

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

20/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°-26°	20/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°-26°
138404 2000 HA₂₄									413192 2002 VY₉₄ (continuation)								
7 10	3 57.46	+21 53.0	1.332	0.966	49.4	21.5	46 W	26* 31*	11 27	12 43.53	-10 34.5	1.428	1.113	43.5	19.5	51 W	30* 35*
7 15	4 22.83	+23 0.5	1.324	0.939	49.9	21.4	45 W	27* 29*	12 2	13 2.73	-12 58.8	1.432	1.112	43.4	19.5	51 W	28* 36*
7 20	4 49.06	+23 53.3	1.320	0.914	50.2	21.4	44 W	27* 27*	12 7	13 21.86	-15 15.6	1.439	1.116	43.1	19.5	51 W	27* 37*
7 25	5 16.01	+24 29.6	1.321	0.889	50.2	21.3	42 W	27* 25*	12 12	13 40.91	-17 23.6	1.448	1.123	42.7	19.5	51 W	25* 38*
7 30	5 43.49	+24 47.8	1.326	0.866	50.0	21.3	41 W	27* 24*	12 17	13 59.81	-19 22.0	1.458	1.134	42.3	19.5	51 W	23* 39*
8 4	6 11.29	+24 46.8	1.335	0.845	49.5	21.2	39 W	27* 22*	12 22	14 18.51	-21 10.1	1.470	1.149	41.9	19.6	51 W	22* 41*
8 9	6 39.19	+24 26.3	1.347	0.826	48.7	21.2	38 W	26* 20*	12 27	14 36.97	-22 47.6	1.483	1.167	41.4	19.6	52 W	20* 42*
8 14	7 6.95	+23 46.4	1.364	0.809	47.6	21.1	36 W	25* 19*	1 1	14 55.12	-24 14.5	1.496	1.188	41.0	19.7	52 W	19* 43*
8 19	7 34.37	+22 48.0	1.384	0.796	46.2	21.1	35 W	25* 17*	1 6	15 12.91	-25 30.9	1.509	1.212	40.5	19.7	53 W	18* 45*
8 24	8 1.25	+21 32.5	1.407	0.785	44.5	21.0	33 W	24* 16*	1 11	15 30.29	-26 37.1	1.522	1.239	40.1	19.8	54 W	17* 46*
8 29	8 27.46	+20 1.6	1.433	0.779	42.7	21.0	32 W	23* 15*	1 16	15 47.18	-27 33.5	1.533	1.268	39.7	19.8	55 W	16* 48*
9 3	8 52.90	+18 17.6	1.461	0.776	40.7	21.0	30 W	22* 14*	488803 2005 GB₁₂₀								
9 8	9 17.53	+16 22.6	1.490	0.777	38.6	21.0	29 W	21* 13*	7 10	5 49.27	+20 28.8	1.270	0.479	48.4	21.2	21 W	6* 13*
9 13	9 41.32	+14 19.0	1.521	0.782	36.5	21.0	28 W	20* 12*	7 15	6 23.86	+20 9.1	1.344	0.482	39.0	21.1	17 W	4* 10*
9 18	10 4.27	+12 9.0	1.552	0.791	34.4	21.0	26 W	19* 11*	7 20	6 57.76	+19 33.7	1.415	0.497	30.1	21.0	14 W	2* 7*
9 23	10 26.42	+9 54.9	1.584	0.803	32.5	21.0	25 W	18* 10*	7 25	7 30.49	+18 43.5	1.479	0.522	22.3	21.0	11 W	— 4*
9 28	10 47.80	+7 38.5	1.615	0.818	30.6	21.0	25 W	17* 10*	7 30	8 1.67	+17 40.1	1.537	0.554	15.9	21.0	9 W	— 2*
10 3	11 8.48	+5 21.6	1.647	0.837	29.0	21.1	24 W	16* 10*	8 4	8 31.13	+16 25.7	1.590	0.592	10.8	21.0	6 W	— —
10 8	11 28.51	+3 5.7	1.678	0.857	27.5	21.1	23 W	15* 9*	8 9	8 58.87	+15 2.9	1.639	0.632	6.8	21.1	4 W	— —
10 13	11 47.96	+0 51.8	1.708	0.879	26.2	21.2	23 W	15* 9*	8 14	9 24.94	+13 33.9	1.684	0.674	3.9	21.1	3 W	— —
10 18	12 6.89	-1 18.8	1.737	0.903	25.2	21.2	23 W	15* 9*	8 19	9 49.49	+12 0.5	1.726	0.715	1.8	21.2	1 W	— —
10 23	12 25.36	-3 25.4	1.765	0.929	24.3	21.3	23 W	14* 9*	8 24	10 12.66	+10 24.4	1.766	0.755	1.0	21.3	1 E	— —
10 28	12 43.41	-5 27.3	1.792	0.955	23.6	21.4	23 W	14* 10*	8 29	10 34.60	+8 46.9	1.804	0.794	1.5	21.5	1 E	— —
11 2	13 1.10	-7 24.1	1.817	0.981	23.1	21.5	23 W	14* 10*	370061 2000 YO₂₉								
7 10	4 0.05	+17 49.4	2.215	1.684	25.9	21.3	46 W	23* 34*	7 10	6 12.89	+22 26.7	2.591	1.630	9.3	21.4	15 W	4* 7*
7 20	4 28.33	+19 2.8	2.068	1.600	28.7	21.2	49 W	27* 34*	7 15	6 24.34	+21 24.9	2.523	1.580	10.9	21.4	17 W	5* 9*
7 30	4 59.33	+20 2.7	1.924	1.514	31.6	21.0	51 W	32* 34*	7 20	6 36.10	+20 16.5	2.452	1.530	12.6	21.3	19 W	6* 11*
8 9	5 33.50	+20 43.8	1.786	1.425	34.5	20.8	53 W	35* 33*	7 25	6 48.21	+19 0.5	2.379	1.478	14.4	21.2	21 W	8* 13*
8 19	6 11.30	+20 59.0	1.657	1.334	37.6	20.5	54 W	38* 32*	7 30	7 0.73	+17 36.2	2.303	1.425	16.2	21.2	23 W	9* 15*
8 29	6 53.04	+20 39.0	1.541	1.241	40.8	20.3	53 W	40* 31*	8 4	7 13.70	+16 2.7	2.224	1.371	18.1	21.1	25 W	10* 16*
9 3	7 15.42	+20 12.7	1.489	1.195	42.4	20.2	53 W	40* 30*	8 9	7 27.20	+14 18.7	2.145	1.315	20.0	21.0	26 W	11* 18*
9 8	7 38.78	+19 33.6	1.442	1.149	44.0	20.1	52 W	40* 29*	8 14	7 41.33	+12 23.2	2.064	1.259	22.0	20.8	28 W	12* 19*
9 13	8 3.06	+18 40.6	1.401	1.103	45.5	20.0	51 W	40* 28*	8 19	7 56.20	+10 14.9	1.983	1.201	24.0	20.7	29 W	12* 20*
9 18	8 28.15	+17 32.9	1.366	1.058	46.9	19.9	50 W	39* 27*	8 24	8 11.93	+7 52.6	1.902	1.142	26.1	20.6	30 W	12* 22*
9 23	8 53.92	+16 10.0	1.338	1.014	48.1	19.8	49 W	38* 26*	8 29	8 28.70	+5 15.1	1.823	1.082	28.3	20.4	30 W	12* 23*
9 28	9 20.22	+14 32.1	1.317	0.971	49.1	19.7	47 W	37* 24*	9 3	8 46.71	+2 21.6	1.747	1.021	30.4	20.3	31 W	12* 23*
10 3	9 46.87	+12 40.0	1.304	0.931	49.8	19.6	45 W	35* 23*	9 8	9 6.22	-0 48.3	1.675	0.960	32.5	20.1	31 W	10* 24*
10 8	10 13.72	+10 35.0	1.298	0.893	50.2	19.5	43 W	34* 22*	9 13	9 27.53	-4 13.8	1.609	0.898	34.5	19.9	30 W	9* 24*
10 13	10 40.60	+8 19.3	1.301	0.859	50.1	19.4	41 W	32* 20*	9 18	9 51.00	-7 52.5	1.551	0.838	36.2	19.7	29 W	7* 23*
10 18	11 7.38	+5 55.4	1.311	0.828	49.5	19.3	39 W	30* 19*	9 23	10 17.01	-11 39.3	1.501	0.778	37.5	19.5	28 W	4* 22*
10 23	11 33.92	+3 26.2	1.328	0.804	48.3	19.3	37 W	28* 18*	9 28	10 45.95	-15 26.1	1.463	0.721	38.3	19.3	26 W	— 20*
10 28	12 0.16	+0 54.7	1.351	0.785	46.7	19.2	35 W	26* 17*	9 30	10 58.41	-16 54.1	1.451	0.699	38.4	19.3	26 W	— 19*
11 2	12 26.01	-1 36.2	1.380	0.772	44.6	19.1	33 W	24* 15*	10 2	11 11.40	-18 19.3	1.441	0.678	38.3	19.2	25 W	— 18*
11 7	12 51.45	-4 4.0	1.414	0.767	42.2	19.1	31 W	22* 14*	10 4	11 24.91	-19 40.6	1.433	0.659	38.0	19.1	24 W	— 17*
11 12	13 16.41	-6 26.1	1.452	0.770	39.6	19.1	30 W	20* 14*	10 6	11 38.95	-20 57.0	1.428	0.640	37.6	19.0	23 W	— 16*
11 17	13 40.87	-8 40.4	1.493	0.780	37.0	19.1	28 W	19* 13*	10 8	11 53.47	-22 7.3	1.424	0.623	36.9	18.9	22 W	— 14*
11 22	14 4.77	-10 45.3	1.536	0.797	34.4	19.2	27 W	18* 13*	10 10	12 8.45	-23 10.5	1.423	0.607	36.1	18.9	21 W	— 13*
11 27	14 28.09	-12 39.4	1.580	0.820	32.1	19.2	26 W	16* 12*	10 12	12 23.83	-24 5.6	1.423	0.593	35.1	18.8	20 W	— 11*
12 7	15 12.81	-15 53.3	1.669	0.881	28.2	19.4	25 W	14* 12*	10 14	12 39.54	-24 51.6	1.426	0.581	33.9	18.7	19 W	— 9*
12 17	15 54.84	-18 20.4	1.757	0.958	25.6	19.6	25 W	13* 13*	10 16	12 55.48	-25 28.0	1.430	0.571	32.6	18.6	18 W	— 8*
12 27	16 34.03	-20 4.0	1.839	1.043	24.0	19.8	26 W	12* 15*	10 18	13 11.57	-25 54.1	1.436	0.564	31.1	18.6	17 W	— 6*
1 16	16 52.55	-20 41.0	1.878	1.088	23.6	20.0	26 W	12* 16*	10 20	13 27.68	-26 9.8	1.443	0.559	29.6	18.5	16 W	— 4*
1 6	17 10.36	-21 9.4	1.915	1.134	23.4	20.1	27 W	12* 18*	10 22	13 43.71	-26 15.0	1.452	0.557	28.0	18.5	15 W	— 2*
1 11	17 27.46	-21 29.8	1.949	1.180	23.3	20.2	28 W	12* 19*	10 24	13 59.56	-26 10.2	1.461	0.557	26.5	18.5	14 E	— 2*
1 16	17 43.86	-21 43.1	1.981	1.226	23.3	20.3	30 W	12* 21*	10 26	14 15.12	-25 55.9	1.472	0.560	25.1	18.4	14 E	— 3*
413192 2002 VY₉₄									10 28	14 30.31	-25 32.7	1.484	0.565	23.9	18.4	13 E	— 4*
7 10	4 45.65	+27 1.6	2.771	2.021	16.7	21.4	35 W	21* 20*	10 30	14 45.07	-25 1.6	1.496	0.573	22.9	18.5	13 E	— 5*
7 20	5 11.62	+27 23.8	2.628	1.938	19.0	21.3	38 W	25* 21*	11 1	14 59.35	-24 23.6	1.509	0.584	22.1	18.5	13 E	— 6*
7 30	5 39.13	+27 28.6	2.483	1.855	21.4	21.2	42 W	29* 22*	11 3	15 13.13	-23 39.6	1.522	0.596	21.5	18.5	13 E	— 6*
8 9	6 8.23	+27 12.3	2.339	1.772	23.8	21.0	45 W	33* 23*	11 5	15 26.38	-22 50.7	1.536	0.610	21.2	18.6	13 E	— 7*
8 19	6 38.94	+26 30.6	2.197	1.689	26.3	20.8	48 W	37* 24*	11 7	15 39.11	-21 57.7	1.550	0.626	21.0	18.7	13 E	— 7*
8 29	7 11.19	+25 19.2	2.061	1.607	28.7	20.7	50 W	40* 24*	11 9	15 51.34	-21 1.4	1.565	0.644	21.0	18.7	13 E	— 7*
9 8	7 44.88	+23 33.4	1.932	1.527	31.2	20.5	52 W	42* 25*	11 11	16 3.07	-20 2.7	1.580	0.663	21.1	18.8	14 E	— 1* 7*
9 13	8 2.23	+22 26.3	1.871	1.488	32.4	20.4	52 W	42* 25*	11 13	16 14.34	-19 2.0	1.595	0.683	21.3	18.9	14 E	— 3* 7*
9 18	8 19.87	+21 9.3	1.812	1.449	33.6	20.3	53 W	43* 26*	11 15	16 25.17	-18 0.1	1.610	0.704	21.5	19.0		

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20/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	20/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°
337248 2000 RH₆₀										168381 1997 LY₄									
7 10	6 30.86	+15 53.0	1.542	0.595	22.2	21.0	13 W	—	7*	7 10	7 45.75	+16 58.0	3.291	2.290	3.7	21.4	8 E	—	2*
7 15	7 4.06	+15 45.3	1.504	0.532	19.2	20.6	10 W	—	4*	7 20	8 4.48	+15 55.8	3.303	2.293	2.2	21.3	5 E	—	—
7 20	7 39.86	+15 26.8	1.466	0.472	14.7	20.1	7 W	—	—	7 30	8 22.99	+14 45.6	3.303	2.294	2.3	21.4	5 W	—	—
7 25	8 18.26	+14 57.8	1.424	0.419	11.4	19.7	5 E	—	—	8 9	8 41.24	+13 27.9	3.290	2.293	3.9	21.4	9 W	—	3*
7 30	8 58.89	+14 19.8	1.373	0.383	17.7	19.6	7 E	—	—	8 19	8 59.24	+12 3.1	3.264	2.291	5.8	21.5	13 W	3*	6*
8 4	9 40.70	+13 34.8	1.310	0.371	31.9	19.9	11 E	—	5*	416470 2003 WD₈₂									
8 9	10 22.13	+12 43.2	1.237	0.388	47.2	20.3	16 E	2*	10*	7 10	7 47.48	+18 38.7	3.911	2.908	2.7	21.5	8 E	—	2*
8 11	10 38.32	+12 20.3	1.206	0.401	52.6	20.5	18 E	4*	11*	7 20	8 2.91	+17 43.1	3.969	2.955	1.1	21.4	3 E	—	—
8 13	10 54.23	+11 55.7	1.176	0.418	57.4	20.6	20 E	6*	13*	7 30	8 17.82	+16 43.3	4.012	3.003	1.7	21.5	5 W	—	—
8 15	11 9.87	+11 29.3	1.146	0.438	61.5	20.8	22 E	7*	15*	8 9	8 32.18	+15 40.0	4.040	3.049	3.5	21.7	11 W	1*	4*
8 17	11 25.25	+11 0.7	1.117	0.459	65.0	21.0	24 E	9*	16*	8 19	8 45.96	+14 33.8	4.051	3.095	5.3	21.8	17 W	7*	8*
8 19	11 40.39	+10 29.8	1.090	0.482	67.9	21.1	26 E	11*	18*	122258 2000 OD₄₄									
8 24	12 17.39	+9 1.7	1.029	0.543	72.8	21.4	31 E	14*	22*	7 10	7 51.13	+19 29.4	4.134	3.131	2.7	21.4	8 E	—	2*
8 29	12 53.37	+7 17.9	0.980	0.605	75.0	21.6	35 E	17*	26*	7 20	8 5.20	+18 40.3	4.138	3.123	0.8	21.3	3 E	—	—
9 3	13 28.49	+5 19.9	0.945	0.667	75.3	21.7	40 W	20*	30*	7 30	8 19.20	+17 46.4	4.125	3.114	1.4	21.3	4 W	—	—
9 8	14 2.71	+3 11.1	0.923	0.726	74.3	21.8	44 E	23*	34*	8 9	8 33.07	+16 47.9	4.096	3.104	3.4	21.5	10 W	2*	3*
9 8	14 2.71	+3 11.1	0.923	0.726	74.3	21.8	44 E	23*	34*	8 19	8 46.76	+15 45.2	4.050	3.093	5.3	21.5	16 W	7*	7*
451003 2008 UD₁										189080 2001 MO₆									
7 10	7 32.85	+19 40.3	2.027	1.016	4.4	21.4	4 E	—	—	7 10	8 8.65	+16 44.3	3.509	2.530	5.3	21.5	13 E	—	7*
7 20	8 16.70	+18 14.9	1.981	0.972	5.2	21.3	5 E	—	—	7 20	8 26.15	+15 41.7	3.561	2.559	3.3	21.4	8 E	—	2*
7 30	9 1.47	+16 7.1	1.944	0.941	6.7	21.2	6 E	—	—	7 30	8 43.23	+14 33.4	3.599	2.588	1.6	21.4	4 E	—	—
8 9	9 46.50	+13 20.1	1.918	0.923	8.5	21.2	8 E	—	2*	8 9	8 59.86	+13 20.0	3.624	2.615	1.8	21.4	5 W	—	—
8 19	10 31.19	+10 0.6	1.904	0.922	10.5	21.3	10 E	—	3*	8 19	9 16.04	+12 2.3	3.636	2.642	3.5	21.6	9 W	—	3*
8 29	11 15.05	+6 18.6	1.905	0.936	12.4	21.4	11 E	—	5*	144922 2005 CK₃₈									
140039 2001 SO₇₃										7 10	8 16.00	+24 35.9	2.811	1.839	7.5	21.4	14 E	4*	5*
7 10	7 39.93	+18 31.3	2.548	1.542	4.2	21.4	6 E	—	—	7 20	8 40.60	+22 55.7	2.777	1.786	5.7	21.2	10 E	2*	2*
7 20	8 7.53	+17 22.9	2.471	1.459	2.8	21.2	4 E	—	—	7 30	9 5.59	+20 59.0	2.736	1.732	4.1	21.1	7 E	—	—
7 30	8 36.66	+15 52.7	2.386	1.373	2.0	20.9	3 W	—	—	8 9	9 30.92	+18 45.6	2.688	1.680	2.7	20.9	5 E	—	—
8 9	9 7.46	+13 58.6	2.297	1.285	2.2	20.7	3 W	—	—	8 19	9 56.63	+16 15.4	2.636	1.627	2.2	20.7	4 E	—	—
8 19	9 40.13	+11 38.3	2.206	1.197	3.0	20.5	4 W	—	—	8 29	10 22.72	+13 28.6	2.581	1.576	2.9	20.6	5 W	—	—
8 29	10 14.91	+8 50.4	2.115	1.110	3.5	20.3	4 W	—	—	9 8	10 49.25	+10 26.1	2.523	1.526	4.2	20.6	6 W	—	—
9 8	10 52.06	+5 34.4	2.029	1.025	3.6	20.0	4 W	—	—	9 18	11 16.34	+7 8.7	2.465	1.478	5.7	20.6	8 W	2*	—
9 18	11 31.94	+1 51.9	1.949	0.946	2.8	19.7	3 W	—	—	9 28	11 44.09	+3 38.4	2.408	1.433	7.2	20.5	10 W	4*	—
9 23	11 52.99	+0 7.8	1.913	0.910	2.1	19.5	2 W	—	—	10 8	12 12.65	+0 2.5	2.353	1.392	8.6	20.5	12 W	6*	1*
9 28	12 14.84	+2 11.9	1.879	0.877	1.1	19.3	1 W	—	—	10 18	12 42.19	+3 50.8	2.302	1.354	10.0	20.4	14 W	7*	2*
10 3	12 37.51	+4 18.9	1.849	0.848	0.5	19.2	0 E	—	—	10 28	13 12.90	+7 42.0	2.256	1.322	11.2	20.4	15 W	8*	4*
10 8	13 1.02	+6 27.1	1.822	0.824	2.0	19.2	2 E	—	—	11 2	13 28.75	+9 37.0	2.236	1.308	11.8	20.3	16 W	8*	5*
10 13	13 25.35	+8 34.6	1.800	0.805	3.9	19.3	3 E	—	—	11 7	13 44.95	+11 30.7	2.216	1.295	12.4	20.3	16 W	8*	6*
10 18	13 50.49	+10 38.8	1.781	0.792	5.9	19.3	5 E	—	—	11 12	14 1.53	+13 22.3	2.199	1.284	12.9	20.3	17 W	8*	7*
10 23	14 16.36	+12 37.3	1.767	0.786	8.1	19.4	6 E	—	—	11 17	14 18.49	+15 10.9	2.183	1.275	13.4	20.3	17 W	8*	7*
10 28	14 42.86	+14 27.5	1.757	0.786	10.3	19.5	8 E	—	2*	11 22	14 35.85	+16 55.5	2.170	1.268	13.9	20.3	18 W	8*	7*
11 2	15 9.84	+16 6.9	1.753	0.793	12.4	19.6	10 E	—	3*	11 27	14 53.59	+18 35.3	2.158	1.262	14.4	20.3	19 W	8*	9*
11 7	15 37.15	+17 33.3	1.753	0.807	14.2	19.7	12 E	1*	5*	12 2	15 11.72	+20 9.3	2.148	1.258	14.9	20.3	19 W	8*	10*
11 12	16 4.59	+18 45.2	1.759	0.827	15.8	19.8	13 E	2*	6*	12 7	15 30.21	+21 36.6	2.140	1.256	15.3	20.3	20 W	7*	11*
11 17	16 31.94	+19 41.5	1.770	0.851	17.1	19.9	15 E	3*	7*	12 12	15 49.04	+22 56.5	2.133	1.256	15.7	20.3	20 W	7*	12*
11 22	16 58.98	+20 21.6	1.787	0.881	18.0	20.0	16 E	4*	8*	12 17	16 8.16	+24 8.1	2.129	1.258	16.1	20.3	21 W	6*	13*
11 27	17 25.51	+20 45.8	1.809	0.914	18.6	20.1	17 E	5*	9*	12 22	16 27.51	+25 10.8	2.126	1.262	16.5	20.3	21 W	6*	14*
12 2	17 51.34	+20 54.7	1.836	0.950	18.9	20.3	18 E	6*	10*	12 27	16 47.03	+26 4.1	2.125	1.268	16.9	20.4	22 W	5*	15*
12 7	18 16.34	+20 49.6	1.868	0.989	18.9	20.4	19 E	7*	10*	1 1	17 6.64	+26 47.6	2.125	1.276	17.3	20.4	23 W	5*	16*
12 12	18 40.38	+20 31.8	1.904	1.030	18.6	20.5	19 E	8*	10*	1 6	17 26.27	+27 21.1	2.126	1.285	17.7	20.4	23 W	5*	17*
12 17	19 3.41	+20 2.9	1.944	1.072	18.2	20.6	20 E	9*	10*	1 11	17 45.82	+27 44.6	2.129	1.296	18.1	20.4	24 W	4*	18*
12 22	19 25.38	+19 24.6	1.988	1.115	17.5	20.7	20 E	9*	9*	1 16	18 5.22	+27 58.3	2.133	1.309	18.5	20.5	25 W	4*	19*
12 27	19 46.28	+18 38.4	2.034	1.158	16.8	20.9	20 E	10*	9*	306418 1998 KK₅₆									
1 1	20 6.14	+17 45.7	2.083	1.202	15.9	21.0	20 E	10*	8*	7 10	8 54.66	+28 34.3	3.402	2.495	9.1	21.5	23 E	13*	10*
1 6	20 25.01	+16 48.0	2.133	1.246	14.9	21.1	19 E	10*	7*	7 20	9 13.85	+27 47.0	3.382	2.440	7.7	21.3	19 E	11*	6*
1 11	20 42.93	+15 46.3	2.186	1.290	13.9	21.1	18 E	10*	7*	7 30	9 33.66	+26 51.4	3.349	2.385	6.5	21.2	15 E	9*	2*
1 16	20 59.97	+14 41.6	2.239	1.334	12.8	21.2	18 E	10*	6*	8 9	9 54.04	+25 47.3	3.306	2.331	5.7	21.1	13 E	7*	—
162273 1999 VL₁₂										8 19	10 14.95	+24 34.8	3.252	2.276	5.7	21.0	13 E	6*	—
7 10	7 40.52	+9 7.7	2.881	1.912	7.5	21.4	14 E	—	5*	8 29	10 36.39	+23 14.2	3.188	2.222	6.3	20.9	14 E	5*	—
7 20	8 2.24	+7 51.8	2.874	1.897	6.8	21.4	13 E	—	1*	9 8	10 58.33	+21 45.6	3.117	2.168	7.4	20.9	16 W	7*	—
7 30	8 24.04	+6 24.6	2.858	1.880	6.7	21.4	13 W	—	2*	9 18	11 20.80	+20 9.4	3.039	2.115	8.9	20.8	19 W	11*	—
8 9	8 45.90	+4 46.5	2.833	1.862	7.2	21.3	13 W	—	6*	9 28	11 43.79	+18 26.2	2.956	2.063	10.6	20.8	22 W	14*	—
8 19	9 7.86	+2 58.1	2.800	1.841	8.2	21.3	15 W	—	9*	10 8	12 7.33	+16 36.8	2.868	2.012	12.3	20.7	25 W	18*	—
8 29	9 29.94	+1 0.0	2.759	1.820	9.5	21.3	17 W	—	11*	10 18	12 31.43	+14 41.9	2.779	1.962	14.0	20.7	29 W	22*	—
9 8	9 52.19	+1 7.0	2.712	1.796	11.0	21.3	20 W	2*	14*	10 28	12 56.12	+12 42.9	2.688	1.914	15.8	20.6	32 W	25*	—
9 18	10 14.68	+3 22.0	2.657	1.772	12.6	21.3	23 W	6*	16*</										

