

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>7002 Bronshten</b>										<b>65784 Naderayama (continuation)</b>									
12 23	9 22.57	+ 9 24.0	2.184	2.918	14.9	19.7	130 W	54	55	11 7	12 50.80	+ 3 38.1	3.688	2.892	10.4	21.2	32 W	23*	14*
1 2	9 17.32	+ 9 37.2	2.103	2.938	12.0	19.5	142 W	55	54	11 17	13 3.72	+ 5 3.2	3.606	2.894	12.2	21.2	38 W	27*	20*
1 12	9 9.84	+10 3.7	2.045	2.958	8.5	19.3	153 W	55	54	11 27	13 16.28	+ 6 24.4	3.510	2.896	13.9	21.2	45 W	31*	26*
1 22	9 0.66	+10 41.6	2.014	2.977	4.8	19.1	165 W	56	53	12 7	13 28.38	+ 7 41.0	3.401	2.896	15.5	21.2	52 W	33*	32*
2 1	8 50.63	+11 27.3	2.013	2.994	2.0	18.9	174 E	56	53	12 17	13 39.90	+ 8 52.4	3.280	2.896	16.9	21.2	59 W	35*	40*
2 6	8 45.61	+11 51.6	2.024	3.003	2.7	19.0	172 E	57	52	12 27	13 50.71	+ 9 58.0	3.149	2.895	18.1	21.1	66 W	35*	48*
2 11	8 40.76	+12 16.1	2.042	3.011	4.4	19.1	167 E	57	52	1 6	14 0.62	+10 57.1	3.010	2.892	19.0	21.1	74 W	34	56*
2 16	8 36.18	+12 40.3	2.068	3.019	6.2	19.3	161 E	58	51	1 16	14 9.43	+11 49.2	2.864	2.889	19.7	21.0	82 W	33	64*
2 21	8 31.98	+13 3.7	2.102	3.026	8.0	19.4	155 E	58	51	<b>157995 2000 LF<sub>26</sub></b>									
3 2	8 25.07	+13 46.7	2.188	3.041	11.2	19.6	143 E	59	50	12 23	9 24.87	+ 4 5.8	2.289	2.992	15.1	21.2	128 W	49	60
3 12	8 20.50	+14 22.5	2.297	3.055	13.9	19.8	132 E	59	50	1 2	9 20.48	+ 4 14.4	2.187	2.995	12.6	21.0	138 W	49	60
3 22	8 18.40	+14 50.1	2.424	3.067	16.0	20.0	122 E	60	49	1 12	9 13.88	+ 4 39.6	2.107	2.997	9.5	20.8	150 W	50	59
4 1	8 18.75	+15 9.0	2.563	3.079	17.5	20.2	112 E	60	49	1 22	9 5.50	+ 5 21.1	2.052	2.999	6.2	20.6	161 W	50	59
4 11	8 21.34	+15 19.2	2.711	3.089	18.4	20.4	103 E	60*	49	2 1	8 56.04	+ 6 16.4	2.026	2.999	3.6	20.5	169 W	51	58
4 21	8 25.90	+15 21.0	2.863	3.099	18.9	20.5	94 E	58*	49	2 11	8 46.44	+ 7 21.2	2.031	2.998	4.5	20.5	166 E	52	57
5 1	8 32.16	+15 14.6	3.015	3.108	18.9	20.6	86 E	53*	49	2 21	8 37.64	+ 8 30.1	2.066	2.997	7.7	20.7	156 E	54	55
5 11	8 39.85	+15 0.5	3.166	3.115	18.5	20.7	78 E	47*	49*	3 2	8 30.47	+ 9 37.9	2.129	2.994	11.0	20.9	145 E	55	54
5 21	8 48.71	+14 38.9	3.311	3.122	17.8	20.8	70 E	40*	48*	3 12	8 25.50	+10 40.2	2.215	2.991	13.9	21.1	134 E	56	53
5 31	8 58.55	+14 10.3	3.449	3.128	16.8	20.9	63 E	33*	46*	3 22	8 22.99	+11 34.1	2.320	2.986	16.2	21.3	123 E	57	52
6 10	9 9.15	+13 35.0	3.578	3.132	15.7	20.9	56 E	26*	43*	4 1	8 22.96	+12 18.1	2.438	2.981	17.9	21.4	113 E	57	52
6 20	9 20.39	+12 53.5	3.697	3.136	14.3	20.9	50 E	20*	39*	<b>257744 2000 AD<sub>205</sub></b>									
6 30	9 32.12	+12 6.1	3.803	3.139	12.8	20.9	43 E	14*	35*	12 23	9 26.17	+ 4 28.4	0.897	1.686	27.6	20.6	127 W	49	60
7 10	9 44.23	+11 13.3	3.897	3.140	11.1	20.9	37 E	9*	29*	1 2	9 11.79	+ 5 47.1	0.885	1.762	20.5	20.5	141 W	51	58
7 20	9 56.63	+10 15.6	3.976	3.141	9.4	20.9	30 E	5*	24*	1 12	8 53.75	+ 7 34.7	0.894	1.835	12.9	20.3	155 W	53	56
7 30	10 9.26	+ 9 13.3	4.040	3.141	7.6	20.9	24 E	2*	18*	1 22	8 34.28	+ 9 38.4	0.929	1.904	5.9	20.2	169 W	55	54
8 9	10 22.04	+ 8 7.1	4.089	3.139	5.7	20.8	18 E	—	12*	1 27	8 24.83	+10 41.3	0.958	1.937	4.2	20.2	172 E	56	53
8 19	10 34.92	+ 6 57.5	4.121	3.137	3.7	20.7	12 E	—	6*	2 1	8 15.99	+11 42.4	0.993	1.969	5.5	20.4	169 E	57	52
8 29	10 47.86	+ 5 45.0	4.137	3.134	1.8	20.6	6 E	—	—	2 6	8 8.02	+12 40.3	1.036	2.001	8.1	20.7	163 E	58	51
9 8	11 0.81	+ 4 30.2	4.136	3.129	0.6	20.5	2 W	—	—	2 11	8 1.08	+13 33.8	1.086	2.032	10.9	20.9	157 E	59	50
9 18	11 13.74	+ 3 13.7	4.118	3.124	2.4	20.6	7 W	—	—	2 16	7 55.27	+14 22.5	1.142	2.062	13.5	21.1	151 E	59	50
9 28	11 26.61	+ 1 56.1	4.083	3.118	4.3	20.7	14 W	6*	4*	2 21	7 50.64	+15 6.0	1.203	2.091	15.8	21.4	145 E	60	49
10 8	11 39.36	+ 0 38.2	4.031	3.110	6.3	20.8	20 W	12*	8*	<b>491765 2012 VU<sub>110</sub></b>									
10 18	11 51.97	+ 0 39.5	3.963	3.102	8.2	20.8	26 W	18*	12*	12 23	9 26.19	+16 9.3	1.077	1.881	23.0	21.4	132 W	61	48
10 28	12 4.37	+ 1 56.1	3.878	3.093	10.1	20.8	33 W	23*	17*	1 2	9 22.02	+15 59.4	1.032	1.910	18.1	21.2	143 W	61	48
11 7	12 16.50	+ 3 10.9	3.779	3.083	11.9	20.9	40 W	28*	22*	1 12	9 13.95	+16 4.0	1.004	1.940	12.4	21.0	155 W	61	48
11 17	12 28.29	+ 4 23.0	3.665	3.071	13.5	20.8	47 W	32*	27*	1 22	9 3.02	+16 18.6	0.998	1.971	6.1	20.7	168 W	61	48
11 27	12 39.63	+ 5 31.5	3.539	3.059	15.1	20.8	54 W	35*	34*	2 1	8 50.92	+16 37.0	1.017	2.002	0.6	20.5	179 E	62	47
12 7	12 50.42	+ 6 35.6	3.401	3.046	16.4	20.8	61 W	37*	40*	2 6	8 45.06	+16 45.7	1.036	2.017	3.6	20.7	173 E	62	47
12 17	13 0.52	+ 7 34.2	3.253	3.031	17.6	20.7	68 W	37*	48*	2 11	8 39.62	+16 53.1	1.061	2.033	6.6	21.0	166 E	62	47
12 27	13 9.75	+ 8 26.2	3.097	3.016	18.5	20.6	76 W	37	56*	2 16	8 34.81	+16 58.9	1.092	2.049	9.4	21.2	160 E	62	47
1 6	13 17.93	+ 9 10.4	2.936	3.000	19.0	20.5	84 W	36	63*	2 21	8 30.75	+17 2.9	1.129	2.065	12.0	21.4	154 E	62	47
1 16	13 24.82	+ 9 45.7	2.772	2.983	19.2	20.4	93 W	35	70*	2 26	8 27.55	+17 4.8	1.172	2.080	14.4	21.5	148 E	62	47
<b>65784 Naderayama</b>										<b>329619 2003 OS<sub>22</sub></b>									
12 23	9 24.81	+23 13.2	1.498	2.292	18.0	19.0	134 W	68	41	12 23	9 26.55	+ 8 47.9	2.390	3.106	14.2	20.9	129 W	54	55
1 2	9 18.82	+24 3.3	1.448	2.324	14.0	18.8	145 W	69	40	1 2	9 21.71	+ 9 13.2	2.327	3.148	11.5	20.7	140 W	54	55
1 12	9 9.55	+24 58.9	1.418	2.356	9.3	18.6	157 W	70	39	1 12	9 14.91	+ 9 51.2	2.286	3.190	8.2	20.6	152 W	55	54
1 22	8 57.95	+25 51.7	1.415	2.386	4.9	18.5	168 W	71	38	1 22	9 6.67	+10 39.6	2.272	3.230	4.8	20.4	164 W	56	53
1 27	8 51.70	+26 14.5	1.423	2.401	3.5	18.4	171 W	71	38	2 1	8 57.72	+11 34.4	2.288	3.270	1.8	20.3	174 W	57	52
2 1	8 45.43	+26 33.6	1.439	2.416	3.8	18.5	171 E	72	37	2 11	8 48.95	+12 31.0	2.336	3.309	3.4	20.5	169 E	58	51
2 6	8 39.36	+26 48.5	1.462	2.431	5.5	18.6	166 E	72	37	2 21	8 41.12	+13 25.3	2.414	3.348	6.6	20.7	157 E	58	51
2 11	8 33.66	+26 59.1	1.492	2.446	7.6	18.8	161 E	72	37	3 2	8 34.88	+14 14.0	2.521	3.385	9.5	21.0	146 E	59	50
2 16	8 28.50	+27 5.2	1.528	2.460	9.7	18.9	155 E	72	37	3 12	8 30.64	+14 54.9	2.651	3.422	11.9	21.2	135 E	60	49
2 21	8 24.01	+27 7.0	1.571	2.474	11.7	19.1	149 E	72	37	3 22	8 28.52	+15 26.9	2.800	3.458	13.8	21.4	124 E	60	49
3 2	8 17.38	+26 59.1	1.673	2.502	15.3	19.4	138 E	72	37	<b>80098 1999 MV<sub>1</sub></b>									
3 12	8 14.10	+26 38.6	1.794	2.529	18.1	19.6	128 E	72	37	12 23	9 26.91	+16 11.5	1.781	2.543	16.8	20.5	132 W	61	48
3 22	8 14.06	+26 8.5	1.929	2.555	20.1	19.9	118 E	71	38	1 2	9 21.38	+16 45.1	1.711	2.568	13.3	20.3	143 W	62	47
4 1	8 16.92	+25 31.1	2.074	2.580	21.5	20.1	109 E	71	38	1 12	9 13.03	+17 30.1	1.663	2.591	9.0	20.1	156 W	63	46
4 11	8 22.27	+24 47.7	2.226	2.605	22.2	20.3	101 E	70*	39	1 22	9 2.55	+18 21.5	1.642	2.613	4.4	19.8	168 W	63	46
4 21	8 29.64	+23 59.2	2.380	2.628	22.5	20.5													

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/21	α <sub>2000</sub>	δ <sub>2000</sub>	Δ	r	β	V	ψ	45°	-26°	19/21	α <sub>2000</sub>	δ <sub>2000</sub>	Δ	r	β	V	ψ	45°	-26°
<b>10502 Armaghobs</b>										<b>90075 2002 VU<sub>94</sub></b> <i>(continuation)</i>									
12 23	9 27.13	-17 9.2	1.002	1.681	31.9	17.4	116W	28	81	7 30	12 37.05	+ 3 33.2	0.713	0.907	76.6	17.0	60E	24*	50*
12 28	9 28.22	-17 15.3	0.977	1.694	30.3	17.3	120W	28	81	8 9	13 27.03	+ 1 38.0	0.651	0.927	77.8	16.9	63E	26*	52*
1 2	9 28.34	-17 8.9	0.953	1.708	28.6	17.2	124W	28	81	8 19	14 23.18	+ 0 30.6	0.604	0.966	76.5	16.8	68E	30*	56*
1 7	9 27.52	-16 49.0	0.932	1.722	26.7	17.1	128W	28	81	8 24	14 53.43	- 1 38.6	0.589	0.991	74.8	16.7	71E	31*	58*
1 12	9 25.83	-16 14.5	0.913	1.737	24.6	17.0	133W	29	80	8 29	15 24.79	- 2 47.0	0.581	1.019	72.5	16.7	74E	33*	61*
1 17	9 23.34	-15 24.7	0.897	1.752	22.4	17.0	137W	30	79	9 3	15 56.82	- 3 53.5	0.579	1.051	69.7	16.7	78E	35*	63*
1 22	9 20.18	-14 19.2	0.885	1.768	20.0	16.9	142W	31	78	9 8	16 28.97	- 4 55.5	0.586	1.085	66.6	16.7	81E	36*	65*
1 27	9 16.52	-12 58.3	0.878	1.784	17.7	16.8	147W	32	77	9 13	17 0.64	- 5 50.7	0.600	1.120	63.4	16.7	84E	37*	67*
2 1	9 12.57	-11 23.1	0.875	1.801	15.4	16.7	151W	34	75	9 18	17 31.29	- 6 37.4	0.622	1.158	60.1	16.7	87E	37*	69*
2 6	9 8.56	- 9 35.8	0.878	1.818	13.5	16.7	154E	35	74	9 28	18 27.97	- 7 41.7	0.688	1.236	54.1	16.9	92E	37*	71*
2 11	9 4.69	- 7 39.2	0.887	1.835	12.3	16.7	157E	37	72	10 8	19 17.26	- 8 8 7.7	0.781	1.317	49.1	17.2	95E	37	72*
2 16	9 1.16	- 5 36.3	0.902	1.853	11.8	16.7	157E	39	70	10 18	19 59.44	- 8 5.5	0.894	1.400	45.1	17.5	95E	37	72*
2 21	8 58.15	+ 3 30.7	0.923	1.870	12.3	16.8	156E	41	68	10 23	20 18.22	- 7 54.9	0.958	1.441	43.4	17.7	95E	37	71*
2 26	8 55.80	+ 1 25.7	0.950	1.888	13.5	16.9	154E	44	65	10 28	20 35.68	- 7 39.3	1.026	1.483	41.9	17.8	94E	37	70*
3 2	8 54.22	+ 0 35.7	0.983	1.907	15.1	17.1	150E	46	63	11 2	20 51.97	- 7 19.4	1.097	1.524	40.5	18.0	94E	38	70*
3 7	8 53.46	+ 2 31.0	1.023	1.925	16.9	17.3	146E	48	61	11 7	21 7.24	- 6 55.9	1.171	1.565	39.2	18.2	92E	38	68*
3 12	8 53.55	+ 4 18.3	1.067	1.944	18.7	17.4	141E	49	60	11 12	21 21.61	- 6 29.3	1.249	1.606	38.0	18.3	91E	39	67*
3 17	8 54.46	+ 5 56.7	1.116	1.962	20.4	17.6	137E	51	58	11 17	21 35.22	- 5 59.8	1.329	1.647	36.9	18.5	89E	39	65*
3 22	8 56.17	+ 7 25.4	1.170	1.981	21.9	17.8	132E	52	57	11 27	22 0.53	- 4 53.8	1.495	1.727	34.7	18.8	86E	40	61*
4 1	9 1.81	+ 9 53.2	1.290	2.019	24.4	18.1	123E	55	54	12 7	22 23.78	- 3 40.2	1.667	1.805	32.7	19.1	81E	41	56*
4 4	9 10.02	+ 11 43.2	1.422	2.057	26.2	18.4	115E	57	52	12 17	22 45.46	- 2 20.9	1.845	1.881	30.6	19.3	77E	43	50*
4 21	9 20.27	+ 12 59.6	1.563	2.095	27.3	18.7	107E	58*	51	12 27	23 5.93	+ 0 57.3	2.024	1.956	28.5	19.5	72E	44*	45*
4 26	9 26.03	+ 13 26.5	1.637	2.114	27.6	18.8	104E	58*	51	1 6	23 25.44	+ 0 29.2	2.204	2.028	26.5	19.7	67E	44*	39*
5 1	9 32.14	+ 13 46.7	1.712	2.133	27.7	18.9	100E	58*	50	1 16	23 44.20	+ 1 57.7	2.382	2.098	24.3	19.9	61E	44*	34*
5 6	9 38.56	+ 14 0.8	1.788	2.152	27.7	19.1	97E	56*	50	<b>349063 2006 XA</b>									
5 11	9 45.23	+ 14 9.2	1.865	2.171	27.7	19.2	93E	55*	50	12 23	9 29.39	- 0 36.7	0.636	1.441	34.3	18.5	124W	44	65
5 21	9 59.20	+ 14 10.9	2.020	2.209	27.2	19.4	87E	50*	50	12 28	9 37.55	- 3 32.0	0.579	1.404	34.6	18.3	126W	41	68
5 31	10 13.83	+ 13 55.4	2.175	2.246	26.5	19.5	81E	45*	50*	1 2	9 45.95	- 6 48.9	0.527	1.367	35.1	18.0	127W	38	71
6 10	10 28.91	+ 13 25.5	2.329	2.282	25.4	19.7	75E	39*	50*	1 7	9 54.77	- 10 30.6	0.478	1.330	35.8	17.8	128W	34	75
6 20	10 44.30	+ 12 43.8	2.481	2.319	24.1	19.8	69E	34*	49*	1 12	10 4.25	- 14 40.4	0.434	1.295	37.0	17.5	128W	30	79
6 30	10 59.90	+ 11 52.5	2.629	2.354	22.7	19.9	63E	29*	48*	1 17	10 14.70	- 19 21.5	0.395	1.260	38.8	17.3	127W	26	83
7 10	11 15.63	+ 10 53.5	2.771	2.389	21.1	20.0	58E	25*	45*	1 22	10 26.59	- 24 35.7	0.360	1.226	41.1	17.1	125W	20	89
7 20	11 31.44	+ 9 48.4	2.907	2.424	19.4	20.1	52E	22*	42*	1 27	10 40.59	- 30 23.0	0.329	1.194	44.2	17.0	122W	15	86
7 30	11 47.30	+ 8 38.8	3.035	2.457	17.6	20.2	47E	19*	38*	2 1	10 57.77	- 36 39.4	0.305	1.163	48.0	16.9	119W	8	79
8 9	12 3.18	+ 7 26.0	3.154	2.490	15.7	20.2	42E	16*	33*	2 3	11 5.87	- 39 16.4	0.296	1.151	49.7	16.8	117W	6	77
8 19	12 19.08	+ 6 11.2	3.264	2.522	13.8	20.3	36E	14*	28*	2 5	11 14.86	- 41 55.6	0.288	1.139	51.5	16.8	115W	3	74
8 29	12 34.99	+ 4 55.6	3.363	2.553	11.8	20.3	31E	13*	23*	2 7	11 24.90	- 44 36.1	0.282	1.128	53.4	16.8	113W	-	71
9 8	12 50.90	+ 3 40.4	3.451	2.584	9.9	20.3	26E	11*	18*	2 9	11 36.18	- 47 16.4	0.276	1.117	55.3	16.8	111W	-	69
9 18	13 6.81	+ 2 26.4	3.526	2.613	7.9	20.3	21E	9*	13*	2 11	11 48.91	- 49 54.8	0.271	1.106	57.3	16.8	109W	-	66
9 28	13 22.72	+ 1 14.7	3.588	2.642	6.1	20.3	16E	6*	7*	2 13	12 3.34	- 52 29.3	0.266	1.096	59.3	16.8	107W	-	64
10 8	13 38.62	+ 0 6.4	3.636	2.669	4.6	20.2	12E	6*	1*	2 15	12 19.71	- 54 57.5	0.263	1.086	61.4	16.8	105W	-	61
10 18	13 54.49	+ 0 57.7	3.670	2.696	3.8	20.2	10E	4*	-	2 17	12 38.29	- 57 16.7	0.260	1.077	63.4	16.8	103W	-	59
10 28	14 10.31	+ 1 56.7	3.690	2.722	4.1	20.3	11E	2*	-	2 19	12 59.31	- 59 23.8	0.258	1.068	65.3	16.8	101W	-	57
11 7	14 26.04	+ 2 49.6	3.694	2.747	5.2	20.4	15W	8*	-	2 21	13 22.91	- 61 15.7	0.257	1.059	67.2	16.8	99W	-	55
11 17	14 41.65	+ 3 35.6	3.684	2.771	6.8	20.5	19W	13*	-	2 22	13 35.68	- 62 4.9	0.257	1.055	68.2	16.9	98W	-	54
11 27	14 57.07	+ 4 13.8	3.658	2.794	8.5	20.5	25W	19*	2*	2 23	13 49.05	- 62 49.1	0.257	1.052	69.1	16.9	97W	-	53
12 7	15 12.25	+ 4 43.4	3.618	2.815	10.3	20.6	31W	24*	8*	2 24	14 3.00	- 63 27.9	0.257	1.048	69.9	16.9	96W	-	52
12 17	15 27.10	+ 5 3.9	3.564	2.836	12.0	20.6	37W	28*	14*	2 25	14 17.44	- 64 1.0	0.257	1.044	70.8	16.9	95W	-	53
12 27	15 41.51	+ 5 14.4	3.496	2.856	13.6	20.7	43W	31*	21*	2 26	14 32.31	- 64 28.1	0.257	1.041	71.6	16.9	94W	-	52
1 6	15 55.38	+ 5 14.3	3.415	2.875	15.1	20.7	49W	34*	28*	2 27	14 47.48	- 64 49.1	0.258	1.037	72.4	17.0	93W	-	51
1 16	16 8.58	+ 5 3.4	3.323	2.893	16.4	20.7	56W	36*	36*	2 28	15 2.85	- 65 3.9	0.259	1.034	73.2	17.0	92W	-	51
12 23	9 27.66	+ 1 45.8	1.642	2.357	19.8	19.2	126W	47	62	2 29	15 18.29	- 65 12.4	0.259	1.031	73.9	17.0	92W	-	51
1 2	9 24.23	+ 0 54.4	1.485	2.296	17.4	18.9	136W	46	63	3 1	15 33.66	- 65 14.8	0.260	1.028	74.6	17.0	91W	-	51
1 12	9 17.26	+ 0 18.9	1.346	2.232	14.2	18.5	146W	45	64	3 2	15 48.84	- 65 11.2	0.261	1.025	75.3	17.1	90W	-	51
1 22	9 6.66	+ 0 4.6	1.229	2.166	10.5	18.1	156W	45	64	3 3	16 3.71	- 65 1.9	0.263	1.022	75.9	17.1	89W	-	51
2 1	8 52.89	+ 0 16.0	1.137	2.098	7.9	17.7	163E	45	64	3 4	16 18.16	- 64 47.2	0.264	1.020	76.5	17.1	89W	-	51
2 11	8 37.16	+ 0 54.7	1.072	2.028	9.4	17.6	160E	46	63	3 5	1								

