

EPHEMERIDES

1 7.9

1 8.0

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
450314	2004 <i>RE</i> ₂₅₀		1 7.9 87°33' 0.8/ 8.2 17				372443	2009 <i>SV</i> ₇₃		1 7.9 27°49' 1.7/ 8.5 18			
12 3	7 45.65	+19 45.7	1.550	2.356	17.1	21.8	12 3	7 38.70	+16 22.6	1.845	2.646	14.9	21.4
12 13	7 39.71	+19 50.1	1.491	2.378	13.0	21.6	12 13	7 34.27	+16 33.3	1.766	2.649	11.5	21.2
12 23	7 30.85	+20 1.3	1.454	2.399	8.4	21.4	12 23	7 27.39	+16 53.4	1.709	2.651	7.6	20.9
1 2	7 19.99	+20 16.3	1.443	2.420	3.3	21.1	1 2	7 18.74	+17 21.3	1.679	2.654	3.5	20.7
1 12	7 8.52	+20 32.0	1.460	2.440	2.1	21.1	1 12	7 9.36	+17 54.2	1.677	2.657	2.3	20.6
1 22	6 57.90	+20 46.0	1.505	2.461	7.0	21.5	1 22	7 0.40	+18 29.0	1.704	2.660	6.3	20.9
2 1	6 49.38	+20 57.3	1.577	2.480	11.4	21.8	2 1	6 52.97	+19 3.2	1.758	2.663	10.3	21.1
2 11	6 43.80	+21 5.7	1.672	2.500	15.1	22.0	2 11	6 47.90	+19 34.9	1.836	2.667	13.8	21.3
285764	2000 <i>UJ</i> ₃₂		1 7.9 77°34' 2.3/ 7.2 18				26854	1992 <i>WB</i>		1 7.9 86°98' 5.5/ 6.5 18			
12 3	7 41.65	+26 38.2	1.897	2.706	14.3	20.9	12 3	7 45.45	+35 11.0	1.861	2.664	14.8	17.3
12 13	7 36.56	+27 18.8	1.826	2.715	10.9	20.7	12 13	7 39.73	+36 6.3	1.795	2.674	11.6	17.1
12 23	7 28.86	+28 1.1	1.778	2.724	7.1	20.4	12 23	7 31.00	+36 56.3	1.753	2.685	8.3	16.9
1 2	7 19.28	+28 40.1	1.757	2.732	3.3	20.2	1 2	7 20.13	+37 33.8	1.738	2.696	5.8	16.8
1 12	7 8.97	+29 11.3	1.765	2.741	3.2	20.2	1 12	7 8.46	+37 53.2	1.750	2.706	6.0	16.8
1 22	6 59.20	+29 32.0	1.802	2.750	6.8	20.5	1 22	6 57.51	+37 52.9	1.790	2.717	8.6	17.0
2 1	6 51.13	+29 41.6	1.866	2.759	10.5	20.7	2 1	6 48.60	+37 34.5	1.856	2.728	11.7	17.2
2 11	6 45.62	+29 41.8	1.954	2.768	13.8	21.0	2 11	6 42.65	+37 2.7	1.945	2.738	14.6	17.5
99887	2002 <i>PC</i> ₁₅₉		1 7.9 24°59' 1.0/ 7.7 18				220579	2004 <i>JX</i> ₅		1 7.9 184°92' 9.6/ 12.8 18			
12 3	7 38.97	+23 35.2	1.914	2.724	14.1	19.7	12 3	7 38.70	-11 29.9	2.629	3.281	14.5	21.5
12 13	7 34.47	+24 0.3	1.838	2.728	10.8	19.5	12 13	7 33.53	-12 5.7	2.544	3.282	12.9	21.4
12 23	7 27.50	+24 29.0	1.785	2.732	6.9	19.3	12 23	7 26.59	-12 20.8	2.477	3.281	11.4	21.3
1 2	7 18.76	+24 57.9	1.759	2.736	2.7	19.0	1 2	7 18.38	-12 11.9	2.434	3.280	10.2	21.2
1 12	7 9.31	+25 23.4	1.761	2.741	2.2	19.0	1 12	7 9.63	-11 37.4	2.415	3.278	9.6	21.1
1 22	7 0.33	+25 42.9	1.793	2.746	6.3	19.2	1 22	7 1.13	-10 38.8	2.424	3.276	10.0	21.1
2 1	6 52.93	+25 55.3	1.851	2.751	10.2	19.5	2 1	6 53.65	-9 19.5	2.458	3.273	11.2	21.2
2 11	6 47.91	+26 1.2	1.933	2.757	13.5	19.7	2 11	6 47.82	-7 45.5	2.516	3.269	12.8	21.3
114106	2002 <i>VW</i> ₄₃		1 7.9 279°41' 0.7/ 7.8 18				349979	2010 <i>EO</i> ₁₀₈		1 7.9 336°61' 1.2/ 8.2 18			
12 3	7 38.50	+23 12.9	2.274	3.075	12.5	20.1	12 3	7 38.42	+19 13.8	1.192	2.028	19.4	20.5
12 13	7 33.83	+23 32.4	2.182	3.068	9.5	19.9	12 13	7 35.46	+19 13.4	1.114	2.017	15.1	20.2
12 23	7 26.99	+23 55.1	2.115	3.060	6.1	19.6	12 23	7 28.90	+19 22.9	1.055	2.006	9.9	19.9
1 2	7 18.56	+24 18.3	2.075	3.053	2.4	19.4	1 2	7 19.52	+19 40.3	1.019	1.997	4.1	19.5
1 12	7 9.44	+24 39.2	2.065	3.045	1.8	19.3	1 12	7 8.81	+20 2.1	1.007	1.988	2.7	19.4
1 22	7 0.61	+24 55.7	2.085	3.038	5.6	19.6	1 22	6 58.63	+20 24.4	1.020	1.981	8.6	19.7
2 1	6 53.05	+25 6.8	2.133	3.031	9.2	19.8	2 1	6 50.74	+20 44.7	1.056	1.974	14.2	20.0
2 11	6 47.54	+25 12.6	2.206	3.023	12.3	20.0	2 11	6 46.38	+21 1.6	1.112	1.969	19.1	20.3
135401	2001 <i>TQ</i> ₂₁₃		1 7.9 13°55' 6.4/ 6.5 18 R				473840	2016 <i>EM</i> ₁₂₆		1 7.9 193°65' 0.3/ 7.9 16			
12 3	7 44.85	+41 2.1	2.163	2.951	13.5	19.6	12 3	7 40.09	+22 32.8	2.108	2.909	13.3	21.9
12 13	7 39.04	+41 37.4	2.089	2.952	10.9	19.4	12 13	7 35.12	+22 44.6	2.024	2.909	10.2	21.7
12 23	7 30.44	+42 2.8	2.039	2.954	8.4	19.3	12 23	7 27.84	+22 59.8	1.963	2.909	6.5	21.5
1 2	7 19.87	+42 12.4	2.014	2.956	6.7	19.2	1 2	7 18.90	+23 15.9	1.931	2.908	2.5	21.2
1 12	7 8.61	+42 2.0	2.018	2.958	6.8	19.2	1 12	7 9.29	+23 30.1	1.927	2.908	1.8	21.2
1 22	6 58.05	+41 31.0	2.049	2.961	8.6	19.3	1 22	7 0.08	+23 40.6	1.954	2.907	5.8	21.4
2 1	6 49.40	+40 42.3	2.107	2.963	11.2	19.5	2 1	6 52.29	+23 46.6	2.008	2.907	9.6	21.7
2 11	6 43.52	+39 41.0	2.187	2.966	13.7	19.6	2 11	6 46.71	+23 48.4	2.087	2.906	12.8	21.9
275197	2009 <i>WT</i> ₁₃₃		1 7.9 135°03' 3.2/ 7.4 18				221193	2005 <i>UQ</i> ₄₉		1 7.9 110°32' 1.6/ 7.5 18			
12 3	7 48.51	+28 32.7	1.506	2.318	17.2	20.8	12 3	7 41.95	+25 18.9	1.981	2.786	13.9	20.7
12 13	7 42.44	+29 1.7	1.436	2.326	13.3	20.6	12 13	7 36.66	+25 45.6	1.906	2.793	10.6	20.5
12 23	7 32.92	+29 30.0	1.389	2.334	8.7	20.3	12 23	7 28.87	+26 14.3	1.855	2.800	6.8	20.3
1 2	7 20.89	+29 51.4	1.367	2.341	4.3	20.1	1 2	7 19.30	+26 41.0	1.831	2.807	2.9	20.1
1 12	7 7.92	+30 0.4	1.373	2.348	4.0	20.1	1 12	7 9.04	+27 2.2	1.836	2.814	2.5	20.0
1 22	6 55.79	+29 55.2	1.406	2.354	8.3	20.4	1 22	6 59.30	+27 15.4	1.870	2.821	6.3	20.3
2 1	6 46.06	+29 37.2	1.465	2.360	12.7	20.6	2 1	6 51.18	+27 20.5	1.932	2.828	10.1	20.5
2 11	6 39.73	+29 10.3	1.547	2.366	16.5	20.9	2 11	6 45.49	+27 18.4	2.019	2.834	13.3	20.8
516562	2007 <i>BF</i> ₆₁		1 7.9 146°54' 3.3/ 9.5 18				378945	2008 <i>UO</i> ₁₅₇		1 7.9 328°71' 4.4/ 8.9 18			
12 3	7 47.75	+7 4.4	1.193	1.986	22.0	21.1	12 3	7 36.81	+11 59.1	1.879	2.673	15.0	20.6
12 13	7 42.59	+8 40.7	1.117	1.991	17.5	20.9	12 13	7 32.84	+11 21.0	1.788	2.661	12.0	20.4
12 23	7 33.54	+10 52.4	1.060	1.995	12.1	20.6	12 23	7 26.51	+10 52.4	1.718	2.649	8.6	20.2
1 2	7 21.32	+13 34.7	1.028	1.999	6.1	20.2	1 2	7 18.44	+10 34.9	1.674	2.638	5.4	20.0
1 12	7 7.52	+16 35.3	1.024	2.003	3.7	20.1	1 12	7 9.59	+10 28.9	1.658	2.627	4.6	19.9
1 22	6 54.14	+19 37.0	1.049	2.007	9.0	20.4	1 22	7 1.04	+10 33.7	1.669	2.617	7.3	20.0
2 1	6 43.16	+22 24.9	1.102	2.009	14.8	20.8	2 1	6 53.88	+10 47.5	1.707	2.607	10.9	20.2
2 11	6 36.01	+24 50.6	1.177	2.012	19.7	21.1	2 11	6 48.95	+11 8.0	1.768	2.598	14.3	20.4
230808	2004 <i>GH</i> ₂₁		1 7.9 4°79' 1.0/ 8.3 18				183088	2002 <i>RO</i> ₇₉		1 8.0 97°16' 0.9/ 7.8 18			
12 3	7 40.24	+17 15.4	1.221	2.049	19.5	19.7	12 3	7 44.19	+23 44.5	1.795	2.600	15.1	21.1
12 13	7 36.66	+17 48.1	1.151	2.049	15.1	19.4	12 13	7 38.43	+23 59.8	1.729	2.616	11.5	20.9
12 23	7 29.55	+18 35.8	1.100	2.049	9.8	19.1	12 23	7 30.00	+24 17.8	1.686	2.631	7.3	20.7
1 2	7 19.71	+19 34.7	1.072	2.050	4.0	18.8	1 2	7 19.71	+24 35.0	1.669	2.647	2.9	20.4
1 12	7 8.67	+20 38.4	1.070	2.051	2.5	18.7	1 12	7 8.81	+24 48.0	1.682	2.662	2.1	20.4
1 22	6 58.23	+21 40.3	1.093	2.053	8.4	19.0	1 22	6 58.59	+24 55.0	1.723	2.677	6.5	20.7
2 1	6 50.09	+22 35.5	1.140	2.055	13.8	19.3	2 1	6 50.21	+24 55.8	1.793	2.691	10.5	21.0
2 11	6 45.42	+23 21.5	1.209	2.058	18.3	19.6	2 11	6 44.49	+24 51.4	1.885	2.705	14.0	21.2
134417	1998 <i>HR</i> ₆₀		1 7.9 261°67' 4.7/ 6.6 18				99961	1979 <i>MT</i> ₂		1 8.0 266°04' 0.1/ 8.0 18			
12 3	7 46.20	+32 35.9											

EPHEMERIDES

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
318070	2004 <i>FW</i> ₁₄₈		1 8.0 199°47	0°5/ 7.9 18			375602	2008 <i>WO</i> ₅		1 8.0 10°13	1°2/ 7.6 18		
12 3	7 42.84	+23 15.5	2.291	3.083	12.7	21.6	12 3	7 38.18	+23 41.7	1.773	2.589	14.8	21.0
12 13	7 37.05	+23 23.4	2.200	3.080	9.7	21.4	12 13	7 34.10	+24 10.4	1.698	2.591	11.3	20.8
12 23	7 29.02	+23 33.5	2.133	3.076	6.2	21.2	12 23	7 27.40	+24 43.3	1.645	2.594	7.2	20.6
1 2	7 19.36	+23 43.4	2.094	3.072	2.4	20.9	1 2	7 18.80	+25 16.6	1.619	2.597	2.9	20.3
1 12	7 9.01	+23 50.6	2.086	3.066	1.7	20.8	1 12	7 9.42	+25 46.1	1.620	2.600	2.4	20.3
1 22	6 59.01	+23 53.7	2.108	3.061	5.6	21.1	1 22	7 0.53	+26 8.8	1.650	2.604	6.7	20.6
2 1	6 50.38	+23 52.2	2.160	3.054	9.2	21.3	2 1	6 53.31	+26 23.7	1.706	2.609	10.7	20.8
2 11	6 43.89	+23 46.9	2.237	3.047	12.4	21.5	2 11	6 48.63	+26 31.1	1.786	2.614	14.2	21.1
496790	2017 <i>HD</i> ₂₂		1 8.0 278°68	3°2/ 7.0 18			66267	1999 <i>JO</i> ₁		1 8.0 141°93	0°5/ 7.9 18		
12 3	7 43.51	+27 0.6	1.596	2.412	16.2	21.7	12 3	7 45.34	+22 22.7	2.117	2.908	13.6	20.7
12 13	7 38.96	+27 52.1	1.500	2.393	12.6	21.4	12 13	7 38.98	+22 45.8	2.043	2.923	10.4	20.5
12 23	7 31.04	+28 48.3	1.427	2.373	8.4	21.1	12 23	7 30.23	+23 12.6	1.993	2.936	6.6	20.3
1 2	7 20.36	+29 42.6	1.379	2.353	4.2	20.8	1 2	7 19.81	+23 39.7	1.971	2.949	2.5	20.1
1 12	7 8.24	+30 27.9	1.358	2.333	4.2	20.8	1 12	7 8.78	+24 3.8	1.980	2.961	1.8	20.1
1 22	6 56.32	+30 59.0	1.365	2.313	8.6	21.0	1 22	6 58.27	+24 22.6	2.020	2.972	5.9	20.4
2 1	6 46.33	+31 14.3	1.398	2.292	13.3	21.2	2 1	6 49.34	+24 35.4	2.088	2.982	9.5	20.6
2 11	6 39.54	+31 15.8	1.452	2.272	17.4	21.4	2 11	6 42.74	+24 42.8	2.182	2.991	12.7	20.8
498900	2009 <i>AC</i>		1 8.0 342°42	0°9/ 7.9 18			167051	2003 <i>QC</i> ₆₃		1 8.0 33°62	5°8/ 6.6 18		
12 3	7 42.09	+27 6.4	1.832	2.642	14.7	20.2	12 3	7 43.61	+31 56.1	1.282	2.114	18.5	19.3
12 13	7 36.99	+26 32.9	1.743	2.633	11.3	20.0	12 13	7 39.31	+33 0.8	1.227	2.125	14.4	19.1
12 23	7 29.19	+25 56.0	1.678	2.624	7.3	19.8	12 23	7 31.21	+34 2.9	1.193	2.137	10.0	18.9
1 2	7 19.45	+25 13.7	1.639	2.617	2.9	19.5	1 2	7 20.33	+34 52.8	1.182	2.149	6.3	18.7
1 12	7 8.97	+24 25.4	1.629	2.610	2.1	19.4	1 12	7 8.45	+35 22.7	1.196	2.163	6.5	18.8
1 22	6 59.07	+23 32.2	1.648	2.603	6.6	19.7	1 22	6 57.57	+35 29.6	1.236	2.177	10.1	19.0
2 1	6 50.94	+22 36.6	1.695	2.597	10.8	19.9	2 1	6 49.38	+35 15.6	1.299	2.192	14.2	19.3
2 11	6 45.44	+21 41.5	1.765	2.592	14.4	20.1	2 11	6 44.92	+34 46.4	1.383	2.207	17.9	19.6
29406	1996 <i>TS</i> ₃₂		1 8.0 262°14	6°9/ 9.7 18			421021	2013 <i>PX</i> ₆₁		1 8.0 128°58	0°8/ 8.2 18		
12 3	7 38.64	+ 4 22.2	2.010	2.770	15.3	18.2	12 3	7 41.40	+20 0.3	2.221	3.014	13.0	21.3
12 13	7 34.07	+ 3 34.4	1.917	2.758	12.8	18.0	12 13	7 35.85	+19 54.9	2.144	3.023	10.0	21.1
12 23	7 27.24	+ 3 0.8	1.845	2.747	10.0	17.8	12 23	7 28.17	+19 53.5	2.091	3.033	6.4	20.9
1 2	7 18.72	+ 2 44.4	1.798	2.736	7.6	17.6	1 2	7 19.02	+19 54.6	2.065	3.042	2.6	20.7
1 12	7 9.41	+ 2 46.6	1.778	2.724	7.0	17.5	1 12	7 9.34	+19 56.7	2.070	3.050	1.7	20.6
1 22	7 0.36	+ 3 6.8	1.786	2.712	8.6	17.6	1 22	7 0.12	+19 58.4	2.105	3.059	5.5	20.9
2 1	6 52.58	+ 3 42.3	1.820	2.701	11.5	17.8	2 1	6 52.30	+19 59.3	2.169	3.067	9.0	21.1
2 11	6 46.90	+ 4 28.8	1.878	2.689	14.4	17.9	2 11	6 46.57	+19 59.3	2.257	3.075	12.1	21.3
291411	2006 <i>DZ</i> ₅		1 8.0 279°95	2°3/ 7.4 18			119687	2001 <i>XQ</i> ₁₂₁		1 8.0 133°98	0°0/ 7.9 18		
12 3	7 43.15	+25 38.7	1.559	2.377	16.5	21.1	12 3	7 41.16	+21 3.0	1.965	2.766	14.1	20.4
12 13	7 38.60	+26 12.6	1.467	2.361	12.8	20.9	12 13	7 36.05	+21 17.3	1.885	2.771	10.8	20.2
12 23	7 30.73	+26 50.6	1.397	2.345	8.3	20.6	12 23	7 28.50	+21 36.6	1.829	2.775	6.9	19.9
1 2	7 20.21	+27 27.5	1.352	2.329	3.7	20.2	1 2	7 19.20	+21 58.4	1.801	2.778	2.7	19.7
1 12	7 8.37	+27 57.4	1.335	2.313	3.4	20.2	1 12	7 9.20	+22 19.5	1.801	2.782	1.8	19.6
1 22	6 56.86	+28 16.1	1.345	2.297	8.2	20.4	1 22	6 59.65	+22 37.6	1.831	2.786	6.1	19.9
2 1	6 47.32	+28 22.8	1.380	2.281	13.0	20.7	2 1	6 51.65	+22 51.7	1.888	2.789	10.0	20.2
2 11	6 40.95	+28 19.1	1.438	2.264	17.2	20.9	2 11	6 46.00	+23 1.5	1.970	2.792	13.4	20.4
153	<i>Hilda</i>		1 8.0 206°43	1°9/ 8.9 18			289824	2005 <i>KG</i> ₁₀		1 8.0 113°11	1°5/ 7.4 18		
12 3	7 33.21	+13 45.3	3.734	4.504	8.6	14.2	12 3	7 43.83	+23 57.8	2.096	2.893	13.6	21.8
12 13	7 28.92	+13 37.4	3.638	4.500	6.7	14.1	12 13	7 37.90	+24 48.7	2.029	2.912	10.3	21.6
12 23	7 23.44	+13 34.5	3.567	4.496	4.6	13.9	12 23	7 29.59	+25 43.2	1.986	2.930	6.6	21.4
1 2	7 17.15	+13 36.4	3.525	4.492	2.6	13.8	1 2	7 19.59	+26 36.4	1.972	2.948	2.7	21.2
1 12	7 10.52	+13 42.6	3.515	4.488	2.1	13.7	1 12	7 8.96	+27 23.8	1.988	2.966	2.5	21.2
1 22	7 4.06	+13 52.2	3.536	4.483	3.8	13.8	1 22	6 58.85	+28 2.2	2.034	2.982	6.1	21.5
2 1	6 58.27	+14 4.5	3.587	4.479	6.0	14.0	2 1	6 50.31	+28 30.5	2.109	2.999	9.6	21.7
2 11	6 53.59	+14 18.4	3.665	4.474	8.0	14.1	2 11	6 44.11	+28 49.2	2.209	3.015	12.7	22.0
469605	2004 <i>GM</i> ₁₉		1 8.0 291°88	8°5/ 11.9 16			53933	2000 <i>GG</i> ₄₄		1 8.0 112°99	0°5/ 8.2 18 R		
12 3	7 36.52	- 6 15.2	2.461	3.157	14.4	21.7	12 3	7 39.12	+19 36.4	2.630	3.417	11.4	20.5
12 13	7 32.22	- 6 27.1	2.346	3.129	12.6	21.5	12 13	7 33.79	+19 48.3	2.557	3.434	8.7	20.3
12 23	7 25.98	- 6 18.6	2.251	3.101	10.8	21.3	12 23	7 26.71	+20 4.4	2.509	3.450	5.6	20.1
1 2	7 18.25	- 5 46.3	2.181	3.073	9.1	21.1	1 2	7 18.43	+20 23.0	2.489	3.466	2.2	19.9
1 12	7 9.73	- 4 48.9	2.136	3.045	8.5	21.0	1 12	7 9.74	+20 42.1	2.501	3.482	1.4	19.9
1 22	7 1.26	- 3 28.1	2.120	3.016	9.2	21.0	1 22	7 1.43	+21 0.0	2.544	3.497	4.7	20.1
2 1	6 53.71	- 1 48.0	2.131	2.988	11.0	21.1	2 1	6 54.27	+21 15.8	2.616	3.512	7.7	20.4
2 11	6 47.84	+ 0 5.0	2.167	2.959	13.3	21.2	2 11	6 48.84	+21 29.0	2.714	3.526	10.4	20.6
468381	2016 <i>GH</i> ₁₀		1 8.0 139°26	6°0/ 5.8 18			402837	2007 <i>HM</i> ₁₂		1 8.0 224°30	0°5/ 7.9 18		
12 3	7 44.03	+39 9.0	2.328	3.116	12.6	20.8	12 3	7 45.13	+22 38.5	1.845	2.645	15.0	22.2
12 13	7 38.34	+40 10.0	2.255	3.120	10.2	20.6	12 13	7 39.46	+22 54.7	1.751	2.635	11.6	21.9
12 23	7 30.02	+41 4.1	2.206	3.123	7.8	20.4	12 23	7 30.94	+23 15.3	1.680	2.625	7.5	21.7
1 2	7 19.78	+41 45.1	2.184	3.126	6.2	20.3	1 2	7 20.22	+23 36.8	1.636	2.614	2.9	21.4
1 12	7 8.75	+42 8.0	2.190	3.129	6.4	20.4	1 12	7 8.48	+23 55.6	1.621	2.602	2.1	21.3
1 22	6 58.22	+42 11.1	2.225	3.132	8.3	20.5	1 22	6 57.08	+24 9.0	1.636	2.589	6.8	21.5
2 1	6 49.36	+41 55.6	2.286	3.134	10.7	20.7	2 1	6 47.36	+24 16.2	1.679	2.576	11.2	21.8
2 11	6 43.04	+41 25.4	2.370	3.137	13.1	20.8	2 11	6 40.34	+24 17.8	1.745	2.562	15.0	22.0
50984	2000 <i>GY</i> ₉₃		1 8.0 318°99	0°6/ 8.3 18			428376	2007 <i>RG</i> ₂₅₂		1 8.0 31°53	13°3/ 7.4 18		
12 3	7 37.61	+17 50.0	2.082	2.882	13.5	18.							

EPHEMERIDES

1 8.0

1 8.0

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
264762	2002 <i>EB</i> ₈₂		1 8.0 356°06	1.8°/ 7.6 18			352843	2008 <i>VO</i> ₇₃		1 8.0 299°53	3.2°/ 7.1 18		
12 3	7 41.36	+26 22.4	1.922	2.730	14.2	20.6	12 3	7 41.94	+26 9.3	1.420	2.246	17.3	21.0
12 13	7 36.38	+26 40.6	1.841	2.730	10.8	20.4	12 13	7 38.11	+27 1.7	1.329	2.227	13.5	20.7
12 23	7 28.80	+26 59.6	1.783	2.729	7.0	20.2	12 23	7 30.70	+28 0.4	1.259	2.207	8.9	20.4
1 2	7 19.35	+27 15.8	1.753	2.729	3.1	19.9	1 2	7 20.35	+28 58.6	1.213	2.189	4.3	20.1
1 12	7 9.13	+27 25.6	1.751	2.729	2.7	19.9	1 12	7 8.43	+29 48.5	1.194	2.170	4.3	20.0
1 22	6 59.40	+27 27.3	1.778	2.729	6.6	20.1	1 22	6 56.76	+30 24.1	1.201	2.151	9.1	20.3
2 1	6 51.32	+27 20.9	1.832	2.729	10.5	20.4	2 1	6 47.18	+30 43.4	1.232	2.133	14.1	20.5
2 11	6 45.76	+27 7.9	1.910	2.729	13.8	20.6	2 11	6 41.09	+30 48.2	1.285	2.115	18.6	20.7
473987	2016 <i>EU</i> ₂₀₁		1 8.0 2°01	0°3/ 7.9 18			350690	2001 <i>VP</i> ₅₆		1 8.0 13°77	5°4/ 6.9 18		
12 3	7 39.43	+20 45.5	1.856	2.664	14.6	20.8	12 3	7 43.11	+31 17.8	1.190	2.027	19.3	20.6
12 13	7 34.97	+21 21.6	1.775	2.664	11.2	20.6	12 13	7 39.28	+32 6.5	1.128	2.029	15.1	20.3
12 23	7 27.96	+22 5.0	1.717	2.664	7.2	20.3	12 23	7 31.42	+32 53.0	1.086	2.033	10.3	20.1
1 2	7 19.05	+22 52.0	1.686	2.664	2.7	20.0	1 2	7 20.53	+33 28.4	1.066	2.037	6.2	19.9
1 12	7 9.32	+23 38.2	1.683	2.664	1.9	20.0	1 12	7 8.45	+33 45.0	1.071	2.042	6.2	19.9
1 22	6 59.98	+24 19.9	1.709	2.664	6.4	20.3	1 22	6 57.33	+33 39.7	1.101	2.047	10.3	20.1
2 1	6 52.19	+24 54.6	1.763	2.665	10.5	20.5	2 1	6 49.02	+33 15.1	1.153	2.054	14.9	20.4
2 11	6 46.85	+25 21.8	1.840	2.666	14.0	20.8	2 11	6 44.66	+32 36.9	1.225	2.061	19.0	20.7
103342	2000 <i>AX</i> ₈₃		1 8.0 9°24	1°3/ 8.3 18			251692	1995 <i>WX</i> ₁₂		1 8.0 56°78	0°7/ 8.3 18		
12 3	7 40.62	+19 6.3	1.513	2.329	16.9	19.8	12 3	7 35.49	+18 45.0	2.778	3.569	10.7	20.9
12 13	7 36.27	+19 0.2	1.438	2.329	13.1	19.6	12 13	7 30.99	+18 58.4	2.709	3.588	8.2	20.7
12 23	7 28.95	+19 1.4	1.384	2.330	8.5	19.3	12 23	7 24.92	+19 16.4	2.665	3.606	5.3	20.5
1 2	7 19.45	+19 8.3	1.355	2.332	3.6	19.0	1 2	7 17.79	+19 37.5	2.649	3.625	2.2	20.4
1 12	7 9.07	+19 18.3	1.353	2.333	2.4	19.0	1 12	7 10.29	+19 59.9	2.664	3.644	1.4	20.3
1 22	6 59.28	+19 29.3	1.378	2.335	7.3	19.3	1 22	7 3.14	+20 21.9	2.709	3.664	4.4	20.6
2 1	6 51.41	+19 39.7	1.429	2.338	11.9	19.5	2 1	6 57.02	+20 42.3	2.784	3.683	7.2	20.8
2 11	6 46.43	+19 48.8	1.502	2.341	15.9	19.8	2 11	6 52.44	+21 0.3	2.885	3.702	9.7	21.0
419692	2010 <i>UP</i> ₃₇		1 8.0 122°18	5°1/ 6.2 18			460229	2014 <i>QJ</i> ₂₂₃		1 8.0 103°28	3°8/ 7.3 18		
12 3	7 45.65	+34 15.1	2.046	2.843	13.8	21.2	12 3	7 46.86	+31 51.9	1.791	2.595	15.2	21.3
12 13	7 39.70	+35 21.5	1.978	2.855	10.8	21.0	12 13	7 40.73	+32 12.5	1.722	2.605	11.8	21.1
12 23	7 30.96	+36 24.2	1.935	2.866	7.7	20.9	12 23	7 31.62	+32 28.8	1.675	2.615	8.0	20.9
1 2	7 20.18	+37 16.1	1.919	2.877	5.4	20.8	1 2	7 20.44	+32 35.4	1.655	2.625	4.5	20.7
1 12	7 8.60	+37 51.5	1.931	2.887	5.6	20.8	1 12	7 8.56	+32 28.4	1.664	2.634	4.4	20.7
1 22	6 57.59	+38 8.1	1.973	2.897	8.1	21.0	1 22	6 57.46	+32 7.1	1.701	2.643	7.6	20.9
2 1	6 48.40	+38 6.6	2.041	2.907	11.1	21.2	2 1	6 48.45	+31 33.7	1.765	2.653	11.3	21.2
2 11	6 41.95	+37 50.8	2.132	2.916	13.8	21.4	2 11	6 42.38	+30 52.3	1.852	2.662	14.6	21.4
383756	2007 <i>VQ</i> ₁₈₆		1 8.0 356°63	7°7/ 4.7 18			391443	2007 <i>EW</i> ₁₇₈		1 8.0 150°66	2°7/ 8.7 18		
12 3	7 42.44	+40 56.8	2.045	2.841	13.9	20.2	12 3	7 44.52	+14 51.2	1.890	2.675	15.2	21.8
12 13	7 37.74	+42 26.0	1.974	2.839	11.4	20.0	12 13	7 38.56	+14 42.4	1.813	2.685	11.9	21.6
12 23	7 29.99	+43 48.0	1.926	2.837	9.1	19.9	12 23	7 30.10	+14 42.6	1.758	2.694	8.0	21.3
1 2	7 19.91	+44 54.4	1.905	2.836	7.8	19.8	1 2	7 19.86	+14 51.2	1.731	2.702	4.1	21.1
1 12	7 8.76	+45 38.3	1.910	2.836	8.2	19.8	1 12	7 8.93	+15 6.3	1.733	2.709	3.1	21.1
1 22	6 58.05	+45 56.7	1.942	2.835	10.1	20.0	1 22	6 58.53	+15 26.0	1.765	2.716	6.6	21.3
2 1	6 49.23	+45 51.0	1.998	2.836	12.5	20.1	2 1	6 49.74	+15 48.1	1.824	2.722	10.4	21.5
2 11	6 43.35	+45 25.7	2.076	2.836	14.9	20.3	2 11	6 43.40	+16 11.1	1.908	2.727	13.8	21.8
11641	1997 <i>AP</i> ₁₂		1 8.0 326°32	0°6/ 7.9 18			164562	2006 <i>KB</i> ₅₀		1 8.0 31°08	4°7/ 8.9 18		
12 3	7 42.89	+25 25.9	1.814	2.622	14.9	17.8	12 3	7 40.55	+12 37.9	1.401	2.209	18.5	19.4
12 13	7 37.63	+25 6.4	1.729	2.617	11.4	17.6	12 13	7 36.26	+12 2.5	1.333	2.215	14.6	19.2
12 23	7 29.65	+24 46.0	1.666	2.612	7.4	17.3	12 23	7 28.96	+11 40.1	1.284	2.220	10.3	18.9
1 2	7 19.69	+24 22.6	1.629	2.607	2.9	17.0	1 2	7 19.49	+11 31.9	1.259	2.226	6.1	18.7
1 12	7 8.95	+23 54.7	1.622	2.603	2.0	17.0	1 12	7 9.18	+11 37.7	1.261	2.233	5.0	18.7
1 22	6 58.77	+23 22.3	1.643	2.598	6.6	17.3	1 22	6 59.52	+11 55.1	1.288	2.240	8.4	18.9
2 1	6 50.37	+22 46.8	1.692	2.594	10.8	17.5	2 1	6 51.85	+12 21.3	1.340	2.248	12.7	19.1
2 11	6 44.61	+22 10.2	1.765	2.590	14.5	17.7	2 11	6 47.13	+12 52.5	1.414	2.255	16.6	19.4
424325	2007 <i>UC</i> ₃₃		1 8.0 81°09	1°0/ 7.8 18			424962	2008 <i>YO</i> ₁₇₀		1 8.0 323°16	3°6/ 9.9 17		
12 3	7 44.02	+26 13.2	2.438	3.228	12.1	21.6	12 3	7 37.01	+ 7 45.2	2.342	3.108	13.2	20.9
12 13	7 37.48	+26 7.0	2.379	3.258	9.1	21.5	12 13	7 32.55	+ 8 16.0	2.251	3.106	10.6	20.7
12 23	7 28.99	+25 59.8	2.345	3.288	5.8	21.3	12 23	7 26.16	+ 9 1.6	2.183	3.105	7.6	20.5
1 2	7 19.28	+25 49.7	2.340	3.317	2.3	21.1	1 2	7 18.35	+10 1.2	2.143	3.103	4.7	20.3
1 12	7 9.29	+25 35.2	2.366	3.346	1.8	21.1	1 12	7 9.90	+11 12.4	2.132	3.102	3.7	20.2
1 22	6 59.95	+25 16.2	2.423	3.374	5.1	21.4	1 22	7 1.68	+12 31.0	2.152	3.100	5.8	20.4
2 1	6 52.08	+24 53.5	2.510	3.402	8.2	21.6	2 1	6 54.55	+13 52.8	2.201	3.099	8.9	20.6
2 11	6 46.25	+24 28.5	2.623	3.430	10.9	21.9	2 11	6 49.21	+15 13.5	2.277	3.098	11.8	20.8
424875	2008 <i>VN</i> ₆₉		1 8.0 29°12	1°4/ 7.6 18			384538	2010 <i>EH</i> ₁		1 8.0 315°06	4°6/ 9.1 17		
12 3	7 39.55	+25 3.4	1.982	2.791	13.8	21.0	12 3	7 36.34	+10 12.7	2.081	2.864	14.1	21.2
12 13	7 34.87	+25 24.2	1.905	2.795	10.5	20.8	12 13	7 32.34	+ 9 37.8	1.982	2.847	11.4	21.0
12 23	7 27.77	+25 47.0	1.853	2.799	6.7	20.6	12 23	7 26.18	+ 9 13.0	1.906	2.830	8.3	20.7
1 2	7 18.95	+26 8.4	1.827	2.804	2.8	20.3	1 2	7 18.40	+ 8 59.8	1.856	2.814	5.5	20.5
1 12	7 9.46	+26 25.0	1.830	2.809	2.3	20.3	1 12	7 9.87	+ 8 58.8	1.833	2.798	4.8	20.5
1 22	6 59.44	+26 34.9	1.861	2.814	6.2	20.6	1 22	7 1.55	+ 9 9.1	1.839	2.782	7.1	20.6
2 1	6 52.98	+26 37.6	1.921	2.819	10.0	20.8	2 1	6 54.45	+ 9 29.1	1.872	2.767	10.4	20.7
2 11	6 47.86	+26 34.0	2.004	2.825	13.2	21.0	2 11	6 49.34	+ 9 55.9	1.928	2.752	13.5	20.9
465327	2007 <i>VP</i> ₄₅		1 8.0 102°48	1°5/ 8.4 18			14295	4161 <i>T</i> ₋₁		1 8.0 129°37	7°2/ 10.7 18		
12 3	7 38.88	+18 1.0	2.433										

EPHEMERIDES

1 8.0

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
357561	2004 <i>TR</i> ₄₄		1 8.0 21°97'	3°3'	8.7 18		458145	2010 <i>JH</i> ₁		1 8.0 80°40'	6°4'	10.7 18	
12 3	7 40.95	+15 33.4	1.358	2.175	18.5	20.9	12 3	7 44.77	+2 36.0	2.050	2.788	15.7	21.4
12 13	7 36.74	+15 10.6	1.288	2.178	14.5	20.7	12 13	7 38.13	+2 14.8	2.003	2.831	12.9	21.3
12 23	7 29.37	+14 58.8	1.238	2.181	9.8	20.4	12 23	7 29.47	+2 11.0	1.978	2.873	9.8	21.2
1 2	7 19.68	+14 57.9	1.212	2.185	5.0	20.1	1 2	7 19.55	+2 25.5	1.980	2.915	7.3	21.1
1 12	7 9.07	+15 6.4	1.212	2.189	3.8	20.1	1 12	7 9.34	+2 57.2	2.010	2.955	6.4	21.2
1 22	6 59.13	+15 22.1	1.238	2.194	8.1	20.3	1 22	6 59.84	+3 42.9	2.069	2.994	7.7	21.3
2 1	6 51.27	+15 42.4	1.289	2.199	12.8	20.6	2 1	6 51.89	+4 38.5	2.157	3.033	10.1	21.5
2 11	6 46.50	+16 4.8	1.361	2.205	17.0	20.9	2 11	6 46.09	+5 39.2	2.269	3.070	12.5	21.8
470104	2006 <i>TM</i> ₅₆		1 8.0 54°21'	21°1'	11.9 18		207717	Sa'a		1 8.0 104°71'	0°4'	7.9 18	
12 3	7 43.47	-10 48.4	1.007	1.754	28.1	20.8	12 3	7 39.76	+22 33.8	2.459	3.253	11.9	21.0
12 13	7 39.30	-13 59.4	0.965	1.762	25.6	20.6	12 13	7 34.49	+22 52.9	2.386	3.268	9.0	20.9
12 23	7 31.31	-16 32.3	0.937	1.772	23.3	20.5	12 23	7 27.30	+23 14.8	2.338	3.282	5.7	20.7
1 2	7 20.48	-18 11.7	0.925	1.781	21.7	20.4	1 2	7 18.78	+23 37.1	2.319	3.296	2.2	20.5
1 12	7 8.55	-18 47.7	0.929	1.791	21.1	20.4	1 12	7 9.79	+23 57.4	2.330	3.310	1.6	20.4
1 22	6 57.48	-18 20.5	0.949	1.802	21.7	20.5	1 22	7 1.21	+24 13.8	2.371	3.324	5.0	20.7
2 1	6 49.05	-16 59.3	0.986	1.812	23.1	20.7	2 1	6 53.89	+24 25.5	2.442	3.337	8.3	20.9
2 11	6 44.40	-14 59.9	1.037	1.823	25.0	20.8	2 11	6 48.45	+24 32.8	2.538	3.351	11.0	21.1
464192	2015 <i>BJ</i> ₁₀		1 8.0 106°24'	1°3'	7.5 18		328012	2007 <i>HO</i> ₆₈		1 8.0 173°72'	6°5'	10.6 18	
12 3	7 39.83	+23 28.5	2.180	2.981	12.9	21.4	12 3	7 37.88	-0 37.2	2.774	3.490	12.5	22.3
12 13	7 34.95	+24 15.3	2.100	2.986	9.9	21.2	12 13	7 32.83	-1 12.5	2.687	3.493	10.6	22.1
12 23	7 27.80	+25 6.5	2.045	2.990	6.3	21.0	12 23	7 26.15	-1 33.9	2.624	3.495	8.6	22.0
1 2	7 19.01	+25 57.9	2.018	2.995	2.6	20.8	1 2	7 18.34	-1 39.3	2.586	3.497	7.0	21.9
1 12	7 9.51	+26 45.4	2.021	2.999	2.3	20.8	1 12	7 10.06	-1 28.1	2.576	3.499	6.5	21.9
1 22	7 0.37	+27 25.7	2.054	3.004	5.9	21.0	1 22	7 2.03	-1 1.2	2.596	3.499	7.4	21.9
2 1	6 52.60	+27 57.1	2.115	3.008	9.4	21.2	2 1	6 54.94	-0 21.1	2.643	3.500	9.2	22.0
2 11	6 46.98	+28 19.6	2.200	3.012	12.5	21.5	2 11	6 49.38	+0 28.6	2.715	3.500	11.1	22.2
430254	2013 <i>WO</i> ₂₆		1 8.0 102°18'	0°8'	8.3 18		491787	2012 <i>XP</i> ₈		1 8.0 312°92'	3°0'	7.1 18	
12 3	7 40.10	+20 2.8	2.351	3.143	12.4	20.8	12 3	7 43.11	+24 52.9	1.365	2.191	17.9	21.1
12 13	7 34.76	+19 51.7	2.275	3.154	9.5	20.6	12 13	7 38.93	+25 57.1	1.288	2.186	13.8	20.8
12 23	7 27.46	+19 44.1	2.222	3.164	6.1	20.4	12 23	7 31.15	+27 9.1	1.233	2.182	9.0	20.6
1 2	7 18.82	+19 38.9	2.198	3.175	2.5	20.2	1 2	7 20.53	+28 21.2	1.202	2.178	4.2	20.3
1 12	7 9.70	+19 34.8	2.204	3.185	1.7	20.1	1 12	7 8.56	+29 24.9	1.197	2.174	4.1	20.2
1 22	7 1.03	+19 31.0	2.241	3.195	5.2	20.4	1 22	6 57.07	+30 13.6	1.219	2.170	9.0	20.5
2 1	6 53.66	+19 27.1	2.306	3.205	8.5	20.6	2 1	6 47.85	+30 45.2	1.266	2.167	13.9	20.8
2 11	6 48.23	+19 22.9	2.397	3.214	11.4	20.8	2 11	6 42.14	+31 1.3	1.334	2.163	18.1	21.0
265858	2005 <i>YC</i> ₁₅₇		1 8.0 190°79'	1°1'	8.4 18		372675	2009 <i>WS</i> ₁₂₂		1 8.0 270°28'	0°8'	7.8 18	
12 3	7 39.83	+18 32.1	2.019	2.817	13.9	21.6	12 3	7 40.09	+22 59.4	2.036	2.840	13.6	21.7
12 13	7 35.00	+18 34.2	1.935	2.817	10.7	21.4	12 13	7 35.31	+23 23.4	1.951	2.838	10.4	21.5
12 23	7 27.86	+18 42.5	1.874	2.817	7.0	21.1	12 23	7 28.13	+23 51.5	1.891	2.837	6.7	21.3
1 2	7 19.04	+18 55.5	1.841	2.817	3.0	20.9	1 2	7 19.19	+24 20.3	1.857	2.835	2.6	21.0
1 12	7 9.53	+19 11.2	1.836	2.817	1.9	20.8	1 12	7 9.50	+24 46.5	1.853	2.833	2.0	20.9
1 22	7 0.40	+19 27.5	1.861	2.816	5.9	21.1	1 22	7 0.18	+25 7.5	1.878	2.831	6.1	21.2
2 1	6 52.71	+19 42.9	1.914	2.816	9.8	21.3	2 1	6 52.33	+25 22.2	1.931	2.830	9.9	21.4
2 11	6 47.24	+19 56.6	1.991	2.816	13.1	21.5	2 11	6 46.77	+25 30.7	2.008	2.828	13.2	21.6
222798	2002 <i>CP</i> ₂₂₂		1 8.0 44°19'	1°0'	7.7 18		406180	2006 <i>WV</i> ₉₉		1 8.0 54°75'	2°4'	8.6 18	
12 3	7 40.68	+23 29.0	1.793	2.604	14.9	20.9	12 3	7 41.82	+16 53.6	1.573	2.380	16.8	21.6
12 13	7 35.96	+23 53.4	1.719	2.609	11.4	20.7	12 13	7 36.86	+16 35.9	1.510	2.396	13.0	21.4
12 23	7 28.61	+24 21.8	1.668	2.615	7.3	20.4	12 23	7 29.15	+16 26.8	1.469	2.412	8.6	21.1
1 2	7 19.35	+24 50.4	1.643	2.621	2.9	20.2	1 2	7 19.55	+16 25.4	1.454	2.428	4.1	20.9
1 12	7 9.34	+25 15.3	1.647	2.627	2.2	20.1	1 12	7 9.33	+16 30.1	1.466	2.444	2.9	20.9
1 22	6 59.85	+25 33.9	1.680	2.634	6.6	20.4	1 22	6 59.83	+16 38.9	1.505	2.461	7.0	21.2
2 1	6 52.08	+25 45.1	1.739	2.640	10.7	20.7	2 1	6 52.24	+16 50.4	1.571	2.478	11.2	21.4
2 11	6 46.88	+25 49.7	1.822	2.647	14.1	20.9	2 11	6 47.36	+17 2.9	1.660	2.495	14.9	21.7
307914	2004 <i>DF</i> ₂₀		1 8.0 246°34'	2°6'	7.4 18		319824	2006 <i>VC</i> ₁₁₀		1 8.0 109°93'	2°5'	7.4 18	
12 3	7 42.51	+31 31.2	2.596	3.387	11.4	20.5	12 3	7 46.46	+28 29.5	2.138	2.932	13.4	21.4
12 13	7 36.72	+31 37.0	2.500	3.377	8.8	20.3	12 13	7 39.84	+28 59.1	2.075	2.955	10.2	21.2
12 23	7 28.81	+31 39.2	2.429	3.367	5.9	20.1	12 23	7 30.80	+29 27.4	2.037	2.978	6.7	21.0
1 2	7 19.39	+31 34.5	2.387	3.357	3.3	19.9	1 2	7 20.13	+29 50.1	2.027	3.000	3.3	20.8
1 12	7 9.35	+31 20.6	2.375	3.346	3.1	19.9	1 12	7 8.96	+30 3.6	2.047	3.021	3.1	20.9
1 22	6 59.69	+30 57.1	2.394	3.336	5.8	20.1	1 22	6 58.45	+30 6.6	2.098	3.042	6.3	21.1
2 1	6 51.33	+30 24.8	2.441	3.325	8.8	20.2	2 1	6 49.65	+29 59.7	2.177	3.062	9.6	21.3
2 11	6 45.02	+29 46.3	2.515	3.314	11.5	20.4	2 11	6 43.29	+29 45.2	2.280	3.081	12.5	21.6
120529	1994 <i>PH</i> ₂₀		1 8.0 147°18'	1°3'	7.7 18		146404	2001 <i>QZ</i> ₁₈₀		1 8.0 77°69'	5°5'	9.7 18	
12 3	7 47.00	+24 47.3	1.790	2.591	15.3	20.3	12 3	7 40.02	+7 58.9	1.789	2.567	16.2	19.8
12 13	7 40.77	+25 6.2	1.716	2.600	11.7	20.1	12 13	7 35.20	+7 29.7	1.719	2.579	13.1	19.6
12 23	7 31.67	+25 27.2	1.665	2.609	7.5	19.8	12 23	7 27.99	+7 15.2	1.671	2.591	9.6	19.4
1 2	7 20.53	+25 46.2	1.640	2.617	3.1	19.6	1 2	7 19.10	+7 16.8	1.648	2.602	6.5	19.3
1 12	7 8.62	+25 59.3	1.646	2.625	2.4	19.5	1 12	7 9.60	+7 34.1	1.652	2.614	5.6	19.2
1 22	6 57.35	+26 4.4	1.680	2.632	6.8	19.8	1 22	7 0.63	+8 4.8	1.685	2.626	7.8	19.4
2 1	6 47.99	+26 1.8	1.742	2.638	11.0	20.1	2 1	6 53.21	+8 45.3	1.744	2.638	11.0	19.6
2 11	6 41.43	+25 53.0	1.828	2.644	14.5	20.3	2 11	6 48.14	+9 31.6	1.826	2.650	14.2	19.8
191486	2003 <i>TL</i> ₇		1 8.0 65°11'	6°5'	5.6 18		415422	2013 <i>QA</i> ₇		1 8.0 102°52'	3°1'	7.5 18	
12 3	7 45.10	+37 17.8	1.956	2.755	14.3	19.4	12 3	7 46.11					

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
495460	2014 <i>TO</i> ₄₅		1 8.1 25°50	2.7/ 8.7	18		212119	2005 <i>EC</i> ₁₉₁		1 8.1 112°87	1°0/ 7.8	18	
12 3	7 39.43	+15 42.3	1.671	2.476	16.1	21.2	12 3	7 45.80	+24 34.4	1.818	2.620	15.1	20.8
12 13	7 35.06	+15 27.8	1.596	2.480	12.5	20.9	12 13	7 39.71	+24 42.3	1.749	2.634	11.5	20.6
12 23	7 28.06	+15 22.5	1.544	2.484	8.4	20.7	12 23	7 30.92	+24 51.8	1.703	2.648	7.4	20.4
1 2	7 19.18	+15 26.1	1.517	2.489	4.2	20.5	1 2	7 20.25	+24 59.5	1.685	2.662	2.9	20.2
1 12	7 9.57	+15 37.0	1.517	2.495	3.1	20.4	1 12	7 8.95	+25 2.3	1.695	2.675	2.2	20.1
1 22	7 0.48	+15 53.1	1.545	2.500	6.9	20.6	1 22	6 58.35	+24 59.0	1.735	2.688	6.5	20.4
2 1	6 53.09	+16 12.4	1.600	2.506	11.0	20.9	2 1	6 49.63	+24 49.9	1.803	2.701	10.5	20.7
2 11	6 48.24	+16 32.9	1.677	2.513	14.7	21.1	2 11	6 43.58	+24 36.4	1.895	2.713	14.0	21.0
456539	2007 <i>BR</i> ₂		1 8.1 10°45	6°5/ 7.3	18		176758	2002 <i>RF</i> ₁₄₁		1 8.1 60°85	7°1/ 11.3	17	
12 3	7 46.32	+37 47.1	1.493	2.307	17.3	20.2	12 3	7 40.75	+ 1 58.0	1.565	2.330	18.8	20.1
12 13	7 41.14	+38 8.8	1.426	2.309	13.8	20.0	12 13	7 35.94	+ 2 2.7	1.508	2.353	15.4	19.9
12 23	7 32.30	+38 19.8	1.379	2.311	10.1	19.8	12 23	7 28.54	+ 2 31.6	1.471	2.377	11.8	19.7
1 2	7 20.85	+38 12.8	1.356	2.315	7.1	19.6	1 2	7 19.34	+ 3 25.4	1.457	2.401	8.5	19.6
1 12	7 8.53	+37 42.8	1.359	2.319	7.0	19.6	1 12	7 9.55	+ 4 41.3	1.470	2.424	7.1	19.6
1 22	6 57.23	+36 50.3	1.389	2.324	9.8	19.8	1 22	7 0.43	+ 6 13.0	1.510	2.448	8.8	19.7
2 1	6 48.55	+35 40.3	1.443	2.329	13.5	20.0	2 1	6 53.10	+ 7 53.2	1.576	2.472	11.9	20.0
2 11	6 43.44	+34 20.1	1.519	2.335	16.9	20.2	2 11	6 48.34	+ 9 34.5	1.666	2.496	15.0	20.2
237219	2008 <i>UN</i> ₃₅₃		1 8.1 217°57	0°2/ 8.1	18		103992	2000 <i>DG</i> ₉₅		1 8.1 66°02	4°5/ 7.3	17	
12 3	7 38.59	+20 17.1	2.314	3.110	12.4	21.2	12 3	7 48.37	+30 39.5	1.291	2.114	18.9	18.9
12 13	7 33.85	+20 33.4	2.226	3.109	9.5	21.0	12 13	7 42.78	+31 18.1	1.237	2.131	14.6	18.7
12 23	7 27.06	+20 54.7	2.163	3.107	6.1	20.8	12 23	7 33.38	+31 53.8	1.203	2.148	9.8	18.5
1 2	7 18.76	+21 19.0	2.128	3.105	2.4	20.6	1 2	7 21.28	+32 18.7	1.193	2.165	5.4	18.3
1 12	7 9.84	+21 43.5	2.123	3.104	1.5	20.5	1 12	7 8.33	+32 26.4	1.210	2.182	5.3	18.3
1 22	7 1.22	+22 6.3	2.147	3.102	5.3	20.8	1 22	6 56.54	+32 15.6	1.252	2.199	9.3	18.6
2 1	6 53.84	+22 25.9	2.200	3.100	8.8	21.0	2 1	6 47.55	+31 49.1	1.319	2.216	13.7	18.9
2 11	6 48.40	+22 41.7	2.279	3.098	11.9	21.2	2 11	6 42.32	+31 12.3	1.407	2.233	17.5	19.2
182114	2000 <i>QC</i> ₁₁₉		1 8.1 170°91	2°3/ 7.4	18		109978	2001 <i>ST</i> ₅₄		1 8.1 106°25	0°3/ 7.9	18	
12 3	7 44.27	+29 29.1	2.561	3.349	11.6	20.6	12 3	7 38.79	+21 37.6	2.521	3.315	11.6	19.8
12 13	7 38.00	+29 48.9	2.477	3.354	8.9	20.4	12 13	7 33.77	+22 4.0	2.446	3.327	8.8	19.7
12 23	7 29.60	+30 6.9	2.418	3.357	5.9	20.2	12 23	7 26.88	+22 34.2	2.395	3.339	5.6	19.5
1 2	7 19.71	+30 19.6	2.388	3.360	3.0	20.0	1 2	7 18.68	+23 5.7	2.373	3.350	2.1	19.2
1 12	7 9.25	+30 24.2	2.389	3.363	2.9	20.0	1 12	7 9.98	+23 35.7	2.381	3.362	1.5	19.2
1 22	6 59.20	+30 19.5	2.422	3.364	5.7	20.2	1 22	7 1.65	+24 2.2	2.420	3.373	4.9	19.5
2 1	6 50.51	+30 6.1	2.483	3.365	8.7	20.4	2 1	6 54.49	+24 23.9	2.488	3.384	8.1	19.7
2 11	6 43.88	+29 45.8	2.570	3.366	11.4	20.6	2 11	6 49.14	+24 40.6	2.582	3.395	10.8	19.9
329046	2011 <i>AZ</i> ₅₀		1 8.1 216°08	2°0/ 8.5	18		288817	2004 <i>RX</i> ₁₇₇		1 8.1 45°39	3°8/ 8.9	18	
12 3	7 40.66	+17 22.6	2.039	2.833	14.0	21.5	12 3	7 40.23	+13 41.8	1.702	2.500	16.1	19.7
12 13	7 35.61	+17 3.8	1.953	2.831	10.8	21.3	12 13	7 35.46	+13 5.9	1.636	2.513	12.7	19.5
12 23	7 28.25	+16 50.9	1.890	2.829	7.2	21.1	12 23	7 28.20	+12 39.9	1.593	2.527	8.7	19.3
1 2	7 19.24	+16 43.2	1.854	2.828	3.4	20.8	1 2	7 19.22	+12 24.6	1.574	2.542	5.0	19.1
1 12	7 9.55	+16 39.9	1.847	2.826	2.5	20.8	1 12	7 9.66	+12 19.5	1.584	2.556	4.1	19.1
1 22	7 0.26	+16 39.9	1.870	2.824	6.1	21.0	1 22	7 0.73	+12 23.6	1.621	2.571	7.2	19.3
2 1	6 52.39	+16 42.2	1.921	2.822	9.8	21.2	2 1	6 53.49	+12 34.8	1.684	2.587	10.9	19.6
2 11	6 46.73	+16 46.1	1.996	2.820	13.2	21.4	2 11	6 48.71	+12 50.8	1.771	2.602	14.2	19.8
463871	2014 <i>UT</i> ₄₁		1 8.1 53°39	1°7/ 8.5	18		72972	2002 <i>CL</i> ₂₁₀		1 8.1 240°07	0°9/ 7.8	18	
12 3	7 40.65	+17 49.2	1.750	2.555	15.5	21.4	12 3	7 43.71	+22 58.1	1.826	2.630	15.0	20.3
12 13	7 35.79	+17 38.8	1.683	2.567	11.9	21.2	12 13	7 38.51	+23 22.2	1.732	2.619	11.5	20.1
12 23	7 28.41	+17 35.7	1.637	2.580	7.8	21.0	12 23	7 30.47	+23 51.2	1.662	2.607	7.5	19.8
1 2	7 19.29	+17 38.5	1.618	2.594	3.5	20.8	1 2	7 20.22	+24 21.5	1.618	2.595	2.9	19.5
1 12	7 9.56	+17 45.5	1.627	2.607	2.4	20.7	1 12	7 8.93	+24 48.6	1.603	2.583	2.2	19.4
1 22	7 0.43	+17 55.0	1.665	2.621	6.4	21.0	1 22	6 57.94	+25 9.7	1.617	2.570	6.9	19.7
2 1	6 53.01	+18 5.4	1.729	2.635	10.5	21.3	2 1	6 48.61	+25 23.2	1.658	2.557	11.2	19.9
2 11	6 48.07	+18 15.8	1.817	2.649	13.9	21.5	2 11	6 41.95	+25 29.9	1.723	2.543	15.1	20.1
369939	2013 <i>GL</i> ₆₁		1 8.1 272°89	3°1/ 8.8	17		244987	2004 <i>BK</i> ₁₁₃		1 8.1 336°40	0°8/ 8.4	18	
12 3	7 41.33	+14 19.8	1.763	2.558	15.8	21.4	12 3	7 37.12	+15 38.8	1.876	2.679	14.7	19.5
12 13	7 36.74	+14 9.5	1.660	2.537	12.5	21.2	12 13	7 33.34	+16 39.0	1.784	2.668	11.4	19.3
12 23	7 29.37	+14 9.5	1.579	2.516	8.6	20.9	12 23	7 27.09	+17 53.5	1.715	2.659	7.5	19.0
1 2	7 19.81	+14 19.9	1.524	2.495	4.6	20.6	1 2	7 18.91	+19 18.8	1.673	2.650	3.1	18.7
1 12	7 9.11	+14 39.2	1.496	2.473	3.5	20.5	1 12	7 9.77	+20 49.4	1.660	2.641	1.8	18.6
1 22	6 58.58	+15 5.3	1.497	2.450	7.3	20.7	1 22	7 0.83	+22 19.2	1.677	2.633	6.3	18.9
2 1	6 49.53	+15 35.6	1.525	2.428	11.7	20.9	2 1	6 53.24	+23 42.8	1.721	2.626	10.5	19.1
2 11	6 43.03	+16 7.6	1.576	2.405	15.8	21.1	2 11	6 47.98	+24 56.9	1.790	2.619	14.2	19.4
376625	2013 <i>PE</i> ₅₀		1 8.1 136°52	1°0/ 7.8	18		59501	1999 <i>JB</i> ₉		1 8.1 134°27	5°3/ 10.0	18	
12 3	7 41.84	+24 31.6	2.126	2.926	13.3	21.7	12 3	7 39.23	+ 5 50.1	2.187	2.945	14.3	19.3
12 13	7 36.47	+24 43.5	2.047	2.931	10.1	21.5	12 13	7 34.25	+ 5 31.7	2.108	2.953	11.6	19.1
12 23	7 28.77	+24 57.0	1.991	2.936	6.5	21.3	12 23	7 27.26	+ 5 27.3	2.052	2.961	8.7	18.9
1 2	7 19.43	+25 9.3	1.963	2.941	2.6	21.1	1 2	7 18.85	+ 5 38.2	2.022	2.969	6.2	18.8
1 12	7 9.45	+25 17.6	1.965	2.945	2.0	21.0	1 12	7 9.88	+ 6 3.7	2.020	2.976	5.4	18.7
1 22	6 59.94	+25 20.5	1.997	2.949	5.9	21.3	1 22	7 1.28	+ 6 41.7	2.048	2.983	7.1	18.9
2 1	6 51.92	+25 17.6	2.056	2.953	9.5	21.5	2 1	6 53.93	+ 7 29.0	2.103	2.990	9.8	19.0
2 11	6 46.15	+25 10.0	2.141	2.957	12.7	21.8	2 11	6 48.52	+ 8 21.8	2.183	2.997	12.5	19.2
419128	2009 <i>SB</i> ₂₃₉		1 8.1 92°35	3°0/ 8.7	18		30325	Reesabpathak		1 8.1 107°64	5°3/ 6.6	18	
12 3	7 43.82	+14 43.1	2.124	2.903	14.0								

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
17984	Ahantonlioli		1 8.1 239°98	1.5°/ 8.5 18			258235	2001 TG ₁₁₆		1 8.1 40°64	5°1/ 6.9 18		
12 3	7 40.28	+17 11.2	2.165	2.956	13.4	19.0	12 3	7 44.66	+31 39.9	1.379	2.204	17.8	19.3
12 13	7 35.33	+17 14.1	2.069	2.946	10.4	18.8	12 13	7 39.71	+32 34.9	1.334	2.228	13.7	19.2
12 23	7 28.13	+17 24.0	1.996	2.936	6.9	18.6	12 23	7 31.29	+33 26.2	1.309	2.252	9.4	19.0
1 2	7 19.25	+17 39.7	1.950	2.925	3.1	18.3	1 2	7 20.49	+34 5.5	1.309	2.277	5.7	18.8
1 12	7 9.59	+17 59.3	1.934	2.914	2.1	18.2	1 12	7 9.00	+34 26.8	1.335	2.302	5.7	18.9
1 22	7 0.19	+18 20.6	1.948	2.902	5.8	18.4	1 22	6 58.60	+34 28.4	1.387	2.329	9.1	19.2
2 1	6 52.06	+18 42.0	1.990	2.890	9.6	18.6	2 1	6 50.74	+34 12.5	1.464	2.355	13.0	19.4
2 11	6 46.03	+19 2.3	2.057	2.878	12.9	18.8	2 11	6 46.29	+33 44.0	1.562	2.382	16.3	19.7
196052	2002 SB ₆₆		1 8.1 131°11	1°9/ 7.4 18			52383	1993 HU ₂		1 8.1 293°35	3°2/ 8.9 18		
12 3	7 40.56	+26 41.8	2.344	3.143	12.2	20.7	12 3	7 40.58	+14 23.1	1.427	2.238	18.1	19.1
12 13	7 35.38	+27 13.8	2.265	3.148	9.3	20.5	12 13	7 36.75	+14 19.4	1.335	2.221	14.3	18.8
12 23	7 28.04	+27 46.6	2.211	3.154	6.0	20.3	12 23	7 29.71	+14 29.2	1.263	2.204	9.8	18.5
1 2	7 19.17	+28 16.8	2.184	3.159	2.8	20.1	1 2	7 20.08	+14 52.4	1.214	2.187	5.1	18.1
1 12	7 9.68	+28 40.8	2.188	3.164	2.6	20.1	1 12	7 9.12	+15 26.6	1.193	2.171	3.7	18.0
1 22	7 0.58	+28 56.6	2.222	3.169	5.8	20.3	1 22	6 58.40	+16 8.3	1.197	2.154	8.2	18.2
2 1	6 52.83	+29 3.9	2.284	3.174	9.0	20.5	2 1	6 49.52	+16 53.2	1.227	2.138	13.3	18.5
2 11	6 47.15	+29 3.6	2.371	3.178	11.9	20.7	2 11	6 43.73	+17 38.0	1.278	2.122	17.9	18.7
55830	1995 WA ₁₉		1 8.1 283°05	3°1/ 6.7 18			233547	Luxun		1 8.1 154°66	2°0/ 7.4 18		
12 3	7 39.34	+29 28.0	2.425	3.226	11.8	19.8	12 3	7 46.69	+25 55.3	2.076	2.870	13.8	21.2
12 13	7 34.61	+30 24.6	2.337	3.220	9.1	19.6	12 13	7 40.30	+26 35.8	1.999	2.880	10.5	21.0
12 23	7 27.68	+31 21.9	2.274	3.214	6.1	19.4	12 23	7 31.34	+27 18.2	1.947	2.889	6.8	20.8
1 2	7 19.09	+32 15.1	2.239	3.208	3.6	19.2	1 2	7 20.51	+27 57.8	1.922	2.898	3.1	20.5
1 12	7 9.73	+32 59.7	2.234	3.202	3.7	19.2	1 12	7 8.94	+28 29.9	1.929	2.905	2.8	20.5
1 22	7 0.61	+33 32.8	2.258	3.196	6.4	19.4	1 22	6 57.86	+28 52.1	1.965	2.912	6.4	20.8
2 1	6 52.74	+33 53.3	2.311	3.190	9.4	19.6	2 1	6 48.42	+29 3.7	2.030	2.918	10.1	21.0
2 11	6 46.93	+34 2.4	2.388	3.184	12.1	19.7	2 11	6 41.48	+29 6.4	2.120	2.923	13.2	21.2
412153	2013 GV ₇₂		1 8.1 143°23	3°0/ 9.1 18			319907	2006 XP ₁₅		1 8.1 68°93	1°4/ 8.4 18		
12 3	7 41.51	+12 11.3	2.268	3.040	13.4	22.2	12 3	7 43.23	+18 11.4	1.657	2.461	16.3	20.7
12 13	7 35.93	+12 11.2	2.189	3.052	10.5	22.0	12 13	7 37.81	+18 12.9	1.599	2.483	12.5	20.5
12 23	7 28.31	+12 21.1	2.134	3.063	7.3	21.8	12 23	7 29.73	+18 22.2	1.563	2.506	8.1	20.3
1 2	7 19.26	+12 40.3	2.107	3.074	4.1	21.6	1 2	7 19.86	+18 37.1	1.553	2.529	3.4	20.1
1 12	7 9.67	+13 7.3	2.110	3.083	3.2	21.6	1 12	7 9.43	+18 54.8	1.571	2.552	2.2	20.1
1 22	7 0.47	+13 39.7	2.144	3.093	5.8	21.8	1 22	6 59.76	+19 13.0	1.618	2.574	6.5	20.4
2 1	6 52.55	+14 15.1	2.206	3.101	9.0	22.0	2 1	6 51.96	+19 30.0	1.692	2.597	10.7	20.7
2 11	6 46.61	+14 51.3	2.294	3.109	12.0	22.2	2 11	6 46.81	+19 45.0	1.789	2.619	14.2	21.0
73832	1996 BE ₁₂		1 8.1 25°65	1°1/ 7.8 18			180600	2004 FV ₇₉		1 8.1 144°41	0°9/ 7.8 18		
12 3	7 40.76	+22 22.4	1.458	2.280	17.1	19.1	12 3	7 42.43	+23 13.9	1.996	2.797	14.0	21.1
12 13	7 36.63	+22 58.2	1.389	2.285	13.1	18.9	12 13	7 37.12	+23 39.8	1.917	2.802	10.7	20.9
12 23	7 29.38	+23 41.0	1.341	2.291	8.4	18.6	12 23	7 29.33	+24 9.4	1.862	2.807	6.8	20.7
1 2	7 19.81	+24 25.9	1.318	2.297	3.3	18.3	1 2	7 19.75	+24 39.3	1.834	2.812	2.7	20.4
1 12	7 9.31	+25 7.4	1.323	2.303	2.5	18.3	1 12	7 9.45	+25 5.7	1.836	2.816	2.0	20.4
1 22	6 59.42	+25 41.2	1.354	2.310	7.6	18.6	1 22	6 59.59	+25 26.1	1.868	2.820	6.2	20.7
2 1	6 51.59	+26 5.5	1.411	2.318	12.2	18.9	2 1	6 51.30	+25 39.6	1.927	2.824	10.0	20.9
2 11	6 46.80	+26 20.6	1.489	2.325	16.2	19.2	2 11	6 45.40	+25 46.7	2.010	2.828	13.3	21.1
426020	2011 LO		1 8.1 70°84	4°9/ 5.7 18			471234	2011 AO ₅₆		1 8.1 271°81	2°8/ 7.5 17		
12 3	7 42.58	+32 58.3	2.181	2.981	13.0	20.4	12 3	7 45.43	+30 52.5	2.188	2.983	13.1	21.4
12 13	7 37.35	+34 26.9	2.114	2.993	10.1	20.3	12 13	7 39.53	+30 57.3	2.082	2.961	10.2	21.2
12 23	7 29.55	+35 53.7	2.072	3.004	7.2	20.1	12 23	7 30.99	+30 58.6	1.999	2.938	6.9	21.0
1 2	7 19.84	+37 11.7	2.058	3.016	5.1	20.0	1 2	7 20.45	+30 52.1	1.944	2.915	3.6	20.7
1 12	7 9.29	+38 14.7	2.074	3.027	5.5	20.0	1 12	7 8.97	+30 34.9	1.919	2.892	3.4	20.7
1 22	6 59.13	+38 59.2	2.118	3.039	7.8	20.2	1 22	6 57.81	+30 6.0	1.923	2.868	6.7	20.8
2 1	6 50.55	+39 24.8	2.190	3.051	10.6	20.4	2 1	6 48.18	+29 26.7	1.957	2.844	10.4	21.0
2 11	6 44.42	+39 34.2	2.284	3.062	13.2	20.6	2 11	6 41.03	+28 40.4	2.014	2.820	13.7	21.2
374666	2006 KH ₆₆		1 8.1 107°40	1°3/ 8.5 18			394888	2008 UB ₁₇₆		1 8.1 148°74	0°0/ 8.1 18		
12 3	7 39.09	+17 8.5	2.367	3.155	12.4	21.7	12 3	7 45.94	+21 19.6	1.777	2.576	15.5	22.0
12 13	7 34.05	+17 15.1	2.292	3.167	9.6	21.5	12 13	7 39.98	+21 28.3	1.701	2.585	11.9	21.7
12 23	7 27.09	+17 28.0	2.240	3.179	6.3	21.3	12 23	7 31.23	+21 41.9	1.648	2.592	7.7	21.5
1 2	7 18.79	+17 45.9	2.216	3.191	2.8	21.1	1 2	7 20.50	+21 57.3	1.622	2.600	3.0	21.2
1 12	7 10.00	+18 6.9	2.223	3.202	1.9	21.1	1 12	7 8.99	+22 11.4	1.625	2.606	1.9	21.2
1 22	7 1.60	+18 29.0	2.260	3.213	5.1	21.3	1 22	6 58.07	+22 22.1	1.658	2.612	6.6	21.5
2 1	6 54.43	+18 50.7	2.325	3.224	8.4	21.6	2 1	6 48.98	+22 28.6	1.718	2.618	10.8	21.7
2 11	6 49.13	+19 10.9	2.416	3.235	11.3	21.8	2 11	6 42.59	+22 31.3	1.801	2.622	14.5	22.0
333702	2008 WK ₉₈		1 8.1 160°87	0°7/ 7.9 18			16849	1997 YV		1 8.1 58°44	1°6/ 8.5 18 R		
12 3	7 41.51	+24 48.0	2.270	3.068	12.6	20.9	12 3	7 44.30	+17 40.2	1.316	2.133	19.0	18.0
12 13	7 36.09	+24 42.7	2.186	3.069	9.6	20.7	12 13	7 39.18	+17 47.6	1.265	2.156	14.5	17.8
12 23	7 28.49	+24 37.8	2.125	3.070	6.2	20.5	12 23	7 30.86	+18 5.5	1.234	2.180	9.4	17.6
1 2	7 19.36	+24 31.2	2.093	3.071	2.4	20.2	1 2	7 20.33	+18 31.1	1.227	2.204	4.0	17.3
1 12	7 9.65	+24 21.1	2.091	3.071	1.7	20.2	1 12	7 9.16	+19 0.4	1.247	2.228	2.5	17.3
1 22	7 0.38	+24 7.0	2.119	3.072	5.5	20.4	1 22	6 58.95	+19 29.6	1.294	2.252	7.6	17.7
2 1	6 52.51	+23 49.1	2.176	3.073	9.0	20.6	2 1	6 51.06	+19 56.3	1.366	2.276	12.3	18.0
2 11	6 46.75	+23 28.6	2.258	3.074	12.1	20.8	2 11	6 46.35	+20 19.3	1.460	2.300	16.2	18.3
317517	2002 TK ₁₀₁		1 8.1 22°54	4°1/ 8.9 17			131790	2002 AH ₃₉		1 8.1 37°10	1°8/ 8.5 17		
12 3	7 38.10	+14 55.2	1.129	1.962	20.4	19.8	12 3	7 41.85	+18 5.7	1.117	1.950	20.6	19.7
12 13	7												

EPHEMERIDES

1 8.1

1 8.1

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
397899	2008 <i>UB</i> ₂₆₇		1 8.1 193°52	0°5/ 7.9 18			111408	2001 <i>XS</i> ₁₈₃		1 8.1 38°27	1°9/ 8.7 18		
12 3	7 45.50	+23 0.0	1.746	2.549	15.6	21.7	12 3	7 39.38	+16 1.1	1.694	2.500	15.9	19.3
12 13	7 39.86	+23 10.6	1.662	2.548	12.0	21.5	12 13	7 35.06	+16 13.1	1.622	2.506	12.3	19.1
12 23	7 31.30	+23 24.9	1.601	2.546	7.7	21.2	12 23	7 28.15	+16 35.6	1.572	2.514	8.1	18.9
1 2	7 20.57	+23 39.5	1.566	2.544	3.0	20.9	1 2	7 19.35	+17 6.8	1.547	2.521	3.7	18.6
1 12	7 8.93	+23 51.0	1.561	2.541	2.1	20.8	1 12	7 9.82	+17 43.7	1.550	2.529	2.5	18.5
1 22	6 57.78	+23 57.1	1.584	2.538	6.9	21.1	1 22	7 0.79	+18 22.6	1.581	2.538	6.6	18.8
2 1	6 48.46	+23 57.5	1.635	2.535	11.3	21.4	2 1	6 53.42	+19 0.6	1.639	2.546	10.8	19.1
2 11	6 41.95	+23 53.0	1.709	2.531	15.1	21.6	2 11	6 48.57	+19 35.6	1.720	2.555	14.4	19.3
157258	Leach		1 8.1 94°52	1°4/ 7.7 18			356616	2011 <i>UN</i> ₁₃		1 8.1 261°60	1°7/ 7.8 18		
12 3	7 42.98	+25 12.4	2.092	2.892	13.5	20.8	12 3	7 45.28	+26 22.4	1.623	2.435	16.2	20.9
12 13	7 37.29	+25 35.1	2.026	2.910	10.2	20.6	12 13	7 40.00	+26 26.0	1.538	2.428	12.5	20.6
12 23	7 29.29	+25 59.3	1.984	2.928	6.6	20.4	12 23	7 31.56	+26 29.7	1.475	2.422	8.1	20.3
1 2	7 19.69	+26 21.2	1.969	2.946	2.7	20.2	1 2	7 20.74	+26 29.7	1.438	2.415	3.4	20.0
1 12	7 9.55	+26 37.9	1.985	2.964	2.3	20.2	1 12	7 8.91	+26 22.3	1.429	2.408	2.7	20.0
1 22	6 59.99	+26 47.5	2.030	2.981	5.9	20.5	1 22	6 57.62	+26 6.3	1.447	2.401	7.5	20.2
2 1	6 52.01	+26 49.8	2.103	2.998	9.4	20.7	2 1	6 48.35	+25 42.7	1.493	2.394	12.1	20.5
2 11	6 46.34	+26 46.0	2.201	3.014	12.5	21.0	2 11	6 42.13	+25 14.1	1.560	2.387	16.0	20.7
292424	2006 <i>SP</i> ₃₁₃		1 8.1 348°63	1°0/ 7.8 18			275013	2009 <i>UM</i> ₇		1 8.1 61°17	0°1/ 8.1 18		
12 3	7 41.32	+23 15.6	1.616	2.432	16.0	21.0	12 3	7 40.81	+21 19.4	1.845	2.651	14.7	21.2
12 13	7 36.89	+23 40.1	1.537	2.430	12.3	20.8	12 13	7 36.01	+21 36.4	1.771	2.659	11.3	21.0
12 23	7 29.51	+24 9.5	1.480	2.429	7.9	20.5	12 23	7 28.69	+21 58.8	1.720	2.666	7.2	20.7
1 2	7 19.91	+24 39.9	1.449	2.427	3.1	20.2	1 2	7 19.55	+22 23.4	1.696	2.673	2.8	20.5
1 12	7 9.36	+25 6.8	1.446	2.426	2.4	20.2	1 12	7 9.71	+22 47.1	1.700	2.681	1.8	20.4
1 22	6 59.31	+25 26.9	1.470	2.425	7.2	20.5	1 22	7 0.38	+23 7.2	1.733	2.689	6.2	20.7
2 1	6 51.12	+25 39.1	1.520	2.425	11.7	20.7	2 1	6 52.67	+23 22.5	1.793	2.696	10.3	21.0
2 11	6 45.79	+25 44.0	1.593	2.424	15.6	21.0	2 11	6 47.43	+23 33.0	1.877	2.704	13.7	21.2
221967	1995 <i>SU</i> ₆₂		1 8.1 100°06	3°7/ 9.4 18			238401	2004 <i>EG</i> ₁₈		1 8.1 293°06	4°2/ 9.9 17		
12 3	7 40.60	+10 16.3	2.184	2.955	13.9	21.7	12 3	7 36.48	+ 7 13.8	2.321	3.086	13.3	20.3
12 13	7 35.22	+10 10.6	2.116	2.976	11.0	21.6	12 13	7 32.36	+ 7 26.0	2.216	3.068	10.8	20.1
12 23	7 27.85	+10 16.2	2.072	2.996	7.7	21.4	12 23	7 26.25	+ 7 52.7	2.133	3.051	8.0	19.9
1 2	7 19.12	+10 33.1	2.054	3.016	4.7	21.3	1 2	7 18.63	+ 8 34.3	2.077	3.034	5.2	19.7
1 12	7 9.92	+10 59.6	2.067	3.036	3.8	21.2	1 12	7 10.25	+ 9 29.3	2.051	3.016	4.3	19.6
1 22	7 1.21	+11 33.6	2.109	3.055	6.1	21.4	1 22	7 2.00	+10 34.7	2.053	2.999	6.3	19.7
2 1	6 53.82	+12 12.2	2.179	3.074	9.1	21.6	2 1	6 54.76	+11 46.7	2.085	2.981	9.4	19.9
2 11	6 48.41	+12 52.7	2.275	3.092	12.0	21.9	2 11	6 49.32	+13 0.9	2.142	2.964	12.4	20.1
81060	2000 <i>EU</i> ₆₇		1 8.1 142°42	1°7/ 8.6 18			246033	2006 <i>UV</i> ₈₉		1 8.1 51°41	1°2/ 8.4 18		
12 3	7 41.75	+17 0.6	2.002	2.794	14.3	19.7	12 3	7 42.12	+19 27.0	1.569	2.381	16.7	20.0
12 13	7 36.47	+17 1.2	1.923	2.800	11.0	19.5	12 13	7 37.25	+19 18.9	1.504	2.393	12.8	19.7
12 23	7 28.86	+17 9.1	1.867	2.806	7.3	19.3	12 23	7 29.55	+19 17.4	1.461	2.406	8.3	19.5
1 2	7 19.57	+17 23.1	1.838	2.812	3.3	19.1	1 2	7 19.88	+19 20.6	1.443	2.419	3.5	19.2
1 12	7 9.62	+17 41.1	1.838	2.818	2.2	19.0	1 12	7 9.53	+19 26.2	1.452	2.433	2.2	19.2
1 22	7 0.12	+18 0.9	1.868	2.823	6.0	19.3	1 22	6 59.89	+19 32.5	1.490	2.447	6.9	19.5
2 1	6 52.09	+18 20.9	1.927	2.828	9.8	19.5	2 1	6 52.18	+19 38.2	1.553	2.461	11.3	19.8
2 11	6 46.33	+18 39.8	2.009	2.832	13.1	19.7	2 11	6 47.24	+19 43.0	1.640	2.475	15.0	20.1
350967	2003 <i>CZ</i>		1 8.1 279°46	12°6/ 5.8 18			45074	1999 <i>XA</i> ₃₈		1 8.1 103°93	0°6/ 8.2 18		
12 3	8 4.64	+51 51.2	1.677	2.431	18.1	20.5	12 3	7 49.76	+20 43.7	1.590	2.389	17.1	19.3
12 13	7 56.81	+52 53.4	1.582	2.403	16.0	20.3	12 13	7 42.86	+20 38.8	1.532	2.414	13.0	19.1
12 23	7 43.46	+53 37.8	1.506	2.375	14.0	20.1	12 23	7 33.00	+20 38.8	1.495	2.439	8.4	18.9
1 2	7 25.59	+53 49.0	1.452	2.346	12.7	19.9	1 2	7 21.16	+20 41.1	1.485	2.462	3.3	18.6
1 12	7 5.69	+53 15.0	1.423	2.317	12.9	19.8	1 12	7 8.76	+20 43.1	1.504	2.485	2.1	18.6
1 22	6 46.93	+51 53.0	1.418	2.288	14.7	19.9	1 22	6 57.28	+20 43.3	1.552	2.507	6.9	19.0
2 1	6 32.10	+49 50.6	1.437	2.257	17.4	20.0	2 1	6 47.99	+20 41.4	1.628	2.529	11.3	19.3
2 11	6 22.70	+47 22.4	1.476	2.227	20.3	20.1	2 11	6 41.70	+20 38.1	1.727	2.549	14.9	19.5
77708	2001 <i>OS</i> ₃₁		1 8.1 103°88	0°2/ 8.0 18			43744	1981 <i>EX</i> ₁₇		1 8.1 271°40	1°7/ 7.7 18		
12 3	7 39.06	+20 28.9	2.386	3.180	12.2	19.2	12 3	7 44.15	+25 11.3	1.613	2.426	16.2	20.0
12 13	7 34.15	+21 4.7	2.309	3.190	9.3	19.1	12 13	7 39.34	+25 32.4	1.520	2.411	12.6	19.8
12 23	7 27.25	+21 46.0	2.256	3.200	5.9	18.9	12 23	7 31.30	+25 56.7	1.449	2.396	8.2	19.5
1 2	7 18.94	+22 29.7	2.232	3.209	2.3	18.6	1 2	7 20.72	+26 19.7	1.403	2.380	3.5	19.2
1 12	7 10.06	+23 12.6	2.238	3.219	1.5	18.6	1 12	7 8.90	+26 36.7	1.386	2.365	2.9	19.1
1 22	7 1.53	+23 51.9	2.275	3.228	5.2	18.9	1 22	6 57.42	+26 44.5	1.396	2.349	7.7	19.3
2 1	6 54.21	+24 25.8	2.341	3.238	8.5	19.1	2 1	6 47.84	+26 42.6	1.432	2.333	12.5	19.6
2 11	6 48.79	+24 53.6	2.432	3.247	11.4	19.3	2 11	6 41.33	+26 32.8	1.490	2.317	16.7	19.8
281389	2008 <i>QA</i> ₆		1 8.1 127°12	1°6/ 7.7 17			186395	2002 <i>NG</i> ₆₂		1 8.1 123°37	0°7/ 7.9 18		
12 3	7 47.83	+24 42.1	1.742	2.543	15.7	21.8	12 3	7 48.29	+21 39.2	1.688	2.487	16.2	21.5
12 13	7 41.49	+25 14.5	1.675	2.559	12.0	21.6	12 13	7 41.86	+22 19.3	1.623	2.506	12.4	21.3
12 23	7 32.23	+25 49.8	1.630	2.575	7.7	21.4	12 23	7 32.49	+23 5.5	1.580	2.525	7.9	21.1
1 2	7 20.90	+26 22.9	1.613	2.589	3.2	21.1	1 2	7 21.02	+23 52.9	1.565	2.543	3.0	20.8
1 12	7 8.83	+26 49.3	1.625	2.603	2.7	21.1	1 12	7 8.80	+24 36.2	1.579	2.559	2.2	20.8
1 22	6 57.46	+27 6.2	1.666	2.617	7.0	21.4	1 22	6 57.28	+25 11.7	1.622	2.575	6.9	21.1
2 1	6 48.07	+27 13.3	1.734	2.629	11.1	21.7	2 1	6 47.76	+25 38.0	1.693	2.590	11.2	21.4
2 11	6 41.56	+27 12.5	1.826	2.641	14.6	21.9	2 11	6 41.15	+25 55.8	1.788	2.604	14.8	21.7
208262	2000 <i>WN</i> ₆₄		1 8.1 34°16	2°3/ 7.4 18			105148	2000 <i>NL</i> ₁₇		1 8.1 181°04	0°3/ 8.2 18		
12 3	7 41.74	+23 23.4	1.307	2.136	18.4								

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
429255	2010 <i>BY</i> ₆₈		1 8.1 211 ^o .14	5 ^o / 6.5 18			98440	2000 <i>UN</i> ₅₀		1 8.1 22 ^o .75	5 ^o / 5.9 18		
12 3	7 43.76	+38 34.6	2.634	3.416	11.5	21.3	12 3	7 42.48	+33 5.3	1.691	2.505	15.5	19.0
12 13	7 37.89	+39 8.4	2.550	3.414	9.2	21.1	12 13	7 38.04	+34 32.0	1.623	2.510	12.2	18.8
12 23	7 29.72	+39 35.5	2.491	3.411	6.9	21.0	12 23	7 30.42	+35 57.2	1.578	2.514	8.7	18.6
1 2	7 19.93	+39 51.1	2.460	3.407	5.2	20.8	1 2	7 20.37	+37 12.2	1.559	2.519	6.2	18.4
1 12	7 9.49	+39 51.7	2.457	3.404	5.3	20.8	1 12	7 9.27	+38 9.0	1.568	2.525	6.5	18.5
1 22	6 59.50	+39 36.4	2.485	3.400	7.1	21.0	1 22	6 58.69	+38 43.4	1.604	2.531	9.4	18.7
2 1	6 50.95	+39 6.4	2.539	3.397	9.5	21.1	2 1	6 50.14	+38 55.7	1.664	2.537	12.8	18.9
2 11	6 44.62	+38 25.2	2.618	3.393	11.8	21.3	2 11	6 44.68	+38 49.6	1.747	2.544	15.8	19.1
375003	2007 <i>FZ</i> ₂₇		1 8.1 206 ^o .08	3 ^o / 9.5 18			93752	2000 <i>WA</i> ₅		1 8.1 290 ^o .06	3 ^o / 8.6 18		
12 3	7 39.03	+ 9 21.1	2.475	3.239	12.6	22.4	12 3	7 40.98	+15 9.7	1.932	2.724	14.7	19.2
12 13	7 34.05	+ 9 10.1	2.381	3.234	10.1	22.2	12 13	7 36.11	+14 25.4	1.836	2.711	11.6	19.0
12 23	7 27.18	+ 9 9.6	2.309	3.229	7.3	22.0	12 23	7 28.80	+13 46.9	1.764	2.699	8.0	18.8
1 2	7 18.95	+ 9 20.1	2.266	3.223	4.7	21.8	1 2	7 19.67	+13 15.5	1.718	2.686	4.5	18.5
1 12	7 10.11	+ 9 40.8	2.251	3.217	4.0	21.8	1 12	7 9.72	+12 51.5	1.701	2.674	3.7	18.4
1 22	7 1.50	+10 10.1	2.267	3.210	6.0	21.9	1 22	7 0.10	+12 35.2	1.712	2.662	6.9	18.6
2 1	6 53.95	+10 45.7	2.312	3.203	8.9	22.0	2 1	6 51.90	+12 26.1	1.751	2.650	10.8	18.8
2 11	6 48.14	+11 25.0	2.383	3.196	11.6	22.2	2 11	6 46.01	+12 23.2	1.813	2.638	14.3	19.0
15750	1991 <i>VJ</i> ₄		1 8.1 132 ^o .62	3 ^o / 7.0 18			201829	2003 <i>YP</i> ₃₂		1 8.1 298 ^o .55	0 ^o / 8.2 18		
12 3	7 48.27	+29 47.7	1.703	2.508	15.8	17.6	12 3	7 40.40	+22 4.9	2.130	2.930	13.2	20.1
12 13	7 42.14	+30 41.4	1.635	2.519	12.2	17.4	12 13	7 35.64	+21 49.2	2.024	2.908	10.3	19.9
12 23	7 32.83	+31 34.4	1.590	2.530	8.2	17.2	12 23	7 28.50	+21 35.3	1.942	2.887	6.7	19.6
1 2	7 21.21	+32 19.8	1.571	2.541	4.6	17.0	1 2	7 19.57	+21 22.0	1.888	2.865	2.7	19.3
1 12	7 8.69	+32 51.2	1.581	2.551	4.6	17.0	1 12	7 9.80	+21 7.8	1.862	2.844	1.7	19.2
1 22	6 56.86	+33 5.9	1.619	2.560	8.1	17.3	1 22	7 0.26	+20 52.0	1.867	2.822	5.9	19.5
2 1	6 47.16	+33 4.5	1.684	2.569	12.0	17.5	2 1	6 52.05	+20 34.9	1.899	2.801	9.9	19.7
2 11	6 40.57	+32 50.6	1.772	2.577	15.3	17.7	2 11	6 46.03	+20 17.1	1.956	2.780	13.4	19.9
282328	2002 <i>TD</i> ₃₁₅		1 8.1 117 ^o .59	2 ^o / 9.0 18			243536	Mannheim		1 8.1 199 ^o .41	1 ^o / 8.7 18		
12 3	7 37.92	+13 38.2	2.377	3.159	12.6	20.7	12 3	7 37.74	+15 55.8	2.649	3.431	11.4	21.0
12 13	7 33.26	+13 57.9	2.294	3.164	9.8	20.5	12 13	7 33.00	+16 8.5	2.557	3.429	8.9	20.8
12 23	7 26.69	+14 27.2	2.236	3.170	6.6	20.4	12 23	7 26.50	+16 28.2	2.490	3.427	5.9	20.6
1 2	7 18.76	+15 4.8	2.205	3.175	3.4	20.2	1 2	7 18.71	+16 53.6	2.451	3.424	2.8	20.4
1 12	7 10.26	+15 48.3	2.204	3.181	2.4	20.1	1 12	7 10.37	+17 22.9	2.442	3.421	1.9	20.3
1 22	7 2.06	+16 34.9	2.233	3.186	5.3	20.3	1 22	7 2.27	+17 53.9	2.464	3.418	4.8	20.5
2 1	6 55.00	+17 21.8	2.291	3.191	8.5	20.5	2 1	6 55.17	+18 25.0	2.516	3.414	7.9	20.7
2 11	6 49.75	+18 6.8	2.375	3.196	11.4	20.7	2 11	6 49.72	+18 54.7	2.594	3.411	10.7	20.9
286604	2002 <i>CC</i> ₃₁₆		1 8.1 61 ^o .01	2 ^o / 8.8 18			239912	2000 <i>SV</i> ₂₅₄		1 8.1 64 ^o .98	1 ^o / 7.7 17		
12 3	7 39.67	+15 11.9	1.871	2.667	14.9	21.0	12 3	7 45.98	+25 2.2	1.398	2.218	17.9	20.9
12 13	7 35.03	+15 9.9	1.796	2.674	11.6	20.8	12 13	7 40.58	+25 33.1	1.344	2.238	13.6	20.7
12 23	7 28.01	+15 17.4	1.743	2.682	7.8	20.6	12 23	7 31.86	+26 7.1	1.311	2.259	8.7	20.5
1 2	7 19.30	+15 33.4	1.717	2.690	3.9	20.4	1 2	7 20.84	+26 38.3	1.303	2.280	3.7	20.2
1 12	7 9.93	+15 55.8	1.719	2.697	2.8	20.3	1 12	7 9.10	+27 1.6	1.322	2.301	3.1	20.2
1 22	7 1.02	+16 22.3	1.750	2.705	6.3	20.6	1 22	6 58.31	+27 14.2	1.368	2.322	7.8	20.6
2 1	6 53.64	+16 50.5	1.809	2.713	10.1	20.8	2 1	6 49.91	+27 16.4	1.440	2.343	12.3	20.9
2 11	6 48.55	+17 18.3	1.891	2.721	13.5	21.0	2 11	6 44.77	+27 10.3	1.533	2.364	16.1	21.2
139184	2001 <i>FU</i> ₁₄₃		1 8.1 274 ^o .14	3 ^o / 6.8 18			358043	2006 <i>GF</i> ₂₉		1 8.1 259 ^o .10	0 ^o / 8.3 18		
12 3	7 41.28	+29 39.7	2.193	2.995	12.8	20.4	12 3	7 42.84	+19 35.0	1.718	2.523	15.7	21.7
12 13	7 36.44	+30 29.3	2.097	2.980	10.0	20.2	12 13	7 38.03	+19 43.4	1.624	2.510	12.2	21.5
12 23	7 29.08	+31 19.5	2.025	2.966	6.7	20.0	12 23	7 30.32	+19 59.1	1.551	2.496	8.0	21.2
1 2	7 19.79	+32 5.3	1.981	2.951	3.9	19.8	1 2	7 20.36	+20 19.8	1.505	2.482	3.3	20.9
1 12	7 9.55	+32 41.8	1.966	2.935	3.9	19.8	1 12	7 9.30	+20 42.2	1.487	2.468	2.0	20.8
1 22	6 59.53	+33 5.7	1.981	2.920	7.0	19.9	1 22	6 58.53	+21 3.5	1.497	2.453	7.0	21.0
2 1	6 50.91	+33 16.3	2.023	2.905	10.4	20.1	2 1	6 49.41	+21 21.9	1.534	2.439	11.6	21.3
2 11	6 44.62	+33 15.1	2.088	2.890	13.5	20.3	2 11	6 43.02	+21 36.7	1.595	2.424	15.6	21.5
201923	2004 <i>CV</i> ₆₆		1 8.1 32 ^o .72	0 ^o / 8.2 18			281377	2008 <i>OR</i> ₃		1 8.1 177 ^o .74	2 ^o / 8.7 18		
12 3	7 38.28	+17 49.4	1.811	2.618	15.0	19.4	12 3	7 45.55	+15 19.8	1.841	2.627	15.5	21.6
12 13	7 34.12	+18 41.4	1.743	2.630	11.4	19.2	12 13	7 39.63	+15 4.6	1.757	2.630	12.2	21.4
12 23	7 27.51	+19 43.8	1.698	2.643	7.3	19.0	12 23	7 31.07	+14 57.8	1.696	2.631	8.2	21.1
1 2	7 19.13	+20 52.3	1.679	2.657	2.9	18.7	1 2	7 20.57	+14 59.0	1.661	2.632	4.2	20.9
1 12	7 10.05	+22 2.0	1.690	2.671	1.8	18.7	1 12	7 9.27	+15 6.9	1.656	2.632	3.1	20.8
1 22	7 1.43	+23 7.7	1.729	2.685	6.2	19.0	1 22	6 58.42	+15 19.5	1.680	2.632	6.8	21.0
2 1	6 54.36	+24 6.0	1.796	2.700	10.2	19.3	2 1	6 49.23	+15 35.3	1.732	2.631	10.9	21.3
2 11	6 49.66	+24 55.2	1.887	2.716	13.6	19.5	2 11	6 42.56	+15 52.7	1.808	2.628	14.4	21.5
424942	2008 <i>YC</i> ₁₀₅		1 8.1 128 ^o .54	0 ^o / 7.9 18			330073	2005 <i>VP</i> ₈₅		1 8.1 7 ^o .62	2 ^o / 8.8 18		
12 3	7 41.62	+25 32.0	2.510	3.303	11.7	20.9	12 3	7 39.71	+15 26.3	1.882	2.678	14.9	21.5
12 13	7 35.97	+25 22.6	2.428	3.308	8.9	20.7	12 13	7 35.16	+15 23.5	1.799	2.678	11.6	21.3
12 23	7 28.34	+25 12.8	2.371	3.314	5.7	20.5	12 23	7 28.19	+15 29.9	1.740	2.678	7.8	21.1
1 2	7 19.38	+25 0.7	2.342	3.319	2.3	20.3	1 2	7 19.46	+15 44.7	1.706	2.679	3.9	20.9
1 12	7 9.94	+24 44.9	2.344	3.324	1.6	20.3	1 12	7 9.98	+16 5.9	1.701	2.679	2.7	20.8
1 22	7 0.94	+24 25.2	2.377	3.329	5.1	20.5	1 22	7 0.90	+16 31.2	1.724	2.679	6.4	21.0
2 1	6 53.23	+24 2.0	2.439	3.334	8.3	20.7	2 1	6 53.30	+16 58.3	1.775	2.680	10.3	21.2
2 11	6 47.45	+23 36.6	2.527	3.338	11.1	20.9	2 11	6 48.01	+17 25.3	1.850	2.680	13.8	21.5
349539	2008 <i>SM</i> ₃₂		1 8.1 71 ^o .86	2 ^o / 8.6 18			129						