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

20/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	20/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°
507355 2011 VV₅										153271 2001 CL₄₂ (continuation)									
7 10	9 0.98	+2 47.7	1.535	0.857	38.6	21.2	32 E	—	25*	12 7	16 21.04	-30 8.0	1.945	0.994	10.6	19.3	11 W	—	4*
7 15	9 15.58	+2 0.8	1.465	0.787	41.3	21.0	31 E	—	24*	12 12	16 46.04	-31 30.7	1.925	0.976	11.0	19.3	11 W	—	4*
7 20	9 31.20	+1 15.4	1.387	0.716	45.0	20.8	30 E	—	23*	12 17	17 12.19	-32 35.7	1.908	0.961	11.3	19.2	11 W	—	4*
7 25	9 47.92	+0 35.7	1.300	0.643	50.2	20.6	29 E	—	22*	12 22	17 39.32	-33 20.3	1.895	0.949	11.4	19.2	11 W	—	3*
7 30	10 5.74	+0 9.6	1.202	0.572	57.4	20.4	28 E	—	21*	12 27	18 7.13	-33 42.3	1.886	0.939	11.5	19.1	11 W	—	2*
8 1	10 13.13	+0 5.9	1.160	0.545	61.1	20.3	28 E	—	21*	1 1	18 35.28	-33 40.3	1.880	0.933	11.5	19.1	11 W	—	1*
8 3	10 20.64	+0 7.8	1.116	0.519	65.3	20.2	28 E	—	21*	1 6	19 3.40	-33 14.0	1.878	0.930	11.4	19.1	11 W	—	—
8 5	10 28.20	+0 17.1	1.070	0.493	70.1	20.2	27 E	—	21*	1 11	19 31.12	-32 23.7	1.880	0.931	11.2	19.1	11 E	—	—
8 7	10 35.74	+0 35.7	1.023	0.470	75.6	20.2	27 E	—	20*	1 16	19 58.10	-31 11.1	1.886	0.935	10.9	19.1	10 E	—	1*
8 9	10 43.14	+1 6.1	0.975	0.449	81.8	20.2	26 E	—	20*	420286 2011 RZ									
8 11	10 50.26	+1 51.0	0.926	0.432	88.8	20.2	25 E	—	19*	7 10	9 48.48	-10 36.5	1.431	1.091	45.1	21.4	49 E	—	42*
8 13	10 56.91	+2 53.5	0.877	0.417	96.5	20.4	24 E	—	18*	7 20	10 12.97	-15 37.4	1.377	1.047	47.2	21.3	49 E	—	40*
8 15	11 2.86	+4 16.3	0.829	0.408	104.8	20.6	23 E	—	17*	7 30	10 41.35	-20 56.7	1.313	1.016	49.7	21.2	50 E	—	38*
8 17	11 7.88	+6 1.5	0.783	0.402	113.4	21.0	21 E	—	15*	8 9	11 15.14	-26 28.0	1.245	0.999	52.3	21.1	51 E	—	37*
8 19	11 11.72	+8 10.0	0.740	0.402	122.0	21.5	20 E	—	13*	8 19	11 56.51	-31 56.2	1.179	0.997	54.7	21.0	54 E	—	38*
79137 1991 PD₁₅										8 29	12 47.87	-36 52.2	1.122	1.012	56.2	21.0	56 E	—	40*
7 10	9 9.14	+13 50.0	3.813	2.951	9.2	21.5	28 E	5*	21*	9 8	13 50.38	-40 28.4	1.085	1.041	56.5	21.0	60 E	—	44*
7 20	9 22.87	+12 42.8	3.871	2.951	7.3	21.4	22 E	1*	16*	9 18	15 1.30	-41 51.2	1.074	1.082	55.5	21.0	63 E	—	49*
7 30	9 36.68	+11 31.1	3.914	2.951	5.4	21.4	16 E	—	10*	9 28	16 12.93	-40 35.2	1.096	1.134	53.4	21.1	65 E	—	55*
8 9	9 50.51	+10 15.2	3.942	2.949	3.4	21.3	10 E	—	4*	10 8	17 17.19	-37 7.6	1.150	1.194	50.4	21.3	67 E	4*	59*
8 19	10 4.33	+8 55.5	3.954	2.946	1.6	21.1	5 E	—	—	10 18	18 10.78	-32 26.3	1.235	1.260	47.1	21.4	68 E	11*	62*
8 29	10 18.10	+7 32.3	3.949	2.942	1.2	21.1	4 W	—	—	387717 2003 DN₄									
9 8	10 31.76	+6 6.4	3.929	2.937	3.0	21.2	9 W	—	2*	7 10	10 31.34	+32 13.3	1.170	0.828	58.2	21.3	44 E	31*	22*
9 18	10 45.31	+4 37.9	3.893	2.931	4.9	21.3	15 W	6*	6*	7 15	10 45.52	+32 15.1	1.120	0.785	61.6	21.2	43 E	31*	21*
9 28	10 58.69	+3 7.7	3.841	2.924	6.9	21.4	21 W	12*	10*	7 20	10 59.70	+32 9.9	1.061	0.744	65.8	21.1	42 E	31*	20*
10 8	11 11.87	+1 36.2	3.773	2.916	8.9	21.4	27 W	17*	14*	7 25	11 13.59	+31 55.8	0.995	0.706	71.0	21.0	41 E	31*	19*
10 18	11 24.81	+0 3.9	3.691	2.907	10.8	21.4	33 W	23*	18*	7 30	11 26.77	+31 29.8	0.921	0.671	77.5	21.0	40 E	30*	18*
10 28	11 37.44	-1 28.3	3.594	2.897	12.6	21.4	39 W	27*	23*	8 4	11 38.60	+30 47.1	0.841	0.641	85.3	20.9	39 E	30*	17*
11 7	11 49.70	-2 59.8	3.484	2.886	14.3	21.4	46 W	32*	28*	8 9	11 48.18	+29 39.6	0.755	0.618	94.7	21.0	37 E	29*	16*
11 17	12 1.51	-4 30.1	3.362	2.874	15.9	21.4	53 W	35*	33*	8 14	11 54.32	+27 54.8	0.666	0.604	105.8	21.2	35 E	27*	15*
11 27	12 12.76	-5 58.1	3.229	2.861	17.3	21.3	60 W	37*	40*	360192 1991 FB									
12 7	12 23.32	-7 23.1	3.086	2.847	18.6	21.3	67 W	37*	47*	7 10	10 55.87	+3 53.7	1.184	1.041	53.9	21.4	56 E	17*	47*
12 17	12 33.05	-8 44.3	2.936	2.831	19.5	21.2	74 W	36	54*	7 20	11 29.48	-1 19.3	1.142	1.022	55.7	21.4	56 E	13*	49*
12 27	12 41.73	-10 0.5	2.780	2.815	20.2	21.1	82 W	35	62*	7 30	12 5.77	-6 53.5	1.105	1.019	56.9	21.3	57 E	11*	51*
1 6	12 49.15	-11 10.6	2.621	2.798	20.6	20.9	90 W	34	70*	8 9	12 45.26	-12 36.6	1.078	1.032	57.4	21.3	59 E	9*	53*
1 16	12 55.04	-12 13.3	2.461	2.780	20.5	20.8	98 W	33	76*	8 19	13 28.42	-18 10.7	1.064	1.060	56.9	21.3	61 E	7*	55*
12923 Zephyr										8 29	14 15.38	-23 13.1	1.069	1.101	55.4	21.4	64 E	7*	57*
7 10	9 19.60	+14 7.3	3.693	2.858	10.2	21.5	30 E	7*	23*	9 8	15 5.54	-27 19.5	1.095	1.154	53.2	21.5	66 E	7*	60*
7 20	9 33.06	+13 10.8	3.741	2.842	8.3	21.4	24 E	3*	17*	513163 2003 YT₁₂₄									
7 30	9 46.78	+12 9.1	3.773	2.824	6.3	21.3	18 E	—	12*	7 10	20 9.97	-24 23.2	2.045	3.046	4.0	24.9	168 W	21	88
8 9	10 0.68	+11 2.6	3.789	2.804	4.3	21.2	12 E	—	6*	7 15	20 4.45	-24 36.0	2.018	3.030	2.3	24.8	173 W	20	89
8 19	10 14.75	+9 51.9	3.788	2.783	2.1	21.1	6 E	—	—	7 20	20 58.68	-24 47.7	2.000	3.014	1.4	24.7	176 W	20	89
8 29	10 28.93	+8 37.2	3.769	2.759	0.3	20.9	1 W	—	—	7 25	19 52.81	-24 57.8	1.988	2.998	2.7	24.8	172 E	20	89
9 8	10 43.20	+7 19.2	3.734	2.734	2.2	21.0	6 W	—	—	7 30	19 46.97	-25 6.1	1.984	2.981	4.6	24.9	167 E	20	89
9 18	10 57.55	+5 58.4	3.683	2.707	4.4	21.1	12 W	5*	2*	8 4	19 41.31	-25 12.3	1.988	2.964	6.5	24.9	161 E	20	89
9 28	11 11.96	+4 35.3	3.615	2.679	6.6	21.1	18 W	10*	6*	8 9	19 35.94	-25 16.3	1.998	2.947	8.4	25.0	155 E	20	89
10 8	11 26.40	+3 10.5	3.531	2.648	8.8	21.2	24 W	16*	10*	5797 Bivoj									
10 18	11 40.87	+1 44.8	3.432	2.616	10.9	21.1	30 W	21*	14*	7 10	20 11.75	-20 21.4	1.712	2.713	4.7	22.4	167 W	25	84
10 28	11 55.35	+0 18.8	3.319	2.582	13.1	21.1	36 W	26*	18*	7 15	20 5.47	-20 34.8	1.696	2.708	2.4	22.3	174 W	24	85
11 7	12 9.82	-1 6.7	3.193	2.545	15.1	21.1	42 W	31*	22*	7 20	20 58.96	-20 47.7	1.687	2.703	0.1	22.0	180 W	24	85
11 17	12 24.25	-2 31.0	3.055	2.507	17.1	21.0	48 W	34*	27*	7 25	19 52.39	-20 59.8	1.685	2.697	2.3	22.2	174 E	24	85
11 27	12 38.60	-3 52.9	2.906	2.467	19.0	20.9	55 W	37*	33*	7 30	19 45.93	-21 10.6	1.691	2.691	4.7	22.4	168 E	24	85
12 7	12 52.83	-5 11.7	2.747	2.425	20.8	20.8	61 W	38*	39*	8 4	19 39.73	-21 19.9	1.704	2.685	7.0	22.5	161 E	24	85
12 17	13 6.88	-6 26.2	2.581	2.382	22.4	20.7	67 W	38*	46*	8 9	19 33.95	-21 27.5	1.724	2.678	9.1	22.6	155 E	24	85
12 27	13 20.66	-7 35.3	2.408	2.336	23.9	20.6	74 W	37	53*	370212 2002 GG₁₄₈									
1 6	13 34.07	-8 37.8	2.232	2.288	25.1	20.4	81 W	36	60*	7 10	20 16.79	-59 5.9	2.761	3.614	10.0	22.8	142 W	—	57
1 16	13 46.96	-9 32.2	2.053	2.238	26.0	20.2	88 W	35	67*	7 15	20 8.99	-59 20.5	2.762	3.616	10.0	22.8	142 W	—	57
153271 2001 CL₄₂										7 20	20 0.98	-59 27.9	2.769	3.617	10.1	22.9	141 W	—	57
7 10	9 25.87	+25 32.6	2.619	1.804	16.1	21.4	29 E	16*	17*	7 25	19 52.98	-59 28.1	2.782	3.619	10.4	22.9	140 E	—	57
7 20	9 46.76	+22 54.3	2.623	1.759	14.3	21.3	25 E	12*	15*	7 30	19 45.22	-59 20.9	2.800	3.620	10.8	22.9	138 E	—	57
7 30	10 7.77	+20 5.5	2.617	1.711	12.4	21.2	21 E	9*	12*	8 4	19 37.89	-59 6.9	2.824	3.620	11.3	22.9	136 E	—	57
8 9	10 28.96	+17 5.9	2.600	1.661	10.6	21.0	17 E	7*	9*	8 9	19 31.18	-58 46.5	2.854	3.621	11.8	23.0	133 E	—	57
8 19	10 50.42	+13 55.0	2.573	1.609	8.6	20.9	14 E	4*	6*	470909 2009 DK₄₆									
8 29	11 12.29	+10 32.5	2.537	1.554	6.7	20.7	10 E	2*	3*	7 10	20 19.20	+11 16.7	2.200	3.075	11.4	23.1	143 W	56	53
9 8	11 34.70	+6 58.1	2.492	1.498	4.8	20.5	7 E	—	—	7 20	20 10.26	+10 50.0	2.118	3.031	10.1	22.9	148 W	56	53
9 18	11 57.88	+3 11.5	2.440	1.439	2.8	20.2	4 E	—	—	7 30									

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

2020	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45° - 26°	2020	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45° - 26°
427499 2002 CZ₅₈									380188 2000 WC₆₇								
7 10	20 23.83	-42 11.6	1.599	2.560	9.4	22.9	156 W	3 74	7 10	20 51.26	-6 31.1	3.160	4.088	6.6	24.7	153 W	38 71
7 15	20 16.05	-42 25.1	1.569	2.538	8.8	22.8	158 W	3 74	7 20	20 43.56	-6 46.9	3.125	4.105	4.3	24.5	162 W	38 71
7 20	20 7.74	-42 31.6	1.545	2.516	8.7	22.7	158 W	2 73	7 30	20 35.38	-7 9.8	3.121	4.121	2.8	24.4	169 E	38 71
7 25	19 59.15	-42 30.4	1.528	2.494	9.2	22.7	157 E	2 73	8 9	20 27.26	-7 38.2	3.146	4.136	3.5	24.5	165 E	37 72
7 30	19 50.53	-42 20.8	1.517	2.471	10.3	22.7	154 E	3 74	8 19	20 19.73	-8 9.7	3.202	4.149	5.6	24.7	156 E	37 72
8 4	19 42.17	-42 2.9	1.513	2.448	11.8	22.8	150 E	3 74	416707 2005 AL₆₉								
8 9	19 34.31	-41 37.0	1.515	2.424	13.5	22.8	146 E	3 74	7 10	20 55.12	-19 20.0	1.859	2.823	8.1	22.7	157 W	26 83
495102 2011 UU₁₀₆									7 20	20 45.72	-19 59.6	1.800	2.804	4.0	22.4	169 W	25 84
7 10	20 26.08	-7 6.9	1.667	2.636	8.4	22.6	158 W	38 71	7 30	20 35.02	-20 40.1	1.769	2.783	0.8	22.1	178 E	24 85
7 20	20 13.47	-7 22.3	1.654	2.652	5.2	22.4	166 W	38 71	8 9	20 24.07	-21 16.7	1.766	2.762	4.9	22.4	167 E	24 85
7 30	20 0.62	-7 49.2	1.669	2.665	5.3	22.5	166 E	37 72	8 19	20 13.99	-21 46.0	1.791	2.740	9.1	22.6	155 E	23 86
8 9	19 48.74	-8 24.0	1.713	2.677	8.4	22.7	157 E	37 72	395182 2010 EP₁₁₁								
8 19	19 38.85	-9 2.8	1.783	2.687	11.9	22.9	147 E	36 73	7 10	20 56.31	-56 3.2	2.740	3.593	10.1	22.6	142 W	- 60
517005 2012 TV₁₂₃									7 15	20 49.72	-56 30.1	2.725	3.586	9.9	22.6	143 W	- 59
7 10	20 26.57	-22 9.1	2.617	3.606	4.4	22.8	164 W	23 86	7 20	20 42.61	-56 51.1	2.716	3.579	9.9	22.6	143 W	- 59
7 20	20 18.03	-23 5.2	2.571	3.584	1.5	22.5	175 W	22 87	7 25	20 35.17	-57 5.4	2.713	3.572	10.0	22.6	142 W	- 59
7 30	20 8.92	-23 59.4	2.554	3.561	2.5	22.6	171 E	21 88	7 30	20 27.57	-57 12.7	2.716	3.565	10.3	22.6	141 E	- 59
8 9	20 0.02	-24 48.2	2.567	3.537	5.6	22.7	160 E	20 89	8 4	20 20.04	-57 12.8	2.724	3.557	10.7	22.6	139 E	- 59
8 19	19 52.05	-25 29.3	2.608	3.512	8.6	22.9	149 E	20 89	8 9	20 12.76	-57 5.6	2.739	3.549	11.2	22.6	137 E	- 59
523811 2008 TQ₂									8 14	20 5.91	-56 51.6	2.759	3.541	11.8	22.7	134 E	- 59
7 10	20 30.11	-12 41.9	1.542	2.523	7.8	24.3	160 W	32 77	427602 2003 SF₂₁₉								
7 20	20 17.96	-13 12.2	1.494	2.503	3.6	24.0	171 W	32 77	7 10	20 58.26	+11 49.3	1.587	2.439	16.2	21.3	138 W	57 52
7 30	20 4.84	-13 49.7	1.475	2.482	3.7	24.0	171 E	31 78	7 15	20 54.79	+11 44.6	1.541	2.422	15.1	21.2	142 W	57 52
8 9	19 52.14	-14 30.1	1.483	2.459	8.2	24.2	160 E	30 79	7 20	20 50.81	+11 31.3	1.499	2.405	13.9	21.1	145 W	57 52
8 19	19 41.14	-15 9.7	1.517	2.434	12.8	24.4	148 E	30 79	7 25	20 46.39	+11 8.8	1.463	2.388	12.9	21.0	148 W	56 53
508784 1999 XV₈₁									7 30	20 41.66	+10 36.8	1.432	2.371	12.0	20.9	151 W	56 53
7 10	20 33.78	-14 45.7	2.873	3.846	5.1	23.7	160 W	30 79	8 4	20 36.74	+9 55.4	1.407	2.353	11.5	20.8	152 E	55 54
7 20	20 25.72	-15 8.1	2.825	3.832	2.3	23.5	171 W	30 79	8 9	20 31.79	+9 5.0	1.387	2.335	11.5	20.8	153 E	54 55
7 30	20 17.16	-15 33.3	2.807	3.818	1.5	23.5	174 E	29 80	8 14	20 26.94	+8 6.2	1.374	2.317	11.9	20.7	152 E	53 56
8 9	20 8.77	-15 59.2	2.819	3.803	4.3	23.6	164 E	29 80	8 19	20 22.36	+7 0.1	1.367	2.299	12.8	20.7	150 E	52 57
8 19	20 1.14	-16 23.7	2.860	3.786	7.1	23.8	153 E	29 80	8 24	20 18.20	+5 47.9	1.366	2.281	14.0	20.8	147 E	51 58
444584 2006 UK									8 29	20 14.60	+4 31.1	1.370	2.263	15.4	20.8	143 W	50 59
7 10	20 37.45	-11 14.7	1.213	2.189	10.0	23.0	158 W	34 75	9 3	20 11.65	+3 11.5	1.380	2.244	17.0	20.9	139 E	48 61
7 15	20 29.31	-11 34.8	1.206	2.202	7.2	22.8	164 W	33 76	9 8	20 9.43	+1 50.4	1.395	2.226	18.6	20.9	135 E	47 62
7 20	20 20.84	-11 57.4	1.206	2.214	4.7	22.7	170 W	33 76	9 13	20 8.01	+0 29.3	1.415	2.207	20.2	21.0	131 E	45 64
7 25	20 12.27	-12 21.7	1.214	2.225	3.4	22.7	173 E	33 76	9 18	20 7.43	-0 50.6	1.438	2.188	21.7	21.0	126 E	44 65
7 30	20 3.87	-12 46.9	1.228	2.235	4.5	22.8	170 E	32 77	9 23	20 7.71	-2 8.0	1.466	2.169	23.2	21.1	122 E	43 66
8 4	19 55.87	-13 12.3	1.250	2.245	6.8	23.0	165 E	32 77	9 28	20 8.85	-3 22.1	1.496	2.150	24.4	21.2	117 E	42 67
8 9	19 48.45	-13 37.1	1.279	2.254	9.4	23.1	159 E	31 78	10 3	20 10.82	-4 32.2	1.530	2.131	25.6	21.2	113 E	40 69
217628 Lugh									10 8	20 13.60	-5 37.7	1.565	2.112	26.6	21.3	109 E	39 70
7 10	20 39.75	-13 45.5	3.246	4.210	5.0	22.6	159 W	31 78	10 13	20 17.15	-6 38.3	1.602	2.092	27.5	21.4	105 E	38 71
7 20	20 31.36	-14 15.9	3.223	4.227	2.4	22.4	170 W	31 78	10 18	20 21.44	-7 33.7	1.640	2.073	28.2	21.4	101 E	37 72
7 30	20 22.60	-14 48.7	3.231	4.243	1.2	22.4	175 E	30 79	10 23	20 26.44	-8 23.7	1.680	2.054	28.7	21.5	97 E	37 72*
8 9	20 14.06	-15 21.7	3.271	4.258	3.5	22.6	165 E	30 79	10 28	20 32.09	-9 8.3	1.720	2.035	29.2	21.5	93 E	36 72*
8 19	20 6.27	-15 53.1	3.341	4.272	6.0	22.7	154 E	29 80	480984 2003 YR₇₀								
476601 2008 SE₈₅									7 10	21 4.58	-16 37.3	1.317	2.276	11.2	23.2	154 W	28 81
7 10	20 44.08	+20 35.2	1.636	2.438	18.0	23.7	132 W	66 43	7 15	20 58.28	-16 58.0	1.312	2.296	8.5	23.1	161 W	28 81
7 15	20 38.16	+20 29.6	1.599	2.431	17.0	23.7	135 W	65 44	7 20	20 51.55	-17 19.6	1.313	2.315	5.7	23.0	167 W	28 81
7 20	20 31.74	+20 13.4	1.568	2.423	16.2	23.6	138 W	65 44	7 25	20 44.57	-17 41.3	1.321	2.333	2.9	22.8	173 W	27 82
7 25	20 24.97	+19 45.9	1.542	2.414	15.5	23.5	141 W	65 44	7 30	20 37.57	-18 2.4	1.337	2.352	0.2	22.6	180 E	27 82
7 30	20 18.01	+19 7.0	1.521	2.404	15.0	23.5	142 E	64 45	8 4	20 30.74	-18 22.1	1.359	2.369	2.7	22.9	174 E	27 82
8 4	20 11.05	+18 17.0	1.507	2.394	14.9	23.4	143 E	63 46	8 9	20 24.26	-18 39.9	1.387	2.387	5.4	23.1	167 E	26 83
8 9	20 4.25	+17 16.6	1.498	2.383	15.0	23.4	142 E	62 47	8 14	20 18.29	-18 55.5	1.423	2.404	7.9	23.3	161 E	26 83
8 14	19 57.80	+16 6.8	1.496	2.372	15.5	23.4	141 E	61 48	503879 2000 UJ₃								
523728 2014 ON₃₄₄									7 10	21 10.75	-57 22.9	1.971	2.821	13.6	22.0	139 W	- 59
7 10	20 45.87	+4 43.6	0.367	1.335	25.6	22.1	145 W	50 59	7 15	21 4.02	-58 14.8	1.953	2.810	13.4	22.0	140 W	- 58
7 15	20 33.80	+0 53.9	0.339	1.329	19.8	21.8	154 W	46 63	7 20	20 56.33	-58 59.5	1.941	2.799	13.4	22.0	140 W	- 57
7 20	20 19.13	-3 49.2	0.317	1.321	13.4	21.4	162 W	41 68	7 25	20 47.87	-59 35.6	1.934	2.787	13.6	21.9	140 W	- 56
7 25	20 2.11	-9 20.5	0.301	1.312	8.5	21.1	169 E	36 73	7 30	20 38.93	-60 1.8	1.932	2.775	14.0	21.9	138 W	- 56
7 30	19 43.29	-15 23.5	0.293	1.302	10.4	21.1	167 E	30 79	8 4	20 29.80	-60 17.7	1.936	2.763	14.6	22.0	137 E	- 56
8 4	19 23.49	-21 33.0	0.293	1.290	17.5	21.3	158 E	23 86	8 9	20 20.81	-60 23.0	1.945	2.751	15.3	22.0	134 E	- 56
8 9	19 3.71	-27 22.8	0.300	1.277	25.4	21.6	147 E	18 89	8 14	20 12.30	-60 18.1	1.959	2.739	16.0	22.0	132 E	- 56
8 14	18 44.97	-32 34.2	0.314	1.262	33.0	21.9	137 E	12 83	8 19	20 4.54	-60 3.4	1.977	2.726	16.9	22.1	129 E	- 56
8 19	18 28.13	-36 59.6	0.333	1.246	39.6	22.2	128 E	8 79	8 24	19 57.78	-59 40.0	1.999	2.713	17.7	22.1	125 E	- 56
308127 2004 XM₁₃₀									8 29	19 52.19	-59 9.0	2.025	2.700	18.5	22.1	122 E	- 57
7 10	20 46.62	-23 54.5	2.289	3.261	6.3	22.7	159 W	21 88	334012 2000 VF₁₂								
7 15	20 40.83	-23 52.8	2.277	3.270	4.5	22.7	165 W	21 88	7 10	21 10.84	-24 30.6	2.329	3.273	7.8	21.5	154 W	20 89
7 20	20 34.80	-23 50.1	2.272	3.279	2.8	22.6	171 W	21 88	7 20	21 2.84	-25 20.7	2.261	3.251	4.8	21.2	164 W	20 89
7 25	20 28.65	-23 45.9	2.275	3.288	1.5	22.5	175 W	21 88	7								

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

2020	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	2020	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°
491755 2012 VE₈₀										499825 2011 DB₂₂ (continuation)									
7 10	21 12.40	-18 34.8	1.801	2.745	9.7	22.3	153 W	26	83	8 9	20 54.83	-41 17.1	2.214	3.158	8.0	22.0	154 E	4	75
7 20	21 4.37	-18 59.0	1.713	2.706	5.8	22.0	164 W	26	83	8 14	20 48.47	-41 10.4	2.227	3.154	8.9	22.0	151 E	4	75
7 30	20 54.51	-19 26.2	1.652	2.665	1.6	21.6	176 W	26	83	8 19	20 42.41	-40 57.8	2.246	3.149	9.9	22.1	148 E	4	75
8 9	20 43.73	-19 51.8	1.618	2.624	3.3	21.7	171 E	25	84	8 24	20 36.79	-40 39.7	2.272	3.145	11.0	22.2	144 E	4	75
8 19	20 33.17	-20 11.8	1.611	2.583	7.9	21.9	159 E	25	84	8 29	20 31.74	-40 16.6	2.304	3.140	12.1	22.2	139 E	5	76
8 29	20 24.03	-20 23.4	1.630	2.541	12.3	22.0	148 E	25	84	9 3	20 27.33	-39 49.0	2.341	3.135	13.2	22.3	135 E	5	76
523631 2009 SX₁										256670 2007 XT₅₈									
7 10	21 13.05	-24 27.0	1.273	2.230	11.7	21.9	153 W	21	88	7 10	21 33.44	-11 50.3	1.422	2.335	14.1	21.4	146 W	33	76
7 15	21 7.03	-24 49.0	1.232	2.213	9.3	21.7	159 W	20	89	7 20	21 23.43	-12 26.1	1.396	2.369	9.3	21.2	158 W	33	76
7 20	21 0.10	-25 10.9	1.197	2.195	6.9	21.5	165 W	20	89	7 30	21 11.65	-13 11.1	1.394	2.401	4.1	21.0	170 W	32	77
7 25	20 52.40	-25 31.4	1.168	2.176	4.6	21.3	170 W	19	90	8 9	20 59.39	-13 59.4	1.419	2.431	1.9	20.9	176 E	31	78
7 30	20 44.11	-25 49.2	1.147	2.157	3.5	21.2	173 W	19	90	8 19	20 47.99	-14 45.1	1.472	2.460	6.5	21.3	164 E	30	79
8 4	20 35.49	-26 3.2	1.131	2.138	4.8	21.2	170 E	19	90	8 29	20 38.63	-15 23.8	1.551	2.488	11.0	21.6	152 E	30	79
8 9	20 26.78	-26 12.6	1.123	2.117	7.3	21.3	165 E	19	90	469699 2005 EP₆₈									
8 14	20 18.27	-26 16.9	1.121	2.097	10.2	21.4	158 E	19	90	7 10	21 36.58	+11 49.0	2.416	3.186	13.8	21.8	132 W	57	52
8 19	20 10.24	-26 15.8	1.126	2.075	13.1	21.5	152 E	19	90	7 20	21 30.84	+11 36.0	2.303	3.154	11.8	21.6	140 W	57	52
8 24	20 2.93	-26 9.5	1.136	2.053	16.0	21.6	146 E	19	90	7 30	21 23.52	+10 59.0	2.211	3.122	9.8	21.4	148 W	56	53
8 29	19 56.55	-25 58.5	1.151	2.031	18.7	21.7	140 E	19	90	8 9	21 15.14	+ 9 56.7	2.144	3.088	8.2	21.3	154 E	55	54
328078 2007 XR₃₁										8 19	21 6.40	+ 8 30.8	2.103	3.054	7.8	21.2	156 E	54	55
7 10	21 17.18	-13 57.2	1.898	2.827	10.2	22.0	150 W	31	78	8 29	20 58.13	+ 6 45.4	2.090	3.019	9.1	21.2	152 E	52	57
7 20	21 9.45	-14 44.6	1.825	2.809	6.4	21.7	162 W	30	79	9 8	20 51.10	+ 4 47.4	2.104	2.983	11.3	21.3	145 E	50	59
7 30	21 0.09	-15 39.9	1.778	2.790	2.2	21.4	174 W	29	80	9 18	20 45.94	+ 2 44.6	2.143	2.946	13.8	21.4	136 E	48	61
8 9	20 49.95	-16 38.3	1.760	2.770	2.3	21.4	174 E	28	81	376891 2001 XF₁₀₄									
8 19	20 40.06	-17 34.6	1.770	2.749	6.7	21.6	162 E	27	82	7 10	21 50.06	- 1 7.5	2.463	3.285	12.1	21.4	137 W	44	65
8 29	20 31.47	-18 24.3	1.806	2.727	10.7	21.8	150 E	27	82	7 20	21 43.59	- 1 7.5	2.400	3.304	9.5	21.2	148 W	44	65
337157 1999 UA₅										7 30	21 35.72	- 1 21.1	2.361	3.323	6.7	21.1	158 W	44	65
7 10	21 17.86	-23 32.2	2.835	3.765	7.2	22.0	152 W	21	88	8 9	21 27.04	- 1 46.8	2.349	3.341	4.3	21.0	166 W	43	66
7 20	21 10.28	-24 12.7	2.763	3.747	4.6	21.8	163 W	21	88	8 19	21 18.24	- 2 22.3	2.366	3.358	4.1	21.0	166 E	43	66
7 30	21 1.54	-24 51.6	2.720	3.727	2.3	21.6	172 W	20	89	8 29	21 10.06	- 3 3.9	2.412	3.374	6.1	21.1	159 E	42	67
8 9	20 52.28	-25 25.4	2.707	3.707	3.0	21.6	169 E	20	89	9 8	21 3.15	- 3 47.7	2.485	3.389	8.8	21.3	149 E	41	68
8 19	20 43.21	-25 51.3	2.723	3.686	5.7	21.8	159 E	19	90	406813 2008 VA₅₇									
8 29	20 35.06	-26 7.4	2.768	3.663	8.4	21.9	148 E	19	90	7 10	21 59.34	-11 45.0	0.720	1.636	23.5	21.4	140 W	33	76
396723 2003 AE₂₃										7 20	22 3.09	-11 54.7	0.648	1.606	19.1	21.0	149 W	33	76
7 10	21 19.05	-12 19.7	1.635	2.563	11.6	22.3	149 W	33	76	7 30	22 3.52	-12 29.0	0.589	1.578	13.7	20.5	158 W	33	76
7 20	21 9.51	-12 51.2	1.577	2.561	7.3	22.1	161 W	32	77	8 9	22 0.94	-13 25.3	0.546	1.553	7.2	20.1	169 W	32	77
7 30	20 58.20	-13 31.6	1.546	2.556	2.8	21.8	173 W	31	78	8 14	21 58.74	-13 59.4	0.530	1.541	3.8	19.8	174 W	31	78
8 9	20 46.22	-14 16.1	1.542	2.551	2.9	21.8	173 E	31	78	8 19	21 56.17	-14 35.6	0.519	1.531	1.3	19.6	178 W	30	79
8 19	20 34.83	-14 59.7	1.567	2.544	7.5	22.0	161 E	30	79	8 24	21 53.47	-15 11.9	0.511	1.520	4.1	19.7	174 E	30	79
8 29	20 25.21	-15 38.2	1.617	2.536	11.9	22.3	149 E	29	80	8 29	21 50.90	-15 46.3	0.508	1.511	7.7	19.9	168 E	29	80
194386 2001 VG₅										9 3	21 48.72	-16 17.0	0.509	1.503	11.3	20.0	163 E	29	80
7 10	21 28.36	+ 3 38.2	2.048	2.892	13.4	21.5	139 W	49	60	9 8	21 47.16	-16 42.5	0.514	1.495	14.8	20.2	158 E	28	81
7 20	21 18.52	+ 3 33.7	2.025	2.941	10.3	21.4	149 W	49	60	9 13	21 46.40	-17 1.7	0.522	1.489	18.2	20.3	153 E	28	81
7 30	21 7.59	+ 3 9.7	2.028	2.989	7.6	21.4	157 W	48	61	9 18	21 46.59	-17 13.5	0.534	1.483	21.3	20.4	148 E	28	81
8 9	20 56.47	+ 2 28.8	2.058	3.035	6.2	21.4	161 E	47	62	9 28	21 50.25	-17 13.7	0.566	1.475	26.6	20.7	139 E	28	81
8 19	20 46.08	+ 1 35.3	2.118	3.079	7.1	21.5	158 E	47	62	10 8	21 58.23	-16 42.3	0.608	1.471	30.9	21.0	131 E	28	81
8 29	20 37.22	+ 0 34.3	2.205	3.122	9.3	21.7	150 E	46	63	10 18	22 10.08	-15 41.7	0.659	1.471	34.2	21.3	124 E	29	80
153591 2001 SN₂₆₃										10 28	22 25.15	-14 14.9	0.719	1.474	36.5	21.5	118 E	31	78
7 10	21 29.00	-17 57.1	1.976	2.895	10.4	21.4	149 W	27	82	479127 2013 BA₂₇									
7 20	21 19.03	-18 33.3	1.927	2.906	6.6	21.1	161 W	26	83	7 10	22 5.03	+ 3 59.0	1.743	2.534	17.5	21.4	131 W	49	60
7 30	21 7.49	-19 11.3	1.906	2.916	2.5	20.9	173 W	26	83	7 20	22 2.35	+ 2 58.5	1.614	2.491	14.7	21.1	141 W	48	61
8 9	20 55.36	-19 46.2	1.914	2.924	2.2	20.9	174 E	25	84	7 30	21 57.29	+ 1 24.1	1.504	2.447	11.2	20.8	152 W	46	63
8 19	20 43.73	-20 14.2	1.952	2.930	6.2	21.2	162 E	25	84	8 9	21 50.15	- 0 45.3	1.416	2.403	7.2	20.5	163 W	44	65
8 29	20 33.64	-20 32.9	2.018	2.934	10.0	21.4	150 E	24	85	8 14	21 45.98	- 2 2.2	1.383	2.381	5.3	20.3	167 W	43	66
474634 2004 UY										8 19	21 41.57	- 3 26.3	1.356	2.359	4.2	20.2	170 E	42	67
7 10	21 30.23	+27 44.5	2.336	2.986	17.0	22.3	121 W	73	36	8 24	21 37.04	- 4 56.0	1.336	2.337	4.6	20.2	169 E	40	69
7 15	21 27.34	+28 15.5	2.284	2.970	16.6	22.2	124 W	73	36	8 29	21 32.57	- 6 29.6	1.324	2.315	6.3	20.2	165 E	39	70
7 20	21 23.94	+28 40.2	2.234	2.954	16.1	22.2	126 W	74	35	9 3	21 28.30	- 8 5.2	1.318	2.293	8.6	20.3	160 E	37	72
7 25	21 20.09	+28 57.7	2.189	2.938	15.6	22.1	129 W	74	35	9 8	21 24.37	- 9 40.9	1.320	2.270	11.1	20.4	154 E	35	74
7 30	21 15.87	+29 7.3	2.148	2.922	15.1	22.0	131 W	74	35	9 13	21 20.94	-11 14.9	1.328	2.248	13.5	20.5	148 E	34	75
8 4	21 11.35	+29 8.5	2.112	2.905	14.7	22.0	133 W	74	35	9 18	21 18.12	-12 45.5	1.342	2.226	15.9	20.5	143 E	32	77
8 9	21 6.63	+29 1.1	2.080	2.888	14.4	21.9	135 E	74	35	9 23	21 16.02	-14 11.3	1.362	2.204	18.1	20.6	137 E	31	78
8 14	21 1.83	+28 44.6	2.054	2.871	14.1	21.9	136 E	74	35	9 28	21 14.72	-15 31.3	1.386	2.181	20.2	20.7	131 E	29	80
8 19	20 57.07	+28 19.2	2.032	2.854	14.1	21.8	137 E	73	36	10 3	21 14.26	-16 44.7	1.414	2.159	22.0	20.8	126 E	28	81
8 24	20 52.48	+27 45.1	2.016	2.837	14.2	21.8	137 E	73	36	10 8	21 14.67	-17 51.1	1.446	2.137	23.7	20.9	121 E	27	82
8 29	20 48.18	+27 2.9	2.005	2.819	14.4	21.8	136 E	72	37	10 13	21 15.94	-18 50.4	1.481</						

