

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

20/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	20/22	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°
<b>238453 2004 QF</b>										<b>141052 2001 XR<sub>1</sub></b>									
12 27	0 27.32	-37 35.3	1.360	1.484	40.2	20.4	77 E	7	70*	12 27	0 28.34	+25 52.5	1.458	1.908	30.4	20.9	101 E	71	35*
1 1	0 38.09	-37 7.0	1.397	1.484	39.8	20.5	75 E	8	69*	1 6	0 40.52	+24 49.2	1.589	1.920	30.7	21.1	94 E	70	33*
1 6	0 49.17	-36 32.7	1.431	1.485	39.4	20.5	73 E	8	67*	1 16	0 54.25	+24 12.2	1.720	1.927	30.6	21.3	86 E	69*	31*
1 11	1 0.54	-35 52.6	1.463	1.486	38.9	20.5	72 E	9	66*	1 26	1 9.25	+23 56.5	1.847	1.930	30.1	21.5	80 E	67*	28*
1 16	1 12.19	-35 7.2	1.493	1.488	38.5	20.6	70 E	10	64*	2 5	1 25.29	+23 57.1	1.969	1.929	29.3	21.6	73 E	64*	25*
1 21	1 24.10	-34 16.8	1.521	1.490	38.1	20.6	69 E	11*	63*	<b>421450 2014 MF<sub>55</sub></b>									
1 26	1 36.26	-33 21.8	1.546	1.492	37.8	20.6	68 E	12*	62*	12 27	0 28.59	+3 49.9	1.280	1.650	36.5	20.4	93 E	49	55*
1 31	1 48.64	-32 28.4	1.569	1.495	37.4	20.7	67 E	12*	61*	1 6	0 50.46	+5 34.7	1.396	1.682	35.8	20.6	88 E	51	51*
2 5	2 1.23	-31 18.9	1.591	1.499	37.1	20.7	66 E	13*	60*	1 16	1 12.46	+7 21.8	1.516	1.715	34.8	20.8	84 E	52	47*
2 10	2 14.04	-30 11.4	1.611	1.503	36.7	20.7	66 E	14*	60*	1 26	1 34.56	+9 8.7	1.641	1.749	33.6	21.0	79 E	54*	43*
2 15	2 27.05	-29 0.2	1.630	1.507	36.4	20.7	65 E	14*	59*	2 5	1 56.73	+10 53.1	1.768	1.785	32.2	21.2	75 E	54*	40*
2 20	2 40.26	-27 45.7	1.648	1.512	36.1	20.8	64 E	15*	58*	2 15	2 18.97	+12 32.9	1.896	1.821	30.7	21.3	70 E	54*	37*
3 2	3 7.20	-25 8.1	1.682	1.523	35.6	20.8	63 E	16*	57*	2 25	2 41.27	+14 6.6	2.026	1.858	29.1	21.5	66 E	52*	35*
3 7	3 20.91	-23 45.6	1.698	1.529	35.3	20.8	63 E	16*	57*	<b>6386 Keithnoll</b>									
3 12	3 34.77	-22 21.2	1.715	1.535	35.1	20.8	63 E	16*	56*	12 27	0 28.62	-8 24.3	1.298	1.599	37.9	15.8	88 E	37	65*
3 17	3 48.77	-20 55.4	1.732	1.542	34.8	20.9	62 E	16*	56*	1 6	0 49.53	-5 14.1	1.383	1.609	37.4	15.9	84 E	40	59*
3 22	4 2.90	-19 28.7	1.750	1.549	34.5	20.9	62 E	16*	55*	1 16	1 11.15	-2 3.3	1.473	1.622	36.7	16.1	80 E	43	54*
3 27	4 17.12	-18 1.6	1.769	1.556	34.2	20.9	61 E	16*	55*	1 26	1 33.39	+1 4.7	1.566	1.639	35.7	16.2	76 E	46*	49*
4 1	4 31.43	-16 34.6	1.789	1.564	33.8	20.9	61 E	16*	54*	2 5	1 56.14	+4 6.7	1.662	1.658	34.6	16.3	73 E	48*	45*
4 6	4 45.80	-15 8.4	1.810	1.571	33.5	21.0	60 E	16*	54*	2 15	2 19.37	+7 0.2	1.762	1.680	33.2	16.4	69 E	48*	41*
4 11	5 0.23	-13 43.4	1.833	1.579	33.1	21.0	59 E	15*	53*	2 25	2 43.03	+9 42.7	1.864	1.704	31.8	16.6	65 E	48*	38*
4 16	5 14.68	-12 20.2	1.858	1.588	32.7	21.0	59 E	15*	52*	3 7	3 7.06	+12 12.1	1.968	1.731	30.3	16.7	62 E	46*	35*
4 21	5 29.14	-10 59.5	1.885	1.596	32.2	21.1	58 E	14*	52*	3 17	3 31.44	+14 26.9	2.074	1.759	28.6	16.8	58 E	44*	33*
4 26	5 43.58	-9 41.6	1.913	1.605	31.7	21.1	57 E	13*	51*	3 27	3 56.10	+16 25.9	2.180	1.790	26.9	16.9	54 E	41*	31*
5 1	5 57.98	-8 27.1	1.944	1.614	31.2	21.1	56 E	12*	50*	4 6	4 20.94	+18 8.1	2.287	1.821	25.1	17.0	50 E	37*	29*
5 6	6 12.33	-7 16.3	1.976	1.623	30.6	21.1	55 E	11*	49*	4 16	4 45.91	+19 33.0	2.393	1.854	23.2	17.0	47 E	34*	27*
5 11	6 26.60	-6 9.5	2.010	1.632	30.0	21.2	54 E	10*	48*	4 26	5 10.90	+20 40.5	2.497	1.888	21.3	17.1	43 E	29*	26*
5 16	6 40.77	-5 7.1	2.046	1.642	29.3	21.2	53 E	8*	47*	5 6	5 35.80	+21 30.6	2.598	1.922	19.3	17.2	39 E	25*	24*
5 21	6 54.83	-4 9.2	2.083	1.651	28.6	21.2	51 E	7*	45*	5 16	6 0.51	+22 3.8	2.697	1.957	17.3	17.2	35 E	20*	22*
5 26	7 8.76	-3 16.1	2.122	1.661	27.8	21.3	50 E	6*	44*	5 26	6 24.93	+22 20.9	2.791	1.993	15.2	17.3	31 E	16*	20*
5 31	7 22.54	-2 27.6	2.161	1.670	27.0	21.3	48 E	4*	42*	6 5	6 48.95	+22 22.7	2.880	2.029	13.1	17.3	27 E	12*	17*
6 5	7 36.18	-1 43.9	2.202	1.680	26.1	21.3	47 E	3*	41*	6 15	7 12.51	+22 10.4	2.962	2.065	11.0	17.3	23 E	8*	14*
6 10	7 49.65	-1 4.9	2.244	1.689	25.2	21.4	45 E	2*	39*	6 25	7 35.52	+21 45.2	3.038	2.101	8.9	17.3	19 E	5*	11*
6 15	8 2.96	0 30.6	2.286	1.699	24.3	21.4	43 E	—	37*	7 5	7 57.94	+21 8.4	3.106	2.137	6.8	17.3	14 E	2*	7*
6 20	8 16.09	0 0.7	2.328	1.709	23.3	21.4	42 E	—	36*	7 15	8 19.74	+20 21.4	3.166	2.172	4.7	17.3	10 E	—	3*
6 25	8 29.04	+0 24.8	2.370	1.718	22.3	21.4	40 E	—	34*	7 25	8 40.90	+19 25.7	3.216	2.208	2.6	17.2	6 E	—	—
6 30	8 41.81	+0 46.2	2.412	1.728	21.2	21.4	38 E	—	32*	8 4	9 1.40	+18 22.5	3.257	2.243	0.7	17.1	2 E	—	—
7 5	8 54.40	+1 3.7	2.454	1.738	20.1	21.5	36 E	—	30*	8 14	9 21.26	+17 13.3	3.286	2.277	1.8	17.3	4 W	—	—
7 10	9 6.83	+1 17.5	2.495	1.747	19.0	21.5	34 E	—	28*	8 24	9 40.47	+15 59.4	3.305	2.311	3.9	17.5	9 W	3*	—
7 15	9 19.08	+1 27.8	2.535	1.757	17.8	21.5	32 E	—	25*	9 3	9 59.04	+14 42.1	3.312	2.345	5.9	17.6	14 W	7*	2*
7 20	9 31.16	+1 34.9	2.573	1.766	16.7	21.5	30 E	—	23*	9 13	10 16.99	+13 22.7	3.306	2.377	7.9	17.7	19 W	12*	5*
7 25	9 43.09	+1 39.0	2.611	1.776	15.4	21.5	28 E	—	21*	9 23	10 34.31	+12 2.6	3.288	2.410	9.9	17.8	24 W	17*	8*
7 30	9 54.85	+1 40.4	2.646	1.785	14.2	21.5	26 E	—	19*	10 3	10 51.01	+10 42.9	3.258	2.441	11.8	17.9	30 W	23*	11*
8 4	10 6.48	+1 39.3	2.680	1.794	12.9	21.5	23 E	—	17*	10 13	11 7.08	+9 25.0	3.214	2.471	13.6	18.0	36 W	28*	14*
8 9	10 17.97	+1 36.0	2.712	1.803	11.7	21.5	21 E	—	14*	10 23	11 22.47	+8 10.1	3.158	2.501	15.3	18.0	41 W	33*	18*
8 14	10 29.33	+1 30.6	2.741	1.812	10.4	21.4	19 E	—	12*	11 2	11 37.16	+6 59.6	3.090	2.530	16.8	18.1	48 W	38*	22*
8 19	10 40.56	+1 23.5	2.768	1.821	9.1	21.4	16 E	—	10*	11 12	11 51.07	+5 54.8	3.011	2.558	18.3	18.1	54 W	42*	26*
8 24	10 51.69	+1 14.8	2.793	1.829	7.8	21.4	14 E	—	7*	11 22	12 4.12	+4 57.2	2.921	2.586	19.5	18.1	61 W	46*	32*
8 29	11 2.71	+1 4.9	2.815	1.838	6.4	21.4	12 E	—	5*	12 2	12 16.19	+4 8.2	2.821	2.612	20.4	18.1	68 W	48*	37*
9 3	11 13.65	+0 53.9	2.834	1.846	5.1	21.3	9 E	—	3*	12 12	12 27.13	+3 29.4	2.713	2.638	21.1	18.0	75 W	48*	43*
9 8	11 24.50	+0 42.0	2.850	1.854	3.8	21.3	7 E	—	—	12 22	12 36.76	+3 2.5	2.599	2.662	21.5	17.9	83 W	48	50*
9 13	11 35.28	+0 29.5	2.864	1.862	2.4	21.2	4 E	—	—	1 1	12 44.85	+2 49.0	2.482	2.686	21.5	17.9	91 W	48	56*
9 18	11 45.99	+0 16.6	2.874	1.870	1.1	21.1	2 E	—	—	1 11	12 51.15	+2 50.5	2.363	2.708	21.0	17.8	100 W	48	60*
9 23	11 56.65	+0 3.5	2.881	1.877	0.4	21.1	1 W	—	—	1 21	12 55.39	+3 8.2	2.248	2.730	19.9	17.6	109 W	48	61
9 28	12 7.26	+0 9.5	2.885	1.885	1.7	21.2	3 W	—	—	<b>4947 Ninkasi</b>									
10 3	12 17.84	+0 22.3	2.885	1.892	3.0	21.3	6 W	—	—	12 27	0 29.04	-10 53.9	0.641	1.145	59.1	19.4	87 E	34	67*
10 8	12 28.38	+0 34.6	2.882	1.899	4.3	21.4	8 W	2*	—	1 1	0 47.38	-10 30.9	0.660	1.148	58.7	19.5	86 E	34	66*
10 13	12 38.90	+0 46.1	2.877	1.906	5.6	21.4	11 W	5*	—	1 6	1 5.48	-9 59.9	0.680	1.153	58.3	19.6	86 E	35	65*
<b>140158 2001 SX<sub>169</sub></b>										1 11	1 23								

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>267004 1981 UA</b>										<b>486001 2012 MR<sub>7</sub></b>									
<i>(continuation)</i>																			
12 27	0 29.69	+37 34.0	1.031	1.600	36.4	18.5	105 E	83	24*	3 7	4 31.38	+10 23.2	0.994	1.298	49.1	21.3	82 E	54*	49*
1 1	0 37.42	+38 30.5	1.078	1.609	36.6	18.6	103 E	84	22*	3 12	4 46.69	+ 9 37.4	1.030	1.306	48.6	21.4	80 E	52*	50*
1 6	0 46.11	+39 26.0	1.124	1.619	36.7	18.7	100 E	84	21*	3 17	5 1.81	+ 8 53.4	1.066	1.314	48.0	21.4	79 E	51*	51*
1 11	0 55.73	+40 20.5	1.172	1.630	36.7	18.8	98 E	85	19*	<b>87684 2000 SY<sub>2</sub></b>									
1 16	1 6.21	+41 13.9	1.219	1.641	36.6	18.9	96 E	86	17*	12 27	0 30.83	-25 52.8	0.843	1.198	54.3	18.1	82 E	19	74*
1 21	1 17.51	+42 6.0	1.267	1.653	36.4	19.0	94 E	87*	16*	1 1	0 32.35	-24 29.3	0.861	1.163	55.8	18.1	78 E	21	69*
1 26	1 29.57	+42 56.3	1.316	1.666	36.2	19.1	92 E	86*	15*	1 6	0 34.56	-23 4.8	0.875	1.124	57.3	18.1	74 E	22	65*
1 31	1 42.36	+43 44.5	1.365	1.679	35.9	19.2	90 E	84*	14*	1 11	0 37.30	-21 39.5	0.885	1.083	59.0	18.1	71 E	23	61*
2 5	1 55.82	+44 30.0	1.414	1.694	35.6	19.3	88 E	81*	13*	1 16	0 40.44	-20 13.2	0.889	1.038	60.8	18.1	67 E	25*	57*
2 10	2 9.92	+45 12.4	1.464	1.708	35.2	19.3	86 E	79*	12*	1 21	0 43.78	-18 45.9	0.888	0.989	63.0	18.1	64 E	26*	53*
2 15	2 24.62	+45 51.4	1.514	1.723	34.8	19.4	84 E	77*	11*	1 26	0 47.11	-17 17.6	0.880	0.937	65.5	18.0	60 E	26*	49*
2 20	2 39.86	+46 26.5	1.565	1.739	34.3	19.5	83 E	75*	11*	1 31	0 50.17	-15 47.8	0.866	0.881	68.6	17.9	56 E	26*	45*
2 25	2 55.59	+46 57.2	1.616	1.755	33.8	19.6	81 E	74*	10*	2 5	0 52.60	-14 16.1	0.846	0.821	72.5	17.8	53 E	26*	41*
3 2	3 11.73	+47 23.2	1.668	1.772	33.3	19.6	79 E	72*	10*	2 10	0 53.87	-12 41.9	0.818	0.756	77.6	17.8	48 E	25*	37*
3 7	3 28.23	+47 44.0	1.720	1.789	32.8	19.7	77 E	70*	10*	2 15	0 53.17	-11 4.3	0.782	0.688	84.2	17.7	44 E	23*	33*
3 12	3 45.01	+47 59.3	1.773	1.806	32.2	19.8	76 E	69*	10*	2 20	0 49.16	- 9 22.3	0.741	0.615	93.2	17.7	38 E	20*	28*
3 17	4 2.00	+48 9.0	1.827	1.824	31.6	19.9	74 E	67*	10*	2 25	0 39.75	- 7 34.8	0.696	0.538	105.9	17.9	32 E	16*	22*
3 22	4 19.12	+48 12.9	1.881	1.842	31.0	19.9	72 E	66*	10*	3 2	0 21.96	- 5 41.4	0.656	0.461	124.2	18.7	23 E	11*	14*
3 27	4 36.29	+48 11.0	1.935	1.861	30.4	20.0	71 E	64*	10*	<b>136864 1998 FB<sub>41</sub></b>									
4 1	4 53.41	+48 3.1	1.991	1.879	29.7	20.1	69 E	63*	11*	12 27	0 30.86	+ 0 28.7	2.494	2.711	21.3	21.5	92 E	45	58*
4 6	5 10.43	+47 49.5	2.046	1.898	29.1	20.1	67 E	61*	11*	1 6	0 39.06	+ 1 21.4	2.656	2.733	21.0	21.6	84 E	46	53*
4 11	5 27.28	+47 30.1	2.103	1.917	28.4	20.2	65 E	59*	12*	1 16	0 48.50	+ 2 21.6	2.816	2.754	20.3	21.8	76 E	47*	47*
4 16	5 43.89	+47 5.3	2.159	1.936	27.7	20.2	64 E	58*	12*	1 26	0 58.99	+ 3 27.7	2.972	2.775	19.3	21.9	69 E	47*	41*
4 21	6 0.21	+46 35.4	2.216	1.955	27.0	20.3	62 E	56*	13*	2 5	1 10.33	+ 4 37.8	3.120	2.795	18.1	21.9	62 E	45*	36*
4 26	6 16.20	+46 0.6	2.273	1.975	26.2	20.4	60 E	54*	13*	<b>349366 2007 VB<sub>27</sub></b>									
5 1	6 31.82	+45 21.2	2.330	1.994	25.5	20.4	58 E	52*	14*	12 27	0 31.08	- 4 57.7	1.360	1.675	36.0	20.4	90 E	40	63*
5 6	6 47.04	+44 37.6	2.387	2.014	24.7	20.5	56 E	50*	14*	1 6	0 49.75	- 1 42.6	1.461	1.692	35.4	20.5	85 E	43	57*
5 11	7 1.85	+43 50.1	2.444	2.034	23.9	20.5	55 E	48*	15*	1 16	1 9.20	+ 1 27.9	1.567	1.711	34.6	20.7	81 E	46	51*
5 16	7 16.26	+42 59.1	2.501	2.053	23.1	20.5	53 E	45*	15*	1 26	1 29.33	+ 4 31.8	1.675	1.733	33.5	20.8	76 E	49*	46*
5 21	7 30.24	+42 5.0	2.558	2.073	22.2	20.6	51 E	43*	16*	2 5	1 50.06	+ 7 27.4	1.786	1.756	32.3	20.9	72 E	51*	41*
5 26	7 43.80	+41 8.2	2.614	2.093	21.4	20.6	49 E	41*	16*	2 15	2 11.34	+10 13.2	1.899	1.781	30.9	21.1	68 E	51*	38*
5 31	7 56.94	+40 8.8	2.670	2.112	20.5	20.7	47 E	38*	16*	2 25	2 33.13	+12 47.9	2.013	1.807	29.4	21.2	64 E	49*	34*
6 5	8 9.68	+39 7.3	2.725	2.132	19.7	20.7	45 E	36*	17*	3 7	2 55.37	+15 10.3	2.127	1.835	27.8	21.3	60 E	47*	31*
6 10	8 22.05	+38 3.8	2.780	2.152	18.8	20.7	43 E	33*	17*	3 17	3 18.03	+17 19.4	2.240	1.864	26.1	21.4	55 E	44*	29*
6 15	8 34.04	+36 58.8	2.833	2.171	17.9	20.8	41 E	31*	17*	3 27	3 41.08	+19 14.5	2.352	1.894	24.2	21.5	51 E	40*	26*
6 20	8 45.67	+35 52.4	2.885	2.191	17.0	20.8	39 E	29*	16*	<b>510421 2011 UX<sub>20</sub></b>									
6 25	8 56.96	+34 44.9	2.937	2.210	16.0	20.8	37 E	26*	16*	12 27	0 31.24	+ 1 59.7	1.754	2.049	28.7	21.1	93 E	47	57*
6 30	9 7.93	+33 36.5	2.986	2.229	15.1	20.9	35 E	24*	15*	1 6	0 47.26	+ 3 12.3	1.916	2.100	27.9	21.4	87 E	48	53*
7 5	9 18.60	+32 27.3	3.035	2.249	14.2	20.9	33 E	22*	15*	1 16	1 3.60	+ 4 30.1	2.081	2.151	26.8	21.6	81 E	50	48*
7 10	9 28.98	+31 17.6	3.081	2.268	13.3	20.9	31 E	21*	14*	1 26	1 20.17	+ 5 51.0	2.246	2.203	25.5	21.7	75 E	50*	43*
7 15	9 39.09	+30 7.5	3.126	2.287	12.3	20.9	29 E	19*	13*	2 5	1 36.92	+ 7 12.8	2.412	2.255	24.1	21.9	69 E	50*	39*
7 20	9 48.94	+28 57.1	3.169	2.306	11.4	20.9	27 E	17*	11*	<b>163081 2002 AG<sub>29</sub></b>									
7 25	9 58.55	+27 46.7	3.210	2.324	10.5	20.9	25 E	16*	10*	12 27	0 31.74	- 4 13.7	0.826	1.287	49.8	20.5	90 E	41	62*
7 30	10 7.93	+26 36.2	3.248	2.343	9.5	20.9	23 E	14*	8*	1 1	0 44.49	- 3 25.7	0.867	1.292	49.5	20.6	88 E	42	61*
8 4	10 17.11	+25 25.8	3.285	2.361	8.7	20.9	21 E	13*	7*	1 6	0 57.07	- 2 35.1	0.907	1.297	49.2	20.7	87 E	42	59*
8 9	10 26.08	+24 15.6	3.319	2.380	7.8	20.9	19 E	11*	5*	1 11	1 9.54	- 1 42.4	0.947	1.301	48.8	20.8	85 E	43	57*
8 14	10 34.86	+23 5.8	3.350	2.398	7.0	20.9	17 E	10*	3*	1 16	1 21.94	- 0 48.0	0.986	1.304	48.5	20.9	83 E	44	55*
8 19	10 43.46	+21 56.3	3.378	2.416	6.3	20.9	15 E	9*	1*	1 21	1 34.30	+ 0 7.7	1.024	1.306	48.1	20.9	81 E	45	53*
8 24	10 51.89	+20 47.4	3.404	2.433	5.6	20.9	14 E	8*	—	1 26	1 46.65	+ 1 4.2	1.062	1.307	47.7	21.0	79 E	46*	51*
8 29	11 0.16	+19 39.0	3.427	2.451	5.2	20.9	13 E	6*	—	1 31	1 59.01	+ 2 1.1	1.099	1.308	47.4	21.1	78 E	47*	50*
9 3	11 8.28	+18 31.2	3.446	2.468	4.9	21.0	12 E	5*	—	2 5	2 11.41	+ 2 58.1	1.134	1.307	47.0	21.1	76 E	47*	48*
9 8	11 16.25	+17 24.1	3.463	2.485	4.8	21.0	12 E	4*	—	2 10	2 23.88	+ 3 54.8	1.169	1.306	46.6	21.2	74 E	48*	47*
9 13	11 24.07	+16 17.7	3.476	2.502	4.9	21.0	12 E	3*	—	2 15	2 36.44	+ 4 51.1	1.202	1.304	46.2	21.2	72 E	48*	46*
9 18	11 31.76	+15 12.2	3.486	2.519	5.3	21.1	13 W	5*	—	2 20	2 49.11	+ 5 46.5	1.234	1.301	45.8	21.3	71 E	48*	45*
9 23	11 39.31	+14 7.6	3.492	2.536	5.9	21.1	15 W	8*	—	2 25	3 1.90	+ 6 40.7	1.264	1.297	45.5	21.3	69 E	47*	44*
9 28	11 46.73	+13 3.9	3.495	2.552	6.5	21.1	17 W	10*	—	3 2	3 14.84	+ 7 33.4	1.293	1.292	45.1	21.3	67 E	47*	43*
10 3	11 54.02	+12 1.2	3.494	2.568	7.3	21.2	19 W	13*	—	3 7	3 27.92	+ 8 24.4	1.320	1.286	44.7	21.4	66 E	46*	42*
10 8	12 1.19	+10 59.6	3.490	2.584	8.1	21.2	21 W	15*	—	3 12	3 41.19	+ 9 13.5	1.345	1.279	44.4	21.4	64 E	45*	41*
10 13	12 8.22	+ 9																	

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

20/22	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°-26°	20/22	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°-26°	
<b>163081 2002 AG<sub>29</sub></b> (continuation)									<b>55401 2001 SX<sub>316</sub></b> (continuation)									
6 15	8 36.16	+13 9.5	1.463	1.024	44.0	21.1	44 E	16* 35*	12 12	9 24.30	+ 8 2.7	1.339	2.008	25.5	17.2	119 W	53	56
6 20	8 54.06	+12 33.5	1.450	1.007	44.5	21.0	44 E	15* 35*	12 22	9 25.66	+ 5 6.7	1.214	1.972	23.4	16.9	127 W	50	59
6 25	9 12.19	+11 52.3	1.435	0.990	45.1	21.0	44 E	14* 35*	1 1	9 23.34	+ 2 1.9	1.105	1.938	20.6	16.6	136 W	47	62
6 30	9 30.54	+11 6.3	1.419	0.974	45.8	20.9	43 E	13* 35*	1 6	9 20.67	+ 0 27.7	1.057	1.921	19.0	16.4	141 W	45	64
7 5	9 49.13	+10 15.5	1.402	0.958	46.5	20.9	43 E	13* 35*	1 11	9 17.01	- 1 6.5	1.013	1.904	17.3	16.2	145 W	44	65
7 10	10 7.96	+ 9 20.2	1.383	0.943	47.3	20.9	43 E	12* 35*	1 16	9 12.39	- 2 39.4	0.976	1.887	15.6	16.1	149 W	42	67
7 15	10 27.03	+ 8 20.6	1.363	0.929	48.2	20.8	43 E	12* 35*	1 21	9 6.89	- 4 9.7	0.944	1.871	14.2	15.9	152 W	41	68
7 20	10 46.35	+ 7 17.2	1.341	0.916	49.2	20.8	43 E	12* 36*	<b>329342 2001 OL<sub>100</sub></b>									
7 25	11 5.93	+ 6 10.4	1.319	0.904	50.3	20.7	43 E	12* 36*	12 27	0 33.08	- 1 58.6	1.551	1.857	32.0	21.2	91 E	43	61*
7 30	11 25.76	+ 5 0.5	1.296	0.893	51.4	20.7	43 E	13* 36*	1 6	0 50.30	+ 0 18.0	1.684	1.891	31.2	21.4	86 E	45	55*
8 4	11 45.87	+ 3 48.1	1.272	0.884	52.5	20.7	44 E	13* 37*	1 16	1 8.02	+ 2 33.4	1.820	1.927	30.3	21.5	81 E	48	50*
8 9	12 6.27	+ 2 33.5	1.247	0.877	53.6	20.7	44 E	14* 37*	1 26	1 26.17	+ 4 45.8	1.959	1.964	29.1	21.7	76 E	49*	45*
8 14	12 26.97	+ 1 17.3	1.223	0.871	54.8	20.6	45 E	14* 38*	2 5	1 44.65	+ 6 54.0	2.099	2.002	27.7	21.9	71 E	50*	41*
8 19	12 47.98	+ 0 0.2	1.198	0.868	56.0	20.6	45 E	15* 38*	<b>86212 1999 TG<sub>21</sub></b>									
8 24	13 9.30	+ 1 17.5	1.174	0.866	57.1	20.6	46 E	16* 39*	12 27	0 33.48	+13 43.6	1.172	1.627	36.8	17.9	98 E	59	47*
8 29	13 30.95	- 2 35.0	1.150	0.866	58.1	20.6	47 E	17* 39*	1 6	0 45.05	+17 20.3	1.254	1.615	37.5	18.0	92 E	62	40*
9 3	13 52.96	+ 3 51.7	1.127	0.869	59.1	20.6	48 E	18* 40*	1 16	0 59.58	+20 51.0	1.337	1.606	37.7	18.2	86 E	66	34*
9 8	14 15.32	+ 5 7.2	1.105	0.873	59.9	20.6	49 E	19* 41*	1 26	1 16.82	+24 15.4	1.419	1.601	37.4	18.3	81 E	68*	29*
9 13	14 38.04	+ 6 20.7	1.084	0.879	60.6	20.6	50 E	20* 42*	2 5	1 36.61	+27 31.9	1.500	1.599	36.9	18.4	77 E	68*	24*
9 18	15 1.12	+ 7 31.3	1.065	0.887	61.2	20.6	51 E	21* 43*	2 15	1 58.90	+30 38.8	1.580	1.601	36.2	18.5	73 E	66*	21*
9 23	15 24.54	+ 8 38.4	1.048	0.897	61.5	20.6	52 E	22* 44*	3 7	2 50.87	+36 12.3	1.735	1.616	34.2	18.7	66 E	60*	15*
9 28	15 48.29	+ 9 41.0	1.034	0.908	61.7	20.6	53 E	23* 44*	3 27	3 20.47	+38 31.5	1.811	1.628	33.1	18.7	63 E	57*	14*
10 3	16 12.34	+10 38.5	1.022	0.920	61.8	20.6	54 E	23* 45*	3 17	3 52.30	+40 26.9	1.887	1.644	31.9	18.8	60 E	54*	12*
10 8	16 36.65	+11 29.8	1.013	0.934	61.6	20.6	55 E	24* 46*	4 1	4 8.96	+41 14.5	1.925	1.652	31.3	18.8	59 E	53*	12*
10 13	17 1.16	+12 14.2	1.007	0.948	61.3	20.6	56 E	25* 47*	4 6	4 26.04	+41 54.6	1.963	1.662	30.6	18.9	58 E	52*	12*
10 18	17 25.77	+12 50.8	1.004	0.963	60.8	20.6	58 E	26* 48*	4 11	4 43.49	+42 26.9	2.001	1.672	30.0	18.9	57 E	51*	12*
10 23	17 50.39	+13 19.0	1.004	0.979	60.2	20.6	59 E	27* 48*	4 16	5 1.23	+42 51.1	2.040	1.683	29.3	19.0	55 E	49*	12*
10 28	18 14.93	+13 38.4	1.007	0.996	59.5	20.6	60 E	27* 49*	4 21	5 19.16	+43 7.1	2.079	1.695	28.6	19.0	54 E	48*	12*
11 1	18 39.28	+13 48.7	1.014	1.013	58.6	20.7	61 E	28* 49*	4 26	5 37.21	+43 14.6	2.118	1.707	28.0	19.0	53 E	47*	12*
11 7	19 3.36	+13 49.8	1.024	1.030	57.7	20.7	61 E	29* 49*	5 1	5 55.26	+43 13.8	2.157	1.720	27.3	19.1	51 E	45*	12*
11 12	19 27.04	+13 41.9	1.037	1.047	56.7	20.7	62 E	30* 49*	5 6	6 13.24	+43 4.6	2.197	1.733	26.6	19.1	50 E	44*	12*
11 17	19 50.24	+13 25.2	1.053	1.064	55.7	20.8	63 E	30* 49*	5 11	6 31.06	+42 47.4	2.237	1.747	25.8	19.1	49 E	42*	13*
11 22	20 12.89	+13 0.4	1.072	1.081	54.6	20.8	63 E	31* 49*	5 16	6 48.65	+42 22.4	2.277	1.762	25.5	19.2	48 E	41*	13*
11 27	20 34.94	+12 28.1	1.094	1.098	53.5	20.9	63 E	32* 48*	5 21	7 5.92	+41 50.1	2.317	1.777	24.3	19.2	46 E	39*	14*
12 2	20 56.36	+11 49.1	1.118	1.114	52.4	20.9	64 E	32* 47*	5 26	7 22.82	+41 10.9	2.358	1.792	23.6	19.2	45 E	37*	14*
12 7	21 17.14	+11 4.1	1.145	1.130	51.3	21.0	64 E	33* 46*	5 31	7 39.31	+40 25.4	2.400	1.807	22.8	19.3	44 E	35*	14*
12 12	21 37.27	+10 13.8	1.173	1.146	50.2	21.0	63 E	34* 45*	6 5	7 55.35	+39 34.0	2.441	1.823	22.0	19.3	42 E	34*	15*
12 17	21 56.76	+ 9 19.0	1.203	1.161	49.2	21.1	63 E	35* 44*	6 10	8 10.93	+38 37.4	2.482	1.840	21.2	19.3	41 E	33*	15*
12 22	22 15.64	+ 8 20.6	1.235	1.175	48.1	21.1	63 E	36* 43*	6 15	8 26.03	+37 36.1	2.524	1.856	20.4	19.4	40 E	30*	15*
12 27	22 33.94	+ 7 19.1	1.268	1.189	47.1	21.2	62 E	37* 42*	6 20	8 40.66	+36 30.7	2.565	1.873	19.5	19.4	38 E	26*	15*
1 1	22 51.69	+ 6 15.2	1.302	1.202	46.0	21.2	62 E	37* 40*	6 25	8 54.81	+35 21.8	2.607	1.890	18.7	19.4	37 E	26*	15*
1 6	23 8.96	+ 5 9.4	1.336	1.215	45.0	21.3	61 E	38* 39*	7 5	9 8.49	+34 9.7	2.648	1.908	17.8	19.4	35 E	25*	15*
1 11	23 25.78	+ 4 2.1	1.372	1.227	44.0	21.3	60 E	39* 38*	7 10	9 21.73	+32 55.0	2.689	1.925	17.0	19.5	34 E	23*	15*
1 16	23 42.18	+ 2 54.0	1.407	1.238	43.1	21.4	59 E	39* 37*	7 15	9 34.55	+31 38.2	2.729	1.943	16.1	19.5	32 E	22*	14*
1 21	23 58.22	+ 1 45.4	1.443	1.248	42.1	21.4	58 E	40* 36*	7 20	9 46.96	+30 19.5	2.769	1.961	15.2	19.5	30 E	20*	14*
<b>55401 2001 SX<sub>316</sub></b>									<b>187746 1976 DC</b>									
12 27	0 32.03	+27 47.0	2.661	3.029	18.5	19.4	102 E	73 34*	12 27	0 34.04	+33 0.0	2.315	2.733	20.4	21.3	105 E	78	29*
1 6	0 38.74	+26 56.9	2.780	3.013	19.0	19.5	94 E	72 31*	1 6	0 40.84	+32 8.9	2.411	2.704	21.2	21.4	96 E	77	27*
1 16	0 47.21	+26 23.2	2.900	2.996	19.1	19.6	86 E	71* 28*	1 16	0 49.87	+31 34.9	2.509	2.675	21.6	21.5	89 E	76*	24*
1 26	0 57.18	+26 4.6	3.020	2.978	18.9	19.6	78 E	68* 25*	1 26	1 0.84	+31 17.4	2.607	2.644	21.6	21.5	81 E	73*	21*
2 5	1 8.43	+25 59.3	3.135	2.959	18.3	19.7	71 E	63* 21*	2 5	1 13.49	+31 14.3	2.701	2.612	21.3	21.6	74 E	68*	18*
2 15	1 20.79	+26 5.4	3.243	2.940	17.5	19.7	64 E	57* 18*	<b>137125 1999 CT<sub>3</sub></b>									
2 25	1 34.13	+26 20.8	3.344	2.919	16.5	19.7	57 E	50* 15*	12 27	0 34.28	+74 21.2	0.915	1.585	34.8	20.9	113 E	61	—
3 7	1 48.32	+26 43.7	3.434	2.898	15.2	19.7	50 E	44* 12*	12 29	0 42.51	+73 33.4	0.915	1.583	34.9	20.9	113 E	61	—
3 17	2 3.28	+27 12.0	3.513	2.876	13.8	19.7	44 E	38* 9*	12 31	0 50.71	+72 44.5	0.916	1.581	35.0	20.9	113 E	62	—
3 27	2 18.92	+27 44.1	3.579	2.852	12.3	19.7	37 E	31* 7*	1 2	0 58.86	+71 54.8	0.916	1.579	35.1	20.9	112 E	63	—
4 6	2 35.19	+28 18.3	3.632	2.828	10.7	19.6	32 E	26* 4*										
4 16	2 52.03	+28 53.1	3.671	2.803	9.0	19.6	26 E	20* 1*										
4 26	3 9.40	+29 26.9	3.697	2.777	7.3	19.5	21 E	15* —										
5 6	3 27.25	+29 58.5	3.708	2.751	5.7	19.4	16 E	10* —										
5 16	3 45.54	+30 26.6	3.705	2.723	4.4	19.3	12 E	5* —										
5 26	4 2.21	+30 50.2	3.687	2.695	3.7	19.2	10 W	5* —										
6 5	4 23.21	+31 8.1	3.656	2.666	4.1	19.2	11 W	5* —										
6 15	4 42.49	+31 19.4	3.611	2.636	5.3	19.2	14 W	7* —										
6 25	5 1.96	+31 23.4	3.553	2.605	6.9	19.2	18 W	10* 4*										
7 5	5 21.56	+31 19.2	3.482	2.574	8.7	19.3	23 W	14* 8*										
7 15	5 41.21	+31 6.3	3.399	2.542	10.7	19.3	28 W	18* 11*										
7 25	6 0.81	+30 44.2	3.305	2.50														