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
327964	2007 <i>EG</i> ₁₅₉		1 8.1 31°94	1.1°/ 8.4	18		127767	2003 <i>FS</i> ₄₂		1 8.1 198°25	1.1°/ 7.8	18	
12 3	7 40.02	+18 26.6	1.661	2.471	15.9	21.2	12 3	7 46.02	+24 6.2	2.028	2.822	14.0	21.4
12 13	7 35.67	+18 36.0	1.588	2.477	12.3	21.0	12 13	7 40.01	+24 28.1	1.938	2.819	10.8	21.2
12 23	7 28.63	+18 53.7	1.537	2.482	8.0	20.8	12 23	7 31.36	+24 52.9	1.871	2.815	7.0	20.9
1 2	7 19.64	+19 17.6	1.512	2.489	3.4	20.5	1 2	7 20.74	+25 16.8	1.833	2.810	2.8	20.7
1 12	7 9.88	+19 44.3	1.514	2.495	2.1	20.4	1 12	7 9.24	+25 36.3	1.825	2.804	2.2	20.6
1 22	7 0.64	+20 11.0	1.545	2.502	6.6	20.7	1 22	6 58.12	+25 49.0	1.846	2.798	6.3	20.9
2 1	6 53.14	+20 35.5	1.601	2.509	11.0	21.0	2 1	6 48.57	+25 54.1	1.896	2.790	10.3	21.1
2 11	6 48.24	+20 56.7	1.681	2.517	14.7	21.3	2 11	6 41.52	+25 52.8	1.971	2.782	13.8	21.3
186267	2001 <i>YB</i> ₁₀₁		1 8.1 68°07	0.7°/ 7.8	18		168181	2006 <i>HQ</i> ₉₀		1 8.1 131°12	2.7°/ 8.8	18	
12 3	7 41.50	+20 8.9	1.794	2.599	15.1	20.0	12 3	7 43.15	+14 54.9	1.813	2.604	15.6	21.2
12 13	7 36.71	+21 10.6	1.723	2.610	11.6	19.8	12 13	7 37.76	+14 46.4	1.738	2.613	12.1	21.0
12 23	7 29.27	+22 21.1	1.675	2.621	7.4	19.5	12 23	7 29.84	+14 47.4	1.685	2.622	8.2	20.8
1 2	7 19.90	+23 35.6	1.654	2.632	2.8	19.3	1 2	7 20.11	+14 57.3	1.659	2.630	4.2	20.6
1 12	7 9.71	+24 47.9	1.662	2.643	2.1	19.3	1 12	7 9.68	+15 14.1	1.661	2.638	3.1	20.5
1 22	6 59.97	+25 52.8	1.700	2.654	6.6	19.6	1 22	6 59.75	+15 35.6	1.692	2.645	6.6	20.8
2 1	6 51.89	+26 47.3	1.765	2.665	10.6	19.8	2 1	6 51.47	+15 59.8	1.751	2.652	10.6	21.0
2 11	6 46.36	+27 30.5	1.855	2.676	14.1	20.1	2 11	6 45.65	+16 24.5	1.833	2.659	14.1	21.2
166842	2002 <i>VS</i> ₁₂₄		1 8.1 24°86	4.9°/ 9.8	18		376446	2012 <i>HD</i> ₅₀		1 8.1 217°29	10.6°/ 11.9	18	
12 3	7 36.59	+ 8 46.3	1.841	2.626	15.6	19.5	12 3	7 38.67	-12 56.6	2.627	3.269	14.7	21.7
12 13	7 32.68	+ 8 27.4	1.769	2.635	12.5	19.3	12 13	7 33.78	-14 4.8	2.537	3.261	13.3	21.6
12 23	7 26.53	+ 8 22.8	1.720	2.643	9.1	19.1	12 23	7 27.06	-14 53.6	2.467	3.252	12.0	21.4
1 2	7 18.79	+ 8 33.2	1.695	2.653	6.0	18.9	1 2	7 19.01	-15 18.3	2.420	3.242	11.0	21.4
1 12	7 10.44	+ 8 57.9	1.698	2.663	5.0	18.9	1 12	7 10.34	-15 16.3	2.396	3.233	10.6	21.3
1 22	7 2.54	+ 9 34.3	1.728	2.674	7.2	19.1	1 22	7 1.83	-14 47.5	2.397	3.222	11.1	21.3
2 1	6 56.07	+10 18.8	1.784	2.685	10.5	19.3	2 1	6 54.31	-13 54.5	2.422	3.211	12.1	21.4
2 11	6 51.77	+11 7.5	1.865	2.697	13.6	19.5	2 11	6 48.42	-12 42.2	2.469	3.200	13.5	21.5
371241	2006 <i>BW</i> ₁₂₆		1 8.1 50°46	0.4°/ 8.2	18		109101	2001 <i>QH</i> ₃₅		1 8.1 165°80	0.3°/ 8.2	18	
12 3	7 40.55	+20 42.7	1.847	2.653	14.7	21.2	12 3	7 39.66	+20 55.8	2.557	3.347	11.6	20.5
12 13	7 35.79	+20 48.1	1.776	2.662	11.3	21.0	12 13	7 34.52	+20 57.7	2.471	3.349	8.9	20.3
12 23	7 28.56	+20 58.7	1.727	2.672	7.3	20.8	12 23	7 27.50	+21 2.8	2.409	3.352	5.7	20.1
1 2	7 19.58	+21 12.0	1.704	2.682	2.9	20.5	1 2	7 19.16	+21 9.6	2.377	3.354	2.3	19.9
1 12	7 9.96	+21 25.6	1.711	2.692	1.8	20.4	1 12	7 10.29	+21 16.4	2.374	3.355	1.4	19.8
1 22	7 0.87	+21 37.4	1.746	2.702	6.1	20.7	1 22	7 1.76	+21 21.8	2.403	3.357	4.9	20.0
2 1	6 53.41	+21 46.4	1.808	2.712	10.1	21.0	2 1	6 54.37	+21 25.3	2.461	3.358	8.1	20.3
2 11	6 48.36	+21 52.3	1.894	2.723	13.5	21.2	2 11	6 48.77	+21 26.8	2.544	3.359	10.9	20.4
258921	2002 <i>RM</i> ₃₈		1 8.1 66°97	0.3°/ 8.1	17		519010	2010 <i>JF</i> ₉₈		1 8.1 119°58	0.1°/ 8.1	18	
12 3	7 45.34	+22 59.7	1.571	2.381	16.7	21.0	12 3	7 41.00	+22 48.6	2.480	3.272	11.8	21.0
12 13	7 39.66	+23 0.6	1.513	2.403	12.7	20.8	12 13	7 35.51	+22 46.3	2.403	3.282	9.0	20.8
12 23	7 31.08	+23 4.7	1.478	2.424	8.1	20.5	12 23	7 28.10	+22 45.7	2.349	3.292	5.8	20.6
1 2	7 20.54	+23 8.9	1.468	2.446	3.1	20.3	1 2	7 19.38	+22 45.1	2.325	3.302	2.2	20.4
1 12	7 9.42	+23 10.4	1.486	2.467	2.0	20.3	1 12	7 10.18	+22 43.0	2.331	3.312	1.4	20.3
1 22	6 59.16	+23 7.8	1.533	2.489	6.8	20.6	1 22	7 1.41	+22 38.5	2.368	3.321	5.0	20.6
2 1	6 51.00	+23 1.1	1.606	2.510	11.2	20.9	2 1	6 53.89	+22 31.3	2.434	3.331	8.2	20.8
2 11	6 45.73	+22 51.5	1.702	2.532	14.8	21.2	2 11	6 48.27	+22 22.1	2.525	3.340	11.0	21.0
360322	2001 <i>SU</i> ₃₂₂		1 8.1 118°02	4.9°/ 9.5	18		516428	2003 <i>UR</i> ₁₂		1 8.1 110°63	15°8/ 11.0	18	
12 3	7 42.07	+ 8 38.3	2.135	2.899	14.4	21.4	12 3	7 56.02	-51 11.2	3.059	3.287	17.4	23.7
12 13	7 36.43	+ 8 0.3	2.063	2.914	11.6	21.2	12 13	7 47.21	-52 45.4	3.047	3.323	17.1	23.7
12 23	7 28.73	+ 7 33.6	2.014	2.930	8.5	21.0	12 23	7 35.70	-53 49.4	3.041	3.357	16.8	23.7
1 2	7 19.61	+ 7 19.8	1.992	2.945	5.8	20.9	1 2	7 22.32	-54 17.9	3.041	3.390	16.5	23.7
1 12	7 9.98	+ 7 18.8	1.999	2.959	5.0	20.9	1 12	7 8.35	-54 7.9	3.049	3.422	16.2	23.8
1 22	7 0.83	+ 7 29.5	2.035	2.973	7.0	21.0	1 22	6 55.14	-53 20.1	3.066	3.452	16.0	23.8
2 1	6 53.06	+ 7 49.8	2.100	2.986	9.8	21.2	2 1	6 43.88	-51 58.0	3.093	3.481	15.9	23.8
2 11	6 47.32	+ 8 16.7	2.188	2.999	12.6	21.4	2 11	6 35.38	-50 7.8	3.130	3.509	15.8	23.9
283438	2000 <i>VB</i> ₅₄		1 8.1 59°86	1.6°/ 7.9	18		226862	2004 <i>TE</i> ₃₈		1 8.1 122°84	3.1°/ 7.2	18	
12 3	7 51.24	+25 19.6	1.324	2.138	19.0	20.6	12 3	7 43.03	+29 39.1	2.105	2.906	13.3	20.9
12 13	7 44.29	+25 33.2	1.287	2.178	14.4	20.4	12 13	7 37.65	+30 15.8	2.029	2.912	10.3	20.7
12 23	7 33.99	+25 48.1	1.270	2.217	9.1	20.3	12 23	7 29.77	+30 51.4	1.976	2.917	6.9	20.5
1 2	7 21.59	+25 58.9	1.279	2.256	3.7	20.0	1 2	7 20.10	+31 21.2	1.952	2.923	3.7	20.3
1 12	7 8.85	+26 1.9	1.315	2.294	2.8	20.1	1 12	7 9.71	+31 41.1	1.956	2.928	3.6	20.3
1 22	6 57.49	+25 56.1	1.378	2.333	7.7	20.5	1 22	6 59.81	+31 49.0	1.990	2.933	6.7	20.5
2 1	6 48.83	+25 42.9	1.468	2.371	12.1	20.8	2 1	6 51.50	+31 45.3	2.052	2.938	10.1	20.8
2 11	6 43.58	+25 25.1	1.580	2.408	15.8	21.2	2 11	6 45.60	+31 32.1	2.137	2.943	13.0	21.0
166040	2002 <i>CE</i> ₁₁		1 8.1 296°78	2.1°/ 7.6	18		521938	2015 <i>VT</i> ₁		1 8.1 113°33	3.1°/ 9.3	18	
12 3	7 42.92	+25 37.0	1.491	2.311	16.9	20.3	12 3	7 45.82	+11 45.5	1.913	2.687	15.5	22.3
12 13	7 38.70	+26 2.3	1.401	2.296	13.1	20.0	12 13	7 39.49	+11 57.7	1.849	2.713	12.1	22.1
12 23	7 31.09	+26 31.3	1.332	2.280	8.6	19.7	12 23	7 30.78	+12 22.4	1.808	2.737	8.3	21.9
1 2	7 20.79	+26 58.8	1.287	2.264	3.8	19.4	1 2	7 20.43	+12 58.2	1.793	2.761	4.5	21.8
1 12	7 9.15	+27 19.4	1.270	2.249	3.2	19.3	1 12	7 9.54	+13 42.1	1.809	2.784	3.4	21.7
1 22	6 57.87	+27 29.6	1.280	2.234	8.2	19.6	1 22	6 59.24	+14 30.5	1.855	2.805	6.4	22.0
2 1	6 48.62	+27 28.7	1.314	2.219	13.1	19.8	2 1	6 50.59	+15 20.0	1.929	2.826	10.0	22.2
2 11	6 42.62	+27 18.7	1.371	2.204	17.5	20.0	2 11	6 44.32	+16 8.0	2.029	2.846	13.2	22.5
456471	2006 <i>WL</i> ₄₀		1 8.1 61°98	7.5°/ 10.1	16		252358	2001 <i>SY</i> ₂₀₈		1 8.1 94°06	1.5°/ 7.7	18	
12 3													

EPHEMERIDES

1 8.1

1 8.2

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
271844	2004 <i>TP</i> ₂₂₂		1 8.1 36°39'	7.3/ 7.1	18		38021	1998 <i>MG</i> ₁		1 8.1 178°58'	1.8/ 8.7	18	
12 3	7 48.27	+40 44.7	1.696	2.495	16.1	20.2	12 3	7 39.97	+15 59.4	2.227	3.014	13.2	19.8
12 13	7 42.40	+41 20.3	1.636	2.506	13.1	20.0	12 13	7 35.03	+16 1.5	2.140	3.015	10.2	19.6
12 23	7 33.08	+41 44.1	1.597	2.517	10.0	19.9	12 23	7 27.98	+16 11.2	2.078	3.015	6.8	19.4
1 2	7 21.39	+41 48.3	1.582	2.528	7.7	19.8	1 2	7 19.42	+16 27.5	2.042	3.015	3.3	19.2
1 12	7 8.98	+41 28.3	1.594	2.540	7.7	19.8	1 12	7 10.22	+16 48.4	2.037	3.015	2.3	19.1
1 22	6 57.62	+40 44.2	1.633	2.552	9.9	19.9	1 22	7 1.35	+17 12.0	2.061	3.015	5.6	19.3
2 1	6 48.76	+39 40.7	1.697	2.565	12.8	20.1	2 1	6 53.73	+17 36.4	2.114	3.015	9.1	19.5
2 11	6 43.27	+38 24.9	1.783	2.578	15.7	20.4	2 11	6 48.10	+18 0.2	2.192	3.014	12.2	19.7
134327	2304 <i>T</i> ₋₃		1 8.1 139°66'	4.5/ 9.6	18		330926	2009 <i>SD</i> ₁₇₇		1 8.1 230°64'	4.6/ 9.5	18	
12 3	7 38.57	+ 8 4.3	2.452	3.212	12.8	20.6	12 3	7 39.86	+ 8 57.1	2.188	2.956	14.0	21.4
12 13	7 33.65	+ 7 37.2	2.370	3.219	10.4	20.5	12 13	7 35.01	+ 8 31.3	2.093	2.948	11.3	21.1
12 23	7 26.93	+ 7 20.6	2.312	3.225	7.7	20.3	12 23	7 28.02	+ 8 16.6	2.021	2.939	8.3	20.9
1 2	7 18.95	+ 7 15.8	2.280	3.231	5.3	20.2	1 2	7 19.47	+ 8 14.3	1.975	2.930	5.5	20.8
1 12	7 10.47	+ 7 22.5	2.278	3.237	4.6	20.1	1 12	7 10.19	+ 8 24.4	1.958	2.921	4.8	20.7
1 22	7 2.32	+ 7 39.5	2.306	3.243	6.3	20.3	1 22	7 1.16	+ 8 45.6	1.970	2.912	6.9	20.8
2 1	6 55.27	+ 8 4.9	2.361	3.248	8.9	20.4	2 1	6 53.32	+ 9 15.6	2.010	2.902	10.0	21.0
2 11	6 49.95	+ 8 36.1	2.442	3.253	11.4	20.6	2 11	6 47.45	+ 9 51.5	2.075	2.892	13.0	21.2
88792	2001 <i>SV</i> ₁₁₂		1 8.1 142°50'	1.8/ 8.6	18		226504	2003 <i>SX</i> ₃₂₀		1 8.1 104°32'	1.9/ 7.8	17	
12 3	7 45.84	+16 47.3	1.946	2.732	14.9	20.4	12 3	7 48.67	+25 10.9	1.362	2.179	18.5	21.7
12 13	7 39.63	+16 46.9	1.872	2.745	11.5	20.2	12 13	7 42.92	+25 34.3	1.299	2.192	14.1	21.5
12 23	7 30.96	+16 54.1	1.820	2.758	7.6	19.9	12 23	7 33.59	+26 0.6	1.257	2.204	9.1	21.2
1 2	7 20.55	+17 7.4	1.796	2.770	3.5	19.7	1 2	7 21.69	+26 24.2	1.239	2.216	3.8	20.9
1 12	7 9.48	+17 24.6	1.801	2.780	2.3	19.7	1 12	7 8.86	+26 39.7	1.249	2.228	3.1	20.9
1 22	6 58.95	+17 43.5	1.837	2.791	6.2	19.9	1 22	6 56.95	+26 44.6	1.286	2.240	8.1	21.3
2 1	6 50.05	+18 2.4	1.901	2.800	10.1	20.2	2 1	6 47.54	+26 39.4	1.348	2.251	13.0	21.6
2 11	6 43.56	+18 20.3	1.990	2.808	13.4	20.4	2 11	6 41.63	+26 26.7	1.432	2.262	17.0	21.9
309399	2007 <i>TZ</i> ₂₂₁		1 8.1 149°03'	0.6/ 8.3	18		165729	2001 <i>QW</i> ₁₀₆		1 8.2 72°06'	7.0/ 9.5	18	
12 3	7 44.57	+19 34.9	2.012	2.804	14.2	22.3	12 3	7 39.92	+ 3 37.9	2.273	3.018	14.2	19.7
12 13	7 38.69	+19 47.5	1.935	2.813	10.9	22.1	12 13	7 34.76	+ 2 22.0	2.198	3.027	11.8	19.5
12 23	7 30.38	+20 5.9	1.880	2.822	7.1	21.8	12 23	7 27.69	+ 1 18.5	2.146	3.036	9.4	19.4
1 2	7 20.34	+20 27.7	1.854	2.830	2.8	21.6	1 2	7 19.29	+ 0 30.7	2.120	3.046	7.5	19.3
1 12	7 9.61	+20 50.0	1.857	2.838	1.7	21.5	1 12	7 10.39	+ 0 0.6	2.123	3.055	7.0	19.3
1 22	6 59.36	+21 10.5	1.891	2.845	5.9	21.8	1 22	7 1.89	- 0 11.7	2.154	3.065	8.3	19.4
2 1	6 50.66	+21 27.8	1.953	2.851	9.8	22.1	2 1	6 54.60	- 0 7.6	2.211	3.075	10.4	19.5
2 11	6 44.32	+21 41.6	2.039	2.857	13.1	22.3	2 11	6 49.18	+ 0 9.5	2.292	3.084	12.7	19.7
351736	2006 <i>DC</i> ₁₀		1 8.1 349°83'	1.8/ 8.7	18		372001	2008 <i>HL</i> ₂₇		1 8.2 150°65'	0.5/ 7.9	18	
12 3	7 40.15	+15 41.6	1.353	2.172	18.5	20.3	12 3	7 41.94	+22 11.2	2.557	3.344	11.7	22.2
12 13	7 36.49	+16 7.2	1.277	2.169	14.4	20.0	12 13	7 36.29	+22 42.6	2.476	3.354	8.9	22.0
12 23	7 29.60	+16 48.0	1.220	2.166	9.6	19.7	12 23	7 28.69	+23 17.6	2.421	3.363	5.7	21.8
1 2	7 20.20	+17 41.4	1.188	2.164	4.3	19.4	1 2	7 19.69	+23 53.4	2.394	3.371	2.2	21.6
1 12	7 9.65	+18 42.3	1.182	2.162	2.6	19.3	1 12	7 10.13	+24 26.9	2.399	3.379	1.6	21.5
1 22	6 59.56	+19 44.7	1.202	2.161	7.8	19.6	1 22	7 0.91	+24 55.8	2.435	3.387	5.0	21.8
2 1	6 51.49	+20 43.6	1.247	2.161	12.9	19.9	2 1	6 52.87	+25 18.9	2.501	3.394	8.2	22.0
2 11	6 46.56	+21 35.9	1.314	2.161	17.3	20.2	2 11	6 46.71	+25 36.2	2.593	3.400	11.0	22.2
304858	2007 <i>RQ</i> ₇₇		1 8.1 357°80'	2.1/ 7.7	18		444209	2005 <i>TU</i> ₅₄		1 8.2 69°17'	3.6/ 8.9	17	
12 3	7 42.95	+26 5.6	1.377	2.203	17.8	20.2	12 3	7 44.10	+14 43.1	1.342	2.152	19.0	21.3
12 13	7 38.72	+26 24.5	1.304	2.202	13.7	20.0	12 13	7 39.21	+14 20.3	1.279	2.164	14.9	21.0
12 23	7 31.02	+26 45.5	1.251	2.200	8.9	19.7	12 23	7 31.11	+14 9.5	1.236	2.176	10.1	20.8
1 2	7 20.73	+27 3.5	1.223	2.200	3.9	19.4	1 2	7 20.73	+14 10.8	1.216	2.188	5.3	20.6
1 12	7 9.35	+27 13.7	1.221	2.200	3.2	19.4	1 12	7 9.52	+14 22.4	1.223	2.200	4.0	20.5
1 22	6 58.65	+27 13.3	1.245	2.200	8.2	19.7	1 22	6 59.08	+14 41.7	1.257	2.212	8.1	20.8
2 1	6 50.22	+27 2.8	1.294	2.201	13.1	19.9	2 1	6 50.84	+15 5.8	1.315	2.224	12.7	21.1
2 11	6 45.16	+26 44.8	1.364	2.202	17.3	20.2	2 11	6 45.74	+15 32.0	1.395	2.237	16.8	21.4
322293	2011 <i>FT</i> ₄₆		1 8.1 210°06'	1.0/ 8.5	18		142090	2002 <i>QL</i> ₅₂		1 8.2 175°24'	0.3/ 8.0	18	
12 3	7 39.44	+18 43.8	2.362	3.153	12.4	21.0	12 3	7 40.02	+22 12.7	2.446	3.239	11.9	21.2
12 13	7 34.54	+18 44.4	2.272	3.150	9.6	20.8	12 13	7 34.97	+22 31.4	2.360	3.240	9.1	21.0
12 23	7 27.63	+18 50.1	2.207	3.147	6.2	20.6	12 23	7 27.91	+22 53.6	2.298	3.241	5.9	20.8
1 2	7 19.27	+18 59.7	2.169	3.145	2.7	20.4	1 2	7 19.42	+23 16.8	2.265	3.242	2.3	20.6
1 12	7 10.28	+19 11.3	2.161	3.142	1.7	20.3	1 12	7 10.32	+23 38.5	2.262	3.243	1.5	20.5
1 22	7 1.61	+19 23.4	2.184	3.138	5.2	20.5	1 22	7 1.54	+23 56.6	2.290	3.243	5.1	20.8
2 1	6 54.13	+19 34.9	2.235	3.135	8.7	20.7	2 1	6 53.95	+24 10.3	2.346	3.243	8.5	21.0
2 11	6 48.54	+19 45.1	2.311	3.131	11.7	20.9	2 11	6 48.26	+24 19.4	2.428	3.243	11.4	21.2
502625	2015 <i>CG</i> ₂₉		1 8.1 241°55'	3.3/ 9.8	17		16866	1998 <i>AR</i>		1 8.2 352°00'	2.8/ 7.6	18	
12 3	7 37.48	+ 8 55.4	2.431	3.198	12.8	21.5	12 3	7 43.04	+27 24.0	1.335	2.164	18.1	16.9
12 13	7 33.00	+ 9 17.8	2.338	3.194	10.2	21.3	12 13	7 38.96	+27 44.0	1.262	2.161	14.0	16.7
12 23	7 26.64	+ 9 53.3	2.267	3.190	7.3	21.1	12 23	7 31.30	+28 4.7	1.209	2.158	9.2	16.4
1 2	7 18.90	+10 41.2	2.224	3.186	4.4	20.9	1 2	7 20.91	+28 20.7	1.179	2.156	4.3	16.1
1 12	7 10.51	+11 39.4	2.211	3.182	3.4	20.9	1 12	7 9.38	+28 26.6	1.176	2.154	3.7	16.1
1 22	7 2.34	+12 44.8	2.229	3.178	5.6	21.0	1 22	6 58.55	+28 20.1	1.199	2.153	8.6	16.3
2 1	6 55.19	+13 53.4	2.276	3.173	8.7	21.2	2 1	6 50.08	+28 2.0	1.246	2.153	13.5	16.6
2 11	6 49.78	+15 2.0	2.349	3.169	11.5	21.4	2 11	6 45.11	+27 35.7	1.313	2.153	17.7	16.9
181877	1999 <i>LZ</i> ₃₃		1 8.1 132°02'	0.8/ 8.4	18		496016	2008 <i>HD</i> ₇₀		1 8.2 213°05'	3.0/ 6.8	18	
12 3	7 47.80	+18 30.3	1.679	2.4									

EPHEMERIDES

1 8.2

1 8.2

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
275903	2001 TX ₈₉		1 8.2 94°02	6°1/10.6	18		182597	2001 UE ₂₈		1 8.2 351°29	7°5/ 5.7	18	
12 3	7 38.48	+ 1 37.2	2.627	3.356	12.8	20.8	12 3	7 44.87	+37 33.3	1.655	2.465	16.0	19.8
12 13	7 33.36	+ 0 57.0	2.561	3.379	10.7	20.7	12 13	7 40.27	+38 55.3	1.584	2.462	12.9	19.6
12 23	7 26.64	+ 0 30.3	2.518	3.401	8.5	20.5	12 23	7 32.14	+40 11.8	1.535	2.460	9.8	19.4
1 2	7 18.86	+ 0 19.0	2.501	3.423	6.7	20.5	1 2	7 21.29	+41 13.1	1.510	2.459	7.7	19.3
1 12	7 10.72	+ 0 23.4	2.513	3.445	6.1	20.5	1 12	7 9.22	+41 51.2	1.512	2.458	8.1	19.3
1 22	7 2.96	+ 0 42.2	2.554	3.466	7.1	20.6	1 22	6 57.72	+42 2.4	1.540	2.457	10.6	19.5
2 1	6 56.26	+ 1 13.2	2.622	3.487	8.9	20.7	2 1	6 48.48	+41 48.4	1.593	2.456	13.8	19.7
2 11	6 51.14	+ 1 52.8	2.715	3.508	10.9	20.9	2 11	6 42.66	+41 14.9	1.666	2.456	16.8	19.9
18566	1997 RS ₃		1 8.2 7°97	2°8/ 7.3	18		136972	1998 RA ₄₉		1 8.2 100°69	3°1/ 9.2	18	
12 3	7 40.38	+28 34.9	1.908	2.720	14.1	18.0	12 3	7 43.81	+12 39.3	1.961	2.739	15.0	21.4
12 13	7 35.91	+29 7.3	1.831	2.721	10.9	17.8	12 13	7 37.95	+12 35.3	1.897	2.764	11.7	21.2
12 23	7 28.83	+29 39.6	1.778	2.722	7.2	17.6	12 23	7 29.82	+12 42.1	1.857	2.787	8.0	21.0
1 2	7 19.85	+30 7.1	1.750	2.723	3.7	17.3	1 2	7 20.16	+12 58.8	1.843	2.811	4.4	20.9
1 12	7 10.08	+30 25.8	1.751	2.726	3.5	17.3	1 12	7 10.00	+13 23.7	1.859	2.833	3.4	20.8
1 22	7 0.80	+30 33.2	1.781	2.728	6.9	17.5	1 22	7 0.43	+13 54.1	1.905	2.855	6.3	21.1
2 1	6 53.17	+30 29.6	1.837	2.731	10.6	17.8	2 1	6 52.42	+14 27.5	1.978	2.877	9.7	21.3
2 11	6 48.06	+30 16.7	1.916	2.734	13.8	18.0	2 11	6 46.67	+15 1.4	2.077	2.897	12.8	21.6
115251	2003 SS ₁₅₆		1 8.2 177°84	0°7/ 8.4	18		385956	2006 VX ₅₃		1 8.2 73°28	0°6/ 7.9	18	
12 3	7 40.08	+19 34.7	2.303	3.096	12.6	20.1	12 3	7 39.04	+24 1.1	2.514	3.310	11.6	21.5
12 13	7 35.09	+19 41.0	2.217	3.096	9.7	19.9	12 13	7 34.14	+24 6.6	2.432	3.315	8.8	21.3
12 23	7 28.04	+19 52.3	2.155	3.097	6.3	19.7	12 23	7 27.34	+24 13.5	2.376	3.320	5.7	21.1
1 2	7 19.49	+20 6.9	2.121	3.097	2.6	19.5	1 2	7 19.21	+24 19.8	2.347	3.325	2.2	20.9
1 12	7 10.33	+20 22.5	2.116	3.097	1.6	19.4	1 12	7 10.58	+24 23.6	2.349	3.330	1.6	20.9
1 22	7 1.49	+20 37.6	2.142	3.097	5.3	19.6	1 22	7 2.32	+24 23.7	2.382	3.335	5.0	21.1
2 1	6 53.91	+20 50.8	2.197	3.097	8.8	19.9	2 1	6 55.25	+24 19.9	2.442	3.340	8.2	21.3
2 11	6 48.30	+21 1.7	2.277	3.096	11.9	20.1	2 11	6 50.02	+24 12.6	2.529	3.345	10.9	21.5
95369	2002 CX ₁₆₀		1 8.2 41°28	4°5/ 7.4	17		82124	2001 FO ₇₈		1 8.2 182°76	3°9/ 6.9	18	
12 3	7 46.65	+30 14.7	1.128	1.964	20.3	19.4	12 3	7 49.54	+30 48.2	2.035	2.826	14.1	20.3
12 13	7 41.88	+30 50.2	1.084	1.984	15.6	19.2	12 13	7 42.93	+31 43.3	1.952	2.828	11.0	20.1
12 23	7 33.08	+31 22.8	1.058	2.006	10.4	19.0	12 23	7 33.41	+32 37.6	1.893	2.829	7.5	19.9
1 2	7 21.51	+31 44.3	1.055	2.028	5.6	18.8	1 2	7 21.70	+33 24.5	1.861	2.828	4.5	19.7
1 12	7 9.17	+31 48.6	1.078	2.051	5.3	18.9	1 12	7 9.00	+33 58.3	1.860	2.827	4.5	19.7
1 22	6 58.17	+31 34.5	1.125	2.075	9.6	19.2	1 22	6 56.73	+34 15.8	1.889	2.824	7.6	19.9
2 1	6 50.17	+31 5.5	1.195	2.100	14.2	19.5	2 1	6 46.23	+34 17.3	1.945	2.821	11.1	20.1
2 11	6 46.06	+30 27.0	1.286	2.124	18.1	19.8	2 11	6 38.50	+34 6.0	2.026	2.817	14.2	20.3
486842	2014 JR ₄₉		1 8.2 242°40	1°1/ 7.8	18		321125	2008 UE ₅₇		1 8.2 200°69	0°6/ 7.9	18	
12 3	7 43.98	+20 44.9	1.563	2.374	16.8	21.3	12 3	7 40.17	+22 38.4	2.308	3.105	12.5	21.6
12 13	7 39.32	+21 44.4	1.477	2.367	12.9	21.1	12 13	7 35.26	+23 0.1	2.221	3.103	9.5	21.4
12 23	7 31.45	+22 55.3	1.413	2.360	8.4	20.8	12 23	7 28.21	+23 25.4	2.158	3.102	6.1	21.2
1 2	7 21.02	+24 11.9	1.375	2.353	3.3	20.5	1 2	7 19.60	+23 51.7	2.123	3.100	2.4	21.0
1 12	7 9.30	+25 26.9	1.365	2.346	2.5	20.4	1 12	7 10.33	+24 15.9	2.118	3.098	1.7	20.9
1 22	6 57.88	+26 33.7	1.384	2.338	7.7	20.7	1 22	7 1.37	+24 35.9	2.143	3.096	5.4	21.2
2 1	6 48.31	+27 28.4	1.429	2.330	12.5	21.0	2 1	6 53.67	+24 50.5	2.196	3.094	8.9	21.4
2 11	6 41.79	+28 10.2	1.496	2.322	16.7	21.2	2 11	6 47.99	+25 0.0	2.275	3.092	12.0	21.6
429916	2012 TB ₁₇₁		1 8.2 157°18	0°3/ 8.3	17		332605	2008 SW ₂₈₅		1 8.2 28°21	5°5/ 9.9	18	
12 3	7 38.98	+20 42.0	2.731	3.519	11.0	22.1	12 3	7 37.90	+ 6 14.4	2.177	2.940	14.2	20.9
12 13	7 33.92	+20 50.2	2.646	3.523	8.4	21.9	12 13	7 33.46	+ 5 42.9	2.093	2.940	11.6	20.8
12 23	7 27.12	+21 1.8	2.586	3.528	5.4	21.7	12 23	7 27.02	+ 5 24.6	2.031	2.940	8.8	20.6
1 2	7 19.10	+21 15.2	2.555	3.532	2.1	21.5	1 2	7 19.13	+ 5 21.0	1.995	2.941	6.3	20.4
1 12	7 10.59	+21 28.6	2.554	3.535	1.3	21.5	1 12	7 10.64	+ 5 32.4	1.987	2.941	5.6	20.4
1 22	7 2.37	+21 40.5	2.585	3.539	4.6	21.7	1 22	7 2.45	+ 5 57.3	2.007	2.942	7.3	20.5
2 1	6 55.22	+21 50.2	2.645	3.542	7.6	21.9	2 1	6 55.46	+ 6 33.2	2.054	2.942	10.0	20.7
2 11	6 49.73	+21 57.3	2.731	3.545	10.3	22.1	2 11	6 50.36	+ 7 16.3	2.126	2.942	12.7	20.8
422302	2014 SB ₁₆₀		1 8.2 21°34	1°5/ 7.8	18		203869	2002 XZ ₂₀		1 8.2 96°42	0°7/ 8.4	18	
12 3	7 42.08	+24 48.0	1.711	2.523	15.4	20.9	12 3	7 41.38	+20 20.0	2.447	3.234	12.1	20.6
12 13	7 37.40	+25 11.7	1.634	2.525	11.8	20.7	12 13	7 35.78	+20 10.9	2.377	3.253	9.2	20.5
12 23	7 29.89	+25 38.4	1.580	2.527	7.6	20.5	12 23	7 28.30	+20 5.0	2.331	3.272	6.0	20.3
1 2	7 20.29	+26 3.9	1.551	2.529	3.2	20.2	1 2	7 19.56	+20 1.0	2.314	3.290	2.4	20.1
1 12	7 9.83	+26 24.2	1.551	2.531	2.6	20.1	1 12	7 10.42	+19 57.8	2.327	3.308	1.5	20.0
1 22	6 59.89	+26 36.5	1.579	2.533	6.9	20.4	1 22	7 1.75	+19 54.5	2.372	3.326	4.9	20.3
2 1	6 51.76	+26 40.4	1.634	2.536	11.2	20.7	2 1	6 54.36	+19 50.7	2.445	3.343	8.1	20.5
2 11	6 46.37	+26 37.0	1.711	2.538	14.8	20.9	2 11	6 48.84	+19 46.3	2.545	3.360	10.9	20.7
305582	2008 YX ₄₄		1 8.2 294°85	1°9/ 7.7	17		205544	2001 SY ₁₉₆		1 8.2 110°71	0°4/ 8.3	18	
12 3	7 42.57	+24 37.1	1.512	2.331	16.8	21.2	12 3	7 39.38	+19 54.4	2.533	3.322	11.7	21.2
12 13	7 38.44	+25 10.3	1.421	2.315	13.0	20.9	12 13	7 34.31	+20 5.8	2.457	3.334	8.9	21.1
12 23	7 30.99	+25 49.0	1.351	2.299	8.5	20.6	12 23	7 27.41	+20 21.4	2.405	3.346	5.7	20.9
1 2	7 20.87	+26 28.1	1.307	2.284	3.6	20.3	1 2	7 19.24	+20 39.6	2.382	3.358	2.3	20.7
1 12	7 9.40	+27 1.7	1.289	2.268	3.1	20.2	1 12	7 10.60	+20 58.3	2.389	3.370	1.4	20.6
1 22	6 58.24	+27 25.6	1.299	2.253	8.1	20.5	1 22	7 2.32	+21 15.7	2.427	3.381	4.8	20.9
2 1	6 49.02	+27 38.1	1.334	2.238	13.0	20.7	2 1	6 55.20	+21 30.8	2.494	3.392	8.0	21.1
2 11	6 42.99	+27 40.5	1.390	2.223	17.3	21.0	2 11	6 49.86	+21 43.1	2.587	3.403	10.7	21.3
376610	2013 PU ₃₇		1 8.2 81°91	0°6/ 7.9	18		356552	2011 SZ ₁₈₈		1 8.2 282°11	3°4/ 7.5	18	
12 3	7 41.40	+23 8.9	2.027	2.829	13.7	20.6	12 3	7 45.89	+29 23.8	1.555	2.370	16	

EPHEMERIDES

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
398379	2011 <i>SW</i> ₁₁₇		1 8.2 85°94	1.5°/ 8.6	17		502913	2015 <i>EB</i> ₁₇		1 8.2 252°34	7.7°/ 5.4	17	
12 3	7 45.66	+17 26.9	1.610	2.410	16.8	21.8	12 3	7 50.03	+48 16.4	2.690	3.441	12.0	22.3
12 13	7 39.86	+17 35.4	1.552	2.433	12.9	21.6	12 13	7 43.24	+49 6.0	2.602	3.428	10.3	22.1
12 23	7 31.27	+17 52.8	1.515	2.457	8.4	21.4	12 23	7 33.57	+49 44.1	2.538	3.413	8.7	22.0
1 2	7 20.78	+18 16.7	1.505	2.480	3.7	21.2	1 2	7 21.77	+50 4.0	2.499	3.399	7.8	21.9
1 12	7 9.69	+18 43.7	1.523	2.503	2.3	21.2	1 12	7 9.08	+50 1.0	2.488	3.384	8.0	21.9
1 22	6 59.37	+19 10.7	1.570	2.526	6.7	21.5	1 22	6 56.90	+49 33.9	2.504	3.370	9.2	21.9
2 1	6 51.02	+19 35.9	1.644	2.548	11.0	21.8	2 1	6 46.56	+48 45.0	2.546	3.354	11.1	22.0
2 11	6 45.44	+19 58.0	1.741	2.570	14.5	22.1	2 11	6 38.97	+47 39.5	2.611	3.339	12.9	22.2
401124	2011 <i>UA</i> ₂₉₃		1 8.2 164°23	0°1/ 8.1	18		458160	2010 <i>KM</i> ₃₆		1 8.2 157°12	3°2/ 9.1	18	
12 3	7 44.77	+20 56.9	2.064	2.856	13.9	22.2	12 3	7 43.52	+13 25.0	1.897	2.680	15.3	22.0
12 13	7 38.92	+21 19.8	1.982	2.862	10.7	22.0	12 13	7 38.04	+13 12.4	1.817	2.686	12.0	21.8
12 23	7 30.64	+21 48.0	1.924	2.867	6.9	21.8	12 23	7 30.11	+13 10.0	1.759	2.691	8.3	21.6
1 2	7 20.57	+22 18.5	1.894	2.872	2.7	21.6	1 2	7 20.39	+13 17.4	1.728	2.696	4.5	21.3
1 12	7 9.77	+22 47.7	1.894	2.875	1.7	21.5	1 12	7 9.96	+13 33.4	1.726	2.701	3.5	21.3
1 22	6 59.38	+23 13.0	1.925	2.879	5.9	21.8	1 22	6 59.96	+13 55.8	1.753	2.704	6.6	21.5
2 1	6 50.51	+23 33.1	1.984	2.881	9.8	22.0	2 1	6 51.51	+14 22.3	1.808	2.708	10.4	21.7
2 11	6 43.96	+23 47.9	2.068	2.883	13.1	22.2	2 11	6 45.42	+14 50.6	1.888	2.710	13.8	21.9
310937	2003 <i>SM</i> ₃₃₁		1 8.2 73°91	1°6/ 7.7	17		194027	2001 <i>SH</i> ₅₈		1 8.2 80°15	2°4/ 8.8	17	
12 3	7 46.85	+23 3.2	1.567	2.375	16.8	21.4	12 3	7 44.92	+16 8.3	1.442	2.248	18.1	20.2
12 13	7 40.95	+23 57.2	1.515	2.404	12.8	21.3	12 13	7 39.65	+16 5.2	1.381	2.265	14.1	20.0
12 23	7 32.06	+24 56.4	1.487	2.433	8.1	21.1	12 23	7 31.33	+16 13.0	1.341	2.282	9.3	19.7
1 2	7 21.11	+25 54.4	1.484	2.461	3.3	20.8	1 2	7 20.88	+16 30.2	1.325	2.300	4.4	19.5
1 12	7 9.52	+26 45.3	1.511	2.490	2.7	20.9	1 12	7 9.69	+16 53.6	1.337	2.317	2.9	19.5
1 22	6 58.77	+27 25.0	1.566	2.518	7.2	21.2	1 22	6 59.28	+17 20.2	1.377	2.333	7.4	19.8
2 1	6 50.17	+27 52.6	1.647	2.545	11.3	21.5	2 1	6 50.98	+17 47.3	1.442	2.350	11.9	20.1
2 11	6 44.55	+28 9.3	1.752	2.573	14.8	21.8	2 11	6 45.67	+18 13.0	1.530	2.366	15.8	20.4
318932	2005 <i>UB</i> ₁₀₅		1 8.2 168°37	0°7/ 8.4	18		290584	2005 <i>UW</i> ₁₅₃		1 8.2 226°70	2°2/ 8.6	18	
12 3	7 41.39	+18 57.0	2.237	3.027	13.0	21.9	12 3	7 44.72	+17 2.5	1.680	2.478	16.3	21.2
12 13	7 36.17	+19 11.5	2.152	3.030	10.0	21.7	12 13	7 39.48	+16 49.1	1.590	2.471	12.8	20.9
12 23	7 28.79	+19 31.9	2.092	3.033	6.5	21.5	12 23	7 31.33	+16 43.6	1.523	2.463	8.6	20.7
1 2	7 19.85	+19 56.3	2.059	3.035	2.7	21.3	1 2	7 20.97	+16 45.2	1.481	2.455	4.1	20.4
1 12	7 10.25	+20 22.1	2.056	3.037	1.6	21.2	1 12	7 9.58	+16 52.2	1.467	2.446	2.8	20.3
1 22	7 0.99	+20 47.0	2.084	3.038	5.4	21.5	1 22	6 58.56	+17 2.6	1.482	2.437	7.2	20.5
2 1	6 53.04	+21 9.4	2.140	3.040	9.0	21.7	2 1	6 49.28	+17 15.0	1.523	2.427	11.7	20.8
2 11	6 47.13	+21 28.5	2.222	3.040	12.2	21.9	2 11	6 42.75	+17 28.0	1.588	2.417	15.7	21.0
390646	2002 <i>PN</i> ₅₆		1 8.2 159°63	3°0/ 9.1	18		466808	2015 <i>BO</i> ₉₃		1 8.2 9°54	1°3/ 8.8	18	
12 3	7 46.01	+12 43.5	1.913	2.689	15.4	22.2	12 3	7 38.29	+15 10.9	2.039	2.832	14.0	20.4
12 13	7 39.92	+12 47.3	1.832	2.698	12.1	22.0	12 13	7 34.06	+15 51.1	1.955	2.833	10.8	20.2
12 23	7 31.30	+13 2.8	1.775	2.706	8.3	21.8	12 23	7 27.58	+16 42.8	1.894	2.834	7.2	20.0
1 2	7 20.84	+13 28.9	1.745	2.713	4.5	21.6	1 2	7 19.43	+17 43.5	1.860	2.835	3.2	19.7
1 12	7 9.63	+14 3.3	1.744	2.719	3.3	21.5	1 12	7 10.54	+18 49.1	1.856	2.837	1.9	19.6
1 22	6 58.87	+14 42.9	1.773	2.724	6.6	21.7	1 22	7 1.93	+19 55.2	1.882	2.838	5.7	19.9
2 1	6 49.68	+15 24.8	1.831	2.729	10.4	22.0	2 1	6 54.63	+20 58.2	1.936	2.840	9.6	20.1
2 11	6 42.92	+16 6.2	1.914	2.732	13.9	22.2	2 11	6 49.44	+21 55.3	2.015	2.842	12.9	20.3
193910	2001 <i>QY</i> ₂₄₉		1 8.2 171°72	0°6/ 7.9	18		296928	<i>Francescopalla</i>		1 8.2 25°04	4°4/ 9.9	18	
12 3	7 46.11	+21 22.6	1.890	2.685	14.9	21.2	12 3	7 36.85	+ 9 10.4	1.584	2.380	17.2	19.8
12 13	7 40.25	+21 59.5	1.808	2.689	11.4	20.9	12 13	7 33.29	+ 9 19.5	1.520	2.393	13.7	19.6
12 23	7 31.65	+22 42.9	1.749	2.693	7.4	20.7	12 23	7 27.18	+ 9 46.3	1.477	2.407	9.7	19.4
1 2	7 21.03	+23 28.7	1.718	2.695	2.9	20.4	1 2	7 19.27	+10 30.3	1.458	2.422	5.9	19.2
1 12	7 9.51	+24 12.1	1.717	2.697	2.0	20.4	1 12	7 10.68	+11 28.3	1.466	2.438	4.6	19.2
1 22	6 58.40	+24 49.4	1.745	2.698	6.5	20.7	1 22	7 2.63	+12 35.5	1.501	2.454	7.3	19.4
2 1	6 48.95	+25 18.7	1.802	2.698	10.6	20.9	2 1	6 56.23	+13 46.5	1.562	2.471	11.1	19.6
2 11	6 42.09	+25 40.2	1.883	2.698	14.2	21.1	2 11	6 52.29	+14 56.4	1.647	2.490	14.6	19.9
237657	2001 <i>SS</i> ₁₉₃		1 8.2 114°94	0°7/ 8.4	18		41562	2000 <i>RR</i> ₆₇		1 8.2 43°75	1°3/ 8.5	18	
12 3	7 39.28	+19 0.6	2.569	3.356	11.6	21.4	12 3	7 42.78	+17 58.3	1.223	2.048	19.6	18.4
12 13	7 34.21	+19 9.1	2.492	3.368	8.9	21.2	12 13	7 38.44	+18 10.3	1.172	2.068	15.1	18.2
12 23	7 27.34	+19 22.3	2.439	3.380	5.8	21.0	12 23	7 30.73	+18 33.5	1.140	2.088	9.8	17.9
1 2	7 19.23	+19 38.6	2.415	3.391	2.4	20.8	1 2	7 20.67	+19 4.9	1.132	2.109	4.1	17.7
1 12	7 10.65	+19 56.2	2.422	3.403	1.4	20.8	1 12	7 9.86	+19 39.6	1.150	2.131	2.4	17.6
1 22	7 2.44	+20 13.4	2.460	3.414	4.7	21.0	1 22	7 0.00	+20 13.4	1.193	2.153	7.8	18.0
2 1	6 55.35	+20 29.1	2.526	3.425	7.9	21.2	2 1	6 52.53	+20 43.6	1.262	2.176	12.7	18.3
2 11	6 50.00	+20 42.7	2.619	3.436	10.6	21.4	2 11	6 48.35	+21 8.7	1.351	2.199	16.8	18.7
455292	2002 <i>CP</i> ₁₉₉		1 8.2 283°30	2°1/ 7.6	17		381905	2010 <i>CW</i> ₁₇		1 8.2 272°67	4°5/ 5.8	17	
12 3	7 42.59	+27 7.6	2.005	2.809	13.8	21.4	12 3	7 41.75	+32 39.7	2.430	3.225	11.9	20.7
12 13	7 37.72	+27 27.5	1.902	2.788	10.7	21.2	12 13	7 36.82	+34 1.6	2.339	3.215	9.4	20.5
12 23	7 30.16	+27 48.2	1.823	2.767	7.1	20.9	12 23	7 29.47	+35 23.5	2.273	3.205	6.7	20.3
1 2	7 20.50	+28 5.9	1.770	2.745	3.3	20.7	1 2	7 20.23	+36 39.3	2.236	3.195	4.7	20.2
1 12	7 9.81	+28 16.6	1.747	2.724	2.9	20.6	1 12	7 10.02	+37 43.0	2.229	3.184	5.0	20.2
1 22	6 59.34	+28 18.0	1.752	2.702	6.8	20.8	1 22	6 59.94	+38 30.8	2.252	3.174	7.4	20.3
2 1	6 50.37	+28 10.0	1.785	2.681	10.8	21.0	2 1	6 51.12	+39 1.4	2.302	3.164	10.2	20.5
2 11	6 43.89	+27 54.2	1.842	2.659	14.4	21.2	2 11	6 44.49	+39 16.5	2.377	3.153	12.8	20.6
479912	2014 <i>HF</i> ₄₇		1 8.2 231°66	2°6/ 9.5	17		403150	2008 <i>FP</i> ₃₇		1 8.2 52°78	0°9/ 7.9	17	
12 3	7 33.43	+10 17.9	3.762										

EPHEMERIDES

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1 8.2

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
258763	2002 <i>JC</i> ₁₁		1 8.2 275°50	2°7/ 7.3 18			458162	2010 <i>KG</i> ₅₀		1 8.2 61°84	3°0/ 9.4 18		
12 3	7 43.69	+26 5.5	1.667	2.480	15.8	20.6	12 3	7 44.69	+11 7.4	1.576	2.364	17.7	21.0
12 13	7 39.14	+26 54.5	1.573	2.464	12.2	20.4	12 13	7 39.03	+11 45.1	1.528	2.399	13.7	20.8
12 23	7 31.40	+27 48.4	1.501	2.447	8.1	20.1	12 23	7 30.72	+12 39.0	1.501	2.435	9.3	20.6
1 2	7 21.10	+28 41.4	1.455	2.431	3.9	19.8	1 2	7 20.62	+13 45.9	1.501	2.470	4.8	20.5
1 12	7 9.48	+29 26.9	1.438	2.414	3.7	19.7	1 12	7 10.02	+15 0.4	1.528	2.505	3.3	20.4
1 22	6 58.08	+30 0.1	1.448	2.397	8.0	20.0	1 22	7 0.22	+16 16.7	1.585	2.540	6.8	20.7
2 1	6 48.47	+30 19.3	1.484	2.380	12.5	20.2	2 1	6 52.35	+17 29.8	1.670	2.575	10.8	21.0
2 11	6 41.86	+30 25.9	1.542	2.363	16.5	20.4	2 11	6 47.15	+18 36.3	1.778	2.609	14.2	21.3
31478	1999 <i>CJ</i> ₄₅		1 8.2 127°64	3°9/ 7.3 18			234944	2002 <i>VB</i> ₄₂		1 8.2 111°17	1°2/ 7.7 18		
12 3	7 49.53	+31 8.5	1.766	2.567	15.5	18.0	12 3	7 40.93	+24 12.0	2.581	3.372	11.4	20.6
12 13	7 43.05	+31 42.6	1.698	2.580	12.0	17.8	12 13	7 35.55	+24 49.1	2.510	3.389	8.7	20.4
12 23	7 33.49	+32 13.7	1.653	2.592	8.1	17.6	12 23	7 28.28	+25 28.6	2.463	3.406	5.6	20.3
1 2	7 21.74	+32 35.6	1.635	2.604	4.6	17.4	1 2	7 19.67	+26 7.1	2.445	3.422	2.3	20.1
1 12	7 9.21	+32 43.5	1.645	2.615	4.4	17.5	1 12	7 10.57	+26 41.5	2.459	3.437	1.9	20.1
1 22	6 57.45	+32 35.9	1.684	2.626	7.8	17.7	1 22	7 1.84	+27 9.7	2.503	3.453	5.0	20.3
2 1	6 47.82	+32 14.4	1.750	2.636	11.5	17.9	2 1	6 54.30	+27 30.6	2.577	3.468	8.1	20.5
2 11	6 41.23	+31 43.2	1.840	2.646	14.8	18.2	2 11	6 48.60	+27 44.6	2.676	3.482	10.7	20.7
422254	2014 <i>SU</i> ₁₂₅		1 8.2 125°94	1°4/ 7.8 18			109647	2001 <i>RD</i> ₄		1 8.2 37°88	0°4/ 8.1 18		
12 3	7 44.82	+24 41.4	2.114	2.909	13.5	22.5	12 3	7 43.55	+23 51.8	1.577	2.391	16.4	19.1
12 13	7 38.88	+25 11.4	2.043	2.924	10.3	22.3	12 13	7 38.60	+23 42.6	1.507	2.399	12.6	18.8
12 23	7 30.56	+25 43.5	1.996	2.939	6.6	22.1	12 23	7 30.70	+23 35.4	1.459	2.406	8.1	18.6
1 2	7 20.57	+26 14.0	1.976	2.953	2.8	21.9	1 2	7 20.70	+23 27.4	1.437	2.415	3.2	18.3
1 12	7 9.95	+26 39.3	1.987	2.966	2.2	21.9	1 12	7 9.96	+23 16.6	1.442	2.423	2.0	18.3
1 22	6 59.85	+26 56.9	2.029	2.979	5.9	22.2	1 22	6 59.92	+23 1.8	1.475	2.432	6.9	18.6
2 1	6 51.31	+27 6.5	2.098	2.991	9.5	22.4	2 1	6 51.89	+22 43.8	1.534	2.441	11.4	18.9
2 11	6 45.10	+27 9.1	2.193	3.003	12.6	22.6	2 11	6 46.74	+22 23.9	1.616	2.451	15.2	19.1
150254	1999 <i>LB</i> ₃₁		1 8.2 278°49	1°3/ 7.6 18			427222	2014 <i>WS</i> ₃₃		1 8.2 49°17	2°8/ 7.4 18		
12 3	7 41.31	+21 58.1	1.917	2.722	14.3	20.1	12 3	7 42.59	+28 0.0	1.797	2.608	14.9	20.9
12 13	7 36.83	+22 57.6	1.821	2.708	11.1	19.9	12 13	7 37.70	+28 33.6	1.728	2.617	11.4	20.7
12 23	7 29.67	+24 5.7	1.748	2.694	7.2	19.6	12 23	7 30.06	+29 7.4	1.682	2.627	7.5	20.5
1 2	7 20.38	+25 17.8	1.703	2.680	2.9	19.3	1 2	7 20.45	+29 36.5	1.662	2.636	3.7	20.3
1 12	7 9.98	+26 27.8	1.687	2.666	2.4	19.2	1 12	7 10.10	+29 56.3	1.671	2.646	3.5	20.3
1 22	6 59.73	+27 30.5	1.700	2.652	6.8	19.5	1 22	7 0.34	+30 4.7	1.708	2.656	7.1	20.5
2 1	6 50.90	+28 22.6	1.741	2.638	10.9	19.7	2 1	6 52.39	+30 1.8	1.771	2.666	10.9	20.8
2 11	6 44.54	+29 3.1	1.806	2.623	14.6	19.9	2 11	6 47.11	+29 49.8	1.858	2.677	14.2	21.0
359661	2011 <i>SO</i> ₆₇		1 8.2 94°27	0°2/ 8.2 16			117009	2004 <i>HX</i> ₆₃		1 8.2 245°28	3°9/ 6.5 18		
12 3	7 47.78	+22 24.7	1.703	2.503	16.0	21.4	12 3	7 43.93	+29 9.7	1.995	2.797	13.9	19.6
12 13	7 41.39	+22 29.0	1.643	2.527	12.2	21.2	12 13	7 38.90	+30 25.3	1.905	2.788	10.8	19.4
12 23	7 32.23	+22 36.8	1.607	2.551	7.8	21.0	12 23	7 31.03	+31 43.7	1.839	2.779	7.4	19.2
1 2	7 21.20	+22 44.9	1.596	2.574	3.0	20.8	1 2	7 20.94	+32 58.1	1.801	2.770	4.4	19.0
1 12	7 9.62	+22 50.6	1.616	2.597	1.9	20.7	1 12	7 9.72	+34 1.6	1.793	2.760	4.6	19.0
1 22	6 58.85	+22 52.1	1.664	2.619	6.5	21.1	1 22	6 58.70	+34 49.4	1.814	2.750	7.8	19.1
2 1	6 50.09	+22 49.5	1.740	2.640	10.7	21.4	2 1	6 49.23	+35 19.9	1.861	2.740	11.3	19.3
2 11	6 44.12	+22 43.8	1.839	2.661	14.2	21.7	2 11	6 42.38	+35 34.8	1.932	2.729	14.6	19.5
188358	2003 <i>YL</i> ₁₀₃		1 8.2 329°15	3°3/ 7.4 18			419939	2011 <i>BL</i> ₇₅		1 8.2 31°50	7°0/ 11.0 18		
12 3	7 40.95	+27 49.9	1.397	2.227	17.4	19.5	12 3	7 37.65	+ 3 39.2	1.546	2.324	18.4	20.2
12 13	7 37.49	+28 22.8	1.313	2.212	13.5	19.2	12 13	7 33.94	+ 3 31.0	1.483	2.337	15.1	20.0
12 23	7 30.53	+28 57.8	1.250	2.199	9.0	18.9	12 23	7 27.64	+ 3 45.3	1.439	2.351	11.5	19.9
1 2	7 20.81	+29 28.7	1.211	2.186	4.5	18.6	1 2	7 19.51	+ 4 23.3	1.418	2.366	8.3	19.7
1 12	7 9.75	+29 49.2	1.198	2.174	4.2	18.6	1 12	7 10.69	+ 5 23.3	1.424	2.381	7.0	19.7
1 22	6 59.14	+29 55.6	1.210	2.163	8.8	18.8	1 22	7 2.42	+ 6 40.3	1.455	2.397	8.7	19.8
2 1	6 50.70	+29 47.8	1.247	2.152	13.6	19.0	2 1	6 55.82	+ 8 7.4	1.513	2.414	11.9	20.0
2 11	6 45.65	+29 28.7	1.304	2.143	17.9	19.3	2 11	6 51.73	+ 9 37.7	1.593	2.431	15.2	20.3
285773	2000 <i>UW</i> ₈₂		1 8.2 76°24	2°0/ 7.7 17			170848	2004 <i>FR</i> ₈₂		1 8.2 104°24	1°6/ 8.9 18		
12 3	7 47.21	+25 10.8	1.495	2.308	17.3	20.9	12 3	7 38.28	+15 6.0	2.491	3.273	12.1	20.4
12 13	7 41.44	+25 45.0	1.440	2.331	13.2	20.7	12 13	7 33.57	+15 27.8	2.411	3.283	9.3	20.2
12 23	7 32.50	+26 21.9	1.407	2.353	8.5	20.5	12 23	7 27.04	+15 57.7	2.356	3.292	6.2	20.0
1 2	7 21.37	+26 55.8	1.399	2.376	3.6	20.3	1 2	7 19.21	+16 34.2	2.329	3.302	3.0	19.8
1 12	7 9.53	+27 21.6	1.419	2.398	3.0	20.3	1 12	7 10.87	+17 14.9	2.333	3.311	1.9	19.8
1 22	6 58.60	+27 36.4	1.468	2.420	7.5	20.6	1 22	7 2.84	+17 57.2	2.367	3.321	4.9	20.0
2 1	6 49.94	+27 40.6	1.542	2.442	11.8	20.9	2 1	6 55.90	+18 38.8	2.430	3.330	8.1	20.2
2 11	6 44.42	+27 36.2	1.638	2.464	15.5	21.2	2 11	6 50.69	+19 17.8	2.519	3.339	10.9	20.4
93393	2000 <i>SB</i> ₂₈₅		1 8.2 221°61	5°3/ 9.7 18			338256	2002 <i>TL</i> ₂₂₃		1 8.2 102°29	4°6/ 7.1 18		
12 3	7 39.93	+ 7 0.8	2.266	3.024	13.8	20.3	12 3	7 51.76	+30 56.1	1.547	2.352	17.1	21.2
12 13	7 35.03	+ 6 27.6	2.172	3.018	11.3	20.1	12 13	7 45.08	+31 53.8	1.492	2.375	13.3	21.0
12 23	7 28.09	+ 6 6.1	2.100	3.010	8.5	19.9	12 23	7 34.94	+32 49.0	1.458	2.397	9.0	20.8
1 2	7 19.64	+ 5 57.9	2.055	3.003	6.1	19.7	1 2	7 22.37	+33 33.6	1.451	2.419	5.3	20.7
1 12	7 10.52	+ 6 3.6	2.039	2.995	5.3	19.7	1 12	7 8.99	+34 1.0	1.472	2.440	5.2	20.7
1 22	7 1.64	+ 6 22.2	2.052	2.987	7.1	19.8	1 22	6 56.58	+34 8.6	1.521	2.460	8.7	21.0
2 1	6 53.90	+ 6 51.3	2.092	2.978	9.9	19.9	2 1	6 46.67	+33 58.7	1.596	2.480	12.5	21.2
2 11	6 48.05	+ 7 27.9	2.157	2.969	12.7	20.1	2 11	6 40.19	+33 36.1	1.693	2.499	15.9	21.5
271195	2003 <i>SF</i> ₃₂₁		1 8.2 116°17	1°1/ 7.8 18			310039	2010 <i>GB</i> ₁₁₈		1 8.2 167°86	1°3/ 7.8 18		
12 3	7 41.45	+24 21.8	2.232										

EPHEMERIDES

1 8.2

1 8.2

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
237431	1999 <i>JK</i> ₈₅		1 8.2 248°31	0°6/ 8.4	17		343427	2010 <i>DD</i> ₂₄		1 8.2 316°33	4°5/ 6.6	18	
12 3	7 38.37	+18 54.2	2.693	3.480	11.1	21.1	12 3	7 41.80	+34 59.2	2.380	3.175	12.2	20.4
12 13	7 33.69	+19 11.2	2.591	3.467	8.6	20.9	12 13	7 36.77	+35 45.8	2.298	3.173	9.6	20.2
12 23	7 27.18	+19 33.6	2.513	3.454	5.6	20.6	12 23	7 29.37	+36 28.4	2.241	3.171	6.9	20.1
1 2	7 19.31	+19 59.7	2.464	3.440	2.3	20.4	1 2	7 20.23	+37 1.9	2.211	3.168	4.8	19.9
1 12	7 10.81	+20 27.5	2.445	3.426	1.4	20.3	1 12	7 10.34	+37 22.1	2.210	3.166	5.0	19.9
1 22	7 2.46	+20 54.8	2.458	3.412	4.7	20.5	1 22	7 0.83	+37 27.0	2.238	3.164	7.2	20.1
2 1	6 55.08	+21 20.1	2.500	3.398	8.0	20.7	2 1	6 52.76	+37 17.2	2.293	3.162	9.9	20.2
2 11	6 49.35	+21 42.6	2.568	3.384	10.8	20.9	2 11	6 46.93	+36 55.3	2.372	3.160	12.4	20.4
227631	2006 <i>BT</i> ₈₆		1 8.2 87°41	1°1/ 7.9	18		252220	2001 <i>MQ</i> ₁₁		1 8.2 147°09	1°4/ 8.6	18	
12 3	7 42.06	+24 14.6	2.022	2.825	13.8	20.9	12 3	7 44.45	+18 24.5	2.433	3.211	12.4	20.7
12 13	7 36.93	+24 34.9	1.949	2.834	10.5	20.7	12 13	7 38.21	+18 7.8	2.353	3.223	9.6	20.5
12 23	7 29.41	+24 57.8	1.899	2.844	6.8	20.5	12 23	7 29.98	+17 55.1	2.298	3.234	6.3	20.3
1 2	7 20.19	+25 19.7	1.876	2.853	2.7	20.2	1 2	7 20.38	+17 45.7	2.271	3.245	2.9	20.1
1 12	7 10.32	+25 37.6	1.883	2.862	2.1	20.2	1 12	7 10.30	+17 38.5	2.275	3.255	1.9	20.1
1 22	7 0.95	+25 49.4	1.919	2.872	6.0	20.5	1 22	7 0.65	+17 32.9	2.311	3.264	5.2	20.3
2 1	6 53.12	+25 54.5	1.982	2.881	9.7	20.7	2 1	6 52.30	+17 28.4	2.377	3.272	8.5	20.5
2 11	6 47.61	+25 53.7	2.071	2.890	12.9	20.9	2 11	6 45.89	+17 24.8	2.468	3.280	11.3	20.7
66278	1999 <i>JC</i> ₁₁		1 8.2 139°86	0°8/ 8.5	18		17363	1978 <i>VF</i> ₃		1 8.2 30°38	1°2/ 7.9	18	
12 3	7 45.00	+18 44.1	1.985	2.775	14.4	20.1	12 3	7 41.93	+23 9.5	1.070	1.913	20.6	18.3
12 13	7 39.12	+18 59.9	1.910	2.787	11.1	19.9	12 13	7 38.37	+23 32.3	1.023	1.929	15.7	18.0
12 23	7 30.80	+19 22.5	1.858	2.799	7.2	19.7	12 23	7 31.00	+24 1.4	0.994	1.946	10.1	17.8
1 2	7 20.74	+19 49.3	1.834	2.810	3.0	19.5	1 2	7 20.93	+24 31.2	0.987	1.965	4.0	17.5
1 12	7 10.00	+20 17.4	1.840	2.820	1.8	19.4	1 12	7 10.00	+24 56.0	1.004	1.985	2.8	17.5
1 22	6 59.75	+20 44.0	1.875	2.830	5.9	19.7	1 22	7 0.18	+25 12.1	1.047	2.007	8.6	17.9
2 1	6 51.07	+21 7.4	1.940	2.839	9.8	19.9	2 1	6 53.08	+25 18.9	1.112	2.029	13.8	18.3
2 11	6 44.76	+21 27.1	2.029	2.847	13.2	20.2	2 11	6 49.64	+25 17.8	1.197	2.052	18.1	18.6
22674	1998 <i>QF</i> ₃₉		1 8.2 243°49	3°4/ 9.5	18		12663	Björkegren		1 8.2 73°45	0°5/ 8.4	18	
12 3	7 38.69	+10 40.4	2.235	3.010	13.5	19.0	12 3	7 40.59	+20 5.6	2.047	2.846	13.7	18.4
12 13	7 34.18	+10 42.9	2.141	3.003	10.8	18.8	12 13	7 35.75	+20 12.1	1.970	2.853	10.5	18.2
12 23	7 27.62	+10 57.1	2.070	2.997	7.6	18.6	12 23	7 28.64	+20 23.8	1.916	2.860	6.8	18.0
1 2	7 19.52	+11 22.8	2.026	2.990	4.6	18.4	1 2	7 19.92	+20 38.6	1.890	2.867	2.8	17.8
1 12	7 10.71	+11 58.6	2.011	2.982	3.6	18.3	1 12	7 10.57	+20 54.2	1.893	2.874	1.6	17.7
1 22	7 2.13	+12 41.9	2.025	2.975	6.0	18.5	1 22	7 1.66	+21 8.5	1.925	2.881	5.7	18.0
2 1	6 54.70	+13 29.8	2.068	2.967	9.3	18.7	2 1	6 54.18	+21 20.5	1.985	2.888	9.4	18.2
2 11	6 49.16	+14 19.2	2.137	2.960	12.4	18.8	2 11	6 48.89	+21 29.7	2.070	2.896	12.7	18.4
217478	2005 <i>XE</i> ₃₆		1 8.2 337°25	1°7/ 7.8	18		25213	1998 <i>SP</i> ₁₅₉		1 8.2 141°24	1°1/ 8.6	18	
12 3	7 42.65	+23 24.8	1.347	2.173	18.1	20.3	12 3	7 43.58	+17 42.8	2.167	2.952	13.5	20.4
12 13	7 38.72	+24 3.7	1.271	2.169	14.0	20.0	12 13	7 37.85	+17 54.1	2.090	2.964	10.4	20.2
12 23	7 31.29	+24 49.9	1.215	2.165	9.1	19.7	12 23	7 29.91	+18 12.2	2.037	2.976	6.8	20.0
1 2	7 21.13	+25 37.9	1.184	2.161	3.7	19.4	1 2	7 20.40	+18 35.2	2.011	2.986	3.0	19.8
1 12	7 9.71	+26 20.9	1.178	2.158	3.0	19.3	1 12	7 10.29	+19 0.5	2.016	2.996	1.8	19.7
1 22	6 58.81	+26 54.1	1.199	2.156	8.3	19.6	1 22	7 0.60	+19 25.8	2.051	3.006	5.5	20.0
2 1	6 50.13	+27 15.4	1.245	2.153	13.4	19.9	2 1	6 52.32	+19 49.5	2.116	3.015	9.2	20.2
2 11	6 44.84	+27 25.8	1.312	2.151	17.7	20.2	2 11	6 46.17	+20 10.5	2.205	3.023	12.3	20.5
232378	2003 <i>BJ</i> ₁₅		1 8.2 288°79	2°8/ 7.7	18		378410	2007 <i>RR</i> ₁₁₈		1 8.2 55°89	3°7/ 9.5	18	
12 3	7 45.43	+27 41.1	1.445	2.264	17.4	20.5	12 3	7 37.85	+10 50.6	2.234	3.011	13.4	20.7
12 13	7 40.85	+28 0.8	1.358	2.251	13.6	20.2	12 13	7 33.43	+10 36.3	2.154	3.017	10.7	20.5
12 23	7 32.69	+28 21.2	1.291	2.238	9.0	19.9	12 23	7 27.05	+10 32.5	2.096	3.022	7.6	20.4
1 2	7 21.70	+28 36.8	1.250	2.225	4.2	19.6	1 2	7 19.29	+10 39.5	2.066	3.027	4.7	20.2
1 12	7 9.36	+28 42.0	1.235	2.212	3.7	19.5	1 12	7 10.97	+10 56.3	2.064	3.033	3.8	20.1
1 22	6 57.49	+28 34.2	1.247	2.199	8.5	19.8	1 22	7 2.99	+11 21.3	2.091	3.039	6.0	20.3
2 1	6 47.83	+28 14.1	1.283	2.187	13.5	20.0	2 1	6 56.21	+11 52.1	2.147	3.045	9.1	20.5
2 11	6 41.62	+27 45.2	1.342	2.174	17.8	20.3	2 11	6 51.28	+12 26.1	2.227	3.050	12.0	20.7
466391	2013 <i>SV</i> ₄₅		1 8.2 53°88	0°2/ 8.3	18		394414	2007 <i>GJ</i> ₆₇		1 8.2 164°85	3°0/ 8.9	18	
12 3	7 42.41	+22 20.4	1.887	2.691	14.6	20.8	12 3	7 45.08	+14 6.9	1.944	2.725	15.0	22.5
12 13	7 37.24	+22 7.6	1.816	2.701	11.1	20.6	12 13	7 39.23	+13 51.5	1.863	2.731	11.8	22.2
12 23	7 29.60	+21 57.4	1.767	2.712	7.2	20.4	12 23	7 30.92	+13 45.1	1.803	2.736	8.1	22.0
1 2	7 20.27	+21 47.9	1.746	2.723	2.8	20.2	1 2	7 20.84	+13 47.5	1.771	2.740	4.4	21.8
1 12	7 10.35	+21 37.7	1.753	2.734	1.7	20.1	1 12	7 10.03	+13 57.5	1.769	2.744	3.3	21.8
1 22	7 1.01	+21 26.0	1.789	2.746	6.0	20.4	1 22	6 59.67	+14 13.3	1.796	2.747	6.5	22.0
2 1	6 53.33	+21 12.8	1.853	2.757	10.0	20.7	2 1	6 50.83	+14 33.0	1.851	2.749	10.3	22.2
2 11	6 48.05	+20 58.7	1.941	2.769	13.3	20.9	2 11	6 44.36	+14 54.8	1.931	2.750	13.7	22.4
334128	2001 <i>RY</i> ₃₅		1 8.2 118°72	1°0/ 7.9	18		130889	2000 <i>VX</i> ₂₃		1 8.2 52°76	2°7/ 7.6	18	
12 3	7 41.23	+25 9.7	2.571	3.362	11.5	21.2	12 3	7 45.44	+26 11.0	1.329	2.153	18.4	19.5
12 13	7 35.78	+25 18.9	2.494	3.374	8.7	21.0	12 13	7 40.57	+26 51.2	1.275	2.171	14.1	19.3
12 23	7 28.43	+25 28.8	2.443	3.385	5.6	20.8	12 23	7 32.22	+27 33.9	1.241	2.189	9.1	19.1
1 2	7 19.77	+25 37.0	2.420	3.396	2.3	20.6	1 2	7 21.40	+28 12.4	1.232	2.208	4.2	18.8
1 12	7 10.64	+25 41.5	2.427	3.407	1.7	20.6	1 12	7 9.75	+28 40.7	1.249	2.227	3.7	18.9
1 22	7 1.93	+25 41.1	2.466	3.417	5.0	20.8	1 22	6 59.05	+28 55.6	1.293	2.246	8.3	19.2
2 1	6 54.44	+25 35.9	2.534	3.428	8.0	21.1	2 1	6 50.81	+28 57.4	1.362	2.266	12.8	19.5
2 11	6 48.80	+25 26.5	2.627	3.438	10.7	21.3	2 11	6 45.97	+28 49.0	1.452	2.285	16.7	19.8
443279	2014 <i>ET</i> ₃₆		1 8.2 119°06	1°1/ 7.9	17		428501	2007 <i>WP</i> ₂₄		1 8.2 0°19	1°4/ 8.7	18	
12 3	7 46.91	+22 18.8	1.540	2.348	17.								

EPHEMERIDES

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
91490	1999 <i>RX</i> ₁₂₃		1 8.2 227°48	4.1/ 9.6	18		493494	2015 <i>AY</i> ₂₅₃		1 8.2 332°75	0.8/ 7.9	18	
12 3	7 39.12	+ 9 46.5	2.115	2.890	14.2	19.5	12 3	7 39.81	+23 16.8	2.080	2.884	13.4	20.9
12 13	7 34.59	+ 9 37.9	2.027	2.887	11.4	19.3	12 13	7 35.33	+23 39.6	1.994	2.881	10.3	20.7
12 23	7 27.93	+ 9 41.5	1.961	2.884	8.2	19.1	12 23	7 28.51	+24 6.1	1.932	2.878	6.6	20.4
1 2	7 19.69	+ 9 57.8	1.921	2.881	5.1	18.9	1 2	7 19.97	+24 33.2	1.898	2.875	2.6	20.2
1 12	7 10.76	+10 25.7	1.910	2.878	4.2	18.9	1 12	7 10.68	+24 57.7	1.892	2.873	1.9	20.1
1 22	7 2.10	+11 2.8	1.927	2.875	6.5	19.0	1 22	7 1.73	+25 17.0	1.916	2.870	5.9	20.4
2 1	6 54.68	+11 46.3	1.973	2.871	9.8	19.2	2 1	6 54.17	+25 30.2	1.967	2.868	9.6	20.6
2 11	6 49.26	+12 32.9	2.044	2.868	12.9	19.4	2 11	6 48.82	+25 37.3	2.043	2.866	12.9	20.8
39592	1993 <i>OD</i> ₆		1 8.2 106°43	0.4/ 8.1	18		331125	2010 <i>VX</i> ₃₀		1 8.2 21°85	11.4/ 6.5	18	
12 3	7 47.05	+22 51.4	1.624	2.429	16.5	19.2	12 3	7 46.55	+43 52.4	1.198	2.019	20.2	19.9
12 13	7 41.18	+22 57.9	1.557	2.443	12.6	18.9	12 13	7 42.71	+45 14.9	1.156	2.032	16.8	19.8
12 23	7 32.34	+23 8.2	1.512	2.457	8.1	18.7	12 23	7 34.19	+46 20.1	1.133	2.047	13.6	19.6
1 2	7 21.42	+23 18.6	1.493	2.471	3.2	18.5	1 2	7 22.30	+46 55.6	1.130	2.064	11.6	19.5
1 12	7 9.77	+23 26.0	1.503	2.484	2.0	18.4	1 12	7 9.38	+46 53.1	1.151	2.082	11.7	19.6
1 22	6 58.85	+23 28.4	1.542	2.497	6.9	18.7	1 22	6 57.93	+46 13.0	1.193	2.101	13.8	19.8
2 1	6 49.97	+23 25.8	1.607	2.510	11.3	19.0	2 1	6 49.94	+45 2.8	1.257	2.122	16.6	20.0
2 11	6 44.01	+23 19.2	1.696	2.522	15.0	19.3	2 11	6 46.36	+43 33.5	1.340	2.144	19.4	20.3
491089	2011 <i>SP</i> ₁₁		1 8.2 82°91	1.2/ 7.9	16		302426	2002 <i>CP</i> ₂₉₃		1 8.2 277°37	2.5/ 8.9	18	
12 3	7 49.17	+24 54.3	1.594	2.399	16.7	21.8	12 3	7 41.92	+15 13.7	1.579	2.382	16.9	21.1
12 13	7 42.66	+25 4.6	1.540	2.426	12.7	21.6	12 13	7 37.56	+15 18.0	1.495	2.377	13.3	20.8
12 23	7 33.16	+25 16.5	1.508	2.453	8.2	21.4	12 23	7 30.28	+15 34.1	1.432	2.372	9.0	20.6
1 2	7 21.68	+25 25.7	1.502	2.479	3.3	21.2	1 2	7 20.76	+16 1.1	1.394	2.368	4.4	20.3
1 12	7 9.65	+25 28.8	1.525	2.505	2.4	21.2	1 12	7 10.21	+16 35.9	1.384	2.363	2.9	20.2
1 22	6 58.59	+25 24.6	1.577	2.531	6.9	21.5	1 22	7 0.04	+17 15.0	1.401	2.358	7.2	20.4
2 1	6 49.73	+25 13.8	1.655	2.556	11.2	21.8	2 1	6 51.61	+17 55.0	1.444	2.353	11.9	20.7
2 11	6 43.88	+24 58.5	1.757	2.580	14.7	22.1	2 11	6 45.96	+18 33.3	1.510	2.348	15.9	20.9
88944	2001 <i>TF</i> ₃₆		1 8.2 135°66	4.2/ 7.3	18		428847	2008 <i>UO</i> ₅₆		1 8.2 22°99	1.2/ 8.6	18	
12 3	7 49.67	+31 41.6	1.741	2.542	15.7	20.2	12 3	7 39.21	+18 5.4	1.916	2.718	14.4	21.1
12 13	7 43.34	+32 20.8	1.671	2.552	12.2	20.0	12 13	7 34.90	+18 10.0	1.838	2.722	11.1	20.9
12 23	7 33.83	+32 56.9	1.624	2.562	8.3	19.8	12 23	7 28.23	+18 21.8	1.783	2.725	7.3	20.7
1 2	7 22.04	+33 23.3	1.604	2.571	4.9	19.6	1 2	7 19.87	+18 39.3	1.754	2.730	3.2	20.4
1 12	7 9.39	+33 34.6	1.612	2.580	4.8	19.6	1 12	7 10.81	+19 0.0	1.753	2.734	1.9	20.3
1 22	6 57.48	+33 29.0	1.648	2.589	8.1	19.8	1 22	7 2.17	+19 21.6	1.782	2.739	6.0	20.6
2 1	6 47.72	+33 8.3	1.712	2.596	11.8	20.1	2 1	6 54.99	+19 42.3	1.838	2.744	9.9	20.9
2 11	6 41.06	+32 36.7	1.798	2.603	15.1	20.3	2 11	6 50.06	+20 1.0	1.917	2.749	13.3	21.1
486942	2014 <i>MQ</i> ₄₃		1 8.2 215°50	1.0/ 8.5	18		468352	2016 <i>EB</i> ₁₃₆		1 8.2 130°22	1.5/ 8.8	18	
12 3	7 45.44	+18 58.6	2.072	2.858	14.0	22.2	12 3	7 39.42	+16 31.4	2.576	3.358	11.7	21.5
12 13	7 39.63	+19 0.3	1.974	2.849	10.9	21.9	12 13	7 34.40	+16 34.8	2.496	3.367	9.1	21.3
12 23	7 31.29	+19 7.7	1.900	2.840	7.2	21.7	12 23	7 27.60	+16 44.4	2.440	3.377	6.0	21.2
1 2	7 21.06	+19 19.0	1.853	2.829	3.0	21.4	1 2	7 19.56	+16 59.0	2.413	3.386	2.8	21.0
1 12	7 9.93	+19 32.1	1.837	2.817	1.9	21.3	1 12	7 11.03	+17 17.0	2.416	3.395	1.9	20.9
1 22	6 59.07	+19 44.9	1.851	2.805	6.0	21.5	1 22	7 2.83	+17 36.8	2.450	3.403	4.8	21.1
2 1	6 49.63	+19 56.3	1.893	2.792	10.1	21.8	2 1	6 55.72	+17 57.0	2.513	3.412	7.9	21.3
2 11	6 42.51	+20 5.7	1.961	2.778	13.6	22.0	2 11	6 50.32	+18 16.3	2.602	3.420	10.6	21.5
146401	2001 <i>QK</i> ₁₆₄		1 8.2 46°97	3.1/ 7.2	18		310854	2003 <i>BK</i> ₄₅		1 8.2 38°84	1.1/ 8.3	17	
12 3	7 43.41	+25 55.0	1.477	2.298	17.1	19.6	12 3	7 47.74	+22 37.1	1.242	2.064	19.6	19.1
12 13	7 38.82	+27 1.6	1.421	2.316	13.0	19.3	12 13	7 41.93	+21 47.9	1.199	2.094	14.9	18.9
12 23	7 31.05	+28 11.9	1.387	2.334	8.5	19.1	12 23	7 32.80	+21 1.6	1.176	2.124	9.6	18.7
1 2	7 20.98	+29 18.7	1.378	2.352	4.1	18.9	1 2	7 21.56	+20 17.5	1.178	2.155	3.9	18.5
1 12	7 10.06	+30 14.6	1.396	2.372	4.0	19.0	1 12	7 9.96	+19 35.8	1.206	2.187	2.4	18.5
1 22	6 59.88	+30 55.1	1.442	2.391	8.0	19.3	1 22	6 59.64	+18 57.4	1.261	2.220	7.6	18.9
2 1	6 51.87	+31 19.5	1.513	2.411	12.2	19.5	2 1	6 51.92	+18 23.6	1.341	2.253	12.3	19.2
2 11	6 46.97	+31 29.8	1.606	2.431	15.8	19.8	2 11	6 47.49	+17 55.1	1.443	2.286	16.2	19.6
296127	2009 <i>BN</i> ₇₁		1 8.2 78°10	3.2/ 8.9	18		383791	2007 <i>WV</i> ₂₂		1 8.3 208°38	3.4/ 9.0	18	
12 3	7 43.71	+14 51.3	1.534	2.335	17.5	20.8	12 3	7 39.58	+12 54.7	2.460	3.234	12.4	20.6
12 13	7 38.68	+14 32.3	1.467	2.347	13.6	20.6	12 13	7 34.62	+12 17.3	2.371	3.233	9.8	20.5
12 23	7 30.78	+14 24.1	1.421	2.359	9.3	20.3	12 23	7 27.80	+11 46.6	2.306	3.232	6.9	20.3
1 2	7 20.84	+14 26.3	1.400	2.371	4.8	20.1	1 2	7 19.66	+11 23.4	2.268	3.231	4.2	20.1
1 12	7 10.15	+14 37.3	1.407	2.383	3.6	20.1	1 12	7 10.99	+11 8.0	2.260	3.229	3.5	20.1
1 22	7 0.12	+14 54.8	1.441	2.395	7.4	20.3	1 22	7 2.62	+11 0.2	2.282	3.228	5.8	20.2
2 1	6 52.01	+15 16.3	1.501	2.407	11.6	20.6	2 1	6 55.36	+10 58.9	2.333	3.226	8.7	20.4
2 11	6 46.70	+15 39.7	1.583	2.419	15.4	20.9	2 11	6 49.85	+11 3.0	2.410	3.225	11.4	20.6
48627	1995 <i>QX</i> ₁₄		1 8.2 120°95	0.7/ 8.4	18		207894	2008 <i>TA</i> ₁₈		1 8.3 262°58	1.1/ 8.5	18	
12 3	7 48.87	+20 19.3	1.687	2.482	16.4	19.7	12 3	7 44.01	+19 21.7	1.581	2.389	16.7	21.0
12 13	7 42.37	+20 17.8	1.620	2.501	12.6	19.5	12 13	7 39.30	+19 19.5	1.491	2.378	13.0	20.7
12 23	7 33.02	+20 21.6	1.576	2.518	8.1	19.3	12 23	7 31.50	+19 24.5	1.422	2.367	8.6	20.4
1 2	7 21.68	+20 28.2	1.559	2.535	3.3	19.0	1 2	7 21.30	+19 34.7	1.379	2.355	3.6	20.1
1 12	7 9.68	+20 34.9	1.571	2.552	1.9	18.9	1 12	7 9.95	+19 47.5	1.363	2.344	2.2	20.0
1 22	6 58.42	+20 39.9	1.612	2.567	6.7	19.3	1 22	6 58.95	+20 0.2	1.375	2.332	7.3	20.3
2 1	6 49.15	+20 42.7	1.681	2.582	11.0	19.6	2 1	6 49.76	+20 11.4	1.413	2.321	12.2	20.5
2 11	6 42.71	+20 43.4	1.773	2.596	14.6	19.8	2 11	6 43.50	+20 20.6	1.474	2.309	16.4	20.7
29230	1992 <i>ED</i> ₄		1 8.2 348°66	0.2/ 8.3	18		461936	2006 <i>SP</i> ₂₁₅					