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/20	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	19/20	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°
<b>349063 2006 XA</b>										<b>159781 2003 MZ<sub>7</sub></b>									
<i>(continuation)</i>										<i>(continuation)</i>									
3 28	19 28.68	-47 24.1	0.319	1.005	79.7	17.6	82 W	-	63*	9 28	11 38.75	-5 36.4	4.197	3.217	3.3	21.4	11 W	-	4*
3 30	19 35.74	-45 47.7	0.325	1.007	79.2	17.6	82 W	-	65*	10 8	11 51.16	-6 54.6	4.179	3.230	4.8	21.5	16 W	-	4*
4 1	19 42.15	-44 13.3	0.331	1.011	78.5	17.7	83 W	-	66*	<b>719 Albert</b>									
4 3	19 47.99	-42 40.8	0.336	1.015	77.8	17.7	83 W	-	67*	12 23	9 31.11	+2 38.6	2.866	3.529	13.1	21.3	125 W	48	61
4 5	19 53.32	-41 10.5	0.342	1.020	77.1	17.7	83 W	-	69*	1 2	9 26.10	+2 46.1	2.784	3.562	11.0	21.2	136 W	48	61
4 7	19 58.20	-39 42.4	0.347	1.025	76.2	17.7	84 W	1*	70*	1 12	9 19.36	+3 7.3	2.725	3.595	8.4	21.0	148 W	48	61
4 9	20 2.68	-38 16.5	0.353	1.031	75.3	17.7	85 W	3*	72*	1 22	9 11.30	+3 41.5	2.692	3.626	5.7	20.9	159 W	49	60
4 11	20 6.79	-36 52.7	0.358	1.037	74.4	17.7	86 W	4*	73*	2 1	9 2.51	+4 26.5	2.690	3.656	3.5	20.8	167 W	49	60
4 16	20 15.60	-33 33.1	0.371	1.056	71.8	17.8	88 W	7*	78*	2 11	8 53.71	+5 19.2	2.719	3.685	3.6	20.8	166 E	50	59
4 21	20 22.54	-30 26.7	0.383	1.077	68.9	17.8	90 W	10*	82*	2 21	8 45.60	+6 15.6	2.780	3.713	5.8	21.0	158 E	51	58
4 26	20 27.79	-27 32.9	0.393	1.102	65.8	17.8	93 W	14*	87*	3 2	8 38.78	+7 11.8	2.870	3.740	8.3	21.2	147 E	52	57
5 1	20 31.46	-24 50.9	0.403	1.128	62.5	17.8	97 W	17*	89	3 12	8 33.65	+8 4.5	2.986	3.766	10.5	21.4	136 E	53	56
5 6	20 33.60	-22 20.1	0.412	1.157	59.0	17.8	100 W	20*	86	<b>136582 1992 BA</b>									
5 11	20 34.24	-19 59.9	0.420	1.188	55.4	17.8	105 W	23*	84	12 23	9 31.18	+1 13.0	0.590	1.406	35.0	20.9	125 W	46	63
5 21	20 31.01	-15 50.7	0.435	1.254	47.5	17.8	114 W	28*	80	12 28	9 33.78	+1 26.9	0.556	1.403	32.9	20.7	129 W	46	63
5 31	20 21.84	-12 23.3	0.452	1.324	39.0	17.7	125 W	33*	76	1 2	9 35.23	+1 55.1	0.524	1.399	30.3	20.5	134 W	47	62
6 10	20 7.63	-9 40.4	0.474	1.397	30.1	17.7	136 W	35*	74	1 7	9 35.45	+2 39.6	0.494	1.396	27.4	20.3	139 W	48	61
6 15	19 59.12	-8 36.6	0.489	1.434	25.6	17.7	142 W	36	73	1 12	9 34.35	+3 42.3	0.467	1.392	23.9	20.1	145 W	49	60
6 20	19 50.05	-7 45.0	0.507	1.472	21.3	17.7	148 W	37	72	1 17	9 31.90	+5 4.4	0.442	1.387	20.1	19.8	151 W	50	59
6 25	19 40.75	-7 5.6	0.529	1.509	17.2	17.7	154 W	38	71	1 22	9 28.10	+6 46.6	0.421	1.383	15.7	19.6	158 W	52	57
6 30	19 31.61	-6 37.9	0.555	1.547	13.7	17.8	159 W	38	71	1 27	9 23.04	+8 48.0	0.404	1.379	10.9	19.3	165 W	54	55
7 5	19 22.94	-6 20.9	0.586	1.585	11.2	17.8	162 W	39	70	2 1	9 16.97	+11 5.7	0.392	1.374	5.9	19.0	172 W	56	53
7 10	19 15.00	-6 13.4	0.621	1.623	10.0	18.0	164 E	39	70	2 6	9 10.22	+13 35.0	0.384	1.370	1.9	18.7	177 E	59	50
7 15	19 7.98	-6 14.2	0.661	1.660	10.3	18.2	163 E	39	70	2 11	9 3.19	+16 9.7	0.381	1.365	5.7	18.9	172 E	61	48
7 20	19 2.01	-6 21.7	0.706	1.698	11.7	18.4	160 E	39	70	2 16	8 56.34	+18 43.0	0.382	1.360	11.1	19.2	165 E	64	45
7 25	18 57.17	-6 34.5	0.756	1.735	13.6	18.7	156 E	38	71	2 21	8 50.11	+21 8.9	0.388	1.355	16.3	19.4	157 E	66	43
7 30	18 53.49	-6 51.2	0.809	1.772	15.6	18.9	152 E	38	71	2 26	8 44.97	+23 22.1	0.398	1.350	21.2	19.6	150 E	68	41
8 4	18 50.94	-7 10.6	0.868	1.808	17.5	19.2	148 E	38	71	3 2	8 41.23	+25 19.6	0.411	1.345	25.7	19.8	144 E	70	39
8 9	18 49.44	-7 31.6	0.930	1.844	19.2	19.4	143 E	37	72	3 7	8 39.13	+26 59.8	0.427	1.340	29.8	20.0	138 E	72	37
8 14	18 48.92	-7 53.5	0.996	1.880	20.8	19.7	139 E	37	72	3 12	8 38.73	+28 22.9	0.445	1.335	33.3	20.2	132 E	73	36
8 19	18 49.32	-8 15.4	1.065	1.916	22.1	19.9	134 E	37	72	3 17	8 40.01	+29 29.4	0.466	1.330	36.5	20.3	127 E	74	35
8 29	18 52.54	-8 57.4	1.214	1.985	24.2	20.3	126 E	36	73	3 22	8 42.92	+30 20.3	0.487	1.325	39.2	20.5	123 E	75	34
9 8	18 58.47	-9 34.3	1.373	2.054	25.6	20.7	118 E	35	74	3 27	8 47.36	+30 57.0	0.510	1.320	41.6	20.7	119 E	76	33
9 18	19 6.55	-10 4.0	1.541	2.120	26.3	21.1	111 E	35	74	4 1	8 53.20	+31 20.4	0.533	1.315	43.6	20.8	115 E	77	32
9 28	19 16.35	-10 25.3	1.717	2.185	26.4	21.4	104 E	35	74	4 6	9 0.28	+31 31.8	0.556	1.310	45.3	20.9	111 E	77	32
<b>277353 2005 TE<sub>105</sub></b>										<b>161634 2005 YN<sub>277</sub></b>									
12 23	9 30.11	+14 14.0	2.015	2.755	15.8	21.5	130 W	59	50	12 23	9 32.23	+13 21.0	1.849	2.588	17.1	21.1	129 W	58	51
1 2	9 24.98	+14 25.8	1.928	2.768	12.7	21.3	142 W	59	50	1 2	9 27.35	+13 33.9	1.773	2.611	13.7	20.9	141 W	59	50
1 12	9 17.24	+14 48.6	1.863	2.779	9.0	21.1	154 W	60	49	1 12	9 19.73	+13 59.6	1.719	2.633	9.8	20.7	153 W	59	50
1 22	9 7.45	+15 19.4	1.824	2.790	4.8	20.8	166 W	60	49	1 22	9 9.98	+14 34.8	1.689	2.653	5.3	20.5	165 W	60	49
2 1	8 56.49	+15 54.2	1.814	2.799	0.5	20.5	178 W	61	48	1 27	9 4.58	+14 54.6	1.685	2.664	3.0	20.4	172 W	60	49
2 11	8 45.52	+16 28.0	1.836	2.808	4.2	20.8	168 E	61	48	2 1	8 59.05	+15 14.9	1.689	2.674	0.9	20.2	178 W	60	49
2 21	8 35.68	+16 57.0	1.886	2.815	8.4	21.1	155 E	62	47	2 6	8 53.53	+15 35.0	1.700	2.683	1.9	20.3	175 E	61	48
3 2	8 27.87	+17 18.8	1.963	2.822	12.1	21.3	143 E	62	47	2 11	8 48.18	+15 54.4	1.718	2.693	4.2	20.5	169 E	61	48
<b>159781 2003 MZ<sub>7</sub></b>										<b>110325 2001 SZ<sub>285</sub></b>									
12 23	9 30.37	-0 10.4	1.800	2.490	19.0	19.6	124 W	45	64	1 27	9 5.43	+39 30.7	2.594	3.527	6.0	19.8	158 W	85	24
1 2	9 25.38	-0 44.7	1.738	2.528	16.0	19.5	135 W	44	65	2 1	9 0.00	+39 56.9	2.597	3.527	6.2	19.8	157 W	85	24
1 12	9 17.79	-0 57.8	1.695	2.565	12.6	19.3	145 W	44	65	2 6	8 54.51	+40 18.2	2.607	3.527	6.7	19.8	155 E	85	24
1 22	9 8.28	-0 48.6	1.675	2.602	9.1	19.2	155 W	44	65	2 11	8 49.10	+40 34.3	2.625	3.526	7.6	19.9	152 E	86	23
2 1	8 57.80	-0 18.3	1.682	2.637	6.5	19.1	162 W	45	64	2 16	8 43.91	+40 45.2	2.649	3.525	8.6	19.9	148 E	86	23
2 6	8 52.58	+0 3.5	1.696	2.655	6.2	19.1	163 E	45	64	2 21	8 39.05	+40 50.9	2.680	3.524	9.6	20.0	143 E	86	23
2 11	8 47.55	+0 28.8	1.717	2.672	6.6	19.2	162 E	45	64	2 26	8 34.63	+40 51.5	2.717	3.523	10.7	20.1	139 E	86	23
2 16	8 42.85	+0 56.8	1.745	2.689	7.7	19.3	159 E	46	63	3 2	8 30.74	+40 47.5	2.760	3.521	11.7	20.2	134 E	86	23
2 21	8 38.59	+1 26.6	1.780	2.706	9.1	19.4	154 E	46	63	3 7	8 27.44	+40 39.3	2.808	3.520	12.6	20.2	129 E	86	23
2 26	8 34.87	+1 57.4	1.821	2.722	10.6	19.5	150 E	47	62	3 12	8 24.78	+40 27.5	2.860	3.518	13.5	20.3	124 E	85	24
3 2	8 31.76	+2 28.4	1.869	2.739	12.1	19.7	145 E	47	62	3 17	8 25.00	+17 19.0	2.028	2.753	16.6	21.4	128 E	62	47
3 12	8 27.52	+3 28.3	1.981	2.771	14.8	19.9	135 E	48	61	3 22	8 21.42	+39 54.5	2.975	3.513	14.9	20.4	115 E	85	24
3 22	8 25.95	+4 22.1	2.110	2.802	17.0	20.2	125 E	49	60	4 1	8 20.68	+39 12.1	3.101	3.508	15.9	20.5	106 E	84	25
4 1	8 26.94	+5 7.0	2.254	2.832	18.6	20.4	116 E	50	59	4 11	8 22.39	+38 23.1	3.234	3.501	16.5	20.7	97 E	83*	26
4 11	8 30.23	+5 41.5	2.408	2.862	19.6	20.6	107 E	51	58	4 21	8 26.26	+37 29.4	3.369	3.494	16.7	20.7	89 E	77*	27
4 21	8 35.50	+6 5.2	2.567	2.890	20.1	20.8	98 E	50	58										
5 1	8 42.43	+6 18.0	2.730	2.918	20.2	20.9	90 E	47*	58										
5 11	8 50.74	+6 20.2	2.892	2.945	19.9	21.0	83 E	41*	57*										
5 21	9 0.15	+6 12.5	3.053	2.970	19.3	21.2	76 E	35*	56*										
5 31	9 10.45	+5 55.4	3.208	2.995	18.4	21.3	69 E	29*	54*										
6 10	9 21.45	+5 29.5	3.																

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>110325 2001 SZ<sub>285</sub></b>										<b>259145 2002 XM<sub>82</sub></b>																														
(continuation)										(continuation)																														
5 1	8 32.00	+36 32.4	3.502	3.486	16.6	20.8	81 E	69*	27	2 6	8 55.24	+10 55.8	0.822	1.804	3.8	18.8	173 E	56	53	2 11	8 49.15	+10 52.8	0.837	1.814	6.4	19.0	168 E	56	53											
5 11	8 39.32	+35 32.6	3.632	3.477	16.1	20.9	73 E	61*	28*	2 16	8 43.65	+10 51.2	0.858	1.824	9.4	19.2	162 E	56	53	2 21	8 38.93	+10 50.4	0.884	1.834	12.4	19.4	157 E	56	53											
5 21	8 47.95	+34 30.6	3.755	3.467	15.5	20.9	66 E	52*	28*	3 2	8 32.41	+10 49.1	0.951	1.854	17.7	19.8	145 E	56	53	3 12	8 30.12	+10 45.2	1.036	1.875	22.0	20.1	135 E	56	53											
5 31	8 57.65	+33 26.3	3.870	3.457	14.5	20.9	59 E	45*	28*	3 22	8 31.86	+10 36.1	1.133	1.896	25.3	20.4	126 E	56	53	4 1	8 37.15	+10 20.0	1.242	1.917	27.6	20.7	117 E	55	54											
6 10	9 8.21	+32 20.1	3.973	3.445	13.5	21.0	52 E	38*	26*	4 11	8 45.36	+9 55.3	1.357	1.938	29.2	21.0	110 E	55	54	4 21	8 55.89	+9 21.7	1.478	1.959	30.0	21.2	103 E	54*	55											
6 20	9 19.46	+31 11.8	4.065	3.433	12.2	21.0	46 E	31*	24*	5 1	9 8.24	+8 38.7	1.603	1.981	30.4	21.4	96 E	51*	55																					
6 30	9 31.27	+30 1.5	4.144	3.420	10.9	20.9	39 E	26*	21*																															
7 10	9 43.50	+28 49.5	4.208	3.405	9.5	20.9	33 E	21*	18*																															
7 20	9 56.06	+27 35.7	4.257	3.390	8.0	20.9	28 E	17*	13*																															
7 30	10 8.88	+26 20.6	4.291	3.375	6.6	20.8	22 E	14*	8*																															
8 9	10 21.86	+25 4.3	4.308	3.358	5.3	20.7	18 E	11*	3*																															
8 19	10 34.96	+23 47.3	4.309	3.340	4.4	20.7	15 E	9*	—																															
8 29	10 48.14	+22 30.0	4.294	3.322	4.2	20.6	14 E	6*	—																															
9 8	11 1.33	+21 13.0	4.262	3.302	4.7	20.6	16 W	6*	—																															
9 18	11 14.51	+19 56.7	4.214	3.282	5.8	20.7	19 W	12*	—																															
9 28	11 27.63	+18 42.0	4.149	3.261	7.2	20.7	24 W	17*	—																															
10 8	11 40.64	+17 29.5	4.069	3.239	8.8	20.7	30 W	23*	—																															
10 18	11 53.51	+16 20.0	3.974	3.216	10.4	20.7	36 W	30*	4*																															
10 28	12 6.18	+15 14.5	3.865	3.193	12.0	20.7	42 W	36*	8*																															
11 7	12 18.57	+14 14.0	3.743	3.168	13.5	20.6	48 W	42*	13*																															
11 17	12 30.62	+13 19.4	3.609	3.143	14.9	20.6	55 W	47*	18*																															
11 27	12 42.21	+12 32.0	3.464	3.116	16.2	20.5	61 W	51*	23*																															
12 7	12 53.25	+11 53.0	3.311	3.089	17.3	20.5	69 W	55*	29*																															
12 17	13 3.58	+11 23.5	3.151	3.061	18.2	20.4	76 W	56*	35*																															
12 27	13 13.03	+11 5.0	2.986	3.032	18.8	20.2	83 W	56*	42*																															
1 6	13 21.38	+10 58.5	2.819	3.003	19.1	20.1	91 W	56*	47*																															
1 16	13 28.40	+11 5.2	2.652	2.972	19.1	20.0	99 W	56*	51*																															
<b>22807 1999 RK<sub>7</sub></b>										<b>37117 Narcissus</b>																														
12 23	9 33.42	+17 26.9	1.835	2.584	16.8	19.5	130 W	62	47	12 23	9 35.06	-1 32.8	3.281	3.900	12.3	19.5	123 W	43	66	1 2	9 32.51	-2 2.4	3.209	3.940	10.6	19.4	133 W	43	66	1 12	9 28.54	-2 19.5	3.156	3.981	8.7	19.3	142 W	43	66	
1 2	9 28.65	+17 56.7	1.753	2.599	13.5	19.3	142 W	63	46	1 22	9 23.45	-2 23.7	3.127	4.022	6.6	19.2	152 W	43	66	2 1	9 17.69	-2 15.3	3.125	4.063	4.9	19.1	160 W	43	66	2 11	9 11.77	-2 15.6	3.152	4.104	4.1	19.1	163 E	43	66	
1 12	9 20.98	+18 37.3	1.693	2.612	9.5	19.1	154 W	64	45	2 21	9 6.22	-1 28.1	3.208	4.146	4.9	19.2	159 E	44	65	3 2	9 1.50	-0 54.7	3.292	4.188	6.5	19.4	151 E	44	65	3 12	8 57.97	-0 19.0	3.403	4.231	8.3	19.6	142 E	45	64	
1 22	9 10.98	+19 24.0	1.658	2.625	5.0	18.8	166 W	64	45	3 22	8 55.85	+0 16.0	3.536	4.273	9.9	19.7	133 E	45	64	4 1	8 55.25	+0 48.0	3.688	4.316	11.2	19.9	123 E	46	63	4 11	8 56.14	+1 15.0	3.856	4.359	12.1	20.1	114 E	46	63	
1 27	9 5.40	+19 47.8	1.652	2.631	2.8	18.7	173 W	65	44	4 21	8 58.43	+1 35.9	4.034	4.402	12.7	20.2	105 E	46*	62	5 1	9 2.02	+1 50.1	4.219	4.445	13.0	20.3	96 E	44*	62	5 11	9 6.73	+1 57.0	4.407	4.488	13.0	20.4	88 E	40*	62	
2 1	8 59.64	+20 10.7	1.653	2.637	1.1	18.6	177 W	65	44	5 21	9 12.42	+1 56.8	4.595	4.532	12.7	20.5	80 E	34*	61*	5 31	9 18.93	+1 49.6	4.780	4.575	12.2	20.6	72 E	27*	59*	6 10	9 26.11	+1 35.6	4.959	4.618	11.5	20.7	65 E	20*	55*	
2 6	8 53.86	+20 32.0	1.661	2.643	2.6	18.7	173 E	66	43	6 20	9 33.84	+1 15.3	5.130	4.662	10.6	20.8	57 E	14*	50*	6 30	9 42.01	+0 49.1	5.291	4.706	9.6	20.8	50 E	8*	44*	7 10	9 50.50	+0 17.5	5.439	4.749	8.4	20.8	43 E	3*	37*	
2 11	8 48.24	+20 51.1	1.677	2.648	4.8	18.8	167 E	66	43	7 20	9 59.22	-0 19.1	5.574	4.793	7.2	20.9	36 E	—	30*	7 30	10 8.10	-1 0.2	5.693	4.836	5.9	20.9	30 E	—	23*	8 9	10 17.04	-1 45.2	5.796	4.880	4.7	20.9	23 E	—	15*	
2 16	8 42.93	+21 7.6	1.700	2.653	7.0	19.0	161 E	66	43	8 19	10 26.00	-2 33.6	5.880	4.923	3.5	20.8	17 E	—	8*	9 8	10 43.64	-4 18.6	5.993	5.017	2.3	20.8	12 W	—	4*	9 8	10 34.88	-3 24.9	5.947	4.967	2.6	20.8	13 E	—	1*	
2 21	8 38.07	+21 21.3	1.730	2.658	9.1	19.1	155 E	66	43	9 8	10 43.64	-4 18.6	5.993	5.017	2.3	20.8	12 W	—	4*	9 18	10 52.20	-5 14.2	6.021	5.054	2.8	20.9	14 W	—	8*	9 18	10 52.20	-5 14.2	6.021	5.054	2.8	20.9	14 W	—	8*	
3 2	8 30.15	+21 39.3	1.809	2.667	13.0	19.4	143 E	67	42	9 28	11 0.49	-6 11.0	6.028	5.097	3.8	21.0	20 W	5*	13*	10 8	11 8.44	-7 8.5	6.016	5.140	5.0	21.1	26 W	11*	18*	10 18	11 15.98	-8 6.1								

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>511243 2014 BS<sub>32</sub></b>										<b>185746 1999 LO<sub>1</sub></b>									
<i>(continuation)</i>										<i>(continuation)</i>									
1 27	8 54.91	+31 13.9	0.712	1.685	7.8	19.6	167W	76	33	3 2	8 29.62	+25 2.8	1.508	2.366	15.1	20.8	142E	70	39
2 1	8 44.46	+31 2.6	0.699	1.672	8.1	19.6	166E	76	33	3 12	8 25.88	+24 58.2	1.628	2.400	18.2	21.1	131E	70	39
2 6	8 33.89	+30 40.7	0.691	1.658	10.3	19.7	162E	76	33	3 22	8 25.52	+24 41.1	1.763	2.432	20.5	21.4	121E	70	39
2 11	8 23.68	+30 8.0	0.690	1.644	13.5	19.8	157E	75	34	4 1	8 28.21	+24 14.0	1.909	2.464	22.1	21.6	112E	69	40
2 16	8 14.30	+29 25.3	0.693	1.630	16.9	19.9	151E	74	35	<b>455322 2002 NX<sub>18</sub></b>									
2 21	8 6.11	+28 34.3	0.702	1.616	20.4	20.0	145E	74	35	12 23	9 38.70	+ 9 32.1	0.862	1.651	28.6	19.3	127W	55	54
2 26	7 59.41	+27 36.9	0.715	1.602	23.8	20.1	139E	73	36	1 2	9 30.31	+10 21.6	0.862	1.729	21.9	19.2	139W	55	54
3 2	7 54.35	+26 34.8	0.732	1.587	26.9	20.2	134E	72	37	1 12	9 18.03	+11 34.1	0.878	1.808	14.6	19.1	152W	57	52
3 7	7 50.96	+25 30.0	0.752	1.572	29.7	20.4	128E	70	39	1 22	9 3.60	+12 59.1	0.915	1.886	7.2	19.0	166W	58	51
3 12	7 49.21	+24 23.8	0.774	1.557	32.3	20.5	123E	69	40	1 27	8 56.25	+13 42.4	0.944	1.924	3.7	18.9	173W	59	50
3 17	7 48.99	+23 16.9	0.797	1.542	34.6	20.6	118E	68	41	2 1	8 49.19	+14 24.2	0.978	1.963	1.7	18.9	177E	59	50
3 22	7 50.20	+22 9.9	0.823	1.527	36.7	20.7	114E	67	42	2 6	8 42.66	+15 3.3	1.020	2.001	3.9	19.2	172E	60	49
3 27	7 52.72	+21 3.1	0.849	1.512	38.4	20.8	110E	66	43	2 11	8 36.85	+15 38.9	1.067	2.039	6.8	19.5	166E	61	48
4 1	7 56.42	+19 56.3	0.875	1.496	40.0	20.9	106E	65	44	2 21	8 27.84	+16 38.0	1.181	2.113	12.0	20.0	154E	62	47
4 6	8 1.18	+18 49.5	0.902	1.481	41.3	20.9	102E	64	45	3 2	8 22.65	+17 20.1	1.317	2.187	16.1	20.5	142E	62	47
4 11	8 6.88	+17 42.3	0.928	1.466	42.5	21.0	99E	62*	46	3 12	8 21.15	+17 46.3	1.472	2.258	19.2	20.9	132E	63	46
4 16	8 13.40	+16 34.5	0.954	1.451	43.5	21.1	96E	60*	47	3 22	8 22.86	+17 58.6	1.640	2.329	21.2	21.2	122E	63	46
4 21	8 20.67	+15 25.8	0.979	1.436	44.3	21.1	93E	58*	49	<b>38063 1999 FH</b>									
4 26	8 28.61	+14 15.8	1.003	1.421	45.1	21.2	90E	55*	50	12 23	9 39.66	- 0 13.3	2.372	3.014	16.0	19.5	122W	45	64
5 1	8 37.16	+13 4.2	1.027	1.407	45.7	21.2	87E	52*	51	1 2	9 36.40	- 0 26.1	2.254	3.008	13.9	19.4	133W	45	64
5 6	8 46.24	+11 50.7	1.049	1.392	46.2	21.3	85E	49*	52*	1 12	9 30.87	- 0 21.6	2.155	3.001	11.3	19.2	143W	45	64
5 11	8 55.81	+10 35.2	1.071	1.378	46.7	21.3	83E	46*	53*	1 22	9 23.37	+ 0 1.6	2.079	2.993	8.4	18.9	154W	45	64
5 16	9 5.82	+ 9 17.4	1.091	1.365	47.0	21.3	81E	42*	55*	2 1	9 14.45	+ 0 43.2	2.030	2.985	5.6	18.8	163W	46	63
5 21	9 16.25	+ 7 57.4	1.110	1.351	47.3	21.4	79E	39*	56*	2 11	9 4.96	+ 1 40.6	2.010	2.975	4.8	18.7	165E	47	62
5 26	9 27.07	+ 6 34.8	1.128	1.339	47.6	21.4	77E	36*	57*	2 16	9 0.30	+ 2 13.7	2.012	2.970	5.6	18.7	163E	47	62
5 31	9 38.26	+ 5 9.6	1.145	1.326	47.8	21.4	76E	33*	58*	2 21	8 55.84	+ 2 48.9	2.020	2.964	6.9	18.8	159E	48	61
6 5	9 49.80	+ 3 41.9	1.160	1.314	47.9	21.4	74E	29*	58*	2 26	8 51.70	+ 3 25.4	2.036	2.959	8.4	18.9	154E	48	61
6 10	10 1.67	+ 2 11.8	1.175	1.303	48.0	21.4	73E	26*	59*	3 2	8 47.98	+ 4 2.4	2.059	2.953	10.0	19.0	149E	49	60
6 15	10 13.87	+ 0 39.3	1.188	1.293	48.1	21.4	71E	24*	60*	3 7	8 44.76	+ 4 39.2	2.088	2.947	11.5	19.1	144E	50	59
6 20	10 26.41	- 0 55.4	1.201	1.283	48.2	21.4	70E	21*	60*	3 12	8 42.09	+ 5 15.1	2.123	2.940	13.0	19.1	138E	50	59
6 25	10 39.29	- 2 32.1	1.213	1.274	48.2	21.5	69E	18*	60*	3 22	8 38.56	+ 6 22.4	2.208	2.927	15.6	19.3	128E	51	58
6 30	10 52.52	- 4 10.7	1.224	1.266	48.2	21.5	68E	16*	60*	4 1	8 37.56	+ 7 20.9	2.309	2.913	17.7	19.5	118E	52	57
7 5	11 6.10	- 5 50.7	1.235	1.259	48.1	21.5	67E	14*	60*	4 11	8 39.01	+ 8 8.5	2.421	2.898	19.2	19.6	108E	53	56
7 10	11 20.04	- 7 31.8	1.245	1.252	48.1	21.5	66E	12*	60*	4 21	8 42.71	+ 8 44.5	2.539	2.881	20.1	19.7	100E	53*	55
7 15	11 34.36	- 9 13.5	1.255	1.247	48.0	21.5	66E	11*	59*	5 1	8 48.44	+ 9 8.6	2.661	2.864	20.6	19.8	91E	50*	55
7 20	11 49.08	- 10 55.4	1.264	1.242	47.8	21.5	65E	9*	59*	5 11	8 55.91	+ 9 21.0	2.781	2.846	20.6	19.9	83E	45*	55*
7 25	12 4.22	- 12 36.9	1.274	1.239	47.7	21.5	64E	8*	58*	5 21	9 4.87	+ 9 22.1	2.899	2.827	20.3	20.0	76E	38*	54*
7 30	12 19.79	- 14 17.5	1.284	1.236	47.5	21.5	64E	7*	58*	5 31	9 15.11	+ 9 12.5	3.011	2.808	19.7	20.0	69E	32*	52*
<b>143527 2003 EN<sub>16</sub></b>										<b>203117 2000 SN<sub>218</sub></b>									
12 23	9 36.00	-38 31.9	0.441	1.148	57.4	19.1	100W	6	77	12 23	9 40.04	+12 23.6	2.239	2.942	15.4	21.4	127W	57	52
12 28	9 39.95	-38 30.8	0.441	1.166	55.3	19.1	103W	6	77	1 2	9 36.05	+12 57.2	2.150	2.960	12.7	21.3	139W	58	51
1 2	9 42.49	-38 12.8	0.440	1.184	52.9	19.0	106W	7	78	1 12	9 29.68	+13 43.9	2.081	2.977	9.3	21.1	151W	59	50
1 7	9 43.65	-37 35.9	0.438	1.204	50.3	19.0	110W	7	78	1 22	9 21.33	+14 40.8	2.038	2.993	5.5	20.9	163W	60	49
1 12	9 43.51	-36 38.2	0.435	1.224	47.4	18.9	114W	8	79	2 1	9 11.71	+15 43.0	2.025	3.008	1.4	20.6	176W	61	48
1 17	9 42.16	-35 17.6	0.432	1.246	44.2	18.9	118W	10	81	2 11	9 1.78	+16 44.9	2.043	3.022	2.7	20.7	172E	62	47
1 22	9 39.75	-33 31.9	0.429	1.269	40.7	18.8	123W	11	82	2 21	8 52.54	+17 41.3	2.091	3.035	6.7	21.0	159E	63	46
1 27	9 36.52	-31 19.8	0.428	1.292	37.0	18.7	128W	14	85	3 2	8 44.86	+18 28.7	2.167	3.047	10.2	21.3	147E	63	46
2 1	9 32.80	-28 41.4	0.428	1.315	33.2	18.6	133W	16	87	3 12	8 39.35	+19 4.9	2.268	3.058	13.1	21.5	136E	64	45
2 6	9 28.93	-25 39.0	0.432	1.340	29.3	18.6	138W	19	90	<b>68548 2001 XR<sub>31</sub></b>									
2 11	9 25.21	-22 17.0	0.439	1.364	25.6	18.6	143E	23	86	12 23	9 40.64	+13 6.5	1.571	2.306	19.8	20.3	127W	58	51
2 16	9 21.91	-18 41.5	0.450	1.389	22.4	18.6	148E	26	83	1 2	9 31.40	+12 27.0	1.493	2.330	15.9	20.1	140W	57	52
2 21	9 19.26	-14 59.9	0.466	1.414	20.0	18.6	151E	30	79	1 12	9 18.56	+11 57.6	1.436	2.352	11.2	19.8	152W	57	52
2 26	9 17.45	-11 19.7	0.487	1.439	18.7	18.7	152E	34	75	1 22	9 2.99	+11 37.0	1.406	2.372	6.0	19.6	165W	57	52
3 2	9 16.59	- 7 48.2	0.513	1.464	18.6	18.8	152E	37	72	<b>185746 1999 LO<sub>1</sub></b>									
3 7	9 16.73	- 4 31.2	0.545	1.489	19.5	19.0	150E	40	69	12 23	9 37.28	+19 20.4	1.335	2.108	20.9	20.5	130W	64	45
3 12	9 17.85	+ 1 32.3	0.581	1.514	21.0	19.3	147E	43	66	1 2	9 32.26	+20 15.3	1.288	2.147	16.5	20.3	142W	65	44
3 17	9 19.88	+ 1 6.7	0.623	1.539	22.8	19.5	143E	46	63	1 12	9 23.60	+21 22.0	1.260	2.186	11.5	20.1	154W	66	43
3 22	9 22.76	+ 3 25.4	0.668	1.564	24.7	19.7	139E	48	61	1 22	9 12.17	+22 31.8	1.256	2.223	6.1	19.9	166W	68	41
3 27	9 26.43	+ 5 24.2	0.718	1.588	26.4	20.0	135E	50	59	1 27	9 5.84	+23 4.7	1.264	2.242	3.7	19.8	171W	68	41
4 1	9 30.81	+ 7 4.3	0.771	1.613	27.9	20.2	131E	52	57	2 1	8 59.41	+23 34.7	1.279	2.261	2.7	19.8	174W	69	40
4 6	9 35.82	+ 8 27.2	0.827	1.637	29.3	20.4	127E	53	56	2 6	8 53.10	+24 0.8	1.301	2.279	4.1	19.9	170E	69	40
4 11	9 41.34	+ 9 34.6	0.886	1.660	30.4	20.6	123E	55	54	2 11	8 47.12	+24 22.5	1.330	2.297	6.4	20.1	165E	69	40
4 16	9 47.33	+10 28.1	0.947	1.684	31.3	20.9	119E	55	54	2 16	8								



