





EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

20/21		$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°-26°											20/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°-26°																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
<b>370651 2004 BX<sub>102</sub></b>										<b>(continuation)</b>										<b>369994 1999 RQ<sub>55</sub></b>										<b>(continuation)</b>																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
8	24	23 5.28	-18 42.7	1.147	2.139	7.0	18.7	165 W	26 83	10	28	3 34.80	+30 40.4	0.672	1.624	15.7	18.5	154 W	76 33	11	2	3 30.32	+30 53.7	0.671	1.636	12.8	18.5	159 W	76 33	11	7	3 25.26	+30 58.5	0.675	1.649	10.0	18.4	163 W	76 33	11	12	3 19.93	+30 55.1	0.684	1.662	8.0	18.3	167 W	76 33	11	17	3 14.68	+30 44.2	0.697	1.677	7.2	18.4	168 E	76 33	11	22	3 9.83	+30 27.3	0.716	1.691	8.0	18.5	166 E	75 34	11	27	3 5.66	+30 5.9	0.740	1.707	9.9	18.7	163 W	75 34	12	2	3 2.37	+29 41.9	0.768	1.723	12.3	18.8	158 E	75 34	12	7	3 0.07	+29 16.9	0.801	1.739	14.7	19.0	153 E	74 35	12	12	2 58.84	+28 52.3	0.839	1.756	17.0	19.2	149 E	74 35	12	17	2 58.70	+28 29.4	0.881	1.773	19.2	19.4	144 E	73 36	12	22	2 59.63	+28 8.9	0.927	1.790	21.1	19.6	139 W	73 36	12	27	3 1.58	+27 51.5	0.977	1.808	22.8	19.8	135 W	73 36	1	1	3 4.46	+27 37.4	1.030	1.826	24.3	20.0	130 E	73 36	11	17	2 2.77	+6 18.0	1.300	1.709	35.1	19.4	96 W	39 69*	11	27	2 12.41	-3 46.1	1.357	1.661	36.4	19.4	89 W	41 62*	12	7	2 24.85	-1 4.8	1.412	1.614	37.3	19.5	83 E	44 54*	12	17	2 39.77	+1 46.3	1.461	1.569	37.7	19.5	77 E	47 47*	12	27	2 56.93	+4 47.5	1.506	1.527	37.8	19.5	72 E	49 39*	1	6	2 33.16	+7 58.1	1.544	1.488	37.8	19.5	68 E	51 33*	1	16	2 37.44	+11 17.1	1.578	1.453	37.6	19.5	64 E	52 28*																																																																																																																																																																																																																																																																																																									
<b>247156 2000 YH<sub>29</sub></b>										<b>397474 2007 PP<sub>6</sub></b>																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
5	11	22 55.57	-14 18.9	1.545	1.546	38.1	21.3	71 W	13*	65*	5	11	23 5.49	-21 8.0	1.928	1.878	30.7	21.4	72 W	6*	65*	5	16	23 17.13	-20 37.2	1.821	1.822	32.2	21.3	74 W	7*	68*	5	21	23 29.41	-20 4.7	1.715	1.764	33.8	21.1	76 W	7*	70*	5	26	23 42.44	-19 30.1	1.610	1.705	35.4	20.9	77 W	8*	71*	5	31	23 56.38	-18 52.7	1.506	1.645	37.2	20.8	79 W	9*	73*	6	5	0 11.41	-18 11.6	1.405	1.582	39.2	20.6	80 W	10*	74*	6	10	0 27.77	-17 25.3	1.306	1.518	41.3	20.4	81 W	10*	74*	6	15	0 45.73	-16 32.3	1.210	1.452	43.7	20.2	81 W	11*	75*	6	20	1 5.63	-15 30.2	1.118	1.384	46.4	20.0	81 W	12*	74*	6	25	1 27.83	-14 15.9	1.032	1.314	49.6	19.8	80 W	13*	73*	6	30	1 52.75	-12 45.7	0.953	1.242	53.2	19.6	78 W	14*	71*	7	5	2 20.82	-10 55.0	0.882	1.168	57.5	19.4	76 W	15*	68*	7	10	2 52.35	-8 39.5	0.822	1.091	62.4	19.3	72 W	15*	68*	7	15	3 27.47	-5 56.4	0.775	1.012	67.9	19.2	67 W	16*	60*	7	20	4 5.88	-2 46.8	0.745	0.930	73.8	19.1	61 W	16*	54*	7	25	4 46.81	+0 42.5	0.734	0.846	79.7	19.0	55 W	16*	47*	7	30	5 29.11	+4 18.7	0.744	0.759	85.0	19.0	48 W	16*	40*	8	1	5 46.14	+5 43.6	0.754	0.724	86.7	19.0	45 W	15*	38*	8	3	6 3.11	+7 6.2	0.768	0.689	88.1	19.0	43 W	15*	35*	8	5	6 19.98	+8 25.5	0.785	0.653	89.2	19.0	40 W	15*	32*	8	7	6 36.72	+9 40.9	0.807	0.618	89.8	19.0	38 W	15*	29*	8	9	6 53.30	+10 51.7	0.831	0.583	89.8	18.9	35 W	15*	26*	8	14	7 34.16	+13 24.8	0.909	0.497	87.1	18.6	29 W	14*	20*	8	19	8 14.80	+15 16.9	1.006	0.422	78.7	18.2	24 W	12*	14*	8	24	8 56.22	+16 15.9	1.118	0.370	63.8	17.6	19 W	11*	8*	8	29	9 38.42	+16 7.1	1.235	0.359	44.3	17.2	14 W	8*	2*	8	31	9 55.07	+15 43.7	1.279	0.367	36.8	17.2	13 W	6*	-	9	2	10 11.31	+15 10.3	1.322	0.383	30.1	17.1	11 W	5*	-	9	4	10 26.97	+14 28.7	1.362	0.404	24.5	17.1	10 W	4*	-	9	6	10 41.97	+13 40.7	1.401	0.430	20.0	17.2	8 W	2*	-	9	8	10 56.25	+12 47.8	1.438	0.459	16.7	17.3	8 W	1*	-	9	10	11 9.80	+11 51.8	1.475	0.491	14.4	17.4	7 W	-	-	9	12	11 22.64	+10 53.7	1.510	0.524	13.0	17.6	7 E	-	-	9	14	11 34.81	+9 54.5	1.545	0.558	12.1	17.7	7 E	-	-	9	16	11 46.36	+8 55.0	1.580	0.593	11.6	17.9	7 E	-	-	9	18	11 57.33	+7 55.7	1.614	0.629	11.3	18.0	7 E	1*	-	9	23	12 22.49	+5 31.1	1.698	0.717	11.0	18.4	8 E	2*	-	9	28	12 44.93	+3 14.2	1.783	0.805	10.5	18.8	8 E	2*	-	10	3	13 5.16	+1 6.9	1.866	0.890	9.8	19.0	9 E	3*	-	10	8	13 23.60	-0 50.5	1.949	0.973	9.0	19.3	9 E	3*	-	10	18	13 56.28	-4 17.1	2.109	1.131	7.1	19.7	8 E	2*	-	10	28	14 24.75	-7 9.7	2.261	1.280	5.4	20.0	7 E	1*	-	11	7	14 50.15	-9 33.6	2.399	1.420	4.7	20.4	7 E	-	-	11	17	15 13.21	-11 33.6	2.523	1.552	5.4	20.7	8 W	2*	-	11	27	15 34.38	-13 13.2	2.629	1.676	7.0	21.0	12 W	6*	-	12	7	15 53.96	-14 35.7	2.717	1.795	9.0	21.3	17 W	10*	3*
<b>369994 1999 RQ<sub>55</sub></b>										<b>471323 2011 KW<sub>15</sub></b>																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
5	11	23 1.26	-9 50.9	1.847	1.739	32.5	21.4	68 W	16*	61*	5	11	23 34.45	-1 18.0	0.908	0.918	67.2	21.4	57 W	17*	49*	5	16	23 59.65	+3 48.4	0.900	0.873	69.6	21.3	54 W	19*	45*	5	21	0 26.08	+8 58.1	0.903	0.828	71.4	21.3	51 W	20*	41*	5	26	0 53.87	+14 0.1	0.917	0.783	72.6	21.2	48 W	21*	36*	5	31	1 23.14	+18 42.9	0.943	0.741	72.9	21.2	44 W	22*	32*	6	5	1 53.94	+22 55.9	0.981	0.701	72.1	21.1	41 W	23*	27*	6	10	2 26.23	+26 30.4	1.028	0.665	70.0	21.0	38 W	22*	23*	6	15	2 59.80	+29 19.7	1.084	0.634	66.6	20.9	35 W	22*	19*	6	20	3 34.29	+31 20.2	1.148	0.611	62.0	20.8	32 W	21*	15*	6	25	4 9.12	+32 30.9	1.216	0.597	56.5	20.7	29 W	19*	12*	6	30	4 43.58	+32 53.9	1.287	0.592	50.3	20.7	27 W	18*	10*																																																																																																																																																																																																																																																																																																																																																																																																	













EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

20/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	2020	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°
<b>153011 2000 JN<sub>78</sub></b>										<b>472263 2014 RP<sub>12</sub></b>									
<i>(continuation)</i>										<i>(continuation)</i>									
12 7	13 58.01	+ 1 12.5	1.904	1.465	30.6	20.5	49 W	38*	22*	8 19	15 29.63	-53 12.5	0.914	1.440	44.3	20.5	97 E	—	62*
12 17	14 28.68	- 0 41.0	1.833	1.442	32.2	20.5	51 W	39*	25*	8 24	15 46.17	-52 36.8	0.966	1.457	43.7	20.6	95 E	—	63*
12 27	14 59.90	- 2 26.7	1.766	1.421	33.8	20.4	53 W	38*	29*	8 29	16 2.34	-52 0.2	1.018	1.472	43.2	20.8	93 E	—	63*
1 6	15 31.61	- 4 2.3	1.704	1.402	35.2	20.3	55 W	37*	33*	9 3	16 18.16	-51 22.5	1.070	1.486	42.7	20.9	91 E	—	63*
1 16	16 3.67	- 5 25.8	1.646	1.386	36.6	20.3	57 W	36*	37*	9 8	16 33.70	-50 43.7	1.122	1.498	42.3	21.0	89 E	—	64*
<b>66294 1999 JS<sub>27</sub></b>										<b>418797 2008 VF</b>									
5 21	6 5.30	+22 58.1	4.041	3.217	9.4	21.5	31 E	17*	19*	5 21	6 26.27	+ 7 9.8	1.212	0.776	56.2	21.4	40 E	10*	33*
5 31	6 19.20	+22 55.6	4.118	3.225	7.5	21.5	25 E	11*	15*	5 26	6 45.11	+ 7 22.0	1.159	0.746	59.6	21.3	39 E	9*	33*
6 10	6 33.31	+22 48.2	4.179	3.232	5.7	21.4	18 E	6*	10*	5 31	7 4.53	+ 7 41.1	1.102	0.716	63.7	21.2	39 E	8*	33*
6 20	6 47.55	+22 35.8	4.224	3.238	3.8	21.3	12 E	1*	5*	6 5	7 24.51	+ 8 10.6	1.041	0.689	68.3	21.2	39 E	8*	32*
6 30	7 1.83	+22 18.4	4.253	3.243	1.8	21.2	6 E	—	—	6 10	7 44.98	+ 8 55.2	0.977	0.664	73.7	21.1	39 E	8*	32*
7 10	7 16.07	+21 51.1	4.264	3.247	0.2	21.1	0 W	—	—	6 15	8 5.84	+10 0.7	0.911	0.643	79.6	21.1	39 E	8*	32*
7 20	7 30.20	+21 29.1	4.258	3.250	2.0	21.2	7 W	—	—	6 20	8 26.94	+11 33.7	0.844	0.627	86.1	21.1	38 E	9*	31*
7 30	7 44.15	+20 57.8	4.235	3.253	4.0	21.4	13 W	4*	4*	6 25	8 48.02	+13 41.5	0.777	0.616	93.0	21.2	37 E	11*	29*
8 9	7 57.85	+20 22.6	4.195	3.254	5.9	21.4	19 W	10*	8*	6 30	9 8.75	+16 31.3	0.714	0.611	100.0	21.3	36 E	13*	27*
8 19	8 11.24	+19 44.0	4.138	3.254	7.7	21.5	26 W	16*	12*	7 5	9 28.77	+20 7.6	0.655	0.613	106.6	21.5	35 E	16*	25*
<b>471487 2011 VS<sub>5</sub></b>										<b>378160 2006 WX<sub>1</sub></b>									
5 21	6 8.68	+26 30.3	1.383	0.749	45.7	21.4	32 E	20*	17*	5 21	7 11.60	+18 46.7	1.052	0.823	64.0	21.5	47 E	26*	33*
5 26	6 34.72	+25 40.7	1.333	0.733	48.8	21.4	33 E	20*	19*	5 31	7 42.68	+15 40.6	0.976	0.767	70.0	21.3	45 E	20*	34*
5 31	7 1.08	+24 28.8	1.282	0.722	52.1	21.4	34 E	19*	21*	6 10	8 11.73	+12 9.7	0.881	0.716	78.2	21.2	44 E	15*	35*
6 5	7 27.53	+22 54.3	1.231	0.716	55.5	21.3	36 E	18*	23*	6 20	8 37.30	+ 8 28.8	0.770	0.675	89.2	21.2	42 E	9*	35*
6 10	7 53.89	+20 57.5	1.182	0.717	58.7	21.4	37 E	18*	26*	6 30	8 56.98	+ 5 8.0	0.648	0.648	103.4	21.4	38 E	3*	32*
6 15	8 20.05	+18 39.6	1.135	0.724	61.7	21.4	39 E	17*	28*	<b>14402 1991 DB</b>									
6 20	8 45.94	+16 2.1	1.091	0.737	64.2	21.4	41 E	16*	31*	5 21	7 43.84	+21 33.0	1.394	1.142	45.7	21.5	54 E	33*	35*
6 25	9 11.55	+13 7.4	1.050	0.754	66.2	21.4	43 E	15*	34*	5 31	8 19.17	+21 22.4	1.372	1.101	46.8	21.4	52 E	31*	35*
6 30	9 36.90	+ 9 58.0	1.014	0.777	67.7	21.5	45 E	13*	37*	6 10	8 56.42	+20 39.1	1.346	1.068	48.1	21.3	51 E	28*	35*
7 5	10 2.06	+ 6 37.1	0.984	0.803	68.5	21.5	47 E	12*	40*	6 20	9 35.27	+19 20.1	1.318	1.044	49.3	21.2	51 E	27*	36*
<b>472263 2014 RP<sub>12</sub></b>										<b>504887 2010 WL</b>									
5 21	6 11.69	+ 2 52.2	0.221	0.850	132.5	20.5	38 E	4*	32*	5 21	16 46.37	-32 42.8	2.033	3.014	5.8	24.2	163 W	12	83
5 22	6 18.87	+ 0 18.3	0.216	0.859	130.3	20.3	40 E	3*	34*	5 26	16 40.14	-32 15.2	1.998	2.994	4.3	24.1	167 W	13	84
5 23	6 26.24	+ 2 21.0	0.212	0.869	128.0	20.0	43 E	1*	36*	5 31	16 33.67	-31 43.2	1.970	2.974	3.3	24.0	170 W	13	84
5 24	6 33.80	- 5 4.9	0.208	0.878	125.4	19.8	45 E	—	39*	6 5	16 27.12	-31 7.1	1.951	2.954	3.5	23.9	170 E	14	85
5 25	6 41.55	- 7 52.1	0.206	0.887	122.7	19.6	47 E	—	41*	6 10	16 20.66	-30 27.4	1.938	2.934	4.8	24.0	166 E	15	86
5 26	6 49.49	-10 41.4	0.204	0.896	119.9	19.3	50 E	—	43*	6 15	16 14.42	-29 44.8	1.934	2.913	6.5	24.0	161 E	15	86
5 27	6 57.62	-13 31.6	0.202	0.905	117.0	19.1	53 E	—	45*	6 20	16 8.55	-29 0.0	1.936	2.892	8.4	24.1	156 E	16	87
5 28	7 5.92	-16 21.0	0.202	0.914	114.0	19.0	56 E	—	47*	<b>499672 2010 VK<sub>188</sub></b>									
5 29	7 14.40	-19 8.4	0.202	0.923	111.0	18.8	58 E	—	49*	5 21	16 47.39	-24 37.4	2.179	3.172	4.3	23.0	166 W	20	89
5 30	7 23.04	-21 52.5	0.203	0.932	108.0	18.6	61 E	—	51*	5 26	16 42.05	-24 34.1	2.152	3.159	2.5	22.8	172 W	20	89
5 31	7 31.83	-24 31.9	0.205	0.941	105.1	18.5	64 E	—	53*	5 31	16 36.51	-24 29.4	2.133	3.147	0.9	22.7	177 W	21	88
6 1	7 40.76	-27 5.7	0.207	0.950	102.1	18.4	66 E	—	55*	6 5	16 30.89	-24 23.3	2.122	3.134	1.7	22.7	175 E	21	88
6 2	7 49.82	-29 33.0	0.210	0.959	99.3	18.3	69 E	—	56*	6 10	16 25.31	-24 16.1	2.118	3.120	3.6	22.8	169 E	21	88
6 3	7 58.98	-31 53.0	0.213	0.968	96.5	18.2	71 E	—	57*	6 15	16 19.90	-24 8.0	2.121	3.107	5.5	22.9	163 E	21	88
6 4	8 8.25	-34 5.4	0.217	0.976	93.9	18.2	74 E	—	58*	6 20	16 14.76	-23 59.2	2.131	3.093	7.4	23.0	157 E	21	88
6 5	8 17.58	-36 9.8	0.222	0.985	91.3	18.1	76 E	—	59*	<b>306431 1998 SR<sub>49</sub></b>									
6 6	8 26.98	-38 6.2	0.227	0.994	88.9	18.1	78 E	—	60*	5 21	16 55.26	-54 17.4	2.938	3.802	9.0	23.1	144 W	—	62
6 7	8 36.41	-39 54.4	0.232	1.002	86.6	18.1	80 E	—	60*	5 26	16 47.90	-54 32.7	2.919	3.801	8.6	23.1	146 W	—	61
6 8	8 45.85	-41 34.7	0.238	1.010	84.3	18.1	82 E	—	61*	5 31	16 40.26	-54 41.9	2.908	3.800	8.3	23.1	147 W	—	61
6 9	8 55.30	-43 7.3	0.244	1.019	82.2	18.1	84 E	—	61*	6 5	16 32.51	-54 44.7	2.903	3.798	8.2	23.1	148 E	—	61
6 10	9 4.73	-44 32.4	0.250	1.027	80.3	18.1	86 E	—	61*	6 10	16 24.83	-54 41.4	2.904	3.796	8.4	23.1	147 E	—	61
<b>66294 1999 JS<sub>27</sub></b>										<b>382459 2000 ST<sub>20</sub></b>									
6 12	9 23.44	-47 1.8	0.264	1.044	76.6	18.1	89 E	—	61*	5 21	16 58.53	-50 32.2	1.507	2.419	13.2	22.9	147 W	—	65
6 14	9 41.84	-49 6.1	0.278	1.060	73.3	18.1	91 E	—	61*	5 26	16 49.87	-50 45.0	1.486	2.414	12.3	22.8	149 W	—	65
6 16	9 59.82	-50 48.5	0.294	1.076	70.5	18.2	94 E	—	61*	5 31	16 40.70	-50 48.0	1.470	2.408	11.8	22.8	151 W	—	65
6 18	10 17.28	-52 12.0	0.310	1.091	67.9	18.2	96 E	—	60*	6 5	16 31.33	-50 40.7	1.460	2.402	11.6	22.7	152 E	—	65
6 20	10 34.13	-53 19.5	0.326	1.107	65.6	18.3	97 E	—	60*	6 10	16 22.10	-50 23.2	1.457	2.395	11.9	22.7	151 E	—	66
6 22	10 50.34	-54 13.7	0.343	1.122	63.5	18.4	99 E	—	60*	6 15	16 13.32	-49 56.2	1.459	2.388	12.6	22.8	149 E	—	66
6 24	11 5.88	-54 56.5	0.360	1.137	61.7	18.5	100 E	—	60*	6 20	16 5.30	-49 20.8	1.467	2.380	13.7	22.8	146 E	—	67
6 26	11 20.74	-55 30.0	0.378	1.151	60.0	18.5	101 E	—	60*	<b>472263 2014 RP<sub>12</sub></b>									
6 28	11 34.93	-55 55.6	0.396	1.166	58.5	18.6	102 E	—	59*	5 21	6 11.69	+ 2 52.2	0.221	0.850	132.5	20.5	38 E	4*	32*
6 30	11 48.48	-56 14.7	0.414	1.179	57.2	18.7	103 E	—	59*	5 22	6 18.87	+ 0 18.3	0.216	0.859	130.3	20.3	40 E	3*	34*
7 2	12 1.41	-56 28.4	0.433	1.193	56.0	18.8	103 E	—	59*	5 23	6 26.24	+ 2 21.0	0.212	0.869	128.0	20.0	43 E	1*	36*
7 4	12 13.75	-56 37.6	0.451	1.207	54.9	18.9	104 E	—	59*	5 24	6 33.80	- 5 4.9	0.208	0.878	125.4	19.8	45 E	—	39*
7 6	12 25.55	-56 43.0	0.470	1.220	53.9	19.0	104 E	—	59*	5 25	6 41.55	- 7 52.1	0.206	0.887	122.7	19.6	47 E	—	41*
7 8	12 36.84	-56 45.3	0.489	1.233	53.0	19.0	104 E	—	59*	5 26	6 49.49	-10 41.4	0.204	0.896	119.9	19.3	50 E	—	43*
7 10	12 47.67	-56 44.9	0.508	1.245	52.2	19.1	104 E	—	59*	5 27	6 57.62	-13 31.6	0.202	0.905	117.0	19.1	53 E	—	45*
7 12	12 58.07	-56 42.3	0.528	1.258	51.5	19.2	105 E	—</											

