

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	$45^\circ$	$-26^\circ$	19/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	$45^\circ$	$-26^\circ$
<b>197595 2004 HH<sub>60</sub></b>										<b>447175 2005 QZ<sub>50</sub></b>									
12 23	7 22.46	+18 10.2	1.922	2.868	6.5	21.6	161W	63	46	12 23	7 23.59	+13 47.5	1.909	2.847	7.3	22.5	159W	59	50
1 2	7 11.82	+18 18.6	1.890	2.868	2.6	21.3	173W	63	46	1 2	7 13.08	+14 13.9	1.880	2.852	3.7	22.3	169W	59	50
1 12	7 0.61	+18 29.3	1.889	2.867	2.7	21.4	172E	63	46	1 12	7 2.00	+14 47.0	1.881	2.855	3.3	22.3	170E	60	49
1 22	6 49.98	+18 40.7	1.919	2.864	6.7	21.6	160E	64	45	1 22	6 51.46	+15 24.3	1.913	2.858	6.8	22.5	160E	60	49
2 1	6 41.00	+18 51.7	1.976	2.861	10.5	21.8	148E	64	45	2 1	6 42.52	+16 3.0	1.974	2.859	10.4	22.7	148E	61	48
<b>24495 Degroff</b>										<b>387793 2003 WL<sub>25</sub></b>									
12 23	7 22.95	+45 17.0	1.186	2.109	12.3	17.5	153W	90	19	12 23	7 25.18	+11 13.3	3.220	4.143	5.4	22.6	157W	56	53
12 28	7 15.12	+47 10.4	1.158	2.088	11.9	17.4	154W	88	17	1 2	7 15.56	+11 7.6	3.189	4.151	3.2	22.4	166W	56	53
1 2	7 5.94	+48 58.2	1.138	2.066	12.2	17.4	154W	86	15	1 12	7 5.62	+11 7.3	3.192	4.158	2.9	22.4	168E	56	53
1 7	6 55.65	+50 37.2	1.124	2.044	13.2	17.4	152E	84	13	1 22	6 56.00	+11 11.8	3.228	4.164	4.8	22.5	159E	56	53
1 12	6 44.59	+52 4.4	1.117	2.022	14.7	17.4	148E	83	12	2 1	6 47.34	+11 20.2	3.296	4.168	7.1	22.7	149E	56	53
1 17	6 33.19	+53 18.0	1.117	1.999	16.7	17.4	144E	82	11	<b>351549 2005 TJ<sub>73</sub></b>									
1 22	6 21.96	+54 17.2	1.122	1.977	18.8	17.5	140E	81	10	12 23	7 25.30	+13 32.5	1.428	2.369	8.9	21.2	158W	59	50
1 24	6 17.65	+54 36.8	1.126	1.968	19.7	17.5	138E	80	9	12 28	7 19.77	+13 51.1	1.424	2.385	6.6	21.2	164W	59	50
1 26	6 13.48	+54 54.3	1.130	1.959	20.5	17.5	136E	80	9	1 2	7 13.97	+14 12.2	1.427	2.400	4.4	21.1	169W	59	50
1 28	6 9.49	+55 9.5	1.135	1.950	21.4	17.6	134E	80	9	1 7	7 8.08	+14 35.2	1.438	2.416	3.2	21.0	172E	60	49
1 30	6 5.71	+55 22.8	1.141	1.941	22.2	17.6	132E	80	9	1 12	7 2.30	+14 59.5	1.456	2.431	3.9	21.1	170E	60	49
2 1	6 2.17	+55 34.2	1.147	1.932	23.1	17.6	130E	79	8	1 17	6 56.79	+15 24.6	1.480	2.446	5.7	21.2	166E	60	49
2 6	5 54.46	+55 55.3	1.166	1.910	25.1	17.7	125E	79	8	1 22	6 51.70	+15 49.9	1.512	2.461	7.8	21.4	160E	61	48
2 11	5 48.59	+56 7.5	1.187	1.887	26.9	17.8	120E	79	8	1 27	6 47.19	+16 15.1	1.551	2.475	9.9	21.6	154E	61	48
2 16	5 44.67	+56 13.0	1.211	1.864	28.5	17.8	116E	79	8	2 1	6 43.36	+16 39.8	1.595	2.490	11.9	21.7	149E	62	47
2 21	5 42.75	+56 13.4	1.236	1.842	30.0	17.9	111E	79	8	<b>15790 Keizan</b>									
2 26	5 42.81	+56 10.2	1.262	1.819	31.3	17.9	107E	79	8	12 23	7 25.40	+55 12.0	1.986	2.846	11.5	18.0	145W	80	9
3 2	5 44.78	+56 4.3	1.288	1.797	32.5	18.0	103E	79	8	12 28	7 17.08	+55 39.3	1.987	2.857	11.0	18.0	146W	79	8
3 7	5 48.55	+55 56.6	1.314	1.775	33.4	18.0	100E	79	8	1 2	7 8.32	+55 57.8	1.994	2.868	10.8	18.0	147W	79	8
3 12	5 54.00	+55 47.2	1.340	1.753	34.3	18.1	96E	79	8*	1 7	6 59.43	+56 7.0	2.008	2.879	10.9	18.0	146E	79	8
3 17	6 0.99	+55 36.1	1.365	1.731	35.0	18.1	93E	79	8*	1 12	6 50.71	+56 6.7	2.029	2.889	11.3	18.0	145E	79	8
3 22	6 9.42	+55 23.0	1.388	1.709	35.7	18.1	90E	78	8*	1 17	6 42.46	+55 57.6	2.055	2.899	11.9	18.1	143E	79	8
3 27	6 19.19	+55 7.5	1.411	1.688	36.2	18.2	87E	77	9*	1 22	6 34.92	+55 40.4	2.088	2.909	12.6	18.2	140E	79	8
4 1	6 30.17	+54 49.1	1.431	1.666	36.7	18.2	85E	76	9*	1 27	6 28.31	+55 16.1	2.126	2.919	13.5	18.2	136E	80	9
4 6	6 42.24	+54 27.1	1.451	1.646	37.0	18.2	82E	74	9*	2 1	6 22.76	+54 46.0	2.170	2.928	14.3	18.3	133E	80	9
4 11	6 55.28	+54 0.9	1.468	1.625	37.4	18.2	80E	73	10*	2 6	6 18.34	+54 11.4	2.218	2.937	15.2	18.4	129E	81	10
4 16	7 9.17	+53 29.5	1.484	1.605	37.7	18.2	78E	71	10*	2 11	6 15.08	+53 33.5	2.271	2.946	16.0	18.5	125E	81	10
4 21	7 23.80	+52 52.4	1.499	1.586	37.9	18.2	76E	69	11*	2 16	6 12.95	+52 53.3	2.328	2.955	16.7	18.6	121E	82	11
4 26	7 39.04	+52 8.7	1.511	1.567	38.1	18.2	74E	68	11*	2 21	6 11.90	+52 11.8	2.388	2.964	17.4	18.7	116E	83	12
5 1	7 54.77	+51 17.9	1.523	1.549	38.3	18.2	72E	66	12*	2 26	6 11.87	+51 29.6	2.451	2.972	17.9	18.7	112E	84	13
5 6	8 10.85	+50 19.4	1.533	1.531	38.4	18.2	71E	65	13*	3 2	6 12.78	+50 47.4	2.517	2.980	18.4	18.8	108E	84	13
5 11	8 27.17	+49 12.6	1.541	1.515	38.6	18.2	69E	63	14*	3 7	6 14.56	+50 5.5	2.584	2.988	18.8	18.9	104E	85	14
5 16	8 43.61	+47 57.1	1.549	1.499	38.7	18.2	68E	61	16*	3 12	6 17.11	+49 24.1	2.653	2.995	19.0	19.0	100E	86	15
5 21	9 0.07	+46 32.8	1.556	1.483	38.8	18.2	67E	59	17*	3 17	6 20.37	+48 43.6	2.723	3.002	19.2	19.0	96E	86	15
5 26	9 16.48	+44 59.4	1.562	1.469	38.9	18.2	66E	57	18*	3 22	6 24.25	+48 3.8	2.794	3.009	19.3	19.1	93E	86	15*
5 31	9 32.75	+43 17.0	1.567	1.456	39.0	18.1	65E	55	20*	3 27	6 28.69	+47 24.9	2.866	3.016	19.3	19.2	89E	83	16*
6 5	9 48.82	+41 25.7	1.573	1.444	39.0	18.1	64E	53	22*	4 1	6 33.63	+46 46.8	2.937	3.023	19.2	19.2	85E	79	17*
6 10	10 4.63	+39 25.8	1.578	1.433	39.0	18.1	63E	51	24*	4 6	6 39.02	+46 9.4	3.008	3.029	19.1	19.3	82E	76	17*
6 15	10 20.15	+37 17.6	1.584	1.423	39.0	18.1	62E	49	25*	4 11	6 44.78	+45 32.6	3.078	3.035	18.9	19.3	78E	72	18*
6 20	10 35.38	+35 1.6	1.591	1.414	39.0	18.1	61E	47	27*	4 16	6 50.89	+44 56.4	3.147	3.041	18.6	19.4	75E	68	18*
6 25	10 50.31	+32 38.4	1.599	1.406	38.9	18.1	60E	44	29*	4 21	6 57.29	+44 20.6	3.216	3.047	18.2	19.4	71E	65	18*
6 30	11 4.93	+30 8.7	1.607	1.400	38.8	18.1	60E	42	31*	5 1	7 10.85	+43 9.7	3.348	3.057	17.3	19.5	65E	58	18*
7 5	11 19.25	+27 33.4	1.617	1.395	38.6	18.1	59E	40	33*	5 11	7 25.18	+41 59.1	3.472	3.066	16.3	19.5	58E	51	18*
7 10	11 33.29	+24 53.3	1.629	1.391	38.3	18.1	58E	38	35*	5 21	7 40.06	+40 48.1	3.588	3.075	15.1	19.6	52E	44	18*
7 15	11 47.06	+22 9.3	1.643	1.389	38.0	18.1	57E	36	37*	5 31	7 55.34	+39 36.1	3.694	3.083	13.8	19.6	46E	37	17*
7 20	12 0.61	+19 22.2	1.658	1.388	37.7	18.1	57E	33	38*	6 10	8 10.83	+38 22.6	3.788	3.089	12.4	19.6	41E	31	15*
7 25	12 13.95	+16 33.2	1.675	1.389	37.3	18.1	56E	31	39*	6 20	8 26.45	+37 7.4	3.870	3.095	10.9	19.6	35E	26	13*
7 30	12 27.11	+13 43.1	1.695	1.391	36.8	18.2	55E	29	41*	6 30	8 42.10	+35 50.5	3.939	3.099	9.4	19.6	30E	22	10*
8 4	12 40.12	+10 53.0	1.717	1.394	36.2	18.2	54E	27	41*	7 10	8 57.68	+34 31.9	3.994	3.103	8.0	19.5	25E	18	6*
8 9	12 53.01	+ 8 3.7	1.741	1.399	35.6	18.2	53E	25	42*	7 20	9 13.16	+33 11.6	4.034	3.106	6.7	19.5	21E	14	3*
8 14	13 5.81	+ 5 16.0	1.767	1.405	34.9	18.2	53E	24	42*	7 30	9 28.47	+31 50.1	4.060	3.107	5.7	19.5	18E	12	—
8 19	13 18.56	+ 2 30.8	1.795	1.412	34.2	18.2	52E	22	43*	8 9	9 43.57	+30 27.6	4.071	3.108	5.1	19.4	16E	9	—
8 24	13 31.29	+ 0 11.2	1.826	1.420	33.4	18.3	51E	20	42*	8 19	9 58.44	+29 4.7	4.066	3.108	5.3	19.4	16E	7	—
8 29	13 44.02	+ 2 49.4	1.858	1.430	32.6	18.3	50E	19	42*	8 29	10 13.04	+27 41.8	4.046	3.107	6.0	19.5	19W	10	—
9 8	14 9.58	+ 7 52.1	1.928	1.453	30.8	18.4	48E	16*	41*	9 8	10 27.34	+26 19.7	4.010	3.105	7.2	19.5	23W	15	—
9 18	14 35.46	+ 5 33.4	2.004	1.480	28.8	18.4	45E	13	39*	9 18	10 41.31	+24 58.9	3.959	3.102	8.6	19.5	27W	21	—
9 28	15 1.82	+ 3 50.9	2.084	1.511	26.8	18.5	43E	10	37*	9 28	10 54.92	+23 40.2	3.892	3.098	10.1	19.6	33W	26	

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	19/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°
<b>5275 Zdislava</b>										<b>152575 1994 GY</b> (continuation)									
12 23	7 25.79	+14 31.2	1.393	2.336	8.9	17.0	158 W	60	49	7 10	9 57.98	+18 46.4	2.176	1.504	24.3	20.7	38 E	17*	27*
1 2	7 14.07	+14 29.5	1.390	2.363	4.4	16.8	169 W	59	50	7 15	10 10.96	+17 10.6	2.170	1.478	24.0	20.7	36 E	15*	27*
1 12	7 2.02	+14 36.0	1.414	2.389	4.1	16.8	170 E	60	49	7 20	10 24.09	+15 29.9	2.164	1.453	23.6	20.6	35 E	14*	26*
1 22	6 51.10	+14 48.4	1.467	2.414	8.1	17.1	160 E	60	49	7 25	10 37.37	+13 44.7	2.157	1.429	23.3	20.5	34 E	12*	25*
2 1	6 42.53	+15 5.0	1.545	2.438	12.3	17.4	148 E	60	49	7 30	10 50.82	+11 55.0	2.149	1.407	23.0	20.5	33 E	11*	25*
2 11	6 37.03	+15 23.7	1.647	2.462	15.9	17.7	137 E	60	49	8 9	11 18.18	+ 8 3.2	2.135	1.367	22.3	20.4	31 E	9*	24*
2 21	6 34.79	+15 42.9	1.766	2.485	18.6	18.0	127 E	61	48	8 19	11 46.27	+ 3 57.2	2.122	1.333	21.7	20.3	29 E	7*	23*
3 2	6 35.69	+16 1.0	1.899	2.507	20.7	18.2	117 E	61	48	8 29	12 15.19	- 0 19.4	2.113	1.307	21.1	20.2	28 E	5*	22*
3 12	6 39.42	+16 16.6	2.041	2.528	22.0	18.4	108 E	61	48	9 3	12 30.00	- 2 30.1	2.110	1.297	20.8	20.2	27 E	5*	21*
3 22	6 45.57	+16 28.4	2.189	2.548	22.7	18.6	99 E	61	48	9 8	12 45.07	- 4 41.5	2.108	1.290	20.5	20.2	27 E	4*	21*
4 1	6 53.77	+16 35.4	2.340	2.568	22.9	18.8	91 E	60*	47*	9 13	13 0.42	- 6 52.9	2.108	1.284	20.2	20.2	26 E	3*	20*
4 11	7 3.64	+16 36.7	2.490	2.586	22.7	18.9	84 E	57*	47*	9 18	13 16.07	- 9 3.4	2.110	1.281	19.9	20.2	26 E	3*	20*
4 21	7 14.86	+16 31.6	2.639	2.604	22.1	19.1	77 E	51*	46*	9 23	13 32.03	-11 12.1	2.114	1.281	19.6	20.1	25 E	2*	19*
5 1	7 27.17	+16 19.7	2.782	2.621	21.2	19.2	70 E	45*	45*	9 28	13 48.32	-13 18.1	2.120	1.282	19.2	20.1	25 E	2*	19*
5 11	7 40.33	+16 0.6	2.924	2.637	20.1	19.2	64 E	38*	43*	10 3	14 4.94	-15 20.4	2.128	1.286	19.2	20.1	25 E	1*	19*
5 21	7 54.14	+15 34.3	3.053	2.651	18.8	19.3	58 E	31*	41*	10 8	14 21.90	-17 18.0	2.138	1.293	18.4	20.2	24 E	1*	18*
5 31	8 8.46	+15 0.7	3.176	2.665	17.3	19.4	51 E	25*	39*	10 13	14 39.20	-19 10.1	2.151	1.301	18.0	20.2	24 E	—	18*
6 10	8 23.13	+14 20.0	3.289	2.678	15.7	19.4	46 E	18*	35*	10 18	14 56.83	-20 55.8	2.166	1.312	17.5	20.2	23 E	—	17*
6 20	8 38.06	+13 32.4	3.392	2.690	14.0	19.4	40 E	13*	31*	10 23	15 14.77	-22 34.2	2.183	1.325	17.0	20.2	23 E	—	17*
6 30	8 53.16	+12 38.2	3.483	2.701	12.2	19.4	34 E	8*	27*	10 28	15 32.98	-24 4.6	2.203	1.340	16.5	20.2	23 E	—	16*
7 10	9 8.34	+11 37.8	3.562	2.712	10.3	19.4	28 E	3*	22*	11 7	16 10.06	-26 38.7	2.249	1.375	15.3	20.3	21 E	—	15*
7 20	9 23.55	+10 31.6	3.628	2.721	8.4	19.4	23 E	—	17*	11 17	16 47.65	-28 34.7	2.303	1.417	13.9	20.4	20 E	—	14*
7 30	9 38.76	+ 9 20.1	3.681	2.729	6.4	19.3	17 E	—	11*	11 27	17 25.21	-29 51.2	2.365	1.464	12.5	20.4	19 E	—	13*
8 9	9 53.90	+ 8 3.9	3.719	2.736	4.4	19.2	12 E	—	6*	12 2	17 43.78	-30 15.0	2.398	1.490	11.7	20.5	18 E	—	12*
8 19	10 8.96	+ 6 43.4	3.744	2.742	2.6	19.1	7 E	—	1*	12 7	18 2.12	-30 29.4	2.432	1.516	10.9	20.5	17 E	—	11*
8 29	10 23.91	+ 5 19.3	3.753	2.747	1.6	19.1	4 W	—	—	12 12	18 20.18	-30 34.9	2.467	1.544	10.1	20.6	16 E	—	10*
9 8	10 38.71	+ 3 52.2	3.748	2.752	2.6	19.1	7 W	—	—	12 17	18 37.88	-30 32.2	2.503	1.572	9.3	20.6	15 E	—	9*
9 18	10 53.37	+ 2 22.7	3.728	2.755	4.5	19.2	12 W	3*	5*	12 22	18 55.18	-30 21.8	2.539	1.601	8.5	20.6	14 E	—	8*
9 28	11 7.84	+ 0 51.5	3.693	2.757	6.4	19.3	18 W	8*	9*	12 27	19 12.04	-30 4.3	2.575	1.631	7.6	20.7	13 E	—	7*
10 8	11 22.09	+ 0 40.6	3.644	2.759	8.4	19.4	24 W	14*	12*	1 1	19 28.42	-29 40.4	2.612	1.661	6.9	20.7	12 E	—	6*
10 18	11 36.10	+ 0 13.2	3.580	2.759	10.3	19.4	30 W	19*	17*	1 6	19 44.32	-29 10.7	2.648	1.691	6.1	20.7	11 E	—	4*
10 28	11 49.83	+ 0 45.2	3.502	2.758	12.2	19.5	36 W	24*	21*	1 11	19 59.72	-28 36.0	2.684	1.722	5.5	20.8	10 E	—	3*
11 7	12 3.20	+ 0 16.0	3.410	2.756	14.0	19.5	42 W	28*	26*	1 16	20 14.61	-27 56.9	2.719	1.754	4.9	20.8	9 E	—	2*
11 17	12 16.17	+ 0 44.8	3.306	2.754	15.6	19.5	49 W	31*	31*										
11 27	12 28.63	+ 0 10.7	3.190	2.750	17.1	19.4	55 W	34*	37*										
12 7	12 40.48	+ 0 32.7	3.065	2.745	18.5	19.4	62 W	34*	44*										
12 17	12 51.57	+ 0 50.1	2.930	2.740	19.6	19.3	69 W	34*	51*										
12 27	13 1.72	+ 0 1.6	2.788	2.733	20.5	19.2	77 W	33	59*										
1 6	13 10.74	+ 0 6.2	2.641	2.726	21.0	19.1	84 W	32	67*										
1 16	13 18.36	+ 0 2.5	2.492	2.717	21.2	19.0	92 W	31	75*										
<b>152575 1994 GY</b>										<b>164295 2004 XA<sub>131</sub></b>									
12 23	7 26.20	+39 37.6	1.790	2.718	8.5	21.0	156 W	85	24	12 23	7 26.32	+ 4 43.6	3.576	4.419	7.3	20.0	145 W	40	69
12 28	7 20.03	+40 10.7	1.748	2.691	7.4	20.9	159 W	85	24	1 2	7 12.11	+ 4 19.5	3.509	4.398	6.1	19.9	151 W	41	68
1 2	7 13.21	+40 39.8	1.713	2.663	6.7	20.8	161 W	86	23	1 12	7 20.46	+ 3 40.7	3.470	4.376	5.6	19.9	154 E	41	68
1 7	7 5.91	+41 4.0	1.685	2.635	6.8	20.7	161 E	86	23	1 22	7 6.86	+ 2 48.3	3.460	4.354	6.1	19.9	152 E	42	67
1 12	6 58.33	+41 22.3	1.664	2.607	7.7	20.7	159 E	86	23	2 1	7 0.83	+ 1 44.4	3.480	4.332	7.3	19.9	146 E	43	66
1 17	6 50.71	+41 34.1	1.651	2.579	9.1	20.8	156 E	87	22	2 11	6 55.81	+ 0 32.2	3.527	4.309	8.8	20.0	138 E	44	65
1 22	6 43.28	+41 39.3	1.644	2.550	10.8	20.8	151 E	87	22	2 21	6 52.14	+ 0 44.9	3.597	4.287	10.4	20.1	129 E	46	63
1 27	6 36.30	+41 37.9	1.644	2.521	12.6	20.8	146 E	87	22	3 2	6 50.03	+ 2 3.8	3.687	4.264	11.7	20.2	120 E	47	62
2 1	6 29.99	+41 30.4	1.650	2.492	14.5	20.9	141 E	87	22	3 12	6 49.58	+ 3 21.4	3.793	4.241	12.7	20.3	110 E	48	61
2 6	6 24.52	+41 17.7	1.661	2.463	16.3	20.9	135 E	86	23	3 22	6 50.77	+ 4 35.6	3.909	4.217	13.4	20.4	101 E	50	59
2 11	6 20.03	+41 0.6	1.677	2.433	18.1	21.0	130 E	86	23	4 1	6 53.55	+ 5 44.8	4.032	4.194	13.8	20.4	92 E	50*	58*
2 16	6 16.58	+40 40.1	1.697	2.403	19.7	21.0	125 E	86	23	4 11	6 57.78	+ 6 47.7	4.156	4.170	13.8	20.5	84 E	47*	56*
2 21	6 14.23	+40 16.9	1.721	2.373	21.2	21.1	120 E	85	24	4 21	7 3.33	+ 7 43.7	4.279	4.146	13.6	20.5	76 E	42*	54*
2 26	6 13.00	+39 51.8	1.747	2.342	22.5	21.1	115 E	85	24	5 1	7 10.05	+ 8 32.5	4.397	4.122	13.1	20.6	68 E	36*	50*
3 2	6 12.86	+39 25.6	1.775	2.312	23.7	21.2	110 E	84	25	5 11	7 17.78	+ 9 13.7	4.508	4.098	12.3	20.6	60 E	29*	46*
3 7	6 13.80	+38 58.6	1.804	2.281	24.8	21.2	106 E	84	25	5 21	7 26.38	+ 9 47.5	4.608	4.074	11.4	20.6	53 E	22*	42*
3 12	6 15.74	+38 31.1	1.835	2.250	25.7	21.3	101 E	84	25	5 31	7 35.74	+10 14.0	4.696	4.049	10.3	20.6	45 E	15*	37*
3 17	6 18.63	+38 3.4	1.866	2.218	26.4	21.3	97 E	83	26	6 10	7 45.71	+10 33.4	4.771	4.025	9.0	20.5	38 E	9*	31*
3 22	6 22.41	+37 35.3	1.896	2.187	27.1	21.3	93 E	82*	26*	6 20	7 56.19	+10 46.0	4.831	4.000	7.6	20.5	32 E	3*	25*
3 27	6 27.04																		

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/20	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	19/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°
<b>456898 2007 VG<sub>184</sub></b>										<b>8176 1991 WA</b>									
12 23	7 26.44	+ 7 32.1	2.728	3.639	6.7	22.9	154 W	53	56	12 23	7 29.71	+61 9.0	1.398	2.239	16.6	20.3	139 W	74	3
1 2	7 16.52	+ 7 57.2	2.716	3.669	4.4	22.8	163 W	53	56	12 25	7 22.71	+61 40.6	1.405	2.248	16.4	20.3	140 W	73	2
1 12	7 6.31	+ 8 31.2	2.737	3.697	3.8	22.8	165 E	54	55	12 27	7 15.45	+62 8.8	1.413	2.257	16.2	20.3	140 W	73	2
1 22	6 56.58	+ 9 11.8	2.791	3.724	5.5	22.9	159 E	54	55	12 29	7 7.97	+62 33.7	1.422	2.266	16.1	20.3	140 W	72	1
2 1	6 48.03	+ 9 56.6	2.876	3.750	7.9	23.1	148 E	55	54	12 31	7 0.34	+62 54.9	1.432	2.275	16.1	20.3	140 W	72	1
<b>306418 1998 KK<sub>56</sub></b>										<b>230599 2003 FJ<sub>1</sub></b>									
12 23	7 26.52	+22 15.1	2.548	3.491	5.4	21.4	161 W	67	42	12 23	7 30.45	+ 8 0.3	1.706	2.625	9.5	21.6	154 W	53	56
1 2	7 17.33	+23 20.7	2.470	3.448	2.0	21.1	173 W	68	41	12 28	7 22.34	+ 8 31.5	1.718	2.663	7.3	21.5	160 W	54	55
1 12	7 7.15	+24 27.2	2.424	3.403	1.7	21.0	174 E	69	40	1 2	7 14.13	+ 9 5.1	1.739	2.700	5.5	21.5	165 W	54	55
1 22	6 56.83	+25 30.9	2.411	3.359	5.3	21.2	161 E	71	38	1 7	7 6.04	+ 9 40.6	1.768	2.736	4.6	21.5	167 E	55	54
2 1	6 47.32	+26 28.7	2.429	3.313	8.8	21.3	149 E	71	38	1 12	6 58.23	+10 17.1	1.807	2.771	4.9	21.6	166 E	55	54
2 11	6 39.47	+27 19.2	2.473	3.267	11.8	21.5	137 E	72	37	1 17	6 50.87	+10 54.0	1.854	2.806	6.2	21.8	162 E	56	53
<b>374038 2004 HW</b>										<b>7747 Michałowski</b>									
12 23	7 26.54	+20 58.6	3.455	4.394	4.3	23.4	160 W	66	43	12 23	7 30.92	+22 33.2	1.801	2.745	7.2	17.7	160 W	68	41
1 2	7 18.02	+21 14.4	3.412	4.389	1.7	23.2	173 W	66	43	12 28	7 25.45	+22 37.3	1.790	2.754	5.0	17.6	166 W	68	41
1 12	7 9.07	+21 29.9	3.402	4.383	1.1	23.1	175 E	66	43	1 2	7 19.68	+22 41.1	1.785	2.763	2.7	17.5	172 W	68	41
1 22	7 0.31	+21 43.7	3.426	4.375	3.8	23.3	163 E	67	42	1 7	7 13.77	+22 44.1	1.788	2.771	0.4	17.3	179 W	68	41
2 1	6 52.36	+21 55.2	3.481	4.367	6.3	23.5	151 E	67	42	1 12	7 7.89	+22 46.3	1.799	2.780	1.9	17.4	175 E	68	41
<b>393641 2004 PG<sub>18</sub></b>										<b>446963 2003 TK</b>									
12 23	7 27.45	+18 52.1	1.930	2.873	6.8	22.3	160 W	64	45	12 23	7 27.89	+19 5.9	1.980	2.923	6.7	23.8	160 W	64	45
1 2	7 16.89	+19 7.6	1.909	2.886	2.7	22.1	172 W	64	45	1 2	7 16.32	+19 16.2	1.930	2.907	2.6	23.5	172 W	64	45
1 12	7 5.80	+19 24.5	1.919	2.898	2.1	22.1	174 E	64	45	1 12	7 3.87	+19 27.4	1.911	2.890	2.3	23.5	173 E	64	45
1 22	6 55.32	+19 40.9	1.959	2.910	6.1	22.4	162 E	65	44	1 22	6 51.75	+19 37.8	1.924	2.872	6.5	23.7	161 E	65	44
2 1	6 46.46	+19 55.6	2.028	2.920	9.9	22.6	149 E	65	44	2 1	6 41.13	+19 46.6	1.967	2.852	10.5	23.9	148 E	65	44
<b>446963 2003 TK</b>										<b>249850 2001 QC<sub>17</sub></b>									
12 23	7 27.89	+19 5.9	1.980	2.923	6.7	23.8	160 W	64	45	12 23	7 28.15	+13 5.2	1.248	2.188	10.0	19.0	157 W	58	51
1 2	7 16.32	+19 16.2	1.930	2.907	2.6	23.5	172 W	64	45	12 28	7 23.06	+13 36.0	1.251	2.210	7.4	18.9	163 W	59	50
1 12	7 3.87	+19 27.4	1.911	2.890	2.3	23.5	173 E	64	45	1 2	7 17.69	+14 9.4	1.260	2.232	5.0	18.9	169 W	59	50
1 22	6 51.75	+19 37.8	1.924	2.872	6.5	23.7	161 E	65	44	1 7	7 12.25	+14 44.6	1.275	2.253	3.4	18.8	172 W	60	49
2 1	6 41.13	+19 46.6	1.967	2.852	10.5	23.9	148 E	65	44	1 12	7 6.92	+15 20.9	1.298	2.275	3.7	18.9	171 E	60	49
<b>249850 2001 QC<sub>17</sub></b>										<b>444031 2004 PQ<sub>16</sub></b>									
12 23	7 28.15	+13 5.2	1.248	2.188	10.0	19.0	157 W	58	51	12 23	7 28.15	+25 49.2	1.719	2.666	7.1	20.9	160 W	71	38
12 28	7 23.06	+13 36.0	1.251	2.210	7.4	18.9	163 W	59	50	12 28	7 22.56	+26 11.2	1.713	2.679	4.9	20.8	167 W	71	38
1 2	7 17.69	+14 9.4	1.260	2.232	5.0	18.9	169 W	59	50	1 2	7 16.66	+26 31.9	1.713	2.691	2.8	20.7	172 W	72	37
1 7	7 12.25	+14 44.6	1.275	2.253	3.4	18.8	172 W	60	49	1 7	7 10.63	+26 50.7	1.722	2.703	1.6	20.6	176 W	72	37
1 12	7 6.92	+15 20.9	1.298	2.275	3.7	18.9	171 E	60	49	1 12	7 4.65	+27 7.2	1.738	2.715	2.9	20.8	172 E	72	37
1 17	7 1.90	+15 57.3	1.328	2.297	5.5	19.1	167 E	61	48	1 17	6 58.89	+27 21.1	1.761	2.727	4.9	20.9	166 E	72	37
1 22	6 57.33	+16 33.3	1.364	2.319	7.7	19.2	162 E	62	47	1 22	6 53.51	+27 32.4	1.792	2.738	7.0	21.1	160 E	73	36
1 27	6 53.36	+17 8.2	1.407	2.340	9.9	19.4	156 E	62	47	1 27	6 48.64	+27 41.2	1.830	2.750	9.0	21.2	154 E	73	36
2 1	6 50.09	+17 41.5	1.455	2.362	11.9	19.6	150 E	63	46	2 1	6 44.40	+27 47.5	1.874	2.761	10.8	21.3	148 E	73	36
2 11	6 45.89	+18 42.5	1.570	2.405	15.5	19.9	139 E	64	45	2 6	6 40.87	+27 51.7	1.924	2.772	12.5	21.5	142 E	73	36
2 21	6 44.87	+19 34.7	1.703	2.448	18.3	20.2	129 E	65	44	<b>329713 2003 WO<sub>7</sub></b>									
3 2	6 46.90	+20 17.8	1.850	2.491	20.3	20.5	119 E	65	44	12 23	7 29.38	+24 20.0	1.379	2.328	8.3	21.9	160 W	69	40
3 12	6 51.63	+20 51.8	2.009	2.533	21.6	20.8	110 E	66	43	12 28	7 22.54	+24 50.8	1.383	2.351	5.5	21.8	167 W	70	39
3 22	6 58.64	+21 16.8	2.175	2.575	22.2	21.0	102 E	66	43	1 2	7 15.42	+25 19.8	1.395	2.374	2.9	21.7	173 W	70	39
4 1	7 7.54	+21 33.0	2.345	2.616	22.4	21.2	94 E	66*	42*	1 7	7 8.27	+25 46.2	1.414	2.396	1.3	21.6	177 E	71	38
4 11	7 17.96	+21 40.7	2.518	2.657	22.1	21.4	87 E	63*	42*	1 12	7 1.30	+26 9.6	1.440	2.418	3.2	21.8	172 E	71	38
<b>444031 2004 PQ<sub>16</sub></b>										<b>458145 2010 JH<sub>1</sub></b>									
12 23	7 28.15	+25 49.2	1.719	2.666	7.1	20.9	160 W	71	38	12 23	7 29.47	+ 2 11.0	1.978	2.873	9.8	21.2	150 W	47	62
12 28	7 22.56	+26 11.2	1.713	2.679	4.9	20.8	167 W	71	38	1 2	7 19.55	+ 2 25.5	1.980	2.915	7.3	21.1	158 W	47	62
1 2	7 16.66	+26 31.9	1.713	2.691	2.8	20.7	172 W	72	37	1 12	7 9.34	+ 2 57.2	2.010	2.955	6.4	21.2	160 E	48	61
1 7	7 10.63	+26 50.7	1.722	2.703	1.6	20.6	176 W	72	37	1 22	6 59.84	+ 3 42.9	2.069	2.994	7.7	21.3	156 E	49	60
1 12	7 4.65	+27 7.2	1.738	2.715	2.9	20.8	172 E	72	37	2 1	6 51.89	+ 4 38.5	2.157	3.033	10.1	21.5	147 E	50	59
1 17	6 58.89	+27 21.1	1.761	2.727	4.9	20.9	166 E	72	37	<b>8176 1991 WA</b>									
1 22	6 53.51	+27 32.4	1.792	2.738	7.0	21.1	160 E	73	36	12 23	7 29.71	+61 9.0	1.398	2.239	16.6	20.3	139 W	74	3
1 27	6 48.64	+27 41.2	1.830	2.750	9.0	21.2	154 E	73	36	12 25	7 22.71	+61 40.6	1.405	2.248	16.4	20.3	140 W	73	2
2 1	6 44.40	+27 47.5	1.874	2.761	10.8	21.3	148 E	73	36	12 27	7 15.45	+62 8.8	1.413	2.257	16.2	20.3	140 W	73	2
2 6	6 40.87	+27 51.7	1.924	2.772	12.5	21.5	142 E	73	36	12 29	7 7.97	+62 33.7	1.422	2.266	16.1	20.3	140 W	72	1
<b>329713 2003 WO<sub>7</sub></b>										<b>230599 2003 FJ<sub>1</sub></b>									
12 23	7 29.38	+24 20.0	1.379	2.328	8.3	21.9	160 W	69	40	12 31	7 0.34	+62 54.9	1.432	2.275	16.1	20.3	140 W	72	1
12 28	7 22.54	+24 50.8	1.383	2.351	5.5	21.8	167 W	70	39	1 2	6 52.62	+63 12.7	1.443	2.284	16.1	20.4	140 W	72	1
1 2	7 15.42	+25 19.8	1.395	2.374	2.9	21.7	173 W	70	39	1 4	6 44.88	+63 26.8	1.455	2.292	16.2	20.4			