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
401138	2011 <i>UC</i> ₃₇₁		1 8.3 228°33	5°4/ 6.2 17			488993	2005 <i>UJ</i> ₄₀₅		1 8.3 28°39	1°3/ 8.6 17		
12 3	7 48.67	+33 18.3	1.947	2.743	14.5	22.4	12 3	7 41.25	+18 27.1	1.084	1.921	20.8	21.0
12 13	7 42.86	+34 34.8	1.856	2.731	11.5	22.1	12 13	7 37.89	+18 35.2	1.029	1.931	16.1	20.8
12 23	7 33.85	+35 50.9	1.788	2.719	8.2	21.9	12 23	7 30.83	+18 55.3	0.992	1.943	10.5	20.5
1 2	7 22.27	+36 58.4	1.747	2.706	5.7	21.7	1 2	7 21.05	+19 24.4	0.978	1.955	4.4	20.2
1 12	7 9.35	+37 49.6	1.735	2.692	6.0	21.7	1 12	7 10.28	+19 57.6	0.987	1.969	2.5	20.1
1 22	6 56.64	+38 19.9	1.752	2.678	8.9	21.9	1 22	7 0.42	+20 30.2	1.022	1.983	8.4	20.5
2 1	6 45.71	+38 29.1	1.796	2.663	12.3	22.0	2 1	6 53.12	+20 59.0	1.079	1.999	13.8	20.9
2 11	6 37.75	+38 20.6	1.863	2.647	15.5	22.2	2 11	6 49.41	+21 22.6	1.156	2.015	18.3	21.2
490699	2010 <i>OW</i> ₁₀₃		1 8.3 162°58	1°4/ 7.6 17			52844	1998 <i>RB</i> ₆₆		1 8.3 326°52	6°0/ 9.6 18		
12 3	7 46.26	+22 32.9	2.178	2.966	13.4	22.0	12 3	7 41.14	+ 9 46.1	1.357	2.159	19.3	18.1
12 13	7 40.18	+23 36.5	2.096	2.973	10.3	21.8	12 13	7 37.31	+ 9 12.2	1.279	2.154	15.6	17.9
12 23	7 31.65	+24 46.0	2.038	2.980	6.6	21.6	12 23	7 30.31	+ 8 54.8	1.220	2.149	11.4	17.6
1 2	7 21.26	+25 56.5	2.009	2.986	2.7	21.4	1 2	7 20.88	+ 8 56.3	1.183	2.145	7.4	17.4
1 12	7 10.03	+27 2.5	2.012	2.991	2.3	21.4	1 12	7 10.33	+ 9 16.5	1.172	2.141	6.1	17.3
1 22	6 59.10	+27 59.7	2.046	2.995	6.1	21.6	1 22	7 0.22	+ 9 53.0	1.187	2.137	9.2	17.4
2 1	6 49.60	+28 45.9	2.110	2.998	9.7	21.8	2 1	6 52.04	+10 41.0	1.226	2.134	13.6	17.7
2 11	6 42.40	+29 21.0	2.198	3.001	12.8	22.1	2 11	6 46.91	+11 35.1	1.286	2.131	17.7	17.9
126665	2002 <i>CD</i> ₂₁₀		1 8.3 62°91	1°1/ 7.9 18			345273	2005 <i>VS</i> ₁₀₂		1 8.3 42°36	2°2/ 8.5 18		
12 3	7 42.57	+24 25.0	1.855	2.662	14.7	20.2	12 3	7 47.98	+20 22.1	1.019	1.853	22.1	19.5
12 13	7 37.59	+24 40.7	1.783	2.670	11.2	20.0	12 13	7 42.72	+19 33.4	0.979	1.879	16.9	19.3
12 23	7 30.02	+24 58.8	1.733	2.678	7.2	19.8	12 23	7 33.61	+18 51.7	0.957	1.906	11.0	19.1
1 2	7 20.60	+25 15.8	1.709	2.687	2.9	19.5	1 2	7 21.99	+18 16.7	0.958	1.935	4.8	18.8
1 12	7 10.48	+25 28.6	1.715	2.695	2.1	19.5	1 12	7 9.85	+17 47.8	0.983	1.964	3.2	18.8
1 22	7 0.90	+25 35.0	1.749	2.704	6.3	19.8	1 22	6 59.17	+17 24.9	1.033	1.993	8.7	19.3
2 1	6 53.01	+25 34.9	1.811	2.712	10.3	20.0	2 1	6 51.45	+17 7.9	1.107	2.023	13.9	19.6
2 11	6 47.62	+25 29.2	1.896	2.721	13.7	20.3	2 11	6 47.47	+16 56.0	1.200	2.054	18.1	20.0
280785	2005 <i>SB</i> ₁₅₈		1 8.3 197°60	3°3/ 9.1 18			452291	2015 <i>TP</i> ₂₂₃		1 8.3 66°10	1°4/ 7.9 15		
12 3	7 44.74	+13 34.4	1.723	2.511	16.4	21.8	12 3	7 48.38	+24 16.1	1.380	2.195	18.3	22.1
12 13	7 39.45	+13 25.5	1.636	2.509	12.9	21.5	12 13	7 42.50	+24 37.2	1.331	2.222	13.9	21.9
12 23	7 31.38	+13 28.1	1.572	2.506	8.9	21.3	12 23	7 33.31	+25 1.4	1.303	2.250	8.9	21.6
1 2	7 21.20	+13 41.7	1.533	2.503	4.8	21.0	1 2	7 21.89	+25 23.7	1.300	2.277	3.6	21.4
1 12	7 10.08	+14 4.6	1.523	2.499	3.6	20.9	1 12	7 9.86	+25 39.4	1.324	2.305	2.6	21.4
1 22	6 59.33	+14 34.2	1.541	2.494	7.2	21.2	1 22	6 58.89	+25 46.4	1.376	2.332	7.5	21.8
2 1	6 50.23	+15 7.6	1.587	2.489	11.4	21.4	2 1	6 50.37	+25 45.0	1.454	2.359	12.1	22.1
2 11	6 43.76	+15 42.1	1.656	2.483	15.2	21.6	2 11	6 45.12	+25 37.3	1.554	2.385	15.9	22.4
183990	2004 <i>EM</i> ₅₃		1 8.3 4°67	7°0/10.9 18			520044	2013 <i>VL</i> ₂₉		1 8.3 88°79	0°1/ 8.2 18		
12 3	7 37.27	+ 4 42.8	1.405	2.196	19.3	20.0	12 3	7 41.20	+21 35.0	2.384	3.175	12.3	21.8
12 13	7 34.15	+ 4 36.5	1.332	2.195	15.9	19.8	12 13	7 35.88	+21 53.5	2.317	3.196	9.3	21.7
12 23	7 28.15	+ 4 54.1	1.277	2.195	12.0	19.6	12 23	7 28.61	+22 15.5	2.275	3.217	6.0	21.5
1 2	7 19.98	+ 5 37.4	1.244	2.197	8.4	19.4	1 2	7 20.00	+22 38.6	2.260	3.238	2.3	21.3
1 12	7 10.84	+ 6 44.8	1.236	2.199	7.0	19.3	1 12	7 10.94	+23 0.3	2.277	3.258	1.4	21.2
1 22	7 2.13	+ 8 10.7	1.254	2.202	9.2	19.4	1 22	7 2.33	+23 18.8	2.323	3.278	5.0	21.5
2 1	6 55.19	+ 9 47.6	1.297	2.206	12.9	19.6	2 1	6 55.01	+23 33.0	2.399	3.297	8.3	21.8
2 11	6 51.02	+11 27.2	1.362	2.211	16.7	19.9	2 11	6 49.61	+23 43.0	2.501	3.317	11.0	22.0
241945	2002 <i>CJ</i> ₁₉₈		1 8.3 176°32	2°0/ 9.1 18			502128	2015 <i>BR</i> ₁₆		1 8.3 251°00	3°0/ 9.7 17		
12 3	7 40.42	+14 25.9	2.441	3.218	12.4	21.1	12 3	7 38.35	+10 7.4	2.461	3.229	12.6	21.4
12 13	7 35.35	+14 36.8	2.353	3.220	9.7	20.9	12 13	7 33.86	+10 28.1	2.361	3.219	10.0	21.3
12 23	7 28.33	+14 56.1	2.288	3.222	6.6	20.7	12 23	7 27.46	+11 1.1	2.284	3.209	7.1	21.0
1 2	7 19.92	+15 22.8	2.252	3.223	3.3	20.5	1 2	7 19.63	+11 45.6	2.235	3.199	4.2	20.8
1 12	7 10.89	+15 54.8	2.246	3.223	2.3	20.5	1 12	7 11.11	+12 39.6	2.216	3.189	3.1	20.8
1 22	7 2.14	+16 29.8	2.270	3.223	5.2	20.7	1 22	7 2.74	+13 40.1	2.228	3.178	5.5	20.9
2 1	6 54.50	+17 5.6	2.324	3.223	8.5	20.9	2 1	6 55.37	+14 43.7	2.269	3.168	8.6	21.1
2 11	6 48.67	+17 40.4	2.404	3.222	11.4	21.0	2 11	6 49.71	+15 47.0	2.336	3.157	11.6	21.2
142526	2002 <i>TD</i> ₄₅		1 8.3 40°62	8°4/10.5 18			335979	2007 <i>TM</i> ₂₂₆		1 8.3 68°99	0°4/ 8.1 18		
12 3	7 39.96	+ 3 16.0	1.587	2.358	18.3	19.2	12 3	7 40.00	+22 24.6	2.241	3.039	12.7	21.3
12 13	7 35.74	+ 2 17.2	1.519	2.365	15.3	19.0	12 13	7 35.20	+22 43.1	2.166	3.049	9.7	21.1
12 23	7 28.91	+ 1 37.5	1.471	2.373	12.0	18.8	12 23	7 28.30	+23 5.0	2.116	3.060	6.2	20.9
1 2	7 20.20	+ 1 20.8	1.446	2.382	9.3	18.7	1 2	7 19.92	+23 27.9	2.093	3.071	2.4	20.7
1 12	7 10.75	+ 1 28.6	1.446	2.390	8.4	18.7	1 12	7 10.99	+23 48.9	2.100	3.081	1.6	20.7
1 22	7 1.81	+ 1 59.1	1.472	2.400	10.0	18.8	1 22	7 2.46	+24 6.0	2.137	3.092	5.3	20.9
2 1	6 54.54	+ 2 47.9	1.522	2.409	12.9	19.0	2 1	6 55.26	+24 18.4	2.203	3.103	8.8	21.2
2 11	6 49.79	+ 3 48.5	1.594	2.419	15.9	19.2	2 11	6 50.08	+24 25.9	2.293	3.113	11.8	21.4
78585	2002 <i>SF</i> ₁₂		1 8.3 348°00	1°2/ 8.6 18 R			373079	2011 <i>FB</i> ₉₁		1 8.3 68°35	1°1/ 8.6 18		
12 3	7 35.93	+18 30.0	1.567	2.388	16.2	18.5	12 3	7 40.35	+18 13.8	2.020	2.817	14.0	21.0
12 13	7 33.07	+18 35.1	1.482	2.376	12.6	18.3	12 13	7 35.66	+18 20.5	1.943	2.824	10.8	20.8
12 23	7 27.44	+18 49.2	1.419	2.366	8.3	18.0	12 23	7 28.70	+18 34.1	1.889	2.830	7.1	20.6
1 2	7 19.71	+19 10.4	1.380	2.357	3.6	17.7	1 2	7 20.11	+18 52.6	1.861	2.837	3.0	20.3
1 12	7 11.00	+19 36.1	1.368	2.349	2.1	17.6	1 12	7 10.88	+19 13.9	1.863	2.844	1.8	20.2
1 22	7 2.65	+20 2.9	1.383	2.343	6.9	17.9	1 22	7 2.06	+19 35.6	1.894	2.851	5.7	20.5
2 1	6 55.95	+20 28.4	1.423	2.337	11.5	18.1	2 1	6 54.66	+19 56.0	1.953	2.858	9.5	20.8
2 11	6 51.90	+20 50.9	1.485	2.333	15.6	18.4	2 11	6 49.43	+20 14.2	2.037	2.865	12.8	21.0
55389	2001 <i>SX</i> ₂₇₆		1 8.3 311°04	7°9/ 6.2 18			316463	2010 <i>UR</i> ₉₅		1 8.3 163°47	6°2/ 9.4 18		
12 3	7 47.35	+40 2											

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
464229	2015 <i>BN</i> ₃₂₀		1 8.3	95°87	3°0/ 7.5	18	328618	2009 <i>SG</i> ₁₄₄		1 8.3	179°17	4°2/ 6.8	18
12 3	7 43.39	+31 12.9	2.289	3.085	12.6	20.7	12 3	7 45.38	+33 22.2	2.291	3.083	12.7	21.3
12 13	7 37.87	+31 31.2	2.213	3.092	9.7	20.5	12 13	7 39.62	+34 9.6	2.210	3.084	9.9	21.1
12 23	7 30.05	+31 46.3	2.160	3.098	6.6	20.3	12 23	7 31.34	+34 53.9	2.152	3.085	7.0	20.9
1 2	7 20.62	+31 54.6	2.135	3.105	3.7	20.2	1 2	7 21.22	+35 29.8	2.123	3.085	4.6	20.8
1 12	7 10.60	+31 53.0	2.140	3.111	3.5	20.2	1 12	7 10.30	+35 52.6	2.124	3.085	4.7	20.8
1 22	7 1.08	+31 40.6	2.174	3.117	6.2	20.3	1 22	6 59.78	+36 0.2	2.154	3.084	7.1	20.9
2 1	6 53.05	+31 18.3	2.237	3.123	9.3	20.5	2 1	6 50.79	+35 53.1	2.211	3.084	10.1	21.1
2 11	6 47.26	+30 48.7	2.324	3.129	12.1	20.7	2 11	6 44.19	+35 34.2	2.293	3.082	12.8	21.3
230659	2003 <i>SA</i> ₁₁₉		1 8.3	36°02	0°9/ 7.9	18	32536	2001 <i>PD</i> ₄₁		1 8.3	186°96	1°0/ 8.5	18
12 3	7 41.06	+23 48.5	2.078	2.881	13.5	21.1	12 3	7 40.38	+19 32.5	2.449	3.237	12.1	17.8
12 13	7 36.28	+24 8.1	1.996	2.881	10.3	20.9	12 13	7 35.33	+19 18.8	2.361	3.237	9.3	17.6
12 23	7 29.16	+24 30.7	1.937	2.882	6.6	20.6	12 23	7 28.34	+19 8.7	2.297	3.237	6.1	17.4
1 2	7 20.32	+24 53.2	1.906	2.883	2.7	20.4	1 2	7 19.97	+19 1.3	2.261	3.236	2.6	17.2
1 12	7 10.76	+25 12.4	1.904	2.884	1.9	20.3	1 12	7 11.06	+18 55.4	2.256	3.236	1.6	17.1
1 22	7 1.59	+25 26.2	1.931	2.885	5.9	20.6	1 22	7 2.47	+18 50.4	2.281	3.235	5.0	17.4
2 1	6 53.86	+25 33.7	1.986	2.886	9.6	20.8	2 1	6 55.06	+18 45.7	2.335	3.235	8.4	17.6
2 11	6 48.36	+25 35.5	2.066	2.887	12.9	21.0	2 11	6 49.49	+18 41.2	2.414	3.234	11.3	17.8
199885	2007 <i>ED</i> ₂₂₀		1 8.3	68°26	5°5/ 6.9	17	221317	2005 <i>VT</i> ₅₁		1 8.3	169°78	4°2/ 9.8	18
12 3	7 48.44	+31 39.8	1.350	2.170	18.4	20.5	12 3	7 40.30	+ 8 57.9	2.142	2.910	14.2	20.8
12 13	7 43.23	+32 43.0	1.293	2.184	14.3	20.3	12 13	7 35.49	+ 8 50.5	2.057	2.912	11.4	20.6
12 23	7 34.21	+33 43.8	1.257	2.198	9.9	20.0	12 23	7 28.57	+ 8 55.8	1.994	2.914	8.3	20.4
1 2	7 22.39	+34 33.0	1.245	2.212	6.1	19.9	1 2	7 20.10	+ 9 14.1	1.958	2.916	5.3	20.2
1 12	7 9.56	+35 2.7	1.260	2.227	6.1	19.9	1 12	7 10.97	+ 9 44.5	1.950	2.917	4.3	20.2
1 22	6 57.68	+35 9.8	1.301	2.241	9.7	20.2	1 22	7 2.15	+10 24.5	1.972	2.918	6.5	20.3
2 1	6 48.47	+34 56.6	1.366	2.256	13.8	20.4	2 1	6 54.56	+11 10.9	2.022	2.918	9.7	20.5
2 11	6 42.98	+34 28.7	1.451	2.270	17.5	20.7	2 11	6 48.97	+12 0.4	2.097	2.919	12.7	20.7
333403	2002 <i>TZ</i> ₃₄₆		1 8.3	83°33	2°9/ 7.1	18	446845	2001 <i>SN</i> ₂₆₄		1 8.3	161°07	11°0/ 11.5	18
12 3	7 42.20	+28 37.2	2.244	3.043	12.7	20.5	12 3	7 44.28	- 7 38.3	2.081	2.766	17.0	21.8
12 13	7 37.01	+29 28.0	2.176	3.058	9.7	20.4	12 13	7 38.51	- 8 59.0	2.007	2.773	15.0	21.7
12 23	7 29.54	+30 18.9	2.132	3.072	6.5	20.2	12 23	7 30.50	- 9 58.8	1.952	2.781	13.1	21.5
1 2	7 20.44	+31 5.1	2.116	3.087	3.5	20.0	1 2	7 20.86	-10 32.2	1.921	2.787	11.5	21.5
1 12	7 10.72	+31 42.3	2.130	3.101	3.4	20.0	1 12	7 10.53	-10 36.2	1.914	2.792	11.0	21.4
1 22	7 1.43	+32 7.9	2.173	3.115	6.3	20.2	1 22	7 0.56	-10 11.2	1.933	2.796	11.7	21.5
2 1	6 53.59	+32 21.7	2.245	3.130	9.4	20.5	2 1	6 51.95	- 9 21.0	1.977	2.800	13.2	21.6
2 11	6 47.95	+32 25.0	2.341	3.144	12.1	20.7	2 11	6 45.47	- 8 11.9	2.043	2.803	15.1	21.7
46905	1998 <i>RT</i> ₆₃		1 8.3	323°73	6°8/ 10.5	18	166850	2002 <i>WF</i> ₃		1 8.3	349°69	1°6/ 8.5	18
12 3	7 38.31	+ 5 8.3	1.555	2.337	18.1	17.8	12 3	7 40.81	+19 40.5	1.967	2.767	14.2	19.3
12 13	7 34.83	+ 4 51.9	1.469	2.327	15.0	17.6	12 13	7 36.12	+19 6.7	1.881	2.764	11.0	19.1
12 23	7 28.59	+ 4 56.1	1.402	2.318	11.4	17.4	12 23	7 29.06	+18 36.1	1.819	2.760	7.3	18.8
1 2	7 20.21	+ 5 23.4	1.358	2.309	8.1	17.2	1 2	7 20.30	+18 8.5	1.783	2.758	3.3	18.6
1 12	7 10.79	+ 6 13.4	1.340	2.300	6.9	17.1	1 12	7 10.87	+17 43.6	1.776	2.755	2.2	18.5
1 22	7 1.65	+ 7 22.3	1.348	2.292	9.0	17.2	1 22	7 1.86	+17 21.2	1.798	2.754	6.0	18.7
2 1	6 54.08	+ 8 44.3	1.381	2.285	12.7	17.3	2 1	6 54.32	+17 1.6	1.848	2.752	9.9	19.0
2 11	6 49.12	+10 12.1	1.437	2.278	16.4	17.6	2 11	6 49.03	+16 44.9	1.922	2.751	13.3	19.2
149033	2002 <i>AA</i> ₁₆₉		1 8.3	55°61	3°6/ 7.6	18	140040	2001 <i>SA</i> ₇₆		1 8.3	64°87	0°6/ 8.5	18 R
12 3	7 46.09	+31 1.1	1.682	2.491	15.8	19.1	12 3	7 41.98	+19 27.0	1.763	2.567	15.4	19.4
12 13	7 40.57	+31 20.9	1.619	2.505	12.2	18.9	12 13	7 37.24	+19 38.5	1.690	2.575	11.8	19.2
12 23	7 32.06	+31 37.1	1.578	2.519	8.2	18.7	12 23	7 29.88	+19 57.0	1.640	2.584	7.7	19.0
1 2	7 21.45	+31 44.5	1.563	2.534	4.5	18.5	1 2	7 20.65	+20 20.0	1.615	2.592	3.1	18.7
1 12	7 10.16	+31 39.2	1.576	2.549	4.2	18.5	1 12	7 10.68	+20 44.4	1.620	2.601	1.8	18.6
1 22	6 59.69	+31 20.3	1.617	2.564	7.6	18.7	1 22	7 1.22	+21 7.4	1.652	2.609	6.3	19.0
2 1	6 51.32	+30 50.0	1.684	2.579	11.4	19.0	2 1	6 53.43	+21 27.3	1.712	2.618	10.5	19.2
2 11	6 45.91	+30 11.9	1.775	2.594	14.7	19.2	2 11	6 48.16	+21 43.4	1.796	2.627	14.1	19.5
405989	2006 <i>SH</i> ₂₈₇		1 8.3	93°28	7°2/ 7.1	18	442837	2013 <i>AZ</i> ₉₆		1 8.3	54°19	2°5/ 9.0	17
12 3	7 53.31	+41 0.9	1.818	2.604	15.7	20.9	12 3	7 44.22	+14 24.2	1.221	2.037	20.2	21.2
12 13	7 46.21	+41 40.9	1.759	2.620	12.7	20.8	12 13	7 39.63	+14 46.2	1.170	2.059	15.7	21.0
12 23	7 35.72	+42 9.4	1.721	2.636	9.7	20.6	12 23	7 31.68	+15 24.5	1.139	2.082	10.4	20.7
1 2	7 22.89	+42 18.3	1.709	2.652	7.5	20.5	1 2	7 21.38	+16 15.7	1.131	2.106	4.9	20.5
1 12	7 9.38	+42 2.9	1.725	2.668	7.5	20.6	1 12	7 10.30	+17 14.3	1.150	2.130	3.0	20.5
1 22	6 56.92	+41 23.3	1.768	2.683	9.6	20.7	1 22	7 0.13	+18 14.1	1.194	2.154	7.8	20.8
2 1	6 46.98	+40 24.2	1.837	2.698	12.4	20.9	2 1	6 52.34	+19 10.4	1.264	2.178	12.7	21.2
2 11	6 40.42	+39 12.5	1.929	2.713	15.1	21.1	2 11	6 47.84	+20 0.1	1.355	2.202	16.8	21.5
96027	2004 <i>PB</i> ₂₉		1 8.3	79°77	1°5/ 8.7	18	89119	2001 <i>TD</i> ₂₃₁		1 8.3	15°21	4°6/ 10.1	18
12 3	7 47.04	+17 27.4	1.500	2.302	17.7	20.8	12 3	7 38.69	+ 8 26.1	1.561	2.353	17.6	18.8
12 13	7 41.19	+17 36.3	1.446	2.329	13.6	20.6	12 13	7 35.01	+ 8 42.2	1.486	2.356	14.1	18.6
12 23	7 32.39	+17 54.8	1.413	2.355	8.9	20.4	12 23	7 28.63	+ 9 17.9	1.431	2.359	10.1	18.4
1 2	7 21.57	+18 20.1	1.405	2.381	3.9	20.2	1 2	7 20.22	+10 13.0	1.400	2.363	6.2	18.2
1 12	7 10.15	+18 48.6	1.426	2.406	2.3	20.1	1 12	7 10.92	+11 24.1	1.395	2.367	4.7	18.1
1 22	6 59.58	+19 16.9	1.475	2.432	6.9	20.5	1 22	7 2.02	+12 45.6	1.418	2.372	7.6	18.3
2 1	6 51.14	+19 42.9	1.550	2.456	11.4	20.8	2 1	6 54.78	+14 11.2	1.468	2.378	11.6	18.5
2 11	6 45.63	+20 5.4	1.649	2.481	15.1	21.1	2 11	6 50.13	+15 34.9	1.540	2.383	15.4	18.8
394063	2005 <i>XP</i> ₅₄		1 8.3	166°37	0°4/ 8.4	18	350431	2012 <i>VG</i> ₈₄		1 8.3	1°96	1°8/ 7.8	18
12 3	7 46.46	+20 51.8	1										

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
288516	2004 <i>FU</i> ₁₂₂		1 8.3 342°47	7°5/ 9.2	18		287518	2003 <i>BW</i> ₈₃		1 8.3 342°73	5°3/10.3	18	
12 3	7 37.53	+ 6 43.1	1.762	2.542	16.4	19.7	12 3	7 35.54	+ 7 57.2	1.364	2.170	19.0	19.6
12 13	7 33.87	+ 5 21.9	1.675	2.530	13.6	19.5	12 13	7 33.15	+ 8 8.5	1.279	2.157	15.4	19.4
12 23	7 27.78	+ 4 12.3	1.608	2.519	10.6	19.3	12 23	7 27.77	+ 8 42.7	1.213	2.145	11.2	19.1
1 2	7 19.87	+ 3 18.6	1.567	2.508	8.2	19.1	1 2	7 20.02	+ 9 41.1	1.170	2.134	7.1	18.8
1 12	7 11.13	+ 2 44.1	1.551	2.499	7.6	19.1	1 12	7 11.08	+11 0.9	1.152	2.124	5.4	18.7
1 22	7 2.69	+ 2 29.9	1.561	2.490	9.4	19.2	1 22	7 2.40	+12 35.8	1.160	2.116	8.5	18.8
2 1	6 55.66	+ 2 34.5	1.597	2.483	12.4	19.3	2 1	6 55.45	+14 17.4	1.192	2.109	13.0	19.1
2 11	6 50.92	+ 2 54.2	1.654	2.476	15.5	19.5	2 11	6 51.38	+15 58.0	1.246	2.103	17.4	19.3
379040	2008 <i>WO</i> ₁₈		1 8.3 164°03	0°2/ 8.2	18		296739	2009 <i>TY</i> ₂₆		1 8.3 144°53	0°8/ 8.5	18	
12 3	7 41.21	+22 13.7	2.539	3.328	11.7	22.0	12 3	7 47.38	+18 16.8	1.594	2.393	17.0	21.1
12 13	7 35.94	+22 25.7	2.453	3.331	8.9	21.9	12 13	7 41.67	+18 39.5	1.521	2.403	13.2	20.9
12 23	7 28.73	+22 40.5	2.393	3.335	5.7	21.7	12 23	7 32.93	+19 11.8	1.469	2.412	8.6	20.6
1 2	7 20.14	+22 56.1	2.361	3.338	2.3	21.4	1 2	7 21.94	+19 50.5	1.444	2.420	3.6	20.4
1 12	7 11.00	+23 10.3	2.360	3.341	1.4	21.4	1 12	7 10.02	+20 30.9	1.447	2.428	2.0	20.3
1 22	7 2.17	+23 21.5	2.390	3.343	4.9	21.6	1 22	6 58.66	+21 9.2	1.478	2.435	7.0	20.6
2 1	6 54.52	+23 28.8	2.449	3.346	8.2	21.8	2 1	6 49.26	+21 42.6	1.537	2.441	11.6	20.9
2 11	6 48.70	+23 32.5	2.533	3.347	11.0	22.0	2 11	6 42.80	+22 10.3	1.619	2.447	15.5	21.1
202311	2005 <i>EC</i> ₁₂		1 8.3 209°87	1°4/ 7.8	18		149794	2005 <i>GS</i> ₁₄₄		1 8.3 99°46	0°6/ 8.1	18	
12 3	7 40.84	+24 57.9	2.243	3.043	12.7	20.2	12 3	7 49.29	+20 59.6	1.473	2.278	17.9	20.5
12 13	7 36.01	+25 24.6	2.158	3.042	9.7	20.0	12 13	7 43.20	+21 41.7	1.415	2.301	13.6	20.2
12 23	7 28.96	+25 53.7	2.098	3.042	6.3	19.8	12 23	7 33.88	+22 31.6	1.379	2.324	8.7	20.0
1 2	7 20.28	+26 21.7	2.065	3.041	2.7	19.6	1 2	7 22.28	+23 23.8	1.368	2.346	3.4	19.8
1 12	7 10.90	+26 45.4	2.061	3.040	2.2	19.5	1 12	7 9.87	+24 12.0	1.386	2.367	2.2	19.7
1 22	7 1.86	+27 2.5	2.088	3.039	5.7	19.8	1 22	6 58.30	+24 51.9	1.433	2.388	7.3	20.1
2 1	6 54.14	+27 12.2	2.142	3.038	9.2	20.0	2 1	6 48.99	+25 21.7	1.506	2.408	11.9	20.4
2 11	6 48.52	+27 15.1	2.222	3.038	12.3	20.2	2 11	6 42.86	+25 42.2	1.601	2.427	15.7	20.7
468776	2011 <i>UZ</i> ₁₀₄		1 8.3 61°81	19°8/11.9	18		415360	2013 <i>KL</i> ₂		1 8.3 174°71	5°9/10.9	18	
12 3	7 45.72	- 8 45.9	1.012	1.764	27.6	20.6	12 3	7 39.62	+ 2 21.5	2.308	3.046	14.1	21.2
12 13	7 41.30	-11 49.6	0.971	1.776	24.9	20.4	12 13	7 34.85	+ 2 14.9	2.220	3.048	11.8	21.1
12 23	7 33.07	-14 17.0	0.943	1.788	22.4	20.3	12 23	7 28.12	+ 2 24.6	2.155	3.050	9.1	20.9
1 2	7 22.02	-15 53.1	0.932	1.801	20.5	20.2	1 2	7 19.97	+ 2 52.1	2.115	3.051	6.8	20.8
1 12	7 9.91	-16 28.9	0.938	1.814	19.8	20.2	1 12	7 11.19	+ 3 36.5	2.104	3.051	6.0	20.7
1 22	6 58.70	-16 4.6	0.962	1.827	20.4	20.3	1 22	7 2.67	+ 4 35.5	2.122	3.052	7.3	20.8
2 1	6 50.11	-14 49.6	1.004	1.840	22.1	20.5	2 1	6 55.27	+ 5 44.9	2.168	3.052	9.7	20.9
2 11	6 45.27	-12 59.2	1.060	1.854	24.1	20.7	2 11	6 49.68	+ 7 0.0	2.239	3.051	12.3	21.1
98020	2000 <i>QL</i> ₂₂₉		1 8.3 180°61	0°2/ 8.2	18		217764	2000 <i>QC</i> ₁₆₂		1 8.3 60°73	0°1/ 8.3	18	
12 3	7 45.38	+21 28.7	1.830	2.628	15.1	20.9	12 3	7 45.64	+23 32.0	1.696	2.502	15.9	19.5
12 13	7 39.91	+21 49.4	1.747	2.630	11.7	20.7	12 13	7 39.93	+23 17.9	1.636	2.522	12.1	19.3
12 23	7 31.69	+22 15.7	1.687	2.630	7.6	20.5	12 23	7 31.51	+23 5.7	1.598	2.543	7.8	19.1
1 2	7 21.42	+22 44.2	1.653	2.630	3.0	20.2	1 2	7 21.27	+22 53.0	1.586	2.564	3.0	18.9
1 12	7 10.26	+23 11.2	1.649	2.630	1.8	20.1	1 12	7 10.50	+22 38.1	1.603	2.585	1.8	18.8
1 22	6 59.51	+23 33.7	1.674	2.629	6.5	20.4	1 22	7 0.52	+22 20.6	1.649	2.606	6.4	19.2
2 1	6 50.44	+23 50.4	1.727	2.628	10.7	20.7	2 1	6 52.49	+22 1.0	1.722	2.627	10.5	19.4
2 11	6 43.99	+24 1.2	1.803	2.626	14.4	20.9	2 11	6 47.16	+21 40.7	1.819	2.648	14.0	19.7
105551	2000 <i>RW</i> ₄₆		1 8.3 72°45	4°1/ 7.6	18		323793	2005 <i>QY</i> ₁₄₀		1 8.3 51°96	5°1/10.0	18	
12 3	7 48.58	+31 22.6	1.504	2.317	17.2	19.6	12 3	7 39.91	+ 8 20.1	1.736	2.518	16.5	21.2
12 13	7 42.94	+31 44.5	1.438	2.326	13.4	19.4	12 13	7 35.62	+ 8 9.5	1.662	2.525	13.3	21.0
12 23	7 33.84	+32 2.6	1.393	2.335	9.0	19.2	12 23	7 28.85	+ 8 14.8	1.610	2.532	9.7	20.8
1 2	7 22.27	+32 10.3	1.373	2.344	5.0	19.0	1 2	7 20.30	+ 8 36.9	1.582	2.540	6.3	20.6
1 12	7 9.82	+32 3.0	1.381	2.353	4.7	19.0	1 12	7 11.01	+ 9 14.2	1.581	2.548	5.1	20.6
1 22	6 58.26	+31 39.7	1.416	2.362	8.4	19.2	1 22	7 2.17	+10 3.4	1.608	2.556	7.5	20.7
2 1	6 49.10	+31 3.1	1.476	2.372	12.6	19.5	2 1	6 54.86	+11 0.1	1.662	2.564	11.0	20.9
2 11	6 43.31	+30 18.1	1.558	2.381	16.3	19.7	2 11	6 49.92	+11 59.8	1.740	2.573	14.4	21.2
424836	2008 <i>UC</i> ₂₅₀		1 8.3 114°55	2°1/ 7.5	18		473715	2015 <i>YR</i> ₁₈		1 8.3 13°63	4°1/ 6.7	18	
12 3	7 42.18	+26 55.0	2.307	3.104	12.5	21.7	12 3	7 38.91	+23 44.6	1.094	1.939	20.0	20.0
12 13	7 36.95	+27 33.0	2.232	3.114	9.5	21.5	12 13	7 36.60	+25 33.0	1.036	1.944	15.4	19.8
12 23	7 29.51	+28 12.0	2.182	3.124	6.2	21.3	12 23	7 30.39	+27 33.6	0.997	1.950	10.0	19.5
1 2	7 20.50	+28 47.9	2.159	3.133	3.0	21.2	1 2	7 21.14	+29 35.3	0.982	1.958	5.1	19.2
1 12	7 10.86	+29 17.2	2.166	3.142	2.7	21.2	1 12	7 10.50	+31 24.7	0.992	1.967	5.3	19.3
1 22	7 1.62	+29 37.5	2.204	3.151	5.8	21.4	1 22	7 0.54	+32 51.6	1.027	1.978	10.2	19.6
2 1	6 53.75	+29 48.3	2.270	3.160	9.1	21.6	2 1	6 53.16	+33 52.1	1.084	1.990	15.1	19.9
2 11	6 47.98	+29 50.6	2.361	3.168	11.9	21.8	2 11	6 49.62	+34 28.1	1.161	2.004	19.4	20.2
455758	2005 <i>MP</i> ₁₄		1 8.3 135°84	0°0/ 8.2	18		421162	2013 <i>RA</i> ₄₃		1 8.3 121°75	2°4/ 7.4	18	
12 3	7 46.34	+23 2.9	2.383	3.166	12.5	21.9	12 3	7 42.89	+27 43.5	2.285	3.081	12.6	21.1
12 13	7 39.79	+22 53.6	2.307	3.182	9.6	21.8	12 13	7 37.53	+28 21.8	2.210	3.091	9.6	20.9
12 23	7 31.15	+22 45.4	2.256	3.196	6.2	21.6	12 23	7 29.92	+29 0.6	2.159	3.100	6.3	20.7
1 2	7 21.09	+22 36.7	2.233	3.210	2.4	21.3	1 2	7 20.69	+29 35.7	2.136	3.109	3.2	20.5
1 12	7 10.55	+22 25.9	2.242	3.223	1.4	21.3	1 12	7 10.81	+30 3.1	2.144	3.118	2.9	20.5
1 22	7 0.52	+22 12.5	2.282	3.235	5.1	21.6	1 22	7 1.35	+30 20.8	2.181	3.127	6.0	20.7
2 1	6 51.91	+21 56.8	2.352	3.247	8.5	21.8	2 1	6 53.30	+30 28.4	2.247	3.135	9.2	21.0
2 11	6 45.38	+21 39.7	2.448	3.258	11.4	22.0	2 11	6 47.40	+30 27.2	2.337	3.143	12.1	21.2
117494	2005 <i>CU</i> ₁₉		1 8.3 73°03	4°0/ 9.8	18		264008	2009 <i>OM</i> ₁₉		1 8.3 116°89	0°2/ 8.2	17	
12 3	7 38.58	+ 9 18.5</											

EPHEMERIDES

1 8.3

1 8.3

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
357207	2002 <i>GZ</i> ₇₁		1 8.3 284°64	2°6/ 7.6	18		400801	2010 <i>GJ</i> ₆₆		1 8.3 190°27	0°9/ 8.0	18	
12 3	7 44.26	+26 17.4	1.599	2.413	16.3	21.0	12 3	7 45.81	+22 33.2	2.082	2.873	13.8	22.1
12 13	7 39.88	+26 55.3	1.503	2.394	12.7	20.7	12 13	7 40.04	+23 9.0	1.993	2.872	10.6	21.9
12 23	7 32.20	+27 37.4	1.429	2.375	8.4	20.4	12 23	7 31.73	+23 49.8	1.928	2.870	6.9	21.6
1 2	7 21.83	+28 18.1	1.380	2.355	4.0	20.1	1 2	7 21.50	+24 31.8	1.891	2.868	2.8	21.4
1 12	7 10.05	+28 51.1	1.358	2.335	3.5	20.0	1 12	7 10.39	+25 10.7	1.884	2.865	2.0	21.3
1 22	6 58.48	+29 12.2	1.364	2.316	8.1	20.3	1 22	6 59.58	+25 43.2	1.908	2.861	6.1	21.6
2 1	6 48.76	+29 20.0	1.396	2.296	12.8	20.5	2 1	6 50.24	+26 7.8	1.961	2.856	10.0	21.8
2 11	6 42.15	+29 16.3	1.449	2.276	17.1	20.7	2 11	6 43.27	+26 24.7	2.038	2.850	13.4	22.0
133770	2003 <i>WM</i> ₇₆		1 8.3 118°37	6°9/ 5.6	18		116316	2003 <i>YJ</i> ₆₈		1 8.3 335°41	1°7/ 8.9	18	
12 3	7 46.90	+41 28.4	2.298	3.079	13.0	20.2	12 3	7 38.51	+15 11.4	2.151	2.941	13.5	19.5
12 13	7 41.10	+42 42.2	2.230	3.085	10.7	20.1	12 13	7 34.28	+15 34.5	2.063	2.938	10.5	19.3
12 23	7 32.48	+43 47.9	2.186	3.092	8.4	19.9	12 23	7 27.92	+16 7.6	1.998	2.936	7.0	19.1
1 2	7 21.77	+44 38.3	2.169	3.099	7.1	19.9	1 2	7 19.97	+16 48.9	1.960	2.934	3.3	18.8
1 12	7 10.17	+45 7.9	2.179	3.105	7.3	19.9	1 12	7 11.30	+17 35.7	1.952	2.932	2.1	18.7
1 22	6 59.07	+45 14.8	2.218	3.111	9.0	20.0	1 22	7 2.89	+18 24.5	1.974	2.930	5.5	19.0
2 1	6 49.73	+45 0.4	2.282	3.117	11.2	20.2	2 1	6 55.69	+19 12.5	2.024	2.928	9.2	19.2
2 11	6 43.10	+44 29.3	2.368	3.123	13.4	20.3	2 11	6 50.48	+19 57.3	2.099	2.927	12.4	19.4
325279	2008 <i>GC</i> ₁₃₃		1 8.3 26°86	4°7/ 6.3	17		114033	2002 <i>VX</i> ₇		1 8.3 53°11	0°7/ 8.5	18	
12 3	7 43.35	+28 22.6	1.632	2.448	15.9	20.0	12 3	7 41.11	+20 52.4	2.268	3.062	12.8	19.8
12 13	7 39.01	+30 2.0	1.561	2.452	12.3	19.8	12 13	7 36.08	+20 38.9	2.182	3.062	9.8	19.6
12 23	7 31.49	+31 45.6	1.514	2.456	8.4	19.5	12 23	7 28.96	+20 28.3	2.120	3.062	6.4	19.4
1 2	7 21.49	+33 24.5	1.493	2.461	5.1	19.4	1 2	7 20.33	+20 19.4	2.086	3.062	2.6	19.1
1 12	7 10.31	+34 49.5	1.500	2.467	5.4	19.4	1 12	7 11.11	+20 11.1	2.081	3.062	1.5	19.0
1 22	6 59.54	+35 54.2	1.535	2.472	8.9	19.6	1 22	7 2.27	+20 2.6	2.107	3.063	5.3	19.3
2 1	6 50.70	+36 36.8	1.596	2.478	12.7	19.8	2 1	6 54.71	+19 53.7	2.161	3.063	8.8	19.5
2 11	6 44.92	+36 59.7	1.679	2.485	16.0	20.1	2 11	6 49.16	+19 44.3	2.241	3.063	11.9	19.7
355953	2008 <i>YO</i> ₁₂₇		1 8.3 35°23	0°2/ 8.4	18		335962	2007 <i>TE</i> ₁₅₂		1 8.3 128°78	0°2/ 8.3	18	
12 3	7 42.84	+20 40.6	1.273	2.100	18.9	20.8	12 3	7 40.90	+22 34.8	2.453	3.245	11.9	21.2
12 13	7 38.76	+20 50.9	1.212	2.110	14.6	20.6	12 13	7 35.77	+22 39.8	2.371	3.251	9.1	21.0
12 23	7 31.29	+21 9.3	1.171	2.120	9.4	20.3	12 23	7 28.68	+22 47.2	2.314	3.257	5.9	20.9
1 2	7 21.35	+21 32.1	1.154	2.132	3.7	20.0	1 2	7 20.21	+22 55.0	2.286	3.263	2.3	20.6
1 12	7 10.49	+21 55.0	1.162	2.144	2.1	19.9	1 12	7 11.20	+23 1.4	2.287	3.268	1.4	20.6
1 22	7 0.42	+22 14.6	1.197	2.157	7.7	20.3	1 22	7 2.55	+23 5.0	2.319	3.274	5.0	20.8
2 1	6 52.66	+22 29.3	1.256	2.170	12.8	20.6	2 1	6 55.13	+23 5.3	2.380	3.279	8.3	21.0
2 11	6 48.19	+22 38.9	1.336	2.184	17.0	20.9	2 11	6 49.58	+23 2.6	2.467	3.284	11.1	21.2
518902	2010 <i>FF</i> ₇₆		1 8.3 64°01	0°4/ 8.4	18		81694	2000 <i>JT</i> ₁₅		1 8.3 146°15	0°3/ 8.5	18	
12 3	7 43.02	+22 13.8	2.043	2.841	13.8	20.9	12 3	7 43.10	+17 55.0	2.163	2.950	13.5	19.7
12 13	7 37.69	+21 53.9	1.964	2.846	10.6	20.7	12 13	7 37.76	+18 41.1	2.082	2.958	10.4	19.5
12 23	7 30.03	+21 35.9	1.909	2.852	6.9	20.5	12 23	7 30.14	+19 35.9	2.025	2.966	6.7	19.3
1 2	7 20.74	+21 18.4	1.881	2.858	2.8	20.2	1 2	7 20.85	+20 36.1	1.997	2.973	2.7	19.1
1 12	7 10.85	+21 0.5	1.883	2.864	1.6	20.2	1 12	7 10.82	+21 37.3	1.999	2.980	1.5	19.0
1 22	7 1.47	+20 41.6	1.914	2.870	5.7	20.5	1 22	7 1.12	+22 35.6	2.031	2.986	5.5	19.3
2 1	6 53.60	+20 22.1	1.974	2.876	9.5	20.7	2 1	6 52.74	+23 27.9	2.093	2.992	9.3	19.5
2 11	6 48.00	+20 2.8	2.058	2.882	12.8	20.9	2 11	6 46.50	+24 13.0	2.181	2.997	12.4	19.7
257267	2009 <i>FY</i> ₇₅		1 8.3 173°43	2°3/ 7.6	18		432425	2010 <i>AP</i> ₉₃		1 8.3 42°00	10°4/ 6.7	18	
12 3	7 45.33	+26 57.1	2.004	2.803	14.0	21.3	12 3	7 58.19	+54 4.3	2.193	2.928	14.9	20.7
12 13	7 39.77	+27 33.1	1.922	2.805	10.8	21.1	12 13	7 50.26	+54 50.8	2.132	2.934	13.1	20.5
12 23	7 31.58	+28 10.5	1.864	2.807	7.1	20.9	12 23	7 38.50	+55 18.8	2.091	2.941	11.5	20.4
1 2	7 21.43	+28 44.6	1.834	2.808	3.4	20.7	1 2	7 24.11	+55 19.7	2.075	2.948	10.5	20.4
1 12	7 10.43	+29 11.0	1.833	2.809	3.0	20.7	1 12	7 9.03	+54 48.4	2.083	2.955	10.5	20.4
1 22	6 59.86	+29 27.0	1.861	2.809	6.6	20.9	1 22	6 55.26	+53 45.6	2.117	2.962	11.5	20.5
2 1	6 50.91	+29 32.1	1.918	2.809	10.3	21.1	2 1	6 44.43	+52 16.9	2.175	2.970	13.1	20.6
2 11	6 44.46	+29 28.1	1.998	2.809	13.6	21.3	2 11	6 37.41	+50 30.9	2.255	2.977	14.9	20.8
152672	1998 <i>HS</i> ₅		1 8.3 334°92	6°1/ 6.2	18		53391	1999 <i>JX</i> ₁₀₀		1 8.3 329°29	13°6/ 12.6	18	
12 3	7 42.07	+33 26.7	1.578	2.398	16.2	19.2	12 3	7 35.97	-15 21.3	2.119	2.770	17.6	18.4
12 13	7 38.38	+34 40.4	1.498	2.387	12.8	18.9	12 13	7 32.44	-16 51.4	2.037	2.758	16.3	18.2
12 23	7 31.28	+35 53.0	1.440	2.377	9.3	18.7	12 23	7 26.80	-17 57.5	1.973	2.746	15.0	18.1
1 2	7 21.48	+36 55.9	1.406	2.367	6.5	18.5	1 2	7 19.56	-18 33.2	1.927	2.735	14.0	18.0
1 12	7 10.35	+37 40.8	1.399	2.358	6.8	18.5	1 12	7 11.56	-18 34.3	1.902	2.725	13.6	18.0
1 22	6 59.62	+38 3.0	1.418	2.350	9.9	18.7	1 22	7 3.74	-18 0.2	1.899	2.715	13.9	18.0
2 1	6 50.96	+38 2.5	1.461	2.343	13.6	18.9	2 1	6 57.07	-16 54.0	1.917	2.705	14.9	18.0
2 11	6 45.59	+37 43.4	1.525	2.336	17.1	19.1	2 11	6 52.34	-15 22.2	1.954	2.696	16.3	18.1
316436	2010 <i>TX</i> ₁₈₂		1 8.3 263°44	3°9/ 7.1	18		498884	2008 <i>YC</i> ₁₂₀		1 8.3 321°96	1°4/ 8.0	17	
12 3	7 44.84	+30 0.3	1.784	2.592	15.1	21.3	12 3	7 42.24	+26 56.3	2.232	3.031	12.8	21.3
12 13	7 39.94	+30 49.0	1.699	2.585	11.8	21.0	12 13	7 37.09	+26 54.4	2.145	3.028	9.8	21.1
12 23	7 31.99	+31 38.0	1.637	2.577	8.0	20.8	12 23	7 29.68	+26 51.7	2.082	3.025	6.4	20.9
1 2	7 21.68	+32 21.0	1.600	2.570	4.6	20.6	1 2	7 20.65	+26 45.5	2.047	3.022	2.8	20.6
1 12	7 10.26	+32 51.8	1.592	2.562	4.6	20.5	1 12	7 10.96	+26 33.8	2.041	3.020	2.1	20.6
1 22	6 59.22	+33 7.1	1.612	2.555	8.0	20.7	1 22	7 1.69	+26 15.9	2.065	3.017	5.7	20.8
2 1	6 50.01	+33 6.6	1.658	2.547	11.9	20.9	2 1	6 53.83	+25 52.5	2.117	3.015	9.2	21.0
2 11	6 43.69	+32 53.3	1.727	2.539	15.4	21.2	2 11	6 48.13	+25 25.0	2.195	3.013	12.3	21.2
189988	2004 <i>FR</i> ₂₈		1 8.3 170°87	4°8/ 6.9	18		90689	1981 <i>EA</i> ₃₁		1 8.3 291°62	0°5/ 8.2	18	
12 3	7 50.62	+32 22											

EPHEMERIDES

1 8.3

1 8.3

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
366421	2001 <i>UQ</i> ₅₉		1 8.3 37°19	5°6/ 9.6	18		170867	2004 <i>GB</i> ₃₈		1 8.3 326°08	4°1/ 6.5	18	
12 3	7 41.04	+10 29.5	1.423	2.223	18.6	19.8	12 3	7 39.23	+28 26.8	1.848	2.663	14.4	19.4
12 13	7 36.77	+9 44.5	1.366	2.241	14.9	19.6	12 13	7 35.75	+29 45.0	1.751	2.641	11.2	19.1
12 23	7 29.69	+9 14.6	1.330	2.259	10.7	19.4	12 23	7 29.42	+31 8.4	1.677	2.620	7.6	18.9
1 2	7 20.66	+9 1.5	1.317	2.278	6.9	19.2	1 2	7 20.77	+32 30.2	1.629	2.599	4.6	18.6
1 12	7 10.99	+9 5.2	1.331	2.298	5.8	19.2	1 12	7 10.85	+33 42.8	1.610	2.579	4.8	18.6
1 22	7 2.06	+9 23.4	1.370	2.319	8.4	19.4	1 22	7 0.99	+34 40.5	1.619	2.559	8.2	18.8
2 1	6 55.06	+9 52.5	1.434	2.340	12.2	19.7	2 1	6 52.63	+35 20.5	1.654	2.540	12.0	18.9
2 11	6 50.81	+10 28.1	1.521	2.361	15.7	19.9	2 11	6 46.92	+35 43.5	1.711	2.522	15.5	19.1
69486	1997 <i>AM</i> ₁		1 8.3 40°27	1°6/ 7.9	18		269911	2000 <i>HF</i> ₄₉		1 8.3 124°10	5°7/ 5.6	18	
12 3	7 43.32	+23 11.1	1.292	2.119	18.6	18.9	12 3	7 46.69	+42 0.5	2.996	3.762	10.6	20.8
12 13	7 39.15	+23 50.8	1.236	2.134	14.3	18.7	12 13	7 40.27	+43 7.5	2.934	3.779	8.7	20.7
12 23	7 31.56	+24 37.0	1.199	2.149	9.2	18.5	12 23	7 31.64	+44 7.0	2.897	3.796	6.9	20.6
1 2	7 21.48	+25 23.8	1.187	2.165	3.7	18.2	1 2	7 21.43	+44 53.5	2.888	3.813	5.8	20.6
1 12	7 10.51	+26 4.7	1.201	2.182	2.8	18.2	1 12	7 10.58	+45 23.2	2.909	3.829	6.0	20.6
1 22	7 0.36	+26 35.4	1.242	2.199	8.0	18.5	1 22	7 0.12	+45 34.8	2.959	3.844	7.3	20.7
2 1	6 52.57	+26 54.6	1.307	2.216	12.8	18.9	2 1	6 51.03	+45 29.1	3.036	3.859	9.1	20.9
2 11	6 48.10	+27 3.5	1.393	2.234	16.8	19.2	2 11	6 44.06	+45 9.5	3.137	3.874	10.8	21.0
397482	2007 <i>QD</i> ₁₁		1 8.3 87°56	1°1/ 8.0	16		293882	2007 <i>RP</i> ₂₈₅		1 8.3 64°15	4°9/ 6.9	18	
12 3	7 47.68	+23 44.2	1.644	2.448	16.3	21.8	12 3	7 44.41	+35 54.3	2.205	2.999	13.0	20.9
12 13	7 41.68	+24 6.5	1.585	2.471	12.5	21.6	12 13	7 38.96	+36 32.7	2.133	3.006	10.3	20.7
12 23	7 32.77	+24 32.1	1.549	2.494	8.0	21.4	12 23	7 30.98	+37 5.5	2.086	3.014	7.4	20.5
1 2	7 21.86	+24 56.7	1.539	2.516	3.2	21.2	1 2	7 21.19	+37 27.2	2.065	3.022	5.2	20.4
1 12	7 10.32	+25 16.1	1.558	2.539	2.2	21.1	1 12	7 10.74	+37 33.8	2.073	3.030	5.2	20.4
1 22	6 59.57	+25 28.0	1.606	2.560	6.8	21.5	1 22	7 0.82	+37 24.2	2.110	3.038	7.4	20.6
2 1	6 50.88	+25 32.2	1.681	2.582	11.0	21.8	2 1	6 52.58	+36 59.7	2.174	3.045	10.2	20.8
2 11	6 45.06	+25 30.1	1.779	2.603	14.5	22.0	2 11	6 46.79	+36 24.0	2.261	3.053	12.8	21.0
177853	Lumezzane		1 8.3 173°05	5°3/10.5	18		356568	2011 <i>SC</i> ₂₁₉		1 8.3 65°80	3°9/ 7.6	18	
12 3	7 41.02	+4 37.4	2.376	3.119	13.7	22.0	12 3	7 47.99	+30 16.0	1.459	2.274	17.5	20.6
12 13	7 35.87	+4 26.6	2.288	3.123	11.2	21.9	12 13	7 42.55	+30 46.2	1.398	2.288	13.5	20.4
12 23	7 28.78	+4 30.0	2.223	3.125	8.5	21.7	12 23	7 33.66	+31 14.0	1.358	2.301	9.1	20.2
1 2	7 20.29	+4 48.5	2.185	3.128	6.1	21.6	1 2	7 22.31	+31 32.7	1.344	2.315	4.9	20.0
1 12	7 11.19	+5 21.7	2.176	3.129	5.3	21.5	1 12	7 10.11	+31 37.2	1.356	2.329	4.5	20.0
1 22	7 2.36	+6 7.3	2.196	3.130	6.8	21.6	1 22	6 58.83	+31 26.0	1.395	2.343	8.4	20.3
2 1	6 54.64	+7 2.0	2.245	3.130	9.4	21.8	2 1	6 49.96	+31 1.0	1.460	2.357	12.6	20.5
2 11	6 48.72	+8 2.0	2.320	3.130	12.0	21.9	2 11	6 44.46	+30 26.8	1.547	2.371	16.3	20.8
327030	Alanmaclure		1 8.3 112°57	6°0/ 6.5	18		436112	2009 <i>ST</i> ₃₅₄		1 8.3 158°14	0°4/ 8.5	17	
12 3	7 46.72	+37 28.9	2.054	2.847	13.9	20.7	12 3	7 35.03	+19 55.8	4.110	4.887	7.8	22.8
12 13	7 41.06	+38 26.1	1.983	2.853	11.1	20.6	12 13	7 30.60	+20 3.2	4.021	4.893	5.9	22.6
12 23	7 32.50	+39 17.0	1.935	2.858	8.3	20.4	12 23	7 25.06	+20 13.1	3.960	4.898	3.8	22.5
1 2	7 21.83	+39 54.6	1.914	2.864	6.2	20.3	1 2	7 18.76	+20 24.5	3.928	4.904	1.6	22.3
1 12	7 10.30	+40 13.7	1.921	2.869	6.4	20.3	1 12	7 12.16	+20 36.4	3.928	4.909	0.9	22.3
1 22	6 59.34	+40 12.1	1.956	2.874	8.6	20.4	1 22	7 5.73	+20 47.8	3.959	4.913	3.1	22.5
2 1	6 50.24	+39 51.7	2.017	2.880	11.3	20.6	2 1	6 59.94	+20 58.2	4.022	4.918	5.3	22.6
2 11	6 43.93	+39 16.8	2.101	2.885	14.0	20.8	2 11	6 55.19	+21 7.1	4.112	4.922	7.2	22.8
61285	2000 <i>OL</i> ₃₉		1 8.3 60°36	5°3/ 9.8	18		445998	2013 <i>CP</i> ₁₉		1 8.3 48°43	0°8/ 8.5	17	
12 3	7 41.29	+9 0.1	1.742	2.523	16.5	18.9	12 3	7 44.42	+19 3.4	1.206	2.031	19.9	21.3
12 13	7 36.54	+8 25.3	1.677	2.539	13.3	18.7	12 13	7 40.00	+19 18.1	1.153	2.049	15.3	21.1
12 23	7 29.38	+8 4.4	1.634	2.555	9.7	18.5	12 23	7 32.09	+19 43.3	1.119	2.067	9.9	20.9
1 2	7 20.53	+7 59.0	1.615	2.571	6.4	18.4	1 2	7 21.71	+20 15.1	1.109	2.087	4.0	20.6
1 12	7 11.09	+8 8.7	1.624	2.588	5.4	18.4	1 12	7 10.48	+20 48.6	1.125	2.106	2.2	20.5
1 22	7 2.21	+8 31.5	1.660	2.605	7.7	18.5	1 22	7 0.19	+21 19.4	1.166	2.126	7.9	20.9
2 1	6 54.93	+9 4.1	1.723	2.621	10.9	18.8	2 1	6 52.36	+21 45.3	1.232	2.147	12.9	21.3
2 11	6 50.01	+9 42.6	1.810	2.638	14.1	19.0	2 11	6 47.92	+22 5.5	1.319	2.167	17.1	21.6
97553	2000 <i>DC</i> ₆₄		1 8.3 146°06	2°7/ 7.6	18 R		375464	2008 <i>TF</i> ₁₆₄		1 8.3 5°26	6°0/ 6.6	18	
12 3	7 43.33	+30 1.0	2.216	3.014	12.9	19.7	12 3	7 43.82	+36 33.5	1.885	2.689	14.6	20.1
12 13	7 38.01	+30 17.4	2.133	3.014	9.9	19.5	12 13	7 39.08	+37 26.4	1.812	2.689	11.6	19.9
12 23	7 30.32	+30 31.7	2.075	3.015	6.6	19.3	12 23	7 31.37	+38 13.6	1.761	2.689	8.6	19.8
1 2	7 20.92	+30 40.0	2.043	3.015	3.5	19.1	1 2	7 21.44	+38 48.0	1.736	2.690	6.3	19.6
1 12	7 10.85	+30 39.3	2.042	3.015	3.2	19.1	1 12	7 10.59	+39 4.0	1.738	2.692	6.4	19.6
1 22	7 1.23	+30 28.5	2.070	3.016	6.2	19.3	1 22	7 0.30	+38 59.7	1.768	2.694	8.8	19.8
2 1	6 53.09	+30 8.2	2.126	3.016	9.6	19.5	2 1	6 51.92	+38 36.5	1.823	2.696	11.9	20.0
2 11	6 47.23	+29 40.7	2.206	3.016	12.5	19.7	2 11	6 46.41	+37 58.9	1.901	2.698	14.7	20.2
163755	2003 <i>OG</i> ₆		1 8.3 84°30	0°1/ 8.3	17		174892	2004 <i>BT</i> ₉₆		1 8.3 311°21	0°5/ 8.4	18	
12 3	7 46.87	+21 38.3	1.616	2.420	16.6	20.8	12 3	7 42.70	+20 22.1	1.708	2.514	15.7	20.7
12 13	7 41.06	+21 51.3	1.557	2.443	12.7	20.7	12 13	7 38.07	+20 28.3	1.626	2.512	12.2	20.5
12 23	7 32.39	+22 9.5	1.520	2.464	8.1	20.4	12 23	7 30.65	+20 40.8	1.566	2.510	7.9	20.2
1 2	7 21.73	+22 29.2	1.509	2.486	3.2	20.2	1 2	7 21.16	+20 57.0	1.532	2.509	3.2	19.9
1 12	7 10.43	+22 46.9	1.526	2.508	1.9	20.1	1 12	7 10.75	+21 14.0	1.525	2.507	1.8	19.8
1 22	6 59.91	+23 0.2	1.572	2.529	6.7	20.5	1 22	7 0.78	+21 29.3	1.548	2.505	6.6	20.1
2 1	6 51.41	+23 8.3	1.645	2.549	11.0	20.8	2 1	6 52.51	+21 41.4	1.597	2.503	11.0	20.4
2 11	6 45.75	+23 11.9	1.742	2.570	14.6	21.1	2 11	6 46.89	+21 50.1	1.669	2.502	14.9	20.6
157206	2004 <i>RU</i> ₁₈		1 8.3 135°09	0°8/ 8.6	18		403560	2010 <i>LA</i> ₇₀		1 8.3 127°88	3°4/ 7.6	18	
12 3	7 41.70	+19 8.2	2.065	2.860	13.8	21.2	12 3	7 47.84	+30				

EPHEMERIDES

1 8.3

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
164452	2006 <i>DF</i> ₆₂		1 8.3 233°86	0°9/ 8.1	18		253040	2002 <i>SJ</i> ₂₇		1 8.3 91°93	1°5/ 9.1	18	
12 3	7 45.40	+22 43.5	1.870	2.668	14.9	20.7	12 3	7 36.24	+14 45.5	3.534	4.303	9.1	21.4
12 13	7 40.15	+23 10.9	1.774	2.657	11.5	20.5	12 13	7 31.59	+14 51.6	3.465	4.327	7.0	21.3
12 23	7 32.06	+23 43.8	1.702	2.645	7.5	20.2	12 23	7 25.73	+15 2.8	3.421	4.352	4.7	21.2
1 2	7 21.78	+24 18.3	1.656	2.633	3.0	19.9	1 2	7 19.06	+15 18.6	3.406	4.376	2.4	21.0
1 12	7 10.39	+24 50.1	1.639	2.620	2.1	19.8	1 12	7 12.12	+15 37.7	3.423	4.400	1.7	21.0
1 22	6 59.26	+25 15.7	1.652	2.606	6.7	20.1	1 22	7 5.43	+15 58.9	3.471	4.423	3.7	21.2
2 1	6 49.69	+25 33.5	1.693	2.592	11.0	20.3	2 1	6 59.52	+16 21.0	3.550	4.446	5.9	21.4
2 11	6 42.75	+25 43.9	1.757	2.578	14.8	20.5	2 11	6 54.79	+16 42.9	3.656	4.469	7.9	21.5
496255	2012 <i>MW</i> ₁₂		1 8.3 90°10	3°5/10.1	18		274971	2009 <i>SU</i> ₃₄₇		1 8.3 45°45	0°2/ 8.3	18	
12 3	7 39.53	+ 8 11.6	2.453	3.211	12.9	21.2	12 3	7 41.87	+21 51.5	1.830	2.636	14.9	21.4
12 13	7 34.60	+ 8 30.5	2.381	3.231	10.3	21.1	12 13	7 37.22	+22 6.0	1.754	2.640	11.4	21.2
12 23	7 27.88	+ 9 2.1	2.333	3.251	7.3	20.9	12 23	7 29.99	+22 25.3	1.700	2.645	7.4	21.0
1 2	7 19.94	+ 9 45.4	2.312	3.271	4.6	20.8	1 2	7 20.89	+22 46.5	1.673	2.650	2.9	20.7
1 12	7 11.53	+10 38.4	2.322	3.290	3.6	20.8	1 12	7 11.04	+23 6.3	1.674	2.656	1.7	20.7
1 22	7 3.47	+11 37.8	2.362	3.309	5.5	20.9	1 22	7 1.65	+23 22.4	1.704	2.661	6.2	21.0
2 1	6 56.53	+12 40.3	2.432	3.328	8.2	21.1	2 1	6 53.88	+23 33.6	1.762	2.667	10.3	21.2
2 11	6 51.30	+13 42.6	2.528	3.347	10.9	21.3	2 11	6 48.58	+23 40.0	1.843	2.672	13.8	21.5
115726	2003 <i>UY</i> ₁₈₀		1 8.3 129°71	0°5/ 8.5	18		163294	2002 <i>GZ</i> ₁₅₃		1 8.3 6°64	2°1/ 7.6	18	
12 3	7 41.31	+20 9.0	2.390	3.179	12.3	20.0	12 3	7 40.24	+21 32.4	1.222	2.057	19.1	18.9
12 13	7 36.13	+20 15.0	2.310	3.187	9.4	19.9	12 13	7 37.31	+22 50.2	1.154	2.057	14.7	18.6
12 23	7 28.96	+20 25.4	2.255	3.196	6.1	19.7	12 23	7 30.78	+24 21.4	1.106	2.058	9.5	18.3
1 2	7 20.39	+20 38.1	2.228	3.204	2.5	19.4	1 2	7 21.41	+25 58.0	1.082	2.060	4.0	18.0
1 12	7 11.28	+20 51.4	2.231	3.212	1.4	19.4	1 12	7 10.71	+27 29.9	1.084	2.063	3.5	18.0
1 22	7 2.54	+21 3.5	2.264	3.220	5.0	19.6	1 22	7 0.52	+28 48.3	1.111	2.067	8.8	18.3
2 1	6 55.03	+21 13.5	2.327	3.227	8.4	19.9	2 1	6 52.61	+29 48.6	1.162	2.072	14.0	18.6
2 11	6 49.42	+21 21.1	2.415	3.234	11.3	20.1	2 11	6 48.23	+30 30.6	1.234	2.078	18.4	18.9
396577	2000 <i>KH</i> ₃₈		1 8.3 149°16	0°8/ 8.6	18		143207	2002 <i>XD</i> ₁₀₁		1 8.3 90°27	0°0/ 8.2	18	
12 3	7 45.81	+18 33.5	1.806	2.600	15.5	21.8	12 3	7 42.69	+20 48.1	1.783	2.588	15.2	20.0
12 13	7 40.21	+18 50.4	1.729	2.608	12.0	21.6	12 13	7 37.95	+21 8.9	1.705	2.590	11.7	19.7
12 23	7 31.91	+19 15.2	1.674	2.615	7.8	21.4	12 23	7 30.54	+21 36.1	1.648	2.593	7.6	19.5
1 2	7 21.64	+19 45.3	1.646	2.622	3.3	21.1	1 2	7 21.14	+22 6.6	1.619	2.596	3.0	19.2
1 12	7 10.55	+20 17.1	1.648	2.629	1.8	21.0	1 12	7 10.90	+22 36.6	1.617	2.599	1.7	19.1
1 22	6 59.94	+20 47.4	1.678	2.635	6.4	21.3	1 22	7 1.10	+23 3.1	1.645	2.601	6.4	19.4
2 1	6 51.02	+21 14.2	1.737	2.640	10.6	21.6	2 1	6 52.94	+23 24.3	1.699	2.604	10.6	19.7
2 11	6 44.68	+21 36.7	1.820	2.644	14.2	21.8	2 11	6 47.33	+23 39.9	1.777	2.607	14.3	19.9
239219	2006 <i>RC</i> ₁₄		1 8.3 330°95	5°9/ 9.9	18		517147	2013 <i>KA</i> ₆		1 8.3 124°21	8°0/ 4.5	18	
12 3	7 37.56	+ 6 10.3	2.129	2.893	14.4	20.2	12 3	7 54.64	+26 23.3	1.104	1.927	21.4	20.5
12 13	7 33.53	+ 5 27.1	2.039	2.887	11.9	20.0	12 13	7 49.71	+29 49.3	1.040	1.934	16.7	20.2
12 23	7 27.44	+ 4 56.4	1.972	2.880	9.1	19.8	12 23	7 39.76	+33 33.4	0.999	1.941	11.7	20.0
1 2	7 19.85	+ 4 40.6	1.931	2.874	6.7	19.6	1 2	7 25.33	+37 13.4	0.984	1.947	8.2	19.8
1 12	7 11.58	+ 4 40.6	1.916	2.869	6.0	19.6	1 12	7 8.31	+40 24.0	0.998	1.953	9.5	19.9
1 22	7 3.57	+ 4 55.5	1.930	2.863	7.6	19.7	1 22	6 51.51	+42 47.9	1.038	1.959	13.9	20.1
2 1	6 56.73	+ 5 23.1	1.970	2.858	10.3	19.8	2 1	6 37.83	+44 21.9	1.101	1.964	18.6	20.4
2 11	6 51.80	+ 5 59.9	2.034	2.853	13.1	20.0	2 11	6 29.29	+45 14.5	1.183	1.969	22.5	20.7
170822	2004 <i>EB</i> ₁₃		1 8.3 23°40	4°9/10.3	18		327403	2005 <i>VQ</i> ₁₁		1 8.3 83°66	2°0/ 7.8	18	
12 3	7 37.31	+ 7 12.2	1.995	2.768	15.0	19.6	12 3	7 44.08	+26 32.1	1.887	2.692	14.5	21.2
12 13	7 33.41	+ 7 8.9	1.917	2.773	12.1	19.5	12 13	7 38.88	+26 54.4	1.814	2.700	11.1	21.0
12 23	7 27.39	+ 7 20.9	1.861	2.779	8.9	19.3	12 23	7 31.04	+27 17.5	1.764	2.708	7.3	20.8
1 2	7 19.83	+ 7 48.7	1.830	2.785	6.0	19.1	1 2	7 21.31	+27 37.4	1.741	2.716	3.3	20.6
1 12	7 11.63	+ 8 31.0	1.827	2.791	4.9	19.1	1 12	7 10.85	+27 50.4	1.747	2.725	2.7	20.6
1 22	7 3.77	+ 9 24.5	1.852	2.798	6.8	19.2	1 22	7 0.93	+27 54.6	1.781	2.733	6.5	20.8
2 1	6 57.19	+10 25.3	1.905	2.805	9.9	19.4	2 1	6 52.72	+27 49.9	1.843	2.741	10.4	21.1
2 11	6 52.62	+11 29.0	1.982	2.813	12.9	19.6	2 11	6 47.06	+27 38.2	1.929	2.749	13.7	21.3
429303	2010 <i>DG</i> ₁₇		1 8.3 326°02	10°6/ 2.2	18		83939	2001 <i>VX</i> ₁₀₅		1 8.3 243°23	4°8/ 5.9	18	
12 3	7 47.95	+47 59.8	2.057	2.829	14.6	20.4	12 3	7 42.98	+36 34.1	2.709	3.494	11.1	20.0
12 13	7 43.27	+50 8.1	1.985	2.818	12.7	20.3	12 13	7 37.75	+37 36.0	2.618	3.484	8.9	19.8
12 23	7 34.79	+52 6.6	1.935	2.808	11.2	20.2	12 23	7 30.25	+38 34.3	2.552	3.474	6.6	19.6
1 2	7 23.10	+53 44.2	1.911	2.797	10.6	20.1	1 2	7 21.03	+39 23.9	2.515	3.463	5.0	19.5
1 12	7 9.61	+54 51.6	1.913	2.787	11.2	20.1	1 12	7 10.97	+40 0.0	2.507	3.453	5.2	19.5
1 22	6 56.26	+55 24.5	1.938	2.778	12.7	20.2	1 22	7 1.10	+40 20.2	2.528	3.442	7.1	19.6
2 1	6 45.06	+55 24.4	1.986	2.769	14.7	20.3	2 1	6 52.46	+40 24.3	2.577	3.431	9.5	19.8
2 11	6 37.52	+54 57.7	2.053	2.760	16.6	20.5	2 11	6 45.88	+40 14.8	2.650	3.420	11.8	19.9
146380	2001 <i>QV</i> ₅₀		1 8.3 113°34	2°0/ 7.7	18		402063	2003 <i>SU</i> ₄₃₀		1 8.4 143°37	2°8/ 7.6	18	
12 3	7 45.41	+26 0.1	2.000	2.799	14.1	19.9	12 3	7 48.31	+29 10.0	1.998	2.793	14.2	22.1
12 13	7 39.71	+26 35.5	1.931	2.813	10.7	19.8	12 13	7 42.01	+29 37.4	1.924	2.803	11.0	21.9
12 23	7 31.47	+27 12.6	1.885	2.828	7.0	19.6	12 23	7 33.01	+30 3.5	1.873	2.813	7.3	21.7
1 2	7 21.44	+27 46.8	1.867	2.842	3.2	19.3	1 2	7 22.09	+30 23.4	1.850	2.822	3.7	21.5
1 12	7 10.73	+28 14.0	1.878	2.855	2.7	19.3	1 12	7 10.43	+30 33.2	1.857	2.831	3.4	21.5
1 22	7 0.55	+28 31.8	1.919	2.869	6.3	19.6	1 22	6 59.35	+30 31.1	1.893	2.839	6.7	21.8
2 1	6 52.03	+28 39.7	1.988	2.881	9.9	19.8	2 1	6 50.05	+30 18.0	1.957	2.846	10.3	22.0
2 11	6 45.95	+28 39.3	2.081	2.894	13.1	20.1	2 11	6 43.37	+29 56.6	2.046	2.853	13.5	22.2
205542	2001 <i>SM</i> ₁₇₃		1 8.3 32°50	0°1/ 8.4	18		260793	2005 <i>NF</i> ₅₆		1 8.4 145°81	1°1/ 8.6	18	
12 3	7 39.37	+20 42.9											

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
92583	2000 PA ₂		1 8.4 41°63	2°0/ 7.9 17			13567	Urabe		1 8.4 84°98	0°5/ 8.1 18		
12 3	7 45.44	+25 8.6	1.176	2.008	19.8	19.0	12 3	7 40.82	+21 12.3	2.209	3.005	13.0	16.8
12 13	7 40.99	+25 32.5	1.127	2.027	15.1	18.7	12 13	7 36.03	+21 54.1	2.133	3.015	9.9	16.6
12 23	7 32.83	+25 59.7	1.097	2.047	9.8	18.5	12 23	7 29.07	+22 41.5	2.081	3.025	6.4	16.4
1 2	7 22.07	+26 24.2	1.090	2.067	4.1	18.2	1 2	7 20.55	+23 31.2	2.058	3.035	2.5	16.2
1 12	7 10.50	+26 40.6	1.109	2.089	3.1	18.2	1 12	7 11.38	+24 19.1	2.064	3.045	1.6	16.1
1 22	7 0.01	+26 46.3	1.153	2.111	8.4	18.6	1 22	7 2.55	+25 2.0	2.101	3.055	5.4	16.4
2 1	6 52.19	+26 41.7	1.222	2.133	13.3	19.0	2 1	6 55.04	+25 38.0	2.166	3.065	9.0	16.6
2 11	6 47.95	+26 29.4	1.311	2.156	17.4	19.3	2 11	6 49.58	+26 6.5	2.256	3.075	12.0	16.8
309376	2007 TK ₁₂₆		1 8.4 160°01	1°2/ 7.9 18			235151	2003 RD		1 8.4 249°21	20°4/ 16.7 18		
12 3	7 46.52	+24 11.7	2.122	2.913	13.6	22.2	12 3	7 43.35	-19 58.6	1.305	1.967	26.4	20.1
12 13	7 40.48	+24 39.2	2.042	2.921	10.4	22.0	12 13	7 39.51	-21 33.2	1.233	1.958	24.7	20.0
12 23	7 31.98	+25 9.4	1.986	2.928	6.7	21.8	12 23	7 32.18	-22 27.9	1.173	1.950	23.0	19.8
1 2	7 21.69	+25 38.7	1.957	2.934	2.8	21.6	1 2	7 22.04	-22 29.8	1.127	1.941	21.5	19.6
1 12	7 10.66	+26 3.2	1.959	2.939	2.1	21.5	1 12	7 10.44	-21 29.8	1.097	1.932	20.5	19.5
1 22	7 0.06	+26 20.7	1.992	2.944	5.9	21.8	1 22	6 59.11	-19 27.3	1.084	1.923	20.6	19.5
2 1	6 50.98	+26 30.4	2.053	2.947	9.6	22.0	2 1	6 49.78	-16 30.3	1.091	1.913	21.7	19.6
2 11	6 44.25	+26 33.2	2.139	2.951	12.8	22.3	2 11	6 43.77	-12 55.3	1.116	1.903	23.6	19.6
357182	2002 EX ₉₇		1 8.4 274°66	7°8/ 5.9 18			242589	2005 GR ₂₁₄		1 8.4 246°65	8°8/ 12.4 18		
12 3	7 49.32	+38 20.5	1.672	2.473	16.3	20.4	12 3	7 37.28	- 6 43.7	2.459	3.150	14.5	20.5
12 13	7 44.23	+39 32.8	1.583	2.456	13.3	20.1	12 13	7 33.07	- 7 20.4	2.371	3.147	12.8	20.3
12 23	7 35.32	+40 40.0	1.515	2.438	10.2	19.9	12 23	7 27.07	- 7 38.0	2.303	3.143	10.9	20.2
1 2	7 23.29	+41 32.1	1.473	2.420	8.0	19.7	1 2	7 19.75	- 7 33.2	2.259	3.139	9.4	20.1
1 12	7 9.65	+41 59.9	1.457	2.402	8.3	19.7	1 12	7 11.84	- 7 4.7	2.240	3.135	8.8	20.0
1 22	6 56.36	+41 59.1	1.467	2.384	11.0	19.8	1 22	7 4.13	- 6 13.8	2.247	3.131	9.4	20.1
2 1	6 45.35	+41 31.5	1.502	2.365	14.4	20.0	2 1	6 57.42	- 5 4.0	2.281	3.127	10.9	20.1
2 11	6 37.99	+40 43.4	1.557	2.347	17.8	20.1	2 11	6 52.37	- 3 40.6	2.338	3.123	12.7	20.3
460439	2014 SO ₁₆₇		1 8.4 75°88	0°0/ 8.2 18			130943	2000 WY ₅₁		1 8.4 193°56	0°0/ 8.4 18		
12 3	7 43.32	+20 8.8	1.761	2.564	15.5	21.1	12 3	7 45.46	+21 4.4	1.969	2.762	14.4	21.6
12 13	7 38.32	+20 36.4	1.695	2.580	11.8	20.9	12 13	7 39.90	+21 16.6	1.881	2.760	11.1	21.4
12 23	7 30.69	+21 10.9	1.651	2.595	7.6	20.7	12 23	7 31.76	+21 33.8	1.816	2.758	7.2	21.1
1 2	7 21.19	+21 49.0	1.633	2.611	3.0	20.5	1 2	7 21.68	+21 53.3	1.779	2.755	2.9	20.9
1 12	7 10.98	+22 26.4	1.645	2.626	1.7	20.4	1 12	7 10.75	+22 12.2	1.771	2.752	1.6	20.7
1 22	7 1.34	+22 59.9	1.685	2.642	6.3	20.7	1 22	7 0.17	+22 27.9	1.793	2.748	6.1	21.0
2 1	6 53.41	+23 27.6	1.753	2.657	10.4	21.0	2 1	6 51.14	+22 39.4	1.843	2.744	10.2	21.3
2 11	6 48.03	+23 48.9	1.844	2.672	13.9	21.3	2 11	6 44.52	+22 46.7	1.918	2.739	13.7	21.5
217980	2001 VJ ₈₅		1 8.4 183°38	4°5/ 9.3 18			206892	2004 GJ ₇₅		1 8.4 251°38	0°8/ 8.1 17		
12 3	7 42.91	+10 50.0	2.143	2.912	14.2	20.7	12 3	7 40.24	+24 15.0	2.693	3.483	11.0	21.0
12 13	7 37.55	+10 3.9	2.056	2.913	11.4	20.5	12 13	7 35.37	+24 30.4	2.591	3.470	8.5	20.9
12 23	7 30.01	+ 9 26.6	1.992	2.913	8.3	20.3	12 23	7 28.58	+24 47.8	2.514	3.456	5.5	20.6
1 2	7 20.90	+ 8 59.6	1.955	2.912	5.4	20.1	1 2	7 20.37	+25 4.7	2.466	3.442	2.3	20.4
1 12	7 11.14	+ 8 43.8	1.947	2.912	4.6	20.1	1 12	7 11.50	+25 18.9	2.448	3.428	1.6	20.3
1 22	7 1.72	+ 8 38.7	1.969	2.910	6.9	20.2	1 22	7 2.82	+25 28.6	2.461	3.414	4.9	20.5
2 1	6 53.61	+ 8 43.2	2.019	2.909	10.0	20.4	2 1	6 55.17	+25 33.3	2.504	3.399	8.1	20.7
2 11	6 47.54	+ 8 55.2	2.093	2.907	13.0	20.6	2 11	6 49.25	+25 33.2	2.572	3.385	10.9	20.9
95520	2002 ED ₆₇		1 8.4 42°22	2°5/ 7.8 18			178468	1999 RW ₁₂₉		1 8.4 159°47	1°9/ 8.9 18		
12 3	7 43.79	+28 16.6	1.845	2.653	14.7	19.3	12 3	7 47.00	+15 42.3	1.716	2.505	16.4	20.6
12 13	7 38.79	+28 36.1	1.771	2.657	11.3	19.1	12 13	7 41.28	+15 55.2	1.637	2.512	12.8	20.4
12 23	7 31.06	+28 54.9	1.719	2.662	7.5	18.8	12 23	7 32.73	+16 19.0	1.581	2.518	8.5	20.2
1 2	7 21.36	+29 8.8	1.693	2.667	3.6	18.6	1 2	7 22.08	+16 51.6	1.551	2.524	4.0	19.9
1 12	7 10.89	+29 14.0	1.696	2.672	3.2	18.6	1 12	7 10.53	+17 29.6	1.549	2.529	2.5	19.8
1 22	7 0.98	+29 8.9	1.727	2.677	6.8	18.8	1 22	6 59.45	+18 9.4	1.577	2.533	6.7	20.1
2 1	6 52.84	+28 54.1	1.786	2.683	10.7	19.1	2 1	6 50.12	+18 47.9	1.633	2.536	11.1	20.4
2 11	6 47.32	+28 31.9	1.867	2.689	14.0	19.3	2 11	6 43.49	+19 23.2	1.713	2.539	14.9	20.6
99283	2001 QD ₁₂₀		1 8.4 135°11	0°5/ 8.2 18			450265	2003 WU ₁₇₂		1 8.4 357°46	0°1/ 7.8 15		
12 3	7 44.21	+22 18.3	2.155	2.947	13.4	20.3	12 3	7 18.91	+26 28.6	28.396	29.183	1.2	21.1
12 13	7 38.61	+22 42.5	2.079	2.958	10.2	20.1	12 13	7 17.91	+26 31.2	28.305	29.183	0.9	21.0
12 23	7 30.72	+23 10.6	2.027	2.969	6.6	19.9	12 23	7 16.78	+26 33.8	28.241	29.182	0.6	21.0
1 2	7 21.18	+23 39.6	2.002	2.979	2.6	19.7	1 2	7 15.56	+26 36.2	28.206	29.182	0.3	20.9
1 12	7 11.00	+24 6.0	2.008	2.989	1.7	19.6	1 12	7 14.31	+26 38.4	28.203	29.181	0.2	20.9
1 22	7 1.24	+24 27.7	2.045	2.999	5.6	19.9	1 22	7 13.07	+26 40.2	28.231	29.180	0.5	21.0
2 1	6 52.93	+24 43.4	2.110	3.007	9.2	20.1	2 1	7 11.91	+26 41.6	28.288	29.180	0.8	21.0
2 11	6 46.83	+24 53.4	2.200	3.016	12.4	20.3	2 11	7 10.86	+26 42.5	28.374	29.179	1.1	21.1
157137	2004 OY ₄		1 8.4 183°82	0°3/ 8.4 18			253064	2002 TO ₈₀		1 8.4 77°88	2°0/ 8.9 17		
12 3	7 46.45	+20 2.0	1.989	2.778	14.4	21.3	12 3	7 46.34	+16 38.9	1.733	2.525	16.1	21.1
12 13	7 40.61	+20 20.8	1.901	2.779	11.2	21.1	12 13	7 40.35	+16 34.6	1.678	2.554	12.4	20.9
12 23	7 32.18	+20 45.9	1.838	2.779	7.3	20.9	12 23	7 31.83	+16 38.9	1.646	2.584	8.2	20.7
1 2	7 21.83	+21 14.4	1.801	2.778	2.9	20.6	1 2	7 21.61	+16 49.9	1.640	2.613	3.8	20.5
1 12	7 10.61	+21 42.9	1.795	2.777	1.6	20.5	1 12	7 10.90	+17 5.5	1.663	2.642	2.5	20.5
1 22	6 59.74	+22 8.6	1.819	2.774	6.1	20.8	1 22	7 0.95	+17 23.3	1.715	2.670	6.3	20.8
2 1	6 50.41	+22 29.7	1.872	2.771	10.1	21.0	2 1	6 52.82	+17 41.6	1.794	2.698	10.2	21.1
2 11	6 43.50	+22 46.2	1.949	2.767	13.6	21.2	2 11	6 47.26	+17 59.0	1.898	2.725	13.6	21.4
64709	2001 XP ₉₅		1 8.4 46°13	0°5/ 8.5 18			339469	2005 EX ₂₄₅		1 8.4 186°16	0°5/ 8.6 18		
12 3	7 42.35	+20 34.5	1.739	2.545	15.5	19.4	12 3	7 40.03	+19 33.6	2.63			

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
409874	2006 <i>SJ</i> ₂₆₇		1 8.4 174°33	7°6/ 5.9	18		309088	2006 <i>VB</i> ₈₄		1 8.4 220°03	1°3/ 8.8	18	
12 3	7 51.57	+42 7.4	2.089	2.866	14.2	21.5	12 3	7 43.24	+18 0.6	2.003	2.794	14.3	21.0
12 13	7 45.08	+43 14.7	2.015	2.869	11.7	21.3	12 13	7 38.16	+18 0.7	1.912	2.789	11.1	20.8
12 23	7 35.34	+44 12.7	1.965	2.870	9.3	21.2	12 23	7 30.64	+18 7.6	1.843	2.783	7.4	20.6
1 2	7 23.16	+44 53.3	1.941	2.872	7.7	21.1	1 2	7 21.29	+18 19.8	1.801	2.776	3.3	20.3
1 12	7 9.95	+45 10.0	1.945	2.872	7.9	21.1	1 12	7 11.10	+18 35.2	1.789	2.769	2.0	20.2
1 22	6 57.33	+45 1.0	1.976	2.873	9.8	21.2	1 22	7 1.20	+18 51.7	1.806	2.762	6.0	20.5
2 1	6 46.82	+44 28.8	2.033	2.873	12.2	21.4	2 1	6 52.72	+19 7.8	1.852	2.755	10.0	20.7
2 11	6 39.44	+43 39.4	2.112	2.872	14.7	21.5	2 11	6 46.51	+19 22.6	1.922	2.747	13.5	20.9
116730	2004 <i>DC</i> ₂₃		1 8.4 93°94	12°1/13.1	18		185902	2000 <i>SH</i> ₃₄		1 8.4 98°10	4°4/ 9.9	18	
12 3	7 39.83	- 9 33.5	1.866	2.559	18.5	20.0	12 3	7 41.06	+ 8 50.6	2.023	2.793	14.9	20.4
12 13	7 35.55	-10 38.8	1.793	2.562	16.5	19.9	12 13	7 36.21	+ 8 42.7	1.950	2.806	11.9	20.2
12 23	7 28.92	-11 18.9	1.737	2.564	14.5	19.8	12 23	7 29.20	+ 8 48.2	1.898	2.819	8.6	20.0
1 2	7 20.56	-11 27.8	1.702	2.567	12.8	19.7	1 2	7 20.65	+ 9 7.5	1.873	2.831	5.5	19.9
1 12	7 11.45	-11 3.0	1.689	2.569	12.1	19.6	1 12	7 11.50	+ 9 39.1	1.877	2.844	4.5	19.8
1 22	7 2.68	-10 5.7	1.701	2.572	12.6	19.7	1 22	7 2.77	+10 20.4	1.909	2.856	6.6	20.0
2 1	6 55.30	- 8 41.0	1.736	2.574	14.1	19.8	2 1	6 55.39	+11 7.9	1.970	2.868	9.8	20.2
2 11	6 50.13	- 6 57.3	1.793	2.577	16.0	19.9	2 11	6 50.08	+11 58.0	2.055	2.879	12.8	20.4
49611	1999 <i>FV</i> ₃₀		1 8.4 347°67	2°5/ 9.0	18		453867	2011 <i>UX</i> ₁₀₂		1 8.4 29°62	4°5/ 7.5	18	
12 3	7 38.46	+15 47.5	1.908	2.707	14.6	18.3	12 3	7 44.84	+30 15.6	1.255	2.086	18.9	20.9
12 13	7 34.55	+15 32.5	1.822	2.701	11.4	18.1	12 13	7 40.73	+30 54.1	1.198	2.096	14.6	20.6
12 23	7 28.30	+15 25.6	1.758	2.697	7.8	17.8	12 23	7 32.84	+31 30.7	1.161	2.108	9.9	20.4
1 2	7 20.33	+15 26.5	1.721	2.693	4.0	17.6	1 2	7 22.23	+31 57.7	1.148	2.120	5.5	20.2
1 12	7 11.60	+15 34.1	1.711	2.689	2.8	17.5	1 12	7 10.63	+32 9.0	1.160	2.133	5.2	20.2
1 22	7 3.21	+15 46.7	1.730	2.686	6.2	17.7	1 22	7 0.00	+32 2.2	1.197	2.147	9.2	20.5
2 1	6 56.20	+16 2.5	1.776	2.684	10.1	17.9	2 1	6 52.00	+31 39.5	1.259	2.162	13.7	20.8
2 11	6 51.40	+16 19.9	1.846	2.682	13.5	18.2	2 11	6 47.62	+31 5.7	1.340	2.178	17.6	21.0
118038	3051 <i>T</i> ₋₂		1 8.4 22°88	3°4/ 9.4	18		4846	Tuthmosis		1 8.4 3°25	2°9/ 7.5	18	
12 3	7 39.40	+13 38.3	1.163	1.989	20.4	18.7	12 3	7 40.48	+28 45.7	1.970	2.779	13.8	17.3
12 13	7 36.37	+13 40.7	1.104	1.998	16.0	18.5	12 13	7 36.23	+29 17.7	1.891	2.779	10.7	17.1
12 23	7 29.97	+14 0.3	1.064	2.008	10.9	18.2	12 23	7 29.45	+29 49.6	1.836	2.779	7.1	16.9
1 2	7 21.07	+14 36.0	1.046	2.019	5.7	18.0	1 2	7 20.81	+30 16.9	1.807	2.780	3.7	16.7
1 12	7 11.21	+15 23.8	1.053	2.032	3.8	17.9	1 12	7 11.40	+30 35.5	1.807	2.781	3.4	16.6
1 22	7 2.08	+16 18.0	1.085	2.045	8.2	18.2	1 22	7 2.41	+30 43.1	1.835	2.783	6.7	16.8
2 1	6 55.20	+17 13.2	1.140	2.060	13.2	18.5	2 1	6 54.98	+30 39.8	1.890	2.785	10.3	17.1
2 11	6 51.58	+18 5.0	1.216	2.076	17.6	18.8	2 11	6 49.95	+30 27.3	1.968	2.788	13.5	17.3
452451	2003 <i>SX</i> ₃₁₂		1 8.4 40°34	1°0/ 8.1	18		484857	2009 <i>JP</i> ₄		1 8.4 127°13	6°2/11.3	18	
12 3	7 43.20	+21 58.0	1.335	2.159	18.3	20.4	12 3	7 42.26	+ 1 25.5	2.212	2.944	14.9	21.8
12 13	7 39.06	+22 33.7	1.275	2.171	14.1	20.2	12 13	7 36.92	+ 1 21.4	2.138	2.960	12.4	21.6
12 23	7 31.60	+23 17.1	1.235	2.184	9.0	20.0	12 23	7 29.56	+ 1 35.0	2.084	2.975	9.6	21.5
1 2	7 21.70	+24 2.9	1.220	2.198	3.6	19.7	1 2	7 20.78	+ 2 7.5	2.057	2.989	7.2	21.4
1 12	7 10.87	+24 45.2	1.231	2.212	2.4	19.6	1 12	7 11.44	+ 2 57.8	2.058	3.003	6.2	21.3
1 22	7 0.78	+25 19.4	1.268	2.226	7.7	20.0	1 22	7 2.47	+ 4 2.6	2.088	3.016	7.5	21.4
2 1	6 52.93	+25 43.8	1.331	2.241	12.5	20.3	2 1	6 54.75	+ 5 17.5	2.147	3.029	9.9	21.6
2 11	6 48.31	+25 58.7	1.415	2.257	16.6	20.6	2 11	6 48.96	+ 6 37.3	2.231	3.041	12.4	21.8
487726	2015 <i>RG</i> ₉₃		1 8.4 27°77	5°1/ 9.5	17		332435	2007 <i>VE</i> ₁₀		1 8.4 70°09	5°1/ 9.9	18	
12 3	7 40.66	+12 51.0	1.034	1.865	22.0	20.1	12 3	7 40.84	+ 7 35.7	2.273	3.031	13.8	20.6
12 13	7 37.53	+12 17.1	0.983	1.878	17.4	19.8	12 13	7 35.66	+ 6 51.8	2.210	3.055	11.1	20.4
12 23	7 30.76	+12 0.8	0.950	1.892	12.2	19.6	12 23	7 28.63	+ 6 19.3	2.169	3.079	8.3	20.3
1 2	7 21.38	+12 3.1	0.938	1.907	7.0	19.4	1 2	7 20.36	+ 5 59.8	2.156	3.103	5.9	20.2
1 12	7 11.09	+12 22.6	0.948	1.924	5.4	19.3	1 12	7 11.70	+ 5 53.6	2.171	3.126	5.1	20.2
1 22	7 1.74	+12 54.9	0.983	1.941	9.3	19.6	1 22	7 3.50	+ 5 59.6	2.215	3.150	6.7	20.3
2 1	6 54.91	+13 35.2	1.040	1.960	14.2	20.0	2 1	6 56.55	+ 6 15.9	2.288	3.173	9.2	20.5
2 11	6 51.56	+14 18.0	1.117	1.980	18.5	20.3	2 11	6 51.43	+ 6 39.5	2.385	3.196	11.7	20.7
202321	2005 <i>EG</i> ₅₅		1 8.4 42°96	4°6/ 7.3	18 R		496802	2017 <i>JZ</i>		1 8.4 178°44	1°1/ 7.9	17	
12 3	7 44.85	+34 19.2	1.975	2.776	14.1	20.2	12 3	7 43.76	+23 58.0	2.465	3.252	12.0	22.6
12 13	7 39.57	+34 49.8	1.905	2.784	11.1	20.0	12 13	7 38.16	+24 28.7	2.377	3.254	9.2	22.5
12 23	7 31.56	+35 15.2	1.858	2.792	7.8	19.8	12 23	7 30.43	+25 2.3	2.314	3.256	6.0	22.3
1 2	7 21.61	+35 30.0	1.837	2.800	5.1	19.7	1 2	7 21.16	+25 35.4	2.280	3.256	2.5	22.0
1 12	7 10.95	+35 30.1	1.845	2.808	5.0	19.7	1 12	7 11.20	+26 4.8	2.277	3.256	1.9	22.0
1 22	7 0.91	+35 14.4	1.881	2.817	7.6	19.9	1 22	7 1.54	+26 28.3	2.305	3.256	5.3	22.2
2 1	6 52.69	+34 44.7	1.944	2.826	10.7	20.1	2 1	6 53.09	+26 44.7	2.362	3.255	8.6	22.4
2 11	6 47.12	+34 4.7	2.030	2.835	13.7	20.3	2 11	6 46.62	+26 54.4	2.445	3.253	11.5	22.6
456569	2007 <i>CH</i> ₃₃		1 8.4 213°47	1°0/ 8.1	18		44821	Amadora		1 8.4 297°82	2°5/ 7.4	18	
12 3	7 43.85	+24 47.6	2.196	2.991	13.1	22.0	12 3	7 42.96	+23 45.5	1.592	2.407	16.3	18.7
12 13	7 38.48	+24 59.1	2.106	2.986	10.1	21.7	12 13	7 38.92	+24 56.5	1.504	2.396	12.6	18.4
12 23	7 30.76	+25 12.1	2.039	2.981	6.5	21.5	12 23	7 31.69	+26 16.8	1.438	2.385	8.3	18.2
1 2	7 21.31	+25 23.8	2.000	2.976	2.7	21.3	1 2	7 21.89	+27 40.0	1.398	2.374	3.8	17.9
1 12	7 11.09	+25 31.4	1.990	2.970	1.9	21.2	1 12	7 10.72	+28 57.8	1.386	2.363	3.5	17.8
1 22	7 1.20	+25 33.2	2.011	2.964	5.7	21.4	1 22	6 59.74	+30 3.6	1.402	2.352	8.0	18.1
2 1	6 52.71	+25 28.9	2.061	2.958	9.4	21.6	2 1	6 50.55	+30 53.5	1.443	2.342	12.6	18.3
2 11	6 46.42	+25 19.6	2.135	2.952	12.7	21.8	2 11	6 44.36	+31 27.9	1.507	2.332	16.6	18.5
69637	1998 <i>FN</i> ₇₁		1 8.4 286°43	6°5/ 6.6	18		362161	2009 <i>DZ</i> ₁₄₁		1 8.4 329°12	4°6/ 7.2	18	
12 3	7 47.34	+35 9.3	1.609	2.418	16.4	19.1	12 3						