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

2020	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	$45^\circ$	$-26^\circ$	2020	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	$45^\circ$	$-26^\circ$
<b>162926 2001 OB<sub>36</sub></b>										<b>380133 1998 UX<sub>24</sub></b>									
5 21	17 0.43	+19 12.6	3.639	4.435	8.9	23.5	137 W	64	45	5 21	17 20.16	-41 19.4	1.289	2.233	12.4	23.0	152 W	4	75
5 31	16 52.16	+19 18.8	3.601	4.412	8.8	23.5	138 W	64	45	5 26	17 12.78	-41 56.7	1.261	2.223	10.9	22.9	156 W	3	74
6 10	16 43.63	+19 5.7	3.587	4.387	9.0	23.5	137 E	64	45	5 31	17 4.56	-42 27.5	1.238	2.213	9.7	22.8	158 W	3	74
6 20	16 35.36	+18 33.2	3.596	4.361	9.7	23.5	134 E	64	45	6 5	16 55.75	-42 50.5	1.222	2.202	9.2	22.8	160 W	2	73
6 30	16 27.83	+17 42.3	3.629	4.335	10.6	23.6	128 E	63	46	6 10	16 46.65	-43 5.1	1.212	2.191	9.5	22.7	159 E	2	73
<b>389820 2011 WU<sub>92</sub></b>										<b>523623 2008 CB<sub>22</sub></b>									
5 21	17 4.05	-19 39.6	9.133	10.106	1.7	23.1	163 W	25	84	5 21	17 24.78	-27 20.4	2.884	3.839	5.8	25.4	158 W	18	89
5 31	17 0.88	-19 36.3	9.116	10.123	0.7	23.0	173 W	25	84	5 31	17 14.68	-27 21.8	2.852	3.852	2.9	25.2	169 W	18	89
6 10	16 57.61	-19 33.2	9.129	10.140	0.5	23.0	175 E	25	84	6 10	17 4.04	-27 17.4	2.851	3.863	1.3	25.1	175 E	18	89
6 20	16 54.42	-19 30.6	9.171	10.157	1.4	23.1	165 E	25	84	6 20	16 53.61	-27 7.6	2.881	3.874	3.7	25.3	166 E	18	89
6 30	16 51.44	-19 28.6	9.242	10.174	2.4	23.2	155 E	26	83	6 30	16 44.15	-26 53.9	2.941	3.883	6.5	25.5	154 E	18	89
<b>430544 2002 GM<sub>2</sub></b>										<b>320378 2007 UR<sub>3</sub></b>									
5 21	17 4.99	-27 21.9	2.793	3.768	4.8	24.1	162 W	18	89	5 21	17 25.39	-20 21.5	0.836	1.815	12.0	22.9	158 W	25	84
5 26	16 59.33	-27 16.6	2.759	3.755	3.3	24.0	168 W	18	89	5 26	17 17.51	-20 12.3	0.832	1.829	8.4	22.8	165 W	25	84
5 31	16 53.42	-27 9.4	2.733	3.741	1.9	23.9	173 W	18	89	5 31	17 9.15	-20 2.4	0.833	1.842	4.8	22.6	171 W	25	84
6 5	16 47.39	-27 0.4	2.715	3.727	1.3	23.8	175 E	18	89	6 5	17 0.65	-19 52.1	0.840	1.854	1.8	22.5	177 W	25	84
6 10	16 41.32	-26 49.6	2.705	3.713	2.2	23.9	172 E	18	89	6 10	16 52.32	-19 41.7	0.853	1.866	3.2	22.6	174 E	25	84
6 15	16 35.33	-26 37.3	2.704	3.698	3.7	24.0	166 E	18	89	6 15	16 44.45	-19 31.7	0.873	1.878	6.6	22.9	168 E	25	84
6 20	16 29.53	-26 23.6	2.710	3.683	5.3	24.0	160 E	19	90	6 20	16 37.29	-19 22.7	0.897	1.889	9.8	23.1	161 E	26	83
<b>432589 2010 RC<sub>103</sub></b>										<b>318160 2004 QZ<sub>2</sub></b>									
5 21	17 6.30	-24 39.4	2.211	3.190	5.6	23.5	162 W	20	89	5 21	17 32.05	-22 28.1	2.388	3.341	6.9	23.1	157 W	23	86
5 26	17 1.44	-24 33.5	2.190	3.189	3.8	23.4	168 W	20	89	5 31	17 22.28	-22 18.0	2.351	3.331	3.5	22.9	168 W	23	86
5 31	16 56.36	-24 26.4	2.177	3.187	1.9	23.2	174 W	21	88	6 10	17 11.59	-22 5.2	2.304	3.319	0.3	22.6	179 E	23	86
6 5	16 51.17	-24 18.0	2.171	3.185	0.6	23.1	178 E	21	88	6 20	17 0.84	-21 50.2	2.306	3.306	3.8	22.9	167 E	23	86
6 10	16 45.98	-24 8.7	2.172	3.183	2.0	23.2	174 E	21	88	6 30	16 50.92	-21 34.7	2.339	3.291	7.3	23.1	156 E	23	86
6 15	16 40.91	-23 58.6	2.180	3.180	3.9	23.4	168 E	21	88	<b>155336 2006 GA<sub>1</sub></b>									
6 20	16 36.08	-23 47.9	2.196	3.178	5.7	23.5	162 E	21	88	5 21	17 34.74	-24 36.5	2.317	3.267	7.3	23.2	156 W	20	89
<b>497026 2003 QP<sub>49</sub></b>										<b>20790 2000 SE<sub>45</sub></b>									
5 21	17 6.80	-13 22.6	1.778	2.754	6.9	22.6	161 W	32	77	5 21	17 37.45	-31 24.2	2.574	3.511	7.3	21.7	154 W	14	85
5 31	16 56.72	-13 0.6	1.722	2.725	3.9	22.3	169 W	32	77	5 26	17 32.50	-31 21.3	2.564	3.530	5.8	21.6	159 W	14	85
6 10	16 45.81	-12 44.6	1.694	2.695	4.6	22.3	168 E	32	77	5 31	17 27.31	-31 16.2	2.562	3.550	4.4	21.6	165 W	14	85
6 20	16 35.14	-12 36.4	1.693	2.663	8.2	22.4	158 E	32	77	6 5	17 21.97	-31 9.0	2.567	3.569	3.0	21.5	169 W	14	85
6 30	16 25.77	-12 37.8	1.718	2.631	12.1	22.6	147 E	32	77	6 10	17 16.60	-30 59.6	2.579	3.587	2.3	21.5	172 W	14	85
<b>267131 2000 EK<sub>26</sub></b>										<b>494658 2000 UG<sub>11</sub></b>									
5 21	17 6.89	-5 52.0	3.041	3.992	5.7	24.1	157 W	39	70	5 21	17 7.56	-16 16.4	1.483	2.464	7.4	23.8	162 W	29	80
5 31	16 58.03	-5 37.7	3.014	3.993	4.4	24.0	163 W	39	70	5 26	17 0.38	-15 51.5	1.490	2.488	5.1	23.7	167 W	29	80
6 10	16 48.88	-5 31.8	3.016	3.992	4.6	24.0	162 E	39	70	5 31	16 53.13	-15 27.5	1.504	2.512	3.3	23.6	172 W	30	79
6 20	16 40.04	-5 35.0	3.049	3.991	6.3	24.1	155 E	39	70	6 5	16 45.99	-15 4.9	1.525	2.535	3.0	23.6	172 E	30	79
6 30	16 32.08	-5 47.4	3.110	3.988	8.3	24.2	145 E	39	70	6 10	16 39.13	-14 44.2	1.554	2.557	4.6	23.8	168 E	30	79
<b>357311 2003 DC<sub>14</sub></b>										<b>326946 2004 EN<sub>20</sub></b>									
5 21	17 10.05	-29 59.6	3.357	4.322	4.6	22.7	160 W	15	86	5 21	17 19.48	+32 16.5	1.873	2.574	19.1	22.8	124 W	77	32
5 31	17 1.32	-30 6.0	3.302	4.303	2.5	22.5	170 W	15	86	5 26	17 13.84	+33 9.2	1.868	2.573	19.1	22.8	124 W	78	31
6 10	16 52.10	-30 6.1	3.277	4.284	2.0	22.5	171 E	15	86	5 31	17 7.84	+33 51.1	1.868	2.572	19.2	22.8	124 W	79	30
6 20	16 43.03	-30 0.3	3.283	4.264	4.1	22.6	163 E	15	86	6 5	17 1.62	+34 21.6	1.872	2.570	19.3	22.8	123 W	79	30
6 30	16 34.73	-29 49.6	3.318	4.243	6.5	22.7	152 E	15	86	6 10	16 55.35	+34 40.4	1.879	2.568	19.6	22.8	122 E	80	29
<b>382388 2013 TP<sub>127</sub></b>										<b>474442 2003 PQ<sub>9</sub></b>									
5 21	17 13.20	+1 40.8	2.899	3.812	7.5	23.2	150 W	47	62	5 21	17 40.37	-9 18.7	1.714	2.648	10.5	21.5	152 W	36	73
5 31	17 5.41	+2 24.9	2.883	3.823	6.6	23.1	154 W	47	62	5 31	17 32.33	-8 49.0	1.625	2.603	7.5	21.3	161 W	36	73
6 10	16 57.32	+2 55.1	2.895	3.832	6.7	23.1	154 E	48	61	6 10	17 22.57	-8 29.4	1.561	2.556	5.8	21.1	165 W	37	72
6 20	16 49.50	+3 10.1	2.935	3.841	7.8	23.2	149 E	48	61	6 20	17 12.01	-8 22.6	1.523	2.509	7.3	21.0	162 E	37	72
6 30	16 42.51	+3 10.1	3.000	3.850	9.4	23.3	142 E	48	61	6 30	17 1.81	-8 30.5	1.511	2.461	10.8	21.1	153 E	36	73
<b>326946 2004 EN<sub>20</sub></b>										<b>136564 1977 VA</b>									
5 21	17 19.48	+32 16.5	1.873	2.574	19.1	22.8	124 W	77	32	7 10	16 53.10	-8 53.4	1.523	2.412	14.7	21.3	143 E	36	73
5 26	17 13.84	+33 9.2	1.868	2.573	19.1	22.8	124 W	78	31	7 20	16 46.74	-9 30.1	1.554	2.364	18.4	21.4	133 E	35	74
5 31	17 7.84	+33 51.1	1.868	2.572	19.2	22.8	124 W	79	30	7 30	16 43.33	-10 18.7	1.600	2.314	21.6	21.5	123 E	35	74
6 5	17 1.62	+34 21.6	1.872	2.570	19.3	22.8	123 W	79	30	<b>326946 2004 EN<sub>20</sub></b>									
6 10	16 55.35	+34 40.4	1.879	2.568	19.6	22.8	122 E	80	29	5 21	17 43.10	-20 47.5	1.335	2.288	11.2	22.2	154 W	24	85
6 15	16 49.17	+34 47.6	1.890	2.565	19.9	22.8	121 E	80	29	5 31	17 31.83	-20 22.6	1.257	2.254	6.2	21.8	166 W	25	84
6 20	16 43.25	+34 43.4	1.905	2.562	20.2	22.8	119 E	80	29	6 10	17 18.15	-19 54.3	1.204	2.218	1.5	21.4	177 W	25	84
6 25	16 37.73	+34 28.4	1.923	2.558	20.6	22.9	118 E	79	30	6 20	17 3.53	-19 23.9	1.178	2.181	5.9	21.6	167 E	26	83
										6 30	16 49.76	-18 54.4	1.178	2.142	11.7	21.8	155 E	26	83
										7 10	16 38.45	-18 30.2	1.200	2.101	17.1	22.0	143 E	26	83

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

2020	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	$45^\circ$ - $26^\circ$	20/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	$45^\circ$ - $26^\circ$									
<b>26189 1997 AX<sub>12</sub></b>																										
5 21	17 45.71	-19 34.8	2.802	3.734	7.0	22.4	153 W	25   84	5 21	17 1.03	+ 5 59.0	2.494	3.324	11.6	22.3	139 W	51   58									
5 31	17 37.78	-19 34.0	2.745	3.732	4.2	22.2	165 W	25   84	5 31	17 52.90	+ 6 10.2	2.428	3.315	9.9	22.2	146 W	51   58									
6 10	17 28.94	-19 33.7	2.716	3.729	1.4	22.0	175 W	25   84	6 10	17 43.55	+ 6 2.7	2.387	3.305	8.8	22.1	150 W	51   58									
6 20	17 19.86	-19 33.8	2.718	3.725	2.5	22.1	171 E	25   84	6 20	17 33.65	+ 5 34.8	2.372	3.294	8.7	22.1	151 E	51   58									
6 30	17 11.23	-19 34.9	2.749	3.720	5.4	22.3	160 E	25   84	6 30	17 23.99	+ 4 46.9	2.383	3.282	9.7	22.1	147 E	50   59									
7 10	17 3.69	-19 37.4	2.808	3.715	8.2	22.5	149 E	25   84	7 10	17 15.31	+ 3 41.2	2.421	3.269	11.4	22.2	140 E	49   60									
<b>306453 1999 BE<sub>8</sub></b>																										
5 21	17 49.97	-10 43.1	2.420	3.335	8.7	21.4	150 W	34   75	5 21	18 6.51	-29 24.3	2.118	3.025	10.2	22.5	148 W	16   87									
5 31	17 41.39	-10 31.6	2.393	3.364	5.9	21.3	160 W	34   75	5 31	17 58.51	-29 37.5	2.026	2.995	6.9	22.2	159 W	15   86									
6 10	17 31.99	-10 27.3	2.395	3.391	4.0	21.2	167 W	35   74	6 10	17 48.58	-29 44.5	1.960	2.965	3.5	22.0	170 W	15   86									
6 20	17 22.51	-10 30.5	2.425	3.417	4.4	21.3	165 E	34   75	6 20	17 37.56	-29 43.2	1.922	2.933	2.6	21.8	173 E	15   86									
6 30	17 13.70	-10 41.4	2.485	3.442	6.7	21.5	157 E	34   75	6 30	17 26.56	-29 33.0	1.913	2.900	5.8	22.0	163 E	15   86									
7 10	17 6.21	-10 59.4	2.571	3.466	9.3	21.7	147 E	34   75	7 10	17 16.68	-29 15.4	1.930	2.867	9.6	22.1	152 E	16   87									
<b>311143 2004 RL<sub>226</sub></b>																										
5 21	17 51.93	+ 9 25.4	2.203	3.033	12.9	21.9	138 W	54   55	5 21	18 9.07	-18 23.5	1.941	2.848	11.0	22.2	148 W	27   82									
5 26	17 48.00	+ 9 57.0	2.180	3.035	12.1	21.8	141 W	55   54	5 31	18 0.90	-17 59.8	1.858	2.827	7.4	21.9	159 W	27   82									
5 31	17 43.70	+10 23.5	2.163	3.037	11.5	21.8	143 W	55   54	6 10	17 50.88	-17 37.2	1.801	2.806	3.7	21.7	170 W	27   82									
6 5	17 39.13	+10 44.2	2.152	3.038	11.1	21.8	145 W	56   53	6 20	17 39.85	-17 16.6	1.772	2.783	2.6	21.5	173 E	28   81									
6 10	17 34.38	+10 58.9	2.147	3.040	10.9	21.8	146 W	56   53	6 30	17 28.89	-16 59.0	1.772	2.760	6.2	21.7	163 E	28   81									
6 15	17 29.55	+11 7.1	2.148	3.040	10.9	21.8	146 E	56   53	7 10	17 19.10	-16 45.9	1.798	2.735	10.2	21.9	152 E	28   81									
6 20	17 24.75	+11 8.8	2.155	3.041	11.2	21.8	145 E	56   53	<b>508940 2004 RQ<sub>165</sub></b>																	
6 25	17 20.07	+11 4.0	2.168	3.041	11.6	21.8	143 E	56   53	5 21	18 6.51	-29 24.3	2.118	3.025	10.2	22.5	148 W	16   87									
6 30	17 15.64	+10 52.9	2.187	3.042	12.2	21.8	141 E	56   53	5 31	17 58.51	-29 37.5	2.026	2.995	6.9	22.2	159 W	15   86									
7 5	17 11.53	+10 35.9	2.211	3.041	13.0	21.9	138 E	56   53	6 10	17 48.58	-29 44.5	1.960	2.965	3.5	22.0	170 W	15   86									
7 10	17 7.83	+10 13.6	2.240	3.041	13.8	22.0	135 E	55   54	6 20	17 37.56	-29 43.2	1.922	2.933	2.6	21.8	173 E	15   86									
<b>430663 2003 UO<sub>3</sub></b>																										
5 21	17 56.50	-55 6.2	2.018	2.852	13.8	21.7	138 W	-   61	6 30	17 26.56	-29 33.0	1.913	2.900	5.8	22.0	163 E	15   86									
5 26	17 49.92	-55 54.4	1.980	2.838	13.1	21.6	141 W	-   60	7 10	17 16.68	-29 15.4	1.930	2.867	9.6	22.1	152 E	16   87									
5 31	17 42.26	-56 36.7	1.948	2.824	12.5	21.5	143 W	-   59	<b>501612 2014 RE</b>																	
6 5	17 33.68	-57 11.7	1.921	2.810	12.1	21.5	145 W	-   59	5 21	18 9.07	-18 23.5	1.941	2.848	11.0	22.2	148 W	27   82									
6 10	17 24.39	-57 38.3	1.900	2.795	11.9	21.4	145 W	-   58	5 31	18 0.90	-17 59.8	1.858	2.827	7.4	21.9	159 W	27   82									
6 15	17 14.65	-57 55.7	1.885	2.780	12.0	21.4	145 E	-   58	6 10	17 50.88	-17 37.2	1.801	2.806	3.7	21.7	170 W	27   82									
6 20	17 4.79	-58 3.4	1.876	2.765	12.4	21.4	144 E	-   58	6 20	17 39.85	-17 16.6	1.772	2.783	2.6	21.5	173 E	28   81									
6 25	16 55.16	-58 1.4	1.873	2.750	13.0	21.4	142 E	-   58	6 30	17 28.89	-16 59.0	1.772	2.760	6.2	21.7	163 E	28   81									
6 30	16 46.08	-57 50.3	1.876	2.734	13.8	21.4	140 E	-   58	7 10	17 19.10	-16 45.9	1.798	2.735	10.2	21.9	152 E	28   81									
7 5	16 37.85	-57 31.2	1.884	2.719	14.7	21.5	137 E	-   58	<b>363163 2001 SE<sub>286</sub></b>																	
7 10	16 30.66	-57 5.2	1.897	2.702	15.7	21.5	134 E	-   59	5 21	18 9.91	-29 23.5	1.791	2.700	11.6	21.9	147 W	16   87									
<b>234302 2001 AA</b>																										
5 21	17 57.07	- 4 19.7	2.814	3.694	8.9	22.2	146 W	41   68	5 26	18 3.81	-28 55.5	1.770	2.714	9.6	21.8	154 W	16   87									
5 31	17 49.97	- 4 0.3	2.757	3.695	6.9	22.1	154 W	41   68	5 31	17 57.21	-28 24.7	1.754	2.728	7.4	21.7	160 W	17   88									
6 10	17 41.93	- 3 50.9	2.727	3.695	5.5	22.0	160 W	41   68	6 5	17 50.24	-27 51.2	1.746	2.742	5.1	21.6	166 W	17   88									
6 20	17 33.52	- 3 52.8	2.725	3.695	5.5	22.0	160 E	41   68	6 10	17 43.09	-27 15.0	1.746	2.755	2.9	21.5	172 W	18   89									
6 30	17 25.38	- 4 6.1	2.751	3.693	6.8	22.0	154 E	41   68	6 15	17 35.92	-26 36.7	1.753	2.768	1.2	21.4	177 W	18   89									
7 10	17 18.12	- 4 30.0	2.804	3.691	8.8	22.2	146 E	40   69	6 20	17 28.91	-25 56.8	1.768	2.780	2.3	21.5	174 E	19   90									
<b>398641 2012 RP<sub>31</sub></b>																										
5 21	17 58.20	-15 36.8	1.627	2.552	11.6	21.7	150 W	29   80	6 25	17 22.23	-25 16.0	1.790	2.792	4.5	21.7	168 W	20   89									
5 31	17 48.82	-14 48.2	1.568	2.547	7.6	21.5	161 W	30   79	6 30	17 16.01	-24 35.1	1.820	2.803	6.6	21.8	162 E	20   89									
6 10	17 37.70	-14 3.2	1.535	2.540	4.2	21.2	169 W	31   78	7 5	17 10.38	-23 54.7	1.858	2.814	8.6	22.0	155 E	21   88									
6 20	17 25.95	-13 24.4	1.529	2.532	4.9	21.3	168 E	32   77	7 10	17 5.42	-23 15.7	1.901	2.825	10.5	22.1	150 E	22   87									
6 30	17 14.84	-12 54.5	1.550	2.522	8.7	21.5	158 E	32   77	7 15	17 1.17	-22 38.5	1.951	2.835	12.2	22.2	144 E	22   87									
7 10	17 5.52	-12 35.5	1.597	2.512	12.7	21.7	147 E	32   77	<b>406562 2007 YQ<sub>61</sub></b>																	
<b>326741 2003 QW<sub>26</sub></b>																										
5 21	17 59.60	-51 39.3	2.129	2.975	12.7	21.5	140 W	-   64	5 21	18 10.03	+ 6 0.1	2.134	2.957	13.5	21.5	137 W	51   58									
5 26	17 53.81	-52 5.6	2.094	2.969	11.8	21.4	143 W	-   64	5 26	18 6.64	+ 6 34.4	2.099	2.952	12.6	21.4	141 W	52   57									
5 31	17 47.22	-52 26.4	2.065	2.962	11.0	21.3	146 W	-   64	5 31	18 2.79	+ 7 4.5	2.070	2.947	11.8	21.3	144 W	52   57									
6 5	17 40.00	-52 40.7	2.041	2.955	10.3	21.3	149 W	-   63	6 5	17 58.55	+ 7 29.8	2.047	2.942	11.1	21.3	146 W	52   57									
6 10	17 32.33	-52 47.9	2.024	2.947	9.9	21.2	150 W	-   63	6 10	17 54.03	+ 7 49.6	2.029	2.937	10.7	21.2	148 W	53   56									
6 15	17 24.43	-52 47.4	2.013	2.939	9.8	21.2	150 E	-   63	6 15	17 49.30	+ 8 3.5	2.018	2.932	10.5	21.2	148 W	53   56									
6 20	17 16.54	-52 39.2	2.008	2.931	10.0	21.2	150 E	-   63	6 20	17 44.47	+ 8 11.3	2.012	2.926	10.5	21.2	148 E	53   56									
6 25	17 8.91	-52 23.4	2.009	2.923	10.5	21.2	148 E	-   64	6 25	17 39.67	+ 8 12.7	2.013	2.920	10.9	21.2	147 E	53   56									
6 30	17 1.75	-52 0.7	2.017	2.915	11.3	21.2	146 E	-   64	6 30	17 35.00	+ 8 7.7	2.020	2.914	11.5	21.3	145 E	53   56									
7 5	16 55.27	-51 31.8	2.030	2.906	12.2	21.3	143 E	-   64	7 5	17 30.57	+ 7 56.7	2.033	2.907	12.2	21.3	143 E	53   56									
7 10	16 49.61	-50 57.9	2.049	2.897	13.2	21.3	139 E	-   65	7 10	17 26.48	+ 7 39.9	2.051	2.900	13.1	21.3	140 E	53   56									
7 15	16 44.85	-50 20.0	2.073	2.888	14.3	21.4	136 E	-   66	7 15	17 22.80	+ 7 17.9	2.074	2.894	14.1	21.4	136 E	52   57									
7 20	16 41.08	-49 39.2	2.102	2.879	15.3	21.5	132 E	-   66	7 20	17 19.60	+ 6 51.1	2.103	2.886	15.1	21.5	132 E	52   57									
<b>307198 2002 FJ<sub>3</sub></b>																										
5 21	18 0.12	+10 0.8	2.882	3.681	10.9	21.8	136 W	55   54	<b>363024 1998 OK<sub>1</sub></b>																	
5 31	17 52.96	+10 52.8	2.842	3.692	9.8	21.7	142 W	56   53	5 21	18 12.32	+ 6 50.2	0.883	1.800	19.6	21.3	143 W	38   71									
6 10	17 44.88	+11 27.0	2.826	3.702	9.1	21.7	145 W	56   53	5 26	18 6.50	+ 6 49.6	0.838	1.784	17.1	21.1	149 W	38   71									
6 20	17 36.46	+11 41.2	2.835	3.710	9.1	21.7	145 E	57   52	5 31	17 59.31	+ 6 55.3	0.798	1.767	14.5	20.9											

