

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

2021	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	21/22	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°
234061 1999 HE₁										100316 1995 MM₂ (continuation)									
1 16	14 48.22	-9 3.1	1.739	1.738	32.9	21.4	74 W	36*	55*	9 23	16 50.10	-17 54.8	1.904	1.883	30.7	20.3	74 E	23*	66*
1 26	15 14.26	-10 56.8	1.578	1.660	35.3	21.1	77 W	34	60*	10 3	17 9.69	-18 44.4	1.975	1.857	30.1	20.3	68 E	22*	61*
2 5	15 42.77	-12 49.2	1.425	1.582	37.8	20.9	80 W	32	65*	10 13	17 30.89	-19 25.0	2.041	1.831	29.2	20.3	64 E	21*	56*
2 15	16 14.36	-14 38.5	1.281	1.504	40.6	20.6	82 W	30*	69*	10 23	17 53.51	-19 54.1	2.104	1.806	28.2	20.3	59 E	21*	51*
2 25	16 49.75	-16 21.5	1.150	1.427	43.5	20.4	83 W	29*	72*	11 2	18 17.37	-20 9.6	2.162	1.783	27.0	20.3	55 E	21*	47*
3 2	17 9.13	-17 9.0	1.090	1.389	45.2	20.2	84 W	28*	74*	11 12	18 42.29	-20 9.9	2.217	1.761	25.7	20.3	50 E	20*	42*
3 7	17 29.77	-17 52.5	1.034	1.351	46.9	20.1	84 W	27*	74*	11 22	19 8.06	-19 53.6	2.267	1.741	24.3	20.3	46 E	20*	37*
3 12	17 51.72	-18 30.6	0.983	1.314	48.7	20.0	83 W	26*	75*	12 2	19 34.47	-19 19.7	2.314	1.722	22.8	20.3	43 E	20*	32*
3 17	18 15.02	-19 1.7	0.937	1.278	50.6	19.9	83 W	25*	75*	12 12	20 1.33	-18 28.0	2.358	1.706	21.2	20.3	39 E	20*	27*
3 22	18 39.65	-19 23.9	0.896	1.243	52.5	19.8	82 W	24*	75*	12 22	20 28.45	-17 18.7	2.398	1.692	19.6	20.2	35 E	19*	23*
3 27	19 5.54	-19 35.3	0.861	1.210	54.5	19.7	81 W	22*	74*	1 1	20 55.65	-15 52.5	2.436	1.680	17.9	20.2	32 E	18*	19*
4 1	19 32.51	-19 34.0	0.832	1.178	56.5	19.6	79 W	21*	73*	1 11	21 22.82	-14 10.7	2.472	1.671	16.2	20.2	28 E	17*	15*
4 6	20 0.32	-19 18.4	0.810	1.148	58.5	19.5	78 W	20*	71*	1 21	21 49.83	-12 15.1	2.505	1.664	14.4	20.1	25 E	15*	12*
4 11	20 28.63	-18 47.6	0.793	1.120	60.4	19.5	76 W	19*	70*	458723 2011 KQ₁₂									
4 16	20 57.05	-18 1.7	0.783	1.094	62.0	19.5	74 W	18*	68*	1 16	15 24.15	+ 5 23.7	0.904	1.092	58.2	21.5	71 W	49*	39*
4 21	21 25.19	-17 1.4	0.780	1.071	63.5	19.5	73 W	16*	66*	1 21	15 49.52	+ 3 36.4	0.891	1.060	59.9	21.4	69 W	47*	40*
4 26	21 52.71	-15 48.5	0.782	1.052	64.6	19.5	71 W	15*	65*	1 26	16 15.05	+ 1 45.9	0.883	1.030	61.4	21.4	67 W	45*	41*
5 1	22 19.32	-14 25.3	0.789	1.035	65.4	19.5	69 W	14*	63*	1 31	16 40.58	+ 0 5.8	0.881	1.002	62.7	21.4	65 W	42*	41*
5 6	22 44.82	-12 54.3	0.801	1.023	65.9	19.5	68 W	14*	61*	2 5	17 6.01	- 1 56.9	0.884	0.976	63.8	21.3	63 W	40*	42*
5 11	23 9.07	-11 18.3	0.817	1.014	65.9	19.5	66 W	13*	60*	2 10	17 31.22	- 3 45.3	0.892	0.954	64.5	21.3	61 W	37*	43*
5 16	23 32.02	- 9 39.5	0.836	1.009	65.7	19.6	65 W	13*	59*	2 15	17 56.14	- 5 29.3	0.905	0.935	64.9	21.3	59 W	34*	43*
5 21	23 53.67	- 8 0.2	0.857	1.009	65.1	19.6	65 W	13*	58*	2 20	18 20.70	- 7 7.2	0.921	0.920	65.0	21.3	57 W	32*	44*
5 26	0 14.07	- 6 21.9	0.880	1.013	64.3	19.6	64 W	13*	57*	2 25	18 44.87	- 8 37.5	0.940	0.909	64.7	21.3	56 W	29*	44*
5 31	0 33.30	- 4 45.9	0.904	1.020	63.3	19.7	64 W	14*	57*	3 2	19 8.62	- 9 59.2	0.962	0.902	64.1	21.4	55 W	26*	45*
6 5	0 51.43	- 3 13.2	0.928	1.032	62.1	19.7	64 W	15*	57*	3 7	19 31.94	-11 11.3	0.986	0.900	63.3	21.4	54 W	24*	45*
6 15	1 24.62	+ 0 20.7	0.975	1.066	59.5	19.8	65 W	18*	56*	3 12	19 54.77	-12 13.3	1.011	0.902	62.0	21.4	53 W	21*	46*
6 25	1 54.14	+ 2 11.8	1.017	1.113	56.8	19.9	66 W	22*	56*	3 17	20 17.07	-13 4.8	1.037	0.909	61.1	21.5	53 W	19*	46*
7 5	2 20.36	+ 4 23.0	1.051	1.170	54.2	20.0	69 W	26*	56*	3 22	20 38.79	-13 46.2	1.064	0.920	59.8	21.5	53 W	17*	46*
7 15	2 43.45	+ 6 12.8	1.076	1.235	51.6	20.1	72 W	32*	55*	122358 2000 QM₄₉									
7 25	3 3.45	+ 7 42.0	1.090	1.305	49.2	20.2	77 W	38*	55*	1 16	15 33.56	-17 56.2	2.496	2.184	23.0	21.5	60 W	26*	49*
8 4	3 20.31	+ 8 52.3	1.094	1.380	46.7	20.3	82 W	44*	55*	1 26	15 53.03	-18 55.7	2.352	2.146	24.7	21.4	66 W	26*	55*
8 14	3 33.78	+ 9 45.3	1.088	1.456	44.0	20.3	88 W	49*	54	2 5	16 12.61	-19 46.4	2.206	2.108	26.3	21.2	71 W	25*	62*
8 24	3 43.55	+10 22.7	1.074	1.534	41.1	20.3	95 W	53*	54	2 15	16 32.19	-20 27.7	2.058	2.069	27.7	21.1	77 W	24*	68*
9 3	3 49.25	+10 46.4	1.054	1.612	37.6	20.3	103 W	56*	53	2 25	16 51.62	-20 59.2	1.911	2.030	28.9	20.9	82 W	24*	74*
9 13	3 50.43	+10 57.9	1.032	1.690	33.5	20.2	112 W	56	53	3 7	17 10.76	-21 20.9	1.766	1.992	29.9	20.7	88 W	24*	80*
9 23	3 46.82	+10 58.7	1.012	1.767	28.6	20.1	123 W	56	53	3 17	17 29.42	-21 33.1	1.623	1.954	30.6	20.5	93 W	23*	85*
10 3	3 38.44	+10 50.5	1.001	1.844	22.9	20.0	134 W	56	53	3 27	17 47.34	-21 36.3	1.484	1.916	30.9	20.3	99 W	23*	86
10 13	3 25.88	+10 35.2	1.004	1.919	16.5	19.9	147 W	56	53	4 6	18 4.31	-21 31.6	1.351	1.879	30.9	20.0	105 W	23*	86
10 18	3 18.44	+10 25.9	1.013	1.956	13.1	19.9	154 W	55	54	4 16	18 19.97	-21 20.2	1.224	1.843	30.5	19.8	111 W	24*	85
10 23	3 10.54	+10 16.3	1.028	1.993	9.8	19.8	160 W	55	54	4 26	18 33.95	-21 4.4	1.105	1.808	29.5	19.5	118 W	24	85
10 28	3 2.43	+10 6.9	1.050	2.029	6.5	19.7	167 W	55	54	5 6	18 45.87	-20 46.4	0.994	1.774	27.9	19.2	125 W	24	85
11 2	2 54.37	+ 9 58.4	1.078	2.065	3.8	19.7	172 W	55	54	5 16	18 55.22	-20 29.3	0.894	1.742	25.5	18.8	132 W	25	84
11 7	2 46.62	+ 9 51.3	1.113	2.101	3.0	19.7	174 E	55	54	5 26	19 1.53	-20 16.3	0.806	1.712	22.3	18.5	140 W	25	84
11 12	2 39.40	+ 9 46.4	1.155	2.136	4.8	20.0	169 E	55	54	6 5	19 4.44	-20 10.4	0.730	1.683	18.0	18.1	149 W	25	84
11 22	2 27.22	+ 9 44.5	1.259	2.205	9.8	20.5	158 E	55	54	6 15	19 3.78	-20 13.9	0.669	1.658	12.8	17.7	159 W	25	84
12 2	2 18.59	+ 9 54.7	1.388	2.272	14.1	20.9	146 E	55	54	6 25	18 59.98	-20 27.2	0.625	1.634	6.8	17.3	169 W	25	84
12 12	2 13.68	+10 17.2	1.538	2.338	17.4	21.3	135 E	55	54	6 30	18 57.21	-20 37.2	0.609	1.624	3.5	17.0	174 W	24	85
12 22	2 12.21	+10 50.8	1.704	2.402	19.7	21.7	124 E	56	53	7 5	18 54.11	-20 48.8	0.598	1.614	1.3	16.8	178 E	24	85
100316 1995 MM₂										7 10	18 50.90	-21 1.7	0.591	1.605	3.9	16.9	174 E	24	85
1 16	15 19.97	-15 39.3	2.825	2.554	20.3	21.5	64 W	29*	51*	7 15	18 47.87	-21 15.3	0.588	1.597	7.2	17.1	169 E	24	85
1 26	15 34.15	-16 15.3	2.680	2.534	21.5	21.4	71 W	29*	59*	7 20	18 45.27	-21 29.2	0.590	1.590	10.6	17.2	163 E	24	85
2 5	15 47.59	-16 42.6	2.530	2.513	22.5	21.3	78 W	28*	66*	7 25	18 43.35	-21 42.8	0.596	1.584	13.9	17.4	158 E	23	86
2 15	16 0.07	-17 1.0	2.377	2.491	23.3	21.2	85 W	28	74*	7 30	18 42.26	-21 55.9	0.605	1.578	17.0	17.5	153 E	23	86
2 25	16 11.32	-17 10.1	2.223	2.468	23.6	21.0	92 W	28	80*	8 4	18 42.15	-22 8.0	0.618	1.574	19.9	17.6	148 E	23	86
3 7	16 21.05	-17 10.0	2.070	2.445	23.6	20.8	100 W	28	81	8 14	18 45.23	-22 28.2	0.654	1.568	24.9	17.9	139 E	23	87
3 17	16 28.90	-17 0.6	1.920	2.421	23.0	20.6	108 W	28	81	8 24	18 52.84	-22 40.8	0.701	1.566	29.0	18.2	131 E	22	86
3 27	16 34.49	-16 42.3	1.776	2.396	21.8	20.4	117 W	28	81	9 3	19 4.56	-22 43.1	0.758	1.567	32.1	18.4	124 E	22	87
4 6	16 37.46	-16 15.4	1.642	2.371	20.0	20.2	126 W	29	80	9 13	19 19.80	-22 32.8	0.823	1.573	34.3	18.7	118 E	22	87
4 16	16 37.44	-15 40.3	1.520	2.345	17.4	19.9	136 W	29	80	9 18	19 28.52	-22 22.3	0.859	1.577	35.1	18.8	115 E	23	86
4 26	16 34.25	-14 58.3	1.415	2.318	14.1	19.6	146 W	30	79	9 23	19 37.84	-22 7.9	0.896	1.582	35.8	18.9	113 E	23	86
5 6	16 27.97	-14 11.1	1.329	2.290	10.0	19.3	157 W	31	78	9 28	19 47.67	-21 49.6	0.935	1.588	36.3	19.0	110 E	23	86
5 16	16 19.05	-13 21.6	1.266	2.263	5.7	18.9	167 W	32	77	10 3	19 57.92	-21 27.3	0.976	1.595	36.7	1			

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

21/22	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°-26°	21/22	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°-26°
133620 2003 UU₁₁₉									188349 2003 TS₉ (continuation)								
1 16	15 45.79	-9 23.1	3.186	2.825	17.5	21.5	60 W	34* 43*	5 21	15 17.82	-31 51.2	1.420	2.415	5.8	19.4	166 E	13 84
1 26	15 58.44	-9 54.3	3.035	2.798	18.9	21.4	67 W	34* 51*	5 26	15 8.08	-29 20.3	1.421	2.410	6.8	19.5	164 E	16 87
2 5	16 10.41	-10 18.1	2.878	2.770	20.0	21.3	74 W	34* 58*	5 31	14 59.20	-26 46.1	1.432	2.405	8.9	19.6	158 E	18 89
2 15	16 21.50	-10 34.7	2.716	2.742	20.8	21.2	81 W	34* 65*	6 5	14 51.31	-24 12.7	1.453	2.399	11.3	19.7	152 E	21 86
2 25	16 31.46	-10 44.4	2.551	2.712	21.4	21.0	88 W	34* 71*	6 10	14 44.50	-21 43.7	1.484	2.393	13.8	19.8	146 E	23 86
3 7	16 40.05	-10 47.9	2.386	2.682	21.6	20.9	96 W	34* 75*	6 15	14 38.80	-19 21.8	1.522	2.387	16.1	20.0	139 E	26 83
3 17	16 46.96	-10 45.9	2.222	2.650	21.3	20.7	104 W	34 75	6 20	14 34.20	-17 9.4	1.568	2.380	18.2	20.1	133 E	28 81
3 27	16 51.85	-10 39.6	2.064	2.618	20.6	20.5	113 W	34 75	6 25	14 30.66	-15 7.5	1.620	2.373	20.1	20.2	127 E	30* 79
4 6	16 54.40	-10 30.8	1.914	2.585	19.2	20.2	122 W	34 75	7 5	14 26.48	-11 37.2	1.739	2.358	23.0	20.5	115 E	32* 76
4 16	16 54.25	-10 21.2	1.775	2.552	17.2	20.0	131 W	35 74	7 15	14 25.72	-8 49.9	1.870	2.342	24.9	20.7	104 E	33* 73
4 26	16 51.17	-10 13.2	1.652	2.517	14.5	19.7	141 W	35 74	7 25	14 27.82	-6 40.0	2.007	2.324	25.8	20.8	95 E	33* 71
5 6	16 45.11	-10 9.6	1.547	2.482	11.1	19.4	152 W	35 74	8 4	14 32.27	-5 0.4	2.145	2.305	26.0	21.0	86 E	32* 69*
5 16	16 36.30	-10 13.0	1.465	2.446	7.4	19.1	162 W	35 74	8 14	14 38.70	-3 44.6	2.278	2.285	25.7	21.1	78 E	31* 64*
5 26	16 25.44	-10 26.1	1.408	2.410	4.7	18.9	169 W	35 74	8 24	14 46.77	-2 46.7	2.403	2.264	24.8	21.1	70 E	30* 58*
6 5	16 13.59	-10 50.8	1.377	2.372	6.3	18.9	165 E	34 75	9 3	14 56.26	-2 1.5	2.516	2.241	23.6	21.2	63 E	29* 52*
6 15	16 2.08	-11 28.0	1.373	2.335	10.5	19.0	155 E	34 75	9 13	15 7.00	-1 25.1	2.617	2.218	22.1	21.2	56 E	28* 45*
6 25	15 52.23	-12 17.5	1.392	2.297	14.9	19.2	144 E	33 76	9 23	15 18.84	-0 53.7	2.702	2.193	20.5	21.2	50 E	27* 38*
7 5	15 45.00	-13 18.4	1.432	2.258	19.0	19.3	134 E	32 77	10 3	15 31.69	-0 24.2	2.770	2.167	18.7	21.2	44 E	26* 32*
7 15	15 40.99	-14 28.9	1.487	2.219	22.4	19.5	124 E	30* 78	10 13	15 45.50	+0 6.1	2.821	2.140	17.1	21.1	39 E	26* 25*
7 25	15 40.41	-15 47.4	1.554	2.180	25.1	19.6	114 E	29* 80	10 23	16 0.22	+0 39.8	2.854	2.111	15.5	21.1	35 E	25* 18*
8 4	15 43.20	-17 11.6	1.627	2.141	27.1	19.7	106 E	26* 81	11 2	16 15.83	+1 19.4	2.869	2.082	14.2	21.0	31 E	24* 11*
8 14	15 49.19	-18 39.7	1.705	2.101	28.5	19.8	98 E	24* 83	11 12	16 32.33	+2 7.1	2.866	2.052	13.4	20.9	29 E	23* 4*
8 24	15 58.14	-20 9.7	1.783	2.062	29.4	19.9	91 E	21* 83*	11 22	16 49.71	+3 5.4	2.846	2.021	13.0	20.9	27 E	21* —
9 3	16 9.79	-21 39.4	1.860	2.023	29.7	20.0	84 E	19* 78*	12 2	17 8.01	+4 16.5	2.810	1.989	13.3	20.8	28 E	19* —
9 13	16 23.97	-23 6.7	1.935	1.985	29.7	20.0	78 E	17* 72*	12 12	17 27.28	+5 42.7	2.760	1.956	14.1	20.8	29 E	17* —
9 23	16 40.47	-24 29.4	2.005	1.946	29.4	20.0	72 E	16* 66*	12 22	17 47.55	+7 26.2	2.698	1.923	15.3	20.7	31 W	19* —
10 3	16 59.14	-25 45.2	2.070	1.909	28.8	20.0	67 E	15* 61*	1 1	18 8.93	+9 28.8	2.627	1.889	16.8	20.7	34 W	24* —
10 13	17 19.86	-26 51.6	2.130	1.873	27.9	20.0	62 E	13* 56*	1 11	18 31.50	+11 52.3	2.550	1.855	18.4	20.6	37 W	28* —
10 23	17 42.45	-27 46.1	2.184	1.837	26.9	20.0	57 E	13* 51*	1 21	18 55.39	+14 37.4	2.471	1.820	20.0	20.6	39 W	32* —
11 2	18 6.77	-28 26.2	2.233	1.804	25.8	20.0	52 E	12* 46*	512242 2015 XZ₂₆₁								
11 12	18 32.63	-28 49.4	2.275	1.771	24.5	20.0	48 E	11* 42*	1 16	17 13.08	-9 21.4	1.860	1.270	29.7	21.5	40 W	26* 23*
11 22	18 59.79	-28 53.5	2.313	1.741	23.2	19.9	44 E	11* 37*	1 26	17 47.26	-11 58.8	1.800	1.231	31.3	21.4	41 W	24* 27*
12 2	19 28.01	-28 36.8	2.345	1.713	21.8	19.9	40 E	11* 33*	2 5	18 23.14	-14 24.9	1.744	1.195	33.0	21.3	41 W	21* 31*
12 12	19 57.01	-27 58.0	2.373	1.687	20.3	19.8	37 E	11* 29*	2 15	19 0.89	-16 35.8	1.692	1.163	34.6	21.2	42 W	17* 34*
12 22	20 26.49	-26 56.5	2.398	1.664	18.9	19.8	33 E	10* 25*	2 25	19 40.55	-18 26.5	1.647	1.137	36.1	21.1	43 W	14* 36*
1 1	20 56.19	-25 32.5	2.420	1.644	17.4	19.7	30 E	10* 22*	3 7	20 22.04	-19 51.6	1.608	1.116	37.5	21.1	43 W	10* 37*
1 11	21 25.87	-23 47.1	2.440	1.627	16.0	19.7	27 E	9* 19*	3 17	21 5.07	-20 45.5	1.578	1.103	38.7	21.0	44 W	6* 38*
1 21	21 55.31	-21 41.9	2.458	1.614	14.6	19.6	24 E	8* 17*	3 27	21 49.01	-21 3.8	1.558	1.097	39.6	21.0	44 W	3* 38*
154300 2002 UO									4 6	22 33.11	-20 44.7	1.548	1.098	40.1	21.0	45 W	— 38*
1 16	15 47.64	-11 49.3	1.033	0.991	58.1	21.3	59 W	31* 43*	4 16	23 16.48	-19 50.1	1.547	1.107	40.3	21.1	46 W	— 38*
1 21	16 15.95	-13 24.4	1.013	0.949	60.1	21.3	57 W	29* 43*	4 26	23 58.30	-18 25.4	1.556	1.124	40.2	21.1	46 W	— 38*
1 26	16 45.75	-14 50.7	1.000	0.907	61.9	21.2	54 W	27* 42*	5 6	20 38.01	-16 38.3	1.573	1.147	39.8	21.2	47 W	— 38*
1 31	17 16.85	-16 4.7	0.995	0.865	63.5	21.1	52 W	24* 41*	5 16	1 15.28	-14 37.4	1.594	1.176	39.3	21.2	47 W	— 39*
2 5	17 48.98	-17 3.0	1.000	0.825	64.6	21.1	49 W	22* 39*	5 26	1 49.97	-12 31.2	1.619	1.209	38.7	21.3	48 W	— 40*
2 10	18 21.79	-17 42.7	1.013	0.785	65.1	21.0	46 W	19* 38*	6 5	2 22.18	-10 26.1	1.643	1.247	38.1	21.4	49 W	— 42*
2 15	18 54.90	-18 1.7	1.035	0.749	64.9	20.9	43 W	17* 36*	6 15	2 52.04	-8 27.4	1.665	1.287	37.6	21.5	51 W	— 44*
2 20	19 27.94	-17 59.2	1.066	0.715	63.9	20.9	41 W	14* 33*	390725 2003 HB								
2 25	20 0.58	-17 34.9	1.104	0.686	62.0	20.8	38 W	12* 31*	1 16	17 52.53	+19 36.1	0.304	0.821	113.7	21.1	50 W	44* 1*
3 2	20 32.56	-16 49.8	1.149	0.663	59.3	20.7	35 W	10* 29*	1 21	17 44.09	+24 39.5	0.312	0.857	104.8	20.7	57 W	51* 5*
3 7	21 3.66	-15 45.2	1.200	0.647	55.7	20.7	33 W	8* 26*	1 26	17 37.23	+29 0.0	0.320	0.892	97.3	20.5	64 W	58* 8*
3 12	21 33.73	-14 23.2	1.255	0.639	51.6	20.6	30 W	6* 24*	1 31	17 31.62	+32 49.0	0.328	0.924	90.8	20.3	70 W	64* 11*
3 17	22 2.62	-12 46.6	1.312	0.639	47.2	20.6	28 W	4* 22*	2 5	17 26.84	+36 17.7	0.334	0.955	85.3	20.2	75 W	69* 13*
3 22	22 30.24	-10 58.4	1.371	0.648	42.7	20.6	26 W	2* 20*	2 10	17 22.37	+39 34.2	0.340	0.984	80.5	20.1	80 W	74* 14*
3 27	22 56.55	-9 2.0	1.429	0.664	38.4	20.6	24 W	1* 18*	2 15	17 17.64	+42 44.5	0.344	1.011	76.3	20.1	84 W	78* 14*
4 1	23 21.53	-7 0.7	1.488	0.688	34.4	20.7	23 W	— 17*	2 20	17 12.02	+45 52.3	0.346	1.036	72.6	20.0	88 W	81* 14*
4 6	23 45.23	-4 57.3	1.544	0.717	31.0	20.8	22 W	— 16*	2 25	17 4.87	+48 59.3	0.348	1.058	69.2	20.0	92 W	84* 13*
4 11	0 7.72	-2 54.4	1.600	0.751	28.1	20.8	21 W	— 15*	2 27	17 1.40	+50 13.9	0.348	1.067	67.9	19.9	93 W	84* 12*
4 16	0 29.07	-0 54.1	1.653	0.788	25.8	21.0	20 W	— 14*	3 1	16 57.52	+51 28.4	0.348	1.075	66.7	19.9	94 W	83* 12*
4 21	0 49.38	+1 2.3	1.704	0.827	23.9	21.1	19 W	— 13*	3 3	16 53.14	+52 42.7	0.348	1.083	65.6	19.9	96 W	82* 11*
4 26	1 8.77	+2 53.7	1.753	0.868	22.4	21.2	19 W	— 13*	3 5	16 48.20	+53 56.5	0.348	1.091	64.5	19.9	97 W	81 10*
5 1	1 27.32	+4 39.5	1.800	0.910	21.2	21.3	19 W	— 13*	3 7	16 42.62	+55 9.6	0.348	1.098	63.4	19.9	98 W	80 9*
5 6	1 45.13	+6 19.2	1.845	0.952	20.4	21.4	19 W	— 13*	3 9	16 36.31	+56 21.5	0.348	1.105	62.4	19.8	99 W	79 8
188349 2003 TS₉									3 11	16 29.20	+57 31.9	0.348	1.111	61.5	19.8	101 W	77 6
1 16	15 54.09	-48 33.4	2.874	2.433	19.1	21.5	54 W	— 46*	3 13	16 21.18	+58 40.1	0.348	1.117	60.6	19.8	102 W	76 5
1 26	16 9.77	-48 35.3	2.775	2.439	20.5	21.5	60 W	— 51*	3 15	16 12.18	+59 45.4	0.347	1.123	59.7	19.8	103 W	75

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

2021	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	2021	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°		
390725 2003 HB										390536 1999 KK₁											
<i>(continuation)</i>										<i>(continuation)</i>											
4	4	13 48.01	+64 40.1	0.353	1.164	54.3	19.8	109 W	70	—	5	16	1 30.86	+4 43.5	2.023	1.291	24.9	21.4	33 W	3*	27*
4	5	13 39.62	+64 29.7	0.354	1.165	54.2	19.8	109 W	71	—	5	21	1 45.51	+6 9.5	2.036	1.316	25.1	21.5	33 W	4*	27*
4	6	13 31.35	+64 16.6	0.355	1.166	54.2	19.8	109 W	71	—	469727 2005 NK₁										
4	7	13 23.24	+64 0.9	0.356	1.167	54.1	19.8	109 W	71	—	1	16	18 41.28	-12 7.8	0.618	0.446	134.4	20.6	19 W	12*	5*
4	8	13 15.32	+63 42.6	0.357	1.168	54.0	19.8	109 W	71	—	1	21	18 33.44	-6 53.6	0.709	0.481	110.0	19.0	27 W	20*	9*
4	9	13 7.62	+63 21.9	0.358	1.169	54.0	19.8	109 E	72	1	1	26	18 33.91	-3 51.0	0.810	0.533	92.0	18.6	33 W	24*	13*
4	10	13 0.16	+62 58.7	0.359	1.170	54.0	19.8	109 E	72	1	1	31	18 39.07	+2 8.9	0.906	0.597	79.0	18.6	36 W	27*	17*
4	11	12 52.95	+62 33.3	0.360	1.170	54.0	19.8	109 E	72	1	2	5	18 46.54	-1 10.9	0.994	0.666	69.7	18.8	39 W	29*	20*
4	12	12 46.02	+62 5.8	0.362	1.171	54.0	19.8	109 E	73	2	2	7	18 49.85	-0 55.0	1.027	0.694	66.7	18.8	40 W	29*	21*
4	13	12 39.37	+61 36.2	0.363	1.172	54.1	19.8	109 E	73	2	2	9	18 53.25	-0 41.9	1.057	0.723	64.1	18.9	41 W	30*	23*
4	14	12 33.02	+61 4.7	0.364	1.172	54.1	19.8	109 E	74	3	2	11	18 56.71	-0 30.9	1.086	0.752	61.8	19.0	42 W	30*	24*
4	15	12 26.96	+60 31.4	0.366	1.172	54.2	19.8	109 E	74	3	2	13	19 0.19	-0 21.7	1.114	0.781	59.8	19.0	43 W	31*	25*
4	16	12 21.19	+59 56.4	0.367	1.173	54.3	19.9	108 E	75	4	2	15	19 3.67	-0 13.7	1.140	0.809	58.0	19.1	44 W	31*	26*
4	18	12 10.53	+58 42.1	0.370	1.173	54.5	19.9	108 E	76	5	2	20	19 12.25	+0 2.5	1.197	0.880	54.3	19.3	46 W	32*	29*
4	20	12 1.00	+57 22.6	0.374	1.173	54.7	19.9	108 E	78	7	2	25	19 20.49	+0 15.5	1.246	0.950	51.4	19.5	49 W	32*	32*
4	22	11 52.54	+55 59.0	0.377	1.172	55.1	19.9	107 E	79	8	3	2	19 28.31	+0 27.1	1.286	1.019	49.3	19.6	51 W	33*	35*
4	24	11 45.07	+54 31.9	0.381	1.172	55.4	20.0	106 E	80	9	3	7	19 35.62	+0 38.2	1.318	1.085	47.6	19.8	54 W	34*	38*
4	26	11 38.50	+53 2.2	0.385	1.171	55.8	20.0	106 E	82	11	3	17	19 48.58	+1 0.4	1.361	1.212	45.0	20.0	60 W	35*	45*
4	28	11 32.75	+51 30.5	0.390	1.169	56.3	20.0	105 E	83	12	3	27	19 59.09	+1 22.5	1.378	1.331	43.2	20.2	66 W	37*	50*
4	30	11 27.74	+49 57.4	0.394	1.168	56.8	20.1	104 E	85	14	4	6	20 6.92	+1 42.7	1.372	1.444	41.5	20.3	73 W	38*	56*
5	2	11 23.39	+48 23.2	0.399	1.166	57.3	20.1	103 E	87	16	4	16	20 11.75	+1 58.2	1.349	1.549	39.8	20.4	81 W	40*	60*
5	4	11 19.64	+46 48.3	0.404	1.163	57.8	20.1	102 E	88	17	4	26	20 13.77	+2 4.8	1.312	1.648	37.6	20.4	90 W	43*	62*
5	6	11 16.44	+45 13.2	0.408	1.161	58.4	20.2	101 E	90	19	5	1	20 12.47	+2 3.3	1.290	1.695	36.3	20.4	94 W	44*	62
5	8	11 13.71	+43 38.1	0.414	1.158	59.0	20.2	100 E	89	20	5	6	20 10.75	+1 57.7	1.266	1.741	34.9	20.4	99 W	45*	62
5	10	11 11.42	+42 3.1	0.419	1.154	59.6	20.3	99 E	87	22	5	11	20 7.94	+1 47.3	1.242	1.786	33.2	20.3	104 W	45*	62
5	12	11 9.52	+40 28.7	0.424	1.151	60.3	20.3	98 E	85*	24	5	16	20 3.98	+1 31.0	1.218	1.829	31.3	20.3	110 W	46*	62
5	14	11 7.97	+38 54.8	0.429	1.147	61.0	20.3	97 E	83*	25	5	21	19 58.85	+1 8.3	1.195	1.871	29.2	20.2	116 W	46*	63
5	16	11 6.73	+37 21.7	0.435	1.143	61.6	20.4	96 E	81*	27	5	26	19 52.56	+0 38.4	1.174	1.911	26.8	20.2	122 W	46	63
5	21	11 4.79	+33 32.7	0.448	1.130	63.4	20.5	93 E	75*	30	6	5	19 36.62	-0 44.7	1.142	1.989	21.4	20.0	134 W	44	65
5	26	11 4.15	+29 50.1	0.461	1.116	65.2	20.6	90 E	68*	34	6	15	19 16.98	-2 38.8	1.132	2.062	15.4	19.9	147 W	42	67
5	31	11 4.45	+26 14.2	0.473	1.100	67.1	20.6	87 E	62*	38	6	25	18 55.38	-4 57.9	1.150	2.130	9.8	19.8	159 W	40	69
6	5	11 5.45	+22 44.6	0.485	1.081	69.1	20.7	84 E	56*	41	6	30	18 44.54	-6 13.1	1.171	2.163	7.9	19.8	163 W	39	70
6	10	11 6.92	+19 21.1	0.496	1.061	71.1	20.8	81 E	50*	45	7	5	18 34.06	-7 29.7	1.200	2.195	7.4	19.8	164 E	38	71
6	15	11 8.67	+16 3.1	0.505	1.038	73.3	20.9	78 E	44*	48*	7	10	18 24.18	-8 46.0	1.238	2.225	8.3	20.0	162 E	36	73
6	20	11 10.51	+12 50.2	0.512	1.014	75.7	20.9	75 E	39*	51*	7	15	18 15.14	-10 0.7	1.283	2.255	10.1	20.2	157 E	35	74
6	25	11 12.23	+9 42.1	0.517	0.987	78.2	21.0	72 E	33*	53*	7	20	18 7.07	-11 12.6	1.336	2.284	12.1	20.4	152 E	34	75
6	30	11 13.60	+6 38.5	0.520	0.958	81.1	21.0	69 E	28*	54*	7	25	18 0.08	-12 20.9	1.396	2.311	14.1	20.5	146 E	33	76
7	5	11 14.42	+3 39.5	0.520	0.928	84.2	21.1	65 E	23*	54*	7	30	17 54.19	-13 25.3	1.462	2.338	16.0	20.7	141 E	32	77
7	10	11 14.42	+0 45.4	0.518	0.895	87.8	21.1	62 E	18*	53*	8	4	17 49.40	-14 25.7	1.534	2.364	17.6	20.9	135 E	31	78
7	15	11 13.23	-2 2.5	0.514	0.861	91.8	21.2	58 E	13*	51*	8	9	17 45.70	-15 22.0	1.610	2.389	19.1	21.1	130 E	30	79
7	20	11 10.44	-4 42.0	0.507	0.825	96.5	21.3	54 E	8*	48*	8	14	17 43.02	-16 14.4	1.691	2.413	20.3	21.3	124 E	29	80
7	25	11 5.51	-7 8.7	0.499	0.788	101.9	21.4	49 E	3*	43*	8	19	17 41.32	-17 3.0	1.775	2.436	21.2	21.4	119 E	28	81
340291 2006 CV										183182 Weinheim											
1	16	17 53.97	-33 26.9	1.418	0.729	40.4	21.5	29 W	—	23*	1	16	19 47.89	-22 44.5	3.570	2.587	0.7	21.4	2 W	—	—
1	21	18 28.09	-33 9.5	1.444	0.717	38.0	21.4	27 W	—	21*	1	26	20 6.43	-21 42.1	3.529	2.554	2.7	21.5	7 W	—	1*
1	26	19 1.37	-32 14.3	1.474	0.710	35.3	21.4	25 W	—	18*	2	5	20 24.97	-20 31.5	3.474	2.521	4.9	21.5	13 W	—	6*
1	31	19 33.23	-30 45.2	1.508	0.709	32.4	21.3	23 W	—	16*	2	15	20 43.46	-19 12.9	3.407	2.487	7.1	21.6	18 W	1*	12*
2	5	20 3.32	-28 47.4	1.543	0.713	29.3	21.3	21 W	—	14*	2	25	21 1.83	-17 46.7	3.327	2.452	9.3	21.6	24 W	3*	18*
2	10	20 31.46	-26 26.8	1.581	0.722	26.3	21.3	19 W	—	12*	314212 2005 NJ₁										
2	15	20 57.63	-23 49.1	1.619	0.737	23.5	21.3	17 W	—	11*	1	16	19 52.35	-22 17.9	2.424	1.441	0.9	21.4	1 E	—	—
2	20	21 21.93	-20 59.8	1.657	0.756	20.9	21.3	16 W	—	9*	1	26	20 23.68	-20 19.7	2.324	1.342	2.0	21.2	3 W	—	—
2	25	21 44.53	-18 3.3	1.696	0.779	18.7	21.4	15 W	—	8*	2	5	20 56.83	-17 48.3	2.221	1.241	3.6	21.0	5 W	—	—
3	2	22 5.64	-15 3.3	1.734	0.805	16.8	21.4	14 W	—	7*	2	15	20 31.96	-14 39.7	2.119	1.140	4.9	20.8	6 W	—	—
3	7	22 25.45	-12 2.5	1.771	0.833	15.3	21.5	13 W	—	7*	2	25	22 9.28	-10 51.1	2.021	1.042	5.6	20.6	6 W	—	—
1	16	17 59.67	-22 59.8	2.137	1.323	18.9	21.4	26 W	9*	18*	3	7	22 49.08	-6 21.9	1.932	0.948	5.5	20.3	5 W	—	—
1	21	18 19.22	-23 12.4	2.103	1.298	19.7	21.4	26 W	8*	19*	3	12	23 10.04	-3 53.0	1.891	0.904	5.0	20.1	5 W	—	—
1	26	18 39.19	-23 16.0	2.071	1.274	20.5	21.3	27 W	8*	20*	3	17	23 31.75	-1 15.8	1.855	0.864	4.3	19.9	4 W	—	—
1	31	18 59.53	-23 10.3	2.042	1.252	21.2	21.3	27 W	7*	21*	3	22	23 54.28	+1 28.0	1.822	0.828	3.4	19.7	3 W	—	—
2	5	19 20.15	-22 54.6	2.016	1.232	21.9	21.2	28 W	6*	21*	3	27	0 17.67	+4 16.4	1.793	0.797	2.8	19.6	2 W	—	—
2	10	19 40.97	-22 28.9	1.992	1.213	22.4	21.2	28 W	6*	22*	4	1	0 41.95	+7 6.4	1.769	0.773	3.5	19.5	3 E	—	—
2	15	20 1.91	-21 52.9	1.972	1.196	23.0	21.2	28 W	5*	22*	4	6	1 7.13	+9 54.9	1.750	0.756	5.4	19.5	4 E	—	

