

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	$45^\circ-26^\circ$	19/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	$45^\circ-26^\circ$		
94623 2001 WD ₂									(continuation)										
4 11	19 4.09	-14 6.9	2.260	2.559	22.9	19.9	96 W	30*	78	11 27	22 10.36	+10 32.7	1.253	1.641	36.9	19.2	93 E	56	49*
193331 2000 TN ₂₉									(continuation)										
12 23	16 20.92	-19 42.2	3.488	2.619	8.7	21.5	24 W	12*	13*	7 15	20 26.12	-5 46.2	0.862	1.851	10.6	17.7	160 W	39	70
161081 2002 NR ₂									(continuation)										
12 23	16 21.07	-23 48.6	3.444	2.569	8.7	21.3	23 W	8*	15*	1 2	16 39.98	-24 15.2	3.353	2.539	10.8	21.3	29 W	10*	21*
142030 2002 QG ₆									(continuation)										
12 23	16 21.16	-35 53.6	3.781	2.920	8.2	20.8	25 W	-	19*	6 15	19 15.12	-35 14.3	1.469	2.429	10.2	18.4	155 W	10	81

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19/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	19/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°
270588 2002 LA₆										144332 2004 DV₂₄									
<i>(continuation)</i>										<i>(continuation)</i>									
75412 1999 XJ₁₀₈																			
										136818 Selqet									
										7977 1977 QQ₅									
										144332 2004 DV₂₄									

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Table with columns: 19/21, alpha2000, delta2000, Delta, r, beta, V, psi, 45-260. Sub-sections include 7977 1977 QQ5, 376968 2002 JJ101, 307986 2004 QT26, 163899 2003 SD220, and 307986 2004 QT26. Each entry contains numerical values and planetary designations (e.g., 93 E, 17 W, 13* 79*).

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19/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	19/20	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°
163899 2003 SD₂₂₀										289227 2004 XY₆₀									
<i>(continuation)</i>										<i>(continuation)</i>									
9 28	13 12.57	-10 35.9	1.560	0.657	24.8	18.4	16 E	—	10*	12 31	17 42.36	-19 27.5	0.900	0.236	103.7	19.3	13 W	5*	4*
10 3	13 39.35	-12 45.1	1.529	0.653	28.0	18.4	18 E	—	12*	1 2	18 3.90	-19 38.8	0.978	0.180	86.3	18.2	11 W	3*	1*
10 8	14 6.87	-14 42.6	1.499	0.653	31.2	18.5	20 E	—	14*	1 3	18 16.23	-19 54.5	1.019	0.156	72.2	17.4	9 W	2*	—
10 13	14 35.07	-16 26.0	1.468	0.656	34.3	18.5	22 E	2*	16*	1 4	18 30.10	-20 19.3	1.059	0.138	53.1	16.7	6 W	—	—
10 18	15 3.84	-17 53.0	1.439	0.663	37.3	18.6	24 E	3*	18*	1 5	18 45.57	-20 53.5	1.094	0.130	30.1	16.0	4 W	—	—
10 23	15 33.04	-19 2.1	1.411	0.673	40.0	18.7	26 E	5*	20*	1 6	19 1.98	-21 33.3	1.118	0.136	8.6	15.4	1 W	—	—
10 28	16 2.50	-19 51.9	1.386	0.686	42.5	18.7	28 E	7*	21*	1 7	19 18.29	-22 12.3	1.131	0.153	14.4	15.9	2 E	—	—
11 2	16 32.03	-20 22.0	1.362	0.702	44.5	18.8	30 E	9*	23*	1 8	19 33.86	-22 46.4	1.137	0.177	27.6	16.7	5 E	—	—
11 7	17 1.43	-20 32.5	1.341	0.719	46.3	18.9	32 E	11*	24*	1 9	19 48.53	-23 14.3	1.139	0.205	37.2	17.2	7 E	—	1*
11 12	17 30.54	-20 23.9	1.323	0.738	47.7	18.9	33 E	13*	25*	1 10	20 2.36	-23 36.0	1.138	0.233	43.9	17.7	9 E	—	3*
11 17	17 59.18	-19 57.5	1.308	0.757	48.7	19.0	35 E	15*	26*	1 11	20 15.48	-23 51.9	1.136	0.261	48.7	18.1	12 E	—	5*
11 22	18 27.21	-19 14.7	1.296	0.777	49.5	19.1	37 E	17*	27*	1 12	20 27.98	-24 2.8	1.134	0.289	52.1	18.4	13 E	1*	7*
11 27	18 54.51	-18 17.3	1.287	0.798	50.0	19.1	38 E	19*	28*	1 14	20 51.45	-24 11.1	1.131	0.342	56.3	18.9	17 E	3*	10*
12 2	19 21.00	-17 7.2	1.281	0.818	50.3	19.2	40 E	21*	28*	1 16	21 13.20	-24 4.6	1.130	0.393	58.5	19.2	20 E	4*	13*
12 7	19 46.66	-15 46.4	1.278	0.838	50.4	19.2	41 E	23*	28*	1 18	21 33.51	-23 45.8	1.132	0.440	59.3	19.5	23 E	6*	15*
12 12	20 11.48	-14 16.9	1.278	0.857	50.3	19.3	42 E	24*	28*	1 20	21 52.51	-23 17.2	1.137	0.485	59.5	19.7	25 E	8*	18*
12 17	20 35.47	-12 40.4	1.280	0.876	50.1	19.3	43 E	26*	27*	1 22	22 10.33	-22 40.5	1.144	0.526	59.1	19.9	27 E	9*	20*
12 22	20 58.65	-10 58.8	1.285	0.893	49.8	19.4	44 E	28*	27*	1 24	22 27.04	-21 57.4	1.154	0.566	58.4	20.1	29 E	10*	22*
12 27	21 21.08	9 13.4	1.291	0.910	49.5	19.4	45 E	29*	26*	1 26	22 42.74	-21 9.4	1.166	0.603	57.6	20.2	31 E	12*	23*
1 1	21 42.80	7 25.8	1.299	0.925	49.0	19.4	45 E	31*	26*	1 28	22 57.47	-20 17.5	1.180	0.638	56.6	20.3	33 E	13*	24*
1 6	22 3.89	5 37.0	1.308	0.939	48.6	19.5	46 E	32*	25*	1 30	23 11.33	-19 22.9	1.195	0.672	55.5	20.4	34 E	14*	26*
1 11	22 24.40	3 48.0	1.318	0.952	48.1	19.5	46 E	33*	24*	2 1	23 24.36	-18 26.3	1.212	0.704	54.3	20.5	35 E	15*	27*
1 16	22 44.42	1 59.6	1.330	0.963	47.6	19.5	46 E	34*	23*	2 6	23 53.78	-16 0.9	1.260	0.776	51.5	20.8	38 E	18*	29*
54697 2001 FA₇₀										72044 2000 YH₅									
12 23	16 24.91	-13 21.8	2.687	1.845	13.1	19.1	25 W	16*	10*	12 23	16 25.98	-20 16.7	3.350	2.471	8.8	21.2	23 W	10*	12*
1 2	16 51.43	-13 56.1	2.610	1.811	15.1	19.1	29 W	18*	14*	1 2	16 45.07	-21 5.4	3.266	2.445	11.0	21.2	28 W	13*	18*
1 12	17 18.62	-14 14.6	2.531	1.778	17.1	19.1	32 W	19*	19*	1 12	17 4.40	-21 46.1	3.171	2.417	13.1	21.2	34 W	14*	25*
1 22	17 46.38	-14 16.2	2.452	1.747	19.1	19.0	36 W	20*	23*	1 22	17 23.92	-22 18.4	3.065	2.389	15.2	21.2	39 W	15*	31*
2 1	18 14.55	-14 0.1	2.373	1.718	21.0	19.0	39 W	20*	28*	2 1	17 43.52	-22 42.4	2.950	2.360	17.2	21.1	45 W	16*	37*
2 11	18 42.98	-13 26.0	2.295	1.691	22.9	18.9	42 W	21*	32*	2 11	18 3.10	-22 58.1	2.827	2.331	19.1	21.1	51 W	16*	44*
2 21	19 11.52	-12 34.2	2.218	1.667	24.6	18.9	45 W	21*	35*	2 21	18 22.59	-23 5.8	2.697	2.302	21.0	21.0	56 W	17*	50*
3 2	19 39.98	-11 25.7	2.144	1.646	26.4	18.8	48 W	21*	39*	3 2	18 41.86	-23 6.2	2.562	2.271	22.7	20.9	62 W	17*	56*
3 12	20 8.21	-10 2.2	2.073	1.628	28.0	18.8	50 W	22*	42*	3 12	19 0.81	-22 59.9	2.422	2.241	24.2	20.8	68 W	17*	61*
3 22	20 36.10	8 25.8	2.004	1.614	29.5	18.7	53 W	22*	45*	3 22	19 19.34	-22 48.1	2.279	2.210	25.6	20.7	73 W	18*	67*
4 1	21 3.53	6 39.2	1.937	1.603	31.0	18.7	56 W	23*	47*	4 1	19 37.29	-22 32.2	2.134	2.179	26.8	20.5	79 W	18*	73*
4 11	21 30.41	4 45.4	1.873	1.596	32.3	18.6	58 W	23*	50*	4 11	19 54.56	-22 13.8	1.989	2.147	27.7	20.4	85 W	19*	79*
4 21	21 56.68	2 47.6	1.811	1.592	33.6	18.6	61 W	24*	52*	4 21	20 10.99	-21 54.9	1.845	2.116	28.4	20.2	91 W	19*	84*
5 1	22 22.27	0 49.1	1.750	1.592	34.7	18.6	64 W	25*	54*	5 1	20 26.39	-21 37.9	1.704	2.084	28.7	20.0	97 W	20*	86*
5 11	22 47.11	+ 1 6.6	1.690	1.597	35.6	18.5	67 W	27*	56*	5 11	20 40.55	-21 25.6	1.566	2.053	28.6	19.8	104 W	21*	85
5 21	23 11.17	+ 2 56.5	1.631	1.605	36.4	18.5	70 W	28*	57*	5 21	20 53.24	-21 21.0	1.434	2.021	28.9	19.6	110 W	22*	85
5 31	23 34.32	+ 4 37.2	1.571	1.616	37.1	18.4	74 W	31*	57*	5 31	21 4.10	-21 27.6	1.308	1.991	26.9	19.3	117 W	23*	85
6 10	23 56.46	+ 6 5.8	1.511	1.632	37.4	18.4	78 W	34*	57*	6 10	21 12.77	-21 49.0	1.192	1.960	25.1	19.0	125 W	23*	86
6 20	0 17.44	+ 7 19.4	1.450	1.650	37.6	18.3	82 W	38*	57*	6 20	21 18.82	-22 28.1	1.086	1.930	22.5	18.7	133 W	23*	86
6 30	0 37.03	+ 8 15.1	1.388	1.672	37.4	18.2	87 W	42*	56	6 30	21 21.77	-23 27.0	0.993	1.901	19.1	18.4	142 W	22*	87
7 10	0 54.97	+ 8 50.2	1.326	1.697	36.8	18.2	92 W	46*	55	7 10	21 21.31	-24 44.5	0.915	1.873	15.0	18.0	152 W	20*	89
7 20	1 10.93	+ 9 2.2	1.263	1.724	35.8	18.1	98 W	50*	55	7 15	21 19.75	-25 28.8	0.883	1.859	12.7	17.8	156 W	20*	89
7 30	1 24.51	+ 8 48.3	1.201	1.753	34.2	17.9	104 W	53*	55	7 20	21 17.33	-26 15.4	0.855	1.846	10.3	17.7	161 W	19*	90
8 9	1 35.28	+ 8 6.6	1.142	1.784	31.9	17.8	112 W	53*	56	7 25	21 14.15	-27 2.9	0.832	1.833	8.2	17.5	165 W	18*	89
8 19	1 42.79	+ 6 55.3	1.088	1.817	28.9	17.6	120 W	52*	57	7 30	21 10.33	-27 49.4	0.814	1.820	6.6	17.4	168 W	17*	88
8 29	1 46.64	+ 5 14.5	1.042	1.852	25.1	17.5	129 W	50*	59	8 4	21 6.07	-28 33.2	0.802	1.807	6.4	17.3	169 W	16*	87
9 8	1 46.68	+ 3 7.4	1.008	1.888	20.5	17.3	139 W	48	61	8 9	21 1.57	-29 12.6	0.794	1.795	7.7	17.3	166 E	16*	87
9 13	1 45.30	+ 1 56.0	0.996	1.906	17.9	17.2	144 W	47	62	8 14	20 57.06	-29 46.1	0.792	1.784	10.0	17.4	162 E	15*	86
9 18	1 43.06	+ 0 41.3	0.989	1.925	15.2	17.1	150 W	46	63	8 19	20 52.82	-30 12.4	0.794	1.772	12.6	17.5	158 E	15*	86
9 23	1 40.07	+ 0 35.2	0.987	1.944	12.6	17.1	155 W	44	65	8 24	20 49.10	-30 30.9	0.801	1.762	15.3	17.6	153 E	14*	85
9 28	1 36.47	+ 1 51.2	0.990	1.963	10.0	17.0	160 W	43	66	8 29	20 46.12	-30 41.1	0.813	1.751	18.0	17.7	148 E	14*	85
