









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>154631 2003 WO<sub>25</sub></b>									<b>439007 2010 XV<sub>69</sub></b> <i>(continuation)</i>									
8 19	23 55.08	- 8 17.1	1.346	2.279	12.9	21.3	150 W	37   72	10 8	23 45.61	- 3 26.0	1.588	2.552	7.6	21.8	160 E	42   67	
8 24	23 48.23	- 8 39.7	1.324	2.286	10.3	21.2	156 W	36   73	10 18	23 37.35	- 4 40.3	1.614	2.515	12.1	22.0	148 E	40   69	
<b>152828 1999 VT<sub>25</sub></b>									<b>418233 2008 DV</b>									
8 29	0 4.45	+10 33.1	0.776	1.723	17.4	22.7	149 W	56   53	8 29	0 23.69	+45 18.6	1.746	2.412	21.3	22.5	120 W	90   19	
9 3	23 54.48	+ 9 31.0	0.762	1.733	13.5	22.6	156 W	55   54	9 3	0 16.26	+46 5.0	1.721	2.422	20.5	22.4	123 W	89   18	
<b>164341 2005 CO</b>									<b>415980 2001 YZ<sub>60</sub></b>									
8 29	0 5.56	-11 27.7	1.045	2.012	11.5	22.8	157 W	34   75	8 29	0 26.16	- 7 27.5	1.799	2.728	10.2	21.6	151 W	38   71	
9 3	0 0.37	-12 50.0	1.034	2.017	9.1	22.7	162 W	32   77	9 3	0 22.57	- 8 2.4	1.763	2.719	8.4	21.5	157 W	37   72	
<b>478980 2012 XU<sub>111</sub></b>									<b>414056 2001 XV<sub>4</sub></b>									
8 29	0 6.00	+19 43.6	2.500	3.358	10.5	22.3	143 W	65   44	8 29	0 29.67	+45 39.3	1.914	2.559	20.2	21.7	119 W	89   18	
9 8	23 58.93	+19 16.5	2.408	3.330	8.2	22.1	152 W	64   45	9 3	0 24.26	+45 56.8	1.881	2.566	19.4	21.6	122 W	89   18	
<b>284422 2006 YD</b>									<b>416223 2002 XJ<sub>69</sub></b>									
8 29	0 10.79	+10 7.8	2.032	2.939	10.4	21.9	148 W	55   54	8 29	0 33.26	+47 7.9	1.368	2.039	26.1	22.1	117 W	88   17	
9 8	0 0.53	+ 9 0.0	2.036	3.003	6.6	21.8	160 W	54   55	9 3	0 30.61	+48 23.7	1.320	2.020	25.7	22.0	120 W	87   16	
<b>450270 2004 AE</b>									<b>504901 2011 AJ<sub>11</sub></b>									
8 29	0 14.21	+31 37.8	0.907	1.752	25.3	22.8	132 W	77   32	8 29	0 35.49	-30 18.8	2.192	3.068	11.1	22.3	144 W	15   86	
9 3	0 7.12	+33 2.2	0.869	1.737	24.1	22.6	135 W	78   31	9 3	0 31.53	-31 2.0	2.170	3.061	10.5	22.3	146 W	14   85	
<b>485712 2012 AO<sub>7</sub></b>									<b>374851 2006 VV<sub>2</sub></b>									
8 29	0 15.60	+17 18.6	1.170	2.066	17.2	21.7	143 W	62   47	8 29	0 20.48	- 7 33.7	2.628	3.556	7.5	22.2	153 W	37   72	
9 8	0 4.44	+16 59.8	1.141	2.090	12.6	21.5	153 W	62   47	9 8	0 11.46	- 8 11.6	2.550	3.528	4.6	22.0	164 W	37   72	
<b>374851 2006 VV<sub>2</sub></b>									<b>439007 2010 XV69</b>									
8 29	0 20.48	- 7 33.7	2.628	3.556	7.5	22.2	153 W	37   72	8 29	0 20.88	+ 1 58.5	1.763	2.687	10.7	22.3	150 W	47   62	
9 8	0 11.46	- 8 11.6	2.550	3.528	4.6	22.0	164 W	37   72	9 8	0 13.76	+ 0 49.3	1.678	2.655	6.7	21.9	162 W	46   63	
<b>504901 2011 AJ<sub>11</sub></b>									<b>439007 2010 XV69</b>									
8 29	0 20.88	+ 1 58.5	1.763	2.687	10.7	22.3	150 W	47   62	9 8	0 13.76	+ 0 49.3	1.678	2.655	6.7	21.9	162 W	46   63	
9 8	0 13.76	+ 0 49.3	1.678	2.655	6.7	21.9	162 W	46   63	9 18	0 4.90	+ 0 32.8	1.619	2.621	2.2	21.6	174 W	44   65	
9 18	0 4.90	+ 0 32.8	1.619	2.621	2.2	21.6	174 W	44   65	9 28	23 55.15	- 2 0.8	1.590	2.587	2.7	21.6	173 E	43   66	
9 28	23 55.15	- 2 0.8	1.590	2.587	2.7	21.6	173 E	43   66										









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>427643 2003 VF<sub>1</sub></b>					<i>(continuation)</i>					<b>175717 1997 CX<sub>5</sub></b>					<i>(continuation)</i>				
	<sup>h</sup> <sub>m</sub>	<sup>°</sup> <sub>'</sub>			<sup>°</sup> <sub>'</sub>	<sup>°</sup> <sub>'</sub>	<sup>°</sup> <sub>'</sub>	<sup>°</sup> <sub>'</sub>	<sup>°</sup> <sub>'</sub>		<sup>h</sup> <sub>m</sub>	<sup>°</sup> <sub>'</sub>			<sup>°</sup> <sub>'</sub>	<sup>°</sup> <sub>'</sub>	<sup>°</sup> <sub>'</sub>	<sup>°</sup> <sub>'</sub>	<sup>°</sup> <sub>'</sub>
1 1	0 27.87	-14 20.8	1.598	1.732	34.0	20.9	80 E	31	65*	10 13	6 20.00	+54 13.6	0.998	1.573	38.0	20.7	104 W	81	10
1 6	0 29.46	-11 41.4	1.638	1.707	34.1	20.9	77 E	33	59*	10 18	6 32.30	+55 1.5	0.959	1.566	37.6	20.6	106 W	80	9
1 11	0 31.72	-9 5.0	1.677	1.682	34.0	21.0	73 E	36*	54*	10 23	6 43.79	+55 46.5	0.922	1.559	37.2	20.5	109 W	79	8
1 16	0 34.59	-6 31.5	1.715	1.657	33.9	21.0	70 E	38*	49*	10 28	6 54.28	+56 28.6	0.885	1.552	36.6	20.4	111 W	79	8
<b>376818 2001 AG<sub>54</sub></b>																			
8 29	3 56.91	+9 55.7	1.599	1.986	30.3	21.4	97 W	54*	54	11 2	7 3.57	+57 8.2	0.850	1.546	35.9	20.3	114 W	78	7
9 8	4 11.15	+10 6.0	1.469	1.953	30.2	21.2	103 W	55*	54	11 7	7 11.41	+57 45.2	0.815	1.540	35.1	20.1	117 W	77	6
9 18	4 23.90	+10 7.0	1.343	1.922	29.6	20.9	109 W	55	54	11 12	7 17.51	+58 19.4	0.781	1.534	34.2	20.0	120 W	77	6
9 28	4 34.71	+10 0.0	1.224	1.890	28.5	20.7	116 W	55	54	11 17	7 21.60	+58 50.3	0.749	1.528	33.1	19.9	123 W	76	5
10 8	4 43.06	+9 47.2	1.112	1.860	26.7	20.4	123 W	55	54	11 22	7 23.39	+59 16.5	0.718	1.523	31.8	19.7	126 W	76	5
10 18	4 48.35	+9 31.7	1.010	1.830	24.0	20.1	132 W	55	54	11 27	7 22.67	+59 36.5	0.689	1.517	30.4	19.6	129 W	75	4
10 28	4 50.04	+9 18.2	0.920	1.802	20.5	19.7	141 W	54	55	12 2	7 19.29	+59 47.7	0.662	1.512	28.8	19.5	132 W	75	4
11 2	4 49.42	+9 14.0	0.881	1.788	18.4	19.5	145 W	54	55	12 7	7 13.21	+59 46.9	0.637	1.508	27.2	19.3	136 W	75	4
11 7	4 47.80	+9 12.6	0.845	1.775	16.1	19.4	150 W	54	55	12 12	7 4.59	+59 30.4	0.615	1.504	25.5	19.2	139 W	75	4
11 12	4 45.19	+9 14.7	0.814	1.762	13.6	19.2	155 W	54	55	12 17	6 53.89	+58 53.7	0.596	1.500	23.8	19.1	142 W	76	5
11 17	4 41.68	+9 21.1	0.787	1.750	11.1	19.0	160 W	54	55	12 19	6 49.20	+58 32.6	0.590	1.498	23.2	19.0	143 W	76	5
11 22	4 37.39	+9 32.7	0.765	1.737	8.7	18.8	165 W	55	54	12 21	6 44.35	+58 7.5	0.584	1.497	22.6	19.0	144 W	77	6
11 27	4 32.52	+9 49.9	0.749	1.726	7.0	18.7	168 W	55	54	12 23	6 39.42	+57 38.4	0.578	1.496	22.0	18.9	145 W	77	6
12 2	4 27.30	+10 13.2	0.738	1.715	6.8	18.6	168 E	55	54	12 25	6 34.45	+57 5.0	0.574	1.494	21.5	18.9	146 W	78	7
12 7	4 21.99	+10 42.6	0.732	1.704	8.2	18.7	166 E	56	53	12 27	6 29.52	+56 27.6	0.570	1.493	21.1	18.9	147 W	79	8
12 12	4 16.87	+11 17.8	0.732	1.694	10.7	18.7	161 E	56	53	12 29	6 24.69	+55 46.0	0.566	1.492	20.8	18.9	147 E	79	8
12 17	4 12.21	+11 58.5	0.736	1.685	13.5	18.8	156 E	57	52	12 31	6 20.00	+55 0.5	0.564	1.491	20.5	18.8	148 E	80	9
12 22	4 8.29	+12 44.2	0.746	1.676	16.4	19.0	151 E	58	51	1 2	6 15.51	+54 11.1	0.562	1.490	20.4	18.8	148 E	81	10
12 27	4 5.29	+13 34.1	0.760	1.668	19.3	19.1	146 E	59	50	1 4	6 11.25	+53 18.1	0.560	1.489	20.4	18.8	148 E	82	11
1 1	4 3.35	+14 27.5	0.778	1.660	22.0	19.2	141 E	59	50	1 6	6 7.26	+52 21.9	0.560	1.488	20.5	18.8	148 E	83	12
1 6	4 2.57	+15 23.4	0.800	1.654	24.5	19.3	136 E	60	49	1 8	6 3.58	+51 22.5	0.560	1.487	20.7	18.8	148 E	84	13
1 11	4 2.98	+16 21.2	0.825	1.647	26.7	19.5	131 E	61	48	1 10	6 0.22	+50 20.6	0.561	1.486	21.0	18.8	147 E	85	14
1 16	4 4.61	+17 20.1	0.852	1.642	28.7	19.6	127 E	62	47	1 12	5 57.20	+49 16.3	0.563	1.486	21.5	18.9	146 E	86	15
										1 14	5 54.54	+48 10.1	0.566	1.485	22.0	18.9	146 E	87	16
										1 16	5 52.23	+47 2.5	0.569	1.484	22.6	18.9	145 E	88	17
<b>438096 2005 CX<sub>23</sub></b>										<b>380455 2003 UL<sub>3</sub></b>									
8 29	4 3.25	-14 57.4	1.623	2.041	29.3	21.5	99 W	29*	79	8 29	4 45.68	+7 13.9	1.482	1.721	35.8	21.4	85 W	48*	56*
9 8	4 12.41	-17 43.5	1.559	2.059	28.3	21.4	105 W	27*	82	9 3	4 58.29	+6 48.5	1.381	1.663	37.3	21.2	87 W	48*	57*
9 18	4 18.59	-20 43.4	1.501	2.076	27.0	21.3	110 W	24	85	9 8	5 11.84	+6 15.8	1.282	1.604	38.9	21.0	88 W	49*	57*
9 28	4 21.31	-23 50.0	1.453	2.092	25.6	21.2	116 W	21	88	9 13	5 26.54	+5 34.7	1.185	1.543	40.7	20.8	89 W	49*	58*
10 8	4 20.22	-26 53.2	1.415	2.106	24.1	21.1	121 W	18	89	9 18	5 42.64	+4 43.6	1.091	1.481	42.7	20.6	90 W	49*	59*
10 18	4 15.12	-29 40.1	1.390	2.120	22.8	21.0	124 W	15	86	9 23	6 0.49	+3 40.8	1.001	1.418	45.1	20.4	90 W	48*	60*
10 28	4 6.25	-31 55.4	1.380	2.132	21.8	21.0	127 W	13	84	9 28	6 20.53	+2 24.5	0.916	1.353	47.8	20.2	90 W	47*	61*
11 7	3 54.49	-33 25.2	1.385	2.142	21.4	21.0	128 W	12	83	10 3	6 43.29	+0 52.4	0.836	1.286	51.1	19.9	88 W	46*	61*
11 17	3 41.21	-33 59.7	1.407	2.151	21.5	21.1	127 W	11	82	10 8	7 9.41	+0 57.6	0.764	1.218	55.0	19.7	86 W	44*	62*
11 27	3 28.21	-33 35.7	1.443	2.159	22.2	21.1	124 E	11	82	10 18	8 14.49	-5 32.4	0.648	1.076	65.2	19.4	79 W	39*	61*
12 7	3 17.10	-32 18.0	1.495	2.166	23.1	21.2	120 E	13	84	10 28	9 38.71	-10 44.8	0.589	0.928	78.3	19.3	66 W	32*	53*
12 17	3 8.96	-30 16.4	1.559	2.171	24.2	21.4	115 E	15	86	11 7	11 14.46	-14 46.4	0.607	0.777	90.6	19.5	52 W	25*	41*
<b>484535 2008 FA<sub>68</sub></b>										<b>332026 2005 PH</b>									
8 29	4 15.94	+12 22.8	1.922	2.194	27.4	21.3	92 W	55*	52	11 12	12 1.23	-15 52.3	0.647	0.701	94.4	19.5	45 W	22*	34*
9 8	4 30.26	+10 32.1	1.766	2.150	27.7	21.1	98 W	55*	53	11 17	12 45.00	-16 24.3	0.706	0.628	95.4	19.5	39 W	20*	29*
9 18	4 43.37	+8 11.1	1.618	2.106	27.5	20.9	104 W	53	56	11 22	13 25.45	-16 33.3	0.783	0.561	93.1	19.4	35 W	18*	24*
9 28	4 54.90	+5 16.9	1.479	2.062	27.0	20.6	111 W	50	59	11 27	14 3.19	-16 31.4	0.876	0.505	86.9	19.2	31 W	16*	19*
10 8	5 4.45	+1 47.9	1.352	2.020	26.0	20.4	118 W	47	62	11 29	14 17.74	-16 30.1	0.916	0.487	83.3	19.1	29 W	16*	18*
10 18	5 11.56	-2 15.5	1.240	1.978	24.7	20.1	124 W	43	66	12 1	14 32.08	-16 29.3	0.959	0.473	79.2	18.9	28 W	15*	16*
10 23	5 14.06	-4 28.6	1.190	1.958	23.9	20.0	127 W	41	68	12 3	14 46.25	-16 29.3	1.003	0.462	74.5	18.8	27 W	15*	15*
10 28	5 15.78	-6 47.9	1.145	1.937	23.2	19.8	130 W	38	71	12 5	15 0.26	-16 30.4	1.047	0.455	69.5	18.7	26 W	14*	14*
11 7	5 16.71	-9 11.7	1.105	1.918	22.6	19.7	132 W	36	73	12 7	15 14.13	-16 32.7	1.092	0.453	64.3	18.7	24 W	14*	12*
11 12	5 16.80	-11 37.9	1.071	1.898	22.0	19.6	134 W	33	76	12 12	15 48.03	-16 42.1	1.205	0.468	51.5	18.6	22 W	12*	10*
11 17	5 16.05	-14 4.1	1.041	1.880	21.7	19.5	135 W	31	78	12 17	16 20.30	-16 53.4	1.312	0.507	40.6	18.6	20 W	11*	7*
11 22	5 14.48	-16 27.2	1.017	1.861	21.6	19.4	136 W	29	80	12 22	16 50.39	-17 1.5	1.414	0.564	32.2	18.8	18 W	10*	6*
11 27	5 12.15	-18 44.2	0.998	1.843	21.7	19.4	136 W	26	83	12 27	17 18.09	-17 3.7	1.508	0.631	26.4	19.0	17 W	9*	5*
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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°
332026 2005 PH (continuation)										162781 2000 XL <sub>44</sub> (continuation)									
1 1	4 48.66	+16 58.1	1.767	2.675	10.0	20.8	152 E	62	47	1 11	12 50.10	+1 59.2	0.682	1.276	49.7	19.2	98 W	43	65*
1 6	4 45.08	+16 43.3	1.818	2.690	11.8	21.0	146 E	62	47	1 16	13 1.02	-4 30.2	0.666	1.280	49.2	19.1	100 W	40	68*
1 11	4 42.21	+16 31.3	1.874	2.704	13.4	21.1	140 E	62	47	470310 2007 LB <sub>15</sub>									
1 16	4 40.07	+16 21.9	1.936	2.719	14.9	21.2	135 E	61	48	8 29	6 50.09	+45 5.9	0.907	0.949	65.9	21.4	59 W	53*	11*
274069 2007 VU <sub>188</sub>										9 3	7 22.49	+42 31.0	0.892	0.914	67.9	21.3	57 W	51*	12*
8 29	5 33.34	+19 41.5	1.957	1.908	30.3	21.5	72 W	52*	41*	9 8	7 53.52	+39 15.3	0.882	0.878	69.9	21.3	55 W	49*	12*
9 8	5 50.98	+19 34.3	1.881	1.935	30.6	21.4	78 W	57*	42*	9 13	8 22.95	+35 21.6	0.877	0.840	71.7	21.2	52 W	46*	13*
9 18	6 6.81	+19 19.1	1.801	1.963	30.6	21.4	84 W	61*	43*	9 18	8 50.77	+30 54.2	0.878	0.802	73.3	21.2	50 W	44*	14*
9 28	6 20.52	+18 57.9	1.717	1.991	30.2	21.3	90 W	63*	44*	9 23	9 17.13	+25 59.0	0.886	0.764	74.5	21.2	47 W	41*	15*
10 8	6 31.79	+18 33.0	1.632	2.019	29.4	21.2	97 W	64	45*	9 28	9 42.34	+20 42.7	0.901	0.726	75.2	21.1	44 W	37*	16*
10 18	6 40.23	+18 7.1	1.548	2.048	28.0	21.0	105 W	63	46	10 3	10 6.76	+15 13.3	0.925	0.690	75.0	21.0	42 W	34*	18*
10 28	6 45.41	+17 42.8	1.466	2.076	26.0	20.9	114 W	63	46	10 8	10 30.81	+9 39.0	0.957	0.656	73.9	21.0	39 W	30*	19*
11 7	6 47.00	+17 22.6	1.390	2.104	23.2	20.7	123 W	62	47	10 13	10 54.88	+4 8.3	0.999	0.625	71.7	20.9	36 W	26*	20*
11 17	6 44.72	+17 8.7	1.325	2.133	19.6	20.5	134 W	62	47	10 18	11 19.36	-1 10.7	1.048	0.600	68.3	20.8	34 W	23*	20*
11 27	6 38.61	+17 2.4	1.276	2.161	15.1	20.3	145 W	62	47	10 23	11 44.56	-6 10.7	1.104	0.581	63.8	20.7	32 W	19*	20*
12 7	6 29.18	+17 4.1	1.246	2.188	10.0	20.1	157 W	62	47	10 28	12 10.67	-10 45.1	1.166	0.570	58.4	20.6	29 W	15*	19*
12 12	6 23.53	+17 7.6	1.240	2.202	7.4	20.0	163 W	62	47	11 2	12 37.75	-14 49.0	1.231	0.568	52.4	20.6	27 W	12*	18*
12 17	6 17.50	+17 12.7	1.241	2.215	4.8	19.9	169 W	62	47	11 7	13 5.67	-18 18.9	1.297	0.575	46.2	20.5	25 W	9*	17*
12 22	6 11.30	+17 19.2	1.249	2.229	2.9	19.8	173 W	62	47	11 12	13 34.17	-21 13.3	1.363	0.590	40.3	20.5	23 W	6*	16*
12 27	6 5.15	+17 27.0	1.263	2.242	3.2	19.9	173 E	62	47	11 17	14 2.89	-23 32.4	1.427	0.612	34.9	20.5	21 W	4*	14*
1 1	5 59.26	+17 35.8	1.285	2.255	5.3	20.0	168 E	63	46	11 22	14 31.46	-25 18.0	1.488	0.641	30.1	20.6	19 W	2*	13*
1 6	5 53.82	+17 45.5	1.313	2.268	7.7	20.2	162 E	63	46	11 27	14 59.53	-26 32.9	1.547	0.673	26.0	20.7	17 W	1*	11*
1 11	5 48.99	+17 56.0	1.347	2.281	10.1	20.4	156 E	63	46	12 2	15 26.85	-27 20.6	1.602	0.709	22.6	20.8	16 W	—	10*
1 16	5 44.88	+18 7.2	1.388	2.294	12.3	20.6	150 E	63	46	12 7	15 53.23	-27 44.5	1.654	0.746	19.8	20.9	15 W	—	9*
140928 2001 VG <sub>75</sub>										12 12	16 18.53	-27 48.0	1.702	0.784	17.7	21.0	14 W	—	8*
8 29	5 35.32	+31 33.0	1.432	1.465	40.8	21.4	71 W	60*	30*	12 17	16 42.71	-27 34.3	1.747	0.822	16.1	21.1	13 W	—	7*
9 3	5 51.94	+30 54.1	1.378	1.444	41.8	21.3	73 W	61*	30*	12 22	17 5.74	-27 6.0	1.789	0.860	15.0	21.2	13 W	—	7*
9 8	6 8.73	+30 4.1	1.325	1.422	42.9	21.2	74 W	62*	31*	12 27	17 27.66	-26 25.4	1.827	0.897	14.3	21.3	13 W	—	7*
9 13	6 25.66	+29 2.1	1.272	1.400	43.9	21.1	75 W	63*	32*	1 1	17 48.50	-25 34.5	1.862	0.933	14.0	21.4	13 W	1*	7*
9 18	6 42.68	+27 47.4	1.221	1.379	45.0	21.1	76 W	63*	33*	107225 2001 BF <sub>51</sub>									
9 23	6 59.76	+26 19.2	1.171	1.357	46.0	21.0	77 W	64*	34*	8 29	7 4.43	+34 5.2	3.100	2.622	18.0	21.5	53 W	46*	19*
9 28	7 16.88	+24 37.0	1.123	1.335	47.1	20.9	78 W	63*	35*	9 8	7 21.22	+33 33.4	2.968	2.598	19.4	21.4	59 W	52*	21*
10 3	7 34.02	+22 40.1	1.077	1.314	48.2	20.8	78 W	63*	36*	9 18	7 37.19	+32 57.4	2.828	2.573	20.8	21.3	65 W	58*	23*
10 8	7 51.17	+20 28.0	1.033	1.293	49.3	20.7	79 W	62*	38*	9 28	7 52.17	+32 18.1	2.681	2.547	21.9	21.2	72 W	64*	25*
10 13	8 8.31	+18 0.5	0.992	1.272	50.5	20.6	79 W	60*	40*	10 8	8 5.99	+31 36.8	2.528	2.520	22.8	21.1	78 W	69*	27*
10 18	8 25.43	+15 17.4	0.953	1.251	51.6	20.5	80 W	59*	42*	10 18	8 18.43	+30 54.5	2.371	2.493	23.5	21.0	85 W	74*	29*
10 28	8 59.64	+9 6.2	0.885	1.212	53.9	20.3	80 W	53*	47*	10 28	8 29.19	+30 12.7	2.212	2.464	23.8	20.8	92 W	75*	31*
11 7	9 33.99	+2 1.8	0.831	1.175	56.1	20.2	80 W	47*	52*	11 7	8 37.98	+29 32.4	2.054	2.435	23.6	20.6	100 W	75	33*
11 17	10 8.75	-5 40.3	0.792	1.143	58.1	20.1	79 W	39*	57*	11 17	8 44.38	+28 54.9	1.898	2.405	22.9	20.4	109 W	74	35*
11 22	10 26.39	-9 38.3	0.779	1.128	59.1	20.0	78 W	35	60*	11 27	8 47.92	+28 20.7	1.749	2.374	21.6	20.1	118 W	73	36
11 27	10 44.27	-13 36.4	0.769	1.115	59.9	20.0	78 W	31	62*	12 7	8 48.13	+27 49.6	1.608	2.343	19.5	19.9	128 W	73	36
12 2	11 2.48	-17 31.1	0.763	1.103	60.6	20.0	77 W	27	64*	12 17	8 44.52	+27 20.2	1.482	2.310	16.5	19.6	138 W	72	37
12 7	11 21.05	-21 19.0	0.760	1.093	61.2	20.0	76 W	24	66*	12 27	8 36.83	+26 49.0	1.374	2.278	12.6	19.2	150 W	72	37
12 12	11 40.03	-24 57.1	0.760	1.084	61.6	20.0	76 W	20	67*	1 1	8 31.50	+26 31.3	1.328	2.261	10.3	19.0	156 W	72	37
12 17	11 59.47	-28 22.6	0.763	1.077	61.9	20.0	75 W	17	68*	1 6	8 25.28	+26 11.1	1.289	2.244	7.8	18.9	162 W	71	38
12 22	12 19.37	-31 33.1	0.767	1.072	62.1	20.0	74 W	13	68*	1 11	8 18.30	+25 47.8	1.256	2.227	5.2	18.7	168 W	71	38
12 27	12 39.76	-34 26.9	0.773	1.069	62.1	20.0	74 W	11	68*	1 16	8 10.76	+25 20.9	1.230	2.210	2.8	18.5	174 W	70	39
1 1	13 0.63	-37 3.0	0.779	1.068	62.0	20.0	74 W	8	67*	247517 2002 QY <sub>6</sub>									
1 6	13 21.92	-39 20.5	0.786	1.068	61.8	20.0	73 W	6	67*	8 29	7 5.75	+13 59.2	0.801	0.792	78.7	21.5	50 W	33*	34*
1 11	13 43.56	-41 19.1	0.793	1.071	61.6	20.0	73 W	4	66*	9 3	7 46.17	+12 30.1	0.799	0.720	83.0	21.4	45 W	29*	30*
1 16	14 5.40	-42 58.7	0.800	1.075	61.2	20.1	73 W	2	65*	9 8	8 27.92	+10 38.5	0.817	0.643	86.4	21.3	40 W	25*	26*
162781 2000 XL <sub>44</sub>										9 13	9 10.11	+8 30.2	0.855	0.559	88.1	21.2	34 W	21*	21*
8 29	5 42.74	+32 55.8	1.796	1.730	33.2	21.5	70 W	60*	28*	9 18	9 52.31	+6 11.9	0.916	0.470	86.7	20.9	28 W	16*	17*
9 3	5 58.01	+33 14.5	1.731	1.703	34.2	21.4	71 W	62*	28*	9 23	10 35.03	+3 47.8	1.000	0.377	79.6	20.4	22 W	12*	11*
9 8	6 13.66	+33 27.9	1.668	1.676	35.1	21.3	73 W	63*	27*	9 28	11 20.23	+1 14.6	1.105	0.292	62.1	19.5	15 W	7*	6*
9 13	6 29.67	+33 35.4	1.606	1.649	36.0	21.2	74 W	65*	27*	9 30	11 39.69	+0 8.2	1.149	0.266	50.7	19.0	12 W	4*	3*
9 18	6 46.02	+33 36.6	1.545	1.623	36.9	21.1	76 W	67*	27*	10 2	12 0.07	-1 2.4	1.190	0.250	36.7	18.6	9 W	2*	—
9 23	7 2.67	+33 30.9	1.486	1.597	37.8	21.0	77 W	68*	27*	10 4	12 21.13	-2 17.2	1.225	0.246	21.5	18.1	5 W	—	—
9 28	7 19.59	+33 17.9	1.428	1.571	38.7	20.9	78 W	70*	27*	10 6	12 42.36	-3 34.6	1.252	0.256	7.8	17.8	2 W	—	—
10 3	7 36.75	+32 57.1	1.372	1.546	39.5	20.8	80 W	71*	27*	10 8	13 3.17	+4 52.5	1.272	0.277	8.4	18.0	2 E	—	—
10 8	7 54.11	+32 28.0	1.318	1.522	40.4	20.7	81 W	72*	27*	10 10	13 23.20	-6 8.7	1.286	0.305	17.4	18.6	5 E	—	—
10 13	8 11.60	+31 50.4	1.266	1.498	41.3	20.6	82 W	72*	27*	10 12	13 42.32	-7 21.8	1.296	0.339	24.6	19.1	8 E	—	1*
10 18	8 29.16	+31 3.9	1.216	1.474	42.1	20.5	83 W	73*	28*	10 14	14 0.54	-8 31.2	1.305	0.375	29.9	19.4	11 E	1*	4*
10 23	8 46.74	+30 8.3	1.168	1.452	43.0	20.4	84 W	73*	28*	10 16									

