

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	19/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°
<b>6564 Asher</b>										<b>95711 2003 AK</b> (continuation)									
12 23	0 44.83	-17 42.3	1.777	2.065	28.4	20.2	92 E	27	78°	11 22	7 5.46	+ 9 8.6	1.440	2.223	19.3	18.2	132 W	54	55
12 28	0 48.27	-17 46.5	1.831	2.051	28.6	20.2	88 E	27	75°	11 27	7 4.23	+ 9 32.8	1.376	2.203	17.8	18.0	137 W	55	54
1 2	0 52.33	-17 45.1	1.882	2.036	28.7	20.3	84 E	27	71°	12 2	7 2.11	+10 3.6	1.317	2.183	16.0	17.9	142 W	55	54
1 7	0 56.94	-17 38.8	1.932	2.022	28.7	20.3	81 E	27	68°	12 7	6 59.07	+10 41.5	1.263	2.163	13.9	17.7	148 W	56	53
1 12	1 2.07	-17 28.3	1.981	2.007	28.5	20.4	77 E	28	65°	12 17	6 50.32	+12 20.2	1.172	2.123	9.2	17.3	160 W	57	52
1 17	1 7.69	-17 14.2	2.026	1.991	28.3	20.4	74 E	28	62°	12 27	6 38.52	+14 28.5	1.106	2.082	4.5	16.9	170 W	59	50
1 22	1 13.76	-16 56.8	2.070	1.976	28.0	20.4	71 E	28	59°	1 6	6 24.94	+17 0.2	1.068	2.041	5.5	16.8	169 E	62	47
2 1	1 27.18	-16 13.9	2.148	1.944	27.3	20.4	65 E	28	53°	1 16	6 11.41	+19 43.9	1.059	2.001	11.2	17.0	157 E	65	44
2 11	1 42.13	-15 22.8	2.214	1.912	26.4	20.4	59 E	26	49°	<b>220003 2002 PG<sub>45</sub></b>									
2 21	1 58.49	-14 25.7	2.268	1.879	25.4	20.4	55 E	24	45°	12 23	0 45.95	+ 5 52.1	1.243	1.742	33.5	19.5	102 E	51	57*
3 2	2 16.20	-13 24.6	2.310	1.845	24.5	20.4	50 E	21	42°	1 2	1 2.36	+ 7 55.9	1.359	1.767	33.5	19.7	97 E	53	53*
3 12	2 35.18	-12 21.3	2.339	1.811	23.6	20.3	47 E	18	40°	1 12	1 19.94	+ 9 59.9	1.480	1.795	33.2	19.9	91 E	55	48*
3 22	2 55.44	-11 17.3	2.356	1.777	22.8	20.3	44 E	14	37°	1 12	1 10.94	+ 12 1.9	1.604	1.823	32.6	20.1	86 E	57	44*
4 1	3 16.98	-10 14.0	2.363	1.742	22.2	20.2	41 E	10	35°	2 1	1 57.83	+14 0.2	1.731	1.853	31.7	20.3	81 E	59	40*
4 11	3 39.80	-9 12.8	2.361	1.707	21.8	20.2	39 E	6	33°	2 11	2 17.86	+15 53.3	1.860	1.884	30.5	20.4	76 E	59	37*
4 21	4 3.92	-8 14.8	2.352	1.673	21.5	20.1	38 E	2	31°	2 21	2 38.46	+17 39.5	1.991	1.916	29.2	20.6	71 E	57	34*
5 1	4 29.37	-7 21.4	2.337	1.639	21.4	20.1	36 E	—	30°	3 2	2 59.56	+19 17.8	2.121	1.949	27.8	20.7	66 E	55	31*
5 11	4 56.13	-6 33.6	2.319	1.606	21.4	20.0	35 E	—	28°	3 12	3 21.09	+20 46.9	2.250	1.982	26.2	20.8	62 E	51	29*
5 21	5 24.15	-5 52.5	2.300	1.574	21.4	19.9	35 E	—	26°	3 22	3 42.95	+22 5.8	2.377	2.016	24.5	20.9	57 E	47	27*
5 31	5 53.38	-5 19.0	2.281	1.544	21.4	19.9	34 E	—	24°	4 1	4 5.09	+23 13.9	2.501	2.049	22.7	21.0	52 E	42	25*
6 10	6 23.67	-4 49.7	2.265	1.514	21.3	19.8	33 E	—	22°	4 11	4 27.41	+24 10.5	2.621	2.083	20.8	21.1	48 E	38	23*
6 20	6 54.86	-4 36.9	2.254	1.487	21.0	19.8	32 E	—	20°	4 21	4 49.83	+24 55.2	2.737	2.117	18.9	21.2	43 E	33	22*
6 30	7 26.76	-4 28.7	2.248	1.463	20.5	19.7	30 E	—	17°	5 1	5 12.27	+25 27.8	2.846	2.151	16.9	21.2	38 E	28	20*
7 10	7 59.09	-4 28.7	2.249	1.441	19.7	19.6	29 E	—	15°	5 11	5 34.62	+25 48.4	2.950	2.185	14.9	21.3	34 E	23	18*
7 20	8 31.65	-4 35.9	2.256	1.422	18.6	19.6	27 E	—	13°	5 21	5 56.82	+25 57.1	3.045	2.218	12.9	21.3	29 E	18	15*
7 30	9 4.20	-4 49.3	2.269	1.406	17.2	19.5	24 E	—	10°	5 31	6 18.77	+25 54.4	3.133	2.251	10.8	21.3	25 E	13	13*
8 9	9 36.53	-5 7.4	2.286	1.394	15.5	19.5	22 E	—	8°	6 10	6 40.39	+25 40.6	3.212	2.284	8.7	21.3	20 E	9	10*
8 19	10 8.51	-5 28.7	2.307	1.386	13.5	19.4	19 E	—	5°	6 20	7 1.62	+25 16.4	3.281	2.316	6.6	21.3	15 E	5	6*
8 29	10 40.04	-5 51.5	2.329	1.382	11.2	19.3	15 E	—	3°	6 30	7 22.40	+24 42.7	3.339	2.347	4.6	21.3	11 E	2	3*
9 8	11 11.07	-6 14.2	2.351	1.382	8.7	19.3	12 E	—	—	7 10	7 42.67	+24 0.3	3.387	2.378	2.6	21.2	6 E	—	—
9 18	11 41.63	-6 35.2	2.372	1.386	6.1	19.2	8 W	—	—	7 20	8 2.41	+23 10.0	3.423	2.409	1.1	21.1	3 E	—	—
9 28	12 11.73	-6 52.9	2.389	1.394	3.7	19.1	5 W	—	—	8 9	8 21.57	+22 12.9	3.447	2.438	2.2	21.3	5 W	—	—
10 8	12 41.42	-7 5.7	2.402	1.406	2.5	19.0	4 W	—	—	8 9	8 40.14	+21 10.0	3.459	2.467	4.1	21.4	10 W	4	—
10 18	13 10.78	-7 12.1	2.410	1.422	4.0	19.1	6 W	—	—	<b>306441 1998 UV<sub>16</sub></b>									
10 28	13 39.85	-7 10.3	2.412	1.441	6.5	19.3	9 W	3*	—	12 23	0 47.90	-13 17.3	1.327	1.717	34.8	20.3	95 E	32	75*
11 7	14 8.68	-6 58.6	2.408	1.463	9.1	19.4	14 W	8*	—	12 28	0 56.56	-11 33.6	1.377	1.728	34.6	20.4	93 E	33	72*
11 17	14 37.31	-6 35.6	2.398	1.488	11.7	19.6	18 W	12*	1*	1 2	1 5.43	- 9 50.1	1.429	1.740	34.4	20.5	90 E	35	69*
11 27	15 5.73	-5 59.5	2.384	1.515	14.1	19.7	22 W	16*	1*	1 7	1 14.48	- 8 7.3	1.482	1.753	34.1	20.6	88 E	37	65*
12 7	15 33.90	-5 9.0	2.365	1.544	16.4	19.8	26 W	20*	3*	1 12	1 23.69	- 6 25.6	1.537	1.766	33.7	20.7	86 E	39	62*
12 17	16 1.78	-4 2.9	2.342	1.575	18.4	19.9	30 W	24*	6*	1 17	1 33.06	- 4 45.5	1.593	1.780	33.3	20.8	84 E	40	59*
12 27	16 29.27	-2 40.4	2.318	1.607	20.3	20.0	35 W	27*	9*	1 22	1 42.55	- 3 7.1	1.650	1.795	32.9	20.8	82 E	42	57*
1 6	16 56.27	-1 1.1	2.291	1.640	21.9	20.0	38 W	31*	13*	1 27	1 52.18	- 1 30.8	1.709	1.810	32.3	20.9	80 E	43	54*
1 16	17 22.68	+ 0 54.8	2.264	1.674	23.3	20.1	42 W	34*	17*	2 1	2 1.93	+ 0 3.2	1.768	1.826	31.8	21.0	77 E	45	52*
<b>95711 2003 AK</b>										<b>173457 2000 QG<sub>45</sub></b>									
12 23	0 45.01	-21 46.8	2.926	3.096	18.5	20.4	91 E	23	81°	2 6	2 11.79	+ 1 34.7	1.829	1.842	31.2	21.1	75 E	46	49*
1 2	0 49.08	-20 2.1	3.051	3.086	18.4	20.5	83 E	25	72°	2 11	2 21.75	+ 3 3.3	1.890	1.859	30.5	21.1	73 E	47	47*
1 12	0 54.82	-18 13.1	3.173	3.075	18.0	20.6	75 E	27	62°	2 16	2 31.79	+ 4 29.0	1.952	1.877	29.8	21.2	71 E	47	45*
1 22	1 1.99	-16 21.8	3.290	3.063	17.3	20.6	68 E	28	56°	2 21	2 41.93	+ 5 51.6	2.015	1.894	29.1	21.3	69 E	47	43*
2 1	1 10.40	-14 29.6	3.400	3.049	16.4	20.7	61 E	29	49°	2 26	2 52.16	+ 7 11.0	2.078	1.913	28.3	21.3	67 E	47	41*
2 11	1 19.86	-12 37.5	3.500	3.035	15.3	20.7	54 E	27	43°	3 2	3 2.46	+ 8 27.1	2.142	1.931	27.6	21.4	64 E	46	40*
2 21	1 30.22	-10 46.6	3.590	3.020	14.1	20.7	48 E	24	38°	3 7	3 12.84	+ 9 39.7	2.205	1.950	26.7	21.5	62 E	45	38*
3 2	1 41.36	- 8 57.5	3.667	3.004	12.7	20.7	42 E	20	33°	<b>217517 2006 UZ<sub>143</sub></b>									
3 12	1 53.16	- 7 11.1	3.732	2.986	11.3	20.6	36 E	16	28°	12 23	0 48.17	+ 2 37.4	1.387	1.854	31.3	20.6	102 E	48	60*
3 22	2 5.55	- 5 27.8	3.783	2.968	9.8	20.6	31 E	11	24°	1 2	1 2.66	+ 4 16.2	1.514	1.880	31.4	20.8	95 E	49	56*
4 1	2 18.44	- 3 48.4	3.820	2.949	8.4	20.5	25 E	5	19°	1 12	1 18.30	+ 5 59.6	1.645	1.907	31.0	21.0	89 E	51	52*
4 11	2 31.78	- 2 13.2	3.842	2.928	7.1	20.5	21 E	—	15°	1 22	1 34.88	+ 7 45.0	1.777	1.935	30.4	21.2	84 E	53	47*
4 21	2 45.51	- 0 42.9	3.849	2.907	6.0	20.4	18 E	—	11°	2 1	1 52.27	+ 9 30.5	1.911	1.962	29.4	21.4	78 E	54	43*
5 1	2 59.59	+ 0 42.1	3.842	2.885	5.4	20.4	16 E	—	6°	2 11	2 10.32	+11 14.1	2.045	1.991	28.3	21.5	73 E	54	39*
5 11	3 13.96	+ 2 1.4	3.820	2.861	5.5	20.3	16 E												

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	19/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°
<b>1011 Laodamia</b> (continuation)										<b>86401 2000 AF<sub>143</sub></b> (continuation)									
4 11	4 3.72	+17 47.3	2.270	1.653	23.5	16.7	41 E	29*	24*	3 22	2 19.37	+16 54.1	3.754	3.015	11.4	20.6	37 E	29*	15*
4 21	4 30.62	+19 15.0	2.299	1.628	22.3	16.7	38 E	26*	22*	4 1	2 32.99	+17 50.4	3.834	3.013	9.6	20.5	30 E	23*	12*
5 1	4 58.77	+20 27.3	2.325	1.606	21.0	16.6	35 E	22*	21*	4 11	2 47.06	+18 45.9	3.899	3.010	7.7	20.5	24 E	17*	8*
5 11	5 27.99	+21 21.6	2.350	1.587	19.8	16.6	32 E	19*	19*	4 21	3 1.53	+19 39.7	3.948	3.006	5.8	20.4	18 E	11*	5*
5 21	5 58.11	+21 55.4	2.373	1.573	18.5	16.5	29 E	15*	18*	5 1	3 16.33	+20 30.9	3.981	3.001	3.9	20.3	12 E	5*	1*
5 31	6 28.88	+22 7.1	2.396	1.562	17.1	16.5	27 E	12*	17*	5 11	3 31.41	+21 18.9	3.998	2.995	1.9	20.2	6 E	—	—
6 10	7 0.01	+21 55.7	2.420	1.555	15.8	16.5	25 E	9*	16*	5 21	3 46.72	+22 3.0	3.999	2.988	0.8	20.1	2 W	—	—
6 20	7 31.24	+21 21.2	2.445	1.553	14.4	16.4	22 E	7*	14*	5 31	4 2.21	+22 42.6	3.984	2.980	2.4	20.2	7 W	—	—
6 30	8 2.28	+20 24.1	2.470	1.555	13.0	16.4	20 E	5*	13*	6 10	4 17.80	+23 17.3	3.953	2.972	4.3	20.3	13 W	2*	5*
7 10	8 32.89	+19 6.2	2.498	1.561	11.5	16.4	18 E	3*	11*	6 20	4 33.44	+23 46.7	3.907	2.962	6.3	20.4	19 W	6*	10*
7 20	9 2.89	+17 29.7	2.526	1.572	10.0	16.4	16 E	1*	9*	6 30	4 49.05	+24 10.5	3.845	2.952	8.2	20.4	25 W	11*	14*
7 30	9 32.15	+15 37.2	2.557	1.586	8.5	16.4	13 E	—	7*	7 10	5 4.56	+24 28.5	3.770	2.940	10.1	20.5	31 W	16*	18*
8 9	10 0.59	+13 31.9	2.588	1.604	6.9	16.3	11 E	—	5*	7 20	5 19.88	+24 40.8	3.680	2.928	11.9	20.5	37 W	22*	22*
8 19	10 28.21	+11 16.8	2.620	1.626	5.3	16.3	9 E	—	2*	7 30	5 34.91	+24 47.3	3.577	2.914	13.7	20.5	43 W	28*	25*
8 29	10 55.01	+8 54.9	2.652	1.651	3.7	16.3	6 E	—	—	8 9	5 49.54	+24 48.3	3.462	2.900	15.3	20.5	49 W	35*	31*
9 8	11 21.03	+6 29.3	2.683	1.679	2.2	16.3	4 E	—	—	8 19	6 3.65	+24 44.1	3.337	2.885	16.8	20.4	55 W	42*	30*
9 18	11 46.34	+4 2.6	2.713	1.709	1.4	16.3	2 E	—	—	8 29	6 17.09	+24 35.1	3.201	2.868	18.1	20.4	62 W	48*	32*
9 28	12 11.00	+1 37.1	2.740	1.742	2.3	16.4	4 W	—	—	9 8	6 29.71	+24 22.1	3.057	2.851	19.2	20.3	69 W	55*	34*
10 8	12 35.08	+0 44.8	2.764	1.777	4.0	16.6	7 W	1*	—	9 18	6 41.32	+24 5.7	2.906	2.833	20.1	20.2	76 W	61*	36*
10 18	12 58.63	-3 1.3	2.784	1.814	5.8	16.7	11 W	4*	—	9 28	6 51.70	+23 46.9	2.751	2.814	20.7	20.1	83 W	66*	38*
10 28	13 21.70	-5 10.8	2.798	1.852	7.6	16.9	14 W	8*	1*	10 8	7 0.60	+23 26.7	2.592	2.795	20.9	19.9	91 W	68*	39*
11 7	13 44.31	-7 11.9	2.806	1.891	9.4	17.0	18 W	11*	4*	10 18	7 7.75	+23 6.4	2.434	2.774	20.8	19.8	99 W	68	41
11 17	14 6.47	-9 3.5	2.807	1.931	11.3	17.1	22 W	15*	7*	10 28	7 12.79	+22 47.2	2.278	2.752	20.1	19.6	108 W	68	41
11 27	14 28.16	-10 44.6	2.800	1.971	13.1	17.2	27 W	18*	12*	11 7	7 15.41	+22 30.1	2.128	2.730	18.8	19.4	117 W	68	41
12 7	14 49.35	-12 14.5	2.784	2.013	14.9	17.3	32 W	20*	16*	11 17	7 15.26	+22 15.9	1.989	2.706	16.9	19.2	127 W	67	42
12 17	15 9.98	-13 32.8	2.759	2.054	16.6	17.4	37 W	23*	22*	11 27	7 12.08	+22 5.1	1.864	2.682	14.2	18.9	138 W	67	42
12 27	15 29.95	-14 39.3	2.724	2.096	18.2	17.5	42 W	24*	27*	12 7	7 5.84	+21 57.2	1.759	2.657	10.7	18.6	150 W	67	42
1 6	15 49.17	-15 34.0	2.680	2.137	19.7	17.5	47 W	25*	34*	12 17	6 56.78	+21 50.8	1.678	2.631	6.6	18.3	162 W	67	42
1 16	16 7.51	-16 17.1	2.626	2.179	21.1	17.6	53 W	26*	41*	12 22	6 51.41	+21 47.7	1.647	2.618	4.4	18.2	168 W	67	42
<b>501647 2014 SD<sub>224</sub></b>										12 27	6 45.65	+21 44.3	1.624	2.605	2.0	18.0	175 W	67	42
12 23	0 52.00	+16 49.8	0.211	1.067	61.5	21.3	108 E	62	47*	1 1	6 39.66	+21 40.5	1.608	2.591	0.7	17.8	178 E	67	42
12 28	0 42.88	+13 47.9	0.215	1.041	68.7	21.5	100 E	59	48*	1 6	6 33.61	+21 36.2	1.600	2.577	3.0	18.0	172 E	67	42
1 2	0 35.50	+10 58.7	0.219	1.014	75.8	21.7	92 E	56	47*	1 11	6 27.67	+21 31.3	1.599	2.563	5.5	18.1	166 E	67	42
1 7	0 29.12	+8 18.1	0.222	0.986	82.9	21.9	84 E	53	46*	1 16	6 22.04	+21 26.0	1.605	2.549	7.9	18.2	159 E	66	43
1 12	0 22.98	+5 40.8	0.223	0.957	90.3	22.1	77 E	51*	43*	<b>270073 2001 PR<sub>49</sub></b>									
12 23	0 52.22	-23 2.0	0.988	1.412	44.1	20.7	92 E	22	83*	12 23	0 54.14	+1 37.4	0.903	1.472	40.7	20.3	102 E	47	62*
12 28	1 2.65	-19 23.4	1.071	1.462	42.3	20.9	91 E	26	79*	12 28	1 4.77	+1 44.3	0.944	1.475	41.0	20.4	100 E	47	61*
1 2	1 12.18	-16 8.0	1.157	1.510	40.6	21.1	89	29	74*	1 2	1 15.65	+1 57.8	0.985	1.479	41.3	20.5	97 E	47	60*
1 7	1 21.08	-13 12.5	1.245	1.556	39.2	21.3	88 E	32	70*	1 7	1 26.75	+2 17.0	1.027	1.483	41.3	20.6	95 E	47	58*
1 12	1 29.53	-10 33.9	1.335	1.600	37.8	21.5	86 E	34	66*	1 12	1 38.04	+2 40.9	1.070	1.487	41.3	20.7	93 E	48	57*
12 23	0 53.57	+9 38.2	1.311	1.837	31.1	19.4	105 E	55	54*	1 17	1 49.50	+3 8.7	1.113	1.492	41.2	20.8	91	48	56*
1 2	1 8.05	+10 58.1	1.435	1.863	31.4	19.7	99 E	56	51*	1 22	2 1.12	+3 39.7	1.157	1.497	41.1	20.9	88 E	49	54*
1 12	1 23.92	+12 23.7	1.563	1.890	31.3	19.9	93 E	57	47*	1 27	2 12.89	+4 13.4	1.201	1.503	40.8	21.0	86 E	49	53*
1 22	1 40.89	+13 52.2	1.694	1.918	30.8	20.1	87 E	59	43*	2 1	2 24.79	+4 48.9	1.246	1.509	40.5	21.1	84 E	50	52*
2 1	1 58.79	+15 21.7	1.827	1.946	30.1	20.3	82 E	60*	39*	2 6	2 36.82	+5 25.8	1.290	1.515	40.1	21.1	82 E	50*	50*
2 11	2 17.48	+16 50.0	1.961	1.975	29.0	20.4	76 E	60*	36*	2 11	2 48.96	+6 3.3	1.335	1.522	39.7	21.2	80 E	51*	49*
2 21	2 36.81	+18 15.2	2.095	2.005	27.8	20.6	71 E	58*	33*	2 16	3 1.21	+6 41.1	1.381	1.529	39.3	21.3	79	51*	48*
3 2	2 56.71	+19 35.8	2.227	2.034	26.4	20.7	66 E	54*	31*	2 21	3 13.56	+7 18.6	1.426	1.536	38.8	21.4	77 E	51*	47*
3 12	3 17.08	+20 50.2	2.358	2.064	24.8	20.8	61 E	50*	28*	2 26	3 26.01	+7 55.5	1.471	1.544	38.2	21.4	75 E	50*	46*
3 22	3 37.84	+21 57.3	2.485	2.094	23.2	20.9	56 E	46*	26*	3 2	3 38.56	+8 31.3	1.517	1.552	37.7	21.5	73 E	50*	46*
4 1	3 58.92	+22 56.1	2.608	2.124	21.4	21.0	51 E	41*	24*	<b>283450 2001 AW<sub>1</sub></b>									
4 11	4 20.24	+23 45.6	2.725	2.154	19.6	21.0	46 E	36*	22*	12 23	0 54.15	+58 45.6	1.654	2.271	22.8	19.3	117 E	76	5*
4 21	4 41.71	+24 25.3	2.837	2.183	17.7	21.1	41 E	31*	21*	12 28	0 54.97	+57 43.5	1.669	2.250	23.6	19.3	114 E	77	6*
5 1	5 3.26	+24 54.6	2.941	2.212	15.7	21.1	36 E	26*	19*	1 2	0 57.32	+56 44.2	1.687	2.230	24.4	19.3	110 E	78	6*
5 11	5 24.81	+25 13.4	3.038	2.241	13.7	21.2	32 E	21*	16*	1 7	1 1.05	+55 48.3	1.706	2.209	25.1	19.3	107 E	79	6*
5 21	5 46.26	+25 21.6	3.126	2.269	11.6	21.2	27 E	16*	14*	1 12	1 6.00	+54 56.6	1.726	2.188	25.8	19.4	104 E	80	6*
5 31	6 7.55	+25 19.2	3.205	2.297	9.5	21.2	22 E	11*	11*	1 17	1 12.07	+54 9.2	1.748	2.166	26.5	19.4	101 E	81	6*
6 10	6 28.58	+25 6.6	3.275	2.325	7.4	21.1	17 E	6*	8*	1 22	1 19.17	+53 26.1	1.771	2.145	27.0	19.4	98 E	81*	6*
6 20	6 49.31	+24 44.1	3.334	2.351	5.3	21.1	12 E	3*	4*	1 27	1 27.19	+52 47.4	1.794	2.123	27.5	19.4	95 E	81*	6*
6 30	7 9.65	+24 12.3	3.381	2.378	3.3	21.0	8 E	—	—	2 1	1 36.09	+52 12.9	1.818	2.101	27.9	19.5	92 E	80*	6*
7 10	7 29.56	+23 32.0	3.418	2.403	1.3	21.0	3 E	—	—	2 6	1 45.77	+51 42.1	1.842	2.079	28.3	19.5	89 E	78*	6*
7 20	7 48.99	+22 43.7	3.442	2.428	1.2	21.0	3 W	—	—	2 11	1 56.19	+51 14.7	1.865	2.056	28.6	19.5	87 E	76*	5*
7 30	8 7.91	+21 48.3	3.454	2.452	3.2	21.2	8 W	1*	—	2 16	2 7.30	+50 50.1	1.888	2.034	28.9	19.5	84 W	74*	5*
8 9	8 26.26	+20 46																	