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>137125 1999 CT<sub>3</sub></b>										<b>424313 2007 TH<sub>370</sub></b>									
<i>(continuation)</i>																			
1 4	1 6.95	+71 4.2	0.917	1.577	35.3	21.0	112 E	64	—	12 27	0 37.87	+13 51.1	1.533	1.942	30.0	20.4	99 E	59	47*
1 6	1 14.98	+70 12.7	0.919	1.575	35.4	21.0	112 E	65	—	1 6	0 53.91	+14 34.0	1.668	1.973	29.9	20.6	92 E	60	44*
1 11	1 34.73	+68 0.6	0.924	1.570	35.9	21.0	111 E	67	—	1 16	1 10.86	+15 25.8	1.807	2.004	29.3	20.8	86 E	60	40*
1 16	1 53.99	+65 44.4	0.933	1.564	36.4	21.0	109 E	69	—	1 26	1 28.55	+16 24.1	1.948	2.035	28.5	20.9	81 E	61*	37*
1 21	2 12.70	+63 25.1	0.943	1.558	37.0	21.0	108 E	72	—	2 5	1 46.83	+17 26.1	2.089	2.066	27.4	21.1	75 E	60*	34*
1 26	2 30.84	+61 3.8	0.957	1.551	37.6	21.1	106 E	74	2*	2 15	2 5.61	+18 29.7	2.229	2.098	26.2	21.2	69 E	57*	31*
1 31	2 48.42	+58 41.5	0.973	1.545	38.2	21.1	104 E	76	4*	2 25	2 24.81	+19 33.0	2.368	2.129	24.7	21.4	64 E	54*	28*
2 5	3 5.43	+56 19.0	0.992	1.538	38.8	21.2	102 E	79	6*	3 7	2 44.36	+20 34.1	2.502	2.160	23.1	21.5	59 E	49*	26*
2 10	3 21.94	+53 57.2	1.013	1.530	39.4	21.2	100 E	81	9*	<b>511019 2013 QJ<sub>6</sub></b>									
2 15	3 37.97	+51 37.0	1.037	1.523	40.0	21.3	98 E	83	11*	12 27	0 38.34	-25 41.5	1.515	1.706	34.9	20.8	83 E	19	76*
2 20	3 53.55	+49 19.1	1.063	1.515	40.5	21.3	95 E	85*	13*	1 1	0 48.33	-23 57.0	1.559	1.715	34.5	20.9	81 E	21	73*
2 25	4 8.70	+47 3.7	1.090	1.507	41.0	21.4	93 E	86*	15*	1 6	0 58.39	-22 11.2	1.605	1.725	34.1	20.9	80 E	23	70*
3 2	4 23.45	+44 51.2	1.120	1.499	41.4	21.4	90 E	84*	17*	1 11	1 8.50	-20 24.6	1.651	1.736	33.6	21.0	78 E	25	67*
3 7	4 37.82	+42 41.6	1.150	1.490	41.7	21.5	88 E	82*	19*	1 16	1 18.67	-18 37.6	1.698	1.747	33.1	21.1	76 E	26	65*
<b>169675 2002 JM<sub>97</sub></b>										<b>208563 2002 CL<sub>4</sub></b>									
12 27	0 34.53	-3 44.2	1.730	2.006	29.4	20.4	91 E	41	62*	12 27	0 38.35	-3 59.1	1.363	1.706	35.2	20.2	92 E	41	63*
1 6	0 48.90	-0 58.4	1.908	2.074	28.2	20.6	85 E	44	56*	1 6	0 56.75	-1 26.2	1.466	1.721	34.8	20.3	87 E	44	58*
1 16	1 3.53	+1 36.3	2.089	2.141	26.9	20.9	80 E	47	50*	1 16	1 16.01	+1 7.6	1.572	1.738	34.1	20.5	82 E	46	52*
1 26	1 18.41	+4 1.0	2.272	2.208	25.3	21.1	74 E	48*	44*	1 26	1 36.00	+3 39.8	1.681	1.757	33.2	20.6	78 E	49*	48*
2 5	1 33.48	+6 16.6	2.453	2.273	23.7	21.2	68 E	48*	39*	2 5	1 56.60	+6 7.9	1.791	1.778	32.1	20.8	73 E	50*	44*
2 15	1 48.74	+8 23.8	2.632	2.338	21.9	21.4	62 E	47*	35*	2 15	2 17.74	-8 29.9	1.903	1.801	30.8	20.9	69 E	50*	40*
<b>208027 1999 JQ<sub>77</sub></b>										<b>414960 2011 CS<sub>4</sub></b>									
12 27	0 35.78	-2 55.7	2.049	2.298	25.3	21.3	92 E	42	62*	12 27	0 38.56	+16 24.3	0.447	1.147	57.6	20.5	100 E	61	45*
1 6	0 46.64	-1 15.3	2.210	2.334	24.8	21.5	85 E	44	56*	1 1	1 3.47	+17 14.9	0.466	1.163	56.2	20.6	101 E	62	44*
1 16	0 58.52	+0 27.3	2.371	2.369	24.0	21.7	78 E	45*	50*	1 6	1 27.87	+17 58.0	0.487	1.180	54.8	20.7	101 E	63	44*
1 26	1 11.26	+2 10.8	2.529	2.403	22.8	21.8	71 E	46*	44*	1 11	1 51.59	+18 33.7	0.513	1.198	53.5	20.8	102 E	64	44*
2 5	1 24.68	+3 53.9	2.684	2.437	21.5	21.9	65 E	45*	39*	1 16	2 14.51	+19 2.8	0.541	1.217	52.3	20.9	102 E	64	43*
<b>458418 2011 AM<sub>12</sub></b>										<b>153306 2001 JL<sub>1</sub></b>									
12 27	0 36.75	-54 59.8	0.727	1.037	65.0	21.2	73 E	—	59*	12 27	0 38.97	+7 54.6	1.644	2.011	29.1	20.6	97 E	53	53*
12 29	0 51.82	-53 19.4	0.722	1.051	64.3	21.2	74 E	—	61*	1 6	0 48.81	+6 46.2	1.709	1.945	30.3	20.6	88 E	52	50*
12 31	1 6.00	-51 30.5	0.717	1.066	63.5	21.2	76 E	—	63*	1 16	1 1.12	+6 1.8	1.770	1.879	31.1	20.6	81 E	51	46*
1 2	1 19.33	-49 33.9	0.714	1.080	62.6	21.2	77 E	—	65*	1 26	1 15.62	+5 37.7	1.825	1.813	31.4	20.6	74 E	50*	43*
1 4	1 31.84	-47 30.5	0.711	1.095	61.7	21.2	79 E	—	67*	2 5	1 32.11	+5 29.8	1.873	1.747	31.4	20.6	67 E	48*	40*
1 6	1 43.59	-45 20.9	0.710	1.110	60.8	21.2	80 E	—	69*	2 15	1 50.47	+5 34.5	1.911	1.682	31.1	20.6	62 E	44*	37*
1 8	1 54.63	-43 6.1	0.710	1.125	59.8	21.2	82 E	2	71*	2 25	2 10.62	+5 48.2	1.939	1.618	30.6	20.5	56 E	41*	35*
1 10	2 5.01	-40 47.1	0.711	1.140	58.8	21.2	83 E	4	74*	3 7	2 32.51	+6 7.5	1.957	1.555	30.1	20.4	52 E	36*	33*
1 12	2 14.81	-38 24.6	0.714	1.156	57.8	21.2	84 E	7	76*	3 17	2 56.15	+6 29.3	1.966	1.495	29.6	20.3	48 E	32*	32*
1 14	2 24.06	-35 59.7	0.718	1.172	56.8	21.2	86 E	9	78*	3 27	3 21.56	+6 50.4	1.965	1.438	29.2	20.2	45 E	28*	31*
1 16	2 32.82	-33 33.2	0.723	1.187	55.8	21.2	87 E	11	80*	4 6	3 48.77	+7 7.6	1.956	1.385	28.9	20.1	42 E	24*	30*
1 18	2 41.14	-31 6.0	0.730	1.203	54.8	21.2	88 E	14	82*	4 16	4 17.83	+7 18.0	1.940	1.338	28.8	20.0	40 E	20*	30*
1 20	2 49.06	-28 39.1	0.738	1.219	53.8	21.2	89 E	16	83*	4 26	4 48.75	+7 18.8	1.921	1.296	29.0	20.0	39 E	16*	30*
1 22	2 56.61	-26 13.0	0.748	1.235	52.8	21.3	90 E	19	83*	5 6	5 21.48	+7 7.5	1.899	1.263	29.3	19.9	38 E	13*	30*
1 24	3 3.84	-23 48.7	0.760	1.251	51.9	21.3	91 E	21	83*	5 16	5 55.93	+6 41.9	1.879	1.238	29.7	19.8	37 E	9*	31*
1 26	3 10.78	-21 26.7	0.773	1.267	51.0	21.3	91 E	24	82*	5 26	6 31.89	+6 0.6	1.863	1.222	30.1	19.8	37 E	6*	31*
1 31	3 27.00	-15 45.4	0.811	1.307	48.8	21.5	93 E	29	77*	6 5	7 9.06	+5 3.3	1.854	1.217	30.5	19.8	37 E	3*	31*
2 5	3 41.95	-10 28.5	0.858	1.347	46.9	21.6	94 E	35	73*	6 15	7 47.05	+3 50.6	1.856	1.222	30.6	19.8	38 E	1*	32*
2 10	3 55.90	-5 39.4	0.912	1.388	45.2	21.7	94 E	39	68*	6 25	8 25.37	+2 24.4	1.870	1.238	30.3	19.8	38 E	—	32*
2 15	4 9.11	-1 19.1	0.974	1.428	43.7	21.9	93 E	44	64*	7 5	9 3.51	+0 47.9	1.898	1.263	29.7	19.9	38 E	—	32*
<b>65742 1993 TY<sub>18</sub></b>										<b>271073 2003 KU<sub>13</sub></b>									
12 27	0 37.32	+0 18.5	1.601	1.927	30.6	20.3	93 E	45	59*	7 15	9 41.02	-0 55.6	1.942	1.296	28.7	20.0	38 E	—	31*
1 6	0 53.29	+1 54.7	1.742	1.961	30.1	20.5	87 E	47	54*	7 25	10 17.48	-2 42.1	1.999	1.338	27.3	20.1	37 E	—	31*
1 16	1 9.90	+3 34.7	1.884	1.996	29.2	20.7	82 E	49	50*	8 4	10 52.62	-4 28.2	2.070	1.385	25.6	20.2	36 E	—	30*
1 26	1 27.01	+5 16.2	2.028	2.031	28.1	20.8	76 E	50*	45*	8 14	11 26.31	-6 11.2	2.151	1.438	23.6	20.3	35 E	—	28*
2 5	1 44.55	+6 57.4	2.171	2.067	26.8	21.0	71 E	50*	41*	8 24	11 58.46	-7 48.6	2.242	1.495	21.5	20.4	33 E	—	26*
2 15	2 2.45	+8 36.5	2.313	2.102	25.3	21.1	65 E	48*	37*	9 3	12 29.13	-9 19.1	2.339	1.555	19.2	20.5	30 E	—	24*
2 25	2 20.67	+10 12.3	2.452	2.137	23.7	21.2	60 E	46*	34*	9 13	12 58.40	-10 41.4	2.439	1.618	16.8	20.6	28 E	—	22*
3 7	2 39.14	+11 43.4	2.587	2.172	21.9	21.3	55 E	42*	31*	9 23	13 26.38	-11 54.9	2.541	1.682	14.4	20.7	25 E	1*	19*
3 17	2 57.86	+13 8.7	2.717	2.206	20.1	21.4	50 E	38*	28*	10 3	13 53.19	-12 59.0	2.642	1.747	12.0	20.7	21 E	1*	15*
3 27	3 16.76	+14 27.3	2.840	2.241	18.2	21.5	45 E	33*	25*	10 13	14 18.93	-13 53.4	2.740	1.813	9.5	20.8	18 E	1*	11*
										10 23 14 43.70 -14 37.6 2.832 1.879 7.1 20.9 14 E 1* 7*									

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>153306 2001 JL<sub>1</sub></b> (continuation)										<b>27002 1998 DV<sub>9</sub></b>																			
11 2	15 7.58	-15 11.5	2.917	1.945	4.8	20.9	9E	—	3*	12 27	0 42.26	-10 4.0	0.785	1.261	51.2	20.0	90	E	35	69*									
11 12	15 30.61	-15 34.9	2.993	2.011	2.8	20.9	6E	—	—	1 6	0 56.44	-7 4.8	0.788	1.202	54.5	20.0	85	E	38	62*									
11 22	15 52.81	-15 47.7	3.059	2.076	2.1	21.0	4E	—	—	1 16	1 14.20	-3 40.3	0.783	1.147	57.6	19.9	80	E	41	56*									
12 2	16 14.21	-15 49.8	3.114	2.140	3.4	21.2	7W	1*	—	1 26	1 35.36	+0 8.5	0.770	1.097	60.7	19.9	76	E	45*	50*									
12 12	16 34.79	-15 41.2	3.156	2.204	5.4	21.4	12W	6*	—	2 5	1 59.89	+4 20.1	0.748	1.054	63.7	19.8	73	E	48*	45*									
<b>424271 2007 TE<sub>36</sub></b>										<b>366616 2003 NP<sub>4</sub></b>																			
12 27	0 39.05	+13 28.5	1.170	1.639	36.4	20.1	99E	58	48*	12 27	0 39.21	+17 45.9	1.385	1.838	31.8	19.9	100E	63	44*	12 27	0 39.21	+17 45.9	1.385	1.838	31.8	19.9	100E	63	44*
1 6	0 58.93	+15 14.5	1.266	1.654	36.4	20.3	94E	60	44*	1 6	0 59.34	+17 4.6	1.516	1.872	31.6	20.1	95E	62	42*	1 6	0 59.34	+17 4.6	1.516	1.872	31.6	20.1	95E	62	42*
1 16	1 20.14	+17 1.6	1.367	1.672	36.0	20.5	89E	62	40*	1 16	1 19.60	+16 43.4	1.654	1.908	31.0	20.3	89E	62	40*	1 16	1 19.60	+16 43.4	1.654	1.908	31.0	20.3	89E	62	40*
1 26	1 42.47	+18 47.4	1.471	1.692	35.4	20.6	85E	64*	37*	1 26	1 39.93	+16 37.9	1.795	1.943	30.2	20.5	83E	62*	38*	1 26	1 39.93	+16 37.9	1.795	1.943	30.2	20.5	83E	62*	38*
2 5	2 5.71	+20 29.0	1.578	1.714	34.5	20.8	80E	64*	34*	2 5	2 0.27	+16 43.7	1.939	1.980	29.1	20.7	78E	60*	36*	2 5	2 0.27	+16 43.7	1.939	1.980	29.1	20.7	78E	60*	36*
2 15	2 29.71	+22 4.3	1.688	1.738	33.5	20.9	76E	63*	32*	2 15	2 20.62	+16 57.2	2.084	2.016	27.8	20.9	72E	58*	34*	2 15	2 20.62	+16 57.2	2.084	2.016	27.8	20.9	72E	58*	34*
2 25	2 54.36	+23 31.1	1.800	1.763	32.2	21.1	72E	61*	30*	2 25	2 40.95	+17 15.3	2.229	2.053	26.3	21.0	67E	54*	32*	2 25	2 40.95	+17 15.3	2.229	2.053	26.3	21.0	67E	54*	32*
3 7	3 19.48	+24 47.5	1.913	1.790	30.9	21.2	68E	58*	28*	3 7	3 1.24	+17 35.2	2.371	2.090	24.7	21.1	62E	50*	31*	3 7	3 1.24	+17 35.2	2.371	2.090	24.7	21.1	62E	50*	31*
3 17	3 44.99	+25 52.0	2.027	1.819	29.4	21.3	64E	54*	27*	3 17	3 21.50	+17 54.7	2.510	2.126	22.9	21.2	56E	45*	29*	3 17	3 21.50	+17 54.7	2.510	2.126	22.9	21.2	56E	45*	29*
3 27	4 10.74	+26 43.4	2.141	1.849	27.7	21.4	60E	51*	26*	3 27	3 41.70	+18 12.0	2.644	2.162	21.1	21.3	51E	40*	27*	3 27	3 41.70	+18 12.0	2.644	2.162	21.1	21.3	51E	40*	27*
<b>19764 2000 NF<sub>5</sub></b>										<b>515013 2009 SN<sub>69</sub></b>																			
12 27	0 40.27	+5 51.9	1.738	2.086	27.9	19.9	96E	51	55*	12 27	0 43.14	+0 13.8	1.460	1.824	32.5	21.5	95E	45	60*	12 27	0 43.14	+0 13.8	1.460	1.824	32.5	21.5	95E	45	60*
1 6	0 53.63	+7 7.5	1.909	2.140	27.4	20.2	90E	52	50*	1 6	1 0.32	+2 17.0	1.585	1.854	32.0	21.7	89E	47	55*	1 6	1 0.32	+2 17.0	1.585	1.854	32.0	21.7	89E	47	55*
1 16	1 7.67	+8 26.9	2.082	2.192	26.4	20.4	83E	53	45*	1 16	1 18.21	+4 21.1	1.715	1.884	31.3	21.9	84E	49	50*	1 16	1 18.21	+4 21.1	1.715	1.884	31.3	21.9	84E	49	50*
1 26	1 22.28	+9 48.4	2.255	2.244	25.3	20.6	77E	54*	41*	1 26	1 36.68	+6 24.0	1.847	1.917	30.3	22.1	79E	51*	46*	1 26	1 36.68	+6 24.0	1.847	1.917	30.3	22.1	79E	51*	46*
2 5	1 37.33	+11 10.5	2.426	2.294	23.9	20.7	71E	53*	37*	2 5	1 55.62	+8 23.8	1.980	1.950	29.0	22.2	74E	52*	42*	2 5	1 55.62	+8 23.8	1.980	1.950	29.0	22.2	74E	52*	42*
2 15	1 52.76	+12 32.0	2.594	2.343	23.3	20.9	64E	51*	33*	2 15	2 8.51	+13 51.9	2.756	2.391	20.6	21.0	58E	47*	29*	2 15	2 8.51	+13 51.9	2.756	2.391	20.6	21.0	58E	47*	29*
2 25	2 8.51	+13 51.9	2.756	2.391	20.6	21.0	58E	47*	29*	3 7	2 24.52	+15 9.2	2.912	2.437	18.8	21.1	52E	42*	26*	3 7	2 24.52	+15 9.2	2.912	2.437	18.8	21.1	52E	42*	26*
3 7	2 40.76	+16 22.9	3.059	2.482	16.9	21.2	47E	37*	23*	3 17	2 40.76	+16 22.9	3.059	2.482	16.9	21.2	47E	37*	23*	3 17	2 40.76	+16 22.9	3.059	2.482	16.9	21.2	47E	37*	23*
3 17	2 57.17	+17 32.5	3.197	2.526	14.9	21.3	41E	32*	20*	3 27	2 57.17	+17 32.5	3.197	2.526	14.9	21.3	41E	32*	20*	3 27	2 57.17	+17 32.5	3.197	2.526	14.9	21.3	41E	32*	20*
4 6	3 13.72	+18 37.1	3.324	2.568	12.9	21.3	35E	26*	17*	4 6	3 13.72	+18 37.1	3.324	2.568	12.9	21.3	35E	26*	17*	4 6	3 13.72	+18 37.1	3.324	2.568	12.9	21.3	35E	26*	17*
4 16	3 30.38	+19 36.4	3.439	2.609	10.8	21.3	29E	20*	14*	4 16	3 30.38	+19 36.4	3.439	2.609	10.8	21.3	29E	20*	14*	4 16	3 30.38	+19 36.4	3.439	2.609	10.8	21.3	29E	20*	14*
4 26	3 47.10	+20 29.9	3.542	2.649	8.7	21.4	23E	15*	10*	4 26	3 47.10	+20 29.9	3.542	2.649	8.7	21.4	23E	15*	10*	4 26	3 47.10	+20 29.9	3.542	2.649	8.7	21.4	23E	15*	10*
5 6	4 3.82	+21 17.1	3.631	2.687	6.6	21.3	18E	9*	7*	5 6	4 3.82	+21 17.1	3.631	2.687	6.6	21.3	18E	9*	7*	5 6	4 3.82	+21 17.1	3.631	2.687	6.6	21.3	18E	9*	7*
5 16	4 20.52	+21 58.0	3.705	2.724	4.4	21.3	12E	4*	3*	5 16	4 20.52	+21 58.0	3.705	2.724	4.4	21.3	12E	4*	3*	5 16	4 20.52	+21 58.0	3.705	2.724	4.4	21.3	12E	4*	3*
5 26	4 37.13	+22 32.3	3.764	2.760	2.3	21.2	6E	—	—	5 26	4 37.13	+22 32.3	3.764	2.760	2.3	21.2	6E	—	—	5 26	4 37.13	+22 32.3	3.764	2.760	2.3	21.2	6E	—	—
6 5	4 53.61	+23 0.0	3.809	2.794	0.2	21.1	1E	—	—	6 5	4 53.61	+23 0.0	3.809	2.794	0.2	21.1	1E	—	—	6 5	4 53.61	+23 0.0	3.809	2.794	0.2	21.1	1E	—	—
6 15	5 9.88	+23 21.1	3.837	2.827	1.9	21.3	5W	—	—	6 15	5 9.88	+23 21.1	3.837	2.827	1.9	21.3	5W	—	—	6 15	5 9.88	+23 21.1	3.837	2.827	1.9	21.3	5W	—	—
6 25	5 25.89	+23 35.8	3.849	2.858	4.0	21.5	11W	1*	4*	6 25	5 25.89	+23 35.8	3.849	2.858	4.0	21.5	11W	1*	4*	6 25	5 25.89	+23 35.8	3.849	2.858	4.0	21.5	11W	1*	4*
<b>474443 2003 QJ<sub>5</sub></b>										<b>183230 2002 TC<sub>58</sub></b>																			
12 27	0 41.03	-12 32.9	1.986	2.200	26.5	21.4	89E	32	70*	12 27	0 43.49	-18 45.6	1.622	1.853	32.0	18.3	87E	26	75*	12 27	0 43.49	-18 45.6	1.622	1.853	32.0	18.3	87E	26	75*
1 1	0 47.53	-12 3.5	2.069	2.223	26.2	21.5	86E	33	67*	1 1	0 52.45	-17 8.9	1.686	1.875	31.5	18.4	85E	28	71*	1 1	0 52.45	-17 8.9	1.686	1.875	31.5	18.4	85E	28	71*
1 6	0 54.21	-11 31.5	2.151	2.246	25.7	21.6	83E	33	64*	1 6	1 1.42	-15 33.1	1.752	1.897	30.9	18.5	83E	29	68*	1 6	1 1.42	-15 33.1	1.752	1.897	30.9	18.5	83E	29	68*
1 11	1 1.04	-10 57.4	2.233	2.269	25.2	21.7	79E	34	61*	1 11	1 10.40	-13 58.5	1.819	1.920	30.3	18.6	81E	31	65*	1 11	1 10.40	-13 58.5	1.819	1.920	30.3	18.6	81E	31	65*
1 16	1 8.02	-10 21.5	2.315	2.292	24.6	21.8	76E	35	59*	1 16	1 19.39	-12 25.2	1.886	1.943	29.7	18.7	78E	33	62*	1 16	1 19.39	-12 25.2	1.886	1.943	29.7	18.7	78E	33	62*
12 27	0 41.41	-50 58.3	0.761	1.074	62.1	21.1	75E	—	62*	1 26	1 37.40	-9 23.9	2.024	1.989	28.4	18.9	74E	36*	56*	1 26	1 37.40	-9 23.9	2.024	1.989	28.4	18.9	74E	36*	56*
1 1	1 2.15	-50 16.6	0.759	1.076	62.0	21.1	75E																						

