

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

20/22	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	20/22	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°
<b>37336 2001 RM</b>										<b>424965 2009 AM<sub>15</sub></b> (continuation)									
12 27	14 17.83	-26 39.7	3.232	2.791	16.8	21.4	55 W	17*	47*	5 6	3 57.13	+ 5 39.0	1.851	0.959	20.4	21.1	19 E	—	13*
1 6	14 31.14	-27 17.2	3.071	2.751	18.4	21.3	62 W	17*	54*	5 11	4 16.42	+ 6 20.4	1.886	0.994	19.9	21.2	20 E	—	13*
1 16	14 43.89	-27 47.7	2.899	2.710	19.8	21.2	69 W	17*	62*	5 16	4 35.06	+ 6 57.9	1.920	1.026	19.4	21.3	20 E	—	13*
1 26	14 55.86	-28 9.7	2.720	2.668	21.0	21.0	76 W	17	70*	5 21	4 53.12	+ 7 31.4	1.953	1.056	18.8	21.3	20 E	—	13*
2 5	15 6.83	-28 21.6	2.536	2.624	21.9	20.9	84 W	17	78*	5 26	5 10.65	+ 8 0.8	1.984	1.083	18.2	21.4	19 E	—	13*
2 15	15 16.49	-28 21.4	2.348	2.578	22.5	20.7	92 W	17	86*	5 31	5 27.72	+ 8 26.2	2.014	1.107	17.4	21.5	19 E	—	13*
2 25	15 24.50	-28 6.5	2.160	2.531	22.6	20.5	100 W	17	88	<b>175114 2004 QQ</b>									
3 2	15 27.77	-27 52.5	2.066	2.507	22.5	20.3	105 W	17	88	12 27	14 18.38	-18 57.5	2.392	2.030	24.0	21.2	57 W	25*	45*
3 7	15 30.46	-27 33.6	1.974	2.483	22.2	20.2	109 W	17	88	1 6	14 39.55	-20 50.0	2.206	1.945	26.5	21.0	62 W	24*	51*
3 12	15 32.53	-27 9.2	1.884	2.458	21.7	20.1	114 W	18	89	1 16	15 2.48	-22 41.5	2.020	1.857	29.0	20.7	66 W	22*	57*
3 17	15 33.91	-26 38.5	1.795	2.433	21.1	19.9	119 W	18	89	1 26	15 27.63	-24 30.0	1.834	1.767	31.7	20.5	70 W	20*	63*
3 22	15 34.54	-26 0.9	1.710	2.407	20.2	19.8	123 W	19	90	2 5	15 55.68	-26 12.9	1.652	1.674	34.5	20.2	74 W	19*	67*
3 27	15 34.38	-25 15.6	1.627	2.381	19.1	19.6	129 W	20	89	2 10	16 11.06	-27 0.8	1.564	1.626	36.0	20.1	75 W	18*	69*
4 1	15 33.39	-24 21.9	1.548	2.355	17.7	19.4	134 W	21	88	2 15	16 27.50	-27 45.3	1.477	1.578	37.5	20.0	77 W	17*	71*
4 6	15 31.52	-23 18.8	1.474	2.329	16.1	19.3	140 W	22	87	2 20	16 45.16	-28 25.1	1.393	1.529	39.2	19.8	78 W	16*	72*
4 16	15 25.09	-20 41.8	1.340	2.274	12.1	18.8	152 W	24	85	2 25	17 4.21	-28 58.6	1.312	1.480	41.0	19.6	79 W	16*	73*
4 26	15 15.36	-17 21.6	1.233	2.219	6.9	18.4	165 W	28	81	3 2	17 24.80	-29 23.7	1.235	1.430	42.9	19.5	79 W	15*	73*
5 6	15 3.10	-13 22.1	1.155	2.162	1.9	17.9	176 W	32	77	3 7	17 47.11	-29 37.9	1.162	1.380	45.0	19.3	79 W	15*	73*
5 11	14 56.42	-11 11.6	1.128	2.133	3.6	17.9	172 E	34	75	3 12	18 11.26	-29 37.8	1.093	1.329	47.2	19.2	79 W	14*	73*
5 16	14 49.65	-8 57.5	1.109	2.104	6.8	18.0	166 E	36	73	3 17	18 37.31	-29 19.5	1.030	1.278	49.7	19.0	78 W	14*	72*
5 21	14 43.02	-6 42.9	1.098	2.074	10.2	18.1	159 E	38	71	3 22	19 5.23	-28 38.5	0.974	1.227	52.3	18.9	77 W	13*	71*
5 26	14 36.74	-4 31.1	1.095	2.044	13.6	18.2	152 E	40	69	3 27	19 34.87	-27 30.6	0.925	1.176	55.1	18.8	75 W	13*	69*
5 31	14 30.99	-2 24.9	1.099	2.014	16.8	18.3	145 E	43	66	4 1	20 5.91	-25 51.9	0.885	1.126	58.1	18.7	73 W	13*	67*
6 5	14 25.92	0 26.7	1.108	1.984	19.9	18.4	138 E	45	64	4 6	20 37.90	-23 40.4	0.854	1.076	61.2	18.6	70 W	12*	64*
6 10	14 21.66	+ 1 21.7	1.124	1.953	22.8	18.5	132 E	46	63	4 11	21 10.25	-20 56.6	0.833	1.028	64.2	18.5	67 W	12*	61*
6 15	14 18.30	+ 2 59.2	1.143	1.922	25.4	18.6	126 E	48	61	4 16	21 42.39	-17 44.3	0.823	0.980	67.0	18.5	64 W	12*	58*
6 25	14 14.45	+ 5 40.6	1.191	1.860	29.8	18.7	115 E	50*	58	4 21	22 13.80	-14 9.8	0.824	0.936	69.3	18.5	61 W	12*	55*
7 5	14 14.40	+ 7 39.6	1.246	1.797	33.2	18.8	105 E	50*	56	4 26	22 44.12	-10 21.7	0.836	0.894	71.1	18.5	57 W	12*	51*
7 15	14 17.98	+ 9 2.1	1.302	1.734	35.7	18.9	96 E	49*	55	5 1	23 13.17	-6 28.6	0.858	0.855	72.0	18.5	54 W	13*	48*
7 20	14 21.04	+ 9 31.9	1.328	1.702	36.6	19.0	92 E	48*	54	5 6	23 40.91	-2 38.1	0.890	0.822	72.1	18.4	51 W	13*	44*
7 25	14 24.89	+ 9 55.2	1.353	1.671	37.4	19.0	88 E	47*	54	5 11	0 7.42	+ 1 3.8	0.930	0.794	71.2	18.4	48 W	13*	41*
7 30	14 29.49	+ 10 12.8	1.377	1.639	38.1	19.0	85 E	46*	54	5 16	0 32.83	+ 4 32.9	0.977	0.774	69.4	18.4	46 W	13*	38*
8 4	14 34.81	+ 10 25.5	1.398	1.608	38.7	19.0	82 E	45*	53*	5 21	0 57.30	+ 7 46.6	1.030	0.760	66.9	18.4	44 W	14*	36*
8 9	14 40.83	+ 10 33.7	1.417	1.577	39.1	19.0	79 E	45*	53*	5 26	1 20.98	+ 10 43.7	1.086	0.756	63.8	18.4	42 W	14*	34*
8 14	14 47.53	+ 10 38.2	1.433	1.546	39.5	19.0	76 E	44*	52*	6 5	2 6.36	+ 15 46.3	1.205	0.772	56.8	18.5	40 W	15*	30*
8 24	15 2.88	+ 10 37.9	1.458	1.485	40.2	19.0	71 E	43*	49*	6 15	2 49.27	+ 19 41.4	1.324	0.818	50.1	18.6	38 W	17*	27*
9 3	15 20.76	+ 10 28.1	1.470	1.427	40.7	18.9	67 E	42*	46*	6 25	3 29.53	+ 22 34.6	1.435	0.889	44.6	18.8	38 W	19*	25*
9 13	15 41.23	+ 10 11.0	1.470	1.371	41.3	18.8	64 E	42*	43*	6 30	3 48.60	+ 23 40.7	1.486	0.931	42.4	19.0	38 W	20*	25*
9 23	16 4.36	+ 9 48.8	1.458	1.320	42.0	18.8	62 E	42*	40*	7 5	4 6.92	+ 24 34.8	1.535	0.975	40.6	19.1	39 W	22*	24*
10 3	16 30.30	+ 9 22.6	1.436	1.274	42.8	18.7	60 E	43*	37*	7 10	4 24.49	+ 25 18.2	1.579	1.022	39.1	19.2	39 W	23*	24*
10 13	16 59.30	+ 8 52.7	1.406	1.234	43.8	18.6	59 E	43*	35*	7 15	4 41.29	+ 25 52.0	1.621	1.070	37.9	19.3	40 W	25*	24*
10 23	17 31.54	+ 8 19.6	1.371	1.202	44.9	18.5	59 E	44*	33*	7 20	4 57.31	+ 26 17.3	1.658	1.120	36.9	19.4	41 W	27*	24*
11 2	18 7.20	+ 7 42.6	1.336	1.179	46.0	18.4	59 E	45*	31*	7 25	5 12.57	+ 26 35.3	1.692	1.170	36.1	19.6	43 W	29*	24*
11 12	18 46.29	+ 7 1.7	1.305	1.166	46.8	18.4	59 E	46*	30*	7 30	5 27.09	+ 26 46.8	1.722	1.221	35.4	19.7	44 W	31*	25*
11 22	19 28.45	+ 6 17.5	1.285	1.163	47.3	18.4	60 E	46*	29*	8 4	5 40.86	+ 26 52.8	1.748	1.272	35.0	19.8	46 W	33*	25*
12 2	20 12.93	+ 5 31.5	1.281	1.171	47.2	18.4	61 E	47*	29*	8 14	6 6.24	+ 26 51.4	1.788	1.374	34.3	20.0	50 W	38*	26*
12 12	20 58.61	+ 4 47.1	1.297	1.189	46.4	18.4	61 E	47*	29*	8 24	6 28.80	+ 26 36.7	1.812	1.474	33.9	20.1	54 W	43*	27*
12 22	21 44.09	+ 4 8.1	1.335	1.217	45.1	18.5	61 E	46*	30*	9 3	6 48.62	+ 26 13.3	1.820	1.572	33.6	20.3	60 W	48*	29*
1 1	22 28.10	+ 3 38.1	1.395	1.252	43.2	18.6	61 E	45*	30*	9 13	7 5.70	+ 25 45.1	1.814	1.668	33.3	20.4	65 W	54*	31*
1 11	23 9.76	+ 3 19.4	1.475	1.295	40.9	18.7	60 E	45*	31*	9 23	7 20.01	+ 25 15.5	1.793	1.761	32.8	20.5	72 W	60*	33*
1 21	23 48.61	+ 3 12.0	1.572	1.344	38.5	18.9	58 E	43*	31*	10 3	7 31.42	+ 24 47.5	1.760	1.852	32.0	20.5	79 W	65*	35*
<b>424965 2009 AM<sub>15</sub></b>										10 13	7 39.73	+ 24 23.7	1.717	1.940	30.9	20.5	87 W	68*	37*
12 27	14 18.24	-17 13.9	1.047	0.977	58.0	20.9	57 W	27*	44*	10 23	7 44.66	+ 24 6.4	1.667	2.025	29.3	20.5	96 W	69	39*
1 1	14 45.01	-17 20.9	1.007	0.941	60.5	20.8	56 W	26*	44*	11 2	7 45.90	+ 23 57.1	1.614	2.107	27.0	20.5	105 W	69	40*
1 6	15 14.05	-17 14.4	0.973	0.901	63.1	20.8	55 W	26*	42*	11 12	7 43.11	+ 23 56.5	1.563	2.186	24.0	20.4	116 W	69	40
1 11	15 45.36	-16 52.0	0.946	0.859	65.8	20.7	53 W	26*	40*	11 22	7 36.15	+ 24 3.6	1.520	2.263	20.2	20.3	128 W	69	40
1 16	16 18.82	-16 12.0	0.927	0.814	68.4	20.6	50 W	25*	38*	12 2	7 25.18	+ 24 15.4	1.493	2.338	15.6	20.2	140 W	69	40
1 21	16 54.10	-15 13.9	0.919	0.766	70.8	20.5	47 W	24*	35*	12 7	7 18.38	+ 24 21.8	1.487	2.374	13.1	20.1	147 W	69	40
1 26	17 30.75	-13 59.5	0.923	0.716	72.6	20.4	44 W	24*	32*	12 12	7 10.90	+ 24 27.6	1.487	2.410	10.4	20.0	154 W	69	40
1 31	18 8.21	-12 33.0	0.941	0.664	73.4	20.3	40 W	22*	28*	12 17	7 2.92	+ 24 32.2	1.495	2.445	7.7	20.0	161 W	70	39
2 5	18 45.99	-11 0.3	0.973	0.611	73.0	20.2	36 W	21*	24*	12 22	6 54.65	+ 24 35.3	1.510	2.479	4.9	19.9	168 W	70	39
2 10	19 23.75	-9 28.1	1.019	0.558	70.7	20.1	32 W	19*	21*	12 27	6 46.33	+ 24 36.4</							

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

20/22	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°-26°	2021	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°-26°	
<b>143678 2003 SA<sub>224</sub></b> (continuation)									<b>40267 1999 GJ<sub>4</sub></b> (continuation)									
2 15	16 50.69	-28 54.1	1.188	1.283	46.9	19.0	72 W	16* 65*	4 11	15 30.62	+46 31.7	0.902	1.631	32.9	17.7	118 W	88	17
2 25	17 19.05	-31 30.9	1.168	1.326	46.2	19.0	75 W	13* 69*	4 16	15 22.06	+50 24.7	0.868	1.583	35.0	17.6	115 W	85	14
3 7	17 46.01	-33 49.2	1.144	1.370	45.4	19.0	79 W	10* 72*	4 18	15 17.72	+51 57.3	0.856	1.563	35.9	17.6	114 W	83	12
3 17	18 11.11	-35 53.8	1.114	1.416	44.3	19.0	84 W	8* 75*	4 20	15 12.80	+53 28.8	0.844	1.543	36.9	17.6	113 W	82	11
3 22	18 22.80	-36 52.5	1.098	1.440	43.7	19.0	87 W	7* 76*	4 22	15 7.24	+54 58.9	0.834	1.522	38.0	17.5	111 W	80	9
3 27	18 33.83	-37 49.7	1.081	1.463	43.0	19.0	89 W	6* 76*	4 24	15 0.98	+56 27.0	0.824	1.501	39.1	17.5	110 W	79	8
4 1	18 44.13	-38 46.2	1.063	1.486	42.2	18.9	92 W	5* 76*	4 26	14 53.97	+57 52.7	0.815	1.480	40.2	17.5	108 W	77	6
4 6	18 53.61	-39 42.7	1.044	1.510	41.3	18.9	95 W	4* 76*	4 28	14 46.15	+59 15.5	0.806	1.458	41.5	17.5	107 W	76	5
4 11	19 2.19	-40 39.9	1.024	1.533	40.3	18.9	98 W	4* 75	4 30	14 37.47	+60 34.7	0.799	1.436	42.7	17.5	105 W	74	3
4 16	19 9.75	-41 38.2	1.005	1.556	39.2	18.8	102 W	3* 74	5 2	14 27.87	+61 50.0	0.791	1.413	44.0	17.4	103 E	73	2
4 21	19 16.20	-42 38.3	0.985	1.579	37.9	18.8	105 W	2* 73	5 4	14 17.30	+63 0.6	0.785	1.390	45.4	17.4	101 E	72	1
4 26	19 21.41	-43 40.3	0.966	1.601	36.5	18.7	109 W	1* 72	5 6	14 5.75	+64 6.1	0.779	1.367	46.8	17.4	99 E	71	-
5 1	19 25.26	-44 44.5	0.947	1.624	35.0	18.7	112 W	- 71	5 11	13 32.53	+66 23.3	0.765	1.307	50.5	17.4	94 E	69	-
5 6	19 27.61	-45 50.7	0.929	1.646	33.3	18.6	116 W	- 70	5 16	12 53.76	+67 56.9	0.753	1.244	54.4	17.3	88 E	67	-
5 11	19 28.30	-46 58.3	0.912	1.668	31.5	18.6	120 W	- 69	5 21	12 11.34	+68 42.5	0.741	1.178	58.5	17.3	83 E	66	-
5 16	19 27.18	-48 6.2	0.897	1.690	29.5	18.5	125 W	- 68	5 26	11 27.92	+68 39.9	0.730	1.109	63.0	17.3	77 E	65*	-
5 21	19 24.14	-49 12.8	0.884	1.711	27.4	18.4	129 W	- 67	5 28	11 10.85	+68 26.0	0.725	1.080	64.9	17.3	75 E	64*	-
5 26	19 19.12	-50 16.1	0.874	1.732	25.3	18.4	133 W	- 66	5 30	10 54.13	+68 5.1	0.720	1.051	66.9	17.3	72 E	63*	-
5 31	19 12.15	-51 13.6	0.867	1.752	23.1	18.3	137 W	- 65	6 1	10 37.84	+67 37.6	0.715	1.021	68.9	17.2	70 E	61*	-
6 5	19 3.31	-52 2.3	0.864	1.773	21.0	18.3	141 W	- 64	6 3	10 22.02	+67 3.6	0.709	0.990	71.1	17.2	67 E	60*	-
6 10	18 52.86	-52 29.5	0.865	1.792	19.1	18.2	145 W	- 63	6 5	10 6.69	+66 23.3	0.704	0.959	73.4	17.2	65 E	58*	-
6 15	18 41.24	-53 2.7	0.871	1.812	17.5	18.2	148 W	- 63	6 7	9 51.83	+65 36.8	0.698	0.928	75.8	17.2	62 E	55*	-
6 17	18 36.39	-53 7.6	0.874	1.819	17.0	18.2	148 W	- 63	6 9	9 37.40	+64 44.0	0.691	0.895	78.4	17.2	60 E	53*	-
6 19	18 31.48	-53 10.0	0.878	1.827	16.5	18.2	149 W	- 63	6 11	9 23.35	+63 44.6	0.685	0.862	81.2	17.2	57 E	50*	-
6 21	18 26.55	-53 9.8	0.883	1.834	16.2	18.2	150 W	- 63	6 13	9 9.62	+62 38.2	0.678	0.828	84.1	17.2	54 E	48*	-
6 23	18 21.64	-53 7.1	0.889	1.842	15.9	18.2	150 W	- 63	6 15	8 56.15	+61 24.2	0.672	0.793	87.4	17.2	51 E	45*	-
6 25	18 16.80	-53 1.9	0.896	1.849	15.8	18.3	150 W	- 63	6 17	8 42.90	+60 1.7	0.665	0.758	90.9	17.2	48 E	42*	-
6 27	18 12.05	-52 54.2	0.904	1.856	15.7	18.3	150 E	- 63	6 19	8 29.82	+58 29.6	0.659	0.722	94.7	17.3	45 E	39*	-
6 29	18 7.43	-52 44.3	0.912	1.864	15.8	18.3	150 E	- 63	6 21	8 16.90	+56 46.5	0.653	0.685	98.8	17.3	42 E	35*	-
7 1	18 2.97	-52 32.1	0.921	1.871	15.9	18.3	150 E	- 63	6 23	8 4.13	+54 51.0	0.648	0.647	103.4	17.4	38 E	32*	-
7 3	17 58.70	-52 17.9	0.931	1.878	16.1	18.4	149 E	- 64	6 25	7 51.55	+52 41.5	0.644	0.608	108.4	17.5	35 E	28*	-
7 5	17 54.65	-52 1.7	0.942	1.885	16.4	18.4	148 E	- 64	6 27	7 39.25	+50 16.2	0.643	0.569	114.0	17.7	31 E	24*	-
7 10	17 45.57	-51 14.2	0.972	1.902	17.4	18.5	146 E	- 65	6 29	7 27.31	+47 33.9	0.643	0.529	120.0	18.0	27 E	20*	-
7 15	17 38.17	-50 18.8	1.007	1.919	18.6	18.7	143 E	- 66	7 1	7 15.92	+44 33.8	0.647	0.488	126.6	18.4	23 E	16*	-
7 20	17 32.52	-49 18.3	1.046	1.935	19.9	18.8	140 E	- 67	7 3	7 5.29	+41 15.9	0.656	0.447	133.4	18.9	19 E	11*	-
7 25	17 28.59	-48 15.0	1.089	1.950	21.3	19.0	136 E	- 68	7 5	6 55.69	+37 42.0	0.671	0.407	140.0	19.5	15 W	6*	-
7 30	17 26.26	-47 11.0	1.137	1.966	22.6	19.1	132 E	- 69	7 6	6 51.39	+35 50.1	0.681	0.387	142.9	19.9	13 W	6*	-
8 4	17 25.41	-46 7.6	1.187	1.981	23.8	19.3	128 E	- 70	7 7	6 47.50	+33 55.9	0.693	0.367	145.2	20.1	12 W	5*	-
8 9	17 25.89	-45 5.9	1.241	1.995	24.9	19.4	124 E	- 71	7 8	6 44.07	+32 0.2	0.708	0.348	146.4	20.3	11 W	5*	-
8 14	17 27.57	-44 6.5	1.298	2.009	25.8	19.6	120 E	1 72	7 9	6 41.18	+30 4.1	0.726	0.330	146.2	20.2	10 W	4*	-
8 19	17 30.30	-43 9.8	1.356	2.022	26.6	19.7	116 E	2 73	7 10	6 38.90	+28 8.9	0.746	0.313	144.2	19.8	10 W	4*	-
8 24	17 33.95	-42 15.8	1.417	2.035	27.3	19.8	113 E	3 74	7 11	6 37.30	+26 16.0	0.769	0.297	140.5	19.2	11 W	3*	1*
8 29	17 38.39	-41 24.5	1.480	2.047	27.8	19.9	109 E	4* 75	7 12	6 36.47	+24 27.2	0.796	0.284	135.0	18.5	11 W	3*	3*
9 3	17 43.54	-40 35.7	1.545	2.059	28.2	20.1	106 E	4* 75	7 13	6 36.47	+22 43.8	0.825	0.272	128.2	17.8	12 W	2*	4*
9 8	17 49.31	-39 49.2	1.610	2.070	28.4	20.2	102 E	5* 76	7 14	6 37.35	+21 7.7	0.858	0.264	120.2	17.1	13 W	2*	6*
9 13	17 55.62	-39 4.6	1.677	2.081	28.6	20.3	99 E	6* 77	7 15	6 39.13	+19 40.0	0.893	0.258	111.5	16.6	14 W	1*	7*
9 18	18 2.40	-38 21.7	1.744	2.091	28.6	20.4	95 E	7* 78*	7 16	6 41.76	+18 21.7	0.930	0.256	102.5	16.1	14 W	-	8*
9 23	18 9.59	-37 40.1	1.811	2.101	28.5	20.5	92 E	7* 78*	7 17	6 45.19	+17 13.2	0.968	0.258	93.4	15.8	15 W	-	8*
10 3	18 24.99	-36 19.7	1.947	2.119	28.1	20.6	86 E	8* 76*	7 18	6 49.30	+16 14.3	1.006	0.263	84.6	15.6	15 W	-	9*
10 13	18 41.48	-35 1.1	2.082	2.135	27.3	20.8	79 E	10* 72*	7 19	6 53.95	+15 24.4	1.045	0.272	76.4	15.4	15 W	-	9*
10 23	18 58.79	-33 42.4	2.214	2.150	26.3	20.9	73 E	11* 67*	7 20	6 59.01	+14 42.4	1.083	0.283	68.9	15.4	15 W	-	9*
11 2	19 16.67	-32 21.8	2.342	2.162	25.0	21.0	67 E	12* 61*	7 21	7 4.33	+14 7.2	1.120	0.297	62.1	15.3	15 W	-	9*
11 12	19 34.98	-30 58.2	2.465	2.172	23.6	21.1	61 E	13* 55*	7 22	7 9.83	+13 37.8	1.156	0.312	56.2	15.3	15 W	-	9*
11 22	19 53.53	-29 30.6	2.580	2.180	21.9	21.1	56 E	14* 49*	7 23	7 15.40	+13 13.1	1.191	0.329	50.9	15.4	15 W	-	9*
12 2	20 12.23	-27 58.3	2.688	2.186	20.2	21.1	50 E	15* 42*	7 24	7 20.98	+12 52.2	1.224	0.348	46.3	15.4	14 W	-	8*
12 12	20 30.98	-26 20.9	2.786	2.190	18.3	21.2	44 E	15* 36*	7 25	7 26.53	+12 34.4	1.256	0.367	42.3	15.5	14 W	-	8*
12 22	20 49.70	-24 38.2	2.873	2.192	16.3	21.2	39 E	15* 30*	7 27	7 37.42	+12 5.6	1.317	0.406	35.7	15.6	13 W	-	7*
1 1	21 8.34	-22 50.3	2.950	2.192	14.2	21.2	33 E	14* 24*	7 29	7 47.90	+11 43.4	1.374	0.447	30.5	15.8	13 W	-	7*



EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

20/22	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	20/22	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°
<b>511808 2015 FH<sub>120</sub></b>										<b>160092 2000 PL<sub>6</sub></b>									
<i>(continuation)</i>										<i>(continuation)</i>									
3 12	15 17.57	+ 1 17.7	0.785	1.563	32.3	20.4	123 W	46	63	5 11	14 18.92	-47 15.0	2.219	3.126	9.7	19.6	149 E	—	69
3 17	15 11.53	+ 1 45.7	0.785	1.607	28.9	20.4	129 W	47	62	5 16	14 12.56	-46 47.6	2.216	3.119	9.9	19.6	148 E	—	69
3 22	15 4.21	+ 2 13.6	0.788	1.651	25.2	20.3	135 W	47	62	5 21	14 6.66	-46 14.3	2.219	3.112	10.4	19.7	146 E	—	70
3 27	14 55.80	+ 2 40.0	0.795	1.694	21.5	20.3	141 W	48	61	5 26	14 1.33	-45 36.3	2.227	3.104	11.1	19.7	144 E	—	70
4 1	14 46.55	+ 3 3.5	0.807	1.736	17.9	20.3	148 W	48	61	5 31	13 56.69	-44 54.5	2.242	3.096	11.9	19.7	141 E	—	71
4 6	14 36.75	+ 3 22.9	0.823	1.777	14.4	20.2	154 W	48	61	6 5	13 52.79	-44 10.1	2.262	3.088	12.8	19.8	138 E	1	72
4 11	14 26.72	+ 3 37.1	0.846	1.818	11.3	20.2	159 W	49	60	6 10	13 49.69	-43 24.3	2.288	3.079	13.8	19.8	134 E	2	73
4 16	14 16.81	+ 3 45.1	0.876	1.858	9.1	20.3	163 W	49	60	6 15	13 47.40	-42 38.1	2.318	3.070	14.7	19.9	130 E	2*	73
4 26	13 58.56	+ 3 41.5	0.953	1.937	9.0	20.5	162 E	49	60	6 20	13 45.93	-41 52.6	2.353	3.061	15.6	19.9	126 E	3*	74
5 6	13 43.79	+ 3 13.6	1.056	2.012	12.6	21.0	154 E	48	61	6 25	13 45.24	-41 8.6	2.391	3.052	16.4	20.0	122 E	3*	75
5 16	13 33.26	+ 2 25.9	1.181	2.085	16.6	21.4	144 E	47	62	6 30	13 45.31	-40 26.6	2.433	3.042	17.2	20.1	118 E	3*	76
5 26	13 26.94	+ 1 23.7	1.325	2.156	19.7	21.9	134 E	46	63	7 5	13 46.10	-39 47.2	2.478	3.033	17.9	20.1	114 E	3*	76
<b>22807 1999 RK<sub>7</sub></b>										<b>55757 1991 XN</b>									
12 27	14 20.56	-14 4.5	2.861	2.482	19.6	20.4	58 W	30*	43*	12 27	14 22.83	- 8 8.9	2.731	2.386	20.8	20.5	59 W	35*	40*
1 6	14 35.33	-15 21.2	2.723	2.462	21.1	20.4	64 W	29*	50*	1 6	14 36.40	- 9 13.6	2.643	2.418	21.8	20.5	66 W	35*	47*
1 16	14 49.64	-16 32.0	2.579	2.440	22.4	20.3	71 W	28*	58*	1 16	14 48.80	-10 8.9	2.548	2.448	22.6	20.5	73 W	35*	55*
1 26	15 3.30	-17 36.4	2.430	2.418	23.4	20.2	78 W	27	66*	1 26	14 59.80	-10 54.4	2.446	2.478	23.1	20.4	80 W	34	63*
2 5	15 16.12	-18 34.3	2.278	2.395	24.2	20.0	85 W	26	74*	2 5	15 9.16	-11 30.3	2.339	2.508	23.1	20.3	88 W	33	70*
2 15	15 27.83	-19 25.4	2.125	2.371	24.6	19.9	92 W	26	81*	2 15	15 16.58	-11 56.6	2.231	2.536	22.8	20.2	96 W	33	75*
2 25	15 38.11	-20 9.7	1.973	2.347	24.6	19.7	99 W	25	84	2 25	15 21.74	-12 13.5	2.123	2.564	21.9	20.1	105 W	33	76
3 7	15 46.61	-20 47.3	1.824	2.321	24.1	19.5	107 W	24	85	3 7	15 24.36	-12 21.4	2.020	2.591	20.4	20.0	114 W	33	76
3 17	15 52.88	-21 17.9	1.681	2.295	23.0	19.2	116 W	24	85	3 17	15 24.17	-12 20.6	1.925	2.618	18.3	19.9	124 W	33	76
3 27	15 56.48	-21 41.4	1.547	2.269	21.2	19.0	125 W	23	86	3 27	15 21.04	-12 11.8	1.843	2.643	15.5	19.7	135 W	33	76
4 6	15 56.99	-21 57.2	1.424	2.242	18.6	18.7	134 W	23	86	3 27	15 15.08	-11 56.1	1.778	2.668	12.1	19.5	146 W	33	76
4 16	15 54.07	-22 4.2	1.317	2.214	15.1	18.4	145 W	23	86	4 16	15 6.67	-11 35.2	1.736	2.692	8.1	19.3	158 W	33	76
4 26	15 47.70	-22 1.0	1.228	2.186	10.8	18.0	156 W	23	86	4 26	14 56.56	-11 11.9	1.720	2.715	4.0	19.1	169 W	34	75
5 6	15 38.32	-21 46.7	1.161	2.158	5.7	17.6	168 W	23	86	5 6	14 45.78	-10 49.4	1.731	2.737	2.1	19.0	174 E	34	75
5 11	15 32.80	-21 35.3	1.137	2.143	3.0	17.4	174 W	23	86	5 16	14 35.42	-10 31.4	1.772	2.758	5.8	19.3	164 E	34	75
5 16	15 26.94	-21 21.4	1.118	2.129	1.2	17.3	177 E	24	85	5 26	14 26.48	-10 21.4	1.839	2.778	9.6	19.6	153 E	35	74
5 21	15 20.98	-21 5.6	1.106	2.114	3.4	17.4	173 E	24	85	6 5	14 19.63	-10 21.4	1.930	2.798	13.0	19.8	142 E	35	74
5 26	15 15.12	-20 48.5	1.100	2.100	6.2	17.5	167 E	24	85	6 15	14 15.23	-10 32.2	2.041	2.816	15.7	20.1	131 E	34	75
5 31	15 9.57	-20 30.9	1.100	2.085	9.1	17.6	161 E	24	85	6 25	14 13.37	-10 53.9	2.168	2.834	17.8	20.3	121 E	34*	75
6 5	15 4.52	-20 13.6	1.106	2.070	12.0	17.7	155 E	25	84	7 5	14 13.90	-11 25.4	2.307	2.851	19.3	20.5	112 E	32*	75
6 10	15 0.14	-19 57.6	1.117	2.056	14.7	17.8	149 E	25	84	7 15	14 16.65	-12 5.4	2.453	2.866	20.2	20.6	104 E	29*	76
6 15	14 56.56	-19 43.5	1.133	2.041	17.2	17.9	144 E	25	84	7 25	14 21.36	-12 52.4	2.604	2.881	20.6	20.8	95 E	26*	77
6 25	14 52.13	-19 24.2	1.177	2.012	21.7	18.1	133 E	26	83	8 4	14 27.77	-13 44.9	2.756	2.895	20.5	20.9	88 E	23*	77*
7 5	14 51.54	-19 17.7	1.234	1.983	25.4	18.3	123 E	25*	83	8 14	14 35.69	-14 41.5	2.907	2.908	20.1	21.0	80 E	21*	72*
7 15	14 54.74	-19 27.9	1.300	1.954	28.3	18.5	114 E	24*	83	8 24	14 44.91	-15 40.8	3.054	2.920	19.3	21.1	73 E	18*	66*
7 25	15 1.46	-19 50.7	1.371	1.925	30.4	18.6	107 E	23*	84	9 3	14 55.27	-16 41.6	3.195	2.931	18.3	21.2	66 E	16*	60*
8 4	15 11.34	-20 24.5	1.446	1.897	31.9	18.7	99 E	21*	84	9 13	15 6.64	-17 42.9	3.329	2.941	17.1	21.3	59 E	14*	53*
8 14	15 24.06	-21 6.5	1.521	1.869	32.8	18.8	93 E	20*	85*	9 23	15 18.89	-18 43.6	3.454	2.950	15.6	21.3	52 E	12*	46*
8 24	15 39.33	-21 53.2	1.596	1.843	33.2	18.9	87 E	18*	81*	10 3	15 31.92	-19 42.8	3.568	2.958	14.0	21.3	46 E	11*	40*
9 3	15 56.87	-22 41.3	1.670	1.817	33.3	19.0	81 E	17*	75*	10 13	15 45.66	-20 39.7	3.670	2.966	12.3	21.3	39 E	9*	33*
9 13	16 16.48	-23 27.5	1.742	1.792	33.0	19.1	76 E	16*	70*	10 23	16 0.00	-21 33.3	3.759	2.972	10.4	21.3	33 E	7*	27*
9 23	16 37.95	-24 8.5	1.811	1.769	32.5	19.1	71 E	16*	65*	11 2	16 14.87	-22 23.2	3.834	2.977	8.5	21.3	26 E	5*	20*
10 3	17 1.09	-24 41.0	1.877	1.747	31.8	19.1	67 E	16*	61*	11 12	16 30.20	-23 8.6	3.893	2.982	6.5	21.2	20 E	3*	14*
10 13	17 25.70	-25 2.2	1.940	1.727	30.9	19.2	63 E	16*	57*	11 22	16 45.91	-23 49.1	3.936	2.985	4.5	21.1	14 E	—	7*
10 23	17 51.56	-25 9.2	2.001	1.709	29.8	19.2	59 E	16*	52*	12 2	17 1.91	-24 24.1	3.963	2.988	2.4	21.0	7 E	—	1*
11 2	18 18.43	-25 0.0	2.059	1.692	28.6	19.2	55 E	16*	48*	12 12	17 18.13	-24 53.6	3.973	2.989	0.6	20.9	2 E	—	—
11 12	18 46.08	-24 32.7	2.115	1.678	27.3	19.2	51 E	16*	44*	12 22	17 34.46	-25 17.2	3.966	2.990	2.0	21.0	6 W	—	—
11 22	19 14.22	-23 46.4	2.168	1.666	25.9	19.2	47 E	17*	39*	1 1	17 50.83	-25 34.9	3.942	2.989	4.1	21.1	12 W	—	6*
12 2	19 42.61	-22 40.6	2.220	1.657	24.4	19.2	44 E	18*	35*	1 11	18 7.12	-25 47.0	3.901	2.988	6.1	21.2	19 W	3*	12*
12 12	20 11.02	-21 15.6	2.270	1.650	22.8	19.2	40 E	18*	30*	1 21	18 23.24	-25 53.7	3.843	2.985	8.2	21.3	25 W	5*	19*
12 22	20 39.25	-19 32.5	2.319	1.645	21.1	19.1	37 E	18*	26*	<b>303174 2004 FH<sub>11</sub></b>									
1 1	21 7.15	-17 32.8	2.367	1.643	19.5	19.1	34 E	18*	22*	12 27	14 23.10	-17 30.0	2.293	1.929	25.1	21.0	56 W	26*	43*
1 11	21 34.62	-15 18.6	2.413	1.644	17.7	19.1	31 E	17*	18*	1 6	14 46.86	-18 15.3	2.144	1.872	27.3	20.8	61 W	26*	49*
1 21	22 1.60	-12 52.3	2.458	1.648	15.9	19.1	27 E	16*	15*	1 16	15 11.73	-18 44.1	1.993	1.815	29.5	20.7	65 W	26*	54*
<b>160092 2000 PL<sub>6</sub></b>										1 26	15 37.77	-18 52.4	1.844	1.758	31.6	20.5	69 W	26*	59*
12 27	14 22.76	-32 31.0	3.716	3.226	14.1	21.0	53 W	11*	47*	2 5	16 5.07	-18 35.7	1.699	1.701	33.7	20.3	73 W	26*	63*
1 6	14 33.93	-34 8.5	3.598	3.225	15.4	21.0	60 W	11*	54*										
1 16	14 44.29	-35 45.6	3.470	3.223	16.4	20.9	67 W	9*	61*										
1 26	14 53.59	-37 22.1	3.334	3.220	17.2	20.9	75 W	8	68*										
2 5	15 1.56	-38 57.9	3.194	3.216	17.7	20.8	82 W	6	74*										
2 15	15 7.88	-40 32.6	3.051	3.211	17.9	20.7	90 W	4	75*										
2 25	15 12.16	-42 5.4	2.909	3.205	17.8	2													