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>518452 2005 ES<sub>267</sub></b> (continuation)									<b>378160 2006 WX<sub>1</sub></b> (continuation)								
10 18	9 19.47	+ 3 47.8	1.821	1.653	32.9	21.3	64 W	43* 42*	12 26	1 58.57	+57 1.8	0.320	1.188	44.0	19.1	123 E	78 7
10 28	9 42.32	+ 2 45.3	1.747	1.659	33.8	21.2	68 W	45* 44*	12 27	1 58.39	+56 15.7	0.322	1.187	44.4	19.1	122 E	79 8
11 7	10 4.31	+ 1 47.4	1.670	1.666	34.6	21.2	73 W	46* 47*	12 29	1 58.45	+54 45.2	0.327	1.186	45.2	19.2	121 E	80 9
11 17	10 25.33	+ 0 57.5	1.591	1.677	35.1	21.1	77 W	46* 50*	12 31	1 59.02	+53 17.0	0.332	1.184	46.1	19.2	120 E	82 11*
11 27	10 45.22	+ 0 19.9	1.509	1.689	35.4	21.0	82 W	45 53*	1 2	2 0.03	+51 51.3	0.337	1.182	47.0	19.3	119 E	83 12*
12 7	11 3.81	+ 0 1.2	1.425	1.704	35.3	20.9	88 W	45 57*	1 4	2 1.43	+50 28.2	0.342	1.180	47.9	19.3	117 E	85 13*
12 17	11 20.85	+ 0 0.7	1.341	1.720	34.8	20.8	94 W	45 60*	1 6	2 3.16	+49 7.9	0.348	1.177	48.8	19.4	116 E	86 15*
12 27	11 36.02	+ 0 26.7	1.258	1.739	33.7	20.6	101 W	45 62*	1 8	2 5.19	+47 50.4	0.354	1.174	49.7	19.4	114 E	87 16*
1 6	11 48.95	+ 1 26.5	1.177	1.759	32.0	20.4	109 W	46 63	1 10	2 7.49	+46 35.7	0.359	1.171	50.7	19.5	113 E	88 17*
1 16	11 59.15	+ 3 4.1	1.102	1.781	29.4	20.2	117 W	48 61	1 12	2 10.02	+45 23.8	0.365	1.168	51.6	19.6	111 E	90 18*
									1 14	2 12.77	+44 14.8	0.371	1.164	52.6	19.6	110 E	89 19*
									1 16	2 15.70	+43 8.4	0.377	1.160	53.5	19.7	109 E	88 20*
<b>378160 2006 WX<sub>1</sub></b>									<b>344074 1997 UH<sub>9</sub></b>								
8 29	7 23.58	+35 7.2	0.304	0.846	114.4	21.0	50 W	43* 15*	8 29	7 26.55	+30 12.5	1.522	1.124	41.6	21.5	48 W	40* 19*
9 3	7 19.48	+38 26.1	0.314	0.874	106.4	20.7	56 W	50* 15*	9 3	7 47.82	+30 25.1	1.480	1.101	42.9	21.4	48 W	41* 17*
9 8	7 18.21	+41 21.2	0.324	0.901	99.6	20.4	62 W	56* 15*	9 8	8 10.15	+30 25.3	1.440	1.075	44.4	21.4	48 W	41* 16*
9 13	7 19.23	+43 58.2	0.333	0.928	93.7	20.3	67 W	61* 14*	9 13	8 33.54	+30 11.1	1.400	1.046	45.8	21.3	48 W	42* 15*
9 18	7 22.01	+46 22.4	0.339	0.954	88.5	20.2	72 W	66* 12*	9 18	8 57.97	+29 39.9	1.362	1.015	47.3	21.2	48 W	42* 14*
9 23	7 26.01	+48 37.9	0.344	0.980	83.9	20.1	76 W	69* 11*	9 23	9 23.36	+28 49.3	1.327	0.982	48.7	21.1	47 W	41* 12*
9 28	7 30.79	+50 48.0	0.347	1.004	79.8	20.0	80 W	73* 10*	9 28	9 49.61	+27 36.8	1.296	0.946	50.2	21.0	46 W	40* 11*
10 3	7 35.97	+52 55.8	0.348	1.026	76.0	19.9	84 W	75* 8*	10 3	10 16.57	+25 59.8	1.268	0.907	51.6	20.9	45 W	39* 10*
10 8	7 41.12	+55 3.9	0.347	1.048	72.4	19.8	88 W	76* 7*	10 8	10 44.06	+23 56.4	1.245	0.865	52.9	20.8	44 W	38* 8*
10 10	7 43.07	+55 55.8	0.346	1.056	71.0	19.8	90 W	77* 6*	10 13	11 11.89	+21 25.2	1.229	0.821	53.9	20.7	42 W	36* 7*
10 12	7 44.90	+56 48.4	0.345	1.064	69.7	19.8	91 W	77* 6*	10 13	11 39.88	+18 25.9	1.218	0.774	54.7	20.6	39 W	33* 6*
10 14	7 46.59	+57 41.7	0.344	1.072	68.4	19.7	93 W	76* 5*	10 18	12 7.90	+14 58.9	1.216	0.726	54.9	20.4	37 W	31* 5*
10 16	7 48.07	+58 35.8	0.342	1.079	67.1	19.7	94 W	76* 4*	10 28	12 35.90	+11 5.6	1.221	0.676	54.4	20.3	34 W	28* 4*
10 18	7 49.31	+59 30.8	0.340	1.086	65.8	19.7	96 W	75* 3*	11 2	13 3.91	+ 6 48.2	1.234	0.625	53.0	20.1	30 W	24* 3*
10 20	7 50.26	+60 26.9	0.338	1.093	64.5	19.6	98 W	75* 3*	11 7	13 32.13	+ 2 9.7	1.255	0.575	50.2	19.9	26 W	20* 3*
10 22	7 50.87	+61 24.0	0.336	1.100	63.2	19.6	99 W	74* 2*	11 12	14 0.86	+ 2 46.2	1.282	0.527	45.8	19.6	22 W	16* 2*
10 24	7 51.07	+62 22.1	0.334	1.107	62.0	19.5	101 W	73 1*	11 17	14 30.59	+ 7 54.1	1.315	0.486	39.9	19.3	18 W	12* 2*
10 26	7 50.79	+63 21.4	0.331	1.113	60.7	19.5	102 W	72 —	11 22	15 1.87	+13 6.0	1.350	0.454	30.8	19.0	14 W	7* 1*
10 28	7 49.95	+64 21.7	0.329	1.119	59.5	19.5	104 W	71 —	11 27	15 35.26	+18 9.1	1.383	0.438	20.9	18.6	9 W	2* —
10 30	7 48.45	+65 22.9	0.326	1.125	58.3	19.4	106 W	70 —	11 29	15 49.29	+20 4.3	1.395	0.436	16.9	18.5	7 W	— —
11 1	7 46.17	+66 25.1	0.323	1.131	57.0	19.4	107 W	69 —	12 1	16 3.70	+21 54.2	1.406	0.437	13.3	18.4	6 W	— —
11 3	7 42.97	+67 27.9	0.321	1.136	55.8	19.3	109 W	68 —	12 3	16 18.49	+23 37.7	1.416	0.441	10.5	18.3	5 W	— —
11 5	7 38.68	+68 31.1	0.318	1.141	54.6	19.3	110 W	66 —	12 5	16 33.62	+25 13.6	1.426	0.448	9.0	18.3	4 W	— —
11 7	7 33.09	+69 34.2	0.315	1.146	53.4	19.2	112 W	65 —	12 7	16 49.05	+26 41.2	1.434	0.458	9.3	18.4	4 W	— —
11 8	7 29.73	+70 5.6	0.314	1.148	52.8	19.2	113 W	65 —	12 9	17 4.74	+27 59.6	1.442	0.469	10.9	18.5	5 E	— —
11 9	7 25.95	+70 36.7	0.312	1.151	52.2	19.2	113 W	64 —	12 11	17 20.61	+29 8.3	1.449	0.483	13.2	18.7	6 E	— —
11 10	7 21.72	+71 7.5	0.311	1.153	51.6	19.2	114 W	64 —	12 13	17 36.61	+30 7.1	1.456	0.499	15.5	18.9	8 E	— —
11 11	7 17.00	+71 37.8	0.310	1.155	51.0	19.2	115 W	63 —	12 15	17 52.66	+30 55.7	1.463	0.515	17.7	19.0	9 E	— 2*
11 12	7 11.75	+72 7.5	0.309	1.157	50.5	19.1	116 W	63 —	12 17	18 8.68	+31 34.3	1.470	0.533	19.7	19.2	11 E	— 4*
11 13	7 5.93	+72 36.3	0.307	1.159	49.9	19.1	116 W	62 —	12 19	18 24.61	+32 3.0	1.477	0.552	21.4	19.3	12 E	— 5*
11 14	6 59.50	+73 4.3	0.306	1.161	49.3	19.1	117 W	62 —	12 21	18 40.36	+32 22.1	1.484	0.571	23.0	19.4	13 E	— 7*
11 15	6 52.43	+73 31.0	0.305	1.163	48.8	19.1	118 W	61 —	12 23	18 55.88	+32 32.2	1.492	0.591	24.3	19.6	14 E	— 8*
11 16	6 44.68	+73 56.4	0.304	1.165	48.2	19.1	119 W	61 —	12 25	19 11.10	+32 33.7	1.500	0.611	25.4	19.7	15 E	— 9*
11 17	6 36.24	+74 20.1	0.303	1.167	47.7	19.0	119 W	61 —	12 27	19 25.98	+32 27.2	1.509	0.632	26.3	19.8	17 E	— 10*
11 19	6 17.24	+75 1.6	0.301	1.170	46.6	19.0	121 W	60 —	1 1	20 1.42	+31 40.2	1.534	0.682	27.8	20.0	19 E	— 13*
11 21	5 55.51	+75 33.3	0.299	1.173	45.6	19.0	122 W	59 —	1 6	20 34.08	+30 17.3	1.563	0.732	28.5	20.2	21 E	— 15*
11 23	5 31.45	+75 53.1	0.297	1.176	44.7	18.9	123 W	59 —	1 11	21 3.88	+28 27.8	1.595	0.781	28.6	20.4	22 E	2* 16*
11 25	5 5.82	+75 59.2	0.296	1.179	43.8	18.9	124 W	59 —	1 16	21 30.94	+26 19.9	1.631	0.827	28.3	20.6	23 E	4* 17*
11 27	4 39.69	+75 50.2	0.295	1.181	43.1	18.9	125 W	59 —	<b>510073 2010 JF<sub>88</sub></b>								
11 28	4 26.81	+75 40.0	0.294	1.182	42.7	18.9	126 W	59 —	8 29	7 52.51	+10 38.9	0.371	0.787	116.7	20.4	44 W	7* 38*
11 29	4 14.22	+75 26.1	0.294	1.183	42.4	18.9	126 E	60 —	8 31	7 47.10	+10 41.6	0.387	0.795	112.6	20.3	47 W	9* 41*
11 30	4 2.06	+75 8.4	0.294	1.184	42.1	18.8	126 E	60 —	9 2	7 42.59	+10 40.8	0.403	0.805	108.7	20.1	49 W	12* 43*
12 1	3 50.43	+74 47.3	0.294	1.185	41.8	18.8	127 E	60 —	9 4	7 38.87	+10 37.5	0.419	0.815	105.0	20.1	51 W	14* 45*
12 2	3 39.40	+74 22.8	0.294	1.186	41.5	18.8	127 E	61 —	9 6	7 35.85	+10 32.2	0.435	0.826	101.5	20.0	53 W	16* 47*
12 3	3 29.03	+73 55.2	0.294	1.187	41.3	18.8	127 E	61 —	9 8	7 33.42	+10 25.6	0.451	0.839	98.2	19.9	55 W	18* 49*
12 4	3 19.34	+73 24.8	0.294	1.188	41.1	18.8	128 E	62 —	9 13	7 29.37	+10 5.9	0.488	0.873	90.8	19.9	60 W	22* 52*
12 5	3 10.36	+72 51.7	0.294	1.188	41.0	18.8	128 E	62 —	9 18	7 27.35	+9 44.8	0.521	0.912	84.3	19.8	65 W	26* 56*
12 6	3 2.08	+72 16.3	0.294	1.189	40.8	18.8	128										