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	19/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°
<b>283450 2001 AW<sub>1</sub></b>										<b>193235 2000 SE<sub>2</sub></b>									
<i>(continuation)</i>																			
5 11	6 20.84	+41 10.5	2.177	1.652	26.3	19.3	46 E	39*	13*	12 23	0 56.37	+13 43.7	0.942	1.554	37.1	18.2	108 E	59	50*
5 16	6 36.69	+39 58.1	2.187	1.631	25.8	19.2	45 E	37*	14*	1 2	1 12.95	+16 16.4	1.014	1.554	38.2	18.4	102 E	61	46*
5 21	6 52.33	+38 39.9	2.197	1.610	25.3	19.2	43 E	35*	14*	1 12	1 32.27	+18 47.7	1.091	1.558	38.8	18.6	97 E	64	42*
5 31	7 22.89	+35 46.3	2.215	1.571	24.2	19.1	39 E	30*	16*	1 22	1 53.93	+21 14.1	1.172	1.567	38.9	18.8	93 E	66	38*
6 10	7 52.33	+32 30.9	2.232	1.534	23.0	19.1	36 E	25*	17*	2 1	2 17.63	+23 32.1	1.258	1.580	38.6	18.9	89 E	69*	35*
6 20	8 20.63	+28 55.3	2.247	1.501	21.6	19.0	33 E	20*	18*	2 11	2 43.07	+25 38.5	1.347	1.597	38.0	19.1	85 E	70*	32*
6 30	8 47.83	+25 1.5	2.261	1.470	20.2	18.9	30 E	15*	18*	2 21	3 9.93	+27 29.9	1.440	1.617	37.2	19.2	81 E	69*	30*
7 10	9 14.04	+20 51.8	2.273	1.444	18.7	18.8	27 E	11*	18*	3 2	3 37.98	+29 3.8	1.538	1.641	36.1	19.4	78 E	68*	28*
7 20	9 39.42	+16 28.5	2.284	1.421	17.1	18.8	24 E	7*	17*	3 12	4 6.88	+30 18.2	1.639	1.668	35.0	19.5	74 E	65*	27*
7 30	10 4.18	+11 53.7	2.294	1.404	15.6	18.7	22 E	3*	15*	3 17	4 21.55	+30 47.4	1.691	1.683	34.3	19.6	72 E	64*	27*
8 9	10 28.52	+7 10.1	2.304	1.392	14.2	18.6	20 E	—	14*	3 22	4 36.31	+31 11.3	1.744	1.698	33.6	19.7	71 E	62*	27*
8 19	10 52.69	+2 19.7	2.313	1.385	13.0	18.6	18 E	—	12*	3 27	4 51.13	+31 29.8	1.797	1.714	32.9	19.7	69 E	60*	26*
8 29	11 16.95	+2 34.7	2.322	1.384	12.1	18.6	17 E	—	10*	4 1	5 5.97	+31 42.9	1.852	1.731	32.2	19.8	67 E	58*	26*
9 8	11 41.55	+7 30.4	2.331	1.389	11.4	18.6	16 E	—	8*	4 6	5 20.78	+31 50.5	1.907	1.748	31.4	19.9	66 E	56*	26*
9 18	12 6.78	+12 24.4	2.342	1.399	11.1	18.6	16 E	—	6*	4 11	5 35.51	+31 52.8	1.962	1.765	30.6	19.9	64 E	54*	26*
9 28	12 32.92	+17 13.3	2.354	1.415	11.0	18.6	16 E	—	4*	4 16	5 50.15	+31 49.8	2.018	1.783	29.8	20.0	62 E	52*	26*
10 8	13 0.24	+21 52.8	2.368	1.435	11.1	18.6	16 E	—	2*	4 21	6 4.65	+31 41.9	2.075	1.802	29.0	20.0	60 E	50*	26*
10 18	13 29.02	+26 18.8	2.386	1.460	11.3	18.7	17 W	—	2*	4 26	6 19.00	+31 29.0	2.132	1.821	28.1	20.1	58 E	48*	26*
10 28	13 59.49	+30 26.4	2.406	1.489	11.6	18.8	18 W	—	4*	5 1	6 33.16	+31 11.5	2.189	1.840	27.2	20.1	57 E	45*	26*
11 2	14 15.40	+32 21.6	2.418	1.505	11.7	18.8	18 W	—	5*	5 6	6 47.11	+30 49.6	2.246	1.859	26.4	20.2	55 E	43*	26*
11 7	14 31.79	+34 10.3	2.430	1.522	11.8	18.9	18 W	—	6*	5 11	7 0.82	+30 23.5	2.303	1.879	25.5	20.2	53 E	41*	26*
11 12	14 48.66	+35 51.8	2.444	1.539	11.9	18.9	19 W	—	7*	5 16	7 14.30	+29 53.5	2.361	1.899	24.5	20.3	51 E	38*	26*
11 17	15 5.98	+37 25.7	2.457	1.558	12.0	18.9	19 W	—	8*	5 21	7 27.52	+29 19.8	2.418	1.920	23.6	20.3	49 E	35*	26*
11 22	15 23.74	+38 51.3	2.472	1.577	12.1	19.0	20 W	—	8*	5 31	7 53.20	+28 2.6	2.531	1.961	21.7	20.4	46 E	30*	26*
11 27	15 41.88	+40 8.1	2.487	1.596	12.2	19.0	20 W	—	9*	6 10	8 17.80	+26 33.9	2.642	2.002	19.7	20.5	42 E	25*	25*
12 2	16 0.37	+41 15.7	2.502	1.616	12.4	19.1	21 W	—	10*	6 20	8 41.35	+24 55.7	2.750	2.045	17.7	20.6	38 E	21*	24*
12 7	16 19.12	+42 14.0	2.518	1.637	12.5	19.1	21 W	—	10*	6 30	9 3.90	+23 9.8	2.854	2.087	15.7	20.6	34 E	17*	22*
12 12	16 38.07	+43 2.6	2.534	1.658	12.6	19.2	22 W	—	11*	7 10	9 25.49	+21 18.1	2.953	2.129	13.7	20.7	30 E	13*	20*
12 17	16 57.12	+43 41.7	2.549	1.679	12.7	19.2	22 W	—	11*	7 20	9 46.21	+19 21.8	3.046	2.172	11.6	20.7	25 E	10*	17*
12 22	17 16.17	+44 11.2	2.565	1.701	12.9	19.3	23 W	—	12*	7 30	10 6.12	+17 22.3	3.131	2.214	9.5	20.7	21 E	7*	13*
12 27	17 35.12	+44 31.5	2.580	1.723	13.1	19.3	23 W	—	13*	8 9	10 25.29	+15 20.9	3.208	2.256	7.4	20.7	17 E	5*	9*
1 1	17 53.86	+44 42.8	2.595	1.745	13.3	19.4	24 W	—	14*	8 19	10 43.79	+13 18.5	3.277	2.297	5.3	20.7	12 E	3*	5*
1 6	18 12.31	+44 45.6	2.609	1.767	13.6	19.4	25 W	—	14*	8 29	11 1.68	+11 16.1	3.335	2.339	3.4	20.7	8 E	1*	—
1 11	18 30.39	+44 40.5	2.623	1.790	13.9	19.5	26 W	—	15*	9 8	11 19.01	+9 14.5	3.382	2.379	2.0	20.7	5 E	—	—
1 16	18 48.02	+44 28.1	2.635	1.812	14.2	19.5	27 W	—	16*	9 18	11 35.84	+7 14.5	3.417	2.419	2.3	20.7	6 W	—	—
12 23	0 54.45	+18 29.3	1.227	1.803	31.1	20.5	109 E	63	45*	9 28	11 52.17	+5 16.9	3.440	2.458	4.0	20.9	10 W	4*	—
1 2	1 9.86	+19 23.7	1.351	1.836	31.5	20.7	103 E	64	43*	10 8	12 8.04	+3 22.2	3.449	2.497	5.9	21.0	15 W	9*	—
1 12	1 26.70	+20 24.2	1.481	1.869	31.5	21.0	97 E	65	40*	10 18	12 23.46	+1 31.2	3.445	2.535	7.9	21.2	20 W	14*	4*
1 22	1 44.67	+21 28.3	1.615	1.904	31.1	21.2	91 E	66	37*	10 28	12 38.40	+0 15.5	3.427	2.572	9.8	21.3	26 W	19*	9*
2 1	2 3.57	+22 34.2	1.752	1.939	30.4	21.4	85 E	67*	34*	11 7	12 52.84	+1 57.4	3.395	2.608	11.6	21.3	32 W	24*	13*
12 23	0 55.38	+20 24.7	1.147	1.662	35.3	20.0	102 E	45	63*	11 17	13 6.74	+3 33.9	3.349	2.644	13.4	21.4	38 W	28*	19*
1 2	1 13.29	+2 38.4	1.245	1.679	35.5	20.2	97 E	48	59*	11 27	13 20.03	+5 4.4	3.290	2.679	15.0	21.5	45 W	31*	24*
1 12	1 32.40	+4 55.2	1.348	1.700	35.3	20.4	92 E	50	54*	12 7	13 32.60	+6 28.5	3.217	2.712	16.5	21.5	51 W	34*	31*
1 22	1 52.46	+7 11.4	1.456	1.723	34.8	20.5	88 E	52	50*	12 17	13 44.36	+7 45.7	3.132	2.745	17.7	21.5	58 W	35*	38*
2 1	2 13.32	+9 24.4	1.569	1.748	34.0	20.7	83 E	54*	46*	12 27	13 55.14	+8 55.5	3.037	2.777	18.8	21.5	66 W	36*	46*
2 11	2 34.84	+11 31.3	1.685	1.776	33.0	20.9	79 E	56*	43*	1 6	14 4.77	+9 57.5	2.932	2.808	19.6	21.5	73 W	35*	55*
2 21	2 56.90	+13 30.1	1.804	1.806	31.8	21.0	74 E	55*	40*	1 16	14 13.04	+10 51.3	2.820	2.838	20.0	21.4	81 W	34	63*
3 2	3 19.41	+15 18.8	1.925	1.838	30.4	21.2	70 E	54*	37*	12 23	0 57.00	+7 33.0	1.043	1.613	36.0	20.3	105 E	53	56*
3 12	3 42.28	+16 56.1	2.048	1.871	28.9	21.3	66 E	51*	35*	12 28	1 7.51	+7 21.7	1.114	1.640	35.8	20.5	103 E	52	56*
3 22	4 5.40	+18 20.8	2.171	1.906	27.3	21.4	61 E	48*	33*	1 2	1 17.80	+7 17.3	1.187	1.667	35.5	20.6	100 E	52	55*
12 23	0 55.42	+14 28.2	1.241	1.662	36.1	20.0	96 E	31	77*	1 7	1 27.91	+7 18.8	1.261	1.693	35.2	20.8	97 E	52	54*
12 28	1 3.44	+12 52.7	1.277	1.660	36.2	20.1	94 E	32	74*	1 12	1 37.87	+7 25.2	1.336	1.719	34.8	20.9	94 E	52	53*
1 2	1 11.89	+11 14.8	1.315	1.659	36.3	20.2	91 E	34	71*	1 17	1 47.70	+7 35.7	1.412	1.745	34.3	21.1	92 E	53	52*
1 7	1 20.74	+9 35.4	1.353	1.659	36.3	20.2	89 E	35	68*	1 22	1 57.45	+7 49.4	1.489	1.770	33.8	21.2	89 E	53	50*
1 12	1 29.93	+7 54.8	1.392	1.660	36.3	20.3	87 E	37	65*	1 27	2 7.11	+8 5.8	1.567	1.795	33.2	21.3	86 E	53	49*
1 17	1 39.45	+6 13.8	1.432	1.662	36.1	20.4	85 E	39	62*	2 1	2 16.73	+8 24.3	1.645	1.819	32.6	21.5	83 E	53*	48*
1 22	1 49.28	+4 32.7	1.473	1.665	35.9	20.4	83 E	40	59*	12 23	0 57.13	+17 7.6	0.614	1.205	54.4	19.5	95 E	28	79*
2 1	2 9.75	+1 12.2	1.557	1.674	35.3	20.5	79 E	44*	54*	12 28	1 15.90	+16 12.4	0.653	1.226	53.1	19.7	95 E	29	78*
2 11	2 31.19	+2 2.7	1.645	1.686	34.4	20.6	75 E	46*	50*	1 2	1 33.48	+15 10.0	0.694	1.247	51.8	19.8	94 E	30	77*
2 21	2 53.46	+5 8.6	1.737	1.701	33.4	20.7	71 E	47*	46*	1 7	1 50.03	+14 2.5	0.737	1.268	50.7	19.9	94 E	31	75*
3 2	3 16.50	+8 2.7	1.832	1.720	32.2	20.9	68 E	47*	42*	1 12	2 5.73	+12 51.3	0.780	1.289	49.6	20.1	93 E	32	74*
3 12	3 40.17	+10 42.5	1.931	1.741	30.9	21.0	64 E	46*	40*	1 17	2 20.69	+11 37.7	0.825	1.310					

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	19/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°
<b>386655 2009 TA<sub>7</sub></b>										<b>459190 2012 DJ<sub>47</sub></b> (continuation)									
12 23	0 57.35	+15 44.9	1.331	1.889	29.6	20.3	109 E	61	48*	2 26	4 54.45	+46 53.0	1.401	1.853	31.7	20.6	100 E	88	17*
1 2	1 10.93	+16 37.3	1.459	1.919	30.1	20.5	102 E	62	45*	3 2	5 7.73	+45 19.2	1.466	1.878	31.5	20.7	98 E	90	18*
1 12	1 26.05	+17 37.5	1.592	1.949	30.1	20.8	95 E	63	42*	3 7	5 20.55	+43 48.7	1.533	1.903	31.3	20.9	95 E	89*	20*
1 22	1 42.40	+18 42.9	1.729	1.980	29.8	21.0	89 E	64	39*	3 12	5 32.93	+42 21.5	1.603	1.929	31.0	21.0	93 E	86*	21*
2 1	1 59.79	+19 51.3	1.868	2.011	29.1	21.1	84 E	65*	36*	3 17	5 44.93	+40 57.5	1.674	1.954	30.6	21.1	90 E	83*	23*
2 11	2 18.03	+21 0.5	2.008	2.043	28.2	21.3	78 E	64*	33*	3 22	5 56.58	+39 36.4	1.748	1.979	30.2	21.2	88 E	80*	24*
2 21	2 36.96	+22 8.4	2.148	2.074	27.0	21.5	72 E	61*	30*	3 27	6 7.92	+38 18.1	1.824	2.005	29.7	21.3	85 E	77*	25*
										4 1	6 18.98	+37 2.4	1.900	2.031	29.2	21.4	83 E	74*	26*
<b>183020 2002 PF<sub>97</sub></b>										<b>446889 2002 JW<sub>82</sub></b>									
12 23	0 57.59	- 6 11.3	1.581	2.002	28.9	20.3	100 E	39	69*	12 23	0 59.53	- 4 59.0	1.841	2.246	25.5	21.1	101 E	40	68*
1 2	1 9.50	- 4 4.7	1.721	2.035	28.8	20.5	94 E	41	64*	1 2	1 5.80	- 1 52.7	2.005	2.288	25.4	21.4	94 E	43	62*
1 12	1 22.61	- 1 56.8	1.864	2.068	28.4	20.7	87 E	43	59*	1 12	1 13.82	+ 1 2.5	2.174	2.330	24.9	21.6	86 E	46	55*
1 22	1 36.67	+ 0 10.2	2.009	2.101	27.6	20.9	81 E	45	53*	1 22	1 23.24	+ 3 47.8	2.344	2.372	24.1	21.8	80 E	49*	48*
2 1	1 51.56	+ 2 15.1	2.154	2.134	26.6	21.0	76 E	47*	48*	2 1	1 33.82	+ 6 23.9	2.514	2.414	22.9	21.9	73 E	50*	42*
2 11	2 7.13	+ 4 16.3	2.298	2.167	25.3	21.1	70 E	47*	44*	<b>217686 1999 RY<sub>90</sub></b>									
2 21	2 23.27	+ 6 12.7	2.440	2.199	23.9	21.3	64 E	45*	40*	12 23	1 0.14	+13 18.3	1.158	1.739	32.5	19.6	108 E	58	50*
3 2	2 39.92	+ 8 3.5	2.578	2.232	22.3	21.4	59 E	43*	36*	1 2	1 15.39	+14 53.5	1.272	1.764	33.0	19.8	102 E	60	47*
3 12	2 56.99	+ 9 47.7	2.711	2.264	20.6	21.5	53 E	39*	32*	1 12	1 32.26	+16 30.7	1.391	1.791	33.1	20.1	96 E	62	44*
<b>480924 2002 XA<sub>53</sub></b>										<b>446889 2002 JW<sub>82</sub></b>									
12 23	0 58.15	-19 25.8	2.177	2.456	23.5	21.3	94 E	26	82*	1 22	1 50.42	+18 7.6	1.514	1.819	32.7	20.3	91 E	63	40*
1 2	1 2.59	-16 57.0	2.267	2.422	23.9	21.3	87 E	28	73*	2 1	2 9.67	+19 42.5	1.641	1.849	32.1	20.5	86 E	65*	37*
1 12	1 9.22	-14 22.6	2.355	2.387	23.9	21.4	80 E	31	65*	2 11	2 29.83	+21 13.5	1.770	1.879	31.2	20.6	81 E	65*	34*
1 22	1 17.73	-11 44.9	2.441	2.352	23.6	21.4	73 E	33*	57*	2 21	2 50.73	+22 38.8	1.900	1.911	30.1	20.8	76 E	63*	32*
2 1	1 27.92	- 9 5.3	2.522	2.315	23.0	21.4	67 E	35*	50*	3 2	3 12.26	+23 57.0	2.031	1.942	28.8	20.9	71 E	60*	30*
2 11	1 39.55	+ 6 25.4	2.597	2.278	22.1	21.4	60 E	35*	45*	3 12	3 34.31	+25 6.7	2.161	1.975	27.3	21.1	66 E	56*	28*
2 21	1 52.48	- 3 46.0	2.665	2.241	21.1	21.4	55 E	33*	39*	3 22	3 56.76	+26 6.8	2.290	2.007	25.8	21.2	61 E	52*	26*
3 2	2 6.59	- 1 7.9	2.725	2.203	19.8	21.4	49 E	30*	34*	4 1	4 19.52	+26 56.4	2.416	2.040	24.1	21.3	56 E	47*	24*
3 12	2 21.80	+ 1 27.8	2.776	2.165	18.4	21.3	43 E	27*	30*	4 11	4 42.46	+27 34.8	2.539	2.073	22.3	21.4	52 E	43*	23*
3 22	2 38.03	+ 4 0.5	2.819	2.127	16.8	21.3	38 E	23*	26*	4 21	5 5.48	+28 1.6	2.658	2.106	20.5	21.5	47 E	37*	22*
4 1	2 55.28	+ 6 29.4	2.851	2.088	15.2	21.2	33 E	19*	22*	<b>86025 1999 LX<sub>3</sub></b>									
4 11	3 13.51	+ 8 53.6	2.875	2.049	13.4	21.1	28 E	14*	19*	12 23	1 0.85	+23 38.5	1.279	1.881	29.0	19.1	112 E	69	40*
4 21	3 32.74	+11 12.1	2.889	2.011	11.6	21.0	24 E	10*	15*	1 2	1 12.99	+21 17.3	1.368	1.866	30.8	19.3	104 E	66	41*
5 1	3 52.98	+13 24.0	2.895	1.972	9.7	20.9	19 E	6*	12*	1 12	1 27.27	+19 30.2	1.462	1.851	31.9	19.4	96 E	65	41*
5 11	4 14.23	+15 28.2	2.891	1.934	7.8	20.8	15 E	2*	8*	1 22	1 43.28	+18 11.9	1.560	1.835	32.4	19.6	89 E	63	40*
5 21	4 36.55	+17 23.5	2.880	1.896	5.8	20.6	11 E	-	5*	2 1	2 0.71	+17 17.1	1.657	1.819	32.5	19.7	83 E	62*	38*
5 31	4 59.93	+19 8.6	2.862	1.860	3.8	20.5	7 E	-	1*	2 11	2 19.33	+16 40.3	1.753	1.803	32.2	19.8	77 E	60*	37*
6 10	5 24.38	+20 42.1	2.836	1.824	1.9	20.3	3 E	-	-	2 21	2 38.95	+16 16.4	1.846	1.786	31.5	19.8	71 E	56*	35*
6 20	5 49.92	+22 2.8	2.804	1.789	1.0	20.2	2 W	-	-	3 2	2 59.47	+16 1.1	1.934	1.769	30.6	19.9	65 E	52*	34*
6 30	6 16.51	+23 9.1	2.767	1.756	2.7	20.2	5 W	-	-	3 12	3 20.78	+15 50.3	2.016	1.753	29.5	19.9	60 E	47*	33*
7 10	6 44.09	+23 59.6	2.726	1.724	4.7	20.3	8 W	-	-	3 22	3 42.79	+15 40.6	2.092	1.736	28.3	20.0	56 E	42*	32*
7 20	7 12.60	+24 33.2	2.680	1.695	6.7	20.3	11 W	4*	2*	4 1	4 5.46	+15 29.1	2.161	1.720	26.9	20.0	51 E	37*	31*
7 30	7 41.92	+24 48.7	2.632	1.667	8.7	20.3	14 W	7*	3*	4 11	4 28.71	+15 12.9	2.223	1.704	25.4	20.0	47 E	32*	30*
8 9	8 11.92	+24 45.3	2.581	1.643	10.7	20.3	17 W	11*	3*	4 21	4 52.50	+14 49.9	2.277	1.688	24.0	19.9	43 E	27*	29*
8 19	8 42.44	+24 22.6	2.530	1.621	12.6	20.3	20 W	14*	4*	5 1	5 16.77	+14 18.2	2.324	1.673	22.5	19.9	39 E	21*	28*
8 29	9 13.30	+23 40.9	2.478	1.602	14.5	20.3	23 W	17*	4*	5 11	5 41.45	+13 36.0	2.363	1.658	21.0	19.9	36 E	16*	27*
9 8	9 44.31	+22 40.9	2.428	1.587	16.2	20.3	26 W	20*	4*	5 21	6 6.49	+12 42.1	2.396	1.644	19.6	19.9	33 E	10*	25*
9 18	10 15.32	+21 23.8	2.378	1.575	17.9	20.3	29 W	23*	4*	5 31	6 31.85	+11 35.7	2.423	1.631	18.3	19.8	30 E	5*	24*
9 28	10 46.16	+19 51.7	2.331	1.567	19.5	20.3	31 W	25*	4*	6 10	6 57.45	+10 15.9	2.444	1.618	17.1	19.8	28 E	-	22*
10 8	11 16.68	+18 7.0	2.286	1.562	21.0	20.3	34 W	28*	5*	6 20	7 23.25	+ 8 42.8	2.461	1.607	15.9	19.8	26 E	-	20*
10 18	11 46.79	+16 12.8	2.244	1.562	22.4	20.3	37 W	31*	6*	6 30	7 49.23	+ 6 56.3	2.473	1.597	14.9	19.7	24 E	-	17*
10 28	12 16.35	+14 12.5	2.204	1.565	23.6	20.3	39 W	33*	7*	7 10	8 15.34	+ 4 57.1	2.482	1.588	14.0	19.7	22 E	-	14*
11 7	12 45.31	+12 9.5	2.166	1.573	24.8	20.3	42 W	36*	8*	7 20	8 41.58	+ 2 46.1	2.489	1.580	13.2	19.6	21 E	-	12*
11 17	13 13.60	+10 7.3	2.131	1.584	25.9	20.3	44 W	38*	11*	7 30	9 7.94	+ 0 24.6	2.494	1.574	12.5	19.6	20 E	-	9*
11 27	13 41.11	+ 8 9.2	2.096	1.599	26.9	20.3	47 W	40*	14*	8 9	9 34.43	- 2 5.7	2.497	1.569	11.8	19.6	19 E	-	6*
12 7	14 7.80	+ 6 18.1	2.061	1.617	27.9	20.4	50 W	42*	17*	8 19	10 1.09	- 4 42.7	2.501	1.566	11.3	19.6	18 E	-	3*
12 17	14 33.58	+ 4 36.4	2.026	1.638	28.7	20.4	53 W	43*	22*	8 29	10 27.94	- 7 24.3	2.504	1.564	10.7	19.5	17 W	-	2*
12 27	14 58.33	+ 3 6.1	1.988	1.662	29.6	20.4	57 W	43*	27*	9 8	10 55.04	-10 7.7	2.507	1.564	10.3	19.5	16 W	-	4*
1 6	15 21.96	+ 1 48.1	1.948	1.689	30.3	20.4	60 W	44*	32*	9 18	11 22.43	-12 50.2	2.510	1.566	9.9	19.5	16 W	-	5*
1 16	15 44.32	+ 0 43.2	1.904	1.718	31.0	20.4	64 W	44*	38*	9 28	11 50.16	-15 29.1	2.513	1.569	9.6	19.5	15 W	-	6*

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	19/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°
<b>337372 2001 QO<sub>40</sub></b>										<b>85839 1998 YO<sub>4</sub></b>									
<i>(continuation)</i>										<i>(continuation)</i>									
3 12	3 44.10	+15 49.6	2.043	1.871	29.0	21.1	66 E	51*	36*	4 21	4 5.65	+26 17.4	2.712	1.958	16.6	20.9	34 E	26*	13*
3 22	4 6.84	+17 16.6	2.165	1.904	27.4	21.2	62 E	47*	34*	5 1	4 28.23	+27 15.6	2.753	1.938	14.7	20.9	29 E	21*	11*
4 1	4 29.80	+18 30.4	2.287	1.938	25.7	21.3	57 E	43*	32*	5 11	4 51.65	+28 3.3	2.785	1.917	12.9	20.8	25 E	17*	9*
4 11	4 52.87	+19 30.4	2.407	1.973	23.9	21.4	53 E	39*	31*	5 21	5 15.87	+28 38.9	2.806	1.894	11.0	20.7	21 E	13*	6*
4 21	5 15.97	+20 16.4	2.525	2.008	22.1	21.5	49 E	34*	29*	5 31	5 40.80	+29 1.1	2.816	1.870	9.1	20.6	17 E	9*	4*
<b>377949 2006 HP<sub>152</sub></b>										<b>185726 1998 SR<sub>140</sub></b>									
12 23	1 1.62	+0 35.3	1.474	1.957	29.2	21.4	104 E	46	63*	6 10	6 6.35	+29 8.5	2.818	1.845	7.3	20.5	13 E	6*	2*
1 2	1 13.36	+2 16.8	1.608	1.984	29.5	21.6	97 E	47	59*	6 20	6 32.44	+29 0.2	2.810	1.818	5.6	20.4	10 E	3*	—
1 12	1 26.55	+4 2.5	1.745	2.011	29.3	21.8	91 E	49	54*	6 30	6 58.96	+28 35.2	2.793	1.789	4.2	20.3	7 E	1*	—
1 22	1 40.90	+5 50.1	1.884	2.038	28.7	22.0	84 E	51	50*	7 10	7 25.78	+27 52.7	2.768	1.760	3.4	20.2	6 E	—	—
2 1	1 56.24	+7 37.8	2.023	2.066	27.9	22.1	78 E	52*	45*	7 20	7 52.81	+26 52.4	2.736	1.729	3.7	20.1	6 W	—	—
<b>175622 2006 XX<sub>4</sub></b>										<b>390553 2000 SL<sub>164</sub></b>									
12 23	1 1.76	+3 21.0	1.522	2.014	28.2	20.5	105 E	48	60*	8 9	8 10.86	+17 23.9	2.487	1.564	11.7	20.1	18 W	12*	2*
1 2	1 14.21	+4 18.4	1.672	2.054	28.3	20.7	98 E	49	57*	8 19	8 47.12	+23 57.5	2.651	1.665	6.4	20.1	11 W	5*	—
1 12	1 27.76	+5 24.9	1.826	2.094	28.0	21.0	91 E	50	53*	8 29	9 41.44	+19 51.8	2.546	1.598	9.9	20.1	16 W	10*	—
1 22	1 42.17	+6 37.5	1.982	2.134	27.3	21.2	85 E	52	49*	9 8	10 8.56	+17 23.9	2.487	1.564	11.7	20.1	18 W	12*	2*
2 1	1 57.32	+7 53.5	2.139	2.174	26.4	21.3	79 E	53*	45*	9 18	10 35.71	+14 40.3	2.426	1.529	13.5	20.0	21 W	15*	3*
2 11	2 13.07	+9 10.8	2.295	2.213	25.2	21.5	73 E	52*	41*	9 28	11 2.96	+11 42.5	2.363	1.495	15.3	20.0	23 W	17*	5*
12 23	1 1.99	-32 23.4	1.355	1.663	36.2	17.9	89 E	13	82*	10 8	11 30.41	+8 31.8	2.299	1.462	17.1	19.9	25 W	19*	6*
12 28	1 10.69	-29 58.1	1.386	1.668	36.1	18.0	88 E	15	82*	10 18	11 58.20	+5 10.1	2.235	1.429	18.8	19.9	28 W	21*	8*
1 2	1 19.60	-27 30.7	1.418	1.673	35.9	18.0	86 E	17	80*	10 28	12 26.47	+1 39.7	2.173	1.398	20.5	19.8	30 W	22*	10*
1 7	1 28.70	-25 2.0	1.452	1.679	35.7	18.1	85 E	20	77*	11 7	12 55.40	-1 56.7	2.112	1.368	22.2	19.8	31 W	23*	13*
1 12	1 37.97	-22 32.9	1.488	1.687	35.4	18.2	83 E	22	74*	11 17	13 25.19	-5 35.9	2.054	1.340	23.8	19.7	33 W	24*	15*
1 17	1 47.39	-20 4.1	1.525	1.695	35.1	18.2	82 E	25	71*	11 27	13 56.02	-9 13.7	2.000	1.315	25.3	19.7	35 W	23*	18*
1 22	1 56.94	-17 36.3	1.565	1.704	34.7	18.3	80 E	27	68*	12 2	14 11.88	-11 0.7	1.974	1.304	26.1	19.6	36 W	23*	20*
1 27	2 6.63	-15 10.2	1.607	1.713	34.3	18.3	79 E	30	65*	12 7	14 28.08	-12 45.7	1.949	1.293	26.8	19.6	36 W	23*	21*
2 1	2 16.44	-12 46.5	1.650	1.724	33.9	18.4	77 E	32*	63*	12 12	14 44.62	-14 27.8	1.926	1.284	27.5	19.6	37 W	22*	23*
2 6	2 26.36	-10 25.9	1.696	1.735	33.4	18.4	76 E	34*	60*	12 17	15 1.52	-16 6.4	1.903	1.275	28.1	19.6	38 W	21*	24*
2 11	2 36.39	-8 8.8	1.743	1.747	32.8	18.5	74 E	36*	57*	12 22	15 18.79	-17 40.8	1.882	1.267	28.8	19.6	38 W	20*	26*
2 21	2 56.73	-3 47.0	1.844	1.774	31.6	18.6	70 E	39*	52*	12 27	15 36.42	-19 10.1	1.862	1.261	29.4	19.5	39 W	19*	28*
3 2	3 17.46	+0 16.1	1.951	1.803	30.3	18.7	67 E	40*	48*	1 1	15 54.41	-20 33.7	1.843	1.255	30.0	19.5	40 W	18*	29*
3 12	3 38.53	+3 58.5	2.063	1.834	28.8	18.9	63 E	40*	44*	1 6	16 12.75	-21 50.9	1.826	1.250	30.6	19.5	40 W	17*	31*
3 22	3 59.90	+7 19.3	2.179	1.868	27.1	19.0	59 E	39*	40*	1 11	16 31.42	-23 0.9	1.809	1.247	31.2	19.5	41 W	16*	32*
4 1	4 4 21.55	+10 18.0	2.298	1.903	25.4	19.1	55 E	36*	37*	1 16	16 50.37	-24 3.1	1.794	1.245	31.7	19.5	42 W	15*	33*
4 11	4 43.41	+12 54.7	2.418	1.940	23.5	19.2	50 E	33*	34*	12 23	1 2.47	+31 23.9	0.902	1.584	34.5	19.2	114 E	76	32*
4 21	5 5.42	+15 10.1	2.537	1.978	21.5	19.2	46 E	29*	31*	12 28	1 5.42	+32 35.0	0.942	1.582	35.6	19.3	110 E	78	31*
5 1	5 27.53	+17 5.0	2.654	2.017	19.4	19.3	42 E	25*	28*	1 2	1 9.68	+33 44.9	0.983	1.581	36.5	19.4	107 E	79	29*
5 11	5 49.66	+18 40.3	2.767	2.057	17.3	19.4	37 E	21*	25*	1 7	1 15.16	+34 53.9	1.024	1.580	37.2	19.5	104 E	80	27*
5 21	6 11.73	+19 57.2	2.876	2.098	15.1	19.4	33 E	16*	22*	1 12	1 21.78	+36 2.1	1.065	1.581	37.6	19.6	101 E	81	25*
5 31	6 33.67	+20 57.1	2.979	2.139	12.9	19.5	28 E	12*	19*	1 17	1 29.47	+37 9.3	1.107	1.582	38.0	19.7	98 E	82	23*
6 10	6 55.40	+21 41.2	3.074	2.181	10.7	19.5	24 E	8*	15*	1 22	1 38.19	+38 15.5	1.149	1.584	38.2	19.8	96 E	83	21*
6 20	7 16.85	+22 11.1	3.160	2.223	8.5	19.5	19 E	5*	11*	1 27	1 47.89	+39 20.3	1.191	1.587	38.3	19.9	93 E	84*	19*
6 30	7 37.97	+22 28.2	3.238	2.265	6.3	19.5	14 E	2*	7*	2 1	1 58.53	+40 23.6	1.233	1.590	38.3	20.0	91 E	84*	18*
7 10	7 58.70	+22 33.9	3.304	2.308	4.2	19.5	9 E	—	2*	2 11	2 22.49	+42 23.5	1.316	1.600	38.0	20.1	87 E	81*	15*
7 20	8 18.99	+22 29.9	3.360	2.350	2.2	19.4	5 E	—	—	2 21	2 49.80	+44 10.9	1.399	1.612	37.5	20.3	83 E	77*	13*
7 30	8 38.82	+22 17.6	3.404	2.392	1.6	19.5	4 E	—	—	3 2	3 20.19	+45 40.9	1.482	1.627	36.8	20.4	80 E	73*	12*
8 9	8 58.14	+21 58.7	3.435	2.433	3.1	19.6	7 W	1*	—	3 7	3 36.42	+46 18.0	1.523	1.635	36.4	20.5	78 E	71*	12*
8 19	9 16.96	+21 34.6	3.453	2.474	5.0	19.8	12 W	6*	—	3 12	3 53.23	+46 48.9	1.565	1.644	36.0	20.5	76 W	70*	12*
8 29	9 35.23	+21 6.9	3.458	2.515	7.0	19.9	18 W	12*	1*	3 17	4 10.56	+47 13.0	1.607	1.654	35.5	20.6	75 E	68*	11*
9 8	9 52.95	+20 37.4	3.450	2.556	9.0	20.0	23 W	17*	3*	3 22	4 28.32	+47 30.0	1.649	1.664	35.0	20.6	73 E	67*	11*
9 18	10 10.09	+20 7.5	3.428	2.596	10.8	20.1	29 W	23*	6*	3 27	4 46.42	+47 39.4	1.691	1.675	34.5	20.7	72 E	66*	12*
9 28	10 26.64	+19 39.0	3.393	2.635	12.6	20.2	35 W	29*	8*	4 1	5 4.73	+47 41.0	1.734	1.686	33.9	20.7	70 E	64*	12*
10 8	10 42.56	+19 13.8	3.345	2.674	14.2	20.3	41 W	35*	11*	4 6	5 23.16	+47 34.7	1.777	1.698	33.4	20.8	69 E	63*	12*
10 18	10 57.81	+18 53.5	3.284	2.712	15.7	20.3	47 W	41*	14*	4 11	5 41.56	+47 20.4	1.821	1.710	32.8	20.8	68 E	62*	13*
10 28	11 12.32	+18 40.2	3.212	2.749	17.0	20.3	54 W	47*	17*	4 16	5 59.86	+46 58.2	1.865	1.723	32.2	20.9	66 E	60*	13*
11 7	11 26.02	+18 35.9	3.130	2.786	18.1	20.3	61 W	53*	21*	4 21	6 17.95	+46 28.3	1.910	1.736	31.5	20.9	65 E	59*	14*
11 17	11 38.81	+18 42.6	3.038	2.822	19.0	20.3	68 W	58*	25*	4 26	6 35.75	+45 51.0	1.955	1.750	30.9	21.0	63 E	57*	15*
11 27	11 50.55	+19 2.6	2.940	2.857	19.5	20.3	75 W	62*	29*	5 1	6 53.18	+45 6.9	2.001	1.763	30.2				

