

EPHEMERIDES

1 9.9

1 10.0

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
321518	2009 SE ₂₀₈		1 9.9 168°22	2°2/ 9.2 18			159601	2001 YY ₇		1 9.9 112°48	2°2/ 9.5 18		
12 3	7 52.25	+27 29.8	2.341	3.117	12.9	21.5	12 3	7 56.75	+26 39.0	1.644	2.434	17.0	19.9
12 13	7 46.98	+27 56.5	2.254	3.121	10.1	21.3	12 13	7 51.27	+26 55.9	1.573	2.447	13.3	19.7
12 23	7 39.37	+28 24.1	2.192	3.124	6.9	21.1	12 23	7 42.60	+27 14.2	1.523	2.459	9.0	19.5
1 2	7 29.98	+28 48.6	2.156	3.127	3.5	20.9	1 2	7 31.53	+27 29.0	1.500	2.472	4.4	19.2
1 12	7 19.74	+29 6.4	2.152	3.129	2.4	20.8	1 12	7 19.42	+27 35.7	1.504	2.484	2.5	19.1
1 22	7 9.71	+29 15.3	2.177	3.131	5.3	21.0	1 22	7 7.81	+27 32.1	1.537	2.495	6.6	19.4
2 1	7 0.92	+29 14.9	2.232	3.132	8.7	21.2	2 1	6 58.13	+27 18.7	1.597	2.506	10.9	19.7
2 11	6 54.18	+29 6.3	2.312	3.133	11.7	21.4	2 11	6 51.37	+26 57.9	1.681	2.517	14.6	20.0
343124	2009 EA ₁₇		1 9.9 343°36	1°7/10.6 18			459705	2013 PE ₂₃		1 9.9 187°41	4°4/11.9 17		
12 3	7 45.80	+16 24.7	2.240	3.015	13.4	21.0	12 3	7 47.84	+ 7 1.6	2.450	3.186	13.5	22.3
12 13	7 41.96	+16 21.2	2.148	3.012	10.6	20.8	12 13	7 43.30	+ 6 50.4	2.356	3.186	11.1	22.2
12 23	7 36.02	+16 25.1	2.080	3.009	7.4	20.6	12 23	7 36.80	+ 6 51.6	2.283	3.185	8.4	22.0
1 2	7 28.47	+16 35.5	2.037	3.007	3.8	20.4	1 2	7 28.82	+ 7 5.8	2.237	3.184	5.7	21.8
1 12	7 20.12	+16 50.8	2.024	3.005	1.8	20.2	1 12	7 20.09	+ 7 32.5	2.220	3.182	4.4	21.7
1 22	7 11.91	+17 9.1	2.041	3.003	4.8	20.4	1 22	7 11.46	+ 8 9.8	2.233	3.180	5.8	21.8
2 1	7 4.75	+17 28.6	2.085	3.001	8.4	20.7	2 1	7 3.75	+ 8 55.0	2.275	3.177	8.5	22.0
2 11	6 59.41	+17 47.9	2.156	2.999	11.6	20.9	2 11	6 57.69	+ 9 44.7	2.343	3.174	11.2	22.2
518879	2010 EG ₅₀		1 9.9 263°30	5°2/ 8.4 16			458307	2010 VO ₄₄		1 9.9 341°06	2°4/10.5 18		
12 3	7 56.92	+40 27.0	2.846	3.598	11.4	22.1	12 3	7 47.98	+17 30.7	1.498	2.299	17.8	21.0
12 13	7 50.59	+40 48.5	2.736	3.576	9.4	21.9	12 13	7 44.78	+17 3.6	1.413	2.291	14.2	20.8
12 23	7 41.79	+41 3.0	2.650	3.553	7.3	21.7	12 23	7 38.50	+16 44.4	1.347	2.283	9.9	20.5
1 2	7 31.09	+41 5.3	2.592	3.530	5.6	21.6	1 2	7 29.79	+16 32.8	1.306	2.277	5.1	20.2
1 12	7 19.46	+40 51.5	2.563	3.507	5.3	21.5	1 12	7 19.84	+16 27.9	1.291	2.271	2.6	20.0
1 22	7 7.98	+40 20.2	2.565	3.483	6.8	21.6	1 22	7 10.08	+16 28.1	1.302	2.266	6.6	20.3
2 1	6 57.76	+39 32.7	2.595	3.458	9.1	21.7	2 1	7 1.94	+16 31.9	1.339	2.261	11.4	20.5
2 11	6 49.68	+38 32.6	2.652	3.433	11.5	21.8	2 11	6 56.53	+16 37.9	1.399	2.258	15.7	20.8