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>510073</b> 2010 JF <sub>88</sub> (continuation)										<b>322756</b> 2001 CK <sub>32</sub> (continuation)									
12 22	5 29.55	+ 4 50.4	0.866	1.822	10.7	20.2	160 E	50	59	11 27	13 15.93	- 3 38.9	1.376	0.993	45.8	21.4	46 W	33*	25*
<b>163454</b> 2002 RN <sub>129</sub>										<b>85989</b> 1999 JD <sub>6</sub>									
8 29	8 18.63	+34 7.0	1.583	1.021	38.5	21.5	39 W	33*	8*	8 29	9 6.10	+ 7 12.2	0.702	0.435	123.7	19.7	21 W	7*	14*
<b>365014</b> 2008 OX <sub>2</sub>										<b>449089</b> 2012 SC <sub>22</sub>									
8 29	8 30.65	+18 23.8	0.993	0.525	76.6	21.5	30 W	21*	15*	8 29	9 10.84	+21 38.4	1.385	0.598	40.7	21.3	23 W	16*	5*
<b>322756</b> 2001 CK <sub>32</sub>										<b>418198</b> 2008 CN <sub>70</sub>									
8 29	8 45.07	+12 43.4	0.746	0.472	109.9	20.9	26 W	15*	15*	8 29	9 19.78	+ 9 2.2	1.970	1.051	16.8	21.5	17 W	6*	10*

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°
418198 2008 CN <sub>70</sub>										(continuation)									
1 1	20 51.80	-22 22.2	1.396	0.718	41.7	20.6	29 E	12*	20*	12 27	13 37.20	-15 52.8	2.246	2.074	25.9	20.1	67 W	29*	53*
1 6	21 21.97	-22 6.2	1.405	0.756	42.0	20.8	31 E	13*	22*	1 6	13 42.94	-16 16.7	2.199	2.180	25.9	20.2	76 W	29	62*
1 11	21 50.71	-21 32.2	1.417	0.794	42.0	20.9	33 E	14*	24*	1 16	13 46.16	-16 26.8	2.140	2.281	25.5	20.2	85 W	29	72*
1 16	22 18.00	-20 42.6	1.433	0.831	41.8	21.0	34 E	15*	25*	66253 1999 GT <sub>3</sub>									
164294 2004 XZ <sub>130</sub>										8 29	9 48.57	+ 9 43.1	0.816	0.254	134.3	21.0	10 W	1*	3*
8 29	9 28.56	+13 43.8	1.459	0.559	29.4	21.2	16 W	8*	6*	8 31	9 49.46	+ 8 56.1	0.900	0.226	112.6	19.2	12 W	2*	5*
9 3	10 0.46	+11 5.4	1.441	0.504	25.4	20.9	12 W	5*	3*	9 2	9 55.02	+ 8 16.7	0.992	0.217	88.3	18.1	12 W	3*	5*
9 8	10 34.29	+ 8 2.5	1.421	0.449	19.1	20.4	8 W	1*	-	9 4	10 4.79	+ 7 42.4	1.083	0.227	65.0	17.6	12 W	3*	4*
9 13	11 10.32	+ 4 35.7	1.396	0.397	9.3	19.7	4 W	-	-	9 6	10 17.10	+ 7 10.4	1.166	0.255	46.4	17.4	11 W	2*	3*
9 18	11 48.66	+ 0 49.2	1.359	0.356	5.3	19.3	2 E	-	-	9 8	10 30.27	+ 6 39.3	1.240	0.293	33.0	17.5	9 W	1*	2*
9 20	12 4.55	- 0 44.8	1.340	0.346	12.1	19.5	4 E	-	-	9 10	10 43.34	+ 6 8.3	1.305	0.336	23.6	17.6	8 W	-	-
9 22	12 20.64	- 2 19.2	1.317	0.339	19.6	19.6	6 E	-	-	9 12	10 55.91	+ 5 37.6	1.364	0.381	17.2	17.8	6 W	-	-
9 24	12 36.85	- 3 52.9	1.290	0.337	27.4	19.8	9 E	-	3*	9 14	11 7.84	+ 5 7.1	1.418	0.427	12.7	18.0	5 W	-	-
9 26	12 53.06	- 5 24.8	1.261	0.339	35.1	20.0	11 E	-	5*	9 16	11 19.11	+ 4 37.1	1.467	0.472	9.6	18.1	5 W	-	-
9 28	13 9.17	- 6 53.8	1.229	0.347	42.6	20.2	14 E	-	7*	9 18	11 29.77	+ 4 7.6	1.514	0.516	7.6	18.3	4 W	-	-
9 30	13 25.12	- 8 19.1	1.196	0.358	49.5	20.4	16 E	1*	10*	9 23	11 54.01	+ 2 56.4	1.622	0.623	5.5	18.8	3 W	-	-
10 2	13 40.85	- 9 40.3	1.162	0.372	55.8	20.6	18 E	2*	12*	9 28	12 15.43	+ 1 49.6	1.719	0.722	5.4	19.2	4 W	-	-
10 4	13 56.36	-10 57.2	1.128	0.390	61.3	20.8	20 E	3*	14*	10 3	12 34.64	+ 0 47.3	1.809	0.816	5.8	19.6	5 W	-	-
10 6	14 11.67	-12 9.7	1.094	0.409	66.0	21.0	22 E	3*	16*	10 8	12 52.09	- 0 10.5	1.892	0.903	6.3	20.0	6 W	-	-
10 8	14 26.80	-13 17.8	1.061	0.430	70.0	21.2	24 E	4*	18*	10 18	13 22.99	- 1 53.5	2.041	1.064	7.5	20.5	8 W	1*	-
10 13	15 4.12	-15 49.5	0.987	0.485	77.2	21.5	28 E	7*	22*	10 28	13 49.98	- 3 20.6	2.169	1.208	9.0	21.0	11 W	4*	-
10 18	15 41.08	-17 55.2	0.924	0.540	81.2	21.7	32 E	9*	26*	11 7	14 14.14	- 4 33.0	2.275	1.338	10.7	21.4	15 W	8*	-
10 23	16 17.93	-19 34.2	0.873	0.594	83.1	21.9	36 E	11*	30*	11 17	14 36.18	- 5 31.8	2.358	1.457	12.6	21.7	19 W	13*	-
10 28	16 54.62	-20 45.6	0.834	0.643	83.4	22.0	40 E	13*	33*	153201 2000 WO <sub>107</sub>									
439877 1999 XM <sub>141</sub>										8 29	10 1.84	+15 55.6	1.969	0.987	9.8	21.4	10 W	4*	-
8 29	9 44.61	+22 13.5	1.792	0.876	19.6	21.5	17 W	11*	-	9 3	10 18.80	+14 19.7	1.897	0.920	10.9	21.2	10 W	4*	-
9 3	10 9.64	+20 40.0	1.774	0.853	19.2	21.4	16 W	10*	-	9 8	10 36.89	+12 30.6	1.822	0.848	11.9	21.0	10 W	4*	-
9 8	10 34.67	+18 49.1	1.760	0.832	18.6	21.3	15 W	9*	-	9 13	10 56.38	+10 25.5	1.743	0.769	12.6	20.7	10 W	4*	-
9 13	10 59.56	+16 41.7	1.750	0.814	17.8	21.2	14 W	8*	-	9 18	11 17.63	+ 8 1.1	1.660	0.684	12.9	20.3	9 W	3*	-
9 18	11 24.21	+14 19.1	1.743	0.799	16.7	21.1	13 W	6*	-	9 23	11 41.11	+ 5 12.8	1.574	0.591	12.2	19.9	7 W	1*	-
9 23	11 48.52	+11 43.2	1.740	0.788	15.5	21.0	12 W	4*	-	9 28	12 7.53	+ 1 54.3	1.482	0.490	9.8	19.2	5 W	-	-
9 28	12 12.45	+ 8 56.5	1.741	0.782	14.2	21.0	11 W	3*	-	10 3	12 37.92	- 2 2.7	1.380	0.381	5.1	18.3	2 E	-	-
10 3	12 35.96	+ 6 1.7	1.746	0.780	12.8	20.9	10 W	1*	-	10 8	13 13.49	- 6 48.5	1.254	0.271	17.8	17.9	5 E	-	-
10 8	12 59.05	+ 3 1.6	1.754	0.782	11.5	20.9	9 E	1*	-	10 10	13 29.04	- 8 56.2	1.189	0.233	31.8	17.9	7 E	-	1*
10 13	13 21.76	- 0 0.8	1.765	0.789	10.2	20.9	8 E	1*	-	10 12	13 44.47	-11 5.7	1.113	0.207	51.9	18.0	9 E	-	3*
10 18	13 44.12	- 3 2.7	1.779	0.800	9.0	20.9	7 E	1*	-	10 14	13 58.14	-13 5.7	1.024	0.200	76.8	18.5	11 E	-	5*
10 23	14 6.16	- 6 1.2	1.795	0.815	8.0	20.9	7 E	-	-	10 16	14 8.39	-14 43.9	0.932	0.216	101.3	19.5	12 E	-	6*
10 28	14 27.95	- 8 54.1	1.814	0.833	7.3	20.9	6 E	-	-	10 18	14 14.90	-15 56.4	0.845	0.248	121.4	20.9	12 E	-	6*
11 2	14 49.53	-11 39.2	1.836	0.855	6.7	21.0	6 E	-	-	10 19	14 16.98	-16 24.2	0.805	0.267	129.5	21.6	12 E	-	6*
11 7	15 10.96	-14 14.9	1.859	0.878	6.4	21.1	6 E	-	-	10 20	14 18.44	-16 47.5	0.767	0.288	136.6	22.4	11 E	-	5*
11 12	15 32.27	-16 39.7	1.884	0.904	6.1	21.1	6 E	-	-	10 21	14 19.39	-17 7.0	0.731	0.310	142.7	23.3	11 E	-	5*
11 17	15 53.48	-18 52.8	1.911	0.932	5.9	21.2	6 E	-	-	10 22	14 19.92	-17 23.2	0.698	0.332	148.0	24.2	10 E	-	4*
11 22	16 14.60	-20 53.3	1.939	0.961	5.8	21.3	6 E	-	-	455594 2004 SV <sub>55</sub>									
11 27	16 35.63	-22 40.7	1.967	0.990	5.7	21.4	6 E	-	-	8 29	10 24.98	+19 12.3	2.534	1.550	6.5	21.4	10 W	2*	-
12 2	16 56.56	-24 15.0	1.997	1.021	5.6	21.5	6 E	-	-	9 8	10 45.73	+15 14.1	2.429	1.452	7.5	21.2	11 W	4*	-
136874 1998 FH <sub>74</sub>										9 18	11 7.43	+10 49.9	2.313	1.350	9.3	21.0	12 W	6*	-
8 29	9 48.06	+13 46.9	0.819	0.261	130.8	18.0	11 W	4*	1*	9 28	11 30.50	+ 5 54.7	2.189	1.244	11.5	20.8	14 W	8*	1*
8 30	9 45.24	+12 49.2	0.853	0.257	120.9	17.2	13 W	5*	3*	10 8	11 55.63	+ 0 22.3	2.060	1.134	14.1	20.5	16 W	9*	4*
8 31	9 43.62	+11 51.9	0.890	0.256	110.8	16.6	14 W	6*	5*	10 18	12 23.87	- 5 53.5	1.929	1.021	16.8	20.3	17 W	8*	7*
9 1	9 43.16	+10 56.0	0.927	0.259	100.9	16.2	15 W	6*	6*	10 28	12 56.93	-12 55.8	1.802	0.908	19.5	20.0	18 W	6*	10*
9 2	9 43.74	+10 2.0	0.966	0.266	91.5	15.9	15 W	6*	7*	11 2	13 16.08	-16 43.2	1.742	0.853	20.8	19.8	18 W	5*	11*
9 3	9 45.21	+ 9 10.6	1.005	0.276	82.8	15.7	16 W	6*	8*	11 7	13 37.59	-20 38.2	1.686	0.799	21.9	19.6	18 W	2*	11*
9 4	9 47.40	+ 8 21.9	1.043	0.290	75.1	15.6	16 W	6*	8*	11 12	14 2.06	-24 36.1	1.635	0.748	22.9	19.4	17 W	-	11*
9 5	9 50.13	+ 7 36.0	1.081	0.305	68.2	15.6	16 W	6*	8*	11 17	14 30.16	-28 28.6	1.590	0.702	23.8	19.3	17 W	-	10*
9 6	9 53.27	+ 6 52.8	1.117	0.322	62.2	15.6	16 W	6*	9*	11 19	14 42.56	-29 57.5	1.573	0.685	24.0	19.2	16 W	-	10*
9 7	9 56.70	+ 6 12.1	1.152	0.341	57.0	15.6	17 W	6*	9*	11 21	14 55.68	-31 22.5	1.558	0.669	24.3	19.1	16 W	-	9*
9 8	10 0.31	+ 5 33.8	1.186	0.361	52.4	15.7	17 W	5*	9*	11 23	15 9.54	-32 42.7	1.545	0.654	24.5	19.1	16 W	-	9*
9 10	10 7.85	+ 4 23.3	1.250	0.403	45.1	15.8	16 W	5*	9*	11 25	15 24.15	-33 56.9	1.532	0.641	24.8	19.0	16 W	-	8*
9 12	10 15.51	+ 3 19.7	1.310	0.446	39.5	16.0	16 W	5*	9*	11 27	15 39.49	-35 3.7	1.521	0.630	25.0	19.0	16 W	-	7*
9 14	10 23.10	+ 2 21.8	1.366	0.490	35.2	16.2	16 W	5*	9*	11 29	15 55.52	-36 1.							

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°
455594 2004 SV <sub>55</sub> (continuation)										363802 2005 LT <sub>12</sub> (continuation)									
12 29	19 58.65	-28 42.0	1.547	0.710	28.5	19.4	20 E	2*	14*	12 7	15 10.07	-17 38.6	2.361	1.527	15.9	20.9	25 W	13*	14*
12 31	20 10.56	-27 11.2	1.561	0.728	28.4	19.4	21 E	4*	14*	12 17	15 41.45	-18 8.9	2.295	1.498	17.9	20.9	28 W	15*	16*
1 2	20 21.83	-25 38.4	1.576	0.747	28.2	19.5	21 E	5*	14*	12 27	16 13.72	-18 16.4	2.230	1.472	19.9	20.9	31 W	16*	19*
1 4	20 32.52	-24 4.3	1.592	0.767	28.0	19.6	22 E	6*	14*	1 6	16 46.71	-17 58.5	2.166	1.448	21.9	20.8	33 W	17*	22*
1 6	20 42.65	-22 29.5	1.609	0.788	27.8	19.7	22 E	8*	14*	1 16	17 20.17	-17 13.2	2.105	1.428	23.7	20.8	36 W	18*	25*
1 8	20 52.28	-20 54.6	1.627	0.808	27.5	19.7	22 E	9*	13*	189083 2001 OV <sub>46</sub>									
1 10	21 1.44	-19 20.0	1.646	0.830	27.2	19.8	23 E	10*	13*	8 29	10 49.96	+ 8 13.8	3.707	2.702	1.8	21.4	5 E	—	—
1 12	21 10.17	-17 46.2	1.666	0.852	26.8	19.9	23 E	11*	12*	9 8	11 5.27	+ 6 49.6	3.731	2.724	0.4	21.3	1 W	—	—
1 14	21 18.52	-16 13.3	1.686	0.874	26.4	19.9	23 E	12*	12*	9 18	11 20.35	+ 5 24.8	3.740	2.744	2.4	21.5	7 W	—	—
1 16	21 26.51	-14 41.6	1.707	0.896	26.0	20.0	24 E	13*	11*	9 28	11 35.18	+ 4 0.3	3.734	2.764	4.5	21.7	12 W	6*	1*
8 29	10 27.39	+ 7 57.3	2.249	1.240	1.3	21.3	2 W	—	—	10 8	11 49.73	+ 2 37.0	3.713	2.783	6.5	21.8	18 W	11*	5*
9 8	10 54.35	+ 2 52.8	2.168	1.166	3.6	21.3	4 W	—	—	272254 2005 QJ <sub>145</sub>									
9 18	11 23.13	- 2 38.9	2.087	1.095	6.1	21.2	7 W	—	—	8 29	11 28.54	+ 7 2.1	3.087	2.125	6.9	21.4	15 E	2*	8*
9 28	11 54.45	- 8 35.1	2.008	1.030	8.7	21.1	9 W	—	—	9 8	11 47.84	+ 5 5.4	3.075	2.091	4.9	21.3	10 E	1*	3*
10 8	12 29.31	-14 48.5	1.936	0.973	11.2	21.0	11 W	—	—	9 18	12 7.59	+ 3 4.8	3.053	2.058	3.1	21.1	6 E	—	—
10 18	13 8.97	-21 4.5	1.874	0.929	13.7	20.9	13 W	—	—	9 28	12 27.82	+ 1 1.3	3.022	2.024	1.9	21.0	4 E	—	—
10 28	13 54.65	-26 59.0	1.828	0.900	15.9	20.8	14 W	—	—	10 8	12 48.58	- 1 4.0	2.983	1.990	2.5	20.9	5 W	—	—
11 7	14 47.12	-31 58.2	1.802	0.889	17.6	20.8	16 W	—	—	10 18	13 9.93	+ 3 9.9	2.936	1.956	4.3	21.0	8 W	2*	—
11 17	15 45.63	-35 25.4	1.797	0.898	18.6	20.9	17 E	—	—	10 28	13 31.93	- 5 15.2	2.881	1.922	6.3	21.0	12 W	6*	—
11 27	16 47.18	-36 54.1	1.816	0.925	18.8	21.0	18 E	—	—	11 7	13 54.63	- 7 18.1	2.821	1.888	8.3	21.0	16 W	10*	2*
12 7	17 47.29	-36 21.5	1.857	0.967	18.1	21.1	18 E	—	—	11 17	14 18.12	- 9 17.1	2.754	1.855	10.4	21.0	20 W	13*	5*
12 17	18 42.19	-34 9.0	1.918	1.023	16.8	21.3	17 E	—	—	11 27	14 42.43	-11 10.4	2.683	1.823	12.5	21.0	24 W	15*	9*
12 27	19 30.19	-30 48.6	1.993	1.087	15.0	21.4	17 E	—	—	12 7	15 7.60	-12 55.8	2.609	1.791	14.6	21.0	27 W	17*	12*
8 29	10 29.28	+ 5 22.9	3.413	2.407	1.7	21.4	4 W	—	—	12 17	15 33.65	-14 31.5	2.531	1.761	16.7	20.9	31 W	19*	17*
9 8	10 46.32	+ 3 32.5	3.376	2.375	2.3	21.4	6 W	—	—	12 27	16 0.58	-15 55.1	2.452	1.732	18.7	20.9	34 W	20*	21*
9 18	11 3.57	+ 1 37.1	3.327	2.342	4.2	21.4	10 W	1*	3*	1 6	16 28.33	-17 4.7	2.372	1.704	20.7	20.9	38 W	20*	26*
9 28	11 21.04	- 0 23.0	3.266	2.309	6.2	21.5	14 W	5*	6*	1 16	16 56.83	-17 58.3	2.291	1.678	22.6	20.8	41 W	20*	30*
10 8	11 38.76	+ 2 27.0	3.195	2.276	8.3	21.5	19 W	10*	10*	191935 2005 UY <sub>2</sub>									
10 18	11 56.76	- 4 34.3	3.114	2.242	10.5	21.5	24 W	14*	13*	8 29	11 47.87	+ 2 45.0	3.115	2.196	9.2	21.5	20 E	3*	14*
10 28	12 15.07	+ 6 44.2	3.024	2.207	12.6	21.5	29 W	18*	17*	9 8	12 6.23	+ 1 1.7	3.112	2.158	7.2	21.4	16 E	1*	9*
11 7	12 33.72	- 8 55.7	2.925	2.173	14.7	21.4	34 W	21*	21*	9 18	12 25.16	- 0 44.9	3.098	2.120	5.2	21.2	11 E	—	—
11 17	12 52.78	-11 8.1	2.819	2.138	16.8	21.4	39 W	23*	25*	9 28	12 44.71	- 2 33.9	3.073	2.081	3.2	21.0	7 E	—	—
11 27	13 12.27	-13 20.2	2.706	2.102	18.8	21.3	43 W	25*	30*	10 8	13 4.91	- 4 24.0	3.039	2.042	1.4	20.9	3 E	—	—
12 7	13 32.23	-15 31.0	2.588	2.067	20.8	21.3	48 W	26*	35*	10 18	13 25.84	- 6 14.2	2.996	2.002	1.8	20.8	4 W	—	—
12 17	13 52.73	-17 39.3	2.466	2.032	22.8	21.2	53 W	25*	40*	10 28	13 47.54	- 8 2.9	2.943	1.963	3.8	20.9	7 W	1*	—
12 27	14 13.76	-19 43.7	2.340	1.997	24.6	21.1	58 W	24*	46*	11 7	14 10.08	- 9 48.4	2.884	1.923	5.9	20.9	11 W	5*	—
1 6	14 35.38	-21 42.7	2.212	1.962	26.4	21.0	62 W	23*	52*	11 17	14 33.54	-11 29.2	2.817	1.883	8.1	20.9	15 W	9*	3*
1 16	14 57.58	-23 45.0	2.083	1.928	28.1	20.9	67 W	21*	58*	11 27	14 57.95	-13 3.2	2.745	1.844	10.2	20.9	19 W	12*	6*
8 29	10 39.58	+ 2 51.5	1.886	0.892	7.8	21.4	7 E	—	—	12 7	15 23.36	-14 28.2	2.668	1.805	12.4	20.9	23 W	14*	10*
9 8	11 21.26	- 0 15.2	1.833	0.842	8.4	21.2	8 E	—	—	12 17	15 49.80	-15 42.1	2.588	1.767	14.6	20.8	27 W	16*	14*
9 18	11 5.29	+ 3 28.3	1.780	0.796	9.9	21.1	8 E	—	—	12 27	16 17.25	-16 42.4	2.506	1.730	16.7	20.8	30 W	17*	18*
9 28	12 51.97	- 6 39.4	1.726	0.756	12.7	21.0	10 E	—	—	1 6	16 45.65	-17 26.9	2.422	1.694	18.8	20.7	34 W	18*	22*
10 8	13 41.44	- 9 38.4	1.673	0.727	16.8	21.0	12 E	—	—	1 16	17 14.94	-17 53.4	2.339	1.660	20.8	20.7	37 W	18*	26*
10 18	14 33.62	-12 14.1	1.622	0.712	21.8	21.1	15 E	—	—	207974 1996 RM <sub>1</sub>									
10 28	15 28.03	-14 15.7	1.574	0.713	27.0	21.2	19 E	—	—	8 29	12 10.34	+ 3 39.0	2.979	2.112	11.9	21.4	25 E	7*	19*
11 7	16 23.85	-15 34.8	1.534	0.729	31.7	21.3	23 E	—	—	9 8	12 29.30	+ 1 51.1	2.977	2.068	10.0	21.3	21 E	6*	14*
11 17	17 20.06	-16 6.9	1.504	0.759	35.4	21.4	26 E	—	—	9 18	12 49.02	- 0 0.1	2.966	2.024	8.2	21.2	17 E	4*	10*
8 29	10 40.31	+ 3 23.3	1.769	0.774	8.4	21.4	6 E	—	—	9 28	13 9.52	- 1 53.4	2.946	1.981	6.4	21.0	13 E	3*	5*
9 8	11 21.94	- 1 8.8	1.684	0.700	11.3	21.2	8 E	—	—	10 8	13 30.86	- 3 47.6	2.917	1.937	4.7	20.9	9 E	2*	1*
9 18	12 7.98	+ 5 54.2	1.584	0.620	16.4	20.9	10 E	—	—	10 18	13 53.10	- 5 41.3	2.880	1.894	3.4	20.7	7 E	—	—
9 28	13 0.08	-10 33.9	1.462	0.540	25.5	20.8	13 E	—	—	10 28	14 16.32	- 7 32.7	2.837	1.851	3.1	20.6	6 E	—	—
10 8	13 59.19	-14 29.5	1.312	0.476	40.5	20.7	18 E	—	—	11 7	14 40.56	- 9 19.8	2.787	1.809	4.0	20.6	7 W	—	—
10 18	15 3.31	-16 44.5	1.132	0.451	61.2	20.8	23 E	4*	17*	11 17	15 5.89	-11 0.7	2.734	1.768	5.5	20.6	10 W	4*	—
10 28	16 6.69	-16 42.4	0.939	0.477	82.1	21.2	28 E	10*	21*	11 27	15 32.35	-12 32.8	2.676	1.728	7.2	20.6	13 W	7*	—
8 29	10 46.55	+ 9 28.4	3.748	2.741	1.5	21.5	4 E	—	—	12 7	15 59.94	-13 53.8	2.617	1.690	9.1	20.5	16 W	9*	1*
9 8	11 1.04	+ 7 55.6	3.732	2.726	1.0	21.4	3 W	—	—	12 17	16 28.64	-15 1.1	2.556	1.654	10.9	20.5	19 W	11*	5*
9 18	11 15.57	+ 6 20.6	3.700	2.709	3.0	21.5	8 W	2*	—	12 27	16 58.38	-15 52.1	2.496	1.620	12.8	20.5	21 W	12*	8*
9 28	11 30.11	+ 4 4.1	3.653	2.691	5.1	21.6	14 W	7*	2*	1 6	17 29.03	-16 24.7	2.436	1.589	14.6	20.5	24 W	13*	12*
10 8	11 44.65	+ 3 6.6	3.590	2.671	7.2	21.6	20 W	13*	6*	1 16	18 0.41	-16 37.1	2.378	1.561	16.3	20.4	27 W	14*	16*
8 29	10 49.39	- 3 14.4	2.836	1.869	7.2	21.5	13 E												

