.3	0.830	1.813	8.3	23.7	165 W	41	68
8 9	9 8.39	+28 31.7	2.482	1.510	8.5	20.6	13 W	5*	—	4 6	13 34.74	-3 31.5	0.842	1.837	4.9	23.6	171 W	41	68
8 19	9 41.86	+26 27.6	2.470	1.508	9.3	20.6	14 W	6*	—	4 11	13 26.18	-2 40.6	0.861	1.861	3.2	23.5	174 W	42	67
8 29	10 14.18	+24 0.9	2.462	1.511	10.1	20.6	15 W	7*	—	4 16	13 17.99	-1 54.3	0.886	1.883	5.0	23.7	171 E	43	66
9 8	10 45.23	+21 16.1	2.458	1.519	10.8	20.6	16 W	9*	—	4 21	13 10.44	-1 14.0	0.918	1.905	8.1	24.0	165 E	44	65
9 18	11 14.98	+18 18.2	2.457	1.531	11.5	20.7	18 W	10*	—	4 26	13 3.72	-0 40.7	0.955	1.926	11.1	24.2	158 E	44	65
9 28	11 43.45	+15 12.0	2.459	1.548	12.3	20.7	19 W	12*	—	5 1	12 57.98	-0 15.0	0.998	1.947	14.0	24.4	152 E	45	64
10 8	12 10.72	+12 2.1	2.461	1.570	13.2	20.8	21 W	14*	—	490559 2009 WR ₂₀									
10 18	12 36.91	+8 52.4	2.464	1.595	14.1	20.9	23 W	17*	—	4 1	13 44.51	-5 24.7	2.555	3.528	4.4	22.5	164 W	40	69
10 28	13 2.10	+5 46.3	2.466	1.624	15.1	21.0	25 W	19*	1*	4 11	13 36.17	-4 44.8	2.522	3.521	1.6	22.2	174 W	40	69
11 7	13 26.39	+2 46.6	2.465	1.656	16.3	21.0	28 W	22*	4*	4 21	13 27.53	-4 6.4	2.520	3.513	3.0	22.3	170 E	41	68
11 17	13 49.87	+0 4.8	2.460	1.691	17.5	21.1	31 W	24*	7*	5 1	13 19.29	-3 33.3	2.547	3.504	6.1	22.5	158 E	41	68
11 27	14 12.58	-2 46.1	2.451	1.728	18.8	21.2	34 W	27*	12*	5 11	13 12.10	-3 8.6	2.603	3.494	9.0	22.7	147 E	42	67
12 7	14 34.53	-5 16.3	2.435	1.767	20.1	21.3	38 W	28*	17*	430804 2005 AD ₁₃									
12 17	14 55.74	-7 35.0	2.412	1.808	21.4	21.3	42 W	29*	22*	4 1	13 47.87	+7 51.3	2.244	3.199	6.3	22.7	159 W	53	56
12 27	15 16.14	-9 41.9	2.381	1.850	22.8	21.4	47 W	30*	29*	4 6	13 42.28	+8 32.0	2.217	3.183	5.7	22.6	162 W	54	55
1 6	15 35.66	-11 37.4	2.341	1.894	24.0	21.5	52 W	30*	35*	4 11	13 36.43	+9 10.4	2.199	3.168	5.6	22.6	162 W	54	55
1 16	15 54.21	-13 22.2	2.293	1.938	25.1	21.5	57 W	29*	43*	4 16	13 30.42	+9 45.6	2.189	3.151	6.2	22.6	160 E	55	54
68031 2000 YK ₂₉										495858 2003 MJ ₄									
4 1	2 48.28	+7 22.9	2.108	1.360	22.6	21.5	31 E	18*	20*	4 1	13 48.46	-4 12.9	2.030	3.001	5.4	23.2	163 W	41	68
4 11	3 16.82	+10 13.6	2.123	1.341	21.4	21.4	29 E	16*	19*	4 11	13 38.32	-3 13.0	1.962	2.959	2.4	22.9	173 W	42	67
4 21	3 46.40	+12 52.8	2.136	1.322	20.2	21.4	27 E	14*	17*	4 21	13 27.36	-2 14.0	1.925	2.916	4.1	22.9	168 E	43	66
5 1	4 17.10	+15 17.3	2.145	1.303	19.0	21.3	25 E	11*	16*	5 1	13 16.57	-1 21.7	1.918	2.870	8.0	23.1	157 E	44	65
5 11	4 48.95	+17 23.9	2.153	1.286	17.9	21.2	23 E	9*	14*	5 11	13 6.91	-0 41.3	1.938	2.824	11.9	23.2	145 E	44	65
5 21	5 21.94	+19 9.4	2.158	1.269	16.8	21.2	21 E	7*	13*	401868 2000 VS ₄₁									
5 31	5 56.00	+20 30.8	2.162	1.253	15.7	21.1	20 E	6*	12*	4 1	13 49.64	-14 55.2	2.005	2.965	6.5	22.6	160 W	30	79
6 10	6 30.98	+21 25.4	2.164	1.239	14.7	21.1	18 E	4*	10*	4 11	13 40.26	-14 15.1	1.965	2.961	2.7	22.3	172 W	31	78
6 20	7 6.66	+21 51.2	2.166	1.227	13.7	21.0	17 E	3*	9*	4 21	13 30.38	-13 27.4	1.955	2.956	2.2	22.3	174 E	32	77
6 30	7 42.81	+21 46.9	2.167	1.217	12.8	21.0	15 E	2*	8*	5 1	13 20.97	-12 37.1	1.974	2.949	6.0	22.5	162 E	32	77
7 10	8 19.11	+21 12.4	2.168	1.209	12.0	20.9	14 E	2*	7*	5 11	13 12.91	-11 50.1	2.020	2.942	9.7	22.7	151 E	33	76
7 20	8 55.31	+20 8.4	2.168	1.203	11.3	20.9	13 E	2*	6*	417167 2005 WH ₅₇									
7 30	9 31.19	+18 36.6	2.170	1.200	10.7	20.9	13 E	2*	5*	4 1	13 49.94	-63 59.3	1.679	2.336	21.9	23.0	119 W	—	52
8 9	10 6.55	+16 39.8	2.172	1.200	10.2	20.8	12 E	3*	4*	4 3	13 45.88	-63 57.0	1.665	2.336	21.6	23.0	120 W	—	52
8 19	10 41.30	+14 21.4	2.176	1.202	9.8	20.8	12 E	3*	4*	4 5	13 41.68	-63 52.3	1.651	2.336	21.4	23.0	122 W	—	52
8 29	11 15.43	+11 45.4	2.181	1.207	9.4	20.8	11 E	3*	3*	4 7	13 37.38	-63 45.2	1.638	2.336	21.1	22.9	123 W	—	52
9 8	11 48.93	+8 56.1	2.188	1.214	9.1	20.8	11 E	4*	2*	4 9	13 33.01	-63 35.6	1.625	2.336	20.9	22.9	124 W	—	52
9 18	12 21.91	+5 58.1	2.197	1.224	8.7	20.8	11 E	4*	1*	4 11	13 28.59	-63 23.4	1.614	2.336	20.6	22.9	125 W	—	53
9 28	12 54.46	+2 55.9	2.208	1.235	8.3	20.9	10 E	4*	—	4 13	13 24.17	-63 8.6	1.602	2.336	20.4	22.9	126 E	—	53
10 8	13 26.69	-0 5.9	2.222	1.249	7.8	20.9	10 E	4*	—	4 15	13 19.76	-62 51.3	1.591	2.335	20.1	22.9	127 E	—	53
10 18	13 58.73	-3 3.1	2.237	1.264	7.4	20.9	9 E	3*	—	4 17	13 15.41	-62 31.3	1.581	2.335	19.9	22.8	128 E	—	53
10 28	14 30.66	-5 51.6	2.253	1.280	6.9	20.9	9 E	3*	—	4 19	13 11.15	-62 8.7	1.572	2.334	19.7	22.8	129 E	—	54
11 7	15 2.57	-8 27.9	2.270	1.298	6.4	20.9	8 E	2*	—	4 21	13 7.00	-61 43.5	1.564	2.334	19.5	22.8	129 E	—	54
11 17	15 34.51	-10 48.9	2.287	1.316	6.2	21.0	8 E	1*	—	4 23	13 2.99	-61 15.8	1.556	2.333	19.3	22.8	130 E	—	55
11 27	16 6.47	-12 51.9	2.303	1.335	6.2	21.0	8 W	1*	—	4 25	12 59.15	-60 45.7	1.549	2.332	19.1	22.8	131 E	—	55
12 7	16 38.43	-14 35.0	2.318	1.354	6.5	21.1	9 W	3*	—	4 27	12 55.49	-60 13.2	1.542	2.332	19.0	22.7	131 E	—	56
12 17	17 10.33	-15 56.9	2.331	1.373	7.2	21.2	10 W	4*	—	4 29	12 52.05	-59 38.5	1.537	2.331	18.8	22.7	132 E	—	56
12 27	17 42.07	-16 56.9	2.340	1.391	8.2	21.2	12 W	5*	—	5 1	12 48.82	-59 1.8	1.532	2.330	18.8	22.7	132 E	—	57
1 6	18 13.53	-17 35.0	2.346	1.410	9.5	21.3	14 W	6*	3*	361689 2007 VY ₇									
1 16	18 44.62	-17 51.9	2.347	1.428	10.9	21.4	16 W	7*	6*	4 1	3 39.16	+19 37.0	1.251	0.903	52.3	21.5	46 E	36*	23*
366415 2001 TS ₁₁₀										4 6	4 2.35	+21 23.2	1.224	0.900	53.6	21.5	46 E	36*	24*
4 1	13 27.07	-13 40.1	2.476	3.453	4.1	22.6	166 W	31	78	4 11	4 26.70								

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°		
394130 2006 HY₅₁										483856 2005 YV₅₅											
4	1	13 50.18	+ 6 10.6	3.495	4.447	4.4	23.5	160 W	51	58	4	1	14 6.45	- 1 47.2	1.201	2.163	9.6	22.9	159 W	43	66
4	11	13 40.39	+ 7 3.5	3.516	4.487	3.6	23.5	164 W	52	57	4	6	14 0.47	- 1 5.3	1.205	2.184	7.2	22.8	164 W	44	65
4	21	13 30.59	+ 7 47.3	3.571	4.525	4.5	23.6	159 E	53	56	4	11	13 54.23	- 0 25.6	1.214	2.205	5.4	22.8	168 W	45	64
5	1	13 21.33	+ 8 19.5	3.658	4.562	6.2	23.8	151 E	53	56	4	16	13 47.94	+ 0 10.8	1.231	2.225	4.8	22.8	169 W	45	64
5	11	13 13.10	+ 8 38.9	3.774	4.598	8.0	24.0	140 E	54	55	4	21	13 41.78	+ 0 42.8	1.254	2.245	5.8	22.9	167 E	46	63
523628 2008 RT₂₆										455591 2004 SV₂₆											
4	1	13 50.55	-12 22.8	2.242	3.205	5.7	24.2	161 W	33	76	4	26	13 35.94	+ 1 9.6	1.284	2.264	7.7	23.1	162 E	46	63
4	11	13 40.92	-11 34.2	2.220	3.218	2.0	24.0	174 W	33	76	5	1	13 30.59	+ 1 30.5	1.320	2.283	9.8	23.2	157 E	47	62
4	21	13 31.01	-10 41.6	2.229	3.230	1.9	24.0	174 E	34	75	5	6	13 25.84	+ 1 45.4	1.362	2.302	11.9	23.4	152 E	47	62
5	1	13 21.67	- 9 49.9	2.269	3.241	5.6	24.3	162 E	35	74	523779 2015 AX₁₆										
5	11	13 13.64	- 9 3.9	2.337	3.251	9.0	24.5	150 E	36	73	4	1	14 10.11	- 7 29.1	2.700	3.645	5.9	23.3	158 W	38	71
497130 2004 PC₆₇										523779 2015 AX₁₆											
4	1	13 50.74	-49 44.5	2.839	3.590	11.8	23.0	133 W	-	66	4	11	14 1.95	- 6 27.9	2.676	3.665	3.0	23.2	169 W	39	70
4	6	13 45.04	-49 54.5	2.799	3.582	11.3	22.9	136 W	-	66	4	21	13 47.37	-10 26.0	1.845	2.849	0.9	22.2	170 E	34	75
4	11	13 38.99	-49 57.6	2.765	3.574	10.8	22.9	138 W	-	66	5	1	13 36.89	- 9 48.2	1.900	2.885	5.1	22.6	165 E	35	74
4	16	13 32.72	-49 53.6	2.736	3.565	10.4	22.8	140 E	-	66	5	11	13 27.96	- 9 16.7	1.982	2.920	8.9	22.9	153 E	36	73
4	21	13 26.37	-49 42.4	2.713	3.557	10.1	22.8	142 E	-	66	498677 2008 SS₂₀₇										
4	26	13 20.11	-49 24.1	2.697	3.548	10.0	22.7	142 E	-	67	4	1	14 10.18	-11 17.6	3.019	3.959	5.6	23.2	157 W	34	75
5	1	13 14.10	-48 59.3	2.686	3.538	10.0	22.7	142 E	-	67	4	11	14 3.19	-10 14.1	2.964	3.952	2.8	23.0	169 W	35	74
413123 2001 XS₁										153311 2001 MG₁											
4	1	13 50.97	-26 0.2	2.122	3.046	8.6	23.6	153 W	19	90	4	1	14 12.47	+21 40.6	2.781	3.651	8.9	22.8	146 W	67	42
4	6	13 45.88	-25 34.8	2.120	3.071	7.0	23.6	158 W	19	90	4	6	14 8.41	+22 27.2	2.756	3.634	8.7	22.8	147 W	67	42
4	11	13 40.68	-25 5.2	2.125	3.095	5.6	23.5	162 W	20	89	4	11	14 4.04	+23 9.9	2.737	3.616	8.8	22.8	147 W	68	41
4	16	13 35.48	-24 31.9	2.137	3.119	4.6	23.5	166 E	20	89	4	16	13 59.44	+23 48.0	2.725	3.598	9.1	22.8	146 W	69	40
4	21	13 30.40	-23 55.6	2.157	3.143	4.3	23.5	167 E	21	88	4	21	13 54.71	+24 20.7	2.720	3.580	9.5	22.8	144 E	69	40
4	26	13 25.57	-23 17.1	2.184	3.166	4.8	23.6	165 E	22	87	4	26	13 49.94	+24 47.6	2.721	3.562	10.2	22.8	141 E	70	39
5	1	13 21.09	-22 37.5	2.218	3.189	5.8	23.7	161 E	22	87	5	1	13 45.22	+25 8.3	2.729	3.543	10.9	22.8	138 E	70	39
53409 1999 LU₇										380163 2000 QG₅₉											
4	1	13 51.61	-12 24.2	1.850	2.814	6.6	22.8	161 W	33	76	4	1	14 14.15	-17 0.9	2.448	3.376	7.4	22.0	154 W	28	81
4	11	13 40.66	-10 57.5	1.768	2.767	2.2	22.4	174 W	34	75	4	11	14 6.00	-16 36.6	2.377	3.358	4.2	21.8	166 W	28	81
4	21	13 28.62	- 9 19.1	1.717	2.717	2.6	22.3	173 E	36	73	4	21	13 56.91	-16 3.9	2.336	3.339	1.3	21.5	176 W	29	80
5	1	13 16.62	- 7 39.1	1.696	2.665	7.5	22.5	160 E	37	72	5	1	13 47.64	-15 25.9	2.324	3.319	3.3	21.7	169 E	30	79
5	11	13 5.83	- 6 4.2	1.705	2.610	12.2	22.7	147 E	39	70	5	11	13 39.01	-14 46.6	2.342	3.298	6.7	21.8	157 E	30	79
481381 2006 OS₅										30854 1991 VB											
4	1	13 52.34	-49 0.1	2.558	3.322	12.7	23.7	133 W	-	67	4	1	14 15.37	-20 30.4	2.238	3.157	8.5	22.1	152 W	24	85
4	6	13 46.64	-49 8.1	2.501	3.297	12.1	23.6	136 W	-	67	4	11	14 6.44	-19 46.2	2.183	3.158	5.1	21.9	164 W	25	84
4	11	13 40.47	-49 8.6	2.449	3.271	11.6	23.5	139 W	-	67	4	21	13 56.60	-18 49.8	2.157	3.157	2.2	21.7	173 W	26	83
4	16	13 33.96	-49 1.2	2.403	3.245	11.2	23.5	141 E	-	67	5	1	13 46.76	-17 45.3	2.162	3.155	3.7	21.8	168 E	27	82
4	21	13 27.27	-48 45.5	2.363	3.219	10.9	23.4	143 E	-	67	5	11	13 37.83	-16 38.5	2.195	3.152	7.1	22.0	157 E	28	81
4	26	13 20.59	-48 21.6	2.328	3.193	10.8	23.3	143 E	-	68	5	21	13 30.48	-15 35.3	2.256	3.148	10.3	22.2	146 E	29	80
5	1	13 14.09	-47 49.8	2.301	3.167	10.9	23.3	143 E	-	68	315239 2007 RB₂₈₀										
520808 2014 TF₆₄										385202 1999 RJ₂₄₆											
4	1	13 55.55	-43 4.7	0.999	1.867	20.9	22.5	138 W	2	73	4	1	13 56.69	- 2 51.1	2.892	3.852	4.8	23.2	161 W	42	67
4	6	13 46.35	-41 4.3	0.939	1.844	18.7	22.2	144 W	4	75	4	11	13 49.38	- 2 0.6	2.862	3.853	2.6	23.1	170 W	43	66
4	11	13 36.24	-38 31.8	0.884	1.820	16.2	22.0	150 W	6	77	4	21	13 41.69	-1 13.2	2.863	3.854	2.9	23.1	169 E	44	65
4	16	13 25.59	-35 24.6	0.837	1.796	13.9	21.8	155 E	10	81	5	1	13 34.23	- 0 32.6	2.894	3.854	5.3	23.3	159 E	44	65
4	21	13 14.84	-31 42.4	0.799	1.771	12.3	21.6	158 E	13	84	5	11	13 27.55	- 0 1.6	2.954	3.853	7.8	23.4	149 E	45	64
4	26	13 4.46	-27 28.5	0.770	1.746	12.2	21.5	158 E	18	89	495833 2000 SB₈										
5	1	12 54.85	-22 50.0	0.752	1.720	14.1	21.5	155 E	22	87	4	1	13 59.03	- 7 45.7	2.064	3.025	6.3	23.4	161 W	37	72
5	6	12 46.34	-17 56.8	0.744	1.694	17.4	21.5	150 E	27	82	4	11	13 49.13	- 7 4.8	1.998	2.994	2.5	23.1	172 W	38	71
5	11	12 39.13	-13 0.7	0.746	1.667	21.5	21.6	143 E	32	77	4	21	13 38.30	- 6 22.0	1.962	2.962	2.4	23.0	173 E	39	70
385202 1999 RJ₂₄₆										52760 1998 ML₁₄											
4	1	13 56.69	- 2 51.1	2.892	3.852	4.8	23.2	161 W	42	67	4	1	14 16.26	-16 27.8	2.254	3.182	7.9	22.3	154 W	29	80
4	11	13 49.38	- 2 0.6	2.862	3.853	2.6	23.1	170 W	43	66	4	11	14 6.90	-15 48.1	2.155	3.136	4.4	22.0	166 W	29	80
4	21	13 41.69	-1 13.2	2.863	3.854	2.9	23.1	169 E	44	65	4	21	13 56.18	-14 57.6	2.085	3.089	1.0	21.7	177 W	30	79
5	1	13 34.23	- 0 32.6	2.894	3.854	5.3	23.3	159 E	44	65	5	1	13 44.98	-13 59.7	2.047	3.040	3.9	21.8	168 E	31	78
5	11	13 27.55	- 0 1.6	2.954	3.853	7.8	23.4	149 E	45	64	5	11	13 34.29	-13 0.0	2.039	2.990	7.9	22.0	156 E	32	77
495833 2000 SB₈										362352 2010 MW₈₇											
4	1	13 59.03	- 7 45.7	2.064	3.025	6.3	23.4	161 W	37	72	4	1	14 17.18	- 6 39.0	1.448	2.397	9.7	21.2	156 W	38	71
4	11	13 49.13	- 7 4.8	1.998	2.994	2.5	23.1	172 W	38	71	4	11	14 8.71	- 5 47.2	1.374	2.362	5.3	20.9	167 W	39	70
4	21	13 38.30	- 6 22.0	1.962	2.962	2.4	23.0	173 E	39	70	4	21	13 58.47	- 4 53.1	1.325	2.326	3.0	20.7	173 W	40	69
5	1	13 27.51	- 5 42.1	1.957	2.929	6.3	23.2	161 E	39	70	5	1	13 47.64	- 4 4.1	1.303	2.290	6.9	20.8	164 E	41	68
5	11	13 17.74	- 5 10.1	1.979	2.894	10.3	23.3	149 E	40	69	402864 2007 RM₁₃₆										
4	1	14 4.71	-13 45.4	1.906	2.855	7.6	22.4	158 W	31	78	4	1	14 4.71	-13 45.4	1.906	2.855	7.6	22.4	158 W	31	78
4	11	13 55.26	-13 2.7	1.887	2.879	3.5	22.2	170 W	32	77	4	11	13 55.26	-13 2.7	1.887	2.879	3.5	22.2	170 W	32	77
4	21	13 45.27	-12 14.4	1.898	2.902	0.9	22.0	177 E	33	76	4	21	13 45.27	-12 14.4	1.898	2.902					

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°
362352 2010 MW₈₇										189058 2000 UT₁₆									
<i>(continuation)</i>										<i>(continuation)</i>									
5 11	13 37.60	-3 27.4	1.307	2.253	11.9	21.0	153 E	42	67	4 21	14 5.69	-39 50.2	1.974	2.900	9.4	20.9	152 W	5	76
5 21	13 29.50	-3 8.3	1.333	2.215	16.6	21.1	141 E	42	67	4 26	13 59.69	-39 12.0	1.937	2.876	8.8	20.8	154 E	6	77
5 31	13 24.20	-3 9.8	1.377	2.178	20.7	21.3	131 E	42	67	5 1	13 53.68	-38 25.8	1.907	2.852	8.6	20.8	155 E	7	78
6 10	13 22.08	-3 32.1	1.434	2.140	24.0	21.5	121 E	41*	68	5 6	13 47.82	-37 32.3	1.883	2.828	8.8	20.7	155 E	7	78
203272 2001 RL₆										189058 2000 UT₁₆									
4 1	14 17.86	-19 6.1	1.910	2.834	9.4	21.4	152 W	26	83	5 11	13 42.27	-36 32.3	1.866	2.803	9.5	20.7	153 E	8	79
4 11	14 8.59	-18 41.0	1.856	2.833	5.6	21.2	164 W	26	83	5 16	13 37.16	-35 27.0	1.857	2.778	10.5	20.7	150	10	81
4 21	13 58.19	-18 3.7	1.831	2.832	2.2	20.9	174 W	27	82	5 21	13 32.63	-34 17.8	1.853	2.753	11.8	20.8	146	11	82
5 1	13 47.70	-17 18.2	1.834	2.830	4.0	21.0	169 E	28	81	5 26	13 28.76	-33 6.0	1.856	2.727	13.2	20.8	142 E	12	83
5 11	13 38.20	-16 30.1	1.866	2.826	7.9	21.3	158 E	28	81	5 31	13 25.63	-31 53.4	1.865	2.701	14.7	20.8	138 E	13	84
5 21	13 30.49	-15 45.1	1.924	2.822	11.5	21.5	146 E	29	80	6 5	13 23.27	-30 41.2	1.880	2.675	16.1	20.9	133 E	14	85
514561 2017 XE₃										189058 2000 UT₁₆									
4 1	14 18.08	-37 3.9	2.436	3.271	11.1	21.5	141 W	8	79	6 10	13 21.69	-29 30.7	1.899	2.649	17.5	20.9	128 E	15*	86
4 6	14 13.81	-37 7.5	2.386	3.257	10.1	21.4	145 W	8	79	6 15	13 20.90	-28 22.9	1.922	2.622	18.9	21.0	123 E	16*	88
4 11	14 9.10	-37 5.5	2.341	3.242	9.2	21.3	149 W	8	79	6 20	13 20.87	-27 18.5	1.949	2.595	20.1	21.0	119 E	16*	89
4 16	14 4.04	-36 57.8	2.303	3.227	8.3	21.2	152 W	8	79	6 25	13 21.59	-26 18.4	1.979	2.568	21.2	21.1	114 E	16*	90
4 21	13 58.73	-36 44.1	2.272	3.211	7.6	21.2	155 W	8	79	7 30	13 23.03	-25 22.9	2.011	2.540	22.1	21.1	110 E	16*	89
4 26	13 53.32	-36 24.6	2.247	3.196	7.2	21.1	157 E	9	80	7 5	13 25.14	-24 32.3	2.046	2.512	23.0	21.1	105 E	16*	89
5 1	13 47.95	-35 59.6	2.229	3.180	7.2	21.1	157 E	9	80	7 10	13 27.89	-23 46.5	2.081	2.484	23.7	21.2	101 E	15*	88
5 6	13 42.74	-35 29.6	2.218	3.164	7.6	21.1	155 E	10	81	7 15	13 31.23	-23 5.7	2.118	2.455	24.3	21.2	97	15*	87
5 11	13 37.82	-34 55.4	2.214	3.147	8.4	21.1	153 E	10	81	7 20	13 35.14	-22 29.6	2.155	2.427	24.7	21.2	93	14*	86*
5 16	13 33.30	-34 17.7	2.217	3.131	9.4	21.1	150	11	82	7 25	13 39.59	-21 58.1	2.192	2.398	25.1	21.3	89	14*	83*
5 21	13 29.27	-33 37.6	2.225	3.114	10.6	21.2	146 E	11	82	8 4	13 44.54	-21 31.0	2.229	2.368	25.3	21.3	85	13*	79*
5 26	13 25.81	-32 56.0	2.240	3.097	11.8	21.2	141 E	12	83	8 9	13 49.97	-21 8.0	2.265	2.339	25.4	21.3	81	12*	75*
5 31	13 22.98	-32 14.0	2.260	3.080	13.0	21.3	137 E	13	84	8 14	13 55.84	-20 48.6	2.300	2.309	25.4	21.3	78	12*	72*
6 5	13 20.80	-31 32.4	2.286	3.063	14.2	21.3	132 E	13	84	8 19	14 2.14	-20 32.6	2.334	2.279	25.3	21.3	74	12*	68*
6 10	13 19.30	-30 52.1	2.315	3.045	15.3	21.4	128	14*	85	8 24	14 8.85	-20 19.7	2.366	2.249	25.2	21.3	71	11*	65*
6 15	13 18.46	-30 13.7	2.349	3.027	16.3	21.4	123 E	14*	86	8 29	14 15.96	-20 9.5	2.397	2.218	24.9	21.3	68	11*	62*
6 20	13 18.29	-29 37.8	2.386	3.009	17.2	21.5	119 E	14*	86	8 29	14 23.45	-20 1.6	2.425	2.187	24.6	21.3	64	11*	58*
297695 2001 VK₃₄										189058 2000 UT₁₆									
4 1	14 19.04	-10 45.4	1.971	2.908	8.3	21.8	155 W	34	75	9 3	14 31.30	-19 55.7	2.452	2.156	24.2	21.2	61	10*	55*
4 11	14 10.28	-10 0.2	1.914	2.899	4.4	21.5	167 W	35	74	9 8	14 39.50	-19 51.4	2.476	2.125	23.8	21.2	58	10*	52*
4 21	14 0.39	-9 10.7	1.885	2.889	1.0	21.2	177 W	36	73	9 13	14 48.06	-19 48.4	2.497	2.094	23.3	21.2	55	10*	49*
5 1	13 50.33	-8 21.8	1.886	2.878	4.4	21.5	167 E	37	72	9 18	14 56.96	-19 46.3	2.517	2.062	22.7	21.2	52	10*	46*
5 11	13 41.08	-7 38.7	1.915	2.865	8.4	21.7	156 E	37	72	9 23	15 6.20	-19 44.8	2.533	2.031	22.2	21.1	50	10*	44*
5 21	13 33.44	-7 5.9	1.970	2.852	12.0	21.9	144 E	38	71	9 28	15 15.77	-19 43.5	2.547	1.999	21.4	21.1	47	10*	41*
313085 2000 TB₄₅										189058 2000 UT₁₆									
4 1	14 19.54	-8 43.0	1.980	2.918	8.2	22.2	155 W	36	73	10 3	15 25.67	-19 42.0	2.558	1.967	20.7	21.0	44	10*	38*
4 11	14 10.93	-8 2.0	1.925	2.910	4.4	21.9	167 W	37	72	10 8	15 35.90	-19 40.0	2.567	1.935	20.0	21.0	41	10*	35*
4 21	14 1.20	-7 18.9	1.899	2.901	1.6	21.7	175 W	38	71	10 13	15 46.45	-19 37.2	2.573	1.903	19.2	20.9	39	10*	33*
5 1	13 51.30	-6 38.4	1.902	2.892	4.6	21.9	167 E	38	71	10 18	15 57.34	-19 33.1	2.576	1.871	18.5	20.9	36	10*	30*
5 11	13 42.21	-6 5.4	1.933	2.881	8.5	22.1	155 E	39	70	10 23	16 8.55	-19 27.5	2.576	1.839	17.7	20.8	34	10*	28*
5 21	13 34.69	-5 43.4	1.990	2.869	12.1	22.3	144 E	39	70	10 28	16 20.07	-19 19.9	2.574	1.807	16.8	20.7	32	10*	25*
241676 2000 QW₁₅₈										189058 2000 UT₁₆									
4 1	14 20.26	-12 19.7	2.056	2.990	8.3	21.3	155 W	33	76	11 2	16 31.92	-19 9.9	2.569	1.776	16.0	20.7	30	10*	22*
4 11	14 12.17	-11 17.5	1.996	2.979	4.5	21.1	166 W	34	75	11 7	16 44.08	-18 57.2	2.562	1.744	15.2	20.6	27	10*	20*
4 21	14 2.98	-10 9.0	1.964	2.968	0.8	20.8	178 W	35	74	11 12	16 56.56	-18 41.5	2.553	1.713	14.4	20.5	25	10*	17*
5 1	13 53.60	-8 59.8	1.961	2.956	3.9	21.0	169 E	36	73	11 17	17 9.35	-18 22.3	2.541	1.682	13.6	20.4	24	10*	15*
5 11	13 44.94	-7 55.9	1.988	2.942	7.8	21.2	157 E	37	72	11 27	17 35.85	-17 32.2	2.511	1.620	12.1	20.3	20	10*	10*
5 21	13 37.76	-7 2.4	2.041	2.928	11.4	21.4	145 E	38	71	12 7	18 3.52	-16 24.2	2.474	1.561	10.8	20.1	17	9*	5*
464815 2004 RV₂₅₇										189058 2000 UT₁₆									
4 1	14 24.24	-9 4.8	1.932	2.865	8.7	21.8	154 W	36	73	12 17	18 32.32	-14 55.8	2.433	1.505	9.8	20.0	15	9*	1*
4 11	14 16.35	-7 50.1	1.878	2.859	5.0	21.6	166 W	37	72	12 27	19 2.17	-13 5.0	2.388	1.451	9.3	19.8	14	8*	—
4 21	14 7.30	-6 32.2	1.852	2.853	2.1	21.4	174 W	38	71	1 6	19 33.00	-10 51.0	2.342	1.403	9.2	19.7	13	7*	—
5 1	13 58.00	-5 17.4	1.855	2.846	4.6	21.5	167 E	40	69	1 16	20 4.75	-8 13.5	2.298	1.359	9.5	19.6	13	6*	—
5 11	13 49.44	-4 12.3	1.887	2.837	8.5	21.7	156 E	41	68	284763 2008 WL₆₈									
5 21	13 42.37	-3 21.6	1.944	2.828	12.1	21.9	144 E	42	67	4 1	14 26.50	-14 13.9	1.733	2.660	10.0	22.1	153 W	31	78
370785 2004 SS₅₅										189058 2000 UT₁₆									
4 1	14 25.84	-0 26.1	2.644	3.568	7.1	21.6	154 W	45	64	4 11	14 18.10	-13 25.9	1.667	2.647	5.8	21.8	165 W	32	77
4 6	14 22.45	+0 20.1	2.631	3.581	5.9	21.5	158 W	45	64	4 21	14 8.21	-12 28.6	1.628	2.632	1.2	21.4	177 W	33	76
4 11	14 18.83	+1 5.5	2.626	3.593	4.9	21.5	162 W	46	63	5 1	13 57.87	-11 27.5	1.618	2.617	3.6	21.6	171 E	34	75
4 16	14 15.03	+1 49.5	2.628	3.606	4.2	21.5	165 W	47	62	5 11	13 48.24	-10 29.2	1.635	2.601	8.2	21.8	158 E	35	74
4 21	14 11.14	+2 31.3	2.637	3.618	4.1	21.5	165 W	48	61	5 21	13 40.29	-9 39.8	1.678	2.584	12.5	22.0	147 E	35	74
4 26	14 7.24	+3 10.3	2.655	3.630	4.6	21.5	163 E	48	61	417999 2007 TG₄₀₀									
5 1	14 3.43	+3 46.0	2.680	3.642	5.5	21.6	160 E	49	60	4 1	14 27.94	-1 16.6	1.520	2.455	10.5	21.2	153 W	44	65
5 6	13 59.77	+4 18.0	2.712	3.653	6.6	21.7	155 E	49	60	4 6	14 24.22	-0 40.4	1.480	2.438	8.7	21.1	158 W	44	65
5 11	13 56.32	+4 46.0</																	