EPHEMERIDES

1 8.4

1 8.4

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
362665	2011 <i>UW</i> ₁₀		1 8.4 344°68	6°7/ 9.6 18			239484	2007 <i>UC</i> ₈₄		1 8.4 174°09	0°8/ 8.7 18		
12 3	7 37.27	+10 38.9	1.157	1.980	20.7	20.2	12 3	7 39.74	+18 46.0	2.866	3.646	10.7	21.6
12 13	7 34.99	+9 46.4	1.081	1.969	16.8	19.9	12 13	7 34.73	+18 49.9	2.776	3.648	8.2	21.4
12 23	7 29.31	+9 9.8	1.023	1.959	12.3	19.6	12 23	7 28.05	+18 58.1	2.712	3.650	5.4	21.2
1 2	7 20.94	+8 53.0	0.986	1.950	8.1	19.4	1 2	7 20.20	+19 9.3	2.676	3.651	2.3	21.0
1 12	7 11.30	+8 57.6	0.973	1.942	6.9	19.3	1 12	7 11.86	+19 22.0	2.672	3.652	1.3	20.9
1 22	7 2.09	+9 21.9	0.983	1.936	10.1	19.4	1 22	7 3.76	+19 34.9	2.698	3.653	4.4	21.2
2 1	6 54.97	+10 1.7	1.015	1.932	14.8	19.7	2 1	6 56.62	+19 46.9	2.755	3.653	7.3	21.3
2 11	6 51.16	+10 50.8	1.066	1.928	19.3	19.9	2 11	6 51.04	+19 57.6	2.838	3.653	9.9	21.5
427653	2003 <i>YH</i> ₂₈		1 8.4 3°97	2°5/ 7.4 15			104670	2000 <i>GW</i> ₁₄₃		1 8.4 159°02	9°5/ 3.6 18		
12 3	7 37.37	+23 45.8	1.457	2.287	16.8	20.2	12 3	8 0.27	+54 20.9	2.774	3.489	12.5	20.7
12 13	7 34.63	+24 54.1	1.387	2.287	12.9	20.0	12 13	7 51.99	+55 58.8	2.715	3.498	11.1	20.6
12 23	7 28.83	+26 10.6	1.337	2.287	8.4	19.7	12 23	7 40.03	+57 22.5	2.681	3.506	10.0	20.5
1 2	7 20.68	+27 28.6	1.313	2.290	3.8	19.4	1 2	7 25.19	+58 23.4	2.671	3.514	9.5	20.5
1 12	7 11.47	+28 40.5	1.316	2.293	3.5	19.4	1 12	7 8.99	+58 55.3	2.688	3.521	9.7	20.5
1 22	7 2.71	+29 40.0	1.345	2.298	7.9	19.7	1 22	6 53.30	+58 56.7	2.731	3.527	10.7	20.6
2 1	6 55.84	+30 24.1	1.398	2.305	12.4	20.0	2 1	6 39.90	+58 30.6	2.797	3.533	12.0	20.7
2 11	6 51.92	+30 53.0	1.474	2.312	16.2	20.2	2 11	6 30.01	+57 43.6	2.883	3.537	13.3	20.8
466857	2015 <i>BG</i> ₃₄₂		1 8.4 111°96	0°3/ 8.5 18			234515	2001 <i>TP</i> ₂₅₆		1 8.4 160°17	3°7/ 6.9 18		
12 3	7 39.93	+18 46.8	2.413	3.201	12.2	21.1	12 3	7 42.79	+32 56.8	2.545	3.336	11.6	20.5
12 13	7 35.20	+19 20.3	2.331	3.208	9.4	20.9	12 13	7 37.54	+33 41.9	2.464	3.338	9.1	20.3
12 23	7 28.50	+20 0.5	2.275	3.215	6.1	20.7	12 23	7 30.11	+34 24.4	2.408	3.340	6.3	20.1
1 2	7 20.39	+20 44.7	2.246	3.222	2.5	20.5	1 2	7 21.08	+34 59.6	2.380	3.342	4.1	20.0
1 12	7 11.68	+21 29.9	2.248	3.229	1.3	20.4	1 12	7 11.37	+35 23.9	2.382	3.344	4.1	20.0
1 22	7 3.25	+22 13.0	2.281	3.236	5.0	20.7	1 22	7 2.00	+35 35.2	2.414	3.346	6.4	20.1
2 1	6 55.96	+22 52.0	2.342	3.243	8.3	20.9	2 1	6 53.93	+35 33.6	2.474	3.348	9.1	20.3
2 11	6 50.52	+23 25.7	2.430	3.249	11.2	21.1	2 11	6 47.91	+35 21.2	2.558	3.349	11.6	20.5
161190	2002 <i>TW</i> ₁₈₀		1 8.4 42°80	7°6/ 6.9 18			167929	2005 <i>EF</i> ₁₆₀		1 8.4 207°05	3°8/ 9.9 18		
12 3	7 48.66	+42 14.4	1.861	2.651	15.3	19.1	12 3	7 38.50	+8 58.7	2.626	3.386	12.1	20.7
12 13	7 42.80	+43 4.4	1.809	2.670	12.5	19.0	12 13	7 33.93	+8 47.7	2.532	3.383	9.7	20.5
12 23	7 33.74	+43 42.5	1.779	2.690	9.8	18.8	12 23	7 27.63	+8 46.9	2.462	3.379	7.1	20.3
1 2	7 22.48	+44 1.1	1.774	2.710	7.9	18.8	1 2	7 20.07	+8 56.8	2.420	3.375	4.7	20.2
1 12	7 10.56	+43 55.7	1.796	2.731	7.9	18.8	1 12	7 11.95	+9 16.6	2.407	3.371	3.8	20.1
1 22	6 59.61	+43 26.0	1.844	2.752	9.7	19.0	1 22	7 4.04	+9 44.8	2.423	3.367	5.6	20.2
2 1	6 50.97	+42 36.1	1.918	2.773	12.2	19.2	2 1	6 57.08	+10 19.4	2.469	3.362	8.3	20.4
2 11	6 45.48	+41 32.2	2.014	2.794	14.6	19.4	2 11	6 51.71	+10 57.8	2.541	3.357	10.9	20.5
43596	2001 <i>QK</i> ₁₂₆		1 8.4 144°26	4°2/10.0 18			373746	2002 <i>TS</i> ₈₅		1 8.4 33°47	5°3/ 9.9 18		
12 3	7 38.66	+7 55.5	2.529	3.287	12.6	19.8	12 3	7 38.85	+8 24.2	1.921	2.698	15.3	20.1
12 13	7 34.04	+7 41.2	2.444	3.291	10.1	19.7	12 13	7 34.67	+7 49.1	1.848	2.706	12.4	19.9
12 23	7 27.66	+7 38.1	2.383	3.296	7.5	19.5	12 23	7 28.28	+7 27.0	1.797	2.716	9.2	19.8
1 2	7 20.04	+7 46.5	2.348	3.301	5.1	19.4	1 2	7 20.35	+7 19.6	1.772	2.725	6.3	19.6
1 12	7 11.90	+8 6.1	2.343	3.305	4.3	19.3	1 12	7 11.82	+7 26.8	1.774	2.735	5.4	19.6
1 22	7 4.03	+8 35.2	2.368	3.309	5.9	19.4	1 22	7 3.70	+7 47.1	1.803	2.746	7.3	19.7
2 1	6 57.18	+9 11.4	2.421	3.313	8.5	19.6	2 1	6 56.96	+8 17.6	1.860	2.757	10.3	19.9
2 11	6 51.98	+9 51.9	2.500	3.316	11.1	19.8	2 11	6 52.31	+8 54.6	1.940	2.768	13.3	20.1
117132	2004 <i>PF</i> ₆₁		1 8.4 144°99	2°2/ 9.1 18			80054	1999 <i>JC</i> ₆₉		1 8.4 208°38	2°1/ 7.5 18		
12 3	7 41.74	+14 49.8	2.323	3.101	13.0	20.6	12 3	7 40.79	+26 44.2	2.440	3.236	11.9	19.6
12 13	7 36.55	+14 48.0	2.242	3.109	10.1	20.5	12 13	7 36.03	+27 26.7	2.354	3.235	9.1	19.4
12 23	7 29.35	+14 54.1	2.184	3.117	6.8	20.3	12 23	7 29.16	+28 11.0	2.292	3.234	6.0	19.2
1 2	7 20.72	+15 7.2	2.154	3.124	3.5	20.1	1 2	7 20.72	+28 53.1	2.259	3.233	2.9	19.0
1 12	7 11.53	+15 25.8	2.154	3.131	2.4	20.0	1 12	7 11.58	+29 29.3	2.256	3.232	2.7	19.0
1 22	7 2.68	+15 48.0	2.184	3.137	5.4	20.2	1 22	7 2.71	+29 57.0	2.283	3.230	5.7	19.2
2 1	6 55.04	+16 11.9	2.244	3.143	8.7	20.4	2 1	6 55.03	+30 15.1	2.339	3.229	8.8	19.4
2 11	6 49.30	+16 36.0	2.328	3.149	11.6	20.6	2 11	6 49.32	+30 24.3	2.420	3.227	11.6	19.6
46720	<i>Pierostroppa</i>		1 8.4 120°11	0°8/ 8.1 18			370732	2004 <i>RV</i> ₈₄		1 8.4 174°75	9°5/14.2 17		
12 3	7 42.91	+24 31.6	2.714	3.499	11.1	21.0	12 3	7 40.69	-14 57.3	2.968	3.580	13.6	22.7
12 13	7 37.14	+24 46.2	2.642	3.517	8.5	20.8	12 13	7 35.37	-15 28.7	2.883	3.584	12.3	22.6
12 23	7 29.57	+25 1.9	2.595	3.535	5.4	20.7	12 23	7 28.44	-15 40.0	2.817	3.587	11.1	22.5
1 2	7 20.77	+25 16.3	2.577	3.553	2.2	20.5	1 2	7 20.37	-15 28.0	2.774	3.589	10.0	22.4
1 12	7 11.53	+25 27.2	2.590	3.570	1.6	20.4	1 12	7 11.82	-14 51.4	2.755	3.590	9.5	22.4
1 22	7 2.70	+25 33.5	2.634	3.586	4.7	20.7	1 22	7 3.49	-13 51.5	2.763	3.591	9.7	22.4
2 1	6 55.03	+25 34.7	2.709	3.602	7.6	20.9	2 1	6 56.06	-12 31.4	2.797	3.591	10.6	22.5
2 11	6 49.14	+25 31.5	2.809	3.617	10.2	21.1	2 11	6 50.12	-10 56.4	2.855	3.590	11.8	22.6
16275	2000 <i>JP</i> ₅₈		1 8.4 192°75	1°9/ 9.0 18			397215	2006 <i>HV</i> ₃₃		1 8.4 268°35	2°3/ 7.3 17		
12 3	7 42.41	+15 37.3	2.323	3.101	12.9	18.9	12 3	7 38.00	+30 24.5	3.342	4.130	9.1	21.7
12 13	7 37.17	+15 38.3	2.231	3.100	10.1	18.8	12 13	7 33.45	+30 55.2	3.241	4.116	7.1	21.5
12 23	7 29.83	+15 46.9	2.163	3.097	6.8	18.5	12 23	7 27.28	+31 24.9	3.165	4.102	4.8	21.4
1 2	7 20.96	+16 2.0	2.123	3.095	3.4	18.3	1 2	7 19.94	+31 50.9	3.119	4.087	2.7	21.2
1 12	7 11.40	+16 21.9	2.113	3.091	2.2	18.2	1 12	7 12.05	+32 10.7	3.103	4.072	2.7	21.2
1 22	7 2.12	+16 44.7	2.134	3.087	5.4	18.4	1 22	7 4.30	+32 22.8	3.118	4.058	4.7	21.3
2 1	6 54.02	+17 8.6	2.183	3.083	8.9	18.6	2 1	6 57.40	+32 26.7	3.163	4.043	7.1	21.5
2 11	6 47.86	+17 32.1	2.259	3.078	12.0	18.8	2 11	6 51.92	+32 23.3	3.233	4.028	9.3	21.6
211244	2002 <i>QB</i> ₃₃		1 8.4 88°62	3°1/ 9.4 18			335857	2007 <i>RO</i> ₁₈		1 8.4 149°78	6°2/10.9 18		
12 3	7 42.03	+13 10.4	1.722	2.515	16.2	20.3</							

EPHEMERIDES

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
235724	2004 <i>TR</i> ₁₆₉		1 8.4 73°49	0°8/ 8.2	17		238361	2004 <i>CV</i> ₃₉		1 8.4 249°67	0°5/ 8.5	18	
12 3	7 47.16	+21 55.8	1.446	2.258	17.8	20.3	12 3	7 41.75	+21 20.1	2.690	3.473	11.2	20.6
12 13	7 41.75	+22 29.5	1.391	2.280	13.6	20.1	12 13	7 36.49	+21 5.8	2.585	3.459	8.7	20.4
12 23	7 33.16	+23 9.7	1.356	2.302	8.7	19.9	12 23	7 29.34	+20 53.3	2.505	3.445	5.7	20.2
1 2	7 22.34	+23 51.3	1.347	2.325	3.5	19.6	1 2	7 20.80	+20 41.6	2.454	3.430	2.3	20.0
1 12	7 10.76	+24 28.8	1.366	2.347	2.2	19.6	1 12	7 11.64	+20 29.7	2.434	3.415	1.3	19.9
1 22	7 0.01	+24 58.4	1.412	2.369	7.3	20.0	1 22	7 2.70	+20 16.9	2.445	3.399	4.7	20.1
2 1	6 51.48	+25 19.0	1.485	2.390	11.8	20.3	2 1	6 54.80	+20 3.3	2.485	3.384	8.0	20.3
2 11	6 46.07	+25 31.3	1.580	2.412	15.6	20.6	2 11	6 48.61	+19 49.2	2.553	3.368	10.9	20.5
465792	2010 <i>BB</i> ₃₇		1 8.4 8°09	1°2/ 7.9	18		157726	2006 <i>BH</i> ₅₁		1 8.4 143°53	0°5/ 8.3	18	
12 3	7 39.78	+22 48.4	2.075	2.879	13.4	20.8	12 3	7 41.95	+22 7.4	2.139	2.936	13.3	20.3
12 13	7 35.55	+23 35.4	1.994	2.880	10.3	20.6	12 13	7 37.07	+22 30.3	2.057	2.939	10.2	20.1
12 23	7 28.99	+24 27.8	1.936	2.881	6.6	20.3	12 23	7 29.90	+22 57.6	1.998	2.942	6.6	19.8
1 2	7 20.70	+25 21.8	1.905	2.882	2.8	20.1	1 2	7 21.07	+23 26.4	1.967	2.944	2.6	19.6
1 12	7 11.62	+26 12.8	1.904	2.883	2.1	20.0	1 12	7 11.52	+23 53.4	1.965	2.946	1.6	19.5
1 22	7 2.84	+26 57.1	1.932	2.885	5.9	20.3	1 22	7 2.32	+24 16.2	1.994	2.949	5.6	19.8
2 1	6 55.41	+27 32.7	1.988	2.887	9.6	20.5	2 1	6 54.49	+24 33.4	2.050	2.951	9.3	20.0
2 11	6 50.16	+27 59.1	2.068	2.889	12.8	20.7	2 11	6 48.81	+24 45.0	2.131	2.953	12.5	20.2
270054	2001 <i>OM</i> ₃₇		1 8.4 172°31	2°2/ 7.4	17		52702	1998 <i>FR</i> ₇₁		1 8.4 268°26	0°7/ 8.1	18	
12 3	7 41.82	+28 26.9	3.005	3.789	10.1	21.6	12 3	7 36.80	+24 1.8	3.274	4.062	9.3	19.6
12 13	7 36.41	+29 7.8	2.918	3.793	7.8	21.5	12 13	7 32.47	+24 17.9	3.173	4.051	7.1	19.5
12 23	7 29.20	+29 48.6	2.858	3.795	5.2	21.3	12 23	7 26.63	+24 35.7	3.099	4.040	4.6	19.3
1 2	7 20.71	+30 26.2	2.827	3.798	2.7	21.1	1 2	7 19.70	+24 53.3	3.053	4.029	1.9	19.1
1 12	7 11.64	+30 57.4	2.827	3.800	2.6	21.1	1 12	7 12.29	+25 9.0	3.038	4.018	1.3	19.0
1 22	7 2.80	+31 20.2	2.859	3.801	5.0	21.3	1 22	7 5.03	+25 21.4	3.055	4.007	4.0	19.2
2 1	6 54.97	+31 34.2	2.921	3.802	7.6	21.5	2 1	6 58.57	+25 29.8	3.101	3.996	6.7	19.4
2 11	6 48.79	+31 40.0	3.008	3.802	9.9	21.6	2 11	6 53.46	+25 34.1	3.174	3.985	9.1	19.5
143890	2003 <i>YE</i> ₄₃		1 8.4 196°06	0°3/ 8.5	18		110603	2001 <i>TM</i> ₁₃₅		1 8.4 359°94	0°3/ 8.5	18	
12 3	7 44.72	+20 59.7	2.141	2.931	13.5	20.7	12 3	7 43.81	+22 37.6	1.643	2.453	16.1	19.2
12 13	7 39.17	+21 3.2	2.051	2.929	10.5	20.5	12 13	7 39.08	+22 18.7	1.564	2.452	12.4	19.0
12 23	7 31.25	+21 10.7	1.985	2.926	6.8	20.2	12 23	7 31.46	+22 2.2	1.506	2.452	8.1	18.7
1 2	7 21.59	+21 20.2	1.946	2.922	2.8	20.0	1 2	7 21.74	+21 46.2	1.474	2.451	3.3	18.4
1 12	7 11.16	+21 29.4	1.937	2.919	1.5	19.9	1 12	7 11.16	+21 29.2	1.470	2.452	1.8	18.3
1 22	7 1.07	+21 36.5	1.959	2.914	5.7	20.1	1 22	7 1.12	+21 10.6	1.494	2.452	6.7	18.6
2 1	6 52.37	+21 40.8	2.009	2.909	9.5	20.4	2 1	6 52.93	+20 50.6	1.545	2.453	11.2	18.9
2 11	6 45.89	+21 42.4	2.084	2.904	12.8	20.6	2 11	6 47.50	+20 30.4	1.618	2.454	15.1	19.1
29872	1999 <i>GO</i> ₆		1 8.4 344°39	2°9/ 7.7	18		291332	2006 <i>BA</i> ₂₀₅		1 8.4 176°24	0°5/ 8.6	18	
12 3	7 41.73	+27 35.9	1.493	2.317	16.8	17.8	12 3	7 45.84	+19 23.2	2.019	2.807	14.3	21.8
12 13	7 38.05	+28 3.9	1.413	2.309	13.0	17.5	12 13	7 40.14	+19 40.8	1.934	2.810	11.0	21.6
12 23	7 31.11	+28 33.2	1.355	2.302	8.6	17.3	12 23	7 31.95	+20 5.0	1.872	2.812	7.2	21.3
1 2	7 21.67	+28 58.5	1.321	2.296	4.2	17.0	1 2	7 21.91	+20 33.2	1.837	2.813	3.0	21.1
1 12	7 11.10	+29 14.4	1.314	2.291	3.7	16.9	1 12	7 11.05	+21 2.1	1.833	2.814	1.6	21.0
1 22	7 1.03	+29 18.1	1.333	2.286	8.0	17.2	1 22	7 0.55	+21 29.0	1.858	2.814	5.9	21.3
2 1	6 52.98	+29 9.4	1.377	2.283	12.6	17.4	2 1	6 51.53	+21 52.2	1.913	2.813	9.9	21.5
2 11	6 48.05	+28 51.0	1.443	2.280	16.6	17.7	2 11	6 44.87	+22 11.0	1.992	2.812	13.3	21.7
224943	2007 <i>DZ</i> ₈₇		1 8.4 242°64	2°4/ 7.7	18		414495	2009 <i>RT</i> ₁₂		1 8.4 86°04	6°1/ 10.6	18	
12 3	7 43.82	+27 33.9	2.021	2.823	13.8	20.8	12 3	7 40.58	+ 4 53.1	1.989	2.747	15.5	21.1
12 13	7 38.79	+28 1.6	1.934	2.818	10.7	20.6	12 13	7 35.90	+ 4 28.2	1.917	2.759	12.7	21.0
12 23	7 31.16	+28 30.0	1.871	2.813	7.0	20.3	12 23	7 29.07	+ 4 19.1	1.866	2.772	9.7	20.8
1 2	7 21.59	+28 54.8	1.835	2.809	3.4	20.1	1 2	7 20.71	+ 4 27.5	1.841	2.784	7.0	20.7
1 12	7 11.16	+29 11.9	1.828	2.804	3.0	20.1	1 12	7 11.75	+ 4 53.0	1.843	2.797	6.1	20.6
1 22	7 1.09	+29 19.1	1.850	2.799	6.5	20.3	1 22	7 3.20	+ 5 33.2	1.873	2.809	7.6	20.8
2 1	6 52.56	+29 16.2	1.899	2.794	10.3	20.5	2 1	6 56.01	+ 6 24.3	1.931	2.821	10.4	20.9
2 11	6 46.48	+29 4.9	1.973	2.788	13.6	20.7	2 11	6 50.88	+ 7 21.7	2.013	2.833	13.2	21.1
331142	2010 <i>VH</i> ₁₇₄		1 8.4 78°05	0°6/ 8.6	18		203447	2001 <i>YP</i> ₈₆		1 8.4 332°59	0°1/ 8.4	18	
12 3	7 43.30	+16 49.1	1.787	2.583	15.6	20.1	12 3	7 41.54	+22 19.1	1.258	2.089	18.8	19.9
12 13	7 38.37	+17 42.7	1.718	2.598	12.0	19.9	12 13	7 38.36	+22 19.6	1.177	2.077	14.7	19.6
12 23	7 30.85	+18 47.8	1.672	2.614	7.8	19.7	12 23	7 31.58	+22 26.0	1.116	2.066	9.6	19.2
1 2	7 21.45	+20 0.1	1.653	2.630	3.2	19.4	1 2	7 21.96	+22 35.1	1.077	2.056	3.9	18.9
1 12	7 11.26	+21 14.1	1.664	2.645	1.7	19.3	1 12	7 10.98	+22 43.1	1.064	2.046	2.2	18.7
1 22	7 1.54	+22 24.4	1.704	2.660	6.2	19.7	1 22	7 0.46	+22 47.2	1.076	2.037	8.2	19.1
2 1	6 53.45	+23 27.2	1.771	2.676	10.3	19.9	2 1	6 52.15	+22 46.4	1.112	2.029	13.7	19.4
2 11	6 47.83	+24 20.6	1.864	2.691	13.8	20.2	2 11	6 47.32	+22 41.3	1.168	2.022	18.5	19.6
29956	1999 <i>JF</i> ₉₁		1 8.4 136°65	3°5/ 10.1	18 R		464110	2014 <i>WV</i> ₄₄₇		1 8.4 45°83	2°0/ 7.9	18	
12 3	7 38.24	+ 8 21.1	2.723	3.479	11.8	18.7	12 3	7 43.42	+26 39.3	1.856	2.663	14.6	21.8
12 13	7 33.63	+ 8 27.7	2.638	3.486	9.5	18.5	12 13	7 38.55	+26 59.9	1.781	2.668	11.3	21.6
12 23	7 27.38	+ 8 45.3	2.578	3.494	6.9	18.4	12 23	7 31.01	+27 21.3	1.728	2.673	7.4	21.4
1 2	7 19.98	+ 9 13.7	2.544	3.500	4.4	18.2	1 2	7 21.53	+27 39.5	1.703	2.678	3.3	21.1
1 12	7 12.09	+ 9 51.5	2.541	3.507	3.5	18.2	1 12	7 11.28	+27 50.8	1.705	2.683	2.7	21.1
1 22	7 4.44	+10 36.6	2.568	3.513	5.2	18.3	1 22	7 1.55	+27 53.3	1.737	2.689	6.6	21.3
2 1	6 57.74	+11 26.3	2.625	3.520	7.8	18.5	2 1	6 53.52	+27 47.1	1.795	2.695	10.5	21.6
2 11	6 52.56	+12 17.8	2.708	3.525	10.3	18.7	2 11	6 48.04	+27 33.8	1.877	2.701	13.9	21.8
162587	2000 <i>SE</i> ₃₄		1 8.4 22°89	1°8/ 8.9	18		348790	2006 <i>PM</i> ₁₄		1 8.4 120°18	2°1/ 9.5	18	
12 3	7 41.18	+17 0.0	1.237										

EPHEMERIDES

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
116853	2004 <i>FN</i> ₆₅		1 8.4 335°97	0°3/ 8.5	18		54597	2000 <i>QZ</i> ₂₂₉		1 8.4 296°18	2°7/ 9.3	18	
12 3	7 42.25	+19 59.8	1.727	2.533	15.6	19.9	12 3	7 42.22	+13 57.0	1.530	2.332	17.5	19.5
12 13	7 37.84	+20 17.0	1.645	2.531	12.1	19.6	12 13	7 38.15	+14 9.0	1.446	2.327	13.8	19.2
12 23	7 30.69	+20 41.6	1.585	2.530	7.9	19.4	12 23	7 31.10	+14 35.5	1.383	2.322	9.4	19.0
1 2	7 21.47	+21 10.7	1.551	2.528	3.2	19.1	1 2	7 21.74	+15 15.1	1.344	2.316	4.8	18.7
1 12	7 11.34	+21 40.7	1.545	2.527	1.7	19.0	1 12	7 11.26	+16 4.6	1.332	2.311	3.1	18.6
1 22	7 1.59	+22 8.4	1.568	2.526	6.5	19.3	1 22	7 1.10	+16 59.3	1.348	2.306	7.3	18.8
2 1	6 53.48	+22 31.8	1.617	2.525	10.9	19.5	2 1	6 52.69	+17 54.7	1.390	2.301	12.0	19.1
2 11	6 47.97	+22 50.1	1.690	2.524	14.7	19.8	2 11	6 47.09	+18 47.2	1.455	2.297	16.2	19.3
79464	1997 <i>YW</i> ₁₆		1 8.4 57°11	0°7/ 8.1	18		129601	1997 <i>WE</i> ₉		1 8.4 347°41	6°3/ 6.8	18	
12 3	7 42.35	+20 9.0	1.988	2.785	14.2	18.8	12 3	7 35.50	+30 0.0	0.969	1.830	20.8	18.3
12 13	7 37.39	+21 12.5	1.927	2.809	10.8	18.6	12 13	7 34.94	+31 9.1	0.900	1.814	16.4	17.9
12 23	7 30.10	+22 23.3	1.890	2.833	6.9	18.5	12 23	7 30.07	+32 21.7	0.848	1.801	11.4	17.6
1 2	7 21.16	+23 36.7	1.881	2.858	2.7	18.2	1 2	7 21.59	+33 27.3	0.817	1.789	7.1	17.3
1 12	7 11.58	+24 47.2	1.902	2.882	1.8	18.2	1 12	7 11.30	+34 14.5	0.807	1.779	7.2	17.3
1 22	7 2.48	+25 50.3	1.953	2.907	5.8	18.5	1 22	7 1.56	+34 35.9	0.820	1.772	11.8	17.5
2 1	6 54.88	+26 43.5	2.032	2.931	9.5	18.8	2 1	6 54.68	+34 30.8	0.852	1.767	17.1	17.8
2 11	6 49.53	+27 26.1	2.137	2.956	12.6	19.0	2 11	6 52.18	+34 4.1	0.901	1.764	21.8	18.1
100437	1996 <i>OY</i>		1 8.4 210°40	4°6/ 9.3	18		36427	2000 <i>PR</i> ₇		1 8.4 78°03	3°5/ 7.3	18	
12 3	7 43.29	+11 1.2	2.098	2.868	14.4	20.4	12 3	7 49.69	+26 53.3	1.527	2.335	17.2	18.3
12 13	7 38.02	+10 13.0	2.008	2.865	11.6	20.2	12 13	7 43.74	+28 6.4	1.476	2.363	13.1	18.1
12 23	7 30.51	+9 33.4	1.940	2.861	8.4	20.0	12 23	7 34.52	+29 21.6	1.447	2.390	8.6	17.9
1 2	7 21.35	+9 4.2	1.899	2.857	5.5	19.8	1 2	7 22.98	+30 30.9	1.445	2.417	4.5	17.7
1 12	7 11.47	+8 46.1	1.888	2.852	4.7	19.8	1 12	7 10.65	+31 26.7	1.471	2.444	4.3	17.8
1 22	7 1.91	+8 39.0	1.905	2.848	7.0	19.9	1 22	6 59.18	+32 4.9	1.525	2.471	8.1	18.0
2 1	6 53.66	+8 41.8	1.951	2.842	10.2	20.1	2 1	6 49.99	+32 25.5	1.605	2.497	12.0	18.3
2 11	6 47.49	+8 52.4	2.021	2.837	13.3	20.3	2 11	6 44.01	+32 31.7	1.708	2.522	15.4	18.6
331335	2012 <i>BC</i> ₃₄		1 8.4 42°89	4°9/ 9.6	17		24435	2000 <i>DN</i>		1 8.4 77°33	0°5/ 8.6	18 R	
12 3	7 43.71	+12 0.9	1.279	2.087	19.9	19.5	12 3	7 42.24	+19 53.2	2.129	2.922	13.5	18.7
12 13	7 39.11	+11 28.7	1.233	2.113	15.7	19.3	12 13	7 37.10	+20 4.0	2.062	2.941	10.3	18.6
12 23	7 31.44	+11 12.3	1.206	2.140	11.0	19.1	12 23	7 29.80	+20 20.0	2.019	2.960	6.7	18.4
1 2	7 21.70	+11 12.3	1.202	2.168	6.5	19.0	1 2	7 21.03	+20 39.0	2.003	2.980	2.7	18.2
1 12	7 11.37	+11 27.1	1.224	2.197	5.0	19.0	1 12	7 11.74	+20 58.4	2.017	2.999	1.5	18.1
1 22	7 1.98	+11 53.3	1.272	2.226	8.2	19.2	1 22	7 2.93	+21 16.3	2.062	3.018	5.3	18.4
2 1	6 54.79	+12 27.0	1.344	2.255	12.4	19.5	2 1	6 55.53	+21 31.4	2.134	3.037	8.9	18.7
2 11	6 50.61	+13 3.9	1.439	2.285	16.1	19.9	2 11	6 50.23	+21 43.3	2.231	3.056	11.9	18.9
256006	2006 <i>UV</i> ₇		1 8.4 4°81	4°8/ 9.5	18		487582	2015 <i>DW</i> ₁₃₀		1 8.4 146°99	16°7/ 3.8	17	
12 3	7 38.03	+12 44.8	1.281	2.101	19.2	19.5	12 3	8 7.86	+53 43.4	1.306	2.073	21.7	20.9
12 13	7 35.20	+12 11.9	1.212	2.100	15.3	19.3	12 13	8 1.68	+56 13.7	1.259	2.079	19.4	20.8
12 23	7 29.25	+11 53.3	1.162	2.101	10.8	19.0	12 23	7 48.47	+58 22.7	1.231	2.085	17.6	20.7
1 2	7 20.97	+11 50.4	1.135	2.103	6.4	18.8	1 2	7 29.19	+59 49.9	1.222	2.090	16.7	20.6
1 12	7 11.70	+12 2.7	1.132	2.106	5.0	18.7	1 12	7 7.12	+60 19.9	1.235	2.094	17.1	20.7
1 22	7 2.99	+12 27.5	1.154	2.111	8.5	18.9	1 22	6 46.75	+59 50.4	1.267	2.098	18.6	20.8
2 1	6 56.26	+13 1.2	1.200	2.117	13.0	19.2	2 1	6 31.80	+58 32.2	1.317	2.102	20.7	20.9
2 11	6 52.52	+13 39.1	1.267	2.124	17.2	19.5	2 11	6 23.91	+56 42.7	1.384	2.104	22.8	21.1
428487	2007 <i>VW</i> ₁₆₃		1 8.4 353°02	3°0/ 9.2	18		400099	2006 <i>TS</i> ₂₄		1 8.4 74°64	3°8/ 9.5	18	
12 3	7 39.50	+14 20.3	2.221	3.005	13.3	21.1	12 3	7 43.98	+12 26.2	1.701	2.489	16.6	21.5
12 13	7 35.02	+13 50.3	2.134	3.004	10.5	20.9	12 13	7 38.78	+12 6.0	1.639	2.509	13.1	21.3
12 23	7 28.51	+13 27.3	2.071	3.002	7.3	20.7	12 23	7 31.04	+11 57.8	1.599	2.530	9.1	21.1
1 2	7 20.54	+13 11.7	2.034	3.001	4.1	20.5	1 2	7 21.55	+12 1.7	1.584	2.550	5.3	21.0
1 12	7 11.96	+13 3.5	2.027	3.001	3.2	20.4	1 12	7 11.46	+12 16.1	1.597	2.570	4.0	20.9
1 22	7 3.69	+13 1.7	2.049	3.000	5.8	20.6	1 22	7 2.01	+12 38.8	1.639	2.591	7.0	21.2
2 1	6 56.64	+13 5.5	2.099	3.000	9.1	20.8	2 1	6 54.27	+13 7.0	1.707	2.611	10.7	21.4
2 11	6 51.49	+13 13.3	2.174	3.000	12.1	21.0	2 11	6 49.02	+13 37.8	1.799	2.631	14.0	21.7
156524	2002 <i>CS</i> ₂₅₃		1 8.4 21°40	4°4/ 7.2	18		109127	2001 <i>QQ</i> ₄₈		1 8.4 159°96	0°4/ 8.3	18	
12 3	7 41.88	+29 16.3	1.373	2.202	17.6	18.9	12 3	7 44.22	+22 6.1	2.048	2.842	13.9	20.5
12 13	7 38.30	+30 13.9	1.314	2.212	13.6	18.7	12 13	7 38.90	+22 23.7	1.966	2.846	10.7	20.3
12 23	7 31.30	+31 11.9	1.276	2.222	9.2	18.5	12 23	7 31.16	+22 45.6	1.907	2.850	6.9	20.1
1 2	7 21.78	+32 2.7	1.262	2.234	5.2	18.3	1 2	7 21.64	+23 8.8	1.876	2.853	2.8	19.8
1 12	7 11.28	+32 39.1	1.275	2.246	5.1	18.3	1 12	7 11.37	+23 30.2	1.875	2.856	1.6	19.8
1 22	7 1.53	+32 57.6	1.312	2.260	8.8	18.6	1 22	7 1.50	+23 47.3	1.904	2.859	5.8	20.0
2 1	6 54.06	+32 58.5	1.375	2.275	13.0	18.8	2 1	6 53.10	+23 59.2	1.961	2.861	9.7	20.3
2 11	6 49.87	+32 45.3	1.458	2.290	16.7	19.1	2 11	6 47.00	+24 6.0	2.042	2.863	13.0	20.5
66435	1999 <i>NT</i> ₅₀		1 8.4 108°20	1°3/ 8.8	18		203852	2002 <i>VJ</i> ₁₀₃		1 8.4 36°22	3°4/ 9.3	18	
12 3	7 46.19	+17 39.5	1.820	2.610	15.5	19.7	12 3	7 40.18	+13 28.0	2.124	2.907	13.8	19.9
12 13	7 40.42	+17 46.4	1.753	2.629	12.0	19.5	12 13	7 35.57	+12 55.4	2.044	2.912	10.9	19.8
12 23	7 32.09	+18 1.1	1.708	2.648	7.9	19.3	12 23	7 28.87	+12 30.7	1.986	2.916	7.6	19.6
1 2	7 21.97	+18 21.6	1.691	2.666	3.5	19.1	1 2	7 20.69	+12 14.7	1.956	2.921	4.5	19.4
1 12	7 11.20	+18 44.9	1.703	2.683	2.0	19.0	1 12	7 11.91	+12 7.2	1.954	2.926	3.6	19.3
1 22	7 1.02	+19 8.5	1.744	2.700	6.1	19.3	1 22	7 3.51	+12 7.3	1.981	2.931	6.1	19.5
2 1	6 52.55	+19 30.5	1.813	2.716	10.2	19.6	2 1	6 56.40	+12 13.9	2.036	2.937	9.4	19.7
2 11	6 46.58	+19 49.9	1.906	2.732	13.6	19.9	2 11	6 51.28	+12 25.0	2.116	2.942	12.4	19.9
364310	2006 <i>UR</i> ₄₃		1 8.4 189°40	4°9/ 6.6	18		327274	2005 <i>SS</i> ₂₂₅		1 8.4 52°91	5°0/ 9.8	18	
12 3	7 47.62	+34 0.4	2.137	2.928	13.5	22.							

EPHEMERIDES

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
27771	1991 <i>VY</i> ₂		1 8.4 128°60	1.5°/ 8.7 18			93191	2000 <i>SO</i> ₁₁₁		1 8.4 358°55	1.3°/ 8.1 18		
12 3	7 47.77	+19 19.5	1.626	2.424	16.7	18.2	12 3	7 41.20	+23 1.2	1.229	2.063	19.0	17.9
12 13	7 42.01	+19 1.3	1.552	2.433	13.0	17.9	12 13	7 38.12	+23 27.8	1.158	2.060	14.7	17.6
12 23	7 33.32	+18 48.8	1.501	2.442	8.6	17.7	12 23	7 31.45	+24 1.7	1.107	2.058	9.6	17.3
1 2	7 22.52	+18 40.6	1.475	2.450	3.8	17.4	1 2	7 21.98	+24 37.9	1.079	2.057	3.9	17.0
1 12	7 10.92	+18 35.0	1.478	2.458	2.2	17.4	1 12	7 11.28	+25 10.5	1.076	2.057	2.7	16.9
1 22	6 59.95	+18 30.7	1.509	2.466	6.9	17.7	1 22	7 1.16	+25 35.0	1.098	2.058	8.3	17.2
2 1	6 50.91	+18 27.2	1.568	2.473	11.3	17.9	2 1	6 53.34	+25 49.6	1.144	2.060	13.6	17.5
2 11	6 44.71	+18 24.4	1.649	2.480	15.1	18.2	2 11	6 49.00	+25 54.9	1.210	2.063	18.1	17.8
201210	2002 <i>PW</i> ₁₈₂		1 8.4 94°59	5.7°/ 9.9 18			293770	2007 <i>RC</i> ₁₀₃		1 8.4 122°48	1.3°/ 8.8 18		
12 3	7 40.48	+ 6 32.6	2.262	3.018	13.9	20.5	12 3	7 46.31	+17 41.3	1.917	2.704	15.0	21.8
12 13	7 35.63	+ 5 42.0	2.183	3.025	11.4	20.3	12 13	7 40.45	+17 46.4	1.846	2.720	11.6	21.6
12 23	7 28.83	+ 5 2.9	2.127	3.032	8.7	20.1	12 23	7 32.11	+17 58.9	1.798	2.736	7.6	21.4
1 2	7 20.66	+ 4 37.4	2.097	3.039	6.4	20.0	1 2	7 22.03	+18 16.7	1.777	2.752	3.4	21.2
1 12	7 11.95	+ 4 26.5	2.096	3.047	5.7	20.0	1 12	7 11.30	+18 37.4	1.786	2.766	2.0	21.1
1 22	7 3.59	+ 4 29.5	2.123	3.054	7.2	20.1	1 22	7 1.11	+18 58.4	1.825	2.781	6.0	21.4
2 1	6 56.41	+ 4 44.7	2.178	3.061	9.7	20.3	2 1	6 52.53	+19 18.3	1.892	2.794	9.9	21.7
2 11	6 51.08	+ 5 9.0	2.258	3.068	12.3	20.4	2 11	6 46.36	+19 36.0	1.984	2.807	13.2	21.9
132942	2002 <i>TB</i> ₄₁		1 8.4 109°77	0.4°/ 8.3 18			389840	2012 <i>QV</i> ₁₉		1 8.5 67°30	4.6°/ 7.6 15		
12 3	7 41.81	+22 21.9	2.554	3.342	11.6	20.0	12 3	7 50.47	+30 37.3	1.276	2.097	19.2	21.0
12 13	7 36.50	+22 43.7	2.482	3.359	8.9	19.8	12 13	7 45.05	+31 17.5	1.221	2.113	14.9	20.8
12 23	7 29.32	+23 8.5	2.434	3.375	5.7	19.6	12 23	7 35.72	+31 55.3	1.186	2.130	10.1	20.6
1 2	7 20.84	+23 33.7	2.415	3.391	2.3	19.4	1 2	7 23.59	+32 22.3	1.176	2.147	5.6	20.4
1 12	7 11.87	+23 57.0	2.426	3.407	1.4	19.4	1 12	7 10.51	+32 32.0	1.191	2.163	5.3	20.4
1 22	7 3.28	+24 16.5	2.469	3.423	4.8	19.6	1 22	6 58.53	+32 22.6	1.233	2.180	9.3	20.7
2 1	6 55.86	+24 31.1	2.541	3.438	7.9	19.9	2 1	6 49.33	+31 56.8	1.298	2.197	13.7	21.0
2 11	6 50.26	+24 41.1	2.638	3.452	10.6	20.1	2 11	6 43.93	+31 20.2	1.385	2.214	17.6	21.3
191959	2005 <i>UL</i> ₂₄₁		1 8.4 10°32	1.8°/ 8.8 18			357376	2003 <i>SW</i> ₂₇₇		1 8.5 94°96	2.0°/ 8.9 17		
12 3	7 42.77	+18 2.9	1.240	2.064	19.5	20.7	12 3	7 47.74	+17 3.6	1.800	2.587	15.8	21.5
12 13	7 39.09	+17 56.7	1.170	2.065	15.2	20.5	12 13	7 41.50	+16 51.1	1.739	2.613	12.2	21.3
12 23	7 31.92	+18 1.0	1.120	2.066	10.1	20.2	12 23	7 32.73	+16 46.1	1.701	2.638	8.1	21.1
1 2	7 22.10	+18 14.0	1.092	2.068	4.5	19.9	1 2	7 22.25	+16 47.3	1.690	2.663	3.8	20.9
1 12	7 11.15	+18 32.7	1.090	2.071	2.7	19.8	1 12	7 11.25	+16 52.8	1.709	2.688	2.5	20.9
1 22	7 0.82	+18 53.7	1.113	2.074	8.0	20.1	1 22	7 0.95	+17 1.1	1.756	2.711	6.2	21.2
2 1	6 52.75	+19 14.4	1.161	2.078	13.3	20.4	2 1	6 52.44	+17 10.7	1.832	2.735	10.1	21.5
2 11	6 48.03	+19 33.2	1.229	2.082	17.8	20.7	2 11	6 46.46	+17 20.8	1.932	2.757	13.5	21.7
65285	2002 <i>HU</i> ₁		1 8.4 328°05	1.0°/ 8.8 18			57520	2001 <i>SB</i> ₂₈₉		1 8.5 332°64	8.5°/ 11.4 18		
12 3	7 40.74	+17 55.2	1.910	2.709	14.6	19.7	12 3	7 36.02	+ 2 1.2	1.460	2.239	19.2	17.8
12 13	7 36.44	+18 10.3	1.824	2.706	11.3	19.5	12 13	7 33.56	+ 1 38.8	1.369	2.221	16.3	17.6
12 23	7 29.69	+18 33.8	1.761	2.703	7.5	19.2	12 23	7 28.27	+ 1 40.7	1.296	2.203	12.9	17.3
1 2	7 21.11	+19 3.5	1.725	2.700	3.2	19.0	1 2	7 20.72	+ 2 11.4	1.244	2.186	9.9	17.1
1 12	7 11.69	+19 36.5	1.717	2.698	1.8	18.9	1 12	7 11.97	+ 3 11.8	1.216	2.170	8.6	17.0
1 22	7 2.60	+20 9.8	1.738	2.696	6.0	19.1	1 22	7 3.37	+ 4 38.4	1.214	2.155	10.2	17.0
2 1	6 54.92	+20 40.9	1.787	2.694	10.1	19.4	2 1	6 56.31	+ 6 23.9	1.235	2.141	13.7	17.2
2 11	6 49.55	+21 8.4	1.859	2.692	13.6	19.6	2 11	6 51.92	+ 8 18.9	1.279	2.128	17.5	17.4
101585	1999 <i>BL</i> ₁₁		1 8.4 236°08	4.8°/ 7.4 18			45576	2000 <i>CD</i> ₇₅		1 8.5 39°82	5.0°/ 6.9 18		
12 3	7 48.58	+35 12.9	1.991	2.784	14.3	20.0	12 3	7 44.63	+34 46.4	2.066	2.865	13.7	18.5
12 13	7 42.68	+35 39.4	1.905	2.778	11.3	19.8	12 13	7 39.55	+35 35.5	1.991	2.867	10.8	18.4
12 23	7 33.82	+36 0.1	1.842	2.773	8.1	19.6	12 23	7 31.76	+36 20.3	1.940	2.870	7.7	18.2
1 2	7 22.77	+36 8.9	1.806	2.766	5.4	19.4	1 2	7 21.97	+36 54.8	1.915	2.873	5.4	18.0
1 12	7 10.80	+36 1.5	1.798	2.760	5.2	19.4	1 12	7 11.35	+37 14.1	1.918	2.876	5.4	18.0
1 22	6 59.36	+35 36.5	1.819	2.754	7.9	19.6	1 22	7 1.21	+37 16.1	1.950	2.879	7.8	18.2
2 1	6 49.78	+34 56.1	1.867	2.747	11.2	19.7	2 1	6 52.76	+37 1.8	2.008	2.883	10.8	18.4
2 11	6 43.02	+34 4.7	1.939	2.740	14.4	19.9	2 11	6 46.89	+36 34.5	2.089	2.886	13.6	18.6
171972	2001 <i>TU</i> ₁₂₁		1 8.4 198°35	6.4°/ 10.1 18			351708	2006 <i>BJ</i> ₂₁₈		1 8.5 245°44	0.4°/ 8.3 18		
12 3	7 39.86	+ 1 55.6	2.706	3.431	12.6	20.2	12 3	7 45.73	+21 45.4	1.778	2.578	15.5	22.0
12 13	7 34.92	+ 0 54.2	2.615	3.429	10.6	20.0	12 13	7 40.71	+22 5.9	1.681	2.565	12.0	21.7
12 23	7 28.30	+ 0 4.2	2.548	3.427	8.6	19.9	12 23	7 32.75	+22 32.6	1.607	2.551	7.9	21.4
1 2	7 20.47	+ 0 31.8	2.508	3.425	6.9	19.8	1 2	7 22.47	+23 2.1	1.560	2.537	3.2	21.1
1 12	7 12.11	+ 0 52.0	2.496	3.422	6.5	19.8	1 12	7 11.03	+23 30.3	1.541	2.522	1.9	21.0
1 22	7 3.97	+ 0 56.6	2.512	3.419	7.5	19.8	1 22	6 59.80	+23 53.8	1.551	2.507	6.8	21.3
2 1	6 56.77	+ 0 46.6	2.557	3.416	9.4	19.9	2 1	6 50.19	+24 10.8	1.588	2.491	11.4	21.5
2 11	6 51.11	+ 0 25.1	2.626	3.413	11.4	20.1	2 11	6 43.28	+24 21.5	1.649	2.475	15.4	21.7
424196	2007 <i>LX</i> ₁₅		1 8.4 283°06	3.7°/ 9.7 17			181615	2006 <i>WN</i> ₁₁₃		1 8.5 144°64	1.1°/ 8.1 18		
12 3	7 39.90	+10 42.6	2.040	2.819	14.5	21.6	12 3	7 43.62	+22 44.0	1.858	2.660	14.8	20.3
12 13	7 35.75	+10 43.5	1.936	2.800	11.6	21.4	12 13	7 38.79	+23 21.0	1.777	2.663	11.4	20.1
12 23	7 29.28	+10 57.3	1.855	2.782	8.3	21.1	12 23	7 31.30	+24 3.6	1.720	2.664	7.4	19.8
1 2	7 21.00	+11 24.2	1.799	2.763	5.0	20.9	1 2	7 21.82	+24 47.6	1.689	2.666	3.0	19.6
1 12	7 11.79	+12 2.8	1.772	2.744	3.8	20.8	1 12	7 11.44	+25 28.4	1.688	2.668	2.1	19.5
1 22	7 2.68	+12 50.4	1.774	2.726	6.5	20.9	1 22	7 1.44	+26 2.3	1.715	2.670	6.4	19.8
2 1	6 54.75	+13 43.6	1.804	2.707	10.2	21.1	2 1	6 53.04	+26 27.5	1.770	2.671	10.5	20.0
2 11	6 48.89	+14 38.6	1.858	2.688	13.7	21.3	2 11	6 47.15	+26 44.4	1.849	2.673	14.0	20.3
128681	2004 <i>RS</i> ₇₅		1 8.4 37°22	3.9°/ 7.3 18			462649	2009 <i>SJ</i> ₁₇₇		1 8.5 60°49	1.7°/ 8.0 18		
12 3	7 44.03</												

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
433527	2013 <i>WX</i> ₈₀		1 8.5 64°95	3°6/ 9.4	18		404353	2013 <i>GL</i> ₁₁		1 8.5 353°59	0°0/ 8.3	17	
12 3	7 41.57	+12 39.6	2.146	2.924	13.9	20.7	12 3	7 41.15	+21 46.0	1.230	2.063	19.1	20.7
12 13	7 36.49	+12 3.1	2.078	2.942	11.0	20.5	12 13	7 38.05	+21 46.8	1.157	2.058	14.8	20.4
12 23	7 29.39	+11 35.1	2.034	2.960	7.7	20.3	12 23	7 31.40	+21 54.1	1.103	2.054	9.7	20.1
1 2	7 20.92	+11 16.5	2.016	2.979	4.7	20.2	1 2	7 22.01	+22 5.1	1.072	2.050	3.9	19.8
1 12	7 11.99	+11 7.1	2.027	2.997	3.8	20.2	1 12	7 11.41	+22 15.8	1.067	2.048	2.1	19.6
1 22	7 3.53	+11 6.1	2.068	3.015	6.1	20.3	1 22	7 1.39	+22 23.4	1.086	2.047	8.1	20.0
2 1	6 56.41	+11 12.0	2.136	3.034	9.2	20.6	2 1	6 53.63	+22 26.7	1.129	2.048	13.5	20.3
2 11	6 51.27	+11 23.1	2.230	3.052	12.0	20.8	2 11	6 49.30	+22 25.8	1.193	2.049	18.1	20.6
413523	2005 <i>SX</i> ₄₀		1 8.5 121°54	1°0/ 8.8	18		88505	2001 <i>QT</i> ₁₄₀		1 8.5 108°28	5°8/ 7.6	18	
12 3	7 44.07	+18 15.7	2.224	3.007	13.3	21.9	12 3	7 51.80	+35 16.2	1.516	2.322	17.4	19.0
12 13	7 38.45	+18 24.0	2.150	3.024	10.2	21.7	12 13	7 45.91	+35 46.5	1.445	2.325	13.8	18.8
12 23	7 30.70	+18 38.4	2.101	3.039	6.7	21.5	12 23	7 36.27	+36 9.6	1.395	2.329	9.9	18.6
1 2	7 21.47	+18 56.9	2.080	3.055	2.9	21.3	1 2	7 23.88	+36 17.6	1.370	2.332	6.5	18.4
1 12	7 11.68	+19 17.4	2.089	3.069	1.6	21.2	1 12	7 10.44	+36 4.7	1.371	2.335	6.2	18.4
1 22	7 2.33	+19 37.6	2.128	3.084	5.3	21.5	1 22	6 57.87	+35 30.0	1.400	2.338	9.4	18.6
2 1	6 54.34	+19 56.3	2.197	3.097	8.8	21.8	2 1	6 47.87	+34 37.4	1.454	2.341	13.3	18.8
2 11	6 48.41	+20 12.6	2.291	3.110	11.8	22.0	2 11	6 41.48	+33 33.6	1.529	2.344	16.9	19.1
238516	2004 <i>TM</i> ₁₀₉		1 8.5 108°37	0°0/ 8.5	17		299446	2006 <i>BG</i> ₃₇		1 8.5 170°51	0°5/ 8.6	18	
12 3	7 47.25	+19 51.1	1.714	2.510	16.1	21.2	12 3	7 46.30	+19 3.8	1.987	2.775	14.5	21.7
12 13	7 41.50	+20 20.5	1.648	2.529	12.3	21.0	12 13	7 40.60	+19 24.9	1.903	2.779	11.2	21.5
12 23	7 32.96	+20 57.5	1.605	2.547	8.0	20.8	12 23	7 32.36	+19 53.2	1.843	2.783	7.3	21.3
1 2	7 22.44	+21 38.0	1.588	2.565	3.2	20.6	1 2	7 22.25	+20 25.9	1.810	2.786	3.0	21.0
1 12	7 11.16	+22 17.8	1.600	2.582	1.7	20.5	1 12	7 11.31	+20 59.6	1.807	2.788	1.6	20.9
1 22	7 0.49	+22 53.0	1.642	2.598	6.4	20.8	1 22	7 0.73	+21 31.1	1.834	2.789	5.9	21.2
2 1	6 51.67	+23 21.9	1.711	2.614	10.7	21.1	2 1	6 51.67	+21 58.6	1.889	2.790	10.0	21.5
2 11	6 45.56	+23 44.1	1.804	2.630	14.3	21.4	2 11	6 44.98	+22 21.3	1.970	2.790	13.4	21.7
275763	2001 <i>PG</i> ₁₁		1 8.5 156°91	1°1/ 8.0	18		159111	2004 <i>VG</i> ₁₅		1 8.5 105°37	4°9/ 10.3	18	
12 3	7 41.64	+25 13.1	2.850	3.636	10.6	21.6	12 3	7 46.62	+ 7 22.1	1.893	2.651	16.2	20.8
12 13	7 36.32	+25 34.6	2.767	3.643	8.1	21.5	12 13	7 40.53	+ 7 17.8	1.831	2.679	13.0	20.6
12 23	7 29.23	+25 57.3	2.708	3.649	5.3	21.3	12 23	7 32.10	+ 7 29.2	1.791	2.706	9.4	20.5
1 2	7 20.87	+26 18.5	2.679	3.654	2.3	21.1	1 2	7 22.06	+ 7 56.0	1.777	2.731	6.1	20.3
1 12	7 12.01	+26 35.9	2.681	3.659	1.7	21.1	1 12	7 11.47	+ 8 36.6	1.792	2.756	4.9	20.3
1 22	7 3.43	+26 48.1	2.714	3.664	4.6	21.3	1 22	7 1.47	+ 9 27.2	1.836	2.781	7.0	20.5
2 1	6 55.90	+26 54.4	2.776	3.669	7.5	21.5	2 1	6 53.07	+10 23.8	1.909	2.804	10.2	20.7
2 11	6 50.04	+26 55.3	2.865	3.673	10.0	21.7	2 11	6 46.98	+11 22.3	2.007	2.826	13.3	20.9
467129	2016 <i>EP</i> ₇₅		1 8.5 250°25	5°0/ 7.2	18		322113	2010 <i>VM</i> ₁₅₉		1 8.5 21°48	2°8/ 9.3	18	
12 3	7 48.09	+36 3.5	2.170	2.958	13.4	21.4	12 3	7 40.98	+14 39.7	1.639	2.440	16.5	20.6
12 13	7 42.22	+36 34.9	2.077	2.946	10.7	21.2	12 13	7 36.91	+14 36.8	1.563	2.443	13.0	20.4
12 23	7 33.54	+37 0.6	2.007	2.934	7.8	21.0	12 23	7 30.14	+14 45.3	1.508	2.446	8.8	20.1
1 2	7 22.73	+37 14.8	1.964	2.921	5.4	20.8	1 2	7 21.39	+15 4.4	1.478	2.450	4.5	19.9
1 12	7 10.97	+37 13.0	1.950	2.908	5.3	20.8	1 12	7 11.79	+15 31.9	1.476	2.454	3.1	19.8
1 22	6 59.60	+36 53.4	1.965	2.894	7.8	20.9	1 22	7 2.64	+16 4.7	1.501	2.459	6.8	20.0
2 1	6 49.92	+36 17.8	2.007	2.881	10.9	21.1	2 1	6 55.13	+16 39.7	1.553	2.463	11.1	20.3
2 11	6 42.89	+35 30.1	2.073	2.867	13.8	21.3	2 11	6 50.18	+17 14.3	1.628	2.469	14.8	20.5
449086	2012 <i>RY</i> ₁₆		1 8.5 146°66	2°5/ 7.8	15		461041	2014 <i>WC</i> ₅₀₃		1 8.5 69°25	0°3/ 8.4	18	
12 3	7 52.75	+27 24.1	1.891	2.680	15.1	23.3	12 3	7 42.43	+21 3.0	1.877	2.679	14.7	20.9
12 13	7 45.65	+27 58.0	1.818	2.695	11.6	23.1	12 13	7 37.75	+21 32.7	1.803	2.687	11.3	20.7
12 23	7 35.63	+28 32.1	1.769	2.709	7.7	22.9	12 23	7 30.56	+22 8.6	1.751	2.696	7.3	20.5
1 2	7 23.51	+29 1.2	1.748	2.721	3.7	22.6	1 2	7 21.53	+22 47.3	1.727	2.704	2.9	20.2
1 12	7 10.58	+29 20.4	1.757	2.733	3.1	22.6	1 12	7 11.74	+23 24.9	1.731	2.712	1.7	20.2
1 22	6 58.29	+29 27.6	1.796	2.744	6.9	22.9	1 22	7 2.38	+23 58.0	1.764	2.721	6.1	20.5
2 1	6 47.93	+29 23.2	1.864	2.753	10.7	23.1	2 1	6 54.57	+24 24.8	1.825	2.729	10.1	20.7
2 11	6 40.41	+29 10.0	1.955	2.761	14.1	23.4	2 11	6 49.17	+24 44.8	1.910	2.738	13.5	21.0
117138	2004 <i>PS</i> ₈₅		1 8.5 124°90	0°9/ 8.2	18		322455	2011 <i>UG</i> ₃₆		1 8.5 339°07	0°0/ 8.4	18	
12 3	7 48.38	+22 48.6	1.876	2.669	15.0	20.4	12 3	7 40.81	+20 27.4	1.349	2.175	18.1	20.9
12 13	7 42.20	+23 17.8	1.807	2.686	11.5	20.2	12 13	7 37.60	+20 45.5	1.269	2.166	14.1	20.6
12 23	7 33.34	+23 51.2	1.761	2.703	7.4	20.0	12 23	7 31.06	+21 12.9	1.209	2.158	9.2	20.3
1 2	7 22.58	+24 24.7	1.743	2.720	3.0	19.8	1 2	7 21.90	+21 46.2	1.173	2.150	3.7	20.0
1 12	7 11.10	+24 54.2	1.755	2.735	2.0	19.7	1 12	7 11.49	+22 20.7	1.162	2.144	2.0	19.8
1 22	7 0.20	+25 16.7	1.796	2.750	6.3	20.1	1 22	7 1.48	+22 52.0	1.178	2.138	7.7	20.2
2 1	6 51.07	+25 31.5	1.866	2.764	10.2	20.3	2 1	6 53.49	+23 17.4	1.218	2.133	13.0	20.4
2 11	6 44.53	+25 39.3	1.960	2.777	13.6	20.6	2 11	6 48.70	+23 36.1	1.279	2.129	17.4	20.7
190703	2001 <i>FW</i> ₁₂₃		1 8.5 335°59	6°7/ 6.7	18		90045	2002 <i>VC</i> ₆		1 8.5 122°79	2°9/ 7.3	18	
12 3	7 46.85	+39 19.4	1.956	2.750	14.5	19.6	12 3	7 47.93	+27 38.5	2.152	2.942	13.5	19.6
12 13	7 41.62	+40 8.2	1.879	2.746	11.8	19.4	12 13	7 41.74	+28 43.4	2.084	2.961	10.3	19.4
12 23	7 33.29	+40 49.2	1.823	2.743	9.0	19.2	12 23	7 33.03	+29 49.6	2.041	2.980	6.9	19.2
1 2	7 22.65	+41 15.0	1.794	2.740	7.0	19.1	1 2	7 22.50	+30 51.1	2.027	2.997	3.6	19.1
1 12	7 11.04	+41 20.1	1.792	2.737	7.0	19.1	1 12	7 11.22	+31 42.7	2.043	3.014	3.5	19.1
1 22	6 59.99	+41 2.7	1.817	2.734	9.2	19.2	1 22	7 0.40	+32 21.0	2.089	3.030	6.5	19.3
2 1	6 50.92	+40 25.2	1.867	2.731	12.0	19.4	2 1	6 51.16	+32 45.4	2.164	3.046	9.8	19.5
2 11	6 44.81	+39 32.7	1.940	2.729	14.8	19.5	2 11	6 44.32	+32 57.4	2.264	3.061	12.7	19.8
166721	2002 <i>TQ</i> ₂₂₇		1 8.5 52°09	0°8/ 8.7	18		190730	2001 <i>PY</i> <					

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
461241	2015 <i>WG</i> ₁₄		1 8.5 32°25' 0.2"/ 8.5 16				196583	2003 <i>QM</i> ₄₈		1 8.5 109°87' 0.2"/ 8.6 18			
12 3	7 42.51	+19 54.3	1.167	1.999	20.0	20.9	12 3	7 42.48	+20 51.8	2.195	2.988	13.2	20.9
12 13	7 38.92	+20 14.7	1.113	2.013	15.3	20.7	12 13	7 37.39	+20 59.4	2.118	2.997	10.1	20.7
12 23	7 31.79	+20 45.3	1.078	2.028	9.9	20.4	12 23	7 30.13	+21 11.3	2.064	3.006	6.5	20.5
1 2	7 22.10	+21 21.9	1.066	2.044	4.0	20.2	1 2	7 21.34	+21 25.3	2.038	3.014	2.7	20.2
1 12	7 11.48	+21 59.0	1.080	2.062	2.1	20.1	1 12	7 11.94	+21 39.2	2.041	3.023	1.4	20.1
1 22	7 1.73	+22 31.9	1.118	2.080	7.9	20.5	1 22	7 2.94	+21 51.1	2.075	3.031	5.3	20.4
2 1	6 54.41	+22 58.1	1.181	2.099	13.1	20.8	2 1	6 55.29	+22 0.1	2.137	3.040	8.9	20.7
2 11	6 50.49	+23 17.0	1.264	2.118	17.4	21.2	2 11	6 49.71	+22 6.1	2.225	3.048	12.0	20.9
231811	2000 <i>GQ</i> ₂₁		1 8.5 149°01' 4.3"/ 6.9 18				461831	2006 <i>BD</i> ₂₀₇		1 8.5 197°48' 0.8"/ 8.7 18			
12 3	7 44.65	+34 43.2	2.475	3.263	12.0	20.9	12 3	7 41.93	+19 14.8	2.177	2.968	13.3	22.3
12 13	7 39.13	+35 25.4	2.396	3.267	9.4	20.7	12 13	7 37.07	+19 18.6	2.089	2.967	10.3	22.1
12 23	7 31.30	+36 3.5	2.343	3.271	6.7	20.5	12 23	7 30.00	+19 27.9	2.025	2.966	6.7	21.9
1 2	7 21.80	+36 32.7	2.317	3.275	4.6	20.4	1 2	7 21.32	+19 41.0	1.989	2.964	2.9	21.7
1 12	7 11.62	+36 49.1	2.321	3.279	4.6	20.4	1 12	7 11.93	+19 55.8	1.982	2.963	1.6	21.5
1 22	7 1.83	+36 50.9	2.354	3.282	6.7	20.5	1 22	7 2.86	+20 10.4	2.005	2.961	5.4	21.8
2 1	6 53.46	+36 39.0	2.415	3.285	9.4	20.7	2 1	6 55.07	+20 23.6	2.056	2.960	9.1	22.0
2 11	6 47.26	+36 15.9	2.500	3.288	11.9	20.9	2 11	6 49.35	+20 34.6	2.132	2.958	12.4	22.2
243381	Alessio		1 8.5 240°34' 3.5"/ 8.6 18				449681	2014 <i>LC</i> ₃		1 8.5 6°40' 0.4"/ 8.6 17			
12 3	7 50.91	+16 38.4	1.941	2.716	15.3	20.4	12 3	7 43.14	+18 35.7	1.310	2.131	18.8	21.4
12 13	7 44.26	+15 29.7	1.836	2.701	12.1	20.1	12 13	7 39.40	+19 7.1	1.237	2.131	14.6	21.1
12 23	7 34.83	+14 22.7	1.755	2.685	8.4	19.8	12 23	7 32.22	+19 51.0	1.184	2.131	9.6	20.8
1 2	7 23.30	+13 19.0	1.701	2.669	4.8	19.6	1 2	7 22.38	+20 43.7	1.154	2.132	3.9	20.5
1 12	7 10.77	+12 20.4	1.679	2.652	3.9	19.5	1 12	7 11.33	+21 38.9	1.151	2.133	2.1	20.4
1 22	6 58.54	+11 28.9	1.687	2.634	7.3	19.7	1 22	7 0.77	+22 31.0	1.174	2.134	7.8	20.7
2 1	6 47.87	+10 46.1	1.724	2.615	11.3	19.9	2 1	6 52.34	+23 15.9	1.222	2.136	13.0	21.0
2 11	6 39.73	+10 12.5	1.786	2.596	15.0	20.1	2 11	6 47.20	+23 52.0	1.291	2.138	17.5	21.3
176865	2002 <i>TB</i> ₂₉₆		1 8.5 83°68' 0.7"/ 8.6 18 R				463460	2013 <i>PN</i> ₁₆		1 8.5 245°57' 0.7"/ 8.6 17			
12 3	7 48.89	+21 57.7	1.769	2.564	15.7	19.4	12 3	7 44.52	+21 8.2	2.106	2.897	13.7	21.9
12 13	7 42.49	+21 28.5	1.706	2.585	12.1	19.3	12 13	7 39.21	+20 52.9	2.008	2.886	10.6	21.7
12 23	7 33.43	+21 1.5	1.665	2.607	7.8	19.0	12 23	7 31.48	+20 40.4	1.934	2.875	7.0	21.4
1 2	7 22.61	+20 35.6	1.652	2.628	3.2	18.8	1 2	7 21.94	+20 29.3	1.888	2.864	2.9	21.2
1 12	7 11.26	+20 9.7	1.667	2.649	1.8	18.7	1 12	7 11.59	+20 18.2	1.871	2.853	1.6	21.0
1 22	7 0.70	+19 44.0	1.713	2.669	6.2	19.1	1 22	7 1.52	+20 6.3	1.885	2.841	5.8	21.3
2 1	6 52.04	+19 19.2	1.786	2.690	10.3	19.4	2 1	6 52.84	+19 53.6	1.927	2.829	9.7	21.5
2 11	6 46.04	+18 56.2	1.884	2.709	13.7	19.6	2 11	6 46.39	+19 40.5	1.993	2.817	13.2	21.7
383675	2007 <i>TL</i> ₂₁₁		1 8.5 149°54' 2.8"/ 9.3 18				490134	2008 <i>UW</i> ₁₂₄		1 8.5 81°23' 5.1"/ 7.5 18			
12 3	7 40.21	+13 34.7	2.515	3.288	12.2	21.0	12 3	7 50.66	+32 34.3	1.473	2.284	17.6	21.3
12 13	7 35.36	+13 12.4	2.429	3.291	9.6	20.8	12 13	7 44.91	+33 18.8	1.414	2.299	13.8	21.0
12 23	7 28.68	+12 57.2	2.366	3.295	6.7	20.7	12 23	7 35.55	+33 59.1	1.376	2.314	9.5	20.8
1 2	7 20.72	+12 49.2	2.332	3.298	3.8	20.5	1 2	7 23.60	+34 27.4	1.362	2.329	5.9	20.7
1 12	7 12.24	+12 48.0	2.328	3.300	3.0	20.4	1 12	7 10.75	+34 37.5	1.376	2.343	5.6	20.7
1 22	7 4.05	+12 52.6	2.353	3.303	5.3	20.6	1 22	6 58.82	+34 27.4	1.417	2.358	9.0	20.9
2 1	6 56.93	+13 1.8	2.408	3.306	8.3	20.8	2 1	6 49.42	+34 0.1	1.483	2.373	12.9	21.2
2 11	6 51.52	+13 14.2	2.488	3.308	11.0	21.0	2 11	6 43.51	+33 20.9	1.571	2.387	16.4	21.5
203078	2000 <i>QR</i> ₅₉		1 8.5 96°44' 0.5"/ 8.3 18				307859	2004 <i>AV</i> ₈		1 8.5 280°47' 6.2"/ 10.5 18			
12 3	7 48.04	+21 30.5	1.664	2.464	16.4	20.9	12 3	7 40.75	+ 5 39.7	1.825	2.592	16.4	20.5
12 13	7 42.17	+21 59.3	1.603	2.486	12.5	20.7	12 13	7 36.70	+ 5 22.9	1.724	2.574	13.6	20.2
12 23	7 33.43	+22 34.0	1.564	2.508	8.1	20.5	12 23	7 30.10	+ 5 23.1	1.643	2.555	10.3	20.0
1 2	7 22.67	+23 10.3	1.552	2.529	3.2	20.3	1 2	7 21.49	+ 5 42.8	1.587	2.536	7.3	19.8
1 12	7 11.21	+23 43.7	1.569	2.550	1.9	20.2	1 12	7 11.81	+ 6 22.0	1.557	2.517	6.2	19.6
1 22	7 0.45	+24 10.9	1.614	2.570	6.6	20.6	1 22	7 2.22	+ 7 18.1	1.556	2.498	8.3	19.7
2 1	6 51.64	+24 30.7	1.687	2.590	10.8	20.9	2 1	6 53.92	+ 8 26.7	1.581	2.479	11.7	19.9
2 11	6 45.64	+24 43.6	1.784	2.609	14.4	21.2	2 11	6 47.93	+ 9 42.2	1.629	2.460	15.3	20.1
92554	2000 <i>OK</i> ₃₈		1 8.5 67°89' 5.7"/ 9.9 18				119108	2001 <i>OC</i> ₆₄		1 8.5 45°39' 0.2"/ 8.5 17			
12 3	7 48.14	+ 9 46.4	1.434	2.218	19.3	19.2	12 3	7 45.20	+18 55.7	1.112	1.942	20.9	18.8
12 13	7 42.15	+ 9 5.8	1.387	2.251	15.3	19.0	12 13	7 41.02	+19 32.0	1.066	1.964	16.0	18.6
12 23	7 33.30	+ 8 41.3	1.361	2.284	11.0	18.8	12 23	7 33.14	+20 20.6	1.038	1.987	10.3	18.3
1 2	7 22.56	+ 8 34.3	1.358	2.317	7.0	18.7	1 2	7 22.65	+21 15.8	1.033	2.011	4.1	18.1
1 12	7 11.33	+ 8 43.8	1.383	2.350	5.8	18.7	1 12	7 11.30	+22 10.6	1.054	2.036	2.2	18.0
1 22	7 1.04	+ 9 7.0	1.435	2.382	8.3	18.9	1 22	7 0.97	+22 59.1	1.100	2.061	8.1	18.4
2 1	6 52.88	+ 9 39.9	1.513	2.414	12.0	19.2	2 1	6 53.26	+23 38.1	1.170	2.086	13.3	18.8
2 11	6 47.59	+10 18.2	1.614	2.445	15.4	19.5	2 11	6 49.11	+24 7.1	1.260	2.112	17.6	19.1
32188	2000 <i>NR</i> ₂₅		1 8.5 225°89' 1.8"/ 9.5 18				236034	2005 <i>GS</i> ₁₇₀		1 8.5 159°88' 4.4"/ 5.9 17			
12 3	7 39.83	+12 45.4	2.616	3.386	11.9	19.0	12 3	7 44.54	+37 13.3	3.196	3.970	9.8	21.0
12 13	7 35.17	+13 24.4	2.518	3.381	9.3	18.8	12 13	7 38.70	+38 19.7	3.119	3.976	7.9	20.8
12 23	7 28.66	+14 14.2	2.444	3.375	6.4	18.6	12 23	7 30.91	+39 22.1	3.067	3.983	5.9	20.7
1 2	7 20.77	+15 13.1	2.399	3.369	3.2	18.4	1 2	7 21.67	+40 15.7	3.045	3.988	4.5	20.6
1 12	7 12.21	+16 18.2	2.385	3.363	2.0	18.3	1 12	7 11.76	+40 56.8	3.053	3.994	4.7	20.6
1 22	7 3.77	+17 26.2	2.402	3.357	4.8	18.4	1 22	7 2.06	+41 23.3	3.092	3.999	6.3	20.7
2 1	6 56.29	+18 33.4	2.450	3.351	8.0	18.6	2 1	6 53.43	+41 35.2	3.160	4.003	8.2	20.9
2 11	6 50.43	+19 37.4	2.525	3.344	10.9	18.8	2 11	6 46.57	+41 34.4	3.252	4.007	10.1	21.0
7055	Fabiopagan		1 8.5 126°59' 5.6"/ 5.9 18 R				295321	2008 <i>GT</i> ₁₃₈		1 8.5 15°81' 10.1"/ 11.5 18			
12 3	7 52.67	+32 28.4	1.923										

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
10593	Susannesandra		1 8.5	57°57	0°0/ 8.3	18	417065	2005 UQ ₂₁₉		1 8.5	81°56	0°4/ 8.6	18
12 3	7 41.90	+20 55.5	2.019	2.818	13.9	17.6	12 3	7 44.42	+20 56.8	1.873	2.671	14.9	21.3
12 13	7 37.04	+21 12.9	1.956	2.839	10.6	17.4	12 13	7 39.16	+20 56.1	1.803	2.685	11.4	21.1
12 23	7 29.92	+21 35.2	1.916	2.859	6.8	17.2	12 23	7 31.40	+20 59.9	1.757	2.699	7.4	20.9
1 2	7 21.26	+21 59.8	1.903	2.880	2.7	17.0	1 2	7 21.90	+21 6.1	1.737	2.713	3.0	20.7
1 12	7 12.05	+22 23.6	1.920	2.901	1.5	16.9	1 12	7 11.77	+21 12.3	1.746	2.727	1.6	20.6
1 22	7 3.37	+22 44.3	1.966	2.922	5.5	17.2	1 22	7 2.19	+21 16.8	1.784	2.741	5.9	20.9
2 1	6 56.16	+23 0.8	2.040	2.944	9.2	17.5	2 1	6 54.25	+21 19.1	1.850	2.755	9.9	21.2
2 11	6 51.14	+23 12.8	2.138	2.965	12.3	17.7	2 11	6 48.72	+21 19.0	1.940	2.768	13.3	21.4
64689	2001 XD ₇₉		1 8.5	110°24	2°1/ 7.6	18	166198	2002 EK ₁₀₉		1 8.5	204°77	1°1/ 8.8	18
12 3	7 44.90	+24 56.1	2.020	2.818	14.0	19.0	12 3	7 45.06	+17 57.1	2.005	2.792	14.4	21.3
12 13	7 39.60	+25 55.3	1.948	2.831	10.7	18.8	12 13	7 39.74	+18 8.7	1.913	2.788	11.2	21.0
12 23	7 31.76	+26 58.4	1.901	2.843	7.0	18.6	12 23	7 31.91	+18 27.9	1.844	2.783	7.4	20.8
1 2	7 22.07	+28 0.0	1.880	2.855	3.2	18.4	1 2	7 22.18	+18 52.8	1.802	2.777	3.3	20.5
1 12	7 11.58	+28 54.8	1.890	2.867	2.8	18.4	1 12	7 11.56	+19 20.5	1.790	2.771	1.8	20.4
1 22	7 1.51	+29 38.9	1.930	2.878	6.4	18.6	1 22	7 1.22	+19 48.4	1.808	2.765	6.0	20.7
2 1	6 52.98	+30 10.9	1.998	2.890	10.0	18.9	2 1	6 52.28	+20 14.3	1.855	2.757	10.0	20.9
2 11	6 46.85	+30 31.5	2.090	2.900	13.1	19.1	2 11	6 45.66	+20 37.1	1.926	2.749	13.6	21.1
138267	2000 GQ ₁₅		1 8.5	18°43	9°8/ 11.3	18	382023	2011 BX ₉₁		1 8.5	203°63	1°9/ 8.1	18
12 3	7 39.88	- 0 16.2	1.599	2.354	18.8	19.5	12 3	7 47.21	+29 10.8	2.386	3.172	12.4	21.2
12 13	7 36.05	- 1 19.8	1.527	2.356	16.1	19.3	12 13	7 41.00	+29 6.6	2.294	3.169	9.6	21.0
12 23	7 29.61	- 2 1.9	1.473	2.359	13.2	19.2	12 23	7 32.49	+28 59.5	2.226	3.165	6.4	20.8
1 2	7 21.23	- 2 17.5	1.442	2.362	10.8	19.0	1 2	7 22.34	+28 46.7	2.187	3.161	3.1	20.6
1 12	7 12.03	- 2 4.3	1.435	2.366	9.8	19.0	1 12	7 11.53	+28 26.1	2.179	3.156	2.5	20.6
1 22	7 3.23	- 1 23.9	1.453	2.370	11.0	19.1	1 22	7 1.15	+27 57.3	2.202	3.151	5.6	20.8
2 1	6 56.01	- 0 21.4	1.495	2.375	13.5	19.2	2 1	6 52.18	+27 21.6	2.254	3.146	9.0	21.0
2 11	6 51.26	+ 0 55.7	1.558	2.379	16.3	19.4	2 11	6 45.41	+26 41.4	2.332	3.140	12.0	21.1
55608	2002 SO ₁		1 8.5	8°14	2°0/ 7.9	18	365636	2010 UX ₈₃		1 8.5	57°72	6°3/ 9.9	18
12 3	7 40.71	+25 51.3	1.787	2.600	14.9	19.0	12 3	7 43.82	+ 8 35.4	1.604	2.385	17.7	20.7
12 13	7 36.72	+26 19.7	1.711	2.601	11.4	18.7	12 13	7 38.82	+ 7 38.3	1.545	2.404	14.3	20.6
12 23	7 30.05	+26 50.5	1.657	2.603	7.5	18.5	12 23	7 31.22	+ 6 55.8	1.506	2.425	10.6	20.4
1 2	7 21.42	+27 19.4	1.630	2.606	3.4	18.3	1 2	7 21.83	+ 6 30.3	1.493	2.445	7.3	20.2
1 12	7 11.94	+27 42.3	1.630	2.609	2.7	18.2	1 12	7 11.85	+ 6 22.8	1.505	2.465	6.3	20.2
1 22	7 2.92	+27 56.5	1.659	2.613	6.7	18.5	1 22	7 2.52	+ 6 31.7	1.545	2.486	8.5	20.4
2 1	6 55.55	+28 1.2	1.714	2.617	10.7	18.7	2 1	6 54.97	+ 6 54.0	1.611	2.507	11.7	20.6
2 11	6 50.72	+27 57.7	1.792	2.622	14.1	19.0	2 11	6 49.96	+ 7 25.4	1.700	2.528	14.9	20.9
98329	2000 SB ₂₇₈		1 8.5	137°90	1°5/ 8.1	18	348626	2005 Y7 ₈₅		1 8.5	73°68	0°1/ 8.5	15
12 3	7 48.25	+24 59.8	1.936	2.729	14.6	20.4	12 3	7 53.33	+23 38.0	1.399	2.204	18.6	21.1
12 13	7 42.15	+25 25.8	1.862	2.742	11.2	20.2	12 13	7 46.36	+23 20.8	1.350	2.236	14.2	20.9
12 23	7 33.39	+25 54.0	1.812	2.754	7.3	20.0	12 23	7 36.12	+23 5.7	1.323	2.267	9.1	20.7
1 2	7 22.70	+26 20.2	1.789	2.765	3.1	19.8	1 2	7 23.74	+22 49.8	1.321	2.298	3.6	20.5
1 12	7 11.27	+26 40.4	1.797	2.776	2.3	19.8	1 12	7 10.89	+22 31.0	1.347	2.328	1.9	20.4
1 22	7 0.38	+26 52.4	1.834	2.786	6.3	20.0	1 22	6 59.22	+22 9.2	1.401	2.358	7.2	20.8
2 1	6 51.21	+26 55.9	1.899	2.795	10.2	20.3	2 1	6 50.07	+21 45.6	1.481	2.388	11.8	21.2
2 11	6 44.61	+26 52.2	1.988	2.804	13.5	20.5	2 11	6 44.22	+21 22.0	1.585	2.417	15.6	21.5
271738	2004 RV ₂₉₈		1 8.5	175°28	3°1/ 7.6	18	394399	2007 EY ₁₇₇		1 8.5	103°88	3°8/ 9.4	17
12 3	7 45.14	+30 9.1	2.101	2.898	13.5	21.0	12 3	7 46.61	+13 30.5	1.564	2.355	17.6	21.5
12 13	7 39.81	+30 39.3	2.019	2.899	10.5	20.8	12 13	7 41.18	+13 6.7	1.497	2.370	13.9	21.2
12 23	7 31.91	+31 8.0	1.961	2.900	7.1	20.6	12 23	7 32.89	+12 54.5	1.451	2.384	9.6	21.0
1 2	7 22.14	+31 30.7	1.930	2.900	3.9	20.4	1 2	7 22.55	+12 53.9	1.429	2.397	5.4	20.8
1 12	7 11.57	+31 43.1	1.929	2.900	3.6	20.4	1 12	7 11.45	+13 3.9	1.436	2.411	4.0	20.8
1 22	7 1.43	+31 43.6	1.956	2.900	6.7	20.6	1 22	7 0.98	+13 22.0	1.470	2.424	7.4	21.0
2 1	6 52.85	+31 32.4	2.011	2.900	10.1	20.8	2 1	6 52.42	+13 45.7	1.531	2.436	11.6	21.3
2 11	6 46.70	+31 12.0	2.091	2.900	13.2	21.0	2 11	6 46.63	+14 12.2	1.615	2.449	15.3	21.5
491965	2013 DS ₆		1 8.5	99°34	3°3/ 7.8	18	48844	Belloves		1 8.5	325°57	7°6/ 8.9	18
12 3	7 48.42	+29 15.4	1.594	2.402	16.6	21.2	12 3	8 1.50	+40 0.5	1.061	1.877	22.6	19.0
12 13	7 42.95	+29 43.3	1.524	2.410	12.8	21.0	12 13	7 55.06	+39 41.1	0.988	1.871	18.5	18.7
12 23	7 34.22	+30 10.2	1.475	2.418	8.6	20.7	12 23	7 43.05	+39 1.3	0.932	1.865	13.6	18.4
1 2	7 23.11	+30 30.0	1.453	2.425	4.5	20.5	1 2	7 26.84	+37 49.3	0.897	1.859	9.0	18.1
1 12	7 11.08	+30 37.8	1.458	2.432	4.0	20.5	1 12	7 9.19	+35 59.4	0.887	1.854	7.9	18.0
1 22	6 59.74	+30 31.6	1.491	2.440	7.8	20.8	1 22	6 53.21	+33 37.3	0.902	1.850	11.7	18.2
2 1	6 50.56	+30 12.8	1.550	2.447	12.0	21.0	2 1	6 41.37	+30 58.2	0.941	1.846	17.0	18.5
2 11	6 44.52	+29 44.7	1.631	2.454	15.7	21.3	2 11	6 34.82	+28 18.8	1.000	1.842	21.8	18.8
308741	2006 JJ ₈		1 8.5	207°87	1°2/ 8.1	18	456337	2006 SA ₄₁₀		1 8.5	20°55	6°2/ 10.1	17
12 3	7 46.29	+23 51.9	2.007	2.801	14.2	21.9	12 3	7 40.31	+ 8 47.8	1.433	2.230	18.7	21.1
12 13	7 40.80	+24 20.7	1.916	2.796	10.9	21.6	12 13	7 36.66	+ 8 7.8	1.364	2.235	15.2	20.9
12 23	7 32.66	+24 53.4	1.848	2.790	7.1	21.4	12 23	7 30.13	+ 7 44.2	1.315	2.240	11.2	20.6
1 2	7 22.50	+25 26.1	1.808	2.784	3.0	21.1	1 2	7 21.50	+ 7 39.7	1.289	2.247	7.5	20.5
1 12	7 11.38	+25 54.7	1.797	2.777	2.1	21.0	1 12	7 12.00	+ 7 54.1	1.288	2.254	6.3	20.4
1 22	7 0.55	+26 16.3	1.817	2.770	6.3	21.3	1 22	7 3.03	+ 8 25.1	1.314	2.262	8.8	20.6
2 1	6 51.23	+26 29.6	1.864	2.761	10.3	21.5	2 1	6 55.87	+ 9 8.4	1.363	2.270	12.6	20.8
2 11	6 44.36	+26 35.4	1.936	2.753	13.8	21.7	2 11	6 51.44	+ 9 58.6	1.435	2.279	16.2	21.0
462061	2007 ES ₈₂		1 8.5	8°52	3°7/ 7.9	18	368591	2004 RQ ₄₃		1 8.5	180°03	2°6/ 7.8	18
12 3	7 40.53	+29 22.7	1.176	2.018	19.2	20.9	12 3	7 46.09	+29 52.5	2.323	3.113	12.6	