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>100008 1988 QZ</b>										<b>510190 2011 CX<sub>7</sub> (continuation)</b>									
8 29	12 20.63	+9 40.8	3.719	2.929	10.9	21.5	33 E	—	27*	10 14	2 7.79	-64 8.5	0.215	1.080	61.9	19.5	107 W	—	52
9 8	12 33.56	-11 7.9	3.763	2.906	9.2	21.4	27 E	—	21*	10 15	2 4.62	-62 42.5	0.218	1.085	60.7	19.5	108 W	—	53
9 18	12 47.02	-12 38.2	3.792	2.882	7.4	21.3	22 E	—	15*	10 16	2 1.78	-61 17.5	0.221	1.090	59.5	19.5	109 W	—	55
9 28	13 0.98	-14 10.9	3.806	2.856	5.6	21.2	16 E	—	9*	10 17	1 59.23	-59 53.5	0.224	1.096	58.4	19.5	111 W	—	56
10 8	13 15.40	-15 45.5	3.804	2.830	3.9	21.1	11 E	—	3*	10 18	1 56.93	-58 30.6	0.227	1.101	57.3	19.6	112 W	—	57
10 18	13 30.28	-17 21.3	3.787	2.803	2.8	21.0	8 W	—	—	10 19	1 54.84	-57 8.7	0.230	1.106	56.2	19.6	113 W	—	59
10 28	13 45.62	-18 57.5	3.755	2.775	2.9	21.0	8 W	—	2*	10 20	1 52.95	-55 47.8	0.233	1.111	55.1	19.6	114 W	—	60
11 7	14 1.39	-20 33.5	3.707	2.746	4.3	21.0	12 W	—	6*	10 21	1 51.23	-54 28.1	0.237	1.116	54.1	19.6	115 W	—	62
11 17	14 17.59	-22 8.7	3.645	2.717	6.2	21.1	17 W	3*	10*	10 22	1 49.66	-53 9.5	0.240	1.121	53.1	19.6	116 W	—	63
11 27	14 34.21	-23 42.4	3.569	2.686	8.1	21.1	23 W	6*	15*	10 23	1 48.23	-51 52.0	0.244	1.126	52.1	19.6	117 E	—	64
12 7	14 51.23	-25 13.8	3.480	2.654	10.2	21.1	28 W	9*	21*	10 24	1 46.92	-50 35.6	0.248	1.131	51.2	19.6	118 E	—	65
12 17	15 8.63	-26 42.5	3.378	2.622	12.2	21.1	34 W	11*	26*	10 25	1 45.72	-49 20.3	0.252	1.136	50.3	19.7	119 E	—	67
12 27	15 26.35	-28 7.9	3.264	2.589	14.1	21.0	40 W	12*	32*	10 26	1 44.63	-48 6.2	0.256	1.141	49.4	19.7	119 E	—	68
1 6	15 44.37	-29 29.4	3.140	2.555	16.0	21.0	46 W	12*	39*	10 27	1 43.63	-46 53.2	0.260	1.147	48.6	19.7	120 E	—	69
1 16	16 2.62	-30 46.7	3.007	2.520	17.9	20.9	52 W	12*	45*	10 28	1 42.72	-45 41.3	0.264	1.152	47.8	19.7	121 E	—	70
<b>244790 2003 SQ<sub>210</sub></b>										<b>68063 2000 YJ<sub>66</sub></b>									
8 29	12 36.64	+6 11.6	2.423	1.699	20.0	21.5	35 E	5*	29*	10 30	1 41.14	-43 21.0	0.273	1.162	46.3	19.8	122 E	2	73
9 8	13 0.87	+8 21.0	2.436	1.666	18.6	21.4	32 E	4*	26*	11 1	1 39.85	-41 5.2	0.282	1.172	44.9	19.8	124 E	4	75
9 18	13 26.19	+10 30.6	2.445	1.635	17.1	21.3	29 E	3*	23*	11 3	1 38.81	-38 53.8	0.292	1.183	43.7	19.9	125 E	6	77
9 28	13 52.64	-12 37.8	2.452	1.608	15.6	21.2	26 E	3*	20*	11 5	1 38.00	-36 46.7	0.303	1.193	42.6	19.9	125 E	8	79
10 8	14 20.26	+14 39.4	2.456	1.583	14.1	21.2	23 E	2*	17*	11 7	1 37.39	-34 43.9	0.313	1.203	41.6	20.0	126 E	10	81
10 18	14 49.07	+16 32.0	2.460	1.561	12.6	21.1	20 E	2*	14*	11 12	1 36.72	-29 54.8	0.343	1.229	39.8	20.2	127 E	15	86
10 28	15 19.04	+18 12.2	2.463	1.544	11.1	21.0	17 E	2*	11*	11 17	1 37.11	-25 29.9	0.375	1.254	38.6	20.4	128 E	20	89
11 7	15 50.08	+19 36.4	2.467	1.530	9.6	20.9	15 E	1*	8*	11 22	1 38.47	-21 27.3	0.410	1.279	37.9	20.6	127 E	24	85
11 17	16 22.05	+20 41.2	2.471	1.521	8.0	20.8	12 E	1*	6*	11 27	1 40.68	-17 45.4	0.448	1.303	37.6	20.8	126 E	27	82
11 27	16 54.73	+21 23.8	2.478	1.515	6.5	20.8	10 E	—	3*	12 2	1 43.65	-14 22.1	0.489	1.327	37.6	21.1	125 E	31	78
12 7	17 27.82	+21 42.2	2.486	1.515	5.0	20.7	8 E	—	—	12 7	1 47.30	-11 15.7	0.533	1.351	37.8	21.3	123 E	34	75
12 17	18 1.01	+21 35.3	2.496	1.519	3.5	20.6	5 E	—	—	<b>30785 Greeley</b>									
12 27	18 33.95	+21 3.1	2.507	1.527	2.1	20.6	3 E	—	—	8 29	13 59.53	-11 22.9	3.679	3.012	13.1	21.5	42 E	5*	36*
1 6	19 6.32	+20 6.7	2.521	1.539	1.6	20.5	2 W	—	—	9 8	13 11.56	-12 29.2	3.737	2.981	11.4	21.4	36 E	3*	30*
1 16	19 37.88	+18 48.2	2.536	1.555	2.4	20.6	4 W	—	—	9 18	13 24.28	-13 38.8	3.780	2.948	9.7	21.4	30 E	1*	27*
<b>159859 2004 LE<sub>23</sub></b>										<b>39096 2000 WE<sub>1</sub></b>									
8 29	12 40.64	+16 33.7	3.658	2.858	10.9	21.5	32 E	22*	18*	8 29	13 2.84	+0 7.2	4.309	3.582	10.2	21.5	39 E	14*	32*
9 8	12 54.39	+14 47.5	3.694	2.843	9.6	21.4	28 E	19*	13*	9 8	13 12.75	+1 21.7	4.381	3.570	8.7	21.5	32 E	11*	25*
9 18	13 8.50	+13 3.2	3.716	2.827	8.3	21.4	24 E	17*	8*	9 18	13 23.16	+2 36.5	4.438	3.558	7.0	21.4	26 E	8*	19*
9 28	13 22.94	+11 21.5	3.724	2.810	7.3	21.3	21 E	15*	2*	9 28	13 33.98	+3 51.1	4.477	3.544	5.3	21.3	19 E	6*	12*
10 8	13 37.69	+9 43.0	3.719	2.793	6.7	21.3	19 E	13*	—	10 8	13 45.16	+5 4.7	4.498	3.530	3.5	21.2	13 E	3*	5*
10 18	13 52.71	+8 8.3	3.701	2.774	6.5	21.3	18 E	10*	—	10 18	13 56.65	+6 16.8	4.501	3.514	2.0	21.1	7 E	1*	—
10 28	14 7.99	+6 38.4	3.668	2.754	7.0	21.2	20 W	8*	—	10 28	14 8.38	+7 26.8	4.485	3.498	1.6	21.1	6 W	—	—
11 7	14 23.48	+5 13.8	3.623	2.733	7.9	21.2	22 W	14*	—	11 7	14 20.29	+8 34.3	4.451	3.481	3.0	21.2	10 W	4*	—
11 17	14 39.17	+3 55.4	3.564	2.711	9.2	21.2	26 W	19*	—	11 17	14 32.32	+9 38.6	4.398	3.463	4.7	21.2	17 W	10*	2*
11 27	14 54.99	+2 44.0	3.493	2.688	10.7	21.2	30 W	24*	—	11 27	14 44.40	+10 39.2	4.327	3.445	6.5	21.3	23 W	16*	8*
12 7	15 10.90	+1 40.1	3.409	2.665	12.3	21.2	35 W	29*	5*	12 7	14 56.45	+11 35.6	4.239	3.425	8.4	21.3	30 W	20*	14*
12 17	15 26.85	+0 44.6	3.315	2.640	13.9	21.2	40 W	33*	12*	12 17	15 8.37	+12 27.6	4.134	3.405	10.1	21.3	37 W	24*	21*
12 27	15 42.74	+0 2.1	3.209	2.615	15.5	21.2	45 W	36*	18*	12 27	15 20.06	+13 14.5	4.014	3.383	11.8	21.3	45 W	26*	29*
1 6	15 58.50	+0 39.4	3.093	2.588	17.1	21.1	51 W	38*	25*	1 6	15 31.40	+13 56.3	3.879	3.361	13.3	21.2	52 W	28*	37*
1 16	16 14.03	+1 7.0	2.969	2.561	18.7	21.1	56 W	40*	33*	1 16	15 42.25	+14 32.6	3.732	3.338	14.7	21.2	59 W	29*	46*
<b>510190 2011 CX<sub>7</sub></b>										<b>39096 2000 WE<sub>1</sub></b>									
8 29	12 50.32	-35 0.9	0.228	0.900	112.6	21.4	55 E	—	41*	8 29	13 2.84	+0 7.2	4.309	3.582	10.2	21.5	39 E	14*	32*
9 3	12 48.52	-42 52.0	0.212	0.912	111.4	21.2	57 E	—	37*	9 8	13 12.75	+1 21.7	4.381	3.570	8.7	21.5	32 E	11*	25*
9 8	12 43.45	-51 21.0	0.199	0.926	108.5	20.9	61 E	—	32*	9 18	13 23.16	+2 36.5	4.438	3.558	7.0	21.4	26 E	8*	19*
9 13	12 33.08	-60 16.6	0.190	0.943	104.0	20.6	65 E	—	28*	9 28	13 33.98	+3 51.1	4.477	3.544	5.3	21.3	19 E	6*	12*
9 18	12 11.83	-69 20.4	0.185	0.962	98.1	20.3	71 E	—	25*	10 8	13 45.16	+5 4.7	4.498	3.530	3.5	21.2	13 E	3*	5*
9 19	12 5.05	-71 7.8	0.185	0.966	96.8	20.2	73 E	—	24*	10 18	13 56.65	+6 16.8	4.501	3.514	2.0	21.1	7 E	1*	—
9 20	11 56.86	-72 54.0	0.185	0.970	95.4	20.2	74 E	—	24*	10 28	14 8.38	+7 26.8	4.485	3.498	1.6	21.1	6 W	—	—
9 21	11 46.82	-74 38.5	0.184	0.974	94.1	20.1	75 W	—	24*	11 7	14 20.29	+8 34.3	4.451	3.481	3.0	21.2	10 W	4*	—
9 22	11 34.28	-76 20.5	0.184	0.978	92.7	20.1	77 W	—	25*	11 17	14 32.32	+9 38.6	4.398	3.463	4.7	21.2	17 W	10*	2*
9 23	11 18.33	-77 59.2	0.184	0.982	91.3	20.0	78 W	—	26*	11 27	14 44.40	+10 39.2	4.327	3.445	6.5	21.3	23 W	16*	8*
9 24	10 57.59	-79 32.9	0.184	0.987	89.9	20.0	80 W	—	27*	12 7	14 56.45	+11 35.6	4.239	3.425	8.4	21.3	30 W	20*	14*
9 25	10 30.11	-80 59.4	0.185	0.991	88.4	19.9	81 W	—	28*	12 17	15 8.37	+12 27.6	4.134	3.405	10.1	21.3	37 W	24*	21*
9 26	9 53.26	-82 15.0	0.185	0.995	87.0	19.9	82 W	—	29*	1 6	15 31.40	+13 56.3	3.879	3.361	13.3	21.2	52 W	28*	37*
9 27	9 4.43	-83 14.2	0.186	1.000	85.5	19.8	84 W	—	30*	1 16	15 42.25	+14 32.6	3.732	3.338	14.7	21.2	59 W	29*	46*
9 28	8 3.41	-83 49.5	0.187	1.004	84.0	19.8	85 W	—	31*	<b>39096 2000 WE<sub>1</sub></b>									
9 29	6 56.00	-83 55.0	0.188	1.009	82.6	19.8	87 W	—	32*	8 29	13 2.84	+0 7.2	4.309	3.582	10.2	21.5	39 E	14*	32*
9 30	5 52.64	-83 30.0	0.189	1.013	81.1	19.7	88 W	—											