10 3	1 32.43	+ 3 4.7	1.000	1.982	7.8	16.9	164 W	42	67	9 3	20 44.06	-30 43.2	0.828	1.742	20.5	17.8	143 E	14*	85
10 8	1 28.13	+ 4 13.8	1.015	2.001	6.5	16.9	167 W	41	68	9 8	20 43.02	-30 37.6	0.847	1.732	22.9	17.9	138 E	14*	85
10 13	1 23.75	+ 5 16.7	1.036	2.020	6.5	17.0	167 W	40	69	9 18	20 44.23	-30 5.2	0.893	1.715	27.0	18.1	129 E	15*	86
10 18	1 19.49	+ 6 11.8	1.064	2.040	7.8	17.1	164 E	39	70	9 28	20 49.85	-29 8.0	0.950	1.701	30.3	18.3	121 E	16*	87
10 23	1 15.53	+ 6 58.2	1.097	2.059	9.7	17.3	160 E	38	71	10 8	20 59.40	-27 49.8	1.014	1.689	32.7	18.5	114 E	17*	88
10 28	1 12.02	+ 7 35.1	1.136	2.079	11.7	17.5	155 E	37	72	10 13	21 5.45	-27 3.8	1.048	1.683	33.7	18.6	111 E	18*	89
11 7	1 6.76	+ 8 20.7	1.230	2.118	15.7	17.8	145 E	37	72	10 18	21 12.24	-26 13.5	1.084	1.679	34.5	18.7	108 E	19*	90

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19/20	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	19/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°
65679 1989 UQ										136568 1980 XB									
<i>(continuation)</i>										<i>(continuation)</i>									
1 12	18 18.82	-22 47.6	1.637	0.749	22.0	21.0	17 W	4*	9*	7 10	17 22.60	-35 0.5	2.292	3.224	8.6	19.2	152 E	10	81
1 17	18 44.83	-22 26.4	1.671	0.771	20.2	21.1	16 W	3*	9*	7 15	17 17.95	-35 6.9	2.335	3.232	10.0	19.3	147 E	10	81
1 22	19 9.98	-21 51.1	1.704	0.795	18.6	21.1	15 W	2*	8*	7 20	17 13.90	-35 11.0	2.384	3.239	11.3	19.4	141 E	10	81
1 27	19 34.20	-21 3.3	1.735	0.819	17.3	21.2	14 W	2*	8*	7 30	17 7.81	-35 14.5	2.496	3.253	13.6	19.6	131 E	10	81
2 1	19 57.49	-20 4.7	1.766	0.843	16.3	21.2	14 W	1*	7*	8 9	17 4.51	-35 14.3	2.626	3.266	15.4	19.8	121 E	10	81
2 6	20 19.85	-18 56.9	1.795	0.868	15.4	21.3	14 W	1*	7*	8 19	17 3.94	-35 12.9	2.767	3.278	16.7	20.0	112 E	10*	81
2 11	20 41.31	-17 41.5	1.823	0.892	14.8	21.4	13 W	1*	7*	8 29	17 5.95	-35 12.0	2.917	3.288	17.4	20.1	103 E	9*	81
2 16	21 1.92	-16 19.7	1.849	0.916	14.4	21.5	13 W	—	7*	9 8	17 10.25	-35 12.2	3.071	3.298	17.7	20.3	94 E	9*	80*
312974 1999 CU₈										107673 2001 FV₆									
12 23	16 29.30	-5 5.9	2.117	1.343	20.8	20.5	29 W	22*	5*	12 23	16 29.94	-23 25.0	2.541	1.662	12.4	19.5	21 W	7*	13*
1 2	17 1.35	-7 5.8	2.113	1.353	21.2	20.5	30 W	22*	9*	1 2	17 0.88	-24 36.4	2.481	1.635	14.3	19.4	24 W	8*	16*
1 12	17 32.88	-8 49.2	2.111	1.367	21.8	20.6	31 W	22*	13*	1 12	17 32.85	-25 25.7	2.421	1.610	16.2	19.4	27 W	8*	20*
1 22	18 3.79	-10 15.6	2.108	1.386	22.5	20.6	33 W	21*	18*	1 22	18 5.60	-25 50.7	2.363	1.588	18.0	19.4	30 W	8*	23*
2 1	18 33.99	-11 25.5	2.102	1.407	23.4	20.7	35 W	20*	22*	2 1	18 38.81	-25 49.8	2.307	1.570	19.8	19.4	33 W	7*	26*
2 11	19 3.38	-12 20.0	2.092	1.433	24.5	20.7	37 W	19*	27*	2 11	19 12.10	-25 22.3	2.254	1.556	21.5	19.4	35 W	7*	29*
2 21	19 31.93	-13 1.1	2.078	1.461	25.6	20.8	40 W	18*	31*	2 21	19 45.12	-24 29.1	2.203	1.546	23.1	19.4	38 W	7*	32*
3 2	19 59.57	-13 30.7	2.057	1.491	26.9	20.8	43 W	17*	35*	3 2	20 17.51	-23 11.7	2.155	1.541	24.6	19.3	40 W	7*	34*
3 12	20 26.28	-13 51.8	2.030	1.524	28.1	20.9	46 W	16*	39*	3 12	20 48.99	-21 33.1	2.110	1.539	26.1	19.3	43 W	7*	37*
3 22	20 52.06	-14 6.8	1.996	1.558	29.4	20.9	50 W	15*	44*	3 22	21 19.36	-19 36.7	2.067	1.542	27.4	19.3	45 W	7*	39*
4 1	21 16.88	-14 19.1	1.955	1.593	30.6	21.0	54 W	14*	48*	4 1	21 48.49	-17 26.4	2.026	1.550	28.7	19.3	48 W	7*	42*
4 11	21 40.73	-14 31.6	1.908	1.629	31.7	21.0	59 W	14*	53*	4 11	22 16.28	-15 6.2	1.986	1.561	29.9	19.4	51 W	8*	45*
4 21	22 3.62	-14 47.8	1.854	1.666	32.6	21.0	63 W	13*	57*	4 21	22 42.73	-12 40.0	1.946	1.577	31.0	19.4	54 W	9*	48*
5 1	22 25.50	-15 11.1	1.795	1.704	33.3	21.0	68 W	13*	62*	5 1	23 7.82	-10 11.7	1.905	1.596	31.9	19.4	57 W	11*	51*
5 11	22 46.33	-15 45.1	1.732	1.741	33.8	21.0	74 W	13*	67*	5 11	23 31.57	-7 44.4	1.864	1.619	32.8	19.4	60 W	13*	54*
5 21	23 6.03	-16 33.6	1.665	1.778	34.0	21.0	79 W	13*	73*	5 21	23 53.99	-5 20.9	1.820	1.645	33.5	19.4	64 W	15*	57*
5 31	23 24.46	-17 40.6	1.595	1.815	33.8	20.9	85 W	14*	78*	5 31	0 15.04	-3 3.9	1.773	1.674	34.1	19.4	68 W	18*	59*
6 10	23 41.45	-19 9.8	1.526	1.852	33.2	20.8	91 W	15*	83*	6 10	0 34.68	-0 55.3	1.724	1.705	34.4	19.4	72 W	23*	61*
6 20	23 56.77	-21 4.7	1.458	1.887	32.2	20.8	98 W	16*	85	6 20	0 52.82	+1 3.2	1.671	1.739	34.6	19.3	76 W	27*	61*
6 30	0 10.05	-23 28.0	1.394	1.922	30.8	20.7	105 W	16*	87	6 30	1 9.31	+2 50.1	1.615	1.774	34.5	19.3	81 W	33*	61*
7 10	0 20.88	-26 20.6	1.336	1.957	28.8	20.6	112 W	16*	90	7 10	1 23.96	+4 24.3	1.555	1.811	34.1	19.3	87 W	39*	60
7 20	0 28.75	-29 40.4	1.288	1.990	26.5	20.4	119 W	15*	86	7 20	1 36.50	+5 45.0	1.493	1.850	33.3	19.2	93 W	44*	58
7 25	0 31.38	-31 28.8	1.269	2.006	25.3	20.4	122 W	13*	85	7 30	1 46.60	+6 51.2	1.430	1.889	32.0	19.1	100 W	49*	57
7 30	0 33.03	-33 21.2	1.253	2.022	24.0	20.3	126 W	12	83	8 9	1 53.90	+7 42.2	1.367	1.930	30.1	19.0	107 W	52*	56
8 4	0 33.66	-35 15.9	1.242	2.038	22.8	20.3	129 W	10	81	8 19	1 58.01	+8 17.2	1.307	1.971	27.5	18.9	116 W	53	56
8 9	0 33.20	-37 11.0	1.234	2.053	21.6	20.3	132 W	8	79	8 29	1 58.54	+8 35.7	1.253	2.012	24.2	18.7	125 W	54	55
8 14	0 31.60	-39 4.2	1.231	2.068	20.6	20.2	134 W	6	77	9 8	1 55.37	+8 37.6	1.209	2.054	20.1	18.6	136 W	54	55
8 19	0 28.86	-40 53.0	1.233	2.083	19.7	20.2	136 W	4	75	9 18	1 48.64	+8 23.8	1.180	2.095	15.2	18.4	147 W	53	56
8 24	0 25.00	-42 34.9	1.240	2.098	19.1	20.2	137 W	2	73	9 28	1 39.01	+7 56.8	1.171	2.137	9.6	18.2	159 W	53	56
8 29	0 20.11	-44 7.3	1.251	2.112	18.7	20.3	138 W	1	72	10 3	1 33.47	+7 39.9	1.175	2.158	6.7	18.1	165 W	53	56
9 3	0 14.35	-45 28.0	1.268	2.126	18.6	20.3	138 W	—	71	10 8	1 27.69	+7 21.8	1.185	2.179	3.8	18.0	172 W	52	57
9 8	0 7.91	-46 35.4	1.289	2.140	18.7	20.4	137 W	—	69	10 13	1 21.86	+7 3.3	1.202	2.199	1.0	17.9	178 W	52	57
9 13	0 1.02	-47 28.3	1.315	2.153	19.1	20.4	136 W	—	69	10 18	1 16.17	+6 45.3	1.225	2.220	2.2	18.0	175 E	52	57
9 18	23 53.95	-48 5.9	1.346	2.166	19.6	20.5	134 W	—	68	10 23	1 10.82	+6 28.8	1.256	2.240	4.9	18.3	169 E	51	58
9 23	23 47.01	-48 28.4	1.381	2.179	20.2	20.6	131 E	—	68	10 28	1 5.97	+6 14.6	1.292	2.261	7.5	18.5	163 E	51	58
9 28	23 40.47	-48 36.2	1.420	2.191	20.9	20.7	129 E	—	67	11 7	0 58.17	+5 55.4	1.384	2.301	12.1	18.8	151 E	51	58
10 3	23 34.55	-48 30.4	1.463	2.203	21.6	20.8	126 E	—	67	11 17	0 53.34	+5 50.5	1.497	2.341	15.8	19.2	140 E	51	58
10 8	23 29.43	-48 12.3	1.508	2.215	22.3	20.9	123 E	—	68	11 27	0 51.61	+6 1.0	1.629	2.380	18.7	19.5	129 E	51	58
10 13	23 25.22	-47 43.5	1.557	2.226	22.9	21.0	120 E	—	68	12 7	0 52.76	+6 26.0	1.775	2.418	20.7	19.8	120 E	51	58
10 18	23 21.98	-47 5.2	1.609	2.237	23.5	21.1	116 E	—	69	12 17	0 56.45	+7 3.6	1.932	2.456	22.0	20.0	111 E	52	57*
10 23	23 19.76	-46 18.9	1.662	2.248	24.0	21.2	113 E	—	70	12 27	1 2.32	+7 52.1	2.096	2.493	22.7	20.3	102 E	53	55*
10 28	23 18.52	-45 25.9	1.718	2.258	24.4	21.3	110 E	—	71	1 6	1 10.00	+8 49.1	2.265	2.529	22.8	20.5	94 E	54	51*
11 2	23 18.21	-44 27.5	1.775	2.268	24.8	21.4	107 E	1	72	1 16	1 19.18	+9 52.8	2.435	2.565	22.5	20.7	86 E	55	46*
11 7	23 18.78	-43 24.5	1.834	2.277	25.0	21.5	103 E	2	73	215144 1999 UV₅₁									
136568 1980 XB										12 23	16 30.02	-20 56.7	3.187	2.300	9.0	21.1	22 W	9*	12*
12 23	16 29.73	-18 31.6	3.608	2.723	7.8	19.8	22 W	11*	11*	1 2	16 50.14	-22 21.9	3.101	2.267	11.3	21.1	27 W	11*	18*
1 2	16 45.11	-19 34.0	3.581	2.757	9.8	19.9	29 W	14*	18*	1 12	17 10.86	-23 40.5	3.004	2.234	13.6	21.1	32 W	12*	24*
1 12	17 0.04	-20 29.9	3.538	2.790	11.7	20.0	35 W	16*	25*	1 22	17 32.16	-24 52.5	2.899	2.201	15.8	21.1	37 W	12*	30*
1 22	17 14.42	-21 20.1	3.479	2.823	13.4	20.0	42 W	17*	33*	2 1	17 54.01	-25 57.8	2.786	2.167	18.0	21.0	43 W	12*	36*
2 1	17 28.11	-22 5.6	3.407	2.854	15.0	20.1	49 W	18*	41*	2 11	18 16.38	-26 56.6	2.666	2.133	20.1	21.0	48 W	12*	42*
2 11	17 40.96	-22 47.5	3.321	2.885	16.4	20.1	56 W	18*	49*	2 21	18 39.27	-27 49.2	2.541	2.100	22.1	20.9	53 W	11*	47*
2 21	17 52.82	-23 27.1	3.223	2.914	17.6	20.1	63 W	19*	56*	3 2	19 2.62	-28 36.1	2.412	2.066	24.0	20.8	58 W	10*	52*
3 2	18 3.50	-24 5.7	3.116	2.943	18.5	20.1	71 W	19*	64*	3 12	19 26.42	-29 18.1	2.282	2.033	25.8	20.7	63 W	9*	57*
3 12	18 12.78	-24 45.1	3.001	2.970	19.1	20.0	79 W	19*	73*	3 22	19 50.65	-29 56.0	2.						