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

20/22	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	$45^\circ$	$-26^\circ$	20/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	$45^\circ$	$-26^\circ$
<b>183230 2002 TC<sub>58</sub></b>										<b>159898 2004 TO<sub>216</sub></b>									
<i>(continuation)</i>																			
12 2	8 47.44	+12 7.6	2.728	3.315	15.1	20.2	119 W	57	52	12 27	0 47.24	+ 8 6.0	1.723	2.108	27.5	20.8	99 E	53	53*
12 12	8 44.67	+12 35.6	2.632	3.345	13.1	20.1	129 W	58	51	1 6	0 59.68	+ 9 7.9	1.873	2.140	27.3	21.0	92 E	54	49*
12 22	8 39.73	+13 15.6	2.554	3.375	10.6	19.9	141 W	58	51	1 16	1 13.27	+10 16.9	2.024	2.172	26.8	21.2	85 E	55	45*
1 1	8 32.83	+14 6.5	2.499	3.404	7.6	19.8	153 W	59	50	1 26	1 27.80	+11 30.9	2.176	2.204	26.0	21.4	79 E	56*	41*
1 11	8 24.44	+15 5.5	2.472	3.432	4.2	19.6	165 W	60	49	2 5	1 43.10	+12 47.6	2.325	2.235	24.9	21.5	72 E	55*	36*
1 21	8 15.26	+16 9.0	2.477	3.459	1.1	19.4	176 W	61	48	<b>417217 2005 YS</b>									
<b>6239 Minos</b>										12 27	0 47.38	+47 41.8	0.226	1.085	57.8	18.6	111 E	87	15*
12 27	0 44.27	+10 19.7	1.143	1.618	36.9	21.3	99 E	55	51*	12 29	0 49.14	+44 4.5	0.232	1.080	59.5	18.7	109 E	89	19*
1 6	0 55.64	+11 9.1	1.245	1.607	37.7	21.5	92 E	56	47*	12 31	0 50.97	+40 38.3	0.237	1.075	61.2	18.8	107 E	86	21*
1 16	1 9.18	+12 12.4	1.342	1.591	38.0	21.7	85 E	57	43*	1 2	0 52.85	+37 23.4	0.244	1.070	63.0	18.9	104 E	82	24*
1 26	1 24.57	+13 26.4	1.433	1.570	37.9	21.8	79 E	58*	39*	1 4	0 54.75	+34 20.1	0.251	1.063	64.8	19.0	102 E	79	27*
2 5	1 41.57	+14 47.8	1.516	1.545	37.6	21.9	73 E	57*	35*	1 6	0 56.67	+31 28.1	0.259	1.056	66.7	19.1	99 E	76	29*
<b>357635 2005 GW<sub>8</sub></b>										1 11	1 1.43	+25 5.1	0.279	1.037	71.3	19.4	93 E	70	33*
12 27	0 44.32	+ 2 33.7	1.732	2.076	28.1	20.6	96 E	48	58*	1 16	1 5.99	+19 40.6	0.301	1.014	75.7	19.7	87 E	65	36*
1 6	0 55.44	+ 1 55.3	1.818	2.035	28.9	20.7	88 E	47	55*	1 21	1 10.14	+15 3.0	0.323	0.987	80.0	19.9	81 E	60*	38*
1 16	1 8.57	+ 1 38.9	1.902	1.995	29.1	20.8	81 E	47	51*	1 26	1 13.65	+11 0.5	0.344	0.956	84.4	20.1	75 E	55*	39*
1 26	1 23.49	+ 1 40.4	1.982	1.956	29.0	20.8	74 E	46*	47*	1 31	1 16.26	+ 7 23.0	0.365	0.922	88.9	20.4	69 E	50*	38*
2 5	1 39.96	+ 1 55.9	2.055	1.918	28.5	20.8	68 E	45*	43*	2 5	1 17.67	+ 4 2.3	0.383	0.884	93.8	20.6	63 E	45*	38*
2 15	1 57.85	+ 2 22.0	2.122	1.881	27.7	20.8	62 E	42*	40*	2 10	1 17.52	+ 0 52.1	0.401	0.841	99.1	20.8	57 E	39*	36*
2 25	2 17.04	+ 2 55.6	2.182	1.846	26.8	20.8	57 E	39*	38*	2 15	1 15.32	+ 2 12.7	0.417	0.794	105.0	21.1	51 E	33*	34*
3 7	2 37.44	+ 3 33.5	2.234	1.812	25.8	20.8	53 E	35*	35*	2 20	1 10.47	+ 5 14.8	0.433	0.743	111.8	21.4	44 E	27*	31*
3 17	2 58.99	+ 4 13.1	2.279	1.781	24.7	20.8	48 E	31*	34*	<b>268782 2006 TB<sub>49</sub></b>									
3 27	3 21.63	+ 4 51.7	2.316	1.753	23.6	20.8	45 E	27*	32*	12 27	0 47.46	+ 9 54.4	1.217	1.684	35.2	20.7	99 E	55	52*
4 6	3 45.31	+ 5 26.8	2.348	1.727	22.5	20.7	41 E	22*	31*	1 6	1 6.61	+11 24.9	1.315	1.698	35.3	20.9	94 E	56	48*
4 16	4 9.98	+ 5 56.2	2.374	1.704	21.4	20.7	38 E	18*	29*	1 16	1 26.99	+13 0.2	1.418	1.714	35.0	21.1	89 E	58	44*
4 26	4 35.57	+ 6 17.6	2.397	1.684	20.4	20.6	36 E	13*	28*	1 26	1 48.38	+14 37.4	1.525	1.733	34.4	21.2	84 E	60*	41*
5 6	5 1.98	+ 6 29.2	2.416	1.668	19.4	20.6	33 E	9*	27*	2 5	2 10.58	+16 13.3	1.634	1.754	33.6	21.4	80 E	60*	38*
5 16	5 29.12	+ 6 29.3	2.433	1.656	18.5	20.6	31 E	4*	25*	<b>259698 2003 YJ<sub>23</sub></b>									
5 26	5 56.85	+ 6 16.7	2.450	1.647	17.7	20.6	30 E	—	24*	12 27	0 48.04	+ 1 39.9	1.493	1.876	31.4	21.1	96 E	47	59*
6 5	6 25.01	+ 5 50.7	2.468	1.643	16.9	20.5	28 E	—	22*	1 6	0 59.62	+ 3 6.3	1.568	1.841	32.3	21.2	89 E	48	54*
6 15	6 53.46	+ 5 10.8	2.488	1.642	16.0	20.5	27 E	—	20*	1 16	1 13.53	+ 4 45.2	1.641	1.807	32.7	21.2	83 E	50	49*
6 25	7 21.99	+ 4 17.3	2.509	1.646	15.2	20.5	25 E	—	17*	1 26	1 29.53	+ 6 33.7	1.711	1.775	32.7	21.3	77 E	51*	45*
7 5	7 50.46	+ 3 11.2	2.534	1.654	14.3	20.5	24 E	—	15*	2 5	1 47.40	+ 8 28.8	1.778	1.744	32.5	21.3	72 E	52*	40*
7 15	8 18.71	+ 1 53.6	2.562	1.665	13.3	20.5	22 E	—	12*	2 15	2 7.01	+10 27.7	1.841	1.715	32.0	21.4	67 E	50*	37*
7 25	8 46.60	+ 0 26.2	2.593	1.680	12.3	20.5	21 E	—	9*	2 25	2 28.25	+12 27.4	1.899	1.688	31.3	21.4	62 E	48*	34*
8 4	9 14.03	+ 1 9.0	2.626	1.699	11.2	20.5	19 E	—	6*	3 7	2 51.02	+14 24.9	1.954	1.663	30.5	21.4	58 E	46*	31*
8 14	9 40.94	+ 2 50.1	2.661	1.721	10.1	20.6	17 E	—	3*	3 17	3 15.27	+16 17.0	2.006	1.641	29.6	21.4	54 E	43*	29*
8 24	10 7.26	+ 4 35.0	2.697	1.746	9.1	20.6	16 W	—	2*	3 27	3 40.92	+18 0.6	2.054	1.622	28.5	21.4	51 E	40*	27*
9 3	10 32.98	+ 6 21.5	2.733	1.774	8.2	20.6	14 W	—	3*	4 6	4 7.88	+19 32.5	2.100	1.605	27.4	21.4	48 E	36*	26*
9 13	10 58.11	+ 8 7.9	2.767	1.805	7.5	20.6	14 W	—	5*	4 16	4 36.03	+20 49.5	2.144	1.592	26.2	21.4	45 E	33*	25*
9 23	11 22.63	+ 9 52.4	2.798	1.838	7.3	20.7	14 W	—	7*	4 26	5 5.21	+21 48.9	2.187	1.583	25.0	21.3	42 E	29*	24*
10 3	11 46.57	+11 33.4	2.825	1.872	7.6	20.8	14 W	—	8*	5 6	5 35.19	+22 28.2	2.229	1.577	23.7	21.3	39 E	25*	23*
10 13	12 9.95	+13 9.5	2.846	1.909	8.4	20.9	16 W	1*	10*	5 16	6 5.73	+22 45.9	2.272	1.574	22.3	21.3	36 E	22*	22*
10 23	12 32.77	+14 39.3	2.860	1.947	9.6	21.0	19 W	4*	12*	5 26	6 36.56	+22 40.8	2.314	1.576	20.9	21.3	34 E	18*	21*
11 2	12 55.03	+16 1.9	2.866	1.986	11.0	21.1	23 W	8*	15*	6 5	7 7.37	+22 12.9	2.357	1.581	19.5	21.3	31 E	15*	20*
11 12	13 16.73	+17 16.1	2.862	2.026	12.6	21.2	27 W	11*	18*	6 15	7 37.91	+21 22.9	2.401	1.589	18.0	21.3	29 E	12*	19*
11 22	13 37.82	+18 20.9	2.849	2.067	14.3	21.3	31 W	15*	21*	6 25	8 7.95	+20 12.3	2.446	1.601	16.4	21.3	26 E	9*	18*
12 2	13 58.25	+19 15.5	2.824	2.109	16.0	21.3	36 W	17*	26*	7 5	8 37.30	+18 43.1	2.492	1.617	14.8	21.4	24 E	6*	16*
12 12	14 17.95	+19 59.3	2.789	2.150	17.6	21.4	41 W	19*	30*	7 15	9 5.85	+16 58.0	2.539	1.635	13.1	21.4	21 E	4*	14*
12 22	14 36.82	+20 31.4	2.742	2.193	19.2	21.5	47 W	21*	36*	7 25	9 33.53	+14 59.5	2.585	1.657	11.4	21.4	19 E	2*	12*
<b>145656 4788 P-L</b>										8 4	10 0.33	+12 50.7	2.632	1.681	9.7	21.4	16 E	1*	10*
12 27	0 44.53	+ 3 36.6	2.198	2.460	23.5	21.2	93 E	41	64*	8 14	10 26.28	+10 34.0	2.677	1.707	7.9	21.4	13 E	—	7*
1 6	0 54.42	+ 2 26.1	2.392	2.522	22.9	21.4	86 E	43	58*	8 24	10 51.42	+ 8 12.2	2.721	1.736	6.0	21.3	10 E	—	4*
1 16	1 5.16	+ 1 11.3	2.586	2.583	21.9	21.6	79 E	44	52*	9 3	11 15.82	+ 5 47.7	2.762	1.766	4.1	21.3	7 E	—	1*
1 26	1 16.59	+ 0 5.9	2.777	2.642	20.7	21.8	72 E	44*	47*	9 13	11 39.56	+ 3 22.5	2.801	1.798	2.2	21.3	4 E	—	—
2 5	1 28.56	+ 1 24.0	2.963	2.700	19.3	21.9	65 E	43*	41*	9 23	12 2.70	+ 0 58.7	2.835	1.831	0.7	21.2	1 E	—	—
<b>476807 2008 UP<sub>188</sub></b>										10 3	12 25.33	+ 1 22.1	2.864	1.866	1.9	21.4	4 W	—	—
12 27	0 45.47	+ 0 5.3	1.763	2.093	27.9	21.0	95 E	45	61*	<b>215144 1999 UV<sub>51</sub></b>									
1 6	0 56.92	+ 2 43.7	1.920	2.135	27.4	21.2	89 E	48	54*	12 27	0 48.23	+ 6 31.9	1.491	1.829	32.5	19.8	93 E	38	67*
1 16	1 9.49	+ 5 15.0	2.079	2.177	26.6	21.4	82 E	50	48*	1 6	1 1.31	+ 2 26.9	1.617	1.857	31.9	20.0	88 E	43	59*
1 26	1 22.98	+ 7 39.7	2.240	2.219	25.5	21.6	76 E	52*	43*	1 16	1 15.54	+ 1 21.9	1.749	1.887	31.1	20.2	82 E	46	52*
2 5	1 37.22	+ 9 57.6	2.400	2.262	24.2	21.7	70 E	52*	37*	1 26	1 30.76	+ 4 55.3	1.884	1.918	30.0	20.4	77 E	50*	46*
<b>329275 1999 VP<sub>6</sub></b>										2 5	1 46.80	+ 8 14.2	2.020	1.949	28.7	20.5	72 E	51*	40*
12 27	0 46.29	+ 2 2.2	0.670	1.232	52.7	21.4	94 E	43	63*	2 15	2 3.61	+11 19.2	2.157	1.981	27.2	20.7	66 E	51*	35*
1 1	1 5.50	+ 1 9.7	0.713	1.255	51.4	21.6	94 E	44	61*	2 25	2 21								

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

20/22	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	20/22	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°
<b>215144 1999 UV<sub>51</sub></b>										<b>8256 Shenzhou</b>									
<i>(continuation)</i>										<i>(continuation)</i>									
7 5	6 47.66	+32 50.9	3.434	2.440	4.2	21.3	10 W	3*	—	12 12	13 45.24	-7 24.5	2.854	2.392	19.2	18.8	53 W	34*	33*
7 15	7 8.84	+32 59.6	3.449	2.470	5.3	21.4	13 W	7*	—	12 22	13 59.36	-8 48.1	2.767	2.417	20.5	18.8	59 W	35*	40*
7 25	7 29.69	+33 0.2	3.453	2.499	6.8	21.5	17 W	11*	—	1 1	14 12.59	-10 3.8	2.670	2.440	21.6	18.8	66 W	35*	48*
<b>279712 2011 GY<sub>46</sub></b>										<b>4450 Pan</b>									
12 27	0 48.56	+12 22.6	1.569	1.998	28.9	19.3	101 E	57	49*	12 27	0 49.12	+12 45.0	1.690	2.108	27.3	21.1	101 E	58	49*
1 6	1 1.50	+14 15.9	1.716	2.037	28.8	19.5	94 E	59	45*	1 6	0 57.86	+13 4.5	1.856	2.142	27.3	21.3	93 E	58	46*
1 16	1 15.76	+16 7.3	1.866	2.076	28.3	19.7	88 E	61	40*	1 16	1 8.17	+13 37.4	2.021	2.172	26.8	21.5	85 E	59	41*
1 26	1 31.12	+17 56.3	2.019	2.116	27.4	19.9	82 E	63*	36*	1 26	1 19.74	+14 20.8	2.183	2.198	26.0	21.7	78 E	59*	37*
2 5	1 47.39	+19 42.2	2.171	2.156	26.3	20.0	76 E	62*	32*	2 5	1 32.33	+15 11.8	2.339	2.221	24.8	21.8	71 E	57*	33*
2 15	2 4.44	+21 24.2	2.323	2.197	25.0	20.2	70 E	60*	28*	<b>468025 2013 MN<sub>6</sub></b>									
2 25	2 22.16	+23 1.6	2.473	2.238	23.6	20.3	65 E	56*	25*	12 27	0 49.34	+19 41.9	1.490	1.965	29.1	20.8	103 E	65	43*
3 7	2 40.45	+24 33.6	2.619	2.279	22.0	20.4	59 E	52*	22*	1 6	1 5.23	+19 49.9	1.627	2.001	29.2	21.0	97 E	65	40*
3 17	2 59.25	+25 59.4	2.760	2.319	20.3	20.5	54 E	47*	20*	1 16	1 22.09	+20 10.4	1.770	2.036	28.9	21.3	91 E	65	38*
3 27	3 18.47	+27 18.4	2.896	2.360	18.5	20.6	49 E	42*	17*	1 26	1 39.71	+20 40.4	1.915	2.072	28.2	21.4	85 E	66*	35*
4 6	3 38.04	+28 30.0	3.025	2.400	16.7	20.7	44 E	37*	15*	2 5	1 57.91	+21 16.8	2.062	2.107	27.3	21.6	79 E	64*	32*
4 16	3 57.91	+29 33.7	3.146	2.441	14.8	20.8	38 E	31*	12*	<b>474554 2003 YQ<sub>94</sub></b>									
4 26	4 17.99	+30 29.1	3.258	2.480	12.9	20.8	33 E	26*	10*	12 27	0 49.47	+13 36.5	0.693	1.308	47.5	19.1	101 E	59	48*
5 6	4 38.21	+31 15.8	3.361	2.519	11.0	20.8	28 E	21*	8*	1 1	1 11.85	+14 36.0	0.745	1.347	45.7	19.2	102 E	60	47*
5 16	4 58.49	+31 53.8	3.453	2.558	9.1	20.8	24 E	17*	5*	1 6	1 32.64	+15 27.5	0.801	1.386	44.0	19.4	101 E	60	47*
5 26	5 18.75	+32 23.2	3.534	2.596	7.2	20.8	19 E	12*	2*	1 11	1 51.99	+16 12.5	0.862	1.426	42.6	19.6	101 E	61	46*
6 5	5 38.90	+32 43.9	3.604	2.634	5.6	20.8	15 E	8*	—	1 16	2 10.06	+16 51.9	0.927	1.467	41.3	19.8	100 E	62	45*
6 15	5 58.86	+32 56.4	3.660	2.671	4.2	20.8	11 E	5*	—	1 21	2 27.00	+17 26.8	0.996	1.508	40.1	20.0	99 E	62	45*
6 25	6 18.54	+33 1.2	3.704	2.707	3.6	20.8	10 E	2*	—	1 26	2 42.95	+17 57.9	1.068	1.549	39.0	20.1	98 E	63	44*
7 5	6 37.87	+32 58.7	3.735	2.743	4.0	20.9	11 W	5*	—	1 31	2 58.04	+18 25.6	1.144	1.590	38.0	20.3	96 E	63	43*
7 15	6 56.78	+32 49.8	3.751	2.778	5.2	21.0	14 W	8*	—	2 5	3 12.39	+18 50.4	1.222	1.632	37.0	20.5	95 E	64	43*
7 25	7 15.18	+32 35.2	3.754	2.812	6.7	21.1	19 W	13*	—	2 10	3 26.10	+19 12.5	1.303	1.673	36.1	20.7	93 E	64	42*
8 4	7 33.00	+32 16.0	3.743	2.846	8.3	21.2	24 W	18*	3*	2 15	3 39.27	+19 32.3	1.387	1.715	35.2	20.8	91 E	65	42*
8 14	7 50.20	+31 53.1	3.718	2.879	10.0	21.3	29 W	23*	6*	2 20	3 51.97	+19 49.9	1.472	1.756	34.3	21.0	89 E	65*	41*
8 24	8 6.68	+31 27.9	3.678	2.911	11.5	21.4	35 W	29*	9*	2 25	4 4.25	+20 5.4	1.559	1.797	33.3	21.1	87 E	65*	41*
9 3	8 22.40	+31 1.4	3.625	2.942	13.0	21.4	41 W	35*	11*	3 2	4 16.17	+20 18.8	1.648	1.838	32.4	21.3	84 E	64*	40*
9 13	8 37.26	+30 35.3	3.559	2.972	14.4	21.4	47 W	41*	14*	3 7	4 27.76	+20 30.1	1.738	1.879	31.5	21.4	82 E	63*	40*
9 23	8 51.19	+30 10.8	3.481	3.002	15.7	21.5	54 W	47*	16*	<b>175943 2000 GE<sub>1</sub></b>									
10 3	9 4.09	+29 49.7	3.391	3.031	16.7	21.5	61 W	54*	19*	12 27	0 49.88	+20 12.8	1.797	2.015	29.2	20.0	88 E	25	77*
10 13	9 15.83	+29 33.5	3.291	3.058	17.6	21.4	68 W	61*	22*	1 6	1 3.48	-17 58.6	1.942	2.056	28.3	20.2	82 E	27	70*
10 23	9 26.27	+29 24.0	3.183	3.086	18.2	21.4	75 W	67*	24*	1 16	1 17.77	-15 43.5	2.086	2.095	27.2	20.3	77 E	29	63*
11 2	9 35.23	+29 22.9	3.069	3.112	18.5	21.4	83 W	72*	27*	1 26	1 32.63	-13 29.3	2.229	2.133	26.0	20.5	72 E	31*	58*
11 12	9 42.52	+29 31.8	2.952	3.137	18.4	21.3	91 W	75	30*	2 5	1 47.95	-11 17.8	2.368	2.170	24.6	20.6	66 E	32*	52*
11 22	9 47.87	+29 52.0	2.834	3.162	17.9	21.2	100 W	75	32*	2 15	2 3.67	-9 10.2	2.503	2.206	23.1	20.7	61 E	32*	48*
12 2	9 51.06	+30 24.3	2.720	3.186	17.0	21.1	109 W	75	33*	2 25	2 19.74	-7 7.7	2.634	2.241	21.6	20.8	56 E	30*	44*
12 12	9 51.79	+31 8.4	2.613	3.208	15.6	21.0	119 W	76	33	3 7	2 36.09	-5 11.4	2.758	2.274	19.9	20.9	51 E	28*	40*
12 22	9 49.88	+32 2.5	2.519	3.231	13.7	20.8	129 W	77	32	3 17	2 52.69	-3 22.1	2.875	2.306	18.2	21.0	47 E	24*	36*
1 1	9 45.22	+33 3.1	2.443	3.252	11.4	20.7	139 W	78	31	3 27	3 9.51	-1 40.5	2.984	2.337	16.5	21.0	42 E	20*	33*
1 11	9 37.95	+34 4.9	2.389	3.272	8.9	20.6	149 W	79	30	4 6	3 26.51	-0 7.3	3.085	2.367	14.8	21.0	37 E	15*	30*
1 21	9 28.51	+35 0.9	2.362	3.291	6.6	20.5	157 W	80	29	4 16	3 43.65	+1 17.1	3.176	2.395	13.1	21.1	33 E	10*	26*
<b>8256 Shenzhou</b>										4 26	4 0.90	+2 32.1	3.257	2.422	11.5	21.1	29 E	5*	23*
12 27	0 48.75	+6 34.1	1.203	1.661	35.9	16.7	98 E	52	55*	5 6	4 18.22	+3 37.5	3.327	2.448	10.0	21.1	25 E	—	19*
1 6	1 4.64	+8 58.1	1.285	1.655	36.4	16.8	93 E	54	50*	5 16	4 35.56	+4 32.9	3.386	2.472	8.6	21.1	21 E	—	15*
1 16	1 22.60	+11 24.8	1.369	1.652	36.5	17.0	88 E	56	45*	5 26	4 52.87	+5 18.3	3.433	2.495	7.5	21.1	19 E	—	10*
1 26	1 42.38	+13 51.5	1.454	1.651	36.3	17.1	83 E	59*	41*	6 5	5 10.12	+5 53.6	3.468	2.517	6.8	21.1	17 E	—	5*
2 5	2 3.74	+16 15.1	1.541	1.653	35.7	17.2	78 E	60*	37*	6 15	5 27.24	+6 18.7	3.491	2.537	6.7	21.1	17 W	—	3*
2 15	2 26.55	+18 32.7	1.628	1.657	35.0	17.3	74 E	60*	34*	6 25	5 44.18	+6 33.9	3.500	2.556	7.2	21.2	18 W	—	8*
2 25	2 50.66	+20 41.4	1.717	1.665	34.0	17.4	70 E	58*	31*	7 5	6 0.89	+6 39.3	3.497	2.573	8.1	21.2	21 W	—	13*
3 7	3 15.92	+22 38.5	1.805	1.675	32.9	17.5	66 E	56*	29*	7 15	6 17.30	+6 35.3	3.481	2.589	9.3	21.3	24 W	—	18*
3 17	3 42.19	+24 21.5	1.894	1.687	31.6	17.6	63 E	53*	27*	7 25	6 33.35	+6 22.1	3.451	2.604	10.7	21.3	28 W	1*	22*
3 27	4 9.33	+25 48.2	1.984	1.701	30.2	17.6	59 E	50*	26*	8 4	6 48.97	+6 0.3	3.409	2.617	12.2	21.4	33 W	7*	27*
4 6	4 37.11	+26 56.7	2.073	1.718	28.7	17.7	56 E	46*	25*	8 14	7 4.09	+5 30.3	3.353	2.629	13.7	21.4	38 W	13*	30*
4 16	5 5.35	+27 45.9	2.162	1.737	27.1	17.8	52 E	42*	24*	8 24	7 18.63	+4 52.8	3.285	2.640	15.2	21.4	43 W	19*	34*
4 26	5 33.82	+28 14.9	2.251	1.758	25.5	17.9	49 E	38*	23*	9 3	7 32.49	+4 8.7	3.205	2.649	16.6	21.4	49 W	25*	38*
5 6	6 2.25	+28 23.6	2.338	1.780	23.8	17.9	45 E	34*	23*	9 13	7 45.59	+3 18.5	3.113	2.657	17.9	21.4	54 W	31*	41*
5 16	6 30.45	+28 12.5	2.425	1.803	22.0	18.0	42 E	30*	22*	9 23	7 57.80	+2 23.5	3.010	2.663	19.1	21.4	60 W	36*	45*
5 26	6 58.20	+27 42.5	2.509	1.828	20.2	18.0	38 E	25*	21*	10 3	8 8.99	+1 24.6	2.898	2.668	20.2	21.3	67 W	40*	49*
6 5	7 25.32	+26 55.0	2.592	1.855	18.3	18.1	35 E	21*	20*	10 13	8 18.99	+0 23.2	2.777	2.671	21.0	21.3	74 W	43*	53*
6 15	7 51.71	+25 51.6	2.671	1.882	16.4	18.1	32 E	17*	19*	10 23	8 27.62	-0 39.0	2.650	2.674	21.5	21.2	81 W	44*	57*
6 25	8 17.27	+24 34.2	2.747	1.910	14.5	18.1	28 E	13*	17*	11 2	8 34.65	-1 40.1	2.517	2.674	21.8	21.1	88 W	43	