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

2020	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°-26°	20/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°-26°
<b>402362 2005 WL<sub>17</sub></b>									<b>351815 2006 OF<sub>15</sub></b> (continuation)								
5 21	18 12.67	-23 43.7	1.098	2.025	15.7	21.4	147 W	21 88	11 22	20 39.01	-34 50.0	1.397	1.315	42.6	21.4	64 E	10* 58*
5 31	18 6.47	-24 13.4	1.009	1.986	10.9	21.0	158 W	21 88	11 27	20 57.37	-34 28.1	1.411	1.309	42.3	21.4	63 E	10* 57*
6 10	17 56.71	-24 45.7	0.940	1.948	5.2	20.5	170 W	20 89	12 2	21 15.91	-33 55.0	1.424	1.303	42.1	21.4	62 E	11* 56*
6 20	17 44.37	-25 16.6	0.893	1.909	1.6	20.2	177 E	20 89	12 7	21 34.54	-33 10.7	1.438	1.300	41.8	21.4	62 E	12* 55*
6 25	17 37.75	-25 30.4	0.878	1.889	4.8	20.3	171 E	19 90	12 12	21 53.18	-32 15.4	1.452	1.298	41.5	21.4	61 E	13* 54*
6 30	17 31.20	-25 42.8	0.869	1.869	8.1	20.4	165 E	19 90	12 17	22 11.73	-31 9.5	1.466	1.297	41.2	21.4	60 E	14* 53*
7 5	17 25.00	-25 53.6	0.865	1.850	11.5	20.5	159 E	19 90	12 22	22 30.14	-29 53.4	1.481	1.298	40.8	21.4	60 E	15* 52*
7 10	17 19.40	-26 3.0	0.866	1.831	14.7	20.6	153 E	19 90	12 27	22 48.34	-28 27.8	1.496	1.300	40.4	21.4	59 E	16* 51*
7 15	17 14.61	-26 11.3	0.872	1.811	17.8	20.7	147 E	19 90	1 1	23 6.27	-26 53.4	1.512	1.305	40.0	21.5	59 E	18* 51*
7 20	17 10.81	-26 18.9	0.882	1.792	20.7	20.8	141 E	19 90	1 6	23 23.91	-25 11.2	1.530	1.310	39.6	21.5	58 E	19* 50*
7 25	17 8.16	-26 26.2	0.896	1.773	23.4	20.9	136 E	19 90	<b>390689 2002 VS<sub>91</sub></b>								
7 30	17 6.74	-26 33.5	0.912	1.754	25.9	21.0	131 E	18 89	5 21	18 19.74	-14 37.2	1.534	2.429	14.1	22.4	144 W	30 79
8 4	17 6.57	-26 41.2	0.931	1.735	28.2	21.1	126 E	18 89	5 31	18 10.72	-14 15.6	1.480	2.439	10.0	22.1	155 W	31 78
8 9	17 7.64	-26 49.2	0.952	1.717	30.2	21.2	122 E	18 89	6 10	17 59.55	-14 0.7	1.450	2.447	5.8	21.9	166 W	31 78
8 14	17 9.95	-26 57.6	0.975	1.699	32.0	21.3	117 E	18* 89	6 20	17 47.32	-13 53.6	1.447	2.454	4.0	21.8	170 E	31 78
8 19	17 13.45	-27 6.2	0.999	1.681	33.6	21.3	113 E	18* 89	6 30	17 35.40	-13 54.6	1.471	2.460	7.0	22.0	163 E	31 78
8 24	17 18.10	-27 14.8	1.024	1.663	34.9	21.4	110 E	18* 89	7 10	17 25.06	-14 3.9	1.520	2.465	11.1	22.3	152 E	31 78
8 29	17 23.84	-27 23.1	1.050	1.646	36.1	21.5	106 E	17* 89	<b>523613 2006 SJ<sub>198</sub></b>								
5 21	18 13.84	-20 10.7	2.165	3.062	10.4	22.5	147 W	25 84	5 21	18 19.74	-23 41.5	1.698	2.597	12.7	21.7	146 W	21 88
5 31	18 5.93	-19 56.4	2.092	3.056	7.1	22.3	158 W	25 84	5 31	18 9.02	-23 38.4	1.667	2.633	8.4	21.5	158 W	21 88
6 10	17 56.38	-19 42.4	2.045	3.049	3.5	22.0	169 W	25 84	6 10	17 56.56	-23 32.0	1.662	2.668	3.8	21.3	170 W	21 88
6 20	17 45.97	-19 28.9	2.027	3.041	1.5	21.8	176 E	26 83	6 20	17 43.55	-23 21.7	1.685	2.701	1.0	21.1	177 E	22 87
6 30	17 35.66	-19 16.2	2.037	3.032	4.9	22.1	165 E	26 83	6 30	17 31.33	-23 8.3	1.737	2.732	5.5	21.5	165 E	22 87
7 10	17 26.42	-19 5.6	2.076	3.021	8.5	22.3	154 E	26 83	7 10	17 21.00	-22 53.7	1.817	2.762	9.6	21.8	153 E	22 87
<b>118148 4204 T-3</b>									<b>515082 2010 TM<sub>3</sub></b>								
5 21	18 14.29	-13 8.8	2.471	3.353	9.9	21.6	145 W	32 77	5 21	18 21.21	-36 40.9	0.786	1.710	20.6	22.3	144 W	8 79
5 31	18 7.30	-12 51.1	2.395	3.345	7.2	21.4	156 W	32 77	5 26	18 15.92	-37 41.7	0.756	1.704	18.1	22.1	149 W	7 78
6 10	17 58.90	-12 38.8	2.344	3.335	4.5	21.3	165 W	32 77	5 31	18 8.97	-38 40.4	0.730	1.698	15.5	21.9	153 W	6 77
6 20	17 49.73	-12 32.5	2.322	3.325	3.3	21.2	169 E	32 77	6 5	18 0.47	-39 34.6	0.708	1.691	13.1	21.8	158 W	5 76
6 30	17 40.57	-12 32.8	2.329	3.314	5.2	21.3	163 E	32 77	6 10	17 50.63	-40 21.6	0.692	1.684	11.3	21.6	161 W	5 76
7 10	17 32.18	-12 39.7	2.363	3.302	8.0	21.4	153 E	32 77	6 15	17 39.78	-40 58.8	0.680	1.677	10.6	21.6	162 W	4 75
<b>469191 2016 GU<sub>134</sub></b>									<b>344150 2000 QV<sub>159</sub></b>								
5 21	18 14.65	+ 4 17.6	2.006	2.833	14.0	22.4	137 W	49 60	5 21	18 23.49	- 6 46.4	1.487	2.360	15.7	21.5	141 W	38 71
5 31	18 7.09	+ 5 17.9	1.958	2.843	12.0	22.3	144 W	50 59	5 31	18 18.63	- 5 46.2	1.388	2.320	12.8	21.2	150 W	39 70
6 10	17 58.03	+ 5 58.0	1.933	2.852	10.5	22.2	149 W	51 58	6 10	18 11.24	- 4 57.5	1.311	2.281	9.9	20.9	157 W	40 69
6 20	17 48.24	+ 6 14.7	1.933	2.860	10.1	22.2	150 E	51 58	6 20	18 1.98	- 4 25.5	1.256	2.241	8.5	20.7	161 W	41 68
6 30	17 38.66	+ 6 6.7	1.957	2.867	11.0	22.2	147 E	51 58	6 30	17 51.93	- 4 14.6	1.224	2.201	9.9	20.7	158 E	41 68
7 10	17 30.16	+ 5 35.6	2.005	2.873	12.7	22.4	142 E	51 58	7 10	17 42.43	- 4 26.5	1.216	2.161	13.2	20.8	151 E	41 68
<b>351815 2006 OF<sub>15</sub></b>									<b>197970 2004 RZ<sub>109</sub></b>								
5 21	18 17.42	+ 6 14.1	1.194	2.043	20.3	21.3	136 W	51 58	5 21	18 26.24	-58 42.8	2.853	3.614	11.9	22.1	133 W	- 57
5 26	18 14.34	+ 6 25.7	1.143	2.022	19.1	21.2	139 W	51 58	5 26	18 20.76	-59 12.2	2.815	3.608	11.3	22.0	136 W	- 57
5 31	18 10.36	+ 6 29.2	1.096	2.000	17.8	21.0	143 W	51 58	5 31	18 14.42	-59 37.0	2.783	3.602	10.8	22.0	138 W	- 56
6 5	18 5.53	+ 6 23.4	1.054	1.979	16.6	20.9	146 W	51 58	6 5	18 7.34	-59 56.4	2.756	3.596	10.4	21.9	140 W	- 56
6 10	17 59.91	+ 6 6.9	1.016	1.957	15.6	20.7	149 W	51 58	6 10	17 59.67	-60 9.6	2.735	3.589	10.0	21.9	142 W	- 56
6 15	17 53.63	+ 5 38.6	0.984	1.935	14.9	20.6	151 W	51 58	6 15	17 51.59	-60 16.0	2.719	3.582	9.8	21.9	143 W	- 56
6 20	17 46.85	+ 4 57.6	0.956	1.912	14.7	20.5	152 E	50 59	6 20	17 43.33	-60 15.3	2.710	3.575	9.8	21.9	143 E	- 56
6 25	17 39.77	+ 4 3.5	0.934	1.890	15.0	20.5	151 E	49 60	6 25	17 35.13	-60 7.2	2.707	3.568	10.0	21.9	143 E	- 56
6 30	17 32.64	+ 2 56.3	0.918	1.867	16.0	20.4	150 E	48 61	6 30	17 27.21	-59 52.2	2.710	3.561	10.3	21.9	141 E	- 56
7 5	17 25.70	+ 1 37.1	0.907	1.844	17.5	20.4	147 E	47 62	7 5	17 19.80	-59 30.6	2.719	3.553	10.7	21.9	139 E	- 56
7 10	17 19.18	+ 0 6.9	0.901	1.822	19.4	20.5	144 E	45 64	7 10	17 13.05	-59 3.1	2.733	3.545	11.3	21.9	137 E	- 57
7 15	17 13.29	+ 1 32.5	0.900	1.799	21.5	20.5	140 E	43 66	7 15	17 7.11	-58 30.6	2.753	3.537	11.9	22.0	134 E	- 57
7 20	17 8.22	+ 3 19.2	0.904	1.776	23.8	20.5	135 E	42 67	<b>357622 2005 EY<sub>95</sub></b>								
7 25	17 4.13	+ 5 11.4	0.912	1.753	26.1	20.6	131 E	40 69	5 21	18 26.53	-23 25.7	0.633	1.569	22.3	21.4	144 W	22 87
7 30	17 1.14	+ 7 7.1	0.924	1.730	28.3	20.7	126 E	38 71	5 26	18 18.55	-23 46.1	0.586	1.551	18.6	21.0	151 W	21 88
8 4	16 59.29	+ 9 4.6	0.939	1.707	30.4	20.7	122 E	36 73	5 31	18 8.05	-24 7.9	0.544	1.532	14.4	20.7	158 W	21 88
8 9	16 58.61	+ 11 2.4	0.956	1.684	32.3	20.8	117 E	34* 75	6 5	17 54.90	-24 29.3	0.507	1.511	9.6	20.4	166 W	21 88
8 14	16 59.12	+ 12 59.4	0.976	1.661	34.1	20.9	113 E	32* 77	6 10	17 39.09	-24 47.5	0.475	1.488	4.2	19.9	174 W	20 89
8 19	17 0.82	+ 14 54.7	0.998	1.639	35.7	20.9	109 E	30* 79	6 15	17 20.88	-24 59.4	0.449	1.464	2.4	19.7	177 E	20 89
8 24	17 3.68	+ 16 47.5	1.021	1.616	37.1	21.0	105 E	28* 81	6 20	17 0.81	-25 1.7	0.429	1.438	8.8	19.8	168 W	20 89
8 29	17 7.69	+ 18 37.2	1.045	1.594	38.3	21.0	102 E	26* 83	6 25	16 39.79	-24 52.6	0.416	1.411	15.6	20.0	158 E	20 89
9 3	17 12.79	+ 20 23.2	1.070	1.572	39.4	21.1	98 E	24* 84	6 30	16 18.84	-24 32.0	0.409	1.382	22.6	20.1	149 W	20 89
9 8	17 18.96	+ 22 5.3	1.095	1.551	40.3	21.1	95 E	22* 86*	7 5	15 58.94	-24 2.1	0.407	1.351	29.4	20.3	139 E	21 88
9 13	17 26.16	+ 23 43.0	1.119	1.529	41.1	21.2	92 E	20* 85*	7 10	15 40.83	-23 26.4	0.409	1.318	36.0	20.4	130 E	22 87
9 18	17 34.39	+ 25 15.9	1.144	1.509	41.8	21.2	89 E	19* 83*	7 15	15 24.94	-22 48.6	0.414	1.284	42.2	20.6	122 E	22* 87
9 23	17 43.60	+ 26 43.8	1.168	1.489	42.3	21.2	86 E	17* 80*									
9 28	17 53.78	+ 28 6.2	1.192	1.469	42.7	21.3	84 E	16* 77*									
10 3	18 4.88	+ 29 22.6	1.215	1.450	43.0	21.3	81 E	15* 75*									
10 8	18 16.89	+ 30 32.7	1.237	1.432	43.2	21.3	7										