293585	2007 JB ₃		1 9.9 221°25	3°2/10.8 18			326439	2001 UO ₂₀₂		1 9.9 20°87	0°3/10.1 18		
12 3	7 52.11	+13 59.3	1.716	2.491	17.0	21.7	12 3	7 49.59	+21 24.5	1.561	2.362	17.2	20.7
12 13	7 47.59	+13 43.1	1.624	2.485	13.6	21.4	12 13	7 45.82	+21 18.9	1.486	2.366	13.5	20.5
12 23	7 40.20	+13 37.6	1.552	2.478	9.7	21.2	12 23	7 39.03	+21 18.9	1.432	2.371	9.1	20.3
1 2	7 30.50	+13 43.0	1.506	2.472	5.5	20.9	1 2	7 29.96	+21 21.9	1.403	2.377	4.2	20.0
1 12	7 19.59	+13 57.9	1.487	2.464	3.3	20.7	1 12	7 19.83	+21 25.4	1.400	2.383	1.0	19.8
1 22	7 8.78	+14 20.1	1.497	2.457	6.5	20.9	1 22	7 10.06	+21 27.1	1.425	2.390	6.1	20.1
2 1	6 59.41	+14 46.8	1.534	2.449	10.8	21.2	2 1	7 2.01	+21 26.1	1.477	2.397	10.7	20.4
2 11	6 52.55	+15 15.4	1.595	2.440	14.8	21.4	2 11	6 56.66	+21 22.3	1.551	2.405	14.7	20.7
443869	2001 TO ₂₄		1 9.9 109°67	1°3/ 9.7 15			258576	2002 CF ₁₄₃		1 9.9 28°68	4°9/11.9 18		
12 3	7 57.51	+24 39.7	1.678	2.463	16.9	21.8	12 3	7 45.85	+ 8 17.5	1.358	2.147	19.9	19.6
12 13	7 51.65	+24 50.9	1.610	2.482	13.1	21.6	12 13	7 43.01	+ 8 26.1	1.299	2.163	16.1	19.4
12 23	7 42.71	+25 4.7	1.565	2.500	8.8	21.4	12 23	7 37.17	+ 8 56.1	1.258	2.181	11.8	19.2
1 2	7 31.51	+25 17.0	1.545	2.518	4.1	21.1	1 2	7 29.11	+ 9 47.2	1.239	2.199	7.4	19.0
1 12	7 19.38	+25 23.9	1.554	2.535	1.7	21.0	1 12	7 20.05	+10 55.8	1.246	2.219	4.9	18.9
1 22	7 7.80	+25 23.2	1.592	2.552	6.1	21.3	1 22	7 11.42	+12 15.3	1.279	2.240	7.3	19.1
2 1	6 58.12	+25 15.0	1.657	2.568	10.5	21.6	2 1	7 4.53	+13 38.7	1.338	2.261	11.3	19.4
2 11	6 51.28	+25 1.2	1.747	2.583	14.2	21.9	2 11	7 0.32	+14 59.5	1.420	2.284	15.2	19.7
374585	2006 DY ₂₇		1 9.9 340°52	9°3/ 7.7 18			30094	Rolfebode		1 9.9 167°62	3°7/ 8.9 18		
12 3	7 57.63	+45 18.3	1.834	2.606	16.1	20.6	12 3	7 57.53	+30 1.9	1.865	2.647	15.5	18.9
12 13	7 52.71	+46 16.1	1.758	2.600	13.7	20.4	12 13	7 51.83	+30 43.3	1.784	2.652	12.3	18.7
12 23	7 43.99	+47 2.5	1.703	2.595	11.3	20.2	12 23	7 43.02	+31 24.7	1.726	2.656	8.5	18.5
1 2	7 32.28	+47 27.7	1.671	2.591	9.6	20.1	1 2	7 31.78	+31 59.7	1.693	2.660	4.9	18.3
1 12	7 19.17	+47 24.5	1.665	2.587	9.5	20.1	1 12	7 19.37	+32 22.7	1.690	2.662	4.0	18.2
1 22	7 6.58	+46 50.7	1.684	2.583	11.0	20.2	1 22	7 7.26	+32 30.3	1.716	2.664	7.1	18.4
2 1	6 56.27	+45 49.5	1.728	2.580	13.5	20.3	2 1	6 56.87	+32 22.8	1.770	2.666	10.8	18.6
2 11	6 49.44	+44 28.4	1.794	2.577	16.1	20.5	2 11	6 49.27	+32 3.2	1.847	2.666	14.3	18.9
416005	2002 CJ ₁₄		1 9.9 49°46	14°9/18.5 18			7216	Ishkov		1 10.0 164°75	0°2/10.1 18		