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

20/22	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°-26°	20/22	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°-26°
<b>303174 2004 FH<sub>11</sub></b>									<b>41074 1999 VL<sub>40</sub></b>								
<i>(continuation)</i>									<i>(continuation)</i>								
2 10	16 19.19	-18 16.3	1.628	1.673	34.8	20.2	75 W	27* 65*	3 17	17 21.40	-37 32.1	1.581	1.927	31.0	17.9	94 W	7* 78*
2 15	16 33.61	-17 48.6	1.559	1.645	35.8	20.1	77 W	27* 67*	3 22	17 27.61	-37 26.3	1.543	1.945	30.5	17.9	98 W	8 79
2 20	16 48.35	-17 12.0	1.492	1.617	36.8	20.0	78 W	28* 69*	3 27	17 32.90	-37 17.8	1.504	1.963	29.9	17.8	101 W	8 79
2 25	17 3.38	-16 25.7	1.427	1.590	37.8	19.9	80 W	28* 70*	4 1	17 37.22	-37 6.6	1.466	1.982	29.1	17.8	105 W	8 79
3 2	17 18.69	-15 29.3	1.364	1.563	38.8	19.8	81 W	29* 71*	4 6	17 40.50	-36 52.7	1.429	2.000	28.1	17.7	110 W	8 79
3 7	17 34.29	-14 22.0	1.305	1.536	39.9	19.7	83 W	30* 71*	4 16	17 43.74	-36 16.4	1.357	2.037	25.7	17.6	118 W	9 80
3 12	17 50.14	-13 3.3	1.248	1.510	40.9	19.6	84 W	31* 72*	4 26	17 42.38	-35 26.9	1.294	2.074	22.4	17.4	128 W	10 81
3 17	18 6.21	-11 32.9	1.194	1.485	41.9	19.5	85 W	32* 71*	5 6	17 36.52	-34 21.1	1.243	2.111	18.2	17.2	139 W	11 82
3 27	18 38.92	-7 56.8	1.097	1.436	43.9	19.3	86 W	35* 70*	5 11	17 32.04	-33 41.0	1.223	2.129	15.9	17.1	145 W	11 82
4 6	19 12.21	-3 35.9	1.016	1.391	45.9	19.1	87 W	39* 67*	5 16	17 26.71	-32 55.8	1.209	2.148	13.3	17.0	151 W	12 83
4 16	19 45.81	+1 22.7	0.951	1.351	47.9	18.9	87 W	42* 62*	5 21	17 20.71	-32 5.5	1.200	2.166	10.7	16.9	157 W	13 84
4 21	20 2.64	+4 2.0	0.925	1.333	48.8	18.9	87 W	44* 60*	5 26	17 14.24	-31 10.3	1.197	2.184	8.0	16.8	163 W	14 85
4 26	20 19.44	+6 45.4	0.903	1.316	49.8	18.8	87 W	46* 57*	5 31	17 7.55	-30 11.1	1.200	2.203	5.3	16.7	168 W	15 86
5 1	20 36.21	+9 30.6	0.884	1.301	50.6	18.8	87 W	48* 54*	6 5	17 0.85	-29 8.6	1.210	2.221	3.2	16.7	173 W	16 87
5 6	20 52.90	+12 15.4	0.869	1.288	51.4	18.7	86 W	50* 52	6 10	16 54.38	-28 4.2	1.227	2.239	2.9	16.7	173 E	17 88
5 11	21 9.47	+14 57.6	0.856	1.276	52.1	18.7	86 W	52* 49	6 15	16 48.34	-26 59.3	1.251	2.256	4.8	16.9	169 E	18 89
5 16	21 25.90	+17 35.0	0.847	1.267	52.7	18.7	85 W	54* 46	6 20	16 42.90	-25 55.3	1.281	2.274	7.2	17.0	164 E	19 90
5 21	21 42.16	+20 5.8	0.840	1.259	53.2	18.7	85 W	55* 44	6 25	16 38.18	-24 53.5	1.318	2.292	9.6	17.2	158 E	20 89
5 26	21 58.22	+22 28.4	0.834	1.253	53.6	18.7	85 W	57* 42	6 30	16 34.26	-23 55.0	1.360	2.309	11.8	17.4	152 E	21 88
5 31	22 14.07	+24 41.8	0.830	1.250	53.9	18.7	85 W	59* 39	7 5	16 31.18	-23 0.6	1.409	2.327	13.9	17.6	147 E	22 87
6 5	22 29.64	+26 45.2	0.827	1.248	54.0	18.6	85 W	60* 37	7 15	16 27.57	-21 26.0	1.521	2.361	17.4	17.9	136 E	24 85
6 10	22 44.90	+28 37.9	0.824	1.249	54.1	18.6	85 W	62* 35	7 25	16 27.22	-20 11.2	1.649	2.394	20.0	18.2	126 E	25 84
6 15	22 59.80	+30 19.6	0.822	1.251	54.0	18.6	85 W	64* 34	8 4	16 29.76	-19 14.8	1.790	2.427	21.8	18.4	117 E	26* 83
6 20	23 14.28	+31 49.9	0.819	1.256	53.8	18.6	86 W	66* 32	8 14	16 34.80	-18 33.8	1.940	2.459	23.0	18.7	109 E	26* 83
6 25	23 28.31	+33 8.8	0.816	1.263	53.4	18.6	86 W	68* 31	8 24	16 41.96	-18 5.0	2.097	2.490	23.5	18.9	101 E	26* 82
6 30	23 41.82	+34 16.5	0.812	1.272	53.0	18.6	87 W	70* 30	9 3	16 50.87	-17 45.0	2.257	2.521	23.6	19.1	93 E	26* 82*
7 5	23 54.73	+35 13.0	0.807	1.283	52.4	18.6	89 W	72* 29	9 13	17 1.25	-17 30.6	2.418	2.550	23.2	19.2	86 E	25* 77*
7 10	0 6.96	+35 58.4	0.801	1.295	51.7	18.6	90 W	74* 28	9 23	17 12.86	-17 19.4	2.578	2.579	22.4	19.4	79 E	25* 71*
7 15	0 18.42	+36 32.5	0.793	1.309	50.9	18.6	92 W	76* 27	10 3	17 25.46	-17 8.9	2.734	2.607	21.4	19.5	72 E	25* 64*
7 20	0 29.04	+36 55.4	0.785	1.325	49.9	18.5	94 W	79* 27	10 13	17 38.90	-16 57.5	2.886	2.634	20.2	19.6	66 E	24* 57*
7 25	0 38.73	+37 6.8	0.775	1.343	48.8	18.5	96 W	81* 27	10 23	17 53.01	-16 43.4	3.031	2.660	18.7	19.7	59 E	24* 50*
7 30	0 47.41	+37 6.7	0.764	1.362	47.4	18.5	99 W	82* 27	11 2	18 7.66	-16 25.5	3.168	2.685	17.1	19.8	53 E	23* 43*
8 4	0 54.98	+36 54.6	0.752	1.382	45.9	18.4	102 W	82* 27	11 12	18 22.72	-16 2.7	3.295	2.709	15.4	19.8	46 E	22* 36*
8 9	1 1.35	+36 30.0	0.740	1.403	44.2	18.4	105 W	81* 28	11 22	18 38.07	-15 34.3	3.410	2.732	13.5	19.8	40 E	21* 29*
8 14	1 6.45	+35 51.9	0.727	1.426	42.2	18.3	109 W	81* 28	12 2	18 53.62	-14 59.7	3.514	2.754	11.6	19.8	34 E	20* 21*
8 19	1 10.24	+34 59.6	0.714	1.449	40.0	18.3	113 W	80* 29	12 12	19 9.28	-14 18.6	3.604	2.776	9.6	19.8	28 E	17* 14*
8 24	1 12.70	+33 52.4	0.701	1.474	37.4	18.2	118 W	79* 30	12 22	19 24.93	-13 30.7	3.680	2.796	7.7	19.8	22 E	14* 7*
8 29	1 13.83	+32 29.5	0.689	1.499	34.6	18.1	123 W	77* 32	1	19 40.52	-12 36.0	3.741	2.815	5.8	19.8	17 E	11* 1*
9 3	1 13.67	+30 50.3	0.680	1.524	31.4	18.0	128 W	76* 33	1 11	19 55.96	-11 34.5	3.787	2.833	4.2	19.7	12 E	6* -
9 8	1 12.32	+28 54.6	0.672	1.551	27.9	17.9	134 W	74* 35	1 21	20 11.17	-10 26.5	3.816	2.850	3.3	19.7	10 W	1* -
9 13	1 9.94	+26 43.1	0.668	1.578	24.2	17.8	140 W	72* 37	<b>47581 2000 AN<sub>178</sub></b>								
9 18	1 6.73	+24 17.7	0.668	1.605	20.2	17.8	147 W	69* 40	12 27	14 24.24	-14 4.2	3.017	2.616	18.4	20.8	57 W	29* 42*
9 23	1 2.95	+21 41.3	0.672	1.632	16.0	17.7	153 W	67* 42	1 6	14 38.37	-14 56.7	2.878	2.597	19.8	20.8	64 W	30* 49*
9 28	0 58.84	+18 58.0	0.682	1.660	11.8	17.6	160 W	64* 45	1 16	14 51.95	-15 41.4	2.731	2.576	21.1	20.7	71 W	29* 57*
10 3	0 54.65	+16 12.2	0.699	1.689	7.8	17.5	167 W	61* 48	1 26	15 4.80	-16 17.4	2.579	2.555	22.1	20.6	78 W	29* 65*
10 8	0 50.63	+13 29.1	0.721	1.717	4.5	17.5	172 E	58 51	2 5	15 16.70	-16 43.9	2.423	2.533	22.8	20.4	85 W	28* 73*
10 13	0 47.01	+10 53.4	0.751	1.745	4.0	17.6	173 E	56 53	2 15	15 27.39	-17 0.3	2.266	2.511	23.1	20.3	92 W	28* 79*
10 18	0 43.94	+8 29.2	0.787	1.774	6.5	17.8	168 E	53 56	2 25	15 36.55	-17 5.9	2.110	2.487	23.0	20.1	100 W	28* 81
10 23	0 41.54	+6 18.9	0.829	1.802	9.6	18.1	162 E	51 58	3 7	15 43.85	-16 59.9	1.957	2.462	22.4	19.9	109 W	28* 81
10 28	0 39.87	+4 24.3	0.877	1.831	12.5	18.4	156 E	49 60	3 17	15 48.91	-16 41.7	1.811	2.437	21.2	19.7	118 W	28* 81
11 2	0 38.95	+2 45.8	0.930	1.860	15.2	18.6	151 E	48 61	3 27	15 51.34	-16 10.7	1.675	2.411	19.3	19.4	127 W	29* 80
11 12	0 39.38	+0 15.5	1.053	1.916	19.6	19.1	139 E	45 64	4 6	15 50.84	-15 26.6	1.552	2.384	16.6	19.1	137 W	30* 79
11 22	0 42.62	+1 19.2	1.192	1.973	22.7	19.5	129 E	44 65	4 16	15 47.23	-14 29.6	1.446	2.356	13.2	18.8	148 W	31* 78
12 2	0 48.22	-2 9.3	1.344	2.029	24.8	19.9	120 E	43 66	4 26	15 40.67	-13 21.5	1.361	2.328	9.0	18.5	159 W	32* 77
12 7	0 51.79	-2 20.8	1.424	2.056	25.5	20.1	116 E	43 66	5 1	15 36.43	-12 44.4	1.327	2.313	6.8	18.3	164 W	32* 77
12 12	0 55.82	-2 24.8	1.507	2.084	26.0	20.3	112 E	43 66	5 6	15 31.70	-12 6.1	1.300	2.299	4.6	18.2	169 W	33* 76
12 17	1 0.24	-2 22.2	1.591	2.111	26.3	20.4	108 E	43 66	5 11	15 26.60	-11 27.3	1.279	2.284	3.2	18.0	173 W	34* 75
12 22	1 5.02	-2 14.2	1.676	2.138	26.5	20.6	104 E	43 66*	5 16	15 21.30	-10 49.1	1.264	2.269	3.8	18.0	171 E	34* 75
12 27	1 10.11	-2 1.4	1.763	2.164	26.6	20.7	100 E	43 65*	5 21	15 15.98	-10 12.6	1.256	2.254	5.8	18.1	167 E	35* 74
1 1	1 15.50	+1 44.6	1.851	2.191	26.5	20.8	96 E	43 63*	5 26	15 10.82	-9 38.5	1.255	2.239	8.2	18.2	162 E	35* 74
1 6	1 21.15	+1 24.4	1.939	2.217	26.3	21.0	93 E	44 61*	5 31	15 5.98	-9 7.9	1.259	2.223	10.7	18.3	156 E	36* 73
1 11	1 27.03	+1 1.3	2.028	2.243	26.0	21.1	89 E	44 59*	6 5	15 1.60	-8 41.5	1.269	2.208	13.2	18.4	150 E	36* 73
1 16	1 33.13	+0 35.8	2.116	2.268	25.6	21.2	86 E	44 57*	6 15	14 54.73	-8 3.4	1.305	2.177	17.8	18.6	139 E	37* 72
1 21	1 39.40	+0 8.5	2.205	2.294	25.2	21.3	82 E	45 54*	6 25	14 50.9							

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

20/22	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	20/22	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°
<b>47581 2000 AN<sub>178</sub></b>										<b>7822 1991 CS</b>									
<i>(continuation)</i>										<i>(continuation)</i>									
11 22	18 44.79	-17 56.9	2.316	1.705	22.5	19.5	41 E	20*	31*	9 5	5 51.82	-30 34.3	0.188	0.998	87.8	16.9	81 W	10*	74*
12 2	19 11.94	-17 34.1	2.353	1.685	21.0	19.4	38 E	19*	26*	9 7	6 8.01	-34 33.8	0.203	0.993	88.2	17.0	80 W	6*	71*
12 12	19 39.61	-16 53.1	2.386	1.667	19.4	19.4	34 E	19*	22*	9 9	6 23.16	-37 51.5	0.219	0.989	88.4	17.2	79 W	2*	68*
12 22	20 7.60	-15 53.8	2.417	1.651	17.8	19.3	31 E	18*	18*	9 11	6 37.30	-40 34.3	0.237	0.985	88.4	17.4	78 W	—	65*
1 1	20 35.73	-14 36.9	2.446	1.638	16.1	19.3	28 E	17*	14*	9 13	6 50.48	-42 48.4	0.255	0.981	88.3	17.5	77 W	—	63*
1 11	21 3.85	-13 3.4	2.473	1.628	14.4	19.2	24 E	15*	10*	9 15	7 2.76	-44 39.2	0.273	0.977	88.0	17.6	76 W	—	61*
1 21	21 31.85	-11 15.1	2.499	1.621	12.7	19.2	21 E	13*	7*	9 17	7 14.23	-46 11.1	0.292	0.974	87.7	17.8	75 W	—	59*
<b>7822 1991 CS</b>										<b>1565 Lemaître</b>									
12 27	14 24.54	+ 5 0.5	1.348	1.213	44.8	20.2	60 W	38*	38*	12 27	14 24.55	-30 6.2	3.692	3.202	14.2	18.8	53 W	14*	46*
1 6	14 57.00	+ 3 9.6	1.300	1.233	45.6	20.2	64 W	41*	40*	1 6	14 36.21	-31 12.1	3.566	3.194	15.5	18.7	60 W	14*	54*
1 16	15 29.53	+ 0 51.7	1.253	1.252	46.2	20.1	67 W	43*	42*	1 16	14 47.05	-32 14.9	3.429	3.186	16.6	18.7	68 W	13*	61*
1 26	16 1.93	+ 1 53.6	1.209	1.268	46.8	20.1	70 W	46*	43*	1 26	14 56.84	-33 14.1	3.284	3.177	17.4	18.6	75 W	12	69*
2 5	16 34.04	+ 5 4.2	1.168	1.281	47.2	20.1	72 W	49*	44*	2 5	15 5.33	-34 9.2	3.133	3.166	18.0	18.5	83 W	11	76*
2 10	16 49.91	+ 6 48.1	1.150	1.287	47.4	20.0	74 W	50*	44*	2 15	15 12.24	-34 59.6	2.979	3.155	18.2	18.4	91 W	10	81*
2 15	17 5.61	+ 8 37.0	1.133	1.292	47.5	20.0	75 W	52*	44*	2 25	15 17.23	-35 44.2	2.824	3.143	18.1	18.3	99 W	9	80
2 20	17 21.12	+10 30.1	1.117	1.296	47.7	20.0	76 W	53*	44*	3 7	15 19.99	-36 21.5	2.673	3.129	17.5	18.1	108 W	9	80
2 25	17 36.41	+12 26.6	1.103	1.300	47.8	20.0	77 W	55*	43*	3 17	15 20.21	-36 49.4	2.528	3.115	16.5	18.0	117 W	8	79
3 2	17 51.47	+14 25.6	1.089	1.303	47.9	20.0	77 W	56*	43*	3 27	15 17.68	-37 4.7	2.394	3.100	14.9	17.8	127 W	8	79
3 7	18 6.27	+16 26.4	1.077	1.305	48.1	19.9	78 W	58*	42*	4 6	15 12.37	-37 3.9	2.276	3.083	12.8	17.6	137 W	8	79
3 12	18 28.79	+18 28.2	1.066	1.307	48.2	19.9	79 W	59*	41*	4 11	15 8.74	-36 56.2	2.224	3.075	11.6	17.5	142 W	8	79
3 17	18 35.02	+20 30.3	1.056	1.308	48.4	19.9	79 W	61*	40*	4 21	15 4.52	-36 43.0	2.178	3.066	10.4	17.4	147 W	8	79
3 22	18 48.93	+22 31.7	1.046	1.308	48.5	19.9	80 W	63*	39*	4 26	14 54.72	-35 58.9	2.103	3.048	7.8	17.2	156 W	9	80
3 27	19 2.54	+24 31.8	1.036	1.307	48.7	19.9	80 W	63*	37*	5 1	14 49.38	-35 28.0	2.075	3.038	6.8	17.1	159 W	10	81
4 1	19 15.84	+26 30.1	1.026	1.306	48.9	19.9	80 W	65*	36*	5 6	14 43.92	-34 51.3	2.055	3.028	6.1	17.0	162 E	10	81
4 6	19 28.83	+28 26.0	1.017	1.304	49.2	19.9	81 W	66*	35*	5 11	14 38.49	-34 9.4	2.041	3.018	5.9	17.0	162 E	11	82
4 11	19 41.51	+30 19.3	1.006	1.301	49.5	19.8	81 W	67*	33*	5 16	14 33.22	-33 22.9	2.035	3.008	6.4	17.0	161 E	12	83
4 16	19 53.89	+32 9.5	0.995	1.298	49.8	19.8	81 W	68*	32*	5 21	14 28.26	-32 32.7	2.036	2.998	7.3	17.1	158 E	12	83
4 21	20 5.97	+33 56.3	0.984	1.294	50.1	19.8	81 W	69*	30*	5 26	14 23.72	-31 40.1	2.044	2.987	8.6	17.1	154 E	13	84
4 26	20 17.78	+35 39.3	0.970	1.289	50.5	19.8	81 W	70*	28*	5 31	14 19.69	-30 45.9	2.059	2.976	10.0	17.2	149 E	14	85
5 1	20 29.34	+37 18.6	0.956	1.284	50.9	19.7	82 W	70*	27	6 5	14 16.24	-29 51.4	2.079	2.965	11.5	17.3	145 E	15	86
5 6	20 40.67	+38 54.1	0.940	1.278	51.4	19.7	82 W	71*	25	6 10	14 13.43	-28 57.5	2.106	2.953	12.9	17.3	140 E	16	87
5 11	20 51.79	+40 25.6	0.922	1.271	51.9	19.7	82 W	72*	24	6 15	14 11.28	-28 5.2	2.138	2.942	14.2	17.4	135 E	17	88
5 16	21 2.72	+41 53.1	0.902	1.263	52.5	19.6	82 W	73*	22	6 25	14 9.03	-26 28.4	2.216	2.917	16.6	17.5	125 E	18*	89
5 21	21 13.51	+43 16.3	0.880	1.255	53.1	19.6	83 W	74*	21	7 5	14 9.40	-25 5.1	2.308	2.892	18.5	17.7	115 E	18*	89
5 26	21 24.20	+44 35.1	0.856	1.247	53.8	19.5	83 W	75*	19	7 15	14 12.23	-23 57.3	2.411	2.866	19.9	17.8	106 E	17*	88
5 31	21 34.86	+45 49.5	0.829	1.237	54.5	19.4	84 W	76*	18	7 25	14 17.27	-23 5.2	2.519	2.839	20.8	17.9	98 E	16*	87
6 5	21 45.53	+46 59.5	0.800	1.228	55.3	19.4	84 W	77*	17	8 4	14 24.25	-22 27.6	2.630	2.811	21.2	18.0	90 E	15*	83*
6 10	21 56.30	+48 4.8	0.769	1.217	56.2	19.3	85 W	78*	16	8 14	14 32.95	-22 2.8	2.740	2.782	21.1	18.0	82 E	14*	76*
6 15	22 7.23	+49 5.1	0.735	1.206	57.1	19.2	85 W	79*	15	8 24	14 43.18	-21 48.8	2.846	2.752	20.7	18.1	74 E	13*	68*
6 20	22 18.47	+49 59.7	0.699	1.195	58.0	19.1	86 W	80*	14	9 3	14 54.76	-21 43.3	2.947	2.721	20.0	18.1	67 E	12*	61*
6 25	22 30.17	+50 48.1	0.661	1.183	59.1	19.0	87 W	81*	13	9 13	15 7.55	-21 44.1	3.040	2.689	19.0	18.1	60 E	11*	54*
6 30	22 42.53	+51 29.7	0.620	1.171	60.2	18.9	88 W	82*	13	9 23	15 21.43	-21 49.2	3.123	2.657	17.7	18.1	54 E	10*	48*
7 5	22 55.77	+52 3.4	0.578	1.159	61.3	18.7	89 W	82*	12	10 3	15 36.30	-21 56.5	3.196	2.623	16.3	18.1	47 E	9*	41*
7 10	23 10.19	+52 27.0	0.533	1.146	62.6	18.6	90 W	82*	12	10 13	15 52.10	-22 4.3	3.257	2.589	14.7	18.1	41 E	8*	35*
7 15	23 26.20	+52 37.6	0.487	1.133	63.8	18.4	91 W	82*	11	10 23	16 8.72	-22 10.5	3.305	2.554	12.9	18.0	35 E	8*	29*
7 17	23 33.17	+52 37.3	0.467	1.127	64.4	18.3	91 W	82*	11	11 2	16 26.11	-22 13.6	3.340	2.518	11.0	17.9	29 E	7*	22*
7 19	23 40.53	+52 33.6	0.448	1.122	64.9	18.2	92 W	82	11	11 12	16 44.20	-22 12.0	3.362	2.481	9.0	17.8	23 E	5*	16*
7 21	23 48.31	+52 26.3	0.429	1.117	65.4	18.1	92 W	83	12										
7 23	23 56.58	+52 14.7	0.409	1.111	66.0	18.0	92 W	83	12										
7 25	0 5.39	+51 58.1	0.390	1.106	66.6	17.9	93 W	83	12										
7 27	0 14.79	+51 35.5	0.370	1.100	67.1	17.8	93 W	83	12										
7 29	0 24.86	+51 5.8	0.350	1.095	67.7	17.7	94 W	84	13										
7 31	0 35.66	+50 27.4	0.330	1.089	68.3	17.6	94 W	85	14										
8 2	0 47.27	+49 38.5	0.311	1.084	69.0	17.5	94 W	85	14										
8 4	0 59.74	+48 36.7	0.291	1.079	69.6	17.3	95 W	86	15										
8 6	1 13.15	+47 18.9	0.272	1.073	70.3	17.2	95 W	88	17										
8 8	1 27.55	+45 41.3	0.253	1.068	71.0	17.0	95 W	89*	18										
8 10	1 42.99	+43 39.1	0.235	1.063	71.7	16.9	96 W	89*	20										
8 12	1 59.48	+41 6.5	0.217	1.057	72.5	16.7	96 W	89*	23										
8 14	2 17.00	+37 56.6	0.200	1.052	73.4	16.6	96 W	82*	26										
8 15	2 26.13	+36 5.3	0.193	1.049	73.9	16.5	96 W	80*	28										
8 16	2 35.50	+34 1.9	0.185	1.047	74.4	16.4	95 W	78*	30										
8 17	2 45.08	+31 45.5	0.178	1.044	74.9	16.4	95 W	75*	32										
8 18	2 54.86	+29 15.4	0.172	1.041	75.5	16.3	95 W	73*	35										
8 19	3 4.82	+26 31.1	0.166	1.039	76.1	16.2	95 W	70*	37										
8 20	3 14.92	+23 32.5	0.161	1.036	76.8	16.2	94 W	67*	40										
8 21	3 25.15	+20 19.8	0.156	1.034	77.5	16.1	94 W	63*	44										
8 22	3 35.47	+16 54.																	



EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

20/22	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°-26°	20/22	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°-26°
<b>1134 Kepler</b> (continuation)									<b>13153 1995 QC<sub>3</sub></b> (continuation)								
5 31	14 19.71	-35 1.2	1.392	2.317	13.2	17.4	148 E	10 81	11 7	19 43.02	-21 53.9	1.572	1.534	37.2	18.8	69 E	23* 61*
6 5	14 13.99	-34 43.1	1.393	2.290	15.3	17.5	144 E	10 81	11 12	19 57.97	-20 56.8	1.607	1.538	36.6	18.9	68 E	24* 59*
6 10	14 9.10	-34 22.7	1.399	2.262	17.3	17.5	139 E	11 82	11 17	20 12.82	-19 55.3	1.644	1.543	36.0	18.9	66 E	25* 57*
6 15	14 5.16	-34 1.2	1.409	2.234	19.2	17.6	134 E	11 82	11 22	20 27.55	-18 49.8	1.681	1.549	35.3	18.9	65 E	26* 54*
6 20	14 2.23	-33 40.0	1.424	2.207	21.0	17.6	129 E	11* 82	11 27	20 42.14	-17 40.5	1.719	1.556	34.6	19.0	64 E	27* 52*
6 25	14 0.35	-33 20.1	1.441	2.179	22.8	17.7	124 E	11* 83	12 2	20 56.56	-16 27.8	1.759	1.565	33.9	19.0	62 E	28* 49*
6 30	13 59.52	-33 2.2	1.461	2.151	24.3	17.7	119 E	11* 83	12 7	21 10.81	-15 12.0	1.799	1.574	33.1	19.0	61 E	29* 47*
7 5	13 59.71	-32 47.0	1.483	2.123	25.7	17.8	115 E	10* 83	12 12	21 24.87	-13 53.5	1.841	1.584	32.3	19.1	59 E	30* 44*
7 15	14 3.12	-32 26.4	1.532	2.067	28.1	17.8	107 E	9* 84	12 22	21 52.40	-11 9.9	1.927	1.608	30.6	19.2	56 E	32* 39*
7 25	14 10.28	-32 20.2	1.584	2.011	29.9	17.9	99 E	7* 84	1 1	22 19.14	-8 20.1	2.018	1.635	28.9	19.3	53 E	33* 34*
8 4	14 20.88	-32 27.6	1.635	1.955	31.2	18.0	92 E	6* 81*	1 11	22 45.15	-5 26.8	2.111	1.664	27.0	19.3	50 E	34* 30*
8 14	14 34.67	-32 46.8	1.684	1.900	32.1	18.0	86 E	5* 76*	1 21	23 10.46	-2 32.6	2.207	1.697	25.1	19.4	47 E	34* 26*
8 24	14 51.45	-33 14.9	1.730	1.846	32.6	18.0	80 E	4* 70*	<b>137158 1999 FB</b>								
9 3	15 11.05	-33 47.9	1.771	1.793	32.9	18.0	75 E	3* 65*	12 27	14 26.35	-6 28.7	1.482	1.294	40.8	20.9	59 W	37* 38*
9 13	15 33.39	-34 21.6	1.807	1.741	32.9	18.0	70 E	3* 61*	1 6	14 42.40	-7 58.7	1.462	1.377	40.4	21.0	65 W	36* 46*
9 23	15 58.36	-34 51.4	1.839	1.691	32.7	17.9	66 E	3* 57*	1 16	14 56.54	-9 14.9	1.425	1.453	40.0	21.1	72 W	36* 53*
10 3	16 25.80	-35 11.6	1.865	1.644	32.4	17.9	62 E	3* 54*	1 26	15 8.49	-10 17.8	1.373	1.521	39.3	21.1	78 W	35 61*
10 13	16 55.55	-35 16.9	1.888	1.600	31.9	17.9	58 E	4* 51*	2 5	15 17.90	-11 8.2	1.308	1.584	38.4	21.0	86 W	34 69*
10 23	17 27.28	-35 1.9	1.908	1.559	31.3	17.8	55 E	5* 48*	2 15	15 24.23	-11 46.1	1.234	1.640	36.9	20.9	94 W	33 75*
11 2	18 0.57	-34 21.4	1.927	1.522	30.7	17.8	51 E	6* 45*	2 25	15 26.77	-12 11.8	1.154	1.690	34.7	20.8	104 W	33 76*
11 7	18 17.65	-33 50.4	1.936	1.505	30.3	17.7	50 E	7* 44*	3 7	15 24.74	-12 24.7	1.072	1.734	31.5	20.6	114 W	33 76*
11 12	18 34.92	-33 11.7	1.945	1.490	29.9	17.7	49 E	7* 43*	3 17	15 17.26	-12 23.6	0.995	1.773	27.0	20.3	126 W	33 76*
11 17	18 52.30	-32 25.0	1.954	1.476	29.5	17.7	47 E	8* 41*	3 27	15 3.70	-12 6.5	0.930	1.806	21.2	20.1	139 W	33 76*
11 22	19 9.73	-31 30.3	1.964	1.463	29.1	17.7	46 E	9* 40*	4 6	14 44.26	-11 32.2	0.883	1.834	14.0	19.7	154 W	33 76*
11 27	19 27.14	-30 27.5	1.974	1.452	28.6	17.6	45 E	10* 38*	4 11	14 32.72	-11 8.6	0.868	1.846	10.0	19.6	161 W	34 75*
12 2	19 44.46	-29 16.8	1.985	1.442	28.2	17.6	44 E	11* 37*	4 16	14 20.40	-10 41.7	0.861	1.856	5.9	19.6	169 W	34 75*
12 7	20 1.65	-27 58.4	1.996	1.434	27.7	17.6	43 E	13* 35*	4 21	14 7.70	-10 12.5	0.862	1.866	1.9	19.2	176 W	35 74*
12 12	20 18.65	-26 32.8	2.009	1.428	27.1	17.6	41 E	14* 33*	4 26	13 55.09	-9 42.6	0.870	1.874	3.1	19.3	174 E	35 74*
12 17	20 35.41	-25 0.3	2.023	1.423	26.6	17.6	40 E	15* 32*	5 1	13 43.00	-9 13.3	0.886	1.881	7.1	19.5	167 E	36 73*
12 22	20 51.91	-23 21.5	2.038	1.420	26.0	17.6	39 E	16* 30*	5 6	13 31.77	-8 46.4	0.909	1.886	11.0	19.8	159 E	36 73*
12 27	21 8.13	-21 37.1	2.054	1.418	25.4	17.6	38 E	17* 28*	5 11	13 21.70	-8 23.0	0.939	1.891	14.6	20.0	152 E	37 72*
1 1	21 24.07	-19 47.7	2.072	1.419	24.8	17.6	37 E	18* 26*	5 16	13 12.97	-8 4.3	0.975	1.894	17.9	20.2	145 E	37 72*
1 6	21 39.71	-17 54.0	2.091	1.421	24.1	17.6	36 E	19* 25*	5 26	12 59.80	-7 43.2	1.062	1.896	23.4	20.5	132 E	37 72*
1 11	21 55.05	-15 56.7	2.112	1.425	23.4	17.6	35 E	19* 23*	6 5	12 52.10	-7 44.1	1.163	1.893	27.4	20.8	121 E	37 72*
1 16	22 10.11	-13 56.5	2.134	1.430	22.7	17.6	34 E	20* 21*	6 15	12 49.19	-8 5.4	1.271	1.886	30.3	21.1	111 E	35* 72*
1 21	22 24.88	-11 54.2	2.158	1.437	21.9	17.6	33 E	20* 19*	6 25	12 50.26	-8 44.3	1.383	1.873	32.1	21.3	102 E	31* 72*
<b>13153 1995 QC<sub>3</sub></b>									<b>392214 2009 UC<sub>20</sub></b>								
12 27	14 26.16	-18 4.5	2.990	2.563	18.4	20.8	55 W	25* 43*	12 27	14 27.19	-16 11.1	2.243	1.875	25.7	21.5	56 W	27* 42*
1 6	14 41.28	-19 31.7	2.838	2.525	20.1	20.7	62 W	25* 50*	1 6	14 47.77	-16 28.8	2.179	1.908	26.8	21.5	61 W	28* 48*
1 16	14 56.24	-20 55.4	2.679	2.486	21.5	20.6	68 W	24* 58*	1 16	15 7.21	-16 29.2	2.107	1.943	27.7	21.5	67 W	28* 54*
1 26	15 10.89	-22 15.2	2.515	2.446	22.8	20.4	75 W	23 66*	1 26	15 25.28	-16 11.5	2.029	1.978	28.4	21.5	73 W	29* 61*
2 5	15 25.08	-23 31.2	2.349	2.406	23.9	20.3	81 W	21 74*	2 5	15 41.74	-15 35.1	1.947	2.013	28.8	21.4	79 W	29 67*
2 15	15 38.62	-24 43.4	2.182	2.365	24.7	20.1	88 W	20 81*	2 15	15 56.30	-14 39.5	1.861	2.049	28.7	21.4	86 W	30 73*
2 25	15 51.23	-25 52.0	2.015	2.323	25.1	19.9	95 W	19 89*	2 25	16 8.62	-13 24.5	1.774	2.085	28.3	21.3	94 W	32 76*
3 7	16 2.63	-26 57.3	1.852	2.281	25.2	19.7	102 W	18 89	3 7	16 18.40	-11 50.0	1.688	2.120	27.3	21.2	101 W	33 76*
3 17	16 12.42	-27 59.8	1.694	2.238	24.7	19.4	110 W	17 88	3 17	16 25.28	-9 56.7	1.606	2.156	25.8	21.1	110 W	35 74*
3 27	16 20.16	-28 59.6	1.543	2.195	23.7	19.2	118 W	16 87	3 27	16 28.96	-7 46.2	1.531	2.191	23.6	20.9	119 W	37 72*
4 6	16 25.35	-29 56.8	1.402	2.151	22.0	18.9	126 W	15 86	4 6	16 29.27	-5 22.0	1.467	2.226	20.8	20.8	128 W	40 69*
4 16	16 27.42	-30 50.2	1.273	2.107	19.6	18.5	135 W	14 85	4 16	16 26.16	-2 49.8	1.419	2.260	17.6	20.7	137 W	42 67*
4 26	16 25.91	-31 37.6	1.159	2.064	16.4	18.2	145 W	13 84	4 26	16 19.96	0 18.1	1.390	2.294	14.2	20.5	146 W	45 64*
5 6	16 20.59	-32 14.9	1.063	2.020	12.4	17.8	154 W	13 84	5 6	16 11.37	+ 2 2.3	1.383	2.328	11.3	20.4	153 W	47 62*
5 11	16 16.55	-32 27.9	1.022	1.998	10.3	17.6	159 W	13 84	5 11	16 6.47	+ 3 4.9	1.390	2.344	10.5	20.4	155 W	48 61*
5 16	16 11.70	-32 36.2	0.986	1.977	8.3	17.4	164 W	12 83	5 16	16 1.38	+ 4 0.8	1.402	2.361	10.1	20.5	156 W	49 60*
5 21	16 6.22	-32 39.2	0.956	1.955	6.7	17.3	167 W	12 83	5 21	15 56.26	+ 4 49.0	1.421	2.377	10.4	20.5	155 W	50 59*
5 26	16 0.31	-32 36.4	0.931	1.934	6.1	17.2	168 E	12 83	5 26	15 51.27	+ 5 28.9	1.446	2.393	11.1	20.6	153 E	50 59*
5 31	15 54.21	-32 27.8	0.912	1.913	7.1	17.1	167 E	13 84	5 31	15 46.53	+ 6 0.2	1.477	2.409	12.1	20.7	150 E	51 58*
6 5	15 48.17	-32 13.5	0.898	1.892	9.1	17.2	163 E	13 84	6 5	15 42.18	+ 6 23.0	1.513	2.424	13.4	20.8	146 E	51 58*
6 10	15 42.49	-31 54.3	0.890	1.871	11.6	17.2	158 E	13 84	6 10	15 38.31	+ 6 37.5	1.555	2.440	14.7	20.9	143 E	52 57*
6 15	15 37.41	-31 31.3	0.886	1.850	14.4	17.3	153 E	13 84	6 15	15 35.01	+ 6 44.2	1.602	2.455	16.0	21.0	138 E	52 57*
6 20	15 33.18	-31 5.6	0.887	1.830	17.1	17.4	148 E	14 85	6 20	15 32.33	+ 6 43.6	1.653	2.470	17.2	21.2	134 E	52 57*
6 25	15 29.96	-30 38.7	0.893	1.810	19.8	17.4	143 E	14 85	6 25	15 30.29	+ 6 36.5	1.708	2.485	18.3	21.3	130 E	52 57*
6 30	15 27.86	-30 11.8	0.902	1.790	22.4	17.5	138 E	15 86	6 30	15 28.91	+ 6 23.8	1.766	2.500	19.3	21.4	126 E	51 58*
7 5	15 26.95	-29 45.9	0.914	1.771	24.8	17.6	133 E	15 86	<b>7816 Hanoi</b>								
7 10	15 27.27	-29 21.9	0.929	1.752	27.1	17.7	128 E	16* 87	12 27	14 28.82	-15 24.0	3.421	2.978	15.8	20.9	56 W	28* 41*
7 15	15 28.82	-29 0.6	0.947	1.734	29.1	17.7	124 E	16* 87	1 6	14 40.19	-16 15.6						



EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

20/22	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°-26°	20/22	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°-26°	
<b>7816 Hanoi</b>									<b>6170 Levasseur</b>									
<i>(continuation)</i>									<i>(continuation)</i>									
5	14 53.47	-16 30.5	1.972	2.976	1.8	19.1	175 W	28 81	12	17 42.84	-40 28.7	3.873	2.998	7.6	19.4	24 E	-	16*
5	14 48.53	-16 5.6	1.964	2.973	0.3	18.9	179 E	29 80	12	18 2.45	-40 28.4	3.918	3.012	6.4	19.4	20 E	-	11*
5	14 43.59	-15 40.2	1.965	2.970	2.4	19.1	173 E	29 80	12	18 22.06	-40 23.0	3.948	3.024	5.6	19.3	18 E	-	7*
5	16 14 38.79	-15 14.9	1.972	2.966	4.4	19.2	167 E	30 79	1	18 41.59	-40 12.8	3.962	3.036	5.5	19.3	17 W	-	4*
5	21 14 34.25	-14 50.5	1.987	2.962	6.4	19.3	161 E	30 79	1	11 19 0.91	-39 58.1	3.960	3.047	6.0	19.4	19 W	-	8*
5	26 14 30.05	-14 27.5	2.008	2.958	8.3	19.4	155 E	31 78	1	21 19 19.91	-39 39.3	3.943	3.057	7.1	19.4	23 W	-	13*
6	5 14 23.03	-13 47.6	2.069	2.949	11.7	19.6	144 E	31 78	<b>162911 2001 LL<sub>5</sub></b>									
6	15 14 18.18	-13 18.4	2.152	2.939	14.7	19.8	133 E	32 77	12	27 14 29.35	-20 25.6	0.580	0.796	89.8	20.7	54 W	23*	43*
6	25 14 15.72	-13 1.7	2.251	2.928	17.0	20.0	123 E	32* 77	1	1 14 48.02	-22 44.0	0.621	0.800	86.6	20.7	54 W	21*	45*
7	5 14 15.64	-12 57.7	2.363	2.916	18.7	20.1	113 E	30* 77	1	6 15 6.90	-24 43.9	0.661	0.808	83.4	20.8	55 W	19*	46*
7	15 14 17.82	-13 5.7	2.482	2.903	19.9	20.3	104 E	28* 77	1	11 15 25.95	-26 26.5	0.700	0.820	80.2	20.8	55 W	17*	47*
7	25 14 22.07	-13 24.3	2.606	2.889	20.5	20.4	96 E	26* 77	1	16 15 45.08	-27 52.9	0.737	0.835	77.2	20.8	56 W	16*	49*
8	4 14 28.16	-13 52.0	2.731	2.874	20.7	20.5	88 E	23* 77*	1	21 16 4.19	-29 4.1	0.772	0.853	74.4	20.9	57 W	14*	50*
8	14 14 35.90	-14 27.0	2.854	2.858	20.4	20.6	80 E	21* 72*	1	26 16 23.19	-30 1.1	0.804	0.873	71.8	20.9	57 W	13*	51*
8	24 14 45.12	-15 7.7	2.973	2.841	19.9	20.6	73 E	19* 66*	1	31 16 41.97	-30 45.0	0.833	0.896	69.4	21.0	58 W	13*	52*
9	3 14 55.65	-15 52.5	3.085	2.824	19.0	20.7	66 E	17* 59*	2	5 17 0.45	-31 16.8	0.860	0.920	67.2	21.1	59 W	12*	53*
9	13 15 7.36	-16 39.7	3.189	2.805	17.9	20.7	59 E	15* 53*	2	10 17 18.52	-31 37.4	0.883	0.946	65.2	21.1	60 W	11*	54*
9	23 15 20.13	-17 28.1	3.283	2.785	16.6	20.7	52 E	14* 46*	2	15 17 36.09	-31 48.0	0.903	0.972	63.4	21.2	62 W	11*	56*
10	3 15 33.87	-18 16.1	3.367	2.765	15.1	20.7	46 E	12* 40*	2	20 17 53.09	-31 49.5	0.919	1.000	61.9	21.2	63 W	11*	57*
10	13 15 48.51	-19 2.7	3.438	2.743	13.4	20.6	40 E	11* 33*	2	25 18 9.48	-31 43.0	0.932	1.028	60.4	21.3	65 W	10*	58*
10	23 16 3.96	-19 46.5	3.497	2.721	11.6	20.6	33 E	9* 27*	3	2 18 25.21	-31 29.4	0.942	1.056	59.1	21.3	66 W	10*	60*
11	2 16 20.14	-20 26.4	3.542	2.698	9.7	20.5	27 E	7* 21*	3	7 18 40.26	-31 9.6	0.948	1.084	58.0	21.3	68 W	10*	62*
11	12 16 37.01	-21 1.4	3.573	2.674	7.7	20.5	21 E	5* 14*	3	12 18 54.59	-30 44.5	0.951	1.112	56.9	21.4	70 W	10*	63*
11	22 16 54.47	-21 30.4	3.589	2.649	5.6	20.3	15 E	3* 8*	3	17 19 8.19	-30 15.0	0.951	1.140	55.9	21.4	72 W	11*	65*
12	2 17 12.47	-21 52.6	3.591	2.623	3.5	20.2	9 E	— 2*	3	22 19 21.02	-29 41.8	0.948	1.168	55.0	21.4	74 W	11*	67*
12	12 17 30.93	-22 7.1	3.578	2.596	1.4	20.0	4 E	— —	3	27 19 33.09	-29 5.6	0.942	1.195	54.1	21.4	76 W	11*	69*
12	22 17 49.75	-22 13.4	3.551	2.569	1.0	20.0	3 W	— —	4	1 19 44.39	-28 27.0	0.933	1.221	53.2	21.4	78 W	12*	72*
1	1 18 8.87	-22 10.9	3.510	2.541	3.2	20.1	8 W	— 1*	4	6 19 54.91	-27 46.7	0.921	1.247	52.4	21.4	81 W	13*	74*
1	11 18 28.20	-21 59.1	3.455	2.512	5.4	20.1	14 W	3* 6*	4	11 20 4.62	-27 5.3	0.907	1.272	51.5	21.4	83 W	13*	77*
1	21 18 47.65	-21 38.0	3.387	2.482	7.6	20.2	20 W	5* 12*	4	16 20 13.49	-26 23.3	0.890	1.297	50.5	21.4	86 W	14*	80*
<b>6170 Levasseur</b>									<b>484402 2007 XH<sub>16</sub></b>									
12	27 14 28.91	-16 26.7	2.407	2.015	23.6	18.0	55 W	27* 42*	12	27 14 29.37	+15 43.5	0.465	0.927	82.8	20.7	69 W	58*	25*
1	6 14 44.78	-18 58.3	2.340	2.053	24.8	18.1	61 W	25* 49*	1	1 14 58.93	+16 15.4	0.493	0.919	82.3	20.8	68 W	58*	24*
1	16 14 59.68	-21 24.8	2.265	2.091	25.7	18.1	67 W	23* 57*	1	6 15 25.89	+16 24.7	0.523	0.914	81.5	20.8	67 W	57*	23*
1	26 15 13.37	-23 46.9	2.183	2.129	26.4	18.0	74 W	21* 66*	1	11 15 50.40	+16 16.0	0.556	0.910	80.3	20.9	66 W	56*	23*
2	5 15 25.59	-26 5.8	2.097	2.166	26.7	18.0	81 W	19 74*	1	16 16 12.74	+15 53.4	0.589	0.908	79.0	21.0	65 W	55*	23*
2	15 15 35.98	-28 22.8	2.008	2.204	26.6	17.9	88 W	17 82*	1	21 16 33.19	+15 20.2	0.622	0.909	77.5	21.1	64 W	54*	24*
2	25 15 44.11	-30 38.5	1.918	2.241	26.1	17.9	95 W	14 85	1	26 16 52.06	+14 39.0	0.654	0.911	76.0	21.1	64 W	53*	26*
3	7 15 49.51	-32 53.4	1.830	2.278	25.0	17.8	104 W	12 83	1	31 17 9.63	+13 51.9	0.684	0.916	74.4	21.2	64 W	52*	27*
3	12 15 51.01	-34 0.4	1.788	2.297	24.3	17.7	108 W	11 82	2	5 17 26.13	+13 0.7	0.713	0.923	72.9	21.2	63 W	51*	29*
3	17 15 51.61	-35 6.8	1.747	2.315	23.4	17.6	112 W	10 81	2	10 17 41.74	+12 6.8	0.739	0.931	71.4	21.3	63 W	50*	31*
3	22 15 51.25	-36 12.0	1.709	2.333	22.4	17.6	117 W	9 80	2	15 17 56.60	+11 11.2	0.762	0.941	70.0	21.3	64 W	49*	33*
3	27 15 49.89	-37 15.6	1.673	2.351	21.3	17.5	121 W	8 79	2	20 18 10.84	+10 14.4	0.782	0.953	68.7	21.4	64 W	48*	36*
4	1 15 47.47	-38 16.9	1.641	2.369	20.0	17.4	126 W	7 78	2	25 18 24.55	+ 9 16.9	0.798	0.966	67.5	21.4	64 W	47*	38*
4	6 15 43.99	-39 14.9	1.612	2.387	18.6	17.4	131 W	6 77	3	2 18 37.83	+ 8 19.0	0.812	0.981	66.3	21.4	65 W	46*	40*
4	11 15 39.44	-40 8.6	1.588	2.404	17.1	17.3	135 W	5 76	3	7 18 50.74	+ 7 21.0	0.822	0.996	65.3	21.5	66 W	45*	43*
4	16 15 33.88	-40 56.8	1.568	2.422	15.6	17.3	140 W	4 75	<b>497117 2004 FU<sub>4</sub></b>									
4	21 15 27.43	-41 38.3	1.554	2.439	14.0	17.2	144 W	3 74	12	27 14 29.94	+ 6 17.4	1.081	1.100	53.6	20.6	64 W	49*	31*
4	26 15 20.23	-42 12.2	1.545	2.456	12.6	17.1	148 W	3 74	1	1 14 52.85	+ 2 53.8	1.078	1.142	52.5	20.7	67 W	47*	37*
5	1 15 12.48	-42 37.6	1.543	2.473	11.4	17.1	151 W	2 73	1	16 15 14.05	+ 0 20.8	1.062	1.183	51.6	20.7	71 W	44*	45*
5	6 15 4.42	-42 54.1	1.546	2.490	10.4	17.1	153 W	2 73	1	26 15 33.61	- 3 27.8	1.035	1.225	50.8	20.7	75 W	41*	52*
5	11 14 56.29	-43 1.7	1.556	2.506	10.0	17.1	155 E	2 73	2	5 15 51.48	- 6 30.3	0.998	1.266	49.9	20.7	79 W	38*	60*
5	16 14 48.37	-43 0.7	1.573	2.523	10.0	17.1	154 E	2 73	2	15 16 7.47	- 9 31.9	0.951	1.305	48.9	20.6	85 W	35	67*
5	21 14 40.90	-42 52.1	1.595	2.539	10.5	17.2	153 E	2 73	2	25 16 21.21	-12 37.8	0.896	1.343	47.5	20.5	91 W	32	74*
5	26 14 34.09	-42 37.1	1.624	2.555	11.3	17.3	150 E	2 73										
5	31 14 28.08	-42 16.9	1.659	2.571	12.3	17.4	147 E	3 74										
6	5 14 22.98	-41 53.1	1.699	2.586	13.5	17.5	143 E	3 74										
6	10 14 18.84	-41 27.0	1.745	2.602	14.7	17.6	139 E	4 75										
6	15 14 15.71	-40 59.9	1.795	2.617	15.8	17.7	135 E	4 75										
6	20 14 13.57	-40 33.0	1.850	2.632	16.9	17.8	131 E	4* 75										
6	25 14 12.38	-40 7.2	1.908	2.646	17.9	17.9	127 E	5* 76										
6	30 14 12.08	-39 43.0	1.970	2.661	18.7	18.1	123 E	5* 76										
7	5 14 12.63	-39 21.0	2.035	2.675	19.5	18.2	119 E	4* 77										
7	10 14 13.97	-39 1.6	2.102	2.689	20.1	18.3	115 E	4* 77										
7	15 14 16.03	-38 44.9	2.172	2.703	20.6	18.4	111 E	4* 77										
7	20 14 18.77	-38 31.0	2.243	2.717	21.0	18.5	107 E	3* 77										
7	25 14 22.12	-38 20.0	2.316	2.730	21.2	18.5	103 E	2* 78										
8	4 14 30.44	-38 5.9	2.464	2.757	21.5	18.7	96 E	1* 77*										
8	14 14 40.67	-38 1.5	2.614	2.782	21.3	18.9	89 E	— 74*										
8	24 14 52.51	-38 5.4	2.764	2.806	20.9	19.0	82 E	— 69*										
9	3 15 5.72	-38 15.6	2.911	2.830	20.2	19.1	75 E	— 63*										
9	13 15 20.14	-38 30.6	3.054	2.852	19.2	19.2	69 E	— 58*										

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

20/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	20/22	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°
<b>497117 2004 FU<sub>4</sub></b>										<b>12711 Tukmit</b>									
<i>(continuation)</i>										<i>(continuation)</i>									
3 2	16 27.08	-14 14.5	0.867	1.361	46.6	20.4	94 W	31	78*	5 11	0 22.46	+21 22.0	1.626	1.068	37.3	18.6	40 W	24*	25*
3 7	16 32.18	-15 54.7	0.837	1.379	45.5	20.3	97 W	29	80	5 16	0 37.18	+24 34.0	1.638	1.090	37.1	18.7	41 W	26*	24*
3 12	16 36.37	-17 39.6	0.805	1.396	44.3	20.3	101 W	27	82	5 21	0 52.28	+27 37.7	1.650	1.112	36.9	18.7	41 W	28*	23*
3 17	16 39.52	-19 29.9	0.774	1.412	42.8	20.2	105 W	25	84	5 26	1 7.79	+30 32.3	1.663	1.135	36.7	18.8	42 W	30*	21*
3 22	16 41.48	-21 26.7	0.743	1.428	41.1	20.0	110 W	24	85	5 31	1 23.77	+33 17.4	1.675	1.157	36.5	18.8	43 W	31*	20*
3 27	16 42.05	-23 30.7	0.712	1.443	39.2	19.9	114 W	21	88	6 5	1 40.25	+35 52.6	1.687	1.178	36.3	18.9	43 W	33*	19*
4 1	16 41.04	-25 42.3	0.683	1.457	36.9	19.8	119 W	19	90	6 10	1 57.25	+38 17.2	1.699	1.200	36.1	18.9	44 W	34*	17*
4 6	16 38.19	-28 1.4	0.655	1.471	34.3	19.6	124 W	17	88	6 15	2 14.78	+40 30.9	1.710	1.221	35.9	19.0	44 W	36*	16*
4 11	16 33.22	-30 26.8	0.631	1.484	31.5	19.5	129 W	15	86	6 20	2 32.84	+42 33.2	1.720	1.241	35.7	19.0	46 W	37*	14*
4 16	16 25.87	-32 56.1	0.609	1.496	28.4	19.4	135 W	12	83	6 25	2 51.41	+44 23.9	1.729	1.261	35.6	19.1	46 W	38*	13*
4 21	16 15.97	-35 25.5	0.592	1.508	25.2	19.2	140 W	10	81	6 30	3 10.47	+46 2.8	1.737	1.281	35.4	19.1	47 W	40*	12*
4 26	16 3.45	-37 49.7	0.579	1.519	22.0	19.1	145 W	7	78	7 5	3 29.96	+47 29.7	1.744	1.299	35.4	19.1	48 W	41*	10*
5 1	15 48.45	-40 2.1	0.571	1.529	19.3	19.0	150 W	5	76	7 10	3 49.81	+48 44.7	1.749	1.317	35.3	19.2	48 W	42*	9*
5 6	15 31.36	-41 56.1	0.570	1.539	17.2	18.9	153 W	3	74	7 15	4 9.90	+49 47.8	1.753	1.335	35.3	19.2	49 W	43*	8*
5 8	15 24.09	-42 35.2	0.570	1.542	16.7	18.9	154 W	2	73	7 20	4 30.13	+50 39.1	1.754	1.351	35.3	19.2	50 W	44*	7*
5 10	15 16.67	-43 10.2	0.572	1.546	16.5	18.9	154 W	2	73	7 25	4 50.38	+51 19.0	1.754	1.367	35.3	19.3	51 W	45*	7*
5 12	15 9.16	-43 40.9	0.575	1.549	16.4	18.9	154 E	1	72	7 30	5 10.52	+51 47.9	1.751	1.382	35.4	19.3	52 W	46*	6*
5 14	15 1.62	-44 7.3	0.579	1.552	16.6	19.0	154 E	1	72	8 4	5 30.43	+52 6.5	1.746	1.397	35.5	19.3	53 W	47*	5*
5 16	14 54.14	-44 29.3	0.584	1.555	16.9	19.0	153 E	1	72	8 9	5 49.97	+52 15.3	1.739	1.410	35.7	19.3	54 W	48*	5*
5 18	14 46.77	-44 47.1	0.589	1.558	17.5	19.0	152 E	—	71	8 14	6 9.04	+52 15.2	1.728	1.423	35.9	19.3	55 W	49*	5*
5 20	14 39.59	-45 0.8	0.596	1.561	18.1	19.1	151 E	—	71	8 19	6 27.54	+52 6.7	1.715	1.434	36.1	19.3	57 W	50*	5*
5 22	14 32.65	-45 10.7	0.603	1.564	18.9	19.1	150 E	—	71	8 24	6 45.40	+51 50.7	1.700	1.445	36.4	19.3	58 W	51*	5*
5 24	14 26.00	-45 17.1	0.611	1.566	19.8	19.2	148 E	—	71	8 29	7 2.57	+51 28.1	1.681	1.455	36.7	19.3	59 W	53*	5*
5 26	14 19.69	-45 20.4	0.620	1.569	20.8	19.3	147 E	—	71	9 3	7 19.01	+50 59.5	1.660	1.465	37.0	19.3	61 W	54*	5*
5 31	14 5.57	-45 16.8	0.646	1.574	23.2	19.4	142 E	—	71	9 13	7 49.59	+49 47.6	1.608	1.481	37.7	19.3	64 W	57*	6*
6 5	13 54.06	-45 1.2	0.675	1.579	25.7	19.6	137 E	—	71	9 23	8 17.08	+48 20.1	1.545	1.493	38.5	19.3	68 W	61*	7*
6 10	13 45.22	-44 38.4	0.707	1.583	28.1	19.8	133 E	—	71	10 3	8 41.55	+46 41.3	1.471	1.502	39.3	19.2	72 W	65*	9*
6 15	13 38.95	-44 13.0	0.743	1.587	30.2	20.0	128 E	—	72	10 13	9 3.04	+44 54.8	1.385	1.507	40.1	19.1	77 W	70*	11*
6 20	13 35.05	-43 48.0	0.780	1.589	32.0	20.1	124 E	—	72	10 23	9 21.52	+43 2.5	1.289	1.509	40.7	18.9	82 W	75*	14*
6 25	13 33.25	-43 25.5	0.819	1.591	33.7	20.3	120 E	—	73	11 2	9 36.93	+41 5.8	1.184	1.508	41.1	18.8	87 W	81*	17*
6 30	13 33.29	-43 6.6	0.860	1.592	35.1	20.4	116 E	—	73	11 7	9 43.37	+40 5.9	1.129	1.505	41.2	18.7	90 W	83*	19*
7 5	13 34.96	-42 52.0	0.901	1.593	36.2	20.6	112 E	—	73	11 12	9 48.88	+39 4.8	1.072	1.502	41.1	18.5	93 W	84*	20*
7 10	13 38.06	-42 41.8	0.942	1.592	37.2	20.7	109 E	—	73	11 17	9 53.40	+38 2.0	1.014	1.498	40.9	18.4	97 W	83	22*
7 15	13 42.44	-42 36.1	0.984	1.591	38.0	20.8	105 E	—	73	11 22	9 56.81	+36 57.0	0.954	1.494	40.6	18.3	101 W	82	24*
7 20	13 47.96	-42 34.7	1.025	1.589	38.7	20.9	102 E	—	73	11 27	9 58.98	+35 49.1	0.895	1.488	40.0	18.1	104 W	81	27*
7 25	13 54.50	-42 37.2	1.066	1.586	39.2	21.0	99 E	—	73*	12 2	9 59.72	+34 37.2	0.834	1.481	39.1	17.9	109 W	80	29*
7 30	14 1.95	-42 42.9	1.107	1.583	39.6	21.1	96 E	—	73*	12 7	9 58.79	+33 19.7	0.774	1.474	37.9	17.7	113 W	78	30*
8 4	14 10.25	-42 51.5	1.146	1.578	39.9	21.2	94 E	—	71*	12 12	9 55.92	+31 54.3	0.715	1.466	36.3	17.5	118 W	77	32
8 9	14 19.36	-43 2.4	1.185	1.573	40.1	21.2	91 E	—	70*	12 17	9 50.80	+30 17.7	0.657	1.456	34.1	17.2	124 W	75	34
8 14	14 29.23	-43 15.2	1.223	1.567	40.2	21.3	89 E	—	68*	12 22	9 43.07	+28 25.6	0.602	1.446	31.4	16.9	130 W	73	36
8 19	14 39.81	-43 29.2	1.259	1.561	40.3	21.4	86 E	—	67*	12 27	9 32.34	+26 12.5	0.550	1.436	27.8	16.6	137 W	71	38
8 24	14 51.07	-43 43.8	1.294	1.553	40.3	21.4	84 E	—	65*	1 1	9 18.25	+23 31.6	0.503	1.424	23.5	16.3	145 W	69	40
8 29	15 2.98	-43 58.4	1.328	1.545	40.3	21.5	82 E	—	64*	1 6	9 0.62	+20 16.2	0.462	1.411	18.2	15.9	153 W	65	44
9 3	15 15.53	-44 12.3	1.361	1.536	40.2	21.5	79 E	—	62*	1 11	8 39.63	+16 21.6	0.429	1.398	12.4	15.5	162 W	61	48
										1 16	8 15.91	+11 49.6	0.406	1.384	7.9	15.2	169 W	57	52
										1 21	7 50.63	+6 51.7	0.393	1.369	10.1	15.2	166 E	52	57
<b>12711 Tukmit</b>										<b>79576 1998 QG<sub>98</sub></b>									
12 27	14 30.16	-42 54.4	1.311	1.039	47.8	18.4	51 W	1*	45*	12 27	14 30.38	-13 5.5	2.611	2.216	21.6	20.6	56 W	30*	40*
1 1	15 0.34	-45 24.6	1.305	1.018	48.2	18.3	50 W	—	44*	1 6	14 49.09	-14 5.8	2.475	2.184	23.3	20.5	62 W	30*	47*
1 6	15 33.05	-47 23.4	1.304	0.997	48.4	18.3	49 W	—	42*	1 16	15 7.83	-14 56.4	2.334	2.152	24.9	20.4	67 W	30*	53*
1 11	16 7.79	-48 45.0	1.307	0.976	48.4	18.2	48 W	—	40*	1 26	15 26.49	-15 35.8	2.191	2.120	26.3	20.2	73 W	29*	60*
1 16	16 43.72	-49 25.4	1.313	0.957	48.3	18.2	47 W	—	38*	2 5	15 44.94	-16 3.0	2.047	2.087	27.6	20.1	78 W	29*	67*
1 18	16 58.19	-49 29.6	1.317	0.950	48.2	18.2	46 W	—	37*	2 15	16 3.02	-16 16.8	1.903	2.055	28.6	19.9	84 W	29	73*
1 20	17 12.61	-49 26.9	1.321	0.942	48.0	18.2	45 W	—	36*	2 25	16 20.50	-16 16.2	1.760	2.023	29.3	19.7	90 W	29	78*
1 22	17 26.90	-49 17.5	1.325	0.935	47.9	18.2	45 W	—	35*	3 7	16 37.15	-16 0.5	1.620	1.990	29.7	19.5	96 W	29	80*
1 24	17 41.00	-49 1.5	1.330	0.929	47.7	18.2	44 W	—	35*	3 17	16 52.67	-15 29.0	1.484	1.958	29.7	19.3	103 W	30	79
1 26	17 54.85	-48 39.1	1.336	0.922	47.5	18.1	44 W	—	34*	3 27	17 6.69	-14 41.6	1.354	1.927	29.3	19.1	109 W	30	79
1 28	18 8.40	-48 10.5	1.341	0.916	47														