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	19/20	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°
215144 1999 UV₅₁										248926 2006 WZ₂									
<i>(continuation)</i>										<i>(continuation)</i>									
4 21	21 5.63	-31 38.6	1.766	1.904	31.5	20.2	82 W	6*	73*	1 23	11 25.68	+81 35.7	0.498	1.279	44.1	17.5	115 W	53	—
5 1	21 31.27	-32 14.1	1.646	1.874	32.5	20.0	86 W	5*	76*	1 24	11 7.91	+81 17.1	0.499	1.283	43.7	17.5	116 W	54	—
5 11	21 57.13	-32 53.1	1.532	1.845	33.2	19.8	91 W	4*	79*	1 25	10 51.18	+80 54.9	0.499	1.287	43.2	17.5	116 W	54	—
5 21	22 23.11	-33 37.5	1.426	1.817	33.7	19.7	95 W	4*	81*	1 26	10 35.62	+80 29.3	0.500	1.291	42.8	17.5	117 W	55	—
5 26	22 36.09	-34 2.3	1.375	1.804	33.9	19.6	97 W	3*	82*	1 27	10 21.27	+80 0.5	0.501	1.295	42.4	17.5	118 W	55	—
5 31	22 49.02	-34 29.1	1.327	1.791	34.0	19.5	99 W	3*	82*	1 28	10 8.15	+79 28.7	0.501	1.299	42.0	17.5	118 W	56	—
6 5	23 1.87	-34 58.0	1.280	1.778	34.1	19.4	101 W	3*	81	1 29	9 56.21	+78 54.3	0.502	1.303	41.5	17.5	119 W	56	—
6 10	23 14.61	-35 29.3	1.236	1.766	34.1	19.3	103 W	3*	81	1 30	9 45.40	+78 17.4	0.503	1.307	41.1	17.5	119 W	57	—
6 15	23 27.18	-36 3.0	1.195	1.755	34.0	19.2	105 W	3*	80	1 31	9 35.64	+77 38.3	0.504	1.311	40.7	17.5	120 W	57	—
6 20	23 39.53	-36 39.4	1.155	1.744	33.9	19.1	107 W	3*	79	2 2	9 18.93	+76 14.3	0.507	1.319	39.9	17.5	121 W	59	—
6 25	23 51.58	-37 18.4	1.118	1.733	33.8	19.0	109 W	3*	79	2 3	9 11.81	+75 29.8	0.509	1.323	39.5	17.5	121 W	60	—
6 30	0 3.25	-38 0.2	1.083	1.724	33.6	19.0	110 W	3*	78	2 4	9 5.42	+74 43.8	0.510	1.327	39.1	17.5	122 E	60	—
7 5	0 14.48	-38 44.4	1.050	1.714	33.3	18.9	112 W	3*	77	2 5	8 59.67	+73 56.5	0.512	1.332	38.7	17.5	122 E	61	—
7 10	0 25.18	-39 31.1	1.020	1.706	33.1	18.8	114 W	3*	76	2 6	8 54.51	+73 8.0	0.514	1.336	38.4	17.5	123 E	62	—
7 15	0 35.23	-40 20.2	0.991	1.698	32.7	18.7	115 W	3*	76	2 7	8 49.88	+72 18.5	0.517	1.340	38.0	17.5	123 E	63	—
7 20	0 44.52	-41 11.3	0.965	1.690	32.4	18.6	117 W	3*	75	2 8	8 45.72	+71 28.0	0.519	1.344	37.7	17.5	124 E	64	—
7 25	0 52.93	-42 4.0	0.941	1.683	32.0	18.6	119 W	3*	74	2 9	8 41.98	+70 36.7	0.521	1.349	37.3	17.5	124 E	64	—
7 30	1 0.33	-42 57.6	0.919	1.677	31.6	18.5	120 W	2*	73	2 10	8 38.63	+69 44.7	0.524	1.353	37.0	17.6	124 E	65	—
8 4	1 6.61	-43 51.3	0.899	1.672	31.1	18.4	122 W	1*	72	2 11	8 35.63	+68 52.1	0.527	1.357	36.7	17.6	125 E	66	—
8 9	1 11.64	-44 44.2	0.882	1.667	30.6	18.4	123 W	—	71	2 12	8 32.94	+67 58.9	0.530	1.362	36.4	17.6	125 E	67	—
8 14	1 15.28	-45 35.1	0.866	1.664	30.1	18.3	124 W	—	70	2 13	8 30.53	+67 5.3	0.533	1.366	36.1	17.6	125 E	68	—
8 19	1 17.43	-46 22.6	0.852	1.661	29.6	18.2	126 W	—	70	2 14	8 28.38	+66 11.3	0.537	1.371	35.9	17.6	126 E	69	—
8 24	1 18.00	-47 4.7	0.840	1.658	29.1	18.2	127 W	—	69	2 15	8 26.46	+65 17.0	0.540	1.375	35.6	17.6	126 E	70	—
8 29	1 16.97	-47 39.4	0.830	1.657	28.7	18.2	128 W	—	68	2 16	8 24.77	+64 22.5	0.544	1.379	35.4	17.6	126 E	71	—
9 3	1 14.38	-48 4.4	0.823	1.656	28.2	18.1	129 W	—	68	2 17	8 23.26	+63 27.8	0.548	1.384	35.2	17.6	126 E	72	1
9 8	1 10.33	-48 17.5	0.818	1.656	27.8	18.1	130 W	—	68	2 18	8 21.94	+62 33.0	0.552	1.388	35.0	17.7	126 E	72	1
9 13	1 5.00	-48 56.6	0.815	1.656	27.5	18.1	131 W	—	68	2 19	8 20.79	+61 38.2	0.556	1.393	34.8	17.7	126 E	73	2
9 18	0 58.67	-47 19.4	0.815	1.658	27.2	18.1	131 W	—	68	2 20	8 19.79	+60 43.4	0.561	1.397	34.6	17.7	127 E	74	3
9 23	0 51.68	-47 24.5	0.817	1.660	27.0	18.1	131 W	—	69	2 21	8 18.93	+59 48.7	0.566	1.402	34.5	17.7	127 E	75	4
9 28	0 44.45	-46 31.0	0.823	1.663	27.0	18.1	131 W	—	69	2 23	8 17.60	+57 59.8	0.576	1.411	34.2	17.8	127 E	77	6
10 3	0 37.38	-45 19.2	0.832	1.667	27.1	18.1	131 W	—	71	2 25	8 16.73	+56 11.9	0.587	1.420	34.0	17.8	127 E	79	8
10 8	0 30.78	-43 49.8	0.844	1.672	27.2	18.2	130 E	1	72	2 27	8 16.25	+54 25.3	0.599	1.429	33.9	17.9	126 E	81	10
10 13	0 24.94	-42 4.3	0.859	1.677	27.6	18.2	129 E	3	74	2 29	8 16.11	+52 40.3	0.611	1.438	33.8	17.9	126 E	82	11
10 18	0 20.05	-40 4.9	0.878	1.683	28.0	18.3	128 E	5	76	3 2	8 16.28	+50 57.3	0.624	1.447	33.8	18.0	126 E	84	13
10 23	0 16.26	-37 53.7	0.901	1.689	28.5	18.4	126 E	7	78	3 7	8 17.79	+46 49.5	0.661	1.470	33.9	18.1	124 E	88	17
10 28	0 13.59	-35 33.5	0.927	1.697	29.0	18.5	124 E	9	80	3 12	8 20.52	+42 57.3	0.703	1.493	34.2	18.3	122 E	88	21
11 2	0 12.04	-33 6.8	0.957	1.705	29.6	18.5	122 E	12	83	3 17	8 24.17	+39 21.7	0.748	1.516	34.5	18.5	120 E	84	25
11 7	0 11.54	-30 35.9	0.990	1.713	30.1	18.7	120 E	14	85	3 22	8 28.55	+36 2.5	0.798	1.539	34.9	18.7	118 E	81	28
11 12	0 12.03	-28 2.8	1.027	1.723	30.7	18.8	117 E	17	88	3 27	8 33.52	+32 59.0	0.851	1.563	35.3	18.9	115 E	78	31
11 17	0 13.44	-25 29.0	1.067	1.732	31.2	18.9	115 E	20	89	4 1	8 38.96	+30 10.1	0.908	1.585	35.6	19.1	112 E	75	34
11 22	0 15.67	-22 56.1	1.111	1.743	31.7	19.0	112 E	22	87	4 6	8 44.79	+27 34.4	0.967	1.608	35.9	19.2	110 E	73	36
11 27	0 18.66	-20 25.0	1.157	1.754	32.0	19.1	109 E	25	84	4 11	8 50.93	+25 10.6	1.029	1.631	36.0	19.4	107 E	70	39
12 2	0 22.30	-17 56.8	1.207	1.765	32.3	19.2	107 E	27	82	4 16	8 57.32	+22 57.1	1.093	1.653	36.1	19.6	104 E	68	41
12 7	0 26.53	-15 32.0	1.259	1.777	32.5	19.3	104 E	29	80	4 21	9 3.94	+20 52.7	1.159	1.675	36.0	19.7	101 E	66	43
12 17	0 36.52	-10 53.7	1.371	1.802	32.7	19.5	99 E	34	74*	4 26	9 10.74	+18 56.2	1.227	1.697	35.9	19.9	98 E	63*	45
12 27	0 48.23	-6 31.9	1.491	1.829	32.5	19.7	93 E	38	67*	5 1	9 17.71	+17 6.5	1.295	1.719	35.7	20.0	96 E	60*	47
1 6	1 1.31	-2 26.9	1.617	1.857	31.9	19.9	88 E	43	59*	5 11	9 32.01	+13 43.7	1.436	1.761	35.0	20.3	90 E	53*	50
1 16	1 15.54	+1 21.9	1.749	1.887	31.1	20.1	82 E	46	52*	5 21	9 46.70	+10 38.3	1.579	1.802	34.0	20.5	85 E	46*	53
12 23	16 30.19	+75 48.9	0.497	1.179	55.2	17.6	100 W	53*	—	5 31	10 1.71	+7 45.5	1.723	1.842	32.8	20.7	80 E	38*	56*
12 24	16 27.91	+76 0.5	0.498	1.181	54.9	17.6	101 W	53*	—	6 10	10 16.95	+5 1.8	1.866	1.880	31.5	20.9	75 E	31*	58*
12 25	16 25.47	+76 12.8	0.498	1.184	54.7	17.6	101 W	53*	—	6 20	10 32.39	+2 24.7	2.006	1.916	29.9	21.0	70 E	24*	58*
12 26	16 22.86	+76 25.8	0.498	1.186	54.4	17.6	101 W	53*	—	6 30	10 48.02	-0 7.6	2.144	1.951	28.3	21.2	65 E	18*	56*
12 27	16 20.04	+76 39.5	0.498	1.189	54.1	17.6	102 W	54*	—	7 10	11 3.82	-2 36.4	2.276	1.983	26.5	21.3	60 E	13*	53*
12 28	16 17.01	+76 53.9	0.498	1.192	53.8	17.6	102 W	54*	—	7 20	11 19.79	-5 2.7	2.403	2.014	24.6	21.4	56 E	9*	50*
12 29	16 13.72	+77 8.9	0.499	1.195	53.5	17.6	102 W	54*	—	7 30	11 35.97	-7 26.9	2.523	2.044	22.7	21.4	51 E	5*	45*
12 30	16 10.16	+77 24.5	0.499	1.197	53.2	17.6	103 W	54*	—	27592 2001 QH₁₄₂									
12 31	16 6.28	+77 40.7	0.499	1.200	52.9	17.6	103 W	54*	—	12 23	16 30.50	-39 39.7	2.018	1.205	20.4	21.3	25 W	—	19*
1 1	16 2.06	+77 57.4	0.499	1.203	52.6	17.6	104 W	54*	—	12 28	16 54.28	-40 10.9	2.023	1.211	20.4	21.4	25 W	—	19*
1 2	15 57.45	+78 14.6	0.499	1.206	52.2	17.6	104 W	54*	—	1 2	17 18.01	-40 25.2	2.029	1.218	20.4	21.4	26 W	—	18*
1 3	15 52.40	+78 32.2	0.499	1.209	51.9	17.6	105 W	55*	—	1 7	17 41.45	-40 23.0	2.037	1.227	20.3	21.4	26 W	—	18*
1 4	15 46.86	+78 50.2	0.498	1.212	51.6	17.6	105 W	55*	—	1 12	18 4.42	-40 5.1	2.044	1.236	20.3	21.4	26 W	—	18*
1 5	15 40.78	+79 8.4	0.498	1.215	51.2	17.6	105 W	55*	—	1 17									

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°-26°	19/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°-26°
18195 2000 QG₁₁₆ (continuation)									114575 2003 BH₇₁ (continuation)								
5 1	19 33.25	-19 54.6	1.936	2.455	22.8	20.4	109 W	24* 84	11 27	21 30.19	-17 43.9	1.650	1.678	34.5	18.7	74 E	27 62*
5 11	19 38.32	-19 40.6	1.793	2.429	21.7	20.1	117 W	25* 84	12 7	21 52.26	-15 0.3	1.721	1.666	33.8	18.8	70 E	30* 56*
5 21	19 40.79	-19 32.9	1.659	2.402	19.8	19.9	126 W	25 84	12 17	22 14.85	-12 7.7	1.792	1.658	32.9	18.8	66 E	33* 49*
5 31	19 40.33	-19 33.0	1.537	2.375	17.2	19.6	136 W	25 84	12 27	22 37.85	-9 7.4	1.864	1.653	31.8	18.9	62 E	35* 43*
6 10	19 36.74	-19 42.0	1.432	2.347	13.8	19.3	147 W	25 84	1 6	23 1.13	-6 1.3	1.936	1.651	30.5	18.9	59 E	37* 38*
6 20	19 30.06	-19 59.4	1.345	2.318	9.6	19.0	158 W	25 84	1 16	23 24.66	-2 51.4	2.008	1.653	29.2	19.0	55 E	38* 33*
6 30	19 20.71	-20 23.5	1.282	2.289	4.7	18.6	169 W	25 84	170405 2003 UK₄								
7 5	19 15.31	-20 37.2	1.259	2.274	2.1	18.4	175 W	24 85	12 23	16 30.59	-21 48.1	3.323	2.432	8.4	20.9	21 W	9* 12*
7 10	19 9.64	-20 51.2	1.243	2.259	1.0	18.3	178 E	24 85	1 2	16 49.22	-21 46.0	3.303	2.469	10.5	21.0	27 W	12* 18*
7 15	19 3.86	-21 5.3	1.233	2.244	3.6	18.5	172 E	24 85	1 12	17 7.13	-21 34.3	3.269	2.506	12.4	21.1	33 W	14* 24*
7 20	18 58.18	-21 19.0	1.229	2.229	6.3	18.6	166 E	24 85	1 22	17 24.24	-21 13.2	3.222	2.541	14.3	21.2	40 W	16* 31*
7 25	18 52.79	-21 32.1	1.232	2.214	9.0	18.7	160 E	23 86	2 1	17 40.42	-20 43.1	3.162	2.576	16.0	21.2	46 W	18* 38*
7 30	18 47.88	-21 44.3	1.240	2.199	11.7	18.8	154 E	23 86	2 11	17 55.54	-20 4.5	3.089	2.610	17.5	21.3	53 W	20* 45*
