

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	19/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°
<b>57878 2001 YZ<sub>148</sub></b>										<b>438238 2005 VW<sub>29</sub></b>									
12 23	6 23.41	+9 6.6	1.058	2.024	7.3	17.4	165W	54	55	12 23	6 24.26	+24 34.4	1.008	1.990	2.5	19.7	175W	70	39
1 2	6 12.47	+9 11.3	1.095	2.058	7.6	17.5	164E	54	55	12 28	6 18.04	+24 49.3	1.023	2.006	1.0	19.6	178E	70	39
1 12	6 3.22	+9 34.0	1.156	2.092	11.1	17.8	156E	55	54	1 2	6 12.05	+25 2.2	1.044	2.022	4.0	19.9	172E	70	39
1 22	5 56.79	+10 10.3	1.240	2.127	15.1	18.1	146E	55	54	1 7	6 6.55	+25 13.1	1.072	2.039	6.9	20.1	166E	70	39
1 27	5 54.83	+10 32.0	1.290	2.144	16.9	18.3	141E	56	53	1 12	6 1.74	+25 22.0	1.105	2.055	9.7	20.3	159E	70	39
2 1	5 53.75	+10 55.2	1.344	2.162	18.6	18.5	136E	56	53	1 17	5 57.74	+25 29.2	1.145	2.072	12.3	20.5	153E	70	39
2 6	5 53.54	+11 19.4	1.402	2.179	20.0	18.6	131E	56	53	1 22	5 54.67	+25 35.0	1.190	2.088	14.6	20.7	148E	71	38
2 11	5 54.17	+11 43.9	1.464	2.196	21.3	18.8	126E	57	52	1 27	5 52.57	+25 39.7	1.239	2.105	16.7	20.9	142E	71	38
2 21	5 57.73	+12 32.6	1.596	2.231	23.2	19.1	117E	58	51	2 1	5 51.47	+25 43.5	1.294	2.121	18.6	21.0	137E	71	38
3 2	6 4.05	+13 18.3	1.738	2.265	24.4	19.3	109E	58	51	2 6	5 51.36	+25 46.6	1.352	2.138	20.2	21.2	132E	71	38
3 12	6 12.68	+13 58.7	1.887	2.299	25.1	19.5	101E	59	50	2 11	5 52.17	+25 49.2	1.413	2.154	21.5	21.4	127E	71	38
3 22	6 23.20	+14 32.3	2.040	2.333	25.2	19.7	94E	59	49*	<b>310434 2000 AP<sub>146</sub></b>									
4 1	6 35.25	+14 58.0	2.195	2.366	24.9	19.9	87E	57*	49*	12 23	6 24.31	+28 20.3	2.029	3.008	2.3	19.3	173W	73	36
4 11	6 48.49	+15 15.2	2.350	2.399	24.3	20.1	81E	54*	48*	12 28	6 17.92	+27 56.5	2.010	2.991	1.6	19.2	175E	73	36
4 21	7 2.66	+15 23.3	2.504	2.432	23.4	20.2	74E	49*	46*	1 2	6 11.51	+27 30.1	1.998	2.973	3.0	19.3	171E	73	36
5 1	7 17.55	+15 22.3	2.654	2.464	22.3	20.3	68E	43*	45*	1 7	6 5.25	+27 1.5	1.995	2.955	5.0	19.4	165E	72	37
5 11	7 32.94	+15 12.2	2.800	2.495	21.0	20.5	62E	36*	43*	1 12	5 59.29	+26 31.2	2.000	2.937	7.0	19.5	159E	72	37
5 21	7 48.68	+14 53.2	2.940	2.525	19.5	20.5	56E	30*	41*	1 17	5 53.76	+25 59.6	2.011	2.919	9.0	19.5	152E	71	38
5 31	8 4.66	+14 25.7	3.073	2.555	17.9	20.6	51E	23*	38*	1 22	5 48.78	+25 27.4	2.030	2.901	10.9	19.6	146E	70	39
6 10	8 20.75	+13 50.0	3.198	2.584	16.2	20.7	45E	17*	35*	1 27	5 44.45	+24 55.0	2.055	2.882	12.6	19.7	140E	70	39
6 20	8 36.88	+13 6.8	3.314	2.613	14.4	20.7	40E	12*	32*	2 1	5 40.85	+24 23.1	2.086	2.863	14.3	19.8	134E	69	40
6 30	8 52.97	+12 16.5	3.419	2.640	12.5	20.7	34E	7*	27*	2 11	5 35.94	+23 22.4	2.162	2.824	17.0	19.9	123E	68	41
7 10	9 8.95	+11 19.8	3.514	2.667	10.6	20.7	29E	3*	22*	2 21	5 34.12	+22 27.3	2.252	2.785	19.2	20.1	112E	67	42
7 20	9 24.81	+10 17.4	3.597	2.693	8.6	20.7	23E	—	17*	3 2	5 35.27	+21 38.5	2.351	2.744	20.6	20.2	103E	67	42
7 30	9 40.49	+9 9.9	3.667	2.719	6.6	20.7	18E	—	12*	3 12	5 39.10	+20 55.6	2.453	2.703	21.5	20.3	94E	66*	43*
8 9	9 55.96	+7 58.1	3.724	2.743	4.6	20.6	13E	—	6*	3 22	5 45.30	+20 16.9	2.555	2.660	21.9	20.3	85E	63*	42*
8 19	10 11.22	+6 42.6	3.767	2.767	2.7	20.6	7E	—	1*	4 1	5 53.57	+19 40.8	2.653	2.617	21.8	20.4	77E	57*	42*
8 29	10 26.23	+5 24.2	3.796	2.789	1.5	20.5	4W	—	—	4 11	6 3.61	+19 5.4	2.744	2.573	21.4	20.4	70E	51*	40*
9 8	10 40.97	+4 3.6	3.810	2.811	2.4	20.6	7W	—	—	4 21	6 15.18	+18 28.8	2.827	2.528	20.7	20.4	63E	43*	39*
9 18	10 55.43	+2 41.5	3.808	2.832	4.2	20.7	12W	3*	4*	5 1	6 28.08	+17 49.2	2.899	2.482	19.7	20.4	56E	36*	37*
9 28	11 9.58	+1 18.8	3.792	2.852	6.1	20.8	18W	9*	8*	5 11	6 42.10	+17 5.0	2.961	2.436	18.5	20.3	50E	29*	35*
10 8	11 23.39	+0 3.8	3.760	2.872	8.0	20.9	24W	14*	12*	5 21	6 57.10	+16 14.9	3.010	2.389	17.1	20.3	44E	22*	32*
10 18	11 36.82	+1 25.6	3.712	2.890	9.8	21.0	30W	20*	16*	5 31	7 12.97	+15 17.6	3.047	2.341	15.7	20.2	39E	15*	29*
10 28	11 49.81	+2 45.5	3.650	2.907	11.6	21.0	36W	25*	21*	6 10	7 29.57	+14 11.9	3.072	2.293	14.1	20.1	33E	9*	26*
11 7	12 2.30	+4 2.9	3.574	2.924	13.3	21.1	43W	29*	25*	6 20	7 46.84	+12 57.1	3.084	2.244	12.5	20.0	28E	3*	22*
11 17	12 14.22	+5 16.8	3.483	2.940	14.8	21.1	50W	33*	31*	6 30	8 4.71	+11 32.1	3.084	2.195	10.9	19.9	24E	—	18*
11 27	12 25.45	+6 26.2	3.380	2.954	16.2	21.1	57W	35*	37*	7 10	8 23.12	+9 56.5	3.073	2.145	9.3	19.8	20E	—	14*
12 7	12 35.87	+7 30.0	3.266	2.968	17.3	21.0	64W	37*	44*	7 20	8 42.05	+8 9.6	3.051	2.096	7.9	19.7	16E	—	9*
12 17	12 45.33	+8 27.3	3.143	2.981	18.2	21.0	72W	37*	51*	7 30	9 1.50	+6 11.0	3.019	2.047	6.7	19.6	14E	—	5*
12 27	12 53.63	+9 16.8	3.012	2.993	18.8	20.9	79W	36	59*	8 9	9 21.44	+4 0.6	2.978	1.997	6.0	19.4	12E	—	—
1 6	13 0.57	+9 57.1	2.876	3.004	19.1	20.9	88W	35	67*	8 19	9 41.94	+1 38.3	2.930	1.949	6.0	19.4	12W	—	1*
1 16	13 5.92	+10 26.9	2.738	3.014	18.9	20.7	97W	35	73*	8 29	10 3.03	+0 55.7	2.874	1.900	6.5	19.3	12W	—	5*
<b>397195 2006 BO<sub>149</sub></b>										<b>438238 2005 VW<sub>29</sub></b>									
12 23	6 23.49	+23 47.5	0.763	1.602	26.9	18.6	132W	21	88	9 8	10 24.78	+3 40.9	2.814	1.853	7.6	19.2	14W	—	8*
12 28	6 20.00	+22 48.9	0.756	1.603	26.3	18.6	134E	22	87	9 18	10 47.30	+6 36.4	2.750	1.807	8.9	19.2	16W	—	10*
1 2	6 16.56	+21 29.7	0.752	1.605	25.7	18.6	135E	24	85	9 28	11 10.71	+9 41.0	2.683	1.762	10.4	19.1	19W	—	13*
1 7	6 13.41	+19 50.9	0.751	1.608	25.4	18.6	136E	25	84	10 8	11 35.15	+12 52.5	2.616	1.719	11.9	19.1	21W	3*	15*
1 12	6 10.77	+17 54.4	0.754	1.612	25.2	18.6	136E	27	82	10 18	12 0.82	+16 8.6	2.549	1.679	13.5	19.0	23W	4*	17*
1 17	6 8.79	+15 42.9	0.761	1.617	25.3	18.6	135E	29	80	10 28	12 27.88	+19 25.7	2.484	1.641	15.0	19.0	25W	6*	19*
1 22	6 7.63	+13 19.3	0.772	1.622	25.6	18.7	135E	32	77	11 2	12 42.00	+21 3.3	2.452	1.623	15.7	19.0	26W	6*	20*
1 27	6 7.39	+10 47.1	0.788	1.629	26.1	18.7	133E	34	75	11 7	12 56.53	+22 39.4	2.421	1.606	16.4	18.9	27W	6*	21*
2 1	6 8.14	+8 9.8	0.807	1.636	26.8	18.8	132E	37	72	11 12	13 11.52	+24 13.4	2.392	1.590	17.1	18.9	28W	7*	22*
2 6	6 9.89	+5 31.1	0.832	1.644	27.6	18.9	129E	39	70	11 17	13 26.96	+25 44.5	2.363	1.575	17.8	18.9	29W	7*	23*
2 11	6 12.63	+2 54.1	0.860	1.653	28.5	19.0	127E	42	67	11 22	13 42.87	+27 12.0	2.335	1.561	18.5	18.9	30W	7*	23*
2 16	6 16.32	+0 21.3	0.892	1.663	29.4	19.1	124E	45	64	11 27	13 59.25	+28 35.0	2.309	1.547	19.1	18.8	31W	6*	24*
2 21	6 20.90	+2 5.2	0.928	1.673	30.3	19.3	121E	47	62	12 2	14 16.10	+29 52.6	2.284	1.535	19.7	18.8	32W	6*	25*
2 26	6 26.32	+4 23.8	0.968	1.684	31.1	19.4	119E	49	60	12 7	14 33.41	+31 4.1	2.260	1.525	20.4	18.8	33W	6*	26*
3 2	6 32.53	+6 33.2	1.012	1.695	31.8	19.5	116E												

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/20	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	19/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°
<b>415027 2011 SG<sub>5</sub></b>										<b>338085 2002 PH<sub>141</sub></b>									
<i>(continuation)</i>										<i>(continuation)</i>									
1 22	5 27.24	-20 33.0	0.913	1.665	29.9	20.4	123 E	24	85	1 12	6 2.51	+25 2.3	1.152	2.101	9.4	19.5	160 E	70	39
1 27	5 20.68	-20 9.1	0.931	1.648	31.6	20.5	119 E	25	84	1 17	5 58.22	+24 43.2	1.190	2.117	12.0	19.7	154 E	70	39
2 1	5 15.53	-19 34.3	0.951	1.630	33.3	20.5	115 E	25	84	1 22	5 54.85	+24 24.6	1.234	2.132	14.3	19.9	148 E	69	40
2 6	5 11.79	-18 50.8	0.973	1.612	34.9	20.6	111 E	26	83	2 1	5 51.07	+23 50.7	1.338	2.163	18.2	20.2	137 E	69	40
2 11	5 9.44	-18 0.7	0.995	1.592	36.4	20.7	107 E	27	82	2 11	5 51.14	+23 22.2	1.457	2.193	21.2	20.6	127 E	68	41
2 16	5 8.42	-17 5.9	1.017	1.572	37.7	20.7	103 E	28	81	2 21	5 54.65	+22 58.8	1.589	2.223	23.3	20.8	117 E	68	41
2 21	5 8.65	-16 7.7	1.039	1.551	38.9	20.8	100 E	29	80	3 2	6 1.11	+22 39.2	1.730	2.252	24.6	21.1	109 E	68	41
2 26	5 10.08	-15 7.3	1.061	1.529	40.0	20.8	96 E	30	79*	3 12	6 10.00	+22 21.4	1.878	2.282	25.3	21.3	101 E	67	42
3 2	5 12.62	-14 5.8	1.081	1.506	41.1	20.9	93 E	31	77*	<b>334352 2001 YF<sub>52</sub></b>									
3 7	5 16.19	-13 3.9	1.099	1.483	42.0	20.9	90 E	32	75*	12 23	6 27.44	+22 10.0	1.403	2.384	2.4	18.4	174 W	67	42
3 12	5 20.71	-12 2.2	1.116	1.458	42.9	20.9	87 E	33	73*	12 28	6 21.17	+21 40.8	1.376	2.359	0.8	18.2	178 E	67	42
3 17	5 26.11	-11 1.2	1.131	1.433	43.7	20.9	85 E	33	71*	1 2	6 14.76	+21 10.1	1.356	2.334	3.2	18.3	172 E	66	43