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

20/22	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	20/22	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°
<b>79576 1998 QG<sub>98</sub></b>										<b>155340 2006 SK<sub>198</sub></b>									
<i>(continuation)</i>										<i>(continuation)</i>									
8 14	17 21.74	8 26.1	0.885	1.629	33.3	17.9	118 E	37	72	1 26	16 35.78	-27 56.1	1.499	1.230	40.8	19.2	55 W	15*	48*
8 19	17 27.65	9 17.1	0.915	1.626	34.3	18.0	115 E	36	73	1 31	16 58.77	-28 12.1	1.472	1.210	41.7	19.2	55 W	14*	48*
8 24	17 34.41	-10 7.5	0.947	1.625	35.2	18.1	112 E	35	74	2 5	17 22.10	-28 13.5	1.449	1.191	42.5	19.1	55 W	13*	48*
9 3	17 50.19	-11 43.4	1.015	1.624	36.5	18.3	107 E	33*	76	2 10	17 45.60	-27 59.8	1.429	1.174	43.2	19.1	54 W	13*	48*
9 13	18 8.63	-13 8.5	1.089	1.627	37.3	18.4	102 E	32*	77	2 15	18 9.07	-27 30.8	1.413	1.160	43.8	19.1	54 W	13*	48*
9 23	18 29.27	-14 18.8	1.167	1.632	37.6	18.6	97 E	31*	78	2 20	18 32.33	-26 46.8	1.401	1.147	44.3	19.0	54 W	12*	48*
10 3	18 51.61	-15 11.1	1.251	1.640	37.5	18.8	93 E	30*	78*	2 25	18 55.19	-25 48.6	1.391	1.138	44.7	19.0	54 W	12*	48*
10 13	19 15.27	-15 43.7	1.340	1.651	37.2	18.9	89 E	29*	76*	3 2	19 17.54	-24 37.1	1.384	1.130	45.0	19.0	54 W	12*	48*
10 23	19 39.82	-15 55.5	1.433	1.665	36.5	19.1	85 E	29*	73*	3 7	19 39.24	-23 13.9	1.381	1.126	45.2	19.0	54 W	12*	48*
11 2	20 4.90	-15 46.5	1.530	1.682	35.6	19.2	81 E	29*	69*	3 12	20 0.22	-21 40.4	1.379	1.124	45.4	19.0	54 W	13*	48*
11 12	20 30.22	-15 17.6	1.631	1.700	34.5	19.3	77 E	30*	64*	3 17	20 20.40	-19 58.3	1.380	1.125	45.4	19.0	54 W	13*	48*
11 22	20 55.51	-14 30.0	1.735	1.721	33.2	19.5	73 E	30*	59*	3 22	20 39.78	-18 9.4	1.383	1.129	45.4	19.0	54 W	13*	48*
12 2	21 20.58	-13 25.8	1.842	1.744	31.8	19.6	69 E	31*	53*	3 27	20 58.33	-16 15.3	1.387	1.135	45.3	19.0	54 W	14*	48*
12 12	21 45.30	-12 7.0	1.951	1.769	30.2	19.7	65 E	33*	48*	4 1	21 16.09	-14 17.4	1.392	1.144	45.1	19.0	54 W	14*	48*
12 22	22 9.59	-10 36.1	2.061	1.795	28.5	19.8	61 E	33*	43*	4 6	21 33.07	-12 17.2	1.399	1.155	44.9	19.1	55 W	15*	48*
1 1	22 33.38	8 55.3	2.172	1.823	26.7	19.9	56 E	34*	38*	4 11	21 49.31	-10 15.8	1.405	1.169	44.7	19.1	55 W	16*	49*
1 11	22 56.69	7 7.0	2.283	1.852	24.8	20.0	52 E	34*	33*	4 16	22 4.83	8 14.4	1.412	1.185	44.4	19.1	56 W	17*	49*
1 21	23 19.52	5 13.3	2.391	1.882	22.9	20.1	48 E	33*	29*	4 21	22 19.68	6 13.9	1.419	1.203	44.1	19.2	56 W	18*	49*
<b>35056 Cullers</b>										<b>189430 1998 HH<sub>145</sub></b>									
12 27	14 31.22	-30 49.4	3.722	3.207	13.9	20.2	52 W	13*	45*	12 27	14 31.63	-12 35.7	2.364	1.986	24.2	21.5	56 W	31*	40*
1 6	14 42.28	-32 30.6	3.611	3.213	15.2	20.2	59 W	12*	52*	1 26	14 53.25	-13 55.3	2.242	1.957	26.0	21.4	61 W	30*	46*
1 16	14 52.54	-34 11.4	3.489	3.218	16.2	20.1	66 W	11*	60*	1 16	15 15.17	-15 4.6	2.119	1.929	27.6	21.3	65 W	29*	52*
1 26	15 1.76	-35 51.8	3.361	3.223	17.0	20.1	74 W	9	67*	1 26	15 37.27	-16 2.1	1.994	1.901	29.2	21.2	70 W	29*	58*
2 5	15 9.67	-37 32.0	3.226	3.226	17.6	20.0	81 W	7	73*	2 5	15 59.48	-16 46.9	1.870	1.874	30.5	21.0	75 W	28*	64*
2 15	15 15.96	-39 11.8	3.089	3.229	17.8	19.9	89 W	6	76*	2 15	16 21.63	-17 17.7	1.748	1.848	31.7	20.9	80 W	28*	69*
2 25	15 20.26	-40 50.4	2.953	3.231	17.7	19.8	97 W	4	75	2 25	16 43.52	-17 33.9	1.627	1.823	32.7	20.7	85 W	27*	74*
3 2	15 21.54	-41 38.9	2.886	3.231	17.5	19.8	101 W	3	74	3 7	17 4.95	-17 35.2	1.509	1.799	33.5	20.6	90 W	27*	79*
3 7	15 22.19	-42 26.6	2.820	3.232	17.2	19.7	106 W	3	74	3 17	17 25.63	-17 21.7	1.395	1.776	33.9	20.4	95 W	28*	81*
3 12	15 22.14	-43 13.1	2.757	3.232	16.8	19.6	110 W	2	73	3 27	17 45.24	-16 54.3	1.285	1.755	34.1	20.2	100 W	28*	81
3 17	15 21.35	-43 58.1	2.695	3.232	16.3	19.6	114 W	1	72	4 6	18 3.46	-16 14.3	1.181	1.736	33.8	20.0	105 W	29*	80
3 27	15 17.43	-45 21.2	2.582	3.231	15.1	19.4	123 W	—	71	4 16	18 19.86	-15 23.9	1.082	1.719	33.1	19.7	111 W	30	79
4 6	15 10.34	-46 31.1	2.483	3.229	13.5	19.3	131 W	—	69	4 26	18 34.00	-14 26.2	0.991	1.703	31.8	19.5	117 W	31	78
4 16	15 0.26	-47 21.9	2.404	3.226	11.9	19.2	139 W	—	69	5 6	18 45.43	-13 25.2	0.907	1.690	29.8	19.2	124 W	32	77
4 21	14 54.29	-47 38.3	2.372	3.224	11.1	19.1	142 W	—	68	5 16	18 53.64	-12 25.8	0.833	1.679	27.1	18.9	131 W	33	76
4 26	14 47.87	-47 48.1	2.347	3.222	10.3	19.1	145 W	—	68	5 21	18 56.40	-11 58.7	0.799	1.674	25.4	18.8	135 W	33	76
5 1	14 41.15	-47 50.8	2.327	3.220	9.8	19.0	147 W	—	68	5 26	18 58.23	-11 34.4	0.769	1.670	23.5	18.7	139 W	33	76
5 6	14 34.30	-47 46.3	2.314	3.218	9.4	19.0	148 E	—	68	5 31	18 59.11	-11 13.6	0.741	1.667	21.4	18.5	143 W	34	75
5 11	14 27.50	-47 34.9	2.308	3.215	9.3	19.0	149 E	—	68	6 5	18 59.04	-10 57.1	0.717	1.664	19.1	18.4	147 W	34	75
5 16	14 20.93	-47 16.9	2.307	3.212	9.5	19.0	148 E	—	69	6 10	18 58.04	-10 45.9	0.696	1.662	16.7	18.2	152 W	34	75
5 21	14 14.75	-46 52.9	2.313	3.209	9.9	19.0	147 E	—	69	6 15	18 56.20	-10 40.4	0.679	1.661	14.1	18.1	157 W	34	75
5 26	14 9.10	-46 24.1	2.326	3.206	10.5	19.0	145 E	—	70	6 25	18 50.58	-10 48.5	0.658	1.660	9.2	17.8	165 W	34	75
5 31	14 4.10	-45 51.3	2.344	3.202	11.3	19.1	142 E	—	70	7 5	18 43.61	-11 21.7	0.654	1.662	7.2	17.7	168 E	34	75
6 5	13 59.81	-45 15.5	2.368	3.198	12.2	19.1	138 E	—	71	7 15	18 37.06	-12 16.4	0.668	1.666	10.3	17.9	163 E	33	76
6 10	13 56.29	-44 38.0	2.397	3.194	13.0	19.2	135 E	—	71										
6 15	13 53.58	-43 59.6	2.431	3.190	13.9	19.2	131 E	1*	72										
6 20	13 51.67	-43 21.5	2.470	3.186	14.8	19.3	127 E	1*	73										
6 25	13 50.54	-42 44.3	2.512	3.181	15.6	19.4	123 E	2*	73										
6 30	13 50.17	-42 8.7	2.558	3.176	16.3	19.4	119 E	1*	74										
7 5	13 50.53	-41 35.3	2.607	3.171	16.9	19.5	115 E	1*	74										
7 15	13 53.28	-40 36.3	2.712	3.160	17.9	19.6	107 E	—	75										
7 25	13 58.47	-39 49.3	2.824	3.148	18.6	19.7	99 E	—	76*										
8 4	14 5.77	-39 14.6	2.939	3.135	18.9	19.8	92 E	—	74*										
8 14	14 14.91	-38 51.7	3.054	3.121	18.8	19.9	84 E	—	69*										
8 24	14 25.68	-38 39.4	3.167	3.106	18.5	19.9	77 E	—	64*										
9 3	14 37.87	-38 36.3	3.276	3.091	17.9	20.0	71 E	—	58*										
9 13	14 51.34	-38 40.6	3.379	3.074	17.1	20.0	64 E	—	52*										
9 23	15 5.96	-38 50.8	3.474	3.057	16.1	20.0	58 E	—	46*										
10 3	15 21.62	-39 5.1	3.559	3.039	14.9	20.0	52 E	—	41*										
10 13	15 38.24	-39 21.9	3.634	3.020	13.6	20.0	46 E	—	36*										
10 23	15 55.74	-39 39.6	3.696	3.000	12.2	20.0	40 E	—	30*										
11 2	16 14.02	-39 56.6	3.746	2.979	10.8	19.9	34 E	—	25*										
11 12	16 33.03	-40 11.8	3.783	2.957	9.4	19.9	29 E	—	20*										
11 22	16 52.65	-40 23.7	3.805	2.934	8.0	19.8	24 E	—	15*										
12 2	17 12.79	-40 31.3	3.814	2.911	6.8	19.7	21 E	—	11*										
12 12	17 33.36	-40 33.7	3.807	2.886	6.0	19.7	18 E	—	6*										
12 22	17 54.22	-40 30.1	3.786	2.861	5.8	19.6	17 W	—	4*										
1 1	18 15.28	-40 20.0	3.751	2.835	6.3	19.6	18 W	—	8*										
1 11	18 36.40	-40 3.1	3.701	2.808	7.3	19.6	21 W	—	12*										
1 21	18 57.45	-39 39.3	3.638	2.780	8.7	19.6	25 W	—											

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

20/22	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	20/22	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°
<b>189430</b> 1998 HH <sub>145</sub> (continuation)										<b>136900</b> 1998 HL <sub>49</sub> (continuation)									
7 20	18 34.53	-12 49.7	0.681	1.670	12.7	18.0	159 E	32	77	2 25	16 12.07	-21 55.0	1.076	1.477	42.1	19.8	91 W	23	83*
7 25	18 32.72	-13 25.5	0.699	1.673	15.3	18.2	154 E	32	77	3 7	16 15.42	-20 52.4	1.047	1.570	38.4	19.8	101 W	24	85
7 30	18 31.75	-14 2.8	0.721	1.678	17.8	18.3	150 E	31	78	3 17	16 13.72	-19 33.0	1.015	1.659	34.0	19.7	111 W	25	84
8 4	18 31.70	-14 40.6	0.747	1.683	20.1	18.5	145 E	30	79	3 27	16 6.70	-17 55.4	0.986	1.744	28.6	19.6	123 W	27	82
8 9	18 32.61	-15 18.0	0.776	1.689	22.2	18.7	141 E	30	79	4 6	15 54.58	-15 59.9	0.967	1.825	22.4	19.5	136 W	29	80
8 14	18 34.51	-15 54.3	0.808	1.695	24.2	18.8	137 E	29	80	4 11	15 46.87	-14 56.4	0.964	1.864	18.9	19.4	143 W	30	79
8 24	18 41.14	-17 0.8	0.882	1.709	27.4	19.1	129 E	28	81	4 16	15 38.30	-13 50.3	0.966	1.902	15.3	19.4	150 W	31	78
9 3	18 51.17	-17 56.0	0.967	1.725	29.9	19.4	122 E	27	82	4 21	15 29.16	-12 42.9	0.975	1.939	11.7	19.3	157 W	32	77
9 13	19 4.10	-18 37.3	1.060	1.743	31.5	19.7	115 E	26	83	4 26	15 19.73	-11 36.1	0.990	1.976	8.2	19.2	164 W	33	76
9 23	19 19.39	-19 3.1	1.162	1.763	32.6	19.9	109 E	26	83	5 1	15 10.32	-10 31.4	1.012	2.011	5.1	19.2	170 W	34	75
10 3	19 36.48	-19 12.6	1.270	1.785	33.1	20.2	103 E	26	83	5 6	15 1.21	-9 30.6	1.041	2.046	3.6	19.2	173 W	35	74
10 13	19 54.95	-19 5.5	1.384	1.808	33.2	20.4	97 E	26	83	5 11	14 52.64	-8 35.2	1.078	2.079	5.0	19.4	170 E	36	73
10 23	20 14.39	-18 42.3	1.503	1.833	32.9	20.6	92 E	26	81*	5 16	14 44.82	-7 46.3	1.121	2.112	7.5	19.6	164 E	37	72
11 2	20 34.46	-18 3.8	1.625	1.858	32.2	20.8	87 E	27	76*	5 26	14 31.96	-6 30.4	1.228	2.175	12.6	20.1	152 E	38	71
11 12	20 54.92	-17 10.9	1.751	1.885	31.3	20.9	82 E	28	70*	6 5	14 23.10	-5 44.0	1.357	2.235	16.8	20.5	140 E	39	70
11 22	21 15.55	-16 5.0	1.878	1.912	30.2	21.1	77 E	29	64*	6 15	14 18.09	-5 24.1	1.504	2.291	19.9	20.9	130 E	40	69
12 2	21 36.19	-14 47.6	2.007	1.940	28.9	21.2	72 E	30	57*	6 25	14 16.52	-5 26.0	1.665	2.345	22.0	21.2	120 E	39*	69
12 12	21 56.75	-13 20.2	2.135	1.968	27.4	21.3	67 E	32*	51*	<b>2329</b> Orthos									
12 22	22 17.14	-11 44.3	2.263	1.997	25.7	21.5	62 E	33*	45*	12 27	14 32.74	-5 33.3	2.389	2.049	24.1	19.1	58 W	37*	36*
<b>1170</b> Siva										1 6	14 54.40	-5 53.7	2.203	1.965	26.5	18.9	63 W	38*	42*
12 27	14 31.73	-24 7.1	3.333	2.846	15.9	18.0	53 W	19*	43*	1 16	15 17.57	-5 58.9	2.016	1.878	29.0	18.7	68 W	38*	47*
1 6	14 43.28	-25 52.7	3.230	2.864	17.3	17.9	60 W	19*	51*	1 26	15 42.53	-5 45.1	1.833	1.790	31.5	18.4	72 W	39*	52*
1 16	14 53.94	-27 36.4	3.119	2.881	18.3	17.9	67 W	17*	60*	1 31	15 55.81	-5 29.8	1.744	1.745	32.8	18.3	74 W	39*	54*
1 26	15 3.47	-29 18.5	2.999	2.897	19.1	17.9	75 W	16	68*	2 5	16 9.71	-5 8.2	1.656	1.699	34.1	18.2	75 W	40*	55*
2 5	15 11.61	-30 59.2	2.874	2.912	19.6	17.8	82 W	14	76*	2 10	16 24.27	-4 39.4	1.571	1.653	35.5	18.0	77 W	40*	57*
2 15	15 18.04	-32 38.8	2.746	2.927	19.7	17.7	90 W	12	82*	2 15	16 39.58	-4 3.0	1.489	1.606	37.0	17.9	78 W	41*	58*
2 25	15 22.38	-34 16.8	2.619	2.940	19.4	17.6	99 W	11	82	2 20	16 55.70	-3 18.3	1.410	1.559	38.5	17.7	79 W	41*	58*
3 7	15 24.26	-35 52.4	2.496	2.952	18.7	17.5	108 W	9	80	2 25	17 12.72	-2 24.7	1.335	1.512	40.1	17.6	80 W	42*	59*
3 17	15 23.30	-37 23.6	2.380	2.964	17.5	17.4	117 W	8	79	3 7	17 49.82	-0 9.3	1.198	1.416	43.6	17.3	80 W	43*	58*
3 27	15 19.19	-38 46.9	2.277	2.974	15.8	17.2	126 W	6	77	3 17	18 31.54	+2 43.9	1.082	1.321	47.7	17.1	79 W	45*	56*
4 6	15 11.86	-39 57.7	2.190	2.984	13.7	17.1	135 W	5	76	3 27	19 18.27	+6 8.3	0.993	1.226	52.2	16.8	76 W	46*	53*
4 11	15 7.04	-40 26.7	2.153	2.988	12.5	17.0	140 W	5	76	4 1	19 43.52	+7 57.1	0.960	1.179	54.5	16.8	74 W	45*	51*
4 16	15 1.54	-40 50.4	2.123	2.992	11.4	16.9	144 W	4	75	4 6	20 9.94	+9 46.2	0.934	1.133	56.9	16.7	72 W	45*	49*
4 21	14 55.48	-41 8.2	2.098	2.996	10.3	16.9	148 W	4	75	4 11	20 37.35	+11 32.0	0.916	1.089	59.2	16.6	69 W	44*	46*
4 26	14 48.98	-41 19.6	2.080	3.000	9.3	16.8	151 W	4	75	4 16	21 5.54	+13 10.6	0.906	1.046	61.4	16.6	66 W	43*	44*
5 1	14 42.21	-41 24.4	2.068	3.003	8.6	16.8	153 W	4	75	4 21	21 34.25	+14 38.3	0.904	1.005	63.3	16.5	63 W	41*	42*
5 6	14 35.33	-41 22.6	2.063	3.006	8.2	16.7	155 E	4	75	4 26	22 3.22	+15 52.4	0.909	0.967	64.8	16.5	60 W	39*	40*
5 11	14 28.52	-41 14.2	2.064	3.009	8.2	16.7	155 E	4	75	5 1	22 32.16	+16 51.1	0.922	0.932	65.8	16.5	58 W	37*	39*
5 16	14 21.96	-41 0.0	2.073	3.012	8.6	16.8	154 E	4	75	5 6	23 0.83	+17 34.0	0.940	0.902	66.4	16.5	55 W	34*	37*
5 21	14 15.82	-40 40.7	2.088	3.014	9.3	16.8	151 E	4	75	5 11	23 29.00	+18 1.4	0.964	0.876	66.4	16.5	53 W	32*	36*
5 26	14 10.23	-40 17.3	2.110	3.017	10.3	16.9	148 E	5	76	5 16	23 56.53	+18 14.6	0.992	0.856	65.9	16.5	51 W	29*	35*
5 31	14 5.29	-39 50.8	2.137	3.019	11.3	16.9	144 E	5	76	5 21	0 23.29	+18 15.1	1.024	0.842	64.8	16.5	49 W	27*	34*
6 5	14 1.06	-39 22.2	2.170	3.020	12.4	17.0	140 E	6	77	5 26	0 49.20	+18 4.9	1.059	0.834	63.4	16.5	47 W	25*	34*
6 10	13 57.61	-38 52.6	2.209	3.022	13.5	17.1	136 E	6	77	5 31	1 14.23	+17 46.2	1.097	0.834	61.6	16.5	46 W	23*	34*
6 15	13 54.95	-38 22.9	2.252	3.023	14.6	17.2	132 E	7*	78	6 5	1 38.34	+17 20.6	1.136	0.840	59.6	16.5	46 W	21*	34*
6 20	13 53.08	-37 54.1	2.300	3.024	15.5	17.3	127 E	7*	78	6 10	2 1.48	+16 49.7	1.175	0.853	57.5	16.6	45 W	20*	34*
6 25	13 51.99	-37 26.8	2.351	3.025	16.4	17.3	123 E	7*	79	6 15	2 23.63	+16 14.4	1.215	0.873	55.3	16.6	45 W	19*	34*
7 5	13 52.00	-36 38.6	2.463	3.025	17.9	17.5	114 E	6*	79	6 20	2 44.78	+15 35.6	1.254	0.898	53.3	16.7	45 W	19*	34*
7 15	13 54.71	-36 1.1	2.584	3.025	18.9	17.6	106 E	5*	80	6 25	3 4.93	+14 54.0	1.293	0.927	51.3	16.8	45 W	18*	35*
7 25	13 59.80	-35 35.5	2.711	3.024	19.4	17.7	98 E	3*	80*	7 5	3 42.26	+13 23.9	1.365	0.999	47.9	17.0	47 W	19*	37*
8 4	14 6.94	-35 21.5	2.840	3.022	19.6	17.9	90 E	2*	77*	7 15	4 15.74	+11 45.7	1.430	1.082	45.1	17.2	49 W	20*	39*
8 14	14 15.88	-35 18.3	2.968	3.018	19.5	17.9	83 E	-	71*	7 25	4 45.58	+10 0.1	1.486	1.172	42.9	17.4	52 W	22*	41*
8 24	14 26.38	-35 24.6	3.094	3.014	19.0	18.0	76 E	-	65*	8 4	5 12.02	+8 7.8	1.531	1.266	41.2	17.6	55 W	26*	44*
9 3	14 38.27	-35 38.7	3.214	3.009	18.3	18.1	69 E	-	58*	8 14	5 35.25	+6 9.0	1.566	1.361	39.7	17.7	59 W	29*	47*
9 13	14 51.40	-35 59.3	3.328	3.003	17.3	18.1	63 E	-	52*	8 24	5 55.42	+4 4.1	1.589	1.457	38.5	17.9	64 W	32*	50*
9 23	15 5.64	-36 24.6	3.433	2.996	16.2	18.1	56 E	-	46*	9 3	6 12.63	+1 53.7	1.601	1.552	37.3	18.0	69 W	36*	54*
10 3	15 20.89	-36 53.0	3.528	2.988	14.9	18.1	50 E	-	41*	9 13	6 26.86	-0 21.6	1.603	1.646	36.1	18.1	74 W	38*	58*
10 13	15 37.07	-37 23.2	3.611	2.979	13.5	18.1	44 E	-	35*	9 23	6 38.03	-2 40.7	1.595	1.737	34.7	18.1	80 W	40*	62*
10 23	15 54.10	-37 53.7	3.683	2.969	12.0	18.1	38 E	-	30*	10 3	6 46.03	-5 1.8	1.581	1.827	33.2	18.2	87 W	40*	66*
11 2	16 11.89	-38 23.2	3.741	2.958	10.5	18.1	33 E	-	24*	10 13	6 50.62	-7 22.5	1.561	1.915	31.3	18.2	94 W	38*	71*
11 12	16 30.38	-38 50.6	3.786	2.946	9.0	18.0	28 E	-	19*	10 23	6 51.59	-9 38.5	1.539	2.000	29.1	18.2	102 W	35	74
11 22	16 49.48	-39 14.6	3.816	2.933	7.6	18.0	23 E	-	14*	10 28	6 50.67	-10 43.1	1.529	2.042	27.9	18.2	106 W	34	75
12 2																			

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

20/22	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	20/22	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°
<b>2329 Orthos</b> (continuation)										<b>163243 2002 FB<sub>3</sub></b> (continuation)									
1 11	5 28.78	-12 22.1	1.813	2.603	15.5	18.7	135 E	33	76	2 20	18 36.60	-19 46.3	0.973	0.871	64.6	18.4	53 W	18*	45*
1 16	5 24.82	-11 26.6	1.876	2.636	16.2	18.8	132 E	34	75	2 25	19 9.21	-17 46.2	0.947	0.819	67.8	18.3	50 W	18*	43*
1 21	5 21.63	-10 28.3	1.944	2.668	16.8	19.0	128 E	35	74	3 2	19 43.61	-15 18.1	0.931	0.762	70.9	18.2	47 W	18*	39*
<b>168318 1989 DA</b>										<b>163243 2002 FB<sub>3</sub></b> (continuation)									
12 27	14 33.01	-15 31.6	1.327	1.102	46.6	21.5	55 W	28*	41*	3 7	20 19.47	-12 24.5	0.929	0.700	73.5	18.1	43 W	17*	35*
1 6	15 3.85	-18 45.8	1.357	1.160	45.2	21.6	57 W	25*	45*	3 12	20 56.45	-9 11.6	0.942	0.634	75.4	18.0	38 W	15*	31*
1 16	15 32.85	-21 28.8	1.379	1.225	43.9	21.7	60 W	23*	50*	3 17	21 34.28	-5 48.1	0.972	0.564	75.6	17.8	33 W	14*	26*
1 26	15 59.84	-23 43.6	1.392	1.295	42.8	21.8	63 W	21*	55*	3 19	21 49.64	-4 26.0	0.989	0.534	75.1	17.7	31 W	13*	24*
2 5	16 24.62	-25 34.3	1.396	1.368	41.8	21.9	68 W	19*	61*	3 21	22 5.15	-3 4.6	1.009	0.505	74.0	17.6	29 W	12*	21*
<b>1866 Sisypus</b>										<b>163243 2002 FB<sub>3</sub></b> (continuation)									
12 27	14 33.24	+21 52.7	3.062	2.912	18.7	18.1	72 W	63*	20*	3 23	22 20.83	-1 44.4	1.032	0.475	72.4	17.5	27 W	11*	19*
1 6	14 43.34	+22 7.2	2.944	2.909	19.3	18.0	78 W	66*	26*	3 25	22 36.74	-0 26.1	1.057	0.446	70.0	17.3	25 W	10*	17*
1 16	14 52.17	+22 38.5	2.822	2.904	19.7	18.0	85 W	68*	32*	3 27	22 52.92	+0 49.9	1.086	0.417	66.8	17.1	23 W	9*	15*
1 26	14 59.46	+23 27.1	2.697	2.898	19.9	17.9	92 W	68	36*	4 1	23 35.07	+3 46.2	1.165	0.351	53.9	16.5	16 W	5*	9*
2 5	15 4.89	+24 32.4	2.572	2.890	19.7	17.7	99 W	70	38*	4 6	0 20.29	+6 18.0	1.245	0.309	33.1	15.8	10 W	1*	3*
2 15	15 8.06	+25 53.5	2.450	2.879	19.3	17.6	106 W	71	38*	4 11	1 7.68	+8 19.8	1.308	0.309	8.1	15.1	2 W	—	—
2 25	15 8.57	+27 27.5	2.335	2.867	18.6	17.5	113 W	72	37	4 16	1 53.96	+9 51.9	1.344	0.352	12.6	15.6	4 E	—	—
3 2	15 7.71	+28 18.0	2.281	2.860	18.1	17.4	116 W	73	36	4 21	2 36.86	+11 0.0	1.366	0.418	25.6	16.5	10 E	—	4*
3 7	15 6.03	+29 9.7	2.230	2.853	17.6	17.3	120 W	74	35	4 26	3 16.10	+11 49.5	1.383	0.491	32.8	17.0	15 E	3*	8*
3 12	15 3.50	+30 1.8	2.183	2.845	17.1	17.3	123 W	75	34	5 1	3 52.05	+12 24.3	1.404	0.565	36.5	17.5	19 E	5*	12*
3 17	15 0.09	+30 53.1	2.140	2.837	16.6	17.2	126 W	76	33	5 6	4 25.13	+12 46.5	1.429	0.635	38.1	17.8	23 E	7*	16*
3 22	14 55.80	+31 42.2	2.100	2.828	16.0	17.1	128 W	77	32	5 11	4 55.68	+12 58.2	1.459	0.701	38.5	18.1	26 E	8*	18*
3 27	14 50.64	+32 27.7	2.066	2.819	15.6	17.1	131 W	77	32	5 16	5 23.98	+13 0.8	1.494	0.763	38.2	18.3	28 E	8*	21*
4 1	14 44.67	+33 8.1	2.037	2.809	15.2	17.0	132 W	78	31	5 21	5 50.25	+12 55.7	1.532	0.820	37.4	18.5	29 E	8*	22*
4 6	14 37.97	+33 41.9	2.013	2.799	15.0	17.0	134 W	79	30	5 26	6 14.72	+12 44.0	1.573	0.872	36.4	18.7	31 E	8*	24*
4 11	14 30.63	+34 7.8	1.995	2.789	14.9	17.0	134 W	79	30	5 31	6 37.57	+12 26.8	1.616	0.920	35.2	18.8	32 E	7*	25*
4 16	14 22.81	+34 24.4	1.983	2.777	15.0	16.9	134 W	79	30	6 5	6 59.01	+12 4.9	1.660	0.964	33.9	18.9	32 E	6*	25*
4 21	14 14.68	+34 30.8	1.976	2.766	15.3	16.9	133 W	80	29	6 10	7 19.19	+11 39.0	1.705	1.004	32.6	19.0	32 E	5*	26*
4 26	14 6.45	+34 26.5	1.976	2.754	15.7	16.9	132 E	79	30	6 15	7 38.27	+11 9.7	1.749	1.041	31.3	19.1	32 E	4*	26*
5 1	13 58.30	+34 11.1	1.981	2.741	16.3	17.0	130 E	79	30	6 25	8 13.63	+10 2.5	1.835	1.102	28.7	19.3	31 E	2*	25*
5 6	13 50.40	+33 45.1	1.991	2.728	17.0	17.0	128 E	79	30	7 5	8 46.00	+8 46.1	1.915	1.150	26.1	19.4	30 E	1*	24*
5 11	13 42.95	+33 8.7	2.007	2.714	17.8	17.0	125 E	78	31	7 15	9 16.15	+7 22.3	1.986	1.186	23.6	19.5	28 E	—	22*
5 16	13 36.06	+32 22.8	2.028	2.700	18.6	17.0	122 E	77	32	7 25	9 44.65	+5 52.3	2.045	1.208	21.1	19.5	25 E	—	19*
5 21	13 29.87	+31 28.4	2.053	2.685	19.4	17.1	118 E	76	33	8 4	10 12.02	+4 17.2	2.090	1.219	18.7	19.5	23 E	—	17*
5 26	13 24.44	+30 26.7	2.082	2.670	20.1	17.1	115 E	75	34	8 14	10 38.71	+2 37.4	2.121	1.218	16.4	19.4	20 E	—	14*
5 31	13 19.80	+29 18.7	2.115	2.654	20.9	17.2	111 E	74	35	8 24	11 5.11	+0 53.7	2.135	1.204	14.1	19.4	17 E	—	11*
6 5	13 15.97	+28 5.6	2.150	2.638	21.5	17.2	107 E	73	36	9 3	11 31.63	+0 53.6	2.133	1.179	11.9	19.2	14 E	—	8*
6 10	13 12.95	+26 48.2	2.189	2.621	22.1	17.3	104 E	71*	37	9 13	11 58.69	+2 43.9	2.112	1.141	9.7	19.0	11 E	—	5*
6 15	13 10.72	+25 27.6	2.229	2.604	22.6	17.3	100 E	68*	39	9 23	12 26.76	-4 36.7	2.073	1.089	7.6	18.8	8 E	—	2*
6 20	13 9.25	+24 4.5	2.271	2.586	23.0	17.3	96 E	65*	40	10 3	12 56.43	-6 31.3	2.015	1.024	5.7	18.5	6 E	—	—
6 25	13 8.49	+22 39.6	2.314	2.568	23.3	17.4	93 E	61*	41	10 13	13 28.46	-8 26.9	1.937	0.944	4.3	18.2	4 E	—	—
7 5	13 8.91	+19 46.6	2.402	2.530	23.6	17.4	85 E	53*	44	10 23	14 3.83	-10 22.1	1.839	0.848	4.2	17.8	4 E	—	—
7 15	13 11.66	+16 51.5	2.490	2.489	23.6	17.5	78 E	46*	47*	11 2	14 43.99	-12 15.0	1.720	0.735	6.1	17.5	5 E	—	—
7 25	13 16.40	+13 56.4	2.574	2.446	23.2	17.5	71 E	40*	48*	11 7	15 6.48	-13 9.8	1.651	0.671	7.9	17.3	5 E	—	—
8 4	13 22.86	+11 2.4	2.653	2.402	22.5	17.5	65 E	35*	47*	11 12	15 31.00	-14 3.3	1.576	0.603	10.8	17.1	7 E	—	—
8 14	13 30.83	+8 10.0	2.725	2.354	21.5	17.5	58 E	30*	45*	11 17	15 57.95	-14 55.6	1.492	0.531	15.1	16.8	8 E	2*	—
8 24	13 40.12	+5 19.5	2.787	2.305	20.2	17.4	52 E	26*	41*	11 27	16 27.70	-15 48.1	1.396	0.457	22.1	16.6	10 E	3*	—
9 3	13 50.62	+2 30.7	2.837	2.253	18.7	17.4	46 E	22*	36*	12 7	17 0.43	-16 45.6	1.284	0.386	33.7	16.4	13 E	5*	2*
9 13	14 2.25	+0 16.5	2.876	2.199	17.0	17.3	40 E	19*	31*	12 2	17 35.31	-18 1.8	1.151	0.328	52.6	16.3	15 E	7*	5*
9 23	14 14.96	-3 2.1	2.901	2.143	15.2	17.2	34 E	15*	26*	12 4	17 49.21	-18 43.5	1.090	0.313	62.5	16.4	16 E	7*	6*
10 3	14 28.73	+5 46.6	2.911	2.084	13.1	17.1	28 E	12*	20*	12 6	18 2.57	-19 35.2	1.027	0.305	73.6	16.6	17 E	7*	8*
10 13	14 43.60	-8 30.0	2.907	2.023	10.9	16.9	23 E	9*	15*	12 8	18 14.97	-20 39.3	0.962	0.304	85.3	16.8	18 E	7*	9*
10 23	14 59.61	-11 12.5	2.888	1.959	8.6	16.8	17 E	6*	9*	12 10	18 26.05	-21 57.6	0.898	0.311	96.9	17.2	18 E	6*	10*
11 2	15 16.86	-13 54.3	2.853	1.893	6.1	16.5	12 E	3*	4*	12 12	18 35.58	-23 30.8	0.836	0.324	107.7	17.7	18 E	5*	10*
11 12	15 35.50	-16 35.3	2.804	1.824	3.6	16.3	7 E	—	—	12 14	18 43.51	-25 18.4	0.778	0.344	117.3	18.3	18 E	4*	11*
11 22	15 55.70	-19 15.5	2.741	1.753	0.9	16.0	2 E	—	—	12 16	18 49.91	-27 19.3	0.725	0.367	125.4	18.9	18 E	2*	11*
12 2	16 17.73	-21 54.3	2.664	1.680	2.0	15.9	3 W	—	—	12 18	18 54.93	-29 32.1	0.677	0.393	131.8	19.5	17 E	—	11*
12 12	16 41.93	-24 30.9	2.575	1.605	4.8	15.9	8 W	—	1*	12 20	18 58.75	-31 55.1	0.635	0.421	136.5	20.0	17 E	—	11*
12 22	17 8.73	-27 3.4	2.476	1.528	7.8	15.8	12 W	—	6*	12 22	19 1.53	-34 26.6	0.597	0.450	139.5	20.4	17 E	—	11*
12 27	17 23.28	-28 17.2	2.423	1.489	9.3	15.8	14 W	—	8*	12 24	19 3.42	-37 4.8	0.564	0.480	140.8	20.6	18 E	—	11*
1 1	17 38.69	-29 28.7	2.369	1.450	10.8	15.8	16 W	—	10*	12 26	19 4.55	-39 48.3	0.535	0.510	140.7	20.6	19 E	—	11*
1 6	17 55.06	-30 37.0	2.313	1.410	12.4	15.7	18 W	—	12*	12 28	19 5.06	-42 35.3	0.509	0.539	139.5	20.5	21 E	—	10*
1 11	18 12.46	-31 41.2	2.257	1.370	13.9	15.6	20 W	—	13*	12 30	19 5.03	-45 24.8	0.487	0.568	137.4	20.2	23 E	—	10*
1 16	18 30																		