12 3	7 50.91	-12 41.9	1.089	1.803	28.1	20.5	12 3	7 56.50	+20 35.3	1.739	2.518	16.6	18.5
12 13	7 47.90	-12 48.7	1.022	1.809	25.1	20.3	12 13	7 50.95	+20 42.5	1.656	2.524	13.1	18.3
12 23	7 41.06	-12 6.9	0.966	1.814	21.7	20.1	12 23	7 42.38	+20 56.1	1.595	2.529	8.8	18.0
1 2	7 31.09	-10 25.9	0.926	1.820	18.1	19.9	1 2	7 31.48	+21 13.1	1.560	2.533	4.1	17.8
1 12	7 19.45	- 7 43.3	0.906	1.827	15.4	19.7	1 12	7 19.46	+21 29.9	1.554	2.537	1.0	17.5
1 22	7 8.06	- 4 8.6	0.909	1.833	15.0	19.7	1 22	7 7.72	+21 43.8	1.578	2.540	5.9	17.9
2 1	6 58.78	- 0 1.9	0.936	1.840	17.2	19.9	2 1	6 57.65	+21 53.3	1.629	2.542	10.5	18.2
2 11	6 53.04	+ 4 12.2	0.987	1.847	20.6	20.1	2 11	6 50.27	+21 58.6	1.705	2.543	14.4	18.4
120127	2003 FJ ₁₀₁		1 9.9 296°45	2°5/11.0 18			439914	2001 OF ₃₀		1 10.0 88°59	2°3/ 9.4 18		
12 3	7 47.73	+12 52.1	1.870	2.644	15.8	20.0	12 3	8 0.06	+25 54.5	1.588	2.373	17.6	21.9
12 13	7 43.95	+13 11.2	1.779	2.640	12.6	19.8	12 13	7 53.67	+26 27.2	1.534	2.405	13.7	21.7
12 23	7 37.63	+13 44.0	1.709	2.636	8.9	19.6	12 23	7 44.04	+27 2.0	1.502	2.437	9.2	21.5
1 2	7 29.31	+14 29.4	1.665	2.632	4.9	19.3	1 2	7 32.11	+27 33.2	1.495	2.467	4.4	21.3
1 12	7 19.92	+15 24.3	1.650	2.629	2.6	19.2	1 12	7 19.35	+27 55.4	1.518	2.497	2.6	21.3
1 22	7 10.61	+16 24.5	1.663	2.625	5.7	19.4	1 22	7 7.33	+28 5.8	1.569	2.526	6.6	21.6
2 1	7 2.53	+17 25.7	1.704	2.621	9.8	19.6	2 1	6 57.45	+28 4.8	1.648	2.555	10.8	21.9
2 11	6 56.63	+18 24.0	1.770	2.618	13.5	19.8	2 11	6 50.62	+27 54.9	1.751	2.582	14.4	22.2
381	Myrrha		1 9.9 202°91	1°3/10.7 18			486027	2012 TF ₂₅		1 10.0 143°82	1°0/ 9.8 18		
12 3	7 45.86	+15 16.2	2.743	3.504	11.6	13.9	12 3	7 56.44	+23 26.5	1.545	2.337	17.8	22.1

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
8045	Kamiyama		1 10.0 297°62	0°9/ 9.9 18			133301	2003 SX ₄₃		1 10.0 52°92	4°4/11.1 18		
12 3	7 53.48	+25 53.5	1.727	2.520	16.2	16.5	12 3	7 50.25	+12 13.1	1.495	2.279	18.6	19.5
12 13	7 48.89	+25 34.6	1.629	2.505	12.8	16.2	12 13	7 46.29	+11 43.2	1.423	2.288	15.0	19.3
12 23	7 41.18	+25 14.9	1.553	2.490	8.7	15.9	12 23	7 39.34	+11 26.6	1.372	2.297	10.8	19.1
1 2	7 31.02	+24 51.7	1.502	2.476	4.1	15.6	1 2	7 30.13	+11 24.2	1.343	2.306	6.6	18.9
1 12	7 19.57	+24 22.7	1.479	2.461	1.4	15.4	1 12	7 19.88	+11 35.4	1.342	2.316	4.5	18.8
1 22	7 8.30	+23 47.2	1.485	2.447	6.2	15.7	1 22	7 9.99	+11 57.6	1.367	2.325	7.2	18.9
2 1	6 58.65	+23 6.6	1.518	2.433	10.9	15.9	2 1	7 1.79	+12 27.5	1.418	2.335	11.3	19.2