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

20/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°-26°	20/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°-26°	
479127 2013 BA₂₇ (continuation)									514897 2008 SB₇ (continuation)									
12 2	22 10.25	-22 35.4	1.871	1.904	30.3	21.4	77 E	22 67*	9 13	20 50.86	-56 24.7	1.835	2.486	20.7	21.1	119 E	—	60
12 7	22 18.91	-22 26.1	1.907	1.885	30.1	21.4	74 E	23 64*	9 18	20 46.25	-55 10.7	1.855	2.465	21.5	21.1	116 E	—	61
12 12	22 28.00	-22 11.9	1.941	1.865	29.9	21.4	71 E	23 61*	9 23	20 43.02	-53 50.8	1.878	2.445	22.3	21.2	113 E	—	62
12 17	22 37.47	-21 53.0	1.974	1.847	29.6	21.4	68 E	23 58*	9 28	20 41.10	-52 26.2	1.903	2.424	23.0	21.2	109 E	—	64
12 22	22 47.32	-21 29.4	2.005	1.828	29.3	21.4	65 E	23 55*	10 3	20 40.39	-50 58.1	1.932	2.403	23.6	21.2	106 E	—	65
12 27	22 57.48	-21 1.5	2.034	1.811	28.9	21.4	63 E	24 52*	10 8	20 40.80	-49 27.3	1.962	2.382	24.2	21.3	102 E	—	67
1 1	23 7.95	-20 29.5	2.062	1.793	28.5	21.4	60 E	24 49*	10 13	20 42.21	-47 54.5	1.994	2.361	24.7	21.3	99 E	—	68
1 6	23 18.70	-19 53.4	2.087	1.777	28.0	21.4	58 E	24 47*	10 18	20 44.53	-46 20.3	2.028	2.340	25.1	21.3	95 E	—	70
1 11	23 29.72	-19 13.5	2.112	1.761	27.6	21.4	56 E	24 45*	10 23	20 47.67	-44 45.0	2.062	2.318	25.4	21.4	92 E	—	71
1 16	23 40.98	-18 29.9	2.134	1.745	27.1	21.4	54 E	24 43*	10 28	20 51.51	-43 9.1	2.098	2.297	25.6	21.4	88 E	2	73*
170891 2004 TY₁₆									374849 2006 VO₁									
7 10	22 12.10	-14 15.5	1.905	2.746	14.3	21.4	138 W	31 78	7 10	23 13.75	+0 34.4	1.406	2.089	25.4	21.3	118 W	45*	63
7 20	22 4.53	-14 42.6	1.833	2.757	10.8	21.2	149 W	30 79	7 20	23 18.78	+1 17.9	1.281	2.052	23.5	21.0	126 W	46	63
7 30	21 54.63	-15 17.6	1.785	2.766	6.8	21.0	161 W	30 79	7 30	23 21.30	+1 42.9	1.166	2.016	20.9	20.7	135 W	47	62
8 9	21 43.14	-15 55.7	1.763	2.773	2.4	20.7	174 W	29 80	8 9	23 21.00	+1 45.9	1.064	1.979	17.3	20.3	144 W	47	62
8 19	21 31.06	-16 31.8	1.771	2.779	2.4	20.7	173 E	28 81	8 19	23 17.73	+1 23.3	0.979	1.944	12.8	20.0	155 W	46	63
8 29	21 19.56	-17 1.2	1.808	2.783	6.7	21.0	161 E	28 81	8 29	23 11.75	+0 34.2	0.913	1.908	7.5	19.5	166 W	46	63
9 8	21 9.71	-17 20.9	1.872	2.785	10.7	21.3	149 E	28 81	9 3	23 7.98	+0 0.6	0.888	1.891	4.8	19.3	171 W	45	64
9 18	21 2.25	-17 29.8	1.960	2.787	14.1	21.5	138 E	28 81	9 8	23 3.88	+0 37.9	0.869	1.874	2.8	19.1	175 W	44	65
477796 2011 CQ₄₆									505019 2011 QH₂₁									
7 10	22 13.36	-12 5.5	1.898	2.731	14.7	21.5	137 W	33 76	7 10	23 16.99	+33 51.9	1.082	1.610	38.4	21.4	100 W	78*	30
7 20	22 3.70	-11 29.8	1.852	2.770	11.0	21.3	149 W	34 75	7 15	23 18.94	+35 44.9	1.050	1.611	38.0	21.4	102 W	81	28
7 30	21 52.03	-11 0.9	1.830	2.808	6.9	21.2	161 W	34 75	7 20	23 19.95	+37 34.1	1.018	1.613	37.5	21.3	105 W	83	26
8 9	21 39.27	-10 36.9	1.837	2.845	2.7	21.0	172 W	34 75	7 25	23 19.90	+39 18.3	0.986	1.613	37.0	21.2	107 W	84	25
8 19	21 26.51	-10 16.3	1.875	2.882	2.5	21.0	173 E	35 74	7 30	23 18.70	+40 55.9	0.955	1.613	36.3	21.1	110 W	86	23
8 29	21 14.85	-9 57.4	1.943	2.918	6.4	21.4	161 E	35 74	8 4	23 16.27	+42 25.6	0.926	1.612	35.6	21.0	112 W	87	22
9 8	21 5.16	-9 38.7	2.039	2.952	9.9	21.6	150 E	35 74	8 9	23 12.52	+43 45.5	0.897	1.610	34.9	20.9	115 W	89	20
477492 2010 CG₁₉									514897 2008 SB₇									
7 10	22 28.09	+58 44.2	0.795	1.291	52.0	21.5	90 W	76 5	7 10	22 36.61	-57 9.5	1.974	2.741	16.5	21.4	130 W	—	59
7 15	22 20.48	+57 10.6	0.733	1.297	51.4	21.3	94 W	78 7	7 15	22 32.53	-57 57.2	1.935	2.722	16.1	21.3	132 W	—	58
7 20	22 10.94	+55 2.2	0.670	1.304	50.3	21.1	99 W	80 9	7 20	22 27.10	-58 41.5	1.901	2.703	15.8	21.2	134 W	—	57
7 25	21 59.58	+52 5.2	0.608	1.311	48.5	20.8	105 W	83 12	7 25	22 20.32	-59 20.6	1.871	2.684	15.6	21.2	135 W	—	57
7 30	21 46.68	+48 1.5	0.547	1.319	45.7	20.5	112 W	87 16	7 30	22 12.29	-59 52.5	1.846	2.665	15.5	21.1	135 W	—	56
8 4	21 32.69	+42 28.4	0.490	1.328	41.6	20.2	120 W	87 22	8 4	22 3.20	-60 15.5	1.826	2.646	15.6	21.1	135 W	—	56
8 9	21 18.16	+35 1.5	0.441	1.337	36.0	19.8	129 W	80 29	8 9	21 53.28	-60 28.1	1.811	2.626	15.9	21.0	135 W	—	56
8 14	21 3.76	+25 25.3	0.405	1.347	29.3	19.5	139 E	70 39	8 14	21 42.88	-60 29.0	1.800	2.607	16.3	21.0	134 W	—	56
8 19	20 50.14	+13 54.6	0.385	1.357	22.6	19.2	149 E	59 50	8 19	21 32.37	-60 17.5	1.795	2.587	16.8	21.0	132 E	—	56
8 20	20 47.57	+11 27.3	0.384	1.359	21.5	19.1	150 E	56 53	8 24	21 22.18	-59 53.3	1.794	2.567	17.5	21.0	130 E	—	56
8 21	20 45.07	+8 58.6	0.383	1.361	20.7	19.1	152 E	54 55	8 29	21 12.67	-59 16.9	1.798	2.547	18.2	21.0	128 E	—	57
8 22	20 42.62	+6 29.1	0.383	1.363	20.0	19.1	153 E	51 58	9 3	21 4.16	-58 29.2	1.806	2.527	19.0	21.1	125 E	—	58
8 23	20 40.25	+3 59.6	0.384	1.365	19.5	19.1	153 E	49 60	9 8	20 56.85	-57 31.3	1.819	2.506	19.9	21.1	122 E	—	58
8 24	20 37.94	+1 31.0	0.386	1.367	19.3	19.1	153 E	47 62										
8 25	20 35.71	+0 56.2	0.389	1.370	19.4	19.1	153 E	44 65										
8 26	20 33.56	+0 31.1	0.393	1.372	19.7	19.1	153 E	42 67										
8 27	20 31.49	+5 43.3	0.397	1.374	20.2	19.2	152 E	39 70										
8 28	20 29.50	+8 2.0	0.403	1.376	20.9	19.2	151 E	37 72										
8 29	20 27.59	+10 27.9	0.409	1.379	21.7	19.3	150 E	35 74										
8 31	20 24.03	-14 33.6	0.423	1.383	23.6	19.4	147 E	30 79										
9 2	20 20.81	-18 31.4	0.440	1.388	25.7	19.6	143 E	26 83										
9 4	20 17.93	-22 9.5	0.460	1.392	27.8	19.8	140 E	23 86										
9 6	20 15.40	-25 27.9	0.481	1.397	29.8	19.9	136 E	20 89										
9 8	20 13.22	-28 27.3	0.505	1.402	31.7	20.1	133 E	17 88										
9 10	20 11.37	-31 9.1	0.530	1.407	33.3	20.3	130 E	14 85										
9 12	20 9.86	-33 34.6	0.556	1.411	34.8	20.4	127 E	11 82										
9 14	20 8.68	-35 45.3	0.583	1.416	36.2	20.6	124 E	9 80										
9 16	20 7.82	-37 42.6	0.612	1.421	37.3	20.7	121 E	7 78										
9 18	20 7.27	-39 28.1	0.641	1.426	38.3	20.8	118 E	6 77										
9 20	20 7.03	-41 2.8	0.671	1.431	39.1	21.0	116 E	4 75										
9 22	20 7.09	-42 28.1	0.701	1.436	39.8	21.1	114 E	3 74										
9 24	20 7.43	-43 45.0	0.732	1.441	40.4	21.2	111 E	1 72										
9 26	20 8.04	-44 54.4	0.763	1.446	40.9	21.3	109 E	— 71										
9 28	20 8.90	-45 57.1	0.794	1.451	41.2	21.4	107 E	— 70										

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

20/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	20/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°
505019 2011 QH₂₁										348028 2003 UD₄									
<i>(continuation)</i>										<i>(continuation)</i>									
11 17	22 17.21	+16 48.9	0.811	1.443	41.1	20.7	106 E	62	47*	1 6	0 7.29	+10 10.0	1.789	1.890	30.8	20.7	80 E	55*	41*
11 22	22 25.84	+14 58.7	0.832	1.429	42.3	20.7	103 E	60	48*	1 16	0 26.02	+10 3.9	1.869	1.861	30.6	20.7	74 E	54*	37*
11 27	22 35.19	+13 19.1	0.854	1.414	43.4	20.8	100 E	58	49*	495997 2007 VH₉₆									
12 2	22 45.18	+11 49.7	0.878	1.398	44.4	20.8	97 E	57	49*	7 10	23 53.51	-22 59.7	1.904	2.533	21.0	21.3	117 W	21*	87
12 7	22 55.72	+10 30.2	0.901	1.383	45.3	20.9	94 E	56	49*	7 20	23 57.87	-23 49.5	1.760	2.485	19.6	21.1	125 W	21*	88
12 12	23 6.78	+ 9 20.2	0.925	1.366	46.1	21.0	91 E	54	49*	7 30	23 59.68	-24 55.0	1.628	2.436	17.8	20.8	133 W	20	89
12 17	23 18.29	+ 8 19.2	0.949	1.350	46.8	21.0	89 E	53	48*	8 9	23 58.56	-26 13.0	1.512	2.386	15.5	20.5	141 W	19	90
12 22	23 30.21	+ 7 26.7	0.972	1.333	47.4	21.1	86 E	52	47*	8 19	23 54.20	-27 37.8	1.414	2.336	13.2	20.3	148 W	17	88
12 27	23 42.50	+ 6 42.0	0.995	1.315	48.0	21.1	83 E	52	46*	8 24	23 50.78	-28 19.7	1.373	2.311	12.2	20.1	151 W	17	88
1 1	23 55.11	+ 6 4.2	1.017	1.298	48.4	21.1	81 E	51	45*	8 29	23 46.60	-28 59.3	1.337	2.286	11.4	20.0	153 W	16	87
1 6	0 8.02	+ 5 32.8	1.039	1.280	48.8	21.1	78 E	51*	44*	9 3	23 41.72	-29 34.8	1.307	2.261	11.0	19.9	155 W	15	86
1 11	0 21.21	+ 5 7.0	1.059	1.262	49.2	21.2	76 E	50*	43*	9 8	23 36.28	-30 4.7	1.283	2.236	11.1	19.9	155 W	15	86
1 16	0 34.68	+ 4 46.2	1.078	1.244	49.5	21.2	74 E	49*	43*	9 13	23 30.41	-30 27.4	1.264	2.210	11.8	19.8	153 W	15	86
432616 2010 UQ₉₂										339147 2004 TY₈									
7 10	23 23.02	-20 22.8	1.600	2.319	21.5	21.3	123 W	24*	84	7 10	23 53.93	- 1 18.1	1.081	1.717	33.8	21.5	110 W	42*	65
7 20	23 25.92	-21 25.4	1.481	2.287	19.4	21.0	132 W	24	85	7 20	0 1.45	- 0 33.0	1.016	1.736	31.3	21.3	117 W	44*	65
7 30	23 25.85	-22 45.7	1.376	2.254	16.6	20.7	141 W	22	87	7 30	0 5.45	- 0 10.7	0.955	1.755	28.0	21.1	126 W	45	64
8 9	23 22.57	-24 19.3	1.289	2.221	13.5	20.5	149 W	21	88	8 9	0 5.60	- 0 13.3	0.904	1.775	23.7	20.8	135 W	45	64
8 14	23 19.70	-25 8.5	1.253	2.205	12.0	20.3	153 W	20	89	8 19	0 1.75	- 0 41.2	0.864	1.795	18.3	20.6	146 W	44	65
8 19	23 16.04	-25 57.6	1.222	2.188	10.6	20.2	157 W	19	90	8 29	23 54.26	- 1 31.8	0.841	1.816	12.2	20.3	158 W	43	66
8 24	23 11.67	-26 44.8	1.197	2.171	9.6	20.1	159 W	18	89	9 3	23 49.47	- 2 3.4	0.836	1.827	8.8	20.2	164 W	43	66
8 29	23 6.73	-27 28.3	1.177	2.154	9.2	20.0	160 W	18	89	9 8	23 44.22	- 2 37.4	0.836	1.837	5.4	20.1	170 W	42	67
9 3	23 1.37	-28 6.4	1.164	2.137	9.6	20.0	159 W	17	88	9 13	23 38.73	- 3 12.4	0.842	1.848	1.9	19.9	176 W	42	67
9 8	22 55.77	-28 37.7	1.156	2.120	10.7	20.0	157 E	16	87	9 18	23 33.24	- 3 47.0	0.854	1.859	1.6	19.9	177 E	41	68
9 13	22 50.13	-29 0.8	1.154	2.103	12.3	20.1	153 E	16	87	9 23	23 28.00	- 4 19.4	0.872	1.869	4.9	20.2	171 E	41	68
9 18	22 44.69	-29 15.0	1.158	2.086	14.2	20.1	149 E	16	87	9 28	23 23.22	- 4 48.4	0.895	1.880	8.1	20.4	165 E	40	69
9 23	22 39.65	-29 19.7	1.166	2.069	16.2	20.2	145 E	16	87	10 3	23 19.09	- 5 12.9	0.924	1.891	11.1	20.6	159 E	40	69
9 28	22 35.22	-29 14.9	1.180	2.052	18.2	20.3	140 E	16	87	10 8	23 15.71	- 5 32.3	0.957	1.901	13.9	20.8	153 E	39	70
10 3	22 31.54	-29 1.0	1.197	2.035	20.2	20.3	135 E	16	87	10 13	23 13.18	- 5 46.2	0.996	1.912	16.4	21.0	147 E	39	70
10 8	22 28.71	-28 38.6	1.219	2.018	22.0	20.4	131 E	16	87	10 18	23 11.54	- 5 54.3	1.038	1.923	18.7	21.2	142 E	39	70
10 13	22 26.81	-28 8.4	1.244	2.001	23.7	20.5	126 E	17	88	10 23	23 10.82	- 5 56.6	1.085	1.933	20.7	21.3	137 E	39	70
10 18	22 25.88	-27 31.2	1.271	1.985	25.3	20.6	122 E	17	88	10 28	23 10.98	- 5 53.4	1.136	1.944	22.4	21.5	132 E	39	70
10 23	22 25.92	-26 47.6	1.301	1.968	26.7	20.6	117 E	18	89	496901 2001 HB									
10 28	22 26.92	-25 58.4	1.333	1.951	27.9	20.7	113 E	19	90	7 10	23 56.29	+25 31.7	0.430	1.153	61.0	21.1	97 W	67*	38
11 2	22 28.82	-25 4.3	1.367	1.935	29.0	20.8	109 E	20	89	7 12	0 10.38	+27 41.2	0.408	1.130	63.6	21.0	95 W	69*	36
11 7	22 31.57	-24 5.8	1.402	1.919	29.9	20.8	105 E	21	88	7 14	0 26.45	+29 57.1	0.388	1.106	66.7	20.9	93 W	70*	34
11 12	22 35.11	-23 3.3	1.437	1.903	30.6	20.9	102 E	22	87	7 16	0 44.88	+32 17.2	0.370	1.082	70.0	20.9	90 W	71*	32
11 17	22 39.40	-21 57.2	1.474	1.887	31.3	21.0	98 E	23	86	7 18	1 6.03	+34 38.0	0.354	1.057	73.7	20.8	87 W	70*	29
11 22	22 44.37	-20 47.8	1.511	1.871	31.7	21.0	95 E	24	84*	7 20	1 30.24	+36 54.1	0.340	1.032	77.8	20.8	83 W	69*	27
11 27	22 49.95	-19 35.4	1.548	1.856	32.1	21.1	91 E	25	80*	7 21	1 43.56	+37 58.3	0.335	1.019	80.0	20.9	81 W	68*	26
12 2	22 56.10	-18 20.2	1.584	1.841	32.4	21.1	88 E	27	76*	7 22	1 57.69	+38 58.3	0.330	1.007	82.3	20.9	79 W	67*	25
12 7	23 2.76	-17 2.5	1.621	1.826	32.5	21.1	85 E	28	72*	7 23	2 12.62	+39 53.2	0.326	0.994	84.6	20.9	77 W	66*	24
12 12	23 9.88	-15 42.2	1.658	1.811	32.6	21.2	82 E	29	68*	7 24	2 28.30	+40 41.8	0.322	0.981	86.9	21.0	75 W	64*	23*
12 17	23 17.44	-14 19.7	1.694	1.797	32.6	21.2	80 E	31	64*	7 25	2 44.65	+41 23.0	0.320	0.968	89.4	21.0	72 W	63*	22*
12 22	23 25.39	-12 55.1	1.729	1.783	32.5	21.2	77 E	32	60*	7 26	3 1.55	+41 55.6	0.319	0.955	91.8	21.1	70 W	61*	22*
12 27	23 33.70	-11 28.5	1.764	1.770	32.3	21.2	74 E	34	56*	7 27	3 18.87	+42 19.1	0.318	0.941	94.2	21.1	68 W	59*	21*
1 1	23 42.34	-10 0.2	1.798	1.757	32.1	21.3	72 E	35*	53*	7 28	3 36.44	+42 32.6	0.318	0.928	96.7	21.2	65 W	57*	20*
1 6	23 51.29	- 8 30.2	1.832	1.744	31.8	21.3	69 E	36*	50*	7 29	3 54.07	+42 36.1	0.320	0.915	99.1	21.3	63 W	55*	20*
1 11	0 0.52	- 6 58.8	1.865	1.732	31.5	21.3	67 E	37*	47*	7 30	4 11.59	+42 29.5	0.322	0.901	101.4	21.4	60 W	52*	19*
1 16	0 10.04	- 5 26.2	1.897	1.721	31.1	21.3	65 E	38*	44*	488640 2003 FR₆									
348028 2003 UD₄										7 10	23 56.68	+46 35.7	1.005	1.390	46.9	21.5	87 W	80*	17
7 10	23 40.59	+26 20.2	2.055	2.446	24.2	21.3	100 W	70*	38	7 15	0 2.01	+46 11.4	0.984	1.413	46.0	21.5	90 W	83*	18
7 20	23 44.73	+28 14.5	1.922	2.418	23.8	21.2	107 W	73	36	7 20	0 6.18	+45 36.8	0.961	1.437	44.9	21.4	93 W	87*	18
7 30	23 46.58	+29 56.8	1.795	2.389	22.9	21.0	114 W	75	34	7 25	0 9.12	+44 50.4	0.936	1.461	43.7	21.4	97 W	90	19
8 9	23 45.83	+31 21.7	1.675	2.360	21.7	20.7	121 W	76	33	7 30	0 10.82	+43 50.5	0.910	1.486	42.1	21.3	101 W	89	20
8 19	23 42.26	+32 22.3	1.566	2.330	20.0	20.5	128 W	77	32	8 4	0 11.25	+42 35.0	0.883	1.511	40.3	21.2	105 W	88	21
8 29	23 35.95	+32 50.0	1.471	2.299	18.1	20.3	135 W	78	31										
9 3	23 31.91	+32 49.1	1.430	2.284	17.1	20.2	138 W	78	31										
9 8	23 27.41	+32 37.1	1.392	2.268	16.1	20.1	141 W	78	31										
9 13	23 22.59	+32 13.5	1.360	2.253	15.2	20.0	144 E	77	32										
9 18	23 17.60	+31 37.9	1.332	2.237	14.6	19.9	146 E	77	32										
9 23	23 12.66	+30 50.6	1.310	2.221	14.2	19.8	147 E	76	33										
9 28	23 7.95	+29 52.3	1.294	2.205	14.1	19.8	147 E	75	34										
10 3	23 3.65	+28 44.4	1.282	2.189	14.5	19.8	147 E	74	35										
10 8	22 59.92	+27 28.2	1.277	2.173	15.2	19.8	145 E	72	37										
10 13	22 56.90	+26 5.8	1.277	2.157	16.2	19.8	143 E	71	38										
10 18	22 54.69	+24 39.2	1.282	2.141	17.5	19.8	140 E	70	39										
10 23	22 53.37	+23 10.5	1.292	2.125	1														

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

2020	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45° - 26°	20/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45° - 26°		
488640 2003 FR₆ (continuation)									428507 2007 XQ₅₆ (continuation)										
8 9	0 10.43	+41 1.8	0.856	1.537	38.2	21.1	110 W	86	23	9 13	23 49.05	-5 13.0	0.834	1.837	3.4	19.3	174 W	40	69
8 14	0 8.39	+39 8.5	0.830	1.563	35.8	21.0	116 W	84	25	9 18	23 43.56	-5 12.8	0.820	1.824	1.8	19.1	177 W	40	69
8 19	0 5.21	+36 52.8	0.805	1.589	32.9	20.9	121 W	82	27	9 23	23 37.92	-5 10.9	0.812	1.811	4.3	19.2	172 E	40	69
8 24	0 1.04	+34 12.9	0.784	1.615	29.6	20.8	128 W	79	30	9 28	23 32.38	-5 6.3	0.809	1.799	7.5	19.4	166 E	40	69
8 29	23 56.10	+31 8.2	0.766	1.641	26.0	20.7	135 W	76	33	10 3	23 27.19	-4 58.4	0.812	1.787	10.8	19.5	161 E	40	69
9 3	23 50.64	+27 40.0	0.755	1.668	22.0	20.6	142 W	73	36	10 8	23 22.58	-4 46.6	0.820	1.775	14.0	19.6	155 E	40	69
9 8	23 44.91	+23 51.8	0.749	1.694	17.8	20.4	149 W	69	40	10 18	23 15.78	-4 10.2	0.849	1.753	19.8	19.9	143 E	41	68
9 13	23 39.18	+19 49.0	0.752	1.721	13.7	20.3	156 W	65	44	10 28	23 13.02	-3 15.4	0.894	1.732	24.7	20.1	133	42	67
9 18	23 33.71	+15 39.3	0.763	1.747	10.1	20.3	162 E	61	48	11 7	23 14.53	-2 3.1	0.950	1.714	28.7	20.3	124	43	66
9 23	23 28.74	+11 31.1	0.783	1.773	7.8	20.3	166 E	57	52	11 17	23 20.08	0 34.9	1.015	1.697	31.7	20.5	116	44	65
9 28	23 24.45	+7 32.7	0.812	1.799	8.0	20.4	165 E	53	56	11 27	23 29.22	+1 7.5	1.087	1.683	33.8	20.7	108	46	63
10 3	23 20.95	+3 50.7	0.850	1.825	10.2	20.6	161 E	49	60	12 7	23 41.41	+3 2.1	1.163	1.672	35.2	20.9	102	48	60*
10 8	23 18.32	+0 29.5	0.896	1.851	13.0	20.9	155 E	45	64	12 17	23 56.16	+5 6.8	1.242	1.662	36.1	21.0	96	50	55*
10 13	23 16.57	-2 28.5	0.949	1.877	15.8	21.1	149 E	43	66	12 27	0 13.10	+7 19.4	1.324	1.656	36.4	21.2	91	52	50*
10 18	23 15.70	-5 2.8	1.009	1.902	18.3	21.4	143 E	40	69	1 6	0 31.85	+9 37.4	1.407	1.652	36.4	21.3	86	55	45*
										1 16	0 52.20	+11 58.3	1.491	1.652	36.0	21.4	81	57*	40*
289227 2004 XY₆₀									139047 2001 EB₁₆										
7 14	6 58.60	+20 8.9	0.870	0.201	132.3	21.1	8 W	—	2*	7 20	0 15.87	-10 47.1	1.791	2.434	21.7	21.4	118 W	34*	75
7 15	6 51.21	+19 5.2	0.882	0.229	120.1	20.3	11 W	—	5*	7 30	0 17.96	-13 54.9	1.658	2.411	19.6	21.1	127 W	31	78
7 16	6 45.37	+18 7.3	0.897	0.257	110.5	19.9	14 W	—	7*	8 9	0 17.26	-17 43.2	1.544	2.386	16.9	20.8	137 W	27	82
7 17	6 40.85	+17 15.1	0.914	0.285	102.7	19.7	16 W	1*	9*	8 19	0 13.34	-22 7.0	1.454	2.359	14.1	20.6	146 W	23	86
7 18	6 37.39	+16 28.4	0.933	0.313	96.4	19.7	18 W	2*	11*	8 29	0 5.96	-26 52.4	1.392	2.330	12.0	20.4	151 W	18	89
7 19	6 34.79	+15 46.6	0.951	0.339	91.1	19.7	19 W	2*	13*	9 3	0 1.01	-29 16.4	1.373	2.315	11.6	20.3	152 W	16	87
7 20	6 32.88	+15 9.0	0.970	0.365	86.6	19.7	21 W	3*	14*	9 8	23 55.31	-31 37.0	1.362	2.300	12.0	20.3	152 W	13	84
7 21	6 31.54	+14 35.1	0.988	0.390	82.8	19.7	22 W	4*	16*	9 13	23 48.97	-33 50.8	1.359	2.284	12.9	20.3	149 W	11	82
7 22	6 30.66	+14 4.4	1.007	0.414	79.5	19.8	24 W	4*	17*	9 18	23 42.16	-35 54.8	1.364	2.267	14.4	20.4	146 E	9	80
7 23	6 30.15	+13 36.4	1.024	0.437	76.6	19.8	25 W	5*	18*	9 23	23 35.09	-37 46.5	1.376	2.251	16.0	20.4	142 E	7	78
7 24	6 29.97	+13 10.8	1.041	0.460	74.0	19.9	26 W	6*	19*	9 28	23 28.00	-39 24.1	1.394	2.234	17.8	20.5	137 E	6	77
7 25	6 30.05	+12 47.3	1.057	0.482	71.8	19.9	27 W	6*	20*	10 3	23 21.14	-40 46.7	1.417	2.216	19.6	20.6	132 E	4	75
7 26	6 30.35	+12 25.6	1.073	0.503	69.8	20.0	28 W	7*	21*	10 8	23 14.73	-41 54.4	1.446	2.198	21.3	20.7	127 E	3	74
7 27	6 30.84	+12 5.4	1.088	0.524	68.0	20.1	29 W	7*	22*	10 13	23 8.99	-42 47.5	1.479	2.180	22.8	20.7	122 E	2	73
7 28	6 31.48	+11 46.7	1.103	0.544	66.3	20.1	29 W	8*	22*	10 18	23 4.07	-43 27.0	1.515	2.161	24.2	20.8	117	2	73
7 29	6 32.27	+11 29.1	1.117	0.563	64.9	20.2	30 W	9*	23*	10 23	23 0.13	-43 54.0	1.553	2.141	25.4	20.9	112	2	72
7 30	6 33.17	+11 12.6	1.130	0.582	63.6	20.2	31 W	9*	24*	10 28	22 57.24	-44 10.0	1.593	2.122	26.5	20.9	108	1	72
8 1	6 35.26	+10 42.3	1.155	0.619	61.3	20.4	32 W	10*	25*	11 2	22 55.43	-44 16.4	1.634	2.102	27.3	21.0	104	1	72
8 3	6 37.66	+10 15.0	1.178	0.653	59.3	20.5	34 W	11*	26*	11 7	22 54.70	-44 14.4	1.676	2.081	28.0	21.1	99	1	72
8 5	6 40.29	+9 49.9	1.198	0.686	57.7	20.6	35 W	12*	27*	11 12	22 55.02	-44 5.1	1.717	2.060	28.6	21.1	95	1	72
8 7	6 43.11	+9 26.8	1.217	0.717	56.4	20.6	36 W	13*	28*	11 17	22 56.36	-43 49.4	1.757	2.039	29.0	21.1	92	1	72
8 9	6 46.07	+9 5.1	1.233	0.746	55.2	20.7	37 W	15*	29*	11 22	22 58.67	-43 28.1	1.796	2.017	29.3	21.2	88	2	73*
8 14	6 53.89	+8 15.4	1.266	0.814	53.0	20.9	40 W	17*	31*	11 27	23 1.89	-43 2.0	1.833	1.995	29.5	21.2	84	2	72*
8 19	7 2.12	+7 29.8	1.289	0.873	51.5	21.1	43 W	20*	33*	12 2	23 5.94	-42 31.7	1.869	1.972	29.6	21.2	81	2	71*
8 24	7 10.56	+6 46.2	1.302	0.926	50.6	21.2	45 W	22*	35*	12 7	23 10.77	-41 57.4	1.902	1.949	29.6	21.2	78	3	70*
8 29	7 19.13	+6 3.3	1.307	0.972	50.0	21.3	47 W	25*	36*	12 12	23 16.31	-41 19.4	1.932	1.926	29.6	21.2	75	4	68*
9 3	7 27.79	+5 20.2	1.303	1.012	49.7	21.4	50 W	27*	38*	12 17	23 22.52	-40 38.1	1.960	1.903	29.5	21.2	72	4	65*
9 8	7 36.52	+4 36.2	1.293	1.046	49.7	21.4	52 W	29*	40*	12 22	23 29.35	-39 53.5	1.985	1.879	29.3	21.2	69	5	63*
9 13	7 45.31	+3 50.7	1.276	1.075	49.8	21.4	55 W	32*	41*	12 27	23 36.74	-39 5.9	2.007	1.854	29.2	21.2	67	6	61*
9 18	7 54.19	+3 3.2	1.252	1.099	50.1	21.5	57 W	33*	43*	1 1	23 44.66	-38 15.3	2.026	1.830	29.0	21.2	64	7	58*
9 23	8 3.15	+2 13.4	1.223	1.119	50.5	21.5	59 W	35*	44*	1 6	23 53.08	-37 21.8	2.041	1.805	28.8	21.2	62	8*	56*
9 28	8 12.25	+1 20.8	1.188	1.133	51.1	21.4	62 W	37*	46*	1 11	0 1.95	-36 25.2	2.053	1.780	28.6	21.2	60	8*	54*
10 3	8 21.53	+0 25.0	1.148	1.144	51.8	21.4	64 W	38*	47*	1 16	0 11.27	-35 25.7	2.063	1.754	28.4	21.1	58	9*	52*
10 8	8 31.07	+0 34.5	1.104	1.149	52.6	21.4	66 W	39*	49*										
10 13	8 40.96	+1 38.4	1.056	1.150	53.6	21.3	68 W	39*	50*										
10 18	8 51.29	+2 47.3	1.004	1.147	54.7	21.2	70 W	39*	52*										
10 23	9 2.24	+4 2.3	0.949	1.139	56.0	21.1	72 W	39*	54*										
10 28	9 14.01	+5 24.4	0.891	1.127	57.6	21.0	73 W	39*	55*										
11 2	9 26.91	+6 55.1	0.831	1.110	59.5	20.9	74 W	38*	57*										
11 7	9 41.35	+8 36.6	0.770	1.088	61.7	20.7	75 W	36*	58*										
11 12	9 57.94	+10 31.2	0.707	1.061	64.5	20.6	75 W	34*	59*										
11 17	10 17.50	+12 41.8	0.645	1.029	68.0	20.4	75 W	32*	60*										
11 22	10 41.27	+15 10.9	0.585	0.992	72.4	20.3	73 W	30*	60*		</								