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

20/22	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	20/22	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°
<b>101961 1999 RL<sub>39</sub></b>										<b>156716 2002 RK<sub>27</sub></b>									
<i>(continuation)</i>										<i>(continuation)</i>									
2 15	15 41.78	-12 29.9	2.206	2.419	24.1	20.7	90 W	33	73*	6 5	19 21.08	-16 43.2	0.733	1.667	20.7	18.8	144 W	28	81
2 25	15 51.92	-12 49.3	2.054	2.396	24.2	20.5	98 W	32	77*	6 15	19 17.45	-17 8.5	0.694	1.671	15.0	18.5	155 W	28	81
3 7	16 0.34	-13 0.7	1.905	2.372	23.8	20.3	106 W	32	77	6 25	19 10.27	-17 50.8	0.672	1.676	8.5	18.1	166 W	27	82
3 17	16 6.63	-13 4.5	1.761	2.348	22.8	20.1	114 W	32	77	6 30	19 5.77	-18 17.0	0.667	1.679	5.2	18.0	171 W	27	82
3 27	16 10.39	-13 1.5	1.625	2.322	21.2	19.8	123 W	32	77	7 5	19 0.96	-18 45.5	0.667	1.683	2.5	17.8	176 W	26	83
4 6	16 11.23	-12 52.8	1.500	2.296	18.8	19.5	132 W	32	77	7 10	18 56.11	-19 15.3	0.672	1.686	3.4	17.9	174 E	26	83
4 16	16 8.83	-12 39.8	1.390	2.270	15.6	19.2	143 W	32	77	7 15	18 51.49	-19 45.6	0.682	1.691	6.5	18.1	169 E	25	84
4 26	16 3.12	-12 24.6	1.298	2.243	11.6	18.9	153 W	33	76	7 20	18 47.39	-20 15.4	0.696	1.695	9.7	18.3	164 E	25	84
5 6	15 54.40	-12 9.6	1.228	2.215	7.1	18.6	164 W	33	76	7 25	18 44.00	-20 44.2	0.715	1.700	12.8	18.5	158 E	24	85
5 16	15 43.47	-11 58.0	1.181	2.187	3.5	18.3	172 W	33	76	7 30	18 41.47	-21 11.4	0.738	1.706	15.8	18.7	153 E	24	85
5 21	15 37.57	-11 54.6	1.168	2.173	4.1	18.3	171 E	33	76	8 4	18 39.92	-21 36.6	0.766	1.711	18.5	18.8	148 E	23	86
5 26	15 31.65	-11 53.5	1.160	2.159	6.1	18.4	167 E	33	76	8 14	18 39.98	-22 20.1	0.831	1.723	23.1	19.2	138 E	23	86
5 31	15 25.89	-11 55.1	1.159	2.145	8.6	18.5	161 E	33	76	8 24	18 44.25	-22 53.5	0.909	1.737	26.7	19.5	129 E	22	87
6 5	15 20.48	-11 59.6	1.164	2.130	11.2	18.6	156 E	33	76	9 3	18 52.27	-23 15.7	0.998	1.751	29.4	19.8	122 E	22	87
6 15	15 11.36	-12 18.6	1.189	2.102	16.3	18.8	145 E	33	76	9 13	19 3.51	-23 26.2	1.094	1.766	31.3	20.1	114 E	22	87
6 25	15 5.33	-12 52.0	1.233	2.072	20.7	19.0	134 E	32	77	9 23	19 17.38	-23 24.2	1.198	1.782	32.4	20.3	108 E	22	87
7 5	15 2.83	-13 39.1	1.291	2.043	24.3	19.1	124 E	31*	78	10 3	19 33.29	-23 9.3	1.307	1.799	33.0	20.5	102 E	22	87
7 15	15 3.97	-14 38.3	1.359	2.014	27.2	19.3	115 E	29*	79	10 13	19 50.79	-22 41.2	1.420	1.817	33.1	20.7	96 E	22	87*
7 25	15 8.59	-15 47.7	1.433	1.985	29.3	19.4	107 E	27*	80	10 23	20 9.43	-21 59.8	1.537	1.834	32.8	20.9	90 E	23	82*
8 4	15 16.39	-17 4.3	1.511	1.957	30.7	19.6	100 E	25*	81	11 2	20 28.88	-21 5.5	1.655	1.853	32.2	21.1	85 E	24	76*
8 14	15 27.09	-18 25.7	1.590	1.928	31.6	19.7	93 E	22*	82*	11 12	20 48.87	-19 58.9	1.775	1.871	31.4	21.2	80 E	25	70*
8 24	15 40.42	-19 49.1	1.669	1.901	32.1	19.8	87 E	20*	80*	11 22	21 9.18	-18 40.8	1.895	1.890	30.2	21.4	75 E	26	63*
9 3	15 56.12	-21 11.8	1.746	1.873	32.1	19.8	81 E	19*	75*	12 2	21 29.63	-17 12.2	2.015	1.909	28.9	21.5	70 E	28*	57*
9 13	16 14.01	-22 31.0	1.821	1.847	31.8	19.9	76 E	17*	69*	<b>134341 1979 MA</b>									
9 23	16 33.91	-23 44.0	1.892	1.822	31.3	19.9	70 E	16*	64*	12 27	14 36.53	-32 46.9	2.102	1.658	27.2	19.1	50 W	11*	44*
10 3	16 55.65	-24 48.0	1.960	1.798	30.5	19.9	66 E	15*	60*	1 1	14 52.04	-33 59.8	2.071	1.654	27.8	19.1	52 W	10*	45*
10 13	17 19.08	-25 40.3	2.024	1.775	29.5	20.0	61 E	14*	55*	1 6	15 7.83	-35 6.9	2.040	1.651	28.5	19.1	53 W	9*	47*
10 23	17 43.99	-26 18.3	2.085	1.753	28.4	20.0	57 E	14*	51*	1 11	15 23.86	-36 7.7	2.009	1.648	29.1	19.1	55 W	8*	49*
11 2	18 10.19	-26 39.6	2.142	1.734	27.2	20.0	53 E	14*	46*	1 16	15 40.08	-37 1.7	1.978	1.647	29.7	19.1	56 W	7*	50*
11 12	18 37.45	-26 42.4	2.195	1.716	25.8	20.0	49 E	14*	42*	1 21	15 56.44	-37 48.7	1.947	1.646	30.3	19.0	58 W	6*	52*
11 22	19 5.50	-26 25.0	2.245	1.700	24.3	19.9	45 E	14*	38*	1 26	16 12.87	-38 28.2	1.917	1.647	30.9	19.0	59 W	6*	53*
12 2	19 34.06	-25 46.8	2.292	1.686	22.8	19.9	42 E	14*	34*	1 31	16 29.31	-39 0.3	1.887	1.648	31.4	19.0	61 W	5*	54*
12 12	20 2.90	-24 47.4	2.336	1.674	21.3	19.9	38 E	14*	30*	2 5	16 45.68	-39 24.7	1.856	1.650	32.0	19.0	62 W	4*	56*
12 22	20 31.73	-23 27.4	2.378	1.665	19.6	19.9	35 E	14*	26*	2 10	17 1.90	-39 41.6	1.826	1.653	32.5	19.0	64 W	4*	57*
1 1	21 0.36	-21 48.2	2.417	1.658	18.0	19.8	31 E	14*	22*	2 15	17 17.89	-39 51.0	1.795	1.656	32.9	19.0	66 W	4*	58*
1 11	21 28.65	-19 51.3	2.455	1.654	16.3	19.8	28 E	13*	18*	2 20	17 33.57	-39 53.2	1.764	1.661	33.4	18.9	68 W	4*	60*
1 21	21 56.46	-17 39.2	2.492	1.653	14.6	19.8	25 E	12*	15*	2 25	17 48.84	-39 48.3	1.732	1.666	33.8	18.9	69 W	4*	61*
<b>488693 2003 WW<sub>87</sub></b>										3 2	18 3.66	-39 36.9	1.700	1.673	34.2	18.9	71 W	4*	63*
12 27	14 35.35	+59 45.2	1.377	1.763	33.7	20.3	95 W	72*	—	3 7	18 17.94	-39 19.3	1.668	1.680	34.5	18.9	73 W	4*	64*
1 1	14 45.45	+60 32.4	1.399	1.800	32.9	20.4	97 W	72*	—	3 12	18 31.64	-38 56.0	1.635	1.688	34.8	18.8	76 W	4*	66*
1 6	14 54.04	+61 24.9	1.421	1.837	32.0	20.4	98 W	72*	—	3 17	18 44.67	-38 27.5	1.601	1.696	35.0	18.8	78 W	4*	68*
1 11	15 1.05	+62 22.6	1.443	1.873	31.2	20.5	99 W	72*	—	3 27	19 8.59	-37 16.9	1.533	1.716	35.2	18.7	82 W	5*	72*
1 16	15 6.36	+63 25.2	1.465	1.910	30.4	20.5	101 W	71*	—	4 6	19 29.39	-35 51.5	1.462	1.738	35.1	18.7	88 W	7*	76*
1 21	15 9.81	+64 32.0	1.487	1.947	29.6	20.6	102 W	70*	—	4 16	19 46.76	-34 15.1	1.390	1.763	34.6	18.6	93 W	8*	81*
1 26	15 11.21	+65 41.9	1.510	1.983	28.9	20.6	103 W	69*	—	4 26	20 0.42	-32 30.7	1.317	1.790	33.6	18.5	100 W	10*	83
1 31	15 10.33	+66 53.7	1.534	2.019	28.2	20.7	104 W	68	—	5 6	20 10.10	-30 40.8	1.246	1.819	32.0	18.3	107 W	13*	85
2 5	15 6.88	+68 5.8	1.558	2.055	27.5	20.8	106 W	67	—	5 16	20 15.47	-28 46.8	1.178	1.850	29.7	18.2	115 W	16*	87
2 10	15 0.51	+69 16.3	1.584	2.090	26.9	20.8	106 W	66	—	5 26	20 16.27	-26 49.5	1.116	1.882	26.4	18.0	124 W	18*	89
2 15	14 50.91	+70 22.4	1.612	2.126	26.3	20.9	107 W	65	—	6 5	20 12.43	-24 48.7	1.064	1.916	22.3	17.8	134 W	20	89
2 20	14 37.83	+71 21.0	1.641	2.161	25.8	20.9	108 W	64	—	6 15	20 4.18	-22 44.6	1.027	1.951	17.2	17.6	145 W	22	87
2 25	14 21.28	+72 8.7	1.672	2.195	25.3	21.0	108 W	63	—	6 20	19 58.65	-21 41.6	1.016	1.968	14.4	17.5	151 W	23	86
3 2	14 1.59	+72 42.0	1.705	2.230	24.9	21.1	109 W	62	—	6 25	19 52.40	-20 38.4	1.010	1.986	11.4	17.4	157 W	24	85
3 7	13 39.53	+72 58.0	1.741	2.264	24.5	21.1	109 W	62	—	6 30	19 45.63	-19 35.4	1.009	2.005	8.4	17.3	163 W	25	84
3 12	13 16.31	+72 54.3	1.779	2.298	24.2	21.2	109 W	62	—	7 5	19 38.57	-18 33.4	1.015	2.023	5.4	17.2	169 W	26	83
3 17	12 53.34	+72 30.2	1.820	2.331	23.9	21.3	108 W	62	—	7 10	19 31.46	-17 33.2	1.027	2.041	2.9	17.1	174 W	27	82
3 22	12 31.97	+71 46.7	1.864	2.364	23.7	21.3	108 W	63	—	7 15	19 24.55	-16 35.5	1.046	2.060	2.8	17.2	174 E	28	81
3 27	12 13.12	+70 45.7	1.911	2.397	23.5	21.4	107 E	64	—	7 20	19 18.07	-15 41.2	1.071	2.079	5.1	17.4	169 E	29	80
4 1	11 57.22	+69 30.3	1.961	2.430	23.3	21.5	106 E	65	—	7 25	19 12.19	-14 50.9	1.103	2.097	7.8	17.6	164 E	30	79
4 6	11 44.30	+68 3.3	2.014	2.462	23.2	21.6	104 E	67	—	8 4	19 2.75	-13 23.5	1.184	2.135	12.7	18.0	152 E	32	77
4 11	11 34.18	+66 27.4	2.069	2.494	23.1	21.7	103 E	69	—	8 14	18 56.85	-12 14.3	1.285	2.173	16.8	18.3	142 E	33	76
4 16	11 26.55	+64 45.1	2.128	2.525	22.9	21.7	101 E	70	—	8 24	18 54.57	-11 21.0	1.405	2.211	19.9	18.7	132 E	34	75
4 21	11 21.04	+62 58.3	2.189	2.556	22.8	21.8	100 E	72	1										

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

20/22	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	20/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°
<b>138205 2000 EZ<sub>148</sub></b>										<b>413192 2002 VY<sub>94</sub></b> <i>(continuation)</i>									
12 27	14 36.54	-17 58.6	2.467	2.033	22.7	19.5	53 W	25*	41*	4 16	18 42.89	-29 34.5	1.433	1.969	29.3	20.3	106 W	15*	86
1 6	14 58.21	-20 10.5	2.294	1.955	25.2	19.3	58 W	24*	47*	4 26	18 43.37	-29 19.7	1.400	2.051	26.1	20.3	116 W	16*	87
1 16	15 21.58	-22 23.2	2.122	1.874	27.6	19.1	62 W	22*	53*	5 6	18 39.48	-29 5.2	1.373	2.133	22.3	20.2	127 W	16	87
1 26	15 47.06	-24 35.5	1.951	1.793	30.1	18.9	66 W	20*	58*	5 16	18 31.46	-28 48.7	1.358	2.214	17.8	20.1	138 W	16	87
1 31	16 0.74	-25 40.8	1.867	1.752	31.4	18.8	68 W	19*	61*	5 21	18 26.11	-28 38.7	1.357	2.255	15.4	20.1	144 W	16	87
2 5	16 15.15	-26 45.2	1.784	1.711	32.7	18.7	70 W	18*	63*	5 26	18 20.07	-28 27.0	1.361	2.294	12.8	20.0	150 W	17	88
2 10	16 30.38	-27 48.1	1.703	1.669	34.0	18.6	71 W	17*	65*	5 31	18 13.48	-28 13.4	1.371	2.334	10.2	20.0	156 W	17	88
2 15	16 46.51	-28 48.7	1.625	1.628	35.4	18.5	72 W	16*	66*	6 5	18 6.55	-27 57.6	1.387	2.373	7.5	19.9	162 W	17	88
2 20	17 3.63	-29 46.3	1.549	1.586	36.7	18.3	74 W	15*	68*	6 10	17 59.48	-27 39.8	1.409	2.412	4.9	19.9	168 W	17	88
2 25	17 21.85	-30 39.7	1.475	1.545	38.2	18.2	75 W	14*	69*	6 15	17 52.47	-27 20.2	1.438	2.451	2.5	19.8	174 W	18	89
3 2	17 41.26	-31 27.4	1.405	1.503	39.7	18.1	76 W	13*	69*	6 20	17 45.74	-26 59.2	1.475	2.489	1.6	19.8	176 E	18	89
3 7	18 1.94	-32 7.9	1.339	1.462	41.2	18.0	76 W	11*	70*	6 25	17 39.43	-26 37.2	1.518	2.527	3.5	20.1	171 E	18	89
3 12	18 23.95	-32 38.9	1.276	1.422	42.8	17.9	76 W	10*	69*	6 30	17 33.70	-26 14.9	1.568	2.565	5.6	20.3	166 E	19	90
3 17	18 47.28	-32 58.0	1.218	1.381	44.5	17.7	76 W	9*	69*	7 5	17 28.62	-25 52.8	1.625	2.603	7.7	20.5	160 E	19	90
3 22	19 11.89	-33 2.7	1.165	1.342	46.2	17.6	76 W	9*	69*	7 15	17 20.72	-25 10.9	1.756	2.677	11.4	20.9	149 E	20	89
3 27	19 37.65	-32 50.2	1.118	1.303	47.9	17.5	76 W	8*	68*	7 25	17 15.93	-24 34.6	1.909	2.749	14.3	21.2	138 E	20	89
4 1	20 4.36	-32 18.0	1.076	1.265	49.7	17.4	75 W	7*	67*	8 4	17 14.11	-24 5.1	2.081	2.821	16.5	21.5	128 E	21	88
4 6	20 31.74	-31 24.1	1.040	1.229	51.5	17.3	74 W	6*	66*	8 14	17 14.97	-23 42.3	2.266	2.891	17.9	21.8	119 E	21	88
4 11	20 59.42	-30 7.4	1.010	1.194	53.3	17.3	73 W	6*	65*	<b>163696 2003 EB<sub>50</sub></b>									
4 16	21 27.02	-28 27.8	0.986	1.161	55.0	17.2	71 W	5*	64*	12 27	14 37.44	+ 8 28.4	2.486	2.232	23.3	21.3	64 W	50*	28*
4 21	21 54.19	-26 26.6	0.969	1.130	56.6	17.1	70 W	5*	62*	1 6	14 52.19	+ 7 47.3	2.345	2.201	24.7	21.2	69 W	52*	35*
4 26	22 20.61	-24 5.9	0.959	1.101	58.0	17.1	68 W	5*	61*	1 16	15 6.42	+ 7 17.9	2.197	2.167	26.0	21.1	75 W	52*	41*
5 1	22 46.07	-21 29.1	0.954	1.076	59.2	17.1	66 W	5*	60*	1 26	15 19.94	+ 7 0.7	2.044	2.131	27.2	20.9	81 W	52*	47*
5 6	23 10.42	-18 39.9	0.956	1.053	60.1	17.1	65 W	5*	58*	2 5	15 32.56	+ 6 56.3	1.887	2.091	28.1	20.7	88 W	52	52*
5 11	23 33.59	-15 42.3	0.962	1.034	60.7	17.1	63 W	6*	57*	2 15	15 44.01	+ 7 5.2	1.728	2.048	28.8	20.5	94 W	52	55*
5 16	23 55.58	-12 40.2	0.973	1.019	60.9	17.1	62 W	7*	56*	2 25	15 53.93	+ 7 27.5	1.568	2.002	29.1	20.3	101 W	52	57*
5 21	0 16.44	- 9 36.8	0.988	1.008	60.9	17.1	61 W	8*	55*	3 7	16 1.90	+ 8 2.7	1.410	1.953	29.0	20.0	107 W	53	56
5 26	0 36.26	- 6 35.1	1.006	1.002	60.6	17.1	59 W	10*	53*	3 17	16 7.29	+ 8 50.2	1.256	1.901	28.4	19.6	115 W	54	55
5 31	0 55.13	- 3 37.3	1.027	1.000	60.0	17.1	59 W	11*	52*	3 27	16 9.31	+ 9 47.2	1.108	1.846	27.2	19.3	122 W	55	54
6 5	1 13.15	+ 0 45.0	1.050	1.002	59.2	17.1	58 W	13*	51*	4 1	16 8.75	+10 17.9	1.037	1.817	26.3	19.1	126 W	55	54
6 10	1 30.41	+ 2 0.4	1.074	1.009	58.2	17.2	58 W	15*	50*	4 6	16 6.95	+10 49.0	0.969	1.787	25.3	18.9	130 W	56	53
6 15	1 46.98	+ 4 38.0	1.098	1.020	57.1	17.2	58 W	18*	49*	4 11	16 3.72	+11 19.3	0.903	1.756	24.1	18.6	134 W	56	53
6 25	2 18.28	+ 9 27.9	1.147	1.055	54.8	17.3	58 W	23*	46*	4 16	15 58.89	+11 46.9	0.841	1.725	22.7	18.4	138 W	57	52
7 5	2 47.42	+13 43.2	1.191	1.103	52.4	17.4	59 W	28*	44*	4 21	15 52.28	+12 9.6	0.782	1.693	21.3	18.1	142 W	57	52
7 15	3 14.54	+17 25.2	1.229	1.163	50.2	17.5	62 W	35*	42*	4 26	15 43.74	+12 24.5	0.728	1.660	19.9	17.9	146 W	57	52
7 25	3 39.60	+20 36.9	1.258	1.232	48.1	17.7	65 W	41*	40*	5 1	15 33.14	+12 28.4	0.678	1.626	18.8	17.7	149 W	57	52
8 4	4 2.52	+23 22.5	1.277	1.306	46.2	17.8	68 W	48*	39*	5 6	15 20.45	+12 17.4	0.634	1.591	18.3	17.5	150 W	57	52
8 14	4 23.06	+25 46.7	1.286	1.385	44.4	17.9	73 W	55*	37*	5 11	15 5.76	+11 47.1	0.595	1.555	18.7	17.3	150 E	57	52
8 24	4 40.91	+27 54.1	1.285	1.466	42.5	17.9	78 W	62*	35*	5 16	14 49.33	+10 53.6	0.562	1.519	20.4	17.2	148 E	56	53
9 3	4 55.71	+29 49.5	1.275	1.548	40.4	18.0	84 W	69*	34*	5 21	14 31.62	+ 9 34.3	0.536	1.482	23.4	17.1	144 E	55	54
9 13	5 6.96	+31 36.8	1.257	1.631	38.1	18.0	92 W	75*	32*	5 26	14 13.22	+ 7 48.4	0.517	1.444	27.3	17.1	139 E	53	56
9 23	5 14.09	+33 19.0	1.234	1.714	35.3	18.0	99 W	78	31	5 31	13 54.77	+ 5 37.4	0.503	1.405	31.9	17.1	133 E	51	58
9 28	5 15.93	+34 8.7	1.222	1.755	33.7	18.0	104 W	79	30	6 5	13 36.87	+ 3 5.0	0.495	1.366	36.9	17.1	126 E	48	61
10 3	5 16.51	+34 57.3	1.209	1.796	31.9	17.9	108 W	80	29	6 10	13 20.04	+ 0 15.9	0.492	1.326	42.0	17.2	119 E	45*	64
10 8	5 15.76	+35 44.4	1.197	1.837	30.0	17.9	113 W	81	28	6 15	13 4.62	+ 2 44.6	0.494	1.285	47.1	17.3	112	41*	67
10 13	5 13.62	+36 29.4	1.187	1.878	27.9	17.9	118 W	81	28	6 20	12 50.73	- 5 52.0	0.498	1.244	52.0	17.4	105 E	35*	70
10 18	5 10.08	+37 11.4	1.178	1.918	25.7	17.8	124 W	82	27	6 25	12 38.30	- 9 2.5	0.504	1.203	56.6	17.5	99 E	29*	73
10 23	5 5.16	+37 49.5	1.172	1.958	23.3	17.8	129 W	83	26	6 30	12 27.18	-12 13.4	0.512	1.161	61.0	17.5	93 E	23*	76
10 28	4 58.94	+38 22.2	1.170	1.997	20.7	17.8	135 W	83	26	7 5	12 17.10	-15 23.1	0.520	1.120	65.1	17.6	87 E	17*	78*
11 2	4 51.53	+38 48.3	1.171	2.037	18.1	17.7	140 W	84	25	7 10	12 7.78	-18 30.6	0.528	1.078	69.0	17.7	82 E	11*	76*
11 7	4 43.16	+39 6.5	1.178	2.075	15.5	17.7	146 W	84	25	7 15	11 58.85	-21 34.8	0.534	1.037	72.8	17.8	77 E	5*	71*
11 12	4 34.09	+39 15.8	1.191	2.114	12.9	17.7	151 W	84	25	7 20	11 49.91	-24 34.6	0.539	0.997	76.5	17.8	72 E	—	68*
11 17	4 24.67	+39 15.9	1.209	2.152	10.6	17.6	156 W	84	25	7 25	11 40.51	-27 28.0	0.543	0.957	80.1	17.9	68 E	—	54*
11 22	4 15.24	+39 7.0	1.235	2.190	8.8	17.7	160 W	84	25	7 30	11 30.19	-30 12.0	0.544	0.920	83.6	17.9	64 E	—	51*
11 27	4 6.12	+38 49.7	1.267	2.227	7.8	17.7	162 E	84	25	8 4	11 18.54	-32 42.4	0.543	0.884	87.2	18.0	61 E	—	44*
12 2	3 57.60	+38 25.4	1.306	2.264	7.8	17.8	162 E	83	26	8 9	11 5.16	-34 53.4	0.541	0.852	90.6	18.0	57 E	—	37*
12 7	3 49.92	+37 55.7	1.352	2.300															