2 11	6 51.73	+22 23.5	1.575	2.419	15.0	16.1	2 11	6 56.27	+13 1.4	1.492	2.346	15.2	19.5
163267	2002 GQ ₇₇		1 10.0 260°65	2°9/10.9 18			105709	2000 SH ₇₁		1 10.0 19°65	4°1/ 9.0 18		
12 3	7 49.58	+13 21.9	1.676	2.456	17.1	20.4	12 3	7 51.61	+28 33.1	1.297	2.114	19.2	19.3
12 13	7 45.74	+13 25.4	1.585	2.449	13.7	20.1	12 13	7 48.32	+29 16.0	1.230	2.118	15.1	19.0
12 23	7 39.03	+13 42.4	1.515	2.443	9.7	19.9	12 23	7 41.24	+30 1.1	1.182	2.122	10.4	18.8
1 2	7 30.04	+14 12.3	1.470	2.437	5.4	19.6	1 2	7 31.15	+30 40.8	1.157	2.128	5.7	18.5
1 12	7 19.82	+14 52.7	1.452	2.430	3.0	19.4	1 12	7 19.62	+31 7.8	1.158	2.134	4.4	18.5
1 22	7 9.66	+15 39.7	1.462	2.424	6.3	19.6	1 22	7 8.56	+31 17.6	1.184	2.140	8.4	18.7
2 1	7 0.92	+16 29.1	1.499	2.417	10.8	19.9	2 1	6 59.74	+31 10.3	1.235	2.148	13.1	19.0
2 11	6 54.66	+17 17.5	1.560	2.411	14.8	20.1	2 11	6 54.39	+30 49.5	1.306	2.155	17.2	19.3
337878	2001 WY ₆₀		1 10.0 112°56	4°6/ 7.9 18			54424	2000 LP ₂₄		1 10.0 103°99	6°2/12.8 18		
12 3	7 51.24	+35 18.3	2.622	3.395	11.8	20.8	12 3	7 48.25	+ 2 54.2	1.988	2.721	16.3	19.4
12 13	7 46.16	+36 16.4	2.549	3.406	9.4	20.6	12 13	7 43.99	+ 2 45.3	1.909	2.732	13.6	19.3
12 23	7 38.81	+37 11.2	2.499	3.417	6.9	20.5	12 23	7 37.45	+ 2 54.7	1.850	2.742	10.6	19.1
1 2	7 29.77	+37 57.6	2.478	3.428	5.0	20.4	1 2	7 29.19	+ 3 24.0	1.816	2.752	7.7	18.9
1 12	7 19.91	+38 31.1	2.486	3.439	4.8	20.4	1 12	7 20.12	+ 4 12.3	1.809	2.761	6.2	18.9
1 22	7 10.27	+38 49.5	2.523	3.449	6.5	20.5	1 22	7 11.25	+ 5 16.4	1.830	2.771	7.3	19.0
2 1	7 1.82	+38 52.5	2.589	3.459	8.8	20.7	2 1	7 3.58	+ 6 31.3	1.879	2.780	10.0	19.1
2 11	6 55.37	+38 42.4	2.680	3.470	11.1	20.8	2 11	6 57.89	+ 7 51.5	1.953	2.790	12.9	19.3
220624	2004 PY ₉₆		1 10.0 102°56	3°3/ 9.1 18			402447	2006 BK ₅₅		1 10.0 6°39	33°3/11.0 18		
12 3	7 54.46	+31 7.9	2.140	2.919	13.9	20.3	12 3	7 56.87	-55 34.0	0.997	1.419	44.0	20.3
12 13	7 48.84	+31 32.0	2.069	2.934	10.9	20.1	12 13	7 54.28	-55 53.8	0.946	1.416	43.9	20.2
12 23	7 40.65	+31 53.8	2.020	2.950	7.6	19.9	12 23	7 46.12	-55 11.7	0.886	1.416	43.4	20.1
1 2	7 30.59	+32 8.6	1.999	2.965	4.4	19.8	1 2	7 33.54	-53 2.7	0.822	1.419	42.4	19.9
1 12	7 19.74	+32 12.6	2.007	2.979	3.5	19.7	1 12	7 19.04	-48 56.8	0.757	1.425	40.7	19.7
1 22	7 9.32	+32 4.4	2.045	2.994	6.1	19.9	1 22	7 5.58	-42 26.0	0.700	1.434	38.2	19.4
2 1	7 0.42	+31 44.7	2.112	3.008	9.3	20.1	2 1	6 55.76	-33 17.3	0.658	1.445	35.4	19.2