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

20/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	$45^\circ$ - $26^\circ$	2020	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	$45^\circ$ - $26^\circ$
<b>331811 2003 SU<sub>99</sub></b>									<b>410627 2008 RG<sub>1</sub></b> (continuation)								
8 29	13 4.21	-6 6.9	3.364	2.690	14.3	21.5	41 E	10* 35*	9 12	18 0.09	-34 41.9	0.233	1.073	67.3	20.1	100 E	10* 81
9 8	13 18.42	-7 9.7	3.403	2.646	12.7	21.4	35 E	8* 29*	9 13	18 12.06	-33 37.9	0.237	1.081	65.6	20.1	102 E	11* 82
9 18	13 33.44	-8 15.3	3.429	2.601	10.9	21.3	29 E	6* 23*	9 14	18 23.34	-32 32.3	0.242	1.088	64.1	20.1	103 E	12 83
9 28	13 49.23	-9 22.4	3.442	2.556	9.1	21.2	24 E	5* 18*	9 15	18 33.96	-31 25.9	0.247	1.095	62.6	20.1	105 E	14 85
10 8	14 5.80	-10 29.6	3.441	2.511	7.1	21.1	18 E	3* 12*	9 16	18 43.94	-30 19.3	0.253	1.103	61.2	20.1	106 E	15 86
10 18	14 23.14	-11 35.8	3.426	2.464	5.1	21.0	13 E	1* 6*	9 17	18 53.33	-29 13.0	0.259	1.110	59.8	20.1	107 E	16 87
10 28	14 41.24	-12 39.6	3.399	2.418	3.1	20.8	8 E	— 1*	9 18	19 2.15	-28 7.5	0.266	1.117	58.6	20.2	108 E	17 88
11 7	15 0.12	-13 39.5	3.359	2.371	1.6	20.6	4 E	— —	9 20	19 18.23	-26 0.3	0.280	1.132	56.3	20.2	110 E	19 90
11 17	15 19.77	-14 34.1	3.307	2.324	2.1	20.6	5 W	— —	9 22	19 32.50	-23 59.4	0.295	1.147	54.3	20.3	112 E	21 88
11 27	15 40.19	-15 21.9	3.244	2.277	4.1	20.6	9 W	3* —	9 24	19 45.22	-22 6.1	0.311	1.161	52.6	20.4	113 E	23 86
12 7	16 1.37	-16 1.2	3.171	2.230	6.3	20.6	14 W	7* 2*	9 26	19 56.61	-20 20.5	0.329	1.176	51.1	20.5	114 E	25 84
12 17	16 23.29	-16 30.5	3.089	2.182	8.5	20.6	19 W	11* 7*	9 28	20 6.90	-18 42.6	0.347	1.190	49.8	20.6	115 E	26 83
12 27	16 45.90	-16 48.2	2.998	2.135	10.7	20.6	24 W	13* 11*	9 30	20 16.24	-17 12.0	0.366	1.204	48.7	20.7	115 E	28 81
1 6	17 9.16	-16 52.7	2.901	2.089	12.9	20.6	28 W	16* 16*	10 2	20 24.78	-15 48.4	0.386	1.219	47.8	20.9	116 E	29 80
1 16	17 33.02	-16 42.6	2.798	2.043	15.2	20.5	33 W	17* 22*	10 4	20 32.64	-14 31.1	0.406	1.233	46.9	21.0	116 E	30 79
<b>200689 2001 UY<sub>1</sub></b>									<b>414990 2011 EM<sub>51</sub></b>								
8 29	13 10.38	-11 2.1	2.445	1.867	22.4	21.5	45 E	7* 39*	8 29	14 49.82	-19 3.4	0.155	0.968	101.4	21.5	70 E	15* 64*
9 8	13 31.94	-12 46.4	2.480	1.835	20.9	21.4	41 E	6* 35*	8 31	15 8.85	-21 1.0	0.148	0.976	98.8	21.3	73 E	15* 67*
9 18	13 54.61	-14 30.4	2.508	1.803	19.4	21.4	37 E	5* 31*	9 2	15 29.98	-22 59.3	0.142	0.985	95.8	21.1	76 E	15* 70*
9 28	14 18.42	-16 11.8	2.530	1.772	17.8	21.3	33 E	4* 27*	9 4	15 53.29	-24 54.3	0.137	0.993	92.3	20.9	80 E	15* 74*
10 8	14 43.38	-17 48.0	2.547	1.743	16.2	21.2	29 E	4* 23*	9 6	16 18.71	-26 40.9	0.134	1.003	88.5	20.7	84 E	15* 78*
10 18	15 9.53	-19 16.3	2.560	1.715	14.5	21.1	26 E	3* 19*	9 8	16 46.00	-28 13.4	0.132	1.012	84.4	20.5	88 E	15* 82*
10 28	15 36.84	-20 33.8	2.568	1.689	12.8	21.0	22 E	3* 16*	9 9	17 0.20	-28 52.7	0.131	1.017	82.2	20.4	90 E	15* 83*
11 7	16 5.25	-21 37.6	2.573	1.666	11.0	20.9	19 E	2* 12*	9 10	17 14.66	-29 26.5	0.131	1.021	80.0	20.3	93 E	15* 85*
11 17	16 34.67	-22 24.9	2.575	1.644	9.3	20.9	16 E	2* 9*	9 11	17 29.29	-29 54.4	0.131	1.026	77.9	20.3	95 E	15* 86*
11 27	17 4.95	-22 53.0	2.575	1.625	7.5	20.7	12 E	1* 6*	9 12	17 43.99	-30 16.1	0.132	1.031	75.7	20.2	97 E	14* 86
12 7	17 35.86	-22 59.9	2.573	1.609	5.7	20.6	9 E	— 2*	9 13	17 58.65	-30 31.4	0.133	1.036	73.5	20.2	99 E	14* 85
12 17	18 7.18	-22 44.0	2.570	1.596	4.0	20.5	6 E	— —	9 14	18 13.18	-30 40.4	0.134	1.041	71.3	20.1	101 E	14* 85
12 27	18 38.62	-22 4.6	2.566	1.586	2.3	20.4	4 E	— —	9 15	18 27.46	-30 43.2	0.136	1.046	69.3	20.1	104 E	14 85
1 6	19 9.91	-21 2.0	2.562	1.580	1.0	20.3	2 E	— —	9 16	18 41.43	-30 40.3	0.138	1.051	67.2	20.1	106 E	14 85
1 16	19 40.82	-19 37.2	2.558	1.577	1.7	20.3	3 W	— —	9 17	18 54.99	-30 32.0	0.140	1.056	65.3	20.1	107 E	14 85
<b>316855 2000 JK<sub>72</sub></b>									<b>414990 2011 EM<sub>51</sub></b>								
8 29	13 12.06	+8 11.2	3.878	3.171	11.8	21.5	40 E	21* 29*	9 18	19 8.10	-30 18.9	0.143	1.061	63.4	20.0	109 E	15 86
9 8	13 22.46	+6 19.2	3.927	3.140	10.3	21.4	34 E	18* 24*	9 19	19 20.70	-30 1.5	0.146	1.066	61.6	20.1	111 E	15 86
9 18	13 33.49	+4 28.5	3.961	3.108	8.7	21.3	28 E	15* 18*	9 20	19 32.76	-29 40.5	0.149	1.071	59.9	20.1	113 E	15 86
9 28	13 45.07	+2 39.5	3.980	3.075	7.1	21.3	22 E	13* 11*	9 21	19 44.28	-29 16.3	0.153	1.076	58.2	20.1	114 E	16 87
10 8	13 57.15	+0 52.6	3.983	3.041	5.5	21.2	17 E	10* 5*	9 22	19 55.23	-28 49.6	0.157	1.081	56.7	20.1	116 E	16 87
10 18	14 9.70	+0 51.9	3.969	3.006	4.2	21.1	13 E	7* —	9 23	20 5.63	-28 20.9	0.161	1.086	55.3	20.1	117 E	17 88
10 28	14 22.66	+2 33.5	3.939	2.970	3.7	21.0	11 E	4* —	9 24	20 15.48	-27 50.6	0.165	1.091	53.9	20.2	118 E	17 88
11 7	14 36.01	+4 12.0	3.893	2.933	4.2	21.0	12 W	5* —	9 25	20 24.81	-27 19.2	0.170	1.097	52.7	20.2	120 E	18 89
11 17	14 49.69	+5 46.9	3.831	2.896	5.5	21.0	16 W	10* —	9 26	20 33.63	-26 46.9	0.175	1.102	51.5	20.2	121 E	18 89
11 27	15 3.68	+7 18.0	3.752	2.857	7.3	21.0	21 W	15* 2*	9 27	20 41.97	-26 14.2	0.180	1.107	50.4	20.3	122 E	19 90
12 7	15 17.91	+8 45.1	3.659	2.818	9.2	21.0	27 W	19* 8*	9 28	20 49.85	-25 41.2	0.185	1.112	49.4	20.3	122 E	19 90
12 17	15 32.34	+10 8.0	3.550	2.777	11.1	21.0	33 W	23* 15*	9 30	21 4.36	-24 35.4	0.196	1.123	47.7	20.4	124 E	20 89
12 27	15 46.91	+11 26.5	3.428	2.736	13.1	20.9	39 W	25* 22*	10 2	21 17.37	-23 30.6	0.208	1.133	46.2	20.5	125 E	21 88
1 6	16 1.56	+12 40.9	3.294	2.694	15.0	20.9	45 W	27* 30*	10 4	21 29.07	-22 27.6	0.220	1.144	44.9	20.6	126 E	23 86
1 16	16 16.20	+13 51.3	3.148	2.650	16.9	20.8	52 W	27* 38*	10 6	21 39.65	-21 26.9	0.233	1.155	43.8	20.7	127 E	24 85
<b>347803 2002 JY<sub>55</sub></b>									<b>511114 2013 WX<sub>24</sub></b>								
8 29	13 36.64	-10 18.0	2.566	2.072	22.0	21.5	50 E	12* 44*	8 29	23 27.19	-0 52.5	2.213	3.194	5.1	22.4	164 W	44 65
9 8	13 55.48	-11 19.9	2.600	2.023	20.7	21.4	45 E	11* 39*	9 8	23 18.62	-2 1.1	2.159	3.164	1.5	22.1	175 W	43 66
9 18	14 15.55	-12 23.8	2.627	1.974	19.3	21.4	41 E	10* 34*	9 18	23 9.57	-3 15.0	2.136	3.133	2.7	22.1	172 E	42 67
9 28	14 36.85	-13 27.4	2.645	1.927	17.8	21.3	36 E	9* 30*	9 28	23 0.87	-4 28.1	2.143	3.101	6.5	22.3	160 E	41 68
10 8	14 59.38	-14 28.4	2.655	1.881	16.3	21.2	32 E	9* 25*	10 8	22 53.30	-5 34.6	2.177	3.068	10.1	22.5	148 E	39 70
10 18	15 23.16	-15 24.3	2.659	1.836	14.6	21.1	28 E	8* 21*	<b>397237 2006 KZ<sub>112</sub></b>								
10 28	15 48.16	-16 12.5	2.656	1.794	13.0	21.0	24 E	8* 17*	8 29	23 33.00	-5 7.5	3.674	4.653	3.4	23.2	164 W	40 69
11 7	16 14.36	-16 50.3	2.648	1.753	11.4	20.8	20 E	7* 13*	9 8	23 24.98	-6 17.1	3.631	4.636	1.0	23.0	175 W	39 70
11 17	16 41.71	-17 15.1	2.635	1.716	9.8	20.7	17 E	7* 8*	9 18	23 16.66	-7 26.9	3.622	4.618	1.8	23.0	171 E	38 71
11 27	17 10.08	-17 24.3	2.620	1.681	8.3	20.6	14 E	6* 4*	9 28	23 8.55	-8 33.2	3.647	4.599	4.4	23.2	160 E	36 73
12 7	17 39.35	-17 15.7	2.602	1.649	7.0	20.5	12 E	5* —	10 8	23 1.11	-9 32.8	3.703	4.579	6.7	23.4	148 E	35 74
12 17	18 9.33	-16 47.4	2.583	1.622	5.8	20.4	10 E	4* —									
12 27	18 39.80	-15 58.4	2.565	1.598	5.1	20.3	8 E	2* —									
1 6	19 10.53	-14 48.4	2.548	1.580	4.8	20.2	8 E	1* —									
1 16	19 41.29	-13 17.9	2.534	1.566	5.0	20.2	8 W	1* —									



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>456618 2007 HB</b>										<b>413091 2001 UV<sub>16</sub></b> <span style="float:right">(continuation)</span>									
8	29	23 34.56	-41 10.5	1.992	2.879	11.6	24.2	145 W	4 75	9	28	23 32.97	-49 46.4	2.090	2.813	16.5	22.9	127 E	- 66
9	3	23 28.22	-41 41.6	2.003	2.886	11.6	24.2	145 W	3 74	10	3	23 24.31	-49 16.5	2.103	2.794	17.2	23.0	125 E	- 67
9	8	23 21.70	-42 4.5	2.019	2.892	12.0	24.3	143 W	3 74	10	8	23 16.33	-48 36.2	2.119	2.775	17.9	23.0	121 E	- 67
9	13	23 15.17	-42 18.7	2.042	2.898	12.5	24.3	141 E	3 74	<b>247360 2001 XU</b>									
9	18	23 8.80	-42 24.0	2.071	2.903	13.2	24.4	139 E	3 74	9	8	0 16.37	+26 22.3	3.874	4.724	7.2	26.0	144 W	71 38
9	23	23 2.78	-42 20.4	2.105	2.909	14.0	24.4	136 E	3 74	9	18	0 8.22	+25 50.7	3.814	4.722	5.8	25.9	152 W	71 38
9	28	22 57.25	-42 8.5	2.145	2.914	14.8	24.5	132 E	3 74	9	28	23 59.74	+25 4.5	3.783	4.719	4.9	25.9	156 E	70 39
<b>470585 2008 JQ<sub>14</sub></b>										10	8	23 51.48	+24 5.8	3.783	4.715	4.9	25.9	156 E	69 40
8	29	23 37.65	+11 55.6	1.571	2.512	10.5	22.6	153 W	57 52	10	18	23 43.93	+22 58.1	3.813	4.709	5.9	25.9	151 E	68 41
9	3	23 32.63	+11 6.6	1.575	2.540	8.4	22.6	158 W	56 53	<b>475967 2007 JF<sub>22</sub></b>									
9	8	23 27.50	+10 13.2	1.586	2.567	6.5	22.5	163 W	55 54	9	8	0 19.48	-27 30.8	3.934	4.848	5.6	23.1	152 W	17 88
9	13	23 22.39	+9 16.3	1.604	2.594	5.0	22.5	167 E	54 55	9	18	0 11.94	-28 8.8	3.938	4.853	5.4	23.0	153 W	17 88
9	18	23 17.45	+8 17.5	1.630	2.621	4.6	22.5	168 E	53 56	9	28	0 4.15	-28 33.7	3.970	4.858	6.1	23.1	149 E	16 87
9	23	23 12.82	+7 17.9	1.662	2.647	5.2	22.7	166 E	52 57	10	8	23 56.62	-28 43.9	4.030	4.862	7.2	23.2	143 E	16 87
9	28	23 8.60	+6 19.0	1.702	2.673	6.6	22.8	162 E	51 58	10	18	23 49.81	-28 38.9	4.115	4.865	8.4	23.3	135 E	16 87
<b>503861 1998 WZ<sub>1</sub></b>										<b>170502 2003 WM<sub>7</sub></b>									
8	29	23 45.88	-1 5.9	1.469	2.441	8.3	23.2	160 W	44 65	9	8	0 20.94	-10 4.6	2.625	3.593	5.2	22.5	161 W	35 74
9	8	23 34.58	-2 0.5	1.382	2.384	3.3	22.7	172 W	43 66	9	13	0 15.44	-10 39.9	2.638	3.621	3.9	22.5	166 W	34 75
9	18	23 21.44	-3 5.4	1.322	2.325	2.3	22.5	175 E	42 67	9	18	0 9.84	-11 13.3	2.659	3.649	3.2	22.5	168 W	34 75
9	28	23 7.79	-4 12.7	1.292	2.264	8.2	22.7	161 E	41 68	9	23	0 4.26	-11 44.2	2.689	3.676	3.2	22.5	168 W	33 76
10	8	22 55.20	-5 13.4	1.288	2.201	13.9	22.9	148 E	40 69	9	28	23 58.79	-12 12.0	2.726	3.703	4.0	22.6	165 E	33 76
<b>163070 2002 AO<sub>7</sub></b>										10	3	23 53.52	-12 36.5	2.772	3.730	5.2	22.6	160 E	32 77
8	29	23 50.45	+18 46.1	3.424	4.296	7.6	24.7	146 W	64 45	10	8	23 48.53	-12 57.3	2.826	3.756	6.5	22.8	155 E	32 77
9	8	23 43.18	+18 24.8	3.337	4.267	5.9	24.5	154 W	63 46	10	13	23 43.89	-13 14.2	2.887	3.781	7.7	22.9	149 E	32 77
9	18	23 35.29	+17 49.2	3.277	4.237	4.6	24.4	160 E	63 46	<b>465619 2009 FJ<sub>22</sub></b>									
9	28	23 27.32	+17 1.1	3.248	4.205	4.6	24.4	160 E	62 47	9	8	0 28.61	+6 3.8	1.872	2.824	8.2	22.4	156 W	51 58
10	8	23 19.82	+16 3.7	3.249	4.173	5.9	24.4	155 E	61 48	9	13	0 24.47	+5 24.4	1.856	2.832	6.2	22.3	162 W	50 59
<b>496860 1999 XL<sub>136</sub></b>										9	18	0 20.07	+4 42.3	1.848	2.840	4.0	22.2	169 W	50 59
8	29	23 53.05	+13 27.3	1.981	2.896	10.2	24.0	149 W	58 51	9	23	0 15.51	+3 58.4	1.847	2.847	1.9	22.0	175 W	49 60
9	8	23 41.41	+12 33.3	1.950	2.916	6.9	23.8	160 W	58 51	9	28	0 10.92	+3 13.7	1.853	2.855	0.8	22.0	178 E	48 61
9	18	23 29.16	+11 21.1	1.947	2.933	4.6	23.7	166 E	56 53	10	3	0 6.41	+2 29.1	1.867	2.862	2.7	22.1	172 E	47 62
9	28	23 17.37	+9 56.8	1.976	2.948	5.7	23.8	163 E	55 54	10	8	0 2.11	+1 45.6	1.888	2.868	4.8	22.3	166 E	47 62
10	8	23 7.05	+8 28.7	2.035	2.961	8.8	24.0	153 E	53 56	10	13	23 58.11	+1 4.1	1.917	2.875	6.8	22.4	160 E	46 63
<b>437965 2003 AL<sub>73</sub></b>										<b>438317 2006 JX</b>									
8	29	23 53.09	+8 36.7	2.910	3.835	6.9	25.2	153 W	54 55	9	8	0 32.26	+36 22.3	1.351	2.170	19.7	23.2	133 W	81 28
9	8	23 44.82	+7 43.0	2.892	3.868	4.2	25.0	164 W	53 56	9	13	0 26.89	+35 58.7	1.320	2.172	18.2	23.1	138 W	81 28
9	18	23 36.19	+6 40.7	2.904	3.900	2.2	24.9	171 E	52 57	9	18	0 20.96	+35 22.2	1.293	2.173	16.7	23.0	142 W	80 29
9	28	23 27.83	+5 34.0	2.948	3.931	3.3	25.0	167 E	51 58	9	23	0 14.67	+34 32.4	1.272	2.174	15.2	22.9	145 W	80 29
10	8	23 20.32	+4 27.7	3.024	3.960	5.8	25.3	156 E	49 60	9	28	0 8.26	+33 29.7	1.256	2.174	14.0	22.9	148 E	78 31
<b>506443 2001 CM<sub>35</sub></b>										10	3	0 1.95	+32 14.9	1.246	2.174	13.1	22.8	151 E	77 32
8	29	23 55.19	-12 56.6	2.775	3.735	5.6	23.2	159 W	32 77	10	8	23 55.98	+30 49.6	1.243	2.173	12.7	22.8	151 E	76 33
9	8	23 47.69	-13 53.9	2.755	3.743	3.5	23.1	167 W	31 78	10	13	23 50.53	+29 15.7	1.245	2.172	12.9	22.8	151 E	74 35
9	18	23 39.67	-14 45.6	2.764	3.751	3.4	23.1	167 E	30 79	<b>424460 2008 CC<sub>121</sub></b>									
9	28	23 31.76	-15 27.5	2.804	3.757	5.5	23.3	159 E	30 79	9	8	0 34.31	+4 4.9	1.872	2.823	8.3	22.4	156 W	49 60
10	8	23 24.59	-15 56.7	2.872	3.762	7.9	23.4	149 E	29 80	9	18	0 25.01	+3 35.8	1.817	2.807	4.2	22.1	168 W	49 60
<b>481032 2004 YZ<sub>23</sub></b>										9	28	0 14.64	+2 59.9	1.789	2.791	0.5	21.8	179 E	48 61
8	29	23 55.98	+61 39.1	5.282	5.661	9.8	23.1	107 W	73 2	10	8	0 4.21	+2 22.3	1.791	2.774	4.7	22.1	167 E	47 62
9	3	23 51.08	+61 45.3	5.247	5.666	9.7	23.1	110 W	73 2	10	18	23 54.73	+1 48.3	1.822	2.756	8.9	22.3	155 E	47 62
9	8	23 45.91	+61 46.6	5.214	5.671	9.5	23.1	112 W	73 2	<b>444627 2006 WU</b>									
9	13	23 40.56	+61 42.8	5.185	5.675	9.3	23.1	114 W	73 2	9	8	0 35.10	+6 14.6	1.473	2.424	10.2	22.3	155 W	51 58
9	18	23 35.15	+61 33.7	5.159	5.679	9.1	23.0	117 E	73 2	9	18	0 23.86	+5 17.0	1.433	2.423	5.2	22.3	162 W	50 59
9	23	23 29.78	+61 19.4	5.136	5.683	8.9	23.0	118 E	74 3	9	28	0 11.45	+4 8.2	1.420	2.421	1.1	21.7	177 E	49 60
9	28	23 24.56	+60 59.9	5.118	5.687	8.8	23.0	120 E	74 3	10	8	23 59.25	+2 56.6	1.436	2.418	5.8	22.1	166 E	48 61
10	3	23 19.58	+60 35.5	5.104	5.691	8.6	23.0	121 E	74 3	10	18	23 48.58	+1 50.7	1.481	2.412	10.7	22.3	153 E	47 62
<b>523747 2014 US<sub>192</sub></b>										<b>4688 1980 WF</b>									
8	29	23 59.59	+0 42.4	2.439	3.385	7.1	23.9	156 W	46 63	9	8	0 36.18	+17 22.9	0.802	1.741	17.8	21.1	148 W	62 47
9	8	23 50.29	-0 36.7	2.351	3.343	3.6	23.6	168 W	44 65	9	13	0 33.80	+17 32.7	0.748	1.706	15.7	20.8	153 W	63 46
9	18	23 39.86	-2 4.5	2.295	3.300	0.2	23.3	179 E	43 66	9	18	0 30.48	+17 33.7	0.699	1.671	13.4	20.5	157 W	63 46
9	28	23 29.08	-3 35.0	2.272	3.254	4.1	23.5	166 E	41 68	9	23	0 26.23	+17 24.6	0.654	1.637	11.2	20.2	162 W	62 47
10	8	23 18.82	-5 1.4	2.281	3.207	7.9	23.7	154 E	40 69	9	28	0 21.16	+17 4.4	0.613	1.602	9.4	20.0	165 W	62 47
<b>242708 2005 UK<sub>1</sub></b>										10	3	0 15.43	+16 32.5	0.577	1.567	8.7	19.8	166 E	62 47
9	8	0 5.95	+0 41.8	3.078	4.055	4.0	23.9	164 W	46 63	10	8	0 9.25	+15 48.6	0.545	1.532	9.7	19.6	165 E	61 48
9	18	23 57.75	-0 12.3	3.031	4.034	1.0	23.7	176 W	45 64	10	13	0 2.88	+14 52.9	0.518	1.498	12.3	19.6	161 E	60 49
9	28	23 49.24	-1 8.4	3.017	4.011	2.0	23.8	172 E	44 65	10	18	23 56.69	+13 46.8	0.496	1.464	15.8	19.6	156 E	59 50
10	8	23 41.02	-2 2.5	3.034	3.987	4.9	23.9	160 E	43 66	10	23	23 51.03	+12 32.5	0.477	1.430	19.9	19.6	151 E	58 51
10	18	23 33.64	-2 51.0	3.082	3.962	7.7	24.1	148 E	42 67	10	28	23 46.26	+11 12.8	0.462	1.397	24.2	19.6	145 E	56 53
<b>413091 2001 UV<sub>16</sub></b>										11	2	23 42.67	+9 50.7	0.450	1.364	28.5	19.6	139 E	55 54
9	8	0 9.77	-49 52.3	2.094	2.885	14.6	22.9	134 W	- 66	11	7	23 40.48	+8 29.1	0.441	1.333	32.7	19.6	133 E	53 56
9	13	0 0.77	-50 7.6	2.085	2.867	14.9													