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

20/22	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	20/22	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°													
<b>163696 2003 EB<sub>50</sub></b>										<b>193749 2001 KG</b>																						
<i>(continuation)</i>										<i>(continuation)</i>																						
11 17	9 16.11	+32 33.9	0.483	1.192	54.1	17.3	103 W	78	30*	5 31	17 5.74	-28 27.6	0.754	1.761	5.9	17.5	170 W	17	88	6 5	17 0.33	-29 9.2	0.733	1.744	4.0	17.3	173 W	16	87			
11 22	9 16.44	+37 44.7	0.489	1.233	49.4	17.2	108 W	83	26*	6 10	16 54.48	-29 48.9	0.717	1.728	4.6	17.3	172 E	15	86	6 15	16 48.48	-30 25.8	0.706	1.713	7.2	17.3	168 E	15	86			
11 27	9 14.69	+42 51.5	0.497	1.274	44.9	17.2	114 W	88	21*	6 20	16 42.67	-30 59.3	0.701	1.697	10.4	17.4	162 E	14	85	6 25	16 37.36	-31 29.3	0.700	1.683	13.7	17.5	157 E	14	85			
12 2	9 10.24	+47 48.5	0.510	1.315	40.7	17.2	120 W	87	16	6 30	16 32.81	-31 55.9	0.703	1.668	16.9	17.6	152 E	13	84	7 5	16 29.26	-32 19.2	0.710	1.655	19.9	17.7	146 E	13	84			
12 4	9 7.56	+49 42.9	0.516	1.331	39.1	17.2	122 W	85	14	7 10	16 26.91	-32 39.9	0.721	1.642	22.8	17.9	141 E	12	83	7 15	16 25.90	-32 58.6	0.734	1.629	25.5	18.0	136 E	12	83			
12 6	9 4.29	+51 34.1	0.522	1.347	37.5	17.3	124 W	83	12	7 25	16 28.12	-33 31.7	0.770	1.606	30.0	18.2	128 E	11	82	8 4	16 35.86	-34 0.6	0.813	1.586	33.6	18.4	120 E	11	82			
12 8	9 0.40	+53 21.4	0.530	1.363	36.1	17.3	125 W	82	11	8 14	16 48.76	-34 24.8	0.862	1.569	36.3	18.5	113 E	10	81	8 19	16 56.96	-34 34.4	0.889	1.562	37.4	18.6	110 E	10	81			
12 10	8 55.84	+55 4.3	0.538	1.379	34.7	17.3	127 W	80	9	8 24	17 6.21	-34 41.9	0.916	1.556	38.3	18.7	108 E	10	81	8 29	17 16.40	-34 46.6	0.944	1.550	39.0	18.8	105 E	10	81			
12 12	8 50.59	+56 42.2	0.547	1.395	33.4	17.3	129 W	78	7	9 3	17 27.45	-34 47.9	0.973	1.546	39.6	18.9	102 E	10	81	9 8	17 39.28	-34 45.5	1.003	1.542	40.0	18.9	100 E	10	81			
12 17	8 34.28	+60 22.2	0.574	1.433	30.6	17.4	132 W	75	4	9 13	17 51.80	-34 38.9	1.034	1.540	40.3	19.0	98 E	10	81	9 18	18 4.91	-34 27.5	1.065	1.538	40.5	19.1	96 E	10	82			
12 22	8 13.43	+63 21.0	0.605	1.471	28.5	17.5	134 W	72	1	9 23	18 18.51	-34 11.1	1.098	1.537	40.6	19.1	94 E	11	82*	9 28	18 32.50	-33 49.2	1.131	1.537	40.6	19.2	92 E	11	82*			
12 27	7 48.76	+65 33.6	0.640	1.509	27.2	17.6	136 W	69	—	10 3	18 46.81	-33 21.7	1.165	1.539	40.6	19.3	90 E	12	81*	10 8	19 1.35	-32 48.4	1.200	1.549	40.4	19.3	88 E	12	80*			
1	7 21.99	+66 58.8	0.681	1.545	26.4	17.8	136 W	68	—	10 13	19 16.04	-32 9.3	1.237	1.544	40.2	19.4	87 E	13	80*	10 13	19 16.04	-32 9.3	1.237	1.544	40.2	19.4	87 E	13	80*			
1	2	7 16.59	+67 10.3	0.689	1.553	26.3	17.8	136 W	68	—	10 18	19 30.82	-31 24.5	1.274	1.548	39.9	19.5	85 E	14	79*	10 18	19 45.59	-30 34.1	1.312	1.553	39.5	19.5	83 E	14	77*		
1	3	7 11.22	+67 20.1	0.698	1.560	26.2	17.9	135 W	68	—	10 23	19 45.59	-30 34.1	1.312	1.553	39.5	19.5	83 E	14	77*	10 28	20 0.31	-29 38.3	1.352	1.559	39.1	19.6	82 E	15	76*		
1	4	7 5.92	+67 28.2	0.707	1.567	26.2	17.9	135 W	68	—	11 2	20 14.94	-28 37.4	1.392	1.566	38.6	19.6	80 E	16	74*	11 7	20 29.42	-27 31.7	1.434	1.573	38.1	19.7	79 E	17	72*		
1	5	7 0.68	+67 34.7	0.716	1.574	26.2	17.9	135 E	67	—	11 12	20 43.74	-26 21.6	1.477	1.582	37.6	19.8	77 E	19	70*	11 17	20 57.86	-25 7.5	1.521	1.591	37.0	19.8	75 E	20	68*		
1	6	6 55.54	+67 39.6	0.726	1.581	26.2	18.0	135 E	67	—	11 22	21 11.76	-23 49.9	1.566	1.601	36.3	19.9	74 E	21	65*	11 27	21 25.43	-22 29.0	1.613	1.612	35.6	19.9	72 E	23	63*		
1	7	6 50.51	+67 43.0	0.735	1.588	26.2	18.0	135 E	67	—	12 2	21 38.86	-21 5.5	1.660	1.623	34.9	20.0	70 E	24	60*	12 7	21 52.07	-19 39.6	1.709	1.636	34.2	20.1	69 E	25	58*		
1	8	6 45.61	+67 45.1	0.745	1.595	26.2	18.1	134 E	67	—	12 12	22 5.04	-18 11.8	1.759	1.648	33.4	20.1	67 E	27	55*	12 12	22 5.04	-18 11.8	1.759	1.648	33.4	20.1	67 E	27	55*		
1	9	6 40.85	+67 45.7	0.755	1.602	26.2	18.1	134 E	67	—	12 17	22 17.79	-16 42.5	1.809	1.662	32.6	20.2	65 E	28	52*	12 17	22 17.79	-16 42.5	1.809	1.662	32.6	20.2	65 E	28	52*		
1	10	6 36.24	+67 45.2	0.764	1.609	26.2	18.1	134 E	67	—	12 22	22 30.31	-15 12.1	1.860	1.676	31.8	20.2	64 E	29	49*	12 22	22 30.31	-15 12.1	1.860	1.676	31.8	20.2	64 E	29	49*		
1	11	6 31.80	+67 43.4	0.775	1.616	26.3	18.2	133 E	67	—	12 27	22 42.62	-13 40.9	1.912	1.690	30.9	20.3	62 E	31	46*	12 27	22 42.62	-13 40.9	1.912	1.690	30.9	20.3	62 E	31	46*		
1	13	6 23.43	+67 36.7	0.795	1.630	26.4	18.3	133 E	67	—	1	1	22 54.74	-12 9.3	1.965	1.705	30.0	20.3	60 E	32	44*	1	1	22 54.74	-12 9.3	1.965	1.705	30.0	20.3	60 E	32	44*
1	15	6 15.79	+67 26.2	0.816	1.644	26.6	18.3	132 E	68	—	1	6	23 6.67	-10 37.4	2.018	1.721	29.1	20.4	58 E	33	41*	1	6	23 6.67	-10 37.4	2.018	1.721	29.1	20.4	58 E	33	41*
1	17	6 8.91	+67 12.5	0.838	1.657	26.7	18.4	131 E	68	—	1	11	23 18.44	-9 5.7	2.072	1.737	28.2	20.4	57 E	33	39*	1	11	23 18.44	-9 5.7	2.072	1.737	28.2	20.4	57 E	33	39*
1	19	6 2.78	+66 56.0	0.860	1.670	26.9	18.5	130 E	68	—	1	16	23 30.04	-7 34.3	2.126	1.753	27.3	20.5	55 E	34	36*	1	16	23 30.04	-7 34.3	2.126	1.753	27.3	20.5	55 E	34	36*
1	21	5 57.41	+66 37.3	0.883	1.684	27.1	18.6	129 E	68	—	1	21	23 41.50	-6 3.5	2.181	1.769	26.3	20.5	53 E	34	34*	1	21	23 41.50	-6 3.5	2.181	1.769	26.3	20.5	53 E	34	34*
<b>302830 2003 FB</b>										<b>8176 1991 WA</b>																						
12 27	14 37.71	+ 9 8.2	0.675	0.917	74.5	20.4	64 W	51*	27*	12 27	14 38.28	+24 52.0	1.919	1.880	30.0	21.0	73 W	65*	18*	1	6	15 0.72	+24 20.6	1.772	1.808	31.9	20.8	76 W	67*	22*		
1	1	14 47.63	+ 7 41.2	0.701	0.945	71.7	20.4	66 W	50*	31*	1	6	15 23.84	+23 58.5	1.624	1.731	33.9	20.6	79 W	67*	26*	1	16	15 23.84	+23 58.5	1.624	1.731	33.9	20.6	79 W	67*	26*
1	6	14 57.09	+ 6 17.0	0.723	0.974	69.0	20.5	68 W	50*	35*	1	26	15 47.84	+23 44.8	1.476	1.649	36.2	20.3	82 W	68*	30*	2	5	16 0.26	+23 40.6	1.402	1.606	37.5	20.2	83 W	68*	31*
1	11	15 6.07	+ 4 56.3	0.740	1.005	66.6	20.5	70 W	49*	38*	2	5	16 13.04	+23 37.7	1.329	1.563	38.8	20.0	84 W	68*	33*	2	10	16 13.04	+23 37.7	1.329	1.563	38.8	20.0	84 W	68*	33*
1	16	15 14.51	+ 3 39.4	0.754	1.038	64.3	20.5	72 W	48*	42*	2	15	16 26.25	+23 35.6	1.256	1.518	40.3	19.9	84 W	68*	34*	2	15	16 39.98	+23 33.9	1.183	1.471	42.0	19.7	85 W	68*	35*
1	21	15 22.37	+ 2 26.4	0.763	1.072	62.2	20.6	74 W	47*	46*	2	20	16 39.98	+23 33.9	1.183	1.471	42.0	19.7	85 W	68*	35*	2	20	16 54.34	+23 31.4	1.111	1.424	43.8	19.6	85 W	68*	36*
1	26	15 29.60	+ 1 17.5	0.768	1.106	60.2	20.6	77 W	46*	50*	2	25	17 9.50	+23 27.1	1.040	1.375	45.8	19.4	85 W	67*	37*	3	2	17 25.69	+23 19.3	0.969	1.325	48.2	19.3	85 W	67*	37*
1	31	15 36.15	+ 0 12.2	0.770	1.140	58.3	20.6	80 W	45*	53*	3	7	17 43.17	+23 6.1	0.899	1.273	50.9	19.1	84 W	66*	38*	3	12	18 2.33	+22 44.5	0.831	1.221	54.0	18.9	83 W	65*	39*
2	5	15 41.95	+ 0 49.4	0.769	1.175	56.4	20.6	83 W	44	57*	3	17	18 23.61	+22 10.7	0.764	1.167	57.6	18.7	82 W	64*	39*											



EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

20/22	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°-26°	20/22	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°-26°	
<b>8176 1991 WA</b> (continuation)									<b>39702 1996 TZ<sub>10</sub></b> (continuation)									
5 11	1 31.46	-7 38.1	0.735	0.592	98.6	18.7	35 W	- 27*	8 24	15 37.26	-11 32.3	1.850	2.014	29.9	19.6	84 E	28*	73*
5 16	2 1.47	-7 15.7	0.835	0.570	90.0	18.5	34 W	- 26*	9 3	15 51.40	-12 44.0	1.922	1.979	29.9	19.6	78 E	26*	69*
5 21	2 27.67	-6 0.5	0.942	0.562	80.3	18.3	33 W	- 24*	9 13	16 7.55	-13 55.5	1.991	1.943	29.6	19.6	73 E	25*	65*
5 26	2 50.90	-4 7.9	1.050	0.569	70.4	18.3	32 W	- 23*	9 23	16 25.53	-15 4.1	2.056	1.909	29.0	19.6	67 E	23*	60*
5 28	2 59.52	-3 15.7	1.093	0.576	66.6	18.2	31 W	- 23*	10 3	16 45.23	-16 7.1	2.116	1.875	28.2	19.6	62 E	22*	55*
5 30	3 7.80	-2 20.7	1.135	0.585	63.0	18.2	31 W	- 22*	10 13	17 6.52	-17 2.3	2.171	1.843	27.3	19.6	58 E	21*	50*
6 1	3 15.79	-1 23.7	1.176	0.595	59.5	18.3	30 W	- 22*	10 23	17 29.27	-17 47.0	2.221	1.812	26.1	19.6	53 E	21*	45*
6 6	3 23.50	-0 25.3	1.217	0.608	56.3	18.3	30 W	- 22*	11 2	17 53.33	-18 19.1	2.267	1.783	24.9	19.6	49 E	20*	41*
6 5	3 30.97	+0 33.8	1.256	0.623	53.2	18.3	29 W	- 22*	11 12	18 18.58	-18 36.5	2.308	1.756	23.5	19.5	45 E	20*	36*
6 10	3 48.68	+3 1.6	1.349	0.665	46.6	18.4	28 W	- 21*	11 22	18 44.81	-18 37.4	2.346	1.730	22.1	19.5	41 E	19*	31*
6 15	4 5.23	+5 25.4	1.434	0.714	41.4	18.6	28 W	- 21*	12 2	19 11.83	-18 20.6	2.380	1.707	20.6	19.5	38 E	19*	26*
6 20	4 20.82	+7 41.9	1.512	0.767	37.4	18.7	27 W	- 21*	12 12	19 39.47	-17 45.3	2.411	1.687	19.0	19.4	34 E	18*	22*
6 25	4 35.61	+9 49.7	1.581	0.823	34.5	18.9	27 W	- 21*	12 22	20 7.49	-16 51.4	2.440	1.669	17.4	19.4	31 E	17*	18*
7 5	5 3.30	+13 38.3	1.700	0.937	30.9	19.2	28 W	5* 22*	1 1	20 35.72	-15 39.2	2.467	1.654	15.8	19.3	27 E	16*	14*
7 15	5 28.96	+16 35.5	1.791	1.051	29.4	19.6	31 W	11* 22*	1 11	21 3.98	-14 9.9	2.492	1.643	14.1	19.2	24 E	14*	11*
7 25	5 53.01	+19 40.7	1.860	1.163	29.1	19.8	34 W	17* 23*	1 21	21 32.13	-12 25.1	2.517	1.635	12.4	19.2	21 E	12*	8*
8 4	6 15.68	+22 6.2	1.906	1.269	29.4	20.1	38 W	24* 23*	<b>5645 1990 SP</b>									
8 14	6 37.13	+24 15.3	1.931	1.371	30.1	20.3	43 W	31* 23*	12 27	14 38.79	+5 22.8	0.603	0.878	80.9	18.5	62 W	47*	29*
8 24	6 57.37	+26 13.6	1.937	1.468	30.8	20.5	48 W	38* 23*	1 1	14 50.83	+3 54.9	0.632	0.898	77.8	18.6	63 W	47*	32*
9 3	7 16.43	+28 6.1	1.926	1.559	31.5	20.6	54 W	45* 24*	1 6	15 2.49	+2 28.5	0.658	0.921	75.0	18.6	65 W	46*	36*
9 13	7 34.24	+29 57.8	1.899	1.646	32.0	20.7	60 W	52* 24*	1 11	15 13.75	+1 4.4	0.681	0.945	72.4	18.7	66 W	45*	39*
9 23	7 50.66	+31 53.8	1.859	1.728	32.2	20.8	67 W	59* 23*	1 16	15 24.59	-0 16.5	0.699	0.972	69.9	18.7	68 W	44*	42*
10 3	8 5.52	+33 59.3	1.806	1.805	32.2	20.8	74 W	67* 23*	1 26	15 44.91	-2 48.0	0.726	1.029	65.6	18.8	72 W	42*	49*
10 13	8 18.51	+36 19.9	1.746	1.878	31.7	20.8	81 W	74* 23*	2 5	16 3.18	-5 5.3	0.739	1.089	61.8	18.8	77 W	40*	57*
10 23	8 29.21	+39 0.5	1.680	1.946	30.7	20.8	90 W	82* 22*	2 15	16 19.01	-7 9.7	0.738	1.151	58.2	18.8	82 W	38*	64*
11 2	8 37.02	+42 5.6	1.613	2.010	29.2	20.7	98 W	87 20*	2 25	16 31.82	-9 3.9	0.725	1.213	54.6	18.8	89 W	36	70*
11 12	8 41.02	+45 37.3	1.550	2.071	27.2	20.7	107 W	89 18*	3 7	16 40.95	-10 52.4	0.702	1.274	50.8	18.7	96 W	34	75*
11 22	8 39.96	+49 33.1	1.496	2.127	24.6	20.6	116 W	85 14*	3 17	16 45.46	-12 39.4	0.672	1.333	46.2	18.6	105 W	32	77
12 2	8 32.17	+53 43.5	1.458	2.180	21.7	20.5	125 W	81 10	3 27	16 44.27	-14 29.0	0.639	1.390	40.8	18.4	114 W	31	78
12 7	8 25.12	+55 48.4	1.447	2.205	20.3	20.4	129 W	79 8	4 6	16 36.31	-16 23.4	0.608	1.445	34.1	18.2	126 W	29	80
12 12	8 15.67	+57 48.5	1.441	2.230	18.9	20.4	133 W	77 6	4 16	16 20.86	-18 19.0	0.584	1.496	25.9	18.0	139 W	27	82
12 17	8 3.70	+59 40.0	1.442	2.253	17.8	20.4	136 W	75 4	4 21	16 10.43	-19 14.2	0.578	1.521	21.4	17.9	147 W	26	83
12 22	7 49.23	+61 18.6	1.449	2.275	16.9	20.4	138 W	74 3	4 26	15 58.54	-20 5.5	0.575	1.544	16.6	17.7	154 W	25	84
12 24	7 42.80	+61 53.5	1.454	2.284	16.6	20.4	138 W	73 2	5 1	15 45.60	-20 50.9	0.579	1.567	11.7	17.6	162 W	24	85
12 26	7 36.03	+62 25.6	1.459	2.293	16.4	20.4	139 W	73 2	5 6	15 32.11	-21 29.0	0.587	1.590	6.8	17.5	169 W	24	85
12 28	7 28.97	+62 54.6	1.466	2.301	16.3	20.4	139 W	72 1	5 11	15 18.66	-21 58.9	0.602	1.611	2.8	17.3	175 W	23	86
12 30	7 21.66	+63 20.3	1.475	2.310	16.2	20.4	139 W	72 1	5 16	15 5.83	-22 21.2	0.623	1.632	4.2	17.5	173 E	23	86
1 1	7 14.17	+63 42.6	1.484	2.318	16.2	20.5	139 W	71 -	5 21	14 54.13	-22 36.9	0.650	1.651	8.2	17.8	167 E	22	87
1 3	7 6.54	+64 1.5	1.494	2.326	16.2	20.5	139 W	71 -	5 26	14 43.89	-22 47.7	0.683	1.670	12.1	18.1	160 E	22	87
1 5	6 58.84	+64 16.9	1.505	2.334	16.3	20.5	138 E	71 -	5 31	14 35.29	-22 55.3	0.720	1.688	15.7	18.4	153 E	22	87
1 7	6 51.14	+64 28.8	1.518	2.342	16.4	20.5	138 E	71 -	6 5	14 28.40	-23 1.5	0.763	1.706	18.9	18.6	147 E	22	87
1 9	6 43.51	+64 37.4	1.531	2.349	16.5	20.6	137 E	70 -	6 10	14 23.20	-23 7.5	0.809	1.722	21.7	18.9	141 E	22	87
1 11	6 36.02	+64 42.6	1.546	2.357	16.8	20.6	136 E	70 -	6 15	14 19.60	-23 14.6	0.859	1.738	24.1	19.1	136 E	22	87
1 13	6 28.72	+64 44.8	1.561	2.364	17.0	20.6	135 E	70 -	6 20	14 17.49	-23 23.3	0.912	1.753	26.1	19.3	131 E	22*	87
1 15	6 21.67	+64 44.1	1.577	2.372	17.3	20.7	134 E	70 -	6 25	14 16.72	-23 34.2	0.967	1.767	27.8	19.5	126 E	21*	88
1 17	6 14.91	+64 40.6	1.595	2.379	17.5	20.7	133 E	70 -	6 30	14 17.15	-23 47.3	1.025	1.780	29.2	19.7	121 E	21*	88
1 19	6 8.48	+64 34.6	1.613	2.386	17.9	20.8	132 E	70 -	7 5	14 18.64	-24 2.6	1.084	1.792	30.4	19.9	117 E	20*	88
1 21	6 2.42	+64 26.4	1.632	2.393	18.2	20.8	131 E	71 -	7 10	14 21.10	-24 20.1	1.145	1.804	31.3	20.0	113 E	19*	88
12 27	14 38.64	-12 51.0	3.256	2.796	16.6	21.1	54 W	30* 38*	7 15	14 24.41	-24 39.6	1.207	1.814	32.0	20.2	109 E	18*	89
1 6	14 52.17	-13 35.5	3.112	2.771	18.1	21.0	61 W	31* 46*	7 25	14 33.25	-25 24.0	1.332	1.833	32.8	20.4	102 E	15*	89
1 16	15 5.22	-14 12.4	2.959	2.746	19.4	20.9	68 W	31* 54*	8 4	14 44.54	-26 13.7	1.458	1.849	33.1	20.6	95 E	13*	89*
1 26	15 17.59	-14 40.8	2.801	2.719	20.5	20.8	75 W	30* 62*	8 14	14 57.91	-27 6.7	1.584	1.861	33.0	20.8	89 E	12*	82*
2 5	15 29.10	-15 0.2	2.638	2.692	21.3	20.7	82 W	30 69*	8 24	15 13.04	-28 1.2	1.707	1.870	32.4	21.0	83 E	10*	82*
2 15	15 39.51	-15 10.1	2.473	2.664	21.8	20.5	90 W	30 76*	9 3	15 29.68	-28 55.2	1.826	1.876	31.6	21.1	77 E	9*	70*
2 25	15 48.53	-15 9.8	2.308	2.635	21.8	20.4	98 W	30 79*	9 13	15 47.72	-29 46.8	1.939	1.879	30.5	21.2	71 E	8*	64*
3 7	15 55.87	-14 59.0	2.147	2.605	21.4	20.2	106 W	30 79	9 23	16 7.00	-30 34.4	2.047	1.878	29.2	21.3	66 E	7*	59*
3 17	16 1.16	-14 37.3	1.991	2.575	20.5	20.0	115 W	30 79	10 3	16 27.42	-31 16.1	2.146	1.874	27.8	21.4	61 E	7*	54*
3 27	16 4.07	-14 4.6	1.845	2.543	18.9	19.7	124 W	31 78	10 13	16 48.91	-31 50.4	2.238	1.867	26.2	21.4	56 E	6*	49*
4 6	16 4.30	-13 21.1	1.711	2.511	16.7	19.5	134 W	32 77	10 23	17 11.38	-32 15.7	2.320	1.857	24.5	21.4	51 E	6*	45*
4 16	16 1.63	-12 27.6	1.594	2.479	13.7	19.2	144 W	33 76	11 2	17 34.71	-32 30.4	2.392	1.843	22.7	21.4	46 E	5*	40*
4 26	15 56.10	-11 26.1	1.497	2.445	10.1	18.9	155 W	34 75	11 12	17 58.84	-32 33.1	2.453	1.826	20.9	21.4	41 E	5*	35*
5 6	15 48.10	-10 20.1	1.423	2.411	6.2	18.6	165 W	35 74	11 22	18 23.62	-32 22.6	2.503	1.806	19.0	21.3	36 E	5*	30*
5 11	15 43.38	-9 46.9	1.395	2.394	4.7	18.4	169 W	35 74	12 2	18 48.97	-31 57.7	2.542	1.783	17.0	21.3	32 E	4*	26*
5 16	15 38.37	-9 14.7</																

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

20/22	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	20/22	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°
<b>162273 1999 VL<sub>12</sub></b>										<b>21030 1989 TZ<sub>11</sub></b>									
<i>(continuation)</i>										<i>(continuation)</i>									
2 10	17 20.27	-27 27.7	1.506	1.327	40.2	20.3	60 W	15*	54*	5 6	15 24.51	-13 42.1	1.497	2.500	3.4	18.1	172 W	31	78
2 15	17 39.19	-26 41.9	1.469	1.313	41.1	20.2	61 W	16*	55*	5 16	15 12.93	-13 26.5	1.455	2.462	2.9	18.0	173 E	32	77
2 20	17 58.08	-25 44.1	1.434	1.301	42.0	20.2	62 W	16*	55*	5 21	15 7.02	-13 19.9	1.444	2.442	5.1	18.1	168 E	32	77
2 25	18 16.88	-24 34.4	1.401	1.288	42.9	20.1	62 W	17*	56*	5 26	15 1.25	-13 14.7	1.440	2.423	7.6	18.2	162 E	32	77
3 7	18 53.94	-21 39.7	1.339	1.267	44.7	20.1	64 W	18*	57*	5 31	14 55.78	-13 11.3	1.443	2.403	10.0	18.2	156 E	32	77
3 17	19 29.98	-18 0.8	1.284	1.249	46.2	20.0	65 W	20*	58*	6 5	14 50.75	-13 10.2	1.451	2.383	12.4	18.3	150 E	32	77
3 27	20 4.71	-13 43.6	1.238	1.234	47.6	19.9	66 W	23*	59*	6 15	14 42.50	-13 16.2	1.484	2.343	16.7	18.5	138 E	32	77
4 1	20 21.55	-11 23.0	1.218	1.229	48.2	19.9	66 W	24*	58*	6 25	14 37.22	-13 34.9	1.534	2.301	20.4	18.7	128 E	31*	78
4 6	20 38.05	-8 55.9	1.200	1.224	48.8	19.9	67 W	25*	58*	7 5	14 35.17	-14 6.5	1.597	2.260	23.4	18.8	118 E	30*	78
4 11	20 54.19	-6 23.6	1.184	1.221	49.2	19.8	67 W	27*	58*	7 15	14 36.36	-14 50.7	1.668	2.217	25.7	18.9	109 E	28*	79
4 16	21 9.99	-3 47.4	1.170	1.218	49.6	19.8	68 W	28*	57*	7 25	14 40.63	-15 46.0	1.744	2.175	27.3	19.0	101 E	25*	80
4 21	21 25.47	-1 8.5	1.158	1.217	50.0	19.8	68 W	30*	56*	8 4	14 47.74	-16 50.4	1.821	2.131	28.4	19.1	93 E	22*	81*
4 26	21 40.63	+1 31.8	1.147	1.218	50.3	19.8	68 W	31*	55*	8 14	14 57.46	-18 2.1	1.898	2.088	28.9	19.2	86 E	20*	79*
5 1	21 55.52	+4 12.1	1.139	1.219	50.5	19.8	69 W	33*	54*	8 24	15 9.58	-19 18.8	1.971	2.044	29.1	19.2	80 E	18*	73*
5 6	22 10.14	+6 51.6	1.131	1.221	50.6	19.8	69 W	35*	53*	9 3	15 23.91	-20 38.2	2.039	2.001	28.9	19.2	73 E	16*	67*
5 11	22 24.50	+9 29.0	1.125	1.225	50.7	19.8	70 W	36*	51*	9 13	15 40.35	-21 58.0	2.102	1.958	28.4	19.2	68 E	14*	62*
5 16	22 38.63	+12 3.3	1.120	1.230	50.7	19.8	70 W	38*	49*	9 23	15 58.78	-23 15.7	2.159	1.915	27.7	19.2	62 E	13*	56*
5 21	22 52.54	+14 33.8	1.115	1.235	50.7	19.8	71 W	40*	48*	10 3	16 19.13	-24 28.6	2.209	1.872	26.8	19.2	57 E	12*	51*
5 26	23 6.24	+16 59.7	1.111	1.242	50.6	19.8	71 W	42*	46*	10 13	16 41.34	-25 34.0	2.252	1.830	25.7	19.2	53 E	11*	47*
5 31	23 19.75	+19 20.4	1.107	1.250	50.5	19.8	72 W	44*	44*	10 23	17 5.31	-26 29.1	2.289	1.790	24.6	19.1	48 E	10*	42*
6 5	23 33.07	+21 35.6	1.103	1.259	50.3	19.8	73 W	46*	42*	11 2	17 30.94	-27 10.8	2.320	1.750	23.3	19.0	44 E	10*	38*
6 10	23 46.19	+23 44.7	1.098	1.269	50.2	19.8	74 W	48*	40*	11 12	17 58.10	-27 36.3	2.344	1.713	21.9	19.0	40 E	9*	34*
6 15	23 59.11	+25 47.5	1.093	1.280	49.9	19.8	75 W	51*	38*	11 22	18 26.60	-27 42.6	2.364	1.677	20.5	18.9	37 E	9*	30*
6 20	0 11.82	+27 43.6	1.088	1.291	49.7	19.8	76 W	53*	36	12 2	18 56.20	-27 27.4	2.379	1.643	19.1	18.8	33 E	9*	26*
6 25	0 24.31	+29 33.0	1.081	1.303	49.4	19.8	77 W	56*	34	12 12	19 26.64	-26 48.9	2.391	1.612	17.7	18.8	30 E	9*	22*
6 30	0 36.55	+31 15.6	1.073	1.316	49.1	19.8	78 W	59*	33	12 22	19 57.61	-25 46.0	2.400	1.585	16.2	18.7	27 E	8*	19*
7 5	0 48.53	+32 51.4	1.065	1.330	48.7	19.8	79 W	61*	31	1 1	20 28.82	-24 18.6	2.408	1.560	14.8	18.6	24 E	8*	16*
7 10	1 0.18	+34 20.3	1.055	1.344	48.3	19.8	81 W	64*	30	1 11	21 0.00	-22 27.2	2.415	1.540	13.4	18.5	21 E	7*	13*
7 15	1 11.47	+35 42.3	1.043	1.358	47.9	19.8	82 W	67*	28	1 21	21 30.91	-20 13.9	2.423	1.523	11.9	18.5	19 E	6*	11*
7 20	1 22.33	+36 57.3	1.030	1.373	47.4	19.7	84 W	70*	27	<b>6261 Chione</b>									
7 25	1 32.72	+38 5.5	1.016	1.388	46.9	19.7	86 W	74*	26	12 27	14 40.08	-4 28.9	2.602	2.225	21.8	19.2	57 W	38*	34*
7 30	1 42.57	+39 6.8	1.000	1.404	46.3	19.7	88 W	77*	25	1 6	14 56.37	-4 26.1	2.532	2.266	22.8	19.2	63 W	39*	41*
8 4	1 51.78	+40 1.2	0.982	1.420	45.6	19.7	91 W	80*	24	1 16	15 11.48	-4 8.2	2.454	2.306	23.6	19.2	70 W	40*	47*
8 9	2 0.26	+40 48.7	0.963	1.436	44.8	19.6	93 W	83*	23	1 26	15 25.20	-3 34.3	2.370	2.346	24.1	19.2	77 W	41*	54*
8 14	2 7.90	+41 28.9	0.943	1.452	43.9	19.6	96 W	86*	23	2 5	15 37.32	-2 44.1	2.283	2.385	24.3	19.1	84 W	42	59*
8 19	2 14.60	+42 1.6	0.922	1.469	42.9	19.5	99 W	87	22	2 15	15 47.58	-1 37.4	2.193	2.424	24.0	19.1	91 W	43	63*
8 24	2 20.26	+42 26.5	0.899	1.485	41.8	19.5	102 W	87	22	2 25	15 55.69	0 14.7	2.104	2.461	23.4	19.0	99 W	45	64*
8 29	2 24.75	+42 43.2	0.876	1.502	40.4	19.4	105 W	88	21	3 7	16 1.40	+1 22.8	2.019	2.498	22.3	18.9	107 W	46	63
9 3	2 27.96	+42 50.8	0.853	1.518	38.9	19.3	109 W	88	21	3 17	16 4.42	+3 12.9	1.940	2.534	20.7	18.8	116 W	48	61
9 8	2 29.77	+42 48.3	0.829	1.535	37.2	19.2	113 W	88	21	3 27	16 4.59	+5 11.6	1.873	2.569	18.8	18.7	124 W	50	59
9 13	2 30.11	+42 34.4	0.806	1.551	35.2	19.1	117 W	88	21	4 1	16 3.58	+6 12.4	1.845	2.586	17.6	18.6	128 W	51	58
9 18	2 28.96	+42 7.6	0.784	1.568	32.9	19.0	122 W	87	22	4 6	16 1.86	+7 13.0	1.821	2.604	16.5	18.6	133 W	52	57
9 23	2 26.34	+41 26.5	0.763	1.584	30.4	18.9	127 W	86	23	4 11	15 59.45	+8 12.5	1.801	2.620	15.3	18.5	136 W	53	56
9 28	2 22.33	+40 29.4	0.744	1.600	27.6	18.8	132 W	85	24	4 16	15 56.40	+9 9.8	1.787	2.637	14.1	18.5	140 W	54	55
10 3	2 17.08	+39 15.1	0.728	1.616	24.6	18.7	138 W	84	25	4 21	15 52.78	+10 3.6	1.778	2.653	13.0	18.4	143 W	55	54
10 8	2 10.86	+37 42.6	0.716	1.632	21.3	18.6	144 W	83	26	4 26	15 48.68	+10 52.9	1.774	2.669	12.1	18.4	146 W	56	53
10 13	2 3.99	+35 52.3	0.708	1.647	18.0	18.5	149 W	81	28	5 1	15 44.21	+11 36.7	1.777	2.685	11.5	18.4	148 W	57	52
10 18	1 56.87	+33 45.9	0.705	1.663	14.7	18.4	155 W	79	30	5 6	15 39.47	+12 14.2	1.786	2.701	11.1	18.4	149 W	57	52
10 23	1 49.86	+31 26.6	0.708	1.678	11.8	18.3	160 W	76	33	5 11	15 34.59	+12 44.6	1.801	2.716	11.1	18.4	149 W	58	51
10 28	1 43.31	+28 58.5	0.717	1.692	9.9	18.3	163 E	74	35	5 16	15 29.70	+13 7.5	1.822	2.732	11.4	18.5	148 E	58	51
11 2	1 37.49	+26 26.5	0.732	1.707	9.6	18.3	163 E	71	38	5 26	15 20.41	+13 30.0	1.882	2.761	12.7	18.6	143 E	59	50
11 7	1 32.62	+23 56.0	0.754	1.721	11.0	18.5	161 E	69	40	6 5	15 12.45	+13 23.1	1.964	2.790	14.5	18.8	137 E	58	51
11 12	1 28.83	+21 31.5	0.782	1.735	13.3	18.6	156 E	67	42	6 15	15 6.42	+12 50.3	2.065	2.817	16.3	19.0	129 E	58	51
11 17	1 26.19	+19 17.0	0.816	1.748	15.9	18.8	151 E	64	45	6 25	15 2.63	+11 56.7	2.181	2.844	17.8	19.2	121 E	57	52
11 22	1 24.67	+17 14.9	0.856	1.762	18.5	19.0	146 E	62	47	7 5	15 1.14	+10 48.0	2.310	2.870	19.0	19.4	113 E	56*	53
11 27	1 24.23	+15 26.6	0.900	1.774	20.9	19.2	140 E	60	49	7 15	15 1.87	+9 28.6	2.448	2.894	19.8	19.5	106 E	53*	55
12 2	1 24.80	+13 52.5	0.949	1.787	23.0	19.4	135 E	59	50	7 25	15 4.63	+8 2.6	2.592	2.918	20.1	19.7	98 E	50*	56
12 12	1 28.69	+11 26.0	1.058	1.811	26.5	19.8	125 E	56	53	8 4	15 9.21	+6 33.3	2.739	2.941	20.2	19.8	91 E	46*	57
12 22	1 35.66	+9 48.8	1.178	1.833	28.9	20.1	116 E	55	54	8 14	15 15.38	+5 3.0	2.888	2.962	19.9	20.0	84 E	43*	59*
1 1	1 45.10	+8 51.6	1.306	1.854	30.4	20.4	107 E	54	55*	8 24	15 22.94	+3 33.7	3.034	2.983	19.3	20.1	77 E	40*	58*
1 6	1 50.59	+8 35.1	1.372	1.864	30.9	20.6	103 E	54	55*	9 3	15 31.72	+2 6.8	3.177	3.002	18.5	20.1	71 E	37*	55*
1 11	1 56.52	+8 25.4	1.438	1.873	31.2	20.7	100 E												