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	19/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°
<b>162161 1999 DK<sub>3</sub></b>										<b>333725 2009 TX<sub>39</sub></b> ( <i>continuation</i> )									
12 23	7 31.15	-23 47.8	2.101	2.816	16.0	22.0	128W	21	88	1 12	7 5.72	+32 29.0	1.378	2.348	5.0	20.1	168E	77	32
12 28	7 25.71	-23 41.2	2.061	2.803	15.4	22.0	131W	21	88	1 17	6 59.27	+32 44.8	1.401	2.361	6.9	20.2	163E	78	31
1 2	7 19.88	-23 24.6	2.026	2.790	15.0	21.9	133W	22	87	1 22	6 53.32	+32 55.6	1.432	2.373	9.0	20.4	158E	78	31
1 7	7 13.77	-22 57.5	1.996	2.776	14.6	21.8	135W	22	87	1 27	6 48.05	+33 1.7	1.469	2.385	11.1	20.5	152E	78	31
1 12	7 7.53	-22 19.7	1.972	2.761	14.5	21.8	136E	23	86	2 1	6 43.59	+33 3.8	1.512	2.396	13.1	20.7	147E	78	31
1 17	7 1.31	-21 31.4	1.955	2.746	14.5	21.8	136E	23	86	2 6	6 40.04	+33 2.3	1.560	2.408	14.9	20.8	141E	78	31
1 22	6 55.25	-20 32.8	1.943	2.731	14.7	21.7	135E	24	85	2 11	6 37.45	+32 57.9	1.613	2.419	16.6	20.9	136E	78	31
1 27	6 49.51	-19 24.9	1.938	2.716	15.1	21.7	134E	26	83	2 16	6 35.80	+32 51.3	1.670	2.430	18.0	21.1	130E	78	31
2 1	6 44.22	-18 8.6	1.939	2.700	15.7	21.8	132E	27	82	2 21	6 35.10	+32 42.8	1.732	2.441	19.3	21.2	125E	78	31
2 6	6 39.50	-16 45.3	1.946	2.684	16.5	21.8	130E	28	81	2 26	6 35.31	+32 33.0	1.796	2.452	20.4	21.3	121E	78	31
										3 2	6 36.39	+32 22.0	1.863	2.462	21.2	21.4	116E	77	32
<b>390646 2002 PN<sub>56</sub></b>										<b>159111 2004 VG<sub>15</sub></b>									
12 23	7 31.30	+13 2.8	1.775	2.706	8.3	21.8	157W	58	51	12 23	7 32.10	+7 29.2	1.791	2.706	9.4	20.5	153W	52	57
1 2	7 20.84	+13 28.9	1.745	2.713	4.5	21.6	168W	58	51	1 2	7 22.06	+7 56.0	1.777	2.731	6.1	20.3	163W	53	56
1 12	7 9.63	+14 3.3	1.744	2.719	3.3	21.5	171E	59	50	1 12	7 11.47	+8 36.6	1.792	2.756	4.9	20.3	166E	54	55
1 22	6 58.87	+14 42.9	1.773	2.724	6.6	21.7	161E	60	49	1 22	7 1.47	+9 27.2	1.836	2.781	7.0	20.5	160E	54	55
2 1	6 49.68	+15 24.8	1.831	2.729	10.4	22.0	150E	60	49	2 1	6 53.07	+10 23.8	1.909	2.804	10.2	20.7	150E	55	54
<b>144898 2004 VD<sub>17</sub></b>										<b>45074 1999 XA<sub>38</sub></b>									
12 23	7 31.89	+14 42.8	0.993	1.938	11.4	20.9	157W	60	49	12 23	7 33.00	+20 38.8	1.495	2.439	8.4	18.9	159W	66	43
12 28	7 21.37	+14 56.8	1.000	1.965	7.8	20.8	164W	60	49	12 28	7 27.25	+20 39.8	1.487	2.451	5.9	18.8	165W	66	43
1 2	7 10.71	+15 12.2	1.016	1.992	4.7	20.7	170W	60	49	1 2	7 21.16	+20 41.1	1.485	2.462	3.3	18.6	172W	66	43
1 7	7 0.27	+15 28.2	1.038	2.017	3.6	20.7	173E	60	49	1 7	7 14.93	+20 42.3	1.491	2.474	0.9	18.5	178W	66	43
1 12	6 50.38	+15 44.4	1.069	2.042	5.4	20.9	169E	61	48	1 12	7 8.76	+20 43.1	1.504	2.485	2.1	18.6	175E	66	43
1 17	6 41.31	+16 0.5	1.107	2.066	8.2	21.2	163E	61	48	1 17	7 2.82	+20 43.5	1.525	2.496	4.5	18.8	168E	66	43
1 22	6 33.27	+16 16.1	1.152	2.089	11.1	21.4	156E	61	48	1 22	6 57.28	+20 43.3	1.552	2.507	6.9	19.0	162E	66	43
1 27	6 26.39	+16 31.3	1.203	2.111	13.7	21.6	149E	62	47	1 27	6 52.30	+20 42.6	1.587	2.518	9.2	19.1	156E	66	43
2 1	6 20.74	+16 46.0	1.260	2.132	16.1	21.8	143E	62	47	2 1	6 47.99	+20 41.4	1.628	2.529	11.3	19.3	150E	66	43
<b>3858 Dorchester</b>										<b>20086 1994 LW</b>									
12 23	7 32.00	+33 9.4	1.581	2.521	8.4	17.3	158W	78	31	12 23	7 33.09	+0 0.7	4.300	5.159	5.8	23.9	148W	45	64
12 28	7 25.69	+33 21.9	1.573	2.530	6.4	17.2	163W	78	31	1 2	7 26.46	-0 6.8	4.255	5.163	4.6	23.8	155W	45	64
1 2	7 19.01	+33 30.8	1.571	2.540	4.9	17.1	167W	79	30	1 12	7 19.49	-0 4.7	4.241	5.165	4.1	23.8	158E	45	64
1 7	7 12.17	+33 35.5	1.577	2.549	4.3	17.1	169W	79	30	1 22	7 12.59	+0 6.5	4.257	5.167	4.6	23.8	155E	45	64
1 12	7 5.40	+33 35.7	1.590	2.558	5.0	17.2	167E	79	30	2 1	7 6.19	+0 25.7	4.304	5.169	5.7	23.9	148E	45	64
1 17	6 58.89	+33 31.6	1.610	2.566	6.5	17.3	163E	79	30										
1 22	6 52.84	+33 23.3	1.637	2.575	8.4	17.4	158E	78	31										
1 27	6 47.41	+33 11.3	1.671	2.583	10.3	17.5	152E	78	31										
2 1	6 42.74	+32 56.3	1.712	2.591	12.1	17.7	146E	78	31										
2 6	6 38.92	+32 38.9	1.758	2.598	13.8	17.8	141E	78	31										
2 11	6 35.97	+32 19.8	1.809	2.606	15.4	17.9	136E	77	32										
2 21	6 32.76	+31 38.5	1.924	2.620	18.0	18.1	125E	77	32										
3 2	6 32.98	+30 55.6	2.053	2.634	19.9	18.4	115E	76	33										
3 12	6 36.26	+30 13.0	2.192	2.646	21.1	18.6	106E	75	34										
3 22	6 42.15	+29 30.9	2.335	2.658	21.8	18.7	98E	75*	34										
4 1	6 50.22	+28 49.0	2.481	2.668	22.0	18.9	90E	72*	35*										
4 11	7 0.06	+28 6.4	2.627	2.678	21.8	19.0	82E	66*	35*										
4 21	7 11.31	+27 22.3	2.769	2.687	21.2	19.1	75E	59*	35*										
5 1	7 23.71	+26 35.6	2.906	2.694	20.3	19.2	68E	52*	35*										
5 11	7 36.98	+25 45.7	3.036	2.701	19.2	19.2	61E	44*	34*										
5 21	7 50.92	+24 52.0	3.158	2.707	17.8	19.3	55E	37*	33*										
5 31	8 5.38	+23 54.0	3.270	2.712	16.3	19.3	49E	30*	31*										
6 10	8 20.20	+22 51.3	3.372	2.716	14.7	19.3	43E	23*	28*										
6 20	8 35.28	+21 44.0	3.462	2.719	13.0	19.3	37E	18*	25*										
6 30	8 50.53	+20 31.9	3.540	2.721	11.1	19.3	31E	13*	22*										
7 10	9 5.85	+19 15.2	3.604	2.722	9.2	19.3	25E	8*	17*										
7 20	9 21.21	+17 54.0	3.656	2.722	7.3	19.2	20E	5*	12*										
7 30	9 36.54	+16 28.7	3.693	2.721	5.2	19.1	14E	2*	7*										
8 9	9 51.82	+14 59.5	3.717	2.719	3.2	19.0	9E	—	2*										
8 19	10 7.01	+13 26.8	3.726	2.716	1.2	18.9	3E	—	—										
8 29	10 22.09	+11 51.1	3.720	2.712	1.2	18.9	3W	—	—										
9 8	10 37.03	+10 12.8	3.699	2.707	3.2	19.0	9W	2*	—										
9 18	10 51.82	+8 32.5	3.664	2.701	5.3	19.1	14W	8*	2*										
9 28	11 6.44	+6 50.7	3.614	2.695	7.3	19.2	20W	13*	6*										
10 8	11 20.85	+5 8.0	3.550	2.687	9.4	19.2	26W	18*	10*										
10 18	11 35.05	+3 24.9	3.472	2.678	11.3	19.2	32W	23*	14*										
10 28	11 48.97	+1 42.1	3.381	2.668	13.2	19.2	38W	28*	19*										
11 7	12 2.57	+0 0.4	3.278	2.658	15.1	19.2	44W	33*	24*										
11 17	12 15.81	-1 39.8	3.163	2.646	16.8	19.2	51W	36*	29*										
11 27	12 28.57	-3 17.5	3.037	2.634	18.3	19.2	57W	38*	35*										
12 7	12 40.77	-4 52.2	2.902	2.621	19.7	19.1	64W	39*	42*										
12 17	12 52.26	-6 23.2	2.760	2.606	20.9	19.0	71W	39*	49*										
12 27	13 2.88	-7 49.5	2.612	2.591	21.8	18.9	78W	37	57*										
1 6	13 12.40	-9 10.5	2.460	2.575	22.4	18.8	85W	36	64*										
1 16	13 20.59	-10 25.3	2.306	2.558	22.6	18.6	93W	35	72*										
<b>333725 2009 TX<sub>39</sub></b>										<b>455169 1999 KQ<sub>6</sub></b>									
12 23	7 32.05	+30 39.7	1.353	2.298	8.9	20.2	159W	76	33	12 23	7 33.32	+14 50.7	2.270	3.198	6.9	21.7	157W	60	49
12 28	7 25.86</																		

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	19/20	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°
<b>82124 2001 FO<sub>78</sub></b>										<b>159504 2000 WO<sub>67</sub></b> ( <i>continuation</i> )									
12 23	7 33.41	+32 37.6	1.893	2.829	7.5	19.9	158 W	78	31	2 21	6 31.18	+25 10.1	1.809	2.515	18.7	21.2	125 E	70	39
12 28	7 27.76	+33 2.4	1.873	2.829	5.8	19.8	163 W	78	31	3 2	6 32.33	+25 25.5	1.991	2.580	20.3	21.6	116 E	70	39
1 2	7 21.70	+33 24.5	1.861	2.828	4.5	19.7	167 W	78	31	<b>448077 2008 GF<sub>138</sub></b>									
1 7	7 15.39	+33 43.3	1.857	2.828	3.9	19.7	169 W	79	30	12 23	7 35.25	+15 59.4	1.781	2.714	8.2	22.9	157 W	61	48
1 12	7 9.00	+33 58.3	1.860	2.827	4.5	19.7	167 E	79	30	1 2	7 24.81	+16 19.4	1.745	2.716	4.0	22.6	169 W	61	48
1 17	7 2.72	+34 9.1	1.871	2.826	5.9	19.8	163 E	79	30	1 12	7 13.47	+16 44.6	1.738	2.717	2.3	22.5	174 E	62	47
1 22	6 56.73	+34 15.8	1.889	2.824	7.6	19.9	158 E	79	30	1 22	7 2.46	+17 12.4	1.761	2.717	6.1	22.8	163 E	62	47
1 27	6 51.19	+34 18.4	1.914	2.823	9.3	20.0	152 E	79	30	2 1	6 52.94	+17 40.5	1.813	2.716	10.2	23.0	151 E	63	46
2 1	6 46.23	+34 17.3	1.945	2.821	11.1	20.1	147 E	79	30	<b>449086 2012 RY<sub>16</sub></b>									
2 6	6 41.98	+34 13.0	1.983	2.819	12.7	20.2	141 E	79	30	12 23	7 35.63	+28 32.1	1.769	2.709	7.7	22.9	158 W	74	35
2 11	6 38.50	+34 6.0	2.026	2.817	14.2	20.3	136 E	79	30	12 28	7 29.76	+28 47.6	1.755	2.715	5.6	22.7	164 W	74	35
										1 2	7 23.51	+29 1.2	1.748	2.721	3.7	22.6	170 W	74	35
2 1	6 34.00	+33 45.9	2.125	2.811	16.8	20.5	125 E	79	30	1 7	7 17.06	+29 12.2	1.749	2.727	2.5	22.6	173 W	74	35
3 2	6 32.81	+33 20.5	2.239	2.805	18.7	20.6	115 E	78	31	1 12	7 10.58	+29 20.4	1.757	2.733	3.1	22.6	171 E	74	35
3 12	6 34.74	+32 52.3	2.362	2.797	20.0	20.8	106 E	78	31	1 17	7 4.27	+29 25.5	1.773	2.738	4.9	22.7	166 E	74	35
3 22	6 39.42	+32 22.5	2.490	2.789	20.8	20.9	97 E	77	32	1 22	6 58.29	+29 27.6	1.796	2.744	6.9	22.9	160 E	74	35
4 1	6 46.50	+31 51.3	2.620	2.780	21.1	21.0	89 E	74	32	1 27	6 52.79	+29 26.7	1.827	2.748	8.9	23.0	155 E	74	35
4 11	6 55.58	+31 18.4	2.747	2.769	20.9	21.1	81 E	67	32	<b>516428 2003 UR<sub>12</sub></b>									
4 21	7 6.32	+30 43.2	2.871	2.758	20.4	21.2	73 E	60	32	12 23	7 35.70	+25 49.4	3.041	3.357	16.8	23.7	100 W	—	62
5 1	7 18.44	+30 5.0	2.988	2.746	19.7	21.3	66 E	53	31	12 28	7 29.17	+25 8.3	3.040	3.374	16.6	23.7	101 W	—	62
5 11	7 31.67	+29 23.0	3.097	2.733	18.6	21.3	60 E	45	30	1 2	7 22.32	+25 17.9	3.041	3.390	16.5	23.7	102 W	—	62
5 21	7 45.78	+28 36.7	3.197	2.718	17.4	21.3	53 E	38	29	1 7	7 15.32	+25 17.7	3.044	3.406	16.3	23.8	103 W	—	62
5 31	8 0.62	+27 45.4	3.287	2.703	16.0	21.3	47 E	31	27	1 12	7 8.35	+25 7.9	3.049	3.422	16.2	23.8	104 E	—	62
6 10	8 16.00	+26 48.9	3.364	2.687	14.5	21.3	41 E	25	25	1 17	7 1.57	+25 48.6	3.057	3.437	16.1	23.8	104 E	—	62
6 20	8 31.81	+25 46.9	3.430	2.670	12.8	21.3	36 E	20	22	1 22	6 55.14	+25 20.1	3.066	3.452	16.0	23.8	105 E	—	63
6 30	8 47.94	+24 39.3	3.484	2.652	11.0	21.2	30 E	15	18	1 27	6 49.20	+25 43.0	3.079	3.467	15.9	23.8	105 E	—	63
7 10	9 4.30	+23 26.1	3.524	2.633	9.2	21.2	25 E	11	14	<b>296798 2009 VX<sub>38</sub></b>									
7 20	9 20.83	+22 7.4	3.551	2.613	7.4	21.1	19 E	8	10	12 23	7 36.59	+19 48.3	1.540	2.479	8.6	21.0	158 W	65	44
7 30	9 37.47	+20 43.5	3.565	2.593	5.5	21.0	14 E	5	5	12 28	7 30.98	+19 53.4	1.529	2.490	6.2	20.9	164 W	65	44
8 9	9 54.18	+19 14.5	3.565	2.571	3.8	20.9	10 E	3	1	1 2	7 25.02	+19 59.1	1.525	2.500	3.7	20.8	171 W	65	44
8 19	10 10.93	+17 41.0	3.552	2.549	2.5	20.8	6 E	—	—	1 7	7 18.87	+20 5.0	1.528	2.510	1.3	20.6	177 W	65	44
8 29	10 27.71	+16 3.3	3.526	2.525	2.7	20.7	7 W	—	—	1 12	7 12.73	+20 10.6	1.539	2.521	1.7	20.7	176 E	65	44
9 8	10 44.49	+14 21.9	3.486	2.501	4.1	20.8	10 W	4	—	1 17	7 6.78	+20 15.9	1.557	2.531	4.1	20.9	169 E	65	44
9 18	11 1.29	+12 37.4	3.434	2.476	6.0	20.8	15 W	9	—	1 22	7 1.18	+20 20.6	1.583	2.540	6.5	21.0	163 E	65	44
9 28	11 18.09	+10 50.4	3.370	2.450	8.0	20.8	20 W	14	2	1 27	6 56.09	+20 24.6	1.615	2.550	8.7	21.2	157 E	65	44
10 8	11 34.89	+9 1.5	3.294	2.424	10.0	20.9	25 W	19	5	2 1	6 51.65	+20 28.1	1.654	2.559	10.9	21.3	151 E	65	44
10 18	11 51.70	+7 11.4	3.206	2.396	12.0	20.9	30 W	23	9	2 6	6 47.93	+20 30.9	1.699	2.568	12.8	21.5	145 E	66	43
10 28	12 8.51	+5 20.8	3.108	2.368	14.0	20.8	35 W	28	13	<b>39741 Komm</b>									
11 7	12 25.32	+3 30.6	3.001	2.340	16.0	20.8	41 W	32	17	12 23	7 37.31	+12 5.2	1.276	2.206	11.0	18.6	155 W	57	52
11 17	12 42.12	+1 41.4	2.884	2.310	18.0	20.8	46 W	36	22	1 2	7 25.02	+12 8.4	1.280	2.246	6.2	18.5	166 W	57	52
11 27	12 58.89	+0 5.9	2.759	2.281	19.8	20.7	52 W	38	27	1 12	7 12.29	+12 23.4	1.311	2.285	4.4	18.5	170 E	57	52
12 7	13 15.61	+1 50.5	2.628	2.250	21.6	20.6	57 W	40	33	1 22	7 0.71	+12 47.0	1.370	2.323	7.9	18.8	161 E	58	51
12 17	13 32.23	+3 31.7	2.491	2.219	23.2	20.5	63 W	40	39	2 1	6 51.58	+13 15.9	1.455	2.360	12.1	19.1	150 E	58	51
12 27	13 48.67	+5 8.7	2.349	2.188	24.7	20.4	68 W	40	46	2 11	6 45.65	+13 46.7	1.563	2.396	15.7	19.4	139 E	59	50
1 6	14 4.86	+6 40.9	2.204	2.156	26.0	20.3	74 W	38	53	2 21	6 43.08	+14 17.0	1.689	2.431	18.6	19.7	128 E	59	50
1 16	14 20.68	+8 7.8	2.057	2.124	27.1	20.1	80 W	37	60	3 2	6 43.73	+14 44.8	1.830	2.465	20.6	20.0	119 E	60	49
<b>283438 2000 VB<sub>54</sub></b>										3 12	6 47.24	+15 8.6	1.981	2.498	22.0	20.2	110 E	60	49
12 23	7 33.99	+25 48.1	1.270	2.217	9.1	20.3	159 W	71	38	3 22	6 53.18	+15 27.1	2.139	2.530	22.7	20.5	101 E	60	49
12 28	7 27.95	+25 54.3	1.271	2.236	6.4	20.2	165 W	71	38	4 1	7 1.14	+15 39.6	2.300	2.560	22.9	20.6	93 E	60	48
1 2	7 21.59	+25 58.9	1.279	2.256	3.7	20.0	172 W	71	38	4 11	7 10.74	+15 45.4	2.462	2.590	22.7	20.8	86 E	57	48
1 7	7 15.15	+26 1.5	1.293	2.275	1.6	20.0	176 W	71	38	4 21	7 21.65	+15 44.0	2.622	2.618	22.1	20.9	79 E	52	47
1 12	7 8.85	+26 1.9	1.315	2.294	2.8	20.1	173 E	71	38	5 1	7 33.59	+15 35.3	2.779	2.645	21.2	21.1	72 E	45	46
1 17	7 2.90	+26 0.1	1.343	2.314	5.2	20.3	168 E	71	38	5 11	7 46.34	+15 19.2	2.930	2.672	20.1	21.2	65 E	39	45
1 22	6 57.49	+25 56.1	1.378	2.333	7.7	20.5	162 E	71	38	5 21	7 59.69	+14 55.6	3.074	2.696	18.8	21.3	59 E	32	42
1 27	6 52.76	+25 50.2	1.420	2.352	10.0	20.7	155 E	71	38	5 31	8 13.51	+14 24.8	3.210	2.720	17.3	21.3	53 E	25	40
2 1	6 48.83	+25 42.9	1.468	2.371	12.1	20.8	150 E	71	38	6 10	8 27.63	+13 47.0	3.337	2.743	15.6	21.4	47 E	19	36
2 6	6 45.76	+25 34.4	1.521	2.389	14.1	21.0	144 E	71	38	6 20	8 41.97	+13 2.6	3.452	2.764	13.9	21.4	41 E	13	32
2 11	6 43.58	+25 25.1	1.580	2.408	15.8	21.2	138 E	70	39	6 30	8 56.45	+12 11.8	3.556	2.784	12.1	21.4	35 E	8	28
2 16	6 42.28	+25 15.2	1.643	2.426	17.3	21.3	133 E	70	39	7 10	9 10.96	+11 15.3	3.647	2.803	10.2	21.4	29 E		

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	19/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°				
<b>222073 1999 HY<sub>1</sub></b>										<b>69701 1998 HP<sub>49</sub></b>													
<i>(continuation)</i>										<i>(continuation)</i>													
1	27	6 37.84	-47 0.3	0.937	1.567	36.4	20.3	109	E	—	69	2	1	6 48.74	-15 4.9	0.872	1.717	23.9	17.8	135	E	30	79
2	1	6 31.52	-46 5.8	0.944	1.568	36.5	20.3	109	E	—	70	2	6	6 45.29	-14 31.2	0.901	1.724	25.1	17.9	132	E	30	79
2	6	6 26.61	-44 55.2	0.950	1.568	36.7	20.4	108	E	—	71	2	11	6 43.00	-13 49.3	0.932	1.731	26.3	18.0	129	E	31	78
2	11	6 23.21	-43 30.9	0.957	1.567	36.9	20.4	107	E	1	72	2	16	6 41.86	-13 1.1	0.966	1.738	27.5	18.2	126	E	32	77
2	16	6 21.32	-41 55.0	0.965	1.566	37.2	20.4	107	E	3	74	2	21	6 41.86	-12 8.6	1.003	1.746	28.6	18.3	122	E	33	76
2	21	6 20.92	-40 9.5	0.974	1.565	37.4	20.4	106	E	5	76	2	26	6 42.95	-11 13.5	1.041	1.753	29.5	18.4	119	E	34	75
2	26	6 21.95	-38 16.3	0.983	1.564	37.7	20.5	105	E	7	78	3	2	6 45.07	-10 17.4	1.082	1.759	30.4	18.5	116	E	35	74
3	2	6 24.34	-36 17.3	0.993	1.562	38.0	20.5	104	E	9	80	3	7	6 48.14	-9 21.4	1.124	1.766	31.1	18.6	113	E	36	73
3	7	6 27.97	-34 14.2	1.004	1.559	38.4	20.5	103	E	11	82	3	12	6 52.08	-8 26.7	1.168	1.773	31.8	18.7	110	E	37	72
3	12	6 32.75	-32 8.4	1.015	1.556	38.7	20.5	102	E	13	84	3	17	6 56.81	-7 33.8	1.213	1.780	32.3	18.8	107	E	37	72
3	17	6 38.57	-30 1.0	1.027	1.553	39.1	20.6	100	E	15	86	3	22	7 2.25	-6 43.5	1.259	1.786	32.8	18.9	104	E	38	71
3	22	6 45.34	-27 53.1	1.041	1.550	39.4	20.6	99	E	17	88	4	1	7 15.02	-5 12.3	1.354	1.799	33.3	19.1	99	E	40*	69
3	27	6 52.98	-25 45.9	1.055	1.546	39.8	20.6	98	E	19	90	4	11	7 29.88	-3 56.0	1.452	1.811	33.5	19.3	93	E	39*	68
4	1	7 1.42	-23 40.4	1.070	1.542	40.1	20.7	96	E	21	88	4	21	7 46.39	-2 55.9	1.550	1.823	33.4	19.5	88	E	38*	67*
4	6	7 10.57	-21 37.4	1.087	1.537	40.5	20.7	95	E	22*	86*	5	1	8 4.21	-2 12.5	1.650	1.834	33.1	19.6	84	E	35*	65*
4	11	7 20.35	-19 37.8	1.105	1.532	40.8	20.7	93	E	24*	83*	5	11	8 23.02	-1 46.0	1.750	1.844	32.5	19.7	79	E	31*	64*
4	16	7 30.70	-17 42.2	1.124	1.527	41.1	20.8	92	E	25*	81*	5	21	8 42.59	-1 35.6	1.849	1.853	31.7	19.8	74	E	26*	62*
4	21	7 41.57	-15 51.1	1.144	1.521	41.4	20.8	90	E	25*	79*	5	31	9 2.74	-1 40.7	1.947	1.862	30.8	19.9	70	E	26*	60*
4	26	7 52.90	-14 5.2	1.165	1.515	41.6	20.9	88	E	26*	77*	6	10	9 23.29	-2 0.0	2.044	1.870	29.6	20.0	66	E	17*	57*
5	1	8 4.64	-12 25.0	1.188	1.509	41.8	20.9	86	E	26*	75*	6	20	9 44.13	-2 32.3	2.138	1.878	28.4	20.1	61	E	13*	54*
5	6	8 16.73	-10 50.7	1.212	1.502	42.0	20.9	85	E	25*	73*	6	30	10 5.19	-3 16.4	2.228	1.884	27.0	20.1	57	E	9*	51*
5	11	8 29.13	-9 22.8	1.236	1.495	42.1	21.0	83	E	25*	71*	7	10	10 26.39	-4 10.6	2.316	1.890	25.5	20.2	53	E	6*	47*
5	16	8 41.78	-8 1.2	1.262	1.488	42.2	21.0	81	E	25*	70*	7	20	10 47.70	-5 13.4	2.399	1.895	23.9	20.2	49	E	3*	43*
5	21	8 54.67	-6 46.1	1.289	1.480	42.2	21.0	79	E	24*	68*	7	30	11 9.12	-6 23.6	2.478	1.898	22.2	20.2	45	E	1*	39*
5	26	9 7.76	-5 37.6	1.316	1.473	42.1	21.1	77	E	23*	66*	8	9	11 30.64	-7 39.3	2.551	1.901	20.4	20.2	41	E	—	34*
5	31	9 21.00	-4 35.7	1.344	1.464	42.0	21.1	75	E	22*	65*	8	19	11 52.29	-8 59.1	2.618	1.904	18.5	20.2	37	E	—	30*
6	5	9 34.37	-3 40.2	1.373	1.456	41.9	21.1	73	E	21*	63*	8	29	12 14.09	-10 21.5	2.678	1.905	16.5	20.2	32	E	—	26*
6	10	9 47.84	-2 50.8	1.402	1.448	41.7	21.2	72	E	20*	62*	9	8	12 36.07	-11 44.9	2.732	1.905	14.5	20.2	28	E	—	22*
6	15	10 1.38	-2 7.5	1.431	1.439	41.5	21.2	70	E	19*	60*	9	18	12 58.28	-13 7.9	2.778	1.905	12.4	20.2	24	E	—	17*
6	20	10 14.99	-1 29.9	1.460	1.430	41.2	21.2	68	E	19*	59*	9	28	13 20.75	-14 28.7	2.815	1.903	10.3	20.1	20	E	—	13*
6	25	10 28.66	-0 57.9	1.489	1.421	40.8	21.2	66	E	18*	57*	10	8	13 43.51	-15 46.0	2.845	1.901	8.1	20.0	16	E	—	9*
6	30	10 42.36	-0 31.0	1.518	1.412	40.4	21.2	64	E	17*	56*	10	18	14 6.60	-16 58.0	2.865	1.897	5.9	19.9	11	E	—	5*
7	5	10 56.08	-0 9.0	1.547	1.402	40.0	21.3	62	E	17*	54*	10	28	14 30.04	-18 3.2	2.876	1.893	3.6	19.8	7	E	—	1*
7	10	11 9.83	+0 8.6	1.574	1.393	39.5	21.3	61	E	16*	53*	11	7	14 53.83	-19 0.0	2.877	1.888	1.6	19.7	3	E	—	—
7	15	11 23.59	+0 22.0	1.601	1.383	39.0	21.3	59	E	16*	51*	11	17	15 17.98	-19 46.8	2.869	1.883	1.5	19.7	3	W	—	—
7	20	11 37.38	+0 31.5	1.628	1.374	38.4	21.3	57	E	16*	49*	11	27	15 42.43	-20 22.1	2.852	1.876	3.6	19.8	7	W	—	—
7	25	11 51.20	+0 37.6	1.653	1.364	37.8	21.3	55	E	16*	48*	12	7	16 7.16	-20 44.4	2.824	1.868	5.9	19.9	11	W	3*	3*
7	30	12 5.05	+0 40.4	1.677	1.355	37.3	21.3	54	E	16*	46*	12	17	16 32.11	-20 52.5	2.788	1.860	8.2	19.9	16	W	6*	6*
8	4	12 18.93	+0 40.5	1.699	1.345	36.7	21.3	52	E	17*	45*	12	27	16 57.18	-20 45.1	2.743	1.851	10.5	20.0	20	W	9*	11*
8	9	12 32.86	+0 38.0	1.720	1.335	36.0	21.3	51	E	17*	43*	1	6	17 22.28	-20 21.3	2.689	1.841	12.8	20.0	25	W	15*	15*
8	14	12 46.85	+0 33.4	1.740	1.326	35.4	21.3	49	E	17*	42*	1	16	17 47.33	-19 40.4	2.628	1.831	15.1	20.0	29	W	13*	20*
8	19	13 0.92	+0 26.8	1.758	1.317	34.8	21.3	48	E	17*	40*	<b>344806 2004 BK<sub>41</sub></b>											
8	24	13 15.07	+0 18.6	1.775	1.307	34.2	21.2	47	E	18*	39*	12	23	7 39.73	+14 52.5	0.823	1.766	13.3	18.7	156	W	60	49
8	29	13 29.33	+0 9.0	1.789	1.298	33.7	21.2	45	E	18*	37*	12	28	7 30.94	+13 4.3	0.810	1.769	10.3	18.5	161	W	58	51
9	3	13 43.71	+0 1.6	1.802	1.290	33.1	21.2	44	E	19*	36*	1	2	7 21.57	+11 17.2	0.803	1.773	7.9	18.4	166	W	56	53
9	8	13 58.22	+0 13.0	1.814	1.281	32.6	21.2	43	E	20*	35*	1	7	7 12.01	+9 33.8	0.804	1.776	7.1	18.4	167	W	55	54
9	13	14 12.88	+0 24.9	1.823	1.273	32.1	21.2	42	E	20*	33*	1	12	7 2.62	+7 56.5	0.812	1.779	8.5	18.5	165	E	53	56
9	18	14 27.73	+0 37.2	1.831	1.265	31.7	21.2	41	E	21*	32*	1	17	6 53.75	+6 27.4	0.826	1.782	11.0	18.6	160	E	51	58
9	23	14 42.76	+0 49.5	1.837	1.257	31.3	21.2	41	E	21*	30*	1	22	6 45.70	+5 8.1	0.847	1.785	14.0	18.8	154	E	50	59
9	28	14 58.00	+1 1.5	1.841	1.250	30.9	21.1	40	E	22*	29*	2	1	6 32.93	+3 1.4	0.907	1.791	19.7	19.1	142	E	48	61
10	3	15 13.45	+1 13.1	1.845	1.243	30.6	21.1	39	E	23*	28*	2	11	6 25.27	+1 34.7	0.984	1.796	24.3	19.5	131	E	47	62
10	8	15 29.15	+1 23.9	1.846	1.237	30.4	21.1	39	E	23*	26*	2	21	6 22.65	+0 40.0	1.074	1.801	27.9	19.8	122	E	46	63
10	13	15 45.09	+1 33.8	1.847	1.231	30.2	21.1	38	E	24*	25*	2	26	6 23.08	+0 21.7	1.123	1.804	29.9	19.9	117	E	45	64
10	18	16 1.31	+1 42.6	1.847	1.226	30.0	21.1	38	E	25*	24*	3	2	6 24.55	+0 7.8	1.173	1.806	30.3	20.0	113	E	45	64
10	23	16 17.79	+1 49.9	1.846	1.221	29.9	21.1	38	E	25*	23*	3	7	6 26.98	-0 2.8	1.224	1.809	31.3	20.2	109	E	45	64
10	28	16 34.55	+1 55.5	1.844	1.217	29.8	21.0	37	E	26*	22*	3	12	6 30.27	+0 11.0	1.275	1.811	32.0	20.3	105	E	45	64
11	2	16 51.58	+1 59.2	1.843	1.213	29.7	21.0	37	E	27*	21*	3	17	6 34.34	+0 17.6	1.327	1.813	32.5	20.4	102	E	45	64
11	7	17 8.88	-2 0.8	1.841	1.210	29.7	21.0	37	E	27*	19*	3	22										