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°
4688 1980 WF (continuation)									474425 2002 YF <sub>4</sub>								
12 7	0 3.14	+2 19.9	0.407	1.169	53.9	19.8	107 E	47   62*	9 8	0 54.61	-54 38.3	1.591	2.335	20.3	22.7	126 W	—   61
12 17	0 24.69	+1 21.3	0.397	1.129	58.8	19.8	101 E	46   61*	9 13	0 45.20	-55 11.6	1.593	2.332	20.4	22.7	126 W	—   61
12 27	0 53.11	+0 54.7	0.384	1.099	62.6	19.8	97 E	46   61*	9 18	0 35.04	-55 31.3	1.599	2.329	20.6	22.7	125 W	—   60
1 6	1 28.28	+0 56.6	0.372	1.082	64.8	19.7	95 E	46   60*	9 23	0 24.50	-55 36.2	1.609	2.325	20.9	22.7	124 W	—   60
1 16	2 10.08	+1 24.7	0.363	1.077	65.5	19.7	95 E	46   60*	9 28	0 13.97	-55 25.9	1.623	2.321	21.3	22.7	123 E	—   61
481457 2006 XD <sub>2</sub>									10 3	0 3.83	-55 0.6	1.641	2.317	21.8	22.8	121 E	—   61
9 8	0 36.88	-3 57.5	0.833	1.805	12.4	22.6	157 W	41   68	10 8	23 54.43	-54 21.1	1.662	2.312	22.3	22.8	118 E	—   62
9 13	0 28.34	-4 57.7	0.816	1.805	8.8	22.4	164 W	40   69	10 13	23 46.01	-53 28.7	1.687	2.307	22.9	22.8	116 E	—   63
9 18	0 19.01	-5 59.2	0.805	1.803	5.5	22.3	170 W	39   70	244670 2003 KN <sub>18</sub>								
9 23	0 9.18	-6 59.3	0.801	1.801	4.1	22.2	173 W	38   71	9 8	0 54.65	+0 57.1	1.534	2.471	10.9	22.1	152 W	46   63
9 28	23 59.25	-7 55.5	0.804	1.797	6.1	22.3	169 E	37   72	9 13	0 50.08	+0 1.8	1.495	2.459	8.7	21.9	158 W	45   64
10 3	23 49.56	-8 45.5	0.813	1.793	9.5	22.4	163 E	36   73	9 18	0 44.89	+0 57.2	1.463	2.446	6.3	21.8	164 W	44   65
10 8	23 40.48	-9 27.8	0.828	1.788	13.2	22.6	156 E	36   73	9 23	0 39.19	-1 58.9	1.438	2.433	4.1	21.6	170 W	43   66
10 13	23 32.27	-10 1.2	0.849	1.781	16.7	22.8	149 E	35   74	9 28	0 33.14	-3 1.7	1.421	2.419	2.6	21.5	174 W	42   67
350524 2000 EA <sub>137</sub>									10 3	0 26.90	-4 4.1	1.410	2.405	3.5	21.5	172 E	41   68
9 8	0 40.40	+1 53.3	1.888	2.835	8.5	21.6	155 W	47   62	10 8	0 20.62	-5 4.6	1.408	2.390	5.8	21.6	166 E	40   69
9 18	0 32.30	+1 17.8	1.808	2.797	4.6	21.3	167 W	46   63	10 13	0 14.50	-6 1.6	1.413	2.374	8.3	21.7	160 E	39   70
9 28	0 22.81	+0 36.5	1.757	2.759	0.6	20.9	178 W	46   63	10 18	0 8.70	-6 53.9	1.424	2.358	10.9	21.8	154 E	38   71
10 8	0 12.87	-0 5.2	1.734	2.719	4.4	21.2	168 E	45   64	10 23	0 3.39	-7 40.3	1.443	2.342	13.3	21.9	147 E	37   72
10 18	0 3.48	-0 41.6	1.740	2.679	8.8	21.3	156 E	44   65	10 28	23 58.71	-8 20.0	1.467	2.324	15.6	22.0	141 E	37   72
10 28	23 55.66	-1 7.5	1.771	2.639	12.8	21.5	144 E	44   65	439998 2002 CM <sub>4</sub>								
353190 2009 ST									9 8	0 55.79	+33 12.4	2.832	3.598	11.8	22.3	133 W	78   31
9 8	0 42.53	+9 16.4	0.867	1.818	15.2	21.5	152 W	54   55	9 18	0 46.53	+33 34.8	2.771	3.612	10.0	22.1	141 W	79   30
9 18	0 36.99	+7 13.6	0.783	1.770	9.2	21.0	164 W	52   57	9 28	0 36.09	+33 34.7	2.735	3.625	8.4	22.1	148 W	79   30
9 28	0 28.61	+4 27.5	0.720	1.722	2.0	20.4	176 W	49   60	10 8	0 25.32	+33 12.4	2.725	3.637	7.5	22.0	152 E	78   31
10 8	0 18.69	+1 10.8	0.680	1.673	6.0	20.5	170 E	46   63	10 18	0 15.07	+32 30.3	2.744	3.648	7.6	22.0	151 E	78   31
350524 2000 EA <sub>137</sub>									10 28	0 6.15	+31 33.6	2.790	3.657	8.7	22.1	146 E	77   32
10 13	0 13.74	-0 32.1	0.668	1.648	10.2	20.6	163 E	44   65	506441 2001 AV <sub>19</sub>								
10 18	0 9.14	-2 13.7	0.662	1.624	14.3	20.7	156 E	43   66	9 8	1 6.59	-34 16.5	2.763	3.595	10.3	21.5	140 W	11   82
10 23	0 5.19	-3 50.3	0.660	1.600	18.3	20.8	150 E	41   68	9 13	1 2.83	-34 56.7	2.752	3.594	10.0	21.5	141 W	10   81
10 28	0 2.10	-5 19.1	0.663	1.576	22.1	20.9	143 E	40   69	9 18	0 58.68	-35 32.5	2.747	3.592	9.9	21.5	142 W	9   80
11 2	0 0.03	-6 37.9	0.669	1.552	25.7	21.0	137 E	38   71	9 23	0 54.23	-36 3.1	2.748	3.591	10.0	21.5	142 W	9   80
11 7	23 59.10	-7 45.3	0.679	1.528	29.0	21.1	132 E	37   72	9 28	0 49.56	-36 27.7	2.755	3.589	10.2	21.5	141 W	9   80
11 12	23 59.38	-8 40.5	0.691	1.505	32.0	21.1	126 E	36   73	10 3	0 44.80	-36 46.0	2.769	3.587	10.5	21.6	139 W	8   79
11 17	0 0.90	-9 23.2	0.705	1.482	34.8	21.2	121 E	36   73	10 8	0 40.03	-36 57.6	2.788	3.584	11.0	21.6	137 E	8   79
11 22	0 3.66	-9 53.4	0.720	1.460	37.2	21.3	117 E	35   74	10 13	0 35.36	-37 2.3	2.813	3.582	11.5	21.6	134 E	8   79
11 27	0 7.61	-10 11.8	0.736	1.438	39.4	21.4	112 E	35   74	10 18	0 30.90	-37 0.1	2.843	3.579	12.1	21.7	131 E	8   79
12 2	0 12.69	-10 19.0	0.753	1.417	41.3	21.5	108 E	35   74	10 23	0 26.74	-36 51.2	2.878	3.576	12.7	21.7	128 E	8   79
290772 2005 VC									10 28	0 22.96	-36 36.0	2.918	3.573	13.3	21.8	124 E	8   79
9 8	0 47.04	+9 57.1	1.955	2.875	9.9	22.0	151 W	55   54	11 2	0 19.63	-36 14.9	2.962	3.570	13.9	21.8	121 E	9   80
9 18	0 37.62	+9 0.3	1.860	2.835	6.1	21.7	162 W	54   55	431321 2006 WL <sub>130</sub>								
9 28	0 26.55	+7 47.4	1.794	2.793	2.2	21.4	174 W	53   56	9 8	1 17.14	-20 4.3	2.191	3.073	10.8	21.7	145 W	25   84
10 8	0 14.80	+6 23.7	1.759	2.748	3.6	21.4	170 E	51   58	9 13	1 13.61	-20 43.4	2.164	3.067	9.9	21.7	149 W	24   85
10 18	0 3.47	+4 56.5	1.754	2.702	8.1	21.5	158 E	50   59	9 18	1 9.59	-21 20.4	2.143	3.062	9.1	21.6	151 W	24   85
10 28	23 53.67	+3 34.5	1.777	2.654	12.4	21.7	145 E	49   60	9 23	1 5.16	-21 53.9	2.128	3.056	8.6	21.6	153 W	23   86
417211 2005 XL <sub>80</sub>									9 28	1 0.44	-22 23.3	2.120	3.050	8.4	21.5	154 W	23   86
9 8	0 47.24	-11 7.6	1.485	2.434	10.2	21.8	155 W	34   75	10 3	0 55.51	-22 47.5	2.119	3.044	8.6	21.5	153 W	22   87
9 13	0 40.93	-11 47.1	1.478	2.446	8.3	21.8	160 W	33   76	10 8	0 50.50	-23 5.9	2.125	3.038	9.2	21.6	151 E	22   87
9 18	0 34.19	-12 24.3	1.477	2.457	6.7	21.7	163 W	33   76	10 13	0 45.52	-23 18.0	2.137	3.031	10.0	21.6	148 E	22   87
9 23	0 27.22	-12 58.0	1.484	2.468	5.9	21.7	165 W	32   77	10 18	0 40.70	-23 23.6	2.156	3.024	11.0	21.7	145 E	22   87
9 28	0 20.19	-13 26.9	1.498	2.478	6.2	21.7	165 W	32   77	10 23	0 36.16	-23 22.4	2.180	3.017	12.0	21.7	141 E	22   87
10 3	0 13.29	-13 50.2	1.520	2.488	7.4	21.8	161 E	31   78	10 28	0 31.99	-23 14.7	2.211	3.010	13.1	21.8	136 E	22   87
10 8	0 6.70	-14 7.5	1.548	2.497	9.1	21.9	157 E	31   78	11 2	0 28.28	-23 0.6	2.246	3.002	14.2	21.9	132 E	22   87
10 13	0 0.58	-14 18.4	1.583	2.506	10.9	22.1	152 E	31   78	243587 1998 DU <sub>9</sub>								
10 18	23 55.05	-14 23.0	1.625	2.514	12.8	22.2	146 E	31   78	9 8	1 18.85	+15 9.3	1.794	2.655	13.8	22.4	141 W	60   49
10 23	23 50.21	-14 21.3	1.672	2.521	14.5	22.3	141 E	31   78	9 18	1 11.58	+14 36.1	1.706	2.638	10.1	22.1	152 W	60   49
10 28	23 46.14	-14 13.8	1.725	2.528	16.1	22.5	135 E	31   78	9 28	1 2.19	+13 43.4	1.642	2.620	6.0	21.8	164 W	59   50
337841 2001 VA <sub>76</sub>									10 8	0 51.54	+12 34.1	1.606	2.601	2.6	21.6	173 E	58   51
9 8	0 48.71	+0 39.7	1.377	2.323	11.1	21.3	154 W	46   63	10 18	0 40.75	+11 14.3	1.599	2.581	4.9	21.7	167 E	56   53
9 18	0 38.74	+0 1.9	1.315	2.303	6.1	21.0	166 W	45   64	10 28	0 31.05	+9 52.5	1.621	2.559	9.2	21.9	156 E	55   54
9 28	0 26.86	+0 48.9	1.280	2.281	1.5	20.6	176 W	44   65	392211 2009 TG <sub>10</sub>								
10 8	0 14.40	+1 33.7	1.272	2.258	5.5	20.8	167 E	43   66	9 8	1 19.39	+31 29.3	1.705	2.486	17.8	21.7	131 W	76   33
10 18	0 2.86	-2 8.7	1.291	2.234	10.9	21.1	155 E	43   66	9 13	1 14.69	+30 35.8	1.673	2.502	16.0	21.6	137 W	76   33
10 28	23 53.61	-2 27.8	1.334	2.208	15.8	21.3	143 E	43   66	9 18	1 9.42	+29 32.5	1.646	2.518	14.1	21.5	142 W	75   34
404151 2013 CQ <sub>33</sub>									9 23	1 3.71	+28 19.4	1.626	2.533	12.1	21.4	148 W	73   36
9 8	0 49.57	+21 30.5	3.080	3.931	8.9	22.1	143 W	67   42	9 28	0 57.72	+26 57.2	1.613	2.548	10.2	21.3	153 W	72   37
9 18	0 41.59	+21 29.0	3.044	3.963	6.7	22.0	153 W	66   43	10 3	0 51.63	+25 26.8	1.606	2.562	8.3	21.3	158 W	70   39
9 28	0 32.92	+21 13.3	3.036	3.995	4.8	21.9	160 W	66   43	10 8	0 45.61	+23 49.9	1.608	2.576	6.9	21.2	162 E	69   40
10 8	0 24.19	+20 45.4	3.058	4.025	4.1												