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>13551 Gadsden (continuation)</b>										<b>190346 1998 UG<sub>33</sub> (continuation)</b>																			
4 11	9 17.11	+ 8 33.6	0.710	1.471	37.2	17.9	118 E	54	55	3 2	8 39.10	+29 16.1	1.881	2.729	13.0	20.8	142 E	74	35										
4 21	9 31.12	+ 6 56.4	0.749	1.457	39.9	18.1	112 E	52	57	3 7	8 35.98	+29 11.2	1.933	2.738	14.5	20.9	136 E	74	35										
5 1	9 48.72	+ 5 5.9	0.792	1.449	41.8	18.2	107 E	50*	59	3 12	8 33.62	+29 2.8	1.990	2.747	15.8	21.0	131 E	74	35										
5 11	10 9.15	+ 3 2.6	0.840	1.447	42.9	18.4	103 E	46*	61	3 17	8 32.04	+28 51.1	2.050	2.755	17.0	21.2	126 E	74	35										
5 21	10 31.75	+ 0 48.3	0.892	1.451	43.5	18.5	99 E	42*	63	3 22	8 31.21	+28 36.7	2.115	2.764	18.0	21.3	121 E	74	35										
5 31	10 55.99	+ 1 35.0	0.949	1.461	43.7	18.7	96 E	37*	66	3 27	8 31.11	+28 19.8	2.182	2.772	18.8	21.4	116 E	73	36										
6 10	11 21.39	+ 4 4.2	1.013	1.476	43.4	18.8	93 E	32*	68	4 1	8 31.73	+28 0.9	2.252	2.780	19.5	21.5	112 E	73	36										
6 20	11 47.60	+ 6 35.8	1.083	1.497	42.7	19.0	91 E	28*	71	<b>232368 2003 AZ<sub>2</sub></b>																			
6 30	12 14.34	+ 9 6.5	1.160	1.523	41.9	19.2	89 E	24*	73*	12 23	9 44.42	+ 3 4.4	0.957	1.703	29.1	20.6	123 W	48	61										
7 10	12 41.38	+11 33.1	1.245	1.553	40.8	19.3	86 E	21*	75*	12 28	9 43.94	+ 4 5.4	0.916	1.709	26.9	20.5	128 W	49	60										
7 20	13 8.56	+13 52.5	1.337	1.588	39.5	19.5	84 E	19*	75*	1 2	9 42.27	+ 5 20.5	0.877	1.714	24.3	20.3	134 W	50	59										
7 30	13 35.77	+16 2.5	1.437	1.626	38.1	19.7	81 E	17*	74*	1 7	9 39.37	+ 6 50.4	0.842	1.719	21.3	20.1	141 W	52	57										
8 9	14 2.92	+18 1.2	1.544	1.667	36.6	19.8	78 E	15*	72*	1 12	9 35.22	+ 8 35.1	0.812	1.723	18.0	20.0	147 W	54	55										
8 19	14 29.93	+19 47.2	1.658	1.710	34.9	20.0	75 E	14*	69*	1 17	9 29.85	+10 33.8	0.787	1.727	14.3	19.8	154 W	56	53										
8 29	14 56.77	+21 19.6	1.779	1.756	33.2	20.2	72 E	14*	66*	1 22	9 23.34	+12 44.3	0.767	1.730	10.2	19.6	162 W	58	51										
9 8	15 23.37	+22 37.7	1.904	1.803	31.4	20.3	69 E	13*	63*	1 27	9 15.88	+15 3.5	0.755	1.732	6.0	19.4	169 W	60	49										
9 18	15 49.70	+23 41.3	2.033	1.852	29.5	20.5	65 E	13*	59*	2 1	9 7.73	+17 26.9	0.750	1.734	1.7	19.1	177 W	62	47										
9 28	16 15.70	+24 30.4	2.165	1.901	27.6	20.6	61 E	13*	55*	2 6	8 59.23	+19 49.6	0.752	1.736	3.1	19.2	175 E	65	44										
10 8	16 41.31	+25 5.0	2.299	1.952	25.5	20.7	57 E	13*	51*	2 11	8 50.76	+22 6.7	0.761	1.737	7.4	19.4	167 E	67	42										
10 18	17 6.50	+25 25.6	2.434	2.002	23.5	20.8	53 E	13*	47*	2 16	8 42.67	+24 14.3	0.777	1.737	11.6	19.7	159 E	69	40										
10 28	17 31.20	+25 32.5	2.567	2.053	21.3	21.0	49 E	13*	42*	2 21	8 35.31	+26 9.5	0.800	1.737	15.4	19.9	152 E	71	38										
11 7	17 55.35	+25 26.5	2.698	2.104	19.2	21.0	44 E	12*	38*	2 26	8 28.98	+27 50.7	0.828	1.736	19.0	20.1	145 E	73	36										
11 17	18 18.91	+25 8.3	2.824	2.155	17.0	21.1	40 E	12*	32*	3 2	8 23.90	+29 17.5	0.862	1.735	22.1	20.2	139 E	74	35										
11 27	18 41.83	+24 38.7	2.946	2.206	14.7	21.2	35 E	12*	27*	3 7	8 20.18	+30 30.5	0.899	1.733	24.9	20.4	133 E	76	33										
12 7	19 4.08	+23 58.6	3.060	2.256	12.5	21.2	30 E	11*	21*	3 12	8 17.87	+31 30.6	0.940	1.730	27.3	20.6	127 E	77	32										
12 17	19 25.62	+23 9.1	3.166	2.306	10.2	21.3	24 E	9*	16*	3 17	8 16.94	+32 19.1	0.983	1.727	29.3	20.7	122 E	77	32										
12 27	19 46.44	+22 11.1	3.262	2.355	7.9	21.3	19 E	7*	10*	3 22	8 17.35	+32 57.3	1.028	1.724	31.1	20.9	117 E	78	31										
1 6	20 6.51	+21 5.8	3.348	2.404	5.6	21.3	14 E	4*	5*	3 27	8 19.03	+33 26.3	1.075	1.720	32.5	21.0	112 E	78	31										
1 16	20 25.84	+19 54.1	3.421	2.452	3.3	21.2	8 E	—	1*	4 1	8 21.87	+33 47.2	1.122	1.715	33.7	21.1	108 E	79	30										
<b>360337 2001 UR<sub>1</sub></b>										<b>307070 2002 AV<sub>31</sub></b>																			
12 23	9 43.00	+46 48.8	2.779	3.498	12.4	21.1	130 W	88	17	4 6	8 25.77	+34 0.8	1.170	1.710	34.6	21.2	104 E	79	30										
12 28	9 40.46	+47 41.8	2.750	3.508	11.6	21.0	134 W	87	16	4 11	8 30.62	+34 7.9	1.217	1.704	35.4	21.3	100 E	79	30										
1 2	9 37.13	+48 33.8	2.726	3.518	10.8	21.0	138 W	86	15	4 16	8 36.31	+34 8.9	1.265	1.698	36.0	21.4	96 E	79*	30										
1 7	9 33.03	+49 23.7	2.709	3.527	10.1	21.0	141 W	86	15	<b>157111 2004 LU<sub>23</sub></b>																			
1 12	9 28.21	+50 10.5	2.697	3.536	9.5	20.9	143 W	85	14	12 23	9 44.70	+ 4 45.5	0.296	1.156	48.1	20.2	119 W	40	69										
1 17	9 22.75	+50 53.1	2.693	3.545	9.1	20.9	145 W	84	13	12 28	9 44.56	+ 1 2.1	0.288	1.175	42.8	20.0	126 W	44	65										
1 22	9 16.75	+51 30.5	2.695	3.554	8.9	20.9	146 W	83	12	1 2	9 42.61	+ 3 7.7	0.282	1.194	37.0	19.8	133 W	48	61										
1 27	9 10.36	+52 1.8	2.704	3.562	8.9	20.9	146 W	83	12	1 7	9 38.81	+ 7 39.8	0.280	1.213	30.6	19.7	141 W	53	56										
2 1	9 3.74	+52 26.3	2.719	3.571	9.1	20.9	145 W	83	12	1 12	9 33.24	+12 26.0	0.280	1.233	24.0	19.5	149 W	57	52										
2 6	8 57.08	+52 43.7	2.742	3.579	9.5	21.0	143 E	82	11	1 14	9 30.56	+14 21.8	0.282	1.240	21.4	19.5	153 W	59	50										
2 11	8 50.55	+52 54.0	2.770	3.587	10.1	21.0	140 E	82	11	1 16	9 27.63	+16 17.2	0.284	1.248	18.8	19.4	156 W	61	48										
2 16	8 44.32	+52 57.2	2.805	3.594	10.7	21.1	137 E	82	11	1 18	9 24.49	+18 11.2	0.287	1.256	16.2	19.4	159 W	63	46										
2 21	8 38.54	+52 53.8	2.845	3.602	11.4	21.2	134 E	82	11	1 20	9 21.17	+20 2.9	0.291	1.264	13.8	19.3	162 W	65	44										
2 26	8 33.35	+52 44.2	2.891	3.609	12.1	21.2	130 E	82	11	1 22	9 17.69	+21 51.5	0.295	1.271	11.7	19.3	165 W	67	42										
3 2	8 28.85	+52 29.1	2.942	3.616	12.8	21.3	126 E	83	12	1 24	9 14.09	+23 36.0	0.300	1.279	9.8	19.3	167 W	69	40										
3 7	8 25.10	+52 9.3	2.997	3.622	13.4	21.4	122 E	83	12	1 26	9 10.42	+25 15.9	0.307	1.287	8.6	19.3	169 W	70	39										
3 12	8 22.13	+51 45.4	3.055	3.629	14.0	21.4	118 E	83	12	1 28	9 6.72	+26 50.4	0.313	1.294	8.0	19.3	169 W	72	37										
3 17	8 19.96	+51 18.3	3.117	3.635	14.5	21.5	114 E	84	13	1 30	9 3.02	+28 19.3	0.321	1.302	8.3	19.4	169 W	73	36										
<b>159929 2005 UK</b>										<b>190346 1998 UG<sub>33</sub></b>																			
12 23	9 43.39	+ 8 29.7	2.013	2.702	17.3	21.1	125 W	53	56	12 23	9 43.76	+24 4.1	1.835	2.577	17.1	20.8	130 W	69	40										
1 2	9 39.34	+ 8 34.0	1.931	2.728	14.4	20.9	136 W	54	55	1 2	9 39.27	+25 2.8	1.765	2.602	13.8	20.6	141 W	70	39										
1 12	9 32.71	+ 8 53.6	1.870	2.753	10.9	20.7	148 W	54	55	1 12	9 31.70	+26 8.6	1.716	2.625	10.1	20.4	152 W	71	38										
1 22	9 23.96	+ 9 26.9	1.832	2.777	7.0	20.5	160 W	54	55	1 22	9 21.59	+27 13.9	1.692	2.648	6.3	20.2	163 W	72	37										
2 1	9 13.87	+10 10.6	1.822	2.800	3.0	20.3	171 W	55	54	1 27	9 15.87	+27 43.8	1.690	2.659	4.8	20.2	167 W	73	36										
2 6	9 8.66	+10 34.8	1.829	2.812	2.0	20.3	174 E	56	53	2 1	9 9.94	+28 10.5	1.696	2.669	4.2	20.2	169 W	73	36										
2 11	9 3.52	+10 59.6	1.843	2.823	2.9	20.4	172 E	56	53	2 6	9 3.96	+28 33.2	1.710	2.680	4.7	20.2	167 E	74	35										
2 16	8 58.58	+11 24.5	1.864	2.833	4.8	20.5	166 E	56	53	2 11	8 58.12	+28 51.3	1.730	2.690	6.1	20.3	163 E	74	35										
2 21	8 53.97	+11 48.8	1.893	2.844	6.7	20.7	160 E	57	52	2 16	8 52.58	+29 4.7	1.758	2.700	7.8	20.4	158 E	74	35										
2 26	8 49.80	+12 12.0	1.929	2.854	8.6	20.8	154 E	57	52	2 21	8 47.48	+29 13.2	1.793	2.710	9.6	20.6	153 E	74	35										
3 2	8 46.16	+12 33.7	1.972	2.864	10.4	20.9	149 E	58	51	2 26	8 42.95	+29 16.9	1.834	2.719	11.4	20.7	147 E	74	35										
3 7	8 43.11	+12 53.5	2.020	2.874	12.0	21.0	143 E	58	51																				
3 12	8 40.69																												

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

2020	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	19/20	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°				
<b>159929 2005 UK</b>										<b>159929 2005 UK</b>													
<i>(continuation)</i>										<i>(continuation)</i>													
3	2	8 8.90	-79 56.6	1.065	1.460	42.7	20.1	90	E	—	36	10	23	19 11.05	+39 44.1	1.367	1.688	36.1	20.8	90	E	83*	21*
3	3	8 5.59	-79 55.2	1.054	1.455	42.9	20.1	91	E	—	36	10	28	19 28.69	+37 58.1	1.396	1.715	35.4	20.8	90	E	82*	22*
3	4	8 2.40	-79 53.2	1.043	1.449	43.2	20.1	91	E	—	36	11	2	19 45.91	+36 11.5	1.430	1.743	34.7	20.9	90	E	81*	23*
3	5	7 59.34	-79 50.5	1.032	1.444	43.4	20.0	91	E	—	36	11	7	20 2.67	+34 25.7	1.467	1.770	34.1	21.0	90	E	79*	24*
3	6	7 56.44	-79 47.2	1.021	1.439	43.6	20.0	91	E	—	36	11	12	20 18.94	+32 42.2	1.510	1.796	33.4	21.1	89	E	77*	25*
3	7	7 53.69	-79 43.3	1.009	1.433	43.8	20.0	91	E	—	36	11	17	20 34.71	+31 2.3	1.557	1.823	32.8	21.1	89	E	76*	26*
3	8	7 51.11	-79 38.8	0.998	1.428	44.0	20.0	92	E	—	36	11	22	20 49.98	+29 27.2	1.608	1.849	32.2	21.2	87	E	74*	26*
3	9	7 48.71	-79 33.6	0.986	1.422	44.2	19.9	92	E	—	36	11	27	21 4.74	+27 57.7	1.664	1.875	31.7	21.3	86	E	73*	26*
3	10	7 46.50	-79 27.9	0.974	1.417	44.5	19.9	92	E	—	37	12	2	21 19.01	+26 34.5	1.723	1.900	31.1	21.4	84	E	71*	26*
3	11	7 44.47	-79 21.5	0.963	1.412	44.7	19.9	92	E	—	37	12	7	21 32.81	+25 17.8	1.786	1.926	30.5	21.5	83	E	70*	26*
3	12	7 42.64	-79 14.5	0.951	1.406	44.9	19.8	93	E	—	37												
<b>369993 1999 RO<sub>37</sub></b>										<b>369993 1999 RO<sub>37</sub></b>													
3	14	7 39.59	-78 58.7	0.927	1.396	45.3	19.8	93	E	—	37	12	23	9 45.24	- 5 27.2	0.839	1.568	33.5	19.5	118	W	40	69
3	16	7 37.37	-78 40.5	0.903	1.385	45.8	19.7	94	E	—	37	12	28	9 46.57	- 4 36.8	0.815	1.586	31.2	19.4	123	W	40	69
3	18	7 36.01	-78 19.9	0.878	1.374	46.2	19.7	94	E	—	38	1	2	9 46.77	- 3 32.3	0.794	1.604	28.6	19.3	129	W	41	68
3	20	7 35.51	-77 56.7	0.853	1.364	46.7	19.6	95	E	—	38	1	7	9 45.86	- 2 13.3	0.775	1.623	25.6	19.2	134	W	43	66
3	22	7 35.87	-77 30.8	0.828	1.354	47.1	19.5	95	E	—	38	1	12	9 43.87	- 0 39.6	0.760	1.642	22.4	19.1	140	W	44	65
3	24	7 37.07	-77 2.2	0.803	1.344	47.6	19.5	96	E	—	39	1	17	9 40.87	+ 1 7.8	0.748	1.661	18.9	18.9	147	W	46	63
3	26	7 39.10	-76 30.5	0.777	1.333	48.0	19.4	97	E	—	39	1	22	9 36.99	+ 3 7.4	0.742	1.681	15.1	18.8	154	W	48	61
3	28	7 41.91	-75 55.5	0.751	1.323	48.4	19.3	97	E	—	40	1	27	9 32.40	+ 5 16.5	0.741	1.701	11.2	18.7	160	W	50	59
3	30	7 45.50	-75 17.0	0.725	1.314	48.8	19.2	98	E	—	41	2	1	9 27.36	+ 7 31.5	0.746	1.721	7.2	18.6	167	W	53	56
4	1	7 49.80	-74 34.4	0.698	1.304	49.2	19.1	99	E	—	41	2	6	9 22.14	+ 9 48.0	0.757	1.741	3.6	18.4	174	W	55	54
4	3	7 54.79	-73 47.2	0.672	1.294	49.6	19.0	100	E	—	42	2	11	9 17.00	+12 2.0	0.776	1.761	2.8	18.5	175	E	57	52
4	5	8 0.41	-72 54.8	0.645	1.285	50.0	19.0	100	E	—	43	2	16	9 12.19	+14 9.4	0.801	1.781	5.8	18.7	170	E	59	50
4	7	8 6.62	-71 56.5	0.619	1.276	50.3	18.9	101	E	—	44	2	21	9 7.95	+16 7.4	0.832	1.801	9.2	19.0	163	E	61	48
4	9	8 13.36	-70 51.4	0.592	1.267	50.6	18.8	102	E	—	45	2	26	9 4.45	+17 53.9	0.869	1.821	12.4	19.2	157	E	63	46
4	11	8 20.59	-69 38.4	0.566	1.258	50.9	18.6	103	E	—	46	3	2	9 1.84	+19 27.6	0.912	1.841	15.3	19.5	151	E	64	45
4	13	8 28.25	-68 16.2	0.539	1.249	51.1	18.5	104	E	—	48	3	12	8 59.51	+21 56.4	1.013	1.881	20.2	19.9	139	E	67	42
4	15	8 36.29	-66 43.4	0.513	1.240	51.3	18.4	105	E	—	49	3	22	9 0.97	+23 37.7	1.131	1.921	23.8	20.3	129	E	69	40
4	17	8 44.65	-64 58.3	0.487	1.232	51.5	18.3	106	E	—	51	4	1	9 5.87	+24 38.8	1.260	1.960	26.2	20.7	120	E	70	39
4	19	8 53.29	-62 58.9	0.462	1.224	51.6	18.2	107	E	—	53	4	11	9 13.63	+25 7.3	1.399	1.999	27.8	21.0	112	E	70	39
4	21	9 2.15	-60 43.1	0.438	1.216	51.6	18.0	108	E	—	55	4	21	9 23.63	+25 9.7	1.543	2.037	28.6	21.2	104	E	70	39
4	23	9 11.17	-58 8.4	0.414	1.209	51.6	17.9	110	E	—	58	5	1	9 35.39	+24 51.0	1.692	2.074	28.8	21.5	97	E	68*	39
4	25	9 20.31	-55 12.1	0.391	1.201	51.6	17.8	111	E	—	61	12	23	9 45.60	+ 1 56.7	1.426	2.118	23.2	19.7	122	W	47	62
4	27	9 29.51	-51 51.4	0.369	1.194	51.5	17.6	112	E	—	64	1	2	9 43.13	+ 1 53.2	1.363	2.152	19.7	19.5	132	W	47	62
4	29	9 38.73	-48 3.7	0.350	1.187	51.4	17.5	113	E	—	68	1	12	9 37.37	+ 2 15.9	1.316	2.186	15.5	19.3	144	W	47	62
5	1	9 47.92	-43 46.7	0.331	1.181	51.4	17.4	114	E	1*	72	1	22	9 28.87	+ 3 5.0	1.288	2.219	10.8	19.2	155	W	48	61
5	6	10 10.54	-30 52.6	0.297	1.165	51.8	17.1	115	E	14*	85	1	27	9 23.87	+ 3 38.4	1.283	2.236	8.4	19.1	161	W	49	60
5	11	10 32.27	-15 31.4	0.283	1.152	53.6	17.0	113	E	29*	80	2	1	9 18.61	+ 4 16.7	1.284	2.252	6.2	19.0	166	W	49	60
5	16	10 52.85	+ 0 6.5	0.293	1.141	56.9	17.2	109	E	44*	64	2	6	9 13.25	+ 4 58.8	1.293	2.268	4.7	18.9	169	E	50	59
5	21	11 12.17	+13 39.2	0.323	1.132	60.5	17.5	103	E	57*	50	2	11	9 8.00	+ 5 43.5	1.308	2.284	4.7	19.0	169	E	51	58
5	26	11 30.24	+24 9.7	0.368	1.125	63.2	17.8	98	E	66*	40	2	16	9 3.02	+ 6 29.4	1.330	2.300	6.0	19.1	166	E	51	58
5	31	11 47.13	+31 55.7	0.423	1.120	64.7	18.2	93	E	72*	32	2	21	8 58.46	+ 7 15.4	1.359	2.316	8.0	19.3	161	E	52	57
6	2	11 53.58	+34 25.1	0.447	1.119	65.0	18.3	91	E	74*	30	2	26	8 54.47	+ 8 0.4	1.394	2.332	10.1	19.4	156	E	53	56
6	4	11 59.86	+36 37.1	0.471	1.118	65.1	18.4	90	E	75*	27	3	2	8 51.14	+ 8 43.4	1.436	2.347	12.2	19.6	150	E	54	55
6	6	12 5.98	+38 34.1	0.496	1.118	65.2	18.5	89	E	75*	25	3	7	8 48.55	+ 9 23.6	1.483	2.362	14.1	19.7	145	E	54	55
6	8	12 11.96	+40 17.9	0.521	1.118	65.1	18.6	87	E	75*	24	3	12	8 46.73	+10 0.5	1.535	2.377	15.9	19.9	139	E	55	54
6	10	12 17.79	+41 50.3	0.546	1.118	64.9	18.7	86	E	75*	22	3	22	8 45.41	+11 3.1	1.653	2.407	18.8	20.2	129	E	56	53
6	12	12 23.50	+43 12.7	0.571	1.119	64.7	18.8	85	E	75*	21	4	1	8 47.04	+11 49.8	1.786	2.436	21.0	20.4	119	E	57	52
6	14	12 29.09	+44 26.4	0.596	1.120	64.3	18.9	84	E	75*	20	4	11	8 51.31	+12 20.7	1.928	2.464	22.4	20.7	110	E	57	52
6	16	12 34.57	+45 32.5	0.621	1.122	64.0	19.0	83	E	74*	18	4	21	8 57.80	+12 36.7	2.078	2.491	23.2	20.9	102	E	57*	51
6	18	12 39.96	+46 31.8	0.646	1.123	63.5	19.1	82	E	74*	17	5	1	9 6.13	+12 39.0	2.231	2.518	23.5	21.1	94	E	55*	51
6	20	12 45.26	+47 25.1	0.671	1.126	63.1	19.1	81	E	73*	17	5	11	9 15.94	+12 28.7	2.386	2.543	23.4	21.2	87	E	50*	52
6	22	12 50.49	+48 13.2	0.695	1.128	62.5	19.2	80	E	72*	16	5	21	9 26.91	+12 7.2	2.540	2.568	22.8	21.4	80	E	44*	52*
6	24	12 55.65	+48 56.6	0.719	1.131	62.0	19.3	79	E	71*	15	5	31	9 38.81	+11 35.5	2.692	2.592	22.0	21.5	73	E	38*	51*
6	26	13 0.75	+49 35.8	0.742	1.135	61.4	19.3	79	E	71*	14												
6	28	13 5.80	+50 11.3	0.766	1.139	60.9	19.4	78	E	71*	14												
6	30	13 10.81	+50 43.4	0.788	1.143	60.3	19.4	77	E	71*	13												
7	5	13 23.20	+51 51.0	0.843	1.154	58.8	19.6	76	E	70*	12												