3 22	5 32.36	-10 1.0	1.143	1.407	44.5	20.9	82 E	33	69*	1 7	6 8.40	+20 38.4	1.343	2.309	6.0	18.4	166 E	66	43
3 27	5 39.41	-9 2.0	1.153	1.380	45.3	20.9	79 E	32	67*	1 12	6 2.31	+20 6.3	1.337	2.284	8.7	18.5	159 E	65	44
4 1	5 47.23	-8 4.3	1.161	1.352	46.1	20.9	77 E	32	65*	1 17	5 56.68	+19 34.2	1.338	2.259	11.4	18.6	153 E	65	44
4 6	5 55.77	-7 8.2	1.165	1.324	46.9	20.9	75 E	31	63*	1 22	5 51.68	+19 2.9	1.345	2.233	14.0	18.7	147 E	64	45
4 11	6 5.02	-6 13.6	1.167	1.295	47.7	20.9	73 E	30	62*	1 27	5 47.46	+18 32.8	1.357	2.208	16.5	18.8	141 E	64	45
4 16	6 14.95	-5 20.4	1.166	1.265	48.6	20.9	71 E	28	60*	2 1	5 44.13	+18 4.6	1.375	2.183	18.7	18.8	135 E	63	46
4 21	6 25.56	-4 28.5	1.163	1.235	49.5	20.8	69 E	27	59*	2 11	5 40.37	+17 14.4	1.421	2.132	22.7	19.0	124 E	62	47
4 26	6 36.86	-3 37.9	1.156	1.204	50.4	20.8	67 E	26	58*	2 21	5 40.54	+16 33.1	1.479	2.082	25.8	19.1	114 E	62	47
5 1	6 48.83	-2 48.4	1.147	1.173	51.5	20.7	66 E	24	56*	3 2	5 44.50	+15 59.8	1.543	2.032	28.2	19.2	105 E	61	48
5 6	7 1.48	-1 59.8	1.134	1.142	52.6	20.7	64 E	23	55*	3 12	5 51.92	+15 31.9	1.609	1.982	29.9	19.3	96 E	61	48*
5 11	7 14.81	-1 11.6	1.119	1.110	53.9	20.6	63 E	21	54*	3 22	6 2.39	+15 6.3	1.674	1.934	31.0	19.4	89 E	59	48*
5 16	7 28.84	-0 23.5	1.101	1.079	55.3	20.6	61 E	20	53*	4 1	6 15.57	+14 40.1	1.737	1.887	31.7	19.4	82 E	55	48*
5 21	7 43.59	+0 25.1	1.081	1.048	56.8	20.5	60 E	19	52*	4 11	6 31.09	+14 10.2	1.795	1.841	32.0	19.5	77 E	51	47*
5 26	7 59.06	+1 14.8	1.059	1.017	58.4	20.5	59 E	17	51*	4 21	6 48.65	+13 33.8	1.848	1.796	32.0	19.5	71 E	45	47*
5 31	8 15.27	+2 6.2	1.034	0.987	60.2	20.4	58 E	17	49*	5 1	7 7.99	+12 48.5	1.896	1.754	31.8	19.5	66 E	39	46*
6 5	8 32.21	+3 0.4	1.007	0.958	62.1	20.3	57 E	16	48*	5 11	7 28.89	+11 52.3	1.937	1.714	31.4	19.4	62 E	33	46*
6 10	8 49.91	+3 58.3	0.978	0.930	64.2	20.3	56 E	16	47*	5 21	7 51.13	+10 43.8	1.974	1.677	30.8	19.4	58 E	27	45*
6 15	9 8.35	+5 1.0	0.948	0.904	66.5	20.2	55 E	16	46*	5 31	8 14.56	+9 21.8	2.007	1.644	30.2	19.4	55 E	22	44*
6 20	9 27.53	+6 9.7	0.917	0.880	68.8	20.2	54 E	16	45*	6 10	8 38.99	+7 45.9	2.036	1.614	29.5	19.4	52 E	16	43*
6 25	9 47.43	+7 25.6	0.885	0.858	71.3	20.1	53 E	17	44*	6 20	9 4.31	+5 56.2	2.063	1.588	28.7	19.3	49 E	12	41*
6 30	10 8.01	+8 49.6	0.853	0.840	73.8	20.1	52 E	18	43*	6 30	9 30.39	+3 53.3	2.088	1.567	27.9	19.3	46 E	8	40*
7 10	10 50.98	+12 5.4	0.790	0.814	78.6	20.0	52 E	22	41*	7 10	9 57.14	+1 38.7	2.114	1.550	27.0	19.3	44 E	5	38*
7 20	11 35.97	+15 57.5	0.732	0.804	82.7	19.9	52 E	27	38*	7 20	10 24.48	-0 45.8	2.141	1.539	26.1	19.3	42 E	2	36*
7 30	12 22.58	+20 15.6	0.681	0.811	85.3	19.9	53 E	33	35*	7 30	10 52.35	-3 17.6	2.171	1.533	25.0	19.3	40 E	1	34*
8 4	12 46.42	+22 28.2	0.658	0.822	85.8	19.9	54 E	36	33*	8 9	11 20.69	-5 53.6	2.204	1.533	23.9	19.3	38 E	—	—
8 9	13 10.68	+24 38.6	0.638	0.836	85.8	19.8	55 E	40	31*	8 19	11 49.45	-8 30.6	2.241	1.538	22.6	19.3	36 E	—	29*
8 14	13 35.42	+26 43.0	0.619	0.853	85.4	19.8	57 E	44	30*	8 29	12 18.61	-11 5.0	2.283	1.548	21.3	19.3	34 E	—	27*
8 19	14 0.78	+28 37.7	0.603	0.874	84.4	19.8	59 E	47	29*	9 8	12 48.09	-13 33.2	2.329	1.564	19.8	19.3	32 E	—	25*
8 24	14 26.88	+30 19.2	0.588	0.897	83.0	19.7	62 E	51	28*	9 18	13 17.85	-15 52.1	2.380	1.585	18.2	19.3	29 E	—	23*
8 29	14 53.83	+31 44.3	0.575	0.923	81.2	19.7	65 E	55	27*	9 28	13 47.81	-17 58.5	2.436	1.610	16.5	19.4	27 E	—	21*
9 3	15 21.71	+32 49.7	0.564	0.950	79.0	19.6	68 E	58	27*	10 8	14 17.86	-19 50.0	2.495	1.639	14.7	19.4	25 E	—	18*
9 8	15 50.55	+33 32.3	0.555	0.979	76.6	19.6	71 E	62	27*	10 18	14 47.90	-21 24.6	2.556	1.672	12.8	19.4	22 E	—	16*
9 13	16 20.26	+33 49.5	0.548	1.009	73.9	19.5	75 E	65	27*	10 28	15 17.78	-22 40.9	2.619	1.709	10.8	19.4	19 E	—	13*
9 18	16 50.69	+33 39.2	0.544	1.040	71.1	19.5	78 E	69	28*	11 7	15 47.35	-23 38.1	2.683	1.748	8.7	19.5	16 E	—	10*
9 23	17 21.53	+33 0.9	0.542	1.071	68.1	19.4	82 E	72	29*	11 17	16 16.46	-24 16.1	2.745	1.790	6.6	19.5	12 E	—	6*
9 28	17 52.36	+31 55.2	0.544	1.102	65.0	19.4	86 E	73	31*	11 27	16 44.93	-24 35.2	2.805	1.834	4.5	19.5	8 E	—	2*
10 3	18 22.73	+30 24.3	0.551	1.134	61.9	19.4	89 E	74	32*	12 7	17 12.62	-24 36.0	2.860	1.880	2.4	19.4	4 E	—	—
10 8	18 52.21	+28 32.4	0.562	1.165	59.0	19.4	92 E	73	35*	12 17	17 39.42	-24 19.9	2.911	1.927	0.5	19.3	1 E	—	—
10 13	19 20.46	+26 24.8	0.578	1.196	56.2	19.4	95 E	71	37*	12 27	18 5.18	-23 48.1	2.955	1.975	2.1	19.6	4 W	—	—
10 18	19 47.25	+24 8.0	0.600	1.227	53.6	19.5	97 E	69	39*	1 6	18 29.84	-23 2.2	2.991	2.025	4.2	19.8	9 W	—	2*
10 23	20 12.44	+21 48.3	0.627	1.257	51.4	19.6	99 E	67	42*	1 16	18 53.34	-22 3.9	3.019	2.075	6.3	20.0	13 W	2*	6*
10 28	20 36.00	+19 31.6	0.659	1.287	49.4	19.7	100 E	65	44*	<b>2253 Espinette</b>									
11 2	20 57.95	+17 22.0	0.696	1.316	47.7	19.8	101 E	62	46*	12 23	6 27.68	+18 33.6	1.640	2.618	2.9	16.3	172 W	64	45
11 7	21 18.41	+15 22.7	0.739	1.345	46.3	19.9	101 E	60	48*	12 28	6 21.81	+18 41.8	1.649	2.630	1.7	16.2	175 E	64	45
11 12	21 37.50	+13 35.3	0.786	1.373	45.1	20.1	101 E	59	49*	1 2	6 16.03	+18 50.5	1.665	2.641	3.1	16.3	172 E	64	45
11 17	21 55.36	+12 0.9	0.837	1.400	44.1	20.2	100 E	57	51*	1 7	6 10.51	+18 59.4	1.688	2.653	5.2	16.5	166 E	64	45
11 27	22 27.98	+9 31.1	0.949	1.452	42.4	20.5	97 E	55	52*	1 12	6 5.40	+19 8.5	1.719	2.664	7.3	16.6	160 E	64	45
12 7	22 57.22	+7 48.2	1.073	1.500	40.9	20.8	93 E	53	52*	2 1	5 56.83	+19 27.0	1.800	2.685	11.2	16.9	148 E	64	45
12 17	23 23.94	+6 44.6	1.206	1.546	39.5	21.1	89 E	52	50*	2 11	5 51.03	+19 46.0	1.905	2.705	14.5	17.2	136 E	65	44
12 27	23 48.79	+6 12.5	1.343	1.587	38.1	21.4	85 E	51	48*	2 21	5 48.26	+20 5.2	2.028	2.725	17.1	17.4	126 E	65	44
12 23	6 26.36	+36 9.3</																	

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	19/20	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°
<b>2253 Espinette</b> (continuation)										<b>361538 2007 JZ<sub>20</sub></b> (continuation)									
7 30	8 59.38	+16 35.5	3.923	2.914	1.9	18.3	6 E	—	—	1 22	5 38.69	-54 10.2	1.004	1.510	40.1	21.1	99 E	—	62
8 9	9 14.29	+15 35.8	3.931	2.917	0.2	18.2	1 W	—	—	1 27	5 36.09	-52 12.2	1.023	1.529	39.5	21.1	99 E	—	64
8 19	9 29.05	+14 32.2	3.923	2.919	2.2	18.3	6 W	—	—	2 1	5 35.10	-50 5.0	1.042	1.547	38.9	21.2	99 E	—	66
8 29	9 43.60	+13 25.3	3.899	2.919	4.2	18.5	12 W	5*	3*	2 6	5 35.56	-47 50.4	1.061	1.565	38.4	21.2	100 E	—	68
9 8	9 57.92	+12 16.0	3.859	2.919	6.2	18.5	18 W	11*	6*	2 11	5 37.32	-45 29.9	1.082	1.582	37.9	21.3	100 E	—	70
9 18	10 11.96	+11 4.7	3.804	2.918	8.1	18.6	24 W	16*	10*	2 16	5 40.23	-43 5.1	1.103	1.598	37.6	21.3	100 E	2	73
9 28	10 25.67	+9 52.4	3.734	2.915	10.0	18.6	31 W	22*	14*	2 21	5 44.17	-40 37.3	1.125	1.613	37.2	21.4	99 E	4	75
10 8	10 39.01	+8 39.9	3.649	2.912	11.9	18.7	37 W	28*	17*	2 26	5 49.03	-38 7.9	1.148	1.628	36.9	21.5	99 E	7	78
10 18	10 51.93	+7 28.1	3.551	2.908	13.6	18.7	43 W	34*	22*	<b>3552 Don Quixote</b>									
10 28	11 4.34	+6 18.1	3.440	2.903	15.2	18.6	50 W	39*	26*	12 23	6 29.31	+60 22.5	4.260	5.078	6.7	20.1	143 W	75	4
11 7	11 16.16	+5 11.0	3.317	2.897	16.6	18.6	57 W	43*	31*	12 28	6 22.44	+60 21.2	4.282	5.102	6.7	20.1	143 E	75	4
11 17	11 27.30	+4 7.9	3.184	2.890	17.9	18.6	64 W	46*	36*	1 2	6 15.69	+60 14.9	4.312	5.126	6.7	20.1	142 E	75	4
11 27	11 37.60	+3 10.3	3.042	2.882	18.9	18.5	71 W	48*	42*	1 7	6 9.20	+60 4.0	4.348	5.149	6.9	20.2	141 E	75	4
12 7	11 46.91	+2 19.7	2.893	2.873	19.7	18.4	79 W	47	48*	1 12	6 3.10	+59 48.6	4.390	5.172	7.2	20.2	139 E	75	4
12 17	11 55.04	+1 37.5	2.740	2.863	20.1	18.3	87 W	47	54*	1 17	5 57.49	+59 29.4	4.439	5.195	7.5	20.3	136 E	76	5
12 27	12 1.75	+1 5.8	2.585	2.852	20.1	18.1	95 W	46	60*	1 22	5 52.46	+59 6.7	4.494	5.218	7.9	20.3	133 E	76	5
1 6	12 6.80	+0 46.3	2.432	2.840	19.6	18.0	104 W	46	63*	1 27	5 48.07	+58 41.2	4.554	5.241	8.3	20.4	130 E	76	5
1 16	12 9.89	+0 40.9	2.283	2.827	18.6	17.8	114 W	46	63	2 1	5 44.35	+58 13.4	4.620	5.264	8.7	20.4	126 E	77	6
<b>3271 UI</b>										<b>338254 2002 TZ<sub>206</sub></b>									
12 23	6 28.06	-13 10.2	1.604	2.461	14.0	20.2	143 W	32	77	2 11	5 39.00	+57 13.4	4.766	5.309	9.4	20.5	119 E	78	7
12 28	6 21.95	-12 44.4	1.616	2.479	13.5	20.2	144 E	32	77	2 21	5 36.34	+56 10.7	4.927	5.353	10.0	20.7	110 E	79	8
1 2	6 15.99	-12 9.5	1.633	2.497	13.4	20.2	144 E	33	76	3 2	5 36.16	+55 8.3	5.099	5.396	10.3	20.8	102 E	80	9