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

2020	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	$45^\circ$ - $26^\circ$	2020	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	$45^\circ$ - $26^\circ$	
<b>357622 2005 EY<sub>95</sub></b> (continuation)									<b>16657 1993 UB</b> (continuation)									
7 20	15 11.42	-22 12.1	0.421	1.248	48.1	20.7	114 E	22* 86	6 15	18 3.72	-55 49.0	1.907	2.814	11.3	21.0	147 W	—	60
7 25	15 0.19	-21 39.2	0.429	1.210	53.6	20.8	107 E	21* 86	6 20	17 54.19	-56 16.3	1.887	2.795	11.4	21.0	147 E	—	60
7 30	14 50.99	-21 11.0	0.437	1.170	58.8	21.0	100 E	20* 85	6 25	17 44.30	-56 34.5	1.873	2.776	11.7	21.0	146 E	—	59
8 4	14 43.44	-20 47.4	0.444	1.129	63.9	21.1	93 E	18* 85*	6 30	17 34.38	-56 43.1	1.865	2.757	12.3	21.0	145 E	—	59
8 9	14 37.11	-20 27.9	0.449	1.085	68.9	21.2	87 E	17* 80*	7 5	17 24.75	-56 42.3	1.863	2.738	13.2	21.0	142 E	—	59
8 14	14 31.59	-20 10.9	0.452	1.040	74.0	21.2	81 E	15* 75*	7 10	17 15.72	-56 32.7	1.867	2.718	14.2	21.0	139 E	—	59
8 19	14 26.39	-19 54.8	0.452	0.993	79.4	21.3	75 E	14* 69*	7 15	17 7.56	-56 15.3	1.876	2.698	15.3	21.1	136 E	—	60
8 24	14 20.97	-19 36.9	0.448	0.944	85.3	21.4	68 E	12* 62*	7 20	17 0.46	-55 51.3	1.890	2.678	16.4	21.1	132 E	—	60
<b>376794 2000 SN<sub>125</sub></b>									<b>164206 2004 FN<sub>18</sub></b>									
5 21	18 27.54	-27 5.6	1.405	2.301	15.1	21.3	144 W	18 89	5 21	18 38.30	-1 15.9	1.570	2.397	17.3	21.4	135 W	44	65
5 31	18 21.38	-27 47.2	1.305	2.263	11.1	20.9	155 W	17 88	5 26	18 34.18	-0 26.9	1.534	2.398	15.9	21.3	140 W	45	64
6 10	18 11.89	-28 29.0	1.227	2.225	6.4	20.6	166 W	17 88	5 31	18 29.33	+0 19.0	1.503	2.398	14.4	21.2	144 W	45	64
6 20	17 59.85	-29 6.1	1.173	2.186	2.7	20.2	174 W	16 87	6 5	18 23.83	+1 0.7	1.478	2.397	13.1	21.1	148 W	46	63
6 25	17 53.28	-29 21.2	1.155	2.167	3.7	20.2	172 E	16 87	6 10	18 17.79	+1 37.5	1.458	2.396	11.9	21.0	151 W	47	62
6 30	17 46.67	-29 33.6	1.144	2.147	6.0	20.3	167 E	15 86	6 15	18 11.34	+2 8.5	1.445	2.395	11.1	21.0	153 W	47	62
7 5	17 40.23	-29 43.0	1.139	2.127	8.8	20.4	161 E	15 86	6 20	18 4.64	+2 33.0	1.438	2.393	10.8	21.0	154 W	48	61
7 10	17 34.20	-29 49.5	1.139	2.107	11.5	20.5	156 E	15 86	6 25	17 57.85	+2 50.6	1.438	2.391	11.0	21.0	153 E	48	61
7 15	17 28.77	-29 53.4	1.145	2.087	14.2	20.6	150 E	15 86	6 30	17 51.17	+3 1.0	1.444	2.388	11.7	21.0	152 E	48	61
7 20	17 24.14	-29 55.1	1.156	2.067	16.7	20.7	144 E	15 86	7 5	17 44.76	+3 4.2	1.456	2.384	12.8	21.1	149 E	48	61
7 25	17 20.44	-29 55.2	1.172	2.047	19.1	20.8	139 E	15 86	7 10	17 38.78	+3 0.7	1.474	2.380	14.2	21.1	145 E	48	61
7 30	17 17.78	-29 54.2	1.191	2.027	21.3	20.9	133 E	15 86	7 15	17 33.35	+2 50.7	1.498	2.375	15.6	21.2	141 E	48	61
8 4	17 16.21	-29 52.6	1.214	2.007	23.4	20.9	128 E	15 86	7 20	17 28.59	+2 35.0	1.527	2.370	17.1	21.3	137 E	48	61
8 9	17 15.74	-29 50.8	1.239	1.987	25.2	21.0	123 E	15 86	7 25	17 24.57	+2 14.1	1.560	2.364	18.6	21.4	132 E	47	62
8 14	17 16.36	-29 49.0	1.267	1.967	26.8	21.1	119 E	15 86	7 30	17 21.34	+1 49.0	1.597	2.358	19.9	21.5	128 E	47	62
8 19	17 18.07	-29 47.4	1.296	1.947	28.2	21.2	114 E	15 86	<b>395143 2010 CN<sub>1</sub></b>									
8 24	17 20.83	-29 46.0	1.327	1.927	29.5	21.2	110 E	15 86	5 21	18 41.58	+3 59.7	1.080	1.910	23.3	21.4	132 W	49	60
8 29	17 24.60	-29 44.8	1.359	1.907	30.5	21.3	106 E	15 86	5 26	18 38.20	+5 45.0	1.032	1.891	22.2	21.2	135 W	51	58
9 3	17 29.31	-29 43.5	1.391	1.888	31.4	21.3	103 E	15 86	5 31	18 33.69	+7 30.7	0.989	1.871	21.2	21.1	138 W	53	56
9 8	17 34.90	-29 41.9	1.424	1.868	32.2	21.4	99 E	15 86	6 5	18 28.08	+9 14.7	0.951	1.850	20.4	20.9	141 W	54	55
9 13	17 41.34	-29 39.8	1.457	1.848	32.8	21.4	96 E	15 86*	6 10	18 21.40	+10 55.0	0.917	1.829	19.9	20.8	142 W	56	53
9 18	17 48.57	-29 36.8	1.490	1.829	33.3	21.5	92 E	15 85*	6 15	18 13.76	+12 29.1	0.889	1.806	19.8	20.7	143 W	57	52
<b>332446 2008 AF<sub>4</sub></b>									6 20	18 5.31	+13 54.1	0.866	1.783	20.3	20.7	143 W	59	50
5 21	18 30.13	-13 7.5	0.836	1.746	21.1	21.6	142 W	32 77	6 25	17 56.28	+15 7.6	0.848	1.760	21.2	20.6	141 E	60	49
5 26	18 26.10	-13 9.9	0.787	1.727	18.6	21.3	147 W	32 77	6 30	17 46.96	+16 7.6	0.835	1.735	22.7	20.6	139 E	61	48
5 31	18 20.62	-13 16.9	0.742	1.708	15.7	21.1	153 W	32 77	7 5	17 37.65	+16 52.7	0.827	1.710	24.5	20.6	136 E	62	47
6 5	18 13.66	-13 29.0	0.701	1.688	12.6	20.8	159 W	32 77	7 10	17 28.65	+17 22.3	0.823	1.684	26.5	20.6	132 E	62	47
6 10	18 5.26	-13 46.4	0.665	1.666	9.3	20.5	165 W	31 78	7 15	17 20.25	+17 36.6	0.822	1.657	28.8	20.6	128 E	63	46
6 15	17 55.52	-14 9.4	0.635	1.644	6.4	20.3	170 W	31 78	7 20	17 12.70	+17 36.3	0.825	1.630	31.0	20.7	124 E	63	46
6 20	17 44.66	-14 37.6	0.610	1.622	5.7	20.1	171 E	30 79	7 25	17 6.20	+17 22.5	0.830	1.602	33.3	20.7	120 E	62	47
6 25	17 33.02	-15 10.7	0.591	1.598	8.2	20.2	167 E	30 79	7 30	17 0.89	+16 57.1	0.836	1.573	35.5	20.8	116 E	62	47
6 30	17 21.05	-15 48.0	0.577	1.573	12.3	20.2	161 E	29 80	8 4	16 56.84	+16 22.0	0.844	1.543	37.6	20.8	112 E	61	48
7 5	17 9.20	-16 28.7	0.569	1.548	16.8	20.3	154 E	29 80	8 9	16 54.07	+15 38.6	0.852	1.513	39.6	20.8	108 E	61	48
7 10	16 57.92	-17 12.0	0.566	1.522	21.5	20.4	147 E	28 81	8 14	16 52.58	+14 48.4	0.860	1.482	41.5	20.8	104 E	60	49
7 15	16 47.63	-17 57.6	0.567	1.495	26.0	20.5	140 E	27 82	8 19	16 52.35	+13 52.9	0.868	1.451	43.3	20.9	101 E	58	50
7 20	16 38.65	-18 45.0	0.571	1.468	30.3	20.6	133 E	26 83	8 24	16 53.34	+12 53.0	0.874	1.419	45.0	20.9	97 E	57	51
7 25	16 31.21	-19 34.1	0.579	1.439	34.4	20.7	127 E	25 84	8 29	16 55.50	+11 49.9	0.880	1.386	46.6	20.9	94 E	55	52
7 30	16 25.44	-20 24.8	0.588	1.410	38.2	20.8	121 E	25 84	9 3	16 58.77	+10 44.2	0.883	1.353	48.2	20.9	91 E	54	53*
8 4	16 21.36	-21 17.3	0.598	1.381	41.6	20.9	115 E	23* 85	9 8	17 3.10	+9 36.5	0.885	1.319	49.7	20.9	88 E	52	54*
8 9	16 18.92	-22 11.3	0.609	1.350	44.8	21.0	110 E	22* 86	9 13	17 8.43	+8 27.1	0.884	1.286	51.3	20.9	85 E	51	54*
8 14	16 18.07	-23 7.0	0.619	1.319	47.8	21.1	105 E	21* 87	9 18	17 14.76	+7 16.2	0.881	1.252	52.8	20.9	83 E	49	55*
8 19	16 18.74	-24 4.3	0.629	1.288	50.5	21.1	101 E	19* 88	9 23	17 22.05	+6 3.9	0.876	1.217	54.4	20.8	80 E	48	54*
8 24	16 20.84	-25 3.0	0.637	1.256	53.1	21.2	97 E	18* 89	9 28	17 30.26	+4 50.3	0.867	1.183	56.0	20.8	78 E	47	54*
8 29	16 24.27	-26 3.2	0.644	1.223	55.6	21.2	93 E	17* 87*	10 3	17 39.39	+3 35.3	0.856	1.149	57.7	20.7	76 E	45	53*
9 3	16 28.94	-27 4.6	0.648	1.190	57.9	21.2	89 E	15* 83*	10 8	17 49.41	+2 18.4	0.842	1.115	59.5	20.7	74 E	44	52*
9 8	16 34.74	-28 6.8	0.651	1.158	60.2	21.2	86 E	14* 79*	10 13	18 0.34	+0 59.3	0.825	1.082	61.4	20.6	72 E	43	51*
9 13	16 41.63	-29 9.8	0.650	1.125	62.5	21.2	83 E	13* 76*	10 18	18 12.20	-0 22.7	0.805	1.049	63.4	20.6	70 E	42	50*
9 18	16 49.54	-30 13.2	0.647	1.092	64.8	21.2	80 E	12* 73*	10 23	18 25.00	-1 48.3	0.782	1.017	65.6	20.5	69 E	40	49*
9 23	16 58.42	-31 16.9	0.640	1.059	67.2	21.2	77 E	11* 70*	10 28	18 38.76	-3 18.4	0.757	0.987	68.0	20.5	67 E	39	48*
9 28	17 8.19	-32 20.5	0.631	1.027	69.7	21.2	74 E	10* 67*	11 2	18 53.51	-4 54.3	0.730	0.959	70.5	20.4	66 E	38	48*
10 3	17 18.78	-33 23.7	0.617	0.996	72.4	21.2	72 E	9* 65*	11 7	19 9.28	-6 37.6	0.701	0.932	73.2	20.3	64 E	36	47*
10 8	17 30.10	-34 26.2	0.601	0.966	75.2	21.1	69 E	8* 62*	11 12	19 26.14	-8 29.9	0.670	0.908	76.0	20.3	63 E	35	47*
10 13	17 42.07	-35 27.7	0.581	0.938	78.2	21.1	67 E	7* 60*	11 17	19 44.18	-10 33.0	0.638	0.888	79.0	20.2	62 E	33	46*
10 18	17 54.62	-36 28.1	0.558	0.912	81.6	21.1	65 E	6* 58*	11 22	20 3.47	-12 48.8	0.606	0.870	81.9	20.2	61 E	31	46*
10 23	18 7.59	-37 27.2	0.532	0														