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

2021	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	21/22	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°
163251 2002 GX₄										491585 2012 SL₆ (continuation)									
1 16	19 54.01	-7 41.9	3.893	2.945	4.4	21.5	13 E	4*	—	4 6	0 17.93	+3 46.7	2.618	1.645	6.4	20.7	11 W	—	4*
1 26	20 9.09	-7 15.1	3.875	2.924	4.3	21.5	13 W	6*	—	4 16	0 44.16	+6 50.7	2.574	1.614	8.2	20.7	13 W	1*	7*
2 5	20 24.17	-6 40.7	3.840	2.901	5.2	21.5	15 W	9*	1*	4 26	1 11.18	+9 53.6	2.531	1.586	9.9	20.7	16 W	2*	9*
2 15	20 39.19	-5 59.6	3.789	2.878	6.6	21.5	20 W	12*	7*	5 6	1 39.07	+12 52.1	2.492	1.563	11.5	20.7	18 W	3*	11*
2 25	20 54.07	-5 12.2	3.723	2.853	8.3	21.5	25 W	14*	14*	5 16	2 7.90	+15 42.4	2.455	1.545	13.0	20.7	20 W	5*	13*
247822 2003 SH₁₈₀																			
1 16	19 57.28	-23 20.4	2.962	1.980	1.4	21.4	3 E	—	—	5 26	2 37.67	+18 20.6	2.422	1.531	14.4	20.7	22 W	6*	14*
1 26	20 22.04	-21 56.9	2.927	1.946	2.1	21.4	4 W	—	—	6 5	3 8.34	+20 42.7	2.392	1.523	15.8	20.7	24 W	8*	16*
2 5	20 46.83	-20 18.8	2.884	1.912	4.0	21.5	8 W	—	2*	6 15	3 39.80	+22 45.2	2.366	1.520	17.1	20.7	26 W	11*	16*
2 15	21 11.59	-18 26.5	2.836	1.879	6.1	21.5	12 W	—	6*	6 25	4 11.85	+24 24.9	2.343	1.523	18.3	20.7	28 W	13*	17*
2 25	21 36.27	-16 21.0	2.783	1.848	8.2	21.5	15 W	—	9*	7 5	4 44.21	+25 39.7	2.323	1.531	19.5	20.7	30 W	16*	18*
504857 2010 TY₁₄₈																			
1 16	19 59.01	-24 15.5	2.796	1.816	2.0	21.5	4 E	—	—	7 15	5 16.56	+26 28.3	2.305	1.545	20.6	20.8	32 W	19*	18*
1 26	20 26.45	-22 42.9	2.770	1.790	2.3	21.4	4 W	—	—	7 25	5 48.51	+26 50.7	2.287	1.563	21.7	20.8	35 W	23*	19*
2 5	20 53.70	-20 53.1	2.741	1.766	3.8	21.5	7 W	—	1*	8 4	6 19.70	+26 48.1	2.270	1.587	22.8	20.9	37 W	26*	19*
2 15	21 20.67	-18 47.3	2.708	1.744	5.6	21.5	10 W	—	4*	8 14	6 49.82	+26 22.8	2.251	1.614	23.8	20.9	40 W	30*	20*
2 25	21 47.27	-16 27.0	2.674	1.725	7.5	21.6	13 W	—	7*	8 24	7 18.58	+25 37.6	2.230	1.646	24.9	21.0	43 W	34*	21*
308899 2006 SL₁₉₈																			
1 16	20 0.58	-12 31.1	2.467	1.502	5.7	21.4	9 E	2*	—	9 3	7 45.79	+24 35.8	2.206	1.680	25.9	21.0	47 W	37*	22*
1 26	20 30.76	-11 36.3	2.422	1.451	4.9	21.2	7 W	—	—	9 13	8 11.32	+23 21.2	2.177	1.718	26.8	21.1	50 W	41*	23*
2 5	21 1.83	-10 23.4	2.376	1.401	4.5	21.1	6 W	—	—	9 23	8 35.06	+21 57.2	2.143	1.759	27.6	21.1	54 W	45*	25*
2 15	21 33.77	-8 52.9	2.329	1.352	4.6	21.0	6 W	—	—	10 3	8 56.99	+20 27.3	2.103	1.802	28.4	21.1	59 W	49*	27*
2 25	22 6.56	-7 6.2	2.284	1.306	5.1	20.9	7 W	—	—	10 13	9 17.03	+18 54.7	2.057	1.847	29.0	21.2	64 W	53*	30*
3 7	22 40.17	-5 5.3	2.240	1.263	5.8	20.8	7 W	—	—	10 23	9 35.12	+17 22.7	2.004	1.893	29.4	21.2	69 W	56*	33*
3 17	23 14.64	-2 52.9	2.201	1.224	6.6	20.7	8 W	—	2*	11 2	9 51.20	+15 54.0	1.945	1.941	29.6	21.2	75 W	58*	36*
3 27	23 49.94	-0 32.4	2.166	1.190	7.4	20.7	9 W	—	3*	11 12	10 5.13	+14 31.5	1.881	1.989	29.5	21.1	81 W	59*	40*
4 6	0 26.05	+1 51.9	2.138	1.163	8.1	20.6	9 W	—	3*	11 22	10 16.73	+13 17.7	1.812	2.038	29.0	21.1	88 W	58	44*
4 16	1 2.95	+4 15.4	2.117	1.143	8.8	20.6	10 W	—	4*	12 2	10 25.78	+12 15.3	1.740	2.088	28.0	21.0	96 W	57	48*
4 26	1 40.52	+6 32.9	2.104	1.131	9.5	20.6	11 W	—	4*	12 12	10 32.01	+11 26.8	1.668	2.138	26.5	21.0	104 W	56	52*
5 6	2 18.61	+8 39.2	2.099	1.127	10.0	20.6	11 W	—	5*	12 22	10 35.14	+10 54.3	1.598	2.188	24.3	20.9	114 W	56	53*
5 16	2 57.01	+10 29.5	2.103	1.132	10.5	20.7	12 W	—	5*	1 1	10 34.94	+10 39.1	1.536	2.238	21.4	20.7	124 W	56	53
5 26	3 35.41	+11 59.8	2.114	1.146	11.0	20.7	12 W	—	6*	1 11	10 31.31	+10 41.8	1.485	2.287	17.7	20.6	135 W	56	53
6 5	4 13.50	+13 7.3	2.133	1.167	11.3	20.8	13 W	—	6*	1 21	10 24.46	+11 0.6	1.451	2.337	13.4	20.4	147 W	56	53
6 15	4 50.93	+13 50.4	2.158	1.196	11.7	20.9	14 W	—	7*	18620 1998 DS₁₀									
6 25	5 27.36	+14 9.1	2.188	1.230	11.9	21.0	15 W	—	8*	1 16	21 18.34	-17 13.4	3.434	2.540	8.0	21.5	21 E	10*	11*
7 5	6 2.54	+14 4.4	2.221	1.270	12.3	21.1	15 W	—	9*	1 26	21 35.47	-15 54.9	3.445	2.507	5.9	21.3	15 E	6*	6*
7 15	6 36.26	+13 38.6	2.256	1.314	12.7	21.2	16 W	—	10*	2 5	21 52.82	-14 29.9	3.442	2.474	3.7	21.2	9 E	2*	2*
7 25	7 8.38	+12 54.2	2.292	1.361	13.2	21.3	18 W	—	12*	2 15	22 10.36	-12 58.7	3.425	2.441	1.6	21.0	4 E	—	—
8 4	7 38.86	+11 54.2	2.325	1.410	13.9	21.5	19 W	2*	13*	2 25	22 28.06	-11 21.8	3.394	2.406	1.0	20.9	2 W	—	—
495861 2003 UR₆₅																			
1 16	20 2.99	-20 14.8	2.675	1.693	1.7	21.5	3 E	—	—	3 7	22 45.91	-9 39.8	3.351	2.370	3.0	21.0	7 W	—	1*
1 26	20 31.94	-19 3.0	2.655	1.670	0.2	21.3	0 W	—	—	3 17	23 3.90	-7 53.4	3.296	2.334	5.3	21.1	12 W	—	6*
2 5	21 0.87	-17 33.1	2.633	1.650	2.1	21.4	4 W	—	—	3 27	23 22.04	-6 3.2	3.230	2.297	7.5	21.1	17 W	—	11*
2 15	21 29.65	-15 46.8	2.610	1.633	4.0	21.5	7 W	—	1*	4 6	23 40.35	-4 10.0	3.153	2.260	9.7	21.1	22 W	—	16*
2 25	21 58.19	-13 46.0	2.587	1.619	5.8	21.6	10 W	—	4*	4 16	23 58.88	-2 14.5	3.067	2.222	11.9	21.1	27 W	2*	21*
426031 2011 QL₁₂																			
1 16	20 11.33	-20 51.8	2.705	1.727	2.7	21.4	5 E	—	—	4 26	0 17.63	-0 17.5	2.973	2.183	14.1	21.1	32 W	4*	26*
1 26	20 37.21	-18 41.1	2.701	1.717	0.5	21.2	1 E	—	—	5 6	0 36.67	+1 40.2	2.871	2.144	16.2	21.0	36 W	6*	30*
2 5	21 2.56	-16 16.7	2.692	1.708	1.6	21.3	3 W	—	—	5 16	0 56.04	+3 37.6	2.764	2.105	18.3	21.0	41 W	9*	34*
2 15	21 27.40	-13 39.8	2.676	1.698	3.8	21.4	7 W	—	—	5 26	1 15.79	+5 33.8	2.651	2.065	20.3	20.9	45 W	12*	38*
2 25	21 51.77	-10 52.1	2.655	1.690	5.9	21.5	10 W	—	4*	6 5	1 35.97	+7 27.9	2.534	2.026	22.3	20.8	49 W	15*	41*
490070 2008 TM₁₁₆																			
1 16	20 21.30	-22 16.5	2.599	1.628	4.3	21.4	7 E	—	1*	6 15	1 56.64	+9 18.7	2.415	1.986	24.3	20.7	53 W	19*	44*
1 26	20 50.68	-20 14.9	2.601	1.621	2.6	21.3	4 E	—	—	6 25	2 17.83	+11 5.0	2.293	1.947	26.1	20.6	58 W	24*	45*
2 5	21 19.39	-17 56.4	2.601	1.617	1.4	21.2	2 E	—	—	7 5	2 39.59	+12 45.7	2.171	1.907	27.9	20.5	61 W	29*	46*
2 15	21 47.37	-15 23.5	2.601	1.616	1.9	21.2	3 W	—	—	7 15	3 1.93	+14 19.4	2.049	1.869	29.6	20.4	65 W	35*	46*
2 25	22 14.60	-12 39.1	2.600	1.617	3.4	21.3	6 W	—	—	7 25	3 24.86	+15 44.7	1.927	1.831	31.2	20.3	69 W	40*	46*
3 7	22 41.12	-9 46.2	2.597	1.622	5.1	21.4	8 W	—	2*	8 4	3 48.37	+17 0.3	1.808	1.794	32.7	20.1	73 W	46*	46*
316922 2000 WB₁₆₅																			
1 16	20 30.39	-24 22.1	4.777	3.811	2.5	21.5	10 E	—	4*	8 14	4 12.39	+18 4.9	1.690	1.759	34.1	20.0	77 W	51*	45*
1 26	20 42.70	-23 49.5	4.805	3.826	1.4	21.4	5 E	—	—	8 24	4 36.82	+18 57.4	1.576	1.725	35.3	19.8	80 W	56*	44*
2 5	20 54.87	-23 15.4	4.813	3.841	2.2	21.5	9 W	—	—	9 3	5 1.54	+19 36.8	1.465	1.693	36.4	19.7	84 W	60*	44*
2 15	21 6.82	-22 40.5	4.801	3.855	3.8	21.6	15 W	—	8*	9 13	5 26.34	+20 2.7	1.358	1.662	37.2	19.5	88 W	63*	44*
2 25																			

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21/22	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	21/22	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°
430663 2003 UO₃ (continuation)										152754 1999 GS₆ (continuation)									
3 17	23 43.81	-11 24.7	2.629	1.658	6.0	20.8	10 W	—	—	5 12	9 4.11	+12 56.5	0.558	1.097	66.2	20.4	83 E	48*	51*
3 27	0 7.08	-7 31.4	2.589	1.619	6.6	20.7	11 W	—	2*	5 14	9 16.23	+12 1.6	0.572	1.114	64.6	20.4	85 E	48*	52
4 6	0 30.53	-3 31.3	2.547	1.583	7.7	20.7	12 W	—	5*	5 16	9 27.79	+11 7.0	0.587	1.130	63.1	20.5	86 E	47*	53
4 16	0 54.32	+0 34.1	2.504	1.550	9.0	20.7	14 W	—	8*	5 21	9 54.34	+8 54.2	0.629	1.171	59.8	20.6	88 E	45*	55
4 26	1 18.61	+4 42.7	2.461	1.521	10.6	20.6	16 W	—	10*	5 26	10 17.92	+6 48.6	0.676	1.210	56.8	20.7	89 E	43*	57
5 6	1 43.60	+8 52.2	2.419	1.495	12.2	20.6	18 W	—	12*	5 31	10 38.98	+4 51.6	0.728	1.248	54.3	20.9	90 E	41*	59
5 16	2 9.51	+13 0.0	2.378	1.473	13.9	20.6	20 W	2*	14*	6 5	10 57.96	+3 3.0	0.783	1.284	52.2	21.0	90 E	39*	61
5 26	2 36.55	+17 2.6	2.338	1.456	15.5	20.6	23 W	6*	15*	6 10	11 15.26	+1 22.2	0.841	1.319	50.3	21.2	90 E	37*	63
6 5	3 4.94	+20 56.3	2.301	1.445	17.1	20.6	25 W	9*	16*	6 15	11 31.19	-0 11.6	0.901	1.353	48.6	21.4	90 E	34*	64
6 15	3 34.88	+24 36.9	2.267	1.438	18.7	20.6	27 W	13*	16*	484095 2006 RU₂₀									
6 25	4 6.49	+27 59.2	2.236	1.437	20.2	20.6	29 W	17*	16*	1 16	22 11.93	-8 44.5	2.717	2.008	16.8	21.5	36 E	24*	19*
7 5	4 39.82	+30 58.3	2.209	1.441	21.5	20.7	31 W	20*	15*	1 26	22 32.82	-7 9.2	2.732	1.959	15.1	21.4	31 E	22*	15*
7 15	5 14.75	+33 29.4	2.185	1.451	22.8	20.7	34 W	24*	14*	2 5	22 54.44	-5 23.7	2.739	1.911	13.4	21.3	27 E	18*	11*
7 25	5 50.95	+35 28.5	2.164	1.465	23.9	20.7	36 W	28*	12*	2 15	23 16.79	-3 29.2	2.739	1.865	11.7	21.2	22 E	15*	8*
8 4	6 27.95	+36 52.7	2.147	1.485	24.9	20.8	38 W	31*	11*	2 25	23 39.84	+1 27.0	2.732	1.821	9.9	21.0	19 E	11*	6*
8 14	7 5.11	+37 41.7	2.131	1.508	25.8	20.8	40 W	34*	10*	3 7	0 3.63	+0 41.3	2.720	1.779	8.2	20.9	15 E	8*	3*
8 24	7 41.70	+37 56.8	2.117	1.536	26.5	20.9	43 W	37*	9*	3 17	0 28.18	+2 53.8	2.704	1.739	6.4	20.8	11 E	4*	1*
9 3	8 17.08	+37 41.6	2.102	1.568	27.3	20.9	45 W	39*	8*	3 27	0 53.53	+5 8.3	2.685	1.703	4.7	20.6	8 E	1*	—
9 13	8 50.74	+37 1.3	2.087	1.603	27.9	21.0	48 W	42*	8*	4 6	1 19.71	+7 22.3	2.664	1.670	3.1	20.5	5 E	—	—
9 23	9 22.30	+36 1.8	2.070	1.640	28.5	21.0	51 W	45*	8*	4 16	1 46.77	+9 33.1	2.642	1.641	1.6	20.3	3 E	—	—
10 3	9 51.62	+34 49.2	2.049	1.680	29.0	21.1	55 W	48*	8*	4 26	2 14.71	+11 37.6	2.621	1.616	1.1	20.2	2 E	—	—
10 13	10 18.61	+33 29.6	2.024	1.721	29.5	21.1	58 W	52*	9*	5 6	2 43.52	+13 32.7	2.601	1.595	2.2	20.2	4 W	—	—
10 23	10 43.27	+32 8.2	1.993	1.765	29.9	21.1	62 W	56*	11*	5 16	3 13.14	+15 15.3	2.583	1.580	3.6	20.3	6 W	—	—
11 2	11 5.67	+30 49.9	1.957	1.809	30.2	21.2	67 W	61*	13*	5 26	3 43.46	+16 42.2	2.567	1.569	5.0	20.3	8 W	—	2*
11 12	11 25.81	+29 38.9	1.914	1.854	30.4	21.2	71 W	65*	16*	6 5	4 14.31	+17 51.1	2.554	1.564	6.4	20.4	10 W	—	4*
11 22	11 43.66	+28 38.9	1.864	1.900	30.4	21.2	77 W	69*	20*	6 15	4 45.49	+18 39.7	2.544	1.565	7.8	20.5	12 W	—	6*
12 2	11 59.15	+27 52.9	1.809	1.946	30.2	21.1	83 W	72*	24*	6 25	5 16.74	+19 6.8	2.537	1.571	9.1	20.5	14 W	—	8*
12 12	12 12.11	+27 23.7	1.749	1.992	29.6	21.1	89 W	72*	28*	7 5	5 47.77	+19 11.9	2.532	1.582	10.4	20.6	16 W	1*	10*
12 22	12 22.27	+27 13.1	1.686	2.038	28.7	21.0	96 W	72*	31*	7 15	6 18.32	+18 55.7	2.529	1.599	11.7	20.6	19 W	4*	11*
1 1	12 29.31	+27 22.1	1.621	2.084	27.3	21.0	104 W	72*	35*	7 25	6 48.13	+18 19.2	2.527	1.620	13.0	20.7	21 W	7*	13*
1 11	12 32.78	+27 50.2	1.559	2.129	25.4	20.9	112 W	73*	36*	8 4	7 17.00	+17 24.5	2.525	1.646	14.3	20.8	24 W	10*	15*
1 21	12 32.27	+28 34.5	1.502	2.174	22.9	20.8	121 W	74	35	8 14	7 44.77	+16 14.0	2.522	1.676	15.6	20.9	26 W	14*	16*
284114 2005 TZ₅₁										8 24	8 11.30	+14 50.3	2.517	1.710	16.9	21.0	29 W	17*	18*
1 16	21 30.79	-8 20.1	2.300	1.494	17.5	21.5	27 E	19*	10*	9 3	8 36.57	+13 16.2	2.508	1.747	18.2	21.0	33 W	21*	20*
1 26	21 58.16	-5 45.8	2.281	1.443	16.4	21.4	24 E	17*	6*	9 13	9 0.51	+11 34.4	2.496	1.787	19.5	21.1	36 W	25*	21*
2 5	22 26.48	-2 56.3	2.259	1.395	15.4	21.2	22 E	16*	4*	9 23	9 23.13	+9 47.6	2.478	1.829	20.7	21.2	40 W	28*	24*
2 15	22 55.84	+0 6.3	2.236	1.351	14.5	21.1	20 E	14*	2*	10 3	9 44.42	+7 58.1	2.455	1.874	21.9	21.3	44 W	32*	26*
2 25	23 26.31	+3 18.9	2.214	1.312	13.8	21.0	18 E	12*	—	10 13	10 4.38	+6 8.2	2.424	1.920	23.0	21.3	49 W	36*	29*
3 7	23 58.00	+6 37.3	2.194	1.278	13.1	20.9	17 E	11*	—	10 23	10 22.99	+4 20.1	2.386	1.968	24.1	21.4	54 W	39*	32*
3 17	0 31.02	+9 56.3	2.178	1.251	12.6	20.8	16 E	10*	—	11 2	10 40.22	+2 35.6	2.340	2.017	24.9	21.4	59 W	42*	36*
3 27	1 5.42	+13 9.5	2.168	1.231	12.1	20.8	15 E	9*	—	11 12	10 56.00	+0 56.7	2.286	2.067	25.7	21.4	65 W	43*	41*
4 6	1 41.21	+16 10.1	2.164	1.219	11.6	20.7	14 E	8*	—	11 22	11 10.23	+0 34.6	2.224	2.118	26.1	21.5	71 W	44*	46*
4 16	2 18.31	+18 50.9	2.169	1.215	11.1	20.7	13 E	7*	—	12 2	11 22.78	+1 56.7	2.156	2.169	26.3	21.4	78 W	43	51*
4 26	2 56.47	+21 5.2	2.181	1.220	10.5	20.7	13 E	7*	—	12 12	11 33.44	+3 7.4	2.083	2.221	26.2	21.4	85 W	42	58*
5 6	3 35.31	+22 47.7	2.202	1.234	9.8	20.7	12 E	6*	—	12 22	11 42.01	+4 4.6	2.005	2.272	25.6	21.4	93 W	41	64*
5 16	4 14.34	+23 55.0	2.231	1.255	9.0	20.7	11 E	4*	1*	1 1	11 48.24	+4 46.2	1.927	2.324	24.5	21.3	101 W	40	68*
5 26	4 53.00	+24 25.9	2.267	1.283	8.1	20.8	10 E	3*	1*	1 11	11 51.86	+5 9.6	1.850	2.375	22.9	21.2	110 W	40	69
6 5	5 30.74	+24 21.6	2.310	1.318	7.0	20.8	9 E	1*	1*	1 21	11 52.69	+5 12.7	1.780	2.427	20.5	21.1	120 W	40	69
6 15	6 7.09	+23 44.9	2.358	1.358	5.8	20.9	8 E	—	—	377145 2003 QM₉₉									
6 25	6 41.73	+22 40.1	2.409	1.403	4.5	20.9	6 E	—	—	1 16	22 12.43	-14 34.4	2.550	1.822	17.7	21.5	34 E	19*	22*
7 5	7 14.47	+21 11.9	2.462	1.451	3.2	21.0	5 E	—	—	1 26	22 36.17	-13 20.4	2.571	1.787	16.0	21.4	30 E	17*	18*
7 15	7 45.26	+19 24.8	2.516	1.502	2.0	21.0	3 E	—	—	2 5	23 0.44	-11 54.8	2.586	1.754	14.3	21.3	26 E	14*	15*
7 25	8 14.14	+17 23.4	2.569	1.555	1.6	21.1	2 W	—	—	2 15	23 25.21	-10 18.9	2.594	1.723	12.7	21.2	22 E	11*	13*
8 4	8 41.22	+15 11.4	2.620	1.610	2.6	21.3	4 W	—	—	2 25	23 50.45	-8 34.4	2.596	1.694	11.1	21.1	19 E	8*	11*
152754 1999 GS₆										3 7	0 16.16	+6 43.0	2.593	1.666	9.8	21.0	17 E	5*	9*
1 16	21 51.98	-12 5.1	1.594	0.894	33.7	21.3	30 E	19*	16*	3 17	0 42.36	+4 46.6	2.587	1.642	8.6	20.9	14 E	1*	8*
1 26	22 27.93	-8 37.7	1.497	0.804	37.2	21.0	30 E	20*	14*	3 27	1 9.07	+2 47.6	2.579	1.620	7.8	20.9	13 E	—	7*
2 5	23 6.58	+4 37.1	1.383	0.720	42.9	20.8	30 E	21*	14*	4 6	1 36.28	+0 48.1	2.569	1.601	7.2	20.8	12 E	—	5*
2 15	23 48.32	+0 7.3	1.251	0.651	51.6	20.6	31 E	23*	14*	4 16	2 4.01	+1 9.4	2.558	1.586	7.1	20.8	11 E	—	4*
2 25	0 33.34	+4 39.8	1.102	0.607	63.2	20.5	33 E	25*	15*	4 26	2 32.23	+3 2.2	2.548	1.574	7.2	20.7	11 E	—	3*
3 2	0 57.05	+7 3.8	1.025	0.599	69.7	20.5	35 E	26*	16*	5 6	3 0.91	+4 47.8	2.539	1.566	7.6	20.7	12 E	—	1*
3 7	1 21.61	+9 24.4	0.946	0.601	76.2	20.5	36 E	28*	16*	5 16	3 29.99	+6 23.6	2.532	1.562	8.1	20.8	13 W	—	—
3 12	1 47.14	+11 39.4	0.870	0.613	82.2	20.6	38 E	29*	18*	5 26	3 59.37	+7 47.4	2.528	1.561	8.8	20.8	14 W	—	2*
3 17	2 13.89	+13 46.8	0.796	0.634	87.4	20.7	40 E	31*	19*	6 5	4 28.91	+8 5							

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

2021	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°-26°	21/22	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°-26°
506442 2001 AW₁₉									505370 2013 HN₃₇								
1 16	22 20.47	+7 16.2	2.142	1.626	25.9	21.5	46 E	39* 14*	1 16	22 23.68	-18 39.9	2.258	1.570	21.5	21.5	36 E	17* 26*
1 26	22 45.88	+9 44.2	2.171	1.605	24.9	21.5	43 E	37* 10*	1 26	22 48.29	-14 21.5	2.308	1.571	19.7	21.5	33 E	18* 21*
2 5	23 12.30	+12 17.5	2.199	1.587	23.9	21.4	41 E	35* 7*	2 5	23 12.14	-10 1.3	2.359	1.574	17.8	21.5	29 E	17* 17*
2 15	23 39.75	+14 53.3	2.227	1.572	22.8	21.4	38 E	32* 5*	2 15	23 35.43	-5 41.8	2.409	1.582	15.9	21.5	26 E	16* 13*
2 25	0 8.24	+17 28.0	2.255	1.561	21.7	21.4	36 E	30* 3*	2 25	23 58.32	-1 25.2	2.458	1.593	13.9	21.5	23 E	14* 10*
3 7	0 37.76	+19 57.4	2.284	1.554	20.5	21.4	33 E	27* 2*	3 7	0 21.00	+2 46.4	2.507	1.606	11.9	21.4	20 E	12* 6*
3 17	1 8.28	+22 17.6	2.316	1.550	19.3	21.4	31 E	25* 1*	3 17	0 43.63	+6 51.6	2.553	1.623	10.0	21.4	17 E	10* 3*
3 27	1 39.74	+24 24.2	2.350	1.551	18.0	21.3	29 E	23* 1*	3 27	1 6.36	+10 48.7	2.596	1.643	8.2	21.4	14 E	7* —
4 6	2 11.98	+26 13.4	2.387	1.555	16.6	21.3	26 E	20* 1*	4 6	1 29.32	+14 36.2	2.636	1.665	6.6	21.4	11 E	5* —
4 16	2 44.83	+27 42.0	2.426	1.563	15.1	21.3	24 E	18* —	4 16	1 52.66	+18 13.0	2.674	1.690	5.4	21.4	9 E	3* —
4 26	3 18.01	+28 47.2	2.468	1.575	13.5	21.3	21 E	15* —	4 26	2 16.47	+21 37.7	2.707	1.717	4.8	21.4	8 E	1* —
5 6	3 51.22	+29 27.6	2.511	1.590	11.8	21.3	19 E	13* —	125072 2001 UG								
5 16	4 24.14	+29 42.6	2.556	1.609	10.1	21.3	16 E	10* —	1 16	22 48.26	-13 47.4	3.429	2.787	13.9	21.5	43 E	24* 29*
5 26	4 56.43	+29 32.6	2.600	1.631	8.2	21.3	13 E	7* —	1 26	23 1.42	-12 16.7	3.499	2.766	12.1	21.5	36 E	21* 23*
6 5	5 27.81	+28 58.8	2.644	1.656	6.3	21.3	10 E	4* —	2 5	23 15.05	-10 42.5	3.555	2.743	10.3	21.4	30 E	17* 18*
6 15	5 58.09	+28 3.2	2.685	1.683	4.4	21.3	7 E	1* —	2 15	23 29.09	-9 5.3	3.595	2.720	8.4	21.3	24 E	13* 13*
6 25	6 27.08	+26 48.0	2.724	1.712	2.6	21.2	4 E	—	2 25	23 43.46	-7 25.8	3.621	2.695	6.4	21.2	18 E	8* 9*
7 5	6 54.71	+25 15.7	2.759	1.744	1.4	21.2	2 W	—	3 7	23 58.14	-5 44.5	3.631	2.669	4.5	21.1	12 E	2* 5*
7 15	7 20.97	+23 28.5	2.789	1.777	2.4	21.3	4 W	—	3 17	0 13.09	-4 2.0	3.626	2.641	2.7	21.0	7 E	— 1*
472263 2014 RP₁₂									3 27	0 28.28	-2 18.9	3.606	2.613	1.9	20.9	5 E	— —
1 16	22 21.36	-20 27.9	1.946	1.273	26.4	21.5	35 E	15* 26*	4 6	0 43.72	-0 35.8	3.571	2.583	3.1	20.9	8 W	— 1*
1 26	22 45.88	-16 38.0	1.933	1.210	25.2	21.3	32 E	15* 22*	4 16	0 59.39	+1 6.6	3.522	2.553	5.0	21.0	13 W	— 6*
2 5	23 10.77	-12 30.3	1.907	1.141	24.3	21.1	28 E	15* 18*	4 26	1 15.30	+2 47.7	3.460	2.521	7.0	21.0	18 W	— 12*
2 15	23 36.37	-8 2.9	1.865	1.064	23.7	20.9	26 E	14* 15*	5 6	1 31.44	+4 26.9	3.385	2.488	9.1	21.0	23 W	— 17*
2 25	0 3.07	-3 13.7	1.808	0.981	23.6	20.7	23 E	14* 12*	5 16	1 47.83	+6 3.6	3.298	2.454	11.2	21.0	28 W	1* 22*
3 7	0 31.44	+1 59.7	1.735	0.892	24.3	20.4	22 E	14* 9*	5 26	2 4.46	+7 37.2	3.201	2.419	13.3	21.0	33 W	4* 27*
3 17	1 2.31	+7 39.0	1.644	0.799	26.5	20.1	21 E	14* 7*	6 5	2 21.34	+9 7.1	3.093	2.383	15.3	21.0	38 W	8* 32*
3 27	1 36.79	+13 42.8	1.533	0.705	31.1	19.8	21 E	15* 5*	6 15	2 38.48	+10 32.6	2.977	2.346	17.3	20.9	43 W	13* 36*
4 1	1 55.86	+16 51.5	1.469	0.661	34.7	19.7	22 E	16* 5*	6 25	2 55.85	+11 53.2	2.853	2.309	19.3	20.9	49 W	18* 39*
4 6	2 16.45	+20 1.8	1.399	0.620	39.4	19.6	23 E	17* 4*	7 5	3 13.45	+13 8.4	2.722	2.270	21.1	20.8	54 W	23* 41*
4 11	2 38.81	+23 9.6	1.322	0.584	45.4	19.5	25 E	18* 4*	7 15	3 31.26	+14 17.7	2.585	2.230	22.9	20.7	59 W	30* 43*
4 16	3 3.12	+26 8.5	1.239	0.556	52.6	19.4	26 E	20* 5*	7 25	3 49.22	+15 20.5	2.443	2.190	24.6	20.6	64 W	36* 44*
4 18	3 13.43	+27 15.8	1.204	0.548	55.8	19.4	27 E	21* 5*	8 4	4 7.31	+16 16.7	2.298	2.148	26.1	20.5	69 W	42* 45*
4 20	3 24.07	+28 19.6	1.168	0.541	59.2	19.4	28 E	21* 5*	8 14	4 25.44	+17 5.9	2.151	2.106	27.5	20.3	74 W	48* 45*
4 22	3 35.04	+29 19.4	1.131	0.536	62.7	19.4	28 E	22* 5*	8 24	4 43.50	+17 48.3	2.002	2.064	28.7	20.1	79 W	54* 45*
4 24	3 46.33	+30 14.4	1.094	0.533	66.2	19.5	29 E	23* 6*	9 3	5 1.40	+18 24.1	1.853	2.021	29.8	20.0	84 W	59* 45*
4 26	3 57.94	+31 3.9	1.057	0.532	69.9	19.5	30 E	23* 6*	9 13	5 18.97	+18 53.9	1.705	1.978	30.6	19.8	90 W	62* 45*
4 28	4 9.85	+31 47.2	1.019	0.533	73.5	19.5	31 E	24* 7*	9 23	5 36.02	+19 18.7	1.560	1.935	31.1	19.5	96 W	64* 45*
4 30	4 22.04	+32 23.5	0.981	0.536	77.1	19.6	31 E	25* 7*	10 3	5 52.33	+19 40.2	1.418	1.891	31.2	19.3	101 W	65 44
5 2	4 34.49	+32 52.4	0.944	0.541	80.6	19.7	32 E	25* 8*	10 13	6 7.58	+20 0.5	1.280	1.848	30.9	19.0	108 W	65 44
5 4	4 47.18	+33 13.0	0.906	0.548	83.9	19.7	33 E	26* 9*	10 23	6 21.41	+20 22.8	1.150	1.805	30.1	18.7	114 W	65 44
5 6	5 0.09	+33 24.9	0.870	0.557	87.1	19.8	33 E	26* 10*	11 2	6 33.37	+20 51.2	1.027	1.763	28.6	18.3	122 W	66 43
5 8	5 13.20	+33 27.6	0.834	0.567	90.1	19.9	34 E	27* 11*	11 12	6 42.89	+21 30.6	0.913	1.722	26.3	18.0	130 W	67 42
5 10	5 26.49	+33 20.4	0.799	0.579	92.8	19.9	35 E	27* 12*	11 17	6 46.55	+21 56.1	0.860	1.701	24.8	17.8	134 W	67 42
5 12	5 39.92	+33 3.0	0.766	0.592	95.3	20.0	36 E	28* 13*	11 22	6 49.37	+22 26.3	0.811	1.682	23.1	17.6	138 W	67 42
5 14	5 53.49	+32 35.0	0.733	0.606	97.5	20.0	36 E	28* 15*	11 27	6 51.26	+23 1.9	0.765	1.662	21.0	17.4	143 W	68 41
5 16	6 7.16	+31 55.8	0.702	0.621	99.5	20.1	37 E	28* 16*	12 2	6 52.14	+23 43.3	0.722	1.643	18.7	17.1	148 W	69 40
5 18	6 20.91	+31 5.2	0.673	0.637	101.1	20.1	38 E	28* 18*	12 12	6 50.71	+25 23.8	0.650	1.606	13.1	16.7	158 W	70 39
5 20	6 34.71	+30 2.8	0.645	0.654	102.4	20.2	39 E	28* 19*	12 22	6 45.20	+27 24.3	0.595	1.572	6.8	16.2	169 W	72 37
5 22	6 48.55	+28 48.2	0.619	0.671	103.3	20.2	40 E	28* 21*	1 1	6 36.59	+29 34.1	0.560	1.540	4.3	15.9	173 E	75 34
5 24	7 2.39	+27 21.5	0.594	0.689	104.0	20.2	41 E	27* 23*	1 6	6 31.76	+30 37.7	0.549	1.526	7.2	15.9	169 E	76 33
5 26	7 16.22	+25 42.4	0.572	0.707	104.3	20.2	43 E	27* 25*	1 11	6 27.09	+31 37.6	0.544	1.512	10.8	16.1	163 E	77 32
5 31	7 50.56	+20 42.1	0.524	0.753	103.6	20.1	46 E	25* 32*	1 16	6 22.95	+32 32.5	0.542	1.499	14.5	16.2	158 E	78 31
6 5	8 24.30	+14 34.2	0.490	0.800	101.0	19.9	51 E	23* 39*	1 21	6 19.70	+33 21.1	0.545	1.487	18.2	16.3	152 E	78 31
6 10	8 57.13	+7 37.1	0.469	0.847	96.7	19.8	56 E	20* 46*	394155 2006 QS								
6 15	9 28.80	+0 18.4	0.463	0.893	91.4	19.6	62 E	16* 53*	1 26	9 26.78	+12 1.3	2.841	3.802	3.7	25.5	165 W	57 52
6 17	9 41.11	-2 36.3	0.464	0.912	89.1	19.6	64 E	14* 56*	2 5	9 18.16	+12 46.1	2.806	3.791	0.9	25.3	177 W	58 51
6 19	9 53.19	-5 27.8	0.466	0.930	86.7	19.5	66 E	13* 59*	2 15	9 9.32	+13 32.6	2.805	3.779	2.8	25.4	169 E	59 50
6 21	10 5.05	-8 14.5	0.471	0.947	84.4	19.5	68 E	11* 62*	2 25	9 0.99	+14 17.1	2.835	3.767	5.9	25.6	157 E	59 50
6 23	10 16.68	-10 55.1	0.478	0.965	82.1	19.5	70 E	10* 64*	3 7	8 53.80	+14 56.9	2.894	3.753	8.7	25.8	145 E	60 49
6 25	10 28.09	-13 28.7	0.486	0.982	79.9	19.5	72 E	8* 66*	216689 2004 HM₁								
6 30	10 55.63	-19 17.8	0.512	1.025	74.6	19.5	76 E	5* 70*	1 26	9 26.87	+13 31.8	3.257	4.219	3.2	22.9	166 W	59 50
7 5	11 21.83	-24 15.1	0.546	1.065	69.9	19.6	80 E	2* 73*	2 5	9 18.98	+14 12.8	3.228	4.213	0.5	22.7	178 W	59 50
7 10	11 46.79	-28 23.0	0.585	1.104	65.9	19.7	82 E	— 74*	2 15	9 10.93	+14 54.2	3.231	4.206	2.5	22.8	169 E	60 49
7 15	12 10.64	-31 47.6	0.628	1.142	62.4	19.8	84 E	— 73*	2 25	9 3.33	+15 33.0	3.267	4.198	5.2	23.0	157 E	61 48
7 20	12 33.47	-34 35.3	0.675	1.177	59.4	19.9	86 E	— 73*	3 7	8 56.71	+16 7.0	3.333	4.190	7.7			