2 11	6 53.89	+31 16.3	2.203	3.021	12.3	20.4	2 11	6 51.08	-21 58.7	0.643	1.459	33.3	19.2
458190	2010 OY ₉₂		1 10.0 80°75	2°1/10.7 18			9287	Klima		1 10.0 76°02	0°1/10.0 18		
12 3	7 51.70	+15 44.1	1.803	2.579	16.2	21.6	12 3	7 49.41	+21 0.4	2.066	2.848	14.2	18.9
12 13	7 46.80	+15 42.3	1.737	2.600	12.8	21.4	12 13	7 44.92	+21 8.8	1.987	2.857	11.1	18.7
12 23	7 39.33	+15 50.1	1.692	2.622	8.8	21.2	12 23	7 38.07	+21 22.3	1.932	2.867	7.4	18.5
1 2	7 30.00	+16 6.2	1.674	2.643	4.5	21.0	1 2	7 29.47	+21 38.3	1.903	2.877	3.4	18.2
1 12	7 19.89	+16 28.0	1.683	2.663	2.2	20.9	1 12	7 20.07	+21 54.4	1.903	2.886	0.8	18.0
1 22	7 10.20	+16 52.9	1.722	2.684	5.5	21.2	1 22	7 10.94	+22 8.1	1.933	2.896	5.0	18.4
2 1	7 2.03	+17 18.4	1.789	2.704	9.5	21.5	2 1	7 3.11	+22 18.4	1.992	2.905	8.8	18.6
2 11	6 56.20	+17 42.8	1.881	2.725	13.0	21.7	2 11	6 57.37	+22 24.8	2.075	2.915	12.1	18.8
85708	1998 SL ₃₅		1 10.0 41°42	3°8/11.1 17			97879	2000 QW ₄₃		1 10.0 88°67	1°9/10.6 17		
12 3	7 49.88	+12 59.1	1.162	1.969	21.6	18.4	12 3	7 53.42	+15 57.3	1.596	2.378	17.7	20.4
12 13	7 46.68	+12 52.8	1.104	1.983	17.2	18.2	12 13	7 48.51	+16 3.6	1.531	2.398	14.0	20.2
12 23	7 39.91	+13 4.3	1.064	1.999	12.1	18.0	12 23	7 40.68	+16 21.2	1.486	2.417	9.6	20.0
1 2	7 30.44	+13 33.0	1.046	2.015	6.8	17.7	1 2	7 30.69	+16 47.9	1.466	2.437	4.8	19.8
1 12	7 19.78	+14 15.3	1.053	2.031	3.9	17.6	1 12	7 19.78	+17 20.3	1.475	2.456	2.1	19.6
1 22	7 9.67	+15 5.8	1.084	2.048	7.6	17.9	1 22	7 9.31	+17 54.7	1.511	2.474	6.0	19.9
2 1	7 1.71	+15 58.7	1.140	2.066	12.6	18.2	2 1	7 0.59	+18 28.0	1.575	2.492	10.4	20.2
2 11	6 57.00	+16 49.4	1.217	2.085	17.0	18.5	2 11	6 54.52	+18 58.4	1.663	2.510	14.2	20.5
132867	2002 RB ₉₄		1 10.0 143°68	0°6/ 9.8 18			8637	1986 CS ₁		1 10.0 8°89	2°4/10.6 18		
12 3	7 48.94	+22 47.7	2.630	3.401	11.8	20.5	12 3	7 47.26	+16 13.8	1.272	2.084	19.8	17.8
12 13	7 44.08	+23 6.9	2.545	3.409	9.2	20.3	12 13	7 44.64	+16 9.1	1.201	2.084	15.8	17.6
12 23	7 37.28	+23 29.3	2.484	3.417	6.1	20.1	12 23	7 38.62	+16 17.3	1.148	2.086	10.9	17.3
1 2	7 29.04	+23 52.4	2.451	3.424	2.8	19.9	1 2	7 29.94	+16 37.5	1.117	2.089	5.6	17.0
1 12	7 20.13	+24 13.7	2.449	3.431	1.0	19.8	1 12	7 19.95	+17 6.5	1.112	2.093	2.5	16.8
1 22	7 11.40	+24 31.1	2.478	3.438	4.3	20.0	1 22	7 10.27	+17 40.2	1.132	2.098	7.0	17.1
2 1	7 3.68	+24 43.6	2.536	3.444	7.4	20.2	2 1	7 2.48	+18 14.6	1.177	2.103	12.2	17.4
2 11	6 57.64	+24 51.1	2.622	3.450	10.2	20.4	2 11	6 57.76	+18 46.8	1.243	2.110	16.7	17.7