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>510156</b> 2010 WO <sub>55</sub>										<b>438430</b> 2006 WL <sub>3</sub> (continuation)									
9 8	1 20.01	+37 51.2	2.214	2.928	16.0	21.9	127 W	83	26	10 28	0 4.74	-42 0.2	0.806	1.544	34.7	21.8	118 E	3	74
9 13	1 16.70	+38 7.1	2.163	2.920	15.1	21.8	131 W	83	26	11 2	23 59.18	-40 20.1	0.821	1.531	36.0	21.9	115 E	5	76
9 18	1 12.76	+38 16.4	2.115	2.912	14.2	21.8	135 W	83	26	<b>65717</b> 1993 BX <sub>3</sub>									
9 23	1 8.26	+38 18.6	2.073	2.903	13.2	21.7	139 W	83	26	9 8	2 6.21	+12 0.7	0.490	1.384	32.8	21.3	132 W	57	52
9 28	1 3.29	+38 13.0	2.035	2.894	12.2	21.6	142 W	83	26	9 13	2 12.12	+12 0.6	0.449	1.363	31.2	21.1	135 W	57	52
10 3	0 57.98	+37 59.5	2.004	2.885	11.3	21.5	146 W	83	26	9 18	2 17.51	+11 51.9	0.410	1.342	29.3	20.8	139 W	57	52
10 8	0 52.47	+37 37.8	1.978	2.876	10.5	21.4	148 E	83	26	9 23	2 22.29	+11 33.4	0.374	1.321	27.2	20.5	143 W	57	52
10 13	0 46.89	+37 8.0	1.958	2.866	10.0	21.4	150 E	82	27	9 28	2 26.42	+11 4.1	0.339	1.300	24.8	20.2	147 W	56	53
10 18	0 41.42	+36 30.7	1.945	2.857	9.8	21.4	151 E	82	27	10 3	2 29.85	+10 22.7	0.307	1.279	22.1	19.8	151 W	55	54
10 23	0 36.22	+35 46.4	1.939	2.847	10.0	21.4	150 E	81	28	10 8	2 32.50	+9 27.7	0.278	1.257	19.2	19.5	156 W	54	55
10 28	0 31.44	+34 56.5	1.939	2.836	10.4	21.4	149 E	80	29	10 13	2 34.31	+8 17.6	0.251	1.236	16.1	19.1	160 W	53	56
11 2	0 27.18	+34 2.0	1.946	2.826	11.2	21.4	146 E	79	30	10 18	2 35.25	+6 51.1	0.226	1.215	13.0	18.8	164 W	52	57
11 7	0 23.55	+33 4.5	1.959	2.815	12.2	21.4	143 E	78	31	10 28	2 34.83	+3 7.2	0.184	1.174	9.9	18.1	168 W	48	61
11 12	0 20.61	+32 5.1	1.977	2.804	13.3	21.5	139 E	77	32	11 7	2 32.35	-1 41.4	0.151	1.135	16.0	17.8	162 E	43	66
<b>507156</b> 2009 YE										<b>65717</b> 1993 BX <sub>3</sub> (continuation)									
9 8	1 27.56	-33 45.8	2.779	3.582	11.1	21.5	137 W	11	82	11 17	2 29.74	-7 20.6	0.126	1.099	26.9	17.7	150 E	38	71
9 13	1 23.89	-34 23.8	2.769	3.588	10.7	21.5	139 W	11	82	11 22	2 29.41	-10 20.8	0.115	1.083	32.8	17.7	144 E	35	74
9 18	1 19.78	-34 57.7	2.765	3.593	10.4	21.4	140 W	10	81	11 27	2 30.40	-13 24.4	0.106	1.067	38.7	17.6	137 E	32	77
9 23	1 15.32	-35 26.6	2.767	3.598	10.2	21.4	140 W	10	81	12 2	2 33.16	-16 30.9	0.098	1.053	44.4	17.6	132 E	28	81
9 28	1 10.59	-35 49.8	2.775	3.603	10.2	21.5	140 W	9	80	12 7	2 38.17	-19 40.5	0.090	1.041	49.9	17.5	126 E	25	84
10 3	1 5.70	-36 6.8	2.789	3.608	10.4	21.5	139 W	9	80	12 12	2 46.05	-22 54.3	0.083	1.030	54.9	17.4	121 E	22	87
10 8	1 0.75	-36 17.3	2.809	3.612	10.7	21.5	138 W	9	80	12 17	2 57.70	-26 12.9	0.076	1.021	59.3	17.4	117 E	19	90
10 13	0 55.84	-36 20.9	2.835	3.617	11.1	21.5	136 E	9	80	12 22	3 14.41	-29 37.9	0.069	1.013	62.9	17.3	113 E	15	86
10 18	0 51.08	-36 17.7	2.866	3.621	11.6	21.6	133 E	9	80	12 27	3 37.85	-33 8.7	0.063	1.008	65.6	17.1	111 E	12	83
10 23	0 46.57	-36 7.8	2.903	3.625	12.1	21.6	130 E	9	80	12 29	3 49.58	-34 33.1	0.060	1.006	66.3	17.1	110 E	10	81
10 28	0 42.40	-35 51.4	2.944	3.628	12.7	21.7	127 E	9	80	12 31	4 2.89	-35 56.1	0.058	1.005	66.8	17.0	110 E	9	80
11 2	0 38.63	-35 29.0	2.990	3.632	13.2	21.7	123 E	10	81	1 2	4 17.95	-37 15.8	0.056	1.004	67.0	16.9	110 E	8	79
11 7	0 35.32	-35 1.1	3.041	3.635	13.7	21.8	120 E	10	81	1 4	4 34.89	-38 29.8	0.054	1.003	67.0	16.8	110 E	7	78
<b>190788</b> 2001 RT <sub>17</sub>										<b>455547</b> 2004 HR <sub>43</sub>									
9 8	1 31.49	+22 27.6	1.436	2.261	18.4	21.8	135 W	67	42	9 8	2 20.13	+18 54.8	1.342	2.102	22.7	21.4	126 W	64	45
9 13	1 23.73	+22 33.6	1.384	2.255	16.4	21.7	141 W	68	41	9 18	2 16.20	+19 5.1	1.284	2.131	18.8	21.2	137 W	64	45
9 18	1 14.80	+22 31.5	1.339	2.249	14.2	21.5	147 W	68	41	9 28	2 8.79	+18 54.5	1.243	2.160	14.2	21.0	148 W	64	45
9 23	1 4.81	+22 20.4	1.301	2.241	11.8	21.5	153 W	67	42	10 8	1 58.63	+18 23.0	1.222	2.188	9.0	20.8	160 W	63	46
9 28	0 53.96	+21 59.6	1.270	2.231	9.6	21.2	158 W	67	42	10 18	1 46.95	+17 33.3	1.225	2.215	3.9	20.6	171 W	63	46
10 3	0 42.51	+21 28.8	1.247	2.221	7.8	21.1	162 W	66	43	10 28	1 35.37	+16 32.2	1.255	2.242	4.0	20.7	171 E	62	47
10 8	0 30.76	+20 48.4	1.232	2.210	7.2	21.0	164 E	66	43	11 7	1 25.40	+15 29.1	1.312	2.268	8.7	21.1	160 E	60	49
10 13	0 19.07	+19 59.4	1.226	2.197	8.0	21.0	162 E	65	44	11 17	1 18.11	+14 33.1	1.393	2.294	13.1	21.4	148 E	60	49
10 18	0 7.78	+19 3.7	1.229	2.183	10.0	21.1	158 E	64	45	<b>175168</b> 2005 EQ <sub>118</sub>									
10 23	23 57.21	+18 3.4	1.240	2.168	12.5	21.2	152 E	63	46	9 8	2 27.93	+20 19.7	2.157	2.847	17.0	21.3	124 W	65	44
10 28	23 47.62	+17 1.3	1.258	2.152	15.2	21.3	145 E	62	47	9 18	2 24.89	+20 20.0	2.043	2.839	14.6	21.1	134 W	65	44
11 2	23 39.16	+15 59.5	1.283	2.134	17.8	21.4	139 E	61	48	9 28	2 19.25	+20 5.2	1.946	2.829	11.6	20.9	145 W	65	44
<b>353959</b> 1999 UC <sub>23</sub>										<b>466268</b> 2013 MQ <sub>3</sub>									
9 8	1 34.36	+16 15.1	1.450	2.296	17.3	21.2	137 W	61	48	9 8	2 35.26	+15 54.1	1.060	1.826	27.2	21.4	124 W	61	48
9 18	1 31.84	+15 38.2	1.335	2.250	13.8	20.9	148 W	61	48	9 18	2 35.74	+15 25.2	1.013	1.857	23.0	21.2	134 W	60	49
9 28	1 26.58	+14 34.6	1.240	2.205	9.4	20.5	159 W	60	49	9 28	2 32.18	+14 34.4	0.979	1.888	17.9	21.0	145 W	60	49
10 8	1 19.07	+13 5.1	1.167	2.159	4.3	20.1	171 W	58	51	10 8	2 25.12	+13 24.7	0.962	1.920	12.0	20.8	157 W	58	51
10 13	1 14.76	+12 12.0	1.140	2.136	2.1	19.9	176 W	57	52	10 18	2 15.67	+12 2.7	0.966	1.953	5.6	20.5	169 W	57	52
10 18	1 10.27	+11 14.7	1.120	2.114	2.6	19.9	174 E	56	53	10 28	2 5.48	+10 38.6	0.994	1.987	1.3	20.4	177 E	56	53
10 23	1 5.81	+10 14.9	1.106	2.091	5.2	20.0	169 E	55	54	11 2	2 0.66	+9 59.4	1.017	2.004	4.2	20.6	172 E	55	54
10 28	1 1.57	+9 14.1	1.098	2.068	8.2	20.1	163 E	54	55	11 7	1 56.27	+9 23.7	1.046	2.021	7.1	20.8	165 E	54	55
11 2	0 57.73	+8 14.3	1.097	2.046	11.1	20.1	157 E	53	56	11 12	1 52.47	+8 52.5	1.081	2.037	9.9	21.1	159 E	54	55
11 7	0 54.43	+7 17.1	1.101	2.024	13.9	20.2	151 E	52	57	11 17	1 49.36	+8 26.6	1.122	2.054	12.4	21.3	153 E	53	56
11 12	0 51.82	+6 24.0	1.111	2.002	16.6	20.3	145 E	51	58	11 22	1 47.02	+8 6.4	1.168	2.072	14.7	21.4	148 E	53	56
11 17	0 50.00	+5 36.3	1.125	1.980	19.2	20.4	139 E	51	58	<b>466268</b> 2013 MQ <sub>3</sub> (continuation)									
11 22	0 49.05	+4 55.0	1.143	1.958	21.5	20.5	133 E	50	59	9 8	2 35.26	+15 54.1	1.060	1.826	27.2	21.4	124 W	61	48
11 27	0 49.01	+4 20.8	1.165	1.936	23.7	20.6	128 W	49	60	9 18	2 35.74	+15 25.2	1.013	1.857	23.0	21.2	134 W	60	49
12 2	0 49.89	+3 53.9	1.190	1.915	25.6	20.7	123 W	49	60	9 28	2 32.18	+14 34.4	0.979	1.888	17.9	21.0	145 W	60	49
12 7	0 51.68	+3 34.4	1.218	1.894	27.3	20.7	118 E	49	60	10 8	2 25.12	+13 24.7	0.962	1.920	12.0	20.8	157 W	58	51
12 12	0 54.35	+3 22.1	1.247	1.874	28.8	20.8	114 E	48	61	10 18	2 15.67	+12 2.7	0.966	1.953	5.6				

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>159542 2001 QN<sub>294</sub></b>										<b>363630 2004 RO<sub>139</sub></b> <i>(continuation)</i>									
9 8	3 31.99	+22 25.7	1.911	2.438	22.9	21.4	109 W	67	42	12 12	3 16.57	+13 53.2	1.105	2.019	14.1	20.9	150 E	59	50
9 18	3 33.64	+22 36.8	1.810	2.456	21.0	21.3	119 W	68	41	12 17	3 14.12	+13 52.9	1.151	2.034	16.3	21.1	144 E	59	50
9 28	3 32.13	+22 36.2	1.718	2.472	18.4	21.1	129 W	68	41	12 22	3 12.60	+13 56.5	1.201	2.048	18.3	21.3	139 E	59	50
10 8	3 27.39	+22 22.6	1.641	2.488	15.1	20.9	140 W	67	42	12 27	3 12.00	+14 4.1	1.255	2.062	20.1	21.5	134 E	59	50
10 18	3 19.61	+21 54.6	1.583	2.503	11.0	20.7	151 W	67	42	<b>489053 2005 YK<sub>93</sub></b>									
10 28	3 9.45	+21 12.2	1.548	2.517	6.4	20.4	164 W	66	43	9 8	3 59.01	+36 17.9	1.375	1.841	32.6	21.5	100 W	81	28
11 2	3 3.81	+20 46.4	1.541	2.524	4.0	20.3	170 W	66	43	9 13	4 8.90	+37 10.2	1.310	1.817	32.7	21.4	103 W	82	27
11 7	2 58.02	+20 18.1	1.541	2.530	1.8	20.2	175 W	65	44	9 18	4 18.72	+38 0.5	1.247	1.794	32.7	21.2	105 W	83	26
11 12	2 52.25	+19 48.1	1.549	2.536	1.8	20.2	175 E	65	44	9 23	4 28.42	+38 48.7	1.185	1.771	32.6	21.1	108 W	84	25
11 17	2 46.67	+19 17.3	1.563	2.542	3.9	20.4	170 E	64	45	9 28	4 37.95	+39 34.3	1.125	1.749	32.5	20.9	110 W	85	24
11 22	2 41.45	+18 46.7	1.585	2.548	6.3	20.5	164 E	64	45	10 3	4 47.24	+40 17.4	1.067	1.726	32.2	20.8	113 W	85	24
11 27	2 36.73	+18 17.1	1.614	2.553	8.5	20.7	157 E	63	46	10 8	4 56.22	+40 57.6	1.011	1.704	31.8	20.6	116 W	86	23
12 2	2 32.60	+17 49.4	1.649	2.559	10.6	20.8	151 E	63	46	10 13	5 4.80	+41 34.5	0.956	1.683	31.3	20.5	119 W	87	22
12 7	2 29.16	+17 24.3	1.691	2.564	12.6	20.9	145 E	62	47	10 18	5 12.86	+42 7.9	0.904	1.662	30.6	20.3	122 W	87	22
12 12	2 26.45	+17 2.3	1.738	2.568	14.4	21.1	140 E	62	47	10 23	5 20.29	+42 37.1	0.855	1.642	29.7	20.1	125 W	88	21
12 17	2 24.49	+16 43.8	1.790	2.573	16.0	21.2	134 E	62	47	10 28	5 26.99	+43 1.6	0.807	1.623	28.7	20.0	128 W	88	21
12 22	2 23.31	+16 29.2	1.846	2.577	17.4	21.3	129 E	61	48	11 2	5 32.84	+43 20.8	0.763	1.604	27.6	19.8	132 W	88	21
12 27	2 22.87	+16 18.5	1.906	2.581	18.6	21.4	123 E	61	48	11 7	5 37.72	+43 33.7	0.721	1.586	26.2	19.6	135 W	89	20
<b>425665 2010 XT<sub>49</sub></b>										11 12	5 41.49	+43 39.3	0.681	1.568	24.6	19.4	139 W	89	20
9 8	3 33.53	+23 26.7	1.366	1.941	29.4	21.4	109 W	68	41	11 17	5 44.06	+43 36.1	0.645	1.552	22.7	19.2	143 W	89	20
9 18	3 38.19	+23 58.3	1.299	1.973	26.9	21.3	117 W	69	40	11 22	5 45.39	+43 22.7	0.612	1.536	20.7	19.0	147 W	88	21
9 28	3 38.95	+24 15.9	1.239	2.006	23.6	21.1	127 W	69	40	11 27	5 45.52	+42 57.4	0.583	1.522	18.5	18.8	151 W	88	21
10 8	3 35.62	+24 17.8	1.190	2.040	19.4	20.9	137 W	69	40	12 2	5 44.54	+42 18.8	0.557	1.508	16.2	18.6	155 W	87	22
10 18	3 28.42	+24 2.1	1.156	2.073	14.5	20.7	149 W	69	40	12 7	5 42.60	+41 25.4	0.535	1.496	13.8	18.4	159 W	86	23
10 28	3 18.19	+23 27.9	1.142	2.106	8.9	20.5	161 W	68	41	12 12	5 39.96	+40 16.6	0.517	1.485	11.7	18.2	162 W	85	24
11 7	3 6.41	+22 37.9	1.153	2.139	3.5	20.3	172 W	68	41	12 17	5 36.95	+38 52.2	0.503	1.475	10.3	18.1	164 E	84	25
11 12	3 0.48	+22 8.7	1.168	2.156	2.3	20.3	175 E	67	42	12 22	5 33.97	+37 13.6	0.494	1.466	10.0	18.0	165 E	82	27
11 17	2 54.83	+21 38.1	1.190	2.173	3.9	20.4	171 E	67	42	12 27	5 31.39	+35 23.2	0.489	1.459	11.1	18.1	163 W	80	29
11 22	2 49.64	+21 7.3	1.218	2.189	6.4	20.6	166 E	66	43	1 1	5 29.54	+33 24.3	0.489	1.453	13.2	18.1	160 E	78	31
11 27	2 45.10	+20 37.4	1.253	2.205	8.9	20.8	160 E	66	43	1 6	5 28.63	+31 20.6	0.493	1.448	15.8	18.2	156 E	76	33
12 2	2 41.29	+20 9.6	1.294	2.222	11.3	21.0	154 E	65	44	1 11	5 28.82	+29 16.1	0.501	1.445	18.7	18.4	152 E	74	35
12 7	2 38.30	+19 44.5	1.340	2.238	13.5	21.2	148 E	65	44	1 16	5 30.23	+27 14.2	0.514	1.443	21.6	18.5	147 E	72	37
12 12	2 36.16	+19 22.8	1.392	2.254	15.4	21.3	142 E	64	45	<b>381147 2007 GX<sub>1</sub></b>									
12 17	2 34.88	+19 4.9	1.449	2.270	17.2	21.5	137 E	64	45	9 8	4 1.40	+21 30.5	2.090	2.515	23.0	21.5	103 W	67	42
9 8	3 50.16	+29 38.2	1.338	1.854	31.9	21.3	104 W	75	34	9 18	4 5.93	+22 54.9	1.933	2.482	22.1	21.3	111 W	68	41
9 13	3 55.52	+30 25.0	1.268	1.835	31.6	21.2	107 W	75	34	9 28	4 7.83	+24 23.4	1.784	2.449	20.7	21.0	120 W	69	40
9 18	4 0.34	+31 11.9	1.200	1.816	31.2	21.0	111 W	76	33	10 8	4 6.56	+25 56.3	1.647	2.415	18.5	20.7	130 W	71	38
9 23	4 4.50	+31 59.2	1.133	1.796	30.6	20.9	114 W	77	32	10 18	4 1.60	+27 32.3	1.525	2.380	15.5	20.4	140 W	73	36
9 28	4 7.90	+32 46.8	1.067	1.776	29.8	20.7	118 W	78	31	10 28	3 52.64	+29 7.6	1.424	2.345	11.7	20.1	151 W	74	35
10 3	4 10.44	+33 34.9	1.004	1.755	28.9	20.5	122 W	79	30	11 2	3 46.71	+29 53.1	1.382	2.327	9.7	20.0	157 W	75	34
10 8	4 11.95	+34 23.3	0.942	1.733	27.7	20.3	126 W	79	30	11 7	3 39.90	+30 35.9	1.347	2.309	7.8	19.8	162 W	76	33
10 13	4 12.26	+35 11.8	0.883	1.710	26.2	20.1	131 W	80	29	11 12	3 32.37	+31 15.0	1.319	2.291	6.2	19.7	165 W	76	33
10 18	4 11.18	+35 59.7	0.826	1.687	24.6	19.9	135 W	81	28	11 17	3 24.30	+31 49.5	1.298	2.272	5.6	19.6	167 E	77	32
10 23	4 8.54	+36 46.1	0.773	1.663	22.6	19.6	140 W	82	27	11 22	3 15.95	+32 18.7	1.284	2.254	6.3	19.6	166 E	77	32
10 28	4 4.18	+37 29.6	0.723	1.638	20.5	19.4	145 W	82	27	11 27	3 7.60	+32 42.6	1.278	2.236	8.0	19.6	162 E	78	31
11 2	3 57.94	+38 8.4	0.677	1.612	18.2	19.1	149 W	83	26	12 2	2 59.54	+33 1.2	1.278	2.217	10.2	19.7	157 E	78	31
11 7	3 49.77	+38 39.7	0.635	1.586	15.9	18.9	154 W	84	25	12 7	2 52.01	+33 15.0	1.285	2.199	12.6	19.8	151 E	78	31
11 12	3 39.67	+39 0.6	0.598	1.559	14.0	18.6	158 W	84	25	12 12	2 45.25	+33 25.0	1.298	2.180	14.9	19.9	145 E	78	31
11 17	3 27.88	+39 7.6	0.565	1.532	12.9	18.4	160 E	84	25	12 17	2 39.44	+33 32.3	1.316	2.161	17.2	20.0	140 E	79	30
11 22	3 14.81	+38 57.9	0.538	1.504	13.2	18.3	160 E	84	25	12 22	2 34.73	+33 38.0	1.340	2.143	19.3	20.1	134 E	79	30
11 27	3 1.09	+38 30.0	0.516	1.475	15.2	18.2	157 E	84	25	12 27	2 31.20	+33 43.3	1.367	2.124	21.2	20.2	129 E	79	30
12 2	2 47.41	+37 43.7	0.498	1.446	18.5	18.2	152 E	83	26	1 1	2 28.85	+33 49.1	1.398	2.105	22.9	20.2	123 W	79	30
12 7	2 34.48	+36 41.0	0.486	1.416	22.5	18.3	147 E	82	27	1 6	2 27.70	+33 56.3	1.431	2.087	24.5	20.3	118 E	79	30
12 12	2 22.93	+35 25.3	0.477	1.386	26.9	18.3	140 E	80	29	1 11	2 27.72	+34 5.3	1.467	2.068	25.8	20.4	114 E	79	30*
12 17	2 13.24	+34 1.2	0.472	1.355	31.4	18.4	134 E	79	30	1 16	2 28.87	+34 16.6	1.504	2.049	27.0	20.5	109 E	79	29*
12 22	2 5.70	+32 33.8	0.469	1.324	35.9	18.4	128 E	78	31	<b>307971 2004 LG<sub>6</sub></b>									
12 27	2 0.37	+31 7.3	0.468	1.293	40.3	18.5	122 E	76	33	9 8	4 6.26	+7 7.2	3.213	3.595	15.8				