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

2021	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45° - 26°	2021	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45° - 26°
480817 1998 SJ₂									434154 2002 SL								
1 26	9 30.54	+27 58.8	2.144	3.102	5.0	22.6	164 W	73 36	1 26	9 52.04	+12 59.3	2.019	2.964	6.5	24.2	160 W	58 51
1 31	9 24.60	+28 20.8	2.150	3.118	4.1	22.6	167 W	73 36	2 5	9 42.01	+14 6.8	1.951	2.932	2.3	23.8	173 W	59 50
2 5	9 18.56	+28 39.5	2.164	3.133	4.0	22.6	167 W	74 35	2 15	9 30.89	+15 18.1	1.914	2.898	2.1	23.8	174 E	60 49
2 10	9 12.57	+28 54.3	2.186	3.148	4.7	22.7	165 E	74 35	2 25	9 19.77	+16 26.6	1.910	2.863	6.5	24.0	161 E	61 48
2 15	9 6.77	+29 5.1	2.215	3.163	6.0	22.8	160 E	74 35	3 7	9 9.75	+17 26.6	1.934	2.827	10.6	24.2	148 E	62 47
2 20	9 1.30	+29 11.5	2.253	3.178	7.5	22.9	155 E	74 35	516803 2010 JG₈₈								
2 25	8 56.27	+29 13.9	2.297	3.192	9.0	23.0	150 E	74 35	1 26	9 53.70	-39 43.9	1.221	1.900	27.1	22.5	119 W	5 76
443832 2000 OP₆₀									1 31	9 46.26	-40 2.8	1.190	1.898	26.4	22.5	121 W	5 76
1 26	9 31.68	+15 24.9	2.196	3.159	4.4	22.5	166 W	60 49	2 5	9 38.03	-40 4.7	1.161	1.894	25.7	22.4	124 W	5 76
1 31	9 27.09	+15 52.7	2.180	3.158	2.5	22.4	172 W	61 48	2 10	9 29.27	-39 47.9	1.136	1.891	25.1	22.3	126 E	5 76
2 5	9 22.31	+16 20.9	2.172	3.157	0.6	22.2	178 W	61 48	2 15	9 20.28	-39 11.4	1.115	1.886	24.6	22.3	127 E	6 77
2 10	9 17.47	+16 48.7	2.172	3.156	1.5	22.3	175 E	62 47	2 20	9 11.44	-38 15.2	1.097	1.881	24.2	22.2	129 E	7 78
2 15	9 12.67	+17 15.5	2.180	3.155	3.4	22.4	169 E	62 47	2 25	9 3.06	-36 59.8	1.084	1.874	24.1	22.2	129 E	8 79
2 20	9 8.04	+17 40.7	2.195	3.153	5.3	22.5	163 E	63 46	3 2	8 55.45	-35 27.1	1.075	1.867	24.2	22.1	129 E	10 81
2 25	9 3.70	+18 4.0	2.218	3.152	7.1	22.6	157 E	63 46	3 7	8 48.85	-33 39.1	1.071	1.860	24.6	22.1	129 E	11 82
65996 1998 MX₅									471216 2010 VT₁₆₂								
1 26	9 36.87	+ 3 45.4	3.784	4.713	4.4	25.1	158 W	49 60	1 26	9 54.54	+ 8 29.2	1.634	2.572	8.3	22.7	158 W	53 56
2 5	9 29.74	+ 4 11.0	3.746	4.714	2.6	25.0	168 W	49 60	2 5	9 44.16	+ 9 13.2	1.611	2.587	3.8	22.5	170 W	54 55
2 15	9 22.38	+ 4 42.4	3.741	4.714	2.3	25.0	169 E	50 59	2 15	9 33.10	+10 3.9	1.617	2.601	2.2	22.4	174 E	55 54
2 25	9 15.31	+ 5 17.1	3.768	4.713	4.0	25.1	161 E	50 59	2 25	9 22.62	+10 54.9	1.653	2.614	6.4	22.7	163 E	56 53
3 7	9 8.96	+ 5 52.8	3.826	4.711	6.1	25.3	150 E	51 58	3 7	9 13.85	+11 40.6	1.716	2.626	10.7	22.9	151 E	57 52
507119 2009 SR₁₄₃									488582 2002 LD₃₅								
1 26	9 37.73	+ 8 10.5	4.931	5.871	3.1	24.1	161 W	53 56	1 26	9 56.88	+26 24.3	3.211	4.146	4.8	23.1	159 W	71 38
2 5	9 32.31	+ 8 37.3	4.889	5.865	1.4	24.0	171 W	54 55	1 31	9 53.15	+26 55.7	3.182	4.136	3.9	23.1	163 W	72 37
2 15	9 26.72	+ 9 7.0	4.879	5.859	1.3	24.0	172 E	54 55	2 5	9 49.18	+27 26.0	3.161	4.125	3.3	23.0	166 W	72 37
2 25	9 21.28	+ 9 37.6	4.901	5.853	2.9	24.1	162 E	55 54	2 10	9 45.03	+27 54.6	3.149	4.114	3.3	23.0	166 W	73 36
3 7	9 16.34	+10 7.4	4.955	5.846	4.6	24.2	152 E	55 54	2 15	9 40.79	+28 21.0	3.144	4.103	3.8	23.0	164 E	73 36
397339 2006 TS₈₈									2 20	9 36.56	+28 44.7	3.147	4.092	4.7	23.1	160 E	74 35
1 26	9 37.99	+29 37.8	2.529	3.477	5.1	22.6	162 W	75 34	2 25	9 32.41	+29 5.4	3.158	4.080	5.7	23.1	156 E	74 35
1 31	9 33.11	+30 1.4	2.511	3.470	4.3	22.6	165 W	75 34	3 2	9 28.44	+29 22.8	3.176	4.068	6.9	23.2	151 E	74 35
2 5	9 28.02	+30 22.5	2.500	3.463	4.1	22.6	165 W	75 34	431145 2006 QZ₈₇								
2 10	9 22.81	+30 40.3	2.497	3.455	4.6	22.6	164 E	76 33	1 26	9 57.91	+10 11.1	1.692	2.630	8.1	22.4	158 W	55 54
2 15	9 17.62	+30 54.6	2.502	3.447	5.6	22.6	160 E	76 33	2 5	9 48.41	+11 8.0	1.642	2.620	3.6	22.1	170 W	56 53
2 20	9 12.56	+31 4.8	2.514	3.439	6.8	22.7	156 E	76 33	2 15	9 37.83	+12 11.4	1.622	2.608	1.5	21.9	176 E	57 52
2 25	9 7.76	+31 11.0	2.534	3.430	8.2	22.8	151 E	76 33	2 25	9 27.39	+13 14.3	1.632	2.596	6.2	22.2	164 E	58 51
211871 2004 HO									3 7	9 18.27	+14 10.4	1.669	2.583	10.7	22.4	151 E	59 50
1 26	9 43.60	+11 48.5	1.812	2.764	6.4	22.7	162 W	57 52	308635 2005 YU₅₅								
1 31	9 37.90	+12 26.1	1.787	2.758	4.2	22.5	168 W	57 52	1 26	10 0.48	+13 2.5	0.694	1.650	12.8	22.9	158 W	58 51
2 5	9 31.86	+13 5.4	1.769	2.753	1.8	22.4	175 W	58 51	1 31	9 50.02	+13 59.0	0.672	1.646	8.3	22.7	166 W	59 50
2 10	9 25.61	+13 45.5	1.760	2.746	0.8	22.3	178 E	59 50	2 5	9 38.37	+14 58.9	0.656	1.640	3.5	22.4	174 W	60 49
2 15	9 19.33	+14 25.4	1.759	2.739	3.1	22.4	171 E	59 50	2 10	9 25.91	+15 59.3	0.647	1.634	1.5	22.2	177 E	61 48
2 20	9 13.17	+15 4.3	1.765	2.732	5.4	22.6	165 E	60 49	2 15	9 13.19	+16 57.2	0.645	1.626	6.5	22.5	169 E	62 47
2 25	9 7.30	+15 41.2	1.780	2.724	7.7	22.7	158 E	61 48	2 20	9 0.76	+17 49.9	0.650	1.617	11.4	22.7	161 E	63 46
444185 2005 SR₁									2 25	8 49.18	+18 35.5	0.660	1.607	16.1	22.9	153 E	64 45
1 26	9 45.57	+12 39.0	1.876	2.827	6.3	23.2	162 W	58 51	480822 1998 YM₄								
2 5	9 35.02	+13 39.8	1.806	2.789	2.0	22.8	174 W	59 50	1 26	10 0.83	+14 26.5	1.544	2.487	8.3	23.2	159 W	59 50
2 15	9 23.35	+14 44.9	1.767	2.749	2.7	22.8	172 E	60 49	1 31	9 52.79	+15 6.9	1.530	2.496	5.6	23.1	166 W	60 49
2 25	9 11.77	+15 47.7	1.758	2.707	7.4	23.0	159 E	61 48	2 5	9 44.31	+15 47.5	1.523	2.504	2.8	22.9	173 W	61 48
3 7	9 1.46	+16 42.6	1.779	2.664	11.8	23.2	147 E	62 47	2 10	9 35.61	+16 27.1	1.525	2.511	0.8	22.8	178 W	61 48
488595 2002 QT₉₂									2 15	9 26.92	+17 4.4	1.536	2.518	3.1	22.9	172 E	62 47
1 26	9 49.35	+17 5.8	1.708	2.661	6.6	22.7	162 W	62 47	2 20	9 18.46	+17 38.6	1.555	2.524	5.8	23.1	165 E	63 46
1 31	9 44.28	+17 35.0	1.701	2.672	4.4	22.6	168 W	63 46	2 25	9 10.47	+18 8.8	1.582	2.528	8.3	23.3	158 E	63 46
2 5	9 38.95	+18 3.9	1.701	2.683	2.3	22.5	174 W	63 46	3 2	9 3.10	+18 34.6	1.617	2.532	10.8	23.4	151 E	64 45
2 10	9 33.50	+18 31.7	1.708	2.693	1.5	22.4	176 E	64 45	18106 Blume								
2 15	9 28.09	+18 57.5	1.723	2.704	3.2	22.6	171 E	64 45	1 26	10 1.00	+15 24.9	2.475	3.411	6.0	22.8	159 W	60 49
2 20	9 22.89	+19 20.7	1.746	2.714	5.3	22.7	165 E	64 45	1 31	9 56.55	+15 53.2	2.463	3.424	4.3	22.7	165 W	61 48
2 25	9 18.03	+19 40.7	1.775	2.723	7.4	22.9	159 E	65 44	2 5	9 51.86	+16 21.8	2.459	3.436	2.6	22.6	171 W	61 48
519198 2010 PZ₇₇									2 10	9 47.03	+16 50.0	2.463	3.448	1.1	22.5	176 W	62 47
1 26	9 51.08	-21 59.9	2.863	3.626	11.1	22.8	135 W	23 86	2 15	9 42.17	+17 17.1	2.475	3.460	1.5	22.6	175 E	62 47
2 5	9 43.16	-21 55.1	2.806	3.629	9.8	22.7	141 W	23 86	2 20	9 37.39	+17 42.6	2.496	3.472	3.1	22.7	169 E	63 46
2 15	9 34.69	-21 26.0	2.774	3.631	8.9	22.6	145 E	24 85	2 25	9 32.79	+18 6.1	2.524	3.483	4.8	22.8	163 E	63 46
2 25	9 26.40	-20 34.2	2.768	3.632	8.7	22.6	146 E	24 85	3 2	9 28.46	+18 27.2	2.560	3.494	6.4	22.9	157 E	63 46
3 7	9 18.99	-19 24.0	2.789	3.632	9.4	22.7	143 E	26 83	326740 2003 QZ₁₈								
490385 2009 PO₂									1 26	10 2.08	+10 21.5	1.737	2.671	8.3	22.6	157 W	55 54
1 26	9 51.11	+ 8 1.6	1.886	2.824	7.4	22.4	158 W	53 56	2 5	9 52.52	+11 17.0	1.701	2.676	3.8	22.3	170 W	56 53
2 5	9 41.23	+ 8 39.3	1.854	2.830	3.4	22.1	170 W	54 55	2 15	9 42.00	+12 17.7	1.694	2.681	1.1	22.1	177 E	57 52
2 15	9 30.72	+ 9 23.7	1.852	2.836	2.3	22.1	173 E	54 55	2 25	9 31.71	+13 16.8	1.717	2.684	5.6	22.5	165 E	58 51
2 25	9 20.66	+10 9.4	1.881	2.840	6.1	22.3	162 E	55 54	3 7	9 22.76	+14 8.6	1.769	2.687	9.9	22.7	152 E	59 50
3 7	9 12.07	+10 51.8	1.938	2.843	9.9	22.6	150 E	56 53	414746 2010 EH₂₀								
									1 26</								

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

2021	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45° - 26°	2021	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45° - 26°
414746 2010 EH ₂₀ (continuation)									213152 2000 NO ₁₄ (continuation)								
2 15	9 47.38	+26 2.7	3.012	3.979	3.3	23.7	167 E	71 38	3 7	9 39.13	+15 19.2	1.712	2.648	8.9	21.5	156 E	60 49
2 20	9 42.97	+26 34.5	3.027	3.982	4.2	23.8	163 E	72 37	3 17	9 31.24	+16 1.0	1.773	2.641	12.9	21.7	144 E	61 48
2 25	9 38.66	+27 3.2	3.049	3.984	5.3	23.9	158 E	72 37	152564 1992 HF								
3 2	9 34.53	+27 28.5	3.079	3.987	6.5	23.9	153 E	72 37	1 26	10 19.48	-12 39.7	1.207	2.055	18.3	22.6	139 W	32 77
337087 1998 SG ₁₇₁									2 5	10 3.83	-11 45.8	1.171	2.082	13.8	22.4	150 W	33 76
1 26	10 4.49	+14 0.9	2.042	2.976	7.2	22.3	158 W	59 50	2 15	9 46.55	-10 9.0	1.161	2.106	10.6	22.3	157 E	35 74
2 5	9 55.01	+14 44.7	2.007	2.983	3.3	22.1	170 W	60 49	2 25	9 29.78	-7 58.9	1.180	2.126	10.6	22.4	157 E	37 72
2 15	9 44.68	+15 29.1	2.003	2.989	1.2	22.0	176 E	60 49	3 7	9 15.46	-5 31.8	1.228	2.142	13.6	22.6	149 E	39 70
2 25	9 34.54	+16 8.9	2.029	2.994	5.1	22.2	164 E	61 48	217517 2006 UZ ₁₄₃								
3 7	9 25.56	+16 40.2	2.085	2.998	8.9	22.5	152 E	62 47	1 26	10 23.19	+9 11.7	1.894	2.800	9.6	21.5	152 W	54 55
393348 1988 RO ₁									2 5	10 14.39	+9 55.6	1.844	2.806	5.5	21.2	164 W	55 54
1 26	10 5.56	+2 24.6	3.063	3.960	6.7	23.1	152 W	47 62	2 15	10 4.26	+10 46.4	1.824	2.810	1.1	20.9	177 W	56 53
2 5	9 58.27	+3 7.7	3.018	3.972	4.1	23.0	163 W	48 61	2 25	9 53.85	+11 38.1	1.833	2.814	3.4	21.1	170 E	57 52
2 15	9 50.40	+3 59.1	3.004	3.983	2.2	22.8	171 E	49 60	3 7	9 44.25	+12 25.0	1.873	2.816	7.7	21.4	158 E	57 52
2 25	9 42.55	+4 55.4	3.022	3.993	3.2	22.9	167 E	50 59	3 17	9 36.38	+13 3.0	1.939	2.818	11.5	21.6	146 E	58 51
3 7	9 35.33	+5 52.6	3.072	4.001	5.7	23.1	157 E	51 58	516237 2016 UF ₄₁								
542143 2012 XS ₅₄									1 26	10 23.19	+19 29.0	1.819	2.739	9.0	21.8	154 W	64 45
1 26	10 6.12	+8 5.6	2.223	3.143	7.6	22.9	155 W	53 56	1 31	10 18.83	+20 4.7	1.793	2.738	7.2	21.7	160 W	65 44
2 5	9 56.80	+8 38.5	2.193	3.162	3.9	22.7	167 W	54 55	2 5	10 13.97	+20 40.4	1.773	2.738	5.3	21.6	165 W	66 43
2 15	9 46.76	+9 17.0	2.194	3.180	1.2	22.5	176 E	54 55	2 10	10 8.73	+21 15.4	1.761	2.736	3.8	21.5	169 W	66 43
2 25	9 36.94	+9 56.6	2.226	3.196	4.2	22.7	166 E	55 54	2 15	10 3.24	+21 48.4	1.756	2.735	3.3	21.4	171 W	67 42
3 7	9 28.19	+10 33.3	2.289	3.212	7.7	23.0	154 E	56 53	2 20	9 57.67	+22 18.5	1.758	2.734	4.3	21.5	168 E	67 42
347887 2002 TG ₁₈₆									2 25	9 52.18	+22 45.0	1.769	2.732	5.9	21.6	163 E	68 41
1 26	10 10.84	+1 58.1	1.956	2.856	9.7	22.4	151 W	47 62	3 2	9 46.91	+23 7.2	1.786	2.730	7.8	21.7	158 E	68 41
2 5	10 2.25	+2 40.8	1.909	2.863	6.0	22.2	162 W	48 61	3 7	9 42.00	+23 24.8	1.810	2.727	9.8	21.8	152 E	68 41
2 15	9 52.62	+3 37.1	1.890	2.869	3.1	22.0	171 E	49 60	3 12	9 37.58	+23 37.7	1.840	2.725	11.6	21.9	147 E	69 40
2 25	9 42.95	+4 41.5	1.901	2.874	4.5	22.1	167 E	50 59	3 17	9 33.74	+23 45.8	1.876	2.722	13.3	22.0	141 E	69 40
3 7	9 34.24	+5 47.9	1.941	2.878	8.0	22.3	156 E	51 58	524098 2000 QV ₃₈								
5324 Lyapunov									1 26	10 23.84	+8 17.5	1.713	2.619	10.4	21.8	151 W	53 56
1 26	10 11.21	+24 52.7	3.821	4.740	4.7	22.2	157 W	70 39	2 5	10 15.16	+9 22.7	1.672	2.633	6.0	21.6	164 W	54 55
2 5	10 3.57	+25 27.7	3.771	4.731	3.1	22.1	165 W	70 39	2 15	10 5.10	+10 36.4	1.658	2.645	1.3	21.3	177 W	56 53
2 15	9 55.29	+25 57.5	3.754	4.721	2.7	22.0	167 W	71 38	2 25	9 54.80	+11 50.9	1.675	2.656	3.6	21.5	170 E	57 52
2 25	9 46.94	+26 19.3	3.769	4.710	4.2	22.1	160 E	71 38	3 7	9 45.41	+12 59.0	1.721	2.667	8.1	21.8	158 E	58 51
3 7	9 39.08	+26 31.3	3.814	4.698	6.1	22.2	150 E	72 37	3 17	9 37.90	+13 55.2	1.794	2.676	12.0	22.0	146 E	59 50
3 17	9 32.18	+26 33.0	3.887	4.685	8.0	22.4	139 E	72 37	368163 1999 RE ₁₉₈								
526587 2006 TB									1 26	10 23.87	-1 59.5	1.951	2.820	11.3	22.4	146 W	43 66
1 26	10 11.32	-14 3.6	1.090	1.945	19.3	22.7	139 W	31 78	2 5	10 15.58	-1 23.9	1.899	2.833	7.8	22.2	157 W	44 65
2 5	9 59.05	-11 27.2	1.049	1.967	14.3	22.5	150 W	34 75	2 15	10 6.04	+0 30.9	1.875	2.845	4.7	22.0	166 W	44 65
2 15	9 45.24	-7 59.4	1.033	1.988	10.2	22.3	159 E	37 72	2 25	9 56.23	+0 34.9	1.881	2.855	4.3	22.0	168 E	46 63
2 25	9 31.87	-3 58.5	1.047	2.006	9.7	22.3	160 E	41 68	3 7	9 47.17	+1 47.0	1.916	2.865	7.1	22.2	159 E	47 62
3 7	9 20.75	+0 9.4	1.089	2.021	13.2	22.6	152 E	45 64	3 17	9 39.70	+2 58.6	1.979	2.874	10.5	22.4	148 E	48 61
438165 2005 SQ ₂₈₀									270085 2001 QQ ₉₈								
1 26	10 11.33	+4 41.2	1.990	2.898	9.1	21.9	152 W	50 59	1 26	10 24.95	+6 56.6	2.056	2.953	9.5	21.8	150 W	52 57
2 5	10 3.20	+5 41.7	1.929	2.890	5.3	21.7	164 W	51 58	2 5	10 16.84	+7 35.1	1.991	2.946	5.8	21.6	163 W	53 56
2 15	9 53.89	+6 54.2	1.897	2.882	2.0	21.4	174 W	52 57	2 15	10 7.36	+8 22.8	1.954	2.939	1.8	21.3	174 W	53 56
2 25	9 44.38	+8 12.7	1.896	2.872	4.1	21.6	168 E	53 56	2 25	9 57.44	+9 14.6	1.948	2.930	2.9	21.4	171 E	54 55
3 7	9 35.66	+9 30.3	1.925	2.862	8.0	21.8	156 E	55 54	3 7	9 48.08	+10 5.0	1.972	2.921	6.9	21.6	159 E	55 54
3 17	9 28.59	+10 41.0	1.981	2.850	11.7	22.0	145 E	56 53	3 17	9 40.16	+10 49.2	2.024	2.911	10.7	21.8	147 E	56 53
382820 2003 WB ₉									443808 1998 QP ₃₆								
1 26	10 15.50	+1 48.8	1.878	2.773	10.3	22.2	150 W	47 62	1 26	10 25.20	+6 26.9	2.415	3.305	8.5	22.3	150 W	51 58
2 5	10 6.22	+2 14.0	1.833	2.785	6.6	22.0	161 W	47 62	2 5	10 17.38	+7 2.4	2.373	3.326	5.2	22.1	162 W	52 57
2 15	9 55.81	+2 52.9	1.817	2.795	3.5	21.9	170 W	48 61	2 15	10 8.60	+7 45.1	2.362	3.346	1.8	21.9	174 W	53 56
2 25	9 45.36	+3 40.8	1.830	2.804	4.5	21.9	167 E	49 60	2 25	9 59.64	+8 30.8	2.382	3.365	2.4	22.0	172 E	54 55
3 7	9 35.91	+4 32.0	1.874	2.812	8.0	22.2	157 E	50 59	3 7	9 51.30	+9 14.9	2.432	3.383	5.7	22.2	160 E	54 55
3 17	9 28.33	+5 21.0	1.944	2.819	11.6	22.4	145 E	50 59	3 17	9 44.26	+9 53.8	2.512	3.400	8.8	22.5	148 E	55 54
222079 1999 NE ₄₃									366709 2003 WV ₁₃₆								
1 26	10 17.35	+16 43.7	1.952	2.875	8.3	21.3	155 W	62 47	1 26	10 25.49	+12 16.5	3.270	4.166	6.3	22.3	152 W	57 52
1 31	10 13.21	+17 25.4	1.918	2.868	6.4	21.2	161 W	62 47	2 5	10 18.91	+12 58.9	3.228	4.185	3.7	22.1	164 W	58 51
2 5	10 8.59	+18 8.3	1.891	2.860	4.5	21.1	167 W	63 46	2 15	10 11.59	+13 43.2	3.217	4.203	1.0	21.9	176 W	59 50
2 10	10 3.61	+18 51.5	1.872	2.852	2.9	20.9	172 W	64 45	2 25	10 4.09	+14 26.1	3.238	4.220	2.0	22.0	171 E	59 50
2 15	9 58.37	+19 33.8	1.860	2.843	2.4	20.9	173 W	65 44	3 7	9 56.97	+15 4.4	3.291	4.236	4.7	22.2	160 E	60 49
2 20	9 53.04	+20 14.3	1.856	2.834	3.6	20.9	170 E	65 44	3 17	9 50.74	+15 35.8	3.374	4.251	7.1	22.4	148 E	61 48
2 25	9 47.74	+20 52.1	1.860	2.825	5.5	21.0	164 E	66 43	334625 2002 VL ₁₅								
3 2	9 42.63	+21 26.4	1.871	2.816	7.5	21.1	158 E	66 43	1 26	10 25.98	+50 31.0	2.831	3.650	9.7	21.9	141 W	84 13
3 7	9 37.83	+21 56.6	1.889	2.806	9.5	21.2	152 E	67 42	1 31	10 20.58	+51 8.4	2.824	3.653	9.5	21.9	142 W	84 13
3 12																	

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

2021	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45° - 26°	2021	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45° - 26°
334625 2002 VL ₁₅ (continuation)									212546 2006 SV ₁₉								
3 12	9 32.34	+52 11.7	2.997	3.666	12.7	22.2	126 E	83 12	1 26	10 34.42	+14 36.3	2.002	2.902	9.5	22.0	151 W	60 49
3 17	9 27.92	+51 50.0	3.043	3.667	13.3	22.2	122 E	83 12	2 5	10 25.76	+15 54.0	1.912	2.869	5.8	21.8	163 W	61 48
306375 1980 RG ₁									282470 2004 FY ₁₄₃								
1 26	10 26.44	+ 3 24.5	2.811	3.686	8.1	22.1	148 W	48 61	1 26	10 36.58	+ 2 44.7	1.512	2.392	13.4	21.4	146 W	48 61
2 5	10 19.13	+ 3 59.1	2.763	3.705	5.2	22.0	160 W	49 60	2 5	10 29.95	+ 3 26.5	1.413	2.355	9.2	20.8	158 W	48 61
2 15	10 10.96	+ 4 42.1	2.744	3.723	2.4	21.8	171 W	50 59	2 15	10 20.93	+ 4 29.4	1.339	2.317	4.5	20.7	169 W	49 60
2 25	10 2.57	+ 5 30.0	2.758	3.740	2.2	21.8	172 E	50 59	2 25	10 10.45	+ 5 48.5	1.292	2.278	2.8	20.4	174 E	51 58
3 7	9 54.65	+ 6 18.8	2.803	3.756	4.9	22.0	161 E	51 58	3 2	10 5.08	+ 6 31.6	1.279	2.259	5.0	20.5	169 E	52 57
3 17	9 47.79	+ 7 4.9	2.878	3.772	7.6	22.2	150 E	52 57	3 7	9 59.86	+ 7 15.4	1.273	2.239	7.6	20.6	163 E	52 57
222931 2002 NQ ₇									400103 2006 TQ ₅₈								
1 26	10 26.70	+ 2 55.9	2.027	2.909	10.3	22.1	148 W	48 61	1 26	10 36.72	+ 6 22.7	2.799	3.613	10.0	22.5	141 W	39 70
2 5	10 18.09	+ 3 40.1	1.986	2.932	6.6	21.9	160 W	49 60	2 5	10 29.89	+ 6 9.8	2.727	3.621	7.6	22.3	151 W	39 70
2 15	10 8.33	+ 4 36.2	1.974	2.954	3.0	21.7	171 W	50 59	2 15	10 21.98	+ 5 41.8	2.683	3.628	5.3	22.2	160 W	39 70
2 25	9 58.37	+ 5 38.8	1.993	2.974	3.0	21.8	171 E	51 58	2 25	10 13.61	+ 5 0.6	2.669	3.634	4.0	22.1	165 E	40 69
3 7	9 49.19	+ 6 41.6	2.042	2.994	6.5	22.0	160 E	52 57	3 7	10 5.48	+ 4 9.8	2.686	3.640	5.0	22.2	161 E	41 68
3 17	9 41.60	+ 7 39.6	2.120	3.012	10.0	22.3	148 E	53 56	3 17	9 58.22	+ 3 13.9	2.732	3.644	7.2	22.3	153 E	42 67
265962 2006 CG									489298 2006 SF ₂₅₅								
1 26	10 27.66	+ 2 0.8	1.413	2.305	13.3	22.3	147 W	47 62	1 26	10 37.36	+16 27.2	1.575	2.480	11.3	22.2	150 W	61 48
2 5	10 16.95	+ 2 47.4	1.375	2.325	8.5	22.1	160 W	48 61	1 31	10 33.08	+17 0.4	1.559	2.493	9.1	22.1	156 W	62 47
2 15	10 4.59	+ 3 51.6	1.364	2.344	3.9	21.9	171 W	49 60	2 5	10 28.25	+17 34.2	1.549	2.506	6.9	22.0	162 W	63 46
2 25	9 52.05	+ 5 5.6	1.382	2.362	4.5	22.0	169 E	50 59	2 10	10 23.01	+18 7.7	1.545	2.518	4.8	21.9	168 W	63 46
3 7	9 40.82	+ 6 20.3	1.429	2.377	9.0	22.3	158 E	51 58	2 15	10 17.50	+18 39.8	1.549	2.531	3.2	21.8	172 W	64 45
436947 2012 TK ₁₄₀									434165 2002 TP ₅₁								
1 26	10 28.78	+46 29.9	2.118	2.968	11.4	22.2	144 W	89 18	1 26	10 38.04	+19 30.8	2.025	2.922	9.5	22.1	151 W	65 44
1 31	10 23.50	+47 22.5	2.106	2.967	11.0	22.2	145 W	88 17	1 31	10 33.83	+20 2.0	2.003	2.931	7.8	22.0	156 W	65 44
2 5	10 17.57	+48 9.3	2.101	2.965	10.9	22.2	145 W	87 16	2 5	10 29.15	+20 33.2	1.988	2.940	6.1	21.9	162 W	66 43
2 10	10 11.14	+48 48.9	2.102	2.963	11.1	22.2	145 W	86 15	2 10	10 24.10	+21 3.5	1.980	2.949	4.5	21.8	166 W	66 43
2 15	10 4.38	+49 20.3	2.109	2.961	11.5	22.2	143 W	86 15	2 15	10 18.81	+21 32.0	1.981	2.957	3.5	21.8	169 W	67 42
2 20	9 57.52	+49 42.8	2.122	2.958	12.1	22.2	141 E	85 14	2 20	10 13.41	+21 57.8	1.988	2.965	3.6	21.8	169 W	67 42
2 25	9 50.76	+49 56.2	2.142	2.956	12.9	22.3	138 E	85 14	2 25	10 8.04	+22 20.3	2.004	2.973	4.7	21.9	166 E	67 42
3 2	9 44.32	+50 0.6	2.167	2.953	13.7	22.3	135 E	85 14	3 2	10 2.85	+22 38.9	2.027	2.980	6.3	22.0	161 E	68 41
3 7	9 38.37	+49 56.3	2.197	2.949	14.6	22.4	131 E	85 14	3 7	9 57.94	+22 53.4	2.057	2.987	8.0	22.1	155 E	68 41
3 12	9 33.06	+49 44.0	2.232	2.946	15.5	22.4	128 E	85 14	3 12	9 53.44	+23 3.6	2.093	2.994	9.6	22.2	150 E	68 41
469341 2000 SD ₂₉₁									385371 2002 QS ₁₆								
1 26	10 28.92	+ 4 42.9	1.792	2.681	11.1	22.4	148 W	50 59	1 26	10 38.07	+ 1 30.4	1.458	2.333	14.0	21.5	145 W	47 62
2 5	10 20.57	+ 5 22.5	1.730	2.680	7.0	22.2	161 W	50 59	2 5	10 29.06	+ 1 45.1	1.426	2.364	9.5	21.3	157 W	47 62
2 15	10 10.63	+ 6 15.0	1.696	2.678	2.8	21.9	172 W	51 58	2 15	10 18.39	+ 2 17.0	1.420	2.394	5.0	21.1	168 W	47 62
2 25	10 0.15	+ 7 14.6	1.691	2.675	3.0	21.9	172 E	52 57	2 25	10 7.36	+ 3 0.5	1.441	2.424	3.6	21.1	171 E	48 61
3 7	9 50.29	+ 8 14.6	1.716	2.670	7.3	22.1	160 E	53 56	3 7	9 57.32	+ 3 48.5	1.491	2.454	7.2	21.3	162 E	49 60
3 17	9 42.06	+ 9 9.0	1.768	2.665	11.4	22.4	148 E	54 55	3 17	9 49.31	+ 4 34.2	1.567	2.482	11.4	21.6	151 E	50 59
377949 2006 HP ₁₅₂									187776 1998 SH ₅₅								
1 26	10 29.92	+11 30.7	1.720	2.625	10.5	21.8	151 W	57 52	1 26	10 38.31	+12 7.2	2.079	2.968	9.8	21.3	149 W	57 52
2 5	10 21.60	+12 37.0	1.665	2.624	6.2	21.6	163 W	58 51	2 5	10 30.17	+12 49.1	2.016	2.967	6.1	21.1	161 W	58 51
2 15	10 11.61	+13 49.6	1.637	2.623	1.7	21.3	176 W	59 50	2 15	10 20.47	+13 35.5	1.981	2.964	2.2	20.8	173 W	59 50
2 25	10 1.05	+15 0.8	1.639	2.620	3.6	21.4	170 E	60 49	2 25	10 10.13	+14 20.7	1.976	2.960	2.5	20.8	173 E	59 50
3 7	9 51.14	+16 2.9	1.670	2.616	8.2	21.7	158 E	61 48	3 7	10 0.17	+14 59.3	2.002	2.956	6.5	21.1	160 E	60 49
3 17	9 42.95	+16 51.1	1.727	2.611	12.3	21.9	146 E	62 47	3 17	9 51.52	+15 27.6	2.056	2.950	10.2	21.3	148 E	60 49
378747 2008 RM ₇₇									396656 2002 MZ ₃								
1 26	10 30.22	+13 43.8	2.149	3.051	8.8	22.1	152 W	59 50	1 26	10 31.17	+ 4 54.7	2.662	3.495	9.9	22.1	143 W	40 69
2 5	10 21.48	+14 26.4	2.111	3.070	5.2	21.9	164 W	59 50	2 5	10 24.21	+ 4 34.1	2.595	3.503	7.3	21.9	153 W	40 69
2 15	10 11.56	+15 10.6	2.102	3.087	1.6	21.7	175 W	60 49	2 15	10 16.18	+ 3 58.5	2.555	3.509	4.9	21.8	162 W	41 68
2 25	10 1.40	+15 50.8	2.124	3.104	3.2	21.8	170 E	61 48	2 25	10 7.77	+ 3 10.3	2.545	3.515	3.9	21.7	166 E	42 67
3 7	9 51.95	+16 22.7	2.177	3.119	6.8	22.1	158 E	61 48	3 7	9 59.68	+ 2 13.7	2.566	3.519	5.3	21.8	161 E	43 66
3 17	9 44.03	+16 43.9	2.258	3.134	10.2	22.3	146 E	62 47	3 17	9 52.59	+ 1 13.4	2.617	3.523	7.8	22.0	151 E	44 65
304782 2007 MX ₃									385371 2002 QS ₁₆								
1 26	10 32.59	+ 3 1.3	2.359	3.204	10.5	21.7	143 W	42 67	1 26	10 38.07	+ 1 30.4	1.458	2.333	14.0	21.5	145 W	47 62
2 5	10 25.34	+ 2 43.7	2.282	3.199	7.7	21.5	154 W	42 67	2 5	10 29.06	+ 1 45.1	1.426	2.364	9.5	21.3	157 W	47 62
2 15	10 16.79	+ 2 10.3	2.232	3.194	4.9	21.3	164 W	43 66	2 15	10 18.39	+ 2 17.0	1.420	2.394	5.0	21.1	168 W	47 62
2 25	10 7.69	+ 1 23.9	2.213	3.187	3.8	21.2	168 E	44 65	2 25	10 7.36	+ 3 0.5	1.441	2.424	3.6	21.1	171 E	48 61
3 7	9 58.88	+ 0 29.0	2.224	3.180	5.7	21.3	161 E	45 64	3 7	9 57.32	+ 3 48.5	1.491	2.454	7.2	21.3	162 E	49 60
3 17	9 51.15	+ 0 29.4	2.263	3.171	8.7	21.5	151 E	45 64	3 17	9 49.31	+ 4 34.2	1.567	2.482	11.4	21.6	151 E	50 59