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>1170 Siva</b> (continuation)									<b>1627 Ivar</b> (continuation)								
2 26	8 6.17	+49 27.1	1.147	1.933	23.3	15.3	129 E	86 15	3 12	8 37.39	+20 44.6	1.681	2.483	16.5	16.8	135 E	66 43
3 2	8 4.92	+47 38.5	1.193	1.950	24.2	15.4	126 E	87 16	3 22	8 32.72	+21 19.1	1.766	2.461	19.7	16.9	124 E	66 43
3 7	8 4.99	+45 49.8	1.242	1.967	25.0	15.5	123 E	89 18	4 1	8 31.42	+21 38.4	1.863	2.438	22.1	17.1	113 E	67 42
3 12	8 6.21	+44 2.2	1.295	1.985	25.8	15.7	120 E	89 20	4 11	8 33.32	+21 44.0	1.968	2.413	23.8	17.2	104 E	67 42
3 17	8 8.42	+42 16.7	1.352	2.002	26.5	15.8	116 E	87 22	4 21	8 38.05	+21 37.4	2.075	2.387	24.8	17.3	95 E	65* 42
3 22	8 11.47	+40 33.7	1.411	2.020	27.0	15.9	113 E	86 23	5 1	8 45.25	+21 19.6	2.182	2.358	25.3	17.4	87 E	60* 43
3 27	8 15.26	+38 53.5	1.473	2.037	27.5	16.0	110 E	84 25	5 11	8 54.53	+20 51.6	2.285	2.328	25.3	17.5	80 E	54* 43*
4 1	8 19.67	+37 16.2	1.538	2.055	27.8	16.2	106 E	82 27	5 21	9 5.55	+20 13.7	2.382	2.296	24.9	17.5	73 E	47* 43*
4 6	8 24.60	+35 41.8	1.604	2.073	28.1	16.3	103 E	81 28	5 31	9 18.04	+19 26.3	2.471	2.262	24.2	17.6	66 E	40* 42*
4 11	8 29.96	+34 10.2	1.673	2.091	28.2	16.4	100 E	79 30	6 10	9 31.74	+18 29.7	2.552	2.226	23.3	17.6	60 E	33* 41*
4 16	8 35.68	+32 41.2	1.743	2.108	28.2	16.5	97 E	77* 31	6 20	9 46.48	+17 24.2	2.622	2.189	22.1	17.6	54 E	27* 39*
4 21	8 41.70	+31 14.7	1.814	2.126	28.2	16.6	93 E	74* 33	6 30	10 2.12	+16 9.9	2.682	2.150	20.8	17.6	49 E	22* 36*
5 1	8 54.48	+28 28.2	1.960	2.162	27.7	16.8	87 E	67* 36	7 10	10 18.53	+14 47.2	2.730	2.109	19.3	17.5	43 E	18* 33*
5 11	9 7.97	+25 48.9	2.108	2.197	27.0	17.0	81 E	59* 38	7 20	10 35.66	+13 16.2	2.766	2.067	17.7	17.5	38 E	14* 30*
5 21	9 21.91	+23 15.4	2.257	2.232	26.1	17.1	76 E	52* 41*	7 30	10 53.45	+11 37.2	2.791	2.023	16.1	17.4	33 E	11* 26*
5 31	9 36.17	+20 46.3	2.405	2.267	24.8	17.3	70 E	44* 42*	8 9	11 11.88	+9 50.8	2.804	1.977	14.3	17.3	29 E	9* 22*
6 10	9 50.61	+18 20.7	2.551	2.302	23.4	17.4	64 E	36* 43*	8 19	11 30.97	+7 57.1	2.806	1.930	12.5	17.2	24 E	7* 17*
6 20	10 5.15	+15 57.8	2.692	2.336	21.9	17.5	59 E	30* 43*	8 29	11 50.76	+5 56.9	2.796	1.881	10.7	17.1	20 E	5* 13*
6 30	10 19.74	+13 37.0	2.829	2.370	20.2	17.6	53 E	23* 41*	9 8	12 11.29	+3 50.7	2.776	1.830	8.8	17.0	16 E	4* 9*
7 10	10 34.33	+11 17.8	2.959	2.403	18.4	17.6	48 E	18* 38*	9 18	12 32.65	+1 39.1	2.747	1.779	7.0	16.9	13 E	3* 5*
7 20	10 48.90	+9 0.1	3.082	2.435	16.5	17.7	43 E	14* 35*	9 28	12 54.94	-0 36.8	2.708	1.726	5.3	16.8	9 E	1* 2*
7 30	11 3.45	+6 43.6	3.195	2.467	14.5	17.7	37 E	10* 31*	10 8	13 18.29	-2 55.8	2.662	1.673	3.9	16.6	7 E	—
8 9	11 17.95	+4 28.2	3.299	2.498	12.4	17.8	32 E	6* 26*	10 18	13 42.84	-5 16.7	2.609	1.619	3.1	16.5	5 E	—
8 19	11 32.41	+2 14.1	3.392	2.528	10.3	17.8	27 E	3* 21*	10 28	14 8.75	-7 37.5	2.551	1.565	3.5	16.4	5 W	—
8 29	11 46.83	+0 1.1	3.473	2.557	8.2	17.7	21 E	1* 15*	11 7	14 36.21	-9 55.8	2.489	1.510	4.6	16.3	7 W	1*
9 8	12 1.21	-2 10.5	3.542	2.586	6.1	17.7	16 E	—	11 17	15 5.39	-12 8.9	2.425	1.456	6.1	16.2	9 W	3*
9 18	12 15.54	-4 20.6	3.597	2.614	4.0	17.7	10 E	—	11 27	15 36.45	-14 13.0	2.360	1.403	7.6	16.1	11 W	5*
9 28	12 29.83	-6 29.2	3.637	2.641	2.0	17.6	5 E	—	12 7	16 9.52	-16 4.0	2.297	1.352	9.1	16.0	13 W	6*
10 8	12 44.06	-8 35.9	3.664	2.668	1.4	17.6	4 W	—	12 12	16 26.84	-16 53.0	2.267	1.328	9.8	15.9	13 W	6* 1*
10 18	12 58.22	-10 40.6	3.675	2.693	3.1	17.7	8 W	—	12 17	16 44.66	-17 36.9	2.237	1.304	10.5	15.9	14 W	7* 2*
10 28	13 12.28	-12 43.2	3.671	2.718	5.1	17.8	14 W	4* 6*	12 22	17 2.98	-18 14.9	2.209	1.281	11.1	15.8	15 W	7* 3*
11 7	13 26.21	-14 43.4	3.651	2.741	7.1	18.0	20 W	9* 11*	12 27	17 21.78	-18 46.4	2.182	1.259	11.7	15.8	15 W	7* 4*
11 17	13 39.97	-16 41.3	3.616	2.764	9.1	18.0	26 W	12* 16*	1 1	17 41.02	-19 10.8	2.157	1.239	12.3	15.7	16 W	7* 5*
11 27	13 53.49	-18 36.5	3.566	2.786	11.0	18.1	33 W	16* 22*	1 6	18 0.67	-19 27.6	2.134	1.219	12.8	15.7	16 W	6* 6*
12 7	14 6.70	-20 29.2	3.502	2.807	12.8	18.1	39 W	18* 29*	1 11	18 20.67	-19 36.1	2.113	1.201	13.2	15.6	16 W	6* 7*
12 17	14 19.49	-22 19.4	3.424	2.827	14.4	18.2	46 W	19* 36*	1 16	18 40.97	-19 36.0	2.095	1.185	13.6	15.6	16 W	6* 8*
12 27	14 31.73	-24 7.1	3.333	2.846	15.9	18.2	53 W	19* 43*	<b>347505 1999 CM<sub>4</sub></b>								
1 6	14 43.28	-25 52.7	3.230	2.864	17.3	18.2	60 W	19* 51*	12 23	9 51.79	+11 7.6	1.414	2.129	22.5	19.9	124 W	56 53
1 16	14 53.94	-27 36.4	3.119	2.881	18.3	18.1	67 W	17* 60*	12 28	9 53.73	+11 54.0	1.347	2.111	21.2	19.7	129 W	57 52
<b>192507 1998 MQ<sub>37</sub></b>									1 2	9 54.97	+12 50.2	1.283	2.092	19.7	19.5	134 W	58 51
12 23	9 49.17	+11 38.1	2.020	2.707	17.3	21.0	125 W	57 52	1 7	9 55.46	+13 56.6	1.224	2.073	17.9	19.4	140 W	59 50
1 2	9 45.08	+11 37.0	1.930	2.725	14.5	20.8	136 W	57 52	1 12	9 55.15	+15 13.6	1.169	2.054	15.9	19.2	145 W	60 49
1 12	9 38.28	+11 48.7	1.859	2.743	11.0	20.6	148 W	57 52	1 22	9 52.04	+18 18.8	1.075	2.017	11.1	18.8	157 W	63 46
1 22	9 29.18	+12 11.5	1.813	2.759	6.9	20.4	160 W	57 52	2 1	9 45.67	+21 58.3	1.007	1.980	6.3	18.4	167 W	67 42
2 1	9 18.55	+12 41.9	1.795	2.775	2.6	20.2	173 W	58 51	2 11	9 36.74	+25 54.3	0.966	1.943	5.8	18.2	168 W	71 38
2 6	9 12.99	+12 58.6	1.797	2.782	1.1	20.1	177 E	58 51	2 16	9 31.71	+27 50.9	0.957	1.925	8.2	18.3	164 E	73 36
2 11	9 7.48	+13 15.3	1.807	2.789	2.4	20.2	173 E	58 51	2 21	9 26.60	+29 42.3	0.953	1.907	11.1	18.4	158 E	75 34
2 16	9 2.14	+13 31.7	1.825	2.796	4.5	20.3	167 E	59 50	2 26	9 21.67	+31 25.7	0.957	1.889	14.2	18.5	152 E	76 33
2 21	8 57.11	+13 47.2	1.850	2.803	6.6	20.5	161 E	59 50	3 2	9 17.20	+32 58.9	0.966	1.872	17.2	18.6	146 E	78 31
3 2	8 48.46	+14 14.0	1.920	2.815	10.5	20.7	149 E	59 50	3 7	9 13.41	+34 20.7	0.980	1.854	20.0	18.7	140 E	79 30
3 12	8 42.23	+14 33.4	2.014	2.827	13.8	21.0	137 E	60 49	3 12	9 10.52	+35 30.5	0.998	1.837	22.6	18.8	135 E	81 28
3 22	8 38.69	+14 44.6	2.128	2.837	16.4	21.2	127 E	60 49	3 17	9 8.65	+36 28.2	1.020	1.821	25.0	18.9	129 E	81 28
4 1	8 37.89	+14 47.1	2.257	2.847	18.3	21.4	117 E	60 49	3 22	9 7.92	+37 14.2	1.045	1.804	27.2	19.0	124 E	82 27
<b>488883 2005 SK<sub>222</sub></b>									3 27	9 8.39	+37 49.2	1.072	1.788	29.1	19.1	119 E	83 26
12 23	9 51.09	+6 54.0	1.643	2.327	20.8	21.4	123 W	52 57	4 1	9 10.07	+38 14.0	1.101	1.772	30.7	19.2	115 E	83 26
1 2	9 48.50	+7 14.5	1.570	2.358	17.6	21.3	134 W	52 57	4 6	9 12.94	+38 29.2	1.132	1.757	32.2	19.3	111 E	83 26
1 12	9 42.86	+7 56.3	1.513	2.388	13.6	21.1	145 W	53 56	4 11	9 16.92	+38 35.8	1.163	1.742	33.4	19.3	107 E	84 25
1 22	9 34.59	+8 57.3	1.479	2.418	8.9	20.9	158 W	54 55	4 16	9 21.95	+38 34.2	1.194	1.728	34.4	19.4	103 E	84 25
2 1	9 24.54	+10 12.5	1.471	2.447	4.1	20.6	170 W	55 54	4 21	9 27.96	+38 25.0	1.225	1.714	35.3	19.5	100 E	83 26
2 11	9 13.95	+11 34.2	1.491	2.474	2.3	20.6	174 E	57 52	4 26	9 34.86	+38 8.5	1.257	1.700	36.0	19.5	97 E	83* 26
2 21	9 4.13	+12 54.0	1.540	2.502	6.7	20.9	163 E	58 51	5 1	9 42.56	+37 45.1	1.288	1.688	36.6	19.6	94 E	81* 26
3 2	8 56.20	+14 5.1	1.617	2.528	11.0	21.2	151 E	59 50	5 6	9 50.97	+37 15.1	1.318	1.675	37.0	19.6	91 E	78* 27
<b>1627 Ivar</b>									5 11	10 0.00	+36 38.8	1.348	1.664	37.4	19.7	89 E	75* 27
12 23	9 51.69	+11 49.7	1.903	2.590	18.2	17.2	125 W	57 52	5 16	10 9.57	+35 56.2	1.377	1.653	37.6	19.7	86 E	72* 28
1 2	9 48.32	+12 28.0	1.786	2.583	15.4	17.0	136 W	57 52	5 21	10 19.61	+35 7.6	1.406	1.643	37.8	19.7	84 E	69* 29
1 12	9 41.87	+13 24.9	1.689	2.574	11.8	16.8	148 W	58 51	5 26	10 30.06	+34 13.0</						

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>347505 1999 CM<sub>4</sub></b> (continuation)										<b>47581 2000 AN<sub>178</sub></b> (continuation)									
8 4	13 15.16	+13 25.3	1.790	1.591	34.3	20.1	62 E	35*	44*	10 8	12 24.44	-3 58.9	3.722	2.735	2.8	20.7	8 W	1*	—
8 9	13 27.47	+11 35.7	1.818	1.595	33.8	20.1	61 E	34*	45*	10 18	12 39.48	-5 24.6	3.682	2.724	4.9	20.8	14 W	6*	4*
8 14	13 39.82	+9 45.7	1.847	1.600	33.2	20.1	60 E	33*	45*	10 28	12 54.58	-6 49.1	3.627	2.711	7.0	20.9	20 W	11*	8*
8 19	13 52.21	+7 55.9	1.878	1.605	32.6	20.2	59 E	32*	45*	11 7	13 9.71	-8 11.6	3.558	2.698	9.1	20.9	26 W	16*	12*
8 29	14 17.14	+4 19.0	1.942	1.619	31.3	20.2	56 E	29*	44*	11 17	13 24.84	-9 31.3	3.474	2.683	11.2	20.9	32 W	20*	17*
9 8	14 42.26	+0 48.9	2.010	1.636	29.9	20.3	54 E	27*	43*	11 27	13 39.93	-10 47.2	3.377	2.668	13.1	20.9	38 W	24*	22*
9 18	15 7.59	-2 30.7	2.084	1.656	28.3	20.3	51 E	26*	41*	12 7	13 54.91	-11 58.6	3.268	2.651	15.0	20.9	44 W	27*	28*
9 28	15 33.16	-5 36.8	2.162	1.678	26.6	20.4	49 E	24*	39*	12 17	14 9.72	-13 4.6	3.148	2.634	16.8	20.9	51 W	29*	35*
10 8	15 58.93	-8 26.5	2.244	1.703	24.8	20.5	46 E	22*	36*	12 27	14 24.24	-14 4.2	3.017	2.616	18.4	20.8	57 W	29*	42*
10 18	16 24.88	-10 58.1	2.328	1.731	22.9	20.5	43 E	21*	33*	1 6	14 38.37	-14 56.7	2.878	2.597	19.8	20.8	64 W	30*	49*
10 28	16 50.97	-13 9.9	2.415	1.760	20.9	20.6	39 E	19*	30*	1 16	14 51.95	-15 41.4	2.731	2.576	21.1	20.7	71 W	29*	57*
11 7	17 17.11	-15 1.3	2.502	1.792	18.8	20.6	36 E	17*	26*	<b>278462 2007 TD<sub>160</sub></b>									
11 17	17 43.22	-16 32.1	2.589	1.824	16.6	20.7	32 E	16*	22*	12 23	9 53.06	-0 37.2	2.478	3.079	16.2	21.3	119 W	44	65
11 27	18 9.19	-17 42.6	2.673	1.858	14.4	20.7	28 E	14*	17*	1 2	9 50.18	-1 2.6	2.360	3.079	14.3	21.1	129 W	44	65
12 7	18 34.90	-18 33.4	2.754	1.893	12.1	20.7	24 E	12*	13*	1 12	9 45.05	-1 12.4	2.259	3.077	11.9	20.9	140 W	44	65
12 17	19 0.26	-19 5.8	2.830	1.929	9.7	20.7	19 E	9*	9*	1 22	9 37.90	-1 4.9	2.180	3.075	9.1	20.7	151 W	44	65
12 27	19 25.16	-19 21.2	2.900	1.966	7.4	20.7	15 E	6*	5*	2 1	9 29.23	-0 39.8	2.127	3.072	6.3	20.6	160 W	44	65
1 6	19 49.51	-19 21.3	2.963	2.003	5.0	20.7	10 E	3*	1*	2 11	9 19.79	+0 1.1	2.103	3.068	4.7	20.5	165 E	45	64
1 16	20 13.25	-19 8.0	3.017	2.040	2.7	20.6	6 E	—	—	2 21	9 10.48	+0 54.2	2.109	3.062	6.0	20.5	161 E	46	63
<b>101961 1999 RL<sub>39</sub></b>										3 2	9 2.18	+1 54.4	2.145	3.056	8.7	20.7	152 E	47	62
12 23	9 52.06	+19 49.4	1.855	2.569	17.8	20.2	127 W	65	44	3 12	8 55.62	+2 56.1	2.207	3.049	11.7	20.9	142 E	48	61
1 2	9 49.01	+20 48.0	1.770	2.585	14.8	20.0	138 W	66	43	3 22	8 51.26	+3 54.6	2.291	3.041	14.3	21.0	131 E	49	60
1 12	9 42.91	+21 59.3	1.705	2.600	11.1	19.8	149 W	67	42	4 1	8 49.30	+4 46.2	2.393	3.032	16.4	21.2	121 E	50	59
1 22	9 34.11	+23 16.9	1.664	2.614	7.1	19.6	161 W	68	41	4 11	8 49.73	+5 28.6	2.507	3.022	18.0	21.3	112 E	50	59
1 27	9 28.93	+23 55.5	1.654	2.620	5.1	19.5	166 W	69	40	4 21	8 52.37	+6 0.4	2.630	3.011	19.0	21.5	103 E	51*	58
2 1	9 23.41	+24 32.6	1.651	2.627	3.6	19.4	170 W	70	39	<b>248918 2006 VU<sub>123</sub></b>									
2 6	9 17.71	+25 7.0	1.655	2.633	3.4	19.4	171 W	70	39	12 23	9 53.83	+17 21.5	1.757	2.465	18.9	20.6	126 W	62	47
2 11	9 12.02	+25 37.9	1.667	2.639	4.6	19.5	167 E	71	38	1 2	9 50.45	+18 11.4	1.699	2.509	15.5	20.5	137 W	63	46
2 16	9 6.49	+26 4.6	1.686	2.645	6.5	19.6	162 E	71	38	1 12	9 44.08	+19 13.8	1.660	2.552	11.5	20.3	149 W	64	45
2 21	9 1.28	+26 26.6	1.713	2.650	8.4	19.8	157 E	71	38	1 22	9 35.23	+20 22.8	1.645	2.595	7.2	20.2	161 W	65	44
2 26	8 56.54	+26 43.8	1.746	2.656	10.4	19.9	151 E	72	37	1 27	9 30.14	+20 57.4	1.648	2.616	5.0	20.1	167 W	66	43
3 2	8 52.40	+26 56.2	1.785	2.661	12.2	20.0	145 E	72	37	2 1	9 24.81	+21 30.7	1.658	2.637	3.0	20.0	172 W	67	42
3 12	8 46.20	+27 7.1	1.879	2.670	15.4	20.3	134 E	72	37	2 6	9 19.40	+22 1.8	1.675	2.658	2.3	20.0	174 W	67	42
3 22	8 43.01	+27 2.1	1.991	2.679	18.0	20.5	124 E	72	37	2 11	9 14.08	+22 29.8	1.700	2.678	3.5	20.1	170 E	67	42
4 1	8 42.84	+26 43.8	2.115	2.686	19.8	20.7	114 E	72	37	2 16	9 8.98	+22 54.4	1.732	2.699	5.4	20.3	165 E	68	41
4 11	8 45.44	+26 14.9	2.249	2.693	21.0	20.8	105 E	71	38	2 21	9 4.26	+23 15.0	1.772	2.719	7.4	20.5	159 E	68	41
4 21	8 50.44	+25 37.1	2.387	2.698	21.7	21.0	97 E	70*	38	2 26	9 0.03	+23 31.6	1.818	2.739	9.3	20.6	153 E	69	40
5 1	8 57.48	+24 51.8	2.526	2.703	21.9	21.1	89 E	69*	39	3 2	8 56.38	+23 44.0	1.870	2.759	11.1	20.8	148 E	69	40
5 11	9 6.20	+23 59.8	2.664	2.706	21.7	21.2	82 E	58*	40	3 7	8 53.39	+23 52.5	1.928	2.778	12.7	20.9	142 E	69	40
5 21	9 16.28	+23 1.8	2.799	2.709	21.1	21.3	74 E	50*	41*	3 12	8 51.08	+23 57.2	1.991	2.798	14.1	21.0	137 E	69	40
5 31	9 27.46	+21 58.0	2.928	2.711	20.2	21.4	68 E	43*	41*	3 17	8 49.47	+23 58.4	2.059	2.817	15.4	21.2	131 E	69	40
6 10	9 39.51	+20 48.9	3.050	2.711	19.2	21.5	61 E	36*	40*	3 22	8 48.54	+23 56.4	2.130	2.836	16.5	21.3	126 E	69	40
6 20	9 52.24	+19 34.8	3.164	2.711	17.9	21.5	55 E	30*	38*	3 27	8 48.30	+23 51.5	2.206	2.855	17.4	21.4	121 E	69	40
<b>47581 2000 AN<sub>178</sub></b>										<b>31869 2000 EF<sub>101</sub></b>									
12 23	9 53.01	+3 31.5	1.987	2.632	18.7	19.9	121 W	49	60	12 23	9 53.93	+22 44.9	2.082	2.788	16.3	19.1	127 W	68	41
1 2	9 50.13	+3 24.2	1.893	2.649	16.1	19.8	132 W	48	61	1 2	9 51.26	+23 31.6	1.966	2.775	13.8	18.9	138 W	69	40
1 12	9 44.57	+3 35.5	1.816	2.666	12.9	19.6	143 W	49	60	1 12	9 45.65	+24 28.5	1.871	2.760	10.6	18.6	149 W	69	40
1 22	9 36.65	+4 5.6	1.761	2.681	9.2	19.4	154 W	49	60	1 22	9 37.30	+25 30.5	1.799	2.744	7.1	18.4	160 W	71	38
2 1	9 27.03	+4 52.7	1.732	2.696	5.3	19.2	165 W	50	59	1 27	9 32.27	+26 1.1	1.774	2.736	5.4	18.3	165 W	71	38
2 6	9 21.90	+5 21.4	1.728	2.703	3.9	19.1	169 W	50	59	2 1	9 26.81	+26 30.2	1.756	2.728	4.2	18.2	168 W	72	37
2 11	9 16.73	+5 52.6	1.732	2.710	3.5	19.1	170 E	51	58	2 6	9 21.09	+26 56.7	1.745	2.719	4.0	18.1	169 W	72	37
2 16	9 11.67	+6 25.4	1.743	2.716	4.5	19.2	168 E	51	58	2 11	9 15.26	+27 19.8	1.742	2.710	5.0	18.2	166 E	72	37
2 21	9 6.85	+6 59.0	1.761	2.722	6.1	19.3	163 E	52	57	2 16	9 9.47	+27 38.8	1.746	2.701	6.6	18.3	162 E	73	36
2 26	9 2.41	+7 32.7	1.787	2.728	8.0	19.4	157 E	53	56	2 21	9 3.91	+27 53.3	1.757	2.692	8.5	18.4	156 E	73	36
3 2	8 58.45	+8 5.7	1.820	2.734	9.9	19.5	152 E	53	56	2 26	8 58.73	+28 3.0	1.775	2.682	10.4	18.5	151 E	73	36
3 12	8 52.28	+9 7.0	1.903	2.744	13.3	19.8	141 E	54	55	3 2	8 54.07	+28 7.9	1.799	2.673	12.2	18.5	145 E	73	36
3 22	8 48.74	+9 59.1	2.007	2.754	16.1	20.0	130 E	55	54	3 7	8 50.05	+28 8.2	1.828	2.663	14.0	18.6	140 E	73	36
4 1	8 47.90	+10 40.1	2.127	2.763	18.3	20.2	120 E	56	53	3 12	8 46.74	+28 4.1	1.863	2.653	15.6	18.7	134 E	73	36
4 1																			