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°
16064 Davidharvey (continuation)										424003 2006 WD₃									
5 11	13 48.87	-17 17.8	2.299	3.267	6.0	21.6	160 E	28	81	4 1	14 33.81	-37 4.3	2.160	2.983	12.8	21.3	139 W	8	79
5 21	13 41.62	-16 30.6	2.408	3.317	9.1	21.8	149 E	28	81	4 6	14 29.80	-36 58.4	2.107	2.970	11.6	21.2	143 W	8	79
163732 2003 KP₂																			
4 1	14 28.83	+ 4 25.1	3.600	4.506	6.0	21.9	152 W	49	60	4 11	14 25.25	-36 46.1	2.061	2.957	10.4	21.1	148 W	8	79
4 11	14 22.00	+ 5 49.9	3.539	4.488	4.6	21.8	159 W	51	58	4 16	14 20.24	-36 27.1	2.020	2.943	9.2	21.0	152 W	9	80
4 21	14 14.45	+ 7 9.6	3.509	4.469	4.3	21.8	160 W	52	57	4 21	14 14.91	-36 1.2	1.985	2.929	8.2	20.9	155 W	9	80
5 1	14 6.65	+ 8 20.3	3.511	4.449	5.4	21.8	156 E	53	56	4 26	14 9.39	-35 28.5	1.958	2.915	7.4	20.8	158 E	10	81
5 11	13 59.09	+ 9 18.7	3.544	4.428	7.1	21.9	147 E	54	55	5 1	14 3.84	-34 49.4	1.937	2.901	7.1	20.8	159 E	10	81
5 21	13 52.24	+ 10 2.9	3.603	4.406	8.9	22.0	138 E	55	54	5 6	13 58.42	-34 4.5	1.923	2.886	7.3	20.8	159 E	11	82
154020 2002 CA₁₀																			
4 1	14 30.90	+ 3 47.5	1.371	2.300	11.9	22.3	152 W	49	60	5 11	13 53.26	-33 14.8	1.916	2.871	8.0	20.8	157 E	12	83
4 6	14 25.03	+ 4 54.7	1.334	2.284	10.3	22.2	156 W	50	59	5 16	13 48.50	-32 21.2	1.916	2.856	9.2	20.8	153 E	13	84
4 11	14 18.41	+ 6 1.8	1.303	2.268	9.0	22.1	159 W	51	58	5 21	13 44.24	-31 24.9	1.923	2.840	10.5	20.9	149 E	14	85
4 16	14 11.17	+ 7 7.1	1.279	2.251	8.4	22.0	161 W	52	57	5 26	13 40.58	-30 27.2	1.936	2.825	11.9	20.9	145 E	15	86
4 21	14 3.48	+ 8 8.7	1.263	2.233	8.9	22.0	160 W	53	56	5 31	13 37.58	-29 29.4	1.954	2.809	13.4	21.0	140 E	16	87
4 26	13 55.55	+ 9 4.7	1.253	2.215	10.3	22.0	157 E	54	55	6 5	13 35.28	-28 32.6	1.978	2.792	14.8	21.0	135 E	16	87
5 1	13 47.61	+ 9 53.5	1.251	2.195	12.2	22.0	153 E	55	54	6 10	13 33.70	-27 37.8	2.007	2.776	16.1	21.1	131 E	17*	88
5 6	13 39.89	+ 10 34.1	1.255	2.175	14.4	22.1	147 E	56	53	6 15	13 32.84	-26 45.8	2.040	2.759	17.4	21.2	126 E	18*	89
5 11	13 32.59	+ 11 5.6	1.266	2.154	16.8	22.2	142 E	56	53	6 20	13 32.68	-25 57.1	2.077	2.742	18.5	21.2	121 E	18*	89
5 16	13 25.89	+ 11 27.7	1.282	2.131	19.1	22.3	136 E	56	53	6 25	13 33.21	-25 12.3	2.117	2.725	19.5	21.3	116 E	18*	89
5 21	13 19.93	+ 11 40.6	1.302	2.109	21.3	22.3	131 E	57	52	6 30	13 34.40	-24 31.8	2.159	2.708	20.4	21.3	112 E	18*	89
494703 2004 XN₆₂																			
4 1	14 31.34	+ 19 29.5	2.133	2.999	11.3	21.7	144 W	64	45	7 5	13 36.23	-23 55.5	2.204	2.690	21.1	21.4	107 E	17*	88
4 6	14 27.16	+ 20 7.1	2.111	2.993	10.8	21.7	146 W	65	44	7 10	13 38.64	-23 23.6	2.250	2.672	21.7	21.4	103 E	17*	87
4 11	14 22.58	+ 20 40.0	2.095	2.986	10.5	21.6	147 W	66	43	7 15	13 41.61	-22 56.0	2.297	2.654	22.2	21.5	99 E	16*	87
4 16	14 17.68	+ 21 7.4	2.086	2.980	10.5	21.6	147 W	66	43	510262 2011 HJ₆₁									
4 21	14 12.58	+ 21 28.5	2.083	2.973	10.8	21.6	146 W	66	43	4 1	14 34.02	-21 11.6	1.099	2.018	15.2	21.9	148 W	24	85
4 26	14 7.39	+ 21 42.5	2.086	2.965	11.3	21.7	145 E	67	42	4 6	14 27.53	-19 53.8	1.077	2.028	12.1	21.7	155 W	25	84
5 1	14 2.25	+ 21 49.3	2.096	2.958	12.0	21.7	142 E	67	42	4 11	14 20.39	-18 28.0	1.062	2.038	8.8	21.6	162 W	27	82
5 6	13 57.28	+ 21 48.5	2.111	2.950	12.9	21.7	139 E	67	42	4 16	14 12.82	-16 55.6	1.053	2.047	5.4	21.4	169 W	28	81
5 11	13 52.59	+ 21 40.5	2.131	2.942	13.8	21.8	136 E	67	42	4 21	14 5.08	-15 18.9	1.052	2.056	2.0	21.2	176 W	30	79
5 16	13 48.26	+ 21 25.3	2.157	2.934	14.8	21.8	132 E	66	43	4 26	13 57.44	-13 40.4	1.059	2.064	2.0	21.2	176 E	31	78
5 21	13 44.37	+ 21 3.5	2.188	2.925	15.8	21.9	128 E	66	43	5 1	13 50.15	-12 2.9	1.073	2.071	5.3	21.5	169 E	33	76
368818 2006 BK₁₂																			
4 1	14 31.78	-23 12.1	2.772	3.655	8.4	21.9	148 W	22	87	5 6	13 43.44	-10 29.1	1.094	2.077	8.6	21.7	162 E	35	74
4 11	14 24.26	-22 41.7	2.717	3.669	5.7	21.7	159 W	22	87	5 11	13 37.46	- 9 1.2	1.122	2.083	11.7	21.9	155 E	36	73
4 21	14 15.84	-22 0.2	2.690	3.681	3.0	21.6	169 W	23	86	5 16	13 32.34	- 7 40.8	1.156	2.088	14.5	22.0	149 E	37	72
5 1	14 7.20	-21 10.2	2.693	3.692	2.4	21.6	171 E	24	85	5 21	13 28.14	- 6 29.1	1.196	2.092	17.1	22.2	143 E	39	70
5 11	13 59.07	-20 15.7	2.727	3.703	4.7	21.7	163 E	25	84	495861 2003 UR₆₅									
5 21	13 52.04	-19 21.0	2.789	3.713	7.4	21.9	152 E	26	83	4 1	14 34.76	- 4 35.4	1.734	2.657	10.2	22.0	152 W	40	69
405471 2004 VQ₃₆																			
4 1	14 32.40	-13 36.7	1.654	2.576	10.7	21.8	151 W	31	78	4 11	14 27.16	- 3 32.9	1.657	2.630	6.6	21.7	162 W	41	68
4 11	14 24.13	-13 5.6	1.577	2.553	6.5	21.5	163 W	32	77	4 21	14 17.83	- 2 30.1	1.607	2.601	4.2	21.5	169 W	42	67
4 21	14 14.02	-12 25.9	1.526	2.529	1.8	21.2	175 W	33	76	5 1	14 7.71	- 1 34.0	1.585	2.572	5.8	21.5	165 E	43	66
5 1	14 3.12	-11 42.0	1.502	2.504	3.3	21.2	172 E	33	76	5 11	13 57.92	- 0 50.9	1.590	2.542	9.7	21.7	155 E	44	65
5 11	13 52.69	-11 0.0	1.507	2.478	8.2	21.4	160 E	34	75	5 21	13 49.49	- 0 25.5	1.619	2.511	13.7	21.8	144 E	45	64
5 21	13 43.84	-10 25.5	1.536	2.452	12.7	21.6	148 E	35	74	483453 2002 AN₁₁									
396661 2002 OS₃₃																			
4 1	14 32.97	-12 28.6	0.932	1.872	14.8	21.2	151 W	33	76	4 1	14 35.07	-44 3.7	1.629	2.426	17.4	22.1	133 W	1	72
4 11	14 27.90	-11 19.2	0.861	1.842	9.3	20.8	163 W	34	75	4 6	14 29.41	-44 8.1	1.592	2.426	16.2	22.0	138 W	1	72
4 21	14 20.03	- 9 54.1	0.811	1.813	3.5	20.4	174 W	35	74	4 11	14 22.99	-44 3.1	1.560	2.427	14.9	21.9	142 W	1	72
5 1	14 10.69	- 8 23.3	0.783	1.785	4.9	20.3	171 E	37	72	4 16	14 15.96	-43 47.8	1.533	2.426	13.6	21.8	145 W	1	72
5 6	14 6.03	- 7 39.9	0.776	1.771	8.2	20.5	166 E	37	72	4 21	14 8.55	-43 21.8	1.512	2.425	12.6	21.8	148 W	2	73
5 11	14 1.69	- 7 0.0	0.775	1.758	11.5	20.6	160 E	38	71	4 26	14 1.00	-42 45.1	1.497	2.424	11.8	21.7	151 E	2	73
5 16	13 57.87	- 6 25.1	0.779	1.745	14.8	20.7	154 E	39	70	5 1	13 53.59	-41 58.4	1.488	2.423	11.4	21.7	152 E	3	74
5 21	13 54.75	- 5 56.4	0.787	1.732	17.9	20.8	148 E	39	70	5 6	13 46.56	-41 2.7	1.485	2.421	11.4	21.7	152 E	4	75
5 26	13 52.48	- 5 34.8	0.799	1.719	20.9	20.9	143 E	39	70	5 11	13 40.11	-39 59.5	1.489	2.418	12.0	21.7	150 E	5	76
5 31	13 51.16	- 5 20.8	0.815	1.707	23.6	21.0	138 E	40	69	5 16	13 34.41	-38 50.7	1.499	2.415	12.9	21.8	148 E	6	77
6 5	13 50.84	- 5 14.6	0.833	1.695	26.0	21.1	133 E	40	69	5 21	13 29.57	-37 38.2	1.515	2.412	14.1	21.8	145 E	7	78
6 10	13 51.54	- 5 16.0	0.854	1.684	28.3	21.2	128 E	40	69	267720 2003 CA									
6 15	13 53.23	- 5 24.6	0.878	1.673	30.2	21.3	124 E	40*	69	4 1	14 36.83	+23 43.1	1.199	2.068	18.0	21.7	140 W	69	40
6 20	13 55.90	- 5 40.0	0.903	1.662	32.0	21.4	120 E	39*	70	4 6	14 29.27	+25 31.6							

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°
520585 2014 OA₂										351340 2004 YC₅									
<i>(continuation)</i>										<i>(continuation)</i>									
5 21	13 47.22	+ 8 0.7	0.460	1.390	28.9	21.6	138 E	53	56	7 30	13 23.50	-22 49.5	1.397	1.595	39.0	21.4	81 E	9*	75*
5 26	13 43.07	+ 7 41.5	0.462	1.372	32.4	21.7	133 E	53	56	8 4	13 29.87	-22 54.0	1.406	1.550	39.8	21.4	78 E	8*	71*
452327 2000 SX₁₆₂										351340 2004 YC₅									
4 1	14 42.02	-19 46.4	1.741	2.636	11.9	21.9	147 W	25	84	8 9	13 36.98	-23 2.6	1.412	1.505	40.5	21.3	75 E	8*	68*
4 11	14 31.84	-19 25.8	1.720	2.680	7.7	21.8	159 W	26	83	8 14	13 44.84	-23 14.7	1.415	1.459	41.3	21.3	72 E	7*	65*
4 21	14 20.39	-18 52.7	1.725	2.722	3.4	21.6	171 W	26	83	8 19	13 53.45	-23 29.9	1.414	1.412	42.0	21.2	69 E	7*	62*
5 1	14 8.89	-18 11.1	1.759	2.763	2.4	21.6	173 E	27	82	8 24	14 2.81	-23 47.7	1.410	1.365	42.7	21.2	66 E	6*	59*
5 11	13 58.48	-17 26.9	1.823	2.802	6.2	21.9	162 E	28	81	8 29	14 12.93	-24 7.4	1.402	1.317	43.5	21.1	64 E	6*	57*
5 21	13 50.01	-16 45.6	1.913	2.841	10.0	22.2	151 E	28	81	9 3	14 23.82	-24 28.4	1.391	1.269	44.3	21.0	61 E	6*	55*
399630 2004 OH₃										351340 2004 YC₅									
4 1	14 43.29	-28 26.0	1.542	2.414	14.6	21.3	143 W	17	88	9 8	14 35.52	-24 49.8	1.375	1.220	45.2	21.0	59 E	6*	52*
4 11	14 35.57	-28 31.0	1.450	2.386	11.0	21.0	153 W	16	87	9 13	14 48.05	-25 10.9	1.356	1.172	46.2	20.9	57 E	6*	51*
4 21	14 25.28	-28 12.5	1.381	2.358	7.5	20.7	162 W	17	88	9 18	15 1.46	-25 30.5	1.333	1.123	47.4	20.8	55 E	6*	49*
5 1	14 13.57	-27 29.7	1.337	2.329	5.7	20.5	167 E	18	89	9 23	15 15.78	-25 47.7	1.305	1.075	48.3	20.7	54 E	6*	47*
5 11	14 1.95	-26 26.4	1.319	2.300	8.0	20.6	162 E	19	90	9 28	15 31.03	-26 1.1	1.273	1.028	50.7	20.6	52 E	6*	46*
5 21	13 51.91	-25 10.5	1.326	2.270	12.1	20.7	152 E	20	89	10 3	15 47.24	-26 8.9	1.237	0.981	52.1	20.4	51 E	7*	45*
6 10	13 44.61	-23 52.4	1.355	2.239	16.4	20.9	141 E	21	88	10 8	16 4.43	-26 9.5	1.197	0.937	54.2	20.3	50 E	8*	44*
6 20	13 40.72	-22 41.9	1.402	2.208	20.2	21.1	131 E	22	87	10 13	16 22.60	-26 0.7	1.153	0.895	56.7	20.2	49 E	9*	43*
6 30	13 43.44	-21 5.9	1.534	2.144	25.9	21.4	113 E	22*	85	10 18	16 41.72	-25 40.4	1.105	0.856	59.5	20.1	48 E	10*	42*
7 10	13 49.63	-20 44.6	1.611	2.112	27.7	21.5	105 E	22*	85	10 23	17 1.74	-25 6.0	1.054	0.820	62.7	20.0	47 E	11*	41*
504857 2010 TY₁₄₈										351340 2004 YC₅									
4 1	14 43.80	-19 57.2	1.816	2.706	11.7	21.9	147 W	25	84	10 28	17 22.55	-24 15.0	0.999	0.790	66.3	19.9	47 E	13*	40*
4 11	14 35.99	-19 50.0	1.727	2.682	8.0	21.6	158 W	25	84	11 2	17 44.03	-23 4.6	0.942	0.766	70.1	19.9	47 E	15*	40*
4 21	14 26.14	-19 30.0	1.663	2.657	4.0	21.3	169 W	25	84	11 7	18 6.06	-21 32.7	0.884	0.749	74.2	19.8	47 E	17*	39*
5 1	14 15.21	-18 58.7	1.627	2.631	2.2	21.1	174 E	26	83	11 12	18 28.55	-19 36.9	0.824	0.740	78.3	19.8	47 E	19*	38*
5 11	14 4.39	-18 20.4	1.619	2.605	6.2	21.3	164 E	27	82	11 17	18 51.47	-17 15.6	0.765	0.739	82.2	19.7	48 E	22*	37*
5 21	13 54.83	-17 40.6	1.638	2.577	10.5	21.5	152 E	27	82	11 22	19 14.87	-14 27.0	0.708	0.746	85.5	19.7	49 E	26*	36*
399675 2002 RH₁₇₆										351340 2004 YC₅									
4 1	14 43.89	-13 54.9	1.434	2.345	12.8	22.5	149 W	31	78	11 27	19 38.93	-11 9.6	0.654	0.762	88.0	19.7	50 E	29*	35*
4 11	14 36.76	-12 54.9	1.350	2.318	8.4	22.2	160 W	32	77	12 2	20 3.96	-7 22.4	0.604	0.784	89.5	19.6	53 E	34*	34*
4 21	14 27.28	-11 42.1	1.290	2.290	3.4	21.8	172 W	33	76	12 7	20 30.41	-3 4.8	0.560	0.813	89.7	19.6	56 E	38*	32*
5 1	14 16.51	-10 22.9	1.256	2.261	2.8	21.7	174 E	35	74	12 12	20 58.79	+ 1 41.7	0.523	0.847	88.6	19.5	59 E	44*	31*
5 11	14 5.85	-9 5.9	1.250	2.231	8.2	21.9	162 E	36	73	12 17	21 29.58	+ 6 52.0	0.495	0.885	86.0	19.3	64 E	49*	30*
5 21	13 56.65	-7 59.7	1.267	2.201	13.5	22.1	150 E	37	72	12 19	21 42.66	+ 9 0.7	0.486	0.902	84.7	19.3	66 E	52*	29*
265032 2003 OU										351340 2004 YC₅									
4 1	14 47.62	-7 29.1	2.764	3.655	8.2	22.1	149 W	38	71	12 21	21 56.18	+11 10.5	0.479	0.918	83.1	19.2	68 E	54*	29*
4 11	14 39.64	-5 52.7	2.670	3.627	5.5	21.9	160 W	39	70	12 23	22 10.16	+13 20.3	0.474	0.936	81.4	19.2	70 E	56*	28*
4 21	14 30.35	-4 11.6	2.607	3.597	3.2	21.7	169 W	41	68	12 25	22 24.57	+15 29.0	0.470	0.953	79.6	19.1	72 E	59*	28*
5 1	14 20.38	-2 31.6	2.577	3.566	3.6	21.7	167 E	42	67	12 27	22 39.40	+17 35.0	0.469	0.971	77.6	19.1	75 E	61*	28*
5 11	14 10.49	-0 58.5	2.579	3.533	6.3	21.8	157 E	44	65	12 29	22 54.59	+19 37.0	0.469	0.989	75.6	19.1	77 E	64*	27*
5 21	14 1.36	+ 0 22.6	2.613	3.498	9.3	21.9	146 E	45	64	12 31	23 10.11	+21 33.6	0.471	1.008	73.5	19.0	79 E	66*	27*
441525 2008 SK₂₂₀										351340 2004 YC₅									
4 1	14 49.40	-14 7.5	3.880	4.751	6.5	22.0	147 W	31	78	1 2	23 25.87	+23 23.7	0.475	1.026	71.3	19.0	81 E	68*	27*
4 11	14 44.72	-13 34.7	3.807	4.752	4.5	22.0	158 W	31	78	1 4	23 41.80	+25 6.2	0.480	1.045	69.2	19.0	84 E	70*	27*
4 21	14 39.25	-12 58.5	3.762	4.753	2.2	21.8	169 W	32	77	1 6	23 57.82	+26 40.2	0.488	1.064	67.1	19.0	86 E	72*	27*
5 1	14 33.38	-12 20.7	3.747	4.754	0.6	21.7	177 E	33	76	1 8	0 13.83	+28 5.3	0.497	1.083	65.1	19.1	88 E	73*	26*
5 11	14 27.55	-11 43.8	3.763	4.754	2.6	21.8	168 E	33	76	1 10	0 29.75	+29 21.1	0.508	1.102	63.1	19.1	89 E	74	26*
5 21	14 22.15	-11 9.9	3.808	4.754	4.8	22.0	157 E	34	75	1 12	0 45.46	+30 27.7	0.520	1.122	61.2	19.1	91 E	75	26*
351340 2004 YC₅										449465 2013 LT₃₃									
4 1	14 52.11	-32 28.8	1.605	2.447	15.6	21.9	139 W	13	84	4 1	14 53.20	-19 18.7	1.406	2.296	14.5	21.3	145 W	26	83
4 6	14 47.10	-32 48.6	1.538	2.419	14.1	21.8	144 W	12	83	4 11	14 47.69	-18 45.5	1.310	2.263	10.4	20.9	156 W	26	83
4 11	14 41.07	-33 3.2	1.477	2.391	12.5	21.6	149 W	12	83	4 21	14 39.51	-17 55.0	1.237	2.229	5.5	20.5	168 W	27	82
4 16	14 34.04	-33 11.2	1.421	2.362	10.9	21.4	153 W	12	83	5 1	14 29.57	-16 49.8	1.188	2.195	0.9	20.1	178 E	28	81
4 21	14 26.14	-33 11.7	1.372	2.333	9.5	21.3	158 W	12	83	5 6	14 24.37	-16 13.6	1.173	2.178	3.2	20.3	173 E	29	80
4 26	14 17.52	-33 3.9	1.330	2.303	8.4	21.1	160 W	12	83	5 11	14 19.25	-15 36.4	1.164	2.161	6.0	20.4	167 E	29	80
5 1	14 8.41	-32 47.2	1.294	2.272	8.1	21.0	161 E	12	83	5 16	14 14.41	-14 59.2	1.162	2.144	8.8	20.5	161 E	30	79
5 6	13 59.07	-32 21.6	1.266	2.241	8.8	21.0	160 E	13	84	5 21	14 10.00	-14 23.3	1.165	2.126	11.6	20.6	155 E	31	78
5 11	13 49.78	-31 47.8	1.244	2.208	10.4	21.0	157 E	13	84	5 26	14 6.18	-13 49.9	1.174	2.109	14.2	20.7	149 E	31	78
5 16	13 40.81	-31 6.6	1.229	2.176	12.5	21.0	152 E	14	85	5 31	14 3.08	-13 19.9	1.188	2.092	16.7	20.8	144 E	32	77
5 21	13 32.43	-30 19.6	1.221	2.142	14.9	21.0	147 E	15	86	6 5	14 0.77	-12 54.1	1.206	2.075	19.1	20.9	138 E	32	77
5 26	13 24.87	-29 28.6	1.218	2.108	1														