1 7	6 10.33	-11 26.6	1.657	2.514	13.6	20.3	143 E	34	75	3 12	5 38.16	+54 8.4	5.278	5.439	10.5	20.9	94 E	81*	10*
1 12	6 5.12	-10 36.5	1.687	2.531	14.0	20.4	141 E	34	75	3 22	5 42.01	+53 12.2	5.461	5.481	10.4	20.9	86 E	77*	10*
1 17	6 0.46	-9 40.7	1.723	2.547	14.7	20.4	139 E	35	74	4 1	5 47.42	+52 20.3	5.642	5.523	10.2	21.0	78 E	71*	10*
1 22	5 56.45	-8 40.1	1.765	2.564	15.5	20.5	136 E	36	73	4 11	5 54.11	+51 32.8	5.819	5.564	9.8	21.1	70 E	64*	10*
1 27	5 53.13	-7 36.2	1.812	2.579	16.4	20.6	132 E	37	72	4 21	6 1.84	+50 49.7	5.989	5.605	9.2	21.1	63 E	57*	9*
2 1	5 50.56	-6 30.1	1.864	2.595	17.3	20.7	129 E	38	71	5 1	6 10.41	+50 10.5	6.148	5.645	8.5	21.2	56 E	50*	8*
2 6	5 48.74	-5 22.9	1.920	2.610	18.1	20.8	125 E	40	69	5 11	6 19.62	+49 35.0	6.295	5.684	7.7	21.2	49 E	43*	6*
2 11	5 47.66	-4 15.6	1.981	2.625	18.9	20.9	121 E	41	68	5 21	6 29.32	+49 2.7	6.427	5.723	6.9	21.2	43 E	37*	4*
2 16	5 47.31	-3 9.0	2.046	2.639	19.6	21.0	117 E	42	67	5 31	6 39.36	+48 33.5	6.542	5.761	6.0	21.3	37 E	31*	1*
2 21	5 47.64	-2 3.7	2.113	2.653	20.1	21.1	112 E	43	66	6 10	6 49.63	+48 6.9	6.639	5.799	5.3	21.3	32 E	25*	—
2 26	5 48.63	-1 0.1	2.184	2.667	20.6	21.2	108 E	44	65	6 20	7 0.01	+47 42.9	6.718	5.836	4.6	21.3	28 E	21*	—
3 2	5 50.25	+0 1.2	2.256	2.681	21.0	21.3	104 E	45	64	6 30	7 10.39	+47 21.5	6.777	5.872	4.2	21.3	25 E	17*	—
3 7	5 52.43	+0 59.9	2.330	2.694	21.2	21.4	100 E	46	63	7 10	7 20.69	+47 2.8	6.816	5.908	4.1	21.3	25 E	14*	—
<b>306917 2001 UW<sub>4</sub></b>										<b>112495 2002 PQ<sub>10</sub></b>									
12 23	6 28.42	+31 54.8	0.518	1.496	6.7	18.7	170 W	77	32	12 23	6 29.44	+16 54.0	1.368	2.344	3.8	20.3	171 W	62	47
12 28	6 20.41	+31 48.0	0.513	1.493	5.6	18.7	171 E	77	32	12 28	6 23.26	+16 51.8	1.380	2.360	2.7	20.2	174 E	62	47
1 2	6 12.41	+31 33.9	0.514	1.490	7.5	18.8	169 E	77	32	1 2	6 17.23	+16 50.9	1.399	2.375	3.8	20.4	171 E	62	47
1 7	6 4.96	+31 13.0	0.519	1.488	10.9	18.9	163 E	76	33	1 7	6 11.53	+16 51.4	1.425	2.390	6.0	20.5	165 E	62	47
1 12	5 58.48	+30 46.7	0.528	1.485	14.6	19.1	158 E	76	33	1 12	6 6.34	+16 53.1	1.458	2.404	8.2	20.7	160 E	62	47
1 17	5 53.29	+30 16.4	0.542	1.483	18.3	19.3	152 E	75	34	1 17	6 1.77	+16 55.9	1.498	2.419	10.4	20.9	154 E	62	47
1 22	5 49.61	+29 43.9	0.559	1.481	21.8	19.4	146 E	75	34	1 22	5 57.92	+16 59.9	1.543	2.433	12.5	21.0	148 E	62	47
1 27	5 47.55	+29 10.6	0.580	1.479	24.9	19.6	141 E	74	35	1 27	5 54.87	+17 5.0	1.594	2.447	14.3	21.2	142 E	62	47
2 1	5 47.14	+28 37.8	0.603	1.478	27.8	19.8	136 E	74	35	2 1	5 52.64	+17 10.9	1.650	2.461	16.0	21.3	137 E	62	47
2 6	5 48.32	+28 6.1	0.629	1.477	30.3	20.0	131 E	73	36	2 6	5 51.25	+17 17.7	1.711	2.475	17.4	21.5	131 E	62	47
2 11	5 50.98	+27 35.8	0.658	1.475	32.5	20.1	126 E	73	36	<b>192642 1999 RD<sub>32</sub></b>									
2 16	5 54.98	+27 7.0	0.688	1.475	34.5	20.3	122 E	72	37	12 23	6 28.79	+28 41.2	2.613	3.590	2.2	21.4	172 W	74	35
2 21	6 0.19	+26 39.3	0.719	1.474	36.1	20.4	118 E	72	37	12 28	6 22.53	+28 43.0	2.583	3.563	1.5	21.3	175 E	74	35
2 26	6 6.50	+26 12.6	0.752	1.473	37.6	20.5	115 E	71	38	1 2	6 16.16	+28 42.7	2.561	3.536	2.5	21.4	171 E	74	35
3 2	6 13.79	+25 46.2	0.786	1.473	38.8	20.7	111 E	71	38	1 7	6 9.79	+28 40.4	2.548	3.508	4.1	21.4	165 E	74	35
3 7	6 21.93	+25 19.8	0.821	1.473	39.7	20.8	108 E	70	39	1 12	6 3.57	+28 36.0	2.543	3.480	5.8	21.5	159 E	74	35
3 12	6 30.80	+24 52.8	0.856	1.473	40.6	20.9	105 E	70	39	1 17	5 57.62	+28 29.8	2.546	3.452	7.4	21.6	153 E	73	36
3 17	6 40.30	+24 24.7	0.892	1.474	41.2	21.0	103 E	69	40	1 22	5 52.05	+28 21.9	2.557	3.423	9.1	21.6	147 E	73	36
3 22	6 50.35	+23 55.1	0.929	1.475	41.7	21.1	100 E	69	40	<b>361538 2007 JZ<sub>20</sub></b>									
3 27	7 0.87	+23 23.8	0.965	1.475	42.1	21.2	97 E	68*	41	12 23	6 29.18	-60 52.7	0.878	1.380	45.2	20.7	96 W	—	55
4 1	7 11.80	+22 50.2	1.003	1.477	42.4	21.3	95 E	67*	41	12 25	6 24.32	-60 47.1	0.888	1.389	44.8	20.8	96 W	—	55
4 6	7 23.06	+22 14.2	1.040	1.478	42.6	21.4	93 E	66*	42	12 27	6 19.57	-60 37.9	0.897	1.399	44.4	20.8	96 E	—	55
4 11	7 34.59	+21 35.5	1.078	1.479	42.6	21.5	91 E	64*	42	12 29	6 14.97	-60 25.2	0.906	1.408	44.0	20.8	96 E	—	56
<b>243025 2006 UM<sub>216</sub></b>										12 31	6 10.55	-60 9.2	0.915	1.417	43.6	20.8	97 E	—	56
12 23	6 30.01	+6 5.2	0.540	1.505	12.0	16.2	161 W	51	58	1 2	6 6.34	-59 50.0	0.924	1.426	43.2	20.9	97 E	—	56
1 2	6 19.97	+3 28.9	0.601	1.560	12.8	16.5	159 E	48	61	1 7	5 56.86	-58 48.8	0.945	1.448	42.3	20.9	97 E	—	57
1 12	6 12.92	+2 3.5	0.681	1.619	16.2	17.0	153 E	47	62	1 12	5 49.05	-57 30.3	0.965	1.469	41.5	21.0	98 E	—	58
1 22	6 9.62	+1 32.7	0.777	1.679	19.8	17.5	145 E	47	62	1 17	5 42.99	-55 56.8	0.985	1.490	40.8	21.0	98 E	—	60
1 27	6 9.41	+1 32.3	0.832	1.710	21.5	17.7	141 E	47	62										

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	19/20	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°
<b>243025 2006 UM<sub>216</sub></b>										<b>416231 2003 AJ<sub>73</sub></b>									
<i>(continuation)</i>																			
2 26	6 25.19	+ 3 7.2	1.223	1.901	27.3	19.0	118E	48	61	12 23	6 30.04	+50 5.1	0.569	1.512	17.3	19.2	153W	85	14
3 2	6 30.02	+ 3 27.9	1.297	1.934	27.8	19.1	115E	48	61	12 28	6 20.75	+50 56.6	0.546	1.489	17.8	19.1	152E	84	13
3 12	6 41.00	+ 4 6.5	1.452	1.998	28.2	19.5	108E	49	60	1 2	6 10.48	+51 32.4	0.527	1.466	19.2	19.0	151E	83	12
3 22	6 53.37	+ 4 39.0	1.613	2.062	28.2	19.8	102E	50	59	1 7	5 59.89	+51 50.2	0.512	1.443	21.3	19.0	148E	83	12
4 1	7 6.83	+ 5 3.3	1.780	2.126	27.9	20.0	96E	50	59	1 12	5 49.75	+51 49.1	0.501	1.420	23.9	19.0	144E	83	12
4 11	7 21.08	+ 5 18.2	1.950	2.190	27.2	20.3	90E	48*	59*	1 14	5 45.99	+51 43.5	0.497	1.411	25.0	19.0	143E	83	12
4 21	7 35.87	+ 5 23.4	2.123	2.252	26.3	20.5	84E	44*	58*	1 16	5 42.45	+51 35.0	0.494	1.402	26.2	19.0	141E	83	12
5 1	7 51.05	+ 5 18.6	2.296	2.314	25.2	20.7	78E	40*	57*	1 18	5 39.18	+51 23.8	0.491	1.394	27.4	19.0	139E	84	13
5 11	8 6.45	+ 5 4.2	2.469	2.375	24.0	20.9	73E	34*	56*	1 20	5 36.21	+51 10.0	0.489	1.385	28.6	19.0	138E	84	13
5 21	8 21.96	+ 4 40.6	2.639	2.435	22.5	21.0	67E	28*	54*	1 22	5 33.59	+50 53.8	0.487	1.376	29.8	19.0	136E	84	13
5 31	8 37.50	+ 4 8.4	2.806	2.494	21.0	21.2	62E	22*	52*	1 27	5 28.64	+50 4.1	0.484	1.355	32.9	19.1	132E	85	14
6 10	8 52.97	+ 3 28.0	2.969	2.552	19.4	21.3	56E	16*	48*	2 1	5 26.20	+49 3.5	0.483	1.335	35.8	19.1	128E	86	15
6 20	9 8.33	+ 2 40.4	3.124	2.609	17.6	21.4	51E	10*	44*	2 6	5 26.31	+47 54.8	0.483	1.316	38.7	19.2	124E	87	16
6 30	9 23.54	+ 1 46.0	3.273	2.665	15.9	21.5	46E	5*	40*	2 11	5 28.87	+46 40.0	0.484	1.297	41.3	19.2	120E	88	17
<b>13651 1997 BR</b>																			
12 23	6 30.03	+ 6 53.1	0.726	1.689	10.3	18.7	162W	52	57	2 16	5 33.69	+45 20.2	0.486	1.279	43.8	19.3	116E	90	19
12 28	6 19.58	+ 8 2.0	0.711	1.680	8.9	18.6	165E	53	56	2 21	5 40.59	+43 56.0	0.489	1.263	46.1	19.3	113E	89	20
1 2	6 8.78	+ 9 19.9	0.703	1.670	9.6	18.6	164E	54	55	2 26	5 49.37	+42 27.5	0.492	1.248	48.2	19.3	110E	87	22
1 7	5 58.07	+10 44.8	0.702	1.659	12.0	18.7	159E	56	53	3 2	5 59.81	+40 54.4	0.495	1.234	50.0	19.4	107E	86	23
1 12	5 47.89	+12 14.1	0.707	1.647	15.3	18.8	154E	57	52	3 7	6 11.68	+39 16.3	0.498	1.221	51.7	19.4	105E	84	25
1 17	5 38.61	+13 45.5	0.718	1.635	18.9	18.9	147E	59	50	3 12	6 24.75	+37 32.3	0.502	1.210	53.1	19.5	103E	83	26
1 22	5 30.54	+15 16.9	0.734	1.622	22.4	19.1	141E	60	49	3 17	6 38.82	+35 41.8	0.506	1.201	54.4	19.5	101E	81	28
1 27	5 23.91	+16 46.6	0.755	1.608	25.8	19.2	135E	62	47	3 22	6 53.71	+33 44.1	0.510	1.193	55.5	19.5	100E	79	30
2 1	5 18.85	+18 13.7	0.780	1.594	28.8	19.3	129E	63	46	3 27	7 9.27	+31 38.9	0.515	1.187	56.3	19.6	98E	77	32
2 6	5 15.40	+19 37.6	0.808	1.579	31.6	19.5	123E	65	44	4 1	7 25.35	+29 26.0	0.520	1.182	57.0	19.6	97E	74*	35
2 11	5 13.53	+20 57.8	0.837	1.563	34.0	19.6	118E	66	43	4 6	7 41.80	+27 5.8	0.526	1.180	57.5	19.6	96E	72*	37
2 21	5 14.28	+23 27.0	0.901	1.529	37.9	19.8	108E	68	41	4 11	7 58.47	+24 38.5	0.534	1.179	57.8	19.7	95E	69*	39
3 2	5 20.46	+25 41.7	0.965	1.493	40.9	20.0	99E	71	38*	4 16	8 15.28	+22 5.0	0.542	1.181	57.9	19.7	95E	66*	42
3 12	5 31.35	+27 42.2	1.027	1.454	43.1	20.1	92E	72*	36*	4 21	8 32.15	+19 26.4	0.552	1.184	57.8	19.8	94E	63*	45
3 22	5 46.30	+29 28.0	1.084	1.413	44.7	20.2	85E	71*	33*	4 26	8 49.02	+16 43.8	0.564	1.188	57.6	19.8	94E	59*	47