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

20/22	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	20/22	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°
<b>5626 Melissabrucker</b>										<b>93751 2000 WH<sub>1</sub></b> (continuation)									
12 27	14 40.36	-13 38.9	3.550	3.068	14.9	20.2	53 W	29*	38*	5 26	14 18.27	-5 48.8	2.032	2.945	10.3	19.6	149 E	39	70
1 6	14 50.90	-14 18.2	3.439	3.085	16.2	20.2	61 W	30*	46*	6 5	14 9.68	-6 24.3	2.094	2.926	13.5	19.8	138 E	39	70
1 16	15 0.48	-14 50.2	3.318	3.102	17.2	20.2	69 W	30*	55*	6 15	14 3.39	-7 10.2	2.177	2.906	16.2	20.0	127 E	38	71
1 26	15 8.89	-15 14.7	3.188	3.116	17.9	20.1	77 W	30	64*	6 25	13 59.61	-8 5 6	2.275	2.885	18.3	20.1	117 E	36*	72
2 5	15 15.93	-15 31.2	3.051	3.130	18.3	20.0	85 W	29	72*	7 5	13 58.33	-9 9 3	2.384	2.863	19.8	20.3	108 E	33*	73
2 15	15 21.34	-15 39.3	2.911	3.142	18.3	20.0	94 W	29	79*	7 15	13 59.42	-10 20.2	2.499	2.840	20.7	20.4	99 E	29*	74
2 25	15 24.86	-15 38.9	2.772	3.153	17.8	19.8	103 W	29	80	7 25	14 2.67	-11 37.1	2.617	2.817	21.1	20.5	91 E	25*	76*
3 7	15 26.26	-15 29.4	2.637	3.162	16.8	19.7	113 W	30	79	8 4	14 7.88	-12 58.9	2.733	2.792	21.1	20.5	83 E	22*	74*
3 17	15 25.34	-15 10.8	2.512	3.170	15.2	19.5	123 W	30	79	8 14	14 14.84	-14 24.6	2.847	2.766	20.7	20.6	75 E	18*	68*
3 27	15 22.00	-14 42.9	2.400	3.177	13.0	19.4	134 W	30	79	8 24	14 23.38	-15 53.3	2.954	2.740	20.0	20.6	68 E	15*	62*
4 6	15 16.32	-14 6 3	2.307	3.183	10.3	19.2	145 W	31	78	9 3	14 33.35	-17 24.0	3.053	2.713	19.0	20.7	61 E	13*	55*
4 16	15 8.57	-13 22.2	2.238	3.187	7.0	19.0	157 W	32	77	9 13	14 44.63	-18 56.1	3.142	2.685	17.8	20.7	54 E	10*	48*
4 26	14 59.32	-12 33.0	2.197	3.190	3.5	18.8	169 W	32	77	9 23	14 57.13	-20 28.6	3.220	2.656	16.3	20.6	48 E	8*	46*
5 6	14 49.32	-11 42.1	2.185	3.191	1.5	18.6	175 E	33	76	10 3	15 10.78	-22 0 7	3.287	2.626	14.7	20.6	42 E	6*	36*
5 16	14 39.43	-10 53.7	2.204	3.191	4.7	18.8	165 E	34	75	10 13	15 25.55	-23 31.5	3.340	2.595	13.0	20.5	36 E	4*	30*
5 26	14 30.51	-10 12.0	2.251	3.190	8.1	19.1	154 E	35	74	10 23	15 41.37	-25 0 3	3.379	2.564	11.1	20.5	30 E	2*	24*
6 5	14 23.17	-9 40.1	2.325	3.188	11.2	19.2	142 E	35	74	11 2	15 58.23	-26 26 1	3.405	2.531	9 2	20.4	24 E	—	18*
6 15	14 17.85	-9 20.0	2.420	3.184	13.9	19.4	131 E	36	73	11 12	16 16.11	-27 48 0	3.416	2.498	7 3	20.3	19 E	—	13*
6 25	14 14.74	-9 12.4	2.533	3.179	15.9	19.6	121 E	35*	73	11 22	16 34.99	-29 5 0	3.413	2.465	5 4	20.2	14 E	—	7*
7 5	14 13.82	-9 16.7	2.657	3.173	17.4	19.7	111 E	34*	73	12 2	16 54.86	-30 16 3	3.396	2.430	4 0	20.0	10 E	—	3*
7 15	14 14.98	-9 32.0	2.789	3.165	18.3	19.9	102 E	31*	74	12 12	17 15.69	-31 20 9	3.365	2.395	3 4	20.0	8 W	—	—
7 25	14 18.06	-9 56.8	2.925	3.156	18.7	20.0	94 E	28*	74	12 22	17 37.44	-32 17 8	3.322	2.360	4 2	19 9	10 W	—	3*
8 4	14 22.85	-10 29 5	3.061	3.145	18.8	20 1	85 E	26*	73*	1 1	18 0 08	-33 6 2	3.265	2.324	5 9	20 0	14 W	—	7*
8 14	14 29 18	-11 8 6	3.194	3.134	18 4	20 1	77 E	23*	69*	1 11	18 23 57	-33 45 2	3.198	2.287	7 9	20 0	19 W	—	12*
8 24	14 36 86	-11 52 6	3.321	3.121	17 7	20 2	70 E	21*	63*	1 21	18 47 83	-34 14 2	3.120	2.250	10 0	20 0	23 W	—	17*
9 3	14 45 73	-12 40 0	3.440	3.106	16 7	20 2	63 E	18*	56*	<b>280481 2004 HL<sub>48</sub></b>									
9 13	14 55 69	-13 29 8	3.549	3.090	15 5	20 3	55 E	16*	49*	12 27	14 41 00	-25 24 0	2.174	1.722	26 1	20 2	50 W	18*	42*
9 23	15 6 60	-14 20 6	3.646	3.073	14 1	20 3	48 E	14*	42*	1 6	15 5 51	-26 21 6	2.129	1.756	27 2	20 2	55 W	17*	47*
10 3	15 18 38	-15 11 5	3.730	3.055	12 6	20 2	42 E	12*	35*	1 16	15 29 02	-27 0 6	2.078	1.792	28 2	20 2	60 W	17*	52*
10 13	15 30 93	-16 1 3	3.799	3.035	10 8	20 2	35 E	11*	28*	1 26	15 51 24	-27 21 2	2.019	1.828	29 1	20 2	65 W	17*	58*
10 23	15 44 19	-16 49 1	3.853	3.014	9 0	20 1	28 E	9*	21*	2 5	16 11 93	-27 24 1	1.954	1.866	29 8	20 2	70 W	17*	64*
11 2	15 58 07	-17 34 1	3.890	2.991	7 1	20 0	22 E	6*	15*	2 15	16 30 78	-27 9 9	1.882	1.904	30 2	20 2	76 W	18*	70*
11 12	16 12 52	-18 15 5	3.910	2.967	5 0	19 9	15 E	4*	8*	2 25	16 47 47	-26 39 5	1.805	1.943	30 3	20 1	83 W	18*	76*
11 22	16 27 46	-18 52 3	3.913	2.942	3 0	19 8	9 E	1*	1*	3 7	17 1 69	-25 53 7	1.725	1.982	30 0	20 1	89 W	19*	83*
12 2	16 42 84	-19 24 0	3.898	2.915	1 2	19 6	4 E	—	—	3 17	17 13 07	-24 53 5	1.642	2.021	29 3	20 0	97 W	20	89
12 12	16 58 57	-19 50 0	3.866	2.887	1 8	19 7	5 W	—	—	3 27	17 21 25	-23 39 3	1.560	2.059	27 9	19 9	105 W	21	88
12 22	17 14 59	-20 9 8	3.816	2.857	3 8	19 7	11 W	3*	2*	4 6	17 25 92	-22 12 0	1.482	2.098	25 8	19 7	114 W	23	86
1 1	17 30 82	-20 22 8	3.750	2.826	5 9	19 8	17 W	7*	8*	4 16	17 26 81	-20 32 0	1.410	2.137	23 0	19 6	124 W	24	85
1 11	17 47 18	-20 28 9	3.667	2.794	8 1	19 8	24 W	10*	14*	4 26	17 23 83	-18 40 8	1.351	2.175	19 4	19 4	134 W	26	83
1 21	18 3 57	-20 27 8	3.569	2.760	10 2	19 8	30 W	12*	21*	5 6	17 17 27	-16 41 1	1.308	2.212	15 1	19 2	145 W	28	81
<b>162998 2001 SK<sub>162</sub></b>										5 11	17 12 82	-15 39 4	1.294	2.231	12 7	19 2	151 W	29	80
12 27	14 40 59	-17 0 1	1.680	1.332	35 8	21 1	52 W	26*	39*	5 16	17 7 75	-14 37 5	1.286	2.249	10 4	19 1	156 W	30	79
1 6	15 6 38	-18 56 1	1.681	1.397	35 8	21 2	56 W	25*	45*	5 21	17 2 22	-13 36 5	1.284	2.268	8 0	19 0	162 W	31	78
1 16	15 30 50	-20 31 3	1.673	1.464	35 8	21 3	60 W	24*	50*	5 26	16 56 41	-12 37 3	1.289	2.286	6 1	18 9	166 W	32	77
1 26	15 52 77	-21 47 7	1.654	1.531	35 7	21 4	65 W	23*	56*	5 31	16 50 51	-11 41 0	1.301	2.304	4 9	18 9	169 W	33	76
2 5	16 13 02	-22 47 4	1.626	1.597	35 6	21 4	71 W	22*	63*	6 5	16 44 68	-10 48 6	1.319	2.322	5 1	19 0	168 E	34	75
2 15	16 30 99	-23 32 9	1.587	1.663	35 3	21 5	77 W	21*	69*	6 10	16 39 10	-10 0 8	1.344	2.339	6 5	19 1	165 E	35	74
2 25	16 46 37	-24 6 5	1.541	1.728	34 7	21 5	83 W	21*	76*	6 15	16 33 92	-9 18 5	1.376	2.357	8 4	19 2	160 E	36	73
3 7	16 58 84	-24 30 5	1.487	1.791	33 6	21 4	90 W	20*	84*	6 25	16 25 26	-8 11 5	1.458	2.391	12 4	19 6	150 E	37	72
3 17	17 7 98	-24 47 0	1.429	1.853	32 1	21 4	98 W	20	89	7 5	16 19 30	-7 27 9	1.561	2.424	15 9	19 9	139 E	38	71
3 27	17 13 36	-24 57 5	1.369	1.913	29 9	21 3	107 W	20	89	7 15	16 16 26	-7 5 8	1.681	2.457	18 6	20 1	130 E	38	71
4 6	17 14 56	-25 2 9	1.311	1.972	27 0	21 2	116 W	20	89	7 25	16 10 07	-7 1 4	1.816	2.488	20 6	20 4	120 E	38*	71
4 16	17 11 28	-25 2 4	1.260	2.028	23 3	21 0	127 W	20	89	8 4	16 18 47	-7 10 5	1.960	2.519	22 0	20 6	112 E	37*	71
4 26	17 3 51	-24 54 7	1.220	2.083	18 7	20 9	138 W	20	89	8 14	16 23 15	-7 29 3	2.112	2.549	22 7	20 8	104 E	36*	71
5 6	16 51 80	-24 37 2	1.197	2.135	13 3	20 7	151 W	20	89	8 24	16 29 83	-7 54 4	2.267	2.578	23 0	21 0	96 E	35*	72
5 16	16 37 30	-24 8 4	1.197	2.186	7 4	20 5	164 W	21	88	9 3	16 38 18	-8 22 6	2.424	2.605	22 8	21 2	89 E	34*	72*
5 26	16 21 80	-23 29 4	1.223	2.235	1 6	20 3	177 W	22	87	9 13	16 47 97	-8 51 8	2.580	2.632	22 2	21 3	82 E	33*	68*
5 31	16 14 28	-23 7 4	1.246	2.258	1 8	20 4	176 E	22	87	9 23	16 58 99	-9 19 8	2.734	2.658	21 4	21 4	75 E	32*	63*
6 5	16 7 20	-22 44 7	1.276	2.281	4 6	20 6	170 E	22	87	<b>107150 2001 BW<sub>10</sub></b>									
6 10	16 0 72	-22 22 2	1.313	2.304	7 2	20 8	163 E	23	86	12 27	14 42 06	-31 33 8	2.042	1.587	28 0	19 8	49 W	12*	43*
6 15	15 55 00	-22 0 5	1.356	2.326	9 7	21 0	157 E	23	86	1 1	14 58 33	-33 1 7	2.004	1.574	28 8	19 8	51 W	10*	44*
6 20	15 50 13	-21 40 6	1.405	2.348	12 0	21 2	151 E	23	86	1 6	15 15 16	-34 24 1	1.966	1.562	29 6	19 7	52 W	9*	46*
6 25	15 46 15	-21 22 9	1.459	2.369															

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

20/22	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°-26°	20/22	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°-26°
<b>107150 2001 BW<sub>10</sub></b> (continuation)									<b>18899 2000 JQ<sub>2</sub></b> (continuation)								
4 16	21 2.79	-31 8.9	1.385	1.521	40.1	19.2	77 W	5* 69*	10 3	18 2.58	+ 4 14.1	1.196	1.449	43.1	17.8	82 E	48* 56*
4 26	21 25.47	-28 17.2	1.329	1.539	40.3	19.1	81 W	8* 74*	10 13	18 29.93	+ 2 56.3	1.228	1.441	43.0	17.8	80 E	47* 55*
5 6	21 44.99	-25 17.0	1.272	1.560	40.1	19.1	85 W	11* 79*	10 23	18 59.26	+ 1 48.0	1.265	1.437	42.6	17.9	78 E	46* 53*
5 16	22 1.30	-22 11.8	1.212	1.584	39.7	19.0	90 W	15* 84*	11 2	19 30.14	+ 0 52.5	1.307	1.439	42.0	17.9	76 E	45* 51*
5 26	22 14.29	-19 4.5	1.152	1.612	38.7	18.9	96 W	19* 83	11 12	20 2.16	+ 0 12.9	1.356	1.447	41.2	18.0	74 E	45* 49*
6 5	22 23.79	-15 57.0	1.092	1.642	37.1	18.8	102 W	24* 80	11 22	20 34.81	+ 0 8.8	1.413	1.459	40.2	18.1	72	44* 47*
6 15	22 29.48	-12 51.6	1.034	1.674	34.9	18.6	109 W	29* 77	12 2	21 7.60	+ 0 12.0	1.479	1.477	39.0	18.1	70 E	44* 44*
6 25	22 31.00	- 9 50.3	0.980	1.707	31.8	18.5	118 W	34* 74	12 12	21 40.13	+ 0 2.9	1.555	1.499	37.6	18.3	68 E	44* 41*
7 5	22 28.08	- 6 56.0	0.933	1.743	27.9	18.3	127 W	38 71	12 22	22 12.03	+ 0 34.2	1.640	1.525	36.0	18.4	66 E	44* 38*
7 10	22 24.90	- 5 32.8	0.913	1.761	25.6	18.2	132 W	39 70	1 1	22 43.07	+ 1 19.3	1.733	1.555	34.3	18.5	63 E	44* 35*
7 15	22 20.59	- 4 13.3	0.897	1.779	23.1	18.1	137 W	41 68	1 11	23 13.14	+ 2 15.6	1.834	1.588	32.4	18.6	60 E	44* 32*
7 20	22 15.25	- 2 58.3	0.885	1.798	20.4	18.0	142 W	42 67	1 21	23 42.16	+ 3 20.0	1.939	1.624	30.4	18.7	57 E	43* 29*
7 25	22 8.99	- 1 48.7	0.877	1.817	17.6	17.9	147 W	43 66	<b>308108 2004 XB</b>								
7 30	22 1.99	- 0 45.3	0.875	1.836	14.8	17.9	153 W	44 65	12 27	14 43.78	-25 44.6	2.484	1.994	22.1	21.4	50 W	17* 41*
8 4	21 54.44	+ 0 11.0	0.877	1.855	12.2	17.8	157 W	45 64	1 6	15 5.35	-27 32.7	2.388	1.987	23.8	21.4	55 W	16* 47*
8 14	21 38.77	+ 1 40.0	0.900	1.894	8.6	17.7	164 W	47 62	1 16	15 27.06	-29 11.7	2.287	1.980	25.4	21.3	60 W	15* 53*
8 24	21 24.13	+ 2 37.5	0.946	1.933	9.4	17.9	162 E	48 61	2 5	16 10.32	-32 0.1	2.071	1.964	28.1	21.2	70 W	13* 64*
9 3	21 12.27	+ 3 8.1	1.016	1.972	13.0	18.3	154 E	48 61	2 15	16 31.54	-33 8.9	1.957	1.955	29.2	21.1	75 W	12* 69*
9 8	21 7.72	+ 3 15.7	1.059	1.992	15.0	18.5	149 E	48 61	2 25	16 52.15	-34 7.5	1.841	1.946	30.1	21.0	81 W	11* 74*
9 13	21 4.20	+ 3 19.6	1.106	2.011	16.9	18.6	144 E	48 61	3 7	17 11.89	-34 56.3	1.724	1.936	30.8	20.8	86 W	10* 78*
9 18	21 1.71	+ 3 21.0	1.158	2.031	18.7	18.8	140 E	48 61	3 17	17 30.38	-35 36.2	1.607	1.925	31.1	20.7	92 W	9* 80*
9 23	21 0.22	+ 3 20.9	1.214	2.050	20.2	19.0	135 E	48 61	3 27	17 47.19	-36 8.1	1.490	1.914	31.0	20.5	99 W	9* 80
9 28	20 59.68	+ 3 20.0	1.273	2.070	21.6	19.2	131 E	48 61	4 6	18 1.86	-36 33.3	1.376	1.903	30.5	20.3	105 W	8* 79
10 3	21 0.04	+ 3 19.1	1.336	2.089	22.7	19.3	126 E	48 61	4 11	18 8.21	-36 43.7	1.320	1.898	30.0	20.2	109 W	8 79
10 13	21 3.21	+ 3 19.5	1.469	2.127	24.5	19.6	118 E	48 61	4 16	18 13.79	-36 52.8	1.266	1.892	29.4	20.1	112 W	8 79
10 23	21 9.16	+ 3 26.0	1.611	2.165	25.6	19.9	110 E	48 61	4 21	18 18.53	-37 0.5	1.213	1.886	28.6	20.0	116 W	8 79
11 2	21 17.37	+ 3 40.3	1.759	2.202	26.1	20.1	103 E	49 60*	4 26	18 22.33	-37 6.9	1.161	1.880	27.6	19.8	120 W	8 79
11 12	21 27.40	+ 4 3.8	1.911	2.239	26.1	20.3	96 E	49 58*	5 1	18 25.13	-37 11.9	1.112	1.874	26.4	19.7	124 W	8 79
11 22	21 38.86	+ 4 37.0	2.065	2.275	25.7	20.5	89 E	50 54*	5 6	18 26.82	-37 15.0	1.065	1.868	25.0	19.5	129 W	8 79
12 2	21 51.44	+ 5 19.6	2.220	2.310	25.0	20.7	83 E	50 48*	5 11	18 27.32	-37 16.0	1.020	1.862	23.4	19.4	133 W	8 79
12 12	22 4.91	+ 6 11.4	2.373	2.344	24.1	20.9	76 E	51 42*	5 16	18 26.57	-37 14.2	0.979	1.856	21.5	19.2	138 W	8 79
12 22	22 19.07	+ 7 11.8	2.523	2.377	22.9	21.0	70 E	51 35*	5 21	18 24.54	-37 8.8	0.940	1.849	19.4	19.1	143 W	8 79
1 1	22 33.75	+ 8 20.1	2.669	2.410	21.6	21.1	64 E	50 29*	5 26	18 21.25	-36 58.7	0.906	1.843	17.1	18.9	148 W	8 79
1 11	22 48.86	+ 9 35.5	2.809	2.441	20.1	21.2	58 E	48 23*	5 31	18 16.76	-36 43.1	0.876	1.837	14.6	18.8	153 W	8 79
1 21	23 4.27	+ 10 57.1	2.942	2.472	18.4	21.3	53 E	45 17*	6 5	18 11.18	-36 20.9	0.850	1.831	12.0	18.6	158 W	9 80
<b>18899 2000 JQ<sub>2</sub></b>									6 10	18 4.70	-35 51.1	0.829	1.824	9.4	18.4	163 W	9 80
12 27	14 42.80	-21 3.2	3.038	2.534	17.5	20.3	51 W	22* 40*	6 15	17 57.60	-35 13.2	0.814	1.818	7.3	18.3	167 W	10 81
1 6	14 59.20	-21 40.3	2.890	2.497	19.3	20.2	57 W	22* 47*	6 20	17 50.21	-34 27.4	0.804	1.812	6.2	18.2	169 E	11 82
1 16	15 15.46	-22 8.1	2.734	2.458	21.0	20.1	63 W	22* 54*	6 25	17 42.88	-33 34.2	0.799	1.806	6.9	18.2	168 E	11 82
1 26	15 31.41	-22 25.2	2.572	2.419	22.5	19.9	70 W	22* 61*	6 30	17 35.92	-32 35.0	0.800	1.799	9.0	18.3	164	12 83
2 5	15 46.92	-22 30.2	2.404	2.378	23.8	19.8	77 W	22* 69*	7 5	17 29.63	-31 31.3	0.807	1.793	11.8	18.4	159 E	13 84
2 15	16 1.79	-22 21.4	2.235	2.337	24.8	19.6	83 W	23 76*	7 10	17 24.26	-30 25.0	0.818	1.787	14.6	18.5	154 E	15 86
2 25	16 15.77	-21 56.9	2.064	2.295	25.6	19.4	90 W	23 82*	7 15	17 19.99	-29 18.3	0.834	1.781	17.5	18.7	148 E	16 87
3 7	16 28.59	-21 14.9	1.895	2.252	25.9	19.2	98 W	24 85	7 20	17 16.92	-28 12.7	0.855	1.775	20.2	18.8	143 E	17 88
3 17	16 39.92	-20 12.8	1.729	2.208	25.8	19.0	105 W	25 84	7 25	17 15.10	-27 9.7	0.879	1.769	22.7	18.9	138 E	18 89
3 27	16 49.37	-18 48.0	1.570	2.163	25.1	18.7	113 W	26 83	7 30	17 14.51	-26 10.3	0.907	1.763	24.9	19.1	133	19 90
4 6	16 56.54	-16 57.5	1.420	2.119	23.8	18.4	121 W	28 81	8 4	17 15.10	-25 15.0	0.938	1.757	27.0	19.2	128 E	20 89
4 16	17 0.95	-14 38.3	1.281	2.073	21.8	18.1	130 W	30 79	8 14	17 19.61	-23 37.4	1.007	1.746	30.3	19.4	120 E	21 88
4 26	17 2.20	-11 48.6	1.159	2.028	19.0	17.7	139 W	33 76	8 24	17 28.03	-22 16.0	1.083	1.735	32.8	19.6	112 E	22 86
5 6	17 0.03	- 8 28.8	1.054	1.982	15.8	17.4	148 W	37 72	9 3	17 39.70	-21 7.3	1.164	1.724	34.4	19.8	105 E	24 85
5 11	16 57.64	- 6 39.0	1.010	1.959	14.1	17.2	152 W	38 71	9 13	17 54.07	-20 6.9	1.248	1.714	35.5	20.0	98 E	25 84
5 16	16 54.43	- 4 44.4	0.971	1.936	12.7	17.0	155 W	40 69	9 23	18 10.66	-19 10.4	1.334	1.705	36.0	20.2	93 E	26 82*
5 21	16 50.49	- 2 46.9	0.939	1.913	11.8	16.9	157 W	42 67	10 3	18 29.03	-18 14.1	1.420	1.697	36.1	20.3	87	27 78*
5 26	16 45.94	- 0 48.7	0.912	1.890	11.6	16.8	158 W	44 65	10 13	18 48.87	-17 14.5	1.505	1.689	35.8	20.4	82 E	27 72*
5 31	16 40.94	+ 1 7.7	0.892	1.868	12.3	16.7	157 W	46 63	10 23	19 9.77	-16 9.0	1.590	1.682	35.3	20.5	77 E	29 67*
6 5	16 35.66	+ 2 59.4	0.878	1.845	13.9	16.7	154 E	48 61	11 2	19 31.77	-14 55.6	1.673	1.676	34.5	20.6	73 E	30 61*
6 10	16 30.33	+ 4 43.8	0.869	1.822	16.0	16.8	150 E	50 59	11 12	19 54.40	-13 32.8	1.754	1.671	33.5	20.6	69 E	31 55*
6 15	16 25.16	+ 6 18.5	0.866	1.800	18.4	16.8	146 E	51 58	11 22	20 17.55	-11 59.8	1.834	1.667	32.3	20.7	65 E	32 49*
6 20	16 20.38	+ 7 41.7	0.867	1.778	20.9	16.9	141 E	53 56	12 2	20 41.08	-10 16.3	1.910	1.664	31.1	20.7	61 E	33 43*
6 25	16 16.18	+ 8 52.5	0.873	1.756	23.4	16.9	137 E	54 55	12 12	21 4.89	- 8 22.4	1.985	1.662	29.7	20.8	57 E	34 37*
7 5	16 10.09	+ 10 35.6	0.894	1.714	28.1	17.1	127 E	56 53	12 22	21 28.87	- 6 18.7	2.057	1.661	28.2	20.8	53 E	35 32*
7 15	16 7.79	+ 11 29.9	0.925	1.673	32.1	17.2	119 E	57 52	1 1	21 52.97	- 4 6.2	2.126	1.661	26.7	20.8	49 E	35 27*
7 25	16 9.62	+ 11 42.8	0.960	1.634	35.3	17.3	111 E	57 52	1 11	22 17.17	- 1 46.2	2.192	1.662	25.1	20.9	46 E	34 22*
7 30	16 12.08	+ 11 36.6	0.979	1.615	36.7	17.4	108 E	56 52	1 21	22 41.44	+ 0 39.9	2.256	1.664	23.4	20.9	42 E	

