

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	19/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°
390872 2004 TL₁₃₀										400549 2008 UF₃₀₈ (continuation)									
12 23	8 38.25	+10 36.5	2.114	2.942	12.2	22.4	141 W	56	53	1 22	8 13.17	-20 9.9	1.406	2.251	16.3	20.2	140 E	25	84
1 2	8 30.98	+11 1.4	2.046	2.953	8.9	22.2	152 W	56	53	1 27	8 7.06	-20 31.4	1.387	2.235	16.4	20.1	140 E	24	85
1 12	8 21.90	+11 38.3	2.005	2.963	5.2	22.0	164 W	57	52	2 1	8 0.92	-20 41.7	1.374	2.219	16.7	20.1	140 E	24	85
1 22	8 11.82	+12 24.0	1.994	2.972	2.5	21.8	172 E	57	52	2 6	7 54.96	-20 40.7	1.365	2.202	17.3	20.1	138 E	24	85
2 1	8 1.74	+13 14.8	2.013	2.980	4.4	22.0	167 E	58	51	2 11	7 49.37	-20 28.9	1.362	2.186	18.1	20.1	137 E	25	84
2 11	7 52.68	+14 6.3	2.063	2.987	8.0	22.2	155 E	59	50	2 16	7 44.32	-20 7.3	1.363	2.170	19.1	20.1	134 E	25	84
176611 2002 FC₂₉																			
12 23	8 39.18	+18 22.9	1.819	2.672	12.8	20.9	143 W	63	46	2 21	7 39.95	-19 36.8	1.369	2.153	20.2	20.2	131 E	25	84
1 2	8 31.43	+19 12.0	1.746	2.671	8.8	20.6	155 W	64	45	2 26	7 36.41	-18 58.8	1.379	2.137	21.4	20.2	128 E	26	83
1 12	8 21.37	+20 8.5	1.699	2.669	4.4	20.4	168 W	65	44	3 2	7 33.76	-18 14.9	1.392	2.120	22.6	20.2	125 E	27	82
1 22	8 9.93	+21 6.8	1.682	2.665	0.5	20.1	179 E	66	43	3 7	7 32.07	-17 26.6	1.408	2.104	23.7	20.3	121 E	28	81
1 27	8 4.07	+21 34.8	1.684	2.663	2.8	20.3	172 E	67	42	3 12	7 31.35	-16 35.3	1.427	2.087	24.8	20.3	118 E	28	81
2 1	7 58.36	+22 1.2	1.695	2.661	5.2	20.4	166 E	67	42	3 17	7 31.59	-15 42.2	1.449	2.071	25.9	20.4	115 E	29	80
2 6	7 52.96	+22 25.3	1.713	2.659	7.5	20.5	160 E	67	42	3 22	7 32.78	-14 48.5	1.472	2.054	26.9	20.4	111 E	29	80
2 11	7 48.01	+22 47.1	1.737	2.656	9.6	20.7	153 E	68	41	3 27	7 34.89	-13 55.1	1.497	2.038	27.8	20.5	108 E	31	78
2 16	7 43.64	+23 6.1	1.768	2.653	11.6	20.8	147 E	68	41	4 1	7 37.89	-13 3.1	1.523	2.021	28.6	20.5	105 E	32	77
2 21	7 39.93	+23 22.4	1.805	2.649	13.5	20.9	141 E	68	41	4 6	7 41.71	-12 13.0	1.550	2.005	29.3	20.5	101 E	33	76
2 26	7 36.96	+23 36.0	1.847	2.646	15.2	21.0	136 E	69	40	4 11	7 46.32	-11 25.4	1.578	1.988	29.9	20.6	98 E	33	75
3 2	7 34.77	+23 47.0	1.894	2.642	16.7	21.1	130 E	69	40	4 16	7 51.65	-10 40.8	1.606	1.972	30.4	20.6	95 E	33	75
3 7	7 33.39	+23 55.6	1.945	2.638	18.0	21.2	125 E	69	40	4 21	7 57.66	-9 59.5	1.635	1.956	30.9	20.6	92 E	32	74
3 12	7 32.79	+24 1.8	1.999	2.634	19.2	21.3	119 E	69	40	4 26	8 4.31	-9 21.8	1.663	1.940	31.3	20.7	90 E	31	73
3 17	7 32.97	+24 5.8	2.055	2.629	20.1	21.4	115 E	69	40	5 1	8 11.55	-8 47.9	1.692	1.924	31.5	20.7	87 E	30	72
3 22	7 33.88	+24 7.8	2.114	2.624	20.9	21.4	110 E	69	40	5 6	8 19.35	-8 17.9	1.720	1.908	31.8	20.7	84 E	28	71
24143 1999 VY₁₂₄																			
12 23	8 40.09	+24 53.4	1.581	2.447	13.6	19.3	144 W	70	39	5 11	8 27.64	-7 52.1	1.748	1.892	31.9	20.8	82 E	26	70
12 28	8 35.92	+25 14.5	1.556	2.458	11.5	19.2	150 W	70	39	5 16	8 36.40	-7 30.2	1.776	1.877	32.0	20.8	80 E	24	69
1 2	8 31.03	+25 36.0	1.537	2.468	9.3	19.1	156 W	71	38	5 21	8 45.60	-7 12.5	1.804	1.862	32.0	20.8	77 E	22	67
1 7	8 25.52	+25 57.2	1.524	2.479	7.0	19.0	162 W	71	38	5 26	8 55.21	-6 58.9	1.831	1.847	32.0	20.8	75 E	20	66
1 12	8 19.55	+26 17.2	1.519	2.489	4.7	18.9	168 W	71	38	5 31	9 5.20	-6 49.3	1.857	1.832	31.9	20.8	73 E	18	64
1 17	8 13.29	+26 35.2	1.520	2.499	2.9	18.8	173 W	72	37	6 5	9 15.52	-6 43.8	1.884	1.818	31.8	20.8	71 E	16	63
1 22	8 6.93	+26 50.5	1.529	2.509	2.8	18.8	173 E	72	37	6 10	9 26.16	-6 42.0	1.909	1.804	31.6	20.8	68 E	14	61
1 27	8 0.69	+27 2.5	1.545	2.518	4.4	18.9	169 E	72	37	6 15	9 37.10	-6 44.0	1.935	1.790	31.3	20.8	66 E	12	60
2 1	7 54.74	+27 11.1	1.569	2.528	6.5	19.1	163 E	72	37	6 20	9 48.31	-6 49.6	1.960	1.777	31.1	20.8	64 E	10	58
2 6	7 49.28	+27 16.1	1.599	2.537	8.7	19.2	157 E	72	37	6 25	9 59.78	-6 58.7	1.985	1.764	30.8	20.8	63 E	9	56
2 11	7 44.44	+27 17.7	1.636	2.545	10.8	19.4	151 E	72	37	6 30	10 11.48	-7 11.0	2.009	1.751	30.4	20.8	61 E	7	55
2 16	7 40.32	+27 16.2	1.679	2.554	12.7	19.5	145 E	72	37	7 5	10 23.40	-7 26.3	2.033	1.739	30.0	20.8	59 E	6	53
2 21	7 36.99	+27 11.9	1.727	2.562	14.5	19.6	140 E	72	37	7 10	10 35.51	-7 44.5	2.057	1.728	29.6	20.8	57 E	5	51
3 2	7 32.85	+26 56.4	1.838	2.579	17.4	19.9	129 E	72	37	7 15	10 47.82	-8 5.2	2.081	1.716	29.1	20.8	55 E	4	49
3 12	7 32.05	+26 33.7	1.964	2.594	19.6	20.1	119 E	72	37	7 20	11 0.30	-8 28.3	2.104	1.706	28.6	20.8	53 E	3	47
3 22	7 34.28	+26 5.6	2.100	2.608	21.1	20.3	109 E	71	38	7 25	11 12.95	-8 53.5	2.127	1.696	28.0	20.8	52 E	3	46
4 1	7 39.16	+25 33.1	2.243	2.621	22.0	20.5	101 E	71	38	7 30	11 25.75	-9 20.5	2.150	1.686	27.4	20.8	50 E	2	44
4 11	7 46.27	+24 56.5	2.389	2.634	22.3	20.7	93 E	68*	39	8 4	11 38.70	-9 49.0	2.173	1.678	26.8	20.8	48 E	2	42
4 21	7 55.19	+24 15.7	2.535	2.645	22.2	20.8	85 E	63*	40*	8 9	11 51.78	-10 18.6	2.195	1.669	26.2	20.8	47 E	2	40
5 1	8 5.59	+23 30.6	2.679	2.656	21.8	20.9	78 E	56*	40*	8 14	12 4.99	-10 49.2	2.218	1.662	25.5	20.8	45 E	2	39
5 11	8 17.16	+22 40.8	2.819	2.665	21.0	21.0	71 E	49*	40*	8 19	12 18.33	-11 20.4	2.240	1.655	24.8	20.8	43 E	2	37
5 21	8 29.63	+21 46.1	2.952	2.674	19.9	21.1	64 E	42*	39*	8 24	12 31.79	-11 51.9	2.262	1.649	24.0	20.8	42 E	2	35
5 31	8 42.82	+20 46.4	3.078	2.681	18.7	21.1	58 E	34*	38*	8 29	12 45.36	-12 23.4	2.284	1.643	23.2	20.8	40 E	2	34
6 10	8 56.54	+19 41.8	3.195	2.688	17.3	21.2	52 E	28*	36*	9 3	12 59.04	-12 54.5	2.306	1.638	22.4	20.8	38 E	2	32
6 20	9 10.66	+18 32.1	3.303	2.693	15.7	21.2	46 E	22*	33*	9 8	13 12.81	-13 25.0	2.327	1.634	21.6	20.8	37 E	2	30
6 30	9 25.08	+17 17.7	3.399	2.698	14.0	21.2	40 E	16*	30*	9 13	13 26.69	-13 54.5	2.349	1.631	20.8	20.7	35 E	2	29
7 10	9 39.70	+15 58.7	3.483	2.701	12.2	21.2	34 E	12*	26*	9 18	13 40.66	-14 22.8	2.370	1.629	19.9	20.7	33 E	3	27
7 20	9 54.47	+14 35.4	3.555	2.704	10.3	21.2	28 E	8*	21*	9 23	13 54.71	-14 49.5	2.391	1.627	19.0	20.7	32 E	3	26
7 30	10 9.32	+13 8.2	3.614	2.706	8.3	21.1	23 E	5*	16*	9 28	14 8.85	-15 14.4	2.411	1.626	18.1	20.7	30 E	3	24
8 9	10 24.21	+11 37.5	3.659	2.706	6.3	21.1	17 E	2*	11*	10 3	14 23.05	-15 37.1	2.431	1.626	17.2	20.7	29 E	4	23
8 19	10 39.12	+10 3.7	3.690	2.706	4.3	21.0	11 E	—	5*	10 8	14 37.32	-15 57.4	2.451	1.626	16.2	20.7	27 E	4	21
8 29	10 54.02	+8 27.4	3.707	2.704	2.2	20.9	6 E	—	—	10 13	14 51.64	-16 15.0	2.470	1.627	15.3	20.7	25 E	4	19
9 8	11 8.89	+6 49.1	3.709	2.702	0.5	20.7	1 E	—	—	10 18	15 6.01	-16 29.8	2.489	1.630	14.4	20.7	24 E	5	18
9 18	11 23.72	+5 9.3	3.697	2.699	2.1	20.8	6 W	—	—	10 23	15 20.41	-16 41.5	2.508	1.632	13.4	20.6	22 E	5	16
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EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/20	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	19/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°										
424965 2009 AM₁₅										152858 1999 XN₃₅																			
<i>(continuation)</i>										<i>(continuation)</i>																			
1 14	6 56.25	-54 11.0	0.492	1.200	52.8	19.6	104 E	—	62	1 12	8 12.04	+54 40.8	1.379	2.264	14.0	18.8	146 W	80	9	1 17	8 2.74	+55 15.8	1.402	2.282	14.1	18.8	146 W	80	9
1 16	6 47.05	-53 12.0	0.487	1.202	52.4	19.6	105 E	—	63	1 22	7 53.46	+55 37.4	1.430	2.300	14.5	18.9	144 E	79	8	1 27	7 44.60	+55 46.0	1.463	2.318	15.2	19.0	142 E	79	8
1 18	6 38.21	-52 5.6	0.483	1.204	52.0	19.5	105 E	—	64	2 1	7 36.55	+55 42.7	1.502	2.336	16.1	19.1	139 E	79	8	2 6	7 29.59	+55 28.8	1.546	2.353	17.1	19.2	136 E	80	9
1 20	6 29.81	-50 52.0	0.479	1.206	51.7	19.5	106 E	—	65	2 11	7 23.89	+55 6.1	1.594	2.371	18.0	19.3	132 E	80	9	2 16	7 19.54	+54 36.4	1.647	2.388	19.0	19.4	128 E	80	9
1 22	6 21.88	-49 31.5	0.475	1.207	51.5	19.5	106 E	—	66	2 21	7 16.55	+54 1.2	1.703	2.405	19.8	19.6	124 E	81	10	2 26	7 14.89	+53 21.8	1.763	2.421	20.6	19.7	121 E	82	11
1 27	6 4.32	-45 41.9	0.468	1.208	51.1	19.5	107 E	—	70	3 2	7 14.50	+52 39.4	1.826	2.438	21.3	19.8	117 E	82	11	3 7	7 15.26	+51 55.1	1.891	2.454	21.9	19.9	113 E	83	12
2 1	5 50.08	-41 17.5	0.463	1.207	51.2	19.4	107 E	4	75	3 12	7 17.06	+51 9.4	1.958	2.470	22.3	20.0	109 E	84	13	3 17	7 19.78	+50 22.9	2.027	2.486	22.7	20.1	106 E	85	14
2 6	5 39.02	-36 26.6	0.460	1.203	51.6	19.4	107 E	9	80	3 22	7 23.32	+49 35.8	2.097	2.502	22.9	20.2	102 E	85	14	3 27	7 27.58	+48 48.4	2.169	2.517	23.1	20.3	98 E	86	15
2 11	5 30.81	-31 17.9	0.461	1.197	52.5	19.4	107 E	14	85	4 1	7 32.47	+48 0.9	2.242	2.532	23.2	20.4	95 E	87	16	4 6	7 37.91	+47 13.4	2.314	2.547	23.1	20.4	92 E	85	17
2 16	5 25.07	-25 59.8	0.465	1.188	53.8	19.5	104 E	19	90	4 11	7 43.80	+46 25.8	2.388	2.561	23.8	20.5	88 E	82	18	4 16	7 50.08	+45 38.1	2.461	2.576	23.8	20.6	85 E	79	18
2 21	5 21.45	-20 39.6	0.472	1.177	55.4	19.5	101 E	24	85	4 21	7 56.71	+44 50.3	2.534	2.590	22.6	20.7	82 E	75	19	4 26	8 3.62	+44 2.4	2.606	2.604	22.3	20.7	79 E	72	20
2 26	5 19.62	-15 24.0	0.481	1.164	57.3	19.6	99 E	30	79	5 1	8 10.77	+43 14.2	2.678	2.617	21.9	20.8	76 E	68	21	5 6	8 18.12	+42 25.9	2.749	2.631	21.5	20.8	73 E	64	21
3 2	5 19.30	-10 17.6	0.493	1.147	59.3	19.7	95 E	35	74	5 11	8 25.63	+41 37.3	2.819	2.644	21.0	20.9	70 E	61	22	5 16	8 33.27	+40 48.3	2.888	2.656	20.5	20.9	67 E	57	22
3 7	5 20.20	-5 23.7	0.506	1.128	61.5	19.8	92 E	40	68	5 21	8 41.01	+39 59.0	2.955	2.669	19.9	21.0	64 E	54	23	5 26	8 48.83	+39 9.4	3.021	2.681	19.3	21.0	61 E	50	23
3 12	5 22.08	-0 43.8	0.520	1.107	63.8	19.9	88 E	44	63	5 31	8 56.71	+38 19.3	3.085	2.693	18.7	21.1	58 E	47	23	6 5	9 4.64	+37 28.9	3.147	2.705	18.0	21.1	55 E	44	23
3 22	5 27.96	+7 53.7	0.549	1.056	68.6	20.0	81 E	50	53	6 10	9 12.58	+36 38.1	3.208	2.716	17.3	21.1	53 E	41	23	6 15	9 25.54	+35 47.0	3.266	2.728	16.6	21.1	50 E	38	23
4 1	5 35.39	+15 41.1	0.576	0.994	73.7	20.2	73 E	51	44	6 20	9 28.50	+34 55.4	3.322	2.739	15.9	21.2	47 E	35	22	6 25	9 36.45	+34 3.6	3.376	2.749	15.1	21.2	45 E	32	21
4 11	5 42.50	+22 51.3	0.595	0.921	79.6	20.3	65 E	50	35	6 30	9 44.39	+33 11.4	3.427	2.760	14.3	21.2	42 E	30	20	7 5	9 52.30	+32 19.0	3.475	2.770	13.6	21.2	40 E	28	19
4 16	5 45.13	+26 16.9	0.601	0.880	83.0	20.3	61 E	48	30	7 10	10 0.18	+31 26.4	3.521	2.780	12.8	21.2	37 E	26	18	7 15	10 8.03	+30 33.6	3.564	2.789	12.0	21.2	35 E	24	17
4 21	5 46.53	+29 38.1	0.605	0.836	86.9	20.4	56 E	46	26	7 20	10 15.84	+29 40.7	3.605	2.799	11.2	21.2	32 E	22	15	7 25	10 23.62	+28 47.6	3.642	2.808	10.4	21.2	30 E	20	13
4 26	5 46.02	+32 55.1	0.606	0.790	91.3	20.4	52 E	43	21	7 30	10 31.35	+27 54.6	3.676	2.817	9.6	21.2	28 E	19	12	8 4	10 39.03	+27 1.6	3.707	2.825	8.9	21.2	25 E	17	10
5 1	5 42.63	+36 6.6	0.604	0.741	96.5	20.5	47 E	39	16	8 9	10 46.67	+26 8.7	3.735	2.833	8.2	21.2	23 E	16	7	8 14	10 54.26	+25 15.9	3.759	2.841	7.5	21.2	22 E	15	5
5 6	5 35.07	+39 6.9	0.602	0.690	102.5	20.6	42 E	35	11	8 19	11 1.80	+24 23.4	3.780	2.849	6.9	21.2	20 E	13	3	8 24	11 9.29	+23 31.2	3.798	2.856	6.4	21.2	18 E	12	1
5 11	5 21.87	+41 43.5	0.599	0.637	109.5	20.8	36 E	30	5	8 29	11 16.73	+22 39.3	3.812	2.864	6.0	21.2	17 E	11	*	8 29	11 33.37	+21 48.3	3.829	2.870	5.8	21.2	17 E	10	*
5 16	5 1.89	+43 32.8	0.600	0.584	117.3	21.2	31 E	25	—	9 8	11 31.46	+20 57.1	3.830	2.877	5.7	21.2	16 E	9	*	9 13	11 38.74	+20 6.8	3.833	2.883	5.7	21.2	17 E	8	*
										9 18	11 45.97	+19 17.1	3.833	2.889	6.0	21.2	17 E	7	*	9 23	11 53.14	+18 28.3	3.828	2.895	6.4	21.2	19 W	8	*
										9 28	12 0.25	+17 40.3	3.821	2.901	6.8	21.2	20 W	11	*	10 3	12 7.73	+16 53.3	3.809	2.906	7.4	21.3	22 W	14	*
										10 8	12 14.27	+16 7.3	3.794	2.911	8.1	21.3	24 W	17	*	10 13	12 21.19	+15 22.4	3.775	2.916	8.8	21.3	26 W	19	*
										10 18	12 28.03	+14 38.8	3.752	2.920	9.5	21.3	29 W	22	*	10 23	12 34.80	+13 56.5	3.725	2.924	10.3	21.3	32 W	25	*
										10 28	12 41.48	+13 15.6	3.695	2.928	11.0	21.4	34 W	28	2*	10 28	12 48.07	+12 36.2	3.661	2.932	11.8	21.4	37 W	31	4*
										11 2	12 54.56	+11 58.5	3.624	2.935	12.5	21.4	40 W	34	6*	11 7	13 7.22	+10 48.3	3.539	2.941	14.0	21.4	46 W	39	12*
										11 12	13 0.95	+11 22.5	3.583	2.938	13.3	21.4	43 W	37	9*	11 17	13 13.37	+10 16.1	3.492	2.943	14.7	21.4	49 W	42	14*
										11 17	13 7.22	+10 48.3	3.539	2.941	14.0	21.4	46 W	39	12*	11 27	13 19.37	+9 46.0	3.441	2.945	15.4	21.4	52 W	44	17*
										11 22	13 13.37	+10 16.1	3.492	2.943	14.7	21.4	49 W	42	14*	12 2	13 25.22	+9 18.0	3.388	2.947	16.0	21.4	56 W	46	20*
										12 2	13 25.22	+9 18.0	3.388	2.947	16.0	21.4	56 W	46	20*	12 7	13 30.90	+8 52.4	3.332	2.949	16.6	21.4	59 W	48	24*
										12 7	13 30.90	+8 52.4	3.332	2.949	16.6	21.4	59 W	48	24*	12 12	13 36.40	+8 29.0	3.273	2.950	17.2	21.3	62 W	50	27*
										12 12	13 36.40	+8 29.0	3.273	2.950	17.2	21.3	62 W	50	27*	12 17	13 41.70	+8 8.3	3.212	2.951	17.7	21.3	66 W	51	30*
										12 17	13 41.70	+8 8.3	3.212	2.951	17.7	21.3	66 W	51	30*	12 22	13 46.76	+7 50.1	3.148	2.952	18.2	21.3	70 W	52	34*
										12 27	13 51.57	+7 34.6	3.083	2.953	18.6	21.3	73 W	52	37*	12 27	13 51.57	+7 34.6	3.083	2.953	18.6	21.3	73 W	52	37*
										1 1	13 56.11	+7 22.0	3.016	2.953	18.9	21.2	77 W	52	41*	1 6	14 0.36	+7 12.2	2.947	2.953	19.2	21.2	81 W	52	44*
										1 6	14 0.36	+7 12.2	2.947	2.953	19.2	21.2	81 W	52	44*										

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	19/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°
329340 2001 LM₅										311221 2005 AS₂₈									
<i>(continuation)</i>																			
1 17	7 58.71	-9 42.2	0.246	1.202	24.7	17.8	149W	35	74	12 23	8 43.22	+23 7.0	1.573	2.433	14.0	20.5	143W	68	41
1 22	7 47.11	-12 45.2	0.249	1.200	26.7	17.9	147E	32	77	1 2	8 37.27	+24 6.9	1.466	2.392	10.1	20.2	155W	69	40
1 27	7 35.99	-15 15.0	0.255	1.199	29.5	18.0	143E	30	79	1 12	8 28.19	+25 15.1	1.384	2.351	5.7	19.8	166W	70	39
2 1	7 26.00	-17 10.3	0.264	1.197	32.6	18.2	139E	28	81	1 22	8 16.71	+26 24.2	1.328	2.309	2.8	19.5	173W	71	38
2 6	7 17.65	-18 33.1	0.274	1.195	35.7	18.3	135E	26	83	1 27	8 10.47	+26 56.2	1.311	2.287	4.2	19.6	170E	72	37
2 11	7 11.19	-19 27.6	0.286	1.194	38.6	18.5	131E	26	83	2 1	8 4.18	+27 25.3	1.301	2.266	6.6	19.6	165E	72	37
2 16	7 6.72	-19 58.3	0.299	1.193	41.2	18.7	127E	25	84	2 6	7 58.07	+27 50.6	1.298	2.245	9.3	19.7	159E	73	36
2 21	7 4.27	-20 9.6	0.313	1.192	43.5	18.8	124E	25	84	2 11	7 52.37	+28 11.6	1.301	2.223	11.9	19.8	152	73	36
2 26	7 3.78	-20 5.7	0.327	1.191	45.6	19.0	121E	25	84	2 16	7 47.26	+28 28.2	1.310	2.201	14.4	19.9	146E	73	36
3 2	7 5.16	-19 50.6	0.341	1.190	47.3	19.1	118E	25	84	2 21	7 42.91	+28 40.2	1.324	2.179	16.8	20.0	140E	74	35
3 7	7 8.23	-19 27.5	0.356	1.190	48.9	19.3	115E	26	83	2 26	7 39.45	+28 47.9	1.343	2.158	19.0	20.1	135E	74	35
3 12	7 12.82	-18 58.8	0.370	1.189	50.2	19.4	113E	26	83	3 2	7 36.99	+28 51.5	1.366	2.136	21.0	20.2	129E	74	35
3 17	7 18.78	-18 26.2	0.385	1.189	51.3	19.5	111E	27	82	3 12	7 35.20	+28 48.2	1.421	2.092	24.5	20.3	119E	74	35
3 22	7 26.00	-17 50.9	0.399	1.189	52.3	19.6	109E	27	82	3 22	7 37.53	+28 32.6	1.484	2.048	27.3	20.4	110E	74	35
3 27	7 34.37	-17 14.4	0.412	1.189	53.1	19.7	108E	28	81	4 1	7 43.71	+28 6.3	1.552	2.004	29.3	20.5	101E	73	36
4 1	7 43.81	-16 37.6	0.426	1.190	53.8	19.8	106E	28	81	4 11	7 53.29	+27 29.8	1.621	1.960	30.7	20.6	94E	71*	37
4 6	7 54.20	-16 1.6	0.439	1.190	54.4	19.9	105E	29*	80	4 21	8 5.76	+26 42.9	1.688	1.917	31.6	20.7	87E	66*	37
4 11	8 5.43	-15 26.7	0.452	1.191	55.0	20.0	103E	29*	79	5 1	8 20.68	+25 44.6	1.752	1.875	32.0	20.7	81E	60*	38*
4 16	8 17.44	-14 53.4	0.465	1.192	55.4	20.0	102E	30*	79	5 11	8 37.63	+24 34.3	1.812	1.833	32.2	20.8	75E	54*	39*
4 21	8 30.18	-14 21.9	0.477	1.193	55.8	20.1	101E	30*	78	5 21	8 56.24	+23 10.9	1.868	1.793	32.0	20.8	70E	47*	40*
4 26	8 43.58	-13 52.7	0.490	1.194	56.1	20.2	100E	29*	78	5 31	9 16.22	+21 33.8	1.918	1.754	31.7	20.8	65E	41*	40*
5 1	8 57.60	-13 26.3	0.503	1.195	56.3	20.2	99E	29*	77	6 10	9 37.31	+19 42.6	1.962	1.717	31.1	20.8	61E	35*	41*
5 6	9 12.15	-13 2.8	0.516	1.197	56.5	20.3	98E	29*	77	6 20	9 59.31	+17 37.2	2.002	1.683	30.5	20.8	57E	30*	40*
5 11	9 27.17	-12 42.4	0.529	1.199	56.7	20.4	97E	28*	77	6 30	10 22.08	+15 18.0	2.038	1.650	29.7	20.7	54E	25*	40*
5 21	9 58.40	-12 10.4	0.556	1.202	56.9	20.5	96E	27*	76	7 10	10 45.49	+12 45.7	2.071	1.621	28.8	20.7	50E	21*	39*
5 31	10 30.92	-11 51.3	0.586	1.206	57.0	20.6	94E	25*	76	7 20	11 9.49	+10 1.6	2.100	1.594	27.9	20.7	47E	18*	38*
6 10	11 4.26	-11 44.4	0.618	1.211	56.9	20.7	92E	24*	76	7 30	11 34.05	+7 7.2	2.128	1.572	26.8	20.6	44E	15*	36*
6 20	11 38.04	-11 48.2	0.653	1.216	56.7	20.8	91E	22*	76	8 9	11 59.14	+4 4.7	2.155	1.553	25.8	20.6	42E	13*	34*
6 30	12 12.02	-12 1.4	0.691	1.221	56.4	21.0	89E	21*	76*	8 19	12 24.80	+0 56.6	2.182	1.538	24.6	20.6	39E	12*	32*
7 10	12 45.90	-12 21.6	0.732	1.226	55.9	21.1	87E	21*	76*	8 29	12 51.06	-2 14.3	2.210	1.528	23.4	20.5	37E	10*	30*
7 20	13 19.56	-12 46.4	0.776	1.232	55.4	21.2	86E	21*	76*	9 8	13 17.96	-5 24.6	2.240	1.522	22.1	20.5	35E	9*	28*
7 30	13 52.94	-13 13.5	0.823	1.237	54.7	21.3	84E	21*	75*	9 18	13 45.54	-8 30.8	2.272	1.521	20.7	20.5	32E	8*	26*
8 9	14 25.98	-13 40.1	0.872	1.242	53.9	21.4	82E	22*	74*	9 28	14 13.85	-11 29.3	2.306	1.525	19.3	20.5	30E	7*	24*
102896 1999 XD₁₀										31098 Frankhill									
12 23	8 42.42	+16 56.4	1.784	2.630	13.3	19.7	142W	62	47	12 23	8 43.47	-7 39.5	1.992	2.729	16.1	19.2	130W	37	72
1 2	8 33.84	+16 57.8	1.728	2.648	9.3	19.5	154W	62	47	1 2	8 35.61	-8 50.0	1.934	2.749	13.7	19.1	139W	36	73
1 12	8 23.13	+17 5.3	1.698	2.665	4.9	19.3	167W	62	47	1 12	8 25.83	-9 36.1	1.898	2.767	11.5	19.0	146W	35	74
1 22	8 11.34	+17 15.8	1.697	2.680	1.0	19.0	177E	62	47	1 22	8 14.97	-9 55.0	1.888	2.785	10.1	19.0	150W	35	74
1 27	8 5.43	+17 21.2	1.708	2.688	2.6	19.2	173E	62	47	2 1	8 4.12	-9 46.2	1.904	2.801	10.1	19.0	150E	35	74
2 1	7 59.75	+17 26.3	1.727	2.695	4.8	19.3	167E	62	47	2 6	7 59.04	-9 32.4	1.922	2.809	10.6	19.0	148E	35	74
2 6	7 54.44	+17 30.8	1.753	2.703	7.0	19.5	161E	63	46	2 11	7 54.36	-9 13.3	1.947	2.817	11.4	19.1	146E	36	73
2 11	7 49.62	+17 34.6	1.786	2.709	9.0	19.6	154E	63	46	2 16	7 50.17	-8 49.7	1.978	2.825	12.4	19.2	142E	36	73
2 21	7 41.85	+17 39.3	1.870	2.723	12.8	19.9	143E	63	46	2 21	7 46.54	-8 22.4	2.015	2.832	13.4	19.3	139E	37	72
3 2	7 36.94	+17 40.2	1.977	2.735	15.8	20.1	131E	63	46	2 26	7 43.54	-7 52.4	2.057	2.839	14.4	19.3	134E	37	72
3 12	7 35.02	+17 37.1	2.099	2.746	18.1	20.3	121E	63	46	3 2	7 41.21	-7 20.6	2.103	2.846	15.4	19.4	130E	38	71
3 22	7 35.92	+17 29.8	2.234	2.756	19.7	20.5	111E	62	47	3 7	7 39.56	-6 47.8	2.155	2.853	16.4	19.5	126E	38	71
4 1	7 39.37	+17 18.1	2.376	2.765	20.7	20.7	102E	62	47	3 12	7 38.59	-6 14.7	2.209	2.859	17.2	19.6	122E	39	70
4 11	7 45.00	+17 1.6	2.521	2.774	21.1	20.9	94E	61*	47	3 22	7 38.60	-5 10.3	2.329	2.871	18.6	19.8	113E	40	69
4 21	7 52.46	+16 40.0	2.667	2.781	21.1	21.0	86E	56*	47*	4 1	7 41.07	-4 11.3	2.457	2.882	19.6	19.9	105E	41	68
5 1	8 1.45	+16 12.9	2.810	2.787	20.7	21.1	78E	50*	47*	4 11	7 45.70	-3 20.5	2.591	2.892	20.1	20.1	97E	41*	67
5 11	8 11.68	+15 39.9	2.949	2.793	20.0	21.2	71E	43*	46*	4 21	7 52.19	-2 39.5	2.727	2.901	20.3	20.2	90E	38*	67*
5 21	8 22.90	+15 1.0	3.081	2.797	19.0	21.2	64E	36*	45*	5 1	8 0.26	-2 9.2	2.863	2.909	20.1	20.3	83E	34*	65*
5 31	8 34.92	+14 15.9	3.206	2.800	17.8	21.3	58E	29*	43*	5 11	8 9.63	-1 49.9	2.997	2.917	19.6	20.4	76E	29*	63*
6 10	8 47.57	+13 24.7	3.320	2.803	16.5	21.3	51E	22*	40*	5 21	8 20.08	-1 41.6	3.125	2.923	18.9	20.5	69E	23*	59*
6 20	9 0.70	+12 27.5	3.424	2.804	14.9	21.3	45E	16*	36*	5 31	8 31.42	-1 44.1	3.248	2.928	18.0	20.5	63E	17*	55*
6 30	9 14.21	+11 24.3	3.517	2.804	13.3	21.3	39E	10*	32*	6 10	8 43.46	-1 57.1	3.362	2.933	16.9	20.6	57E	10*	50*
7 10	9 28.01	+10 15.5	3.596	2.804	11.5	21.3	33E	6*	27*	6 20	8 56.08	-2 20.1	3.467	2.936	15.6	20.6	51E	5*	45*
7 20	9 42.01	+9 1.4	3.663	2.802	9.7	21.3	28E	2*	22*	6 30	9 9.14	-2 52.5	3.562	2.938	14.3	20.6	45E	—	39*
7 30	9 56.17	+7 42.1	3.716	2.800	7.8	21.2	22E	—	16*	7 10	9 22.56	-3 33.9	3.646	2.940	12.8	20.6	40E	—	33*
8 9	10 10.42	+6 18.2	3.754	2.796	5.9	21.2	16E	—	10*	7 20	9 36.25	-4 23.7	3.718	2.940	11.4	20.6	35E	—	27*
8 19	10 24.74	+4 50.1	3.778	2.792	4.0	21.1	11E	—	4*	7 30	9 50.15	-5 21.2	3.777	2.940	9.9	20.6	30E	—	21*
8 29	10 39.09	+3 18.1	3.788	2.786	2.3	21.0	6E	—	—	8 9	10 4.19	-6 25.8	3.823	2.938	8.5	20.5	25E	—	14*
9 8	10 53.44	+1 42.8	3.782																