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

2021	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	2021	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°
369272 2009 QA₇										271533 2004 HY₃₂									
1 26	10 38.72	+10 17.2	1.800	2.690	11.0	21.4	149 W	55	54	1 26	10 42.89	+26 45.4	2.044	2.933	9.9	21.5	149 W	72	37
2 5	10 29.86	+10 45.0	1.712	2.664	7.0	21.1	161 W	56	53	1 31	10 39.04	+27 25.1	2.012	2.929	8.5	21.4	154 W	72	37
2 15	10 18.89	+11 20.1	1.652	2.636	2.3	20.8	174 W	56	53	2 5	10 34.63	+28 4.0	1.987	2.924	7.3	21.4	158 W	73	36
2 25	10 6.83	+11 57.1	1.622	2.608	2.6	20.7	173 E	57	52	2 10	10 29.74	+28 40.8	1.969	2.919	6.4	21.3	161 W	74	35
3 7	9 54.95	+12 29.9	1.622	2.578	7.5	20.9	160 E	57	52	2 15	10 24.49	+29 14.5	1.958	2.914	6.0	21.3	162 W	74	35
3 17	9 44.49	+12 53.9	1.650	2.547	12.0	21.1	148 E	58	51	2 20	10 19.02	+29 44.0	1.955	2.908	6.3	21.3	161 W	75	34
3 27	9 36.48	+13 6.1	1.701	2.515	16.0	21.3	136 E	58	51	2 25	10 13.49	+30 8.5	1.958	2.902	7.1	21.3	159 E	75	34
4 6	9 31.46	+13 5.5	1.770	2.482	19.3	21.5	125 E	58	51	3 2	10 8.03	+30 27.5	1.969	2.896	8.4	21.4	155 E	75	34
335271 2005 NC₁₇										438054 2004 PJ₉₇									
1 26	10 39.05	+16 1.7	2.010	2.904	9.8	21.8	150 W	61	48	1 26	10 44.45	-10 5.7	2.335	3.125	12.5	22.4	137 W	35	74
2 5	10 30.77	+16 53.4	1.950	2.903	6.1	21.5	162 W	62	47	2 5	10 37.46	-10 3.3	2.256	3.128	9.9	22.2	147 W	35	74
2 15	10 20.86	+17 46.1	1.920	2.901	2.8	21.3	172 W	63	46	2 15	10 28.99	-9 40.4	2.202	3.130	7.4	22.0	156 W	35	74
2 25	10 10.27	+18 33.1	1.919	2.898	3.7	21.4	169 E	64	45	2 25	10 19.77	-8 58.2	2.176	3.131	5.7	21.9	162 E	36	73
3 7	10 0.11	+19 9.1	1.949	2.894	7.3	21.6	158 E	64	45	3 7	10 10.67	-8 0.5	2.180	3.131	6.2	22.0	160 E	37	72
3 17	9 51.35	+19 30.8	2.006	2.889	10.9	21.8	147 E	65	44	3 17	10 2.52	-6 52.7	2.212	3.130	8.4	22.1	153 E	38	71
253062 2002 TC₇₀										436869 2012 TJ₁₄									
1 26	10 39.22	+8 55.4	0.687	1.608	19.0	22.2	148 W	54	55	1 26	10 44.57	+21 8.7	1.995	2.885	10.1	22.0	149 W	66	43
2 5	10 28.44	+10 27.6	0.631	1.596	11.5	21.7	161 W	55	54	1 31	10 40.89	+21 45.7	1.960	2.880	8.5	21.8	154 W	67	42
2 15	10 13.02	+12 26.1	0.596	1.582	2.9	21.2	175 W	57	52	2 5	10 36.66	+22 23.0	1.931	2.876	6.9	21.7	160 W	67	42
2 25	9 55.30	+14 31.4	0.582	1.566	6.6	21.3	170 E	60	49	2 10	10 31.94	+22 59.7	1.910	2.871	5.5	21.6	164 W	68	41
3 7	9 38.55	+16 21.4	0.590	1.548	15.7	21.7	155 E	61	48	2 15	10 26.86	+23 34.7	1.896	2.866	4.6	21.6	167 W	69	40
3 17	9 25.77	+17 40.9	0.616	1.528	23.7	22.0	142 E	63	46	2 20	10 21.55	+24 7.1	1.889	2.860	4.5	21.6	167 W	69	40
380928 2006 HJ₃										440243 2004 RF₁₀									
1 26	10 39.51	+19 15.6	1.804	2.703	10.4	22.1	150 W	64	45	1 26	10 45.02	+21 17.4	1.848	2.739	10.7	21.4	149 W	66	43
1 31	10 35.51	+19 50.3	1.770	2.699	8.6	22.0	156 W	65	44	1 31	10 41.08	+21 59.4	1.834	2.755	8.9	21.3	154 W	67	42
2 5	10 30.91	+20 25.7	1.743	2.695	6.7	21.9	161 W	65	44	2 5	10 36.64	+22 40.9	1.826	2.771	7.2	21.2	159 W	68	41
2 10	10 25.83	+21 0.8	1.722	2.690	5.1	21.8	166 W	66	43	2 10	10 31.78	+23 20.8	1.826	2.787	5.7	21.2	164 W	68	41
2 15	10 20.37	+21 34.4	1.709	2.686	4.0	21.7	169 W	67	42	2 15	10 26.66	+23 58.1	1.833	2.803	4.8	21.2	166 W	69	40
2 20	10 14.70	+22 5.5	1.703	2.680	4.1	21.7	169 W	67	42	2 20	10 21.41	+24 31.7	1.848	2.818	4.7	21.2	166 W	70	39
2 25	10 8.97	+22 33.1	1.705	2.675	5.3	21.7	166 E	68	41	2 25	10 16.20	+25 0.8	1.869	2.833	5.6	21.3	164 E	70	39
3 2	10 3.35	+22 56.5	1.714	2.669	7.1	21.8	161 E	68	41	3 2	10 11.15	+25 24.9	1.898	2.848	7.0	21.4	160 W	70	39
3 7	9 57.99	+23 15.2	1.730	2.663	9.0	21.9	155 E	68	41	3 7	10 6.41	+25 43.8	1.934	2.863	8.5	21.5	155 E	71	38
3 12	9 53.04	+23 28.8	1.753	2.657	10.9	22.0	150 E	68	41	3 12	10 2.08	+25 57.3	1.977	2.877	10.1	21.6	149 E	71	38
3 17	9 48.61	+23 37.3	1.781	2.651	12.8	22.1	144 E	69	40	3 17	9 58.27	+26 5.4	2.026	2.892	11.6	21.7	144 E	71	38
3 22	9 44.82	+23 40.8	1.816	2.644	14.5	22.2	138 E	69	40	3 22	9 55.04	+26 8.5	2.080	2.906	13.0	21.9	139 E	71	38
313441 2002 RJ₁₀₅										377173 2003 UE₇									
1 26	10 39.55	+15 48.0	2.488	3.375	8.4	22.1	150 W	61	48	1 26	10 45.96	+17 38.0	1.953	2.840	10.4	22.0	149 W	63	46
2 5	10 31.73	+16 31.3	2.446	3.395	5.3	21.9	161 W	62	47	1 31	10 42.17	+18 16.0	1.925	2.844	8.7	21.9	154 W	63	46
2 15	10 22.74	+17 14.6	2.434	3.415	2.4	21.8	172 W	62	47	2 5	10 37.84	+18 54.9	1.903	2.849	6.8	21.8	160 W	64	45
2 25	10 13.35	+17 53.0	2.454	3.433	2.8	21.8	170 E	63	46	2 10	10 33.07	+19 33.8	1.888	2.853	5.1	21.7	165 W	65	44
3 7	10 4.40	+18 22.8	2.504	3.451	5.8	22.0	159 E	63	46	2 15	10 27.97	+20 11.6	1.881	2.857	3.8	21.6	169 W	65	44
3 17	9 56.63	+18 41.5	2.583	3.468	8.7	22.3	148 E	64	45	2 20	10 22.67	+20 47.3	1.881	2.860	3.5	21.6	170 W	66	43
252244 2001 QZ₆₀										431177 2006 SJ₁₁									
1 26	10 41.42	+14 29.9	2.809	3.688	7.9	21.8	149 W	59	50	1 26	10 46.44	+16 38.8	1.880	2.766	10.8	22.4	148 W	62	47
2 5	10 34.27	+15 8.3	2.744	3.689	5.1	21.7	161 W	60	49	1 31	10 42.63	+17 6.7	1.844	2.764	9.0	22.2	154 W	62	47
2 15	10 25.93	+15 48.1	2.710	3.690	2.2	21.5	172 W	61	48	2 5	10 38.24	+17 36.0	1.815	2.761	7.1	22.1	160 W	63	46
2 25	10 17.08	+16 25.4	2.707	3.689	2.2	21.4	172 E	61	48	2 10	10 33.36	+18 5.5	1.792	2.758	5.2	22.0	165 W	63	46
3 7	10 8.43	+16 56.3	2.735	3.688	5.0	21.6	161 E	62	47	2 15	10 28.10	+18 34.4	1.777	2.755	3.6	21.9	170 W	64	45
3 17	10 0.67	+17 18.2	2.793	3.686	7.9	21.8	150 E	62	47	2 20	10 22.60	+19 1.8	1.769	2.751	3.0	21.8	172 W	64	45
346479 2008 UG										372858 2010 VB₁₇₁									
1 26	10 41.98	+20 5.3	2.234	3.124	9.2	21.8	150 W	65	44	1 26	10 47.04	+15 42.8	1.640	2.530	11.9	21.5	148 W	61	48
1 31	10 37.65	+20 26.9	2.210	3.132	7.5	21.7	155 W	65	44	1 31	10 43.16	+16 15.0	1.614	2.536	9.9	21.4	154 W	61	48
2 5	10 32.86	+20 48.3	2.192	3.140	5.9	21.7	161 W	66	43	2 5	10 38.68	+16 48.7	1.595	2.543	7.7	21.3	160 W	62	47
2 10	10 27.73	+21 8.7	2.182	3.148	4.5	21.6	166 W	66	43	2 10	10 33.70	+17 22.7	1.582	2.549	5.6	21.2	165 W	62	47
2 15	10 22.35	+21 27.4	2.180	3.155	3.4	21.5	169 W	66	43										
2 20	10 16.86	+21 43.6	2.185	3.162	3.3	21.5	169 W	67	42										
2 25	10 11.39	+21 56.9	2.199	3.169	4.2	21.6	166 E	67	42										
3 2	10 6.06	+22 6.9	2.220	3.176	5.6	21.7	162 E	67	42										
3 7	10 1.00	+22 13.3	2.248	3.182	7.2	21.8	156 E	67	42										
3 12	9 56.29	+22 15.9	2.283	3.188	8.7	21.9	151 E	67	42										
3 17	9 52.05	+22 14.9	2.325	3.194	10.2	22.0	145 E	67	42										
3 22	9 48.33	+22 10.3	2.373	3.199	11.6	22.1	140 E	67	42										
515614 2014 KF₄₅																			
1 26	10 42.49	+48 24.1	2.808	3.623	9.9	22.5	141 W	87	16										
1 31	10 37.38	+49 0.4	2.795	3.624	9.6	22.5	142 W	86	15										
2 5	10 31.72	+49 32.0	2.789	3.625	9.4	22.4	143 W	85	14										
2 10	10 25.63	+49 57.8	2.790	3.626	9.4	22.4	143 W	85	14										
2 15	10 19.25	+50 17.2	2.796	3.627	9.6	22.5	142 W	85	14										
2 20	10 12.74	+50 29.6	2.810	3.															

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

2021	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	2021	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°
372858 2010 VB ₁₇₁ (continuation)										227764 2006 SU ₅₉									
2 15	10 28.35	+17 56.0	1.576	2.555	3.8	21.1	170 W	63	46	1 26	10 55.01	+ 4 55.8	1.958	2.806	12.3	21.8	143 W	50	59
2 20	10 22.79	+18 27.4	1.578	2.561	3.0	21.0	172 W	63	46	2 5	10 47.30	+ 5 14.4	1.880	2.803	8.6	21.6	155 W	50	59
2 25	10 17.20	+18 56.0	1.586	2.566	4.0	21.1	170 E	64	45	2 15	10 37.63	+ 5 44.5	1.828	2.800	4.5	21.3	167 W	51	58
3 2	10 11.74	+19 21.0	1.602	2.572	5.9	21.2	165 E	64	45	2 25	10 26.87	+ 6 22.0	1.806	2.795	1.1	21.1	177 E	51	58
3 7	10 6.56	+19 41.8	1.626	2.577	7.9	21.4	159 E	65	44	3 7	10 16.09	+ 7 1.6	1.815	2.789	4.7	21.3	167 E	52	57
3 12	10 1.81	+19 57.9	1.655	2.581	10.0	21.5	153 E	65	44	3 17	10 6.36	+ 7 38.1	1.852	2.782	8.9	21.6	154 E	53	56
3 17	9 57.60	+20 9.3	1.691	2.586	11.9	21.6	147 E	65	44	274234 2008 LO ₁₆									
3 22	9 54.03	+20 15.9	1.733	2.590	13.7	21.7	142 E	65	44	1 26	10 55.03	+10 33.6	1.997	2.859	11.4	21.9	145 W	56	53
326777 2003 SV ₂₂₂										2 5	10 48.57	+11 39.2	1.915	2.847	7.9	21.6	157 W	57	52
1 26	10 47.18	-23 29.4	1.577	2.304	20.1	21.6	127 W	22	87	2 15	10 40.14	+12 53.9	1.859	2.834	3.9	21.4	169 W	58	51
1 31	10 43.36	-23 58.3	1.525	2.292	19.0	21.5	131 W	21	88	2 25	10 30.53	+14 10.9	1.833	2.820	1.8	21.2	175 E	59	50
2 5	10 38.73	-24 18.7	1.477	2.281	17.9	21.4	135 W	21	88	3 7	10 20.72	+15 22.6	1.837	2.806	5.5	21.4	164 E	60	49
2 10	10 33.35	-24 29.4	1.433	2.268	16.8	21.3	138 W	21	88	3 17	10 11.77	+16 22.7	1.870	2.790	9.5	21.6	152 E	61	48
2 15	10 27.33	-24 29.2	1.395	2.256	15.7	21.1	142 W	21	88	440135 2003 UJ									
2 20	10 20.82	-24 17.5	1.362	2.242	14.8	21.1	145 W	21	88	1 26	10 55.60	+20 23.5	1.919	2.794	11.2	22.1	147 W	65	44
2 25	10 14.02	-23 53.8	1.335	2.229	14.1	21.0	147 E	21	88	1 31	10 52.01	+21 2.5	1.903	2.811	9.5	22.1	152 W	66	43
3 2	10 7.12	-23 18.4	1.313	2.214	13.9	20.9	148 E	22	87	2 5	10 47.90	+21 41.5	1.893	2.827	7.8	22.0	157 W	67	42
3 7	10 0.35	-22 31.7	1.298	2.200	14.1	20.9	147 E	22	87	2 10	10 43.36	+22 19.5	1.889	2.844	6.2	21.9	162 W	67	42
3 12	9 53.91	-21 34.9	1.289	2.184	14.7	20.9	146 E	23	86	2 15	10 38.49	+22 55.4	1.893	2.860	5.0	21.9	165 W	68	41
3 17	9 48.02	-20 29.6	1.286	2.169	15.8	20.9	144 E	25	84	2 20	10 33.45	+23 28.2	1.905	2.876	4.6	21.9	167 W	68	41
3 22	9 42.84	-19 17.6	1.288	2.152	17.1	20.9	140 E	26	83	2 25	10 28.37	+23 57.0	1.924	2.892	5.0	21.9	165 E	69	40
3 27	9 38.51	-18 1.1	1.296	2.136	18.6	21.0	137 E	27	82	3 2	10 23.39	+24 21.3	1.950	2.907	6.1	22.0	162 E	69	40
4 1	9 35.11	-16 42.2	1.309	2.118	20.3	21.0	133 E	28	81	3 7	10 18.64	+24 40.7	1.983	2.923	7.6	22.2	157 E	70	39
4 6	9 32.69	-15 22.8	1.326	2.101	21.9	21.1	129 E	30	79	3 12	10 14.23	+24 55.0	2.023	2.938	9.1	22.3	152 E	70	39
4 11	9 31.26	-14 4.6	1.346	2.082	23.4	21.1	124 E	31	78	3 17	10 10.28	+25 4.2	2.069	2.953	10.6	22.4	147 E	70	39
4 16	9 30.83	-12 49.0	1.371	2.064	24.9	21.2	120 E	32	77	173457 2000 QG ₄₅									
4 21	9 31.36	-11 37.2	1.398	2.044	26.3	21.3	116 E	33	76	1 26	10 57.16	+ 6 37.8	1.795	2.648	12.9	21.4	143 W	52	57
4 26	9 32.80	-10 30.1	1.427	2.025	27.5	21.3	111 E	34*	75	2 5	10 50.21	+ 7 26.7	1.725	2.651	9.0	21.2	155 W	52	57
5 1	9 35.11	- 9 28.3	1.457	2.004	28.7	21.4	107 E	35*	73	2 15	10 41.19	+ 8 27.9	1.681	2.654	4.6	20.9	168 W	53	56
5 6	9 38.23	- 8 32.0	1.489	1.984	29.6	21.4	103 E	35*	73	2 25	10 30.99	+ 9 35.0	1.665	2.655	0.2	20.6	179 E	55	54
5 11	9 42.10	- 7 41.6	1.522	1.963	30.5	21.5	100 E	34*	72	3 7	10 20.75	+10 40.6	1.680	2.655	4.9	21.0	167 E	56	53
267821 2003 UB ₃₅										3 17	10 11.59	+11 38.0	1.723	2.655	9.3	21.2	154 E	57	52
1 26	10 48.47	+ 9 13.4	1.860	2.732	11.6	21.8	146 W	54	55	3 27	10 4.44	+12 22.3	1.791	2.653	13.2	21.5	143 E	57	52
2 5	10 40.84	+10 1.0	1.795	2.735	7.7	21.6	158 W	55	54	363305 2002 NV ₁₆									
2 15	10 31.33	+10 57.1	1.757	2.736	3.4	21.3	171 W	56	53	1 26	11 8.31	- 1 32.3	0.516	1.406	28.6	22.0	137 W	43	66
2 25	10 20.90	+11 55.4	1.748	2.736	1.4	21.2	176 E	57	52	2 5	10 56.30	- 0 2.3	0.486	1.428	20.1	21.6	150 W	45	64
3 7	10 10.66	+12 49.2	1.769	2.736	5.9	21.5	164 E	58	51	2 15	10 39.00	+ 2 17.4	0.472	1.448	10.4	21.2	165 W	47	62
3 17	10 1.69	+13 33.2	1.819	2.734	10.0	21.7	151 E	59	50	2 25	10 19.39	+ 5 6.3	0.476	1.465	3.5	21.0	175 E	50	59
153842 2001 XT ₃₀										3 7	10 1.36	+ 7 53.0	0.502	1.479	11.4	21.5	163 E	53	56
1 26	10 48.76	+10 5.0	2.891	3.749	8.4	22.5	146 W	55	54	3 17	9 48.02	+10 11.6	0.546	1.491	19.9	22.0	149 E	55	54
2 5	10 41.90	+11 2.3	2.849	3.782	5.6	22.3	158 W	56	53	360200 1997 UF ₈									
2 15	10 33.96	+12 3.7	2.836	3.813	2.5	22.1	170 W	57	52	1 26	11 9.88	+38 17.2	2.718	3.537	10.1	21.5	141 W	83	26
2 25	10 25.57	+13 4.5	2.856	3.844	1.1	22.1	176 E	58	51	1 31	11 5.67	+38 49.8	2.681	3.528	9.4	21.4	144 W	84	25
3 7	10 17.40	+14 0.6	2.908	3.873	3.9	22.3	165 E	59	50	2 5	11 0.86	+39 20.2	2.649	3.518	8.8	21.3	147 W	84	25
388567 2007 QX ₁₄										2 10	10 55.51	+39 47.1	2.624	3.507	8.3	21.3	149 W	85	24
1 26	10 49.62	+14 33.2	1.629	2.514	12.3	21.7	147 W	60	49	2 15	10 49.71	+40 9.6	2.607	3.497	8.1	21.3	150 W	85	24
2 5	10 42.17	+15 27.0	1.520	2.465	8.3	21.3	159 W	60	49	2 20	10 43.60	+40 26.9	2.596	3.486	8.2	21.3	150 W	85	24
2 15	10 31.92	+16 28.6	1.437	2.416	4.0	21.0	170 W	61	48	2 25	10 37.30	+40 38.3	2.592	3.475	8.5	21.3	149 W	86	23
2 25	10 19.74	+17 29.7	1.382	2.365	3.7	20.8	171 E	62	47	3 2	10 30.95	+40 43.2	2.596	3.464	9.1	21.3	146 E	86	23
3 7	10 6.97	+18 21.2	1.355	2.313	8.5	21.0	160 E	63	46	3 7	10 24.71	+40 41.6	2.606	3.453	9.9	21.3	143 E	86	23
3 17	9 55.16	+18 56.0	1.356	2.260	13.6	21.1	148 E	64	45	3 12	10 18.70	+40 33.4	2.623	3.441	10.8	21.4	140 E	86	23
3 27	9 45.75	+19 10.0	1.378	2.205	18.4	21.3	136 E	64	45	3 17	10 13.07	+40 18.7	2.646	3.429	11.7	21.4	136 E	85	24
4 6	9 39.65	+19 2.9	1.418	2.150	22.5	21.4	125 E	64	45	3 22	10 7.92	+39 58.0	2.674	3.417	12.6	21.5	132 E	85	24
200754 2001 WA ₂₅										3 27	10 3.33	+39 31.8	2.708	3.405	13.5	21.5	127 E	85	24
1 26	10 50.80	-13 12.0	1.531	2.321	17.9	22.2	133 W	32	77	480880 2001 XA ₂₀									
2 5	10 38.76	-13 28.1	1.490	2.359	14.3	22.0	144 W	32	77	1 26	11 15.96	+ 3 19.3	1.573	2.393	16.2	21.5	137 W	48	61
2 15	10 24.67	-13 10.9	1.473	2.395	10.8	21.9	153 W	32	77	2 5	11 8.99	+ 3 39.9	1.529	2.429	12.0	21.3	149 W	49	60
2 25	10 10.02	-12 22.1	1.484	2.429	8.9	21.9	158 E	33	76	2 15	10 59.71	+ 4 15.5	1.508	2.465	7.2	21.1	162 W	49	60
3 7	9 56.37	-11 9.1	1.523	2.460	9.7	22.0	155 E	34	75	2 25	10 49.13	+ 5 0.6	1.514	2.501	3.3	20.9	174 W	50	59
3 17	9 45.03	- 9 42.4	1.591	2.489	12.3	22.2	148 E	35	74	3 7	10 38.51	+ 5 48.5	1.549	2.536	2.0	21.0	172 E	51	58
386655 2009 TA ₇										3 17	10 29.03	+ 6 32.5	1.612	2.570	7.6	21.3	160 E	52	57
1 26	10 51.87	+ 9 18.7	1.948	2.813	11.5	21.5	145 W	54	55	3 27	10 21.66	+ 7 7.3	1.702	2.603	11.6	21.6	148 E	52	57
2 5	10 43.98	+ 9 50.9	1.884	2.819	7.8	21.3	157 W	55	54	170648 2003 YA ₁₁₄									
2 15	10 34.27	+10 30.6	1.847	2.825	3.5	21.0	170 W	56	53	1 26	11 31.24	+ 4 15.1	1.952	2.731	15.0	21.5	134 W	49	60
2 25	10 23.67	+11 12.2	1.841	2.830	1.0	20.8	177 E	56	53	2 5	11 25.27	+ 4 36.8	1.895	2.767	11.5	21.3	146 W		

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

2021	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	2021	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°		
226131 2002 RA₄₄										270038 2001 KW₆₅											
1	26	11 32.40	+6 27.9	2.027	2.808	14.4	21.5	135 W	51	58	1	26	11 51.38	+11 43.3	1.953	2.711	15.7	21.4	132 W	57	52
2	5	11 27.27	+6 58.0	1.932	2.806	11.3	21.3	146 W	52	57	2	5	11 48.94	+13 3.4	1.843	2.693	12.9	21.1	143 W	58	51
2	15	11 19.76	+7 39.9	1.861	2.803	7.5	21.0	158 W	53	56	2	15	11 43.83	+14 38.1	1.754	2.674	9.6	20.9	153 W	60	49
2	25	11 10.43	+8 29.2	1.817	2.798	3.3	20.8	171 W	53	56	2	25	11 36.36	+16 20.3	1.692	2.653	6.3	20.6	163 W	61	48
3	7	11 0.15	+9 19.9	1.803	2.793	1.6	20.6	175 E	54	55	3	7	11 27.19	+18 0.4	1.657	2.632	5.0	20.5	167 W	63	46
3	17	10 49.98	+10 5.9	1.819	2.787	5.8	20.9	164 E	55	54	3	17	11 17.30	+19 28.5	1.651	2.611	7.3	20.6	161 E	64	45
3	27	10 40.97	+10 41.7	1.862	2.780	9.9	21.1	151 E	56	53	3	27	11 7.87	+20 36.0	1.673	2.588	11.0	20.8	150 E	66	43
4	6	10 33.92	+11 4.1	1.931	2.772	13.5	21.3	140 E	56	53	4	6	10 59.99	+21 18.5	1.718	2.564	14.6	20.9	140 E	66	43
218818 2006 SA₂₆₃										452419 2002 VQ₈₅											
1	26	11 40.68	+0 38.5	1.732	2.488	17.5	21.4	131 W	46	63	1	26	11 52.94	-33 55.6	3.119	3.563	15.1	21.5	109 W	11	82
2	5	11 37.77	+1 2.7	1.620	2.470	14.4	21.1	142 W	46	63	2	5	11 48.87	-34 59.4	3.013	3.573	14.2	21.4	117 W	10	81
2	15	11 32.05	+1 46.9	1.527	2.450	10.4	20.8	153 W	47	62	2	15	11 42.69	-35 43.7	2.922	3.582	13.0	21.3	125 W	9	80
2	25	11 23.88	+2 48.9	1.458	2.429	5.8	20.5	166 W	48	61	2	25	11 34.76	-36 4.4	2.847	3.590	11.7	21.2	132 W	9	80
3	7	11 14.07	+4 3.0	1.416	2.408	0.7	20.1	178 W	49	60	3	7	11 25.64	-35 58.8	2.794	3.597	10.5	21.1	138 W	9	80
3	12	11 8.88	+4 42.2	1.406	2.397	2.1	20.2	175 E	50	59	3	17	11 16.10	-35 26.1	2.763	3.603	9.7	21.0	142 E	10	81
3	17	11 3.73	+5 21.2	1.403	2.386	4.7	20.3	169 E	50	59	3	27	11 7.01	-34 28.6	2.758	3.609	9.5	21.0	143 E	11	82
3	22	10 58.78	+5 59.0	1.406	2.375	7.3	20.5	162 E	51	58	4	6	10 59.14	-33 11.4	2.778	3.613	10.0	21.1	141 E	12	83
3	27	10 54.20	+6 34.3	1.417	2.363	9.9	20.6	156 E	52	57	4	16	10 53.06	-31 41.1	2.822	3.617	11.0	21.1	137 E	13	84
4	1	10 50.11	+7 6.5	1.433	2.352	12.3	20.7	150 E	52	57	4	26	10 49.10	-30 5.1	2.888	3.619	12.3	21.2	130 E	15	86
4	6	10 46.61	+7 34.7	1.455	2.340	14.5	20.8	144 E	53	56	5	6	10 47.35	-28 30.4	2.974	3.621	13.5	21.3	123 E	16	87
4	11	10 43.80	+7 58.4	1.482	2.328	16.6	20.9	138 E	53	56	5	16	10 47.74	-27 2.2	3.075	3.622	14.6	21.5	115 E	17*	89
4	16	10 41.74	+8 17.3	1.513	2.316	18.5	21.0	133 E	53	56	282520 2004 RW₇₉										
4	21	10 40.45	+8 31.3	1.548	2.304	20.2	21.1	128 E	54	55	1	26	12 5.13	+18 48.5	2.132	2.866	15.2	21.4	130 W	64	45
4	26	10 39.94	+8 40.2	1.587	2.291	21.7	21.2	123 E	54	55	2	5	12 3.24	+20 27.5	2.021	2.845	12.9	21.2	140 W	65	44
5	1	10 40.20	+8 44.3	1.628	2.278	23.0	21.2	118 E	54	55	2	15	11 58.68	+22 17.2	1.932	2.823	10.4	20.9	149 W	67	42
5	6	10 41.19	+8 43.6	1.671	2.266	24.2	21.3	113 E	54	55	2	25	11 51.66	+24 9.0	1.868	2.801	8.3	20.8	156 W	69	40
5	11	10 42.90	+8 38.3	1.716	2.253	25.1	21.4	109 E	53*	55	3	7	11 42.71	+25 52.6	1.832	2.777	7.7	20.7	158 W	71	38
5	16	10 45.28	+8 28.7	1.762	2.240	25.9	21.5	104 E	52*	56	3	17	11 32.70	+27 17.9	1.824	2.752	9.1	20.7	154 E	72	37
282531 2004 RR₂₁₅										99248 2001 KY₆₆											
1	26	11 47.03	-9 13.7	1.974	2.660	17.7	21.4	125 W	36	73	1	26	12 14.10	-14 57.4	2.226	2.801	18.4	21.4	116 W	30	79
2	5	11 44.52	-9 35.0	1.845	2.634	15.4	21.2	135 W	35	74	2	5	12 10.60	-15 33.1	2.095	2.793	16.5	21.2	126 W	29	80
2	15	11 39.39	-9 36.4	1.733	2.608	12.4	20.9	146 W	35	74	2	15	12 4.31	-15 50.1	1.979	2.783	14.0	21.0	137 W	29	80
2	25	11 31.88	-9 15.6	1.643	2.581	8.9	20.6	156 W	36	73	2	25	11 55.39	-15 44.8	1.884	2.772	11.0	20.8	148 W	29	80
3	7	11 22.62	-8 32.8	1.579	2.553	5.5	20.4	166 W	36	73	3	7	11 44.38	-15 15.3	1.814	2.758	7.9	20.6	158 W	30	79
3	12	11 17.61	-8 4.0	1.558	2.538	4.6	20.3	168 E	37	72	3	17	11 32.16	-14 22.2	1.773	2.742	5.8	20.4	164 E	31	78
3	17	11 12.54	-7 31.2	1.543	2.524	4.8	20.3	168 E	37	72	3	22	11 25.97	-13 48.1	1.764	2.734	5.9	20.4	164 E	31	78
3	22	11 7.57	-6 55.2	1.535	2.509	6.1	20.3	164 E	38	71	3	27	11 19.94	-13 10.1	1.762	2.725	6.8	20.4	161 E	32	77
3	27	11 2.85	-6 17.1	1.534	2.494	8.0	20.4	160 E	39	70	4	1	11 14.20	-12 29.2	1.767	2.715	8.2	20.5	157 E	33	76
4	1	10 58.51	-5 38.2	1.540	2.479	10.0	20.5	154 E	39	70	4	6	11 8.89	-11 46.6	1.780	2.705	9.9	20.6	152 E	33	76
4	6	10 54.67	-4 59.4	1.552	2.464	12.1	20.5	149 E	40	69	4	11	11 4.12	-11 3.5	1.799	2.695	11.7	20.6	147 E	34	75
4	11	10 51.43	-4 21.8	1.570	2.449	14.1	20.6	143 E	41	68	4	16	10 59.98	-10 20.9	1.824	2.684	13.4	20.7	142 E	35	74
4	16	10 48.86	-3 46.2	1.593	2.433	16.0	20.7	138 E	41	68	4	21	10 56.52	-9 39.9	1.855	2.672	15.1	20.8	136 E	35	74
4	21	10 47.01	-3 13.6	1.620	2.417	17.8	20.8	133 E	42	67	4	26	10 53.79	-9 1.3	1.891	2.660	16.6	20.9	131 E	36	73
4	26	10 45.90	-2 44.6	1.651	2.402	19.4	20.9	128 E	42	67	5	1	10 51.79	-8 25.8	1.931	2.648	18.0	21.0	126 E	37	72
5	1	10 45.55	-2 19.4	1.686	2.386	20.8	20.9	123 E	43	66	5	6	10 50.51	-7 53.8	1.974	2.635	19.2	21.1	121 E	37	72
5	6	10 45.92	-1 58.5	1.723	2.369	22.1	21.0	118 E	43	66	5	11	10 49.94	-7 25.8	2.020	2.621	20.3	21.1	116 E	37*	71
5	11	10 47.02	-1 41.9	1.763	2.353	23.2	21.1	113 E	43*	66	5	16	10 50.07	-7 1.8	2.069	2.607	21.2	21.2	111 E	37*	71
5	16	10 48.80	-1 29.9	1.805	2.337	24.2	21.2	109 E	43*	65	5	21	10 50.85	-6 42.2	2.119	2.593	22.0	21.3	106 E	36*	71
5	21	10 51.25	-1 22.3	1.848	2.320	25.0	21.2	105 E	41*	65	5	26	10 52.25	-6 26.9	2.171	2.578	22.6	21.3	102 E	35*	70
5	26	10 54.30	-1 19.2	1.891	2.304	25.6	21.3	101 E	40*	65	5	31	10 54.22	-6 15.7	2.222	2.562	23.1	21.4	98 E	33*	70
5	31	10 57.93	-1 20.3	1.935	2.287	26.1	21.3	97 E	38*	65	6	5	10 56.73	-6 8.7	2.275	2.546	23.4	21.4	93 E	31*	70
6	5	11 2.10	-1 25.6	1.980	2.270	26.5	21.4	93 E	35*	65	6	10	10 59.75	-6 5.7	2.326	2.530	23.7	21.5	89 E	28*	70
6	10	11 6.77	-1 34.8	2.024	2.253	26.8	21.4	89 E	33*	66	6	15	11 3.23	-6 6.6	2.378	2.513	23.8	21.5	86 E	26*	70*
6	15	11 11.92	-1 47.9	2.067	2.236	26.9	21.4	86 E	30*	66*	159463 2000 PM₇										
6	20	11 17.50	-2 4.6	2.110	2.219	27.0	21.5	82 E	28*	66*	1	26	12 23.65	+8 13.1	2.378	3.032	15.8	21.3	123 W	53	56
6	25	11 23.48	-2 24.7	2.152	2.202	27.0	21.5	79 E	26*	65*	2	5	12 22.31	+8 59.9	2.248	3.015	13.7	21.1	134 W	54	55
324582 2006 XK										2	15	12 18.55	+10 0.0	2.137	2.996	11.0	20.9	144 W	55	54	
1	26	11 48.33	-15 6.9	2.784	3.400	14.3	21.5	121 W	30	79	2	25	12 12.49	+11 9.5	2.049	2.977	8.0	20.7	155 W	56	53
2	5	11 42.40	-15 55.3	2.696	3.429	12.4	21.4	131 W	29	80	3	7	12 4.49	+12 22.8	1.988	2.957	5.1	20.5	165 W	57	52
2	15	11 34.51	-16 27.2	2.627	3.457	10.2	21.2	142 W	29	80	3	12	11 59.95	+12 58.7	1.968	2.946	4.1	20.4	168 W	58	51
2	25	11 25.11	-16 40.9	2.584	3.483	7.9	21.1	151 W	28	81	3	17	11 55.20	+13 32.7	1.956	2.935	4.1	20.4	168		