8 4	18 43.60	-21 55.5	1.254	2.183	14.1	18.9	148 E	23 86	2 21	18 9.46	-19 17.9	3.006	2.643	18.8	21.3	59 W	21* 52*
8 9	18 40.08	-22 5.7	1.273	2.168	16.5	19.0	143 E	23 86	3 2	18 22.04	-18 24.1	2.912	2.675	19.9	21.3	66 W	23* 59*
8 19	18 35.64	-22 23.0	1.323	2.137	20.6	19.2	132 E	23 86	3 12	18 33.10	-17 23.6	2.811	2.707	20.6	21.2	74 W	25* 66*
8 29	18 34.99	-22 36.4	1.387	2.106	23.9	19.3	122 E	22 87	3 22	18 42.49	-16 17.4	2.703	2.737	21.1	21.2	81 W	26* 73*
9 8	18 38.09	-22 45.6	1.460	2.075	26.5	19.5	113 E	22 87	4 1	18 49.97	-15 6.4	2.592	2.767	21.2	21.1	89 W	28* 78*
9 18	18 44.71	-22 50.0	1.539	2.044	28.3	19.6	105 E	22 87	4 11	18 55.37	-13 51.5	2.480	2.795	20.8	21.0	98 W	30* 78*
9 28	18 54.48	-22 48.3	1.621	2.014	29.6	19.8	97 E	22 87	4 21	18 58.48	-12 34.1	2.371	2.823	20.0	20.9	106 W	32* 77*
10 8	19 7.01	-22 39.1	1.704	1.983	30.3	19.9	91 E	22 83*	5 1	18 59.12	-11 15.5	2.267	2.850	18.6	20.8	115 W	34* 75*
10 18	19 21.88	-22 20.9	1.786	1.953	30.5	19.9	84 E	23* 77*	5 11	18 57.17	-9 57.8	2.174	2.876	16.7	20.7	125 W	35 74
10 28	19 38.78	-21 52.1	1.866	1.924	30.3	20.0	78 E	23* 70*	5 21	18 52.67	-8 43.1	2.096	2.900	14.3	20.5	135 W	36 73
11 7	19 57.32	-21 11.4	1.942	1.895	29.9	20.0	72 E	24* 64*	5 31	18 45.79	-7 34.2	2.037	2.924	11.5	20.4	145 W	37 72
11 17	20 17.25	-20 17.7	2.015	1.868	29.2	20.1	67 E	24* 57*	6 10	18 37.01	-6 34.2	2.001	2.947	8.7	20.2	154 W	38 71
11 27	20 38.28	-19 10.4	2.083	1.841	28.3	20.1	62 E	25* 51*	6 20	18 27.02	-5 45.8	1.991	2.969	6.5	20.2	161 W	39 70
12 7	21 0.19	-17 49.3	2.147	1.816	27.2	20.1	57 E	26* 45*	6 30	18 16.68	-5 11.4	2.009	2.990	6.2	20.2	161 E	40 69
12 17	21 22.78	-16 14.3	2.206	1.792	25.9	20.1	53 E	27* 39*	7 10	18 6.94	-4 51.6	2.055	3.010	8.0	20.3	156 E	40 69
12 27	21 45.91	-14 25.9	2.261	1.769	24.6	20.1	48 E	27* 34*	7 20	17 58.57	-4 45.8	2.127	3.029	10.6	20.5	147 E	40 69
1 6	22 9.42	-12 25.2	2.311	1.748	23.1	20.0	44 E	27* 29*	7 30	17 52.16	-4 52.3	2.222	3.047	13.0	20.7	137 E	40 69
1 16	22 33.26	-10 13.2	2.357	1.730	21.6	20.0	40 E	26* 25*	8 9	17 48.03	-5 8.5	2.336	3.065	15.1	20.9	128 E	40 69
114575 2003 BH₇₁									8 19	17 46.25	-5 31.5	2.465	3.081	16.8	21.1	119 E	39 70
12 23	16 30.53	-26 48.2	3.659	2.763	7.3	20.7	21 W	4* 14*	8 29	17 46.78	-5 58.6	2.605	3.096	17.9	21.3	110 E	39 70
1 2	16 48.43	-27 33.5	3.573	2.735	9.4	20.7	27 W	7* 20*	9 8	17 49.44	-6 27.2	2.753	3.110	18.5	21.4	101 E	38* 70
1 12	17 6.52	-28 12.9	3.475	2.705	11.5	20.7	33 W	8* 26*	263152 2007 VZ₂₅₃								
1 22	17 24.72	-28 46.4	3.364	2.675	13.5	20.6	39 W	9* 33*	12 23	16 31.52	-32 55.6	3.175	2.294	9.3	20.3	22 W	- 16*
2 1	17 42.94	-29 13.9	3.242	2.644	15.4	20.6	45 W	10* 39*	1 2	16 53.80	-33 9.3	3.164	2.329	11.0	20.4	27 W	1* 21*
2 11	18 1.06	-29 35.7	3.111	2.613	17.2	20.6	51 W	10* 45*	1 12	17 15.30	-33 12.2	3.141	2.364	12.7	20.5	32 W	3* 26*
2 21	18 18.98	-29 52.2	2.971	2.580	18.9	20.5	58 W	11* 52*	1 22	17 35.90	-33 5.3	3.105	2.399	14.4	20.6	37 W	4* 31*
3 2	18 36.57	-30 4.1	2.824	2.547	20.4	20.4	64 W	11* 58*	2 1	17 55.47	-32 49.5	3.057	2.433	16.1	20.6	43 W	6* 37*
3 12	18 53.68	-30 12.3	2.672	2.513	21.8	20.3	70 W	11* 64*	2 11	18 13.85	-32 25.8	2.997	2.467	17.6	20.7	49 W	7* 43*
3 22	19 10.19	-30 18.0	2.515	2.479	23.0	20.2	76 W	11* 70*	2 21	18 30.92	-31 55.7	2.925	2.500	19.0	20.7	55 W	8* 49*
4 1	19 25.91	-30 22.6	2.357	2.444	23.9	20.0	83 W	11* 76*	3 2	18 46.53	-31 20.3	2.843	2.532	20.2	20.7	62 W	9* 56*
4 11	19 40.66	-30 27.7	2.199	2.409	24.6	19.9	90 W	12* 82*	3 12	19 0.52	-30 41.0	2.751	2.564	21.2	20.7	69 W	10* 62*
4 21	19 54.23	-30 35.3	2.042	2.373	24.9	19.7	96 W	12* 85*	3 22	19 12.73	-29 59.1	2.651	2.595	21.9	20.6	76 W	11* 69*
5 1	20 6.35	-30 47.6	1.888	2.336	24.8	19.5	103 W	12* 85	4 1	19 22.96	-29 15.9	2.545	2.625	22.2	20.6	83 W	13* 77*
5 11	20 16.69	-31 6.6	1.739	2.300	24.3	19.2	111 W	13* 85	4 11	19 31.00	-28 32.5	2.436	2.655	22.2	20.5	91 W	14* 84*
5 21	20 24.91	-31 34.5	1.598	2.263	23.2	19.0	118 W	13* 84	4 21	19 36.63	-27 49.8	2.325	2.683	21.7	20.4	100 W	16* 88
5 31	20 30.52	-32 12.9	1.466	2.226	21.4	18.7	127 W	13* 84	5 1	19 39.59	-27 8.5	2.216	2.711	20.6	20.3	109 W	17* 89
6 10	20 33.08	-33 2.1	1.347	2.188	19.1	18.4	135 W	12 83	5 11	19 39.68	-26 28.7	2.113	2.739	19.0	20.2	118 W	18* 90
6 20	20 32.12	-34 0.4	1.243	2.151	16.0	18.1	144 W	11 82	5 21	19 36.74	-25 49.9	2.021	2.765	16.7	20.0	128 W	19 90
6 25	20 30.22	-34 31.6	1.197	2.132	14.3	17.9	149 W	10 81	5 31	19 30.78	-25 11.3	1.944	2.790	13.7	19.9	139 W	20 89
6 30	20 27.37	-35 2.8	1.156	2.114	12.5	17.8	153 W	10 81	6 10	19 22.10	-24 31.2	1.886	2.815	10.2	19.7	151 W	20 89
7 5	20 23.60	-35 33.0	1.120	2.095	10.8	17.6	157 W	9 80	6 15	19 16.91	-24 10.2	1.866	2.827	8.2	19.6	157 W	21 88
7 10	20 19.01	-36 0.9	1.089	2.077	9.2	17.5	161 W	9 80	6 20	19 11.28	-23 48.4	1.853	2.839	6.2	19.5	163 W	21 88
7 15	20 13.69	-36 25.0	1.064	2.058	8.2	17.4	163 W	9 80	6 25	19 5.35	-23 25.7	1.847	2.851	4.0	19.4	169 W	22 87
7 20	20 7.84	-36 43.9	1.044	2.040	8.0	17.3	164 W	8 79	6 30	18 59.26	-23 2.2	1.848	2.862	1.9	19.2	175 W	22 87
7 25	20 1.68	-36 56.6	1.030	2.022	8.8	17.3	162 E	8 79	7 5	18 53.15	-22 38.0	1.857	2.873	0.3	19.1	179 E	22 87
7 30	19 55.49	-37 2.0	1.022	2.004	10.3	17.3	159 E	8 79	7 10	18 47.18	-22 13.3	1.873	2.884	2.5	19.3	173 E	23 86
8 4	19 49.54	-36 59.9	1.018	1.986	12.3	17.4	155 E	8 79	7 15	18 41.47	-21 48.4	1.896	2.895	4.6	19.5	167 E	23 86
8 9	19 44.08	-36 50.1	1.020	1.968	14.6	17.4	151 E	8 79	7 20	18 36.14	-21 23.6	1.926	2.905	6.6	19.6	161 E	24 85
8 14	19 39.33	-36 33.2	1.027	1.951	16.9	17.5	146 E	8 79	7 30	18 27.06	-20 35.4	2.007	2.926	10.2	19.9	149 E	24 85
8 19	19 35.49	-36 9.7	1.038	1.933	19.2	17.6	141 E	9 80	8 9	18 20.49	-19 50.9	2.112	2.945	13.3	20.1	138 E	25 84
8 24	19 32.71	-35 40.5	1.053	1.916	21.3	17.7	136 E	9 80	8 19	18 16.63	-19 11.3	2.236	2.964	15.7	20.4	128 E	26 83
8 29	19 31.08	-35 6.4	1.071	1													

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/20	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	19/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°
334703 2003 EN₄₃										279712 2011 GY₄₆ (continuation)									
12 23	16 31.54	-10 15.3	2.413	1.582	15.5	19.4	25 W	18*	7*	5 11	22 29.56	-26 4.3	1.628	1.784	34.1	19.1	81 W	7*	74*
1 2	17 3.20	-10 12.0	2.370	1.570	17.0	19.4	28 W	19*	10*	5 21	22 53.93	-24 33.2	1.526	1.757	35.0	19.0	85 W	8*	79*
1 12	17 34.97	-9 48.9	2.333	1.564	18.4	19.4	30 W	21*	13*	5 31	23 17.33	-22 57.9	1.428	1.734	35.8	18.8	89 W	10*	83*
1 22	18 6.54	-9 6.2	2.302	1.564	19.7	19.4	32 W	22*	17*	6 10	23 39.58	-21 20.2	1.335	1.713	36.3	18.7	93 W	13*	85*
2 1	18 37.60	-8 5.0	2.276	1.570	20.9	19.4	35 W	22*	20*	6 20	0 0.46	-19 42.4	1.247	1.696	36.5	18.5	97 W	17*	84
2 11	19 7.86	-6 47.4	2.255	1.582	22.0	19.4	37 W	23*	23*	6 30	0 19.65	-18 6.5	1.163	1.682	36.4	18.3	101 W	21*	82
2 21	19 37.09	-5 16.2	2.237	1.599	23.0	19.5	39 W	24*	27*	7 10	0 36.84	-16 34.1	1.084	1.671	35.9	18.2	105 W	25*	81
3 2	20 5.12	-3 34.4	2.222	1.622	24.0	19.5	42 W	24*	30*	7 20	0 51.61	-15 6.4	1.009	1.664	34.9	18.0	111 W	28*	79
3 12	20 31.82	-1 45.3	2.207	1.649	24.9	19.6	44 W	25*	33*	7 30	1 3.42	-13 44.0	0.939	1.661	33.2	17.8	116 W	31*	78
3 22	20 57.11	+0 7.9	2.192	1.682	25.7	19.6	47 W	26*	36*	8 9	1 11.74	-12 26.1	0.876	1.662	30.8	17.5	123 W	33	76
4 1	21 20.96	+2 2.4	2.175	1.718	26.6	19.7	50 W	27*	39*	8 19	1 15.96	-11 11.2	0.820	1.666	27.5	17.3	131 W	34	75
4 11	21 43.32	+3 55.5	2.155	1.758	27.3	19.7	54 W	28*	42*	8 29	1 15.62	-9 55.9	0.774	1.674	23.1	17.1	139 W	35	74
4 21	22 4.20	+5 44.9	2.130	1.801	28.1	19.8	57 W	29*	45*	9 8	1 10.68	-8 35.6	0.741	1.686	17.9	16.8	149 W	36	73
5 1	22 23.55	+7 28.5	2.099	1.846	28.7	19.8	62 W	31*	48*	9 18	1 1.67	-7 6.3	0.723	1.702	11.9	16.6	160 W	38	71
5 11	22 41.33	+9 4.3	2.062	1.894	29.2	19.8	66 W	34*	50*	9 28	0 50.05	-5 25.0	0.726	1.721	6.3	16.4	169 W	40	69
5 21	22 57.47	+10 30.8	2.019	1.944	29.5	19.9	71 W	36*	51*	10 8	0 37.95	-3 32.4	0.750	1.742	5.9	16.4	170 E	41	68
5 31	23 11.86	+11 45.8	1.970	1.995	29.6	19.9	77 W	40*	52*	10 18	0 27.44	-1 32.5	0.796	1.767	10.9	16.8	160 E	43	66
6 10	23 24.36	+12 47.6	1.915	2.048	29.4	19.9	83 W	44*	51	10 28	0 20.11	+0 30.5	0.863	1.794	16.1	17.2	150 E	46	63
6 20	23 34.79	+13 34.0	1.855	2.102	28.9	19.8	89 W	49*	50	11 7	0 16.67	+2 33.5	0.949	1.824	20.4	17.6	140 E	48	61
6 30	23 42.94	+14 2.5	1.792	2.156	27.9	19.8	96 W	54*	50	11 17	0 17.08	+4 34.6	1.051	1.855	23.8	18.0	131 E	50	59
7 10	23 48.58	+14 10.2	1.728	2.211	26.5	19.7	104 W	57*	50	11 27	0 21.01	+6 34.0	1.166	1.889	26.2	18.3	122 E	52	57
7 20	23 51.51	+13 54.2	1.666	2.266	24.4	19.6	113 W	59*	50	12 7	0 27.90	+8 31.6	1.293	1.924	27.7	18.6	115 E	54	55
7 30	23 51.61	+13 11.2	1.611	2.322	21.6	19.5	123 W	58	51	12 17	0 37.23	+10 27.7	1.427	1.961	28.6	18.9	107 E	55	53*
8 9	23 48.94	+11 59.5	1.567	2.377	18.2	19.4	133 W	57	52	12 27	0 48.56	+12 22.6	1.569	1.998	28.9	19.2	101 E	57	49*