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	19/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	
31098 Frankhill										138013 2000 CN ₁₀₁										
<i>(continuation)</i>										<i>(continuation)</i>										
10 8	11 29.48	-14 47.7	3.805	2.909	7.6	20.5	23 W	2*	17*	8 19	10 20.61	+ 5 37.7	2.936	1.946	5.1	18.8	10 E	—	—	3*
10 18	11 43.56	-16 24.4	3.751	2.901	9.0	20.5	27 W	7*	21*	8 29	10 39.76	+ 4 17.0	2.880	1.877	3.0	18.6	6 E	—	—	—
10 28	11 57.52	-18 3.1	3.684	2.892	10.6	20.5	32 W	11*	25*	9 8	10 59.78	+ 2 48.1	2.809	1.805	1.9	18.4	3 W	—	—	—
11 7	12 11.29	-19 43.1	3.603	2.882	12.1	20.5	38 W	15*	30*	9 18	11 20.82	+ 1 11.3	2.725	1.727	3.2	18.3	5 W	—	—	—
11 17	12 24.83	-21 23.7	3.509	2.871	13.7	20.5	43 W	17*	35*	9 28	11 43.10	- 0 33.3	2.628	1.646	5.4	18.2	9 W	1*	1*	—
11 27	12 38.03	-23 4.2	3.403	2.859	15.2	20.5	49 W	19*	40*	10 8	12 6.87	- 2 25.1	2.521	1.560	7.9	18.1	12 W	5*	3*	—
12 7	12 50.82	-24 44.0	3.286	2.846	16.6	20.4	55 W	19*	47*	10 18	12 32.53	- 4 23.8	2.404	1.469	10.5	18.0	16 W	8*	5*	—
12 17	13 3.06	-26 22.3	3.159	2.832	17.9	20.4	62 W	18*	54*	10 28	13 0.52	- 6 28.3	2.281	1.373	13.1	17.8	18 W	11*	6*	—
12 27	13 14.58	-27 58.3	3.023	2.817	19.0	20.3	69 W	17	61*	11 7	13 31.46	- 8 37.0	2.154	1.273	15.8	17.6	20 W	12*	7*	—
1 6	13 25.20	-29 31.2	2.881	2.801	19.9	20.2	76 W	15	69*	11 17	14 6.11	-10 47.0	2.027	1.168	18.3	17.4	22 W	13*	8*	—
1 16	13 34.68	-31 0.0	2.733	2.785	20.5	20.1	83 W	14	77*	11 22	14 25.11	-11 51.0	1.965	1.114	19.5	17.3	22 W	14*	9*	—
456973 2008 BS ₂										393858 2005 ST ₂₂₀										
12 23	8 43.76	+26 2.3	1.432	2.298	14.8	21.4	143 W	71	38	11 27	14 45.39	-12 53.3	1.905	1.059	20.6	17.1	22 W	14*	9*	—
12 28	8 37.23	+26 13.3	1.401	2.305	12.4	21.3	150 W	71	38	12 2	15 7.07	-13 52.6	1.847	1.003	21.6	17.0	22 W	13*	8*	—
1 2	8 29.75	+26 23.8	1.376	2.311	9.8	21.2	156 W	71	38	12 7	15 30.28	-14 47.7	1.793	0.948	22.4	16.8	22 W	13*	8*	—
1 7	8 21.48	+26 32.5	1.358	2.316	7.1	21.0	163 W	72	37	12 12	15 55.14	-15 36.7	1.742	0.892	22.9	16.6	21 W	12*	8*	—
1 12	8 12.64	+26 38.7	1.347	2.320	4.5	20.9	169 W	72	37	12 17	16 21.72	-16 17.8	1.697	0.837	23.1	16.5	20 W	11*	7*	—
1 17	8 3.47	+26 41.3	1.344	2.324	2.7	20.8	174 W	72	37	12 22	16 50.03	-16 48.8	1.657	0.783	22.8	16.3	18 W	10*	6*	—
1 22	7 54.24	+26 40.0	1.349	2.328	3.4	20.8	172 E	72	37	12 27	17 20.07	-17 7.4	1.624	0.732	21.9	16.0	16 W	8*	4*	—
1 27	7 45.24	+26 34.4	1.362	2.330	5.8	21.0	166 E	72	37	1 1	17 51.70	-17 11.7	1.597	0.685	20.2	15.8	14 W	7*	2*	—
2 1	7 36.75	+26 24.8	1.383	2.332	8.4	21.1	160 E	71	38	1 6	18 24.72	-17 0.1	1.578	0.645	17.7	15.6	12 W	5*	—	—
2 6	7 29.00	+26 11.5	1.411	2.334	11.0	21.3	153 E	71	38	1 11	18 58.83	-16 31.8	1.565	0.613	14.5	15.3	9 W	3*	—	—
2 11	7 22.15	+25 55.2	1.446	2.335	13.4	21.4	147 E	71	38	1 16	19 33.62	-15 46.8	1.558	0.592	11.1	15.1	7 W	1*	—	—
2 16	7 16.30	+25 36.6	1.486	2.335	15.6	21.6	141 E	71	38	393858 2005 ST ₂₂₀										
396680 2002 ST										12 23	8 46.67	+15 13.7	1.680	2.518	14.4	21.0	141 W	60	49	
12 23	8 43.92	+16 43.6	1.377	2.233	15.9	20.1	142 W	62	47	1 2	8 38.46	+15 18.8	1.629	2.542	10.3	20.8	153 W	60	49	
1 2	8 31.54	+15 10.5	1.351	2.276	10.9	19.9	154 W	60	49	1 12	8 28.02	+15 32.5	1.603	2.565	5.7	20.6	165 W	61	48	
1 12	8 17.13	+13 44.2	1.353	2.320	5.8	19.7	166 W	59	50	1 22	8 16.41	+15 51.6	1.605	2.588	1.6	20.4	176 W	61	48	
1 22	8 2.34	+12 26.9	1.384	2.363	3.3	19.7	172 E	57	52	1 27	8 10.57	+16 2.0	1.618	2.599	2.4	20.5	174 E	61	48	
1 27	7 55.33	+11 52.4	1.412	2.384	4.8	19.8	168 E	57	52	2 1	8 4.94	+16 12.3	1.638	2.609	4.5	20.6	168 E	61	48	
2 1	7 48.83	+11 20.8	1.447	2.406	6.9	20.0	163 E	56	53	2 6	7 59.69	+16 22.3	1.665	2.620	6.7	20.8	162 E	61	48	
2 6	7 43.01	+10 52.2	1.489	2.427	9.1	20.2	157 E	56	53	2 11	7 54.93	+16 31.5	1.699	2.630	8.9	21.0	156 E	62	47	
2 11	7 37.94	+10 26.6	1.537	2.448	11.2	20.4	151 E	55	54	2 16	7 50.77	+16 39.8	1.740	2.640	10.9	21.1	150 E	62	47	
2 21	7 30.34	+ 9 43.5	1.653	2.490	14.9	20.7	140 E	55	54	2 21	7 47.29	+16 47.0	1.786	2.650	12.7	21.2	144 E	62	47	
3 2	7 26.20	+ 9 9.5	1.788	2.532	17.7	21.0	129 E	54	55	2 26	7 44.54	+16 53.1	1.838	2.659	14.4	21.4	138 E	62	47	
3 12	7 25.30	+ 8 41.7	1.937	2.573	19.7	21.3	119 E	54	55	3 2	7 42.55	+16 58.0	1.895	2.669	15.8	21.5	133 E	62	47	
3 22	7 27.25	+ 8 17.2	2.098	2.613	21.0	21.5	110 E	53	56	124499 2001 RK ₄₆										
282126 2001 MV ₁										12 23	8 47.00	+23 24.9	1.824	2.672	13.0	20.2	142 W	68	41	
12 23	8 44.20	- 4 18.5	2.113	2.864	14.8	21.1	132 W	41	68	1 2	8 38.66	+24 7.8	1.777	2.697	9.1	20.0	154 W	69	40	
1 2	8 36.20	- 5 23.9	2.046	2.878	12.4	21.0	141 W	40	69	1 12	8 28.11	+24 51.6	1.756	2.721	4.9	19.8	166 W	70	39	
1 12	8 26.30	- 6 8.8	2.003	2.890	10.1	20.9	149 W	39	70	1 22	8 16.40	+25 30.2	1.764	2.745	2.0	19.7	174 W	71	38	
1 22	8 15.33	- 6 30.8	1.987	2.901	8.7	20.8	154 W	38	71	1 27	8 10.51	+25 46.1	1.779	2.756	3.2	19.8	171 E	71	38	
2 1	8 4.29	- 6 29.4	1.999	2.911	8.8	20.8	153 E	39	70	2 1	8 4.83	+25 59.1	1.802	2.767	5.1	19.9	166 E	71	38	
2 11	7 54.25	- 6 7.5	2.039	2.921	10.4	20.9	148 E	39	70	2 6	7 59.50	+26 9.0	1.833	2.778	7.1	20.1	160 E	71	38	
2 21	7 46.04	- 5 29.9	2.104	2.929	12.6	21.1	140 E	39	70	2 11	7 54.67	+26 15.8	1.870	2.789	9.0	20.2	154 E	71	38	
3 2	7 40.22	- 4 42.6	2.192	2.936	14.8	21.3	131 E	40	69	2 16	7 50.44	+26 19.7	1.914	2.799	10.8	20.3	148 E	71	38	
3 12	7 37.04	- 3 51.5	2.297	2.942	16.7	21.4	122 E	41	68	2 21	7 46.87	+26 20.8	1.963	2.809	12.5	20.5	142 E	71	38	
138013 2000 CN ₁₀₁										3 2	7 41.94	+26 15.7	2.078	2.829	15.3	20.7	131 E	71	38	
12 23	8 46.14	- 3 28.7	1.841	2.603	16.3	18.9	132 W	42	67	3 12	7 40.00	+26 2.7	2.209	2.848	17.5	20.9	121 E	71	38	
1 2	8 35.77	- 3 33.1	1.760	2.609	13.3	18.7	142 W	41	68	3 22	7 40.89	+25 43.4	2.353	2.865	18.9	21.1	111 E	71	38	
1 12	8 22.92	- 3 11.6	1.703	2.612	10.2	18.5	152 W	42	67	4 1	7 44.32	+25 18.9	2.504	2.882	19.8	21.3	102 E	70	39	
1 22	8 8.61	- 2 23.4	1.675	2.613	8.2	18.4	158 E	43	66	4 11	7 49.91	+24 50.0	2.658	2.898	20.2	21.4	94 E	68*	39	
2 1	7 54.18	- 1 11.5	1.679	2.610	8.8	18.4	156 E	44	65	138883 2000 YL ₂₉										
2 6	7 47.37	- 0 28.6	1.692	2.608	10.0	18.5	153 E	45	64	12 23	8 47.46	-15 20.8	1.344	2.063	23.3	20.0	124 W	30	79	
2 11	7 41.05	+ 0 17.5	1.713	2.605	11.4	18.6	148 E	45	64	12 28	8 43.48	-15 47.1	1.305	2.064	22.0	19.9	128 W	29	80	
2 16	7 35.33	+ 1 5.7	1.740	2.602	13.0	18.6	144 E	46	63	1 7	8 32.85	-16 9.3	1.239	2.065	19.2	19.7	136 W	29	80	
2 21	7 30.33	+ 1 55.1	1.774	2.597	14.7	18.7	138 E	47	62	1 12	8 26.41	-16 2.8	1.213	2.064	17.9	19.6	140 W	29	80	
2 26	7 26.10	+ 2 44.7	1.814	2.592	16.2	18.8	133 E	48	61	1 17	8 19.43	-15 43.4	1.192	2.063	16.8	19.5	143 W	29	80	
3 2	7 22.70	+ 3 33.7	1.858	2.587	17.6	18.9	128 E	49	60	1 22	8 12.10	-15 10.6	1.177	2.061	15.9	19.5	145 E	30	79	
3 12	7 18.39	+ 5 7.1	1.959	2.573	20.0	19.1	117 E	50	59	1 27	8 4.65	-14 24.7	1.167	2.059	15.5	19.5	146 E	31	78	
3 22	7 17.28	+ 6 31.7	2.072	2.557	21.8	19.3	108 E	52	57	2 1	7 57.36	-13 26.4	1.163	2.056	15.5	19.4	146 E	32	77	
4 1	7 19.10	+ 7 45.3	2.190	2.538	22.9	19.4	99 E	53*	56	2 6	7 50.45	-12 17.2	1.166	2.052	16.1	19.5	145 E	33	76	
4 11	7 23.48	+ 8 47.1	2.310	2.516	23.5	19.5	90 E	51*	55*	2 11	7 44.15	-10 59.1	1.174	2.048	17.0	19.5	143 E	34	75	
4 21	7																			

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	19/20	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°
138883 2000 YL₂₉										477330 2009 TV₂₁									
<i>(continuation)</i>										<i>(continuation)</i>									
5 11	8 20.21	+9 18.8	1.860	1.870	31.4	20.7	75 E	40*	53*	3 22	8 13.93	-7 54.3	0.905	1.663	30.6	20.8	122 E	37	72
5 21	8 36.62	+10 0.1	1.939	1.839	30.9	20.8	69 E	34*	51*	3 27	8 18.81	-5 58.9	0.936	1.665	31.7	20.9	119 E	39	70
5 31	8 54.32	+10 23.3	2.012	1.805	30.2	20.8	64 E	29*	49*	4 1	8 24.56	-4 10.9	0.970	1.668	32.6	21.0	116 E	41	68
6 10	9 13.11	+10 29.5	2.076	1.769	29.2	20.8	58 E	24*	46*	4 6	8 31.07	-2 31.2	1.006	1.672	33.5	21.1	113 E	42	67
6 20	9 32.87	+10 20.0	2.132	1.730	28.1	20.8	53 E	20*	43*	4 11	8 38.26	-1 0.4	1.045	1.675	34.2	21.2	110 E	44	65
6 30	9 53.51	+9 55.6	2.177	1.690	26.9	20.7	49 E	16*	40*	4 16	8 46.05	+0 21.4	1.085	1.679	34.9	21.3	107 E	45*	64
7 10	10 14.96	+9 17.5	2.213	1.647	25.6	20.7	44 E	13*	36*	4 21	8 54.38	+1 34.0	1.128	1.682	35.4	21.4	104 E	46*	62
7 20	10 37.21	+8 26.5	2.238	1.603	24.2	20.6	40 E	11*	33*	455594 2004 SV₅₅									
7 30	11 0.27	+7 23.7	2.253	1.557	22.8	20.5	36 E	10*	29*	12 23	8 49.48	+75 0.7	2.181	2.852	16.6	22.8	124 W	60	—
8 9	11 24.18	+6 10.0	2.257	1.509	21.4	20.4	33 E	9*	26*	12 28	8 29.56	+75 50.4	2.160	2.843	16.4	22.7	125 W	59	—
8 19	11 49.03	+4 46.6	2.252	1.460	20.0	20.3	30 E	8*	23*	1 2	8 5.64	+76 25.6	2.145	2.833	16.4	22.7	126 W	59	—
8 29	12 14.93	+3 14.4	2.238	1.410	18.7	20.2	27 E	8*	20*	1 7	7 38.82	+76 42.5	2.134	2.823	16.4	22.7	126 W	58	—
9 8	12 42.01	+1 35.0	2.214	1.359	17.6	20.0	24 E	8*	17*	1 12	7 10.95	+76 38.9	2.129	2.812	16.6	22.7	125 E	58	—
9 18	13 10.44	+0 10.4	2.184	1.308	16.8	19.9	22 E	8*	15*	1 17	6 44.20	+76 14.7	2.129	2.800	16.9	22.7	124 E	59	—
9 28	13 40.42	+1 59.8	2.147	1.258	16.2	19.7	20 E	8*	12*	1 22	6 20.39	+75 31.5	2.134	2.788	17.3	22.7	122 E	59	—
10 8	14 12.13	+3 50.9	2.106	1.209	15.9	19.6	19 E	9*	10*	1 27	6 0.61	+74 32.7	2.144	2.776	17.8	22.7	120 E	60	—
10 18	14 45.79	+5 41.1	2.062	1.163	16.0	19.5	19 E	10*	9*	437316 2013 OS₃									
10 28	15 21.55	+7 26.9	2.017	1.120	16.4	19.3	19 E	10*	7*	12 23	8 50.49	+69 13.9	0.361	1.239	38.8	18.2	128 W	66	—
11 7	15 59.49	+9 3.9	1.975	1.082	17.0	19.3	19 E	11*	6*	12 25	8 45.24	+68 59.4	0.340	1.226	38.6	18.0	129 W	66	—
11 17	16 39.60	+10 27.6	1.937	1.051	17.7	19.2	19 E	12*	5*	12 27	8 38.77	+68 38.7	0.319	1.213	38.3	17.9	130 W	66	—
11 27	17 21.68	+11 32.8	1.906	1.027	18.5	19.1	19 E	12*	4*	12 29	8 31.02	+68 10.2	0.298	1.201	37.9	17.7	131 W	67	—
12 7	18 5.32	+12 14.8	1.885	1.013	19.1	19.1	20 E	13*	4*	12 31	8 21.96	+67 31.6	0.277	1.189	37.4	17.5	133 W	67	—
12 17	18 49.96	+12 30.1	1.874	1.007	19.5	19.1	20 E	13*	4*	1 2	8 11.62	+66 40.0	0.256	1.177	36.7	17.3	134 W	68	—
12 27	19 34.87	+12 17.0	1.876	1.012	19.6	19.1	20 E	13*	4*	1 4	8 0.05	+65 31.7	0.236	1.165	35.9	17.1	136 W	69	—
1 6	20 19.32	+11 36.0	1.891	1.027	19.4	19.1	20 E	13*	4*	1 6	7 47.37	+64 1.9	0.217	1.153	34.8	16.8	138 W	71	—
1 16	21 2.67	+10 30.1	1.918	1.050	18.8	19.2	20 E	13*	4*	1 8	7 33.76	+62 4.3	0.197	1.142	33.5	16.6	140 W	73	2
154988 2004 XN₃₅										1 10	7 19.46	+59 30.6	0.179	1.131	31.9	16.3	143 E	75	4
12 23	8 47.93	+11 13.1	1.077	1.930	19.6	20.9	139 W	56	53	1 12	7 4.73	+56 10.2	0.161	1.120	30.0	16.0	145 E	79	8
12 28	8 39.12	+11 59.4	1.068	1.963	16.2	20.8	146 W	57	52	1 13	6 57.30	+54 8.4	0.153	1.114	29.0	15.8	147 E	81	10
1 2	8 29.40	+12 50.0	1.066	1.995	12.7	20.7	154 W	58	51	1 14	6 49.87	+51 49.6	0.145	1.109	27.9	15.7	148 E	83	12
1 7	8 19.05	+13 43.3	1.071	2.026	9.0	20.6	161 W	59	50	1 15	6 42.47	+49 11.7	0.137	1.104	26.8	15.5	150 E	86	15
1 12	8 8.38	+14 37.5	1.083	2.056	5.5	20.5	169 W	60	49	1 16	6 35.15	+46 12.5	0.129	1.098	25.8	15.3	151 E	89	18
1 17	7 57.73	+15 31.1	1.104	2.085	2.6	20.4	174 W	61	48	1 17	6 27.94	+42 49.7	0.123	1.093	25.1	15.2	152 E	88	21
1 22	7 47.41	+16 22.4	1.133	2.113	3.3	20.5	173 E	61	48	1 18	6 20.85	+39 1.6	0.116	1.088	24.6	15.1	153 E	84	25
1 27	7 37.74	+17 10.4	1.170	2.140	6.2	20.8	166 E	62	47	1 19	6 13.93	+34 46.9	0.111	1.083	24.8	14.9	153 E	80	29
2 1	7 28.98	+17 54.3	1.215	2.166	9.2	21.0	160 E	63	46	1 20	6 7.18	+30 5.5	0.106	1.078	25.6	14.9	152 E	75	34
2 6	7 21.28	+18 33.9	1.267	2.190	11.9	21.2	153 E	64	45	1 21	6 0.64	+24 58.5	0.102	1.074	27.3	14.8	150 E	70	39
2 11	7 14.77	+19 9.0	1.326	2.214	14.4	21.5	146 E	64	45	1 22	5 54.31	+19 29.5	0.099	1.069	29.8	14.8	147 E	64	45
2 16	7 9.46	+19 39.9	1.390	2.237	16.6	21.7	140 E	65	44	1 23	5 48.20	+13 43.7	0.097	1.064	33.1	14.9	144 E	59	50
241370 2008 LW₈										1 24	5 42.32	+7 48.6	0.097	1.060	37.0	15.0	140 E	53	56
12 23	8 48.43	+10 51.9	1.197	1.952	23.8	20.3	127 W	34	75	1 25	5 36.67	+1 52.5	0.097	1.055	41.2	15.1	135 E	47	62
12 28	8 43.28	+11 31.2	1.179	1.972	22.0	20.2	131 W	33	76	1 26	5 31.26	+3 56.1	0.099	1.051	45.5	15.2	130 E	41	68
1 2	8 37.26	+12 0.4	1.166	1.992	20.1	20.1	136 W	33	76	1 27	5 26.08	-9 30.0	0.101	1.047	49.8	15.4	126 E	35	74
1 7	8 30.54	+12 18.6	1.157	2.011	18.4	20.1	140 W	33	76	1 28	5 21.13	-14 43.6	0.105	1.043	53.9	15.6	121 E	30	79
1 12	8 23.30	+12 25.1	1.153	2.030	16.8	20.0	143 W	33	76	1 29	5 16.40	-19 33.6	0.109	1.039	57.8	15.8	117 E	25	84
1 17	8 15.76	+12 19.7	1.155	2.047	15.5	20.0	146 W	33	76	1 30	5 11.89	-23 58.4	0.114	1.035	61.3	15.9	113 E	21	88
1 22	8 8.15	+12 2.5	1.163	2.065	14.6	20.0	148 E	33	76	1 31	5 7.58	-27 58.3	0.120	1.031	64.4	16.1	109 E	17	88
1 27	8 0.73	+11 34.4	1.177	2.082	14.3	20.1	149 E	33	76	2 1	5 3.46	-31 34.4	0.126	1.027	67.2	16.3	106 E	13	84
2 1	7 53.73	+10 56.5	1.197	2.098	14.5	20.1	148 E	34	75	2 2	4 59.53	-34 48.5	0.133	1.023	69.7	16.5	103 E	10	81
2 6	7 47.36	+10 10.5	1.223	2.114	15.1	20.2	146 E	35	74	2 3	4 55.77	-37 42.6	0.140	1.020	71.9	16.7	100 E	7	78
2 11	7 41.78	+9 18.3	1.255	2.129	16.1	20.3	143 E	36	73	2 4	4 52.17	-40 18.8	0.147	1.017	73.8	16.9	98 E	5	76
2 16	7 37.08	+8 21.7	1.292	2.144	17.3	20.4	140 E	37	72	2 5	4 48.72	-42 39.2	0.155	1.013	75.4	17.0	96 E	2	73
2 21	7 33.33	+7 22.4	1.334	2.158	18.6	20.5	136 E	38	71	2 6	4 45.41	-44 45.7	0.163	1.010	76.8	17.2	94 E	—	71
2 26	7 30.56	+6 22.0	1.381	2.171	19.8	20.7	132 E	39	70	2 7	4 42.23	-46 39.9	0.171	1.007	78.1	17.3	92 E	—	69
3 2	7 28.77	+5 21.8	1.432	2.184	21.0	20.8	128 E	40	69	2 8	4 39.17	-48 23.3	0.179	1.004	79.1	17.4	91 E	—	68
3 7	7 27.93	+4 23.0	1.487	2.197	22.1	20.9	124 E	41	68	2 9	4 36.22	-49 57.3	0.187	1.001	80.0	17.6	89 E	—	66
3 12	7 27.98	+3 26.4	1.545	2.209	23.1	21.1	119 E	42	67	2 10	4 33.36	-51 22.9	0.195	0.999	80.8	17.7	88 E	—	65
3 17	7 28.87	+2 32.8	1.605	2.220	23.9	21.2	115 E	42	67	2 11	4 30.60	-52 41.3	0.204	0.996	81.5	17.8	87 E	—	63*
3 22	7 30.53	+1 42.5	1.668	2.231	24.6	21.3	111 E	43	66	2 12	4 27.91	-53 53.1	0.212	0.994	82.0	17.9	86 E	—	62*
3 27	7 32.91	+0 55.8	1.732	2.241	25.2	21.4	107 E	44	65	2 13	4 25.30	-54 59.1	0.221	0.992	82.5	18.0	85 E	—	61*
477330 2009 TV₂₁										2 14	4 22.76	-56 0.0	0.229	0.989	82.8	18.1	84 E	—	60*
12 23	8 48.50	+23 17.7	0.936	1.648	31.7	20.9	118 W	22	87	2 15	4 20.28	-56 56.4	0.238	0.987	83.1	18.2	83 E	—	59*
12 28	8 47.80	+24 31.2	0.909	1.647	30.8	20.8	121 W	20	89	2 16	4 17.85	-57 48.7	0.246	0.985	83.3	18.2	82 E	—	