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

20/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	20/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°
<b>395143 2010 CN<sub>1</sub></b> (continuation)										<b>509280 2006 VQ<sub>4</sub></b>									
12 19	22 15.40	-29 2.4	0.457	0.848	92.9	19.9	59 E	16*	52*	5 21	19 9.16	-29 43.0	1.765	2.579	16.2	21.5	135 W	15	86
12 21	22 27.56	-30 23.7	0.450	0.852	93.0	19.9	60 E	14*	53*	5 31	19 5.41	-30 33.0	1.653	2.550	13.3	21.2	145 W	14	85
12 23	22 40.12	-31 44.0	0.443	0.856	92.9	19.9	60 E	13*	54*	6 10	18 58.45	-31 25.7	1.561	2.520	9.7	20.9	155 W	14	85
12 25	22 53.07	-33 2.6	0.437	0.861	92.6	19.9	61 E	12*	55*	6 20	18 48.61	-32 16.0	1.493	2.489	6.0	20.6	165 W	13	84
12 27	23 6.41	-34 18.8	0.432	0.867	92.2	19.8	62 E	11*	56*	6 30	18 36.75	-32 57.6	1.449	2.457	4.0	20.4	170 W	12	83
12 29	23 20.15	-35 31.7	0.428	0.873	91.7	19.8	63 E	9*	57*	7 5	18 30.49	-33 13.5	1.438	2.441	5.0	20.4	168 E	12	83
12 31	23 34.25	-36 40.7	0.424	0.880	91.0	19.8	63 E	8*	57*	7 10	18 24.25	-33 25.6	1.433	2.425	6.7	20.5	164 E	12	83
1	23 48.71	-37 45.1	0.421	0.887	90.2	19.7	64 E	7*	58*	7 15	18 18.24	-33 33.7	1.434	2.409	8.8	20.6	159 E	11	82
1	4 0 3.49	-38 44.0	0.418	0.895	89.3	19.7	66 E	6	59*	7 20	18 12.65	-33 38.0	1.441	2.393	11.0	20.7	153 E	11	82
1	6 0 18.56	-39 36.8	0.417	0.904	88.2	19.7	67 E	5	60*	7 25	18 7.65	-33 38.7	1.454	2.376	13.1	20.8	148 E	11	82
1	8 0 33.86	-40 23.1	0.416	0.912	87.1	19.7	68 E	5	62*	7 30	18 3.39	-33 36.3	1.472	2.360	15.2	20.8	142 E	11	82
1	10 0 49.34	-41 2.2	0.415	0.922	85.9	19.6	69 E	4	63*	8 4	17 59.98	-33 31.3	1.495	2.343	17.1	20.9	137 E	11	82
1	12 1 4.94	-41 33.9	0.415	0.932	84.6	19.6	71 E	3	64*	8 9	17 57.47	-33 24.2	1.522	2.326	18.9	21.0	132 E	12	83
1	14 1 20.59	-41 58.0	0.416	0.942	83.2	19.6	72 E	3	65*	8 14	17 55.91	-33 15.6	1.553	2.310	20.5	21.1	127 E	12	83
1	16 1 36.21	-42 14.3	0.417	0.953	81.8	19.6	73 E	3	66*	8 19	17 55.32	-33 5.9	1.586	2.293	21.9	21.2	122 E	12	83
<b>488658 2003 SZ<sub>290</sub></b>										<b>11054 1991 FA</b>									
5 21	18 51.24	6 36.6	1.284	2.120	19.9	21.3	134 W	38	71	5 21	19 13.46	-26 26.0	1.940	2.737	15.5	21.5	134 W	19	90
5 26	18 50.52	5 50.8	1.232	2.102	18.5	21.1	139 W	39	70	5 31	19 7.46	-26 45.8	1.826	2.716	12.5	21.2	144 W	18	89
5 31	18 49.00	5 6.5	1.184	2.085	17.1	21.0	143 W	40	69	6 10	18 58.36	-27 6.8	1.734	2.693	8.8	20.9	156 W	18	89
6 5	18 46.71	4 24.5	1.141	2.067	15.5	20.8	147 W	41	68	6 20	18 46.62	-27 25.2	1.667	2.669	4.7	20.6	168 W	18	89
6 10	18 43.67	3 45.6	1.103	2.050	13.9	20.7	151 W	41	68	6 30	18 33.17	-27 37.0	1.628	2.642	1.7	20.4	175 E	17	88
6 15	18 39.95	3 10.8	1.069	2.033	12.5	20.5	154 W	42	67	7 5	18 26.22	-27 39.5	1.619	2.629	3.3	20.5	171 E	17	88
6 20	18 35.64	2 41.1	1.040	2.015	11.3	20.4	157 W	42	67	7 10	18 19.35	-27 39.6	1.617	2.614	5.5	20.6	166 E	17	88
6 25	18 30.89	2 17.2	1.017	1.998	10.7	20.3	159 W	43	66	7 15	18 12.74	-27 37.4	1.622	2.600	7.8	20.7	160 E	17	88
6 30	18 25.87	2 0.1	0.999	1.981	10.8	20.3	159 E	43	66	7 20	18 6.57	-27 33.0	1.634	2.585	10.0	20.8	154 E	17	88
7 10	18 15.76	1 47.6	0.979	1.947	12.9	20.3	155 E	43	66	7 25	18 0.98	-27 26.7	1.653	2.569	12.2	20.9	148 E	18	89
7 20	18 6.84	2 4.7	0.979	1.914	16.8	20.4	147 E	43	66	7 30	17 56.10	-27 19.1	1.676	2.554	14.2	21.0	142 E	18	89
7 30	18 0.52	2 48.6	0.997	1.881	21.0	20.5	138 E	42	67	8 4	17 52.00	-27 10.5	1.705	2.537	16.2	21.0	136 E	18	89
8 4	17 58.65	3 18.6	1.011	1.865	23.0	20.6	134 E	42	67	8 9	17 48.75	-27 1.4	1.738	2.520	17.7	21.1	131 E	18	89
8 9	17 57.74	3 52.9	1.029	1.850	24.9	20.6	130 E	41	68	8 14	17 46.36	-26 52.0	1.775	2.503	19.2	21.2	125 E	18	89
8 14	17 57.81	4 30.4	1.049	1.834	26.7	20.7	126 E	40	69	8 19	17 44.86	-26 42.8	1.816	2.486	20.6	21.3	120 E	18	89
8 19	17 58.90	5 10.4	1.072	1.819	28.3	20.8	122 E	40	69	8 24	17 44.23	-26 33.8	1.859	2.468	21.7	21.4	115 E	18	89
8 24	18 0.99	5 51.9	1.096	1.805	29.7	20.9	118 E	39	70	8 29	17 44.45	-26 25.3	1.903	2.449	22.7	21.4	111 E	19	90
8 29	18 4.07	6 34.2	1.123	1.790	31.0	20.9	114 E	38	71	9 3	17 45.49	-26 17.3	1.950	2.430	23.5	21.5	106 E	19*	90
9 3	18 8.09	7 16.4	1.150	1.776	32.1	21.0	111 E	38	71	<b>475981 2007 PR<sub>18</sub></b>									
9 8	18 13.01	7 57.9	1.179	1.763	33.1	21.1	107 E	37	72	5 21	19 21.48	-10 59.7	1.593	2.364	19.5	21.3	129 W	34	75
9 13	18 18.79	8 38.2	1.209	1.750	33.9	21.1	104 E	36	73	5 31	19 21.32	-10 33.6	1.465	2.320	17.0	21.0	138 W	34	75
9 18	18 25.37	9 16.6	1.240	1.737	34.6	21.2	101 E	36	73	6 10	19 18.33	-10 19.1	1.353	2.276	13.8	20.6	148 W	35	74
9 23	18 32.73	9 52.7	1.271	1.725	35.2	21.3	98 E	35*	74*	6 20	19 12.54	-10 19.2	1.260	2.232	10.1	20.3	157 W	35	74
9 28	18 40.80	10 26.1	1.303	1.713	35.6	21.3	95 E	35*	74*	6 30	19 4.39	-10 36.4	1.189	2.188	6.5	20.0	166 W	34	75
10 3	18 49.53	10 56.2	1.335	1.702	36.0	21.4	92 E	34*	74*	7 10	18 54.80	-11 11.4	1.141	2.145	5.8	19.8	168 E	34	75
10 8	18 58.87	11 22.7	1.368	1.692	36.2	21.4	90 E	34*	73*	7 20	18 45.01	-12 2.5	1.116	2.102	9.3	19.9	160 E	33	76
10 13	19 8.78	11 45.4	1.401	1.682	36.3	21.4	87 E	33*	72*	7 25	18 40.50	-12 33.1	1.113	2.081	11.7	19.9	156 E	32	77
10 18	19 19.20	12 4.0	1.434	1.673	36.4	21.5	85 E	33*	70*	7 30	18 36.50	-13 6.3	1.115	2.059	14.1	20.0	150 E	32	77
<b>433986 1999 XB<sub>236</sub></b>										8 4	18 33.14	-13 41.4	1.121	2.038	16.5	20.1	145 E	31	78
5 21	19 5.39	-31 58.7	1.124	1.976	21.1	21.3	135 W	13	84	8 9	18 30.56	-14 17.8	1.133	2.018	18.8	20.2	140 E	31	78
5 26	19 4.18	-32 56.9	1.078	1.966	19.3	21.1	140 W	12	83	8 14	18 28.84	-14 54.9	1.148	1.997	21.0	20.2	135 E	30	79
5 31	19 1.78	-33 58.5	1.037	1.956	17.3	20.9	145 W	11	82	8 19	18 28.05	-15 32.2	1.166	1.977	23.0	20.3	130 E	29	80
6 5	18 58.16	-35 2.3	1.000	1.946	15.1	20.8	150 W	10	81	8 29	18 29.45	-16 45.2	1.213	1.937	26.5	20.5	121 E	28	81
6 10	18 53.32	-36 7.1	0.968	1.936	12.9	20.6	155 W	9	80	9 8	18 34.80	-17 53.1	1.268	1.899	29.3	20.6	113 E	27	82
6 15	18 47.31	-37 11.0	0.942	1.925	10.9	20.5	159 W	8	79	9 18	18 43.89	-18 52.8	1.328	1.863	31.4	20.7	105 E	26	83
6 20	18 40.24	-38 12.1	0.921	1.914	9.3	20.3	162 W	7	78	9 28	18 56.43	-19 41.4	1.392	1.828	32.9	20.8	98 E	25	84
6 25	18 32.32	-39 8.0	0.905	1.903	8.5	20.3	164 W	6	77	10 8	19 12.00	-20 16.7	1.458	1.796	33.8	20.9	92 E	25	82*
6 30	18 23.86	-39 57.1	0.896	1.892	9.0	20.3	163 E	5	76	10 18	19 30.21	-20 36.3	1.524	1.766	34.3	21.0	86 E	24	78*
7 5	18 15.19	-40 37.8	0.892	1.880	10.6	20.3	160 E	4	75	10 28	19 50.66	-20 38.3	1.591	1.739	34.4	21.0	81 E	24*	72*
7 10	18 6.68	-41 9.4	0.893	1.868	12.8	20.4	156 E	4	75	11 7	20 12.93	-20 21.5	1.656	1.715	34.1	21.1	76 E	25*	67*
7 15	17 58.71	-41 31.7	0.900	1.856	15.4	20.5	151 E	3	74	11 17	20 36.66	-19 44.8	1.721	1.694	33.6	21.1	72 E	25*	62*
7 20	17 51.60	-41 45.3	0.912	1.844	17.9	20.6	146 E	3	74	11 27	21 1.50	-18 48.1	1.786	1.677	32.9	21.2	67 E	26*	56*
7 25	17 45.64	-41 51.2	0.928	1.832	20.5	20.7	141 E	3	74	12 7	21 27.09	-17 31.9	1.850	1.664	32.0	21.2	64 E	27*	51*
7 30	17 41.03	-41 50.7	0.947	1.819	22.8	20.8	136 E	3	74	12 17	21 53.19	-15 57.3	1.914	1.654	30.9	21.2	60 E	28*	46*
8 4	17 37.87	-41 45.3	0.970	1.807	25.0	20.9	131 E	3	74	12 27	22 19.55	-14 6.0	1.978	1.649	29.7	21.3	56 E	29*	41*
8 9	17 36.20	-41 36.0	0.996	1.794	27.0	21.0	126 E	3	74	1	6 22 45.99	-12 0.5	2.043	1.648	28.4	21.3	53 E	30*	37*
8 14	17 36.00	-41 24.0	1.024																