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

21/22	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	21/22	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°
159463 2000 PM₇										233393 2006 FP₁₇									
<i>(continuation)</i>										<i>(continuation)</i>									
4 21	11 25.79	+15 42.3	2.062	2.853	14.7	20.9	134 E	61	48	7 25	12 37.67	+ 0 11.6	2.314	2.127	26.0	21.1	67 E	24*	56*
4 26	11 23.31	+15 41.4	2.099	2.840	16.0	20.9	129 E	61	48	8 4	12 53.09	- 1 2.6	2.380	2.089	25.2	21.1	61 E	21*	53*
5 1	11 21.43	+15 35.8	2.141	2.827	17.2	21.0	124 E	61	48	8 14	13 9.70	- 2 23.7	2.439	2.052	24.2	21.1	56 E	19*	48*
5 6	11 20.17	+15 25.8	2.185	2.814	18.3	21.1	119 E	60	49	8 24	13 27.44	- 3 49.9	2.490	2.015	23.0	21.1	51 E	17*	44*
5 11	11 19.52	+15 11.6	2.233	2.801	19.2	21.2	114 E	60	49	9 3	13 46.27	- 5 19.5	2.534	1.978	21.7	21.1	46 E	15*	39*
5 16	11 19.48	+14 53.6	2.282	2.787	20.0	21.2	109 E	60*	49	9 13	14 6.18	- 6 50.8	2.571	1.943	20.3	21.0	42	14*	35*
5 21	11 20.04	+14 32.0	2.333	2.773	20.6	21.3	105 E	59*	49	9 23	14 27.17	- 8 21.8	2.600	1.908	18.8	20.9	38	13*	31*
5 26	11 21.16	+14 7.1	2.386	2.759	21.1	21.3	101 E	56*	50	10 3	14 49.22	- 9 50.5	2.623	1.874	17.2	20.9	34 E	12*	27*
5 31	11 22.82	+13 39.3	2.438	2.745	21.5	21.4	97 E	54*	50	10 13	15 12.37	-11 14.8	2.640	1.842	15.6	20.8	30 E	12*	22*
6 5	11 24.98	+13 8.7	2.491	2.730	21.8	21.4	92 E	51*	51	10 23	15 36.58	-12 32.4	2.651	1.811	14.0	20.7	26 E	11*	18*
6 10	11 27.61	+12 35.6	2.544	2.715	21.9	21.5	89 E	48*	51	11 2	16 1.84	-13 41.0	2.657	1.783	12.4	20.6	23 E	10*	14*
6 15	11 30.70	+12 0.2	2.597	2.700	22.0	21.5	85 E	44*	52	11 12	16 28.11	-14 38.3	2.659	1.756	10.8	20.5	19	9*	10*
275736 2001 FJ₁₄₁										480195 2015 FZ₃₃₉									
1 26	12 26.30	+ 3 2.5	1.649	2.315	21.4	21.5	121 W	48	61	1 26	12 35.56	-21 8.6	2.683	3.138	17.3	21.4	109 W	24	85
2 5	12 27.74	+ 3 0.0	1.516	2.284	19.1	21.2	131 W	48	61	2 5	12 35.94	-22 27.1	2.509	3.090	16.5	21.2	117 W	23	86
2 15	12 26.13	+ 3 13.8	1.397	2.253	16.0	20.9	141 W	48	61	2 15	12 34.07	-23 35.7	2.347	3.040	15.1	21.0	127 W	21	88
2 25	12 21.30	+ 3 42.8	1.297	2.222	11.9	20.5	152 W	49	60	2 25	12 29.79	-24 30.8	2.201	2.991	13.4	20.8	136 W	20	89
3 7	12 13.43	+ 4 23.9	1.219	2.190	7.1	20.2	164 W	49	60	3 7	12 23.19	-25 8.2	2.074	2.940	11.3	20.5	145 W	20	89
3 12	12 8.53	+ 4 47.1	1.189	2.174	4.6	20.0	170 W	50	59	3 17	12 14.59	-25 24.0	1.971	2.889	9.2	20.3	152 W	20	89
3 17	12 3.16	+ 5 10.9	1.165	2.158	2.6	19.8	174 W	50	59	3 22	12 9.74	-25 22.8	1.929	2.864	8.4	20.2	155 W	20	89
3 22	11 57.50	+ 5 33.9	1.148	2.141	2.9	19.8	174 E	51	58	3 27	12 4.69	-25 15.6	1.894	2.838	8.0	20.1	157 E	20	89
3 27	11 51.75	+ 5 55.1	1.138	2.125	5.4	19.9	169 E	51	58	4 1	11 59.56	-25 2.5	1.865	2.812	7.9	20.1	157 E	20	89
4 1	11 46.10	+ 6 13.5	1.134	2.109	8.1	20.0	163 E	51	58	4 6	11 54.47	-24 43.7	1.843	2.786	8.4	20.0	156 E	20	89
4 6	11 40.75	+ 6 28.0	1.136	2.092	11.0	20.1	157 E	51	58	4 11	11 49.58	-24 20.0	1.827	2.760	9.3	20.0	153 E	21	88
4 11	11 35.88	+ 6 38.0	1.144	2.076	13.7	20.2	151 E	52	57	4 16	11 45.02	-23 52.0	1.818	2.734	10.5	20.1	150 E	21	88
4 16	11 31.65	+ 6 43.0	1.157	2.059	16.3	20.3	145 E	52	57	4 21	11 40.90	-23 20.9	1.815	2.708	11.9	20.1	146 E	22	87
4 26	11 25.57	+ 6 36.4	1.196	2.027	21.0	20.5	134 E	52	57	4 26	11 37.33	-22 47.7	1.818	2.682	13.4	20.1	142 E	22	87
5 6	11 23.01	+ 6 8.1	1.249	1.994	24.9	20.6	124 E	51	58	5 1	11 34.39	-22 13.3	1.826	2.656	14.9	20.2	137 E	23	86
5 16	11 24.04	+ 5 19.6	1.312	1.962	28.0	20.8	115 E	50*	59	5 6	11 32.12	-21 39.0	1.838	2.629	16.4	20.2	133	23	86
5 26	11 28.42	+ 4 12.9	1.381	1.930	30.2	20.9	106 E	48*	60	5 11	11 30.57	-21 5.5	1.855	2.603	17.8	20.2	128	24	85
6 5	11 35.78	+ 2 50.3	1.453	1.898	31.9	21.1	99 E	43*	61	5 16	11 29.76	-20 33.7	1.876	2.577	19.1	20.3	124 E	24*	85
6 15	11 45.74	+ 1 13.9	1.525	1.868	32.9	21.2	92 E	37*	63	5 26	11 30.37	-19 38.2	1.925	2.524	21.4	20.4	115 E	24*	84
6 25	11 57.96	+ 0 34.6	1.597	1.838	33.5	21.2	86 E	32*	65	6 5	11 33.81	-18 56.4	1.983	2.471	23.2	20.4	106 E	22*	83
7 5	12 12.14	+ 2 33.1	1.666	1.809	33.7	21.3	81 E	27*	66*	6 15	11 39.89	-18 30.3	2.046	2.418	24.5	20.5	99 E	19*	83
7 15	12 28.08	+ 4 40.2	1.733	1.782	33.6	21.4	76 E	23*	65*	6 25	11 48.37	-18 20.7	2.111	2.365	25.4	20.6	91 E	16*	82*
7 25	12 45.61	+ 6 53.9	1.797	1.756	33.2	21.4	71 E	19*	63*	7 5	11 59.01	-18 26.8	2.174	2.313	26.0	20.6	85	12*	78*
8 4	13 4.62	+ 9 12.2	1.858	1.732	32.6	21.4	67 E	16*	60*	7 15	12 11.61	-18 47.6	2.236	2.261	26.1	20.6	78 E	9*	77*
8 14	13 25.08	+ 11 33.2	1.915	1.710	31.8	21.4	63 E	14*	57*	7 25	12 26.02	-19 21.7	2.293	2.210	26.0	20.6	72 E	6*	66*
8 24	13 46.93	+ 13 54.3	1.970	1.690	30.9	21.4	59 E	12*	53*	8 4	12 42.09	-20 6.9	2.346	2.160	25.6	20.6	67 E	4*	60*
9 3	14 10.17	+ 16 13.0	2.022	1.672	29.8	21.4	55 E	11*	49*	8 14	12 59.77	-21 1.4	2.394	2.111	25.0	20.6	62 E	3*	55*
9 13	14 34.82	+ 18 26.5	2.072	1.656	28.6	21.4	52 E	9*	46*	8 24	13 18.99	-22 2.8	2.436	2.063	24.2	20.5	57 E	2*	50*
9 23	15 0.85	+ 20 31.7	2.121	1.644	27.4	21.4	49 E	9*	43*	9 3	13 39.72	-23 8.6	2.472	2.016	23.3	20.5	52 E	1*	45*
10 3	15 28.23	+ 22 25.1	2.168	1.634	26.0	21.4	46 E	8*	40*	9 13	14 1.96	-24 16.0	2.504	1.972	22.2	20.4	48 E	—	40*
10 13	15 56.90	+ 24 3.6	2.214	1.627	24.5	21.4	43 E	7*	37*	9 23	14 25.68	-25 22.0	2.530	1.929	21.0	20.4	43 E	—	36*
10 23	16 26.71	+ 25 24.1	2.260	1.623	23.0	21.4	40 E	7*	34*	10 3	14 50.87	-26 23.4	2.552	1.889	19.7	20.3	39 E	—	33*
11 2	16 57.47	+ 26 23.5	2.306	1.622	21.4	21.4	37 E	7*	31*	10 13	15 17.48	-27 16.9	2.571	1.852	18.2	20.2	36 E	—	29*
11 12	17 28.95	+ 26 59.9	2.352	1.624	19.8	21.4	34 E	7*	27*	10 23	15 45.42	-27 58.9	2.586	1.818	16.8	20.2	32 E	—	25*
11 22	18 0.80	+ 27 11.6	2.398	1.630	18.1	21.4	31 E	7*	24*	11 2	16 14.53	-28 26.1	2.600	1.787	15.2	20.1	28 E	—	22*
12 2	18 32.70	+ 26 58.2	2.444	1.638	16.3	21.4	28 E	7*	21*	11 12	16 44.63	-28 35.3	2.611	1.760	13.6	20.0	25 E	—	19*
12 12	19 4.33	+ 26 20.1	2.491	1.649	14.5	21.4	25 E	7*	18*	11 22	17 15.42	-28 24.0	2.621	1.738	11.9	19.9	21 E	—	15*
12 22	19 35.37	+ 25 18.7	2.537	1.663	12.7	21.4	22 E	6*	14*	12 2	17 46.61	-27 50.1	2.631	1.719	10.1	19.8	18 E	—	12*
1 1	20 5.59	+ 23 56.2	2.582	1.680	10.8	21.4	19 E	5*	11*	12 12	18 17.86	-26 52.9	2.640	1.705	8.3	19.7	15 E	—	8*
1 11	20 34.84	+ 22 15.1	2.627	1.699	8.8	21.3	15 E	4*	8*	12 22	18 48.82	-25 32.3	2.650	1.697	6.5	19.7	11 E	—	5*
1 21	21 3.00	+ 20 18.6	2.669	1.720	6.9	21.3	12 E	2*	5*	1 1	19 19.24	-23 49.3	2.661	1.693	4.6	19.6	8 E	—	1*
233393 2006 FP₁₇										274422 2008 SN₁₇									
1 26	12 27.98	+ 9 21.6	2.180	2.754	18.8	21.4	116 W	36	73	1 26	12 36.30	+ 7 44.6	1.545	2.149	24.6	21.3	115 W	37	72
2 5	12 28.91	+ 9 18.9	2.030	2.725	17.1	21.1	126 W	36	73	2 5	12 40.45	+ 8 53.9	1.409	2.117	22.9	21.1	123 W	36	73
2 15	12 27.42	+ 8 56.1	1.894	2.694	14.7	20.9	136 W	36	73	2 15	12 41.74	+ 9 50.5	1.285	2.084	20.4	20.8	133 W	35	74
2 25	12 23.44	+ 8 11.1	1.776	2.663	11.6	20.6	147 W	37	72	2 25	12 39.79	+ 10 31.1	1.175	2.052	17.0	20.4	143 W	34	75
3 7	12 17.19	+ 7 3.7	1.681	2.631	7.7	20.3	159 W	38	71	3 7	12 34.48	+ 10 53.0	1.083	2.020	12.7	20.1	153 W	34	75
3 17	12 9.14	+ 5 36.1	1.611	2.599	3.5	19.9	171 W	39	70	3 17	12 26.08	+ 10 53.6	1.012	1.988	7.8	19.7	164 W	34	75
3 22	12 4.71	+ 4 46.5	1.588	2.582	1.6	19.8	176 E	40	69	3 27	12 15.58	+ 10 33.5	0.963	1.956	4.2	19.4	172 E	34	75

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

21/22	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	2021	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°
274422 2008 SN₁₇										483429 2000 LN₂₉									
<i>(continuation)</i>										<i>(continuation)</i>									
5 16	11 44.79	-7 49.6	1.036	1.808	27.6	20.2	124 E	37	72	5 21	12 25.10	-23 31.7	0.574	1.462	30.8	18.7	132 E	21	88
5 26	11 49.39	-7 57.3	1.090	1.782	30.8	20.4	116 E	37*	72	5 26	12 28.44	-22 43.2	0.577	1.446	33.2	18.8	129 E	22	87
6 5	11 57.53	-8 24.9	1.150	1.757	33.2	20.5	108 E	34*	72	5 31	12 33.23	-21 58.5	0.582	1.431	35.4	18.9	125 E	23*	86
6 15	12 8.80	-9 11.1	1.214	1.734	35.0	20.7	102 E	30*	73	6 5	12 39.41	-21 18.5	0.589	1.417	37.4	18.9	122 E	23*	85
6 25	12 22.77	-10 13.7	1.279	1.713	36.2	20.8	96 E	27*	74	6 10	12 46.93	-20 43.7	0.597	1.405	39.3	19.0	119 E	23*	85
7 5	12 39.07	-11 29.9	1.345	1.694	36.9	20.9	91 E	23*	75	6 15	12 55.71	-20 14.5	0.606	1.394	40.9	19.0	116 E	23*	84
7 15	12 57.43	-12 56.7	1.411	1.678	37.2	21.0	86 E	20*	76*	6 25	13 16.68	-19 32.3	0.628	1.376	43.5	19.2	111 E	23*	84
7 25	13 17.62	-14 31.1	1.478	1.664	37.1	21.1	81 E	17*	74*	7 5	13 41.51	-19 8.7	0.655	1.364	45.3	19.3	107 E	22*	83
8 4	13 39.44	-16 9.5	1.544	1.652	36.8	21.1	77 E	15*	71*	7 15	14 9.49	-18 59.1	0.688	1.359	46.5	19.4	104 E	22*	83
8 14	14 2.80	-17 48.9	1.611	1.644	36.3	21.2	74 E	14*	68*	7 25	14 39.87	-18 58.2	0.726	1.361	47.0	19.6	101 E	22*	83
8 24	14 27.54	-19 25.6	1.678	1.638	35.5	21.3	70 E	13*	64*	8 4	15 11.88	-19 0.2	0.771	1.369	47.0	19.7	99 E	22*	83
9 3	14 53.56	-20 56.3	1.745	1.635	34.5	21.3	67 E	12*	61*	8 14	15 44.89	-19 0.4	0.824	1.383	46.6	19.9	97 E	23*	83
9 13	15 20.73	-22 17.7	1.814	1.636	33.4	21.4	64 E	12*	57*	8 24	16 18.26	-18 54.8	0.886	1.404	45.8	20.0	95 E	24*	83
9 23	15 48.91	-23 26.5	1.884	1.639	32.1	21.4	60 E	12*	54*	9 3	16 51.46	-18 40.6	0.956	1.430	44.8	20.2	93 E	25*	82*
10 3	16 17.89	-24 20.1	1.956	1.645	30.7	21.5	57 E	12*	51*	9 13	17 24.11	-18 16.1	1.036	1.460	43.5	20.4	91 E	26*	81*
373469 2000 SO₄₂										85546 1997 XH₁									
1 26	12 36.66	-4 34.7	1.973	2.559	20.3	21.4	116 W	40	69	9 18	17 40.14	-17 59.7	1.079	1.478	42.8	20.5	90 E	26*	80*
2 5	12 39.83	-4 19.5	1.809	2.511	18.7	21.1	125 W	41	68	9 23	17 55.92	-17 40.5	1.124	1.496	42.1	20.6	89 E	27*	79*
2 15	12 40.63	-3 42.4	1.659	2.462	16.3	20.8	135 W	41	68	9 28	18 11.43	-17 18.4	1.172	1.515	41.4	20.7	88 E	27*	78*
2 25	12 38.81	-2 41.3	1.526	2.413	13.2	20.5	146 W	42	67	10 3	18 26.66	-16 53.5	1.222	1.535	40.6	20.8	87 E	28*	76*
3 7	12 34.34	-1 16.1	1.414	2.363	9.1	20.1	158 W	44	65	10 8	18 41.62	-16 25.9	1.274	1.556	39.8	20.9	85 E	28*	75*
3 17	12 27.47	+0 30.3	1.327	2.313	4.4	19.7	170 W	46	63	10 13	18 56.28	-15 55.6	1.328	1.577	39.0	21.0	84 E	29*	73*
3 22	12 23.34	+1 29.3	1.293	2.287	2.2	19.5	175 W	46	63	10 18	19 10.65	-15 22.8	1.384	1.599	38.2	21.1	83 E	30*	71*
3 27	12 18.91	+2 30.3	1.266	2.262	2.2	19.4	175 E	48	61	10 23	19 24.72	-14 47.4	1.442	1.622	37.3	21.2	81 E	30*	69*
4 1	12 14.33	+3 32.0	1.246	2.236	4.6	19.5	170 E	49	60	11 2	19 38.49	-14 9.7	1.502	1.645	36.5	21.2	80 E	31*	67*
4 6	12 9.76	+4 32.6	1.233	2.211	7.4	19.6	164 E	50	59	11 7	20 5.18	-12 47.6	1.626	1.693	34.7	21.4	76 E	32*	62*
4 11	12 5.37	+5 30.7	1.226	2.185	10.2	19.7	157 E	51	58	124120 2001 KR₂									
4 16	12 1.31	+6 24.7	1.225	2.160	12.9	19.8	151 E	51	58	1 26	13 1.00	+1 21.6	2.106	2.641	20.2	21.4	112 W	46	63
4 21	11 57.76	+7 13.3	1.230	2.134	15.6	19.8	145 E	52	57	2 5	13 3.54	+1 36.7	1.963	2.620	18.7	21.2	122 W	47	62
4 26	11 54.82	+7 55.6	1.240	2.108	18.1	19.9	139 E	53	56	2 15	13 3.55	+2 8.1	1.832	2.598	16.4	21.0	132 W	47	62
5 6	11 51.14	+8 59.2	1.271	2.057	22.5	20.1	129 E	54	55	2 25	13 0.81	+2 55.3	1.718	2.575	13.5	20.7	143 W	48	61
5 16	11 50.73	+9 33.4	1.314	2.006	26.2	20.2	119 E	55	54	3 7	12 55.34	+3 55.6	1.624	2.551	9.9	20.4	154 W	49	60
5 26	11 53.68	+9 38.9	1.365	1.956	29.2	20.3	110 E	54*	54	3 12	12 51.65	+4 29.3	1.586	2.539	8.0	20.3	159 W	49	60
6 5	11 59.79	+9 18.6	1.420	1.906	31.4	20.4	102 E	51*	55	3 17	12 47.41	+5 4.2	1.555	2.527	6.1	20.1	164 W	50	59
6 15	12 8.83	+8 35.2	1.475	1.858	33.0	20.5	95 E	47*	55	3 22	12 42.73	+5 39.3	1.530	2.515	4.5	20.0	169 W	51	58
6 25	12 20.47	+7 31.7	1.528	1.811	34.1	20.5	88 E	42*	56	3 27	12 37.75	+6 13.4	1.512	2.502	3.8	19.9	171 W	51	58
7 5	12 34.42	+6 10.8	1.579	1.765	34.8	20.6	83 E	37*	58*	4 1	12 32.59	+6 45.7	1.502	2.489	4.5	20.0	169 E	52	57
7 15	12 50.47	+4 34.8	1.626	1.722	35.2	20.6	78 E	34*	59*	4 6	12 27.40	+7 15.0	1.498	2.476	6.3	20.0	164 E	52	57
7 25	13 8.43	+2 46.0	1.670	1.680	35.3	20.6	73 E	30*	58*	4 11	12 22.35	+7 40.4	1.501	2.463	8.4	20.1	159 E	53	56
8 4	13 28.15	+0 47.1	1.709	1.642	35.2	20.6	69 E	28*	57*	4 16	12 17.58	+8 1.2	1.510	2.449	10.6	20.2	153 E	53	56
8 14	13 49.56	+1 19.9	1.745	1.607	34.9	20.6	65 E	26*	55*	4 26	12 9.40	+8 26.9	1.547	2.422	14.8	20.4	142 E	53	56
8 24	14 12.60	+3 31.9	1.779	1.577	34.4	20.6	62 E	24*	53*	5 6	12 3.65	+8 30.2	1.603	2.393	18.4	20.6	132 E	54	55
9 3	14 37.23	+5 45.9	1.810	1.550	33.8	20.5	59 E	23*	50*	5 16	12 0.71	+8 11.9	1.674	2.365	21.4	20.7	122 E	53	56
9 13	15 3.41	+7 58.5	1.842	1.528	33.1	20.5	56 E	22*	48*	5 26	12 0.67	+7 33.9	1.755	2.335	23.3	20.9	112 E	52*	56
9 23	15 31.10	+10 5.8	1.874	1.511	32.3	20.5	54 E	21*	46*	6 5	12 3.37	+6 39.2	1.843	2.305	25.3	21.0	104 E	49*	57
10 3	16 0.21	+12 3.7	1.908	1.500	31.3	20.5	51 E	21*	43*	6 15	12 8.56	+5 30.0	1.933	2.275	26.4	21.1	96 E	44*	59
10 13	16 30.62	+13 48.1	1.945	1.494	30.3	20.5	49 E	20*	41*	6 25	12 15.95	+4 8.8	2.024	2.243	26.9	21.2	89 E	38*	60
10 23	17 2.11	+15 15.0	1.986	1.494	29.1	20.5	47 E	20*	38*	7 5	12 25.26	+2 37.5	2.114	2.212	27.1	21.3	82 E	33*	61*
11 1	17 34.43	+16 21.0	2.032	1.500	27.8	20.6	45 E	20*	36*	7 15	12 36.28	+0 57.8	2.199	2.180	26.8	21.3	76 E	29*	61*
11 12	18 7.26	+17 3.7	2.083	1.511	26.3	20.6	43 E	20*	33*	7 25	12 48.80	+0 48.9	2.280	2.148	26.3	21.3	70 E	25*	59*
11 22	18 40.22	+17 21.7	2.140	1.528	24.8	20.6	40 E	20*	30*	8 4	13 2.67	+2 41.2	2.355	2.116	25.5	21.4	64 E	21*	55*
12 2	19 12.96	+17 15.1	2.203	1.550	23.1	20.7	38 E	20*	26*	8 14	13 17.81	+4 37.7	2.423	2.084	24.5	21.4	59 E	18*	51*
12 12	19 45.15	+16 44.9	2.270	1.577	21.3	20.7	36 E	20*	23*	8 24	13 34.14	+6 37.2	2.484	2.051	23.3	21.3	54 E	16*	47*
12 22	20 16.49	+15 53.2	2.343	1.608	19.4	20.8	33 E	19*	19*	9 3	13 51.61	+8 38.3	2.539	2.019	22.0	21.3	49 E	14*	42*
1 1	20 46.81	+14 43.1	2.418	1.643	17.4	20.8	30 E	18*	16*	9 13	14 10.23	+10 39.4	2.585	1.987	20.6	21.3	44 E	12*	38*
1 11	21 15.99	+13 17.6	2.497	1.681	15.4	20.9	27 E	17*	13*										
1 21	21 43.96	+11 40.3	2.576	1.722	13.3	20.9	24 E	15*	10*										
483429 2000 LN₂₉																			
1 26	12 46.78	-17 5.5	1.460	1.999	27.9	21.4	108 W	28	81										
2 5	12 55.32	-19 18.8	1.312	1.948	27.3	21.1	115 W	26	83										
2 15	13 1.84	-21 29.4	1.172	1.896	26.0	20.7	123 W	24	85										
2 25	13 5.84	-23 33.9	1.044	1.845	24.2	20.4	130 W	21	88										
3 2	13 6.73	-24 32.7	0.985	1.820	23.0	20.2	134 W	20	89										
3 7	13 6.78	-25 28.1	0.929	1.794	21.7	20.0	138 W	20	89										
3 12	13 5.96	-26 19.0	0.877	1.769	20.2	19.8	142 W	19	90										
3 17	13 4.22	-27 4.3																	

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

21/22	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	21/22	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°
124120 2001 KR₂										481467 2007 AN₉									
<i>(continuation)</i>										<i>(continuation)</i>									
9 23	14 29.97	-12 39.1	2.625	1.955	19.0	21.2	39 E	10*	33*	4 16	13 22.50	-14 35.9	0.845	1.846	3.1	19.8	174 E	30	79
10 3	14 50.86	-14 35.6	2.657	1.924	17.3	21.2	35 E	9*	29*	4 21	13 18.28	-13 59.3	0.861	1.860	4.9	19.9	171 E	31	78
10 13	15 12.93	-16 27.0	2.682	1.894	15.6	21.1	31 E	8*	24*	4 26	13 14.52	-13 23.3	0.882	1.874	7.7	20.1	166 E	32	77
10 23	15 36.17	-18 11.2	2.700	1.864	13.8	21.0	27 E	6*	20*	5 1	13 11.37	-12 49.2	0.909	1.888	10.4	20.3	160 E	32	77
11 2	16 0.60	-19 46.2	2.712	1.836	12.0	20.9	23 E	5*	16*	5 6	13 8.94	-12 18.2	0.940	1.902	13.1	20.5	155 E	33	76
11 12	16 26.19	-21 9.5	2.718	1.808	10.1	20.8	19 E	4*	12*	5 11	13 7.30	-11 51.3	0.977	1.917	15.5	20.7	150 E	33	76
11 22	16 52.89	-22 18.9	2.719	1.782	8.2	20.7	15 E	2*	8*	5 16	13 6.48	-11 29.1	1.017	1.931	17.7	20.9	144 E	34	75
12 2	17 20.61	-23 12.2	2.715	1.758	6.3	20.6	11 E	—	4*	5 21	13 6.50	-11 12.1	1.062	1.946	19.7	21.1	140 E	34	75
12 12	17 49.23	-23 47.4	2.706	1.735	4.3	20.4	8 E	—	1*	5 26	13 7.32	-11 0.4	1.110	1.962	21.4	21.2	135 E	34	75
12 22	18 18.55	-24 2.8	2.694	1.715	2.4	20.3	4 E	—	—	5 31	13 8.91	-10 53.9	1.162	1.977	23.0	21.4	130 E	34	75
1	18 48.38	-23 57.2	2.679	1.696	0.7	20.1	1 E	—	—	368254 2001 XE₁₀₃									
1 11	19 18.48	-23 30.1	2.662	1.680	1.6	20.2	3 W	—	—	1 26	13 29.33	-39 42.5	2.893	3.051	18.8	21.4	90 W	5	76*
1 21	19 48.62	-22 41.6	2.642	1.667	3.5	20.3	6 W	—	—	1 31	13 32.01	-40 32.8	2.813	3.035	18.9	21.3	93 W	4	75
360337 2001 UR₁										2 5	13 34.19	-41 21.6	2.734	3.018	18.9	21.2	97 W	4	75
1 26	13 5.46	+27 33.4	3.025	3.589	14.1	21.5	118 W	73	36	2 10	13 35.81	-42 8.8	2.656	3.001	18.8	21.2	101 W	3	74
2 5	13 4.76	+28 49.4	2.906	3.573	12.9	21.3	126 W	74	35	2 15	13 36.81	-42 53.8	2.578	2.984	18.7	21.1	105 W	2	73
2 15	13 1.71	+30 11.1	2.805	3.556	11.7	21.2	133 W	75	34	2 20	13 37.15	-43 36.1	2.502	2.967	18.4	21.0	108 W	1	72
2 25	12 56.28	+31 32.3	2.724	3.538	10.4	21.1	140 W	77	32	2 25	13 36.80	-44 15.2	2.429	2.949	18.1	20.9	112 W	1	72
3 7	12 48.66	+32 45.8	2.667	3.520	9.5	21.0	144 W	78	31	3 2	13 35.71	-44 50.5	2.357	2.931	17.7	20.8	116 W	—	71
3 17	12 39.31	+33 43.8	2.635	3.501	9.3	20.9	145 W	79	30	3 7	13 33.86	-45 21.1	2.289	2.913	17.2	20.7	120 W	—	71
3 27	12 28.96	+34 19.9	2.630	3.480	9.9	21.0	143 W	79	30	3 12	13 31.24	-45 46.3	2.223	2.895	16.6	20.6	124 W	—	70
4 6	12 18.49	+34 30.0	2.650	3.459	11.2	21.0	138 E	79	30	3 17	13 27.86	-46 5.2	2.161	2.877	15.9	20.5	127 W	—	70
4 16	12 8.79	+34 13.2	2.693	3.437	12.7	21.1	131 E	79	30	3 22	13 23.77	-46 16.8	2.103	2.858	15.2	20.4	131 W	—	70
4 26	12 0.62	+33 31.0	2.756	3.414	14.2	21.2	123 E	79	30	3 27	13 19.05	-46 20.3	2.050	2.839	14.5	20.3	134 W	—	70
5 6	11 54.47	+32 27.4	2.834	3.390	15.6	21.3	115 E	77	32	4 1	13 13.82	-46 15.0	2.001	2.820	13.8	20.2	138 W	—	70
5 16	11 50.55	+31 6.5	2.926	3.365	16.7	21.4	107 E	76	33	4 6	13 8.20	-46 0.3	1.957	2.801	13.2	20.2	140 W	—	70
5 26	11 48.90	+29 32.6	3.025	3.340	17.4	21.4	99 E	73*	34	4 11	13 2.36	-45 35.8	1.919	2.782	12.7	20.1	142 E	—	70
323137 2003 BM₈₀										4 16	12 56.48	-45 1.5	1.887	2.762	12.3	20.0	144 E	—	71
1 26	13 6.39	-6 13.8	3.172	3.604	15.0	21.4	108 W	39	70	4 21	12 50.76	-44 17.6	1.860	2.742	12.2	20.0	145 E	1	72
2 5	13 8.15	-6 34.2	3.024	3.593	14.0	21.3	118 W	38	71	4 26	12 45.37	-43 25.0	1.839	2.722	12.4	19.9	145 E	2	73
2 15	13 8.12	-6 44.9	2.889	3.582	12.6	21.1	128 W	38	71	5 1	12 40.48	-42 24.7	1.824	2.702	12.8	19.9	144 E	3	74
2 25	13 6.29	-6 45.7	2.770	3.572	10.6	20.9	138 W	38	71	5 6	12 36.21	-41 17.8	1.815	2.681	13.5	19.9	142 E	4	75
3 7	13 2.75	-6 37.1	2.672	3.561	8.2	20.8	149 W	38	71	5 11	12 32.67	-40 5.8	1.812	2.661	14.3	19.9	139 E	5	76
3 17	12 57.75	-6 20.1	2.598	3.552	5.3	20.6	161 W	39	70	5 16	12 29.93	-38 50.4	1.815	2.640	15.3	19.9	136 E	6	77
3 27	12 51.71	-6 5.1	2.552	3.542	2.2	20.3	172 W	39	70	5 21	12 28.03	-37 33.1	1.822	2.619	16.4	20.0	133 E	7	78
4 6	12 45.21	-5 30.8	2.534	3.533	1.0	20.2	176 E	39	70	5 26	12 26.99	-36 15.5	1.835	2.598	17.6	20.0	129 E	9	80
4 16	12 38.85	-5 4.8	2.546	3.525	4.2	20.4	165 E	40	69	5 31	12 26.78	-34 58.9	1.852	2.576	18.7	20.0	126 E	10*	81
4 26	12 33.25	-4 42.4	2.586	3.516	7.3	20.6	154 E	40	69	6 5	12 27.38	-33 44.4	1.872	2.555	19.8	20.1	122 E	11*	82
5 6	12 28.90	-4 26.7	2.650	3.509	10.0	20.8	143 E	41	68	6 10	12 28.77	-32 33.0	1.897	2.533	20.8	20.1	118 E	11*	83
5 16	12 26.11	-4 19.7	2.737	3.501	12.3	20.9	133 E	41	68	6 15	12 30.91	-31 25.4	1.925	2.511	21.7	20.2	114 E	11*	85
5 26	12 25.08	-4 22.5	2.840	3.494	14.1	21.1	123 E	41	68	6 20	12 33.75	-30 22.2	1.955	2.489	22.6	20.2	110 E	11*	86
6 5	12 25.81	-4 35.6	2.957	3.487	15.5	21.2	113 E	39*	69	6 25	12 37.23	-29 23.8	1.987	2.467	23.3	20.3	106 E	10*	87
6 15	12 28.26	-4 58.5	3.083	3.481	16.4	21.3	105 E	36*	69	7 5	12 45.98	-27 41.8	2.057	2.422	24.5	20.3	98 E	9*	88
6 25	12 32.30	-5 30.8	3.215	3.475	16.9	21.4	96 E	32*	70	7 15	12 56.84	-26 19.6	2.131	2.377	25.3	20.4	91 E	8*	84*
288132 2003 WO₈₄										7 25	13 9.53	-25 15.9	2.206	2.332	25.7	20.4	84 E	7*	77*
1 26	13 16.28	-16 43.1	1.450	1.914	30.2	21.4	102 W	28	81	8 4	13 23.81	-24 28.6	2.281	2.286	25.7	20.5	77 E	6*	71*
2 5	13 22.79	-18 15.6	1.364	1.936	28.6	21.3	110 W	27	82	8 14	13 39.52	-23 55.1	2.352	2.240	25.3	20.5	71 E	6*	64*
2 15	13 26.01	-19 31.1	1.282	1.958	26.3	21.1	119 W	25	84	8 24	13 56.53	-23 32.6	2.419	2.194	24.7	20.5	65 E	6*	58*
2 25	13 25.53	-20 25.8	1.209	1.979	23.2	20.9	128 W	25	84	9 3	14 14.71	-23 18.3	2.480	2.148	23.8	20.5	59 E	5*	53*
3 7	13 21.19	-20 55.3	1.147	2.001	19.2	20.7	138 W	24	85	9 13	14 34.02	-23 9.4	2.535	2.102	22.7	20.4	54 E	5*	47*
3 17	13 13.23	-20 54.9	1.102	2.022	14.6	20.5	149 W	24	85	9 23	14 54.38	-23 3.0	2.582	2.056	21.4	20.4	48 E	6*	42*
3 22	13 8.16	-20 42.6	1.087	2.032	12.2	20.4	155 W	24	85	10 3	15 15.73	-22 56.4	2.621	2.011	19.9	20.3	43 E	6*	37*
3 27	13 2.59	-20 22.6	1.077	2.042	9.8	20.2	160 W	25	84	10 13	15 38.04	-22 46.8	2.652	1.966	18.3	20.2	38 E	6*	32*
4 1	12 56.72	-19 55.3	1.073	2.052	7.7	20.2	164 W	25	84	10 23	16 1.24	-22 31.5	2.675	1.922	16.5	20.1	33 E	6*	27*
4 6	12 50.78	-19 21.7	1.075	2.062	6.4	20.1	167 E	26	83	11 2	16 25.27	-22 8.1	2.689	1.880	14.7	20.0	29 E	7*	22*
4 11	12 44.99	-18 43.0	1.084	2.072	6.3	20.1	167 E	26	83	11 12	16 50.08	-21 34.0	2.695	1.839	12.8	19.9	24 E	7*	17*
4 16	12 39.56	-18 0.7	1.098	2.082	7.6	20.2	164 E	27	82	11 22	17 15.55	-20 46.9	2.694	1.799	10.9	19.8	20 E	7*	12*
4 21	12 34.70	-17 16.7	1.119	2.091	9.5	20.4	160 E	28	81	12 2	17 41.61	-19 44.9	2.686	1.762	9.1	19.7	16 E	6*	7*
4 26	12 30.53	-16 32.7	1.146	2.101	11.7	20.5	155 E	28	81	12 12	18 8.13	-18 26.3	2.671	1.727	7.4	19.6	13 E	5*	2*
5 1	12 27.15	-15 50.1	1.178	2.110	13.9	20.7	150 E	29	80	12 22	18 35.01	-16 49.8	2.652	1.694	6.1	19.4	11 E	4*	—
5 6	12 24.61	-15 10.2	1.215	2.119	16.0	20.8	145 E	30	79	1	19 2.14	-14 54.5	2.628	1.665	5.4	19.3	9 E	3*	—
5 11	12 22.95	-14 34.0	1.256	2.128	17.9	21.0	140 E	30	79	1 11	19 29.43	-12 40.4	2.602	1.639	5.5	19.3	9 E	1*	—
5 16	12 22.16	-14 2.1	1.302	2.137	19.7	21.1													