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>38066</b> 1999 FO <sub>19</sub>										<b>4587</b> Rees									
<i>(continuation)</i>										<i>(continuation)</i>									
1 1	16 25.87	-24 11.9	2.372	1.624	18.7	19.3	32 W	12*	23*	5 11	9 12.35	+ 8 37.4	1.952	2.156	27.9	19.7	87 E	46*	55
1 6	16 41.63	-24 43.6	2.330	1.603	19.7	19.3	33 W	12*	25*	5 21	9 23.49	+ 9 33.1	2.015	2.095	28.4	19.7	80 E	41*	54*
1 11	16 57.74	-25 9.6	2.288	1.583	20.8	19.2	35 W	12*	27*	5 31	9 36.70	+10 10.4	2.074	2.032	28.6	19.7	73 E	36*	53*
1 16	17 14.19	-25 29.6	2.246	1.564	21.8	19.2	36 W	12*	29*	6 10	9 51.74	+10 30.2	2.127	1.970	28.4	19.7	67 E	31*	50*
<b>244115</b> 2001 VG <sub>4</sub>										<b>175764</b> 1998 US <sub>3</sub>									
12 23	9 58.09	-13 56.0	2.604	3.101	17.2	21.3	111 W	31	78	1 2	9 55.82	+ 6 8.8	1.908	2.664	16.0	21.0	132 W	51	58
1 2	9 55.07	-15 9.3	2.485	3.098	15.9	21.2	120 W	30	79	1 12	9 50.56	+ 6 35.5	1.848	2.699	12.7	20.8	143 W	52	57
1 12	9 49.73	-16 6.0	2.380	3.095	14.3	21.0	129 W	29	80	1 22	9 43.04	+ 7 18.7	1.810	2.734	8.8	20.7	155 W	52	57
1 22	9 42.28	-16 41.6	2.293	3.090	12.5	20.9	137 W	28	81	2 1	9 33.93	+ 8 15.3	1.799	2.767	4.6	20.5	167 W	53	56
2 1	9 33.15	-16 52.1	2.228	3.084	10.7	20.8	144 W	28	81	2 6	9 29.08	+ 8 46.9	1.804	2.784	2.8	20.4	172 W	54	55
2 11	9 23.09	-16 35.6	2.189	3.076	9.5	20.7	149 E	28	81	2 11	9 24.21	+ 9 19.6	1.817	2.800	2.0	20.4	174 E	54	55
2 21	9 13.00	-15 53.0	2.176	3.068	9.5	20.6	149 E	29	80	2 16	9 19.46	+ 9 52.7	1.837	2.816	3.2	20.5	171 E	55	54
3 2	9 3.83	-14 48.7	2.191	3.058	10.6	20.7	145 E	30	79	2 21	9 14.94	+10 25.5	1.865	2.832	5.0	20.6	165 E	55	54
3 12	8 56.37	-13 29.3	2.231	3.048	12.5	20.8	139 E	32	77	2 26	9 10.78	+10 57.1	1.899	2.848	7.0	20.8	160 E	56	53
3 22	8 51.14	-12 2.5	2.293	3.036	14.5	20.9	130 E	33	76	3 2	9 7.08	+11 27.0	1.941	2.864	8.8	20.9	154 E	56	53
4 1	8 48.39	-10 35.3	2.374	3.023	16.3	21.1	122 E	34	75	3 7	9 3.91	+11 54.8	1.989	2.879	10.5	21.1	148 E	57	52
4 11	8 48.14	-9 13.6	2.469	3.009	17.8	21.2	113 E	36	73	3 12	9 1.32	+12 20.0	2.043	2.895	12.1	21.2	142 E	57	52
4 21	8 50.24	- 8 1.3	2.573	2.993	18.9	21.3	105 E	37*	72	3 17	8 59.34	+12 42.5	2.103	2.910	13.5	21.3	137 E	58	51
5 1	8 54.46	- 7 0.8	2.684	2.977	19.6	21.4	97 E	35*	71	3 22	8 57.98	+13 2.0	2.167	2.924	14.8	21.4	132 E	58	51
5 11	9 0.55	- 6 13.5	2.796	2.959	20.0	21.5	89 E	32*	70*	<b>200073</b> 2190 T-2									
<b>347910</b> 2002 XP <sub>52</sub>										12 23	9 58.44	+ 3 32.1	1.933	2.565	19.5	21.3	120 W	49	61
12 23	9 58.20	+ 3 25.1	1.496	2.161	23.3	20.6	120 W	48	61	1 2	9 56.86	+ 3 26.1	1.846	2.591	16.9	21.1	130 W	48	61
1 2	9 53.01	+ 1 26.5	1.427	2.192	20.1	20.5	130 W	46	63	1 12	9 51.75	+ 3 39.3	1.775	2.615	13.6	20.9	141 W	49	60
1 12	9 44.28	- 0 16.6	1.374	2.223	16.3	20.3	141 W	45	64	1 22	9 44.23	+ 4 11.8	1.725	2.639	9.8	20.7	153 W	49	60
1 22	9 32.56	- 1 39.6	1.342	2.254	12.2	20.1	151 W	43	66	2 1	9 34.92	+ 5 1.5	1.700	2.662	5.8	20.5	164 W	50	59
2 1	9 18.96	- 2 38.1	1.337	2.285	8.8	20.0	159 W	42	67	2 11	9 24.84	+ 6 3.8	1.704	2.684	3.2	20.4	171 E	51	58
2 11	9 5.07	- 3 11.2	1.359	2.314	8.0	20.1	161 E	42	67	2 16	9 19.86	+ 6 37.6	1.717	2.694	3.8	20.5	169 E	52	57
2 21	8 52.45	- 3 21.5	1.409	2.344	10.2	20.3	155 E	42	67	2 21	9 15.10	+ 7 12.2	1.738	2.705	5.4	20.6	165 E	52	57
2 26	8 47.03	- 3 19.7	1.444	2.358	11.8	20.4	151 E	42	67	2 26	9 10.70	+ 7 46.7	1.766	2.715	7.3	20.7	160 E	53	56
3 2	8 42.37	- 3 14.6	1.485	2.372	13.5	20.5	146 E	42	67	3 2	9 6.76	+ 8 20.2	1.800	2.725	9.2	20.9	154 E	53	56
3 7	8 38.54	- 3 7.0	1.531	2.386	15.1	20.7	141 E	42	67	3 7	9 3.37	+ 8 52.2	1.841	2.735	11.0	21.0	148 E	54	55
3 12	8 35.57	- 2 57.8	1.583	2.400	16.7	20.8	136 E	42	67	3 12	9 0.60	+ 9 22.1	1.888	2.745	12.7	21.1	143 E	54	55
3 17	8 33.46	- 2 47.8	1.638	2.414	18.0	20.9	131 E	42	67	3 17	8 58.47	+ 9 49.5	1.940	2.754	14.2	21.2	137 E	55	54
3 22	8 32.18	- 2 37.7	1.698	2.428	19.2	21.1	127 E	42	67	3 22	8 57.00	+10 14.1	1.997	2.763	15.6	21.4	132 E	55	54
3 27	8 31.73	- 2 28.0	1.761	2.441	20.3	21.2	122 E	43	66	3 27	8 56.21	+10 35.7	2.058	2.772	16.8	21.5	127 E	56	53
4 1	8 32.04	- 2 19.3	1.826	2.454	21.2	21.3	118 E	43	66	<b>373456</b> 2000 EE <sub>62</sub>									
4 6	8 33.08	- 2 12.0	1.894	2.467	21.9	21.4	113 E	43	66	12 23	9 59.37	+48 43.0	2.264	2.967	15.3	21.4	127 W	86	15
<b>124172</b> 2001 OY <sub>23</sub>										12 28	9 57.03	+49 23.0	2.209	2.951	14.5	21.3	131 W	86	15
12 23	9 58.23	+15 57.3	1.837	2.526	18.8	20.6	124 W	61	48	1 2	9 53.61	+50 2.7	2.158	2.935	13.7	21.2	135 W	85	14
1 2	9 55.55	+16 45.5	1.758	2.553	15.7	20.4	135 W	62	47	1 7	9 49.10	+50 41.0	2.112	2.919	13.0	21.1	138 W	84	13
1 12	9 49.88	+17 48.5	1.698	2.580	12.0	20.2	147 W	63	46	1 12	9 43.50	+51 16.3	2.072	2.902	12.3	21.0	141 W	84	13
1 22	9 41.58	+19 1.3	1.661	2.605	7.7	20.0	159 W	64	45	1 17	9 36.89	+51 47.0	2.038	2.885	11.8	21.0	143 W	83	12
1 27	9 36.66	+19 39.2	1.653	2.617	5.5	19.9	165 W	65	44	1 22	9 29.36	+52 11.6	2.010	2.868	11.5	20.9	144 W	83	12
2 1	9 31.40	+20 16.7	1.652	2.630	3.4	19.8	171 W	65	44	1 27	9 21.09	+52 28.6	1.988	2.851	11.4	20.9	145 W	83	12
2 6	9 25.96	+20 52.8	1.659	2.642	2.1	19.8	174 W	66	43	2 1	9 12.31	+52 36.6	1.972	2.834	11.6	20.8	145 W	82	11
2 11	9 20.50	+21 26.5	1.673	2.653	2.9	19.8	172 E	66	43	2 6	9 3.31	+52 34.9	1.963	2.816	12.1	20.8	143 E	82	11
2 16	9 15.18	+21 57.1	1.694	2.665	4.9	20.0	167 E	67	42	2 11	8 54.38	+52 23.0	1.961	2.798	12.8	20.9	141 E	83	12
2 21	9 10.15	+22 24.0	1.722	2.676	7.0	20.1	161 E	67	42	2 16	8 45.79	+52 1.1	1.964	2.780	13.7	20.9	138 E	83	12
2 26	9 5.54	+22 46.8	1.758	2.687	9.0	20.3	155 E	68	41	2 21	8 37.81	+51 29.6	1.973	2.762	14.7	20.9	135 E	84	13
3 2	9 1.48	+23 5.3	1.800	2.698	10.9	20.4	149 E	68	41	2 26	8 30.66	+50 49.3	1.988	2.743	15.7	20.9	131 E	84	13
3 12	8 55.30	+23 29.7	1.900	2.719	14.2	20.7	138 E	68	41	3 2	8 24.50	+50 1.4	2.007	2.725	16.8	21.0	127 E	85	14
3 22	8 51.95	+23 38.3	2.020	2.739	16.9	20.9	127 E	69	40	3 7	8 19.42	+49 7.1	2.032	2.706	17.9	21.0	123 E	86	15
4 1	8 51.46	+23 33.4	2.155	2.758	18.8	21.1	117 E	69	40	3 12	8 15.46	+48 7.7	2.060	2.687	18.9	21.1	119 E	87	16
4 11	8 53.60	+23 16.9	2.299	2.777	20.1	21.3	108 E	68	41	3 17	8 12.61	+47 4.4	2.092	2.667	19.8	21.1	115 E	88	17
<b>4587</b> Rees										<b>373456</b> 2000 EE <sub>62</sub>									
12 23	9 58.44	-10 33.8	2.400	2.929	18.0	20.5	113 W	34	75	12 23	9 59.37	+48 43.0	2.264	2.967	15.3	21.4	127 W	86	15
1 2	9 57.46	-11 7.7	2.234	2.881	16.8	20.2	122 W	34	75	12 28	9 57.03	+49 23.0	2.209	2.951	14.5	21.3	131 W	86	15
1 12	9 54.10	-11 22.3	2.081	2.831	15.0	20.0	132 W	34	75	1 2	9 53.61	+50 2.7	2.158	2.935	13.7	21.2	135 W	85	14
1 22	9 48.33	-11 12.5	1.945	2.781	12.8	19.7	141 W	34	75	1 7	9 49.10	+50 41.0	2.112	2.919	13.0	21.1	138 W	84	13
2 1	9 40.37	-10 33.1	1.832	2.729	10.4	19.5	150 W	34	75	1 12	9 43.50	+51 16.3	2.072	2.902	12.3	21.0	141 W	84	13
2 11	9 30.83	- 9 21.7	1.743	2.676	8.5	19.2	156 E	36	73	1 17	9 36.89	+51 47.0	2.038	2.885	11.8	21.0	143 W	83	12
2 21	9 20.60	- 7 39.3	1.683	2.622	8.4	19.1	157 E	37	72	1 22	9 29.36	+52 11.6	2.010	2.868	11.5	20.9	144 W	83	12
2 26	9 15.57	- 6 38.1	1.664	2.595	9.3	19.1	155 E	38	71	1 27	9 21.09	+52 28.6	1.988	2.851	11.4	20.9	145 W	83	12
3 2	9 10.80	- 5 31.5	1.652	2.568	10.5	19.1	152 E	39	70	2 1	9 12.31	+52 36.6	1.972	2.8					

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>373456 2000 EE<sub>62</sub></b>										<b>36282 2000 CT<sub>98</sub></b>									
<i>(continuation)</i>										<i>(continuation)</i>									
3 22	8 10.84	+45 58.1	2.127	2.648	20.6	21.2	111 E	89	18	7 10	10 11.17	+ 8 17.7	3.319	2.681	15.2	20.9	44 E	12*	36*
3 27	8 10.10	+44 49.6	2.164	2.628	21.3	21.2	107 E	90	19	7 20	10 24.76	+ 6 54.1	3.390	2.664	13.6	20.9	38 E	8*	31*
4 1	8 10.32	+43 39.7	2.203	2.609	22.0	21.3	102 E	89	20	7 30	10 38.78	+ 5 25.2	3.449	2.647	11.8	20.8	32 E	4*	26*
4 6	8 11.42	+42 29.0	2.244	2.589	22.5	21.3	99 E	87	22	8 9	10 53.15	+ 3 51.5	3.495	2.629	10.0	20.8	27 E	2*	21*
4 11	8 13.32	+41 17.7	2.286	2.569	22.9	21.3	95 E	85*	23	8 19	11 7.85	+ 2 13.3	3.528	2.609	8.0	20.7	21 E	—	15*
4 16	8 15.94	+40 6.2	2.329	2.548	23.2	21.4	91 E	81*	24	8 29	11 22.84	+ 0 31.0	3.547	2.589	6.1	20.6	16 E	—	10*
4 21	8 19.20	+38 54.5	2.372	2.528	23.4	21.4	87 E	77*	25	9 8	11 38.11	- 1 14.6	3.553	2.569	4.1	20.5	10 E	—	4*
4 26	8 23.05	+37 42.8	2.414	2.507	23.5	21.4	83 E	73*	26	9 18	11 53.65	- 3 3.2	3.545	2.547	2.2	20.3	6 E	—	—
5 1	8 27.42	+36 31.1	2.457	2.487	23.5	21.4	80 E	68*	27*	9 28	12 9.46	- 4 54.2	3.523	2.524	1.5	20.2	4 W	—	—
5 6	8 32.25	+35 19.3	2.499	2.466	23.4	21.5	76 E	64*	29*	10 8	12 25.54	- 6 46.9	3.489	2.501	2.9	20.3	7 W	—	1*
5 11	8 37.49	+34 7.5	2.540	2.445	23.3	21.5	73 E	60*	30*	10 18	12 41.91	- 8 40.6	3.441	2.477	4.9	20.4	12 W	3*	5*
5 16	8 43.09	+32 55.4	2.579	2.424	23.1	21.5	70 E	55*	30*	10 28	12 58.56	-10 34.8	3.380	2.452	7.0	20.4	18 W	8*	8*
5 21	8 49.02	+31 43.0	2.618	2.402	22.7	21.5	67 E	51*	31*	11 7	13 15.50	-12 28.6	3.307	2.426	9.2	20.4	23 W	12*	13*
5 26	8 55.24	+30 30.3	2.655	2.381	22.4	21.5	63 E	47*	32*	11 17	13 32.75	-14 21.4	3.223	2.400	11.3	20.4	28 W	15*	17*
5 31	9 1.72	+29 17.0	2.690	2.360	21.9	21.5	60 E	43*	32*	11 27	13 50.30	-16 12.3	3.128	2.373	13.4	20.4	34 W	18*	22*
6 5	9 8.42	+28 3.1	2.723	2.338	21.4	21.5	57 E	39*	32*	12 7	14 8.15	-18 0.6	3.023	2.345	15.4	20.4	39 W	20*	28*
6 10	9 15.33	+26 48.6	2.754	2.316	20.9	21.5	54 E	36*	32*	12 17	14 26.29	-19 45.5	2.909	2.317	17.4	20.4	45 W	21*	33*
6 15	9 22.42	+25 33.1	2.783	2.295	20.3	21.4	52 E	32*	32*	12 27	14 44.69	-21 26.3	2.787	2.288	19.3	20.3	50 W	21*	40*
6 20	9 29.67	+24 16.8	2.810	2.273	19.6	21.4	49 E	29*	31*	1 6	15 3.31	-23 2.3	2.658	2.258	21.1	20.2	56 W	21*	46*
6 25	9 37.08	+22 59.4	2.835	2.251	19.0	21.4	46 E	26*	31*	1 16	15 22.09	-24 32.9	2.524	2.229	22.8	20.1	61 W	20*	53*
6 30	9 44.62	+21 40.9	2.857	2.229	18.2	21.4	43 E	23*	30*	<b>209035 2003 NJ<sub>1</sub></b>									
7 5	9 52.28	+20 21.3	2.877	2.207	17.5	21.3	41 E	20*	28*	12 23	10 0.77	+23 20.3	2.201	2.888	16.0	21.2	126 W	68	41
7 10	10 0.06	+19 0.4	2.895	2.185	16.6	21.3	38 E	17*	27*	1 2	9 57.50	+24 21.0	2.120	2.913	13.4	21.0	137 W	69	40
7 15	10 7.95	+17 38.2	2.910	2.164	15.8	21.3	35 E	15*	26*	1 12	9 51.50	+25 30.1	2.059	2.937	10.3	20.9	148 W	71	38
7 20	10 15.94	+16 14.7	2.922	2.142	14.9	21.2	33 E	13*	24*	1 22	9 43.09	+26 41.5	2.023	2.960	7.0	20.7	158 W	72	37
7 25	10 24.03	+14 49.7	2.932	2.120	14.0	21.2	30 E	11*	22*	2 1	9 32.96	+27 48.0	2.015	2.982	4.5	20.6	166 W	73	36
7 30	10 32.22	+13 23.3	2.940	2.098	13.1	21.1	28 E	9*	20*	2 11	9 22.13	+28 42.3	2.038	3.003	4.8	20.6	165 E	74	35
8 4	10 40.51	+11 55.4	2.945	2.076	12.2	21.1	26 E	7*	18*	2 21	9 11.74	+29 19.8	2.090	3.023	7.5	20.8	157 W	74	34
8 9	10 48.89	+10 26.0	2.948	2.055	11.2	21.0	23 E	5*	16*	3 2	9 2.82	+29 38.7	2.170	3.042	10.5	21.1	146 E	75	34
8 14	10 57.37	+8 55.0	2.948	2.033	10.2	20.9	21 E	4*	14*	3 12	8 56.14	+29 40.1	2.273	3.060	13.2	21.3	135 E	75	34
8 19	11 5.96	+7 22.5	2.946	2.012	9.2	20.9	19 E	2*	12*	3 22	8 52.05	+29 26.6	2.396	3.077	15.4	21.5	125 E	74	35
8 24	11 14.66	+5 48.3	2.941	1.991	8.2	20.8	16 E	1*	10*	<b>65690 1991 DG</b>									
8 29	11 23.48	+4 12.6	2.934	1.970	7.2	20.7	14 E	—	8*	12 23	10 0.85	- 6 43.4	0.868	1.559	35.0	21.1	114 W	38	71
9 3	11 32.41	+2 35.3	2.925	1.949	6.2	20.7	12 E	—	6*	1 2	10 10.04	- 9 0.0	0.749	1.511	33.9	20.7	121 W	36	73
9 8	11 41.48	+0 56.5	2.914	1.929	5.2	20.6	10 E	—	4*	1 12	10 16.95	-11 8.4	0.637	1.461	32.2	20.2	128 W	34	75
9 13	11 50.69	+0 43.9	2.900	1.909	4.2	20.5	8 E	—	2*	1 22	10 21.05	-13 0.6	0.533	1.410	29.9	19.7	135 W	32	77
9 18	12 0.06	- 2 25.8	2.885	1.889	3.3	20.4	6 E	—	—	1 27	10 21.82	-13 46.5	0.484	1.383	28.4	19.4	138 W	31	78
9 28	12 19.32	- 5 54.1	2.848	1.850	2.1	20.3	4 E	—	—	2 1	10 21.63	-14 22.7	0.437	1.356	26.8	19.1	142 W	31	78
10 8	12 39.38	- 9 27.6	2.805	1.813	2.9	20.2	5 W	—	—	2 6	10 20.42	-14 46.2	0.393	1.328	25.0	18.7	145 W	30	79
10 18	13 0.41	-13 5.6	2.757	1.777	4.7	20.3	8 W	—	2*	2 11	10 18.11	-14 53.6	0.352	1.301	23.1	18.4	149 W	30	79
10 28	13 22.60	-16 46.7	2.704	1.744	6.8	20.3	12 W	—	6*	2 16	10 14.62	-14 40.2	0.313	1.273	21.2	18.0	152 W	30	79
11 7	13 46.17	-20 29.1	2.648	1.714	8.9	20.3	16 W	1*	9*	2 21	10 9.87	-13 59.7	0.276	1.245	19.6	17.7	155 E	31	78
11 17	14 11.39	-24 10.2	2.591	1.686	11.0	20.3	19 W	2*	13*	2 26	10 3.83	-12 44.1	0.242	1.217	18.6	17.3	157 E	32	77
11 27	14 38.52	-27 46.6	2.533	1.662	13.0	20.3	22 W	2*	16*	3 2	9 56.54	-10 43.4	0.211	1.189	18.7	17.0	157 E	34	75
12 2	14 52.90	-29 31.6	2.504	1.651	13.9	20.3	24 W	2*	18*	3 4	9 53.28	- 9 39.7	0.199	1.178	19.3	16.8	157 E	35	74
12 7	15 7.86	-31 13.7	2.476	1.640	14.9	20.3	25 W	2*	19*	3 6	9 49.81	- 8 25.7	0.188	1.167	20.1	16.7	156 E	37	72
12 12	15 23.45	-32 52.0	2.448	1.631	15.8	20.3	27 W	2*	21*	3 8	9 46.14	- 7 0.2	0.177	1.156	21.3	16.6	155 E	38	71
12 17	15 39.67	-34 25.9	2.421	1.623	16.7	20.3	28 W	1*	22*	3 10	9 42.25	- 5 21.8	0.167	1.145	22.9	16.5	153 E	40	69
12 22	15 56.54	-35 54.5	2.395	1.616	17.5	20.3	30 W	—	24*	3 12	9 38.13	- 3 29.1	0.157	1.134	24.8	16.4	151 E	42	67
12 27	16 14.06	-37 16.9	2.370	1.610	18.4	20.3	31 W	—	25*	3 14	9 33.75	- 1 20.3	0.147	1.123	27.1	16.3	149 E	44	65
1 1	16 32.21	-38 32.2	2.347	1.604	19.1	20.3	32 W	—	26*	3 16	9 29.08	+ 1 6.7	0.138	1.112	29.7	16.2	146 E	46	63
1 6	16 50.98	-39 39.5	2.324	1.600	19.9	20.2	34 W	—	27*	3 18	9 24.09	+ 3 54.0	0.129	1.102	32.8	16.1	143 E	49	60
1 11	17 10.29	-40 38.0	2.302	1.597	20.6	20.2	35 W	—	28*	3 20	9 18.73	+ 7 3.7	0.121	1.091	36.3	16.1	140 E	52	57
1 16	17 30.08	-41 27.1	2.282	1.595	21.3	20.2	36 W	—	29*	3 22	9 12.92	+10 38.3	0.114	1.081	40.2	16.0	136 E	56	53
<b>36282 2000 CT<sub>98</sub></b>										3 24	9 6.56	+14 39.6	0.107	1.071	44.5	16.0	131 E	60	49
12 23	10 0.03	+13 29.3	2.149	2.810	17.0	20.1	123 W	58	51	3 26	8 59.52	+19 9.1	0.101	1.061	49.3	16.0	126 E	64	45
1 2	9 56.98	+13 30.8	2.039	2.813	14.5	19.9	134 W	59	50	3 28	8 51.60	+24 7.4	0.096	1.051	54.5	16.0	121 E	69	40
1 12	9 51.21	+13 44.2	1.947	2.815	11.4	19.7	146 W	59	50	3 30	8 42.50	+29 33.3	0.092	1.041	60.2	16.1	115 E	75	34
1 22	9 42.97	+14 7.6	1.879	2.815	7.6	19.5	158 W	59	50	4 1	8 31.82	+35 23.1	0.088	1.032	66.2	16.1	109 E	80	29
2 1	9 32.86	+14 37.4	1.839	2.815	3.3	19.2	170 W	60	49	4 2	8 25.70	+38 25.1	0.087	1.027	69.3	16.2	106 E	83	26
2 6	9 27.39	+14 53.4	1.830	2.815	1.1	19.0	177 W	60	49	4 3	8 18.94	+41 30.4	0.086	1.022	72.4	16.3	103 E	87	22
2 11	9 21.83	+15 9.1	1.828	2.814	1.2	19.0	177 E	60	49	4 4	8 11.40	+44 37.6	0.085	1.018	75.6	16.3	100 E	90	19
2 16	9 16.32	+15 24.2	1.834	2.813	3.4	19.2	170 E												