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°	
418111 2007 YD₂ (continuation)									282795 2006 PR₁₇ (continuation)									
4 21	14 19.90	-60 57.3	1.287	2.087	21.4	21.7	131 W	55	5 31	14 10.64	-14 22.1	2.021	2.914	11.3	21.2	146 E	31	78
4 26	14 8.51	-61 2.6	1.270	2.086	20.9	21.6	132 E	55	6 10	14 5.44	-13 44.1	2.089	2.894	14.5	21.3	135 E	31	78
5 1	13 56.95	-60 51.2	1.257	2.085	20.4	21.6	134 E	55	6 20	14 2.61	-13 18.4	2.175	2.873	17.0	21.5	124 E	32*	77
5 6	13 45.81	-60 23.5	1.248	2.083	20.2	21.6	134 E	56	499582 2010 TH₁₉									
5 11	13 35.59	-59 40.6	1.244	2.082	20.2	21.6	135 E	56	4 1	15 1.22	-30 56.2	0.577	1.479	26.9	21.4	138 W	14	85
5 16	13 26.70	-58 44.4	1.243	2.080	20.4	21.6	134 E	57	4 6	14 54.28	-30 16.3	0.570	1.501	23.0	21.3	144 W	15	86
5 21	13 19.42	-57 37.2	1.247	2.077	20.7	21.6	133 E	58	4 11	14 46.21	-29 23.3	0.567	1.522	18.9	21.1	151 W	16	87
465892 2010 UT₇									4 16	14 37.38	-28 17.9	0.568	1.543	14.7	21.0	157 W	17	88
4 1	14 54.74	+20 5.0	1.049	1.920	19.9	22.1	139 W	65	4 21	14 28.22	-27 1.6	0.574	1.563	10.8	20.9	163 W	18	89
4 6	14 47.64	+21 19.9	0.994	1.884	19.2	21.9	142 W	66	4 26	14 19.20	-25 37.1	0.585	1.583	7.7	20.9	168 W	19	90
4 11	14 38.87	+22 32.0	0.943	1.847	18.9	21.8	143 W	68	5 1	14 10.75	-24 8.0	0.601	1.603	6.6	20.9	169 E	21	88
4 16	14 28.42	+23 38.0	0.898	1.809	19.0	21.6	144 W	69	5 6	14 3.22	-22 38.1	0.623	1.622	8.1	21.1	167 E	22	87
4 21	14 16.38	+24 34.0	0.860	1.770	19.9	21.5	143 W	70	5 11	13 56.84	-21 11.0	0.650	1.640	11.0	21.3	162 E	24	85
4 26	14 2.96	+25 15.9	0.827	1.730	21.4	21.4	141 E	70	5 16	13 51.70	-19 49.6	0.681	1.658	14.1	21.6	156 E	25	84
5 1	13 48.50	+25 39.9	0.800	1.688	23.6	21.4	138 E	71	5 21	13 47.88	-18 35.8	0.717	1.675	17.2	21.8	151 E	26	83
5 6	13 33.46	+25 43.4	0.779	1.645	26.4	21.3	134 E	71	5 26	13 45.35	-17 31.1	0.758	1.692	19.9	22.0	145 E	27	82
5 11	13 18.33	+25 24.9	0.763	1.601	29.5	21.3	129 E	70	189973 2003 XE₁₁									
5 16	13 3.61	+24 44.2	0.752	1.556	32.9	21.3	123 E	70	4 1	15 7.18	-23 13.0	1.689	2.540	14.5	21.5	140 W	22	87
5 21	12 49.73	+23 42.6	0.745	1.510	36.5	21.3	118 E	69	4 11	14 58.65	-21 30.3	1.608	2.540	10.5	21.2	153 W	23	86
5 26	12 37.03	+22 22.1	0.741	1.462	40.0	21.4	112 E	67	4 21	14 47.80	-19 24.5	1.553	2.538	5.7	20.9	165 W	26	83
6 5	12 15.85	+18 55.7	0.740	1.362	47.1	21.4	101 E	61*	5 1	14 35.72	-17 1.6	1.528	2.535	0.8	20.6	178 W	28	81
6 10	12 7.37	+16 55.1	0.740	1.310	50.5	21.4	95 E	56*	5 11	14 23.79	-14 32.3	1.534	2.530	4.8	20.9	168 E	30	79
6 15	12 0.17	+14 45.7	0.740	1.256	54.0	21.4	90 E	51*	5 21	14 13.22	-12 8.6	1.570	2.524	9.7	21.1	155 E	33	76
6 20	11 54.09	+12 28.9	0.739	1.202	57.4	21.4	85 E	45*	5 31	14 4.97	-10 1.4	1.632	2.515	14.1	21.4	143 E	35	74
6 25	11 48.91	+10 5.8	0.736	1.146	60.9	21.4	80 E	39*	344133 2000 AD₆									
6 30	11 44.37	+7 37.1	0.731	1.088	64.5	21.4	75 E	34*	4 1	15 9.57	+35 18.7	1.411	2.167	21.5	21.9	127 W	80	29
7 5	11 40.18	+5 3.4	0.723	1.030	68.3	21.4	70 E	28*	4 6	15 4.08	+36 3.7	1.424	2.192	20.9	21.9	129 W	81	28
7 10	11 35.97	+2 25.0	0.712	0.971	72.5	21.3	66 E	22*	4 11	14 57.93	+36 37.3	1.441	2.217	20.4	21.9	129 W	82	27
7 15	11 31.31	+0 17.3	0.697	0.911	77.2	21.3	61 E	17*	4 16	14 51.33	+36 58.7	1.462	2.241	20.1	22.0	130 W	82	27
7 20	11 25.69	-3 2.3	0.679	0.851	82.5	21.3	56 E	11*	4 21	14 44.48	+37 7.1	1.487	2.265	20.0	22.0	130 W	82	27
7 25	11 18.40	-5 46.8	0.657	0.791	88.6	21.3	51 E	6*	4 26	14 37.61	+37 2.5	1.516	2.289	19.9	22.1	129 W	82	27
7 30	11 8.55	-8 25.0	0.633	0.733	95.7	21.4	46 E	—	5 1	14 30.93	+36 45.2	1.550	2.312	20.0	22.2	128 E	82	27
413343 2003 XA									5 6	14 24.63	+36 16.1	1.587	2.336	20.2	22.3	127 E	81	28
4 1	14 54.77	-28 37.0	2.272	3.108	11.8	21.6	140 W	16	5 11	14 18.86	+35 36.1	1.629	2.358	20.5	22.3	125 E	81	28
4 11	14 47.11	-28 34.2	2.187	3.101	9.0	21.4	151 W	16	5 16	14 13.73	+34 46.5	1.674	2.381	20.9	22.4	123 E	80	29
4 21	14 37.66	-28 14.7	2.126	3.094	6.1	21.2	161 W	17	162422 2000 EV₇₀									
5 1	14 27.24	-27 38.9	2.094	3.085	4.1	21.0	167 E	17	4 1	15 10.02	-13 52.7	0.555	1.479	24.4	21.3	142 W	31	78
5 11	14 16.88	-26 49.6	2.090	3.075	5.1	21.1	164 E	18	4 6	14 56.93	-12 53.5	0.555	1.509	19.0	21.2	151 W	32	77
5 21	14 7.54	-25 51.6	2.115	3.064	7.9	21.2	155 E	19	4 11	14 43.00	-11 49.6	0.559	1.537	13.5	21.1	159 W	33	76
5 31	14 0.01	-24 51.3	2.165	3.052	11.0	21.4	145 E	20	4 16	14 28.77	-10 43.2	0.570	1.565	8.1	20.9	167 W	34	75
366431 2001 VB₉₉									4 21	14 14.83	-9 37.4	0.587	1.591	3.3	20.8	175 W	35	74
4 1	14 57.82	+23 53.9	2.789	3.580	11.1	21.6	136 W	69	4 26	14 4.74	-8 35.3	0.611	1.615	3.6	20.9	174 E	36	73
4 6	14 54.38	+24 30.3	2.775	3.585	10.7	21.6	138 W	70	5 1	13 49.92	+7 39.5	0.641	1.639	8.0	21.3	167 E	37	72
4 11	14 50.57	+25 2.6	2.766	3.591	10.4	21.5	140 W	70	5 6	13 39.67	-6 52.1	0.677	1.661	12.2	21.6	160 E	38	71
4 16	14 46.46	+25 30.1	2.763	3.596	10.2	21.5	141 W	71	5 11	13 31.09	-6 13.7	0.719	1.681	16.0	21.9	153 E	39	70
4 21	14 42.12	+25 52.1	2.767	3.601	10.2	21.5	141 W	71	5 16	13 24.20	-5 44.8	0.765	1.701	19.3	22.1	146 E	39	70
4 26	14 37.65	+26 8.1	2.776	3.605	10.3	21.6	140 W	71	5 21	13 18.94	-5 24.9	0.815	1.719	22.2	22.4	140 E	40	69
5 1	14 33.14	+26 17.8	2.791	3.609	10.6	21.6	139 E	71	501743 2014 UM₁₁₆									
5 6	14 28.69	+26 21.2	2.812	3.614	11.0	21.6	137 E	71	4 1	15 11.19	-26 58.3	1.271	2.121	18.4	21.3	138 W	18	89
5 11	14 24.37	+26 18.1	2.839	3.618	11.5	21.7	134 E	71	4 11	15 7.48	-27 10.2	1.172	2.090	14.7	21.0	148 W	18	89
5 16	14 20.27	+26 8.9	2.871	3.621	12.1	21.7	132 E	71	4 21	15 0.37	-27 0.8	1.091	2.060	10.3	20.6	159 W	18	89
5 21	14 16.46	+25 53.7	2.908	3.625	12.6	21.8	128 E	71	5 1	14 50.59	-26 26.9	1.033	2.029	6.0	20.3	168 W	19	90
5 26	14 13.00	+25 32.9	2.949	3.628	13.2	21.8	125 E	71	5 6	14 45.13	-26 0.9	1.012	2.014	4.8	20.2	170 E	19	90
306826 2001 RZ₁₇									5 11	14 39.58	-25 29.7	0.997	1.998	5.4	20.1	169 E	20	89
4 1	15 0.70	-52 31.6	2.803	3.464	13.8	21.5	124 W	—	5 16	14 34.16	-24 54.1	0.988	1.983	7.4	20.2	165 E	20	89
4 6	14 55.74	-52 59.9	2.767	3.472	13.2	21.5	128 W	—	5 21	14 29.10	-24 15.4	0.985	1.968	9.9	20.3	160 E	21	88
4 11	14 50.07	-53 22.4	2.736	3.480	12.5	21.4	131 W	—	5 26	14 24.60	-23 35.1	0.987	1.953	12.6	20.4	155 E	21	88
4 16	14 43.81	-53 38.3	2.711	3.488	11.8	21.4	134 W	—	5 31	14 20.86	-22 54.7	0.994	1.938	15.3	20.5	150 E	22	87
4 21	14 37.07	-53 47.2	2.690	3.495	11.3	21.4	137 W	—	6 5	14 17.99	-22 15.7	1.006	1.924	17.9	20.6	144 E	23	86
4 26	14 30.04	-53 48.7	2.675	3.503	10.7	21.3	140 W	—	6 10	14 16.08	-21 39.3	1.022	1.909	20.4	20.7	139 E	23	86
5 1	14 22.89	-53 42.6	2.666	3.510	10.3	21.3	141 E	—	6 15	14 15.16	-21 6.5	1.042	1.895	22.6	20.8			

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°
501767 2014 UA₁₈₄ (continuation)									361539 2007 KN₃ (continuation)								
5 6	14 52.81	-14 34.0	0.959	1.967	1.0	19.9	178 W	30 79	6 25	14 15.44	-6 16.1	1.332	2.039	25.6	21.1	120 E	38* 70
5 11	14 47.21	-14 20.6	0.945	1.952	3.6	20.1	173 E	31 78	6 30	14 15.63	-6 42.2	1.363	2.019	27.1	21.2	115 E	37* 71
5 16	14 41.64	-14 7.8	0.938	1.936	6.8	20.2	167 E	31 78	7 5	14 16.68	-7 12.5	1.394	1.999	28.3	21.3	111 E	36* 71
5 21	14 36.35	-13 56.5	0.936	1.921	9.9	20.3	161 E	31 78	7 10	14 18.56	-7 46.5	1.427	1.979	29.4	21.3	107 E	34* 72
5 26	14 31.53	-13 47.5	0.939	1.906	13.0	20.4	155 E	31 78	7 15	14 21.22	-8 23.9	1.460	1.959	30.4	21.4	103 E	33* 72
5 31	14 27.40	-13 41.7	0.947	1.891	15.9	20.5	149 E	31 78	7 20	14 24.65	-9 4.4	1.494	1.939	31.1	21.4	99 E	31* 73
6 5	14 24.08	-13 39.6	0.960	1.876	18.7	20.6	144 E	31 78	7 25	14 28.81	-9 47.4	1.528	1.918	31.8	21.5	96 E	30* 74
6 10	14 21.67	-13 41.7	0.976	1.861	21.3	20.7	138 E	31 78	378959 2008 UY₁₉₀								
6 15	14 20.23	-13 48.2	0.996	1.847	23.6	20.8	133 E	31 78	4 1	15 30.40	-15 32.7	1.262	2.108	18.8	21.4	137 W	29 80
6 20	14 19.80	-13 59.2	1.019	1.833	25.7	20.9	128 E	31* 78	4 11	15 27.17	-15 40.6	1.160	2.078	14.9	21.0	148 W	29 80
6 25	14 20.40	-14 14.7	1.045	1.819	27.6	21.0	124 E	31* 78	4 21	15 20.34	-15 42.1	1.077	2.047	10.1	20.7	159 W	29 80
6 30	14 21.99	-14 34.5	1.072	1.806	29.3	21.1	120 E	30* 79	5 1	15 10.38	-15 38.0	1.015	2.017	4.4	20.2	171 W	29 80
7 5	14 24.55	-14 58.3	1.101	1.792	30.8	21.2	116 E	29* 79	5 6	15 4.58	-15 34.7	0.993	2.001	1.5	20.0	177 W	29 80
7 10	14 28.03	-15 25.7	1.132	1.779	32.1	21.3	112 E	28* 79	5 11	14 58.48	-15 31.0	0.977	1.986	2.1	20.0	176 E	29 80
7 15	14 32.39	-15 56.4	1.163	1.767	33.1	21.4	108 E	26* 80	5 16	14 52.30	-15 27.5	0.967	1.970	5.2	20.1	170 E	30 79
7 20	14 37.58	-16 30.0	1.196	1.755	34.1	21.4	105 E	25* 81	5 21	14 46.28	-15 24.7	0.963	1.955	8.4	20.3	164 E	30 79
7 25	14 43.57	-17 5.9	1.229	1.743	34.8	21.5	101 E	24* 81	5 26	14 40.64	-15 23.4	0.964	1.940	11.5	20.4	158 E	30 79
495871 2004 RP₅₂									5 31	14 35.61	-15 24.3	0.971	1.924	14.5	20.5	152 E	30 79
4 1	15 18.57	-14 40.3	1.225	2.093	17.8	21.5	140 W	30 79	6 5	14 31.35	-15 27.9	0.982	1.909	17.3	20.6	146 E	30 79
4 11	15 15.58	-14 6.1	1.124	2.058	13.8	21.1	151 W	31 78	6 10	14 27.98	-15 34.8	0.998	1.894	20.0	20.7	140 E	29 80
4 21	15 9.24	-13 19.5	1.043	2.023	8.8	20.7	162 W	32 77	6 15	14 25.57	-15 45.1	1.017	1.879	22.4	20.8	135 E	29 80
5 1	15 0.14	-12 23.9	0.983	1.987	3.5	20.3	173 W	33 76	6 20	14 24.19	-15 59.2	1.040	1.864	24.6	20.9	130 E	29 80
5 6	14 54.93	-11 54.6	0.962	1.970	2.4	20.2	175 W	33 76	6 25	14 23.85	-16 17.0	1.065	1.850	26.6	21.0	125 E	29* 80
5 11	14 49.52	-11 25.8	0.947	1.952	4.4	20.2	172 E	34 75	6 30	14 24.55	-16 38.7	1.093	1.835	28.4	21.1	121 E	28* 81
5 16	14 44.13	-10 58.3	0.938	1.934	7.3	20.3	166 E	34 75	7 5	14 26.25	-17 3.8	1.122	1.821	30.0	21.2	117 E	27* 81
5 21	14 38.98	-10 33.4	0.934	1.917	10.4	20.4	160 E	34 75	7 10	14 28.92	-17 32.3	1.153	1.807	31.3	21.2	113 E	26* 82
5 26	14 34.28	-10 12.1	0.936	1.900	13.5	20.5	154 E	35 74	7 15	14 32.51	-18 3.7	1.185	1.793	32.5	21.3	109 E	24* 82
5 31	14 30.22	-9 55.4	0.942	1.882	16.4	20.6	148 E	35 74	7 20	14 36.98	-18 37.8	1.218	1.779	33.4	21.4	105 E	23* 83
6 5	14 26.94	-9 43.9	0.953	1.865	19.2	20.7	143 E	35 74	7 25	14 42.29	-19 14.2	1.251	1.766	34.3	21.4	102 E	22* 83
6 10	14 24.54	-9 38.0	0.968	1.848	21.8	20.8	138 E	35 74	275714 2000 YH₄								
6 15	14 23.09	-9 37.8	0.986	1.832	24.2	20.9	132 E	35 74	4 1	15 35.07	+9 14.4	1.067	1.908	21.8	21.3	135 W	54 55
6 20	14 22.62	-9 43.5	1.007	1.815	26.3	21.0	128 E	35 74	4 6	15 31.75	+10 9.5	1.016	1.888	20.4	21.1	139 W	55 54
6 25	14 23.16	-9 54.8	1.030	1.799	28.3	21.1	123 E	35* 74	4 11	15 27.15	+11 4.6	0.968	1.867	19.0	21.0	143 W	56 53
6 30	14 24.69	-10 11.5	1.055	1.783	30.0	21.2	119 E	34* 74	4 16	15 21.25	+11 57.7	0.925	1.845	17.7	20.8	146 W	57 52
7 5	14 27.17	-10 33.2	1.082	1.767	31.5	21.3	115 E	33* 75	4 21	15 14.04	+12 46.6	0.887	1.822	16.7	20.6	149 W	58 51
7 10	14 30.57	-10 59.3	1.110	1.752	32.8	21.3	111 E	32* 75	4 26	15 5.64	+13 28.8	0.854	1.798	16.1	20.5	150 W	58 51
7 15	14 34.85	-11 29.4	1.139	1.737	34.0	21.4	107 E	31* 75	5 1	14 56.21	+14 1.5	0.827	1.774	16.3	20.4	150 W	59 50
7 20	14 39.96	-12 3.1	1.168	1.722	34.9	21.5	104 E	30* 76	5 6	14 46.01	+14 22.4	0.805	1.749	17.3	20.4	149 E	59 50
510073 2010 JF₈₈									5 11	14 35.35	+14 29.4	0.789	1.723	18.9	20.3	146 E	59 50
4 1	15 22.75	+14 53.0	1.070	1.917	21.3	21.1	136 W	60 49	5 16	14 24.57	+14 21.2	0.778	1.697	21.2	20.3	143 E	59 50
4 6	15 21.52	+16 30.5	1.004	1.873	20.8	20.9	138 W	62 47	5 21	14 14.05	+13 57.4	0.772	1.669	23.8	20.4	138 E	59 50
4 11	15 19.19	+18 13.3	0.943	1.829	20.6	20.7	140 W	63 46	5 26	14 4.15	+13 18.2	0.770	1.641	26.6	20.4	133 E	58 51
4 16	15 15.65	+20 0.1	0.887	1.784	20.6	20.5	141 W	65 44	5 31	13 55.15	+12 24.5	0.773	1.612	29.5	20.5	128 E	57 52
4 21	15 10.82	+21 48.6	0.835	1.739	21.0	20.3	142 W	67 42	6 5	13 47.28	+11 18.1	0.778	1.582	32.4	20.5	123 E	56 53
4 26	15 4.65	+23 36.1	0.788	1.693	22.0	20.2	141 W	69 40	6 10	13 40.65	+10 0.6	0.787	1.552	35.2	20.6	118 E	55 54
5 1	14 57.15	+25 19.5	0.746	1.646	23.6	20.1	139 W	70 39	6 15	13 35.32	+8 33.9	0.797	1.520	37.8	20.6	114 E	53* 55
5 6	14 48.37	+26 55.2	0.708	1.598	25.7	19.9	137 E	72 37	6 20	13 31.30	+6 59.4	0.808	1.489	40.3	20.7	109 E	50* 57
5 11	14 38.43	+28 19.7	0.674	1.550	28.4	19.8	133 E	73 36	6 25	13 28.59	+5 18.3	0.820	1.456	42.6	20.7	104 E	47* 59
5 16	14 27.52	+29 29.6	0.643	1.502	31.6	19.8	129 E	74 35	6 30	13 27.11	+3 31.9	0.832	1.422	44.7	20.8	100 E	44* 60
5 21	14 15.90	+30 21.8	0.616	1.453	35.1	19.7	124 E	75 34	7 5	13 26.78	+1 40.9	0.843	1.388	46.7	20.8	96 E	40* 62
5 26	14 3.91	+30 53.9	0.592	1.403	38.9	19.6	120 E	76 33	7 10	13 27.52	+0 14.0	0.853	1.354	48.6	20.8	92 E	37* 64
5 31	13 51.89	+31 4.9	0.569	1.353	43.0	19.6	115 E	76 33	7 15	13 29.25	-2 12.5	0.862	1.319	50.4	20.9	89 E	33* 66
6 5	13 40.12	+30 54.7	0.547	1.303	47.3	19.6	109 E	76 33	7 20	13 31.90	-4 14.5	0.870	1.283	52.1	20.9	85 E	30* 68*
6 10	13 28.79	+30 23.8	0.526	1.253	51.8	19.5	104 E	75* 34	7 25	13 35.43	-6 19.8	0.875	1.247	53.8	20.9	82 E	27* 69*
6 20	13 7.73	+28 23.5	0.483	1.152	61.7	19.4	94 E	68* 36	7 30	13 39.76	-8 28.3	0.878	1.211	55.4	20.8	79 E	24* 69*
6 30	12 47.97	+25 10.6	0.435	1.054	73.1	19.4	83 E	57* 39	8 4	13 44.83	-10 40.2	0.878	1.175	57.1	20.8	76 E	21* 68*
7 10	12 26.03	+20 44.1	0.381	0.962	87.1	19.4	71 E	44* 43*	8 9	13 50.60	-12 55.4	0.876	1.138	58.7	20.8	74 E	18* 67*
7 15	12 12.21	+17 57.5	0.352	0.919	95.7	19.5	64 E	37* 43*	8 14	13 57.05	-15 14.1	0.870	1.102	60.4	20.8	71 E	15* 65*
7 20	11 54.88	+14 42.7	0.324	0.880	105.8	19.7	56 E	29* 41*	8 19	14 4.15	-17 36.6	0.862	1.067	62.3	20.7	69 E	13* 63*
7 25	11 32.54	+10 54.5	0.297	0.844	117.4												

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°
275714 2000 YH₄									413390 2004 RG₉₆								
<i>(continuation)</i>																	
11 5	17 43.34	-62 15.6	0.353	0.849	103.3	19.9	56 E	— 37*	4 1	15 40.68	-18 21.6	1.231	2.057	20.4	21.2	134 W	27 82
11 7	17 58.49	-63 28.0	0.336	0.857	103.5	19.8	57 E	— 37*	4 11	15 40.40	-17 42.6	1.126	2.026	16.8	20.9	144 W	27 82
11 8	18 6.90	-64 3.3	0.328	0.861	103.5	19.8	58 E	— 37*	4 21	15 36.64	-16 47.0	1.039	1.996	12.2	20.5	155 W	28 81
11 9	18 15.93	-64 37.6	0.319	0.866	103.5	19.7	58 E	— 38*	5 1	15 29.72	-15 36.5	0.972	1.966	6.9	20.1	166 W	29 80
11 10	18 25.66	-65 10.7	0.311	0.870	103.5	19.7	59 E	— 38*	5 6	15 25.34	-14 57.3	0.947	1.951	4.1	19.9	172 W	30 79
11 11	18 36.16	-65 42.3	0.303	0.875	103.4	19.6	59 E	— 38*	5 11	15 20.58	-14 16.4	0.928	1.936	2.1	19.7	176 W	31 78
11 12	18 47.50	-66 12.1	0.295	0.880	103.2	19.6	60 E	— 39*	5 16	15 15.60	-13 35.2	0.914	1.922	3.5	19.8	173 E	31 77
11 13	18 59.75	-66 39.5	0.287	0.885	103.0	19.5	61 E	— 39*	5 21	15 10.64	-12 54.8	0.906	1.907	6.5	19.9	168 E	32 77
11 14	19 12.96	-67 4.0	0.279	0.890	102.7	19.4	61 E	— 40*	5 26	15 5.91	-12 16.7	0.903	1.893	9.6	20.0	162 E	33 76
11 15	19 27.20	-67 24.9	0.271	0.895	102.3	19.4	62 E	— 40*	5 31	15 1.62	-11 42.0	0.906	1.879	12.7	20.1	156 E	33 76
11 16	19 42.50	-67 41.5	0.263	0.901	101.9	19.3	63 E	— 41*	6 5	14 57.97	-11 12.0	0.914	1.865	15.6	20.2	150 E	34 75
11 17	19 58.85	-67 52.8	0.255	0.906	101.4	19.2	64 E	— 42*	6 10	14 55.08	-10 47.4	0.926	1.851	18.4	20.3	145 E	34 75
11 18	20 16.21	-67 57.8	0.248	0.912	100.8	19.1	65 E	— 43*	6 20	14 51.94	-10 16.1	0.962	1.824	23.4	20.5	134 E	35 74
11 19	20 34.51	-67 55.5	0.240	0.918	100.1	19.0	66 E	— 44*	6 30	14 52.66	-10 9.7	1.009	1.798	27.5	20.7	125 E	35 74
11 20	20 53.60	-67 44.7	0.233	0.923	99.3	19.0	67 E	— 45*	7 10	14 57.22	-10 26.3	1.066	1.774	30.8	20.9	117 E	34 74
11 21	21 13.28	-67 24.3	0.226	0.929	98.4	18.9	69 E	— 46*	7 20	15 5.32	-11 1.8	1.127	1.751	33.2	21.1	109 E	32 75
11 22	21 33.32	-66 53.1	0.219	0.935	97.4	18.8	70 E	— 47*	7 30	15 16.66	-11 52.0	1.193	1.730	34.9	21.2	103 E	30 76
11 23	21 53.45	-66 10.2	0.213	0.941	96.3	18.7	71 E	— 48*	8 9	15 30.84	-12 52.1	1.261	1.711	36.0	21.3	97 E	29 77
11 24	22 13.39	-65 14.6	0.206	0.947	95.1	18.6	73 E	— 49*	8 19	15 47.55	-13 57.6	1.330	1.693	36.7	21.5	92 E	27 78*
11 25	22 32.87	-64 5.8	0.200	0.954	93.8	18.4	75 E	— 51*	137911 2000 AB₂₄₆								
11 26	22 51.68	-62 43.2	0.194	0.960	92.3	18.3	76 E	— 53*	4 1	15 51.41	-21 21.8	1.537	2.320	18.9	21.3	131 W	24 85
11 27	23 9.64	-61 6.6	0.189	0.966	90.7	18.2	78 E	— 55*	4 11	15 49.31	-21 36.8	1.392	2.264	16.0	21.0	141 W	23 86
11 28	23 26.61	-59 15.9	0.184	0.973	88.9	18.1	80 E	— 57*	4 21	15 43.58	-21 43.3	1.265	2.206	12.2	20.6	152 W	23 86
11 29	23 42.54	-57 11.3	0.179	0.979	87.1	18.0	82 E	— 59	5 1	15 34.18	-21 39.2	1.160	2.147	7.3	20.1	164 W	23 86
11 30	23 57.39	-54 53.2	0.175	0.986	85.1	17.9	85 E	— 61	5 11	15 21.70	-21 23.1	1.078	2.087	2.0	19.6	176 W	24 85
12 1	0 11.18	-52 22.3	0.171	0.992	82.9	17.8	87 E	— 64	5 16	15 14.65	-21 10.5	1.047	2.056	2.2	19.5	175 E	24 85
12 2	0 23.95	-49 39.3	0.168	0.999	80.7	17.6	90 E	— 66	5 21	15 7.34	-20 55.2	1.022	2.026	5.2	19.6	170 E	24 85
12 3	0 35.75	-46 45.4	0.165	1.006	78.3	17.5	92 E	— 69	5 26	15 0.01	-20 37.9	1.003	1.995	8.4	19.7	163 E	24 85
12 4	0 46.65	-43 42.0	0.163	1.013	75.9	17.4	95 E	1 72	5 31	14 52.94	-20 19.5	0.990	1.963	11.7	19.8	157 E	25 84
12 5	0 56.72	-40 30.6	0.162	1.019	73.4	17.4	98 E	4 75	6 5	14 46.35	-20 1.0	0.983	1.932	15.0	19.8	150 E	25 84
12 6	1 6.03	-37 13.0	0.161	1.026	70.9	17.3	100 E	8 79	6 10	14 40.46	-19 43.5	0.981	1.900	18.2	19.9	144 E	25 84
12 7	1 14.65	-33 51.3	0.161	1.033	68.3	17.2	103 E	11 82	6 15	14 35.44	-19 27.9	0.983	1.868	21.2	20.0	138 E	26 83
12 8	1 22.64	-30 27.4	0.161	1.040	65.8	17.1	106 E	15 86	6 20	14 31.43	-19 15.2	0.989	1.836	24.0	20.0	133 E	26 83
12 9	1 30.06	-27 3.4	0.162	1.047	63.3	17.1	108 E	18 89	6 30	14 26.76	-19 1.7	1.009	1.772	29.1	20.1	122 E	26 83
12 10	1 36.98	-23 41.2	0.164	1.054	60.9	17.1	111 E	21 88	7 10	14 26.72	-19 6.5	1.037	1.708	33.4	20.2	113 E	24 83
12 11	1 43.44	-20 22.6	0.167	1.061	58.6	17.0	113 E	25 84	7 20	14 31.21	-19 30.2	1.067	1.644	36.8	20.3	104 E	22 84
12 12	1 49.48	-17 9.1	0.170	1.068	56.4	17.0	115 E	28 81	7 30	14 40.00	-20 11.3	1.096	1.580	39.6	20.4	97 E	20 84
12 13	1 55.16	-14 1.9	0.174	1.075	54.4	17.0	117 E	31 78	8 9	14 52.80	-21 6.9	1.122	1.518	41.9	20.4	90 E	18 83*
12 14	2 0.49	-11 2.2	0.178	1.083	52.5	17.1	119 E	34 75	8 19	15 9.40	-22 12.9	1.144	1.457	43.8	20.4	85 E	16 79*
12 15	2 5.53	-8 10.4	0.183	1.090	50.8	17.1	121 E	37 72	8 29	15 29.73	-23 24.8	1.159	1.400	45.3	20.4	80 E	15 74*
12 16	2 10.30	-5 27.2	0.188	1.097	49.2	17.1	122 E	40 69	9 8	15 53.69	-24 36.9	1.169	1.346	46.6	20.3	76 E	14 70*
12 17	2 14.83	-2 52.6	0.194	1.104	47.8	17.2	124 E	42 67	9 18	16 21.29	-25 42.5	1.173	1.297	47.7	20.3	73 E	14 67*
12 22	2 34.52	+ 7 53.4	0.230	1.140	42.7	17.5	128 E	53 56	9 28	16 52.50	-26 34.0	1.172	1.254	48.7	20.3	70 E	14 64*
12 27	2 50.77	+15 40.0	0.273	1.177	40.1	17.8	130 E	61 48	10 8	17 27.13	-27 2.9	1.169	1.218	49.5	20.2	68 E	15 62*
1 1	3 4.87	+21 16.9	0.322	1.213	38.9	18.2	129 E	66 43	10 18	18 4.87	-27 0.0	1.164	1.191	50.1	20.2	66 E	16 60*
1 6	3 17.61	+25 24.2	0.375	1.249	38.5	18.6	128 E	70 39	10 23	18 24.73	-26 44.1	1.163	1.181	50.3	20.2	66 E	16 60*
1 8	3 22.45	+26 44.6	0.398	1.263	38.4	18.7	127 E	72 37	10 28	18 45.11	-26 17.4	1.162	1.173	50.4	20.1	65 E	17 59*
1 10	3 27.19	+27 56.5	0.420	1.278	38.4	18.9	126 E	73 36	11 2	19 5.91	-25 39.2	1.162	1.168	50.4	20.1	65 E	18 58*
1 12	3 31.84	+29 9.9	0.444	1.292	38.3	19.0	125 E	74 35	11 7	19 26.98	-24 49.2	1.163	1.166	50.4	20.1	65 E	19 58*
1 14	3 36.43	+29 58.8	0.467	1.306	38.3	19.2	125 E	75 34	11 12	19 48.22	-23 47.3	1.167	1.166	50.2	20.1	65 E	21 57*
1 16	3 40.96	+30 51.0	0.491	1.321	38.3	19.3	124 E	76 33	11 17	20 9.49	-22 33.8	1.172	1.169	50.0	20.1	65 E	22 56*
4 1	15 40.37	-18 23.2	1.673	2.476	16.8	21.4	134 W	27 82	11 22	20 30.69	-21 9.1	1.180	1.175	49.6	20.2	65 E	23 55*
4 11	15 36.64	-18 32.2	1.557	2.447	13.6	21.1	145 W	26 83	11 27	20 51.68	-19 34.3	1.191	1.183	49.1	20.2	65 E	25 54*
4 21	15 29.82	-18 34.1	1.461	2.416	9.6	20.8	156 W	26 83	12 2	21 12.37	-17 50.5	1.205	1.194	48.5	20.2	65 E	27 53*
5 1	15 20.33	-18 28.6	1.389	2.385	4.9	20.4	168 W	27 82	12 7	21 32.69	-15 59.0	1.223	1.207	47.8	20.2	65 E	29 52*
5 6	15 14.85	-18 23.4	1.363	2.369	2.4	20.2	174 W	27 82	12 12	21 52.59	-14 1.4	1.243	1.223	47.1	20.3	65 E	31 50*
5 11	15 9.09	-18 16.8	1.343	2.353	0.4	20.0	179 E	27 82	12 17	22 12.03	-11 59.1	1.268	1.240	46.2	20.3	65 E	33 49*
5 16	15 3.20	-18 9.3	1.330	2.337	3.0	20.2	173 E	27 82	12 22	22 30.99	- 9 53.7	1.296	1.260	45.2	20.4	65 E	35 47*
5 21	14 57.36	-18 1.3	1.324	2.321	5.6	20.3	167 E	27 82	12 27	22 49.46	- 7 46.7	1.328	1.281	44.2	20.5	65 E	37 45*
5 26	14 51.78	-17 53.4	1.323	2.305	8.3	20.4	161 E	27 82	1 1	23 7.43	- 5 39.6	1.363	1.304	43.2	20.5	65 E	39 43*
5 31	14 46.61	-17 46.2	1.330	2.288	10.9	20.5	155 E	27 82	1 6	23 24.92	- 3 33.5	1.402	1.328	42.1	20.6	65 E	40 42*
6 5	14 42.01	-17 40.5	1.341	2.272	13.3	20.6	149 E	27 82	1 11	23 41.96	- 1 29.4	1.444	1.354	41.0	20.7	65 E	42 40*
6 10	14 38.09	-17 36.7	1.358	2.255	15.6	20.7	143 E	27 82	1 16	23 58.56	+ 0 31.7	1.490	1.381	39.9	20.7	64 E	44 38*
6 15	14 34.93	-17 35.2	1.380	2.239	17.8	20.8	138 E	27 82	500026 2011 SS₂₁ </								