4 1	6 4.86	+30 58.2	1.133	1.370	45.9	20.3	80E	68*	32*	5 1	9 5.85	+13 58.7	0.577	1.195	57.3	19.9	94E	56*	50
4 11	6 26.61	+32 10.9	1.173	1.325	46.8	20.3	75E	63*	30*	5 6	9 22.59	+11 12.5	0.593	1.204	56.8	19.9	94E	52*	53
4 21	6 51.22	+33 3.7	1.203	1.279	47.7	20.3	70E	59*	29*	5 11	9 39.19	+ 8 26.8	0.610	1.214	56.1	20.0	94E	49*	56
5 1	7 18.43	+33 33.6	1.221	1.231	48.5	20.3	66E	55*	28*	5 16	9 55.65	+ 5 43.0	0.630	1.225	55.4	20.1	94E	45*	58
5 11	7 47.94	+33 37.1	1.228	1.183	49.5	20.3	63E	51*	28*	5 21	10 11.96	+ 3 2.5	0.651	1.238	54.7	20.1	94E	42*	61
5 21	8 19.44	+33 10.4	1.224	1.136	50.6	20.2	60E	47*	28*	5 26	10 28.14	+ 0 26.1	0.676	1.253	53.8	20.2	94E	39*	64
5 31	8 52.62	+32 9.3	1.207	1.090	52.1	20.1	58E	43*	29*	5 31	10 44.17	- 2 5.1	0.702	1.268	52.9	20.3	94E	35*	66
6 10	9 27.10	+30 29.9	1.180	1.047	53.8	20.0	56E	40*	30*	6 10	11 15.79	- 6 49.3	0.763	1.303	51.1	20.5	93E	29*	71
6 20	10 2.53	+28 7.8	1.143	1.009	55.9	19.9	55E	37*	31*	6 20	11 46.86	-11 6.1	0.832	1.342	49.2	20.7	93E	24*	75
6 30	10 38.64	+24 59.1	1.098	0.976	58.4	19.8	55E	34*	34*	6 30	12 17.47	-14 54.6	0.911	1.384	47.3	20.9	92E	20*	79*
7 10	11 15.17	+21 0.6	1.047	0.950	61.0	19.8	55E	32*	36*	7 10	12 47.64	-18 15.1	0.999	1.428	45.4	21.1	90E	16*	82*
7 20	11 52.08	+16 9.6	0.993	0.934	63.6	19.7	55E	30*	40*	7 20	13 17.42	-21 8.6	1.095	1.473	43.6	21.3	88E	13*	82*
7 30	12 29.48	+10 26.2	0.940	0.927	65.9	19.6	56E	27*	43*	<b>463216 2012 DU<sub>30</sub></b>									
8 9	13 7.68	+ 3 54.3	0.893	0.931	67.5	19.6	58E	25*	48*	12 23	6 30.56	-12 54.4	1.650	2.507	13.7	22.3	143W	32	77
8 14	13 27.24	+ 0 23.1	0.873	0.937	68.0	19.6	59E	24*	50*	12 28	6 24.77	-12 41.2	1.615	2.479	13.5	22.2	144W	32	77
8 19	13 47.23	- 3 15.6	0.856	0.945	68.2	19.5	60E	22*	52*	1 2	6 18.76	-12 17.8	1.585	2.450	13.6	22.1	144E	33	76
8 24	14 7.73	- 6 59.1	0.842	0.956	68.1	19.5	61E	21*	54*	1 7	6 12.69	-11 44.0	1.562	2.422	14.1	22.1	143E	33	76
8 29	14 28.84	-10 44.0	0.833	0.969	67.7	19.5	63E	19*	56*	1 12	6 6.74	-11 0.0	1.545	2.393	14.9	22.1	141E	34	75
9 3	14 50.63	-14 26.4	0.827	0.984	67.1	19.5	64E	17*	57*	1 17	6 1.06	-10 6.4	1.534	2.364	16.0	22.1	139E	35	74
9 8	15 13.16	-18 2.0	0.826	1.000	66.2	19.5	65E	16*	59*	1 22	5 55.83	- 9 4.0	1.529	2.334	17.2	22.1	135E	36	73
9 13	15 36.49	-21 26.7	0.830	1.018	65.0	19.5	67E	14*	61*	1 27	5 51.17	- 7 53.8	1.529	2.305	18.6	22.1	132E	37	72
9 18	16 0.63	-24 36.3	0.838	1.038	63.8	19.6	68E	13*	62*	<b>400103 2006 TQ<sub>58</sub></b>									
9 23	16 25.53	-27 27.2	0.851	1.058	62.3	19.6	69E	12*	63*	12 23	6 30.90	+16 24.9	1.588	2.563	3.7	20.2	170W	61	48
9 28	16 51.07	-29 56.4	0.868	1.080	60.8	19.6	70E	11*	64*	12 28	6 25.00	+16 11.4	1.606	2.584	2.7	20.2	173W	61	48
10 3	17 17.08	-32 1.7	0.888	1.102	59.2	19.7	71E	10*	64*	1 2	6 19.28	+15 59.7	1.631	2.606	3.6	20.3	170E	61	48
10 8	17 43.34	-33 42.0	0.913	1.125	57.6	19.7	72E	9*	65*	1 7	6 13.88	+15 49.6	1.664	2.627	5.4	20.4	165E	61	48
10 13	18 9.60	-34 57.0	0.941	1.148	56.0	19.8	73E	9*	66*	1 12	6 8.95	+15 41.4	1.703	2.648	7.4	20.6	160E	61	48
10 18	18 35.60	-35 47.5	0.973	1.172	54.4	19.9	73E	8*	66*	1 17	6 4.58	+15 34.9	1.750	2.669	9.3	20.8	154E	61	48
10 23	19 1.08	-36 14.9	1.007	1.196	52.9	19.9	73E	8*	66*	1 22	6 0.85	+15 30.2	1.803	2.689	11.1	20.9	148E	61	48
10 28	19 25.82	-36 21.0	1.044	1.219	51.4	20.0	73E	8*	67*	1 27	5 57.83	+15 27.1	1.861	2.710	12.8	21.1	143E	60	49
11 2	19 49.64	-36 8.2	1.083	1.243	49.9	20.1	73E	9*	67*	2 1	5 55.54	+15 25.6	1.926	2.730	14.2	21.2	137E	60	49
11 7	20 12.43	-35 38.7	1.124	1.267	48.5	20.2	73E	9*	67*	2 6	5 53.99	+15 25.5	1.994	2.750	15.5	21.3	132E	60	49
11 12	20 34.13	-34 55.0	1.168	1.291	47.2	20.3	73E	10	67*	2 11	5 53.16</								

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	19/20	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°
<b>306790 2001 KB<sub>1</sub></b>										<b>175786 1999 PT<sub>3</sub></b>									
<i>(continuation)</i>																			
2 21	5 51.41	+1 58.0	2.539	3.079	17.0	20.1	114 E	47	62	12 23	6 33.57	+31 16.9	1.916	2.889	3.5	20.5	170 W	76	33
3 2	5 52.74	+2 28.7	2.700	3.113	17.9	20.3	105 E	47	62	12 28	6 26.97	+31 12.5	1.918	2.895	2.7	20.4	172 W	76	33
3 12	5 56.16	+2 59.8	2.867	3.145	18.3	20.4	97 E	48	61*	1 2	6 20.41	+31 5.0	1.928	2.901	3.4	20.5	170 E	76	33
3 22	6 1.36	+3 29.0	3.036	3.177	18.3	20.6	89 E	48*	60*	1 7	6 14.08	+30 54.7	1.946	2.907	5.0	20.6	165 E	76	33
4 1	6 8.09	+3 54.8	3.204	3.207	17.9	20.7	81 E	45*	58*	1 12	6 8.12	+30 41.9	1.971	2.912	6.8	20.7	160 E	76	33
4 11	6 16.10	+4 15.8	3.368	3.237	17.3	20.8	74 E	40*	55*	1 17	6 2.69	+30 26.9	2.003	2.917	8.6	20.8	154 E	75	34
4 21	6 25.14	+4 31.1	3.526	3.266	16.4	20.9	67 E	34*	52*	1 22	5 57.87	+30 10.3	2.042	2.922	10.3	20.9	148 E	75	34
5 1	6 35.04	+4 40.0	3.676	3.294	15.4	21.0	60 E	28*	48*	1 27	5 53.76	+29 52.6	2.088	2.927	12.0	21.1	142 E	75	34
5 11	6 45.62	+4 42.1	3.816	3.321	14.2	21.0	54 E	21*	45*	2 1	5 50.42	+29 34.4	2.139	2.931	13.4	21.2	136 E	75	34
5 21	6 56.73	+4 37.1	3.946	3.347	12.9	21.1	48 E	14*	40*	2 6	5 47.87	+29 16.1	2.195	2.934	14.8	21.3	131 E	74	35
5 31	7 8.24	+4 24.8	4.062	3.372	11.5	21.1	42 E	7*	35*	2 11	5 46.11	+28 58.0	2.255	2.938	15.9	21.4	125 E	74	35
6 10	7 20.03	+4 5.2	4.165	3.396	10.1	21.1	36 E	—	30*	2 16	5 45.11	+28 40.5	2.319	2.941	16.9	21.5	120 E	74	35
6 20	7 32.01	+3 38.4	4.254	3.419	8.7	21.1	31 E	—	24*	<b>486813 2014 JL<sub>15</sub></b>									
6 30	7 44.08	+3 4.3	4.328	3.442	7.4	21.1	26 E	—	18*	12 23	6 34.72	+18 25.5	2.064	3.039	2.9	21.7	171 W	63	46
7 10	7 56.16	+2 23.2	4.385	3.463	6.3	21.1	22 E	—	11*	12 28	6 29.33	+18 38.3	2.061	3.042	1.6	21.6	175 W	64	45
7 20	8 8.19	+1 35.3	4.427	3.484	5.5	21.1	19 E	—	5*	1 2	6 23.92	+18 51.5	2.066	3.044	2.2	21.6	173 E	64	45
7 30	8 20.08	+0 40.8	4.453	3.504	5.2	21.1	18 W	—	6*	1 7	6 18.63	+19 4.9	2.079	3.047	3.9	21.8	168 E	64	45
8 9	8 31.77	+0 19.9	4.462	3.523	5.5	21.1	20 W	—	11*	1 12	6 13.58	+19 18.4	2.099	3.049	5.8	21.9	162 E	64	45
8 19	8 43.20	+1 26.6	4.454	3.540	6.3	21.2	23 W	—	16*	1 17	6 8.89	+19 31.8	2.127	3.051	7.6	22.0	156 E	65	44
8 29	8 54.28	+2 39.0	4.430	3.558	7.4	21.2	27 W	—	21*	1 22	6 4.66	+19 45.1	2.162	3.052	9.3	22.1	150 E	65	44
9 8	9 4.96	+3 56.5	4.389	3.574	8.6	21.3	32 W	—	8*	1 27	6 0.97	+19 58.2	2.203	3.054	11.0	22.2	144 E	65	44
9 18	9 15.15	+5 18.9	4.333	3.589	9.8	21.3	38 W	—	14*	<b>440074 2002 SZ<sub>19</sub></b>									
9 28	9 24.76	+6 45.6	4.263	3.603	11.0	21.3	44 W	—	20*	12 23	6 35.65	+7 32.0	1.252	2.209	7.8	21.6	162 W	53	56
10 8	9 33.68	+8 15.9	4.178	3.617	12.2	21.3	50 W	—	25*	1 2	6 23.98	+7 53.8	1.279	2.241	7.0	21.6	164 E	53	56
10 18	9 41.83	+9 49.5	4.081	3.629	13.3	21.3	57 W	—	28*	1 12	6 13.46	+8 32.1	1.333	2.272	9.7	21.8	157 E	54	55
10 28	9 49.04	+11 25.2	3.973	3.641	14.1	21.3	64 W	—	31*	1 22	6 5.29	+9 22.2	1.412	2.302	13.3	22.1	147 E	54	55
11 7	9 55.18	+13 2.3	3.856	3.652	14.8	21.3	71 W	—	31*	2 1	6 0.22	+10 19.0	1.512	2.332	16.7	22.4	137 E	55	54
11 17	10 0.08	+14 39.5	3.732	3.662	15.3	21.2	78 W	—	30*	<b>459899 2014 MP<sub>2</sub></b>									
11 27	10 3.57	+16 15.2	3.604	3.671	15.6	21.2	86 W	—	29*	12 23	6 36.59	+31 5.0	1.349	2.323	4.5	18.9	169 W	76	33
12 7	10 5.45	+17 47.3	3.475	3.679	15.5	21.1	94 W	—	27*	12 28	6 30.17	+31 23.3	1.365	2.343	3.4	18.9	172 W	76	33
12 17	10 5.57	+19 13.4	3.348	3.686	15.1	21.0	102 W	—	26*	1 2	6 23.85	+31 37.4	1.388	2.363	4.1	19.0	170 E	77	32
12 27	10 3.78	+20 30.3	3.228	3.693	14.4	20.9	111 W	—	24*	1 7	6 17.88	+31 47.4	1.418	2.382	6.0	19.1	165 E	77	32
1 6	10 0.05	+21 34.3	3.119	3.698	13.4	20.8	119 W	—	23*	1 12	6 12.44	+31 53.4	1.455	2.402	8.1	19.3	160 E	77	32
1 16	9 54.47	+22 21.6	3.024	3.703	12.2	20.7	127 W	—	23*	1 17	6 7.68	+31 56.1	1.498	2.422	10.2	19.5	154 E	77	32
<b>282531 2004 RR<sub>215</sub></b>										<b>462097 2007 KQ<sub>2</sub></b>									
12 23	6 31.86	+18 53.1	1.956	2.933	2.8	21.0	172 W	64	45	12 23	6 36.65	+0 51.3	1.116	2.048	12.0	19.1	154 W	44	65
12 28	6 26.27	+18 48.1	1.958	2.939	1.5	20.9	175 W	64	45	12 28	6 31.94	+0 49.9	1.088	2.025	11.5	19.0	156 W	44	65
1 2	6 20.72	+18 43.5	1.967	2.945	2.5	21.0	173 E	64	45	1 2	6 26.97	+0 39.5	1.066	2.004	11.6	19.0	156 E	44	65
1 7	6 15.34	+18 39.4	1.984	2.950	4.3	21.1	167 E	64	45	1 7	6 21.94	+0 19.7	1.049	1.982	12.3	18.9	154 E	45	64
1 12	6 10.27	+18 35.8	2.009	2.955	6.3	21.3	161 E	64	45	1 12	6 17.06	+0 9.2	1.038	1.960	13.7	18.9	152 E	45	64