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°										
474156 1998 XQ <sub>16</sub> (continuation)										264275 1996 YF <sub>1</sub> (continuation)																			
10 8	5 21.77	+38 52.5	0.926	1.594	35.6	20.4	112 W	84	25	12 2	4 52.46	+20 48.0	0.866	1.850	2.4	18.4	175 W	66	43	12 7	4 45.74	+21 16.6	0.842	1.827	1.4	18.2	177 E	66	42
10 13	5 34.19	+39 40.9	0.875	1.571	35.5	20.2	114 W	85	24	12 12	4 38.71	+21 46.1	0.826	1.805	4.9	18.4	171 E	67	42	12 17	4 31.68	+22 16.1	0.815	1.782	8.5	18.5	164 E	67	42
10 18	5 46.63	+40 26.3	0.826	1.549	35.3	20.1	116 W	85	24	12 22	4 24.99	+22 46.7	0.810	1.760	12.2	18.6	158 E	68	41	12 27	4 18.94	+23 17.6	0.810	1.738	15.7	18.7	151 E	68	41
10 23	5 59.01	+41 8.1	0.779	1.527	35.0	19.9	118 W	86	23	1 1	4 13.80	+23 49.0	0.815	1.717	19.0	18.8	145 E	69	40	1 6	4 9.78	+24 21.0	0.824	1.696	22.2	18.9	139 E	69	40
10 28	6 11.26	+41 46.0	0.734	1.507	34.5	19.7	121 W	87	22	1 11	4 7.02	+24 53.7	0.837	1.675	25.1	19.0	134 E	70	39	1 16	4 5.63	+25 27.5	0.853	1.655	27.8	19.1	128 E	70	39
11 2	6 23.29	+42 19.5	0.692	1.487	34.0	19.6	123 W	87	22	494545 2017 AL <sub>20</sub>																			
11 7	6 35.00	+42 48.2	0.652	1.468	33.4	19.4	125 W	88	21	9 8	4 52.60	+39 16.0	1.630	1.903	32.0	21.3	89 W	80*	25*	9 13	5 3.81	+41 2.2	1.564	1.881	32.3	21.2	91 W	83*	23
11 12	6 46.22	+43 11.4	0.614	1.450	32.6	19.2	128 W	88	21	9 18	5 15.38	+42 51.7	1.501	1.859	32.6	21.1	94 W	87*	21	9 23	5 27.35	+44 44.4	1.440	1.838	32.9	21.0	96 W	90*	19
11 17	6 56.79	+43 28.6	0.579	1.434	31.7	19.0	130 W	88	21	9 28	5 39.76	+46 40.1	1.382	1.818	33.1	20.9	98 W	88	17	10 3	5 52.67	+48 38.7	1.326	1.797	33.2	20.8	100 W	86	15
11 22	7 6.56	+43 38.8	0.547	1.419	30.5	18.9	133 W	89	20	10 8	6 6.16	+50 40.0	1.274	1.778	33.3	20.7	102 W	84	13	10 13	6 20.26	+52 43.4	1.224	1.758	33.4	20.6	104 W	82	11
11 27	7 15.38	+43 41.3	0.517	1.405	29.3	18.7	136 W	89	20	10 18	6 35.05	+54 48.3	1.178	1.740	33.4	20.5	106 W	80	9	10 23	6 50.59	+56 53.8	1.135	1.722	33.4	20.4	108 W	78	7
12 2	7 23.11	+43 35.1	0.489	1.392	27.8	18.5	139 W	89	20	10 28	6 50.59	+56 53.8	1.135	1.722	33.4	20.4	108 W	78	7	10 28	7 6.98	+58 58.8	1.095	1.704	33.4	20.3	109 W	76	5
12 7	7 29.58	+43 19.2	0.464	1.381	26.0	18.3	142 W	88	21	11 2	7 24.28	+61 2.2	1.058	1.688	33.4	20.2	111 W	74	3	11 7	7 42.56	+63 2.7	1.025	1.672	33.4	20.1	112 W	72	1
12 12	7 34.66	+42 52.4	0.442	1.371	24.1	18.1	145 W	88	21	11 12	8 1.82	+64 58.8	0.996	1.656	33.3	20.0	113 W	70	—	11 17	8 22.03	+66 49.2	0.969	1.642	33.4	19.9	114 W	68	—
12 17	7 38.29	+42 13.3	0.422	1.363	21.9	18.0	149 W	87	22	11 22	8 43.07	+68 32.3	0.945	1.629	33.4	19.8	115 W	66	—	11 27	9 4.75	+70 7.1	0.924	1.616	33.4	19.8	115 W	65	—
12 22	7 40.51	+41 20.6	0.406	1.357	19.5	17.8	153 W	86	23	11 29	9 13.54	+70 42.6	0.916	1.611	33.5	19.7	116 W	64	—	12 1	9 22.34	+71 16.5	0.909	1.607	33.5	19.7	116 W	64	—
12 27	7 41.45	+40 13.3	0.393	1.353	16.9	17.6	156 W	85	24	12 3	9 31.14	+71 49.0	0.902	1.602	33.5	19.7	116 W	63	—	12 5	9 39.88	+72 19.9	0.895	1.598	33.6	19.7	116 W	63	—
1 1	7 41.34	+38 51.1	0.383	1.350	14.3	17.5	160 W	84	25	12 7	9 48.54	+72 49.4	0.889	1.594	33.6	19.7	116 W	62	—	12 9	9 57.06	+73 17.5	0.883	1.590	33.6	19.6	117 W	62	—
1 6	7 40.42	+37 14.4	0.376	1.349	11.8	17.3	164 W	82	27	12 11	10 5.38	+73 44.1	0.878	1.586	33.7	19.6	117 W	61	—	12 13	10 13.47	+74 9.3	0.872	1.583	33.7	19.6	117 W	61	—
1 11	7 39.03	+35 24.7	0.374	1.349	10.0	17.3	166 W	80	29	12 15	10 21.26	+74 33.2	0.867	1.580	33.7	19.6	117 W	60	—	12 19	10 28.70	+74 55.8	0.863	1.576	33.8	19.6	117 W	60	—
1 16	7 37.55	+33 24.2	0.375	1.352	9.3	17.2	167 E	78	31	12 19	10 35.73	+75 17.2	0.858	1.573	33.8	19.6	117 W	60	—	12 21	10 42.29	+75 37.3	0.854	1.570	33.8	19.5	117 W	59	—
9 8	4 10.72	+18 17.5	1.106	1.637	37.1	21.3	101 W	63*	46	12 23	10 48.33	+75 56.4	0.850	1.568	33.9	19.5	117 W	59	—	12 25	10 53.78	+76 14.3	0.846	1.565	33.9	19.5	117 W	59	—
9 13	4 23.40	+16 49.1	1.040	1.607	37.5	21.1	103 W	62	47	12 27	10 58.59	+76 31.1	0.842	1.563	33.9	19.5	118 W	58	—	12 29	11 2.71	+76 46.9	0.839	1.561	33.9	19.5	118 W	58	—
9 18	4 36.22	+15 3.2	0.977	1.578	37.9	21.0	105 W	60	49	12 31	11 6.08	+77 1.7	0.836	1.559	33.9	19.5	118 W	58	—	1 2	11 8.63	+77 15.4	0.833	1.557	33.9	19.5	118 W	58	—
9 23	4 49.14	+12 58.0	0.918	1.549	38.2	20.8	107 W	58	51	1 4	11 10.33	+77 28.0	0.830	1.556	33.9	19.5	118 W	58	—	1 6	11 11.12	+77 39.5	0.827	1.554	33.9	19.5	118 W	57	—
9 28	5 2.13	+10 32.3	0.863	1.522	38.5	20.6	109 W	56	53	1 8	11 10.96	+77 49.8	0.825	1.553	33.9	19.4	118 W	57	—	1 10	11 9.82	+77 58.6	0.822	1.552	33.9	19.4	118 W	57	—
10 3	5 15.18	+7 44.8	0.812	1.495	38.8	20.5	111 W	53	56	1 12	11 7.70	+78 5.7	0.820	1.552	33.9	19.4	118 W	57	—	1 14	11 4.58	+78 11.1	0.818	1.551	33.9	19.4	119 W	57	—
10 8	5 28.23	+4 35.1	0.766	1.469	39.1	20.3	112 W	50	59	1 16	11 0.50	+78 14.3	0.817	1.551	33.8	19.4	119 W	57	—	301925 1999 XZ <sub>69</sub>									
10 18	5 54.12	- 2 48.9	0.690	1.420	40.0	20.0	114 W	42	67	9 8	5 4.87	+18 58.6	2.916	3.062	19.2	21.4	89 W	62*	45*	9 18	5 11.53	+19 9.7	2.738	3.024	19.3	21.3	97 W	64*	45
10 28	6 19.35	-11 21.8	0.636	1.377	41.5	19.8	113 W	34	75	9 28	5 16.47	+19 18.8	2.561	2.986	18.9	21.1	105 W	64	45	10 8	5 19.38	+19 26.5	2.390	2.947	18.0	20.9	114 W	64	45
11 7	6 43.49	-20 25.1	0.605	1.339	43.4	19.7	112 W	25	84	10 18	5 19.90	+19 33.6	2.228	2.907	16.5	20.6	124 W	65	44	10 28	5 17.73	+19 40.7	2.080	2.866	14.3	20.4	135 W	65	44
11 12	6 55.00	-24 52.9	0.597	1.323	44.5	19.7	111 W	20	89	11 7	5 12.72	+19 47.9	1.949	2.824	11.4	20.1	146 W	65	44	11 17	5 4.89	+19 55.1	1.841	2.781	7.8	19.8	158 W	65	44
11 17	7 6.02	-29 9.9	0.594	1.309	45.6	19.7	109 W	16	87	11 27	5 4.89	+19 55.1	1.841	2.781	7.8	19.8	158 W	65	44	11 27	4 54.69	+20 2.0	1.760	2.737	3.6	19.5	170 W	65	44
11 22	7 16.51	-33 11.2	0.594	1.297	46.6	19.7	108 W	12	83	12 2	4 48.96	+20 5.1	1.731	2.715	1.5	19.3	176 W	65	44	12 7	4 42.98	+20 8.1	1.709	2.692	1.4	19.2	176 E	65	44
11 27	7 26.43	-36 53.1	0.597	1.287	47.5	19.7	106 W	8	79	12 12	4 36.91	+20 11.0	1.694	2.670	3.6	19.3	170 E	65	44	12 17	4 30.93	+20 14.0	1.687	2.647	5.9	19.4	164 E	65	44
12 2	7 35.71	-40 13.7	0.602	1.279	48.2	19.7	105 W	5	76	12 22	4 25.20	+20 17.3	1.688	2.624	8.2	19.5	158 E	65	44	12 27	4 19.90	+20 21.2	1.695	2.600	10.5	19.6	151 E	65	44
12 7	7 44.31	-43 11.7	0.608	1.273	48.8	19.8	104 W	2	73	1 1	4 15.14	+20 25.8	1.708	2.577	12.6	19.7	145 E	65	44	1 6	4 11.04	+20 31.6	1.728	2.553	14.6	19.7	139 E	66	43
12 12	7 52.15	-45 46.8	0.615	1.270	49.2	19.8	103 W	—	70	1 11	4 7.67	+20 38.7	1.752	2.529	16.5	19.8	133 E	66	43	1 16	4 5.12	+20 47.3	1.781	2.505	18.1	19.9	128 E	66	43
12 17	7 59.19	-47 58.9	0.621	1.269	49.3	19.8	102 W	—	68	5532 2001 WG <sub>2</sub>																			
12 22	8 5																												

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>55532 2001 WG<sub>2</sub></b>										<b>416195 2002 TR<sub>190</sub></b>									
<i>(continuation)</i>																			
10 18	5 15.94	+0 37.4	1.968	2.652	18.2	20.5	124 W	46	63	9 8	6 44.77	+30 50.5	0.910	1.048	61.4	21.5	66 W	57*	27*
10 28	5 8.77	+0 8.7	1.818	2.607	16.0	20.2	134 W	45	64	9 13	7 11.28	+32 38.9	0.896	1.035	62.3	21.5	66 W	58*	24*
11 2	5 3.77	-0 3.0	1.750	2.583	14.6	20.1	139 W	45	64	9 18	7 39.34	+34 8.2	0.886	1.022	63.1	21.4	65 W	58*	21*
11 7	4 57.80	+0 11.9	1.688	2.559	13.1	19.9	144 W	45	64	9 23	8 8.69	+35 14.2	0.880	1.009	63.8	21.4	64 W	58*	19*
11 12	4 50.88	-0 17.2	1.632	2.533	11.5	19.8	149 W	45	64	9 28	8 38.94	+35 53.5	0.878	0.996	64.3	21.4	64 W	57*	16*
11 17	4 43.08	-0 18.2	1.583	2.508	10.1	19.6	154 W	45	64	10 3	9 9.59	+36 3.6	0.879	0.983	64.7	21.4	63 W	57*	14*
11 22	4 34.51	-0 13.9	1.542	2.481	9.0	19.5	157 W	45	64	10 8	9 40.06	+35 44.0	0.884	0.971	65.0	21.4	62 W	56*	12*
11 27	4 25.34	-0 3.7	1.508	2.454	8.4	19.4	159 W	45	64	10 13	10 9.81	+34 55.6	0.892	0.960	65.1	21.4	61 W	55*	10*
12 7	4 5.96	+0 35.9	1.467	2.397	10.0	19.4	155 E	46	63	10 18	10 38.39	+33 40.6	0.904	0.950	65.0	21.4	60 W	54*	9*
12 17	3 46.78	+1 41.4	1.460	2.336	13.9	19.5	145 E	47	62	10 23	11 5.48	+32 2.4	0.918	0.940	64.8	21.4	59 W	52*	8*
12 27	3 29.67	+3 10.1	1.482	2.273	18.3	19.6	133 E	48	61	10 28	11 30.94	+30 4.5	0.934	0.931	64.4	21.4	58 W	51*	7*
1 1	3 22.33	+4 1.5	1.502	2.240	20.4	19.6	127 E	49	60	11 2	11 54.75	+27 50.5	0.951	0.924	63.9	21.4	57 W	51*	7*
1 6	3 15.94	+4 56.6	1.527	2.206	22.4	19.7	121 E	50	59	11 7	12 16.98	+25 23.8	0.970	0.917	63.3	21.4	56 W	50*	7*
1 11	3 10.55	+5 54.8	1.557	2.171	24.1	19.8	116 E	51	58	11 12	12 37.76	+22 47.4	0.990	0.912	62.6	21.4	55 W	49*	8*
1 16	3 6.21	+6 55.6	1.589	2.136	25.7	19.8	110 E	52	57	11 17	12 57.27	+20 3.7	1.010	0.908	61.8	21.4	54 W	48*	8*
11 22	13 15.67	+17 14.8	1.029	0.906	61.0	21.4	53 W	47*	10*	11 22	13 15.67	+17 14.8	1.029	0.906	61.0	21.4	53 W	47*	10*
11 27	13 33.16	+14 22.2	1.048	0.905	60.2	21.4	53 W	46*	12*	11 27	13 33.16	+14 22.2	1.048	0.905	60.2	21.4	53 W	46*	12*
12 2	13 49.90	+11 27.2	1.066	0.905	59.4	21.5	52 W	45*	14*	12 2	13 49.90	+11 27.2	1.066	0.905	59.4	21.5	52 W	45*	14*
12 7	14 6.06	+8 30.8	1.083	0.907	58.6	21.5	52 W	44*	16*	12 7	14 6.06	+8 30.8	1.083	0.907	58.6	21.5	52 W	44*	16*
12 12	14 21.80	+5 33.9	1.098	0.910	57.8	21.5	51 W	42*	19*	12 12	14 21.80	+5 33.9	1.098	0.910	57.8	21.5	51 W	42*	19*
<b>101952 1999 RY<sub>31</sub></b>										<b>152787 1999 TB<sub>10</sub></b>									
9 8	5 25.48	+23 28.2	2.744	2.813	20.8	21.5	83 W	63*	40*	9 8	7 2.58	+35 0.8	1.325	1.251	45.9	21.4	63 W	56*	22*
9 18	5 32.80	+23 50.2	2.620	2.830	20.8	21.4	91 W	68*	40*	9 13	7 25.25	+35 3.4	1.296	1.234	46.8	21.4	63 W	56*	21*
9 28	5 38.07	+24 11.6	2.495	2.847	20.3	21.3	100 W	69	40	9 18	7 48.27	+34 51.7	1.268	1.217	47.7	21.3	63 W	57*	20*
10 8	5 41.00	+24 33.0	2.373	2.862	19.3	21.1	109 W	70	39	9 23	8 11.47	+34 25.2	1.242	1.200	48.5	21.3	64 W	57*	19*
10 18	5 41.27	+24 55.0	2.258	2.876	17.6	21.0	119 W	70	39	9 28	8 34.69	+33 43.5	1.219	1.184	49.3	21.2	64 W	57*	18*
10 28	5 38.62	+25 17.2	2.153	2.889	15.4	20.8	130 W	70	39	10 3	8 57.78	+32 46.5	1.198	1.168	50.0	21.2	63 W	57*	18*
11 7	5 33.01	+25 38.7	2.065	2.901	12.5	20.6	141 W	71	38	10 8	9 20.59	+31 34.6	1.179	1.152	50.8	21.1	63 W	57*	18*
11 17	5 24.60	+25 57.4	1.999	2.912	9.0	20.4	153 W	71	38	10 13	9 42.99	+30 8.2	1.161	1.138	51.4	21.1	63 W	57*	17*
11 22	5 19.52	+26 5.0	1.975	2.918	7.0	20.3	159 W	71	38	10 18	10 4.88	+28 28.4	1.146	1.124	52.1	21.1	63 W	56*	18*
11 27	5 13.98	+26 11.0	1.958	2.922	5.0	20.2	165 W	71	38	10 23	10 26.16	+26 36.1	1.133	1.111	52.6	21.0	63 W	56*	18*
12 2	5 8.13	+26 15.4	1.949	2.927	3.0	20.1	171 W	71	38	10 28	10 46.81	+24 32.8	1.122	1.099	53.1	21.0	62 W	55*	18*
12 7	5 2.10	+26 18.0	1.948	2.931	1.4	20.0	176 W	71	38	11 2	11 6.81	+22 19.5	1.113	1.088	53.6	21.0	62 W	55*	19*
12 12	4 56.05	+26 18.8	1.954	2.935	1.9	20.0	174 E	71	38	11 7	11 26.18	+19 57.8	1.105	1.078	54.0	21.0	62 W	54*	20*
12 17	4 50.15	+26 18.0	1.968	2.939	3.8	20.2	169 E	71	38	11 12	11 44.95	+17 29.0	1.098	1.069	54.3	20.9	61 W	53*	21*
12 22	4 44.54	+26 15.7	1.990	2.943	5.8	20.3	162 E	71	38	11 17	12 3.15	+14 54.4	1.093	1.062	54.6	20.9	61 W	52*	22*
12 27	4 39.36	+26 12.5	2.019	2.946	7.7	20.4	156 E	71	38	11 22	12 20.82	+12 15.4	1.088	1.056	54.8	20.9	61 W	51*	24*
1 1	4 34.72	+26 8.6	2.055	2.949	9.6	20.5	150 E	71	38	11 27	12 38.04	+9 33.2	1.085	1.052	55.0	20.9	61 W	49*	26*
1 6	4 30.71	+26 4.6	2.098	2.952	11.2	20.7	144 E	71	38	12 2	12 54.87	+6 48.8	1.082	1.049	55.1	20.9	61 W	48*	28*
1 11	4 27.37	+26 0.6	2.146	2.954	12.8	20.8	138 E	71	38	12 7	13 11.38	+4 3.3	1.080	1.048	55.1	20.9	61 W	46*	30*
1 16	4 24.76	+25 57.3	2.199	2.956	14.1	20.9	133 E	71	38	12 12	13 27.63	+1 17.6	1.079	1.048	55.1	20.9	61 W	44*	33*
9 8	5 44.25	+7 1.7	0.414	1.021	76.4	21.3	80 W	47*	55*	12 17	13 43.68	-1 27.2	1.077	1.050	55.1	20.9	61 W	42*	35*
9 13	5 40.81	+11 58.6	0.392	1.049	72.9	21.1	85 W	54*	51*	12 22	13 59.57	-4 10.3	1.076	1.053	55.0	20.9	61 W	39*	38*
9 18	5 36.24	+17 30.3	0.370	1.077	68.9	20.9	91 W	62*	46*	12 27	14 15.36	-6 50.9	1.075	1.058	54.9	20.9	62 W	37*	41*
9 23	5 29.79	+23 40.0	0.351	1.103	64.5	20.7	97 W	69*	40	1 1	14 31.10	-9 28.4	1.073	1.064	54.8	20.9	62 W	35*	44*
9 28	5 20.44	+30 27.6	0.334	1.128	59.7	20.5	104 W	75	34	1 6	14 46.85	-12 2.1	1.072	1.072	54.6	20.9	63 W	32*	46*
10 3	5 6.76	+37 45.4	0.322	1.152	54.7	20.3	110 W	83	26	1 11	15 2.62	-14 31.3	1.070	1.081	54.4	20.9	63 W	30*	49*
10 8	4 46.64	+45 14.7	0.316	1.174	49.7	20.2	116 W	90	19	1 16	15 18.45	-16 55.5	1.067	1.091	54.2	20.9	64 W	28*	52*
10 10	4 36.16	+48 10.8	0.315	1.183	47.8	20.2	119 W	87	16	<b>252373 2001 SA<sub>270</sub></b>									
10 12	4 24.00	+51 1.0	0.316	1.191	46.0	20.1	121 W	84	13	9 8	7 30.01	-2 24.7	1.764	1.440	34.8	21.5	55 W	25*	45*
10 14	4 9.93	+53 42.3	0.317	1.199	44.4	20.1	123 W	81	10	9 18	8 1.12	-5 41.7	1.611	1.336	38.5	21.2	56 W	25*	46*
10 16	3 53.79	+56 11.5	0.320	1.207	43.0	20.1	124 W	79	8	9 28	8 36.83	-9 34.1	1.468	1.223	42.5	20.9	56 W	24*	47*
10 18	3 35.50	+58 25.6	0.324	1.215	41.7	20.1	126 W	77	6	10 8	9 18.92	-13 57.3	1.342	1.101	47.0	20.6	54 W	21*	46*
10 20	3 15.11	+60 21.5	0.329	1.222	40.7	20.1	127 W	75	4	10 18	10 9.64	-18 33.8	1.242	0.967	51.8	20.3	50 W	17*	42*
10 22	2 52.87	+61 56.9	0.336	1.229	39.8	20.2	128 W	73	2	10 23	10 38.97	-20 45.4	1.204	0.895	54.2	20.1	47 W	15*	40*
10 24	2 29.24	+63 10.3	0.343	1.237	39.2	20.2	128 W	72	1	10 28	11 11.21	-22 42.8	1.177	0.821	56.3	20.0	43 W	13*	37*
10 26	2 4.90	+64 1.1	0.351	1.243	38.8	20.3	128 W	71	-	11 2	11 46.43	-24 16.6	1.161	0.743	5				