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

2020	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	19/20	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°		
437316 2013 OS₃										382875 2004 KE₁											
<i>(continuation)</i>																					
4	1	2 47.46	-72 18.4	0.542	1.046	69.9	19.6	79 E	—	33*	12	23	8 51.30	+24 39.2	0.543	1.449	25.0	22.3	142 W	70	39
4	6	2 39.41	-73 4.6	0.559	1.068	67.8	19.7	81 E	—	31*	12	28	8 45.23	+25 27.7	0.528	1.458	20.9	22.2	148 W	70	39
4	11	2 31.79	-73 54.1	0.573	1.092	65.6	19.7	83 E	—	29*	1	2	8 37.36	+26 18.6	0.516	1.467	16.6	22.0	155 W	71	38
4	13	2 28.83	-74 15.5	0.577	1.102	64.8	19.7	84 E	—	29*	1	7	8 27.94	+27 9.0	0.509	1.475	12.2	21.8	161 W	72	37
4	15	2 25.91	-74 38.0	0.581	1.113	63.9	19.7	85 E	—	28*	1	12	8 17.37	+27 55.5	0.507	1.483	8.1	21.6	168 W	73	36
4	17	2 22.99	-75 1.9	0.585	1.124	63.0	19.7	86 E	—	27*	1	17	8 6.14	+28 35.3	0.510	1.490	5.5	21.5	172 W	74	35
4	19	2 20.05	-75 27.3	0.588	1.135	62.1	19.7	87 E	—	27*	1	22	7 54.84	+29 6.0	0.518	1.496	6.6	21.6	170 E	74	35
4	21	2 17.04	-75 54.5	0.590	1.146	61.2	19.7	88 E	—	26*	1	27	7 44.10	+29 26.6	0.531	1.503	10.2	21.9	164 E	74	35
4	23	2 13.92	-76 23.5	0.592	1.157	60.3	19.7	89 E	—	26*	2	1	7 34.47	+29 37.1	0.549	1.508	14.2	22.1	158 E	75	34
4	25	2 10.62	-76 54.5	0.594	1.169	59.4	19.7	90 W	—	25*	2	6	7 26.37	+29 38.7	0.572	1.513	18.1	22.3	152 E	75	34
4	27	2 7.05	-77 27.6	0.596	1.181	58.4	19.7	91 W	—	26*	354112 2002 AS₁₇										
4	29	2 3.12	-78 3.1	0.597	1.193	57.5	19.7	93 W	—	27*	12	23	8 51.91	+20 18.2	1.245	2.100	17.3	19.4	141 W	65	44
5	1	1 58.68	-78 40.8	0.597	1.206	56.5	19.7	94 W	—	27*	1	2	8 40.54	+19 5.1	1.212	2.136	12.0	19.2	153 W	64	45
5	2	1 56.22	-79 0.6	0.597	1.212	56.0	19.7	95 W	—	28*	1	12	8 26.54	+17 54.3	1.204	2.172	6.2	19.0	166 W	63	46
5	3	1 53.56	-79 21.0	0.598	1.218	55.5	19.7	95 W	—	28*	1	22	8 11.64	+16 46.2	1.224	2.207	1.4	18.7	177 E	62	47
5	4	1 50.66	-79 42.0	0.598	1.224	55.0	19.7	96 W	—	28*	1	27	8 4.45	+16 13.6	1.245	2.225	3.3	18.9	172 E	61	48
5	5	1 47.50	-80 3.5	0.598	1.231	54.5	19.7	97 W	—	28*	2	1	7 57.74	+15 42.4	1.273	2.242	6.0	19.2	166 E	61	48
5	6	1 44.03	-80 25.7	0.598	1.237	54.0	19.7	97 W	—	29*	2	6	7 51.69	+15 12.6	1.309	2.260	8.6	19.3	160 E	60	49
5	7	1 40.18	-80 48.4	0.598	1.243	53.5	19.7	98 W	—	29*	2	11	7 46.44	+14 44.5	1.350	2.277	11.1	19.5	154 E	60	49
5	8	1 35.89	-81 11.7	0.598	1.250	52.9	19.7	99 W	—	29*	2	21	7 38.61	+13 53.7	1.452	2.312	15.3	19.9	142 E	59	50
5	9	1 31.09	-81 35.5	0.598	1.256	52.4	19.7	100 W	—	29*	3	2	7 34.50	+13 9.6	1.573	2.346	18.6	20.2	131 E	58	51
5	10	1 25.66	-81 59.8	0.597	1.262	51.9	19.7	100 W	—	29*	3	12	7 33.91	+12 30.7	1.709	2.380	20.9	20.5	121 E	58	51
5	11	1 19.48	-82 24.6	0.597	1.269	51.3	19.7	101 W	—	30*	3	22	7 36.39	+11 54.8	1.855	2.413	22.5	20.7	112 E	57	52
5	12	1 12.39	-82 49.7	0.597	1.275	50.8	19.7	102 W	—	30*	4	1	7 41.46	+11 19.8	2.010	2.445	23.4	21.0	104 E	56	53
5	13	1 4.19	-83 15.0	0.597	1.282	50.2	19.7	103 W	—	30*	4	11	7 48.64	+10 43.8	2.168	2.477	23.7	21.2	96 E	55*	53
5	14	0 54.62	-83 40.5	0.597	1.288	49.7	19.7	104 W	—	30*	4	21	7 57.50	+10 5.3	2.328	2.509	23.6	21.3	88 E	51*	54*
5	15	0 43.35	-84 5.9	0.596	1.295	49.1	19.7	104 W	—	30*	5	1	8 7.70	+9 23.1	2.486	2.539	23.1	21.5	81 E	45*	54*
5	16	0 29.98	-84 30.9	0.596	1.302	48.6	19.7	105 W	—	30*	331792 2003 MT₂										
5	17	0 13.98	-84 55.3	0.596	1.308	48.0	19.7	106 W	—	30*	12	23	8 52.39	+23 23.8	2.204	3.033	11.7	20.7	141 W	68	41
5	18	23 54.74	-85 18.5	0.596	1.315	47.4	19.7	107 W	—	30*	1	2	8 43.59	+23 10.3	2.074	2.985	8.5	20.4	153 W	68	41
5	19	23 31.56	-85 39.7	0.596	1.321	46.8	19.7	108 W	—	30*	1	12	8 32.13	+22 54.9	1.972	2.935	4.7	20.1	166 W	68	41
5	20	23 3.81	-85 58.3	0.596	1.328	46.2	19.6	109 W	—	30*	1	22	8 18.73	+22 34.0	1.900	2.884	1.0	19.7	177 W	68	41
5	21	22 31.13	-86 12.9	0.596	1.335	45.6	19.6	109 W	—	30*	1	27	8 11.64	+22 20.6	1.877	2.858	2.2	19.8	174 E	67	42
5	22	21 53.86	-86 22.4	0.595	1.341	45.0	19.6	110 W	—	30*	2	1	8 4.53	+22 4.8	1.862	2.831	4.4	19.9	167 E	67	42
5	23	21 13.37	-86 25.6	0.596	1.348	44.4	19.6	111 W	—	30	2	6	7 57.57	+21 46.8	1.855	2.805	6.7	20.0	161 E	67	42
5	24	20 32.07	-86 21.8	0.596	1.355	43.8	19.6	112 W	—	30	2	11	7 50.93	+21 26.5	1.856	2.778	8.9	20.1	154 E	66	43
5	25	19 52.64	-86 10.7	0.596	1.361	43.2	19.6	113 W	—	30	2	16	7 44.75	+21 4.3	1.864	2.751	11.0	20.1	148 E	66	43
5	26	19 17.13	-85 53.1	0.596	1.368	42.6	19.6	114 W	—	30	2	21	7 39.17	+20 40.3	1.879	2.723	13.0	20.2	142 E	66	43
5	27	18 46.49	-85 29.7	0.596	1.375	42.0	19.6	115 W	—	31	3	2	7 30.20	+19 48.8	1.925	2.667	16.7	20.3	130 E	65	44
5	28	18 20.76	-85 1.5	0.597	1.381	41.4	19.6	116 W	—	31	3	12	7 24.48	+18 54.2	1.988	2.611	19.6	20.5	118 E	64	45
5	29	17 59.43	-84 29.5	0.597	1.388	40.7	19.6	117 W	—	32	3	22	7 22.08	+17 58.1	2.063	2.552	21.8	20.6	108 E	63	46
5	30	17 41.81	-83 54.4	0.598	1.395	40.1	19.6	118 W	—	32	4	1	7 22.83	+17 1.1	2.144	2.493	23.4	20.6	98 E	62*	47
5	31	17 27.23	-83 16.7	0.599	1.402	39.5	19.6	118 W	—	33	4	11	7 26.43	+16 2.7	2.225	2.433	24.3	20.7	90 E	58*	48*
6	1	17 15.11	-82 37.0	0.600	1.408	38.9	19.6	119 W	—	33	4	21	7 32.53	+15 1.8	2.303	2.372	24.8	20.7	81 E	52*	48*
6	2	17 4.98	-81 55.4	0.601	1.415	38.3	19.6	120 W	—	34	5	1	7 40.81	+13 57.2	2.375	2.309	24.8	20.7	74 E	45*	48*
6	3	16 56.46	-81 12.3	0.602	1.422	37.7	19.6	121 W	—	35	5	11	7 50.97	+12 47.5	2.439	2.246	24.5	20.7	67 E	38*	47*
6	4	16 49.24	-80 27.9	0.603	1.428	37.0	19.6	122 W	—	36	5	21	8 2.76	+11 31.1	2.492	2.182	23.8	20.7	61 E	30*	46*
6	5	16 43.09	-79 42.4	0.605	1.435	36.4	19.6	123 E	—	36	5	31	8 16.00	+10 6.7	2.534	2.117	23.0	20.6	55 E	22*	44*
6	6	16 37.83	-78 55.8	0.606	1.442	35.8	19.6	124 E	—	37	6	10	8 30.52	+8 33.1	2.564	2.052	22.0	20.6	49 E	16*	41*
6	7	16 33.31	-78 8.3	0.608	1.449	35.3	19.6	125 E	—	38	6	20	8 46.22	+6 49.2	2.582	1.986	20.9	20.5	44 E	9*	37*
6	8	16 29.41	-77 20.1	0.610	1.455	34.7	19.6	125 E	—	39	6	30	9 3.04	+4 53.7	2.588	1.920	19.8	20.4	40 E	—	34*
6	9	16 26.03	-76 31.1	0.612	1.462	34.1	19.6	126 E	—	39	7	10	9 29.93	+2 46.0	2.582	1.854	18.7	20.3	36 E	—	30*
6	10	16 23.11	-75 41.5	0.614	1.469	33.5	19.6	127 E	—	40	7	20	9 39.94	+0 25.2	2.566	1.788	17.6	20.1	32 E	—	26*
6	11	16 20.57	-74 51.3	0.617	1.476	33.0	19.6	128 E	—	41	7	30	10 0.10	-2 9.0	2.540	1.723	16.6	20.0	29 E	—	22*
6	12	16 18.37	-74 0.6	0.620	1.482	32.5	19.6	128 E	—	42	8	9	10 21.52	-4 56.9	2.505	1.659	15.7	19.9	26 E	—	18*
6	13	16 16.47	-73 9.6	0.622	1.489	31.9	19.6	129 E	—	43	8	19	10 44.37	-7 57.9	2.465	1.597	15.1	19.7	24 E	—	14*
6	14	16 14.82	-72 18.1	0.626	1.496	31.4	19.6	130 E	—	44	8	29	11 8.85	-11 11.1	2.419	1.537	14.7	19.6	23 E	—	11*
6	15	16 13.40	-71 26.4	0.629	1.502	30.9	19.6	130 E	—	45	9	8	11 35.22	-14 34.0	2.371	1.481	14.4	19.4	21 E	—	9*
6	16	16 12.19	-70 34.5	0.632	1.509	30.5	19.6	131 E	—	45	9	18	12 3.81	-18 3.2	2.324	1.428	14.3	19.3	21 E	—	7*
6	17	16 11.16	-69 42.4	0.636	1.516	30.0	19.6	132 E	—	46	9	23	12 19.05	-19 48.5	2.301	1.403	14.3	19.3	20 E	—	7*
6	18</																				

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	2020	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°
331792 2003 MT₂										1866 Sisyphus									
<i>(continuation)</i>										<i>(continuation)</i>									
12 17	18 7.06	-31 33.5	2.249	1.292	7.8	18.8	10 E	—	3*	1 5	7 16.58	+80 11.4	0.952	1.696	29.3	14.7	123 W	55	—
12 22	18 27.28	-30 29.3	2.268	1.307	6.8	18.8	9 E	—	3*	1 6	7 7.13	+80 18.4	0.962	1.704	29.2	14.7	122 W	55	—
12 27	18 46.73	-29 16.0	2.290	1.323	5.9	18.8	8 E	—	1*	1 7	6 57.69	+80 23.6	0.972	1.711	29.1	14.8	122 E	55	—
1 1	19 5.37	-27 54.7	2.313	1.341	4.8	18.8	7 E	—	—	1 8	6 48.32	+80 27.1	0.983	1.718	29.1	14.8	122 E	55	—
1 6	19 23.20	-26 26.7	2.337	1.361	3.8	18.8	5 E	—	—	1 9	6 39.11	+80 28.8	0.993	1.726	29.0	14.8	122 E	55	—
1 11	19 40.24	-24 53.1	2.363	1.383	2.8	18.8	4 E	—	—	1 10	6 30.12	+80 28.9	1.004	1.733	29.0	14.9	121 E	55	—
1 16	19 56.52	-23 15.1	2.388	1.406	1.8	18.8	3 E	—	—	1 11	6 21.41	+80 27.4	1.015	1.740	28.9	14.9	121 E	55	—
1 12	8 53.33	+53 29.1	3.054	3.824	10.3	20.1	136 W	82	11	1 12	6 13.04	+80 24.6	1.026	1.747	28.9	14.9	121 E	55	—
12 23	8 53.33	+53 29.1	3.054	3.824	10.3	20.1	136 W	82	11	1 13	6 5.05	+80 20.4	1.037	1.755	28.9	15.0	121 E	55	—
12 28	8 48.48	+54 0.8	3.018	3.817	9.7	20.0	139 W	81	10	1 14	5 57.47	+80 15.0	1.048	1.762	28.8	15.0	120 E	55	—
1 2	8 42.87	+54 29.0	2.988	3.810	9.2	20.0	142 W	81	10	1 15	5 50.32	+80 8.5	1.060	1.769	28.8	15.0	120 E	55	—
1 7	8 36.59	+54 52.9	2.965	3.802	8.8	20.0	144 W	80	9	1 16	5 43.62	+80 1.0	1.071	1.776	28.8	15.1	120 E	55	—
1 12	8 29.76	+55 11.6	2.948	3.794	8.6	19.9	145 W	80	9	1 17	5 37.38	+79 52.7	1.083	1.783	28.8	15.1	119 E	55	—
1 17	8 22.53	+55 24.4	2.938	3.786	8.6	19.9	145 W	80	9	1 18	5 31.59	+79 43.5	1.094	1.790	28.8	15.1	119 E	55	—
1 22	8 15.07	+55 30.6	2.934	3.778	8.7	19.9	144 W	79	8	1 19	5 26.26	+79 33.7	1.106	1.797	28.7	15.2	119 E	55	—
1 27	8 7.59	+55 30.0	2.937	3.769	9.1	19.9	143 E	80	9	1 20	5 21.37	+79 23.2	1.118	1.804	28.7	15.2	118 E	56	—
2 1	8 0.28	+55 22.6	2.947	3.761	9.6	20.0	141 E	80	9	1 21	5 16.91	+79 12.2	1.130	1.811	28.7	15.2	118 E	56	—
2 6	7 53.33	+55 8.5	2.963	3.752	10.2	20.0	138 E	80	9	1 22	5 12.86	+79 0.7	1.142	1.818	28.7	15.2	117 E	56	—
2 11	7 46.91	+54 48.2	2.985	3.743	10.9	20.0	134 E	80	9	1 23	5 9.20	+78 48.9	1.154	1.825	28.7	15.3	117 E	56	—
2 16	7 41.14	+54 22.4	3.013	3.734	11.6	20.1	131 E	81	10	1 24	5 5.93	+78 36.7	1.166	1.832	28.7	15.3	117 E	56	—
2 21	7 36.12	+53 51.7	3.046	3.724	12.3	20.1	127 E	81	10	1 25	5 3.01	+78 24.2	1.178	1.839	28.7	15.3	116 E	57	—
2 26	7 31.91	+53 16.9	3.084	3.715	12.9	20.2	123 E	82	11	1 26	5 0.44	+78 11.5	1.190	1.846	28.7	15.4	116 E	57	—
3 2	7 28.56	+52 38.7	3.126	3.705	13.6	20.2	119 E	82	11	1 27	4 58.18	+77 58.6	1.203	1.853	28.7	15.4	115 E	57	—
3 12	7 24.42	+51 15.4	3.220	3.684	14.7	20.3	110 E	84	13	1 28	4 56.23	+77 45.6	1.215	1.860	28.7	15.4	115 E	57	—
3 22	7 23.48	+49 46.5	3.325	3.663	15.4	20.4	102 E	85	14	1 29	4 54.55	+77 32.4	1.228	1.867	28.7	15.5	115 E	57	—
4 1	7 25.41	+48 15.5	3.436	3.641	15.9	20.5	94 E	86*	16	1 30	4 53.15	+77 19.2	1.240	1.874	28.7	15.5	114 E	58	—
4 6	7 27.32	+47 29.9	3.493	3.630	16.0	20.5	90 E	84*	17	1 31	4 51.99	+77 5.9	1.253	1.880	28.6	15.5	114 E	58	—
4 11	7 29.79	+46 44.5	3.550	3.618	16.0	20.5	86 E	80*	17	2 1	4 51.07	+76 52.6	1.266	1.887	28.6	15.6	113 E	58	—
4 16	7 32.76	+45 59.4	3.607	3.607	16.0	20.5	82 E	76*	18*	2 2	4 50.36	+76 39.3	1.279	1.894	28.6	15.6	113 E	58	—
4 21	7 36.19	+45 14.6	3.663	3.595	15.9	20.6	78 E	72*	19*	2 3	4 49.86	+76 26.0	1.292	1.901	28.6	15.6	112 E	59	—
4 26	7 40.04	+44 30.1	3.718	3.583	15.7	20.6	74 E	68*	19*	2 4	4 49.55	+76 12.7	1.305	1.907	28.6	15.6	112 E	59	—
5 1	7 44.26	+43 46.0	3.772	3.570	15.5	20.6	71 E	64*	19*	2 5	4 49.42	+75 59.5	1.318	1.914	28.6	15.7	112 E	59	—
5 6	7 48.82	+43 2.2	3.824	3.558	15.2	20.6	67 E	60*	20*	2 6	4 49.45	+75 46.3	1.331	1.921	28.6	15.7	111 E	59	—
5 11	7 53.67	+42 18.6	3.875	3.545	14.8	20.6	64 E	56*	20*	2 7	4 49.64	+75 33.1	1.344	1.927	28.6	15.7	111 E	59	—
5 16	7 58.79	+41 35.3	3.923	3.532	14.4	20.6	60 E	52*	20*	2 8	4 49.98	+75 20.0	1.357	1.934	28.6	15.8	110 E	60	—
5 21	8 4.15	+40 52.2	3.969	3.519	13.9	20.6	57 E	48*	20*	2 9	4 50.46	+75 7.0	1.370	1.940	28.6	15.8	110 E	60	—
5 26	8 9.71	+40 9.1	4.012	3.505	13.4	20.6	53 E	44*	19*	2 10	4 51.06	+74 54.1	1.384	1.947	28.6	15.8	109 E	60	—
5 31	8 15.47	+39 26.1	4.053	3.492	12.9	20.6	50 E	41*	19*	2 11	4 51.79	+74 41.2	1.397	1.953	28.6	15.8	109 E	60	—
6 5	8 21.38	+38 43.1	4.090	3.478	12.3	20.6	47 E	37*	18*	2 13	4 53.57	+74 15.7	1.424	1.966	28.5	15.9	108 E	61	—
6 10	8 27.43	+38 0.0	4.124	3.464	11.7	20.6	44 E	34*	17*	2 15	4 55.75	+73 50.6	1.451	1.979	28.5	15.9	107 E	61	—
6 15	8 33.61	+37 16.8	4.155	3.450	11.1	20.6	41 E	31*	16*	2 17	4 58.29	+73 25.7	1.478	1.992	28.5	16.0	106 E	62	—
6 20	8 39.89	+36 33.5	4.183	3.435	10.4	20.6	38 E	28*	15*	2 19	5 1.15	+73 1.2	1.506	2.005	28.4	16.1	105 E	62	—
6 25	8 46.27	+35 50.0	4.207	3.421	9.7	20.5	35 E	25*	14*	2 21	5 4.28	+72 37.0	1.533	2.017	28.4	16.1	104 E	62	—
6 30	8 52.73	+35 6.2	4.227	3.406	9.1	20.5	32 E	23*	12*	2 23	5 7.67	+72 13.1	1.561	2.030	28.3	16.2	103 E	63	—
7 10	9 5.81	+33 37.9	4.256	3.375	7.7	20.4	26 E	18*	8*	2 25	5 11.28	+71 49.5	1.589	2.042	28.3	16.2	102 E	63	—
7 20	9 19.08	+32 8.4	4.270	3.344	6.4	20.4	21 E	15*	4*	2 27	5 15.09	+71 26.2	1.617	2.054	28.2	16.3	101 E	64	—
7 30	9 32.44	+30 37.7	4.267	3.312	5.2	20.3	17 E	11*	—	2 29	5 19.07	+71 3.1	1.645	2.067	28.1	16.3	100 E	64	—
8 9	9 45.83	+29 5.8	4.249	3.279	4.6	20.2	15 E	8*	—	3 2	5 23.22	+70 40.3	1.673	2.079	28.1	16.4	99 E	64	—
8 19	9 59.21	+27 32.9	4.214	3.246	4.6	20.2	15 E	6*	—	3 4	5 27.49	+70 17.7	1.701	2.091	28.0	16.4	98 E	65	—
8 29	10 12.53	+25 59.1	4.162	3.211	5.3	20.2	17 W	9*	—	3 6	5 31.89	+69 55.4	1.729	2.103	27.9	16.4	97 E	65	—
9 8	10 25.73	+24 24.7	4.095	3.176	6.6	20.2	21 W	14*	—	3 8	5 36.40	+69 33.2	1.758	2.114	27.8	16.5	97 E	65	—
9 18	10 38.79	+22 49.9	4.011	3.140	8.1	20.2	26 W	20*	—	3 10	5 41.00	+69 11.1	1.786	2.126	27.7	16.5	96 E	66	—
9 28	10 51.65	+21 15.3	3.912	3.103	9.7	20.2	32 W	25*	3*	3 12	5 45.67	+68 49.2	1.815	2.138	27.6	16.6	95 E	66*	—
10 8	11 4.27	+19 41.2	3.799	3.065	11.4	20.1	37 W	31*	7*	3 17	5 57.65	+67 54.7	1.886	2.166	27.3	16.7	92 E	67*	—
10 18	11 16.59	+18 8.1	3.672	3.026	13.1	20.1	43 W	37*	11*	3 22	6 9.95	+67 0.6	1.958	2.194	27.0	16.8	90 E	68*	—
10 28	11 28.54	+16 36.5	3.532	2.987	14.7	20.0	50 W	43*	15*	3 27	6 22.45	+66 6.5	2.029	2.222	26.7	16.9	87 E	68*	—
11 7	11 40.05	+15 7.0	3.380	2.947	16.2	20.0	56 W	48*	20*	4 1	6 35.06	+65 12.3	2.101	2.249	26.3	17.0	85 E	68*	—
11 17	11 51.01	+13 40.2	3.218	2.906	17.6	19.9	63 W	52*	26*	4 6	6 47.71	+64 17.8	2.172	2.275	25.9	17.0	83 E	68*	—
11 27	12 1.29	+12 16.7	3.048	2.864	18.9	19.8	70 W	55*	31*	4 11	7 0.31	+63 22.8	2.242	2.301	25.4	17.1	81 E	68*	—
12 7	12 10.74	+10 57.1	2.871	2.822	19.9	19.6	77 W	56*	38*	4 16	7 12.84	+62 27.1	2.313	2.326	25.0	17.2	78 E	67*	1*
12 17	12 19.16	+9 42.0	2.689	2.779	20.7	19.5	85 W	55	44*	4 21	7 25.25	+61 30.8	2.382	2.350	24.5	17.3	76 E	67*	2*
12 27	12 26.29	+8 32.0	2.506	2.735	21.0	19.3	93 W	54	50*	4 26	7 37.53	+60 33.7	2.451	2.374	24.0	17.3	74 E	65*	3*
1 6																			