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

20/22	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°-26°	20/22	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°-26°
36282 2000 CT <sub>98</sub> (continuation)									50867 2000 GM <sub>4</sub> (continuation)								
4 11	17 47.09	-33 21.9	1.341	1.967	27.9	18.6	113 W	12 83	10 3	16 29.89	-2 39.5	3.223	2.831	17.5	20.7	58 E	33* 45*
4 16	17 52.75	-33 42.8	1.280	1.952	27.3	18.5	117 W	11 82	10 13	16 42.85	-3 36.9	3.339	2.844	16.2	20.8	53 E	31* 39*
4 21	17 57.73	-34 3.2	1.221	1.937	26.5	18.4	121 W	11 82	10 23	16 56.49	-4 27.1	3.445	2.856	14.7	20.8	47 E	29* 33*
4 26	18 1.98	-34 23.0	1.164	1.923	25.5	18.2	125 W	11 82	11 2	17 10.71	-5 9.5	3.541	2.867	13.1	20.8	41 E	27* 26*
5 1	18 5.42	-34 42.4	1.110	1.908	24.4	18.1	129 W	10 81	11 12	17 25.40	-5 43.6	3.625	2.877	11.5	20.8	36 E	25* 19*
5 6	18 7.96	-35 1.0	1.059	1.894	23.1	17.9	133 W	10 81	11 22	17 40.46	-6 8.8	3.696	2.886	9.9	20.8	30 E	22* 12*
5 11	18 9.52	-35 18.6	1.011	1.879	21.5	17.7	137 W	10 81	12 2	17 55.80	-6 24.9	3.754	2.894	8.4	20.8	25 E	19* 5*
5 16	18 10.04	-35 34.7	0.966	1.865	19.8	17.6	141 W	9 80	12 12	18 11.34	-6 31.7	3.797	2.902	7.1	20.7	21 E	15* —
5 21	18 9.48	-35 48.7	0.925	1.852	17.9	17.4	146 W	9 80	12 22	18 26.96	-6 28.9	3.827	2.908	6.0	20.7	18 E	11* —
5 26	18 7.86	-35 59.9	0.888	1.838	15.8	17.2	150 W	9 80	1 1	18 42.59	-6 16.8	3.841	2.913	5.6	20.7	17 W	7* —
5 31	18 5.20	-36 7.3	0.855	1.825	13.5	17.0	155 W	9 80	1 11	18 58.14	-5 55.4	3.840	2.917	5.8	20.7	18 W	11* —
6 5	18 1.57	-36 10.0	0.826	1.812	11.2	16.9	160 W	9 80	1 21	19 13.51	-5 25.0	3.824	2.921	6.7	20.7	20 W	14* —
6 10	17 57.11	-36 7.0	0.802	1.799	9.1	16.7	164 W	9 80	27346 2000 DN <sub>8</sub>								
6 15	17 52.03	-35 57.5	0.783	1.787	7.5	16.6	167 W	9 80	12 27	14 46.36	+13 41.2	2.674	2.423	21.5	20.9	65 W	54* 23*
6 20	17 46.62	-35 40.9	0.770	1.775	7.0	16.5	168 E	9 80	1 6	15 1.66	+14 29.0	2.591	2.448	22.3	20.9	71 W	57* 28*
6 25	17 41.16	-35 17.5	0.761	1.764	8.0	16.5	166 E	10 81	1 16	15 15.94	+15 35.3	2.505	2.472	22.8	20.8	77 W	60* 33*
6 30	17 35.96	-34 47.4	0.756	1.753	10.0	16.6	163 E	10 81	1 26	15 28.96	+17 0.9	2.416	2.494	23.1	20.8	83 W	62* 38*
7 5	17 31.28	-34 11.7	0.757	1.743	12.5	16.6	158 E	11 82	2 5	15 40.48	+18 45.8	2.328	2.514	23.1	20.7	89 W	64 41*
7 10	17 27.39	-33 31.5	0.762	1.733	15.2	16.7	153 E	11 82	2 15	15 50.21	+20 49.5	2.242	2.533	22.8	20.7	95 W	66 42*
7 15	17 24.50	-32 48.2	0.772	1.723	17.9	16.9	149 E	12 83	2 25	15 57.79	+23 10.2	2.161	2.550	22.4	20.6	101 W	68 41*
7 20	17 22.74	-32 3.1	0.785	1.714	20.5	17.0	144 E	13 84	3 7	16 2.88	+25 44.3	2.087	2.565	21.7	20.5	107 W	71 38
7 25	17 22.19	-31 17.7	0.802	1.705	22.9	17.1	139 E	14 85	3 12	16 4.37	+27 5.0	2.054	2.572	21.3	20.5	110 W	72 37
7 30	17 22.86	-30 32.7	0.822	1.698	25.2	17.2	135 E	14 85	3 17	16 5.09	+28 26.8	2.023	2.578	20.8	20.4	113 W	73 36
8 4	17 24.72	-29 48.9	0.846	1.690	27.2	17.3	130 E	15 86	3 22	16 5.01	+29 48.8	1.995	2.584	20.4	20.4	115 W	75 34
8 9	17 27.74	-29 6.7	0.871	1.683	29.0	17.4	126 E	16 87	3 27	16 4.10	+31 9.8	1.971	2.590	20.0	20.3	118 W	76 33
8 14	17 31.86	-28 26.4	0.899	1.677	30.6	17.5	122 E	17 88	4 1	16 2.34	+32 28.6	1.950	2.595	19.5	20.3	120 W	77 32
8 19	17 37.01	-27 47.8	0.929	1.672	32.0	17.6	119 E	17 88	4 6	15 59.74	+33 43.7	1.933	2.599	19.2	20.3	121 W	79 30
8 24	17 43.08	-27 10.9	0.961	1.667	33.2	17.7	115 E	18 89	4 11	15 56.30	+34 53.8	1.919	2.604	18.8	20.3	123 W	80 29
9 3	17 57.68	-26 0.5	1.029	1.659	35.1	17.9	109 E	19 90	4 16	15 52.07	+35 57.2	1.910	2.608	18.6	20.2	124 W	81 28
9 13	18 15.05	-24 52.0	1.102	1.654	36.3	18.1	103 E	20 89	4 21	15 47.13	+36 52.8	1.905	2.611	18.5	20.2	125 W	82 27
9 23	18 34.59	-23 42.2	1.180	1.652	37.0	18.2	98 E	21 88	4 26	15 41.59	+37 39.0	1.904	2.614	18.4	20.2	125 W	83 26
10 3	18 55.76	-22 28.0	1.262	1.653	37.2	18.4	93 E	23 85*	5 1	15 35.57	+38 15.1	1.908	2.617	18.4	20.2	125 W	83 26
10 13	19 18.15	-21 7.2	1.347	1.656	37.0	18.5	89 E	24 80*	5 6	15 29.22	+38 40.3	1.915	2.619	18.6	20.3	124 W	84 25
10 23	19 41.37	-19 37.8	1.435	1.663	36.5	18.7	84 E	25 75*	5 11	15 22.70	+38 53.9	1.927	2.620	18.8	20.3	123 W	84 25
11 2	20 5.09	-17 59.1	1.526	1.672	35.8	18.8	80 E	27 70*	5 16	15 16.21	+38 55.8	1.942	2.622	19.1	20.3	122 E	84 25
11 12	20 29.07	-16 10.8	1.620	1.683	34.8	18.9	76 E	29* 64*	5 21	15 9.90	+38 46.3	1.962	2.622	19.5	20.3	120 E	84 25
11 22	20 53.11	-14 13.1	1.716	1.697	33.6	19.0	72 E	31* 58*	5 26	15 3.95	+38 25.8	1.984	2.623	19.8	20.4	118 E	83 26
12 2	21 17.04	-12 6.9	1.814	1.714	32.3	19.1	68 E	33* 52*	5 31	14 58.47	+37 55.1	2.010	2.623	20.3	20.4	116 E	83 26
12 12	21 40.80	-9 53.1	1.914	1.732	30.8	19.2	64 E	35* 46*	6 5	14 53.56	+37 15.1	2.039	2.622	20.7	20.5	114 E	82 27
12 22	22 4.30	-7 33.0	2.014	1.753	29.2	19.3	60 E	36* 40*	6 10	14 49.32	+36 26.7	2.071	2.621	21.1	20.5	112 E	81 28
1 1	22 27.51	-5 8.3	2.116	1.775	27.5	19.4	57 E	37* 35*	6 15	14 45.78	+35 30.9	2.106	2.620	21.5	20.6	109 E	81 28
1 11	22 50.45	-2 40.3	2.217	1.799	25.8	19.5	53 E	37* 30*	6 20	14 42.99	+34 28.9	2.142	2.618	21.8	20.6	106 E	79 30
1 21	23 13.11	-0 10.7	2.318	1.825	23.9	19.6	49 E	36* 25*	6 25	14 40.94	+33 21.6	2.181	2.616	22.2	20.6	104 E	78 31
50867 2000 GM <sub>4</sub>									6 30	14 39.62	+32 10.1	2.221	2.614	22.4	20.7	101 E	77* 32
12 27	14 44.98	-11 55.0	2.568	2.127	21.7	19.7	53 W	30* 36*	6 35	14 37.00	+30 55.2	2.263	2.611	22.7	20.7	98 E	74* 33
1 6	15 2.91	-12 1.1	2.495	2.160	23.0	19.8	59 W	32* 43*	7 5	14 39.06	+29 37.6	2.305	2.607	22.8	20.8	95 E	71* 34
1 16	15 19.81	-11 52.4	2.415	2.193	24.0	19.7	65 W	33* 50*	7 15	14 39.76	+28 17.9	2.349	2.603	23.0	20.8	93 E	68* 36
1 26	15 35.47	-11 27.9	2.327	2.226	24.8	19.7	72 W	33* 56*	7 20	14 41.07	+26 56.9	2.393	2.599	23.0	20.9	90 E	65* 37
2 5	15 49.69	-10 47.2	2.235	2.258	25.3	19.7	79 W	34* 63*	7 25	14 42.95	+25 35.1	2.438	2.594	23.0	20.9	87 E	62* 38
2 15	16 2.19	-9 49.7	2.139	2.290	25.5	19.6	86 W	35 68*	7 30	14 45.35	+24 12.9	2.483	2.589	23.0	20.9	84 E	60* 40
2 25	16 12.70	-8 35.4	2.042	2.322	25.2	19.5	93 W	36 72*	8 4	14 48.24	+22 50.6	2.528	2.583	22.9	21.0	82 E	57* 41*
3 7	16 20.93	-7 4.4	1.947	2.353	24.4	19.4	101 W	38 71	8 9	14 51.60	+21 28.5	2.573	2.577	22.7	21.0	79 E	55* 42*
3 17	16 26.57	-5 17.7	1.856	2.384	23.1	19.3	110 W	40 69	8 14	14 55.38	+20 7.0	2.617	2.571	22.5	21.0	76 E	53* 43*
3 27	16 29.36	-3 17.4	1.773	2.413	21.3	19.2	118 W	42 67	8 19	14 59.57	+18 46.3	2.661	2.564	22.2	21.0	73 E	50* 43*
4 6	16 29.15	-1 7.1	1.702	2.443	19.0	19.1	127 W	44 65	8 24	15 4.13	+17 26.7	2.704	2.557	21.9	21.1	71 E	49* 43*
4 11	16 27.89	+0 0.2	1.672	2.457	17.7	19.0	132 W	45 64	8 29	15 9.03	+16 8.3	2.746	2.549	21.6	21.1	68 E	47* 43*
4 16	16 25.89	+1 7.7	1.646	2.471	16.3	18.9	136 W	46 63	9 3	15 14.26	+14 51.2	2.787	2.541	21.2	21.1	66 E	45* 42*
4 21	16 23.19	+2 14.4	1.626	2.485	14.9	18.9	141 W	47 62	9 8	15 19.81	+13 35.5	2.826	2.532	20.8	21.1	63 E	43* 41*
4 26	16 19.86	+3 19.0	1.611	2.499	13.5	18.8	144 W	48 61	9 13	15 25.64	+12 21.5	2.865	2.523	20.3	21.1	60 E	42* 39*
5 1	16 15.97	+4 20.5	1.602	2.513	12.3	18.8	148 W	49 60	9 18	15 31.75	+11 9.3	2.901	2.513	19.8	21.1	58 E	40* 37*
5 6	16 11.62	+5 17.7	1.598	2.526	11.3	18.7	151 W	50 59	9 23	15 38.12	+9 59.0	2.936	2.503	19.2	21.1	55 E	39* 36*
5 11	16 6.94	+6 9.4	1.601	2.540	10.6	18.7	152 W	51 58	9 28	15 44.73	+8 50.5	2.969	2.493	18.7	21.1	53 E	37* 33*
5 16	16 2.05	+6 54.7	1.610	2.553	10.4	18.7	153 W	52 57	10 3	15 51.58	+7 44.1	3.000	2.482	18.0	21.1	50 E	36* 31*
5 26	15 52.24	+8 3.4	1.648	2.578	11.2	18.8	151 E	53 56	10 8	15 58.66	+6 39.8	3.030	2.471	17.4	21.1	48 E	34* 29*
6 5	15 43.23	+8 41.0	1.7														

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

20/22	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	20/22	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°
<b>27346 2000 DN<sub>8</sub></b>										<b>48621 1995 OC</b>									
<i>(continuation)</i>																			
1 1	18 25.20	5 12.7	3.123	2.212	8.1	20.6	18 W	10*	—	12 27	14 48.41	-14 46.5	3.006	2.511	17.8	21.2	51 W	27*	37*
1 6	18 34.96	5 30.5	3.102	2.193	8.3	20.5	19 W	12*	—	1 6	15 4.26	-15 46.8	2.872	2.486	19.5	21.2	58 W	28*	44*
1 11	18 44.81	5 45.7	3.077	2.173	8.6	20.5	19 W	13*	—	1 16	15 19.85	-16 39.9	2.730	2.460	21.0	21.1	64 W	28*	51*
1 16	18 54.74	5 58.3	3.050	2.153	9.1	20.5	20 W	14*	—	1 26	15 35.03	-17 25.2	2.582	2.434	22.4	21.0	70 W	27*	59*
1 21	19 4.75	6 8.4	3.019	2.133	9.6	20.5	21 W	15*	2*	2 5	15 49.65	-18 2.4	2.430	2.407	23.5	20.8	77 W	27*	66*
<b>7818 Muirhead</b>																			
12 27	14 46.39	-2 11.3	3.374	2.949	16.2	19.8	57 W	40*	32*	2 15	16 3.49	-18 31.2	2.275	2.379	24.4	20.7	84 W	26	74*
1 6	14 58.15	-2 9.1	3.271	2.970	17.3	19.7	64 W	41*	39*	2 25	16 16.31	-18 51.4	2.118	2.350	24.9	20.5	91 W	26	80*
1 16	15 8.97	-1 54.7	3.158	2.989	18.1	19.7	71 W	43*	47*	3 7	16 27.82	-19 3.2	1.963	2.321	25.0	20.3	98 W	26	83
1 26	15 18.65	-1 27.4	3.039	3.007	18.7	19.7	79 W	44*	53*	3 17	16 37.67	-19 6.7	1.811	2.291	24.7	20.1	106 W	26	83
2 5	15 26.99	0 46.7	2.916	3.024	19.0	19.6	87 W	44	59*	3 27	16 45.48	-19 2.2	1.665	2.260	23.8	19.9	114 W	26	83
2 15	15 33.75	+0 7.6	2.792	3.040	18.9	19.5	95 W	45	63*	4 6	16 50.83	-18 50.1	1.526	2.229	22.3	19.6	122 W	26	83
2 25	15 38.70	+1 15.2	2.670	3.056	18.4	19.4	103 W	46	63	4 16	16 53.27	-18 31.0	1.398	2.197	20.0	19.3	132 W	26	83
3 7	15 41.60	+2 35.1	2.554	3.070	17.4	19.3	112 W	48	61	4 26	16 52.43	-18 5.4	1.284	2.165	16.8	19.0	142 W	27	82
3 17	15 42.27	+4 5.4	2.449	3.083	16.0	19.2	121 W	49	60	5 6	16 48.17	-17 34.2	1.187	2.132	12.8	18.7	152 W	27	82
3 27	15 40.58	+5 42.7	2.358	3.095	14.3	19.0	130 W	51	58	5 16	16 40.64	-16 58.7	1.111	2.099	8.0	18.3	163 W	28	81
4 1	15 38.86	+6 32.6	2.319	3.100	13.3	19.0	134 W	52	57	5 21	16 35.86	-16 40.0	1.081	2.083	5.4	18.1	169 W	28	81
4 6	15 36.57	+7 22.3	2.285	3.106	12.3	18.9	138 W	52	57	5 26	16 30.60	-16 21.4	1.057	2.066	3.2	17.9	173 W	29	80
4 11	15 33.74	+8 11.1	2.256	3.111	11.3	18.8	142 W	53	56	6 5	16 19.33	-15 46.0	1.026	2.033	5.1	17.9	170 E	29	80
4 16	15 30.43	+8 58.1	2.234	3.115	10.4	18.8	146 W	54	55	6 10	16 13.73	-15 30.5	1.020	2.016	7.8	18.0	164 E	29	80
4 21	15 26.70	+9 42.4	2.218	3.120	9.6	18.7	149 W	55	54	6 15	16 8.46	-15 17.3	1.020	2.000	10.7	18.1	159 E	30	79
4 26	15 22.62	+10 23.1	2.208	3.124	9.1	18.7	151 W	55	54	6 20	16 3.70	-15 7.0	1.025	1.983	13.6	18.2	153 E	30	79
5 1	15 18.29	+10 59.5	2.205	3.128	8.8	18.7	152 W	56	53	6 25	15 59.62	-15 0.1	1.034	1.967	16.3	18.3	147 E	30	79
5 6	15 13.80	+11 31.0	2.208	3.132	8.8	18.7	152 W	57	52	7 5	15 53.97	-14 57.5	1.066	1.934	21.3	18.5	136 E	30	79
5 16	15 4.75	+12 16.9	2.235	3.139	9.8	18.8	148 E	57	52	7 15	15 52.13	-15 10.5	1.112	1.902	25.4	18.7	127 E	30	79
5 26	14 56.28	+12 38.3	2.287	3.145	11.5	18.9	142 E	58	51	7 25	15 54.27	-15 38.0	1.168	1.870	28.8	18.9	118 E	29*	80
6 5	14 49.09	+12 35.8	2.361	3.149	13.4	19.0	134 E	58	51	8 4	16 0.21	-16 17.2	1.230	1.839	31.3	19.0	110 E	28*	80
6 15	14 43.63	+12 11.7	2.454	3.153	15.2	19.2	125 E	57	52	8 14	16 9.65	-17 5.0	1.295	1.809	33.1	19.1	102 E	26*	81
6 25	14 40.20	+11 29.5	2.561	3.156	16.7	19.3	117 E	56*	53	8 24	16 22.28	-17 57.5	1.363	1.780	34.4	19.2	96 E	25*	82
7 5	14 38.84	+10 33.2	2.680	3.157	17.8	19.5	109 E	55*	53	9 3	16 37.72	-18 51.1	1.431	1.752	35.2	19.3	90 E	24*	81*
7 15	14 39.51	+9 26.3	2.806	3.158	18.4	19.6	101 E	51*	55	9 13	16 55.71	-19 41.9	1.498	1.726	35.5	19.4	85 E	23*	77*
7 25	14 42.08	+8 12.2	2.935	3.157	18.7	19.7	93 E	47*	56	9 23	17 15.97	-20 26.5	1.564	1.702	35.5	19.5	80 E	22*	73*
8 4	14 46.35	+6 53.6	3.066	3.156	18.7	19.8	86 E	44*	57*	10 3	17 38.20	-21 1.5	1.629	1.680	35.2	19.5	75 E	22*	68*
8 14	14 52.16	+5 32.3	3.195	3.153	18.4	19.9	78 E	40*	57*	10 13	18 2.18	-21 23.7	1.692	1.660	34.6	19.6	71 E	22*	64*
8 24	14 59.34	+4 10.4	3.320	3.149	17.7	19.9	72 E	37*	55*	10 23	18 27.61	-21 30.6	1.753	1.642	33.9	19.6	67 E	22*	60*
9 3	15 7.73	+2 49.3	3.438	3.145	16.9	20.0	65 E	34*	50*	11 2	18 54.20	-21 19.9	1.814	1.627	33.0	19.6	63 E	22*	55*
9 13	15 17.19	+1 30.0	3.548	3.139	15.8	20.0	58 E	32*	45*	11 12	19 21.69	-20 50.1	1.874	1.615	31.9	19.7	60 E	22*	51*
9 23	15 27.59	+0 13.7	3.649	3.132	14.6	20.0	52 E	29*	40*	11 22	19 49.76	-20 0.5	1.933	1.606	30.7	19.7	56 E	23*	46*
10 3	15 38.83	0 58.7	3.738	3.125	13.3	20.0	46 E	27*	33*	12 2	20 18.14	-18 51.1	1.991	1.600	29.4	19.7	53 E	24*	41*
10 13	15 50.82	-2 6.4	3.815	3.116	11.8	20.0	40 E	25*	27*	12 12	20 46.60	-17 22.6	2.050	1.597	28.0	19.7	50 E	24*	37*
10 23	16 3.46	-3 8.5	3.879	3.106	10.4	20.0	34 E	22*	20*	12 22	21 14.92	-15 36.7	2.109	1.597	26.5	19.7	46 E	25*	32*
11 2	16 16.67	-4 4.5	3.929	3.095	8.9	19.9	29 E	20*	13*	1 1	21 42.96	-13 35.3	2.169	1.601	24.9	19.8	43 E	25*	28*
11 12	16 30.38	-4 53.7	3.963	3.083	7.4	19.9	24 E	17*	6*	1 11	22 10.62	-11 20.9	2.229	1.607	23.2	19.8	40 E	25*	24*
11 22	16 44.48	-5 35.5	3.982	3.070	6.2	19.8	20 E	14*	—	1 21	22 37.84	-8 56.3	2.290	1.617	21.5	19.8	37 E	24*	21*
12 2	16 58.92	-6 9.4	3.985	3.056	5.4	19.8	17 E	10*	—	<b>244115 2001 VG<sub>4</sub></b>									
12 12	17 13.61	-6 34.9	3.972	3.041	5.3	19.7	16 W	6*	—	12 27	14 48.56	-26 49.3	2.766	2.239	19.2	20.9	48 W	16*	40*
12 22	17 28.45	-6 51.9	3.943	3.025	5.8	19.7	18 W	11*	—	1 6	15 9.24	-27 48.7	2.629	2.195	21.2	20.8	54 W	16*	46*
1 1	17 43.37	-7 0.0	3.899	3.008	7.0	19.8	22 W	16*	—	1 16	15 30.33	-28 37.8	2.486	2.150	23.1	20.7	59 W	16*	52*
1 11	17 58.27	-6 59.1	3.839	2.989	8.4	19.8	26 W	19*	6*	1 26	15 51.73	-29 14.7	2.337	2.106	24.9	20.6	64 W	15*	58*
1 21	18 13.05	-6 49.3	3.764	2.970	10.0	19.8	32 W	22*	14*	2 5	16 13.36	-29 37.5	2.186	2.060	26.6	20.5	70 W	15*	63*
<b>191035 2002 CR<sub>9</sub></b>																			
12 27	14 46.57	-16 17.3	2.920	2.428	18.4	21.2	51 W	26*	38*	2 10	16 24.23	-29 42.9	2.109	2.037	27.5	20.4	72 W	15*	66*
1 6	15 1.90	-16 36.0	2.840	2.461	19.8	21.2	58 W	27*	45*	2 15	16 35.10	-29 44.1	2.032	2.014	28.3	20.3	75 W	15*	69*
1 16	15 16.20	-16 43.2	2.751	2.494	20.9	21.2	65 W	28*	52*	2 20	16 45.96	-29 40.5	1.955	1.991	29.0	20.2	78 W	15*	72*
1 26	15 29.26	-16 38.3	2.653	2.526	21.7	21.2	72 W	28*	60*	2 25	16 56.78	-29 32.1	1.878	1.968	29.7	20.1	80 W	15*	74*
2 5	15 40.86	-16 20.7	2.548	2.557	22.3	21.1	79 W	29	68*	3 2	17 7.54	-29 18.5	1.801	1.945	30.4	20.0	83 W	16*	77*
2 15	15 50.76	-15 50.1	2.439	2.587	22.4	21.1	87 W	29	75*	3 7	17 18.22	-28 59.3	1.725	1.922	31.0	19.9	86 W	16*	79*
2 25	15 58.68	-15 5.9	2.328	2.617	22.1	21.0	96 W	30	79*	3 12	17 28.79	-28 34.2	1.649	1.898	31.5	19.8	88 W	16*	82*
3 7	16 4.36	-14 8.1	2.219	2.646	21.3	20.9	104 W	31	78	3 17	17 39.20	-28 2.8	1.574	1.875	32.0	19.7	91 W	17*	85*
3 17	16 7.54	-12 56.7	2.115	2.675	19.9	20.8	114 W	32	77	3 22	17 49.42	-27 24.6	1.500	1.852	32.5	19.6	94 W	17*	87*
3 27	16 8.01	-11 32.5	2.020	2.702	17.9	20.6	124 W	33	76	3 27	17 59.43	-26 39.3	1.427	1.829	32.8	19.5	96 W	18*	89
4 6	16 5.73	-9 57.2	1.939	2.729	15.4	20.5	134 W	35	74	4 1	18 9.20	-25 46.4	1.355	1.807	33.1	19.3	99 W	19*	90
4 16	16 0.79	-8 14.0	1.877	2.755	12.3	20.3	144 W	37	72	4 6	18 18.68	-24 45.3	1.285	1.784	33.3	19.2	102 W	20*	89
4 21																			

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

20/22	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	20/22	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°
<b>244115 2001 VG<sub>4</sub></b>										<b>6500 Kodaira</b>									
<i>(continuation)</i>										<i>(continuation)</i>									
7 15	19 22.17	+27 3.2	0.548	1.438	32.1	16.8	131 E	72	37	7 15	14 41.98	+ 9 48.9	3.308	3.644	15.9	19.0	101 E	52*	54
7 20	19 18.94	+29 5.5	0.550	1.430	33.3	16.9	129 E	74	35	7 25	14 44.02	+ 8 59.1	3.463	3.664	16.1	19.1	93 E	48*	55
7 25	19 15.98	+30 44.4	0.555	1.423	34.5	16.9	127 E	76	33	8 4	14 47.54	+ 8 4.3	3.620	3.683	15.9	19.2	86 E	45*	56*
7 30	19 13.54	+32 0.2	0.562	1.418	35.6	17.0	126 E	77	32	8 14	14 52.40	+ 7 6.4	3.774	3.702	15.5	19.3	78 E	42*	55*
8 4	19 11.82	+32 53.6	0.570	1.414	36.5	17.0	124 E	78	31	8 24	14 58.44	+ 6 7.2	3.924	3.720	14.9	19.4	71 E	39*	53*
8 9	19 11.01	+33 25.9	0.579	1.412	37.3	17.1	122 E	78	31	9 3	15 5.52	+ 5 8.2	4.067	3.737	14.0	19.4	64 E	36*	48*
8 14	19 11.29	+33 39.0	0.589	1.411	37.9	17.1	121 E	79	30	9 13	15 13.50	+ 4 10.4	4.200	3.753	13.0	19.5	57 E	33*	43*
8 19	19 12.74	+33 35.0	0.600	1.411	38.4	17.2	120 E	79	30	9 23	15 22.27	+ 3 15.2	4.322	3.768	11.9	19.5	51 E	31*	37*
8 24	19 15.42	+33 15.8	0.612	1.413	38.8	17.2	119 E	78	31	10 3	15 31.72	+ 2 23.3	4.432	3.783	10.7	19.5	44 E	29*	30*
8 29	19 19.32	+32 43.3	0.625	1.416	39.0	17.3	118 E	78	31	10 13	15 41.75	+ 1 35.6	4.527	3.796	9.4	19.5	38 E	26*	23*
9 3	19 24.42	+31 58.9	0.638	1.420	39.1	17.3	117 E	77	32	10 23	15 52.25	+ 0 53.0	4.607	3.809	8.1	19.5	33 E	24*	16*
9 8	19 30.68	+31 4.5	0.652	1.426	39.1	17.4	117 E	76	33	11 2	16 3.15	+ 0 16.0	4.671	3.821	7.0	19.5	28 E	21*	8*
9 13	19 38.07	+30 1.5	0.667	1.433	39.0	17.5	116 E	75	34	11 12	16 14.35	+ 0 14.6	4.717	3.832	6.0	19.5	24 E	18*	1*
9 18	19 46.48	+28 51.9	0.684	1.441	38.8	17.5	116 E	74	35	11 22	16 25.76	+ 0 38.3	4.746	3.843	5.4	19.4	21 E	14*	—
9 23	19 55.82	+27 37.0	0.702	1.451	38.6	17.6	115 E	73	36	12 2	16 37.29	+ 0 54.6	4.756	3.852	5.3	19.4	21 E	10*	—
9 28	20 5.97	+26 18.3	0.722	1.462	38.4	17.7	115 E	71	38	12 12	16 48.85	+ 1 3.0	4.748	3.861	5.7	19.5	23 W	15*	—
10 3	20 16.84	+24 57.1	0.744	1.474	38.2	17.7	115 E	70	39	12 22	17 0.33	+ 1 3.1	4.723	3.869	6.6	19.5	27 W	20*	—
10 8	20 28.33	+23 34.9	0.768	1.487	37.9	17.8	114 E	69	40	1 1	17 11.63	+ 0 54.6	4.679	3.876	7.6	19.5	32 W	25*	4*
10 13	20 40.35	+22 13.3	0.795	1.501	37.7	17.9	113 E	67	42	1 11	17 22.64	+ 0 37.4	4.619	3.882	8.8	19.6	37 W	30*	12*
10 18	20 52.77	+20 53.7	0.824	1.516	37.4	18.0	112 E	66	43	1 21	17 33.25	+ 0 11.3	4.543	3.888	10.0	19.6	43 W	33*	20*
10 23	21 5.50	+19 37.2	0.856	1.531	37.2	18.1	111 E	65	44	<b>194513 2001 XR<sub>2</sub></b>									
10 28	21 18.43	+18 24.8	0.891	1.548	37.0	18.2	110 E	63	46	12 27	14 50.21	-34 30.1	3.496	2.923	14.4	21.0	47 W	8*	41*
11 2	21 31.51	+17 17.3	0.930	1.566	36.8	18.3	109 E	62	47	1 6	15 5.16	-35 59.4	3.380	2.908	15.8	20.9	54 W	8*	48*
11 7	21 44.65	+16 15.5	0.971	1.584	36.6	18.4	108 E	61	48*	1 16	15 19.75	-37 27.0	3.254	2.893	17.2	20.9	60 W	7*	54*
11 12	21 57.81	+15 20.0	1.016	1.603	36.4	18.5	106 E	60	49*	1 26	15 33.79	-38 52.9	3.119	2.877	18.3	20.8	67 W	6*	60*
11 17	22 10.93	+14 31.0	1.063	1.622	36.2	18.7	104 E	60	49*	2 5	15 47.05	-40 17.2	2.977	2.860	19.3	20.7	74 W	5*	66*
11 22	22 23.95	+13 48.7	1.114	1.642	35.9	18.8	103 E	59	49*	2 15	15 59.28	-41 40.3	2.831	2.841	20.1	20.6	81 W	3	70*
12 2	22 49.59	+12 43.5	1.224	1.684	35.4	19.0	99 E	58	49*	2 25	16 10.14	-43 2.3	2.682	2.822	20.5	20.5	88 W	2	72*
12 12	23 14.61	+12 2.9	1.345	1.727	34.6	19.3	94 E	57	47*	3 7	16 19.25	-44 23.3	2.532	2.802	20.7	20.4	95 W	1	72
12 22	23 38.92	+11 44.0	1.475	1.771	33.7	19.5	90 E	57	45*	3 12	16 23.00	-45 3.5	2.458	2.791	20.6	20.3	99 W	—	71
1 1	0 2.52	+11 43.3	1.613	1.816	32.6	19.7	85 E	57	42*	3 17	16 26.13	-45 43.2	2.385	2.780	20.4	20.2	103 W	—	70
1 11	0 25.48	+11 57.2	1.756	1.862	31.4	19.9	80 E	57*	39*	3 22	16 28.58	-46 22.3	2.313	2.769	20.2	20.1	107 W	—	70
1 21	0 47.84	+12 22.3	1.903	1.908	29.9	20.1	75 E	56*	36*	3 27	16 30.27	-47 0.5	2.243	2.758	19.8	20.0	111 W	—	69
<b>306659 2000 ST<sub>216</sub></b>										4 1	16 31.14	-47 37.7	2.175	2.747	19.3	20.0	115 W	—	68
12 27	14 48.75	-10 27.8	2.699	2.244	20.4	21.0	53 W	31*	35*	4 6	16 31.13	-48 13.3	2.109	2.735	18.7	19.9	119 W	—	68
1 6	15 4.44	-11 12.0	2.640	2.293	21.5	21.1	59 W	32*	42*	4 11	16 30.17	-48 46.7	2.046	2.723	18.0	19.9	123 W	—	67
1 16	15 18.91	-11 44.7	2.571	2.341	22.5	21.1	65 W	33*	50*	4 16	16 28.20	-49 17.1	1.986	2.711	17.2	19.7	127 W	—	67
1 26	15 31.97	-12 5.9	2.494	2.389	23.1	21.1	72 W	33*	57*	4 21	16 25.22	-49 43.9	1.930	2.698	16.3	19.6	131 W	—	66
2 5	15 43.42	-12 15.7	2.410	2.436	23.5	21.1	80 W	33*	65*	4 26	16 21.22	-50 5.8	1.878	2.686	15.3	19.5	135 W	—	66
2 15	15 53.00	-12 14.4	2.320	2.482	23.4	21.0	88 W	33	72*	5 1	16 16.27	-50 22.1	1.830	2.673	14.4	19.4	139 W	—	66
2 25	16 0.43	-12 2.5	2.228	2.527	22.9	20.9	96 W	33	76*	5 6	16 10.42	-50 31.6	1.788	2.660	13.4	19.3	142 W	—	65
3 7	16 5.46	-11 40.6	2.137	2.572	21.9	20.9	105 W	33	76	5 11	16 3.82	-50 33.2	1.751	2.646	12.5	19.2	146 W	—	65
3 17	16 7.83	-11 9.5	2.049	2.615	20.4	20.8	114 W	34	75	5 16	15 56.66	-50 26.1	1.719	2.633	11.7	19.1	148 W	—	66
3 27	16 7.36	-10 30.6	1.970	2.658	18.2	20.6	124 W	34	75	5 21	15 49.16	-50 9.9	1.693	2.619	11.2	19.0	150 E	—	66
4 6	16 4.02	-9 45.7	1.904	2.699	15.4	20.5	134 W	35	74	5 26	15 41.59	-49 44.4	1.673	2.605	11.0	19.0	151 E	—	66
4 16	15 57.97	-8 57.2	1.856	2.739	12.1	20.4	145 W	36	73	5 31	15 34.19	-49 10.0	1.660	2.590	11.1	19.0	150 E	—	67
4 26	15 49.70	-8 8.8	1.830	2.779	8.5	20.2	156 W	37	72	6 5	15 27.21	-48 27.3	1.652	2.576	11.7	19.0	149 E	—	68
5 6	15 39.95	-7 24.3	1.830	2.817	5.3	20.1	165 W	38	71	6 10	15 20.85	-47 37.3	1.650	2.561	12.5	19.0	147 E	—	68
5 16	15 29.68	-6 47.9	1.858	2.854	4.3	20.1	168 E	38	71	6 15	15 15.30	-46 41.5	1.655	2.546	13.6	19.0	144 E	—	69
5 26	15 19.91	-6 22.8	1.914	2.890	6.6	20.3	161 E	39	70	6 20	15 10.69	-45 41.5	1.664	2.531	14.9	19.1	140 E	—	70
6 5	15 11.48	-6 11.0	1.997	2.925	9.7	20.6	151 E	39	70	6 25	15 7.08	-44 38.8	1.679	2.516	16.2	19.1	136 E	—	71
6 15	15 4.99	-6 12.9	2.104	2.959	12.6	20.8	141 E	39	70	6 30	15 4.50	-43 35.0	1.699	2.500	17.5	19.2	132 E	—	72
6 25	15 0.76	-6 27.8	2.231	2.992	15.0	21.1	130 E	39	70	7 5	15 2.95	-42 31.3	1.723	2.484	18.7	19.2	128 W	2*	73
7 5	14 58.83	-6 53.8	2.374	3.024	16.8	21.3	121 E	38*	71	7 10	15 2.40	-41 28.9	1.751	2.468	20.0	19.3	124 E	3*	75
7 15	14 59.12	-7 29.0	2.528	3.055	18.0	21.5	112 E	36*	71	7 15	15 2.83	-40 28.7	1.782	2.452	21.1	19.3	120 E	4*	76
<b>6500 Kodaira</b>										7 20	15 4.17	-39 31.4	1.817	2.436	22.1	19.4	116 E	4*	76
12 27	14 50.21	- 6 11.6	3.534	3.061	15.1	18.7	54 W	35*	33*	7 25	15 6.37	-38 37.5	1.853	2.419	23.0	19.5	112 E	5*	77
1 6	15 1.44	- 5 58.8	3.444	3.098	16.2	18.7	61 W	38*	40*	7 30	15 9.36	-37 47.2	1.892	2.402	23.8	19.5	108 E	5*	78
1 16	15 11.65	- 5 34.4	3.345	3.134	17.1	18.7	69 W	39*	48*	8 4	15 13.09	-37 0.5	1.933	2.385	24.4	19.6	104 E	5*	79
1 26	15 20.64	- 4 57.5	3.238	3.169	17.6	18.7	77 W	40*	55*	8 14	15 22.56	-35 38.1	2.017	2.351	25.4	19.6	96 E	6*	80*
2 5	15 28.23	- 4 7.8	3.127	3.204	17.9	18.6	86 W	41	62*	8 24	15 34.37	-34 29.0	2.104	2.316	25.9	19.7	89 E	6*	78*
2 15	15 34.21	- 3 5.1	3.014	3.238	17.7	18.6	94 W	42	66*	9 3	15 48.19	-33 30.7	2.190	2.280	26.0	19.8	82 E	6*	73*