341301	2007 RJ ₃₂₀		1 10.0 71°45	1°3/ 9.6 18			499628	2010 UQ ₈₅		1 10.0 231°62	0°0/ 9.9 18		
12 3	7 50.32	+25 17.8	2.200	2.982	13.5	21.2	12 3	7 50.76	+20 22.1	1.986	2.767	14.7	21.8
12 13	7 45.44	+25 29.6	2.129	2.999	10.5	21.0	12 13	7 46.31	+20 42.4	1.890	2.760	11.6	21.6
12 23	7 38.30	+25 43.0	2.080	3.016	7.0	20.8	12 23	7 39.25	+21 9.8	1.817	2.752	7.9	21.4
1 2	7 29.51	+25 54.9	2.059	3.032	3.3	20.6	1 2	7 30.13	+21 41.4	1.771	2.744	3.6	21.1
1 12	7 20.04	+26 2.6	2.068	3.049	1.6	20.5	1 12	7 19.90	+22 13.7	1.753	2.736	0.9	20.8
1 22	7 10.92	+26 4.3	2.106	3.066	5.0	20.8	1 22	7 9.74	+22 43.3	1.766	2.728	5.4	21.2
2 1	7 3.11	+25 59.9	2.174	3.082	8.4	21.0	2 1	7 0.84	+23 8.0	1.806	2.719	9.6	21.4
2 11	6 57.36	+25 50.1	2.266	3.099	11.5	21.2	2 11	6 54.17	+23 26.9	1.871	2.710	13.3	21.6
258107	2001 QM ₂₀₀		1 10.0 144°12	1°5/10.4 18			243141	2007 TG ₆		1 10.0 62°53	3°5/ 9.1 18		
12 3	7 52.68	+17 46.5	2.451	3.209	12.9	21.5	12 3	7 52.20	+32 19.4	2.193	2.975	13.5	

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
343512	2010 <i>EC</i> ₁₁₃		1 10.0 126°97	2°9/ 8.8 18			235091	2003 <i>HC</i> ₄₆		1 10.0 205°51	0°8/ 9.7 18		
12 3	7 50.11	+30 40.9	2.648	3.423	11.6	21.4	12 3	7 54.14	+22 30.5	2.023	2.799	14.7	21.7
12 13	7 45.12	+31 15.7	2.568	3.432	9.1	21.2	12 13	7 48.95	+22 56.9	1.927	2.794	11.5	21.5
12 23	7 38.05	+31 49.4	2.512	3.441	6.3	21.1	12 23	7 41.04	+23 28.8	1.854	2.788	7.8	21.2
1 2	7 29.43	+32 18.0	2.485	3.449	3.7	20.9	1 2	7 30.98	+24 2.6	1.808	2.781	3.6	20.9
1 12	7 20.11	+32 38.3	2.487	3.457	3.1	20.9	1 12	7 19.77	+24 34.2	1.792	2.774	1.3	20.8
1 22	7 11.00	+32 48.1	2.520	3.465	5.3	21.0	1 22	7 8.63	+25 0.1	1.806	2.766	5.6	21.0
2 1	7 2.99	+32 47.3	2.582	3.473	8.0	21.2	2 1	6 58.81	+25 18.5	1.849	2.757	9.7	21.3
2 11	6 56.82	+32 37.2	2.669	3.481	10.6	21.4	2 11	6 51.31	+25 29.5	1.916	2.747	13.3	21.5
330428	2007 <i>CM</i> ₆₁		1 10.0 329°59	2°0/10.9 18			120911	1998 <i>SP</i> ₆₅		1 10.0 125°20	0°9/ 9.7 17		
12 3	7 46.31	+13 22.6	1.636	2.424	17.1	20.5	12 3	7 56.23	+22 6.9	1.755	2.536	16.4	20.4
12 13	7 43.36	+13 58.5	1.543	2.413	13.7	20.2	12 13	7 50.68	+22 41.7	1.683	2.553	12.8	20.2
12 23	7 37.57	+14 51.5	1.471	2.404	9.6	20.0	12 23	7 42.17	+23 22.9	1.634	2.569	8.6	20.0
1 2	7 29.47	+15 59.6	1.424	2.394	5.0	19.7	1 2	7 31.44	+24 5.9	1.611	2.584	3.9	19.8
1 12	7 20.06	+17 18.5	1.405	2.386	2.1	19.5	1 12	7 19.68	+24 45.4	1.617	2.599	1.5	19.6
1 22	7 10.64	+18 41.7	1.413	2.377	6.1	19.7	1 22	7 8.30	+25 17.6	1.652	2.613	5.9	19.9