EPHEMERIDES

1 8.5

1 8.5

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
7780	Maren		1 8.5 233°33	6°0/10.2	18	R	348154	2004 GP ₁₁		1 8.5 254°03	1°1/ 9.1	17	
12 3	7 42.14	+ 6 2.4	2.033	2.791	15.2	18.4	12 3	7 40.63	+14 49.6	2.714	3.485	11.5	21.1
12 13	7 37.40	+ 5 26.6	1.939	2.782	12.6	18.2	12 13	7 35.86	+15 37.1	2.605	3.470	8.9	20.9
12 23	7 30.36	+ 5 4.3	1.866	2.773	9.6	18.0	12 23	7 29.21	+16 34.7	2.521	3.455	6.0	20.7
1 2	7 21.59	+ 4 57.9	1.818	2.763	7.0	17.8	1 2	7 21.11	+17 40.2	2.467	3.440	2.7	20.4
1 12	7 11.98	+ 5 8.1	1.799	2.753	6.1	17.7	1 12	7 12.26	+18 50.5	2.444	3.424	1.5	20.3
1 22	7 2.57	+ 5 33.7	1.807	2.743	7.9	17.8	1 22	7 3.45	+20 1.7	2.453	3.408	4.7	20.5
2 1	6 54.42	+ 6 11.9	1.843	2.732	10.9	18.0	2 1	6 55.50	+21 10.7	2.493	3.392	7.9	20.7
2 11	6 48.35	+ 6 58.7	1.903	2.721	13.9	18.2	2 11	6 49.15	+22 14.8	2.560	3.375	10.8	20.9
236277	2005 YS ₂₄₇		1 8.5 149°75	0°2/ 8.5	18		457432	2008 UH ₆₉		1 8.5 127°58	4°5/10.3	18	
12 3	7 47.13	+20 49.9	1.878	2.671	15.0	21.3	12 3	7 40.13	+ 7 20.8	2.369	3.125	13.3	21.6
12 13	7 41.40	+21 16.3	1.801	2.680	11.6	21.1	12 13	7 35.41	+ 7 5.7	2.288	3.133	10.8	21.5
12 23	7 32.99	+21 48.9	1.746	2.688	7.5	20.9	12 23	7 28.82	+ 7 2.7	2.230	3.141	8.0	21.3
1 2	7 22.63	+22 24.2	1.719	2.696	3.0	20.6	1 2	7 20.90	+ 7 12.7	2.198	3.149	5.5	21.1
1 12	7 11.44	+22 58.1	1.722	2.703	1.7	20.6	1 12	7 12.43	+ 7 34.9	2.196	3.156	4.6	21.1
1 22	7 0.70	+23 27.5	1.754	2.709	6.2	20.9	1 22	7 4.26	+ 8 7.5	2.223	3.164	6.2	21.2
2 1	6 51.62	+23 50.7	1.814	2.715	10.3	21.1	2 1	6 57.19	+ 8 47.8	2.278	3.171	8.9	21.4
2 11	6 45.07	+24 7.6	1.899	2.720	13.8	21.4	2 11	6 51.88	+ 9 32.6	2.359	3.177	11.6	21.6
334273	2001 UY ₆₂		1 8.5 90°40	6°1/ 6.3	18		65471	2002 YT ₅		1 8.5 276°84	2°2/ 7.9	18	
12 3	7 47.72	+41 8.1	2.505	3.280	12.2	20.8	12 3	7 42.51	+29 2.2	2.437	3.232	11.9	19.7
12 13	7 41.58	+42 8.1	2.447	3.300	9.9	20.7	12 13	7 37.51	+29 15.6	2.343	3.222	9.3	19.5
12 23	7 32.94	+42 59.6	2.413	3.319	7.7	20.6	12 23	7 30.33	+29 27.7	2.272	3.212	6.2	19.3
1 2	7 22.55	+43 36.9	2.406	3.339	6.3	20.5	1 2	7 21.55	+29 35.2	2.229	3.202	3.1	19.1
1 12	7 11.52	+43 55.7	2.428	3.358	6.4	20.5	1 12	7 12.06	+29 35.5	2.217	3.192	2.7	19.0
1 22	7 1.05	+43 54.8	2.478	3.377	8.0	20.7	1 22	7 2.85	+29 27.3	2.234	3.182	5.7	19.2
2 1	6 52.22	+43 35.9	2.555	3.396	10.0	20.8	2 1	6 54.91	+29 10.8	2.279	3.172	8.9	19.4
2 11	6 45.82	+43 3.0	2.656	3.414	12.0	21.0	2 11	6 48.98	+28 47.7	2.350	3.162	11.8	19.6
113664	2002 TB ₈₉		1 8.5 273°21	4°9/ 7.6	18		367144	2006 UM ₂₃		1 8.5 25°05	2°9/ 9.2	18	
12 3	7 49.64	+32 3.6	1.431	2.245	17.8	19.5	12 3	7 42.65	+15 26.6	1.647	2.447	16.5	21.1
12 13	7 44.71	+32 37.0	1.347	2.235	14.1	19.2	12 13	7 38.22	+15 6.7	1.570	2.449	13.0	20.9
12 23	7 35.89	+33 7.6	1.284	2.224	9.8	18.9	12 23	7 31.06	+14 56.1	1.514	2.451	8.9	20.6
1 2	7 24.01	+33 27.6	1.245	2.214	5.9	18.7	1 2	7 21.90	+14 54.8	1.483	2.454	4.6	20.4
1 12	7 10.67	+33 29.9	1.233	2.203	5.5	18.6	1 12	7 11.88	+15 1.5	1.479	2.456	3.2	20.3
1 22	6 57.88	+33 11.7	1.247	2.193	9.4	18.8	1 22	7 2.33	+15 14.2	1.503	2.459	6.9	20.6
2 1	6 47.52	+32 35.3	1.286	2.182	14.0	19.0	2 1	6 54.46	+15 31.0	1.554	2.463	11.2	20.8
2 11	6 40.88	+31 46.5	1.346	2.172	18.2	19.3	2 11	6 49.19	+15 49.9	1.628	2.466	14.9	21.0
467701	2008 WY ₁₂₅		1 8.5 21°67	0°5/ 8.3	18		60799	2000 HV ₁₁		1 8.5 279°60	1°3/ 8.8	18	
12 3	7 40.15	+21 8.6	2.152	2.950	13.2	20.8	12 3	7 42.95	+18 39.2	1.795	2.595	15.3	19.6
12 13	7 35.85	+21 49.3	2.070	2.952	10.1	20.6	12 13	7 38.40	+18 36.7	1.707	2.589	11.9	19.4
12 23	7 29.32	+22 36.2	2.011	2.955	6.5	20.4	12 23	7 31.19	+18 41.2	1.642	2.583	7.9	19.1
1 2	7 21.15	+23 26.0	1.980	2.957	2.6	20.1	1 2	7 21.97	+18 51.0	1.602	2.577	3.5	18.8
1 12	7 12.24	+24 14.6	1.979	2.960	1.6	20.0	1 12	7 11.83	+19 3.9	1.590	2.571	2.0	18.7
1 22	7 3.61	+24 58.6	2.007	2.963	5.5	20.3	1 22	7 2.02	+19 17.8	1.608	2.566	6.4	19.0
2 1	6 56.26	+25 35.9	2.064	2.966	9.2	20.5	2 1	6 53.76	+19 31.0	1.652	2.560	10.7	19.2
2 11	6 50.98	+26 5.5	2.145	2.969	12.4	20.8	2 11	6 47.99	+19 42.8	1.720	2.554	14.5	19.4
490655	2010 GZ ₂₆		1 8.5 259°98	2°9/ 7.6	18		28577	2000 EW ₀₆		1 8.5 163°71	5°8/ 6.9	18	
12 3	7 46.18	+26 3.1	1.656	2.464	16.1	21.7	12 3	7 50.70	+38 29.7	2.195	2.976	13.5	18.7
12 13	7 41.53	+26 57.5	1.563	2.451	12.5	21.5	12 13	7 44.19	+39 14.3	2.119	2.981	10.9	18.5
12 23	7 33.62	+27 57.4	1.493	2.437	8.3	21.2	12 23	7 34.82	+39 51.5	2.067	2.985	8.1	18.3
1 2	7 23.08	+28 56.6	1.448	2.423	4.1	20.9	1 2	7 23.38	+40 14.8	2.041	2.988	6.1	18.2
1 12	7 11.14	+29 48.1	1.432	2.408	3.7	20.8	1 12	7 11.11	+40 19.6	2.044	2.991	6.1	18.2
1 22	6 59.40	+30 26.4	1.444	2.393	8.0	21.1	1 22	6 59.41	+40 4.3	2.077	2.994	8.2	18.3
2 1	6 49.44	+30 49.7	1.482	2.378	12.5	21.3	2 1	6 49.56	+39 31.1	2.136	2.996	10.9	18.5
2 11	6 42.53	+30 59.4	1.542	2.363	16.5	21.5	2 11	6 42.46	+38 44.7	2.219	2.998	13.5	18.7
426898	2013 WC ₆₂		1 8.5 264°07	4°4/ 9.5	18		492013	2013 FT ₂₄		1 8.5 233°15	0°7/ 8.7	18	
12 3	7 40.95	+10 28.6	2.302	3.070	13.4	20.6	12 3	7 44.89	+19 40.9	1.935	2.728	14.6	22.3
12 13	7 36.13	+ 9 41.4	2.213	3.068	10.8	20.4	12 13	7 39.79	+19 46.2	1.840	2.719	11.4	22.1
12 23	7 29.33	+ 9 2.7	2.148	3.067	7.9	20.3	12 23	7 32.06	+19 57.7	1.768	2.709	7.5	21.8
1 2	7 21.11	+ 8 33.9	2.110	3.065	5.3	20.1	1 2	7 22.33	+20 13.1	1.722	2.698	3.2	21.6
1 12	7 12.28	+ 8 15.9	2.101	3.063	4.5	20.0	1 12	7 11.63	+20 29.9	1.706	2.687	1.7	21.4
1 22	7 3.75	+ 8 8.4	2.121	3.062	6.5	20.2	1 22	7 1.18	+20 45.7	1.719	2.676	6.2	21.7
2 1	6 56.36	+ 8 10.5	2.169	3.060	9.4	20.3	2 1	6 52.19	+20 59.1	1.760	2.664	10.4	21.9
2 11	6 50.82	+ 8 20.1	2.242	3.059	12.1	20.5	2 11	6 45.62	+21 9.6	1.825	2.652	14.1	22.1
315639	2008 DK ₃₀		1 8.5 248°01	0°3/ 8.6	18		240045	2001 UV ₂₂₄		1 8.5 243°70	6°8/ 5.6	18	
12 3	7 43.44	+20 28.0	1.978	2.774	14.3	21.9	12 3	7 46.39	+42 7.1	2.462	3.238	12.4	20.4
12 13	7 38.63	+20 38.9	1.884	2.764	11.1	21.7	12 13	7 40.95	+43 15.7	2.383	3.234	10.2	20.3
12 23	7 31.28	+20 55.6	1.812	2.755	7.2	21.4	12 23	7 32.80	+44 16.8	2.328	3.230	8.2	20.2
1 2	7 21.99	+21 15.6	1.768	2.744	3.0	21.1	1 2	7 22.61	+45 3.7	2.299	3.226	6.9	20.1
1 12	7 11.78	+21 36.2	1.753	2.734	1.6	21.0	1 12	7 11.48	+45 31.1	2.299	3.222	7.1	20.1
1 22	7 1.82	+21 54.7	1.767	2.724	6.0	21.3	1 22	7 0.69	+45 36.8	2.326	3.218	8.7	20.2
2 1	6 53.28	+22 9.8	1.809	2.713	10.1	21.5	2 1	6 51.47	+45 21.9	2.380	3.214	10.9	20.3
2 11	6 47.07	+22 20.9	1.875	2.702	13.7	21.7	2 11	6 44.78	+44 50.3	2.456	3.209	13.0	20.4
366177	2012 GH ₂₄		1 8.5 312°71	3°5/ 9.2	18		133211	2003 QG ₇₁		1 8.5 179°47	4°0/ 7.3	18	
12 3	7 40.59	+15 1.8	1.566	2.372	16.9	20.3	12 3	7 48.42	+30 39.9	1.903	2.700	14.7	

EPHEMERIDES

1 8.5

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
92440	2000 <i>KG</i> ₁		1 8.5 243°50	1.4/ 8.9	18		379076	2008 <i>WT</i> ₁₂₅		1 8.5 43°67	0.7/ 8.3	18	
12 3	7 44.48	+16 55.3	1.599	2.400	16.9	20.1	12 3	7 42.00	+23 7.3	1.887	2.693	14.5	20.7
12 13	7 39.96	+17 12.8	1.511	2.394	13.2	19.9	12 13	7 37.38	+23 22.1	1.822	2.709	11.1	20.6
12 23	7 32.43	+17 41.7	1.445	2.387	8.8	19.6	12 23	7 30.32	+23 40.3	1.780	2.725	7.1	20.4
1 2	7 22.55	+18 19.8	1.405	2.380	3.9	19.3	1 2	7 21.56	+23 58.9	1.764	2.741	2.9	20.1
1 12	7 11.51	+19 3.0	1.392	2.372	2.2	19.1	1 12	7 12.19	+24 14.8	1.777	2.758	1.7	20.1
1 22	7 0.76	+19 47.3	1.407	2.365	7.0	19.4	1 22	7 3.36	+24 25.9	1.819	2.776	5.9	20.4
2 1	6 51.74	+20 28.9	1.448	2.357	11.8	19.7	2 1	6 56.13	+24 31.6	1.888	2.793	9.7	20.6
2 11	6 45.53	+21 6.0	1.513	2.350	15.9	19.9	2 11	6 51.25	+24 32.3	1.981	2.811	13.0	20.9
372569	2009 <i>UJ</i> ₄₉		1 8.5 155°62	2.3/ 7.7	18		378835	2008 <i>SH</i> ₂₈₃		1 8.5 328°91	1.0/ 8.2	18	
12 3	7 44.64	+27 35.5	2.215	3.010	13.0	21.6	12 3	7 41.31	+23 54.0	1.985	2.789	13.9	21.0
12 13	7 39.28	+28 10.7	2.134	3.014	10.0	21.4	12 13	7 37.00	+24 11.5	1.898	2.784	10.7	20.8
12 23	7 31.53	+28 46.6	2.078	3.018	6.6	21.2	12 23	7 30.22	+24 32.2	1.833	2.778	7.0	20.6
1 2	7 22.05	+29 19.0	2.049	3.022	3.3	21.0	1 2	7 21.59	+24 53.1	1.796	2.773	2.9	20.3
1 12	7 11.83	+29 43.8	2.051	3.026	2.9	21.0	1 12	7 12.13	+25 10.8	1.787	2.768	1.9	20.2
1 22	7 1.98	+29 58.8	2.082	3.029	6.1	21.2	1 22	7 2.99	+25 23.1	1.807	2.763	6.0	20.5
2 1	6 53.56	+30 3.7	2.141	3.032	9.5	21.4	2 1	6 55.29	+25 29.0	1.855	2.758	10.0	20.7
2 11	6 47.38	+29 59.8	2.225	3.034	12.5	21.6	2 11	6 49.90	+25 29.1	1.926	2.754	13.4	20.9
466730	2014 <i>YR</i> ₂₂		1 8.5 28°43	1.6/ 9.2	18		394421	2007 <i>HT</i> ₇₄		1 8.5 186°74	2.2/ 7.8	18	
12 3	7 39.62	+15 11.0	2.088	2.877	13.8	20.3	12 3	7 48.22	+25 44.2	1.931	2.726	14.6	21.9
12 13	7 35.42	+15 36.3	2.005	2.880	10.8	20.1	12 13	7 42.44	+26 27.0	1.846	2.726	11.3	21.7
12 23	7 29.04	+16 11.8	1.946	2.883	7.2	19.9	12 23	7 33.84	+27 13.2	1.784	2.726	7.4	21.5
1 2	7 21.06	+16 55.7	1.914	2.887	3.4	19.6	1 2	7 23.08	+27 57.4	1.750	2.724	3.4	21.2
1 12	7 12.36	+17 44.8	1.911	2.890	2.0	19.5	1 12	7 11.33	+28 34.4	1.745	2.722	2.9	21.2
1 22	7 3.95	+18 35.7	1.937	2.894	5.5	19.8	1 22	6 59.93	+29 0.9	1.770	2.719	6.8	21.4
2 1	6 56.81	+19 25.2	1.992	2.898	9.2	20.0	2 1	6 50.17	+29 15.7	1.823	2.716	10.7	21.6
2 11	6 51.69	+20 10.9	2.071	2.902	12.5	20.2	2 11	6 43.05	+29 20.3	1.900	2.711	14.2	21.9
241324	2007 <i>VL</i> ₁₀₉		1 8.5 107°96	1.0/ 8.2	18		54723	2001 <i>KW</i> ₁		1 8.5 119°13	5.4/ 10.8	18	
12 3	7 41.41	+24 27.8	2.489	3.282	11.8	21.6	12 3	7 43.55	+ 4 34.7	2.233	2.976	14.5	19.4
12 13	7 36.45	+24 47.4	2.410	3.290	9.0	21.4	12 13	7 38.02	+ 4 22.7	2.163	2.996	11.8	19.3
12 23	7 29.52	+25 8.8	2.356	3.298	5.8	21.2	12 23	7 30.50	+ 4 25.7	2.114	3.015	9.0	19.1
1 2	7 21.20	+25 29.4	2.330	3.306	2.4	21.0	1 2	7 21.60	+ 4 44.5	2.092	3.034	6.4	19.0
1 12	7 12.32	+25 46.6	2.334	3.314	1.7	21.0	1 12	7 12.18	+ 5 18.1	2.099	3.052	5.4	19.0
1 22	7 3.78	+25 58.7	2.369	3.322	5.0	21.2	1 22	7 3.16	+ 6 4.0	2.135	3.070	6.9	19.1
2 1	6 56.44	+26 5.0	2.433	3.330	8.2	21.4	2 1	6 55.40	+ 6 58.6	2.200	3.087	9.5	19.3
2 11	6 50.96	+26 6.1	2.522	3.338	11.0	21.6	2 11	6 49.57	+ 7 57.8	2.290	3.103	12.1	19.5
425872	2011 <i>FH</i> ₁₂		1 8.5 214°26	3.0/ 7.7	16		246733	2009 <i>BJ</i> ₆₂		1 8.5 67°16	3.9/ 7.7	18	
12 3	7 44.78	+30 21.3	2.220	3.015	12.9	21.9	12 3	7 46.12	+34 37.2	2.298	3.088	12.7	20.2
12 13	7 39.45	+30 45.0	2.134	3.013	10.0	21.7	12 13	7 40.35	+34 50.7	2.220	3.092	10.0	20.0
12 23	7 31.68	+31 6.9	2.072	3.010	6.8	21.5	12 23	7 32.17	+34 58.6	2.165	3.096	7.0	19.9
1 2	7 22.13	+31 22.8	2.038	3.008	3.7	21.3	1 2	7 22.30	+34 56.5	2.137	3.100	4.5	19.7
1 12	7 11.82	+31 29.0	2.033	3.005	3.4	21.3	1 12	7 11.81	+34 41.7	2.139	3.104	4.3	19.7
1 22	7 1.88	+31 24.0	2.057	3.002	6.4	21.4	1 22	7 1.85	+34 13.7	2.171	3.108	6.6	19.8
2 1	6 53.42	+31 8.4	2.110	2.999	9.7	21.6	2 1	6 53.47	+33 34.1	2.231	3.112	9.6	20.0
2 11	6 47.25	+30 44.3	2.187	2.995	12.7	21.8	2 11	6 47.43	+32 46.5	2.315	3.117	12.3	20.2
367188	2006 <i>YU</i> ₄₄		1 8.5 146°01	3.4/ 7.9	18		22574	1998 <i>HW</i> ₄₄		1 8.5 105°04	1.9/ 8.0	18	
12 3	7 47.90	+31 45.2	1.975	2.771	14.3	20.4	12 3	7 47.12	+25 36.7	1.701	2.506	15.9	19.1
12 13	7 42.05	+31 57.9	1.895	2.773	11.1	20.2	12 13	7 41.70	+26 4.2	1.631	2.517	12.2	18.9
12 23	7 33.44	+32 6.6	1.838	2.776	7.6	20.0	12 23	7 33.34	+26 33.9	1.584	2.527	7.9	18.7
1 2	7 22.84	+32 6.7	1.809	2.778	4.3	19.8	1 2	7 22.84	+27 1.1	1.562	2.538	3.5	18.4
1 12	7 11.46	+31 54.7	1.808	2.780	3.9	19.8	1 12	7 11.51	+27 21.3	1.569	2.548	2.7	18.4
1 22	7 0.66	+31 29.8	1.837	2.782	7.0	20.0	1 22	7 0.78	+27 31.9	1.605	2.558	6.9	18.7
2 1	6 51.66	+30 53.9	1.893	2.783	10.5	20.2	2 1	6 51.97	+27 32.8	1.668	2.568	11.1	18.9
2 11	6 45.32	+30 10.5	1.973	2.785	13.7	20.4	2 11	6 45.98	+27 25.7	1.754	2.578	14.7	19.2
454287	2014 <i>HV</i> ₁₈₆		1 8.5 189°81	3.1/ 9.4	18		206633	2003 <i>WO</i> ₁₇₀		1 8.5 299°80	1.9/ 9.4	17	
12 3	7 45.60	+13 19.5	1.895	2.674	15.4	22.3	12 3	7 40.58	+13 27.1	2.237	3.016	13.4	19.4
12 13	7 40.22	+13 13.2	1.807	2.674	12.2	22.1	12 13	7 36.40	+14 4.2	2.114	2.982	10.6	19.2
12 23	7 32.27	+13 17.7	1.741	2.672	8.5	21.8	12 23	7 29.93	+14 54.9	2.014	2.948	7.3	18.9
1 2	7 22.41	+13 32.5	1.702	2.670	4.6	21.6	1 2	7 21.57	+15 57.7	1.941	2.913	3.6	18.6
1 12	7 11.66	+13 55.9	1.692	2.668	3.3	21.5	1 12	7 12.11	+17 9.5	1.899	2.878	2.2	18.4
1 22	7 1.23	+14 25.6	1.711	2.664	6.6	21.7	1 22	7 2.51	+18 26.1	1.887	2.844	5.7	18.6
2 1	6 52.28	+14 58.7	1.758	2.660	10.5	21.9	2 1	6 53.87	+19 42.9	1.905	2.809	9.7	18.8
2 11	6 45.70	+15 32.9	1.830	2.655	14.1	22.1	2 11	6 47.14	+20 56.2	1.948	2.773	13.4	18.9
45260	2000 <i>AY</i> ₁		1 8.5 38°14	1.6/ 9.2	18		283960	2004 <i>RJ</i> ₁₃		1 8.5 128°66	2.2/ 7.8	18	
12 3	7 40.37	+14 46.2	2.065	2.853	14.0	19.2	12 3	7 49.08	+25 49.8	1.815	2.612	15.3	21.3
12 13	7 36.04	+15 17.9	1.982	2.855	10.9	18.9	12 13	7 43.06	+26 33.8	1.746	2.627	11.8	21.1
12 23	7 29.48	+16 0.7	1.921	2.858	7.3	18.7	12 23	7 34.16	+27 20.4	1.699	2.641	7.7	20.9
1 2	7 21.26	+16 52.5	1.887	2.860	3.5	18.5	1 2	7 23.18	+28 4.1	1.680	2.655	3.6	20.7
1 12	7 12.29	+17 49.9	1.882	2.862	2.0	18.4	1 12	7 11.36	+28 39.6	1.690	2.667	3.0	20.7
1 22	7 3.58	+18 48.9	1.908	2.865	5.6	18.6	1 22	7 0.11	+29 3.7	1.730	2.679	6.9	20.9
2 1	6 56.15	+19 46.0	1.962	2.868	9.4	18.9	2 1	6 50.71	+29 15.9	1.797	2.691	10.8	21.2
2 11	6 50.80	+20 38.5	2.040	2.870	12.7	19.1	2 11	6 44.07	+29 18.0	1.888	2.702	14.2	21.4
378419	2007 <i>RU</i> ₁₈₇		1 8.5 64°13	8.3/ 11.6	18		194744	2001 <i>YQ</i> ₂₁		1 8.5 9°75	3.3/ 7.9	18	
12 3	7 40.56	- 1 46.4	2.168										

EPHEMERIDES

1 8.5

1 8.6

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
52339	1992 <i>RO</i> ₂		1 8.5 178°07'	6°4/10.9	18		86428	2000 <i>BQ</i> ₂₇		1 8.5 358°11'	0°3/ 8.5	18	
12 3	7 41.00	+ 3 26.1	2.035	2.785	15.5	19.6	12 3	7 41.91	+21 8.3	1.131	1.968	20.1	18.5
12 13	7 36.47	+ 3 5.1	1.950	2.785	12.8	19.4	12 13	7 39.03	+21 27.0	1.062	1.965	15.6	18.3
12 23	7 29.74	+ 3 0.8	1.886	2.786	10.0	19.2	12 23	7 32.35	+21 55.5	1.012	1.963	10.2	17.9
1 2	7 21.39	+ 3 15.2	1.848	2.786	7.4	19.1	1 2	7 22.71	+22 29.5	0.983	1.961	4.1	17.6
1 12	7 12.31	+ 3 48.3	1.836	2.786	6.4	19.0	1 12	7 11.71	+23 3.4	0.980	1.961	2.3	17.5
1 22	7 3.50	+ 4 37.5	1.853	2.786	7.9	19.1	1 22	7 1.32	+23 32.1	1.000	1.962	8.5	17.8
2 1	6 55.95	+ 5 39.0	1.897	2.786	10.6	19.3	2 1	6 53.36	+23 53.2	1.044	1.964	14.1	18.2
2 11	6 50.42	+ 6 47.7	1.965	2.785	13.5	19.5	2 11	6 49.06	+24 6.3	1.108	1.967	18.9	18.5
154050	2002 <i>CR</i> ₁₂₀		1 8.5 285°29'	0°3/ 8.5	18		30583	2001 <i>PZ</i> ₆		1 8.5 82°66'	7°6/11.7	18	R
12 3	7 44.85	+22 20.9	1.559	2.371	16.8	20.8	12 3	7 41.63	+ 0 45.1	1.851	2.594	17.0	19.1
12 13	7 40.55	+22 29.1	1.465	2.354	13.1	20.6	12 13	7 37.03	+ 0 23.6	1.782	2.609	14.2	18.9
12 23	7 33.02	+22 42.8	1.391	2.337	8.6	20.2	12 23	7 30.12	+ 0 22.7	1.732	2.623	11.3	18.8
1 2	7 22.91	+22 58.7	1.342	2.320	3.5	19.9	1 2	7 21.56	+ 0 44.6	1.707	2.637	8.7	18.7
1 12	7 11.47	+23 12.9	1.321	2.303	2.0	19.8	1 12	7 12.36	+ 1 28.7	1.709	2.651	7.6	18.6
1 22	7 0.27	+23 22.6	1.327	2.286	7.4	20.0	1 22	7 3.59	+ 2 31.9	1.737	2.665	8.8	18.7
2 1	6 50.89	+23 26.6	1.359	2.269	12.4	20.3	2 1	6 56.25	+ 3 48.6	1.793	2.679	11.3	18.9
2 11	6 44.51	+23 25.4	1.414	2.252	16.8	20.5	2 11	6 51.11	+ 5 12.5	1.872	2.693	14.0	19.1
234016	1998 <i>FP</i> ₆		1 8.5 136°14'	2°4/ 7.6	18		39509	Kardashev		1 8.5 64°49'	4°7/10.1	18	
12 3	7 42.02	+29 7.8	2.694	3.484	11.0	21.0	12 3	7 42.69	+ 9 9.4	1.810	2.586	16.2	18.4
12 13	7 36.90	+29 39.8	2.613	3.490	8.5	20.8	12 13	7 37.77	+ 8 54.0	1.751	2.610	12.9	18.3
12 23	7 29.83	+30 11.1	2.558	3.496	5.7	20.6	12 23	7 30.53	+ 8 53.0	1.713	2.634	9.3	18.1
1 2	7 21.38	+30 38.3	2.532	3.502	3.0	20.4	1 2	7 21.69	+ 9 6.5	1.700	2.659	5.9	17.9
1 12	7 12.37	+30 58.3	2.536	3.508	2.8	20.4	1 12	7 12.32	+ 9 33.3	1.716	2.683	4.7	17.9
1 22	7 3.66	+31 9.4	2.570	3.514	5.3	20.6	1 22	7 3.51	+10 10.3	1.759	2.707	7.0	18.1
2 1	6 56.10	+31 11.5	2.633	3.519	8.1	20.8	2 1	6 56.26	+10 53.9	1.830	2.731	10.2	18.3
2 11	6 50.37	+31 5.8	2.722	3.524	10.6	21.0	2 11	6 51.28	+11 40.4	1.925	2.755	13.3	18.6
216908	2009 <i>JQ</i>		1 8.5 156°44'	5°6/10.1	18		392498	2011 <i>OR</i> ₂₀		1 8.5 201°83'	0°5/ 8.7	18	
12 3	7 43.51	+ 6 9.3	2.284	3.031	14.0	20.5	12 3	7 47.25	+18 55.6	1.963	2.749	14.7	22.2
12 13	7 38.06	+ 5 27.7	2.202	3.038	11.5	20.3	12 13	7 41.61	+19 19.3	1.870	2.745	11.4	22.0
12 23	7 30.59	+ 4 58.0	2.142	3.045	8.8	20.2	12 23	7 33.30	+19 51.0	1.800	2.740	7.5	21.7
1 2	7 21.70	+ 4 42.2	2.109	3.051	6.4	20.0	1 2	7 22.94	+20 27.7	1.758	2.733	3.1	21.4
1 12	7 12.21	+ 4 40.9	2.105	3.057	5.6	20.0	1 12	7 11.60	+21 5.8	1.745	2.726	1.6	21.3
1 22	7 3.04	+ 4 53.0	2.131	3.062	7.1	20.1	1 22	7 0.50	+21 41.7	1.763	2.719	6.1	21.6
2 1	6 55.08	+ 5 16.6	2.184	3.066	9.7	20.3	2 1	6 50.87	+22 13.3	1.809	2.710	10.3	21.8
2 11	6 49.01	+ 5 48.3	2.263	3.070	12.4	20.4	2 11	6 43.67	+22 39.6	1.880	2.700	14.0	22.0
52604	Thomayer		1 8.5 65°70'	3°9/ 7.5	18		210788	2001 <i>DW</i> ₇₇		1 8.5 164°61'	2°1/ 8.0	18	
12 3	7 46.46	+30 17.7	1.699	2.507	15.7	19.0	12 3	7 48.03	+27 22.2	1.994	2.788	14.2	21.2
12 13	7 41.34	+31 3.3	1.634	2.519	12.2	18.8	12 13	7 42.11	+27 41.1	1.913	2.792	11.0	21.0
12 23	7 33.18	+31 47.7	1.592	2.532	8.3	18.6	12 23	7 33.52	+28 0.0	1.855	2.796	7.2	20.8
1 2	7 22.83	+32 24.3	1.575	2.545	4.7	18.4	1 2	7 22.97	+28 14.8	1.825	2.799	3.4	20.6
1 12	7 11.63	+32 47.8	1.587	2.557	4.5	18.4	1 12	7 11.63	+28 21.7	1.825	2.802	2.7	20.5
1 22	7 1.08	+32 55.6	1.626	2.570	7.8	18.7	1 22	7 0.76	+28 19.2	1.854	2.805	6.4	20.8
2 1	6 52.53	+32 48.6	1.691	2.583	11.5	18.9	2 1	6 51.56	+28 7.5	1.912	2.807	10.2	21.0
2 11	6 46.90	+32 30.0	1.780	2.596	14.8	19.2	2 11	6 44.91	+27 48.8	1.993	2.808	13.5	21.2
417068	2005 <i>UW</i> ₂₂₇		1 8.5 103°81'	0°8/ 8.8	18		236850	2007 <i>RV</i> ₁₃₈		1 8.6 175°75'	1°3/ 8.1	18	
12 3	7 43.33	+19 16.8	1.973	2.768	14.4	22.1	12 3	7 42.75	+26 2.5	2.645	3.433	11.3	21.1
12 13	7 38.35	+19 24.1	1.897	2.776	11.1	21.9	12 13	7 37.46	+26 19.7	2.558	3.434	8.7	20.9
12 23	7 30.98	+19 37.5	1.843	2.784	7.2	21.7	12 23	7 30.22	+26 37.5	2.495	3.436	5.6	20.7
1 2	7 21.89	+19 55.1	1.817	2.793	3.1	21.4	1 2	7 21.59	+26 53.2	2.462	3.437	2.5	20.5
1 12	7 12.12	+20 14.1	1.819	2.801	1.6	21.3	1 12	7 12.37	+27 4.5	2.459	3.437	1.9	20.5
1 22	7 2.76	+20 32.4	1.851	2.808	5.7	21.6	1 22	7 3.44	+27 9.7	2.487	3.438	5.0	20.7
2 1	6 54.89	+20 48.6	1.911	2.816	9.6	21.9	2 1	6 55.65	+27 8.6	2.544	3.438	8.0	20.9
2 11	6 49.29	+21 1.8	1.996	2.824	13.0	22.1	2 11	6 49.68	+27 2.0	2.627	3.437	10.8	21.1
164567	2006 <i>KL</i> ₇₃		1 8.5 50°25'	2°9/ 9.7	18		298930	2004 <i>TK</i> ₁₆₂		1 8.6 169°28'	3°7/ 9.5	18	
12 3	7 39.70	+12 5.2	2.104	2.885	14.0	20.2	12 3	7 45.27	+12 35.2	1.826	2.607	15.9	21.3
12 13	7 35.43	+12 15.5	2.023	2.890	11.1	20.0	12 13	7 40.02	+12 17.8	1.744	2.610	12.6	21.0
12 23	7 29.04	+12 37.5	1.965	2.895	7.7	19.8	12 23	7 32.19	+12 11.3	1.683	2.612	8.8	20.8
1 2	7 21.12	+13 10.3	1.933	2.900	4.3	19.6	1 2	7 22.46	+12 16.2	1.649	2.615	5.1	20.6
1 12	7 12.53	+13 51.7	1.931	2.906	3.0	19.6	1 12	7 11.90	+12 31.1	1.643	2.616	3.9	20.5
1 22	7 4.24	+14 38.7	1.957	2.912	5.8	19.7	1 22	7 1.73	+12 54.0	1.666	2.617	6.9	20.7
2 1	6 57.20	+15 28.0	2.012	2.917	9.2	20.0	2 1	6 53.10	+13 22.4	1.716	2.618	10.7	20.9
2 11	6 52.13	+16 16.6	2.092	2.923	12.3	20.2	2 11	6 46.89	+13 53.5	1.791	2.618	14.2	21.2
284170	2005 <i>YZ</i> ₁₆₁		1 8.5 12°82'	2°1/ 8.9	18		139278	2001 <i>JN</i> ₂		1 8.6 173°45'	1°7/ 7.8	18	
12 3	7 45.36	+18 57.4	1.358	2.172	18.6	20.3	12 3	7 45.98	+24 47.1	2.385	3.171	12.4	20.9
12 13	7 40.92	+18 27.2	1.284	2.173	14.5	20.0	12 13	7 40.21	+25 36.9	2.299	3.175	9.6	20.7
12 23	7 33.15	+18 3.5	1.230	2.174	9.7	19.8	12 23	7 32.17	+26 30.0	2.238	3.178	6.2	20.5
1 2	7 22.89	+17 45.7	1.201	2.176	4.5	19.5	1 2	7 22.43	+27 22.3	2.205	3.180	2.8	20.3
1 12	7 11.59	+17 32.7	1.197	2.178	2.8	19.4	1 12	7 11.91	+28 9.3	2.204	3.182	2.4	20.3
1 22	7 0.91	+17 23.5	1.221	2.180	7.7	19.7	1 22	7 1.64	+28 47.9	2.234	3.183	5.7	20.5
2 1	6 52.38	+17 17.6	1.269	2.182	12.7	20.0	2 1	6 52.65	+29 16.5	2.294	3.183	9.0	20.7
2 11	6 47.03	+17 14.1	1.339	2.185	17.1	20.2	2 11	6 45.73	+29 35.6	2.378	3.182	11.9	20.9
360822	2005 <i>KG</i> ₇		1 8.5 175°04'	7°2/11.0	18		412339	2013 <i>LP</i> ₃		1 8.6 189°89'	1°8/ 9.0	18	
12 3	7 42.40	+ 0 7.0	2.372	3.092	14.3	21.5	12 3						

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
406903	2009 <i>DH</i> ₁₂₄		1 8.6 286°79	1°1/ 8.9 18			114054	2002 <i>VV</i> ₁₉		1 8.6 273°19	1°4/ 8.1 18		
12 3	7 43.09	+18 12.3	1.625	2.430	16.5	21.9	12 3	7 41.53	+25 9.8	2.308	3.105	12.5	19.7
12 13	7 38.98	+18 22.3	1.532	2.417	12.9	21.6	12 13	7 36.88	+25 36.2	2.221	3.102	9.6	19.5
12 23	7 31.90	+18 41.8	1.460	2.403	8.6	21.3	12 23	7 30.04	+26 4.8	2.157	3.100	6.2	19.3
1 2	7 22.47	+19 8.8	1.414	2.390	3.8	21.0	1 2	7 21.60	+26 32.4	2.121	3.097	2.7	19.1
1 12	7 11.86	+19 39.9	1.395	2.376	2.0	20.8	1 12	7 12.44	+26 55.7	2.115	3.094	2.1	19.0
1 22	7 1.47	+20 11.6	1.404	2.363	6.9	21.1	1 22	7 3.55	+27 12.5	2.139	3.092	5.5	19.2
2 1	6 52.72	+20 41.1	1.439	2.350	11.7	21.4	2 1	6 55.92	+27 22.0	2.191	3.089	8.9	19.5
2 11	6 46.73	+21 6.9	1.498	2.337	15.9	21.6	2 11	6 50.30	+27 24.6	2.269	3.086	12.0	19.6
81963	2000 <i>QO</i> ₃₃		1 8.6 174°57	4°4/ 6.8 18			425137	2009 <i>SJ</i> ₂₄₉		1 8.6 23°91	3°2/ 9.5 16		
12 3	7 47.95	+35 18.0	2.675	3.452	11.4	20.4	12 3	7 40.37	+13 42.5	1.626	2.427	16.6	21.9
12 13	7 41.66	+36 10.5	2.592	3.456	9.1	20.3	12 13	7 36.52	+13 34.1	1.554	2.433	13.1	21.7
12 23	7 33.07	+36 59.1	2.535	3.459	6.6	20.1	12 23	7 30.03	+13 37.8	1.503	2.440	9.0	21.4
1 2	7 22.78	+37 38.7	2.507	3.461	4.6	20.0	1 2	7 21.63	+13 53.1	1.478	2.447	4.9	21.2
1 12	7 11.75	+38 5.0	2.509	3.462	4.7	20.0	1 12	7 12.44	+14 18.2	1.479	2.455	3.5	21.1
1 22	7 1.03	+38 16.0	2.541	3.463	6.7	20.1	1 22	7 3.71	+14 50.0	1.507	2.464	6.8	21.4
2 1	6 51.65	+38 12.2	2.602	3.463	9.2	20.3	2 1	6 56.63	+15 25.5	1.562	2.473	10.9	21.6
2 11	6 44.40	+37 56.1	2.688	3.462	11.5	20.5	2 11	6 52.05	+16 1.5	1.640	2.483	14.6	21.9
412805	2014 <i>PG</i> ₂₉		1 8.6 201°73	0°5/ 8.4 18			463356	2012 <i>RR</i> ₂₆		1 8.6 160°90	4°5/ 6.7 18		
12 3	7 46.42	+22 24.5	2.004	2.796	14.2	22.2	12 3	7 46.40	+38 31.3	3.030	3.801	10.4	22.1
12 13	7 40.91	+22 41.0	1.913	2.792	11.0	22.0	12 13	7 40.22	+39 12.5	2.952	3.808	8.3	21.9
12 23	7 32.81	+23 1.6	1.846	2.788	7.2	21.8	12 23	7 32.00	+39 48.0	2.900	3.814	6.3	21.8
1 2	7 22.74	+23 23.4	1.807	2.784	2.9	21.5	1 2	7 22.34	+40 13.2	2.875	3.819	4.8	21.7
1 12	7 11.78	+23 43.0	1.797	2.778	1.7	21.4	1 12	7 12.09	+40 25.0	2.881	3.825	4.8	21.7
1 22	7 1.13	+23 57.9	1.817	2.772	6.0	21.7	1 22	7 2.19	+40 22.2	2.917	3.829	6.4	21.8
2 1	6 51.97	+24 7.2	1.865	2.766	10.1	21.9	2 1	6 53.53	+40 5.7	2.982	3.833	8.4	22.0
2 11	6 45.23	+24 11.1	1.938	2.759	13.6	22.1	2 11	6 46.80	+39 38.0	3.071	3.837	10.4	22.1
61127	2000 <i>MH</i> ₅		1 8.6 128°75	2°3/ 9.3 18			145549	2006 <i>KJ</i> ₁₂₄		1 8.6 74°28	11°4/ 7.4 17		
12 3	7 45.35	+14 43.9	1.722	2.512	16.3	18.6	12 3	8 5.15	+51 4.6	1.704	2.458	17.9	19.1
12 13	7 40.22	+14 55.0	1.647	2.521	12.8	18.3	12 13	7 56.46	+52 16.8	1.668	2.489	15.3	19.0
12 23	7 32.38	+15 17.6	1.594	2.530	8.6	18.1	12 23	7 43.20	+53 8.4	1.651	2.519	13.0	19.0
1 2	7 22.56	+15 50.2	1.567	2.539	4.3	17.9	1 2	7 26.86	+53 27.9	1.658	2.549	11.6	18.9
1 12	7 11.90	+16 29.6	1.568	2.547	2.7	17.8	1 12	7 9.86	+53 9.2	1.689	2.579	11.5	19.0
1 22	7 1.70	+17 12.0	1.598	2.555	6.5	18.1	1 22	6 54.68	+52 14.3	1.745	2.608	12.7	19.1
2 1	6 53.17	+17 54.3	1.656	2.562	10.7	18.3	2 1	6 43.14	+50 51.1	1.825	2.637	14.6	19.3
2 11	6 47.21	+18 33.9	1.737	2.569	14.4	18.6	2 11	6 36.10	+49 10.9	1.926	2.665	16.6	19.5
461953	2006 <i>TY</i> ₄₉		1 8.6 67°55	9°2/ 5.5 18			84511	2002 <i>TH</i> ₂₉₀		1 8.6 65°20	8°8/ 6.3 18		
12 3	7 52.02	+41 31.3	1.642	2.436	16.8	20.9	12 3	7 52.20	+41 26.2	1.627	2.422	16.9	18.8
12 13	7 46.40	+43 18.2	1.592	2.454	13.8	20.8	12 13	7 46.41	+42 51.7	1.577	2.440	13.9	18.6
12 23	7 36.90	+44 54.7	1.565	2.473	11.1	20.6	12 23	7 36.81	+44 6.1	1.548	2.459	10.9	18.5
1 2	7 24.49	+46 9.5	1.562	2.491	9.4	20.6	1 2	7 24.43	+44 59.0	1.544	2.478	9.0	18.4
1 12	7 10.90	+46 53.8	1.586	2.510	9.7	20.6	1 12	7 11.04	+45 22.9	1.566	2.497	9.2	18.5
1 22	6 58.15	+47 5.3	1.635	2.528	11.6	20.8	1 22	6 58.60	+45 16.2	1.614	2.516	11.2	18.6
2 1	6 48.03	+46 47.4	1.707	2.547	14.2	21.0	2 1	6 48.83	+44 43.0	1.685	2.535	13.8	18.8
2 11	6 41.66	+46 7.9	1.800	2.566	16.7	21.2	2 11	6 42.75	+43 51.0	1.777	2.554	16.4	19.1
1340	<i>Yvette</i>		1 8.6 270°68	0°1/ 8.5 18			491970	2013 <i>EO</i> ₈		1 8.6 358°91	5°2/ 9.9 18		
12 3	7 40.55	+21 55.9	2.477	3.268	11.9	16.4	12 3	7 41.63	+10 43.1	1.391	2.193	18.9	21.1
12 13	7 35.99	+22 7.2	2.377	3.256	9.2	16.2	12 13	7 37.99	+10 17.9	1.316	2.192	15.2	20.8
12 23	7 29.41	+22 22.1	2.302	3.244	6.0	15.9	12 23	7 31.28	+10 8.7	1.260	2.191	10.9	20.6
1 2	7 21.34	+22 38.5	2.255	3.232	2.4	15.7	1 2	7 22.23	+10 16.9	1.226	2.190	6.8	20.4
1 12	7 12.55	+22 54.1	2.239	3.220	1.3	15.6	1 12	7 12.13	+10 41.7	1.219	2.190	5.3	20.3
1 22	7 3.96	+23 7.2	2.252	3.208	5.0	15.8	1 22	7 2.47	+11 20.0	1.237	2.191	8.4	20.4
2 1	6 56.45	+23 16.7	2.294	3.196	8.4	16.0	2 1	6 54.67	+12 7.3	1.280	2.192	12.8	20.7
2 11	6 50.75	+23 22.4	2.362	3.183	11.4	16.2	2 11	6 49.79	+12 58.6	1.345	2.193	16.9	20.9
388028	2005 <i>SU</i> ₈₂		1 8.6 229°26	0°4/ 8.4 18			105050	2000 <i>KV</i> ₅₃		1 8.6 115°39	2°8/ 9.9 18		
12 3	7 47.98	+22 15.8	1.698	2.498	16.1	22.0	12 3	7 44.09	+11 1.1	2.326	3.088	13.4	20.3
12 13	7 42.67	+22 30.7	1.605	2.488	12.5	21.8	12 13	7 38.46	+11 19.5	2.255	3.110	10.6	20.1
12 23	7 34.27	+22 50.9	1.534	2.478	8.2	21.5	12 23	7 30.85	+11 49.2	2.207	3.132	7.3	19.9
1 2	7 23.45	+23 13.1	1.490	2.467	3.4	21.2	1 2	7 21.87	+12 28.8	2.188	3.152	4.2	19.8
1 12	7 11.42	+23 33.0	1.474	2.455	1.9	21.0	1 12	7 12.37	+13 16.0	2.199	3.172	3.0	19.7
1 22	6 59.67	+23 47.7	1.486	2.443	7.0	21.3	1 22	7 3.25	+14 7.6	2.240	3.192	5.4	19.9
2 1	6 49.69	+23 55.9	1.526	2.430	11.7	21.6	2 1	6 55.38	+15 0.5	2.312	3.211	8.5	20.1
2 11	6 42.57	+23 58.4	1.589	2.417	15.8	21.8	2 11	6 49.39	+15 52.1	2.410	3.229	11.3	20.4
459892	2014 <i>LW</i>		1 8.6 140°41	0°9/ 8.8 18			265892	2006 <i>AE</i> ₆₃		1 8.6 214°30	1°5/ 8.2 18		
12 3	7 46.86	+18 23.2	1.959	2.745	14.7	22.9	12 3	7 44.96	+26 39.6	2.319	3.110	12.6	20.9
12 13	7 41.07	+18 38.1	1.883	2.758	11.4	22.7	12 13	7 39.48	+26 47.9	2.227	3.105	9.7	20.7
12 23	7 32.78	+19 0.3	1.830	2.769	7.5	22.5	12 23	7 31.72	+26 56.2	2.159	3.100	6.4	20.5
1 2	7 22.69	+19 27.3	1.805	2.780	3.2	22.2	1 2	7 22.29	+27 1.4	2.119	3.094	2.8	20.3
1 12	7 11.87	+19 56.0	1.809	2.790	1.7	22.1	1 12	7 12.13	+27 1.1	2.110	3.088	2.1	20.2
1 22	7 1.51	+20 23.6	1.844	2.800	5.9	22.4	1 22	7 2.29	+26 53.8	2.130	3.082	5.6	20.4
2 1	6 52.70	+20 48.2	1.907	2.809	9.8	22.7	2 1	6 53.79	+26 39.9	2.180	3.076	9.1	20.6
2 11	6 46.28	+21 9.1	1.994	2.817	13.2	22.9	2 11	6 47.42	+26 20.7	2.255	3.069	12.2	20.8
279904	2001 <i>QZ</i> ₂₂₈		1 8.6 135°15	4°1/ 10.1 18			31284	1998 <i>FN</i> ₄₈		1 8.6 213°26	1°5/ 7.9 18		
12 3	7 39.56	+ 8 40.3	2.522	3.281	12.6								

EPHEMERIDES

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
89980	2002 <i>TV</i> ₂₇		1 8.6 20°33	0°3/ 8.7	18		51689	2001 <i>KN</i> ₁₃		1 8.6 116°57	4°1/ 9.6	18	
12 3	7 40.61	+20 46.2	1.837	2.643	14.8	19.3	12 3	7 45.47	+11 30.4	2.082	2.850	14.6	18.5
12 13	7 36.51	+20 51.2	1.763	2.649	11.4	19.0	12 13	7 39.70	+10 52.1	2.010	2.866	11.6	18.3
12 23	7 29.94	+21 1.5	1.711	2.655	7.4	18.8	12 23	7 31.74	+10 23.2	1.960	2.882	8.3	18.1
1 2	7 21.58	+21 14.9	1.685	2.662	3.0	18.6	1 2	7 22.28	+10 4.7	1.938	2.898	5.2	18.0
1 12	7 12.51	+21 28.9	1.687	2.669	1.6	18.5	1 12	7 12.26	+9 56.8	1.945	2.913	4.2	17.9
1 22	7 3.89	+21 41.2	1.718	2.677	5.9	18.8	1 22	7 2.72	+9 58.4	1.982	2.927	6.5	18.1
2 1	6 56.80	+21 50.7	1.776	2.685	10.0	19.0	2 1	6 54.60	+10 7.9	2.047	2.941	9.7	18.3
2 11	6 52.05	+21 57.1	1.858	2.694	13.4	19.3	2 11	6 48.60	+10 23.3	2.137	2.955	12.6	18.5
488919	2005 <i>UB</i> ₅		1 8.6 148°29	4°2/ 9.6	18		79434	1997 <i>SR</i> ₂₅		1 8.6 260°93	8°2/ 11.4	18	
12 3	7 43.29	+10 58.1	2.150	2.919	14.2	21.3	12 3	7 40.77	- 0 8.6	1.937	2.675	16.5	20.4
12 13	7 38.08	+10 22.6	2.068	2.924	11.3	21.1	12 13	7 36.58	- 0 41.5	1.845	2.666	14.1	20.2
12 23	7 30.74	+9 56.6	2.008	2.929	8.2	20.9	12 23	7 30.04	- 0 55.0	1.772	2.656	11.4	20.0
1 2	7 21.87	+9 41.2	1.976	2.934	5.2	20.7	1 2	7 21.71	- 0 45.6	1.723	2.646	9.1	19.8
1 12	7 12.37	+9 36.5	1.972	2.939	4.3	20.7	1 12	7 12.49	- 0 12.1	1.700	2.635	8.2	19.7
1 22	7 3.22	+9 41.6	1.998	2.943	6.5	20.8	1 22	7 3.45	+0 43.6	1.703	2.625	9.4	19.8
2 1	6 55.36	+9 54.7	2.053	2.947	9.6	21.0	2 1	6 55.66	+1 57.0	1.734	2.615	11.9	19.9
2 11	6 49.52	+10 13.8	2.131	2.951	12.6	21.2	2 11	6 49.98	+3 21.9	1.787	2.604	14.7	20.1
201200	2002 <i>PP</i> ₁₂₉		1 8.6 36°25	3°4/ 10.1	18		334194	2001 <i>SG</i> ₂₀₈		1 8.6 28°93	9°8/ 6.4	18	
12 3	7 39.77	+9 59.2	2.008	2.785	14.7	20.1	12 3	7 51.21	+43 58.5	1.583	2.377	17.3	20.2
12 13	7 35.63	+10 20.7	1.927	2.790	11.7	19.9	12 13	7 46.01	+45 10.7	1.523	2.383	14.5	20.0
12 23	7 29.29	+10 56.9	1.869	2.795	8.3	19.7	12 23	7 36.77	+46 9.9	1.484	2.389	11.7	19.9
1 2	7 21.33	+11 46.7	1.836	2.801	4.8	19.5	1 2	7 24.51	+46 45.3	1.468	2.396	10.0	19.8
1 12	7 12.65	+12 47.3	1.833	2.806	3.5	19.4	1 12	7 11.10	+46 49.4	1.478	2.403	10.1	19.8
1 22	7 4.26	+13 54.7	1.858	2.812	6.1	19.6	1 22	6 58.65	+46 20.8	1.511	2.411	12.0	19.9
2 1	6 57.16	+15 4.4	1.912	2.818	9.6	19.8	2 1	6 48.99	+45 24.5	1.569	2.420	14.6	20.1
2 11	6 52.10	+16 12.5	1.991	2.825	12.8	20.0	2 11	6 43.23	+44 9.0	1.646	2.428	17.3	20.3
53368	1999 <i>JF</i> ₈₁		1 8.6 218°57	5°9/ 10.3	18		286041	2001 <i>SE</i> ₂₁₁		1 8.6 105°63	1°3/ 8.2	18	
12 3	7 41.50	+4 50.8	2.344	3.089	13.8	18.6	12 3	7 45.48	+24 29.6	1.904	2.703	14.6	21.6
12 13	7 36.66	+4 13.1	2.249	3.082	11.4	18.4	12 13	7 40.21	+24 50.8	1.830	2.713	11.2	21.4
12 23	7 29.84	+3 47.8	2.176	3.075	8.9	18.2	12 23	7 32.33	+25 14.6	1.780	2.723	7.3	21.2
1 2	7 21.54	+3 37.1	2.129	3.067	6.6	18.1	1 2	7 22.58	+25 37.3	1.756	2.732	3.1	20.9
1 12	7 12.55	+3 41.8	2.111	3.059	5.9	18.0	1 12	7 12.09	+25 55.2	1.762	2.742	2.1	20.9
1 22	7 3.75	+4 0.9	2.121	3.050	7.3	18.1	1 22	7 2.10	+26 6.2	1.796	2.751	6.2	21.1
2 1	6 56.02	+4 32.4	2.159	3.041	9.8	18.2	2 1	6 53.75	+26 9.7	1.859	2.760	10.1	21.4
2 11	6 50.07	+5 12.7	2.222	3.032	12.5	18.4	2 11	6 47.89	+26 6.8	1.945	2.769	13.5	21.6
149467	2003 <i>EV</i> ₈		1 8.6 291°07	1°8/ 8.2	18		460044	2014 <i>OD</i> ₁₉₂		1 8.6 104°54	3°7/ 7.6	18	
12 3	7 46.04	+27 14.6	1.833	2.637	14.9	20.0	12 3	7 47.65	+30 41.2	1.875	2.674	14.8	21.6
12 13	7 40.89	+27 15.9	1.748	2.632	11.6	19.7	12 13	7 42.06	+31 19.9	1.805	2.685	11.5	21.4
12 23	7 32.92	+27 16.6	1.684	2.627	7.6	19.5	12 23	7 33.62	+31 56.7	1.758	2.696	7.8	21.2
1 2	7 22.85	+27 12.9	1.647	2.623	3.4	19.2	1 2	7 23.12	+32 25.8	1.738	2.707	4.5	21.1
1 12	7 11.89	+27 2.0	1.639	2.618	2.5	19.1	1 12	7 11.82	+32 42.6	1.747	2.717	4.2	21.1
1 22	7 1.39	+26 42.7	1.660	2.614	6.6	19.4	1 22	7 1.10	+32 45.0	1.784	2.727	7.3	21.3
2 1	6 52.62	+26 16.2	1.707	2.609	10.8	19.6	2 1	6 52.24	+32 33.7	1.849	2.737	10.8	21.5
2 11	6 46.53	+25 44.7	1.779	2.605	14.4	19.8	2 11	6 46.11	+32 12.0	1.936	2.747	14.0	21.7
33340	1998 <i>VG</i> ₄₄		1 8.6 9°12	0°0/ 8.7	17		276542	2003 <i>SQ</i> ₈₂		1 8.6 61°11	5°9/ 6.8	18	
12 3	7 19.63	+21 4.1	28.781	29.561	1.2	21.3	12 3	7 46.67	+37 3.2	2.019	2.813	14.1	20.3
12 13	7 18.68	+21 5.9	28.690	29.563	0.9	21.3	12 13	7 41.40	+37 58.7	1.950	2.820	11.2	20.1
12 23	7 17.61	+21 8.0	28.625	29.565	0.6	21.2	12 23	7 33.25	+38 48.2	1.903	2.827	8.3	19.9
1 2	7 16.46	+21 10.2	28.591	29.567	0.2	21.2	1 2	7 22.99	+39 24.9	1.883	2.834	6.2	19.8
1 12	7 15.27	+21 12.6	28.587	29.569	0.1	21.2	1 12	7 11.88	+39 43.4	1.891	2.841	6.3	19.8
1 22	7 14.10	+21 15.0	28.614	29.570	0.5	21.2	1 22	7 1.31	+39 41.9	1.926	2.848	8.4	20.0
2 1	7 12.99	+21 17.3	28.672	29.572	0.8	21.3	2 1	6 52.58	+39 21.9	1.988	2.855	11.3	20.2
2 11	7 12.00	+21 19.4	28.758	29.574	1.1	21.3	2 11	6 46.58	+38 47.6	2.073	2.863	13.9	20.4
138512	2000 <i>LE</i> ₃		1 8.6 189°07	4°0/ 9.7	18		178765	2000 <i>WT</i> ₁₄		1 8.6 81°72	1°3/ 8.3	17	
12 3	7 42.18	+7 4.6	3.485	4.214	9.9	20.3	12 3	7 50.11	+23 49.3	1.272	2.090	19.4	20.3
12 13	7 36.43	+6 15.5	3.386	4.212	8.1	20.1	12 13	7 44.76	+24 7.4	1.214	2.106	15.0	20.1
12 23	7 29.32	+5 33.1	3.313	4.210	6.2	20.0	12 23	7 35.73	+24 30.1	1.175	2.122	9.7	19.8
1 2	7 21.25	+4 58.7	3.269	4.207	4.6	19.9	1 2	7 24.03	+24 52.1	1.160	2.137	4.0	19.5
1 12	7 12.76	+4 33.3	3.257	4.204	4.1	19.9	1 12	7 11.38	+25 8.3	1.172	2.153	2.5	19.5
1 22	7 4.45	+4 16.8	3.277	4.201	5.2	19.9	1 22	6 59.65	+25 15.6	1.211	2.168	8.0	19.9
2 1	6 56.89	+4 9.0	3.327	4.196	7.1	20.0	2 1	6 50.49	+25 14.3	1.274	2.184	13.0	20.2
2 11	6 50.58	+4 8.4	3.404	4.192	9.0	20.2	2 11	6 44.89	+25 6.4	1.359	2.199	17.2	20.5
78559	2002 <i>RG</i> ₁₅₄		1 8.6 78°92	8°8/ 11.3	18		235505	2004 <i>BY</i> ₁₁₅		1 8.6 176°94	3°4/ 7.5	18	
12 3	7 42.95	+0 36.8	1.754	2.499	17.7	19.1	12 3	7 44.76	+32 41.9	2.448	3.238	12.0	20.4
12 13	7 38.14	- 0 23.4	1.690	2.515	15.0	19.0	12 13	7 39.31	+33 6.8	2.365	3.238	9.4	20.2
12 23	7 30.91	- 1 3.9	1.646	2.530	12.1	18.8	12 23	7 31.60	+33 28.4	2.305	3.239	6.5	20.1
1 2	7 21.97	- 1 20.8	1.625	2.546	9.7	18.7	1 2	7 22.27	+33 42.4	2.274	3.239	4.0	19.9
1 12	7 12.39	- 1 12.7	1.629	2.562	8.8	18.7	1 12	7 12.27	+33 45.6	2.272	3.239	3.8	19.9
1 22	7 3.31	- 0 41.5	1.660	2.577	9.9	18.8	1 22	7 2.65	+33 36.9	2.301	3.239	6.2	20.0
2 1	6 55.77	+0 8.6	1.717	2.593	12.3	19.0	2 1	6 54.41	+33 16.9	2.357	3.239	9.1	20.2
2 11	6 50.55	+1 11.1	1.796	2.608	14.9	19.2	2 11	6 48.30	+32 48.1	2.438	3.239	11.8	20.4
288323	2004 <i>BY</i> ₅₄		1 8.6 99°32	3°5/ 8.1	18		139468	2001 <i>OV</i> ₉₀		1 8.6 245°96	0°0/ 8.5	18	
12 3	7 48.99	+34 23.7	2.324	3.108	12.8								

EPHEMERIDES

1 8.6

1 8.6

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
488717	2004 <i>FE</i> ₁₁₉		1 8.6 305°28	6°2/ 7.3 18			115681	2003 <i>UR</i> ₁₄₉		1 8.6 101°80	0°0/ 8.4 18		
12 3	7 49.55	+33 34.0	1.350	2.168	18.5	21.5	12 3	7 42.56	+20 58.7	2.219	3.011	13.1	20.2
12 13	7 44.96	+34 26.3	1.275	2.163	14.7	21.2	12 13	7 37.60	+21 18.3	2.143	3.022	10.0	20.0
12 23	7 36.30	+35 15.5	1.221	2.159	10.5	21.0	12 23	7 30.48	+21 42.7	2.091	3.032	6.5	19.8
1 2	7 24.44	+35 51.8	1.190	2.154	6.9	20.8	1 2	7 21.83	+22 9.3	2.066	3.043	2.6	19.6
1 12	7 11.11	+36 7.0	1.185	2.150	6.8	20.7	1 12	7 12.56	+22 35.1	2.072	3.054	1.4	19.5
1 22	6 58.43	+35 57.5	1.205	2.146	10.3	20.9	1 22	7 3.68	+22 58.0	2.108	3.064	5.2	19.8
2 1	6 48.38	+35 25.7	1.250	2.142	14.7	21.2	2 1	6 56.10	+23 16.5	2.172	3.074	8.8	20.0
2 11	6 42.25	+34 38.3	1.314	2.138	18.6	21.4	2 11	6 50.56	+23 30.4	2.261	3.084	11.8	20.2
81501	2000 <i>GT</i> ₁₆₂		1 8.6 133°31	5°3/ 6.9 18			400810	2010 <i>GV</i> ₁₄₃		1 8.6 194°85	5°0/ 10.3 18		
12 3	7 50.79	+37 39.3	2.382	3.159	12.7	19.7	12 3	7 44.44	+ 6 40.4	2.261	3.009	14.2	22.5
12 13	7 44.04	+38 30.9	2.315	3.175	10.1	19.6	12 13	7 39.00	+ 6 22.8	2.167	3.006	11.6	22.3
12 23	7 34.70	+39 15.9	2.272	3.190	7.5	19.4	12 23	7 31.42	+ 6 18.1	2.095	3.003	8.7	22.1
1 2	7 23.53	+39 48.5	2.256	3.204	5.6	19.3	1 2	7 22.25	+ 6 27.7	2.050	2.998	6.0	21.9
1 12	7 11.65	+40 4.1	2.271	3.218	5.6	19.4	1 12	7 12.32	+ 6 51.0	2.034	2.993	5.1	21.8
1 22	7 0.32	+40 1.4	2.314	3.231	7.5	19.5	1 22	7 2.61	+ 7 26.4	2.048	2.987	6.8	21.9
2 1	6 50.69	+39 41.9	2.386	3.243	10.0	19.7	2 1	6 54.06	+ 8 10.8	2.091	2.980	9.8	22.1
2 11	6 43.56	+39 9.6	2.482	3.255	12.4	19.9	2 11	6 47.45	+ 9 0.8	2.159	2.972	12.7	22.3
345188	2005 <i>TY</i> ₁₇₈		1 8.6 332°93	5°3/ 9.6 18			520848	2014 <i>UW</i> ₂₃₈		1 8.6 132°13	0°5/ 8.5 18		
12 3	7 43.01	+12 10.3	1.295	2.104	19.7	20.9	12 3	7 45.10	+23 14.6	1.989	2.786	14.2	21.8
12 13	7 39.35	+11 29.7	1.218	2.098	15.8	20.6	12 13	7 39.83	+23 19.2	1.910	2.791	10.9	21.6
12 23	7 32.36	+11 2.9	1.159	2.093	11.3	20.3	12 23	7 32.06	+23 26.5	1.853	2.795	7.1	21.4
1 2	7 22.78	+10 52.0	1.123	2.088	6.9	20.1	1 2	7 22.51	+23 33.8	1.823	2.800	2.9	21.1
1 12	7 11.99	+10 57.3	1.112	2.084	5.5	20.0	1 12	7 12.22	+23 38.6	1.823	2.805	1.6	21.1
1 22	7 1.64	+11 16.9	1.126	2.080	9.0	20.2	1 22	7 2.38	+23 39.2	1.853	2.809	5.8	21.3
2 1	6 53.30	+11 47.4	1.164	2.077	13.7	20.4	2 1	6 54.08	+23 35.3	1.910	2.813	9.8	21.6
2 11	6 48.13	+12 24.4	1.223	2.074	18.0	20.7	2 11	6 48.14	+23 27.7	1.992	2.817	13.1	21.8
360773	2005 <i>CG</i> ₇₃		1 8.6 279°93	0°6/ 8.4 18			329989	2005 <i>SC</i> ₂₇₉		1 8.6 287°10	7°1/ 6.2 18		
12 3	7 44.57	+22 15.0	1.700	2.506	15.8	22.0	12 3	7 47.94	+38 19.6	1.866	2.662	15.0	20.5
12 13	7 40.21	+22 36.7	1.600	2.486	12.3	21.7	12 13	7 42.91	+39 32.7	1.788	2.658	12.2	20.3
12 23	7 32.82	+23 4.9	1.522	2.467	8.1	21.4	12 23	7 34.58	+40 40.3	1.733	2.653	9.3	20.1
1 2	7 22.98	+23 36.0	1.470	2.447	3.3	21.1	1 2	7 23.68	+41 33.6	1.703	2.648	7.3	20.0
1 12	7 11.85	+24 5.6	1.446	2.427	2.0	21.0	1 12	7 11.57	+42 5.4	1.701	2.644	7.5	20.0
1 22	7 0.85	+24 30.0	1.450	2.407	7.0	21.2	1 22	6 59.89	+42 12.3	1.725	2.639	9.8	20.1
2 1	6 51.46	+24 47.3	1.480	2.387	11.8	21.5	2 1	6 50.20	+41 55.8	1.775	2.635	12.8	20.3
2 11	6 44.85	+24 57.5	1.534	2.367	16.0	21.7	2 11	6 43.63	+41 20.9	1.846	2.630	15.6	20.5
441598	2008 <i>UJ</i> ₁₈₆		1 8.6 87°76	2°7/ 7.8 18			221970	1995 <i>UH</i> ₂₂		1 8.6 336°80	2°4/ 7.9 18		
12 3	7 51.25	+26 12.7	1.575	2.378	17.0	21.2	12 3	7 43.71	+27 12.5	1.859	2.666	14.6	20.9
12 13	7 44.98	+27 2.1	1.521	2.405	13.0	21.0	12 13	7 39.15	+27 42.1	1.777	2.663	11.3	20.7
12 23	7 35.54	+27 53.4	1.490	2.433	8.5	20.8	12 23	7 31.85	+28 13.0	1.717	2.661	7.5	20.4
1 2	7 23.89	+28 40.1	1.485	2.459	4.0	20.6	1 2	7 22.49	+28 40.7	1.684	2.658	3.6	20.2
1 12	7 11.51	+29 16.2	1.509	2.486	3.4	20.6	1 12	7 12.22	+29 0.8	1.679	2.656	3.1	20.2
1 22	6 59.99	+29 38.6	1.561	2.511	7.4	20.9	1 22	7 2.33	+29 10.6	1.703	2.654	6.8	20.4
2 1	6 50.69	+29 47.5	1.640	2.536	11.5	21.2	2 1	6 54.09	+29 9.8	1.753	2.653	10.7	20.6
2 11	6 44.51	+29 45.5	1.742	2.561	15.0	21.5	2 11	6 48.42	+29 0.1	1.827	2.651	14.2	20.8
133854	Wargetz		1 8.6 97°88	7°7/ 6.3 18			164295	2004 <i>XA</i> ₁₃₁		1 8.6 269°08	5°6/ 12.3 18		
12 3	7 53.11	+40 7.9	1.834	2.620	15.6	19.7	12 3	7 35.74	- 4 50.0	3.785	4.462	10.0	20.3
12 13	7 46.70	+41 27.5	1.778	2.639	12.7	19.5	12 13	7 31.64	- 4 53.4	3.669	4.441	8.7	20.2
12 23	7 36.85	+42 38.1	1.745	2.658	9.8	19.4	12 23	7 26.32	- 4 43.6	3.576	4.419	7.3	20.0
1 2	7 24.49	+43 30.4	1.738	2.676	7.9	19.3	1 2	7 20.11	- 4 19.5	3.509	4.398	6.1	19.9
1 12	7 11.17	+43 57.4	1.759	2.694	8.0	19.3	1 12	7 13.46	- 3 40.7	3.470	4.376	5.6	19.9
1 22	6 58.65	+43 57.4	1.806	2.711	10.0	19.5	1 22	7 6.86	- 2 48.3	3.460	4.354	6.1	19.9
2 1	6 48.48	+43 33.4	1.879	2.728	12.7	19.7	2 1	7 0.83	- 1 44.4	3.480	4.332	7.3	19.9
2 11	6 41.66	+42 51.9	1.974	2.745	15.2	19.9	2 11	6 55.81	- 0 32.2	3.527	4.309	8.8	20.0
432265	2009 <i>SU</i> ₃₀		1 8.6 158°93	1°1/ 7.9 17			345031	2005 <i>EN</i> ₁₄₈		1 8.6 174°36	3°8/ 7.1 18		
12 3	7 37.24	+26 45.8	4.229	5.008	7.5	22.8	12 3	7 44.10	+32 53.4	2.487	3.277	11.9	21.1
12 13	7 32.63	+27 5.1	4.142	5.014	5.7	22.6	12 13	7 38.87	+33 37.0	2.404	3.278	9.3	20.9
12 23	7 26.86	+27 24.4	4.082	5.020	3.7	22.5	12 23	7 31.38	+34 18.0	2.347	3.278	6.5	20.7
1 2	7 20.27	+27 42.1	4.052	5.026	1.7	22.4	1 2	7 22.23	+34 51.8	2.317	3.279	4.2	20.6
1 12	7 13.36	+27 56.6	4.054	5.031	1.4	22.3	1 12	7 12.37	+35 14.4	2.317	3.280	4.2	20.6
1 22	7 6.61	+28 7.1	4.088	5.036	3.3	22.5	1 22	7 2.82	+35 23.8	2.346	3.280	6.4	20.7
2 1	7 0.52	+28 13.1	4.153	5.041	5.3	22.6	2 1	6 54.59	+35 20.3	2.404	3.280	9.2	20.9
2 11	6 55.49	+28 14.8	4.244	5.045	7.1	22.8	2 11	6 48.46	+35 5.8	2.486	3.280	11.8	21.1
264424	2000 <i>RE</i>		1 8.6 40°99	4°9/ 9.0 16			108839	2001 <i>OB</i> ₈₈		1 8.6 92°10	6°4/ 6.6 18		
12 3	8 4.56	+38 14.9	1.360	2.152	19.8	19.4	12 3	7 47.78	+41 21.1	2.346	3.124	12.8	19.3
12 13	7 54.94	+37 24.2	1.316	2.188	15.5	19.2	12 13	7 42.02	+42 6.8	2.270	3.125	10.5	19.1
12 23	7 41.54	+36 17.5	1.293	2.224	10.7	19.1	12 23	7 33.56	+42 43.9	2.218	3.127	8.2	19.0
1 2	7 26.03	+34 50.4	1.296	2.261	6.3	18.9	1 2	7 23.13	+43 6.2	2.192	3.128	6.6	18.9
1 12	7 10.62	+33 3.9	1.327	2.298	5.1	18.9	1 12	7 11.92	+43 9.4	2.195	3.130	6.7	18.9
1 22	6 57.26	+31 5.1	1.388	2.336	8.5	19.2	1 22	7 1.23	+42 52.1	2.225	3.131	8.4	19.0
2 1	6 47.29	+29 3.6	1.477	2.374	12.5	19.6	2 1	6 52.25	+42 16.4	2.282	3.132	10.7	19.1
2 11	6 41.23	+27 7.7	1.589	2.412	16.0	19.9	2 11	6 45.86	+41 26.6	2.362	3.134	13.0	19.3
53707	2000 <i>DC</i> ₁₀₃		1 8.6 167°68	4°3/ 7.2 18			423428	2005 <i>QM</i> ₂₂		1 8.6 171°06	2°2/ 7.9 17		
12 3	7 48.93	+33 56.3	2.292	3.077									

EPHEMERIDES

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
175950	2000 <i>GJ</i> ₁₀₅		1 8.6 208°56	1.5/ 8.0	18		243163	2007 <i>TK</i> ₉₄		1 8.6 132°33	1.0/ 8.9	18	
12 3	7 45.27	+24 53.2	2.321	3.110	12.6	21.0	12 3	7 47.95	+19 2.1	2.039	2.822	14.4	21.7
12 13	7 39.84	+25 26.8	2.227	3.104	9.8	20.8	12 13	7 41.78	+19 1.4	1.966	2.838	11.1	21.5
12 23	7 32.08	+26 3.4	2.157	3.098	6.4	20.6	12 23	7 33.21	+19 6.2	1.916	2.854	7.3	21.3
1 2	7 22.56	+26 39.2	2.115	3.091	2.8	20.4	1 2	7 22.97	+19 14.6	1.893	2.868	3.2	21.1
1 12	7 12.20	+27 10.4	2.104	3.083	2.2	20.3	1 12	7 12.10	+19 24.4	1.901	2.882	1.7	21.0
1 22	7 2.06	+27 34.3	2.124	3.075	5.7	20.5	1 22	7 1.74	+19 34.0	1.940	2.895	5.7	21.3
2 1	6 53.18	+27 49.8	2.172	3.066	9.2	20.7	2 1	6 52.92	+19 42.2	2.007	2.908	9.5	21.6
2 11	6 46.42	+27 57.5	2.246	3.056	12.3	20.9	2 11	6 46.42	+19 48.9	2.099	2.919	12.7	21.8
190974	2001 <i>XA</i> ₇₉		1 8.6 66°83	1.8/ 9.0	17		266928	2010 <i>FE</i> ₁₆		1 8.6 347°23	5.8/ 6.9	18	
12 3	7 46.52	+17 14.8	1.373	2.182	18.7	20.6	12 3	7 45.27	+37 18.2	2.061	2.856	13.8	20.2
12 13	7 41.61	+17 17.5	1.315	2.200	14.5	20.4	12 13	7 40.37	+38 3.5	1.982	2.853	11.1	20.1
12 23	7 33.51	+17 31.0	1.276	2.219	9.6	20.2	12 23	7 32.65	+38 42.6	1.926	2.851	8.2	19.9
1 2	7 23.14	+17 52.8	1.262	2.237	4.3	19.9	1 2	7 22.84	+39 9.4	1.897	2.848	6.1	19.7
1 12	7 11.97	+18 19.4	1.275	2.256	2.4	19.9	1 12	7 12.13	+39 18.7	1.895	2.846	6.1	19.7
1 22	7 1.57	+18 47.3	1.315	2.274	7.3	20.2	1 22	7 1.89	+39 8.8	1.920	2.845	8.3	19.9
2 1	6 53.33	+19 13.7	1.381	2.293	12.0	20.5	2 1	6 53.39	+38 41.2	1.972	2.843	11.2	20.0
2 11	6 48.17	+19 37.2	1.468	2.312	16.0	20.8	2 11	6 47.56	+37 59.9	2.047	2.842	13.9	20.2
153153	2000 <i>SP</i> ₂₈₈		1 8.6 188°05	4.1/ 7.7	18		274539	2008 <i>SR</i> ₂₃₇		1 8.6 112°53	0.3/ 8.7	18	
12 3	7 49.39	+34 13.3	2.158	2.945	13.5	20.4	12 3	7 42.96	+20 25.1	2.208	2.998	13.2	21.3
12 13	7 43.17	+34 30.2	2.074	2.945	10.6	20.2	12 13	7 37.91	+20 33.1	2.130	3.007	10.1	21.1
12 23	7 34.26	+34 41.6	2.013	2.944	7.5	20.0	12 23	7 30.71	+20 45.8	2.076	3.016	6.6	20.9
1 2	7 23.42	+34 42.7	1.980	2.943	4.7	19.8	1 2	7 21.97	+21 1.1	2.049	3.025	2.7	20.6
1 12	7 11.80	+34 29.8	1.976	2.942	4.4	19.8	1 12	7 12.61	+21 16.6	2.052	3.034	1.4	20.6
1 22	7 0.72	+34 2.2	2.002	2.940	7.0	20.0	1 22	7 3.63	+21 30.6	2.085	3.042	5.2	20.8
2 1	6 51.34	+33 21.8	2.056	2.939	10.2	20.2	2 1	6 55.98	+21 41.8	2.147	3.050	8.8	21.1
2 11	6 44.54	+32 32.6	2.135	2.937	13.2	20.4	2 11	6 50.37	+21 50.0	2.234	3.058	11.9	21.3
199453	2006 <i>DL</i> ₃₉		1 8.6 196°88	1.0/ 8.3	18		61389	2000 <i>QD</i> ₃		1 8.6 176°36	3.0/ 9.6	18	
12 3	7 42.92	+24 12.3	2.240	3.035	12.8	20.8	12 3	7 45.05	+13 5.7	1.822	2.604	15.8	19.9
12 13	7 38.02	+24 32.2	2.153	3.034	9.9	20.6	12 13	7 40.00	+13 10.0	1.738	2.606	12.5	19.7
12 23	7 30.86	+24 54.6	2.091	3.033	6.4	20.4	12 23	7 32.34	+13 26.5	1.676	2.607	8.7	19.5
1 2	7 22.05	+25 16.6	2.056	3.032	2.7	20.2	1 2	7 22.72	+13 54.3	1.639	2.608	4.7	19.3
1 12	7 12.52	+25 35.2	2.050	3.031	1.8	20.1	1 12	7 12.21	+14 31.1	1.632	2.609	3.2	19.2
1 22	7 3.29	+25 48.2	2.075	3.029	5.5	20.3	1 22	7 2.03	+15 13.6	1.654	2.609	6.6	19.4
2 1	6 55.37	+25 54.9	2.128	3.028	9.1	20.6	2 1	6 53.37	+15 58.2	1.703	2.608	10.6	19.6
2 11	6 49.54	+25 55.7	2.206	3.026	12.2	20.8	2 11	6 47.13	+16 42.3	1.777	2.607	14.2	19.8
450327	2004 <i>TQ</i> ₄₅		1 8.6 82°99	4.7/ 9.8	17		85611	1998 <i>HW</i> ₁₆		1 8.6 194°95	4.4/ 9.9	18	
12 3	7 45.57	+11 12.3	1.534	2.322	18.0	21.8	12 3	7 43.41	+10 13.4	1.803	2.581	16.1	20.2
12 13	7 40.55	+10 44.3	1.469	2.337	14.4	21.6	12 13	7 38.75	+10 2.3	1.718	2.580	13.0	20.0
12 23	7 32.69	+10 30.2	1.425	2.353	10.2	21.4	12 23	7 31.54	+10 5.0	1.654	2.579	9.3	19.8
1 2	7 22.80	+10 31.0	1.405	2.368	6.2	21.2	1 2	7 22.40	+10 22.1	1.616	2.578	5.8	19.6
1 12	7 12.17	+10 45.6	1.412	2.383	4.9	21.1	1 12	7 12.38	+10 52.2	1.605	2.576	4.5	19.5
1 22	7 2.15	+11 11.4	1.447	2.398	7.8	21.4	1 22	7 2.67	+11 32.5	1.623	2.574	7.1	19.6
2 1	6 54.00	+11 45.0	1.507	2.413	11.7	21.6	2 1	6 54.42	+12 19.5	1.669	2.572	10.9	19.8
2 11	6 48.58	+12 22.6	1.591	2.427	15.3	21.9	2 11	6 48.55	+13 9.3	1.738	2.570	14.4	20.1
337910	2001 <i>XA</i> ₁₁₁		1 8.6 5°76	1.2/ 8.2	18		335680	2006 <i>VV</i> ₄₇		1 8.6 66°57	3.9/ 9.3	17	
12 3	7 41.29	+20 38.9	1.171	2.005	19.7	20.1	12 3	7 46.78	+15 1.0	1.260	2.071	20.0	21.3
12 13	7 38.55	+21 35.5	1.103	2.005	15.3	19.9	12 13	7 42.18	+14 27.8	1.194	2.079	15.8	21.0
12 23	7 32.13	+22 45.4	1.054	2.005	9.9	19.6	12 23	7 34.11	+14 6.3	1.148	2.087	10.9	20.8
1 2	7 22.80	+24 2.3	1.029	2.007	4.1	19.2	1 2	7 23.49	+13 57.1	1.124	2.095	5.9	20.5
1 12	7 12.11	+25 17.5	1.028	2.010	2.7	19.2	1 12	7 11.85	+13 59.3	1.126	2.103	4.2	20.4
1 22	7 1.94	+26 23.0	1.053	2.013	8.5	19.5	1 22	7 0.92	+14 10.5	1.154	2.111	8.4	20.7
2 1	6 54.10	+27 14.3	1.101	2.018	13.9	19.8	2 1	6 52.26	+14 28.3	1.207	2.120	13.3	21.0
2 11	6 49.82	+27 50.7	1.170	2.023	18.5	20.1	2 11	6 46.92	+14 49.7	1.280	2.128	17.6	21.3
429354	2010 <i>GE</i> ₂₈		1 8.6 304°10	4.3/ 6.7	16		6387	1989 <i>WC</i>		1 8.6 22°76	0.1/ 8.6	18	
12 3	7 43.44	+30 25.5	2.086	2.887	13.4	20.6	12 3	7 42.84	+21 30.9	1.418	2.238	17.7	17.0
12 13	7 39.23	+31 34.0	1.972	2.853	10.6	20.3	12 13	7 38.93	+21 32.0	1.351	2.245	13.6	16.8
12 23	7 32.20	+32 45.7	1.882	2.820	7.5	20.1	12 23	7 31.89	+21 38.8	1.305	2.252	8.9	16.5
1 2	7 22.82	+33 54.5	1.820	2.785	4.7	19.8	1 2	7 22.56	+21 48.8	1.283	2.260	3.6	16.3
1 12	7 12.03	+34 53.6	1.786	2.751	4.9	19.8	1 12	7 12.34	+21 58.5	1.288	2.269	1.8	16.2
1 22	7 1.12	+35 37.7	1.781	2.717	7.9	19.9	1 22	7 2.75	+22 5.7	1.319	2.279	7.1	16.5
2 1	6 51.48	+36 4.5	1.803	2.683	11.6	20.0	2 1	6 55.19	+22 9.2	1.375	2.290	11.9	16.8
2 11	6 44.31	+36 15.3	1.848	2.649	15.0	20.2	2 11	6 50.62	+22 9.3	1.454	2.301	15.9	17.1
348648	2005 <i>YG</i> ₁₉₆		1 8.6 7°89	0.5/ 8.5	18		23071	<i>Tinali</i>		1 8.6 71°12	0.9/ 8.9	18	
12 3	7 44.49	+23 59.1	1.165	1.998	19.9	20.1	12 3	7 42.16	+18 31.9	2.009	2.803	14.1	19.5
12 13	7 40.92	+23 48.2	1.098	1.998	15.4	19.9	12 13	7 37.51	+18 41.3	1.933	2.812	10.9	19.3
12 23	7 33.55	+23 40.3	1.050	2.000	10.1	19.6	12 23	7 30.56	+18 57.5	1.880	2.820	7.2	19.0
1 2	7 23.31	+23 32.1	1.024	2.002	4.1	19.2	1 2	7 21.95	+19 18.6	1.853	2.829	3.1	18.8
1 12	7 11.90	+23 20.4	1.023	2.005	2.2	19.1	1 12	7 12.66	+19 42.0	1.856	2.837	1.6	18.7
1 22	7 1.25	+23 3.9	1.048	2.009	8.3	19.5	1 22	7 3.77	+20 5.2	1.888	2.846	5.6	19.0
2 1	6 53.12	+22 43.3	1.096	2.014	13.7	19.8	2 1	6 56.29	+20 26.6	1.948	2.855	9.4	19.2
2 11	6 48.63	+22 20.4	1.164	2.020	18.4	20.1	2 11	6 50.99	+20 45.1	2.033	2.863	12.7	19.5
457085	2008 <i>EA</i> ₁₁₃		1 8.6 338°09	5.9/ 7.6	16		430553	2002 <i>JS</i> ₉		1 8.6 294°44	15.0/31.2	17	
12 3	7 44.50	+34 5.6	1.348	2.174	18.1								

EPHEMERIDES

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
164178	2004 <i>BP</i> ₄₈		1 8.6 24°05'	0°2'	8.6 18		519514	2012 <i>FD</i> ₈₆		1 8.6 154°37'	1°7'	8.0 18	
12 3	7 41.86	+22 24.1	2.093	2.891	13.5	20.1	12 3	7 44.91	+26 30.8	2.557	3.342	11.7	22.4
12 13	7 37.28	+22 28.6	2.011	2.894	10.4	19.9	12 13	7 39.24	+26 57.0	2.475	3.350	9.0	22.2
12 23	7 30.41	+22 36.4	1.953	2.896	6.7	19.7	12 23	7 31.52	+27 23.7	2.419	3.358	5.9	22.0
1 2	7 21.90	+22 45.3	1.922	2.899	2.7	19.4	1 2	7 22.33	+27 47.9	2.391	3.365	2.7	21.8
1 12	7 12.70	+22 52.9	1.920	2.902	1.4	19.3	1 12	7 12.53	+28 6.5	2.394	3.371	2.2	21.8
1 22	7 3.87	+22 57.6	1.947	2.905	5.5	19.6	1 22	7 3.07	+28 17.8	2.428	3.377	5.2	22.0
2 1	6 56.42	+22 58.8	2.003	2.908	9.3	19.8	2 1	6 54.84	+28 21.4	2.491	3.382	8.3	22.2
2 11	6 51.12	+22 56.5	2.083	2.911	12.5	20.1	2 11	6 48.53	+28 18.2	2.580	3.387	11.0	22.4
320964	2008 <i>HT</i> ₃₄		1 8.6 310°64'	0°2'	8.5 17		37013	2000 <i>TA</i> ₅₄		1 8.6 315°40'	1°4'	8.9 18	
12 3	7 41.28	+18 8.1	1.593	2.403	16.5	20.2	12 3	7 42.00	+18 32.4	1.373	2.192	18.2	19.3
12 13	7 37.95	+19 6.9	1.492	2.380	12.9	19.9	12 13	7 38.76	+18 30.8	1.283	2.175	14.3	19.0
12 23	7 31.57	+20 21.3	1.412	2.357	8.6	19.6	12 23	7 32.18	+18 38.8	1.212	2.158	9.6	18.7
1 2	7 22.63	+21 47.2	1.357	2.334	3.5	19.2	1 2	7 22.90	+18 54.9	1.166	2.142	4.3	18.4
1 12	7 12.21	+23 18.1	1.331	2.312	1.9	19.1	1 12	7 12.20	+19 16.1	1.144	2.126	2.3	18.2
1 22	7 1.73	+24 46.3	1.332	2.291	7.3	19.4	1 22	7 1.72	+19 39.0	1.149	2.110	7.8	18.5
2 1	6 52.77	+26 5.5	1.360	2.269	12.4	19.6	2 1	6 53.13	+20 1.0	1.179	2.096	13.1	18.7
2 11	6 46.62	+27 12.5	1.410	2.249	16.8	19.8	2 11	6 47.71	+20 20.5	1.229	2.082	17.9	19.0
312504	2009 <i>BY</i> ₁₅₅		1 8.6 235°89'	0°9'	8.4 18		318748	2005 <i>SE</i> ₂₄		1 8.6 78°22'	7°4'	11.7 18	
12 3	7 46.27	+23 9.9	1.898	2.695	14.7	21.9	12 3	7 41.63	+0 58.9	1.875	2.619	16.8	20.7
12 13	7 41.14	+23 31.9	1.803	2.684	11.4	21.6	12 13	7 37.11	+0 37.4	1.806	2.633	14.1	20.5
12 23	7 33.23	+23 58.5	1.731	2.673	7.5	21.4	12 23	7 30.31	+0 36.0	1.757	2.647	11.1	20.3
1 2	7 23.16	+24 26.1	1.685	2.662	3.1	21.1	1 2	7 21.89	+0 56.9	1.731	2.662	8.5	20.2
1 12	7 12.02	+24 50.6	1.669	2.650	1.9	21.0	1 12	7 12.82	+1 39.6	1.733	2.676	7.4	20.2
1 22	7 1.11	+25 9.1	1.682	2.637	6.4	21.2	1 22	7 4.17	+2 40.9	1.761	2.690	8.6	20.3
2 1	6 51.74	+25 20.3	1.723	2.624	10.7	21.5	2 1	6 56.92	+3 55.5	1.817	2.704	11.1	20.4
2 11	6 44.91	+25 24.8	1.787	2.611	14.5	21.7	2 11	6 51.83	+5 17.3	1.896	2.717	13.8	20.7
81545	2000 <i>HM</i> ₂₂		1 8.6 204°08'	1°4'	8.9 18		360191	1988 <i>TA</i>		1 8.6 146°93'	2°0'	9.1 13 C	
12 3	7 43.89	+18 17.9	1.857	2.653	15.1	19.9	12 3	8 6.07	+16 16.4	1.385	2.155	20.5	24.0
12 13	7 39.10	+18 12.9	1.773	2.652	11.7	19.7	12 13	7 56.76	+16 27.8	1.316	2.179	16.1	23.8
12 23	7 31.75	+18 14.6	1.711	2.651	7.8	19.4	12 23	7 43.51	+16 50.9	1.268	2.201	10.7	23.5
1 2	7 22.49	+18 21.7	1.676	2.650	3.5	19.2	1 2	7 27.34	+17 22.0	1.247	2.220	4.9	23.2
1 12	7 12.40	+18 32.2	1.669	2.649	2.0	19.1	1 12	7 10.07	+17 56.0	1.256	2.236	2.7	23.1
1 22	7 2.67	+18 44.0	1.691	2.648	6.1	19.3	1 22	6 53.77	+18 28.4	1.296	2.250	8.1	23.5
2 1	6 54.46	+18 55.8	1.740	2.647	10.3	19.6	2 1	6 40.26	+18 57.2	1.364	2.261	13.4	23.8
2 11	6 48.66	+19 6.6	1.814	2.646	13.9	19.8	2 11	6 30.64	+19 21.8	1.455	2.269	17.7	24.1
279424	2010 <i>JY</i> ₁₅₁		1 8.6 260°57'	0°3'	8.5 17		366863	2005 <i>SJ</i> ₈₉		1 8.6 133°12'	1°3'	8.9 18	
12 3	7 40.59	+21 41.0	2.544	3.333	11.6	21.6	12 3	7 44.07	+18 9.4	2.077	2.865	14.0	21.6
12 13	7 36.06	+22 3.3	2.444	3.322	9.0	21.4	12 13	7 38.91	+18 8.7	1.998	2.872	10.8	21.4
12 23	7 29.56	+22 29.9	2.369	3.310	5.8	21.1	12 23	7 31.45	+18 14.2	1.941	2.879	7.2	21.2
1 2	7 21.57	+22 58.5	2.322	3.298	2.4	20.9	1 2	7 22.36	+18 24.5	1.912	2.886	3.2	20.9
1 12	7 12.87	+23 26.4	2.305	3.286	1.3	20.8	1 12	7 12.59	+18 37.7	1.912	2.893	1.8	20.8
1 22	7 4.32	+23 51.3	2.319	3.274	4.9	21.0	1 22	7 3.20	+18 51.7	1.943	2.899	5.6	21.1
2 1	6 56.81	+24 11.9	2.362	3.262	8.3	21.2	2 1	6 55.22	+19 5.2	2.001	2.905	9.3	21.3
2 11	6 51.06	+24 27.7	2.430	3.250	11.2	21.4	2 11	6 49.39	+19 17.5	2.085	2.911	12.6	21.6
291500	2006 <i>DR</i> ₁₄₇		1 8.6 179°96'	0°3'	8.5 18		458360	2010 <i>VV</i> ₂₀₆		1 8.6 44°17'	3°0'	7.8 18	
12 3	7 47.36	+22 13.2	1.979	2.770	14.4	22.2	12 3	7 45.21	+27 39.2	1.612	2.425	16.2	21.1
12 13	7 41.67	+22 26.5	1.894	2.772	11.2	22.0	12 13	7 40.63	+28 18.7	1.544	2.433	12.5	20.9
12 23	7 33.38	+22 43.9	1.832	2.773	7.3	21.8	12 23	7 32.98	+28 59.5	1.498	2.441	8.3	20.7
1 2	7 23.15	+23 2.4	1.797	2.773	3.0	21.5	1 2	7 23.07	+29 35.8	1.477	2.450	4.2	20.5
1 12	7 12.07	+23 18.8	1.791	2.773	1.6	21.4	1 12	7 12.24	+30 2.2	1.484	2.460	3.7	20.5
1 22	7 1.37	+23 30.9	1.816	2.772	6.0	21.7	1 22	7 1.99	+30 15.6	1.518	2.469	7.5	20.7
2 1	6 52.22	+23 37.7	1.869	2.770	10.0	21.9	2 1	6 53.72	+30 16.1	1.579	2.479	11.6	21.0
2 11	6 45.50	+23 39.8	1.947	2.768	13.5	22.1	2 11	6 48.38	+30 5.9	1.662	2.489	15.2	21.2
351592	2005 <i>UA</i> ₅₁₀		1 8.6 83°00'	2°7'	9.1 17		178898	2001 <i>OR</i> ₇₀		1 8.6 155°06'	4°2'	7.6 18	
12 3	7 49.11	+17 12.1	1.424	2.225	18.6	21.1	12 3	7 50.68	+34 43.1	2.245	3.028	13.2	20.5
12 13	7 43.45	+16 39.6	1.362	2.243	14.5	20.8	12 13	7 44.06	+35 9.1	2.167	3.035	10.4	20.4
12 23	7 34.65	+16 15.4	1.322	2.261	9.7	20.6	12 23	7 34.82	+35 29.6	2.114	3.042	7.4	20.2
1 2	7 23.64	+15 59.1	1.306	2.278	4.8	20.4	1 2	7 23.72	+35 39.6	2.088	3.048	4.8	20.0
1 12	7 11.89	+15 49.7	1.317	2.296	3.2	20.3	1 12	7 11.92	+35 35.4	2.092	3.054	4.6	20.0
1 22	7 0.95	+15 46.0	1.356	2.313	7.4	20.6	1 22	7 0.67	+35 15.8	2.125	3.059	7.0	20.2
2 1	6 52.20	+15 46.7	1.421	2.330	12.0	20.9	2 1	6 51.12	+34 42.8	2.187	3.064	10.0	20.4
2 11	6 46.50	+15 50.6	1.509	2.347	15.9	21.2	2 11	6 44.11	+34 0.1	2.274	3.068	12.7	20.6
503807	2017 <i>JO</i> ₃		1 8.6 164°98'	0°7'	8.9 17		62487	2000 <i>SP</i> ₂₂₂		1 8.6 56°23'	2°2'	9.5 18	
12 3	7 42.96	+17 32.6	2.674	3.448	11.5	21.6	12 3	7 42.40	+13 48.7	1.735	2.528	16.1	19.5
12 13	7 37.62	+18 4.1	2.586	3.454	8.9	21.5	12 13	7 37.95	+14 13.4	1.669	2.545	12.6	19.3
12 23	7 30.43	+18 42.4	2.523	3.459	5.9	21.3	12 23	7 30.97	+14 51.0	1.625	2.562	8.5	19.1
1 2	7 21.89	+19 25.1	2.489	3.464	2.5	21.1	1 2	7 22.19	+15 39.2	1.607	2.579	4.2	18.9
1 12	7 12.74	+20 9.6	2.487	3.468	1.3	21.0	1 12	7 12.70	+16 34.3	1.618	2.597	2.5	18.8
1 22	7 3.81	+20 53.1	2.516	3.471	4.6	21.2	1 22	7 3.70	+17 31.8	1.657	2.615	6.2	19.1
2 1	6 55.91	+21 33.5	2.575	3.474	7.7	21.4	2 1	6 56.29	+18 27.6	1.723	2.633	10.2	19.3
2 11	6 49.69	+22 9.5	2.662	3.476	10.5	21.6	2 11	6 51.29	+19 19.0	1.814	2.651	13.7	19.6
315459	2007 <i>XM</i> ₃₂		1 8.6 68°59'	3°4'	7.8 18		126319	2002 <i>AW</i> ₁₃₈		1 8.6 291°18'	1°3'	8.2 18	
12 3	7 48.10	+28 23.1	1.568	2.378	16.7	20.3</							