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°
500026 2011 SS₂₁ (continuation)									477849 2011 FH₁₅₂ (continuation)								
6 20	15 49.83	-29 30.6	0.508	1.483	19.1	19.4	151 E	15 86	7 15	14 40.99	-31 42.5	1.054	1.737	32.3	21.3	114 E	12* 84
6 25	15 49.52	-29 26.2	0.515	1.475	22.2	19.5	147 E	16 87	7 20	14 43.69	-32 9.2	1.091	1.728	33.5	21.4	110 E	11* 84
6 30	15 50.55	-29 21.4	0.525	1.468	24.9	19.6	142 E	16 87	7 25	14 47.51	-32 37.3	1.128	1.719	34.5	21.5	106 E	9* 83
7 5	15 52.97	-29 17.0	0.538	1.463	27.5	19.7	138 E	16 87	100088 1993 DC								
7 10	15 56.76	-29 13.3	0.552	1.458	29.8	19.8	135 E	16 87	4 1	16 26.14	-17 52.0	2.574	3.237	14.9	21.4	124 W	27 82
7 20	16 8.24	-29 8.0	0.588	1.452	33.6	20.1	128 E	16 87	4 11	16 22.30	-17 50.0	2.475	3.256	12.7	21.3	134 W	27 82
7 30	16 24.46	-29 4.7	0.632	1.451	36.5	20.3	122 E	16* 87	4 21	16 16.13	-17 44.4	2.396	3.275	10.0	21.1	146 W	27 82
8 9	16 44.57	-28 59.8	0.682	1.454	38.5	20.5	117 E	16* 87	5 1	16 7.96	-17 35.3	2.339	3.292	6.8	20.9	157 W	27 82
8 19	17 7.69	-28 48.9	0.739	1.461	39.9	20.7	112 E	16* 87	5 11	15 58.38	-17 23.7	2.311	3.308	3.3	20.7	169 W	28 81
8 29	17 33.06	-28 28.3	0.803	1.473	40.7	21.0	108 E	16* 88	5 21	15 48.15	-17 10.5	2.311	3.323	1.0	20.6	177 E	28 81
9 8	17 59.88	-27 54.8	0.874	1.489	41.0	21.2	104 E	17* 88	5 31	15 38.12	-16 57.9	2.343	3.336	4.1	20.8	166 E	28 81
9 18	18 27.49	-27 6.5	0.951	1.508	40.9	21.4	101 E	18 89	6 10	15 29.10	-16 47.8	2.403	3.349	7.4	21.1	155 E	28 81
408876 2001 TZ₁₃₅									6 20	15 21.70	-16 42.4	2.489	3.361	10.4	21.3	143 E	28 81
4 1	16 20.94	-26 32.4	2.281	2.951	16.4	21.4	123 W	18 89	6 30	15 16.32	-16 43.0	2.598	3.371	12.8	21.5	133 E	28 81
4 11	16 17.19	-26 22.2	2.203	2.988	14.0	21.3	134 W	19 90	363407 2003 QY₁								
4 21	16 10.88	-26 2.4	2.144	3.024	10.9	21.1	145 W	19 90	4 1	16 28.48	-16 39.7	1.207	1.944	25.5	21.2	123 W	28 81
5 1	16 2.47	-25 32.2	2.108	3.059	7.5	21.0	157 W	19 90	4 11	16 34.88	-16 14.6	1.091	1.909	23.1	20.9	132 W	29 80
5 11	15 52.74	-24 52.3	2.098	3.093	3.8	20.8	168 W	20 89	4 21	16 38.13	-15 39.7	0.987	1.875	20.0	20.5	140 W	29 80
5 21	15 42.59	-24 4.8	2.116	3.127	1.4	20.7	176 E	21 88	5 1	16 37.88	-14 56.8	0.898	1.841	15.9	20.2	150 W	30 79
5 31	15 33.01	-23 13.5	2.165	3.159	4.4	21.0	166 E	22 87	5 11	16 34.14	-14 9.3	0.826	1.808	11.0	19.8	160 W	31 78
6 10	15 24.81	-22 22.8	2.241	3.190	7.7	21.2	155 E	23 86	5 16	16 31.08	-13 45.3	0.797	1.793	8.5	19.6	165 W	31 78
6 20	15 18.54	-21 36.8	2.343	3.221	10.7	21.5	144 E	23 86	5 21	16 27.38	-13 22.1	0.773	1.777	6.2	19.4	169 W	32 77
175816 1999 RZ₂₃₀									5 26	16 23.20	-13 0.6	0.754	1.762	4.9	19.2	171 W	32 77
4 1	16 22.64	-18 34.9	1.868	2.569	18.7	21.3	124 W	26 83	5 31	16 18.78	-12 41.7	0.740	1.748	5.6	19.2	170 E	32 77
4 11	16 21.85	-18 43.1	1.735	2.539	16.4	21.0	134 W	26 83	6 5	16 14.34	-12 26.3	0.731	1.734	7.9	19.3	166 E	33 76
4 21	16 18.02	-18 47.5	1.618	2.509	13.3	20.7	145 W	26 83	6 10	16 10.11	-12 15.2	0.727	1.720	10.8	19.4	161 E	33 76
5 1	16 11.16	-18 48.0	1.521	2.477	9.4	20.4	156 W	26 83	6 15	16 6.31	-12 9.0	0.727	1.707	13.8	19.5	156 E	33 76
5 11	16 1.69	-18 44.8	1.448	2.445	4.8	20.1	168 W	26 83	6 20	16 3.16	-12 8.2	0.732	1.694	16.8	19.6	151 E	33 76
5 16	15 56.23	-18 41.9	1.421	2.429	2.4	19.9	174 W	26 83	6 30	15 59.45	-12 23.4	0.752	1.671	22.4	19.8	141 E	33 76
5 21	15 50.47	-18 38.5	1.400	2.412	0.7	19.7	178 E	26 83	7 10	15 59.86	-13 0.0	0.785	1.650	27.2	20.0	132 E	32 77
5 26	15 44.57	-18 34.7	1.387	2.396	2.9	19.8	173 E	26 83	7 20	16 4.59	-13 54.2	0.828	1.632	31.0	20.2	124 E	31* 78
5 31	15 38.73	-18 30.9	1.380	2.379	5.5	19.9	167 E	26 83	7 30	16 13.54	-15 1.0	0.879	1.616	34.0	20.4	117 E	30* 79
6 5	15 33.11	-18 27.7	1.380	2.362	8.1	20.0	161 E	27 82	8 9	16 26.32	-16 14.5	0.935	1.605	36.2	20.6	111 E	28* 80
6 10	15 27.89	-18 25.3	1.386	2.345	10.6	20.1	155 E	27 82	8 19	16 42.47	-17 29.3	0.996	1.596	37.7	20.7	105 E	27* 81
6 15	15 23.19	-18 24.2	1.397	2.328	13.0	20.2	149 E	27 82	8 29	17 1.58	-18 39.9	1.062	1.591	38.7	20.9	100 E	26* 83
6 20	15 19.14	-18 24.8	1.414	2.311	15.2	20.3	143 E	27 82	9 8	17 23.15	-19 41.6	1.132	1.589	39.1	21.0	96 E	25* 84
6 30	15 13.35	-18 32.8	1.462	2.276	19.2	20.5	133 E	26 83	9 18	17 46.75	-20 30.2	1.205	1.591	39.1	21.2	92 E	24* 83*
7 10	15 10.91	-18 30.8	1.524	2.241	22.5	20.6	126 E	26* 83	9 28	18 11.96	-21 2.5	1.283	1.596	38.8	21.3	88 E	24* 80*
7 20	15 11.86	-19 19.3	1.596	2.205	25.0	20.8	113 E	24* 83	10 8	18 38.32	-21 15.9	1.365	1.605	38.2	21.4	84 E	23* 77*
7 30	15 16.08	-19 57.6	1.674	2.170	26.9	20.9	105 E	23* 84	378532 2008 AP₂₈								
8 9	15 23.30	-20 44.0	1.755	2.134	28.1	21.0	97 E	21* 85	4 1	16 29.13	+12 22.2	2.260	2.906	17.1	21.5	121 W	57 52
8 19	15 33.26	-21 36.3	1.837	2.098	28.8	21.1	90 E	19* 83*	4 6	16 28.65	+13 21.5	2.203	2.891	16.5	21.4	125 W	58 51
8 29	15 45.72	-22 32.5	1.917	2.062	29.1	21.2	83 E	17* 77*	4 11	16 27.54	+14 20.9	2.149	2.876	15.9	21.3	128 W	59 50
9 8	16 0.45	-23 29.9	1.994	2.026	29.0	21.2	77 E	16* 71*	4 16	16 25.78	+15 19.7	2.100	2.861	15.3	21.2	131 W	60 49
9 18	16 17.27	-24 26.0	2.067	1.991	28.6	21.2	71 E	15* 65*	4 21	16 23.39	+16 17.0	2.055	2.846	14.7	21.2	134 W	61 48
9 28	16 36.05	-25 18.2	2.135	1.956	27.9	21.2	66 E	14* 60*	4 26	16 20.37	+17 11.5	2.016	2.830	14.2	21.1	136 W	62 47
10 8	16 56.60	-26 3.9	2.198	1.922	27.0	21.2	61 E	13* 55*	5 1	16 16.79	+18 2.1	1.981	2.814	13.8	21.0	138 W	63 46
10 18	17 18.81	-26 40.4	2.254	1.889	26.0	21.2	56 E	13* 50*	5 6	16 12.70	+18 47.7	1.952	2.798	13.5	21.0	140 W	64 45
10 28	17 42.52	-27 5.3	2.305	1.857	24.7	21.2	51 E	12* 45*	5 11	16 8.18	+19 27.4	1.929	2.781	13.4	20.9	140 W	64 45
11 7	18 7.53	-27 16.0	2.351	1.826	23.4	21.2	47 E	12* 41*	5 16	16 3.32	+20 0.0	1.911	2.764	13.6	20.9	140 W	65 44
11 17	18 33.68	-27 10.5	2.391	1.796	22.0	21.1	43 E	12* 36*	5 21	15 58.23	+20 24.8	1.899	2.747	13.9	20.9	139 W	65 44
11 27	19 0.73	-26 47.0	2.425	1.768	20.5	21.1	39 E	12* 32*	5 26	15 53.05	+20 41.2	1.892	2.730	14.4	20.9	138 E	66 43
12 7	19 28.45	-26 4.3	2.455	1.742	18.9	21.0	35 E	11* 27*	5 31	15 47.90	+20 48.8	1.890	2.712	15.1	20.9	136 E	66 43
12 17	19 56.60	-25 1.6	2.482	1.719	17.3	21.0	31 E	11* 23*	6 5	15 42.91	+20 47.5	1.894	2.694	15.9	20.9	133 E	66 43
12 27	20 24.96	-23 39.1	2.504	1.697	15.7	20.9	28 E	11* 19*	6 10	15 38.21	+20 37.4	1.902	2.676	16.8	20.9	131 E	66 43
1 6	20 53.31	-21 57.2	2.524	1.678	14.0	20.8	24 E	10* 16*	6 15	15 33.88	+20 19.1	1.914	2.657	17.7	21.0	127 E	65 44
1 16	21 21.51	-19 57.3	2.541	1.662	12.4	20.8	21 E	8* 12*	6 20	15 30.04	+19 52.8	1.931	2.638	18.6	21.0	124 E	65 44
477849 2011 FH₁₅₂									6 25	15 26.74	+19 19.2	1.951	2.619	19.5	21.0	121 E	64 45
4 1	16 24.49	-17 56.4	1.142	1.893	25.9	21.5	124 W	27 82	6 30	15 24.05	+18 39.2	1.974	2.600	20.4	21.1	117 E	64 45
4 11	16 23.56	-19 29.6	1.043	1.882	22.6	21.1	134 W	26 83	7 5	15 22.01	+17 53.5	2.000	2.580	21.2	21.1	114 E	63 46
4 21	16 17.86	-21 12.3	0.957	1.870	18.1	20.8	145 W	24 85	7 10	15 20.63	+17 2.9	2.028	2.560	21.9	21.1	110 E	62* 47
5 1	16 7.04	-23 1.6	0.889	1.857	12.5	20.4	157 W	22 87	7 15	15 19.92	+16 8.1	2.058	2.540	22.6	21.2	106 E	60* 48
5 6	15 59.84	-23 56.8	0.863	1.851	9.4	20.2	163 W	21 88	7 20	15 19.87	+15 9.8	2.090	2.519	23.2	21.2	103 E	59* 49
5 11	15 51.64	-24 50.8	0.843	1.844	6.3	20.0	168 W	20 89	7 25	15 20.48	+14 8.6	2.123	2.499	23.6	21.2	99 E	57* 50
5 16	15 42.67	-25 42.3	0.829	1.837	3.9	19.9	173 W	19 90	7 30	15 21.73	+13 5.1	2.157	2.478	24.0	21.3		

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°
378532 2008 AP₂₈ (continuation)										130480 2000 QE₉₇ (continuation)									
10 3	16 25.71	-1 12.0	2.555	2.183	22.7	21.3	57 E	33*	43*	7 10	15 34.63	-19 30.9	2.123	2.865	16.2	21.2	128 E	25*	84
10 8	16 33.64	-2 11.5	2.577	2.159	22.2	21.3	55 E	32*	41*	7 15	15 33.59	-19 30.4	2.174	2.858	17.3	21.3	123 E	25*	84
10 13	16 41.93	-3 9.3	2.597	2.135	21.6	21.3	52 E	31*	38*	7 20	15 33.20	-19 32.0	2.227	2.852	18.3	21.4	118 E	25*	84
10 18	16 50.57	-4 5.1	2.615	2.111	21.1	21.2	50 E	30*	36*	7 25	15 33.45	-19 35.6	2.283	2.846	19.1	21.4	114 E	24*	84
10 23	16 59.56	-4 58.8	2.632	2.086	20.5	21.2	47 E	29*	33*	361548 2007 PS₄₂									
10 28	17 8.88	-5 50.1	2.646	2.062	19.8	21.2	45 E	28*	31*	4 1	16 55.71	-13 11.1	1.485	2.132	24.7	21.4	117 W	32	77
11 2	17 18.53	-6 39.0	2.659	2.037	19.1	21.1	42 E	26*	28*	4 11	17 1.41	-12 31.4	1.356	2.099	23.0	21.2	125 W	32	77
11 7	17 28.50	-7 25.3	2.669	2.012	18.4	21.1	40 E	25*	25*	4 21	17 4.17	-11 44.9	1.238	2.066	20.5	20.9	134 W	33	76
11 12	17 38.79	-8 8.8	2.678	1.987	17.7	21.1	38 E	24*	23*	5 1	17 3.61	-10 54.3	1.134	2.033	17.3	20.5	143 W	34	75
11 17	17 49.38	-8 49.5	2.685	1.962	16.9	21.0	35 E	23*	20*	5 11	16 59.63	-10 3.8	1.047	2.000	13.3	20.2	153 W	35	74
11 22	18 0.28	-9 27.1	2.690	1.938	16.1	21.0	33 E	22*	17*	5 16	16 56.41	-9 40.1	1.011	1.983	11.3	20.0	157 W	35	74
11 27	18 11.47	-10 1.6	2.692	1.913	15.3	20.9	31 E	21*	15*	5 21	16 52.47	-9 18.4	0.980	1.967	9.3	19.8	162 W	36	73
12 2	18 22.94	-10 32.8	2.694	1.888	14.5	20.8	29 E	19*	12*	5 26	16 47.92	-8 59.6	0.954	1.950	7.7	19.7	165 W	36	73
12 7	18 34.69	-11 0.6	2.693	1.863	13.6	20.8	26 E	18*	10*	5 31	16 42.93	-8 44.5	0.933	1.934	7.0	19.6	167 W	36	73
12 12	18 46.70	-11 25.0	2.690	1.839	12.7	20.7	24 E	17*	8*	6 5	16 37.70	-8 33.8	0.919	1.918	7.6	19.6	166 E	36	73
12 17	18 58.98	-11 45.7	2.686	1.814	11.8	20.7	22 E	15*	5*	6 10	16 32.43	-8 28.1	0.909	1.902	9.3	19.6	162 E	37	72
12 22	19 11.51	-12 2.7	2.680	1.790	10.9	20.6	20 E	13*	3*	6 20	16 22.61	-8 33.5	0.906	1.870	14.1	19.7	153 E	36	73
12 27	19 24.28	-12 16.0	2.673	1.766	10.0	20.5	18 E	12*	1*	6 30	16 15.09	-9 2.1	0.921	1.840	19.3	19.9	143 E	36	73
1 1	19 37.27	-12 25.5	2.664	1.742	9.1	20.4	16 E	10*	—	7 10	16 11.00	-9 52.2	0.952	1.810	24.0	20.1	134 E	35	74
1 6	19 50.49	-12 31.1	2.654	1.718	8.1	20.4	14 E	8*	—	7 20	16 10.89	-10 59.9	0.994	1.781	27.9	20.3	125 E	34	75
1 11	20 3.92	-12 32.9	2.642	1.695	7.2	20.3	12 E	6*	—	7 30	16 14.88	-12 20.5	1.046	1.754	31.1	20.5	117 E	32*	76
1 16	20 17.56	-12 30.9	2.629	1.672	6.2	20.2	11 E	5*	—	8 9	16 22.79	-13 48.9	1.103	1.729	33.6	20.6	109 E	31*	78
486725 2014 DZ₁₇										8 19	16 34.29	-15 20.4	1.165	1.706	35.3	20.7	103 E	29*	79
4 1	16 33.48	-27 48.2	1.037	1.767	29.2	21.5	120 W	17	88	8 29	16 49.05	-16 50.4	1.229	1.684	36.5	20.9	97 E	27*	81
4 11	16 32.68	-29 19.9	0.989	1.804	25.2	21.3	130 W	16	87	9 8	17 6.69	-18 14.8	1.295	1.665	37.2	21.0	92 E	25*	81*
4 21	16 26.74	-30 42.1	0.953	1.842	20.4	21.1	140 W	14	85	9 18	17 26.88	-19 29.7	1.361	1.648	37.5	21.1	87 E	24*	79*
5 1	16 16.02	-31 47.3	0.932	1.880	14.9	20.9	151 W	13	84	9 28	17 49.31	-20 31.5	1.429	1.634	37.4	21.2	82 E	23*	75*
5 11	16 1.87	-32 27.8	0.932	1.917	9.6	20.8	162 W	13	84	10 8	18 13.62	-21 17.0	1.498	1.623	37.1	21.2	78 E	23*	71*
5 21	15 46.45	-32 39.7	0.954	1.954	6.5	20.7	167 E	12	83	10 18	18 39.47	-21 43.6	1.567	1.615	36.5	21.3	74 E	22*	67*
5 31	15 32.20	-32 25.8	0.999	1.991	8.6	21.0	163 E	13	84	10 28	19 6.52	-21 49.4	1.638	1.610	35.6	21.4	71 E	22*	63*
6 10	15 21.11	-31 55.8	1.066	2.026	12.9	21.3	154 E	13	84	11 7	19 34.38	-21 33.3	1.709	1.608	34.6	21.4	67 E	23*	59*
467365 2003 WB₂₆										11 17	20 2.71	-20 54.9	1.782	1.609	33.4	21.5	64 E	23*	54*
4 1	16 44.08	-9 33.5	2.013	2.656	19.1	21.4	120 W	35	74	378100 2006 UZ₁₇₁									
4 11	16 43.09	-9 46.6	1.872	2.626	17.1	21.2	130 W	35	74	4 1	17 1.94	-20 5.3	1.443	2.074	25.9	21.5	115 W	25	84
4 21	16 39.09	-10 3.5	1.745	2.596	14.4	20.9	140 W	35	74	4 11	17 10.03	-18 50.1	1.309	2.037	24.4	21.2	123 W	26	83
5 1	16 32.00	-10 26.7	1.638	2.565	11.1	20.6	151 W	35	74	4 21	17 15.33	-17 15.3	1.187	2.000	22.1	20.8	132 W	28	81
5 11	16 22.05	-10 58.1	1.554	2.533	7.2	20.3	162 W	34	75	5 1	17 17.41	-15 20.5	1.079	1.964	19.0	20.5	141 W	30	79
5 21	16 9.90	-11 38.9	1.496	2.500	3.9	20.0	170 W	33	76	5 11	17 16.08	-13 7.5	0.987	1.929	15.3	20.1	150 W	32	77
5 31	15 56.64	-12 29.3	1.467	2.466	5.2	20.0	167 E	33	76	5 16	17 14.15	-11 55.6	0.949	1.911	13.2	20.0	154 W	33	76
6 10	15 43.63	-13 28.8	1.466	2.431	9.5	20.2	157 E	32	77	5 21	17 11.45	-10 41.1	0.915	1.894	11.2	19.8	159 W	34	75
6 20	15 32.19	-14 36.2	1.490	2.396	14.0	20.4	145 E	30	79	5 26	17 8.05	-9 25.5	0.887	1.877	9.5	19.6	162 W	36	73
6 30	15 23.36	-15 50.6	1.537	2.360	18.0	20.5	134 E	29	80	5 31	17 4.12	-8 10.4	0.864	1.860	8.5	19.5	164 W	37	72
7 10	15 17.75	-17 10.8	1.601	2.324	21.4	20.7	124 E	28*	81	6 5	16 59.83	-6 57.3	0.847	1.844	8.6	19.5	164 W	38	71
7 20	15 15.54	-18 36.1	1.677	2.287	24.0	20.8	114 E	25*	83	6 10	16 55.37	-5 48.2	0.835	1.828	9.7	19.5	162 E	39	70
7 30	15 16.70	-20 5.6	1.761	2.249	25.8	21.0	105 E	22*	84	6 15	16 50.93	-4 44.6	0.828	1.812	11.7	19.5	159 E	40	69
8 9	15 21.01	-21 38.3	1.848	2.212	27.1	21.1	97 E	20*	86	6 20	16 46.74	-3 48.1	0.826	1.797	14.2	19.6	154 E	41	68
8 19	15 28.22	-23 13.3	1.936	2.173	27.8	21.2	89 E	17*	83*	6 25	16 42.99	-2 59.9	0.829	1.782	16.7	19.6	150 E	42	67
8 29	15 38.13	-24 49.2	2.022	2.135	28.0	21.2	82 E	15*	76*	6 30	16 39.89	-2 20.7	0.836	1.768	19.3	19.7	145 E	43	66
9 8	15 50.50	-26 24.7	2.103	2.096	27.8	21.3	76 E	12*	69*	7 10	16 36.12	-1 30.1	0.862	1.740	24.1	19.9	136 E	43	66
9 18	16 5.19	-27 58.1	2.180	2.058	27.2	21.3	70 E	10*	63*	7 20	16 36.08	-1 14.4	0.899	1.715	28.2	20.1	127 E	44	65
9 28	16 22.10	-29 27.7	2.249	2.019	26.5	21.3	64 E	9*	57*	7 30	16 40.02	-1 28.2	0.945	1.693	31.5	20.3	119 E	44	65
10 8	16 41.10	-30 51.4	2.311	1.981	25.5	21.3	58 E	7*	52*	8 4	16 43.46	-1 43.8	0.970	1.682	32.9	20.3	116 E	43*	66
10 18	17 2.13	-32 6.9	2.364	1.943	24.3	21.2	53 E	6*	47*	8 9	16 47.81	-2 4.1	0.997	1.673	34.0	20.4	113 E	43*	66
10 28	17 25.13	-33 11.8	2.410	1.905	23.0	21.2	49 E	5*	42*	8 14	16 53.03	-2 28.1	1.024	1.664	35.0	20.5	109 E	42*	66
11 7	17 49.96	-34 3.4	2.447	1.869	21.7	21.2	44 E	4*	38*	8 19	16 59.09	-2 55.0	1.053	1.655	35.9	20.6	107 E	42*	67
11 17	18 16.52	-34 39.0	2.477	1.833	20.3	21.1	40 E	3*	34*	8 24	17 5.95	-3 24.1	1.082	1.648	36.6	20.6	104 E	41*	67
11 27	18 44.60	-34 56.0	2.499	1.799	18.9	21.0	36 E	3*	30*	8 29	17 13.55	-3 54.5	1.112	1.641	37.1	20.7	101 E	41*	68
12 7	19 13.96	-34 51.7																	