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

20/22	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	20/22	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°
<b>191759 2004 TA<sub>12</sub></b>										<b>13819 1999 SX<sub>5</sub></b> (continuation)									
12 27	0 50.64	-7 34.4	1.877	2.167	26.9	20.2	93 E	37	68*	1 16	1 31.86	-18 2.5	1.482	1.620	36.6	17.0	79 E	27	67*
1 6	1 3.55	-6 19.0	2.040	2.212	26.3	20.4	87 E	39	62*	1 21	1 42.41	-16 6.0	1.516	1.623	36.3	17.0	78 E	29	65*
1 16	1 17.17	-4 57.1	2.203	2.257	25.4	20.5	80 E	40	57*	1 26	1 53.13	-14 9.1	1.551	1.627	36.0	17.1	76 E	31	62*
1 26	1 31.39	-3 31.4	2.365	2.301	24.3	20.7	74 E	41*	52*	1 31	2 4.01	-12 12.1	1.588	1.632	35.6	17.1	75 E	33*	60*
2 5	1 46.08	-2 4.2	2.525	2.346	23.0	20.9	68 E	41*	47*	2 5	2 15.03	-10 15.8	1.625	1.637	35.2	17.2	73 E	34*	58*
2 15	2 1.16	0 37.2	2.681	2.390	21.5	21.0	62 E	40*	43*	2 10	2 26.20	-8 20.5	1.663	1.643	34.7	17.2	72 E	36*	55*
2 25	2 16.56	+0 47.8	2.832	2.433	19.9	21.1	57 E	37*	39*	2 15	2 37.51	-6 26.8	1.703	1.651	34.2	17.3	70 E	37*	53*
3 7	2 32.21	+2 9.6	2.976	2.476	18.2	21.2	51 E	33*	35*	2 25	3 0.50	-2 46.2	1.785	1.667	33.1	17.4	67 E	38*	50*
3 17	2 48.08	+3 27.2	3.112	2.519	16.4	21.3	46 E	29*	32*	3 7	3 23.93	+0 42.1	1.871	1.686	31.9	17.4	64 E	39*	46*
3 27	3 4.11	+4 39.5	3.239	2.560	14.6	21.3	40 E	24*	28*	3 17	3 47.76	+3 55.4	1.962	1.708	30.5	17.5	61 E	38*	43*
4 6	3 20.25	+5 45.7	3.357	2.601	12.8	21.4	35 E	18*	25*	3 27	4 11.95	+6 51.1	2.057	1.732	29.0	17.6	57 E	36*	40*
4 16	3 36.47	+6 45.2	3.464	2.641	10.9	21.4	30 E	13*	22*	4 6	4 36.40	+9 27.6	2.154	1.759	27.3	17.7	54 E	34*	38*
4 26	3 52.71	+7 37.4	3.559	2.681	9.1	21.4	25 E	7*	18*	4 16	5 1.06	+11 43.9	2.253	1.787	25.6	17.8	50 E	31*	35*
5 6	4 8.94	+8 21.9	3.642	2.720	7.5	21.4	20 E	1*	14*	4 26	5 25.83	+13 39.4	2.354	1.817	23.7	17.9	47 E	27*	33*
5 16	4 25.09	+8 58.4	3.712	2.757	6.0	21.4	17 E	—	10*	5 6	5 50.59	+15 14.1	2.454	1.848	21.8	17.9	43 E	23*	31*
5 26	4 41.13	+9 26.6	3.768	2.794	4.9	21.4	14 E	—	6*	5 16	6 15.27	+16 28.7	2.553	1.881	19.8	18.0	39 E	19*	28*
6 5	4 56.98	+9 46.4	3.811	2.831	4.6	21.5	13 E	—	1*	5 26	6 39.76	+17 23.9	2.650	1.914	17.8	18.1	35 E	15*	25*
<b>228587 2002 AP<sub>7</sub></b>										<b>4688 1980 WF</b>									
12 27	0 50.86	-22 8.4	0.826	1.254	51.6	21.5	87 E	23	78*	12 27	0 53.11	+0 54.7	0.384	1.099	62.6	19.8	97 E	46	61*
1 1	1 2.04	-18 21.6	0.846	1.258	51.3	21.5	87 E	27	74*	1 6	1 28.28	+0 56.6	0.372	1.082	64.8	19.7	95 E	46	60*
1 6	1 13.22	-14 37.2	0.868	1.262	51.0	21.6	86 E	30	70*	1 16	2 10.08	+1 24.7	0.363	1.077	65.5	19.7	95 E	46	60*
1 11	1 24.44	-10 56.4	0.892	1.266	50.7	21.6	85 E	34	66*	1 26	2 57.92	+2 15.9	0.359	1.086	64.3	19.6	97 E	47	60*
1 16	1 35.75	-7 20.6	0.918	1.271	50.3	21.7	84 E	38	62*	1 31	3 23.63	+2 48.0	0.361	1.095	63.0	19.6	98 E	48	60*
<b>8566 1996 EN</b>										<b>302800 2003 AA</b>									
12 27	0 51.40	-37 40.5	1.357	1.548	38.9	19.5	81 E	7	74*	12 27	0 53.54	-26 33.2	0.872	1.268	50.7	21.5	86 E	18	79*
1 1	1 2.72	-36 1.5	1.417	1.577	37.9	19.6	80 E	9	74*	1 1	1 4.45	-23 19.9	0.877	1.261	51.0	21.5	85 E	22	76*
1 6	1 13.69	-34 22.1	1.477	1.605	36.9	19.7	79 E	11	73*	1 6	1 15.68	-20 0.6	0.885	1.255	51.2	21.5	84 E	25	73*
1 11	1 24.38	-32 42.5	1.536	1.633	36.0	19.8	77 E	12	71*	1 11	1 27.24	-16 36.2	0.893	1.250	51.4	21.5	83 E	28	70*
1 16	1 34.84	-31 3.3	1.595	1.660	35.1	19.9	76 E	14	70*	1 16	1 39.13	-13 8.1	0.903	1.247	51.5	21.6	83 E	32	66*
1 21	1 45.13	-29 24.7	1.654	1.686	34.2	19.9	75 E	16	68*	12 27	0 53.84	+9 16.6	1.603	2.028	28.5	20.8	101 E	54	53*
1 26	1 55.27	-27 47.1	1.713	1.712	33.4	20.0	73 E	17	67*	1 6	1 5.93	+10 49.6	1.745	2.058	28.5	21.0	94 E	56	49*
1 31	2 5.29	-26 10.8	1.771	1.737	32.6	20.1	72 E	19*	65*	1 16	1 19.42	+12 25.3	1.890	2.088	28.1	21.2	87 E	57	44*
2 5	2 15.22	-24 35.9	1.829	1.761	31.8	20.2	70 E	20*	63*	1 26	1 34.06	+14 2.2	2.036	2.118	27.3	21.4	81 E	59*	40*
<b>228587 2002 AP<sub>7</sub></b>										<b>293940 2007 TX<sub>12</sub></b>									
2 15	2 34.90	-21 31.7	1.943	1.807	30.3	20.3	67 E	22*	60*	2 5	1 49.66	+15 38.9	2.181	2.147	26.3	21.5	75 E	59*	35*
2 25	2 54.44	-18 36.1	2.056	1.850	28.7	20.5	64 E	23*	56*	12 27	0 54.90	+6 7.7	1.450	1.883	31.0	20.7	100 E	51	56*
3 7	3 13.90	-15 50.6	2.166	1.890	27.2	20.6	61 E	23*	53*	1 6	1 10.79	+7 17.4	1.596	1.925	30.6	21.0	94 E	52	52*
3 17	3 33.37	-13 16.2	2.273	1.927	25.8	20.7	57 E	21*	50*	1 16	1 27.30	+8 32.9	1.746	1.968	30.0	21.2	88 E	54	48*
3 27	3 52.86	-10 54.1	2.377	1.962	24.3	20.8	54 E	19*	47*	1 26	1 44.33	+9 51.8	1.899	2.010	29.0	21.4	82 E	55*	44*
4 6	4 12.39	-8 44.8	2.476	1.993	22.8	20.9	50 E	16*	44*	2 5	2 1.76	+11 11.7	2.051	2.052	27.8	21.6	76 E	55*	41*
4 16	4 31.97	-6 48.8	2.570	2.022	21.2	20.9	47 E	12*	41*	<b>244049 2001 TL<sub>13</sub></b>									
4 26	4 51.58	-5 6.6	2.659	2.048	19.7	21.0	43 E	8*	37*	12 27	0 54.90	+6 7.7	1.450	1.883	31.0	20.7	100 E	51	56*
5 6	5 11.21	-3 38.1	2.741	2.071	18.2	21.0	40 E	3*	34*	1 6	1 10.79	+7 17.4	1.596	1.925	30.6	21.0	94 E	52	52*
5 16	5 30.84	-2 23.4	2.816	2.091	16.7	21.0	36 E	—	30*	1 16	1 27.30	+8 32.9	1.746	1.968	30.0	21.2	88 E	54	48*
5 26	5 50.43	-1 22.4	2.883	2.108	15.2	21.1	33 E	—	26*	1 26	1 44.33	+9 51.8	1.899	2.010	29.0	21.4	82 E	55*	44*
6 5	6 9.95	0 34.8	2.941	2.123	13.8	21.1	30 E	—	22*	2 5	2 1.76	+11 11.7	2.051	2.052	27.8	21.6	76 E	55*	41*
6 15	6 29.39	0 0.0	2.990	2.135	12.5	21.1	27 E	—	17*	12 27	0 53.54	-26 33.2	0.872	1.268	50.7	21.5	86 E	18	79*
6 25	6 48.70	+0 22.2	3.028	2.144	11.3	21.1	24 E	—	12*	1 1	1 4.45	-23 19.9	0.877	1.261	51.0	21.5	85 E	22	76*
7 5	7 7.86	+0 32.6	3.055	2.150	10.4	21.1	22 E	—	6*	1 6	1 15.68	-20 0.6	0.885	1.255	51.2	21.5	84 E	25	73*
7 15	7 26.84	+0 31.8	3.070	2.154	9.8	21.0	21 W	—	6*	1 11	1 27.24	-16 36.2	0.893	1.250	51.4	21.5	83 E	28	70*
7 25	7 45.63	+0 20.5	3.073	2.155	9.7	21.0	21 W	—	10*	1 16	1 39.13	-13 8.1	0.903	1.247	51.5	21.6	83 E	32	66*
8 4	8 4.20	0 0.4	3.064	2.153	10.0	21.0	22 W	—	13*	12 27	0 53.84	+9 16.6	1.603	2.028	28.5	20.8	101 E	54	53*
8 14	8 22.56	0 30.3	3.042	2.148	10.7	21.1	23 W	—	17*	1 6	1 5.93	+10 49.6	1.745	2.058	28.5	21.0	94 E	56	49*
8 24	8 40.67	1 8.1	3.007	2.141	11.8	21.1	26 W	1*	20*	1 16	1 19.42	+12 25.3	1.890	2.088	28.1	21.2	87 E	57	44*
9 3	8 58.56	1 52.8	2.958	2.131	13.2	21.1	29 W	6*	23*	1 26	1 34.06	+14 2.2	2.036	2.118	27.3	21.4	81 E	59*	40*
9 13	9 16.22	-2 43.7	2.896	2.118	14.8	21.1	33 W	12*	25*	2 5	1 49.66	+15 38.9	2.181	2.147	26.3	21.5	75 E	59*	35*
9 23	9 33.65	-3 39.4	2.820	2.102	16.6	21.1	37 W	17*	28*	12 27	0 54.90	+6 7.7	1.450	1.883	31.0	20.7	100 E	51	56*
10 3	9 50.86	-4 38.9	2.731	2.084	18.4	21.0	41 W	21*	31*	1 6	1 10.79	+7 17.4	1.596	1.925	30.6	21.0	94 E	52	52*
10 13	10 7.86	-5 41.0	2.630	2.062	20.3	21.0	46 W	25*	34*	1 16	1 27.30	+8 32.9	1.746	1.968	30.0	21.2	88 E	54	48*
10 23	10 24.65	-6 44.0	2.516	2.038	22.2	20.9</													



EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

20/22	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	20/22	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°
<b>114534 2003 BT<sub>19</sub></b>										<b>96744 1999 OW<sub>3</sub></b> (continuation)									
12 27	0 55.50	- 4 57.4	1.092	1.536	39.6	16.3	95 E	40	66*	8 14	4 10.54	+ 2 26.9	3.742	3.713	15.6	21.3	81 W	38*	60*
1 1	1 5.82	- 2 36.2	1.134	1.547	39.4	16.4	94 E	42	63*	8 24	4 14.45	+ 1 29.2	3.597	3.718	15.8	21.2	89 W	43*	62*
1 6	1 16.34	- 0 18.5	1.179	1.560	39.1	16.5	92 E	45	60*	9 3	4 16.85	+ 0 21.3	3.451	3.721	15.6	21.1	98 W	45*	64
1 11	1 27.06	+ 1 55.0	1.226	1.574	38.7	16.6	90 E	47	56*	9 13	4 17.52	- 0 56.6	3.309	3.723	15.0	21.0	107 W	44	65
1 16	1 37.97	+ 4 4.0	1.275	1.589	38.2	16.7	88 E	49	53*	9 23	4 16.27	- 2 23.2	3.174	3.723	14.0	20.9	116 W	43	66
1 26	2 0.28	+ 8 7.3	1.380	1.622	37.2	16.9	85 E	53	48*	10 3	4 12.97	- 3 56.4	3.053	3.721	12.7	20.7	125 W	41	68
2 5	2 23.18	+11 49.0	1.493	1.660	36.0	17.0	81 E	57*	43*	10 13	4 7.58	- 5 33.1	2.951	3.717	11.1	20.6	134 W	39	70
2 15	2 46.61	+15 8.4	1.612	1.700	34.6	17.2	78 E	58*	39*	10 23	4 0.21	- 7 8.5	2.871	3.712	9.4	20.5	143 W	38	71
2 25	3 10.50	+18 4.9	1.738	1.744	33.0	17.4	74 E	58*	36*	10 28	3 55.87	- 7 54.1	2.842	3.709	8.6	20.4	146 W	37	72
3 7	3 34.74	+20 38.5	1.868	1.790	31.4	17.6	70 E	57*	33*	11 2	3 51.18	- 8 37.3	2.819	3.705	7.9	20.4	149 W	36	73
3 17	3 59.28	+22 49.7	2.002	1.839	29.6	17.7	66 E	55*	31*	11 7	3 46.19	- 9 17.3	2.805	3.701	7.5	20.3	151 W	36	73
3 27	4 24.01	+24 39.1	2.138	1.889	27.8	17.9	62 E	51*	29*	11 12	3 40.99	- 9 53.5	2.797	3.697	7.4	20.3	151 W	35	74
4 6	4 48.80	+26 7.3	2.275	1.940	25.9	18.0	58 E	48*	27*	11 22	3 30.37	-10 52.3	2.806	3.686	8.0	20.3	149 E	34	75
4 16	5 13.54	+27 15.6	2.412	1.992	24.0	18.1	54 E	43*	26*	12 2	3 20.06	-11 30.3	2.845	3.674	9.5	20.4	142 E	33	76
4 26	5 38.12	+28 4.9	2.548	2.045	22.0	18.2	50 E	39*	24*	12 12	3 10.77	-11 46.7	2.912	3.661	11.2	20.5	134 E	33	76
5 6	6 2.39	+28 36.6	2.681	2.099	20.0	18.4	45 E	34*	23*	12 22	3 3.08	-11 42.8	3.000	3.645	12.9	20.7	124 E	33	76
5 16	6 26.27	+28 52.1	2.811	2.153	18.0	18.4	41 E	29*	21*	1 1	2 57.32	-11 21.2	3.107	3.628	14.3	20.8	115 E	34	75
5 26	6 49.65	+28 52.8	2.936	2.207	15.9	18.5	37 E	24*	19*	1 11	2 53.64	-10 45.4	3.225	3.610	15.2	20.9	105 E	34	75
6 5	7 12.45	+28 40.2	3.054	2.261	13.8	18.6	32 E	20*	17*	1 21	2 52.05	- 9 59.0	3.350	3.589	15.8	21.0	96 E	35	73*
6 15	7 34.63	+28 15.8	3.165	2.315	11.8	18.6	28 E	16*	14*										
6 25	7 56.11	+27 41.2	3.268	2.368	9.7	18.7	23 E	12*	11*										
7 5	8 16.89	+26 57.9	3.362	2.421	7.8	18.7	19 E	9*	8*										
7 15	8 36.96	+26 7.3	3.445	2.474	5.9	18.7	14 E	6*	4*	12 27	0 59.44	- 0 50.6	2.125	2.461	23.3	21.4	98 E	44	63*
7 25	8 56.31	+25 10.8	3.518	2.526	4.2	18.7	11 E	4*	—	1 6	1 7.40	+ 0 31.6	2.283	2.488	23.3	21.6	90 E	46	58*
8 4	9 14.94	+24 9.8	3.578	2.578	3.2	18.7	8 E	2*	—	1 16	1 16.82	+ 1 58.6	2.442	2.514	22.8	21.7	83 E	47	52*
8 14	9 32.87	+23 5.6	3.626	2.628	3.3	18.8	9 W	1*	—	1 26	1 27.45	+ 3 28.6	2.598	2.540	22.1	21.9	76 E	48*	46*
8 24	9 50.11	+21 59.4	3.660	2.679	4.5	18.9	12 W	5*	—	2 5	1 39.09	+ 5 0.0	2.751	2.564	21.0	22.0	69 E	48*	41*
9 3	10 6.66	+20 52.5	3.680	2.728	6.0	19.1	17 W	10*	—										
9 13	10 22.54	+19 46.1	3.686	2.777	7.7	19.2	22 W	16*	—										
9 23	10 37.72	+18 41.5	3.677	2.824	9.4	19.3	27 W	21*	4*	12 27	1 0.04	+ 1 30.9	1.690	2.084	27.8	19.3	99 E	47	61*
10 3	10 52.20	+17 39.7	3.654	2.871	11.1	19.4	33 W	27*	7*	1 6	1 11.41	+ 3 29.7	1.838	2.118	27.6	19.5	92 E	48	56*
10 13	11 5.95	+16 42.1	3.616	2.917	12.6	19.5	40 W	33*	11*	1 16	1 24.05	+ 5 28.1	1.989	2.151	27.1	19.7	86 E	50	50*
10 23	11 18.92	+15 50.0	3.564	2.963	14.0	19.5	46 W	39*	14*	1 26	1 37.75	+ 7 25.2	2.140	2.185	26.3	19.8	79 E	52*	45*
11 2	11 31.06	+15 4.7	3.499	3.007	15.3	19.6	53 W	45*	19*	2 5	1 52.31	+ 9 19.7	2.291	2.219	25.2	20.0	73 E	53*	41*
11 12	11 42.26	+14 27.5	3.421	3.050	16.3	19.6	60 W	51*	23*	2 15	2 7.62	+11 10.7	2.440	2.252	23.9	20.1	67 E	51*	36*
11 22	11 52.42	+13 59.9	3.333	3.093	17.2	19.6	68 W	55*	28*	2 25	2 23.57	+12 57.3	2.585	2.285	22.4	20.2	62 E	48*	32*
12 2	12 1.41	+13 43.1	3.236	3.135	17.7	19.6	75 W	58*	34*	3 7	2 40.05	+14 38.7	2.725	2.318	20.7	20.3	56 E	44*	29*
12 12	12 9.05	+13 38.6	3.132	3.175	17.9	19.5	84 W	59*	39*	3 17	2 57.01	+16 14.3	2.859	2.350	19.0	20.4	50 E	40*	26*
12 22	12 15.16	+13 47.4	3.025	3.215	17.8	19.5	92 W	59*	44*	3 27	3 14.38	+17 43.3	2.985	2.382	17.1	20.5	45 E	35*	23*
1 1	12 19.55	+14 10.4	2.918	3.254	17.2	19.4	101 W	59*	48*	4 6	3 32.09	+19 5.2	3.103	2.413	15.2	20.5	39 E	30*	20*
1 11	12 21.99	+14 47.8	2.815	3.292	16.2	19.3	111 W	60*	49*	4 16	3 50.09	+20 19.6	3.212	2.443	13.2	20.5	34 E	24*	17*
1 21	12 22.32	+15 38.9	2.721	3.329	14.8	19.2	120 W	61	48	4 26	4 8.33	+21 26.0	3.311	2.473	11.2	20.6	28 E	19*	14*
<b>464817 2004 SK<sub>29</sub></b>																			
12 27	0 56.06	+14 18.2	1.422	1.902	30.3	21.3	103 E	59	48*	5 6	4 26.73	+22 24.1	3.398	2.502	9.1	20.6	23 E	14*	11*
1 6	1 10.18	+15 31.4	1.552	1.928	30.4	21.5	96 E	61	45*	5 16	4 45.26	+23 13.7	3.474	2.531	7.0	20.5	18 E	9*	7*
1 16	1 25.73	+16 49.5	1.685	1.955	30.2	21.7	90 E	62	41*	5 26	5 3.83	+23 54.8	3.538	2.559	4.9	20.5	13 E	4*	3*
1 26	1 42.47	+18 10.5	1.820	1.983	29.6	21.9	84 E	63*	37*	6 5	5 22.39	+24 27.4	3.589	2.586	2.9	20.4	7 E	—	—
2 5	2 0.18	+19 32.4	1.955	2.010	28.7	22.0	79 E	63*	34*	6 15	5 40.86	+24 51.6	3.626	2.612	0.9	20.3	2 E	—	—
<b>369955 2013 MK<sub>3</sub></b>																			
12 27	0 57.15	+ 0 31.5	1.682	2.062	28.2	21.0	98 E	46	61*	6 25	5 59.18	+25 7.8	3.650	2.637	1.5	20.4	4 W	—	—
1 6	1 9.14	+ 2 29.0	1.830	2.097	28.0	21.3	91 E	47	56*	7 5	6 17.27	+25 16.2	3.660	2.662	3.5	20.6	9 W	1*	1*
1 16	1 22.28	+ 4 26.6	1.981	2.132	27.4	21.5	85 E	49	51*	7 15	6 35.06	+25 17.4	3.656	2.686	5.5	20.7	15 W	6*	5*
1 26	1 36.38	+ 6 22.9	2.132	2.166	26.5	21.6	79 E	51*	46*	7 25	6 52.48	+25 12.1	3.638	2.708	7.5	20.8	20 W	11*	8*
2 5	1 51.27	+ 8 16.8	2.283	2.201	25.3	21.8	73 E	52*	41*	8 4	7 9.46	+25 0.9	3.606	2.730	9.4	20.9	26 W	17*	12*
<b>96744 1999 OW<sub>3</sub></b>																			
12 27	0 57.56	- 4 58.9	2.858	3.115	18.3	20.4	96 E	40	66*	8 14	7 25.92	+24 44.8	3.560	2.752	11.2	20.9	32 W	23*	15*
1 6	1 1.00	- 4 35.4	3.062	3.162	18.1	20.6	87 E	40	61*	8 24	7 41.78	+24 24.8	3.501	2.772	12.9	21.0	38 W	29*	18*
1 16	1 5.94	- 4 2.9	3.264	3.207	17.5	20.7	78 E	41	54*	9 3	7 56.96	+24 1.9	3.428	2.791	14.5	21.0	44 W	35*	20*
1 26	1 12.11	- 3 23.8	3.458	3.251	16.5	20.8	70 E	41*	48*	9 13	8 11.37	+23 37.5	3.343	2.810	16.0	21.0	50 W	41*	23*
2 5	1 19.28	- 2 40.3	3.643	3.291	15.3	20.9	62 E	39*	42*	9 23	8 24.90	+23 12.9	3.246	2.827	17.3	21.0	57 W	48*	26*
2 15	1 27.27	- 1 53.8	3.815	3.330	13.9	21.0	54 E	35*	36*	10 3	8 37.44	+22 49.6	3.139	2.844	18.4	21.0	64 W	54*	28*
2 25	1 35.92																		

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>370577 2003 UG<sub>270</sub></b>										<b>365179 2009 FP<sub>4</sub></b>									
<i>(continuation)</i>										<i>(continuation)</i>									
2 5	2 56.58	+40 43.4	1.189	1.636	36.7	19.3	97 E	86	21*	10 3	13 1.92	+0 47.6	3.134	2.148	3.7	21.2	8 E	2*	—
2 10	3 12.13	+40 3.3	1.233	1.646	36.7	19.4	95 E	85	21*	10 8	13 10.60	-0 36.8	3.159	2.170	3.0	21.2	7 E	1*	—
2 15	3 27.65	+39 22.5	1.278	1.657	36.5	19.5	93 E	84*	22*	10 13	13 19.19	-1 59.2	3.182	2.192	2.7	21.2	6 E	—	—
2 20	3 43.10	+38 41.0	1.325	1.668	36.3	19.6	91 E	83*	23*	10 18	13 27.69	-3 19.6	3.202	2.214	2.8	21.2	6 W	—	—
2 25	3 58.42	+37 58.5	1.374	1.681	36.1	19.7	89 E	81*	23*	10 23	13 36.10	-4 38.0	3.220	2.237	3.3	21.3	7 W	1*	—
3 2	4 13.57	+37 15.1	1.425	1.693	35.8	19.8	87 E	79*	24*	10 28	13 44.44	-5 54.4	3.234	2.259	4.1	21.4	9 W	3*	—
3 7	4 28.52	+36 30.5	1.478	1.707	35.4	19.9	85 E	77*	25*	11 2	13 52.70	-7 8.9	3.245	2.281	5.0	21.5	12 W	5*	—
3 12	4 43.25	+35 44.8	1.532	1.720	35.0	19.9	83 E	75*	26*	<b>220006 2002 PS<sub>87</sub></b>									
3 17	4 57.75	+34 58.0	1.587	1.735	34.5	20.0	81 E	72*	26*	12 27	1 2.16	+38 19.5	2.340	2.851	18.7	21.1	111 E	83	25*
3 22	5 12.01	+34 10.1	1.644	1.749	34.0	20.1	79 E	70*	27*	1 1	1 4.38	+37 45.0	2.393	2.846	19.3	21.1	107 E	83	25*
3 27	5 26.00	+33 21.1	1.702	1.765	33.4	20.2	77 E	67*	28*	1 6	1 7.27	+37 14.4	2.448	2.840	19.7	21.2	103 E	82	24*
4 1	5 39.72	+32 30.9	1.761	1.780	32.8	20.3	75 E	65*	28*	1 11	1 10.76	+36 48.0	2.504	2.835	20.0	21.3	99 E	82	23*
4 6	5 53.18	+31 39.5	1.821	1.796	32.1	20.3	73 E	62*	29*	1 16	1 14.83	+36 25.6	2.561	2.829	20.3	21.3	95 E	81	23*
4 11	6 6.37	+30 47.0	1.881	1.812	31.4	20.4	71 E	59*	30*	1 21	1 19.41	+36 7.3	2.619	2.822	20.4	21.4	92 E	81*	21*
4 16	6 19.30	+29 53.4	1.942	1.829	30.7	20.5	68 E	56*	31*	1 26	1 24.48	+35 52.8	2.676	2.816	20.4	21.4	88 E	80*	20*
4 26	6 44.37	+28 3.0	2.065	1.863	29.1	20.6	64 E	50*	32*	1 31	1 29.98	+35 42.0	2.734	2.809	20.4	21.4	84 E	77*	19*
5 6	7 8.42	+26 8.4	2.189	1.898	27.4	20.7	60 E	44*	33*	2 5	1 35.89	+35 34.6	2.791	2.802	20.3	21.5	81 E	74*	18*
5 16	7 31.51	+24 9.8	2.312	1.933	25.6	20.8	56 E	38*	33*	<b>107673 2001 FV<sub>6</sub></b>									
5 26	7 53.72	+22 7.7	2.434	1.970	23.7	20.9	51 E	31*	33*	12 27	1 2.32	+7 52.1	2.096	2.493	22.7	20.3	102 E	53	55*
6 5	8 15.07	+20 2.2	2.552	2.006	21.8	21.0	47 E	25*	33*	1 6	1 10.00	+8 49.1	2.265	2.529	22.8	20.5	94 E	54	51*
6 15	8 35.67	+17 53.6	2.667	2.043	19.8	21.1	43 E	19*	32*	1 16	1 19.18	+9 52.8	2.435	2.565	22.5	20.7	86 E	55	46*
6 25	8 55.57	+15 42.3	2.776	2.079	17.7	21.1	39 E	14*	30*	1 26	1 29.62	+11 1.5	2.604	2.599	21.8	20.8	79 E	56*	41*
7 5	9 14.82	+13 28.7	2.879	2.116	15.6	21.2	34 E	9*	27*	2 5	1 41.08	+12 13.5	2.770	2.633	20.8	20.9	72 E	55*	37*
7 15	9 33.49	+11 12.9	2.976	2.153	13.5	21.2	30 E	5*	23*	2 15	1 53.40	+13 27.4	2.931	2.666	19.6	21.1	65 E	52*	32*
7 25	9 51.64	+8 55.5	3.064	2.189	11.4	21.2	25 E	1*	19*	3 7	2 6.44	+14 42.2	3.085	2.698	18.2	21.1	58 E	47*	28*
8 4	10 9.32	+6 36.6	3.144	2.225	9.3	21.2	21 E	—	15*	3 17	2 20.08	+15 56.4	3.230	2.729	16.6	21.2	52 E	42*	24*
8 14	10 26.58	+4 16.7	3.214	2.260	7.3	21.2	16 E	—	10*	3 27	2 34.24	+17 9.3	3.366	2.759	14.9	21.3	45 E	37*	21*
8 24	10 43.45	+1 56.0	3.273	2.295	5.4	21.2	12 E	—	5*	4 6	2 48.83	+18 19.9	3.490	2.788	13.0	21.3	39 E	31*	18*
9 3	10 59.97	-0 25.1	3.322	2.329	3.7	21.2	9 E	—	—	4 16	3 7.77	+19 27.4	3.603	2.816	11.1	21.3	33 E	25*	14*
9 13	11 16.18	-2 46.3	3.359	2.363	3.0	21.2	7 W	—	—	5 6	3 19.01	+20 31.3	3.702	2.843	9.2	21.3	27 E	19*	11*
9 23	11 32.09	-5 7.3	3.384	2.396	3.6	21.3	9 W	—	2*	5 16	3 34.49	+21 30.9	3.786	2.869	7.2	21.3	21 E	13*	7*
10 3	11 47.73	-7 27.8	3.396	2.428	5.1	21.4	12 W	—	6*	5 26	3 50.14	+22 25.7	3.857	2.894	5.2	21.3	15 E	8*	3*
<b>365179 2009 FP<sub>4</sub></b>										<b>416588 2004 JS<sub>31</sub></b>									
12 27	1 0.68	+22 56.9	1.232	1.786	31.8	19.8	107 E	68	40*	12 27	1 2.80	+11 17.7	1.456	1.936	29.6	21.0	103 E	56	51*
1 6	1 5.64	+25 14.8	1.305	1.752	33.7	19.9	99 E	70	35*	1 6	1 17.14	+12 5.0	1.599	1.973	29.7	21.3	97 E	57	49*
1 16	1 14.61	+27 38.5	1.378	1.721	34.8	20.0	92 E	73	30*	1 16	1 32.49	+13 0.9	1.747	2.011	29.3	21.5	90 E	58	45*
1 26	1 27.25	+30 7.7	1.450	1.693	35.4	20.1	86 E	74*	25*	1 26	1 48.68	+14 2.7	1.896	2.048	28.6	21.7	84 E	59*	42*
2 5	1 43.31	+32 40.4	1.517	1.668	35.7	20.2	81 E	73*	21*	2 5	2 5.53	+15 7.7	2.047	2.084	27.6	21.9	78 E	59*	38*
2 15	2 2.71	+35 13.9	1.581	1.647	35.6	20.2	76 E	70*	17*	<b>155140 2005 UD</b>									
2 25	2 25.44	+37 44.8	1.640	1.630	35.2	20.3	72 E	66*	15*	12 27	1 3.47	+30 3.9	1.709	2.240	24.4	21.5	110 E	75	33*
3 7	2 51.56	+40 8.1	1.696	1.616	34.8	20.3	68 E	62*	12*	1 1	1 1.93	+29 17.0	1.762	2.220	25.4	21.5	104 E	74	33*
3 17	3 21.14	+42 18.0	1.748	1.607	34.2	20.4	65 E	59*	11*	1 6	1 1.41	+28 36.9	1.815	2.200	26.2	21.6	99 E	74	32*
3 27	3 54.13	+44 7.6	1.799	1.602	33.5	20.4	62 E	56*	10*	1 11	1 1.83	+28 3.5	1.869	2.178	26.8	21.7	94 E	73	31*
4 1	4 11.82	+44 52.4	1.824	1.601	33.1	20.4	61 E	55*	10*	1 16	1 3.08	+27 36.7	1.923	2.154	27.2	21.7	90 E	73	29*
4 6	4 30.23	+45 29.3	1.848	1.602	32.7	20.4	60 E	54*	9*	<b>2077 Kiangsu</b>									
4 11	4 49.28	+45 57.6	1.873	1.603	32.3	20.5	59 E	53*	9*	12 27	1 4.33	-8 56.2	1.224	1.644	36.5	16.6	96 E	36	71*
4 16	5 8.87	+46 16.3	1.899	1.606	31.9	20.5	58 E	52*	10*	1 1	1 9.68	-6 9.6	1.264	1.643	36.7	16.7	93 E	39	66*
4 21	5 28.86	+46 25.0	1.924	1.609	31.5	20.5	57 E	51*	10*	1 6	1 15.62	-3 27.0	1.306	1.641	36.8	16.7	91 E	42	62*
4 26	5 49.10	+46 23.1	1.951	1.614	31.0	20.5	56 E	50*	11*	1 11	1 22.09	-0 48.5	1.349	1.641	36.8	16.8	88 E	44	58*
5 1	6 9.43	+46 10.5	1.978	1.620	30.5	20.5	55 E	49*	11*	1 16	1 29.06	+1 45.5	1.394	1.642	36.7	16.9	86 E	47	54*
5 6	6 29.70	+45 47.0	2.005	1.627	30.0	20.6	54 E	47*	12*	1 26	1 44.39	+6 39.4	1.487	1.645	36.2	17.0	81 E	52*	47*
5 11	6 49.76	+45 12.9	2.034	1.634	29.5	20.6	53 E	46*	13*	2 5	2 1.39	+11 13.9	1.584	1.652	35.4	17.1	76 E	55*	41*
5 16	7 9.49	+44 28.7	2.064	1.643	28.9	20.6	52 E	45*	13*	2 15	2 19.95	+15 28.6	1.684	1.661	34.3	17.3	72 E	56*	35*
5 21	7 28.76	+43 34.9	2.095	1.653	28.3	20.6	51 E	43*	14*	2 25	2 40.02	+19 23.4	1.784	1.674	33.1	17.4	67 E	56*	31*
5 26	7 47.47	+42 32.2	2.128	1.664	27.7	20.7	50 E	42*	15*	3 7	3 1.51	+22 58.0	1.885	1.690	31.6	17.5	63 E	54*	27*
5 31	8 5.58	+41 21.4	2.161	1.676	27.0	20.7	49 E	40*	16*	3 17	3 24.44	+26 11.9	1.985	1.708	30.1	17.6	59 E	51*	23*
6 5	8 23.04	+40 3.5	2.196	1.688	26.4	20.7	48 E	38*	17*	3 27	3 48.74	+29 4.5	2.084	1.729	28.4	17.6	56 E	48*	21*
6 10	8 39.83	+38 39.3	2.232	1.701	25.7	20.8	47 E	36*	18*	4 6	4 14.34	+31 35.1	2.181	1.752	26.7	17.7	52 E	45*	18*
6 15	8 55.96	+37 9.8	2.269	1.716	24.9	20.8	45 E	35*	19*	4 16	4 41.17	+33 42.7	2.276	1.777					