8 19	23 43.78	+10 19.0	1.539	2.433	14.1	19.3	144 W	55	54	1 6	1 1.50	+14 15.9	1.716	2.037	28.8	19.4	94 E	59	45*
8 24	23 40.45	+9 18.9	1.532	2.460	11.8	19.2	150 W	54	55	1 16	1 15.76	+16 7.3	1.866	2.076	28.3	19.6	88 E	61	40*
8 29	23 36.74	+8 13.4	1.532	2.488	9.5	19.1	156 W	53	56										
9 3	23 32.79	+7 3.4	1.538	2.516	7.2	19.1	162 W	52	57										
9 8	23 28.72	+5 50.5	1.551	2.543	5.0	19.0	167 W	51	58										
9 13	23 24.65	+4 36.0	1.571	2.570	3.3	19.0	172 W	50	59										
9 18	23 20.71	+3 21.4	1.598	2.597	2.9	19.0	172 E	48	61										
9 23	23 17.02	+2 8.2	1.633	2.625	4.2	19.1	169 E	47	62										
9 28	23 13.69	+0 57.9	1.675	2.651	6.1	19.3	164 E	46	63										
10 3	23 10.80	+0 8.5	1.723	2.678	8.0	19.5	158 E	45	64										
10 8	23 8.41	-1 9.9	1.779	2.705	9.8	19.7	153 E	44	65										
10 18	23 5.26	-2 56.0	1.908	2.758	13.0	20.0	141 E	42	67										
10 28	23 4.40	-4 17.9	2.059	2.810	15.5	20.3	131 E	41	68										
11 7	23 5.75	-5 15.8	2.226	2.862	17.3	20.5	121 E	40	69										
11 17	23 9.08	-5 51.9	2.406	2.913	18.4	20.8	111 E	39	70										
11 27	23 14.17	-6 8.6	2.595	2.964	19.0	21.0	102 E	39	70*										
12 7	23 20.73	-6 9.1	2.788	3.013	19.0	21.2	94 E	39	67*										
12 17	23 28.51	-5 55.8	2.983	3.062	18.7	21.4	85 E	39	61*										
377127 2003 EV₅₂										3753 Cruithne									
12 23	16 31.83	-37 54.3	2.472	1.625	14.3	21.1	24 W	-	18*	12 23	16 32.21	-14 9.0	1.228	0.506	50.1	16.4	23 W	15*	9*
12 28	16 50.09	-38 59.0	2.456	1.624	15.1	21.1	25 W	-	19*	12 28	17 2.10	-14 48.0	1.318	0.537	41.6	16.5	21 W	13*	7*
1 2	17 8.84	-39 55.3	2.442	1.625	15.8	21.2	27 W	-	20*	1 2	17 30.61	-15 24.9	1.402	0.577	34.6	16.6	19 W	11*	6*
1 7	17 28.01	-40 42.6	2.428	1.626	16.5	21.2	28 W	-	21*	1 7	17 57.60	-15 55.9	1.480	0.624	29.2	16.7	18 W	10*	6*
1 12	17 47.51	-41 20.4	2.415	1.628	17.1	21.2	29 W	-	22*	1 12	18 23.08	-16 18.9	1.552	0.674	25.0	16.9	17 W	9*	6*
1 17	18 7.24	-41 48.3	2.403	1.632	17.7	21.2	30 W	-	23*	1 22	19 9.79	-16 39.4	1.680	0.777	19.7	17.2	15 W	6*	6*
1 22	18 27.09	-42 6.2	2.391	1.636	18.3	21.2	32 W	-	24*	2 1	19 51.47	-16 28.9	1.789	0.877	17.1	17.5	15 W	5*	7*
1 27	18 46.93	-42 14.1	2.381	1.641	18.9	21.2	33 W	-	24*	2 11	20 28.99	-15 54.1	1.881	0.972	16.3	17.8	16 W	4*	9*
2 1	19 6.63	-42 12.2	2.371	1.648	19.5	21.2	34 W	-	25*	2 16	20 46.43	-15 29.5	1.921	1.016	16.3	17.9	17 W	3*	10*
2 6	19 26.08	-42 0.7	2.362	1.655	20.0	21.3	35 W	-	26*	2 21	21 3.11	-15 1.1	1.956	1.059	16.6	18.1	18 W	3*	11*
2 11	19 45.17	-41 40.2	2.353	1.663	20.5	21.3	36 W	-	27*	2 26	21 19.10	-14 29.5	1.988	1.099	17.0	18.2	19 W	3*	13*
2 16	20 3.80	-41 11.3	2.345	1.672	21.0	21.3	37 W	-	27*	3 2	21 34.47	-13 55.2	2.015	1.138	17.5	18.3	20 W	2*	14*
2 21	20 21.90	-40 34.9	2.337	1.682	21.5	21.3	39 W	-	28*	3 12	22 3.60	-12 40.8	2.058	1.209	18.8	18.5	23 W	2*	17*
2 26	20 39.41	-39 51.6	2.329	1.693	22.0	21.3	40 W	-	29*	3 22	22 30.95	-11 21.0	2.084	1.271	20.4	18.7	26 W	2*	20*
3 2	20 56.28	-39 2.4	2.321	1.704	22.5	21.4	41 W	-	30*	4 1	22 56.88	-9 58.5	2.095	1.326	22.1	18.9	30 W	2*	24*
3 7	21 12.49	-38 8.1	2.313	1.716	23.0	21.4	42 W	-	31*	4 11	23 21.67	-8 35.7	2.090	1.374	23.9	19.0	34 W	2*	28*
3 12	21 28.03	-37 9.5	2.305	1.729	23.4	21.4	44 W	-	32*	4 21	23 45.61	-7 14.1	2.071	1.414	25.7	19.1	38 W	3*	31*
3 17	21 42.90	-36 7.5	2.296	1.743	23.9	21.4	45 W	-	33*	5 1	0 8.89	-5 55.6	2.038	1.447	27.5	19.2	42 W	4*	35*
3 22	21 57.11	-35																	

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	19/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°
3753 Cruithne										88424 2001 QC₆₁									
<i>(continuation)</i>										<i>(continuation)</i>									
11 27	13 51.98	-13 23.1	0.801	0.555	91.5	17.1	34 W	20*	21*	6 20	18 39.58	-6 39.9	1.454	2.435	8.2	18.5	160 W	38	71
11 29	14 5.63	-13 10.3	0.832	0.539	89.3	17.0	33 W	20*	19*	6 30	18 28.07	-7 59.2	1.411	2.406	6.4	18.3	165 E	37	72
12 1	14 19.13	-13 0.3	0.865	0.525	86.8	16.9	32 W	20*	18*	7 5	18 22.07	-8 46.4	1.399	2.392	6.9	18.3	164 E	36	73
12 3	14 32.51	-12 53.4	0.899	0.513	83.8	16.9	31 W	20*	17*	7 10	18 16.13	-9 37.8	1.394	2.377	8.2	18.4	161 E	35	74
12 5	14 45.78	-12 49.8	0.934	0.503	80.5	16.8	30 W	19*	15*	7 15	18 10.41	-10 32.5	1.396	2.362	10.0	18.4	156 E	34	75
12 7	14 58.95	-12 49.5	0.971	0.494	77.0	16.7	29 W	19*	14*	7 20	18 5.07	-11 29.8	1.404	2.347	12.0	18.5	151 E	34	75
12 12	15 31.52	-13 2.8	1.065	0.484	67.2	16.5	27 W	17*	12*	7 25	18 0.26	-12 28.7	1.418	2.332	14.0	18.6	146 E	33	76
12 17	16 3.45	-13 32.5	1.161	0.490	57.0	16.4	25 W	16*	10*	7 30	17 56.11	-13 28.5	1.438	2.317	16.0	18.7	141 E	32	77
12 22	16 34.48	-14 11.7	1.254	0.511	47.4	16.4	22 W	14*	8*	8 4	17 52.71	-14 28.5	1.463	2.301	17.9	18.8	136 E	31	78
12 27	17 4.28	-14 53.4	1.342	0.544	39.3	16.5	21 W	12*	7*	8 9	17 50.12	-15 27.9	1.492	2.285	19.7	18.9	131 E	30	79
1	17 32.64	-15 31.7	1.424	0.586	32.6	16.6	19 W	11*	6*	8 19	17 47.53	-17 23.4	1.562	2.253	22.7	19.0	121 E	28	81
1	17 59.48	-16 3.2	1.501	0.634	27.5	16.7	17 W	9*	5*	8 29	17 48.45	-19 12.3	1.643	2.220	25.1	19.2	111 E	26	83
1	18 24.81	-16 26.2	1.571	0.684	23.6	16.9	16 W	8*	5*	9 8	17 52.75	-20 52.7	1.731	2.187	26.7	19.3	103 E	24*	85
1	18 48.69	-16 40.4	1.636	0.736	20.7	17.0	15 W	7*	5*	9 18	18 0.19	-22 23.5	1.822	2.153	27.7	19.4	95 E	22*	86*
105175 2000 OO₂₂										162015 1994 TF₂									
12 23	16 32.25	-19 7.0	3.642	2.750	7.5	21.1	21 W	11*	11*	10 8	18 23.35	-24 53.2	2.003	2.084	28.2	19.6	80 E	19*	74*
1	16 49.04	-19 37.9	3.567	2.734	9.6	21.2	28 W	13*	17*	10 18	18 38.50	-25 50.3	2.088	2.049	27.8	19.6	74 E	18*	68*
1	17 5.79	-20 1.5	3.479	2.717	11.6	21.2	34 W	16*	24*	10 28	18 55.69	-26 34.4	2.168	2.014	27.2	19.6	68 E	17*	61*
1	17 22.41	-20 17.7	3.377	2.699	13.6	21.2	40 W	17*	31*	11 7	19 14.67	-27 4.6	2.241	1.979	26.2	19.6	62 E	17*	55*
2	17 38.78	-20 26.5	3.263	2.680	15.4	21.2	46 W	18*	38*	11 17	19 35.22	-27 20.0	2.307	1.944	25.1	19.6	56 E	16*	50*
2	17 54.79	-20 28.2	3.139	2.660	17.2	21.1	53 W	19*	45*	11 27	19 57.14	-27 19.8	2.364	1.910	23.8	19.6	51 E	15*	44*
2	18 10.31	-20 23.2	3.006	2.639	18.8	21.1	59 W	20*	52*	12 7	20 20.19	-27 3.3	2.413	1.876	22.4	19.6	46 E	15*	39*
3	18 25.19	-20 12.1	2.864	2.617	20.2	21.0	66 W	21*	59*	12 17	20 44.20	-26 30.1	2.454	1.842	20.9	19.5	42 E	14*	34*
3	18 39.27	-19 55.8	2.717	2.595	21.4	20.9	72 W	22*	65*	12 27	21 8.99	-25 39.9	2.487	1.809	19.4	19.4	38 E	13*	29*
3	18 52.41	-19 35.3	2.562	2.572	22.4	20.8	79 W	23*	72*	1	21 34.37	-24 32.9	2.511	1.777	17.8	19.4	34 E	12*	25*
4	19 4.37	-19 11.7	2.409	2.547	23.0	20.6	86 W	24*	79*	1	22 0.23	-23 9.5	2.529	1.747	16.3	19.3	30 E	11*	22*
4	19 14.96	-18 46.7	2.254	2.522	23.4	20.5	94 W	25*	83*	165213 2000 SJ₁₂									
4	19 23.92	-18 21.8	2.099	2.497	23.3	20.3	101 W	26*	82	12 23	16 33.66	-13 24.5	1.594	0.792	29.4	21.0	23 W	15*	8*
5	19 30.95	-17 58.9	1.949	2.470	22.7	20.1	109 W	26*	82	1	17 21.22	-12 47.1	1.654	0.838	27.0	21.1	23 W	15*	7*
5	19 35.74	-17 40.1	1.805	2.443	21.5	19.9	118 W	27*	82	1	18 6.05	-11 50.5	1.713	0.888	25.1	21.3	23 W	15*	7*
5	19 37.96	-17 27.6	1.670	2.415	19.6	19.6	127 W	28	81	1	18 48.13	-10 37.6	1.769	0.939	23.7	21.4	23 W	14*	8*
5	19 37.29	-17 23.2	1.547	2.386	17.0	19.3	136 W	28	81	2	19 27.56	-9 11.5	1.821	0.989	22.7	21.6	23 W	14*	9*
6	19 33.56	-17 28.4	1.441	2.357	13.7	19.0	147 W	28	81	12 23	16 33.74	-23 3.6	2.870	1.978	10.0	21.0	20 W	7*	12*
6	19 26.81	-17 43.5	1.354	2.327	9.5	18.7	158 W	27	82	1	16 59.12	-23 55.7	2.798	1.948	12.2	21.0	25 W	8*	17*
6	19 17.48	-18 7.6	1.290	2.297	4.8	18.4	169 W	27	82	1	17 25.18	-24 33.3	2.720	1.919	14.3	21.0	29 W	9*	21*
7	5 19 12.13	-18 22.3	1.267	2.281	2.5	18.2	174 W	27	82	1	17 51.82	-24 55.3	2.637	1.890	16.5	21.0	33 W	10*	26*
7	10 19 6.52	-18 38.3	1.251	2.266	2.0	18.1	176 E	26	83	2	18 18.91	-25 0.5	2.551	1.862	18.6	20.9	37 W	10*	30*
7	15 19 0.82	-18 55.1	1.241	2.250	4.1	18.2	171 E	26	83	2	18 46.29	-24 48.4	2.463	1.835	20.6	20.9	41 W	10*	35*
7	20 18 55.23	-19 12.3	1.237	2.234	6.7	18.3	165 E	26	83	3	19 13.82	-24 18.7	2.372	1.810	22.6	20.8	45 W	11*	39*
7	25 18 49.93	-19 29.6	1.239	2.219	9.3	18.4	159 E	26	83	3	19 41.32	-23 31.6	2.280	1.785	24.6	20.8	49 W	11*	42*
7	30 18 45.11	-19 46.7	1.248	2.203	11.9	18.5	153 E	25	84	3	20 8.64	-22 27.8	2.188	1.763	26.4	20.7	52 W	11*	46*
8	4 18 40.93	-20 3.4	1.261	2.187	14.4	18.6	148 E	25	84	3	20 35.64	-21 8.1	2.096	1.741	28.2	20.7	56 W	11*	50*
8	9 18 37.49	-20 19.4	1.279	2.171	16.7	18.7	142 E	25	84	4	21 2.21	-19 34.3	2.005	1.722	29.9	20.6	59 W	12*	53*
8	19 18 33.19	-20 49.3	1.329	2.139	20.8	18.9	132 E	24	85	4	11 21 28.23	-17 48.0	1.916	1.705	31.5	20.5	63 W	13*	57*
8	29 18 32.63	-21 15.6	1.392	2.106	24.1	19.1	122 E	24	85	4	21 53.65	-15 51.3	1.828	1.690	32.9	20.4	66 W	14*	60*
9	8 18 35.80	-21 37.5	1.464	2.074	26.6	19.2	113 E	23	86	5	22 18.38	-13 46.6	1.742	1.677	34.2	20.3	69 W	15*	63*