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°
200701 2001 UN₇₉									425528 2010 OJ								
<i>(continuation)</i>									<i>(continuation)</i>								
5 11	16 34.23	-39 42.5	1.653	2.588	10.6	20.8	152 W	5 76	5 11	17 4.40	-6 21.5	1.405	2.337	12.4	20.2	150 W	39 70
5 21	16 19.13	-40 40.3	1.649	2.618	8.1	20.7	159 W	4 75	5 21	16 54.34	-7 3.6	1.325	2.302	8.7	19.9	160 W	38 71
5 31	16 3.31	-41 10.3	1.672	2.647	7.6	20.8	160 E	4 75	5 31	16 41.92	-8 5.7	1.269	2.266	6.2	19.7	166 W	37 72
6 10	15 48.61	-41 14.1	1.722	2.675	9.4	20.9	155 E	4 75	6 10	16 28.41	-9 27.7	1.241	2.230	7.8	19.7	163 E	36 73
6 20	15 36.49	-40 57.9	1.797	2.701	12.1	21.2	146 E	4 75	6 15	16 21.71	-10 15.4	1.236	2.212	9.8	19.7	158 E	35 74
6 30	15 27.85	-40 30.2	1.895	2.727	14.7	21.4	137 E	4 75	6 20	16 15.30	-11 6.9	1.238	2.194	12.0	19.8	153 E	34 75
32906 1994 RH									425528 2010 OJ								
4 1	17 7.77	-45 20.7	2.761	3.237	16.9	21.5	110 W	- 71	6 25	16 9.37	-12 1.6	1.246	2.176	14.4	19.9	148 E	33 76
4 6	17 7.53	-45 53.4	2.698	3.238	16.4	21.4	114 W	- 70	6 30	16 4.09	-12 59.0	1.260	2.157	16.7	20.0	142 E	32 77
4 11	17 6.49	-46 25.2	2.638	3.238	15.8	21.3	118 W	- 70	7 5	15 59.58	-13 58.3	1.279	2.139	18.9	20.0	137 E	31 78
4 16	17 4.62	-46 55.6	2.581	3.238	15.1	21.2	123 W	- 69	7 10	15 55.93	-14 59.1	1.302	2.120	20.9	20.1	132 E	30 79
4 21	17 1.88	-47 24.1	2.527	3.237	14.3	21.2	127 W	- 69	7 20	15 51.39	-17 3.4	1.359	2.083	24.5	20.3	122 E	28* 81
4 26	16 58.28	-47 49.8	2.478	3.236	13.4	21.1	132 W	- 68	7 30	15 50.72	-19 9.2	1.428	2.046	27.3	20.4	113 E	28* 83
5 1	16 53.84	-48 12.2	2.433	3.235	12.5	21.0	136 W	- 68	8 9	15 53.79	-21 14.6	1.503	2.009	29.3	20.6	104 E	22* 85
5 6	16 48.63	-48 30.3	2.393	3.234	11.5	20.9	140 W	- 67	8 19	16 0.38	-23 17.9	1.582	1.972	30.7	20.7	97 E	19* 87
5 11	16 42.72	-48 43.5	2.359	3.232	10.6	20.9	144 W	- 67	8 29	16 10.25	-25 17.8	1.661	1.936	31.4	20.8	89 E	17* 83*
5 16	16 36.22	-48 51.0	2.331	3.230	9.7	20.8	148 W	- 67	9 8	16 23.14	-27 12.7	1.738	1.900	31.8	20.8	83 E	14* 77*
5 21	16 29.28	-48 52.3	2.309	3.227	8.9	20.8	150 W	- 67	9 18	16 38.85	-29 0.9	1.812	1.865	31.7	20.9	77 E	12* 71*
5 26	16 22.07	-48 47.1	2.293	3.225	8.4	20.7	152 W	- 67	9 28	16 57.23	-30 40.4	1.882	1.831	31.3	20.9	72 E	10* 65*
5 31	16 14.79	-48 35.1	2.285	3.222	8.2	20.7	153 E	- 67	10 8	17 18.10	-32 8.6	1.947	1.798	30.6	20.9	66 E	9* 60*
6 5	16 7.62	-48 16.8	2.283	3.218	8.3	20.7	153 E	- 68	10 18	17 41.33	-33 22.8	2.006	1.767	29.8	20.9	62 E	8* 55*
6 10	16 0.75	-47 52.5	2.288	3.215	8.7	20.7	151 E	- 68	10 28	18 6.74	-34 20.2	2.059	1.737	28.8	20.9	57 E	7* 51*
6 15	15 54.34	-47 22.9	2.299	3.211	9.4	20.8	149 E	- 69	11 7	18 34.10	-34 57.9	2.106	1.710	27.7	20.9	53 E	7* 47*
6 20	15 48.52	-46 48.9	2.317	3.207	10.3	20.8	146 E	- 69	11 17	19 3.14	-35 12.9	2.148	1.684	26.5	20.9	50 E	6* 44*
6 25	15 43.39	-46 11.5	2.340	3.202	11.3	20.9	142 E	- 70	11 27	19 33.51	-35 2.8	2.186	1.661	25.3	20.9	46 E	6* 40*
6 30	15 39.05	-45 31.8	2.370	3.197	12.3	20.9	138 E	- 70	12 7	20 4.79	-34 26.0	2.219	1.641	24.1	20.8	43 E	7* 37*
7 5	15 35.53	-44 50.7	2.405	3.192	13.3	21.0	134 E	- 71	12 17	20 36.58	-33 21.6	2.249	1.623	22.9	20.8	40 E	7* 34*
7 10	15 32.83	-44 9.2	2.444	3.186	14.3	21.1	129 E	1* 72	12 27	21 8.45	-31 49.7	2.277	1.609	21.7	20.8	37 E	7* 31*
7 15	15 30.95	-43 28.0	2.488	3.181	15.2	21.1	125 E	1* 73	1 6	21 40.05	-29 51.9	2.304	1.598	20.6	20.7	35 E	8* 28*
7 20	15 29.88	-42 48.0	2.536	3.174	16.0	21.2	120 E	2* 73	1 16	22 11.12	-27 30.2	2.330	1.591	19.4	20.7	32 E	8* 26*
7 25	15 29.59	-42 9.5	2.587	3.168	16.7	21.3	116 E	2* 74	394066 2005 XU₇₇								
7 30	15 30.04	-41 33.0	2.640	3.161	17.3	21.3	112 E	2* 74	4 1	17 16.84	-10 10.7	3.249	3.736	14.4	21.4	112 W	35 74
8 4	15 31.18	-40 58.9	2.696	3.154	17.9	21.4	108 E	2* 75	4 11	17 16.75	-9 57.2	3.079	3.700	13.4	21.3	121 W	35 74
8 9	15 32.97	-40 27.3	2.754	3.147	18.3	21.4	103 E	2* 76	4 21	17 14.70	-9 44.1	2.923	3.663	11.9	21.1	131 W	35 74
8 14	15 35.37	-39 58.1	2.813	3.139	18.6	21.5	99 E	2* 76	5 1	17 10.64	-9 32.8	2.784	3.626	10.0	20.9	141 W	35 74
85848 1998 YP₂₉									5 11	17 4.69	-9 25.0	2.668	3.587	7.7	20.7	151 W	36 73
4 1	17 9.02	-31 13.9	1.816	2.381	22.9	21.4	112 W	14 85	5 21	16 57.11	-9 22.3	2.576	3.548	5.4	20.4	161 W	36 73
4 11	17 13.67	-31 44.1	1.675	2.352	21.5	21.1	121 W	13 84	5 31	16 48.38	-9 26.2	2.513	3.508	3.7	20.3	167 W	36 73
4 21	17 15.18	-32 10.3	1.545	2.322	19.3	20.9	130 W	13 84	6 10	16 39.13	-9 37.8	2.479	3.468	4.5	20.3	164 E	35 74
5 1	17 13.12	-32 30.4	1.428	2.292	16.5	20.6	140 W	12 83	6 20	16 30.08	-9 57.6	2.474	3.426	7.0	20.4	156 E	35 74
5 11	17 7.36	-32 40.9	1.328	2.261	12.8	20.2	150 W	12 83	6 30	16 21.94	-10 25.9	2.497	3.384	9.8	20.5	145 E	35 74
5 16	17 3.13	-32 41.2	1.286	2.245	10.8	20.1	155 W	12 83	7 10	16 15.29	-11 2.1	2.543	3.341	12.4	20.6	135 E	34 75
5 21	16 58.12	-32 37.2	1.249	2.229	8.6	19.9	161 W	12 83	7 20	16 10.54	-11 45.4	2.608	3.297	14.6	20.7	125 E	33 76
5 26	16 52.44	-32 28.6	1.218	2.213	6.6	19.8	166 W	13 84	7 30	16 7.93	-12 34.8	2.689	3.252	16.4	20.8	115 E	32* 77
5 31	16 46.28	-32 14.9	1.193	2.197	5.0	19.6	169 W	13 84	8 9	16 7.52	-13 28.9	2.779	3.207	17.7	20.9	106 E	30* 77
6 5	16 39.85	-31 56.2	1.174	2.181	4.6	19.5	170 E	13 84	8 19	16 9.28	-14 26.7	2.876	3.161	18.5	20.9	97 E	28* 78
6 10	16 33.38	-31 32.6	1.162	2.165	5.7	19.6	168 E	13 84	8 29	16 13.12	-15 27.0	2.975	3.114	18.9	21.0	88 E	26* 78*
6 15	16 27.10	-31 4.8	1.156	2.148	7.9	19.6	163 E	14 85	9 8	16 18.88	-16 28.5	3.072	3.066	18.9	21.0	80 E	24* 72*
6 20	16 21.23	-30 33.5	1.155	2.132	10.3	19.7	158 E	14 85	9 18	16 26.43	-17 30.3	3.164	3.018	18.5	21.1	72 E	22* 66*
6 25	16 15.98	-29 59.8	1.161	2.115	12.8	19.8	153 E	15 86	9 28	16 35.63	-18 31.3	3.250	2.969	17.8	21.1	65 E	20* 58*
6 30	16 11.53	-29 24.9	1.171	2.098	15.3	19.9	147 E	16 87	10 8	16 46.34	-19 30.4	3.326	2.919	16.8	21.0	58 E	18* 51*
7 5	16 7.99	-28 50.0	1.186	2.082	17.6	20.0	142 E	16 87	10 18	16 58.45	-20 26.7	3.392	2.868	15.6	21.0	51 E	16* 44*
7 10	16 5.43	-28 16.0	1.206	2.065	19.9	20.1	136 E	17 88	10 28	17 11.86	-21 19.2	3.445	2.817	14.2	20.9	44 E	14* 37*
7 20	16 3.39	-27 13.9	1.256	2.031	23.7	20.2	126 E	18* 89	11 7	17 26.47	-22 7.1	3.485	2.766	12.6	20.9	38 E	12* 30*
7 30	16 5.45	-26 22.9	1.317	1.997	26.9	20.4	117 E	18* 90	11 17	17 42.19	-22 49.4	3.512	2.714	10.8	20.8	31 E	10* 24*
8 9	16 11.32	-25 44.0	1.384	1.964	29.2	20.5	109 E	18* 90	11 27	17 58.94	-23 25.4	3.524	2.661	9.0	20.7	25 E	8* 17*
8 19	16 20.59	-25 15.8	1.456	1.931	30.9	20.7	101 E	18* 89	12 7	18 16.65	-23 54.2	3.521	2.608	7.0	20.5	19 E	5* 11*
8 29	16 32.89	-24 55.9	1.530	1.898	32.0	20.8	94 E	18* 88*	12 17	18 35.24	-24 15.1	3.504	2.554	4.9	20.4	13 E	2* 6*
9 8	16 47.81	-24 40.9	1.603	1.865	32.7	20.9	88 E	18* 82*	12 27	18 54.63	-24 27.5	3.473	2.500	2.8	20.2	7 E	- 1*
9 18	17 5.04	-24 27.2	1.675	1.834	32.9	20.9	82 E	18* 76*	1 6	19 14.76	-24 30.9	3.428	2.446	1.0	20.0	3 E	- -
9 28	17 24.30	-24 11.4	1.745	1.803	32.8	21.0	77 E	18* 71*	1 16	19 35.56	-24 25.0	3.370	2.392	2.0	20.0	5 W	- -
10 8	17 45.29	-23 50.1	1.811	1.774	32.3	21.0	72 E	19* 65*	368284 2002 NH₃₁								
10 18	18 7.79	-23 20.4	1.875	1.746	31.7	21.0	67 E	19* 60*	4 1	17 23.62	-27 25.0	1.953	2.473	22.4	21.5	109 W	18 89
10 28	18 31.55	-22 39.7	1.934	1.719	30.9	21.0	63 E	20* 55*	4 11	17 29.06	-27 18.8	1.803	2.440	21.2	21.3	118 W	18 89
11 7	18 56.32	-21 45.7	1.990	1.694	29.9	21.0	58 E	21* 50*	4 21	17 31.72	-27 6.4	1.662	2.408	19.4	21.0	127 W	18 89
11 17	19 21.89																

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°	
368284 2002 NH₃₁ (continuation)									155341 2006 SA₂₁₈ (continuation)									
7 20	16 27.43	-19 36.8	1.286	2.096	21.5	20.2	131 E	25 84	8 24	16 39.55	-5 46.9	1.229	1.694	36.3	21.3	98 E	38*	70
7 30	16 27.48	-18 57.1	1.345	2.061	24.9	20.4	121 E	26* 83	8 29	16 44.77	-7 15.8	1.265	1.682	36.8	21.3	95 E	36*	71
8 9	16 31.15	-18 30.6	1.411	2.027	27.6	20.5	112 E	26* 83	9 3	16 50.73	-8 41.7	1.301	1.669	37.2	21.4	92 E	34*	73*
8 19	16 38.18	-18 15.2	1.484	1.992	29.5	20.6	104 E	26* 82	9 8	16 57.38	-10 4.6	1.337	1.656	37.5	21.4	89 E	33*	73*
8 29	16 48.26	-18 8.3	1.559	1.959	30.8	20.7	97 E	26* 82	9 13	17 4.69	-11 24.0	1.373	1.643	37.7	21.5	86 E	31*	73*
9 8	17 1.02	-18 6.4	1.634	1.926	31.5	20.8	90 E	25* 81*	506409 2017 SF₁₃									
9 18	17 16.16	-18 6.2	1.709	1.894	31.9	20.9	84 E	25* 76*	4 1	17 46.63	-14 43.8	1.260	1.794	32.6	21.4	105 W	30	79
9 28	17 33.40	-18 4.3	1.781	1.864	31.8	21.0	79 E	25* 71*	4 11	18 2.72	-14 0.9	1.149	1.768	32.1	21.2	110 W	31	78
10 8	17 52.48	-17 57.6	1.850	1.835	31.5	21.0	73 E	25* 65*	4 21	18 16.94	-13 10.1	1.046	1.743	31.1	20.9	116 W	32	77
10 18	18 13.16	-17 43.4	1.917	1.807	30.9	21.0	68 E	25* 60*	5 1	18 28.79	-12 14.9	0.950	1.720	29.4	20.7	123 W	33	76
10 28	18 35.23	-17 19.2	1.979	1.781	30.1	21.0	64 E	25* 55*	5 11	18 37.85	-11 20.2	0.864	1.700	27.1	20.4	130 W	34	75
11 7	18 58.44	-16 43.1	2.039	1.757	29.1	21.0	59 E	25* 49*	5 16	18 41.20	-10 54.7	0.825	1.690	25.6	20.2	134 W	34	75
11 17	19 22.61	-15 53.4	2.095	1.735	28.0	21.0	55 E	26* 44*	5 21	18 43.68	-10 31.7	0.789	1.681	24.0	20.0	138 W	34	75
11 27	19 47.52	-14 49.1	2.147	1.716	26.7	21.0	51 E	27* 38*	5 26	18 45.26	-10 11.9	0.755	1.673	22.1	19.9	142 W	35	74
12 7	20 13.02	-13 29.9	2.198	1.699	25.4	21.0	48 E	27* 33*	5 31	18 45.94	-9 56.5	0.725	1.665	20.0	19.7	146 W	35	74
12 17	20 38.89	-11 55.8	2.246	1.685	24.0	21.0	44 E	27* 28*	6 5	18 45.73	-9 46.2	0.699	1.658	17.8	19.5	150 W	35	74
12 27	21 5.01	-10 7.5	2.292	1.674	22.5	21.0	41 E	27* 23*	6 10	18 44.69	-9 41.8	0.676	1.651	15.4	19.4	154 W	35	74
1 6	21 31.24	-8 6.4	2.337	1.666	21.0	21.0	37 E	26* 19*	6 15	18 42.88	-9 44.1	0.657	1.645	13.0	19.2	159 W	35	74
1 16	21 57.52	-5 53.9	2.381	1.661	19.4	21.0	34 E	25* 15*	6 20	18 40.43	-9 53.5	0.642	1.640	10.6	19.1	163 W	35	74
209949 2006 FH₁₂									6 30	18 34.32	-10 34.4	0.625	1.632	7.8	18.9	167 E	34	75
4 1	17 44.71	-20 51.2	1.846	2.316	24.6	21.4	105 W	24 85	7 10	18 28.11	-11 41.9	0.625	1.627	9.8	19.0	164 E	33	76
4 11	17 52.60	-20 32.7	1.700	2.286	23.8	21.2	113 W	24 85	7 20	18 23.56	-13 8.7	0.643	1.625	14.6	19.2	156 E	32	77
4 21	17 58.03	-20 10.2	1.561	2.255	22.3	20.9	121 W	25 84	7 25	18 22.39	-13 56.4	0.658	1.625	17.2	19.4	152 E	31	78
5 1	18 0.56	-19 44.7	1.433	2.224	20.1	20.6	131 W	25 84	7 30	18 22.15	-14 45.2	0.676	1.626	19.7	19.5	147 E	30	79
5 11	17 59.86	-19 17.4	1.318	2.192	17.1	20.3	140 W	26 83	8 4	18 22.90	-15 34.0	0.698	1.628	22.0	19.6	143 E	29	80
5 21	17 55.75	-18 49.2	1.220	2.161	13.2	20.0	151 W	26 83	8 9	18 24.68	-16 21.8	0.724	1.630	24.1	19.8	139 E	29	80
5 31	17 48.38	-18 21.2	1.142	2.128	8.6	19.6	162 W	27 82	8 14	18 27.46	-17 7.6	0.752	1.633	26.1	19.9	135 E	28	81
6 10	17 38.44	-17 54.4	1.086	2.096	3.7	19.2	172 W	27 82	8 19	18 31.25	-17 50.8	0.784	1.637	27.8	20.1	131 E	27	82
6 15	17 32.86	-17 42.1	1.067	2.080	2.7	19.1	174 E	27 82	8 29	18 41.63	-19 6.6	0.854	1.647	30.6	20.4	124 E	26	83
6 20	17 27.12	-17 30.7	1.054	2.064	4.3	19.2	171 E	27 82	9 8	18 55.30	-20 5.7	0.934	1.660	32.6	20.6	117 E	25	84
6 25	17 21.45	-17 20.7	1.047	2.047	6.9	19.3	166 E	28 81	9 18	19 11.61	-20 45.9	1.022	1.675	33.9	20.9	111 E	24	85
6 30	17 16.05	-17 12.3	1.045	2.031	9.8	19.4	160 E	28 81	9 28	19 30.03	-21 6.1	1.118	1.693	34.7	21.1	106 E	24	85
7 5	17 11.14	-17 6.0	1.049	2.015	12.6	19.5	154 E	28 81	10 8	19 49.97	-21 6.1	1.220	1.713	35.0	21.3	101 E	24	85
7 10	17 6.87	-17 2.0	1.059	1.999	15.3	19.6	149 E	28 81	250308 2003 QT₆₇									
7 20	17 0.79	-17 1.4	1.090	1.967	20.2	19.8	138 E	28 81	4 1	17 47.31	-18 46.9	1.639	2.121	27.1	21.4	104 W	26	83
7 30	16 58.53	-17 11.0	1.137	1.935	24.4	19.9	128 E	28 81	4 11	17 58.11	-18 20.5	1.500	2.089	26.5	21.2	112 W	27	82
8 9	17 0.29	-17 29.8	1.193	1.904	27.8	20.1	119 E	28 81	4 21	18 6.70	-17 48.8	1.368	2.056	25.2	20.9	119 W	27	82
8 19	17 5.90	-17 55.3	1.257	1.873	30.3	20.3	111 E	27 82	5 1	18 12.64	-17 13.5	1.245	2.023	23.3	20.6	128 W	28	81
8 29	17 15.11	-18 24.6	1.326	1.844	32.2	20.4	103 E	26* 82	5 11	18 15.54	-16 37.0	1.135	1.991	20.5	20.3	136 W	28	81
9 8	17 27.50	-18 54.4	1.396	1.815	33.5	20.5	97 E	26* 83	5 21	18 15.04	-16 1.7	1.038	1.959	16.9	19.9	146 W	29	80
9 18	17 42.71	-19 21.2	1.467	1.788	34.2	20.6	91 E	25* 82*	5 31	18 11.04	-15 30.7	0.958	1.928	12.5	19.6	156 W	29	80
9 28	18 0.41	-19 41.9	1.538	1.762	34.5	20.7	85 E	25* 77*	6 10	18 3.94	-15 6.8	0.897	1.897	7.6	19.2	166 W	30	79
10 8	18 20.24	-19 53.4	1.607	1.737	34.5	20.8	80 E	24* 72*	6 15	17 59.50	-14 58.4	0.874	1.882	5.5	19.0	170 W	30	79
10 18	18 41.90	-19 53.0	1.675	1.715	34.2	20.8	75 E	24* 67*	6 20	17 54.67	-14 52.8	0.857	1.868	4.6	18.9	171 E	30	79
10 28	19 5.09	-19 38.6	1.742	1.694	33.6	20.9	71 E	25* 62*	6 25	17 49.67	-14 50.2	0.845	1.853	5.8	18.9	169 E	30	79
11 7	19 29.49	-19 8.2	1.806	1.676	32.8	20.9	66 E	25* 57*	6 30	17 44.75	-14 50.9	0.838	1.839	8.1	19.0	165 E	30	79
11 17	19 54.85	-18 21.0	1.869	1.660	31.8	20.9	62 E	26* 52*	7 5	17 40.13	-14 54.9	0.836	1.825	10.9	19.1	160 W	30	79
11 27	20 20.90	-17 16.2	1.931	1.647	30.7	20.9	59 E	26* 47*	7 10	17 36.02	-15 2.2	0.839	1.812	13.8	19.2	155 W	30	79
12 7	20 47.37	-15 54.2	1.991	1.637	29.5	21.0	55 E	27* 41*	7 15	17 32.60	-15 12.7	0.847	1.799	16.6	19.3	150 W	30	79
12 17	21 14.10	-14 15.7	2.050	1.629	28.2	21.0	51 E	28* 37*	7 20	17 30.04	-15 26.3	0.858	1.786	19.3	19.4	144 E	30	79
12 27	21 40.90	-12 22.2	2.109	1.625	26.7	21.0	48 E	28* 32*	8 9	17 27.91	-16 1.4	0.893	1.762	24.2	19.6	135 E	29	80
1 6	22 7.64	-10 15.5	2.168	1.623	25.2	21.0	45 E	28* 28*	8 19	17 30.08	-16 44.2	0.939	1.739	28.2	19.8	126 E	28	81
1 16	22 34.25	-7 58.0	2.226	1.624	23.6	21.0	41 E	28* 24*	8 29	17 36.50	-17 31.0	0.993	1.719	31.3	20.0	118 E	27	82
155341 2006 SA₂₁₈									9 8	17 46.90	-18 17.6	1.054	1.701	33.7	20.2	111 E	27	82
4 1	17 46.10	+2 52.8	1.309	1.826	32.1	21.5	104 W	48 61	9 18	18 0.81	-18 59.7	1.120	1.685	35.3	20.3	105 E	26*	83
4 11	17 52.89	+4 57.9	1.222	1.831	30.9	21.3	110 W	50 59	9 28	18 17.75	-19 33.7	1.190	1.672	36.4	20.5	99 E	25*	84
4 21	17 56.16	+7 8.5	1.141	1.834	29.1	21.1	117 W	52 57	10 8	18 37.26	-19 56.1	1.262	1.662	37.0	20.6	94 E	25*	83*
5 1	17 55.42	+9 17.4	1.066	1.834	27.0	20.9	124 W	54 55	10 18	18 58.85	-20 3.9	1.337	1.654	37.1	20.7	89 E	25*	80*
5 11	17 50.36	+11 14.2	1.002	1.833	24.4	20.7	131 W	56 53	10 28	19 22.07	-19 55.1	1.414	1.650	37.0	20.8	84 E	25*	76*
5 21	17 41.02	+12 46.0	0.951	1.830	21.9	20.5	137 W	58 51	11 7	19 46.53	-19 28.3	1.493	1.648	36.5	20.9	80 E	26*	71*
5 26	17 34.91	+13 17.8	0.931	1.827	20.9	20.4	140 W	58 51	11 17	20 11.81	-18 43.0	1.575	1.649	35.7	21.0	76 E	26*	66*
5 31	17 28.03	+13 37.7	0.916	1.824	20.0	20.3	142 W	59 50	12 7	20 37.58	-17 39.3	1.658	1.654	34.7	21.1	72 E	27*	61*
6 5	17 20.59	+13 44.4	0.904	1.821	19.6	20.3	143 E	59 50	12 17	21 3.56	-16 18.2	1.743	1.661	33.6	21.2	69 E	29*	56*
6																		