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	19/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°		
<b>344806 2004 BK<sub>41</sub></b>										<b>488582 2002 LD<sub>35</sub></b>											
(continuation)																					
10 18	13 55.94	-26 38.5	2.728	1.807	9.8	21.2	18 E	—	7*	12 23	7 41.02	+24 50.2	3.449	4.374	4.9	23.4	158 W	70	39		
10 28	14 23.04	-27 58.5	2.742	1.802	8.3	21.1	15 E	—	4*	1 2	7 33.10	+25 26.3	3.413	4.383	2.4	23.2	169 W	70	39		
11 7	14 50.66	-29 5.5	2.749	1.797	7.0	21.1	13 E	—	1*	1 12	7 24.61	+26 0.1	3.410	4.391	1.0	23.1	176 E	71	38		
11 17	15 18.77	-29 57.8	2.750	1.791	6.2	21.0	11 W	—	2*	1 22	7 16.15	+26 29.6	3.440	4.399	3.3	23.3	165 E	71	38		
11 27	15 47.23	-30 33.5	2.744	1.785	6.0	21.0	11 W	—	3*	2 1	7 8.37	+26 53.6	3.501	4.405	5.7	23.5	154 E	72	37		
12 7	16 15.90	-30 51.0	2.731	1.779	6.6	21.0	12 W	—	6*	<b>385402 2002 WZ<sub>2</sub></b>											
12 17	16 44.62	-30 49.3	2.710	1.773	7.8	21.1	14 W	—	8*	12 23	7 41.14	-20 49.0	3.929	4.619	9.4	23.9	130 W	24	85		
12 27	17 13.20	-30 27.5	2.682	1.767	9.5	21.1	17 W	—	11*	1 2	7 31.83	-21 18.2	3.885	4.626	8.7	23.9	134 W	24	85		
1	6	17 41.46	-29 45.1	2.646	1.760	11.3	21.1	21 W	1*	1 12	7 21.99	-21 27.2	3.866	4.631	8.4	23.8	137 E	24	85		
1	16	18 9.21	-28 42.0	2.603	1.753	13.3	21.2	24 W	3*	1 22	7 12.19	-21 15.8	3.875	4.635	8.5	23.9	136 E	24	85		
<b>183023 2002 PG<sub>113</sub></b>										<b>438035 2004 HT<sub>3</sub></b>											
12 23	7 40.43	+31 43.1	1.858	2.789	8.0	21.4	157 W	77	32	12 23	7 41.80	+37 46.1	1.622	2.545	9.6	21.3	154 W	83	26		
12 28	7 34.67	+32 0.5	1.840	2.792	6.2	21.3	162 W	77	32	12 28	7 35.51	+38 13.8	1.616	2.558	8.0	21.2	159 W	83	26		
1	2	7 28.49	+32 15.2	1.828	2.795	4.6	21.2	167 W	77	32	1	2	7 28.78	+38 36.6	1.617	2.570	6.8	21.2	162 W	84	25
1	7	7 22.05	+32 26.8	1.824	2.797	3.6	21.2	170 W	77	32	1	7	7 21.80	+38 53.8	1.625	2.583	6.3	21.2	163 W	84	25
1	12	7 15.53	+32 34.8	1.828	2.799	3.9	21.2	169 E	78	31	1	12	7 14.82	+39 5.0	1.641	2.595	6.6	21.2	162 E	84	25
1	17	7 9.11	+32 39.0	1.840	2.801	5.3	21.3	165 E	78	31	1	17	7 8.05	+39 10.0	1.663	2.607	7.6	21.3	159 E	84	25
1	22	7 2.98	+32 39.3	1.859	2.803	7.0	21.4	160 E	78	31	1	22	7 1.70	+39 9.1	1.693	2.619	9.0	21.4	155 E	84	25
1	27	6 57.29	+32 35.9	1.885	2.804	8.8	21.5	154 E	78	31	1	27	6 55.95	+39 2.7	1.729	2.631	10.6	21.6	151 E	84	25
2	1	6 52.20	+32 29.3	1.917	2.805	10.6	21.6	148 E	77	32	2	1	6 50.96	+38 51.6	1.771	2.643	12.2	21.7	146 E	84	25
2	6	6 47.80	+32 19.8	1.956	2.806	12.3	21.7	143 E	77	32	2	6	6 46.83	+38 36.5	1.819	2.654	13.7	21.8	140 E	84	25
<b>142555 2002 TB<sub>58</sub></b>										<b>343225 2009 WX<sub>83</sub></b>											
12 23	7 40.68	-46 31.6	0.449	1.193	52.2	16.8	107 W	—	69	12 23	7 41.97	+32 31.8	1.674	2.605	8.7	21.2	156 W	78	31		
12 28	7 51.10	-50 31.0	0.454	1.177	54.3	16.8	104 W	—	65	12 28	7 36.09	+32 54.6	1.660	2.612	6.8	21.1	162 W	78	31		
1	2	8 2.11	-53 59.6	0.459	1.164	55.9	16.9	101 W	—	62	1	2	7 29.76	+33 14.5	1.653	2.618	5.2	21.0	166 W	78	31
1	7	8 13.85	-56 58.0	0.465	1.154	57.2	16.9	99 W	—	59	1	7	7 23.15	+33 30.6	1.654	2.625	4.3	21.0	169 W	79	30
1	12	8 26.42	-59 27.6	0.470	1.147	58.1	17.0	98 W	—	57	1	12	7 16.48	+33 42.5	1.662	2.631	4.6	21.0	168 E	79	30
1	17	8 39.83	-61 29.8	0.475	1.143	58.6	17.0	97 W	—	55	1	17	7 9.94	+33 49.8	1.677	2.637	5.9	21.1	164 E	79	30
1	22	8 54.03	-63 5.3	0.479	1.143	58.8	17.0	97 W	—	53	1	22	7 3.73	+33 52.7	1.699	2.642	7.6	21.2	159 E	79	30
1	27	9 8.90	-64 14.6	0.481	1.145	58.6	17.0	97 W	—	52	1	27	6 58.03	+33 51.3	1.729	2.648	9.5	21.3	154 E	79	30
2	1	9 24.29	-64 57.9	0.481	1.151	58.1	17.0	97 W	—	51	2	1	6 52.98	+33 46.0	1.765	2.653	11.3	21.5	148 E	79	30
2	3	9 30.53	-65 7.8	0.481	1.154	57.7	17.0	98 W	—	51	2	6	6 48.71	+33 37.4	1.806	2.658	13.0	21.6	143 E	79	30
2	5	9 36.79	-65 13.6	0.481	1.158	57.4	17.0	98 W	—	51	<b>3163 Randi</b>										
2	7	9 43.04	-65 15.2	0.480	1.162	56.9	17.0	99 W	—	51	12 23	7 42.32	+16 50.3	2.085	3.009	7.7	18.5	156 W	62	47	
2	9	9 49.26	-65 12.5	0.479	1.167	56.4	17.0	100 W	—	51	1	2	7 32.49	+17 9.2	2.059	3.028	3.9	18.3	168 W	62	47
2	11	9 55.41	-65 5.4	0.478	1.172	55.9	17.0	100 W	—	51	1	12	7 21.90	+17 31.7	2.064	3.045	1.5	18.2	175 E	63	46
2	13	10 1.47	-64 54.0	0.477	1.178	55.3	17.0	101 W	—	51	1	22	7 11.59	+17 55.2	2.100	3.062	4.7	18.4	165 E	63	46
2	15	10 7.42	-64 38.1	0.475	1.184	54.6	16.9	102 W	—	51	2	1	7 2.53	+18 18.0	2.165	3.077	8.3	18.7	153 E	63	46
2	17	10 13.23	-64 17.7	0.474	1.190	53.9	16.9	103 W	—	52	2	11	6 55.50	+18 38.9	2.258	3.092	11.4	18.9	142 E	64	45
2	19	10 18.88	-63 52.5	0.472	1.197	53.1	16.9	104 W	—	52	2	21	6 50.92	+18 57.2	2.372	3.106	14.0	19.1	130 E	64	45
2	21	10 24.35	-63 22.6	0.470	1.204	52.3	16.9	106 W	—	53	3	2	6 48.92	+19 12.5	2.504	3.118	16.0	19.3	120 E	64	45
2	26	10 37.20	-61 46.4	0.465	1.224	49.8	16.8	109 W	—	54	3	12	6 49.45	+19 24.7	2.647	3.130	17.4	19.5	110 E	64	45
3	2	10 48.80	-59 38.7	0.460	1.246	47.0	16.8	113 E	—	56	3	22	6 52.27	+19 33.5	2.799	3.141	18.2	19.7	101 E	65	44
3	7	10 59.15	-56 59.1	0.456	1.270	43.8	16.7	118 E	—	59	4	1	6 57.13	+19 38.4	2.953	3.151	18.5	19.8	92 E	63*	44*
3	12	11 8.32	-53 48.2	0.454	1.296	40.2	16.6	123 E	—	62	4	11	7 3.74	+19 39.0	3.108	3.160	18.4	19.9	84 E	59*	44*
3	17	11 16.43	-50 8.1	0.454	1.324	36.3	16.6	128 E	—	66	4	21	7 11.82	+19 35.2	3.260	3.167	17.9	20.0	76 E	53*	43*
3	22	11 23.67	-46 2.6	0.457	1.353	32.2	16.5	134 E	—	70	5	1	7 21.13	+19 26.4	3.405	3.174	17.2	20.1	68 E	46*	41*
3	27	11 30.26	-41 38.3	0.465	1.384	28.2	16.5	139 E	—	74	5	11	7 31.44	+19 12.4	3.543	3.180	16.1	20.1	61 E	39*	39*
4	1	11 36.40	-37 3.9	0.479	1.415	24.4	16.5	144 E	—	8	5	21	7 42.57	+18 53.0	3.671	3.185	14.9	20.2	54 E	31*	37*
4	6	11 42.24	-32 29.6	0.498	1.448	21.3	16.5	148 E	—	13	5	31	7 54.35	+18 28.3	3.788	3.189	13.5	20.2	47 E	24*	34*
4	11	11 47.89	-28 4.7	0.523	1.481	19.2	16.6	151 E	—	17	6	10	8 6.63	+17 58.0	3.892	3.192	12.0	20.2	41 E	18*	30*
4	16	11 53.42	-23 56.8	0.555	1.515	18.3	16.8	152 E	—	21	6	20	8 19.29	+17 22.4	3.983	3.194	10.3	20.2	34 E	12*	26*
4	21	11 58.92	-20 11.5	0.594	1.550	18.5	17.0	151 E	—	25	6	30	8 32.24	+16 41.5	4.058	3.195	8.6	20.2	28 E	7*	21*
4	26	12 4.45	-16 51.7	0.638	1.585	19.4	17.2	148 E	—	28	7	10	8 45.37	+15 55.6	4.119	3.195	6.7	20.1	22 E	3*	15*
5	1	12 10.06	-13 58.5	0.688	1.621	20.7	17.5	145 E	—	31	7	20	8 58.62	+15 4.9	4.163	3.195	4.9	20.0	15 E	—	9*
5	6	12 15.75	-11 31.1	0.743	1.657	22.2	17.7	142 E	—	33	7	30	9 11.91	+14 9.9	4.191	3.193	2.9	19.9	9 E	—	3*
5	11	12 21.53	-9 27.6	0.803	1.693	23.6	18.0	138 E	—	36	8	9	9 25.19	+13 10.8	4.201	3.190	1.1	19.8	3 E	—	—
5	16	12 27.40	-7 45.6	0.867	1.729	24.9	18.2	134 E	—	37	8	19	9 38.41	+12 8.2	4.195	3.186	1.2	19.8	4 W	—	—
5	21	12 33.36	-6 22.8	0.936	1.765	26.1	18.5	130 E	—	39	8	29	9 51.51	+11 2.6	4.172	3.182	3.1	19.9	10 W	2*	2*
5	26	12 39.44	-5 16.8	1.007	1.802	27.0	18.7	126 E	—	40	9	8	10 4.44	+9 54.5	4.132	3.176	5.0	20.0	16 W	8*	6*
5	31	12 45.61	-4 25.3	1.083	1.838	27.7	18.9	122 E	—	41*	9	18	10 17.16	+8 44.5	4.076	3.169	6.9	20.1	22 W	14*	10*
6	5	12 51.88	-3 46.4	1.161	1.874	28.3	19.1	119 E	—	41*	9	28	10 29.62	+7 33.3	4.003	3.162	8.8	20.1	29 W	20*	

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	19/20	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°
<b>462559 2009 DD<sub>1</sub></b>										<b>162004 1991 VE</b>									
12 23	7 42.42	-44 2.2	0.646	1.339	44.1	21.7	109W	1	72	12 23	7 43.45	+36 37.3	0.358	1.316	18.7	17.5	155W	82	27
12 28	7 35.88	-44 2.2	0.623	1.337	43.5	21.6	111W	1	72	12 25	7 34.15	+37 55.5	0.341	1.304	17.0	17.3	157W	83	26
1 2	7 28.22	-43 36.9	0.601	1.335	42.8	21.5	113W	1	72	12 27	7 23.30	+39 16.6	0.325	1.292	15.7	17.2	159W	84	25
1 7	7 19.75	-42 42.5	0.578	1.333	42.0	21.4	115W	2	73	12 29	7 10.73	+40 39.3	0.310	1.280	14.8	17.0	161W	86	23
1 12	7 10.86	-41 15.8	0.557	1.331	41.3	21.3	117E	4	75	12 31	6 56.26	+42 1.6	0.296	1.267	14.8	16.9	161W	87	22
1 17	7 1.97	-39 14.0	0.537	1.328	40.5	21.2	119E	6	77	1 2	6 39.74	+43 20.6	0.284	1.254	15.9	16.8	160E	88	21
1 22	6 53.52	-36 35.1	0.519	1.325	39.8	21.1	120E	8	79	1 4	6 21.10	+44 32.9	0.273	1.240	17.9	16.8	157E	90	19
1 27	6 45.94	-33 18.4	0.503	1.321	39.2	21.0	122E	12	83	1 6	6 0.36	+45 34.8	0.264	1.225	20.9	16.8	154E	89	18
2 1	6 39.60	-29 25.6	0.490	1.318	38.9	20.9	123E	16	87	1 8	5 37.72	+46 22.0	0.256	1.211	24.6	16.8	149E	89	18
2 6	6 34.73	-25 0.8	0.481	1.314	38.8	20.9	123E	20	89	1 10	5 13.56	+46 50.7	0.250	1.195	28.7	16.8	144E	88	17
2 11	6 31.48	-20 10.2	0.476	1.309	39.1	20.8	123E	25	84	1 12	4 48.44	+46 57.9	0.246	1.180	33.3	16.9	139E	88	17
2 16	6 29.89	-15 1.4	0.476	1.305	39.8	20.8	122E	30	79	1 13	4 35.74	+46 53.0	0.244	1.172	35.6	16.9	136E	88	17
2 21	6 29.95	-9 43.5	0.480	1.300	40.9	20.9	121E	35	74	1 14	4 23.07	+46 42.3	0.243	1.164	38.0	17.0	133E	88	17
2 26	6 31.64	-4 25.6	0.489	1.295	42.3	21.0	118E	41	68	1 15	4 10.50	+46 26.0	0.242	1.155	40.5	17.0	130E	89	18
3 2	6 34.88	+0 43.8	0.502	1.290	43.9	21.0	116E	46	63	1 16	3 58.14	+46 4.2	0.242	1.147	42.9	17.1	127E	89	18
3 7	6 39.57	+5 38.1	0.519	1.285	45.5	21.2	113E	51	58	1 17	3 46.04	+45 37.3	0.242	1.138	45.4	17.1	125E	89	18
3 12	6 45.60	+10 12.6	0.540	1.279	47.1	21.3	109E	55	54	1 18	3 34.29	+45 5.7	0.242	1.130	47.9	17.2	122E	90	19
3 17	6 52.85	+14 24.7	0.564	1.273	48.6	21.4	106E	59	50	1 19	3 22.92	+44 29.7	0.243	1.121	50.3	17.2	119E	89	20
<b>86608 2000 EK<sub>85</sub></b>										<b>360191 1988 TA</b>									
12 23	7 42.50	+15 55.8	1.665	2.591	9.1	19.4	155W	61	48	12 23	7 43.51	+16 50.9	1.268	2.201	10.7	23.5	155W	62	47
1 2	7 32.76	+16 37.9	1.598	2.567	4.8	19.1	167W	62	47	12 28	7 35.69	+17 5.8	1.254	2.211	7.8	23.4	162W	62	47
1 12	7 21.48	+17 28.1	1.560	2.542	1.9	18.8	175E	62	47	1 2	7 27.34	+17 22.0	1.247	2.220	4.9	23.2	169W	62	47
1 22	7 9.91	+18 22.1	1.552	2.516	5.8	19.0	165E	63	46	1 7	7 18.71	+17 38.9	1.248	2.229	2.4	23.1	175W	63	46
1 27	7 4.46	+18 49.2	1.559	2.502	8.2	19.1	159E	64	45	1 12	7 10.07	+17 56.0	1.256	2.236	2.7	23.1	174E	63	46
2 1	6 59.45	+19 15.8	1.573	2.489	10.5	19.2	153E	64	45	1 17	7 1.67	+18 12.6	1.272	2.244	5.3	23.3	168E	63	46
2 6	6 55.03	+19 41.4	1.593	2.475	12.7	19.3	146E	65	44	1 22	6 53.77	+18 28.4	1.296	2.250	8.1	23.5	161E	63	46
2 11	6 51.31	+20 5.8	1.618	2.461	14.8	19.4	141E	65	44	1 27	6 46.58	+18 43.3	1.327	2.256	10.8	23.7	154E	64	45
2 21	6 46.23	+20 50.6	1.684	2.433	18.3	19.6	129E	66	43	<b>47576 2000 AW<sub>172</sub></b>									
3 2	6 44.58	+21 29.3	1.765	2.404	21.2	19.8	119E	66	43	12 23	7 43.80	+10 7.6	0.790	1.723	15.3	18.7	152W	55	54
3 12	6 46.33	+22 1.6	1.855	2.374	23.3	19.9	109E	67	42	1 2	7 33.33	+10 2.3	0.795	1.759	9.5	18.6	163W	55	54
3 22	6 51.23	+22 27.0	1.951	2.344	24.7	20.0	100E	67	42	1 12	7 21.96	+10 19.8	0.822	1.796	6.4	18.5	168E	55	54
4 1	6 58.96	+22 45.2	2.049	2.313	25.6	20.1	92E	67*	41*	1 22	7 11.78	+10 54.5	0.871	1.834	9.2	18.8	163E	56	53
4 11	7 9.15	+22 55.5	2.146	2.281	25.9	20.2	85E	63*	41*	1 27	7 7.68	+11 16.0	0.904	1.853	11.6	19.0	158E	56	53
4 21	7 21.43	+22 57.1	2.240	2.250	25.9	20.3	78E	57*	40*	2 1	7 4.46	+11 39.2	0.942	1.872	14.0	19.2	153E	57	52
5 1	7 35.51	+22 49.5	2.328	2.217	25.5	20.3	71E	51*	39*	2 6	7 2.18	+12 3.1	0.985	1.892	16.3	19.4	148E	57	52
5 11	7 51.10	+22 32.0	2.410	2.184	24.8	20.4	65E	45*	38*	2 11	7 0.88	+12 27.1	1.032	1.912	18.3	19.6	142E	57	52
5 21	8 7.93	+22 4.0	2.484	2.151	23.9	20.4	59E	38*	37*	2 21	7 1.15	+13 12.8	1.140	1.951	21.8	20.0	133E	58	51
5 31	8 25.84	+21 25.0	2.551	2.118	22.8	20.3	54E	32*	36*	3 2	7 4.98	+13 52.6	1.260	1.991	24.4	20.3	124E	59	50
6 10	8 44.60	+20 34.9	2.609	2.085	21.5	20.3	49E	26*	34*	3 12	7 11.86	+14 24.2	1.392	2.031	26.2	20.6	116E	59	50
6 20	9 4.10	+19 33.5	2.658	2.052	20.1	20.3	44E	21*	31*	3 22	7 21.19	+14 46.2	1.532	2.071	27.2	20.9	108E	60	49
6 30	9 24.21	+18 20.8	2.699	2.018	18.6	20.2	39E	17*	29*	4 1	7 32.50	+14 57.8	1.678	2.110	27.7	21.2	101E	60*	49
7 10	9 44.83	+16 57.2	2.731	1.985	17.1	20.2	35E	13*	26*	4 11	7 45.33	+14 58.7	1.829	2.149	27.7	21.4	94E	59*	49
7 20	10 5.89	+15 22.9	2.756	1.953	15.4	20.1	31E	11*	23*	<b>439974 2001 WH<sub>15</sub></b>									
7 30	10 27.36	+13 38.5	2.772	1.921	13.8	20.0	27E	8*	19*	12 23	7 43.81	+7 16.7	1.449	2.357	11.7	20.0	151W	52	58
8 9	10 49.19	+11 44.9	2.782	1.890	12.1	19.9	23E	6*	16*	1 2	7 31.40	+6 9.6	1.447	2.395	8.1	20.0	160W	51	58
8 19	11 11.40	+9 42.7	2.784	1.859	10.4	19.8	19E	5*	12*	1 12	7 18.46	+5 21.9	1.473	2.432	6.7	20.0	163E	50	59
8 29	11 34.00	+7 33.2	2.781	1.830	8.6	19.7	16E	4*	9*	1 22	7 6.44	+4 53.9	1.528	2.468	8.6	20.2	158E	50	59
9 8	11 57.01	+5 17.6	2.772	1.802	7.0	19.6	13E	2*	5*	2 1	6 56.55	+4 43.6	1.611	2.503	11.9	20.4	148E	50	59
9 18	12 20.47	+2 57.3	2.758	1.775	5.4	19.5	10E	1*	2*	2 11	6 49.57	+4 47.3	1.716	2.538	15.0	20.7	138E	50	59
9 28	12 44.43	+0 34.1	2.740	1.750	4.0	19.4	7E	—	—	2 21	6 45.73	+5 0.2	1.841	2.572	17.6	21.0	128E	50	59
10 8	13 8.94	+1 50.3	2.719	1.727	3.1	19.3	5E	—	—	3 2	6 44.97	+5 18.1	1.980	2.604	19.5	21.2	119E	50	59
10 18	13 34.06	+4 13.6	2.695	1.705	3.2	19.2	5E	—	—	3 12	6 47.00	+5 37.3	2.130	2.636	20.8	21.5	110E	51	58
10 28	13 59.83	+6 33.6	2.668	1.687	4.1	19.2	7W	—	—	<b>339705 2005 RB<sub>22</sub></b>									
11 7	14 26.29	+8 47.9	2.640	1.670	5.5	19.3	9W	3*	—	12 23	7 43.02	+36 43.6	1.180	2.111	11.5	19.9	155W	82	27
11 17	14 53.44	+10 53.8	2.611	1.656	7.1	19.3	12W	6*	—	12 28	7 36.43	+37 21.2	1.182	2.130	9.5	19.8	159W	82	27
11 27	15 21.27	+12 48.8	2.581	1.645	8.7	19.3	15W	8*	1*	1 2	7 29.32	+37 52.7	1.190	2.149	7.9	19.8	163W	83	26
12 7	15 49.72	+14 30.5	2.550	1.637	10.4	19.4	17W	10*	4*	1 7	7 21.98	+38 17.0	1.205	2.167	7.2	19.8	164W	83	26
12 17	16 18.70	+15 56.6	2.519	1.632	12.1	19.4	20W	12*	7*	1 12	7 14.71	+38 33.8	1.226	2.185	7.6	19.9	163E	84	25
12 27	16 48.07	+17 5.1	2.487	1.630	13.8	19.4	23W	13*	11*	1 17	7 7.78	+38 42.8	1.254	2.204	8.9	20.0	160E	84	25
1 6	17 17.64	+17 55.0	2.455	1.632	15.4	19.5	26W	14*	15*	1 22	7 1.44	+38 44.6	1.288	2.222	10.5	20.2	156E	84	25
1 16	17 47.23	+18 25.3	2.422	1.636	17.1	19.5	29W	14*	19*	1 27	6 55.91	+38 39.8	1.329	2.240	12.4	20.3	151E	84	25
<b>339705 2005 RB<sub>22</sub></b>										<b>439974 2001 WH<sub>15</sub></b>									
12 23	7 43.02	+36 43.6	1.180	2.111	11.5	19.9	155W	82	27	1 2	7 31.40	+6 9.6	1.447	2.395	8.1	20.0	160W	51	58
12 28	7 36.43	+37 21.2	1.182	2.130	9.5	19.8	159W	82	27	1 12	7 18.46	+5 21.9	1.473	2.432	6.7	20.0			



EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	19/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°
<b>344332 2001 VL<sub>75</sub></b>										<b>22283 Pytheas</b> (continuation)									
12 23	7 43.88	-0 20.7	0.856	1.758	18.3	17.6	146W	45	64	5 1	7 38.55	+19 57.3	2.758	2.633	21.4	20.1	72E	49*	42*
12 28	7 39.86	-2 15.6	0.826	1.743	17.1	17.5	149W	43	66	5 11	7 51.53	+19 44.0	2.897	2.646	20.3	20.2	66E	43*	41*
1 2	7 35.03	-4 6.4	0.803	1.728	16.3	17.4	150W	41	68	5 21	8 5.26	+19 22.8	3.029	2.658	19.1	20.3	59E	36*	39*
1 7	7 29.58	-5 50.6	0.785	1.713	16.0	17.3	151W	39	70	5 31	8 19.58	+18 53.9	3.153	2.669	17.7	20.3	53E	29*	37*
1 12	7 23.73	-7 25.7	0.772	1.699	16.4	17.3	151E	38	71	6 10	8 34.33	+18 17.7	3.267	2.680	16.1	20.4	47E	23*	34*
1 17	7 17.73	-8 49.6	0.764	1.685	17.5	17.3	149E	36	73	6 20	8 49.38	+17 34.4	3.370	2.689	14.4	20.4	41E	17*	31*
1 22	7 11.86	-10 0.6	0.761	1.673	19.0	17.3	146E	35	74	6 30	9 4.66	+16 44.6	3.462	2.697	12.6	20.4	35E	12*	27*
1 27	7 6.40	-10 57.7	0.763	1.660	20.8	17.3	143E	34	75	7 10	9 20.06	+15 48.7	3.542	2.705	10.7	20.4	30E	8*	22*
2 1	7 1.63	-11 40.9	0.770	1.649	22.8	17.4	140E	33	76	7 20	9 35.54	+14 47.3	3.609	2.711	8.7	20.3	24E	5*	17*
2 6	6 57.76	-12 10.7	0.779	1.638	24.8	17.5	136E	33	76	7 30	9 51.04	+13 40.9	3.662	2.716	6.7	20.3	18E	2*	12*
2 11	6 54.95	-12 28.4	0.792	1.628	26.7	17.6	132E	33	76	8 9	10 6.52	+12 30.3	3.701	2.721	4.7	20.2	13E	—	6*
2 16	6 53.30	-12 35.3	0.808	1.618	28.6	17.6	128E	32	77	8 19	10 21.95	+11 15.9	3.726	2.724	2.6	20.1	7E	—	1*
2 21	6 52.85	-12 33.0	0.826	1.610	30.3	17.7	125E	32	77	8 29	10 37.31	+9 58.6	3.736	2.727	0.7	20.0	2E	—	—
2 26	6 53.65	-12 23.1	0.845	1.602	31.8	17.8	121E	33	76	9 8	10 52.57	+8 39.1	3.732	2.728	1.7	20.1	5W	—	—
3 2	6 55.68	-12 7.3	0.866	1.595	33.2	17.9	118E	33	76	9 18	11 7.71	+7 18.1	3.712	2.729	3.8	20.2	10W	4*	—
3 7	6 58.90	-11 47.2	0.889	1.589	34.4	18.0	115E	33	76	9 28	11 22.72	+5 56.5	3.678	2.729	5.8	20.3	16W	9*	3*
3 12	7 3.23	-11 24.1	0.912	1.583	35.5	18.1	112E	34	75	10 8	11 37.57	+4 35.0	3.628	2.727	7.9	20.3	22W	15*	7*
3 17	7 8.60	-10 59.0	0.937	1.579	36.4	18.1	110E	34	75	10 18	11 52.24	+3 14.6	3.565	2.725	9.9	20.4	28W	20*	10*
3 22	7 14.95	-10 33.0	0.962	1.576	37.2	18.2	107E	34	75	10 28	12 6.69	+1 56.2	3.487	2.721	11.8	20.4	34W	26*	15*
3 27	7 22.21	-10 6.8	0.988	1.573	37.8	18.3	105E	35	74	11 7	12 20.67	+0 40.8	3.396	2.717	13.6	20.4	40W	31*	19*
4 1	7 30.32	-9 41.4	1.014	1.572	38.3	18.3	103E	35*	74	11 17	12 34.74	-0 30.6	3.293	2.712	15.4	20.4	47W	35*	24*
4 6	7 39.18	-9 17.4	1.042	1.571	38.8	18.4	101E	35*	73	11 27	12 48.20	-1 36.8	3.177	2.706	17.0	20.4	53W	38*	30*
4 11	7 48.73	-8 55.3	1.070	1.572	39.1	18.5	99E	35*	73	12 7	13 1.17	-2 36.8	3.052	2.698	18.4	20.3	60W	40*	36*
4 21	8 9.60	-8 18.1	1.128	1.575	39.5	18.6	95E	34*	72	12 17	13 13.52	-3 29.4	2.918	2.690	19.7	20.3	67W	41*	43*
5 1	8 32.45	-7 52.5	1.190	1.583	39.5	18.7	92E	32*	72	12 27	13 25.09	-4 13.1	2.776	2.681	20.7	20.2	74W	41*	50*
5 11	8 56.79	-7 40.1	1.256	1.594	39.3	18.9	89E	30*	72*	1 6	13 35.72	-4 46.7	2.629	2.671	21.4	20.1	82W	40	57*
5 21	9 22.18	-7 41.4	1.327	1.608	38.9	19.0	86E	27*	71*	1 16	13 45.17	-5 8.8	2.479	2.660	21.7	19.9	90W	40	64*
5 31	9 48.26	-7 56.0	1.403	1.626	38.2	19.1	83E	23*	71*	<b>239275 2007 KL<sub>7</sub></b>									
6 10	10 14.68	-8 23.1	1.485	1.647	37.4	19.3	80E	20*	70*	12 23	7 44.79	+26 0.0	1.567	2.501	9.0	20.0	157W	71	38
6 20	10 41.19	-9 1.1	1.574	1.671	36.4	19.4	77E	17*	69*	12 28	7 39.28	+26 20.0	1.562	2.518	6.6	19.9	163W	71	38
6 30	11 7.60	-9 48.4	1.668	1.697	35.2	19.5	74E	14*	67*	1 2	7 33.37	+26 38.7	1.564	2.536	4.3	19.8	169W	72	37
7 10	11 33.76	-10 42.8	1.767	1.725	33.8	19.6	71E	12*	64*	1 7	7 27.27	+26 55.4	1.573	2.553	2.3	19.7	174W	72	37
7 20	11 59.59	-11 42.3	1.871	1.756	32.3	19.7	68E	10*	61*	1 12	7 21.15	+27 9.8	1.589	2.570	2.2	19.7	174E	72	37
7 30	12 25.06	-12 45.0	1.979	1.788	30.7	19.9	64E	9*	58*	1 17	7 15.21	+27 21.3	1.613	2.587	4.0	19.9	169E	72	37
8 9	12 50.14	-13 48.9	2.090	1.821	29.0	20.0	61E	9*	55*	1 22	7 9.61	+27 30.1	1.644	2.603	6.1	20.0	164E	73	36
8 19	13 14.86	-14 52.2	2.203	1.856	27.2	20.1	57E	8*	51*	1 27	7 4.52	+27 36.0	1.683	2.620	8.2	20.2	158E	73	36
8 29	13 39.23	-15 53.5	2.318	1.892	25.3	20.2	53E	8*	47*	2 1	7 0.05	+27 39.2	1.727	2.636	10.2	20.3	152E	73	36
9 8	14 3.28	-16 51.2	2.431	1.929	23.3	20.3	49E	8*	43*	2 11	6 53.35	+27 39.1	1.834	2.668	13.7	20.6	140E	73	36
9 18	14 27.05	-17 44.0	2.544	1.966	21.2	20.3	45E	7*	39*	2 21	6 49.83	+27 32.1	1.961	2.699	16.4	20.9	129E	73	36
9 28	14 50.55	-18 30.9	2.653	2.004	19.0	20.4	41E	7*	35*	3 2	6 49.46	+27 20.3	2.104	2.729	18.5	21.1	119E	72	37
10 8	15 13.79	-19 10.7	2.759	2.042	16.9	20.5	36E	7*	30*	3 12	6 51.97	+27 5.2	2.257	2.759	19.8	21.4	110E	72	37
10 18	15 36.77	-19 42.5	2.859	2.080	14.6	20.5	32E	7*	26*	<b>399613 2004 BQ<sub>65</sub></b>									
10 28	15 59.50	-20 5.8	2.953	2.117	12.4	20.5	27E	6*	21*	12 23	7 44.85	+19 21.7	1.195	2.131	10.9	19.6	156W	64	45
11 7	16 21.92	-20 19.7	3.038	2.155	10.1	20.5	22E	6*	16*	12 28	7 39.79	+19 51.6	1.193	2.151	8.0	19.5	162W	65	44
11 17	16 44.03	-20 24.0	3.115	2.193	7.8	20.5	18E	4*	10*	1 2	7 34.29	+20 22.4	1.198	2.171	5.1	19.4	169W	65	44
11 27	17 5.77	-20 18.3	3.182	2.230	5.6	20.5	13E	3*	5*	1 7	7 28.57	+20 53.1	1.209	2.191	2.2	19.3	175W	66	43
12 7	17 27.08	-20 2.4	3.239	2.267	3.4	20.5	8E	1*	—	1 12	7 22.84	+21 23.0	1.228	2.211	0.8	19.2	178E	66	43
12 17	17 47.91	-19 36.4	3.283	2.303	1.8	20.4	4E	—	—	1 17	7 17.31	+21 51.3	1.253	2.231	3.6	19.5	172E	67	42
12 27	18 8.20	-19 0.5	3.316	2.339	2.4	20.5	6W	—	—	1 22	7 12.18	+22 17.4	1.284	2.251	6.3	19.7	166E	67	42
1 6	18 27.88	-18 14.9	3.335	2.374	4.2	20.7	10W	3*	—	1 27	7 7.62	+22 41.2	1.323	2.271	8.8	19.9	159E	68	41
1 16	18 46.90	-17 20.1	3.341	2.408	6.3	20.8	16W	7*	6*	2 1	7 3.75	+23 2.3	1.367	2.291	11.1	20.1	153E	68	41
12 23	7 44.04	+27 2.0	1.502	2.437	9.2	21.5	157W	72	37	2 11	6 58.46	+23 36.8	1.473	2.330	15.1	20.4	142E	69	40
12 28	7 38.28	+27 18.5	1.495	2.452	6.8	21.4	163W	72	37	2 21	6 56.58	+24 1.5	1.597	2.370	18.3	20.7	131E	69	40
1 2	7 32.11	+27 33.2	1.495	2.467	4.4	21.3	169W	73	36	3 2	6 58.00	+24 17.6	1.737	2.409	20.5	21.0	122E	69	40
1 7	7 25.73	+27 45.7	1.503	2.482	2.6	21.2	173W	73	36	3 12	7 2.37	+24 25.9	1.888	2.448	22.0	21.3	113E	69	40
1 12	7 19.35	+27 55.4	1.518	2.497	2.6	21.3	173E	73	36	<b>185643 2040 P-L</b>									
1 17	7 13.15	+28 2.1	1.540	2.512	4.4	21.4	169E	73	36	12 23	7 45.18	+29 10.5	1.413	2.347	9.7	20.0	156W	74	35
1 22	7 7.33	+28 5.8	1.569	2.526	6.6	21.6	163E	73	36	12 28	7 39.2								

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	19/20	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°
<b>417444 2006 OE<sub>2</sub></b>										<b>402447 2006 BK<sub>55</sub></b> <i>(continuation)</i>									
12 23	7 45.45	+3 41.3	1.025	1.932	15.5	20.7	148 W	49	60	2 29	6 55.97	+0 31.7	0.703	1.490	34.1	19.4	122 E	44	65
1 2	7 30.56	+8 2.4	0.952	1.911	9.3	20.3	162 W	53	56	3 2	6 57.48	+1 38.1	0.716	1.494	34.5	19.5	121 E	47	62
1 12	7 12.21	+13 19.4	0.912	1.889	5.0	20.0	170 E	58	51	3 7	7 2.01	+6 42.1	0.755	1.504	35.6	19.6	118 E	52	57
1 22	6 52.56	+19 1.3	0.908	1.866	9.9	20.2	161 E	64	45	3 12	7 7.52	+11 14.8	0.800	1.514	36.6	19.8	115 E	56	53
1 27	6 43.12	+21 49.3	0.919	1.854	13.6	20.3	154 E	67	42	3 17	7 13.89	+15 15.7	0.851	1.525	37.5	20.0	111 E	60	49
2 1	6 34.41	+24 29.6	0.939	1.842	17.2	20.5	147 E	69	40	3 22	7 21.06	+18 46.2	0.906	1.536	38.2	20.1	108 E	64	45
2 6	6 26.73	+26 59.4	0.965	1.830	20.5	20.7	139 E	72	37	3 27	7 28.95	+21 48.4	0.965	1.547	38.7	20.3	104 E	67	42
2 11	6 20.27	+29 17.2	0.998	1.818	23.5	20.8	133 E	74	35	4 1	7 37.47	+24 25.1	1.027	1.559	39.0	20.5	101 E	69	40
2 16	6 15.19	+31 22.7	1.036	1.806	26.1	20.9	126 E	76	33	4 6	7 46.55	+26 39.1	1.091	1.571	39.2	20.6	97 E	71	37
2 21	6 11.57	+33 16.3	1.078	1.794	28.4	21.1	120 E	78	31	4 11	7 56.10	+28 32.8	1.156	1.583	39.1	20.8	94 E	72	35
2 26	6 9.43	+34 58.7	1.123	1.782	30.3	21.2	115 E	80	29	4 16	8 6.07	+30 8.6	1.222	1.596	39.0	20.9	91 E	72	34
3 2	6 8.76	+36 31.2	1.170	1.769	31.8	21.3	110 E	82	27	4 21	8 16.40	+31 28.6	1.289	1.609	38.6	21.0	88 E	72	33
3 7	6 9.51	+37 54.9	1.218	1.757	33.1	21.4	105 E	83	26	4 26	8 27.05	+32 34.6	1.356	1.621	38.2	21.1	85 E	70	31
<b>105158 2000 OL</b>										<b>443919 2002 QJ<sub>36</sub></b>									
12 23	7 45.97	+29 45.1	3.030	3.949	5.8	19.4	156 W	75	34	12 23	7 46.19	+20 48.6	1.763	2.691	8.6	22.3	156 W	66	43
12 28	7 41.39	+29 51.9	3.003	3.949	4.5	19.3	162 W	75	34	12 28	7 41.15	+21 13.0	1.742	2.696	6.4	22.1	162 W	66	43
1 2	7 36.54	+29 57.4	2.984	3.948	3.2	19.2	167 W	75	34	1 2	7 35.67	+21 38.1	1.729	2.700	4.1	22.0	169 W	67	42
1 7	7 31.49	+30 1.3	2.973	3.947	2.3	19.1	171 W	75	34	1 7	7 29.90	+22 3.2	1.723	2.704	1.8	21.9	175 W	67	42
1 12	7 26.37	+30 3.3	2.971	3.946	2.1	19.1	172 E	75	34	1 12	7 23.99	+22 27.7	1.724	2.707	0.6	21.8	178 E	67	42
1 17	7 21.25	+30 3.4	2.976	3.945	2.8	19.1	169 E	75	34	1 17	7 18.12	+22 51.1	1.734	2.711	2.9	22.0	172 E	68	41
1 22	7 16.25	+30 1.4	2.990	3.944	4.0	19.2	164 E	75	34	1 22	7 12.43	+23 12.9	1.750	2.714	5.2	22.1	165 E	68	41
1 27	7 11.46	+29 57.4	3.011	3.942	5.4	19.3	158 E	75	34	1 27	7 7.10	+23 32.9	1.774	2.717	7.4	22.3	159 E	69	40
2 1	7 6.99	+29 51.4	3.041	3.940	6.7	19.4	152 E	75	34	2 1	7 2.27	+23 50.9	1.805	2.720	9.5	22.4	153 E	69	40
2 11	6 59.25	+29 34.4	3.119	3.936	9.1	19.6	141 E	75	34	<b>191094 2002 EA<sub>3</sub></b>									
2 21	6 53.48	+29 12.1	3.222	3.930	11.1	19.7	130 E	74	35	12 23	7 47.05	+66 8.7	2.115	2.888	14.1	24.8	134 W	69	-
3 2	6 49.88	+28 46.4	3.344	3.924	12.7	19.8	119 E	74	35	12 28	7 33.79	+66 42.8	2.082	2.865	14.0	24.8	135 W	68	-
3 12	6 48.50	+28 18.8	3.478	3.916	13.9	20.0	109 E	73	36	1 2	7 19.03	+67 5.2	2.054	2.841	14.0	24.7	136 W	68	-
3 22	6 49.20	+27 50.2	3.621	3.908	14.6	20.1	99 E	73	36	1 7	7 3.32	+67 14.1	2.033	2.817	14.2	24.7	135 E	68	-
4 1	6 51.82	+27 21.0	3.768	3.899	14.9	20.2	90 E	70*	37*	1 12	6 47.34	+67 8.5	2.017	2.793	14.6	24.7	134 E	68	-
4 11	6 56.11	+26 51.5	3.913	3.889	14.8	20.2	81 E	64*	37*	1 17	6 31.81	+66 48.2	2.007	2.768	15.2	24.7	132 E	68	-
4 21	7 1.86	+26 21.3	4.054	3.878	14.3	20.3	73 E	57*	36*	1 22	6 17.40	+66 14.1	2.004	2.742	16.0	24.7	130 E	69	-
5 1	7 8.86	+25 50.0	4.188	3.866	13.6	20.3	65 E	49*	35*	<b>237495 2000 QF<sub>56</sub></b>									
5 11	7 16.89	+25 17.4	4.311	3.853	12.7	20.4	57 E	40*	33*	12 23	7 47.09	+10 50.3	1.683	2.593	10.2	20.7	152 W	56	53
5 21	7 25.78	+24 42.9	4.421	3.839	11.5	20.4	49 E	32*	30*	1 2	7 37.96	+11 23.4	1.611	2.568	6.4	20.4	163 W	56	53
5 31	7 35.37	+24 6.1	4.517	3.824	10.2	20.3	42 E	25*	27*	1 12	7 27.25	+12 10.6	1.568	2.543	3.7	20.2	170 E	57	52
6 10	7 45.51	+23 26.9	4.598	3.809	8.8	20.3	35 E	18*	23*	1 22	7 16.12	+13 8.6	1.553	2.516	5.9	20.2	165 E	58	51
6 20	7 56.10	+22 44.9	4.661	3.792	7.2	20.3	28 E	12*	18*	1 27	7 10.81	+13 40.2	1.557	2.503	8.0	20.3	159 E	59	50
6 30	8 7.01	+21 59.9	4.707	3.774	5.5	20.2	21 E	6*	13*	2 1	7 5.90	+14 12.7	1.568	2.489	10.1	20.4	154 E	59	50
7 10	8 18.15	+21 11.9	4.734	3.756	3.8	20.1	14 E	2*	7*	2 6	7 1.51	+14 45.6	1.585	2.475	12.3	20.5	148 E	60	49
7 20	8 29.44	+20 21.0	4.742	3.736	2.0	20.0	7 E	—	1*	2 11	6 57.78	+15 18.4	1.607	2.461	14.3	20.6	142 E	60	49
7 30	8 40.79	+19 27.0	4.731	3.716	0.3	19.8	1 E	—	—	2 16	6 54.77	+15 50.6	1.635	2.447	16.2	20.7	136 E	61	48
7 39	8 52.13	+18 30.3	4.700	3.694	1.7	19.9	6 W	—	—	2 21	6 52.55	+16 21.8	1.668	2.432	17.9	20.8	131 E	61	48
8 9	9 3.39	+17 31.0	4.651	3.672	3.6	20.0	13 W	6*	3*	2 26	6 51.16	+16 51.8	1.705	2.418	19.5	20.9	126 E	62	47
8 29	9 14.50	+16 29.4	4.582	3.648	5.4	20.1	20 W	12*	7*	3 2	6 50.62	+17 20.3	1.745	2.403	20.8	20.9	120 E	62	47
9 8	9 25.38	+15 25.8	4.495	3.624	7.2	20.1	27 W	19*	12*	3 7	6 50.91	+17 47.1	1.787	2.388	22.0	21.0	115 E	63	46
9 18	9 35.98	+14 20.7	4.391	3.598	8.9	20.1	34 W	25*	16*	3 12	6 52.02	+18 12.1	1.832	2.373	23.1	21.1	111 E	63	46
9 28	9 46.19	+13 14.5	4.271	3.572	10.5	20.1	41 W	32*	20*	3 17	6 53.91	+18 35.1	1.879	2.358	23.9	21.2	106 E	64	45
10 8	9 55.92	+12 7.9	4.135	3.544	12.1	20.1	48 W	38*	24*	3 22	6 56.54	+18 56.0	1.926	2.343	24.6	21.2	102 E	64	45
10 18	10 5.09	+11 1.3	3.985	3.516	13.5	20.0	55 W	43*	29*	3 27	6 59.88	+19 14.8	1.974	2.327	25.1	21.3	98 E	64*	45
10 28	10 13.56	+9 55.8	3.823	3.487	14.7	19.9	63 W	48*	34*	4 1	7 3.90	+19 31.3	2.023	2.312	25.6	21.3	94 E	64*	44
11 7	10 21.19	+8 52.0	3.652	3.456	15.7	19.9	71 W	52*	39*	4 6	7 8.53	+19 45.5	2.071	2.296	25.8	21.4	90 E	63*	44*
11 17	10 27.82	+7 50.9	3.472	3.425	16.5	19.8	79 W	53*	44*	4 11	7 13.73	+19 57.2	2.119	2.280	26.0	21.4	86 E	61*	44*
11 27	10 33.25	+6 53.7	3.288	3.392	16.9	19.6	88 W	52	50*	4 16	7 19.46	+20 6.5	2.167	2.265	26.1	21.4	82 E	58*	43*
12 7	10 37.26	+6 1.4	3.103	3.359	16.9	19.5	96 W	51	55*	4 21	7 25.68	+20 13.1	2.213	2.249	26.0	21.5	79 E	56*	43*
12 17	10 39.62	+5 15.6	2.919	3.324	16.6	19.3	106 W	50	58*	4 26	7 32.37	+20 17.1	2.258	2.233	25.9	21.5	76 E	53*	43*
12 27	10 40.06	+4 37.7	2.742	3.288	15.7	19.1	116 W	50	59	<b>27351 2000 DO<sub>73</sub></b>									
1 6	10 38.39	+4 9.0	2.576	3.252	14.2	18.9	126 W	49	60	12 23	7 47.36	+26 51.3	1.548	2.479	9.3	18.0	156 W	72	37
1 16	10 34.42	+3 50.9	2.426	3.214	12.1	18.7	137 W	49	60	12 28	7 41.78	+27 6.8	1.538	2.493	6.9	17.9	162 W	72	37
<b>402447 2006 BK</b>																			