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>65690 1991 DG</b> (continuation)										<b>32581 2001 QW<sub>98</sub></b> (continuation)									
4 21	1 46.17	+70 51.7	0.112	0.952	115.2	18.6	59 W	36*	—	3 22	8 58.52	+12 18.4	1.928	2.697	16.0	19.6	132 E	57	52
4 22	1 25.36	+69 53.8	0.115	0.949	116.1	18.8	58 W	38*	—	4 1	8 56.56	+12 59.4	2.021	2.680	18.6	19.8	121 E	58	51
4 23	1 7.60	+68 50.3	0.119	0.946	116.9	18.9	57 W	39*	—	4 11	8 57.35	+13 27.4	2.125	2.662	20.5	20.0	112 E	58	51
4 24	0 52.48	+67 43.3	0.122	0.943	117.6	19.0	56 W	40*	—	4 21	9 0 70	+13 42.5	2.237	2.644	21.8	20.1	103 E	58*	50
4 25	0 39.63	+66 34.6	0.126	0.941	118.1	19.1	56 W	40*	—	5 1	9 6.34	+13 45.2	2.352	2.625	22.5	20.2	94 E	56*	50
4 26	0 28.68	+65 25.3	0.130	0.938	118.6	19.2	55 W	41*	—	5 11	9 13.96	+13 36.0	2.467	2.604	22.8	20.3	86 E	51*	50
4 27	0 19.35	+64 16.3	0.134	0.935	118.9	19.2	54 W	42*	—	5 21	9 23.25	+13 15.8	2.580	2.583	22.6	20.4	79 E	44*	51*
4 28	0 11.36	+63 8.1	0.137	0.933	119.1	19.3	54 W	43*	—	5 31	9 33.97	+12 45.0	2.687	2.561	22.1	20.5	72 E	38*	50*
4 29	0 4.52	+62 1.3	0.141	0.931	119.2	19.4	54 W	44*	—	6 10	9 45.87	+12 4.5	2.789	2.538	21.3	20.5	65 E	31*	48*
4 30	23 58.64	+60 55.9	0.146	0.928	119.2	19.4	54 W	44*	—	6 20	9 58.76	+11 14.7	2.882	2.515	20.3	20.5	59 E	25*	46*
5 1	23 53.60	+59 52.3	0.150	0.926	119.1	19.5	53 W	45*	—	6 30	10 12.50	+10 16.4	2.966	2.490	19.0	20.5	53 E	20*	43*
5 2	23 49.26	+58 50.6	0.154	0.924	119.0	19.5	53 W	45*	—	7 10	10 26.94	+9 10.2	3.040	2.465	17.6	20.5	47 E	15*	39*
5 3	23 45.54	+57 50.8	0.158	0.922	118.8	19.6	53 W	46*	—	7 20	10 41.99	+7 56.7	3.104	2.439	16.0	20.5	42 E	12*	34*
5 4	23 42.35	+56 52.9	0.162	0.921	118.5	19.6	53 W	46*	—	7 30	10 57.60	+6 36.5	3.157	2.412	14.3	20.4	36 E	9*	29*
5 5	23 39.64	+55 57.0	0.167	0.919	118.2	19.6	53 W	47*	1*	8 9	11 13.69	+5 10.5	3.199	2.384	12.6	20.4	31 E	6*	24*
5 6	23 37.33	+55 3.0	0.171	0.917	117.8	19.7	54 W	47*	2*	8 19	11 30.25	+3 39.2	3.228	2.356	10.7	20.3	26 E	4*	19*
5 7	23 35.40	+54 10.8	0.176	0.916	117.4	19.7	54 W	47*	3*	8 29	11 47.26	+2 3.5	3.247	2.327	8.7	20.2	20 E	2*	14*
5 8	23 33.79	+53 20.6	0.180	0.915	117.0	19.7	54 W	48*	5*	9 8	12 4.71	+0 24.2	3.253	2.298	6.7	20.1	15 E	—	9*
5 9	23 32.47	+52 32.1	0.185	0.914	116.5	19.7	54 W	48*	6*	9 18	12 22.61	+1 17.8	3.248	2.268	4.6	19.9	10 E	—	4*
5 10	23 31.42	+51 45.4	0.189	0.913	115.9	19.7	54 W	48*	7*	9 28	12 40.99	+3 1.5	3.232	2.237	2.6	19.8	6 E	—	—
5 11	23 30.59	+51 0.4	0.194	0.912	115.4	19.7	55 W	49*	8*	10 8	12 59.86	+4 45.9	3.205	2.206	0.8	19.6	2 E	—	—
5 13	23 29.57	+49 35.3	0.203	0.910	114.2	19.8	55 W	49*	10*	10 18	13 19.26	+6 30.0	3.167	2.175	2.0	19.6	4 W	—	—
5 15	23 29.25	+48 16.3	0.212	0.910	112.9	19.8	56 W	50*	12*	10 28	13 39.23	+8 12.3	3.119	2.143	4.1	19.7	9 W	3*	—
5 17	23 29.51	+47 3.1	0.221	0.909	111.5	19.8	57 W	50*	13*	11 7	13 59.78	+9 51.7	3.062	2.112	6.3	19.7	14 W	7*	2*
5 19	23 30.25	+45 55.0	0.230	0.909	110.1	19.8	58 W	50*	15*	11 17	14 20.97	+11 26.8	2.996	2.080	8.5	19.8	18 W	11*	5*
5 21	23 31.40	+44 51.8	0.239	0.910	108.6	19.8	58 W	51*	16*	11 27	14 42.81	+12 55.9	2.922	2.048	10.7	19.8	23 W	14*	9*
5 23	23 32.90	+43 52.9	0.248	0.911	107.1	19.8	59 W	51*	18*	12 7	15 5.31	+14 17.6	2.840	2.016	12.9	19.7	27 W	17*	13*
5 25	23 34.69	+42 58.1	0.257	0.913	105.6	19.8	60 W	52*	19*	12 17	15 28.48	+15 30.2	2.753	1.984	15.1	19.7	32 W	19*	18*
5 27	23 36.73	+42 6.9	0.266	0.915	104.0	19.8	61 W	52*	20*	12 27	15 52.29	+16 32.0	2.660	1.953	17.2	19.7	36 W	20*	23*
5 29	23 38.99	+41 19.0	0.275	0.918	102.5	19.8	62 W	52*	21*	1 6	16 16.71	+17 21.4	2.563	1.922	19.3	19.6	40 W	21*	28*
5 31	23 41.43	+40 34.2	0.283	0.921	100.9	19.8	63 W	53*	22*	1 16	16 41.68	+17 57.1	2.462	1.892	21.4	19.6	45 W	22*	34*
<b>6523 Clube</b>																			
6 5	23 48.17	+38 53.9	0.304	0.931	97.1	19.7	66 W	54*	25*	12 23	10 1.05	+40 13.8	2.876	3.563	12.6	20.9	128 W	85	24
6 10	23 55.55	+37 27.8	0.323	0.944	93.3	19.7	68 W	55*	26*	1 2	9 55.95	+41 12.5	2.764	3.544	11.0	20.7	137 W	86	23
6 15	0 3.24	+36 13.0	0.340	0.960	89.6	19.7	71 W	56*	28*	1 12	9 47.96	+42 9.6	2.674	3.524	9.2	20.6	145 W	87	22
6 20	0 10.98	+35 6.6	0.355	0.978	85.9	19.7	74 W	58*	29	1 22	9 37.40	+42 57.8	2.610	3.504	7.8	20.5	151 W	88	21
6 25	0 18.52	+34 5.8	0.368	0.998	82.4	19.7	77 W	60*	30	1 27	9 31.34	+43 16.2	2.589	3.493	7.4	20.4	153 W	88	21
6 30	0 25.68	+33 8.2	0.378	1.020	78.9	19.7	80 W	62*	31	2 1	9 24.93	+43 29.5	2.574	3.482	7.3	20.4	153 W	88	21
7 5	0 32.32	+32 11.6	0.387	1.043	75.4	19.7	83 W	64*	32	2 6	9 18.33	+43 37.3	2.567	3.471	7.6	20.4	152 W	89	20
7 10	0 38.28	+31 14.3	0.393	1.067	71.9	19.6	87 W	66*	33	2 11	9 11.68	+43 39.0	2.568	3.459	8.1	20.4	150 E	89	20
7 15	0 43.39	+30 14.4	0.397	1.093	68.4	19.6	90 W	68*	34	2 16	9 5.14	+43 34.5	2.575	3.448	8.9	20.4	147 E	89	20
7 20	0 47.47	+29 9.6	0.399	1.119	64.8	19.5	94 W	70*	35	2 21	8 58.87	+43 23.9	2.589	3.436	9.8	20.5	144 E	88	21
7 25	0 50.38	+27 57.7	0.399	1.147	61.1	19.5	99 W	72*	36	2 26	8 53.01	+43 7.3	2.610	3.424	10.8	20.5	140 E	88	21
7 30	0 52.00	+26 36.5	0.398	1.174	57.2	19.4	104 W	71*	37	3 2	8 47.68	+42 45.2	2.637	3.412	11.8	20.6	135 E	88	21
8 4	0 55.23	+25 4.3	0.396	1.202	53.0	19.3	109 W	70	39	3 7	8 42.98	+42 18.2	2.669	3.399	12.8	20.6	131 E	87	22
8 9	0 50.99	+23 19.1	0.393	1.230	48.6	19.2	115 W	68	41	3 12	8 38.96	+41 46.9	2.706	3.386	13.7	20.7	126 E	87	22
8 14	0 48.23	+21 19.4	0.391	1.258	43.8	19.1	121 W	66	43	3 17	8 35.68	+41 12.1	2.748	3.373	14.6	20.8	121 E	86	23
8 19	0 43.95	+19 4.0	0.389	1.286	38.7	19.0	127 W	64	45	3 22	8 33.13	+40 34.2	2.793	3.360	15.4	20.8	117 E	86	23
8 24	0 38.27	+16 32.9	0.390	1.314	33.3	18.9	135 W	62	47	3 27	8 31.32	+39 54.0	2.842	3.347	16.0	20.9	112 E	85	24
8 29	0 31.42	+13 48.3	0.393	1.341	27.5	18.8	142 W	59	50	4 1	8 30.25	+39 11.8	2.893	3.333	16.6	20.9	108 E	84	25
9 3	0 23.70	+10 53.8	0.399	1.369	21.6	18.7	150 W	56	53	4 6	8 29.87	+38 28.2	2.946	3.319	17.1	21.0	103 E	83	26
9 8	0 15.47	+7 54.9	0.409	1.396	15.6	18.6	158 W	53	56	4 11	8 29.14	+37 43.6	3.001	3.305	17.4	21.0	99 E	83	26
9 13	0 7.10	+4 57.7	0.424	1.422	9.7	18.5	166 W	50	59	4 16	8 31.03	+36 58.1	3.057	3.291	17.7	21.0	94 E	81*	27
9 18	23 59.01	+2 8.6	0.445	1.448	4.0	18.4	174 W	47	62	4 21	8 32.50	+36 12.0	3.113	3.276	17.9	21.1	90 E	77*	28
9 23	23 51.57	+0 26.6	0.470	1.474	1.6	18.4	178 E	45	64	4 26	8 34.49	+35 25.5	3.170	3.261	17.9	21.1	86 E	73*	29
9 28	23 45.07	+0 24.3	0.501	1.499	6.4	18.9	170 E	42	67	5 1	8 36.98	+34 38.7	3.226	3.246	17.9	21.1	82 E	69*	29
10 3	23 39.69	+4 41.3	0.537	1.523	10.8	19.2	163 E	40	69	5 6	8 39.90	+33 51.5	3.281	3.231	17.8	21.2	78 E	64*	30*
10 8	23 35.50	+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>6523 Clube</b>										<b>7816 Hanoi</b>									
<i>(continuation)</i>										<i>(continuation)</i>									
9 3	10 54.78	+12 46.9	3.800	2.797	2.0	20.5	5 E	—	—	8 9	11 17.70	+ 3 10.9	3.602	2.800	11.2	20.7	32 E	5*	26*
9 8	11 1.53	+11 45.9	3.776	2.776	2.2	20.5	6 W	—	—	8 19	11 31.66	+ 1 45.6	3.687	2.819	9.3	20.7	27 E	3*	21*
9 18	11 15.13	+ 9 41.4	3.717	2.734	3.8	20.5	10 W	4*	—	8 29	11 45.69	+ 0 18.6	3.758	2.837	7.3	20.7	21 E	1*	15*
9 28	11 28.84	+ 7 33.8	3.642	2.691	5.8	20.5	16 W	10*	1*	9 8	11 59.77	- 1 9.4	3.815	2.854	5.2	20.6	15 E	—	9*
10 8	11 42.65	+ 5 23.1	3.554	2.647	7.9	20.5	21 W	15*	5*	9 18	12 13.89	- 2 37.8	3.858	2.870	3.2	20.5	9 E	—	3*
10 18	11 56.54	+ 3 9.3	3.452	2.603	10.0	20.5	27 W	20*	10*	9 28	12 28.01	- 4 6.0	3.885	2.885	1.1	20.4	3 E	—	—
10 28	12 10.51	+ 0 52.4	3.337	2.558	12.1	20.5	33 W	24*	14*	10 8	12 42.10	- 5 33.3	3.896	2.899	1.1	20.4	3 W	—	—
11 7	12 24.53	- 1 27.9	3.210	2.512	14.2	20.4	39 W	28*	19*	10 18	12 56.15	- 6 59.1	3.891	2.912	3.1	20.6	9 W	2*	1*
11 17	12 38.60	- 3 51.7	3.072	2.465	16.3	20.4	44 W	31*	25*	10 28	13 10.12	- 8 22.7	3.870	2.924	5.2	20.7	15 W	8*	5*
11 27	12 52.69	- 6 19.3	2.926	2.418	18.3	20.3	50 W	33*	31*	11 7	13 23.96	- 9 43.5	3.833	2.936	7.2	20.8	22 W	13*	10*
12 7	13 6.78	- 8 51.1	2.771	2.371	20.2	20.2	56 W	34*	38*	11 17	13 37.62	- 11 0.8	3.780	2.946	9.1	20.8	28 W	17*	15*
12 17	13 20.83	- 11 28.0	2.611	2.323	22.0	20.1	62 W	33*	45*	11 27	13 51.03	- 12 14.1	3.712	2.955	11.0	20.9	35 W	22*	20*
12 27	13 34.79	- 14 10.8	2.446	2.275	23.7	19.9	68 W	31*	53*	12 7	14 4.10	- 13 22.7	3.628	2.964	12.7	20.9	42 W	25*	27*
1 6	13 48.61	- 17 0.7	2.279	2.226	25.2	19.8	74 W	28*	61*	12 17	14 16.75	- 14 26.2	3.531	2.971	14.4	20.9	48 W	27*	34*
1 16	14 2.19	- 19 59.4	2.112	2.178	26.5	19.6	80 W	25	70*	12 27	14 28.82	- 15 24.0	3.421	2.978	15.8	20.9	56 W	28*	41*
<b>416211 2002 UB<sub>31</sub></b>										<b>306613 2000 QX<sub>1</sub></b>									
12 23	10 2.70	+39 21.7	2.346	3.045	14.9	21.5	127 W	84	25	12 23	10 4.79	- 0 9.9	2.181	2.767	18.5	19.4	117 W	45	64
12 28	10 1.33	+40 25.0	2.315	3.060	13.9	21.4	132 W	85	24	1 2	9 59.79	- 1 33.6	2.105	2.809	16.2	19.2	127 W	43	66
1 2	9 59.14	+41 29.2	2.290	3.074	12.8	21.4	136 W	86	23	1 12	9 52.21	- 2 42.8	2.045	2.850	13.5	19.1	138 W	42	67
1 7	9 56.15	+42 33.1	2.270	3.089	11.8	21.3	140 W	88	21	1 22	9 42.45	- 3 34.8	2.009	2.890	10.4	19.0	148 W	41	68
1 12	9 52.36	+43 35.5	2.257	3.103	10.9	21.3	144 W	89	20	2 1	9 31.25	- 4 7.6	1.999	2.930	7.6	18.9	157 W	41	68
1 17	9 47.85	+44 35.0	2.250	3.117	10.1	21.3	146 W	90	20	2 11	9 19.61	- 4 21.5	2.019	2.969	6.2	18.9	161 E	41	68
1 22	9 42.68	+45 30.4	2.249	3.131	9.5	21.3	148 W	89	18	2 21	9 8.56	- 4 18.7	2.069	3.008	7.2	19.0	158 E	41	68
1 27	9 36.96	+46 20.4	2.256	3.144	9.1	21.3	150 W	89	18	3 2	8 59.05	- 4 3.4	2.149	3.045	9.5	19.2	150 E	41	68
2 1	9 30.86	+47 3.9	2.269	3.157	9.1	21.3	149 W	88	17	3 12	8 51.71	- 3 40.8	2.253	3.082	11.9	19.4	140 E	41	68
2 6	9 24.53	+47 40.0	2.290	3.171	9.4	21.3	148 W	87	16	3 22	8 46.85	- 3 15.7	2.380	3.118	14.1	19.7	130	42	67
2 11	9 18.17	+48 8.4	2.317	3.183	10.0	21.4	146 E	87	16	4 1	8 44.52	- 2 52.3	2.523	3.153	15.8	19.9	121 E	42	67
2 16	9 11.95	+48 28.8	2.351	3.196	10.7	21.5	143 E	87	16	4 11	8 44.55	- 2 33.4	2.679	3.187	17.0	20.1	112 E	42	67
2 21	9 6.04	+48 41.4	2.390	3.208	11.5	21.5	140 E	86	15	4 21	8 46.68	- 2 21.0	2.843	3.221	17.7	20.2	103 E	42	67
2 26	9 0.61	+48 46.4	2.436	3.221	12.4	21.6	136 E	86	15	5 1	8 50.65	- 2 16.4	3.012	3.254	18.0	20.4	95 E	39*	66
3 2	8 55.78	+48 44.6	2.487	3.233	13.2	21.7	132 E	86	15	5 11	8 56.15	- 2 20.0	3.182	3.286	17.9	20.5	87 E	35*	66*
3 7	8 51.66	+48 36.6	2.542	3.244	14.0	21.8	128 E	86	15	5 21	9 2.92	- 2 32.0	3.350	3.317	17.5	20.6	79 W	29*	65*
<b>10145 1994 CK<sub>1</sub></b>										<b>7816 Hanoi</b>									
12 23	10 3.01	+16 7.6	0.998	1.744	28.1	19.2	123 W	61	48	12 23	10 3.13	+ 8 15.5	1.468	2.143	23.3	18.6	121 W	53	56
1 2	9 50.28	+17 2.5	0.984	1.828	21.7	19.1	137 W	62	47	1 2	10 1.59	+ 8 8.6	1.402	2.178	19.9	18.4	131 W	53	56
1 12	9 33.12	+18 10.4	0.987	1.908	14.5	19.0	151 W	63	46	1 12	9 56.64	+ 8 22.2	1.350	2.212	15.7	18.2	142 W	53	56
1 22	9 13.32	+19 18.8	1.016	1.985	6.9	18.8	166 W	64	45	1 22	9 48.66	+ 8 55.0	1.318	2.247	10.9	18.0	155 W	54	55
1 27	9 3.19	+19 49.3	1.041	2.022	3.3	18.7	173 W	65	44	1 27	9 43.78	+ 9 17.5	1.311	2.264	8.3	17.9	161 W	54	55
2 1	8 53.38	+20 15.8	1.074	2.059	1.4	18.7	177 E	65	44	2 1	9 38.51	+ 9 42.9	1.310	2.281	5.6	17.8	167 W	55	54
2 6	8 44.19	+20 37.6	1.115	2.095	4.1	19.0	171 E	66	43	2 6	9 33.02	+ 10 10.5	1.316	2.297	3.1	17.7	173 W	55	54
2 11	8 35.85	+20 54.5	1.163	2.130	7.2	19.3	164 E	66	43	2 11	9 27.52	+ 10 39.1	1.329	2.314	1.8	17.7	176 E	56	53
2 16	8 28.52	+21 6.8	1.217	2.164	10.0	19.5	158 E	66	43	2 16	9 22.16	+ 11 7.8	1.349	2.331	3.4	17.8	172 E	56	53
2 21	8 22.31	+21 14.8	1.278	2.197	12.5	19.8	151 E	66	43	2 21	9 17.14	+ 11 35.7	1.376	2.347	5.9	18.0	166 E	57	52
3 2	8 13.37	+21 19.7	1.417	2.262	16.6	20.2	139 E	66	43	2 26	9 12.59	+ 12 2.0	1.409	2.364	8.3	18.2	160 E	57	52
3 12	8 8.84	+21 13.1	1.574	2.324	19.6	20.6	128 E	66	43	3 2	9 8.65	+ 12 26.2	1.449	2.380	10.5	18.4	154 E	57	52
3 22	8 8.13	+20 57.9	1.745	2.383	21.6	20.9	118 E	66	43	3 12	9 2.90	+ 13 6.1	1.546	2.412	14.5	18.7	143 E	58	51
4 1	8 10.57	+20 35.9	1.925	2.439	22.8	21.2	109 E	66	43	3 22	9 0.19	+ 13 33.5	1.662	2.443	17.7	19.0	132 E	59	50
<b>7816 Hanoi</b>										<b>159490 2000 TM<sub>29</sub></b>									
12 23	10 3.13	+ 8 15.5	1.468	2.143	23.3	18.6	121 W	53	56	12 23	10 4.89	+ 13 9.1	2.369	3.008	16.1	21.2	122 W	58	51
1 2	10 1.59	+ 8 8.6	1.402	2.178	19.9	18.4	131 W	53	56	1 2	10 1.86	+ 13 11.5	2.260	3.016	13.8	21.1	133 W	58	51
1 12	9 56.64	+ 8 22.2	1.350	2.212	15.7	18.2	142 W	53	56	1 12	9 56.34	+ 13 25.0	2.170	3.024	10.9	20.9	144 W	58	51
1 22	9 48.66	+ 8 55.0	1.318	2.247	10.9	18.0	155 W	54	55	1 22	9 48.57	+ 13 48.0	2.103	3.030	7.5	20.7	156 W	59	50
1 27	9 43.78	+ 9 17.5	1.311	2.264	8.3	17.9	161 W	54	55	2 1	9 39.08	+ 14 17.1	2.063	3.036	3.6	20.4	169 W	59	50
2 1	9 38.51	+ 9 42.9	1.310	2.281	5.6	17.8	167 W	55	54	2 6	9 33.94	+ 14 32.7	2.055	3.038	1.5	20.3	175 W	60	49
2 6	9 33.02	+ 10 10.5	1.316	2.297	3.1	17.7	173 W	55	54	2 11	9 28.71	+ 14 48.2	2.054	3.041	0.5	20.2	178 E	60	49
2 11	9 27.52	+ 10 39.1	1.329	2.314	1.8	17.7	176 E	56	53	2 16	9 23.50	+ 15 3.1	2.061	3.043	2.6	20.4	172 E	60	49
2 16	9 22.16	+ 11 7.8	1.349	2.331	3.4	17.8	172 E	56	53	2 21	9 18.44	+ 15 17.0	2.076	3.044	4.6	20.5	166 E	60	49
2 21	9 17.14	+ 11 35.7	1.376	2.347	5.9	18.0	166 E	57	52	2 26	9 13.66	+ 15 29.4	2.099	3.046	6.5	20.6	160 E	60	49
2 26	9 12.59	+ 12 2.0	1.409	2.364	8.3	18.2	160 E	57	52	3 2	9 9.26	+ 15 40.1	2.128	3.047	8.4	20.7	153 E	61	48
3 2	9 8.65	+ 12 26.2	1.449	2.380	10.5	18.4	154 E	57	52	3 7	9 5.34	+ 15 48.7	2.164	3.048	10.1	20.8	148 E	61	48
3 12	9 2.90	+ 13 6.1	1.546	2.412	14.5	18.7	143 E	58	51	3 12	9 1.96	+ 15 55.2	2.206	3.049	11.7	21.0	142 E	61	48
3 22	9 0.19	+ 13 33.5	1.662	2.443	17.7	19.0	132 E	59	50	3 17	8 59.16	+ 15 59.4	2.254	3.049	13.1	21.1	136 E	61	48
4 1	9 0.50	+ 13 47.9	1.794	2.474	20.0	19.2	122 E	59	50	3 22	8 56.98	+ 16 1.5	2.306	3.050	14.4	21.1	131 E	61	48
4 11	9 3.53	+ 13 49.8	1.937	2.504															

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>25037 1998 QC<sub>37</sub></b>										<b>456946 2008 AF<sub>32</sub></b> (continuation)									
12 23	10 5.49	+7 55.0	1.983	2.617	19.0	19.5	120 W	53	56	1 18	12 13.65	+48 58.6	0.246	1.134	47.2	20.2	122 W	86	15
1 2	10 4.24	+7 34.8	1.854	2.600	16.8	19.3	130 W	53	56	1 20	12 29.00	+51 59.5	0.249	1.131	48.5	20.3	121 W	83	12
1 12	10 0.13	+7 29.3	1.740	2.582	13.8	19.1	141 W	52	57	1 22	12 45.38	+54 46.7	0.253	1.128	49.9	20.3	119 W	80	9
1 22	9 53.23	+7 39.2	1.647	2.563	10.1	18.8	153 W	53	56	1 24	13 2.77	+57 18.6	0.258	1.125	51.3	20.4	117 W	78	7
2 1	9 43.93	+8 3.5	1.579	2.543	5.8	18.5	165 W	53	56	1 26	13 21.09	+59 34.1	0.265	1.122	52.7	20.5	115 W	75	4
2 11	9 33.09	+8 39.2	1.539	2.522	2.2	18.2	174 E	54	55	1 28	13 40.21	+61 33.0	0.272	1.119	54.0	20.6	113 W	73	2*
2 16	9 27.45	+8 59.7	1.529	2.512	3.0	18.2	172 E	54	55	1 30	13 59.95	+63 15.2	0.279	1.117	55.3	20.7	111 W	72	1*
2 21	9 21.87	+9 21.2	1.527	2.501	5.1	18.3	167 E	54	55	2 1	14 20.07	+64 41.4	0.287	1.114	56.5	20.8	109 W	70	—
2 26	9 16.54	+9 42.8	1.533	2.490	7.4	18.4	161 E	55	54	2 2	14 30.19	+65 18.8	0.292	1.113	57.1	20.8	109 W	70	—
3 2	9 11.60	+10 3.9	1.544	2.478	9.7	18.6	155 E	55	54	2 3	14 40.30	+65 52.6	0.296	1.112	57.7	20.9	108 W	69	—
3 7	9 7.19	+10 23.7	1.563	2.467	12.0	18.7	149 E	55	54	2 4	14 50.37	+66 23.0	0.300	1.110	58.2	20.9	107 W	69	—
3 12	9 3.42	+10 41.9	1.587	2.455	14.1	18.8	143 E	56	53	2 5	15 0.36	+66 50.2	0.305	1.109	58.7	21.0	106 W	68	—
3 22	8 58.07	+11 11.7	1.650	2.431	17.8	18.9	132 E	56	53	2 6	15 10.23	+67 14.3	0.309	1.108	59.2	21.0	105 W	68	—
4 1	8 55.88	+11 31.0	1.728	2.406	20.7	19.1	122 E	57	52	2 7	15 19.96	+67 35.5	0.314	1.107	59.7	21.0	104 W	67	—
4 11	8 56.83	+11 38.7	1.818	2.381	23.0	19.3	112 E	57	52	2 8	15 29.51	+67 54.2	0.319	1.105	60.1	21.1	104 W	67	—
4 21	9 0.68	+11 34.6	1.914	2.355	24.6	19.4	103 E	56*	52	2 9	15 38.86	+68 10.4	0.323	1.104	60.6	21.1	103 W	67	—
5 1	9 7.10	+11 18.8	2.012	2.328	25.5	19.5	95 E	53*	53	2 10	15 47.98	+68 24.3	0.328	1.103	61.0	21.2	102 W	67	—
5 11	9 15.72	+10 51.4	2.111	2.300	26.0	19.6	88 E	48*	53	2 11	15 56.86	+68 36.2	0.333	1.102	61.4	21.2	101 W	66	—
5 21	9 26.21	+10 12.9	2.207	2.272	26.1	19.7	81 E	42*	54*	2 13	16 13.83	+68 54.6	0.342	1.100	62.1	21.3	100 W	66*	—
5 31	9 38.29	+9 23.5	2.299	2.243	25.8	19.7	74 E	36*	53*	2 15	16 29.67	+69 7.0	0.352	1.098	62.8	21.4	99 W	66*	—
6 10	9 51.69	+8 23.6	2.385	2.214	25.2	19.8	68 E	29*	52*	2 17	16 44.35	+69 14.5	0.361	1.096	63.4	21.4	98 W	65*	—
6 20	10 6.21	+7 13.7	2.464	2.184	24.3	19.8	62 E	24*	50*	2 19	16 57.86	+69 18.4	0.371	1.094	63.9	21.5	96 W	65*	—
6 30	10 21.71	+5 54.2	2.536	2.154	23.3	19.8	57 E	18*	47*	<b>234242 2000 SC<sub>340</sub></b>									
7 10	10 38.04	+4 25.9	2.601	2.124	22.0	19.8	52 E	14*	44*	12 23	10 6.06	+19 18.9	2.340	2.998	15.9	21.4	124 W	64	45
7 20	10 55.13	+2 49.2	2.657	2.093	20.7	19.7	47 E	10*	40*	1 2	10 3.72	+19 53.3	2.216	2.987	13.6	21.2	134 W	65	44
7 30	11 12.93	+1 5.0	2.704	2.063	19.2	19.7	42 E	7*	36*	1 12	9 58.72	+20 38.8	2.111	2.975	10.8	21.0	146 W	66	43
8 9	11 31.40	-0 45.8	2.744	2.032	17.6	19.7	37 E	5*	31*	1 22	9 51.22	+21 32.0	2.030	2.961	7.4	20.7	157 W	67	42
8 19	11 50.53	-2 42.5	2.775	2.001	15.9	19.6	33 E	3*	27*	2 1	9 41.65	+22 27.2	1.977	2.947	4.0	20.5	168 W	67	42
8 29	12 10.34	-4 43.7	2.798	1.971	14.2	19.5	29 E	1*	23*	2 6	9 36.35	+22 53.5	1.961	2.940	2.9	20.4	171 W	68	41
9 8	12 30.85	-6 48.4	2.813	1.941	12.4	19.4	24 E	—	18*	2 11	9 30.87	+23 18.0	1.953	2.932	3.0	20.4	171 E	68	41
9 18	12 52.11	-8 55.0	2.821	1.911	10.6	19.3	20 E	—	14*	2 16	9 25.36	+23 39.8	1.953	2.924	4.4	20.5	167 E	69	40
9 28	13 14.17	-11 2.1	2.821	1.882	8.7	19.2	17 E	—	10*	2 21	9 19.94	+23 58.4	1.960	2.915	6.1	20.6	162 E	69	40
10 8	13 37.09	-13 7.8	2.816	1.854	6.8	19.1	13 E	—	7*	2 26	9 14.78	+24 13.5	1.975	2.907	8.0	20.7	156 E	69	40
10 18	14 0.94	-15 10.1	2.804	1.827	4.9	19.0	9 E	—	3*	3 2	9 10.00	+24 24.7	1.996	2.898	9.8	20.8	150 E	69	40
10 28	14 25.76	-17 6.7	2.787	1.801	3.1	18.8	6 E	—	—	3 7	9 5.71	+24 32.0	2.024	2.889	11.5	20.8	144 E	70	39
11 7	14 51.59	-18 55.2	2.765	1.776	1.5	18.7	3 E	—	—	3 12	9 1.99	+24 35.4	2.057	2.879	13.2	20.9	139 E	70	39
11 17	15 18.46	-20 33.1	2.739	1.752	1.8	18.6	3 W	—	—	3 17	8 58.92	+24 35.2	2.096	2.870	14.7	21.0	133 E	70	39
11 27	15 46.32	-21 57.6	2.709	1.730	3.4	18.7	6 W	—	—	3 22	8 56.53	+24 31.4	2.139	2.860	16.0	21.1	128 E	70	39
12 7	16 15.11	-23 6.0	2.676	1.710	5.3	18.7	9 W	—	2*	3 27	8 54.84	+24 24.5	2.186	2.850	17.2	21.2	123 E	69	40
12 17	16 44.72	-23 56.0	2.640	1.692	7.2	18.8	12 W	2*	5*	4 1	8 53.87	+24 14.6	2.236	2.839	18.2	21.3	118 E	69	40
12 27	17 14.97	-24 25.2	2.602	1.677	9.1	18.8	16 W	3*	8*	4 6	8 53.59	+24 2.0	2.289	2.829	19.1	21.3	113 E	69	40
1 6	17 45.61	-24 32.3	2.563	1.663	11.0	18.8	19 W	4*	12*	4 11	8 53.98	+23 46.9	2.344	2.818	19.8	21.4	108 E	69	40
1 16	18 16.42	-24 16.2	2.523	1.653	12.9	18.9	22 W	5*	15*	4 16	8 55.02	+23 29.6	2.400	2.807	20.4	21.5	103 E	68	41
<b>450138 1998 BO<sub>26</sub></b>										<b>238072 2003 FW<sub>7</sub></b>									
12 23	10 5.87	+16 8.4	0.846	1.607	31.0	19.1	123 W	61	48	12 23	10 6.61	+23 47.3	2.241	2.914	16.1	21.2	125 W	69	40
1 2	10 18.13	+14 37.1	0.753	1.574	28.8	18.7	130 W	60	49	1 2	10 4.49	+24 37.8	2.122	2.902	13.9	21.0	135 W	70	39
1 12	10 27.47	+13 7.8	0.670	1.543	25.7	18.3	137 W	58	51	1 12	9 59.54	+25 38.6	2.023	2.889	11.0	20.8	146 W	71	38
1 22	10 33.34	+11 41.8	0.600	1.517	21.6	17.9	145 W	57	52	1 22	9 51.87	+26 44.6	1.947	2.876	7.9	20.6	156 W	72	37
2 1	10 35.35	+10 20.6	0.544	1.495	16.4	17.5	155 W	55	54	2 1	9 41.96	+27 48.5	1.898	2.861	5.1	20.4	165 W	73	36
2 11	10 33.71	+9 4.1	0.502	1.477	10.1	17.1	165 W	54	55	2 6	9 36.45	+28 17.2	1.885	2.853	4.6	20.4	167 W	73	36
2 21	10 29.32	+7 51.7	0.477	1.465	3.3	16.6	175 W	53	56	2 11	9 30.74	+28 42.5	1.879	2.846	4.9	20.4	166 E	74	35
3 2	10 23.94	+6 42.4	0.469	1.458	4.8	16.7	173 E	52	57	2 16	9 25.00	+29 3.7	1.881	2.837	6.1	20.4	162 E	74	35
3 12	10 19.84	+5 34.1	0.477	1.456	11.8	17.0	163 E	51	58	2 21	9 19.37	+29 20.2	1.890	2.829	7.7	20.5	158 E	74	35
3 22	10 18.76	+4 25.3	0.500	1.459	18.2	17.4	153 E	49	60	2 26	9 14.03	+29 31.6	1.906	2.821	9.4	20.6	152 E	75	34
4 1	10 21.70	+3 14.0	0.537	1.468	23.5	17.7	144 E	48	61	3 2	9 9.11	+29 38.0	1.928	2.812	11.1	20.7	147 E	75	34
4 11	10 28.77	+1 57.9	0.586	1.482	27.8	18.0	136 E	47	62	3 7	9 4.74	+29 39.4	1.957	2.803	12.7	20.7	142 E	75	34
4 21	10 39.44	+0 36.2	0.645	1.501	31.0	18.4	130 E	46	63	3 12	9 0.99	+29 36.1	1.990	2.793	14.3	20.8	136 E	75	34
5 1	10 53.06	-0 51.8	0.714	1.525	33.3														