9	18 18 42.47	-21 54.1	1.542	2.042	28.4	19.3	105 E	23	86	5	22 42.36	-11 36.5	1.658	1.667	35.4	20.3	73 W	17*	66*
9	28 18 52.30	-22 3.8	1.623	2.010	29.7	19.5	97 E	23	86	5	21 23 5.55	-9 23.3	1.576	1.659	36.3	20.2	76 W	19*	68*
10	8 19 4.90	-22 5.3	1.705	1.978	30.3	19.5	90 E	23*	82*	5	31 23 27.83	-7 10.0	1.496	1.654	37.1	20.1	80 W	22*	69*
10	18 19 19.88	-21 57.0	1.786	1.947	30.6	19.6	84 E	23*	76*	6	10 23 49.12	-4 59.1	1.418	1.652	37.7	20.0	84 W	26*	69*
10	28 19 36.91	-21 37.3	1.864	1.916	30.4	19.7	78 E	23*	70*	6	20 0 9.28	-2 53.1	1.342	1.653	37.9	19.9	88 W	30*	67
11	7 19 55.63	-21 5.0	1.939	1.886	30.0	19.7	72 E	24*	63*	6	30 0 28.11	-0 54.8	1.267	1.656	37.8	19.7	92 W	35*	65
11	17 20 15.78	-20 19.0	2.010	1.857	29.3	19.7	67 E	24*	57*	7	10 0 45.35	+0 53.7	1.195	1.662	37.4	19.6	97 W	40*	63
11	27 20 37.08	-19 18.6	2.076	1.829	28.4	19.8	62 E	25*	51*	7	20 1 0.68	+2 30.1	1.125	1.671	36.4	19.5	103 W	45*	61
12	7 20 59.28	-18 3.7	2.138	1.803	27.3	19.8	57 E	26*	45*	7	30 1 13.66	+3 52.2	1.057	1.682	34.9	19.3	109 W	48*	60
12	17 21 22.21	-16 34.2	2.195	1.777	26.1	19.7	53 E	26*	39*	8	9 1 23.82	+4 58.3	0.994	1.696	32.7	19.1	115 W	50	59
12	27 21 45.69	-14 50.6	2.248	1.754	24.7	19.7	48 E	26*	34*	8	19 1 30.62	+5 46.7	0.935	1.712	29.7	18.9	123 W	51	58
1	6 22 9.58	-12 54.0	2.296	1.733	23.3	19.7	44 E	26*	29*	8	29 1 33.55	+6 16.2	0.885	1.730	25.8	18.7	132 W	51	58
1	16 22 33.81	-10 45.4	2.340	1.713	21.8	19.7	40 E	25*	25*	9	8 1 32.34	+6 26.5	0.844	1.750	20.9	18.5	142 W	51	58
88424 2001 QC₆₁										9	18 1 27.11	+6 18.9	0.818	1.772	15.1	18.2	153 W	51	58
12 23	16 33.16	-6 38.6	3.617	2.779	9.3	20.8	27 W	21*	5*	9 23	1 23.20	+6 9.4	0.812	1.784	11.9	18.1	158 W	51	58
1	16 48.63	-7 12.3	3.547	2.768	11.0	20.8	32 W	24*	12*	9 28	1 18.66	+5 57.2	0.810	1.795	8.6	18.0	164 W	51	58
1	12 17 3.93	-7 37.2	3.464	2.757	12.7	20.9	38 W	27*	19*	10 3	1 13.69	+5 43.2	0.813	1.808	5.2	17.9	17		

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	19/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°
68348 2001 LO₇										5011 Ptah									
12 23	16 34.01	-18 50.5	4.705	3.804	5.3	20.9	21 W	11*	10*	11 7	19 24.22	-27 52.5	2.647	2.385	21.9	21.5	64 E	16*	58*
1 2	16 44.12	-18 56.4	4.611	3.780	7.2	20.9	29 W	15*	18*	11 17	19 38.62	-26 59.8	2.748	2.365	20.6	21.5	57 E	16*	50*
1 12	16 53.95	-18 57.9	4.496	3.754	9.0	20.9	37 W	18*	26*	11 27	19 53.94	-26 1.9	2.839	2.343	19.0	21.5	51 E	16*	43*
1 22	17 3.36	-18 54.9	4.361	3.726	10.7	20.9	45 W	20*	35*	12 7	20 9.99	-24 58.2	2.916	2.318	17.3	21.5	44 E	16*	36*
2 1	17 12.21	-18 47.0	4.209	3.697	12.2	20.9	53 W	22*	43*	12 17	20 26.65	-23 48.0	2.980	2.290	15.4	21.4	38 E	15*	29*
2 11	17 20.33	-18 34.3	4.042	3.666	13.6	20.8	61 W	24*	52*	12 27	20 43.80	-22 30.9	3.030	2.260	13.4	21.4	32 E	14*	23*
2 21	17 27.54	-18 16.5	3.862	3.633	14.8	20.8	69 W	25*	61*	1 6	21 1.34	-21 6.5	3.065	2.227	11.3	21.3	26 E	11*	17*
3 2	17 33.64	-17 53.8	3.672	3.598	15.6	20.7	78 W	26*	69*	1 16	21 19.21	-19 34.8	3.084	2.191	9.1	21.2	21 E	8*	12*
3 12	17 38.39	-17 26.0	3.476	3.561	16.2	20.5	87 W	27*	77*	88609 2001 QP₂₉₆									
3 22	17 41.57	-16 53.3	3.277	3.523	16.3	20.4	96 W	28*	81*	12 23	16 34.98	-23 16.0	2.737	1.844	10.5	20.2	20 W	7*	12*
4 1	17 42.88	-16 15.5	3.080	3.482	16.1	20.2	105 W	29	80	1 2	17 2.32	-24 13.0	2.669	1.814	12.7	20.2	24 W	8*	16*
4 11	17 42.07	-15 32.8	2.889	3.440	15.3	20.0	115 W	29	80	1 12	17 30.48	-24 53.1	2.597	1.786	14.8	20.2	28 W	8*	20*
4 21	17 38.90	-14 45.3	2.708	3.395	13.9	19.8	126 W	30	79	1 22	17 59.33	-25 14.7	2.523	1.758	16.9	20.1	31 W	9*	24*
5 1	17 33.18	-13 53.2	2.544	3.348	11.9	19.6	137 W	31	78	2 1	18 28.71	-25 16.5	2.447	1.732	19.0	20.1	35 W	9*	28*
5 11	17 24.89	-12 57.2	2.401	3.299	9.4	19.3	148 W	32	77	2 11	18 58.40	-24 57.8	2.369	1.708	21.0	20.1	38 W	9*	32*
5 21	17 14.23	-11 58.6	2.285	3.248	6.5	19.0	159 W	33	76	2 21	19 28.21	-24 18.2	2.292	1.685	22.9	20.0	42 W	9*	35*
5 31	17 1.69	-10 59.5	2.199	3.195	4.1	18.8	167 W	34	75	3 2	19 57.91	-23 18.2	2.215	1.664	24.8	20.0	45 W	9*	39*
6 10	16 48.07	-10 3.0	2.146	3.139	4.6	18.7	166 E	35	74	3 12	20 27.31	-21 58.9	2.139	1.646	26.6	19.9	48 W	9*	42*
6 20	16 34.35	-9 12.4	2.125	3.081	7.7	18.8	156 E	36	73	3 22	20 56.26	-20 21.8	2.064	1.630	28.3	19.9	51 W	9*	45*
6 30	16 21.58	-8 31.0	2.135	3.021	11.3	18.9	145 E	36	73	4 1	21 24.61	-18 29.1	1.991	1.616	29.9	19.8	54 W	10*	48*
7 10	16 10.61	-8 1.2	2.171	2.958	14.6	19.1	133 E	37	72	4 11	21 52.25	-16 23.3	1.920	1.606	31.4	19.8	57 W	11*	51*
7 20	16 2.03	-7 43.9	2.227	2.892	17.4	19.2	122 E	37	72	4 21	22 19.13	-14 7.1	1.850	1.598	32.9	19.7	60 W	12*	54*
7 30	15 56.15	-7 38.7	2.297	2.824	19.6	19.2	111 E	37	72	5 1	22 45.20	-11 43.6	1.783	1.593	34.1	19.7	63 W	13*	56*
8 9	15 53.01	-7 44.5	2.374	2.752	21.2	19.3	101 E	35	72	5 11	23 10.42	-9 15.6	1.716	1.591	35.3	19.6	66 W	15*	59*
8 19	15 52.50	-7 59.3	2.454	2.678	22.2	19.4	91 E	33	72*	5 21	23 34.76	-6 46.3	1.652	1.592	36.3	19.6	69 W	17*	61*
8 29	15 54.47	-8 21.5	2.530	2.600	22.7	19.4	83 E	31*	69*	5 31	23 58.18	-4 18.4	1.588	1.597	37.1	19.5	72 W	20*	63*
9 8	15 58.69	-8 48.8	2.600	2.520	22.6	19.4	74 E	29*	64*	6 10	0 20.61	+1 54.6	1.524	1.604	37.8	19.5	75 W	24*	63*
9 18	16 4.99	-9 19.6	2.659	2.435	22.2	19.3	66 E	27*	57*	6 20	0 41.96	+0 22.7	1.461	1.614	38.2	19.4	79 W	28*	63*
9 28	16 13.19	-9 52.1	2.704	2.347	21.4	19.3	59 E	25	50*	6 30	1 2.08	+2 31.3	1.397	1.627	38.3	19.3	83 W	34*	61*
10 8	16 23.16	-10 24.6	2.734	2.255	20.3	19.2	52 E	24*	43*	7 10	1 20.79	+4 29.4	1.333	1.642	38.2	19.2	88 W	39*	60
10 18	16 34.82	-10 55.7	2.746	2.159	19.0	19.0	45 E	22*	35*	7 20	1 37.83	+6 15.6	1.269	1.660	37.7	19.1	93 W	45*	58
10 28	16 48.11	-11 23.6	2.739	2.059	17.5	18.9	39 E	20*	28*	7 30	1 52.83	+7 48.4	1.205	1.681	36.7	19.0	98 W	50*	56
11 7	17 3.03	-11 46.9	2.712	1.953	15.9	18.7	33 E	18*	21*	8 9	2 5.41	+9 7.0	1.142	1.703	35.2	18.9	104 W	53*	55
11 17	17 19.63	-12 3.8	2.664	1.842	14.3	18.5	27 E	16*	15*	8 19	2 15.06	+10 10.6	1.081	1.727	33.1	18.7	111 W	55	54
11 27	17 38.00	-12 12.4	2.596	1.726	12.6	18.2	22 E	14*	8*	8 29	2 21.22	+10 58.2	1.023	1.753	30.2	18.6	119 W	56	53
12 7	17 58.31	-12 10.7	2.508	1.603	11.1	17.9	18 E	12*	2*	9 8	2 23.42	+11 29.4	0.972	1.780	26.4	18.4	128 W	56	53
12 17	18 20.83	-11 56.2	2.401	1.473	10.0	17.6	15 E	9*	—	9 18	2 21.34	+11 43.8	0.930	1.808	21.7	18.2	138 W	57	52
12 27	18 45.96	-11 25.9	2.275	1.336	9.6	17.2	13 E	6*	—	9 28	2 15.07	+11 41.4	0.902	1.838	16.1	18.0	150 W	57	52
1 6	19 14.29	-10 36.1	2.133	1.189	9.9	16.9	12 E	4*	—	10 8	2 5.44	+11 24.8	0.893	1.868	9.7	17.7	162 W	56	53
1 16	19 46.73	-9 22.5	1.977	1.033	11.1	16.4	12 W	3*	—	10 13	1 59.79	+11 12.4	0.896	1.883	6.3	17.6	168 W	56	53
5011 Ptah										10 18	1 53.88	+10 58.3	0.905	1.899	2.9	17.5	174 W	56	53
12 23	16 34.19	-25 38.9	2.574	1.685	11.6	20.3	20 W	5*	13*	10 23	1 47.99	+10 43.6	0.919	1.914	0.5	17.3	179 E	56	53
1 2	16 59.14	-26 40.3	2.594	1.749	13.6	20.5	25 W	6*	18*	10 28	1 42.36	+10 29.5	0.940	1.930	3.7	17.6	173 E	55	54
1 12	17 23.18	-27 26.1	2.601	1.810	15.5	20.6	29 W	7*	23*	11 2	1 37.19	+10 16.8	0.967	1.946	6.8	17.9	167 E	55	54
1 22	17 46.24	-27 58.1	2.594	1.868	17.3	20.7	34 W	8*	28*	11 7	1 32.67	+10 6.4	1.000	1.961	9.8	18.1	160 E	55	54
2 1	18 8.24	-28 18.4	2.574	1.923	19.1	20.8	40 W	8*	33*	11 17	1 26.02	+9 55.2	1.081	1.993	14.9	18.5	149 E	55	54
2 11	18 29.08	-28 29.2	2.541	1.975	20.8	20.9	45 W	9*	39*	11 27	1 22.94	+9 59.4	1.181	2.025	19.0	18.9	138 E	55	54
2 21	18 48.70	-28 32.5	2.494	2.024	22.3	21.0	51 W	9*	45*	12 7	1 23.40	+10 19.6	1.298	2.057	22.2	19.2	128 E	55	54
3 2	19 6.97	-28 30.6	2.435	2.071	23.7	21.0	57 W	10*	51*	12 17	1 27.03	+10 54.3	1.427	2.088	24.4	19.5	119 E	56	53
3 12	19 23.78	-28 25.8	2.365	2.114	24.8	21.0	63 W	10*	57*	12 27	1 33.40	+11 41.5	1.565	2.120	25.8	19.8	110 E	57	52*
3 22	19 39.01	-28 20.5	2.283	2.155	25.7	21.0	70 W	11*	64*	1 6	1 42.05	+12 38.4	1.710	2.151	26.5	20.0	103 E	58	50*
4 1	19 52.48	-28 17.2	2.193	2.193	26.3	21.0	77 W	12*	70*	1 16	1 52.59	+13 42.6	1.860	2.181	26.7	20.2	95 E	59	47*
4 11	20 3.99	-28 18.5	2.096	2.229	26.6	20.9	84 W	12*	77*	19388 1998 DQ₃									
4 21	20 13.29	-28 26.7	1.994	2.261	26.4	20.9	92 W	13*	85*	12 23	16 35.11	-6 10.0	3.773	2.932	8.8	20.3	27 W	21*	5*
5 1	20 20.03	-28 44.5	1.889	2.291	25.7	20.8	100 W	14*	87	1 2	16 49.73	-6 19.7	3.728	2.949	10.4	20.4	33 W	25*	12*
5 11	20 23.85	-29 13.6	1.786	2.319	24.3	20.6	109 W	14*	87	1 12	17 3.94	-6 20.0	3.669	2.965	11.9	20.4	39 W	28*	19*
5 21	20 24.31	-29 55.2	1.687	2.344	22.3	20.5	118 W	15*	86	1 22	17 17.62	-6 10.8	3.597	2.980	13.5	20.4	45 W	30*	26*
5 31	20 20.96	-30 48.8	1.597																

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

Table with columns for date (19/21), alpha_2000, delta_2000, Delta, r, beta, V, psi, and 45 to -26 degrees. It is organized into sections for 149223 2002 RM65, 219071 1997 US9, 5751 Zao, 3833 Calingasta, and 219071 1997 US9.