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	19/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°										
1866 Sisyphus (continuation)										138847 2000 VE₆₂ (continuation)																			
10 8	12 47.11	+28 9.7	3.638	2.866	11.3	18.2	34 W	19*	—	5 26	10 48.25	+18 14.2	0.526	1.154	61.3	18.1	92 E	57*	46	5 31	11 7.99	+19 51.1	0.541	1.153	61.5	18.2	90 E	57*	44
10 18	13 1.92	+26 44.4	3.610	2.878	12.0	18.2	37 W	24*	—	6 5	11 27.89	+21 8.9	0.557	1.154	61.5	18.2	90 E	58*	43	6 10	11 47.81	+22 8.1	0.575	1.157	61.4	18.3	89 E	58*	42
10 28	13 16.40	+25 28.0	3.568	2.889	13.0	18.2	41 W	30*	—	6 15	12 7.62	+22 49.5	0.593	1.161	61.0	18.4	88 E	58*	41	6 20	12 27.23	+23 13.9	0.613	1.166	60.5	18.4	88 E	58*	41
11 7	13 30.52	+24 21.3	3.513	2.897	14.0	18.2	45 W	36*	—	6 25	12 46.57	+23 22.5	0.633	1.173	59.9	18.5	87 E	58*	41	6 30	13 5.58	+23 16.6	0.654	1.182	59.2	18.6	87 E	58*	41
11 17	13 44.24	+23 25.5	3.445	2.904	15.0	18.2	50 W	42*	—	7 5	13 24.21	+22 57.7	0.676	1.191	58.5	18.6	87 E	58*	41	7 10	13 42.43	+22 27.0	0.698	1.203	57.6	18.7	87 E	58*	42
11 27	13 57.47	+22 41.7	3.365	2.909	16.1	18.2	55 W	48*	3*	7 15	14 0.24	+21 45.7	0.721	1.215	56.7	18.8	87 E	57*	42	7 20	14 17.68	+20 55.0	0.744	1.228	55.7	18.8	87 E	57*	43
12 7	14 10.14	+22 10.9	3.274	2.912	17.1	18.2	60 W	54*	8*	7 25	14 34.76	+19 56.1	0.769	1.243	54.7	18.9	87 E	57*	44	8 4	15 7.93	+17 38.9	0.820	1.274	52.7	19.0	87 E	56*	46
12 17	14 22.11	+21 54.2	3.172	2.913	18.0	18.2	66 W	59*	14*	8 8	15 24.07	+16 22.9	0.847	1.291	51.7	19.1	87 E	55*	48	8 14	15 39.95	+15 3.2	0.875	1.309	50.6	19.2	87 E	54*	49
12 27	14 33.24	+21 52.7	3.062	2.912	18.7	18.1	72 W	63*	20*	8 19	15 55.61	+13 41.1	0.905	1.327	49.9	19.2	87 E	54*	50*	8 24	16 11.07	+12 17.5	0.936	1.346	48.6	19.3	87 E	53*	52*
1 1	14 43.34	+22 7.2	2.944	2.909	19.3	18.0	78 W	66*	26*	8 29	16 26.36	+10 53.6	0.968	1.365	47.6	19.4	87 E	52*	53*	9 3	16 41.48	+9 30.3	1.003	1.384	46.7	19.5	87 E	51*	54*
1 16	14 52.17	+22 38.5	2.822	2.904	19.7	18.0	85 W	68*	32*	9 8	16 56.44	+8 8.5	1.038	1.404	45.7	19.6	87 E	50*	55*	9 13	17 11.26	+6 48.9	1.076	1.424	44.8	19.6	86 E	49*	56*
190339 1998 SC₁₁₇										339492 2005 GQ₂₁																			
12 23	8 53.97	+23 8.2	1.884	2.719	13.2	21.4	141 W	68	41	12 23	8 55.10	-59 42.4	1.220	1.563	39.0	21.2	90 W	—	56	12 28	8 50.57	-60 59.7	1.219	1.575	38.6	21.2	91 W	—	55
1 2	8 45.93	+23 39.7	1.826	2.737	9.5	21.2	153 W	69	40	1 2	8 44.39	-62 2.6	1.216	1.587	38.3	21.2	92 W	—	54	1 7	8 36.72	-62 49.8	1.212	1.599	37.9	21.2	93 W	—	53
1 12	8 35.55	+24 12.7	1.794	2.755	5.3	21.0	165 W	69	40	1 12	8 27.80	-63 19.9	1.206	1.610	37.5	21.2	94 W	—	53	1 17	8 17.98	-63 31.6	1.199	1.621	37.2	21.1	95 W	—	52
1 22	8 23.82	+24 41.8	1.791	2.772	1.9	20.8	175 W	70	39	1 22	8 7.74	-63 24.0	1.191	1.631	36.8	21.1	97 E	—	53	1 27	7 57.61	-62 56.2	1.183	1.641	36.4	21.1	98 E	—	53
2 1	8 11.98	+25 2.6	1.819	2.788	4.4	21.0	167 E	70	39	2 1	7 48.14	-62 8.1	1.173	1.650	36.1	21.1	99 E	—	54	2 6	7 39.79	-61 0.3	1.164	1.659	35.7	21.1	101 E	—	55
2 11	8 1.35	+25 12.6	1.876	2.803	8.4	21.3	155 E	70	39	2 11	7 32.88	-59 33.8	1.154	1.668	35.4	21.1	102 E	—	56	2 16	7 27.60	-57 49.5	1.145	1.676	35.0	21.1	103 E	—	58
2 21	7 52.90	+25 11.8	1.959	2.817	12.0	21.5	144 E	70	39	2 16	7 27.60	-57 49.5	1.145	1.676	35.0	21.1	103 E	—	58	2 21	7 24.02	-55 48.9	1.138	1.683	34.7	21.0	104 E	—	60
339492 2005 GQ₂₁										1916 Boreas																			
12 23	8 55.10	-59 42.4	1.220	1.563	39.0	21.2	90 W	—	56	12 23	8 56.01	+30 4.0	2.310	3.135	11.4	19.9	141 W	75	34	12 28	8 51.82	+30 23.9	2.277	3.145	9.9	19.8	147 W	75	34
12 28	8 50.57	-60 59.7	1.219	1.575	38.6	21.2	91 W	—	55	12 28	8 47.02	+30 43.3	2.251	3.155	8.4	19.8	152 W	76	33	1 2	8 41.68	+31 1.5	2.232	3.164	6.8	19.7	158 W	76	33
1 2	8 44.39	-62 2.6	1.216	1.587	38.3	21.2	92 W	—	54	1 7	8 35.92	+31 17.8	2.221	3.173	5.3	19.6	163 W	76	33	1 12	8 29.84	+31 31.5	2.217	3.181	4.1	19.5	166 W	77	32
1 7	8 36.72	-62 49.8	1.212	1.599	37.9	21.2	93 W	—	53	1 17	8 23.60	+31 36.1	2.200	3.190	3.7	19.5	168 W	77	32	1 22	8 17.34	+31 49.2	2.232	3.197	4.2	19.6	166 E	77	32
1 12	8 27.80	-63 19.9	1.206	1.610	37.5	21.2	94 W	—	53	1 27	8 11.22	+31 52.4	2.252	3.205	5.3	19.7	162 W	77	32	2 1	8 18.44	-22 5.1	1.254	1.733	34.9	21.3	100 E	21*	86
1 17	8 17.98	-63 31.6	1.199	1.621	37.2	21.1	95 W	—	52	2 6	8 5.39	+31 51.9	2.279	3.212	6.7	19.8	157 E	77	32	2 11	7 59.97	+31 47.8	2.314	3.219	8.2	19.9	152 E	77	32
1 22	8 7.74	-63 24.0	1.191	1.631	36.8	21.1	97 E	—	53	2 16	7 55.06	+31 40.2	2.355	3.226	9.7	20.0	147 E	77	32	2 21	7 50.75	+31 29.6	2.403	3.232	11.1	20.1	141 E	76	33
1 27	7 57.61	-62 56.2	1.183	1.641	36.4	21.1	98 E	—	53	3 2	7 44.13	+31 1.0	2.516	3.244	13.5	20.3	130 E	76	33	3 12	7 40.32	+30 25.0	2.646	3.255	15.4	20.5	120 E	75	34
2 1	7 48.14	-62 8.1	1.173	1.650	36.1	21.1	99 E	—	54	3 22	7 39.23	+29 44.4	2.789	3.264	16.7	20.6	110 E	75	34	4 1	7 40.63	+29 0.8	2.940	3.272	17.5	20.8	100 E	74	35
2 6	7 39.79	-61 0.3	1.164	1.659	35.7	21.1	101 E	—	55	4 11	7 44.20	+28 15.2	3.094	3.279	17.8	20.9	92 E	71*	36	4 21	7 49.61	+27 28.0	3.248	3.285	17.7	21.0	83 E	65*	36*
2 11	7 32.88	-59 33.8	1.154	1.668	35.4	21.1	102 E	—	56	5 1	7 56.57	+26 39.1	3.399	3.289	17.2	21.1	75 E	57*	37*	5 11	8 4.79	+25 48.4	3.543	3.292	16.5	21.1	68 E	49*	36*
2 16	7 27.60	-57 49.5	1.145	1.676	35.0	21.1	103 E	—	58	5 21	8 14.04	+24 55.5	3.679	3.294	15.5	21.2	60 E	41*	35*	5 28	8 24.10	+24 0.2	3.804	3.295	14.2	21.2	53 E	33*	33*
2 21	7 24.02	-55 48.9	1.138	1.683	34.7	21.0	104 E	—	60	6 10	8 34.81	+23 2.3	3.917	3.295	12.8	21.2	46 E	26*	30*	6 20	8 46.02	+22 1.5	4.016	3.293	11.3	21.2	39 E	20*	27*
2 26	7 22.14	-53 33.5	1.131	1.690	34.4	21.0	105 E	—	62	6 30	8 57.62	+20 57.9	4.100	3.290	9.6	21.2	33 E	14*	22*	7 10	9 9.48	+19 51.4	4.168	3.286	7.8	21.2	26 E	9*	18*
3 2	7 21.87	-51 5.1	1.126	1.697	34.1	21.0	106 E	—	65	7 20	9 21.54	+18 42.1	4.219	3.280	6.0	21.1	20 E	5*	12*	7 30	9 33.72	+17 30.0	4.253	3.274	4.1	21.0	13 E	2*	6*
3 7	7 23.10	-48 25.6	1.124	1.703	33.9	21.0	107 E	—	68	8 9	9 45.95	+16 15.5	4.270	3.266	2.2	20.9	7 E	—	—	8 9	9 45.95	+16 15.5	4.270	3.266	2.2	20.9	7 E	—	—
3 12	7 25.67	-45 37.2	1.124	1.708	33.7	21.0	107 E	—	70	8 19	9 58.17	+14 58.6	4.268	3.257	0.8	20.8	2 E	—	—	8 29	10 10.34	+13 39.8	4.248	3.247	2.0	20.9	7 W	1*	—
3 17	7 29.42	-42 41.8	1.127	1.713	33.7	21.0	107 E	—	73	9 8	10 22.40	+12 19.5	4.210	3.235	3.9	21.0	13 W	6*	—	9 18	10 34.30	+10 57.9	4.154	3.222	5.9	21.0	19 W	12*	5*
3 22	7 34.22	-39 41.6	1.134	1.717	33.7	21.1	107 E	—	76	9 28	10 46.00	+9 35.5	4.081	3.208	7.8	21.1	26 W	19*	9*	9 28	10 46.00	+9 35.5	4.081	3.208	7.8	21.1	26 W	19*	9*
3 27	7 39.94	-36 38.9	1.144	1.721	33.7	21.1	107 E	—	79	10 8	10 57.42	+8 13.0	3.990	3.193	9.7	21.1	32 W	25*	14*	10 8									

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	19/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°
1916 Boreas										52768 1998 OR₂									
<i>(continuation)</i>										<i>(continuation)</i>									
12 17	12 2.25	0 36.5	2.984	3.051	18.7	20.7	84 W	44	55*	6 2	17 1.61	-50 52.7	0.185	1.179	24.6	13.6	151 W	—	65
12 27	12 7.61	-1 35.1	2.809	3.025	18.9	20.5	93 W	43	61*	6 4	17 4.93	-50 16.1	0.196	1.191	23.6	13.8	152 W	—	66
1 6	12 11.35	-2 26.1	2.635	2.998	18.7	20.4	102 W	43	66*	6 6	17 7.76	-49 40.1	0.208	1.204	22.6	13.9	153 W	—	66
1 16	12 13.15	-3 8.2	2.465	2.970	17.9	20.2	112 W	42	67	6 8	17 10.18	-49 4.6	0.221	1.217	21.7	14.0	154 W	—	67
52768 1998 OR₂										52768 1998 OR₂									
12 23	8 56.01	+30 7.6	0.793	1.676	21.7	17.5	141 W	75	34	6 10	17 12.28	-48 29.7	0.233	1.230	20.8	14.1	155 E	—	68
12 28	8 58.19	+30 52.2	0.730	1.637	20.1	17.2	145 W	76	33	6 12	17 14.11	-47 55.3	0.246	1.243	20.1	14.2	155 E	—	68
1 2	8 59.43	+31 43.9	0.671	1.598	18.2	16.9	149 W	77	32	6 14	17 15.73	-47 21.3	0.260	1.257	19.4	14.3	156 E	—	69
1 7	8 59.63	+32 42.6	0.616	1.559	16.3	16.6	154 W	78	31	6 16	17 17.19	-46 47.9	0.273	1.271	18.9	14.5	156 E	—	69
1 12	8 58.70	+33 48.2	0.565	1.520	14.5	16.3	157 W	79	30	6 20	17 18.54	-46 14.9	0.287	1.285	18.4	14.6	156 E	—	70
1 17	8 56.51	+34 59.8	0.519	1.482	13.1	16.0	160 W	80	29	6 20	17 19.80	-45 42.5	0.302	1.299	18.1	14.7	157 E	—	70
1 22	8 52.97	+36 16.0	0.476	1.443	12.5	15.7	161 W	81	28	6 25	17 22.77	-44 23.8	0.340	1.335	17.8	15.0	156 E	1	72
1 27	8 48.07	+37 34.5	0.438	1.405	13.2	15.5	161 W	83	26	6 30	17 25.75	-43 8.8	0.381	1.372	18.1	15.3	155 E	2	73
2 1	8 41.86	+38 52.3	0.403	1.368	15.4	15.4	158 E	84	25	7 5	17 28.92	-41 57.8	0.425	1.409	18.8	15.6	153 E	3	74
2 6	8 34.55	+40 6.1	0.372	1.331	18.8	15.2	154 E	85	24	7 10	17 32.39	-40 51.1	0.472	1.447	19.9	16.0	151 E	4	75
2 11	8 26.39	+41 12.2	0.345	1.295	22.9	15.1	149 E	86	23	7 20	17 40.39	-38 49.8	0.575	1.525	22.3	16.6	145 E	6	77
2 16	8 17.75	+42 7.7	0.320	1.260	27.6	15.1	144 E	87	22	7 30	17 50.02	-37 3.9	0.691	1.602	24.6	17.2	139 E	8	79
2 21	8 9.09	+42 49.6	0.298	1.227	32.6	15.0	138 E	88	21	8 9	18 1.14	-35 31.5	0.820	1.680	26.4	17.7	132 E	9	80
2 26	8 0.99	+43 16.0	0.277	1.195	37.7	14.9	132 E	88	21	8 19	18 13.51	-34 9.4	0.961	1.757	27.8	18.2	126 E	11	82
3 2	7 53.99	+43 26.4	0.258	1.164	42.9	14.8	127 E	88	21	8 29	18 26.94	-32 55.1	1.113	1.834	28.7	18.6	119 E	12	83
3 7	7 48.53	+43 20.6	0.239	1.136	48.1	14.8	122 E	88	21	9 8	18 41.19	-31 46.0	1.275	1.909	29.0	19.0	113 E	13	84
3 12	7 44.91	+42 59.0	0.220	1.110	53.2	14.7	117 E	88	21	9 18	18 56.07	-30 39.8	1.445	1.983	29.0	19.4	107 E	14	85
3 17	7 43.31	+42 20.9	0.201	1.086	58.2	14.6	112 E	87	22	9 28	19 11.43	-29 34.8	1.623	2.056	28.6	19.7	100 E	15	86
3 22	7 43.94	+41 24.5	0.182	1.066	62.9	14.5	108 E	86	23	10 8	19 27.11	-28 29.6	1.805	2.127	27.9	20.0	94 E	17	87*
3 27	7 47.02	+40 5.7	0.162	1.049	67.4	14.3	104 E	85	24	10 18	19 43.01	-27 23.1	1.992	2.197	27.0	20.2	88 E	18	82*
4 1	7 52.88	+38 17.1	0.142	1.035	71.4	14.1	101 E	83	26	10 28	19 59.03	-26 14.5	2.180	2.264	25.7	20.4	82 E	19	75*
4 3	7 56.10	+37 22.3	0.133	1.031	72.8	14.0	100 E	82	27	11 7	20 15.07	-25 3.5	2.369	2.331	24.3	20.6	76 E	20*	69*
4 5	7 59.88	+36 19.0	0.125	1.027	74.2	13.9	99 E	81	28	11 17	20 31.07	-23 49.6	2.555	2.395	22.7	20.8	69 E	21*	61*
4 7	8 4.29	+35 5.4	0.116	1.024	75.3	13.8	98 E	80*	29	11 27	20 46.99	-22 33.0	2.738	2.458	21.0	21.0	63 E	22*	54*
4 9	8 9.40	+33 38.8	0.108	1.022	76.3	13.7	98 E	79*	30	12 7	21 2.75	-21 13.5	2.915	2.519	19.2	21.1	57 E	23*	47*
4 11	8 15.34	+31 55.7	0.099	1.020	77.0	13.5	97 E	77*	32	12 17	21 18.33	-19 51.5	3.085	2.578	17.2	21.2	51 E	23*	39*
4 12	8 18.67	+30 56.6	0.095	1.019	77.3	13.4	97 E	76*	33	12 27	21 33.69	-18 27.2	3.245	2.636	15.2	21.3	44 E	22*	32*
4 13	8 22.26	+29 51.5	0.091	1.018	77.5	13.3	97 E	75*	34	1 6	21 48.80	-17 1.0	3.395	2.692	13.1	21.4	38 E	20*	26*
4 14	8 26.15	+28 39.5	0.087	1.018	77.5	13.2	98 E	73*	35	1 16	22 3.65	-15 33.3	3.532	2.746	10.9	21.4	32 E	18*	20*
4 15	8 30.37	+27 19.6	0.082	1.018	77.5	13.1	98 E	72*	37	12923 Zephyr									
4 16	8 34.95	+25 50.6	0.078	1.018	77.3	13.0	98 E	70*	38	12 23	8 56.42	+11 30.0	2.023	2.824	13.7	20.3	137 W	56	53
4 17	8 39.93	+24 11.2	0.074	1.018	77.0	12.9	99 E	69*	40	1 2	8 48.14	+11 58.0	1.953	2.842	10.2	20.1	149 W	57	52
4 18	8 45.38	+22 19.6	0.070	1.018	76.5	12.7	100 E	67*	42	1 12	8 37.66	+12 38.0	1.908	2.858	6.2	19.9	162 W	58	51
4 19	8 51.33	+20 14.1	0.067	1.019	75.8	12.6	101 E	65*	44	1 22	8 25.81	+13 26.4	1.893	2.873	2.4	19.6	173 W	58	51
4 20	8 57.86	+17 54.4	0.063	1.019	74.8	12.4	102 E	63*	46	1 27	8 19.71	+13 52.3	1.898	2.879	2.0	19.6	174 E	59	50
4 21	9 5.03	+15 12.2	0.059	1.020	73.6	12.3	103 E	60*	49	2 1	8 13.70	+14 18.5	1.911	2.885	3.5	19.7	170 E	59	50
4 22	9 12.93	+12 11.1	0.056	1.021	72.1	12.1	105 E	57*	52	2 6	8 7.93	+14 44.5	1.932	2.891	5.5	19.9	164 E	60	49
4 23	9 21.65	+8 46.4	0.053	1.022	70.3	11.9	107 E	54*	55	2 11	8 2.53	+15 9.7	1.960	2.896	7.5	20.0	158 E	60	49
4 24	9 31.29	+4 56.2	0.050	1.023	68.1	11.7	109 E	50*	59	2 21	7 53.26	+15 56.4	2.037	2.906	11.1	20.3	145 E	61	48
4 25	9 41.97	+0 39.2	0.047	1.025	65.5	11.6	112 E	46	63	3 2	7 46.55	+16 36.4	2.139	2.914	14.2	20.5	134 E	62	47
4 26	9 53.79	-4 4.3	0.045	1.026	62.6	11.4	115 E	41	68	3 12	7 42.66	+17 8.6	2.259	2.920	16.6	20.7	123 E	62	47
4 27	10 6.87	-9 11.6	0.044	1.028	59.5	11.2	118 E	36	73	3 22	7 41.56	+17 32.9	2.393	2.924	18.3	20.9	113 E	63	46
4 28	10 21.31	-14 37.0	0.043	1.030	56.1	11.0	122 E	30	79	4 1	7 43.07	+17 49.3	2.535	2.926	19.4	21.0	103 E	63	46
4 29	10 37.21	-20 11.7	0.042	1.032	52.7	10.9	125 E	25	84	4 11	7 46.87	+17 58.2	2.680	2.927	20.0	21.2	94 E	62*	46*
4 30	10 54.60	-25 44.6	0.042	1.034	49.5	10.8	129 E	19	90	4 21	7 52.63	+17 59.7	2.826	2.926	20.0	21.3	86 E	57*	46*
5 1	11 13.45	-31 3.8	0.043	1.037	46.5	10.8	132 E	14	85	5 1	8 0.07	+17 54.1	2.969	2.924	19.7	21.4	78 E	51*	45*
5 2	11 33.67	-35 58.5	0.044	1.039	44.0	10.8	134 E	9	80	5 11	8 8.90	+17 41.4	3.105	2.920	19.0	21.5	70 E	44*	44*
5 3	11 55.04	-40 20.7	0.046	1.042	41.9	10.8	136 E	5	76	103067 1999 XA₁₄₃									
5 4	12 17.24	-44 6.0	0.048	1.045	40.2	10.9	138 E	1	72	12 23	8 56.66	+4 12.6	0.737	1.586	26.6	18.3	134 W	49	60
5 5	12 39.86	-47 13.2	0.051	1.047	39.0	11.0	139 E	—	69	12 28	8 57.28	+6 22.7	0.657	1.544	24.4	18.0	140 W	51	58
5 6	13 2.45	-49 44.2	0.054	1.051	38.1	11.1	140 E	—	66	1 2	8 56.78	+9 18.0	0.581	1.501	21.5	17.6	146 W	54	55
5 7	13 24.55	-51 42.2	0.057	1.054	37.4	11.2	141 E	—	64	1 7	8 54.88	+13 13.0	0.511	1.458	17.7	17.1	153 W	58	51
5 8	13 45.75	-53 11.8	0.061	1.057	36.9	11.3	141 E	—	63	1 12	8 51.15	+18 25.5	0.448	1.414	13.2	16.6	161 W	63	46
5 9	14 5.74	-54 17.4	0.064	1.061	36.5	11.5	141 E	—	62	1 14	8 49.01	+20 56.6	0.425	1.397	11.4	16.4	164 W	66	43
5 10	14 24.32	-55 3.6	0.068	1.064	36.1	11.6	142 E	—	61	1 16	8 46.40	+23 44.4	0.403	1.379	9.8	16.2	166 W	69	40
5 11	14 41.38	-55 34.2	0.073	1.068	35.7	11.7	142 E	—	60	1 18	8 43.25	+26 49.9	0.384	1.361	8.9	16.0	168 W	72	37
5 12	14 56.91	-55 52.6	0.077	1.072	35.4	11.8	142 E	—	60	1 20	8 39.45	+30 13.6	0.366	1.343	9.2	15.9	167 W	75	34
5 13	15 10.95	-56 1.5	0.081	1.076	35.0	12.0	142 E												

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

2020	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	19/20	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°
103067 1999 XA₁₄₃										103067 1999 XA₁₄₃									
<i>(continuation)</i>										<i>(continuation)</i>									
2 11	5 32.35	+74 23.1	0.322	1.145	53.3	16.6	111 E	61	—	10 3	23 43.33	-59 11.3	1.405	2.051	26.0	20.3	116 E	—	57
2 12	5 6.05	+75 26.8	0.326	1.136	55.3	16.7	109 E	60	—	10 8	23 35.70	-58 31.7	1.471	2.084	26.1	20.4	114 E	—	57
2 13	4 37.26	+76 16.5	0.331	1.127	57.2	16.7	106 E	59	—	10 13	23 29.63	-57 41.7	1.538	2.115	26.1	20.5	111 E	—	58
2 14	4 6.62	+76 51.4	0.336	1.118	59.0	16.8	104 E	58	—	10 18	23 25.09	-56 43.4	1.607	2.146	26.1	20.7	109 E	—	59
2 15	3 35.07	+77 11.4	0.341	1.109	60.7	16.9	102 E	58	—	10 23	23 22.00	-55 38.6	1.678	2.176	26.1	20.8	106 E	—	60
2 16	3 3.75	+77 16.9	0.346	1.100	62.3	16.9	100 E	58*	—	10 28	23 20.23	-54 28.8	1.750	2.205	26.0	20.9	103 E	—	62
2 17	2 33.75	+77 9.4	0.352	1.091	63.9	17.0	97 E	57*	—	11 2	23 19.63	-53 15.5	1.824	2.234	25.9	21.0	101 E	—	63
2 18	2 5.89	+76 50.6	0.358	1.082	65.4	17.1	95 E	56*	—	11 7	23 20.05	-51 59.5	1.898	2.262	25.7	21.1	98 E	—	64
2 19	1 40.64	+76 22.8	0.364	1.073	66.8	17.1	93 E	56*	—	11 12	23 21.38	-50 41.5	1.973	2.289	25.5	21.2	95 E	—	65
2 20	1 18.14	+75 47.8	0.370	1.064	68.2	17.2	91 E	55*	—	11 17	23 23.50	-49 22.3	2.049	2.316	25.2	21.3	93 E	—	67
2 21	0 58.32	+75 7.5	0.377	1.056	69.5	17.2	90 E	54*	—	11 22	23 26.31	-48 2.2	2.124	2.342	24.9	21.4	90 E	—	68
2 22	0 40.94	+74 23.5	0.383	1.047	70.7	17.3	88 E	53*	—	202079 2004 SR₃₉									
2 23	0 25.72	+73 36.9	0.390	1.038	71.9	17.4	86 E	52*	—	12 23	8 56.77	+16 35.5	1.538	2.367	15.9	20.4	139 W	62	47
2 24	0 12.38	+72 48.7	0.397	1.030	73.0	17.4	84 E	51*	—	1 2	8 49.47	+17 2.3	1.495	2.400	11.6	20.2	151 W	62	47
2 25	0 0.65	+71 59.5	0.404	1.021	74.1	17.5	83 E	50*	—	1 12	8 39.64	+17 38.2	1.475	2.433	6.7	20.0	163 W	63	46
2 26	23 50.29	+71 9.9	0.411	1.013	75.1	17.5	81 E	48*	—	1 22	8 28.39	+18 17.9	1.483	2.465	1.5	19.7	176 W	63	46
2 27	23 41.09	+70 20.2	0.417	1.004	76.0	17.6	80 E	47*	—	1 27	8 22.66	+18 37.4	1.497	2.481	1.1	19.7	177 E	64	45
2 28	23 32.90	+69 30.7	0.424	0.996	76.9	17.6	78 E	46*	—	2 1	8 17.10	+18 55.9	1.519	2.497	3.6	19.9	171 E	64	45
2 29	23 25.55	+68 41.5	0.431	0.988	77.8	17.7	77 E	45*	—	2 6	8 11.89	+19 12.8	1.548	2.512	6.0	20.1	165 E	64	45
3 1	23 18.94	+67 52.9	0.438	0.979	78.6	17.7	76 E	43*	—	2 11	8 7.16	+19 27.8	1.584	2.528	8.3	20.3	158 E	64	45
3 2	23 12.96	+67 4.8	0.445	0.971	79.4	17.8	74 E	42*	—	2 21	7 59.59	+19 51.5	1.675	2.558	12.3	20.6	146 E	65	44
3 3	23 7.53	+66 17.3	0.452	0.963	80.1	17.8	73 E	41*	—	3 2	7 54.97	+20 6.2	1.788	2.587	15.6	20.9	135 E	65	44
3 4	23 2.58	+65 30.5	0.459	0.955	80.8	17.8	72 E	40*	—	3 12	7 53.43	+20 12.5	1.918	2.616	18.2	21.1	125 E	65	44
3 5	22 58.06	+64 44.2	0.466	0.947	81.5	17.9	71 W	39*	—	3 22	7 54.79	+20 10.9	2.061	2.644	19.9	21.4	115 E	65	44
3 6	22 53.90	+63 58.5	0.473	0.939	82.1	17.9	70 W	40*	—	415729 1999 VL₄₆									
3 7	22 50.08	+63 13.3	0.480	0.932	82.7	17.9	69 W	40*	—	12 23	8 57.00	-3 5.1	1.406	2.173	20.3	20.3	130 W	42	67
3 8	22 46.56	+62 28.6	0.487	0.924	83.3	18.0	68 W	40*	—	1 2	8 50.57	-4 4.8	1.378	2.219	16.7	20.2	139 W	41	68
3 9	22 43.31	+61 44.4	0.494	0.916	83.8	18.0	67 W	41*	—	1 12	8 41.77	-4 34.6	1.370	2.267	13.1	20.1	148 W	40	69
3 10	22 40.31	+61 0.6	0.500	0.909	84.3	18.0	66 W	41*	—	1 22	8 31.67	-4 33.2	1.384	2.314	10.3	20.1	155 W	40	69
3 11	22 37.53	+60 17.1	0.507	0.902	84.8	18.1	65 W	41*	—	2 1	8 21.61	-4 3.2	1.423	2.362	9.4	20.2	157 E	41	68
3 12	22 34.97	+59 34.0	0.513	0.895	85.2	18.1	64 W	41*	—	2 6	8 17.01	-3 39.4	1.452	2.385	9.8	20.2	156 E	41	68
3 14	22 30.39	+58 8.5	0.526	0.881	86.0	18.1	62 W	42*	—	2 11	8 12.89	-3 11.1	1.488	2.409	10.7	20.3	153 E	42	67
3 16	22 26.49	+56 43.7	0.539	0.868	86.7	18.2	61 W	43*	—	2 16	8 9.33	-2 39.5	1.529	2.433	11.8	20.5	150 E	42	67
3 18	22 23.18	+55 19.4	0.551	0.855	87.3	18.2	59 W	43*	—	2 21	8 6.41	-2 5.6	1.576	2.457	13.1	20.6	146 E	43	66
3 20	22 20.42	+53 55.2	0.563	0.843	87.8	18.3	58 W	43*	—	2 26	8 4.19	-1 30.4	1.629	2.481	14.4	20.7	141 E	43	66
3 22	22 18.15	+52 30.9	0.575	0.832	88.2	18.3	57 W	44*	—	3 2	8 2.70	-0 55.0	1.687	2.504	15.7	20.9	137 E	44	65
3 27	22 14.47	+48 58.5	0.603	0.807	88.9	18.4	54 W	45*	—	3 7	8 1.93	-0 20.1	1.749	2.528	16.8	21.0	133 E	45	64
4 1	22 13.36	+45 22.1	0.628	0.789	88.9	18.4	52 W	45*	2*	3 12	8 1.87	+0 13.6	1.815	2.551	17.8	21.2	128 E	45	64
4 6	22 14.62	+41 41.2	0.651	0.777	88.5	18.4	51 W	45*	7*	3 17	8 2.47	+0 45.6	1.885	2.575	18.7	21.3	124 E	46	63
4 11	22 18.05	+37 57.0	0.672	0.772	87.6	18.5	50 W	44*	12*	3 22	8 3.72	+1 15.4	1.959	2.598	19.5	21.4	119 E	46	63
4 16	22 23.43	+34 11.3	0.691	0.774	86.3	18.5	50 W	43*	17*	349219 2007 SV₁₁									
4 21	22 30.51	+30 26.6	0.708	0.783	84.6	18.5	51 W	42*	22*	12 23	8 57.26	+11 55.7	1.669	2.481	15.7	22.1	137 W	57	52
4 26	22 38.98	+26 44.8	0.722	0.799	82.7	18.5	52 W	40*	27*	1 2	8 44.29	+10 59.7	1.604	2.502	11.5	21.9	150 W	56	53
5 1	22 48.55	+23 7.1	0.735	0.821	80.5	18.5	53 W	38*	31*	1 12	8 28.64	+10 11.9	1.567	2.521	7.0	21.7	162 W	55	54
5 6	22 58.97	+19 34.3	0.745	0.848	78.3	18.5	55 W	36*	36*	1 22	8 11.66	+9 32.8	1.563	2.537	4.0	21.6	170 E	55	54
5 11	23 9.98	+16 6.6	0.753	0.880	75.9	18.6	58 W	34*	40*	2 1	7 55.02	+9 2.5	1.592	2.551	6.4	21.7	163 E	54	55
5 16	23 21.38	+12 43.7	0.760	0.915	73.6	18.6	60 W	32*	44*	2 11	7 40.34	+8 40.4	1.654	2.563	10.7	22.0	151 E	54	55
5 21	23 32.95	+9 24.4	0.765	0.954	71.2	18.6	63 W	30*	49*	374188 2005 AD₃									
5 26	23 44.54	+6 7.5	0.768	0.995	68.8	18.6	66 W	28*	53*	12 23	8 57.92	+17 56.5	1.104	1.955	19.4	19.9	139 W	63	46
5 31	23 55.99	+2 51.6	0.771	1.037	66.3	18.7	70 W	26*	57*	1 2	8 53.30	+16 31.2	0.976	1.890	15.3	19.4	150 W	62	47
6 5	0 7.21	+0 24.5	0.772	1.081	63.9	18.7	73 W	24*	61*	1 12	8 44.06	+14 57.3	0.867	1.826	9.9	18.8	161 W	60	49
6 10	0 18.10	+3 42.2	0.773	1.125	61.4	18.7	77 W	23*	65*	1 22	8 30.41	+13 12.4	0.781	1.761	4.4	18.3	172 W	58	51
6 15	0 28.55	-7 2.4	0.773	1.170	58.9	18.7	80 W	21*	69*	1 27	8 22.28	+12 15.8	0.748	1.729	4.0	18.1	173 E	57	52
6 20	0 38.47	-10 26.0	0.774	1.216	56.3	18.7	84 W	20*	73*	2 1	8 13.63	+11 16.7	0.720	1.697	6.8	18.1	168 E	56	53
6 30	0 56.33	-17 25.4	0.778	1.306	51.1	18.7	92 W	17*	81*	2 6	8 4.80	+10 15.8	0.699	1.665	10.6	18.2	162 E	55	54
7 10	1 10.92	-24 38.7	0.788	1.395	45.8	18.7	101 W	14*	89	2 11	7 56.16	+9 13.9	0.683	1.633	14.7	18.3	155 E	54	55
7 20	1 21.35	-31 57.3	0.807	1.483	40.6	18.8	108 W	10*	84	2 16	7 48.06	+8 12.1	0.673	1.601	18.8	18.3	149 E	53	56
7 25	1 24.65	-35 33.9	0.821	1.526	38.2	18.8	112 W	8*	80	2 21									