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

20/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°-26°	20/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°-26°	
511808 2015 FH₁₂₀ (continuation)									480962 2003 UP₈₇									
10 14	5 21.96	-60 5.9	0.154	1.027	74.8	17.2	97 W	—	7 20	0 46.81	+4 55.0	1.939	2.408	24.1	21.5	105 W	48*	59
10 15	5 45.14	-60 47.2	0.150	1.018	77.8	17.2	94 W	—	7 30	0 49.99	+6 58.8	1.777	2.364	23.3	21.2	113 W	52*	57
10 16	6 10.42	-61 13.8	0.146	1.010	80.8	17.3	91 W	—	8 9	0 50.64	+9 6.0	1.625	2.320	21.9	20.9	121 W	54	55
10 17	6 37.43	-61 22.2	0.142	1.002	84.0	17.3	88 W	—	8 19	0 48.22	+11 16.5	1.484	2.275	19.8	20.6	130 W	56	53
10 18	7 5.59	-61 9.4	0.140	0.993	87.2	17.4	85 W	—	8 29	0 42.20	+13 28.3	1.360	2.231	16.9	20.3	140 W	58	51
10 19	7 34.14	-60 33.4	0.137	0.985	90.6	17.5	82 W	—	9 8	0 32.31	+15 37.9	1.255	2.186	13.4	20.0	150 W	61	48
10 20	8 2.25	-59 33.2	0.135	0.977	94.0	17.6	78 W	—	9 13	0 25.92	+16 40.0	1.212	2.164	11.5	19.8	155 W	62	47
10 21	8 29.16	-58 9.4	0.134	0.969	97.5	17.7	75 W	—	9 18	0 18.66	+17 38.9	1.175	2.142	9.9	19.6	159 W	63	46
10 22	8 54.31	-56 23.9	0.133	0.961	101.0	17.8	72 W	—	9 23	0 10.68	+18 33.5	1.145	2.120	8.7	19.5	161 W	64	45
10 23	9 17.37	-54 19.6	0.132	0.954	104.4	18.0	68 W	—	9 28	0 2.17	+19 23.1	1.122	2.098	8.4	19.4	162 E	64	45
10 24	9 38.21	-52 0.0	0.133	0.946	107.8	18.1	65 W	—	10 3	23 53.38	+20 6.8	1.105	2.076	9.2	19.4	161 E	65	44
10 25	9 56.88	-49 28.9	0.133	0.939	111.1	18.3	62 W	—	10 8	23 44.58	+20 44.3	1.096	2.054	10.8	19.4	157 E	66	43
10 26	10 13.52	-46 49.9	0.135	0.931	114.2	18.5	59 W	—	10 13	23 36.04	+21 15.6	1.093	2.033	12.9	19.5	153 E	66	43
10 27	10 28.33	-44 6.4	0.137	0.924	117.1	18.7	56 W	—	10 18	23 28.06	+21 41.2	1.096	2.011	15.3	19.6	148 E	67	42
10 28	10 41.52	-41 21.5	0.139	0.917	119.8	19.0	53 W	—	10 23	23 20.87	+22 2.0	1.105	1.990	17.6	19.7	143 E	67	42
10 29	10 53.29	-38 37.7	0.142	0.910	122.3	19.2	51 W	1*	10 28	23 14.66	+22 19.2	1.119	1.969	20.0	19.6	137 E	67	42
10 30	11 3.84	-35 57.0	0.146	0.903	124.4	19.4	49 W	3*	11 2	23 9.57	+22 34.1	1.137	1.948	22.1	19.8	132 E	68	41
10 31	11 13.33	-33 21.2	0.150	0.897	126.3	19.6	47 W	5*	11 7	23 5.66	+22 48.0	1.159	1.928	24.2	19.9	127 E	68	41
11 1	11 21.90	-30 51.4	0.155	0.890	127.9	19.8	45 W	7*	11 12	23 2.98	+23 1.9	1.184	1.908	26.0	20.0	122 E	68	41
11 2	11 29.70	-28 28.4	0.160	0.884	129.2	20.0	44 W	8*	11 17	23 1.52	+23 16.9	1.212	1.888	27.6	20.0	118 E	68	41
11 3	11 36.82	-26 12.7	0.165	0.878	130.1	20.1	43 W	10*	11 22	23 1.28	+23 34.0	1.241	1.868	29.0	20.1	113 E	69	40
11 4	11 43.35	-24 4.6	0.171	0.872	130.8	20.3	42 W	12*	11 27	23 2.18	+23 53.9	1.271	1.849	30.2	20.2	109 E	69	40*
11 5	11 49.38	-22 4.2	0.177	0.866	131.3	20.4	41 W	14*	12 7	23 7.20	+24 43.7	1.333	1.813	32.1	20.3	102 E	70	37*
11 6	11 54.98	-20 11.3	0.184	0.860	131.5	20.4	41 W	15*	12 17	23 16.13	+25 48.2	1.395	1.778	33.5	20.4	95 E	71	33*
11 7	12 0.20	-18 25.8	0.190	0.855	131.4	20.5	40 W	17*	12 27	23 28.59	+27 8.2	1.456	1.746	34.3	20.4	89 E	72	28*
11 9	12 9.68	-15 15.8	0.205	0.844	130.8	20.6	40 W	20*	1 6	23 44.22	+28 42.6	1.513	1.716	34.7	20.5	84 E	73*	23*
11 11	12 18.15	-12 31.5	0.220	0.835	129.5	20.6	41 W	22*	1 16	0 2.87	+30 29.1	1.567	1.690	34.9	20.6	79 E	72*	19*
11 13	12 25.84	-10 10.2	0.237	0.827	127.8	20.6	41 W	25*	69230 Hermes									
11 15	12 32.92	-8 9.0	0.254	0.819	125.8	20.5	42 W	27*	7 20	0 55.43	-0 54.7	1.517	2.032	28.9	21.2	105 W	42*	65
11 17	12 39.53	-6 25.4	0.272	0.813	123.5	20.4	43 W	29*	7 30	1 3.52	-0 26.4	1.342	1.967	28.5	20.9	112 W	44*	64
11 19	12 45.78	-4 57.2	0.290	0.807	121.1	20.4	44 W	31*	8 9	1 9.80	-0 12.3	1.173	1.898	27.5	20.5	120 W	45	64
11 21	12 51.73	-3 42.3	0.308	0.803	118.5	20.3	46 W	32*	8 19	1 13.61	-0 16.2	1.011	1.826	25.5	20.0	129 W	45	64
11 23	12 57.46	-2 39.2	0.327	0.799	115.9	20.2	47 W	34*	8 29	1 14.03	-0 42.4	0.860	1.749	22.5	19.5	138 W	44	65
11 25	13 3.01	-1 46.3	0.347	0.797	113.3	20.2	48 W	35*	9 3	1 12.61	-1 5.4	0.789	1.709	20.5	19.2	144 W	44	65
11 27	13 8.43	-1 2.3	0.366	0.796	110.7	20.1	49 W	36*	9 8	1 9.85	-1 36.0	0.722	1.668	18.1	18.8	149 W	43	66
11 29	13 13.72	-0 26.2	0.386	0.796	108.1	20.1	50 W	37*	9 13	1 5.54	-2 14.9	0.658	1.626	15.3	18.5	155 W	43	66
12 1	13 18.93	+0 3.0	0.405	0.797	105.5	20.1	51 W	38*	9 18	0 59.41	-3 2.8	0.599	1.583	12.1	18.1	161 W	42	67
12 3	13 24.06	+0 26.3	0.425	0.800	102.9	20.0	52 W	39*	9 28	0 40.82	-5 5.7	0.496	1.494	6.0	17.3	171 W	40	69
12 5	13 29.12	+0 44.4	0.444	0.803	100.4	20.0	53 W	40*	10 8	0 12.59	-7 38.8	0.414	1.400	12.1	17.0	163 E	37	72
12 7	13 34.12	+0 57.9	0.464	0.808	97.9	20.0	54 W	41*	10 18	23 34.79	-10 20.0	0.355	1.303	26.2	17.0	145 E	35	74
12 12	13 46.35	+1 15.9	0.511	0.823	92.1	20.0	57 W	42*	10 23	23 13.15	-11 32.0	0.334	1.252	34.4	17.0	135 E	33	76
12 17	13 58.19	+1 17.3	0.556	0.845	86.6	20.0	59 W	43*	10 28	22 50.43	-12 32.0	0.317	1.201	43.1	17.1	124 E	32	77
12 22	14 9.57	+1 8.1	0.597	0.873	81.7	20.0	61 W	44*	11 2	22 27.13	-13 17.3	0.304	1.149	52.2	17.1	114 E	32	77
12 27	14 20.44	+0 52.7	0.635	0.904	77.2	20.1	64 W	44*	11 7	22 3.57	-13 46.9	0.293	1.096	61.6	17.2	103 E	31	78
1 1	14 30.74	+0 34.2	0.669	0.940	73.1	20.2	66 W	45*	11 12	21 39.76	-14 1.8	0.284	1.043	71.4	17.4	93 E	31	76*
1 6	14 40.41	+0 15.1	0.699	0.979	69.5	20.2	69 W	45*	11 17	21 15.38	-14 3.9	0.276	0.990	81.8	17.5	82 E	31	67*
1 11	14 49.38	-0 2.8	0.725	1.020	66.1	20.3	71 W	45*	11 22	20 49.74	-13 56.1	0.269	0.936	93.0	17.8	71 E	31*	57*
1 16	14 57.57	-0 18.1	0.746	1.063	63.1	20.3	74 W	45*	11 27	20 21.87	-13 41.5	0.264	0.884	105.3	18.2	60 E	30*	45*
237566 2001 BW₁									12 2	19 50.97	-13 23.2	0.262	0.832	118.9	19.0	48 E	27*	33*
7 20	0 40.90	+33 56.2	3.439	3.644	16.2	21.5	93 W	75*	12 7	19 16.98	-13 4.2	0.264	0.783	133.9	20.2	35 E	22*	20*
7 30	0 41.22	+35 25.8	3.313	3.646	15.9	21.4	101 W	80*	12 9	19 2.78	-12 57.2	0.267	0.765	140.1	20.9	30 E	19*	15*
8 9	0 39.50	+36 46.4	3.192	3.648	15.2	21.3	109 W	82	12 11	18 48.46	-12 51.1	0.272	0.747	146.3	21.8	25 E	16*	10*
8 19	0 35.62	+37 54.7	3.080	3.649	14.3	21.2	117 W	83	12 13	18 34.22	-12 46.1	0.278	0.729	152.3	22.9	20 E	13*	4*
8 29	0 29.58	+38 46.3	2.981	3.648	13.2	21.1	124 W	84	12 15	18 20.28	-12 42.7	0.287	0.713	157.8	24.3	16 E	10*	—
9 8	0 21.63	+39 17.3	2.898	3.647	11.9	20.9	132 W	84	419022 2009 QF₃₁									
9 18	0 12.24	+39 24.2	2.835	3.645	10.6	20.8	138 W	84	7 20	0 56.61	+13 15.6	1.186	1.681	36.6	21.4	99 W	55*	51
9 28	0 2.13	+39 5.1	2.794	3.643	9.6	20.8	143 E	84	7 25	0 57.32	+15 57.7	1.130	1.678	36.2	21.3	103 W	60*	48
10 8	23 52.20	+38 21.0	2.779	3.639	9.2	20.7	145 E	83	7 30	0 57.02	+18 48.9	1.077	1.674	35.6	21.1	106 W	64*	45
10 18	23 43.29	+37 15.6	2.788	3.634	9.5	20.8	143 E	82	8 4	0 55.53	+21 49.4	1.027	1.670	34.9	21.0	110 W	67	42
10 28	23 3																	

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

20/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°-26°	20/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°-26°
419022 2009 QF₃₁									405895 2006 GJ₄₀								
<i>(continuation)</i>									<i>(continuation)</i>								
10 4	21 56.88	+52 1.3	0.821	1.592	32.4	20.4	122 E	83	12 9 18	1 1.50	-15 3.9	1.273	2.230	10.4	19.9	156 W	30
10 6	21 49.03	+51 59.1	0.829	1.589	32.8	20.4	120 E	83	12 9 23	0 54.80	-15 7.4	1.246	2.215	9.0	19.8	160 W	30
10 8	21 41.62	+51 53.3	0.836	1.586	33.3	20.4	119 E	83	12 9 28	0 47.56	-15 5.5	1.226	2.199	8.3	19.7	161 W	30
10 13	21 25.19	+51 25.8	0.858	1.577	34.6	20.5	116 E	84	10 3	0 39.96	-14 57.0	1.212	2.183	8.5	19.7	161 W	30
10 18	21 11.89	+50 45.3	0.882	1.569	35.7	20.6	113 E	84	10 8	0 32.22	-14 41.3	1.206	2.167	9.6	19.7	159 E	30
10 23	21 1.66	+49 58.2	0.908	1.560	36.8	20.6	110 E	85	10 13	0 24.59	-14 18.0	1.206	2.151	11.4	19.8	155 E	31
10 28	20 54.27	+49 9.3	0.934	1.551	37.8	20.7	107 E	86	10 18	0 17.29	-13 46.9	1.212	2.135	13.4	19.8	150 E	31
11 2	20 49.38	+48 22.1	0.961	1.542	38.6	20.8	104 E	87	10 23	0 10.56	-13 8.3	1.224	2.118	15.6	19.9	145 E	32
11 7	20 46.72	+47 38.9	0.987	1.532	39.3	20.9	102 E	87	10 28	0 4.55	-12 22.7	1.243	2.102	17.8	20.0	140 E	33
11 12	20 46.00	+47 1.3	1.013	1.523	40.0	20.9	99 E	88	11 2	23 59.41	-11 30.9	1.266	2.085	19.8	20.1	135 E	33
11 17	20 47.01	+46 30.6	1.037	1.513	40.5	21.0	97 E	88	11 7	23 55.20	-10 33.7	1.293	2.068	21.8	20.2	129 E	34
11 22	20 49.55	+46 7.3	1.060	1.503	40.9	21.0	94 E	87	11 12	23 51.98	-9 32.0	1.325	2.052	23.5	20.3	124 E	35
11 27	20 53.44	+45 52.0	1.081	1.493	41.3	21.1	92 E	85	11 17	23 49.76	-8 26.3	1.360	2.035	25.1	20.4	119 E	37
12 2	20 58.58	+45 44.6	1.100	1.483	41.7	21.1	90 E	83	11 27	23 48.26	-6 5.7	1.437	2.001	27.6	20.5	110 E	39
12 7	21 4.87	+45 45.0	1.117	1.473	42.0	21.1	89 E	81	12 7	23 50.35	-3 36.0	1.520	1.967	29.4	20.7	101 E	41
12 12	21 12.28	+45 53.1	1.132	1.463	42.2	21.1	87 E	79	12 17	23 55.60	-0 59.5	1.607	1.933	30.5	20.8	93 E	44
12 17	21 20.77	+46 8.7	1.145	1.452	42.5	21.2	86 E	77	12 27	0 3.61	+1 42.6	1.693	1.899	31.1	20.9	86 E	47
12 22	21 30.35	+46 31.6	1.155	1.442	42.7	21.2	84 E	75	1 6	0 13.97	+4 29.2	1.776	1.866	31.2	20.9	79 E	49
12 27	21 41.01	+47 1.4	1.163	1.432	43.0	21.2	83 E	73	1 16	0 26.41	+7 19.7	1.856	1.833	30.9	21.0	73 E	52
1 1	21 52.81	+47 37.5	1.169	1.422	43.2	21.2	82 E	71	107888 2001 FY₉₂								
1 6	22 5.80	+48 19.1	1.173	1.412	43.5	21.2	81 E	69	7 20	1 37.89	+4 16.2	2.563	2.810	21.2	21.4	93 W	43
1 11	22 20.09	+49 5.5	1.176	1.402	43.8	21.2	80 E	67	7 30	1 42.55	+4 33.8	2.448	2.831	20.6	21.3	102 W	47
1 16	22 35.78	+49 55.6	1.176	1.392	44.0	21.2	80 E	66	8 9	1 45.19	+4 39.7	2.336	2.852	19.5	21.2	110 W	50
378054 2006 TF₆₀									8 19	1 45.58	+4 33.3	2.230	2.872	17.8	21.1	120 W	50
7 20	1 7.74	+15 57.9	1.144	1.604	39.1	21.4	96 W	57	8 29	1 43.55	+4 14.7	2.135	2.890	15.5	20.9	130 W	49
7 25	1 17.40	+17 3.1	1.108	1.602	38.9	21.3	98 W	59	9 8	1 39.08	+3 44.7	2.057	2.908	12.6	20.7	141 W	49
7 30	1 26.71	+18 4.0	1.073	1.602	38.6	21.2	100 W	61	9 18	1 32.34	+3 5.3	1.998	2.925	9.2	20.5	152 W	48
8 4	1 35.63	+19 0.4	1.039	1.603	38.2	21.1	103 W	63	9 28	1 23.78	+2 19.9	1.965	2.940	5.5	20.4	164 W	47
8 9	1 44.09	+19 51.9	1.006	1.604	37.6	21.1	105 W	65	10 8	1 14.15	+1 33.3	1.960	2.955	2.2	20.2	174 W	47
8 14	1 52.02	+20 38.1	0.974	1.606	36.9	21.0	108 W	66	10 13	1 9.21	+1 11.1	1.969	2.962	2.2	20.2	173 E	46
8 19	1 59.32	+21 18.7	0.943	1.610	36.0	20.9	111 W	66	10 18	1 4.34	+0 50.5	1.985	2.969	3.7	20.3	169 E	46
8 24	2 5.92	+21 53.1	0.913	1.614	35.0	20.8	114 W	67	10 23	0 59.67	+0 32.3	2.009	2.976	5.5	20.4	163 E	46
8 29	2 11.72	+22 20.9	0.884	1.618	33.7	20.7	117 W	67	10 28	0 55.30	+0 16.8	2.040	2.982	7.3	20.6	158 E	45
9 3	2 16.66	+22 42.0	0.857	1.624	32.2	20.6	121 W	68	11 2	0 51.33	+0 4.5	2.077	2.988	9.1	20.7	152 E	45
9 8	2 20.65	+22 55.8	0.831	1.631	30.5	20.5	125 W	68	11 7	0 47.82	-0 4.4	2.121	2.994	10.7	20.8	146 E	45
9 13	2 23.62	+23 1.9	0.808	1.638	28.6	20.4	129 W	68	11 12	0 44.83	-0 9.7	2.171	3.000	12.2	20.9	140 E	45
9 18	2 25.49	+22 59.8	0.786	1.646	26.4	20.3	133 W	68	11 17	0 42.40	-0 11.3	2.226	3.005	13.5	21.0	135 E	45
9 28	2 25.96	+22 30.1	0.751	1.664	21.3	20.0	143 W	68	11 22	0 40.55	-0 9.3	2.286	3.014	14.7	21.1	129 E	45
10 8	2 22.41	+21 26.6	0.730	1.685	15.2	19.8	154 W	66	11 27	0 39.31	-0 3.6	2.350	3.015	15.7	21.2	124 E	45
10 18	2 15.87	+19 53.3	0.727	1.709	8.6	19.6	165 W	65	12 2	0 38.64	+0 5.5	2.418	3.020	16.6	21.3	119 E	45
10 23	2 12.01	+18 58.7	0.732	1.722	5.3	19.4	171 W	64	12 7	0 38.55	+0 17.9	2.488	3.024	17.3	21.4	114 E	45
10 28	2 8.12	+18 1.5	0.743	1.735	2.8	19.3	175 E	63	12 12	0 39.00	+0 33.4	2.561	3.028	17.9	21.5	109 E	46
11 2	2 4.43	+17 3.7	0.759	1.749	3.6	19.5	174 E	62	464655 2001 QA₅₉								
11 7	2 1.14	+16 7.4	0.781	1.763	6.4	19.7	168 E	61	7 20	1 44.53	+11 50.3	1.302	1.637	38.4	21.5	89 W	49
11 12	1 58.43	+15 14.5	0.807	1.777	9.5	19.9	163 E	60	7 30	2 4.57	+13 8.3	1.226	1.639	38.2	21.3	93 W	53
11 17	1 56.44	+14 26.5	0.840	1.792	12.3	20.1	157 E	59	8 9	2 23.21	+14 8.5	1.153	1.643	37.6	21.2	98 W	57
11 22	1 55.26	+13 44.8	0.877	1.808	15.0	20.3	152 E	59	8 19	2 40.00	+14 49.2	1.082	1.650	36.5	21.0	104 W	60
11 27	1 54.93	+13 10.0	0.918	1.824	17.4	20.5	146 E	58	8 29	2 54.34	+15 9.2	1.014	1.660	34.8	20.9	110 W	60
12 2	1 55.45	+12 42.3	0.964	1.840	19.6	20.7	141 E	58	9 8	3 5.67	+15 7.8	0.950	1.671	32.4	20.7	117 W	60
12 7	1 56.80	+12 21.7	1.014	1.856	21.5	20.9	136 E	57	9 18	3 13.32	+14 44.7	0.892	1.686	29.1	20.5	125 W	60
12 12	1 58.92	+12 7.9	1.067	1.873	23.1	21.1	132 E	57	9 28	3 16.75	+14 0.4	0.843	1.702	24.9	20.2	134 W	59
12 17	2 1.79	+12 0.5	1.124	1.890	24.5	21.3	127 E	57	10 8	3 15.77	+12 57.6	0.805	1.720	19.7	20.0	145 W	58
12 22	2 5.35	+11 59.0	1.183	1.907	25.6	21.4	123 E	57	10 13	3 13.67	+12 20.6	0.792	1.729	16.8	19.9	150 W	57
488646 2003 QK₄₇									10 18	3 10.63	+11 41.0	0.783	1.740	13.7	19.8	156 W	57
7 20	1 9.65	+12 36.0	1.014	1.516	41.7	21.5	97 W	53	10 23	3 6.79	+11 0.1	0.778	1.750	10.5	19.6	161 W	56
7 30	1 18.16	+17 51.1	0.952	1.531	40.4	21.3	102 W	62	10 28	3 2.39	+10 19.4	0.779	1.761	7.4	19.5	167 W	55
8 9	1 23.39	+23 15.6	0.896	1.547	38.5	21.2	108 W	68	11 2	2 57.64	+9 40.1	0.785	1.772	4.8	19.4	171 W	55
8 19	1 24.36	+28 44.1	0.847	1.565	36.1	21.0	114 W	74	11 7	2 52.80	+9 3.9	0.796	1.784	4.0	19.4	173 W	54
8 29	1 19.97	+34 5.0	0.808	1.584	33.2	20.8	121 W	79	11 12	2 48.10	+8 32.0	0.813	1.796	5.8	19.6	170 E	54
9 8	1 9.24	+38 59.6	0.781	1.605	30.1	20.7	127 W	84	11 17	2 43.79	+8 5.5	0.836	1.808	8.4	19.8	164 E	53
9 18	0 51.92	+43 2.5	0.769	1.626	27.1	20.6	132 W	88	11 22	2 40.07	+7 45.2	0.864	1.820	11.3	20.0	159 E	53
9 28	0 29.53	+45 47.5	0.772	1.648	24.9	20.6	136 W	89	11 27	2 37.07	+7 31.6	0.897	1.833	14.0	20.2	153 E	53
10 8	0 5.78	+47 2.4	0.792	1.671	23.8	20.6	137 E	88	12 7	2 33.61	+7 24.6	0.977	1.859	18.7	20.6	143 E	52
10 18	23 45.12	+46 54.6	0.827	1.694	24.0	20.8	136 E	88	12 17	2 33.67	+7 42.1	1.073	1.886	22.5	20.9	133 E	53
10 28	23 30.86	+45 48.5	0.877	1.717	24.9	20.9	133 E	89	12 27	2 37.15	+8 20.0	1.183	1.914	25.2	21.2	124 E	53
11 7	23 24.01	+44 13.7	0.940	1.741	26.4	21.2	129 E	89	1 6	2 43.62	+9 13.1	1.302	1.942	27.2	21.5	116 E	54
11 17	23 24.01	+42 32.7	1.014	1.765	27.8	21.4	124 E	88	308195 2005 EW₁₂								
7 20	1 16.69	-13 38.8															