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/20	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	19/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°
<b>324582 2006 XK</b>										<b>5817 Robertfrazier</b>									
<i>(continuation)</i>										<i>(continuation)</i>									
1 7	1 58.23	+60 14.7	1.041	1.712	31.2	18.4	115E	75	4*	11 17	13 3.13	-15 19.0	3.417	2.670	12.3	18.3	35 W	18*	24*
1 12	2 16.04	+58 44.4	1.079	1.734	31.1	18.5	114E	76	5*	11 27	13 16.09	-17 24.2	3.360	2.702	14.0	18.4	42 W	21*	30*
1 17	2 33.36	+57 12.5	1.120	1.756	31.0	18.6	113E	78	7*	12 7	13 28.47	-19 26.8	3.291	2.733	15.6	18.4	48 W	22*	37*
1 22	2 50.13	+55 39.9	1.164	1.778	31.0	18.7	111E	79	8*	12 17	13 40.15	-21 26.8	3.209	2.763	16.9	18.4	55 W	22*	44*
1 27	3 6.34	+54 7.7	1.213	1.801	31.0	18.8	110E	81	10*	12 27	13 50.97	-23 24.1	3.117	2.792	18.1	18.4	62 W	21*	52*
2 1	3 22.01	+52 36.6	1.265	1.825	30.9	18.9	108E	82	11*	1 6	14 0.73	-25 18.8	3.016	2.820	19.0	18.4	69 W	20	61*
2 6	3 37.14	+51 7.3	1.320	1.849	30.9	19.1	106E	84	12*	1 16	14 9.20	-27 10.7	2.908	2.848	19.6	18.4	77 W	18	70*
2 11	3 51.75	+49 40.3	1.378	1.873	30.8	19.2	104E	85	14*	<b>9671 Hemera</b>									
2 16	4 5.87	+48 15.8	1.439	1.898	30.7	19.3	101E	87	15*	12 23	1 4.52	+6 51.4	3.298	3.706	14.7	20.2	107 E	52	57*
2 21	4 19.53	+46 53.9	1.504	1.923	30.5	19.4	99E	88	16*	1 2	1 6.29	+6 56.1	3.435	3.689	15.3	20.3	97 E	52	54*
2 26	4 32.79	+45 34.9	1.571	1.948	30.3	19.5	96E	89	18*	1 12	1 9.70	+7 11.2	3.573	3.671	15.5	20.3	88 E	52	49*
3 2	4 45.66	+44 18.7	1.641	1.973	30.1	19.7	94E	88*	19*	1 22	1 14.58	+7 35.6	3.710	3.652	15.3	20.4	79 E	53*	44*
3 7	4 58.17	+43 5.1	1.712	1.999	29.8	19.8	91E	85*	20*	2 1	2 20.78	+8 7.9	3.842	3.632	14.8	20.5	70 E	51*	39*
3 12	5 10.35	+41 54.2	1.786	2.024	29.4	19.9	89E	82*	21*	2 11	1 28.12	+8 46.8	3.965	3.611	14.0	20.5	62 E	47*	33*
3 17	5 22.21	+40 45.6	1.861	2.050	29.0	20.0	86E	79*	22*	2 21	1 36.45	+9 30.8	4.076	3.590	12.9	20.5	54 E	42*	28*
3 22	5 33.79	+39 39.1	1.938	2.076	28.5	20.1	83E	76*	23*	3 2	1 45.66	+10 19.0	4.174	3.567	11.7	20.5	47 E	36*	24*
4 1	5 56.16	+37 31.9	2.095	2.128	27.4	20.3	78E	70*	25*	3 12	1 55.61	+11 10.1	4.258	3.544	10.2	20.4	39 E	30*	19*
4 11	6 17.58	+35 30.9	2.255	2.180	26.0	20.4	73E	64*	26*	3 22	2 6.23	+12 3.0	4.325	3.520	8.6	20.4	32 E	23*	15*
4 21	6 38.14	+33 34.6	2.416	2.232	24.6	20.6	67E	57*	27*	4 1	2 17.41	+12 56.8	4.375	3.494	6.9	20.3	25 E	17*	11*
5 1	6 57.93	+31 41.6	2.576	2.283	22.9	20.7	62E	50*	28*	4 11	2 29.09	+13 50.6	4.407	3.468	5.2	20.2	18 E	10*	7*
5 11	7 17.01	+29 50.8	2.733	2.335	21.2	20.9	57E	43*	29*	4 21	2 41.20	+14 43.7	4.421	3.441	3.3	20.1	11 E	4*	3*
5 21	7 35.41	+28 1.3	2.886	2.386	19.3	21.0	51E	36*	28*	5 1	2 53.68	+15 35.2	4.416	3.413	1.4	20.0	5 E	—	—
5 31	7 53.20	+26 12.4	3.032	2.436	17.4	21.1	46E	29*	27*	5 11	3 6.46	+16 24.5	4.394	3.385	0.6	19.9	2 W	—	—
6 10	8 10.39	+24 23.7	3.171	2.486	15.3	21.1	40E	23*	26*	5 21	3 19.50	+17 10.9	4.353	3.355	2.5	20.0	8 W	—	2*
6 20	8 27.02	+22 34.8	3.301	2.535	13.3	21.2	35E	17*	23*	5 31	3 32.75	+17 54.0	4.296	3.324	4.4	20.1	15 W	—	8*
6 30	8 43.13	+20 45.4	3.421	2.584	11.1	21.2	29E	12*	20*	6 10	3 46.12	+18 33.2	4.221	3.292	6.3	20.1	21 W	4*	14*
7 10	8 58.72	+18 55.4	3.529	2.631	9.0	21.2	24E	7*	16*	6 20	3 59.58	+19 8.0	4.131	3.260	8.2	20.1	27 W	8*	19*
7 20	9 13.82	+17 4.9	3.624	2.678	6.8	21.2	18E	3*	11*	6 30	4 13.04	+19 38.1	4.025	3.226	10.0	20.1	34 W	14*	24*
7 30	9 28.44	+15 13.7	3.706	2.724	4.7	21.2	13E	—	6*	7 10	4 26.43	+20 3.2	3.905	3.192	11.8	20.1	40 W	20*	28*
8 9	9 42.58	+13 22.0	3.774	2.770	2.5	21.2	7E	—	1*	7 20	4 39.65	+20 23.0	3.772	3.157	13.5	20.1	46 W	26*	31*
8 19	9 56.26	+11 29.9	3.826	2.814	0.5	21.1	1E	—	—	7 30	4 52.61	+20 37.3	3.628	3.121	15.0	20.0	53 W	33*	34*
8 29	10 9.47	+9 37.5	3.862	2.858	1.8	21.2	5W	—	—	8 9	5 5.17	+20 46.2	3.473	3.083	16.4	19.9	59 W	40*	37*
9 8	10 22.19	+7 45.0	3.882	2.901	3.9	21.4	11W	3*	3*	8 19	5 17.22	+20 49.6	3.309	3.045	17.7	19.8	66 W	47*	39*
<b>5817 Robertfrazier</b>										8 29	5 28.56	+20 47.7	3.139	3.007	18.8	19.7	73 W	54*	40*
12 23	1 4.49	+52 1.0	0.875	1.591	33.2	14.9	118E	83	12*	9 8	5 39.03	+20 40.8	2.963	2.967	19.6	19.6	80 W	59*	42*
12 28	1 14.66	+51 27.2	0.899	1.594	33.8	15.0	116E	84	12*	9 18	5 48.38	+20 29.2	2.784	2.926	20.1	19.5	88 W	64*	43*
1 2	1 26.12	+50 53.5	0.924	1.598	34.3	15.1	114E	84	13*	9 28	5 56.36	+20 13.4	2.604	2.884	20.2	19.3	96 W	65*	44*
1 7	1 38.70	+50 20.0	0.952	1.603	34.7	15.2	112E	85	13*	10 8	6 2.66	+19 54.0	2.426	2.842	19.9	19.1	104 W	65	44
1 12	1 52.21	+49 46.2	0.981	1.608	35.1	15.2	110E	85	13*	10 18	6 6.96	+19 31.9	2.254	2.799	19.1	18.9	113 W	65	44
1 17	2 6.49	+49 11.8	1.013	1.615	35.4	15.3	108E	86	14*	10 28	6 8.89	+19 7.7	2.090	2.754	17.7	18.6	123 W	64	45
1 22	2 21.41	+48 36.4	1.046	1.622	35.6	15.4	106E	86	14*	11 7	6 8.14	+18 42.2	1.938	2.709	15.6	18.4	133 W	64	45
1 27	2 36.83	+47 59.8	1.081	1.631	35.8	15.5	104E	87	15*	11 17	6 4.47	+18 16.1	1.804	2.664	12.8	18.1	143 W	63	46
2 1	2 52.63	+47 21.7	1.118	1.640	35.9	15.6	102E	88	15*	12 7	5 57.87	+17 50.1	1.690	2.617	9.2	17.7	155 W	63	46
2 6	3 8.68	+46 41.9	1.157	1.650	36.0	15.7	100E	88	16*	12 17	5 48.69	+17 25.0	1.602	2.570	5.2	17.4	166 W	62	47
2 11	3 24.85	+46 0.1	1.198	1.661	36.0	15.8	99E	89	16*	12 27	5 37.70	+17 1.6	1.542	2.522	2.5	17.1	174 E	62	47
2 16	3 41.06	+45 16.2	1.242	1.673	35.9	15.9	97E	90	17*	12 22	5 31.90	+16 51.1	1.523	2.498	3.7	17.2	170 E	62	47
2 21	3 57.22	+44 30.2	1.287	1.685	35.8	15.9	95E	89*	18*	12 27	5 26.13	+16 41.7	1.511	2.474	5.9	17.2	165 E	62	47
2 26	4 13.28	+43 42.1	1.334	1.698	35.6	16.0	93E	87*	19*	1 1	5 20.56	+16 33.6	1.506	2.449	8.3	17.3	159 E	62	47
3 2	4 29.17	+42 51.9	1.383	1.712	35.4	16.1	91E	85*	20*	1 6	5 15.36	+16 27.1	1.508	2.425	10.6	17.4	153 E	61	48
3 7	4 44.83	+41 59.7	1.434	1.726	35.1	16.2	89E	82*	20*	1 11	5 10.69	+16 22.4	1.516	2.400	13.0	17.5	147 E	61	48
3 12	5 0.22	+41 5.6	1.487	1.741	34.7	16.3	87E	80*	21*	1 16	5 6.67	+16 19.7	1.529	2.375	15.1	17.5	141 E	61	48
3 17	5 15.32	+40 9.7	1.542	1.757	34.3	16.4	85E	78*	22*	<b>387632 2002 PD<sub>40</sub></b>									
3 22	5 30.11	+39 12.2	1.598	1.773	33.9	16.5	83E	75*	23*	12 23	1 6.35	-13 52.4	2.915	3.213	17.6	21.3	99 E	31	77*
3 27	5 44.58	+38 13.1	1.655	1.789	33.4	16.6	81E	73*	24*	1 2	1 10.01	-12 59.5	3.092	3.247	17.6	21.4	90 E	32	72*
4 1	5 58.72	+37 12.6	1.714	1.806	32.9	16.7	79E	70*	25*	1 12	1 15.21	-11 59.5	3.268	3.280	17.3	21.6	82 E	33	65*
4 6	6 12.53	+36 10.8	1.774	1.823	32.3	16.7	77E	68*	26*	1 22	1 21.71	-10 54.7	3.440	3.312	16.6	21.7	74 E	34*	58*
4 11	6 25.99	+35 7.9	1.835	1.841	31.6	16.8	74E	65*	27*	2 1	1 29.31	-9 47.1	3.607	3.343	15.7	21.8	67 E	34*	51*
4 16	6 39.12	+34 3.9	1.898	1.859	31.0	16.9	72E	62*	28*	<b>376707 1995 OO</b>									
4 21	6 51.93	+32 59.0	1.960	1.877	30.3	16.9	70E	59*	29*	12 23	1 6.76	+40 32.0	1.662	2.282	22.6	20.9	117 E	86	23*
4 26	7 4.43	+31 53.2	2.024	1.896	29.5	17.0	68E	56*	30*	12 28	1 4.09	+39 27.0	1.677	2.238	24.1	20.9	112 E	84	24*
5 1	7 16.62	+30 46.7	2.088	1.914	28.7	17.1	66E	53*	31*	1 2	1 2.64	+38 26.1	1.695	2.194	25.4	20.9	107 E	83	24*
5 11	7 40.13	+28 31.6	2.217	1.953	27.1	17.2	62E	46*	32*	1 7	1 2.34	+37 30.2	1.713	2.149	26.6	20.9	102 E	83	24*
5 21	8 2.56	+26 14.4	2.346	1.992	25.3	17.3	57E	40*	33*	1 12	1 3.11	+36 39.9	1.733	2.103	27.6	20.9	98 E	82	23*
5 31	8 24.00	+23 55.4	2.473	2.031	23.5	17.4	53E	33*	33										

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

2020	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°-26°	19/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°-26°	
<b>376707 1995 OO</b> (continuation)									<b>100935 1998 MA<sub>42</sub></b>									
4 16	3 47.87	+33 58.6	1.568	0.997	38.6	19.4	38 E	32* 8*	12 23	1 6.82	+12 34.7	1.257	1.837	30.3	18.4	110 E	58	51*
4 21	4 4.85	+33 41.7	1.511	0.925	40.4	19.2	37 E	30* 8*	1 2	1 21.64	+13 20.2	1.387	1.872	30.8	18.7	103 E	58	49*
4 26	4 22.87	+33 12.3	1.448	0.853	42.8	19.0	35 E	29* 9*	1 12	1 37.66	+14 15.1	1.523	1.909	30.8	18.9	97 E	59	47*
5 1	4 41.85	+32 26.4	1.379	0.781	46.0	18.8	34 E	27* 10*	1 22	1 54.61	+15 16.1	1.664	1.946	30.4	19.2	91 E	60	43*
5 6	5 1.63	+31 18.6	1.302	0.710	50.3	18.6	33 E	25* 11*	2 1	2 12.33	+16 20.5	1.807	1.983	29.7	19.4	85 E	61*	40*
5 11	5 21.85	+29 42.7	1.218	0.642	56.0	18.4	32 E	23* 13*	2 11	2 30.68	+17 25.8	1.953	2.021	28.7	19.5	79 E	61*	38*
5 13	5 29.93	+28 54.8	1.182	0.616	58.8	18.3	31 E	22* 14*	3 2	3 8.80	+19 31.1	2.245	2.097	26.1	19.8	69 E	56*	33*
5 15	5 37.94	+28 0.7	1.145	0.592	61.9	18.3	31 E	21* 14*	3 12	3 28.41	+20 27.7	2.388	2.134	24.6	20.0	63 E	52*	30*
5 17	5 45.79	+26 59.8	1.107	0.569	65.3	18.2	31 E	20* 15*	3 22	3 48.28	+21 18.4	2.528	2.172	22.9	20.1	58 E	47*	28*
5 19	5 53.41	+25 51.8	1.067	0.548	69.2	18.2	30 E	19* 16*	4 1	4 8.35	+22 2.2	2.664	2.209	21.1	20.2	53 E	42*	26*
5 21	6 0.70	+24 36.1	1.027	0.529	73.4	18.1	30 E	17* 17*	4 11	4 28.54	+22 38.4	2.794	2.246	19.3	20.3	48 E	37*	25*
5 23	6 7.54	+23 12.5	0.986	0.512	78.1	18.1	30 E	16* 18*	4 21	4 48.79	+23 6.2	2.918	2.282	17.3	20.3	43 E	31*	23*
5 25	6 13.83	+21 40.7	0.944	0.499	83.0	18.2	29 E	14* 19*	5 1	5 9.03	+23 25.4	3.034	2.318	15.4	20.4	38 E	26*	21*
5 27	6 19.44	+20 0.8	0.902	0.489	88.3	18.2	29 E	12* 19*	5 11	5 29.18	+23 35.5	3.142	2.353	13.3	20.4	32 E	20*	18*
5 29	6 24.24	+18 13.0	0.860	0.483	93.8	18.3	28 E	10* 20*	5 21	5 49.18	+23 36.5	3.240	2.387	11.2	20.4	27 E	15*	15*
5 31	6 28.14	+16 17.6	0.819	0.480	99.3	18.5	28 E	8* 20*	5 31	6 8.97	+23 28.6	3.328	2.421	9.2	20.4	22 E	10*	12*
6 2	6 31.04	+14 15.5	0.778	0.482	104.8	18.6	27 E	5* 21*	6 10	6 28.47	+23 11.9	3.405	2.454	7.0	20.4	17 E	5*	9*
6 4	6 32.89	+12 7.3	0.739	0.488	110.0	18.8	27 E	2* 21*	6 20	6 47.65	+22 46.9	3.470	2.486	4.9	20.4	12 E	1*	5*
6 6	6 33.68	+9 54.1	0.701	0.497	114.7	19.1	26 E	— 20*	6 30	7 6.45	+22 13.8	3.523	2.517	2.8	20.3	7 E	—	1*
6 8	6 33.40	+7 36.7	0.666	0.509	118.8	19.3	26 E	— 20*	7 10	7 24.80	+21 33.3	3.564	2.548	0.7	20.2	2 E	—	—
6 10	6 32.10	+5 16.1	0.633	0.525	122.2	19.5	26 E	— 19*	7 20	7 42.69	+20 46.0	3.591	2.577	1.4	20.3	4 W	—	—
6 12	6 29.83	+2 53.3	0.602	0.544	124.7	19.7	26 E	— 18*	7 30	8 0.07	+19 52.5	3.604	2.606	3.5	20.5	9 W	1*	1*
6 14	6 26.66	+0 28.9	0.574	0.564	126.3	19.8	27 E	— 17*	8 9	8 16.90	+18 53.6	3.603	2.634	5.5	20.6	14 W	6*	5*
6 16	6 22.65	+1 56.3	0.548	0.587	127.0	19.9	27 E	— 15*	8 19	8 33.15	+17 50.1	3.588	2.661	7.5	20.7	20 W	11*	9*
6 18	6 17.88	+4 21.9	0.524	0.611	126.8	19.8	29 E	— 13*	8 29	8 48.79	+16 42.7	3.559	2.687	9.4	20.8	26 W	17*	12*
6 20	6 12.41	+6 47.4	0.502	0.637	125.9	19.7	31 E	— 11*	9 8	9 3.76	+15 32.4	3.516	2.711	11.3	20.9	32 W	22*	16*
6 25	5 55.98	+12 49.2	0.456	0.704	120.8	19.3	37 W	— 14*	9 18	9 18.04	+14 20.0	3.459	2.735	13.0	20.9	38 W	28*	19*
6 30	5 35.93	+18 47.3	0.420	0.775	113.2	18.8	44 W	— 26*	9 28	9 31.55	+13 6.5	3.389	2.758	14.6	21.0	44 W	34*	23*
7 5	5 12.17	+24 42.0	0.391	0.847	104.2	18.3	54 W	— 37*	10 8	10 44.23	+11 53.1	3.305	2.781	16.1	21.0	51 W	39*	27*
7 10	4 43.95	+30 33.0	0.369	0.920	94.4	17.9	64 W	— 48*	10 18	10 55.99	+10 40.6	3.210	2.802	17.4	21.0	57 W	44*	31*
7 12	4 31.14	+32 51.5	0.362	0.948	90.2	17.8	69 W	— 53*	10 28	10 6.71	+9 30.4	3.104	2.822	18.5	21.0	64 W	49*	35*
7 14	4 17.29	+35 8.0	0.356	0.977	86.0	17.6	73 W	— 57*	11 7	10 16.27	+8 23.9	2.989	2.841	19.4	20.9	72 W	51*	40*
7 16	4 2.28	+37 21.3	0.351	1.005	81.8	17.5	78 W	— 61*	11 17	10 24.50	+7 22.3	2.866	2.859	19.9	20.9	80 W	52*	45*
7 18	3 46.00	+39 29.9	0.348	1.034	77.4	17.4	83 W	— 65*	12 7	10 31.20	+6 27.5	2.738	2.876	20.1	20.8	88 W	51*	51*
7 20	3 28.35	+41 32.0	0.345	1.062	73.0	17.3	88 W	— 68*	12 7	10 36.14	+5 41.0	2.609	2.892	19.8	20.7	97 W	51*	55*
7 22	3 9.27	+43 25.1	0.344	1.090	68.6	17.2	93 W	— 70*	12 17	10 39.10	+5 4.6	2.480	2.907	19.0	20.6	106 W	50*	59*
7 24	2 48.77	+45 6.8	0.344	1.117	64.2	17.1	98 W	— 70*	12 27	10 39.83	+4 40.4	2.357	2.920	17.7	20.4	116 W	50*	59
7 26	2 26.96	+46 34.2	0.346	1.145	59.7	17.0	103 W	— 69	1 6	10 38.16	+4 29.9	2.244	2.933	15.7	20.3	126 W	49*	60
7 28	2 4.05	+47 45.0	0.349	1.172	55.4	17.0	108 W	— 68	1 16	10 34.01	+4 34.2	2.147	2.945	13.1	20.1	137 W	50*	59
7 30	1 40.39	+48 37.2	0.353	1.199	51.1	16.9	113 W	— 67	<b>344202 2001 QJ<sub>111</sub></b>									
7 31	1 28.41	+48 55.9	0.356	1.213	49.0	16.9	116 W	— 67	12 23	1 7.05	+7 27.0	1.508	1.959	29.5	20.6	102 E	38	71*
8 1	1 16.41	+49 9.7	0.360	1.226	47.0	16.9	118 W	— 67	1 2	1 18.81	+4 55.4	1.644	1.993	29.4	20.9	95 E	40	66*
8 2	1 4.47	+49 18.5	0.364	1.239	45.0	16.9	120 W	— 67	1 12	1 31.84	+2 25.8	1.783	2.027	29.0	21.1	89 E	43	61*
8 3	0 52.63	+49 22.4	0.368	1.252	43.0	16.9	123 W	— 67	1 22	1 45.88	+0 0.3	1.926	2.062	28.3	21.2	84 E	45	55*
8 4	0 40.96	+49 21.6	0.373	1.266	41.1	16.9	125 W	— 67	2 1	2 0.80	+2 21.4	2.071	2.097	27.3	21.4	78 E	47*	50*
8 5	0 29.52	+49 16.3	0.378	1.279	39.2	16.9	127 W	— 67	<b>347887 2002 TG<sub>186</sub></b>									
8 6	0 18.36	+49 6.7	0.383	1.292	37.4	16.9	129 W	— 67	12 23	1 8.97	+3 54.2	1.375	1.908	29.6	21.5	107 E	49	60*
8 7	0 7.52	+48 53.2	0.389	1.305	35.7	16.9	131 W	— 67	1 2	1 22.18	+4 55.1	1.509	1.939	29.9	21.7	100 E	50	57*
8 8	23 57.03	+48 36.1	0.396	1.318	34.0	16.9	133 W	— 67	1 12	1 36.64	+6 5.8	1.647	1.971	29.9	22.0	94 E	51	54*
8 9	23 46.93	+48 15.6	0.403	1.331	32.4	16.9	135 W	— 68	1 22	1 52.10	+7 22.9	1.788	2.003	29.4	22.2	88 E	52	50*
8 11	23 27.96	+47 26.3	0.418	1.356	29.5	16.9	139 W	— 69	2 1	2 8.39	+8 43.4	1.931	2.036	28.6	22.3	82 E	54*	46*
8 13	23 10.69	+46 28.0	0.434	1.381	26.8	17.0	142 W	— 70	<b>2059 Baboquivari</b>									
8 15	22 55.12	+45 23.2	0.452	1.407	24.5	17.1	145 W	— 71	12 23	1 9.17	+7 59.0	0.664	1.295	48.0	17.3	102 E	37	72*
8 17	22 41.19	+44 14.2	0.472	1.431	22.6	17.1	147 W	1 72	12 28	1 26.85	+6 48.4	0.696	1.312	47.3	17.4	101 E	38	70*
8 19	22 28.79	+43 3.0	0.493	1.456	21.1	17.2	149 W	2 73	1 2	1 44.09	+5 33.1	0.730	1.331	46.5	17.5	101 E	39	69*
8 21	22 17.81	+41 50.8	0.515	1.480	19.9	17.3	150 W	3 74	1 7	2 0.89	+4 14.7	0.768	1.352	45.7	17.6	100 E	41	67*
8 23	22 8.10	+40 39.1	0.539	1.505	19.1	17.4	151 E	4 75	1 12	2 17.22	+2 54.6	0.808	1.374	44.9	17.7	100 E	42	66*
8 25	21 59.54	+39 28.5	0.563	1.528	18.7	17.5	151 E	6 77	1 17	2 33.09	+1 34.2	0.851	1.397	44.0	17.9	99 E	43	64*
8 27	21 52.01	+38 19.7	0.590	1.552	18.5	17.7	151 E	7 78	1 22	2 48.54	+0 14.4	0.897	1.423	43.2	18.0	98 E	45	63*
8 29	21 45.4																	