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	19/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°
374188 2005 AD₃										4451 Grieve									
<i>(continuation)</i>										<i>(continuation)</i>									
7 5	12 15.10	-21 8.2	0.771	1.265	53.5	19.1	89E	12*	83*	3 7	8 4.54	-15 45.3	2.844	3.557	12.5	17.8	129E	29	80
7 10	12 37.93	-21 59.9	0.791	1.284	52.3	19.2	90E	12*	83*	3 12	8 2.86	-14 59.9	2.889	3.562	13.1	17.8	126E	30	79
7 15	13 0.74	-22 43.4	0.816	1.305	51.1	19.2	90E	12*	84*	3 17	8 1.70	-14 14.0	2.938	3.566	13.7	17.9	122E	31	78
7 20	13 23.35	-23 18.6	0.845	1.328	49.9	19.3	91E	12*	85*	3 22	8 1.07	-13 28.4	2.990	3.570	14.2	17.9	118E	32	77
7 25	13 45.58	-23 45.8	0.878	1.352	48.7	19.4	91E	13*	85*	4 1	8 1.35	-11 59.9	3.106	3.577	15.2	18.1	110E	33	76
7 30	14 7.28	-24 5.3	0.915	1.377	47.5	19.5	91E	13*	85*	4 11	8 3.56	-10 38.3	3.231	3.584	15.8	18.2	102E	34*	75
8 4	14 28.34	-24 17.8	0.957	1.404	46.3	19.6	91E	14*	85*	4 21	8 7.51	-9 25.9	3.363	3.589	16.2	18.3	95E	33*	73
8 9	14 48.67	-24 24.1	1.002	1.431	45.1	19.7	90E	14*	84*	5 1	8 12.99	-8 24.2	3.498	3.594	16.3	18.4	87E	30*	72*
8 14	15 8.25	-24 24.9	1.051	1.460	44.0	19.8	90E	15*	84*	5 11	8 19.78	-7 34.1	3.633	3.598	16.1	18.5	80E	26*	69*
8 19	15 27.07	-24 21.0	1.104	1.489	42.8	19.9	89E	16*	83*	5 21	8 27.68	-6 55.6	3.764	3.600	15.6	18.5	73E	20*	64*
8 24	15 45.13	-24 13.2	1.160	1.519	41.7	20.1	88E	17*	82*	5 31	8 36.50	-6 28.6	3.891	3.602	14.9	18.6	66E	14*	59*
8 29	16 2.47	-24 2.2	1.220	1.549	40.6	20.2	87E	17*	81*	6 10	8 46.08	-6 12.9	4.010	3.604	14.1	18.6	60E	8*	53*
9 3	16 19.11	-23 48.2	1.282	1.580	39.6	20.3	86E	18*	80*	6 20	8 56.27	-6 7.8	4.120	3.604	13.0	18.6	53E	2*	47*
9 8	16 35.09	-23 31.8	1.347	1.612	38.5	20.4	85E	19*	79*	6 30	9 6.96	-6 12.9	4.218	3.603	11.9	18.6	47E	-	40*
9 13	16 50.46	-23 13.3	1.415	1.643	37.5	20.5	84E	19*	78*	7 10	9 18.04	-6 27.4	4.305	3.602	10.7	18.6	41E	-	34*
9 18	17 5.28	-22 52.9	1.485	1.675	36.5	20.7	82E	20*	76*	7 20	9 29.41	-6 50.6	4.378	3.599	9.4	18.6	35E	-	27*
9 23	17 19.58	-22 30.8	1.556	1.707	35.4	20.8	81E	20*	74*	7 30	9 40.99	-7 22.0	4.437	3.596	8.2	18.6	30E	-	20*
9 28	17 33.42	-22 7.1	1.630	1.740	34.4	20.9	79E	21*	72*	8 9	9 52.71	-8 0.8	4.480	3.592	7.0	18.6	26E	-	13*
10 3	17 46.81	-21 42.0	1.705	1.772	33.4	21.0	77E	22*	70*	8 19	10 4.50	-8 46.4	4.508	3.587	6.0	18.5	22E	-	6*
10 8	17 59.80	-21 15.4	1.782	1.804	32.3	21.1	75E	22*	68*	8 29	10 16.32	-9 38.2	4.518	3.581	5.4	18.5	19W	-	5*
10 13	18 12.42	-20 47.5	1.859	1.837	31.3	21.2	73E	23*	66*	9 8	10 28.09	-10 35.3	4.512	3.574	5.2	18.5	19W	-	10*
10 18	18 24.71	-20 18.2	1.938	1.869	30.3	21.3	71E	23*	63*	9 18	10 39.78	-11 37.3	4.489	3.567	5.7	18.5	21W	-	14*
10 23	18 36.69	-19 47.5	2.017	1.901	29.2	21.4	69E	24*	61*	9 28	10 51.31	-12 43.4	4.449	3.558	6.6	18.5	24W	2*	18*
10 28	18 48.38	-19 15.6	2.097	1.933	28.2	21.5	67E	24*	58*	10 8	11 2.62	-13 52.9	4.392	3.549	7.8	18.5	29W	7*	22*
79576 1998 QG₉₈										376876 2001 VC₅₆									
12 23	8 59.07	+6 19.3	2.056	2.831	14.4	20.3	134W	51	58	12 23	8 59.34	+15 40.2	1.506	2.330	16.5	21.4	138W	61	48
1 2	8 53.07	+6 26.5	1.967	2.832	11.4	20.1	145W	51	58	1 2	8 51.92	+15 48.8	1.460	2.361	12.1	21.2	150W	61	48
1 12	8 44.87	+6 49.8	1.901	2.831	7.9	19.9	157W	52	57	1 12	8 41.88	+16 7.4	1.437	2.392	7.2	21.0	162W	61	48
1 22	8 35.13	+7 27.9	1.863	2.830	4.7	19.7	166W	52	57	1 22	8 30.34	+16 31.6	1.441	2.423	2.1	20.8	175W	62	47
2 1	8 24.77	+8 17.9	1.855	2.827	4.1	19.7	168E	53	56	2 1	8 18.71	+16 56.9	1.474	2.452	3.5	20.9	171E	62	47
2 6	8 19.72	+8 45.9	1.863	2.826	5.3	19.7	165E	54	55	2 11	8 8.43	+17 19.2	1.535	2.481	8.2	21.3	159E	62	47
2 11	8 14.92	+9 15.0	1.877	2.824	7.0	19.8	160E	54	55	2 21	8 0.55	+17 36.1	1.622	2.510	12.4	21.6	147E	63	46
2 16	8 10.49	+9 44.6	1.899	2.822	8.7	19.9	154E	55	54	350988 2003 GW									
2 21	8 6.53	+10 14.2	1.928	2.819	10.5	20.0	149E	55	54	12 23	8 59.41	-42 28.8	2.096	2.501	22.6	21.5	102W	3	74
3 2	8 0.37	+11 11.1	2.002	2.814	13.8	20.2	137E	56	53	12 28	8 55.77	-43 15.6	2.045	2.487	22.5	21.4	105W	2	73
3 12	7 56.85	+12 2.2	2.097	2.807	16.5	20.4	127E	57	52	1 2	8 51.20	-43 54.3	1.995	2.472	22.3	21.3	107W	1	72
3 22	7 56.06	+12 45.4	2.207	2.800	18.5	20.6	117E	58	51	1 7	8 45.75	-44 23.7	1.947	2.457	22.2	21.3	110W	1	72
4 1	7 57.89	+13 19.7	2.327	2.791	20.0	20.8	107E	58	51	1 12	8 39.51	-44 42.3	1.901	2.441	22.0	21.2	112W	-	71
4 11	8 2.11	+13 44.3	2.452	2.782	20.9	20.9	98E	58*	50	1 17	8 32.57	-44 48.6	1.858	2.425	21.8	21.1	114W	-	71
4 21	8 8.41	+13 59.3	2.580	2.771	21.3	21.0	90E	55*	50	1 22	8 25.10	-44 41.3	1.817	2.409	21.7	21.1	115W	-	71
5 1	8 16.50	+14 4.5	2.707	2.760	21.2	21.1	82E	50*	50*	1 27	8 17.30	-44 19.3	1.780	2.392	21.6	21.0	117E	1	72
5 11	8 26.11	+14 0.3	2.830	2.747	20.8	21.2	75E	44*	49*	2 1	8 9.42	-43 41.9	1.746	2.374	21.5	20.9	118E	1	72
5 21	8 36.97	+13 46.7	2.947	2.734	20.1	21.2	68E	37*	47*	2 6	8 1.69	-42 48.8	1.716	2.356	21.5	20.9	119E	2	73
5 31	8 48.88	+13 24.2	3.057	2.720	19.1	21.3	61E	31*	45*	2 11	7 54.36	-41 40.3	1.690	2.337	21.6	20.8	119E	3	74
6 10	9 1.64	+12 53.0	3.158	2.704	17.9	21.3	55E	24*	42*	2 16	7 47.61	-40 17.2	1.668	2.318	21.8	20.8	119E	5	76
6 20	9 15.11	+12 13.5	3.249	2.688	16.5	21.3	49E	18*	39*	2 21	7 41.64	-38 40.4	1.650	2.298	22.1	20.8	119E	6	77
6 30	9 29.17	+11 26.2	3.328	2.671	14.9	21.3	43E	13*	35*	2 26	7 36.58	-36 51.6	1.637	2.278	22.5	20.7	118E	8	79
7 10	9 43.69	+10 31.5	3.396	2.653	13.3	21.2	37E	9*	30*	3 2	7 32.52	-34 52.5	1.628	2.257	23.1	20.7	117E	10	81
7 20	9 58.61	+9 29.9	3.451	2.634	11.5	21.2	31E	5*	25*	3 7	7 29.51	-32 45.3	1.624	2.235	23.7	20.7	115E	12	83
7 30	10 13.87	+8 21.9	3.493	2.614	9.6	21.1	25E	2*	19*	3 12	7 27.55	-30 32.0	1.624	2.213	24.4	20.7	113E	14	85
8 9	10 29.40	+7 8.2	3.523	2.593	7.7	21.1	20E	-	14*	3 17	7 26.62	-28 14.7	1.628	2.191	25.1	20.7	111E	17	88
8 19	10 45.19	+5 49.2	3.538	2.571	5.6	20.9	14E	-	8*	3 22	7 26.70	-25 55.2	1.636	2.168	25.9	20.7	108E	19	90
8 29	11 1.21	+4 25.8	3.540	2.548	3.6	20.8	9E	-	3*	3 27	7 27.73	-23 35.4	1.648	2.144	26.6	20.7	106E	21	88
9 8	11 17.44	+2 58.5	3.529	2.524	1.5	20.6	4E	-	-	4 1	7 29.66	-21 16.8	1.663	2.120	27.4	20.8	103E	24*	85
9 18	11 33.88	+1 28.2	3.504	2.500	0.9	20.6	2W	-	-	4 6	7 32.43	-19 0.8	1.681	2.095	28.1	20.8	100E	26*	83
9 28	11 50.53	-0 4.5	3.466	2.475	2.9	20.7	7W	-	-	4 11	7 35.97	-16 48.6	1.701	2.070	28.8	20.8	96E	27*	81
10 8	12 7.38	-1 38.6	3.414	2.449	5.1	20.7	13W	5*	3*	4 16	7 40.22	-14 40.9	1.724	2.044	29.4	20.8	93E	28*	79*
10 18	12 24.47	-3 13.4	3.351	2.422	7.3	20.8	18W	10*	6*	4 21	7 45.14	-12 38.5	1.749	2.018	29.9	20.8	90E	28*	76*
10 28	12 41.77	-4 47.7	3.275	2.394	9.4	20.8	23W	15*	10*	4 26	7 50.67	-10 41.7	1.775	1.991	30.3	20.8	87E	28*	74*
11 7	12 59.31	-6 20.7	3.188	2.366	11.6	20.8	29W	19*	14*	5 1	7 56.77	-8 51.1	1.802	1.963	30.7	20.9	84E	28*	71*
11 17	13 17.10	-7 51.2	3.090	2.337	13.7	20.8	34W	23*	18*	5 6	8 3.38	-7 6.7	1.830	1.935	30.9	20.9	80E	27*	68*
11 27	13 35.11	-9 18.2	2.982	2.308	15.8	20.7	39W	26*	23*	5 11	8 10.46	-5 28.7	1.858	1.906	31.1	20.9	77E	26*	66*
12 7	13 53.34	-10 40.3	2.866	2.277	17.8	20.7	45W	28*	28*	5 16	8 17.99	-3 56.8	1.886	1.877	31.2				

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	19/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°
350988 2003 GW										316720 1998 BE₇									
<i>(continuation)</i>										<i>(continuation)</i>									
6 20	9 20.89	+ 4 2.5	2.054	1.660	29.4	20.7	53 E	13*	46*	12 7	13 18.18	+ 6 16.0	4.092	3.705	13.4	21.4	60 W	47*	28*
6 25	9 31.12	+ 4 50.4	2.071	1.627	28.8	20.7	51 E	12*	43*	12 17	13 26.09	+ 6 0.5	3.993	3.743	14.1	21.4	68 W	50*	35*
6 30	9 41.63	+ 5 33.9	2.085	1.593	28.2	20.7	48 E	11*	41*	12 27	13 32.96	+ 5 55.4	3.885	3.780	14.7	21.4	77 W	51*	42*
7 5	9 52.42	+ 6 13.2	2.097	1.560	27.6	20.6	45 E	10*	38*	1 6	13 38.63	+ 6 1.2	3.771	3.816	14.9	21.3	85 W	51	49*
7 10	10 3.49	+ 6 48.7	2.107	1.526	26.9	20.5	43 E	9*	36*	1 16	13 42.94	+ 6 18.3	3.654	3.852	14.8	21.3	94 W	51	54*
7 15	10 14.83	+ 7 20.6	2.113	1.492	26.2	20.5	40 E	9*	34*	272254 2005 QJ₁₄₅									
7 20	10 26.47	+ 7 49.1	2.116	1.457	25.5	20.4	38 E	9*	31*	12 23	8 59.85	+15 23.9	1.909	2.718	14.1	21.2	138 W	60	49
7 30	10 50.67	+ 8 36.7	2.113	1.388	24.0	20.3	34 E	9*	27*	1 2	8 53.86	+16 3.9	1.813	2.705	10.7	20.9	149 W	61	48
8 9	11 16.17	+ 9 13.1	2.096	1.319	22.6	20.1	30 E	9*	23*	1 12	8 45.31	+16 55.9	1.741	2.692	6.6	20.7	162 W	62	47
8 19	11 43.19	+ 9 39.6	2.066	1.252	21.5	19.9	27 E	10*	19*	1 22	8 34.86	+17 55.6	1.697	2.678	2.0	20.3	175 W	63	46
8 29	12 11.96	+ 9 56.7	2.022	1.187	21.1	19.7	25 E	12*	16*	1 27	8 29.23	+18 26.5	1.686	2.671	0.5	20.2	179 E	63	46
9 8	12 42.78	+10 4.5	1.966	1.125	21.5	19.6	24 E	14*	13*	2 1	8 23.54	+18 57.1	1.683	2.663	2.8	20.4	172 E	64	45
9 18	13 16.05	+10 1.5	1.898	1.070	23.0	19.4	25 E	16*	11*	2 6	8 17.97	+19 26.7	1.688	2.655	5.2	20.5	166 E	64	45
9 28	13 52.17	+ 9 45.6	1.822	1.023	25.6	19.3	26 E	19*	10*	2 11	8 12.67	+19 54.7	1.699	2.646	7.5	20.6	160 E	65	44
10 8	14 31.53	+ 9 12.6	1.743	0.986	28.8	19.2	28 E	22*	9*	2 16	8 7.78	+20 20.5	1.718	2.638	9.7	20.7	153 E	65	44
10 18	15 14.40	+ 8 17.5	1.665	0.962	32.4	19.2	31 E	25*	9*	2 21	8 3.42	+20 43.8	1.743	2.629	11.8	20.8	147 E	66	43
10 28	16 0.75	+ 6 56.2	1.598	0.953	35.7	19.2	34 E	27*	10*	2 26	7 59.71	+21 4.5	1.774	2.620	13.7	20.9	141 E	66	43
11 7	16 50.02	+ 5 7.6	1.549	0.960	38.2	19.2	37 E	30*	11*	3 2	7 56.72	+21 22.4	1.811	2.611	15.5	21.0	135 E	66	43
11 12	17 15.43	+ 4 4.2	1.534	0.969	38.9	19.2	38 E	31*	12*	3 7	7 54.50	+21 37.5	1.851	2.601	17.0	21.1	130 E	67	42
11 17	17 41.10	+ 2 56.5	1.527	0.981	39.4	19.2	39 E	32*	13*	3 12	7 53.06	+21 49.8	1.896	2.591	18.4	21.2	124 E	67	42
11 22	18 6.81	+ 1 46.2	1.528	0.997	39.5	19.3	40 E	32*	14*	3 17	7 52.41	+21 59.5	1.944	2.581	19.6	21.3	119 E	67	42
11 27	18 32.35	+ 0 35.2	1.537	1.016	39.2	19.3	41 E	32*	15*	3 22	7 52.54	+22 6.6	1.995	2.571	20.7	21.4	114 E	67	42
12 2	18 57.49	+ 0 34.5	1.554	1.038	38.6	19.4	41 E	32*	16*	3 27	7 53.42	+22 11.3	2.047	2.560	21.5	21.4	110 E	67	42
12 7	19 22.06	+ 1 41.1	1.578	1.062	37.8	19.4	41 E	32*	16*	184346 2005 HF₆									
12 12	19 45.91	+ 2 43.1	1.611	1.088	36.7	19.5	41 E	32*	17*	12 23	9 0.14	+ 8 7.4	1.744	2.535	16.0	19.9	135 W	53	56
12 17	20 8.93	+ 3 39.4	1.649	1.116	35.5	19.6	41 E	31*	18*	1 2	8 53.67	+ 8 33.5	1.701	2.577	12.2	19.7	146 W	54	55
12 22	20 31.04	+ 4 29.0	1.694	1.145	34.1	19.7	41 E	31*	18*	1 12	8 45.01	+ 9 15.9	1.680	2.619	8.0	19.6	158 W	54	55
12 27	20 52.21	+ 5 11.8	1.743	1.176	32.6	19.7	40 E	30*	18*	1 22	8 35.06	+10 11.0	1.687	2.660	4.1	19.4	169 W	55	54
1 1	21 12.43	+ 5 47.8	1.796	1.208	31.0	19.8	39 E	29*	18*	1 27	8 29.94	+10 41.6	1.701	2.680	3.0	19.4	172 E	56	53
1 6	21 31.73	+ 6 17.0	1.852	1.241	29.4	19.9	38 E	28*	18*	2 1	8 24.94	+11 13.3	1.723	2.700	3.5	19.5	170 E	56	53
1 11	21 50.15	+ 6 40.0	1.911	1.274	27.8	20.0	37 E	27*	18*	2 6	8 20.19	+11 45.4	1.753	2.720	5.0	19.6	166 E	57	52
1 16	22 7.75	+ 6 57.2	1.971	1.308	26.2	20.0	36 E	25*	17*	2 11	8 15.81	+12 17.1	1.789	2.739	6.9	19.8	161 E	57	52
12 23	8 59.50	+22 59.3	1.043	1.901	19.6	17.2	139 W	68	41	2 21	8 8.57	+13 17.1	1.882	2.778	10.5	20.1	149 E	58	51
12 28	8 57.09	+24 15.4	1.038	1.929	16.9	17.1	145 W	69	40	3 2	8 3.79	+14 9.9	1.999	2.816	13.6	20.3	138 E	59	50
1 2	8 53.70	+25 33.0	1.038	1.957	14.1	17.0	151 W	71	38	3 12	8 1.67	+14 53.6	2.136	2.853	16.0	20.6	128 E	60	49
1 7	8 49.46	+26 50.1	1.044	1.985	11.3	17.0	157 W	72	37	3 22	8 2.13	+15 27.3	2.288	2.890	17.8	20.8	118 E	60	49
1 12	8 44.56	+28 4.6	1.055	2.014	8.6	16.9	162 W	73	36	4 1	8 4.97	+15 51.0	2.451	2.926	18.9	21.0	109 E	61	48
1 17	8 39.19	+29 14.4	1.073	2.043	6.5	16.9	167 W	74	35	4 11	8 9.86	+16 5.0	2.620	2.960	19.5	21.2	100 E	61*	48
1 22	8 33.60	+30 17.9	1.098	2.072	5.4	16.9	169 W	75	34	4 21	8 16.48	+16 9.8	2.793	2.994	19.6	21.4	92 E	58*	48
1 27	8 28.04	+31 13.7	1.129	2.101	5.9	17.0	167 E	76	33	427778 2005 BE									
2 1	8 22.76	+32 0.9	1.167	2.130	7.5	17.2	164 E	77	32	12 23	9 0.25	+ 9 6.1	0.393	1.254	39.5	20.1	126 W	36	73
2 6	8 17.97	+32 39.4	1.211	2.160	9.5	17.4	159 E	78	31	12 25	8 56.39	+ 7 56.1	0.377	1.255	37.6	20.0	129 W	37	72
2 11	8 13.84	+33 9.4	1.261	2.189	11.5	17.6	154 E	78	31	12 27	8 51.96	+ 6 36.9	0.362	1.256	35.4	19.8	132 W	38	71
2 16	8 10.49	+33 31.4	1.316	2.219	13.5	17.8	148 E	79	30	12 29	8 46.94	+ 5 7.5	0.347	1.256	33.0	19.7	136 W	40	69
2 21	8 7.98	+33 46.1	1.377	2.248	15.3	18.0	143 E	79	30	12 31	8 41.28	+ 3 27.2	0.333	1.256	30.3	19.5	140 W	42	67
2 26	8 6.36	+33 54.3	1.442	2.278	16.9	18.2	138 E	79	30	1 2	8 34.94	+ 1 34.9	0.319	1.256	27.4	19.3	144 W	43	66
3 2	8 5.63	+33 56.9	1.512	2.307	18.2	18.4	133 E	79	30	1 7	8 15.90	+ 4 0.5	0.291	1.253	19.1	18.9	155 W	49	60
3 7	8 5.78	+33 54.5	1.586	2.337	19.4	18.5	129 E	79	30	1 12	7 52.12	+10 50.7	0.270	1.249	9.5	18.4	168 W	56	53
3 12	8 6.73	+33 47.9	1.663	2.366	20.4	18.7	124 E	79	30	1 17	7 52.88	+18 29.6	0.261	1.243	5.6	18.1	173 E	63	46
3 17	8 8.43	+33 37.7	1.743	2.395	21.2	18.8	120 E	79	30	1 22	6 52.43	+26 7.1	0.262	1.234	15.5	18.5	160 E	71	38
3 22	8 10.83	+33 24.4	1.825	2.425	21.8	19.0	115 E	78	31	1 24	6 39.43	+28 57.2	0.266	1.231	19.9	18.7	155 E	74	35
3 27	8 13.85	+33 8.4	1.910	2.454	22.3	19.1	111 E	78	31	1 26	6 26.44	+31 36.0	0.272	1.226	24.1	18.8	149 E	77	32
4 1	8 17.44	+32 49.9	1.997	2.483	22.6	19.3	107 E	78	31	1 28	6 13.63	+34 1.8	0.279	1.222	28.1	19.0	144 E	79	30
4 6	8 21.53	+32 29.3	2.085	2.512	22.8	19.4	103 E	77	32	1 30	6 1.16	+36 13.9	0.287	1.217	31.9	19.2	139 E	81	28
4 11	8 26.05	+32 6.9	2.174	2.541	22.9	19.5	100 E	77*	32	2 1	5 49.15	+38 12.4	0.297	1.212	35.4	19.3	135 E	83	26
4 21	8 36.19	+31 16.9	2.356	2.598	22.7	19.7	92 E	74*	33	2 3	5 37.73	+39 57.9	0.307	1.206	38.7	19.5	130 E	85	24
5 1	8 47.50	+30 21.0	2.539	2.655	22.2	19.9	85 E	68*	34	2 5	5 26.96	+41 31.3	0.318	1.201	41.7	19.6	126 E	87	22
5 11	8 59.65	+29 20.2	2.721	2.711	21.4	20.1	79 E	61*	35*	2 7	5 16.90	+42 54.0	0.330	1.194	44.5	19.8	122 E	88	21
5 21	9 12.41	+28 15.0	2.902	2.767	20.4	20.2	72 E	53*	35*	2 9	5 7.58	+44 7.1	0.343	1.188	47.0	19.9	118 E	89	20
5 31	9 25.58	+27 6.0	3.078	2.821	19.2	20.4	66 E	46*	36*	2 11	4 58.99	+45 12.0	0.356	1.181	49.3	20.1	115 E	90	19
6 10	9 39.01	+25 53.9	3.248	2.875	17.8	20.5	60 E	39*	35*	2 13	4 51.12	+46 9.8	0.369	1.174	51.4	20.2	112 E	89	18
6 20	9 52.59	+24 39.1	3.411	2.929	16.3	20.6	54 E	33*	34*	2 15	4 43.95	+47 1.6	0.383	1.167	53.4	20.3	108 E	88	17
6 30	10 6.23	+																	