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

20/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45° - 26°	20/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45° - 26°		
308195 2005 EW₁₂ (continuation)									430777 2004 TS₁₀										
10 18	3 47.33	+23 3.9	0.649	1.572	21.4	18.4	145 W	68 41	7 20	2 11.34	+15 10.1	1.738	1.882	32.3	21.4	82 W	48*	49	
10 28	3 51.02	+24 25.4	0.576	1.531	16.8	17.9	154 W	69 40	7 25	2 21.63	+15 12.9	1.669	1.863	32.8	21.3	84 W	50*	49	
11 7	3 51.33	+25 44.7	0.518	1.493	11.4	17.4	163 W	71 38	7 30	2 31.94	+15 9.9	1.601	1.844	33.3	21.2	87 W	52*	49	
11 12	3 50.32	+26 22.3	0.494	1.476	8.6	17.2	167 W	71 38	8 4	2 42.28	+15 0.7	1.534	1.825	33.8	21.1	89 W	54*	49	
11 17	3 48.71	+26 57.5	0.475	1.460	6.1	17.0	171 W	72 37	8 9	2 52.63	+14 44.7	1.468	1.806	34.1	21.0	91 W	55*	49	
11 22	3 46.75	+27 29.9	0.461	1.446	5.1	16.8	173 E	72 37	8 14	3 2.95	+14 21.2	1.404	1.787	34.4	20.9	94 W	56*	50	
11 27	3 44.72	+27 59.0	0.450	1.432	6.3	16.8	171 E	73 36	8 19	3 13.21	+13 49.5	1.340	1.769	34.6	20.8	97 W	57*	50	
12 2	3 42.93	+28 24.6	0.443	1.421	9.0	16.9	167 E	73 36	8 24	3 23.39	+13 8.9	1.278	1.751	34.8	20.7	99 W	57*	51	
12 7	3 41.68	+28 46.7	0.440	1.411	12.2	17.0	162 E	74 35	8 29	3 33.43	+12 18.9	1.218	1.733	34.8	20.6	102 W	57*	52	
12 12	3 41.27	+29 5.5	0.440	1.402	15.4	17.1	158 E	74 35	9 3	3 43.31	+11 18.7	1.160	1.715	34.7	20.4	104 W	56*	53	
12 17	3 41.95	+29 21.4	0.444	1.395	18.6	17.2	153 E	74 35	9 8	3 52.97	+10 7.8	1.103	1.698	34.6	20.3	107 W	55	54	
12 22	3 43.94	+29 35.2	0.452	1.390	21.5	17.3	149 E	75 34	9 13	4 2.36	+ 8 45.4	1.050	1.681	34.3	20.2	110 W	54	55	
12 27	3 47.33	+29 47.2	0.462	1.386	24.2	17.5	145 E	75 34	9 18	4 11.41	+ 7 11.1	0.999	1.664	33.9	20.0	112 W	52	57	
1 1	3 52.15	+29 57.9	0.475	1.385	26.7	17.6	141 E	75 34	9 28	4 28.21	+ 3 25.9	0.906	1.633	32.9	19.7	118 W	48	61	
1 6	3 58.36	+30 7.1	0.491	1.384	28.8	17.7	137 E	75 34	10 8	4 42.83	- 1 6.8	0.826	1.603	31.6	19.5	123 W	44	65	
1 11	4 5.89	+30 15.0	0.509	1.386	30.8	17.9	134 E	75 34	10 18	4 54.63	- 6 20.0	0.761	1.576	30.3	19.2	127 W	39	70	
1 16	4 14.66	+30 21.2	0.530	1.390	32.4	18.0	131 E	75 34	10 23	4 59.27	- 9 6.9	0.735	1.564	29.7	19.1	129 W	36	73	
447146 2005 GZ₂₅									10 28	5 3.01	-11 56.9	0.712	1.552	29.2	19.0	130 W	33	76	
7 20	1 51.77	- 3 28.8	1.234	1.635	38.4	21.5	93 W	34*	67	11 2	5 5.80	-14 46.6	0.694	1.541	28.9	18.9	131 W	30	79
7 30	2 6.01	- 1 14.4	1.147	1.633	38.0	21.3	98 W	40*	65	11 7	5 7.61	-17 32.2	0.680	1.531	28.8	18.9	132 W	27	82
8 9	2 18.14	+ 1 0.1	1.061	1.631	37.1	21.1	104 W	45*	63	11 12	5 8.45	-20 9.8	0.669	1.522	28.8	18.8	132 W	25	84
8 19	2 27.62	+ 3 16.5	0.977	1.631	35.6	20.9	110 W	48*	61	11 17	5 8.36	-22 35.4	0.662	1.514	29.0	18.8	132 W	22	87
8 29	2 33.76	+ 5 37.2	0.897	1.632	33.3	20.6	118 W	51	58	11 22	5 7.43	-24 45.1	0.659	1.507	29.5	18.8	131 W	20	89
9 8	2 35.79	+ 8 5.0	0.823	1.633	29.9	20.3	126 W	53	56	11 27	5 5.83	-26 36.1	0.658	1.500	30.0	18.8	131 W	18	89
9 18	2 32.83	+10 41.2	0.758	1.636	25.3	20.0	136 W	56	53	12 2	5 3.73	-28 6.3	0.660	1.495	30.6	18.8	129 W	17	88
9 28	2 24.23	+13 24.2	0.706	1.639	19.5	19.7	147 W	58	51	12 7	5 1.33	-29 14.1	0.665	1.490	31.3	18.8	128 W	16	87
10 3	2 17.82	+14 46.4	0.686	1.641	16.2	19.5	153 W	60	49	12 12	4 58.86	-29 58.9	0.671	1.487	32.0	18.9	127 E	15	86
10 8	2 10.14	+16 7.3	0.672	1.644	12.6	19.4	159 W	61	48	12 17	4 56.56	-30 20.7	0.679	1.484	32.7	18.9	125 E	15	86
10 13	2 1.40	+17 24.9	0.662	1.646	9.1	19.2	165 W	62	47	12 22	4 54.68	-30 20.0	0.690	1.483	33.4	18.9	124 E	15	86
10 18	1 51.91	+18 37.5	0.659	1.649	6.2	19.1	170 W	64	45	12 27	4 53.42	-29 58.4	0.701	1.483	34.0	19.0	122 E	15	86
10 23	1 42.10	+19 43.6	0.661	1.652	5.2	19.0	171 E	65	44	1 1	4 52.91	-29 17.7	0.714	1.484	34.6	19.1	121 E	16	87
10 28	1 32.42	+20 42.5	0.670	1.655	7.0	19.1	168 E	66	43	1 6	4 53.27	-28 19.7	0.728	1.486	35.1	19.1	120 E	17	88
11 2	1 23.29	+21 33.8	0.684	1.658	10.1	19.3	163 E	67	42	1 11	4 54.55	-27 6.4	0.744	1.489	35.5	19.2	118 E	18	89
11 7	1 15.06	+22 18.0	0.704	1.662	13.5	19.5	157 E	67	42	1 16	4 56.80	-25 39.7	0.761	1.492	35.9	19.2	117 E	19	90
11 12	1 8.03	+22 56.0	0.729	1.666	16.7	19.7	151 E	68	41	141851 2002 PM₆									
11 17	1 2.39	+23 29.2	0.758	1.670	19.6	19.9	145 E	68	41	7 20	2 24.16	+32 50.7	1.633	1.664	35.9	21.3	74 W	58*	31*
11 22	0 58.24	+23 59.1	0.792	1.674	22.3	20.1	140 E	69	40	7 25	2 34.93	+34 27.2	1.539	1.620	37.4	21.2	76 W	61*	30*
11 27	0 55.60	+24 27.2	0.829	1.678	24.6	20.3	135 E	69	40	7 30	2 46.61	+36 9.2	1.444	1.574	39.0	21.0	77 W	65*	28*
12 2	0 54.41	+24 54.5	0.869	1.682	26.7	20.4	130 E	70	39	8 4	2 59.47	+37 57.4	1.349	1.526	40.8	20.9	79 W	68*	26*
12 7	0 54.60	+25 21.9	0.912	1.687	28.4	20.6	125 E	70	39	8 9	3 13.90	+39 52.4	1.255	1.475	42.7	20.7	80 W	71*	24*
12 12	0 56.06	+25 50.0	0.957	1.691	29.9	20.7	121 E	71	38	8 14	3 30.43	+41 54.7	1.162	1.421	44.8	20.5	81 W	73*	22*
12 17	0 58.70	+26 19.2	1.004	1.696	31.1	20.9	117 E	71	38	8 19	3 49.78	+44 3.9	1.071	1.365	47.2	20.3	82 W	75*	20*
12 22	1 2.43	+26 49.9	1.052	1.701	32.1	21.0	113 E	72	37*	8 21	3 58.55	+44 57.1	1.035	1.342	48.3	20.2	82 W	75*	19*
12 27	1 7.14	+27 22.2	1.102	1.706	32.9	21.2	110 E	72	36*	8 23	4 8.02	+45 51.0	0.999	1.318	49.4	20.1	82 W	76*	18*
1 1	1 12.74	+27 56.0	1.153	1.711	33.5	21.3	106 E	73	35*	8 25	4 18.30	+46 45.2	0.964	1.293	50.7	20.1	82 W	76*	17*
1 6	1 19.13	+28 31.2	1.204	1.716	33.9	21.4	103 E	74	33*	8 27	4 29.50	+47 39.3	0.930	1.268	52.0	20.0	82 W	76*	16*
1 11	1 26.26	+29 7.6	1.256	1.721	34.3	21.5	100 E	74	32*	8 29	4 41.75	+48 32.5	0.897	1.243	53.4	19.9	81 W	75*	15*
513022 2017 VD₁									8 31	4 55.19	+49 24.2	0.864	1.217	54.9	19.8	81 W	75*	14*	
7 20	2 4.71	+11 44.5	1.408	1.653	37.7	21.5	84 W	46*	52	9 2	5 9.96	+50 13.0	0.832	1.190	56.6	19.7	80 W	74*	13*
7 30	2 22.61	+13 56.5	1.338	1.666	37.5	21.4	89 W	52*	50	9 4	5 26.22	+50 57.7	0.802	1.163	58.3	19.6	79 W	73*	12*
8 9	2 38.93	+15 58.9	1.268	1.681	37.0	21.2	94 W	58*	48	9 6	5 44.09	+51 36.2	0.772	1.135	60.3	19.6	78 W	71*	11*
8 19	2 53.22	+17 51.6	1.198	1.698	35.9	21.1	100 W	62*	46	9 8	6 3.67	+52 6.3	0.744	1.107	62.4	19.5	77 W	70*	10*
8 29	3 4.96	+19 34.5	1.130	1.717	34.3	21.0	107 W	65	44	9 10	6 25.00	+52 25.0	0.717	1.078	64.6	19.4	75 W	68*	9*
9 8	3 13.56	+21 7.5	1.065	1.737	32.0	20.8	114 W	66	43	9 12	6 48.00	+52 29.3	0.692	1.048	67.1	19.4	74 W	66*	8*
9 18	3 18.36	+22 29.9	1.005	1.759	29.0	20.6	122 W	67	42	9 14	7 12.49	+52 15.5	0.670	1.017	69.8	19.3	72 W	64*	7*
9 28	3 18.76	+23 39.7	0.953	1.782	25.0	20.4	131 W	69	40	9 16	7 38.13	+51 40.3	0.649	0.986	72.6	19.3	69 W	62*	6*
10 8	3 14.52	+24 33.6	0.913	1.806	20.1	20.2	142 W	70	39	9 18	8 4.43	+50 40.7	0.631	0.954	75.7	19.2	67 W	59*	5*
10 13	3 10.72	+24 53.2	0.898	1.818	17.3	20.1	147 W	70	39	9 19	8 17.67	+50 0.9	0.623	0.937	77.2	19.2	66 W	58*	5*
10 18	3 5.92	+25 7.0	0.887	1.831	14.4	20.0	153 W	70	39	9 20	8 30.85	+49 14.4	0.616	0.921	78.9	19.2	64 W	56*	4*
10 23	3 0.31	+25 14.6	0.882	1.844	11.4	19.9	158 W	70	39	9 21	8 43.92	+48 20.9	0.610	0.904	80.6	19.2	63 W	55*	4*
10 28	2 54.13	+25 16.1	0.882	1.857	8.5	19.8	164 W	70	39	9 22	8 56.81	+47 20.5	0.604	0.887	82.3	19.2	61 W	53*	3*
11 2	2 47.67	+25 11.5	0.887	1.870	6.0	19.7	169 W	70	39	9 23	9 9.44	+46 13.4	0.599	0.870	84.0	19.2	60 W	52*	3*
11 7	2 41.19	+25 1.7	0.898	1.884	4.7	19.6	171 E	70	39	9									

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

20/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	20/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°
141851 2002 PM₆										5879 Almeria									
<i>(continuation)</i>										<i>(continuation)</i>									
10 22	12 57.26	-4 31.9	0.974	0.239	88.1	17.6	14 W	7*	2*	12 17	9 8.47	-28 5.3	0.488	1.226	49.8	18.2	108 W	17	88
10 24	13 12.74	-8 4.9	1.043	0.200	70.4	16.8	11 W	4*	2*	12 22	9 20.65	-28 31.2	0.455	1.213	50.0	18.1	109 W	16	87
10 26	13 31.84	-11 36.5	1.111	0.180	45.7	15.9	7 W	—	—	12 27	9 33.24	-28 38.1	0.423	1.200	50.0	17.9	111 W	16	87
10 28	13 54.28	-14 49.1	1.166	0.190	22.3	15.5	4 W	—	—	1 1	9 46.35	-28 21.8	0.391	1.190	49.7	17.7	113 W	17	88
10 29	14 6.08	-16 12.2	1.187	0.204	16.4	15.5	3 W	—	—	1 6	10 0.07	-27 36.8	0.359	1.180	49.1	17.5	115 W	17	88
10 30	14 17.88	-17 25.7	1.205	0.223	16.5	15.7	4 E	—	—	1 11	10 14.46	-26 15.7	0.329	1.172	48.1	17.2	117 W	19	90
10 31	14 29.53	-18 30.0	1.220	0.245	19.9	16.1	5 E	—	—	1 16	10 29.57	-24 9.1	0.300	1.165	46.6	17.0	121 W	21	88
11 1	14 40.91	-19 26.1	1.233	0.269	23.7	16.4	6 E	—	—	138843 2000 VF₃₉									
11 2	14 52.00	-20 15.0	1.245	0.294	27.0	16.7	8 E	—	—	7 20	3 24.88	-7 14.8	1.513	1.550	38.7	21.5	73 W	19*	64*
11 3	15 2.79	-20 57.5	1.256	0.319	29.7	17.0	9 E	—	—	7 30	3 40.41	-5 21.0	1.452	1.573	39.0	21.4	77 W	26*	66*
11 4	15 13.26	-21 34.4	1.267	0.344	31.9	17.3	11 E	—	—	8 9	3 54.12	-3 32.8	1.384	1.596	39.0	21.4	82 W	32*	66*
11 5	15 23.44	-22 6.4	1.278	0.370	33.6	17.5	12 E	—	—	8 19	4 5.74	-1 47.8	1.307	1.618	38.7	21.3	87 W	38*	66*
11 6	15 33.33	-22 34.0	1.289	0.395	34.8	17.7	13 E	—	—	8 29	4 14.86	0 2.6	1.225	1.640	37.9	21.1	94 W	43*	64
11 7	15 42.94	-22 57.7	1.301	0.419	35.8	17.8	14 E	—	—	9 8	4 20.94	+1 47.5	1.139	1.661	36.5	21.0	101 W	47*	62
11 9	16 1.35	-23 34.8	1.324	0.468	36.9	18.2	16 E	—	—	9 18	4 23.24	+3 47.8	1.051	1.681	34.3	20.8	110 W	49	60
11 11	16 18.74	-24 0.3	1.349	0.515	37.4	18.4	18 E	1*	12*	9 28	4 20.79	+6 5.1	0.966	1.700	30.9	20.5	119 W	51	58
11 13	16 35.17	-24 16.4	1.375	0.560	37.3	18.6	20 E	2*	14*	10 8	4 12.59	+8 45.6	0.890	1.719	26.1	20.2	131 W	54	55
11 15	16 50.69	-24 24.5	1.403	0.604	37.0	18.8	22 E	3*	15*	10 18	3 57.78	+11 51.7	0.828	1.736	19.7	19.9	144 W	57	52
11 17	17 5.36	-24 26.0	1.431	0.646	36.4	19.0	23 E	4*	16*	10 23	3 47.84	+13 32.8	0.805	1.745	15.9	19.7	151 W	59	50
11 19	17 19.22	-24 22.1	1.462	0.687	35.7	19.2	24 E	5*	17*	10 28	3 36.37	+15 17.0	0.789	1.753	11.8	19.5	159 W	60	49
11 21	17 32.32	-24 13.8	1.493	0.727	34.9	19.3	25 E	6*	18*	11 2	3 23.68	+17 1.6	0.780	1.760	7.4	19.3	167 W	62	47
11 23	17 44.73	-24 1.7	1.525	0.765	34.0	19.4	26 E	7*	18*	11 7	3 10.15	+18 43.5	0.779	1.768	3.1	19.1	174 W	64	45
11 25	17 56.47	-23 46.6	1.558	0.803	33.0	19.6	26 E	8*	19*	11 12	2 56.29	+20 19.6	0.786	1.775	2.3	19.1	176 E	65	44
11 27	18 7.60	-23 29.0	1.591	0.839	32.1	19.7	27 E	9*	19*	11 17	2 42.65	+21 47.7	0.802	1.782	6.3	19.4	169 E	67	42
12 2	18 33.04	-22 37.0	1.677	0.925	29.6	19.9	28 E	10*	19*	11 22	2 29.78	+23 6.7	0.826	1.789	10.4	19.6	161 E	68	41
12 7	18 55.56	-21 37.6	1.765	1.006	27.3	20.2	28 E	12*	19*	11 27	2 18.12	+24 16.6	0.857	1.795	14.1	19.8	154 E	69	40
12 12	19 15.68	-20 34.1	1.853	1.081	24.9	20.4	28 E	13*	18*	12 2	2 7.96	+25 18.1	0.894	1.801	17.5	20.1	147 E	70	39
12 17	19 33.83	-19 28.5	1.941	1.153	22.7	20.5	27 E	13*	16*	12 7	1 59.47	+26 12.6	0.937	1.806	20.5	20.3	140 E	71	38
12 22	19 50.34	-18 22.2	2.027	1.220	20.6	20.7	26 E	14*	14*	12 12	1 52.71	+27 1.8	0.985	1.812	23.1	20.5	134 E	72	37
12 27	20 5.50	-17 15.8	2.111	1.284	18.6	20.8	25 E	14*	13*	12 17	1 47.66	+27 47.1	1.036	1.817	25.2	20.6	128 E	73	36
1 1	20 19.53	-16 9.7	2.192	1.345	16.7	20.9	23 E	13*	10*	12 22	1 44.24	+28 30.1	1.091	1.821	27.0	20.8	123 E	74	35
1 6	20 32.60	-15 4.2	2.271	1.402	14.8	21.0	21 E	13*	8*	12 27	1 42.33	+29 11.8	1.148	1.825	28.5	21.0	118 E	74	35
1 11	20 44.86	-13 59.4	2.346	1.456	13.1	21.1	20 E	12*	6*	1 1	1 41.80	+29 53.1	1.207	1.829	29.7	21.1	113 E	75	34*
1 16	20 56.44	-12 55.2	2.417	1.508	11.4	21.2	18 E	10*	4*	1 6	1 42.52	+30 34.3	1.268	1.833	30.6	21.2	108 E	76	33*
7 20	2 41.73	-2 42.8	2.622	2.657	22.2	21.5	81 W	29*	66*	1 11	1 44.37	+31 16.1	1.329	1.836	31.3	21.4	104 E	76	31*
7 30	2 51.21	-1 57.1	2.459	2.617	22.8	21.3	87 W	35*	66*	1 16	1 47.25	+31 58.6	1.390	1.839	31.8	21.5	100 E	77	29*
8 9	2 59.48	-1 17.4	2.294	2.578	23.1	21.2	94 W	40*	65	489541 2007 RL₂₀₄									
8 19	3 6.25	0 43.4	2.130	2.538	23.0	21.0	102 W	43*	65	7 20	3 30.71	+11 38.4	2.282	2.059	26.4	21.5	64 W	32*	48*
8 29	3 11.12	0 14.2	1.969	2.497	22.4	20.7	110 W	45	64	7 30	3 51.97	+11 2.4	2.140	2.015	28.1	21.3	69 W	37*	50*
9 8	3 13.67	+0 12.0	1.815	2.456	21.2	20.5	118 W	45	64	8 9	4 13.48	+10 4.5	2.001	1.971	29.6	21.2	74 W	41*	52*
9 18	3 13.43	+0 37.2	1.670	2.414	19.4	20.2	127 W	46	63	8 19	4 35.12	+8 41.9	1.864	1.929	30.9	21.0	78 W	44*	54*
9 28	3 9.92	+1 4.5	1.538	2.372	16.7	19.9	137 W	46	63	8 29	4 56.74	+6 52.2	1.733	1.888	32.0	20.8	82 W	46*	56*
10 8	3 2.84	+1 38.0	1.423	2.330	13.2	19.6	148 W	47	62	9 8	5 18.15	+4 33.5	1.608	1.848	33.0	20.7	87 W	47*	59*
10 18	2 52.16	+2 22.0	1.331	2.288	9.1	19.2	159 W	47	62	9 18	5 39.14	+1 44.3	1.491	1.810	33.7	20.5	91 W	46*	62*
10 28	2 38.45	+3 20.6	1.265	2.246	5.3	18.9	168 W	48	61	9 28	5 59.44	+1 35.3	1.384	1.774	34.3	20.3	95 W	43*	65*
11 7	2 22.95	+4 36.3	1.227	2.204	5.9	18.8	167 E	50	59	10 8	6 18.77	-5 23.4	1.286	1.740	34.6	20.1	98 W	40	69*
11 17	2 7.35	+6 9.0	1.220	2.162	10.6	19.0	156 E	51	58	10 13	6 27.98	-7 27.1	1.242	1.724	34.7	20.0	100 W	38	71
11 27	1 53.53	+7 56.6	1.240	2.120	15.8	19.2	144 E	53	56	10 18	6 36.80	-9 36.3	1.200	1.709	34.8	19.9	102 W	35	74
12 7	1 42.88	+9 56.0	1.283	2.079	20.5	19.3	132 E	55	54	10 23	6 45.20	-11 49.9	1.161	1.694	34.9	19.8	103 W	33	76
12 17	1 36.18	+12 4.1	1.344	2.038	24.3	19.5	121 E	57	52	10 28	6 53.14	-14 7.0	1.125	1.681	34.9	19.7	105 W	31	78
12 27	1 33.63	+14 19.2	1.416	1.998	27.3	19.7	111 E	59	50*	11 2	7 0.56	-16 26.1	1.092	1.668	34.8	19.6	106 W	29	80
1 6	1 35.06	+16 39.9	1.496	1.959	29.3	19.8	102 E	62	46*	11 7	7 7.41	-18 46.1	1.062	1.656	34.8	19.6	107 W	26	83
1 16	1 40.12	+19 5.3	1.578	1.921	30.7	19.9	94 E	64	41*	11 12	7 13.63	-21 5.3	1.034	1.645	34.8	19.5	109 W	24	85
7 20	3 19.66	+1 54.1	1.852	1.787	32.4	21.5	70 W	27*	58*	11 17	7 19.16	-23 22.1	1.008	1.634	34.7	19.4	110 W	22	87
7 30	3 42.54	+1 38.0	1.733	1.753	33.9	21.3	74 W	31*	59*	11 22	7 23.94	-25 34.6	0.985	1.625	34.6	19.4	111 W	19	90
8 9	4 5.76	+1 3.4	1.617	1.717	35.2	21.2	78 W	35*	61*	11 27	7 27.95	-27 41.1	0.964	1.617	34.5	19.3	112 W	17	88
8 19	4 29.27	+0 8.8	1.503	1.680	36.5	21.0	81 W	37*	62*	12 2	7 31.14	-29 39.7	0.945	1.610	34.3	19.2	113 W	15	86
8 29	4 52.97	-1 7.2	1.393	1.642	37.8	20.8	85 W	39*	64*	12 7	7 33.49	-31 28.7	0.927	1.604	34.1	19.2	114 W	14	85
9 8	5 16.80	-2 44.7	1.287	1.603	38.9	20.6	88 W	40*	66*	12 12	7 34.97	-33 6.2	0.912	1.599	33.9	19.1	115 W	12	83
9 18	5 40.65	-4 43.9	1.186	1.563	40.0	20.4	91 W	39*	68*	12 17	7 35.60	-34 30.2	0.897	1.595	33.7	19.1	116 W	10	81
9 28	6 4.40	-7 3.2	1.091	1.523	41.1	20.2	93 W	38*	71*	12 22	7 35.44	-35 39.0	0.884	1.592	33.4	19.0	117 W	9	80
10 8	6 27.98	-9 40.3	1.001	1.482	42.2	20.0	96 W	35	73*	12 27	7 34.58	-36 30.9	0.873	1.591	33.1	19.0	118 W	8	79</

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

20/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	20/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°
282347 2003 AZ₂₂										162210 1999 SM₅									
<i>(continuation)</i>										<i>(continuation)</i>									
10 23	5 34.66	+48 51.0	2.108	2.752	18.1	20.4	121 W	86	15	9 23	4 43.26	+30 51.3	0.795	1.446	41.7	21.0	107 W	76	33
10 28	5 33.32	+49 18.9	2.046	2.739	17.3	20.3	125 W	86	15	9 28	4 37.90	+31 10.4	0.796	1.499	38.2	21.0	112 W	76	33
11 2	5 30.92	+49 44.4	1.988	2.727	16.4	20.2	129 W	85	14	10 3	4 30.99	+31 24.1	0.799	1.551	34.5	21.0	119 W	76	33
11 7	5 27.43	+50 6.6	1.934	2.714	15.3	20.0	134 W	85	14	10 8	4 22.58	+31 31.1	0.803	1.603	30.6	21.0	125 W	77	32
11 12	5 22.85	+50 24.5	1.885	2.701	14.2	19.9	138 W	85	14	10 13	4 12.81	+31 30.0	0.810	1.653	26.7	20.9	132 W	76	33
11 17	5 17.25	+50 36.8	1.840	2.688	13.1	19.8	142 W	84	13	10 18	4 1.93	+31 19.7	0.820	1.703	22.6	20.9	139 W	76	33
11 22	5 10.73	+50 42.2	1.801	2.675	12.0	19.7	146 W	84	13	10 23	3 50.29	+30 59.6	0.836	1.752	18.5	20.9	146 W	76	33
11 27	5 3.46	+50 39.9	1.768	2.661	11.1	19.7	149 W	84	13	10 28	3 38.33	+30 29.8	0.857	1.800	14.4	20.9	153 W	75	34
12 2	4 55.68	+50 28.8	1.741	2.648	10.4	19.6	151 W	85	14	11 2	3 26.47	+29 51.4	0.884	1.848	10.6	20.8	160 W	75	34
12 7	4 47.64	+50 8.7	1.721	2.634	10.0	19.5	152 E	85	14	11 7	3 15.13	+29 6.1	0.918	1.894	7.4	20.8	166 W	74	35
12 12	4 39.61	+49 39.3	1.707	2.620	10.0	19.5	152 E	85	14	11 12	3 4.63	+28 16.0	0.959	1.940	5.4	20.9	169 E	73	36
12 17	4 31.89	+49 1.0	1.700	2.605	10.5	19.5	151 E	86	15	11 17	2 55.24	+27 23.6	1.007	1.985	5.7	21.1	168 E	72	37
12 22	4 24.75	+48 14.9	1.700	2.591	11.4	19.5	149 E	87	16	11 22	2 47.13	+26 31.3	1.062	2.030	7.7	21.3	164 E	72	37
12 27	4 18.39	+47 22.3	1.706	2.576	12.5	19.6	145 E	88	17	11 27	2 40.37	+25 41.2	1.124	2.074	10.0	21.6	159 E	71	38
1 1	4 12.99	+46 24.7	1.718	2.561	13.8	19.6	141 E	89	18	12 2	2 34.95	+24 54.7	1.191	2.117	12.3	21.8	153 E	70	39
1 6	4 8.64	+45 23.6	1.736	2.546	15.2	19.7	137 E	90	19	12 7	2 30.80	+24 12.9	1.265	2.159	14.4	22.1	147 E	69	40
1 11	4 5.39	+44 20.7	1.759	2.531	16.6	19.7	133 E	89	20	415029 2011 UL₂₁									
1 16	4 3.26	+43 17.4	1.787	2.516	17.9	19.8	128 E	88	21	7 20	4 35.97	+41 18.6	3.343	2.755	15.7	21.5	47 W	39*	15*
308043 2004 TH₁₀										7 30	4 53.14	+41 44.0	3.192	2.701	17.4	21.4	53 W	45*	16*
7 20	4 20.76	+50 58.7	0.275	0.874	113.8	19.9	52 W	46*	8*	8 9	5 10.12	+42 5.5	3.031	2.645	19.1	21.3	58 W	51*	17*
7 21	4 6.53	+52 37.1	0.268	0.890	110.6	19.7	55 W	49*	8*	8 19	5 26.80	+42 23.2	2.859	2.586	20.6	21.2	64 W	57*	18*
7 22	3 50.58	+54 12.9	0.262	0.907	107.3	19.5	59 W	52*	7*	8 29	5 43.00	+42 37.2	2.679	2.525	22.1	21.0	70 W	64*	19*
7 23	3 32.74	+55 43.9	0.256	0.924	103.9	19.3	62 W	56*	7*	9 8	5 58.52	+42 47.7	2.492	2.462	23.5	20.8	77 W	70*	19*
7 24	3 12.83	+57 7.5	0.251	0.940	100.4	19.1	65 W	59*	6*	9 18	6 13.12	+42 55.0	2.299	2.397	24.6	20.6	83 W	77*	20*
7 25	2 50.76	+58 21.0	0.247	0.956	96.9	18.9	69 W	63*	6*	9 28	6 26.45	+42 59.6	2.103	2.328	25.5	20.4	90 W	84*	20*
7 26	2 26.58	+59 21.0	0.243	0.972	93.4	18.8	73 W	66*	5	10 3	6 32.53	+43 1.0	2.004	2.293	25.8	20.3	93 W	87*	21*
7 27	2 0.53	+60 4.3	0.240	0.988	89.8	18.6	77 W	69*	4	10 8	6 38.13	+43 1.8	1.906	2.258	26.1	20.2	97 W	88	21
7 28	1 33.07	+60 28.0	0.238	1.003	86.2	18.5	80 W	72*	4	10 13	6 43.19	+43 2.0	1.807	2.221	26.2	20.0	101 W	88	21*
7 29	1 4.86	+60 30.2	0.237	1.018	82.6	18.4	84 W	74*	4	10 18	6 47.60	+43 1.7	1.709	2.184	26.2	19.8	105 W	88	21*
7 30	0 36.70	+60 9.8	0.236	1.034	79.0	18.3	88 W	75	4	10 23	6 51.28	+43 0.6	1.611	2.146	26.1	19.7	109 W	88	21
7 31	0 9.39	+59 27.5	0.237	1.049	75.4	18.2	92 W	76	5	10 28	6 54.10	+42 58.5	1.515	2.108	25.8	19.5	113 W	88	21
8 1	23 43.58	+58 25.0	0.238	1.063	71.9	18.1	95 W	77	6	11 2	6 55.95	+42 55.2	1.420	2.069	25.3	19.3	117 W	88	21
8 2	23 19.73	+57 5.0	0.240	1.078	68.4	18.1	99 W	78	7	11 7	6 56.66	+42 50.0	1.327	2.029	24.6	19.1	121 W	88	21
8 3	22 58.07	+55 30.7	0.243	1.093	65.1	18.0	102 W	79	8	11 12	6 56.06	+42 42.2	1.236	1.988	23.7	18.9	126 W	88	21
8 4	22 38.63	+53 45.5	0.246	1.107	61.9	18.0	106 W	81	10	11 17	6 53.92	+42 30.5	1.148	1.947	22.5	18.6	131 W	88	21
8 5	22 21.33	+51 52.5	0.251	1.121	58.8	18.0	109 W	83	12	11 22	6 50.05	+42 13.1	1.064	1.905	21.0	18.4	136 W	87	22
8 6	22 6.00	+49 54.6	0.256	1.135	55.9	17.9	112 W	85	14	11 27	6 44.23	+41 47.5	0.983	1.862	19.1	18.1	142 W	87	22
8 7	21 52.45	+47 54.0	0.261	1.149	53.2	17.9	115 W	87	16	12 2	6 36.28	+41 10.4	0.907	1.819	16.8	17.8	148 W	86	23
8 8	21 40.47	+45 52.7	0.268	1.163	50.6	17.9	118 W	89	18	12 7	6 26.05	+40 17.5	0.836	1.774	14.1	17.5	154 W	85	24
8 9	21 29.86	+43 52.4	0.275	1.176	48.2	18.0	120 W	89	20	12 12	6 13.51	+39 3.5	0.771	1.729	11.2	17.1	160 W	84	25
8 10	21 20.45	+41 54.0	0.283	1.190	45.9	18.0	123 W	87	22	12 17	5 58.82	+37 22.5	0.713	1.684	8.5	16.8	165 W	82	27
8 11	21 12.09	+39 58.6	0.291	1.203	43.8	18.0	125 E	85	24	12 22	5 42.39	+35 9.1	0.663	1.637	7.4	16.5	168 E	80	29
8 12	21 4.63	+38 6.8	0.300	1.216	42.0	18.0	127 E	83	26	12 27	5 24.86	+32 19.8	0.621	1.590	9.7	16.4	164 E	77	32
8 13	20 57.96	+36 18.8	0.309	1.229	40.2	18.1	128 E	81	28	1 1	5 7.02	+28 54.4	0.588	1.542	14.4	16.4	157 E	74	35
8 14	20 51.99	+34 35.1	0.319	1.242	38.7	18.1	130 E	80	29	1 6	4 49.68	+24 57.1	0.564	1.494	20.2	16.4	148 E	70	39
8 15	20 46.62	+32 55.7	0.329	1.255	37.3	18.2	131 E	78	31	1 8	4 43.06	+23 15.2	0.557	1.474	22.7	16.5	145 E	68	41
8 16	20 41.78	+31 20.7	0.340	1.268	36.0	18.2	133 E	76	33	1 10	4 36.69	+21 30.2	0.552	1.454	25.2	16.5	141 E	67	42
8 17	20 37.42	+29 50.0	0.351	1.280	34.9	18.3	134 E	75	34	1 12	4 30.58	+19 43.0	0.548	1.435	27.7	16.5	137 E	65	44
8 18	20 33.48	+28 23.5	0.362	1.292	33.9	18.4	135 E	73	36	1 14	4 24.78	+17 54.4	0.545	1.415	30.3	16.5	134 E	63	46
8 19	20 29.91	+27 1.1	0.374	1.305	33.1	18.4	135 E	72	37	1 16	4 19.30	+16 4.9	0.543	1.395	32.8	16.6	130 E	61	48
8 21	20 23.75	+24 28.0	0.399	1.329	31.7	18.6	136 E	69	40	411611 2011 QF₁₄									
8 23	20 18.68	+22 9.3	0.424	1.353	30.7	18.7	137 E	67	42	7 20	4 45.79	+19 59.4	1.608	1.142	38.9	21.5	45 W	25*	31*
8 25	20 14.51	+20 3.7	0.451	1.376	30.0	18.9	137 E	65	44	7 25	5 8.09	+20 32.1	1.592	1.121	39.4	21.4	44 W	26*	30*
8 27	20 11.09	+18 9.9	0.479	1.399	29.6	19.0	137 E	63	46	7 30	5 30.73	+20 54.2	1.579	1.102	39.7	21.4	44 W	27*	29*
8 29	20 8.29	+16 26.4	0.507	1.421	29.4	19.2	136 E	61	48	8 4	5 53.58	+21 4.9	1.571	1.086	39.9	21.3	43 W	27*	27*
8 31	20 6.02	+14 52.2	0.537	1.443	29.3	19.3	136 E	60	49	8 9	6 16.53	+21 4.1	1.565	1.072	40.0	21.3	43 W	28*	26*
9 2	20 4.22	+13 26.2	0.567	1.464	29.3	19.5	135 E	58	51	8 14	6 39.42	+20 51.7	1.564	1.061	39.9	21.3	42 W	28*	25*
9 4	20 2.81	+12 7.6	0.598	1.485	29.4	19.6	134 E	57	52	8 19	7 2.13	+20 28.0	1.565	1.053	39.7	21.3	42 W	29*	24*
9 6	20 1.75	+10 55.6	0.629	1.506	29.6	19.8	132 E	56	53	8 24	7 24.52	+19 53.6	1.570	1.048	39.5	21.2	41 W	29*	24*
9 8	20 1.00	+9 49.4	0.661	1.527	29.8	19.9	131 E	55	54	8 29	7 46.48	+19 9.3	1.577	1.047	39.1	21.2	41 W	29*	23*
9 13	20 0.25	+7 26.0	0.744	1.576	30.3	20.3	128 E	52	57	9 3	8 7.93	+18 16.1	1.586	1.049	38.6	21.2	40 W	30*	22*
9 18	20 0.82	+5 28.2	0.829	1.623	30.8	20.6	124 E	50	59	9 8	8 28.79	+17 15.1	1.597	1.054	38.2	21.3	40 W		