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°
100438 1996 PC₃ (continuation)									410326 2007 UQ₁₁								
5 6	17 39.34	-55 46.6	2.799	3.529	12.7	21.0	130 W	60	4 1	17 58.63	-19 28.5	1.846	2.271	25.5	21.4	102 W	25* 83
5 11	17 34.68	-56 10.8	2.757	3.527	12.0	21.0	133 W	60	4 11	18 8.19	-19 22.4	1.694	2.235	25.0	21.1	109 W	26 83
5 16	17 29.20	-56 30.8	2.720	3.525	11.4	20.9	137 W	59	4 21	18 15.62	-19 15.6	1.548	2.198	24.0	20.9	117 W	26 83
5 21	17 22.97	-56 45.5	2.689	3.522	10.7	20.9	140 W	59	5 1	18 20.48	-19 10.2	1.411	2.161	22.2	20.6	126 W	26 83
5 26	17 16.14	-56 54.5	2.663	3.520	10.1	20.8	142 W	59	5 11	18 22.36	-19 8.4	1.285	2.124	19.6	20.3	135 W	26 83
5 31	17 8.87	-56 57.0	2.643	3.517	9.7	20.8	144 W	59	5 21	18 20.87	-19 12.2	1.174	2.085	16.2	19.9	145 W	26 83
6 5	17 1.35	-56 52.7	2.629	3.514	9.4	20.8	146 W	59	5 31	18 15.82	-19 22.9	1.080	2.047	11.8	19.5	156 W	26 83
6 10	16 53.78	-56 41.5	2.622	3.511	9.3	20.7	146 E	59	6 10	18 7.46	-19 40.8	1.006	2.009	6.5	19.1	167 W	25 84
6 15	16 46.37	-56 23.5	2.620	3.507	9.4	20.7	146 E	60	6 15	18 2.26	-19 52.2	0.978	1.989	3.8	18.9	173 W	25 84
6 20	16 39.31	-55 59.1	2.625	3.503	9.7	20.8	145 E	60	6 20	17 56.58	-20 5.0	0.955	1.970	1.7	18.7	177 W	25 84
6 25	16 32.77	-55 28.9	2.636	3.499	10.1	20.8	143 E	61	6 25	17 50.62	-20 18.9	0.938	1.951	3.4	18.7	173 E	25 84
6 30	16 26.90	-54 53.7	2.653	3.495	10.7	20.8	140 E	61	6 30	17 44.63	-20 33.7	0.926	1.932	6.4	18.9	168 E	24 85
7 5	16 21.81	-54 14.4	2.676	3.491	11.4	20.9	137 E	62	7 5	17 38.86	-20 49.3	0.921	1.913	9.6	19.0	162 E	24 85
7 10	16 17.54	-53 32.1	2.704	3.486	12.1	20.9	134 E	62	7 10	17 33.53	-21 5.6	0.920	1.894	12.7	19.1	156 E	24 85
7 15	16 14.13	-52 47.6	2.737	3.481	12.9	21.0	130 E	63	7 15	17 28.84	-21 22.4	0.925	1.875	15.7	19.2	150 E	24 85
7 20	16 11.60	-52 1.9	2.775	3.476	13.6	21.0	126 E	64	7 20	17 24.99	-21 39.8	0.934	1.856	18.6	19.2	144 E	23 86
7 25	16 9.94	-51 15.6	2.817	3.471	14.3	21.1	123 E	65	7 25	17 22.12	-21 57.7	0.946	1.838	21.3	19.3	139 E	23 86
7 30	16 9.12	-50 29.7	2.863	3.466	14.9	21.1	119 E	66	7 30	17 20.34	-22 16.3	0.963	1.820	23.7	19.4	134 E	23 86
8 4	16 9.09	-49 44.6	2.912	3.460	15.5	21.2	115 E	66	8 9	17 20.20	-22 54.9	1.004	1.784	28.0	19.6	124 E	22 87
8 9	16 9.81	-49 0.7	2.964	3.454	15.9	21.2	111 E	67	8 19	17 24.64	-23 34.3	1.054	1.749	31.4	19.8	116 E	21 88
8 14	16 11.24	-48 18.4	3.018	3.448	16.3	21.3	107 E	68	8 29	17 33.46	-24 12.7	1.108	1.716	34.0	19.9	108 E	21* 88
8 19	16 13.31	-47 37.9	3.075	3.442	16.7	21.3	103 E	68	9 8	17 46.24	-24 47.2	1.166	1.684	35.9	20.0	101 E	20* 89
8 24	16 16.00	-46 59.4	3.133	3.435	16.9	21.4	99 E	69*	9 18	18 2.53	-25 14.4	1.225	1.655	37.2	20.1	95 E	20* 89*
8 29	16 19.26	-46 23.0	3.192	3.429	17.1	21.4	95 E	69*	9 28	18 21.90	-25 31.0	1.284	1.627	38.0	20.2	90 E	19* 84*
9 3	16 23.02	-45 48.6	3.252	3.422	17.1	21.4	91 E	69*	10 8	18 43.86	-25 33.4	1.343	1.603	38.4	20.3	85 E	19* 79*
9 8	16 27.27	-45 16.1	3.312	3.414	17.1	21.5	87 E	68*	10 18	19 7.98	-25 18.6	1.402	1.581	38.4	20.4	81 E	20* 74*
324366 2006 QC₁₃₄									212748 2007 TB₂								
4 1	17 52.19	-24 54.8	1.908	2.348	24.5	21.3	103 W	20* 89	4 1	18 1.17	-26 37.1	1.678	2.113	27.6	21.5	101 W	18* 89
4 11	18 1.17	-24 55.9	1.750	2.308	23.9	21.1	111 W	20 89	4 11	18 13.74	-26 56.9	1.538	2.081	27.2	21.2	108 W	18* 89
4 21	18 7.91	-24 54.9	1.600	2.268	22.7	20.8	119 W	20 89	4 21	18 24.29	-27 16.9	1.404	2.050	26.2	21.0	116 W	18 89
5 1	18 11.95	-24 52.9	1.459	2.227	20.9	20.5	128 W	20 89	5 1	18 32.35	-27 38.8	1.278	2.018	24.6	20.7	124 W	17 88
5 11	18 12.87	-24 50.1	1.331	2.185	18.2	20.2	138 W	20 89	5 11	18 37.41	-28 4.1	1.163	1.986	22.2	20.4	132 W	17 88
5 21	18 10.32	-24 46.6	1.218	2.144	14.6	19.8	148 W	20 89	5 21	18 38.98	-28 33.5	1.061	1.955	18.9	20.0	141 W	16 87
5 31	18 4.21	-24 40.9	1.124	2.102	10.1	19.4	159 W	20 89	5 31	18 36.66	-29 5.7	0.973	1.925	14.7	19.7	151 W	16 87
6 10	17 54.95	-24 31.3	1.051	2.059	4.7	19.0	170 W	20 89	6 10	18 30.51	-29 37.2	0.904	1.895	9.8	19.3	162 W	15 86
6 15	17 49.42	-24 24.4	1.024	2.038	1.8	18.7	176 W	21 88	6 15	18 26.16	-29 51.1	0.877	1.880	7.2	19.1	167 W	15 86
6 20	17 43.52	-24 16.0	1.002	2.017	1.4	18.6	177 E	21 88	6 20	18 21.15	-30 2.6	0.855	1.865	4.8	18.9	171 W	15 86
6 25	17 37.48	-24 6.0	0.986	1.996	4.5	18.8	171 E	21 88	6 25	18 15.67	-30 11.1	0.838	1.851	3.7	18.8	173 E	15 86
6 30	17 31.55	-23 54.7	0.976	1.975	7.6	18.9	165 E	21 88	6 30	18 10.01	-30 16.0	0.826	1.837	5.1	18.7	171 E	15 86
7 5	17 25.97	-23 42.5	0.971	1.954	10.7	19.0	159 E	21 88	7 5	18 4.44	-30 17.1	0.820	1.823	7.7	18.9	166 E	15 86
7 10	17 20.94	-23 29.9	0.971	1.934	13.8	19.1	153 E	22 87	7 10	17 59.22	-30 14.5	0.819	1.810	10.7	19.0	161 E	15 86
7 15	17 16.65	-23 17.3	0.977	1.913	16.7	19.1	147 E	22 87	7 15	17 54.60	-30 8.5	0.822	1.797	13.7	19.1	155 E	15 86
7 20	17 13.27	-23 5.3	0.987	1.892	19.4	19.2	142 E	22 87	7 20	17 50.80	-29 59.5	0.830	1.784	16.6	19.2	150 E	15 86
7 30	17 9.63	-22 45.0	1.017	1.852	24.3	19.4	131 E	22 87	7 25	17 48.02	-29 48.2	0.843	1.771	19.4	19.3	145 E	15 86
8 9	17 10.45	-22 31.2	1.059	1.812	28.3	19.6	122 E	22 87	7 30	17 46.37	-29 35.3	0.859	1.759	22.0	19.5	140 E	15 86
8 19	17 15.66	-22 23.7	1.108	1.774	31.5	19.7	114 E	23* 86	8 9	17 46.68	-29 6.9	0.900	1.737	26.5	19.7	130 E	16 87
8 29	17 25.00	-22 20.9	1.161	1.737	34.0	19.8	106 E	23* 86	8 19	17 51.73	-28 36.9	0.951	1.716	30.1	19.9	122 E	16 87
9 8	17 38.02	-22 19.5	1.218	1.702	35.7	19.9	99 E	23* 86	8 29	18 1.22	-28 5.9	1.010	1.697	32.8	20.1	114 E	17 88
9 18	17 54.30	-22 15.9	1.274	1.669	36.9	20.0	93 E	23* 85*	9 8	18 14.55	-27 32.3	1.074	1.681	34.8	20.2	108 E	17 88
9 28	18 13.42	-22 6.3	1.331	1.639	37.7	20.1	88 E	23* 81*	9 18	18 31.08	-26 53.6	1.142	1.667	36.2	20.4	102 E	18 89
10 8	18 34.96	-21 47.0	1.387	1.611	38.0	20.2	83 E	23* 76*	9 28	18 50.25	-26 7.1	1.213	1.655	37.0	20.5	96 E	19 90
10 18	18 58.52	-21 14.8	1.443	1.587	38.0	20.2	79 E	23* 71*	10 8	19 11.46	-25 10.2	1.287	1.647	37.3	20.6	91 E	20 85*
10 28	19 23.74	-20 26.8	1.498	1.566	37.8	20.3	75 E	24* 66*	10 18	19 34.22	-24 0.8	1.363	1.641	37.3	20.8	87 E	21 80*
11 7	19 50.22	-19 21.3	1.552	1.548	37.3	20.3	71 E	25* 62*	10 28	19 58.09	-22 37.6	1.441	1.638	37.0	20.9	82 E	22 75*
11 17	20 17.61	-17 57.3	1.607	1.535	36.6	20.3	68 E	27* 57*	11 7	20 22.66	-21 0.2	1.521	1.638	36.3	21.0	78 E	24 69*
11 27	20 45.60	-16 14.6	1.663	1.526	35.7	20.4	65 E	28* 52*	11 17	20 47.63	-19 8.7	1.603	1.640	35.5	21.1	74 E	26 64*
12 7	21 13.89	-14 14.1	1.721	1.522	34.7	20.4	62 E	30* 47*	11 27	21 12.75	-17 4.0	1.687	1.646	34.4	21.1	71 E	28* 58*
12 17	21 42.27	-11 57.8	1.781	1.521	33.5	20.5	59 E	32* 42*	12 7	21 37.81	-14 47.6	1.772	1.655	33.2	21.2	67 E	30* 52*
12 27	22 10.57	-9 27.9	1.843	1.526	32.2	20.5	56 E	33* 37*	12 17	22 2.69	-12 21.3	1.860	1.666	31.8	21.3	63 E	32* 47*
1 6	22 38.65	-6 47.5	1.908	1.535													

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°
293648 2007 PX₂ (continuation)									461579 2004 PU₂₆ (continuation)								
5 31	18 56.26	-21 55.4	0.864	1.800	18.0	19.5	147 W	23 86	11 7	21 8.79	-18 1.0	1.166	1.524	40.6	20.5	90 E	27 78*
6 10	18 53.83	-22 20.8	0.794	1.773	13.0	19.1	157 W	23 86	11 12	21 21.31	-16 35.5	1.207	1.531	40.2	20.6	88 E	28 75*
6 20	18 47.91	-22 54.7	0.740	1.747	7.0	18.7	168 W	22 87	11 17	21 33.82	-15 8.4	1.250	1.539	39.8	20.7	86 E	30 72*
6 25	18 43.91	-23 13.8	0.721	1.735	3.8	18.4	174 W	22 87	11 22	21 46.30	-13 40.0	1.294	1.549	39.4	20.8	84 E	31 69*
6 30	18 39.47	-23 33.5	0.706	1.723	0.5	18.1	179 W	21 88	11 27	21 58.72	-12 10.4	1.340	1.559	38.9	20.8	83 E	33 65*
7 5	18 34.85	-23 53.3	0.697	1.712	3.1	18.3	175 E	21 88	12 2	22 11.06	-10 40.0	1.386	1.569	38.3	20.9	81 E	34 62*
7 10	18 30.29	-24 12.5	0.692	1.701	6.6	18.5	169 E	21 88	12 7	22 23.33	-9 9.1	1.434	1.581	37.7	21.0	79 E	36 59*
7 15	18 26.06	-24 30.5	0.692	1.691	10.0	18.6	163 E	20 89	12 12	22 35.51	-7 37.9	1.484	1.593	37.1	21.1	78 E	37 56*
7 20	18 22.40	-24 47.2	0.696	1.681	13.3	18.7	158 E	20 89	12 17	22 47.63	-6 6.6	1.534	1.606	36.4	21.1	76 E	39 53*
7 25	18 19.56	-25 2.3	0.705	1.672	16.5	18.8	152 E	20 89	12 22	22 59.66	-4 35.4	1.586	1.620	35.7	21.2	74 E	40 50*
7 30	18 17.72	-25 15.6	0.717	1.663	19.5	19.0	147 E	20 89	12 27	23 11.62	-3 4.5	1.638	1.634	35.0	21.3	72 E	42* 47*
8 4	18 17.00	-25 27.3	0.733	1.655	22.2	19.1	142 E	20 89	1	23 23.49	-1 34.3	1.692	1.649	34.2	21.3	71 E	43* 44*
8 9	18 17.44	-25 37.2	0.752	1.648	24.7	19.2	137 E	19 90	1 6	23 35.30	0 4.9	1.746	1.664	33.4	21.4	69 E	44* 42*
8 19	18 21.90	-25 51.6	0.799	1.635	28.9	19.4	129 E	19 90	1 11	23 47.05	+ 1 23.5	1.801	1.680	32.6	21.5	67 E	45* 39*
8 29	18 30.98	-25 58.0	0.854	1.625	32.2	19.7	121 E	19 90	162551 2000 QS₂₂₆								
9 8	18 44.10	-25 54.6	0.917	1.618	34.6	19.9	114 E	19 90	4 1	18 12.12	+ 2 7.9	2.692	2.988	19.4	21.4	97 W	47* 62
9 13	18 51.97	-25 48.6	0.951	1.616	35.5	20.0	111 E	19 90	4 11	18 15.91	+ 3 35.7	2.562	2.982	18.9	21.3	105 W	49* 60
9 18	19 0.59	-25 39.3	0.986	1.614	36.2	20.1	108 E	19 90	4 21	18 17.58	+ 5 6.2	2.438	2.975	18.2	21.1	113 W	50 59
9 23	19 9.91	-25 26.6	1.022	1.613	36.8	20.2	106 E	20 89	5 1	18 16.93	+ 6 36.0	2.324	2.966	17.0	21.0	121 W	52 57
9 28	19 19.81	-25 10.1	1.059	1.613	37.3	20.3	103 E	20 89	5 11	18 13.90	+ 8 0.5	2.224	2.957	15.6	20.8	128 W	53 56
10 3	19 30.22	-24 49.7	1.098	1.614	37.6	20.4	100 E	20 89	5 21	18 8.54	+ 9 14.4	2.140	2.947	14.0	20.7	135 W	54 55
10 8	19 41.06	-24 25.3	1.138	1.615	37.8	20.4	98 E	21 88	5 31	18 1.11	+ 10 11.8	2.075	2.935	12.5	20.6	141 W	55 54
10 13	19 52.26	-23 56.8	1.178	1.617	37.9	20.5	96 E	21 88*	6 10	17 52.17	+ 10 47.3	2.033	2.923	11.5	20.5	145 W	56 53
10 18	20 3.77	-23 24.1	1.220	1.620	37.9	20.6	93 E	22 86*	6 20	17 42.43	+ 10 56.9	2.014	2.909	11.4	20.4	145 E	56 53
10 23	20 15.51	-22 47.3	1.263	1.624	37.8	20.7	91 E	22 86*	6 30	17 32.78	+ 10 39.1	2.019	2.895	12.3	20.5	143 E	56 53
10 28	20 27.44	-22 6.3	1.306	1.628	37.6	20.8	89 E	23 81*	7 10	17 24.11	+ 9 55.3	2.047	2.879	13.8	20.5	137 E	55 54
11 2	20 39.50	-21 21.3	1.351	1.633	37.3	20.8	87 E	24 78*	7 20	17 17.12	+ 8 49.4	2.094	2.862	15.6	20.6	131 E	55 55
11 7	20 51.64	-20 32.5	1.396	1.639	37.0	20.9	85 E	24 75*	7 30	17 12.32	+ 7 26.7	2.160	2.845	17.4	20.8	123 E	52 57
11 12	21 3.84	-19 40.0	1.443	1.646	36.6	21.0	83 E	25 73*	8 9	17 9.94	+ 5 52.8	2.239	2.826	18.9	20.9	115 E	51 58
11 17	21 16.05	-18 44.0	1.490	1.653	36.2	21.0	81 E	26 70*	8 19	17 10.02	+ 4 12.9	2.330	2.806	20.1	21.0	108 E	49* 60
11 22	21 28.26	-17 44.7	1.538	1.661	35.7	21.1	79 E	27 67*	8 29	17 12.50	+ 2 31.1	2.427	2.785	20.9	21.1	100 E	47* 61
11 27	21 40.44	-16 42.4	1.587	1.669	35.2	21.2	77 E	28 64*	9 8	17 17.20	+ 0 51.0	2.529	2.763	21.4	21.2	93 E	45* 63*
12 2	21 52.57	-15 37.5	1.637	1.678	34.6	21.2	75 E	29 61*	9 18	17 23.92	+ 0 45.0	2.632	2.741	21.4	21.2	85 E	42* 63*
12 7	22 4.62	-14 30.0	1.687	1.688	33.9	21.3	73 E	31 58*	9 28	17 32.47	+ 2 14.9	2.734	2.717	21.2	21.3	78 E	40* 60*
12 12	22 16.61	-13 20.4	1.738	1.698	33.3	21.3	71 E	32 55*	10 8	17 42.65	+ 3 37.3	2.833	2.692	20.6	21.3	72 E	38* 55*
12 17	22 28.51	-12 8.9	1.790	1.709	32.6	21.4	69 E	33* 52*	10 18	17 54.26	+ 4 51.1	2.927	2.666	19.8	21.4	65 E	36* 50*
12 22	22 40.33	-10 55.8	1.842	1.720	31.8	21.5	67 E	34* 49*	10 28	18 7.17	+ 5 55.5	3.013	2.639	18.8	21.4	59 E	34* 43*
461579 2004 PU₂₆									11 7	18 21.19	+ 6 49.7	3.091	2.612	17.6	21.4	53 E	32* 37*
4 1	18 4.32	-30 21.3	1.554	1.994	29.5	21.4	100 W	15* 86	11 17	18 36.21	+ 7 33.3	3.160	2.583	16.2	21.3	47 E	30* 30*
4 11	18 20.10	-31 7.1	1.414	1.955	29.4	21.2	107 W	14* 85	11 27	18 52.08	+ 8 6.1	3.219	2.553	14.6	21.3	41 E	27* 23*
4 21	18 34.43	-31 54.9	1.281	1.917	28.8	20.9	113 W	13* 84	12 7	19 8.69	+ 8 27.6	3.266	2.523	13.0	21.2	35 E	25* 16*
5 1	18 46.84	-32 47.0	1.156	1.879	27.6	20.6	120 W	12 83	12 17	19 25.94	+ 8 38.1	3.301	2.492	11.2	21.2	29 E	21* 10*
5 11	18 56.82	-33 45.5	1.041	1.841	25.7	20.3	128 W	11 82	12 27	19 43.72	+ 8 37.4	3.323	2.459	9.4	21.1	24 E	18* 4*
5 16	19 0.72	-34 17.6	0.988	1.822	24.6	20.1	132 W	11 82	1 6	20 1.94	+ 8 25.9	3.333	2.426	7.7	21.0	19 E	13* 4*
5 21	19 3.76	-34 51.6	0.937	1.804	23.2	19.9	135 W	10 81	1 16	20 20.53	+ 8 3.9	3.331	2.392	6.0	20.9	15 E	8* -
5 26	19 5.86	-35 27.4	0.890	1.786	21.6	19.8	139 W	10 81	163251 2002 GX₄								
5 31	19 6.96	-36 4.6	0.846	1.768	19.9	19.6	144 W	9 80	4 1	18 22.06	+ 1 3.1	2.819	3.071	18.9	21.5	95 W	45* 63
6 5	19 7.01	-36 42.5	0.806	1.750	18.0	19.4	148 W	8 79	4 11	18 25.45	+ 2 22.0	2.701	3.082	18.5	21.4	103 W	47* 62
6 10	19 5.96	-37 20.2	0.769	1.732	16.0	19.2	152 W	8 79	4 21	18 26.73	+ 3 42.1	2.588	3.093	17.7	21.2	111 W	49 60
6 15	19 3.81	-37 56.6	0.737	1.715	14.0	19.0	156 W	7 78	5 1	18 25.76	+ 5 0.3	2.484	3.102	16.5	21.1	119 W	50 59
6 20	19 0.61	-38 30.0	0.709	1.698	12.1	18.8	159 W	7 78	5 11	18 22.48	+ 6 12.6	2.393	3.110	15.0	21.0	127 W	51 58
6 25	18 56.48	-38 58.7	0.685	1.682	10.7	18.7	162 W	6 77	5 21	18 17.01	+ 7 14.5	2.318	3.117	13.3	20.9	135 W	52 57
6 30	18 51.65	-39 21.1	0.666	1.666	10.0	18.6	164 W	6 77	5 31	18 9.60	+ 8 1.0	2.262	3.122	11.6	20.8	142 W	53 56
7 5	18 46.37	-39 35.8	0.651	1.651	10.4	18.5	163 E	5 76	6 10	18 0.79	+ 8 27.9	2.230	3.127	10.3	20.7	146 W	53 56
7 10	18 40.98	-39 41.7	0.641	1.636	11.7	18.5	161 E	5 76	6 20	17 51.25	+ 8 32.3	2.222	3.130	9.9	20.7	148 E	54 55
7 15	18 35.80	-39 38.2	0.635	1.622	13.8	18.6	158 E	5 76	6 30	17 41.80	+ 8 13.3	2.239	3.133	10.5	20.7	146 E	53 56
7 20	18 31.20	-39 25.4	0.633	1.608	16.3	18.6	154 E	6 77	7 10	17 33.23	+ 7 32.6	2.280	3.134	11.8	20.8	141 E	53 56
7 25	18 27.50	-39 3.9	0.635	1.595	19.0	18.7	149 E	6 77	7 20	17 26.17	+ 6 33.6	2.344	3.134	13.5	20.9	134 E	52 57
7 30	18 24.96	-38 34.8	0.640	1.582	21.6	18.8	145 E	6 77	7 30	17 21.08	+ 5 20.8	2.427	3.133	15.2	21.0	126 E	50 59
8 4	18 23.75	-37 59.3	0.649	1.571	24.2	18.9	141 E	7 78	8 9	17 18.19	+ 3 59.2	2.526	3.131	16.6	21.2	118 E	49 60
8 9	18 23.94	-37 18.6	0.660	1.560	26.6	19.0	136 E	8 79	8 19	17 17.53	+ 2 32.9	2.637	3.128	17.7	21.3	110 E	48* 61
8 14	18 25.56	-36 33.9	0.674	1.550	28.8	19.1	132 E	8 79	8 29	17 19.04	+ 1 5.6	2.757	3.124	18.5	21.4	102 E	46* 63
8 19	18 28.59	-35 46.0	0.690	1.540	30.9	19.2	129 E	9 80	276468 2003 HQ₃₂								
8 24	18 32.97	-34 55.5	0.709	1.532	32.7	19.3	125 E	10 81	4 1	18 22.85	+ 2 32.1	1.440	1.823	33.1	21.5	95 W	42* 67
8 29	18 38.62	-34 3.0	0.729	1.524	34.3	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°
119905 2002 EH₁₀										53430 1999 TY₁₆									
<i>(continuation)</i>										<i>(continuation)</i>									
5 11	18 28.12	+ 4 58.8	2.828	3.525	13.3	21.0	127 W	50	59	11 22	19 38.27	+40 14.1	1.029	1.300	48.5	19.1	80 E	74*	9*
5 21	18 23.49	+ 5 48.7	2.735	3.520	11.8	20.8	135 W	51	58	11 27	20 5.06	+38 42.7	0.997	1.288	49.2	19.1	81 E	75*	10*
5 31	18 17.15	+ 6 26.3	2.661	3.513	10.3	20.7	142 W	51	58	12 2	20 33.10	+36 49.9	0.971	1.278	49.7	19.0	81 E	75*	12*
6 10	18 9.49	+ 6 48.2	2.610	3.506	9.0	20.6	147 W	52	57	12 7	21 1.90	+34 34.2	0.952	1.269	50.2	19.0	82 E	75*	15*
6 20	18 1.03	+ 6 51.9	2.584	3.499	8.4	20.6	150 W	52	57	12 12	21 30.88	+31 56.4	0.941	1.262	50.6	18.9	82 E	74*	17*
6 30	17 52.42	+ 6 36.2	2.583	3.490	8.8	20.6	148 E	52	57	12 17	21 59.48	+29 0.1	0.939	1.257	50.8	18.9	82 E	72*	20*
7 10	17 44.36	+ 6 2.1	2.609	3.480	10.0	20.6	144 E	51	58	12 22	22 27.19	+25 50.5	0.946	1.254	50.8	19.0	81 E	70*	23*
7 20	17 37.41	+ 5 11.8	2.658	3.469	11.6	20.7	137 E	50	59	12 27	22 53.63	+22 34.6	0.963	1.252	50.7	19.0	80 E	67*	27*
7 30	17 32.06	+ 4 8.6	2.728	3.458	13.2	20.8	129 E	49	60	1	1 23 18.57	+19 19.1	0.989	1.253	50.4	19.0	79 E	64*	30*
8 9	17 28.59	+ 2 56.5	2.816	3.446	14.7	21.0	121 E	48	61	1 6	23 41.90	+16 9.9	1.024	1.256	49.9	19.1	77 E	61*	32*
8 19	17 27.11	+ 1 39.2	2.918	3.432	15.8	21.1	112 E	47	62	1 11	0 3.65	+13 11.6	1.065	1.260	49.2	19.2	76 E	58*	35*
8 29	17 27.66	+ 0 19.9	3.030	3.418	16.7	21.2	104 E	45*	64	1 16	0 23.91	+10 27.1	1.113	1.266	48.3	19.3	74 E	55*	37*
9 8	17 30.12	+ 0 58.6	3.148	3.403	17.1	21.3	96 E	43*	65	337104 1999 NN₂₂									
9 18	17 34.37	+ 2 14.3	3.269	3.387	17.2	21.3	88 E	41*	65*	4 1	18 48.45	-42 3.8	2.452	2.678	21.9	21.3	92 W	2*	73*
9 28	17 40.25	+ 3 25.5	3.390	3.370	17.0	21.4	80 E	40*	62*	4 6	18 53.87	-42 5.0	2.368	2.658	22.0	21.3	96 W	2*	74*
10 8	17 47.60	+ 4 30.9	3.508	3.352	16.5	21.4	73 E	38*	57*	4 11	18 58.77	-42 6.1	2.284	2.637	22.0	21.2	99 W	2*	74
10 18	17 56.24	+ 5 29.8	3.620	3.333	15.8	21.5	66 E	36*	50*	4 16	19 3.08	-42 7.1	2.201	2.617	21.9	21.1	103 W	2*	74
10 28	18 6.02	+ 6 21.3	3.723	3.314	14.8	21.5	58 E	33*	43*	4 21	19 6.75	-42 8.0	2.119	2.597	21.7	21.0	107 W	3*	74
11 7	18 16.80	+ 7 4.9	3.817	3.293	13.6	21.5	52 E	31*	36*	4 26	19 9.71	-42 8.8	2.038	2.576	21.4	20.8	111 W	3*	74
11 17	18 28.43	+ 7 40.3	3.899	3.272	12.3	21.5	45 E	29*	28*	5 1	19 11.89	-42 9.2	1.959	2.555	20.9	20.7	115 W	3*	74
11 27	18 40.79	+ 8 7.3	3.967	3.249	10.8	21.4	38 E	26*	21*	5 6	19 13.24	-42 9.1	1.882	2.534	20.3	20.6	119 W	3*	74
12 7	18 53.75	+ 8 25.6	4.021	3.226	9.3	21.4	32 E	23*	13*	5 11	19 13.69	-42 8.3	1.808	2.513	19.5	20.5	124 W	3	74
12 17	19 7.21	+ 8 35.3	4.059	3.202	7.7	21.3	26 E	19*	6*	5 16	19 13.19	-42 6.2	1.736	2.492	18.6	20.3	128 W	3	74
12 27	19 21.05	+ 8 36.5	4.081	3.176	6.1	21.2	20 E	14*	—	5 21	19 11.67	-42 2.2	1.668	2.470	17.5	20.2	133 W	3	74
1 6	19 35.18	+ 8 29.4	4.087	3.150	4.8	21.2	16 E	9*	—	5 26	19 9.10	-41 55.6	1.604	2.449	16.2	20.0	138 W	3	74
1 16	19 49.51	+ 8 14.2	4.075	3.124	4.0	21.1	13 W	3*	—	5 31	19 5.47	-41 45.5	1.544	2.427	14.8	19.9	142 W	3	74
152564 1992 HF										6 5	19 0.80	-41 30.8	1.489	2.405	13.2	19.7	147 W	3	74
4 1	18 29.28	+ 18 19.8	0.706	1.268	51.8	21.5	94 W	26*	82*	6 10	18 55.15	-41 10.5	1.439	2.383	11.5	19.6	152 W	4	75
4 6	18 54.09	+ 16 19.1	0.647	1.223	54.8	21.3	93 W	27*	80*	6 15	18 48.62	-40 43.5	1.395	2.362	9.8	19.4	157 W	4	75
4 11	19 21.59	+ 13 44.6	0.594	1.177	58.4	21.1	91 W	29*	77*	6 20	18 41.36	-40 8.7	1.356	2.340	8.3	19.3	161 W	5	76
4 16	19 52.02	+ 10 31.5	0.550	1.129	62.6	21.0	88 W	31*	74*	6 25	18 33.59	-39 25.5	1.325	2.318	7.1	19.2	164 W	6	77
4 21	20 25.45	+ 6 38.3	0.515	1.081	67.6	20.9	84 W	32*	69*	6 30	18 25.56	-38 33.6	1.300	2.295	6.8	19.1	164 E	6	77
4 26	21 1.64	+ 2 9.5	0.491	1.033	73.1	20.9	79 W	34*	64*	7 5	18 17.56	-37 33.3	1.282	2.273	7.5	19.1	163 E	7	78
5 1	21 39.99	+ 2 41.2	0.480	0.983	78.9	20.9	73 W	34*	57*	7 10	18 9.82	-36 25.3	1.270	2.251	9.1	19.1	160 E	9	80
5 6	22 19.54	+ 7 32.9	0.483	0.934	84.4	21.0	67 W	34*	51*	7 15	18 2.61	-35 10.7	1.266	2.229	11.1	19.1	155 E	10	81
5 11	22 59.14	+ 12 3.1	0.500	0.885	89.2	21.2	61 W	33*	45*	7 20	17 56.13	-33 51.2	1.267	2.207	13.3	19.2	150 E	11	82
5 16	23 37.72	+ 15 54.8	0.530	0.836	92.8	21.3	56 W	31*	40*	7 25	17 50.56	-32 28.4	1.275	2.185	15.6	19.3	145 E	13	84
5 21	0 14.53	+ 19 0.8	0.571	0.789	94.8	21.5	51 W	29*	35*	7 30	17 46.01	-31 4.2	1.289	2.163	17.8	19.4	139 E	14	85
53430 1999 TY₁₆										8 4	17 42.54	-29 40.1	1.307	2.140	19.9	19.4	134 E	15	86
4 1	18 46.08	+ 1 58.6	2.183	2.383	24.8	21.4	89 W	45*	62*	8 9	17 40.16	-28 17.4	1.330	2.118	21.9	19.5	129 E	17	88
4 11	18 52.55	+ 6 8.8	2.023	2.342	25.2	21.2	96 W	50*	58	8 14	17 38.87	-26 57.3	1.356	2.097	23.7	19.6	124 E	18	89
4 21	18 56.92	+ 10 52.5	1.873	2.301	25.3	21.0	102 W	55*	53	8 19	17 38.63	-25 40.2	1.386	2.075	25.3	19.7	119 E	19	90
5 1	18 58.68	+ 16 9.1	1.740	2.257	25.2	20.8	108 W	61*	48	8 29	17 41.13	-23 17.1	1.453	2.031	27.9	19.8	110 E	22*	87
5 11	18 57.28	+ 21 53.8	1.626	2.213	25.0	20.6	112 W	67	42	9 8	17 47.16	-21 8.3	1.526	1.989	29.8	19.9	101 E	24*	85
5 21	18 52.06	+ 27 56.1	1.535	2.167	25.0	20.5	115 W	73	36	9 18	17 56.22	-19 11.9	1.602	1.947	31.0	20.0	94 E	25*	83*
5 26	18 47.79	+ 30 58.6	1.499	2.144	25.2	20.4	116 W	76	33	9 28	18 7.90	-17 24.4	1.678	1.907	31.6	20.1	87 E	27*	77*
5 31	18 42.33	+ 33 58.1	1.469	2.121	25.4	20.3	116 W	79	30	10 8	18 21.78	-15 42.2	1.752	1.868	31.8	20.1	80 E	28*	70*
6 5	18 35.64	+ 36 51.7	1.445	2.097	25.8	20.3	116 W	82	27	10 18	18 37.55	-14 1.7	1.822	1.830	31.7	20.2	75 E	30*	64*
6 10	18 27.71	+ 39 36.3	1.428	2.073	26.3	20.2	115 W	85	24	10 28	18 54.97	-12 19.4	1.887	1.795	31.2	20.2	69 E	31*	57*
6 15	18 18.55	+ 42 8.8	1.416	2.048	27.0	20.2	114 W	87	22	11 7	19 13.78	-10 32.5	1.947	1.761	30.5	20.2	64 E	33*	50*
6 20	18 8.29	+ 44 26.4	1.410	2.024	27.7	20.2	112 W	89	20	11 17	19 33.84	- 8 38.8	2.001	1.730	29.6	20.2	60 E	34*	43*
6 25	17 57.10	+ 46 26.7	1.408	1.999	28.5	20.2	110 E	89	18	11 27	19 54.99	- 6 36.3	2.049	1.702	28.6	20.2	56 E	35*	36*
6 30	17 45.24	+ 48 8.5	1.410	1.974	29.4	20.2	108 E	87	16	12 7	20 17.10	- 4 23.8	2.093	1.678	27.6	20.2	52 E	36*	30*
7 5	17 33.05	+ 49 31.1	1.415	1.949	30.2	20.2	105 E	85	14	12 17	20 40.10	- 2 0.8	2.132	1.656	26.5	20.1	49 E	36*	24*
7 10	17 20.88	+ 50 34.8	1.423	1.923	31.0	20.2	103 E	84	13	12 27	21 3.92	+ 0 32.9	2.167	1.639	25.4	20.1	46 E	36*	18*
7 15	17 9.07	+ 51 20.5	1.433	1.897	31.8	20.2	100 E	84	13	1 6	21 28.49	+ 3 16.5	2.200	1.625	24.4	20.1	43 E	36*	13*
7 20	16 58.00	+ 51 49.6	1.444	1.872	32.6	20.2	98 E	83	12	1 16	21 53.82	+ 6 8.6	2.231	1.615	23.3	20.1	41 E	34*	8*
7 25	16 47.93	+ 52 4.2	1.455	1.846	33.2	20.2	95 E	83	12	227124 2005 OE₂									
7 30	16 39.11	+ 52 6.5	1.466	1.820	33.9	20.2	93 E	83	12	4 1	18 53.18	-22 17.7	2.010	2.232	26.6	21.4	89 W	21*	82*
8 4	16 31.65	+ 51 58.9	1.477	1.794	34.4	20.2	90 E	83*	12	4 11	19 7.84	-22 14.1	1.857	2.195	27.0	21.2	96 W	21*	86
8 9	16 25.63	+ 51 43.4	1.486	1.767	35.0	20.2	88 E	81*	12	4 21	19 21.29	-22 11.2	1.708	2.158	27.1	20.9	102 W	22*	86
8 14	16 21.06	+ 51 21.8	1.493	1.741	35.5	20.2	86 E	79*	13	5 1	19 33.22	-22 11.3	1.563	2.122	26.6	20.7	109 W	22*	86
8																			