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

2020	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	2020	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°
<b>495829</b> 1995 LG										<b>498062</b> 2007 RU <sub>104</sub>									
<i>(continuation)</i>										<i>(continuation)</i>									
6 22	17 20.98	-42 21.0	0.869	1.855	11.3	20.4	159 E	3	74	7 20	18 50.95	-32 57.5	0.991	1.978	9.8	20.2	161 E	12	83
6 24	17 12.31	-41 39.3	0.867	1.849	11.9	20.4	158 E	3	74	7 25	18 45.33	-32 47.8	0.994	1.964	12.4	20.3	155 E	12	83
6 26	17 3.88	-40 54.1	0.867	1.844	12.8	20.5	156 E	4	75	7 30	18 40.43	-32 33.5	1.002	1.949	15.0	20.4	150 E	12	83
6 28	16 55.76	-40 5.6	0.868	1.838	13.9	20.5	154 E	5	76	8 4	18 36.43	-32 15.3	1.015	1.935	17.5	20.5	145 E	13	84
6 30	16 47.99	-39 14.5	0.871	1.832	15.1	20.6	152 E	6	77	8 9	18 33.46	-31 53.8	1.032	1.921	19.9	20.6	140 E	13	84
7 5	16 30.29	-36 58.0	0.884	1.815	18.5	20.7	145 E	8	79	8 14	18 31.58	-31 29.8	1.053	1.907	22.1	20.7	135 E	14	85
7 10	16 15.26	-34 35.3	0.905	1.796	22.1	20.8	138 E	10	81	8 19	18 30.86	-31 4.0	1.077	1.893	24.2	20.8	130 E	14	85
7 15	16 2.93	-32 13.2	0.932	1.776	25.4	21.0	131 E	13	84	8 24	18 31.30	-30 36.9	1.104	1.880	26.0	20.9	125 E	14	85
7 20	15 53.16	-29 57.1	0.966	1.754	28.5	21.1	124 E	15	86	8 29	18 32.87	-30 9.0	1.133	1.867	27.6	21.0	121 E	15	86
7 25	15 45.70	-27 50.2	1.004	1.730	31.3	21.2	118 E	17	88	9 3	18 35.52	-29 40.3	1.164	1.853	29.0	21.0	117 E	15	86
7 30	15 40.29	-25 54.4	1.045	1.705	33.6	21.4	112 E	18	90	9 8	18 39.18	-29 11.1	1.197	1.841	30.3	21.1	113 E	16	87
8 4	15 36.64	-24 10.2	1.088	1.677	35.6	21.5	106 E	19	88	9 13	18 43.78	-28 41.2	1.231	1.828	31.3	21.2	109 E	16	87
<b>478784</b> 2012 UV <sub>136</sub>										<b>383165</b> 2005 VJ <sub>5</sub>									
5 21	19 23.39	+34 46.3	0.024	1.019	73.1	20.0	106 W	80	29	5 21	19 48.63	-16 55.5	1.264	2.014	24.6	21.4	124 W	28	81
5 22	19 5.03	+32 59.2	0.025	1.021	68.6	20.0	110 W	78	31	5 31	19 45.83	-16 54.6	1.207	2.047	20.8	21.2	134 W	28	81
5 23	18 48.71	+31 11.2	0.026	1.024	64.4	19.9	114 W	76	33	6 10	19 39.19	-17 6.5	1.163	2.080	16.1	21.0	145 W	28	81
5 24	18 34.23	+29 24.6	0.028	1.026	60.5	19.9	118 W	74	35	6 20	19 29.20	-17 29.6	1.138	2.112	10.8	20.8	157 W	28	81
5 25	18 21.40	+27 41.3	0.029	1.028	57.0	19.9	122 W	73	36	6 30	19 16.92	-18 0.6	1.135	2.143	5.1	20.6	169 W	27	82
5 26	18 9.99	+26 2.1	0.030	1.031	53.8	19.9	125 W	71	38	7 10	19 3.94	-18 35.2	1.158	2.172	2.3	20.5	175 E	26	83
5 27	17 59.85	+24 27.8	0.032	1.033	50.9	20.0	128 W	69	40	7 15	18 57.70	-18 52.6	1.178	2.187	4.5	20.7	170 E	26	83
5 28	17 50.79	+22 58.6	0.033	1.035	48.2	20.0	130 W	68	41	7 20	18 51.90	-19 9.5	1.205	2.201	7.1	20.8	164 E	26	83
5 29	17 42.68	+21 34.4	0.035	1.038	45.8	20.0	133 W	67	42	7 25	18 46.70	-19 25.7	1.238	2.215	9.7	21.0	158 E	26	83
5 30	17 35.40	+20 15.1	0.036	1.040	43.7	20.1	135 W	65	44	7 30	18 42.23	-19 41.0	1.277	2.228	12.0	21.2	153 E	25	84
5 31	17 28.84	+19 0.6	0.038	1.042	41.8	20.1	137 W	64	45	8 4	18 38.58	-19 55.4	1.321	2.242	14.2	21.4	147 E	25	84
6 2	17 17.55	+16 44.4	0.042	1.046	38.5	20.2	140 W	62	47	<b>18620</b> 1998 DS <sub>10</sub>									
6 4	17 8.22	+14 43.4	0.045	1.051	35.9	20.4	143 W	60	49	5 21	20 3.22	-20 17.8	2.358	3.012	16.7	21.3	121 W	25	84
6 6	17 0.44	+12 55.2	0.049	1.055	34.0	20.5	144 W	58	51	5 31	20 1.34	-20 29.6	2.235	3.005	14.6	21.2	131 W	25	84
6 8	16 53.88	+11 17.8	0.053	1.059	32.6	20.6	146 E	56	53	6 10	19 56.93	-20 49.1	2.129	2.996	12.0	20.9	142 W	24	85
6 10	16 48.33	+ 9 49.4	0.057	1.064	31.7	20.8	147 E	55	54	6 20	19 50.08	-21 15.1	2.043	2.986	8.8	20.7	153 W	24	85
6 12	16 43.61	+ 8 28.2	0.062	1.068	31.2	20.9	147 E	53	56	6 30	19 41.16	-21 45.5	1.981	2.975	5.1	20.5	165 W	23	86
6 14	16 39.59	+ 7 13.3	0.066	1.072	31.0	21.1	147 E	52	57	7 5	19 36.13	-22 1.3	1.961	2.969	3.1	20.3	171 W	23	86
6 16	16 36.20	+ 6 3.4	0.070	1.076	31.0	21.2	147 E	51	58	7 10	19 30.85	-22 17.0	1.947	2.963	1.0	20.2	177 W	23	86
6 18	16 33.36	+ 4 58.0	0.075	1.079	31.3	21.4	146 E	50	59	7 15	19 25.45	-22 32.2	1.941	2.957	1.1	20.2	177 E	22	87
6 20	16 31.01	+ 3 56.2	0.080	1.083	31.8	21.5	146 E	49	60	7 20	19 20.06	-22 46.5	1.942	2.950	3.1	20.3	171 E	22	87
6 25	16 27.03	+ 1 35.0	0.092	1.092	33.5	21.9	144 E	47	62	7 25	19 14.81	-22 59.8	1.950	2.943	5.2	20.4	165 E	22	87
6 30	16 25.37	+ 0 31.3	0.105	1.101	35.6	22.3	141 E	44	65	7 30	19 9.84	-23 11.7	1.966	2.936	7.1	20.5	159 E	22	87
7 5	16 25.58	+ 2 25.6	0.119	1.108	37.9	22.6	138 E	43	66	8 4	19 5.25	-23 22.3	1.987	2.928	9.0	20.6	153 E	22	87
7 10	16 27.30	+ 4 10.2	0.134	1.115	40.1	23.0	135 E	41	68	8 9	19 1.15	-23 31.4	2.015	2.921	10.8	20.7	147 E	21	88
<b>366351</b> 1999 TO <sub>11</sub>										8 14	18 57.61	-23 39.0	2.049	2.913	12.4	20.8	142 E	21	88
5 21	19 28.35	-28 45.5	1.367	2.165	20.9	21.4	130 W	16	87	8 19	18 54.69	-23 45.4	2.088	2.905	13.9	20.9	136 E	21	88
5 31	19 29.25	-29 25.0	1.249	2.126	18.0	21.1	140 W	16	87	8 24	18 52.44	-23 50.5	2.131	2.896	15.3	21.0	131 E	21	88
6 10	19 26.53	-30 11.9	1.147	2.087	14.3	20.7	150 W	15	86	8 29	18 50.89	-23 54.4	2.178	2.887	16.5	21.1	126 E	21	88
6 20	19 20.06	-31 2.2	1.064	2.047	9.9	20.3	160 W	14	85	9 3	18 50.03	-23 57.2	2.229	2.878	17.5	21.2	121 E	21	88
6 25	19 15.52	-31 26.6	1.030	2.028	7.7	20.1	165 W	14	85	9 8	18 49.86	-23 59.1	2.283	2.869	18.4	21.2	116 E	21	88
6 30	19 10.26	-31 49.1	1.002	2.008	5.8	20.0	169 W	13	84	9 13	18 50.37	-24 0.0	2.339	2.860	19.2	21.3	111 E	21	88
7 5	19 4.47	-32 8.7	0.979	1.989	4.8	19.9	171 W	13	84	9 18	18 51.53	-23 59.9	2.397	2.850	19.8	21.4	106 E	21	88
7 10	18 58.35	-32 24.4	0.962	1.970	5.7	19.8	169 E	13	84	9 23	18 53.32	-23 58.9	2.456	2.840	20.2	21.4	102 E	21	88
7 15	18 52.14	-32 35.6	0.951	1.950	7.8	19.9	165 E	12	83	9 28	18 55.71	-23 56.9	2.516	2.830	20.5	21.5	98 E	21	88
7 20	18 46.12	-32 41.8	0.945	1.931	10.4	20.0	160 E	12	83	<b>380128</b> 1997 WB <sub>21</sub>									
7 25	18 40.56	-32 42.9	0.944	1.912	13.2	20.1	155 E	12	83	5 21	20 5.49	-23 13.0	0.583	1.407	37.8	21.2	121 W	22	87
7 30	18 35.71	-32 39.2	0.948	1.893	15.9	20.1	149 E	12	83	5 26	20 16.17	-22 27.0	0.535	1.384	37.5	21.0	124 W	22	87
8 4	18 31.78	-32 31.2	0.957	1.875	18.6	20.2	144 E	12	83	5 31	20 26.92	-21 34.3	0.490	1.360	37.2	20.7	126 W	23	87
8 9	18 28.90	-32 19.6	0.970	1.856	21.1	20.3	139 E	13	84	6 5	20 37.83	-20 33.8	0.447	1.337	36.8	20.5	128 W	24	86
8 14	18 27.16	-32 4.9	0.986	1.838	23.4	20.4	134 E	13	84	6 10	20 49.00	-19 23.7	0.405	1.313	36.4	20.2	130 W	26	83
8 19	18 26.63	-31 47.8	1.005	1.821	25.6	20.5	129 E	13	84	6 15	21 0.50	-18 2.3	0.366	1.289	36.0	19.9	132 W	27	82
8 29	18 29.25	-31 8.1	1.051	1.786	29.3	20.6	120 E	14	85	6 20	21 12.49	-16 26.8	0.330	1.265	35.8	19.7	133 W	29	80
9 8	18 36.49	-30 22.8	1.103	1.753	32.2	20.8	112 E	15	86	6 25	21 25.16	-14 33.9	0.295	1.242	35.7	19.4	135 W	30	79
9 18	18 47.84	-29 31.8	1.160	1.721	34.3	20.9	105 E	15	86	6 30	21 38.79	-12 19.1	0.263	1.218	35.8	19.1	135 W	33	76
9 28	19 2.75	-28 33.6	1.220	1.692	35.8	21.0	99 E	16	87	7 5	21 53.76	- 9 36.6	0.234	1.196	36.4	18.8	136 W	35	74
10 8	19 20.59	-27 26.2	1.281	1.665	36.8	21.1	93 E	18	87*	7 10	22 10.52	- 6 19.1	0.207	1.173	37.5	18.5	135 W	39	70
10 18	19 40.80	-26 7.1	1.343	1.641	37.4	21.2	88 E	19	88*	7 15	22 29.65	- 2 18.5	0.183	1.151	39.4	18.3	134 W	43	66
10 28	20 2.88	-24 34.5	1.405	1.619	37.5	21.3	83 E	20	76*	7 20	22 51.86	+ 2 33.3	0.162	1.131	42.3	18.1	132 W	48	61
11 7	20 26.36																		