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

20/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	20/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°
376848 2001 RY₄₇ (continuation)										33342 1998 WT₂₄ (continuation)									
8 4	5 4.36	+1 13.1	0.439	0.876	95.1	20.7	59 W	22*	50*	10 23	9 33.92	+13 25.0	0.785	1.014	65.7	19.7	68 W	53*	36*
8 9	5 0.36	+3 3.8	0.436	0.912	90.4	20.6	64 W	28*	52*	10 28	9 52.76	+12 27.5	0.760	1.008	66.7	19.7	69 W	53*	36*
8 14	4 57.53	+5 1.9	0.431	0.947	86.0	20.5	69 W	34*	53*	11 2	10 12.61	+11 21.2	0.736	0.998	67.9	19.6	69 W	52*	36*
8 19	4 55.40	+7 6.3	0.424	0.980	82.0	20.4	73 W	40*	53*	11 7	10 33.62	+10 5.1	0.712	0.985	69.3	19.6	68 W	52*	36*
8 24	4 53.52	+9 17.2	0.414	1.011	78.2	20.2	78 W	46*	53*	11 12	10 55.93	+8 38.0	0.689	0.970	71.0	19.5	68 W	51*	36*
8 29	4 51.51	+11 35.5	0.401	1.041	74.4	20.1	83 W	51*	52*	11 17	11 19.67	+6 58.9	0.668	0.951	73.0	19.5	67 W	49*	36*
9 3	4 48.96	+14 2.6	0.387	1.068	70.7	20.0	88 W	56*	50*	11 27	12 11.83	+3 2.4	0.635	0.904	77.6	19.4	63 W	46*	35*
9 8	4 45.44	+16 40.3	0.371	1.094	66.8	19.8	93 W	61*	47	12 7	13 10.43	-1 42.8	0.621	0.845	83.0	19.4	58 W	40*	34*
9 13	4 40.39	+19 30.4	0.354	1.118	62.7	19.6	99 W	64*	44	12 17	14 14.47	-6 56.2	0.636	0.773	88.0	19.5	52 W	34*	31*
9 18	4 33.18	+22 34.6	0.337	1.140	58.2	19.4	105 W	68	41	12 22	14 47.84	-9 31.9	0.657	0.733	89.9	19.5	48 W	31*	30*
9 23	4 23.03	+25 53.0	0.320	1.161	53.4	19.2	112 W	71	38	12 27	15 21.72	-12 0.1	0.688	0.690	91.1	19.5	45 W	27*	28*
9 28	4 9.06	+29 23.6	0.304	1.179	48.1	19.0	119 W	74	35	1 1	15 55.87	-14 16.4	0.729	0.645	91.1	19.5	41 W	24*	27*
9 30	4 2.20	+30 49.9	0.298	1.186	45.8	18.9	122 W	76	33	1 6	16 30.23	-16 17.2	0.781	0.599	89.9	19.4	38 W	21*	25*
10 2	3 54.52	+32 16.5	0.293	1.193	43.5	18.8	125 W	77	32	1 11	17 4.86	-17 59.9	0.844	0.553	86.8	19.3	34 W	17*	23*
10 4	3 45.96	+33 42.5	0.288	1.199	41.2	18.7	128 W	79	30	1 16	17 39.99	-19 21.8	0.918	0.508	81.8	19.1	31 W	14*	21*
10 6	3 36.50	+35 6.7	0.284	1.205	38.9	18.6	131 W	80	29	35670 1998 SU₂₇									
10 8	3 26.10	+36 28.0	0.281	1.211	36.5	18.5	134 W	81	28	7 20	6 9.84	+25 13.4	1.678	0.875	29.8	21.4	25 W	14*	13*
10 10	3 14.76	+37 44.9	0.278	1.216	34.3	18.5	137 W	83	26	7 25	6 37.15	+24 29.8	1.689	0.863	28.4	21.4	24 W	13*	12*
10 12	3 2.53	+38 55.9	0.276	1.221	32.1	18.4	139 W	84	25	7 30	7 3.94	+23 28.5	1.704	0.858	26.8	21.3	22 W	12*	11*
10 14	2 49.48	+39 59.5	0.275	1.226	30.0	18.3	142 W	85	24	8 4	7 29.97	+22 11.4	1.723	0.858	25.1	21.3	21 W	11*	10*
10 16	2 35.74	+40 54.3	0.275	1.230	28.2	18.3	144 W	86	23	8 9	7 55.11	+20 40.9	1.747	0.864	23.4	21.3	20 W	11*	9*
10 18	2 21.49	+41 39.2	0.275	1.235	26.7	18.3	146 W	87	22	8 14	8 19.24	+18 59.4	1.773	0.876	21.8	21.3	19 W	10*	8*
10 20	2 6.94	+42 13.2	0.277	1.239	25.6	18.2	148 W	87	22	8 19	8 42.30	+17 9.5	1.802	0.894	20.2	21.3	18 W	9*	7*
10 22	1 52.32	+42 36.2	0.280	1.242	24.8	18.3	148 W	88	21	8 24	9 4.28	+15 13.7	1.833	0.916	18.9	21.4	17 W	8*	7*
10 24	1 37.88	+42 48.1	0.283	1.245	24.5	18.3	149 E	88	21	8 29	9 25.19	+13 14.1	1.867	0.943	17.7	21.5	16 W	8*	7*
10 26	1 23.84	+42 49.6	0.288	1.249	24.6	18.3	148 E	88	21	286079 2001 TW₁									
10 28	1 10.41	+42 41.6	0.293	1.251	25.1	18.4	148 E	88	21	7 20	8 4.72	+35 28.0	1.857	0.913	16.6	21.2	15 E	7*	—
10 30	0 57.74	+42 25.3	0.299	1.254	25.9	18.5	147 E	87	22	7 25	8 28.58	+33 52.1	1.810	0.864	17.0	21.1	14 E	7*	—
11 1	0 45.94	+42 1.9	0.306	1.256	26.9	18.5	145 E	87	22	7 30	8 52.64	+31 51.1	1.763	0.813	17.3	20.9	14 E	6*	—
11 3	0 35.10	+41 33.0	0.314	1.258	28.2	18.6	143 E	87	22	8 4	9 16.77	+29 22.7	1.714	0.760	17.4	20.7	13 E	6*	—
11 5	0 25.23	+40 59.7	0.323	1.259	29.5	18.7	141 E	86	23	8 9	9 40.87	+26 24.6	1.665	0.706	17.4	20.5	12 E	6*	—
11 7	0 16.34	+40 23.3	0.332	1.261	31.0	18.8	139 E	85	24	8 14	10 4.85	+22 54.6	1.615	0.650	17.4	20.2	11 E	5*	—
11 9	0 8.41	+39 44.9	0.341	1.261	32.4	18.9	137 E	85	24	8 19	10 28.63	+18 50.5	1.562	0.595	17.8	20.0	10 E	4*	—
11 11	0 1.40	+39 5.5	0.351	1.262	33.9	19.0	135 E	84	25	8 24	10 52.16	+14 10.9	1.506	0.542	19.3	19.7	10 E	3*	1*
11 13	23 55.25	+38 25.9	0.362	1.263	35.3	19.2	132 E	83	26	8 29	11 15.40	+8 55.8	1.446	0.495	23.1	19.6	11 E	1*	4*
11 15	23 49.93	+37 46.7	0.373	1.263	36.7	19.3	130 E	83	26	9 3	11 38.29	+3 7.9	1.378	0.457	30.1	19.5	13 E	—	7*
11 17	23 45.36	+37 8.4	0.384	1.262	38.1	19.4	128 E	82	27	9 8	12 0.77	-3 5.3	1.302	0.436	40.0	19.5	16 E	—	10*
11 19	23 41.49	+36 31.6	0.396	1.262	39.4	19.5	126 E	82	27	9 10	12 9.66	-5 38.9	1.269	0.432	44.5	19.6	18 E	—	11*
11 21	23 38.25	+35 56.3	0.408	1.261	40.6	19.6	124 E	81	28	9 12	12 18.51	-8 13.5	1.235	0.432	49.1	19.7	19 E	—	12*
11 23	23 35.60	+35 23.0	0.420	1.260	41.8	19.6	122 E	80	29	9 14	12 27.34	-10 48.1	1.200	0.436	53.8	19.8	20 E	—	13*
11 25	23 33.47	+34 51.7	0.432	1.259	42.9	19.7	120 E	80	29	9 16	12 36.19	-13 21.8	1.164	0.442	58.4	19.9	22 E	—	15*
11 27	23 31.83	+34 22.4	0.445	1.257	44.0	19.8	118 E	79	30	9 18	12 45.11	-15 53.9	1.128	0.452	62.8	20.0	24 E	—	16*
12 2	23 29.54	+33 18.3	0.476	1.252	46.4	20.0	113 E	78	31*	9 20	12 54.17	-18 23.7	1.092	0.464	66.8	20.1	25 E	—	17*
12 7	23 29.44	+32 26.9	0.506	1.245	48.5	20.2	109 E	77	31*	9 22	13 3.43	-20 50.8	1.056	0.478	70.5	20.2	27 E	—	18*
12 12	23 31.11	+31 47.3	0.537	1.235	50.4	20.4	105 E	77	30*	9 24	13 12.98	-23 14.8	1.021	0.495	73.8	20.3	28 E	—	19*
12 17	23 34.23	+31 18.6	0.566	1.225	52.1	20.5	101 E	76	29*	9 26	13 22.91	-25 35.5	0.987	0.513	76.7	20.4	30 E	—	20*
12 22	23 38.56	+30 59.8	0.594	1.212	53.6	20.6	97 E	76	28*	9 28	13 33.31	-27 52.5	0.954	0.532	79.2	20.5	31 E	—	21*
12 27	23 43.88	+30 49.7	0.620	1.197	55.0	20.8	94 E	76	27*	9 30	13 44.30	-30 5.6	0.923	0.552	81.4	20.6	33 E	—	22*
1 1	23 50.05	+30 47.1	0.644	1.181	56.4	20.8	91 E	76	25*	10 2	13 55.99	-32 14.5	0.892	0.573	83.1	20.7	35 E	—	23*
1 6	23 56.95	+30 50.9	0.665	1.162	57.7	20.9	87 E	76*	23*	10 4	14 8.48	-34 18.7	0.864	0.595	84.4	20.7	36 E	—	25*
1 11	0 4.49	+31 0.0	0.684	1.142	59.0	21.0	84 E	75*	21*	10 6	14 21.90	-36 17.4	0.837	0.617	85.5	20.8	38 E	—	26*
1 16	0 12.63	+31 13.7	0.700	1.120	60.3	21.0	82 E	74*	20*	10 8	14 36.34	-38 9.9	0.812	0.639	86.2	20.8	40 E	—	28*
484506 2008 ER₇										10 10	14 51.92	-39 55.0	0.788	0.661	86.6	20.8	41 E	—	29*
7 20	5 39.68	+24 20.0	1.081	0.583	67.8	21.5	32 W	18*	19*	10 12	15 8.70	-41 31.3	0.767	0.684	86.7	20.8	43 E	—	31*
7 25	6 13.68	+24 24.8	1.159	0.564	61.2	21.4	29 W	17*	16*	10 14	15 26.73	-42 57.3	0.748	0.706	86.6	20.9	45 E	—	33*
7 30	6 46.62	+24 0.7	1.240	0.559	53.8	21.3	26 W	16*	13*	10 16	15 46.01	-44 11.2	0.731	0.728	86.2	20.9	47 E	—	35*
8 4	7 18.19	+23 11.0	1.321	0.569	46.2	21.2	24 W	14*	11*	10 18	16 6.44	-45 11.3	0.715	0.750	85.7	20.9	49 E	—	37*
8 9	7 48.08	+22 0.4	1.400	0.592	39.3	21.3	22 W	13*	9*	10 20	16 27.89	-45 55.7	0.703	0.771	84.9	20.8	50 E	—	39*
8 14	8 16.05	+20 33.9	1.477	0.626	33.2	21.3	20 W	11*	8*	10 22	16 50.12	-46 23.1	0.692	0.793	83.9	20.8	52 E	—	41*
8 19	8 42.03	+18 56.2	1.550	0.669	28.3	21.4	18 W	10*	6*	10 24	17 12.82	-46 32.3	0.683	0.814	82.8	20.8	54 E	—	44*
33342 1998 WT₂₄										10 26	17 35.64	-46 23.0	0.677	0.834	81.5	20.8	56 E	—	46*
7 20	5 42.25	+17 15.7	0.665	0.576	109.7	20.0	32 W	13*	23*	10 28	17 58.23	-45 55.4	0.673	0.854	80.2	20.8	58 E	—	48*
7 22	5 41.10	+17 6.4	0.684	0.595	105.0	19.8	34 W	15*	25*										

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

20/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	20/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°
286079 2001 TW₁ (continuation)										498422 2008 AZ₄₁									
12 2	21 54.84	-17 53.9	0.896	1.145	56.2	21.3	75 E	27	63*	7 20	8 42.24	+17 9.2	2.960	1.972	5.6	21.4	11 E	—	5*
12 7	22 11.29	-14 13.5	0.955	1.177	53.8	21.4	75 E	31	59*	7 30	9 2.79	+14 33.8	2.937	1.934	3.8	21.2	7 E	—	1*
12 12	22 25.99	-10 52.2	1.017	1.206	51.7	21.6	74 E	34	56*	8 9	9 23.42	+11 46.6	2.906	1.896	2.4	21.1	4 E	—	—
12 17	22 39.40	-7 47.9	1.080	1.233	49.8	21.7	73 E	37	52*	8 19	9 44.18	+8 47.6	2.868	1.861	2.5	21.0	5 W	—	—
291919 2006 QU₂₀										82474 2001 OB₂₃									
7 20	8 7.16	+16 37.6	3.211	2.200	2.1	21.5	5 E	—	—	7 20	9 9.14	+26 31.3	3.903	2.948	5.9	21.5	17 E	9*	5*
7 30	8 27.48	+15 37.7	3.242	2.230	1.7	21.5	4 W	—	—	7 30	9 24.59	+25 21.3	3.939	2.958	4.4	21.4	13 E	6*	1*
8 9	8 47.18	+14 30.6	3.263	2.260	3.2	21.7	7 W	—	1*	8 9	9 39.86	+24 9.0	3.960	2.967	3.4	21.4	10 E	4*	—
8 19	9 6.27	+13 17.5	3.272	2.289	5.1	21.8	12 W	2*	4*	8 19	9 54.90	+22 54.9	3.966	2.975	3.4	21.4	10 E	2*	—
8 29	9 24.74	+11 59.6	3.270	2.318	7.1	21.9	16 W	7*	7*	8 29	10 9.70	+21 39.8	3.956	2.982	4.5	21.5	13 W	6*	—
128472 2004 PS										507261 2011 CO₄₆									
7 20	8 7.19	+20 38.6	3.755	2.739	0.8	21.4	2 E	—	—	7 20	9 10.43	+15 17.1	2.293	1.363	13.3	21.4	18 E	1*	12*
7 30	8 23.55	+19 39.1	3.778	2.766	1.3	21.5	4 W	—	—	7 30	9 40.10	+12 1.5	2.292	1.348	12.3	21.4	16 E	—	10*
8 9	8 39.46	+18 35.2	3.787	2.791	3.3	21.6	9 W	2*	1*	8 9	10 9.47	+8 31.2	2.291	1.338	11.3	21.3	15 E	—	9*
8 19	8 54.90	+17 27.6	3.781	2.816	5.3	21.8	15 W	7*	5*	8 19	10 38.65	+4 49.5	2.293	1.331	10.3	21.3	14 E	—	7*
8 29	9 9.81	+16 17.0	3.761	2.840	7.3	21.9	21 W	13*	8*	8 29	11 7.77	+1 0.3	2.296	1.328	9.5	21.2	12 E	—	6*
78545 2002 RT₁₂₁										82474 2001 OB₂₃									
7 20	8 16.40	+20 53.1	3.712	2.700	1.6	21.4	4 E	—	—	7 20	9 9.14	+26 31.3	3.903	2.948	5.9	21.5	17 E	9*	5*
7 30	8 32.91	+19 47.4	3.701	2.686	0.6	21.3	2 W	—	—	7 30	9 24.59	+25 21.3	3.939	2.958	4.4	21.4	13 E	6*	1*
8 9	8 49.31	+18 35.8	3.676	2.672	2.6	21.4	7 W	—	—	8 9	9 39.86	+24 9.0	3.960	2.967	3.4	21.4	10 E	4*	—
8 19	9 5.57	+17 18.8	3.636	2.657	4.7	21.5	12 W	5*	2*	8 19	9 54.90	+22 54.9	3.966	2.975	3.4	21.4	10 E	2*	—
8 29	9 21.64	+15 56.8	3.582	2.640	6.8	21.6	18 W	10*	6*	8 29	10 9.70	+21 39.8	3.956	2.982	4.5	21.5	13 W	6*	—
213050 1998 TS₃										480883 2001 YE₄									
7 20	8 18.37	-0 34.0	2.497	1.599	13.7	21.5	22 E	—	8*	7 20	9 16.97	+14 7.0	1.123	0.384	64.1	21.1	20 E	1*	14*
7 30	8 46.37	-1 25.3	2.502	1.587	12.7	21.4	20 E	—	5*	7 22	9 24.04	+13 32.1	1.067	0.362	72.2	21.2	20 E	1*	14*
8 9	9 14.34	-2 25.0	2.507	1.577	11.6	21.4	18 W	—	2*	7 24	9 30.12	+13 3.3	1.008	0.342	81.7	21.2	19 E	1*	13*
8 19	9 42.25	-3 31.4	2.511	1.568	10.6	21.3	17 W	—	4*	7 26	9 34.75	+12 44.1	0.946	0.326	92.8	21.4	19 E	—	13*
8 29	10 10.05	-4 42.6	2.514	1.560	9.6	21.3	15 W	—	5*	7 28	9 37.40	+12 38.4	0.885	0.316	105.5	21.8	17 E	—	11*
9 8	10 37.75	-5 56.6	2.514	1.553	8.8	21.3	14 W	—	6*	169516 2002 EQ									
9 18	11 5.37	-7 11.4	2.511	1.548	8.4	21.2	13 W	—	6*	7 20	9 41.80	+12 58.8	3.160	2.289	11.2	21.5	26 E	5*	19*
9 28	11 32.92	-8 24.8	2.504	1.545	8.4	21.2	13 W	—	7*	7 30	9 59.96	+11 32.0	3.169	2.251	9.3	21.4	21 E	2*	15*
10 8	12 0.44	-9 34.7	2.493	1.542	9.0	21.2	14 W	1*	8*	8 9	10 18.51	+9 57.4	3.168	2.213	7.4	21.3	16 E	—	10*
10 18	12 27.99	-10 39.1	2.477	1.542	10.1	21.3	16 W	4*	9*	8 19	10 37.45	+8 15.4	3.156	2.174	5.4	21.1	12 E	—	6*
10 28	12 55.57	-11 35.6	2.455	1.543	11.6	21.3	18 W	8*	10*	8 29	10 56.77	+6 26.5	3.134	2.135	3.4	21.0	7 E	—	1*
11 7	13 23.24	-12 22.3	2.427	1.545	13.4	21.3	21 W	11*	11*	9 8	11 16.50	+4 31.5	3.102	2.097	1.3	20.7	3 E	—	—
11 17	13 51.00	-12 56.9	2.393	1.549	15.3	21.4	24 W	14*	13*	9 18	11 36.68	+2 31.2	3.062	2.058	0.8	20.6	2 W	—	—
11 27	14 18.84	-13 17.3	2.354	1.554	17.4	21.4	28 W	17*	15*	9 28	11 57.33	+0 26.4	3.014	2.020	2.9	20.7	6 W	—	—
12 7	14 46.72	-13 21.4	2.309	1.561	19.4	21.5	32 W	20*	17*	10 8	12 18.50	+1 41.8	2.958	1.982	5.0	20.8	10 W	3*	—
12 17	15 14.60	-13 7.4	2.259	1.569	21.5	21.5	36 W	22*	20*	10 18	12 40.28	-3 52.0	2.896	1.944	7.1	20.8	14 W	7*	3*
153243 2001 AU₄₇										456537 2007 BG									
7 20	8 25.90	+21 42.4	2.914	1.908	3.5	21.5	7 E	—	—	7 20	10 8.08	+14 25.2	1.450	0.790	42.3	21.4	32 E	10*	24*
7 30	8 44.27	+19 34.9	2.946	1.932	1.0	21.3	2 E	—	—	7 30	10 45.92	+12 18.2	1.358	0.724	47.1	21.2	31 E	11*	24*
8 9	9 1.91	+17 23.3	2.962	1.951	1.9	21.4	4 W	—	—	8 9	11 24.47	+9 48.1	1.242	0.656	54.6	21.0	32 E	11*	24*
8 19	9 18.93	+15 7.5	2.961	1.966	4.5	21.6	9 W	1*	1*	8 19	12 2.93	+6 55.9	1.099	0.593	65.8	20.9	32 E	12*	25*
8 29	9 35.40	+12 47.2	2.943	1.978	7.1	21.7	14 W	6*	5*	8 29	12 38.94	+3 43.1	0.930	0.546	81.9	20.9	32 E	12*	25*
285263 1998 QE₂										456537 2007 BG									
7 20	8 31.12	+11 12.0	2.842	1.862	6.7	21.3	12 E	—	5*	9 8	13 7.17	+0 8.5	0.747	0.527	103.3	21.3	31 E	11*	23*
7 30	8 53.55	+9 37.1	2.779	1.786	5.5	21.1	10 E	—	1*	169516 2002 EQ									
8 9	9 16.99	+7 47.1	2.707	1.710	4.8	20.9	8 E	—	—	7 20	9 41.80	+12 58.8	3.160	2.289	11.2	21.5	26 E	5*	19*
8 19	9 41.54	+5 41.5	2.630	1.633	4.8	20.8	8 W	—	—	7 30	9 59.96	+11 32.0	3.169	2.251	9.3	21.4	21 E	2*	15*
8 29	10 7.33	+3 20.2	2.548	1.556	5.4	20.6	8 W	—	2*	8 9	10 18.51	+9 57.4	3.168	2.213	7.4	21.3	16 E	—	10*
9 8	10 34.52	+0 43.5	2.464	1.480	6.4	20.5	9 W	—	3*	8 19	10 37.45	+8 15.4	3.156	2.174	5.4	21.1	12 E	—	6*
9 18	11 3.35	-2 7.4	2.380	1.405	7.6	20.4	11 W	—	5*	8 29	10 56.77	+6 26.5	3.134	2.135	3.4	21.0	7 E	—	1*
9 28	11 34.05	-5 10.2	2.299	1.332	8.6	20.2	12 W	—	5*	9 8	11 16.50	+4 31.5	3.102	2.097	1.3	20.7	3 E	—	—
10 8	12 6.93	-8 21.2	2.223	1.264	9.6	20.1	12 W	1*	6*	9 18	11 36.68	+2 31.2	3.062	2.058	0.8	20.6	2 W	—	—
10 13	12 24.27	-9 58.0	2.188	1.231	9.9	20.0	12 W	1*	6*	9 28	11 57.33	+0 26.4	3.014	2.020	2.9	20.7	6 W	—	—
10 18	12 42.27	-11 34.7	2.155	1.201	10.2	19.9	12 W	1*	6*	10 8	12 18.50	+1 41.8	2.958	1.982	5.0	20.8	10 W	3*	—
10 23	13 0.94	-13 9.9	2.124	1.172	10.4	19.8	12 W	1*	6*	10 18	12 40.28	-3 52.0	2.896	1.944	7.1	20.8	14 W	7*	3*
10 28	13 20.30	-14 42.6	2.097	1.145	10.5	19.8	12 W	1*	5*	10 28	13 2.72	-6 2.8	2.828	1.907	9.3	20.8	18 W	11*	6*
11 2	13 40.36	-16 11.3	2.072	1.120	10.5	19.7	12 W	1*	5*	11 7	13 25.88	-8 12.6	2.755	1.872	11.4	20.8	22 W	14*	9*
11 7	14 1.11	-17 34.8	2.051	1.099	10.4	19.6	12 W	1*	5*	11 17	13 49.85	-10 19.5	2.678	1.837	13.5	20.7	26 W	16*	12*
11 12	14 22.53	-18 51.4	2.034	1.080	10.2	19.6	11 W	1*	4*	11 27	14 14.68	-12 21.4	2.598	1.804	15.5	20.7	29 W	18*	15*
11 17	14 44.56	-19 59.8	2.020	1.064	9.9	19.5	11 W	—	4*	12 7	14 40.41	-14 15.9	2.517	1.773	17.6	20.7	33 W	20*	19*
11 22	15 7.12	-20 58.5	2.009	1.052	9.6	19.5	10 W	—	3*	12 17	15 7.07	-16 0.6	2.434	1.743	19.6	20.6	36 W	21*	23*
11 27	15 30.11	-21 46.3	2.003	1.044	9.2	19.4	10 W	—	3*	12 27	15 34.63	-17 32.8	2.351	1.716	21.5	20.6	40 W	21*	27*
12 2	15 53.40	-22 22.2	2.000	1.039	8.8	19.4	9 W	—	2*	1 6	16 3.04	-18 50.0	2.268	1.691	23.4	20.5	43 W	21*	32*
12 7	16 16.86	-22 45.6	2.001	1.039	8.4	19.4	9 W	—	2*	1 16	16 32.18	-19 49.9	2.187	1.668	25.3	20.5	46 W	21*	36*
12 12	16 40.34	-22 56.1	2.006	1.042	8.0	19.4	8 W	—	1*										