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/20	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	19/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°
<b>2059 Baboquivari</b> (continuation)										<b>103501 2000 AT<sub>245</sub></b> (continuation)									
7 20	9 31.57	+ 8 10.7	3.426	2.550	10.0	21.2	26 E	—	20*	11 27	14 36.00	-24 27.9	3.161	2.279	9.5	20.1	22 W	5*	15*
7 30	9 47.96	+ 7 1.9	3.533	2.607	7.9	21.2	21 E	—	14*	12 7	14 54.59	-26 39.5	3.139	2.312	11.4	20.2	28 W	7*	20*
8 9	10 3.84	+ 5 49.7	3.627	2.663	5.8	21.2	15 E	—	9*	12 17	15 13.16	-28 44.8	3.105	2.344	13.3	20.3	33 W	9*	26*
8 19	10 19.25	+ 4 34.9	3.708	2.719	3.8	21.2	10 E	—	3*	12 27	15 31.60	-30 44.0	3.060	2.375	15.0	20.3	39 W	9*	32*
8 29	10 34.18	+ 3 18.3	3.775	2.773	2.2	21.2	6 E	—	—	1 6	15 49.83	-32 37.4	3.005	2.406	16.7	20.4	45 W	9*	38*
9 8	10 48.64	+ 2 0.7	3.826	2.825	2.1	21.2	6 W	—	—	1 16	16 7.74	-34 25.7	2.939	2.436	18.2	20.4	51 W	8*	44*
9 18	11 2.62	+ 0 42.7	3.861	2.877	3.5	21.4	10 W	—	3*	<b>224004 2005 GX<sub>59</sub></b>									
<b>483720 2005 TG<sub>66</sub></b>										12 23	1 11.42	- 0 52.3	1.625	2.111	26.7	20.4	105 E	44	65*
12 23	1 9.23	+15 24.4	1.031	1.661	33.5	21.0	111 E	60	48*	1 2	1 21.26	+ 0 29.0	1.774	2.146	27.0	20.6	98 E	45	62*
1 2	1 25.52	+16 17.5	1.117	1.668	34.7	21.2	105 E	61	47*	1 12	1 32.55	+ 1 56.8	1.927	2.181	26.8	20.8	91 E	47	57*
1 12	1 43.93	+17 20.8	1.209	1.677	35.3	21.4	99 E	62	44*	1 22	1 45.03	+ 3 28.3	2.081	2.215	26.2	21.0	85 E	48	52*
1 22	2 4.05	+18 30.1	1.305	1.690	35.5	21.6	94 E	64	42*	2 1	1 58.50	+ 5 1.4	2.235	2.249	25.4	21.2	78 E	50	47*
2 1	2 25.60	+19 41.8	1.406	1.705	35.3	21.7	89 E	65	39*	2 11	2 12.80	+ 6 34.3	2.387	2.282	24.3	21.3	72 E	50	43*
<b>355797 2008 ST<sub>141</sub></b>										2 21	2 27.77	+ 8 5.4	2.536	2.315	22.9	21.4	66 E	48	39*
12 23	1 10.08	+ 8 31.9	0.979	1.596	35.7	19.6	109 E	54	55*	<b>211871 2004 HO</b>									
1 2	1 26.46	+11 2.5	1.064	1.606	36.6	19.8	103 E	56	52*	12 23	1 12.03	- 5 47.3	0.983	1.544	38.3	21.2	103 E	39	70*
1 12	1 44.95	+13 31.6	1.154	1.620	36.9	20.1	98 E	59	48*	1 2	1 32.30	- 2 29.5	1.131	1.616	36.9	21.6	99 E	43	65*
1 22	2 5.19	+15 55.8	1.250	1.637	36.9	20.2	93 E	61	44*	1 12	1 51.50	+ 0 27.6	1.287	1.687	35.5	21.9	95 E	45	61*
2 1	2 26.92	+18 12.4	1.351	1.658	36.5	20.4	89 E	63	40*	1 22	2 10.06	+ 3 7.1	1.449	1.756	34.1	22.2	90 E	48	56*
2 11	2 49.88	+20 18.8	1.456	1.681	35.8	20.6	85 E	65*	37*	2 1	2 28.29	+ 5 31.3	1.616	1.822	32.6	22.5	85 E	51	52*
2 21	3 13.84	+22 12.8	1.565	1.708	34.8	20.8	81 E	65*	35*	<b>67865 2000 WG<sub>23</sub></b>									
3 2	3 38.63	+23 52.7	1.678	1.736	33.7	20.9	76 E	64*	33*	12 23	1 12.62	- 1 10.8	1.445	1.954	29.0	19.3	106 E	44	65*
3 12	4 4.06	+25 16.8	1.793	1.767	32.4	21.1	72 E	61*	31*	1 2	1 23.30	+ 0 54.6	1.578	1.982	29.4	19.6	99 E	46	61*
3 22	4 29.91	+26 24.3	1.910	1.800	31.0	21.2	68 E	58*	30*	1 12	1 35.57	+ 3 1.2	1.714	2.010	29.3	19.8	92 E	48	56*
4 1	4 56.03	+27 14.4	2.029	1.834	29.4	21.3	64 E	54*	29*	1 22	1 49.15	+ 5 6.7	1.854	2.038	28.8	20.0	86 E	50	51*
4 11	5 22.19	+27 47.1	2.149	1.870	27.8	21.5	60 E	50*	28*	2 1	2 3.85	+ 7 9.9	1.994	2.067	28.0	20.1	80 E	52*	47*
<b>103501 2000 AT<sub>245</sub></b>										2 11	2 19.47	+ 9 9.1	2.135	2.095	27.0	20.3	74 E	52*	42*
12 23	1 11.13	+46 3.4	1.026	1.726	30.1	17.7	118 E	89	18*	2 21	2 35.87	+11 3.4	2.273	2.123	25.7	20.4	69 E	51*	38*
12 28	1 13.90	+45 50.7	1.051	1.715	31.4	17.8	115 E	89	18*	3 2	2 52.96	+12 51.6	2.409	2.151	24.3	20.5	63 E	48*	35*
1 2	1 18.22	+45 40.9	1.076	1.704	32.5	17.9	112 E	89	18*	3 12	3 10.64	+14 32.8	2.541	2.178	22.7	20.6	58 E	45*	32*
1 7	1 24.00	+45 34.3	1.103	1.693	33.4	18.0	108 E	89	17*	3 22	3 28.83	+16 6.3	2.668	2.205	21.0	20.7	52 E	40*	29*
1 12	1 31.12	+45 30.9	1.130	1.684	34.3	18.0	105 E	89	17*	4 1	3 47.47	+17 31.4	2.788	2.232	19.2	20.7	47 E	36*	26*
1 17	1 39.49	+45 30.4	1.157	1.675	35.0	18.1	103 E	89	16*	4 11	4 6.48	+18 47.4	2.902	2.258	17.3	20.8	42 E	31*	23*
1 22	1 49.04	+45 32.3	1.185	1.666	35.6	18.1	100 E	89	15*	4 21	4 25.79	+19 53.8	3.007	2.284	15.3	20.8	37 E	25*	21*
1 27	1 59.71	+45 36.2	1.214	1.659	36.1	18.2	97 E	89	15*	5 1	4 45.35	+20 50.5	3.104	2.309	13.3	20.8	32 E	20*	18*
2 1	2 11.41	+45 41.3	1.242	1.652	36.5	18.2	95 E	89*	14*	5 11	5 5.07	+21 37.0	3.191	2.334	11.2	20.9	27 E	15*	15*
2 6	2 24.08	+45 47.1	1.271	1.645	36.8	18.3	93 E	86*	14*	5 21	5 24.89	+22 13.3	3.268	2.358	9.2	20.8	22 E	10*	12*
2 11	2 37.63	+45 52.4	1.300	1.640	37.0	18.3	91 E	84*	14*	5 31	5 44.73	+22 39.4	3.334	2.381	7.1	20.8	17 E	5*	8*
2 16	2 52.01	+45 56.6	1.329	1.635	37.1	18.4	89 E	82*	13*	6 10	6 4.53	+22 55.4	3.389	2.403	4.9	20.8	12 E	1*	4*
2 21	3 7.14	+45 58.7	1.358	1.631	37.2	18.4	87 E	80*	13*	6 20	6 24.20	+23 1.8	3.432	2.425	2.8	20.7	7 E	—	—
2 26	3 22.96	+45 57.9	1.388	1.628	37.3	18.5	85 E	78*	13*	6 30	6 43.69	+22 58.8	3.462	2.446	0.7	20.6	2 E	—	—
3 2	3 39.36	+45 53.4	1.418	1.625	37.2	18.5	83 E	76*	14*	7 10	7 2.92	+22 47.0	3.480	2.466	1.4	20.7	3 W	—	—
3 7	3 56.26	+45 44.6	1.449	1.624	37.1	18.6	81 E	75*	14*	7 20	7 21.84	+22 27.0	3.486	2.486	3.5	20.8	9 W	1*	1*
3 12	4 13.55	+45 30.6	1.480	1.623	37.0	18.6	79 E	73*	14*	7 30	7 40.39	+21 59.6	3.478	2.504	5.6	20.9	14 W	5*	4*
3 17	4 31.12	+45 11.1	1.512	1.623	36.8	18.6	78 E	72*	15*	8 9	7 58.50	+21 25.6	3.457	2.522	7.6	21.0	19 W	11*	8*
3 22	4 48.88	+44 45.4	1.544	1.624	36.6	18.7	76 E	70*	15*	8 19	8 16.13	+20 46.0	3.423	2.538	9.6	21.1	25 W	16*	11*
3 27	5 6.72	+44 13.5	1.578	1.625	36.3	18.7	74 E	68*	16*	8 29	8 33.24	+20 1.8	3.376	2.554	11.5	21.2	30 W	22*	14*
4 1	5 24.55	+43 35.2	1.612	1.627	35.9	18.8	73 E	67*	17*	9 8	8 49.76	+19 14.1	3.316	2.569	13.3	21.2	36 W	27*	17*
4 6	5 42.25	+42 50.5	1.647	1.631	35.6	18.8	71 E	65*	18*	9 18	9 5.65	+18 24.1	3.243	2.583	15.0	21.3	42 W	33*	19*
4 11	5 59.74	+41 59.3	1.683	1.635	35.1	18.8	70 E	63*	19*	9 28	9 20.84	+17 33.2	3.159	2.597	16.6	21.3	48 W	39*	22*
4 16	6 16.96	+41 2.1	1.719	1.639	34.7	18.9	68 E	61*	20*	10 8	9 35.25	+16 42.8	3.063	2.609	18.1	21.3	54 W	44*	25*
4 21	6 33.84	+39 59.0	1.757	1.645	34.2	18.9	67 E	59*	21*	10 18	9 48.81	+15 54.4	2.958	2.620	19.4	21.2	61 W	50*	29*
4 26	6 50.35	+38 50.5	1.796	1.651	33.6	19.0	65 E	57*	22*	10 28	10 1.38	+15 9.8	2.842	2.630	20.4	21.2	68 W	54*	32*
5 1	7 6.44	+37 37.1	1.836	1.658	33.0	19.0	64 E	55*	23*	11 7	10 12.84	+14 30.9	2.720	2.640	21.2	21.1	75 W	58*	36*
5 6	7 22.10	+36 19.1	1.876	1.665	32.4	19.0	62 E	52*	25*	11 17	10 23.03	+13 59.8	2.591	2.648	21.7	21.0	82 W	59*	40*
5 11	7 37.31	+34 57.1	1.918	1.674	31.7	19.1	61 E	49*	26*	11 27	10 31.71	+13 38.6	2.459	2.656	21.8	20.9	90 W	59	44*
5 16	7 52.07	+33 31.5	1.960	1.683	31.1	19.1	59 E	47*	27*	12 7	10 38.66	+13 29.7	2.326	2.662	21.4	20.8	99 W	58	48*
5 21	8 6.38	+32 2.8	2.004	1.692	30.3	19.2	58 E	44*	28*	12 17	10 43.59	+13 35.3	2.196	2.668	20.5	20.7	108 W	59	50*
5 26	8 20.28	+30 31.5	2.048	1.702	29.6	19.2	56 E	41*	29*	12 27	10 46.19	+13 57.4	2.071	2.673	19.0	20.5	118 W	59	50
5 31	8 33.75	+28 58.0	2.092	1.713	28.8	19.2	54 E	38*	30*	1 6	10 46.19	+14 37.0	1.958	2.676	16.9	20.3	128 W	60	49
6 5	8 46.83	+27 22.7	2.137	1.724	27.9	19.3	53 E	35*	31*	1 16	10 43.39	+15 33.7	1.859	2.679	14.0	20.1	139 W	61	48
6 10	8 59.52	+25 46.0	2.183	1.736	27.1	19.3	51 E	32*	31*	<b>396686 2002 TJ<sub>51</sub></b>									
6 20	9 23.88	+22 29.4	2.275	1.761	25.3	19.4	48 E	27*	32*	12 23	1 13.26	+11 45.6	1.188	1.791	30.9	20.2	111 E	57	52*
6 30	9 47.02	+19 10.5	2.367	1.788	23.4	19.4	44 E	21*	32*	1 2	1 28.16	+13 25.3	1.313	1.828	31.4	20.4	105 E	58	50*



EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	$45^\circ$ - $26^\circ$	19/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	$45^\circ$ - $26^\circ$	
<b>33836 2000 FB<sub>39</sub></b> (continuation)									<b>329556 2002 UA<sub>12</sub></b> (continuation)									
3 2	2 42.76	+24 38.2	2.638	2.386	22.0	20.5	65 E	56* 25*	6 20	6 51.65	+14 14.6	3.389	2.429	6.7	21.0	16 E	—	10*
3 12	2 59.44	+25 53.4	2.787	2.423	20.5	20.6	59 E	51* 22*	6 30	7 9.53	+13 16.4	3.440	2.458	5.2	21.0	13 E	—	5*
3 22	3 16.71	+27 4.3	2.930	2.461	18.8	20.7	53 E	46* 19*	7 10	7 27.02	+12 10.7	3.480	2.486	4.2	21.0	10 E	—	—
4 1	3 34.48	+28 10.2	3.065	2.497	17.1	20.7	47 E	40* 17*	7 20	7 44.10	+10 57.7	3.507	2.514	4.1	21.0	10 W	—	1*
4 11	3 52.67	+29 10.5	3.192	2.533	15.3	20.8	42 E	35* 14*	7 30	8 0.73	+9 37.7	3.521	2.540	5.0	21.1	13 W	—	6*
4 21	4 11.20	+30 4.5	3.308	2.568	13.4	20.8	36 E	29* 12*	8 9	8 16.88	+8 11.1	3.523	2.566	6.4	21.2	16 W	—	10*
5 1	4 30.00	+30 51.7	3.414	2.602	11.5	20.8	31 E	24* 9*	8 19	8 32.53	+6 38.2	3.511	2.591	8.0	21.3	21 W	3*	15*
5 11	4 48.99	+31 31.9	3.507	2.635	9.6	20.9	26 E	19* 6*	8 29	8 47.63	+4 59.5	3.486	2.615	9.7	21.3	26 W	9*	19*
5 21	5 8.09	+32 4.9	3.589	2.667	7.7	20.9	21 E	14* 3*	9 8	9 2.15	+3 15.5	3.448	2.638	11.4	21.4	31 W	14*	23*
5 31	5 27.23	+32 30.5	3.658	2.699	6.0	20.8	16 E	10* —	9 18	9 16.04	+1 26.6	3.398	2.660	13.0	21.4	37 W	19*	27*
6 10	5 46.31	+32 48.9	3.713	2.729	4.5	20.8	12 E	6* —	9 28	9 29.23	+0 26.7	3.336	2.681	14.6	21.5	42 W	24*	31*
6 20	6 5.27	+33 0.3	3.755	2.759	3.6	20.8	10 E	3* —	10 8	9 41.67	+2 23.7	3.262	2.702	16.0	21.5	48 W	28*	35*
6 30	6 24.03	+33 5.1	3.782	2.788	3.7	20.9	10 W	4* —	10 18	9 53.26	+4 24.0	3.177	2.721	17.3	21.5	54 W	32*	40*
7 10	6 42.49	+33 3.7	3.795	2.815	4.8	21.0	13 W	7* —	10 28	10 3.88	+6 26.7	3.082	2.739	18.5	21.5	61 W	34*	45*
7 20	7 0.60	+32 56.8	3.793	2.842	6.3	21.0	18 W	12* —	11 7	10 13.40	+8 31.0	2.980	2.757	19.4	21.5	67 W	35*	51*
7 30	7 18.27	+32 45.1	3.777	2.868	7.9	21.1	23 W	16* 3*	11 17	10 21.66	+10 36.1	2.870	2.773	20.1	21.4	74 W	34*	58*
8 9	7 35.42	+32 29.7	3.746	2.893	9.5	21.2	28 W	22* 6*	11 27	10 28.44	+12 40.4	2.755	2.789	20.5	21.3	82 W	32	65*
8 19	7 52.00	+32 11.4	3.701	2.917	11.2	21.3	34 W	28* 8*	12 7	10 33.51	+14 42.5	2.638	2.804	20.6	21.3	89 W	30	73*
8 29	8 7.92	+31 51.6	3.642	2.940	12.7	21.3	40 W	33* 11*	12 17	10 36.63	+16 40.1	2.521	2.817	20.3	21.2	97 W	28	80*
9 8	8 23.10	+31 31.4	3.570	2.962	14.2	21.3	46 W	40* 13*	12 27	10 37.52	+18 29.9	2.407	2.830	19.6	21.1	105 W	27	82*
9 18	8 37.46	+31 12.2	3.485	2.983	15.5	21.3	53 W	46* 16*	1 6	10 35.97	+20 8.2	2.301	2.842	18.5	20.9	114 W	25	84
9 28	8 50.87	+30 55.7	3.388	3.003	16.7	21.3	59 W	53* 18*	1 16	10 31.85	+21 30.0	2.204	2.852	17.0	20.8	122 W	23	86
10 8	9 3.24	+30 43.5	3.282	3.022	17.6	21.3	66 W	59* 21*	<b>118569 2000 GF<sub>1</sub></b>									
10 18	9 14.42	+30 37.3	3.167	3.040	18.3	21.3	74 W	66* 23*	12 23	1 16.08	+2 54.9	2.378	2.807	19.7	20.5	106 E	42	67*
10 28	9 24.21	+30 39.1	3.045	3.057	18.7	21.2	81 W	72* 26*	1 2	1 17.42	+1 19.3	2.500	2.788	20.5	20.6	97 E	44	63*
11 7	9 32.43	+30 50.6	2.919	3.073	18.8	21.1	89 W	76* 28*	1 12	1 20.95	+0 22.4	2.624	2.768	20.8	20.7	88 E	45	57*
11 17	9 38.81	+31 13.3	2.793	3.088	18.5	21.0	98 W	76* 30*	1 22	1 26.42	+2 8.5	2.747	2.748	20.6	20.8	80 E	47	50*
11 27	9 43.07	+31 48.5	2.669	3.102	17.7	20.9	107 W	77 31*	2 1	1 33.59	+3 57.7	2.866	2.726	20.1	20.9	72 E	48*	44*
12 7	9 44.91	+32 36.2	2.552	3.115	16.5	20.8	116 W	78 31*	2 11	1 42.24	+5 48.8	2.978	2.703	19.2	20.9	64 E	46*	38*
12 17	9 44.04	+33 35.5	2.445	3.127	14.8	20.6	126 W	79 30	2 21	1 52.18	+7 41.1	3.081	2.680	18.1	20.9	57 E	43*	33*
12 27	9 40.26	+34 43.2	2.355	3.138	12.6	20.5	136 W	80 29	3 2	2 3.28	+9 33.7	3.173	2.655	16.7	20.9	50 E	39*	28*
1 1	9 37.27	+35 18.6	2.318	3.143	11.4	20.4	141 W	80 29	3 12	2 15.41	+11 26.0	3.254	2.630	15.2	20.9	44 E	33*	23*
1 6	9 33.57	+35 53.9	2.286	3.148	10.1	20.3	146 W	81 28	3 22	2 28.47	+13 17.3	3.322	2.604	13.5	20.9	38 E	28*	19*
1 11	9 29.21	+36 28.3	2.261	3.152	8.9	20.3	150 W	81 28	4 1	2 42.42	+15 6.9	3.377	2.577	11.7	20.8	31 E	23*	15*
1 16	9 24.25	+37 0.1	2.242	3.157	7.8	20.2	154 W	82 27	4 11	2 57.18	+16 54.4	3.417	2.549	9.7	20.7	25 E	17*	11*
<b>267821 2003 UB<sub>35</sub></b>									4 21	3 12.72	+18 39.0	3.444	2.521	7.7	20.6	20 E	12*	7*
12 23	1 14.44	+8 33.1	1.348	1.919	28.8	20.8	110 E	54 55*	5 1	3 29.04	+20 20.1	3.456	2.491	5.7	20.5	14 E	7*	3*
1 2	1 26.06	+9 45.5	1.480	1.949	29.5	21.1	103 E	55 53*	5 11	3 46.11	+21 57.3	3.454	2.461	3.7	20.4	9 E	2*	—
1 12	1 39.32	+11 4.7	1.617	1.979	29.6	21.3	96 E	56 50*	5 21	4 3.92	+23 29.8	3.439	2.431	1.8	20.2	4 E	—	—
1 22	1 53.90	+12 27.8	1.757	2.010	29.3	21.5	90 E	57 46*	5 31	4 22.48	+24 57.1	3.410	2.399	1.6	20.2	4 W	—	—
2 1	2 9.59	+13 52.7	1.899	2.040	28.7	21.7	84 E	59* 42*	6 10	4 41.78	+26 18.6	3.369	2.367	3.4	20.2	8 W	1*	—
<b>434834 2006 SX<sub>56</sub></b>									6 20	5 1.82	+27 33.7	3.316	2.335	5.5	20.3	13 W	5*	3*
12 23	1 14.44	+5 22.9	1.366	1.921	29.0	21.5	109 E	50 59*	6 30	5 22.61	+28 41.8	3.251	2.302	7.6	20.3	17 W	9*	6*
1 2	1 25.11	+7 16.7	1.497	1.949	29.6	21.7	102 E	52 55*	7 10	5 44.11	+29 42.4	3.176	2.268	9.8	20.3	22 W	13*	8*
1 12	1 37.56	+9 11.5	1.632	1.978	29.7	21.9	95 E	54 51*	7 20	6 6.34	+30 34.9	3.092	2.234	11.9	20.3	27 W	18*	10*
1 22	1 51.45	+11 5.6	1.771	2.007	29.4	22.1	89 E	56 47*	8 9	6 29.26	+31 19.0	2.999	2.200	14.0	20.3	32 W	23*	12*
2 1	2 6.58	+12 57.6	1.912	2.036	28.7	22.3	83 E	58* 42*	8 19	6 52.83	+31 54.3	2.899	2.166	16.1	20.3	36 W	28*	13*
<b>323089 2002 VT<sub>20</sub></b>									8 29	7 17.03	+32 20.6	2.792	2.131	18.1	20.2	41 W	34*	14*
12 23	1 14.58	+19 2.7	0.960	1.625	33.7	20.0	113 E	64 45*	8 29	7 41.80	+32 37.7	2.680	2.096	20.0	20.1	45 W	38*	15*
1 2	1 31.73	+19 40.1	1.032	1.625	35.2	20.2	107 E	65 44*	9 8	8 7.07	+32 45.9	2.564	2.062	21.9	20.1	50 W	43*	15*
1 12	1 51.43	+20 28.5	1.110	1.630	36.2	20.4	102 E	65 42*	9 18	8 32.81	+32 45.2	2.446	2.027	23.7	20.0	54 W	48*	15*
1 22	2 13.17	+21 23.4	1.194	1.638	36.6	20.5	97 E	66 40*	9 28	8 58.91	+32 36.3	2.325	1.993	25.4	19.9	58 W	52*	16*
2 1	2 36.58	+22 20.6	1.284	1.651	36.6	20.7	92 E	67 38*	10 8	9 25.32	+32 19.9	2.205	1.959	26.9	19.8	63 W	57*	16*
2 11	3 1.27	+23 16.0	1.378	1.668	36.3	20.9	88 E	68* 36*	10 18	9 51.95	+31 57.0	2.085	1.926	28.4	19.7	67 W	61*	17*
2 21	3 26.92	+24 5.9	1.477	1.688	35.6	21.0	84 E	68* 35*	10 28	10 18.69	+31 29.0	1.966	1.894	29.8	19.5	71 W	65*	18*
3 2	3 53.26	+24 47.3	1.581	1.712	34.7	21.2	80 E	66* 34*	11 7	10 45.44	+30 57.3	1.851	1.863	31.0	19.4	75 W	68*	19*
3 12	4 20.02	+25 17.9	1.689	1.739	33.7	21.3	76 E	63* 33*	11 17	11 12.07	+30 23.7	1.739	1.832	32.0	19.3	79 W	71*	20*
3 22	4 46.95	+25 36.0	1.801	1.769	32.4	21.5	72 E	60* 33*	11 27	11 38.40	+29 50.5	1.631	1.803	32.9	19.1	83 W	73*	22*
<b>329556 2002 UA<sub>12</sub></b>									12 7	12 4.25	+29 19.6	1.529	1.776	33.6	19.0	87 W	74*	25*
12 23	1 15.76	+22 28.9	1.202	1.845	29.0	18.9	115 E	67 41*										

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	19/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°
<b>327794 2006 UB<sub>266</sub></b>										<b>138852 2000 WW<sub>10</sub></b>									
12 23	1 18.78	+17 13.9	1.790	2.365	22.4	19.7	114E	62	47*	12 23	1 21.31	+25 3.0	0.410	1.224	45.9	20.4	117E	70	39*
1 2	1 23.67	+15 43.6	1.868	2.316	24.3	19.8	104E	61	47*	12 28	1 25.49	+27 13.9	0.457	1.237	46.9	20.7	113E	72	37*
1 12	1 31.22	+14 36.9	1.950	2.267	25.6	19.9	96E	60	46*	1 2	1 30.79	+29 6.3	0.504	1.249	47.7	21.0	110E	74	34*
1 22	1 41.09	+13 51.4	2.034	2.218	26.3	20.0	87E	59	43*	1 7	1 37.06	+30 45.0	0.551	1.260	48.2	21.2	107E	76	32*
2 1	1 53.04	+13 24.0	2.116	2.168	26.6	20.0	80E	58*	40*	1 12	1 44.17	+32 13.3	0.598	1.270	48.7	21.4	104E	77	30*
2 11	2 6.82	+13 11.4	2.193	2.119	26.4	20.0	73E	55*	37*	<b>507414 2012 PE</b>									
2 21	2 22.22	+13 10.0	2.263	2.070	25.9	20.0	66E	51*	35*	12 23	1 21.37	+36 30.2	0.997	1.707	30.2	20.8	119E	82	27*
3 2	2 39.12	+13 16.5	2.326	2.021	25.1	20.0	60E	47*	32*	12 28	1 28.14	+35 0.5	1.030	1.704	31.3	20.9	116E	80	29*
3 12	2 57.38	+13 27.7	2.380	1.973	24.1	20.0	54E	42*	30*	1 2	1 35.67	+33 38.6	1.066	1.702	32.3	21.0	112E	79	30*
3 22	3 16.93	+13 40.6	2.426	1.926	23.0	19.9	49E	37*	28*	1 7	1 43.87	+32 24.5	1.103	1.699	33.2	21.1	109E	77	31*
4 1	3 37.69	+13 52.4	2.462	1.880	21.8	19.9	44E	31*	27*	1 12	1 52.63	+31 18.1	1.143	1.697	33.9	21.2	106E	76	31*
4 11	3 59.60	+14 0.4	2.489	1.835	20.5	19.8	40E	26*	25*	1 17	2 1.87	+30 18.7	1.184	1.694	34.5	21.2	102E	75	32*
4 21	4 22.61	+14 2.0	2.508	1.792	19.2	19.7	36E	21*	24*	1 22	2 11.56	+29 25.8	1.227	1.692	35.0	21.3	99E	74	32*
5 1	4 46.66	+13 54.8	2.519	1.751	17.9	19.7	32E	16*	22*	1 27	2 21.63	+28 38.8	1.271	1.689	35.4	21.4	96E	74	32*
5 11	5 11.68	+13 36.5	2.524	1.713	16.6	19.6	29E	11*	21*	2 1	2 32.03	+27 57.1	1.315	1.686	35.7	21.5	93E	73	32*
5 21	5 37.60	+13 5.4	2.524	1.677	15.5	19.5	26E	6*	19*	<b>191035 2002 CR<sub>9</sub></b>									
5 31	6 4.32	+12 19.8	2.519	1.644	14.5	19.4	24E	1*	18*	12 23	1 21.78	- 5 8.9	1.227	1.770	32.3	18.9	106E	40	69
6 10	6 31.72	+11 18.4	2.511	1.615	13.6	19.3	22E	—	16*	12 28	1 27.23	- 5 15.1	1.265	1.758	33.1	19.0	102E	40	69*
6 20	6 59.71	+10 0.7	2.503	1.591	12.9	19.3	20E	—	14*	1 2	1 33.35	- 5 13.8	1.305	1.747	33.8	19.1	99E	40	68*
6 30	7 28.16	+ 8 26.5	2.494	1.570	12.3	19.2	19E	—	12*	1 7	1 40.08	- 5 5.8	1.344	1.736	34.3	19.2	95E	40	66*
7 10	7 56.93	+ 6 36.6	2.487	1.555	11.8	19.2	18E	—	10*	1 12	1 47.38	- 4 51.8	1.383	1.726	34.7	19.2	92E	40	65*
7 20	8 25.91	+ 4 32.2	2.483	1.544	11.4	19.1	17E	—	7*	1 17	1 55.20	- 4 32.8	1.422	1.716	35.0	19.3	89E	40	63*
7 30	8 55.00	+ 2 15.2	2.482	1.539	11.0	19.1	17E	—	5*	1 22	2 3.50	- 4 9.1	1.460	1.707	35.1	19.3	86E	41	61*
8 9	9 24.09	- 0 11.6	2.486	1.538	10.6	19.1	16E	—	3*	1 27	2 12.27	- 3 41.6	1.498	1.698	35.2	19.4	84E	41	59*
8 19	9 53.11	- 2 45.2	2.495	1.544	10.1	19.1	16W	—	1*	2 1	2 21.47	- 3 10.7	1.536	1.691	35.1	19.4	81E	42	57*
8 29	10 21.99	- 5 22.6	2.508	1.554	9.6	19.1	15W	—	2*	2 11	2 41.03	- 2 1.4	1.609	1.677	34.9	19.5	76E	42*	54*
9 8	10 50.69	- 8 0.2	2.526	1.569	9.1	19.1	14W	—	4*	2 21	3 1.98	+ 0 45.2	1.680	1.667	34.4	19.6	72E	42*	51*
9 18	11 19.17	-10 35.0	2.547	1.589	8.6	19.1	14W	—	5*	3 2	3 24.20	+ 0 34.0	1.748	1.660	33.7	19.6	68E	41*	49*
9 28	11 47.41	-13 3.9	2.571	1.614	8.3	19.2	13W	—	6*	3 12	3 47.52	+ 1 52.8	1.815	1.656	32.9	19.7	65E	39*	47*
10 8	12 15.37	-15 24.2	2.597	1.643	8.2	19.2	14W	—	7*	3 22	4 11.82	+ 3 7.9	1.880	1.656	31.9	19.7	62E	37*	45*
10 18	12 43.03	-17 33.9	2.622	1.675	8.4	19.3	14W	—	8*	4 1	4 36.98	+ 4 16.6	1.945	1.659	30.9	19.8	59E	34*	44*
10 28	13 10.34	-19 31.1	2.646	1.710	9.0	19.4	16W	—	10*	4 11	5 2.84	+ 5 16.2	2.009	1.665	29.8	19.8	56E	30*	43*
11 7	13 37.25	-21 14.5	2.667	1.749	9.9	19.5	18W	2*	11*	4 21	5 29.25	+ 6 4.6	2.075	1.674	28.6	19.9	53E	27*	41*
11 17	14 3.70	-22 43.0	2.682	1.790	11.1	19.6	20W	4*	14*	5 1	5 56.05	+ 6 40.0	2.141	1.686	27.4	19.9	50E	23*	40*
11 27	14 29.60	-23 56.1	2.692	1.833	12.5	19.7	24W	7*	16*	5 11	6 23.06	+ 7 1.3	2.209	1.702	26.0	20.0	48E	18*	39*
12 7	14 54.85	-24 53.4	2.695	1.877	14.0	19.8	28W	9*	20*	5 21	6 50.10	+ 7 8.0	2.278	1.720	24.6	20.0	45E	14*	37*
12 17	15 19.33	-25 34.9	2.688	1.923	15.6	19.9	32W	11*	24*	5 31	7 17.02	+ 6 59.8	2.349	1.740	23.1	20.1	42E	10*	35*
12 27	15 42.91	-26 0.8	2.673	1.971	17.2	20.0	36W	12*	28*	6 10	7 43.65	+ 6 37.3	2.422	1.763	21.6	20.1	40E	6*	33*
1 6	16 5.45	-26 11.6	2.648	2.019	18.8	20.1	41W	14*	34*	6 20	8 9.87	+ 6 1.3	2.495	1.788	19.9	20.1	37E	2*	31*
1 16	16 26.79	-26 8.0	2.612	2.067	20.3	20.2	47W	15*	39*	6 30	8 35.60	+ 5 13.1	2.569	1.815	18.2	20.2	34E	—	28*
<b>13091 1992 PT<sub>3</sub></b>										<b>19127 Olegfremov</b>									
12 23	1 19.60	+ 6 21.4	1.623	2.169	25.2	19.3	110E	51	58*	12 23	1 21.79	+17 16.7	1.146	1.793	29.9	18.2	115E	62	47
1 2	1 27.74	+ 7 26.6	1.772	2.201	25.9	19.5	102E	52	55*	1 2	1 35.59	+17 59.0	1.273	1.831	30.7	18.5	108E	63	45*
1 12	1 37.69	+ 8 39.1	1.924	2.233	26.0	19.7	95E	54	52*	1 12	1 50.92	+18 49.4	1.407	1.870	31.0	18.7	101E	64	43*
1 22	1 49.12	+ 9 56.5	2.079	2.265	25.7	19.9	88E	55	47*	1 22	2 7.46	+19 45.0	1.547	1.908	30.9	19.0	95E	65	41*
2 1	2 1.78	+11 16.9	2.234	2.296	25.1	20.1	81E	56*	43*	2 1	2 25.00	+20 43.3	1.690	1.947	30.4	19.2	89E	66	38*
2 11	2 15.47	+12 38.4	2.388	2.326	24.1	20.3	74E	56*	39*	2 11	2 43.33	+21 42.0	1.836	1.986	29.6	19.4	84E	66*	36*
2 21	2 30.01	+13 59.4	2.539	2.356	22.9	20.4	68E	53*	35*	2 21	3 2.30	+22 39.1	1.983	2.025	28.5	19.6	78E	64*	33*
3 2	2 45.29	+15 18.6	2.685	2.385	21.5	20.5	62E	49*	32*	3 2	3 21.81	+23 32.9	2.130	2.064	27.3	19.7	73E	61*	31*
3 12	3 1.19	+16 34.6	2.824	2.414	20.0	20.6	56E	45*	29*	3 12	3 41.74	+24 21.8	2.276	2.102	25.8	19.9	67E	57*	29*
3 22	3 17.61	+17 46.5	2.957	2.442	18.3	20.6	50E	40*	26*	3 22	4 2.00	+25 4.6	2.419	2.140	24.3	20.0	62E	52*	28*
4 1	3 34.49	+18 53.4	3.081	2.469	16.5	20.7	44E	34*	23*	4 1	4 22.51	+25 40.3	2.558	2.177	22.6	20.1	57E	47*	26*
4 11	3 51.73	+19 54.5	3.196	2.495	14.6	20.7	39E	29*	20*	4 11	4 43.17	+26 8.1	2.692	2.213	20.8	20.2	52E	42*	24*
4 21	4 9.27	+20 49.0	3.301	2.520	12.6	20.7	33E	23*	17*	4 21	5 3.91	+26 27.4	2.820	2.249	18.9	20.3	46E	36*	23*
5 1	4 27.06	+21 36.5	3.394	2.545	10.6	20.8	28E	17*	14*	5 1	5 24.64	+26 37.8	2.941	2.284	17.0	20.3	41E	31*	21*
5 11	4 45.02	+22 16.5	3.475	2.569	8.5	20.7	22E	12*	11*	5 11	5 45.28	+26 39.3	3.053	2.318	15.0	20.4	36E	25*	19*
5 21	5 3.08	+22 48.9	3.544	2.592	6.5	20.7	17E	7*	7*	5 21	6 5.76	+26 31.6	3.157	2.352	12.9	20.4	31E	20*	17*
5 31	5 21.18	+23 13.3	3.600	2.614	4.4	20.7	11E	2*	3*	5 31	6 26.02	+26 15.1	3.251	2.384	10.8	20.4	26E	14*	