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	$45^\circ$	$-26^\circ$	19/20	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	$45^\circ$	$-26^\circ$
<b>27351 2000 DO<sub>73</sub></b>										<b>343223 2009 WD<sub>82</sub></b>									
<i>(continuation)</i>																			
4 11	7 13.30	+25 23.4	2.628	2.734	21.4	19.8	85 E	65*	38*	12 23	7 49.84	+26 35.2	1.537	2.467	9.5	20.8	156 W	72	37
4 21	7 23.74	+24 51.0	2.782	2.752	20.9	19.9	78 E	59*	38*	12 28	7 44.20	+26 46.7	1.524	2.477	7.2	20.7	162 W	72	37
5 1	7 35.33	+24 14.8	2.931	2.769	20.1	20.0	71 E	52*	38*	1 2	7 38.08	+26 56.8	1.517	2.487	4.8	20.6	168 W	72	37
5 11	7 47.82	+23 34.4	3.074	2.785	19.0	20.1	64 E	45*	37*	1 7	7 31.68	+27 4.9	1.517	2.496	2.7	20.5	173 W	72	37
5 21	8 1.00	+22 49.4	3.210	2.801	17.8	20.2	58 E	37*	36*	1 12	7 25.19	+27 10.7	1.525	2.506	2.2	20.5	174 E	72	37
5 31	8 14.70	+21 59.7	3.336	2.815	16.3	20.2	51 E	30*	34*	1 17	7 18.82	+27 13.8	1.540	2.515	3.8	20.6	170 E	72	37
6 10	8 28.76	+21 5.2	3.452	2.829	14.7	20.3	45 E	24*	31*	1 22	7 12.74	+27 14.1	1.562	2.524	6.1	20.8	164 E	72	37
6 20	8 43.09	+20 5.9	3.557	2.841	13.0	20.3	39 E	18*	28*	1 27	7 7.15	+27 11.8	1.592	2.533	8.3	20.9	158 E	72	37
6 30	8 57.58	+19 2.0	3.650	2.853	11.2	20.3	33 E	13*	24*	2 1	7 2.20	+27 7.1	1.628	2.541	10.4	21.0	152 E	72	37
7 10	9 12.15	+17 53.7	3.730	2.863	9.3	20.3	27 E	8*	19*	2 6	6 57.98	+27 0.3	1.670	2.550	12.4	21.2	146 E	72	37
7 20	9 26.75	+16 41.3	3.796	2.873	7.4	20.2	21 E	5*	14*	2 11	6 54.58	+26 51.9	1.718	2.558	14.2	21.3	141 E	72	37
7 30	9 41.31	+15 25.1	3.847	2.882	5.4	20.2	16 E	2*	9*	2 16	6 52.02	+26 42.1	1.770	2.566	15.8	21.4	135 E	72	37
8 9	9 55.79	+14 5.6	3.884	2.890	3.4	20.1	10 E	—	3*	<b>276397 2002 XA<sub>40</sub></b>									
8 19	10 10.17	+12 43.3	3.905	2.897	1.4	20.0	4 E	—	—	12 23	7 49.88	+24 3.0	0.870	1.812	13.0	18.9	155 W	69	40
8 29	10 24.41	+11 18.7	3.911	2.903	0.9	19.9	2 W	—	—	12 28	7 42.06	+24 4.7	0.882	1.843	9.3	18.8	162 W	69	40
9 8	10 38.48	+9 52.3	3.901	2.908	2.8	20.1	8 W	2*	—	1 2	7 33.93	+24 5.0	0.899	1.874	5.7	18.7	169 W	69	40
9 18	10 52.34	+8 24.7	3.876	2.912	4.8	20.2	14 W	7*	2*	1 7	7 25.85	+24 3.5	0.923	1.905	2.2	18.6	176 W	69	40
9 28	11 5.98	+6 56.5	3.835	2.915	6.8	20.3	20 W	13*	6*	1 12	7 18.11	+23 59.9	0.953	1.935	1.8	18.7	176 E	69	40
10 8	11 19.34	+5 28.4	3.778	2.917	8.8	20.3	26 W	19*	10*	1 17	7 10.99	+23 54.4	0.990	1.966	5.0	19.0	170 E	69	40
10 18	11 32.39	+4 1.2	3.706	2.918	10.6	20.3	33 W	24*	15*	1 22	7 4.69	+23 47.2	1.033	1.996	8.0	19.2	164 E	69	40
10 28	11 45.07	+2 35.5	3.620	2.918	12.4	20.4	39 W	30*	19*	1 27	6 59.37	+23 38.8	1.082	2.026	10.8	19.5	157 E	69	40
11 7	11 57.32	+1 12.1	3.520	2.918	14.1	20.4	46 W	34*	24*	2 1	6 55.11	+23 29.6	1.136	2.056	13.3	19.7	151 E	68	41
11 17	12 9.05	+0 8.1	3.407	2.916	15.6	20.3	53 W	38*	30*	2 11	6 49.88	+23 9.8	1.261	2.115	17.4	20.1	140 E	68	41
11 27	12 20.14	+1 24.2	3.283	2.913	17.0	20.3	60 W	41*	36*	2 21	6 48.73	+22 49.6	1.403	2.172	20.5	20.5	130 E	68	41
12 7	12 30.49	+2 35.2	3.149	2.910	18.2	20.3	67 W	42*	43*	3 2	6 51.15	+22 29.4	1.559	2.228	22.6	20.9	120 E	67	42
12 17	12 39.91	+3 40.3	3.007	2.905	19.1	20.2	75 W	41	50*	3 12	6 56.50	+22 8.7	1.724	2.284	23.9	21.2	111 E	67	42
12 27	12 48.23	+4 38.2	2.859	2.900	19.6	20.1	83 W	40	57*	3 22	7 4.17	+21 46.4	1.897	2.337	24.5	21.5	103 E	67	42
1 6	12 55.21	+5 27.7	2.708	2.893	19.9	20.0	91 W	40	64*	<b>159463 2000 PM<sub>7</sub></b>									
1 16	13 0.60	+6 7.7	2.556	2.886	19.6	19.8	99 W	39	69*	12 23	7 50.52	+24 33.4	1.992	2.915	8.1	20.6	155 W	70	39
<b>441600 2008 UC<sub>201</sub></b>										12 28	7 45.57	+24 58.3	1.977	2.926	6.1	20.5	161 W	70	39
12 23	7 47.57	+19 53.5	1.689	2.616	9.0	21.5	155 W	65	44	1 2	7 40.22	+25 22.7	1.969	2.937	4.1	20.4	168 W	70	39
12 28	7 42.32	+19 57.5	1.676	2.628	6.8	21.4	162 W	65	44	1 7	7 34.62	+25 46.0	1.969	2.948	2.2	20.3	173 W	71	38
1 2	7 36.68	+20 2.0	1.671	2.640	4.4	21.3	168 W	65	44	1 12	7 28.91	+26 7.7	1.977	2.959	1.4	20.2	176 E	71	38
1 7	7 30.82	+20 6.6	1.672	2.652	2.1	21.2	174 W	65	44	1 17	7 23.24	+26 27.4	1.993	2.969	2.8	20.4	171 E	71	38
1 12	7 24.89	+20 11.2	1.681	2.664	0.8	21.1	178 E	65	44	1 22	7 17.76	+26 44.7	2.016	2.979	4.7	20.5	166 E	72	37
1 17	7 19.08	+20 15.3	1.698	2.675	2.8	21.3	172 E	65	44	1 27	7 12.60	+26 59.5	2.047	2.989	6.6	20.6	159 E	72	37
1 22	7 13.53	+20 19.0	1.722	2.687	5.1	21.5	166 E	65	44	2 1	7 7.89	+27 11.8	2.084	2.998	8.5	20.8	153 E	72	37
1 27	7 8.39	+20 21.9	1.753	2.698	7.3	21.6	160 E	65	44	2 6	7 3.74	+27 21.6	2.129	3.007	10.1	20.9	147 E	72	37
2 1	7 3.80	+20 24.2	1.791	2.709	9.3	21.7	154 E	65	44	2 11	7 0.21	+27 29.1	2.180	3.016	11.7	21.0	142 E	72	37
2 6	6 59.84	+20 25.8	1.835	2.719	11.2	21.9	148 E	65	44	2 16	6 57.36	+27 34.6	2.236	3.025	13.1	21.1	136 E	73	36
<b>272148 2005 NP<sub>27</sub></b>										2 21	6 55.20	+27 38.2	2.297	3.034	14.3	21.2	131 E	73	36
12 23	7 47.90	+11 44.8	1.836	2.745	9.6	21.0	152 W	57	52	2 26	6 53.76	+27 40.2	2.362	3.042	15.4	21.3	125 E	73	36
1 2	7 37.94	+11 44.7	1.793	2.750	5.9	20.8	163 W	57	52	3 2	6 53.03	+27 40.8	2.431	3.050	16.3	21.4	120 E	73	36
1 12	7 26.89	+11 54.3	1.780	2.754	3.5	20.7	170 E	57	52	<b>482766 2013 GF<sub>69</sub></b>									
1 22	7 15.90	+12 11.9	1.797	2.757	5.6	20.8	164 E	57	52	12 23	7 50.79	+ 5 42.6	1.471	2.366	12.6	22.8	148 W	51	58
2 1	7 6.12	+12 35.1	1.843	2.759	9.2	21.0	153 E	58	51	1 2	7 37.83	+ 6 12.3	1.467	2.411	8.3	22.6	159 W	51	58
2 11	6 58.47	+13 1.4	1.915	2.759	12.7	21.3	142 E	58	51	1 12	7 24.14	+ 6 59.5	1.491	2.455	5.9	22.6	165 E	52	57
2 21	6 53.50	+13 28.6	2.008	2.759	15.7	21.5	131 E	58	51	1 22	7 11.21	+ 7 59.1	1.546	2.496	7.5	22.8	161 E	53	56
<b>441622 2008 UP<sub>366</sub></b>										2 1	7 0.33	+ 9 5.3	1.629	2.536	10.9	23.1	151 E	54	55
12 23	7 48.51	+24 47.8	1.522	2.453	9.5	21.2	156 W	70	39	<b>410777 2009 FD</b>									
12 28	7 43.13	+25 9.2	1.514	2.468	7.1	21.1	162 W	70	39	12 23	7 50.90	+28 5.6	0.770	1.713	13.9	23.5	155 W	73	36
1 2	7 37.31	+25 29.8	1.513	2.483	4.6	21.0	168 W	70	39	12 28	7 38.39	+28 44.0	0.757	1.720	9.8	23.3	163 W	74	35
1 7	7 31.24	+25 48.9	1.518	2.498	2.4	20.9	174 W	71	38	1 2	7 24.76	+29 16.6	0.750	1.726	6.0	23.1	169 W	74	35
1 12	7 25.11	+26 5.9	1.531	2.513	1.7	20.8	176 E	71	38	1 7	7 10.59	+29 41.1	0.751	1.731	4.1	23.0	173 W	75	34
1 17	7 19.11	+26 20.5	1.552	2.528	3.6	21.0	171 E	71	38	1 12	6 56.48	+29 56.1	0.759	1.734	6.3	23.2	169 E	75	34
1 22	7 13.42	+26 32.3	1.579	2.542	5.9	21.2	165 E	72	37	1 17	6 43.05	+30 1.6	0.774	1.737	10.1	23.4	162 E	75	34
1 27	7 8.21	+26 41.3	1.614	2.556	8.1	21.3	159 E	72	37	1 22	6 30.79	+29 58.6	0.796	1.738	14.0	23.6	155 E	75	34
2 1	7 3.62	+26 47.6	1.655	2.570	10.2	21.5	153 E	72	37	1 27	6 20.12	+29 48.9	0.824	1.737	17.7	23.8	148 E	75	34
2 6	6 59.75	+26 51.6	1.703	2.584	12.1	21.6	147 E	72	37	<b>442715 2012 UQ<sub>166</sub></b>									
<b>485379 2011 FO<sub>56</sub></b>										12 23	7 51.35	+16 21.9	1.668	2.586	9.8	21.7	153 W	61	48
12 23	7 48.90	+16 24.8	1.539	2.461	10.1	22.1	154 W	61	48	1 2	7 40.61	+16 20.4	1.637	2.601	5.4	21.5	166 W	61	48
1 2	7 38.70	+16 27.0	1.475	2.441	5.5	21.8	166 W	61	48	1 12	7 28.77	+16 24.1	1.635	2.616	2.0	21.3	175 E	61	48
1 12	7 26.81	+16 35.4	1.439	2.419	2.1	21.6	175 E	62	47	1 22	7 17.12	+16 30.8	1.663	2.629	5.1	21.5	166 E	62	47
1 22	7 14.61	+16 47.6	1.431	2.397	5.8	21.7	166 E	62	47	2 1	7 6.95	+16 39.1	1.720	2.642	9.4	21.8	154 E	62	47
2 1	7 3.61	+17 1.5	1.452	2.37															

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/20	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	19/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°
<b>85546 1997 XH<sub>1</sub></b>										<b>447335 2005 YR<sub>49</sub></b>									
<i>(continuation)</i>										<i>(continuation)</i>									
2 11	6 58.42	+27 3.4	1.707	2.554	14.0	20.0	141 E	72	37	11 27	17 21.93	-24 42.1	3.193	2.265	7.1	21.2	17 E	2*	10*
2 21	6 54.79	+26 50.1	1.831	2.586	16.9	20.3	131 E	72	37	12 7	17 43.38	-24 15.9	3.262	2.304	4.8	21.2	11 E	—	4*
3 2	6 54.45	+26 32.6	1.970	2.617	19.0	20.5	121 E	72	37	12 17	18 4.25	-23 40.5	3.319	2.342	2.4	21.1	6 E	—	—
3 12	6 57.08	+26 12.2	2.121	2.647	20.5	20.8	111 E	71	38	12 27	18 24.50	-22 56.3	3.363	2.380	0.2	21.0	0 E	—	—
3 22	7 2.26	+25 49.3	2.279	2.676	21.3	21.0	102 E	71	38	1 6	18 44.08	-22 3.6	3.394	2.417	2.2	21.2	5 W	—	—
4 1	7 9.59	+25 23.8	2.441	2.705	21.6	21.1	94 E	70*	39	1 16	19 2.95	-21 3.0	3.410	2.453	4.5	21.4	11 W	1*	4*
4 11	7 18.64	+24 55.4	2.604	2.733	21.5	21.3	86 E	66*	39*	<b>337144 1999 TQ<sub>231</sub></b>									
4 21	7 29.07	+24 23.4	2.766	2.760	21.0	21.4	79 E	59*	39*	12 23	7 53.56	+18 6.5	1.559	2.478	10.2	21.3	154 W	63	46
<b>399464 2002 QZ<sub>46</sub></b>										12 28	7 48.45	+18 28.0	1.544	2.491	7.8	21.2	160 W	63	46
12 23	7 52.12	+4 47.6	1.922	2.803	10.8	22.0	148 W	50	59	1 2	7 42.88	+18 51.0	1.537	2.503	5.4	21.1	166 W	64	45
1 2	7 42.75	+4 47.0	1.905	2.838	7.7	21.9	157 W	50	59	1 7	7 37.01	+19 14.6	1.537	2.515	2.9	20.9	173 W	64	45
1 12	7 32.59	+5 2.4	1.916	2.872	5.7	21.9	163 W	50	59	1 12	7 31.00	+19 38.4	1.544	2.527	0.8	20.8	178 W	65	44
1 22	7 22.64	+5 31.7	1.956	2.905	6.3	22.0	161 E	51	58	1 17	7 25.06	+20 1.7	1.559	2.539	2.5	21.0	174 E	65	44
2 1	7 13.90	+6 11.3	2.026	2.937	8.8	22.2	153 E	51	58	1 22	7 19.33	+20 24.1	1.581	2.550	4.9	21.1	167 E	65	44
2 11	7 7.12	+6 57.2	2.121	2.968	11.6	22.4	143 E	52	57	1 27	7 14.01	+20 45.1	1.610	2.561	7.2	21.3	161 E	66	43
<b>461769 2005 UN<sub>322</sub></b>										2 1	7 9.22	+21 4.5	1.646	2.572	9.4	21.5	155 E	66	43
12 23	7 52.91	+35 0.1	1.178	2.105	12.1	19.8	153 W	80	29	2 6	7 5.09	+21 22.1	1.689	2.583	11.4	21.6	149 E	66	43
12 28	7 46.90	+36 33.4	1.177	2.121	10.1	19.7	158 W	82	27	2 11	7 1.69	+21 38.0	1.737	2.593	13.3	21.7	143 E	67	42
1 2	7 40.12	+38 1.1	1.183	2.138	8.6	19.7	161 W	83	26	<b>187043 2005 KE<sub>12</sub></b>									
1 7	7 32.85	+39 20.9	1.196	2.154	7.9	19.7	162 W	84	25	12 23	7 53.68	+23 14.6	1.821	2.742	8.9	21.0	155 W	68	41
1 12	7 25.35	+40 31.3	1.216	2.171	8.4	19.8	161 E	86	23	12 28	7 48.71	+23 39.7	1.800	2.748	6.8	20.9	161 W	69	40
1 17	7 17.93	+41 31.2	1.243	2.187	9.6	19.9	158 E	87	22	1 2	7 43.28	+24 5.0	1.787	2.754	4.6	20.8	167 W	69	40
1 22	7 10.89	+42 20.2	1.277	2.204	11.3	20.0	154 E	87	22	1 7	7 37.53	+24 29.6	1.781	2.759	2.4	20.6	173 W	69	40
1 27	7 4.49	+42 58.4	1.316	2.220	13.1	20.2	149 E	88	21	1 12	7 31.61	+24 52.9	1.782	2.764	1.1	20.5	177 W	70	39
2 1	6 58.98	+43 26.8	1.361	2.236	14.9	20.3	144 E	88	21	1 17	7 25.68	+25 14.5	1.791	2.770	2.6	20.7	173 E	70	39
2 6	6 54.51	+43 46.4	1.412	2.252	16.6	20.5	139 E	89	20	1 22	7 19.91	+25 34.0	1.808	2.774	4.8	20.8	166 E	71	38
2 11	6 51.16	+43 58.5	1.467	2.269	18.1	20.7	134 E	89	20	1 27	7 14.46	+25 51.0	1.832	2.779	6.9	20.9	160 E	71	38
2 16	6 48.96	+44 4.3	1.526	2.285	19.5	20.8	129 E	89	20	2 1	7 9.48	+26 5.5	1.864	2.783	8.9	21.1	154 E	71	38
2 21	6 47.91	+44 4.9	1.589	2.301	20.7	20.9	125 E	89	20	2 6	7 5.08	+26 17.5	1.901	2.787	10.8	21.2	148 E	71	38
2 26	6 47.98	+44 1.2	1.654	2.316	21.7	21.1	120 E	89	20	2 11	7 1.34	+26 27.1	1.945	2.791	12.5	21.3	142 E	71	38
3 2	6 49.11	+43 54.1	1.722	2.332	22.5	21.2	116 E	89	20	2 16	6 58.33	+26 34.5	1.995	2.794	14.1	21.4	136 E	72	37
3 7	6 51.21	+43 44.2	1.793	2.348	23.1	21.3	112 E	89	20	<b>136897 1998 HJ<sub>41</sub></b>									
3 12	6 54.19	+43 31.9	1.865	2.363	23.6	21.4	108 E	89	20	12 23	7 54.32	-53 27.3	0.949	1.474	41.2	20.8	99 W	—	63
<b>447335 2005 YR<sub>49</sub></b>										12 28	7 47.19	-55 0.2	0.953	1.480	40.9	20.9	100 W	—	61
12 23	7 53.53	+14 7.2	0.758	1.691	15.8	17.8	152 W	59	50	1 2	7 38.86	-56 12.4	0.956	1.486	40.7	20.9	100 W	—	60
12 28	7 48.89	+12 3.9	0.724	1.674	13.2	17.6	157 W	57	52	1 7	7 29.67	-57 2.9	0.959	1.492	40.4	20.9	100 W	—	59
1 2	7 43.25	+9 55.6	0.696	1.657	11.0	17.4	161 W	55	54	1 12	7 20.00	-57 31.5	0.962	1.497	40.2	20.9	101 E	—	58
1 7	7 36.82	+7 44.5	0.674	1.642	9.6	17.3	164 W	53	56	1 17	7 10.33	-57 38.1	0.964	1.502	40.0	20.9	101 E	—	58
1 12	7 29.86	+5 33.6	0.659	1.626	9.7	17.2	164 E	51	58	1 22	7 1.11	-57 23.1	0.965	1.507	39.8	20.9	101 E	—	59
1 17	7 22.69	+3 26.0	0.649	1.611	11.4	17.2	161 E	48	61	1 27	6 52.82	-56 47.3	0.966	1.511	39.7	20.9	102 E	—	59
1 22	7 15.64	+1 25.2	0.645	1.598	14.1	17.3	157 E	46	63	2 1	6 45.83	-55 52.3	0.966	1.515	39.5	20.9	102 E	—	60
1 27	7 9.06	-0 26.2	0.647	1.584	17.2	17.4	152 E	45	64	2 6	6 40.37	-54 39.7	0.966	1.519	39.4	20.9	102 E	—	61
2 1	7 3.28	-2 5.9	0.654	1.572	20.4	17.5	146 E	43	66	2 11	6 36.58	-53 11.5	0.966	1.522	39.3	20.9	102 E	—	63
2 11	6 55.02	-4 47.7	0.681	1.550	26.3	17.7	136 E	40	69	2 16	6 34.48	-51 29.1	0.966	1.525	39.2	20.9	103 E	—	65
2 21	6 51.92	-6 41.6	0.719	1.531	31.2	17.9	127 E	38	71	2 21	6 34.04	-49 34.3	0.966	1.527	39.2	20.9	103 E	—	66
3 2	6 54.21	-7 56.7	0.766	1.516	34.9	18.2	119 E	37	72	2 26	6 35.19	-47 28.6	0.966	1.529	39.1	20.9	103 E	—	69
3 7	6 57.27	-8 23.5	0.791	1.511	36.4	18.3	115 E	37	72	3 2	6 37.83	-45 13.6	0.967	1.531	39.1	20.9	103 E	—	71
3 12	7 1.50	-8 45.0	0.817	1.506	37.6	18.4	112 E	36	73	3 7	6 41.84	-42 50.9	0.969	1.532	39.2	20.9	103 E	2	71
3 17	7 6.81	-9 2.4	0.843	1.502	38.7	18.5	109 E	36	73	3 12	6 47.07	-40 21.9	0.972	1.533	39.3	20.9	102 E	5	76
3 22	7 13.13	-9 16.7	0.870	1.500	39.5	18.5	107 E	36	73	3 17	6 53.40	-37 47.9	0.977	1.533	39.4	20.9	102 E	7	81
3 27	7 20.38	-9 28.9	0.898	1.499	40.2	18.6	104 E	36	73	3 22	7 0.72	-35 10.4	0.983	1.533	39.5	21.0	102 E	10	81
4 1	7 28.49	-9 39.9	0.926	1.498	40.7	18.7	102 E	35*	74	3 27	7 8.93	-32 30.8	0.991	1.533	39.7	21.0	101 E	12	83
4 6	7 37.38	-9 50.3	0.954	1.499	41.1	18.8	100 E	35*	74	4 1	7 17.92	-29 50.8	1.001	1.533	40.0	21.0	100 E	15*	86
4 11	7 46.96	-10 0.8	0.982	1.501	41.3	18.9	98 E	34*	74	4 6	7 27.59	-27 11.9	1.014	1.531	40.2	21.0	99 E	17*	89
4 16	7 57.17	-10 11.7	1.011	1.505	41.5	18.9	97 E	33*	74	4 11	7 37.85	-24 35.4	1.029	1.530	40.5	21.1	98 E	19*	89
4 21	8 7.96	-10 23.4	1.040	1.509	41.6	19.0	95 E	32*	74	4 16	7 48.62	-22 2.7	1.046	1.528	40.7	21.1	96 E	21*	86
5 1	8 31.04	-10 50.6	1.101	1.521	41.5	19.1	92 E	30*	75*	4 21	7 59.83	-19 35.0	1.066	1.526	41.0	21.2	95 E	23*	84
5 11	8 55.74	-11 24.1	1.164	1.537	41.1	19.3	90 E	26*	75*	4 26	8 11.43	-17 13.5	1.088	1.523	41.3	21.2	93 E	24*	81*
5 21	9 21.64	-12 4.3	1.232	1.556	40.5	19.4	87 E	23*	75*	5 1	8 23.34	-14 59.2	1.113	1.520	41.5	21.3	91 E	25*	79*
5 31	9 48.40	-12 51.4	1.305	1.580	39.7	19.5	85 E	19*	75*	5 6	8 35.51	-12 52.7	1.140	1.517	41.7	21.3	90 E	26*	77*
6 10	10 15.67	-13 44.8	1.384	1.606	38.8	19.7	83 E	16*	75*	5 11	8 47.89	-10 54.7	1.169	1.513	41.8	21.4	88 E	26*	74*
6 20	10 43.16	-14 43.2	1.469	1.636	37.7	19.8	80 E	13*	73*	5 16	9 0.42	-9 5.4	1.200	1.509	41.9	21.4	86 E	26*	72*
6 30	11 10.68	-15 45.5	1.561	1.668	36.5	20.0	77 E	10*	71*	5 21	9 13.08	-7 24.9	1.233	1.505	42.0	21.5	84 E	26*	70*
7 10	11 38.02	-16 50.0	1.659	1.702	35.2	20.1													

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	19/20	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°
<b>413421 2004 VA<sub>15</sub></b>										<i>(continuation)</i>									
1 17	7 8.12	+52 35.6	1.296	2.188	14.1	21.4	147E	82	11	12 23	7 56.98	+24 9.7	1.310	2.235	11.2	21.1	154 W	69	40
1 22	7 0.42	+52 12.8	1.347	2.224	14.8	21.5	145E	83	12	12 28	7 51.41	+24 12.5	1.302	2.251	8.5	21.0	160 W	69	40
1 27	6 53.99	+51 41.7	1.403	2.259	15.7	21.7	142E	83	1 2	1 2	7 45.33	+24 14.7	1.300	2.268	5.8	20.9	167 W	69	40
2 1	6 48.93	+51 4.3	1.465	2.294	16.7	21.8	138E	84	1 7	1 7	7 38.96	+24 15.8	1.305	2.284	3.1	20.8	173 W	69	40
2 6	6 45.26	+50 22.4	1.531	2.329	17.7	22.0	134E	85	14	1 12	7 32.51	+24 15.3	1.317	2.300	1.1	20.7	178 W	69	40
<b>213332 2001 SV<sub>148</sub></b>										<b>350594 2001 QU<sub>261</sub></b>									
12 23	7 56.04	+14 59.2	1.972	2.878	9.3	21.4	152 W	60	49	1 17	7 26.20	+24 13.1	1.336	2.316	2.9	20.9	173 E	69	40
1 2	7 46.47	+15 10.0	1.928	2.886	5.4	21.2	164 W	60	49	1 22	7 20.24	+24 9.1	1.362	2.332	5.5	21.1	167 E	69	40
1 12	7 35.73	+15 27.1	1.913	2.892	2.2	21.0	174 W	60	49	1 27	7 14.81	+24 3.3	1.395	2.347	8.0	21.2	161 E	69	40
1 22	7 24.88	+15 47.9	1.929	2.898	4.1	21.1	168 E	61	48	2 1	7 10.06	+23 56.1	1.435	2.363	10.3	21.4	155 E	69	40
2 1	7 15.03	+16 10.3	1.975	2.903	7.9	21.4	156 E	61	48	2 6	7 6.11	+23 47.6	1.480	2.379	12.4	21.6	149 E	69	40
2 11	7 7.11	+16 32.2	2.048	2.907	11.4	21.6	144 E	62	47	2 11	7 3.01	+23 38.1	1.531	2.394	14.4	21.7	143 E	69	40
<b>426071 2012 CD<sub>29</sub></b>										<b>337110 1999 RE<sub>110</sub></b>									
12 23	7 56.22	- 9 48.6	0.717	1.583	25.2	21.3	137 W	35	74	12 23	7 57.19	+24 55.7	1.537	2.459	10.2	21.1	154 W	70	39
12 28	7 41.94	- 9 1.5	0.705	1.602	21.9	21.2	143 W	36	73	12 28	7 51.64	+25 1.5	1.523	2.470	7.8	21.0	160 W	70	39
1 2	7 26.82	- 7 55.7	0.700	1.619	19.0	21.1	148 W	37	72	1 2	7 45.60	+25 6.5	1.515	2.481	5.3	20.9	166 W	70	39
1 7	7 11.42	- 6 32.7	0.703	1.634	17.0	21.1	151 W	38	71	1 7	7 39.24	+25 10.2	1.514	2.492	2.9	20.8	173 W	70	39
1 12	6 56.35	+ 4 55.4	0.712	1.647	16.3	21.1	152 E	40	69	1 12	7 32.76	+25 12.2	1.521	2.503	1.3	20.7	177 W	70	39
1 17	6 42.18	- 3 7.9	0.730	1.658	17.0	21.2	150 E	42	67	1 17	7 26.35	+25 12.1	1.535	2.513	2.9	20.8	173 E	70	39
1 22	6 29.35	- 1 14.7	0.755	1.668	18.8	21.4	147 E	44	65	1 22	7 20.20	+25 9.9	1.556	2.524	5.2	21.0	167 E	70	39
1 27	6 18.18	+ 0 40.3	0.786	1.676	21.2	21.5	142 E	46	63	1 27	7 14.50	+25 5.6	1.584	2.534	7.5	21.2	160 E	70	39
2 1	6 8.85	+ 2 33.4	0.824	1.682	23.7	21.7	137 E	48	61	2 1	7 9.40	+24 59.4	1.620	2.543	9.7	21.3	154 E	70	39
2 6	6 1.40	+ 4 22.3	0.866	1.687	26.2	21.9	131 E	49	60	2 6	7 5.01	+24 51.7	1.661	2.553	11.7	21.5	148 E	70	39
<b>394474 2007 TT<sub>23</sub></b>										<b>517542 2014 SY<sub>223</sub></b>									
12 23	7 56.34	+11 46.7	2.295	3.189	8.7	22.0	151 W	57	52	12 23	7 57.45	- 8 14.8	1.240	2.075	18.6	21.8	138 W	37	72
1 2	7 47.48	+11 56.3	2.248	3.197	5.5	21.8	162 W	57	52	12 28	7 52.33	- 8 35.0	1.215	2.077	17.1	21.7	142 W	36	73
1 12	7 37.60	+12 13.9	2.231	3.205	3.0	21.7	170 W	57	52	1 2	7 46.55	- 8 45.6	1.194	2.078	15.7	21.6	145 W	36	73
1 22	7 27.59	+12 37.8	2.245	3.211	4.0	21.8	167 E	58	51	1 7	7 40.28	- 8 45.6	1.180	2.079	14.6	21.6	148 W	36	73
2 1	7 18.37	+13 5.6	2.290	3.217	7.1	22.0	156 E	58	51	1 12	7 33.72	- 8 34.9	1.171	2.079	13.8	21.5	150 W	36	73
2 11	7 10.74	+13 35.1	2.363	3.221	10.1	22.2	145 E	59	50	1 17	7 27.09	- 8 13.6	1.168	2.079	13.6	21.5	150 E	37	72
<b>7818 Muirhead</b>										<b>285571 2000 PQ<sub>9</sub></b>									
12 23	7 56.77	-17 55.5	0.848	1.662	26.9	15.9	130 W	27	82	12 23	7 57.69	+24 25.8	1.718	2.637	9.5	22.0	154 W	69	40
12 28	7 53.68	-17 20.1	0.839	1.678	25.0	15.8	134 W	28	81	12 28	7 51.26	+24 27.0	1.699	2.645	7.2	21.9	160 W	69	40
1 2	7 49.94	-16 27.9	0.833	1.694	23.0	15.7	138 W	29	80	1 2	7 44.34	+24 27.2	1.687	2.653	4.9	21.8	167 W	69	40
1 7	7 45.77	-15 18.9	0.831	1.711	21.1	15.7	141 W	30	79	1 7	7 37.11	+24 25.9	1.682	2.661	2.5	21.6	173 W	69	40
1 12	7 41.40	-13 54.0	0.833	1.729	19.4	15.7	144 W	31	78	1 12	7 29.75	+24 22.8	1.686	2.668	1.0	21.5	177 E	69	40
1 17	7 37.05	-12 14.9	0.839	1.747	18.1	15.7	147 E	33	76	1 17	7 22.47	+24 17.8	1.697	2.675	2.8	21.7	172 E	69	40
1 22	7 32.94	-10 23.8	0.851	1.765	17.1	15.7	148 E	35	74	1 22	7 15.46	+24 10.9	1.716	2.682	5.1	21.8	166 E	69	40
1 27	7 29.30	- 8 23.7	0.869	1.784	16.8	15.7	148 E	37	72	1 27	7 8.89	+24 2.1	1.743	2.688	7.4	22.0	159 E	69	40
2 1	7 26.30	- 6 17.9	0.892	1.803	17.0	15.8	148 E	39	70	2 1	7 2.92	+23 51.8	1.778	2.693	9.5	22.1	153 E	69	40
2 6	7 24.07	- 4 9.7	0.920	1.822	17.6	15.9	146 E	41	68	2 6	6 57.66	+23 40.2	1.819	2.698	11.5	22.3	147 E	69	40
2 11	7 22.69	- 2 2.1	0.954	1.842	18.7	16.1	143 E	43	66	<b>109077 2001 QR<sub>25</sub></b>									
2 16	7 22.20	+ 0 2.1	0.993	1.862	19.9	16.2	140 E	45	64	12 23	7 57.70	+16 39.8	1.135	2.057	12.9	18.1	152 W	62	47
2 21	7 22.59	+ 2 1.1	1.038	1.882	21.2	16.4	137 E	47	62	12 28	7 52.85	+17 4.6	1.128	2.074	10.0	18.0	158 W	62	47
2 26	7 23.87	+ 3 53.2	1.087	1.903	22.5	16.6	133 E	49	60	1 2	7 47.43	+17 31.8	1.127	2.092	7.1	17.9	165 W	63	46
3 2	7 25.99	+ 5 37.4	1.140	1.923	23.7	16.7	129 E	51	58	1 7	7 41.67	+18 0.5	1.133	2.110	4.1	17.8	171 W	63	46
3 12	7 32.55	+ 8 40.0	1.259	1.965	25.7	17.0	121 E	54	55	1 12	7 35.78	+18 29.7	1.145	2.127	1.6	17.6	176 W	63	46
3 22	7 41.74	+11 7.9	1.390	2.006	27.1	17.3	113 E	56	53	1 17	7 29.99	+18 58.6	1.164	2.145	2.5	17.8	174 E	64	45
4 1	7 53.07	+13 3.0	1.532	2.048	27.9	17.6	106 E	58	51	1 22	7 24.49	+19 26.6	1.189	2.162	5.2	18.0	168 E	64	45
4 11	8 6.06	+14 28.5	1.681	2.090	28.2	17.9	99 E	59*	50	1 27	7 19.50	+19 53.0	1.221	2.180	7.9	18.2	162 E	65	44
4 21	8 20.31	+15 27.8	1.835	2.132	28.1	18.1	93 E	58*	49	2 1	7 15.18	+20 17.4	1.260	2.198	10.4	18.4	156 E	65	44
5 1	8 35.48	+16 4.2	1.992	2.174	27.6	18.3	86 E	54*	48	2 11	7 8.95	+20 59.4	1.354	2.233	14.8	18.7	145 E	66	43
5 11	8 51.29	+16 20.9	2.150	2.215	26.7	18.5	80 E	50*	48*	2 21	7 6.23	+21 32.0	1.467	2.267	18.3	19.1	134 E	67	42
5 21	9 7.52	+16 20.5	2.308	2.256	25.6	18.7	74 E	44*	47*	3 2	7 6.99	+21 55.4	1.596	2.301	20.9	19.4	124 E	67	42
5 31	9 24.01	+16 5.5	2.464	2.296	24.3	18.8	69 E	38*	46*	3 12	7 10.89	+22 10.1	1.737	2.335	22.7	19.6	115 E	67	42
6 10	9 40.63	+15 38.0	2.616	2.336	22.8	18.9	63 E	33*	45*	3 22	7 17.45	+22 16.4	1.887	2.368	23.8	19.9	106 E	67	42
6 20	9 57.29	+14 59.9	2.763	2.375	21.1	19.0	57 E	28*	43*	4 1	7 26.22	+22 14.7	2.042	2.401	24.3	20.1	98 E	67*	42
6 30	10 13.91	+14 12.9	2.903	2.413	19.4	19.1	52 E	23*	40*	4 11	7 36.75	+22 4.9	2.199	2.433	24.3	20.3	91 E	65*	42
7 10	10 30.46	+13 18.6	3.036	2.451	17.5	19.2	47 E	19*	36*	4 21	7 48.66	+21 47.3	2.357	2.464	23.9	20.4	84 E	60*	42*
7 20	10 46.89	+12 18.4	3.161	2.488	1														