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

20/22	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	20/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°										
<b>2077 Kiangsu</b> (continuation)										<b>353959 1999 UC<sub>23</sub></b> (continuation)																			
7 15	8 59.40	+35 33.4	2.960	2.060	11.0	18.2	23 E	16*	3*	2 5	2 11.09	+ 7 9.0	1.600	1.680	34.9	21.3	77 E	51*	45*	2 15	2 32.14	+ 8 31.3	1.660	1.654	34.7	21.3	72 E	51*	42*
7 25	9 25.38	+34 12.9	3.012	2.095	10.0	18.2	21 E	15*	—	2 25	2 54.86	+ 9 56.4	1.718	1.631	34.3	21.4	68 E	49*	40*	3 7	3 19.09	+11 20.4	1.773	1.612	33.7	21.4	64 E	47*	38*
8 4	9 50.32	+32 42.1	3.058	2.130	9.2	18.3	20 E	14*	—	3 17	3 44.69	+12 39.6	1.828	1.598	32.9	21.4	61 E	45*	37*	3 27	4 11.52	+13 50.6	1.881	1.587	32.0	21.4	58 E	42*	35*
8 14	10 14.22	+31 3.3	3.097	2.165	8.8	18.3	19 E	12*	—	4 6	4 39.39	+14 50.1	1.935	1.582	31.0	21.5	55 E	38*	35*	4 16	5 8.12	+15 35.2	1.990	1.581	29.9	21.5	52 E	35*	34*
8 24	10 37.11	+29 19.2	3.130	2.199	8.6	18.4	19 E	11*	—	<b>141776 2002 NY<sub>8</sub></b>																			
9 3	10 59.06	+27 31.8	3.155	2.234	8.9	18.4	20 E	10*	—	12 27	1 7.57	- 1 23.2	1.347	1.795	32.7	19.6	100 E	44	64*	1 6	1 23.05	+ 1 2.0	1.466	1.821	32.6	19.8	94 E	46	59*
9 13	11 20.13	+25 43.1	3.171	2.268	9.5	18.5	22 W	10*	—	1 16	1 39.63	+ 3 26.1	1.589	1.848	32.2	20.0	89 E	48	54*	5 6	5 19.24	+21 19.6	2.949	2.202	15.3	21.2	35 E	22*	21*
9 23	11 40.37	+23 55.1	3.179	2.302	10.3	18.6	24 W	14*	—	5 16	5 15.36	+ 8 2.5	1.845	1.907	30.4	20.3	78 E	53*	45*	5 26	6 1.63	+22 9.1	3.138	2.269	11.2	21.3	26 E	12*	16*
10 3	11 59.85	+22 9.5	3.177	2.335	11.4	18.7	27 W	18*	—	6 5	6 22.57	+22 16.5	3.220	2.301	9.1	21.3	21 E	7*	12*	6 15	6 43.25	+22 12.9	3.292	2.334	7.0	21.2	16 E	3*	9*
10 13	12 18.61	+20 27.9	3.166	2.368	12.6	18.7	31 W	23*	—	6 25	7 3.59	+21 59.1	3.354	2.366	4.9	21.2	11 E	—	5*	7 5	7 23.54	+21 35.9	3.405	2.397	2.7	21.1	6 E	—	—
10 23	12 36.65	+18 51.9	3.145	2.401	13.8	18.8	35 W	28*	—	7 15	7 43.05	+21 4.0	3.444	2.428	0.6	21.0	1 E	—	—	7 25	8 2.08	+20 24.5	3.472	2.459	1.5	21.2	4 W	—	—
11 2	12 54.02	+17 22.7	3.114	2.432	15.1	18.8	40 W	33*	—	8 4	8 20.60	+19 38.2	3.486	2.488	3.5	21.3	9 W	1*	—	8 14	8 38.56	+18 46.2	3.488	2.517	5.6	21.5	14 W	6*	4*
11 12	13 10.69	+16 1.8	3.071	2.463	16.3	18.9	44 W	38*	4*	<b>165213 2000 SJ<sub>12</sub></b>																			
11 22	13 26.61	+14 50.4	3.019	2.494	17.5	18.9	50 W	43*	9*	12 27	1 8.03	+ 8 29.4	1.584	2.051	27.8	20.4	104 E	53	55*	1 6	1 19.50	+ 9 46.9	1.727	2.081	28.0	20.6	96 E	55	51*
12 2	13 41.74	+13 49.5	2.957	2.524	18.7	18.9	55 W	48*	14*	1 16	1 32.42	+11 9.4	1.873	2.112	27.8	20.8	90 E	56	47*	1 26	1 46.55	+12 35.0	2.021	2.142	27.2	21.0	83 E	58*	43*
12 12	13 55.99	+13 0.4	2.885	2.553	19.7	18.9	61 W	52*	20*	2 5	2 1.66	+14 1.5	2.168	2.172	26.3	21.2	77 E	58*	39*	2 15	2 17.61	+15 27.6	2.314	2.202	25.1	21.3	71 E	56*	35*
12 22	14 9.23	+12 23.9	2.804	2.581	20.5	18.9	67 W	55*	26*	2 25	2 34.28	+16 51.6	2.457	2.231	23.8	21.4	65 E	53*	32*	6 5	6 8.51	+ 9 52.1	2.247	1.596	23.6	18.9	39 E	14*	31*
1 1	14 21.32	+12 0.8	2.715	2.609	21.2	18.9	73 W	56*	33*	<b>420302 2011 XZ<sub>1</sub></b>																			
1 11	14 32.06	+11 51.8	2.620	2.635	21.6	18.8	80 W	57*	39*	12 27	1 8.71	+14 1.2	1.332	1.857	30.6	20.8	106 E	59	49*	1 6	1 7.46	+ 7 55.0	2.320	1.600	21.4	18.9	35 E	4*	29*
1 21	14 41.22	+11 57.1	2.521	2.661	21.7	18.8	87 W	57	45*	1 6	1 24.69	+14 37.3	1.493	1.917	30.4	21.1	99 E	60	47*	6 15	7 32.54	+ 6 36.2	2.358	1.607	20.2	18.9	33 E	—	27*
<b>163692 2003 CY<sub>18</sub></b>										<b>127521 2002 VK<sub>14</sub></b>																			
12 27	1 4.54	- 3 5.8	1.080	1.560	38.6	20.8	98 E	42	65*	12 27	1 6.72	+14 0.1	1.412	1.921	29.6	18.5	105 E	59	49*	1 6	1 18.54	+12 35.3	1.488	1.885	31.2	18.6	97 E	58	48*
1 6	1 23.38	+ 0 5.2	1.220	1.615	37.4	21.1	94 E	45	60*	1 16	1 32.70	+11 37.4	1.567	1.849	32.1	18.7	90 E	57	46*	1 26	1 48.88	+11 2.1	1.645	1.815	32.6	18.7	83 E	56*	44*
1 16	1 41.96	+ 2 59.2	1.364	1.667	36.1	21.4	89 E	48	55*	2 5	2 6.78	+10 44.4	1.721	1.782	32.6	18.8	77 E	55*	42*	2 15	2 26.21	+10 39.8	1.793	1.752	32.3	18.9	72 E	52*	40*
1 26	2 0.48	+ 5 38.4	1.512	1.717	34.8	21.6	84 E	51	50*	2 25	2 47.00	+10 43.9	1.861	1.723	31.8	18.9	66 E	49*	38*	3 7	3 9.01	+10 52.8	1.924	1.696	31.0	18.9	62 E	46*	37*
2 5	2 19.05	+ 8 4.2	1.660	1.764	33.3	21.8	79 E	53*	46*	3 17	3 32.13	+11 3.0	1.982	1.672	30.1	18.9	57 E	41*	36*	3 27	3 56.27	+11 11.1	2.035	1.651	29.1	18.9	54 E	37*	35*
<b>447146 2005 GZ<sub>25</sub></b>										<b>511067 2013 TS<sub>10</sub></b>																			
12 27	1 7.14	+27 22.2	1.102	1.706	32.9	21.1	110 E	72	36*	12 27	1 9.67	- 2 0.7	1.297	1.755	33.5	21.1	100 E	43	65*	1 6	1 19.13	+28 31.2	1.204	1.716	33.9	21.3	103 E	74	33*
1 1	1 12.74	+27 56.0	1.153	1.711	33.5	21.2	106 E	73	35*	1 6	1 26.14	+ 0 25.8	1.416	1.785	33.3	21.3	94 E	45	60*	1 16	1 19.13	+28 31.2	1.204	1.716	33.9	21.3	103 E	74	33*
1 6	1 19.13	+28 31.2	1.204	1.716	33.9	21.3	103 E	74	33*	1 16	1 43.50	+ 2 50.7	1.540	1.817	32.8	21.5	89 E	48	55*	1 26	1 26.26	+29 7.6	1.256	1.721	34.3	21.4	100 E	74	32*
1 11	1 26.26	+29 7.6	1.256	1.721	34.3	21.4	100 E	74	32*	1 16	1 34.65	+ 4 48.1	1.474	1.850	32.0	21.7	84 E	50	51*	1 26	1 34.65	+ 4 48.1	1.474	1.742	34.4	21.2	88 E	49	50*
1 16	1 34.07	+29 45.0	1.308	1.727	34.5	21.5	97 E	75	30*	2 5	2 20.33	+ 7 27.0	1.800	1.884	30.9	21.9	79 E	52*	47*	2 5	2 15.86	+ 5 53.3	1.538	1.709	34.8	21.2	82 E	51	49*
<b>353959 1999 UC<sub>23</sub></b>										<b>447146 2005 GZ<sub>25</sub></b>																			
12 27	1 7.35	+ 3 25.9	1.342	1.814	32.1	21.0	101 E	48	59*	12 27	1 7.14	+27 22.2	1.102	1.706	32.9	21.1	110 E	72	36*	1 6	1 12.74	+27 56.0	1.153	1.711	33.5	21.2	106 E	73	35*
1 6	1 19.72	+ 3 57.6	1.408	1.777	33.5	21.1	94 E	49	56*	1 1	1 12.74	+27 56.0	1.153	1.711	33.5	21.2	106 E	73	35*	1 6	1 19.13	+28 31.2	1.204	1.716	33.9	21.3	103 E	74	33*
1 16	1 34.65	+ 4 48.1	1.474	1.742	34.4	21.2	88 E	49	52*	1 11	1 26.26	+29 7.6	1.256	1.721	34.3	21.4	100 E	74	32*	1 16	1 34.07	+29 45.0	1.308	1.727	34.5	21.5	97 E	75	30*
1 26	1 51.86	+ 5 53.3	1.538	1.709	34.8	21.2	82 E	51	49*	1 21	1 51.86	+ 5 53.3	1.538	1.709	34.8	21.2	82 E	51	49*	1 11	1 15.38	+26 13.3	2.857	2.228	17.2	19.9	42 W	14*	34*
12 27	1 7.35	+ 3 25.9	1.342	1.814	32.1	21.0	101 E	48	59*	1 11	1 15.38	+26 13.3	2.857	2.228	17.2	19.9	42 W	14*	34*	1 11	1 15.38	+26 13.3	2.857	2.228	17.2	19.9	42 W	14*	34*
1 6	1 19.72	+ 3 57.6	1.408	1.777	33.5	21.1	94 E	49	56*	1 11	1 15.38	+26 13.3	2.857	2.228	17.2	19.9	42 W	14*	34*	1 11	1 15.38	+26 13.3	2.857	2.228	17.2	19.9	42 W	14*	34*
1 16	1 34.65	+ 4 48.1	1.474	1.742	34.4	21.2	88 E	49	52*	1 11	1 15.38	+26 13.3	2.857	2.228	17.2	19.9	42 W	14*	34*	1 11	1 15.38	+26 13.3	2.857	2.228	17.2	19.9	42 W	14*	34*
1 26	1 51.86	+ 5 53.3	1.538	1.709	34.8	21.2	82 E	51	49*	1 21	1 51.86	+ 5 53.3	1.538	1.709	34.8	21.2	82 E	51	49*	1 21	1 51.86	+ 5 53.3	1.538	1.709	34.8	21.2	82 E	51	49*

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

20/22	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	20/22	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°
<b>415872 2001 SN<sub>282</sub></b>										<b>302530 2002 LC<sub>58</sub></b>									
12 27	1 9.70	+ 7 41.7	1.362	1.858	31.0	21.3	104 E	53	55*	10 13	8 29.06	- 6 50.3	3.417	3.218	17.0	21.2	70 W	35*	56*
1 6	1 23.47	+ 9 21.5	1.489	1.884	31.2	21.6	97 E	54	52*	10 23	8 35.36	- 8 39.3	3.324	3.252	17.4	21.2	77 W	36*	61*
1 16	1 38.65	+11 3.8	1.618	1.910	31.0	21.8	91 E	56	48*	11 2	8 40.08	-10 29.3	3.227	3.285	17.5	21.1	85 W	35	67*
1 26	1 55.02	+12 46.6	1.751	1.937	30.4	22.0	85 E	58	44*	11 12	8 43.04	-12 18.3	3.129	3.317	17.3	21.1	92 W	33	74*
2 5	2 12.37	+14 28.0	1.884	1.964	29.6	22.1	80 E	59*	40*	11 22	8 44.07	-14 3.7	3.033	3.348	16.9	21.0	100 W	31	78*
<b>23983 1999 NS<sub>11</sub></b>										<b>302530 2002 LC<sub>58</sub> (continuation)</b>									
12 27	1 9.74	- 3 19.8	1.175	1.649	36.1	18.0	99 E	42	66*	12 2	8 43.04	-15 42.0	2.942	3.379	16.1	21.0	108 W	29	80
1 6	1 28.11	- 0 46.0	1.275	1.670	36.0	18.2	94 E	44	61*	12 12	8 39.87	-17 9.3	2.860	3.409	15.1	20.9	116 W	28	81
1 16	1 47.43	+ 1 48.4	1.381	1.693	35.5	18.4	90 E	47	57*	12 22	8 34.66	-18 21.0	2.792	3.437	13.8	20.8	124 W	27	82
1 26	2 7.56	+ 4 20.0	1.491	1.718	34.8	18.6	85 E	49	52*	1 1	8 27.65	-19 12.6	2.741	3.465	12.4	20.7	131 W	26	83
2 5	2 28.33	+ 6 45.9	1.605	1.746	33.9	18.7	81 E	52*	48*	1 11	8 19.29	-19 40.1	2.711	3.492	11.2	20.7	137 W	25	84
2 15	2 49.65	+ 9 3.9	1.722	1.776	32.8	18.9	77 E	53*	45*	1 21	8 10.25	-19 41.5	2.705	3.518	10.3	20.7	140 E	25	84
2 25	3 11.46	+11 11.9	1.842	1.807	31.5	19.1	72 E	52*	42*	<b>381823 2009 VZ<sub>80</sub></b>									
3 7	3 33.64	+13 8.3	1.963	1.839	30.0	19.2	68 E	51*	39*	12 27	1 12.49	+ 3 14.1	1.347	1.832	31.6	20.2	103 E	48	60*
3 17	3 56.15	+14 51.9	2.085	1.873	28.5	19.3	64 E	48*	37*	1 6	1 23.53	+ 6 52.9	1.480	1.865	31.6	20.5	96 E	52	54*
3 27	4 18.90	+16 21.9	2.208	1.908	26.8	19.4	60 E	45*	35*	1 16	1 36.31	+10 14.5	1.619	1.898	31.2	20.7	90 E	55	48*
4 6	4 41.79	+17 37.6	2.329	1.943	25.1	19.5	55 E	41*	33*	1 26	1 50.55	+13 20.8	1.761	1.933	30.5	20.9	84 E	58*	42*
4 16	5 4.76	+18 38.7	2.449	1.979	23.2	19.6	51 E	36*	31*	2 5	2 6.02	+16 12.8	1.906	1.969	29.4	21.1	79 E	60*	37*
4 26	5 27.71	+19 25.2	2.566	2.015	21.3	19.7	47 E	32*	29*	2 15	2 22.57	+18 51.6	2.051	2.005	28.2	21.2	73 E	60*	33*
5 6	5 50.55	+19 57.2	2.680	2.052	19.4	19.8	42 E	27*	27*	2 25	2 40.07	+21 18.0	2.195	2.042	26.7	21.4	68 E	57*	29*
5 16	6 13.19	+20 15.2	2.789	2.089	17.4	19.8	38 E	21*	25*	3 7	2 58.41	+23 32.2	2.336	2.079	25.1	21.5	63 E	54*	26*
5 26	6 35.55	+20 19.8	2.892	2.126	15.4	19.9	34 E	16*	23*	<b>347514 1999 SP<sub>14</sub></b>									
6 5	6 57.56	+20 11.7	2.989	2.162	13.3	19.9	29 E	12*	20*	12 27	1 12.68	+11 50.8	1.794	2.269	24.6	21.4	106 E	57	51*
6 15	7 19.16	+19 51.8	3.078	2.198	11.2	19.9	25 E	7*	17*	1 6	1 23.61	+11 53.4	1.961	2.315	24.9	21.6	98 E	57	49*
6 25	7 40.30	+19 21.1	3.160	2.234	9.1	20.0	20 E	4*	13*	1 16	1 35.67	+12 10.4	2.133	2.362	24.6	21.9	91 E	57	46*
7 5	8 0.93	+18 40.7	3.232	2.270	7.0	19.9	16 E	—	9*	1 26	1 48.64	+12 38.2	2.307	2.408	24.0	22.0	84 E	58*	43*
7 15	8 21.03	+17 51.5	3.295	2.305	4.8	19.9	11 E	—	5*	2 5	2 2.34	+13 13.7	2.480	2.453	23.0	22.2	77 E	57*	39*
7 25	8 40.58	+16 54.8	3.347	2.340	2.7	19.9	6 E	—	—	<b>242216 2003 RN<sub>10</sub></b>									
8 4	8 59.58	+15 51.7	3.388	2.374	0.7	19.8	2 E	—	—	12 27	1 12.72	+41 23.2	2.029	2.591	20.3	20.2	114 E	86	22*
8 14	9 18.01	+14 43.2	3.417	2.407	1.6	19.9	4 W	—	—	1 1	1 17.16	+40 2.0	2.107	2.617	20.6	20.3	110 E	85	23*
8 24	9 35.87	+13 30.5	3.433	2.440	3.7	20.1	9 W	2*	1*	1 6	1 22.01	+38 48.6	2.187	2.642	20.9	20.4	107 E	84	24*
9 3	9 53.17	+12 14.6	3.437	2.472	5.7	20.2	14 W	7*	4*	1 11	1 27.22	+37 42.5	2.271	2.666	21.1	20.5	103 E	83	24*
9 13	10 9.89	+10 56.7	3.428	2.503	7.8	20.3	20 W	12*	7*	1 16	1 32.74	+36 43.4	2.357	2.690	21.2	20.6	99 E	82	24*
9 23	10 26.03	+ 9 37.9	3.405	2.533	9.7	20.4	25 W	17*	10*	1 21	1 38.53	+35 51.0	2.444	2.714	21.2	20.7	95 E	81	23*
10 3	10 41.58	+ 8 19.2	3.369	2.563	11.6	20.5	31 W	23*	14*	1 26	1 44.56	+35 4.7	2.533	2.737	21.1	20.8	91 E	80*	23*
10 13	10 56.51	+ 7 1.8	3.319	2.592	13.4	20.5	37 W	28*	17*	1 31	1 50.78	+34 24.1	2.623	2.760	20.9	20.9	87 E	78*	23*
10 23	11 10.76	+ 5 47.0	3.257	2.620	15.0	20.6	43 W	33*	21*	2 5	1 57.18	+33 48.6	2.713	2.782	20.6	21.0	84 E	76*	22*
11 2	11 24.30	+ 4 35.8	3.181	2.647	16.6	20.6	49 W	38*	26*	2 10	2 3.74	+33 17.7	2.803	2.804	20.3	21.1	80 E	73*	21*
11 12	11 37.03	+ 3 29.6	3.094	2.673	17.9	20.6	56 W	42*	31*	2 15	2 10.44	+32 51.1	2.893	2.826	19.8	21.2	76 E	69*	20*
11 22	11 48.85	+ 2 29.8	2.996	2.698	19.1	20.6	63 W	45*	36*	2 20	2 17.26	+32 28.3	2.982	2.847	19.4	21.2	73 E	66*	20*
12 2	11 59.64	+ 1 37.7	2.888	2.722	20.0	20.6	70 W	46*	42*	2 25	2 24.19	+32 8.7	3.070	2.868	18.8	21.3	69 E	63*	19*
12 12	12 9.22	+ 0 55.0	2.773	2.745	20.5	20.5	78 W	46	48*	3 2	3 1.20	+31 52.2	3.156	2.868	18.2	21.3	65 E	59*	18*
12 22	12 17.40	+ 0 23.3	2.653	2.768	20.8	20.5	86 W	45	55*	3 7	2 38.30	+31 38.1	3.241	2.908	17.5	21.4	62 E	56*	17*
1 1	12 23.96	+ 0 4.2	2.530	2.789	20.6	20.4	95 W	45	60*	3 12	2 45.46	+31 26.4	3.324	2.928	16.8	21.4	58 E	52*	16*
1 11	12 28.63	+ 0 0.5	2.407	2.810	19.9	20.2	104 W	45	64*	3 17	2 52.69	+31 16.5	3.404	2.947	16.0	21.5	55 E	49*	15*
1 21	12 31.18	+ 0 10.6	2.289	2.829	18.6	20.1	113 W	45	64	<b>302530 2002 LC<sub>58</sub></b>									
12 27	1 11.77	+ 7 17.0	1.458	1.945	29.4	18.6	104 E	52	56*	<b>360658 2004 RS<sub>54</sub></b>									
1 1	1 19.70	+ 6 47.6	1.535	1.967	29.4	18.8	100 E	52	56*	12 27	1 13.67	+ 0 1.4	1.451	1.908	30.3	21.2	102 E	45	63*
1 6	1 27.73	+ 6 25.9	1.613	1.990	29.4	18.9	97 E	51	55*	1 6	1 27.05	+ 1 47.9	1.586	1.940	30.3	21.5	95 E	47	59*
1 11	1 35.83	+ 6 10.8	1.694	2.013	29.2	19.0	94 E	51	54*	1 16	1 41.58	+ 3 37.1	1.725	1.972	29.9	21.7	89 E	49	54*
1 16	1 44.01	+ 6 1.5	1.775	2.037	28.9	19.2	91 E	51	53*	1 26	1 57.07	+ 5 26.9	1.866	2.005	29.2	21.8	83 E	50	50*
1 21	1 52.25	+ 5 57.0	1.857	2.061	28.5	19.3	87 E	51	51*	2 5	2 13.33	+ 7 15.1	2.008	2.037	28.2	22.0	78 E	52*	46*
1 26	2 0.56	+ 5 56.7	1.939	2.084	28.0	19.4	84 E	51	50*	<b>418797 2008 VF</b>									
2 5	2 17.30	+ 6 5.8	2.105	2.132	26.9	19.6	78 E	51*	47*	12 27	1 13.97	- 9 16.8	0.544	1.186	55.3	20.6	98 E	36	72*
2 15	2 34.22	+ 6 24.2	2.269	2.181	25.5	19.7	72 E	49*	44*	1 1	1 21.82	-10 16.4	0.581	1.178	56.4	20.7	94 E	35	71*
2 25	2 51.28	+ 6 48.1	2.432	2.229	24.0	19.9	66 E	46*	42*	1 6	1 29.86	-11 1.0	0.617	1.168	57.3	20.9	91 E	34	70*
3 7	3 8.44	+ 7 14.6	2.590	2.278	22.4	20.0	61 E	42*	39*	1 11	1 38.10	-11 33.6	0.651	1.157	58.1	21.0	88 E	33	69*
3 17	3 25.68	+ 7 41.2	2.743	2.327	20.6	20.1	55 E	38*	37*	1 16	1 46.52	-11 56.7	0.682	1.144	58.9	21.1	85 E	33	67*
3 27	3 42.97	+ 8 5.9	2.889	2.375	18.8	20.2	50 E	33*	34*	1 21	1 55.11	-12 12.2	0.711	1.130	59.6	21.2	82 E	33	65*
4 6																			

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

20/22	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	20/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°
<b>194126 2001 SG<sub>276</sub></b>										<b>217647 1998 OR<sub>11</sub></b> (continuation)									
12 27	1 14.14	+26 45.6	1.178	1.785	31.0	20.7	111 E	72	37*	2 5	2 49.13	+39 22.0	1.514	1.883	31.4	19.9	95 E	84	22*
1 1	1 15.66	+27 12.7	1.232	1.782	31.9	20.9	107 E	72	36*	2 10	3 1.64	+38 46.6	1.573	1.898	31.3	20.0	93 E	84*	22*
1 6	1 18.23	+27 42.4	1.286	1.780	32.6	21.0	102 E	73	34*	2 15	3 14.16	+38 12.8	1.634	1.913	31.1	20.1	90 E	82*	22*
1 11	1 21.75	+28 14.5	1.340	1.776	33.2	21.1	99 E	73	32*	2 25	3 39.17	+37 9.1	1.760	1.945	30.5	20.3	85 E	78*	23*
1 16	1 26.14	+28 49.1	1.394	1.772	33.6	21.2	95 E	74	30*	3 7	4 3.98	+36 8.3	1.890	1.977	29.6	20.5	80 E	73*	23*
1 21	1 31.32	+29 26.1	1.447	1.768	33.8	21.2	91 E	74	29*	3 17	4 28.48	+35 8.4	2.023	2.010	28.6	20.6	75 E	68*	24*
1 26	1 37.24	+30 5.1	1.500	1.763	33.9	21.3	88 E	75*	27*	3 27	4 52.60	+34 7.9	2.158	2.044	27.3	20.7	70 E	62*	24*
1 31	1 43.83	+30 45.9	1.550	1.758	33.9	21.4	85 E	74*	25*	4 6	5 16.24	+33 5.2	2.293	2.078	25.9	20.9	65 E	57*	25*
2 5	1 51.05	+31 28.3	1.600	1.751	33.8	21.4	82 E	73*	23*	4 16	5 39.37	+31 59.4	2.427	2.113	24.3	21.0	60 E	51*	25*
2 10	1 58.87	+32 11.9	1.648	1.745	33.7	21.5	79 E	71*	21*	4 26	6 1.94	+30 49.7	2.559	2.147	22.6	21.1	55 E	45*	25*
<b>10115 1992 SK</b>										<b>378009 2006 SG<sub>46</sub></b>									
12 27	1 14.23	+30 18.2	1.012	1.654	33.5	19.6	112 E	75	33*	12 27	1 14.85	+ 4 12.7	1.433	1.918	29.9	21.2	103 E	49	59*
1 1	1 17.88	+30 4.8	1.060	1.652	34.5	19.7	108 E	75	33*	1 6	1 28.69	+ 5 33.1	1.569	1.950	30.0	21.4	97 E	51	56*
1 6	1 22.51	+29 57.0	1.108	1.651	35.3	19.9	104 E	75	32*	1 16	1 43.68	+ 6 59.3	1.708	1.982	29.7	21.6	91 E	52	52*
1 11	1 28.02	+29 54.6	1.157	1.648	35.9	20.0	100 E	75	31*	1 26	1 59.60	+ 8 28.7	1.850	2.016	29.1	21.8	85 E	53	48*
1 16	1 34.31	+29 57.0	1.205	1.644	36.4	20.1	97 E	75	30*	2 5	2 16.29	+ 9 58.5	1.993	2.049	28.2	22.0	79 E	54*	44*
1 26	1 48.98	+30 14.3	1.300	1.634	37.0	20.2	90 E	75*	28*	<b>233972 1992 PZ<sub>5</sub></b>									
2 5	2 6.01	+30 44.1	1.390	1.621	37.2	20.4	84 E	74*	25*	12 27	1 14.90	+16 3.4	1.670	2.182	25.4	20.8	108 E	61	47*
2 15	2 25.14	+31 22.3	1.476	1.604	37.1	20.5	79 E	71*	23*	1 6	1 24.45	+16 34.2	1.829	2.222	25.8	21.0	100 E	62	45*
2 25	2 46.16	+32 4.9	1.554	1.583	36.8	20.5	73 E	66*	22*	1 16	1 35.61	+17 14.8	1.992	2.262	25.8	21.2	93 E	62	42*
3 7	3 8.91	+32 47.8	1.625	1.559	36.2	20.6	68 E	62*	20*	1 26	1 48.08	+18 3.1	2.156	2.300	25.3	21.4	86 E	63*	38*
3 17	3 33.32	+33 27.2	1.687	1.532	35.6	20.6	64 E	57*	19*	2 5	2 1.60	+18 56.6	2.319	2.337	24.4	21.6	79 E	63*	35*
3 27	3 59.31	+33 59.3	1.740	1.501	34.9	20.6	59 E	53*	18*	<b>4503 Cleobulus</b>									
4 6	4 26.78	+34 20.3	1.784	1.467	34.1	20.6	55 E	48*	18*	12 27	1 15.06	+ 8 43.2	1.046	1.612	36.1	18.2	105 E	54	55*
4 16	4 55.64	+34 26.3	1.818	1.429	33.4	20.6	52 E	44*	18*	1 6	1 25.01	+10 1.4	1.079	1.555	38.8	18.3	98 E	55	51*
4 26	5 25.74	+34 13.7	1.842	1.389	32.6	20.5	48 E	40*	18*	1 16	1 38.88	+11 39.0	1.111	1.501	40.9	18.3	91 E	57	47*
5 6	5 56.88	+33 38.9	1.856	1.345	32.0	20.4	45 E	36*	18*	1 26	1 56.43	+13 32.3	1.139	1.451	42.6	18.3	86 E	59	43*
5 16	6 28.86	+32 38.6	1.861	1.299	31.4	20.4	42 E	32*	19*	2 5	2 17.44	+15 36.3	1.164	1.406	43.9	18.4	81 E	60*	40*
5 26	7 1.44	+31 9.7	1.856	1.250	30.9	20.3	39 E	28*	19*	2 15	2 41.81	+17 45.7	1.187	1.367	44.8	18.4	77 E	60*	37*
6 5	7 34.38	+29 9.9	1.842	1.199	30.6	20.1	37 E	24*	20*	2 25	3 9.47	+19 54.3	1.206	1.335	45.5	18.4	74 E	60*	35*
6 15	8 7.50	+26 37.0	1.820	1.147	30.5	20.0	35 E	20*	21*	3 7	3 40.30	+21 54.4	1.225	1.310	45.9	18.4	72 E	59*	33*
6 25	8 40.65	+23 30.0	1.789	1.094	30.7	19.9	33 E	16*	22*	3 17	4 14.13	+23 38.3	1.245	1.294	46.1	18.4	70 E	58*	32*
7 5	9 13.80	+19 48.2	1.751	1.042	31.3	19.7	32 E	13*	23*	3 27	4 50.61	+24 57.4	1.267	1.287	46.0	18.4	68 E	56*	32*
7 15	9 47.01	+15 31.8	1.707	0.991	32.2	19.6	31 E	10*	23*	4 6	5 29.16	+25 44.1	1.295	1.290	45.6	18.5	67 E	54*	32*
7 25	10 20.46	+10 42.2	1.657	0.945	33.7	19.5	31 E	7*	24*	4 11	5 48.96	+25 53.5	1.311	1.295	45.2	18.5	67 E	53*	33*
8 4	10 54.44	+ 5 22.6	1.602	0.905	35.7	19.4	31 E	5*	25*	4 16	6 8.98	+25 52.9	1.330	1.302	44.8	18.5	66 E	52*	33*
8 9	11 11.79	+ 2 33.0	1.573	0.887	36.8	19.3	32 E	4*	26*	4 21	6 29.07	+25 42.2	1.350	1.311	44.3	18.5	66 E	51*	34*
8 14	11 29.46	- 0 22.1	1.544	0.873	38.1	19.3	32 E	3*	26*	4 26	6 49.13	+25 21.4	1.373	1.322	43.8	18.6	65 E	50*	35*
8 19	11 47.54	- 3 21.4	1.515	0.861	39.5	19.2	33 E	2*	27*	5 1	7 9.02	+24 50.8	1.398	1.336	43.2	18.6	65 E	48*	36*
8 24	12 6.11	- 6 23.6	1.485	0.852	41.0	19.2	34 E	1*	27*	5 6	7 28.64	+24 10.8	1.426	1.351	42.5	18.7	65 E	47*	36*
8 29	12 25.30	- 9 27.1	1.456	0.846	42.5	19.2	34 E	1*	28*	5 11	7 47.91	+23 22.3	1.457	1.368	41.7	18.7	64 E	45*	37*
9 3	12 45.22	-12 30.2	1.428	0.843	44.0	19.2	35 E	—	29*	5 16	8 6.76	+22 25.9	1.491	1.387	40.9	18.8	64 E	43*	38*
9 8	13 5.99	-15 30.5	1.402	0.844	45.4	19.2	37 E	—	30*	5 21	8 25.12	+21 22.5	1.527	1.407	40.1	18.8	64 E	41*	39*
9 13	13 27.72	-18 25.8	1.377	0.848	46.7	19.2	38 E	—	31*	5 26	8 42.96	+20 13.1	1.566	1.429	39.2	18.9	63 E	39*	40*
9 18	13 50.52	-21 13.2	1.354	0.856	47.8	19.2	39 E	—	32*	5 31	9 0.24	+18 58.7	1.607	1.453	38.3	19.0	63 E	37*	41*
9 23	14 14.46	-23 49.7	1.334	0.866	48.8	19.2	40 E	—	33*	6 5	9 16.96	+17 40.2	1.652	1.477	37.3	19.0	62 E	34*	42*
9 28	14 39.60	-26 12.2	1.317	0.879	49.5	19.3	42 E	—	35*	6 10	9 33.14	+16 18.5	1.699	1.503	36.3	19.1	61 E	32*	43*
10 3	15 5.91	-28 17.6	1.304	0.895	50.0	19.3	43 E	—	36*	6 15	9 48.77	+14 54.3	1.748	1.530	35.3	19.2	61 E	30*	44*
10 8	15 33.29	-30 2.8	1.295	0.914	50.2	19.3	45 E	1*	38*	6 20	10 3.88	+13 28.4	1.800	1.557	34.3	19.3	60 E	28*	45*
10 13	16 1.53	-31 25.3	1.291	0.934	50.2	19.4	46 E	2*	39*	6 25	10 18.49	+12 1.4	1.853	1.585	33.2	19.3	59 E	26*	45*
10 18	16 30.36	-32 23.1	1.291	0.956	50.0	19.4	47 E	3*	41*	6 30	10 32.63	+10 34.0	1.909	1.615	32.2	19.4	58 E	24*	46*
10 23	16 59.41	-32 55.3	1.296	0.979	49.5	19.5	48 E	4*	42*	7 5	10 46.32	+ 9 6.6	1.967	1.644	31.1	19.5	57 E	22*	46*
10 28	17 28.30	-33 2.1	1.305	1.003	48.9	19.5	50 E	6*	43*	7 15	11 12.52	+ 6 13.3	2.087	1.705	28.9	19.6	54 E	19*	45*
11 1	17 56.65	-32 44.4	1.319	1.028	48.1	19.6	50 E	7*	44*	7 25	11 37.33	+ 3 24.2	2.212	1.767	26.7	19.8	51 E	16*	44*
11 7	18 24.13	-32 4.5	1.338	1.054	47.1	19.6	51 E	9*	45*	8 4	12 0.95	+ 0 41.0	2.340	1.831	24.5	19.9	48 E	13*	41*
11 12	18 50.49	-31 5.0	1.361	1.080	46.1	19.7	52 E	11*	46*	8 14	12 23.61	- 1 55.2	2.470	1.895	22.2	20.0	45 E	11*	39*
11 17	19 15.56	-29 48.9	1.387	1.106	45.0	19.8	52 E	12*	46*	8 24	12 45.46	- 4 23.5	2.600	1.959	20.0	20.1	41 E	10*	35*
11 22	19 39.26	-28 19.4	1.418	1.133	43.8	19.8	53 E	14*	46*	9 3	13 6.65	- 6 43.5	2.728	2.023					