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	$45^\circ$	$-26^\circ$	19/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	$45^\circ$	$-26^\circ$										
<b>19127 Olegfremov</b> (continuation)										<b>48864 1998 HK<sub>43</sub></b> (continuation)																			
6 10	6 45.98	+25 50.0	3.334	2.415	8.7	20.4	21 E	10*	11*	11 27	7 51.21	+12 29.2	2.128	2.834	16.1	20.3	127 W	57	52	12 7	7 47.31	+12 15.9	2.014	2.822	13.6	20.1	138 W	57	52
6 20	7 5.59	+25 16.6	3.406	2.446	6.6	20.4	16 E	5*	7*	12 17	7 40.73	+12 12.8	1.919	2.809	10.4	19.8	149 W	57	52	12 27	7 31.86	+12 20.5	1.849	2.795	6.8	19.6	160 W	57	52
6 30	7 24.80	+24 35.5	3.465	2.475	4.5	20.4	11 E	2*	3*	1 6	7 21.40	+12 38.5	1.808	2.780	3.7	19.4	170 W	58	51	1 16	7 10.38	+13 4.9	1.796	2.764	4.4	19.4	167 E	58	51
7 10	7 43.57	+23 47.3	3.512	2.504	2.5	20.3	6 E	—	—	<b>183220 2002 TJ<sub>39</sub></b>																			
7 20	8 1.86	+22 52.7	3.546	2.531	1.0	20.2	2 E	—	—	12 23	1 25.08	+7 52.5	1.419	2.007	27.0	19.7	112 E	53	56	1 2	1 35.75	+8 26.0	1.558	2.040	27.8	19.9	104 E	53	55*
7 30	8 19.66	+21 52.3	3.567	2.558	2.1	20.3	5 W	—	—	1 12	1 48.01	+9 12.3	1.702	2.073	28.1	20.2	97 E	54	52*	1 22	2 1.55	+10 7.6	1.850	2.106	27.9	20.4	91 E	55	49*
8 9	8 36.92	+20 46.9	3.573	2.583	4.1	20.5	11 W	4*	—	2 1	2 16.15	+11 8.8	2.000	2.139	27.3	20.6	84 E	56*	45*	2 11	2 31.63	+12 13.1	2.150	2.172	26.4	20.7	78 E	56*	42*
8 19	8 53.63	+19 37.3	3.565	2.607	6.1	20.6	16 W	9*	4*	2 21	2 47.82	+13 18.1	2.299	2.205	25.3	20.9	72 E	54*	39*	3 2	3 4.62	+14 21.8	2.445	2.237	23.9	21.0	66 E	51*	36*
8 29	9 9.77	+18 24.4	3.543	2.630	8.1	20.7	22 W	14*	7*	3 12	3 21.92	+15 22.6	2.587	2.269	22.4	21.1	61 E	47*	33*	3 12	3 39.63	+16 19.1	2.724	2.301	20.8	21.2	55	42*	31*
9 8	9 25.30	+17 9.0	3.507	2.652	10.0	20.8	27 W	20*	11*	4 1	4 16.00	+17 54.5	2.977	2.363	17.2	21.3	44 E	32*	26*	4 11	4 34.51	+18 31.8	3.092	2.393	15.3	21.4	39 E	26*	23*
9 18	9 40.20	+15 52.1	3.457	2.673	11.9	20.8	33 W	25*	14*	5 1	5 43.14	+19 1.2	3.197	2.422	13.3	21.4	34 E	20*	21*	5 11	5 11.82	+19 22.4	3.293	2.451	11.3	21.4	28 E	15*	18*
9 28	9 54.42	+14 34.5	3.392	2.693	13.6	20.9	39 W	31*	18*	5 21	5 30.49	+19 35.1	3.377	2.479	9.2	21.4	23 E	9*	14*	5 31	5 40.08	+19 39.1	3.450	2.506	7.2	21.4	18 E	4*	11*
10 8	10 7.91	+13 17.4	3.314	2.712	15.3	20.9	46 W	37*	21*	6 10	6 7.53	+19 34.5	3.511	2.533	5.2	21.4	13 E	—	7*	6 20	6 25.77	+19 21.5	3.560	2.558	3.3	21.3	8 E	—	2*
10 18	10 20.61	+12 1.7	3.224	2.729	16.8	20.9	52 W	42*	25*	6 30	6 43.74	+19 0.2	3.595	2.583	1.8	21.3	4 E	—	—	6 30	6 43.74	+19 0.2	3.595	2.583	1.8	21.3	4 E	—	—
10 28	10 32.41	+10 48.7	3.122	2.746	18.1	20.9	59 W	47*	30*	7 10	7 1.39	+18 31.1	3.618	2.607	2.1	21.3	5 W	—	—	7 10	7 1.39	+18 31.1	3.618	2.607	2.1	21.3	5 W	—	—
11 7	10 43.22	+9 39.5	3.009	2.761	19.2	20.9	66 W	50*	34*	7 20	7 18.66	+17 54.5	3.626	2.630	3.7	21.4	10 W	—	4*	7 20	7 18.66	+17 54.5	3.626	2.630	3.7	21.4	10 W	—	4*
11 17	10 52.88	+8 35.6	2.888	2.775	20.0	20.8	74 W	53*	40*	<b>213152 2000 NO<sub>14</sub></b>																			
11 27	11 1.22	+7 38.5	2.760	2.788	20.5	20.7	81 W	53*	45*	12 23	1 26.18	+6 5.0	1.449	2.029	26.8	21.1	112 E	51	58	1 2	1 35.27	+7 13.8	1.588	2.059	27.6	21.4	104 E	52	56*
12 7	11 8.04	+6 49.7	2.627	2.800	20.6	20.7	90 W	52	51*	1 12	1 46.21	+8 30.2	1.731	2.089	27.9	21.6	97 E	54	53*	1 22	1 58.66	+9 51.5	1.877	2.118	27.7	21.8	90 E	55	49*
12 17	11 13.08	+6 10.9	2.493	2.811	20.3	20.5	98 W	51	55*	2 1	2 12.37	+11 15.4	2.024	2.147	27.1	22.0	83 E	56*	45*	2 1	2 12.37	+11 15.4	2.024	2.147	27.1	22.0	83 E	56*	45*
12 27	11 16.08	+5 43.9	2.361	2.820	19.4	20.4	108 W	51	58*	<b>6144 Kondojiro</b>																			
1 6	11 16.78	+5 30.2	2.235	2.829	17.9	20.2	118 W	51	58	12 23	1 26.46	+2 19.1	6.067	6.472	8.2	20.1	110 E	47	62	1 2	1 26.50	+2 30.0	6.229	6.474	8.6	20.2	100 E	48	60*
1 16	11 14.96	+5 31.1	2.119	2.836	15.8	20.1	128 W	51	58	1 12	1 27.53	+2 46.5	6.396	6.476	8.7	20.3	90 E	48	56*	1 22	1 29.50	+3 8.2	6.562	6.478	8.6	20.3	81 E	48	50*
<b>221580 2006 VX<sub>95</sub></b>										2 1	2 32.33	+3 34.1	6.725	6.479	8.3	20.4	71 E	47*	44*	2 11	1 35.93	+4 3.7	6.878	6.481	7.8	20.4	62 E	44*	38*
12 23	1 21.82	+10 51.1	1.131	1.759	31.1	20.2	112 E	56	53	2 21	1 40.22	+4 36.1	7.020	6.482	7.0	20.4	54 E	39*	32*	3 2	1 45.10	+5 10.7	7.146	6.482	6.2	20.4	45 E	32*	27*
1 2	1 34.18	+12 47.0	1.243	1.782	32.1	20.5	106 E	58	51*	3 12	1 56.28	+6 23.4	7.344	6.483	4.2	20.4	36 E	25*	21*	3 22	1 56.28	+6 23.4	7.344	6.483	4.2	20.4	28 E	18*	16*
1 12	1 48.60	+14 42.7	1.361	1.806	32.5	20.7	99 E	60	47*	4 1	2 2.37	+7 0.3	7.412	6.483	3.0	20.3	20 E	10*	11*	4 11	2 8.71	+7 36.9	7.458	6.483	1.9	20.3	12 E	2*	5*
1 22	2 4.70	+16 36.2	1.484	1.832	32.4	20.9	94 E	62	43*	4 21	2 15.20	+8 12.5	7.481	6.482	0.9	20.2	6 E	—	—	5 1	2 21.77	+8 46.8	7.480	6.481	1.1	20.2	7 W	—	7*
2 1	2 22.22	+18 26.0	1.610	1.858	32.0	21.1	88 E	63	40*	5 11	2 28.33	+9 19.3	7.457	6.480	2.1	20.3	14 W	—	—	5 21	2 28.33	+9 19.3	7.457	6.480	2.1	20.3	14 W	—	7*
2 11	2 40.92	+20 10.4	1.739	1.886	31.3	21.3	83 E	64*	37*	5 21	2 34.81	+9 49.7	7.412	6.479	3.2	20.3	21 W	—	15*	5 31	2 41.13	+10 17.5	7.345	6.477	4.4	20.4	29 W	3*	23*
2 21	3 0.61	+21 48.0	1.869	1.915	30.3	21.5	77 E	63*	34*	6 10	2 47.20	+10 42.5	7.258	6.476	5.4	20.4	37 W	8*	30*	6 20	2 52.94	+11 4.3	7.152	6.474	6.4	20.4	45 W	14*	37*
<b>326738 2003 PA</b>										6 30	2 58.26	+11 22.8	7.030	6.471	7.2	20.4	53 W	21*	42*	6 30	2 58.26	+11 22.8	7.030	6.471	7.2	20.4	53 W	21*	42*
12 23	1 22.44	+4 59.1	1.301	1.884	29.3	21.0	110 E	50	59	7 10	3 3.06	+11 37.6	6.893	6.469	7.9	20.4	61 W	29*	47*	7 10	3 3.06	+11 37.6	6.893	6.469	7.9	20.4	61 W	29*	47*
1 2	1 33.62	+6 43.9	1.433	1.916	29.9	21.3	103 E	52	56*	7 20	3 7.26	+11 48.6	6.745	6.466	8.5	20.4	70 W	36*	50*	7 20	3 7.26	+11 48.6	6.745	6.466	8.5	20.4	70 W	36*	50*
1 12	1 46.46	+8 30.8	1.571	1.950	30.1	21.5	97 E	54	53*	7 30	3 10.75	+11 55.7	6.588	6.463	8.9	20.3	79 W	44*	52*	8 9	3 13.44	+11 58.6	6.426	6.459	9.0	20.3	87 W	51*	52
1 22	2 0.65	+10 17.7	1.713	1.983	29.7	21.7	91 E	55	49*	8 9	3 15.25	+11 57.4	6.262	6.456	9.0	20.2	97 W	55*	52	8 29	3 16.08	+11 52.0	6.101	6.452	8.7	20.2	106 W	57	52
2 1	2 15.98	+12 3.0	1.857	2.017	29.1	21.9	85 E	57*	44*	8 19	3 15.90	+11 42.7	5.948	6.448	8.1	20.1	116 W	57	52	9 8	3 15.90	+11 42.7	5.948	6.448	8.1	20.1	116 W	57	52
<b>516237 2016 UF<sub>41</sub></b>										9 28	3 14.69	+11 29.5	5.806	6.443	7.3	20.0	126 W	56	53	9 28	3 14.69	+11 29.5	5.806	6.443	7.3	20.0	126 W	56	53
12 23	1 22.98	+5 16.5	1.409	1.982	27.7	21.1	111 E	50	59	10 8	3 12.46	+11 13.1	5.681	6.439	6.2	19.9	136 W	56	53	10 8	3 12.46	+11 13.1	5.681	6.439	6.2	19.9	136 W	56	53
1 2	1 32.40	+6 57.3	1.548	2.014	28.4	21.3	103 E	52	56*	10 18	3 9.30	+10 53.9	5.578	6.434	4.9	19.8	146 W	56	53	1 12	1 34.07	+4 47.2	2.461	2.691	21.4	20.6	93 E	50	55*
1 12	1 43.64	+8 40.4	1.692	2.047	28.5	21.6	96 E	54	52*	11 7	3 5.36	+10 32.9	5.500	6.429	3.5	19.7	157 W	56	53	1 22	1 42.								

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	19/20	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°
<b>265549 2005 OZ<sub>14</sub></b>										<b>233080 2005 PG</b> (continuation)									
12 23	1 26.52	+14 7.2	1.723	2.312	22.8	21.4	115 E	59	50	4 21	5 29.70	+24 48.1	2.598	2.132	21.8	20.9	52 E	40*	28*
1 2	1 32.70	+14 37.2	1.872	2.342	23.8	21.6	106 E	60	49*	5 1	5 51.47	+25 2.9	2.727	2.174	19.9	21.0	47 E	34*	26*
1 12	1 40.98	+15 17.8	2.027	2.372	24.2	21.8	98 E	60	46*	5 11	6 13.06	+25 6.0	2.852	2.215	17.9	21.0	42 E	29*	24*
1 22	1 50.99	+16 6.7	2.184	2.401	24.2	22.0	90 E	61	42*	5 21	6 34.38	+24 58.0	2.969	2.255	15.9	21.1	38 E	23*	22*
2 1	2 2.45	+17 1.8	2.342	2.429	23.7	22.2	83 E	62*	39*	5 31	6 55.38	+24 39.4	3.079	2.295	13.9	21.1	33 E	18*	20*
<b>183069 2002 RR<sub>13</sub></b>																			
12 23	1 30.44	+9 11.2	1.424	2.030	26.3	20.6	114 E	54	55	6 10	7 15.97	+24 11.0	3.181	2.334	11.8	21.2	28 E	13*	17*
1 2	1 39.68	+10 7.4	1.564	2.065	27.2	20.9	106 E	55	53*	6 20	7 36.13	+23 33.6	3.273	2.372	9.7	21.2	23 E	9*	14*
1 12	1 50.76	+11 12.2	1.711	2.099	27.6	21.1	99 E	56	50*	6 30	7 55.81	+22 47.9	3.355	2.410	7.6	21.2	18 E	5*	10*
1 22	2 3.33	+12 22.5	1.861	2.133	27.5	21.3	92 E	57	47*	7 10	8 14.97	+21 54.9	3.426	2.447	5.5	21.2	13 E	2*	6*
2 1	2 17.15	+13 36.2	2.013	2.167	26.9	21.5	85 E	59*	43*	7 20	8 33.61	+20 55.5	3.485	2.483	3.4	21.1	8 E	—	1*
<b>446987 2003 XY</b>																			
12 23	1 30.73	+6 35.1	1.865	2.422	22.0	20.8	113 E	52	57	7 30	8 51.71	+19 50.7	3.531	2.519	1.4	21.0	4 E	—	—
1 2	1 29.67	+8 10.1	1.948	2.371	23.8	20.9	103 E	53	55*	8 9	9 9.26	+18 41.3	3.565	2.553	1.3	21.1	3 W	—	—
1 12	1 31.63	+9 54.5	2.035	2.320	25.0	21.0	94 E	55	50*	8 19	9 26.25	+17 28.3	3.584	2.587	3.2	21.3	8 W	2*	—
1 22	1 36.32	+11 46.8	2.122	2.267	25.6	21.1	85 E	57	44*	8 29	9 42.69	+16 12.8	3.590	2.619	5.2	21.4	14 W	7*	1*
2 1	1 43.50	+13 45.9	2.205	2.215	25.8	21.1	78 E	58*	38*										
2 11	1 52.92	+15 50.7	2.282	2.161	25.5	21.1	70 E	56*	33*										
2 21	2 4.41	+18 0.1	2.350	2.108	24.9	21.1	64 E	53*	28*										
3 2	2 17.84	+20 13.0	2.409	2.054	24.0	21.1	58 E	49*	24*										
3 12	2 33.16	+22 28.2	2.457	2.001	23.0	21.0	52 E	44*	20*										
3 22	2 50.35	+24 44.2	2.494	1.947	21.8	21.0	47 E	40*	16*										
4 1	3 9.47	+26 59.5	2.520	1.894	20.5	20.9	42 E	35*	13*										
4 11	3 30.59	+29 11.8	2.536	1.842	19.3	20.8	37 E	31*	10*										
4 21	3 53.84	+31 18.6	2.542	1.791	18.0	20.7	33 E	27*	8*										
5 1	4 19.37	+33 16.8	2.539	1.742	16.9	20.6	30 E	24*	6*										
5 11	4 47.28	+35 2.3	2.528	1.694	15.8	20.5	27 E	21*	4*										
5 21	5 17.64	+36 30.4	2.511	1.648	15.0	20.4	25 E	19*	2*										
5 31	5 50.41	+37 36.0	2.489	1.605	14.3	20.3	23 E	17*	1*										
6 5	6 7.64	+37 58.5	2.477	1.585	14.0	20.3	22 E	16*	—										
6 10	6 25.37	+38 13.2	2.464	1.565	13.8	20.2	22 E	16*	—										
6 15	6 43.55	+38 19.4	2.451	1.547	13.7	20.2	21 E	15*	—										
6 20	7 2.11	+38 16.6	2.439	1.530	13.5	20.1	21 E	15*	—										
6 25	7 20.96	+38 4.2	2.426	1.513	13.4	20.1	20 E	14*	—										
6 30	7 40.01	+37 41.9	2.414	1.498	13.4	20.1	20 E	14*	—										
7 5	7 59.15	+37 9.4	2.403	1.485	13.3	20.0	20 E	14*	—										
7 10	8 18.29	+36 26.6	2.392	1.472	13.2	20.0	19 E	13*	—										
7 15	8 37.33	+35 33.5	2.383	1.461	13.2	20.0	19 E	13*	—										
7 20	8 56.19	+34 30.4	2.375	1.451	13.1	20.0	19 E	13*	—										
7 25	9 14.78	+33 17.8	2.369	1.443	13.0	19.9	19 E	13*	—										
7 30	9 33.04	+31 56.0	2.364	1.436	12.8	19.9	18 E	12*	—										
8 4	9 50.91	+30 25.9	2.361	1.431	12.7	19.9	18 E	12*	—										
8 9	10 8.36	+28 48.1	2.360	1.427	12.4	19.9	18 E	12*	—										
8 14	10 25.37	+27 3.5	2.361	1.425	12.2	19.9	17 E	11*	—										
8 19	10 41.93	+25 13.0	2.363	1.425	11.9	19.9	17 E	11*	—										
8 24	10 58.03	+23 17.5	2.368	1.426	11.5	19.8	16 E	10*	—										
8 29	11 13.69	+21 18.0	2.374	1.429	11.1	19.8	16 E	10*	—										
9 3	11 28.91	+19 15.3	2.382	1.434	10.7	19.8	15 E	9*	—										
9 8	11 43.73	+17 10.3	2.392	1.440	10.2	19.8	15 E	9*	—										
9 13	11 58.16	+15 3.8	2.404	1.448	9.6	19.8	14 E	8*	—										
9 18	12 12.24	+12 56.5	2.417	1.457	9.1	19.8	13 E	7*	—										
9 23	12 25.99	+10 49.3	2.430	1.467	8.6	19.8	13 E	6*	—										
9 28	12 39.44	+8 42.6	2.445	1.479	8.0	19.9	12 E	5*	—										
10 8	13 5.54	+4 33.3	2.477	1.507	7.1	19.9	11 E	3*	—										
10 18	13 30.75	+0 32.3	2.511	1.540	6.5	19.9	10 W	1*	—										
10 28	13 55.26	-3 17.6	2.544	1.577	6.6	20.0	10 W	4*	—										
11 7	14 19.20	-6 54.4	2.575	1.618	7.2	20.1	12 W	6*	—										
11 17	14 42.70	-10 17.2	2.602	1.662	8.5	20.3	14 W	8*	—										
11 27	15 5.83	-13 25.2	2.623	1.708	10.0	20.4	18 W	10*	4*										
12 7	15 28.62	-16 18.4	2.637	1.756	11.8	20.5	21 W	12*	9*										
12 17	15 51.11	-18 57.0	2.644	1.807	13.6	20.7	26 W	13*	15*										
12 27	16 13.24	-21 21.8	2.642	1.858	15.4	20.8	30 W	14*	20*										
1 6	16 34.96	-23 33.6	2.630	1.910	17.2	20.9	35 W	14*	26*										
1 16	16 56.22	-25 33.9	2.609	1.963	18.9	21.0	40 W	13*	33*										
<b>233080 2005 PG</b>																			
12 23	1 31.31	+7 47.8	1.004	1.662	32.9	18.6	113 E	53	56	12 23	1 33.85	+17 8.9	1.539	2.173	23.7	19.3	117 E	62	47
1 2	1 46.65	+9 53.9	1.115	1.695	33.6	18.9	108 E	55	54*	1 2	1 38.49	+18 33.9	1.694	2.213	24.9	19.6	109 E	64	45*
1 12	2 3.45	+11 57.5	1.234	1.729	33.8	19.2	102 E	57	51*	1 12	1 45.69	+19 59.6	1.855	2.254	25.4	19.9	101 E	65	42*
1 22	2 21.42	+13 56.3	1.359	1.766	33.6	19.4	97 E	59	47*	1 22	1 54.99	+21 25.6	2.020	2.294	25.4	20.1	93 E	66	38*
2 1	2 40.36	+15 48.8	1.489	1.804	33.1	19.6	91 E	61	44*	2 1	2 6.05	+22 51.6	2.186	2.334	24.9	20.3	86 E	68*	34*
2 11	3 0.08	+17 33.4	1.624	1.843	32.3	19.8	86 E	62*	41*	2 11	2 18.54	+24 17.1	2.351	2.373	24.1	20.5	79 E	67*	30*
2 21	3 20.44	+19 8.9	1.762	1.884	31.2	20.0	81 E	63*	38*	2 21	2 32.25	+25 41.1	2.514	2.411	23.0	20.6	73 E	63*	27*
3 2	3 41.32	+20 34.2	1.903	1.924	30.0	20.2	76 E	61*	36*	3 2	2 47.01	+27 2.9	2.673	2.449	21.8	20.7	66 E	58*	24*
3 12	4 2.61	+21 48.7	2.044	1.966	28.6	20.4	71 E	58*	34*	3 12	3 2.64	+28 21.7	2.826	2.487	20.3	20.8	60 E	53*	21*
3 22	4 24.18	+22 51.6	2.185	2.007	27.1	20.5	66 E	54*	32*	3 22	3 19.04	+29 36.7	2.971	2.523	18.7	20.9	54 E	48*	18*
4 1	4 45.96	+23 42.6	2.325	2.049	25.4	20.7	62 E	50*	31*	4 1	3 36.11	+30 47.3	3.108	2.559	17.0	21.0	49 E	42*	15*
4 11	5 7.83	+24 21.4	2.463	2.091	23.7	20.8	57 E	45*	29*	4 11	3 53.75	+31 52.7	3.236	2.594	15.3	21.1	43 E	36*	13*
										<b>197710 2004 PU<sub>2</sub></b>									
										12 23 1 33.85 +17 8.9 1.539 2.173 23.7 19.3 117 E 62 47									
										1 2 1 38.49 +18 33.9 1.694 2.213 24.9 19.6 109 E 64 45*									
										1 12 1 45.69 +19 59.6 1.855 2.254 25.4 19.9 101 E 65 42*									
										1 22 1 54.99 +21 25.6 2.020 2.294 25.4 20.1 93 E 66 38*									
										2 1 2 6.05 +22 51.6 2.186 2.334 24.9 20.3 86 E 68* 34*									
										2 11 2 18.54 +24 17.1 2.351 2.373 24.1 20.5 79 E 67* 30*									
										2 21 2 32.25 +25 41.1 2.514 2.411 23.0 20.6 73 E 63* 27*									
										3 2 2 47.01 +27 2.9 2.673 2.449 21.8 20.7 66 E 58* 24*									
										3 12 3 2.									



EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/20	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	19/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°										
<b>271519 2004 GL<sub>39</sub></b>										<b>6455 1992 HE</b> (continuation)																			
12 23	1 40.21	+12 21.5	1.802	2.415	21.3	20.9	117 E	57	52	8 29	7 49.18	+51 44.4	3.936	3.434	13.7	20.3	54 W	46*	—	10 13	8 57.98	+54 59.8	3.488	3.491	16.4	20.2	82 W	70*	3*
1 2	1 44.46	+13 4.8	1.957	2.449	22.4	21.2	108 E	58	51*	9 8	8 6.03	+52 15.6	3.850	3.449	14.6	20.3	59 W	51*	1*	10 18	9 4.18	+55 33.1	3.432	3.496	16.5	20.2	85 W	73*	3*
1 12	1 50.94	+13 56.5	2.118	2.482	23.0	21.4	100 E	59	48*	9 18	8 22.13	+52 52.4	3.755	3.463	15.3	20.3	66 W	57*	2*	10 23	9 9.97	+56 9.5	3.376	3.500	16.5	20.1	89 W	75*	3*
1 22	1 59.28	+14 54.7	2.283	2.514	23.0	21.6	92 E	60	44*	9 28	8 37.32	+53 36.4	3.652	3.475	15.9	20.3	72 W	62*	2*	10 28	9 15.31	+56 49.0	3.321	3.504	16.5	20.1	92 W	76*	3*
2 1	2 9.19	+15 57.6	2.448	2.546	22.6	21.8	84 E	61*	40*	10 8	8 51.41	+54 29.4	3.544	3.486	16.3	20.2	79 W	68*	3*	11 2	9 20.14	+57 31.8	3.266	3.507	16.3	20.1	96 W	77*	3*
<b>244456 2002 RS<sub>141</sub></b>										<b>6455 1992 HE</b> (continuation)																			
12 23	1 40.50	+11 40.7	1.027	1.714	30.8	20.2	117 E	57	52	11 7	9 24.40	+58 17.9	3.212	3.511	16.2	20.0	99 W	77*	3*	11 12	9 28.03	+59 7.3	3.160	3.513	15.9	20.0	103 W	76	3*
1 2	1 54.19	+12 32.5	1.131	1.736	32.1	20.5	110 E	58	51*	11 17	9 30.93	+59 59.8	3.109	3.516	15.7	20.0	106 W	75	3*	11 22	9 33.01	+60 55.2	3.061	3.518	15.3	19.9	110 W	74	2*
1 12	2 9.77	+13 35.0	1.242	1.760	32.8	20.8	104 E	59	49*	11 27	9 34.16	+61 53.0	3.016	3.520	15.0	19.9	113 W	73	2*	12 2	9 34.28	+62 52.9	2.974	3.522	14.6	19.8	116 W	72	1*
1 22	2 26.87	+14 43.8	1.359	1.786	33.1	21.0	98 E	60	47*	12 7	9 33.23	+63 54.0	2.936	3.523	14.1	19.8	119 W	71	—	12 12	9 30.87	+64 55.5	2.902	3.524	13.7	19.7	122 W	70	—
2 1	2 45.22	+15 55.5	1.481	1.813	32.9	21.2	92 E	61	44*	12 17	9 27.06	+65 56.3	2.872	3.524	13.3	19.7	124 W	69	—	12 22	9 27.06	+65 56.3	2.872	3.524	13.3	19.7	124 W	69	—
2 11	3 4.57	+17 6.8	1.606	1.842	32.3	21.4	87 E	62*	42*	12 27	9 21.67	+66 55.0	2.848	3.524	12.9	19.7	127 W	68	—	1 1	9 5.93	+68 40.3	2.814	3.523	12.4	19.6	130 W	66	—
<b>326291 1998 HM<sub>3</sub></b>										<b>6455 1992 HE</b> (continuation)																			
12 23	1 41.05	-40 8.1	0.709	1.233	52.8	20.7	92 E	5	76	1 6	8 55.59	+69 23.7	2.805	3.523	12.3	19.6	130 W	66	—	1 11	8 43.80	+69 58.8	2.801	3.521	12.2	19.6	131 W	65	—
12 28	1 49.46	-40 3.0	0.753	1.238	52.6	20.8	90 E	5	76	1 16	8 30.88	+70 24.3	2.803	3.520	12.3	19.6	130 W	65	—	12 2	9 34.16	+61 53.0	3.016	3.520	15.0	19.9	113 W	73	2*
1 2	1 58.17	-39 47.5	0.794	1.243	52.2	20.9	88 E	5	76*	12 7	9 33.23	+63 54.0	2.936	3.523	14.1	19.8	119 W	71	—	12 12	9 30.87	+64 55.5	2.902	3.524	13.7	19.7	122 W	70	—
1 7	2 7.19	-39 23.6	0.833	1.248	51.9	21.0	86 E	6	76*	12 17	9 27.06	+65 56.3	2.872	3.524	13.3	19.7	124 W	69	—	12 22	9 27.06	+65 56.3	2.872	3.524	13.3	19.7	124 W	69	—
1 12	2 16.50	-38 52.4	0.869	1.253	51.4	21.1	85 E	6	76*	12 27	9 21.67	+66 55.0	2.848	3.524	12.9	19.7	127 W	68	—	1 1	9 5.93	+68 40.3	2.814	3.523	12.4	19.6	130 W	66	—
1 17	2 26.11	-38 14.8	0.902	1.257	51.0	21.2	84 E	7	75*	1 1	9 5.93	+68 40.3	2.814	3.523	12.4	19.6	130 W	66	—	1 6	8 55.59	+69 23.7	2.805	3.523	12.3	19.6	130 W	66	—
1 22	2 36.02	-37 31.3	0.933	1.262	50.6	21.2	82 E	7	75*	1 11	8 43.80	+69 58.8	2.801	3.521	12.2	19.6	131 W	65	—	1 16	8 30.88	+70 24.3	2.803	3.520	12.3	19.6	130 W	65	—
1 27	2 46.27	-36 42.7	0.961	1.267	50.2	21.3	81 E	8	74*																				
2 1	2 56.85	-35 49.3	0.986	1.271	49.8	21.3	80 E	9	74*																				
2 6	3 7.77	+34 51.6	1.009	1.276	49.5	21.4	79 E	10	73*																				
2 11	3 19.03	-33 49.9	1.030	1.280	49.1	21.4	79 E	11	72*																				
2 16	3 30.63	-32 44.4	1.048	1.284	48.8	21.5	78 E	12*	72*																				
<b>393410 2001 KH<sub>1</sub></b>										<b>74561 1999 LE<sub>18</sub></b>																			
12 23	1 41.92	+ 5 28.9	1.920	2.499	20.9	21.3	115 E	50	59	12 23	1 44.48	+ 8 4.1	1.444	2.079	25.0	19.0	117 E	53	56	1 2	1 50.90	+ 9 28.4	1.583	2.110	26.2	19.3	108 E	54	54*
1 2	1 45.53	+ 6 56.2	2.086	2.542	21.8	21.6	106 E	52	57*	1 12	1 59.60	+10 57.0	1.728	2.141	26.8	19.5	101 E	56	51*	1 22	2 10.16	+12 27.9	1.877	2.172	26.9	19.8	93 E	57	48*
1 12	1 51.25	+ 8 25.9	2.259	2.585	22.1	21.8	98 E	53	53*	2 1	2 22.31	+13 59.4	2.029	2.202	26.5	19.9	87 E	59	44*	2 11	2 25.76	+15 30.0	2.180	2.232	25.8	20.1	80 E	60	40*
1 22	1 58.73	+ 9 56.8	2.436	2.627	22.0	22.0	90 E	55	49*	2 2	2 50.31	+16 58.1	2.330	2.261	24.8	20.3	74 E	58*	36*	3 2	3 5.79	+18 22.7	2.477	2.290	23.6	20.4	68 E	55*	33*
2 1	2 7.69	+11 27.8	2.614	2.668	21.5	22.2	82 E	56*	44*	3 2	3 22.06	+19 42.7	2.619	2.318	22.2	20.5	62 E	50*	30*	3 12	3 22.06	+19 42.7	2.619	2.318	22.2	20.5	62 E	50*	30*
<b>439890 2000 QA<sub>133</sub></b>										<b>74561 1999 LE<sub>18</sub></b>																			
12 23	1 42.79	+ 2 48.8	1.019	1.680	32.3	20.4	114 E	48	61	3 22	3 39.00	+20 57.1	2.756	2.346	20.6	20.6	56 E	45*	27*	4 1	3 56.52	+22 5.2	2.885	2.373	18.9	20.6	50 E	40*	25*
1 2	1 57.51	+ 4 57.6	1.130	1.714	33.0	20.7	108 E	50	59*	4 11	4 14.51	+23 6.1	3.007	2.399	17.1	20.7	45 E	35*	22*	4 21	4 32.90	+23 59.3	3.120	2.425	15.2	20.7	39 E	29*	19*
1 12	2 13.61	+ 7 6.4	1.249	1.750	33.3	21.0	103 E	52	56*	5 1	4 51.61	+24 44.3	3.222	2.449	13.2	20.8	34 E	24*	17*	5 11	5 10.53	+25 20.9	3.314	2.473	11.2	20.8	28 E	18*	14*
1 22	2 30.82	+ 9 11.9	1.375	1.788	33.1	21.2	97 E	54	53*	5 21	5 29.61	+25 48.8	3.395	2.496	9.2	20.8	23 E	13*	11*	5 31	5 48.76	+26 8.0	3.464	2.519	7.1	20.7	18 E	8*	7*
2 1	2 48.96	+11 11.8	1.507	1.828	32.6	21.5	92 E	56	49*	6 10	6 7.89	+26 18.5	3.520	2.540	5.1	20.7	13 E	4*	3*	6 20	6 26.94	+26 20.6	3.564	2.561	3.1	20.6	8 E	1*	—
<b>283889 2004 BL<sub>89</sub></b>										<b>74561 1999 LE<sub>18</sub></b>																			
12 23	1 42.99	+18 42.0	2.178	2.800	17.8	21.5	120 E	64	45	6 30	6 45.84	+26 14.6	3.594	2.580	1.5	20.5	4 E	—	—	7 10	7 4.50	+26 0.9	3.611	2.599	1.9	20.6	5 W	—	—
1 2	1 44.63	+18 13.5	2.297	2.789	19.4	21.6	110 E	63	46*	7 20	7 22.87	+25 40.1	3.614	2.617	3.7	20.7	10 W	3*	—	7 30	7 40.89	+25 12.9	3.603	2.634	5.6	20.8	15 W	8*	3*
1 12	1 48.69	+18 0.1	2.423	2.778	20.4	21.8	101 E	63	44*	8 9	7 58.49	+24 40.2	3.578	2.650	7.6	20.9	20 W	13*	6*	8 19	8 15.63	+24 2.7	3.539	2.665	9.5	21.0	26 W	18*	9*
1 22	1 54.87	+18 0.5	2.553	2.766	20.8	21.9	92 E	63	41*	8 29	8 32.24	+23 21.5	3.487	2.679	11.4	21.1	32 W	24*	12*	9 8	8 48.26	+22 37.7	3.422	2.692	13.1	21.1	37 W	30*	15*
2 1	2 2.93	+18 12.9	2.682	2.753	20.8	22.0	84 E	63*	38*	9 18	9 3.66	+21 52.4	3.343	2.704	14.8	21.1	43 W	36*	18*	9 28	9 18.33	+21 7.1	3.253	2.715	16.4	21.1	50 W	42*	21*
<b>6455 1992 HE</b>										<b>74561 1999 LE<sub>18</sub></b>																			
12 23	1 43.41	+44 26.7	1.883	2.565	18.6	18.3	124 E	89	20	10 8	9 32.21	+20 23.1	3.151	2.726	17.7	21.1	56 W	48*	24*	10 18	9 45.20	+19 42.0	3.039	2.735	18.9	21.1	63 W	53*	27*
12 28	1 42.10	+43 55.2	1.962	2.592	19.3	18.4	120 E	89	20*	10 18	9 45.20	+19 42.0	3.039	2.735	18.9	21.1	63 W	53*	27*	10 28	9 57.17	+19 5.6	2.918	2.743	19.9	21.0	70 W		

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	19/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°										
<b>162273 1999 VL<sub>12</sub></b>										<b>324387 2006 RR<sub>96</sub></b>																			
<i>(continuation)</i>										<i>(continuation)</i>																			
2 21	3 1.65	+ 9 25.7	1.956	1.939	29.4	21.4	74 E	52*	44*	6 10	8 34.48	+21 44.5	2.157	1.629	26.8	20.4	46 E	25*	31*										
2 26	3 9.95	+ 9 43.3	2.018	1.944	28.9	21.4	71 E	51*	43*	6 15	8 48.90	+20 37.2	2.194	1.642	26.0	20.5	45 E	23*	31*										
3 2	3 18.45	+10 1.4	2.079	1.948	28.3	21.5	69 E	49*	41*	6 20	9 3.03	+19 26.5	2.233	1.655	25.1	20.5	44 E	21*	31*										
<b>188349 2003 TS<sub>0</sub></b>										<b>182263 2001 HQ<sub>8</sub></b>																			
12 23	1 46.14	- 1 48.4	0.752	1.451	38.6	17.8	113 E	43	66	12 23	1 46.91	-16 24.1	2.042	2.499	22.2	21.0	106 E	29	80										
12 25	1 47.54	- 3 32.8	0.783	1.455	39.3	17.9	110 E	41	68	12 28	1 48.76	-15 36.8	2.115	2.514	22.5	21.1	102 E	29	80										
12 27	1 49.03	- 5 7.5	0.815	1.459	39.9	18.1	108 E	40	69	1 2	1 51.14	-14 47.3	2.190	2.529	22.6	21.2	98 E	30	78*										
12 29	1 50.61	- 6 33.5	0.848	1.463	40.3	18.2	106 E	38	71	1 7	1 54.01	-13 56.1	2.265	2.543	22.7	21.3	95 E	31	76*										
12 31	1 52.28	- 7 51.7	0.881	1.467	40.6	18.3	104 E	37	72*	1 12	1 57.33	-13 3.7	2.340	2.558	22.6	21.4	91 E	32	73*										
1 2	1 54.03	- 9 2.8	0.914	1.471	40.9	18.3	102 E	36	73*	1 17	2 1.07	-12 10.4	2.416	2.572	22.5	21.4	88 E	33	70*										
1 7	1 58.70	-11 33.9	0.998	1.482	41.2	18.6	97 E	33	74*	<b>269993 2000 WJ<sub>67</sub></b>																			
1 12	2 3.78	-13 34.1	1.082	1.493	41.1	18.8	92 E	31	74*	12 23	1 46.96	+ 3 58.7	1.091	1.756	30.4	20.2	116 E	49	60										
1 17	2 9.20	-15 10.3	1.166	1.506	40.8	18.9	88 E	30	73*	1 2	1 58.29	+ 6 18.4	1.218	1.796	31.2	20.5	109 E	51	58*										
1 22	2 14.94	-16 27.6	1.249	1.519	40.2	19.1	85 E	29	71*	1 12	2 11.36	+ 8 33.4	1.351	1.836	31.5	20.8	103 E	54	54*										
1 27	2 20.98	-17 30.1	1.330	1.532	39.5	19.2	81 E	27	70*	1 22	2 25.84	+10 42.2	1.491	1.877	31.4	21.1	97 E	56	51*										
2 1	2 27.31	-18 20.8	1.408	1.546	38.6	19.3	78 E	27	68*	2 1	2 41.50	+12 44.1	1.636	1.919	30.9	21.3	91 E	58	47*										
2 6	2 33.91	-19 2.3	1.484	1.560	37.7	19.4	75 E	26	66*	<b>176871 2002 UP<sub>3</sub></b>																			
2 11	2 40.75	-19 36.5	1.557	1.575	36.7	19.5	73 E	25	64*	12 23	1 47.38	+ 5 34.8	1.309	1.954	26.8	18.3	116 E	51	58										
2 16	2 47.85	-20 4.8	1.626	1.591	35.7	19.6	70 E	24	62*	1 2	1 55.72	+ 7 50.5	1.445	1.994	27.8	18.6	109 E	53	56*										
2 21	2 55.19	-20 28.5	1.693	1.606	34.8	19.7	68 E	23	60*	1 12	2 6.13	+10 1.9	1.590	2.034	28.2	18.9	102 E	55	53*										
2 26	3 2.78	-20 48.5	1.755	1.622	33.8	19.8	66 E	21	59*	1 22	2 18.22	+12 7.9	1.740	2.075	28.2	19.1	95 E	57	49*										
3 2	3 10.61	-21 5.9	1.814	1.638	32.9	19.8	64 E	20	57*	2 1	2 31.73	+14 7.8	1.895	2.117	27.7	19.4	89 E	59	45*										
3 7	3 18.68	-21 21.2	1.869	1.655	32.0	19.9	62 E	18	56*	2 11	2 46.40	+16 1.0	2.052	2.159	26.9	19.5	83 E	61*	41*										
3 12	3 26.99	-21 35.2	1.921	1.672	31.1	20.0	60 E	16	54*	2 21	3 2.03	+17 46.9	2.210	2.202	25.9	19.7	77 E	60*	37*										
3 17	3 35.54	-21 48.3	1.968	1.689	30.4	20.0	59 E	14	53*	3 2	3 18.49	+19 25.1	2.367	2.244	24.6	19.9	71 E	57*	34*										
3 22	3 44.34	-22 0.8	2.013	1.706	29.6	20.1	58 E	12	52*	3 12	3 35.62	+20 55.0	2.522	2.287	23.2	20.0	65 E	53*	31*										
4 1	4 2.70	-22 26.3	2.091	1.740	28.4	20.2	56 E	7	50*	3 22	3 53.31	+22 16.2	2.673	2.329	21.6	20.1	59 E	49*	28*										
4 11	4 22.06	-22 54.3	2.156	1.775	27.4	20.2	55 E	2	47*	4 1	4 11.47	+23 28.4	2.820	2.372	19.9	20.2	54 E	44*	26*										
4 21	4 42.46	-23 26.7	2.209	1.810	26.7	20.3	54 E	—	45*	4 11	4 29.98	+24 31.4	2.960	2.414	18.1	20.3	48 E	38*	23*										
5 1	5 3.92	-24 5.2	2.253	1.844	26.1	20.4	54 E	—	43*	4 21	4 48.76	+25 25.0	3.093	2.455	16.2	20.4	43 E	33*	21*										
5 11	5 26.43	-24 51.0	2.289	1.879	25.7	20.4	54 E	—	41*	5 1	5 7.73	+26 9.1	3.218	2.496	14.2	20.4	38 E	27*	18*										
5 21	5 50.00	-25 44.3	2.321	1.913	25.4	20.5	54 E	—	39*	5 11	5 26.78	+26 43.8	3.333	2.537	12.3	20.5	32 E	22*	16*										
5 31	6 14.60	-26 45.7	2.349	1.946	25.1	20.6	55 E	—	36*	5 21	5 45.84	+27 9.3	3.438	2.577	10.3	20.5	27 E	17*	13*										
6 10	6 40.15	-27 54.6	2.377	1.979	24.9	20.6	55 E	—	34*	5 31	6 4.84	+27 25.8	3.532	2.617	8.2	20.5	22 E	12*	9*										
6 20	7 6.57	-29 10.1	2.407	2.011	24.6	20.7	55 E	—	31*	6 10	6 23.68	+27 33.8	3.614	2.656	6.2	20.5	16 E	8*	6*										
6 30	7 33.76	-30 31.1	2.440	2.043	24.2	20.7	55 E	—	28*	6 20	6 42.29	+27 33.7	3.683	2.695	4.3	20.5	11 E	4*	1*										
7 10	8 1.54	-31 56.0	2.478	2.073	23.7	20.8	55 E	—	26*	6 30	7 0.63	+27 26.2	3.739	2.732	2.6	20.4	7 E	1*	—										
7 20	8 29.77	-33 23.0	2.522	2.103	23.2	20.8	55 E	—	23*	7 10	7 18.59	+27 12.0	3.781	2.769	1.8	20.4	5 E	—	—										
7 30	8 58.27	-34 50.5	2.571	2.131	22.5	20.9	54 E	—	20*	7 20	7 36.16	+26 51.8	3.809	2.806	2.9	20.5	8 W	2*	—										
8 9	9 26.85	-36 16.8	2.626	2.158	21.8	20.9	52 E	—	18*	7 30	7 53.25	+26 26.5	3.822	2.841	4.6	20.7	13 W	7*	—										
8 19	9 55.35	-37 40.6	2.685	2.185	20.9	21.0	50 E	—	15*	8 9	8 9.82	+25 57.2	3.820	2.876	6.4	20.8	18 W	12*	3*										
8 29	10 23.64	-39 0.8	2.747	2.210	20.0	21.0	48 W	—	16*	8 19	8 25.83	+25 24.7	3.803	2.910	8.2	20.9	24 W	17*	6*										
9 8	10 51.57	-40 16.6	2.811	2.234	19.0	21.1	46 W	—	16*	8 29	8 41.21	+24 50.3	3.772	2.943	10.0	21.0	30 W	23*	9*										
9 18	11 19.07	-41 27.5	2.875	2.257	17.9	21.1	44 W	—	17*	9 8	8 55.91	+24 15.2	3.725	2.976	11.6	21.0	36 W	30*	12*										
9 28	11 46.05	-42 33.3	2.935	2.279	16.8	21.1	41 W	—	18*	9 18	9 9.89	+23 40.5	3.665	3.008	13.1	21.1	43 W	36*	15*										
10 8	12 12.46	-43 33.5	2.990	2.299	15.8	21.1	39 W	—	18*	9 28	9 23.04	+23 7.7	3.591	3.038	14.5	21.1	50 W	42*	18*										
10 18	12 38.27	-44 28.2	3.039	2.318	14.9	21.2	37 W	—	19*	10 8	9 35.30	+22 38.3	3.505	3.068	15.8	21.1	56 W	49*	22*										
10 28	13 3.44	-45 17.4	3.078	2.336	14.2	21.2	35 W	—	20*	10 18	9 46.56	+22 13.7	3.407	3.097	16.8	21.1	64 W	55*	25*										
11 7	13 27.92	-46 0.8	3.105	2.353	13.7	21.2	34 W	—	22*	10 28	9 56.69	+21 55.8	3.300	3.126	17.5	21.1	71 W	61*	28*										
11 17	13 51.68	-46 38.7	3.120	2.368	13.6	21.2	34 W	—	24*	11 7	10 5.54	+21 46.1	3.185	3.153	18.0	21.0	79 W	65*	32*										
11 27	14 14.65	-47 11.1	3.120	2.382	13.8	21.2	35 W	—	26*	11 17	10 12.93	+21 46.4	3.066	3.180	18.1	21.0	87 W	67	35*										
12 7	14 36.74	-47 37.9	3.104	2.395	14.4	21.3	37 W	—	29*	11 27	10 18.64	+21 58.4	2.944	3.205	17.8	20.9	96 W	67	38*										
12 17	14 57.89	-47 59.4	3.072	2.407	15.3	21.3	40 W	—	33*	12 7	10 22.47	+22 23.0	2.824	3.230	17.1	20.8	106 W	67	40*										
12 27	15 17.93	-48 15.6	3.023	2.417	16.5	21.3	44 W	—	37*	12 17	10 24.18	+23 1.0	2.711	3.254	15.9	20.7	115 W	68	41*										
1 6	15 36.72	-48 26.8	2.957	2.426	17.8	21.3	49 W	—	41*	12 27	10 23.57	+23 51.9	2.608	3.277	14.1	20.6	125 W	69	40*										
1 16	15 54.09	-48 33.4	2.874	2.433	19.1	21.3	54 W	—	46*	1 6	10 20.54	+24 53.6	2.521	3.300	11.9	20.4	136 W	70	39										
<b>324387 2006 RR<sub>96</sub></b>										<b>445628 2011 SO<sub>229</sub></b>																			
12 23	1 46.87	+19 38.3	1.143	1.852	27.1	19.3	121 E	65	44	12 23	1 47.92	- 3 23.9	1.127	1.757	31.1	21.2	113 E	42	67										
1 2	1 51.56	+19 59.0	1.196	1.811	30.2	19.5	112 E	65	44*	1 2	1 58.88	+ 0 8.7	1.239	1.788	31.8	21.5	107 E	45	64*										
1 12	2 0.30	+20 36.7	1.254	1.772	32.6	19.6	104 E	66	42*	1 12	2 11.72	+ 3 29.9	1.360	1.822	32.0	21.7	101 E	48	59*										
1 22	2 12.69	+21 28.7	1.314	1.735	34.3	19.7	97 E	66	40*	1 22	2 26.12	+ 6 38.1	1.488	1.857	31.8	22.0	95 E	52	55*										
2 1	2 28.39	+22 31.6	1.374	1.701	35.4	19.8	91 E	68	37*	2 1	2 41.84	+ 9 32.5	1.623	1.894	31.3	22.2	90 E	55	50*										
2 11	2 47.07	+23 41.4	1.434	1.669	36.1	19.9	85 E	68*	34*																				
2 21	3 8.45	+24 53.4	1.492	1.642	36.4	19.9	80 E	67*	32*																				
3 2	3 32.30	+26 2.8	1.549	1.617																									

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/20	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	19/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°
<b>452421 2002 VX<sub>99</sub></b>										<b>52762 1998 MT<sub>24</sub></b> (continuation)									
12 23	1 48.25	+ 7 48.3	1.031	1.721	30.5	21.0	117E	53	56	3 2	2 39.64	+43 34.6	2.569	2.454	22.6	19.9	72E	66*	10*
1 2	1 54.05	+ 5 18.9	1.074	1.660	34.4	21.1	108E	50	59*	3 12	2 56.52	+42 34.5	2.616	2.382	22.3	19.8	65E	59*	9*
1 12	2 3.72	+ 3 28.2	1.120	1.602	37.3	21.2	99E	48	59*	3 22	3 14.89	+41 42.8	2.655	2.308	21.7	19.8	59E	53*	8*
1 22	2 16.82	+ 2 10.7	1.166	1.546	39.5	21.2	92E	47	58*	4 1	3 34.62	+40 56.3	2.685	2.232	21.0	19.7	53E	47*	8*
2 1	2 32.99	+ 1 20.2	1.208	1.493	41.1	21.3	85E	46	56*	4 11	3 55.59	+40 11.5	2.704	2.153	20.0	19.6	47E	41*	7*
2 11	2 51.92	+ 0 50.5	1.245	1.444	42.3	21.3	80E	46*	54*	4 21	4 17.72	+39 25.2	2.711	2.072	18.8	19.5	42E	36*	7*
2 21	3 13.37	+ 0 35.9	1.276	1.400	43.1	21.3	75E	44*	52*	5 1	4 40.92	+38 33.8	2.706	1.989	17.6	19.4	37E	30*	6*
3 2	3 37.18	+ 0 31.6	1.300	1.362	43.6	21.3	71E	42*	51*	5 11	5 5.10	+37 34.0	2.689	1.904	16.1	19.2	32E	25*	5*
3 12	4 3.24	+ 0 33.2	1.319	1.331	44.0	21.3	69E	40*	51*	5 21	5 30.18	+36 22.2	2.660	1.816	14.6	19.0	27E	20*	4*
3 22	4 31.43	+ 0 37.1	1.334	1.307	44.3	21.3	66E	37*	51*	5 31	5 56.07	+34 55.2	2.619	1.726	13.0	18.8	22E	16*	3*
4 1	5 1.68	+ 0 40.2	1.346	1.292	44.5	21.3	65E	34*	51*	6 10	6 22.67	+33 9.3	2.568	1.635	11.2	18.6	18E	11*	2*
4 11	5 33.84	+ 0 39.4	1.357	1.286	44.5	21.3	64E	31*	51*	6 20	6 49.92	+31 0.9	2.506	1.542	9.4	18.4	14E	7*	1*
4 21	6 7.70	+ 0 32.5	1.372	1.289	44.3	21.3	63E	29*	52*	6 30	7 17.76	+28 26.5	2.434	1.447	7.5	18.1	11E	4*	—
5 1	6 42.98	+ 0 17.4	1.391	1.300	43.8	21.4	63E	26*	53*	7 10	7 46.18	+25 22.1	2.355	1.353	5.4	17.8	7E	—	—
5 11	7 19.22	- 0 7.4	1.419	1.321	43.1	21.4	63E	23*	54*	7 20	8 15.24	+21 43.9	2.270	1.258	3.3	17.4	4E	—	—
<b>338293 2002 UZ<sub>35</sub></b>										<b>443808 1998 QP<sub>36</sub></b>									
12 23	1 48.32	+26 16.7	0.767	1.541	32.4	19.8	123E	71	38	8 9	9 15.96	+12 32.7	2.089	1.078	3.1	16.9	3W	—	—
1 2	1 58.56	+26 46.9	0.812	1.521	35.7	20.0	115E	72	37*	8 19	9 48.33	+ 6 55.2	1.999	0.998	6.1	16.8	6W	—	—
1 12	2 13.63	+27 29.3	0.863	1.504	38.2	20.2	109E	72	36*	8 29	10 22.81	+ 0 38.1	1.914	0.929	9.7	16.7	9W	—	—
1 22	2 32.85	+28 19.7	0.917	1.492	39.9	20.4	103E	73	34*	9 3	10 41.11	- 2 43.0	1.875	0.901	11.7	16.7	10W	—	—
2 1	2 55.68	+29 12.9	0.974	1.484	41.0	20.5	99E	74	33*	9 8	11 0.28	- 6 10.2	1.838	0.878	13.8	16.6	12W	—	1*
2 11	3 21.54	+30 3.0	1.034	1.481	41.6	20.7	94E	75	31*	9 13	11 20.47	- 9 41.1	1.806	0.861	15.9	16.6	14W	—	1*
2 21	3 49.85	+30 43.8	1.097	1.483	41.8	20.8	90E	75*	31*	9 18	11 41.79	-13 12.4	1.778	0.849	18.0	16.6	15W	—	1*
3 2	4 20.09	+31 10.3	1.165	1.489	41.7	20.9	87E	74*	30*	9 23	12 4.37	-16 40.4	1.755	0.844	19.9	16.7	17E	—	2*
3 12	4 51.64	+31 18.2	1.236	1.499	41.2	21.1	84E	72*	30*	9 28	12 28.29	-20 0.3	1.739	0.846	21.7	16.7	18E	—	4*
3 22	5 23.89	+31 4.6	1.311	1.514	40.5	21.2	81E	69*	31*	10 3	12 53.56	-23 7.6	1.729	0.855	23.1	16.7	20E	—	6*
4 1	5 56.31	+30 28.4	1.392	1.533	39.6	21.3	78E	66*	32*	10 8	13 20.12	-25 57.4	1.726	0.870	24.3	16.8	21E	—	8*
4 11	6 28.37	+29 29.9	1.477	1.555	38.5	21.4	75E	62*	33*	10 13	13 47.83	-28 25.6	1.730	0.891	25.1	16.9	22E	—	10*
<b>495195 2013 BX<sub>22</sub></b>										<b>155785 2000 SS<sub>351</sub></b>									
12 23	1 48.36	+20 32.9	1.470	2.154	22.9	20.6	122E	66	43	10 23	14 45.45	-32 4.7	1.762	0.947	25.5	17.1	24E	—	14*
1 2	1 52.89	+18 44.5	1.544	2.118	25.5	20.7	112E	64	45*	10 28	15 14.55	-33 12.8	1.789	0.982	25.3	17.2	25E	—	16*
1 12	2 0.50	+17 22.4	1.626	2.082	27.4	20.9	103E	62	45*	11 2	15 43.26	-33 53.7	1.823	1.020	24.7	17.3	25E	—	17*
1 22	2 10.76	+16 24.3	1.712	2.046	28.6	21.0	95E	61	44*	11 7	16 11.17	-34 9.5	1.862	1.060	23.9	17.4	26E	—	18*
2 1	2 23.35	+15 46.7	1.799	2.011	29.3	21.1	87E	61	42*	11 12	16 37.95	-34 3.1	1.908	1.103	22.9	17.5	26E	—	19*
2 11	2 37.94	+15 25.2	1.884	1.977	29.5	21.1	80E	60	40*	11 17	17 3.38	-33 37.7	1.957	1.147	21.8	17.6	25E	—	19*
2 21	2 54.26	+15 15.8	1.965	1.943	29.3	21.2	74E	57*	38*	11 22	17 27.33	-32 56.6	2.011	1.192	20.5	17.7	25E	—	19*
3 2	3 12.14	+15 14.3	2.042	1.910	28.8	21.2	68E	53*	36*	11 27	17 49.76	-32 3.1	2.068	1.238	19.2	17.8	24E	—	18*
3 12	3 31.38	+15 17.2	2.113	1.878	28.1	21.2	63E	48*	35*	12 2	18 10.69	-30 59.9	2.127	1.285	17.8	17.9	24E	—	17*
3 22	3 51.86	+15 20.9	2.177	1.848	27.1	21.2	58E	44*	33*	12 7	18 30.20	-29 49.4	2.188	1.332	16.4	18.0	22E	—	2*
4 1	4 13.46	+15 22.5	2.235	1.819	26.0	21.2	53E	39*	32*	12 12	18 48.41	-28 33.7	2.250	1.379	15.0	18.1	21E	—	3*
4 11	4 36.05	+15 19.1	2.287	1.791	24.9	21.2	49E	33*	31*	12 17	19 5.40	-27 14.2	2.313	1.427	13.5	18.2	20E	—	3*
4 21	4 59.54	+15 8.3	2.332	1.766	23.6	21.2	45E	28*	30*	12 22	19 31.21	-25 52.2	2.375	1.474	12.1	18.3	18E	—	4*
5 1	5 23.83	+14 47.9	2.371	1.742	22.3	21.2	41E	23*	29*	12 27	19 26.22	-24 28.5	2.437	1.521	10.7	18.3	17E	—	4*
5 11	5 48.78	+14 16.1	2.406	1.721	21.0	21.1	38E	17*	28*	1 1	19 50.24	-23 4.0	2.498	1.568	9.2	18.4	15E	—	4*
5 21	6 14.29	+13 31.6	2.435	1.703	19.8	21.1	35E	12*	26*	1 6	20 3.46	-21 39.1	2.558	1.615	7.8	18.4	13E	—	3*
5 31	6 40.25	+12 33.4	2.461	1.687	18.5	21.0	32E	7*	25*	1 11	20 15.97	-20 14.1	2.616	1.661	6.5	18.5	11E	—	2*
6 10	7 6.51	+11 21.0	2.484	1.675	17.3	21.0	29E	3*	23*	1 16	20 27.83	-18 49.5	2.672	1.707	5.1	18.5	9E	—	1*
6 20	7 32.99	+ 9 54.3	2.505	1.665	16.1	21.0	27E	—	21*	<b>443808 1998 QP<sub>36</sub></b>									
6 30	7 59.58	+ 8 13.7	2.525	1.658	15.0	20.9	25E	—	19*	12 23	1 49.07	+15 6.6	1.197	1.892	26.7	20.3	120E	60	49
7 10	8 26.17	+ 6 20.3	2.544	1.655	13.8	20.9	23E	—	16*	1 2	2 0.37	+15 33.4	1.325	1.930	28.1	20.6	113E	61	48*
7 20	8 52.72	+ 4 15.4	2.563	1.655	12.8	20.9	21E	—	13*	1 12	2 13.47	+16 11.7	1.461	1.969	28.7	20.9	106E	61	47*
7 30	9 19.16	+ 2 0.6	2.582	1.659	11.7	20.9	19E	—	10*	1 22	2 27.99	+16 57.8	1.604	2.009	28.9	21.1	99E	62	45*
8 9	9 45.45	+ 0 22.1	2.602	1.666	10.7	20.9	18E	—	8*	2 1	2 43.69	+17 48.6	1.753	2.050	28.7	21.3	93E	63	43*
8 19	10 11.59	- 2 50.3	2.623	1.675	9.7	20.9	16E	—	5*	<b>155785 2000 SS<sub>351</sub></b>									
8 29	10 37.57	- 5 21.9	2.645	1.688	8.8	20.8	15E	—	2*	12 23	1 49.27	- 2 59.8	1.358	1.964	27.4	19.6	113E	42	67
9 8	11 3.39	- 7 54.4	2.667	1.704	8.0	20.9	14W	—	1*	1 2	1 57.59	- 0 27.2	1.495	2.004	28.1	19.8	106E	45	64*
9 18	11 29.07	-10 25.4	2.689	1.723	7.4	20.9	13W	—	2*	1 12	2 7.80	+ 2 1.6	1.638	2.044	28.3	20.1	99E	47	61*
9 28	11 54.64	-12 52.9	2.710	1.744	7.1	20.9	12W	—	4*	1 22	2 19.55	+ 4 24.8	1.787	2.084	28.1	20.3	93E	49	56*
10 8	12 20.09	-15 14.6	2.729	1.768	7.1	20.9	13W	—	6*	2 1	2 32.59	+ 6 41.4							



EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	19/20	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°
<b>306416 1998 HS<sub>7</sub></b>										<b>474549 2003 WX<sub>153</sub></b>									
<i>(continuation)</i>																			
4 1	3 28.08	+22 2.5	2.634	2.034	19.9	20.6	44 E	35*	20*	12 23	1 52.02	-23 17.0	1.117	1.650	35.5	20.6	103 E	22	87
4 11	3 48.15	+23 41.5	2.659	1.982	18.5	20.6	39 E	31*	17*	12 28	1 48.57	-20 55.9	1.119	1.607	37.1	20.6	100 E	24	85
4 21	4 9.87	+25 14.6	2.675	1.931	17.1	20.5	34 E	26*	15*	1 2	1 46.34	-18 26.4	1.121	1.564	38.7	20.6	96 E	27	81*
5 1	4 33.23	+26 39.4	2.683	1.881	15.6	20.4	30 E	22*	12*	1 7	1 45.27	-15 49.9	1.125	1.521	40.3	20.6	92 E	29	76*
5 11	4 58.23	+27 53.1	2.682	1.832	14.1	20.3	26 E	18*	10*	1 12	1 45.29	-13 7.4	1.129	1.477	41.7	20.5	88 E	32	71*
5 21	5 24.83	+28 52.9	2.675	1.785	12.7	20.1	23 E	15*	8*	1 17	1 46.33	-10 19.9	1.132	1.433	43.1	20.5	85 E	35	66*
5 31	5 52.97	+29 35.8	2.661	1.740	11.3	20.0	20 E	12*	6*	1 22	1 48.33	-7 28.0	1.135	1.390	44.5	20.5	82 E	38	61*
6 10	6 22.48	+29 58.9	2.643	1.698	10.0	19.9	17 E	9*	4*	2 1	1 54.96	-4 32.1	1.139	1.302	47.0	20.4	75 E	43*	51*
6 20	6 53.18	+29 59.4	2.622	1.658	8.8	19.8	15 E	7*	2*	2 11	2 4.74	+4 38.5	1.137	1.216	49.5	20.3	69 E	47*	43*
6 30	7 24.81	+29 35.1	2.599	1.622	7.8	19.7	13 E	6*	1*	2 21	2 17.39	+11 3.6	1.128	1.133	51.9	20.2	64 E	49*	35*
7 10	7 57.03	+28 44.4	2.576	1.590	7.0	19.6	11 E	5*	—	3 2	2 32.82	+17 44.1	1.111	1.055	54.4	20.1	60 E	49*	28*
7 20	8 29.51	+27 26.6	2.553	1.562	6.4	19.5	10 E	4*	—	3 12	2 51.11	+24 40.0	1.084	0.985	57.2	20.0	56 E	49*	21*
7 30	9 1.93	+25 42.2	2.532	1.538	6.0	19.4	9 E	3*	—	3 22	3 12.73	+31 50.0	1.047	0.929	60.2	19.9	54 E	48*	15*
8 9	9 33.99	+23 32.9	2.514	1.520	5.8	19.4	9 E	3*	—	3 27	3 25.08	+35 29.2	1.025	0.907	61.9	19.8	53 E	47*	12*
8 19	10 5.49	+21 1.3	2.500	1.508	5.8	19.3	9 E	2*	—	4 1	3 38.74	+39 10.2	1.000	0.889	63.5	19.8	53 E	47*	10*
8 29	10 36.26	+18 10.8	2.490	1.501	6.0	19.3	9 E	1*	—	4 6	3 54.01	+42 51.6	0.974	0.877	65.2	19.8	53 E	47*	7*
9 8	11 6.23	+15 5.7	2.485	1.500	6.3	19.3	9 W	1*	—	4 11	4 11.36	+46 31.7	0.945	0.871	66.8	19.7	53 E	47*	5*
9 18	11 35.40	+11 50.2	2.484	1.505	6.7	19.4	10 W	2*	—	4 13	4 19.02	+47 58.9	0.933	0.870	67.5	19.7	53 E	47*	4*
9 28	12 3.79	+8 28.9	2.487	1.516	7.3	19.4	11 W	4*	—	4 15	4 27.17	+49 25.2	0.921	0.870	68.1	19.7	54 E	47*	3*
10 8	12 31.44	+5 6.2	2.493	1.532	8.1	19.5	12 W	6*	—	4 17	4 35.87	+50 50.4	0.909	0.871	68.6	19.7	54 E	47*	2*
10 18	12 58.45	+1 45.9	2.502	1.554	9.0	19.6	14 W	8*	—	4 19	4 45.19	+52 14.3	0.897	0.873	69.2	19.7	54 E	47*	2*
10 28	13 24.88	-1 28.5	2.511	1.581	10.0	19.6	16 W	10*	—	4 21	4 55.21	+53 36.5	0.884	0.876	69.6	19.7	55 E	48*	1*
11 7	13 50.77	-4 33.9	2.521	1.612	11.2	19.7	18 W	12*	1*	4 23	5 6.02	+54 56.7	0.872	0.879	70.1	19.7	55 E	48*	—
11 17	14 16.19	-7 28.3	2.529	1.647	12.6	19.8	21 W	14*	5*	4 25	5 17.69	+56 14.2	0.859	0.884	70.5	19.7	56 E	48*	—
11 27	14 41.14	-10 9.8	2.535	1.686	14.0	20.0	24 W	16*	8*	4 27	5 30.34	+57 28.5	0.847	0.889	70.8	19.7	57 E	49*	—
12 7	15 5.61	-12 37.3	2.536	1.728	15.5	20.1	28 W	18*	13*	4 29	5 44.06	+58 39.0	0.834	0.896	71.1	19.7	57 E	50*	—
12 17	15 29.57	-14 50.2	2.532	1.772	17.0	20.2	32 W	19*	18*	5 1	5 58.95	+59 44.7	0.822	0.903	71.3	19.7	58 E	50*	—
12 27	15 52.95	-16 48.3	2.522	1.818	18.5	20.3	36 W	20*	23*	5 3	6 15.08	+60 44.8	0.809	0.911	71.5	19.6	59 E	51*	—
1 6	16 15.65	-18 32.2	2.504	1.867	19.9	20.3	40 W	20*	29*	5 5	6 32.52	+61 38.1	0.797	0.920	71.5	19.6	60 E	52*	—
1 16	16 37.57	-20 2.6	2.479	1.916	21.3	20.4	45 W	20*	35*	5 7	6 51.28	+62 23.3	0.786	0.929	71.5	19.6	61 E	53*	—
<b>133577 2003 UB<sub>50</sub></b>										<b>183592 2003 SJ<sub>313</sub></b>									
12 23	1 50.01	+3 2.2	1.509	2.130	24.6	20.0	116 E	48	61	5 9	7 11.31	+62 59.2	0.774	0.939	71.5	19.6	62 E	54*	—
1 2	1 55.90	+4 24.7	1.646	2.158	25.7	20.2	108 E	49	60*	5 11	7 32.52	+63 24.3	0.763	0.950	71.3	19.6	63 E	55*	—
1 12	2 4.02	+5 53.6	1.790	2.186	26.3	20.5	100 E	51	57*	5 12	7 43.49	+63 32.4	0.758	0.956	71.2	19.6	64 E	56*	—
1 22	2 13.98	+7 26.0	1.938	2.213	26.4	20.7	93 E	52	53*	5 13	7 54.68	+63 37.4	0.752	0.961	71.1	19.6	64 E	56*	—
2 1	2 25.50	+8 59.9	2.087	2.240	26.0	20.8	86 E	54	48*	5 14	8 6.04	+63 39.0	0.747	0.967	70.9	19.6	65 E	57*	—
2 11	2 38.32	+10 33.3	2.236	2.267	25.3	21.0	79 E	55*	44*	5 15	8 17.53	+63 37.3	0.742	0.973	70.8	19.6	65 E	58*	—
2 21	2 52.23	+12 4.6	2.383	2.293	24.3	21.1	73 E	54*	40*	5 16	8 29.10	+63 31.9	0.737	0.980	70.6	19.6	66 E	58*	—
3 2	3 7.07	+13 32.6	2.526	2.318	23.1	21.2	67 E	51*	37*	5 17	8 40.71	+63 23.0	0.733	0.986	70.3	19.6	67 E	59*	—
3 12	3 22.68	+14 55.9	2.665	2.343	21.7	21.3	61 E	47*	34*	5 18	8 52.30	+63 10.4	0.728	0.992	70.1	19.6	67 E	60*	1*
3 22	3 38.97	+16 13.7	2.798	2.367	20.1	21.4	55 E	42*	31*	5 19	9 3.83	+62 54.1	0.724	0.999	69.9	19.5	68 E	61*	1*
4 1	3 55.83	+17 25.2	2.923	2.391	18.4	21.5	49 E	37*	28*	5 20	9 15.26	+62 34.0	0.720	1.006	69.6	19.5	69 E	62*	1*
<b>84667 2002 VO<sub>82</sub></b>										<b>183592 2003 SJ<sub>313</sub></b>									
12 23	1 50.33	+5 44.6	1.268	1.926	27.1	20.5	117 E	51	58	5 21	9 26.53	+62 10.3	0.716	1.012	69.3	19.5	69 E	62*	2*
1 2	1 59.13	+6 52.2	1.395	1.955	28.3	20.7	109 E	52	57*	5 22	9 37.61	+61 42.9	0.712	1.019	69.0	19.5	70 E	63*	2*
1 12	2 10.00	+8 8.7	1.529	1.984	29.0	21.0	102 E	53	55*	5 23	9 48.46	+61 11.9	0.708	1.026	68.6	19.5	71 E	64*	3
1 22	2 22.57	+9 30.6	1.667	2.013	29.1	21.2	95 E	55	52*	5 24	9 59.05	+60 37.5	0.705	1.033	68.3	19.5	71 E	65*	3
2 1	2 36.56	+10 55.0	1.808	2.043	28.8	21.4	89 E	56	48*	5 25	10 9.35	+59 59.6	0.702	1.041	67.9	19.5	72 E	66*	4
12 23	1 51.18	+4 59.4	1.214	1.876	27.9	18.9	117 E	50	59	5 26	10 19.35	+59 18.4	0.699	1.048	67.5	19.5	73 E	66*	5
1 2	2 1.27	+6 10.2	1.340	1.908	29.1	19.2	110 E	51	58*	5 27	10 29.04	+58 34.2	0.697	1.055	67.1	19.5	74 E	67*	5
1 12	2 13.24	+7 29.7	1.472	1.941	29.6	19.5	103 E	52	56*	5 28	10 38.39	+57 46.9	0.694	1.063	66.7	19.5	74 E	68*	6
1 22	2 26.74	+8 54.0	1.610	1.975	29.7	19.7	96 E	54	52*	5 29	10 47.41	+56 56.8	0.692	1.070	66.2	19.5	75 E	69*	7
2 1	2 41.52	+10 20.3	1.752	2.008	29.4	19.9	90 E	55	49*	5 30	10 56.10	+56 4.0	0.690	1.078	65.8	19.5	76 E	70*	8
2 11	2 57.35	+11 45.9	1.896	2.043	28.7	20.1	84 E	57*	46*	5 31	11 4.46	+55 8.6	0.689	1.086	65.3	19.5	77 E	71*	9
2 21	3 14.04	+13 8.6	2.041	2.077	27.8	20.3	78 E	56*	43*	6 2	11 20.19	+53 11.1	0.687	1.101	64.3	19.5	78 E	72*	11
3 2	3 31.45	+14 26.7	2.185	2.111	26.6	20.4	73 E	54*	40*	6 4	11 34.69	+51 5.5	0.686	1.117	63.3	19.5	80 E	73*	13
3 12	3 49.46	+15 38.7	2.328	2.146	25.2	20.6	67 E	51*	37*	6 6	11 48.03	+48 53.1	0.687	1.133	62.2	19.5	81 E	74*	15
3 22	4 7.94	+16 43.5	2.468	2.180	23.7	20.7	62 E	47*	35*	6 8	12 0.31	+46 35.3	0.689	1.149	61.1	19.5	82 E	75*	17</

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/20	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	19/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°
<b>86326 1999 WK<sub>13</sub></b>										<b>101027 1998 QL<sub>71</sub></b> (continuation)									
12 23	1 52.17	- 2 52.5	0.468	1.248	46.2	17.9	114E	42	67	3 22	4 45.42	+15 38.5	1.940	1.862	30.3	19.6	71E	52*	41*
12 28	1 55.85	+ 4 19.2	0.501	1.264	45.9	18.1	113E	49	60	4 1	5 8.07	+16 28.2	2.061	1.893	28.9	19.7	66E	48*	40*
1 2	2 0.57	+10 42.1	0.541	1.281	45.8	18.2	111E	56	53*	4 11	5 30.87	+17 5.2	2.183	1.925	27.3	19.8	62E	44*	38*
1 7	2 6.27	+16 17.0	0.587	1.300	45.6	18.5	109E	61	47*	4 21	5 53.71	+17 29.0	2.303	1.958	25.7	19.9	58E	39*	37*
1 12	2 12.85	+21 7.8	0.637	1.319	45.5	18.7	107E	66	42*	5 1	6 16.49	+17 39.5	2.422	1.992	23.9	20.0	53E	34*	35*
1 17	2 20.27	+25 20.0	0.691	1.339	45.2	18.9	105E	70	38*	5 11	6 39.09	+17 36.9	2.538	2.026	22.1	20.1	49E	29*	34*
1 22	2 28.51	+28 59.0	0.748	1.360	44.9	19.1	103E	74	33*	5 21	7 1.42	+17 21.7	2.651	2.060	20.3	20.2	45E	23*	32*
1 27	2 37.53	+32 9.9	0.807	1.382	44.5	19.2	100E	77	30*	5 31	7 23.42	+16 54.4	2.759	2.095	18.3	20.3	41E	18*	30*
2 1	2 47.33	+34 57.1	0.869	1.405	43.9	19.4	98E	80	27*	6 10	7 45.01	+16 16.1	2.862	2.129	16.4	20.3	36E	13*	27*
2 6	2 57.86	+37 24.1	0.931	1.428	43.4	19.6	96E	82	24*	6 20	8 6.15	+15 27.4	2.959	2.163	14.4	20.3	32E	8*	24*
2 11	3 9.09	+39 33.5	0.994	1.451	42.7	19.8	94E	85*	22*	6 30	8 26.82	+14 29.5	3.049	2.198	12.3	20.4	27E	4*	21*
2 16	3 21.00	+41 27.7	1.058	1.475	42.0	19.9	92E	85*	20*	7 10	8 46.98	+13 23.4	3.132	2.231	10.2	20.4	23E	1*	17*
2 21	3 33.58	+43 8.3	1.123	1.499	41.3	20.0	90E	84*	18*	7 20	9 6.65	+12 10.1	3.206	2.265	8.2	20.4	18E	—	12*
2 26	3 46.79	+44 36.8	1.188	1.523	40.5	20.2	88E	82*	16*	7 30	9 25.81	+10 50.6	3.270	2.298	6.1	20.4	14E	—	8*
3 2	4 0.61	+45 54.3	1.253	1.548	39.7	20.3	86E	80*	15*	8 9	9 44.48	+ 9 26.1	3.325	2.331	4.1	20.3	9E	—	3*
3 7	4 14.99	+47 1.6	1.318	1.572	38.9	20.4	84E	78*	14*	8 19	10 2.67	+ 7 57.4	3.369	2.363	2.3	20.3	5E	—	—
3 12	4 29.87	+47 59.2	1.383	1.597	38.1	20.5	83E	76*	13*	8 29	10 20.39	+ 6 25.6	3.401	2.394	1.6	20.3	4W	—	—
3 17	4 45.20	+48 47.5	1.448	1.621	37.3	20.7	81E	74*	12*	9 8	10 37.64	+ 4 51.6	3.421	2.425	3.0	20.4	7W	—	1*
3 22	5 0.93	+49 27.1	1.512	1.646	36.5	20.8	79E	72*	12*	9 18	10 54.46	+ 3 16.3	3.429	2.456	4.9	20.5	12W	3*	4*
3 27	5 16.99	+49 58.2	1.576	1.670	35.6	20.9	77E	71*	12*	9 28	11 10.82	+ 1 40.8	3.424	2.485	6.9	20.7	17W	9*	8*
4 1	5 33.31	+50 21.1	1.640	1.695	34.8	21.0	76E	69*	11*	10 8	11 26.73	+ 0 5.8	3.405	2.514	8.9	20.8	23W	14*	11*
4 6	5 49.80	+50 36.0	1.703	1.719	34.0	21.0	74E	67*	11*	10 18	11 42.18	+ 1 27.7	3.373	2.542	10.8	20.8	28W	19*	15*
4 11	6 6.39	+50 43.3	1.766	1.743	33.2	21.1	72E	66*	11*	10 28	11 57.13	+ 2 58.8	3.328	2.569	12.6	20.9	34W	23*	19*
4 16	6 22.99	+50 43.2	1.828	1.767	32.4	21.2	70E	64*	11*	11 7	12 11.53	+ 4 26.6	3.269	2.596	14.3	21.0	40W	28*	24*
4 21	6 39.54	+50 36.0	1.889	1.791	31.5	21.3	69E	63*	11*	11 17	12 25.34	+ 5 50.2	3.198	2.621	15.9	21.0	47W	31*	29*
4 26	6 55.97	+50 22.0	1.950	1.814	30.7	21.4	67E	61*	12*	11 27	12 38.45	+ 7 8.6	3.114	2.646	17.4	21.0	53W	34*	35*
5 1	7 12.21	+50 1.6	2.010	1.837	29.9	21.4	65E	59*	12*	12 7	12 50.77	+ 8 20.9	3.020	2.670	18.7	21.0	60W	35*	41*
12 23	1 53.19	-11 46.5	1.586	2.129	25.8	20.8	110E	33	76	12 17	13 2.14	+ 9 26.0	2.915	2.693	19.7	21.0	67W	35*	48*
12 28	1 54.14	-10 34.3	1.641	2.130	26.4	20.9	106E	34	75	12 27	13 12.39	+10 22.9	2.802	2.715	20.5	20.9	75W	35	56*
1 2	1 55.82	+ 9 20.5	1.698	2.130	26.9	21.0	102E	36	73*	1 6	13 21.32	+11 10.3	2.683	2.736	20.9	20.9	83W	34	64*
1 7	1 58.19	+ 8 5.6	1.755	2.130	27.2	21.1	98E	37	71*	1 16	13 28.70	+11 47.2	2.559	2.757	20.9	20.8	91W	33	71*
1 12	2 1.18	+ 6 50.1	1.813	2.130	27.4	21.2	95E	38	68*	<b>477164 2009 EW<sub>14</sub></b>									
1 17	2 4.74	+ 5 34.5	1.872	2.129	27.5	21.2	91E	39	65*	12 23	1 54.56	-27 8.2	1.116	1.630	36.2	20.9	102E	18	89
1 22	2 8.84	+ 4 18.9	1.931	2.128	27.5	21.3	87E	41	62*	12 28	1 59.05	-25 58.3	1.143	1.620	36.8	20.9	99E	19	90
1 27	2 13.43	+ 3 3.6	1.989	2.126	27.4	21.4	84E	42	59*	1 2	2 4.34	-24 41.8	1.169	1.611	37.3	21.0	97E	20	89*
2 1	2 18.48	+ 1 48.9	2.048	2.124	27.2	21.4	81E	43*	56*	1 7	2 10.37	-23 19.9	1.196	1.603	37.7	21.0	94E	22	86*
2 6	2 23.94	+ 0 35.0	2.105	2.122	27.0	21.5	77E	44*	53*	1 12	2 17.07	-21 53.1	1.222	1.595	38.0	21.1	92E	23	82*
12 23	1 53.25	- 3 55.9	1.069	1.717	31.7	20.2	113E	41	68	1 17	2 24.39	-20 22.2	1.248	1.588	38.3	21.1	90E	25	79*
12 28	1 59.92	- 3 35.1	1.121	1.727	32.3	20.3	110E	41	68	1 22	2 32.30	-18 47.8	1.274	1.581	38.5	21.2	88E	26	76*
1 2	2 7.02	+ 3 8.3	1.173	1.738	32.7	20.4	107E	42	67	1 27	2 40.75	-17 10.4	1.299	1.575	38.6	21.2	86E	28	73*
1 7	2 14.51	+ 2 36.5	1.228	1.750	33.0	20.5	104E	42	66*	2 1	2 49.73	-15 30.7	1.325	1.569	38.7	21.2	84E	29	71*
1 12	2 22.35	+ 2 0.7	1.284	1.762	33.2	20.7	101E	43	65*	2 6	2 59.18	-13 49.3	1.351	1.564	38.7	21.3	82E	31	68*
1 17	2 30.49	+ 1 21.6	1.340	1.775	33.2	20.8	98E	44	64*	2 11	3 9.07	-12 6.8	1.376	1.560	38.6	21.3	81E	33*	66*
1 22	2 38.92	+ 0 40.0	1.398	1.789	33.2	20.9	96E	44	63*	2 16	3 19.38	-10 23.7	1.402	1.556	38.6	21.3	79E	34*	64*
1 27	2 47.60	+ 0 3.5	1.458	1.803	33.0	21.0	93E	45	61*	2 21	3 30.09	+ 8 40.4	1.428	1.553	38.4	21.4	78E	36*	62*
2 1	2 56.53	+ 0 48.2	1.517	1.818	32.8	21.1	91E	46	59*	2 26	3 41.18	+ 6 57.6	1.455	1.551	38.3	21.4	76E	37*	60*
2 6	3 5.66	+ 1 33.6	1.578	1.833	32.5	21.2	88E	47	58*	3 2	3 52.62	+ 5 15.9	1.482	1.549	38.1	21.4	75E	38*	58*
2 11	3 14.98	+ 2 19.2	1.640	1.849	32.2	21.3	86E	47	56*	3 7	4 4.41	+ 3 35.9	1.510	1.549	37.8	21.5	73E	38*	57*
2 16	3 24.46	+ 3 4.4	1.702	1.865	31.7	21.4	83E	48*	55*	3 12	4 16.50	+ 1 58.1	1.539	1.548	37.6	21.5	72E	39*	55*
2 21	3 34.10	+ 3 49.0	1.764	1.881	31.3	21.4	81E	48*	53*	<b>434242 2003 UA<sub>20</sub></b>									
12 23	1 53.40	+ 1 57.1	1.425	2.057	25.4	21.1	116E	47	62	12 23	1 56.76	-18 37.7	0.675	1.344	44.5	19.9	107E	26	83
12 28	1 57.07	+ 2 4.0	1.509	2.087	25.9	21.3	112E	47	62	12 28	2 2.78	-19 36.0	0.713	1.339	45.7	20.0	103E	25	84
1 2	2 1.19	+ 2 15.8	1.595	2.117	26.2	21.4	108E	47	62*	1 2	2 9.51	-20 17.1	0.751	1.334	46.6	20.2	100E	25	84
1 7	2 5.71	+ 2 31.7	1.683	2.146	26.4	21.6	104E	48	61*	1 7	2 16.89	-20 43.7	0.787	1.330	47.2	20.3	97E	24	84*
1 12	2 10.58	+ 2 50.9	1.772	2.175	26.4	21.7	100E	48	60*	1 12	2 24.86	-20 58.3	0.823	1.326	47.7	20.4	94E	24	83*
12 23	1 54.01	+ 4 12.9	1.937	2.542	20.1	21.1	117E	49	60	1 17	2 33.35	-21 2.5	0.857	1.322	48.0	20.5	92E	24	81*
1 2	1 58.58	+ 5 4.0	2.123	2.608	21.0	21.3	108E	50	59*	1 22	2 42.34	-20 57.9	0.889	1.319	48.3	20.6	89E	24	79*
1 12	2 4																		

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/20	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	19/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°
<b>434242 2003 UA<sub>20</sub></b>										<b>232397 2003 CX<sub>3</sub></b>									
<i>(continuation)</i>																			
5 21	8 12.59	-4 51.1	1.366	1.373	43.4	21.4	69 E	19*	60*	12 23	2 0.62	-24 58.3	1.190	1.717	33.8	18.4	104 E	20	89
5 26	8 29.20	-4 22.4	1.392	1.380	42.9	21.5	68 E	18*	60*	12 28	2 6.08	-23 2.4	1.230	1.727	33.9	18.4	102 E	22	87
<b>442243 2011 MD<sub>11</sub></b>																			
12 23	1 57.68	+37 16.4	0.953	1.729	27.3	20.4	126 E	82	27	1 2	2 12.04	-21 4.5	1.273	1.737	33.9	18.5	100 E	24	85
12 28	2 3.43	+37 12.8	1.018	1.759	27.9	20.6	123 E	82	27	1 7	2 18.46	-19 5.6	1.317	1.747	33.9	18.6	98 E	26	83*
1 2	2 9.87	+37 10.3	1.086	1.790	28.5	20.8	120 E	82	27	1 12	2 25.28	-17 6.6	1.362	1.758	33.8	18.7	96 E	28	80*
1 7	2 16.91	+37 8.9	1.155	1.821	28.9	21.0	117 E	82	27*	1 17	2 32.47	-15 8.1	1.410	1.770	33.7	18.8	94 E	30	77*
1 12	2 24.47	+37 8.7	1.227	1.852	29.2	21.2	113 E	82	27*	1 22	2 40.01	-13 10.7	1.458	1.782	33.5	18.9	92 E	32	74*
1 17	2 32.48	+37 9.5	1.301	1.883	29.3	21.3	110 E	82	26*	1 27	2 47.86	-11 15.0	1.509	1.795	33.3	19.0	90 E	34	71*
1 22	2 40.87	+37 11.2	1.377	1.914	29.4	21.5	107 E	82	26*	2 1	2 56.00	-9 21.5	1.560	1.808	33.0	19.0	87 E	36	68*
<b>101158 1998 RA<sub>77</sub></b>																			
12 23	1 57.76	+14 33.6	1.640	2.315	21.1	20.3	122 E	60	49	2 11	3 13.05	-5 42.9	1.668	1.835	32.3	19.2	83 E	39	62*
1 2	2 1.63	+15 0.9	1.785	2.347	22.7	20.6	113 E	60	49*	2 21	3 30.98	-2 17.8	1.780	1.863	31.4	19.3	79 E	42*	58*
1 12	2 7.96	+15 38.7	1.938	2.378	23.6	20.8	104 E	61	47*	3 2	3 49.68	+0 51.9	1.897	1.893	30.3	19.5	75 E	43*	53*
1 22	2 16.33	+16 24.7	2.096	2.409	24.0	21.0	96 E	61	45*	3 12	4 9.00	+3 44.7	2.017	1.924	29.1	19.6	70 E	43*	50*
2 1	2 26.44	+17 16.8	2.256	2.439	23.8	21.2	89 E	62	41*	3 22	4 28.85	+6 19.7	2.139	1.956	27.7	19.7	66 E	42*	46*
2 11	2 37.99	+18 12.9	2.416	2.468	23.3	21.4	81 E	62*	38*	4 1	4 49.13	+8 36.5	2.262	1.988	26.2	19.9	61 E	39*	43*
<b>333981 2000 RF<sub>88</sub></b>																			
12 23	1 57.76	+15 10.0	1.283	1.988	24.8	20.9	122 E	60	49	4 11	5 9.74	+10 35.1	2.385	2.021	24.6	20.0	57 E	36*	40*
1 2	2 5.12	+15 26.2	1.412	2.019	26.5	21.2	114 E	60	49	4 21	5 30.57	+12 15.6	2.507	2.054	22.8	20.0	52 E	31*	37*
1 12	2 14.85	+15 56.1	1.549	2.049	27.5	21.4	106 E	61	47*	5 1	5 51.56	+13 38.7	2.626	2.088	21.0	20.1	48 E	27*	35*
1 22	2 26.51	+16 36.1	1.692	2.080	27.9	21.7	99 E	62	45*	5 11	6 12.59	+14 45.0	2.741	2.122	19.1	20.2	43 E	22*	32*
2 1	2 39.76	+17 23.1	1.838	2.110	27.8	21.9	92 E	62	43*	5 21	6 33.58	+15 35.3	2.851	2.156	17.1	20.2	39 E	17*	29*
<b>141593 2002 HK<sub>12</sub></b>																			
12 23	1 57.91	+15 55.8	1.056	1.787	27.7	20.7	122 E	61	48	5 31	6 54.46	+16 10.5	2.955	2.189	15.0	20.3	34 E	12*	25*
1 2	2 8.34	+16 21.4	1.217	1.857	28.8	21.1	115 E	61	48	6 10	7 15.15	+16 31.8	3.052	2.223	12.9	20.3	29 E	8*	22*
1 12	2 20.21	+16 57.4	1.386	1.924	29.2	21.5	107 E	62	47*	6 20	7 35.58	+16 40.4	3.141	2.256	10.8	20.3	25 E	4*	18*
1 22	2 33.20	+17 40.1	1.561	1.990	29.1	21.8	100 E	63	45*	6 30	7 55.71	+16 37.3	3.220	2.289	8.6	20.3	20 E	1*	13*
2 1	2 47.14	+18 26.8	1.741	2.054	28.6	22.1	94 E	63	42*	7 10	8 15.49	+16 23.8	3.290	2.322	6.4	20.3	15 E	—	9*
<b>434451 2005 PV<sub>6</sub></b>																			
12 23	1 57.92	+10 51.6	1.378	2.061	24.2	21.4	121 E	56	53	7 20	8 34.88	+16 1.3	3.349	2.354	4.2	20.3	10 E	—	4*
1 2	2 3.77	+12 4.5	1.513	2.094	25.8	21.7	112 E	57	52*	7 30	8 53.87	+15 30.9	3.395	2.385	2.1	20.2	5 E	—	—
1 12	2 12.06	+13 22.8	1.656	2.126	26.6	21.9	104 E	58	50*	8 9	9 12.42	+14 53.9	3.430	2.417	0.6	20.1	1 W	—	—
1 22	2 22.39	+14 44.0	1.804	2.158	26.9	22.2	97 E	60	47*	8 19	9 30.53	+14 11.7	3.452	2.447	2.4	20.3	6 W	—	—
2 1	2 34.41	+16 6.4	1.956	2.190	26.7	22.4	90 E	61	43*	8 29	9 48.18	+13 25.6	3.460	2.477	4.5	20.5	11 W	4*	2*
<b>347584 2001 EH<sub>18</sub></b>																			
12 23	1 58.99	-22 8.3	2.935	3.332	16.5	21.4	105 E	23	86	9 8	10 5.37	+12 36.8	3.455	2.506	6.6	20.6	17 W	10*	4*
1 2	1 57.68	-20 8.2	3.043	3.316	17.1	21.5	97 E	25	84*	9 18	10 22.08	+11 46.7	3.436	2.535	8.6	20.7	22 W	15*	7*
1 12	1 58.49	-18 1.5	3.156	3.298	17.3	21.6	90 E	27	77*	9 28	10 38.30	+10 56.7	3.403	2.562	10.6	20.8	28 W	21*	10*
1 22	2 1.21	-15 51.5	3.270	3.279	17.3	21.7	82 E	29	68*	10 8	10 53.99	+10 8.1	3.356	2.589	12.5	20.8	34 W	27*	14*
2 1	2 5.64	-13 40.5	3.384	3.260	16.9	21.7	74 E	31*	61*	10 18	11 9.14	+9 22.6	3.295	2.616	14.3	20.9	40 W	32*	17*
<b>143651 2003 QO<sub>104</sub></b>																			
12 23	1 59.87	+9 7.6	2.518	3.134	15.7	21.3	120 E	54	55	10 28	11 23.68	+8 41.7	3.222	2.641	15.9	20.9	47 W	38*	21*
1 2	1 58.81	+9 30.1	2.675	3.152	17.0	21.5	110 E	55	54*	11 7	11 37.56	+8 7.0	3.137	2.666	17.3	20.9	53 W	43*	25*
1 12	2 0.01	+10 2.3	2.839	3.169	17.8	21.7	100 E	55	52*	11 17	11 50.68	+7 40.4	3.040	2.689	18.6	20.9	60 W	47*	29*
1 22	2 3.18	+10 42.5	3.007	3.184	18.0	21.8	91 E	56	48*	11 27	12 2.93	+7 23.9	2.934	2.712	19.6	20.9	67 W	50*	34*
2 1	2 8.08	+11 29.3	3.174	3.198	17.8	22.0	82 E	56*	44*	12 7	12 14.18	+7 19.3	2.820	2.734	20.4	20.8	75 W	50*	40*
<b>402308 2005 TS<sub>50</sub></b>																			
12 23	2 0.21	+33 56.4	0.837	1.628	29.0	19.1	127 E	79	30	12 17	12 24.24	+7 28.9	2.701	2.755	20.7	20.8	83 W	52	45*
12 28	2 7.92	+33 37.1	0.873	1.636	30.1	19.3	124 E	79	30	12 27	12 32.91	+7 54.8	2.579	2.776	20.7	20.7	91 W	53	50*
1 2	2 16.45	+33 19.9	0.912	1.646	31.0	19.4	121 E	78	31	1 6	12 39.95	+8 38.8	2.457	2.795	20.3	20.6	100 W	54	53*
1 7	2 25.70	+33 4.8	0.953	1.656	31.7	19.5	118 E	78	31	1 16	12 45.08	+9 42.5	2.339	2.814	19.3	20.5	109 W	55	54*
1 12	2 35.55	+32 51.6	0.996	1.668	32.4	19.7	115 E	78	31*	12 23	2 1.03	-7 8.2	1.119	1.761	30.8	18.7	114 E	38	71
1 17	2 45.93	+32 40.0	1.042	1.680	32.9	19.8	112 E	78	31*	1 2	2 7.13	-1 38.7	1.234	1.797	31.4	19.0	108 E	43	66
1 22	2 56.76	+32 29.7	1.090	1.694	33.2	19.9	109 E	77	31*	1 12	2 15.84	+3 17.6	1.362	1.835	31.6	19.2	102 E	48	60*
1 27	3 7.96	+32 20.4	1.141	1.708	33.5	20.0	107 E	77	31*	1 22	2 26.67	+7 42.2	1.501	1.875	31.5	19.5	96 E	53	54*
2 1	3 19.49	+32 11.8	1.193	1.723	33.7	20.2	104 E	77	31*	2 1	2 39.28	+11 37.9	1.647	1.916	30.9	19.7	90 E	57	48*
2 6	3 31.27	+32 3.4	1.247	1.739	33.7	20.3	102 E	77	31*	2 11	2 53.40	+15 7.8	1.799	1.959	30.1	19.9	84 E	60*	42*
2 11	3 43.26	+31 55.1	1.304	1.756	33.7	20.4	99 E	77	31*	2 21	3 8.77	+18 14.6	1.953	2.002	28.9	20.1	78 E	61*	38*
2 16	3 55.39	+31 46.4	1.362	1.774	33.6	20.5	97 E	77	31*	3 2	3 25.26	+21 1.0	2.109	2.046	27.5	20.3	73 E	59*	34*
2 21	4 7.63	+31 36.9	1.422	1.792	33.4	20.6	94 E	77	31*	3 12	3 42.70	+23 28.7	2.264	2.091	26.0	20.5	67 E	56*	30*
2 26	4 19.96	+31 26.7	1.483	1.811	33.1	20.7	92 E	76*	31*	3 22	4 0.97	+25 39.2	2.417	2.136	24.3	20.6	62 E	52*	27*
3 2	4 32.33	+31 15.3	1.546	1.830	32.8	20.8	90 E	75*	31*	4 1</									