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	19/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°
<b>109077 2001 QR<sub>25</sub></b>										<b>27995 1997 WL<sub>2</sub></b>									
<i>(continuation)</i>																			
9 8	11 15.46	+ 7 7.2	3.825	2.819	0.9	20.8	3 E	—	—	12 23	7 59.47	+23 48.0	1.747	2.663	9.6	19.1	153 W	69	40
9 18	11 29.93	+ 5 41.4	3.838	2.838	1.7	20.9	5 W	—	—	12 28	7 54.43	+24 9.0	1.724	2.667	7.4	19.0	159 W	69	40
9 28	11 44.21	+ 4 16.3	3.834	2.856	3.7	21.0	11 W	4*	—	1 2	7 48.87	+24 30.1	1.707	2.671	5.2	18.8	166 W	70	39
10 8	11 58.26	+ 2 52.4	3.816	2.872	5.7	21.2	17 W	10*	3*	1 7	7 42.93	+24 50.5	1.698	2.675	3.0	18.7	172 W	70	39
10 18	12 12.05	+ 1 30.5	3.781	2.888	7.7	21.2	23 W	16*	7*	1 12	7 36.78	+25 9.6	1.697	2.679	1.3	18.6	176 W	70	39
10 28	12 25.55	+ 0 11.6	3.731	2.903	9.6	21.3	29 W	21*	11*	1 17	7 30.59	+25 26.7	1.703	2.682	2.5	18.7	173 E	70	39
11 7	12 38.70	- 1 3.8	3.666	2.917	11.4	21.3	36 W	27*	16*	1 22	7 24.53	+25 41.7	1.716	2.685	4.6	18.8	167 E	71	38
11 17	12 51.44	- 2 14.6	3.586	2.930	13.1	21.4	42 W	31*	21*	1 27	7 18.78	+25 54.1	1.737	2.688	6.8	19.0	161 E	71	38
11 27	13 3.68	- 3 20.1	3.493	2.942	14.7	21.4	49 W	35*	27*	2 1	7 13.49	+26 4.0	1.766	2.691	8.9	19.1	155 E	71	38
12 7	13 15.31	- 4 19.2	3.387	2.953	16.1	21.4	56 W	37*	34*	2 6	7 8.81	+26 11.3	1.800	2.693	10.9	19.2	149 E	71	38
12 17	13 26.21	- 5 11.3	3.270	2.963	17.3	21.3	63 W	39*	41*	2 11	7 4.81	+26 16.4	1.841	2.695	12.8	19.3	143 E	71	38
12 27	13 36.21	- 5 55.2	3.143	2.972	18.2	21.3	71 W	39*	49*	2 21	6 59.12	+26 20.3	1.938	2.698	15.9	19.6	132 E	71	38
1 6	13 45.14	- 6 30.0	3.010	2.980	18.9	21.2	79 W	38	57*	3 2	6 56.65	+26 17.8	2.052	2.700	18.3	19.8	121 E	71	38
1 16	13 52.78	- 6 54.8	2.871	2.988	19.2	21.1	87 W	38	64*	3 12	6 57.31	+26 10.3	2.177	2.701	20.1	19.9	111 E	71	38
<b>446010 2013 CB<sub>40</sub></b>																			
12 23	7 57.88	+52 27.7	1.405	2.273	14.9	19.8	144 W	83	12	4 1	7 6.72	+25 43.3	2.446	2.699	21.7	20.3	94 E	70	38
12 28	7 48.56	+52 25.3	1.403	2.290	13.6	19.8	147 W	83	12	4 11	7 14.74	+25 23.8	2.583	2.697	21.7	20.4	86 E	66*	38*
1 2	7 38.68	+52 12.4	1.406	2.306	12.6	19.8	149 W	83	12	4 21	7 24.49	+25 0.0	2.716	2.693	21.4	20.5	78 E	59*	38*
1 7	7 28.67	+51 48.4	1.417	2.323	12.1	19.8	150 W	83	12	5 1	7 35.66	+24 31.5	2.845	2.689	20.7	20.5	71 E	52*	38*
1 12	7 18.91	+51 13.6	1.433	2.340	11.9	19.9	150 E	84	13	5 11	7 47.98	+23 57.6	2.966	2.683	19.8	20.6	64 E	45*	37*
1 17	7 9.77	+50 28.8	1.456	2.356	12.3	19.9	149 E	85	14	5 21	8 1.23	+23 18.2	3.079	2.676	18.6	20.6	58 E	38*	35*
1 22	7 1.53	+49 35.2	1.486	2.373	13.0	20.0	147 E	85	14	5 31	8 15.22	+22 33.0	3.183	2.668	17.2	20.7	51 E	31*	33*
1 27	6 54.41	+48 34.7	1.521	2.389	14.0	20.1	144 E	86	15	6 10	8 29.78	+21 41.7	3.275	2.659	15.7	20.7	45 E	24*	31*
2 1	6 48.54	+47 29.1	1.563	2.405	15.2	20.2	140 E	88	17	6 20	8 44.80	+20 44.4	3.357	2.649	14.1	20.6	39 E	19*	28*
2 6	6 43.97	+46 20.3	1.610	2.421	16.3	20.3	136 E	89	18	6 30	9 0.16	+19 41.2	3.425	2.638	12.3	20.6	34 E	14*	24*
2 11	6 40.66	+45 9.8	1.663	2.437	17.5	20.5	132 E	90	19	7 10	9 15.77	+18 32.1	3.481	2.626	10.4	20.6	28 E	9*	20*
2 16	6 38.57	+43 59.0	1.720	2.452	18.6	20.6	128 E	89	20	7 20	9 31.58	+17 17.5	3.524	2.613	8.5	20.5	22 E	6*	15*
2 21	6 37.60	+42 49.0	1.781	2.468	19.5	20.7	123 E	88	21	7 30	9 47.52	+15 57.6	3.553	2.598	6.5	20.4	17 E	3*	10*
2 26	6 37.67	+41 40.4	1.847	2.483	20.4	20.8	119 E	87	22	8 9	10 3.56	+14 32.9	3.568	2.583	4.5	20.3	12 E	1*	5*
3 2	6 38.67	+40 33.7	1.915	2.499	21.1	20.9	115 E	86	23	8 19	10 16.66	+13 3.7	3.570	2.566	2.5	20.2	6 E	—	—
3 7	6 40.52	+39 29.3	1.986	2.514	21.7	21.0	111 E	84	25	8 29	10 35.82	+11 30.6	3.557	2.548	1.0	20.0	3 E	—	—
3 12	6 43.10	+38 27.3	2.060	2.528	22.1	21.1	107 E	83	26	9 8	10 52.01	+ 9 54.1	3.531	2.530	2.2	20.1	6 W	—	—
3 17	6 46.33	+37 27.7	2.135	2.543	22.5	21.3	102 E	82	27	9 18	11 8.23	+ 8 14.7	3.491	2.510	4.2	20.2	11 W	5*	—
3 22	6 50.13	+36 30.2	2.212	2.558	22.7	21.3	99 E	82	27	9 28	11 24.48	+ 6 33.2	3.437	2.489	6.4	20.2	16 W	10*	2*
3 27	6 54.45	+35 34.9	2.290	2.572	22.7	21.4	95 E	80*	28	10 8	11 40.75	+ 4 50.2	3.371	2.468	8.5	20.3	21 W	15*	6*
<b>321025 2008 ME<sub>1</sub></b>																			
12 23	7 58.28	+47 26.7	2.889	3.750	8.3	21.5	147 W	88	17	10 18	11 57.04	+ 3 6.4	3.293	2.445	10.6	20.3	27 W	20*	9*
12 28	7 52.33	+47 41.2	2.855	3.739	7.6	21.5	150 W	87	16	10 28	12 13.35	+ 1 22.5	3.202	2.421	12.7	20.3	32 W	24*	13*
1 2	7 45.90	+47 51.4	2.828	3.728	7.0	21.4	152 W	87	16	11 7	12 29.66	- 0 20.6	3.100	2.397	14.7	20.3	38 W	28*	18*
1 7	7 39.12	+47 56.6	2.808	3.716	6.7	21.4	154 W	87	16	11 17	12 45.97	- 2 2.1	2.989	2.371	16.7	20.2	44 W	32*	22*
1 12	7 32.15	+47 56.4	2.796	3.705	6.7	21.4	154 W	87	16	12 7	13 2.25	- 3 41.2	2.867	2.345	18.6	20.2	49 W	35*	28*
1 17	7 25.13	+47 50.6	2.792	3.693	7.1	21.4	153 E	87	16	12 17	13 18.47	- 5 16.9	2.738	2.318	20.4	20.1	55 W	36*	34*
1 22	7 18.25	+47 39.1	2.794	3.680	7.7	21.4	150 E	87	16	12 27	13 34.57	- 6 48.5	2.601	2.289	22.1	20.0	61 W	37*	40*
1 27	7 11.66	+47 22.1	2.804	3.668	8.5	21.4	147 E	88	17	12 27	13 50.48	- 8 14.9	2.459	2.260	23.6	19.9	67 W	36*	47*
2 1	7 5.52	+47 0.0	2.821	3.655	9.4	21.5	143 E	88	17	1 6	14 6.10	- 9 35.5	2.312	2.231	24.9	19.8	73 W	35	54*
2 6	6 59.94	+46 33.2	2.845	3.642	10.3	21.5	138 E	88	17	1 16	14 21.32	-10 49.4	2.162	2.200	26.0	19.7	79 W	34	61*
2 11	6 55.02	+46 2.7	2.874	3.629	11.3	21.6	134 E	89	18	<b>334955 2004 CY<sub>104</sub></b>									
12 23	7 59.99	+ 7 20.9	0.925	1.832	16.7	20.2	148 W	52	57	12 23	7 59.99	+ 7 20.9	0.925	1.832	16.7	20.2	148 W	52	57
12 28	7 56.63	+ 7 20.2	0.888	1.819	14.3	20.1	153 W	52	57	12 28	7 56.63	+ 7 20.2	0.888	1.819	14.3	20.1	153 W	52	57
1 2	7 52.38	+ 7 26.7	0.857	1.806	11.8	19.9	158 W	52	57	1 2	7 52.38	+ 7 26.7	0.857	1.806	11.8	19.9	158 W	52	57
1 7	7 47.37	+ 7 40.7	0.831	1.793	9.5	19.7	163 W	53	56	1 7	7 47.37	+ 7 40.7	0.831	1.793	9.5	19.7	163 W	53	56
1 12	7 41.80	+ 8 2.2	0.810	1.780	7.7	19.5	166 W	53	56	1 12	7 41.80	+ 8 2.2	0.810	1.780	7.7	19.5	166 W	53	56
1 17	7 35.87	+ 8 30.8	0.795	1.767	7.2	19.5	167 E	54	55	1 17	7 35.87	+ 8 30.8	0.795	1.767	7.2	19.5	167 E	54	55
1 22	7 29.85	+ 9 6.1	0.785	1.754	8.4	19.5	165 E	54	55	1 22	7 29.85	+ 9 6.1	0.785	1.754	8.4	19.5	165 E	54	55
1 27	7 24.03	+ 9 46.8	0.781	1.741	10.7	19.5	161 E	55	54	1 27	7 24.03	+ 9 46.8	0.781	1.741	10.7	19.5	161 E	55	54
2 1	7 18.71	+10 31.8	0.783	1.729	13.6	19.6	156 E	56	53	2 1	7 18.71	+10 31.8	0.783	1.729	13.6	19.6	156 E	56	53
2 6	7 14.15	+11 19.7	0.789	1.716	16.6	19.7	150 E	56	53	2 6	7 14.15	+11 19.7	0.789	1.716	16.6	19.7	150 E	56	53
2 11	7 10.54	+12 9.1	0.801	1.704	19.5	19.9	145 E	57	52	2 11	7 10.54	+12 9.1	0.801	1.704	19.5	19.9	145 E	57	52

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/20	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	19/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°
<b>214088 2004 JN<sub>13</sub></b>										<b>232772 2004 PG<sub>61</sub></b> (continuation)									
12 23	8 1.48	+29 26.0	0.734	1.671	15.6	16.6	153W	74	35	1 12	7 37.84	+38 36.5	1.871	2.827	5.8	19.8	163W	84	25
12 28	7 51.32	+30 51.9	0.763	1.718	11.7	16.6	159W	76	33	1 17	7 31.16	+38 40.8	1.885	2.836	6.3	19.8	162E	84	25
1 2	7 40.98	+32 5.3	0.797	1.766	8.3	16.6	165W	77	32	1 22	7 24.69	+38 39.7	1.906	2.845	7.3	19.9	158E	84	25
1 7	7 30.92	+33 5.4	0.839	1.813	6.3	16.7	168W	78	31	1 27	7 18.62	+38 33.4	1.934	2.853	8.6	20.0	154E	84	25
1 12	7 21.51	+33 52.3	0.886	1.859	6.4	16.9	168E	79	30	2 1	7 13.10	+38 22.2	1.969	2.862	10.1	20.1	149E	83	26
1 17	7 13.05	+34 26.9	0.940	1.905	8.2	17.1	164E	79	30	2 6	7 8.27	+38 6.9	2.011	2.870	11.5	20.2	144E	83	26
1 22	7 5.75	+34 50.6	1.001	1.951	10.5	17.4	159E	80	29	2 11	7 4.19	+37 48.1	2.058	2.878	12.9	20.3	139E	83	26
1 27	6 59.75	+35 5.2	1.067	1.997	12.7	17.7	153E	80	29	2 16	7 0.94	+37 26.6	2.110	2.886	14.2	20.4	134E	82	27
2 1	6 55.08	+35 12.4	1.138	2.041	14.8	18.0	148E	80	29	2 21	6 58.52	+37 2.9	2.167	2.893	15.4	20.5	129E	82	27
2 6	6 51.72	+35 13.8	1.215	2.086	16.7	18.2	143E	80	29	2 26	6 56.94	+36 37.7	2.229	2.901	16.4	20.6	124E	82	27
2 11	6 49.61	+35 10.8	1.296	2.130	18.3	18.4	137E	80	29	3 2	6 56.19	+36 11.5	2.293	2.908	17.3	20.7	119E	81	28
2 16	6 48.63	+35 4.4	1.381	2.173	19.6	18.7	132E	80	29	3 7	6 56.23	+35 44.6	2.361	2.914	18.1	20.8	114E	81	28
2 21	6 48.69	+34 55.5	1.470	2.217	20.7	18.9	128E	80	29	3 12	6 57.00	+35 17.3	2.431	2.921	18.7	20.9	110E	80	29
2 26	6 49.69	+34 44.5	1.562	2.259	21.6	19.1	123E	80	29	3 17	6 58.46	+34 49.9	2.503	2.927	19.1	21.0	105E	80	29
3 2	6 51.53	+34 32.1	1.656	2.301	22.2	19.3	119E	80	29	3 22	7 0.56	+34 22.5	2.577	2.934	19.5	21.1	101E	79	30
3 7	6 54.10	+34 18.5	1.754	2.343	22.7	19.5	114E	79	30	3 27	7 3.25	+33 55.1	2.651	2.939	19.7	21.1	97E	79	30
3 12	6 57.32	+34 4.0	1.853	2.384	23.0	19.6	110E	79	30	4 1	7 6.47	+33 27.7	2.726	2.945	19.8	21.2	93E	77	31
3 17	7 1.09	+33 48.6	1.954	2.425	23.2	19.8	106E	79	30	4 6	7 10.18	+33 0.4	2.801	2.951	19.8	21.3	89E	74	31*
3 22	7 5.34	+33 32.4	2.056	2.465	23.3	19.9	102E	79	30	4 11	7 14.32	+32 33.1	2.876	2.956	19.7	21.3	85E	71	31*
4 1	7 15.08	+32 57.9	2.264	2.544	23.1	20.2	94E	77*	31	4 16	7 18.85	+32 5.7	2.950	2.961	19.5	21.4	81E	68*	32*
4 11	7 26.07	+32 20.8	2.473	2.621	22.4	20.4	87E	73*	32*	4 21	7 23.73	+31 38.1	3.024	2.965	19.3	21.4	77E	64*	32*
4 21	7 37.97	+31 40.8	2.681	2.696	21.5	20.6	80E	66*	32*	4 26	7 28.93	+31 10.2	3.096	2.970	18.9	21.5	73E	60*	32*
5 1	7 50.52	+30 58.1	2.887	2.770	20.4	20.8	73E	59*	32*	<b>442649 2012 TU<sub>124</sub></b>									
5 11	8 3.52	+30 12.5	3.088	2.842	19.0	21.0	67E	51*	32*	12 23	8 4.27	+24 30.4	1.765	2.675	9.9	22.0	152W	70	39
5 21	8 16.78	+29 24.2	3.282	2.912	17.5	21.1	60E	44*	31*	12 28	7 59.42	+24 55.2	1.741	2.680	7.8	21.9	158W	70	39
5 31	8 30.19	+28 33.3	3.467	2.980	15.9	21.2	54E	37*	30*	1 2	7 54.03	+25 20.0	1.724	2.685	5.6	21.8	164W	70	39
6 10	8 43.65	+27 40.1	3.642	3.047	14.2	21.3	47E	31*	28*	1 7	7 48.24	+25 44.0	1.714	2.689	3.5	21.7	170W	71	38
6 20	8 57.06	+26 44.9	3.805	3.112	12.4	21.4	41E	25*	25*	1 12	7 42.19	+26 6.5	1.712	2.693	1.8	21.5	175W	71	38
6 30	9 10.38	+25 47.9	3.955	3.176	10.6	21.5	35E	20*	21*	1 17	7 36.07	+26 27.0	1.717	2.697	2.4	21.6	173E	71	38
<b>270303 2001 WB<sub>2</sub></b>										1 22	7 30.05	+26 44.9	1.730	2.701	4.4	21.7	168E	72	37
12 23	8 1.86	-10 10.9	1.967	2.756	14.5	21.1	135W	35	74	1 27	7 24.30	+27 0.0	1.751	2.704	6.5	21.9	162E	72	37
1 2	7 52.89	-10 41.0	1.932	2.779	12.4	21.0	143W	34	75	2 1	7 18.98	+27 12.2	1.778	2.707	8.6	22.0	156E	72	37
1 12	7 42.78	-10 42.1	1.921	2.800	10.9	20.9	147W	34	75	2 6	7 14.23	+27 21.4	1.812	2.710	10.6	22.1	150E	72	37
1 22	7 32.52	-10 14.1	1.936	2.821	10.6	21.0	148E	35	74	2 11	7 10.15	+27 27.9	1.852	2.712	12.4	22.2	144E	72	37
2 1	7 23.16	-9 20.5	1.977	2.840	11.5	21.1	145E	36	73	<b>89486 2001 XL<sub>31</sub></b>									
2 11	7 15.58	-8 7.5	2.042	2.859	13.2	21.2	139E	37	72	12 23	8 5.07	+16 27.2	1.755	2.655	10.5	18.9	150W	61	48
2 21	7 10.32	-6 42.6	2.129	2.876	15.0	21.4	131E	38	71	1 2	7 53.52	+15 51.0	1.732	2.687	6.2	18.7	163W	61	48
<b>141498 2002 EZ<sub>16</sub></b>										1 12	7 40.89	+15 19.6	1.739	2.718	2.5	18.5	173W	60	49
12 23	8 2.37	-8 45.0	0.557	1.440	28.1	19.2	136W	36	73	1 22	7 28.47	+14 52.8	1.777	2.747	4.2	18.7	168E	60	49
12 28	7 44.05	-11 25.9	0.543	1.443	25.9	19.0	140W	34	75	2 1	7 17.48	+14 30.4	1.845	2.776	8.2	19.0	156E	60	49
1 2	7 23.92	-13 49.6	0.536	1.444	24.8	19.0	142W	31	78	2 11	7 8.87	+14 12.2	1.941	2.804	11.8	19.3	145E	59	50
1 7	7 2.84	-15 48.5	0.536	1.443	25.0	19.0	142E	29	80	2 21	7 3.07	+13 57.4	2.059	2.830	14.7	19.6	133E	59	50
1 12	6 41.80	-17 17.6	0.544	1.440	26.6	19.1	139E	28	81	3 2	7 0.22	+13 45.2	2.196	2.856	17.0	19.8	123E	59	50
1 17	6 21.81	-18 15.5	0.559	1.435	29.0	19.2	135E	27	82	3 12	7 0.16	+13 34.3	2.345	2.881	18.5	20.0	113E	59	50
1 22	6 3.65	-18 44.3	0.580	1.427	31.9	19.3	130E	26	83	3 22	7 2.59	+13 23.3	2.503	2.904	19.5	20.2	104E	58	51
1 27	5 47.87	-18 48.3	0.605	1.418	34.9	19.5	125E	26	83	4 1	7 7.16	+13 11.0	2.665	2.927	19.9	20.4	95E	58*	51
2 1	5 34.69	-18 33.4	0.635	1.407	37.7	19.7	119E	26	83	4 11	7 13.55	+12 56.1	2.828	2.949	19.8	20.5	87E	54*	51*
2 6	5 24.09	-18 4.8	0.666	1.394	40.4	19.8	114E	27	82	4 21	7 21.42	+12 37.8	2.989	2.969	19.4	20.6	79E	49*	50*
2 11	5 15.90	-17 27.2	0.698	1.379	42.7	20.0	109E	28	81	5 1	7 30.51	+12 15.2	3.146	2.989	18.7	20.7	72E	42*	49*
2 16	5 9.86	-16 43.9	0.731	1.361	44.8	20.1	104E	28	81	5 11	7 40.57	+11 47.7	3.295	3.008	17.7	20.8	65E	35*	47*
2 21	5 5.73	-15 57.4	0.763	1.341	46.7	20.2	99E	29	80	5 21	7 51.41	+11 14.9	3.436	3.025	16.5	20.9	58E	28*	44*
2 26	5 3.25	-15 9.6	0.794	1.320	48.4	20.3	95E	30	79*	5 31	8 2.86	+10 36.5	3.567	3.042	15.1	20.9	52E	21*	41*
3 2	5 2.21	-14 21.8	0.823	1.296	49.9	20.4	91E	31	76*	6 10	8 14.76	+9 52.4	3.687	3.058	13.6	20.9	45E	14*	37*
3 7	5 2.39	-13 34.9	0.850	1.269	51.3	20.5	87E	31*	74*	6 20	8 27.01	+9 2.5	3.794	3.072	12.0	21.0	39E	7*	32*
3 12	5 3.59	-12 49.6	0.873	1.241	52.7	20.5	83E	31*	71*	6 30	8 39.51	+8 6.8	3.887	3.086	10.4	21.0	33E	2*	27*
3 17	5 5.67	-12 5.8	0.892	1.209	54.0	20.5	80E	31*	68*	7 10	8 52.15	+7 5.5	3.966	3.098	8.7	20.9	27E	—	21*
3 22	5 8.50	-11 23.8	0.908	1.176	55.3	20.6	76E	30*	66*	7 20	9 4.88	+5 58.7	4.030	3.110	7.0	20.9	22E	—	15*
3 27	5 11.96	-10 43.5	0.919	1.140	56.8	20.6	73E	28*	63*	7 30	9 17.62	+4 46.7	4.078	3.120	5.4	20.9	17E	—	9*
4 1	5 15.93	-10 4.6	0.925	1.101	58.3	20.5	70E	27*	61*	8 9	9 30.32	+3 29.7	4.110	3.129	4.1	20.8	13E	—	3*
4 6	5 20.28	-9 27.0	0.925	1.060	60.1	20.5	67E	25*	58*	8 19	9 42.94	+2 8.0	4.125	3.138	3.5	20.8	11W	—	1*
4 11	5 24.90	-8 49.6	0.920	1.016	62.1	20.5	64E	22*	56*	8 29	9 55.41	+0 41.9	4.125	3.145	3.9	20.8	12W	—	6*
4 16	5 29.64	-8 11.6	0.909	0.970	64.5	20.4	61E	20*	53*	9 8	10 7.70	-0 48.2	4.107	3.152	5.1	20.9	16W	—	10*
4 21	5 34.35	-7 31.2	0.891	0.920	67.4	20.3	58E	17*	51*	9 18	10 19.75	-2 22.0	4.073	3.157	6.6	20.9	21W	6*	14*

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	19/20	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°
<b>169516 2002 EQ</b>										<b>518542 2006 VA<sub>76</sub></b>									
<i>(continuation)</i>										<i>(continuation)</i>									
1 27	7 30.45	+17 25.8	1.891	2.852	5.2	20.6	165 E	62	47	1 27	7 26.60	+20 52.9	1.359	2.321	6.7	21.5	164 E	66	43
2 1	7 25.38	+17 41.8	1.899	2.840	7.3	20.7	159 E	63	46	2 1	7 21.51	+21 3.0	1.391	2.333	9.2	21.7	158 E	66	43
2 6	7 20.71	+17 57.4	1.915	2.827	9.3	20.8	153 E	63	46	2 6	7 17.13	+21 11.4	1.430	2.345	11.6	21.8	152 E	66	43
2 11	7 16.53	+18 12.3	1.938	2.814	11.1	20.9	147 E	63	46	2 11	7 13.55	+21 18.2	1.475	2.356	13.7	22.0	146 E	66	43
2 16	7 12.94	+18 26.4	1.966	2.801	12.9	21.0	141 E	63	46	<b>85158 Phyllistrapp</b>									
2 21	7 10.00	+18 39.5	1.999	2.787	14.5	21.0	135 E	64	45	12 23	8 7.51	+21 42.0	1.675	2.581	10.6	19.5	151 W	67	42
2 26	7 7.77	+18 51.5	2.038	2.773	16.0	21.1	129 E	64	45	12 28	8 2.39	+21 47.8	1.660	2.595	8.4	19.5	157 W	67	42
3 2	7 6.27	+19 2.4	2.080	2.759	17.3	21.2	124 E	64	45	1 2	7 56.78	+21 53.9	1.651	2.610	6.0	19.3	164 W	67	42
3 7	7 5.51	+19 12.2	2.126	2.745	18.5	21.3	119 E	64	45	1 7	7 50.84	+21 59.8	1.649	2.624	3.6	19.2	170 W	67	42
3 12	7 5.47	+19 20.7	2.174	2.731	19.4	21.3	114 E	64	45	1 12	7 44.72	+22 5.1	1.655	2.638	1.2	19.1	177 W	67	42
3 17	7 6.15	+19 27.9	2.225	2.716	20.3	21.4	109 E	64	45	1 17	7 38.60	+22 9.4	1.669	2.651	1.3	19.1	177 E	67	42
3 22	7 7.50	+19 33.9	2.277	2.701	20.9	21.5	104 E	65	44	1 22	7 32.66	+22 12.5	1.690	2.665	3.6	19.3	170 E	67	42
<b>489429 2006 WM</b>										1 27	7 27.06	+22 14.3	1.718	2.678	5.9	19.6	164 E	67	42
12 23	8 5.74	+29 14.8	1.364	2.280	11.7	21.5	152 W	74	35	2 1	7 21.94	+22 14.7	1.754	2.691	8.0	19.5	158 E	67	42
12 28	8 0.31	+29 38.6	1.351	2.292	9.4	21.4	158 W	75	34	2 11	7 13.60	+22 11.6	1.845	2.717	11.9	19.9	146 E	67	42
1 2	7 54.24	+30 0.6	1.344	2.304	7.0	21.3	163 W	75	34	2 21	7 8.17	+22 4.4	1.958	2.741	15.0	20.2	134 E	67	42
1 7	7 47.74	+30 19.7	1.344	2.315	4.9	21.2	168 W	75	34	3 2	7 5.82	+21 54.0	2.089	2.764	17.4	20.4	124 E	67	42
1 12	7 41.01	+30 35.1	1.351	2.327	3.8	21.1	171 W	76	33	3 12	7 6.38	+21 40.9	2.234	2.787	19.0	20.6	114 E	67	42
1 17	7 34.29	+30 46.3	1.365	2.338	4.4	21.2	169 E	76	33	3 22	7 9.54	+21 25.3	2.387	2.808	20.1	20.8	105 E	66	43
1 22	7 27.82	+30 53.1	1.385	2.350	6.2	21.3	165 E	76	33	4 1	7 14.95	+21 7.0	2.544	2.829	20.6	21.0	96 E	66	43
1 27	7 21.80	+30 55.3	1.413	2.361	8.4	21.5	160 E	76	33	4 11	7 22.23	+20 45.5	2.704	2.848	20.6	21.2	88 E	62	43*
2 1	7 16.43	+30 53.4	1.447	2.372	10.5	21.6	154 E	76	33	4 21	7 31.04	+20 20.2	2.862	2.867	20.2	21.3	80 E	57	43*
2 6	7 11.84	+30 47.8	1.488	2.383	12.6	21.8	148 E	76	33	5 1	7 41.11	+19 50.8	3.016	2.885	19.5	21.4	73 E	50	43*
2 11	7 8.13	+30 39.1	1.533	2.393	14.5	21.9	143 E	76	33	5 11	7 52.15	+19 16.8	3.164	2.901	18.5	21.5	66 E	42	41*
<b>14653 1998 YV<sub>11</sub></b>										<b>439953 2001 TV<sub>54</sub></b>									
12 23	8 7.29	+27 9.9	2.164	3.065	8.8	19.0	152 W	72	37	12 23	8 7.63	+13 1.3	1.451	2.348	12.6	21.8	149 W	58	51
12 28	8 2.74	+27 37.4	2.135	3.067	7.1	18.9	157 W	73	36	1 2	7 57.81	+13 14.9	1.429	2.378	7.9	21.6	161 W	58	51
1 2	7 57.70	+28 4.5	2.113	3.068	5.3	18.8	163 W	73	36	1 12	7 46.54	+13 39.2	1.432	2.408	3.7	21.4	171 W	59	50
1 7	7 52.27	+28 30.4	2.099	3.069	3.7	18.7	169 W	74	35	1 22	7 35.20	+14 10.6	1.464	2.438	4.3	21.5	169 E	59	50
1 12	7 46.59	+28 54.6	2.093	3.069	2.5	18.6	172 W	74	35	2 1	7 25.18	+14 45.0	1.525	2.467	8.5	21.9	158 E	60	49
1 17	7 40.79	+29 16.5	2.094	3.070	2.8	18.6	171 E	74	35	2 11	7 17.57	+15 18.9	1.611	2.495	12.5	22.2	147 E	60	49
1 22	7 35.02	+29 35.5	2.103	3.070	4.1	18.7	167 E	75	34	<b>51157 2000 HB<sub>57</sub></b>									
1 27	7 29.43	+29 51.5	2.120	3.070	5.8	18.8	162 E	75	34	12 23	8 7.70	+12 7.8	0.673	1.596	19.0	16.9	148 W	57	52
2 1	7 24.16	+30 4.3	2.144	3.069	7.6	18.9	156 E	75	34	1 2	8 5.84	+12 16.2	0.626	1.583	13.2	16.6	158 W	57	52
2 6	7 19.34	+30 13.9	2.176	3.068	9.3	19.0	150 E	75	34	1 12	8 0.92	+12 51.7	0.597	1.573	7.2	16.2	168 W	58	51
2 11	7 15.08	+30 20.5	2.213	3.067	10.9	19.1	144 E	75	34	1 22	7 54.49	+13 50.5	0.586	1.567	4.7	16.0	172 E	59	50
3 2	7 8.47	+30 25.8	2.306	3.065	13.7	19.3	133 E	75	34	1 27	7 51.34	+14 25.8	0.588	1.565	7.0	16.1	169 E	59	50
3 7	7 4.70	+30 22.3	2.417	3.061	15.9	19.5	122 E	75	34	2 1	7 48.64	+15 3.2	0.594	1.564	10.1	16.3	164 E	60	49
3 12	7 3.81	+30 12.5	2.541	3.056	17.5	19.7	112 E	75	34	2 6	7 46.62	+15 41.0	0.605	1.565	13.2	16.5	159 E	61	48
3 22	7 5.61	+29 58.0	2.673	3.050	18.6	19.8	103 E	75	34	2 11	7 45.48	+16 18.0	0.620	1.566	16.3	16.6	153 E	61	48
4 1	7 9.84	+29 39.6	2.809	3.043	19.1	19.9	94 E	74	34	2 16	7 45.33	+16 52.9	0.639	1.568	19.2	16.8	148 E	62	47
4 11	7 16.17	+29 18.0	2.946	3.034	19.2	20.0	85 E	69	35*	2 21	7 46.26	+17 24.7	0.661	1.571	21.9	16.9	144 E	62	47
4 21	7 24.28	+28 52.9	3.079	3.025	18.9	20.1	77 E	62	34*	3 2	7 51.45	+18 16.3	0.716	1.579	26.5	17.3	135 E	63	46
5 1	7 33.89	+28 24.4	3.207	3.015	18.3	20.2	70 E	54	34*	3 12	8 0.81	+18 48.9	0.783	1.592	30.0	17.0	127 E	64	45
5 11	7 44.73	+27 52.0	3.327	3.003	17.4	20.2	63 E	47	33*	3 22	8 13.65	+19 0.8	0.859	1.607	32.5	17.9	120 E	64	45
5 21	7 56.58	+27 15.4	3.438	2.991	16.3	20.2	56 E	39	31*	4 1	8 29.26	+18 51.7	0.943	1.625	34.3	18.2	114 E	64	45
5 31	8 9.25	+26 34.4	3.537	2.977	15.0	20.2	49 E	32	29*	4 6	8 37.87	+18 39.5	0.988	1.636	34.9	18.3	111 E	64	45
6 10	8 22.58	+25 48.8	3.625	2.963	13.5	20.2	43 E	26	26*	4 11	8 46.90	+18 22.5	1.035	1.647	35.4	18.4	108 E	63	46
6 20	8 36.43	+24 58.6	3.699	2.947	11.9	20.2	37 E	20	23*	4 16	8 56.26	+18 0.7	1.083	1.659	35.7	18.5	105 E	63	46
6 30	8 50.69	+24 3.6	3.758	2.930	10.2	20.2	31 E	15	19*	4 21	9 5.89	+17 34.5	1.133	1.671	35.9	18.7	103 E	62	46
7 10	9 5.26	+23 4.0	3.804	2.912	8.4	20.1	25 E	11	15*	4 26	9 15.75	+17 4.1	1.184	1.684	36.0	18.8	100 E	61	47
7 20	9 20.06	+21 59.9	3.834	2.893	6.6	20.0	19 E	7	10*	5 1	9 25.78	+16 29.6	1.236	1.697	36.0	18.9	98 E	60	48
7 30	9 35.04	+20 51.6	3.850	2.873	4.8	19.9	14 E	5	5*	5 6	9 35.93	+15 51.5	1.290	1.711	35.9	19.0	95 E	58	48
8 9	9 50.12	+19 39.4	3.850	2.852	3.2	19.8	9 E	2	—	5 11	9 46.16	+15 10.0	1.345	1.726	35.8	19.1	93 E	56	49
8 19	10 5.29	+18 23.7	3.834	2.830	2.2	19.7	6 E	—	—	5 21	10 6.73	+13 38.0	1.457	1.756	35.2	19.3	89 E	51	50
8 29	10 20.50	+17 4.9	3.803	2.807	2.9	19.7	8 W	1	—	5 31	10 27.32	+11 55.6	1.574	1.788	34.4	19.5	84 E	45	52
9 8	10 35.72	+15 43.7	3.757	2.783	4.5	19.8	13 W	6	—	6 10	10 47.80	+10 5.1	1.694	1.821	33.3	19.6	80 E	40	54*
9 18	10 50.93	+14 20.5	3.697	2.758	6.4	19.8	18 W	12	—	6 20	11 8.11	+ 8 8.6	1.816	1.855	32.1	19.8	76 E	35	55*
9 28																			



EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	$45^\circ$	$-26^\circ$	19/20	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	$45^\circ$	$-26^\circ$
<b>51157 2000 HB<sub>57</sub></b> (continuation)										<b>334028 2000 XT<sub>37</sub></b> (continuation)									
12 17	16 58.66	-19 50.7	3.446	2.483	4.0	20.8	10 W	3*	—	5 6	8 13.35	+ 9 48.0	1.784	1.855	32.1	21.4	78 E	43*	53*
12 27	17 17.43	-20 12.7	3.445	2.512	6.1	21.0	16 W	6*	6*	5 11	8 21.96	+ 9 3.2	1.840	1.862	31.7	21.4	75 E	40*	53*
1 6	17 35.81	-20 25.5	3.431	2.541	8.1	21.1	21 W	9*	12*	5 16	8 30.70	+ 8 17.4	1.896	1.868	31.1	21.5	73 E	36*	54*
1 16	17 53.72	-20 29.5	3.402	2.569	10.1	21.2	27 W	11*	18*	<b>450302 2004 QF<sub>24</sub></b>									
12 23	8 7.80	+18 18.1	5.841	6.713	4.2	21.1	150 W	63	46	12 23	8 10.53	+ 2 33.4	1.558	2.415	14.3	20.7	143 W	48	61
1 2	8 3.32	+18 25.4	5.758	6.698	2.7	21.0	162 W	63	46	1 2	7 59.75	+ 1 25.5	1.538	2.450	10.8	20.6	152 W	46	63
1 12	7 58.35	+18 34.2	5.705	6.682	1.1	20.9	173 W	64	45	1 12	7 47.67	+ 0 40.2	1.544	2.485	8.4	20.5	158 W	46	63
1 22	7 53.16	+18 43.6	5.685	6.666	0.7	20.8	175 E	64	45	1 22	7 35.61	+ 0 18.3	1.577	2.518	8.3	20.6	158 E	45	64
2 1	7 48.06	+18 52.9	5.697	6.650	2.3	21.0	164 E	64	45	2 1	7 24.86	+ 0 17.9	1.639	2.551	10.4	20.8	152 E	45	64
2 11	7 43.35	+19 1.4	5.740	6.633	3.9	21.1	153 E	64	45	2 11	7 16.44	+ 0 34.2	1.726	2.583	13.3	21.0	143 E	46	63
2 21	7 39.30	+19 8.6	5.811	6.617	5.3	21.2	142 E	64	45	2 21	7 10.88	+ 1 1.6	1.834	2.614	15.9	21.3	133 E	46	63
3 2	7 36.12	+19 14.0	5.907	6.600	6.5	21.2	131 E	64	45	<b>387848 2004 OR<sub>10</sub></b>									
3 12	7 33.95	+19 17.5	6.022	6.582	7.5	21.3	120 E	64	45	12 23	8 11.05	+53 17.8	2.229	3.061	11.5	21.3	142 W	82	11
3 22	7 32.87	+19 18.8	6.152	6.565	8.2	21.4	110 E	64	45	12 28	8 3.89	+53 44.1	2.213	3.066	10.8	21.2	144 W	81	10
4 1	7 32.90	+19 17.9	6.292	6.547	8.6	21.5	100 E	64*	45	1 2	7 56.01	+54 3.8	2.203	3.071	10.2	21.2	146 W	81	10
<b>348442 2005 QY<sub>88</sub></b>										1 7	7 47.62	+54 16.0	2.200	3.075	9.9	21.2	147 W	81	10
12 23	8 8.12	+18 11.2	1.232	2.142	13.2	20.8	150 W	63	46	1 12	7 38.98	+54 19.9	2.204	3.079	9.9	21.2	147 W	81	10
12 28	8 3.25	+18 21.4	1.221	2.158	10.5	20.7	156 W	63	46	1 17	7 30.35	+54 15.4	2.215	3.082	10.2	21.2	146 E	81	10
1 2	7 57.78	+18 33.3	1.216	2.175	7.7	20.6	163 W	64	45	1 22	7 21.99	+54 2.6	2.232	3.086	10.7	21.3	144 E	81	10
1 7	7 51.90	+18 46.4	1.217	2.191	4.8	20.4	169 W	64	45	1 27	7 14.16	+53 41.8	2.255	3.089	11.4	21.3	142 E	81	10
1 12	7 45.81	+19 0.1	1.225	2.207	2.0	20.3	175 W	64	45	2 1	7 7.06	+53 13.8	2.285	3.092	12.2	21.4	138 E	82	11
1 17	7 39.73	+19 13.8	1.240	2.222	1.5	20.3	177 E	64	45	2 6	7 0.85	+52 39.9	2.321	3.095	13.1	21.4	135 E	82	11
1 22	7 33.88	+19 26.9	1.261	2.238	4.1	20.5	171 E	64	45	2 11	6 55.63	+52 1.0	2.362	3.097	14.0	21.5	131 E	83	12
1 27	7 28.44	+19 39.1	1.290	2.254	6.7	20.7	164 E	65	44	<b>368231 2001 UR<sub>16</sub></b>									
2 1	7 23.61	+19 50.1	1.325	2.270	9.3	20.9	158 E	65	44	12 23	8 11.13	-11 51.1	2.878	3.618	11.5	22.2	133 W	33	76
2 6	7 19.50	+19 59.8	1.366	2.285	11.6	21.1	152 E	65	44	1 2	8 3.50	-12 31.0	2.822	3.629	10.1	22.1	140 W	32	77
2 11	7 16.21	+20 8.1	1.413	2.300	13.7	21.2	146 E	65	44	1 12	7 54.84	-12 50.2	2.791	3.640	8.9	22.0	145 W	32	77
2 16	7 13.77	+20 15.0	1.465	2.316	15.7	21.4	141 E	65	44	1 22	7 45.81	-12 47.7	2.787	3.649	8.5	22.0	147 E	32	77
<b>393393 2000 RN<sub>19</sub></b>										2 1	7 37.14	-12 24.3	2.811	3.658	9.0	22.1	145 E	33	76
12 23	8 8.25	+14 1.7	2.137	3.022	9.7	22.1	149 W	59	50	2 11	7 29.51	-11 43.3	2.860	3.666	10.1	22.2	139 E	33	76
1 2	7 59.45	+14 10.1	2.083	3.029	6.2	21.9	161 W	59	50	<b>226046 2002 GV<sub>75</sub></b>									
1 12	7 49.34	+14 25.5	2.059	3.035	2.8	21.7	171 W	59	50	12 23	8 11.22	+17 39.7	1.728	2.623	11.0	21.8	149 W	63	46
1 22	7 38.86	+14 45.7	2.065	3.040	3.1	21.7	170 E	60	49	1 2	8 1.80	+17 56.9	1.668	2.620	6.8	21.5	162 W	63	46
2 1	7 29.01	+15 8.3	2.102	3.044	6.6	21.9	159 E	60	49	1 12	7 50.57	+18 19.2	1.637	2.617	2.2	21.2	174 W	63	46
2 11	7 20.74	+15 31.1	2.168	3.047	10.0	22.1	148 E	61	48	1 22	7 38.70	+18 43.1	1.635	2.612	3.1	21.3	172 E	64	45
<b>197615 2004 JQ<sub>26</sub></b>										2 1	7 27.54	+19 5.4	1.662	2.607	7.7	21.5	159 E	64	45
12 23	8 8.45	+29 41.3	1.946	2.848	9.6	21.6	151 W	75	34	2 11	7 18.35	+19 24.2	1.717	2.600	12.0	21.8	147 E	64	45
12 28	8 3.82	+30 8.8	1.916	2.846	7.8	21.5	157 W	75	34	<b>40430 1999 RL<sub>28</sub></b>									
1 2	7 58.62	+30 35.4	1.892	2.844	6.0	21.4	162 W	76	33	12 23	8 12.18	- 5 7.6	2.144	2.944	13.1	20.9	137 W	40	69
1 7	7 52.96	+31 0.2	1.875	2.842	4.5	21.3	167 W	76	33	1 2	8 4.47	- 5 11.5	2.046	2.913	10.9	20.7	146 W	40	69
1 12	7 47.00	+31 22.5	1.866	2.839	3.5	21.3	170 W	76	33	1 12	7 55.05	- 4 51.3	1.972	2.881	9.0	20.5	153 W	40	69
1 17	7 40.88	+31 41.7	1.864	2.836	3.8	21.3	169 E	77	32	1 22	7 44.71	- 4 5.9	1.926	2.848	8.4	20.4	155 E	41	68
1 22	7 34.78	+31 57.2	1.870	2.833	5.1	21.3	165 E	77	32	2 1	7 34.45	- 2 57.0	1.908	2.813	9.6	20.4	152 E	42	67
1 27	7 28.88	+32 8.8	1.884	2.830	6.8	21.4	160 E	77	32	2 6	7 29.69	- 2 15.2	1.909	2.796	10.7	20.4	148 E	43	66
2 1	7 23.35	+32 16.5	1.905	2.826	8.6	21.5	155 E	77	32	2 11	7 25.33	- 1 29.6	1.917	2.778	12.0	20.5	144 E	44	65
2 6	7 18.33	+32 20.3	1.932	2.822	10.4	21.6	149 E	77	32	2 16	7 21.47	- 0 41.0	1.932	2.760	13.4	20.5	140 E	44	65
2 11	7 13.93	+32 20.6	1.965	2.818	12.1	21.7	143 E	77	32	2 21	7 18.18	+ 0 9.7	1.952	2.741	14.8	20.6	135 E	45	64
<b>334028 2000 XT<sub>37</sub></b>										2 26	7 15.54	+ 1 1.6	1.977	2.723	16.1	20.6	130 E	46	63
12 23	8 9.36	+38 26.2	0.738	1.661	17.7	18.8	149 W	83	26	3 2	7 13.60	+ 1 53.9	2.007	2.704	17.4	20.7	125 E	47	62
12 28	8 0.59	+37 36.1	0.724	1.668	14.4	18.6	155 W	83	26	3 7	7 12.36	+ 2 45.8	2.040	2.684	18.6	20.7	121 E	48	61
1 2	7 50.84	+36 35.7	0.715	1.675	11.2	18.5	161 W	82	27	3 12	7 11.84	+ 3 36.7	2.077	2.665	19.6	20.8	116 E	49	60
1 7	7 40.60	+35 24.8	0.712	1.682	8.5	18.4	165 W	80	29	3 17	7 12.03	+ 4 26.2	2.117	2.645	20.5	20.9	111 E	49	60
1 12	7 30.38	+34 4.2	0.715	1.689	7.1	18.3	168 E	79	30	3 22	7 12.91	+ 5 13.7	2.159	2.625	21.3	20.9	107 E	50	59
1 17	7 20.65	+32 35.8	0.724	1.696	7.8	18.4	166 E	78	31	3 27	7 14.47	+ 5 59.0	2.203	2.604	22.0	21.0	102 E	51	58
1 22	7 11.82	+31 2.1	0.739	1.703	10.2	18.6	162 E	76	33	4 1	7 16.67	+ 6 41.7	2.247	2.584	22.5	21.0	98 E	51	57
1 27	7 4.23	+29 26.1	0.760	1.710	13.1	18.7	157 E	74	35	4 6	7 19.49	+ 7 21.7	2.293	2.563	22.9	21.0	94 E	51	57
2 1	6 58.06	+27 50.7	0.787	1.717	16.1	18.9	151 E	73	36	4 11	7 22.88	+ 7 58.8	2.338	2.542	23.2	21.1	90 E	50	56*
2 6	6 53.42	+26 18.2	0.820	1.725	18.9	19.1	145 E	71	38	4 16	7 26.82	+ 8 33.0	2.383	2.520	23.4	21.1	86 E	49	55*
2 11	6 50.28	+24 50.2	0.856	1.732	21.5	19.3	140 E	70	39	4 21	7 31.27	+ 9 4.1	2.428	2.498	23.5	21.1	82 E	47	54*
2 16	6 48.56	+23 27.9	0.897	1.740	23.8	19.5	135 E	68	41	4 26	7 36.20	+ 9 32.1	2.471	2.476	23.5	21.1	79 E	45	53*
2 21	6 48.18	+22 11.5	0.942	1.747	25.9	19.7	130 E	67	42	5 1	7 41.58	+ 9 57.0	2.514	2.454	23.4	21.2	75 E	42	52*
2 26	6 49.02	+21 1.0	0.990	1.755	27.6	19.8	125 E	66	43	5 6	7 47.38	+ 10 18.7	2.555	2.432	23.2	21.2	72 E	39	51*
3 2	6 50.97	+19 56.0	1.040	1.762	29.0	20.0	120 E	65	44	5 11	7 53.57	+ 10 37.2	2.594	2.409	22.9	21.2	68 E	36	50*
3 7	6 53.90	+18 56.1	1.092	1.770	30.2	20.1	116 E	64	45	5 16	8 0.12	+ 10 52.7	2.632	2.386	22.6	21.2	65 E	33	48*
3 12	6 57.69	+18 0.6	1.146	1.777	31.2	20.3	112 E	63	46	5 21	8 7.01	+ 11 5.0	2.667	2.363	22.2	21.2	62 E	30	47*
3 17	7 2.23	+17 8.7	1.202	1.784															

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	$45^\circ$	$-26^\circ$	19/20	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	$45^\circ$	$-26^\circ$
<b>40430 1999 RL<sub>28</sub></b>										<b>427914 2005 UF<sub>314</sub></b>									
<i>(continuation)</i>										<i>(continuation)</i>									
7 20	9 49.79	+ 9 39.8	2.899	2.070	13.8	20.8	29 E	4*	23*	2 6	7 23.02	+ 2 10.1	1.285	2.191	13.4	20.5	149 E	47	62
7 25	9 59.68	+ 9 14.7	2.901	2.045	12.9	20.7	27 E	3*	21*	2 11	7 19.03	+ 2 40.4	1.318	2.197	15.1	20.6	144 E	48	61
7 30	10 9.73	+ 8 47.1	2.900	2.019	12.0	20.7	24 E	2*	18*	2 16	7 15.88	+ 3 12.6	1.356	2.203	16.9	20.8	140 E	48	61
8 4	10 19.96	+ 8 17.2	2.897	1.994	11.0	20.6	22 E	1*	16*	2 21	7 13.61	+ 3 46.0	1.398	2.209	18.6	20.9	135 E	49	60
8 9	10 30.36	+ 7 45.0	2.891	1.968	10.1	20.5	20 E	—	14*	2 26	7 12.23	+ 4 19.7	1.445	2.214	20.1	21.0	130 E	49	60
8 14	10 40.94	+ 7 10.5	2.883	1.943	9.1	20.5	18 E	—	12*	3 2	7 11.76	+ 4 53.0	1.495	2.220	21.4	21.1	125 E	50	59
8 19	10 51.70	+ 6 33.9	2.873	1.917	8.1	20.4	16 E	—	10*	3 7	7 12.14	+ 5 25.2	1.549	2.225	22.6	21.3	121 E	50	59
8 29	11 13.76	+ 5 14.9	2.845	1.866	6.2	20.2	11 E	—	5*	3 12	7 13.34	+ 5 55.8	1.605	2.230	23.6	21.4	116 E	51	58
9 8	11 36.58	+ 3 48.9	2.809	1.816	4.3	20.0	8 E	—	2*	3 17	7 15.31	+ 6 24.5	1.663	2.235	24.4	21.5	112 E	51	58
9 18	12 0.24	+ 2 17.0	2.767	1.766	2.5	19.8	4 E	—	—	<b>452419 2002 VQ<sub>85</sub></b>									
9 28	12 24.81	+ 0 40.7	2.718	1.718	1.8	19.7	3 E	—	—	12 23	8 13.44	+ 0 58.1	1.626	2.470	14.5	19.2	141 W	46	63
10 8	12 50.35	+ 0 58.4	2.664	1.671	3.0	19.6	5 W	—	—	12 28	8 8.07	+ 0 10.3	1.615	2.491	12.8	19.2	146 W	45	64
10 18	13 16.99	+ 2 38.3	2.607	1.625	4.8	19.6	8 W	2*	—	1 2	8 2.24	+ 0 31.8	1.611	2.513	11.2	19.1	150 W	44	65
10 28	13 44.78	+ 4 16.8	2.548	1.582	6.7	19.6	11 W	5*	—	1 7	7 56.10	+ 1 7.9	1.614	2.534	9.9	19.1	154 W	44	65
11 7	14 13.79	+ 5 51.1	2.488	1.542	8.7	19.6	14 W	8*	—	1 12	7 49.82	+ 1 37.5	1.624	2.554	9.0	19.1	156 W	43	66
11 17	14 44.06	+ 7 18.3	2.430	1.506	10.5	19.6	16 W	10*	—	1 22	7 37.48	+ 2 17.3	1.665	2.596	8.8	19.2	156 E	43	66
11 27	15 15.58	+ 8 35.3	2.375	1.473	12.2	19.6	18 W	12*	—	2 1	7 26.48	+ 2 32.5	1.735	2.637	10.6	19.4	150 E	42	67
12 7	15 48.24	+ 9 38.6	2.325	1.445	13.9	19.5	21 W	14*	2*	2 11	7 17.77	+ 2 27.9	1.829	2.677	13.1	19.6	142 E	43	66
12 17	16 21.91	+ 10 25.3	2.280	1.421	15.4	19.5	23 W	16*	4*	2 16	7 14.45	+ 2 20.0	1.885	2.697	14.3	19.7	137 E	43	66
12 27	16 56.32	+ 10 52.6	2.241	1.404	16.7	19.5	24 W	17*	7*	2 21	7 11.86	+ 2 9.3	1.946	2.716	15.5	19.9	133 E	43	66
1 6	17 31.14	+ 10 59.0	2.210	1.392	17.9	19.5	26 W	18*	9*	2 26	7 10.01	+ 1 56.6	2.011	2.736	16.5	20.0	128 E	43	66
1 16	18 6.03	+ 10 43.9	2.187	1.387	18.9	19.5	27 W	18*	12*	3 2	7 8.89	+ 1 42.6	2.080	2.755	17.4	20.1	124 E	43	66
<b>507355 2011 VV<sub>5</sub></b>										<b>118273 1998 OX<sub>9</sub></b>									
12 23	8 12.67	+ 10 32.3	1.302	2.190	14.4	22.2	146 W	56	53	3 12	7 8.72	+ 1 13.0	2.227	2.793	18.8	20.3	115 E	44	65
1 2	7 53.74	+ 9 42.4	1.226	2.173	9.3	21.8	159 W	55	54	3 22	7 11.04	+ 0 44.5	2.384	2.830	19.7	20.5	106 E	44	65
1 12	7 31.56	+ 9 1.6	1.182	2.152	5.8	21.6	167 W	54	55	4 1	7 15.54	+ 0 19.7	2.546	2.867	20.2	20.7	98 E	44*	64
1 22	7 8.44	+ 8 31.6	1.174	2.127	8.8	21.7	161 E	54	55	4 11	7 21.85	+ 0 0.7	2.710	2.902	20.2	20.9	91 E	43*	64*
2 1	6 47.08	+ 8 13.4	1.199	2.098	14.6	21.9	148 E	53	56	4 21	7 29.66	+ 0 11.2	2.875	2.937	19.9	21.0	84 E	39*	63*
2 11	6 29.64	+ 8 6.3	1.251	2.063	20.1	22.2	134 E	53	56	5 1	7 38.70	+ 0 15.3	3.037	2.971	19.3	21.2	77 E	34*	61*
<b>118624 2000 HR<sub>24</sub></b>										<b>63583 2001 QP<sub>31</sub></b>									
12 23	8 12.89	+ 1 22.9	4.105	4.913	7.2	20.0	141 W	46	63	12 23	8 13.66	+ 7 27.5	1.677	2.544	12.9	19.1	145 W	52	57
1 2	8 8.36	+ 1 12.7	4.019	4.899	5.7	19.9	151 W	46	63	1 2	8 4.17	+ 17 31.1	1.680	2.629	7.0	20.4	161 W	63	46
1 12	8 3.11	+ 1 11.8	3.960	4.886	4.3	19.8	158 W	46	63	1 12	7 53.16	+ 18 3.6	1.669	2.649	2.4	20.2	174 W	63	46
1 22	7 57.51	+ 1 20.2	3.931	4.872	3.8	19.8	161 E	46	63	1 22	7 41.76	+ 18 37.4	1.689	2.667	2.8	20.3	172 E	64	45
2 1	7 51.98	+ 1 37.0	3.931	4.858	4.4	19.8	158 E	47	62	1 27	7 36.32	+ 18 53.7	1.709	2.676	5.0	20.4	166 E	64	45
2 11	7 46.94	+ 2 0.8	3.961	4.844	5.7	19.9	151 E	47	62	2 1	7 31.26	+ 19 9.0	1.738	2.685	7.2	20.6	160 E	64	45
2 21	7 42.76	+ 2 29.6	4.017	4.831	7.3	20.0	142 E	47	62	2 6	7 26.70	+ 19 23.2	1.773	2.693	9.3	20.7	154 E	64	45
3 2	7 39.73	+ 3 1.3	4.098	4.817	8.8	20.1	132 E	48	61	2 11	7 22.76	+ 19 36.1	1.814	2.701	11.2	20.8	148 E	65	44
3 12	7 38.04	+ 3 33.9	4.198	4.803	10.1	20.2	122 E	49	60	2 16	7 19.48	+ 19 47.6	1.861	2.709	12.9	21.0	142 E	65	44
3 22	7 37.75	+ 4 5.4	4.313	4.789	11.0	20.3	113 E	49	60	2 21	7 16.93	+ 19 57.7	1.914	2.717	14.5	21.1	136 E	65	44
4 1	7 38.88	+ 4 34.3	4.439	4.775	11.7	20.3	104 E	50	59	2 26	7 15.13	+ 20 6.4	1.971	2.725	15.9	21.2	131 E	65	44
4 11	7 41.38	+ 4 59.4	4.571	4.762	12.1	20.4	95 E	49*	59	3 2	7 14.08	+ 20 13.6	2.032	2.732	17.1	21.3	126 E	65	44
4 21	7 45.14	+ 5 19.8	4.705	4.748	12.2	20.5	86 E	45*	58*	3 7	7 13.77	+ 20 19.4	2.097	2.739	18.2	21.4	121 E	65	44
5 1	7 50.05	+ 5 34.9	4.839	4.734	12.0	20.5	78 E	40*	57*	<b>63583 2001 QP<sub>31</sub></b>									
5 11	7 55.96	+ 5 44.1	4.967	4.720	11.6	20.6	70 E	33*	54*	12 23	8 13.66	+ 7 27.5	1.677	2.544	12.9	19.1	145 W	52	57
5 21	8 2.76	+ 5 47.4	5.089	4.707	11.0	20.6	62 E	26*	51*	1 2	8 4.85	+ 7 59.9	1.641	2.570	9.0	18.9	156 W	53	56
5 31	8 10.30	+ 5 44.5	5.200	4.693	10.2	20.6	55 E	18*	46*	1 12	7 54.52	+ 8 48.5	1.632	2.596	5.3	18.8	166 W	54	55
6 10	8 18.48	+ 5 35.4	5.300	4.679	9.3	20.6	48 E	11*	41*	1 22	7 43.80	+ 9 49.1	1.651	2.621	4.6	18.8	168 E	55	54
6 20	8 27.17	+ 5 20.3	5.387	4.665	8.2	20.6	41 E	5*	35*	1 27	7 38.69	+ 10 22.4	1.672	2.633	5.9	18.9	164 E	55	54
6 30	8 36.28	+ 4 59.4	5.459	4.652	7.0	20.5	34 E	—	28*	2 1	7 33.93	+ 10 56.6	1.701	2.645	7.6	19.0	159 E	56	53
7 10	8 45.70	+ 4 32.7	5.514	4.638	5.8	20.5	28 E	—	21*	2 6	7 29.65	+ 11 31.0	1.736	2.657	9.4	19.1	154 E	57	52
7 20	8 55.36	+ 4 0.7	5.554	4.625	4.7	20.5	22 E	—	14*	2 11	7 25.96	+ 12 5.1	1.777	2.669	11.1	19.3	148 E	57	52
7 30	9 5.17	+ 3 23.4	5.575	4.611	3.6	20.4	17 E	—	7*	2 21	7 20.53	+ 13 10.4	1.878	2.691	14.4	19.5	138 E	58	51
8 9	9 15.05	+ 2 41.5	5.579	4.598	2.9	20.3	13 W	—	5*	3 2	7 17.96	+ 14 9.3	1.998	2.713	17.0	19.8	127 E	59	50
8 19	9 24.93	+ 1 55.2	5.565	4.584	2.8	20.3	13 W	—	5*	3 12	7 18.22	+ 15 0.1	2.133	2.733	18.9	20.0	117 E	60	49
8 29	9 34.74	+ 1 4.9	5.532	4.571	3.5	20.4	16 W	—	10*	3 22	7 21.08	+ 15 41.9	2.278	2.753	20.1	20.2	108 E	61	48
9 8	9 44.41	+ 0 11.1	5.482	4.558	4.6	20.4	21 W	4*	15*	4 1	7 26.24	+ 16 14.4	2.430	2.772	20.8	20.4	99 E	61*	48
9 18	9 53.87	+ 0 45.6	5.414	4.545	5.8	20.4	27 W	11*	20*	4 11	7 33.36	+ 16 37.5	2.585	2.790	21.0	20.5	91 E	59*	47
9 28	10 3.03	+ 1 44.7	5.329	4.532	7.1	20.4	34 W	18*	24*	4 21	7 42.11	+ 16 51.5	2.740	2.807	20.8	20.7	83 E	55*	47*
10 8	10 11.81	+ 2 45.5	5.228	4.519	8.3	20.4	41 W	24*	29*	5 1	7 52.22	+ 16 56.4	2.892	2.823	20.3	20.8	76 E	49*	46*
10 18	10 20.13	+ 3 47.4	5.112	4.506	9.4	20.4	48 W	29*	34*	5 11	8 3.40	+ 16 52.7	3.040	2.839	19.4	20.9	69 E	43*	45*
10 28	10 27.89	+ 4 49.5	4.983	4.493	10.5	20.4	55 W	33*	40*	5 21	8 15.44	+ 16 40.6	3.181	2.853	18.3	20.9	62 E	36*	43*
11 7	10 34.97	+ 5 51.1	4.842	4.480	11.4	20.4	63 W	36*	45*	5 31	8 28.16	+ 16 20.5	3.313	2.866	17.0	21.0	56 E	29*	40*
11 17	10 41.27	+ 6																	

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	$45^\circ$	$-26^\circ$	19/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	$45^\circ$	$-26^\circ$
<b>63583 2001 QP<sub>31</sub></b> (continuation)										<b>53550 2000 BF<sub>19</sub></b> (continuation)									
8 29	10 34.39	+8 46.2	3.954	2.944	0.4	20.6	1 E	—	—	1 12	7 40.19	+26 31.6	1.101	2.082	2.5	21.1	175 W	72	37
9 8	10 48.51	+7 36.4	3.951	2.948	1.7	20.7	5 W	—	—	1 17	7 30.35	+26 36.6	1.095	2.074	3.6	21.1	172 E	72	37
9 18	11 2.51	+6 25.3	3.931	2.951	3.7	20.9	11 W	4*	1*	1 22	7 20.60	+26 36.9	1.097	2.065	6.5	21.3	166 E	72	37
9 28	11 16.35	+5 13.7	3.896	2.953	5.7	21.0	17 W	10*	5*	1 27	7 11.28	+26 32.7	1.105	2.056	9.7	21.4	159 E	72	37
10 8	11 30.00	+4 2.5	3.844	2.954	7.7	21.0	23 W	16*	9*	2 1	7 2.71	+26 24.2	1.121	2.046	12.8	21.6	153 E	71	38
10 18	11 43.41	+2 52.4	3.777	2.954	9.6	21.1	30 W	22*	13*	2 6	6 55.13	+26 12.2	1.143	2.036	15.8	21.7	146 E	71	38
10 28	11 56.53	+1 44.6	3.695	2.953	11.5	21.1	36 W	27*	17*	2 11	6 48.71	+25 57.4	1.170	2.024	18.5	21.8	139 E	71	38
11 7	12 9.31	+0 40.0	3.599	2.951	13.2	21.1	43 W	32*	22*	<b>483535 2003 UM<sub>86</sub></b>									
11 17	12 21.66	-0 20.4	3.489	2.948	14.8	21.1	50 W	36*	27*	12 23	8 14.63	+17 35.3	1.061	1.968	15.1	20.6	149 W	63	46
11 27	12 33.50	-1 15.3	3.368	2.945	16.3	21.1	57 W	40*	33*	12 28	8 9.94	+17 57.2	1.050	1.985	12.2	20.5	155 W	63	46
12 7	12 44.69	-2 3.5	3.235	2.940	17.5	21.0	64 W	42*	39*	1 2	8 4.54	+18 21.7	1.045	2.002	9.1	20.4	161 W	63	46
12 17	12 55.12	-2 43.7	3.094	2.934	18.5	20.9	71 W	42*	46*	1 7	7 58.61	+18 47.7	1.046	2.018	5.9	20.3	168 W	64	45
12 27	13 4.58	-3 14.4	2.946	2.927	19.3	20.9	79 W	42*	53*	1 12	7 52.40	+19 14.4	1.054	2.035	2.8	20.1	174 W	64	45
1 6	13 12.90	-3 34.3	2.794	2.920	19.7	20.7	87 W	41	60*	1 17	7 46.15	+19 40.7	1.068	2.051	0.9	20.0	178 E	65	44
1 16	13 19.82	-3 41.6	2.640	2.911	19.6	20.6	96 W	41	66*	1 22	7 40.09	+20 5.9	1.089	2.068	3.7	20.3	172 E	65	44
<b>138175 2000 EE<sub>104</sub></b>										1 27	7 34.45	+20 29.4	1.116	2.084	6.7	20.5	166 E	65	44
12 23	8 13.81	+42 37.5	0.280	1.227	26.0	19.2	147 W	88	21	2 1	7 29.45	+20 50.6	1.149	2.101	9.4	20.7	160 E	66	43
12 25	8 4.98	+43 16.8	0.280	1.233	24.0	19.1	149 W	88	21	2 6	7 25.24	+21 9.3	1.189	2.117	12.0	20.9	153 E	66	43
12 27	7 55.71	+43 51.3	0.281	1.238	22.2	19.1	152 W	89	20	2 11	7 21.91	+21 25.5	1.233	2.133	14.4	21.1	148 E	66	43
12 29	7 46.08	+44 20.4	0.282	1.243	20.5	19.0	154 W	89	20	2 16	7 19.50	+21 39.1	1.283	2.149	16.5	21.3	142 E	67	42
12 31	7 36.21	+44 43.6	0.284	1.247	19.2	19.0	155 W	90	19	2 21	7 18.05	+21 50.2	1.338	2.165	18.3	21.5	137 E	67	42
1 2	7 26.23	+45 0.6	0.287	1.252	18.2	19.0	157 W	90	19	<b>121210 1999 QG<sub>2</sub></b>									
1 4	7 16.29	+45 11.3	0.290	1.256	17.6	19.0	157 W	90	19	12 23	8 15.18	+20 35.6	2.140	3.027	9.6	20.5	149 W	66	43
1 6	7 6.50	+45 15.7	0.294	1.260	17.5	19.1	157 W	90	19	1 2	8 6.93	+21 23.2	2.061	3.009	6.0	20.2	161 W	66	43
1 8	6 56.99	+45 14.2	0.299	1.264	17.8	19.1	157 E	90	19	1 12	7 56.92	+22 14.2	2.011	2.991	2.0	19.9	174 W	67	42
1 10	6 47.88	+45 7.2	0.305	1.268	18.4	19.2	156 E	90	19	1 22	7 46.05	+23 4.3	1.992	2.971	2.3	19.9	173 E	68	41
1 12	6 39.24	+44 55.1	0.311	1.271	19.4	19.3	155 E	90	19	1 27	7 40.62	+23 27.6	1.994	2.961	4.4	20.0	167 E	68	41
1 14	6 31.16	+44 38.7	0.317	1.274	20.6	19.4	153 E	90	19	2 1	7 35.41	+23 49.1	2.004	2.950	6.5	20.2	160 E	69	40
1 16	6 23.68	+44 18.4	0.325	1.277	21.9	19.4	151 E	89	20	2 6	7 30.53	+24 8.7	2.021	2.940	8.4	20.3	154 E	69	40
1 18	6 16.83	+43 55.1	0.333	1.280	23.3	19.5	149 E	89	20	2 11	7 26.12	+24 26.1	2.045	2.929	10.3	20.3	148 E	69	40
1 20	6 10.63	+43 29.2	0.341	1.283	24.8	19.7	147 E	88	21	2 21	7 19.02	+24 54.1	2.110	2.906	13.6	20.5	136 E	70	39
1 22	6 5.10	+43 1.4	0.350	1.285	26.4	19.8	145 E	88	21	3 2	7 14.63	+25 13.7	2.195	2.883	16.3	20.7	125 E	70	39
1 27	5 54.09	+41 47.0	0.374	1.290	30.1	20.0	139 E	87	22	3 12	7 13.16	+25 25.7	2.295	2.858	18.4	20.8	115 E	70	39
2 1	5 46.82	+40 30.7	0.401	1.294	33.5	20.3	134 E	86	23	3 22	7 14.52	+25 31.1	2.403	2.833	19.8	21.0	105 E	71	38
2 6	5 42.79	+39 16.6	0.430	1.297	36.6	20.5	128 E	84	25	4 1	7 18.51	+25 30.4	2.517	2.807	20.7	21.1	96 E	70	38
2 11	5 41.46	+38 7.0	0.460	1.298	39.3	20.7	123 E	83	26	4 11	7 24.83	+25 24.0	2.631	2.779	21.1	21.2	88 E	67	39
2 16	5 42.37	+37 2.5	0.491	1.298	41.7	21.0	119 E	82	27	4 21	7 33.16	+25 11.8	2.743	2.751	21.1	21.2	80 E	61	38
2 21	5 45.15	+36 2.9	0.522	1.297	43.8	21.1	115 E	81	28	5 1	7 43.24	+24 53.6	2.850	2.722	20.7	21.3	73 E	54	38
2 26	5 49.48	+35 8.0	0.554	1.295	45.6	21.3	111 E	80	29	5 11	7 54.77	+24 29.0	2.949	2.692	20.0	21.3	66 E	46	37
3 2	5 55.12	+34 16.9	0.586	1.291	47.2	21.5	107 E	79	30	5 21	8 7.54	+23 57.9	3.040	2.662	19.0	21.3	59 E	39	35
<b>274833 2009 QQ<sub>1</sub></b>										5 31	8 21.34	+23 19.8	3.121	2.630	17.8	21.3	53 E	32	33
12 23	8 14.07	+22 40.5	1.535	2.436	11.7	21.5	150 W	68	41	6 10	8 35.98	+22 34.7	3.191	2.598	16.5	21.3	46 E	26	31
12 28	8 8.98	+22 44.3	1.514	2.445	9.4	21.4	156 W	68	41	6 20	8 51.35	+21 42.3	3.249	2.564	14.9	21.2	41 E	20	28
1 2	8 3.28	+22 48.2	1.499	2.454	7.0	21.2	162 W	68	41	6 30	9 7.31	+20 42.6	3.296	2.530	13.3	21.2	35 E	16	24
1 7	7 57.14	+22 51.7	1.490	2.462	4.4	21.1	169 W	68	41	7 10	9 23.77	+19 35.6	3.329	2.495	11.6	21.1	30 E	12	20
1 12	7 50.72	+22 54.4	1.489	2.471	1.9	21.0	175 W	68	41	7 20	9 40.65	+18 21.6	3.351	2.460	9.8	21.0	24 E	8	16
1 17	7 44.22	+22 55.7	1.496	2.479	1.1	20.9	177 E	68	41	7 30	9 57.91	+17 0.7	3.360	2.424	7.9	20.9	19 E	6	11
1 22	7 37.85	+22 55.6	1.510	2.487	3.5	21.1	171 E	68	41	8 9	10 15.48	+15 33.1	3.356	2.387	6.0	20.8	14 E	3	7
1 27	7 31.78	+22 53.7	1.531	2.494	5.9	21.3	165 E	68	41	8 19	10 33.37	+13 59.4	3.341	2.350	4.2	20.6	10 E	1*	2*
2 1	7 26.21	+22 50.2	1.559	2.502	8.3	21.4	158 E	68	41	8 29	10 51.55	+12 19.9	3.314	2.312	2.6	20.5	6 E	—	—
2 6	7 21.27	+22 45.2	1.594	2.509	10.5	21.6	152 E	68	41	9 8	11 10.03	+10 35.3	3.275	2.273	2.2	20.4	5 E	—	—
2 11	7 17.07	+22 38.8	1.635	2.516	12.6	21.7	146 E	68	41	9 18	11 28.82	+8 46.0	3.226	2.234	3.4	20.4	8 W	1*	—
<b>79137 1991 PD<sub>15</sub></b>										9 28	11 47.94	+6 52.8	3.167	2.195	5.3	20.4	12 W	6*	—
12 23	8 14.10	+19 55.0	1.838	2.731	10.6	19.8	149 W	65	44	10 8	12 7.42	+4 56.6	3.099	2.156	7.3	20.5	16 W	10*	—
1 2	8 4.18	+20 8.1	1.800	2.751	6.4	19.6	162 W	65	44	10 18	12 27.31	+2 58.2	3.022	2.117	9.4	20.5	20 W	14*	3*
1 12	7 52.76	+20 22.8	1.790	2.771	1.9	19.3	175 W	65	44	10 28	12 47.65	+0 58.6	2.937	2.077	11.6	20.4	25 W	18*	6*
1 22	7 41.02	+20 36.0	1.811	2.790	2.7	19.4	172 E	66	43	11 7	13 8.48	-1 1.1	2.846	2.038	13.7	20.4	29 W	22*	9*
1 27	7 35.43	+20 41.4	1.833	2.799	4.9	19.6	166 E	66	43	11 17	13 29.87	-2 59.6	2.749	1.999	15.8	20.4	33 W	25*	13*
2 1	7 30.21	+20 45.6	1.863	2.807	7.0	19.7	160 E	66	43	11 27	13 51.84	-4 55.7	2.647	1.961	17.9	20.3	38 W	28*	17*
2 6	7 25.50	+20 48.7	1.899	2.816	9.0	19.8	154 E	66	43	12 7	14 14.45	-6 47.8	2.542	1.923	19.9	20.2	42 W	29*	22*
2 11	7 21.39	+20 50.7	1.942	2.824	10.8	20.0	148 E	66	43	12 17	14 37.74	-8 34.4	2.435	1.886	22.0	20.2	46 W	30*	27*
2 21	7 15.20	+20 51.4	2.044	2.840	14.0	20.2	136 E	66	43	12 27	15 1.72	-10 13.9	2.325	1.850	24.0	20.1	50 W	31*	32*
3 2	7 11.92	+20 48.3	2.166	2.854	16.5	20.4	125 E	66	43	1 6	15 26.39	-11 44.7	2.215	1.815	25.9				



EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

2020	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	$45^\circ$ - $26^\circ$	19/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	$45^\circ$ - $26^\circ$			
<b>96744 1999 OW<sub>3</sub></b>									<b>96744 1999 OW<sub>3</sub></b>											
<i>(continuation)</i>									<i>(continuation)</i>											
1	30	3 3.73	-83 47.8	0.538	0.971	75.4	15.9	73 E	—	32*	12 7	0 56.39	-5 6.4	2.455	3.013	17.2	120.0	115 E	40	69
1	31	2 6.12	-83 37.7	0.531	0.957	77.1	15.9	71 E	—	32*	12 17	0 55.91	-5 10.5	2.654	3.065	18.0	20.2	105 E	40	69*
2	1	1 13.04	-83 4.4	0.524	0.942	78.8	15.9	70 E	—	31*	12 27	0 57.56	-4 58.9	2.858	3.115	18.3	20.4	96 E	40	66*
2	2	0 28.53	-82 10.9	0.517	0.928	80.6	15.9	68 E	—	30*	1 6	1 1.00	-4 35.4	3.062	3.162	18.1	20.6	87 E	40	61*
2	3	23 53.13	-81 1.5	0.510	0.913	82.5	15.9	67 E	—	30*										
2	4	23 25.50	-79 39.9	0.503	0.898	84.4	15.9	65 E	—	29*										
2	5	23 3.89	-78 8.7	0.497	0.883	86.4	15.9	63 E	—	28*	12 23	8 19.69	+28 10.8	0.856	1.772	16.7	17.9	149 W	73	36
2	6	22 46.78	-76 29.7	0.492	0.869	88.4	16.0	62 E	—	27*	12 28	8 16.11	+28 30.3	0.845	1.784	13.7	17.8	154 W	74	35
2	7	22 33.04	-74 44.1	0.486	0.854	90.5	16.0	60 E	—	26*	1 2	8 11.59	+28 48.7	0.840	1.796	10.7	17.7	160 W	74	35
2	8	22 21.82	-72 52.8	0.481	0.839	92.6	16.0	58 E	—	25*	1 7	8 6.36	+29 4.7	0.840	1.808	7.8	17.6	165 W	74	35
2	9	22 12.54	-70 56.1	0.477	0.824	94.8	16.1	56 E	—	23*	1 12	8 0.69	+29 17.1	0.845	1.821	5.4	17.5	170 W	74	35
2	10	22 4.75	-68 54.7	0.473	0.809	97.1	16.1	54 E	—	22*	1 17	7 54.87	+29 25.1	0.856	1.835	4.5	17.5	171 W	74	35
2	11	21 58.15	-66 48.8	0.470	0.795	99.4	16.2	53 E	—	21*	1 22	7 49.19	+29 28.2	0.873	1.848	5.8	17.6	169 E	74	35
2	12	21 52.50	-64 38.7	0.467	0.780	101.8	16.2	51 E	—	19*	1 27	7 43.94	+29 26.3	0.896	1.863	8.2	17.8	164 E	74	35
2	13	21 47.63	-62 24.8	0.465	0.765	104.1	16.3	49 E	—	17*	2 1	7 39.38	+29 19.6	0.924	1.877	10.9	18.0	159 E	74	35
2	14	21 43.41	-60 7.3	0.463	0.750	106.5	16.4	47 W	—	16*	2 6	7 35.68	+29 8.6	0.957	1.892	13.4	18.2	154 E	74	35
2	15	21 39.73	-57 46.6	0.463	0.735	108.9	16.5	45 W	—	16*	2 11	7 32.96	+28 53.9	0.996	1.907	15.8	18.4	148 E	74	35
2	16	21 36.52	-55 23.1	0.463	0.721	111.3	16.6	43 W	—	17*	2 21	7 30.62	+28 16.2	1.086	1.937	20.0	18.7	138 E	73	36
2	17	21 33.71	-52 57.2	0.464	0.706	113.6	16.7	41 W	—	17*	3 2	7 32.35	+27 30.6	1.191	1.969	23.2	19.0	129 E	73	36
2	18	21 31.27	-50 29.5	0.465	0.692	115.9	16.8	39 W	—	17*	3 12	7 37.67	+26 39.7	1.309	2.001	25.5	19.4	120 E	72	37
2	19	21 29.15	-48 0.4	0.468	0.677	118.1	16.9	37 W	—	17*	3 22	7 45.92	+25 44.6	1.436	2.033	27.0	19.6	112 E	71	38
2	20	21 27.32	-45 30.5	0.472	0.663	120.2	17.0	35 W	—	17*	4 1	7 56.52	+24 45.4	1.571	2.066	27.9	19.9	105 E	70	39
2	21	21 25.76	-43 0.3	0.476	0.649	122.2	17.2	34 W	—	17*	4 11	8 9.90	+23 41.8	1.711	2.099	28.2	20.1	98 E	68*	40
2	23	21 23.39	-38 1.6	0.489	0.622	125.5	17.4	31 W	—	18*	4 21	8 22.60	+22 33.5	1.854	2.132	28.1	20.3	92 E	65*	41
2	25	21 21.93	-33 9.0	0.506	0.595	127.9	17.6	28 W	—	18*	5 1	8 37.26	+21 20.2	1.999	2.166	27.6	20.5	85 E	59*	43
2	27	21 21.33	-28 26.9	0.527	0.570	129.0	17.7	27 W	—	18*	5 11	8 52.58	+20 1.8	2.145	2.199	26.9	20.7	80 E	53*	44*
2	29	21 21.58	-23 59.1	0.553	0.546	128.6	17.7	26 W	—	19*	5 21	9 8.35	+18 38.4	2.290	2.232	25.8	20.8	74 E	46*	45*
3	2	21 22.67	-19 48.5	0.584	0.524	126.8	17.5	25 W	—	19*	5 31	9 24.40	+17 10.1	2.433	2.265	24.6	20.9	68 E	39*	45*
3	4	21 24.60	-15 56.9	0.618	0.505	123.6	17.3	25 W	3*	19*	6 10	9 40.60	+15 37.3	2.573	2.297	23.2	21.1	63 E	33*	45*
3	6	21 27.38	-12 25.5	0.657	0.489	119.1	17.0	25 W	6*	19*	6 20	9 56.86	+14 0.5	2.709	2.329	21.6	21.2	58 E	27*	43*
3	8	21 30.99	-9 14.4	0.700	0.476	113.8	16.7	26 W	9*	19*	6 30	10 13.12	+12 20.1	2.839	2.361	20.0	21.2	52 E	21*	41*
3	10	21 35.43	-6 23.3	0.746	0.466	107.7	16.4	27 W	11*	19*	7 10	10 29.34	+10 36.6	2.963	2.392	18.2	21.3	47 E	17*	38*
3	12	21 40.63	-3 51.0	0.794	0.461	101.3	16.2	27 W	13*	19*	7 20	10 45.48	+8 50.7	3.080	2.422	16.3	21.3	42 E	13*	34*
3	14	21 46.53	+1 36.4	0.845	0.460	94.6	16.0	27 W	14*	18*	7 30	11 1.54	+7 2.9	3.188	2.452	14.4	21.4	37 E	10*	30*
3	16	21 53.03	+0 22.3	0.896	0.464	88.0	15.9	28 W	15*	18*	8 9	11 17.50	+5 13.7	3.287	2.481	12.4	21.4	32 E	7*	25*
3	18	22 0.00	+2 6.6	0.948	0.471	81.6	15.8	28 W	16*	17*	8 19	11 33.38	+3 23.9	3.376	2.510	10.3	21.4	26 E	4*	20*
3	20	22 7.34	+3 38.2	1.000	0.483	75.5	15.8	28 W	16*	17*	8 29	11 49.16	+1 33.8	3.454	2.538	8.2	21.4	21 E	2*	15*
3	22	22 14.93	+4 58.9	1.051	0.498	69.9	15.7	28 W	17*	17*	9 8	12 4.86	+0 15.8	3.520	2.565	6.1	21.4	16 E	—	10*
3	24	22 22.65	+6 10.2	1.101	0.516	64.7	15.8	28 W	17*	16*	9 18	12 20.47	-2 4.4	3.574	2.591	4.0	21.3	10 E	—	4*
3	26	22 30.43	+7 13.3	1.150	0.537	60.1	15.8	28 W	17*	16*	9 28	12 36.00	-3 51.4	3.614	2.617	1.8	21.2	5 E	—	—
3	28	22 38.18	+8 9.6	1.197	0.560	55.9	15.9	28 W	17*	16*	10 8	12 51.44	-5 36.2	3.641	2.642	0.3	21.1	1 W	—	—
3	30	22 45.86	+8 59.9	1.243	0.585	52.2	15.9	28 W	17*	16*	10 18	13 6.78	-7 18.3	3.653	2.666	2.5	21.3	7 W	—	—
4	1	22 53.42	+9 45.2	1.288	0.611	49.0	16.0	27 W	17*	16*	10 28	13 22.00	-8 57.1	3.651	2.689	4.6	21.5	12 W	5*	3*
4	3	23 0.84	+10 26.2	1.330	0.638	46.1	16.1	27 W	17*	15*										
4	5	23 8.09	+11 3.5	1.371	0.666	43.5	16.2	27 W	17*	15*										
4	7	23 15.17	+11 37.6	1.411	0.694	41.3	16.3	27 W	16*	16*	12 23	8 19.87	+24 12.2	1.954	2.840	10.4	18.8	149 W	69	40
4	9	23 22.07	+12 8.9	1.449	0.724	39.4	16.4	27 W	16*	16*	12 28	8 15.38	+24 29.2	1.931	2.851	8.5	18.7	155 W	69	40
4	11	23 28.79	+12 37.7	1.486	0.753	37.7	16.5	27 W	16*	16*	1 2	8 10.36	+24 46.2	1.914	2.861	6.5	18.6	161 W	70	39
4	16	23 44.81	+13 41.0	1.571	0.827	34.3	16.7	28 W	16*	16*	1 7	8 4.93	+25 2.8	1.905	2.872	4.4	18.5	167 W	70	39
4	21	23 59.76	+14 34.2	1.648	0.901	32.0	16.9	28 W	16*	17*	1 12	7 59.24	+25 18.1	1.904	2.882	2.5	18.4	173 W	70	39
4	26	0 13.73	+15 19.6	1.718	0.974	30.4	17.1	29 W	16*	19*	1 17	7 53.42	+25 31.9	1.910	2.891	1.6	18.3	175 W	71	38
5	1	0 26.80	+15 58.7	1.780	1.046	29.3	17.3	31 W	16*	20*	1 22	7 47.63	+25 43.6	1.924	2.901	2.8	18.4	172 E	71	38
5	6	0 39.06	+16 32.5	1.835	1.116	28.6	17.5	32 W	16*	22*	1 27	7 42.03	+25 53.0	1.945	2.910	4.7	18.6	166 E	71	38
5	11	0 50.58	+17 1.8	1.884	1.185	28.2	17.7	34 W	17*	23*	2 1	7 36.77	+26 0.0	1.974	2.919	6.7	18.7	160 E	71	38
											2 6	7 31.97	+26 4.5	2.010	2.928	8.5	18.8	154 E	71	38
											2 11	7 27.73	+26 6.6	2.053	2.936	10.3	19.0	148 E	71	38
5	21	1 11.65	+17 49.1	1.962	1.318	28.1	18.0	38 W	18*	27*	2 21	7 21.20	+26 4.8	2.156	2.953	13.3	19.2	137 E	71	38
5	31	1 30.35	+18 23.0	2.015	1.444	28.4	18.3	43 W	21*	31*	3 2	7 17.52	+25 56.1	2.278	2.968	15.7	19.4	126 E	71	38
6	10	1 46.91	+18 44.8	2.046	1.565	28.9	18.5	48 W	24*	35*	3 12	7 16.68	+25 42.2	2.415	2.982	17.5	19.6	116 E	71	38
6	20	2 1.44	+18 55.0	2.056	1.679	29.4	18.7	54 W	29*	38*	3 22	7 18.47	+25 24.3	2.562	2.996	18.6	19.8	106 E	70	39
6	30	2 13.91	+18 53.2	2.046	1.789	29.8	18.8	61 W	34*	41*	4 1	7 22.59	+25 2.9	2.715	3.008	19.2	19.9	97 E	70*	39
7	10	2 24.25	+18 38.8	2.019	1.893	29.9	18.9	68 W	40*	44*	4 11	7 28.71	+24 38.2	2.869	3.019	19.4	20.1	89 E	66*	39*
7	20	2 32.30	+18																	

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	$45^\circ$	$-26^\circ$	19/20	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	$45^\circ$	$-26^\circ$										
<b>14982 1997 TH<sub>19</sub></b>										<b>190119 2004 VA<sub>64</sub></b>																			
<i>(continuation)</i>										<i>(continuation)</i>																			
10 28	11 34.34	+ 3 50.5	3.698	3.036	12.7	20.4	42 W	32*	21*	1 10	7 39.63	-65 27.9	0.551	1.147	59.0	18.2	92 W	—	51	1 12	7 25.07	-69 0.1	0.535	1.113	62.1	18.2	89 E	—	47
11 7	11 45.93	+ 2 32.8	3.582	3.026	14.3	20.4	49 W	37*	26*	1 13	7 15.50	-70 47.5	0.528	1.096	63.7	18.2	87 E	—	45	1 14	7 3.74	-72 34.8	0.522	1.079	65.4	18.2	86 E	—	43
11 17	11 56.98	+ 1 18.2	3.454	3.015	15.8	20.3	56 W	41*	31*	1 15	6 49.08	-74 20.9	0.516	1.061	67.2	18.2	84 E	—	42	1 16	6 30.44	-76 4.3	0.510	1.044	69.0	18.2	82 E	—	40
11 27	12 7.39	+ 0 7.6	3.315	3.004	17.1	20.3	63 W	43*	38*	1 17	6 3.34	-77 42.5	0.505	1.026	70.8	18.2	80 E	—	38	1 18	5 34.82	-79 11.9	0.501	1.008	72.7	18.2	78 E	—	37
12 7	12 17.01	+ 0 57.9	3.167	2.991	18.1	20.2	71 W	44*	44*	1 19	4 53.69	-80 26.6	0.497	0.990	74.7	18.2	76 E	—	36	1 20	4 1.76	-81 18.9	0.494	0.972	76.7	18.2	74 E	—	35
12 17	12 25.67	+ 1 57.3	3.012	2.977	18.9	20.1	79 W	43*	51*	1 21	3 1.35	-81 40.2	0.491	0.954	78.7	18.2	72 E	—	34*	1 22	1 59.48	-81 25.6	0.489	0.936	80.8	18.2	70 E	—	34*
12 27	12 33.17	+ 2 49.3	2.852	2.963	19.4	20.0	87 W	42	59*	1 23	1 4.17	-80 36.7	0.488	0.917	82.9	18.3	68 E	—	33*	1 24	0 19.36	-79 20.9	0.487	0.898	85.0	18.3	65 E	—	33*
1 6	12 39.28	+ 3 32.5	2.691	2.947	19.4	19.9	95 W	41	65*	1 25	23 44.73	-77 46.0	0.487	0.880	87.2	18.3	63 E	—	32*	1 26	23 18.23	-75 58.3	0.488	0.861	89.3	18.4	61 E	—	31*
1 16	12 43.73	+ 4 5.5	2.531	2.930	19.0	19.7	104 W	41	68*	1 27	22 57.75	-74 2.0	0.489	0.841	91.5	18.4	59 E	—	30*	1 28	22 41.64	-71 59.9	0.491	0.822	93.7	18.5	56 E	—	29*
<b>32122 2000 LD<sub>10</sub></b>										<b>190119 2004 VA<sub>64</sub></b>																			
12 23	8 20.06	+27 58.1	1.905	2.793	10.5	18.7	149 W	73	36	1 29	22 28.73	-69 53.9	0.494	0.803	95.9	18.5	54 E	—	28*	1 30	22 18.19	-67 45.4	0.497	0.783	98.1	18.6	52 E	—	26*
12 28	8 15.56	+28 38.5	1.886	2.806	8.7	18.6	155 W	74	35	2 1	22 28.73	-69 53.9	0.494	0.803	95.9	18.5	54 E	—	28*	2 2	22 2.03	-63 24.0	0.506	0.743	102.5	18.7	47 E	—	23*
1 2	8 10.48	+29 18.5	1.874	2.819	6.8	18.5	160 W	74	35	2 3	21 50.24	-59 0.8	0.518	0.703	106.7	18.9	43 E	—	20*	2 4	21 45.46	-56 49.4	0.525	0.682	108.8	19.0	41 E	—	18*
1 7	8 4.96	+29 56.9	1.869	2.832	5.0	18.4	165 W	75	34	2 5	21 41.26	-54 38.7	0.533	0.662	110.8	19.1	39 E	—	17*	2 6	21 37.54	-52 28.6	0.541	0.641	112.8	19.1	37 E	—	15*
1 12	7 59.13	+30 32.9	1.872	2.844	3.7	18.4	169 W	76	33	2 7	21 34.22	-50 19.5	0.551	0.620	114.7	19.2	35 E	—	13*	2 8	21 31.27	-48 11.5	0.561	0.599	116.5	19.3	33 E	—	11*
1 17	7 53.15	+31 5.7	1.883	2.856	3.5	18.4	170 W	76	33	2 9	21 28.63	-46 4.6	0.572	0.577	118.1	19.4	31 E	—	9*	2 10	21 26.28	-43 58.9	0.585	0.556	119.7	19.5	29 W	—	9*
1 22	7 47.19	+31 34.6	1.901	2.868	4.5	18.5	167 E	77	32	2 11	21 24.20	-41 54.6	0.598	0.535	121.1	19.5	28 W	—	9*	2 12	21 20.81	-37 49.8	0.628	0.492	123.2	19.6	25 W	—	10*
1 27	7 41.42	+31 59.2	1.927	2.880	6.0	18.6	162 E	77	32	2 13	21 18.41	-33 50.4	0.662	0.449	124.2	19.6	22 W	—	10*	2 15	21 17.08	-29 56.3	0.702	0.407	123.6	19.5	20 W	—	11*
2 1	7 36.00	+32 19.4	1.960	2.891	7.7	18.7	157 E	77	32	2 17	21 16.98	-26 7.2	0.748	0.367	120.8	19.2	19 W	—	11*	2 19	21 16.98	-26 7.2	0.748	0.367	120.8	19.2	19 W	—	11*
2 6	7 31.06	+32 35.3	2.000	2.902	9.4	18.8	151 E	78	31	2 21	21 18.38	-22 23.2	0.801	0.331	115.3	18.7	18 W	—	11*	2 23	21 17.03	-18 45.1	0.860	0.300	106.7	18.1	17 W	—	11*
2 11	7 26.73	+32 46.9	2.046	2.913	11.1	19.0	145 E	78	31	2 25	21 21.63	-15 14.7	0.926	0.279	95.0	17.5	16 W	—	1*	2 27	21 21.63	-15 14.7	0.926	0.279	95.0	17.5	16 W	—	1*
2 16	7 23.06	+32 54.8	2.098	2.924	12.6	19.1	140 E	78	31	2 29	21 34.92	-11 56.0	0.995	0.270	81.1	17.1	16 W	—	2*	2 29	21 44.87	-8 53.4	1.066	0.275	66.9	16.8	15 W	—	4*
2 21	7 20.13	+32 59.2	2.156	2.934	13.9	19.2	134 E	78	31	3 2	21 56.29	-6 10.1	1.134	0.293	54.2	16.7	14 W	—	4*	3 2	21 56.29	-6 10.1	1.134	0.293	54.2	16.7	14 W	—	4*
3 2	7 16.55	+32 59.4	2.284	2.954	16.2	19.4	124 E	78	31	3 4	22 8.42	-3 46.6	1.198	0.322	43.9	16.7	13 W	—	5*	3 4	22 8.42	-3 46.6	1.198	0.322	43.9	16.7	13 W	—	5*
3 12	7 16.00	+32 50.7	2.426	2.974	17.8	19.6	114 E	78	31	3 6	22 20.65	-1 41.0	1.259	0.357	36.0	16.8	12 W	—	5*	3 6	22 20.65	-1 41.0	1.259	0.357	36.0	16.8	12 W	—	5*
3 22	7 18.20	+32 35.4	2.577	2.992	18.8	19.8	105 E	78	31	3 8	22 32.64	+ 0 9.2	1.315	0.397	30.2	17.0	12 W	—	5*	3 8	22 32.64	+ 0 9.2	1.315	0.397	30.2	17.0	12 W	—	5*
4 1	7 22.85	+32 15.1	2.733	3.009	19.3	20.0	96 E	77*	32	3 10	22 44.21	+ 1 46.7	1.369	0.438	25.8	17.2	11 W	—	5*	3 10	22 44.21	+ 1 46.7	1.369	0.438	25.8	17.2	11 W	—	5*
4 11	7 29.57	+31 50.6	2.891	3.025	19.3	20.1	88 E	77*	32	3 12	22 55.28	+ 3 13.6	1.420	0.481	22.6	17.4	11 W	—	5*	3 12	22 55.28	+ 3 13.6	1.420	0.481	22.6	17.4	11 W	—	5*
4 21	7 38.00	+31 22.3	3.047	3.040	19.0	20.2	80 E	76*	32*	3 14	23 5.84	+ 4 31.6	1.470	0.524	20.1	17.5	10 W	—	4*	3 14	23 5.84	+ 4 31.6	1.470	0.524	20.1	17.5	10 W	—	4*
5 1	7 47.84	+30 50.2	3.199	3.055	18.4	20.3	73 E	76*	32*	3 16	23 15.91	+ 5 42.1	1.517	0.566	18.1	17.7	10 W	—	4*	3 16	23 15.91	+ 5 42.1	1.517	0.566	18.1	17.7	10 W	—	4*
5 11	7 58.80	+30 14.4	3.344	3.068	17.4	20.4	66 E	75*	32*	3 18	23 25.50	+ 6 46.3	1.564	0.609	16.5	17.9	10 W	—	4*	3 18	23 25.50	+ 6 46.3	1.564	0.609	16.5	17.9	10 W	—	4*
5 21	8 10.65	+29 34.8	3.482	3.080	16.3	20.4	59 E	74*	31*	3 20	23 34.65	+ 7 45.0	1.609	0.651	15.2	18.0	10 W	—	4*	3 20	23 34.65	+ 7 45.0	1.609	0.651	15.2	18.0	10 W	—	4*
5 31	8 23.21	+28 51.3	3.609	3.092	15.0	20.5	52 E	73*	31*	3 22	23 43.39	+ 8 39.1	1.653	0.692	14.1	18.2	10 W	—	4*	3 22	23 43.39	+ 8 39.1	1.653	0.692	14.1	18.2	10 W	—	4*
6 10	8 36.28	+28 4.0	3.725	3.102	13.5	20.5	46 E	72*	30*	3 27	0 3.64	+10 37.0	1.759	0.792	12.0	18.5	9 W	—	3*	4 1	0 21.93	+12 15.8	1.861	0.889	10.4	18.9	9 W	—	3*
6 20	8 49.75	+27 13.0	3.828	3.111	12.0	20.5	39 E	72*	29*	4 2	0 38.59	+13 39.9	1.957	0.981	9.2	19.1	9 W	—	3*	4 2	0 38.59	+13 39.9	1.957	0.981	9.2	19.1	9 W	—	3*
6 30	9 3.51	+26 18.5	3.918	3.120	10.3	20.5	33 E	71*	29*	4 6	0 53.90	+14 52.5	2.048	1.069	8.4	19.4	9 W	—	3*	4 6	0 53.90	+14 52.5	2.048	1.069	8.4	19.4	9 W	—	3*
7 10	9 17.43	+25 20.7	3.993	3.127	8.6	20.5	28 E	71*	29*	4 16	1 8.08	+15 55.9	2.134	1.155	8.0	19.6	9 W	—	3*	4 16	1 8.08	+15 55.9	2.134	1.155	8.0	19.6	9 W	—	3*
7 20	9 31.47	+24 20.1	4.054	3.133	6.9	20.4	22 E	71*	29*	4 21	1 21.28	+16 51.8	2.215	1.237	7.9	19.8	10 W	—	3*	4 21	1 21.28	+16 51.8	2.215	1.237	7.9	19.8	10 W	—	3*
7 30	9 45.56	+23 16.9	4.099	3.139	5.3	20.4	17 E	8*	6*	4 26	1 33.64	+17 41.5	2.291	1.316	8.2	20.1	11 W	—	4*	4 26	1 33.64	+17 41.5	2.291	1.316					

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/20	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	19/20	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°
<b>18499 Showalter</b>										<b>416002 2002 BN</b>									
<i>(continuation)</i>										<i>(continuation)</i>									
2 26	7 24.82	+20 52.8	2.314	3.077	13.6	20.8	133 E	66	43	1 27	4 33.08	+26 4.7	0.212	1.118	46.8	19.1	124 E	71	38
3 2	7 23.22	+21 2.0	2.378	3.086	14.7	21.0	128 E	66	43	1 28	4 23.13	+27 10.6	0.214	1.111	49.4	19.2	121 E	72	37
3 7	7 22.28	+21 9.6	2.445	3.094	15.7	21.1	123 E	66	43	1 29	4 13.33	+28 12.5	0.217	1.104	52.0	19.3	118 E	73	36
3 12	7 21.98	+21 15.7	2.516	3.102	16.5	21.1	117 E	66	43	1 30	4 3.71	+29 10.3	0.221	1.097	54.4	19.4	115 E	74	35
3 17	7 22.30	+21 20.4	2.590	3.110	17.2	21.2	113 E	66	43	1 31	3 54.32	+30 4.0	0.224	1.090	56.9	19.5	112 E	75	34*
3 22	7 23.21	+21 23.6	2.666	3.118	17.7	21.3	108 E	66	43	2 1	3 45.15	+30 53.7	0.228	1.082	59.2	19.6	109 E	76	33*
3 27	7 24.68	+21 25.4	2.743	3.125	18.1	21.4	103 E	66	43	2 3	3 27.59	+32 21.7	0.237	1.067	63.6	19.8	104 E	77	31*
4 1	7 26.68	+21 25.9	2.822	3.132	18.4	21.5	99 E	66*	43	2 5	3 11.11	+33 35.7	0.246	1.052	67.8	20.0	99 E	79	29*
<b>466191 2012 KL<sub>45</sub></b>										<b>332136 2005 WT<sub>110</sub></b>									
12 23	8 21.78	+25 49.5	1.354	2.251	13.3	22.0	148 W	71	38	1 2	8 14.59	+12 1.5	1.902	2.831	8.0	21.7	156 W	57	52
12 28	8 15.85	+27 8.4	1.329	2.257	10.8	21.9	155 W	72	37	1 12	8 4.03	+12 17.0	1.883	2.851	4.3	21.5	168 W	57	52
1 2	8 8.98	+28 28.4	1.311	2.262	8.2	21.7	161 W	73	36	1 22	7 52.91	+12 39.8	1.894	2.870	3.0	21.5	171 E	58	51
1 7	8 1.32	+29 47.4	1.300	2.267	6.0	21.6	166 W	75	34	2 1	7 42.36	+13 7.1	1.936	2.889	6.1	21.7	162 E	58	51
1 12	7 53.09	+31 3.2	1.298	2.272	4.5	21.5	169 W	76	33	2 11	7 33.38	+13 35.7	2.006	2.906	9.6	22.0	150 E	59	50
1 17	7 44.53	+32 14.0	1.303	2.276	4.9	21.6	169 E	77	32	<b>381906 2010 CL<sub>19</sub></b>									
1 22	7 35.91	+33 18.0	1.316	2.279	6.7	21.7	164 E	78	31	12 23	8 23.76	+9 46.2	1.139	2.017	16.8	20.5	144 W	55	54
1 27	7 27.54	+34 14.1	1.337	2.282	9.1	21.8	159 E	79	30	1 2	8 5.16	+10 7.3	1.133	2.075	10.5	20.3	157 W	55	54
2 1	7 19.70	+35 2.0	1.365	2.285	11.5	22.0	152 E	80	29	1 12	7 45.11	+10 42.8	1.157	2.130	5.3	20.2	168 W	56	53
2 6	7 12.63	+35 41.6	1.400	2.286	13.8	22.1	146 E	81	28	1 22	7 25.97	+11 26.4	1.213	2.180	6.4	20.4	166 E	56	53
2 11	7 6.50	+36 13.5	1.440	2.288	16.0	22.3	140 E	81	28	1 27	7 17.41	+11 49.5	1.252	2.204	8.7	20.6	160 E	57	52
<b>124136 2001 LT<sub>2</sub></b>										<b>3988 Huma</b>									
12 23	8 22.04	+23 24.2	1.918	2.802	10.7	20.8	148 W	68	41	12 23	8 22.55	+ 2 0.5	1.078	1.937	19.1	20.4	140 W	47	62
1 2	8 13.07	+24 12.9	1.866	2.811	6.8	20.6	160 W	69	40	12 28	8 16.50	+ 1 38.1	1.057	1.947	16.7	20.3	145 W	47	62
1 12	8 2.27	+25 1.4	1.843	2.820	2.8	20.4	172 W	70	39	1 2	8 9.60	+ 1 23.2	1.040	1.957	14.3	20.2	150 W	46	63
1 22	7 50.71	+25 44.3	1.850	2.828	2.7	20.4	172 E	71	38	1 7	8 2.04	+ 1 16.0	1.030	1.966	12.1	20.1	155 W	46	63
1 27	7 45.05	+26 2.4	1.865	2.832	4.7	20.5	166 E	71	38	1 12	7 54.06	+ 1 16.7	1.026	1.974	10.4	20.0	159 W	46	63
2 1	7 39.67	+26 17.7	1.887	2.835	6.7	20.6	160 E	71	38	1 22	7 37.90	+ 1 40.8	1.037	1.990	9.8	20.0	160 E	47	62
2 6	7 34.73	+26 30.2	1.917	2.838	8.6	20.8	154 E	72	37	2 1	7 23.29	+ 2 30.4	1.074	2.003	12.9	20.2	153 E	48	61
2 11	7 30.32	+26 39.9	1.953	2.841	10.5	20.9	148 E	72	37	2 11	7 11.95	+ 3 36.2	1.135	2.013	17.1	20.5	143 E	49	60
2 16	7 26.55	+26 46.9	1.995	2.843	12.2	21.0	143 E	72	37	2 21	7 4.77	+ 4 49.0	1.216	2.022	21.1	20.8	133 E	50	59
2 21	7 23.47	+26 51.4	2.043	2.846	13.7	21.1	137 E	72	37	3 2	7 1.91	+ 6 1.2	1.311	2.028	24.2	21.1	123 E	51	58
2 26	7 21.12	+26 53.7	2.095	2.848	15.1	21.2	131 E	72	37	3 12	7 3.08	+ 7 7.5	1.417	2.032	26.6	21.3	114 E	52	57
3 2	7 19.53	+26 53.9	2.152	2.850	16.3	21.3	126 E	72	37	<b>219330 2000 KO<sub>1</sub></b>									
3 7	7 18.70	+26 52.2	2.212	2.851	17.4	21.4	121 E	72	37	12 23	8 23.14	-18 14.0	3.012	3.677	12.5	21.8	126 W	27	82
<b>3988 Huma</b>										<b>416002 2002 BN</b>									
12 23	8 22.55	+ 2 0.5	1.078	1.937	19.1	20.4	140 W	47	62	12 25	8 18.65	- 6 36.8	0.379	1.286	31.6	20.3	137 W	38	71
12 28	8 16.50	+ 1 38.1	1.057	1.947	16.7	20.3	145 W	47	62	12 27	8 13.22	- 5 55.9	0.359	1.279	29.8	20.1	140 W	39	70
1 2	8 9.60	+ 1 23.2	1.040	1.957	14.3	20.2	150 W	46	63	12 29	8 7.00	- 5 6.9	0.340	1.271	27.8	19.9	143 W	40	69
1 7	8 2.04	+ 1 16.0	1.030	1.966	12.1	20.1	155 W	46	63	12 31	7 59.89	- 4 8.5	0.322	1.263	25.7	19.7	146 W	41	68
1 12	7 54.06	+ 1 16.7	1.026	1.974	10.4	20.0	159 W	46	63	1 2	7 51.82	- 2 59.7	0.304	1.255	23.4	19.5	150 W	42	67
1 22	7 37.90	+ 1 40.8	1.037	1.990	9.8	20.0	160 E	47	62	1 4	7 42.67	- 1 39.1	0.287	1.246	21.0	19.3	153 W	43	66
2 1	7 23.29	+ 2 30.4	1.074	2.003	12.9	20.2	153 E	48	61	1 6	7 32.37	- 0 5.6	0.272	1.237	18.6	19.1	156 W	45	64
2 11	7 11.95	+ 3 36.2	1.135	2.013	17.1	20.5	143 E	49	60	1 8	7 20.82	+ 1 41.9	0.258	1.228	16.5	18.9	159 W	47	62
2 21	7 4.77	+ 4 49.0	1.216	2.022	21.1	20.8	133 E	50	59	1 10	7 7.95	+ 3 44.0	0.245	1.218	15.0	18.7	161 E	49	60
3 2	7 1.91	+ 6 1.2	1.311	2.028	24.2	21.1	123 E	51	58	1 12	6 53.70	+ 6 0.5	0.234	1.208	14.7	18.6	162 E	51	58
3 12	7 3.08	+ 7 7.5	1.417	2.032	26.6	21.3	114 E	52	57	1 14	6 38.07	+ 8 30.5	0.224	1.197	16.0	18.5	160 E	54	55
<b>219330 2000 KO<sub>1</sub></b>										<b>306679 2000 UO<sub>11</sub></b>									
12 23	8 23.14	-18 14.0	3.012	3.677	12.5	21.8	126 W	27	82	12 23	8 23.83	+34 45.8	1.842	2.723	11.3	20.9	147 W	80	29
1 2	8 16.45	-18 38.2	2.939	3.680	11.3	21.7	133 W	26	83	12 28	8 19.09	+35 27.0	1.826	2.736	9.6	20.8	152 W	80	29
1 12	8 8.57	-18 39.4	2.887	3.681	10.2	21.6	138 W	26	83	1 2	8 13.71	+36 6.0	1.816	2.749	8.0	20.8	157 W	81	28
1 22	8 0.11	-18 16.2	2.859	3.682	9.5	21.5	142 E	27	82	1 7	8 7.81	+36 41.6	1.814	2.762	6.7	20.7	161 W	82	27
2 1	7 51.74	-17 29.1	2.856	3.681	9.5	21.5	142 E	28	81	1 12	8 1.57	+37 12.9	1.818	2.774	5.9	20.7	163 W	82	27
2 11	7 44.18	-16 21.2	2.880	3.680	10.2	21.6	139 E	29	80	1 17	7 55.15	+37 39.1	1.830	2.787	5.8	20.7	163 W	83	26
<b>416002 2002 BN</b>										<b>491037 2011 QW<sub>11</sub></b>									
12 23	8 23.35	- 7 10.6	0.399	1.293	33.2	20.5	134 W	38	71	12 23	8 23.76	+18 52.4	1.662	2.543	12.2	22.5	147 W	64	45
12 25	8 18.65	- 6 36.8	0.379	1.286	31.6	20.3	137 W	38	71	1 2	8 14.01	+19 19.9	1.638	2.582	7.7	22.3	159 W	64	45
12 27	8 13.22	- 5 55.9	0.359	1.279	29.8	20.1	140 W	39	70	1 12	8 2.63	+19 50.5	1.642	2.620	2.9	22.1	172 W	65	44
12 29	8 7.00	- 5 6.9	0.340	1.271	27.8	19.9	143 W	40	69	1 22	7 50.88	+20 20.0	1.676	2.657	2.0	22.1	175 E	65	44
12 31	7 59.89	- 4 8.5	0.322	1.263	25.7	19.7	146 W	41	68	2 1	7 40.09	+20 44.9	1.739	2.693	6.5	22.4	162 E	66	43
1 2	7 51.82	- 2 59.7	0.304	1.255	23.4	19.5	150 W	42	67	<b>306679 2000 UO<sub>11</sub></b>									
1 4	7 42.67	- 1 39.1	0.287	1.246	21.0	19.3	153 W	43	66	12 23	8 23.83	+34 45.8	1.842	2.723	11.3	20.9	147 W	80	29
1 6	7 32.37	- 0 5.6	0.272	1.237	18.6	19.1	156 W	45	64	12 28	8 19.09	+35 27.0	1.826	2.736	9.6	20.8	152 W	80	29
1 8	7 20.82	+ 1 41.9	0.258	1.228	16.5	18.9	159 W	47	62	1 2	8 13.71	+36 6.0	1.816	2.749	8.0	20.8	157 W	81	28
1 10	7 7.95	+ 3 44.0	0.245	1.218	15.0	18.7	161 E	49	60	1 7	8 7.81	+36 41.6	1.814	2.762	6.7	20.7	161 W	82	27
1 12	6 53.70	+ 6 0.5	0.234	1.208	14.7	18.6	162 E	51	58	1 12	8 1.57	+37 12.9	1.818	2.774	5.9	20.7	163 W	82	27
1 14	6 38.07	+ 8 30.5	0.224	1.197	16.0	18.5	160 E	54	55	1 17									