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°
227124 2005 OE₂									376713 1995 WQ₅								
<i>(continuation)</i>									<i>(continuation)</i>								
8 29	19 16.57	-30 29.2	0.909	1.741	26.3	19.1	130 E	15 86	6 30	20 30.87	-35 21.4	0.885	1.847	14.8	18.6	152 W	10 81
9 8	19 22.16	-30 16.6	0.960	1.720	29.8	19.3	122 E	15 86	7 5	20 29.08	-37 32.2	0.848	1.822	13.4	18.4	155 W	7 78
9 18	19 32.07	-29 48.4	1.018	1.702	32.5	19.5	115 E	15 86	7 10	20 26.26	-39 48.7	0.816	1.797	12.7	18.3	157 W	5 76
9 23	19 38.49	-29 28.5	1.050	1.694	33.5	19.6	111 E	16 87	7 15	20 22.38	-42 7.8	0.790	1.772	12.7	18.2	157 W	3 74
9 28	19 45.77	-29 4.7	1.083	1.686	34.4	19.6	108 E	16 87	7 20	20 17.51	-44 25.8	0.770	1.747	13.7	18.1	156 W	1 72
10 3	19 53.82	-28 37.0	1.117	1.680	35.1	19.7	105 E	16 87	7 25	20 11.80	-46 38.6	0.755	1.723	15.5	18.1	153 E	— 69
10 8	20 2.54	-28 5.3	1.152	1.674	35.7	19.8	102 E	17 88	7 30	20 5.51	-48 42.6	0.746	1.699	17.9	18.1	149 E	— 67
10 13	20 11.86	-27 29.5	1.188	1.669	36.2	19.9	99 E	18 89	8 4	19 58.96	-50 34.5	0.741	1.675	20.5	18.2	145 E	— 65
10 18	20 21.71	-26 49.5	1.224	1.665	36.5	19.9	97 E	18 89	8 9	19 52.54	-52 12.3	0.741	1.652	23.2	18.2	140 E	— 64
10 23	20 32.01	-26 5.4	1.262	1.661	36.7	20.0	94 E	19 88*	8 14	19 46.66	-53 34.6	0.745	1.629	25.9	18.3	135 E	— 62
10 28	20 42.69	-25 17.1	1.300	1.659	36.8	20.1	92 E	20 88*	8 19	19 41.78	-54 41.0	0.751	1.607	28.5	18.4	131 E	— 61
11 2	20 53.67	-24 24.8	1.339	1.657	36.8	20.1	89 E	21 82*	8 24	19 38.31	-55 32.3	0.761	1.585	30.9	18.4	126 E	— 60
11 7	21 4.91	-23 28.5	1.379	1.656	36.7	20.2	87 E	22 79*	8 29	19 36.56	-56 9.4	0.772	1.565	33.1	18.5	122 E	— 60
11 12	21 16.35	-22 28.3	1.419	1.656	36.5	20.2	85 E	23 76*	9 3	19 36.74	-56 33.8	0.784	1.544	35.1	18.6	118 E	— 59
11 17	21 27.94	-21 24.4	1.460	1.657	36.3	20.3	83 E	24 73*	9 8	19 38.92	-56 46.5	0.798	1.525	36.9	18.6	115 E	— 59
11 22	21 39.66	-20 16.9	1.502	1.659	36.0	20.4	81 E	25 70*	9 13	19 43.11	-56 48.3	0.812	1.506	38.4	18.7	111 E	— 59
11 27	21 51.45	-19 6.2	1.544	1.662	35.6	20.4	79 E	26 67*	9 18	19 49.28	-56 39.8	0.826	1.489	39.8	18.7	108 E	— 59
12 2	22 3.29	-17 52.5	1.588	1.665	35.2	20.5	77 E	27 64*	9 23	19 57.30	-56 21.3	0.841	1.472	41.0	18.8	106 E	— 60
12 7	22 15.16	-16 36.1	1.631	1.669	34.7	20.5	75 E	28 61*	9 28	20 7.01	-55 53.0	0.855	1.457	42.1	18.8	103 E	— 60
12 12	22 27.02	-15 17.3	1.676	1.674	34.2	20.6	73 E	30 58*	10 3	20 18.18	-55 14.5	0.869	1.443	42.9	18.9	101 E	— 61
12 17	22 38.89	-13 56.3	1.721	1.680	33.6	20.6	71 E	31 55*	10 8	20 30.57	-54 25.5	0.882	1.430	43.7	18.9	99 E	— 62
12 22	22 50.73	-12 33.4	1.767	1.686	33.0	20.7	69 E	32 52*	10 13	20 43.98	-53 25.5	0.896	1.418	44.3	18.9	97 E	— 63
12 27	23 2.54	-11 9.1	1.813	1.694	32.3	20.7	67 E	34 50*	10 18	20 58.18	-52 14.3	0.909	1.408	44.8	19.0	95 E	— 64
1 1	23 14.30	-9 43.7	1.860	1.702	31.7	20.7	65 E	35 47*	10 23	21 12.95	-50 51.4	0.922	1.399	45.2	19.0	94 E	— 65
1 6	23 26.03	-8 17.4	1.907	1.711	30.9	20.8	63 E	36 44*	10 28	21 28.10	-49 16.9	0.934	1.391	45.5	19.0	92 E	— 67
1 11	23 37.71	-6 50.5	1.955	1.720	30.2	20.8	62 E	37 42*	11 2	21 43.42	-47 30.8	0.947	1.386	45.7	19.0	91 E	— 68
1 16	23 49.35	-5 23.4	2.004	1.730	29.4	20.9	60 E	37 39*	11 7	21 58.78	-45 33.3	0.961	1.381	45.8	19.1	90 E	— 70
239825 1998 SO₁₃₃									119866 2002 CL₁₄₂								
4 1	19 7.50	-27 18.9	1.614	1.845	32.7	21.3	86 W	16* 80*	4 1	19 19.39	-17 47.4	3.091	3.123	18.5	21.5	83 W	24* 75*
4 11	19 29.86	-27 6.8	1.490	1.815	33.5	21.2	91 W	16* 85*	4 11	19 25.62	-17 15.2	2.974	3.152	18.5	21.4	91 W	25* 80*
4 21	19 51.56	-26 47.8	1.371	1.785	34.0	21.0	96 W	16* 89	4 21	19 29.97	-16 44.8	2.856	3.180	18.2	21.3	99 W	27* 81
5 1	20 12.33	-26 23.8	1.256	1.757	34.2	20.7	101 W	16* 90	5 1	19 32.26	-16 17.5	2.742	3.208	17.3	21.2	109 W	28* 80
5 11	20 31.92	-25 56.9	1.147	1.730	34.0	20.5	106 W	17* 90	5 11	19 32.37	-15 54.3	2.634	3.234	16.0	21.1	118 W	29* 80
5 21	20 50.02	-25 30.0	1.044	1.705	33.4	20.2	112 W	18* 89	5 21	19 30.21	-15 36.2	2.537	3.260	14.2	21.0	128 W	29 80
5 31	21 6.22	-25 6.0	0.949	1.681	32.2	20.0	118 W	19* 89	5 31	19 25.82	-15 23.9	2.456	3.285	11.8	20.9	139 W	30 79
6 10	21 20.08	-24 47.7	0.862	1.659	30.4	19.7	124 W	20* 89	6 10	19 19.43	-15 17.6	2.394	3.309	9.0	20.7	149 W	30 79
6 20	21 31.05	-24 37.9	0.783	1.640	27.9	19.4	131 W	20* 89	6 20	19 11.42	-15 17.1	2.358	3.332	5.9	20.5	160 W	30 79
6 30	21 38.51	-24 37.9	0.715	1.623	24.5	19.1	139 W	20 89	6 30	19 2.41	-15 21.6	2.348	3.354	3.0	20.4	170 W	30 79
7 10	21 42.02	-24 46.8	0.658	1.609	20.2	18.7	147 W	20 89	7 10	18 53.14	-15 30.2	2.367	3.376	2.7	20.4	171 E	29 80
7 15	21 42.19	-24 53.5	0.635	1.603	17.7	18.6	151 W	20 89	7 20	18 44.38	-15 42.0	2.416	3.396	5.4	20.6	162 E	29 80
7 20	21 41.31	-25 0.7	0.615	1.597	15.1	18.4	156 W	20 89	7 30	18 36.83	-15 55.9	2.492	3.416	8.3	20.8	151 E	29 80
7 25	21 39.45	-25 7.2	0.599	1.593	12.3	18.2	160 W	20 89	8 9	18 31.01	-16 11.0	2.593	3.435	10.8	21.0	140 E	29 80
7 30	21 36.75	-25 11.6	0.587	1.589	9.7	18.1	165 W	20 89	8 19	18 27.21	-16 26.7	2.714	3.453	13.0	21.2	130 E	29 80
8 4	21 33.42	-25 12.6	0.579	1.586	7.4	17.9	168 W	20 89	8 29	18 25.55	-16 42.2	2.852	3.470	14.6	21.4	120 E	28 81
8 9	21 29.66	-25 9.1	0.575	1.583	6.3	17.9	170 W	20 89	359401 2010 JB₄₀								
8 14	21 25.75	-25 0.1	0.575	1.582	6.9	17.9	169 E	20 89	4 1	19 34.28	-23 14.4	1.480	1.634	37.0	21.4	80 W	18* 74*
8 19	21 21.96	-24 45.1	0.580	1.581	9.0	18.0	166 E	20 89	4 11	20 1.71	-22 27.7	1.386	1.614	38.1	21.3	83 W	18* 77*
8 24	21 18.58	-24 23.8	0.589	1.581	11.6	18.2	162 E	21 88	4 21	20 28.49	-21 28.4	1.297	1.597	38.9	21.1	87 W	18* 80*
8 29	21 15.88	-23 56.3	0.602	1.581	14.5	18.3	157 E	21 88	5 1	20 54.35	-20 19.0	1.213	1.583	39.5	21.0	90 W	19* 83*
9 3	21 14.01	-23 23.2	0.619	1.583	17.2	18.5	152 E	22 87	5 11	21 19.03	-19 2.9	1.133	1.572	39.8	20.8	94 W	20* 83
9 8	21 13.10	-22 45.0	0.639	1.585	19.8	18.6	148 E	22 87	5 21	21 42.30	-17 43.8	1.058	1.565	39.8	20.7	98 W	22* 82
9 13	21 13.19	-22 2.6	0.664	1.588	22.2	18.8	143 E	23 86	5 31	22 3.80	-16 26.1	0.988	1.561	39.4	20.5	102 W	24* 80
9 18	21 14.33	-21 16.4	0.691	1.592	24.4	18.9	139 E	24 85	6 10	22 23.22	-15 14.0	0.922	1.560	38.4	20.3	107 W	26* 79
9 28	21 19.63	-19 35.0	0.755	1.602	28.1	19.3	131 E	25 84	6 20	22 40.14	-14 12.3	0.861	1.563	36.9	20.1	113 W	29* 78
10 8	21 28.48	-17 44.6	0.829	1.615	30.9	19.6	124 E	27 82	6 30	22 54.07	-13 25.3	0.805	1.570	34.7	19.9	119 W	31* 77
10 18	21 40.23	-15 47.0	0.913	1.631	32.9	19.8	117 E	29 80	7 10	23 4.50	-12 56.7	0.755	1.579	31.6	19.7	125 W	32* 77
10 28	21 54.26	-13 43.5	1.004	1.649	34.2	20.1	111 E	31 78	7 20	23 10.90	-12 49.1	0.713	1.592	27.6	19.5	133 W	32 77
11 7	22 9.99	-11 34.8	1.103	1.669	34.9	20.4	106 E	33 76	7 30	23 12.89	-13 2.3	0.680	1.609	22.7	19.3	142 W	32 77
11 17	22 26.97	-9 21.7	1.209	1.692	35.1	20.6	100 E	36 73*	8 4	23 12.23	-13 15.6	0.669	1.618	19.9	19.2	147 W	32 77
11 27	22 44.88	-7 4.8	1.320	1.716	34.9	20.8	95 E	38 69*	8 9	23 10.52	-13 32.2	0.660	1.627	16.8	19.1	152 W	31 78
12 7	23 3.42	-4 45.2	1.436	1.743	34.4	21.0	90 E	40 63*	8 14	23 7.87	-13 51.1	0.656	1.638	13.7	18.9	158 W	31 78
12 17	23 22.45	-2 23.8	1.556	1.770	33.6	21.2	85 E	43 57*	8 19	23 4.42	-14 10.9	0.655	1.649	10.5	18.8	163 W	31 78
12 27	23 41.83	-0 1.5	1.679	1.799	32.6	21.4	80 E	45 51*	8 24	23 0.39	-14 30.0	0.659	1.661	7.4	18.7	168 W	31 78
376713 1995 WQ₅									8 29	22 56.02	-14 46.8	0.667	1.673	5.0	18.7	172 W	30 79
4 1	19 13.01	-19 26.0	2.170	2.296	25.7	2											

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°
359401 2010 JB₄₀										416676 2004 XO₅									
<i>(continuation)</i>										<i>(continuation)</i>									
9 8	22 47.30	-15 8.8	0.699	1.699	6.2	18.9	169 E	30	79	9 3	21 26.16	+39 42.5	0.718	1.564	30.1	18.6	129 E	85	24
9 13	22 43.41	-15 12.4	0.722	1.713	8.9	19.1	165 E	30	79	9 8	21 21.07	+40 7.5	0.716	1.555	30.6	18.6	128 E	85	24
9 18	22 40.11	-15 10.4	0.749	1.727	11.7	19.3	160 E	30	79	9 13	21 16.89	+40 15.3	0.716	1.547	31.2	18.6	127 E	85	24
9 28	22 35.83	-14 49.4	0.818	1.757	16.8	19.7	150 E	30	79	9 18	21 13.88	+40 7.4	0.717	1.540	31.9	18.6	126 E	85	24
10 8	22 35.01	-14 7.8	0.903	1.788	21.1	20.1	140 E	31	78	9 23	21 12.25	+39 45.6	0.721	1.534	32.5	18.6	125 E	85	24
10 18	22 37.59	-13 8.9	1.003	1.820	24.4	20.4	131 E	32	77	9 28	21 12.11	+39 12.3	0.726	1.529	33.1	18.6	124 E	84	25
10 28	22 43.24	-11 55.9	1.114	1.853	26.7	20.8	123 E	33	76	10 3	21 13.51	+38 29.6	0.732	1.524	33.6	18.6	122 E	83	26
11 7	22 51.42	-10 31.6	1.236	1.887	28.3	21.1	115 E	34	75	10 8	21 16.45	+37 39.2	0.740	1.521	34.2	18.7	121 E	83	26
11 17	23 1.62	-8 58.5	1.366	1.921	29.3	21.4	108 E	34	73	10 13	21 20.87	+36 42.8	0.750	1.519	34.7	18.7	120 E	82	27
474181 1999 VP₇₉										208563 2002 CL₄									
4 1	20 6.33	+1 49.2	1.969	1.860	30.1	21.4	69 W	37*	53*	4 1	20 36.22	-16 10.3	2.321	2.089	25.5	21.5	64 W	18*	58*
4 11	20 28.03	+5 14.9	1.861	1.823	31.5	21.3	72 W	40*	53*	4 11	20 55.75	-15 5.0	2.190	2.060	27.1	21.4	69 W	19*	63*
4 21	20 49.54	+8 56.4	1.761	1.789	32.9	21.2	75 W	43*	52*	4 21	21 14.85	-13 55.4	2.059	2.031	28.4	21.3	74 W	20*	67*
5 1	21 10.83	+12 50.7	1.667	1.757	34.1	21.1	78 W	47*	50*	5 1	21 33.44	-12 43.3	1.927	2.002	29.6	21.1	79 W	22*	71*
5 11	21 31.90	+16 53.5	1.581	1.728	35.2	20.9	80 W	50*	47*	5 11	21 51.46	-11 30.6	1.796	1.973	30.6	21.0	84 W	24*	74*
5 21	21 52.73	+21 0.3	1.502	1.702	36.2	20.8	83 W	54*	43	5 21	22 8.85	-10 19.4	1.667	1.944	31.4	20.8	90 W	26*	74*
5 31	22 13.26	+25 5.8	1.430	1.678	37.0	20.7	85 W	59*	39	5 31	22 25.47	-9 12.2	1.540	1.916	31.8	20.6	95 W	28*	73
6 10	22 33.45	+29 4.2	1.363	1.658	37.7	20.6	87 W	64*	35	6 10	22 41.18	-8 11.7	1.417	1.889	31.9	20.4	101 W	31*	72
6 20	22 53.19	+32 50.5	1.301	1.642	38.2	20.5	89 W	70*	31	6 20	22 55.81	-7 21.3	1.299	1.862	31.6	20.2	106 W	34*	71
6 25	23 2.82	+34 37.3	1.271	1.636	38.4	20.4	91 W	73*	29	6 30	23 9.07	-6 44.7	1.187	1.837	30.7	19.9	113 W	37*	71
6 30	23 12.25	+36 18.9	1.241	1.630	38.6	20.4	92 W	76*	28	7 10	23 20.67	-6 25.7	1.081	1.812	29.2	19.6	119 W	38*	70
7 5	23 21.46	+37 54.7	1.212	1.626	38.6	20.3	93 W	79*	26	7 20	23 30.18	-6 28.6	0.985	1.789	27.0	19.3	127 W	39	70
7 10	23 30.40	+39 24.1	1.183	1.622	38.6	20.3	95 W	82*	25	7 30	23 37.14	-6 57.3	0.898	1.767	24.0	19.0	135 W	38	71
7 15	23 39.01	+40 46.6	1.154	1.620	38.6	20.2	96 W	85*	23	8 9	23 41.15	-7 53.8	0.824	1.747	20.1	18.7	144 W	37	72
7 20	23 47.22	+42 1.4	1.126	1.619	38.4	20.1	98 W	87	22	8 19	23 41.88	-9 17.3	0.764	1.729	15.3	18.3	153 W	36	73
7 25	23 54.95	+43 7.8	1.097	1.618	38.2	20.1	100 W	88	21	8 24	23 41.01	-10 7.4	0.741	1.721	12.6	18.2	158 W	35	74
7 30	0 2.16	+44 5.0	1.069	1.619	37.8	20.0	102 W	89	20	8 29	23 39.40	-11 1.2	0.721	1.713	9.9	18.0	163 W	34	75
8 4	0 8.75	+44 52.2	1.040	1.621	37.4	19.9	104 W	90	19	9 3	23 37.16	-11 56.9	0.707	1.705	7.5	17.8	167 W	33	76
8 9	0 14.65	+45 28.6	1.012	1.624	36.8	19.9	107 W	90	19	9 8	23 34.42	-12 52.5	0.697	1.699	5.9	17.7	170 W	32	77
8 14	0 19.77	+45 53.3	0.983	1.628	36.0	19.8	109 W	89	18	9 13	23 31.35	-13 45.6	0.692	1.692	6.0	17.7	170 W	31	78
8 19	0 24.03	+46 5.0	0.955	1.633	35.0	19.7	112 W	89	18	9 18	23 28.18	-14 34.0	0.693	1.687	7.8	17.8	167 E	30	79
8 24	0 27.39	+46 2.2	0.928	1.639	33.9	19.6	115 W	89	18	9 23	23 25.13	-15 15.6	0.698	1.682	10.4	17.9	162 E	30	79
8 29	0 29.83	+45 43.8	0.902	1.646	32.5	19.5	119 W	89	18	9 28	23 22.44	-15 48.9	0.707	1.677	13.3	18.0	157 E	29	80
9 3	0 31.38	+45 8.2	0.876	1.654	31.0	19.4	122 W	89	19	10 3	23 20.30	-16 12.7	0.721	1.673	16.1	18.2	152 E	29	80
9 8	0 32.07	+44 14.3	0.853	1.663	29.2	19.3	126 W	89	20	10 8	23 18.85	-16 26.6	0.739	1.670	18.8	18.3	147 E	29	80
9 13	0 31.99	+43 0.7	0.832	1.673	27.1	19.2	131 W	88	21	10 18	23 18.43	-16 24.5	0.786	1.665	23.6	18.6	138 E	29	80
9 18	0 31.28	+41 26.6	0.814	1.683	24.8	19.1	135 W	86	23	10 28	23 21.66	-15 45.1	0.845	1.663	27.5	18.9	129 E	29	80
9 23	0 30.12	+39 31.8	0.799	1.695	22.4	19.0	140 W	85	24	11 7	23 28.38	-14 34.2	0.915	1.664	30.5	19.1	122 E	30	79
9 28	0 28.74	+37 17.3	0.789	1.707	19.9	18.9	145 W	82	27	11 12	23 32.91	-13 48.8	0.953	1.665	31.6	19.2	118 E	31	78
10 3	0 27.33	+34 45.3	0.783	1.721	17.4	18.9	149 E	80	29	11 17	23 38.16	-12 57.8	0.992	1.667	32.6	19.4	115 E	32	77
10 8	0 26.08	+31 59.0	0.784	1.735	15.1	18.8	153 E	77	32	11 22	23 44.05	-12 1.8	1.034	1.670	33.4	19.5	111 E	33	76
10 13	0 25.15	+29 2.8	0.790	1.749	13.5	18.8	156 E	74	35	11 27	23 50.52	-11 1.5	1.077	1.673	34.1	19.6	108 E	34	75
10 18	0 24.69	+26 1.6	0.803	1.765	12.7	18.8	157 E	71	38	12 2	23 57.50	-9 57.4	1.122	1.677	34.5	19.7	105 E	35	74
10 23	0 24.80	+23 0.9	0.823	1.780	12.9	18.9	156 E	68	41	12 7	0 4.93	-8 50.2	1.168	1.682	34.9	19.8	102 E	36	73*
10 28	0 25.54	+20 5.8	0.850	1.797	14.0	19.0	154 E	65	44	12 17	0 20.98	-6 28.2	1.263	1.692	35.3	20.0	97 E	39	69*
11 2	0 26.93	+17 20.5	0.883	1.814	15.6	19.2	151 E	62	47	12 27	0 38.35	-3 59.1	1.363	1.706	35.2	20.2	92 E	41	63*
11 7	0 28.97	+14 48.2	0.923	1.832	17.5	19.4	146 E	60	49	1 6	0 56.75	-1 26.2	1.466	1.721	34.8	20.3	87 E	44	58*
11 12	0 31.62	+12 30.6	0.969	1.850	19.4	19.5	142 E	58	51	1 16	1 16.01	+1 7.6	1.572	1.738	34.1	20.5	82 E	46	52*
11 17	0 34.87	+10 28.9	1.019	1.868	21.2	19.7	137 E	55	54	354525 2004 RZ₉₀									
11 27	0 42.98	+7 12.9	1.136	1.907	24.2	20.1	128 E	52	57	4 1	20 36.50	-14 40.0	1.852	1.672	32.4	21.4	64 W	19*	57*
12 7	0 52.92	+4 55.0	1.267	1.946	26.3	20.5	119 E	50	59	4 11	21 1.70	-12 28.8	1.766	1.658	33.8	21.3	67 W	21*	60*
12 17	1 4.32	+3 25.5	1.411	1.987	27.6	20.8	111 E	48	61	4 21	21 26.13	-10 6.3	1.683	1.647	35.1	21.3	70 W	22*	63*
12 27	1 16.91	+2 34.6	1.563	2.029	28.1	21.1	103 E	48	61*	5 1	21 49.70	-7 35.4	1.602	1.638	36.2	21.2	74 W	24*	65*
1 6	1 30.44	+2 13.2	1.721	2.071	28.2	21.3	96 E	47	59*	5 11	22 12.36	-4 58.9	1.523	1.632	37.1	21.1	77 W	27*	66*
416676 2004 XO₅										5 21	22 34.04	-2 19.8	1.446	1.629	37.8	21.0	81 W	30*	65*
4 1	20 11.62	-18 27.1	2.180	2.071	27.0	21.5	70 W	19*	64*	5 31	22 54.62	+0 18.8	1.372	1.629	38.3	20.9	85 W	33*	64*
4 11	20 29.02	-16 8.1	2.034	2.034	28.5	21.3	76 W	21*	69*	6 10	23 13.99	+2 53.8	1.299	1.631	38.5	20.8	89 W	37*	61
4 21	20 45.57	-13 32.7	1.889	1.996	29.8	21.2	81 W	24*	72*	6 20	23 31.98	+5 22.0	1.228	1.636	38.3	20.7	93 W	42*	59
5 1	21 1.14	-10 40.0	1.746	1.958	30.9	21.0	86 W	27*	74*										
5 11	21 15.63	-7 29.0	1.607	1.920	31.7	20.8	91 W	31*	71										
5 21	21 28.89	-3 58.3	1.473	1.883	32.3	20.6	97 W	36*	68										
5 31	21 40.69	+0 6.9	1.346	1.846	32.5	20.3	102 W	41*	64										
6 10	21 50.82	+4 5.9	1.227	1.809	32.4	20.1	107 W	47*	60										
6 20	21 58.93	+8 39.8	1.118	1.774	32.0	19.8	112 W	53*	55										
6 30	22 4.62	+13 32.5	1.021	1.740	31.3	19.6	117 W	59	50										
7 5	22 6.42																		