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

2020	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	2020	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°
276703 2004 BL₁₁										376729 1998 YB₈									
7 20	10 32.92	+14 37.0	1.401	0.854	46.1	21.2	37 E	15*	28*	7 20	21 3.57	-21 44.2	2.020	3.013	5.1	23.3	165 W	23	86
7 30	10 53.24	+12 34.5	1.267	0.694	53.1	20.8	33 E	12*	25*	7 25	20 58.75	-22 17.2	1.989	2.995	3.3	23.2	170 W	23	86
8 9	11 11.57	+10 18.7	1.083	0.523	68.3	20.3	29 E	9*	21*	7 30	20 53.61	-22 50.0	1.964	2.976	1.9	23.1	174 W	22	87
8 19	11 13.95	+ 8 25.2	0.847	0.364	106.5	20.5	20 E	4*	13*	8 4	20 48.27	-23 22.0	1.947	2.958	2.2	23.1	174 E	22	87
8 29	10 19.33	+ 8 51.4	0.687	0.325	171.2	34.2	3 W	—	—	8 9	20 42.84	-23 52.5	1.938	2.939	3.8	23.1	169 E	21	88
9 8	9 24.33	+ 9 34.3	0.779	0.455	106.5	20.8	26 W	15*	15*	8 14	20 37.46	-24 20.8	1.935	2.920	5.8	23.2	163 E	21	88
9 18	9 13.83	+ 9 6.0	0.921	0.627	78.4	20.6	38 W	25*	23*	8 19	20 32.26	-24 46.4	1.940	2.900	7.7	23.3	157 E	20	89
9 28	9 18.98	+ 8 15.2	1.029	0.793	65.2	21.0	46 W	32*	28*	437313 2013 EK₇₃									
10 8	9 28.02	+ 7 19.0	1.099	0.944	58.0	21.3	53 W	38*	33*	7 20	21 4.71	-15 12.9	11.435	12.412	1.4	24.1	163 W	30	79
479345 2013 WY₆₇										7 30	21 2.23	-15 25.3	11.432	12.441	0.5	24.1	173 W	30	79
7 20	10 36.33	+17 49.8	1.396	0.852	46.4	21.4	37 E	18*	27*	8 9	20 59.69	-15 38.1	11.458	12.470	0.3	24.1	176 E	29	80
7 25	10 56.81	+14 40.1	1.365	0.845	47.9	21.4	38 E	16*	29*	8 19	20 57.20	-15 50.7	11.515	12.499	1.1	24.2	166 E	29	80
7 30	11 17.02	+11 17.0	1.336	0.843	49.4	21.4	39 E	15*	30*	8 29	20 54.87	-16 2.7	11.600	12.528	1.9	24.2	156 E	29	80
8 4	11 37.02	+ 7 42.4	1.309	0.843	50.8	21.4	40 E	14*	32*	407656 2011 SL₁₀₂									
8 9	11 56.86	+ 3 58.7	1.285	0.848	52.0	21.4	41 E	13*	34*	7 20	21 5.24	-30 36.2	2.201	3.183	5.7	22.9	162 W	14	85
8 14	12 16.63	+ 0 8.5	1.265	0.857	52.9	21.4	42 E	12*	36*	7 25	20 59.82	-31 6.8	2.181	3.174	4.7	22.8	165 W	14	85
8 19	12 36.45	+ 3 45.4	1.249	0.869	53.5	21.4	44 E	10*	37*	7 30	20 54.11	-31 34.9	2.169	3.165	4.3	22.8	166 W	13	84
8 24	12 56.42	+ 7 40.0	1.236	0.884	53.9	21.5	45 E	9*	39*	8 4	20 48.25	-31 59.7	2.165	3.156	4.7	22.8	165 E	13	84
8 29	13 16.65	-11 32.1	1.228	0.902	54.0	21.5	46 E	8*	40*	8 9	20 42.37	-32 20.8	2.167	3.146	5.8	22.8	162 E	13	84
267720 2003 CA										8 14	20 36.60	-32 37.6	2.177	3.136	7.1	22.9	157 E	12	83
7 20	12 33.50	+18 24.7	1.160	1.166	51.8	21.4	64 E	38*	42*	8 19	20 31.07	-32 50.1	2.194	3.126	8.6	23.0	152 E	12	83
7 30	12 40.68	+14 55.8	1.120	1.040	55.9	21.2	58 E	33*	41*	211914 2004 RM₂₅₁									
8 9	12 48.58	+11 4.3	1.055	0.903	61.8	20.9	52 E	27*	39*	7 20	21 7.88	-36 4.6	2.756	3.719	5.8	23.2	158 W	9	80
8 19	12 55.17	+ 6 41.2	0.962	0.758	71.0	20.6	45 E	21*	35*	7 25	21 2.45	-36 22.4	2.729	3.703	5.2	23.2	161 W	9	80
8 29	12 55.45	+ 1 34.7	0.840	0.607	87.0	20.4	37 E	14*	29*	7 30	20 56.75	-36 36.9	2.710	3.687	5.0	23.1	161 W	8	79
9 3	12 49.45	+ 1 15.4	0.771	0.533	99.8	20.5	31 E	9*	25*	8 4	20 50.90	-36 47.9	2.698	3.670	5.3	23.1	160 E	8	79
9 8	12 35.45	+ 4 6.9	0.704	0.466	117.5	21.0	24 E	3*	18*	8 9	20 45.01	-36 54.8	2.694	3.653	6.0	23.1	158 E	8	79
9 13	12 10.18	+ 6 29.3	0.653	0.414	140.0	22.8	15 E	—	9*	8 14	20 39.20	-36 57.5	2.697	3.636	7.0	23.2	154 E	8	79
9 18	11 35.66	+ 7 28.2	0.640	0.388	154.7	25.2	10 W	—	—	8 19	20 33.59	-36 55.8	2.707	3.618	8.1	23.2	150 E	8	79
382586 2002 CC₂₁₄										416803 2005 GZ₁₂₇									
7 20	20 48.82	-16 6.6	2.034	3.033	4.3	22.6	167 W	29	80	7 20	21 8.10	+12 3.5	2.118	2.993	11.8	22.4	143 W	57	52
7 30	20 39.44	-16 54.9	1.989	3.004	0.6	22.3	178 W	28	81	7 30	20 59.53	+11 31.3	2.069	2.988	9.9	22.3	149 W	57	52
8 9	20 29.69	-17 44.2	1.974	2.975	3.8	22.5	169 E	27	82	8 9	20 50.43	+10 34.0	2.045	2.983	8.9	22.2	153 E	56	53
8 19	20 20.48	-18 30.6	1.987	2.945	7.8	22.7	157 E	26	83	8 19	20 41.62	+ 9 14.4	2.046	2.976	9.3	22.2	152 E	54	55
8 29	20 12.71	-19 11.0	2.026	2.914	11.4	22.9	145 E	26	83	8 29	20 33.95	+ 7 38.4	2.074	2.968	10.9	22.3	146 E	53	56
302098 2001 FG₃₁										511140 2013 YJ₂									
7 20	20 50.12	+10 27.3	3.790	4.670	6.9	22.9	146 W	55	54	7 20	21 8.40	+19 19.8	2.860	3.664	11.0	23.1	136 W	64	45
7 30	20 43.61	+10 6.6	3.760	4.677	6.0	22.8	151 W	55	54	7 30	21 0.35	+19 23.2	2.816	3.667	9.9	23.0	142 W	64	45
8 9	20 37.03	+ 9 32.7	3.757	4.682	5.7	22.8	153 E	55	54	8 9	20 51.91	+19 4.3	2.795	3.668	9.2	23.0	145 E	64	45
8 19	20 30.79	+ 8 47.6	3.782	4.687	6.2	22.8	150 E	54	55	8 19	20 43.71	+18 24.1	2.799	3.669	9.3	23.0	144 E	63	46
8 29	20 25.30	+ 7 53.8	3.834	4.691	7.2	22.9	144 E	53	56	8 29	20 36.38	+17 25.9	2.828	3.669	10.0	23.0	141 E	62	47
452313 1998 XR₁₆										523614 2006 TH₇									
7 20	20 52.46	-34 58.5	1.882	2.863	6.5	22.7	161 W	10	81	7 20	21 8.77	- 4 39.0	3.506	4.456	5.2	25.5	157 W	40	69
7 25	20 45.77	-35 42.0	1.900	2.886	6.0	22.7	163 W	9	80	7 30	21 0.46	- 5 18.9	3.485	4.476	3.2	25.4	166 W	40	69
7 30	20 39.01	-36 19.6	1.926	2.909	6.1	22.7	162 W	9	80	8 9	20 51.94	- 6 4.9	3.497	4.495	2.6	25.4	169 E	39	70
8 4	20 32.36	-36 51.1	1.959	2.932	6.9	22.8	160 E	8	79	8 19	20 43.70	- 6 54.3	3.540	4.512	4.0	25.5	162 E	38	71
8 9	20 25.97	-37 16.2	1.999	2.954	8.1	22.9	156 E	8	79	8 29	20 36.24	- 7 44.7	3.614	4.528	6.1	25.6	152 E	37	72
8 14	20 20.00	-37 35.0	2.046	2.975	9.4	23.0	151 E	7	78	376955 2002 GR₃									
8 19	20 14.56	-37 47.8	2.099	2.997	10.7	23.2	147 E	7	78	7 20	21 16.25	+19 9.7	2.877	3.675	11.1	22.4	136 W	64	45
396794 2004 KT										7 30	21 8.59	+18 56.6	2.819	3.671	9.9	22.3	142 W	64	45
7 20	20 53.25	+33 56.5	2.402	3.085	15.9	23.0	124 W	79	30	8 9	21 0.41	+18 20.8	2.784	3.666	9.0	22.3	146 E	63	46
7 25	20 46.32	+34 19.6	2.382	3.086	15.5	23.0	126 W	79	30	8 19	20 52.33	+17 23.5	2.775	3.660	8.8	22.2	146 E	62	47
7 30	20 39.15	+34 33.5	2.367	3.085	15.3	23.0	127 W	80	29	8 29	20 44.99	+16 8.2	2.791	3.653	9.5	22.3	143 E	61	48
8 4	20 31.88	+34 37.8	2.357	3.084	15.1	22.9	128 E	80	29	377097 2002 WQ₄									
8 9	20 24.65	+34 32.7	2.352	3.083	15.0	22.9	128 E	80	29	7 20	21 17.49	-11 23.6	1.852	2.824	7.5	23.7	159 W	34	75
8 14	20 17.60	+34 18.3	2.353	3.081	15.0	22.9	128 E	79	30	7 30	21 5.64	-12 7.1	1.845	2.852	3.3	23.5	171 W	33	76
8 19	20 10.88	+33 55.2	2.358	3.078	15.2	22.9	127 E	79	30	8 9	20 53.43	-12 54.0	1.868	2.877	2.2	23.5	174 E	32	77
207970 1996 BZ₃										8 19	20 41.95	-13 39.6	1.920	2.901	6.0	23.8	163 E	31	78
7 20	20 56.66	-13 34.8	2.472	3.462	4.5	23.2	164 W	31	78	8 29	20 32.15	-14 20.4	2.001	2.924	9.8	24.1	151 E	31	78
7 30	20 47.67	-14 12.7	2.414	3.427	1.5	22.9	175 W	31	78	437994 2003 UL₁₂									
8 9	20 38.20	-14 53.7	2.386	3.390	2.7	22.9	171 E	30	79	7 20	21 23.51	+ 6 21.8	3.423	4.302	7.6	23.7	146 W	51	58
8 19	20 28.99	-15 34.5	2.387	3.353	6.1	23.1	159 E	29	80	7 30	21 16.58	+ 6 1.2	3.322	4.256	6.1	23.5	154 W	51	58
8 29	20 20.82	-16 12.3	2.417	3.315	9.4	23.2	148 E	29	80	8 9	21 8.97	+ 5 26.7	3.248	4.208	5.0	23.4	159 E	50	59
497093 2003 YP₁₄₆										8 19	21 1.16	+ 4 39.5	3.203	4.160	5.2	23.4	158 E	50	59
7 20	21 3.15	-26 12.9	2.220	3.209	5.0	22.4	164 W	19	90	8 29	20 53.67	+ 3 41.9	3.188	4.111	6.5	23.4	153 E	49	60
7 25	20 58.24	-26 36.4	2.203	3.205	3.6	22.3	168 W	18	89	500136 2012 CO₄₆									
7 30	20 53.11	-26 58.3	2.193	3.200	2.9	22.2	171 W	18	89	7 20	21 26.50	-25 29.9	0.371						

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

2020	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45° - 26°	2020	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45° - 26°
500136 2012 CO ₄₆ (continuation)									470678 2008 SS ₂₅₁ (continuation)								
8 9	20 52.86	-26 56.7	0.303	1.311	9.5	21.3	168 E	18 89	8 19	22 12.98	-5 25.6	0.303	1.312	6.7	19.6	171 W	40 69
8 14	20 42.20	-26 58.6	0.294	1.297	13.7	21.4	162 E	18 89	8 29	22 25.49	-6 32.3	0.270	1.280	2.4	19.1	177 E	38 71
8 19	20 31.74	-26 48.4	0.289	1.282	18.6	21.5	156 E	18 89	9 8	22 41.10	-8 1.2	0.249	1.256	5.4	19.0	173 E	37 72
8 24	20 22.16	-26 25.7	0.286	1.267	23.6	21.6	150 E	19 90	9 13	22 50.21	-8 47.7	0.244	1.247	8.0	19.1	170 E	36 73
8 29	20 14.03	-25 51.3	0.286	1.252	28.5	21.7	144 E	19 90	9 18	23 0.17	-9 30.8	0.241	1.240	10.5	19.1	167 E	35 74
9 3	20 7.70	-25 7.2	0.287	1.237	33.2	21.8	138 E	20 89	9 23	23 10.91	-10 6.9	0.241	1.237	12.9	19.2	164 E	35 74
505461 2013 TZ ₈₀									399446 2002 GF ₁								
7 20	21 28.11	-17 55.4	2.313	3.280	6.5	22.6	159 W	27 82	7 20	21 46.29	-17 25.3	0.720	1.694	15.1	21.8	154 W	28 81
7 30	21 19.72	-18 44.2	2.263	3.267	3.1	22.4	170 W	26 83	7 25	21 40.21	-18 1.3	0.728	1.720	11.4	21.7	160 W	27 82
8 9	21 10.47	-19 33.0	2.242	3.254	1.2	22.2	176 E	25 84	7 30	21 33.68	-18 36.6	0.742	1.746	7.7	21.6	167 W	26 83
8 19	21 1.13	-20 17.6	2.250	3.239	4.5	22.4	165 E	25 84	8 4	21 26.98	-19 9.8	0.761	1.772	4.2	21.5	173 W	26 83
8 29	20 52.58	-20 54.5	2.287	3.224	8.0	22.6	154 E	24 85	8 9	21 20.38	-19 39.4	0.786	1.798	2.2	21.5	176 W	25 84
445025 2008 NS ₁									376811 2000 WU ₁₂₄								
7 20	21 33.66	-11 57.0	2.426	3.377	7.2	22.6	156 W	33 76	7 20	21 50.69	-51 22.1	2.800	3.657	9.8	22.3	142 W	- 65
7 30	21 22.20	-12 33.5	2.433	3.432	3.6	22.5	168 W	32 77	7 25	21 45.62	-52 3.8	2.791	3.656	9.5	22.3	143 W	- 64
8 9	21 10.42	-13 11.6	2.472	3.485	0.9	22.3	177 E	32 77	7 30	21 40.04	-52 40.6	2.787	3.656	9.5	22.3	144 W	- 63
8 19	20 59.15	-13 48.0	2.543	3.535	3.8	22.6	167 E	31 78	8 4	21 34.08	-53 11.7	2.790	3.655	9.5	22.3	143 W	- 63
8 29	20 49.15	-14 19.9	2.645	3.584	6.9	22.9	155 E	31 78	8 9	21 27.86	-53 36.6	2.799	3.654	9.8	22.3	142 W	- 62
358438 2007 DZ ₈₂									23548 1994 EF ₂								
7 20	21 33.97	+ 9 56.3	1.654	2.529	14.5	21.5	141 W	55 54	7 20	21 55.83	-32 39.6	2.332	3.260	8.6	22.5	151 W	12 83
7 30	21 25.73	+ 8 50.8	1.600	2.531	11.5	21.3	150 W	54 55	7 25	21 50.55	-33 1.1	2.296	3.248	7.5	22.4	155 W	12 83
8 9	21 16.33	+ 7 14.2	1.569	2.533	9.0	21.2	157 W	52 57	7 30	21 44.77	-33 20.2	2.268	3.235	6.5	22.3	159 W	12 83
8 19	21 6.77	+ 5 11.5	1.564	2.533	8.4	21.2	159 E	50 59	8 4	21 38.58	-33 36.2	2.246	3.223	5.8	22.3	161 W	11 82
8 29	20 58.17	+ 2 51.6	1.586	2.533	10.1	21.3	154 E	48 61	8 9	21 32.12	-33 48.4	2.231	3.210	5.7	22.2	162 W	11 82
9 8	20 51.45	+ 0 25.8	1.634	2.531	13.0	21.4	146 E	45 64	8 14	21 25.50	-33 56.1	2.224	3.196	6.1	22.2	160 E	11 82
162635 2000 SS ₁₆₄									390774 2003 UJ ₁₈₈								
7 20	21 35.04	-10 47.0	2.478	3.424	7.3	21.6	155 W	34 75	7 20	21 55.96	-54 0.2	3.065	3.898	9.7	21.8	140 W	- 62
7 30	21 27.18	-11 34.2	2.398	3.392	4.1	21.3	166 W	33 76	7 25	21 50.62	-54 32.5	3.054	3.896	9.5	21.8	141 W	- 61
8 9	21 18.27	-12 28.2	2.346	3.359	1.0	21.0	177 W	33 76	7 30	21 44.79	-55 0.0	3.049	3.893	9.4	21.8	141 W	- 61
8 19	21 8.98	-13 25.3	2.325	3.324	3.3	21.3	169 E	32 77	8 4	21 38.57	-55 22.0	3.049	3.891	9.4	21.8	141 W	- 61
8 29	21 0.11	-14 21.1	2.333	3.288	6.8	21.3	157 E	31 78	8 9	21 32.11	-55 37.8	3.056	3.888	9.6	21.8	140 W	- 60
9 8	20 52.41	-15 12.0	2.369	3.251	10.1	21.5	146 E	30 79	8 14	21 25.54	-55 47.3	3.068	3.886	9.9	21.8	139 E	- 60
376864 2001 TP ₁₀₃									470678 2008 SS ₂₅₁								
7 20	21 37.12	- 5 44.2	1.374	2.319	12.0	23.1	152 W	39 70	7 20	21 42.98	- 5 27.4	0.475	1.449	20.3	21.3	150 W	40 69
7 30	21 26.50	- 6 16.9	1.307	2.297	7.5	22.8	163 W	39 70	7 25	21 47.87	- 5 8.3	0.439	1.423	18.4	21.0	154 W	40 69
8 9	21 14.01	- 7 6.6	1.266	2.273	3.9	22.6	171 E	38 71	7 30	21 52.69	- 4 55.7	0.405	1.398	16.4	20.7	157 W	40 69
8 19	21 0.93	- 8 8.1	1.251	2.247	6.2	22.6	166 E	37 72	8 4	21 57.51	- 4 50.4	0.375	1.374	14.1	20.5	161 W	40 69
8 29	20 48.83	- 9 14.4	1.263	2.219	11.1	22.8	155 E	36 73	8 9	22 2.43	- 4 53.2	0.348	1.352	11.8	20.2	164 W	40 69
210718 2000 ST ₂₅₂									390774 2003 UJ ₁₈₈								
7 20	21 37.16	-23 0.8	3.287	4.241	5.4	21.4	157 W	22 87	7 20	21 55.96	-54 0.2	3.065	3.898	9.7	21.8	140 W	- 62
7 30	21 30.90	-23 43.2	3.219	4.213	3.2	21.2	167 W	21 88	7 25	21 50.62	-54 32.5	3.054	3.896	9.5	21.8	141 W	- 61
8 9	21 23.89	-24 23.4	3.181	4.185	2.1	21.1	171 W	21 88	7 30	21 44.79	-55 0.0	3.049	3.893	9.4	21.8	141 W	- 61
8 19	21 16.61	-24 58.4	3.171	4.157	3.6	21.1	165 E	20 89	8 4	21 38.57	-55 22.0	3.049	3.891	9.4	21.8	141 W	- 61
8 29	21 9.66	-25 25.8	3.191	4.128	5.9	21.3	155 E	20 89	8 9	21 32.11	-55 37.8	3.056	3.888	9.6	21.8	140 W	- 60
9 8	21 3.58	-25 43.9	3.238	4.099	8.2	21.4	144 E	19 90	8 14	21 25.54	-55 47.3	3.068	3.886	9.9	21.8	139 E	- 60
100756 1998 FM ₅									390774 2003 UJ ₁₈₈								
7 20	21 39.34	- 3 31.2	2.555	3.473	8.4	21.5	150 W	41 68	7 20	21 55.96	-54 0.2	3.065	3.898	9.7	21.8	140 W	- 62
7 30	21 31.20	- 4 12.2	2.486	3.461	5.6	21.3	161 W	41 68	7 25	21 50.62	-54 32.5	3.054	3.896	9.5	21.8	141 W	- 61
8 9	21 22.11	- 5 4.5	2.446	3.447	3.2	21.1	169 W	40 69	7 30	21 44.79	-55 0.0	3.049	3.893	9.4	21.8	141 W	- 61
8 19	21 12.73	- 6 4.7	2.436	3.432	3.6	21.2	168 E	39 70	8 4	21 38.57	-55 22.0	3.049	3.891	9.4	21.8	141 W	- 61
8 29	21 3.82	- 7 8.9	2.456	3.416	6.2	21.3	158 E	38 71	8 9	21 32.11	-55 37.8	3.056	3.888	9.6	21.8	140 W	- 60
9 8	20 56.06	- 8 12.4	2.505	3.398	9.2	21.5	147 E	37 72	8 14	21 25.54	-55 47.3	3.068	3.886	9.9	21.8	139 E	- 60
452362 2001 VH ₁₂₅									390774 2003 UJ ₁₈₈								
7 20	21 39.56	-21 51.9	1.110	2.081	11.3	21.2	156 W	23 86	7 20	21 55.96	-54 0.2	3.065	3.898	9.7	21.8	140 W	- 62
7 25	21 35.52	-22 43.3	1.079	2.069	8.9	21.0	162 W	22 87	7 25	21 50.62	-54 32.5	3.054	3.896	9.5	21.8	141 W	- 61
7 30	21 30.75	-23 36.2	1.055	2.056	6.6	20.9	167 W	21 88	7 30	21 44.79	-55 0.0	3.049	3.893	9.4	21.8	141 W	- 61
8 4	21 25.39	-24 29.1	1.036	2.043	4.9	20.7	170 W	21 88	8 4	21 38.57	-55 22.0	3.049	3.891	9.4	21.8	141 W	- 61
8 9	21 19.60	-25 20.1	1.023	2.030	4.7	20.7	170 W	20 89	8 9	21 32.11	-55 37.8	3.056	3.888	9.6	21.8	140 W	- 60
8 14	21 13.60	-26 7.9	1.017	2.017	6.4	20.7	167 E	19 90	8 14	21 25.54	-55 47.3	3.068	3.886	9.9	21.8	139 E	- 60
8 19	21 7.60	-26 50.7	1.016	2.004	8.9	20.8	162 E	18 89	8 19	21 19.05	-55 50.2	3.086	3.883	10.4	21.9	136 E	- 60
8 24	21 1.88	-27 27.5	1.021	1.990	11.6	20.9	157 E	18 89	8 24	21 12.78	-55 46.5	3.110	3.879	10.8	21.9	134 E	- 60
8 29	20 56.66	-27 57.4	1.031	1.977	14.3	21.1	151 E	17 88	8 29	21 6.89	-55 36.5	3.139	3.876	11.4	21.9	131 E	- 60
9 3	20 52.15	-28 20.2	1.047	1.963	16.9	21.2	146 E	17 88	9 3	21 1.50	-55 20.5	3.172	3.872	11.9	22.0	128 E	- 61
9 8	20 48.49	-28 35.8	1.066	1.950	19.4	21.3	140 E	16 87	9 8	20 56.70	-54 59.2	3.211	3.869	12.4	22.0	124 E	- 61