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	19/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°
98039 2000 RC₂₂										2063 Bacchus									
<i>(continuation)</i>										<i>(continuation)</i>									
9 18	18 13.64	+0 18.3	2.614	2.924	19.9	20.4	98 E	45*	64	7 20	4 31.23	+18 53.1	1.128	0.887	59.1	19.4	49 W	27*	34*
9 28	18 19.66	-1 6.6	2.736	2.918	20.1	20.5	90 E	44*	64*	7 25	4 58.58	+20 34.0	1.132	0.857	59.5	19.4	47 W	28*	31*
10 8	18 27.43	-2 22.9	2.859	2.911	19.9	20.6	83 E	42*	62*	7 30	5 26.93	+21 58.6	1.141	0.828	59.6	19.3	45 W	28*	28*
10 18	18 36.73	-3 29.6	2.981	2.903	19.4	20.7	76 E	40*	57*	8 4	5 56.11	+23 3.8	1.155	0.801	59.2	19.3	43 W	28*	26*
10 28	18 47.36	-4 25.9	3.098	2.894	18.7	20.7	69 E	39*	51*	8 9	6 25.90	+23 47.2	1.175	0.775	58.4	19.2	41 W	28*	23*
11 7	18 59.13	-5 11.5	3.210	2.884	17.7	20.8	62 E	37*	44*	8 14	6 56.04	+24 6.7	1.200	0.753	57.1	19.1	39 W	28*	20*
11 17	19 11.87	-5 46.1	3.314	2.873	16.5	20.8	56 E	35*	37*	8 19	7 26.20	+24 1.5	1.229	0.734	55.4	19.1	37 W	27*	18*
11 27	19 25.42	-6 9.7	3.408	2.861	15.1	20.8	49 E	33*	30*	8 24	7 56.09	+23 31.4	1.262	0.719	53.1	19.0	35 W	26*	16*
12 7	19 39.63	-6 22.5	3.491	2.848	13.6	20.8	43 E	30*	22*	8 29	8 25.40	+22 37.5	1.299	0.708	50.5	19.0	33 W	25*	14*
12 17	19 54.38	-6 24.7	3.562	2.834	12.0	20.7	37 E	27*	15*	9 3	8 53.90	+21 21.8	1.339	0.702	47.6	19.0	31 W	23*	12*
12 27	20 9.55	-6 16.6	3.620	2.820	10.2	20.7	31 E	23*	9*	9 8	9 21.42	+19 46.6	1.380	0.702	44.5	18.9	29 W	22*	10*
1 6	20 25.04	-5 58.8	3.665	2.804	8.5	20.6	25 E	19*	3*	9 13	9 47.82	+17 55.3	1.423	0.706	41.3	18.9	28 W	21*	9*
1 16	20 40.75	-5 31.9	3.695	2.787	6.8	20.6	20 E	14*	—	9 18	10 13.06	+15 51.0	1.466	0.716	38.1	18.9	26 W	20*	7*
130415 2000 OH₅₇										162149 1998 YQ₁₁									
12 23	16 50.84	-4 54.7	3.686	2.828	8.6	20.6	25 W	19*	—	10 3	11 21.94	+8 53.2	1.592	0.771	29.9	19.0	23 W	16*	5*
1 2	17 6.10	-5 20.4	3.649	2.840	10.0	20.6	30 W	23*	7*	10 8	11 42.86	+6 28.0	1.632	0.796	27.8	19.1	22 W	15*	5*
1 12	17 21.01	-5 36.7	3.597	2.852	11.5	20.7	35 W	26*	15*	10 13	12 2.91	+4 3.6	1.670	0.823	25.9	19.2	21 W	15*	4*
1 22	17 35.47	-5 43.8	3.532	2.862	13.0	20.7	41 W	29*	22*	10 18	12 22.21	+1 41.4	1.707	0.851	24.4	19.2	21 W	14*	5*
2 1	17 49.38	-5 42.1	3.454	2.871	14.5	20.7	47 W	31*	30*	10 23	12 40.83	-0 37.4	1.742	0.881	23.2	19.3	20 W	14*	5*
2 11	18 2.59	-5 32.2	3.363	2.879	15.9	20.7	53 W	32*	37*	10 28	12 58.88	-2 51.8	1.775	0.911	22.2	19.4	20 W	14*	5*
2 21	18 14.98	-5 14.7	3.261	2.886	17.2	20.7	59 W	34*	44*	11 7	13 33.56	-7 4.9	1.836	0.973	21.0	19.6	21 W	13*	6*
3 2	18 26.40	-4 50.7	3.149	2.892	18.2	20.6	66 W	35*	51*	11 17	14 6.83	-10 54.8	1.887	1.034	20.6	19.8	22 W	13*	8*
3 12	18 36.68	-4 21.2	3.029	2.898	19.1	20.6	73 W	37*	58*	11 27	14 39.09	-14 19.7	1.930	1.093	20.7	19.9	23 W	13*	11*
3 22	18 45.66	-3 47.4	2.903	2.902	19.8	20.5	80 W	38*	63*	12 7	15 10.66	-17 19.4	1.962	1.148	21.3	20.1	25 W	13*	14*
4 1	18 53.13	-3 11.0	2.772	2.905	20.1	20.4	88 W	40*	66*	12 17	15 41.76	-19 54.0	1.984	1.199	22.2	20.3	27 W	13*	17*
4 11	18 58.88	-2 33.8	2.639	2.907	20.1	20.3	95 W	41*	67	12 27	16 12.51	-22 3.9	1.994	1.246	23.4	20.4	30 W	13*	21*
4 21	19 2.70	-1 57.9	2.507	2.909	19.6	20.2	103 W	43*	66	1 6	16 42.98	-23 49.7	1.994	1.289	24.7	20.5	33 W	13*	25*
5 1	19 4.34	-1 26.2	2.379	2.909	18.7	20.1	112 W	44*	65	1 16	17 13.20	-25 12.4	1.983	1.327	26.1	20.6	36 W	12*	29*
5 11	19 3.65	-1 1.6	2.259	2.908	17.4	19.9	121 W	44	65	329770 2004 JA									
5 21	19 0.50	-0 47.6	2.151	2.907	15.5	19.7	130 W	44	65	12 23	16 51.43	-24 4.4	2.654	1.732	9.1	21.2	16 W	4*	9*
5 31	18 54.92	-0 47.7	2.058	2.904	13.1	19.5	139 W	44	65	1 2	17 17.47	-24 7.8	2.672	1.784	11.1	21.4	20 W	6*	13*
6 10	18 47.18	-1 5.0	1.986	2.900	10.6	19.4	148 W	44	65	1 12	17 42.38	-23 55.2	2.679	1.835	13.1	21.5	25 W	8*	17*
6 20	18 37.75	-1 41.5	1.938	2.896	8.2	19.2	156 W	43	66	1 22	18 6.12	-23 28.1	2.676	1.885	15.0	21.6	30 W	10*	22*
6 30	18 27.41	-2 37.4	1.916	2.890	7.1	19.1	159 E	42	67	2 1	18 28.60	-22 48.2	2.661	1.934	16.9	21.8	35 W	11*	28*
7 10	18 17.11	-3 50.5	1.922	2.883	8.1	19.2	156 E	41	68	2063 Bacchus									
7 20	18 7.74	-5 17.0	1.956	2.876	10.5	19.3	149 E	40	69	12 23	16 51.05	-25 21.8	2.301	1.385	11.5	20.5	16 W	3*	9*
7 30	18 0.12	-6 52.0	2.015	2.867	13.2	19.5	140 E	38	71	1 2	17 21.49	-26 28.4	2.295	1.409	13.6	20.6	20 W	4*	13*
8 9	17 54.79	-8 30.6	2.095	2.858	15.7	19.6	130 E	36	73	1 12	17 51.94	-27 12.3	2.280	1.427	15.6	20.7	23 W	4*	16*
8 19	17 51.99	-10 8.7	2.192	2.847	17.8	19.8	121 E	35	74	1 22	18 22.35	-27 33.8	2.254	1.441	17.7	20.8	26 W	4*	20*
8 29	17 51.81	-11 43.4	2.303	2.835	19.3	20.0	112 E	33	76	2 1	18 52.63	-27 33.6	2.218	1.450	19.8	20.8	30 W	4*	24*
9 8	17 54.12	-13 12.5	2.423	2.823	20.4	20.1	103 E	32*	77	2 11	19 22.72	-27 12.2	2.173	1.455	21.9	20.9	33 W	4*	27*
9 18	17 58.74	-14 34.8	2.548	2.810	20.9	20.2	94 E	30*	78*	2 21	19 52.59	-26 30.4	2.120	1.454	24.0	20.9	37 W	4*	31*
9 28	18 5.46	-15 49.3	2.675	2.795	21.0	20.3	86 E	29*	76*	3 2	20 22.21	-25 28.9	2.058	1.448	26.2	20.9	40 W	4*	34*
10 8	18 14.05	-16 55.5	2.800	2.780	20.6	20.4	79 E	27*	69*	3 12	20 51.59	-24 8.6	1.989	1.438	28.3	20.8	43 W	4*	37*
10 18	18 24.27	-17 53.0	2.921	2.763	19.9	20.4	71 E	25*	62*	3 22	21 08.81	-22 29.9	1.915	1.422	30.4	20.8	46 W	4*	40*
10 28	18 35.93	-18 41.6	3.035	2.746	19.0	20.5	64 E	24*	55*	4 1	21 49.96	-20 33.3	1.835	1.402	32.6	20.7	49 W	5*	43*
11 7	18 48.83	-19 21.1	3.141	2.728	17.7	20.5	57 E	23*	48*	4 11	22 19.18	-18 18.9	1.752	1.377	34.8	20.6	52 W	5*	45*
11 17	19 2.81	-19 51.3	3.236	2.709	16.2	20.5	50 E	21*	41*	4 21	22 48.69	-15 46.5	1.667	1.347	37.1	20.6	54 W	6*	48*
11 27	19 17.71	-20 12.2	3.320	2.689	14.6	20.5	43 E	19*	33*	5 1	23 18.73	-12 55.9	1.581	1.312	39.4	20.4	56 W	7*	50*
12 7	19 33.38	-20 24.0	3.391	2.668	12.8	20.4	37 E	17*	26*	5 11	23 49.61	-9 46.3	1.496	1.272	41.8	20.3	57 W	8*	51*
12 17	19 49.70	-20 26.7	3.448	2.646	10.8	20.4	30 E	14*	20*	5 21	0 55.54	-6 17.0	1.415	1.228	44.3	20.2	58 W	10*	52*
12 27	20 6.56	-20 20.7	3.490	2.623	8.8	20.3	24 E	11*	14*	5 31	0 55.54	-2 28.1	1.338	1.179	47.0	20.1	58 W	12*	51*
1 6	20 23.84	-20 6.2	3.518	2.600	6.7	20.2	18 E	7*	9*	6 10	1 31.61	+1 39.4	1.269	1.126	49.7	19.9	58 W	15*	50*
1 16	20 41.47	-19 43.8	3.530	2.575	4.5	20.1	12 E	3*	4*	6 20	2 10.58	+6 2.1	1.211	1.069	52.5	19.8	57 W	18*	47*
2063 Bacchus										2063 Bacchus									
12 23	16 51.05	-25 21.8	2.301	1.385	11.5	20.5	16 W	3*	9*	6 25	2 31.37	+8 16.9	1.186	1.040	53.9	19.7	56 W	20*	46*
1 2	17 21.49	-26 28.4	2.295	1.409	13.6	20.6	20 W	4*	13*	6 30	2 53.13	+10 32.1	1.166	1.010	55.2	19.7	55 W	21*	44*
1 12	17 51.94	-27 12.3	2.280	1.427	15.6	20.7	23 W	4*	16*	7 5	3 15.95	+12 45.8	1.149	0.979	56.4	19.6	53 W	23*	41*
1 22	18 22.35	-27 33.8	2.254	1.441	17.7	20.8	26 W	4*	20*	7 10	3 39.88	+14 55.8	1.137	0.948	57.5	19.5	52 W	24*	39*
2 1	18 52.63	-27 33.6	2.218	1.450	19.8	20.8	30 W	4*	24*	7 15	4 4.98	+16 59.3	1.130	0.917	58.4	19.5	50 W	26*	36*
2 11	19 22.72	-27 12.2	2.173	1.455	21.9	20.9	33 W	4*	27*	2063 Bacchus									
2 21	19 52.59	-26 30.4	2.120	1.454	24.0	20.9	37 W	4*	31*	6 16	17 42.62	-54 2.9	1.028	1.971	15.3	20.3	149 W	—	62
3 2	20 22.21	-25 28.9	2.058	1.448	26.2	20.9	40 W	4*	34*	6 18	17 35.11	-54 14.8	1.038	1.980	15.3	20.3	149 E	—	62
3 12	20 51.59	-24 8.6	1.989	1.438	28.3	20.8	43 W	4*	37*	6 20	17 27.70	-54 23.2	1.049	1.988	15.4	20.3	149 E		