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°
354525 2004 RZ₉₀									114824 2003 OB₁₇								
<i>(continuation)</i>									<i>(continuation)</i>								
6 30	23 48.31	+ 7 39.9	1.159	1.644	37.8	20.5	98 W	47* 56	9 8	0 57.60	+ 6 58.0	0.739	1.687	17.6	18.1	150 W	52 57
7 10	0 2.69	+ 9 44.3	1.092	1.654	36.7	20.4	103 W	52* 54	9 18	0 55.94	+ 6 3.1	0.692	1.672	11.8	17.7	160 W	51 58
7 20	0 14.71	+11 31.6	1.028	1.667	35.1	20.2	109 W	56* 52	9 23	0 54.03	+ 5 26.6	0.675	1.666	8.6	17.5	166 W	50 59
7 25	0 19.68	+12 17.4	0.997	1.674	34.1	20.1	113 W	57* 52	9 28	0 51.58	+ 4 45.9	0.663	1.660	5.2	17.3	171 W	50 59
7 30	0 23.89	+12 57.3	0.968	1.682	32.9	20.0	116 W	58 51	10 3	0 48.79	+ 4 2.5	0.655	1.655	1.8	17.1	177 W	49 60
8 4	0 27.27	+13 30.8	0.940	1.690	31.4	19.9	120 W	59 50	10 8	0 45.85	+ 3 18.4	0.652	1.651	2.1	17.1	177 E	48 61
8 9	0 29.77	+13 57.2	0.913	1.699	29.8	19.8	124 W	59 50	10 13	0 42.98	+ 2 35.4	0.654	1.647	5.5	17.3	171 E	48 61
8 14	0 31.34	+14 15.8	0.888	1.708	27.9	19.7	128 W	59 50	10 18	0 40.41	+ 1 55.7	0.661	1.644	9.0	17.5	165 E	47 62
8 19	0 31.94	+14 26.2	0.865	1.718	25.8	19.6	132 W	59 50	10 23	0 38.34	+ 1 21.1	0.673	1.642	12.3	17.7	159 E	46 63
8 29	0 30.26	+14 19.6	0.828	1.739	20.9	19.4	142 W	59 50	10 28	0 36.96	+ 0 53.0	0.689	1.641	15.4	17.8	154 E	46 63
9 8	0 25.13	+13 35.9	0.805	1.762	15.3	19.2	153 W	59 50	11 2	0 36.38	+ 0 32.3	0.709	1.640	18.3	18.0	149 E	46 63
9 18	0 17.54	+12 17.8	0.800	1.786	9.3	19.0	163 W	57 52	11 7	0 36.66	+ 0 19.7	0.733	1.640	21.0	18.1	144 E	45 64
9 23	0 13.30	+11 28.5	0.805	1.799	6.6	18.9	168 W	56 53	11 17	0 39.93	+ 0 18.5	0.791	1.642	25.5	18.4	134 E	45 64
9 28	0 9.07	+10 34.9	0.815	1.811	4.9	18.9	171 E	56 53	11 27	0 46.75	+ 0 47.9	0.861	1.648	29.0	18.7	126 E	46 63
10 3	0 5.08	+ 9 39.1	0.830	1.825	5.3	18.9	170 E	55 54	12 7	0 56.71	+ 1 43.2	0.940	1.656	31.5	19.0	119 E	47 62
10 8	0 1.50	+ 8 43.1	0.851	1.838	7.3	19.1	166 E	54 55	12 17	1 9.32	+ 2 58.9	1.028	1.667	33.2	19.3	112 E	48 61
10 13	23 58.51	+ 7 48.9	0.878	1.851	9.8	19.3	161 E	53 56	12 27	1 24.14	+ 4 29.8	1.122	1.680	34.3	19.5	106 E	49 59*
10 18	23 56.22	+ 6 58.2	0.910	1.865	12.4	19.5	156 E	52 57	1 6	1 40.72	+ 6 10.8	1.223	1.697	34.8	19.7	100 E	51 56*
10 23	23 54.72	+ 6 12.4	0.947	1.879	14.9	19.7	151 E	51 58	1 16	1 58.75	+ 7 57.5	1.328	1.715	34.9	19.9	95 E	53 53*
10 28	23 54.06	+ 5 32.6	0.988	1.893	17.2	19.9	146 E	51 58	314004 2004 TG₃₆₆								
11 7	23 55.20	+ 4 32.8	1.083	1.922	21.1	20.2	136 E	50 59	4 1	21 19.52	-17 34.4	2.170	1.788	27.1	21.5	55 W	11* 49*
11 17	23 59.44	+ 3 59.9	1.193	1.951	24.0	20.6	127 E	49 60	4 11	21 44.62	-15 58.8	2.074	1.767	28.8	21.4	58 W	12* 52*
11 27	0 6.38	+ 3 52.2	1.315	1.981	26.1	20.9	118 E	49 60	4 21	22 9.41	-14 15.1	1.979	1.747	30.5	21.3	62 W	13* 56*
12 7	0 15.57	+ 4 6.3	1.446	2.011	27.4	21.1	110 E	49 60	5 1	22 33.84	-12 25.5	1.885	1.728	32.0	21.2	65 W	14* 59*
12 17	0 26.57	+ 4 38.6	1.584	2.040	28.1	21.4	103 E	50 58*	5 11	22 57.89	-10 32.0	1.793	1.712	33.4	21.1	69 W	16* 62*
167068 2003 QY₁₀₉									5 21	23 21.54	- 8 36.8	1.702	1.697	34.6	21.0	72 W	18* 65*
4 1	20 39.49	-21 3.8	3.330	3.041	17.3	21.4	65 W	13* 59*	5 31	23 44.71	- 6 42.4	1.614	1.685	35.7	20.9	76 W	20* 67*
4 11	20 50.87	-20 14.4	3.166	3.007	18.5	21.3	72 W	15* 66*	6 10	0 7.34	- 4 51.1	1.528	1.675	36.6	20.8	80 W	24* 67*
4 21	21 1.30	-19 25.5	2.997	2.972	19.4	21.2	79 W	17* 73*	6 20	0 29.34	- 3 5.3	1.444	1.667	37.3	20.7	83 W	27* 67*
5 1	21 10.61	-18 38.5	2.825	2.937	20.0	21.1	86 W	19* 79*	6 30	0 50.54	- 1 27.5	1.362	1.662	37.7	20.6	87 W	32* 65
5 11	21 18.63	-17 54.3	2.651	2.901	20.3	20.9	94 W	21* 82	7 10	1 10.75	- 0 0.0	1.283	1.659	37.8	20.5	92 W	36* 64
5 21	21 25.15	-17 14.4	2.479	2.865	20.2	20.8	102 W	24* 81	7 20	1 29.71	+ 1 15.1	1.206	1.659	37.5	20.3	96 W	41* 63
5 31	21 29.90	-16 40.2	2.312	2.827	19.7	20.6	110 W	26* 81	7 30	1 47.05	+ 2 15.9	1.132	1.661	36.8	20.2	101 W	45* 62
6 10	21 32.64	-16 13.0	2.151	2.789	18.6	20.3	119 W	28* 80	8 9	2 2.36	+ 3 1.1	1.061	1.666	35.6	20.0	107 W	48* 61
6 20	21 33.08	-15 54.0	2.002	2.751	16.8	20.1	128 W	29* 80	8 19	2 15.14	+ 3 29.6	0.993	1.674	33.8	19.8	113 W	48 61
6 30	21 31.00	-15 43.8	1.866	2.711	14.4	19.8	138 W	29 80	8 29	2 24.76	+ 3 41.0	0.931	1.683	31.2	19.6	120 W	49 60
7 10	21 26.29	-15 42.5	1.748	2.671	11.3	19.5	149 W	29 80	9 8	2 30.70	+ 3 36.4	0.876	1.695	27.8	19.4	128 W	49 60
7 20	21 19.05	-15 48.9	1.652	2.631	7.5	19.2	160 W	29 80	9 18	2 32.44	+ 3 18.0	0.830	1.710	23.9	19.2	137 W	48 61
7 30	21 9.70	-16 0.6	1.581	2.590	3.1	18.9	172 W	29 80	9 23	2 31.66	+ 3 4.8	0.811	1.718	21.0	19.1	142 W	48 61
8 4	21 4.49	-16 7.4	1.555	2.569	0.8	18.6	178 W	29 80	9 28	2 29.81	+ 2 50.0	0.796	1.726	18.3	18.9	147 W	48 61
8 9	20 59.09	-16 14.2	1.536	2.548	1.6	18.7	176 E	29 80	10 3	2 26.97	+ 2 34.6	0.785	1.735	15.5	18.8	152 W	48 61
8 14	20 53.64	-16 20.5	1.524	2.527	4.1	18.8	170 E	29 80	10 8	2 23.26	+ 2 19.6	0.778	1.744	12.6	18.7	158 W	47 62
8 19	20 48.30	-16 25.9	1.518	2.506	6.5	18.9	164 E	29 80	10 13	2 18.84	+ 2 6.0	0.776	1.754	9.7	18.6	163 W	47 62
8 24	20 43.24	-16 30.1	1.519	2.485	8.9	19.0	158 E	28 81	10 18	2 13.91	+ 1 55.0	0.779	1.764	7.3	18.5	167 W	47 62
8 29	20 38.60	-16 32.7	1.527	2.464	11.2	19.1	152 E	28 81	10 23	2 8.73	+ 1 47.8	0.787	1.775	5.9	18.5	169 W	47 62
9 8	20 31.07	-16 32.5	1.558	2.421	15.4	19.2	140 E	28 81	10 28	2 3.57	+ 1 45.1	0.801	1.786	6.3	18.6	169 E	47 62
9 18	20 26.41	-16 24.4	1.607	2.378	19.0	19.4	130 E	29 80	11 7	1 54.24	+ 1 55.7	0.844	1.808	10.6	18.9	160 E	47 62
9 28	20 25.00	-16 8.1	1.671	2.335	21.9	19.5	120 E	29 80	11 17	1 47.42	+ 2 28.3	0.908	1.832	15.6	19.3	150 E	47 62
10 8	20 26.84	-15 43.5	1.745	2.291	24.1	19.6	110 E	29 80	11 27	1 44.04	+ 3 21.6	0.991	1.858	20.0	19.6	140 E	48 61
10 18	20 31.75	-15 10.3	1.824	2.248	25.7	19.7	102 E	30 79	12 7	1 44.26	+ 4 31.7	1.088	1.884	23.4	20.0	131 E	50 59
10 28	20 39.45	-14 28.1	1.905	2.205	26.7	19.8	94 E	31 77*	12 17	1 47.85	+ 5 54.5	1.199	1.910	26.0	20.3	122 E	51 58
11 7	20 49.57	-13 36.3	1.986	2.162	27.2	19.9	86 E	31 71*	12 27	1 54.42	+ 7 26.3	1.320	1.938	27.7	20.6	114 E	52 57
11 17	21 1.80	-12 34.3	2.065	2.119	27.3	19.9	79 E	32 64*	1 6	2 3.50	+ 9 3.5	1.449	1.966	28.7	20.8	106 E	54 55*
11 27	21 15.86	-11 21.7	2.139	2.077	27.0	20.0	73 E	34* 56*	1 16	2 14.65	+10 43.5	1.583	1.994	29.1	21.1	99 E	56 51*
12 7	21 31.45	- 9 58.1	2.208	2.036	26.4	20.0	67 E	35* 49*	436030 2009 JO₂								
12 17	21 48.38	- 8 23.5	2.272	1.996	25.6	20.0	61 E	36* 42*	4 1	21 37.40	-17 24.5	0.201	0.886	119.3	20.3	51 W	9* 45*
12 27	22 6.47	- 6 37.8	2.328	1.956	24.6	19.9	56 E	36* 35*	4 6	21 3.77	-11 32.8	0.181	0.928	108.6	19.5	62 W	20* 55*
1 6	22 25.57	- 4 41.5	2.379	1.918	23.5	19.9	51 E	35* 29*	4 11	20 27.22	- 4 3.0	0.167	0.969	96.8	18.8	74 W	32* 61*
1 16	22 45.58	- 2 35.2	2.423	1.882	22.2	19.9	46 E	34* 24*	4 16	19 47.57	+ 4 38.1	0.159	1.007	84.3	18.3	87 W	45* 59*
4 1	21 11.38	-13 22.6	2.533	2.129	22.7	21.4	55 W	16* 49*	4 21	19 5.01	+13 32.7	0.160	1.043	72.0	17.9	99 W	58* 50
4 11	21 30.77	-11 48.9	2.408	2.097	24.5	21.4	60 W	17* 54*	4 23	18 47.40	+16 53.5	0.162	1.056	67.5	17.8	104 W	62* 47
4 21	21 49.86	-10 9.5	2.279	2.065	26.2	21.3	65 W	19* 58*	4 25	18 29.64	+20 0.2	0.166	1.070	63.3	17.8	108 W	65 44
5 1	22 8.61	- 8 25.6	2.149	2.032	27.7	21.1	70 W	21* 62*	4 27	18 11.89	+22 49.4	0.171	1.083	59.5	17.8	112 W	68 41
5 11	22 27.02	- 6 38.5	2.018	2.000	29.1	21.0	74 W	23* 65*	4 29	17 54.32	+25 19.0	0.177	1.095	56.1	17.8	116 W	70 39
5 21																	

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°
436030 2009 JO₂ (continuation)										488693 2003 WW₈₇ (continuation)									
5 25	15 14.86	+33 39.7	0.326	1.225	43.3	19.0	124 E	79	30	5 6	0 45.08	-40 44.5	1.868	1.698	32.4	20.9	64 W	-	41*
5 27	15 8.62	+33 17.9	0.341	1.233	43.5	19.1	123 E	78	31	5 11	1 2.58	-39 9.4	1.822	1.662	33.3	20.8	65 W	-	42*
5 29	15 3.05	+32 53.0	0.356	1.240	43.8	19.2	122 E	78	31	5 16	1 19.68	-37 27.7	1.779	1.625	34.2	20.7	65 W	-	43*
5 31	14 58.11	+32 25.5	0.371	1.247	44.1	19.3	121 E	77	32	5 21	1 36.33	-35 39.9	1.737	1.588	35.1	20.6	64 W	-	44*
6 5	14 48.19	+31 8.5	0.409	1.263	44.9	19.6	119 E	76	33	5 26	1 52.53	-33 46.4	1.698	1.552	36.0	20.6	64 W	-	45*
6 10	14 41.18	+29 43.7	0.448	1.276	45.7	19.8	116 E	75	34	5 31	2 8.28	-31 47.7	1.661	1.517	36.9	20.5	64 W	-	46*
6 15	14 36.53	+28 14.2	0.488	1.287	46.6	20.1	113 E	73	36	6 5	2 23.57	-29 44.0	1.625	1.481	37.8	20.4	63 W	-	47*
6 20	14 33.83	+26 42.2	0.528	1.297	47.4	20.3	110 E	72	37	6 10	2 38.43	-27 35.7	1.592	1.447	38.7	20.4	63 W	-	49*
6 25	14 32.74	+25 8.9	0.568	1.304	48.1	20.5	107 E	70*	39	6 20	3 6.96	-23 6.3	1.528	1.380	40.5	20.2	62 W	-	51*
6 30	14 33.01	+23 35.4	0.607	1.309	48.7	20.6	105 E	68*	40	6 30	3 34.09	-18 20.9	1.468	1.318	42.4	20.1	61 W	-	53*
7 5	14 34.41	+22 2.4	0.646	1.312	49.3	20.8	102 E	65*	42	7 10	4 0.16	-13 18.9	1.410	1.261	44.3	20.0	60 W	1*	54*
7 10	14 36.76	+20 30.2	0.684	1.313	49.8	20.9	99 E	63*	43	7 20	4 25.66	-7 58.6	1.353	1.212	46.3	19.8	60 W	9*	53*
7 15	14 39.95	+18 58.9	0.721	1.312	50.3	21.0	97 E	60*	45	7 30	4 51.12	-2 17.5	1.296	1.171	48.3	19.7	59 W	17*	52*
7 20	14 43.86	+17 28.6	0.757	1.309	50.7	21.2	94 E	57*	47	8 9	5 17.20	+3 47.1	1.240	1.142	50.2	19.6	60 W	26*	49*
7 25	14 48.44	+15 59.4	0.791	1.304	51.1	21.3	92 E	55*	48	8 19	5 44.73	+10 15.9	1.187	1.125	51.9	19.5	61 W	35*	45*
7 30	14 53.60	+14 31.5	0.823	1.297	51.5	21.3	89 E	53*	49	8 24	5 59.31	+13 38.7	1.162	1.121	52.5	19.5	62 W	39*	42*
8 4	14 59.29	+13 4.8	0.854	1.288	51.9	21.4	87 E	51*	51	8 29	6 14.58	+17 6.2	1.139	1.120	53.1	19.5	63 W	44*	39*
8 9	15 5.45	+11 39.3	0.883	1.276	52.2	21.5	84 E	49*	52*	9 3	6 30.68	+20 37.0	1.118	1.123	53.5	19.5	64 W	48*	36*
94210 2001 BK₃₃										101869 1999 MM									
4 1	21 37.54	-14 50.4	3.298	2.759	16.0	21.5	50 W	11*	44*	4 1	22 52.54	-7 55.2	1.574	0.868	35.2	21.3	30 W	4*	24*
4 11	21 51.57	-13 30.7	3.155	2.721	17.7	21.4	56 W	13*	50*	4 6	23 18.56	-5 29.7	1.553	0.819	35.1	21.2	28 W	3*	22*
4 21	22 5.13	-12 9.2	3.003	2.683	19.3	21.3	62 W	15*	56*	4 11	23 45.33	-2 53.9	1.539	0.773	34.4	21.0	26 W	2*	20*
5 1	22 18.13	-10 46.7	2.845	2.644	20.7	21.2	68 W	18*	61*	4 16	0 12.82	0 10.1	1.534	0.730	33.0	20.8	23 W	1*	17*
5 11	22 30.49	-9 24.1	2.682	2.604	22.0	21.1	75 W	21*	66*	4 21	0 40.98	+2 38.9	1.536	0.694	30.8	20.7	21 W	-	15*
5 21	22 42.10	-8 2.3	2.516	2.564	23.0	20.9	81 W	24*	70*	4 26	1 9.74	+5 29.5	1.546	0.664	27.7	20.5	18 W	-	12*
5 31	22 52.83	-6 42.4	2.349	2.523	23.7	20.8	88 W	27*	71*	5 1	1 39.01	+8 17.7	1.562	0.644	23.8	20.3	15 W	-	9*
6 10	23 2.51	-5 25.5	2.183	2.481	24.1	20.6	95 W	32*	69	5 6	2 8.66	+10 59.2	1.584	0.633	19.4	20.2	12 W	-	6*
6 20	23 10.94	-4 12.9	2.019	2.439	24.1	20.4	102 W	36*	68	5 11	2 38.52	+13 29.8	1.610	0.634	14.8	20.1	9 W	-	3*
6 30	23 17.86	-3 6.3	1.859	2.396	23.6	20.2	109 W	40*	67	5 16	3 8.37	+15 45.9	1.641	0.646	10.2	20.0	7 W	-	-
7 10	23 22.96	-2 7.2	1.706	2.352	22.6	19.9	117 W	43*	66	5 21	3 37.98	+17 44.5	1.674	0.668	6.2	19.9	4 W	-	-
7 20	23 25.89	-1 17.8	1.562	2.309	20.9	19.6	126 W	44	65	5 26	4 7.11	+19 23.8	1.711	0.699	3.0	19.9	2 W	-	-
7 30	23 26.29	0 40.2	1.431	2.265	18.5	19.3	135 W	44	65	5 31	4 35.52	+20 43.0	1.750	0.737	1.9	20.0	1 E	-	-
8 9	23 23.88	0 16.5	1.314	2.221	15.2	19.0	145 W	45	64	6 5	5 3.03	+21 42.6	1.792	0.780	3.3	20.2	3 E	-	-
8 19	23 18.55	0 8.5	1.215	2.177	11.1	18.6	155 W	45	64	6 10	5 29.50	+22 23.7	1.837	0.826	4.6	20.5	4 E	-	-
8 29	23 10.54	0 16.4	1.137	2.132	6.3	18.2	167 W	45	64	6 15	5 54.83	+22 47.8	1.884	0.876	5.5	20.7	5 E	-	-
9 8	23 0.64	0 38.2	1.083	2.088	2.5	17.8	175 E	44	65	6 20	6 18.96	+22 56.8	1.933	0.926	6.1	20.9	6 E	-	-
9 13	22 55.34	0 52.9	1.065	2.067	3.8	17.9	172 E	44	65	6 25	6 41.87	+22 52.8	1.983	0.978	6.3	21.1	6 E	-	-
9 18	22 50.07	1 9.1	1.053	2.045	6.4	18.0	167 E	44	65	6 30	7 3.56	+22 37.6	2.035	1.030	6.2	21.3	6 E	-	-
9 23	22 45.03	1 25.8	1.048	2.023	9.3	18.0	161 E	44	65	7 5	7 24.07	+22 13.2	2.087	1.082	5.9	21.4	6 E	-	-
9 28	22 40.43	1 42.1	1.047	2.002	12.1	18.1	155 E	43	66	415713 1998 XX₂									
10 3	22 36.43	1 56.9	1.052	1.980	14.9	18.2	149 E	43	66	4 1	22 56.48	-6 23.3	0.848	0.478	93.5	21.3	29 W	5*	22*
10 8	22 33.17	2 9.4	1.062	1.959	17.6	18.3	144 E	43	66	4 3	23 2.77	-6 14.3	0.889	0.485	88.3	21.2	29 W	4*	23*
10 13	22 30.77	2 18.9	1.076	1.938	20.0	18.4	138 E	43	66	4 5	23 9.53	-5 59.4	0.929	0.493	83.4	21.1	29 W	4*	23*
10 18	22 29.30	2 24.9	1.094	1.917	22.3	18.5	133 E	43	66	4 7	23 16.65	-5 39.3	0.968	0.503	78.8	21.1	30 W	4*	24*
10 28	22 29.34	2 24.2	1.139	1.877	26.3	18.6	123 E	43	66	4 9	23 24.05	-5 14.8	1.007	0.514	74.6	21.1	30 W	4*	24*
11 7	22 33.27	2 5.2	1.193	1.838	29.4	18.8	114 E	43	66	4 11	23 31.63	-4 46.4	1.044	0.527	70.7	21.1	30 W	3*	24*
11 17	22 40.84	1 27.4	1.253	1.801	31.8	18.9	106 E	44	65	4 16	23 51.07	-3 22.9	1.133	0.561	62.3	21.1	30 W	3*	24*
11 27	22 51.66	0 31.0	1.316	1.765	33.5	19.0	99 E	44	65	4 21	0 10.66	-1 47.1	1.213	0.598	55.7	21.2	29 W	2*	23*
12 7	23 5.30	0 42.7	1.380	1.732	34.6	19.1	93 E	46	59*	4 26	0 30.04	-0 4.9	1.284	0.638	50.4	21.3	29 W	2*	23*
12 17	23 21.37	2 12.4	1.444	1.702	35.3	19.2	87 E	47	53*	5 1	0 49.02	+1 39.9	1.348	0.677	46.3	21.5	29 W	2*	23*
12 27	23 39.56	+3 56.2	1.507	1.674	35.5	19.3	82 E	49	48*	488693 2003 WW₈₇									
1 6	23 59.59	+5 51.7	1.570	1.650	35.5	19.3	77 E	51*	43*	4 1	22 34.52	-48 25.5	2.257	1.956	26.2	21.4	60 W	-	37*
1 16	0 21.27	+7 56.4	1.631	1.629	35.1	19.4	72 E	52*	38*	4 6	22 53.60	-47 42.3	2.195	1.919	27.1	21.3	61 W	-	38*
163373 2002 PZ₃₉										4 11	23 12.65	-46 51.6	2.135	1.883	28.0	21.3	62 W	-	38*
4 1	22 29.45	-11 44.0	0.497	0.671	116.9	21.1	37 W	5*	31*	4 16	23 31.60	-45 53.2	2.077	1.846	28.9	21.2	63 W	-	39*
4 6	22 38.39	-10 40.6	0.567	0.666	108.1	20.8	39 W	6*	33*	4 21	23 50.39	-44 47.2	2.021	1.809	29.8	21.1	63 W	-	39*
4 11	22 48.97	-9 25.7	0.639	0.671	99.8	20.7	41 W	7*	35*	4 26	0 8.94	-43 33.6	1.968	1.772	30.7	21.0	64 W	-	40*
4 16	23 0.73	-8 2.0	0.709	0.684	92.1	20.6	43 W	8*	37*	5 1	0 27.18	-42 12.7	1.917	1.735	31.5	21.0	64 W	-	40*
4 21	23 13.23	-6 32.5	0.777	0.706	85.2	20.6	44 W	9*	38*										
4 26	23 26.09	-4 59.8	0.842	0.734	79.1	20.6	46 W	10*	40*										
5 1	23 39.03	-3 26.1	0.902	0.767	73.8	20.7	47 W	11*	41*										
5 6	23 51.84	-1 53.2	0.957	0.805	69.2	20.8	48 W	12*	42*										
5 11	0 4.38	0 22.2	1.007	0.847	65.4	20.9	50 W	13*	43*										
5 16	0 16.56	+1 5.8	1.051	0.890	62.1	21.0	51 W	14*	44*										
5 21	0 28.33	+2 30.3	1.091	0.935	59.4	21.1	53 W	15*	45*										
5 26	0 39.65	+3 50.9	1.125	0.981	57.0	21.2	54 W	17*	46*										
5 31	0 50.49	+5 7.2	1.153	1.027	55.1	21.3	56 W	19*	47*										
6 5	1 0.84	+6 19.2	1.177	1.073	53.4	21.4	58 W	21*	48*										
6 10	1 10.71	+7 26.9																	