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

20/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	20/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°
182231 2001 CZ₂₀										301011 2008 JO									
7 20	21 58.80	6 41.4	2.147	3.055	10.3	21.9	148 W	38	71	1 1	22 19.76	5 49.9	1.188	1.007	52.4	20.7	54 E	36*	33*
7 30	21 51.23	7 19.2	2.096	3.065	6.8	21.7	159 W	38	71	1 6	22 32.86	4 49.0	1.159	0.962	54.3	20.6	53 E	36*	31*
8 9	21 42.44	8 6.9	2.070	3.074	3.3	21.5	170 W	37	72	1 11	22 46.57	3 44.1	1.125	0.918	56.5	20.5	51 E	36*	29*
8 19	21 33.16	9 0.7	2.074	3.082	2.1	21.5	174 E	36	73	1 16	23 0.92	2 35.8	1.086	0.875	59.1	20.4	50 E	36*	27*
8 29	21 24.28	9 55.7	2.107	3.089	5.3	21.7	164 E	35	74	399774 2005 NB₇									
9 8	21 16.58	10 47.5	2.167	3.095	8.7	21.9	152 E	34	75	7 20	22 7.20	7 19.2	1.434	2.290	17.4	22.2	138 W	52	57
363069 2000 EV₁₀₆										7 30	21 56.65	6 30.0	1.418	2.343	13.2	22.1	148 W	52	57
7 20	22 3.11	30 9.0	0.921	1.686	31.1	21.6	121 W	75	34	8 9	21 44.73	5 13.3	1.425	2.394	9.2	22.0	158 W	50	59
7 25	22 1.52	30 6.8	0.863	1.663	30.3	21.4	124 W	75	34	8 19	21 32.67	3 35.3	1.458	2.443	7.0	22.0	163 E	49	60
7 30	21 58.97	29 47.2	0.807	1.640	29.3	21.2	128 W	75	34	8 29	21 21.78	1 45.8	1.519	2.491	8.1	22.2	160 E	47	62
8 4	21 55.46	29 6.7	0.754	1.616	28.0	21.0	132 W	74	35	9 8	21 13.04	0 4.7	1.607	2.536	11.1	22.4	151 E	45	64
8 9	21 51.03	28 1.0	0.703	1.592	26.6	20.7	135 W	73	36	496819 1994 XE									
8 14	21 45.73	26 25.5	0.655	1.568	25.0	20.5	139 W	71	38	7 20	22 8.74	-16 38.2	1.777	2.698	11.2	22.1	149 W	28	81
8 19	21 39.72	24 15.3	0.611	1.544	23.4	20.3	143 E	69	40	7 30	22 1.72	-17 51.1	1.705	2.682	7.4	21.8	160 W	27	82
8 24	21 33.23	21 26.1	0.571	1.519	21.8	20.0	146 E	66	43	8 9	21 52.77	-19 9.6	1.659	2.665	3.5	21.6	171 W	26	83
8 29	21 26.54	17 55.2	0.537	1.494	20.7	19.8	148 E	63	46	8 19	21 42.70	-20 26.3	1.641	2.647	3.1	21.5	172 E	25	84
9 3	21 19.99	13 42.2	0.508	1.469	20.5	19.7	149 E	59	50	8 29	21 32.60	-21 33.7	1.650	2.628	7.0	21.7	161 E	23	86
9 8	21 13.89	8 50.3	0.487	1.444	21.5	19.6	148 E	54	55	9 8	21 23.64	-22 26.1	1.686	2.608	11.1	21.9	150 E	23	86
9 13	21 8.58	3 27.2	0.472	1.420	23.8	19.5	145 E	48	61	312978 1999 JG₂₉									
9 18	21 4.36	-2 15.8	0.464	1.395	27.3	19.6	140 E	43	66	7 20	22 12.56	+13 32.0	3.504	4.257	10.1	21.4	132 W	59	50
9 20	21 3.05	-4 35.4	0.463	1.385	28.9	19.6	138 E	40	69	7 30	22 7.39	+13 29.0	3.445	4.283	8.6	21.3	141 W	58	51
9 22	21 1.96	-6 55.0	0.464	1.375	30.5	19.6	136 E	38	71	8 9	22 1.38	+13 10.8	3.408	4.308	7.0	21.3	149 W	58	51
9 24	21 1.12	-9 13.7	0.465	1.365	32.3	19.7	133 E	36	73	8 19	21 54.93	+12 38.0	3.397	4.333	5.8	21.2	155 W	58	51
9 26	21 0.53	-11 30.8	0.467	1.355	34.0	19.7	131 E	33	76	8 29	21 48.52	+11 52.3	3.413	4.357	5.3	21.2	156 E	57	52
9 28	21 0.20	-13 45.4	0.470	1.346	35.7	19.8	128 E	31	78	9 8	21 42.61	+10 56.8	3.458	4.381	5.9	21.3	153 E	56	53
10 3	21 0.54	-19 7.6	0.482	1.321	39.9	19.9	122 E	26	83	9 18	21 37.60	+9 55.1	3.529	4.404	7.2	21.4	147 E	55	54
10 8	21 2.55	-24 4.1	0.499	1.298	43.8	20.0	116 E	21	88	97725 2000 GB₁₄₇									
10 13	21 6.26	-28 31.2	0.519	1.274	47.2	20.2	110 E	16	87	7 20	22 12.81	-7 45.8	1.340	2.249	15.0	21.9	145 W	37	72
10 18	21 11.66	-32 28.3	0.541	1.252	50.2	20.3	105 E	13	84	7 30	22 0.53	-7 20.5	1.298	2.267	10.1	21.7	157 W	38	71
10 23	21 18.70	-35 56.5	0.565	1.230	52.7	20.4	100 E	9	80	8 9	21 46.14	-7 6.5	1.281	2.283	5.0	21.5	169 W	38	71
10 28	21 27.33	-38 58.1	0.590	1.209	54.8	20.6	96 E	6	77	8 19	21 31.08	-7 1.4	1.291	2.298	3.5	21.4	172 E	38	71
11 2	21 37.44	-41 35.4	0.614	1.189	56.5	20.7	92 E	3	74	8 29	21 17.03	-7 1.8	1.330	2.310	7.9	21.7	162 E	38	71
11 7	21 48.95	-43 50.7	0.638	1.170	57.9	20.8	89 E	1	72*	9 8	21 5.40	-7 3.8	1.395	2.322	12.6	22.0	150 E	38	71
11 12	22 1.77	-45 46.0	0.660	1.153	59.0	20.8	86 E	—	70*	410622 2008 QF									
11 17	22 15.85	-47 23.0	0.681	1.137	59.8	20.9	84 E	—	68*	7 20	22 15.89	+2 25.0	0.370	1.319	30.3	21.3	139 W	47	62
11 22	22 31.10	-48 43.0	0.700	1.122	60.5	20.9	81 E	—	67*	7 25	22 23.74	+3 18.7	0.353	1.311	28.8	21.1	142 W	48	61
11 27	22 47.39	-49 47.1	0.717	1.109	61.0	21.0	80 E	—	65*	7 30	22 31.10	+4 2.3	0.338	1.304	27.2	20.9	144 W	49	60
12 2	23 4.63	-50 36.1	0.731	1.098	61.4	21.0	78 E	—	64*	8 4	22 37.91	+4 34.6	0.325	1.299	25.3	20.8	147 W	50	59
12 7	23 22.70	-51 10.3	0.743	1.089	61.7	21.0	77 E	—	63*	8 9	22 44.14	+4 54.2	0.314	1.296	23.1	20.6	150 W	50	59
12 12	23 41.52	-51 29.8	0.752	1.082	61.9	21.1	76 E	—	63*	8 14	22 49.71	+5 0.2	0.306	1.294	20.7	20.5	153 W	50	59
12 17	0 0.98	-51 34.4	0.758	1.077	62.0	21.1	75 E	—	62*	8 19	22 54.63	+4 52.0	0.301	1.294	18.0	20.4	157 W	50	59
12 22	0 20.98	-51 24.1	0.761	1.074	62.1	21.1	75 E	—	62*	8 24	22 58.94	+4 30.3	0.297	1.295	15.1	20.3	161 W	50	59
12 27	0 41.41	-50 58.3	0.761	1.074	62.1	21.1	75 E	—	62*	8 29	23 2.73	+3 56.6	0.297	1.299	12.0	20.2	164 W	49	60
1 1	1 2.15	-50 16.6	0.759	1.076	62.0	21.1	75 E	—	63*	9 3	23 6.11	+3 13.1	0.299	1.303	9.0	20.1	168 W	48	61
1 6	1 23.10	-49 18.0	0.755	1.080	61.8	21.1	76 E	—	64*	9 8	23 9.18	+2 22.5	0.305	1.310	6.2	20.0	172 W	47	62
1 11	1 44.18	-48 1.4	0.749	1.086	61.6	21.0	76 E	—	65*	9 13	23 12.06	+1 27.9	0.313	1.318	4.7	20.0	174 E	46	63
1 16	2 5.32	-46 26.0	0.742	1.094	61.3	21.0	77 E	—	67*	9 18	23 14.90	+0 32.5	0.325	1.327	5.5	20.1	173 E	46	63
301011 2008 JO										9 23	23 17.86	+0 20.4	0.339	1.338	8.0	20.3	169 E	45	64
7 20	22 5.27	-5 22.0	1.191	2.109	15.8	21.3	146 W	40	69	9 28	23 21.08	-1 8.1	0.357	1.351	10.8	20.6	165 E	44	65
7 30	21 53.10	-5 42.8	1.095	2.070	10.8	20.9	158 W	39	70	10 3	23 24.64	-1 48.5	0.379	1.364	13.7	20.9	161 E	43	66
8 9	21 37.17	-6 24.7	1.023	2.027	5.4	20.4	169 W	39	70	10 8	23 28.56	-2 20.6	0.403	1.379	16.5	21.1	157 E	43	66
8 19	21 18.72	-7 24.0	0.977	1.981	5.2	20.3	170 E	38	71	10 13	23 32.89	-2 43.7	0.431	1.395	19.0	21.4	153 E	42	67
8 24	21 9.19	-7 57.8	0.965	1.957	8.1	20.3	164 E	37	72	435302 2007 US₆									
8 29	20 59.87	-8 32.7	0.960	1.932	11.5	20.4	158 E	36	73	7 20	22 18.24	+9 28.8	1.627	2.447	17.3	22.1	134 W	54	55
9 3	20 51.05	-9 7.6	0.961	1.906	14.9	20.5	151 E	36	73	7 25	22 15.58	+9 45.9	1.566	2.424	16.0	22.0	139 W	55	54
9 8	20 42.99	-9 41.3	0.967	1.879	18.3	20.6	144 E	35	74	7 30	22 12.25	+9 57.0	1.509	2.401	14.7	21.8	143 W	55	54
9 13	20 35.90	-10 12.9	0.979	1.851	21.5	20.7	138 E	35	74	8 4	22 8.27	+10 1.7	1.458	2.377	13.2	21.7	148 W	55	54
9 18	20 29.95	-10 41.8	0.995	1.823	24.4	20.8	131 E	34	75	8 9	22 3.69	+9 59.2	1.411	2.353	11.8	21.5	152 W	55	54
9 23	20 25.25	-11 7.5	1.014	1.793	27.2	20.9	125 E	34	75	8 14	21 58.59	+9 49.1	1.370	2.329	10.5	21.4	155 W	55	54
9 28	20 21.82	-11 29.7	1.036	1.762	29.6	21.0	120 E	34	75	8 19	21 53.10	+9 31.1	1.335	2.304	9.6	21.3	158 E	55	54
10 3	20 19.68	-11 48.1	1.060	1.731	31.8	21.1	114 E	33	76	8 24	21 47.35	+9 5.3	1.307	2.279	9.2	21.2	159 E	54	55
10 8	20 18.77	-12 2.7	1.084	1.698	33.8	21.1	109 E	33	76	8 29	21 41.52	+8 32.0	1.284	2.254	9.5	21.1	158 E	54	55
10 13	20 19.06	-12 13.5	1.109	1.664	35.5	21.2	104 E	33	76	9 3	21 35.79	+7 52.0	1.268	2.228	10.5	21.1	156 E	53	56
10 18	20 20.48	-12 20.4	1.134	1.630	37.1	21.2	100 E	33	76	9 8	21 30.33	+7 6.1	1.258	2.202	12.1	21.1	153 E		

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

2020	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°	20/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°	-26°
513171 2004 MD₆ (continuation)										343098 2009 DV₄₂ (continuation)									
8 9	21 24.74	+53 56.2	0.718	1.430	41.7	22.1	110 W	81	10	9 18	22 31.53	-42 18.8	0.834	1.709	23.9	20.6	137 E	3	74
8 14	21 2.01	+55 23.2	0.701	1.414	42.3	22.0	110 E	80	9	9 23	22 25.35	-43 4.5	0.848	1.692	26.2	20.7	132 E	2	73
8 19	20 37.18	+56 15.1	0.686	1.397	43.2	22.0	109 E	79	8	9 28	22 20.14	-43 33.1	0.865	1.674	28.4	20.8	127 E	1	72
8 24	20 11.50	+56 28.9	0.674	1.377	44.3	21.9	108 E	79	8	10 3	22 16.12	-43 45.8	0.885	1.656	30.5	20.8	123 E	1	72
8 29	19 46.44	+56 4.8	0.664	1.355	45.7	21.9	106 E	79	8	10 8	22 13.41	-43 44.3	0.906	1.638	32.4	20.9	118 E	1	72
9 3	19 23.25	+55 6.4	0.655	1.331	47.3	21.9	104 E	80	9	10 13	22 12.09	-43 30.0	0.928	1.619	34.1	21.0	114 E	1	72
9 8	19 2.77	+53 39.0	0.648	1.305	49.1	21.9	102 E	81	10	10 18	22 12.16	-43 4.4	0.952	1.601	35.7	21.1	110 E	2	73
153951 2002 AC₃										343098 2009 DV₄₂ (continuation)									
7 20	22 27.11	-7 0.5	1.428	2.311	15.9	22.1	141 W	38	71	10 23	22 13.60	-42 28.9	0.975	1.582	37.0	21.1	107 E	3	74
7 30	22 16.28	-6 49.0	1.381	2.333	11.3	21.8	153 W	38	71	10 28	22 16.32	-41 44.7	0.999	1.563	38.2	21.2	103 E	3	74
8 9	22 3.14	-6 49.9	1.358	2.353	6.2	21.6	165 W	38	71	11 2	22 20.22	-40 52.7	1.022	1.544	39.3	21.3	100 E	4	75
8 19	21 48.92	-7 0.0	1.363	2.372	2.5	21.4	174 E	38	71	11 7	22 25.18	-39 53.6	1.045	1.524	40.2	21.3	97 E	5	76
8 29	21 35.17	-7 15.0	1.396	2.389	5.8	21.7	166 E	38	71	11 12	22 31.11	-38 47.8	1.067	1.505	41.0	21.3	94 E	6	77
9 8	21 23.30	-7 30.2	1.456	2.404	10.5	22.0	154 E	37	72	11 17	22 37.90	-37 35.6	1.088	1.485	41.7	21.4	91 E	7	78
171784 2001 BV₆₇										343098 2009 DV₄₂ (continuation)									
7 20	22 32.17	-10 36.9	2.222	3.084	11.8	21.4	142 W	34	75	11 22	22 45.48	-36 17.4	1.108	1.466	42.3	21.4	89 E	9	79*
7 30	22 25.22	-11 2.6	2.155	3.094	8.6	21.2	153 W	34	75	11 27	22 53.75	-34 53.4	1.126	1.447	42.9	21.4	86 E	10	79*
8 9	22 16.60	-11 35.6	2.113	3.102	4.9	21.0	165 W	33	76	12 2	23 2.62	-33 23.7	1.143	1.428	43.4	21.4	84 E	12	78*
8 19	22 6.92	-12 12.0	2.099	3.110	1.1	20.7	177 W	33	76	12 7	23 12.02	-31 48.4	1.159	1.409	43.8	21.5	82 E	13	76*
8 29	21 57.03	-12 47.6	2.115	3.116	2.9	20.9	171 E	32	77	12 12	23 21.89	-30 7.5	1.174	1.390	44.2	21.5	80 E	15	73*
9 8	21 47.83	-13 18.4	2.159	3.122	6.6	21.1	159 E	32	77	12 17	23 32.21	-28 21.1	1.187	1.371	44.5	21.5	78 E	17	71*
9 18	21 40.06	-13 41.4	2.231	3.126	9.9	21.4	147 E	31	78	12 22	23 42.92	-26 29.2	1.199	1.353	44.8	21.5	76 E	19	68*
488799 2005 EE₃₈										486001 2012 MR₇									
7 20	22 34.40	+14 7.9	1.427	2.205	21.2	21.3	128 W	59	50	7 20	23 25.90	+30 22.2	0.983	1.624	36.4	21.4	109 W	75	34
7 25	22 31.63	+13 25.3	1.384	2.209	19.5	21.2	133 W	58	51	7 25	23 27.67	+33 1.5	0.945	1.612	36.2	21.3	111 W	78	31
7 30	22 28.13	+12 31.6	1.346	2.213	17.6	21.1	139 W	58	51	7 30	23 28.56	+35 41.0	0.908	1.599	35.9	21.2	112 W	81	28
8 4	22 23.97	+11 26.3	1.312	2.216	15.5	21.0	144 W	56	53	8 4	23 28.44	+38 19.4	0.874	1.587	35.7	21.1	114 W	83	26
8 9	22 19.23	+10 9.6	1.284	2.219	13.3	20.8	150 W	55	54	8 9	23 27.20	+40 55.1	0.843	1.574	35.5	21.0	116 W	86	23
8 14	22 14.02	+8 42.0	1.262	2.222	11.1	20.7	155 W	54	55	8 14	23 24.68	+43 25.9	0.813	1.561	35.3	20.9	117 W	88	21
8 19	22 8.50	+7 4.3	1.247	2.224	9.0	20.6	160 W	52	57	8 19	23 20.77	+45 49.5	0.786	1.548	35.2	20.8	118 W	89	18
8 24	22 2.83	+5 18.3	1.238	2.226	7.4	20.5	163 E	50	59	8 24	23 15.38	+48 3.1	0.762	1.534	35.1	20.7	119 W	87	16
8 29	21 57.21	+3 26.1	1.237	2.228	6.9	20.5	165 E	48	61	8 29	23 8.51	+50 3.8	0.740	1.521	35.1	20.6	120 W	85	14
9 3	21 51.82	+1 30.4	1.244	2.229	7.5	20.6	163 E	47	62	9 3	23 0.23	+51 49.0	0.719	1.508	35.2	20.5	121 W	83	12
9 8	21 46.82	+0 26.2	1.258	2.230	9.2	20.7	159 E	45	64	9 8	22 50.71	+53 16.1	0.701	1.494	35.3	20.5	121 E	82	11
9 13	21 42.35	-2 21.2	1.280	2.230	11.2	20.8	154 E	43	66	9 13	22 40.28	+54 22.7	0.685	1.481	35.6	20.4	121 E	81	10
9 18	21 38.53	-4 12.3	1.308	2.230	13.4	20.9	149 E	41	68	9 18	22 29.43	+55 7.1	0.670	1.468	35.9	20.3	121 E	80	9
9 23	21 35.48	-5 57.6	1.343	2.230	15.6	21.0	143 E	39	70	9 20	22 25.11	+55 18.6	0.665	1.462	36.1	20.3	121 E	80	9
9 28	21 33.24	-7 35.6	1.384	2.230	17.6	21.2	138 E	37	72	9 24	22 20.86	+55 26.4	0.660	1.457	36.2	20.3	121 E	80	9
10 3	21 31.83	-9 5.5	1.430	2.229	19.4	21.3	132 E	36	73	9 29	22 16.73	+55 30.6	0.655	1.452	36.4	20.3	121 E	79	8
10 8	21 31.27	-10 26.8	1.480	2.227	21.1	21.4	127 E	35	74	9 26	22 12.76	+55 31.4	0.650	1.447	36.6	20.3	121 E	79	8
306695 2000 VL₁										486001 2012 MR₇ (continuation)									
7 20	22 55.65	-39 48.9	3.044	3.856	10.2	21.4	138 W	5	76	9 28	22 8.98	+55 28.8	0.646	1.441	36.8	20.3	120 E	80	9
7 25	22 53.00	-40 40.6	3.016	3.858	9.6	21.4	141 W	4	75	9 30	22 5.42	+55 23.0	0.642	1.436	37.0	20.2	120 E	80	9
7 30	22 49.81	-41 31.0	2.994	3.859	9.0	21.3	144 W	3	74	10 2	22 2.12	+55 14.0	0.637	1.431	37.2	20.2	120 E	80	9
8 4	22 46.12	-42 19.4	2.979	3.860	8.5	21.3	146 W	3	74	10 4	21 59.11	+55 2.1	0.634	1.426	37.5	20.2	120 E	80	9
8 9	22 41.98	-43 4.7	2.970	3.861	8.2	21.3	147 W	2	73	10 6	21 56.40	+54 47.3	0.630	1.421	37.7	20.2	120 E	80	9
8 14	22 37.46	-43 46.3	2.967	3.862	8.1	21.3	148 W	1	72	10 8	21 54.02	+54 29.8	0.626	1.416	38.0	20.2	119 E	80	9
8 19	22 32.63	-44 23.3	2.971	3.862	8.1	21.3	147 W	1	72	10 13	21 49.63	+53 35.3	0.618	1.403	38.6	20.1	119 E	81	10
8 24	22 27.61	-44 55.2	2.982	3.862	8.4	21.3	146 W	—	71	10 18	21 47.59	+52 27.5	0.610	1.391	39.3	20.1	118 E	83	12
8 29	22 22.51	-45 21.3	2.999	3.862	8.8	21.3	144 E	—	71	10 23	21 47.97	+51 9.1	0.604	1.379	40.0	20.1	117 E	84	13
9 3	22 17.43	-45 41.5	3.023	3.862	9.4	21.4	141 E	—	70	10 28	21 50.71	+49 42.4	0.598	1.367	40.7	20.1	116 E	85	14
9 8	22 12.50	-45 55.7	3.052	3.861	10.0	21.4	138 E	—	70	11 2	21 55.68	+48 9.1	0.593	1.356	41.4	20.0	115 E	87	16
9 13	22 7.81	-46 3.8	3.087	3.860	10.7	21.5	135 E	—	70	11 7	22 2.72	+46 30.6	0.588	1.345	42.2	20.0	114 E	88	17
9 18	22 3.46	-46 6.1	3.128	3.859	11.4	21.5	131 E	—	70	11 12	22 11.69	+44 47.7	0.585	1.334	42.9	20.0	113 E	90	19*
9 23	21 59.55	-46 2.8	3.173	3.858	12.0	21.6	127 E	—	70	11 17	22 22.44	+43 1.4	0.583	1.324	43.7	20.0	112 E	88	21*
197588 2004 HE₁₂										486001 2012 MR₇ (continuation)									
7 20	23 13.19	-23 51.1	1.890	2.705	15.4	21.5	135 W	21	88	11 22	22 34.78	+41 12.5	0.582	1.315	44.4	20.0	111 E	86	23*
7 30	23 1.43	-24 11.2	1.802	2.704	12.1	21.3	146 W	21	88	11 27	22 48.53	+39 21.7	0.582	1.306	45.2	20.0	110 E	84	24*
8 9	22 46.40	-24 26.9	1.738	2.702	8.4	21.0	157 W	21	88	12 2	23 3.47	+37 29.4	0.584	1.298	45.9	20.0	109 E	82	26*

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

20/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°-26°	20/21	α_{2000}	δ_{2000}	Δ	r	β	V	ψ	45°-26°
489235 2006 QA₅₈									407653 2011 QF₃ (continuation)								
7 20	23 36.56	+17 29.1	0.533	1.327	44.3	21.3	114 W	62 47	9 13	23 52.35	-1 27.6	1.336	2.338	3.1	19.8	173 W	44 65
7 25	23 46.14	+16 3.3	0.488	1.316	43.2	21.1	118 W	61 48	9 18	23 46.56	-2 27.6	1.307	2.312	0.5	19.5	179 W	43 66
7 30	23 55.90	+14 4.2	0.445	1.303	41.7	20.8	121 W	59 50	9 23	23 40.51	-3 29.7	1.285	2.285	2.7	19.6	174 E	42 67
8 4	0 5.90	+11 24.0	0.404	1.291	39.9	20.6	125 W	56 53	9 28	23 34.37	-4 32.3	1.270	2.258	5.7	19.7	167 E	40 69
8 9	0 16.20	+7 53.0	0.366	1.278	37.7	20.3	130 W	53 56	10 3	23 28.35	-5 33.8	1.262	2.230	8.6	19.8	160 E	39 70
8 11	0 20.42	+6 12.0	0.351	1.273	36.8	20.1	131 W	51 58	10 8	23 22.61	-6 32.6	1.260	2.202	11.5	19.9	154 E	38 71
8 13	0 24.70	+4 20.4	0.337	1.268	35.8	20.0	133 W	49 60	10 13	23 17.34	-7 27.3	1.265	2.173	14.3	20.0	147 E	38 71
8 15	0 29.04	+2 17.5	0.324	1.262	34.7	19.9	135 W	47 62	10 18	23 12.70	-8 16.7	1.276	2.144	17.0	20.1	141 E	37 72
8 17	0 33.44	+0 2.9	0.312	1.257	33.7	19.8	136 W	45 64	10 23	23 8.82	-8 59.9	1.291	2.115	19.5	20.2	135 E	36 73
8 19	0 37.92	-2 23.9	0.300	1.252	32.7	19.7	138 W	43 66	10 28	23 5.79	-9 36.3	1.311	2.084	21.8	20.2	129 E	35 74
8 24	0 49.49	-9 24.7	0.276	1.239	30.7	19.4	141 W	36 73	11 7	23 2.46	-10 28.0	1.360	2.023	25.7	20.4	118 E	35 74
8 29	1 1.68	-17 35.1	0.259	1.225	30.2	19.2	142 W	27 82	11 17	23 2.86	-10 52.0	1.417	1.960	28.7	20.5	108 E	34 75
9 3	1 14.61	-26 31.5	0.249	1.212	32.0	19.2	141 W	18 89	11 27	23 6.85	-10 50.0	1.476	1.894	31.0	20.6	99 E	34 74*
9 8	1 28.37	-35 35.7	0.248	1.198	35.9	19.3	136 W	9 80	12 7	23 14.11	-10 24.8	1.534	1.828	32.6	20.6	90 E	35 69*
9 10	1 34.11	-39 6.2	0.250	1.193	37.8	19.3	133 W	6 77	12 17	23 24.28	-9 38.7	1.587	1.759	33.7	20.6	83 E	35 62*
9 12	1 40.00	-42 28.9	0.253	1.187	39.9	19.4	131 W	3 74	12 27	23 37.08	-8 33.8	1.632	1.690	34.4	20.6	76 E	36 56*
9 14	1 46.02	-45 42.0	0.257	1.182	42.0	19.4	128 W	-70	1 6	23 52.21	-7 11.9	1.669	1.619	34.8	20.6	70 E	38* 49*
9 16	1 52.19	-48 44.2	0.262	1.177	44.1	19.5	125 W	-67	1 16	0 9.50	-5 34.4	1.695	1.548	35.0	20.5	64 E	38* 44*
9 18	1 58.49	-51 34.6	0.267	1.171	46.2	19.6	123 W	-64	496863 2000 CL₅₉								
9 23	2 14.86	-57 46.3	0.285	1.158	50.9	19.9	116 W	-58	7 30	0 19.69	-11 56.0	1.230	2.005	24.1	21.3	126 W	33 76
9 28	2 32.03	-62 43.5	0.305	1.145	55.0	20.1	111 W	-53	8 9	0 23.30	-16 0.1	1.138	1.990	21.1	21.0	135 W	29 80
10 3	2 49.81	-66 35.4	0.327	1.133	58.3	20.3	106 W	-49	8 19	0 23.63	-20 47.7	1.068	1.974	17.8	20.7	143 W	24 85
10 8	3 7.85	-69 33.2	0.349	1.121	61.0	20.5	101 W	-46	8 29	0 20.32	-26 2.7	1.021	1.958	15.4	20.5	149 W	19 90
10 13	3 25.69	-71 47.4	0.371	1.109	63.1	20.7	98 W	-44	9 8	0 13.43	-31 17.2	1.001	1.940	15.0	20.5	150 W	14 85
10 18	3 42.87	-73 26.5	0.391	1.098	64.8	20.9	94 W	-43	9 13	0 8.83	-33 44.2	1.001	1.931	15.9	20.5	148 W	11 82
10 23	3 59.02	-74 37.7	0.410	1.088	66.1	21.0	92 W	-41	9 18	0 3.66	-35 59.1	1.007	1.922	17.2	20.5	146 W	9 80
10 28	4 13.89	-75 26.8	0.427	1.078	67.2	21.1	89 W	-41	9 23	23 58.13	-37 58.9	1.019	1.912	18.9	20.6	142 E	7 78
11 2	4 27.32	-75 58.4	0.442	1.069	68.0	21.2	88 W	-40	9 28	23 52.52	-39 41.3	1.037	1.903	20.7	20.7	138 E	5 76
11 7	4 39.20	-76 16.1	0.454	1.061	68.7	21.2	86 W	-40	10 3	23 47.07	-41 5.4	1.059	1.893	22.5	20.8	134 E	4 75
11 12	4 49.50	-76 22.0	0.463	1.054	69.3	21.3	85 W	-40	10 8	23 42.05	-42 11.2	1.085	1.883	24.3	20.9	129 E	3 74
11 17	4 58.34	-76 17.7	0.469	1.047	69.8	21.3	84 W	-40	10 13	23 37.68	-42 59.3	1.114	1.873	25.9	21.0	125 E	2 73
11 22	5 5.96	-76 4.1	0.472	1.042	70.2	21.3	83 W	-40	10 18	23 34.14	-43 30.7	1.147	1.862	27.4	21.1	121 E	1 72
11 27	5 12.61	-75 41.8	0.472	1.038	70.5	21.3	83 W	-40	10 23	23 31.59	-43 46.8	1.181	1.852	28.8	21.2	116 E	1 72
12 2	5 18.46	-75 11.3	0.469	1.036	70.7	21.3	83 W	-41	10 28	23 30.10	-43 49.5	1.217	1.841	29.9	21.2	112 E	1 72
12 7	5 23.64	-74 32.3	0.462	1.034	70.9	21.3	83 W	-41	11 2	23 29.69	-43 40.2	1.253	1.830	30.9	21.3	109 E	1 72
12 12	5 28.26	-73 43.9	0.452	1.034	71.1	21.2	83 W	-42	11 7	23 30.36	-43 20.4	1.290	1.820	31.7	21.4	105 E	2 73
12 17	5 32.50	-72 44.3	0.440	1.034	71.1	21.2	84 E	-43	11 12	23 32.06	-42 51.4	1.328	1.809	32.4	21.5	102 E	2 73
12 22	5 36.58	-71 31.7	0.424	1.036	71.0	21.1	85 E	-44	508987 2005 ER₁₃₃								
12 27	5 40.66	-70 3.4	0.406	1.039	70.8	21.0	86 E	-46	7 30	0 39.45	-5 18.9	1.468	2.159	24.1	21.3	120 W	40 69
1 1	5 44.86	-68 15.8	0.385	1.044	70.3	20.9	88 E	-48	8 9	0 39.51	-4 5.1	1.335	2.122	21.9	21.0	129 W	41 68
1 6	5 49.24	-66 3.6	0.362	1.049	69.6	20.7	90 E	-50	8 19	0 35.97	-2 52.5	1.215	2.085	18.7	20.7	139 W	42 67
1 11	5 53.94	-63 19.3	0.338	1.055	68.6	20.6	93 E	-53	8 29	0 28.37	-1 39.7	1.111	2.047	14.4	20.3	150 W	43 66
1 16	5 59.14	-59 52.9	0.313	1.063	67.0	20.4	96 E	-56	9 8	0 16.66	-0 25.1	1.027	2.009	9.0	19.9	162 W	45 64
452435 2003 GB									9 18	0 1.41	+0 52.2	0.969	1.971	2.8	19.4	175 W	46 63
7 30	0 5.01	+14 21.4	2.588	3.209	16.0	21.5	119 W	59 50	9 28	23 44.16	+2 12.2	0.937	1.933	4.4	19.4	171 E	47 62
8 9	0 2.08	+13 38.2	2.511	3.251	13.9	21.4	129 W	59 50	10 8	23 27.15	+3 34.4	0.932	1.896	11.4	19.6	158 E	49 60
8 19	23 57.31	+12 35.3	2.451	3.293	11.3	21.2	140 W	58 51	10 18	23 12.59	+4 58.2	0.951	1.858	17.8	19.9	145 E	50 59
8 29	23 51.03	+11 13.4	2.412	3.334	8.4	21.1	151 W	56 53	10 28	23 2.16	+6 24.7	0.990	1.822	23.4	20.1	133 E	51 58
9 8	23 43.77	+9 35.6	2.400	3.373	5.3	21.0	162 W	55 54	11 7	22 56.55	+7 55.5	1.044	1.786	27.8	20.3	123 E	53 56
9 18	23 36.16	+7 46.9	2.418	3.413	2.9	20.9	170 E	53 56	11 17	22 55.74	+9 32.5	1.107	1.751	31.2	20.5	113 E	55 54
9 28	23 28.90	+5 54.0	2.467	3.451	3.7	21.0	167 E	51 58	11 27	22 59.36	+11 17.9	1.174	1.718	33.7	20.6	105 E	56 52*
10 8	23 22.61	+4 4.0	2.548	3.489	6.4	21.2	157 E	49 60	12 7	23 6.87	+13 12.8	1.243	1.686	35.4	20.8	98 E	58 48*
10 18	23 17.75	+2 23.0	2.656	3.526	9.1	21.5	146 E	47 62	12 17	23 17.77	+15 17.4	1.311	1.656	36.4	20.9	91 E	60 42*
220906 2005 BC₇									12 27	23 31.68	+17 32.0	1.376	1.629	37.0	21.0	86 E	63 36*
7 30	0 9.58	-1 41.4	1.456	2.206	22.0	21.4	125 W	43 66	1 6	23 48.28	+19 55.3	1.439	1.604	37.2	21.0	81 E	65* 30*
8 9	0 8.06	-2 16.9	1.379	2.220	18.6	21.2	136 W	43 66	1 16	0 7.41	+22 25.8	1.497	1.581	37.1	21.1	76 E	65* 25*
8 19	0 3.40	-3 12.7	1.318	2.233	14.5	21.0	147 W	42 67	2201 Oljato								
8 29	23 55.88	+4 25.3	1.276	2.245	9.6	20.7	158 W	41 68	7 30	1 14.63	+4 56.8	3.139	3.584	15.6	21.4	108 W	49* 59
9 8	23 46.26	-5 47.5	1.257	2.256	4.4	20.5	170 W	39 70	8 9	1 13.89	+4 44.5	2.975	3.562	14.6	21.2	118 W	50 59
9 13	23 41.00	-6 29.2	1.257	2.262	2.2	20.3	175 W	39 70	8 19	1 11.17	+4 20.2	2.823	3.538	13.0	21.0	128 W	49 60
9 18	23 35.66	-7 9.7	1.265	2.267	2.5	20.4	174 E	38 71	8 29	1 6.38	+3 43.5	2.688	3.513	10.9	20.8	139 W	49 60
9 23	23 30.44	-7 47.7	1.278	2.272	4.8	20.5	169 E	37 72	9 8	0 59.58	+2 55.2	2.574	3.487	8.2	20.6	151 W	48 61
9 28	23 25.50	-8 22.0	1.299	2.276	7.3	20.7	163 E	37 72	9 18	0 51.01	+1 57.0	2.487	3.458	5.0	20.3	162 W	47 62
10 3	23 20.99	-8 51.8	1.325	2.281	9.8	20.8	157 E	36 73	9 28	0 41.14	+0 52.6	2.429	3.428	1.7	20.1	174 W	46 63
10 8	23 17.05	-9 16.4	1.358	2.285	12.1	21.0	151 E	36 73	10 8	0 30.68	-0 13.3	2.405	3.396	2.5	20.1	171 E	45 64
10 13	23 13.75	-9 35.6	1.396	2.289	14.3	21.1	146 E	35 74	10 13	0 25.48	-0 45.1	2.405	3.379	4.3	20.2	165 E	44 65</