1 17	6 5.61	+18 32.7	2.040	2.960	8.1	21.4	155 E	64	45	1 22	6 8.53	+1 32.1	1.031	1.919	17.4	19.0	144 E	47	62
1 22	6 1.47	+18 30.3	2.079	2.965	9.9	21.5	149 E	64	45	2 1	6 2.86	+3 22.2	1.044	1.878	21.6	19.1	136 E	48	61
1 27	5 57.93	+18 28.5	2.124	2.970	11.5	21.6	143 E	63	46	2 11	6 1.04	+5 29.5	1.072	1.840	25.5	19.2	127 E	50	59
<b>196625 2003 RM<sub>10</sub></b>										<b>344077 1998 HG<sub>8</sub></b>									
12 23	6 32.22	+42 10.7	1.978	2.923	6.5	24.5	160 W	87	22	12 23	6 32.88	+16 6.4	1.649	2.623	3.8	21.1	170 W	61	48
12 28	6 23.56	+42 12.9	1.971	2.919	6.3	24.5	161 E	87	22	12 28	6 27.05	+16 15.0	1.654	2.632	2.6	21.1	173 W	61	48
1 2	6 14.89	+42 8.4	1.971	2.914	6.7	24.5	160 E	87	22	1 2	6 21.25	+16 24.8	1.665	2.641	3.3	21.1	171 E	61	48
1 7	6 6.45	+41 57.4	1.980	2.908	7.7	24.6	157 E	87	22	1 7	6 15.66	+16 35.5	1.685	2.650	5.1	21.3	166 E	62	47
1 12	5 58.45	+41 40.5	1.995	2.902	9.1	24.6	152 E	87	22	1 12	6 10.42	+16 47.0	1.711	2.658	7.1	21.4	160 E	62	47
<b>471241 2011 BX<sub>18</sub></b>										<b>212546 2006 SV<sub>19</sub></b>									
12 23	6 32.35	+34 20.3	3.339	4.304	2.9	24.3	167 W	79	30	12 23	6 32.53	+19 17.7	1.991	2.968	2.7	21.7	172 W	64	45
12 28	6 26.98	+34 20.6	3.316	4.285	2.5	24.2	169 W	79	30	12 28	6 26.28	+19 29.7	2.001	2.982	1.3	21.7	176 W	64	45
1 2	6 21.54	+34 18.4	3.302	4.267	2.9	24.2	167 E	79	30	1 2	6 20.08	+19 41.6	2.018	2.996	2.3	21.8	173 E	65	44
1 7	6 16.14	+34 13.8	3.296	4.248	3.8	24.3	164 E	79	30	1 7	6 14.10	+19 53.1	2.043	3.009	4.2	21.9	167 E	65	44
1 12	6 10.88	+34 6.9	3.298	4.229	4.9	24.3	159 E	79	30	1 12	6 8.47	+20 4.4	2.076	3.022	6.2	22.1	161 E	65	44
1 17	6 5.86	+33 57.7	3.308	4.209	6.1	24.4	153 E	79	30	1 17	6 3.29	+20 15.2	2.117	3.034	8.0	22.2	155 E	65	44
<b>212546 2006 SV<sub>19</sub></b>										<b>462097 2007 KQ<sub>2</sub></b>									
12 23	6 32.53	+19 17.7	1.991	2.968	2.7	21.7	172 W	64	45	12 23	6 36.65	+0 51.3	1.116	2.048	12.0	19.1	154 W	44	65
12 28	6 26.28	+19 29.7	2.001	2.982	1.3	21.7	176 W	64	45	12 28	6 31.94	+0 49.9	1.088	2.025	11.5	19.0	156 W	44	65
1 2	6 20.08	+19 41.6	2.018	2.996	2.3	21.8	173 E	65	44	1 2	6 26.97	+0 39.5	1.066	2.004	11.6	19.0	156 E	44	65
1 7	6 14.10</																		

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/20	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	19/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°
<b>462097 2007 KQ<sub>2</sub></b>										<b>108516 2001 KR<sub>75</sub></b>									
<i>(continuation)</i>										<i>(continuation)</i>									
9 18	14 2.06	-2 58.1	2.604	1.875	18.0	21.0	35 E	15*	27*	5 31	7 53.72	+14 43.9	3.150	2.586	17.0	20.0	48 E	22*	37*
9 28	14 25.75	-4 53.1	2.691	1.915	16.0	21.0	32 E	14*	24*	6 10	8 8.60	+13 32.7	3.275	2.617	15.2	20.0	42 E	15*	33*
10 8	14 49.18	-6 39.1	2.777	1.957	14.1	21.1	28 E	13*	20*	6 20	8 23.48	+12 17.2	3.388	2.647	13.3	20.0	37 E	9*	30*
10 18	15 12.38	-8 14.9	2.859	2.000	12.1	21.1	25 E	12*	16*	6 30	8 38.31	+10 57.2	3.490	2.676	11.4	20.1	31 E	4*	25*
10 28	15 35.34	-9 39.5	2.938	2.043	10.1	21.1	21 E	11*	11*	7 10	8 53.03	+9 32.9	3.580	2.704	9.5	20.1	26 E	—	20*
11 7	15 58.03	-10 52.1	3.011	2.088	8.2	21.2	18 E	9*	6*	7 20	9 7.61	+8 4.2	3.656	2.731	7.7	20.0	21 E	—	15*
11 17	16 20.43	-11 52.4	3.079	2.133	6.5	21.2	14 E	7*	1*	7 30	9 22.01	+6 31.3	3.718	2.758	5.9	20.0	16 E	—	9*
11 27	16 42.47	-12 40.0	3.139	2.179	5.0	21.2	11 E	5*	—	8 9	9 36.20	+4 54.4	3.766	2.783	4.3	20.0	12 E	—	3*
12 7	17 4.11	-13 15.0	3.190	2.225	4.2	21.2	10 E	2*	—	8 19	9 50.16	+3 13.8	3.800	2.807	3.4	20.0	10 W	—	—
12 17	17 25.28	-13 37.6	3.233	2.271	4.4	21.3	10 W	3*	—	8 29	10 3.86	+1 29.8	3.818	2.830	3.7	20.0	10 W	—	3*
12 27	17 45.90	-13 48.2	3.265	2.317	5.5	21.4	13 W	7*	—	9 8	10 17.26	+0 17.3	3.821	2.853	4.8	20.1	14 W	—	8*
<b>216519 2001 FP<sub>24</sub></b>										<b>259068 2002 UD<sub>35</sub></b>									
12 23	6 36.82	+12 3.6	1.671	2.636	5.2	20.5	166 W	57	52	12 23	6 38.31	-31 26.5	0.940	1.702	28.5	18.7	124 W	14	85
1 2	6 25.85	+11 50.5	1.633	2.602	4.6	20.4	168 E	57	52	12 28	6 34.86	-32 37.2	0.931	1.690	28.8	18.7	124 W	12	83
1 12	6 14.95	+11 47.3	1.625	2.569	7.8	20.6	159 E	57	52	1 2	6 31.20	-33 29.6	0.924	1.679	29.3	18.6	123 E	12	83
1 22	6 5.34	+11 53.8	1.644	2.534	11.8	20.7	148 E	57	52	1 7	6 27.55	-34 3.3	0.919	1.669	29.8	18.6	123 E	11	82
2 1	5 58.06	+12 9.1	1.686	2.499	15.6	20.9	137 E	57	52	1 12	6 24.16	-34 18.0	0.917	1.660	30.3	18.6	122 E	11	82
2 11	5 53.75	+12 31.3	1.748	2.463	18.9	21.0	126 E	58	51	1 17	6 21.22	-34 14.3	0.916	1.652	30.8	18.6	122 E	11	82
2 21	5 52.66	+12 58.2	1.823	2.427	21.4	21.2	116 E	58	51	1 22	6 18.94	-33 52.7	0.917	1.644	31.3	18.6	120 E	11	82
3 2	5 54.77	+13 27.6	1.907	2.390	23.4	21.3	107 E	58	51	1 27	6 17.50	-33 14.3	0.919	1.638	31.8	18.6	119 E	12	83
3 12	5 59.86	+13 57.1	1.995	2.353	24.7	21.4	98 E	59	50*	2 1	6 17.04	-32 20.6	0.923	1.632	32.4	18.7	118 E	13	84
3 22	6 7.63	+14 24.5	2.085	2.316	25.5	21.5	90 E	59*	49*	2 6	6 17.64	-31 13.2	0.929	1.628	32.8	18.7	116 E	14	85
<b>439919 2001 QF<sub>132</sub></b>										<b>272373 2005 SA<sub>217</sub></b>									
12 23	6 36.89	+24 23.1	1.280	2.258	3.4	20.9	172 W	69	40	12 23	6 37.10	+37 25.8	0.947	1.912	8.1	20.0	164 W	82	27
12 28	6 30.46	+24 17.4	1.292	2.275	0.7	20.8	178 W	69	40	12 28	6 27.45	+38 22.9	0.961	1.927	7.6	20.0	165 W	83	26
1 2	6 24.16	+24 10.6	1.310	2.291	2.3	20.9	175 E	69	40	1 2	6 17.90	+39 9.0	0.981	1.942	8.6	20.1	163 E	84	25
1 7	6 18.21	+24 2.8	1.336	2.308	5.0	21.2	168 E	69	40	1 7	6 8.86	+39 44.0	1.008	1.957	10.6	20.2	159 E	85	24
1 12	6 12.79	+23 54.2	1.369	2.324	7.5	21.4	162 E	69	40	1 12	6 0.68	+40 8.6	1.041	1.971	12.8	20.4	154 E	85	24
1 17	6 8.05	+23 45.2	1.408	2.340	9.9	21.5	156 E	69	40	1 17	5 53.63	+40 24.1	1.080	1.985	15.1	20.6	148 E	85	24
1 22	6 4.08	+23 36.1	1.453	2.356	12.1	21.7	150 E	69	40	1 22	5 47.88	+40 31.9	1.124	1.999	17.3	20.8	143 E	86	23
1 27	6 0.96	+23 27.2	1.504	2.372	14.1	21.9	144 E	68	41	1 27	5 43.54	+40 33.7	1.173	2.012	19.3	20.9	138 E	86	23
<b>397471 2007 LV</b>										<b>108516 2001 KR<sub>75</sub></b>									
12 23	6 37.10	+37 25.8	0.947	1.912	8.1	20.0	164 W	82	27	12 23	6 38.02	+40 6.9	1.041	1.999	8.9	16.7	162 W	85	24
12 28	6 27.45	+38 22.9	0.961	1.927	7.6	20.0	165 W	83	26	12 28	6 29.02	+38 57.0	1.054	2.019	7.6	16.7	164 W	84	25
1 2	6 17.90	+39 9.0	0.981	1.942	8.6	20.1	163 E	84	25	1 2	6 20.57	+37 40.9	1.074	2.038	7.5	16.7	164 E	83	26
1 7	6 8.86	+39 44.0	1.008	1.957	10.6	20.2	159 E	85	24	1 7	6 12.95	+36 20.8	1.101	2.058	8.7	16.9	162 E	81	28
1 12	6 0.68	+40 8.6	1.041	1.971	12.8	20.4	154 E	85	24	1 12	6 6.36	+34 59.0	1.135	2.078	10.5	17.0	157 E	80	29
1 17	5 53.63	+40 24.1	1.080	1.985	15.1	20.6	148 E	85	24	1 17	6 0.93	+33 37.4	1.176	2.097	12.6	17.2	152 E	79	30
1 22	5 47.88	+40 31.9	1.124	1.999	17.3	20.8	143 E	86	23	1 22	5 56.69	+32 17.8	1.222	2.117	14.6	17.4	147 E	77	32
1 27	5 43.54	+40 33.7	1.173	2.012	19.3	20.9	138 E	86	23	1 27	5 53.65	+31 1.6	1.274	2.137	16.6	17.6	142 E	76	33
2 1	5 40.63	+40 30.9	1.226	2.025	21.1	21.1	132 E	86	23	2 1	5 51.77	+29 49.8	1.332	2.156	18.3	17.7	137 E	75	34
2 6	5 39.11	+40 25.0	1.282	2.038	22.6	21.3	127 E	85	24	2 6	5 50.98	+28 42.9	1.394	2.176	19.9	17.9	131 E	74	35
2 11	5 38.90	+40 16.8	1.341	2.050	23.9	21.4	123 E	85	24	2 11	5 51.19	+27 41.0	1.460	2.195	21.2	18.1	126 E	73	36
<b>272373 2005 SA<sub>217</sub></b>										<b>275974 2001 XD</b>									
12 23	6 37.91	+24 57.2	1.733	2.710	3.0	21.0	172 W	70	39	12 23	6 38.53	+32 7.2	1.975	2.945	3.9	22.7	168 W	77	32
12 28	6 31.78	+25 6.5	1.737	2.720	0.9	20.8	178 W	70	39	12 28	6 29.97	+32 20.0	1.997	2.972	3.0	22.7	171 W	77	32
1 2	6 25.67	+25 14.2	1.750	2.730	1.9	20.9	175 E	70	39	1 2	6 21.58	+32 28.5	2.028	2.999	3.6	22.8	169 E	77	32
1 7	6 19.75	+25 20.4	1.770	2.740	4.1	21.1	168 E	70	39	1 7	6 13.56	+32 32.7	2.067	3.025	5.1	22.9	164 E	78	31
1 12	6 14.18	+25 25.1	1.797	2.750	6.3	21.3	162 E	70	39	5 1	7 9.93	+17 55.0	2.723	2.488	21.7	19.7	66 E	43*	42*
1 17	6 9.10	+25 28.3	1.832	2.759	8.4	21.4	156 E	70	39	5 11	7 24.28	+16 54.4	2.873	2.522	20.3	19.8	60 E	36*	41*
1 22	6 4.62	+25 30.3	1.873	2.768	10.3	21.5	150 E	71	38	5 21	7 38.92	+15 51.0	3.016	2.554	18.7	19.9	54 E	29*	39*
1 27	6 0.82	+25 31.3	1.920	2.777	12.1	21.7	144 E	71	38	<b>108516 2001 KR<sub>75</sub></b>									