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/20	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	19/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°
<b>197994 2004 RG<sub>165</sub></b>										<b>(continuation)</b>									
2 6	3 10.29	-7 22.2	1.330	1.610	37.7	19.4	87 E	38	66*	12 23	2 3.84	+13 31.3	1.091	1.824	26.9	17.8	123 E	59	50
2 11	3 20.38	-6 29.6	1.366	1.611	37.6	19.4	85 E	39	64*	1 2	2 14.99	+13 13.6	1.208	1.854	28.7	18.1	115 E	58	51
2 16	3 30.84	-5 35.6	1.402	1.613	37.4	19.5	83 E	39*	63*	1 12	2 28.03	+13 17.4	1.333	1.886	29.7	18.4	108 E	58	50*
2 21	3 41.65	-4 40.7	1.439	1.615	37.2	19.5	81 E	40*	61*	1 22	2 42.58	+13 36.8	1.465	1.919	30.2	18.7	101 E	59	49*
3 2	4 4.21	-2 50.4	1.512	1.623	36.6	19.6	78 E	41*	58*	2 1	2 58.36	+14 7.0	1.603	1.952	30.2	18.9	95 E	59	47*
3 12	4 27.85	-1 3.0	1.587	1.634	35.9	19.7	75 E	40*	56*	2 11	3 15.13	+14 43.5	1.744	1.987	29.8	19.1	89 E	60	45*
3 22	4 52.37	+0 37.8	1.665	1.649	35.0	19.8	72 E	39*	54*	2 21	3 32.68	+15 22.7	1.887	2.022	29.0	19.3	83 E	60*	43*
4 1	5 17.61	+2 8.7	1.744	1.667	34.0	19.9	69 E	38*	53*	3 2	3 50.87	+16 1.8	2.032	2.058	28.0	19.5	77 E	58*	41*
4 11	5 43.35	+3 27.2	1.827	1.688	32.8	20.0	66 E	35*	51*	3 12	4 9.56	+16 38.3	2.176	2.094	26.8	19.6	72 E	55*	39*
4 21	6 9.40	+4 31.1	1.914	1.712	31.6	20.1	63 E	32*	49*	3 22	4 28.63	+17 10.3	2.319	2.131	25.4	19.7	67 E	51*	38*
5 1	6 35.58	+5 19.4	2.004	1.738	30.2	20.2	60 E	28*	48*	4 1	4 47.98	+17 36.4	2.459	2.167	23.9	19.9	61 E	46*	36*
5 11	7 1.69	+5 51.1	2.096	1.766	28.7	20.3	57 E	24*	46*	4 11	5 7.51	+17 55.3	2.595	2.203	22.2	20.0	56 E	41*	34*
5 21	7 27.56	+6 6.6	2.192	1.797	27.2	20.4	54 E	20*	45*	4 21	5 27.13	+18 6.4	2.727	2.239	20.5	20.0	51 E	35*	32*
5 31	7 53.09	+6 6.3	2.290	1.829	25.5	20.5	51 E	16*	43*	5 1	5 46.77	+18 9.0	2.852	2.275	18.7	20.1	46 E	29*	30*
6 10	8 18.12	+5 51.2	2.389	1.863	23.7	20.6	48 E	11*	40*	5 11	6 6.33	+18 2.7	2.971	2.311	16.8	20.2	41 E	23*	28*
6 20	8 42.60	+5 22.8	2.489	1.897	21.9	20.6	44 E	8*	38*	5 21	6 25.74	+17 47.6	3.083	2.346	14.8	20.2	36 E	17*	26*
6 30	9 6.47	+4 42.4	2.589	1.933	20.0	20.7	41 E	4*	34*	5 31	6 44.96	+17 23.7	3.186	2.381	12.9	20.3	31 E	12*	23*
7 10	9 29.70	+3 51.7	2.687	1.970	18.0	20.8	37 E	2*	31*	6 10	7 3.91	+16 51.2	3.280	2.415	10.9	20.3	27 E	6*	19*
7 20	9 52.30	+2 52.4	2.782	2.007	16.0	20.8	33 E	—	27*	6 20	7 22.55	+16 10.5	3.364	2.449	8.9	20.3	22 E	1*	15*
7 30	10 14.29	+1 46.2	2.873	2.045	13.9	20.8	29 E	—	23*	6 30	7 40.84	+15 21.9	3.437	2.482	6.9	20.3	17 E	—	11*
8 9	10 35.69	+0 34.5	2.959	2.083	11.8	20.9	25 E	—	18*	7 10	7 58.73	+14 26.0	3.498	2.515	5.0	20.2	12 E	—	6*
8 19	10 56.53	+0 41.2	3.039	2.122	9.7	20.9	21 E	—	14*	7 20	8 16.21	+13 23.4	3.548	2.547	3.4	20.2	8 E	—	1*
8 29	11 16.87	+1 59.4	3.111	2.160	7.5	20.9	16 E	—	9*	7 30	8 33.23	+12 14.7	3.585	2.578	2.5	20.2	6 W	—	—
9 8	11 36.73	+3 18.9	3.175	2.198	5.3	20.9	12 E	—	5*	8 9	8 49.79	+11 0.6	3.608	2.608	3.1	20.3	8 W	—	2*
9 18	11 56.17	+4 38.5	3.229	2.236	3.3	20.8	7 E	—	—	8 19	9 5.85	+9 41.7	3.619	2.638	4.6	20.4	12 W	—	6*
9 28	12 15.21	+5 56.9	3.273	2.274	1.8	20.8	4 W	—	—	8 29	9 21.40	+8 18.8	3.616	2.667	6.4	20.5	17 W	5*	10*
10 8	12 33.87	+7 13.1	3.304	2.312	2.3	20.9	5 W	—	—	9 8	9 36.41	+6 52.6	3.599	2.695	8.2	20.6	22 W	11*	13*
10 18	12 52.17	+8 26.0	3.324	2.349	4.2	21.0	10 W	2*	2*	9 18	9 50.86	+5 23.8	3.567	2.722	10.0	20.7	28 W	16*	17*
10 28	13 10.12	+9 34.5	3.331	2.385	6.2	21.2	15 W	7*	5*	9 28	10 4.69	+3 53.3	3.522	2.749	11.7	20.7	34 W	22*	21*
11 7	13 27.68	+10 37.8	3.324	2.421	8.3	21.3	21 W	11*	9*	10 8	10 17.85	+2 21.7	3.464	2.775	13.4	20.8	40 W	27*	25*
11 17	13 44.85	+11 34.8	3.303	2.457	10.3	21.4	26 W	16*	13*	10 18	10 30.30	+0 50.0	3.392	2.799	14.9	20.8	46 W	32*	30*
11 27	14 1.57	+12 24.6	3.269	2.491	12.2	21.5	32 W	20*	18*	10 28	10 41.94	+0 40.9	3.308	2.823	16.3	20.8	53 W	36*	34*
<b>458732 2011 MD<sub>5</sub></b>										<b>486015 2012 RN<sub>40</sub></b>									
12 23	2 2.24	-28 58.5	0.323	1.097	61.3	17.8	102 E	16	87	12 23	2 3.94	+22 1.1	1.202	1.944	24.4	21.1	125 E	67	42
12 25	2 15.65	-27 20.0	0.328	1.109	59.5	17.8	104 E	18	89	1 2	2 11.39	+22 8.9	1.323	1.975	26.3	21.4	117 E	67	42
12 27	2 28.44	-25 38.2	0.334	1.120	57.8	17.9	106 E	19	90	1 12	2 21.49	+22 28.7	1.453	2.006	27.6	21.7	109 E	67	41*
12 29	2 40.62	-23 54.2	0.341	1.132	56.0	17.9	107 E	21	88	1 22	2 33.76	+22 57.8	1.590	2.038	28.2	21.9	102 E	68	40*
12 31	2 52.19	-22 8.9	0.350	1.145	54.4	17.9	109 E	23	86	2 1	2 47.80	+23 33.6	1.732	2.070	28.3	22.1	95 E	69	38*
1 2	3 1.18	-20 23.5	0.358	1.158	52.8	17.9	110 E	25	84	<b>120352 Gordonwong</b>									
1 4	3 13.61	-18 38.6	0.368	1.171	51.3	18.0	112 E	26	83	12 23	2 4.39	+4 53.1	1.596	2.253	22.3	20.0	120 E	50	59
1 6	3 23.51	-16 55.1	0.379	1.184	49.8	18.0	113 E	28	81	1 2	2 8.36	+6 1.3	1.739	2.285	23.7	20.3	111 E	51	58
1 8	3 32.93	-15 13.4	0.391	1.198	48.4	18.1	114 E	30	79	1 12	2 14.70	+7 16.9	1.890	2.317	24.4	20.5	103 E	52	56*
1 10	3 41.87	-13 34.2	0.403	1.212	47.1	18.1	115 E	31	78	1 22	2 23.02	+8 37.0	2.046	2.348	24.7	20.8	95 E	54	52*
1 12	3 50.39	-11 57.8	0.417	1.226	46.0	18.2	116 E	33	76	2 1	2 33.01	+9 59.6	2.204	2.379	24.4	20.9	88 E	55	48*
1 17	4 10.02	-8 10.5	0.454	1.263	43.3	18.4	118 E	37	72	2 11	2 44.40	+11 22.6	2.362	2.409	23.8	21.1	81 E	56*	44*
1 22	4 27.63	-4 44.6	0.496	1.301	41.3	18.6	119 E	40	69	2 21	2 56.95	+12 44.6	2.518	2.439	22.9	21.2	74 E	55*	41*
1 27	4 43.66	+1 40.4	0.543	1.340	39.6	18.8	120 E	43	66	3 2	3 10.49	+14 4.1	2.670	2.468	21.8	21.3	68 E	52*	37*
2 1	4 58.43	+1 2.7	0.594	1.379	38.4	19.0	120 E	46	63	3 12	3 24.85	+15 20.1	2.817	2.496	20.4	21.4	61 E	47*	34*
2 6	5 12.21	+3 26.3	0.649	1.419	37.4	19.2	119 E	48	61	<b>1580 Betulia</b>									
2 11	5 25.18	+5 31.9	0.708	1.460	36.7	19.5	118 E	51	58	12 23	2 5.00	-20 9.3	2.748	3.186	17.1	20.3	108 E	25	84
2 16	5 37.51	+7 21.5	0.771	1.501	36.1	19.7	117 E	52	57	1 2	2 1.54	-17 43.3	2.890	3.200	17.7	20.5	99 E	27	82*
2 21	5 49.32	+8 56.6	0.838	1.542	35.6	19.9	115 E	54	55	1 12	2 0.51	-15 15.9	3.040	3.213	17.8	20.6	91 E	30	75*
2 26	6 0.73	+10 18.9	0.908	1.583	35.2	20.1	113 E	55	54	1 22	2 1.61	-12 50.0	3.194	3.224	17.6	20.7	83 E	32	67*
3 2	6 11.81	+11 29.6	0.981	1.624	34.8	20.3	111 E	56	53	2 1	2 4.53	-10 27.6	3.347	3.235	17.1	20.8	75 E	34*	59*
3 7	6 22.61	+12 30.0	1.057	1.665	34.4	20.6	109 E	58	51	2 11	2 8.98	-8 9.9	3.496	3.243	16.3	20.9	67 E	35*	52*
3 12	6 33.17	+13 21.1	1.135	1.706	34.0	20.7	106 E	58	51	2 21	2 14.70	-5 57.6	3.638	3.251	15.2	20.9	60 E	33*	45*
3 17	6 43.52	+14 3.9	1.216	1.747	33.6	20.9	104 E	59	50	3 2	2 21.50	-3 50.9	3.769	3.257	13.9	20.9	52 E	30*	39*
3 22	6 53.69	+14 39.2	1.299	1.787	33.1	21.1	101 E	60	49	3 12	2 29.17	-1 50.0	3.888	3.262	12.4	21.0	45 E	25*	33*
3 27	7 3.70	+15 7.8	1.384	1.827															

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	$45^\circ$ - $26^\circ$	19/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	$45^\circ$ - $26^\circ$
<b>1580 Betulia</b> (continuation)									<b>53110 1999 AR<sub>7</sub></b> (continuation)								
7 30	4 48.55	+17 30.0	3.671	3.186	15.0	20.9	54 W	32* 37*	7 20	11 25.91	+34 20.9	1.833	1.370	33.2	20.1	48 E	36* 21*
8 9	4 57.08	+18 27.3	3.524	3.171	16.3	20.8	62 W	40* 40*	7 25	11 43.02	+31 55.2	1.851	1.381	32.7	20.1	47 E	36* 23*
8 19	5 4.75	+19 24.8	3.366	3.154	17.5	20.7	69 W	48* 41*	7 30	11 59.34	+29 24.5	1.871	1.392	32.2	20.1	47 E	35* 24*
8 29	5 11.32	+20 23.7	3.199	3.135	18.3	20.7	77 W	56* 42*	8 4	12 14.95	+26 50.4	1.893	1.404	31.6	20.2	47 E	34* 25*
9 8	5 16.51	+21 25.5	3.025	3.115	18.8	20.5	86 W	63* 42*	8 9	12 29.92	+24 14.2	1.918	1.417	31.0	20.2	46 E	32* 26*
9 18	5 20.00	+22 31.9	2.849	3.094	18.9	20.4	94 W	67* 41*	8 14	12 44.30	+21 37.1	1.946	1.430	30.3	20.2	45 E	31* 27*
9 28	5 21.37	+23 44.3	2.673	3.071	18.5	20.2	104 W	69 40	8 19	12 58.19	+19 0.2	1.976	1.443	29.5	20.3	45 E	30* 28*
10 8	5 20.20	+25 4.2	2.503	3.047	17.4	20.0	114 W	70 39	8 24	13 11.63	+16 24.6	2.008	1.457	28.7	20.3	44 E	29* 28*
10 18	5 15.99	+26 31.8	2.343	3.022	15.8	19.8	125 W	72 37	8 29	13 24.68	+13 50.9	2.041	1.471	27.8	20.3	43 E	27* 28*
10 28	5 8.30	+28 6.0	2.200	2.995	13.3	19.6	136 W	73 36	9 3	13 37.39	+11 20.1	2.077	1.485	26.9	20.4	42 E	26* 28*
11 7	4 56.88	+29 43.5	2.080	2.967	10.2	19.3	148 W	75 34	9 8	13 49.82	+ 8 52.6	2.114	1.499	25.9	20.4	41 E	25* 28*
11 12	4 49.79	+30 31.6	2.031	2.952	8.5	19.2	154 W	76 33	9 18	14 14.00	+ 4 9.4	2.191	1.528	23.8	20.4	38 E	22* 26*
11 17	4 41.85	+31 18.0	1.990	2.937	6.7	19.0	160 W	76 33	9 28	14 37.53	+ 0 15.9	2.272	1.557	21.5	20.5	35 E	19* 24*
11 22	4 33.19	+32 1.8	1.957	2.921	5.1	18.9	165 W	77 32	10 8	15 0.64	+ 4 21.8	2.352	1.587	19.1	20.5	31 E	17* 22*
11 27	4 23.95	+32 41.8	1.933	2.905	4.0	18.8	168 W	78 31	10 18	15 23.56	+ 8 7.9	2.432	1.616	16.6	20.6	28 E	14* 18*
12 2	4 14.35	+33 17.5	1.918	2.889	4.1	18.8	168 E	78 31	10 28	15 46.44	+11 34.1	2.507	1.645	14.0	20.6	24 E	11* 15*
12 7	4 4.60	+33 48.1	1.912	2.873	5.3	18.8	164 E	79 30	11 7	16 9.39	+14 40.7	2.576	1.674	11.3	20.6	19 E	8* 11*
12 12	3 54.94	+34 13.5	1.915	2.856	7.1	18.9	159 E	79 30	11 17	16 32.51	+17 28.6	2.637	1.701	8.6	20.6	15 E	5* 7*
12 17	3 45.61	+34 33.9	1.927	2.838	9.1	19.0	153 E	80 29	11 27	16 55.86	+19 58.2	2.690	1.728	5.9	20.5	10 E	2* 2*
12 22	3 36.82	+34 49.7	1.946	2.820	11.1	19.1	147 E	80 29	12 7	17 19.47	+22 10.5	2.732	1.755	3.2	20.4	6 E	—
12 27	3 28.75	+35 1.8	1.973	2.802	12.9	19.2	140 E	80 29	12 17	17 43.37	+24 6.3	2.763	1.780	0.7	20.3	1 E	—
1 1	3 21.55	+35 11.1	2.007	2.784	14.6	19.3	134 E	80 29	12 27	18 7.53	+25 46.4	2.783	1.804	2.4	20.5	4 W	—
1 6	3 15.29	+35 18.5	2.046	2.765	16.2	19.3	128 E	80 29	1 6	18 31.95	+27 11.8	2.790	1.826	5.0	20.7	9 W	—
1 11	3 10.02	+35 24.9	2.089	2.746	17.6	19.4	122 E	80 29	1 16	18 56.58	+28 23.6	2.784	1.848	7.6	20.8	14 W	—
1 16	3 5.78	+35 31.2	2.137	2.726	18.8	19.5	117 E	81 28	<b>203727 2002 QM<sub>47</sub></b>								
12 23	2 5.14	+ 1 5.5	1.419	2.065	25.0	20.4	117 E	44 65	12 23	2 8.13	+ 3 4.7	2.202	2.824	17.6	20.8	120 E	48 61
1 2	2 12.33	+ 0 30.1	1.566	2.113	26.0	20.7	110 E	46 63	1 2	2 9.24	+ 3 55.4	2.262	2.858	18.8	21.0	110 E	49 60
1 12	2 21.40	+ 2 10.3	1.721	2.160	26.4	20.9	103 E	47 61*	1 12	2 12.50	+ 4 54.1	2.530	2.892	19.5	21.2	102 E	50 58*
1 22	2 32.01	+ 3 51.7	1.882	2.208	26.3	21.2	96 E	49 58*	1 22	2 17.64	+ 5 58.5	2.702	2.924	19.6	21.4	93 E	51 54*
2 1	2 43.92	+ 5 32.2	2.046	2.255	25.9	21.4	89 E	51 54*	2 1	2 24.39	+ 7 6.8	2.876	2.956	19.4	21.5	85 E	52 50*
<b>274994 2009 TM<sub>21</sub></b>									<b>355770 2008 RE<sub>80</sub></b>								
12 23	2 7.03	+ 7 21.4	1.709	2.376	20.7	21.4	121 E	52 57	12 23	2 8.48	+10 20.4	1.127	1.768	30.7	21.1	114 E	35 74
1 2	2 9.76	+ 8 6.9	1.855	2.406	22.2	21.6	112 E	53 56	12 28	2 9.36	+ 9 46.6	1.168	1.759	31.8	21.2	109 E	35 74
1 12	2 14.94	+ 9 2.2	2.009	2.435	23.1	21.8	104 E	54 54*	1 2	2 11.17	+ 9 6.9	1.209	1.749	32.8	21.3	105 E	36 73
1 22	2 22.17	+10 4.4	2.167	2.463	23.4	22.0	95 E	55 51*	1 7	2 13.87	+ 8 22.2	1.251	1.739	33.6	21.4	102 E	37 72*
2 1	2 31.15	+11 11.3	2.327	2.491	23.3	22.2	88 E	56 47*	1 12	2 17.37	+ 7 33.3	1.292	1.728	34.3	21.5	98 E	37 70*
<b>277958 2006 SP<sub>134</sub></b>									<b>344551 2002 VJ<sub>122</sub></b>								
12 23	2 7.12	+24 27.4	2.057	2.759	16.6	21.4	127 E	69 40	12 23	2 9.06	+15 41.2	0.911	1.679	28.7	19.5	125 E	61 41
1 2	2 1.68	+23 39.7	2.129	2.700	19.2	21.5	115 E	69 40*	1 2	2 15.85	+12 52.4	0.959	1.641	32.8	19.7	115 E	58 51
1 12	1 59.53	+23 5.8	2.211	2.638	21.1	21.6	105 E	68 40*	1 12	2 26.53	+10 44.5	1.014	1.604	35.9	19.8	107 E	56 53*
1 22	2 0.42	+22 47.1	2.298	2.573	22.4	21.6	95 E	68 37*	1 22	2 40.51	+ 9 12.6	1.073	1.570	38.2	20.0	99 E	54 53*
2 1	2 4.07	+22 43.5	2.383	2.506	23.1	21.7	85 E	68* 34*	1 27	2 48.60	+ 8 38.2	1.103	1.554	39.0	20.0	96 E	54 53*
<b>53110 1999 AR<sub>7</sub></b>									2 1	2 57.34	+ 8 10.2	1.132	1.539	39.7	20.1	93 E	53 53*
12 23	2 7.63	+24 10.8	0.995	1.578	36.9	19.2	106 E	21 88	2 6	3 6.69	+ 7 47.9	1.162	1.525	40.3	20.1	90 E	53 52*
12 28	2 5.29	+20 32.0	1.012	1.563	37.8	19.2	103 E	24 85	2 11	3 16.60	+ 7 30.2	1.191	1.512	40.7	20.2	87 E	53 52*
1 2	2 4.25	+16 51.5	1.033	1.548	38.7	19.3	100 E	28 81*	2 21	3 37.92	+ 7 6.0	1.248	1.488	41.2	20.3	83 E	52* 51*
1 7	2 4.40	+13 11.9	1.057	1.534	39.5	19.3	97 E	32 76*	3 2	4 1.07	+ 6 51.7	1.303	1.469	41.4	20.3	78 E	50* 50*
1 12	2 5.61	+ 9 35.1	1.084	1.519	40.2	19.4	94 E	35 71*	3 12	4 25.81	+ 6 42.2	1.355	1.454	41.2	20.4	75 E	48* 50*
1 17	2 7.79	+ 6 2.5	1.114	1.505	40.8	19.4	91 E	39 66*	3 22	4 51.93	+ 6 33.1	1.406	1.444	40.9	20.4	72 E	45* 50*
1 22	2 10.86	+ 2 35.2	1.145	1.490	41.3	19.5	89 E	42 61*	4 1	5 19.27	+ 6 20.8	1.455	1.439	40.4	20.5	69 E	41* 49*
2 1	2 19.37	+ 4 1.4	1.212	1.462	41.9	19.6	83 E	49 52*	4 11	5 47.60	+ 6 2.1	1.504	1.440	39.7	20.6	67 E	38* 50*
2 11	2 30.70	+10 12.4	1.283	1.435	42.1	19.7	77 E	54* 43*	4 21	6 16.73	+ 5 34.7	1.554	1.445	38.9	20.6	65 E	34* 50*
2 21	2 44.57	+15 57.8	1.354	1.409	41.9	19.7	72 E	56* 36*	5 1	6 46.46	+ 4 56.8	1.606	1.456	38.0	20.7	63 E	30* 50*
3 2	3 0.90	+21 19.3	1.422	1.385	41.3	19.8	67 E	56* 30*	5 11	7 16.52	+ 4 7.7	1.661	1.472	37.0	20.7	61 E	25* 50*
3 12	3 19.72	+26 17.9	1.486	1.363	40.5	19.8	63 E	55* 25*	5 21	7 46.70	+ 3 7.0	1.721	1.492	35.8	20.8	60 E	21* 50*
3 22	3 41.21	+30 54.3	1.545	1.343	39.6	19.9	59 E	52* 20*	5 31	8 16.80	+ 1 55.3	1.785	1.516	34.6	20.9	58 E	17* 50*
4 1	4 5.68	+35 8.2	1.596	1.327	38.6	19.9	56 E	50* 16*	6 10	8 46.58	+ 0 33.6	1.855	1.544	33.2	21.0	56 E	13* 49*
4 11	4 33.50	+38 57.6	1.639	1.313	37.7	19.9	53 E	47* 13*	6 20	9 15.91	+ 0 56.6	1.931	1.576	31.7	21.1	55 E	9* 48*
4 21	5 5.10	+42 18.7	1.673	1.302	36.9	19.9	51 E	45* 11*	6 30	9 44.68	+ 2 33.4	2.012	1.610	30.1	21.2	53 E	6* 46*
5 1	5 40.86	+45 5.5	1.701	1.295	36.2	19.9	49 E	43* 9*	7 10	10 12.77	+ 4 15.0	2.098	1.647	28.4	21.2	50 E	3* 44*
5 11	6 20.84	+47 10.1	1.721	1.292	35.7	19.9	48 E	42* 8*	7 20	10 40.18	+ 5 59.3	2.190	1.686	26.6	21.3	48 E	1* 42*
5 16	6 42.32	+47 53.6	1.729	1.292	35.5	19.9	48 E	42* 8*	7 30	11 6.90	+ 7 44.8	2.284	1.727	24.7	21.4	45 E	— 39*
5 21	7 4.64	+48 23.0	1.736	1.293	35.4	19.9	48 E	41* 8*	<b>446895 2002 PQ<sub>63</sub></b>								
5 26	7 27.66	+48 37.3	1.741	1.294	35.2	19.9	48 E	41* 8*	12 23	2 9.13	+ 2 24.5	0.838	1.561	33.9	19.3	118 E	43 66
5 31	7 51.14	+48 35.7	1.747	1.297	35.1	19.9	47 E	41* 9*	12 28	2 16.87	+ 0 49.9	0.884	1.578	34.3	19.4	115 E	44 65
6 5	8 14.86	+48 17.6	1.752	1.301	35.0	19.9	47 E	41* 9*	1 2	2 24.98	+ 0 43.9	0.932	1.596	34.6	19.6	113 E	46 63
6 10	8 38.55	+4															