2 1	7 2.55	+20 3.1	1.448	2.370	10.8	20.0	2 1	6 58.62	+25 40.7	1.716	2.626	10.2	20.2
2 11	6 56.94	+21 17.9	1.507	2.363	15.0	20.2	2 11	6 51.61	+25 55.1	1.804	2.638	13.9	20.5
455594	2004 <i>SV</i> ₅₅		1 10.0 216°16	16°4/ 1.8 18			410048	2007 <i>AD</i> ₁₁		1 10.0 19°78	4°4/ 9.4 18		
12 3	9 29.58	+70 32.3	2.309	2.882	17.9	22.9	12 3	7 54.58	+32 55.8	1.507	2.310	17.7	19.8
12 13	9 16.61	+72 53.8	2.237	2.868	17.2	22.8	12 13	7 50.11	+33 3.6	1.436	2.314	14.0	19.6
12 23	8 49.48	+75 0.7	2.181	2.852	16.6	22.8	12 23	7 42.11	+33 6.1	1.386	2.320	9.9	19.4
1 2	8 5.64	+76 25.6	2.145	2.833	16.4	22.7	1 2	7 31.46	+32 57.5	1.360	2.326	5.9	19.2
1 12	7 10.95	+76 38.9	2.129	2.812	16.6	22.7	1 12	7 19.69	+32 33.2	1.360	2.333	4.6	19.1
1 22	6 20.39	+75 31.5	2.134	2.788	17.3	22.7	1 22	7 8.52	+31 52.5	1.387	2.341	7.8	19.3
2 1	5 45.15	+73 22.0	2.158	2.762	18.3	22.7	2 1	6 59.53	+30 58.6	1.441	2.349	11.9	19.6
2 11	5 25.88	+70 39.0	2.200	2.734	19.5	22.8	2 11	6 53.74	+29 56.6	1.517	2.358	15.7	19.8
282826	2006 <i>SL</i> ₃₀₆		1 10.0 118°83	4°3/11.6 18			246614	2008 <i>VK</i> ₇₂		1 10.0 153°88	1°2/ 9.7 18		
12 3	7 50.60	+ 9 8.0	2.043	2.794	15.4	21.4	12 3	7 53.56	+22 55.2	1.683	2.473	16.6	21.8
12 13	7 45.71	+ 8 51.9	1.967	2.808	12.5	21.3	12 13	7 48.91	+23 26.6	1.602	2.477	13.0	21.6
12 23	7 38.54	+ 8 48.7	1.912	2.822	9.2	21.1	12 23	7 41.20	+24 4.4	1.543	2.480	8.8	21.3
1 2	7 29.69	+ 8 58.7	1.883	2.836	5.9	20.9	1 2	7 31.08	+24 44.0	1.510	2.484	4.0	21.0
1 12	7 20.08	+ 9 21.2	1.882	2.849	4.4	20.8	1 12	7 19.76	+25 20.1	1.505	2.486	1.7	20.9
1 22	7 10.74	+ 9 53.6	1.911	2.862	6.1	21.0	1 22	7 8.68	+25 48.8	1.528	2.489	6.3	21.2
2 1	7 2.64	+10 33.1	1.968	2.875	9.3	21.2	2 1	6 59.25	+26 8.0	1.579	2.491	10.8	21.5
2 11	6 56.57	+11 16.1	2.050	2.887	12.4	21.4	2 11	6 52.56	+26 18.3	1.654	2.493	14.7	21.7
275110	2009 <i>VE</i> ₄₅		1 10.0 177°55	4°6/ 8.8 18			82008	2000 <i>RV</i> ₃₅		1 10.0 127°00	1°4/10.6 18		
12 3	7 56.82	+30 7.2	1.478	2.278	18.1	20.3	12 3	7 47.05	+16 38.9	2.620	3.384	12.0	20.4
12 13	7 52.17	+30 55.7	1.401	2.279	14.4	20.0	12 13	7 42.58	+16 38.0	2.533	3.391	9.5	20.2
12 23	7 43.77	+31 45.4	1.345	2.279	10.1	19.8	12 23	7 36.28	+16 43.3	2.471	3.398	6.5	20.0
1 2	7 32.35	+32 28.1	1.313	2.280	5.9	19.5	1 2	7 28.64	+16 53.8	2.436	3.405	3.3	19.8
1 12	7 19.40	+32 56.2	1.307	2.280	4.9	19.5	1 12	7 20.38	+17 7.9	2.431	3.411	1.5	19.7
1 22	7 6.78	+33 5.1	1.329	2.280	8.4	19.7	1 22	7 12.28	+17 24.1	2.457	3.418	4.2	19.9