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

2021	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45° - 26°	21/22	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45° - 26°	
517046 2013 AA₅₃ (continuation)									246162 2007 QR (continuation)									
3 10	18 1.24	+65 31.0	0.497	1.108	63.7	20.4	90 W	68*	8 4	13 0.00	-13 42.8	2.965	2.746	20.0	21.4	68 E	12*	62*
3 11	18 14.95	+65 43.7	0.493	1.096	64.9	20.4	88 W	67*	8 14	13 11.02	-14 48.9	3.060	2.719	19.0	21.4	61 E	9*	55*
3 12	18 28.95	+65 52.0	0.490	1.085	66.2	20.4	87 W	66*	8 24	13 23.13	-16 0.7	3.145	2.691	17.9	21.4	55 E	7*	49*
3 13	18 43.15	+65 55.5	0.487	1.073	67.5	20.4	86 W	66*	9 3	13 36.27	-17 17.0	3.220	2.662	16.5	21.4	49 E	5*	42*
3 14	18 57.47	+65 54.3	0.485	1.061	68.8	20.4	84 W	65*	9 13	13 50.39	-18 36.5	3.284	2.632	15.0	21.3	43 E	3*	36*
3 15	19 11.82	+65 48.1	0.482	1.049	70.1	20.4	83 W	64*	9 23	14 5.43	-19 58.3	3.336	2.602	13.3	21.3	37 E	1*	30*
3 16	19 26.10	+65 37.0	0.480	1.037	71.4	20.4	81 W	63*	10 3	14 21.36	-21 21.0	3.376	2.571	11.6	21.2	31 E	—	25*
3 17	19 40.23	+65 20.8	0.477	1.025	72.8	20.4	80 W	62*	10 13	14 38.19	-22 43.6	3.403	2.539	9.8	21.1	26 E	—	19*
3 18	19 54.13	+64 59.7	0.475	1.013	74.2	20.4	78 W	61*	10 23	14 55.89	-24 4.9	3.416	2.507	7.9	21.0	20 E	—	14*
3 19	20 7.71	+64 33.8	0.474	1.001	75.6	20.4	77 W	60*	11 2	15 14.47	-25 23.5	3.417	2.474	6.1	20.9	15 E	—	9*
3 20	20 20.92	+64 3.0	0.472	0.989	77.1	20.4	75 W	59*	11 12	15 33.93	-26 38.3	3.405	2.440	4.4	20.8	11 E	—	4*
3 21	20 33.70	+63 27.7	0.471	0.976	78.5	20.5	74 W	58*	11 22	15 54.23	-27 47.9	3.381	2.406	3.2	20.7	8 E	—	—
3 22	20 46.02	+62 47.9	0.469	0.964	80.0	20.5	72 W	57*	12 2	16 15.38	-28 50.9	3.344	2.371	3.3	20.6	8 W	—	1*
3 23	20 57.85	+62 4.0	0.468	0.951	81.5	20.5	71 W	56*	12 12	16 37.34	-29 46.1	3.295	2.336	4.6	20.6	11 W	—	5*
3 24	21 9.18	+61 16.0	0.468	0.939	83.1	20.5	69 W	55*	12 22	17 0.06	-30 32.1	3.236	2.300	6.4	20.6	15 W	—	9*
3 25	21 19.99	+60 24.2	0.467	0.926	84.6	20.5	68 W	54*	1 1	17 23.48	-31 7.8	3.166	2.265	8.4	20.7	20 W	—	14*
3 26	21 30.30	+59 28.8	0.467	0.913	86.2	20.6	66 W	53*	1 11	17 47.51	-31 31.9	3.087	2.229	10.5	20.7	24 W	1*	18*
3 27	21 40.12	+58 30.1	0.466	0.900	87.8	20.6	64 W	52*	1 21	18 12.05	-31 43.6	2.999	2.192	12.6	20.6	29 W	2*	23*
3 29	21 58.33	+56 23.1	0.467	0.874	91.0	20.7	61 W	50*	242823 2006 BW₂₇₅									
3 31	22 14.80	+54 4.8	0.468	0.848	94.3	20.8	58 W	47*	1 26	13 35.42	-12 15.3	2.116	2.475	23.1	21.5	99 W	33	76*
4 2	22 29.71	+51 36.6	0.470	0.821	97.7	20.9	55 W	45*	2 5	13 41.99	-13 18.8	1.955	2.441	22.6	21.3	108 W	32	77
4 4	22 43.28	+48 59.7	0.474	0.795	101.0	21.0	51 W	43*	2 15	13 46.47	-14 13.8	1.799	2.407	21.6	21.0	116 W	31	78
4 6	22 55.68	+46 15.4	0.479	0.768	104.4	21.1	48 W	40*	2 25	13 48.45	-14 58.5	1.654	2.372	19.8	20.8	126 W	30	79
4 8	23 7.11	+43 24.8	0.485	0.741	107.7	21.2	45 W	38*	3 7	13 47.56	-15 31.1	1.521	2.336	17.3	20.5	136 W	29	80
4 10	23 17.72	+40 29.2	0.493	0.713	111.0	21.4	42 W	35*	3 17	13 43.53	-15 49.3	1.405	2.300	13.9	20.1	146 W	29	80
1 26	13 33.50	-18 44.6	3.027	3.301	17.2	21.4	97 W	26 83*	3 27	13 36.41	-15 50.8	1.309	2.263	9.7	19.8	158 W	29	80
2 5	13 35.90	-19 12.7	2.880	3.301	16.6	21.3	107 W	26 83	4 6	13 26.68	-15 35.1	1.236	2.226	5.1	19.4	169 W	29	80
2 15	13 36.27	-19 29.1	2.740	3.301	15.5	21.1	116 W	26 83	4 11	13 21.14	-15 21.0	1.209	2.207	3.3	19.3	173 W	30	79
2 25	13 34.47	-19 32.0	2.611	3.300	13.9	21.0	127 W	25 84	4 16	13 15.37	-15 3.3	1.189	2.188	3.3	19.2	173 W	30	79
3 7	13 30.49	-19 19.6	2.498	3.298	11.7	20.8	137 W	26 83	4 21	13 9.58	-14 42.9	1.175	2.170	5.2	19.3	169 W	30	79
3 17	13 24.50	-18 50.6	2.405	3.294	9.1	20.6	149 W	26 83	4 26	13 3.96	-14 20.8	1.168	2.151	7.8	19.4	163 W	31	78
3 27	13 16.91	-18 5.1	2.337	3.290	6.1	20.4	160 W	27 82	5 1	12 58.70	-13 57.9	1.166	2.132	10.5	19.4	157 E	31	78
4 6	13 8.34	-17 4.9	2.297	3.285	3.3	20.2	169 W	28 81	5 6	12 53.97	-13 35.4	1.171	2.113	13.2	19.5	151 E	31	78
4 11	13 3.92	-16 30.5	2.289	3.282	2.7	20.2	171 E	28 81	5 11	12 49.92	-13 14.3	1.180	2.093	15.8	19.6	146 E	32	77
4 16	12 59.56	-15 54.0	2.288	3.279	3.3	20.2	169 E	29 80	5 16	12 46.65	-12 55.6	1.194	2.074	18.2	19.7	140 E	32	77
4 21	12 55.35	-15 16.3	2.294	3.276	4.5	20.3	165 W	30 79	5 21	12 44.26	-12 40.3	1.213	2.055	20.5	19.8	135 E	32	77
4 26	12 51.40	-14 38.1	2.308	3.272	6.0	20.4	160 E	30 79	5 26	12 42.77	-12 28.9	1.235	2.036	22.5	19.9	130 E	33	76
5 1	12 47.77	-14 0.2	2.329	3.268	7.6	20.5	155 E	31 78	6 5	12 42.55	-12 19.1	1.287	1.998	26.1	20.0	120 E	32*	76
5 6	12 44.53	-13 23.2	2.357	3.264	9.1	20.5	149 E	32 77	6 15	12 45.90	-12 28.0	1.347	1.961	28.8	20.2	111 E	30*	76
5 11	12 41.74	-12 48.0	2.391	3.260	10.6	20.6	144 E	32 77	6 25	12 52.55	-12 55.3	1.411	1.924	30.9	20.3	104 E	27*	77
5 16	12 39.43	-12 15.0	2.430	3.255	11.9	20.7	138 E	33 76	7 5	13 2.15	-13 39.2	1.478	1.888	32.3	20.4	97 E	24*	78
5 21	12 37.65	-11 44.8	2.475	3.250	13.2	20.8	133 E	33 76	7 15	13 14.40	-14 37.4	1.544	1.852	33.3	20.5	90 E	21*	79*
5 26	12 36.39	-11 17.7	2.524	3.245	14.3	20.9	128 E	34 75	7 25	13 29.05	-15 47.5	1.609	1.818	33.8	20.5	84 E	18*	77*
5 31	12 35.66	-10 54.0	2.577	3.240	15.3	21.0	123 E	34* 75	8 4	13 45.86	-17 6.4	1.671	1.785	33.9	20.6	79 E	15*	73*
6 5	12 35.45	-10 33.6	2.633	3.234	16.1	21.0	118 E	34* 75	8 14	14 4.71	-18 31.3	1.730	1.753	33.8	20.6	74 E	14*	68*
6 10	12 35.75	-10 16.9	2.693	3.229	16.8	21.1	113 E	33* 74	8 24	14 25.49	-19 59.0	1.787	1.724	33.4	20.6	70 E	12*	64*
6 15	12 36.55	-10 3.7	2.754	3.223	17.4	21.2	108 E	32* 74	9 3	14 48.09	-21 26.0	1.840	1.696	32.8	20.7	66 E	11*	60*
6 20	12 37.81	-9 54.0	2.817	3.216	17.9	21.2	104 E	30* 74	9 13	15 12.47	-22 49.0	1.891	1.671	32.1	20.7	62 E	11*	56*
6 25	12 39.53	-9 47.8	2.881	3.210	18.2	21.3	100 E	29* 74	9 23	15 38.53	-24 4.2	1.940	1.649	31.2	20.7	58 E	10*	52*
6 30	12 41.66	-9 44.7	2.946	3.203	18.4	21.3	95 E	27* 74	10 3	16 6.16	-25 7.9	1.986	1.629	30.1	20.7	55 E	10*	49*
7 5	12 44.19	-9 44.8	3.011	3.196	18.5	21.4	91 E	25* 74	10 13	16 35.21	-25 56.4	2.032	1.613	29.0	20.6	52 E	10*	46*
7 10	12 47.10	-9 47.8	3.076	3.189	18.6	21.4	87 E	23* 74*	10 23	17 5.45	-26 26.5	2.077	1.600	27.7	20.6	48 E	11*	42*
7 15	12 50.36	-9 53.6	3.141	3.181	18.5	21.4	83 E	22* 72*	11 2	17 36.59	-26 35.3	2.122	1.590	26.4	20.6	45 E	11*	39*
7 20	12 53.95	-10 1.9	3.205	3.173	18.3	21.5	79 E	20* 70*	11 12	18 8.33	-26 20.9	2.167	1.584	24.9	20.6	42 E	12*	36*
246162 2007 QR									11 22	18 40.29	-25 42.2	2.213	1.582	23.4	20.6	40 E	12*	32*
1 26	13 34.27	-11 34.7	2.773	3.098	18.2	21.4	100 W	33 75*	12 2	19 12.12	-24 39.2	2.261	1.584	21.8	20.6	37 E	13*	29*
2 5	13 36.62	-12 16.9	2.619	3.087	17.5	21.3	109 W	33 76	12 12	19 43.53	-23 13.2	2.309	1.589	20.2	20.6	34 E	14*	25*
2 15	13 36.82	-12 49.8	2.472	3.076	16.3	21.1	119 W	32 77	12 22	20 14.24	-21 26.0	2.359	1.598	18.5	20.6	31 E	14*	21*
2 25	13 34.66	-13 12.1	2.337	3.064	14.4	20.9	129 W	32 77	1 1	20 44.08	-19 20.3	2.411	1.611	16.7	20.6	28 E	14*	17*
3 7	13 30.09	-13 22.6	2.219	3.051	12.0	20.7	140 W	32 77	1 11	21 12.96	-16 59.2	2.463	1.627	14.9	20.6	25 E	13*	14*
3 17	13 23.20	-13 20.5	2.123	3.037	8.9	20.4	152 W	32 77	1 21	21 40.83	-14 26.0	2.516	1.646	13.0	20.6	22 E	12*	11*
3 27	13 14.41	-13 5.9	2.052	3.022	5.4	20.2	163 W	32 77	1 26	13 36.51	-5 57.7	2.354	2.725	20.7	21.5	101 W	39	70*
4 6	13 4.41	-12 40.5	2.009	3.006	2.1	20.0	174 W	32 77	2 5	13 40.27	-5 56.8	2.224	2.732	19.7	21.3	111 W	39	70
4 16	12 54.09	-12 7.5	1.997	2.989	3.5	20.0	169 E	33 76	2 15	13 41.67								

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

21/22	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	2021	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°
131045 2000 YH₃₂ (continuation)										124165 2001 ON₁₆ (continuation)									
5 26	12 38.22	+ 1 57.3	2.050	2.738	18.0	21.1	123 E	47	62	4 26	13 3.12	+ 3 28.9	2.083	3.028	7.9	20.5	156 E	48	61
6 5	12 37.84	+ 1 43.8	2.163	2.732	19.9	21.3	114 E	46*	62	5 6	12 55.08	+ 3 50.2	2.136	3.016	11.1	20.6	145 E	49	60
6 15	12 39.75	+ 1 15.5	2.284	2.725	21.1	21.4	105 E	43*	63	5 16	12 48.85	+ 3 55.4	2.211	3.003	14.0	20.8	134 E	49	60
481085 2005 SA₁₃₅										476187 2007 UQ₁₃									
1 26	13 39.86	-22 27.7	2.053	2.346	24.7	21.5	95 W	23	85*	1 26	13 51.77	-67 23.6	0.617	1.034	67.9	21.4	77 W	-	48*
2 5	13 43.30	-24 40.8	1.957	2.379	23.8	21.4	103 W	20	89	1 28	14 16.06	-68 0.6	0.607	1.019	69.3	21.4	75 W	-	48*
2 15	13 43.79	-26 46.0	1.866	2.412	22.4	21.2	112 W	18	89	1 30	14 42.13	-68 24.0	0.598	1.004	70.8	21.4	74 W	-	47*
2 25	13 40.94	-28 39.6	1.784	2.444	20.4	21.1	121 W	16	87	2 1	15 9.56	-68 31.8	0.589	0.989	72.3	21.4	73 W	-	46*
3 7	13 34.59	-30 16.5	1.716	2.476	17.8	21.0	130 W	15	86	2 3	15 37.75	-68 22.2	0.581	0.974	73.8	21.3	72 W	-	45*
3 17	13 24.92	-31 30.3	1.664	2.506	14.9	20.8	140 W	13	84	2 5	16 6.02	-67 54.1	0.573	0.959	75.4	21.3	70 W	-	45*
3 27	13 12.62	-32 14.8	1.634	2.536	12.0	20.7	148 W	13	84	2 6	16 19.95	-67 33.0	0.569	0.952	76.3	21.3	70 W	-	45*
4 6	12 58.93	-32 27.0	1.629	2.566	9.9	20.6	154 E	13	84	2 7	16 33.64	-67 7.1	0.565	0.944	77.1	21.3	69 W	-	44*
4 16	12 45.38	-32 7.9	1.650	2.594	9.4	20.7	155 E	13	84	2 8	16 47.01	-66 36.6	0.562	0.937	77.9	21.3	68 W	-	44*
4 26	12 33.49	-31 24.7	1.697	2.622	10.8	20.8	151 E	14	85	2 9	17 0.00	-66 1.5	0.559	0.929	78.8	21.3	67 W	-	44*
5 6	12 24.28	-30 27.3	1.768	2.649	13.1	21.0	144 E	15	86	2 10	17 12.57	-65 21.8	0.556	0.922	79.6	21.3	67 W	-	44*
5 16	12 18.28	-29 25.8	1.861	2.675	15.4	21.2	135 E	16	87	2 11	17 24.68	-64 37.9	0.553	0.914	80.5	21.3	66 W	-	43*
5 26	12 15.55	-28 29.0	1.971	2.700	17.5	21.5	127 E	16*	88	2 12	17 36.31	-63 49.7	0.550	0.907	81.3	21.3	65 W	-	43*
282126 2001 MV₁										141765 2002 MP₃									
1 26	13 45.24	-35 36.6	2.430	2.597	22.3	21.5	88 W	9	80*	1 26	13 54.61	+30 1.6	2.384	2.838	19.3	21.4	107 W	75	34*
2 5	13 53.33	-37 18.1	2.279	2.570	22.4	21.3	96 W	8	79	1 31	13 56.66	+31 4.8	2.342	2.847	18.9	21.4	111 W	76	33*
2 15	13 59.40	-38 52.6	2.131	2.542	22.2	21.1	103 W	6	77	2 5	13 58.03	+32 11.6	2.303	2.855	18.3	21.3	114 W	77	32
2 25	14 2.95	-40 17.2	1.987	2.513	21.6	20.9	111 W	5	76	2 10	13 58.68	+33 21.4	2.268	2.863	17.8	21.3	118 W	78	31
3 7	14 3.56	-41 27.7	1.850	2.483	20.5	20.7	119 W	4	75	2 15	13 58.56	+34 33.1	2.236	2.871	17.2	21.2	121 W	80	29
3 17	14 0.81	-42 18.1	1.724	2.453	19.0	20.5	127 W	3	74	2 20	13 57.64	+35 45.9	2.208	2.878	16.6	21.2	124 W	81	28
3 22	13 58.13	-42 33.3	1.666	2.437	18.0	20.4	131 W	2	73	2 25	13 55.89	+36 58.3	2.185	2.885	16.0	21.2	126 W	82	27
3 27	13 54.61	-42 40.6	1.612	2.421	17.0	20.3	135 W	2	73	3 2	13 53.31	+38 9.1	2.166	2.891	15.5	21.1	129 W	83	26
4 1	13 50.33	-42 39.0	1.562	2.405	15.9	20.1	139 W	2	73	3 7	13 49.91	+39 17.0	2.152	2.897	15.1	21.1	130 W	84	25
4 6	13 45.37	-42 27.3	1.517	2.389	14.8	20.0	142 W	3	74	3 12	13 45.71	+40 20.4	2.144	2.902	14.8	21.1	132 W	85	24
4 11	13 39.88	-42 4.9	1.476	2.373	13.7	19.9	146 W	3	74	3 17	13 40.77	+41 17.9	2.141	2.908	14.6	21.1	133 W	86	23
4 16	13 34.05	-41 31.2	1.442	2.356	12.9	19.8	148 E	3	74	3 22	13 35.21	+42 7.9	2.143	2.912	14.6	21.1	133 W	87	22
4 21	13 28.09	-40 46.2	1.413	2.340	12.2	19.7	150 E	4	75	3 27	13 29.13	+42 49.5	2.150	2.917	14.7	21.1	132 W	88	21
4 26	13 22.24	-39 50.4	1.390	2.323	12.0	19.7	151 E	5	76	4 1	13 22.71	+43 21.7	2.163	2.921	14.9	21.1	131 W	88	21
5 1	13 16.71	-38 44.7	1.373	2.306	12.2	19.6	151 E	6	77	4 6	13 16.08	+43 44.0	2.181	2.924	15.2	21.2	130 W	89	20
5 6	13 11.67	-37 30.5	1.361	2.289	12.9	19.6	150 E	7	78	4 11	13 9.44	+43 55.9	2.204	2.927	15.7	21.2	128 E	89	20
5 11	13 7.31	-36 9.5	1.356	2.271	14.0	19.6	147 E	9	80	4 16	13 2.96	+43 57.6	2.231	2.930	16.2	21.3	125 E	89	20
5 16	13 3.76	-34 43.8	1.357	2.254	15.3	19.7	144 E	10	81	4 21	12 56.80	+43 49.3	2.263	2.932	16.7	21.3	123 E	89	20
5 21	13 1.10	-33 15.5	1.363	2.236	16.8	19.7	140 E	12	83	4 26	12 51.11	+43 31.7	2.298	2.934	17.3	21.4	120 E	89	20
5 26	12 59.37	-31 46.8	1.374	2.219	18.4	19.8	136 E	13	84	5 1	12 45.99	+43 5.5	2.338	2.936	17.8	21.4	117 E	88	21
5 31	12 58.59	-30 19.3	1.390	2.201	20.0	19.8	132 E	15	86	5 6	12 41.52	+42 31.7	2.380	2.937	18.3	21.5	114 E	88	21
6 5	12 58.75	-28 54.7	1.410	2.183	21.6	19.9	128 E	16*	87	310442 2000 CH₅₉									
6 10	12 59.80	-27 34.2	1.434	2.165	23.1	20.0	123 E	17*	88	1 26	13 59.43	-17 27.9	0.646	1.197	55.3	21.3	92 W	28	79*
6 15	13 1.73	-26 18.7	1.462	2.147	24.4	20.0	119 E	18*	90	1 31	14 14.09	-18 50.7	0.602	1.184	56.1	21.1	93 W	26	81*
6 20	13 4.47	-25 9.1	1.492	2.129	25.7	20.1	115 E	18*	89	2 5	14 30.04	-20 14.8	0.558	1.170	57.2	20.9	94 W	25	83*
6 25	13 7.97	-24 5.5	1.524	2.111	26.8	20.1	111 E	18*	88	2 10	14 47.63	-21 40.1	0.515	1.153	58.5	20.8	95 W	23	85*
7 5	13 17.03	-22 17.0	1.594	2.074	28.5	20.3	103 E	17*	86	2 15	15 7.39	-23 6.0	0.473	1.134	60.1	20.6	95 W	22	87*
7 15	13 28.52	-20 52.4	1.668	2.038	29.8	20.4	96 E	17*	85	2 20	15 30.00	-24 31.1	0.432	1.113	62.0	20.4	95 W	20	88*
7 25	13 42.10	-19 49.5	1.745	2.001	30.5	20.4	89 E	16*	82*	2 25	15 56.36	-25 52.1	0.394	1.090	64.9	20.3	94 W	19	88*
8 4	13 57.48	-19 4.6	1.821	1.965	30.8	20.5	82 E	15*	76*	2 27	16 8.19	-26 22.1	0.379	1.080	66.2	20.2	93 W	19	87*
8 14	14 14.46	-18 34.4	1.895	1.929	30.7	20.5	77 E	15*	70*	3 1	16 20.87	-26 49.9	0.365	1.070	67.7	20.1	92 W	18	86*
8 24	14 32.87	-18 15.2	1.966	1.894	30.3	20.6	71 E	15*	65*	3 3	16 34.46	-27 14.8	0.352	1.059	69.3	20.1	91 W	18	85*
9 3	14 52.56	-18 3.3	2.032	1.859	29.6	20.6	66 E	15*	60*	3 5	16 49.04	-27 35.8	0.339	1.049	71.1	20.0	90 W	17	84*
9 13	15 13.47	-17 55.4	2.094	1.825	28.7	20.6	61 E	15*	55*	3 7	17 4.66	-27 51.8	0.327	1.037	73.0	20.0	89 W	17	83*
9 23	15 35.49	-17 48.3	2.150	1.792	27.6	20.6	56 E	15*	50*	3 9	17 21.34	-28 1.5	0.316	1.026	75.2	20.0	87 W	17	81*
10 3	15 58.55	-17 38.8	2.200	1.761	26.4	20.5	52 E	16*	45*	3 11	17 39.10	-28 3.4	0.306	1.014	77.5	20.0	85 W	17	79*
10 13	16 22.59	-17 24.3	2.245	1.731	25.1	20.5	47 E	16*	40*	3 13	17 57.88	-27 56.1	0.298	1.001	80.0	20.0	83 W	16	77*
10 23	16 47.51	-17 1.8	2.284	1.704	23.7	20.5	43 E	17*	36*	3 15	18 17.61	-27 38.1	0.290	0.989	82.7	20.0	80 W	16	74*
11 2	17 13.23	-16 29.2	2.317	1.678	22.2	20.4	40 E	17*	31*	3 17	18 38.14	-27 8.1	0.284	0.976	85.6	20.0	78 W	16	72*
11 12	17 39.65	-15 44.2	2.346	1.654	20.7	20.4	36 E	18*	26*	3 19	18 59.26	-26 25.1	0.280	0.962	88.6	20.1	75 W	15	69*
11 22	18 6.65	-14 45.2	2.370	1.634	19.3	20.3	33 E	18*	21*	3 21	19 20.75	-25 28.8	0.277	0.949	91.7	20.1	72 W	15	66*
12 2	18 34.10	-13 30.9	2.391	1.616	17.9	20.3	30 E	18*	16*	3 23	19 42.31	-24 19.5	0.276	0.935	94.9	20.2	69 W	14	63*
12 12	19 1.90	-12 0.6	2.408	1.601	16.5	20.2	28 E	18*	11*	3 25	20 3.68	-22 58.3	0.277	0.920	98.0	20.4	66 W	14	60*
12 22	19 29.90	-10 14.3	2.424	1.589	15.2	20.2	25 E	18*	7*	3 27	20 24.59	-21 26.9	0.280	0.906	101.1	20.5	63 W	14	57*
1 1	19 58.00	-8 12.5	2.439	1.581	14.1	20.1	23 E	17*	3*	3									

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

21/22	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	21/22	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°										
310442 2000 CH₅₉ (continuation)										80098 1999 MV₁ (continuation)																			
3 31	21 4.20	-18 2.4	0.291	0.875	106.8	20.8	57 W	13*	51*	5 26	13 39.67	-8 31.4	1.494	2.372	15.4	19.9	141 E	36	73	6 5	13 34.59	-8 11.6	1.550	2.341	19.2	20.1	131 E	37	72
4 2	21 22.62	-16 14.2	0.299	0.860	109.4	21.0	54 W	12*	48*	6 15	13 32.55	-8 9.6	1.620	2.309	22.3	20.2	121 E	37*	72	6 25	13 33.54	-8 25.1	1.700	2.276	24.6	20.4	111 E	34*	72
4 4	21 40.01	-14 25.2	0.309	0.844	111.6	21.2	52 W	12*	46*	7 5	13 37.35	-8 56.4	1.785	2.243	26.2	20.5	103 E	31*	73	7 15	13 43.74	-9 41.6	1.872	2.208	27.3	20.6	95 E	28*	74
4 6	21 56.37	-12 37.1	0.321	0.828	113.6	21.3	49 W	11*	43*	7 25	13 52.45	-10 38.4	1.959	2.174	27.8	20.7	88 E	25*	74*	8 4	14 3.22	-11 44.3	2.044	2.138	28.0	20.7	81 E	22*	72*
4 8	22 11.71	-10 51.5	0.335	0.811	115.3	21.5	47 W	11*	41*	8 14	14 15.89	-12 57.4	2.125	2.103	27.7	20.8	75 E	20*	68*	9 3	14 46.31	-15 36.0	2.269	2.030	26.4	20.8	63 E	16*	57*
67943 2000 WP₁₅₁										505335 2013 AH₂₇																			
1 26	14 9.10	-10 17.1	2.471	2.697	21.4	21.5	92 W	35	71*	1 26	14 21.81	-16 26.7	1.028	1.390	45.0	21.5	87 W	29	74*	2 5	14 45.72	-18 3.2	0.981	1.410	44.3	21.4	92 W	27	79*
2 5	14 15.36	-10 50.3	2.321	2.687	21.1	21.3	101 W	34	75*	2 15	15 7.47	-19 16.7	0.935	1.434	43.2	21.3	96 W	26	83*	2 25	15 26.43	-20 7.4	0.888	1.461	41.5	21.2	102 W	25	84
2 15	14 19.62	-11 13.1	2.174	2.675	20.3	21.1	110 W	34	75	3 7	15 41.98	-20 36.0	0.842	1.490	39.2	21.1	108 W	24	85	3 17	15 53.35	-20 43.7	0.797	1.521	36.1	20.9	116 W	24	85
2 25	14 21.52	-11 24.7	2.034	2.663	18.9	20.9	119 W	34	75	3 27	15 59.86	-20 31.5	0.757	1.555	32.1	20.7	124 W	24	85	4 6	16 1.09	-20 0.7	0.723	1.590	27.0	20.5	134 W	25	84
3 7	14 20.80	-11 24.4	1.904	2.650	16.8	20.7	130 W	34	75	4 16	15 56.94	-19 12.3	0.699	1.625	20.8	20.3	145 W	26	83	4 21	15 53.06	-18 42.3	0.692	1.644	17.4	20.2	151 W	26	83
3 17	14 17.23	-11 11.8	1.791	2.635	13.9	20.5	140 W	34	75	4 26	15 48.20	-18 9.4	0.690	1.662	13.8	20.1	157 W	27	82	5 1	15 42.61	-17 34.3	0.691	1.681	10.1	20.0	163 W	27	82
3 27	14 10.87	-10 47.0	1.697	2.620	10.3	20.2	152 W	34	75	5 6	15 36.54	-16 58.0	0.698	1.700	6.3	19.9	169 W	28	81	5 11	15 30.30	-16 21.9	0.710	1.718	2.8	19.7	175 W	29	80
4 6	14 2.07	-10 11.7	1.626	2.603	6.1	19.9	164 W	35	74	5 16	15 24.18	-15 47.2	0.727	1.737	2.1	19.8	176 E	29	80	5 21	15 18.48	-15 15.4	0.749	1.756	5.2	20.0	171 E	30	79
4 16	13 51.58	-9 29.1	1.583	2.585	1.5	19.6	176 W	36	73	5 26	15 13.42	-14 47.4	0.777	1.775	8.5	20.3	165 E	30	79	5 31	15 9.15	-14 24.0	0.809	1.793	11.6	20.5	159 E	31	78
4 21	13 46.03	-9 6.5	1.572	2.576	1.3	19.5	177 E	36	73	6 5	15 5.76	-14 5.8	0.846	1.812	14.5	20.7	154 E	31	78	6 10	15 3.33	-13 52.9	0.888	1.830	17.0	21.0	148 E	31	78
4 26	13 40.48	-8 44.2	1.569	2.567	3.7	19.7	171 E	36	73	6 15	15 1.87	-13 45.4	0.934	1.849	19.3	21.2	143 E	31	78	6 20	15 1.37	-13 43.1	0.983	1.867	21.3	21.4	138 E	31	78
5 1	13 35.08	-8 22.8	1.572	2.557	6.1	19.8	164 E	37	72																				
5 6	13 29.97	-8 3.1	1.582	2.547	8.4	19.9	158 E	37	72																				
5 16	13 21.13	-7 31.4	1.621	2.526	12.8	20.1	146 E	37	72																				
5 26	13 14.72	-7 13.2	1.681	2.504	16.5	20.3	135 E	38	71																				
6 5	13 11.09	-7 10.4	1.758	2.482	19.6	20.5	125 E	38*	71																				
6 15	13 10.33	-7 23.5	1.847	2.458	22.0	20.6	115 E	37*	71																				
6 25	13 12.29	-7 51.5	1.944	2.433	23.6	20.8	106 E	34*	72																				
7 5	13 16.73	-8 32.7	2.045	2.407	24.7	20.9	98 E	30*	73																				
7 15	13 23.39	-9 25.5	2.147	2.381	25.3	21.0	90 E	26*	73																				
7 25	13 32.03	-10 27.9	2.247	2.353	25.4	21.1	83 E	23*	73*																				
8 4	13 42.42	-11 38.1	2.344	2.325	25.1	21.1	76 E	20*	69*																				
8 14	13 54.40	-12 54.4	2.436	2.296	24.5	21.2	70 E	17*	63*																				
8 24	14 7.82	-14 15.1	2.521	2.266	23.6	21.2	64 E	15*	58*																				
9 3	14 22.58	-15 38.5	2.598	2.235	22.5	21.2	58 E	13*	52*																				
9 13	14 38.62	-17 3.2	2.667	2.204	21.2	21.2	52 E	11*	46*																				
9 23	14 55.89	-18 27.5	2.727	2.172	19.8	21.2	47 E	10*	41*																				
10 3	15 14.35	-19 49.7	2.778	2.139	18.2	21.1	42 E	8*	36*																				
10 13	15 34.00	-21 8.2	2.819	2.106	16.5	21.1	37 E	7*	31*																				
10 23	15 54.79	-22 21.1	2.851	2.073	14.7	21.0	32 E	6*	26*																				
11 2	16 16.71	-23 26.6	2.872	2.039	12.8	20.9	27 E	4*	21*																				
11 12	16 39.74	-24 22.8	2.884	2.005	10.8	20.8	22 E	3*	16*																				
11 22	17 3.82	-25 7.9	2.887	1.971	8.8	20.7	18 E	1*	12*																				
12 2	17 28.87	-25 39.9	2.882	1.936	6.8	20.5	13 E	—	7*																				
12 12	17 54.82	-25 57.2	2.867	1.902	4.8	20.4	9 E	—	3*																				
12 22	18 21.52	-25 58.2	2.846	1.869	2.9	20.2	5 E	—	—																				
1 1	18 48.85	-25 41.5	2.817	1.836	1.5	20.1	3 E	—	—																				
1 11	19 16.64	-25 6.3	2.782	1.803	2.3	20.1	4 W	—	—																				
1 21	19 44.73	-24 12.0	2.742	1.771	4.1	20.1	7 W	—	1*																				
193235 2000 SE₂										272148 2005 NP₂₇																			
1 26	14 19.70	-11 36.5	2.703	2.868	20.1	21.4	89 W	33	71*	1 26	14 23.78	-19 15.7	2.037	2.201	26.5	21.4	86 W	26	75*	2 5	14 37.54	-20 17.5	1.887	2.171	27.0	21.2	93 W	25	82*
2 5	14 24.51	-12 12.6	2.584	2.896	19.7	21.4	98 W	33	76*	2 15	14 50.17	-21 8.9	1.739	2.141	27.0	21.0	100 W	24	85	2 25	15 1.29	-21 48.4	1.595	2.111	26.0	20.7	107 W	23	86
2 15	14 27.18	-12 39.3	2.468	2.923	18.8	21.3	108 W	32	77	3 7	15 10.51	-22 14.5	1.457	2.080	25.6	20.5	115 W	23	86	3 17	15 17.31	-22 25.1	1.327	2.050	23.9	20.2	123 W	23	86
2 25	14 27.49	-12 55.9	2.358	2.949	17.3	21.1	118 W	32	77	3 27	15 21.20	-22 18.0	1.207	2.020	21.4	19.9	132 W	23	86	4 6	15 21.79	-21 50.5	1.101	1.989	17.9	19.5	142 W	23	86
3 7	14 25.28	-13 2.2	2.258	2.975	15.2	21.0	128 W	32	77	4 16	15 18.85	-21 0.2	1.012	1.959	13.4	19.2	153 W	24	85	4 26	15 12.67	-19 46.4	0.941	1.930	8.0	18.8	164 W	25	84
3 17	14 20.54	-12 57.9	2.175	2.999	12.5	20.8	139 W	32	77	5 1	15 8.62	-19 1.5	0.914	1.915	5.0	18.5	170 W	26	83	5 11	14 59.38	-17 19.4	0.877	1.886	1.5	18.2	177 E	28	81
3 27	14 13.49	-12 43.3	2.112	3.022	9.3	20.6	151 W	32	77	5 16	14 54.63	-16 24.9	0.867	1.872	4.9	18.4	171 E	29	80	5 21	14 50.11	-15 30.3	0.863	1.858	8.2	18.5	165 E	29	80
4 6	14 4.62	-12 20.0	2.074	3.045	5.6	20.5	163 W	33	76	5 26	14 46.01	-14 37.4	0.864	1.845	11.4	18.6	159 E	30	79	6 5	14 42.54	-13 47.7	0.869	1.831	14.6	18.7	153 E	31	78
4 16	13 54.67	-11 50.3	2.065	3.066	1.6	20.2	175 W	33	76	6 10	14 39.81	-13 2.6	0.880	1.818	17.6	18.8	147 E	32	77	6 15	14 37.06	-11 50.2	0.913	1.793	22.9	19.1	137 E	33	76
4 26	13 44.57	-11 18.0	2.086	3.087	2.4	20.3	173 E	34	75	6 25	14 38.21	-11 5.0	0.958	1.769	27.3	19.3	127 E	34*	75	7 5	14 43.18	-10 46.4	1.013	1.746	30.7	19.5	119 E	34*	75
5 6	13 35.21	-10 47.4	2.137	3.106	6.2	20.6	161 E	34	75	7 15	14 51.72	-10 51.6	1.074	1.726	33.3	19.6	111 E	33*	75	7 25	15 3.44								