EPHEMERIDES

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
135372	2001 <i>TU</i> ₁₃₆		1 8.6 81°19'	1.9°/ 9.5	18		283412	2000 <i>SE</i> ₁₁₂		1 8.6 61°41'	1.4°/ 8.3	17	
12 3	7 40.10	+14 1.6	2.337	3.116	12.9	19.9	12 3	7 49.03	+24 4.0	1.360	2.175	18.6	20.0
12 13	7 35.67	+14 26.6	2.255	3.123	10.0	19.7	12 13	7 43.64	+24 25.6	1.309	2.200	14.2	19.8
12 23	7 29.28	+15 1.5	2.197	3.130	6.8	19.5	12 23	7 34.88	+24 51.0	1.279	2.225	9.2	19.6
1 2	7 21.48	+15 44.6	2.166	3.137	3.4	19.3	1 2	7 23.81	+25 15.1	1.273	2.250	3.8	19.3
1 12	7 13.06	+16 33.3	2.166	3.144	2.1	19.2	1 12	7 12.01	+25 33.1	1.295	2.275	2.4	19.3
1 22	7 4.90	+17 24.3	2.195	3.151	5.1	19.4	1 22	7 1.18	+25 42.4	1.343	2.300	7.4	19.7
2 1	6 57.87	+18 14.9	2.254	3.159	8.4	19.6	2 1	6 52.73	+25 43.1	1.417	2.326	12.1	20.0
2 11	6 52.63	+19 2.6	2.338	3.166	11.3	19.8	2 11	6 47.55	+25 36.9	1.514	2.351	15.9	20.3
338975	2004 <i>FS</i> ₈₄		1 8.6 68°07'	2°0/ 8.2	18		333039	2011 <i>SZ</i> ₁₀₆		1 8.6 104°46'	1°4/ 9.0	17	
12 3	7 48.37	+25 48.0	1.370	2.187	18.3	20.4	12 3	7 47.55	+17 31.0	1.740	2.531	16.1	21.3
12 13	7 43.59	+26 6.5	1.297	2.189	14.2	20.2	12 13	7 41.86	+17 38.7	1.675	2.551	12.5	21.1
12 23	7 35.19	+26 27.7	1.245	2.191	9.3	19.9	12 23	7 33.50	+17 54.9	1.631	2.570	8.2	20.9
1 2	7 24.05	+26 46.1	1.217	2.193	4.1	19.6	1 2	7 23.24	+18 17.2	1.614	2.588	3.7	20.7
1 12	7 11.74	+26 56.6	1.215	2.195	3.0	19.5	1 12	7 12.29	+18 42.7	1.625	2.606	2.0	20.6
1 22	7 0.08	+26 56.3	1.240	2.197	8.0	19.8	1 22	7 1.93	+19 8.4	1.666	2.624	6.2	20.9
2 1	6 50.74	+26 45.8	1.291	2.199	13.0	20.1	2 1	6 53.35	+19 32.3	1.735	2.640	10.4	21.2
2 11	6 44.85	+26 27.6	1.363	2.201	17.3	20.4	2 11	6 47.35	+19 53.4	1.827	2.657	13.9	21.4
408112	2013 <i>CL</i> ₅		1 8.6 219°60'	1°0/ 8.9	17		317566	2002 <i>VS</i> ₁₀₇		1 8.6 19°65'	4°4/ 7.7	18	
12 3	7 47.12	+19 11.5	2.089	2.872	14.0	22.3	12 3	7 41.93	+29 0.5	1.098	1.942	20.1	19.7
12 13	7 41.45	+19 7.3	1.989	2.862	11.0	22.1	12 13	7 39.19	+29 44.0	1.049	1.954	15.5	19.5
12 23	7 33.27	+19 8.3	1.913	2.851	7.3	21.8	12 23	7 32.52	+30 27.3	1.018	1.968	10.4	19.3
1 2	7 23.18	+19 12.9	1.865	2.840	3.2	21.5	1 2	7 22.99	+31 2.5	1.010	1.984	5.6	19.1
1 12	7 12.17	+19 19.1	1.847	2.828	1.7	21.4	1 12	7 12.45	+31 22.4	1.026	2.001	5.1	19.1
1 22	7 1.38	+19 25.4	1.859	2.815	5.9	21.7	1 22	7 2.91	+31 24.2	1.066	2.020	9.4	19.4
2 1	6 51.96	+19 30.6	1.900	2.801	9.9	21.9	2 1	6 56.07	+31 9.4	1.128	2.041	14.1	19.7
2 11	6 44.82	+19 34.6	1.965	2.786	13.4	22.1	2 11	6 52.93	+30 42.4	1.211	2.062	18.1	20.0
41436	2000 <i>GJ</i> ₉₅		1 8.6 128°56'	6°5/10.5	18		65900	1998 <i>DV</i> ₁₅		1 8.6 60°06'	1°8/ 9.1	18	
12 3	7 43.43	+ 4 34.8	2.074	2.822	15.3	18.7	12 3	7 45.14	+17 37.1	1.478	2.285	17.7	18.6
12 13	7 38.29	+ 3 45.4	1.998	2.832	12.6	18.5	12 13	7 40.56	+17 32.2	1.409	2.294	13.8	18.3
12 23	7 31.00	+ 3 10.2	1.943	2.841	9.8	18.3	12 23	7 32.95	+17 36.7	1.361	2.303	9.2	18.1
1 2	7 22.18	+ 2 51.5	1.914	2.850	7.4	18.2	1 2	7 23.10	+17 48.8	1.337	2.312	4.2	17.8
1 12	7 12.73	+ 2 50.5	1.913	2.859	6.6	18.2	1 12	7 12.36	+18 5.8	1.341	2.321	2.4	17.7
1 22	7 3.65	+ 3 6.0	1.940	2.867	8.0	18.3	1 22	7 2.22	+18 25.0	1.371	2.331	7.0	18.0
2 1	6 55.88	+ 3 35.3	1.994	2.875	10.5	18.5	2 1	6 54.03	+18 44.1	1.428	2.340	11.7	18.3
2 11	6 50.14	+ 4 14.6	2.072	2.883	13.2	18.7	2 11	6 48.74	+19 1.7	1.508	2.350	15.7	18.6
390834	2004 <i>PM</i> ₉₉		1 8.6 97°20'	4°1/ 7.8	17		82854	2001 <i>QC</i> ₅₆		1 8.6 188°28'	5°6/ 7.4	18	
12 3	7 51.90	+30 57.0	1.577	2.381	16.9	21.7	12 3	7 51.40	+37 25.4	2.064	2.849	14.1	20.5
12 13	7 45.76	+31 32.4	1.516	2.398	13.2	21.5	12 13	7 45.06	+37 59.4	1.983	2.849	11.3	20.3
12 23	7 36.26	+32 5.0	1.477	2.415	8.9	21.3	12 23	7 35.74	+38 26.2	1.925	2.848	8.4	20.1
1 2	7 24.37	+32 27.9	1.463	2.432	5.1	21.1	1 2	7 24.22	+38 39.4	1.894	2.847	6.0	19.9
1 12	7 11.64	+32 35.9	1.477	2.448	4.6	21.1	1 12	7 11.81	+38 34.3	1.891	2.845	5.9	19.9
1 22	6 59.78	+32 27.2	1.519	2.464	8.1	21.3	1 22	6 59.96	+38 9.6	1.917	2.844	8.2	20.1
2 1	6 50.23	+32 3.9	1.587	2.480	12.1	21.6	2 1	6 50.02	+37 27.7	1.971	2.841	11.2	20.2
2 11	6 43.96	+31 30.6	1.678	2.495	15.5	21.9	2 11	6 42.94	+36 33.6	2.047	2.839	14.0	20.4
11366	1998 <i>GL</i> ₉		1 8.6 320°62'	4°1/10.4	18		18984	Olathe		1 8.6 257°14'	3°5/ 7.7	18	
12 3	7 39.99	+ 8 30.7	1.723	2.506	16.6	17.4	12 3	7 45.30	+33 47.2	2.497	3.284	11.9	18.2
12 13	7 36.45	+ 8 59.5	1.628	2.493	13.4	17.1	12 13	7 39.77	+34 0.9	2.410	3.282	9.3	18.0
12 23	7 30.29	+ 9 48.2	1.555	2.481	9.6	16.9	12 23	7 32.00	+34 10.0	2.347	3.279	6.5	17.8
1 2	7 22.06	+10 56.3	1.506	2.470	5.8	16.6	1 2	7 22.64	+34 10.7	2.312	3.276	4.1	17.7
1 12	7 12.73	+10 20.7	1.485	2.458	4.1	16.5	1 12	7 12.62	+34 0.2	2.307	3.273	3.8	17.6
1 22	7 3.53	+13 55.6	1.492	2.448	7.0	16.6	1 22	7 3.01	+33 37.7	2.332	3.271	6.1	17.8
2 1	6 55.71	+15 34.1	1.527	2.437	11.2	16.8	2 1	6 54.77	+33 4.5	2.385	3.268	9.0	18.0
2 11	6 50.28	+17 10.1	1.585	2.428	15.1	17.1	2 11	6 48.65	+32 23.2	2.464	3.265	11.6	18.1
68784	2002 <i>FK</i> ₁₀		1 8.6 244°10'	0°5/ 8.5	18		45577	2000 <i>CT</i> ₇₆		1 8.6 23°33'	0°7/ 8.4	18	
12 3	7 47.21	+23 37.8	1.733	2.534	15.7	20.0	12 3	7 41.77	+22 36.9	1.833	2.640	14.8	18.9
12 13	7 42.04	+23 36.8	1.643	2.526	12.2	19.7	12 13	7 37.59	+22 58.3	1.758	2.645	11.4	18.6
12 23	7 33.91	+23 38.4	1.575	2.518	8.0	19.5	12 23	7 30.84	+23 24.5	1.705	2.650	7.4	18.4
1 2	7 23.50	+23 39.5	1.533	2.510	3.3	19.2	1 2	7 22.23	+23 52.0	1.678	2.655	3.0	18.2
1 12	7 12.04	+23 37.3	1.519	2.501	1.8	19.0	1 12	7 12.83	+24 17.4	1.680	2.661	1.8	18.1
1 22	7 0.94	+23 30.1	1.535	2.492	6.7	19.3	1 22	7 3.85	+24 37.7	1.711	2.668	6.1	18.4
2 1	6 51.60	+23 18.0	1.577	2.483	11.3	19.6	2 1	6 56.44	+24 51.8	1.768	2.675	10.1	18.6
2 11	6 45.04	+23 2.2	1.643	2.473	15.2	19.8	2 11	6 51.43	+24 59.7	1.849	2.682	13.6	18.9
66662	1999 <i>TM</i> ₄		1 8.6 124°31'	1°5/ 9.1	18		190116	2004 <i>VU</i> ₃₅		1 8.7 152°81'	2°8/ 9.5	18	
12 3	7 43.12	+17 28.2	2.265	3.048	13.1	19.1	12 3	7 42.80	+13 27.5	2.506	3.273	12.4	20.6
12 13	7 37.97	+17 22.9	2.185	3.057	10.2	18.9	12 13	7 37.53	+13 7.7	2.421	3.280	9.8	20.4
12 23	7 30.75	+17 23.6	2.130	3.066	6.8	18.7	12 23	7 30.41	+12 55.1	2.361	3.287	6.8	20.3
1 2	7 22.07	+17 29.1	2.102	3.075	3.2	18.5	1 2	7 21.97	+12 49.9	2.328	3.293	3.9	20.1
1 12	7 12.81	+17 38.0	2.104	3.084	1.9	18.4	1 12	7 12.99	+12 51.4	2.326	3.299	2.9	20.0
1 22	7 3.91	+17 48.7	2.136	3.092	5.2	18.6	1 22	7 4.31	+12 58.5	2.354	3.304	5.3	20.2
2 1	6 56.27	+18 0.0	2.198	3.101	8.7	18.9	2 1	6 56.74	+13 9.9	2.411	3.309	8.2	20.4
2 11	6 50.60	+18 10.9	2.284	3.108	11.7	19.1	2 11	6 50.91	+13 24.2	2.495	3.313	11.0	20.6
233059	2005 <i>GH</i> ₁₃₆		1 8.6 177°29'	3°3/10.1	17		433780	2015 <i>BX</i> ₆₇		1 8.7 355°46'	3°0/ 7.9	18	
12 3	7 39.29	+ 9 19.4	3.000	3.752	10.9								

EPHEMERIDES

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
247464	2002 <i>GF</i> ₁₆₇		1 8.7 251°82	1°6/ 8.1	17		149493	2003 <i>EK</i> ₄₉		1 8.7 166°70	2°9/ 7.8	18	
12 3	7 41.37	+27 31.7	2.858	3.646	10.5	20.7	12 3	7 46.16	+29 13.9	1.999	2.798	14.0	20.1
12 13	7 36.49	+27 44.2	2.760	3.637	8.1	20.5	12 13	7 40.93	+29 42.4	1.918	2.799	10.9	19.9
12 23	7 29.78	+27 56.2	2.688	3.627	5.4	20.3	12 23	7 33.03	+30 10.1	1.860	2.800	7.3	19.7
1 2	7 21.74	+28 5.5	2.644	3.617	2.5	20.1	1 2	7 23.16	+30 32.5	1.829	2.801	3.9	19.5
1 12	7 13.10	+28 9.8	2.630	3.608	2.0	20.0	1 12	7 12.45	+30 45.2	1.828	2.801	3.4	19.5
1 22	7 4.68	+28 7.8	2.648	3.598	4.8	20.2	1 22	7 2.17	+30 46.3	1.855	2.802	6.7	19.7
2 1	6 57.26	+27 59.5	2.694	3.588	7.7	20.4	2 1	6 53.50	+30 36.2	1.909	2.803	10.3	19.9
2 11	6 51.51	+27 45.8	2.767	3.577	10.3	20.5	2 11	6 47.34	+30 17.0	1.988	2.803	13.5	20.1
336011	2007 <i>TN</i> ₄₀₇		1 8.7 72°60	3°9/10.2	18		101187	1998 <i>SV</i> ₁₃		1 8.7 50°13	3°0/ 7.9	17	
12 3	7 39.54	+9 11.8	2.320	3.086	13.3	20.9	12 3	7 48.67	+27 7.7	1.351	2.170	18.5	19.4
12 13	7 35.21	+9 5.8	2.240	3.094	10.7	20.8	12 13	7 43.46	+27 47.9	1.306	2.198	14.1	19.2
12 23	7 28.99	+9 11.4	2.184	3.102	7.7	20.6	12 23	7 34.83	+28 29.0	1.281	2.227	9.2	19.0
1 2	7 21.42	+9 28.9	2.153	3.111	5.0	20.4	1 2	7 23.85	+29 4.2	1.281	2.256	4.5	18.8
1 12	7 13.29	+9 57.2	2.152	3.119	3.9	20.4	1 12	7 12.18	+29 27.9	1.308	2.285	3.7	18.8
1 22	7 5.45	+10 33.9	2.180	3.128	5.8	20.5	1 22	7 1.54	+29 37.4	1.362	2.315	7.9	19.2
2 1	6 58.72	+11 16.4	2.237	3.136	8.7	20.7	2 1	6 53.35	+29 33.8	1.440	2.344	12.2	19.5
2 11	6 53.75	+12 1.6	2.319	3.145	11.5	20.9	2 11	6 48.48	+29 20.3	1.541	2.374	15.9	19.8
460085	2014 <i>OT</i> ₃₄₁		1 8.7 76°88	3°4/10.1	18		34817	Shiominemoto		1 8.7 95°76	0°7/ 8.6	18	17
12 3	7 44.39	+10 0.3	1.694	2.474	16.9	21.5	12 3	8 7.35	+28 4.9	1.077	1.883	23.0	16.7
12 13	7 39.54	+10 33.3	1.628	2.493	13.4	21.3	12 13	7 58.40	+26 21.8	1.013	1.898	17.9	16.5
12 23	7 32.07	+11 23.5	1.583	2.512	9.3	21.1	12 23	7 44.74	+24 27.2	0.969	1.912	11.8	16.2
1 2	7 22.73	+12 28.8	1.564	2.530	5.2	20.9	1 2	7 27.88	+22 20.8	0.950	1.927	4.8	15.8
1 12	7 12.64	+13 44.9	1.573	2.549	3.5	20.9	1 12	7 10.27	+20 7.8	0.959	1.941	2.5	15.7
1 22	7 3.04	+15 6.0	1.611	2.567	6.6	21.1	1 22	6 54.47	+17 58.1	0.997	1.954	9.3	16.2
2 1	6 55.08	+16 26.3	1.678	2.586	10.5	21.4	2 1	6 42.41	+16 1.6	1.060	1.967	15.3	16.5
2 11	6 49.61	+17 41.7	1.768	2.604	14.1	21.6	2 11	6 34.98	+14 23.9	1.145	1.980	20.1	16.9
75377	1999 <i>XP</i> ₈₅		1 8.7 41°85	1°1/ 8.9	18		290539	2005 <i>UR</i> ₇₁		1 8.7 353°00	6°6/ 9.4	18	
12 3	7 44.33	+19 1.0	1.373	2.189	18.4	18.9	12 3	7 41.69	+10 35.2	1.509	2.304	18.0	19.6
12 13	7 40.08	+19 2.5	1.313	2.204	14.2	18.7	12 13	7 37.90	+9 15.8	1.430	2.299	14.6	19.4
12 23	7 32.07	+19 12.8	1.274	2.219	9.3	18.5	12 23	7 31.27	+8 6.7	1.371	2.295	10.9	19.2
1 2	7 23.01	+19 29.4	1.258	2.235	4.0	18.2	1 2	7 22.51	+7 12.1	1.336	2.292	7.6	19.0
1 12	7 12.52	+19 48.8	1.269	2.251	2.0	18.1	1 12	7 12.81	+6 34.9	1.328	2.290	6.7	18.9
1 22	7 2.76	+20 8.1	1.307	2.268	7.1	18.5	1 22	7 3.52	+6 16.2	1.345	2.288	9.2	19.1
2 1	6 55.10	+20 25.1	1.370	2.285	11.9	18.8	2 1	6 55.96	+6 14.4	1.387	2.287	12.9	19.3
2 11	6 50.45	+20 39.1	1.456	2.303	15.9	19.1	2 11	6 51.06	+6 26.3	1.450	2.288	16.5	19.5
106820	2000 <i>XJ</i> ₄₅		1 8.7 175°03	16°6/ 3.2	18		124655	2001 <i>SP</i> ₇₄		1 8.7 157°54	1°0/ 8.5	18	
12 3	8 6.52	+52 12.7	1.287	2.061	21.6	19.4	12 3	7 50.06	+24 32.1	1.780	2.576	15.6	20.1
12 13	8 1.08	+54 52.5	1.236	2.062	19.3	19.2	12 13	7 44.03	+24 38.1	1.702	2.582	12.1	19.8
12 23	7 48.77	+57 14.0	1.203	2.064	17.4	19.1	12 23	7 35.09	+24 46.0	1.646	2.588	7.9	19.6
1 2	7 30.32	+58 56.2	1.191	2.065	16.6	19.0	1 2	7 24.02	+24 52.3	1.616	2.593	3.3	19.3
1 12	7 8.70	+59 42.2	1.200	2.065	17.1	19.1	1 12	7 12.07	+24 53.6	1.616	2.597	2.0	19.3
1 22	6 48.29	+59 27.8	1.229	2.065	18.7	19.2	1 22	7 0.67	+24 48.3	1.646	2.601	6.5	19.6
2 1	6 32.99	+58 22.5	1.276	2.064	21.0	19.3	2 1	6 51.12	+24 36.8	1.703	2.604	10.8	19.8
2 11	6 24.71	+56 43.5	1.338	2.063	23.2	19.5	2 11	6 44.34	+24 20.8	1.784	2.607	14.5	20.1
461444	2002 <i>EB</i> ₁₄₂		1 8.7 256°78	4°2/10.1	18		487670	2015 <i>PH</i> ₁₀₁		1 8.7 167°43	0°0/ 8.5	17	
12 3	7 41.04	+9 18.6	2.170	2.937	14.1	21.2	12 3	7 49.80	+20 7.1	1.660	2.455	16.6	22.3
12 13	7 36.67	+9 10.4	2.071	2.926	11.4	21.0	12 13	7 44.07	+20 33.8	1.581	2.460	12.9	22.1
12 23	7 30.14	+9 14.6	1.995	2.915	8.3	20.8	12 23	7 35.28	+21 8.4	1.523	2.465	8.4	21.9
1 2	7 21.98	+9 31.8	1.945	2.903	5.3	20.6	1 2	7 24.15	+21 47.3	1.492	2.468	3.5	21.6
1 12	7 13.00	+10 1.1	1.924	2.892	4.2	20.5	1 12	7 11.98	+22 25.7	1.489	2.471	1.7	21.4
1 22	7 4.17	+10 40.4	1.932	2.880	6.4	20.6	1 22	7 0.24	+22 59.6	1.516	2.473	6.8	21.8
2 1	6 56.46	+11 26.7	1.967	2.868	9.7	20.8	2 1	6 50.36	+23 26.8	1.570	2.474	11.4	22.0
2 11	6 50.69	+12 16.5	2.028	2.855	12.8	21.0	2 11	6 43.36	+23 47.1	1.648	2.474	15.3	22.3
314691	2006 <i>RN</i> ₂₈		1 8.7 35°57	4°9/ 9.9	18		314908	2006 <i>VQ</i> ₁₁₉		1 8.7 50°53	2°2/ 8.0	18	
12 3	7 42.31	+11 12.5	1.426	2.226	18.6	20.5	12 3	7 45.43	+25 16.6	1.535	2.350	16.8	20.5
12 13	7 38.38	+10 45.3	1.361	2.236	14.9	20.2	12 13	7 40.83	+25 56.4	1.474	2.365	12.9	20.3
12 23	7 31.53	+10 33.2	1.316	2.247	10.6	20.0	12 23	7 33.15	+26 39.8	1.435	2.380	8.4	20.0
1 2	7 22.56	+10 37.1	1.294	2.259	6.5	19.8	1 2	7 23.24	+27 21.0	1.421	2.396	3.8	19.8
1 12	7 12.75	+10 56.2	1.299	2.270	5.0	19.8	1 12	7 12.47	+27 54.5	1.434	2.412	3.0	19.8
1 22	7 3.53	+11 27.3	1.329	2.283	8.0	20.0	1 22	7 2.38	+28 17.0	1.475	2.429	7.3	20.1
2 1	6 56.17	+12 6.5	1.385	2.296	12.1	20.2	2 1	6 54.31	+28 27.9	1.541	2.446	11.6	20.4
2 11	6 51.60	+12 49.4	1.463	2.309	15.9	20.5	2 11	6 49.19	+28 28.7	1.631	2.463	15.2	20.7
235006	2003 <i>CX</i> ₂₅		1 8.7 349°99	5°0/10.0	18		258402	2001 <i>XX</i> ₁₂₂		1 8.7 184°71	5°2/ 9.9	18	
12 3	7 41.11	+10 55.0	1.244	2.056	20.1	20.2	12 3	7 43.09	+9 9.4	2.019	2.786	15.0	20.5
12 13	7 38.11	+10 43.9	1.169	2.052	16.2	20.0	12 13	7 38.25	+8 25.8	1.934	2.786	12.2	20.3
12 23	7 31.76	+10 51.6	1.113	2.048	11.6	19.7	12 23	7 31.14	+7 53.3	1.870	2.786	9.0	20.1
1 2	7 22.80	+11 19.1	1.078	2.045	6.9	19.4	1 2	7 22.37	+7 33.6	1.833	2.786	6.1	19.9
1 12	7 12.58	+12 4.5	1.068	2.043	5.1	19.3	1 12	7 12.88	+7 27.4	1.824	2.786	5.2	19.9
1 22	7 2.77	+13 2.9	1.083	2.041	8.7	19.5	1 22	7 3.70	+7 33.9	1.844	2.785	7.2	20.0
2 1	6 54.97	+14 8.2	1.122	2.041	13.6	19.8	2 1	6 55.83	+7 51.3	1.890	2.784	10.4	20.2
2 11	6 50.36	+15 14.2	1.182	2.041	18.0	20.0	2 11	6 50.06	+8 16.5	1.961	2.783	13.4	20.4
407323	2010 <i>OM</i> ₉₈		1 8.7 90°85	8°2/ 5.9	18		138032	2000 <i>DC</i> ₁₁		1 8.7 10°66	0°1/ 8.6	18	
12 3	7 53.63	+41 36.1	1.891	2.672	15.4	20.							

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
495428	2014 SZ ₂₁₁		1 8.7 132°59	5°6/10.9	18		187281	2005 TK ₅₉		1 8.7 174°18	1°1/ 8.3	18	
12 3	7 42.44	+ 4 13.0	2.270	3.012	14.3	21.9	12 3	7 44.45	+23 39.8	1.998	2.796	14.1	20.6
12 13	7 37.42	+ 3 54.6	2.192	3.024	11.7	21.7	12 13	7 39.55	+24 4.8	1.915	2.797	10.8	20.4
12 23	7 30.43	+ 3 51.0	2.136	3.035	9.0	21.6	12 23	7 32.13	+24 33.7	1.855	2.797	7.1	20.2
1 2	7 22.03	+ 4 3.3	2.107	3.046	6.6	21.4	1 2	7 22.83	+25 2.7	1.821	2.798	3.0	19.9
1 12	7 13.07	+ 4 31.2	2.105	3.056	5.6	21.4	1 12	7 12.71	+25 28.2	1.818	2.798	1.9	19.9
1 22	7 4.42	+ 5 12.4	2.133	3.066	7.0	21.5	1 22	7 2.92	+25 47.5	1.843	2.798	6.0	20.1
2 1	6 56.94	+ 6 3.6	2.189	3.076	9.5	21.7	2 1	6 54.61	+25 59.5	1.897	2.798	9.9	20.4
2 11	6 51.30	+ 7 0.7	2.270	3.084	12.1	21.9	2 11	6 48.65	+26 4.7	1.974	2.798	13.3	20.6
209499	2004 JG ₂₁		1 8.7 312°95	0°5/ 8.5	18		133002	2002 TE ₂₈₆		1 8.7 122°18	3°9/10.0	18	
12 3	7 40.51	+22 22.7	2.134	2.934	13.2	20.7	12 3	7 41.60	+ 8 57.9	2.723	3.474	11.9	19.2
12 13	7 36.47	+22 39.7	2.037	2.920	10.2	20.4	12 13	7 36.43	+ 8 28.5	2.645	3.489	9.6	19.1
12 23	7 30.13	+23 1.1	1.962	2.906	6.7	20.2	12 23	7 29.62	+ 8 8.1	2.592	3.503	7.0	18.9
1 2	7 22.03	+23 24.3	1.915	2.891	2.7	19.9	1 2	7 21.68	+ 7 57.4	2.566	3.518	4.7	18.8
1 12	7 13.06	+23 46.4	1.896	2.878	1.5	19.8	1 12	7 13.32	+ 7 56.6	2.571	3.532	4.0	18.8
1 22	7 4.28	+24 5.0	1.907	2.864	5.6	20.0	1 22	7 5.26	+ 8 4.5	2.606	3.545	5.5	18.9
2 1	6 56.73	+24 18.6	1.946	2.851	9.5	20.2	2 1	6 58.20	+ 8 19.8	2.670	3.558	7.9	19.0
2 11	6 51.28	+24 27.0	2.009	2.838	12.9	20.4	2 11	6 52.70	+ 8 40.4	2.760	3.571	10.3	19.2
120642	1996 PY ₅		1 8.7 149°91	0°3/ 8.8	18		129769	1999 HN		1 8.7 281°77	1°5/ 8.9	18	
12 3	7 47.48	+19 52.9	1.974	2.761	14.6	21.1	12 3	7 45.02	+18 39.7	1.553	2.359	17.1	20.1
12 13	7 41.73	+20 9.8	1.895	2.771	11.3	20.9	12 13	7 40.72	+18 31.3	1.462	2.347	13.4	19.9
12 23	7 33.45	+20 32.8	1.840	2.779	7.4	20.7	12 23	7 33.31	+18 30.5	1.392	2.334	9.0	19.6
1 2	7 23.34	+20 59.2	1.812	2.788	3.1	20.4	1 2	7 23.45	+18 36.0	1.347	2.322	4.1	19.2
1 12	7 12.44	+21 25.7	1.813	2.795	1.5	20.3	1 12	7 12.37	+18 45.3	1.329	2.310	2.2	19.1
1 22	7 1.97	+21 49.6	1.845	2.802	5.8	20.6	1 22	7 1.56	+18 56.2	1.338	2.297	7.2	19.4
2 1	6 53.04	+22 9.4	1.906	2.808	9.8	20.9	2 1	6 52.51	+19 7.1	1.373	2.285	12.1	19.6
2 11	6 46.49	+22 24.7	1.991	2.813	13.2	21.1	2 11	6 46.35	+19 16.9	1.431	2.273	16.4	19.8
104200	2000 EL ₁₀₈		1 8.7 181°02	3°5/ 9.9	18		88220	2001 AQ ₃₉		1 8.7 32°04	1°8/ 9.4	18	
12 3	7 40.64	+10 46.8	2.445	3.210	12.7	19.7	12 3	7 41.18	+14 30.8	1.453	2.262	17.9	18.5
12 13	7 36.02	+10 30.0	2.356	3.211	10.2	19.5	12 13	7 37.53	+15 9.1	1.393	2.278	13.9	18.3
12 23	7 29.54	+10 22.8	2.290	3.211	7.3	19.4	12 23	7 31.01	+16 2.6	1.354	2.296	9.3	18.1
1 2	7 21.70	+10 25.3	2.251	3.211	4.6	19.2	1 2	7 22.39	+17 7.8	1.340	2.314	4.3	17.8
1 12	7 13.27	+10 37.1	2.242	3.211	3.6	19.1	1 12	7 12.96	+18 19.1	1.352	2.333	2.3	17.8
1 22	7 5.08	+10 56.8	2.263	3.210	5.6	19.3	1 22	7 4.11	+19 30.5	1.392	2.353	6.7	18.1
2 1	6 57.94	+11 22.4	2.312	3.210	8.5	19.4	2 1	6 57.10	+20 36.8	1.458	2.374	11.2	18.4
2 11	6 52.51	+11 51.6	2.387	3.209	11.3	19.6	2 11	6 52.84	+21 35.0	1.547	2.395	15.1	18.7
103333	2000 AN ₇₀		1 8.7 128°93	3°7/ 9.4	18		184708	2005 SD ₁₃₄		1 8.7 121°04	1°2/ 9.0	18	
12 3	7 47.64	+14 15.5	1.529	2.322	17.9	19.7	12 3	7 43.98	+18 0.8	2.022	2.811	14.2	21.1
12 13	7 42.40	+13 48.2	1.456	2.330	14.1	19.5	12 13	7 38.97	+18 4.6	1.943	2.819	11.0	20.9
12 23	7 34.14	+13 31.6	1.403	2.337	9.8	19.2	12 23	7 31.62	+18 15.3	1.888	2.826	7.3	20.7
1 2	7 23.68	+13 26.0	1.376	2.344	5.4	19.0	1 2	7 22.59	+18 31.1	1.859	2.834	3.3	20.4
1 12	7 12.29	+13 30.5	1.375	2.351	3.9	18.9	1 12	7 12.86	+18 49.8	1.860	2.841	1.8	20.3
1 22	7 1.46	+13 43.1	1.403	2.357	7.5	19.1	1 22	7 3.52	+19 9.3	1.891	2.848	5.6	20.6
2 1	6 52.54	+14 1.5	1.456	2.363	11.9	19.4	2 1	6 55.59	+19 27.8	1.949	2.855	9.4	20.9
2 11	6 46.48	+14 23.3	1.533	2.369	15.8	19.7	2 11	6 49.86	+19 44.3	2.033	2.861	12.8	21.1
182418	2001 RW ₈₈		1 8.7 119°02	6°9/ 6.7	18		129335	Edwardlittle		1 8.7 187°73	0°9/ 8.9	18	
12 3	7 52.83	+40 43.7	2.102	2.879	14.2	20.5	12 3	7 49.23	+19 58.9	1.789	2.579	15.8	20.8
12 13	7 46.18	+41 42.5	2.039	2.894	11.5	20.4	12 13	7 43.41	+19 50.8	1.703	2.579	12.3	20.5
12 23	7 36.48	+42 32.3	1.999	2.908	8.9	20.2	12 23	7 34.74	+19 47.9	1.639	2.579	8.1	20.3
1 2	7 24.58	+43 5.5	1.985	2.922	7.1	20.1	1 2	7 23.93	+19 48.2	1.602	2.577	3.5	20.0
1 12	7 11.86	+43 16.8	1.999	2.935	7.2	20.2	1 12	7 12.18	+19 49.6	1.594	2.575	1.8	19.9
1 22	6 59.83	+43 4.9	2.042	2.948	9.0	20.3	1 22	7 0.83	+19 50.3	1.615	2.572	6.4	20.2
2 1	6 49.85	+42 32.4	2.111	2.960	11.4	20.5	2 1	6 51.20	+19 49.8	1.664	2.568	10.9	20.4
2 11	6 42.83	+41 44.9	2.202	2.972	13.9	20.7	2 11	6 44.23	+19 48.0	1.737	2.564	14.7	20.7
49767	1999 WK ₂		1 8.7 263°57	5°0/ 7.2	18		114267	2002 XM ₅		1 8.7 328°42	4°4/ 9.5	18	
12 3	7 48.68	+29 49.8	1.463	2.277	17.5	18.2	12 3	7 44.52	+13 36.6	1.348	2.154	19.2	19.7
12 13	7 44.22	+30 57.5	1.378	2.266	13.8	18.0	12 13	7 40.52	+13 1.7	1.269	2.150	15.3	19.4
12 23	7 35.99	+32 8.4	1.314	2.255	9.6	17.7	12 23	7 33.24	+12 39.0	1.211	2.147	10.8	19.2
1 2	7 24.67	+33 13.7	1.275	2.243	5.7	17.4	1 2	7 23.42	+12 29.7	1.175	2.143	6.2	18.9
1 12	7 11.71	+34 4.1	1.263	2.232	5.7	17.4	1 12	7 12.42	+12 33.6	1.165	2.140	4.7	18.8
1 22	6 59.03	+34 33.6	1.277	2.220	9.6	17.6	1 22	7 1.86	+12 48.7	1.182	2.138	8.4	19.0
2 1	6 48.53	+34 41.5	1.316	2.208	14.1	17.8	2 1	6 53.30	+13 12.2	1.222	2.135	13.2	19.3
2 11	6 41.61	+34 31.5	1.376	2.196	18.2	18.0	2 11	6 47.84	+13 40.7	1.284	2.133	17.5	19.5
29356	Giovarduino		1 8.7 139°58	0°1/ 8.7	18		13517	1990 UU ₁		1 8.7 79°37	8°1/11.5	18	
12 3	7 41.46	+20 57.5	2.812	3.593	10.9	19.4	12 3	7 43.64	+ 1 21.8	1.745	2.492	17.7	18.4
12 13	7 36.42	+21 7.6	2.729	3.602	8.3	19.2	12 13	7 38.78	+ 0 38.2	1.683	2.511	14.9	18.3
12 23	7 29.67	+21 21.0	2.672	3.611	5.4	19.1	12 23	7 31.50	+ 0 14.8	1.640	2.531	11.8	18.1
1 2	7 21.72	+21 36.0	2.643	3.619	2.2	18.9	1 2	7 22.53	+ 0 14.4	1.621	2.550	9.2	18.0
1 12	7 13.28	+21 50.7	2.646	3.627	1.1	18.8	1 12	7 12.92	+ 0 37.5	1.629	2.569	8.1	18.0
1 22	7 5.12	+22 3.7	2.679	3.635	4.3	19.0	1 22	7 3.82	+ 1 21.5	1.663	2.587	9.3	18.1
2 1	6 57.97	+22 14.1	2.742	3.642	7.3	19.2	2 1	6 56.29	+ 2 21.3	1.722	2.606	11.8	18.3
2 11	6 52.41	+22 21.6	2.832	3.649	9.9	19.4	2 11	6 51.08	+ 3 30.8	1.806	2.624	14.5	18.5
460853	2014 WP ₁₀₆		1 8.7 109°30	0°8/ 8.4	18		238979	2006 BT ₁₈₉		1 8.7 167°75	2°5/ 7.9	18	
12 3	7 44.40	+22 10.9	1.903	2.702	14.6	21.7	12 3	7 49.46	+27 38.5	2.067	2.856	14.0	21.6
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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
256414	2007 <i>BG</i> ₉		1 8.7 21°02'	4°0'	7.3	18	168041	2005 <i>MH</i> ₁₈		1 8.7 26°17'	3°3'	10.0	18 R
12 3	7 41.95	+26 24.4	1.278	2.110	18.5	19.6	12 3	7 39.37	+10 57.4	2.153	2.930	13.9	20.1
12 13	7 38.89	+27 41.9	1.220	2.120	14.2	19.4	12 13	7 35.33	+11 1.8	2.071	2.933	11.0	19.9
12 23	7 32.30	+29 4.7	1.183	2.132	9.5	19.1	12 23	7 29.24	+11 18.2	2.011	2.937	7.8	19.7
1 2	7 23.03	+30 23.9	1.171	2.144	5.0	18.9	1 2	7 21.65	+11 46.2	1.977	2.941	4.6	19.5
1 12	7 12.64	+31 30.5	1.183	2.158	4.8	18.9	1 12	7 13.40	+12 24.0	1.972	2.945	3.4	19.5
1 22	7 2.92	+32 18.5	1.222	2.172	8.9	19.2	1 22	7 5.43	+13 8.8	1.996	2.949	5.8	19.6
2 1	6 55.50	+32 46.4	1.284	2.188	13.4	19.5	2 1	6 58.63	+13 57.5	2.048	2.953	9.1	19.8
2 11	6 51.46	+32 56.8	1.367	2.205	17.2	19.8	2 11	6 53.72	+14 46.8	2.126	2.958	12.1	20.0
354106	2001 <i>YD</i> ₈₈		1 8.7 331°87'	0°6'	8.5	18	38217	1999 <i>NB</i> ₁₂		1 8.7 60°78'	1°7'	9.3	18
12 3	7 39.71	+20 29.6	1.187	2.023	19.4	20.1	12 3	7 42.54	+15 59.3	1.837	2.631	15.3	19.3
12 13	7 37.62	+21 5.6	1.104	2.006	15.2	19.8	12 13	7 38.06	+16 12.9	1.765	2.642	11.9	19.1
12 23	7 31.85	+21 54.7	1.039	1.990	10.0	19.4	12 23	7 31.13	+16 36.4	1.716	2.654	7.9	18.9
1 2	7 23.03	+22 52.6	0.997	1.975	4.1	19.0	1 2	7 22.44	+17 7.9	1.693	2.666	3.8	18.6
1 12	7 12.56	+23 52.5	0.979	1.961	2.3	18.9	1 12	7 13.03	+17 44.5	1.698	2.678	2.1	18.5
1 22	7 2.30	+24 47.1	0.986	1.948	8.6	19.2	1 22	7 4.05	+18 22.7	1.732	2.691	5.9	18.8
2 1	6 54.17	+25 31.8	1.015	1.936	14.4	19.5	2 1	6 56.58	+18 59.9	1.794	2.703	9.9	19.1
2 11	6 49.63	+26 4.7	1.065	1.926	19.4	19.7	2 11	6 51.43	+19 34.0	1.880	2.715	13.3	19.3
23782	1998 <i>QE</i> ₁₂		1 8.7 2°75'	4°2'	10.2	18	47178	1999 <i>TK</i> ₁₁₃		1 8.7 258°29'	13°2'	3.1	18
12 3	7 38.17	+ 8 59.6	2.329	3.097	13.2	17.7	12 3	8 9.37	+61 56.5	2.278	2.967	15.6	18.5
12 13	7 34.24	+ 8 40.2	2.243	3.097	10.7	17.5	12 13	8 1.41	+63 27.6	2.210	2.955	14.5	18.4
12 23	7 28.44	+ 8 31.8	2.180	3.097	7.8	17.3	12 23	7 47.83	+64 39.5	2.161	2.943	13.6	18.3
1 2	7 21.28	+ 8 35.3	2.142	3.097	5.2	17.1	1 2	7 29.65	+65 20.3	2.133	2.930	13.2	18.2
1 12	7 13.53	+ 8 50.2	2.134	3.098	4.3	17.1	1 12	7 9.41	+65 21.1	2.126	2.917	13.5	18.2
1 22	7 6.02	+ 9 15.1	2.154	3.099	6.1	17.2	1 22	6 50.37	+64 40.0	2.141	2.905	14.3	18.3
2 1	6 59.56	+ 9 47.5	2.202	3.100	8.9	17.4	2 1	6 35.36	+63 22.4	2.177	2.891	15.5	18.3
2 11	6 54.83	+10 24.6	2.275	3.102	11.6	17.6	2 11	6 25.85	+61 38.6	2.231	2.878	16.9	18.4
430172	2013 <i>TT</i> ₉₁		1 8.7 44°69'	0°6'	8.8	18	370698	2004 <i>JP</i> ₁₀		1 8.7 256°48'	6°5'	10.6	17
12 3	7 42.36	+19 56.1	1.854	2.655	14.9	21.7	12 3	7 42.08	+ 3 56.9	2.113	2.859	15.1	21.8
12 13	7 37.87	+20 2.9	1.787	2.670	11.4	21.5	12 13	7 37.60	+ 3 23.5	2.010	2.843	12.6	21.6
12 23	7 30.95	+20 15.6	1.742	2.685	7.5	21.3	12 23	7 30.87	+ 3 4.7	1.928	2.826	9.9	21.4
1 2	7 22.32	+20 32.1	1.724	2.700	3.1	21.1	1 2	7 22.39	+ 3 3.2	1.872	2.809	7.4	21.2
1 12	7 13.04	+20 49.6	1.735	2.716	1.5	21.0	1 12	7 13.01	+ 3 20.0	1.843	2.791	6.6	21.2
1 22	7 4.28	+21 5.9	1.774	2.733	5.8	21.3	1 22	7 3.73	+ 3 54.0	1.842	2.773	8.1	21.2
2 1	6 57.07	+21 19.6	1.840	2.749	9.7	21.6	2 1	6 55.56	+ 4 42.1	1.868	2.754	10.9	21.3
2 11	6 52.18	+21 30.1	1.931	2.766	13.1	21.8	2 11	6 49.37	+ 5 40.0	1.919	2.736	13.9	21.5
101597	1999 <i>BA</i> ₃₀		1 8.7 147°72'	0°3'	8.6	18	279800	2000 <i>CC</i> ₁₀₅		1 8.7 94°50'	2°5'	9.5	17
12 3	7 42.45	+22 16.0	2.778	3.559	11.0	20.8	12 3	7 46.94	+14 11.1	1.475	2.271	18.3	21.2
12 13	7 37.23	+22 30.9	2.694	3.568	8.4	20.6	12 13	7 41.95	+14 28.5	1.409	2.286	14.3	20.9
12 23	7 30.23	+22 48.5	2.637	3.576	5.4	20.4	12 23	7 33.91	+15 0.1	1.364	2.301	9.7	20.7
1 2	7 21.98	+23 6.7	2.608	3.584	2.2	20.2	1 2	7 23.64	+15 43.9	1.343	2.316	4.8	20.5
1 12	7 13.21	+23 23.5	2.610	3.591	1.2	20.1	1 12	7 12.46	+16 35.3	1.351	2.330	2.8	20.4
1 22	7 4.72	+23 37.3	2.643	3.598	4.4	20.4	1 22	7 1.88	+17 29.5	1.386	2.344	7.1	20.7
2 1	6 57.28	+23 47.3	2.706	3.605	7.4	20.6	2 1	6 53.26	+18 22.2	1.447	2.358	11.7	21.0
2 11	6 51.49	+23 53.4	2.796	3.611	10.1	20.8	2 11	6 47.56	+19 10.4	1.532	2.371	15.6	21.3
465911	2010 <i>VF</i> ₁₁₃		1 8.7 9°64'	12°1'	10.4	18	494029	2016 <i>AO</i> ₁₇₅		1 8.7 122°93'	6°1'	10.3	18
12 3	7 42.60	- 3 14.1	1.682	2.413	18.9	20.9	12 3	7 42.66	+ 6 49.5	1.871	2.636	16.1	21.5
12 13	7 38.29	- 5 14.3	1.611	2.414	16.6	20.7	12 13	7 38.10	+ 6 8.2	1.790	2.639	13.2	21.3
12 23	7 31.39	- 6 55.1	1.558	2.415	14.3	20.6	12 23	7 31.17	+ 5 41.0	1.730	2.641	10.0	21.1
1 2	7 22.57	- 8 9.0	1.528	2.417	12.6	20.5	1 2	7 22.48	+ 5 30.2	1.695	2.643	7.1	21.0
1 12	7 12.89	- 8 50.7	1.522	2.419	12.1	20.5	1 12	7 13.02	+ 5 36.4	1.688	2.645	6.2	20.9
1 22	7 3.56	- 8 58.9	1.540	2.422	13.0	20.5	1 22	7 3.90	+ 5 58.2	1.708	2.647	8.0	21.0
2 1	6 55.76	- 8 36.5	1.581	2.425	14.9	20.6	2 1	6 56.17	+ 6 32.7	1.755	2.649	11.0	21.2
2 11	6 50.37	- 7 50.1	1.641	2.428	17.2	20.8	2 11	6 50.66	+ 7 15.6	1.825	2.650	14.1	21.4
96017	2004 <i>PA</i> ₉		1 8.7 108°89'	2°7'	9.6	18	282642	2005 <i>TB</i> ₁₀₀		1 8.7 85°64'	4°4'	9.6	18
12 3	7 46.25	+13 23.3	1.637	2.425	17.1	20.2	12 3	7 46.78	+12 53.9	1.429	2.225	18.8	20.9
12 13	7 41.15	+13 37.8	1.567	2.439	13.4	20.0	12 13	7 41.85	+12 22.3	1.362	2.236	14.9	20.6
12 23	7 33.26	+14 6.0	1.518	2.452	9.2	19.8	12 23	7 33.85	+12 3.5	1.315	2.247	10.5	20.4
1 2	7 23.32	+14 46.0	1.495	2.465	4.7	19.5	1 2	7 23.61	+11 58.4	1.292	2.259	6.1	20.2
1 12	7 12.55	+15 34.4	1.500	2.478	3.0	19.5	1 12	7 12.48	+12 6.1	1.296	2.270	4.6	20.1
1 22	7 2.28	+16 26.7	1.533	2.490	6.7	19.7	1 22	7 1.99	+12 24.3	1.327	2.281	8.0	20.4
2 1	6 53.76	+17 18.9	1.594	2.502	11.0	20.0	2 1	6 53.49	+12 50.0	1.383	2.292	12.3	20.6
2 11	6 47.89	+18 8.0	1.678	2.513	14.7	20.2	2 11	6 47.95	+13 19.7	1.462	2.303	16.2	20.9
436089	2009 <i>SX</i> ₂₀₁		1 8.7 161°86'	1°2'	7.9	17	47036	1998 <i>WP</i> ₁		1 8.7 31°68'	1°6'	8.0	18
12 3	7 37.71	+27 23.4	4.180	4.959	7.6	22.7	12 3	7 42.20	+23 33.7	1.976	2.779	14.0	18.5
12 13	7 33.14	+27 44.6	4.093	4.964	5.8	22.6	12 13	7 37.90	+24 26.1	1.898	2.783	10.8	18.3
12 23	7 27.37	+28 5.7	4.032	4.969	3.8	22.5	12 23	7 31.12	+25 23.8	1.844	2.787	7.0	18.1
1 2	7 20.77	+28 24.8	4.001	4.974	1.8	22.3	1 2	7 22.49	+26 22.3	1.816	2.792	3.1	17.8
1 12	7 13.82	+28 40.4	4.002	4.978	1.5	22.3	1 12	7 13.02	+27 16.5	1.818	2.797	2.4	17.8
1 22	7 7.04	+28 51.6	4.035	4.982	3.4	22.4	1 22	7 3.86	+28 2.3	1.850	2.803	6.2	18.1
2 1	7 0.91	+28 57.9	4.098	4.986	5.4	22.6	2 1	6 56.14	+28 37.7	1.908	2.808	9.9	18.3
2 11	6 55.86	+28 59.6	4.189	4.989	7.2	22.7	2 11	6 50.73	+29 2.7	1.991	2.814	13.2	18.5
116368	2003 <i>YS</i> ₁₀₄		1 8.7 22°83'	0°4'	8.6	18	258564	2002 <i>CK</i> ₈₅		1 8.7 298°74'	2°6'	8.1	18
12 3	7 41.74	+22 9.1	1.964	2.767	14								

EPHEMERIDES

1 8.7

1 8.7

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
409558	2005 <i>UX</i> ₁₀₃		1 8.7 24°50	2.7/ 7.9	18		401119	2011 <i>UB</i> ₂₇₇		1 8.7 21°36	3.6/ 7.9	18	
12 3	7 43.25	+26 5.3	1.554	2.371	16.5	20.8	12 3	7 47.52	+29 25.0	1.552	2.364	16.8	21.0
12 13	7 39.33	+26 52.4	1.486	2.378	12.7	20.6	12 13	7 42.75	+29 55.4	1.477	2.365	13.1	20.8
12 23	7 32.33	+27 43.0	1.440	2.385	8.4	20.4	12 23	7 34.65	+30 25.2	1.424	2.366	8.8	20.5
1 2	7 23.04	+28 31.2	1.419	2.393	4.0	20.1	1 2	7 24.03	+30 48.2	1.396	2.368	4.7	20.3
1 12	7 12.78	+29 11.1	1.425	2.402	3.4	20.1	1 12	7 12.33	+30 59.0	1.395	2.369	4.2	20.3
1 22	7 3.05	+29 38.7	1.458	2.411	7.5	20.4	1 22	7 1.22	+30 55.1	1.421	2.371	8.0	20.5
2 1	6 55.25	+29 52.9	1.517	2.421	11.7	20.6	2 1	6 52.22	+30 37.5	1.473	2.373	12.3	20.8
2 11	6 50.37	+29 55.5	1.598	2.431	15.4	20.9	2 11	6 46.39	+30 9.6	1.547	2.375	16.1	21.0
53431	1999 <i>UQ</i> ₁₀		1 8.7 112°98	19°9/ 2.4	18		65368	2002 <i>PB</i> ₄₁		1 8.7 124°61	4°3/ 9.9	18	
12 3	8 17.57	+56 36.9	1.162	1.922	24.2	17.3	12 3	7 45.31	+10 17.2	2.059	2.824	14.8	20.0
12 13	8 12.07	+60 6.4	1.134	1.939	22.1	17.2	12 13	7 39.81	+9 51.4	1.985	2.838	11.9	19.9
12 23	7 57.59	+63 8.9	1.124	1.954	20.5	17.1	12 23	7 32.10	+9 36.8	1.933	2.853	8.5	19.7
1 2	7 34.52	+65 18.5	1.133	1.969	19.9	17.1	1 2	7 22.83	+9 34.0	1.908	2.866	5.4	19.5
1 12	7 6.95	+66 16.2	1.160	1.984	20.4	17.2	1 12	7 12.96	+9 42.6	1.912	2.879	4.3	19.5
1 22	6 41.50	+66 0.6	1.204	1.998	21.6	17.4	1 22	7 3.50	+10 0.8	1.946	2.892	6.5	19.6
2 1	6 23.65	+64 47.3	1.264	2.011	23.3	17.5	2 1	6 55.43	+10 26.3	2.008	2.904	9.7	19.9
2 11	6 15.23	+62 58.8	1.337	2.023	24.9	17.7	2 11	6 49.48	+10 56.4	2.094	2.916	12.7	20.1
454722	2014 <i>SN</i> ₂₂₃		1 8.7 66°10	6°4/11.5	18		460287	2014 <i>QU</i> ₃₅₆		1 8.7 17°93	3°9/ 9.8	18	
12 3	7 42.22	+3 34.6	1.721	2.482	17.5	20.5	12 3	7 40.55	+12 29.5	1.440	2.246	18.2	20.5
12 13	7 37.90	+3 34.7	1.651	2.494	14.4	20.3	12 13	7 37.17	+12 22.0	1.371	2.251	14.4	20.3
12 23	7 31.08	+3 55.7	1.600	2.506	11.0	20.1	12 23	7 30.89	+12 29.5	1.321	2.257	10.1	20.0
1 2	7 22.46	+4 38.7	1.573	2.519	7.8	19.9	1 2	7 22.46	+12 51.9	1.295	2.263	5.7	19.8
1 12	7 13.08	+5 41.8	1.573	2.531	6.4	19.9	1 12	7 13.12	+13 26.9	1.295	2.271	4.0	19.7
1 22	7 4.12	+7 0.3	1.601	2.544	8.0	20.0	1 22	7 4.26	+14 10.5	1.321	2.279	7.5	19.9
2 1	6 56.67	+8 28.1	1.656	2.556	11.2	20.2	2 1	6 57.20	+14 58.5	1.373	2.288	11.8	20.2
2 11	6 51.56	+9 58.6	1.735	2.569	14.4	20.5	2 11	6 52.88	+15 46.7	1.447	2.298	15.7	20.5
233569	2007 <i>PB</i> ₂₆		1 8.7 125°44	3°1/ 7.8	18		251538	2008 <i>WZ</i> ₁₂₈		1 8.7 124°63	16°2/ 3.4	17	
12 3	7 45.95	+31 45.1	2.462	3.249	12.0	20.7	12 3	8 2.19	+50 26.0	1.229	2.016	21.7	20.2
12 13	7 40.24	+32 5.3	2.384	3.257	9.4	20.6	12 13	7 57.54	+53 6.2	1.179	2.018	19.2	20.1
12 23	7 32.35	+32 22.4	2.332	3.266	6.4	20.4	12 23	7 46.37	+55 29.1	1.148	2.020	17.2	19.9
1 2	7 22.91	+32 32.5	2.307	3.274	3.7	20.2	1 2	7 29.44	+57 13.8	1.137	2.022	16.2	19.9
1 12	7 12.87	+32 32.8	2.313	3.282	3.4	20.2	1 12	7 9.57	+58 3.9	1.147	2.024	16.8	19.9
1 22	7 3.28	+32 22.3	2.348	3.290	5.9	20.4	1 22	6 50.85	+57 55.2	1.177	2.026	18.5	20.0
2 1	6 55.07	+32 1.8	2.412	3.298	8.8	20.6	2 1	6 36.91	+56 56.3	1.225	2.028	20.9	20.2
2 11	6 48.96	+31 33.5	2.502	3.305	11.4	20.8	2 11	6 29.60	+55 23.7	1.289	2.030	23.3	20.4
149295	2002 <i>TC</i> ₂₅₂		1 8.7 28°44	4°9/10.1	18		63383	2001 <i>HD</i> ₅₆		1 8.7 129°82	3°9/ 9.9	18	
12 3	7 43.17	+10 48.6	1.229	2.038	20.5	20.0	12 3	7 47.30	+11 1.2	1.683	2.460	17.1	19.9
12 13	7 39.65	+10 39.5	1.162	2.042	16.4	19.8	12 13	7 41.88	+11 1.1	1.610	2.473	13.6	19.7
12 23	7 32.75	+10 49.6	1.112	2.047	11.7	19.5	12 23	7 33.73	+11 15.6	1.559	2.486	9.6	19.5
1 2	7 23.27	+11 19.5	1.086	2.052	6.9	19.3	1 2	7 23.57	+11 44.2	1.533	2.498	5.6	19.3
1 12	7 12.66	+12 6.6	1.084	2.058	5.0	19.2	1 12	7 12.59	+12 24.5	1.535	2.509	4.0	19.2
1 22	7 2.60	+13 5.5	1.107	2.065	8.6	19.4	1 22	7 2.08	+13 12.7	1.567	2.520	7.1	19.4
2 1	6 54.65	+14 10.1	1.154	2.071	13.4	19.7	2 1	6 53.29	+14 4.5	1.625	2.530	11.0	19.7
2 11	6 49.94	+15 14.7	1.223	2.079	17.7	20.0	2 11	6 47.09	+14 56.5	1.708	2.539	14.7	19.9
276230	2002 <i>QY</i> ₁₄₁		1 8.7 105°57	4°9/10.4	18		495610	2015 <i>DS</i> ₁₀₈		1 8.7 148°61	3°5/ 7.1	18	
12 3	7 40.78	+6 59.6	2.321	3.076	13.6	21.0	12 3	7 44.15	+32 1.7	2.692	3.478	11.2	21.1
12 13	7 36.17	+6 33.1	2.241	3.084	11.1	20.8	12 13	7 38.87	+32 55.3	2.613	3.484	8.7	20.9
12 23	7 29.67	+6 18.7	2.184	3.093	8.3	20.6	12 23	7 31.51	+33 47.2	2.559	3.490	6.1	20.7
1 2	7 21.82	+6 17.7	2.154	3.101	5.8	20.5	1 2	7 22.62	+34 33.0	2.533	3.496	3.9	20.6
1 12	7 13.42	+6 29.7	2.152	3.109	5.0	20.4	1 12	7 13.05	+35 8.7	2.538	3.501	3.9	20.6
1 22	7 5.31	+6 53.5	2.179	3.117	6.5	20.6	1 22	7 3.74	+35 32.0	2.574	3.506	6.0	20.7
2 1	6 58.33	+7 26.4	2.234	3.125	9.1	20.7	2 1	6 55.61	+35 42.6	2.637	3.511	8.6	20.9
2 11	6 53.11	+8 5.3	2.314	3.133	11.7	20.9	2 11	6 49.40	+35 42.1	2.726	3.515	11.0	21.1
499042	2009 <i>DN</i> ₅₉		1 8.7 18°87	6°0/ 7.2	18		46439	2002 <i>LX</i> ₁₂		1 8.7 98°63	3°0/ 9.5	18	
12 3	7 47.47	+39 42.3	2.191	2.976	13.4	21.0	12 3	7 47.90	+14 9.7	1.953	2.727	15.2	19.0
12 13	7 41.97	+40 16.2	2.116	2.979	10.9	20.9	12 13	7 41.77	+13 50.4	1.890	2.754	11.9	18.8
12 23	7 33.73	+40 41.6	2.064	2.981	8.2	20.7	12 23	7 33.32	+13 40.0	1.850	2.780	8.1	18.6
1 2	7 23.54	+40 52.9	2.039	2.984	6.3	20.6	1 2	7 23.30	+13 38.2	1.838	2.805	4.4	18.5
1 12	7 12.58	+40 45.7	2.041	2.987	6.3	20.6	1 12	7 12.77	+13 43.8	1.855	2.830	3.2	18.4
1 22	7 2.20	+40 19.3	2.072	2.990	8.1	20.7	1 22	7 2.83	+13 55.1	1.902	2.854	6.1	18.6
2 1	6 53.59	+39 35.8	2.129	2.994	10.7	20.9	2 1	6 54.48	+14 10.4	1.977	2.877	9.6	18.9
2 11	6 47.60	+38 40.0	2.209	2.997	13.2	21.1	2 11	6 48.43	+14 27.8	2.077	2.900	12.7	19.2
104330	2000 <i>FY</i> ₈		1 8.7 321°72	0°9/ 8.4	18		518642	2008 <i>OY</i> ₂₅		1 8.7 68°56	0°3/ 8.8	18	
12 3	7 41.98	+23 52.2	2.003	2.805	13.9	19.6	12 3	7 43.61	+20 49.1	1.982	2.778	14.2	21.5
12 13	7 37.74	+24 7.3	1.913	2.797	10.7	19.4	12 13	7 38.74	+20 53.8	1.910	2.790	11.0	21.3
12 23	7 31.05	+24 25.6	1.845	2.789	7.0	19.2	12 23	7 31.52	+21 3.2	1.861	2.802	7.1	21.1
1 2	7 22.49	+24 44.1	1.805	2.781	2.9	18.9	1 2	7 22.62	+21 15.2	1.839	2.815	3.0	20.9
1 12	7 13.07	+24 59.6	1.793	2.774	1.8	18.8	1 12	7 13.09	+21 27.2	1.846	2.827	1.4	20.8
1 22	7 3.93	+25 9.9	1.810	2.767	5.9	19.1	1 22	7 4.01	+21 37.4	1.882	2.840	5.6	21.1
2 1	6 56.18	+25 14.2	1.855	2.760	9.9	19.3	2 1	6 56.42	+21 44.9	1.946	2.853	9.4	21.3
2 11	6 50.71	+25 12.8	1.924	2.754	13.3	19.5	2 11	6 51.07	+21 49.4	2.035	2.865	12.7	21.6
276354	2002 <i>UV</i> ₃₈		1 8.7 97°45	5°1/ 6.7	18		193775	2001 <i>OL</i> ₅		1 8.7 185°26	2°5/ 9.3	18	
12 3	7 47.89	+37 18.5	2.525	3.304									

EPHEMERIDES

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
335881	2007 <i>RF</i> ₁₄₆		1 8.7 143°12	2.4/ 7.8	18		469186	2016 <i>FC</i> ₃₉		1 8.7 348°98	6.5/11.5	18	
12 3	7 44.32	+29 17.7	2.617	3.404	11.4	21.4	12 3	7 38.83	+ 2 12.1	2.097	2.843	15.2	20.8
12 13	7 38.91	+29 46.5	2.537	3.411	8.8	21.2	12 13	7 35.03	+ 1 57.4	2.010	2.841	12.7	20.6
12 23	7 31.47	+30 14.4	2.482	3.419	5.9	21.0	12 23	7 29.15	+ 2 0.2	1.944	2.839	10.0	20.5
1 2	7 22.59	+30 37.7	2.456	3.426	3.1	20.8	1 2	7 21.73	+ 2 22.6	1.902	2.837	7.6	20.3
1 12	7 13.11	+30 53.5	2.460	3.433	2.8	20.8	1 12	7 13.60	+ 3 4.2	1.888	2.835	6.5	20.2
1 22	7 3.97	+31 0.1	2.494	3.439	5.4	21.0	1 22	7 5.70	+ 4 2.6	1.902	2.834	7.8	20.3
2 1	6 56.04	+30 57.6	2.558	3.445	8.3	21.2	2 1	6 58.93	+ 5 13.4	1.942	2.833	10.3	20.5
2 11	6 50.01	+30 47.3	2.647	3.451	10.9	21.4	2 11	6 54.06	+ 6 31.4	2.007	2.832	13.0	20.6
43578	2001 <i>KD</i> ₁₅		1 8.7 100°91	1.9/ 8.0	18		197359	2003 <i>XF</i> ₁₅		1 8.7 325°02	7.0/ 8.1	16	
12 3	7 47.45	+24 29.4	1.891	2.687	14.8	19.1	12 3	7 53.65	+18 19.1	0.992	1.816	23.3	19.3
12 13	7 41.90	+25 21.6	1.825	2.706	11.4	18.9	12 13	7 48.67	+15 54.4	0.917	1.808	18.7	19.0
12 23	7 33.69	+26 17.8	1.782	2.724	7.4	18.7	12 23	7 39.17	+13 24.7	0.861	1.801	13.3	18.6
1 2	7 23.56	+27 12.6	1.767	2.742	3.3	18.5	1 2	7 26.11	+10 57.3	0.827	1.794	8.3	18.3
1 12	7 12.65	+28 0.6	1.781	2.759	2.6	18.4	1 12	7 11.47	+ 8 42.3	0.818	1.788	7.6	18.3
1 22	7 2.24	+28 38.2	1.825	2.777	6.4	18.7	1 22	6 57.64	+ 6 50.2	0.834	1.783	12.2	18.5
2 1	6 53.53	+29 4.2	1.897	2.793	10.2	19.0	2 1	6 46.79	+ 5 27.2	0.871	1.778	17.8	18.8
2 11	6 47.36	+29 19.5	1.993	2.810	13.4	19.2	2 11	6 40.26	+ 4 32.6	0.927	1.774	22.8	19.1
278403	2007 <i>QT</i> ₁₆		1 8.7 141°64	5.4/11.1	18		53508	2000 <i>AO</i> ₁₂₂		1 8.7 170°02	3.2/ 9.7	18	
12 3	7 39.98	+ 3 38.5	2.521	3.259	13.1	21.0	12 3	7 47.22	+12 32.4	1.854	2.629	15.9	20.1
12 13	7 35.46	+ 3 21.7	2.437	3.264	10.8	20.9	12 13	7 41.74	+12 34.5	1.771	2.634	12.6	19.9
12 23	7 29.19	+ 3 18.6	2.375	3.270	8.4	20.7	12 23	7 33.66	+12 48.8	1.709	2.638	8.8	19.7
1 2	7 21.66	+ 3 30.4	2.339	3.275	6.2	20.6	1 2	7 23.62	+13 14.8	1.673	2.641	4.8	19.4
1 12	7 13.58	+ 3 56.7	2.332	3.280	5.4	20.6	1 12	7 12.69	+13 50.0	1.667	2.643	3.4	19.3
1 22	7 5.74	+ 4 35.9	2.354	3.285	6.6	20.6	1 22	7 2.11	+14 31.3	1.690	2.644	6.5	19.5
2 1	6 58.89	+ 5 25.1	2.404	3.289	8.8	20.8	2 1	6 53.04	+15 15.3	1.742	2.645	10.5	19.8
2 11	6 53.65	+ 6 20.4	2.480	3.294	11.2	21.0	2 11	6 46.39	+15 59.2	1.817	2.645	14.1	20.0
52360	1993 <i>FC</i> ₃₀		1 8.7 322°26	7.4/10.9	18		495474	2014 <i>UT</i> ₂₀		1 8.7 112°28	8.3/ 5.5	17	
12 3	7 38.60	+ 1 46.4	2.133	2.877	15.0	19.2	12 3	7 51.28	+41 37.6	1.921	2.705	15.1	21.0
12 13	7 34.84	+ 0 59.2	2.041	2.868	12.7	19.0	12 13	7 45.72	+43 11.5	1.856	2.712	12.4	20.9
12 23	7 29.02	+ 0 27.3	1.971	2.858	10.3	18.8	12 23	7 36.69	+44 37.3	1.813	2.718	10.0	20.7
1 2	7 21.66	+ 0 14.0	1.924	2.849	8.2	18.7	1 2	7 24.97	+45 45.1	1.796	2.724	8.5	20.6
1 12	7 13.56	+ 0 20.6	1.904	2.840	7.4	18.6	1 12	7 12.02	+46 27.2	1.806	2.730	8.7	20.7
1 22	7 5.64	+ 0 46.5	1.911	2.832	8.5	18.7	1 22	6 59.57	+46 40.6	1.843	2.736	10.6	20.8
2 1	6 58.82	+ 1 28.7	1.944	2.824	10.9	18.8	2 1	6 49.27	+46 27.3	1.904	2.741	13.1	21.0
2 11	6 53.85	+ 2 22.9	2.000	2.816	13.4	18.9	2 11	6 42.26	+45 53.3	1.987	2.747	15.5	21.1
165786	2001 <i>RW</i> ₅		1 8.7 126°47	3.1/ 7.8	18		372560	2009 <i>UH</i> ₁₅		1 8.7 193°14	0.9/ 9.1	18	
12 3	7 44.75	+31 30.5	2.454	3.243	12.0	19.9	12 3	7 43.43	+17 53.1	2.285	3.067	13.0	22.0
12 13	7 39.41	+31 54.7	2.374	3.248	9.3	19.8	12 13	7 38.48	+18 10.6	2.194	3.066	10.1	21.8
12 23	7 31.88	+32 16.3	2.318	3.253	6.4	19.6	12 23	7 31.37	+18 35.3	2.127	3.064	6.7	21.6
1 2	7 22.78	+32 31.4	2.290	3.257	3.7	19.4	1 2	7 22.65	+19 5.1	2.087	3.062	3.0	21.3
1 12	7 13.05	+32 36.8	2.292	3.262	3.4	19.4	1 12	7 13.19	+19 37.5	2.078	3.059	1.5	21.2
1 22	7 3.70	+32 31.4	2.324	3.266	5.9	19.6	1 22	7 3.96	+20 9.7	2.099	3.056	5.2	21.5
2 1	6 55.69	+32 15.6	2.385	3.270	8.9	19.8	2 1	6 55.91	+20 39.8	2.149	3.053	8.8	21.7
2 11	6 49.76	+31 51.6	2.470	3.275	11.5	19.9	2 11	6 49.82	+21 6.6	2.225	3.049	12.0	21.9
435395	2007 <i>YA</i> ₃₀		1 8.7 315°67	8.7/ 2.7	17		427026	2014 <i>SJ</i> ₂₆₅		1 8.7 68°56	0.4/ 8.9	18	
12 3	7 49.13	+41 35.5	2.168	2.948	13.7	20.1	12 3	7 45.90	+19 30.8	1.732	2.530	15.9	21.3
12 13	7 44.31	+44 1.2	2.084	2.935	11.5	19.9	12 13	7 40.70	+19 49.5	1.673	2.554	12.2	21.1
12 23	7 36.10	+46 24.1	2.026	2.922	9.6	19.8	12 23	7 32.88	+20 15.3	1.636	2.578	7.9	20.9
1 2	7 24.91	+48 33.2	1.996	2.909	8.7	19.7	1 2	7 23.24	+20 45.0	1.626	2.602	3.3	20.7
1 12	7 11.85	+50 18.1	1.995	2.896	9.4	19.7	1 12	7 12.96	+21 15.0	1.644	2.626	1.5	20.6
1 22	6 58.51	+51 32.5	2.021	2.883	11.3	19.8	1 22	7 3.31	+21 42.4	1.691	2.650	6.0	20.9
2 1	6 46.70	+52 15.6	2.071	2.871	13.5	20.0	2 1	6 55.42	+22 5.3	1.766	2.673	10.1	21.2
2 11	6 37.93	+52 31.5	2.142	2.860	15.7	20.1	2 11	6 50.06	+22 23.4	1.865	2.697	13.6	21.5
446025	2013 <i>CQ</i> ₆₅		1 8.7 322°66	0.8/ 8.6	18		397480	2007 <i>QK</i> ₄		1 8.7 79°79	3.2/ 9.8	17	
12 3	7 47.24	+23 50.2	1.549	2.358	17.0	21.3	12 3	7 47.00	+12 52.0	1.592	2.379	17.5	21.5
12 13	7 42.41	+23 53.3	1.470	2.357	13.1	21.1	12 13	7 41.64	+12 55.0	1.533	2.404	13.8	21.3
12 23	7 34.39	+23 59.5	1.412	2.357	8.6	20.8	12 23	7 33.54	+13 11.5	1.496	2.429	9.4	21.1
1 2	7 23.96	+24 5.4	1.379	2.356	3.6	20.5	1 2	7 23.51	+13 40.2	1.484	2.453	5.1	20.9
1 12	7 12.49	+24 7.5	1.374	2.356	2.0	20.4	1 12	7 12.83	+14 18.0	1.500	2.477	3.4	20.9
1 22	7 1.53	+24 3.8	1.397	2.355	7.1	20.7	1 22	7 2.80	+15 1.0	1.545	2.501	6.8	21.1
2 1	6 52.55	+23 54.3	1.446	2.355	11.8	21.0	2 1	6 54.63	+15 45.6	1.616	2.524	10.9	21.4
2 11	6 46.58	+23 40.4	1.518	2.355	15.9	21.2	2 11	6 49.13	+16 28.6	1.711	2.547	14.4	21.7
189430	1998 <i>HH</i> ₁₄₅		1 8.7 197°41	2.4/ 9.4	18		459187	2012 <i>DD</i> ₄₆		1 8.7 224°85	5.5/10.8	18	
12 3	7 47.98	+14 35.0	1.958	2.733	15.1	21.5	12 3	7 41.84	+ 5 12.4	2.210	2.959	14.4	22.0
12 13	7 42.31	+14 37.7	1.865	2.730	11.9	21.3	12 13	7 37.28	+ 4 57.0	2.115	2.953	11.9	21.8
12 23	7 34.04	+14 50.3	1.795	2.726	8.2	21.0	12 23	7 30.61	+ 4 56.0	2.041	2.945	9.1	21.6
1 2	7 23.79	+15 12.0	1.751	2.721	4.2	20.8	1 2	7 22.36	+ 5 11.1	1.993	2.938	6.5	21.4
1 12	7 12.57	+15 40.4	1.737	2.715	2.7	20.7	1 12	7 13.34	+ 5 42.0	1.974	2.930	5.5	21.4
1 22	7 1.60	+16 12.8	1.753	2.708	6.3	20.9	1 22	7 4.49	+ 6 26.6	1.983	2.921	7.1	21.4
2 1	6 52.06	+16 46.6	1.798	2.700	10.3	21.1	2 1	6 56.74	+ 7 21.5	2.021	2.913	9.9	21.6
2 11	6 44.87	+17 19.8	1.868	2.691	13.9	21.3	2 11	6 50.87	+ 8 22.6	2.083	2.904	12.8	21.8
370576	2003 <i>UL</i> ₂₆₉		1 8.7 84°24	2.5/ 9.5	18		167862	2005 <i>EB</i> ₂₀		1 8.7 1°36	1.1/ 8.5	18	
12 3	7 43.04	+14 52.											

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
215475	2002 <i>RD</i> ₁₂₂		1 8.7 78°05	1.9°/ 8.1	18		114713	2003 <i>GN</i> ₁₄		1 8.7 222°63	9°2/ 5.3	18	
12 3	7 46.76	+23 43.9	1.674	2.478	16.1	20.7	12 3	7 52.96	+45 36.2	2.031	2.802	14.8	19.8
12 13	7 41.72	+24 37.1	1.610	2.496	12.3	20.5	12 13	7 47.17	+47 2.7	1.958	2.799	12.6	19.6
12 23	7 33.76	+25 35.6	1.569	2.513	8.0	20.2	12 23	7 37.75	+48 18.8	1.907	2.795	10.5	19.5
1 2	7 23.68	+26 33.8	1.554	2.530	3.5	20.0	1 2	7 25.48	+49 14.7	1.881	2.792	9.3	19.4
1 12	7 12.74	+27 25.5	1.568	2.547	2.7	20.0	1 12	7 11.86	+49 42.7	1.882	2.788	9.6	19.4
1 22	7 2.37	+28 6.4	1.610	2.563	6.9	20.3	1 22	6 58.71	+49 40.2	1.908	2.784	11.2	19.5
2 1	6 53.86	+28 35.2	1.679	2.580	11.0	20.6	2 1	6 47.79	+49 9.7	1.959	2.779	13.4	19.7
2 11	6 48.12	+28 52.6	1.772	2.597	14.5	20.8	2 11	6 40.30	+48 17.7	2.030	2.775	15.7	19.8
329967	2005 <i>SA</i> ₂₄		1 8.7 103°07	3°6/10.2	18		359082	2008 <i>YQ</i> ₁₄₉		1 8.7 68°22	0°1/ 8.7	17	
12 3	7 44.70	+ 9 54.6	2.199	2.960	14.1	21.1	12 3	7 46.58	+19 30.6	1.434	2.244	18.0	20.6
12 13	7 39.19	+ 9 55.3	2.132	2.984	11.2	20.9	12 13	7 41.90	+20 12.6	1.372	2.260	13.9	20.4
12 23	7 31.64	+10 8.0	2.088	3.008	8.0	20.8	12 23	7 34.04	+21 5.0	1.332	2.276	9.0	20.1
1 2	7 22.70	+10 32.1	2.071	3.031	4.9	20.6	1 2	7 23.85	+22 2.6	1.316	2.293	3.7	19.8
1 12	7 13.24	+11 5.9	2.084	3.054	3.7	20.6	1 12	7 12.71	+22 59.5	1.327	2.309	1.8	19.8
1 22	7 4.22	+11 46.6	2.127	3.076	5.8	20.7	1 22	7 2.21	+23 50.1	1.367	2.326	7.1	20.1
2 1	6 56.50	+12 31.2	2.199	3.097	8.9	21.0	2 1	6 53.79	+24 31.5	1.432	2.342	11.8	20.4
2 11	6 50.74	+13 16.9	2.296	3.118	11.7	21.2	2 11	6 48.41	+25 3.1	1.520	2.359	15.8	20.7
416002	2002 <i>BN</i>		1 8.7 236°40	14°6/11.3	15		429339	2010 <i>FP</i> ₁₂		1 8.7 260°58	1°0/ 8.4	17	
12 3	8 43.32	- 8 52.6	0.615	1.341	43.1	21.7	12 3	7 42.50	+24 35.8	2.426	3.218	12.1	21.7
12 13	8 38.30	- 8 41.5	0.505	1.321	39.4	21.2	12 13	7 37.77	+24 50.3	2.330	3.208	9.3	21.5
12 23	8 23.35	- 7 10.6	0.399	1.293	33.2	20.5	12 23	7 30.93	+25 6.9	2.257	3.199	6.1	21.3
1 2	7 51.82	- 2 59.7	0.304	1.255	23.4	19.5	1 2	7 22.50	+25 22.7	2.213	3.189	2.6	21.0
1 12	6 53.70	+ 6 0.5	0.234	1.208	14.7	18.6	1 12	7 13.35	+25 35.3	2.199	3.179	1.7	20.9
1 22	5 23.82	+19 42.0	0.206	1.150	33.2	18.8	1 22	7 4.40	+25 42.9	2.215	3.169	5.2	21.2
2 1	3 45.15	+30 53.7	0.228	1.082	59.2	19.6	2 1	6 56.61	+25 44.7	2.259	3.159	8.6	21.4
2 11	2 27.98	+36 9.8	0.278	1.004	78.6	20.5	2 11	6 50.73	+25 41.3	2.329	3.149	11.6	21.5
460949	2014 <i>WG</i> ₂₆₆		1 8.7 313°98	5°6/10.3	18		522348	2016 <i>CS</i> ₂₉₇		1 8.7 260°23	1°3/ 9.0	18	
12 3	7 40.36	+ 8 16.9	1.799	2.577	16.2	21.1	12 3	7 44.02	+19 33.4	2.189	2.976	13.4	20.9
12 13	7 36.67	+ 7 46.9	1.706	2.565	13.2	20.9	12 13	7 39.00	+19 10.0	2.096	2.970	10.4	20.7
12 23	7 30.49	+ 7 30.9	1.634	2.553	9.9	20.6	12 23	7 31.74	+18 50.0	2.026	2.964	6.9	20.5
1 2	7 22.39	+ 7 30.9	1.586	2.541	6.8	20.4	1 2	7 22.84	+18 32.7	1.984	2.958	3.2	20.3
1 12	7 13.34	+ 7 47.2	1.565	2.529	5.6	20.3	1 12	7 13.22	+18 17.4	1.972	2.952	1.8	20.1
1 22	7 4.48	+ 8 18.1	1.572	2.518	7.8	20.4	1 22	7 3.90	+18 3.6	1.990	2.946	5.5	20.4
2 1	6 56.96	+ 9 0.4	1.604	2.507	11.3	20.6	2 1	6 55.86	+17 51.1	2.036	2.940	9.2	20.6
2 11	6 51.70	+ 9 49.9	1.660	2.497	14.8	20.8	2 11	6 49.88	+17 39.7	2.107	2.934	12.4	20.8
335639	2006 <i>KR</i> ₁₉		1 8.7 136°50	5°0/10.9	18		456942	2008 <i>AG</i> ₅		1 8.7 35°35	1°5/ 8.5	16	
12 3	7 40.49	+ 3 4.3	3.064	3.786	11.3	21.7	12 3	7 47.18	+25 22.3	1.160	1.991	20.1	20.1
12 13	7 35.49	+ 2 34.8	2.985	3.800	9.4	21.6	12 13	7 42.75	+25 23.9	1.116	2.015	15.4	19.9
12 23	7 29.05	+ 2 16.3	2.928	3.814	7.4	21.5	12 23	7 34.64	+25 27.4	1.091	2.039	10.0	19.7
1 2	7 21.61	+ 2 10.1	2.899	3.827	5.6	21.4	1 2	7 24.04	+25 28.5	1.088	2.065	4.2	19.4
1 12	7 13.78	+ 2 16.4	2.900	3.839	5.0	21.4	1 12	7 12.73	+25 23.3	1.111	2.092	2.6	19.4
1 22	7 6.18	+ 2 34.2	2.930	3.851	5.9	21.4	1 22	7 2.57	+25 10.6	1.160	2.120	7.9	19.8
2 1	6 59.43	+ 3 1.7	2.990	3.862	7.7	21.6	2 1	6 55.04	+24 51.7	1.232	2.148	12.8	20.2
2 11	6 54.03	+ 3 36.3	3.076	3.873	9.7	21.7	2 11	6 51.01	+24 28.9	1.326	2.177	16.9	20.5
110005	2001 <i>SH</i> ₆₄		1 8.7 38°80	5°8/ 6.9	18		523508	2017 <i>KP</i> ₃₇		1 8.7 128°51	1°7/ 8.2	18	
12 3	7 46.75	+33 28.4	1.618	2.429	16.3	19.1	12 3	7 45.15	+25 45.2	2.149	2.943	13.3	21.6
12 13	7 42.23	+34 39.2	1.554	2.437	12.8	18.9	12 13	7 39.97	+26 15.5	2.071	2.950	10.3	21.4
12 23	7 34.38	+35 47.2	1.511	2.445	9.2	18.8	12 23	7 32.41	+26 47.7	2.017	2.958	6.7	21.2
1 2	7 24.02	+36 44.1	1.493	2.454	6.3	18.6	1 2	7 23.12	+27 17.9	1.990	2.964	3.1	21.0
1 12	7 12.59	+37 22.4	1.502	2.463	6.3	18.6	1 12	7 13.10	+27 42.5	1.993	2.971	2.3	20.9
1 22	7 1.74	+37 38.8	1.539	2.472	9.2	18.8	1 22	7 3.46	+27 58.9	2.026	2.978	5.8	21.2
2 1	6 53.02	+37 34.2	1.600	2.482	12.7	19.0	2 1	6 55.24	+28 6.7	2.087	2.984	9.4	21.4
2 11	6 47.46	+37 13.1	1.683	2.492	15.9	19.3	2 11	6 49.26	+28 6.8	2.172	2.990	12.5	21.6
278407	2007 <i>RC</i> ₇		1 8.7 54°39	5°0/10.8	18		39741	Komm		1 8.7 74°81	4°3/ 9.8	18	R
12 3	7 40.84	+ 6 48.0	2.031	2.794	15.1	20.3	12 3	7 54.68	+12 41.5	1.338	2.124	20.3	19.0
12 13	7 36.41	+ 6 36.4	1.967	2.815	12.2	20.1	12 13	7 47.57	+12 16.1	1.297	2.166	15.9	18.8
12 23	7 29.93	+ 6 39.6	1.925	2.837	9.0	20.0	12 23	7 37.31	+12 5.2	1.276	2.206	11.0	18.6
1 2	7 22.02	+ 6 58.0	1.908	2.859	6.1	19.9	1 2	7 25.02	+12 8.4	1.280	2.246	6.2	18.5
1 12	7 13.59	+ 7 30.6	1.920	2.881	5.0	19.8	1 12	7 12.29	+12 23.4	1.311	2.285	4.4	18.5
1 22	7 5.59	+ 8 14.5	1.959	2.903	6.7	20.0	1 22	7 0.71	+12 47.0	1.370	2.323	7.9	18.8
2 1	6 58.90	+ 9 5.9	2.027	2.926	9.5	20.2	2 1	6 51.58	+13 15.9	1.455	2.360	12.1	19.1
2 11	6 54.18	+10 0.8	2.119	2.948	12.3	20.4	2 11	6 45.65	+13 46.7	1.563	2.396	15.7	19.4
194221	2001 <i>TN</i> ₁₄₁		1 8.7 161°49	2°9/ 7.8	18		77473	2001 <i>HE</i> ₂₈		1 8.7 172°68	0°4/ 8.6	18	
12 3	7 50.52	+27 40.1	1.866	2.660	15.1	21.4	12 3	7 42.79	+22 23.6	2.549	3.334	11.7	20.1
12 13	7 44.54	+28 25.4	1.788	2.667	11.7	21.2	12 13	7 37.79	+22 42.4	2.461	3.336	9.0	19.9
12 23	7 35.62	+29 12.1	1.734	2.673	7.8	21.0	12 23	7 30.83	+23 4.6	2.398	3.338	5.9	19.7
1 2	7 24.48	+29 54.5	1.706	2.678	4.0	20.8	1 2	7 22.44	+23 27.6	2.363	3.339	2.4	19.5
1 12	7 12.37	+30 27.0	1.708	2.682	3.5	20.7	1 12	7 13.43	+23 49.0	2.359	3.340	1.3	19.4
1 22	7 0.69	+30 46.3	1.739	2.686	7.1	21.0	1 22	7 4.67	+24 6.9	2.386	3.341	4.8	19.6
2 1	6 50.82	+30 52.3	1.797	2.689	11.0	21.2	2 1	6 57.02	+24 20.1	2.442	3.342	8.1	19.8
2 11	6 43.71	+30 47.1	1.880	2.691	14.4	21.4	2 11	6 51.17	+24 28.8	2.524	3.342	10.9	20.0
234842	2002 <i>RY</i> ₁₇₇		1 8.7 142°09	2°4/ 7.9	18		285684	2000 <i>SR</i> ₁₅₂		1 8.7 99°71	3°0/ 9.6	18	
12 3	7 45.19	+29 32.9	2.486	3.274	11								

EPHEMERIDES

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
426376	2013 <i>PS</i> ₂		1 8.7 241°04	13°4/15.0	18		328287	2008 <i>GM</i> ₁₀₉		1 8.8 115°27	3°3/ 7.5	18	
12 3	7 46.53	- 9 16.9	1.254	1.977	24.6	21.3	12 3	7 45.90	+28 7.5	1.995	2.794	14.1	20.7
12 13	7 42.53	- 9 29.3	1.172	1.971	21.8	21.1	12 13	7 40.90	+29 8.9	1.919	2.800	10.9	20.5
12 23	7 34.96	- 9 0.9	1.104	1.965	18.6	20.8	12 23	7 33.23	+30 12.2	1.867	2.806	7.3	20.3
1 2	7 24.46	- 7 42.8	1.054	1.959	15.5	20.6	1 2	7 23.56	+31 11.4	1.842	2.812	4.0	20.1
1 12	7 12.38	- 5 32.1	1.027	1.952	13.5	20.5	1 12	7 12.98	+32 0.9	1.847	2.818	3.8	20.1
1 22	7 0.47	- 2 35.7	1.024	1.945	14.1	20.5	1 22	7 2.75	+32 36.9	1.880	2.824	6.9	20.3
2 1	6 50.52	+ 0 51.3	1.045	1.938	16.9	20.6	2 1	6 54.08	+32 58.3	1.942	2.830	10.4	20.6
2 11	6 43.93	+ 4 29.5	1.090	1.931	20.5	20.8	2 11	6 47.89	+33 6.8	2.027	2.836	13.5	20.8
31749	1999 <i>JV</i> ₈₃		1 8.7 244°20	5°1/10.9	18		23023	1999 <i>WA</i> ₇		1 8.8 247°76	0°8/ 9.0	18	
12 3	7 39.19	+ 3 39.9	2.794	3.527	12.1	19.4	12 3	7 42.40	+18 47.5	2.110	2.902	13.7	18.7
12 13	7 34.86	+ 3 26.1	2.690	3.515	10.0	19.2	12 13	7 37.89	+18 58.4	2.023	2.900	10.6	18.5
12 23	7 28.87	+ 3 24.7	2.608	3.502	7.8	19.1	12 23	7 31.11	+19 15.8	1.959	2.899	7.0	18.3
1 2	7 21.65	+ 3 37.0	2.553	3.489	5.8	18.9	1 2	7 22.65	+19 38.0	1.922	2.898	3.0	18.0
1 12	7 13.82	+ 4 3.0	2.527	3.475	5.1	18.8	1 12	7 13.43	+20 2.3	1.915	2.896	1.5	17.9
1 22	7 6.08	+ 4 41.2	2.531	3.461	6.2	18.9	1 22	7 4.48	+20 26.3	1.937	2.895	5.4	18.2
2 1	6 59.17	+ 5 29.3	2.563	3.447	8.4	19.0	2 1	6 56.81	+20 48.3	1.987	2.894	9.2	18.4
2 11	6 53.69	+ 6 23.9	2.622	3.433	10.7	19.1	2 11	6 51.23	+21 7.3	2.062	2.892	12.5	18.6
368779	2005 <i>WB</i> ₁₂₁		1 8.7 1°72	1°3/ 8.4	18		419065	2009 <i>SD</i> ₃₅		1 8.8 208°71	5°8/10.5	18	
12 3	7 39.65	+23 2.7	1.334	2.165	18.0	20.3	12 3	7 42.43	+ 4 55.4	2.327	3.070	13.9	21.8
12 13	7 37.04	+23 32.3	1.263	2.163	13.9	20.1	12 13	7 37.61	+ 4 17.9	2.233	3.065	11.5	21.6
12 23	7 31.17	+24 8.8	1.212	2.162	9.1	19.8	12 23	7 30.80	+ 3 53.0	2.162	3.060	8.9	21.4
1 2	7 22.78	+24 47.8	1.185	2.162	3.8	19.5	1 2	7 22.50	+ 3 42.7	2.117	3.055	6.7	21.3
1 12	7 13.26	+25 23.5	1.183	2.164	2.4	19.4	1 12	7 13.51	+ 3 47.8	2.101	3.049	5.9	21.2
1 22	7 4.24	+25 51.6	1.207	2.167	7.6	19.7	1 22	7 4.71	+ 4 7.3	2.113	3.043	7.3	21.3
2 1	6 57.25	+26 9.9	1.255	2.172	12.6	20.0	2 1	6 56.99	+ 4 39.1	2.153	3.036	9.8	21.4
2 11	6 53.36	+26 18.9	1.324	2.177	16.8	20.3	2 11	6 51.06	+ 5 19.5	2.218	3.029	12.4	21.6
234832	2002 <i>RF</i> ₁₂₅		1 8.7 67°55	6°4/11.7	18		426257	2012 <i>QB</i> ₂₃		1 8.8 36°08	4°0/ 7.7	18	
12 3	7 39.87	+ 1 44.2	2.201	2.939	14.7	20.3	12 3	7 45.76	+34 5.4	2.277	3.069	12.8	20.7
12 13	7 35.65	+ 1 29.8	2.123	2.948	12.3	20.1	12 13	7 40.48	+34 29.3	2.198	3.071	10.1	20.5
12 23	7 29.48	+ 1 32.5	2.066	2.957	9.7	20.0	12 23	7 32.77	+34 48.5	2.142	3.073	7.1	20.3
1 2	7 21.90	+ 1 53.8	2.035	2.966	7.4	19.8	1 2	7 23.31	+34 58.7	2.113	3.075	4.6	20.2
1 12	7 13.72	+ 2 33.4	2.030	2.975	6.4	19.8	1 12	7 13.14	+34 56.4	2.113	3.078	4.3	20.2
1 22	7 5.83	+ 3 28.5	2.055	2.984	7.5	19.9	1 22	7 3.43	+34 40.4	2.143	3.080	6.7	20.3
2 1	6 59.09	+ 4 35.2	2.106	2.993	9.8	20.0	2 1	6 55.22	+34 12.0	2.200	3.083	9.6	20.5
2 11	6 54.15	+ 5 48.5	2.183	3.002	12.3	20.2	2 11	6 49.32	+33 34.2	2.282	3.085	12.4	20.7
443402	2014 <i>HU</i> ₃₇		1 8.7 100°40	3°3/ 7.6	17		135308	2001 <i>SF</i> ₂₅₄		1 8.8 339°34	1°8/ 9.3	18	
12 3	7 50.60	+26 46.4	1.654	2.455	16.4	20.7	12 3	7 42.80	+17 1.7	1.728	2.527	15.9	20.2
12 13	7 44.81	+27 57.7	1.593	2.475	12.6	20.5	12 13	7 38.66	+16 59.7	1.644	2.524	12.4	19.9
12 23	7 35.87	+29 11.9	1.555	2.495	8.4	20.3	12 23	7 31.85	+17 6.5	1.582	2.521	8.4	19.7
1 2	7 24.61	+30 21.6	1.543	2.515	4.4	20.1	1 2	7 23.02	+17 20.9	1.545	2.519	4.0	19.4
1 12	7 12.41	+31 19.4	1.560	2.534	4.0	20.2	1 12	7 13.26	+17 40.6	1.536	2.517	2.3	19.3
1 22	7 0.84	+32 0.8	1.606	2.552	7.7	20.4	1 22	7 3.83	+18 3.1	1.556	2.515	6.4	19.6
2 1	6 51.32	+32 25.3	1.679	2.570	11.6	20.7	2 1	6 55.96	+18 26.0	1.602	2.513	10.7	19.8
2 11	6 44.81	+32 35.2	1.775	2.588	15.0	20.9	2 11	6 50.58	+18 47.8	1.671	2.511	14.5	20.0
288546	2004 <i>GN</i> ₃₄		1 8.7 298°24	6°2/ 7.2	18		200847	2001 <i>YW</i> ₁₄		1 8.8 86°87	1°4/ 8.3	18	
12 3	7 48.82	+40 50.9	2.282	3.061	13.1	20.2	12 3	7 47.91	+22 41.4	1.499	2.308	17.4	20.7
12 13	7 43.16	+41 22.4	2.192	3.049	10.8	20.0	12 13	7 42.96	+23 24.5	1.434	2.321	13.4	20.5
12 23	7 34.68	+41 45.2	2.125	3.037	8.3	19.8	12 23	7 34.79	+24 14.3	1.390	2.334	8.7	20.2
1 2	7 24.11	+41 53.2	2.084	3.025	6.5	19.7	1 2	7 24.23	+25 5.4	1.371	2.347	3.7	20.0
1 12	7 12.65	+41 42.0	2.072	3.014	6.5	19.7	1 12	7 12.70	+25 51.6	1.380	2.360	2.4	19.9
1 22	7 1.63	+41 10.3	2.087	3.002	8.3	19.8	1 22	7 1.77	+26 28.3	1.417	2.373	7.2	20.3
2 1	6 52.33	+40 20.3	2.130	2.991	10.9	19.9	2 1	6 52.91	+26 53.9	1.480	2.386	11.8	20.6
2 11	6 45.67	+39 16.9	2.196	2.980	13.5	20.1	2 11	6 47.10	+27 9.1	1.565	2.398	15.7	20.8
291278	2006 <i>BL</i> ₁₀₂		1 8.7 217°25	1°1/ 9.1	18		196665	2003 <i>SJ</i> ₄₆		1 8.8 144°41	3°7/10.2	18	
12 3	7 46.86	+18 22.3	1.920	2.707	15.0	22.0	12 3	7 41.55	+ 9 44.5	2.354	3.117	13.2	20.4
12 13	7 41.61	+18 28.1	1.826	2.700	11.7	21.8	12 13	7 36.88	+ 9 38.6	2.270	3.122	10.6	20.2
12 23	7 33.70	+18 41.2	1.754	2.692	7.8	21.5	12 23	7 30.28	+ 9 43.7	2.208	3.127	7.7	20.0
1 2	7 23.75	+18 59.7	1.709	2.684	3.5	21.2	1 2	7 22.28	+10 0.2	2.174	3.132	4.8	19.9
1 12	7 12.80	+19 21.0	1.693	2.674	1.8	21.1	1 12	7 13.68	+10 26.8	2.169	3.137	3.8	19.8
1 22	7 2.08	+19 42.4	1.707	2.664	6.1	21.4	1 22	7 5.34	+11 1.4	2.193	3.141	5.7	19.9
2 1	6 52.82	+20 2.2	1.749	2.654	10.4	21.6	2 1	6 58.10	+11 41.5	2.247	3.146	8.7	20.1
2 11	6 45.97	+20 19.4	1.816	2.643	14.1	21.8	2 11	6 52.63	+12 24.2	2.325	3.150	11.5	20.3
31023	1996 <i>FT</i> ₁₀		1 8.7 327°95	6°4/ 7.1	18		220568	2004 <i>HT</i> ₄₂		1 8.8 163°12	3°1/ 7.6	18	
12 3	7 48.75	+33 28.9	1.406	2.223	18.0	19.3	12 3	7 48.03	+31 24.2	2.637	3.416	11.5	21.3
12 13	7 44.45	+34 34.2	1.332	2.219	14.3	19.1	12 13	7 41.86	+32 1.2	2.555	3.423	9.0	21.1
12 23	7 36.26	+35 37.5	1.279	2.215	10.3	18.8	12 23	7 33.53	+32 36.0	2.498	3.430	6.2	20.9
1 2	7 24.97	+36 29.1	1.250	2.212	7.0	18.6	1 2	7 23.62	+33 4.5	2.470	3.435	3.7	20.8
1 12	7 12.21	+37 0.1	1.246	2.209	6.9	18.6	1 12	7 13.05	+33 23.1	2.473	3.440	3.5	20.8
1 22	7 0.01	+37 6.2	1.269	2.206	10.2	18.8	1 22	7 2.81	+33 30.1	2.507	3.445	5.8	20.9
2 1	6 50.25	+36 48.8	1.315	2.204	14.3	19.0	2 1	6 53.85	+33 25.7	2.570	3.448	8.6	21.1
2 11	6 44.22	+36 13.7	1.382	2.201	18.1	19.3	2 11	6 46.92	+33 11.8	2.659	3.451	11.1	21.3
283558	2001 <i>VO</i> ₃₂		1 8.7 74°78	1°9/ 9.1	18		207741	2007 <i>RO</i> ₂₄₄		1 8.8 8°97	5°2/10.6	18	
12 3	7 48.29	+18 45.3	1.443										