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

20/22	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	20/22	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°
<b>4503 Cleobulus</b> (continuation)										<b>377114 2002 XL<sub>29</sub></b>									
11 12	15 23.71	-18 53.5	3.446	2.459	1.6	20.4	4 E	—	—	12 27	1 17.28	-12 44.6	2.532	2.825	20.2	21.2	97 E	32	75*
11 22	15 42.04	-20 1.5	3.505	2.518	0.7	20.5	2 W	—	—	1 6	1 20.30	-10 47.1	2.643	2.800	20.6	21.3	89 E	34	69*
12 2	16 0.02	-21 0.6	3.550	2.576	2.9	20.7	8 W	—	—	1 16	1 25.30	-8 44.8	2.754	2.774	20.5	21.3	81 E	36	61*
12 12	16 17.58	-21 51.1	3.580	2.633	5.0	20.9	14 W	4*	5*	1 26	1 32.05	-6 39.6	2.861	2.747	20.1	21.4	73 E	38*	54*
12 22	16 34.64	-22 33.3	3.594	2.689	7.1	21.0	20 W	7*	11*	2 5	1 40.32	-4 33.1	2.963	2.719	19.4	21.4	66 E	38*	47*
1 1	16 51.13	-23 7.8	3.593	2.743	9.1	21.2	26 W	10*	17*	2 15	1 49.93	-2 26.3	3.058	2.691	18.4	21.4	59 E	37*	41*
1 11	17 6.95	-23 35.2	3.575	2.797	10.9	21.3	33 W	12*	24*	2 25	2 0.72	0 20.3	3.144	2.662	17.2	21.4	53 E	34*	36*
1 21	17 21.98	-23 56.0	3.541	2.849	12.6	21.4	39 W	14*	31*	3 7	2 12.55	+1 44.2	3.219	2.632	15.8	21.4	46 E	30*	31*
<b>267940 2004 EM<sub>20</sub></b>										<b>276331 2002 TL<sub>255</sub></b>									
12 27	1 15.62	+46 22.7	0.562	1.325	42.1	21.3	115 E	89	17*	6 5	4 34.81	+17 40.2	3.336	2.330	2.7	20.6	6 W	—	—
12 29	1 22.72	+45 41.7	0.583	1.338	41.8	21.4	115 E	89	18*	6 15	4 54.04	+18 58.3	3.287	2.294	4.4	20.7	10 W	—	4*
12 31	1 29.51	+45 2.7	0.606	1.351	41.5	21.5	114 E	89	19*	6 25	5 13.91	+20 9.0	3.227	2.257	6.5	20.7	14 W	—	8*
1 2	1 36.01	+44 25.7	0.628	1.364	41.3	21.6	114 E	89	19*	7 5	5 34.41	+21 11.9	3.157	2.221	8.6	20.7	19 W	5*	11*
1 4	1 42.28	+43 50.6	0.651	1.376	41.1	21.7	113 E	89	20*	7 15	5 55.53	+22 6.7	3.078	2.184	10.7	20.7	24 W	10*	14*
12 27	1 15.71	-7 13.2	1.042	1.540	39.1	19.2	99 E	38	70*	7 25	6 17.24	+22 53.0	2.990	2.147	12.8	20.7	28 W	15*	16*
1 1	1 23.93	-7 17.9	1.071	1.526	39.9	19.2	96 E	38	69*	8 4	6 39.53	+23 30.8	2.894	2.110	15.0	20.7	33 W	21*	18*
1 6	1 32.78	-7 14.7	1.100	1.513	40.5	19.3	93 E	38	68*	8 14	7 2.39	+24 0.0	2.791	2.073	17.1	20.6	37 W	26*	19*
1 11	1 42.22	-7 4.3	1.128	1.501	40.9	19.4	90 E	38	66*	8 24	7 25.78	+24 20.7	2.683	2.036	19.1	20.6	41 W	31*	20*
1 16	1 52.21	-6 47.5	1.156	1.490	41.3	19.4	88 E	38	64*	9 3	7 49.69	+24 33.2	2.570	2.000	21.2	20.5	46 W	37*	21*
1 21	2 2.71	-6 25.0	1.184	1.480	41.5	19.4	86 E	39	63*	9 13	8 14.09	+24 37.8	2.453	1.965	23.1	20.4	50 W	41*	22*
1 26	2 13.69	-5 57.7	1.211	1.471	41.7	19.5	83 E	39	61*	9 23	8 38.95	+24 35.2	2.334	1.930	25.0	20.3	54 W	46*	22*
1 31	2 25.10	-5 26.1	1.238	1.464	41.7	19.5	82 E	40	60*	10 3	9 4.26	+24 26.4	2.214	1.896	26.8	20.2	59 W	51*	23*
2 5	2 36.92	-4 50.9	1.264	1.458	41.7	19.6	80 E	40*	58*	10 13	9 29.98	+24 12.4	2.094	1.864	28.5	20.1	63 W	55*	24*
2 10	2 49.13	-4 12.7	1.290	1.453	41.6	19.6	78 E	41*	57*	10 23	9 56.08	+23 54.7	1.975	1.832	30.0	20.0	67 W	59*	24*
2 15	3 1.71	-3 31.9	1.316	1.449	41.5	19.6	77 E	41*	56*	11 2	10 22.54	+23 34.9	1.858	1.802	31.4	19.9	71 W	62*	25*
2 25	3 27.90	-2 5.6	1.366	1.446	41.1	19.7	74 E	41*	54*	11 12	10 49.28	+23 14.9	1.746	1.774	32.7	19.7	75 W	65*	27*
3 7	3 55.29	-0 36.5	1.418	1.449	40.5	19.8	71 E	41*	53*	11 22	11 16.20	+22 56.9	1.638	1.749	33.7	19.6	79 W	67*	28*
3 17	4 23.73	+0 51.2	1.471	1.456	39.7	19.8	69 E	40*	52*	12 2	11 43.21	+22 43.2	1.535	1.725	34.6	19.4	83 W	68*	30*
3 27	4 53.03	+2 13.2	1.527	1.469	38.8	19.9	67 E	38*	51*	12 12	12 10.08	+22 36.4	1.439	1.704	35.3	19.3	87 W	68	32*
4 6	5 22.93	+3 25.8	1.587	1.487	37.8	20.0	66 E	36*	50*	12 22	12 36.57	+22 38.7	1.350	1.685	35.7	19.1	91 W	68	34*
4 16	5 53.23	+4 25.9	1.653	1.510	36.6	20.1	64 E	34*	50*	1 1	13 2.36	+22 52.3	1.268	1.670	35.9	19.0	95 W	68	36*
4 26	6 23.64	+5 10.8	1.724	1.537	35.4	20.2	62 E	31*	49*	1 11	13 27.00	+23 19.1	1.193	1.657	35.9	18.8	99 W	68	38*
5 6	6 53.90	+5 39.3	1.802	1.568	33.9	20.3	60 E	27*	48*	1 21	13 50.00	+23 59.9	1.125	1.648	35.6	18.7	103 W	69	39*
5 16	7 23.77	+5 50.7	1.886	1.602	32.4	20.4	58 E	24*	47*	<b>75079 1999 VN<sub>24</sub></b>									
5 26	7 53.05	+5 45.2	1.977	1.638	30.8	20.5	56 E	20*	46*	12 27	1 17.67	-16 37.4	1.432	1.810	32.7	17.2	95 E	28	79*
6 5	8 21.54	+5 23.9	2.072	1.678	29.0	20.6	53 E	16*	45*	1 1	1 23.31	-15 56.2	1.467	1.796	33.2	17.3	92 E	29	76*
6 15	8 49.16	+4 48.4	2.173	1.719	27.2	20.7	51 E	12*	43*	1 6	1 29.56	-15 10.2	1.502	1.783	33.5	17.3	89 E	30	73*
6 25	9 15.85	+4 0.4	2.277	1.762	25.3	20.8	48 E	9*	41*	1 11	1 36.39	-14 20.0	1.536	1.769	33.7	17.4	86 E	31	70*
7 5	9 41.57	+3 2.0	2.383	1.807	23.3	20.9	45 E	6*	38*	1 16	1 43.76	-13 26.1	1.570	1.757	33.8	17.4	84 E	32	67*
7 15	10 6.37	+1 55.1	2.490	1.852	21.2	21.0	41 E	4*	35*	1 26	1 59.97	-11 28.9	1.634	1.732	33.8	17.5	79 E	34	62*
7 25	10 30.28	+0 41.6	2.597	1.898	19.1	21.0	38 E	2*	32*	2 5	2 17.95	-9 22.5	1.696	1.711	33.6	17.5	74 E	35*	58*
8 4	10 53.37	+0 36.6	2.701	1.945	17.0	21.1	34 E	1*	29*	2 15	2 37.53	-7 9.7	1.754	1.691	33.3	17.6	70 E	36*	54*
8 14	11 15.72	-1 57.9	2.803	1.991	14.8	21.2	30 E	—	24*	2 25	2 58.54	-4 53.7	1.809	1.674	32.7	17.6	66 E	36*	51*
8 24	11 37.39	-3 21.0	2.899	2.038	12.5	21.2	26 E	—	20*	3 7	3 20.87	-2 37.7	1.862	1.660	32.1	17.6	63 E	35*	48*
9 3	11 58.46	-4 44.3	2.990	2.085	10.2	21.2	22 E	—	15*	3 17	3 44.40	-0 24.3	1.914	1.649	31.3	17.6	59 E	34*	45*
9 13	12 19.01	-6 6.8	3.073	2.131	8.0	21.2	17 E	—	11*	3 27	4 9.03	+1 43.1	1.965	1.641	30.5	17.7	56 E	32*	43*
9 23	12 39.08	-7 27.2	3.147	2.177	5.7	21.2	12 E	—	6*	4 6	4 34.64	+3 41.8	2.017	1.636	29.5	17.7	54 E	29*	41*
10 3	12 58.72	-8 44.5	3.211	2.223	3.4	21.2	8 E	—	1*	4 16	5 1.11	+5 29.0	2.069	1.634	28.5	17.7	51 E	26*	40*
10 13	13 17.99	-9 57.8	3.264	2.268	1.2	21.1	3 E	—	—	4 26	5 28.27	+7 2.3	2.123	1.636	27.3	17.7	48 E	23*	38*
10 23	13 36.88	-11 6.1	3.305	2.312	1.4	21.2	3 W	—	—	5 6	5 55.95	+8 19.8	2.180	1.641	26.1	17.8	46 E	20*	36*
11 2	13 55.42	-12 8.6	3.333	2.356	3.5	21.4	8 W	1*	—	5 16	6 23.97	+9 19.9	2.238	1.649	24.7	17.8	43 E	16*	34*
<b>480821 1998 WA<sub>4</sub></b>										<b>474181 1999 VP<sub>79</sub></b>									
12 27	1 16.14	-12 52.2	0.877	1.391	44.6	19.5	97 E	32	76*	1 26	1 59.97	-11 28.9	1.634	1.732	33.8	17.5	79 E	34	62*
1 1	1 27.42	-10 45.7	0.897	1.390	44.8	19.6	95 E	34	73*	2 5	2 17.95	-9 22.5	1.696	1.711	33.6	17.5	74 E	35*	58*
1 6	1 39.17	-8 35.8	0.919	1.390	44.9	19.6	94 E	36	70*	2 15	2 37.53	-7 9.7	1.754	1.691	33.3	17.6	70 E	36*	54*
1 11	1 51.34	-6 23.5	0.942	1.393	44.9	19.7	93 E	39	67*	2 25	2 58.54	-4 53.7	1.809	1.674	32.7	17.6	66 E	36*	51*
1 16	2 3.91	-4 9.9	0.967	1.397	44.7	19.8	92 E	41	64*	3 7	3 20.87	-2 37.7	1.862	1.660	32.1	17.6	63 E	35*	48*
1 21	2 16.83	-1 56.2	0.993	1.403	44.5	19.8	90 E	43	61*	3 17	3 44.40	-0 24.3	1.914	1.649	31.3	17.6	59 E	34*	45*
1 26	2 30.07	+0 16.2	1.022	1.411	44.3	19.9	89 E	45	59*	3									



EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

20/22	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	20/22	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°
<b>54697 2001 FA<sub>70</sub></b>										<b>52317 1992 BC<sub>1</sub></b>									
12 27	1 19.95	- 5 19.1	1.917	2.312	24.7	19.3	101E	40	69*	12 27	13 5.51	+ 6 46.8	3.029	2.645	18.5	19.8	58W	46*	26*
1 6	1 28.83	- 3 58.2	2.077	2.349	24.7	19.5	93E	41	64*	12 12	13 18.72	+ 6 36.0	2.938	2.676	19.5	19.8	65W	49*	31*
1 16	1 39.08	- 2 31.8	2.239	2.387	24.3	19.7	86E	42	59*	12 22	13 30.94	+ 6 38.7	2.839	2.706	20.3	19.7	72W	51*	37*
1 26	1 50.46	- 1 2.1	2.401	2.423	23.5	19.8	80E	44*	54*	1 1	13 42.00	+ 6 56.5	2.735	2.735	20.7	19.7	80W	52	43*
2 5	2 2.76	+ 0 28.5	2.560	2.459	22.5	20.0	73E	45*	49*	1 11	13 51.69	+ 7 30.7	2.627	2.764	20.8	19.6	87W	53	49*
2 15	2 15.84	+ 1 58.6	2.716	2.495	21.3	20.1	67E	43*	44*	1 21	13 59.77	+ 8 22.2	2.519	2.791	20.5	19.6	96W	53	53*
2 25	2 29.56	+ 3 26.7	2.866	2.529	19.9	20.2	60E	41*	40*	<b>267871 2003 WW<sub>152</sub></b>									
3 7	2 43.81	+ 4 51.5	3.010	2.563	18.4	20.3	54E	37*	36*	12 27	1 20.74	- 11 15.2	1.310	1.749	33.8	19.5	98E	34	74*
3 17	2 58.52	+ 6 12.2	3.146	2.596	16.7	20.4	49E	33*	32*	1 1	1 26.87	- 10 54.5	1.347	1.736	34.3	19.6	95E	34	73*
3 27	3 13.59	+ 7 27.8	3.272	2.628	14.9	20.4	43E	27*	29*	1 6	1 33.61	- 10 28.0	1.384	1.724	34.7	19.6	92E	35	70*
4 6	3 28.95	+ 8 37.5	3.388	2.660	13.1	20.4	37E	22*	25*	1 11	1 40.91	- 9 56.3	1.421	1.713	35.0	19.7	89E	35	68*
4 16	3 44.55	+ 9 40.9	3.493	2.690	11.3	20.5	32E	16*	22*	1 16	1 48.74	- 9 20.0	1.457	1.702	35.2	19.7	86E	36	66*
4 26	4 0.33	+ 10 37.4	3.586	2.720	9.4	20.5	26E	10*	18*	1 21	1 57.07	- 8 39.8	1.493	1.692	35.3	19.8	83E	36	63*
5 6	4 16.21	+ 11 26.5	3.666	2.749	7.6	20.5	21E	4*	14*	1 26	2 5.86	- 7 56.2	1.527	1.683	35.3	19.8	81E	37	61*
5 16	4 32.16	+ 12 8.0	3.733	2.777	5.9	20.4	16E	—	10*	2 5	2 24.70	- 6 21.1	1.594	1.665	35.1	19.9	76E	38*	57*
5 26	4 48.10	+ 12 41.6	3.786	2.804	4.4	20.4	12E	—	6*	2 15	2 45.07	- 4 38.2	1.659	1.651	34.7	19.9	72E	39*	54*
6 5	5 3.97	+ 13 7.3	3.824	2.830	3.5	20.4	10E	—	1*	2 25	3 6.84	- 2 51.2	1.720	1.640	34.2	20.0	68E	39*	51*
6 15	5 19.71	+ 13 25.0	3.848	2.855	3.7	20.5	10W	—	1*	3 7	3 29.83	- 1 3.5	1.780	1.631	33.5	20.0	65E	38*	49*
6 25	5 35.26	+ 13 34.7	3.858	2.879	4.7	20.5	14W	—	7*	3 17	3 53.96	+ 0 41.8	1.838	1.626	32.7	20.1	62E	36*	47*
7 5	5 50.54	+ 13 36.7	3.852	2.903	6.2	20.6	18W	—	12*	3 27	4 19.10	+ 2 21.4	1.895	1.624	31.8	20.1	59E	34*	45*
7 15	6 5.48	+ 13 31.1	3.832	2.925	7.9	20.7	23W	2*	17*	4 6	4 45.10	+ 3 52.6	1.953	1.626	30.8	20.1	56E	31*	43*
7 25	6 20.00	+ 13 18.2	3.796	2.946	9.5	20.8	29W	8*	21*	4 16	5 11.84	+ 5 12.7	2.012	1.630	29.7	20.2	54E	28*	42*
8 4	6 34.03	+ 12 58.6	3.747	2.967	11.2	20.8	34W	15*	26*	4 26	5 39.14	+ 6 19.5	2.072	1.638	28.5	20.2	51E	24*	40*
8 14	6 47.47	+ 12 32.6	3.683	2.986	12.7	20.9	41W	21*	29*	5 6	6 6.81	+ 7 11.4	2.134	1.649	27.3	20.3	48E	21*	39*
8 24	7 0.23	+ 12 0.9	3.606	3.005	14.2	20.9	47W	28*	33*	5 16	6 34.67	+ 7 47.1	2.198	1.662	25.9	20.3	46E	17*	37*
9 3	7 12.19	+ 11 24.2	3.517	3.023	15.5	20.9	53W	34*	37*	5 26	7 2.54	+ 8 6.1	2.265	1.679	24.9	20.3	43E	13*	36*
9 13	7 23.23	+ 10 43.3	3.416	3.039	16.7	20.9	60W	40*	40*	6 5	7 30.21	+ 8 8.7	2.334	1.698	22.9	20.4	41E	9*	34*
9 23	7 33.21	+ 9 59.2	3.304	3.055	17.6	20.8	67W	46*	44*	6 15	7 57.56	+ 7 55.4	2.405	1.720	21.2	20.4	38E	5*	31*
10 3	7 41.98	+ 9 12.8	3.185	3.069	18.3	20.8	74W	50*	47*	6 25	8 24.43	+ 7 27.4	2.477	1.744	19.5	20.5	35E	2*	29*
10 13	7 49.34	+ 8 25.7	3.058	3.083	18.7	20.7	82W	52*	51*	7 5	8 50.73	+ 6 46.1	2.549	1.770	17.7	20.5	32E	—	26*
10 23	7 55.10	+ 7 39.2	2.928	3.096	18.7	20.6	90W	53	54*	7 15	9 16.42	+ 5 53.3	2.621	1.797	15.8	20.5	29E	—	23*
11 2	7 59.06	+ 6 55.1	2.797	3.108	18.4	20.5	99W	52	56*	7 25	9 41.44	+ 4 50.7	2.691	1.826	13.8	20.5	25E	—	19*
11 12	8 0.97	+ 6 15.4	2.669	3.118	17.6	20.4	108W	51	58	8 4	10 5.79	+ 3 40.3	2.759	1.857	11.7	20.6	22E	—	15*
11 22	8 0.67	+ 5 42.5	2.547	3.128	16.3	20.3	118W	51	58	8 14	10 29.51	+ 2 23.9	2.824	1.888	9.7	20.6	18E	—	12*
12 2	7 58.03	+ 5 18.8	2.437	3.137	14.4	20.1	128W	50	59	8 24	10 52.60	+ 1 3.2	2.883	1.921	7.5	20.6	14E	—	8*
12 12	7 53.05	+ 5 6.7	2.343	3.145	12.1	20.0	138W	50	59	9 3	11 15.13	- 0 20.1	2.937	1.954	5.4	20.5	11E	—	4*
12 22	7 45.98	+ 5 8.0	2.270	3.152	9.4	19.8	149W	50	59	9 13	11 37.13	- 1 44.4	2.984	1.988	3.3	20.5	7E	—	—
1 1	7 37.27	+ 5 23.7	2.223	3.158	6.6	19.6	158W	50	59	9 23	11 58.64	- 3 8.2	3.023	2.022	1.6	20.4	3W	—	—
1 11	7 27.65	+ 5 53.5	2.206	3.163	4.9	19.5	164E	51	58	10 3	12 19.71	- 4 30.1	3.053	2.056	2.0	20.5	4W	—	—
1 21	7 17.99	+ 6 35.4	2.219	3.167	5.7	19.6	161E	52	57	10 13	12 40.37	- 5 48.9	3.074	2.091	3.9	20.7	8W	1*	—
<b>52317 1992 BC<sub>1</sub></b>										<b>418849 2008 WM<sub>64</sub></b>									
12 27	1 20.37	- 24 45.3	1.210	1.589	38.2	17.3	92E	20	85*	12 27	1 21.42	- 7 49.4	0.126	1.013	73.0	18.7	100E	37	71*
1 1	1 29.18	- 22 44.4	1.240	1.590	38.2	17.3	91E	22	82*	12 28	1 19.54	- 3 6.9	0.128	1.015	72.3	18.7	101E	42	66*
1 6	1 38.33	- 20 40.6	1.271	1.591	38.2	17.4	89E	24	78*	12 29	1 17.78	+ 1 24.8	0.131	1.016	71.8	18.7	101E	46	61*
1 11	1 47.80	- 18 34.8	1.303	1.594	38.0	17.4	87E	26	75*	12 30	1 16.15	+ 5 43.2	0.135	1.018	71.3	18.8	101E	51	57*
1 16	1 57.56	- 16 27.6	1.336	1.598	37.9	17.5	86E	29	72*	12 31	1 14.64	+ 9 46.6	0.139	1.020	70.9	18.8	101E	55	53*
1 21	2 7.58	- 14 19.8	1.371	1.602	37.6	17.5	84E	31	69*	1 1	1 13.24	+ 13 34.3	0.144	1.022	70.6	18.9	101E	59	49*
1 26	2 17.85	- 12 12.1	1.406	1.608	37.4	17.6	83E	33	66*	1 2	1 11.95	+ 17 5.9	0.150	1.024	70.3	19.0	101E	62	45*
1 31	2 28.33	- 10 5.3	1.443	1.614	37.1	17.6	81E	35	64*	1 3	1 10.75	+ 20 21.9	0.156	1.025	70.1	19.1	101E	65	41*
2 5	2 39.02	- 8 0.0	1.482	1.622	36.7	17.7	79E	37*	61*	1 4	1 9.66	+ 23 22.7	0.162	1.027	69.9	19.2	101E	68	38*
2 10	2 49.90	- 5 56.8	1.522	1.630	36.3	17.8	78E	39*	59*	1 5	1 8.65	+ 26 9.4	0.169	1.029	69.8	19.3	101E	71	35*
2 15	3 0.96	- 3 56.2	1.564	1.639	35.8	17.8	76E	40*	56*	1 6	1 7.74	+ 28 42.9	0.177	1.031	69.7	19.3	101E	74	32*
2 25	3 23.59	- 0 5.1	1.652	1.659	34.8	17.9	73E	43*	52*	1 7	1 6.91	+ 31 4.3	0.184	1.032	69.6	19.4	100E	76	30*
3 7	3 46.80	+ 3 29.3	1.745	1.683	33.6	18.0	70E	44*	49*	1 8	1 6.17	+ 33 14.6	0.192	1.034	69.5	19.5	100E	78	27*
3 17	4 10.51	+ 6 44.4	1.844	1.709	32.2	18.2	66E	43*	45*	1 9	1 5.51	+ 35 14.8	0.200	1.036	69.4	19.6	100E	80	25*
3 27	4 34.64	+ 9 38.2	1.943	1.737	30.7	18.3	63E	42*	42*	1 10	1 4.93	+ 37 5.9	0.208	1.037	69.3	19.7	99E	82	23*
4 6	4 59.07	+ 12 9.3	2.055	1.768	29.1	18.4	59E	40*	40*	1 11	1 4.43	+ 38 48.7	0.216	1.039	69.2	19.8	99E	84	21*
4 16	5 23.72	+ 14 17.6	2.165	1.800	27.4	18.5	56E												



EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

20/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	2021	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°
<b>418849 2008 WM<sub>64</sub></b>										<b>66272 1999 JW<sub>6</sub></b>									
<i>(continuation)</i>										<i>(continuation)</i>									
2 1	1 8.52	+58 15.5	0.401	1.071	66.9	21.1	91 E	73*	—	3 31	1 41.45	+75 16.7	1.199	1.299	46.9	19.8	72 E	44*	—
2 3	1 10.17	+59 18.3	0.418	1.074	66.6	21.2	90 E	71*	—	4 1	1 46.22	+75 41.5	1.199	1.300	46.9	19.8	72 E	44*	—
2 5	1 12.03	+60 17.3	0.435	1.076	66.3	21.3	90 E	70*	—	4 2	1 51.31	+76 6.3	1.199	1.300	46.9	19.8	72 E	44*	—
2 10	1 17.65	+62 31.5	0.475	1.083	65.7	21.5	88 E	66*	—	4 3	1 56.74	+76 31.1	1.199	1.301	46.9	19.8	72 E	44*	—
2 15	1 24.69	+64 31.5	0.514	1.088	65.0	21.6	87 E	63*	—	4 4	2 2.55	+76 55.8	1.198	1.302	46.9	19.8	72 E	44*	—
2 20	1 33.24	+66 21.4	0.550	1.093	64.4	21.8	86 E	61*	—	4 5	2 8.78	+77 20.5	1.198	1.303	46.9	19.8	72 E	44*	—
2 25	1 43.45	+68 3.9	0.583	1.098	63.8	21.9	84 E	59*	—	4 6	2 15.47	+77 45.0	1.197	1.303	46.9	19.8	72 E	45*	—
<b>138852 2000 WN<sub>10</sub></b>										<b>66272 1999 JW<sub>6</sub></b>									
12 27	1 22.85	+26 18.2	0.458	1.235	47.3	20.7	113 E	71	37*	4 7	2 22.67	+78 9.3	1.197	1.304	46.9	19.8	72 E	45*	—
1 1	1 28.43	+28 16.5	0.505	1.247	48.0	21.0	110 E	73	35*	4 8	2 30.43	+78 33.3	1.196	1.305	47.0	19.8	72 E	45*	—
1 6	1 34.90	+30 0.0	0.552	1.258	48.5	21.2	107 E	75	33*	4 9	2 38.81	+78 57.0	1.195	1.306	47.0	19.8	72 E	45*	—
1 11	1 42.17	+31 32.2	0.599	1.268	48.9	21.4	104 E	77	31*	4 10	2 47.88	+79 20.1	1.194	1.307	47.0	19.8	72 E	45*	—
1 16	1 50.18	+32 55.7	0.646	1.276	49.1	21.6	101 E	78	29*	4 11	2 57.69	+79 42.6	1.194	1.307	47.0	19.8	73 E	45*	—
<b>175168 2005 EQ<sub>118</sub></b>										<b>66272 1999 JW<sub>6</sub></b>									
12 27	1 23.03	+13 14.3	2.217	2.698	20.2	21.4	109 E	58	50*	4 12	3 8.31	+80 4.4	1.192	1.308	47.0	19.8	73 E	46*	—
1 6	1 27.09	+13 15.9	2.336	2.679	21.2	21.5	99 E	58	48*	4 13	3 19.82	+80 25.2	1.191	1.309	47.0	19.8	73 E	46*	—
1 16	1 33.31	+13 31.3	2.456	2.658	21.7	21.6	91 E	59	45*	4 14	3 32.28	+80 44.9	1.190	1.310	47.0	19.8	73 E	46*	—
1 26	1 41.45	+13 58.6	2.576	2.637	21.7	21.7	83 E	59*	41*	4 15	3 45.75	+81 3.4	1.189	1.311	47.0	19.8	73 E	47*	—
2 5	1 51.25	+14 35.7	2.692	2.615	21.3	21.8	75 E	58*	36*	4 16	4 0.27	+81 20.2	1.188	1.312	47.0	19.8	73 E	47*	—
<b>241112 2007 OF<sub>2</sub></b>										<b>66272 1999 JW<sub>6</sub></b>									
12 27	1 23.04	+ 0 10.9	1.511	1.988	28.7	20.8	104 E	45	63*	4 27	7 25.67	+81 33.8	1.170	1.324	47.1	19.8	75 E	52*	—
1 6	1 34.51	+ 2 0.9	1.658	2.027	28.8	21.0	97 E	47	60*	4 28	7 43.36	+81 16.1	1.168	1.325	47.1	19.8	75 E	52*	—
1 16	1 47.27	+ 3 51.9	1.809	2.066	28.4	21.2	91 E	49	55*	4 29	8 0.05	+80 55.5	1.166	1.327	47.1	19.8	75 E	53*	—
1 26	2 1.09	+ 5 42.2	1.962	2.105	27.7	21.4	84 E	51	50*	4 30	8 15.69	+80 32.2	1.165	1.328	47.1	19.8	75 E	53*	—
2 5	2 15.77	+ 7 29.9	2.115	2.143	26.8	21.6	78 E	52*	46*	5 1	8 30.27	+80 6.4	1.163	1.329	47.1	19.8	75 E	54*	—
<b>458062 2009 YO</b>										<b>66272 1999 JW<sub>6</sub></b>									
12 27	1 23.59	+32 47.8	1.045	1.706	31.6	21.4	114 E	78	31*	5 2	8 43.81	+79 38.3	1.161	1.330	47.1	19.8	75 E	54*	—
1 1	1 31.07	+30 52.4	1.115	1.730	32.1	21.6	111 E	76	33*	5 3	8 56.36	+79 8.1	1.159	1.332	47.1	19.8	75 E	55*	—
1 6	1 38.63	+29 13.7	1.188	1.752	32.4	21.8	107 E	74	34*	5 4	9 7.96	+78 36.0	1.158	1.333	47.1	19.8	76 E	56*	—
1 11	1 46.29	+27 49.7	1.263	1.773	32.6	21.9	104 E	73	34*	5 5	9 18.70	+78 2.1	1.156	1.334	47.1	19.8	76 E	56*	—
1 16	1 54.06	+26 38.6	1.340	1.793	32.7	22.1	100 E	72	35*	5 6	9 28.63	+77 26.7	1.154	1.336	47.1	19.8	76 E	57*	—
<b>424355 2007 VU<sub>145</sub></b>										<b>66272 1999 JW<sub>6</sub></b>									
12 27	1 23.62	+13 1.6	1.465	2.010	27.6	21.3	109 E	58	51*	5 7	9 37.83	+76 49.7	1.153	1.337	47.1	19.8	76 E	57*	—
1 6	1 35.20	+13 44.5	1.605	2.042	28.2	21.5	101 E	59	49*	5 8	9 46.36	+76 11.4	1.151	1.339	47.1	19.8	76 E	58*	—
1 16	1 48.33	+14 36.7	1.750	2.075	28.2	21.7	95 E	60	45*	5 9	9 54.28	+75 31.8	1.150	1.340	47.1	19.8	76 E	59*	—
1 26	2 2.73	+15 35.4	1.898	2.107	27.8	21.9	88 E	61	42*	5 10	10 1.66	+74 51.1	1.148	1.341	47.1	19.8	77 E	59*	—
2 5	2 18.16	+16 37.8	2.046	2.139	27.1	22.1	82 E	61*	39*	5 11	10 8.54	+74 9.2	1.147	1.343	47.1	19.8	77 E	60*	—
<b>66272 1999 JW<sub>6</sub></b>										<b>66272 1999 JW<sub>6</sub></b>									
12 27	1 23.98	+51 41.3	0.575	1.348	40.4	18.1	117 E	83	12*	5 12	10 14.97	+73 26.4	1.146	1.344	47.0	19.8	77 E	61*	—
12 29	1 15.02	+52 10.1	0.596	1.345	41.7	18.2	115 E	83	11*	5 13	10 21.00	+72 42.6	1.144	1.346	47.0	19.8	77 E	62*	—
12 31	1 6.89	+52 35.1	0.617	1.342	42.8	18.3	112 E	82	11*	5 14	10 26.65	+71 57.9	1.143	1.347	47.0	19.8	77 E	62*	—
1 2	0 59.58	+52 57.3	0.638	1.339	43.8	18.4	110 E	82	10*	5 15	10 31.98	+71 12.3	1.142	1.349	47.0	19.8	77 E	63*	—
1 4	0 53.02	+53 17.3	0.660	1.336	44.7	18.5	107 E	82	9*	5 16	10 37.01	+70 26.0	1.141	1.350	47.0	19.8	77 E	64*	—
1 6	0 47.16	+53 35.8	0.681	1.334	45.4	18.6	105 E	81	8*	5 17	10 41.76	+69 38.9	1.140	1.352	46.9	19.8	78 E	64*	—
1 8	0 41.96	+53 53.3	0.703	1.331	46.1	18.7	103 E	81	7*	5 18	10 46.26	+68 51.1	1.140	1.353	46.9	19.8	78 E	65*	—
1 10	0 37.37	+54 10.2	0.724	1.328	46.6	18.8	101 E	81	6*	5 19	10 50.53	+68 2.6	1.139	1.355	46.9	19.8	78 E	66*	—
1 12	0 33.33	+54 26.7	0.746	1.326	47.1	18.9	99 E	81*	4*	5 20	10 54.60	+67 13.5	1.138	1.357	46.9	19.8	78 E	67*	—
1 14	0 29.81	+54 43.3	0.767	1.323	47.5	18.9	97 E	80*	3*	5 21	10 58.48	+66 23.8	1.138	1.358	46.8	19.8	78 E	67*	—
1 16	0 26.75	+55 0.0	0.788	1.321	47.8	19.0	96 E	79*	2*	5 22	11 2.19	+65 33.5	1.137	1.360	46.8	19.8	78 E	68*	—
1 18	0 24.13	+55 17.2	0.809	1.319	48.1	19.0	94 E	77*	1*	5 23	11 5.73	+64 42.7	1.137	1.361	46.7	19.8	78 E	69*	—
1 20	0 21.90	+55 34.8	0.829	1.317	48.3	19.1	93 E	76*	—	5 24	11 9.14	+63 51.3	1.137	1.363	46.7	19.8	78 E	69*	—
1 22	0 20.02	+55 53.1	0.850	1.314	48.5	19.2	91 E	74*	—	5 25	11 12.40	+62 59.5	1.137	1.365	46.7	19.8	79 E	70*	1
1 24	0 18.48	+56 12.0	0.869	1.312	48.6	19.2	90 E	73*	—	5 26	11 15.54	+62 7.2	1.137	1.366	46.6	19.8	79 E	70*	2
1 26	0 17.25	+56 31.7	0.888	1.311	48.7	19.3	89 E	71*	—	5 28	11 21.49	+60 21.3	1.138	1.370	46.5	19.8	79 E	71*	4
1 31	0 15.36	+57 24.4	0.935	1.306	48.8	19.4	86 E	68*	—	5 30	11 27.05	+58 33.9	1.140	1.373	46.4	19.8	79 E	72*	5
2 5	0 14.98	+58 22.5	0.978	1.302	48.7	19.4	83 E	64*	—	6 1	11 32.28	+56 45.1	1.142	1.377	46.3	19.8	79 E	73*	7
2 10	0 15.92	+59 26.2	1.017	1.299	48.6	19.5	81 E	60*	—	6 3	11 37.21	+54 55.2	1.145	1.380	46.2	19.8	79 E	73*	9
2 15	0 18.05	+60 36.0	1.053	1.296	48.4	19.6	79 E	57*	—	6 5	11 41.90	+53 4.3	1.148	1.384	46.1	19.9	79 E	73*	11
2 20	0 21.30	+61 52.0	1.085	1.294	48.1	19.6	77 E	54*	—	6 10	11 52.74	+48 24.3	1.160	1.393	45.7	19.9	79 E	72*	16
2 25	0 25.62	+63 14.2	1.113	1.293	47.9	19.7	76 E	52*	—	6 15	12 2.61	+43 42.9	1.177	1.402	45.4	19.9	79 E	69*	20
3 2	0 31.09	+64 42.6	1.137	1.292	47.6	19.7	74 E	50*	—	6 20									

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

20/22	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	20/22	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°
<b>66272 1999 JW<sub>6</sub></b> (continuation)										<b>374907 2006 XE<sub>1</sub></b>									
12 12	18 4.73	-45 5.6	2.550	1.700	13.7	21.1	24 E	—	13*	12 27	1 25.48	+10 47.4	0.914	1.539	37.3	19.8	108 E	56	53*
12 22	18 38.73	-46 29.1	2.555	1.708	13.7	21.1	24 E	—	12*	1 6	1 36.37	+14 55.5	1.007	1.548	38.4	20.1	102 E	60	47*
1 1	19 14.69	-47 25.1	2.552	1.714	14.1	21.1	25 E	—	11*	1 16	1 50.28	+18 42.4	1.104	1.559	38.8	20.3	96 E	64	42*
1 11	19 52.19	-47 50.9	2.543	1.718	14.7	21.1	26 E	—	11*	1 26	2 6.81	+22 10.1	1.204	1.571	38.8	20.5	91 E	67	37*
1 21	20 30.63	-47 44.2	2.527	1.721	15.6	21.1	28 E	—	11*	2 5	2 25.63	+25 19.5	1.306	1.584	38.4	20.7	86 E	70*	32*
<b>114824 2003 OB<sub>17</sub></b>										<b>509025 2005 PR<sub>4</sub></b>									
12 27	1 24.14	+4 29.8	1.122	1.680	34.3	19.5	106 E	49	59*	12 27	1 25.89	+ 5 34.8	1.110	1.679	34.2	20.1	107 E	51	58*
1 6	1 40.72	+ 6 10.8	1.223	1.697	34.8	19.7	100 E	51	56*	1 6	1 41.04	+ 8 40.1	1.218	1.705	34.5	20.3	101 E	54	54*
1 16	1 58.75	+ 7 57.5	1.328	1.715	34.9	19.9	95 E	53	53*	1 16	1 57.81	+11 34.8	1.333	1.733	34.4	20.5	96 E	57	49*
1 26	2 17.98	+ 9 46.2	1.437	1.736	34.6	20.1	90 E	55	49*	1 26	2 15.95	+14 18.0	1.454	1.764	33.9	20.8	91 E	59	45*
2 5	2 38.18	+11 33.4	1.550	1.758	33.9	20.3	85 E	57*	46*	2 5	2 35.21	+16 48.8	1.579	1.797	33.2	21.0	86 E	62*	41*
2 15	2 59.19	+13 16.3	1.665	1.783	33.1	20.5	80 E	57*	43*	2 15	2 55.45	+19 6.4	1.708	1.831	32.2	21.1	81 E	63*	37*
2 25	3 20.89	+14 52.6	1.783	1.809	32.0	20.6	75 E	57*	40*	2 25	3 16.52	+21 10.4	1.839	1.867	31.0	21.3	76 E	62*	34*
3 7	3 43.12	+16 20.1	1.902	1.836	30.7	20.7	71 E	55*	38*	3 7	3 38.27	+23 0.1	1.972	1.903	29.6	21.5	71 E	59*	32*
3 17	4 5.79	+17 37.1	2.021	1.864	29.3	20.9	67 E	52*	36*	<b>159571 2001 VM<sub>4</sub></b>									
3 27	4 28.80	+18 42.6	2.141	1.894	27.8	21.0	62 E	48*	34*	12 27	1 27.73	+10 2.9	1.406	1.956	28.5	20.3	109 E	55	54*
4 6	4 52.01	+19 35.3	2.259	1.924	26.1	21.1	58 E	44*	33*	1 6	1 39.55	+10 54.5	1.539	1.983	29.1	20.5	101 E	56	52*
4 16	5 15.34	+20 14.9	2.376	1.955	24.4	21.2	54 E	39*	31*	1 16	1 52.95	+11 55.3	1.676	2.011	29.2	20.7	95 E	57	48*
4 26	5 38.66	+20 40.9	2.490	1.987	22.6	21.3	49 E	34*	30*	1 26	2 7.67	+13 2.2	1.816	2.039	28.9	20.9	88 E	58	45*
5 6	6 1.87	+20 53.4	2.600	2.019	20.7	21.3	45 E	29*	28*	2 5	2 23.46	+14 12.4	1.957	2.067	28.2	21.1	82 E	59*	42*
5 16	6 24.89	+20 52.7	2.707	2.051	18.8	21.4	41 E	24*	27*	2 15	2 40.14	+15 23.4	2.098	2.095	27.3	21.2	76 E	58*	38*
5 26	6 47.61	+20 39.1	2.808	2.083	16.8	21.4	37 E	19*	25*	2 25	2 57.59	+16 33.3	2.237	2.122	26.1	21.4	70 E	56*	35*
6 5	7 9.96	+20 13.4	2.904	2.115	14.8	21.5	32 E	14*	22*	3 7	3 15.66	+17 40.1	2.374	2.150	24.7	21.5	65 E	52*	33*
6 15	7 31.88	+19 36.5	2.993	2.148	12.8	21.5	28 E	9*	19*	<b>5066 Garradd</b>									
<b>278471 2007 TF<sub>242</sub></b>										12 27	1 28.66	-29 33.6	1.801	2.076	28.3	18.2	92 E	15	85*
12 27	1 24.55	+ 2 35.2	2.128	2.565	21.7	20.8	105 E	48	61*	1 1	1 31.38	-27 6.1	1.853	2.084	28.1	18.3	89 E	18	83*
1 6	1 31.84	+ 2 34.5	2.305	2.608	22.0	21.1	97 E	48	59*	1 6	1 34.65	-24 41.4	1.907	2.092	28.0	18.3	86 E	20	79*
1 16	1 40.52	+ 2 48.8	2.485	2.650	21.8	21.2	89 E	48	55*	1 11	1 38.41	-22 19.7	1.964	2.099	27.8	18.4	84 E	23	75*
1 26	1 50.37	+ 3 14.3	2.665	2.691	21.2	21.4	81 E	48*	50*	1 16	1 42.61	-20 1.5	2.021	2.106	27.5	18.5	81 E	25	70*
2 5	2 1.16	+ 3 47.9	2.842	2.732	20.3	21.6	74 E	48*	46*	1 26	1 52.16	-15 36.2	2.140	2.120	26.7	18.6	76 E	29	63*
<b>496001 2007 VR<sub>183</sub></b>										2 5	2 2.98	-11 26.3	2.261	2.134	25.7	18.7	70 E	33*	56*
12 27	1 25.07	+ 4 19.3	1.610	2.103	26.7	21.4	106 E	49	59*	2 15	2 14.85	- 7 31.9	2.382	2.146	24.5	18.8	64 E	34*	49*
1 6	1 28.84	+ 3 29.0	1.667	2.025	28.9	21.4	96 E	48	58*	2 25	2 27.62	- 3 52.5	2.501	2.158	23.1	18.9	59 E	34*	44*
1 16	1 35.67	+ 3 2.1	1.722	1.945	30.3	21.4	88 E	48	54*	3 7	2 41.16	- 0 27.8	2.617	2.169	21.4	18.9	53 E	32*	38*
1 26	1 45.31	+ 2 55.3	1.771	1.865	31.3	21.4	80 E	48*	50*	3 17	2 55.37	+ 2 43.3	2.727	2.180	19.6	19.0	47 E	29*	34*
2 5	1 57.51	+ 3 4.6	1.811	1.783	31.8	21.4	73 E	47*	46*	3 27	3 10.20	+ 5 41.2	2.829	2.189	17.7	19.0	42 E	25*	29*
2 15	2 12.11	+ 3 26.8	1.841	1.701	32.1	21.3	66 E	44*	42*	4 6	3 25.58	+ 8 26.6	2.923	2.198	15.6	19.0	36 E	21*	25*
2 25	2 29.01	+ 3 58.5	1.859	1.618	32.1	21.3	60 E	41*	39*	4 16	3 41.48	+11 0.4	3.007	2.205	13.5	19.0	31 E	16*	21*
3 7	2 48.15	+ 4 36.7	1.864	1.536	32.1	21.1	55 E	37*	37*	4 26	3 57.87	+13 22.8	3.079	2.212	11.2	19.0	25 E	12*	16*
3 17	3 9.57	+ 5 18.5	1.856	1.455	32.2	21.0	51 E	34*	35*	5 6	4 14.72	+15 34.6	3.140	2.218	8.9	18.9	20 E	7*	12*
3 27	3 33.36	+ 6 1.0	1.835	1.376	32.4	20.9	48 E	30*	34*	5 16	4 32.02	+17 36.2	3.187	2.223	6.6	18.9	15 E	2*	7*
4 6	3 59.62	+ 6 41.4	1.803	1.300	32.8	20.7	45 E	26*	33*	5 26	4 49.73	+19 28.0	3.222	2.228	4.2	18.8	9 E	—	3*
4 16	4 28.54	+ 7 16.8	1.762	1.229	33.6	20.6	43 E	22*	32*	6 5	5 7.84	+21 10.4	3.242	2.231	1.8	18.6	4 E	—	—
4 26	5 0.29	+ 7 44.1	1.713	1.165	34.8	20.4	41 E	19*	32*	6 15	5 26.34	+22 44.1	3.248	2.233	0.8	18.5	2 W	—	—
5 6	5 34.98	+ 8 0.3	1.660	1.110	36.3	20.3	41 E	16*	32*	6 25	5 45.19	+24 9.3	3.241	2.235	3.1	18.7	7 W	—	—
5 16	6 12.71	+ 8 2.8	1.606	1.067	38.2	20.2	41 E	13*	33*	7 5	6 4.37	+25 26.7	3.219	2.235	5.5	18.8	12 W	3*	3*
5 26	6 53.37	+ 7 48.9	1.555	1.039	40.1	20.1	41 E	11*	34*	7 15	6 23.88	+26 36.9	3.184	2.235	7.8	18.9	17 W	9*	6*
6 5	7 36.64	+ 7 16.9	1.514	1.027	41.8	20.1	42 E	9*	36*	7 25	6 43.67	+27 40.6	3.136	2.234	10.1	19.0	23 W	14*	9*
6 15	8 21.91	+ 6 26.3	1.487	1.032	43.0	20.1	44 E	9*	37*	8 4	7 3.73	+28 38.7	3.074	2.232	12.4	19.0	28 W	20*	10*
6 25	9 8.28	+ 5 17.8	1.478	1.054	43.5	20.1	46 E	9*	39*	8 14	7 24.05	+29 32.2	3.001	2.228	14.5	19.0	34 W	26*	12*
7 5	9 54.65	+ 3 54.4	1.490	1.091	43.0	20.2	47 E	9*	40*	8 24	7 44.58	+30 22.2	2.917	2.224	16.6	19.1	39 W	32*	13*
7 15	10 39.94	+ 2 20.1	1.526	1.142	41.8	20.3	48 E	10*	42*	9 3	8 5.33	+31 10.2	2.823	2.220	18.6	19.0	45 W	38*	14*
7 20	11 1.89	+ 1 30.5	1.552	1.171	40.9	20.4	49 E	11*	42*	9 13	8 26.27	+31 57.8	2.720	2.214	20.4	19.0	50 W	44*	15*
7 25	11 23.25	+ 0 40.2	1.584	1.202	39.9	20.5	49 E	11*	43*	9 23	8 47.39	+32 46.9	2.610	2.207	22.1	19.0	56 W	50*	15*
7 30	11 43.97	+ 0 10.4	1.621	1.236	38.8	20.6	50 E	12*	43*	10 3	9 8.70	+33 39.6	2.493	2.200	23.6	18.9	62 W	55*	16*
8 4	12 4.03	+ 1 0.6	1.663	1.271	37.6	20.6	50 E	13*	43*	10 13	9 30.18	+34 38.6	2.373	2.191	24.8	18.8	67 W	61*	16*
8 9	12 23.40	+ 1 49.9	1.709	1.307	36.3	20.7	50 E	13*	43*	10 23	9 51.83	+35 46.4	2.251	2.182	25.9	18.7	73 W	67*	16*
8 14	12 42.08	+ 2 38.1	1.758	1.345	35.0	20.8	50 E	14*	43*	11 2	10 13.65	+37 6.1	2.129	2.172	26.7	18.6	79 W	73*	16*
8 19	13 0.08	+ 3 24.8	1.812	1.383	33.7	20.9	49 E	15*	42*	11 12	10 35.61	+38 40.9	2.010	2.161	27.1	18.5	85 W	79*	16*
8 24	13 17.43	+ 4 9.6	1.869	1.423	32.3	21.0	49 E	15*	42*	11 22	10 57.66	+40 33.6	1.895	2.149	27.4	18.4	91 W	84*	16*
8 29	13 34.16	+ 4 52.4	1.928	1.463	31.0	21.1	48 E	16*	41*	12 2	11 19.76	+42 46.6	1.788	2.137	27.3	18.2	96 W	88	16*
9 3	13 50.31	+ 5 33.0	1.990	1.503	29.6	21.2	47 E	16*	40*	12 7	11 30.77	+44 1.3	1.737	2.130	27.2	18.2	99 W	89	15*
9 8	14 5.91	+ 6 11.3	2.053	1.544	28.3	21.3	47 E	16*	39*	12 12	11 41.73	+45 21.5	1.690	2.124	27.0	18.1	102 W	90	15*
9 13	14 21.00	+ 6 47.1	2.118	1.585	26.9	21.3	46 E	17*	38*	12 17	11 52.61	+46 47.2	1						

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

20/21	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	20/22	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°
<b>511075 2013 TD<sub>48</sub></b>										<b>357023 1999 YZ<sub>3</sub></b> (continuation)									
12 27	1 31.03	+16 41.5	1.428	2.011	27.0	21.1	112E	62	47*	5 11	5 59.67	+42 50.3	2.236	1.656	24.8	20.2	43E	37*	9*
1 6	1 43.05	+16 46.0	1.566	2.044	27.8	21.4	104E	62	46*	5 16	6 18.02	+42 56.3	2.254	1.655	24.3	20.2	42E	36*	9*
1 16	1 56.59	+17 4.7	1.709	2.077	28.0	21.6	97E	62	44*	5 21	6 36.60	+42 53.1	2.271	1.654	23.9	20.2	41E	35*	9*
1 26	2 11.36	+17 34.1	1.857	2.111	27.8	21.8	91E	63	41*	5 26	6 55.27	+42 40.7	2.289	1.655	23.4	20.2	40E	34*	10*
2 5	2 27.12	+18 10.6	2.006	2.145	27.2	22.0	84E	63*	39*	5 31	7 13.95	+42 18.9	2.307	1.656	22.9	20.2	40E	32*	10*
<b>468507 2005 NB<sub>6</sub></b>																			
12 27	1 31.78	+33 30.5	1.266	1.916	27.4	19.4	116E	79	30*	6 5	7 32.52	+41 47.9	2.326	1.659	22.4	20.2	39E	31*	10*
1 1	1 39.83	+32 30.6	1.323	1.933	27.9	19.6	113E	78	31*	6 10	7 50.89	+41 7.8	2.345	1.662	21.9	20.2	38E	30*	11*
1 6	1 48.21	+31 37.3	1.382	1.949	28.3	19.7	110E	77	32*	6 15	8 8.97	+40 19.1	2.365	1.667	21.4	20.2	37E	29*	11*
1 11	1 56.85	+30 50.2	1.444	1.966	28.6	19.8	107E	76	32*	6 20	8 26.69	+39 22.3	2.385	1.672	20.9	20.2	36E	28*	11*
1 16	2 5.74	+30 9.0	1.509	1.983	28.9	19.9	103E	75	32*	6 25	8 43.98	+38 17.8	2.406	1.678	20.3	20.2	35E	27*	12*
1 26	2 24.10	+29 2.1	1.644	2.017	29.0	20.2	97E	74	32*	6 30	9 0.81	+37 6.5	2.428	1.686	19.8	20.3	34E	25*	12*
2 5	2 43.03	+28 12.1	1.785	2.052	28.7	20.4	91E	73*	31*	7 5	9 17.15	+35 48.9	2.451	1.694	19.2	20.3	33E	24*	12*
2 15	3 2.38	+27 34.9	1.930	2.087	28.1	20.6	85E	71*	31*	7 10	9 32.99	+34 25.8	2.475	1.703	18.5	20.3	32E	23*	12*
2 25	3 22.04	+27 6.8	2.078	2.123	27.2	20.7	79E	68*	30*	7 15	9 48.32	+32 57.9	2.500	1.713	17.9	20.3	31E	22*	12*
3 7	3 41.88	+26 44.3	2.227	2.159	26.1	20.9	73E	63*	29*	7 20	10 3.15	+31 26.0	2.525	1.724	17.2	20.3	30E	21*	12*
3 17	4 1.83	+26 24.7	2.374	2.194	24.8	21.0	67E	58*	28*	7 25	10 17.48	+29 50.6	2.551	1.735	16.5	20.3	29E	20*	12*
3 27	4 21.84	+26 5.7	2.519	2.230	23.2	21.1	62E	52*	28*	7 30	10 31.35	+28 12.5	2.578	1.747	15.8	20.3	28E	19*	12*
4 6	4 41.81	+25 45.3	2.661	2.265	21.6	21.2	56E	46*	27*	8 4	10 44.77	+26 32.3	2.606	1.760	15.1	20.3	27E	18*	11*
4 16	5 1.71	+25 22.1	2.797	2.300	19.8	21.3	51E	40*	25*	8 9	10 57.78	+24 50.5	2.634	1.774	14.3	20.4	26E	17*	11*
4 26	5 21.47	+24 54.8	2.926	2.335	17.9	21.4	46E	34*	24*	8 14	11 10.39	+23 7.7	2.662	1.788	13.5	20.4	24E	16*	10*
5 6	5 41.02	+24 22.6	3.048	2.370	16.0	21.5	40E	28*	23*	8 24	11 34.55	+19 40.9	2.719	1.819	11.9	20.4	22E	14*	8*
<b>466419 2013 TL<sub>7</sub></b>																			
12 27	1 32.71	- 6 25.5	1.660	2.113	27.0	21.0	103E	39	70*	9 3	11 57.46	+16 15.0	2.775	1.851	10.3	20.4	19E	12*	5*
1 1	1 37.67	- 6 0.8	1.735	2.131	27.1	21.2	99E	39	69*	9 13	12 19.32	+12 52.6	2.830	1.886	8.7	20.4	16E	10*	2*
1 6	1 42.99	- 5 32.6	1.811	2.149	27.1	21.3	96E	39	67*	9 23	12 40.29	+ 9 35.7	2.881	1.922	7.2	20.4	14E	8*	—
1 11	1 48.64	- 5 1.5	1.887	2.166	27.0	21.4	93E	40	65*	10 3	13 0.53	+ 6 25.7	2.927	1.960	6.1	20.5	12E	6*	—
1 16	1 54.59	- 4 28.0	1.963	2.184	26.8	21.5	89E	41	63*	10 13	13 20.15	+ 3 23.6	2.968	1.999	5.6	20.5	11E	3*	—
<b>88609 2001 QP<sub>296</sub></b>																			
12 27	1 33.40	+11 41.5	1.565	2.120	25.8	19.8	110E	57	52*	10 23	13 39.22	+ 0 30.4	3.001	2.038	5.9	20.6	12W	4*	—
1 6	1 42.05	+12 38.4	1.710	2.151	26.5	20.0	103E	58	50*	11 2	13 57.84	+ 2 13.7	3.025	2.079	6.9	20.7	15W	8*	—
1 16	1 52.59	+12 42.6	1.860	2.181	26.7	20.2	95E	59	47*	11 12	14 16.02	- 4 48.4	3.039	2.120	8.3	20.8	18W	12*	—
1 26	2 4.69	+14 51.8	2.011	2.211	26.4	20.4	88E	60	43*	11 22	14 33.78	- 7 13.5	3.042	2.162	10.0	20.9	22W	16*	4*
2 5	2 18.07	+16 3.9	2.164	2.241	25.8	20.6	81E	61*	39*	12 2	14 51.12	- 9 29.3	3.034	2.204	11.8	21.0	27W	19*	10*
2 15	2 32.53	+17 16.9	2.314	2.270	24.9	20.8	75E	59*	36*	12 12	15 7.99	-11 36.0	3.014	2.246	13.6	21.1	33W	22*	16*
2 25	2 47.91	+18 29.3	2.462	2.298	23.7	20.9	69E	56*	33*	12 22	15 24.34	-13 34.1	2.981	2.289	15.4	21.2	38W	23*	23*
3 7	3 4.05	+19 39.6	2.605	2.326	22.3	21.0	63E	52*	30*	1 1	15 40.08	-15 24.3	2.936	2.331	17.0	21.3	44W	24*	30*
3 17	3 20.85	+20 46.4	2.743	2.353	20.8	21.1	57E	47*	27*	1 11	15 55.10	-17 7.3	2.878	2.373	18.6	21.3	50W	25*	38*
3 27	3 38.22	+21 48.7	2.874	2.379	19.1	21.1	51E	42*	24*	1 21	16 9.25	-18 44.2	2.810	2.415	19.9	21.4	57W	24*	46*
4 6	3 56.04	+22 45.4	2.996	2.404	17.3	21.2	46E	36*	22*	<b>331551 2000 WL<sub>54</sub></b>									
4 16	4 14.27	+23 35.8	3.109	2.428	15.4	21.2	40E	31*	19*	12 27	1 35.07	+34 57.7	2.157	2.750	18.5	20.9	117E	80	29*
4 26	4 32.80	+24 19.2	3.213	2.452	13.5	21.3	35E	25*	17*	1 1	1 36.65	+34 6.1	2.203	2.739	19.3	21.0	113E	79	30*
5 6	4 51.57	+24 55.0	3.306	2.474	11.5	21.3	29E	20*	14*	1 6	1 38.92	+33 18.9	2.252	2.727	20.0	21.0	108E	78	30*
5 16	5 10.50	+25 23.0	3.387	2.496	9.4	21.3	24E	14*	11*	1 11	1 41.84	+32 36.2	2.303	2.715	20.6	21.1	104E	78	30*
5 26	5 29.52	+25 42.7	3.456	2.517	7.4	21.2	19E	9*	7*	1 16	1 45.37	+31 58.1	2.356	2.703	21.0	21.2	100E	77	29*
6 5	5 48.54	+25 54.1	3.513	2.537	5.3	21.2	13E	5*	4*	1 21	1 49.46	+31 24.5	2.410	2.691	21.3	21.2	96E	76	28*
6 15	6 7.51	+25 57.3	3.557	2.556	3.3	21.1	8E	1*	—	1 26	1 54.07	+30 55.4	2.464	2.678	21.6	21.2	92E	76	28*
6 25	6 26.33	+25 52.3	3.587	2.573	1.4	21.0	4E	—	—	1 31	1 59.14	+30 30.4	2.518	2.665	21.7	21.3	88E	75*	27*
7 5	6 44.96	+25 39.6	3.604	2.590	1.5	21.0	4W	—	—	2 5	2 4.65	+30 9.3	2.573	2.652	21.7	21.3	84E	73*	26*
7 15	7 3.31	+25 19.5	3.607	2.606	3.3	21.2	9W	2*	—	2 10	2 10.57	+29 51.7	2.626	2.638	21.6	21.4	80E	71*	25*
7 25	7 21.32	+24 52.6	3.596	2.621	5.3	21.3	14W	6*	3*	2 15	2 16.86	+29 37.4	2.679	2.625	21.4	21.4	76E	68*	24*
8 4	7 38.93	+24 19.5	3.571	2.635	7.3	21.4	19W	11*	6*	2 20	2 23.51	+29 26.0	2.731	2.611	21.2	21.4	73E	65*	23*
8 14	7 56.10	+23 40.9	3.533	2.648	9.3	21.5	25W	17*	10*	2 25	2 30.47	+29 17.2	2.782	2.597	20.8	21.4	69E	62*	22*
<b>378124 2006 VT<sub>2</sub></b>																			
12 27	1 33.47	+ 3 23.6	1.354	1.896	29.7	21.4	107E	48	61*	3 2	3 37.74	+29 10.7	2.830	2.583	20.4	21.4	66E	59*	21*
1 6	1 28.70	+ 5 4.5	1.444	1.840	32.0	21.6	97E	50	56*	3 7	2 45.28	+29 6.0	2.877	2.568	20.0	21.4	62E	55*	20*
1 16	1 28.04	+ 6 55.3	1.531	1.779	33.5	21.7	87E	52	50*	3 12	2 53.10	+29 2.9	2.922	2.553	19.5	21.4	59E	52*	19*
1 26	1 30.85	+ 8 54.4	1.612	1.711	34.3	21.7	78E	54*	43*	3 17	3 1.16	+29 1.1	2.964	2.538	18.9	21.4	56E	49*	18*
2 5	1 36.54	+11 0.7	1.680	1.636	34.6	21.7	70E	53*	37*	3 22	3 9.46	+29 0.3	3.004	2.523	18.2	21.4	52E	46*	17*
<b>357023 1999 YZ<sub>3</sub></b>																			
12 27	1 33.63	+14 19.2	1.416	1.998	27.3	19.7	111E	59	50*	3 27	3 17.99	+29 0.2	3.042	2					