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/20	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	20/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°
427778 2005 BE										304293 2006 SQ₇₈									
<i>(continuation)</i>										<i>(continuation)</i>									
3 14	3 54.07	+54 22.4	0.552	1.028	70.8	21.4	78 E	68*	5*	3 24	22 12.55	-41 16.2	0.283	0.847	114.4	20.1	51 W	—	34*
3 16	3 52.43	+54 45.5	0.561	1.016	71.7	21.4	76 E	66*	4*	3 26	22 11.93	-35 36.6	0.278	0.838	117.4	20.3	48 W	—	36*
3 18	3 50.86	+55 7.9	0.569	1.003	72.7	21.4	74 E	64*	3*	3 28	22 11.80	-29 45.3	0.277	0.830	120.0	20.5	46 W	—	36*
3 20	3 49.33	+55 29.7	0.577	0.990	73.7	21.5	73 E	62*	2*	3 30	22 12.11	-23 49.7	0.279	0.823	121.9	20.6	44 W	—	37*
3 22	3 47.80	+55 50.8	0.584	0.977	74.7	21.5	71 E	61*	1*	4 1	22 12.85	-17 57.9	0.284	0.816	123.1	20.7	43 W	3*	37*
204131 2003 YL																			
12 23	9 0.31	+19 27.3	0.478	1.379	28.2	20.1	139 W	64	45	4 2	22 13.37	-15 5.9	0.287	0.812	123.4	20.8	43 W	6*	37*
12 28	8 39.76	+20 13.3	0.483	1.418	21.2	20.0	149 W	65	44	4 3	22 13.99	-12 17.6	0.292	0.809	123.5	20.8	42 W	8*	36*
1 2	8 18.43	+20 52.5	0.494	1.455	14.2	19.9	159 W	66	43	4 4	22 14.70	-9 33.7	0.297	0.806	123.4	20.8	42 W	10*	36*
1 7	7 57.32	+21 22.0	0.513	1.490	7.4	19.8	169 W	66	43	4 5	22 15.51	-6 55.0	0.302	0.803	123.1	20.8	42 W	13*	36*
1 12	7 37.45	+21 41.0	0.540	1.524	1.0	19.5	178 W	67	42	4 6	22 16.42	-4 21.8	0.308	0.800	122.6	20.8	42 W	15*	35*
1 17	7 19.58	+21 50.5	0.575	1.555	4.8	20.0	172 E	67	42	4 7	22 17.41	-1 54.5	0.315	0.797	122.0	20.8	42 W	17*	35*
1 22	7 4.19	+21 52.6	0.617	1.586	10.0	20.4	164 E	67	42	4 8	22 18.49	+0 26.6	0.323	0.795	121.3	20.8	43 W	19*	34*
1 27	6 51.49	+21 49.7	0.665	1.614	14.5	20.8	156 E	67	42	4 9	22 19.66	+2 41.3	0.331	0.792	120.4	20.8	43 W	20*	34*
2 1	6 41.44	+21 43.9	0.719	1.641	18.4	21.1	148 E	67	42	4 10	22 20.91	+4 49.8	0.340	0.790	119.5	20.7	43 W	22*	33*
2 6	6 33.86	+21 37.0	0.777	1.666	21.6	21.4	141 E	67	42	4 11	22 22.25	+6 51.9	0.349	0.788	118.4	20.7	44 W	24*	33*
2 11	6 28.49	+21 29.8	0.840	1.690	24.3	21.7	135 E	67	43	4 13	22 25.16	+10 37.8	0.368	0.784	116.2	20.7	45 W	27*	31*
304293 2006 SQ₇₈																			
12 23	9 0.41	-55 14.4	0.849	1.329	47.7	20.9	93 W	—	61	4 15	22 28.39	+14 0.3	0.389	0.781	113.8	20.6	45 W	29*	30*
12 28	9 2.63	-58 23.3	0.827	1.306	48.8	20.8	92 W	—	58	4 17	22 31.90	+17 1.4	0.412	0.778	111.3	20.6	46 W	31*	29*
1 2	9 3.89	-61 27.1	0.805	1.283	50.0	20.7	91 W	—	55	4 19	22 35.68	+19 43.1	0.435	0.776	108.7	20.5	47 W	33*	28*
1 7	9 4.04	-64 25.4	0.782	1.259	51.3	20.7	90 W	—	52	4 21	22 39.73	+22 7.5	0.459	0.775	106.2	20.5	48 W	35*	27*
1 12	9 2.88	-67 18.3	0.759	1.234	52.8	20.6	89 W	—	49	4 23	22 44.01	+24 16.4	0.484	0.774	103.7	20.5	48 W	36*	26*
1 17	9 0.04	-70 6.0	0.735	1.209	54.4	20.5	88 W	—	46	4 25	22 48.52	+26 11.7	0.509	0.775	101.2	20.5	49 W	37*	25*
1 22	8 54.98	-72 49.0	0.709	1.182	56.2	20.5	87 W	—	43	4 27	22 53.23	+27 54.9	0.534	0.775	98.8	20.5	50 W	39*	24*
1 24	8 52.15	-73 53.0	0.698	1.172	57.0	20.4	87 W	—	42	4 29	22 58.14	+29 27.5	0.560	0.777	96.5	20.4	50 W	39*	24*
1 26	8 48.75	-74 56.4	0.687	1.161	57.8	20.4	86 W	—	41	5 1	23 3.23	+30 50.7	0.585	0.779	94.2	20.4	50 W	40*	23*
1 28	8 44.67	-75 59.2	0.675	1.150	58.6	20.4	86 W	—	40	5 3	23 8.48	+32 5.6	0.611	0.781	91.9	20.5	51 W	41*	23*
1 30	8 39.77	-77 1.6	0.663	1.139	59.5	20.3	85 E	—	39	5 5	23 13.88	+33 13.1	0.636	0.785	89.8	20.5	51 W	41*	22*
2 1	8 33.85	-78 3.5	0.651	1.128	60.4	20.3	85 E	—	38	5 7	23 19.41	+34 14.0	0.661	0.789	87.7	20.5	51 W	42*	22*
2 2	8 30.43	-78 34.3	0.645	1.122	60.9	20.3	84 E	—	37	5 9	23 25.07	+35 9.1	0.686	0.793	85.7	20.5	52 W	42*	21*
2 3	8 26.65	-79 5.1	0.639	1.117	61.4	20.3	84 E	—	37	5 11	23 30.84	+35 58.9	0.710	0.798	83.8	20.5	52 W	42*	21*
2 4	8 22.44	-79 35.7	0.632	1.111	61.9	20.2	84 E	—	36	5 16	23 45.64	+37 44.2	0.769	0.814	79.4	20.6	52 W	43*	20*
2 5	8 17.75	-80 6.3	0.626	1.105	62.4	20.2	83 E	—	36	5 21	23 50.83	+39 6.8	0.824	0.832	75.4	20.6	53 W	43*	19*
2 6	8 12.50	-80 36.7	0.619	1.100	62.9	20.2	83 E	—	35	5 26	24 0.16	+40 11.3	0.874	0.853	71.8	20.7	53 W	44*	19*
2 7	8 6.58	-81 7.1	0.613	1.094	63.4	20.2	83 E	—	35	5 31	24 5.39	+41 1.0	0.919	0.876	68.7	20.7	54 W	44*	19*
2 8	7 59.88	-81 37.2	0.606	1.088	64.0	20.2	83 E	—	34	6 5	24 10.41	+41 38.6	0.960	0.901	66.0	20.8	54 W	45*	19*
2 9	7 52.23	-82 7.2	0.599	1.083	64.5	20.1	82 E	—	34	6 10	24 15.28	+42 5.8	0.994	0.927	63.7	20.9	55 W	45*	19*
2 10	7 43.45	-82 36.9	0.592	1.077	65.1	20.1	82 E	—	33	6 15	24 20.14	+42 24.1	1.024	0.954	61.7	20.9	56 W	46*	19*
2 11	7 33.28	-83 6.1	0.585	1.071	65.7	20.1	82 E	—	33	6 20	24 25.02	+42 34.6	1.047	0.982	60.0	21.0	57 W	47*	19*
2 12	7 21.42	-83 34.8	0.578	1.066	66.3	20.1	81 E	—	32	6 25	24 30.06	+42 38.0	1.066	1.011	58.5	21.1	58 W	48*	19*
2 13	7 7.46	-84 2.7	0.571	1.060	66.9	20.1	81 E	—	32	6 30	24 35.02	+42 34.7	1.079	1.039	57.3	21.1	59 W	50*	20*
2 14	6 50.93	-84 29.4	0.564	1.054	67.5	20.0	81 E	—	32	7 5	24 40.06	+41 48.2	1.087	1.068	56.3	21.2	61 W	51*	20*
2 15	6 31.26	-84 54.5	0.557	1.048	68.2	20.0	80 E	—	31	7 10	24 45.02	+41 25.1	1.089	1.097	55.4	21.2	63 W	53*	21*
2 16	6 7.80	-85 17.4	0.549	1.043	68.8	20.0	80 E	—	31	7 15	24 50.06	+41 21.1	1.080	1.125	54.7	21.2	65 W	55*	21*
2 17	5 39.98	-85 37.2	0.542	1.037	69.5	20.0	80 E	—	30	7 20	24 55.19	+41 21.1	1.080	1.152	54.0	21.3	67 W	57*	22*
2 18	5 7.47	-85 52.8	0.534	1.031	70.2	20.0	79 E	—	30	7 25	25 0.37	+40 48.0	1.069	1.179	53.4	21.3	69 W	59*	23*
2 19	4 30.56	-86 3.0	0.526	1.026	71.0	19.9	79 E	—	30	7 30	25 5.39	+40 8.7	1.054	1.206	52.9	21.3	71 W	61*	24*
2 20	3 50.47	-86 6.7	0.519	1.020	71.7	19.9	78 E	—	30	8 4	25 10.41	+39 23.0	1.035	1.231	52.3	21.3	74 W	64*	24*
2 21	3 9.34	-86 2.9	0.511	1.014	72.5	19.9	78 E	—	29	8 9	25 15.44	+38 30.5	1.012	1.256	51.7	21.2	77 W	66*	25*
2 22	2 29.65	-85 51.5	0.503	1.008	73.3	19.9	78 E	—	29	8 14	25 20.47	+37 30.7	0.986	1.281	51.1	21.2	80 W	69*	26*
2 23	1 53.42	-85 32.9	0.495	1.003	74.1	19.9	77 E	—	29	8 19	25 25.59	+36 22.8	0.957	1.304	50.4	21.2	83 W	72*	28
2 24	1 21.69	-85 7.7	0.487	0.997	75.0	19.8	77 E	—	29	8 24	25 30.72	+35 5.9	0.925	1.326	49.5	21.1	86 W	74*	29
2 25	0 54.62	-84 36.9	0.479	0.991	75.8	19.8	76 E	—	28	8 29	25 35.85	+33 38.9	0.892	1.348	48.5	21.0	90 W	75*	30
2 26	0 31.83	-84 1.1	0.471	0.986	76.7	19.8	76 E	—	28	9 3	25 40.99	+32 0.5	0.856	1.368	47.3	20.9	94 W	76*	32
2 27	0 12.70	-83 21.0	0.462	0.980	77.6	19.8	75 E	—	27	9 8	25 46.12	+30 9.2	0.820	1.388	45.9	20.8	98 W	75*	34
2 28	23 56.61	-82 37.1	0.454	0.974	78.6	19.8	75 E	—	27	9 13	25 51.25	+28 3.2	0.783	1.406	44.2	20.7	103 W	73	36
2 29	23 43.00	-81 49.6	0.446	0.969	79.6	19.8	74 E	—	26	9 18	25 56.38	+25 40.4	0.746	1.424	42.2	20.6	10		

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	19/20	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°
31415 1999 AK₂₃										143947 2003 YQ₁₁₇									
12 23	9 0.89	+10 10.7	1.675	2.474	16.2	18.7	135 W	55	54	12 23	9 1.92	-16 49.8	1.371	2.053	24.4	18.7	120 W	28	81
1 2	8 54.52	+10 39.8	1.617	2.501	12.3	18.5	147 W	56	53	12 28	8 56.02	-17 18.0	1.367	2.093	22.6	18.7	125 W	28	81
1 12	8 45.69	+11 24.8	1.582	2.526	7.9	18.3	159 W	56	53	1 2	8 49.40	-17 35.2	1.367	2.133	20.8	18.6	130 W	27	82
1 22	8 35.30	+12 21.7	1.575	2.551	3.5	18.1	171 W	57	52	1 7	8 42.23	-17 40.9	1.372	2.171	19.1	18.6	134 W	27	82
1 27	8 29.87	+12 52.9	1.582	2.563	2.3	18.0	174 E	58	51	1 12	8 34.69	-17 34.8	1.381	2.209	17.5	18.6	138 W	27	82
2 1	8 24.52	+13 24.8	1.596	2.575	3.2	18.1	172 E	58	51	1 17	8 26.99	-17 17.1	1.396	2.246	16.1	18.7	141 W	28	81
2 6	8 19.41	+13 56.7	1.618	2.587	5.2	18.2	166 E	59	50	1 22	8 19.35	-16 48.4	1.417	2.283	14.9	18.7	143 W	28	81
2 11	8 14.67	+14 27.9	1.647	2.598	7.3	18.4	160 E	59	50	1 27	8 11.97	-16 9.5	1.445	2.319	14.2	18.7	145 E	29	80
2 16	8 10.42	+14 57.7	1.683	2.609	9.4	18.5	155 E	60	49	2 1	8 5.06	-15 22.0	1.479	2.355	13.9	18.8	145 E	30	79
2 21	8 6.77	+15 25.7	1.725	2.621	11.3	18.7	149 E	60	49	2 6	7 58.78	-14 27.6	1.519	2.389	14.0	18.9	144 E	31	78
3 2	8 1.53	+16 15.1	1.826	2.642	14.7	18.9	137 E	61	48	2 11	7 53.23	-13 28.1	1.565	2.423	14.4	19.0	142 E	32	77
3 12	7 59.20	+16 54.4	1.946	2.663	17.4	19.2	127 E	62	47	2 16	7 48.48	-12 25.1	1.618	2.457	15.0	19.1	140	33	76
3 22	7 59.73	+17 23.2	2.081	2.683	19.3	19.4	117 E	62	47	2 21	7 44.59	-11 20.4	1.676	2.490	15.8	19.3	137	34	75
4 1	8 2.88	+17 41.7	2.225	2.702	20.6	19.6	108 E	63	46	2 26	7 41.57	-10 15.2	1.740	2.522	16.7	19.4	133	35	74
4 11	8 8.31	+17 50.1	2.375	2.720	21.3	19.8	99 E	63*	46	3 2	7 39.40	-9 10.9	1.808	2.554	17.5	19.5	129 E	36	73
4 21	8 15.66	+17 49.1	2.528	2.737	21.5	19.9	91 E	60*	46	3 7	7 38.05	-8 8.4	1.881	2.585	18.3	19.7	125 E	37	72
5 1	8 24.60	+17 39.1	2.680	2.753	21.3	20.1	83 E	54*	46*	3 12	7 37.48	-7 8.6	1.958	2.616	18.9	19.8	121 E	38	71
5 11	8 34.82	+17 20.6	2.830	2.768	20.7	20.2	76 E	48*	46*	3 22	7 38.44	-5 18.6	2.122	2.675	20.0	20.1	113 E	40	69
5 21	8 46.08	+16 54.0	2.976	2.783	19.9	20.3	69 E	41*	45*	4 1	7 41.85	-3 43.7	2.295	2.732	20.7	20.3	105 E	41	68
5 31	8 58.15	+16 19.8	3.115	2.796	18.8	20.4	63 E	34*	44*	4 11	7 47.28	-2 24.7	2.475	2.787	20.9	20.5	97	42*	66
6 10	9 10.85	+15 38.5	3.245	2.809	17.5	20.4	56 E	28*	41*	4 21	7 54.32	-1 21.3	2.658	2.840	20.7	20.7	90	40*	65*
6 20	9 24.04	+14 50.6	3.367	2.821	16.0	20.5	50 E	22*	38*	5 1	8 2.67	+0 33.0	2.841	2.891	20.2	20.9	83	36*	64*
6 30	9 37.60	+13 56.0	3.478	2.831	14.4	20.5	44 E	16*	34*	5 11	8 12.02	+0 1.2	3.022	2.940	19.4	21.0	76	31*	61*
7 10	9 51.42	+12 57.0	3.577	2.841	12.6	20.5	38 E	12*	30*	5 21	8 22.16	+0 22.5	3.198	2.987	18.4	21.2	69	25*	58*
7 20	10 5.44	+11 52.6	3.664	2.850	10.8	20.5	32 E	8*	25*	5 31	8 32.90	+0 31.8	3.368	3.032	17.2	21.3	62	18*	54*
7 30	10 19.59	+10 43.7	3.737	2.858	8.9	20.4	26 E	5*	19*	6 10	8 44.07	+0 30.3	3.529	3.075	15.8	21.3	56	12*	49*
8 9	10 33.82	+9 31.1	3.797	2.865	6.9	20.4	20 E	2*	14*	6 20	8 55.56	+0 18.9	3.679	3.116	14.4	21.4	50	6*	43*
8 19	10 48.09	+8 15.5	3.842	2.871	4.9	20.3	14 E	—	8*	6 30	9 7.26	+0 1.5	3.817	3.156	12.8	21.5	43 E	1*	37*
8 29	11 2.38	+6 57.3	3.872	2.876	2.9	20.2	8 E	—	2*	7 10	9 19.08	-0 30.0	3.942	3.193	11.1	21.5	37 E	—	31*
9 8	11 16.64	+5 37.5	3.886	2.880	0.9	20.1	2 E	—	—	443802 1997 RH₁₃									
9 18	11 30.86	+4 16.6	3.885	2.883	1.3	20.1	4 W	—	—	12 23	9 4.55	+7 48.2	0.916	1.747	24.0	20.5	134 W	53	56
9 28	11 45.02	+2 55.3	3.868	2.886	3.4	20.3	10 W	3*	—	1 2	9 0.74	+8 2.1	0.886	1.781	18.7	20.3	145 W	53	56
10 8	11 59.07	+1 34.5	3.836	2.887	5.4	20.4	16 W	9*	3*	1 12	8 53.33	+8 44.2	0.873	1.817	12.6	20.2	156 W	54	55
10 18	12 13.00	+0 14.9	3.787	2.887	7.4	20.4	22 W	15*	7*	1 22	8 43.63	+9 49.4	0.881	1.854	6.6	20.0	168 W	55	54
10 28	12 26.76	-1 2.6	3.723	2.887	9.4	20.5	28 W	20*	12*	1 27	8 38.46	+10 27.7	0.894	1.873	4.4	19.9	172 W	55	54
11 7	12 40.30	-2 17.3	3.645	2.885	11.3	20.5	35 W	25*	16*	2 1	8 33.42	+11 8.0	0.912	1.892	4.2	20.0	172 E	56	53
11 17	12 53.56	-3 28.2	3.552	2.882	13.1	20.5	41 W	30*	21*	2 6	8 28.75	+11 48.8	0.937	1.912	6.2	20.1	168	57	52
11 27	13 6.47	-4 34.3	3.446	2.879	14.7	20.5	48 W	33*	27*	2 11	8 24.64	+12 28.7	0.967	1.932	8.7	20.4	163 E	57	52
12 7	13 18.93	-5 34.8	3.328	2.874	16.3	20.5	55 W	36*	34*	2 16	8 21.22	+13 6.8	1.003	1.951	11.3	20.6	157 E	58	51
12 17	13 30.82	-6 28.6	3.199	2.869	17.6	20.4	62 W	37*	41*	2 21	8 18.61	+13 42.2	1.044	1.971	13.8	20.8	152 E	59	50
12 27	13 42.00	-7 14.8	3.061	2.863	18.7	20.4	69 W	38*	48*	2 26	8 16.89	+14 14.2	1.091	1.991	16.0	21.0	146 E	59	50
1 6	13 52.29	-7 52.3	2.916	2.855	19.6	20.3	77 W	37	56*	3 2	8 16.06	+14 42.6	1.142	2.011	18.0	21.1	141 E	60	49
1 16	14 1.49	-8 19.9	2.766	2.847	20.1	20.2	85 W	37	64*	3 7	8 16.14	+15 7.0	1.197	2.032	19.8	21.3	136 E	60	49
438452 2007 AS₁₂										3 12	8 17.06	+15 27.3	1.256	2.052	21.4	21.5	131 E	60	49
12 23	9 1.46	-7 13.9	0.462	1.313	37.0	19.6	127 W	38	71	181771 1997 GG₃									
12 28	8 59.62	-4 29.5	0.447	1.329	32.7	19.4	133 W	41	68	12 23	9 5.11	+21 49.8	1.882	2.694	14.1	20.5	138 W	67	42
1 2	8 56.30	-1 18.4	0.435	1.347	27.9	19.3	140 W	44	65	1 2	8 57.31	+22 33.3	1.816	2.713	10.5	20.3	150 W	68	41
1 7	8 51.61	+2 17.2	0.427	1.364	22.5	19.1	148 W	47	62	1 12	8 46.93	+23 21.0	1.776	2.729	6.3	20.1	162 W	68	40
1 12	8 45.74	+6 12.0	0.424	1.381	16.8	18.9	156 W	51	58	1 22	8 34.86	+24 6.6	1.765	2.745	2.3	19.9	173 W	69	40
1 17	8 38.96	+10 17.8	0.426	1.399	10.8	18.8	165 W	55	54	1 27	8 28.57	+24 26.8	1.770	2.752	2.1	19.9	174 E	69	40
1 22	8 31.65	+14 24.2	0.435	1.416	4.9	18.6	173 W	59	50	2 1	8 22.35	+24 44.4	1.784	2.759	3.8	20.0	169 E	70	39
1 27	8 24.26	+18 20.7	0.450	1.434	1.7	18.5	178 E	63	46	2 6	8 16.36	+24 59.0	1.806	2.765	5.8	20.2	164 E	70	39
2 1	8 17.26	+21 57.9	0.471	1.452	6.8	18.9	170 E	67	42	2 11	8 10.76	+25 10.4	1.834	2.771	7.9	20.3	157 E	70	39
2 6	8 11.08	+25 10.1	0.499	1.469	11.7	19.2	162 E	70	39	2 16	8 5.68	+25 18.6	1.870	2.777	9.8	20.4	151 E	70	39
2 11	8 6.03	+27 54.7	0.532	1.486	16.1	19.6	155 E	73	36	2 21	8 1.23	+25 23.7	1.911	2.783	11.6	20.5	145 E	70	39
2 16	8 2.30	+30 11.8	0.570	1.504	20.0	19.9	149 E	75	34	2 26	7 57.47	+25 25.8	1.959	2.788	13.3	20.7	140 E	70	39
2 21	8 0.01	+32 3.3	0.612	1.521	23.3	20.1	143 E	77	32	3 2	7 54.47	+25 25.2	2.012	2.792	14.8	20.8	134 E	70	39
2 26	7 59.20	+33 32.0	0.657	1.538	26.0	20.4	137 E	79	30	3 7	7 52.25	+25 22.2	2.069	2.797	16.1	20.9	128 E	70	39
3 2	7 59.83	+34 40.8	0.706	1.554	28.3	20.7	132 E	80	29	3 12	7 50.80	+25 17.1	2.131	2.801	17.3	21.0	123 E	70	39
3 7	8 1.81	+35 32.7	0.758	1.570	30.2	20.9	127 E	81	28	3 17	7 50.10	+25 10.0	2.195	2.805	18.2	21.1	118 E	70	39
3 12	8 4.99	+36 10.1	0.811	1.586	31.8	21.1	123 E	81	28	3 22	7 50.12	+25 1.2	2.262	2.808	19.0	21.2	113 E	70	39
3 17	8 9.25	+36 35.1	0.866	1.602	33.0	21.3	119 E	82	27	3 27	7 50.84	+24 50.9	2.331	2.819	19.7	21.3	108 E	70	39
3 22	8 14.45	+36 49.5	0.923	1.618	34.0	21.5	115 E	82	27	4 1	7 52.21	+24 39.2	2.						

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/20	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	19/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°
159454 2000 DJ₈										256155 2006 VO₄₄									
<i>(continuation)</i>										<i>(continuation)</i>									
1 26	8 13.22	-20 20.3	0.345	1.270	29.6	17.6	140E	25	84	2 6	8 19.14	+42 9.8	2.304	3.203	8.5	20.6	151E	87	22
1 28	8 9.70	-16 47.7	0.342	1.277	26.9	17.5	144E	28	81	2 11	8 13.71	+42 15.6	2.343	3.215	9.6	20.7	147E	87	22
1 30	8 6.32	-13 8.0	0.340	1.285	24.4	17.4	147E	32	77	2 16	8 8.79	+42 15.9	2.388	3.228	10.7	20.8	143E	87	22
2 1	8 3.10	-9 24.1	0.341	1.292	22.2	17.4	150E	36	73	2 21	8 4.48	+42 11.0	2.438	3.240	11.8	20.9	138E	87	22
2 3	8 0.09	-5 38.8	0.343	1.300	20.4	17.4	153E	39	70	2 26	8 0.84	+42 1.6	2.495	3.252	12.8	21.0	133E	87	22
2 5	7 57.29	-1 55.2	0.347	1.307	19.1	17.4	154E	43	66	3 2	7 57.93	+41 48.3	2.556	3.264	13.8	21.1	128E	87	22
2 7	7 54.72	+1 43.8	0.353	1.315	18.5	17.4	155E	47	62	3 7	7 55.77	+41 31.7	2.621	3.275	14.6	21.2	124E	87	22
2 9	7 52.41	+5 15.8	0.362	1.322	18.6	17.5	155E	50	59	3 12	7 54.35	+41 12.5	2.690	3.287	15.3	21.3	119E	86	23
2 11	7 50.35	+8 38.6	0.371	1.330	19.2	17.5	154E	54	55	3 17	7 53.66	+40 51.1	2.762	3.298	16.0	21.4	114E	86	23
2 13	7 48.56	+11 50.7	0.383	1.338	20.3	17.7	152E	57	52	3 22	7 53.66	+40 27.9	2.836	3.309	16.5	21.4	110E	85	24
2 15	7 47.04	+14 51.1	0.396	1.345	21.6	17.8	150E	60	49	363814 2005 ND₇									
2 17	7 45.80	+17 39.3	0.411	1.353	23.1	17.9	147E	63	46	12 23	9 6.44	+24 25.5	1.227	2.067	18.5	20.9	138W	69	40
2 19	7 44.84	+20 15.1	0.427	1.360	24.7	18.1	145E	65	44	12 28	8 59.82	+27 5.4	1.212	2.094	15.7	20.8	145W	72	37
2 21	7 44.15	+22 38.7	0.444	1.368	26.2	18.2	142E	68	41	1 2	8 51.88	+29 47.1	1.206	2.122	12.9	20.7	151W	75	34
2 26	7 43.64	+27 47.6	0.492	1.386	29.8	18.6	136E	73	36	1 7	8 42.75	+32 26.3	1.209	2.148	10.3	20.6	157W	77	32
3 2	7 44.79	+31 53.1	0.545	1.405	32.7	18.9	130E	77	32	1 12	8 32.63	+34 58.1	1.221	2.175	8.4	20.6	161W	80	29
3 7	7 47.47	+35 6.5	0.602	1.423	35.0	19.2	125E	80	29	1 17	8 21.77	+37 18.6	1.243	2.201	7.8	20.6	162W	82	27
3 12	7 51.50	+37 38.2	0.662	1.441	36.8	19.5	120E	83	26	1 22	8 10.53	+39 24.2	1.274	2.226	8.5	20.7	160E	84	25
3 17	7 56.72	+39 36.3	0.723	1.459	38.1	19.7	115E	85	24	1 27	7 59.31	+41 12.9	1.314	2.251	10.1	20.9	156E	86	23
3 22	8 3.00	+41 7.4	0.787	1.476	39.0	20.0	111E	86	23	2 1	7 48.52	+42 44.1	1.363	2.275	12.1	21.1	151E	88	21
3 27	8 10.21	+42 16.6	0.851	1.493	39.6	20.2	107E	87	22	2 6	7 38.50	+43 58.4	1.419	2.299	14.1	21.3	145E	89	20
4 1	8 18.21	+43 7.8	0.915	1.510	40.0	20.4	104E	88	21	2 11	7 29.55	+44 57.1	1.482	2.322	16.0	21.5	139E	90	19
4 6	8 26.87	+43 43.9	0.980	1.526	40.1	20.6	101E	89	20	2 16	7 21.85	+45 42.4	1.551	2.345	17.7	21.6	134E	89	18
4 11	8 36.08	+44 7.3	1.044	1.542	40.1	20.7	98E	89	20	6183 Viscome									
4 16	8 45.74	+44 19.7	1.108	1.557	40.0	20.9	95E	88*	20	12 23	9 6.69	+3 14.3	1.308	2.091	20.7	16.9	131W	48	61
4 21	8 55.77	+44 22.6	1.172	1.572	39.7	21.0	92E	86*	20	12 28	9 2.99	+2 17.1	1.284	2.108	18.8	16.8	136W	47	62
4 26	9 6.10	+44 17.1	1.234	1.586	39.4	21.1	90E	83*	20	1 2	8 58.43	+1 24.9	1.265	2.125	16.8	16.7	141W	46	63
5 1	9 16.67	+44 4.0	1.296	1.600	39.0	21.2	87E	80*	20	1 7	8 53.14	+0 38.3	1.252	2.142	14.7	16.7	147W	46	63
5 6	9 27.41	+43 44.3	1.356	1.614	38.5	21.3	85E	77*	20	1 12	8 47.25	-0 2.0	1.244	2.159	12.7	16.6	151W	45	64
5 11	9 38.28	+43 18.6	1.415	1.627	38.0	21.4	82E	74*	21	1 22	8 34.35	-1 1.8	1.248	2.193	9.5	16.5	158W	44	65
79721 1998 SE₁₁₂										2 1	8 21.35	-1 33.2	1.278	2.227	9.0	16.6	159E	43	66
12 23	9 5.81	+16 31.1	2.025	2.822	13.9	20.6	137W	62	47	2 11	8 9.87	-1 39.1	1.334	2.260	11.2	16.8	153E	43	66
1 2	8 59.63	+17 3.7	1.944	2.828	10.5	20.4	148W	62	47	2 16	8 5.09	-1 34.4	1.371	2.277	12.8	16.9	149E	43	66
1 12	8 51.09	+17 45.4	1.886	2.833	6.6	20.1	161W	63	46	2 21	8 1.08	-1 25.8	1.414	2.293	14.4	17.1	145E	44	65
1 22	8 40.85	+18 32.2	1.857	2.837	2.3	19.9	173W	64	45	2 26	7 57.91	-1 14.3	1.462	2.310	16.0	17.2	140E	44	65
1 27	8 35.40	+18 55.8	1.854	2.838	0.1	19.6	180W	64	45	3 2	7 55.60	-1 0.7	1.515	2.326	17.5	17.4	135E	44	65
2 1	8 29.93	+19 18.8	1.858	2.840	2.2	19.9	174E	64	45	3 7	7 54.17	+0 46.0	1.572	2.342	18.8	17.5	131E	44	65
2 6	8 24.59	+19 40.6	1.871	2.841	4.4	20.0	167E	65	44	3 12	7 53.56	+0 31.0	1.633	2.358	19.9	17.6	126E	44	65
2 11	8 19.51	+20 0.6	1.890	2.842	6.5	20.1	161E	65	44	3 22	7 54.69	-0 1.9	1.763	2.390	21.8	17.9	117E	45	64
2 16	8 14.83	+20 18.6	1.917	2.843	8.5	20.3	155E	65	44	4 1	7 58.62	+0 22.5	1.903	2.421	23.0	18.1	109E	45	64
2 21	8 10.64	+20 34.4	1.951	2.843	10.4	20.4	149E	66	43	4 11	8 4.90	+0 39.7	2.049	2.451	23.6	18.3	101E	45*	63
3 2	8 4.11	+20 58.8	2.035	2.843	13.7	20.6	137E	66	43	4 21	8 13.10	+0 48.3	2.198	2.481	23.8	18.5	94E	43*	63
3 12	8 0.33	+21 13.6	2.139	2.842	16.4	20.8	126E	66	43	5 1	8 22.87	+0 47.5	2.348	2.510	23.6	18.7	87E	39*	63*
3 22	7 59.36	+21 19.6	2.258	2.840	18.4	21.0	116E	66	43	5 11	8 33.86	+0 37.0	2.498	2.538	23.1	18.8	81E	34*	62*
4 1	8 1.08	+21 17.3	2.386	2.837	19.7	21.1	107E	66	43	5 21	8 45.83	+0 16.8	2.645	2.566	22.3	18.9	74E	28*	61*
4 11	8 5.20	+21 7.6	2.519	2.833	20.5	21.3	98E	66*	43	5 31	8 58.56	-0 12.8	2.787	2.592	21.3	19.0	68E	22*	58*
4 21	8 11.41	+20 50.7	2.655	2.828	20.8	21.4	89E	62*	43	6 10	9 11.87	-0 51.4	2.925	2.618	20.1	19.1	63E	16*	55*
452407 2002 SW										6 20	9 25.62	-1 38.4	3.056	2.643	18.8	19.2	57E	10*	50*
12 23	9 5.99	+38 56.4	1.127	1.973	19.4	19.2	138W	84	25	6 30	9 39.71	-2 33.5	3.179	2.667	17.3	19.3	51E	5*	45*
12 28	8 58.28	+38 26.7	1.115	1.996	16.8	19.1	144W	83	26	7 10	9 54.04	-3 35.9	3.294	2.691	15.8	19.3	46E	1*	40*
1 2	8 49.55	+37 51.4	1.108	2.020	14.1	19.1	150W	83	26	7 20	10 8.54	-4 44.9	3.399	2.713	14.2	19.3	41E	—	34*
1 7	8 40.09	+37 9.5	1.108	2.043	11.5	19.0	155W	82	27	7 30	10 23.17	-6 0.0	3.494	2.735	12.5	19.3	36E	—	28*
1 12	8 30.25	+36 20.5	1.114	2.067	9.1	18.9	161W	81	28	8 9	10 37.87	-7 20.6	3.577	2.755	10.9	19.3	31E	—	22*
1 17	8 20.39	+35 24.5	1.127	2.091	7.3	18.9	164W	80	29	8 19	10 52.62	-8 45.8	3.649	2.775	9.2	19.3	26E	—	17*
1 22	8 10.85	+34 22.2	1.147	2.114	6.7	18.9	166E	79	30	8 29	11 7.39	-10 15.2	3.708	2.794	7.7	19.3	22E	—	11*
1 27	8 1.94	+33 15.0	1.175	2.138	7.4	19.0	164E	78	31	9 8	11 22.15	-11 48.0	3.753	2.812	6.3	19.3	18E	—	5*
2 1	7 53.93	+32 4.4	1.211	2.162	9.0	19.2	160E	77	32	9 18	11 36.90	-13 23.7	3.785	2.829	5.4	19.3	15W	—	2*
2 6	7 46.99	+30 52.0	1.253	2.186	11.0	19.4	155E	76	33	9 28	11 51.60	-15 1.7	3.803	2.845	5.1	19.3	15W	—	6*
2 11	7 41.20	+29 39.6	1.302	2.210	13.1	19.6	150E	75	34	10 8	12 6.24	-16 41.1	3.807	2.860	5.6	19.3	16W	—	9*
2 16	7 36.59	+28 28.4	1.357	2.234	15.0	19.7	144E	73	36	10 18	12 20.80	-18 21.7	3.796	2.874	6.6	19.4	19W	—	13*
2 21	7 33.14	+27 19.4	1.418	2.258	16.8	19.9	139E	72	37	10 28	12 35.23	-20 2.6	3.770	2.888	7.9	19.4	24W	4*	17*
3 2	7 29.52	+25 10.3	1.554	2.305	19.7	20.3	129E	70	39	11 7	12 49.49	-21 43.4	3.729	2.900	9.5	19.5	29W	8*	22*
3 12	7 29.73	+23 14.3	1.705	2.352	21.7	20.6	119E	68	41	11 17	13 3.53	-23 23.6	3.674	2.911	11.0	19.5			