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

21/22	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	21/22	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°
272148 2005 NP₂₇ (continuation)										38086 Beowulf (continuation)									
9 23	17 1.45	-15 56.3	1.566	1.643	36.3	20.4	76 E	26*	68*	7 16	9 43.49	+55 1.2	0.420	0.750	117.9	19.5	41 E	34*	—
10 3	17 26.60	-16 27.3	1.640	1.642	35.5	20.5	72 E	25*	64*	7 17	9 35.01	+54 27.6	0.418	0.741	120.0	19.6	39 E	32*	—
10 13	17 52.71	-16 45.3	1.715	1.643	34.5	20.6	69 E	25*	60*	7 18	9 26.49	+53 49.6	0.415	0.733	122.1	19.7	38 E	31*	—
10 23	18 19.52	-16 48.3	1.791	1.647	33.3	20.6	65 E	26*	56*	7 19	9 17.97	+53 7.0	0.413	0.725	124.3	19.9	36 E	29*	—
11 2	18 46.79	-16 34.9	1.869	1.654	32.0	20.7	62 E	26*	52*	7 20	9 9.51	+52 19.7	0.411	0.717	126.4	20.0	35 E	27*	—
11 12	19 14.30	-16 4.7	1.949	1.664	30.5	20.8	59 E	26*	47*	7 21	9 1.16	+51 27.7	0.410	0.709	128.5	20.2	33 E	25*	—
11 22	19 41.80	-15 17.5	2.029	1.676	29.0	20.8	55 E	27*	43*	7 22	8 52.97	+50 30.8	0.409	0.701	130.6	20.4	32 E	23*	—
12 2	20 9.12	-14 14.1	2.111	1.690	27.3	20.9	52 E	28*	38*	7 23	8 44.99	+49 29.3	0.409	0.694	132.6	20.5	30 E	21*	—
12 12	20 36.12	-12 55.6	2.193	1.707	25.6	20.9	48 E	28*	33*	7 24	8 37.27	+48 23.2	0.409	0.687	134.4	20.7	29 E	19*	—
12 22	21 2.65	-11 23.8	2.276	1.726	23.7	21.0	45 E	28*	28*	7 25	8 29.84	+47 12.9	0.409	0.680	136.2	20.9	28 E	17*	—
1 1	21 28.64	-9 40.5	2.359	1.747	21.9	21.0	41 E	27*	24*	7 27	8 16.01	+44 40.5	0.412	0.667	139.1	21.2	25 W	15*	—
1 11	21 54.07	-7 47.6	2.441	1.769	19.9	21.1	38 E	26*	19*	7 29	8 3.74	+41 55.6	0.418	0.656	141.1	21.5	24 W	16*	—
1 21	22 18.91	-5 47.5	2.521	1.793	17.9	21.1	34 E	25*	15*	7 31	7 53.12	+39 2.1	0.426	0.645	141.9	21.6	23 W	16*	—
275740 2001 HS₃										38086 Beowulf (continuation)									
1 26	14 23.95	+3 36.4	1.126	1.539	39.7	21.4	93 W	49	57*	8 2	7 44.21	+36 4.3	0.437	0.636	141.3	21.5	23 W	17*	—
2 5	14 38.82	+2 11.6	1.050	1.550	38.9	21.2	99 W	47	61*	8 4	7 36.96	+33 6.5	0.451	0.629	139.4	21.3	24 W	18*	2*
2 15	14 50.95	+0 54.6	0.974	1.562	37.5	21.0	106 W	46	63	8 6	7 31.30	+30 12.4	0.467	0.623	136.5	21.0	25 W	18*	6*
2 25	14 59.68	+0 16.7	0.898	1.573	35.5	20.8	113 W	45	64	8 8	7 27.10	+27 25.1	0.486	0.619	132.8	20.7	27 W	19*	9*
3 7	15 4.31	-1 25.8	0.826	1.585	32.4	20.6	121 W	44	65	8 10	7 24.24	+24 46.8	0.507	0.617	128.6	20.4	28 W	19*	13*
3 17	15 3.97	-2 36.3	0.760	1.596	28.3	20.3	130 W	42	67	8 12	7 22.58	+22 18.6	0.530	0.616	124.1	20.0	30 W	20*	16*
3 27	14 57.96	-3 53.0	0.703	1.608	22.8	20.0	141 W	41	68	8 14	7 21.98	+20 1.5	0.555	0.617	119.5	19.8	32 W	20*	18*
4 6	14 46.14	-5 19.8	0.661	1.619	16.0	19.6	153 W	40	69	8 16	7 22.31	+17 55.3	0.581	0.620	114.9	19.6	34 W	20*	21*
4 16	14 29.35	-6 57.4	0.637	1.630	8.3	19.3	167 W	38	71	8 18	7 23.44	+15 59.7	0.608	0.624	110.4	19.4	35 W	21*	23*
4 21	14 19.76	-7 49.6	0.633	1.635	4.5	19.1	173 W	37	72	8 20	7 25.26	+14 14.3	0.636	0.630	106.0	19.3	37 W	21*	25*
4 26	14 9.91	-8 43.3	0.636	1.640	2.9	19.0	175 E	36	73	8 22	7 27.67	+12 38.1	0.665	0.638	101.8	19.2	38 W	22*	26*
5 1	14 0.19	-9 37.7	0.643	1.645	5.8	19.2	170 E	35	74	8 24	7 30.57	+11 10.3	0.693	0.648	97.8	19.1	39 W	22*	28*
5 6	13 51.00	-10 32.1	0.657	1.650	9.6	19.4	164 E	34	75	8 26	7 33.88	+9 50.1	0.722	0.658	94.0	19.0	41 W	22*	29*
5 11	13 42.68	-11 26.0	0.676	1.655	13.4	19.6	158 E	34	75	8 28	7 37.52	+8 36.7	0.751	0.670	90.4	19.0	42 W	22*	31*
5 16	13 35.50	-12 19.4	0.700	1.660	16.9	19.8	151 E	33	76	8 30	7 41.42	+7 29.2	0.779	0.683	87.1	19.0	43 W	23*	32*
5 26	13 25.13	-14 4.4	0.761	1.669	23.0	20.2	140 E	31	78	9 1	7 45.54	+6 26.9	0.807	0.697	84.0	19.0	43 W	23*	33*
6 5	13 20.23	-15 47.8	0.835	1.677	27.7	20.6	130 E	29	80	9 3	7 49.81	+5 29.3	0.834	0.712	81.0	19.0	44 W	23*	33*
6 15	13 20.40	-17 31.1	0.920	1.685	31.1	20.9	121 E	27	82	9 8	8 0.94	+3 21.7	0.899	0.753	74.6	19.1	46 W	24*	35*
6 25	13 24.95	-19 15.5	1.012	1.692	33.5	21.2	113 E	23	83	9 13	8 12.32	+1 32.4	0.958	0.798	69.2	19.1	48 W	25*	37*
7 5	13 33.14	-21 1.0	1.108	1.699	35.1	21.4	106 E	20	85	9 18	8 23.63	-0 3.5	1.012	0.845	64.8	19.3	50 W	26*	39*
38086 Beowulf										38086 Beowulf (continuation)									
1 26	14 26.38	-3 51.2	1.746	2.010	29.3	21.3	90 W	41	64*	9 23	8 34.69	-1 29.6	1.060	0.894	61.1	19.4	51 W	27*	40*
1 31	14 33.00	-3 24.7	1.663	1.990	29.6	21.2	94 W	42	65*	9 28	8 45.36	-2 48.4	1.102	0.943	58.1	19.5	53 W	29*	41*
2 5	14 39.39	-2 50.8	1.580	1.969	29.8	21.1	98 W	42	66*	10 3	8 55.58	-4 1.5	1.137	0.993	55.5	19.6	55 W	30*	43*
2 10	14 45.50	-2 8.7	1.497	1.947	29.8	20.9	101 W	43	66*	10 8	9 5.28	-5 10.1	1.167	1.042	53.4	19.7	57 W	31*	44*
2 15	14 51.30	-1 17.5	1.416	1.924	29.7	20.8	105 W	44	65	10 13	9 14.43	-6 14.9	1.191	1.091	51.6	19.8	59 W	32*	46*
2 20	14 56.74	-0 16.2	1.336	1.900	29.5	20.6	109 W	45	64	10 23	9 30.99	-8 15.1	1.223	1.186	48.7	19.9	64 W	33*	50*
2 25	15 1.76	+0 56.1	1.259	1.875	29.2	20.4	112 W	46	63	11 2	9 45.12	-10 4.4	1.235	1.278	46.5	20.1	69 W	34*	55*
3 2	15 6.30	+2 20.7	1.183	1.849	28.7	20.3	116 W	47	62	11 12	9 56.57	-11 42.8	1.228	1.365	44.5	20.1	75 W	33*	60*
3 7	15 10.30	+3 58.6	1.110	1.822	28.1	20.1	120 W	49	60	11 22	10 5.04	-13 8.6	1.205	1.448	42.5	20.2	82 W	32	66*
3 12	15 13.65	+5 51.3	1.040	1.794	27.4	19.9	124 W	51	58	12 2	10 10.15	-14 18.6	1.170	1.525	40.3	20.1	90 W	31	73*
3 17	15 16.27	+7 59.7	0.974	1.765	26.6	19.7	127 W	53	56	12 7	10 11.27	-14 46.1	1.148	1.563	39.0	20.1	94 W	30	76*
3 22	15 18.04	+10 24.8	0.912	1.735	25.8	19.5	131 W	55	54	12 12	10 11.35	-15 7.3	1.125	1.599	37.5	20.1	98 W	30	79*
3 27	15 18.86	+13 7.0	0.854	1.703	25.1	19.3	134 W	58	51	12 17	10 10.31	-15 21.4	1.100	1.633	35.9	20.0	103 W	30	79
4 6	15 17.12	+19 22.0	0.754	1.637	24.4	18.9	137 W	62	45	12 22	10 8.11	-15 27.0	1.076	1.667	34.1	20.0	108 W	30	79
4 16	15 9.83	+26 32.4	0.676	1.567	25.9	18.6	137 W	72	37	12 27	10 4.70	-15 23.0	1.051	1.700	32.1	19.9	113 W	30	79
4 26	14 55.99	+34 4.4	0.621	1.491	30.4	18.4	131 W	79	30	1 1	10 0.05	-15 7.8	1.028	1.731	29.8	19.8	119 W	30	79
5 1	14 46.43	+37 43.6	0.601	1.452	33.6	18.4	127 W	83	26	1 6	9 54.18	-14 40.0	1.006	1.762	27.4	19.8	125 W	30	79
5 6	14 35.14	+41 9.7	0.586	1.412	37.2	18.4	122 E	86	23	1 11	9 47.18	-13 58.3	0.988	1.791	24.7	19.7	131 W	31	78
5 11	14 22.25	+44 17.0	0.575	1.370	41.1	18.4	117 E	89	20	1 16	9 39.19	-13 2.1	0.974	1.819	21.8	19.6	137 W	32	77
5 16	14 8.05	+47 1.5	0.567	1.327	45.2	18.4	111 E	88	17	1 21	9 30.41	-11 51.2	0.965	1.846	18.9	19.5	143 W	33	76
5 21	13 52.90	+49 21.6	0.560	1.283	49.4	18.4	106 E	86	15	100015 1989 SR₇									
5 26	13 37.15	+51 17.8	0.555	1.238	53.7	18.4	100 E	84	13	1 26	14 51.43	-20 28.2	2.932	2.917	19.4	21.4	79 W	25	70*
5 31	13 21.11	+52 52.1	0.549	1.192	58.0	18.5	95 E	82	11	2 5	15 0.22	-21 13.5	2.772	2.900	19.9	21.3	87 W	24	78*
6 5	13 4.95	+54 7.6	0.543	1.144	62.4	18.5	89 E	81	10	2 15	15 7.54	-21 52.2	2.611	2.882	19.9	21.2	96 W	23	86*
6 10	12 48.68	+55 7.7	0.535	1.096	67.0	18.5	84 E	77*	9	2 25	15 13.07	-22 23.4	2.451	2.862	19.6	21.0	104 W	23	86
6 15	12 32.06	+55 56.1	0.525	1.048	71.9	18.5	79 E	73*	8	3 7	15 16.50	-22 46.6	2.297	2.842	18.7	20.8	114 W	22	87
6 17	12 25.20	+56 12.9	0.520	1.028	74.0	18.5	77 E	71*	8	3 17	15 17.52	-23 0.5	2.151	2.821	17.2	20.6	123 W	22	87
6 19	12 18.13	+56 28.5	0.515	1.008	76.1	18.5	74 E	68*	8	3 27	15 15.87	-23 3.6	2.018	2.799	15.0	20.4	133 W	22	87

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

21/22	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°-26°	2021	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°-26°		
100015 1989 SR₇ (continuation)									447562 2006 TM (continuation)										
8 4	14 29.30	-16 48.5	2.239	2.439	24.6	20.6	89 E	21*	80*	10 3	18 59.77	+12 15.4	1.133	1.596	38.5	20.9	97 E	57	52*
8 14	14 39.29	-17 17.4	2.335	2.407	24.6	20.7	82 E	19*	75*	10 8	19 10.40	+11 5.0	1.169	1.604	38.3	21.0	95 E	56	53*
8 24	14 51.05	-17 53.5	2.427	2.374	24.3	20.7	75 E	17*	69*	10 13	19 21.38	+9 58.8	1.207	1.613	38.1	21.1	94 E	55	53*
9 3	15 4.41	-18 34.6	2.514	2.340	23.6	20.8	68 E	16*	62*	10 18	19 32.66	+8 57.5	1.246	1.621	37.9	21.1	92 E	54	53*
9 13	15 19.26	-19 18.6	2.594	2.306	22.7	20.8	62 E	14*	56*	10 23	19 44.19	+8 1.2	1.287	1.629	37.6	21.2	90 E	53	53*
9 23	15 35.48	-20 3.3	2.666	2.271	21.6	20.8	56 E	13*	50*	10 28	19 55.94	+7 10.1	1.329	1.638	37.3	21.3	88 E	52	53*
10 3	15 52.97	-20 46.8	2.730	2.237	20.3	20.7	51 E	12*	45*	11 2	20 7.86	+6 24.4	1.372	1.646	37.0	21.4	87 E	51	52*
10 13	16 11.67	-21 27.0	2.785	2.202	18.8	20.7	45 E	11*	39*	11 7	20 19.94	+5 44.2	1.417	1.655	36.6	21.4	85 E	51	52*
10 23	16 31.51	-22 1.9	2.831	2.166	17.2	20.6	40 E	10*	34*	483603 2004 RR₇₇									
11 2	16 52.40	-22 29.7	2.868	2.131	15.5	20.6	35 E	10*	28*	1 26	15 16.34	-25 48.3	2.294	2.209	25.2	21.5	73 W	19*	65*
11 12	17 14.27	-22 48.6	2.895	2.096	13.6	20.5	30 E	9*	23*	2 5	15 32.22	-28 19.9	2.142	2.174	26.4	21.3	79 W	17	72*
11 22	17 37.02	-22 56.7	2.912	2.061	11.7	20.4	25 E	8*	18*	2 15	15 47.89	-30 57.5	1.990	2.139	27.4	21.2	85 W	14	79*
12 2	18 0.55	-22 52.6	2.921	2.027	9.8	20.3	20 E	6*	13*	2 25	16 3.18	-33 43.1	1.841	2.104	28.1	21.0	91 W	11	82*
12 12	18 24.76	-22 34.9	2.921	1.992	7.8	20.2	16 E	5*	8*	3 7	16 17.92	-36 38.7	1.697	2.068	28.4	20.8	97 W	8	79
12 22	18 49.49	-22 2.4	2.913	1.959	5.7	20.0	11 E	3*	3*	3 17	16 31.80	-39 47.0	1.559	2.033	28.4	20.6	103 W	5	76
1 1	19 14.65	-21 14.5	2.898	1.926	3.7	19.9	7 E	—	—	3 27	16 44.43	-43 9.9	1.430	1.998	28.1	20.3	109 W	2	73
1 11	19 40.10	-20 10.5	2.875	1.894	1.7	19.7	3 E	—	—	4 1	16 50.13	-44 57.3	1.369	1.980	27.8	20.2	113 W	—	71
1 21	20 5.70	-18 50.6	2.847	1.863	0.9	19.6	2 W	—	—	4 6	16 55.30	-46 48.8	1.311	1.963	27.4	20.1	116 W	—	69
512234 2015 VO₆₆									4 11	16 59.82	-48 44.3	1.257	1.945	26.9	20.0	118 W	—	67	
1 26	14 52.44	+21 41.5	0.445	1.099	63.5	21.2	93 W	67	38*	4 16	17 3.58	-50 43.3	1.205	1.928	26.4	19.8	121 W	—	65
1 28	15 6.92	+21 35.4	0.428	1.081	65.6	21.1	91 W	67	38*	4 21	17 6.41	-52 45.3	1.158	1.911	25.8	19.7	124 W	—	63
1 30	15 22.35	+21 24.4	0.412	1.063	68.0	21.1	89 W	66	37*	4 26	17 8.18	-54 49.4	1.114	1.894	25.3	19.6	127 W	—	61
2 1	15 38.75	+21 7.4	0.398	1.044	70.5	21.1	87 W	66	37*	5 1	17 8.67	-56 54.3	1.074	1.878	24.7	19.5	129 W	—	59
2 3	15 56.12	+20 43.3	0.385	1.024	73.3	21.0	85 W	65	36*	5 6	17 7.65	-58 58.4	1.039	1.861	24.2	19.4	131 W	—	57
2 5	16 14.42	+20 11.0	0.374	1.005	76.4	21.0	82 W	64	35*	5 11	17 4.87	-60 59.5	1.007	1.845	23.9	19.3	132 W	—	55
2 7	16 33.58	+19 29.4	0.364	0.984	79.6	21.1	79 W	63	35*	5 16	17 0.11	-62 55.0	0.980	1.829	23.6	19.2	134 W	—	53
2 9	16 53.47	+18 37.9	0.357	0.964	83.1	21.1	76 W	61	34*	5 21	16 53.23	-64 42.0	0.957	1.814	23.6	19.1	134 W	—	51
2 11	17 13.91	+17 36.0	0.352	0.943	86.7	21.1	72 W	59	33*	5 26	16 44.19	-66 17.6	0.937	1.799	23.7	19.0	134 W	—	50
2 13	17 34.70	+16 24.0	0.348	0.921	90.4	21.2	69 W	56	32*	5 31	16 33.13	-67 38.9	0.922	1.784	24.0	19.0	134 W	—	48
2 15	17 55.60	+15 2.4	0.348	0.899	94.3	21.3	65 W	53	31*	6 5	16 20.45	-68 43.4	0.910	1.769	24.6	19.0	134 E	—	47
2 17	18 16.38	+13 32.7	0.350	0.876	98.1	21.5	61 W	50	30*	6 7	16 15.08	-69 4.2	0.906	1.764	24.8	19.0	133 E	—	47
447562 2006 TM									6 9	16 9.63	-69 21.9	0.903	1.758	25.1	19.0	133 E	—	47	
1 26	14 56.35	-31 45.8	1.498	1.573	37.3	21.5	76 W	13	69*	6 11	16 4.16	-69 36.6	0.901	1.752	25.4	19.0	132 E	—	46
1 31	15 10.11	-32 1.9	1.448	1.566	37.9	21.4	78 W	13	72*	6 13	15 58.75	-69 48.3	0.899	1.747	25.7	19.0	132 E	—	46
2 5	15 23.87	-32 10.4	1.398	1.558	38.5	21.3	80 W	13	74*	6 15	15 53.46	-69 57.1	0.897	1.742	26.1	19.0	131 E	—	46
2 10	15 37.58	-32 10.6	1.348	1.551	39.0	21.3	82 W	13	75*	6 17	15 48.36	-70 3.1	0.896	1.736	26.4	19.0	130 E	—	46
2 15	15 51.18	-32 2.1	1.298	1.544	39.5	21.2	84 W	13	77*	6 19	15 43.51	-70 6.4	0.895	1.731	26.8	19.0	130 E	—	46
2 20	16 4.63	-31 44.3	1.247	1.537	39.9	21.1	86 W	13	79*	6 21	15 38.98	-70 7.1	0.895	1.726	27.2	19.0	129 E	—	46
2 25	16 17.87	-31 16.6	1.197	1.530	40.3	21.0	88 W	14	81*	6 23	15 34.81	-70 5.4	0.895	1.721	27.6	19.0	128 E	—	46
3 2	16 30.84	-30 38.5	1.148	1.524	40.6	20.9	91 W	14	83*	6 25	15 31.05	-70 1.6	0.895	1.716	28.0	19.0	128 E	—	46
3 7	16 43.48	-29 49.5	1.098	1.518	40.8	20.8	93 W	15	85*	6 27	15 27.73	-69 55.7	0.896	1.711	28.4	19.0	127 E	—	46
3 12	16 55.71	-28 48.9	1.050	1.512	40.9	20.7	95 W	16	87*	6 29	15 24.86	-69 47.9	0.897	1.706	28.8	19.0	126 E	—	46
3 17	17 7.46	-27 36.1	1.002	1.507	40.8	20.6	98 W	17	88	7 1	15 22.49	-69 38.4	0.899	1.701	29.2	19.0	125 E	—	46
3 22	17 18.65	-26 10.4	0.955	1.502	40.7	20.5	101 W	19	90	7 3	15 20.61	-69 27.3	0.900	1.697	29.6	19.0	124 E	—	47
3 27	17 29.23	-24 31.2	0.910	1.497	40.5	20.4	103 W	20	89	7 5	15 19.24	-69 14.9	0.902	1.692	30.0	19.0	124 E	—	47
4 1	17 39.12	-22 37.9	0.866	1.492	40.1	20.2	106 W	22	87	7 10	15 18.02	-68 38.8	0.909	1.681	31.0	19.1	122 E	—	47
4 6	17 48.26	-20 30.0	0.824	1.488	39.5	20.1	109 W	25	84	7 15	15 19.87	-67 56.9	0.917	1.671	32.0	19.1	119 E	—	48
4 11	17 56.56	-18 7.0	0.785	1.484	38.8	20.0	112 W	27	82	7 20	15 24.56	-67 10.8	0.927	1.661	32.9	19.1	117 E	—	49
4 16	18 3.93	-15 28.5	0.747	1.481	38.0	19.8	115 W	30	79	7 25	15 31.76	-66 21.2	0.938	1.653	33.7	19.2	115 E	—	50
4 26	18 15.68	-9 26.6	0.681	1.475	35.9	19.6	121 W	36	73	7 27	15 35.28	-66 0.4	0.943	1.649	34.0	19.2	115 E	—	50
5 6	18 23.03	-2 31.8	0.629	1.471	33.6	19.3	126 W	42	67	7 29	15 39.12	-65 39.1	0.948	1.646	34.3	19.2	114 E	—	50
5 16	18 25.53	+4 55.6	0.593	1.469	31.4	19.1	131 W	50	59	7 31	15 43.28	-65 17.3	0.953	1.643	34.6	19.2	113 E	—	51
5 21	18 24.93	+8 40.9	0.582	1.469	30.6	19.1	132 W	54	55	8 2	15 47.73	-64 54.9	0.958	1.640	34.9	19.2	112 E	—	51
5 26	18 23.15	+12 20.3	0.575	1.469	30.1	19.0	133 W	57	52	8 4	15 52.45	-64 32.0	0.964	1.637	35.2	19.2	112 E	—	51
5 31	18 20.27	+15 48.4	0.572	1.469	29.9	19.0	134 W	61	48	8 9	16 5.33	-63 31.9	0.978	1.630	35.8	19.3	110 E	—	52
6 5	18 16.42	+19 0.1	0.573	1.470	30.0	19.0	134 W	64	45	8 14	16 19.52	-62 27.7	0.994	1.624	36.4	19.3	108 E	—	54
6 10	18 11.76	+21 51.0	0.578	1.471	30.4	19.1	133 W	67	42	8 19	16 34.73	-61 19.0	1.011	1.619	36.9	19.4	106 E	—	55
6 15	18 6.55	+24 17.6</																	

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

21/22	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	21/22	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°
483603 2004 RR₇₇ (continuation)										216917 1990 TH₁ (continuation)									
12 7	21 48.76	-19 50.9	1.815	1.711	32.3	20.6	68 E	25*	57*	4 6	18 36.36	-0 30.0	1.149	1.598	38.5	20.3	96 W	44*	64
12 12	21 59.58	-17 50.6	1.870	1.723	31.5	20.7	66 E	27*	53*	4 16	18 56.74	+4 24.5	1.060	1.569	39.2	20.1	99 W	49*	60
12 17	22 10.22	-15 52.0	1.925	1.736	30.6	20.7	64 E	29*	50*	4 26	19 15.92	+9 52.3	0.983	1.540	39.8	19.9	101 W	54*	54
12 22	22 20.69	-13 55.1	1.982	1.750	29.8	20.8	62 E	31*	47*	5 1	19 25.01	+12 46.2	0.950	1.527	40.1	19.8	102 W	57*	51
12 27	22 31.02	-11 59.9	2.038	1.763	28.8	20.8	60 E	32*	43*	5 6	19 33.73	+15 45.2	0.919	1.514	40.4	19.7	103 W	60*	48
1 1	22 41.23	-10 6.6	2.095	1.778	27.9	20.9	58 E	33*	40*	5 11	19 42.04	+18 47.7	0.891	1.501	40.8	19.6	104 W	63*	45
1 6	22 51.33	-8 14.9	2.152	1.792	27.0	20.9	56 E	34*	37*	5 16	19 49.91	+21 51.8	0.866	1.488	41.1	19.6	105 W	67*	42
1 11	23 1.33	-6 25.1	2.209	1.807	26.0	21.0	54 E	35*	34*	5 21	19 57.31	+24 55.7	0.843	1.476	41.5	19.5	105 W	70*	39
1 16	23 11.25	-4 37.1	2.265	1.823	25.0	21.0	51 E	35*	31*	5 26	20 4.23	+27 57.5	0.823	1.465	41.8	19.4	105 W	73*	36
1 21	23 21.09	-2 50.9	2.321	1.839	24.0	21.1	49 E	35*	28*	5 31	20 10.62	+30 55.3	0.805	1.454	42.2	19.4	105 W	76	33
432037 2008 WS₆₃										241370 2008 LW₈									
1 26	15 48.11	-11 49.0	2.820	2.628	20.4	21.5	69 W	33*	54*	1 26	16 3.81	-22 57.4	2.088	1.853	28.1	21.5	63 W	21*	54*
2 5	16 1.61	-12 33.0	2.653	2.586	21.6	21.3	75 W	32*	61*	1 31	16 15.66	-23 2.8	2.015	1.830	29.2	21.4	65 W	21*	57*
2 15	16 14.48	-13 11.5	2.482	2.544	22.6	21.2	82 W	32*	68*	2 5	16 27.67	-23 3.6	1.942	1.806	30.2	21.3	67 W	21*	59*
2 25	16 26.49	-13 45.0	2.310	2.501	23.3	21.0	89 W	31	75*	2 10	16 39.85	-22 59.2	1.868	1.782	31.3	21.2	70 W	21*	62*
3 7	16 37.41	-14 14.4	2.139	2.458	23.7	20.8	96 W	31	78*	2 15	16 52.19	-22 49.3	1.795	1.758	32.3	21.2	72 W	22*	64*
3 17	16 46.94	-14 40.8	1.972	2.414	23.6	20.6	104 W	30	79	2 20	17 4.69	-22 33.5	1.721	1.733	33.3	21.1	74 W	22*	67*
3 27	16 54.73	-15 6.0	1.809	2.370	23.0	20.4	112 W	30	79	2 25	17 17.36	-22 11.2	1.648	1.707	34.3	21.0	76 W	22*	69*
4 6	17 0.41	-15 32.1	1.655	2.326	21.8	20.1	120 W	29	80	3 2	17 30.20	-21 42.0	1.575	1.682	35.2	20.9	78 W	23*	71*
4 16	17 3.54	-16 1.2	1.511	2.282	19.9	19.8	129 W	29	80	3 7	17 43.21	-21 5.2	1.503	1.655	36.2	20.8	80 W	23*	73*
4 26	17 3.71	-16 36.0	1.380	2.238	17.2	19.5	139 W	28	81	3 12	17 56.41	-20 20.4	1.432	1.629	37.2	20.6	82 W	24*	75*
5 6	17 0.62	-17 18.7	1.266	2.194	13.6	19.1	149 W	28	81	3 17	18 9.77	-19 26.7	1.363	1.602	38.2	20.5	84 W	25*	76*
5 16	16 54.17	-18 10.6	1.172	2.151	9.1	18.7	160 W	27	82	3 22	18 23.33	-18 23.6	1.295	1.574	39.1	20.4	86 W	25*	77*
5 26	16 44.76	-19 11.9	1.100	2.108	3.9	18.3	172 W	26	83	3 27	18 37.09	-17 10.3	1.229	1.547	40.1	20.3	87 W	26*	78*
5 31	16 39.22	-19 45.6	1.073	2.087	1.4	18.0	177 W	25	84	4 1	18 51.07	-15 45.9	1.164	1.519	41.1	20.2	89 W	28*	78*
6 5	16 33.33	-20 20.8	1.053	2.066	2.4	18.1	175 E	25	84	4 6	19 5.30	-14 9.8	1.103	1.491	42.2	20.0	90 W	29*	77*
6 10	16 27.30	-20 57.2	1.038	2.045	5.3	18.2	169 E	24	85	4 11	19 19.79	-12 21.0	1.043	1.462	43.2	19.9	91 W	30*	76*
6 15	16 21.36	-21 34.6	1.030	2.024	8.3	18.3	163 E	23	86	4 16	19 34.58	-10 18.7	0.987	1.434	44.4	19.8	92 W	32*	74*
6 20	16 15.73	-22 12.6	1.027	2.004	11.3	18.4	157 E	23	86	4 21	19 49.69	-8 2.5	0.933	1.405	45.6	19.6	93 W	34*	72
6 25	16 10.64	-22 51.0	1.030	1.984	14.1	18.5	152 E	22	87	4 26	20 5.20	-5 31.7	0.884	1.377	46.8	19.5	93 W	36*	70
6 30	16 6.24	-23 29.8	1.038	1.964	16.9	18.5	146 E	22	87	5 6	20 37.60	+0 13.9	0.796	1.321	49.7	19.3	93 W	41*	64
7 5	16 2.71	-24 8.8	1.050	1.944	19.5	18.6	140 E	21	88	5 16	21 12.31	+6 53.8	0.725	1.265	53.0	19.1	92 W	46*	57
7 15	15 58.64	-25 27.7	1.086	1.906	24.1	18.8	130 E	20	89	5 26	21 50.00	+14 12.1	0.672	1.212	56.7	18.9	90 W	51*	50
7 25	15 58.97	-26 48.2	1.133	1.870	27.8	19.0	121 E	18*	89										
8 4	16 3.73	-28 9.5	1.189	1.836	30.7	19.1	113 E	16*	88										
8 14	16 12.75	-29 30.4	1.249	1.804	32.8	19.2	105 E	14*	86										
8 24	16 25.74	-30 48.9	1.313	1.775	34.3	19.4	99 E	13*	85										
9 3	16 42.34	-32 1.8	1.378	1.749	35.2	19.5	93 E	11*	83*										
9 13	17 2.25	-33 5.6	1.443	1.725	35.6	19.5	88 E	10*	79*										
9 23	17 25.09	-33 56.5	1.509	1.705	35.7	19.6	83 E	10*	75*										
10 3	17 50.45	-34 30.4	1.574	1.689	35.5	19.7	79 E	9*	71*										
10 8	18 3.96	-34 39.8	1.607	1.682	35.3	19.7	76 E	9*	69*										
10 13	18 17.93	-34 43.7	1.640	1.676	35.0	19.7	74 E	9*	68*										
10 18	18 32.31	-34 41.7	1.672	1.671	34.7	19.8	73 E	9*	66*										
10 23	18 47.00	-34 33.5	1.705	1.667	34.3	19.8	71 E	10*	64*										
10 28	19 1.96	-34 18.8	1.738	1.665	33.9	19.8	69 E	10*	63*										
11 2	19 17.11	-33 57.6	1.772	1.663	33.4	19.8	67 E	10*	61*										
11 7	19 32.40	-33 29.8	1.806	1.662	32.9	19.9	66 E	11*	60*										
11 12	19 47.75	-32 55.4	1.840	1.662	32.3	19.9	64 E	11*	58*										
11 17	20 3.09	-32 14.6	1.875	1.664	31.7	19.9	62 E	12*	56*										
11 22	20 18.37	-31 27.5	1.910	1.666	31.1	19.9	61 E	13*	54*										
11 27	20 33.55	-30 34.4	1.945	1.669	30.5	20.0	59 E	14*	53*										
12 2	20 48.58	-29 35.5	1.982	1.674	29.8	20.0	58 E	15*	51*										
12 7	21 3.43	-28 31.4	2.019	1.679	29.1	20.0	56 E	16*	49*										
12 12	21 18.07	-27 22.4	2.056	1.686	28.4	20.1	54 E	16*	47*										
12 17	21 32.47	-26 9.0	2.095	1.693	27.6	20.1	53 E	17*	44*										
12 22	21 46.63	-24 51.6	2.133	1.701	26.8	20.1	51 E	18*	42*										
12 27	22 0.52	-23 30.8	2.173	1.711	26.0	20.1	50 E	19*	40*										
1 1	22 14.16	-22 6.9	2.213	1.721	25.2	20.2	48 E	20*	38*										
1 6	22 27.55	-20 40.5	2.254	1.732	24.3	20.2	47 E	20*	36*										
1 11	22 40.68	-19 12.1	2.295	1.743	23.5	20.2	45 E	21*	34*										
1 16	22 53.56	-17 42.1	2.337	1.756	22.6	20.2	43 E	21*	32*										
1 21	23 6.19	-16 10.9	2.379	1.769	21.7	20.3	42 E	21*	30*										
216917 1990 TH₁										241370 2008 LW₈									
1 26	15 55.93	-17 36.3	1.981	1.809	29.7	21.5	65 W	27*	54*	1 26	16 3.81	-22 57.4	2.088	1.853	28.1	21.5	63 W	21*	54*
1 31	16 7.72	-17 15.0	1.916	1.794	30.6	21.4	68 W	27*	57*	1 31	16 15.66	-23 2.8	2.015	1.830	29.2	21.4	65 W	21*	57*
2 5	16 19.54	-16 47.2	1.852	1.779	31.4	21.3	70 W	28*	59*	2 5	16 27.67	-23 3.6	1.942	1.806	30.2	21.3	67 W	21*	59*
2 10	16 31.37	-16 12.6	1.787	1.764	32.3	21.3	73 W	28*	62*	2 10	16 39.85	-22 59.2	1.868	1.782	31.3	21.2	70 W	21*	62*
2 15	16 43.19	-15 30.6	1.723	1.749	33.0	21.2	75 W	29*	64*	2 15	16 52.19	-22 49.3	1.795	1.758	32.3	21.2	72 W	22*	64*
2 20	16 54.98	-14 40.9	1.659	1.734	33.8	21.1	77 W	30*	66*	2 20	17 4.69	-22 33.5	1.721	1.733	33.3	21.1	74 W	22*	67*
2 25	17 6.72	-13 43.1	1.596	1.719	34.5	21.0	80 W	31*	6										