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°
14309 Defoy (continuation)									19958 1985 RN <sub>4</sub>								
3 12	9 15.05	+11 40.1	2.814	3.678	8.7	20.0	146 E	57 52	12 23	10 7.56	+14 45.2	2.304	2.944	16.5	21.1	122 W	60 49
3 22	9 9.84	+12 20.5	2.896	3.664	11.2	20.1	134 E	57 52	1 2	10 4.99	+15 10.1	2.205	2.962	14.1	21.0	133 W	60 49
4 1	9 6.51	+12 52.7	2.999	3.650	13.2	20.3	124 E	58 51	1 12	9 59.89	+15 47.2	2.124	2.978	11.1	20.8	144 W	61 48
4 11	9 5.18	+13 15.9	3.117	3.634	14.7	20.4	113 E	58 51	1 22	9 52.50	+16 33.7	2.067	2.994	7.6	20.6	156 W	62 47
4 21	9 5.78	+13 29.9	3.244	3.617	15.7	20.5	104 E	58* 51	2 1	9 43.34	+17 25.2	2.037	3.009	3.8	20.4	168 W	62 47
5 1	9 8.21	+13 35.0	3.376	3.600	16.2	20.6	95 E	56* 50	2 6	9 38.37	+17 51.0	2.034	3.016	1.9	20.3	174 W	63 46
5 11	9 12.27	+13 31.6	3.509	3.581	16.3	20.7	86 E	50* 50	2 11	9 33.29	+18 15.9	2.038	3.023	1.3	20.2	176 E	63 46
5 21	9 17.78	+13 20.1	3.639	3.562	16.1	20.7	78 E	44* 50*	2 16	9 28.23	+18 39.2	2.050	3.030	2.8	20.4	171 E	64 45
5 31	9 24.55	+13 1.0	3.764	3.542	15.6	20.8	70 E	36* 49*	2 21	9 23.32	+19 0.5	2.069	3.036	4.7	20.5	165 E	64 45
6 10	9 32.37	+12 34.8	3.880	3.520	14.8	20.8	62 E	29* 47*	2 26	9 18.68	+19 19.3	2.096	3.042	6.6	20.6	159 E	64 45
6 20	9 41.11	+12 2.0	3.986	3.498	13.7	20.8	55 E	23* 43*	3 2	9 14.42	+19 35.3	2.130	3.048	8.4	20.7	153 E	65 44
6 30	9 50.61	+11 23.1	4.079	3.475	12.5	20.8	48 E	17* 38*	3 7	9 10.64	+19 48.2	2.171	3.054	10.1	20.9	147 E	65 44
7 10	10 0.74	+10 38.5	4.158	3.450	11.1	20.8	41 E	12* 33*	3 12	9 7.39	+19 58.1	2.217	3.059	11.6	21.0	142 E	65 44
7 20	10 11.41	+9 48.6	4.222	3.425	9.5	20.7	34 E	8* 27*	3 17	9 4.72	+20 4.9	2.269	3.065	13.0	21.1	136 E	65 44
7 30	10 22.52	+8 53.9	4.270	3.399	7.8	20.7	27 E	4* 21*	3 22	9 2.67	+20 8.8	2.326	3.070	14.3	21.2	131 E	65 44
8 9	10 34.00	+7 55.0	4.302	3.372	6.1	20.6	21 E	1* 15*	3 27	9 1.24	+20 9.8	2.387	3.074	15.3	21.3	125 E	65 44
8 19	10 45.78	+6 52.2	4.316	3.343	4.2	20.5	14 E	— 8*	4 1	9 0.45	+20 8.1	2.452	3.079	16.3	21.4	120 E	65 44
8 29	10 57.81	+5 46.1	4.312	3.314	2.3	20.3	8 E	— 2*	4 6	9 0.26	+20 3.9	2.519	3.083	17.1	21.5	115 E	65 44
9 8	11 10.03	+4 37.2	4.291	3.284	0.4	20.1	1 E	— —	193749 2001 KG								
9 18	11 22.41	+3 26.1	4.252	3.253	1.6	20.2	5 W	— —	12 23	10 7.63	+22 0.5	2.237	2.903	16.3	21.2	124 W	67 42
9 28	11 34.91	+2 13.4	4.195	3.220	3.6	20.3	12 W	5* 2*	1 2	10 5.10	+22 51.5	2.130	2.906	13.9	21.1	135 W	68 41
10 8	11 47.47	+0 59.7	4.121	3.187	5.6	20.3	18 W	11* 6*	1 12	9 59.78	+23 53.2	2.043	2.908	11.0	20.9	146 W	69 40
10 18	12 0.08	+0 14.2	4.031	3.153	7.6	20.4	25 W	17* 10*	1 22	9 51.86	+25 0.6	1.979	2.910	7.7	20.7	157 W	70 39
10 28	12 12.67	+1 27.8	3.924	3.118	9.5	20.4	31 W	22* 15*	2 1	9 41.86	+26 6.6	1.944	2.910	4.7	20.5	166 W	71 38
11 7	12 25.19	+2 40.0	3.802	3.081	11.4	20.3	38 W	27* 20*	2 6	9 36.36	+26 36.7	1.937	2.909	4.0	20.4	168 W	72 37
11 17	12 37.60	+3 50.3	3.667	3.044	13.2	20.3	45 W	31* 25*	2 11	9 30.72	+27 3.7	1.938	2.909	4.3	20.4	167 E	72 37
11 27	12 49.81	+4 57.6	3.519	3.006	14.9	20.3	52 W	35* 31*	2 16	9 25.08	+27 26.9	1.946	2.908	5.5	20.5	164 E	72 37
12 7	13 1.74	+6 1.0	3.359	2.966	16.5	20.2	59 W	37* 38*	2 21	9 19.59	+27 45.8	1.962	2.906	7.1	20.6	159 E	73 36
12 17	13 13.27	+6 59.5	3.191	2.926	17.8	20.1	66 W	38* 45*	2 26	9 14.40	+28 0.0	1.985	2.905	8.7	20.7	154 E	73 36
12 27	13 24.28	+7 51.8	3.015	2.885	19.0	20.0	73 W	37* 52*	3 2	9 9.65	+28 9.6	2.015	2.903	10.4	20.8	148 E	73 36
1 6	13 34.60	+8 37.0	2.834	2.842	20.0	19.8	81 W	36 60*	3 7	9 5.43	+28 14.5	2.051	2.901	12.0	20.9	142 E	73 36
1 16	13 44.03	+9 13.6	2.649	2.799	20.6	19.7	88 W	36 67*	3 12	9 1.83	+28 15.1	2.092	2.899	13.5	21.0	137 E	73 36
59490 1999 JD <sub>4</sub>									3 17	8 58.89	+28 11.5	2.138	2.897	14.9	21.1	132 E	73 36
12 23	10 7.44	+16 47.7	2.608	3.058	17.8	19.7	108 W	28 81	3 22	8 56.66	+28 4.3	2.189	2.894	16.1	21.2	126 E	73 36
1 2	10 5.60	+18 8.7	2.485	3.052	16.8	19.6	116 W	27 82	3 27	8 55.14	+27 53.6	2.243	2.891	17.1	21.3	121 E	73 36
1 12	10 1.43	+19 13.6	2.374	3.045	15.4	19.4	125 W	26 83	4 1	8 54.34	+27 40.0	2.301	2.887	18.1	21.3	116 E	73 36
1 22	9 55.05	+19 57.6	2.280	3.038	13.7	19.3	133 W	25 84	4 6	8 54.24	+27 23.7	2.360	2.884	18.8	21.4	112 E	72 37
2 1	9 46.81	+20 15.6	2.205	3.029	12.0	19.1	140 W	25 84	4 11	8 54.79	+27 5.0	2.422	2.880	19.4	21.5	107 E	72 37
2 11	9 37.38	+20 4.8	2.154	3.019	10.7	19.0	146 W	25 84	152627 1997 DF								
2 16	9 32.48	+19 48.4	2.137	3.014	10.3	19.0	147 E	25 84	12 23	10 7.94	+8 43.4	0.705	1.408	40.4	19.7	112 W	36 72
2 21	9 27.62	+19 24.9	2.127	3.009	10.2	19.0	148 E	26 83	12 28	10 12.35	+8 10.5	0.676	1.417	38.5	19.5	116 W	37 73
2 26	9 22.92	+18 55.0	2.124	3.003	10.3	19.0	147 E	26 83	1 2	10 15.73	+7 22.0	0.648	1.427	36.4	19.4	121 W	38 71
3 2	9 18.50	+18 19.2	2.127	2.998	10.8	19.0	146 E	27 82	1 7	10 18.01	+6 16.0	0.621	1.436	33.9	19.3	126 W	39 70
3 7	9 14.46	+17 38.6	2.137	2.992	11.4	19.0	143 E	27 82	1 12	10 19.13	+4 50.9	0.596	1.446	30.9	19.1	131 W	40 69
3 12	9 10.89	+16 54.1	2.152	2.985	12.3	19.1	140 E	28 81	1 17	10 19.04	+3 5.5	0.574	1.456	27.6	18.9	137 W	42 67
3 17	9 7.85	+16 6.9	2.174	2.979	13.2	19.1	137 E	29 80	1 22	10 17.70	+0 59.1	0.555	1.466	23.8	18.8	143 W	44 65
3 22	9 5.39	+15 17.8	2.200	2.972	14.2	19.2	133 E	30 79	1 27	10 15.18	+1 27.6	0.539	1.476	19.6	18.6	150 W	46 63
3 27	9 3.56	+14 28.1	2.232	2.965	15.1	19.2	129 E	31 78	2 1	10 11.58	+4 12.0	0.528	1.486	15.0	18.4	157 W	49 60
4 1	9 2.37	+13 38.5	2.268	2.958	16.0	19.3	125 E	31 78	2 6	10 7.10	+7 9.7	0.523	1.496	10.1	18.2	165 W	52 57
4 6	9 1.82	+12 49.9	2.308	2.950	16.9	19.4	121 E	32 77	2 11	10 2.02	+10 14.5	0.523	1.507	5.0	18.0	172 W	55 54
4 11	9 1.90	+12 3.0	2.351	2.943	17.7	19.4	117 E	33 76	2 16	9 56.61	+13 19.4	0.529	1.517	0.5	17.7	179 W	58 51
4 21	9 3.86	+10 36.5	2.446	2.926	19.0	19.5	109 E	34* 75	2 21	9 51.23	+16 17.1	0.542	1.527	5.0	18.1	172 E	61 48
5 1	9 8.04	+9 22.3	2.549	2.909	19.9	19.6	101 E	34* 73	2 26	9 46.22	+19 1.5	0.560	1.537	9.7	18.4	165 E	64 45
5 11	9 14.19	+8 22.0	2.657	2.892	20.4	19.7	93 E	31* 72	3 2	9 41.90	+21 28.2	0.584	1.548	14.0	18.7	158 E	66 43
5 21	9 22.03	+7 36.4	2.765	2.873	20.6	19.8	86 E	27* 71*	3 7	9 38.53	+23 34.7	0.613	1.558	17.8	18.9	151 E	69 40
5 31	9 31.33	+6 7.4	2.873	2.853	20.4	19.9	79 E	22* 68*	3 12	9 36.24	+25 20.5	0.646	1.568	21.3	19.2	145 E	70 39
6 10	9 41.86	+6 48.6	2.977	2.832	19.9	19.9	72 E	16* 64*	3 17	9 35.11	+26 46.2	0.683	1.578	24.3	19.4	139 E	72 37
6 20	9 53.42	+6 45.1	3.075	2.811	19.2	20.0	66 E	11* 59*	3 22	9 35.16	+27 53.2	0.724	1.587	26.8	19.6	134 E	73 36
6 30	10 5.87	+6 54.0	3.167	2.788	18.3	20.0	59 E	6* 53*	3 27	9 36.38	+28 43.4	0.767	1.597	29.0	19.8	129 E	74 35
7 10	10 19.07	+7 14.4	3.250	2.765	17.1	20.0	53 E	2* 47*	4 1	9 38.70	+29 18.5	0.813	1.606	30.8	20.0	125 E	74 35
7 20	10 32.92	+7 45.1	3.323	2.741	15.9												

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>283557 2001 VV<sub>2</sub></b>										<b>73735 1993 QE<sub>3</sub></b>									
<i>(continuation)</i>										<i>(continuation)</i>									
2 6	9 37.27	+28 37.4	1.899	2.867	4.7	20.4	166 W	74	35	2 6	9 40.82	+13 57.3	1.637	2.619	2.4	20.1	174 W	59	50
2 11	9 31.73	+29 8.9	1.908	2.873	5.0	20.4	165 E	74	35	2 11	9 35.41	+14 30.0	1.636	2.623	0.1	19.9	180 W	59	50
2 16	9 26.22	+29 35.8	1.925	2.880	6.1	20.5	162 E	75	34	2 16	9 30.00	+15 2.1	1.643	2.627	2.4	20.1	174 E	60	49
2 21	9 20.89	+29 57.6	1.948	2.886	7.6	20.6	157 E	75	34	2 21	9 24.73	+15 32.7	1.657	2.630	4.8	20.3	167 E	61	48
2 26	9 15.90	+30 14.2	1.979	2.891	9.2	20.7	152 E	75	34	2 26	9 19.76	+16 1.2	1.679	2.634	7.1	20.5	161 E	61	48
3 2	9 11.37	+30 25.4	2.016	2.897	10.8	20.8	147 E	75	34	3 2	9 15.23	+16 26.9	1.707	2.637	9.3	20.6	155 E	61	48
3 7	9 7.40	+30 31.5	2.059	2.902	12.3	20.9	142 E	76	33	3 7	9 11.24	+16 49.4	1.742	2.639	11.3	20.7	149 E	62	47
3 12	9 4.06	+30 32.8	2.107	2.908	13.7	21.0	136 E	76	33	3 12	9 7.89	+17 8.5	1.782	2.642	13.2	20.8	143 E	62	47
3 17	9 1.40	+30 29.7	2.161	2.913	14.9	21.1	131 E	75	34	3 17	9 5.22	+17 24.1	1.828	2.644	14.9	20.9	137 E	62	47
3 22	8 59.44	+30 22.6	2.218	2.917	16.0	21.2	126 E	75	34	3 22	9 3.26	+17 36.1	1.878	2.646	16.4	21.1	132 E	63	46
3 27	8 58.19	+30 12.0	2.279	2.922	17.0	21.3	121 E	75	34	3 27	9 2.03	+17 44.7	1.933	2.648	17.7	21.2	126 E	63	46
4 1	8 57.65	+29 58.2	2.343	2.926	17.8	21.4	116 E	75	34	4 1	9 1.54	+17 49.9	1.991	2.650	18.8	21.3	121 E	63	46
4 6	8 57.78	+29 41.6	2.410	2.930	18.5	21.5	112 E	75	34	4 6	9 1.74	+17 51.9	2.051	2.651	19.8	21.4	116 E	63	46
<b>397827 2008 SP<sub>148</sub></b>										<b>331769 2003 BQ<sub>35</sub></b>									
12 23	10 8.31	-23 58.3	1.205	1.728	33.5	19.5	104 W	21	88	12 23	10 9.00	+5 15.3	0.761	1.500	35.4	21.4	118 W	50	59
12 28	10 10.15	-24 59.2	1.186	1.749	32.5	19.5	107 W	20	89	12 28	10 9.61	+5 41.4	0.735	1.516	32.9	21.3	123 W	51	58
1 2	10 11.02	-25 51.3	1.166	1.769	31.4	19.4	111 W	19	90	1 2	10 8.88	+6 18.6	0.712	1.532	30.1	21.2	129 W	51	58
1 7	10 10.93	-26 33.7	1.148	1.791	30.1	19.4	114 W	18	89	1 7	10 8.78	+7 7.3	0.690	1.548	26.9	21.1	135 W	52	57
1 12	10 9.88	-27 5.1	1.131	1.812	28.7	19.3	118 W	18	89	1 12	10 8.28	+8 7.5	0.671	1.563	23.4	20.9	141 W	53	56
1 17	10 7.92	-27 24.5	1.116	1.833	27.2	19.3	122 W	18	89	1 17	9 58.42	+9 18.5	0.656	1.577	19.6	20.8	147 W	54	55
1 22	10 5.10	-27 30.6	1.103	1.855	25.6	19.2	125 W	17	88	1 22	9 52.29	+10 38.9	0.646	1.591	15.5	20.6	154 W	56	53
1 27	10 1.54	-27 22.6	1.092	1.877	23.9	19.2	129 W	18	89	1 27	9 45.10	+12 6.4	0.640	1.605	11.1	20.4	162 W	57	52
2 1	9 57.39	-26 59.7	1.085	1.900	22.2	19.1	133 W	18	89	2 1	9 37.15	+13 37.9	0.640	1.618	6.6	20.3	169 W	59	50
2 6	9 52.85	-26 21.8	1.081	1.922	20.6	19.1	137 W	19	90	2 6	9 28.79	+15 9.7	0.646	1.631	2.0	20.1	177 W	60	49
2 11	9 48.12	-25 29.4	1.082	1.944	19.0	19.1	140 W	20	89	2 11	9 20.43	+16 38.3	0.658	1.643	2.5	20.1	176 E	62	47
2 16	9 43.41	-24 23.4	1.087	1.967	17.7	19.1	143 E	21	88	2 16	9 12.44	+18 0.7	0.675	1.655	6.9	20.5	168 E	63	46
2 21	9 38.91	-23 5.3	1.097	1.989	16.6	19.1	145 E	22	87	2 21	9 5.17	+19 14.6	0.699	1.666	10.9	20.7	161 E	64	45
2 26	9 34.82	-21 37.1	1.113	2.012	15.9	19.1	146 E	23	86	2 26	8 58.92	+20 18.5	0.728	1.677	14.7	21.0	155 E	65	44
3 2	9 31.32	-20 1.4	1.134	2.035	15.7	19.2	146 E	25	84	3 2	8 53.88	+21 12.1	0.762	1.687	18.0	21.2	148 E	66	43
3 7	9 28.51	-18 21.0	1.161	2.057	15.9	19.3	145 E	27	82	3 7	8 50.17	+21 55.3	0.800	1.697	21.0	21.4	142 E	67	42
3 12	9 26.46	-16 38.3	1.194	2.080	16.4	19.4	144 E	28	81	<b>82105 2001 FG<sub>26</sub></b>									
3 17	9 25.21	-14 55.9	1.232	2.102	17.2	19.5	141 E	30	79	12 23	10 9.71	+19 42.4	2.109	2.769	17.4	19.9	123 W	65	44
3 22	9 24.78	-13 15.8	1.275	2.125	18.2	19.6	138 E	32	77	1 2	10 7.63	+20 13.9	1.995	2.765	15.0	19.7	133 W	65	44
3 27	9 25.14	-11 39.7	1.324	2.147	19.3	19.7	135 E	33	76	1 12	10 2.64	+20 57.2	1.900	2.761	11.9	19.5	145 W	66	43
4 1	9 26.27	-10 9.1	1.377	2.169	20.3	19.9	131 E	35	74	1 22	9 54.89	+21 48.2	1.826	2.756	8.3	19.3	156 W	67	42
4 6	9 28.12	-8 44.9	1.435	2.192	21.3	20.0	127 E	36	73	1 27	9 50.11	+22 14.7	1.800	2.753	6.4	19.2	162 W	67	42
4 11	9 30.63	-7 27.7	1.496	2.214	22.2	20.2	124 E	38	71	2 1	9 44.86	+22 40.8	1.780	2.750	4.6	19.0	167 W	68	41
4 21	9 37.38	-5 15.0	1.629	2.257	23.6	20.4	116 E	40	69	2 6	9 39.28	+23 5.4	1.768	2.746	3.3	19.0	171 W	68	41
5 1	9 46.09	-3 31.4	1.774	2.300	24.6	20.7	108 E	41*	68	2 11	9 33.52	+23 27.8	1.764	2.742	3.3	18.9	171 E	68	41
5 11	9 56.35	-2 14.9	1.927	2.343	25.0	20.9	101 E	40*	66	2 16	9 27.72	+23 47.2	1.766	2.738	4.6	19.0	167 E	69	40
5 21	10 7.79	-1 22.7	2.086	2.384	25.0	21.1	94 E	38*	65	2 21	9 22.06	+24 3.0	1.777	2.734	6.4	19.1	162 E	69	40
5 31	10 20.13	0 51.7	2.248	2.425	24.7	21.3	87 E	34*	65	2 26	9 16.68	+24 14.8	1.794	2.730	8.4	19.2	156 E	69	40
6 10	10 33.16	0 38.9	2.411	2.465	24.0	21.5	81 E	29*	64*	3 2	9 11.74	+24 22.5	1.818	2.725	10.3	19.3	150 E	69	40
<b>450158 2000 DW<sub>98</sub></b>										3 7	9 7.35	+24 26.0	1.849	2.720	12.2	19.4	145 E	69	40
12 23	10 8.81	+29 16.5	1.245	1.982	24.0	18.9	125 W	74	35	3 12	9 3.61	+24 25.4	1.885	2.715	13.9	19.5	139 E	69	40
1 2	10 6.25	+29 43.0	1.200	2.020	20.1	18.7	135 W	75	34	3 22	8 58.24	+24 13.2	1.971	2.703	16.8	19.7	128 E	69	40
1 12	9 59.21	+30 13.9	1.170	2.058	15.6	18.6	146 W	75	34	4 1	8 55.89	+23 48.1	2.072	2.691	19.1	19.9	118 E	69	40
1 22	9 48.36	+30 39.3	1.160	2.098	11.0	18.4	156 W	76	33	4 11	8 56.44	+23 12.4	2.184	2.678	20.8	20.1	109 E	68	41
1 27	9 41.92	+30 46.6	1.164	2.117	8.9	18.4	161 W	76	33	4 21	8 59.63	+22 27.9	2.302	2.664	21.8	20.2	100 E	67*	42
2 1	9 35.11	+30 48.7	1.174	2.137	7.4	18.3	164 W	76	33	5 1	9 5.13	+21 35.8	2.422	2.649	22.3	20.3	92 E	63*	42
2 6	9 28.20	+30 45.0	1.190	2.157	6.8	18.4	165 W	76	33	5 11	9 12.58	+20 36.9	2.542	2.633	22.4	20.4	84 E	56*	43
2 11	9 21.46	+30 35.1	1.213	2.177	7.4	18.4	163 E	76	33	5 21	9 21.65	+19 31.7	2.658	2.616	22.1	20.5	77	49*	44*
2 16	9 15.12	+30 19.2	1.243	2.197	8.8	18.6	160 E	75	34	5 31	9 32.07	+18 20.3	2.769	2.598	21.5	20.5	70	41*	44*
2 21	9 9.37	+29 57.6	1.278	2.217	10.6	18.7	156 E	75	34	6 10	9 43.59	+17 2.9	2.873	2.579	20.6	20.6	63	34*	44*
2 26	9 4.38	+29 30.9	1.320	2.237	12.4	18.9	151 E	75	34	6 20	9 56.02	+15 39.9	2.968	2.559	19.4	20.6	57 E	28*	42*
3 2	9 0.25	+29 0.0	1.368	2.257	14.3	19.1	146 E	74	35	6 30	10 9.21	+14 11.1	3.055	2.539	18.1	20.6	51 E	22*	39*
3 7	8 57.05	+28 25.7	1.420	2.277	16.0	19.2	141 E	73	36	7 10	10 23.02	+12 37.0	3.130	2.517	16.6	20.6	45 E	17*	36*
3 12	8 54.79	+27 48.6	1.478	2.297	17.5	19.4													