<b>108516 2001 KR<sub>75</sub></b>										<b>275974 2001 XD</b>									
12 23	6 38.02	+40 6.9	1.041	1.999	8.9	16.7	162 W	85	24	12 23	6 38.53	+32 7.2	1.975	2.945	3.9	22.7	168 W	77	32
12 28	6 29.02	+38 57.0	1.054	2.019	7.6	16.7	164 W	84	25	12 28	6 29.97	+32 20.0	1.997	2.972	3.0	22.7	171 W	77	32
1 2	6 20.57	+37 40.9	1.074	2.038	7.5	16.7	164 E	83	26	1 2	6 21.58	+32 28.5	2.028	2.999	3.6	22.8	169 E	77	32
1 7	6 12.95	+36 20.8	1.101	2.058	8.7	16.9	162 E	81	28	1 7	6 13.56	+32 32.7	2.067	3.025	5.1	22.9	164 E	78	31
1 12	6 6.36	+34 59.0	1.135	2.078	10.5	17.0	157 E	80	29	1 12	6 6.07	+32 33.0	2.115	3.051	6.8	23.1	158 E	78	31
1 17	6 0.93	+33 37.4	1.176	2.097	12.6	17.2	152 E	79	30	1 17	5 59.25	+32 30.1	2.170	3.076	8.5	23.2	152 E	78	31
1 22	5 56.69	+32 17.8	1.222	2.117	14.6	17.4	147 E	77	32	<b>275974 2001 XD</b>									
1 27	5 53.65	+31 1.6	1.274	2.137	16.6	17.6	142 E	76	33	12 23	6 38.53	+32 7.2	1.975	2.945	3.9	22.7	168 W	77	32
2 1	5 51.77	+29 49.8	1.332	2.156	18.3	17.7	137 E	75	34	12 28	6 29.97	+32 20.0	1.997	2.972	3.0	22.7	171 W	77	32
2 6	5 50.98	+28 42.9	1.394	2.176	19.9	17.9	131 E	74	35	1 2	6 21.58	+32 28.5	2.028	2.999	3.6	22.8	169 E	77	32
2 11	5 51.19	+27 41.0	1.460	2.195	21.2	18.1	126 E	73	36	1 7	6 13.56	+32 32.7	2.067	3.025	5.1	22.9	164 E	78	31
2 16	5 52.30	+26 44.1	1.530	2.214	22.3	18.2	122 E	72	37	5 1	7 9.93	+17 55.0	2.723	2.488	21.7	19.7	66 E	43*	42*
2 21	5 54.22	+25 51.9	1.602	2.234	2														

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/20	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	19/20	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°
<b>194264 2001 UY</b>										<b>458062 2009 YO</b>									
12 23	6 39.04	-23 51.0	0.816	1.645	26.4	18.2	132W	21	88	12 23	6 40.42	+11 59.0	0.962	1.930	7.4	20.8	165W	57	52
12 28	6 35.08	-24 59.1	0.818	1.644	26.5	18.2	132W	20	89	12 28	6 27.52	+10 45.2	0.950	1.922	6.4	20.7	167W	56	53
1 2	6 31.02	-25 47.4	0.823	1.645	26.8	18.3	131E	19	90	1 2	6 14.50	+9 33.5	0.946	1.912	7.9	20.7	164E	55	54
1 7	6 27.10	-26 15.9	0.830	1.646	27.1	18.3	130E	19	90	1 7	6 1.82	+8 25.6	0.952	1.901	10.9	20.9	159E	53	56
1 12	6 23.56	-26 25.1	0.841	1.648	27.6	18.3	129E	19	90	1 12	5 49.87	+7 23.5	0.965	1.890	14.3	21.0	152E	52	57
1 17	6 20.60	-26 16.3	0.854	1.651	28.1	18.4	128E	19	90	1 17	5 38.99	+6 28.4	0.986	1.877	17.6	21.2	145E	51	58
1 22	6 18.37	-25 50.8	0.869	1.655	28.6	18.4	126E	19	90	1 22	5 29.41	+5 41.1	1.013	1.863	20.8	21.3	138E	51	58
1 27	6 17.03	-25 10.5	0.887	1.659	29.1	18.5	125E	20	89	1 27	5 21.29	+5 1.8	1.046	1.848	23.7	21.4	131E	50	59
2 1	6 16.66	-24 17.6	0.907	1.665	29.7	18.6	123E	21	88	<b>31346 1998 PB<sub>1</sub></b>									
2 6	6 17.30	-23 14.3	0.929	1.671	30.2	18.7	121E	22	87	12 23	6 41.05	+26 45.3	1.863	2.838	3.2	21.0	171W	72	37
2 11	6 18.96	-22 2.6	0.953	1.677	30.7	18.7	120E	23	86	12 28	6 34.34	+26 44.8	1.863	2.845	1.4	20.9	176W	72	37
2 16	6 21.61	-20 44.7	0.979	1.685	31.2	18.8	118E	24	85	1 2	6 27.63	+26 42.3	1.871	2.851	2.0	21.0	174E	72	37
2 21	6 25.20	-19 22.1	1.007	1.693	31.7	18.9	116E	26	83	1 7	6 21.08	+26 37.9	1.887	2.857	4.0	21.1	168E	72	37
2 26	6 29.70	-17 56.7	1.037	1.701	32.1	19.0	114E	27	82	1 12	6 14.88	+26 31.6	1.911	2.863	6.1	21.3	162E	72	37
3 2	6 35.05	-16 30.0	1.070	1.711	32.4	19.1	112E	28	81	1 17	6 9.16	+26 23.9	1.942	2.868	8.1	21.4	156E	71	38
3 7	6 41.17	-15 3.4	1.104	1.721	32.8	19.2	110E	30	79	1 22	6 4.02	+26 14.9	1.980	2.873	10.0	21.5	150E	71	38
3 12	6 47.98	-13 38.0	1.140	1.731	33.0	19.3	108E	31	78	1 27	5 59.58	+26 5.2	2.025	2.878	11.7	21.6	144E	71	38
3 17	6 55.42	-12 14.9	1.178	1.742	33.2	19.4	106E	33	76	<b>112985 2002 RS<sub>28</sub></b>									
3 22	7 3.42	-10 54.9	1.218	1.754	33.4	19.4	104E	34	75	12 23	6 42.77	-38 49.5	2.330	2.912	17.5	20.8	117W	6	77
3 27	7 11.92	-9 38.6	1.260	1.766	33.5	19.5	102E	35	74	12 28	6 36.28	-39 6.9	2.341	2.928	17.3	20.8	118W	6	77
4 1	7 20.87	-8 26.7	1.305	1.779	33.6	19.6	100E	36*	72	1 2	6 29.80	-39 13.2	2.356	2.944	17.2	20.8	118E	6	77
4 11	7 39.83	-6 18.0	1.399	1.805	33.5	19.8	96E	38*	70	1 7	6 23.47	-39 8.6	2.375	2.960	17.1	20.8	117E	6	77
4 21	7 59.87	-4 31.0	1.500	1.833	33.2	20.0	92E	37*	69	1 12	6 17.45	-38 53.8	2.398	2.976	17.1	20.9	117E	6	77
5 1	8 20.65	-3 6.4	1.608	1.863	32.7	20.2	88E	36*	67*	1 17	6 11.86	-38 29.5	2.425	2.991	17.2	20.9	116E	7	78
5 11	8 41.85	-2 4.2	1.722	1.894	32.0	20.3	83E	33*	65*	1 22	6 6.82	-37 56.5	2.455	3.006	17.3	21.0	115E	7	78
5 21	9 3.23	-1 23.0	1.840	1.925	31.1	20.5	79E	30*	64*	1 27	6 2.40	-37 15.9	2.489	3.020	17.4	21.0	114E	8	79
5 31	9 24.63	-1 1.3	1.963	1.958	30.0	20.6	75E	26*	62*	2 1	5 58.68	-36 28.8	2.525	3.034	17.5	21.0	112E	9	80
6 10	9 45.89	-0 57.1	2.088	1.991	28.7	20.8	70E	21*	60*	2 6	5 55.68	-35 36.3	2.565	3.048	17.7	21.1	110E	9	80
6 20	10 6.92	-1 8.2	2.216	2.025	27.3	20.9	66E	18*	57*	2 11	5 53.43	-34 39.7	2.608	3.061	17.8	21.1	108E	10	81
6 30	10 27.69	-1 32.4	2.343	2.059	25.7	21.0	61E	14*	54*	2 16	5 51.90	-33 40.0	2.652	3.074	18.0	21.2	106E	11	82
7 10	10 48.13	-2 7.6	2.469	2.093	24.0	21.1	57E	11*	50*	2 21	5 51.08	-32 38.0	2.700	3.087	18.1	21.2	104E	12	83
7 20	11 8.26	-2 51.9	2.594	2.128	22.2	21.2	52E	9*	46*	2 26	5 50.95	-31 34.7	2.749	3.099	18.2	21.3	101E	13	84
7 30	11 28.10	-3 43.3	2.715	2.162	20.2	21.3	47E	7*	41*	3 2	5 51.48	-30 30.9	2.799	3.111	18.3	21.3	99E	14	85
8 9	11 47.64	-4 40.1	2.831	2.196	18.3	21.3	43E	5*	37*	3 7	5 52.63	-29 27.3	2.852	3.123	18.4	21.4	96E	16	87
8 19	12 6.94	-5 40.7	2.941	2.230	16.2	21.4	38E	4*	32*	3 12	5 54.34	-28 24.6	2.905	3.134	18.4	21.4	94E	17	87*
8 29	12 26.01	-6 43.7	3.044	2.264	14.0	21.4	33E	3*	27*	3 17	5 56.59	-27 23.2	2.959	3.145	18.4	21.5	91E	17*	85*
9 8	12 44.88	-7 47.6	3.138	2.298	11.9	21.4	28E	2*	22*	<b>282520 2004 RW<sub>79</sub></b>									
9 18	13 3.58	-8 51.3	3.224	2.331	9.6	21.4	23E	1*	17*	12 23	6 42.80	+18 26.1	1.928	2.900	3.6	20.7	169W	63	46
9 28	13 22.13	-9 53.5	3.298	2.363	7.4	21.4	18E	—	12*	12 28	6 37.13	+18 52.6	1.929	2.910	1.8	20.6	175W	64	45
10 8	13 40.55	-10 53.0	3.361	2.395	5.1	21.4	12E	—	6*	1 2	6 31.42	+19 19.4	1.938	2.919	1.7	20.6	175E	64	45
10 18	13 58.84	-11 48.8	3.412	2.426	2.9	21.3	7E	—	1*	1 7	6 25.82	+19 46.0	1.955	2.927	3.5	20.7	170E	65	44
10 28	14 16.99	-12 39.9	3.450	2.457	0.7	21.2	2E	—	—	1 12	6 20.46	+20 12.1	1.980	2.936	5.4	20.9	164E	65	44
11 7	14 34.99	-13 25.4	3.474	2.487	1.8	21.3	4W	—	—	1 17	6 15.47	+20 37.5	2.012	2.944	7.4	21.0	157E	66	43
11 17	14 52.80	-14 4.3	3.484	2.517	4.0	21.5	10W	4*	—	1 22	6 10.96	+21 1.9	2.051	2.952	9.2	21.1	151E	66	43
<b>490171 2008 UD<sub>253</sub></b>										1 27	6 7.02	+21 25.3	2.097	2.960	10.9	21.2	145E	66	43
12 23	6 39.97	+40 32.4	2.085	3.032	6.0	18.8	161W	86	23	2 1	6 3.73	+21 47.6	2.148	2.968	12.4	21.4	140E	67	42
12 28	6 35.13	+40 45.8	2.100	3.052	5.6	18.8	162W	86	23	2 6	6 1.12	+22 8.8	2.205	2.975	13.8	21.5	134E	67	42
1 2	6 30.31	+40 54.6	2.123	3.072	5.8	18.8	162E	86	23	<b>11405 1999 CV<sub>3</sub></b>									
1 7	6 25.67	+40 58.8	2.152	3.092	6.4	18.9	159E	86	23	12 23	6 42.81	-11 25.8	0.922	1.811	18.7	17.3	144W	34	75
1 12	6 21.33	+40 58.8	2.188	3.112	7.4	19.0	156E	86	23	12 28	6 33.98	-11 1.0	0.893	1.793	18.1	17.2	146W	34	75
1 17	6 17.44	+40 54.8	2.231	3.132	8.6	19.1	152E	86	23	1 2	6 24.60	-10 19.3	0.870	1.774	17.9	17.1	146E	35	74
1 22	6 14.07	+40 47.3	2.281	3.153	9.8	19.2	147E	86	23	1 7	6 14.99	-9 20.6	0.853	1.754	18.5	17.0	146E	36	73
1 27	6 11.32	+40 36.8	2.336	3.173	10.9	19.3	142E	86	23	1 12	6 5.50	-8 5.4	0.842	1.734	19.7	17.0	144E	37	72
2 1	6 9.23	+40 23.9	2.397	3.194	12.0	19.4	138E	85	24	1 17	5 56.44	-6 35.5	0.836	1.713	21.5	17.0	140E	38	71
2 11	6 7.14	+39 53.0	2.533	3.236	13.9	19.7	128E	85	24	1 22	5 48.14	-4 52.8	0.835	1.691	23.6	17.1	137E	40	69
2 21	6 7.77	+39 18.2	2.685	3.278	15.3	19.9	119E	84	25	1 27	5 40.85	-3 0.1	0.840	1.669	26.0	17.1	132E	42	67
3 2	6 10.94	+38 41.7	2.850	3.320	16.3	20.1	110E	84	25	2 1	5 34.78	-1 0.2	0.849	1.645	28.4	17.2	127E	44	65
3 12	6 16.34	+38 5.0	3.023	3.362	16.8	20.2	101E	83	26	2 6	5 30.04	+1 4.0	0.862	1.621	30.8	17.2	123E	46	63
3 22	6 23.63	+37 28.6</																	

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	19/20	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	