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

20/22	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	20/22	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°
<b>331551 2000 WL<sub>54</sub></b> (continuation)										<b>9058 1992 JB</b> (continuation)									
7 30	7 33.34	+21 46.1	3.028	2.066	7.4	20.6	15 W	6*	6*	8 4	14 3.99	- 0 2.6	1.165	1.371	46.3	20.6	78 E	32*	62*
8 4	7 44.18	+20 53.5	2.993	2.047	8.5	20.6	17 W	8*	7*	8 14	14 35.61	- 1 56.0	1.268	1.424	43.7	20.8	76 E	32*	62*
8 9	7 55.01	+19 57.3	2.955	2.028	9.6	20.6	19 W	10*	9*	8 24	15 5.30	- 3 41.9	1.377	1.476	41.3	21.0	75 E	31*	62*
8 14	8 5.80	+18 57.6	2.915	2.009	10.7	20.6	22 W	12*	10*	9 3	15 33.47	- 5 18.1	1.491	1.527	39.0	21.1	72 E	31*	61*
8 19	8 16.58	+17 54.2	2.874	1.990	11.8	20.6	24 W	14*	12*	9 13	16 0.49	- 6 43.5	1.609	1.577	36.8	21.3	70 E	30*	59*
8 24	8 27.32	+16 47.1	2.831	1.971	12.9	20.6	26 W	16*	13*	9 23	16 26.61	- 7 56.7	1.729	1.625	34.6	21.5	67 E	30*	56*
8 29	8 38.05	+15 36.3	2.787	1.952	14.0	20.6	28 W	18*	15*	<b>103173 1999 XS<sub>233</sub></b>									
9 3	8 48.75	+14 21.8	2.741	1.933	15.1	20.6	30 W	19*	16*	12 27	1 38.87	+ 3 35.3	1.460	2.004	27.7	19.6	109 E	49	60*
9 8	8 59.43	+13 3.6	2.694	1.914	16.2	20.5	32 W	21*	18*	1 6	1 49.29	+ 5 6.6	1.598	2.037	28.2	19.8	102 E	50	58*
9 13	9 10.09	+11 41.6	2.645	1.896	17.3	20.5	34 W	23*	19*	1 16	2 1.33	+ 6 41.9	1.742	2.070	28.3	20.0	95 E	52	54*
9 18	9 20.72	+10 15.9	2.596	1.878	18.3	20.5	36 W	25*	21*	1 26	2 14.71	+ 8 19.0	1.888	2.104	27.9	20.2	88 E	53	50*
9 23	9 31.35	+ 8 46.5	2.546	1.860	19.4	20.5	38 W	26*	23*	2 5	2 29.19	+ 9 55.4	2.036	2.137	27.2	20.4	82 E	55	46*
10 3	9 52.60	+ 5 36.5	2.444	1.824	21.4	20.4	42 W	29*	26*	2 15	2 44.59	+11 29.5	2.185	2.170	26.2	20.6	76 E	55	42*
10 13	10 13.89	+ 2 11.8	2.340	1.790	23.5	20.3	46 W	31*	29*	2 25	3 0.77	+12 59.9	2.332	2.204	25.0	20.7	70 E	53	39*
10 23	10 35.29	- 1 26.9	2.237	1.757	25.4	20.2	49 W	32*	33*	3 7	3 17.59	+14 25.1	2.476	2.237	23.6	20.8	65 E	50	36*
11 2	10 56.91	- 5 19.0	2.134	1.725	27.3	20.2	53 W	33*	37*	3 17	3 34.97	+15 44.1	2.616	2.269	22.1	20.9	59 E	46	33*
11 12	11 18.86	- 9 23.1	2.034	1.695	29.0	20.1	56 W	32*	41*	3 27	3 52.80	+16 56.1	2.751	2.302	20.4	21.0	53 E	41	30*
11 22	11 41.27	-13 37.4	1.937	1.668	30.7	20.0	59 W	30*	46*	4 6	4 10.99	+18 0.2	2.880	2.334	18.6	21.1	48 E	36	27*
12 2	12 4.31	-17 59.4	1.844	1.643	32.2	19.9	63 W	26*	51*	4 16	4 29.48	+18 55.9	3.002	2.365	16.7	21.1	43 E	30	25*
12 7	12 16.12	-20 12.4	1.800	1.632	32.9	19.8	64 W	25*	53*	4 26	4 48.18	+19 42.8	3.115	2.396	14.8	21.2	37 E	25	22*
12 12	12 28.15	-22 26.0	1.757	1.621	33.6	19.8	66 W	23*	56*	5 6	5 7.02	+20 20.5	3.219	2.426	12.8	21.2	32 E	19	19*
12 17	12 40.42	-24 39.7	1.715	1.611	34.2	19.7	67 W	20	58*	5 16	5 25.93	+20 48.9	3.313	2.456	10.8	21.2	27 E	14	16*
12 22	12 52.97	-26 52.9	1.675	1.601	34.9	19.7	68 W	18	61*	5 26	5 44.82	+21 8.0	3.396	2.485	8.7	21.2	22 E	8	13*
12 27	13 5.81	-29 5.0	1.636	1.593	35.4	19.6	70 W	16	63*	6 5	6 3.63	+21 17.9	3.469	2.514	6.7	21.2	17 E	4	9*
1 1	13 18.96	-31 15.4	1.598	1.585	36.0	19.6	71 W	14	65*	6 15	6 22.30	+21 18.8	3.529	2.541	4.6	21.2	12 E	—	5*
1 6	13 32.44	-33 23.3	1.562	1.579	36.5	19.5	73 W	12	67*	6 25	6 40.75	+21 11.0	3.576	2.568	2.5	21.1	6 E	—	—
1 11	13 46.26	-35 27.9	1.527	1.573	37.0	19.5	74 W	10	68*	7 5	6 58.92	+20 55.1	3.610	2.595	0.8	21.0	2 E	—	—
1 16	14 0.44	-37 28.5	1.494	1.568	37.4	19.5	75 W	8	69*	7 15	7 16.76	+20 31.6	3.631	2.620	1.9	21.1	5 W	—	—
1 21	14 14.97	-39 24.4	1.461	1.564	37.8	19.4	77 W	6	70*	7 25	7 34.20	+20 1.1	3.639	2.645	3.8	21.3	10 W	1*	3*
<b>380929 2006 HU<sub>30</sub></b>										<b>30105 2000 FO<sub>3</sub></b>									
12 27	1 35.55	+36 5.2	0.719	1.462	36.6	21.2	118 E	81	28*	12 27	1 39.13	+ 8 35.9	1.459	2.027	27.0	17.9	111 E	54	55*
1 1	1 42.41	+36 46.3	0.785	1.491	36.9	21.4	115 E	82	27*	1 6	1 48.18	+10 9.3	1.606	2.065	27.6	18.1	103 E	55	53*
1 6	1 49.92	+37 23.2	0.853	1.520	37.0	21.7	112 E	82	26*	1 16	1 59.06	+11 44.3	1.758	2.102	27.7	18.4	96 E	57	49*
1 11	1 58.01	+37 57.0	0.922	1.548	37.0	21.9	109 E	83	25*	1 26	2 11.45	+13 19.3	1.913	2.139	27.4	18.6	89 E	58	45*
1 16	2 6.63	+38 28.4	0.992	1.576	36.9	22.1	106 E	83	24*	2 5	2 25.08	+14 53.0	2.069	2.176	26.7	18.8	83 E	60	41*
<b>120414 4880 P-L</b>										<b>9058 1992 JB</b>									
12 27	1 36.36	+20 7.0	1.935	2.501	21.1	21.0	114 E	65	44*	12 27	1 38.03	- 2 11.5	0.849	1.467	40.1	19.9	106 E	43	66*
1 6	1 41.74	+20 23.8	2.093	2.535	22.0	21.2	105 E	65	42*	1 1	1 41.49	- 2 32.2	0.871	1.441	41.9	19.9	102 E	42	66*
1 16	1 49.23	+20 50.9	2.257	2.568	22.3	21.4	97 E	66	40*	1 6	1 45.98	- 2 43.9	0.893	1.415	43.5	20.0	98 E	42	65*
1 26	1 58.49	+21 26.8	2.422	2.600	22.2	21.6	89 E	66	37*	1 11	1 51.42	- 2 47.5	0.913	1.388	45.0	20.0	94 E	42	64*
2 5	2 9.21	+22 9.3	2.588	2.632	21.8	21.7	82 E	66	33*	1 16	1 57.77	- 2 43.9	0.932	1.362	46.3	20.1	91 E	42	62*
<b>9058 1992 JB</b>										<b>30105 2000 FO<sub>3</sub></b>									
12 27	1 38.03	- 2 11.5	0.849	1.467	40.1	19.9	106 E	43	66*	12 27	1 39.13	+ 8 35.9	1.459	2.027	27.0	17.9	111 E	54	55*
1 1	1 41.49	- 2 32.2	0.871	1.441	41.9	19.9	102 E	42	66*	1 6	1 48.18	+10 9.3	1.606	2.065	27.6	18.1	103 E	55	53*
1 6	1 45.98	- 2 43.9	0.893	1.415	43.5	20.0	98 E	42	65*	1 16	1 59.06	+11 44.3	1.758	2.102	27.7	18.4	96 E	57	49*
1 11	1 51.42	- 2 47.5	0.913	1.388	45.0	20.0	94 E	42	64*	1 26	2 11.45	+13 19.3	1.913	2.139	27.4	18.6	89 E	58	45*
1 16	1 57.77	- 2 43.9	0.932	1.362	46.3	20.1	91 E	42	62*	2 5	2 25.08	+14 53.0	2.069	2.176	26.7	18.8	83 E	60	41*
1 21	2 4.95	- 2 34.1	0.948	1.335	47.4	20.1	87 E	42	60*	2 15	2 39.75	+16 24.1	2.225	2.212	25.7	18.9	76 E	59	38*
1 26	2 12.93	- 2 18.9	0.963	1.309	48.5	20.1	84 E	43	58*	2 25	2 55.30	+17 51.5	2.378	2.247	24.5	19.1	70 E	56	34*
1 31	2 21.64	- 1 59.1	0.975	1.282	49.5	20.1	82 E	43	57*	3 7	3 11.57	+19 14.1	2.528	2.282	23.1	19.2	64 E	53	31*
2 5	2 31.07	- 1 35.3	0.985	1.256	50.4	20.1	79 E	43	55*	3 17	3 28.47	+20 31.2	2.673	2.315	21.5	19.3	59 E	48	28*
2 15	2 51.98	- 0 37.8	0.997	1.205	52.3	20.1	75 E	43	52*	3 27	3 45.91	+21 42.0	2.812	2.348	19.8	19.4	53 E	43	26*
2 25	3 15.54	- 0 29.6	0.999	1.157	54.1	20.1	71 E	43	50*	4 6	4 3.78	+22 45.8	2.943	2.380	18.0	19.5	47 E	38	23*
3 7	3 41.72	+ 1 43.4	0.989	1.112	56.0	20.0	68 E	41	49*	4 16	4 22.01	+23 42.1	3.066	2.412	16.1	19.5	42 E	32	20*
3 17	4 10.60	+ 3 1.3	0.971	1.073	58.0	20.0	66 E	40	48*	4 26	4 40.53	+24 30.4	3.179	2.442	14.1	19.6	36 E	27	18*
3 27	4 42.33	+ 4 20.8	0.943	1.040	60.2	19.9	65 E	39	48*	5 6	4 59.25	+25 10.4	3.281	2.471	12.1	19.6	31 E	21	15*
4 6	5 17.08	+ 5 39.7	0.910	1.016	62.3	19.8	64 E	37	48*	5 16	5 18.10	+25 42.0	3.373	2.499	10.1	19.6	26 E	16	12*
4 16	5 55.12	+ 6 55.9	0.874	1.001	64.3	19.8	64 E	36	48*	5 26	5 37.01	+26 5.1	3.452	2.527	8.0	19.6	20 E	11	9*
4 26	6 36.63	+ 8 5.8	0.838	0.997	65.8	19.7	65 E	35	48*	6 5	5 55.89	+26 19.7	3.519	2.553	5.9	19.5	15 E	6	5*
5 1	6 58.69	+ 8 36.8	0.822	0.998	66.4	19.7	65 E	35	49*	6 15	6 14.69	+26 26.0	3.573	2.578	3.9	19.5	10 E	2	1*
5 6	7 21.60	+ 9 4.3	0.808	1.003	66.7	19.7	66 E	34	50*	6 25	6 33.33	+26 24.4	3.613	2.602	2.0	19.4	5 E	—	—
5 11	7 45.30	+ 9 27.2	0.796	1.010	66.8	19.7	67 E	34	50*	7 5	6 51.73	+26 15.3	3.639	2.625	1.4	19.4	4 W	—	—
5 16	8 9.71	+ 9 44.4	0.787	1.019	66.7	19.7	68 E	34	50*	7 15	7 9.85	+25 59.1	3.651	2.647	2.9	19.5	8 W	1*	—
5 21	8 34.68	+ 9 55.0	0.781	1.031	66.2	19.7	69 E	34	51*	7 25	7 27.61	+25 36.6	3.649	2.668	4.8	19.7	13 W	6*	1*
5 26	9 0.02																		

EPHEMERIDES OF NEAS AND SOME UNUSUAL MINOR PLANETS

20/22	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°	20/22	$\alpha_{2000}$	$\delta_{2000}$	$\Delta$	$r$	$\beta$	$V$	$\psi$	45°	-26°
<b>259753 2004 AY</b>										<b>15700 1987 QD</b>									
<i>(continuation)</i>										<i>(continuation)</i>									
2 25	2 50.84	+34 55.3	1.685	1.723	33.8	20.0	75 E	69*	20*	8 24	7 23.95	+0 47.6	3.499	2.841	14.0	20.5	43 W	16*	35*
3 7	3 13.78	+36 40.5	1.751	1.703	33.4	20.1	71 E	65*	18*	9 3	7 37.04	+0 10.4	3.425	2.853	15.3	20.5	48 W	21*	39*
3 17	3 39.46	+38 16.9	1.813	1.686	32.8	20.1	67 E	61*	16*	9 13	7 49.36	+1 15.1	3.339	2.863	16.5	20.5	54 W	27*	43*
3 27	4 7.72	+39 39.8	1.871	1.672	32.1	20.1	63 E	57*	15*	9 23	8 0.79	+2 25.5	3.244	2.872	17.6	20.5	60 W	31*	47*
4 6	4 38.34	+40 44.0	1.926	1.660	31.3	20.2	60 E	53*	14*	10 3	8 11.20	+3 40.7	3.139	2.880	18.5	20.4	66 W	35*	52*
4 11	4 54.43	+41 7.6	1.952	1.655	30.9	20.2	58 E	52*	14*	10 13	8 20.44	+4 59.7	3.026	2.887	19.2	20.4	72 W	38*	56*
4 16	5 10.98	+41 24.8	1.978	1.651	30.4	20.2	56 E	50*	14*	10 23	8 28.31	+6 20.9	2.906	2.893	19.8	20.3	79 W	38*	61*
4 21	5 27.91	+41 35.1	2.003	1.648	30.0	20.2	55 E	49*	14*	11 2	8 34.62	+7 42.5	2.782	2.897	20.0	20.2	87 W	37	66*
4 26	5 45.15	+41 38.0	2.028	1.645	29.5	20.2	54 E	47*	14*	11 12	8 39.14	+9 2.4	2.656	2.901	19.9	20.1	94 W	36	71*
5 1	6 2.60	+41 33.2	2.053	1.643	29.0	20.2	52 E	46*	14*	11 22	8 41.62	+10 17.5	2.532	2.903	19.4	20.0	102 W	35	74*
5 6	6 20.20	+41 20.4	2.078	1.642	28.5	20.2	51 E	44*	15*	12 2	8 41.85	+11 24.3	2.411	2.905	18.6	19.9	110 W	34	75
5 11	6 37.85	+40 59.6	2.103	1.642	28.0	20.2	50 E	42*	15*	12 12	8 39.65	+12 18.1	2.298	2.905	17.3	19.7	119 W	33	76
5 16	6 55.46	+40 30.8	2.128	1.643	27.4	20.2	48 E	41*	15*	12 22	8 34.99	+12 53.8	2.198	2.904	15.6	19.6	128 W	32	77
5 21	7 12.95	+39 54.0	2.153	1.644	26.9	20.3	47 E	39*	16*	1 1	8 28.04	+13 6.0	2.114	2.902	13.6	19.4	136 W	32	77
5 26	7 30.25	+39 9.4	2.178	1.646	26.3	20.3	46 E	37*	16*	1 11	8 19.24	+12 50.2	2.052	2.899	11.8	19.3	143 W	32	77
5 31	7 47.28	+38 17.4	2.204	1.649	25.7	20.3	45 E	36*	17*	1 21	8 9.35	+12 4.0	2.014	2.895	10.4	19.2	148 E	33	76
6 5	8 4.00	+37 18.4	2.230	1.652	25.1	20.3	44 E	34*	18*	<b>19402 1998 EG<sub>14</sub></b>									
6 10	8 20.37	+36 12.8	2.256	1.656	24.5	20.3	42 E	32*	18*	12 27	1 40.28	+5 24.8	1.046	1.660	33.9	17.5	110 E	50	59*
6 15	8 36.35	+35 1.1	2.283	1.661	23.8	20.3	41 E	30*	18*	1 6	1 53.03	+7 13.0	1.120	1.651	35.4	17.7	103 E	52	56*
6 20	8 51.92	+33 43.9	2.311	1.667	23.1	20.3	40 E	28*	19*	1 16	2 8.48	+9 10.7	1.198	1.644	36.4	17.9	97 E	54	52*
6 25	9 7.07	+32 21.8	2.339	1.673	22.4	20.3	39 E	27*	19*	1 26	2 26.29	+11 13.3	1.278	1.639	36.9	18.0	92 E	56	49*
6 30	9 21.79	+30 55.3	2.367	1.681	21.7	20.4	38 E	25*	19*	2 5	2 46.08	+13 16.3	1.360	1.638	36.9	18.1	87 E	58	45*
7 5	9 36.11	+29 25.0	2.396	1.688	20.9	20.4	36 E	23*	19*	2 15	3 7.62	+15 16.0	1.444	1.640	36.7	18.3	83 E	60*	42*
7 10	9 50.02	+27 51.4	2.426	1.697	20.1	20.4	35 E	22*	19*	2 25	3 30.68	+17 8.6	1.530	1.645	36.1	18.4	78 E	60*	40*
7 15	10 3.54	+26 15.1	2.455	1.706	19.3	20.4	34 E	20*	19*	3 7	3 55.02	+18 50.7	1.618	1.652	35.3	18.5	74 E	58*	38*
7 20	10 16.69	+24 36.5	2.485	1.715	18.5	20.4	32 E	19*	19*	3 17	4 20.45	+20 19.6	1.707	1.663	34.3	18.6	70 E	56*	36*
7 25	10 29.49	+22 56.2	2.515	1.725	17.6	20.4	31 E	17*	18*	3 27	4 46.75	+21 33.0	1.797	1.676	33.2	18.7	67 E	53*	35*
8 4	10 54.12	+19 31.9	2.576	1.747	15.9	20.4	28 E	15*	17*	4 6	5 13.68	+22 28.8	1.888	1.692	31.9	18.8	63 E	49*	33*
8 14	11 17.63	+16 5.2	2.637	1.771	14.0	20.4	25 E	12*	15*	4 16	5 41.02	+23 5.9	1.980	1.710	30.4	18.9	60 E	46*	33*
8 24	11 40.18	+12 38.8	2.696	1.797	12.1	20.5	22 E	10*	13*	4 26	6 8.53	+23 23.8	2.073	1.730	28.9	18.9	56 E	41*	32*
9 3	12 1.95	+9 14.6	2.753	1.824	10.1	20.5	18 E	8*	10*	5 6	6 35.97	+23 22.4	2.166	1.752	27.3	19.0	53 E	37*	31*
9 13	12 23.10	+5 54.4	2.806	1.852	8.0	20.4	15 E	6*	6*	5 16	7 3.16	+23 2.4	2.259	1.776	25.6	19.1	49 E	32*	31*
9 23	12 43.73	+0 29.5	2.856	1.882	6.0	20.4	11 E	4*	3*	5 26	7 29.91	+22 24.9	2.351	1.802	23.9	19.2	46 E	27*	30*
10 3	13 3.97	+0 2.9	2.899	1.913	4.1	20.4	8 E	1*	—	6 5	7 56.07	+21 31.2	2.442	1.829	22.0	19.2	43 E	23*	29*
10 13	13 23.93	+3 30.6	2.936	1.944	2.6	20.4	5 E	—	—	6 15	8 21.58	+20 23.1	2.532	1.857	20.2	19.3	39 E	18*	28*
10 23	13 43.65	+6 24.3	2.965	1.976	2.6	20.4	5 W	—	—	6 25	8 46.34	+19 2.3	2.619	1.886	18.2	19.3	36 E	14*	26*
11 2	14 3.20	+9 9.7	2.986	2.009	4.1	20.6	8 W	2*	—	7 5	9 10.35	+17 30.8	2.703	1.916	16.3	19.3	32 E	11*	23*
11 12	14 22.63	+11 46.7	2.997	2.042	6.0	20.7	12 W	6*	1*	7 15	9 33.61	+15 50.4	2.783	1.947	14.3	19.4	28 E	8*	21*
11 22	14 41.93	+14 14.8	2.998	2.075	8.1	20.8	17 W	9*	6*	7 25	9 56.15	+14 2.8	2.859	1.978	12.2	19.4	24 E	6*	17*
12 2	15 1.12	+16 34.2	2.988	2.108	10.1	20.9	22 W	12*	11*	8 4	10 18.00	+12 9.7	2.929	2.010	10.2	19.4	20 E	3*	14*
12 12	15 20.15	+18 44.8	2.968	2.141	12.2	21.0	27 W	14*	16*	8 14	10 39.22	+10 12.6	2.993	2.042	8.1	19.4	16 E	2*	10*
12 22	15 38.99	+20 46.9	2.936	2.174	14.2	21.1	33 W	15*	22*	8 24	10 59.86	+8 13.0	3.050	2.074	6.0	19.4	12 E	—	6*
1 1	15 57.57	+22 41.0	2.893	2.207	16.0	21.2	38 W	16*	29*	9 3	11 19.99	+6 12.2	3.100	2.106	3.9	19.3	8 E	—	2*
1 11	16 15.79	+24 27.8	2.839	2.240	17.8	21.2	44 W	16*	36*	9 13	11 39.65	+4 11.3	3.141	2.138	1.9	19.3	4 E	—	—
1 21	16 33.53	+26 8.1	2.774	2.272	19.4	21.3	50 W	16*	43*	9 23	11 58.89	+2 11.6	3.172	2.170	1.0	19.2	2 W	—	—
12 27	1 39.57	+6 44.1	1.623	2.167	25.2	21.5	110 E	52	57*	10 3	12 17.75	+0 14.0	3.194	2.202	2.7	19.4	6 W	—	—
1 6	1 40.05	+9 0.3	1.702	2.120	27.1	21.6	101 E	54	53*	10 13	12 36.26	+1 40.4	3.205	2.233	4.8	19.6	11 W	5*	—
1 16	1 43.78	+11 22.9	1.784	2.073	28.3	21.7	92 E	56	48*	10 23	12 54.44	+3 30.7	3.205	2.264	6.9	19.7	16 W	9*	3*
1 26	1 50.46	+13 50.8	1.865	2.026	28.9	21.8	85 E	59*	42*	11 2	13 12.30	+5 16.1	3.193	2.294	8.9	19.8	21 W	14*	6*
2 5	1 59.81	+16 22.4	1.943	1.979	29.1	21.8	77 E	60*	36*	11 12	13 29.83	+6 55.8	3.170	2.324	10.9	19.9	26 W	18*	11*
12 27	1 39.86	+16 47.1	1.866	2.255	25.4	19.0	100 E	28	81*	11 22	13 46.98	+8 29.0	3.134	2.353	12.8	20.0	32 W	22*	15*
1 1	1 43.53	+16 1.6	1.941	2.272	25.5	19.1	96 E	29	79*	12 2	14 3.72	+9 55.1	3.087	2.382	14.6	20.1	38 W	25*	21*
1 6	1 47.64	+15 14.0	2.016	2.290	25.4	19.2	93 E	30	76*	12 12	14 19.98	+11 13.5	3.027	2.410	16.3	20.1	43 W	27*	27*
1 11	1 52.14	+14 24.8	2.091	2.307	25.2	19.3	90 E	31	73*	12 22	14 35.66	+12 23.6	2.956	2.437	17.9	20.1	50 W	29*	33*
1 16	1 57.01	+13 34.3	2.167	2.325	25.0	19.4	87 E	31	70*	1 1	14 50.64	+13 25.2	2.874	2.464	19.3	20.1	56 W	30*	41*
1 26	2 7.72	+11 51.3	2.316	2.358	24.3	19.5	80 E	33	64*	1 11	15 4.78	+14 17.8	2.783	2.489	20.5	20.1	63 W	30*	48*
2 5	2 19.53	+10 7.6	2.464	2.391	23.4	19.7	74 E	35	58*	1 21	15 17.88	+15 1.3	2.682	2.514	21.5	20.1</			