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

21/22	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45° - 26°	21/22	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45° - 26°	
241370 2008 LW₈									155390 1994 PP₂₉									
<i>(continuation)</i>									<i>(continuation)</i>									
5 31	22 10.21	+17 57.2	0.653	1.187	58.6	18.9	88 W	54* 46	11 2	21 22.44	-13 6.7	1.203	1.679	35.7	19.8	99 E	32	77*
6 5	22 31.45	+21 40.3	0.638	1.163	60.5	18.8	86 W	56* 42	11 12	21 43.32	-12 0.3	1.309	1.702	35.4	20.0	95 E	33	74*
6 10	22 53.76	+25 16.3	0.628	1.140	62.4	18.8	84 W	58* 39	11 22	22 4.59	-10 39.5	1.420	1.728	34.9	20.2	90 E	34	70*
6 15	23 17.20	+28 40.0	0.622	1.118	64.2	18.8	82 W	60* 35	12 2	22 26.01	-9 6.5	1.537	1.755	34.0	20.4	85 E	36	64*
6 20	23 41.74	+31 46.6	0.620	1.098	65.8	18.8	80 W	61* 32	12 12	22 47.46	-7 23.5	1.657	1.784	33.0	20.5	81 E	38	59*
6 25	0 7.33	+34 32.1	0.621	1.080	67.3	18.8	78 W	62* 29	12 22	23 8.82	-5 32.7	1.780	1.814	31.8	20.7	76 E	39	53*
6 30	0 33.84	+36 53.5	0.625	1.063	68.5	18.8	77 W	62* 27	1 1	23 30.04	-3 36.4	1.905	1.845	30.3	20.8	71 E	41*	47*
7 5	1 1.04	+38 48.7	0.631	1.049	69.5	18.8	75 W	62* 25	1 11	23 51.11	-1 36.4	2.032	1.878	28.8	21.0	67 E	43*	42*
7 10	1 28.65	+40 16.6	0.639	1.037	70.1	18.9	74 W	62* 24	1 21	0 12.02	+0 25.4	2.158	1.911	27.1	21.1	62 E	43*	37*
7 15	1 56.31	+41 17.2	0.648	1.028	70.6	18.9	72 W	62* 23*	276033 2002 AJ₁₂₉									
7 20	2 23.69	+41 51.4	0.658	1.021	70.7	18.9	72 W	62* 22*	1 26	16 16.69	-8 43.5	1.261	1.194	47.2	21.4	63 W	35*	46*
7 25	2 50.46	+42 0.8	0.669	1.017	70.7	18.9	71 W	62* 22*	1 31	16 40.43	-9 14.8	1.161	1.115	51.2	21.2	62 W	34*	46*
7 30	3 16.35	+41 47.7	0.680	1.016	70.4	19.0	70 W	61* 22*	2 5	17 8.11	-9 42.5	1.069	1.032	55.9	20.9	60 W	32*	46*
8 4	3 41.11	+41 14.5	0.691	1.018	69.9	19.0	70 W	62* 22*	2 10	17 40.62	-10 3.9	0.987	0.943	61.5	20.7	57 W	30*	44*
8 9	4 4.58	+40 23.8	0.702	1.022	69.2	19.0	70 W	62* 23*	2 15	18 18.80	-10 14.3	0.919	0.848	67.9	20.5	53 W	28*	41*
8 14	4 26.65	+39 17.8	0.711	1.029	68.4	19.0	71 W	62* 24*	2 20	19 3.04	-10 7.5	0.871	0.745	75.0	20.4	47 W	24*	36*
8 19	4 47.28	+37 59.0	0.720	1.039	67.5	19.0	71 W	62* 25*	2 25	19 52.84	-9 37.2	0.851	0.633	82.3	20.2	39 W	20*	30*
8 24	5 6.49	+36 29.4	0.728	1.051	66.4	19.1	72 W	63* 26*	3 2	20 46.56	-8 40.4	0.866	0.509	88.3	20.0	31 W	14*	22*
8 29	5 24.30	+34 50.8	0.734	1.066	65.3	19.1	73 W	64* 27*	3 7	21 42.46	-7 19.2	0.922	0.368	90.0	19.5	22 W	8*	14*
9 3	5 40.75	+33 4.9	0.739	1.083	64.0	19.1	75 W	64* 29*	3 12	22 42.20	-5 30.4	1.027	0.208	75.0	18.0	12 W	1*	5*
9 8	5 55.86	+31 12.9	0.743	1.101	62.7	19.1	76 W	65* 31*	3 17	0 0.74	-1 43.3	1.106	0.129	28.8	15.7	4 E	-	-
9 13	6 9.66	+29 15.9	0.745	1.122	61.4	19.1	78 W	65* 33*	3 18	0 16.39	-0 34.4	1.093	0.154	47.7	16.6	7 E	-	-
9 23	6 33.51	+25 10.4	0.745	1.167	58.5	19.1	82 W	66* 37*	3 19	0 30.60	+0 34.8	1.075	0.185	60.0	17.3	9 E	1*	2*
10 3	6 52.51	+20 53.8	0.738	1.217	55.2	19.1	87 W	65* 41*	3 21	0 56.01	+2 50.2	1.040	0.252	73.0	18.3	14 E	6*	5*
10 13	7 6.58	+16 30.2	0.727	1.270	51.6	19.0	94 W	62 47*	3 23	1 19.10	+5 1.0	1.011	0.316	78.4	19.0	18 E	9*	8*
10 23	7 15.55	+12 3.2	0.712	1.325	47.6	19.0	101 W	57 52*	3 25	1 40.94	+7 7.1	0.989	0.378	80.3	19.4	22 E	13*	11*
11 2	7 19.11	+7 37.3	0.696	1.382	42.9	18.9	109 W	53 56	3 27	2 1.98	+9 7.9	0.974	0.436	80.3	19.6	25 E	16*	13*
11 7	7 18.73	+5 26.9	0.689	1.410	40.3	18.8	113 W	50 59	3 29	2 22.41	+11 2.3	0.967	0.491	79.2	19.8	29 E	19*	15*
11 12	7 16.88	+3 20.1	0.682	1.439	37.6	18.8	118 W	48 61	4 2	3 1.57	+14 27.8	0.969	0.593	75.3	20.1	35 E	25*	19*
11 17	7 13.55	+1 18.3	0.678	1.467	34.8	18.7	122 W	46 63	4 4	3 20.26	+15 57.5	0.978	0.640	73.0	20.2	38 E	27*	21*
11 22	7 8.81	-0 36.3	0.676	1.495	31.8	18.7	127 W	44 65	4 6	3 38.29	+17 17.8	0.992	0.686	70.5	20.3	40 E	29*	22*
11 27	7 2.75	-2 21.8	0.676	1.523	28.9	18.6	132 W	43 66	4 11	4 20.20	+19 58.8	1.044	0.794	64.4	20.6	46 E	34*	25*
12 2	6 55.52	-3 55.7	0.680	1.551	26.0	18.6	136 W	41 68	4 16	4 57.35	+21 48.8	1.114	0.893	58.8	20.8	50 E	37*	27*
12 7	6 47.35	-5 15.7	0.688	1.579	23.3	18.6	141 W	40 69	4 21	5 29.84	+22 58.5	1.198	0.985	53.7	21.0	52 E	39*	29*
12 12	6 38.55	-6 19.9	0.700	1.606	20.9	18.6	144 W	39 70	4 26	5 58.17	+23 38.4	1.291	1.071	49.3	21.2	54 E	40*	30*
12 17	6 29.48	-7 7.3	0.717	1.633	19.1	18.6	147 W	38 71	5 1	6 22.91	+23 57.1	1.390	1.152	45.5	21.5	55 E	40*	31*
12 22	6 20.49	-7 37.7	0.739	1.660	18.0	18.7	149 W	37 72	155928 2001 PO₄₃									
12 27	6 11.91	-7 51.5	0.766	1.686	17.6	18.8	149 E	37 72	1 26	16 17.17	-20 56.6	2.584	2.256	22.2	21.5	60 W	23*	51*
1 1	6 4.03	-7 50.1	0.799	1.712	17.9	18.9	148 E	37 72	2 5	16 35.94	-21 50.5	2.439	2.221	23.8	21.4	66 W	22*	57*
1 6	5 57.08	-7 35.3	0.836	1.737	18.8	19.1	145 E	37 72	2 15	16 54.66	-22 37.4	2.292	2.185	25.3	21.3	71 W	22*	64*
1 11	5 51.23	-7 9.1	0.877	1.762	19.9	19.2	142 E	38 71	2 25	17 13.17	-23 17.6	2.142	2.149	26.7	21.1	77 W	21*	70*
1 16	5 46.55	-6 34.2	0.923	1.786	21.2	19.4	139 E	38 71	3 7	17 31.35	-23 51.5	1.991	2.112	27.8	21.0	83 W	21*	76*
1 21	5 43.07	-5 52.5	0.973	1.810	22.5	19.6	135 E	39 70	3 17	17 49.02	-24 20.2	1.842	2.075	28.6	20.8	89 W	20*	83*
155390 1994 PP₂₉									3 20	18 5.97	-24 44.8	1.694	2.038	29.2	20.6	95 W	20*	88*
1 26	16 16.38	-19 48.4	2.104	2.104	24.0	21.4	60 W	24* 50*	4 6	18 21.99	-25 7.0	1.551	2.001	29.4	20.3	101 W	20*	89
2 5	16 37.42	-20 20.4	2.275	2.069	25.7	21.3	65 W	24* 57*	4 16	18 36.76	-25 29.1	1.412	1.965	29.1	20.1	108 W	19*	89
2 15	16 58.50	-20 40.4	2.136	2.034	27.3	21.2	71 W	23* 63*	4 26	18 49.95	-25 53.6	1.280	1.928	28.4	19.8	114 W	19*	90
2 25	17 19.50	-20 47.8	1.997	1.999	28.7	21.1	76 W	23* 68*	5 6	19 1.16	-26 23.4	1.156	1.892	27.0	19.5	122 W	19	90
3 7	17 40.27	-20 42.3	1.858	1.965	29.9	20.9	81 W	24* 74*	5 16	19 9.90	-27 1.5	1.042	1.856	24.9	19.2	129 W	18	89
3 17	18 0.63	-20 23.9	1.722	1.930	31.0	20.7	86 W	24* 79*	5 26	19 15.62	-27 50.5	0.940	1.821	22.0	18.8	138 W	17	88
3 27	18 20.38	-19 52.9	1.588	1.897	31.7	20.5	91 W	24* 82*	6 5	19 17.84	-28 51.5	0.851	1.787	18.2	18.5	147 W	16	87
4 6	18 39.32	-19 9.9	1.458	1.864	32.2	20.3	97 W	25* 83	6 15	19 16.16	-30 2.8	0.777	1.755	13.6	18.1	156 W	15	86
4 16	18 57.18	-18 15.9	1.333	1.831	32.4	20.1	102 W	26* 82	6 20	19 13.88	-30 40.6	0.747	1.739	11.1	17.9	161 W	14	85
4 26	19 13.67	-17 12.7	1.214	1.800	32.1	19.9	108 W	27* 81	6 25	19 10.73	-31 18.4	0.721	1.724	8.6	17.7	165 W	14	85
5 6	19 28.50	-16 2.1	1.102	1.771	31.4	19.6	114 W	29* 80	6 30	19 6.84	-31 55.0	0.700	1.709	6.6	17.5	169 W	13	84
5 16	19 41.26	-14 47.0	0.998	1.743	30.1	19.3	120 W	30* 79	7 5	19 2.39	-32 28.9	0.684	1.694	5.8	17.4	170 W	13	84
5 26	19 51.55	-13 31.1	0.904	1.716	28.1	19.0	127 W	31 78	7 10	18 57.63	-32 58.8	0.672	1.680	6.9	17.4	168 E	12	83
6 5	19 58.98	-12 18.7	0.819	1.692	25.4	18.7	134 W	33 76	7 15	18 52.86	-33 23.4	0.665	1.667	9.3	17.4	165 E	12	83
6 15	20 3.12	-11 15.2	0.746	1.670	21.8	18.3	142 W	34 75	7 20	18 48.41	-33 42.2	0.662	1.654	12.1	17.5	160 E	11	82
6 20	20 3.90	-10 48.7	0.714	1.660	19.7	18.2	147 W	34 75	7 25	18 44.57	-33 54.7	0.664	1.642	15.1	17.6	155 E	11	82
6 25	20 3.83	-10 26.7	0.686	1.650	17.4	18.0	151 W	35 74	7 30	18 41.58	-34 1.1	0.670	1.631	18.1	17.7	150 E	11	82
6 30	20 2.95	-10 9.7	0.662	1.642	14.9	17.8	155 W	35 74	8 4	18 39.65	-34 1.5	0.679	1.620	20.9	17.8	145 E	11	82
7 5	20 1.33	-9 58.5	0.641	1.633	12.4	17.6	160 W	35 74	8 9	18 38.94	-33 56.7	0.692	1.610	23.6	17.9	141 E	11	82
7 15	19 56.35	-9 54.6	0.612	1.619														

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

21/22	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	21/22	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°
155928 2001 PO₄₃										215278 2001 QW₈₂									
<i>(continuation)</i>										<i>(continuation)</i>									
10 28	20 46.25	-23 59.3	1.156	1.563	39.4	19.4	93 E	21	86*	4 16	19 12.40	+ 1 3.5	1.573	1.948	30.8	20.3	96 W	45*	63
11 2	20 58.48	-22 50.7	1.196	1.568	39.2	19.5	91 E	22	83*	4 26	19 27.48	+ 3 42.8	1.454	1.911	31.2	20.1	100 W	48*	60
11 7	21 10.78	-21 38.8	1.238	1.574	39.0	19.6	89 E	23	80*	5 6	19 41.19	+ 6 33.0	1.343	1.875	31.3	19.8	105 W	51*	57
11 12	21 23.11	-20 23.8	1.280	1.581	38.7	19.7	87 E	25	77*	5 11	19 47.45	+ 8 1.0	1.290	1.858	31.3	19.7	107 W	52*	56
11 17	21 35.43	-19 6.1	1.325	1.588	38.4	19.8	85 E	26	74*	5 16	19 53.25	+ 9 30.1	1.239	1.841	31.2	19.6	109 W	54*	54
11 22	21 47.72	-17 46.0	1.370	1.596	37.9	19.8	84 E	27	71*	5 21	19 58.58	+10 59.5	1.190	1.824	31.1	19.5	112 W	56*	53
11 27	21 59.96	-16 23.8	1.416	1.606	37.5	19.9	82 E	29	68*	5 26	20 3.40	+12 28.4	1.144	1.808	30.8	19.4	114 W	57*	52
12 2	22 12.12	-14 59.8	1.464	1.615	36.9	20.0	80 E	30	65*	5 31	20 7.68	+13 55.9	1.099	1.793	30.6	19.3	116 W	59	50
12 12	22 36.23	-12 7.4	1.562	1.637	35.7	20.1	76 E	33	59*	6 5	20 11.37	+15 21.0	1.057	1.778	30.2	19.2	118 W	60	49
12 22	22 59.98	- 9 11.5	1.665	1.662	34.4	20.2	73 E	36	53*	6 10	20 14.42	+16 42.3	1.017	1.763	29.8	19.1	120 W	62	47
1 1	23 23.37	- 6 14.3	1.771	1.688	32.9	20.4	69 E	39*	47*	6 15	20 16.83	+17 58.6	0.979	1.750	29.3	18.9	123 W	63	46
1 11	23 46.44	- 3 17.9	1.880	1.717	31.3	20.5	65 E	41*	42*	6 20	20 18.56	+19 8.2	0.944	1.736	28.8	18.8	125 W	64	45
1 21	0 9.22	- 0 24.3	1.992	1.748	29.6	20.6	61 E	42*	37*	6 25	20 19.64	+20 9.6	0.910	1.724	28.1	18.7	127 W	65	44
276400 2002 XS₄₅																			
1 26	16 22.46	-21 43.8	2.696	2.338	21.0	21.4	59 W	22*	50*	7 10	20 19.02	+22 8.4	0.825	1.691	26.8	18.4	133 W	67	42
2 5	16 40.29	-22 35.8	2.554	2.308	22.7	21.3	64 W	21*	57*	7 15	20 17.73	+22 20.3	0.802	1.682	25.3	18.3	135 W	67	42
2 15	16 57.89	-23 21.5	2.408	2.277	24.1	21.2	70 W	21*	63*	7 20	20 16.08	+22 15.9	0.781	1.673	24.6	18.2	137 W	67	42
2 25	17 15.11	-24 1.4	2.259	2.246	25.4	21.1	77 W	20*	70*	7 25	20 14.22	+21 54.3	0.763	1.665	23.9	18.1	138 E	67	42
3 7	17 31.78	-24 36.3	2.108	2.214	26.4	20.9	83 W	20*	76*	7 30	20 12.32	+21 14.8	0.748	1.658	23.3	18.1	140 E	66	43
3 17	17 47.69	-25 7.3	1.956	2.181	27.1	20.8	89 W	20*	83*	8 4	20 10.54	+20 17.5	0.737	1.653	22.8	18.0	141 E	65	44
3 27	18 2.60	-25 35.9	1.807	2.148	27.5	20.6	96 W	19*	89*	8 9	20 9.08	+19 2.7	0.729	1.648	22.6	18.0	141 E	64	45
4 6	18 16.24	-26 3.9	1.660	2.115	27.5	20.4	102 W	19*	90	8 14	20 8.13	+17 31.7	0.724	1.643	22.5	18.0	142 E	63	46
4 16	18 28.26	-26 33.5	1.518	2.081	27.0	20.1	110 W	18*	89	8 19	20 7.84	+15 46.8	0.723	1.640	22.7	18.0	141 E	61	48
4 26	18 38.23	-27 7.3	1.383	2.048	25.9	19.8	117 W	18	89	8 24	20 8.33	+13 50.4	0.726	1.638	23.1	18.0	141 E	59	50
5 6	18 45.73	-27 47.7	1.257	2.014	24.2	19.5	125 W	17	88	8 29	20 9.69	+11 45.5	0.733	1.637	23.7	18.0	139 E	57	52
5 16	18 50.17	-28 36.7	1.141	1.980	21.6	19.2	134 W	16	87	9 3	20 11.96	+ 9 35.2	0.744	1.637	24.6	18.1	138 E	55	54
5 26	18 51.05	-29 35.1	1.039	1.946	18.2	18.9	143 W	15	86	9 8	20 15.18	+ 7 22.6	0.759	1.638	25.6	18.1	135 E	52	57
6 5	18 47.99	-30 41.3	0.953	1.913	14.0	18.5	153 W	14	85	9 13	20 19.36	+ 5 10.9	0.778	1.639	26.6	18.2	133 E	50	59
6 10	18 44.95	-31 16.0	0.917	1.897	11.6	18.3	158 W	14	85	9 18	20 24.45	+ 3 2.9	0.801	1.642	27.7	18.3	130 E	48	61
6 15	18 40.96	-31 50.3	0.886	1.880	9.2	18.1	163 W	13	84	9 23	20 30.39	+ 1 1.0	0.828	1.646	28.8	18.4	128 E	46	63
6 20	18 36.14	-32 23.4	0.860	1.864	7.0	17.9	167 W	13	84	9 28	20 37.13	- 0 53.1	0.859	1.651	29.9	18.6	125 E	44	65
6 25	18 30.68	-32 53.8	0.839	1.848	5.6	17.8	170 W	12	83	10 3	20 44.58	- 2 38.1	0.893	1.656	30.9	18.7	122 E	42	67
6 30	18 24.79	-33 20.6	0.823	1.832	5.8	17.8	170 E	12	83	10 8	20 52.67	- 4 12.8	0.930	1.663	31.7	18.8	119 E	41	68
7 5	18 18.73	-33 42.7	0.813	1.816	7.6	17.8	166 E	11	82	10 13	21 1.35	- 5 36.8	0.971	1.670	32.5	18.9	116 E	39	70
7 10	18 12.79	-33 59.5	0.807	1.801	10.2	17.9	162 E	11	82	10 23	21 20.07	- 7 51.8	1.061	1.687	33.6	19.2	110 E	37	72
7 15	18 7.30	-34 10.9	0.807	1.786	13.1	18.0	157 E	11	82	11 2	21 40.14	- 9 24.4	1.162	1.708	34.2	19.4	105 E	36	73
7 20	18 2.54	-34 17.0	0.811	1.771	16.0	18.1	151 E	11	82	11 12	22 1.10	-10 18.2	1.271	1.731	34.4	19.6	99 E	35	74*
7 25	17 58.73	-34 18.3	0.820	1.757	18.8	18.2	146 E	11	82	11 17	22 11.78	-10 31.9	1.328	1.744	34.3	19.7	97 E	34	73*
7 30	17 56.03	-34 15.5	0.832	1.743	21.5	18.3	141 E	11	82	11 22	22 22.53	-10 37.9	1.388	1.758	34.1	19.9	94 E	34	72*
8 4	17 54.57	-34 9.2	0.848	1.729	23.9	18.4	136 E	11	82	11 27	22 33.32	-10 36.8	1.448	1.772	33.8	20.0	91 E	34	71*
8 14	17 55.58	-33 49.0	0.887	1.703	28.3	18.5	127 E	11	82	12 2	22 44.14	-10 29.1	1.510	1.787	33.5	20.1	89 E	35	68*
8 24	18 1.77	-33 21.4	0.936	1.679	31.7	18.7	119 E	12	83	12 7	22 54.95	-10 15.5	1.574	1.802	33.1	20.2	86 E	35	66*
9 3	18 12.63	-32 47.5	0.990	1.657	34.4	18.9	112 E	12	83	12 12	23 5.74	- 9 56.6	1.638	1.818	32.6	20.2	84 E	35	64*
9 8	18 19.62	-32 27.9	1.019	1.647	35.4	19.0	109 E	13	84	12 17	23 16.50	- 9 33.0	1.703	1.834	32.0	20.3	81 E	35	61*
9 13	18 27.54	-32 6.3	1.049	1.637	36.3	19.1	106 E	13	84	12 22	23 27.20	- 9 5.3	1.769	1.851	31.4	20.4	79 E	36	59*
9 18	18 36.31	-31 42.3	1.080	1.628	37.0	19.1	103 E	13	84	12 27	23 37.85	- 8 33.9	1.835	1.868	30.8	20.5	76 E	36	56*
9 23	18 45.81	-31 15.6	1.111	1.620	37.6	19.2	100 E	14	85	1 1	23 48.44	- 7 59.3	1.902	1.886	30.1	20.6	74 E	37	53*
9 28	18 55.97	-30 46.0	1.143	1.613	38.1	19.3	97 E	14	85	1 6	23 58.98	- 7 22.1	1.969	1.904	29.4	20.7	72 E	38*	51*
10 3	19 6.71	-30 13.0	1.176	1.606	38.4	19.3	95 E	15	86*	1 11	0 9.45	- 6 42.5	2.036	1.922	28.6	20.7	69 E	38*	49*
10 8	19 17.96	-29 36.5	1.209	1.600	38.6	19.4	92 E	15	85*	1 16	0 19.86	- 6 1.1	2.104	1.941	27.8	20.8	67 E	38*	46*
10 13	19 29.65	-28 56.2	1.243	1.595	38.7	19.4	90 E	16	84*	1 21	0 30.20	- 5 18.2	2.171	1.959	26.9	20.9	64 E	38*	44*
10 18	19 41.70	-28 11.9	1.277	1.590	38.8	19.5	88 E	17	82*	25143 Itokawa									
10 23	19 54.04	-27 23.5	1.311	1.586	38.7	19.5	86 E	18	80*	1 26	16 48.62	-21 25.3	1.197	0.984	52.6	21.5	53 W	20*	44*
10 28	20 6.61	-26 30.9	1.346	1.584	38.6	19.6	84 E	18	77*	1 31	17 13.39	-22 6.7	1.199	0.974	52.7	21.5	52 W	19*	44*
11 2	20 19.36	-25 34.2	1.382	1.581	38.4	19.6	82 E	19	75*	2 5	17 38.25	-22 33.9	1.204	0.966	52.7	21.5	51 W	18*	44*
11 7	20 32.25	-24 33.3	1.418	1.580	38.1	19.7	80 E	20	73*	2 10	18 3.06	-22 46.6	1.212	0.959	52.5	21.5	50 W	16*	43*
11 12	20 45.22	-23 28.4	1.455	1.580	37.8	19.7	78 E	22	70*	2 15	18 27.64	-22 45.1	1.222	0.955	52.2	21.5	50 W	15*	43*
11 17	20 58.25	-22 19.7	1.492	1.580	37.4	19.8	76 E	23	67*	2 20	19 15.86	-22 29.6	1.233	0.953	51.8	21.5	49 W	14*	43*
11 22	21 11.28	-21 7.3	1.530	1.582	37.0	19.8	74 E	24	65*	3 2	19 55.99	-22 1.2	1.247	0.954	51.4	21.5	49 W	14*	42*
11 27	21 24.30	-19 51.5	1.568	1.584	36.5	19.9	73 E	25	62*	3 25	19 38.73	-21 20.9	1.262	0.957	50.8	21.5	48 W	13*	42*
12 2	21 37.29	-18 32.5	1.607	1.586	36.0	19.9	71 E	26	59*	249886 2001 RY₁₁									
12 7	21 50.22	-17 10.5	1.647	1.590	35.4	19.9	69 E	28*	56*	1 26	16 50.32	-39 30.8	2.168	1.744	26.4	21.5	52 W	3*	46*
12 12	22 3.09	-15 46.1	1.687	1.															

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

21/22	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	21/22	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°
249886 2001 RY₁₁										241281 2007 UF₂									
<i>(continuation)</i>										<i>(continuation)</i>									
4 16	20 56.79	-31 53.2	1.289	1.470	42.0	20.4	79 W	5*	70*	6 20	21 55.01	-30 48.1	0.852	1.670	29.3	18.7	126 W	14*	85
4 21	21 11.11	-30 16.0	1.234	1.449	43.1	20.3	80 W	6*	72*	6 25	22 2.46	-31 46.7	0.816	1.659	28.2	18.6	129 W	13*	84
4 26	21 25.22	-28 28.5	1.179	1.429	44.1	20.2	81 W	8*	74*	6 30	22 9.27	-32 50.6	0.784	1.649	27.1	18.5	132 W	12	83
5 1	21 39.14	-26 30.1	1.126	1.408	45.2	20.1	82 W	9*	76*	7 5	22 15.36	-33 59.4	0.754	1.640	25.9	18.3	135 W	11	82
5 6	21 52.89	-24 20.1	1.074	1.387	46.2	20.0	83 W	11*	77*	7 10	22 20.60	-35 12.3	0.727	1.632	24.6	18.2	138 W	10	81
5 11	22 6.49	-21 57.7	1.023	1.367	47.4	19.9	84 W	13*	78*	7 15	22 24.93	-36 28.0	0.704	1.624	23.3	18.1	141 W	9	80
5 16	22 19.97	-19 22.0	0.974	1.346	48.5	19.8	85 W	15*	79*	7 20	22 28.25	-37 44.7	0.685	1.617	22.1	18.0	143 W	7	78
5 21	22 33.36	-16 31.9	0.927	1.325	49.6	19.7	86 W	18*	78*	7 25	22 30.53	-39 0.3	0.669	1.611	21.0	17.9	145 W	6	77
5 26	22 46.73	-13 26.7	0.882	1.304	50.8	19.6	87 W	20*	76*	7 30	22 31.73	-40 12.7	0.656	1.606	20.0	17.8	147 W	5	76
5 31	23 0.13	-10 5.2	0.839	1.284	52.1	19.5	87 W	24*	74*	8 4	22 31.85	-41 19.2	0.647	1.602	19.4	17.8	148 W	4	75
6 5	23 13.64	-6 26.9	0.800	1.264	53.3	19.4	87 W	27*	70*	8 9	22 30.95	-42 17.1	0.642	1.599	19.0	17.7	149 W	3	74
6 15	23 41.28	+1 41.1	0.730	1.224	56.0	19.2	87 W	35*	62	8 14	22 29.20	-43 3.7	0.640	1.596	19.1	17.7	149 W	2	73
6 25	0 10.46	+10 52.6	0.676	1.187	58.7	19.0	87 W	44*	53	8 19	22 26.82	-43 36.9	0.642	1.594	19.4	17.7	148 W	1	72
7 5	0 42.37	+20 48.1	0.639	1.154	61.4	18.9	85 W	54*	43	8 24	22 24.06	-43 55.1	0.647	1.594	20.1	17.8	147 W	1	72
7 10	0 59.79	+25 51.4	0.628	1.138	62.7	18.9	84 W	59*	38	8 29	22 21.20	-43 57.5	0.656	1.594	21.1	17.8	145 E	1	72
7 15	1 18.47	+30 50.6	0.622	1.124	63.8	18.9	83 W	63*	33	9 3	22 18.51	-43 44.0	0.668	1.595	22.2	17.9	143 E	1	72
7 20	1 38.66	+35 39.3	0.619	1.111	64.8	18.9	82 W	67*	28	9 8	22 16.26	-43 14.8	0.683	1.597	23.4	18.0	141 E	2	73
7 25	2 0.62	+40 11.2	0.621	1.099	65.7	18.9	80 W	70*	24	9 13	22 14.69	-42 30.9	0.701	1.600	24.7	18.1	138 E	2	73
7 30	2 24.58	+44 20.6	0.627	1.089	66.3	18.9	79 W	71*	20	9 18	22 13.95	-41 33.9	0.723	1.604	25.9	18.2	136 E	3	74
8 4	2 50.68	+48 2.6	0.635	1.080	66.8	18.9	78 W	72*	16	9 23	22 14.11	-40 25.4	0.747	1.609	27.1	18.3	133 E	5	76
8 9	3 18.94	+51 13.1	0.646	1.073	67.0	19.0	77 W	71*	13	9 28	22 15.19	-39 7.2	0.774	1.614	28.3	18.4	130 E	6	77
8 14	3 49.19	+53 49.0	0.658	1.068	67.1	19.0	76 W	70*	10*	10 3	22 17.16	-37 40.8	0.804	1.621	29.3	18.6	128 E	7	78
8 16	4 1.75	+54 41.2	0.663	1.066	67.1	19.0	76 W	69*	9*	10 8	22 20.01	-36 7.8	0.836	1.628	30.3	18.7	125 E	9	80
8 18	4 14.53	+55 27.7	0.668	1.065	67.0	19.0	76 W	69*	8*	10 13	22 23.66	-34 29.4	0.871	1.636	31.1	18.8	122 E	11	82
8 20	4 27.48	+56 8.3	0.674	1.064	66.9	19.0	75 W	68*	8*	10 18	22 28.05	-32 46.9	0.909	1.645	31.9	18.9	119 E	12	83
8 22	4 40.56	+56 43.2	0.679	1.063	66.8	19.0	75 W	68*	7*	10 23	22 33.07	-31 1.5	0.948	1.654	32.5	19.1	117 E	14	85
8 24	4 53.69	+57 12.4	0.685	1.063	66.7	19.1	75 W	67*	6*	10 28	22 38.65	-29 14.0	0.991	1.664	33.0	19.2	114 E	16	87
8 26	5 6.84	+57 36.0	0.690	1.063	66.5	19.1	75 W	67*	6*	11 2	22 44.72	-27 25.0	1.035	1.675	33.5	19.3	111 E	18	89
8 28	5 19.94	+57 54.3	0.696	1.063	66.3	19.1	75 W	66*	5*	11 7	22 51.21	-25 35.3	1.082	1.687	33.8	19.4	109 E	19	90
8 30	5 32.92	+58 7.5	0.701	1.063	66.1	19.1	74 W	66*	5*	11 12	22 58.08	-23 45.2	1.131	1.699	34.0	19.5	106 E	21	88
9 1	5 45.75	+58 15.7	0.707	1.064	65.9	19.1	74 W	66*	4*	11 17	23 5.27	-21 55.4	1.182	1.712	34.1	19.6	104 E	23	86
9 3	5 58.35	+58 19.2	0.712	1.065	65.7	19.1	74 W	65*	4*	11 22	23 12.73	-20 6.0	1.235	1.725	34.2	19.8	101 E	25	84
9 5	6 10.69	+58 18.3	0.717	1.067	65.5	19.1	74 W	65*	4*	12 2	23 28.29	-16 30.1	1.346	1.754	34.0	20.0	96 E	29	80*
9 7	6 22.72	+58 13.4	0.722	1.068	65.2	19.1	74 W	65*	3*	12 12	23 44.57	-12 58.9	1.464	1.784	33.5	20.2	91 E	32	73*
9 9	6 34.42	+58 4.6	0.726	1.070	65.0	19.2	74 W	65*	3*	12 22	0 1.38	-9 33.9	1.587	1.815	32.7	20.4	86 E	35	65*
9 11	6 45.74	+57 52.2	0.730	1.072	64.7	19.2	74 W	65*	3*	1 1	0 18.60	-6 15.9	1.715	1.849	31.8	20.6	82 E	39	58*
9 13	6 56.69	+57 36.6	0.735	1.075	64.4	19.2	74 W	65*	3*	1 11	0 36.17	-3 5.4	1.847	1.883	30.6	20.7	77 E	42	52*
9 18	7 22.29	+56 45.3	0.743	1.082	63.6	19.2	75 W	65*	3*	1 21	0 54.04	-0 3.0	1.980	1.918	29.2	20.9	72 E	44*	46*
9 23	7 45.36	+55 39.7	0.751	1.091	62.9	19.2	75 W	66*	4*	327087 2004 XH₁									
9 28	8 5.99	+54 23.4	0.755	1.102	62.0	19.2	76 W	67*	4*	1 26	16 57.06	-29 14.8	2.527	2.039	21.7	21.4	50 W	12*	44*
10 3	8 24.32	+52 59.3	0.758	1.114	61.2	19.2	77 W	68*	5*	2 5	17 22.85	-30 21.8	2.385	1.982	23.9	21.3	54 W	11*	48*
10 8	8 40.52	+51 30.0	0.758	1.127	60.3	19.2	79 W	70*	6*	2 15	17 49.92	-31 17.1	2.243	1.926	26.0	21.2	59 W	10*	53*
10 13	8 54.77	+49 57.2	0.755	1.142	59.4	19.2	80 W	72*	8*	2 25	18 18.27	-31 58.4	2.103	1.869	28.1	21.0	63 W	10*	57*
10 18	9 7.23	+48 22.3	0.750	1.158	58.4	19.2	82 W	74*	9*	3 7	18 47.89	-32 23.6	1.966	1.814	30.1	20.9	66 W	9*	60*
10 23	9 18.04	+46 46.4	0.743	1.175	57.4	19.2	84 W	77*	11*	3 17	19 18.71	-32 30.1	1.833	1.760	32.1	20.7	70 W	8*	63*
10 28	9 27.31	+45 10.3	0.733	1.192	56.2	19.1	86 W	79*	13*	3 27	19 50.57	-32 15.7	1.707	1.707	34.0	20.5	73 W	7*	65*
11 2	9 35.08	+43 34.7	0.720	1.210	55.0	19.1	88 W	82*	15*	4 6	20 23.29	-31 38.0	1.587	1.656	35.9	20.4	76 W	7*	68*
11 12	9 46.13	+40 26.4	0.689	1.249	52.2	19.0	94 W	85*	19*	4 11	20 39.89	-31 9.8	1.531	1.632	36.8	20.3	77 W	7*	69*
11 22	9 50.98	+37 21.8	0.651	1.289	48.6	18.8	102 W	82*	24*	4 16	20 56.59	-30 35.2	1.476	1.608	37.7	20.2	78 W	6*	70*
12 2	9 48.97	+34 18.4	0.610	1.330	43.9	18.6	111 W	79	29*	4 21	21 13.35	-29 53.9	1.424	1.585	38.6	20.1	79 W	6*	71*
12 7	9 45.06	+32 45.4	0.589	1.351	41.0	18.5	116 W	78	31*	4 26	21 30.13	-29 6.0	1.374	1.563	39.4	20.0	80 W	7*	73*
12 12	9 39.07	+31 9.8	0.569	1.372	37.6	18.4	122 W	76	33	5 1	21 46.88	-28 11.4	1.327	1.542	40.3	19.9	81 W	7*	74*
12 17	9 30.98	+29 30.3	0.551	1.393	33.8	18.2	128 W	75	34	5 6	22 3.55	-27 10.3	1.282	1.522	41.1	19.9	82 W	7*	75*
12 22	9 20.81	+27 45.5	0.536	1.414	29.6	18.1	135 W	73	36	5 11	22 20.10	-26 2.7	1.239	1.503	41.9	19.8	83 W	8*	76*
12 27	9 8.74	+25 54.4	0.524	1.434	24.8	17.9	142 W	71	38	5 16	22 36.47	-24 49.1	1.199	1.485	42.6	19.7	84 W	8*	77*
1 1	8 55.07	+23 57.0	0.517	1.455	19.7	17.8	150 W	69	40	5 26	23 8.50	-22 4.8	1.125	1.453	44.0	19.6	85 W	10*	79*
1 6	8 40.34	+21 54.3	0.516	1.475	14.3	17.6	158 W	67	42	6 5	23 39.33	-19 0.9	1.060	1.427	45.2	19.4	87 W	13*	80*
1 11	8 25.22	+19 48.9	0.521	1.495	8.8	17.5	167 W	65	44	6 15	0 8.65	-15 42.1	1.003	1.407	46.2	19.3	88 W	17*	79*
1 16	8 10.40	+17 44.4	0.533	1.515	3.8	17.3	174 W	63	46	6 25	0 36.19	-12 13.4	0.953	1.394	46.8	19.2	90 W	21*	76*
1 21	7 56.54	+15 45.0	0.552	1.534	3.5	17.4	174 E	61	48	7 5	1 1.74	-8 39.6	0.908	1.388	47.1	19.1	92 W	27*	73
1 26	16 54.49	-20 0.4	2.620	2.148	21.0	21.5	51 W	21*	42*	7 15	1 25.01	-5 5.2	0.867	1.389	46.8	19.0	95 W	33*	69
2 5	17 15.58	-20 56.8	2.489	2.111	22.9	21.4	56 W	21*	48*	7 25									