<b>11405 1999 CV<sub>3</sub></b>										<b>21806 2001 HN<sub>40</sub></b>										
<i>(continuation)</i>																				
6 20	10 5.10	+34 19.1	0.938	0.905	66.9	17.2	55	E	41*	26*	12 23	6 44.17	+20 3.0	2.535	3.508	2.9	21.1	170 W	65	44
6 25	10 26.30	+33 47.4	0.904	0.895	68.8	17.2	55	E	41*	26*	1 2	6 34.36	+20 26.0	2.527	3.508	1.1	21.0	176 E	65	44
6 30	10 48.00	+32 59.9	0.869	0.888	70.7	17.1	56	E	41*	27*	1 12	6 24.72	+20 48.7	2.550	3.508	4.3	21.2	165 E	66	43
7 5	11 10.13	+31 54.9	0.832	0.885	72.6	17.1	56	E	41*	28*	1 22	6 16.05	+21 10.1	2.604	3.506	7.4	21.4	153 E	66	43
7 10	11 32.67	+30 30.2	0.794	0.886	74.3	17.0	57	E	41*	30*	2 1	6 9.04	+21 30.0	2.685	3.504	10.2	21.6	141 E	66	43
7 15	11 55.61	+28 43.4	0.757	0.890	75.8	17.0	58	E	41*	31*	<b>489231 2006 OC<sub>4</sub></b>									
7 20	12 18.96	+26 32.1	0.720	0.898	77.0	16.9	59	E	41*	34*	12 23	6 44.96	+29 25.3	1.395	2.367	4.6	21.9	169 W	74	35
7 25	12 42.73	+23 54.0	0.685	0.909	77.8	16.9	61	E	41*	36*	12 28	6 38.13	+29 25.4	1.400	2.379	2.8	21.8	173 W	74	35
7 30	13 6.94	+20 47.0	0.652	0.924	78.1	16.8	63	E	41*	39*	1 2	6 31.32	+29 22.5	1.412	2.390	3.0	21.8	173 E	74	35
8 4	13 31.60	+17 10.2	0.623	0.942	77.9	16.8	65	E	41*	43*	1 7	6 24.75	+29 16.4	1.431	2.401	4.9	22.0	168 E	74	35
8 9	13 56.73	+13 4.0	0.599	0.962	77.2	16.7	68	E	40*	47*	1 12	6 18.63	+29 7.6	1.457	2.412	7.2	22.2	162 E	74	35
8 14	14 22.34	+ 8 31.6	0.580	0.984	75.9	16.6	70	E	38*	51*	1 17	6 13.13	+28 56.5	1.490	2.423	9.4	22.3	156 E	74	35
8 19	14 48.40	+ 3 39.1	0.569	1.008	74.0	16.6	73	E	37*	56*	1 22	6 8.38	+28 43.7	1.529	2.433	11.6	22.5	150 E	74	35
8 21	14 58.95	+ 1 38.4	0.567	1.018	73.1	16.6	74	E	36*	58*	<b>279893 2001 QZ<sub>136</sub></b>									
8 23	15 9.55	- 0 23.2	0.565	1.029	72.2	16.6	76	E	35*	60*	12 23	6 45.01	+12 3.5	1.090	2.055	7.2	18.9	165 W	57	52
8 25	15 20.20	- 2 25.1	0.566	1.039	71.2	16.5	77	E	34*	62*	12 28	6 39.07	+11 57.2	1.101	2.073	5.6	18.8	168 W	57	52
8 27	15 30.89	- 4 26.5	0.567	1.050	70.2	16.5	78	E	33*	64*	1 2	6 33.21	+11 54.8	1.118	2.091	5.4	18.9	166 E	57	52
8 29	15 41.60	- 6 26.5	0.570	1.061	69.1	16.5	79	E	32*	66*	1 7	6 27.65	+11 56.0	1.143	2.109	6.7	19.0	168 E	57	52
8 31	15 52.34	- 8 24.4	0.574	1.073	68.0	16.5	80	E	31*	68*	1 12	6 22.58	+12 0.5	1.173	2.127	8.6	19.2	161 E	57	52
9 2	16 3.08	-10 19.6	0.579	1.084	66.9	16.5	81	E	29*	70*	1 22	6 14.45	+12 17.9	1.252	2.163	13.0	19.5	150 E	57	52
9 4	16 13.81	-12 11.2	0.586	1.095	65.8	16.6	82	E	28*	72*	2 1	6 9.61	+12 43.6	1.352	2.199	16.8	19.9	140 E	58	51
9 6	16 24.52	-13 58.9	0.594	1.107	64.7	16.6	83	E	27*	73*	2 11	6 8.29	+13 14.1	1.470	2.234	19.8	20.2	130 E	58	51
9 8	16 35.19	-15 41.9	0.603	1.119	63.6	16.6	84	E	26*	75*	2 21	6 10.25	+13 45.9	1.602	2.269	22.0	20.5	121 E	59	50
9 13	17 1.65	-19 37.4	0.631	1.148	60.9	16.7	86	E	23*	78*	3 2	6 15.15	+14 16.4	1.744	2.304	23.5	20.7	112 E	59	50
9 18	17 27.60	-22 58.3	0.665	1.179	58.4	16.8	87	E	21*	81*	3 12	6 22.52	+14 43.3	1.894	2.339	24.4	21.0	104 E	60	49
9 23	17 52.87	-25 44.1	0.706	1.209	56.1	16.9	88	E	19*	82*	3 22	6 31.91	+15 5.0	2.049	2.372	24.7	21.2	96 E	60*	49
9 28	18 17.29	-27 56.3	0.751	1.240	53.9	17.0	89	E	17*	83*	4 1	6 42.95	+15 20.4	2.206	2.406	24.5	21.4	89 E	58*	48*
10 3	18 40.72	-29 37.8	0.801	1.270	52.0	17.2	89	E	15*	82*	<b>440940 2006 YG<sub>25</sub></b>									
10 8	19 3.10	-30 52.1	0.854	1.300	50.2	17.3	89	E	14*	82*	12 23	6 45.78	+26 0.4	1.023	1.999	5.0	20.3	170 W	71	38
10 13	19 24.40	-31 43.0	0.910	1.330	48.6	17.4	88	E	13	81*	12 28	6 39.28	+26 29.3	1.032	2.014	2.2	20.1	175 W	71	38
10 18	19 44.64	-32 13.9	0.969	1.360	47.0	17.6	88	E	13	80*	1 2	6 32.79	+26 55.2	1.048	2.029	2.4	20.2	175 E	72	37
10 23	20 3.85	-32 27.7	1.030	1.390	45.6	17.7	87	E	13	80*	1 7	6 26.58	+27 17.8	1.070	2.044	5.1	20.4	169 E	72	37
10 28	20 22.08	-32 27.3	1.093	1.419	44.3	17.9	86	E	13	79*	1 12	6 20.90	+27 36.7	1.098	2.059	8.0	20.6	163 E	73	36
11 2	20 39.38	-32 15.0	1.157	1.447	43.0	18.0	84	E	13	78*	1 17	6 15.93	+27 52.2	1.133	2.074	10.6	20.8	157 E	73	36
11 7	20 55.83	-31 52.6	1.223	1.475	41.8	18.1	83	E	13	77*	1 22	6 11.83	+28 4.4	1.173	2.089	13.1	21.0	151 E	73	36
11 12	21 11.50	-31 21.8	1.289	1.503	40.6	18.2	81	E	14	75*	1 27	6 8.69	+28 13.9	1.218	2.104	15.4	21.2	145 E	73	36
11 17	21 26.47	-30 43.9	1.356	1.530	39.5	18.4	80	E	14	74*	2 1	6 6.58	+28 21.1	1.269	2.119	17.4	21.4	140 E	73	36
11 22	21 40.81	-30 0.1	1.424	1.556	38.4	18.5	78	E	15	72*	<b>401921 2001 XL<sub>6</sub></b>									
11 27	21 54.58	-29 11.4	1.492	1.581	37.3	18.6	76	E	16	70*	12 23	6 46.09	+54 43.4	0.930	1.838	16.6	18.1	148 W	80	9
12 2	22 7.84	-28 18.4	1.560	1.606	36.2	18.7	74	E	17	68*	12 25	6 41.39	+54 0.7	0.933	1.846	16.0	18.0	149 W	81	10
12 7	22 20.63	-27 22.1	1.627	1.631	35.2	18.8	73	E	18	65*	12 27	6 36.84	+53 15.7	0.937	1.855	15.4	18.0	150 W	82	11
12 12	22 33.01	-26 22.8	1.695	1.654	34.2	18.9	71	E	19	63*	12 29	6 32.46	+52 28.6	0.942	1.863	14.9	18.1	151 W	83	12
12 17	22 45.03	-25 21.1	1.763	1.677	33.1	18.9	69	E	20	60*	12 31	6 28.28	+51 39.7	0.948	1.872	14.6	18.1	151 E	83	12
12 22	22 56.73	-24 17.5	1.829	1.699	32.1	19.0	67	E	21*	58*	1 2	6 24.33	+50 49.1	0.955	1.880	14.3	18.1	152 E	84	13
12 27	23 8.15	-23 12.2	1.895	1.721	31.1	19.1	65	E	22*	55*	1 7	6 15.52	+48 37.1	0.978	1.902	14.1	18.2	152 E	86	15
1 1	23 19.30	-22 5.8	1.961	1.742	30.1	19.2	63	E	23*	52*	1 12	6 8.35	+46 20.5	1.007	1.924	14.7	18.3	150 E	89	18
1 6	23 30.22	-20 58.5	2.025	1.762	29.1	19.2	60	E	23*	50*	1 17	6 2.82	+44 3.1	1.043	1.947	15.7	18.4	148 E	89	20
1 11	23 40.95	-19 50.4	2.088	1.781	28.0	19.3	58	E	24*	48*	1 22	5 58.87	+41 48.2	1.086	1.970	17.0	18.6	144 E	87	22
1 16	23 51.50	-18 41.9	2.150	1.800	27.0	19.4	56	E	24*	45*	1 27	5 56.39	+39 38.3	1.135	1.993	18.5	18.7	140 E	85	24
<b>9856 1991 EE</b>										2 1	5 55.24	+37 35.3	1.189	2.016	19.9	18.9	136 E	83	26	
12 23	6 43.15	+10 24.5	2.653	3.608	4.4	22.7	164 W	55	54	2 6	5 55.29	+35 40.3	1.249	2.040	21.2	19.1	131 E	81	28	
1 2	6 32.72	+10 37.0	2.653	3.618	3.5	22.6	167 E	56	53	2 11	5 56.38	+33 53.7	1.313	2.064	22.4	19.2	127 E	79	30	
1 12	6 22.56	+10 56.2	2.685	3.626	5.2	22.8	160 E	56	53	2 16	5 58.36	+32 15.4	1.381	2.087	23.5	19.4	123 E	77	32	
1 22	6 13.40	+11 21.0	2.748	3.633	7.8	23.0	150 E	56	53	2 21	6 1.13	+30 45.2	1.453	2.111	24.3	19.6	118 E	76	33	
2 1	6 5.88	+11 49.9	2.839	3.639	10.3	23.1	139 E	57	52	2 26	6 4.59	+29 22.4	1.528	2.136	25.0	19.7	114 E	74	35	
<b>394155 2006 QS</b>										3 2	6 8.64	+28 6.5	1.606	2.160	25.5	19.9	110 E	73	36	
12 23	6 43.32	+17 7.7	2.413	3.383	3.3	24.9	169 W	62	47	3 7	6 13.20	+26 56.6	1.687	2.184	25.9	20.0	106 E	72	37	
1 2	6 32.91	+17 20.8	2.435	3.414	1.9	24.8	173 E	62	47	3 12	6 18.20	+25 52.0	1.769	2.208	26.1	20.1	102 E	71	38	
1 12	6 22.96	+17 35.7	2.490	3.444	4.6	25.1	164 E	63	46	3 22	6 29.26	+23 56.0	1.938	2.257	26.1	20.4	95 E	69*	40*	
1 22	6 14.27	+17 51.5	2.575	3.473	7.7	25.3	152 E	63	46	4 1	6 41.45	+22 13.5	2.111	2.306	25.7	20.6	88 E	65*	42*	
2 1	6 7.44	+18 7.9	2.687	3.501	10.4	25.5	140 E	63	46	4 11	6 54.46	+20 40.2	2.285	2.354	24.9	20.8	81 E	59*	43*	
<b>393348 1988 RO<sub>1</sub></b>										4 21	7 8.05	+19 12.8	2.458	2.403	23.8	21.0	75 E	52*	43*	
12 23	6 43.36	+ 4 59.3	1.731	2.673	7.5	21.1	159 W	50	59	5 1	7 22.04	+17 48.6								



EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/20	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	$45^\circ$	$-26^\circ$	19/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	$45^\circ$	$-26^\circ$											
<b>323179 2003 HR<sub>32</sub></b>										<b>44010 1997 UH<sub>11</sub></b> (continuation)																				
12 23	6 46.41	+49 43.7	0.409	1.359	19.6	17.7	152W	85	14	1 12	6 21.11	+35 1.2	1.673	2.618	7.4	18.6	160E	80	29	1 12	6 21.11	+35 1.2	1.673	2.618	7.4	18.6	160E	80	29	
<b>391523 2007 RH<sub>192</sub></b>																														
12 23	6 46.56	+ 6 43.8	2.034	2.978	6.4	21.6	160W	52	57	7 30	9 16.32	+23 27.9	3.994	3.000	3.5	20.6	10E	4*	—	—	8 9	9 31.25	+22 20.4	4.012	3.009	2.5	20.6	7E	1*	—
<b>458745 2011 QY<sub>37</sub></b>																														
12 23	6 46.74	+ 2 23.2	0.328	1.291	17.8	17.6	156W	47	62	10 8	10 55.08	+15 16.6	3.791	3.046	11.2	20.9	36W	30*	11*	—	9 8	10 14.62	+18 48.1	3.972	3.032	6.0	20.8	18W	12*	—
<b>487613 2015 MB<sub>60</sub></b>																														