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

20/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	$45^\circ$ - $26^\circ$	20/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	$45^\circ$ - $26^\circ$
<b>380128 1997 WB<sub>21</sub></b> (continuation)									<b>501956 2014 YC<sub>10</sub></b> (continuation)								
8 19	2 46.44	+39 3.6	0.128	1.030	78.3	18.4	95 W	83*	7 25	19 36.38	-11 10.7	1.190	2.191	6.0	19.8	167 E	34 75
8 21	3 5.94	+40 15.8	0.132	1.026	80.2	18.6	92 W	83*	7 30	19 29.46	-10 28.5	1.188	2.175	8.4	19.8	162 E	35 74
8 23	3 24.95	+41 12.4	0.135	1.021	81.9	18.7	90 W	82*	8 4	19 22.94	-9 48.6	1.192	2.158	11.0	19.9	156 E	35 74
8 25	3 43.30	+41 54.5	0.139	1.017	83.4	18.8	89 W	81*	8 9	19 17.00	-9 11.4	1.202	2.142	13.6	20.0	150 E	36 73
8 27	4 0.86	+42 23.8	0.143	1.014	84.6	18.9	87 W	80*	8 19	19 7.40	-8 6.0	1.238	2.108	18.4	20.2	139 E	37 72
8 29	4 17.55	+42 42.0	0.148	1.010	85.6	19.0	86 W	79*	8 29	19 1.50	-7 12.5	1.292	2.075	22.5	20.4	128 E	38 71
8 31	4 33.32	+42 50.6	0.153	1.008	86.4	19.1	85 W	78*	9 8	18 59.53	-6 29.1	1.357	2.041	25.7	20.6	119 E	39 70
9 2	4 48.16	+42 51.4	0.158	1.005	87.0	19.2	84 W	77*	9 18	19 1.35	-5 52.7	1.431	2.008	28.1	20.7	110 E	39 70
9 4	5 2.09	+42 45.6	0.163	1.003	87.4	19.2	83 W	77*	9 28	19 6.68	-5 19.8	1.509	1.974	29.8	20.9	102 E	40 69
9 6	5 15.13	+42 34.5	0.168	1.001	87.6	19.3	83 W	76*	10 8	19 15.08	-4 46.8	1.587	1.941	30.9	21.0	95 E	40 68*
9 8	5 27.34	+42 19.1	0.174	0.999	87.7	19.4	82 W	76*	10 18	19 26.17	-4 10.7	1.664	1.908	31.5	21.1	88 E	41* 65*
9 10	5 38.76	+42 0.3	0.179	0.998	87.7	19.4	82 W	75*	10 28	19 39.62	-3 28.6	1.739	1.876	31.6	21.1	82 E	41* 60*
9 12	5 49.45	+41 38.7	0.185	0.997	87.5	19.5	82 W	75*	11 7	19 55.08	-2 38.6	1.809	1.845	31.5	21.2	76 E	42* 54*
9 14	5 59.45	+41 15.1	0.190	0.997	87.2	19.6	82 W	75*	11 17	20 12.31	-1 38.9	1.874	1.815	31.0	21.2	71 E	43* 47*
9 16	6 8.82	+40 49.8	0.196	0.997	86.8	19.6	82 W	75*	11 27	20 31.10	-0 28.2	1.934	1.785	30.4	21.2	66 E	43* 41*
9 18	6 17.61	+40 23.2	0.201	0.997	86.4	19.6	82 W	75*	12 7	20 51.23	+0 54.1	1.989	1.758	29.7	21.2	62 E	44* 35*
9 23	6 37.31	+39 13.2	0.214	1.000	84.8	19.7	83 W	76*	12 17	21 12.59	+2 28.2	2.039	1.731	28.8	21.2	58 E	44* 29*
9 28	6 54.26	+38 0.8	0.227	1.005	82.8	19.8	84 W	77*	12 27	21 35.05	+4 14.0	2.084	1.707	27.9	21.2	54 E	43* 23*
10 3	7 8.94	+36 48.3	0.238	1.012	80.5	19.8	86 W	77*	1 6	21 58.52	+6 10.5	2.126	1.685	26.8	21.2	51 E	42* 18*
10 8	7 21.66	+35 37.1	0.249	1.021	77.9	19.8	88 W	78*	1 16	22 22.95	+8 16.3	2.165	1.665	25.8	21.2	47 E	40* 14*
10 13	7 32.57	+34 28.2	0.258	1.033	75.1	19.9	90 W	79*	<b>450154 2000 AM<sub>49</sub></b>								
10 18	7 41.73	+33 22.5	0.266	1.046	72.0	19.8	93 W	78*	5 21	20 27.80	-22 2.2	1.383	2.043	26.4	21.4	116 W	22* 86
10 28	7 54.87	+31 22.2	0.279	1.077	65.3	19.8	100 W	76 32*	5 31	20 31.15	-20 24.0	1.247	2.005	24.6	21.1	125 W	25* 84
11 7	8 0.97	+29 39.3	0.286	1.114	57.7	19.7	108 W	75 34*	6 10	20 30.88	-18 37.1	1.122	1.967	21.8	20.8	134 W	26 83
11 17	7 59.17	+28 15.2	0.291	1.155	48.9	19.6	118 W	73 36	6 20	20 26.48	-16 40.2	1.011	1.928	18.1	20.4	144 W	28 81
11 27	7 48.89	+27 6.9	0.295	1.200	38.7	19.4	130 W	72 37	6 30	20 17.65	-14 32.2	0.918	1.888	13.3	20.0	155 W	30 79
12 2	7 40.73	+26 36.4	0.299	1.223	33.2	19.3	137 W	72 37	7 10	20 4.71	-12 14.0	0.846	1.847	8.2	19.5	165 W	33 76
12 7	7 30.87	+26 6.8	0.305	1.246	27.4	19.2	144 W	71 38	7 15	19 57.00	-11 2.4	0.819	1.827	6.3	19.4	169 W	34 75
12 12	7 19.68	+25 36.9	0.313	1.269	21.3	19.1	152 W	71 38	7 20	19 48.74	-9 50.2	0.798	1.806	6.2	19.3	169 E	35 74
12 17	7 7.73	+25 6.0	0.324	1.293	15.3	19.1	160 W	70 39	7 25	19 40.23	-8 38.8	0.783	1.785	8.1	19.3	166 E	36 73
12 22	6 55.72	+24 33.9	0.339	1.317	9.3	19.0	168 W	70 39	7 30	19 31.80	-7 29.6	0.774	1.764	11.0	19.4	161 E	38 71
12 27	6 44.29	+24 1.2	0.358	1.341	3.5	18.8	175 W	69 40	8 4	19 23.75	-6 23.7	0.771	1.743	14.4	19.5	155 E	39 70
1 1	6 33.97	+23 29.0	0.381	1.364	2.0	18.9	177 E	68 41	8 9	19 16.37	-5 22.3	0.773	1.722	17.8	19.5	149 E	40 69
1 6	6 25.14	+22 58.5	0.409	1.388	6.9	19.4	170 E	68 41	8 19	19 4.53	-3 35.9	0.791	1.680	24.2	19.7	137 E	41 68
1 11	6 17.99	+22 30.5	0.440	1.411	11.4	19.8	163 E	68 41	8 29	18 57.57	-2 12.1	0.822	1.639	29.6	19.9	127 E	43 66
1 16	6 12.64	+22 5.9	0.476	1.434	15.5	20.1	157 E	67 42	9 8	18 55.87	-1 7.4	0.862	1.598	34.1	20.1	117 E	44 65
5 21	20 15.46	-15 55.0	1.710	2.356	22.4	21.4	118 W	29*	9 13	18 56.91	-0 40.5	0.883	1.578	35.9	20.2	113 E	44 65
5 31	20 18.42	-15 39.4	1.575	2.324	20.6	21.1	126 W	29*	9 18	18 59.17	-0 16.3	0.905	1.558	37.5	20.3	109 E	45 64
6 10	20 18.57	-15 34.8	1.451	2.292	18.0	20.8	136 W	29 80	9 23	19 2.57	+0 6.2	0.928	1.538	39.0	20.3	106 E	45 64
6 20	20 15.66	-15 43.0	1.343	2.259	14.5	20.5	146 W	29 80	9 28	19 7.06	+0 27.6	0.950	1.519	40.2	20.4	102 E	45 64
6 30	20 9.65	-16 5.0	1.254	2.225	10.3	20.2	157 W	29 80	10 8	19 18.96	+1 10.2	0.993	1.482	42.1	20.5	96 E	46 63*
7 10	20 0.95	-16 39.7	1.186	2.191	5.4	19.8	168 W	28 81	10 18	19 34.42	+1 55.7	1.033	1.447	43.5	20.6	91 E	47 60*
7 15	19 55.82	-17 0.8	1.161	2.174	2.9	19.6	174 W	28 81	10 28	19 53.05	+2 48.1	1.069	1.415	44.5	20.6	87 E	48 57*
7 20	19 50.37	-17 23.8	1.142	2.157	1.8	19.5	176 E	28 81	11 7	20 14.50	+3 50.0	1.102	1.386	45.2	20.6	83 E	49* 52*
7 25	19 44.79	-17 48.0	1.130	2.140	3.8	19.6	172 E	27 82	11 17	20 38.53	+5 3.0	1.131	1.361	45.6	20.7	80 E	50* 48*
7 30	19 39.28	-18 12.7	1.123	2.123	6.6	19.7	166 E	27 82	11 27	21 4.95	+6 27.9	1.157	1.340	45.8	20.7	77 E	51* 43*
8 4	19 34.05	-18 37.3	1.123	2.106	9.4	19.8	160 E	26 83	12 7	21 33.54	+8 4.1	1.183	1.324	45.9	20.7	75 E	53* 39*
8 9	19 29.27	-19 1.1	1.128	2.088	12.1	19.9	154 E	26 83	12 17	22 4.14	+9 49.9	1.209	1.313	45.7	20.7	73 E	54* 35*
8 14	19 25.12	-19 23.9	1.138	2.071	14.8	20.0	149 E	26 83	12 27	22 36.53	+11 42.8	1.238	1.307	45.4	20.8	71 E	55* 31*
8 19	19 21.73	-19 45.1	1.153	2.054	17.3	20.1	143 E	25 84	1 6	23 10.46	+13 38.5	1.270	1.307	44.8	20.8	70 E	56* 28*
8 29	19 17.70	-20 22.1	1.196	2.019	21.7	20.3	132 E	25 84	1 16	23 45.66	+15 32.5	1.309	1.313	44.1	20.9	68 E	57* 26*
9 8	19 17.60	-20 50.7	1.252	1.985	25.3	20.4	123 E	24 85	<b>506782 2007 AV<sub>10</sub></b>								
9 18	19 21.45	-21 10.1	1.317	1.951	28.1	20.6	114 E	24 85	5 21	20 28.18	-16 40.3	1.594	2.218	24.5	21.3	115 W	28* 81
9 28	19 29.01	-21 19.2	1.388	1.918	30.2	20.7	106 E	24 85	5 31	20 34.40	-17 51.0	1.451	2.179	22.9	21.0	123 W	27* 82
10 8	19 39.87	-21 17.1	1.461	1.885	31.6	20.8	98 E	24 85	6 10	20 38.21	-19 30.2	1.320	2.140	20.5	20.7	132 W	25 84
10 18	19 53.58	-21 2.7	1.536	1.853	32.5	20.9	92 E	24 83*	6 20	20 39.16	-21 42.5	1.203	2.101	17.3	20.3	142 W	23 86
10 28	20 9.74	-20 34.6	1.610	1.822	32.9	21.0	85 E	24 76*	6 30	20 36.83	-24 29.5	1.105	2.061	13.2	20.0	153 W	21 88
11 7	20 27.91	-19 52.1	1.682	1.793	32.9	21.1	80 E	25 70*	7 5	20 34.38	-26 4.8	1.065	2.042	10.9	19.8	158 W	19 90
11 17	20 47.73	-18 54.3	1.752	1.765	32.7	21.1	74 E	26 64*	7 10	20 31.08	-27 46.4	1.030	2.022	8.7	19.6	162 W	17 88
11 27	21 8.91	-17 40.8	1.819	1.739	32.1	21.2	69 E	27 57*	7 15	20 26.97	-29 32.6	1.001	2.003	6.9	19.4	166 W	15 86
12 7	21 31.14	-16 11.7	1.882	1.714	31.4	21.2	65 E	29 51*	7 20	20 22.14	-31 20.9	0.978	1.984	6.1	19.3	168 W	14 85
12 17	21 54.20	-14 27.6	1.943	1.692	30.4	21.2	61 E	30 46*	7 25	20 16.76	-33 8.7	0.962	1.964	6.9	19.3	167 E	12 83
12 27	22 17.92	-12 29.4	2.001	1.672	29.3	21.2	56 E	31 40*	7 30	20 11.02	-34 53.3	0.953	1.945	9.0	19.3	163 E	10 81
1 6	22 42.12	-10 18.5	2.056	1.655	28.2	21.2	53 E	31 35*	8 4	20 5.16	-36 32.0	0.949	1.927	11.6	19.4	158 E	8 79
1 16	23 6.74	-7 56.7	2.110	1.640	26.9	21.2	49 E	31 31*	8 9	19 59.46	-38 2.8	0.952	1.908	14.4	1		





EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

Table with columns for date, alpha\_2000, delta\_2000, and various orbital parameters (Delta, r, beta, V, psi, 45, -26) for three asteroid groups: 415913 2001 UQ63, 469640 2004 TC19, and 383518 2007 CO47. It includes numerical data for each group and a continuation of the 469640 2004 TC19 data.