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/20	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	19/20	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°
<b>133039 2003 AJ<sub>34</sub></b> (continuation)										<b>394935 2008 WA<sub>133</sub></b>									
3 2	7 51.92	+17 13.8	0.780	1.639	25.3	19.7	135 E	62	47	12 23	8 26.41	+14 37.9	1.929	2.792	11.7	21.2	145 W	60	49
3 12	7 58.65	+17 45.9	0.859	1.656	28.8	20.0	127 E	63	46	1 2	8 18.22	+15 21.9	1.878	2.810	7.8	21.0	157 W	60	49
3 22	8 8.92	+18 0.0	0.947	1.674	31.4	20.3	119 E	63	46	1 12	8 8.30	+16 14.5	1.855	2.828	3.6	20.7	169 W	61	48
4 1	8 22.05	+17 56.1	1.043	1.694	33.1	20.6	112 E	63	46	1 22	7 57.63	+17 11.1	1.862	2.844	1.6	20.6	175 E	62	47
4 11	8 37.36	+17 34.8	1.145	1.716	34.2	20.9	106 E	63	46	2 1	7 47.33	+18 6.9	1.899	2.859	5.5	20.9	164 E	63	46
4 21	8 54.22	+16 57.2	1.253	1.739	34.7	21.1	100 E	61*	47	2 11	7 38.48	+18 58.0	1.966	2.873	9.4	21.2	152 E	64	45
5 1	9 12.19	+16 4.6	1.364	1.762	34.7	21.3	95 E	58*	48	2 21	7 31.86	+19 42.1	2.059	2.887	12.7	21.4	140 E	65	44
<b>483560 2004 BV<sub>1</sub></b>										<b>334042 2001 EC<sub>18</sub></b>									
12 23	8 25.41	+23 23.9	0.917	1.824	16.9	21.2	147 W	68	41	12 23	8 27.42	+47 15.3	1.092	1.966	17.7	20.9	143 W	88	17
12 28	8 18.02	+24 36.9	0.903	1.839	13.5	21.1	154 W	70	39	12 28	8 19.87	+47 52.2	1.065	1.961	16.1	20.8	146 W	87	16
1 2	8 9.50	+25 50.6	0.896	1.853	10.0	20.9	161 W	71	38	1 2	8 10.81	+48 21.2	1.043	1.956	14.7	20.7	150 W	87	16
1 7	8 0.12	+27 2.3	0.895	1.867	6.5	20.8	168 W	72	37	1 7	8 0.53	+48 39.6	1.027	1.950	13.7	20.6	152 W	86	15
1 12	7 50.24	+28 9.4	0.901	1.880	4.0	20.7	172 W	73	36	1 12	7 49.43	+48 45.1	1.016	1.944	13.4	20.6	153 W	86	15
1 17	7 40.21	+29 9.7	0.914	1.893	4.5	20.8	171 E	74	35	1 17	7 38.01	+48 36.5	1.012	1.937	13.7	20.5	152 E	86	15
1 22	7 30.45	+30 1.8	0.935	1.905	7.2	21.0	166 E	75	34	1 22	7 26.79	+48 13.2	1.013	1.930	14.7	20.6	150 E	87	16
1 27	7 21.33	+30 44.9	0.962	1.916	10.3	21.2	160 E	76	33	1 27	7 16.30	+47 36.0	1.020	1.923	16.2	20.6	147 E	87	16
2 1	7 13.19	+31 19.0	0.995	1.926	13.4	21.4	153 E	76	33	2 1	7 6.97	+46 46.6	1.033	1.915	18.0	20.7	143 E	88	17
2 6	7 6.26	+31 45.0	1.035	1.936	16.2	21.6	147 E	77	32	2 6	6 59.12	+45 47.3	1.051	1.907	19.9	20.8	139 E	89	18
2 11	7 0.66	+32 3.8	1.079	1.945	18.8	21.8	141 E	77	32	2 11	6 52.90	+44 40.8	1.074	1.899	21.9	20.9	134 E	90	19
<b>275749 2001 OL<sub>9</sub></b>										<b>67943 2000 WP<sub>151</sub></b>									
12 23	8 25.64	+22 52.0	1.798	2.678	11.5	21.2	147 W	68	41	12 23	8 27.84	+26 47.4	1.331	2.221	13.9	19.4	147 W	72	37
12 28	8 21.40	+23 16.4	1.773	2.688	9.5	21.1	153 W	68	41	12 28	8 22.99	+27 16.5	1.316	2.237	11.5	19.3	153 W	72	37
1 2	8 16.57	+23 41.5	1.756	2.699	7.4	21.0	159 W	69	40	1 2	8 17.37	+27 45.1	1.306	2.252	9.0	19.2	159 W	73	36
1 7	8 11.27	+24 6.7	1.745	2.709	5.2	20.9	166 W	69	40	1 7	8 11.16	+28 12.1	1.304	2.268	6.5	19.2	165 W	73	36
1 12	8 5.63	+24 31.1	1.742	2.718	3.1	20.8	172 W	70	39	1 12	8 4.57	+28 36.3	1.308	2.283	4.4	19.1	170 W	74	35
1 17	7 59.81	+24 54.0	1.746	2.728	1.6	20.7	176 W	70	39	1 17	7 57.82	+28 57.1	1.319	2.297	3.5	19.0	172 W	74	35
1 22	7 53.97	+25 15.0	1.758	2.737	2.5	20.8	173 E	70	39	1 22	7 51.14	+29 13.6	1.338	2.312	4.5	19.1	169 E	74	35
1 27	7 48.28	+25 33.4	1.777	2.746	4.5	20.9	167 E	71	38	1 27	7 44.76	+29 25.5	1.363	2.327	6.5	19.3	164 E	74	35
2 1	7 42.91	+25 49.1	1.804	2.755	6.6	21.1	161 E	71	38	2 1	7 38.90	+29 32.9	1.395	2.341	8.8	19.5	159 E	75	34
2 6	7 38.00	+26 1.8	1.838	2.764	8.6	21.2	155 E	71	38	2 6	7 33.73	+29 36.0	1.433	2.355	11.0	19.6	153 E	75	34
2 11	7 33.66	+26 11.7	1.878	2.772	10.5	21.3	149 E	71	38	2 11	7 29.36	+29 35.2	1.478	2.369	13.0	19.8	147 E	75	34
2 16	7 29.97	+26 18.8	1.925	2.781	12.2	21.5	143 E	71	38	<b>220428 2003 UJ<sub>3</sub></b>									
<b>390662 2002 RM<sub>76</sub></b>										12 23	8 27.96	+16 35.1	1.701	2.571	12.6	22.2	145 W	62	47
12 23	8 25.75	+27 14.3	1.810	2.692	11.3	22.1	148 W	72	37	1 2	8 19.36	+17 4.8	1.642	2.578	8.4	21.9	157 W	62	47
12 28	8 21.40	+27 32.6	1.773	2.688	9.4	22.0	153 W	73	36	1 12	8 8.67	+17 42.2	1.609	2.583	3.7	21.6	170 W	63	46
1 2	8 16.36	+27 50.8	1.742	2.685	7.5	21.9	159 W	73	36	1 22	7 56.99	+18 22.6	1.606	2.588	1.6	21.5	176 E	63	46
1 7	8 10.76	+28 8.1	1.719	2.680	5.5	21.8	165 W	73	36	2 1	7 45.67	+19 1.6	1.632	2.592	6.2	21.8	163 E	64	45
1 12	8 4.72	+28 23.5	1.703	2.676	3.7	21.6	170 W	73	36	2 11	7 36.00	+19 35.7	1.687	2.595	10.6	22.1	151 E	65	44
1 17	7 58.41	+28 36.6	1.694	2.672	2.9	21.6	172 W	74	35	<b>405427 2004 ST<sub>9</sub></b>									
1 22	7 52.01	+28 46.6	1.692	2.667	3.7	21.6	170 E	74	35	12 23	8 28.55	+ 1 15.0	1.908	2.722	13.9	22.4	138 W	46	63
1 27	7 45.71	+28 53.3	1.699	2.662	5.5	21.7	165 E	74	35	1 2	8 21.09	+ 0 59.4	1.798	2.685	11.1	22.1	148 W	46	63
2 1	7 39.69	+28 56.4	1.712	2.656	7.6	21.8	159 E	74	35	1 12	8 11.36	+ 1 3.8	1.713	2.646	8.3	21.9	157 W	46	63
2 6	7 34.12	+28 56.0	1.733	2.651	9.6	21.9	153 E	74	35	1 22	8 0.13	+ 1 29.7	1.655	2.607	6.9	21.7	161 E	46	63
2 11	7 29.16	+28 52.4	1.760	2.645	11.6	22.0	147 E	74	35	2 1	7 48.51	+ 2 16.1	1.627	2.566	8.4	21.7	158 E	47	62
2 16	7 24.89	+28 45.7	1.792	2.639	13.4	22.2	142 E	74	35	2 11	7 37.78	+ 3 18.9	1.626	2.524	11.6	21.8	149 E	48	61
<b>489453 2007 BX<sub>48</sub></b>										<b>205698 Troiani</b>									
12 23	8 25.84	+29 5.5	0.869	1.779	17.3	22.0	147 W	74	35	12 23	8 29.63	+28 48.8	1.268	2.159	14.5	19.2	147 W	74	35
12 28	8 15.88	+28 57.8	0.853	1.791	13.7	21.8	154 W	74	35	12 28	8 24.93	+28 23.2	1.221	2.142	12.2	19.0	153 W	73	36
1 2	8 4.80	+28 45.6	0.843	1.803	9.9	21.7	162 W	74	35	1 2	8 19.22	+27 54.3	1.179	2.125	9.7	18.8	159 W	73	36
1 7	7 52.99	+28 27.5	0.840	1.814	6.3	21.5	168 W	73	36	1 7	8 12.62	+27 21.3	1.143	2.107	7.0	18.6	165 W	72	37
1 12	7 40.92	+28 3.0	0.843	1.824	3.6	21.4	173 W	73	36	1 12	8 5.31	+26 43.6	1.114	2.090	4.4	18.4	171 W	72	37
1 17	7 29.08	+27 32.3	0.854	1.833	4.5	21.5	172 E	73	36	1 17	7 57.53	+26 0.9	1.092	2.073	2.5	18.2	175 W	71	38
1 22	7 17.91	+26 56.2	0.872	1.841	7.7	21.7	165 E	72	37	1 22	7 49.53	+25 13.1	1.077	2.056	3.7	18.3	172 E	70	39
1 27	7 7.80	+26 16.2	0.897	1.849	11.2	21.9	159 E	71	38	1 27	7 41.63	+24 20.7	1.069	2.039	6.5	18.4	167 E	69	40
2 1	6 59.04	+25 34.0	0.928	1.856	14.5	22.1	152 E	71	38	2 1	7 34.12	+23 24.5	1.068	2.022	9.5	18.5	160 E	68	41
2 6	6 51.79	+24 51.0	0.965	1.862	17.5	22.3	145 E	70	39	2 6	7 27.28	+22 25.6	1.074	2.006	12.6	18.6	154 E	67	42
2 11	6 46.10	+24 8.7	1.007	1.868	20.3	22.5	139 E	69	40	2 11	7 21.30	+21 25.1	1.085	1.989	15.5	18.7	147 E	66	43
<b>223483 2003 YF<sub>36</sub></b>										2 16	7 16.35	+20 24.2	1.102	1.973	18.2	18.8	141 E	65	44
12 23	8 26.08	+23 49.5	1.356	2.247	13.7	20.2	147 W	69	40	2 21	7 12.51	+19 23.8	1.124	1.956	20.8	18.9	135 E	64	45
12 28	8 21.69	+24 23.6	1.338	2.260	11.3	20.1	153 W	69	40	3 2									



EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	19/20	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°										
<b>205698 Troiani</b> (continuation)										<b>278592 2008 NG<sub>5</sub></b> (continuation)																			
3 22	7 13.27	+13 58.6	1.321	1.863	30.9	19.5	106 E	59	50	1 17	8 4.07	+30 35.2	1.728	2.702	3.6	20.7	170 W	76	33	1 17	8 4.07	+30 35.2	1.728	2.702	3.6	20.7	170 W	76	33
4 1	7 21.28	+12 23.1	1.397	1.835	32.6	19.6	99 E	57*	52	1 22	7 57.87	+30 56.2	1.742	2.713	4.2	20.7	168 E	76	33	1 22	7 57.87	+30 56.2	1.742	2.713	4.2	20.7	168 E	76	33
4 11	7 32.22	+10 49.8	1.474	1.808	33.7	19.7	92 E	54*	53	1 27	7 51.83	+31 13.0	1.763	2.724	5.6	20.9	164 E	76	33	1 27	7 51.83	+31 13.0	1.763	2.724	5.6	20.9	164 E	76	33
4 21	7 45.57	+9 15.7	1.550	1.782	34.2	19.8	86 E	49*	55*	2 1	7 46.12	+31 25.4	1.792	2.734	7.4	21.0	159 E	76	33	2 1	7 46.12	+31 25.4	1.792	2.734	7.4	21.0	159 E	76	33
5 1	8 0.95	+7 38.2	1.623	1.759	34.4	19.9	80 E	43*	56*	2 6	7 40.89	+31 33.5	1.827	2.745	9.2	21.1	153 E	77	32	2 6	7 40.89	+31 33.5	1.827	2.745	9.2	21.1	153 E	77	32
5 11	8 18.00	+5 55.3	1.693	1.737	34.2	20.0	75 E	37*	56*	2 11	7 36.28	+31 37.6	1.869	2.755	11.0	21.2	148 E	77	32	2 11	7 36.28	+31 37.6	1.869	2.755	11.0	21.2	148 E	77	32
5 21	8 36.44	+4 5.5	1.759	1.718	33.8	20.0	71 E	30*	56*	2 16	7 32.36	+31 38.0	1.917	2.764	12.6	21.4	142 E	77	32	2 16	7 32.36	+31 38.0	1.917	2.764	12.6	21.4	142 E	77	32
5 31	8 56.09	+2 7.7	1.821	1.702	33.2	20.0	67 E	23*	56*	2 21	7 29.20	+31 35.1	1.970	2.774	14.1	21.5	137 E	77	32	2 21	7 29.20	+31 35.1	1.970	2.774	14.1	21.5	137 E	77	32
6 10	9 16.77	+0 1.8	1.879	1.688	32.5	20.1	63 E	17*	55*	<b>496124 2010 EK<sub>12</sub></b>																			
6 20	9 38.36	+2 12.3	1.935	1.677	31.7	20.1	60 E	12*	53*	12 23	8 31.99	+23 56.3	1.215	2.103	15.2	20.6	146 W	69	40	12 23	8 31.99	+23 56.3	1.215	2.103	15.2	20.6	146 W	69	40
6 30	10 0.79	+4 33.9	1.989	1.669	30.7	20.1	57 E	7*	51*	1 2	8 23.03	+23 17.9	1.107	2.051	10.4	20.1	158 W	68	41	1 2	8 23.03	+23 17.9	1.107	2.051	10.4	20.1	158 W	68	41
7 10	10 24.00	+7 1.8	2.041	1.664	29.7	20.1	54 E	3*	48*	1 12	8 10.02	+22 31.4	1.022	1.999	4.5	19.6	171 W	68	41	1 12	8 10.02	+22 31.4	1.022	1.999	4.5	19.6	171 W	68	41
7 20	10 47.95	+9 34.5	2.092	1.662	28.6	20.2	52 E	—	45*	1 22	7 54.17	+21 32.2	0.964	1.946	2.4	19.3	175 E	67	42	1 22	7 54.17	+21 32.2	0.964	1.946	2.4	19.3	175 E	67	42
7 30	11 12.65	+12 10.3	2.143	1.664	27.4	20.2	49 E	—	42*	1 27	7 45.80	+20 57.1	0.945	1.919	5.9	19.5	168 E	66	43	1 27	7 45.80	+20 57.1	0.945	1.919	5.9	19.5	168 E	66	43
8 9	11 38.08	+14 46.6	2.194	1.668	26.2	20.2	47 E	—	39*	2 1	7 37.58	+20 18.6	0.932	1.893	9.5	19.6	161 E	65	44	2 1	7 37.58	+20 18.6	0.932	1.893	9.5	19.6	161 E	65	44
8 19	12 4.25	+17 20.9	2.247	1.676	24.9	20.2	44 E	—	36*	2 6	7 29.82	+19 37.1	0.926	1.866	13.1	19.7	155 E	65	44	2 6	7 29.82	+19 37.1	0.926	1.866	13.1	19.7	155 E	65	44
8 29	12 31.16	+19 50.7	2.301	1.686	23.5	20.3	42 E	—	33*	2 11	7 22.80	+18 53.4	0.926	1.839	16.5	19.7	148 E	64	45	2 11	7 22.80	+18 53.4	0.926	1.839	16.5	19.7	148 E	64	45
9 8	12 58.79	+22 12.9	2.357	1.700	22.0	20.3	39 E	—	30*	2 16	7 16.75	+18 8.5	0.931	1.812	19.8	19.8	142 E	63	46	2 16	7 16.75	+18 8.5	0.931	1.812	19.8	19.8	142 E	63	46
9 18	13 27.11	+24 24.8	2.415	1.716	20.4	20.3	37 E	—	28*	2 21	7 11.85	+17 23.1	0.941	1.785	22.9	19.9	135 E	62	47	2 21	7 11.85	+17 23.1	0.941	1.785	22.9	19.9	135 E	62	47
9 28	13 56.07	+26 23.8	2.475	1.734	18.8	20.3	34 E	—	25*	3 2	7 5.88	+15 53.3	0.970	1.732	28.3	20.1	124 E	61	48	3 2	7 5.88	+15 53.3	0.970	1.732	28.3	20.1	124 E	61	48
10 8	14 25.56	+28 7.4	2.535	1.755	17.0	20.3	31 E	—	23*	3 12	7 5.15	+14 26.8	1.008	1.680	32.7	20.2	114 E	59	50	3 12	7 5.15	+14 26.8	1.008	1.680	32.7	20.2	114 E	59	50
10 18	14 55.46	+29 33.7	2.596	1.778	15.2	20.4	28 E	—	20*	3 22	7 9.29	+13 3.4	1.051	1.628	36.2	20.3	105 E	58	51	3 22	7 9.29	+13 3.4	1.051	1.628	36.2	20.3	105 E	58	51
10 28	15 25.58	+30 41.2	2.657	1.803	13.3	20.4	25 E	—	17*	4 1	7 17.80	+11 40.7	1.094	1.578	38.8	20.4	98 E	56*	52	4 1	7 17.80	+11 40.7	1.094	1.578	38.8	20.4	98 E	56*	52
11 7	15 55.72	+31 28.8	2.716	1.830	11.4	20.4	21 E	—	14*	4 11	7 30.05	+10 15.5	1.135	1.531	40.9	20.5	91 E	53*	54	4 11	7 30.05	+10 15.5	1.135	1.531	40.9	20.5	91 E	53*	54
11 17	16 25.66	+31 56.2	2.773	1.859	9.5	20.4	18 E	—	11*	4 21	7 45.52	+8 44.4	1.171	1.486	42.4	20.6	86 E	48*	55*	4 21	7 45.52	+8 44.4	1.171	1.486	42.4	20.6	86 E	48*	55*
11 27	16 55.17	+32 3.7	2.827	1.888	7.6	20.4	15 E	—	8*	5 1	8 3.79	+7 4.4	1.203	1.444	43.6	20.6	81 E	43*	56*	5 1	8 3.79	+7 4.4	1.203	1.444	43.6	20.6	81 E	43*	56*
12 7	17 24.03	+31 51.8	2.876	1.919	5.8	20.4	11 E	—	4*	5 11	8 24.50	+5 13.2	1.230	1.406	44.4	20.6	77 E	37*	57*	5 11	8 24.50	+5 13.2	1.230	1.406	44.4	20.6	77 E	37*	57*
12 17	17 52.06	+31 21.9	2.919	1.951	4.3	20.4	9 E	—	1*	5 21	8 47.39	+3 9.2	1.252	1.373	45.1	20.6	74 E	31*	58*	5 21	8 47.39	+3 9.2	1.252	1.373	45.1	20.6	74 E	31*	58*
12 27	18 19.08	+30 35.3	2.955	1.984	3.6	20.4	7 W	—	—	5 31	9 12.30	+0 51.7	1.270	1.345	45.5	20.6	71 E	25*	59*	5 31	9 12.30	+0 51.7	1.270	1.345	45.5	20.6	71 E	25*	59*
1 6	18 44.98	+29 33.7	2.983	2.017	4.2	20.5	9 W	—	2*	6 10	9 39.07	+1 38.9	1.286	1.324	45.8	20.6	69 E	20*	60*	6 10	9 39.07	+1 38.9	1.286	1.324	45.8	20.6	69 E	20*	60*
1 16	19 9.69	+28 19.0	3.003	2.051	5.7	20.6	12 W	—	6*	6 20	10 7.61	+4 21.0	1.302	1.309	45.8	20.6	67 E	15*	60*	6 20	10 7.61	+4 21.0	1.302	1.309	45.8	20.6	67 E	15*	60*
12 23	8 30.21	+49 48.4	0.702	1.592	22.9	21.6	141 W	85	14	6 30	10 37.88	+7 12.0	1.319	1.301	45.7	20.6	66 E	12*	60*	6 30	10 37.88	+7 12.0	1.319	1.301	45.7	20.6	66 E	12*	60*
12 25	8 22.95	+50 12.8	0.699	1.598	21.8	21.6	143 W	85	14	7 10	11 9.76	+10 7.7	1.339	1.301	45.3	20.6	65 E	9*	59*	7 10	11 9.76	+10 7.7	1.339	1.301	45.3	20.6	65 E	9*	59*
12 27	8 15.28	+50 34.0	0.697	1.604	20.7	21.6	145 W	84	13	7 20	11 43.17	+13 2.8	1.365	1.308	44.6	20.7	65 E	7*	59*	7 20	11 43.17	+13 2.8	1.365	1.308	44.6	20.7	65 E	7*	59*
12 29	8 7.24	+50 51.5	0.696	1.610	19.7	21.5	147 W	84	13	7 30	12 17.94	+15 51.4	1.399	1.323	43.7	20.7	64 E	6*	58*	7 30	12 17.94	+15 51.4	1.399	1.323	43.7	20.7	64 E	6*	58*
12 31	7 58.91	+51 5.1	0.696	1.616	18.8	21.5	148 W	84	13	8 9	12 53.81	+18 27.1	1.441	1.344	42.5	20.8	64 E	5*	57*	8 9	12 53.81	+18 27.1	1.441	1.344	42.5	20.8	64 E	5*	57*
1 2	7 50.36	+51 14.4	0.696	1.621	18.1	21.5	149 W	84	13	8 19	13 30.46	+20 44.3	1.495	1.371	41.1	20.9	63 E	6*	56*	8 19	13 30.46	+20 44.3	1.495	1.371	41.1	20.9	63 E	6*	56*
1 4	7 41.68	+51 19.2	0.698	1.626	17.5	21.5	150 W	84	13	8 29	14 7.49	+22 38.6	1.559	1.404	39.4	21.0	62 E	6*	55*	8 29	14 7.49	+22 38.6	1.559	1.404	39.4	21.0	62 E	6*	55*
1 6	7 32.95	+51 19.4	0.701	1.631	17.1	21.5	151 W	84	13	9 8	14 44.44	+24 6.9	1.633	1.442	37.6	21.1	61 E	7*	54*</										

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

19/20	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	19/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°
<b>390578 2001 PF<sub>16</sub></b>										<b>380410 2003 AD<sub>54</sub></b>									
<i>(continuation)</i>										<i>(continuation)</i>									
2 11	7 39.12	+25 57.6	1.790	2.693	10.4	22.1	150 E	71	38	10 18	14 36.98	-31 32.2	2.527	1.697	15.3	19.5	27 E	—	17*
2 16	7 35.30	+25 57.8	1.837	2.703	12.2	22.2	145 E	71	38	10 28	15 9.96	-32 50.9	2.576	1.717	13.6	19.5	24 E	—	15*
<b>504568 2008 TO<sub>26</sub></b>										<b>41475 2000 PR<sub>13</sub></b>									
12 23	8 34.13	+64 59.9	0.623	1.474	29.8	21.0	132 W	70	—	12 23	8 37.13	+32 5.9	1.011	1.902	17.3	17.1	145 W	77	32
12 28	8 25.64	+66 51.5	0.626	1.480	29.3	21.0	133 W	68	—	12 28	8 32.28	+31 19.6	0.967	1.887	14.8	16.9	151 W	76	33
1 2	8 13.57	+68 22.0	0.631	1.486	29.1	21.0	133 W	67	—	1 2	8 26.16	+30 26.6	0.928	1.872	12.0	16.7	157 W	75	34
1 7	7 58.50	+69 27.4	0.640	1.492	29.1	21.1	132 W	66	—	1 7	8 18.96	+29 25.8	0.895	1.858	9.0	16.5	163 W	74	35
1 12	7 41.59	+70 4.8	0.651	1.498	29.4	21.1	132 W	65	—	1 12	8 10.89	+28 16.6	0.869	1.843	5.9	16.3	169 W	73	36
1 17	7 24.46	+70 13.9	0.665	1.504	29.8	21.2	131 E	65	—	1 17	8 2.25	+26 58.9	0.849	1.830	3.5	16.1	174 W	72	37
1 22	7 8.79	+69 56.2	0.682	1.510	30.4	21.3	129 E	65	—	1 22	7 53.39	+25 33.4	0.836	1.816	3.9	16.1	173 E	71	38
1 27	6 55.91	+69 15.2	0.701	1.515	31.2	21.4	127 E	66	—	1 27	7 44.69	+24 1.2	0.830	1.803	6.9	16.2	167 E	69	40
2 1	6 46.53	+68 15.6	0.722	1.521	31.9	21.5	125 E	67	—	2 1	7 36.55	+22 24.5	0.830	1.790	10.4	16.3	161 E	67	42
2 6	6 40.78	+67 1.9	0.746	1.526	32.8	21.6	123 E	68	—	2 6	7 29.27	+20 45.6	0.837	1.778	13.9	16.5	154 E	66	43
2 11	6 38.34	+65 38.1	0.771	1.532	33.6	21.7	121 E	69	—	2 11	7 23.09	+19 6.8	0.850	1.766	17.2	16.6	148 E	64	45
<b>386847 2010 LR<sub>33</sub></b>										<b>439928 2001 RH<sub>12</sub></b>									
12 23	8 34.36	+27 58.5	1.234	2.120	15.2	20.9	146 W	73	36	12 23	8 37.88	+22 10.1	1.363	2.236	14.9	21.7	144 W	67	42
12 28	8 27.20	+28 27.4	1.222	2.140	12.4	20.8	152 W	73	36	12 28	8 33.64	+22 27.8	1.346	2.254	12.5	21.7	150 W	67	42
1 2	8 19.16	+28 54.5	1.215	2.160	9.6	20.7	158 W	74	35	1 2	8 28.64	+22 46.6	1.335	2.272	9.9	21.6	157 W	68	41
1 7	8 10.48	+29 18.6	1.215	2.179	6.9	20.6	165 W	74	35	1 7	8 23.05	+23 5.6	1.331	2.289	7.3	21.4	163 W	68	41
1 12	8 1.43	+29 38.2	1.223	2.197	4.7	20.5	170 W	75	34	1 12	8 17.04	+23 24.0	1.333	2.307	4.6	21.3	169 W	68	41
1 17	7 52.30	+29 52.7	1.238	2.215	4.0	20.6	171 W	75	34	1 17	8 10.81	+23 41.0	1.342	2.324	2.2	21.2	175 W	69	40
1 22	7 43.41	+30 1.6	1.260	2.232	5.3	20.7	168 E	75	34	1 22	8 4.57	+23 55.9	1.359	2.341	1.9	21.2	175 E	69	40
1 27	7 35.03	+30 4.8	1.290	2.248	7.6	20.9	162 E	75	34	1 27	7 58.53	+24 8.3	1.382	2.358	4.1	21.4	170 E	69	40
2 1	7 27.42	+30 2.8	1.327	2.264	10.0	21.0	156 E	75	34	2 1	7 52.88	+24 17.8	1.412	2.375	6.6	21.6	164 E	69	40
2 6	7 20.74	+29 56.2	1.370	2.280	12.4	21.2	150 E	75	34	2 6	7 47.81	+24 24.4	1.449	2.391	9.0	21.8	158 E	69	40
2 11	7 15.13	+29 46.0	1.420	2.294	14.5	21.4	144 E	75	34	2 11	7 43.44	+24 28.2	1.493	2.408	11.2	22.0	152 E	69	40
2 16	7 10.61	+29 32.9	1.474	2.308	16.5	21.5	138 E	75	34	2 16	7 39.84	+24 29.4	1.542	2.424	13.2	22.1	146 E	69	40
<b>393446 2001 TC<sub>231</sub></b>										<b>242823 2006 BW<sub>275</sub></b>									
12 23	8 35.21	+14 50.4	2.038	2.885	11.8	21.9	143 W	60	49	12 23	8 38.12	+24 24.3	2.206	3.061	10.7	21.6	145 W	69	40
1 2	8 27.60	+15 29.3	1.971	2.893	8.2	21.7	155 W	60	49	1 2	8 29.88	+24 56.2	2.139	3.065	7.4	21.4	156 W	70	39
1 12	8 18.10	+16 17.2	1.931	2.899	4.2	21.4	167 W	61	48	1 12	8 19.73	+25 27.8	2.100	3.069	3.8	21.2	168 W	70	39
1 22	8 7.57	+17 9.8	1.921	2.905	1.0	21.2	177 E	62	47	1 22	8 8.55	+25 54.6	2.091	3.072	2.0	21.1	174 E	71	38
2 1	7 57.08	+18 2.6	1.943	2.909	4.6	21.5	166 E	63	46	2 1	7 57.44	+26 12.9	2.114	3.073	5.1	21.3	164 E	71	38
2 11	7 47.74	+18 51.5	1.994	2.913	8.6	21.7	154 E	64	45	2 11	7 47.51	+26 21.3	2.167	3.074	8.6	21.5	152 E	71	38
<b>518482 2005 TZ<sub>42</sub></b>										<b>380410 2003 AD<sub>54</sub></b>									
12 23	8 36.42	+8 46.5	1.827	2.660	13.6	21.8	140 W	54	55	12 23	8 36.77	+27 16.2	1.564	2.436	13.4	19.2	145 W	72	37
1 2	8 28.59	+9 14.5	1.774	2.682	9.9	21.6	152 W	54	55	1 2	8 26.62	+26 27.0	1.457	2.394	9.2	18.8	157 W	71	38
1 12	8 18.85	+9 57.4	1.746	2.703	6.0	21.4	163 W	55	54	1 12	8 13.26	+25 25.8	1.378	2.352	4.3	18.4	170 W	70	39
1 22	8 8.16	+10 51.7	1.746	2.722	3.3	21.3	171 E	56	53	1 22	7 57.95	+24 9.1	1.328	2.309	2.4	18.2	174 E	69	40
2 1	7 57.66	+11 52.6	1.777	2.741	5.3	21.5	165 E	57	52	1 27	7 50.12	+23 24.8	1.314	2.288	4.9	18.3	169 E	68	41
2 11	7 48.50	+12 54.7	1.838	2.759	9.0	21.7	154 E	58	51	2 1	7 42.50	+22 37.0	1.309	2.267	7.6	18.4	162 E	68	41
<b>380410 2003 AD<sub>54</sub></b>										<b>439928 2001 RH<sub>12</sub></b>									
12 23	8 36.77	+27 16.2	1.564	2.436	13.4	19.2	145 W	72	37	12 23	8 37.88	+22 10.1	1.363	2.236	14.9	21.7	144 W	67	42
1 2	8 26.62	+26 27.0	1.457	2.394	9.2	18.8	157 W	71	38	12 28	8 33.64	+22 27.8	1.346	2.254	12.5	21.7	150 W	67	42
1 12	8 13.26	+25 25.8	1.378	2.352	4.3	18.4	170 W	70	39	1 2	8 28.64	+22 46.6	1.335	2.272	9.9	21.6	157 W	68	41
1 22	7 57.95	+24 9.1	1.328	2.309	2.4	18.2	174 E	69	40	1 7	8 23.05	+23 5.6	1.331	2.289	7.3	21.4	163 W	68	41
1 27	7 50.12	+23 24.8	1.314	2.288	4.9	18.3	169 E	68	41	1 12	8 17.04	+23 24.0	1.333	2.307	4.6	21.3	169 W	68	41
2 1	7 42.50	+22 37.0	1.309	2.267	7.6	18.4	162 E	68	41	1 17	8 10.81	+23 41.0	1.342	2.324	2.2	21.2	175 W	69	40
2 6	7 35.35	+21 46.4	1.310	2.245	10.4	18.5	156 E	67	42	1 22	8 4.57	+23 55.9	1.359	2.341	1.9	21.2	175 E	69	40
2 11	7 28.87	+20 53.9	1.318	2.224	13.1	18.6	149 E	66	43	1 27	7 58.53	+24 8.3	1.382	2.358	4.1	21.4	170 E	69	40
2 16	7 23.21	+20 0.3	1.332	2.203	15.7	18.7	143 E	65	44	2 1	7 52.88	+24 17.8	1.412	2.375	6.6	21.6	164 E	69	40
2 21	7 18.49	+19 6.6	1.352	2.182	18.0	18.8	137 E	64	45	2 6	7 47.81	+24 24.4	1.449	2.391	9.0	21.8	158 E	69	40
3 2	7 12.15	+17 21.1	1.406	2.139	22.2	19.0	126 E	62	47	2 11	7 43.44	+24 28.2	1.493	2.408	11.2	22.0	152 E	69	40
3 12	7 10.00	+15 40.7	1.472	2.097	25.4	19.1	115 E	61	48	2 16	7 39.84	+24 29.4	1.542	2.424	13.2	22.1	146 E	69	40
3 22	7 11.74	+14 5.9	1.547	2.056	27.8	19.2	106 E	59	50	<b>242823 2006 BW<sub>275</sub></b>									
4 1	7 16.96	+12 35.3	1.625	2.015	29.4	19.4	97 E	57*	51	12 23	8 38.12	+24 24.3	2.206	3.061	10.7	21.6	145 W	69	40
4 11	7 25.15	+11 6.7	1.703	1.976	30.5	19.4	90 E	54*	53*	1 2	8 29.88	+24 56.2	2.139	3.065	7.4	21.4	156 W	70	39
4 21	7 35.85	+9 37.3	1.779	1.937	31.0	19.5	83 E	48*	54*	1 12	8 19.73	+25 27.8	2.100	3.069	3.8	21.2	168 W	70	39
5 1	7 48.70	+8 4.8	1.850	1.900	31.1	19.6	77 E	42*	54*	1 22	8 8.55	+25 54.6	2.091	3.072	2.0	21.1	174 E	71	38
5 11	8 3.36	+6 27.0	1.916	1.864	31.0	19.6	72 E	35*	54*	2 1	7 57.44	+26 12.9	2.114	3.073	5.1	21.3	164 E	71	38
5 21	8 19.57	+4 42.2	1.975	1.830	30.5	19.6	67 E	28*	54*	2 11	7 47.51	+26 21.3	2.167	3.074	8.6	21.5	152 E	71	38
5 31	8 37.15	+2 49.0	2.029	1.798	30.0	19.6	62 E	21*	53*	<b>380410 2003 AD<sub>54</sub></b>									
6 10	8 55.93	+0 46.5	2.076	1.768	29.3	19.6	58 E	14*	51*	12 23	8 36.77	+27 16.2	1.564	2.436	13.4	19.2	145 W	72	37
6 20	9 15.82	-1 25.6	2.118	1.741	28.5	19.6	55 E	9*	48*	1 2	8 26.62	+26 27.0	1.457	2.394	9.2	18.8	157 W	71	38
6 30	9 36.77	-3 47.3	2.154	1.717	27.6	19.6	52 E	4*	46*	1 12	8 13.26	+25 25.8	1.378	2.352	4.3	18.4	170 W	70	39
7 10	9 58.7																		