12 23	6 46.77	+22 35.1	1.008	1.984	5.1	19.0	170W	68	41	2 21	6 27.93	+14 4.4	1.069	1.824	26.4	18.2	125E	59	50	—	2 21	6 27.93	+14 4.4	1.069	1.824	26.4	18.2	125E	59	50
<b>363802 2005 LT<sub>12</sub></b>																														
12 23	6 46.89	- 8 44.1	1.535	2.414	13.2	20.9	146W	36	73	2 21	6 27.93	+14 4.4	1.069	1.824	26.4	18.2	125E	59	50	—	3 2	6 47.94	+15 11.9	1.292	1.879	29.8	18.8	110E	60	49
<b>44010 1997 UH<sub>11</sub></b>																														
12 23	6 47.07	+34 11.8	1.596	2.561	5.5	18.4	165W	79	30	11 17	13 59.14	-12 53.1	3.477	2.592	8.4	21.0	23W	13*	11*	—	11 17	13 42.91	-11 32.1	3.503	2.570	6.4	20.9	17W	8*	6*









EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	19/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°
<b>516454 2005 FN<sub>4</sub></b>										<b>69045 2002 XN<sub>59</sub></b> <i>(continuation)</i>									
12 23	7 <sup>h</sup> 0.03 <sup>m</sup>	-14 17.3 <sup>s</sup>	3.551	4.348	8.4	25.1	140W	31	78	2 11	6 7.21 <sup>h</sup>	+25 11.2 <sup>m</sup>	1.458	2.226	19.8	17.5	130E	70	39
1 2	6 51.24	-14 15.8	3.552	4.375	7.8	25.1	143W	31	78	2 21	6 8.30	+23 38.3	1.598	2.265	22.1	17.9	120E	69	40
1 12	6 42.52	-13 55.6	3.581	4.401	7.8	25.1	142E	31	78	3 2	6 12.58	+22 19.9	1.750	2.303	23.6	18.1	111E	67	42
1 22	6 34.40	-13 18.2	3.638	4.426	8.4	25.2	139E	32	77	3 12	6 19.42	+21 12.8	1.909	2.341	24.4	18.4	103E	66	43
2 1	6 27.39	-12 26.7	3.720	4.450	9.3	25.3	133E	33	76	3 22	6 28.28	+20 13.8	2.072	2.377	24.7	18.6	95E	65*	44*







EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/20	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	2020	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°
<b>124146 2001 MQ<sub>12</sub></b>										<b>137199 1999 KX<sub>4</sub></b>									
<i>(continuation)</i>										<i>(continuation)</i>									
2 6	6 26.14	+22 41.7	1.952	2.778	13.3	21.1	140 E	68	41	4 5	14 54.94	+86 24.4	0.314	1.033	75.3	17.1	87 W	49	—
2 11	6 23.80	+22 43.8	2.007	2.785	14.8	21.3	134 E	68	41	4 6	15 1.05	+85 51.7	0.314	1.034	75.2	17.1	87 W	49	—
2 16	6 22.21	+22 45.5	2.067	2.793	16.0	21.4	129 E	68	41	4 7	15 5.63	+85 18.5	0.314	1.034	75.1	17.1	87 W	50	—
2 21	6 21.37	+22 46.7	2.131	2.800	17.1	21.5	123 E	68	41	4 8	15 9.15	+84 45.0	0.314	1.035	75.0	17.1	87 W	50	—
<b>356971 1991 TK<sub>2</sub></b>										<b>360200 1997 UF<sub>8</sub></b>									
12 23	7 11.58	+4 20.9	2.131	3.049	7.9	20.2	155 W	49	60	4 9	15 11.89	+84 11.1	0.313	1.036	74.9	17.1	87 W	51	—
1 2	7 1.62	+4 30.3	2.145	3.092	5.9	20.2	161 W	50	59	4 10	15 14.07	+83 36.8	0.313	1.037	74.8	17.1	88 W	51	—
1 12	6 51.74	+4 53.7	2.190	3.135	6.0	20.3	161 E	50	59	4 11	15 15.81	+83 2.2	0.313	1.038	74.7	17.1	88 W	52	—
1 22	6 42.84	+5 28.5	2.264	3.176	7.9	20.4	154 E	50	59	4 12	15 17.20	+82 27.2	0.312	1.039	74.6	17.1	88 W	53	—
2 1	6 35.63	+6 11.3	2.366	3.217	10.3	20.7	144 E	51	58	4 13	15 18.32	+81 51.7	0.312	1.040	74.4	17.1	88 W	53	—
2 11	6 30.55	+6 58.6	2.491	3.256	12.6	20.9	134 E	52	57	4 14	15 19.21	+81 15.9	0.311	1.042	74.3	17.0	88 W	54	—
2 21	6 27.78	+7 47.3	2.637	3.295	14.4	21.1	124 E	53	56	4 15	15 19.93	+80 39.6	0.310	1.043	74.1	17.0	89 W	54	—
3 2	6 27.30	+8 34.8	2.797	3.332	15.7	21.3	114 E	54	55	4 16	15 20.49	+80 2.9	0.310	1.044	73.9	17.0	89 W	55	—
3 12	6 28.95	+9 19.1	2.968	3.369	16.5	21.5	105 E	54	55	4 17	15 20.93	+79 25.7	0.309	1.046	73.7	17.0	89 W	56	—
<b>137199 1999 KX<sub>4</sub></b>										<b>137199 1999 KX<sub>4</sub></b>									
12 23	7 11.62	+61 23.8	2.746	3.558	10.2	21.5	140 W	74	3	4 18	15 21.26	+78 47.9	0.308	1.047	73.5	17.0	89 W	56	—
12 28	7 2.75	+61 40.6	2.748	3.567	10.0	21.5	141 W	73	2	4 19	15 21.50	+78 9.6	0.308	1.049	73.2	17.0	90 W	57	—
1 2	6 53.59	+61 49.4	2.756	3.575	9.9	21.5	141 W	73	2	4 20	15 21.67	+77 30.7	0.307	1.051	73.0	17.0	90 W	57	—
1 7	6 44.43	+61 50.0	2.771	3.584	10.1	21.5	140 E	73	2	4 21	15 21.77	+76 51.2	0.306	1.053	72.7	17.0	90 W	58	—
1 12	6 35.55	+61 42.6	2.792	3.592	10.4	21.6	139 E	73	2	4 23	15 21.81	+75 30.3	0.304	1.056	72.1	17.0	91 W	59	—
1 17	6 27.21	+61 27.8	2.819	3.600	10.8	21.6	137 E	74	3	4 25	15 21.70	+74 6.6	0.302	1.060	71.5	16.9	92 W	61	—
1 22	6 19.61	+61 6.1	2.852	3.608	11.3	21.7	134 E	74	3	4 27	15 21.47	+72 39.8	0.300	1.065	70.8	16.9	93 W	62	—
1 27	6 12.93	+60 38.6	2.891	3.616	11.8	21.7	131 E	74	3	4 29	15 21.17	+71 9.7	0.298	1.069	70.0	16.9	94 W	64	—
2 1	6 7.29	+60 6.2	2.934	3.623	12.4	21.8	128 E	75	4	5 1	15 20.82	+69 36.1	0.296	1.074	69.2	16.8	95 W	65	—
12 23	7 12.16	+11 3.3	0.344	1.311	15.4	16.0	159 W	56	53	5 3	15 20.45	+67 58.6	0.293	1.079	68.3	16.8	96 W	67	—
12 28	7 7.25	+14 15.7	0.312	1.289	10.3	15.6	166 W	59	50	5 5	15 20.06	+66 17.3	0.291	1.085	67.3	16.8	97 W	69	—
1 2	7 0.54	+18 15.3	0.285	1.268	4.4	15.1	174 W	63	46	5 7	15 19.67	+64 31.7	0.289	1.090	66.3	16.7	99 W	70	—
1 7	6 51.98	+23 2.6	0.263	1.246	3.1	14.8	176 E	68	41	5 9	15 19.29	+62 41.7	0.287	1.096	65.2	16.7	100 W	72	1
1 12	6 41.57	+28 32.2	0.247	1.225	10.4	15.0	167 E	74	35	5 11	15 18.92	+60 47.1	0.285	1.102	64.0	16.7	101 W	74	3
1 14	6 36.91	+30 53.1	0.242	1.217	13.5	15.0	163 E	76	33	6 2	15 18.30	+34 38.5	0.280	1.179	48.2	16.3	120 E	80	29
1 16	6 31.99	+33 17.7	0.238	1.209	16.7	15.1	159 E	78	31	6 4	15 18.78	+31 55.3	0.283	1.187	46.7	16.3	122 E	77	32
1 18	6 26.80	+35 44.6	0.234	1.201	20.0	15.1	155 E	81	28	6 6	15 19.36	+29 11.4	0.286	1.195	45.3	16.3	123 E	74	35
1 20	6 21.39	+38 12.6	0.232	1.193	23.3	15.2	151 E	83	26	6 8	15 20.04	+26 27.6	0.290	1.203	44.0	16.3	125 E	71	38
1 22	6 15.79	+40 40.1	0.230	1.185	26.5	15.3	147 E	86	23	6 10	15 20.83	+23 44.6	0.294	1.211	42.8	16.3	126 E	69	40
1 24	6 10.01	+43 6.1	0.229	1.177	29.7	15.3	144 E	88	21	6 12	15 21.73	+21 3.3	0.300	1.220	41.7	16.3	127 E	66	43
1 26	6 4.11	+45 29.2	0.229	1.169	32.9	15.4	140 E	90	19	6 14	15 22.73	+18 24.5	0.306	1.228	40.7	16.4	128 E	63	46
1 28	5 58.13	+47 48.6	0.230	1.162	35.9	15.5	136 E	87	16	6 16	15 23.84	+15 48.8	0.313	1.236	39.8	16.4	129 E	61	48
1 30	5 52.10	+50 3.5	0.231	1.154	38.9	15.6	133 E	85	14	6 18	15 25.07	+13 16.8	0.320	1.245	39.0	16.5	130 E	58	51
2 1	5 46.07	+52 13.3	0.233	1.147	41.7	15.7	129 E	83	12	6 20	15 26.41	+10 49.1	0.328	1.253	38.4	16.5	130 E	56	53
2 3	5 40.08	+54 17.7	0.235	1.140	44.4	15.7	126 E	81	10	6 25	15 30.26	+ 5 1.1	0.353	1.275	37.2	16.7	131 E	50	59
2 5	5 34.16	+56 16.5	0.237	1.133	46.9	15.8	123 E	79	8	6 30	15 34.83	+ 0 13.4	0.381	1.296	36.7	16.9	130 E	45	64
2 7	5 28.35	+58 9.8	0.240	1.126	49.3	15.9	120 E	77	6	7 5	15 40.08	+ 4 53.3	0.414	1.318	36.7	17.1	129 E	40	69
2 9	5 22.68	+59 57.6	0.244	1.119	51.6	16.0	117 E	75	4	7 10	15 45.96	+ 8 59.9	0.450	1.340	37.0	17.3	128 E	36	73
2 11	5 17.16	+61 40.3	0.247	1.112	53.8	16.1	115 E	73	2	7 15	15 52.45	+12 35.7	0.490	1.361	37.4	17.5	126 E	32	77
2 13	5 11.83	+63 17.9	0.251	1.106	55.8	16.1	112 E	72	1	7 20	15 59.51	+15 44.0	0.533	1.383	37.8	17.8	123 E	29*	80
2 15	5 6.70	+64 50.9	0.254	1.100	57.7	16.2	110 E	70	—	7 25	16 7.13	+18 28.1	0.579	1.405	38.3	18.0	121 E	26*	82
2 17	5 1.81	+66 19.7	0.258	1.094	59.4	16.3	108 E	69	—	7 30	16 15.27	+20 50.9	0.627	1.426	38.7	18.2	119 E	24*	85
2 19	4 57.17	+67 44.5	0.262	1.088	61.0	16.4	106 E	67	—	8 4	16 23.89	+22 55.2	0.678	1.447	39.0	18.4	116 E	22*	87
2 21	4 52.81	+69 5.9	0.266	1.083	62.5	16.4	104 E	66	—	8 9	16 32.94	+24 43.1	0.730	1.468	39.2	18.6	114 E	20*	89
2 26	4 43.26	+72 16.6	0.276	1.070	65.9	16.6	99 E	63	—	8 14	16 42.39	+26 16.8	0.784	1.489	39.4	18.8	111 E	18*	90
3 2	4 35.78	+75 13.7	0.285	1.059	68.6	16.7	96 E	60*	—	8 19	16 52.21	+27 37.9	0.841	1.509	39.4	19.0	109 E	17*	88
3 7	4 30.53	+78 1.6	0.293	1.050	70.7	16.8	93 E	57*	—	8 24	17 2.39	+28 47.8	0.898	1.529	39.4	19.2	106 E	16*	87
3 12	4 27.92	+80 43.4	0.300	1.042	72.4	16.9	91 E	54*	—	8 29	17 12.88	+29 47.7	0.957	1.548	39.3	19.3	104 E	15*	86
3 13	4 27.81	+81 15.2	0.301	1.041	72.7	16.9	90 E	53*	—	9 3	17 23.64	+30 38.5	1.017	1.567	39.1	19.5	101 E	14*	85
3 14	4 27.87	+81 46.9	0.302	1.040	73.0	16.9	90 E	52*	—	9 8	17 34.64	+31 20.9	1.078	1.585	38.9	19.6	99 E	13*	85
3 15	4 28.15	+82 18.4	0.304	1.039	73.2	17.0	90 E	52*	—	9 13	17 45.86	+31 55.8	1.140	1.603	38.6	19.8	97 E	13*	84
3 16	4 28.67	+82 49.8	0.305	1.037	73.5	17.0	89 E	51*	—	9 18	17 57.27	+32 23.6	1.202	1.621	38.2	19.9	94 E	12*	83*
3 17	4 29.49	+83 21.1	0.306	1.036	73.7	17.0													