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
333049	2011 <i>SP</i> ₁₆₈		1 8.8 160°73	0°9/ 9.0 18			313203	2001 <i>RC</i> ₇		1 8.8 108°78	5°4/ 7.2 18		
12 3	7 47.95	+18 51.7	1.976	2.760	14.7	22.0	12 3	7 52.82	+37 7.7	2.241	3.018	13.4	20.8
12 13	7 42.22	+18 57.3	1.894	2.767	11.4	21.8	12 13	7 45.88	+38 0.1	2.182	3.043	10.6	20.7
12 23	7 33.96	+19 9.3	1.835	2.773	7.5	21.6	12 23	7 36.26	+38 45.9	2.148	3.067	7.8	20.5
1 2	7 23.85	+19 25.5	1.803	2.778	3.3	21.3	1 2	7 24.76	+39 18.7	2.141	3.090	5.7	20.5
1 12	7 12.94	+19 43.5	1.801	2.783	1.6	21.2	1 12	7 12.61	+39 33.9	2.163	3.113	5.7	20.5
1 22	7 2.42	+20 0.9	1.830	2.787	5.8	21.5	1 22	7 1.12	+39 30.3	2.215	3.134	7.6	20.7
2 1	6 53.42	+20 16.2	1.886	2.790	9.8	21.7	2 1	6 51.46	+39 9.8	2.294	3.156	10.2	20.9
2 11	6 46.78	+20 29.0	1.968	2.792	13.3	22.0	2 11	6 44.42	+38 36.7	2.398	3.176	12.6	21.1
14024	Procol Harum		1 8.8 49°37	1°5/ 8.4 17			169122	2001 <i>PQ</i> ₂₄		1 8.8 168°39	5°3/ 6.9 18		
12 3	7 48.80	+24 43.1	1.342	2.159	18.7	18.6	12 3	7 49.09	+40 46.7	2.804	3.571	11.2	20.6
12 13	7 43.60	+25 0.5	1.296	2.187	14.3	18.4	12 13	7 42.76	+41 22.3	2.725	3.574	9.1	20.5
12 23	7 35.07	+25 20.9	1.269	2.215	9.2	18.2	12 23	7 34.14	+41 50.3	2.670	3.577	7.0	20.3
1 2	7 24.27	+25 39.2	1.268	2.244	3.9	17.9	1 2	7 23.90	+42 5.8	2.642	3.579	5.5	20.2
1 12	7 12.81	+25 51.0	1.293	2.273	2.5	17.9	1 12	7 13.01	+42 5.4	2.644	3.582	5.5	20.2
1 22	7 2.36	+25 54.1	1.345	2.303	7.3	18.3	1 22	7 2.54	+41 48.1	2.676	3.583	7.0	20.3
2 1	6 54.30	+25 49.1	1.422	2.332	11.9	18.6	2 1	6 53.51	+41 15.4	2.735	3.585	9.1	20.5
2 11	6 49.47	+25 37.9	1.522	2.362	15.7	18.9	2 11	6 46.64	+40 30.8	2.820	3.586	11.2	20.6
126274	2002 <i>AA</i> ₉₅		1 8.8 241°37	1°1/ 8.4 18			282540	2004 <i>RE</i> ₃₂₅		1 8.8 95°23	0°9/ 8.6 17		
12 3	7 44.14	+23 13.3	2.124	2.919	13.5	20.5	12 3	7 51.93	+24 1.1	1.687	2.482	16.4	21.5
12 13	7 39.40	+23 47.1	2.031	2.910	10.4	20.3	12 13	7 45.45	+24 12.2	1.629	2.508	12.6	21.3
12 23	7 32.23	+24 25.7	1.960	2.902	6.8	20.1	12 23	7 36.06	+24 25.7	1.592	2.534	8.1	21.1
1 2	7 23.19	+25 5.5	1.918	2.894	2.9	19.8	1 2	7 24.69	+24 37.8	1.583	2.559	3.4	20.9
1 12	7 13.22	+25 42.4	1.905	2.885	1.9	19.7	1 12	7 12.68	+24 45.0	1.602	2.583	1.9	20.8
1 22	7 3.45	+26 13.3	1.921	2.876	5.8	20.0	1 22	7 1.47	+24 45.6	1.651	2.607	6.5	21.2
2 1	6 54.99	+26 36.5	1.966	2.867	9.7	20.2	2 1	6 52.30	+24 39.9	1.727	2.630	10.6	21.5
2 11	6 48.73	+26 51.9	2.036	2.857	13.0	20.4	2 11	6 45.98	+24 29.5	1.828	2.653	14.1	21.7
181291	2006 <i>PR</i> ₁		1 8.8 131°45	3°0/ 7.9 18			459643	2013 <i>JK</i> ₃₆		1 8.8 171°21	4°6/ 9.7 18		
12 3	7 47.03	+33 21.3	2.912	3.688	10.6	20.3	12 3	7 45.61	+10 57.7	2.074	2.840	14.7	21.6
12 13	7 40.78	+33 33.8	2.835	3.701	8.3	20.2	12 13	7 40.24	+10 10.6	1.988	2.842	11.8	21.4
12 23	7 32.63	+33 42.0	2.784	3.714	5.8	20.0	12 23	7 32.59	+9 32.6	1.925	2.844	8.6	21.2
1 2	7 23.19	+33 42.9	2.763	3.726	3.5	19.9	1 2	7 23.30	+9 5.2	1.889	2.846	5.6	21.0
1 12	7 13.29	+33 34.3	2.772	3.738	3.2	19.9	1 12	7 13.29	+8 49.2	1.882	2.847	4.7	20.9
1 22	7 3.83	+33 15.6	2.812	3.750	5.3	20.0	1 22	7 3.62	+8 44.2	1.904	2.848	6.9	21.1
2 1	6 55.59	+32 48.0	2.882	3.761	7.7	20.2	2 1	6 55.28	+8 49.0	1.954	2.848	10.1	21.3
2 11	6 49.21	+32 13.5	2.978	3.772	10.0	20.4	2 11	6 49.05	+9 1.2	2.029	2.848	13.1	21.5
88295	2001 <i>ND</i> ₁₂		1 8.8 82°59	4°0/ 9.9 18			453214	2008 <i>HU</i> ₁₃		1 8.8 217°56	7°2/ 10.8 18		
12 3	7 46.76	+11 52.1	1.438	2.231	18.8	19.8	12 3	7 42.62	+2 41.8	2.097	2.837	15.3	21.5
12 13	7 41.89	+11 48.5	1.375	2.248	14.9	19.6	12 13	7 38.00	+1 52.0	2.007	2.833	12.9	21.3
12 23	7 33.99	+12 0.6	1.333	2.264	10.4	19.4	12 23	7 31.20	+1 17.0	1.939	2.829	10.3	21.2
1 2	7 23.89	+12 27.7	1.314	2.281	5.9	19.1	1 2	7 22.76	+0 59.9	1.896	2.824	8.0	21.0
1 12	7 12.95	+13 7.1	1.322	2.297	4.1	19.1	1 12	7 13.55	+1 2.3	1.880	2.819	7.2	21.0
1 22	7 2.63	+13 54.4	1.357	2.314	7.5	19.3	1 22	7 4.57	+1 23.4	1.891	2.814	8.5	21.0
2 1	6 54.29	+14 45.1	1.419	2.330	11.9	19.6	2 1	6 56.76	+2 0.4	1.930	2.808	11.0	21.2
2 11	6 48.85	+15 35.1	1.503	2.345	15.7	19.9	2 11	6 50.94	+2 48.9	1.992	2.803	13.7	21.3
15270	1991 <i>AE</i> ₂		1 8.8 36°76	6°8/ 11.6 18			69071	2003 <i>AR</i> ₃₉		1 8.8 350°82	2°6/ 9.5 18		
12 3	7 41.48	+3 50.8	1.479	2.254	19.2	17.2	12 3	7 40.24	+15 2.8	2.049	2.839	14.1	19.8
12 13	7 37.81	+3 51.0	1.412	2.265	15.8	17.0	12 13	7 36.26	+14 44.9	1.963	2.835	11.1	19.6
12 23	7 31.35	+4 15.1	1.364	2.276	12.0	16.8	12 23	7 30.09	+14 35.0	1.898	2.832	7.6	19.4
1 2	7 22.84	+5 4.4	1.338	2.288	8.4	16.6	1 2	7 22.30	+14 33.0	1.860	2.830	4.1	19.2
1 12	7 13.46	+6 16.4	1.339	2.300	6.8	16.6	1 12	7 13.78	+14 37.9	1.851	2.828	2.8	19.1
1 22	7 4.54	+7 45.3	1.365	2.312	8.6	16.7	1 22	7 5.55	+14 48.5	1.870	2.826	5.8	19.3
2 1	6 57.33	+9 23.4	1.418	2.326	12.1	16.9	2 1	6 58.58	+15 2.9	1.917	2.825	9.4	19.5
2 11	6 52.75	+11 3.1	1.494	2.339	15.6	17.2	2 11	6 53.62	+15 19.6	1.988	2.824	12.7	19.7
4498	Shinkoyama		1 8.8 98°44	0°5/ 8.9 18 R			345285	2005 <i>WQ</i> ₅₅		1 8.8 333°96	17°9/ 3.9 17		
12 3	7 44.49	+21 7.4	2.277	3.063	12.9	16.7	12 3	7 43.19	+2 9.6	1.057	1.853	24.0	19.0
12 13	7 39.17	+20 56.4	2.200	3.075	10.0	16.5	12 13	7 40.59	-1 52.9	0.977	1.826	21.5	18.7
12 23	7 31.76	+20 48.4	2.148	3.087	6.5	16.3	12 23	7 34.12	-5 53.0	0.915	1.802	19.1	18.5
1 2	7 22.89	+20 42.0	2.123	3.098	2.7	16.1	1 2	7 24.35	-9 31.8	0.875	1.779	17.9	18.3
1 12	7 13.47	+20 35.8	2.128	3.110	1.3	16.0	1 12	7 12.69	-12 29.7	0.857	1.757	18.5	18.2
1 22	7 4.47	+20 29.0	2.164	3.121	5.0	16.3	1 22	7 1.07	-14 32.8	0.858	1.738	20.8	18.3
2 1	6 56.79	+20 21.2	2.228	3.132	8.5	16.5	2 1	6 51.50	-15 36.9	0.876	1.721	23.8	18.4
2 11	6 51.10	+20 12.6	2.318	3.143	11.5	16.7	2 11	6 45.61	-15 49.0	0.908	1.706	27.0	18.6
393418	2001 <i>QA</i> ₂₅₀		1 8.8 103°65	0°2/ 8.8 18			456290	2006 <i>SO</i> ₉₂		1 8.8 77°58	4°9/ 10.2 18		
12 3	7 48.52	+18 49.6	1.578	2.376	17.2	20.7	12 3	7 43.99	+9 47.9	1.736	2.514	16.7	21.7
12 13	7 43.18	+19 27.1	1.512	2.393	13.3	20.5	12 13	7 39.33	+9 19.6	1.664	2.525	13.4	21.5
12 23	7 34.83	+20 14.4	1.467	2.409	8.7	20.2	12 23	7 32.15	+9 4.9	1.614	2.536	9.7	21.3
1 2	7 24.27	+21 7.4	1.449	2.425	3.6	20.0	1 2	7 23.15	+9 4.9	1.588	2.547	6.3	21.1
1 12	7 12.81	+22 0.4	1.458	2.440	1.7	19.9	1 12	7 13.41	+9 19.1	1.590	2.558	5.0	21.1
1 22	7 1.92	+22 48.8	1.497	2.455	6.7	20.2	1 22	7 4.13	+9 45.3	1.620	2.568	7.4	21.2
2 1	6 52.96	+23 29.7	1.563	2.470	11.2	20.5	2 1	6 56.41	+10 20.2	1.676	2.579	10.9	21.5
2 11	6 46.87	+24 2.2	1.652	2.484	15.0	20.8	2 11	6 51.07	+11 0.0	1.756	2.590	14.2	21.7
197463	2003 <i>YP</i> ₁₂₉		1 8.8 2°78	12°1/ 10.4 16			323109	2002 <i>YR</i> ₂₀		1 8.8 23°32	1°3/ 8.2 18		
12 3	8 8.91	+47 50.1	0.918	1.728	25.8	19.1	12 3	7 42.85	+19 2				

EPHEMERIDES

1 8.8

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
249327	2008 UC ₃₁₇		1 8.8 346°68	1.4/ 9.5	18		30417	Staudt		1 8.8 134°09	0°1/ 8.7	18	
12 3	7 39.98	+14 18.3	1.964	2.755	14.5	19.9	12 3	7 45.81	+20 59.3	2.261	3.045	13.1	19.6
12 13	7 36.31	+15 6.8	1.874	2.750	11.4	19.7	12 13	7 40.29	+21 21.4	2.184	3.058	10.1	19.4
12 23	7 30.28	+16 9.0	1.807	2.745	7.7	19.4	12 23	7 32.58	+21 48.2	2.131	3.071	6.5	19.2
1 2	7 22.45	+17 22.4	1.767	2.740	3.6	19.2	1 2	7 23.31	+22 16.9	2.106	3.082	2.7	18.9
1 12	7 13.71	+18 42.5	1.755	2.736	1.8	19.0	1 12	7 13.39	+22 44.6	2.112	3.094	1.3	18.9
1 22	7 5.14	+20 3.8	1.774	2.733	5.7	19.3	1 22	7 3.83	+23 8.9	2.148	3.104	5.2	19.1
2 1	6 57.80	+21 21.6	1.820	2.730	9.7	19.5	2 1	6 55.60	+23 28.4	2.213	3.114	8.7	19.4
2 11	6 52.60	+22 32.3	1.892	2.728	13.2	19.7	2 11	6 49.42	+23 42.9	2.304	3.124	11.7	19.6
284067	2005 EX ₉₀		1 8.8 238°95	5°9/11.1	17		239696	2008 YN ₁₄₆		1 8.8 237°65	2°0/ 9.8	17	
12 3	7 39.91	+ 2 44.0	2.474	3.209	13.4	20.9	12 3	7 40.14	+13 4.2	2.993	3.755	10.7	21.6
12 13	7 35.63	+ 2 19.9	2.379	3.202	11.2	20.7	12 13	7 35.59	+13 19.7	2.885	3.742	8.5	21.4
12 23	7 29.52	+ 2 9.9	2.305	3.195	8.8	20.5	12 23	7 29.41	+13 43.5	2.801	3.728	5.9	21.3
1 2	7 22.05	+ 2 15.7	2.257	3.188	6.8	20.4	1 2	7 22.01	+14 14.7	2.746	3.714	3.2	21.1
1 12	7 13.93	+ 2 37.7	2.237	3.181	6.0	20.3	1 12	7 14.00	+14 51.7	2.723	3.699	2.1	21.0
1 22	7 5.97	+ 3 14.4	2.246	3.173	7.1	20.4	1 22	7 6.06	+15 32.4	2.730	3.684	4.4	21.1
2 1	6 58.95	+ 4 3.1	2.283	3.166	9.3	20.5	2 1	6 58.89	+16 14.8	2.768	3.668	7.2	21.3
2 11	6 53.57	+ 4 59.9	2.345	3.158	11.8	20.7	2 11	6 53.12	+16 56.8	2.833	3.652	9.8	21.4
184530	2005 QV ₂₄		1 8.8 199°44	4°5/ 7.4	18		39619	1994 LC ₃		1 8.8 216°92	2°8/ 9.9	18	
12 3	7 48.62	+33 31.3	2.117	2.907	13.6	21.0	12 3	7 42.70	+11 55.9	2.571	3.333	12.3	19.9
12 13	7 43.03	+34 15.6	2.033	2.905	10.8	20.8	12 13	7 37.76	+11 58.1	2.469	3.324	9.8	19.7
12 23	7 34.69	+34 56.8	1.972	2.903	7.6	20.6	12 23	7 30.93	+12 9.7	2.391	3.315	6.9	19.5
1 2	7 24.26	+35 29.0	1.939	2.900	5.0	20.5	1 2	7 22.66	+12 30.3	2.341	3.305	4.0	19.3
1 12	7 12.89	+35 47.2	1.934	2.897	4.9	20.5	1 12	7 13.69	+12 58.6	2.321	3.294	2.9	19.2
1 22	7 1.88	+35 49.0	1.959	2.893	7.4	20.6	1 22	7 4.85	+13 32.6	2.332	3.283	5.2	19.4
2 1	6 52.50	+35 35.2	2.011	2.889	10.6	20.8	2 1	6 56.97	+14 10.0	2.372	3.272	8.3	19.5
2 11	6 45.69	+35 8.9	2.086	2.885	13.6	21.0	2 11	6 50.76	+14 48.7	2.439	3.259	11.2	19.7
3886	Shcherbakovia		1 8.8 152°30	2°4/ 9.6	18		230490	2002 TO ₁₂₈		1 8.8 75°39	2°5/ 9.3	18	
12 3	7 43.18	+14 25.9	2.235	3.012	13.5	17.6	12 3	7 50.35	+17 20.9	1.322	2.127	19.5	19.8
12 13	7 38.28	+14 23.0	2.151	3.016	10.6	17.4	12 13	7 44.81	+16 57.7	1.266	2.149	15.2	19.6
12 23	7 31.29	+14 28.6	2.090	3.021	7.2	17.2	12 23	7 35.94	+16 44.1	1.230	2.170	10.2	19.4
1 2	7 22.78	+14 41.9	2.056	3.025	3.8	17.0	1 2	7 24.74	+16 38.8	1.219	2.192	4.9	19.1
1 12	7 13.61	+15 1.6	2.052	3.029	2.6	16.9	1 12	7 12.78	+16 40.0	1.234	2.213	2.9	19.1
1 22	7 4.73	+15 25.4	2.077	3.032	5.4	17.1	1 22	7 1.71	+16 45.6	1.276	2.234	7.5	19.4
2 1	6 57.06	+15 51.5	2.132	3.036	8.8	17.4	2 1	6 52.97	+16 53.9	1.343	2.255	12.3	19.7
2 11	6 51.32	+16 18.0	2.212	3.039	11.9	17.6	2 11	6 47.45	+17 3.5	1.433	2.276	16.3	20.0
429305	2010 DH ₂₁		1 8.8 252°61	2°3/ 7.6	15		119716	2001 XH ₂₀₈		1 8.8 45°10	2°1/ 9.4	18	
12 3	7 42.83	+27 19.7	2.722	3.509	11.0	21.6	12 3	7 43.16	+16 6.8	1.698	2.496	16.2	19.4
12 13	7 38.04	+28 13.8	2.619	3.495	8.5	21.4	12 13	7 38.88	+16 7.6	1.625	2.504	12.6	19.2
12 23	7 31.21	+29 10.3	2.542	3.480	5.7	21.2	12 23	7 31.97	+16 18.4	1.574	2.512	8.5	19.0
1 2	7 22.80	+30 5.3	2.494	3.465	3.0	21.0	1 2	7 23.14	+16 37.8	1.548	2.521	4.1	18.7
1 12	7 13.56	+30 54.5	2.477	3.450	2.8	21.0	1 12	7 13.50	+17 3.2	1.550	2.530	2.4	18.6
1 22	7 4.39	+31 35.0	2.491	3.435	5.5	21.1	1 22	7 4.32	+17 31.6	1.581	2.540	6.3	18.9
2 1	6 56.18	+32 5.0	2.534	3.419	8.4	21.3	2 1	6 56.75	+18 0.6	1.638	2.549	10.5	19.2
2 11	6 49.73	+32 24.9	2.602	3.403	11.1	21.4	2 11	6 51.66	+18 28.0	1.718	2.559	14.2	19.4
91333	1999 JP ₂		1 8.8 342°71	0°4/ 8.7	18		322625	1996 TX ₄₅		1 8.8 113°66	1°7/ 8.3	18	
12 3	7 40.41	+19 56.4	1.165	2.001	19.8	18.5	12 3	7 46.03	+25 26.7	2.026	2.822	14.0	21.4
12 13	7 38.24	+20 33.1	1.088	1.990	15.4	18.2	12 13	7 40.81	+25 54.6	1.951	2.832	10.8	21.2
12 23	7 32.40	+21 23.4	1.030	1.980	10.2	17.9	12 23	7 33.10	+26 24.7	1.899	2.841	7.0	21.0
1 2	7 23.56	+22 22.9	0.994	1.972	4.2	17.5	1 2	7 23.58	+26 53.0	1.875	2.850	3.2	20.8
1 12	7 13.18	+23 24.5	0.983	1.965	2.2	17.4	1 12	7 13.30	+27 15.5	1.880	2.859	2.3	20.7
1 22	7 3.13	+24 21.0	0.996	1.959	8.4	17.7	1 22	7 3.45	+27 30.0	1.914	2.867	6.0	21.0
2 1	6 55.27	+25 7.5	1.032	1.954	14.1	18.0	2 1	6 55.14	+27 36.0	1.976	2.876	9.7	21.2
2 11	6 50.98	+25 42.5	1.089	1.950	19.0	18.3	2 11	6 49.17	+27 34.4	2.063	2.884	12.9	21.4
368267	2002 CN ₅₈		1 8.8 275°81	17°9/17.1	18		462559	2009 DD ₁		1 8.8 202°69	38°8/ 4.4	16	
12 3	7 44.40	-15 23.1	1.205	1.904	26.6	20.2	12 3	7 54.56	-40 58.0	0.731	1.342	46.0	22.0
12 13	7 41.03	-16 24.4	1.132	1.898	24.4	20.0	12 13	7 51.37	-43 0.6	0.690	1.341	45.1	21.9
12 23	7 34.09	-16 43.7	1.071	1.892	22.0	19.8	12 23	7 42.42	-44 2.2	0.646	1.339	44.1	21.7
1 2	7 24.24	-16 8.7	1.025	1.886	19.7	19.6	1 2	7 28.22	-43 36.9	0.601	1.335	42.8	21.5
1 12	7 12.85	-14 32.3	0.997	1.881	18.2	19.5	1 12	7 10.86	-41 15.8	0.557	1.331	41.3	21.3
1 22	7 1.70	-11 56.7	0.990	1.875	18.2	19.5	1 22	6 53.52	-36 35.1	0.519	1.325	39.8	21.1
2 1	6 52.59	- 8 34.1	1.003	1.869	19.7	19.6	2 1	6 39.60	-29 25.6	0.490	1.318	38.9	20.9
2 11	6 46.86	- 4 44.3	1.037	1.864	22.3	19.7	2 11	6 31.48	-20 10.2	0.476	1.309	39.1	20.8
379449	2010 CN ₉₈		1 8.8 328°11	2°1/ 8.3	18		407924	2012 CM ₂₄		1 8.8 244°47	5°3/10.5	18	
12 3	7 44.05	+27 42.2	1.965	2.767	14.1	21.1	12 3	7 42.58	+ 7 22.0	1.946	2.711	15.6	21.3
12 13	7 39.53	+27 53.8	1.877	2.760	10.9	20.9	12 13	7 38.22	+ 7 3.1	1.854	2.704	12.7	21.1
12 23	7 32.40	+28 5.2	1.812	2.754	7.3	20.6	12 23	7 31.50	+ 6 58.9	1.784	2.697	9.5	20.8
1 2	7 23.31	+28 12.6	1.773	2.747	3.5	20.4	1 2	7 22.97	+ 7 10.6	1.738	2.690	6.5	20.6
1 12	7 13.36	+28 12.9	1.763	2.741	2.7	20.3	1 12	7 13.57	+ 7 38.0	1.721	2.683	5.4	20.6
1 22	7 3.75	+28 4.4	1.782	2.736	6.3	20.5	1 22	7 4.36	+ 8 18.8	1.731	2.676	7.3	20.7
2 1	6 55.68	+27 47.4	1.828	2.730	10.2	20.7	2 1	6 56.43	+ 9 9.6	1.769	2.669	10.6	20.8
2 11	6 50.03	+27 23.9	1.898	2.725	13.6	21.0	2 11	6 50.64	+10 5.9	1.831	2.661	13.9	21.0
428867	2008 UE ₁₆₃		1 8.8 58°67	0°5/ 8.6	18		99520	2002 ER ₃₂		1 8.8 90°80	2°2/ 8.1	18	
12 3	7 43.87	+23 16.3	2.029	2.826	13.9	21.4	12 3	7 48.30	+24 29.9	1.575	2.382	16.8	19.7

EPHEMERIDES

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
427360	2014 WA ₄₂₇		1 8.8	6 ^o 13	1 ^o 0/ 9.2	18	433564	2013 YM ₅		1 8.8	43 ^o 57	0 ^o 1/ 8.8	18
12 3	7 41.11	+16 29.8	1.981	2.774	14.4	20.9	12 3	7 41.42	+20 49.1	2.103	2.900	13.5	20.8
12 13	7 37.11	+17 3.0	1.897	2.775	11.2	20.7	12 13	7 37.10	+21 13.0	2.033	2.914	10.4	20.6
12 23	7 30.77	+17 46.6	1.836	2.775	7.4	20.5	12 23	7 30.59	+21 42.2	1.987	2.929	6.7	20.4
1 2	7 22.66	+18 38.2	1.801	2.776	3.3	20.2	1 2	7 22.54	+22 13.9	1.968	2.944	2.8	20.2
1 12	7 13.73	+19 33.9	1.796	2.777	1.6	20.1	1 12	7 13.87	+22 45.2	1.978	2.960	1.3	20.1
1 22	7 5.05	+20 29.7	1.819	2.778	5.6	20.4	1 22	7 5.60	+23 13.2	2.017	2.976	5.3	20.4
2 1	6 57.67	+21 22.1	1.871	2.780	9.6	20.6	2 1	6 58.66	+23 36.4	2.085	2.991	8.9	20.7
2 11	6 52.44	+22 8.9	1.947	2.782	13.0	20.8	2 11	6 53.77	+23 54.3	2.177	3.008	12.0	20.9
260943	2005 SZ ₁₂		1 8.8	343 ^o 38	0 ^o 1/ 8.8	18	381267	2007 TS ₂₀₄		1 8.8	54 ^o 93	1 ^o 5/ 8.2	18
12 3	7 42.47	+21 22.1	1.546	2.360	16.7	20.5	12 3	7 42.97	+24 37.5	2.107	2.906	13.4	20.8
12 13	7 38.87	+21 25.0	1.463	2.353	13.0	20.2	12 13	7 38.34	+25 12.4	2.039	2.921	10.3	20.6
12 23	7 32.27	+21 33.8	1.401	2.347	8.6	20.0	12 23	7 31.43	+25 50.1	1.994	2.936	6.7	20.4
1 2	7 23.37	+21 46.1	1.364	2.341	3.6	19.7	1 2	7 22.89	+26 26.9	1.977	2.952	3.0	20.2
1 12	7 13.40	+21 58.5	1.354	2.336	1.7	19.5	1 12	7 13.71	+26 58.8	1.989	2.968	2.1	20.2
1 22	7 3.79	+22 8.6	1.371	2.332	6.8	19.8	1 22	7 4.94	+27 23.4	2.030	2.984	5.6	20.5
2 1	6 55.96	+22 15.0	1.414	2.328	11.6	20.1	2 1	6 57.58	+27 39.7	2.100	3.000	9.1	20.7
2 11	6 50.93	+22 17.5	1.479	2.325	15.7	20.3	2 11	6 52.38	+27 48.1	2.194	3.016	12.2	20.9
93549	2000 UP ₂₃		1 8.8	108 ^o 94	5 ^o 5/ 10.9	18	493330	2014 VB ₅		1 8.8	100 ^o 25	1 ^o 4/ 8.3	18
12 3	7 43.78	+4 45.1	2.317	3.056	14.1	20.3	12 3	7 48.27	+24 9.0	1.960	2.753	14.5	21.8
12 13	7 38.48	+4 16.3	2.247	3.077	11.5	20.1	12 13	7 42.47	+24 44.3	1.896	2.775	11.1	21.6
12 23	7 31.27	+4 1.2	2.200	3.098	8.8	20.0	12 23	7 34.13	+25 22.7	1.855	2.796	7.2	21.4
1 2	7 22.75	+4 1.1	2.179	3.117	6.5	19.9	1 2	7 24.00	+25 59.9	1.842	2.817	3.1	21.2
1 12	7 13.74	+4 15.7	2.187	3.137	5.6	19.8	1 12	7 13.20	+26 31.7	1.858	2.838	2.1	21.2
1 22	7 5.11	+4 43.5	2.224	3.155	6.9	19.9	1 22	7 2.94	+26 55.3	1.905	2.858	6.0	21.4
2 1	6 57.66	+5 21.4	2.289	3.174	9.2	20.1	2 1	6 54.33	+27 9.9	1.979	2.878	9.7	21.7
2 11	6 52.04	+6 6.0	2.380	3.191	11.7	20.3	2 11	6 48.17	+27 16.6	2.078	2.897	12.9	22.0
464231	2015 BQ ₃₄₈		1 8.8	137 ^o 49	3 ^o 2/ 8.1	18	57825	2001 WP ₇₆		1 8.8	314 ^o 55	0 ^o 8/ 8.5	18
12 3	7 47.28	+31 44.3	2.190	2.981	13.2	20.8	12 3	7 41.34	+23 21.8	2.249	3.046	12.7	19.9
12 13	7 41.72	+31 56.6	2.108	2.983	10.3	20.7	12 13	7 37.13	+23 42.8	2.156	3.038	9.8	19.7
12 23	7 33.65	+32 5.4	2.049	2.984	7.1	20.5	12 23	7 30.71	+24 7.2	2.088	3.030	6.4	19.5
1 2	7 23.80	+32 6.6	2.018	2.986	4.0	20.3	1 2	7 22.64	+24 32.5	2.046	3.022	2.7	19.2
1 12	7 13.23	+31 57.0	2.016	2.987	3.6	20.2	1 12	7 13.80	+24 55.5	2.034	3.015	1.6	19.1
1 22	7 3.12	+31 35.7	2.043	2.989	6.4	20.4	1 22	7 5.16	+25 13.9	2.051	3.008	5.4	19.4
2 1	6 54.56	+31 4.2	2.099	2.990	9.6	20.6	2 1	6 57.73	+25 26.6	2.097	3.001	9.0	19.6
2 11	6 48.36	+30 25.2	2.180	2.991	12.6	20.8	2 11	6 52.30	+25 33.4	2.168	2.994	12.2	19.8
217783	2000 SE ₁₁₆		1 8.8	92 ^o 37	4 ^o 1/ 10.4	18	55562	2002 AM ₂₉		1 8.8	308 ^o 97	1 ^o 1/ 8.9	18
12 3	7 45.28	+8 58.0	2.217	2.973	14.2	21.1	12 3	7 46.25	+21 22.1	1.766	2.565	15.6	18.6
12 13	7 39.63	+8 47.6	2.156	3.003	11.3	21.0	12 13	7 41.37	+20 46.8	1.674	2.555	12.2	18.4
12 23	7 32.00	+8 49.2	2.117	3.032	8.2	20.8	12 23	7 33.70	+20 13.2	1.605	2.546	8.1	18.1
1 2	7 23.04	+9 2.9	2.105	3.060	5.2	20.7	1 2	7 23.92	+19 40.7	1.562	2.538	3.6	17.8
1 12	7 13.63	+9 27.3	2.122	3.088	4.1	20.7	1 12	7 13.20	+19 8.7	1.548	2.529	1.9	17.7
1 22	7 4.69	+10 0.1	2.170	3.116	6.0	20.8	1 22	7 2.86	+18 37.5	1.562	2.521	6.4	18.0
2 1	6 57.06	+10 38.4	2.247	3.143	8.8	21.0	2 1	6 54.15	+18 7.8	1.604	2.512	10.9	18.2
2 11	6 51.36	+11 19.4	2.349	3.169	11.6	21.3	2 11	6 48.04	+17 40.6	1.669	2.505	14.7	18.4
311000	2003 WT ₁₅₇		1 8.8	324 ^o 09	7 ^o 3/ 4.9	17	34299	2000 QF ₁₆₂		1 8.8	136 ^o 76	2 ^o 6/ 9.6	18
12 3	7 48.14	+21 44.8	0.962	1.801	22.7	19.5	12 3	7 40.98	+14 2.0	2.490	3.263	12.3	19.6
12 13	7 45.86	+25 13.7	0.887	1.792	17.7	19.1	12 13	7 36.42	+13 46.6	2.403	3.266	9.7	19.4
12 23	7 38.64	+29 18.6	0.833	1.783	12.1	18.8	12 23	7 30.02	+13 38.4	2.339	3.268	6.7	19.2
1 2	7 26.70	+33 39.2	0.804	1.775	7.6	18.5	1 2	7 22.29	+13 37.3	2.303	3.270	3.8	19.0
1 12	7 11.59	+37 45.2	0.802	1.767	9.1	18.6	1 12	7 14.00	+13 42.5	2.297	3.271	2.7	19.0
1 22	6 56.00	+41 8.9	0.825	1.760	14.6	18.8	1 22	7 5.96	+13 52.9	2.320	3.273	5.1	19.1
2 1	6 43.15	+43 37.4	0.870	1.754	20.3	19.1	2 1	6 58.96	+14 7.1	2.373	3.275	8.1	19.3
2 11	6 35.56	+45 14.5	0.932	1.748	25.1	19.4	2 11	6 53.66	+14 23.5	2.451	3.277	10.9	19.5
366200	2012 KT ₁		1 8.8	115 ^o 38	0 ^o 2/ 8.7	18	154650	2004 EA ₁₂		1 8.8	45 ^o 86	4 ^o 5/ 10.0	18
12 3	7 44.06	+20 39.3	2.088	2.880	13.8	21.0	12 3	7 44.88	+11 46.1	1.255	2.061	20.3	19.9
12 13	7 39.21	+21 8.4	2.009	2.887	10.6	20.8	12 13	7 41.03	+11 35.3	1.188	2.068	16.2	19.6
12 23	7 32.04	+21 43.6	1.954	2.895	6.9	20.6	12 23	7 33.81	+11 42.0	1.140	2.075	11.4	19.4
1 2	7 23.16	+22 21.7	1.926	2.902	2.8	20.3	1 2	7 24.04	+12 6.6	1.115	2.082	6.6	19.1
1 12	7 13.55	+22 59.1	1.927	2.909	1.4	20.2	1 12	7 13.17	+12 46.4	1.115	2.090	4.7	19.0
1 22	7 4.26	+23 32.8	1.959	2.916	5.5	20.5	1 22	7 2.86	+13 36.7	1.140	2.098	8.3	19.3
2 1	6 56.34	+24 0.9	2.019	2.923	9.2	20.8	2 1	6 54.68	+14 32.0	1.190	2.107	13.1	19.6
2 11	6 50.58	+24 22.9	2.104	2.929	12.5	21.0	2 11	6 49.71	+15 27.5	1.262	2.115	17.4	19.8
296798	2009 VX ₃₈		1 8.8	113 ^o 55	0 ^o 8/ 8.9	18	32840	1992 ED ₉		1 8.8	53 ^o 08	1 ^o 3/ 8.4	18
12 3	7 52.67	+19 40.3	1.644	2.433	17.0	21.4	12 3	7 46.34	+22 13.0	1.442	2.255	17.8	18.6
12 13	7 46.10	+19 41.1	1.581	2.456	13.1	21.2	12 13	7 42.07	+22 54.9	1.369	2.259	13.7	18.3
12 23	7 36.59	+19 48.3	1.540	2.479	8.6	21.0	12 23	7 34.47	+23 45.0	1.317	2.263	9.0	18.1
1 2	7 25.02	+19 59.1	1.525	2.500	3.7	20.8	1 2	7 24.33	+24 38.0	1.290	2.267	3.8	17.8
1 12	7 12.73	+20 10.6	1.539	2.521	1.7	20.7	1 12	7 13.02	+25 27.4	1.290	2.271	2.3	17.7
1 22	7 1.18	+20 20.6	1.583	2.540	6.5	21.0	1 22	7 2.19	+26 8.2	1.318	2.276	7.5	18.0
2 1	6 51.65	+20 28.1	1.654	2.559	10.9	21.3	2 1	6 53.40	+26 37.9	1.371	2.280	12.3	18.3
2 11	6 44.98	+20 33.1	1.749	2.577	14.5	21.6	2 11	6 47.74	+26 56.8	1.446	2.285	16.4	18.6
306293	2011 SG ₃₃		1 8.8	84 ^o 00	0 ^o 7/ 8.6	17	206353	2003 QL ₃₄		1			

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
258934	2002 <i>RV</i> ₉₁		1 8.8 110°20	3°7/ 7.8 18			269700	1997 <i>PZ</i> ₃		1 8.8 116°38	4°1/10.5 18		
12 3	7 51.28	+31 13.4	2.044	2.832	14.1	21.7	12 3	7 41.37	+ 8 22.9	2.364	3.122	13.3	21.0
12 13	7 44.82	+31 53.4	1.981	2.854	11.0	21.5	12 13	7 36.77	+ 8 13.7	2.283	3.131	10.7	20.8
12 23	7 35.67	+32 30.6	1.941	2.875	7.5	21.4	12 23	7 30.28	+ 8 16.4	2.225	3.140	7.9	20.7
1 2	7 24.64	+32 59.7	1.929	2.895	4.4	21.2	1 2	7 22.45	+ 8 31.2	2.194	3.148	5.2	20.5
1 12	7 12.94	+33 16.1	1.947	2.915	4.1	21.2	1 12	7 14.04	+ 8 57.3	2.192	3.157	4.2	20.5
1 22	7 1.87	+33 18.3	1.994	2.935	6.8	21.4	1 22	7 5.91	+ 9 32.7	2.219	3.165	5.9	20.6
2 1	6 52.58	+33 7.2	2.069	2.953	10.1	21.7	2 1	6 58.87	+10 14.4	2.276	3.173	8.7	20.8
2 11	6 45.90	+32 45.9	2.169	2.972	13.0	21.9	2 11	6 53.57	+10 59.6	2.357	3.181	11.4	21.0
69701	1998 <i>HP</i> ₄₉		1 8.8 70°87	20°6/ 9.7 18			249839	2001 <i>PB</i> ₁₀		1 8.8 64°68	2°8/ 9.9 18		
12 3	7 54.78	- 3 13.4	0.852	1.631	29.7	17.8	12 3	7 44.41	+12 5.3	1.660	2.447	16.9	19.9
12 13	7 49.45	- 7 18.9	0.813	1.645	26.4	17.6	12 13	7 39.81	+12 31.3	1.596	2.466	13.3	19.7
12 23	7 39.64	-10 53.1	0.790	1.659	23.3	17.5	12 23	7 32.58	+13 12.4	1.553	2.485	9.1	19.5
1 2	7 26.50	-13 35.3	0.784	1.673	21.1	17.4	1 2	7 23.46	+14 6.6	1.536	2.505	4.8	19.3
1 12	7 12.11	-15 11.0	0.797	1.688	20.7	17.5	1 12	7 13.58	+15 9.6	1.546	2.524	3.0	19.3
1 22	6 58.84	-15 37.9	0.827	1.702	21.8	17.6	1 22	7 4.21	+16 16.3	1.586	2.544	6.4	19.5
2 1	6 48.74	-15 4.9	0.872	1.717	23.9	17.8	2 1	6 56.50	+17 22.0	1.652	2.563	10.5	19.8
2 11	6 43.00	-13 49.3	0.932	1.731	26.3	18.0	2 11	6 51.30	+18 23.2	1.743	2.582	14.1	20.1
431982	2008 <i>UJ</i> ₁₈₇		1 8.8 32°74	6°7/ 5.7 16			223835	2004 <i>TP</i> ₁₄₃		1 8.8 65°80	0°3/ 8.9 18		
12 3	7 45.95	+34 43.5	1.774	2.579	15.3	20.2	12 3	7 43.96	+20 42.5	1.945	2.742	14.5	20.9
12 13	7 41.63	+36 34.9	1.714	2.591	12.2	20.1	12 13	7 39.27	+20 49.4	1.868	2.749	11.2	20.7
12 23	7 34.14	+38 23.8	1.677	2.604	9.0	19.9	12 23	7 32.16	+21 1.4	1.814	2.756	7.3	20.5
1 2	7 24.20	+40 0.6	1.667	2.618	6.9	19.8	1 2	7 23.28	+21 16.2	1.787	2.763	3.1	20.3
1 12	7 13.12	+41 16.6	1.685	2.632	7.3	19.9	1 12	7 13.66	+21 31.4	1.788	2.770	1.4	20.2
1 22	7 2.46	+42 7.0	1.730	2.646	9.7	20.0	1 22	7 4.45	+21 44.6	1.818	2.777	5.7	20.5
2 1	6 53.70	+42 31.9	1.800	2.661	12.6	20.2	2 1	6 56.72	+21 54.7	1.877	2.784	9.6	20.7
2 11	6 47.93	+42 35.4	1.892	2.677	15.3	20.5	2 11	6 51.26	+22 1.5	1.959	2.792	13.0	21.0
6238	1989 <i>NM</i>		1 8.8 141°80	0°6/ 8.6 18 R			151235	2001 <i>YG</i> ₁₂₄		1 8.8 67°45	2°8/ 8.1 18		
12 3	7 46.44	+21 34.7	2.086	2.874	13.9	17.3	12 3	7 47.11	+28 7.9	1.767	2.571	15.4	19.5
12 13	7 41.08	+22 12.7	2.007	2.884	10.7	17.1	12 13	7 42.02	+28 39.1	1.700	2.584	11.9	19.3
12 23	7 33.30	+22 56.5	1.952	2.893	7.0	16.9	12 23	7 34.08	+29 10.4	1.656	2.598	7.9	19.1
1 2	7 23.73	+23 42.3	1.925	2.901	2.9	16.6	1 2	7 24.09	+29 36.6	1.638	2.611	4.0	18.9
1 12	7 13.37	+24 25.8	1.928	2.909	1.6	16.6	1 12	7 13.30	+29 53.3	1.649	2.625	3.3	18.9
1 22	7 3.36	+25 3.7	1.961	2.916	5.7	16.8	1 22	7 3.11	+29 58.3	1.688	2.638	6.9	19.2
2 1	6 54.77	+25 34.1	2.023	2.923	9.4	17.1	2 1	6 54.76	+29 52.0	1.753	2.652	10.7	19.4
2 11	6 48.42	+25 56.8	2.110	2.930	12.7	17.3	2 11	6 49.12	+29 36.6	1.842	2.666	14.1	19.7
388357	2006 <i>TA</i> ₁₂₁		1 8.8 38°89	3°1/10.3 18			218679	2005 <i>TQ</i> ₁₃		1 8.8 103°72	3°8/10.4 18		
12 3	7 39.59	+10 37.6	2.166	2.941	13.9	21.1	12 3	7 43.74	+ 9 32.3	2.023	2.791	15.0	20.7
12 13	7 35.57	+10 52.6	2.091	2.953	11.0	20.9	12 13	7 38.88	+ 9 37.5	1.949	2.805	12.0	20.5
12 23	7 29.59	+11 20.3	2.039	2.965	7.8	20.8	12 23	7 31.80	+ 9 56.4	1.898	2.819	8.6	20.3
1 2	7 22.15	+11 59.5	2.013	2.977	4.5	20.6	1 2	7 23.12	+10 28.5	1.872	2.833	5.2	20.2
1 12	7 14.12	+12 48.1	2.017	2.990	3.2	20.5	1 12	7 13.79	+11 11.8	1.875	2.846	3.9	20.1
1 22	7 6.40	+13 42.8	2.049	3.004	5.6	20.7	1 22	7 4.82	+12 2.9	1.908	2.859	6.2	20.3
2 1	6 59.85	+14 39.9	2.110	3.017	8.8	20.9	2 1	6 57.19	+12 58.2	1.969	2.872	9.5	20.5
2 11	6 55.16	+15 36.2	2.197	3.031	11.7	21.1	2 11	6 51.64	+13 54.0	2.055	2.885	12.6	20.7
420653	2012 <i>JK</i> ₂₂		1 8.8 311°66	0°2/ 8.7 17			273028	2006 <i>DP</i> ₁₁₂		1 8.8 61°51	3°4/ 9.9 18		
12 3	7 42.05	+20 17.5	1.591	2.403	16.4	20.9	12 3	7 42.05	+12 6.3	1.994	2.774	14.7	20.8
12 13	7 38.79	+20 46.7	1.490	2.379	12.9	20.6	12 13	7 37.69	+11 57.4	1.916	2.780	11.7	20.6
12 23	7 32.47	+21 26.0	1.410	2.356	8.6	20.3	12 23	7 31.09	+11 59.5	1.859	2.787	8.2	20.4
1 2	7 23.62	+22 12.2	1.355	2.332	3.6	19.9	1 2	7 22.87	+12 12.8	1.829	2.794	4.8	20.3
1 12	7 13.35	+23 0.5	1.327	2.309	1.8	19.8	1 12	7 13.95	+12 35.6	1.827	2.800	3.5	20.2
1 22	7 3.10	+23 45.9	1.327	2.287	7.1	20.0	1 22	7 5.37	+13 5.8	1.854	2.807	6.1	20.4
2 1	6 54.40	+24 24.7	1.352	2.265	12.2	20.3	2 1	6 58.10	+13 40.5	1.908	2.814	9.6	20.6
2 11	6 48.51	+24 55.5	1.399	2.243	16.6	20.5	2 11	6 52.92	+14 17.0	1.988	2.822	12.8	20.8
408349	2013 <i>GS</i> ₈₃		1 8.8 327°91	2°6/ 9.5 18			18677	1998 <i>FZ</i> ₈₃		1 8.8 181°79	4°2/ 7.3 18		
12 3	7 41.34	+15 29.1	1.372	2.187	18.4	20.6	12 3	7 48.24	+33 55.4	2.384	3.168	12.5	17.9
12 13	7 38.40	+15 29.3	1.286	2.174	14.6	20.4	12 13	7 42.49	+34 39.6	2.300	3.169	9.9	17.8
12 23	7 32.24	+15 42.9	1.219	2.161	10.0	20.1	12 23	7 34.27	+35 20.5	2.241	3.169	7.0	17.6
1 2	7 23.50	+16 9.1	1.176	2.150	5.0	19.7	1 2	7 24.21	+35 52.9	2.209	3.169	4.7	17.4
1 12	7 13.43	+16 45.2	1.158	2.138	3.0	19.6	1 12	7 13.32	+36 12.3	2.208	3.168	4.6	17.4
1 22	7 3.60	+17 26.9	1.166	2.128	7.6	19.8	1 22	7 2.77	+36 16.8	2.236	3.167	6.8	17.6
2 1	6 55.57	+18 10.2	1.199	2.118	12.8	20.1	2 1	6 53.66	+36 6.7	2.291	3.166	9.7	17.7
2 11	6 50.57	+18 51.5	1.253	2.109	17.4	20.3	2 11	6 46.83	+35 44.9	2.372	3.164	12.3	17.9
486799	2014 <i>HN</i> ₁₆₄		1 8.8 275°91	1°8/ 9.2 18			173398	2000 <i>DV</i> ₂₀		1 8.8 15°77	2°6/ 9.5 18		
12 3	7 46.60	+18 27.3	1.456	2.263	18.0	21.5	12 3	7 41.66	+15 51.3	1.300	2.119	19.0	19.6
12 13	7 42.29	+18 14.6	1.369	2.253	14.1	21.2	12 13	7 38.53	+15 47.6	1.233	2.123	14.9	19.3
12 23	7 34.69	+18 9.7	1.302	2.244	9.5	21.0	12 23	7 32.19	+15 56.9	1.186	2.129	10.1	19.1
1 2	7 24.49	+18 11.7	1.260	2.235	4.4	20.6	1 2	7 23.45	+16 17.9	1.162	2.135	5.0	18.8
1 12	7 13.01	+18 18.1	1.245	2.226	2.4	20.5	1 12	7 13.68	+16 47.6	1.163	2.143	2.9	18.7
1 22	7 1.86	+18 26.8	1.256	2.216	7.4	20.8	1 22	7 4.46	+17 21.9	1.189	2.151	7.5	19.0
2 1	6 52.60	+18 36.1	1.294	2.207	12.5	21.0	2 1	6 57.25	+17 57.3	1.241	2.160	12.4	19.3
2 11	6 46.41	+18 45.0	1.353	2.198	17.0	21.3	2 11	6 53.06	+18 30.7	1.313	2.171	16.6	19.6
60670	2000 <i>GX</i> ₅		1 8.8 209°48	1°5/ 9.2 18			46325	2001 <i>QZ</i> ₁₃₀		1 8.8 117°96	0°3/ 8.9 18 R		
12 3	7 47.83	+17 59.3	1.763										

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
272971	2006 <i>DF</i> ₃		1 8.8 69°45	0°3/ 8.7	18		30501	2000 <i>RH</i> ₁₇		1 8.8 242°14	1°6/ 9.3	18	
12 3	7 44.25	+22 13.5	1.985	2.782	14.2	21.3	12 3	7 41.81	+17 9.7	2.615	3.392	11.7	18.3
12 13	7 39.49	+22 24.5	1.909	2.789	10.9	21.1	12 13	7 37.10	+16 55.2	2.518	3.385	9.1	18.1
12 23	7 32.31	+22 39.6	1.855	2.797	7.1	20.9	12 23	7 30.55	+16 45.4	2.444	3.378	6.2	17.9
1 2	7 23.39	+22 56.0	1.829	2.805	2.9	20.7	1 2	7 22.66	+16 40.1	2.399	3.370	3.1	17.6
1 12	7 13.75	+23 10.8	1.831	2.813	1.4	20.6	1 12	7 14.15	+16 38.2	2.384	3.363	1.9	17.5
1 22	7 4.51	+23 22.1	1.863	2.821	5.6	20.9	1 22	7 5.84	+16 39.0	2.399	3.355	4.7	17.7
2 1	6 56.74	+23 28.8	1.922	2.829	9.5	21.1	2 1	6 58.52	+16 41.5	2.444	3.347	7.9	17.9
2 11	6 51.25	+23 31.2	2.007	2.837	12.8	21.3	2 11	6 52.86	+16 45.0	2.515	3.339	10.7	18.1
337057	1997 <i>EW</i> ₁₁		1 8.8 77°04	0°0/ 8.7	17		387660	2002 <i>RF</i> ₂₃₆		1 8.8 80°22	3°9/ 7.9	17	
12 3	7 50.99	+22 29.6	1.334	2.146	19.1	20.3	12 3	7 52.31	+27 58.1	1.341	2.154	18.9	21.1
12 13	7 45.56	+22 20.1	1.273	2.161	14.7	20.0	12 13	7 46.83	+28 54.5	1.287	2.175	14.6	20.9
12 23	7 36.65	+22 14.8	1.233	2.177	9.6	19.8	12 23	7 37.63	+29 52.5	1.253	2.195	9.7	20.6
1 2	7 25.24	+22 10.7	1.216	2.193	4.0	19.5	1 2	7 25.71	+30 43.6	1.244	2.216	5.1	20.4
1 12	7 12.94	+22 4.9	1.226	2.208	1.8	19.4	1 12	7 12.79	+31 20.2	1.261	2.236	4.5	20.4
1 22	7 1.51	+21 55.9	1.264	2.224	7.4	19.8	1 22	7 0.77	+31 38.6	1.306	2.256	8.6	20.7
2 1	6 52.47	+21 43.9	1.327	2.239	12.4	20.1	2 1	6 51.31	+31 39.7	1.376	2.275	13.0	21.0
2 11	6 46.78	+21 30.3	1.412	2.255	16.5	20.4	2 11	6 45.44	+31 27.6	1.467	2.295	16.8	21.3
26332	Alyshehrlich		1 8.8 88°40	1°3/ 8.4	18		493107	2014 <i>SY</i> ₃₄₈		1 8.8 143°75	4°1/ 10.7	18	
12 3	7 46.87	+23 32.2	1.758	2.559	15.6	18.8	12 3	7 44.71	+7 31.2	2.121	2.876	14.8	21.9
12 13	7 41.82	+24 6.7	1.689	2.572	12.0	18.6	12 13	7 39.63	+7 50.9	2.038	2.885	11.9	21.7
12 23	7 33.99	+24 45.8	1.643	2.586	7.8	18.4	12 23	7 32.34	+8 26.1	1.978	2.893	8.6	21.5
1 2	7 24.13	+25 24.9	1.623	2.599	3.3	18.2	1 2	7 23.44	+9 16.4	1.944	2.901	5.5	21.3
1 12	7 13.43	+25 59.3	1.631	2.612	2.2	18.1	1 12	7 13.80	+10 19.2	1.940	2.909	4.1	21.2
1 22	7 3.25	+26 25.7	1.669	2.625	6.4	18.4	1 22	7 4.44	+11 30.4	1.966	2.916	6.2	21.4
2 1	6 54.81	+26 43.0	1.734	2.637	10.5	18.7	2 1	6 56.32	+12 45.6	2.021	2.922	9.4	21.6
2 11	6 49.01	+26 51.9	1.822	2.650	14.0	18.9	2 11	6 50.21	+14 0.3	2.102	2.928	12.5	21.8
109273	2001 <i>QG</i> ₁₁₄		1 8.8 242°25	0°4/ 8.7	18		456550	2007 <i>BP</i> ₅₃		1 8.8 71°89	0°4/ 8.7	18	
12 3	7 43.73	+23 43.1	2.337	3.127	12.5	19.6	12 3	7 45.04	+21 28.9	1.797	2.597	15.3	21.6
12 13	7 38.80	+23 40.5	2.249	3.126	9.7	19.4	12 13	7 40.36	+21 55.9	1.725	2.608	11.8	21.4
12 23	7 31.74	+23 39.4	2.185	3.125	6.3	19.2	12 23	7 33.02	+22 29.1	1.676	2.618	7.7	21.2
1 2	7 23.14	+23 37.9	2.148	3.124	2.6	18.9	1 2	7 23.75	+23 4.7	1.652	2.629	3.2	20.9
1 12	7 13.89	+23 34.1	2.142	3.124	1.3	18.8	1 12	7 13.67	+23 38.6	1.658	2.640	1.6	20.8
1 22	7 4.94	+23 27.0	2.166	3.123	5.1	19.1	1 22	7 4.03	+24 7.6	1.692	2.650	6.1	21.1
2 1	6 57.24	+23 16.4	2.218	3.122	8.6	19.3	2 1	6 56.02	+24 30.0	1.754	2.661	10.2	21.4
2 11	6 51.51	+23 3.0	2.296	3.121	11.6	19.5	2 11	6 50.50	+24 45.6	1.839	2.672	13.7	21.6
148666	2001 <i>SP</i> ₁₅₈		1 8.8 65°63	2°8/ 9.5	18		159875	2004 <i>RZ</i> ₅₈		1 8.8 141°90	2°0/ 9.5	18	
12 3	7 45.87	+15 23.2	1.699	2.490	16.4	19.3	12 3	7 47.30	+15 4.3	1.788	2.572	16.0	20.8
12 13	7 40.83	+15 2.4	1.636	2.509	12.9	19.1	12 13	7 42.05	+15 20.5	1.711	2.581	12.6	20.6
12 23	7 33.19	+14 50.8	1.594	2.529	8.8	18.9	12 23	7 34.13	+15 48.1	1.655	2.590	8.5	20.3
1 2	7 23.74	+14 48.1	1.579	2.549	4.6	18.7	1 2	7 24.23	+16 25.0	1.626	2.598	4.1	20.1
1 12	7 13.65	+14 52.9	1.591	2.569	3.1	18.7	1 12	7 13.45	+17 7.9	1.626	2.606	2.3	20.0
1 22	7 4.16	+15 3.3	1.632	2.589	6.5	18.9	1 22	7 3.06	+17 52.9	1.655	2.613	6.2	20.3
2 1	6 56.39	+15 17.5	1.700	2.608	10.4	19.2	2 1	6 54.27	+18 36.8	1.712	2.619	10.4	20.5
2 11	6 51.10	+15 33.6	1.791	2.628	13.8	19.5	2 11	6 47.96	+19 17.2	1.793	2.625	14.1	20.8
449099	2012 <i>UU</i> ₀₁		1 8.8 177°99	3°0/ 8.3	18		154691	2004 <i>HF</i> ₁₈		1 8.8 276°32	2°0/ 9.3	18	
12 3	7 52.58	+28 39.9	1.607	2.407	16.8	21.6	12 3	7 44.18	+16 59.0	1.868	2.659	15.1	20.4
12 13	7 46.73	+28 59.7	1.528	2.409	13.1	21.4	12 13	7 39.78	+16 49.1	1.770	2.646	11.9	20.2
12 23	7 37.49	+29 18.9	1.470	2.410	8.8	21.1	12 23	7 32.76	+16 46.7	1.695	2.632	8.1	19.9
1 2	7 25.67	+29 31.6	1.438	2.411	4.4	20.9	1 2	7 23.72	+16 51.2	1.645	2.618	4.0	19.6
1 12	7 12.74	+29 33.0	1.434	2.411	3.5	20.8	1 12	7 13.65	+17 1.0	1.624	2.604	2.3	19.5
1 22	7 0.38	+29 21.0	1.459	2.410	7.7	21.1	1 22	7 3.77	+17 14.1	1.632	2.590	6.3	19.7
2 1	6 50.15	+28 56.9	1.510	2.409	12.1	21.3	2 1	6 55.28	+17 28.9	1.667	2.576	10.5	19.9
2 11	6 43.14	+28 24.6	1.584	2.408	16.0	21.6	2 11	6 49.15	+17 44.0	1.726	2.562	14.3	20.1
186550	2002 <i>XP</i> ₁₀		1 8.8 346°65	0°9/ 9.1	18		71490	2000 <i>CY</i> ₇		1 8.8 156°25	4°2/ 7.5	18	
12 3	7 40.04	+17 54.9	1.353	2.175	18.2	19.5	12 3	7 46.92	+34 7.1	2.359	3.146	12.5	19.4
12 13	7 37.47	+18 19.1	1.272	2.166	14.3	19.2	12 13	7 41.48	+34 45.6	2.279	3.149	9.9	19.2
12 23	7 31.69	+18 56.2	1.212	2.158	9.5	18.9	12 23	7 33.61	+35 20.4	2.223	3.151	7.0	19.0
1 2	7 23.37	+19 43.5	1.174	2.151	4.2	18.6	1 2	7 23.97	+35 46.4	2.194	3.154	4.7	18.9
1 12	7 13.78	+20 36.0	1.163	2.145	1.9	18.4	1 12	7 13.58	+35 59.6	2.195	3.156	4.5	18.9
1 22	7 4.48	+21 28.3	1.177	2.140	7.4	18.7	1 22	7 3.55	+35 58.4	2.225	3.158	6.8	19.0
2 1	6 57.05	+22 15.8	1.216	2.136	12.6	19.0	2 1	6 54.98	+35 43.3	2.283	3.160	9.6	19.2
2 11	6 52.65	+22 55.9	1.277	2.134	17.0	19.3	2 11	6 48.67	+35 17.2	2.366	3.162	12.2	19.4
2576	Yesenin		1 8.8 140°36	2°0/ 8.3	18		229214	2004 <i>VG</i> ₆₇		1 8.9 193°22	0°3/ 8.9	18	
12 3	7 46.01	+29 11.7	2.608	3.391	11.5	16.7	12 3	7 43.84	+20 41.9	2.143	2.933	13.5	21.5
12 13	7 40.32	+29 18.9	2.526	3.399	8.9	16.6	12 13	7 39.09	+20 49.4	2.056	2.933	10.4	21.3
12 23	7 32.61	+29 24.3	2.469	3.405	5.9	16.4	12 23	7 32.06	+21 1.7	1.992	2.932	6.9	21.0
1 2	7 23.48	+29 24.8	2.440	3.412	3.0	16.2	1 2	7 23.34	+21 16.6	1.956	2.932	2.9	20.8
1 12	7 13.80	+29 18.5	2.443	3.418	2.4	16.2	1 12	7 13.87	+21 31.8	1.949	2.931	1.3	20.7
1 22	7 4.50	+29 4.3	2.476	3.425	5.1	16.4	1 22	7 4.69	+21 45.2	1.972	2.930	5.4	20.9
2 1	6 56.45	+28 43.1	2.538	3.430	8.1	16.6	2 1	6 56.81	+21 55.7	2.023	2.929	9.1	21.2
2 11	6 50.32	+28 16.4	2.626	3.436	10.8	16.8	2 11	6 51.03	+22 2.9	2.100	2.928	12.4	21.4
417575	2006 <i>UC</i> ₂₆₉		1 8.8 234°67	6°4/ 6.3	18		356708	2011 <i>UQ</i> ₁₄₉		1 8.9 162°25	1°8/ 8.3	18	
12 3	7 49.66	+36 23.7	1.965	2.757	14.5	21.0							

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
401889	2001 RA ₈₃		1 8.9 82°08' 05"/ 8.9 18				135169	2001 QQ ₂₅₅		1 8.9 34°09' 06"/ 8.7 18			
12 3	7 48.33	+20 32.8	1.862	2.652	15.2	21.2	12 3	7 44.27	+24 20.3	2.129	2.924	13.4	19.5
12 13	7 42.51	+20 33.1	1.801	2.678	11.7	21.0	12 13	7 39.39	+24 13.7	2.049	2.929	10.3	19.4
12 23	7 34.19	+20 38.2	1.764	2.703	7.6	20.8	12 23	7 32.21	+24 8.2	1.991	2.933	6.8	19.1
1 2	7 24.16	+20 45.9	1.753	2.728	3.2	20.6	1 2	7 23.40	+24 1.7	1.962	2.938	2.8	18.9
1 12	7 13.57	+20 53.7	1.771	2.753	1.5	20.5	1 12	7 13.94	+23 52.4	1.961	2.942	1.5	18.8
1 22	7 3.62	+20 59.9	1.819	2.777	5.7	20.9	1 22	7 4.88	+23 39.4	1.990	2.947	5.4	19.1
2 1	6 55.36	+21 3.7	1.895	2.801	9.6	21.2	2 1	6 57.22	+23 22.9	2.047	2.953	9.1	19.3
2 11	6 49.55	+21 5.2	1.996	2.825	13.0	21.4	2 11	6 51.71	+23 3.8	2.130	2.958	12.3	19.5
420005	2011 CX ₅₁		1 8.9 40°66' 21"/ 8.3 18				78575	2002 RC ₂₂₄		1 8.9 157°55' 34"/ 7.5 18			
12 3	7 45.89	+27 11.7	1.830	2.633	15.0	21.5	12 3	7 45.29	+30 53.3	2.393	3.183	12.3	19.7
12 13	7 41.09	+27 27.7	1.754	2.638	11.6	21.3	12 13	7 40.19	+31 41.0	2.311	3.185	9.6	19.6
12 23	7 33.54	+27 44.0	1.701	2.643	7.6	21.1	12 23	7 32.79	+32 27.7	2.254	3.188	6.6	19.4
1 2	7 23.99	+27 56.6	1.674	2.649	3.6	20.9	1 2	7 23.68	+33 8.7	2.225	3.191	4.0	19.2
1 12	7 13.62	+28 1.8	1.676	2.654	2.7	20.8	1 12	7 13.80	+33 39.8	2.226	3.193	3.8	19.2
1 22	7 3.73	+27 57.9	1.706	2.660	6.5	21.1	1 22	7 4.20	+33 58.3	2.256	3.195	6.3	19.4
2 1	6 55.55	+27 45.3	1.763	2.666	10.4	21.3	2 1	6 55.91	+34 4.2	2.315	3.197	9.2	19.6
2 11	6 49.95	+27 25.9	1.844	2.672	13.9	21.6	2 11	6 49.73	+33 58.9	2.398	3.199	11.9	19.7
467690	2008 VV ₂₇		1 8.9 27°53' 41"/ 9.8 18				368746	2005 UB ₄₁₆		1 8.9 305°06' 28"/ 9.7 18			
12 3	7 42.10	+12 58.7	1.761	2.551	16.0	20.4	12 3	7 42.75	+14 17.0	1.860	2.649	15.3	21.5
12 13	7 37.96	+12 19.0	1.691	2.561	12.7	20.2	12 13	7 38.58	+14 9.9	1.772	2.644	12.1	21.3
12 23	7 31.38	+11 49.2	1.642	2.571	9.0	20.0	12 23	7 31.92	+14 13.0	1.705	2.639	8.4	21.0
1 2	7 23.07	+11 30.6	1.618	2.582	5.4	19.8	1 2	7 23.37	+14 26.0	1.665	2.634	4.5	20.8
1 12	7 14.07	+11 23.1	1.621	2.593	4.2	19.8	1 12	7 13.94	+14 47.2	1.652	2.629	3.0	20.7
1 22	7 5.54	+11 25.6	1.653	2.605	6.8	20.0	1 22	7 4.75	+15 14.3	1.668	2.625	6.3	20.9
2 1	6 58.52	+11 36.3	1.711	2.618	10.4	20.2	2 1	6 56.95	+15 44.7	1.711	2.620	10.3	21.1
2 11	6 53.80	+11 52.6	1.792	2.631	13.8	20.5	2 11	6 51.43	+16 15.9	1.778	2.616	13.9	21.3
82464	Jaroslavboček		1 8.9 37°51' 02"/ 8.9 18				417671	2007 AQ ₆		1 8.9 58°06' 9"/ 9.9 16			
12 3	7 42.57	+20 56.3	2.011	2.808	14.0	20.0	12 3	8 12.29	+44 19.8	0.971	1.776	25.0	19.8
12 13	7 38.19	+21 3.7	1.934	2.815	10.8	19.8	12 13	8 3.99	+44 5.2	0.917	1.788	20.7	19.6
12 23	7 31.49	+21 16.0	1.881	2.823	7.1	19.5	12 23	7 49.41	+43 24.7	0.878	1.800	15.7	19.4
1 2	7 23.11	+21 30.9	1.855	2.831	3.0	19.3	1 2	7 30.55	+42 4.0	0.860	1.812	11.3	19.2
1 12	7 14.05	+21 46.0	1.857	2.839	1.3	19.2	1 12	7 10.91	+39 57.8	0.866	1.825	9.9	19.1
1 22	7 5.37	+21 59.1	1.888	2.847	5.5	19.5	1 22	6 53.99	+37 15.7	0.897	1.838	12.8	19.3
2 1	6 58.09	+22 9.1	1.947	2.856	9.3	19.7	2 1	6 42.10	+34 17.1	0.951	1.851	17.4	19.6
2 11	6 52.98	+22 15.7	2.031	2.865	12.6	20.0	2 11	6 35.98	+31 21.2	1.026	1.865	21.7	20.0
73093	2002 GG ₂₀		1 8.9 281°07' 59"/ 7.1 18				372411	2009 RE ₄₃		1 8.9 164°92' 02"/ 8.8 18			
12 3	7 49.10	+33 36.9	1.618	2.425	16.5	19.6	12 3	7 45.24	+22 30.8	1.963	2.759	14.4	21.4
12 13	7 44.58	+34 37.7	1.530	2.411	13.1	19.3	12 13	7 40.39	+22 33.0	1.879	2.759	11.1	21.2
12 23	7 36.47	+35 37.2	1.464	2.398	9.5	19.1	12 23	7 33.02	+22 38.6	1.818	2.759	7.3	20.9
1 2	7 25.45	+36 26.8	1.423	2.384	6.5	18.8	1 2	7 23.80	+22 45.2	1.783	2.760	3.0	20.7
1 12	7 12.91	+36 58.2	1.409	2.370	6.4	18.8	1 12	7 13.76	+22 50.2	1.778	2.760	1.4	20.5
1 22	7 0.65	+37 7.1	1.421	2.357	9.5	19.0	1 22	7 4.09	+22 51.9	1.802	2.760	5.8	20.8
2 1	6 50.45	+36 53.9	1.459	2.343	13.5	19.1	2 1	6 55.91	+22 49.9	1.854	2.760	9.8	21.1
2 11	6 43.61	+36 23.3	1.518	2.330	17.1	19.3	2 11	6 50.05	+22 44.5	1.930	2.760	13.3	21.3
78519	2002 RL ₉₄		1 8.9 131°08' 10"/ 8.6 18				262518	2006 UN ₂₇₉		1 8.9 265°02' 26"/ 7.9 18			
12 3	7 47.14	+23 26.0	1.895	2.690	14.8	20.3	12 3	7 46.54	+26 43.7	1.917	2.716	14.5	21.2
12 13	7 41.91	+23 49.2	1.818	2.698	11.4	20.1	12 13	7 41.86	+27 25.3	1.818	2.700	11.4	21.0
12 23	7 34.03	+24 16.3	1.764	2.705	7.5	19.8	12 23	7 34.31	+28 10.3	1.743	2.684	7.6	20.7
1 2	7 24.21	+24 43.6	1.736	2.712	3.2	19.6	1 2	7 24.47	+28 53.6	1.694	2.667	3.8	20.4
1 12	7 13.55	+25 7.2	1.738	2.719	1.9	19.5	1 12	7 13.42	+29 29.9	1.674	2.650	3.2	20.4
1 22	7 3.31	+25 24.4	1.770	2.726	6.1	19.8	1 22	7 2.49	+29 55.2	1.682	2.633	7.0	20.5
2 1	6 54.69	+25 34.4	1.829	2.732	10.1	20.0	2 1	6 53.06	+30 8.1	1.719	2.615	11.0	20.8
2 11	6 48.54	+25 37.7	1.912	2.738	13.6	20.3	2 11	6 46.20	+30 9.9	1.778	2.598	14.7	20.9
354981	2006 KY ₂₁		1 8.9 236°54' 07"/ 9.1 18				323092	2002 VR ₃₅		1 8.9 3°73' 9"/ 10.0 18			
12 3	7 46.20	+18 54.4	1.818	2.611	15.4	21.5	12 3	7 39.87	+ 7 34.6	1.207	2.014	20.9	19.6
12 13	7 41.46	+19 11.0	1.724	2.602	12.1	21.3	12 13	7 37.29	+ 5 52.6	1.141	2.012	17.4	19.3
12 23	7 33.94	+19 35.9	1.653	2.593	8.0	21.0	12 23	7 31.49	+ 4 26.2	1.093	2.012	13.6	19.1
1 2	7 24.26	+20 6.6	1.608	2.583	3.5	20.7	1 2	7 23.27	+ 3 22.3	1.067	2.014	10.3	18.9
1 12	7 13.49	+20 39.7	1.592	2.573	1.6	20.6	1 12	7 14.02	+ 2 45.8	1.064	2.018	9.3	18.9
1 22	7 2.91	+21 11.6	1.604	2.563	6.3	20.9	1 22	7 5.29	+ 2 37.3	1.084	2.023	11.4	19.0
2 1	6 53.83	+21 40.0	1.645	2.552	10.7	21.1	2 1	6 58.54	+ 2 53.9	1.126	2.029	14.9	19.2
2 11	6 47.26	+22 3.8	1.709	2.541	14.6	21.3	2 11	6 54.82	+ 3 28.9	1.187	2.038	18.5	19.5
12815	1996 DL ₂		1 8.9 186°71' 03"/ 8.7 18 R				56080	1999 AN ₃		1 8.9 41°46' 11"/ 8.7 18			
12 3	7 43.30	+21 34.6	2.119	2.913	13.5	18.1	12 3	7 48.09	+24 18.7	1.217	2.042	19.7	17.7
12 13	7 38.76	+21 56.5	2.033	2.913	10.4	17.9	12 13	7 43.75	+24 21.4	1.159	2.054	15.2	17.4
12 23	7 31.90	+22 23.5	1.971	2.913	6.8	17.7	12 23	7 35.72	+24 27.7	1.120	2.067	10.0	17.2
1 2	7 23.31	+22 52.7	1.936	2.913	2.8	17.5	1 2	7 24.99	+24 33.1	1.104	2.081	4.2	16.9
1 12	7 13.95	+23 21.0	1.931	2.913	1.4	17.3	1 12	7 13.28	+24 33.6	1.114	2.095	2.3	16.8
1 22	7 4.86	+23 45.6	1.955	2.913	5.5	17.6	1 22	7 2.45	+24 27.2	1.150	2.110	7.9	17.2
2 1	6 57.08	+24 5.1	2.007	2.913	9.2	17.9	2 1	6 54.12	+24 14.3	1.210	2.126	13.0	17.5
2 11	6 51.42	+24 19.1	2.085	2.912	12.5	18.1	2 11	6 49.31	+23 57.0	1.291	2.141	17.3	17.8
207527	2006 KF		1 8.9 197°04' 22"/ 9.5 18				256278	2006 WH ₁₀₄		1 8.9 300°58' 20"/ 8.2 18			
12 3	7 46.69	+15 58.7	1.924	2.707	15.1	21.4	12 3	7 44.60	+24 43.7	1.731	2.538	15.5	20.7

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
279912	2001 <i>RS</i> ₁		1 8.9 79°49	6°6/12.1	18		404324	2013 <i>FH</i> ₁₂		1 8.9 304°95	1°4/ 9.3	18	
12 3	7 41.16	- 0 12.2	2.404	3.124	14.1	21.0	12 3	7 44.05	+16 26.8	1.547	2.350	17.2	20.9
12 13	7 36.52	- 0 35.2	2.337	3.146	11.9	20.9	12 13	7 40.22	+16 49.9	1.461	2.344	13.5	20.7
12 23	7 30.12	- 0 41.7	2.292	3.168	9.5	20.7	12 23	7 33.36	+17 25.9	1.396	2.337	9.1	20.4
1 2	7 22.50	- 0 30.0	2.272	3.190	7.5	20.6	1 2	7 24.12	+18 12.4	1.356	2.330	4.2	20.1
1 12	7 14.43	- 0 0.4	2.279	3.211	6.6	20.6	1 12	7 13.68	+19 5.1	1.343	2.324	2.0	19.9
1 22	7 6.69	+ 0 45.0	2.315	3.233	7.4	20.7	1 22	7 3.47	+19 59.1	1.357	2.318	6.9	20.2
2 1	7 0.04	+ 1 42.5	2.378	3.254	9.3	20.9	2 1	6 54.94	+20 50.1	1.398	2.312	11.7	20.5
2 11	6 55.06	+ 2 47.7	2.467	3.275	11.4	21.0	2 11	6 49.22	+21 35.4	1.461	2.306	16.0	20.7
83588	2001 <i>SS</i> ₂₄₂		1 8.9 92°75	3°3/10.2	18		218351	2004 <i>FC</i> ₁₀₇		1 8.9 211°64	1°2/ 8.5	18	
12 3	7 40.62	+10 40.9	2.397	3.163	12.9	20.0	12 3	7 47.03	+25 5.8	2.405	3.188	12.4	21.8
12 13	7 36.29	+10 39.7	2.313	3.169	10.3	19.8	12 13	7 41.46	+25 23.8	2.308	3.181	9.6	21.6
12 23	7 30.09	+10 49.1	2.253	3.175	7.4	19.6	12 23	7 33.62	+25 43.6	2.235	3.173	6.3	21.3
1 2	7 22.54	+11 9.0	2.219	3.180	4.5	19.4	1 2	7 24.09	+26 2.0	2.190	3.165	2.8	21.1
1 12	7 14.40	+11 37.9	2.215	3.186	3.3	19.4	1 12	7 13.74	+26 16.0	2.176	3.155	1.8	21.0
1 22	7 6.50	+12 13.8	2.241	3.192	5.4	19.5	1 22	7 3.60	+26 23.8	2.192	3.146	5.3	21.2
2 1	6 59.66	+12 54.0	2.295	3.197	8.4	19.7	2 1	6 54.68	+26 24.8	2.238	3.135	8.8	21.4
2 11	6 54.53	+13 35.8	2.375	3.203	11.2	19.9	2 11	6 47.79	+26 19.7	2.310	3.124	11.9	21.6
300922	2008 <i>CU</i> ₃₆		1 8.9 43°84	3°4/10.3	18		80575	2000 <i>AD</i> ₁₂₀		1 8.9 31°51	2°8/ 9.6	18	
12 3	7 39.22	+ 9 56.3	2.522	3.286	12.4	20.9	12 3	7 44.55	+15 25.1	1.163	1.984	20.7	19.0
12 13	7 35.15	+ 9 53.0	2.437	3.290	10.0	20.8	12 13	7 41.12	+15 22.1	1.101	1.991	16.3	18.8
12 23	7 29.31	+10 0.1	2.374	3.293	7.2	20.6	12 23	7 34.12	+15 33.9	1.057	2.000	11.1	18.5
1 2	7 22.21	+10 17.7	2.338	3.297	4.5	20.4	1 2	7 24.43	+15 59.2	1.035	2.009	5.5	18.2
1 12	7 14.55	+10 44.6	2.332	3.301	3.5	20.4	1 12	7 13.60	+16 34.2	1.039	2.019	3.2	18.1
1 22	7 7.11	+11 19.1	2.355	3.305	5.3	20.5	1 22	7 3.43	+17 14.3	1.067	2.029	8.1	18.4
2 1	7 0.64	+11 58.5	2.407	3.309	8.1	20.7	2 1	6 55.56	+17 55.0	1.119	2.040	13.3	18.8
2 11	6 55.76	+12 40.3	2.485	3.313	10.7	20.9	2 11	6 51.08	+18 33.0	1.192	2.052	17.8	19.1
238562	2004 <i>XX</i> ₅₃		1 8.9 149°06	0°9/ 8.5	18		258236	2001 <i>TZ</i> ₁₁₇		1 8.9 125°34	4°8/10.3	18	
12 3	7 48.79	+22 11.2	2.014	2.801	14.4	20.7	12 3	7 45.60	+ 8 12.7	2.268	3.019	14.0	20.9
12 13	7 43.07	+22 52.9	1.936	2.811	11.1	20.5	12 13	7 40.05	+ 7 37.4	2.194	3.035	11.4	20.7
12 23	7 34.76	+23 40.2	1.881	2.821	7.2	20.3	12 23	7 32.50	+ 7 13.3	2.142	3.051	8.4	20.6
1 2	7 24.55	+24 28.9	1.854	2.830	3.0	20.0	1 2	7 23.53	+ 7 1.5	2.117	3.066	5.8	20.4
1 12	7 13.48	+25 14.2	1.857	2.838	1.8	19.9	1 12	7 14.03	+ 7 2.2	2.121	3.080	4.8	20.4
1 22	7 2.77	+25 52.6	1.890	2.845	5.9	20.2	1 22	7 4.89	+ 7 14.1	2.155	3.094	6.5	20.5
2 1	6 53.57	+26 22.3	1.953	2.852	9.8	20.5	2 1	6 56.99	+ 7 35.3	2.218	3.108	9.2	20.7
2 11	6 46.77	+26 43.4	2.040	2.858	13.1	20.7	2 11	6 50.99	+ 8 2.8	2.306	3.120	11.9	20.9
102107	1999 <i>RL</i> ₁₆₄		1 8.9 27°05	5°6/10.4	18		47009	1998 <i>UY</i> ₁₆		1 8.9 54°39	8°1/12.9	18	
12 3	7 41.65	+10 42.2	1.116	1.934	21.5	18.4	12 3	7 45.34	- 0 42.2	1.484	2.233	20.3	18.3
12 13	7 38.72	+10 13.3	1.065	1.950	17.2	18.2	12 13	7 40.62	- 0 36.5	1.433	2.263	16.9	18.2
12 23	7 32.38	+10 3.9	1.032	1.967	12.3	18.0	12 23	7 33.18	- 0 3.0	1.401	2.294	13.2	18.0
1 2	7 23.61	+10 15.4	1.020	1.985	7.6	17.8	1 2	7 23.86	+ 0 59.2	1.391	2.325	9.8	17.9
1 12	7 13.95	+10 45.8	1.032	2.004	5.7	17.7	1 12	7 13.90	+ 2 26.9	1.407	2.356	8.1	17.9
1 22	7 5.06	+11 30.4	1.067	2.025	8.8	18.0	1 22	7 4.62	+ 4 12.9	1.450	2.387	9.3	18.0
2 1	6 58.43	+12 23.3	1.127	2.047	13.3	18.3	2 1	6 57.18	+ 6 8.4	1.520	2.418	12.1	18.3
2 11	6 54.99	+13 18.4	1.207	2.070	17.4	18.6	2 11	6 52.36	+ 8 4.6	1.613	2.450	15.1	18.5
247452	2002 <i>GK</i> ₄₁		1 8.9 233°04	2°5/ 9.5	18		408871	2001 <i>TZ</i> ₆₈		1 8.9 61°36	2°9/ 8.1	18	
12 3	7 46.43	+15 17.7	1.985	2.765	14.8	21.3	12 3	7 47.61	+28 14.4	1.686	2.492	15.9	21.0
12 13	7 41.37	+15 8.3	1.886	2.753	11.7	21.1	12 13	7 42.62	+28 45.6	1.620	2.505	12.3	20.8
12 23	7 33.77	+15 7.4	1.808	2.741	8.1	20.8	12 23	7 34.65	+29 16.8	1.577	2.519	8.2	20.6
1 2	7 24.19	+15 14.5	1.758	2.728	4.2	20.6	1 2	7 24.53	+29 42.7	1.560	2.533	4.2	20.4
1 12	7 13.62	+15 28.2	1.736	2.714	2.7	20.5	1 12	7 13.59	+29 58.6	1.571	2.547	3.5	20.3
1 22	7 3.20	+15 46.4	1.744	2.700	6.2	20.6	1 22	7 3.27	+30 2.2	1.610	2.561	7.1	20.6
2 1	6 54.11	+16 7.3	1.780	2.685	10.2	20.9	2 1	6 54.87	+29 54.1	1.675	2.575	11.1	20.9
2 11	6 47.28	+16 29.1	1.841	2.670	13.9	21.1	2 11	6 49.31	+29 36.8	1.763	2.589	14.5	21.1
432141	2009 <i>BF</i> ₈₅		1 8.9 359°45	1°5/ 9.3	15		144556	2004 <i>FT</i> ₈		1 8.9 197°98	7°1/12.5	18	
12 3	7 39.50	+18 5.8	1.657	2.468	16.0	21.3	12 3	7 39.50	- 4 16.7	2.851	3.541	12.7	20.8
12 13	7 36.37	+18 3.4	1.578	2.465	12.4	21.1	12 13	7 35.17	- 4 42.5	2.759	3.539	11.0	20.6
12 23	7 30.61	+18 9.2	1.520	2.463	8.3	20.8	12 23	7 29.27	- 4 52.5	2.688	3.536	9.3	20.5
1 2	7 22.87	+18 22.0	1.487	2.462	3.8	20.6	1 2	7 22.21	- 4 44.5	2.642	3.534	7.8	20.4
1 12	7 14.25	+18 39.4	1.481	2.462	2.0	20.4	1 12	7 14.62	- 4 17.7	2.623	3.531	7.1	20.4
1 22	7 5.98	+18 58.8	1.502	2.463	6.3	20.7	1 22	7 7.18	- 3 33.5	2.631	3.527	7.7	20.4
2 1	6 59.26	+19 18.1	1.550	2.466	10.6	21.0	2 1	7 0.56	- 2 34.6	2.668	3.524	9.1	20.5
2 11	6 55.00	+19 35.7	1.620	2.469	14.4	21.2	2 11	6 55.34	- 1 25.2	2.730	3.520	10.9	20.6
288818	2004 <i>RB</i> ₁₇₈		1 8.9 201°40	1°4/ 9.2	18		159930	2005 <i>UM</i> ₄₁		1 8.9 56°87	18°5/11.6	18	
12 3	7 45.22	+18 41.5	2.219	3.001	13.4	20.6	12 3	7 47.81	- 7 39.5	1.123	1.864	26.0	19.8
12 13	7 40.05	+18 26.6	2.127	2.999	10.4	20.4	12 13	7 43.60	-10 37.7	1.072	1.872	23.4	19.6
12 23	7 32.67	+18 16.2	2.060	2.996	7.0	20.2	12 23	7 35.74	-13 5.2	1.037	1.880	20.9	19.5
1 2	7 23.65	+18 9.6	2.020	2.993	3.2	19.9	1 2	7 25.12	-14 48.0	1.020	1.888	19.1	19.4
1 12	7 13.91	+18 5.5	2.010	2.990	1.8	19.8	1 12	7 13.29	-15 36.6	1.021	1.897	18.5	19.4
1 22	7 4.46	+18 2.9	2.030	2.987	5.3	20.1	1 22	7 2.08	-15 29.4	1.041	1.906	19.2	19.5
2 1	6 56.26	+18 1.2	2.078	2.983	9.0	20.3	2 1	6 53.18	-14 33.4	1.079	1.915	20.9	19.6
2 11	6 50.10	+17 59.9	2.153	2.979	12.2	20.5	2 11	6 47.75	-13 1.6	1.133	1.925	23.0	19.8
345086	2005 <i>LY</i> ₂₅		1 8.9 246°98	5°4/10.7	17		317520	2002 <i>TR</i> ₁₄₇		1 8.9 139°16	3°4/10.0	18	
12 3	7 40.34	+ 4 43.5	2.572	3.									