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	19/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°
329770 2004 JA										174599 2003 QM70									
<i>(continuation)</i>										<i>(continuation)</i>									
7 5	16 40.30	-53 51.2	1.164	2.047	18.7	20.7	140 E	—	62	8 14	18 31.53	-53 54.2	2.097	2.822	16.7	20.2	127 E	—	62
7 10	16 28.94	-53 15.6	1.213	2.065	20.2	20.9	136 E	—	63	8 19	18 28.30	-53 10.1	2.130	2.810	17.6	20.2	123 E	—	63
7 15	16 19.95	-52 34.2	1.266	2.081	21.6	21.1	131 E	—	63	8 24	18 26.20	-52 23.4	2.166	2.798	18.4	20.3	119 E	—	64
7 20	16 13.24	-51 50.2	1.324	2.096	22.8	21.2	127 E	—	64	8 29	18 25.19	-51 34.8	2.205	2.786	19.2	20.3	115 E	—	64
7 25	16 8.60	-51 5.9	1.384	2.111	24.0	21.4	122 E	—	65	9 3	18 25.22	-50 45.1	2.247	2.774	19.8	20.4	111 E	—	65
7 30	16 5.82	-50 23.0	1.448	2.124	24.9	21.5	118 E	—	66	9 8	18 26.20	-49 54.9	2.291	2.761	20.4	20.4	107 E	—	66
24761 Ahau										103173 1999 XS233									
12 23	16 52.25	-9 59.3	2.604	1.727	12.0	21.3	21 W	15*	2*	12 23	16 53.54	-19 33.2	3.031	2.106	7.6	20.5	16 W	7*	6*
1 2	17 16.42	-10 55.4	2.559	1.715	13.9	21.3	25 W	17*	8*	1 2	17 16.95	-20 6.9	2.960	2.073	9.8	20.5	21 W	9*	11*
1 12	17 40.87	-11 38.7	2.504	1.701	15.8	21.3	28 W	18*	13*	1 12	17 40.90	-20 27.9	2.882	2.040	12.0	20.5	26 W	11*	16*
1 22	18 5.61	-12 9.3	2.441	1.684	17.8	21.3	32 W	19*	18*	1 22	18 5.30	-20 35.1	2.798	2.007	14.2	20.5	30 W	12*	21*
2 1	18 30.63	-12 27.2	2.369	1.664	19.9	21.3	35 W	20*	23*	2 1	18 30.06	-20 28.1	2.708	1.974	16.4	20.4	34 W	13*	26*
2 11	18 55.95	-12 32.8	2.290	1.640	22.1	21.2	39 W	20*	28*	2 11	18 55.06	-20 6.5	2.614	1.943	18.5	20.4	39 W	14*	31*
2 21	19 21.62	-12 26.5	2.203	1.614	24.3	21.2	42 W	20*	33*	2 21	19 20.23	-19 30.3	2.516	1.912	20.5	20.3	43 W	14*	36*
3 2	19 47.68	-12 8.8	2.111	1.586	26.6	21.1	46 W	20*	37*	3 2	19 45.44	-18 39.6	2.417	1.881	22.6	20.3	47 W	15*	40*
3 12	20 14.22	-11 40.7	2.014	1.554	28.8	21.0	49 W	20*	41*	3 12	20 10.60	-17 35.3	2.315	1.852	24.5	20.2	51 W	15*	44*
3 22	20 41.38	-11 2.8	1.913	1.520	31.2	21.0	52 W	19*	45*	3 22	20 35.65	-16 18.1	2.214	1.825	26.4	20.1	54 W	16*	48*
4 1	21 9.32	-10 16.1	1.809	1.483	33.5	20.8	55 W	19*	48*	4 1	21 0.51	-14 49.2	2.112	1.799	28.2	20.0	58 W	16*	52*
4 11	21 38.26	-9 21.4	1.705	1.443	35.9	20.7	58 W	18*	51*	4 11	21 25.11	-13 10.4	2.011	1.774	29.9	20.0	62 W	17*	55*
4 21	22 8.51	-8 19.8	1.601	1.402	38.4	20.6	60 W	18*	53*	4 21	21 49.43	-11 23.2	1.912	1.751	31.5	19.9	65 W	18*	59*
5 1	22 40.35	-7 11.9	1.501	1.358	40.9	20.5	62 W	17*	55*	5 1	22 13.42	-9 29.8	1.815	1.731	32.9	19.8	69 W	19*	62*
5 11	23 14.14	-5 58.8	1.405	1.312	43.5	20.3	63 W	17*	56*	5 11	22 37.04	-7 32.5	1.720	1.712	34.2	19.7	72 W	21*	64*
5 21	23 50.25	-4 41.2	1.317	1.265	46.1	20.2	64 W	16*	57*	5 21	23 0.25	-5 33.7	1.627	1.696	35.4	19.6	76 W	23*	66*
5 31	0 28.93	-3 20.1	1.238	1.218	48.8	20.0	65 W	16*	57*	6 10	23 22.98	-3 36.1	1.538	1.683	36.3	19.4	80 W	26*	66*
6 10	1 10.32	-1 56.8	1.173	1.170	51.4	19.9	64 W	16*	56*	6 10	23 45.14	-1 42.5	1.451	1.673	37.1	19.3	83 W	29*	66*
6 20	1 54.29	-0 33.0	1.123	1.123	53.8	19.8	63 W	16*	55*	6 20	0 6.62	+0 4.2	1.368	1.665	37.6	19.2	87 W	33*	64
6 30	2 40.33	+0 49.0	1.090	1.078	55.9	19.7	61 W	17*	53*	6 30	0 27.22	+1 41.0	1.287	1.660	37.7	19.1	91 W	37*	62
7 10	3 27.67	+2 6.8	1.076	1.036	57.5	19.6	59 W	17*	51*	7 10	0 46.71	+3 4.9	1.209	1.659	37.6	18.9	96 W	42*	61
7 20	4 15.34	+3 18.3	1.078	0.999	58.4	19.6	57 W	19*	48*	7 20	1 4.79	+4 13.3	1.135	1.660	36.9	18.8	101 W	46*	60
7 30	5 2.43	+4 21.4	1.096	0.968	58.5	19.5	54 W	20*	45*	7 30	1 21.02	+5 3.2	1.064	1.665	35.8	18.6	106 W	49*	59
8 9	5 48.29	+5 15.1	1.126	0.944	57.8	19.5	52 W	22*	42*	8 9	1 34.96	+5 32.4	0.997	1.672	34.1	18.4	113 W	51*	58
8 19	6 32.56	+5 58.2	1.165	0.931	56.4	19.5	50 W	24*	40*	8 19	1 46.04	+5 38.9	0.936	1.682	31.6	18.2	119 W	51*	58
8 29	7 15.12	+6 29.6	1.207	0.927	54.6	19.5	48 W	26*	37*	8 29	1 53.67	+5 21.8	0.881	1.696	28.3	18.0	127 W	50	59
9 8	7 55.98	+6 48.7	1.250	0.934	52.6	19.6	47 W	28*	34*	9 8	1 57.43	+4 41.8	0.836	1.711	24.1	17.8	136 W	50	59
9 18	8 35.23	+6 55.0	1.289	0.950	50.6	19.6	47 W	30*	32*	9 18	1 57.08	+3 42.1	0.803	1.729	19.0	17.6	146 W	49	60
9 28	9 12.91	+6 49.1	1.324	0.976	48.8	19.7	47 W	32*	30*	9 23	1 55.41	+3 6.8	0.792	1.739	16.2	17.5	151 W	48	61
10 8	9 49.09	+6 32.7	1.353	1.009	47.3	19.8	48 W	35*	29*	9 28	1 52.89	+2 29.5	0.785	1.750	13.2	17.4	156 W	47	62
10 18	10 23.82	+6 8.1	1.374	1.048	46.2	19.8	49 W	37*	28*	10 3	1 49.65	+1 51.7	0.783	1.761	10.3	17.3	162 W	47	62
10 28	10 57.12	+5 38.7	1.387	1.091	45.4	19.9	51 W	39*	28*	10 8	1 45.86	+1 14.9	0.785	1.772	7.6	17.2	166 W	46	63
11 7	11 29.07	+5 8.3	1.391	1.137	44.8	20.0	54 W	41*	28*	10 13	1 41.73	+0 40.6	0.793	1.784	5.6	17.1	170 W	46	63
11 17	11 59.71	+4 40.4	1.388	1.184	44.3	20.1	57 W	43*	29*	10 18	1 37.49	+0 10.4	0.807	1.797	5.3	17.1	170 W	45	64
11 27	12 29.05	+4 19.3	1.377	1.232	44.0	20.1	60 W	45*	31*	10 23	1 33.38	+0 14.4	0.825	1.810	6.8	17.3	168 E	45	64
12 7	12 57.11	+4 8.3	1.358	1.280	43.7	20.2	64 W	47*	33*	10 28	1 29.60	+0 32.8	0.849	1.823	9.1	17.5	163 E	44	65
12 17	13 23.84	+4 11.2	1.331	1.326	43.5	20.2	68 W	48*	36*	11 7	1 23.71	-0 48.6	0.913	1.851	14.1	17.8	153 E	44	65
12 27	13 49.15	+4 31.1	1.299	1.371	43.1	20.2	72 W	49*	40*	11 17	1 20.71	-0 36.5	0.995	1.879	18.6	18.2	143 E	44	65
1 6	14 12.94	+5 11.0	1.260	1.414	42.7	20.2	77 W	50*	44*	11 27	1 20.96	+0 0.7	1.093	1.909	22.1	18.6	133 E	45	64
1 16	14 34.99	+6 13.6	1.217	1.455	42.0	20.2	82 W	51	47*	12 7	1 24.31	+0 58.3	1.205	1.940	24.7	18.9	124 E	46	63
174599 2003 QM70										103173 1999 XS233									
12 23	16 52.99	-38 10.5	4.000	3.101	6.5	21.4	21 W	—	14*	12 23	16 53.54	-19 33.2	3.031	2.106	7.6	20.5	16 W	7*	6*
1 2	17 10.81	-38 55.1	3.955	3.100	8.0	21.4	26 W	—	19*	1 2	17 16.95	-20 6.9	2.960	2.073	9.8	20.5	21 W	9*	11*
1 12	17 28.62	-39 36.4	3.895	3.099	9.5	21.4	31 W	—	25*	1 12	17 40.90	-20 27.9	2.882	2.040	12.0	20.5	26 W	11*	16*
1 22	17 46.34	-40 14.9	3.820	3.096	11.1	21.5	37 W	—	31*	1 22	18 5.30	-20 35.1	2.798	2.007	14.2	20.5	30 W	12*	21*
2 1	18 3.82	-40 51.0	3.731	3.092	12.7	21.5	44 W	—	36*	2 1	18 30.06	-20 28.1	2.708	1.974	16.4	20.4	34 W	13*	26*
2 11	18 20.94	-41 25.5	3.630	3.088	14.1	21.5	50 W	—	42*	2 11	18 55.06	-20 6.5	2.614	1.943	18.5	20.4	39 W	14*	31*
2 21	18 37.55	-41 59.3	3.518	3.082	15.5	21.4	56 W	—	48*	2 21	19 20.23	-19 30.3	2.516	1.912	20.5	20.3	43 W	14*	36*
3 2	18 53.49	-42 33.8	3.396	3.075	16.7	21.4	63 W	—	53*	3 2	19 45.44	-18 39.6	2.417	1.881	22.6	20.3	47 W	15*	40*
3 12	19 8.59	-43 10.3	3.266	3.068	17.7	21.3	70 W	—	58*	3 12	20 10.60	-17 35.3	2.315	1.852	24.5	20.2	51 W	15*	44*
3 22	19 22.67	-43 50.3	3.130	3.059	18.5	21.3	77 W	—	63*	3 22	20 35.65	-16 18.1	2.214	1.825	26.4	20.1	54 W	16*	48*
4 1	19 35.49	-44 35.6	2.991	3.049	19.0	21.2	84 W	—	67*	4 1	21 0.51	-14 49.2	2.112	1.799	28.2	20.0	58 W	16*	52*
4 11	19 46.80	-45 27.8	2.850	3.039	19.3	21.1	91 W	—	69*	4 11	21 25.11	-13 10.4	2.011	1.774	29.9	20.0	62 W	17*	55*
4 21	19 56.29	-46 28.3	2.711	3.027	19.2	20.9	98 W	—	70*	4 21	21 49.43	-11 23.2	1.912	1.751	31.5	19.9	65 W	18*	59*
5 1	20 3.56	-47 38.2	2.575	3.014	18.7	20.8	106 W	—	68	5 1	22 13.42	-9 29.8	1.815	1.731	32.9	19.8	69 W	19*	62*
5 11	20 8.20	-48 57.5	2.447	3.001	17.9	20.7	114 W	—	67	5 11	22 37.04	-7 32.5	1.720	1.712	34.2				