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>231801 2000 EB<sub>20</sub></b>										<b>298737 2004 GQ<sub>35</sub></b> <i>(continuation)</i>									
12 23	10 10.74	-9 57.0	1.998	2.521	21.4	20.3	111 W	35	74	9 8	13 43.86	-13 1.9	2.207	1.628	25.1	21.1	43 E	8*	37*
12 28	10 11.56	-10 15.8	1.926	2.507	20.8	20.1	115 W	35	74	9 18	14 10.74	-15 1.1	2.252	1.623	23.6	21.1	40 E	7*	34*
1 2	10 11.75	-10 29.7	1.855	2.493	20.0	20.0	120 W	35	74	9 28	14 38.43	-16 51.6	2.297	1.620	22.1	21.1	37 E	7*	31*
1 7	10 11.29	-10 37.8	1.787	2.479	19.1	19.9	124 W	34	75	10 8	15 6.88	-18 30.5	2.342	1.621	20.5	21.1	35 E	7*	29*
1 12	10 10.15	-10 39.6	1.722	2.464	18.0	19.8	129 W	34	75	10 18	15 36.02	-19 55.2	2.386	1.625	18.8	21.1	32 E	6*	26*
1 17	10 8.34	-10 34.1	1.662	2.450	16.8	19.6	134 W	34	75	10 28	16 5.73	-21 3.2	2.431	1.632	17.0	21.1	29 E	6*	22*
1 22	10 5.84	-10 20.6	1.605	2.435	15.4	19.5	139 W	35	74	11 7	16 35.82	-21 52.6	2.476	1.641	15.2	21.1	26 E	6*	19*
2 1	9 58.97	-9 26.9	1.507	2.405	12.2	19.2	149 W	36	73	11 17	17 6.12	-22 21.8	2.520	1.653	13.4	21.1	23 E	6*	16*
2 11	9 50.13	-7 55.9	1.432	2.373	9.2	19.0	157 W	37	72	11 27	17 36.40	-22 30.2	2.564	1.668	11.5	21.1	20 E	6*	12*
2 21	9 40.28	-5 49.5	1.384	2.342	7.8	18.8	161 E	39	70	12 7	18 6.42	-22 17.6	2.606	1.685	9.5	21.0	16 E	5*	8*
2 26	9 35.37	-4 35.3	1.370	2.326	8.3	18.8	160 E	40	69	12 17	18 35.99	-21 44.6	2.647	1.704	7.6	21.0	13 E	5*	5*
3 2	9 30.70	-3 15.8	1.364	2.309	9.6	18.8	157 E	42	67	12 27	19 4.90	-20 52.5	2.686	1.726	5.6	21.0	10 E	2*	1*
3 7	9 26.42	-1 52.7	1.364	2.293	11.3	18.9	153 E	43	66	1 6	19 33.00	-19 42.8	2.722	1.749	3.7	20.9	7 E	—	—
3 12	9 22.69	-0 28.0	1.371	2.276	13.3	18.9	148 E	45	64	1 16	20 0.19	-18 17.6	2.755	1.774	1.9	20.9	3 E	—	—
3 17	9 19.59	+0 56.6	1.384	2.260	15.4	19.0	143 E	46	63	<b>4910 Kawasaki</b>									
3 22	9 17.23	+2 19.5	1.402	2.243	17.4	19.1	138 E	47	62	12 23	10 12.06	+6 36.9	2.573	3.155	16.0	18.8	118 W	52	57
3 27	9 15.67	+3 39.3	1.426	2.226	19.3	19.2	133 E	49	60	1 2	10 10.05	+6 42.4	2.459	3.167	14.1	18.7	129 W	52	57
4 1	9 14.95	+4 54.8	1.454	2.209	21.1	19.3	127 E	50	59	1 12	10 5.80	+7 2.1	2.362	3.177	11.5	18.5	140 W	52	57
4 6	9 15.07	+6 5.3	1.486	2.191	22.7	19.3	122 E	51	58	1 22	9 59.48	+7 35.5	2.288	3.187	8.5	18.3	152 W	53	56
4 11	9 16.03	+7 10.0	1.520	2.174	24.1	19.4	118 E	52	57	2 1	9 51.50	+8 20.6	2.239	3.196	5.0	18.1	164 W	53	56
4 21	9 20.33	+9 1.5	1.597	2.139	26.5	19.6	108 E	54*	55	2 11	9 42.53	+9 13.7	2.220	3.204	1.7	17.9	175 W	54	55
5 1	9 27.58	+10 28.1	1.680	2.104	28.1	19.7	100 E	54*	54	2 16	9 37.93	+9 41.8	2.223	3.208	1.6	17.9	175 E	55	54
5 11	9 37.42	+11 30.7	1.765	2.069	29.2	19.8	92 E	51*	52	2 21	9 33.39	+10 10.1	2.233	3.211	3.1	18.0	170 E	55	54
5 21	9 49.47	+12 10.8	1.849	2.034	29.7	19.9	85 E	47*	52	2 26	9 29.03	+10 38.1	2.251	3.214	4.8	18.1	164 E	56	53
5 31	10 3.42	+12 30.2	1.931	1.998	29.8	19.9	79 E	42*	51*	3 2	9 24.94	+11 5.1	2.276	3.217	6.6	18.2	158 E	56	53
6 10	10 18.97	+12 30.6	2.008	1.963	29.6	20.0	73 E	37*	51*	3 12	9 17.94	+11 54.3	2.347	3.222	9.8	18.4	146 E	57	52
6 20	10 35.88	+12 13.9	2.080	1.929	29.1	20.0	67 E	32*	49*	3 22	9 12.88	+12 34.9	2.443	3.227	12.6	18.6	135 E	58	51
6 30	10 53.96	+11 41.5	2.146	1.895	28.3	20.0	62 E	28*	47*	4 1	9 10.03	+13 5.5	2.557	3.230	14.8	18.8	124 E	58	51
7 10	11 13.06	+10 55.2	2.204	1.861	27.3	20.0	57 E	25*	45*	4 11	9 9.44	+13 25.3	2.686	3.232	16.4	19.0	114 E	58	51
7 20	11 33.08	+9 56.3	2.256	1.829	26.2	20.0	53 E	22*	42*	4 21	9 10.98	+13 34.8	2.825	3.234	17.5	19.1	105 E	59*	50
7 30	11 53.94	+8 46.4	2.301	1.797	25.0	19.9	49 E	20*	39*	5 1	9 14.47	+13 34.2	2.969	3.234	18.0	19.2	96 E	56*	50
8 9	12 15.59	+7 27.1	2.338	1.767	23.8	19.9	45 E	19*	36*	5 11	9 19.66	+13 24.3	3.114	3.234	18.2	19.4	88 E	51*	51
8 19	12 38.03	+5 59.8	2.370	1.738	22.5	19.9	41 E	18*	32*	5 21	9 26.31	+13 5.7	3.258	3.233	17.9	19.4	80 E	45*	51*
8 29	13 1.24	+4 26.4	2.395	1.711	21.2	19.8	38 E	17*	29*	5 31	9 34.19	+12 39.1	3.397	3.231	17.4	19.5	72 E	38*	50*
9 8	13 25.23	+2 48.6	2.415	1.687	19.9	19.7	35 E	16*	26*	6 10	9 43.09	+12 5.0	3.529	3.228	16.5	19.6	65 E	31*	48*
9 18	13 50.04	+1 8.4	2.431	1.664	18.6	19.7	32 E	16*	23*	6 20	9 52.85	+11 24.2	3.652	3.224	15.4	19.6	58 E	24*	45*
9 28	14 15.67	-0 31.9	2.443	1.644	17.4	19.6	29 E	16*	20*	6 30	10 1.33	+10 37.1	3.764	3.219	14.2	19.6	51 E	19*	41*
10 8	14 42.12	-2 10.1	2.453	1.627	16.2	19.6	27 E	15*	16*	7 10	10 14.33	+9 44.4	3.865	3.213	12.7	19.6	44 E	14*	36*
10 18	15 9.40	-3 43.7	2.461	1.612	15.1	19.5	25 E	15*	13*	7 20	10 25.82	+8 46.6	3.952	3.206	11.1	19.6	38 E	9*	31*
10 28	15 37.46	-5 10.0	2.468	1.601	14.0	19.5	23 E	15*	10*	7 30	10 37.70	+7 44.1	4.025	3.198	9.4	19.6	31 E	6*	25*
11 7	16 6.25	-6 26.4	2.476	1.593	13.0	19.4	21 E	14*	6*	8 9	10 49.87	+6 37.7	4.082	3.190	7.6	19.5	25 E	3*	19*
11 17	16 35.65	-7 30.7	2.484	1.589	12.1	19.4	20 E	13*	3*	8 19	11 2.30	+5 27.8	4.124	3.180	5.8	19.4	18 E	—	12*
11 27	17 5.53	-8 20.6	2.495	1.587	11.2	19.4	18 E	12*	—	8 29	11 14.91	+4 15.1	4.150	3.170	3.8	19.4	12 E	—	6*
12 7	17 35.70	-8 54.5	2.507	1.590	10.3	19.4	17 E	11*	—	9 8	11 27.68	+3 0.1	4.159	3.159	1.9	19.2	6 E	—	—
12 17	18 5.97	-9 11.5	2.522	1.595	9.5	19.4	16 E	9*	—	9 18	11 40.55	+1 43.4	4.151	3.146	0.2	19.0	1 W	—	—
12 27	18 36.13	-9 11.1	2.538	1.604	8.8	19.3	14 E	6*	—	9 28	11 53.50	+0 25.7	4.126	3.133	2.1	19.2	7 W	—	—
1 6	19 5.96	-8 53.8	2.556	1.617	8.2	19.4	14 W	4*	—	10 8	12 6.47	-0 52.2	4.084	3.119	4.1	19.3	13 W	6*	3*
1 16	19 35.30	-8 20.7	2.574	1.632	7.9	19.4	13 W	6*	—	10 18	12 19.45	-2 9.9	4.026	3.104	6.1	19.4	19 W	12*	7*
<b>298737 2004 GQ<sub>35</sub></b>										<b>35709 1999 FR<sub>28</sub></b>									
12 23	10 11.27	+4 54.5	1.672	2.297	22.3	21.2	117 W	50	59	12 23	10 12.35	+28 24.1	2.400	3.063	15.4	18.9	124 W	73	36
1 2	10 12.53	+4 2.0	1.538	2.268	20.3	20.9	127 W	49	60	1 2	10 9.37	+29 16.2	2.298	3.068	13.2	18.7	134 W	74	35
1 12	10 10.76	+3 23.8	1.417	2.239	17.4	20.6	137 W	48	61	1 12	10 3.57	+30 14.6	2.215	3.072	10.6	18.5	145 W	75	34
1 22	10 5.77	+3 3.0	1.313	2.209	13.7	20.3	148 W	48	61	1 22	9 55.16	+31 13.2	2.157	3.074	7.9	18.4	155 W	76	33
2 1	9 57.71	+3 1.9	1.230	2.178	9.3	20.0	159 W	48	61	2 1	9 50.14	+31 40.2	2.138	3.075	6.7	18.3	159 W	77	32
2 11	9 47.30	+3 20.6	1.172	2.148	5.2	19.6	169 W	48	61	2 11	9 44.70	+32 4.5	2.126	3.076	5.8	18.2	162 W	77	32
2 21	9 35.76	+3 56.0	1.139	2.117	5.5	19.6	168 E	49	60	2 6	9 38.99	+32 25.1	2.122	3.077	5.5	18.2	163 W	77	32
2 26	9 30.06	+4 18.3	1.133	2.101	7.6	19.6	164 E	49	60	2 11	9 33.15	+32 41.4	2.125	3.077	5.8	18.2	162 E	78	31
3 2	9 24.69	+4 42.3	1.133	2.085	10.2	19.7	158 E	50	59	2 16	9 27.32</								

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>35709 1999 FR<sub>28</sub></b> (continuation)									<b>36779 2000 SW<sub>1</sub></b> (continuation)									
5 11	9 8.13	+26 44.3	3.029	3.042	19.2	19.5	81 E	60* 37	10 8	12 38.37	-1 0.9	3.529	2.539	2.5	20.1	6 W	-	-
5 21	9 15.92	+25 28.2	3.158	3.034	18.7	19.6	74 E	52* 38*	10 18	12 54.91	-2 33.5	3.477	2.509	4.6	20.2	12 W	5*	-
<b>145720 1993 OX<sub>7</sub></b>									<b>6490 1991 NR<sub>2</sub></b>									
1 2	10 11.15	+12 37.7	2.281	3.014	16.6	21.0	120 W	57 52	12 23	10 14.40	-1 44.4	3.213	3.722	14.0	20.8	114 W	43	66
<b>36779 2000 SW<sub>1</sub></b>									<b>108297 2001 HK<sub>65</sub></b>									
12 23	10 13.18	+12 6.7	2.372	2.984	16.6	21.0	120 W	57 52	12 23	10 14.65	+17 39.2	2.052	2.695	18.2	20.8	121 W	63	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>108297 2001 HK<sub>65</sub></b>										<b>61799 2000 QC<sub>184</sub></b>									
<i>(continuation)</i>										<i>(continuation)</i>									
1 27	9 57.76	+19 46.3	1.707	2.654	7.2	19.9	160 W	65	44	5 1	9 15.53	+19 42.7	2.753	3.004	19.5	21.0	94 E	62*	44
2 1	9 52.73	+20 11.6	1.681	2.648	5.1	19.8	166 W	65	44	5 11	9 21.74	+19 4.9	2.904	3.014	19.5	21.1	86 E	56*	45
2 6	9 47.29	+20 36.5	1.662	2.641	3.3	19.6	171 W	66	43	5 21	9 29.39	+18 20.3	3.053	3.023	19.2	21.2	79 E	49*	46*
2 11	9 41.58	+20 59.9	1.651	2.634	2.5	19.6	173 W	66	43	5 31	9 38.22	+17 29.6	3.198	3.031	18.5	21.3	71 E	42*	46*
2 16	9 35.76	+21 21.1	1.648	2.626	3.7	19.6	170 E	66	43	6 10	9 48.01	+16 33.3	3.336	3.037	17.5	21.3	64 E	35*	44*
2 21	9 30.00	+21 39.3	1.651	2.619	5.6	19.7	165 E	67	42	6 20	9 58.58	+15 32.0	3.465	3.043	16.4	21.4	58 E	28*	42*
2 26	9 24.46	+21 54.0	1.662	2.611	7.8	19.8	159 E	67	42	6 30	10 9.77	+14 26.0	3.585	3.048	15.0	21.4	51 E	22*	39*
3 2	9 19.31	+22 4.8	1.680	2.603	9.9	19.9	153 E	67	42	7 10	10 21.46	+13 15.8	3.693	3.052	13.5	21.4	44 E	17*	35*
3 7	9 14.69	+22 11.5	1.704	2.594	11.9	20.0	147 E	67	42	7 20	10 33.54	+12 2.0	3.789	3.055	11.9	21.4	38 E	13*	30*
3 12	9 10.69	+22 14.2	1.733	2.586	13.8	20.1	141 E	67	42	7 30	10 45.93	+10 44.8	3.871	3.057	10.1	21.4	32 E	9*	25*
3 22	9 4.85	+22 8.1	1.807	2.568	17.2	20.3	130 E	67	42	8 9	10 58.57	+9 24.8	3.940	3.058	8.3	21.4	26 E	6*	19*
4 1	9 2.11	+21 48.0	1.897	2.549	19.8	20.5	120 E	67	42	8 19	11 11.39	+8 2.6	3.993	3.059	6.4	21.3	20 E	4*	13*
4 11	9 2.46	+21 16.1	1.998	2.530	21.8	20.7	111 E	66	43	8 29	11 24.36	+6 38.5	4.030	3.058	4.5	21.2	14 E	1*	7*
4 21	9 5.60	+20 34.2	2.105	2.510	23.1	20.8	102 E	65	43	9 8	11 37.42	+5 13.2	4.052	3.056	2.5	21.1	8 E	—	1*
5 1	9 11.23	+19 43.3	2.215	2.488	23.8	20.9	93 E	62	44	9 18	11 50.56	+3 47.3	4.057	3.054	0.9	21.0	3 E	—	—
5 11	9 18.96	+18 44.4	2.324	2.466	24.1	21.0	86 E	56	45	9 28	12 3.73	+2 21.2	4.045	3.050	1.9	21.1	6 W	—	—
5 21	9 28.44	+17 37.9	2.431	2.444	24.0	21.1	79 E	48*	46*	10 8	12 16.89	+0 55.7	4.017	3.045	3.8	21.2	12 W	5*	—
5 31	9 39.41	+16 24.0	2.533	2.420	23.5	21.1	72 E	41*	47*	10 18	12 30.01	+0 28.6	3.973	3.040	5.8	21.3	18 W	11*	4*
6 10	9 51.57	+15 3.0	2.629	2.396	22.7	21.2	66 E	34*	46*	10 28	12 43.05	+1 51.2	3.912	3.033	7.7	21.3	24 W	17*	8*
6 20	10 4.75	+13 35.1	2.717	2.371	21.7	21.2	60 E	28*	45*	11 7	12 55.95	+3 11.1	3.835	3.026	9.6	21.4	31 W	22*	13*
6 30	10 18.78	+12 0.5	2.797	2.345	20.5	21.2	54 E	22*	42*	11 17	13 8.67	+4 28.0	3.743	3.018	11.5	21.4	37 W	27*	18*
7 10	10 33.52	+10 19.6	2.868	2.319	19.1	21.2	48 E	17*	39*	11 27	13 21.10	+5 40.8	3.637	3.009	13.2	21.4	44 W	31*	24*
7 20	10 48.89	+8 32.5	2.929	2.292	17.6	21.2	43 E	13*	35*	12 7	13 33.17	+6 49.1	3.518	2.998	14.8	21.3	51 W	34*	31*
7 30	11 4.82	+6 39.7	2.981	2.264	15.9	21.1	38 E	10*	31*	12 17	13 44.76	+7 52.0	3.388	2.987	16.2	21.3	58 W	35*	38*
8 9	11 21.27	+4 41.7	3.022	2.236	14.2	21.1	33 E	7*	26*	12 27	13 55.74	+8 48.7	3.246	2.975	17.5	21.2	65 W	36*	46*
8 19	11 38.23	+2 39.0	3.053	2.208	12.3	21.0	28 E	5*	22*	1 6	14 5.93	+9 38.7	3.097	2.962	18.5	21.2	73 W	35	54*
8 29	11 55.68	+0 32.2	3.073	2.179	10.4	20.9	23 E	2*	17*	1 16	14 15.16	+10 21.1	2.942	2.948	19.2	21.1	81 W	35	62*
9 8	12 13.64	+1 38.0	3.083	2.150	8.4	20.8	18 E	1*	12*	<b>477386 2009 VU<sub>25</sub></b>									
9 18	12 32.13	+3 50.8	3.084	2.120	6.4	20.7	14 E	—	8*	12 23	10 15.89	+27 40.4	1.179	1.666	35.5	21.4	100 W	17	88
9 28	12 51.20	+6 5.4	3.074	2.091	4.4	20.5	9 E	—	3*	12 28	10 19.45	+29 43.3	1.148	1.667	35.2	21.4	103 W	15	86
10 8	13 10.89	+8 20.6	3.055	2.061	2.3	20.4	5 E	—	—	1 2	10 22.19	+31 41.7	1.119	1.668	34.7	21.3	105 W	13	84
10 18	13 31.26	+10 35.4	3.028	2.031	0.5	20.1	1 W	—	—	1 7	10 24.08	+33 34.4	1.090	1.670	34.2	21.2	107 W	11	82
10 28	13 52.37	+12 48.5	2.991	2.002	2.1	20.2	4 W	—	—	1 12	10 25.03	+35 20.1	1.062	1.671	33.7	21.2	109 W	10	81
11 7	14 14.27	+14 58.4	2.947	1.973	4.3	20.3	8 W	1*	4*	1 17	10 25.01	+36 57.3	1.036	1.673	33.1	21.1	112 W	8	79
11 17	14 37.03	+17 3.5	2.896	1.944	6.4	20.3	13 W	4*	4*	1 22	10 23.96	+38 24.5	1.011	1.675	32.4	21.0	114 W	7	78
11 27	15 0.70	+19 2.1	2.838	1.915	8.6	20.4	17 W	6*	8*	1 27	10 21.87	+39 39.7	0.988	1.677	31.7	20.9	116 W	5	76
12 7	15 25.33	+20 52.2	2.775	1.887	10.7	20.4	21 W	9*	12*	2 1	10 18.80	+40 41.1	0.966	1.679	31.0	20.9	119 W	4	75
12 17	15 50.92	+22 31.8	2.706	1.860	12.9	20.4	25 W	10*	16*	2 6	10 14.85	+41 26.9	0.946	1.682	30.2	20.8	121 W	4	75
12 27	16 17.46	+23 58.8	2.633	1.834	15.0	20.4	29 W	11*	20*	2 11	10 10.17	+41 55.5	0.929	1.685	29.4	20.8	123 W	3	74
1 6	16 44.90	+25 11.1	2.557	1.809	17.1	20.3	33 W	11*	25*	2 16	10 4.96	+42 5.7	0.913	1.687	28.6	20.7	125 W	3	74
1 16	17 13.15	+26 6.8	2.479	1.785	19.1	20.3	36 W	11*	29*	2 21	9 59.48	+41 56.4	0.899	1.690	27.8	20.6	127 E	3	74
12 23	10 14.88	+19 41.7	1.567	2.245	21.9	21.0	122 W	65	44	2 26	9 54.04	+41 27.1	0.888	1.693	27.2	20.6	129 E	4	75
1 2	10 12.57	+20 9.8	1.496	2.277	18.6	20.8	132 W	65	44	3 2	9 48.94	+40 38.2	0.880	1.697	26.6	20.6	130 E	4	75
1 12	10 6.62	+20 51.2	1.441	2.309	14.6	20.6	144 W	66	43	3 7	9 44.47	+39 30.8	0.875	1.700	26.1	20.6	131 E	5	76
1 22	9 57.36	+21 40.0	1.408	2.340	10.0	20.4	156 W	67	42	3 12	9 40.87	+38 6.9	0.874	1.704	25.9	20.5	132 E	7	78
1 27	9 51.72	+22 4.8	1.400	2.355	7.6	20.3	162 W	67	42	3 17	9 38.29	+36 28.8	0.875	1.707	25.8	20.5	133 E	9	80
2 1	9 45.62	+22 28.2	1.399	2.370	5.3	20.2	167 W	67	42	3 22	9 36.84	+34 38.9	0.880	1.711	25.9	20.6	131 E	10	81
2 6	9 39.26	+22 49.2	1.405	2.384	3.7	20.2	171 E	68	41	3 27	9 36.59	+32 40.3	0.889	1.715	26.2	20.6	131 E	12	83
2 11	9 32.84	+23 7.0	1.419	2.399	3.6	20.2	171 E	68	41	4 1	9 37.54	+30 36.3	0.902	1.719	26.7	20.7	129 E	14	85
2 16	9 26.55	+23 20.8	1.439	2.413	5.1	20.3	167 E	68	41	4 6	9 39.64	+28 29.8	0.918	1.723	27.3	20.7	128 E	17	88
2 21	9 20.59	+23 30.4	1.467	2.427	7.2	20.5	162 E	69	40	4 11	9 42.82	+26 23.6	0.938	1.727	28.1	20.8	126 E	19	90
2 26	9 15.13	+23 35.4	1.501	2.440	9.4	20.6	156 E	69	40	4 16	9 46.97	+24 20.0	0.961	1.732	28.9	20.9	124 E	21	88
3 2	9 10.31	+23 36.0	1.542	2.454	11.4	20.8	151 E	69	40	4 21	9 52.02	+22 20.8	0.988	1.736	29.7	21.0	121 E	23	86
3 7	9 6.23	+23 32.3	1.588	2.467	13.4	20.9	145 E	69	40	4 26	9 57.88	+20 27.7	1.018	1.740	30.5	21.1	119 E	25	84
3 12	9 2.96	+23 24.8	1.640	2.480	15.1	21.1	139 E	68	41	5 1	10 4.44	+18 42.1	1.051	1.745	31.3	21.2	116 E	26*	83
3 17	9 0.51	+23 13.8	1.696	2.493	16.7	21.2	134 E	68	41	5 6	10 11.63	+17 4.7	1.087	1.749	32.0	21.3	113 E	28*	81
3 22	8 58.88	+22 59.8	1.757	2.505	18.1	21.4	129 E	68	41	5 11	10 19.34	+15 36.0	1.126	1.754	32.7	21.4	110 E	28*	80
3 27	8 58.07	+22 43.0	1.821	2.517	19.2	21.5	124 E	68	41	5 16	10 27.50	+14 16.0	1.167	1.759	33.3	21.5	107 E	29*	78
12 23	10 15.27	+14 40.4	2.169	2.794	17.7	20.2	120 W	60	49	<b>363019 1996 TD<sub>8</sub></b>									
1 2	10 13.39	+15 8.7	2.073	2.816	15.3	20.1	131 W	60	49	12 23	10 15.99	+8 23.5	2.223	2.727	19.8	21.0	110 W	37	72
1 12	10 8.82	+15 50.7	1.995	2.837	12.3	19.9	142 W	61	48	1 2	10 14.51	+9 5.1	2.142	2.767	17.9	20.9	120 W	36	73
1 22	10 1.76	+16 43.4	1.939	2.856	8.6	19.7	154 W	62	47	1 12	10 10.56	+9 26.6	2.074	2.807	15.6	20.8	130 W	36	73