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/20	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	19/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°
138325 2000 GO₈₂ (continuation)										34613 2000 UR₁₃ (continuation)									
1 27	8 3.41	-13 29.0	1.381	2.270	13.7	20.1	147E	32	77	9 18	14 36.27	-19 20.5	1.723	1.283	35.4	19.2	48E	7*	42*
2 1	7 55.37	-12 5.4	1.425	2.315	13.4	20.2	147E	33	76	9 28	15 13.62	-21 33.0	1.761	1.300	34.2	19.2	47E	8*	41*
2 6	7 48.20	-10 38.6	1.477	2.358	13.6	20.3	146E	34	75	10 8	15 51.74	-23 15.2	1.807	1.324	32.9	19.3	46E	9*	40*
2 11	7 42.00	-9 10.6	1.535	2.400	14.2	20.4	143E	36	73	10 18	16 30.15	-24 24.0	1.862	1.353	31.3	19.3	45E	10*	39*
2 16	7 36.79	-7 43.4	1.601	2.442	15.0	20.6	140E	37	72	10 28	17 8.31	-24 58.0	1.926	1.387	29.6	19.4	44E	11*	37*
2 21	7 32.57	-6 18.4	1.673	2.483	16.0	20.8	136E	39	70	11 2	17 27.11	-25 2.1	1.961	1.406	28.7	19.5	43E	11*	36*
2 26	7 29.33	-4 56.8	1.750	2.523	16.9	20.9	132E	40	69	11 7	17 45.65	-24 58.0	1.998	1.425	27.7	19.5	42E	12*	35*
3 2	7 27.02	-3 39.3	1.833	2.562	17.8	21.1	128E	41	68	11 12	18 3.88	-24 46.1	2.037	1.446	26.8	19.6	41E	13*	34*
3 7	7 25.57	-2 26.7	1.920	2.600	18.6	21.2	123E	43	66	11 17	18 21.76	-24 26.8	2.077	1.467	25.8	19.6	40E	13*	33*
3 12	7 24.93	-1 19.1	2.011	2.638	19.3	21.4	119E	44	65	11 22	18 39.24	-24 0.5	2.119	1.489	24.7	19.6	39E	14*	31*
163373 2002 PZ₃₉										34613 2000 UR₁₃ (continuation)									
12 23	9 8.28	+19 26.0	0.579	1.461	27.5	19.8	137W	64	45	11 27	18 56.30	-23 28.0	2.162	1.511	23.7	19.7	38E	14*	30*
12 28	9 10.81	+19 23.2	0.514	1.421	25.7	19.4	141W	64	45	12 2	19 12.91	-22 49.6	2.206	1.534	22.6	19.7	37E	15*	28*
1 2	9 12.37	+19 25.2	0.451	1.381	23.5	19.0	146W	64	45	12 7	19 29.07	-22 6.1	2.251	1.558	21.5	19.8	36E	15*	26*
1 7	9 12.78	+19 32.9	0.392	1.339	20.9	18.5	151W	65	44	12 12	19 44.77	-21 17.9	2.297	1.582	20.5	19.8	34E	15*	24*
1 12	9 11.76	+19 47.8	0.335	1.297	17.7	18.0	156W	65	44	12 17	20 0.03	-20 25.5	2.343	1.606	19.4	19.9	33E	16*	22*
1 17	9 8.83	+20 12.0	0.281	1.254	14.0	17.4	162W	65	44	12 22	20 14.83	-19 29.5	2.390	1.630	18.2	19.9	31E	16*	20*
1 22	9 3.20	+20 48.8	0.229	1.209	9.5	16.7	168W	66	43	12 27	20 29.20	-18 30.3	2.436	1.655	17.1	19.9	30E	15*	18*
1 24	8 59.89	+21 8.2	0.209	1.191	7.5	16.4	171W	66	43	1 1	20 43.14	-17 28.5	2.483	1.680	16.0	20.0	28E	15*	16*
1 26	8 55.77	+21 31.1	0.190	1.173	5.5	16.1	173W	67	42	1 6	20 56.68	-16 24.3	2.529	1.705	14.8	20.0	26E	15*	14*
1 28	8 50.62	+21 58.1	0.171	1.155	3.8	15.7	175W	67	42	1 11	21 9.84	-15 18.3	2.575	1.730	13.7	20.0	25E	14*	12*
1 30	8 44.13	+22 30.2	0.153	1.137	4.0	15.5	175E	68	41	1 16	21 22.62	-14 10.6	2.620	1.755	12.6	20.1	23E	13*	10*
2 1	8 35.84	+23 8.7	0.135	1.119	6.4	15.3	173E	68	41	306787 2001 HS₈									
2 2	8 30.79	+23 30.8	0.126	1.110	8.2	15.2	171E	69	40	12 23	9 8.31	-16 29.8	1.898	2.532	19.8	20.2	120W	29	80
2 3	8 24.99	+23 55.2	0.117	1.101	10.2	15.1	169E	69	40	12 28	9 7.26	-17 24.5	1.831	2.507	19.2	20.1	123W	28	81
2 4	8 18.25	+24 22.1	0.109	1.091	12.5	15.0	166E	69	40	1 2	9 5.54	-18 15.1	1.766	2.482	18.5	20.0	127W	27	82
2 5	8 10.36	+24 51.9	0.100	1.082	15.1	14.9	163E	70	39	1 7	9 3.14	-19 0.5	1.706	2.456	17.9	19.8	130W	26	83
2 6	8 1.01	+25 24.6	0.092	1.073	18.1	14.8	160E	70	39	1 12	9 0.09	-19 39.6	1.650	2.431	17.2	19.7	133W	25	84
2 7	7 49.81	+26 0.3	0.084	1.064	21.5	14.7	157E	71	38	1 17	8 56.42	-20 11.3	1.599	2.405	16.5	19.6	136W	25	84
2 8	7 36.21	+26 38.7	0.076	1.054	25.5	14.6	153E	72	37	1 22	8 52.21	-20 34.5	1.552	2.380	15.9	19.5	138W	24	85
2 9	7 19.47	+27 18.7	0.069	1.045	30.1	14.5	148E	72	37	1 27	8 47.54	-20 48.2	1.511	2.354	15.5	19.4	140W	24	85
2 10	6 58.61	+27 57.3	0.062	1.036	35.7	14.4	142E	73	36	2 1	8 42.56	-20 51.6	1.474	2.328	15.2	19.3	142E	24	85
2 11	6 32.37	+28 28.5	0.055	1.027	42.4	14.3	135E	73	36	2 6	8 37.41	-20 44.2	1.443	2.303	15.2	19.2	142E	24	85
2 12	5 59.33	+28 40.5	0.049	1.017	50.6	14.3	127E	74	35	2 11	8 32.26	-20 25.9	1.417	2.277	15.5	19.2	142E	25	84
2 13	5 18.39	+28 13.6	0.044	1.008	60.5	14.3	117E	73	36	2 16	8 27.29	-19 56.9	1.397	2.251	16.1	19.2	141E	25	84
2 14	4 29.87	+26 41.2	0.041	0.999	72.4	14.5	105E	72	37*	2 21	8 22.66	-19 17.8	1.381	2.225	16.9	19.1	139E	26	83
2 15	3 36.66	+23 43.5	0.039	0.990	85.8	14.8	92E	69	38*	2 26	8 18.55	-18 29.4	1.371	2.200	17.9	19.1	137E	27	82
2 16	2 43.94	+19 28.5	0.039	0.980	99.7	15.4	78E	62*	35*	3 2	8 15.09	-17 33.0	1.365	2.174	19.1	19.1	134E	27	82
2 17	1 56.64	+14 36.3	0.041	0.971	113.1	16.3	65E	52*	31*	3 7	8 12.41	-16 30.1	1.364	2.148	20.5	19.1	131E	28	81
2 18	1 17.14	+9 52.9	0.045	0.962	124.9	17.3	53E	42*	26*	3 12	8 10.58	-15 22.4	1.367	2.123	21.8	19.2	127E	30	79
2 19	0 45.39	+5 46.0	0.050	0.953	134.8	18.5	43E	33*	21*	3 17	8 9.66	-14 11.2	1.373	2.097	23.2	19.2	124E	31	78
2 20	0 20.19	+2 22.4	0.055	0.944	143.0	19.8	35E	26*	17*	3 22	8 10.65	-12 58.0	1.382	2.072	24.5	19.2	120E	32	77
2 21	0 0.14	+0 21.7	0.062	0.935	149.8	21.1	28E	20*	13*	3 27	8 9.68	-11 44.3	1.395	2.047	25.8	19.3	117E	33	76
2 22	23 44.02	-2 33.3	0.069	0.926	155.6	22.6	23E	15*	10*	4 1	8 12.57	-10 31.1	1.410	2.022	27.1	19.3	113E	34	75
2 23	23 30.88	-4 19.6	0.077	0.916	160.4	24.3	18E	10*	7*	4 6	8 15.41	-9 19.8	1.427	1.997	28.2	19.3	109E	36	73
34613 2000 UR₁₃										306787 2001 HS₈									
12 23	9 8.31	+19 44.5	1.445	2.265	17.3	19.5	137W	65	44	4 11	8 19.13	-8 10.9	1.445	1.973	29.2	19.4	106E	37*	72
1 2	9 2.87	+19 53.4	1.326	2.223	13.5	19.1	148W	65	44	4 16	8 23.69	-7 5.3	1.465	1.949	30.2	19.4	103E	37*	71
1 12	8 53.60	+20 11.0	1.228	2.180	8.6	18.7	161W	65	44	4 21	8 29.05	-6 3.5	1.486	1.925	31.0	19.4	99E	38*	70
1 22	8 40.99	+20 32.6	1.156	2.136	3.0	18.3	174W	66	43	5 1	8 42.00	-4 13.0	1.531	1.878	32.4	19.5	93E	37*	68
1 27	8 33.78	+20 42.8	1.129	2.114	0.9	18.0	178E	66	43	5 11	8 57.60	-2 41.7	1.577	1.833	33.4	19.5	87E	34*	67*
2 1	8 26.28	+20 51.5	1.110	2.091	3.6	18.2	172E	66	43	5 21	9 15.50	-1 30.5	1.624	1.791	34.0	19.5	82E	31*	65*
2 6	8 18.73	+20 58.0	1.098	2.068	6.8	18.3	166E	66	43	5 31	9 35.39	-0 39.6	1.672	1.750	34.4	19.6	77E	27*	63*
2 11	8 11.41	+21 1.6	1.093	2.045	10.0	18.4	159E	66	43	6 10	9 56.96	+0 8.7	1.718	1.713	34.4	19.6	73E	24*	61*
2 16	8 4.58	+21 2.3	1.093	2.021	13.1	18.5	152E	66	43	6 20	10 19.96	+0 3.5	1.764	1.679	34.2	19.6	68E	21*	58*
2 21	7 58.46	+20 59.8	1.100	1.997	16.1	18.6	146E	66	43	6 30	10 44.18	-0 1.8	1.810	1.648	33.8	19.6	64E	18*	56*
2 26	7 53.25	+20 54.3	1.111	1.973	18.9	18.7	140E	66	43	7 10	11 9.41	-0 22.8	1.855	1.622	33.1	19.6	61E	16*	53*
3 2	7 49.09	+20 45.9	1.127	1.949	21.5	18.8	134E	66	43	7 20									

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/20	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	19/20	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°
468305 2015 YA₈										511523 2014 QS₄₃₉									
<i>(continuation)</i>																			
1 12	9 3.20	- 0 34.8	1.191	2.092	14.3	19.7	148W	44	65	12 23	9 9.67	+25 38.3	0.786	1.651	23.7	21.0	138W	71	38
1 17	8 59.94	+ 0 12.5	1.138	2.064	12.4	19.5	153W	45	64	12 28	9 10.97	+27 0.9	0.733	1.627	21.7	20.7	142W	72	37
1 22	8 55.98	+ 0 19.7	1.090	2.035	10.5	19.3	158W	45	64	1 2	9 11.12	+28 36.9	0.684	1.602	19.4	20.5	147W	74	35
2 1	8 46.39	+ 1 54.8	1.011	1.978	7.7	19.0	164E	47	62	1 7	9 9.99	+30 26.3	0.640	1.577	17.1	20.2	152W	75	34
2 11	8 35.70	+ 4 8.3	0.958	1.921	9.1	18.8	162E	49	60	1 12	9 7.44	+32 28.4	0.600	1.551	14.9	20.0	156W	77	32
2 21	8 25.59	+ 6 50.4	0.929	1.865	14.0	18.9	153E	52	57	1 17	9 3.34	+34 41.5	0.566	1.526	13.3	19.8	159W	80	29
2 26	8 21.32	+ 8 17.6	0.923	1.837	16.9	18.9	147E	53	56	1 22	8 57.62	+37 2.3	0.536	1.500	12.8	19.6	160W	82	27
3 2	8 17.86	+ 9 46.2	0.923	1.809	19.8	19.0	142E	55	54	1 27	8 50.29	+39 26.0	0.511	1.473	13.9	19.5	159W	84	25
3 7	8 15.37	+11 14.1	0.927	1.781	22.7	19.1	136E	56	53	2 1	8 41.52	+41 47.3	0.492	1.447	16.4	19.4	155E	87	22
3 12	8 13.96	+12 39.7	0.935	1.754	25.4	19.1	131E	58	51	2 6	8 31.66	+44 0.1	0.477	1.421	20.0	19.5	150E	89	20
3 17	8 13.70	+14 1.7	0.946	1.727	27.9	19.2	126E	59	50	2 11	8 21.17	+45 59.5	0.467	1.394	24.1	19.5	145E	89	18
3 22	8 14.65	+15 18.9	0.960	1.701	30.2	19.3	121E	60	49	2 13	8 16.93	+46 42.7	0.464	1.384	25.8	19.5	142E	88	17
4 1	8 20.18	+17 36.0	0.993	1.649	34.3	19.4	112E	63	46	2 15	8 12.72	+47 22.9	0.461	1.373	27.5	19.5	140E	88	17
4 11	8 30.36	+19 27.0	1.031	1.600	37.5	19.5	104E	64	45	2 17	8 8.59	+48 0.1	0.459	1.363	29.3	19.6	138E	87	16
4 21	8 44.76	+20 50.0	1.070	1.554	39.9	19.6	97E	65*	43	2 19	8 4.59	+48 34.3	0.458	1.352	31.0	19.6	135E	86	15
5 1	9 2.91	+21 43.9	1.109	1.512	41.8	19.7	91E	63*	42	2 21	8 0.75	+49 5.3	0.457	1.342	32.7	19.6	133E	86	15
5 11	9 24.25	+22 8.0	1.146	1.474	43.1	19.7	86E	59*	42	2 23	7 57.12	+49 33.3	0.456	1.331	34.4	19.6	131E	85	14
5 21	9 48.23	+22 1.9	1.181	1.441	44.0	19.7	82E	55*	42	2 25	7 53.74	+49 58.3	0.455	1.321	36.0	19.7	128E	85	14
5 31	10 14.39	+21 25.3	1.214	1.414	44.6	19.8	78E	51*	43*	2 27	7 50.65	+50 20.5	0.455	1.311	37.6	19.7	126E	85	14
6 5	10 28.12	+20 55.7	1.229	1.403	44.7	19.8	77E	48*	43*	2 29	7 47.87	+50 39.9	0.455	1.300	39.2	19.7	124E	84	13
6 10	10 42.21	+20 18.7	1.245	1.393	44.8	19.8	75E	47*	44*	3 2	7 45.44	+50 56.8	0.455	1.290	40.8	19.7	122E	84	13
6 15	10 56.61	+19 34.5	1.260	1.385	44.9	19.8	74E	45*	44*	3 7	7 40.95	+51 28.8	0.456	1.265	44.5	19.8	117E	84	13
6 20	11 11.26	+18 43.2	1.276	1.379	44.8	19.8	73E	43*	45*	3 12	7 38.87	+51 48.2	0.457	1.240	47.9	19.9	112E	83	12
6 25	11 26.14	+17 45.3	1.291	1.375	44.7	19.9	72E	41*	46*	3 17	7 39.23	+51 57.0	0.458	1.216	51.1	19.9	108E	83	12
6 30	11 41.20	+16 40.9	1.308	1.372	44.5	19.9	71E	40*	46*	3 22	7 42.01	+51 56.5	0.457	1.193	54.1	20.0	104E	83	12
7 5	11 56.39	+15 30.6	1.324	1.372	44.3	19.9	70E	38*	47*	3 27	7 47.11	+51 47.7	0.456	1.171	56.9	20.0	101E	83	12
7 10	12 11.68	+14 15.0	1.342	1.373	44.0	19.9	70E	37*	48*	4 1	7 54.38	+51 30.9	0.453	1.150	59.5	20.0	98E	83	12
7 15	12 27.04	+12 54.5	1.360	1.376	43.6	19.9	69E	36*	49*	4 6	8 3.62	+51 6.1	0.449	1.130	61.9	20.0	95E	84	13
7 20	12 42.46	+11 29.7	1.380	1.381	43.2	20.0	68E	35*	50*	4 11	8 14.63	+50 32.5	0.442	1.112	64.2	20.0	92E	84*	13
7 25	12 57.92	+10 1.4	1.401	1.387	42.7	20.0	68E	34*	50*	4 16	8 27.21	+49 49.0	0.435	1.095	66.4	20.0	90E	83*	14
7 30	13 13.39	+ 8 30.3	1.424	1.396	42.2	20.0	67E	33*	51*	4 21	8 41.21	+48 53.8	0.425	1.080	68.5	20.0	88E	82*	15
8 4	13 28.85	+ 6 57.1	1.449	1.406	41.6	20.1	67E	33*	52*	4 26	8 56.49	+47 45.2	0.414	1.067	70.3	20.0	87E	81*	16
8 9	13 44.29	+ 5 22.8	1.475	1.418	41.0	20.1	66E	32*	52*	5 1	9 12.87	+46 21.2	0.401	1.056	72.0	20.0	86E	79*	18
8 14	13 59.70	+ 3 48.0	1.504	1.431	40.3	20.2	66E	31*	52*	5 6	9 30.20	+44 39.3	0.387	1.048	73.5	19.9	85E	78*	19
8 19	14 15.09	+ 2 13.6	1.535	1.446	39.6	20.2	65E	31*	53*	5 11	9 48.32	+42 36.6	0.372	1.041	74.8	19.9	84E	76*	21
8 24	14 30.43	+ 0 40.3	1.568	1.462	38.8	20.2	65E	30*	53*	5 16	10 7.13	+40 9.5	0.356	1.038	75.8	19.8	84E	74*	24
8 29	14 45.71	- 0 51.2	1.604	1.479	38.0	20.3	64E	30*	53*	5 21	10 26.57	+37 14.4	0.340	1.036	76.4	19.7	84E	71*	27
9 8	15 16.09	- 3 45.7	1.682	1.518	36.3	20.4	63E	29*	52*	5 26	10 46.59	+33 47.5	0.325	1.038	76.6	19.6	85E	68*	30
9 18	15 46.15	- 6 25.3	1.770	1.561	34.4	20.5	61E	28*	51*	5 31	11 7.15	+29 45.3	0.310	1.041	76.3	19.5	86E	65*	34
9 28	16 15.84	- 8 46.4	1.866	1.607	32.5	20.7	59E	27*	50*	6 5	11 28.19	+25 5.6	0.297	1.047	75.5	19.4	88E	61*	39
10 8	16 45.06	-10 46.6	1.971	1.656	30.4	20.8	57E	26*	48*	6 10	11 49.67	+19 48.0	0.287	1.056	74.0	19.3	90E	56*	44
10 18	17 13.74	-12 24.7	2.083	1.708	28.3	20.9	54E	25*	45*	6 15	12 11.60	+13 55.8	0.279	1.067	72.0	19.2	93E	51*	50
10 28	17 41.79	-13 40.6	2.201	1.762	26.2	21.0	51E	24*	41*	6 20	12 33.96	+ 7 37.3	0.276	1.080	69.5	19.1	96E	46*	56
11 7	18 9.13	-14 34.7	2.322	1.817	24.0	21.1	48E	24*	37*	6 22	12 43.03	+ 5 1.2	0.276	1.085	68.3	19.1	97E	44*	59
11 17	18 35.70	-15 8.4	2.446	1.873	21.7	21.3	44E	23*	33*	6 24	12 52.15	+ 2 24.0	0.277	1.091	67.2	19.1	98E	42*	62
11 27	19 1.44	-15 23.2	2.569	1.929	19.4	21.4	41E	22*	28*	6 26	13 1.34	- 0 13.3	0.278	1.098	66.0	19.1	100E	39*	64
12 7	19 26.29	-15 20.9	2.692	1.986	17.1	21.4	36E	21*	23*	6 28	13 10.58	- 2 49.5	0.281	1.104	64.7	19.0	101E	37*	67
12 23	9 8.67	+22 38.6	1.656	2.471	15.6	21.2	137W	68	41	6 30	13 19.87	- 5 23.6	0.284	1.111	63.5	19.0	102E	35*	69
1 2	9 2.16	+23 41.2	1.597	2.492	11.7	21.0	149W	69	40	7 2	13 29.19	- 7 54.6	0.288	1.118	62.2	19.1	103E	33*	72
1 12	8 52.78	+24 49.1	1.562	2.512	7.4	20.8	161W	70	39	7 4	13 38.55	-10 21.4	0.293	1.126	61.0	19.1	104E	30*	74
1 22	8 41.43	+25 54.3	1.554	2.531	3.4	20.6	171W	71	38	7 6	13 47.92	-12 43.3	0.298	1.133	59.8	19.1	105E	28*	77
2 1	8 29.45	+26 49.2	1.576	2.550	4.3	20.7	169E	72	37	7 8	13 57.31	-14 59.5	0.305	1.141	58.7	19.1	106E	26*	79
2 11	8 18.33	+27 28.5	1.626	2.567	8.3	21.0	158E	72	37	7 10	14 6.70	-17 9.5	0.312	1.149	57.6	19.1	107E	25*	81
2 21	8 9.33	+27 50.5	1.703	2.584	12.3	21.3	146E	73	36	7 15	14 30.16	-22 4.7	0.333	1.170	55.0	19.3	109E	20*	86
156015 2001 RX ₈₁										7 20	14 53.45	-26 15.6	0.359	1.192	52.8	19.4	111E	17*	90
12 23	9 8.90	+28 38.3	1.476	2.303	16.6	19.7	138W	74	35	7 25	15 16.47	-29 43.0	0.389	1.216	50.8	19.6	112E	14*	86
12 28	9 5.62	+29 12.5	1.454	2.321	14.6	19.7	144W	74	35	7 30	15 39.05	-32 30.2	0.422	1.240	49.2	19.7	112E	11*	83
1 2	9 1.45	+29 47.2	1.438	2.338	12.4	19.6	149W	75	34	8 4	16 1.07	-34 41.7	0.459	1.264	47.8	19.9	113E	10*	81
1 7	8 56.48	+30 21.3	1.428	2.355	10.3	19.5	155W	75	34	8 9	16 22.42	-36 22.0	0.498	1.289	46.6	20.1	113E	8*	80
1 12	8 50.86	+30 53.4	1.424	2.372	8.2	19.4	160W	76	33	8 14	16 43.03	-37 35.7	0.540	1.315	45.6	20.3	112E	7*	78
1 17	8 44.75	+31 22.3	1.427	2.389	6.4	19.4	164W	76	33	8 19	17 2.90	-38 27.0	0.585	1.341	44.6	20.5	111E	6*	77
1 22	8 38.34	+31 47.0																	