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
399401	2001 <i>ST</i> ₃₄₂		1 8.9 95°28	6°5/ 6.8	17		166234	2002 <i>FA</i> ₂₈		1 8.9 258°42	0°8/ 9.1	18	
12 3	7 55.90	+39 47.0	2.207	2.977	13.8	21.3	12 3	7 46.17	+19 7.8	1.744	2.541	15.9	20.8
12 13	7 48.53	+40 59.0	2.159	3.010	11.1	21.2	12 13	7 41.63	+19 17.7	1.648	2.528	12.4	20.5
12 23	7 38.26	+42 2.3	2.134	3.042	8.5	21.0	12 23	7 34.21	+19 35.6	1.574	2.515	8.3	20.3
1 2	7 25.96	+42 49.4	2.137	3.074	6.7	21.0	1 2	7 24.50	+19 59.3	1.526	2.501	3.6	20.0
1 12	7 12.97	+43 15.0	2.169	3.104	6.7	21.0	1 12	7 13.60	+20 25.4	1.505	2.487	1.7	19.8
1 22	7 0.72	+43 18.0	2.230	3.134	8.5	21.2	1 22	7 2.88	+20 50.9	1.514	2.473	6.5	20.1
2 1	6 50.46	+43 0.7	2.318	3.163	10.7	21.4	2 1	6 53.68	+21 13.5	1.549	2.459	11.1	20.3
2 11	6 43.04	+42 28.3	2.430	3.191	12.9	21.6	2 11	6 47.10	+21 32.2	1.608	2.444	15.2	20.5
224555	2005 <i>WO</i> ₁₅₆		1 8.9 60°00	6°4/10.8	18		397135	2005 <i>WW</i> ₁₀₃		1 8.9 26°23	1°2/ 9.2	17	
12 3	7 42.53	+ 5 45.1	1.900	2.661	16.0	20.4	12 3	7 42.46	+16 50.6	1.023	1.860	21.8	20.3
12 13	7 38.19	+ 5 3.0	1.823	2.667	13.2	20.2	12 13	7 39.90	+17 20.9	0.970	1.871	17.0	20.0
12 23	7 31.55	+ 4 35.7	1.766	2.672	10.1	20.0	12 23	7 33.50	+18 8.1	0.935	1.884	11.2	19.7
1 2	7 23.23	+ 4 25.6	1.735	2.678	7.4	19.9	1 2	7 24.23	+19 7.8	0.921	1.898	4.9	19.4
1 12	7 14.18	+ 4 33.4	1.730	2.684	6.4	19.8	1 12	7 13.79	+20 12.6	0.931	1.913	2.2	19.3
1 22	7 5.47	+ 4 57.5	1.753	2.689	8.0	19.9	1 22	7 4.14	+21 15.1	0.966	1.930	8.2	19.7
2 1	6 58.11	+ 5 34.7	1.802	2.695	10.8	20.1	2 1	6 57.02	+22 9.7	1.023	1.948	13.8	20.1
2 11	6 52.88	+ 6 20.8	1.875	2.701	13.8	20.3	2 11	6 53.53	+22 54.1	1.100	1.967	18.5	20.4
76700	2000 <i>HQ</i> ₈₆		1 8.9 195°37	0°7/ 9.2	18		68052	2000 <i>YD</i> ₅₂		1 8.9 94°63	0°0/ 8.8	18	
12 3	7 42.02	+18 42.0	2.802	3.578	11.0	20.6	12 3	7 49.18	+21 5.0	1.698	2.494	16.3	19.8
12 13	7 37.21	+18 54.0	2.707	3.576	8.5	20.4	12 13	7 43.56	+21 17.1	1.634	2.514	12.5	19.6
12 23	7 30.65	+19 11.0	2.637	3.573	5.6	20.2	12 23	7 35.14	+21 34.8	1.592	2.533	8.2	19.4
1 2	7 22.81	+19 31.5	2.596	3.570	2.5	20.0	1 2	7 24.73	+21 54.8	1.576	2.552	3.4	19.2
1 12	7 14.38	+19 53.5	2.585	3.567	1.2	19.9	1 12	7 13.59	+22 13.7	1.589	2.571	1.5	19.1
1 22	7 6.12	+20 15.3	2.606	3.563	4.3	20.1	1 22	7 3.07	+22 29.0	1.631	2.589	6.2	19.4
2 1	6 58.79	+20 35.6	2.657	3.559	7.4	20.3	2 1	6 54.40	+22 39.5	1.700	2.607	10.5	19.7
2 11	6 53.03	+20 53.5	2.734	3.555	10.1	20.5	2 11	6 48.42	+22 45.6	1.793	2.624	14.1	20.0
406636	2008 <i>CX</i> ₁₉₅		1 8.9 8°80	9°2/ 6.8	18		98670	2000 <i>WC</i> ₁₆₅		1 8.9 51°08	0°4/ 9.1	18	
12 3	7 53.09	+43 13.4	1.645	2.435	17.0	21.0	12 3	7 48.06	+15 56.0	1.242	2.053	20.2	18.6
12 13	7 47.82	+44 18.8	1.577	2.435	14.1	20.8	12 13	7 43.43	+17 6.2	1.195	2.082	15.5	18.4
12 23	7 38.58	+45 12.8	1.530	2.436	11.4	20.7	12 23	7 35.38	+18 32.4	1.169	2.112	10.1	18.2
1 2	7 26.32	+45 44.8	1.506	2.437	9.5	20.5	1 2	7 24.89	+20 7.8	1.167	2.143	4.3	18.0
1 12	7 12.79	+45 47.3	1.508	2.438	9.5	20.6	1 12	7 13.54	+21 43.3	1.191	2.174	1.8	17.9
1 22	7 0.04	+45 18.3	1.535	2.440	11.5	20.7	1 22	7 3.04	+23 10.4	1.244	2.204	7.4	18.3
2 1	6 49.92	+44 22.2	1.586	2.441	14.3	20.8	2 1	6 54.87	+24 24.1	1.321	2.235	12.3	18.7
2 11	6 43.58	+43 7.0	1.658	2.444	17.1	21.0	2 11	6 50.00	+25 22.9	1.422	2.267	16.3	19.0
448077	2008 <i>GF</i> ₁₃₈		1 8.9 175°26	2°0/ 9.5	18		244444	2002 <i>RT</i> ₆₆		1 8.9 89°95	0°7/ 9.1	18	
12 3	7 49.58	+15 44.0	1.931	2.707	15.3	23.3	12 3	7 44.95	+20 12.6	2.322	3.105	12.8	20.8
12 13	7 43.72	+15 47.2	1.845	2.711	12.0	23.1	12 13	7 39.59	+20 5.4	2.251	3.123	9.9	20.7
12 23	7 35.25	+15 59.4	1.781	2.714	8.2	22.9	12 23	7 32.21	+20 2.1	2.204	3.142	6.5	20.5
1 2	7 24.81	+16 19.4	1.745	2.716	4.0	22.6	1 2	7 23.45	+20 1.1	2.185	3.160	2.8	20.3
1 12	7 13.47	+16 44.6	1.738	2.717	2.3	22.5	1 12	7 14.18	+20 1.0	2.196	3.178	1.3	20.2
1 22	7 2.46	+17 12.4	1.761	2.717	6.1	22.8	1 22	7 5.35	+20 0.6	2.238	3.196	4.9	20.5
2 1	6 52.94	+17 40.5	1.813	2.716	10.2	23.0	2 1	6 57.80	+19 59.5	2.309	3.213	8.2	20.7
2 11	6 45.83	+18 7.3	1.889	2.714	13.7	23.2	2 11	6 52.19	+19 57.3	2.405	3.230	11.1	20.9
134709	1999 <i>XT</i> ₂₂₈		1 8.9 95°16	1°0/ 8.6	18		95502	2002 <i>EA</i> ₄₃		1 8.9 15°68	0°7/ 8.7	18	
12 3	7 47.10	+22 26.3	1.746	2.546	15.7	20.3	12 3	7 45.00	+23 38.7	1.912	2.711	14.6	19.7
12 13	7 42.08	+23 1.7	1.676	2.558	12.1	20.1	12 13	7 40.33	+23 46.0	1.830	2.712	11.3	19.5
12 23	7 34.27	+23 43.0	1.628	2.571	7.9	19.9	12 23	7 33.08	+23 56.2	1.770	2.713	7.4	19.2
1 2	7 24.40	+24 25.5	1.607	2.583	3.3	19.6	1 2	7 23.92	+24 6.4	1.737	2.713	3.1	19.0
1 12	7 13.68	+25 4.6	1.614	2.595	1.9	19.5	1 12	7 13.94	+24 13.7	1.733	2.714	1.6	18.9
1 22	7 3.43	+25 36.6	1.650	2.607	6.4	19.9	1 22	7 4.33	+24 16.3	1.758	2.715	5.9	19.2
2 1	6 54.91	+25 59.9	1.713	2.618	10.6	20.1	2 1	6 56.26	+24 13.6	1.810	2.717	10.0	19.4
2 11	6 49.03	+26 14.8	1.800	2.630	14.1	20.4	2 11	6 50.57	+24 6.4	1.886	2.718	13.5	19.6
410794	2009 <i>HY</i> ₃₁		1 8.9 142°49	5°4/10.9	18		166782	2002 <i>VH</i> ₃₃		1 8.9 39°01	0°4/ 9.0	18	R
12 3	7 44.58	+ 5 22.6	2.210	2.954	14.5	21.9	12 3	7 42.39	+19 51.9	1.922	2.721	14.5	19.8
12 13	7 39.41	+ 5 4.1	2.131	2.965	11.9	21.7	12 13	7 38.14	+20 3.7	1.852	2.733	11.2	19.6
12 23	7 32.18	+ 4 59.7	2.073	2.975	9.1	21.6	12 23	7 31.53	+20 21.7	1.805	2.746	7.3	19.4
1 2	7 23.46	+ 5 10.9	2.042	2.985	6.4	21.4	1 2	7 23.24	+20 43.5	1.784	2.760	3.1	19.2
1 12	7 14.11	+ 5 36.9	2.039	2.994	5.4	21.4	1 12	7 14.27	+21 6.3	1.792	2.774	1.4	19.1
1 22	7 5.06	+ 6 15.8	2.065	3.003	6.9	21.5	1 22	7 5.73	+21 27.6	1.828	2.788	5.5	19.4
2 1	6 57.21	+ 7 4.2	2.120	3.011	9.6	21.7	2 1	6 58.65	+21 45.7	1.893	2.803	9.4	19.6
2 11	6 51.28	+ 7 58.1	2.200	3.018	12.3	21.8	2 11	6 53.78	+22 0.1	1.981	2.817	12.7	19.9
201027	2002 <i>CQ</i> ₂₈₄		1 8.9 32°59	0°1/ 8.8	18		456432	2006 <i>VQ</i> ₂₈		1 8.9 65°85	7°6/ 6.3	18	
12 3	7 45.58	+21 44.5	1.198	2.025	19.8	19.7	12 3	7 51.34	+37 9.3	1.648	2.448	16.5	21.1
12 13	7 41.87	+21 52.3	1.139	2.036	15.3	19.5	12 13	7 46.08	+38 46.7	1.595	2.466	13.3	20.9
12 23	7 34.56	+22 7.3	1.101	2.049	10.0	19.2	12 23	7 37.26	+40 18.1	1.564	2.485	10.0	20.8
1 2	7 24.59	+22 25.6	1.085	2.062	4.2	18.9	1 2	7 25.76	+41 33.0	1.558	2.504	7.8	20.7
1 12	7 13.61	+22 42.7	1.094	2.076	1.9	18.8	1 12	7 13.14	+42 23.2	1.579	2.523	8.0	20.8
1 22	7 3.43	+22 55.4	1.129	2.091	7.7	19.2	1 22	7 1.22	+42 45.2	1.627	2.542	10.3	20.9
2 1	6 55.64	+23 2.5	1.188	2.107	12.9	19.5	2 1	6 51.61	+42 41.2	1.700	2.560	13.2	21.2
2 11	6 51.26	+23 4.2	1.268	2.123	17.3	19.9	2 11	6 45.40	+42 17.2	1.794	2.579	16.0	21.4
67448	2000 <i>QC</i> ₁₅₆		1 8.9 52°43	4°1/ 9.8	18		336684	2010 <i>AF</i> ₅₆		1 8.9 346°89	1°5/ 9.5	18	
12 3	7 46.03	+13 44.8	1.417	2.									

EPHEMERIDES

1 8.9

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
459642	2013 JY ₃₃		1 8.9 178°39	0°5/ 9.1	18		363850	2005 QJ ₁₁₅		1 8.9 172°29	4°7/10.7	18	
12 3	7 45.62	+17 40.5	2.230	3.009	13.4	22.2	12 3	7 43.76	+6 36.2	2.404	3.148	13.5	21.9
12 13	7 40.46	+18 17.8	2.141	3.011	10.4	22.0	12 13	7 38.72	+6 22.4	2.315	3.152	11.0	21.7
12 23	7 33.04	+19 3.8	2.075	3.012	6.9	21.8	12 23	7 31.74	+6 21.2	2.249	3.155	8.3	21.5
1 2	7 23.91	+19 55.6	2.038	3.012	3.0	21.5	1 2	7 23.34	+6 33.4	2.210	3.157	5.7	21.4
1 12	7 13.96	+20 49.5	2.031	3.013	1.3	21.4	1 12	7 14.29	+6 58.4	2.200	3.159	4.7	21.3
1 22	7 4.21	+21 41.7	2.055	3.012	5.2	21.7	1 22	7 5.46	+7 34.4	2.219	3.160	6.3	21.4
2 1	6 55.68	+22 29.4	2.108	3.011	9.0	21.9	2 1	6 57.70	+8 18.6	2.268	3.160	9.0	21.6
2 11	6 49.17	+23 11.0	2.187	3.010	12.2	22.1	2 11	6 51.69	+9 7.6	2.343	3.160	11.7	21.8
276862	2004 RN ₁₅₃		1 8.9 28°31	1°1/ 8.7	18		464787	2003 XY ₂₇		1 8.9 44°75	4°1/ 9.7	18	
12 3	7 46.25	+25 36.7	1.313	2.136	18.6	19.6	12 3	7 43.77	+12 19.1	2.106	2.879	14.3	21.1
12 13	7 41.93	+25 22.8	1.262	2.157	14.3	19.4	12 13	7 38.95	+11 29.9	2.023	2.883	11.4	20.9
12 23	7 34.29	+25 9.6	1.232	2.179	9.3	19.2	12 23	7 31.97	+10 48.6	1.964	2.886	8.2	20.7
1 2	7 24.40	+24 54.2	1.226	2.203	3.9	18.9	1 2	7 23.44	+10 16.7	1.930	2.890	5.2	20.6
1 12	7 13.83	+24 34.1	1.246	2.227	2.1	18.9	1 12	7 14.26	+9 54.9	1.926	2.894	4.2	20.5
1 22	7 4.22	+24 9.2	1.292	2.253	7.2	19.2	1 22	7 5.42	+9 43.1	1.951	2.898	6.4	20.7
2 1	6 56.93	+23 40.7	1.363	2.279	11.8	19.6	2 1	6 57.85	+9 40.3	2.003	2.902	9.6	20.9
2 11	6 52.78	+23 10.7	1.457	2.306	15.7	19.9	2 11	6 52.29	+9 44.6	2.080	2.906	12.6	21.1
118283	1998 RU ₅₅		1 8.9 28°84	0°3/ 8.8	18		432055	2008 YU ₁₇		1 8.9 6°22	0°4/ 9.0	18	
12 3	7 47.21	+23 0.0	1.207	2.033	19.8	19.1	12 3	7 41.21	+20 15.5	1.828	2.633	14.9	21.2
12 13	7 43.24	+22 56.3	1.143	2.039	15.4	18.9	12 13	7 37.50	+20 21.8	1.749	2.634	11.6	21.0
12 23	7 35.55	+22 57.5	1.097	2.045	10.1	18.6	12 23	7 31.28	+20 34.2	1.692	2.635	7.6	20.8
1 2	7 25.08	+22 59.9	1.075	2.052	4.2	18.3	1 2	7 23.22	+20 50.6	1.661	2.637	3.2	20.5
1 12	7 13.47	+23 0.0	1.078	2.060	2.0	18.2	1 12	7 14.36	+21 8.2	1.658	2.640	1.4	20.4
1 22	7 2.62	+22 55.4	1.107	2.069	7.9	18.6	1 22	7 5.85	+21 24.7	1.683	2.643	5.8	20.7
2 1	6 54.20	+22 46.2	1.159	2.078	13.2	18.9	2 1	6 58.80	+21 38.5	1.735	2.647	10.0	21.0
2 11	6 49.31	+22 33.6	1.233	2.087	17.7	19.2	2 11	6 54.07	+21 48.9	1.811	2.652	13.5	21.2
25750	Miwney		1 8.9 69°00	2°9/10.1	18		132446	2002 HC ₁		1 8.9 189°32	3°8/ 7.6	18	
12 3	7 42.45	+11 41.5	2.062	2.837	14.5	18.6	12 3	7 50.76	+30 54.4	2.109	2.896	13.8	20.7
12 13	7 37.95	+11 54.1	1.991	2.853	11.4	18.4	12 13	7 44.83	+31 42.4	2.023	2.896	10.8	20.5
12 23	7 31.31	+12 18.7	1.942	2.870	8.0	18.2	12 23	7 36.12	+32 29.6	1.961	2.894	7.5	20.3
1 2	7 23.14	+12 54.4	1.920	2.886	4.5	18.0	1 2	7 25.29	+33 10.2	1.926	2.892	4.5	20.1
1 12	7 14.35	+13 38.7	1.927	2.902	3.0	17.9	1 12	7 13.46	+33 38.8	1.921	2.889	4.2	20.1
1 22	7 5.92	+14 28.2	1.963	2.918	5.7	18.1	1 22	7 1.93	+33 52.4	1.946	2.885	7.1	20.3
2 1	6 58.78	+15 19.5	2.027	2.934	9.0	18.4	2 1	6 51.98	+33 51.3	1.998	2.881	10.5	20.5
2 11	6 53.65	+16 9.7	2.117	2.950	12.1	18.6	2 11	6 44.59	+33 37.8	2.075	2.876	13.6	20.7
322721	2000 RR ₂₅		1 8.9 168°08	3°8/ 7.7	18		340409	2006 ES ₇₂		1 8.9 181°62	3°6/10.4	18	
12 3	7 50.38	+34 21.3	2.573	3.348	11.9	21.3	12 3	7 41.34	+9 25.9	2.391	3.152	13.1	21.3
12 13	7 43.93	+34 49.1	2.490	3.354	9.4	21.1	12 13	7 36.95	+9 25.8	2.301	3.152	10.5	21.1
12 23	7 35.16	+35 12.5	2.432	3.358	6.7	21.0	12 23	7 30.64	+9 37.3	2.234	3.152	7.6	20.9
1 2	7 24.74	+35 26.9	2.402	3.362	4.3	20.8	1 2	7 22.92	+10 0.4	2.194	3.152	4.8	20.7
1 12	7 13.63	+35 29.0	2.403	3.365	4.1	20.8	1 12	7 14.55	+10 33.9	2.183	3.152	3.7	20.6
1 22	7 2.93	+35 17.6	2.434	3.367	6.2	21.0	1 22	7 6.38	+11 15.4	2.202	3.152	5.6	20.8
2 1	6 53.63	+34 53.7	2.494	3.369	9.0	21.1	2 1	6 59.24	+12 2.2	2.250	3.151	8.6	20.9
2 11	6 46.51	+34 20.3	2.580	3.370	11.5	21.3	2 11	6 53.82	+12 51.2	2.324	3.150	11.4	21.1
382000	2010 MV ₁₁₀		1 8.9 8°23	4°5/ 6.9	18		456343	2006 TW ₁₉		1 8.9 54°86	9°3/ 6.3	18	
12 3	7 44.26	+31 20.5	2.084	2.884	13.5	20.5	12 3	7 52.82	+41 46.7	1.580	2.375	17.3	21.1
12 13	7 39.91	+32 35.1	2.006	2.885	10.6	20.3	12 13	7 47.63	+43 17.5	1.527	2.390	14.3	20.9
12 23	7 32.94	+33 50.0	1.951	2.885	7.4	20.1	12 23	7 38.49	+44 37.7	1.496	2.404	11.4	20.8
1 2	7 23.94	+34 58.7	1.924	2.887	4.9	19.9	1 2	7 26.36	+45 36.1	1.488	2.419	9.5	20.7
1 12	7 13.96	+35 55.0	1.926	2.888	4.9	19.9	1 12	7 13.03	+46 4.4	1.506	2.435	9.7	20.8
1 22	7 4.23	+36 34.9	1.956	2.890	7.5	20.1	1 22	7 0.56	+46 0.5	1.548	2.450	11.6	20.9
2 1	6 55.96	+36 57.5	2.013	2.891	10.6	20.3	2 1	6 50.75	+45 28.1	1.615	2.466	14.3	21.1
2 11	6 50.09	+37 4.7	2.093	2.894	13.5	20.5	2 11	6 44.71	+44 35.2	1.702	2.482	16.9	21.3
373719	2002 RX ₂₇₇		1 8.9 43°48	2°3/ 9.5	18		401144	2011 UL ₃₉₉		1 8.9 150°77	0°2/ 8.8	18	
12 3	7 43.21	+16 25.2	2.007	2.795	14.4	20.9	12 3	7 48.90	+21 16.3	1.981	2.767	14.6	22.1
12 13	7 38.64	+16 1.8	1.930	2.802	11.3	20.7	12 13	7 43.20	+21 38.2	1.902	2.776	11.3	21.9
12 23	7 31.81	+15 45.2	1.875	2.810	7.7	20.5	12 23	7 34.92	+22 5.5	1.846	2.785	7.4	21.7
1 2	7 23.37	+15 35.1	1.847	2.818	3.9	20.2	1 2	7 24.76	+22 34.9	1.817	2.793	3.1	21.4
1 12	7 14.28	+15 30.7	1.848	2.826	2.6	20.2	1 12	7 13.77	+23 2.8	1.818	2.800	1.4	21.3
1 22	7 5.57	+15 31.0	1.878	2.835	5.7	20.4	1 22	7 3.17	+23 26.3	1.850	2.807	5.8	21.6
2 1	6 58.25	+15 34.7	1.936	2.843	9.4	20.6	2 1	6 54.11	+23 44.2	1.910	2.813	9.8	21.9
2 11	6 53.03	+15 40.7	2.018	2.852	12.6	20.8	2 11	6 47.44	+23 56.3	1.995	2.818	13.2	22.1
102137	1999 RR ₁₈₂		1 8.9 123°01	4°7/10.3	18		313430	2002 QK ₈₆		1 8.9 101°32	0°6/ 8.8	18	
12 3	7 49.43	+9 52.2	1.653	2.424	17.6	20.0	12 3	7 49.40	+23 12.7	1.865	2.657	15.2	21.5
12 13	7 43.76	+9 38.8	1.584	2.441	14.1	19.8	12 13	7 43.56	+23 21.4	1.798	2.676	11.7	21.3
12 23	7 35.31	+9 40.4	1.536	2.458	10.1	19.6	12 23	7 35.09	+23 33.0	1.754	2.695	7.6	21.1
1 2	7 24.86	+9 57.4	1.513	2.474	6.3	19.4	1 2	7 24.78	+23 44.6	1.737	2.713	3.2	20.9
1 12	7 13.61	+10 28.1	1.518	2.489	4.7	19.4	1 12	7 13.79	+23 52.9	1.749	2.731	1.6	20.8
1 22	7 2.89	+11 9.0	1.552	2.503	7.4	19.6	1 22	7 3.40	+23 56.3	1.791	2.748	5.9	21.1
2 1	6 53.92	+11 56.2	1.613	2.516	11.2	19.8	2 1	6 54.72	+23 54.5	1.861	2.765	9.9	21.4
2 11	6 47.59	+12 45.6	1.698	2.529	14.7	20.1	2 11	6 48.58	+23 48.5	1.956	2.782	13.3	21.7
333705	2008 XL ₁₄		1 8.9 92°20	1°7/ 9.4	18		459789	2013 RR ₅₁		1 8.9 198°01	1°8/ 9.4	18	
12 3	7 43.64	+17 36.7	2.228	3.011	13.3	21.0	12 3	7 46.22	+17 17.2	2.539	3.308	12.2	21.8

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
254088	2004 <i>JK</i> ₁₉		1 8.9 12°02' 10.3"/10.1 18				134839	2000 <i>JN</i> ₂₅		1 8.9 205°83' 1.4"/8.4 17			
12 3	7 45.27	+ 1 1.6	1.715	2.459	18.1	19.7	12 3	7 43.90	+26 28.3	3.052	3.831	10.1	21.7
12 13	7 40.59	- 0 53.3	1.640	2.460	15.6	19.5	12 13	7 38.65	+26 47.0	2.954	3.825	7.8	21.5
12 23	7 33.32	- 2 32.8	1.584	2.461	13.0	19.3	12 23	7 31.64	+27 6.1	2.881	3.819	5.2	21.3
1 2	7 24.12	- 3 50.1	1.553	2.463	10.9	19.2	1 2	7 23.35	+27 23.2	2.838	3.812	2.4	21.1
1 12	7 14.05	- 4 40.3	1.546	2.465	10.4	19.2	1 12	7 14.46	+27 36.1	2.826	3.804	1.8	21.1
1 22	7 4.32	- 5 1.6	1.566	2.467	11.6	19.2	1 22	7 5.75	+27 43.3	2.846	3.796	4.4	21.3
2 1	6 56.11	- 4 56.1	1.609	2.469	13.9	19.4	2 1	6 57.96	+27 44.3	2.895	3.788	7.2	21.4
2 11	6 50.29	- 4 29.1	1.674	2.472	16.4	19.6	2 11	6 51.73	+27 39.7	2.971	3.779	9.7	21.6
99465	2002 <i>CP</i> ₉₃		1 8.9 241°39' 0°/8.9 18				483564	2004 <i>BJ</i> ₇₉		1 8.9 348°80' 3°5"/8.4 18			
12 3	7 47.15	+20 31.5	1.825	2.618	15.4	20.7	12 3	7 48.66	+28 46.1	1.180	2.009	20.0	21.3
12 13	7 42.32	+20 49.2	1.729	2.607	12.0	20.5	12 13	7 44.90	+29 1.9	1.108	2.005	15.7	21.0
12 23	7 34.67	+21 13.8	1.655	2.596	8.0	20.2	12 23	7 37.02	+29 17.1	1.056	2.002	10.6	20.7
1 2	7 24.78	+21 42.6	1.608	2.584	3.4	19.9	1 2	7 25.90	+29 25.0	1.025	1.999	5.3	20.4
1 12	7 13.75	+22 11.8	1.589	2.571	1.5	19.8	1 12	7 13.33	+29 19.7	1.019	1.997	4.2	20.3
1 22	7 2.89	+22 38.0	1.600	2.558	6.3	20.0	1 22	7 1.43	+28 58.8	1.039	1.996	9.1	20.6
2 1	6 53.52	+22 59.2	1.638	2.545	10.8	20.3	2 1	6 52.18	+28 24.5	1.082	1.995	14.4	20.9
2 11	6 46.72	+23 15.0	1.700	2.531	14.7	20.5	2 11	6 46.86	+27 41.7	1.144	1.995	19.0	21.2
83717	2001 <i>TW</i> ₉₁		1 8.9 164°66' 3°5"/7.7 18				262679	2006 <i>WD</i> ₁₅₈		1 8.9 62°84' 1°9"/8.4 18			
12 3	7 45.35	+32 33.8	2.534	3.320	11.8	20.1	12 3	7 47.67	+25 26.1	1.629	2.435	16.4	20.7
12 13	7 40.19	+33 8.0	2.451	3.322	9.2	20.0	12 13	7 42.72	+25 52.1	1.565	2.451	12.6	20.5
12 23	7 32.83	+33 39.5	2.392	3.323	6.4	19.8	12 23	7 34.80	+26 20.7	1.524	2.467	8.3	20.3
1 2	7 23.86	+34 4.1	2.361	3.325	4.0	19.6	1 2	7 24.75	+26 47.0	1.508	2.484	3.7	20.0
1 12	7 14.21	+34 18.4	2.360	3.326	3.8	19.6	1 12	7 13.89	+27 6.5	1.521	2.500	2.6	20.0
1 22	7 4.85	+34 20.6	2.389	3.327	6.1	19.8	1 22	7 3.67	+27 16.8	1.561	2.517	6.8	20.3
2 1	6 56.77	+34 11.0	2.446	3.328	8.8	20.0	2 1	6 55.38	+27 17.5	1.628	2.534	11.0	20.6
2 11	6 50.71	+33 51.6	2.529	3.329	11.4	20.1	2 11	6 49.91	+27 10.5	1.718	2.551	14.6	20.8
244320	2002 <i>GF</i> ₁₇₇		1 8.9 242°26' 0°5"/9.1 18				340752	2006 <i>SC</i> ₂₇₆		1 8.9 56°22' 3°9"/10.4 18			
12 3	7 46.94	+20 2.7	1.826	2.619	15.4	22.0	12 3	7 40.58	+ 9 38.7	2.330	3.095	13.3	21.5
12 13	7 42.11	+20 10.8	1.731	2.609	12.0	21.8	12 13	7 36.39	+ 9 26.8	2.246	3.099	10.7	21.3
12 23	7 34.50	+20 25.5	1.658	2.598	8.0	21.5	12 23	7 30.29	+ 9 26.0	2.185	3.103	7.8	21.1
1 2	7 24.70	+20 44.3	1.612	2.587	3.4	21.2	1 2	7 22.81	+ 9 36.6	2.150	3.108	5.0	20.9
1 12	7 13.80	+21 4.3	1.594	2.576	1.5	21.1	1 12	7 14.73	+ 9 57.8	2.145	3.112	3.9	20.9
1 22	7 3.11	+21 22.6	1.605	2.564	6.3	21.4	1 22	7 6.89	+10 27.8	2.168	3.117	5.8	21.0
2 1	6 53.92	+21 37.7	1.644	2.552	10.7	21.6	2 1	7 0.13	+11 3.9	2.220	3.121	8.7	21.2
2 11	6 47.26	+21 48.9	1.706	2.539	14.6	21.8	2 11	6 55.10	+11 43.5	2.297	3.126	11.5	21.4
44464	1998 <i>VN</i> ₂₁		1 8.9 67°68' 0°8"/8.7 17				518158	2016 <i>GE</i> ₂₅₉		1 8.9 135°78' 0°6"/8.6 17			
12 3	7 50.29	+23 24.8	1.596	2.397	16.9	19.5	12 3	7 42.99	+21 42.9	2.634	3.417	11.5	21.7
12 13	7 44.49	+23 36.2	1.543	2.426	12.9	19.3	12 13	7 38.14	+22 23.4	2.551	3.424	8.8	21.5
12 23	7 35.77	+23 51.0	1.512	2.454	8.4	19.1	12 23	7 31.40	+23 8.4	2.493	3.432	5.7	21.3
1 2	7 25.06	+24 5.3	1.507	2.483	3.5	18.9	1 2	7 23.27	+23 55.0	2.464	3.439	2.4	21.1
1 12	7 13.74	+24 15.6	1.530	2.511	1.8	18.8	1 12	7 14.53	+24 39.9	2.465	3.446	1.3	21.0
1 22	7 3.25	+24 20.0	1.582	2.540	6.4	19.2	1 22	7 5.99	+25 20.3	2.498	3.453	4.6	21.3
2 1	6 54.80	+24 18.4	1.660	2.568	10.7	19.5	2 1	6 58.50	+25 54.6	2.561	3.460	7.8	21.5
2 11	6 49.19	+24 12.0	1.763	2.595	14.2	19.8	2 11	6 52.71	+26 22.1	2.649	3.466	10.5	21.7
399616	2004 <i>DZ</i> ₁₉		1 8.9 18°12' 1°4"/9.4 18				203747	2002 <i>RN</i> ₅₁		1 8.9 58°40' 5°5"/7.3 18			
12 3	7 40.62	+16 54.8	1.145	1.977	20.3	19.6	12 3	7 48.18	+36 29.4	2.034	2.826	14.1	19.3
12 13	7 38.20	+17 15.6	1.087	1.985	15.8	19.3	12 13	7 42.88	+37 18.9	1.972	2.841	11.2	19.1
12 23	7 32.31	+17 51.2	1.048	1.995	10.5	19.1	12 23	7 34.80	+38 2.4	1.932	2.856	8.2	19.0
1 2	7 23.82	+18 38.3	1.031	2.007	4.7	18.8	1 2	7 24.73	+38 33.5	1.919	2.871	5.9	18.9
1 12	7 14.25	+19 31.4	1.038	2.020	2.2	18.7	1 12	7 13.91	+38 47.5	1.933	2.887	5.8	18.9
1 22	7 5.34	+20 24.3	1.071	2.035	7.7	19.0	1 22	7 3.66	+38 42.9	1.976	2.902	8.0	19.1
2 1	6 58.65	+21 12.2	1.127	2.051	12.9	19.4	2 1	6 55.21	+38 21.2	2.045	2.918	10.7	19.3
2 11	6 55.23	+21 52.5	1.203	2.068	17.3	19.7	2 11	6 49.40	+37 46.5	2.138	2.934	13.4	19.5
522264	2016 <i>AA</i> ₂₇₆		1 8.9 149°51' 2°6"/9.8 18				4443	Paulet		1 8.9 25°92' 3°0"/8.4 18			
12 3	7 43.91	+14 11.7	1.993	2.774	14.7	22.0	12 3	7 47.89	+27 10.7	1.155	1.986	20.2	16.5
12 13	7 39.32	+14 10.9	1.909	2.777	11.6	21.8	12 13	7 44.15	+27 33.1	1.093	1.991	15.7	16.2
12 23	7 32.40	+14 20.1	1.847	2.779	8.0	21.6	12 23	7 36.39	+27 57.2	1.050	1.998	10.4	16.0
1 2	7 23.73	+14 38.5	1.812	2.781	4.2	21.4	1 2	7 25.58	+28 16.6	1.029	2.005	5.0	15.7
1 12	7 14.28	+15 4.3	1.805	2.783	2.7	21.3	1 12	7 13.53	+28 24.9	1.034	2.013	3.7	15.6
1 22	7 5.12	+15 34.8	1.828	2.785	5.9	21.5	1 22	7 2.30	+28 19.4	1.063	2.021	8.8	16.0
2 1	6 57.29	+16 7.6	1.879	2.786	9.6	21.7	2 1	6 53.72	+28 1.3	1.115	2.030	14.0	16.3
2 11	6 51.60	+16 40.4	1.954	2.788	13.0	21.9	2 11	6 48.95	+27 34.3	1.188	2.040	18.4	16.6
85923	1999 <i>CF</i> ₁₀₅		1 8.9 357°64' 3°7"/9.4 18				251656	1993 <i>UW</i> ₇		1 8.9 76°99' 0°4"/9.1 18			
12 3	7 46.84	+16 2.7	1.701	2.492	16.4	18.3	12 3	7 45.49	+19 5.4	1.754	2.551	15.8	20.5
12 13	7 41.90	+15 3.9	1.619	2.491	13.0	18.1	12 13	7 40.84	+19 31.9	1.683	2.563	12.2	20.3
12 23	7 34.22	+14 10.7	1.558	2.491	9.1	17.9	12 23	7 33.52	+20 6.8	1.633	2.575	8.0	20.1
1 2	7 24.52	+13 24.5	1.523	2.490	5.1	17.6	1 2	7 24.24	+20 46.9	1.610	2.586	3.4	19.8
1 12	7 13.94	+12 46.4	1.515	2.490	3.9	17.5	1 12	7 14.12	+21 28.0	1.616	2.598	1.5	19.7
1 22	7 3.80	+12 17.3	1.537	2.490	7.1	17.7	1 22	7 4.44	+22 6.3	1.650	2.609	6.1	20.0
2 1	6 55.32	+11 57.1	1.585	2.491	11.2	18.0	2 1	6 56.39	+22 39.5	1.712	2.621	10.3	20.3
2 11	6 49.40	+11 44.8	1.656	2.491	14.9	18.2	2 11	6 50.84	+23 6.5	1.797	2.632	13.9	20.6
458195	2010 <i>QJ</i> ₃		1 8.9 55°57' 7°3"/12.2 16				473921	2016 <i>EU</i> ₁₅₄		1 8.9 126°65' 3°4"/10.2 18			
12 3	7 45.61	+ 2 5.6	1.513	2.272									

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
6237	Chikushi		1 8.9 241°08	1.7/ 8.1	18		198944	2005 <i>UM</i> ₂₉₂		1 8.9 153°23	2.7/ 8.2	18	
12 3	7 40.02	+28 0.8	3.322	4.106	9.3	17.8	12 3	7 52.45	+27 41.8	1.811	2.604	15.5	21.0
12 13	7 35.59	+28 23.5	3.227	4.101	7.2	17.6	12 13	7 46.35	+28 16.5	1.735	2.612	12.1	20.8
12 23	7 29.61	+28 46.0	3.158	4.096	4.8	17.5	12 23	7 37.22	+28 52.1	1.682	2.620	8.1	20.6
1 2	7 22.51	+29 6.1	3.119	4.090	2.4	17.3	1 2	7 25.84	+29 23.0	1.656	2.628	4.0	20.4
1 12	7 14.90	+29 21.7	3.110	4.085	2.0	17.3	1 12	7 13.49	+29 44.0	1.658	2.634	3.3	20.3
1 22	7 7.44	+29 31.3	3.132	4.080	4.2	17.4	1 22	7 1.65	+29 52.5	1.690	2.640	7.0	20.6
2 1	7 0.81	+29 34.5	3.184	4.075	6.7	17.6	2 1	6 51.68	+29 48.8	1.750	2.645	11.0	20.8
2 11	6 55.55	+29 31.7	3.262	4.069	8.9	17.7	2 11	6 44.55	+29 35.3	1.834	2.650	14.5	21.0
66543	1999 <i>RJ</i> ₁₁₉		1 8.9 158°48	4.8/10.4	18		133368	2003 <i>SO</i> ₁₄₂		1 8.9 36°90	2.3/ 9.8	18	
12 3	7 45.86	+9 15.9	1.893	2.659	15.9	19.9	12 3	7 42.07	+14 35.9	1.850	2.641	15.3	19.8
12 13	7 40.87	+8 52.7	1.811	2.664	12.8	19.7	12 13	7 38.04	+14 41.8	1.776	2.650	12.0	19.6
12 23	7 33.45	+8 42.6	1.750	2.668	9.4	19.5	12 23	7 31.62	+14 58.4	1.724	2.659	8.2	19.4
1 2	7 24.20	+8 46.7	1.716	2.672	6.1	19.3	1 2	7 23.46	+15 24.7	1.698	2.669	4.2	19.2
1 12	7 14.15	+9 4.4	1.709	2.675	4.9	19.2	1 12	7 14.56	+15 57.9	1.700	2.679	2.5	19.1
1 22	7 4.42	+9 33.6	1.731	2.678	7.1	19.4	1 22	7 6.03	+16 35.1	1.731	2.690	5.9	19.3
2 1	6 56.10	+10 11.2	1.780	2.681	10.5	19.6	2 1	6 58.93	+17 13.3	1.789	2.701	9.8	19.6
2 11	6 50.03	+10 53.7	1.854	2.683	13.8	19.8	2 11	6 54.05	+17 50.0	1.871	2.712	13.2	19.8
36001	1999 <i>ND</i> ₂₃		1 8.9 159°33	1.4/ 9.6	18		455844	2005 <i>TE</i> ₁₃₀		1 8.9 117°67	1.4/ 8.5	18	
12 3	7 44.05	+15 35.0	2.322	3.097	13.0	19.7	12 3	7 47.50	+24 54.4	2.149	2.938	13.5	22.1
12 13	7 39.14	+15 57.4	2.236	3.102	10.2	19.6	12 13	7 41.95	+25 20.0	2.076	2.953	10.4	21.9
12 23	7 32.15	+16 28.5	2.173	3.107	6.9	19.4	12 23	7 34.03	+25 47.6	2.027	2.967	6.8	21.7
1 2	7 23.64	+17 6.7	2.138	3.111	3.3	19.1	1 2	7 24.43	+26 13.8	2.006	2.981	3.0	21.5
1 12	7 14.41	+17 49.2	2.134	3.114	1.7	19.0	1 12	7 14.15	+26 35.0	2.015	2.995	2.0	21.4
1 22	7 5.42	+18 33.0	2.160	3.117	5.0	19.3	1 22	7 4.30	+26 49.0	2.054	3.008	5.6	21.7
2 1	6 57.58	+19 15.4	2.215	3.120	8.5	19.5	2 1	6 55.90	+26 55.3	2.121	3.020	9.1	21.9
2 11	6 51.61	+19 54.8	2.297	3.123	11.6	19.7	2 11	6 49.73	+26 54.9	2.214	3.033	12.2	22.2
402568	2006 <i>RN</i> ₂₅		1 8.9 104°50	0.2/ 8.9	18		128066	2003 <i>OM</i>		1 8.9 113°19	1.3/ 8.6	18	
12 3	7 49.92	+22 28.4	1.977	2.763	14.6	22.9	12 3	7 50.83	+24 19.7	1.868	2.659	15.2	20.4
12 13	7 43.78	+22 34.8	1.911	2.786	11.2	22.7	12 13	7 44.75	+24 43.0	1.801	2.678	11.7	20.2
12 23	7 35.17	+22 44.3	1.869	2.808	7.3	22.5	12 23	7 35.96	+25 9.0	1.758	2.698	7.6	20.0
1 2	7 24.85	+22 54.2	1.854	2.830	3.0	22.3	1 2	7 25.25	+25 33.7	1.741	2.716	3.3	19.8
1 12	7 13.92	+23 1.8	1.869	2.851	1.4	22.2	1 12	7 13.81	+25 53.0	1.754	2.734	2.0	19.7
1 22	7 3.58	+23 5.5	1.914	2.871	5.6	22.6	1 22	7 2.95	+26 4.7	1.796	2.752	6.1	20.0
2 1	6 54.88	+23 4.9	1.988	2.891	9.4	22.8	2 1	6 53.85	+26 8.4	1.867	2.768	10.1	20.3
2 11	6 48.58	+23 0.7	2.087	2.911	12.7	23.1	2 11	6 47.35	+26 5.5	1.962	2.784	13.4	20.6
522269	2016 <i>AJ</i> ₂₇₇		1 8.9 182°93	0.9/ 9.2	18		485409	2011 <i>OS</i> ₂₃		1 8.9 228°95	1.4/ 8.5	18	
12 3	7 45.09	+18 52.2	1.943	2.734	14.7	21.8	12 3	7 49.72	+23 29.1	1.769	2.564	15.7	22.2
12 13	7 40.38	+18 58.2	1.858	2.734	11.4	21.6	12 13	7 44.55	+24 4.4	1.674	2.553	12.3	22.0
12 23	7 33.18	+19 10.9	1.795	2.734	7.6	21.4	12 23	7 36.31	+24 45.6	1.601	2.542	8.1	21.7
1 2	7 24.12	+19 28.5	1.759	2.734	3.4	21.1	1 2	7 25.60	+25 28.3	1.554	2.530	3.6	21.4
1 12	7 14.20	+19 48.4	1.752	2.734	1.6	21.0	1 12	7 13.59	+26 7.0	1.537	2.517	2.3	21.3
1 22	7 4.59	+20 8.2	1.775	2.734	5.8	21.3	1 22	7 1.74	+26 37.4	1.549	2.504	6.9	21.6
2 1	6 56.41	+20 26.1	1.825	2.733	9.8	21.5	2 1	6 51.52	+26 57.7	1.588	2.490	11.4	21.8
2 11	6 50.51	+20 41.3	1.899	2.732	13.3	21.8	2 11	6 44.09	+27 8.5	1.650	2.475	15.4	22.0
360346	2001 <i>UC</i> ₁₄₃		1 8.9 157°17	4.2/10.5	18		426124	2012 <i>GV</i> ₁₄		1 8.9 120°82	3.1/ 9.8	18	
12 3	7 44.77	+7 56.9	2.607	3.349	12.6	21.6	12 3	7 43.93	+13 39.2	1.945	2.727	15.0	21.0
12 13	7 39.32	+7 36.9	2.522	3.359	10.2	21.4	12 13	7 39.41	+13 24.1	1.861	2.728	11.9	20.7
12 23	7 32.08	+7 27.4	2.460	3.367	7.6	21.2	12 23	7 32.51	+13 18.6	1.800	2.730	8.3	20.5
1 2	7 23.55	+7 28.9	2.426	3.375	5.1	21.1	1 2	7 23.85	+13 22.9	1.764	2.731	4.7	20.3
1 12	7 14.47	+7 41.1	2.422	3.382	4.2	21.0	1 12	7 14.41	+13 35.7	1.757	2.732	3.3	20.2
1 22	7 5.65	+8 2.8	2.448	3.388	5.8	21.2	1 22	7 5.27	+13 55.2	1.779	2.734	6.2	20.4
2 1	6 57.85	+8 31.7	2.504	3.394	8.3	21.3	2 1	6 57.49	+14 19.1	1.828	2.735	9.9	20.6
2 11	6 51.69	+9 5.4	2.586	3.399	10.8	21.5	2 11	6 51.89	+14 45.1	1.902	2.736	13.3	20.9
189639	2001 <i>OA</i> ₂₅		1 8.9 118°85	4.3/10.1	18		170770	2004 <i>CV</i> ₇₃		1 8.9 207°42	0.2/ 8.9	18	
12 3	7 49.94	+11 2.9	1.816	2.583	16.5	20.6	12 3	7 42.45	+20 52.8	2.728	3.509	11.2	20.7
12 13	7 43.90	+10 37.6	1.748	2.603	13.1	20.5	12 13	7 37.75	+21 21.3	2.633	3.505	8.6	20.5
12 23	7 35.32	+10 24.4	1.702	2.623	9.4	20.3	12 23	7 31.19	+21 54.6	2.562	3.500	5.6	20.3
1 2	7 24.94	+10 23.7	1.682	2.642	5.7	20.1	1 2	7 23.27	+22 30.3	2.520	3.496	2.4	20.1
1 12	7 13.89	+10 34.6	1.691	2.661	4.4	20.1	1 12	7 14.68	+23 5.6	2.509	3.491	1.1	20.0
1 22	7 3.39	+10 55.1	1.729	2.678	6.9	20.2	1 22	7 6.23	+23 38.2	2.529	3.485	4.5	20.2
2 1	6 54.53	+11 22.5	1.795	2.695	10.5	20.5	2 1	6 58.74	+24 6.5	2.579	3.480	7.6	20.4
2 11	6 48.11	+11 53.7	1.885	2.710	13.7	20.7	2 11	6 52.87	+24 29.8	2.655	3.474	10.4	20.6
321117	2008 <i>TA</i> ₁₆₅		1 8.9 72°06	0.3/ 8.8	18		13138	1994 <i>VA</i>		1 8.9 127°42	4.8/10.4	18	
12 3	7 43.62	+21 38.9	2.118	2.911	13.5	21.0	12 3	7 46.96	+8 22.1	2.208	2.958	14.4	18.5
12 13	7 39.05	+21 57.8	2.038	2.916	10.4	20.8	12 13	7 41.23	+7 46.5	2.133	2.975	11.6	18.3
12 23	7 32.20	+22 21.4	1.981	2.922	6.8	20.6	12 23	7 33.43	+7 22.3	2.082	2.991	8.6	18.2
1 2	7 23.68	+22 46.9	1.951	2.927	2.8	20.4	1 2	7 24.16	+7 10.6	2.057	3.007	5.9	18.0
1 12	7 14.43	+23 11.5	1.951	2.932	1.3	20.3	1 12	7 14.32	+7 11.5	2.062	3.022	4.9	18.0
1 22	7 5.51	+23 32.5	1.980	2.938	5.4	20.6	1 22	7 4.87	+7 23.8	2.096	3.037	6.6	18.1
2 1	6 57.91	+23 48.8	2.037	2.943	9.1	20.8	2 1	6 56.71	+7 45.3	2.160	3.050	9.4	18.3
2 11	6 52.41	+23 59.9	2.120	2.949	12.3	21.0	2 11	6 50.52	+8 13.2	2.248	3.063	12.1	18.5
251267	2006 <i>WW</i> ₁₄		1 8.9 67°97	4.1/10.6	18		95979	2004 <i>LZ</i> ₂₅		1 8.9 122°57	1.8/ 9.5	18	
12 3	7 45.09	+9 2.8	1.677	2.453	17.2	20.0	12 3	7 49.76	+16				

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
402753	2006 YQ ₁₄		1 8.9 58°00	1.2/ 8.6 18			444406	2006 AO ₃₅		1 8.9 358°59	1.1/ 9.3 18		
12 3	7 47.92	+22 54.6	1.547	2.354	17.1	20.7	12 3	7 43.84	+17 1.2	1.293	2.110	19.2	21.3
12 13	7 42.92	+23 28.0	1.493	2.379	13.1	20.5	12 13	7 40.63	+17 29.4	1.218	2.108	15.1	21.0
12 23	7 34.94	+24 6.5	1.460	2.404	8.5	20.3	12 23	7 34.02	+18 12.2	1.163	2.107	10.1	20.7
1 2	7 24.86	+24 45.4	1.453	2.429	3.6	20.1	1 2	7 24.71	+19 6.6	1.131	2.107	4.5	20.4
1 12	7 14.04	+25 19.5	1.474	2.455	2.1	20.0	1 12	7 14.09	+20 6.7	1.125	2.107	2.0	20.2
1 22	7 3.94	+25 45.4	1.522	2.480	6.7	20.4	1 22	7 3.85	+21 6.4	1.145	2.107	7.5	20.6
2 1	6 55.85	+26 2.2	1.597	2.505	11.0	20.7	2 1	6 55.63	+22 0.5	1.189	2.108	12.9	20.9
2 11	6 50.61	+26 10.6	1.696	2.531	14.6	21.0	2 11	6 50.63	+22 46.4	1.255	2.110	17.4	21.1
278457	2007 TO ₁₁₀		1 8.9 148°08	6°0/11.0 18			412714	2014 OH ₂₉₈		1 8.9 70°18	8°9/13.0 18		
12 3	7 41.76	+ 2 53.8	2.562	3.292	13.1	20.6	12 3	7 43.79	- 2 41.7	1.806	2.531	18.0	20.7
12 13	7 37.10	+ 2 10.3	2.478	3.297	11.0	20.4	12 13	7 39.21	- 3 12.5	1.745	2.552	15.3	20.6
12 23	7 30.69	+ 1 39.5	2.416	3.301	8.7	20.3	12 23	7 32.30	- 3 20.1	1.703	2.574	12.5	20.5
1 2	7 23.03	+ 1 23.2	2.380	3.306	6.8	20.2	1 2	7 23.75	- 3 1.4	1.683	2.595	10.1	20.4
1 12	7 14.82	+ 1 22.5	2.372	3.310	6.1	20.1	1 12	7 14.57	- 2 16.5	1.689	2.616	8.9	20.3
1 22	7 6.83	+ 1 36.5	2.393	3.314	7.1	20.2	1 22	7 5.85	- 1 8.9	1.721	2.637	9.7	20.4
2 1	6 59.82	+ 2 3.3	2.442	3.318	9.1	20.4	2 1	6 58.59	+ 0 15.4	1.780	2.659	11.8	20.6
2 11	6 54.39	+ 2 39.5	2.516	3.321	11.3	20.5	2 11	6 53.55	+ 1 48.9	1.862	2.679	14.2	20.8
496589	2015 BU ₁₇₁		1 8.9 99°48	2°8/10.5 18			283284	2011 HK ₆₆		1 8.9 212°04	0°6/ 9.2 18		
12 3	7 42.67	+ 9 50.3	2.462	3.219	12.9	21.5	12 3	7 42.61	+17 57.4	2.415	3.197	12.4	20.6
12 13	7 37.88	+10 18.7	2.384	3.235	10.2	21.3	12 13	7 38.09	+18 27.7	2.323	3.194	9.7	20.4
12 23	7 31.23	+10 59.2	2.330	3.251	7.2	21.1	12 23	7 31.54	+19 5.6	2.254	3.191	6.4	20.2
1 2	7 23.26	+11 50.6	2.304	3.266	4.2	21.0	1 2	7 23.47	+19 48.8	2.213	3.188	2.8	19.9
1 12	7 14.73	+12 50.2	2.308	3.282	2.9	20.9	1 12	7 14.66	+20 34.2	2.203	3.185	1.2	19.8
1 22	7 6.46	+13 54.7	2.343	3.297	5.0	21.1	1 22	7 6.01	+21 18.8	2.223	3.181	4.8	20.1
2 1	6 59.24	+15 0.4	2.408	3.311	8.0	21.3	2 1	6 58.42	+22 0.2	2.273	3.177	8.3	20.3
2 11	6 53.73	+16 4.3	2.500	3.326	10.7	21.5	2 11	6 52.63	+22 36.8	2.348	3.174	11.4	20.5
120649	1996 TZ ₃		1 8.9 128°48	1°2/ 8.6 18			20199	1997 DR		1 8.9 160°33	1°4/ 8.5 18		
12 3	7 49.95	+23 47.6	1.900	2.691	15.0	20.6	12 3	7 45.41	+24 51.5	2.061	2.856	13.8	18.7
12 13	7 44.14	+24 17.4	1.828	2.705	11.5	20.4	12 13	7 40.61	+25 15.2	1.977	2.857	10.7	18.5
12 23	7 35.64	+24 50.9	1.779	2.719	7.5	20.2	12 23	7 33.35	+25 41.6	1.917	2.858	7.0	18.3
1 2	7 25.17	+25 23.9	1.757	2.732	3.3	19.9	1 2	7 24.26	+26 7.1	1.883	2.858	3.1	18.1
1 12	7 13.90	+25 52.0	1.764	2.745	2.0	19.9	1 12	7 14.33	+26 28.1	1.879	2.859	2.0	18.0
1 22	7 3.11	+26 12.5	1.802	2.757	6.1	20.2	1 22	7 4.73	+26 42.1	1.905	2.860	5.8	18.2
2 1	6 53.99	+26 24.5	1.867	2.768	10.1	20.4	2 1	6 56.54	+26 48.4	1.958	2.860	9.6	18.5
2 11	6 47.42	+26 29.0	1.958	2.779	13.5	20.7	2 11	6 50.62	+26 47.8	2.036	2.861	12.9	18.7
110758	2001 UF ₁₇		1 8.9 4°16	12°8/ 7.2 18			140077	2001 SO ₁₁₉		1 8.9 179°30	2°5/ 8.2 18		
12 3	7 54.92	+12 12.5	0.886	1.706	25.7	18.0	12 3	7 45.82	+30 15.7	2.560	3.345	11.7	20.4
12 13	7 50.06	+ 8 32.9	0.823	1.704	21.4	17.7	12 13	7 40.48	+30 32.3	2.473	3.346	9.1	20.2
12 23	7 40.56	+ 4 53.1	0.780	1.704	16.8	17.4	12 23	7 33.04	+30 47.0	2.411	3.346	6.2	20.0
1 2	7 27.48	+ 1 30.0	0.757	1.704	13.4	17.2	1 2	7 24.06	+30 56.3	2.377	3.346	3.4	19.8
1 12	7 12.88	- 1 18.1	0.758	1.706	13.3	17.2	1 12	7 14.44	+30 57.5	2.373	3.346	2.9	19.8
1 22	6 59.23	- 3 18.2	0.782	1.708	16.5	17.4	1 22	7 5.13	+30 49.4	2.399	3.346	5.5	20.0
2 1	6 48.69	- 4 27.8	0.825	1.712	20.8	17.7	2 1	6 57.05	+30 32.5	2.455	3.345	8.4	20.2
2 11	6 42.58	- 4 54.5	0.884	1.716	24.8	18.0	2 11	6 50.93	+30 8.4	2.536	3.345	11.1	20.3
38988	2000 UJ ₁₂		1 8.9 151°17	0°8/ 8.7 18			28837	Nibalachandar		1 8.9 91°56	1°1/ 9.3 18		
12 3	7 49.00	+23 1.6	1.845	2.638	15.2	20.0	12 3	7 46.37	+18 52.3	1.847	2.639	15.3	19.2
12 13	7 43.56	+23 22.3	1.766	2.645	11.8	19.8	12 13	7 41.36	+18 48.7	1.773	2.650	11.9	19.0
12 23	7 35.35	+23 47.3	1.710	2.651	7.7	19.5	12 23	7 33.81	+18 51.4	1.722	2.660	7.9	18.8
1 2	7 25.09	+24 12.9	1.681	2.657	3.3	19.3	1 2	7 24.42	+18 58.9	1.697	2.671	3.5	18.5
1 12	7 13.93	+24 35.1	1.680	2.662	1.7	19.2	1 12	7 14.29	+19 8.8	1.701	2.682	1.7	18.4
1 22	7 3.18	+24 51.2	1.710	2.666	6.2	19.5	1 22	7 4.62	+19 19.3	1.734	2.693	5.9	18.7
2 1	6 54.09	+25 0.4	1.766	2.670	10.3	19.7	2 1	6 56.52	+19 29.0	1.794	2.703	9.9	19.0
2 11	6 47.58	+25 3.1	1.848	2.674	13.9	20.0	2 11	6 50.81	+19 37.3	1.879	2.713	13.4	19.2
54201	2000 HO ₈₀		1 8.9 60°59	3°8/10.6 18			240793	2005 VC ₁₀₇		1 8.9 283°43	1°8/ 8.5 18		
12 3	7 44.50	+ 9 19.4	1.645	2.425	17.4	18.4	12 3	7 47.75	+24 23.6	1.444	2.257	17.7	21.2
12 13	7 40.10	+ 9 47.3	1.579	2.442	13.8	18.2	12 13	7 43.60	+24 53.3	1.360	2.249	13.9	20.9
12 23	7 33.07	+10 33.2	1.534	2.460	9.8	18.0	12 23	7 35.97	+25 28.6	1.297	2.242	9.2	20.6
1 2	7 24.12	+11 35.7	1.514	2.478	5.7	17.8	1 2	7 25.55	+26 4.5	1.258	2.234	4.1	20.3
1 12	7 14.37	+12 50.5	1.522	2.497	3.8	17.8	1 12	7 13.74	+26 34.8	1.246	2.226	2.7	20.2
1 22	7 5.08	+14 11.7	1.558	2.515	6.7	18.0	1 22	7 2.24	+26 55.3	1.261	2.218	7.8	20.5
2 1	6 57.41	+15 33.6	1.622	2.533	10.6	18.2	2 1	6 52.76	+27 4.5	1.301	2.211	12.8	20.7
2 11	6 52.23	+16 51.2	1.710	2.552	14.2	18.5	2 11	6 46.54	+27 3.9	1.363	2.203	17.2	21.0
375350	2008 SE ₅₈		1 8.9 137°49	0°0/ 8.8 18			234274	2000 WT ₆₈		1 8.9 125°94	1°5/ 9.3 18		
12 3	7 44.38	+20 57.7	2.478	3.260	12.1	21.7	12 3	7 51.58	+18 40.5	2.048	2.822	14.6	20.7
12 13	7 39.27	+21 12.6	2.397	3.269	9.4	21.5	12 13	7 44.95	+18 22.4	1.976	2.842	11.3	20.5
12 23	7 32.18	+21 31.6	2.339	3.278	6.1	21.3	12 23	7 35.93	+18 9.2	1.927	2.861	7.5	20.4
1 2	7 23.67	+21 52.5	2.311	3.286	2.6	21.1	1 2	7 25.24	+17 59.7	1.907	2.880	3.5	20.1
1 12	7 14.57	+22 13.0	2.312	3.294	1.1	21.0	1 12	7 13.96	+17 52.6	1.917	2.897	1.9	20.1
1 22	7 5.75	+22 31.0	2.345	3.302	4.7	21.2	1 22	7 3.22	+17 47.0	1.958	2.914	5.6	20.3
2 1	6 58.09	+22 45.6	2.407	3.309	8.0	21.5	2 1	6 54.06	+17 42.3	2.028	2.930	9.3	20.6
2 11	6 52.24	+22 56.3	2.494	3.316	10.9	21.7	2 11	6 47.22	+17 38.5	2.123	2.945	12.6	20.8
28001	1997 WD ₄₁		1 8.9 329°64	2°0/ 9.5 18			264768	2002 FB ₂₂		1 8.9 280°07	2°9/10.1 17		
12 3	7 42.88	+16 58.2	2.161	2.946	13.6	18.4	12 3	7 42.60	+12 18.2	2.084	2.860	14.3	20.6</

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
325473	2009 <i>QM</i> ₆₁		1 8.9 155°03	1.6/ 8.4	18		402481	2006 <i>BR</i> ₂₈₂		1 8.9 284°54	2.0/ 8.5	17	
12 3	7 46.93	+25 19.3	2.280	3.067	12.9	21.4	12 3	7 47.53	+25 8.2	1.527	2.337	17.1	22.4
12 13	7 41.52	+25 50.8	2.198	3.074	9.9	21.2	12 13	7 43.39	+25 33.5	1.434	2.322	13.4	22.1
12 23	7 33.82	+26 24.6	2.141	3.080	6.5	21.0	12 23	7 35.85	+26 3.3	1.362	2.306	8.9	21.8
1 2	7 24.43	+26 56.9	2.111	3.085	3.0	20.8	1 2	7 25.55	+26 32.7	1.315	2.290	4.1	21.5
1 12	7 14.29	+27 24.0	2.111	3.090	2.1	20.7	1 12	7 13.78	+26 56.2	1.295	2.275	2.8	21.3
1 22	7 4.46	+27 43.5	2.142	3.095	5.5	21.0	1 22	7 2.20	+27 9.7	1.302	2.259	7.7	21.6
2 1	6 55.96	+27 54.6	2.202	3.099	9.0	21.2	2 1	6 52.49	+27 12.3	1.335	2.243	12.6	21.8
2 11	6 49.57	+27 58.1	2.287	3.103	12.0	21.4	2 11	6 45.92	+27 5.3	1.390	2.228	17.0	22.1
330660	2008 <i>GS</i> ₆₀		1 8.9 187°60	5.8/ 6.3	18		302013	2000 <i>SA</i> ₁₈		1 8.9 166°10	1.8/ 9.4	18	
12 3	7 51.47	+39 43.2	2.659	3.426	11.8	22.0	12 3	7 48.76	+17 55.4	1.815	2.602	15.7	20.7
12 13	7 45.20	+40 50.4	2.576	3.425	9.6	21.9	12 13	7 43.33	+17 40.1	1.733	2.605	12.3	20.5
12 23	7 36.35	+41 51.9	2.518	3.424	7.5	21.7	12 23	7 35.20	+17 31.3	1.672	2.608	8.3	20.3
1 2	7 25.54	+42 41.4	2.487	3.422	6.0	21.6	1 2	7 25.07	+17 28.0	1.638	2.611	4.0	20.0
1 12	7 13.79	+43 13.9	2.486	3.419	6.1	21.6	1 12	7 14.06	+17 28.6	1.633	2.613	2.2	19.9
1 22	7 2.26	+43 26.8	2.515	3.416	7.7	21.7	1 22	7 3.45	+17 31.5	1.657	2.615	6.2	20.2
2 1	6 52.14	+43 20.8	2.571	3.412	9.9	21.9	2 1	6 54.44	+17 35.8	1.709	2.616	10.4	20.4
2 11	6 44.33	+42 59.3	2.651	3.407	12.1	22.0	2 11	6 47.95	+17 40.5	1.785	2.617	14.1	20.6
493238	2014 <i>UZ</i> ₈₉		1 8.9 88°14	0.6/ 8.8	18		61993	2000 <i>RR</i> ₃₃		1 8.9 146°22	1.9/ 8.4	18	
12 3	7 46.42	+21 58.1	1.922	2.717	14.7	21.7	12 3	7 47.12	+26 48.7	2.060	2.854	13.9	19.2
12 13	7 41.37	+22 24.9	1.853	2.732	11.3	21.5	12 13	7 41.93	+27 7.4	1.979	2.857	10.7	19.0
12 23	7 33.80	+22 56.6	1.807	2.748	7.4	21.3	12 23	7 34.21	+27 26.8	1.920	2.860	7.1	18.8
1 2	7 24.43	+23 29.9	1.787	2.763	3.1	21.1	1 2	7 24.63	+27 43.2	1.889	2.863	3.3	18.6
1 12	7 14.33	+24 0.9	1.797	2.778	1.5	21.0	1 12	7 14.26	+27 53.0	1.888	2.866	2.4	18.5
1 22	7 4.69	+24 26.6	1.836	2.793	5.8	21.3	1 22	7 4.27	+27 54.4	1.916	2.869	6.0	18.8
2 1	6 56.60	+24 45.8	1.903	2.808	9.6	21.6	2 1	6 55.78	+27 47.4	1.972	2.871	9.7	19.0
2 11	6 50.87	+24 58.4	1.994	2.823	13.0	21.8	2 11	6 49.64	+27 33.5	2.052	2.874	12.9	19.2
6292	1986 <i>QQ</i> ₂		1 8.9 38°07	2.7/ 9.9	18		7044	1971 <i>UK</i>		1 8.9 111°04	3.0/ 9.8	18	
12 3	7 44.68	+13 37.8	1.354	2.160	19.1	17.5	12 3	7 48.70	+14 25.4	1.739	2.521	16.5	18.2
12 13	7 40.97	+13 56.2	1.285	2.166	15.1	17.3	12 13	7 43.19	+14 9.9	1.669	2.537	13.0	18.0
12 23	7 34.05	+14 31.3	1.235	2.173	10.3	17.0	12 23	7 35.03	+14 4.7	1.621	2.553	8.9	17.8
1 2	7 24.68	+15 21.2	1.208	2.180	5.3	16.7	1 2	7 24.96	+14 9.0	1.600	2.568	4.8	17.6
1 12	7 14.20	+16 21.3	1.208	2.187	3.0	16.6	1 12	7 14.14	+14 21.4	1.606	2.583	3.2	17.5
1 22	7 4.19	+17 25.6	1.234	2.195	7.3	16.9	1 22	7 3.85	+14 39.6	1.642	2.597	6.5	17.7
2 1	6 56.12	+18 28.8	1.286	2.203	12.2	17.2	2 1	6 55.25	+15 1.3	1.705	2.611	10.5	18.0
2 11	6 51.07	+19 26.7	1.360	2.212	16.5	17.5	2 11	6 49.18	+15 24.4	1.792	2.625	14.0	18.3
29529	1998 <i>BM</i>		1 8.9 153°69	3.0/ 7.9	18		427793	2005 <i>ED</i> ₃₂₇		1 8.9 156°74	4.4/ 7.3	18	
12 3	7 45.72	+31 26.7	2.564	3.350	11.7	18.2	12 3	7 46.82	+34 54.8	2.484	3.268	12.0	21.5
12 13	7 40.44	+31 52.3	2.481	3.353	9.1	18.0	12 13	7 41.50	+35 39.4	2.404	3.271	9.5	21.3
12 23	7 33.03	+32 15.5	2.423	3.356	6.3	17.8	12 23	7 33.84	+36 20.3	2.348	3.273	6.9	21.1
1 2	7 24.09	+32 32.6	2.392	3.359	3.7	17.7	1 2	7 24.47	+36 52.3	2.320	3.276	4.8	21.0
1 12	7 14.49	+32 40.6	2.392	3.361	3.3	17.7	1 12	7 14.34	+37 11.5	2.321	3.278	4.7	21.0
1 22	7 5.21	+32 37.9	2.422	3.364	5.7	17.8	1 22	7 4.52	+37 15.9	2.352	3.280	6.7	21.1
2 1	6 57.18	+32 24.9	2.480	3.366	8.5	18.0	2 1	6 56.07	+37 6.0	2.410	3.282	9.3	21.3
2 11	6 51.12	+32 3.6	2.564	3.369	11.2	18.2	2 11	6 49.76	+36 44.3	2.493	3.284	11.8	21.5
400617	2009 <i>CH</i> ₂₀		1 8.9 144°62	0.4/ 9.1	18		457092	2008 <i>EH</i> ₁₂₇		1 8.9 266°09	2.9/ 9.8	18	
12 3	7 48.84	+20 56.0	1.842	2.633	15.4	21.9	12 3	7 44.24	+14 22.8	1.901	2.685	15.2	22.1
12 13	7 43.36	+20 56.7	1.764	2.640	11.9	21.7	12 13	7 39.89	+14 11.7	1.806	2.675	12.1	21.8
12 23	7 35.20	+21 2.3	1.707	2.647	7.9	21.4	12 23	7 33.02	+14 10.3	1.733	2.665	8.4	21.6
1 2	7 25.05	+21 10.3	1.678	2.653	3.3	21.2	1 2	7 24.21	+14 18.3	1.687	2.655	4.6	21.4
1 12	7 14.07	+21 18.2	1.677	2.659	1.4	21.0	1 12	7 14.43	+14 34.5	1.668	2.645	3.0	21.2
1 22	7 3.53	+21 23.9	1.706	2.665	6.0	21.4	1 22	7 4.84	+14 56.7	1.678	2.635	6.3	21.4
2 1	6 54.62	+21 26.8	1.763	2.670	10.2	21.6	2 1	6 56.59	+15 22.7	1.716	2.624	10.3	21.6
2 11	6 48.24	+21 26.9	1.844	2.674	13.8	21.9	2 11	6 50.60	+15 50.2	1.778	2.614	14.0	21.8
100303	1995 <i>FD</i> ₁₅		1 8.9 269°96	4.8/ 7.2	18		354933	2006 <i>DT</i> ₂₀₇		1 8.9 207°73	0.2/ 9.0	18	
12 3	7 46.57	+34 33.6	2.217	3.008	13.1	19.9	12 3	7 48.36	+20 50.3	1.903	2.693	15.0	22.1
12 13	7 41.65	+35 27.4	2.135	3.006	10.4	19.7	12 13	7 43.10	+20 56.8	1.812	2.688	11.7	21.9
12 23	7 34.13	+36 18.2	2.077	3.005	7.5	19.5	12 23	7 35.13	+21 8.7	1.744	2.683	7.7	21.6
1 2	7 24.64	+36 59.9	2.046	3.003	5.2	19.4	1 2	7 25.09	+21 23.4	1.702	2.678	3.3	21.3
1 12	7 14.23	+37 27.5	2.044	3.001	5.2	19.4	1 12	7 14.06	+21 38.1	1.690	2.672	1.4	21.2
1 22	7 4.12	+37 38.4	2.071	3.000	7.4	19.5	1 22	7 3.31	+21 50.2	1.707	2.666	6.0	21.5
2 1	6 55.49	+37 32.9	2.124	2.998	10.3	19.7	2 1	6 54.06	+21 58.7	1.753	2.659	10.3	21.7
2 11	6 49.26	+37 13.8	2.201	2.997	13.1	19.9	2 11	6 47.28	+22 3.5	1.822	2.651	14.0	21.9
237326	2009 <i>BF</i> ₁₆₁		1 8.9 181°58	1.3/ 9.4	17		126596	2002 <i>CO</i> ₁₂₉		1 8.9 296°67	0.4/ 8.9	18	
12 3	7 41.98	+17 20.6	2.716	3.491	11.4	21.6	12 3	7 45.42	+22 46.2	1.961	2.757	14.4	20.1
12 13	7 37.30	+17 19.0	2.625	3.491	8.9	21.4	12 13	7 40.71	+22 51.7	1.876	2.756	11.1	19.9
12 23	7 30.86	+17 22.7	2.558	3.491	5.9	21.2	12 23	7 33.47	+23 0.6	1.813	2.755	7.3	19.6
1 2	7 23.16	+17 30.8	2.519	3.491	2.8	21.0	1 2	7 24.36	+23 10.4	1.778	2.754	3.1	19.4
1 12	7 14.89	+17 41.8	2.511	3.491	1.6	20.9	1 12	7 14.40	+23 18.4	1.771	2.753	1.4	19.2
1 22	7 6.83	+17 54.4	2.533	3.490	4.4	21.1	1 22	7 4.77	+23 22.6	1.793	2.752	5.8	19.5
2 1	6 59.72	+18 7.4	2.586	3.490	7.5	21.3	2 1	6 56.61	+23 22.4	1.844	2.751	9.8	19.8
2 11	6 54.20	+18 19.9	2.664	3.489	10.2	21.5	2 11	6 50.77	+23 18.2	1.918	2.750	13.3	20.0
201928	2004 <i>CE</i> ₁₀₄		1 8.9 19°18	1.4/ 9.1	18		115970	2003 <i>WQ</i> ₄₅		1 8.9 8°33	5.3/ 10.9	18	
12 3	7 46.48	+21 22.0	1.835	2.631	1								

EPHEMERIDES

1 8.9

1 8.9

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
393277	2013 <i>WN</i> ₁₀₈		1 8.9 359°41	4°9/ 6.7	18		455169	1999 <i>KQ</i> ₆		1 8.9 263°32	2°0/ 9.8	17	
12 3	7 45.06	+32 53.3	2.164	2.960	13.2	20.1	12 3	7 45.56	+14 13.0	2.495	3.259	12.5	22.2
12 13	7 40.61	+34 10.0	2.085	2.959	10.4	19.9	12 13	7 40.52	+14 27.1	2.371	3.229	10.0	22.0
12 23	7 33.54	+35 26.0	2.029	2.959	7.5	19.7	12 23	7 33.32	+14 50.7	2.270	3.198	6.9	21.7
1 2	7 24.46	+36 34.8	2.001	2.959	5.2	19.6	1 2	7 24.37	+15 22.7	2.198	3.167	3.6	21.5
1 12	7 14.37	+37 30.0	2.002	2.959	5.3	19.6	1 12	7 14.41	+16 1.4	2.156	3.134	2.2	21.3
1 22	7 4.49	+38 8.0	2.031	2.959	7.6	19.7	1 22	7 4.36	+16 44.0	2.145	3.101	5.2	21.4
2 1	6 56.04	+38 27.9	2.087	2.960	10.6	19.9	2 1	6 55.17	+17 28.0	2.165	3.067	8.8	21.6
2 11	6 49.96	+38 31.8	2.167	2.960	13.3	20.1	2 11	6 47.73	+18 11.0	2.211	3.032	12.2	21.8
381227	2007 <i>RX</i> ₂₉₄		1 8.9 57°64	0°3/ 9.1	18		72050	2000 <i>YM</i> ₇		1 8.9 275°07	2°4/ 8.5	18	
12 3	7 43.42	+20 28.9	2.116	2.908	13.6	21.7	12 3	7 48.84	+27 27.2	1.645	2.450	16.3	19.5
12 13	7 38.84	+20 37.0	2.043	2.920	10.5	21.5	12 13	7 44.08	+27 42.3	1.557	2.441	12.7	19.3
12 23	7 32.06	+20 50.0	1.993	2.933	6.9	21.3	12 23	7 36.10	+27 58.1	1.491	2.432	8.5	19.0
1 2	7 23.71	+21 5.8	1.971	2.946	2.9	21.1	1 2	7 25.61	+28 9.6	1.450	2.424	4.1	18.7
1 12	7 14.74	+21 21.9	1.977	2.959	1.2	21.0	1 12	7 13.92	+28 12.4	1.437	2.415	3.0	18.6
1 22	7 6.16	+21 36.5	2.014	2.973	5.2	21.3	1 22	7 2.59	+28 4.1	1.452	2.406	7.3	18.8
2 1	6 58.91	+21 48.3	2.078	2.986	8.8	21.6	2 1	6 53.14	+27 45.4	1.493	2.398	11.8	19.1
2 11	6 53.73	+21 56.8	2.168	3.000	11.9	21.8	2 11	6 46.67	+27 18.9	1.557	2.389	15.8	19.3
502650	2015 <i>CG</i> ₄₃		1 8.9 319°82	0°8/ 8.8	17		3406	Omsk		1 8.9 261°24	1°4/ 9.3	18	
12 3	7 43.37	+23 59.4	2.171	2.966	13.2	21.7	12 3	7 45.28	+18 56.6	2.150	2.935	13.6	16.6
12 13	7 38.96	+24 8.3	2.080	2.960	10.2	21.5	12 13	7 40.43	+18 39.0	2.051	2.923	10.7	16.4
12 23	7 32.26	+24 19.7	2.013	2.955	6.7	21.3	12 23	7 33.26	+18 25.9	1.974	2.911	7.2	16.1
1 2	7 23.85	+24 30.9	1.974	2.949	2.9	21.0	1 2	7 24.31	+18 16.4	1.925	2.898	3.4	15.9
1 12	7 14.66	+24 39.3	1.963	2.944	1.5	20.9	1 12	7 14.51	+18 9.3	1.905	2.886	1.8	15.7
1 22	7 5.72	+24 43.2	1.982	2.939	5.4	21.2	1 22	7 4.91	+18 3.7	1.915	2.873	5.5	15.9
2 1	6 58.07	+24 42.0	2.029	2.935	9.1	21.4	2 1	6 56.55	+17 59.1	1.953	2.860	9.4	16.2
2 11	6 52.50	+24 36.1	2.101	2.930	12.4	21.6	2 11	6 50.27	+17 55.0	2.017	2.847	12.8	16.3
283945	2004 <i>PB</i> ₆₃		1 8.9 125°83	0°5/ 9.1	16		256143	2006 <i>VA</i> ₂₅		1 8.9 21°99	1°3/ 8.6	18	
12 3	7 50.36	+19 52.7	1.822	2.608	15.7	22.1	12 3	7 44.65	+22 52.8	1.522	2.336	17.0	20.6
12 13	7 44.48	+20 4.0	1.750	2.624	12.1	21.9	12 13	7 40.83	+23 27.8	1.450	2.340	13.1	20.3
12 23	7 35.89	+20 21.6	1.701	2.640	8.0	21.7	12 23	7 33.92	+24 9.4	1.399	2.345	8.6	20.1
1 2	7 25.35	+20 42.7	1.680	2.655	3.4	21.5	1 2	7 24.67	+24 52.9	1.374	2.350	3.7	19.8
1 12	7 14.04	+21 4.0	1.687	2.669	1.4	21.4	1 12	7 14.38	+25 32.8	1.375	2.356	2.2	19.7
1 22	7 3.24	+21 22.9	1.724	2.682	6.0	21.7	1 22	7 4.53	+26 4.8	1.403	2.362	7.0	20.0
2 1	6 54.15	+21 38.1	1.789	2.695	10.1	22.0	2 1	6 56.54	+26 27.1	1.457	2.369	11.6	20.3
2 11	6 47.62	+21 49.2	1.879	2.707	13.7	22.2	2 11	6 51.44	+26 39.9	1.534	2.376	15.5	20.6
400265	2007 <i>RP</i> ₁₄₃		1 8.9 102°12	0°6/ 9.1	17		311038	2004 <i>BO</i> ₅₆		1 8.9 20°94	13°9/ 17.0	18	
12 3	7 49.70	+19 46.3	1.755	2.545	16.0	22.0	12 3	7 44.46	-11 14.4	1.009	1.751	28.3	19.5
12 13	7 43.99	+19 53.4	1.689	2.565	12.4	21.8	12 13	7 41.73	-10 58.8	0.942	1.754	25.0	19.2
12 23	7 35.56	+20 6.8	1.645	2.584	8.1	21.6	12 23	7 35.12	-9 49.9	0.888	1.758	21.2	19.0
1 2	7 25.20	+20 23.8	1.628	2.603	3.5	21.4	1 2	7 25.36	-7 38.1	0.850	1.763	17.2	18.8
1 12	7 14.12	+20 41.5	1.640	2.622	1.5	21.3	1 12	7 14.04	-4 23.6	0.833	1.768	14.4	18.7
1 22	7 3.63	+20 57.4	1.681	2.640	6.0	21.6	1 22	7 3.11	-0 20.2	0.839	1.775	14.4	18.7
2 1	6 54.91	+21 10.1	1.750	2.657	10.2	21.9	2 1	6 54.54	+4 7.6	0.870	1.782	17.2	18.9
2 11	6 48.78	+21 19.5	1.843	2.674	13.8	22.2	2 11	6 49.72	+8 33.3	0.923	1.790	21.2	19.1
198895	2005 <i>TQ</i> ₁₆₈		1 8.9 341°40	1°8/ 9.3	18		260247	2004 <i>RF</i> ₃₃₁		1 8.9 75°59	1°6/ 9.5	18	
12 3	7 45.02	+18 33.0	1.249	2.070	19.6	20.4	12 3	7 44.29	+16 34.5	1.939	2.727	14.8	21.0
12 13	7 41.70	+18 21.0	1.172	2.064	15.4	20.2	12 13	7 39.69	+16 43.6	1.865	2.738	11.5	20.8
12 23	7 34.82	+18 18.4	1.114	2.059	10.4	19.9	12 23	7 32.73	+17 1.5	1.813	2.750	7.7	20.6
1 2	7 25.13	+18 24.0	1.079	2.054	4.8	19.5	1 2	7 24.06	+17 26.4	1.788	2.761	3.7	20.4
1 12	7 14.10	+18 35.0	1.069	2.050	2.4	19.4	1 12	7 14.66	+17 55.7	1.792	2.773	1.9	20.3
1 22	7 3.49	+18 48.6	1.084	2.047	7.9	19.7	1 22	7 5.65	+18 26.5	1.825	2.784	5.6	20.6
2 1	6 55.01	+19 2.5	1.124	2.045	13.3	20.0	2 1	6 58.05	+18 56.6	1.886	2.795	9.5	20.8
2 11	6 49.89	+19 15.2	1.184	2.043	18.0	20.3	2 11	6 52.66	+19 24.2	1.971	2.807	12.8	21.1
82014	2000 <i>RL</i> ₉₄		1 8.9 153°64	3°0/ 10.3	18		41912	2000 <i>WR</i> ₁₄₄		1 8.9 243°31	2°9/ 9.7	18	
12 3	7 40.86	+10 42.9	2.948	3.702	11.0	20.0	12 3	7 46.22	+14 46.5	1.776	2.562	16.0	19.4
12 13	7 36.25	+10 34.1	2.860	3.708	8.8	19.8	12 13	7 41.61	+14 32.3	1.683	2.553	12.7	19.1
12 23	7 30.10	+10 33.5	2.796	3.714	6.3	19.7	12 23	7 34.27	+14 27.7	1.612	2.545	8.8	18.9
1 2	7 22.85	+10 41.1	2.761	3.719	3.9	19.5	1 2	7 24.81	+14 32.6	1.566	2.536	4.8	18.6
1 12	7 15.13	+10 56.2	2.755	3.724	3.0	19.5	1 12	7 14.30	+14 45.7	1.549	2.526	3.1	18.5
1 22	7 7.59	+11 17.4	2.780	3.729	4.7	19.6	1 22	7 4.00	+15 4.9	1.560	2.517	6.6	18.7
2 1	6 57.91	+11 43.1	2.835	3.733	7.2	19.7	2 1	6 55.18	+15 27.9	1.598	2.507	10.9	18.9
2 11	6 55.62	+12 11.5	2.917	3.737	9.5	19.9	2 11	6 48.83	+15 52.5	1.660	2.497	14.8	19.1
251044	2006 <i>RY</i> ₁₈		1 8.9 42°04	18°6/ 9.3	17		298923	2004 <i>TK</i> ₁₃₆		1 8.9 119°39	3°2/ 8.3	17	
12 3	8 26.26	+66 47.8	1.503	2.197	22.2	20.1	12 3	7 52.49	+29 24.8	1.688	2.486	16.3	21.4
12 13	8 18.18	+68 29.5	1.478	2.215	20.8	20.0	12 13	7 46.58	+29 50.8	1.619	2.498	12.6	21.2
12 23	8 0.67	+69 39.8	1.467	2.235	19.5	20.0	12 23	7 37.50	+30 15.4	1.571	2.509	8.5	21.0
1 2	7 36.01	+70 0.7	1.472	2.255	18.8	20.0	1 2	7 26.11	+30 33.1	1.549	2.520	4.5	20.8
1 12	7 9.78	+69 21.5	1.495	2.276	18.6	20.0	1 12	7 13.80	+30 38.9	1.556	2.531	3.7	20.7
1 22	6 48.00	+67 45.5	1.535	2.297	19.1	20.1	1 22	7 2.15	+30 31.1	1.591	2.541	7.3	21.0
2 1	6 34.01	+65 26.8	1.593	2.319	20.0	20.2	2 1	6 52.55	+30 11.0	1.653	2.551	11.4	21.2
2 11	6 28.04	+62 42.9	1.668	2.341	21.0	20.4	2 11	6 45.97	+29 42.0	1.739	2.560	14.9	21.5
31532	1999 <i>CZ</i> ₁₄₆		1 8.9 127°64	0°1/ 8.9	18		144860	2004 <i>LJ</i> ₁₁		1 8.9 307°88	1°6/ 8.6	18	
12 3	7 47.34	+21 43.2	2.285	3.066</									

EPHEMERIDES

1 8.9

1 9.0

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
250232	2002 <i>XQ</i> ₅₅		1 8.9 39°22	2.8/ 9.7	17		284504	2007 <i>PM</i> ₂₆		1 9.0 116°97	3.9/ 7.9	18	
12 3	7 46.40	+15 53.0	1.249	2.062	20.0	19.9	12 3	7 51.97	+30 29.3	1.746	2.543	15.8	20.5
12 13	7 42.10	+15 39.6	1.203	2.090	15.5	19.7	12 13	7 46.17	+31 10.4	1.678	2.555	12.4	20.3
12 23	7 34.57	+15 38.6	1.177	2.118	10.5	19.4	12 23	7 37.25	+31 50.2	1.631	2.568	8.4	20.1
1 2	7 24.83	+15 48.9	1.174	2.147	5.2	19.2	1 2	7 26.04	+32 22.0	1.612	2.580	4.8	19.9
1 12	7 14.41	+16 7.5	1.197	2.177	3.1	19.2	1 12	7 13.90	+32 40.4	1.620	2.591	4.3	19.9
1 22	7 4.91	+16 30.9	1.246	2.207	7.3	19.5	1 22	7 2.37	+32 43.1	1.657	2.603	7.6	20.1
2 1	6 57.63	+16 56.0	1.320	2.238	11.9	19.9	2 1	6 52.83	+32 31.0	1.721	2.613	11.3	20.4
2 11	6 53.43	+17 20.5	1.416	2.270	15.9	20.2	2 11	6 46.25	+32 7.6	1.809	2.624	14.7	20.6
118845	2000 <i>SP</i> ₂₄₅		1 8.9 140°89	0.4/ 9.1	18		105176	2000 <i>OW</i> ₂₅		1 9.0 208°92	2.4/ 8.5	18	
12 3	7 45.84	+20 33.5	2.068	2.857	14.0	20.4	12 3	7 50.48	+29 38.5	2.197	2.982	13.4	20.0
12 13	7 40.85	+20 38.1	1.986	2.861	10.8	20.2	12 13	7 44.46	+29 41.2	2.105	2.978	10.5	19.8
12 23	7 33.48	+20 47.6	1.927	2.866	7.1	19.9	12 23	7 35.89	+29 41.3	2.037	2.973	7.0	19.5
1 2	7 24.39	+20 59.8	1.895	2.870	3.1	19.7	1 2	7 25.43	+29 35.1	1.996	2.968	3.6	19.3
1 12	7 14.55	+21 12.4	1.892	2.874	1.3	19.6	1 12	7 14.15	+29 19.9	1.986	2.962	2.8	19.2
1 22	7 5.04	+21 23.3	1.919	2.878	5.4	19.9	1 22	7 3.25	+28 54.8	2.006	2.956	6.0	19.4
2 1	6 56.92	+21 31.6	1.975	2.882	9.3	20.1	2 1	6 53.86	+28 21.1	2.054	2.950	9.6	19.6
2 11	6 50.98	+21 36.9	2.055	2.885	12.6	20.3	2 11	6 46.84	+27 41.4	2.128	2.943	12.8	19.8
3933	Portugal		1 8.9 172°07	0.6/ 8.8	18		424998	2009 <i>CU</i> ₄₈		1 9.0 202°41	1.7/ 8.5	18	
12 3	7 42.66	+23 14.9	2.774	3.557	11.0	18.2	12 3	7 45.63	+28 5.7	2.614	3.398	11.5	21.3
12 13	7 37.88	+23 31.6	2.685	3.558	8.4	18.0	12 13	7 40.30	+28 9.5	2.523	3.396	8.9	21.2
12 23	7 31.30	+23 50.8	2.621	3.560	5.5	17.8	12 23	7 32.96	+28 12.1	2.457	3.394	5.9	21.0
1 2	7 23.42	+24 10.3	2.585	3.561	2.3	17.6	1 2	7 24.15	+28 10.9	2.419	3.392	2.9	20.8
1 12	7 14.96	+24 27.8	2.581	3.562	1.2	17.5	1 12	7 14.72	+28 3.8	2.412	3.389	2.1	20.7
1 22	7 6.72	+24 41.6	2.607	3.563	4.4	17.7	1 22	7 5.58	+27 49.9	2.435	3.387	5.0	20.9
2 1	6 59.46	+24 50.9	2.662	3.563	7.4	17.9	2 1	6 57.61	+27 29.6	2.487	3.384	8.1	21.1
2 11	6 53.82	+24 55.8	2.744	3.563	10.1	18.1	2 11	6 51.50	+27 4.2	2.566	3.381	10.8	21.3
241198	2007 <i>TU</i> ₄		1 9.0 161°47	0.5/ 9.2	18		266525	2008 <i>FN</i> ₁₅		1 9.0 1°61	8.5/ 11.9	18	
12 3	7 48.36	+19 22.3	2.054	2.836	14.3	22.0	12 3	7 40.55	+ 1 59.1	1.518	2.286	19.1	19.7
12 13	7 42.80	+19 39.1	1.971	2.843	11.1	21.8	12 13	7 37.47	+ 1 24.2	1.442	2.284	16.1	19.5
12 23	7 34.80	+20 2.4	1.911	2.848	7.3	21.6	12 23	7 31.65	+ 1 11.7	1.384	2.284	12.8	19.3
1 2	7 24.96	+20 29.6	1.879	2.854	3.2	21.4	1 2	7 23.75	+ 1 25.5	1.348	2.284	9.8	19.1
1 12	7 14.31	+20 57.7	1.876	2.858	1.3	21.2	1 12	7 14.87	+ 2 6.4	1.336	2.285	8.5	19.0
1 22	7 3.99	+21 23.8	1.904	2.862	5.5	21.5	1 22	7 6.28	+ 3 11.0	1.349	2.286	9.8	19.1
2 1	6 55.08	+21 46.2	1.961	2.865	9.5	21.8	2 1	6 59.25	+ 4 33.2	1.388	2.289	12.8	19.3
2 11	6 48.43	+22 4.4	2.042	2.867	12.8	22.0	2 11	6 54.75	+ 6 5.0	1.448	2.292	16.2	19.5
74484	1999 <i>CN</i> ₉₅		1 9.0 214°51	0.6/ 9.2	18		216799	2006 <i>SM</i> ₂₁₈		1 9.0 149°07	7.1/ 10.8	18	
12 3	7 42.71	+19 20.1	2.557	3.338	11.8	20.2	12 3	7 44.96	+ 4 9.9	1.971	2.717	16.0	20.4
12 13	7 38.08	+19 31.0	2.463	3.334	9.2	20.0	12 13	7 40.15	+ 3 12.4	1.890	2.721	13.4	20.2
12 23	7 31.53	+19 46.9	2.392	3.330	6.1	19.8	12 23	7 33.04	+ 2 29.3	1.830	2.724	10.5	20.1
1 2	7 23.56	+20 6.3	2.350	3.325	2.7	19.5	1 2	7 24.24	+ 2 3.9	1.795	2.728	8.0	19.9
1 12	7 14.92	+20 27.1	2.339	3.321	1.2	19.4	1 12	7 14.68	+ 1 57.7	1.787	2.731	7.1	19.9
1 22	7 6.46	+20 47.2	2.358	3.316	4.6	19.7	1 22	7 5.42	+ 2 10.1	1.807	2.734	8.5	20.0
2 1	6 59.02	+21 5.4	2.406	3.311	7.9	19.9	2 1	6 57.47	+ 2 38.5	1.853	2.736	11.1	20.1
2 11	6 53.29	+21 20.9	2.480	3.305	10.8	20.0	2 11	6 51.63	+ 3 18.4	1.923	2.739	13.9	20.3
300378	2007 <i>RD</i> ₁₄₆		1 9.0 37°85	6.8/ 7.7	18		16407	Ojuns kij		1 9.0 99°49	0.4/ 9.1	18	
12 3	7 50.31	+34 30.5	1.247	2.069	19.5	19.3	12 3	7 50.04	+21 29.1	1.639	2.436	16.7	18.1
12 13	7 46.01	+35 28.9	1.196	2.084	15.4	19.1	12 13	7 44.54	+21 19.6	1.569	2.449	12.9	17.9
12 23	7 37.64	+36 21.5	1.164	2.100	11.1	18.9	12 23	7 36.10	+21 14.4	1.520	2.461	8.5	17.7
1 2	7 26.27	+36 58.2	1.156	2.118	7.5	18.8	1 2	7 25.54	+21 11.2	1.498	2.473	3.6	17.4
1 12	7 13.81	+37 11.4	1.172	2.135	7.2	18.8	1 12	7 14.17	+21 7.6	1.503	2.485	1.5	17.3
1 22	7 2.38	+36 59.1	1.214	2.154	10.3	19.0	1 22	7 3.39	+21 2.4	1.538	2.497	6.4	17.6
2 1	6 53.76	+36 25.0	1.278	2.173	14.2	19.3	2 1	6 54.52	+20 55.1	1.599	2.509	10.8	17.9
2 11	6 48.98	+35 35.9	1.363	2.192	17.8	19.6	2 11	6 48.43	+20 46.3	1.684	2.520	14.6	18.2
414214	2008 <i>ES</i> ₄₄		1 9.0 141°31	0.7/ 8.8	18		281349	2007 <i>UT</i> ₁₃₆		1 9.0 104°03	1.2/ 9.6	18	
12 3	7 46.04	+22 31.3	1.873	2.670	14.9	21.4	12 3	7 42.59	+15 51.2	2.532	3.305	12.1	21.1
12 13	7 41.36	+22 53.0	1.791	2.672	11.5	21.2	12 13	7 37.89	+16 19.1	2.453	3.319	9.4	21.0
12 23	7 34.02	+23 19.6	1.731	2.673	7.6	21.0	12 23	7 31.34	+16 54.8	2.399	3.332	6.3	20.8
1 2	7 24.69	+23 47.7	1.698	2.674	3.2	20.7	1 2	7 23.48	+17 36.6	2.372	3.345	3.0	20.6
1 12	7 14.45	+24 13.6	1.694	2.676	1.6	20.6	1 12	7 15.04	+18 21.7	2.377	3.358	1.5	20.5
1 22	7 4.54	+24 34.3	1.719	2.677	6.0	20.9	1 22	7 6.85	+19 7.3	2.412	3.370	4.5	20.7
2 1	6 56.17	+24 48.5	1.771	2.678	10.2	21.1	2 1	6 59.71	+19 50.9	2.477	3.382	7.7	21.0
2 11	6 50.24	+24 56.3	1.848	2.679	13.7	21.4	2 11	6 54.25	+20 31.0	2.569	3.394	10.5	21.2
50019	2000 <i>AL</i> ₃₃		1 9.0 228°49	3.1/ 8.2	18		463867	2014 <i>UR</i> ₃₀		1 9.0 288°97	0.3/ 8.9	18	
12 3	7 49.94	+30 2.5	1.947	2.740	14.6	19.2	12 3	7 44.33	+20 43.1	1.905	2.702	14.7	21.5
12 13	7 44.48	+30 23.7	1.857	2.733	11.4	18.9	12 13	7 40.08	+21 13.9	1.816	2.696	11.4	21.3
12 23	7 36.15	+30 43.4	1.790	2.727	7.8	18.7	12 23	7 33.25	+21 52.0	1.750	2.691	7.5	21.0
1 2	7 25.61	+30 56.5	1.749	2.719	4.2	18.5	1 2	7 24.42	+22 34.2	1.710	2.686	3.2	20.7
1 12	7 14.05	+30 58.9	1.738	2.712	3.6	18.4	1 12	7 14.61	+23 16.3	1.700	2.682	1.5	20.6
1 22	7 2.84	+30 48.5	1.756	2.704	6.9	18.6	1 22	7 5.01	+23 54.5	1.718	2.677	5.9	20.9
2 1	6 53.29	+30 26.3	1.801	2.696	10.7	18.8	2 1	6 56.82	+24 26.5	1.764	2.672	10.1	21.1
2 11	6 46.41	+29 55.0	1.870	2.688	14.2	19.0	2 11	6 50.97	+24 51.3	1.834	2.667	13.7	21.3
260613	2005 <i>GM</i> ₂₈		1 9.0 182°59	1.3/ 8.4	17		270635	2002 <i>PF</i> ₇₃		1 9.0 114°11	4.9/ 10.9	18	
12 3	7 40.24	+27 23.1	3.528	4.308	8.9	20.							