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/20	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	2020	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°
272475 2005 UU₈₀										85184 1991 JG₁									
<i>(continuation)</i>										<i>(continuation)</i>									
3 2	8 5.44	+26 32.2	2.113	2.909	13.7	21.2	136 E	72	37	3 9	11 25.41	-85 33.9	0.532	1.126	61.9	19.4	90 W	—	30
3 7	8 3.13	+26 35.0	2.169	2.913	15.0	21.3	131 E	72	37	3 10	11 35.28	-85 41.5	0.525	1.125	62.0	19.4	90 W	—	30
3 12	8 1.55	+26 35.0	2.230	2.918	16.1	21.4	125 E	72	37	3 11	11 45.95	-85 48.1	0.519	1.124	62.1	19.3	90 W	—	30
448120 2008 RF₈₀										85184 1991 JG₁									
12 23	9 9.92	+30 28.1	1.527	2.351	16.3	20.8	138 W	75	34	3 12	11 57.37	-85 53.7	0.512	1.124	62.1	19.3	91 W	—	30
12 28	9 6.67	+31 43.8	1.509	2.371	14.3	20.7	143 W	77	32	3 13	12 9.50	-85 58.2	0.506	1.123	62.2	19.3	91 W	—	30
1 2	9 2.48	+33 0.2	1.496	2.391	12.4	20.6	149 W	78	31	3 14	12 22.26	-86 1.5	0.499	1.123	62.3	19.3	91 W	—	30
1 7	8 57.44	+34 15.3	1.491	2.411	10.5	20.5	153 W	79	30	3 15	12 35.54	-86 3.5	0.492	1.122	62.3	19.2	92 W	—	30
1 12	8 51.67	+35 27.4	1.492	2.430	8.8	20.5	158 W	80	29	3 16	12 49.18	-86 4.1	0.485	1.122	62.4	19.2	92 W	—	30
1 17	8 45.34	+36 34.6	1.500	2.450	7.7	20.5	161 W	82	27	3 17	13 3.01	-86 3.2	0.478	1.122	62.4	19.2	92 W	—	30
1 22	8 38.63	+37 35.3	1.516	2.469	7.3	20.5	161 W	83	26	3 18	13 16.85	-86 0.8	0.471	1.121	62.4	19.1	93 W	—	30
1 27	8 31.78	+38 28.2	1.538	2.487	7.7	20.6	160 E	83	26	3 19	13 30.50	-85 56.9	0.464	1.121	62.5	19.1	93 W	—	30
2 1	8 25.02	+39 12.6	1.568	2.506	8.8	20.7	157 E	84	25	3 20	13 43.78	-85 51.3	0.457	1.121	62.5	19.1	94 W	—	30
2 6	8 18.59	+39 48.2	1.605	2.524	10.2	20.8	153 E	85	24	3 21	13 56.54	-85 44.2	0.449	1.121	62.5	19.0	94 W	—	30
2 11	8 12.69	+40 15.1	1.649	2.542	11.7	20.9	148 E	85	24	3 22	14 8.63	-85 35.4	0.442	1.121	62.4	19.0	94 W	—	30
2 16	8 7.48	+40 33.8	1.698	2.560	13.3	21.1	144 E	86	23	3 23	14 19.96	-85 25.0	0.434	1.121	62.4	19.0	95 W	—	31
2 21	8 3.08	+40 45.1	1.753	2.578	14.7	21.2	139 E	86	23	3 24	14 30.47	-85 13.0	0.427	1.121	62.4	18.9	95 W	—	31
2 26	7 59.58	+40 49.9	1.812	2.595	16.1	21.3	134 E	86	23	3 25	14 40.12	-84 59.4	0.419	1.121	62.3	18.9	96 W	—	31
3 2	7 57.01	+40 48.9	1.876	2.612	17.2	21.5	129 E	86	23	3 26	14 48.90	-84 44.2	0.411	1.121	62.2	18.8	96 W	—	31
124165 2001 ON₁₆										85184 1991 JG₁									
12 23	9 10.10	+24 57.2	1.528	2.348	16.5	19.6	137 W	70	39	3 27	14 56.83	-84 27.4	0.404	1.121	62.1	18.8	97 W	—	32
12 28	9 6.94	+25 35.3	1.506	2.367	14.4	19.5	143 W	71	38	3 28	15 3.93	-84 9.0	0.396	1.121	62.0	18.7	98 W	—	32
1 2	9 2.94	+26 14.9	1.489	2.386	12.3	19.4	149 W	71	38	3 29	15 15.86	-83 27.1	0.380	1.121	61.7	18.6	99 W	—	32
1 7	8 58.18	+26 55.0	1.478	2.404	10.0	19.3	155 W	72	37	3 30	15 15.86	-83 27.1	0.380	1.121	61.7	18.6	99 W	—	32
1 12	8 52.79	+27 34.3	1.473	2.423	7.8	19.2	160 W	73	36	3 31	15 20.79	-83 3.5	0.372	1.121	61.5	18.6	99 W	—	33
1 17	8 46.92	+28 11.5	1.476	2.441	5.8	19.1	166 W	73	36	4 1	15 25.09	-82 38.1	0.364	1.122	61.3	18.5	100 W	—	33
1 22	8 40.75	+28 45.7	1.485	2.459	4.3	19.1	169 W	74	35	4 2	15 28.82	-82 10.8	0.356	1.122	61.0	18.5	101 W	—	34
1 27	8 34.48	+29 15.7	1.502	2.476	4.2	19.1	169 W	74	35	4 3	15 32.03	-81 41.5	0.348	1.122	60.8	18.4	102 W	—	34
2 1	8 28.32	+29 40.9	1.526	2.494	5.4	19.2	166 E	75	34	4 4	15 34.78	-81 10.1	0.340	1.123	60.5	18.4	102 W	—	35
2 6	8 22.48	+30 0.9	1.557	2.511	7.2	19.4	161 E	75	34	4 5	15 37.09	-80 36.4	0.331	1.123	60.1	18.3	103 W	—	35
2 11	8 17.11	+30 15.6	1.595	2.528	9.1	19.5	156 E	75	34	4 6	15 39.03	-80 0.2	0.323	1.124	59.7	18.2	104 W	—	36
2 16	8 12.37	+30 25.2	1.639	2.545	11.0	19.7	150 E	75	34	4 7	15 40.61	-79 21.5	0.315	1.124	59.3	18.2	105 W	—	37
2 21	8 8.35	+30 30.0	1.689	2.561	12.8	19.8	145 E	75	34	4 8	15 41.89	-78 39.9	0.307	1.125	58.8	18.1	106 W	—	37
3 2	8 2.74	+30 27.1	1.805	2.594	15.9	20.1	134 E	75	34	4 9	15 42.88	-77 55.4	0.299	1.126	58.3	18.0	107 W	—	38
3 12	8 0.47	+30 10.8	1.938	2.626	18.3	20.4	124 E	75	34	4 10	15 43.62	-77 7.6	0.291	1.126	57.7	18.0	108 W	—	39
3 22	8 1.33	+29 44.7	2.084	2.656	20.0	20.6	114 E	75	34	4 11	15 44.13	-76 16.2	0.282	1.127	57.1	17.9	109 W	—	40
4 1	8 4.97	+29 11.1	2.238	2.686	21.0	20.8	106 E	74	35	4 12	15 44.44	-75 21.1	0.274	1.128	56.4	17.8	110 W	—	41
4 11	8 10.93	+28 31.5	2.398	2.714	21.5	21.0	97 E	73*	35	4 13	15 44.52	-73 17.9	0.258	1.130	55.8	17.7	113 W	—	42
4 21	8 18.79	+27 46.9	2.560	2.742	21.5	21.2	89 E	69*	36	4 14	15 44.52	-73 17.9	0.258	1.130	55.6	17.7	112 W	—	42
5 1	8 28.19	+26 57.6	2.722	2.769	21.1	21.3	82 E	62*	37*	4 15	15 44.34	-72 9.1	0.250	1.131	53.8	17.5	115 W	—	44
5 11	8 38.78	+26 4.0	2.880	2.794	20.4	21.4	75 E	55*	38*	4 16	15 44.03	-70 55.0	0.243	1.131	52.8	17.4	116 W	—	45
85184 1991 JG₁										85184 1991 JG₁									
12 23	9 11.70	-51 29.5	0.735	1.272	50.5	20.0	94 W	—	65	4 17	15 43.60	-69 35.0	0.235	1.132	51.7	17.3	118 W	—	46
12 28	9 17.04	-55 12.5	0.731	1.259	51.3	20.0	93 W	—	61	4 18	15 43.08	-68 8.6	0.227	1.133	50.5	17.2	119 W	—	48
1 2	9 21.97	-58 42.2	0.727	1.246	52.1	20.0	92 W	—	57	4 19	15 42.47	-66 35.3	0.220	1.134	49.1	17.1	121 W	—	49
1 7	9 26.52	-61 58.0	0.724	1.233	52.9	20.0	91 W	—	54	4 20	15 41.79	-64 54.6	0.213	1.136	47.7	17.0	123 W	—	51
1 12	9 30.71	-64 59.9	0.720	1.220	53.7	20.0	90 W	—	51	4 21	15 41.05	-63 5.8	0.206	1.137	46.1	16.9	125 W	—	53
1 17	9 34.56	-67 48.5	0.715	1.209	54.5	20.0	89 W	—	48	4 23	15 39.42	-59 1.5	0.192	1.139	42.4	16.7	130 W	—	57
1 22	9 38.08	-70 23.8	0.708	1.197	55.3	20.0	88 W	—	46	4 25	15 37.66	-54 18.0	0.180	1.142	38.2	16.4	135 W	—	62
1 27	9 41.36	-72 46.4	0.700	1.186	56.0	19.9	88 W	—	43	4 27	15 35.82	-48 51.9	0.170	1.144	33.2	16.1	141 W	—	67
2 1	9 44.58	-74 56.9	0.690	1.176	56.8	19.9	87 W	—	41	4 29	15 33.96	-42 42.3	0.161	1.147	27.6	15.9	148 W	2	73
2 3	9 45.91	-75 45.8	0.685	1.172	57.1	19.9	87 W	—	40	5 1	15 32.12	-35 52.8	0.155	1.150	21.4	15.6	155 W	9	80
2 5	9 47.30	-76 33.0	0.680	1.168	57.4	19.9	87 W	—	39	5 2	15 31.21	-32 15.8	0.152	1.152	18.2	15.5	159 W	13	84
2 7	9 48.77	-77 18.4	0.674	1.165	57.7	19.9	87 W	—	39	5 3	15 30.32	-28 32.7	0.151	1.153	14.9	15.3	163 W	16	87
2 9	9 50.37	-78 2.2	0.668	1.161	58.0	19.8	87 W	—	38	5 4	15 29.45	-24 45.6	0.150	1.155	11.9	15.2	166 W	20	89
2 11	9 52.11	-78 44.4	0.662	1.158	58.3	19.8	87 W	—	37	5 5	15 28.59	-20 56.9	0.150	1.156	9.2	15.1	169 W	24	85
2 13	9 54.05	-79 25.0	0.655	1.155	58.6	19.8	87 W	—	37	5 6	15 27.76	-17 8.8	0.151	1.158	7.3	15.0	172 W	28	81
2 15	9 56.25	-80 4.0	0.648	1.151	58.9	19.8	87 W	—	36	5 7	15 26.95	-13 23.6	0.152	1.160	7.0	15.1	172 W	32	77
2 17	9 58.76	-80 41.6																	

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/20	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	19/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°
85184 1991 JG₁										20958 A900 MA									
<i>(continuation)</i>																			
6 25	15 24.89	+39 49.0	0.543	1.272	50.4	19.4	105 E	85	24	12 23	9 14.79	+20 43.1	2.184	2.967	13.4	19.2	136 W	66	43
6 30	15 28.67	+39 43.2	0.586	1.286	50.3	19.6	103 E	85	24	1 2	9 9.64	+21 37.1	2.084	2.957	10.4	19.0	147 W	67	42
7 5	15 33.06	+39 24.0	0.629	1.299	50.0	19.7	102 E	84	25	1 12	9 2.01	+22 39.2	2.007	2.946	6.9	18.8	159 W	68	41
7 10	15 38.02	+38 53.9	0.671	1.313	49.7	19.9	100 E	84	25	1 22	8 52.42	+23 44.2	1.959	2.934	3.3	18.5	170 W	69	40
7 15	15 43.51	+38 14.8	0.711	1.327	49.2	20.0	99 E	83*	26	1 27	8 47.14	+24 15.8	1.947	2.927	2.1	18.4	174 W	69	40
7 20	15 49.53	+37 28.1	0.750	1.341	48.7	20.1	98 E	82*	27	2 1	8 41.72	+24 45.8	1.942	2.921	2.7	18.5	172 E	70	39
7 25	15 56.07	+36 35.0	0.788	1.354	48.2	20.3	97 E	80*	27	2 6	8 36.31	+25 13.3	1.945	2.914	4.4	18.6	167 E	70	39
7 30	16 3.10	+35 36.7	0.825	1.368	47.6	20.4	95 E	79*	28	2 11	8 31.06	+25 38.0	1.955	2.906	6.3	18.7	161 E	71	38
8 4	16 10.59	+34 34.0	0.860	1.381	47.1	20.5	95 E	77*	29	2 16	8 26.09	+25 59.4	1.972	2.899	8.2	18.8	155 E	71	38
8 9	16 18.51	+33 27.7	0.895	1.395	46.5	20.5	94 E	76*	31	2 21	8 21.55	+26 17.2	1.997	2.891	10.0	18.9	149 E	71	38
8 14	16 26.87	+32 18.1	0.928	1.408	45.9	20.6	93 E	75*	32	2 26	8 17.53	+26 31.5	2.027	2.884	11.8	19.0	143 E	72	37
8 19	16 35.64	+31 5.8	0.960	1.421	45.4	20.7	92 E	73*	33	3 2	8 14.12	+26 42.3	2.064	2.875	13.4	19.0	138 E	72	37
8 24	16 44.82	+29 51.4	0.992	1.434	44.8	20.8	91 E	72*	34	3 12	8 9.37	+26 53.9	2.150	2.859	16.2	19.2	127 E	72	37
8 29	16 54.40	+28 35.5	1.023	1.446	44.3	20.9	91 E	71*	35	3 22	8 7.50	+26 53.8	2.252	2.841	18.3	19.4	117 E	72	37
9 3	17 4.35	+27 18.5	1.053	1.458	43.8	20.9	90 E	70*	37	4 1	8 8.46	+26 43.7	2.363	2.822	19.8	19.5	107 E	72	37
9 8	17 14.65	+26 0.9	1.084	1.470	43.2	21.0	89 E	69*	38*	4 11	8 12.04	+26 25.2	2.480	2.802	20.7	19.6	98 E	71*	38
9 13	17 25.29	+24 43.1	1.114	1.482	42.8	21.0	89 E	67*	39*	4 21	8 17.91	+25 59.2	2.599	2.782	21.2	19.7	90 E	67*	38
9 18	17 36.27	+23 25.5	1.143	1.493	42.3	21.1	88 E	66*	40*	5 1	8 25.78	+25 26.3	2.716	2.760	21.2	19.8	82 E	61*	39*
9 23	17 47.56	+22 8.7	1.173	1.504	41.8	21.2	87 E	65*	41*	5 11	8 35.31	+24 46.7	2.829	2.738	20.8	19.9	75 E	54*	39*
9 28	17 59.15	+20 53.3	1.204	1.514	41.3	21.2	86 E	64*	42*	5 21	8 46.23	+24 0.7	2.936	2.715	20.2	19.9	68 E	46*	38*
10 3	18 11.01	+19 39.6	1.234	1.524	40.9	21.3	85 E	63*	42*	5 31	8 58.32	+23 8.2	3.034	2.691	19.2	19.9	61	39*	37*
10 8	18 23.12	+18 28.1	1.266	1.534	40.4	21.3	84 E	62*	42*	6 10	9 11.35	+22 9.3	3.124	2.666	18.1	19.9	55	32*	36*
10 13	18 35.46	+17 19.1	1.297	1.543	40.0	21.4	83 E	61*	43*	6 20	9 25.16	+21 4.2	3.203	2.640	16.7	19.9	48	26*	33*
10 18	18 48.01	+16 13.1	1.330	1.552	39.5	21.4	82 E	60*	42*	6 30	9 39.63	+19 52.8	3.270	2.613	15.2	19.9	43	21*	30*
10 23	19 0.75	+15 10.5	1.364	1.560	39.1	21.5	81 E	59*	42*	7 10	9 54.62	+18 35.4	3.326	2.586	13.6	19.9	37	16*	27*
415267 2013 BQ₄₅										101969 1999 RJ₄₅									
12 23	9 14.56	+36 45.4	1.223	2.054	19.1	21.3	137 W	82	27	12 23	9 15.70	+14 41.6	2.011	2.783	14.8	19.4	134 W	60	49
12 28	9 12.87	+37 9.2	1.161	2.025	17.6	21.1	141 W	82	27	1 2	9 10.06	+15 48.6	1.963	2.829	11.3	19.2	146 W	61	48
1 2	9 9.88	+37 33.3	1.102	1.995	15.9	20.9	146 W	83	26	1 12	9 2.21	+17 6.1	1.939	2.875	7.4	19.1	158 W	62	47
1 7	9 5.53	+37 56.3	1.048	1.965	14.2	20.7	151 W	83	26	1 22	8 52.85	+18 28.4	1.944	2.919	3.2	18.9	171 W	63	46
1 12	8 59.83	+38 16.3	1.000	1.935	12.5	20.5	155 W	83	26	1 27	8 47.89	+19 9.3	1.958	2.941	1.1	18.8	177 W	64	45
1 17	8 52.81	+38 31.3	0.957	1.905	11.1	20.3	158 W	84	25	2 1	8 42.94	+19 48.8	1.979	2.963	1.2	18.8	176 E	65	44
1 22	8 44.61	+38 38.6	0.920	1.875	10.3	20.1	160 W	84	25	2 6	8 38.12	+20 26.2	2.009	2.985	3.3	19.0	170 E	65	44
1 27	8 35.49	+38 36.1	0.888	1.845	10.5	20.0	160 W	84	25	2 11	8 33.56	+21 1.1	2.046	3.006	5.2	19.2	164 E	66	43
2 1	8 25.80	+38 21.7	0.863	1.815	11.7	20.0	158 E	83	26	2 16	8 29.36	+21 33.0	2.090	3.028	7.1	19.3	158 E	67	42
2 6	8 15.97	+37 54.2	0.844	1.784	13.8	20.0	154 E	83	26	2 21	8 25.63	+22 1.6	2.142	3.049	8.8	19.5	152 E	67	42
2 11	8 6.45	+37 13.3	0.830	1.754	16.4	20.0	150 E	82	27	3 2	8 19.79	+22 48.4	2.263	3.091	11.8	19.7	140 E	68	41
2 16	7 57.65	+36 19.5	0.821	1.724	19.4	20.0	145 E	81	28	3 12	8 16.41	+23 21.9	2.406	3.131	14.2	20.0	129 E	68	41
2 21	7 49.94	+35 14.4	0.817	1.694	22.4	20.1	139 E	80	29	3 22	8 15.49	+23 43.2	2.565	3.171	15.9	20.2	119 E	69	40
2 26	7 43.60	+33 59.7	0.818	1.664	25.4	20.1	134 E	79	30	4 1	8 16.91	+23 53.7	2.735	3.211	17.1	20.4	110 E	69	40
3 2	7 38.80	+32 37.5	0.821	1.635	28.3	20.2	129 E	78	31	4 11	8 20.41	+23 54.8	2.914	3.249	17.7	20.6	100 E	69*	40
3 7	7 35.63	+31 9.8	0.828	1.605	31.0	20.2	123 E	76	33	4 21	8 25.71	+23 47.7	3.095	3.287	17.8	20.8	92 E	66*	40
3 12	7 34.06	+29 38.4	0.838	1.577	33.6	20.3	119 E	75	34	5 1	8 32.51	+23 33.5	3.278	3.323	17.5	20.9	84 E	60*	40
3 17	7 34.03	+28 4.4	0.848	1.548	36.0	20.4	114 E	73	36	5 11	8 40.53	+23 12.8	3.457	3.359	17.0	21.0	76 E	53*	40*
3 22	7 35.45	+26 28.8	0.861	1.520	38.1	20.4	110 E	71	38	5 21	8 49.55	+22 46.4	3.631	3.394	16.1	21.1	69 E	46*	40*
3 27	7 38.23	+24 51.9	0.873	1.493	40.1	20.5	106 E	70	39	5 31	8 59.37	+22 14.7	3.798	3.429	15.0	21.2	61 E	38*	38*
4 1	7 42.25	+23 14.1	0.887	1.466	41.8	20.5	102 E	68	41	6 10	9 7.78	+21 38.3	3.955	3.462	13.8	21.3	54 E	31*	36*
4 6	7 47.40	+21 35.3	0.900	1.441	43.4	20.5	98 E	66*	42	6 20	9 20.67	+20 57.8	4.101	3.495	12.4	21.3	47 E	25*	33*
4 11	7 53.56	+19 55.3	0.913	1.416	44.8	20.6	95 E	64*	44	6 30	9 31.90	+20 13.5	4.235	3.526	10.8	21.4	41 E	20*	29*
4 16	8 0.62	+18 13.8	0.925	1.392	46.1	20.6	92 E	61*	44	7 10	9 43.36	+19 26.1	4.354	3.557	9.2	21.4	34 E	15*	24*
4 21	8 8.52	+16 30.5	0.937	1.370	47.2	20.6	90 E	58*	47	7 20	9 54.97	+18 36.1	4.458	3.588	7.5	21.4	28 E	11*	19*
4 26	8 17.18	+14 45.2	0.948	1.349	48.2	20.6	87 E	54*	49	7 30	10 6.66	+17 43.9	4.545	3.617	5.8	21.3	21 E	8*	13*
5 1	8 26.53	+12 57.3	0.958	1.329	49.1	20.7	85 E	51*	51*	8 9	10 18.36	+16 50.3	4.615	3.645	4.1	21.3	15 E	5*	7*
5 6	8 36.51	+11 6.7	0.968	1.310	49.8	20.7	83 E	47*	53*	8 19	10 30.02	+15 55.8	4.668	3.673	2.6	21.2	9 E	—	—
5 11	8 47.08	+9 13.2	0.977	1.294	50.5	20.7	81 E	43*	55*	8 29	10 41.57	+15 1.0	4.702	3.700	1.7	21.2	6 E	—	—
5 16	8 58.19	+7 16.7	0.985	1.279	51.1	20.7	80 E	40*	56*	9 8	10 52.98	+14 6.7	4.717	3.726	2.4	21.3	9 W	2*	—
5 21	9 9.83	+5 17.0	0.992	1.266	51.5	20.7	78 E	36*	58*	9 18	11 4.18	+13 13.6	4.714	3.751	3.9	21.4	15 W	9*	—
5 26	9 21.98	+3 14.3	0.999	1.255	51.9	20.7	77 E	32*	60*	9 28	11 15.13	+12 22.5	4.691	3.775	5.5	21.5	21 W	15*	2*
5 31	9 34.63	+1 8.5	1.006	1.246	52.2	20.7	76 E	29*	61*										
6 5	9 47.77	-0 59.9	1.013	1.240	52.4	20.7	75 E	25*	63*										
6 10	10 1.39	-3 10.7	1.019	1.235	52.5	20.7	75 E	22*	64*										
6 15	10 15.51	-5 23.3	1.027	1.233	52.5	20.7	74 E	19*	65*										
6 20	10 30.14	-7 37.1	1.034	1.234	52.4	20.8	74 E	16*	66*										
6 25	10 45.30	-9 51.5	1.043	1.236	52.1	20.8	74 E												

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/20	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	19/20	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°
232757 2004 NJ₇										336661 2009 XJ₂₄ <i>(continuation)</i>									
12 23	9 16.34	+10 9.8	1.977	2.735	15.5	21.4	132W	55	54	2 11	8 31.79	+14 14.5	1.451	2.416	6.2	20.7	165E	59	50
1 2	9 11.57	+10 8.2	1.862	2.714	12.6	21.2	143W	55	54	2 16	8 27.06	+14 48.0	1.485	2.431	8.5	20.9	159E	60	49
1 12	9 4.16	+10 20.4	1.769	2.692	8.9	20.9	155W	55	54	2 21	8 22.93	+15 19.3	1.526	2.446	10.7	21.0	153E	60	49
1 22	8 54.57	+10 45.2	1.702	2.669	4.9	20.6	167W	56	53	2 26	8 19.50	+15 47.9	1.573	2.461	12.8	21.2	147E	61	48
2 1	8 43.64	+11 20.1	1.663	2.645	2.5	20.4	173E	56	53	3 2	8 16.84	+16 13.4	1.625	2.476	14.6	21.3	141E	61	48
2 6	8 38.04	+11 39.9	1.656	2.632	3.7	20.4	170E	57	52	3 7	8 14.97	+16 35.9	1.683	2.490	16.2	21.5	136E	62	47
2 11	8 32.56	+12 0.7	1.655	2.619	5.8	20.5	165E	57	52	450368 2005 CK₆₂									
2 16	8 27.35	+12 21.6	1.662	2.607	7.9	20.6	159E	57	52	12 23	9 19.46	+25 42.1	0.795	1.647	24.8	19.5	135W	71	38
2 21	8 22.54	+12 42.3	1.675	2.593	10.1	20.7	153E	58	51	1 2	9 22.33	+25 34.3	0.737	1.640	20.3	19.2	145W	71	38
2 26	8 18.28	+13 2.3	1.695	2.580	12.2	20.8	147E	58	51	1 12	9 20.57	+25 30.2	0.693	1.637	14.9	18.9	155W	71	38
3 2	8 14.65	+13 21.0	1.721	2.566	14.1	20.9	141E	58	51	1 22	9 14.74	+25 22.9	0.667	1.637	9.0	18.6	165W	70	39
3 7	8 11.74	+13 38.2	1.751	2.553	15.9	21.0	135E	59	50	1 27	9 10.72	+25 15.3	0.661	1.638	6.4	18.5	169W	70	39
3 12	8 9.58	+13 53.6	1.786	2.539	17.5	21.1	130E	59	50	2 1	9 6.32	+25 3.8	0.659	1.641	4.9	18.4	172W	70	39
3 17	8 8.20	+14 7.1	1.825	2.524	19.0	21.2	124E	59	50	2 6	9 1.87	+24 47.7	0.663	1.644	5.6	18.4	171E	70	39
3 22	8 7.59	+14 18.4	1.867	2.510	20.3	21.3	119E	59	50	2 11	8 57.65	+24 26.8	0.672	1.648	8.0	18.6	167E	69	40
3 27	8 7.76	+14 27.5	1.912	2.495	21.4	21.3	114E	59	50	2 16	8 53.93	+24 1.1	0.686	1.653	10.8	18.8	162E	69	40
4 1	8 8.68	+14 34.4	1.959	2.480	22.3	21.4	110E	60	49	2 21	8 50.94	+23 31.0	0.704	1.658	13.7	18.9	157E	69	40
4 6	8 10.32	+14 38.8	2.007	2.465	23.1	21.5	105E	60	49	2 26	8 48.85	+22 57.1	0.727	1.665	16.5	19.1	151E	68	41
458452 2011 BR₁₅										3 2	8 47.77	+22 19.8	0.754	1.672	19.1	19.3	146E	67	42
12 23	9 17.36	-27 4.8	0.273	1.111	55.8	19.4	111W	18	89	3 12	8 48.78	+20 57.8	0.819	1.689	23.5	19.6	137E	66	43
12 28	9 8.09	-30 22.0	0.261	1.114	54.0	19.3	114W	15	86	3 22	8 53.72	+19 28.8	0.898	1.709	27.0	19.9	129E	64	45
1 2	8 55.75	-33 29.9	0.251	1.115	52.6	19.2	116W	12	83	4 1	9 2.08	+17 54.6	0.987	1.732	29.5	20.3	121E	63	46
1 7	8 40.08	-36 20.9	0.242	1.115	51.6	19.1	117W	9	80	4 11	9 13.16	+16 16.0	1.086	1.757	31.3	20.5	114E	61	48
1 12	8 21.02	-38 46.4	0.233	1.113	51.1	19.0	118W	6	77	4 21	9 26.29	+14 33.4	1.193	1.784	32.3	20.8	108E	60	49
1 14	8 12.49	-39 35.4	0.231	1.112	51.1	18.9	118W	5	76	5 1	9 40.96	+12 46.5	1.306	1.813	32.9	21.1	102E	57*	51
1 16	8 3.48	-40 18.2	0.228	1.110	51.1	18.9	118W	5	76	5 11	9 56.71	+10 55.7	1.425	1.844	32.9	21.3	97E	53*	53
1 18	7 54.05	-40 54.2	0.225	1.109	51.3	18.9	118E	4	75	5 21	10 13.22	+ 9 1.3	1.548	1.877	32.6	21.5	92E	47*	55
1 20	7 44.25	-41 23.0	0.223	1.107	51.7	18.9	118E	4	75	162825 2001 BO₆₁									
1 22	7 34.18	-41 44.0	0.221	1.104	52.1	18.9	118E	3	74	12 23	9 21.60	- 0 51.7	0.659	1.470	32.8	19.3	126W	44	65
1 24	7 23.93	-41 57.1	0.219	1.102	52.6	18.9	117E	3	74	12 28	9 26.94	- 2 31.3	0.572	1.413	32.9	18.9	129W	42	67
1 26	7 13.58	-42 2.0	0.218	1.099	53.3	18.9	116E	3	74	1 2	9 32.60	- 4 30.7	0.487	1.354	33.2	18.5	131W	40	69
1 28	7 3.25	-41 58.8	0.217	1.096	54.1	18.9	116E	3	74	1 7	9 39.01	- 7 0.9	0.406	1.294	33.9	18.0	133W	38	71
1 30	6 53.03	-41 47.8	0.215	1.093	54.9	18.9	115E	3	74	1 12	9 47.00	-10 23.4	0.327	1.232	35.4	17.5	134W	35	74
2 1	6 43.01	-41 29.1	0.215	1.089	55.9	18.9	114E	4	75	1 14	9 50.99	-12 7.8	0.296	1.206	36.4	17.2	133W	33	76
2 3	6 33.26	-41 3.3	0.214	1.085	57.0	18.9	113E	4	75	1 16	9 55.71	-14 11.9	0.266	1.181	37.7	17.0	133W	31	78
2 5	6 23.84	-40 30.8	0.213	1.081	58.2	18.9	111E	4	75	1 18	10 1.47	-16 42.6	0.237	1.155	39.6	16.8	132W	28	81
2 7	6 14.81	-39 52.3	0.213	1.077	59.5	18.9	110E	5	76	1 20	10 8.77	-19 49.7	0.209	1.129	42.1	16.5	130W	25	84
2 9	6 6.19	-39 8.2	0.212	1.072	60.8	19.0	108E	6	77	1 22	10 18.48	-23 48.0	0.181	1.102	45.7	16.2	127W	21	88
2 11	5 58.00	-38 19.3	0.212	1.067	62.2	19.0	107E	7	78	1 23	10 24.69	-26 12.7	0.168	1.089	48.0	16.1	125W	19	90
2 16	5 39.40	-35 58.7	0.211	1.054	66.1	19.1	103E	9	80	1 24	10 32.19	-28 58.9	0.156	1.075	50.7	16.0	122W	16	87
2 21	5 23.37	-33 18.2	0.211	1.039	70.4	19.2	98E	12	83	1 25	10 41.44	-32 10.5	0.143	1.062	54.0	15.9	119W	13	84
2 26	5 9.55	-30 24.4	0.210	1.023	75.0	19.3	93E	15	85*	1 26	10 53.12	-35 51.4	0.132	1.048	57.9	15.8	116W	9	80
3 2	4 57.34	-27 22.2	0.210	1.005	80.1	19.4	88E	18	82*	1 27	11 8.27	-40 4.7	0.122	1.035	62.6	15.7	111W	5	76
3 7	4 46.06	-24 14.1	0.208	0.986	85.7	19.6	82E	20*	76*	1 28	11 28.57	-44 50.7	0.112	1.021	68.1	15.7	106W	-	71
3 12	4 34.94	-21 0.4	0.206	0.965	91.9	19.8	76E	22*	69*	1 29	11 56.68	-50 2.6	0.105	1.007	74.6	15.7	99W	-	66
3 17	4 23.26	-17 39.1	0.204	0.943	98.8	20.0	70E	22*	62*	1 30	12 36.66	-55 19.0	0.099	0.994	82.1	15.8	92W	-	61
3 22	4 10.36	-14 8.0	0.202	0.920	106.5	20.3	62E	22*	55*	1 31	13 33.52	-59 54.4	0.095	0.980	90.5	16.0	84W	-	56
3 27	3 55.59	-10 24.9	0.200	0.896	115.3	20.8	54E	20*	47*	2 1	14 48.61	-62 38.1	0.093	0.966	99.3	16.4	75W	-	52*
4 1	3 38.42	- 6 29.0	0.200	0.871	125.3	21.5	45E	16*	38*	2 2	16 11.03	-62 30.6	0.094	0.952	108.2	16.8	67W	-	47*
200740 2001 VG₉₅										2 3	17 22.49	-59 43.6	0.098	0.938	116.6	17.4	58W	-	42*
12 23	9 17.60	+ 2 58.3	1.708	2.446	18.3	20.4	129W	48	61	2 4	18 15.25	-55 25.9	0.103	0.924	124.2	18.1	51W	-	37*
1 2	9 12.35	+ 3 13.4	1.647	2.480	14.9	20.2	140W	48	61	2 5	18 52.17	-50 41.8	0.111	0.910	130.8	18.8	44W	-	32*
1 12	9 4.54	+ 3 50.8	1.606	2.512	10.9	20.0	151W	49	60	2 6	19 18.25	-46 7.5	0.120	0.896	136.4	19.6	39W	-	28*
1 22	8 54.90	+ 4 48.5	1.590	2.544	6.9	19.8	162W	50	59	2 7	19 37.22	-41 58.4	0.131	0.881	140.9	20.3	34W	-	25*
1 27	8 49.71	+ 5 23.7	1.592	2.559	5.3	19.8	166W	50	59	2 8	19 51.49	-38 18.6	0.142	0.867	144.6	21.0	31W	-	22*
2 1	8 44.48	+ 6 2.0	1.602	2.574	4.4	19.8	168E	51	58	230508 2002 VP₁₇									
2 6	8 39.38	+ 6 42.5	1.619	2.589	4.8	19.8	167E	52	57	12 23	9 22.45	+ 7 51.2	1.286	2.059	21.6	20.3	130W	53	56
2 11	8 34.54	+ 7 24.3	1.643	2.604	6.2	19.9	164E	52	57	1 2	9 18.38	+ 8 12.3	1.234	2.090	17.3	20.1	141W		