2 1	6 56.29	+32 55.1	1.377	2.279	12.8	19.9	2 1	7 5.12	+17 40.9	2.512	3.424	7.3	20.1
2 11	6 49.21	+32 30.5	1.446	2.278	16.8	20.2	2 11	6 59.55	+17 57.1	2.594	3.430	10.1	20.3
301577	2009 <i>KT</i> ₁₇		1 10.0 157°00	1°0/10.6 18			174856	2004 <i>AS</i> ₂		1 10.0 241°30	1°7/10.7 18		
12 3	7 45.04	+16 24.5	2.935	3.697	10.9	21.2	12 3	7 49.93	+14 23.3	2.001	2.770	15.0	20.3
12 13	7 40.89	+16 44.6	2.842	3.699	8.6	21.0	12 13	7 45.68	+14 54.5	1.900	2.760	12.0	20.0
12 23	7 35.10	+17 11.3	2.774	3.702	5.9	20.8	12 23	7 38.88	+15 38.7	1.821	2.749	8.4	19.8
1 2	7 28.09	+17 43.2	2.734	3.704	2.9	20.6	1 2	7 30.02	+16 33.9	1.768	2.738	4.3	19.5
1 12	7 20.48	+18 18.3	2.724	3.706	1.1	20.5	1 12	7 20.01	+17 36.6	1.745	2.726	1.8	19.3
1 22	7 12.96	+18 54.4	2.746	3.708	3.8	20.7	1 22	7 9.94	+18 42.2	1.751	2.714	5.4	19.5
2 1	7 6.21	+19 29.6	2.798	3.710	6.7	20.9	2 1	7 1.00	+19 46.3	1.787	2.701	9.6	19.7
2 11	7 0.84	+20 2.3	2.877	3.711	9.3	21.1	2 11	6 54.17	+20 45.6	1.848	2.689	13.3	20.0
496647	2016 <i>AC</i> ₁₀₅		1 10.0 186°92	0°2/ 9.9 18			411538	2011 <i>BR</i> ₁₁₆		1 10.0 20°90	2°6/ 9.3 18		
12 3	7 49.91	+19 22.5	1.905	2.689	15.2	21.2	12 3	7 49.01	+26 10.0	1.471	2.282	17.6	20.7
12 13	7 45.73	+20 6.1	1.818	2.689	11.9	21.0	12 13	7 45.74	+26 44.7	1.403	2.290	13.7	20.4
12 23	7 38.91	+20 59.3	1.753	2.689	8.0	20.7	12 23	7 39.21	+27 23.0	1.356	2.298	9.3	20.2
1 2	7 30.00	+21 58.5	1.715	2.688	3.7	20.5	1 2	7 30.19	+27 59.3	1.334	2.307	4.7	19.9
1 12	7 20.00	+22 58.7	1.705	2.688	1.0	20.3	1 12	7 20.01	+28 27.9	1.337	2.316	3.0	19.9
1 22	7 10.09	+23 55.0	1.726	2.688	5.5	20.6	1 22	7 10.24	+28 44.9	1.368	2.327	7.0	20.1
2 1	7 1.49	+24 44.0	1.774	2.687	9.7	20.8	2 1	7 2.35	+28 49.4	1.423	2.338	11.5	20.4
2 11	6 55.17	+25 24.1	1.847	2.686	13.4	21.1	2 11	6 57.39	+28 43.2	1.502	2.351	15.4	20.7
135236	2001 <i>RM</i> ₁₅₁		1 10.0 176°23	1°1/10.6 18			320625	2008 <i>CE</i> ₄₂		1 10.0 31°87	8°6/13.5 18		
12 3	7 46.76	+16 17.1	2.596	3.360	12.1	20.1	12 3	7 46.43	+ 1 10.5	1.472	2.228	20.1	20.6
12 13	7 42.46	+16 39.1	2.503	3.361	9.5	20.0	12 13	7 43.33	+ 0 38.0	1.405	2.237	17.0	20.4
12 23	7 36.28	+17 8.8	2.434	3.362	6.5	19.8	12 23	7 37.40	+ 0 29.7	1.355	2.247	13.6	20.2
1 2	7 28.67	+17 44.7	2.392	3.362	3.2	19.5	1 2	7 29.32	+ 0 49.2	1.326	2.258	10.4	20.0
1 12	7 20.35	+18 24.2	2.381	3.363	1.2	19.4	1 12	7 20.23	+ 1 36.7	1.322	2.270	8.7	20.0
1 22	7 12.10	+19 4.8	2.401	3.363	4.2	19.6	1 22	7 11.44	+ 2 48.1	1.343	2.282	9.6	20.1
2 1	7 4.76	+19 44.1	2.451	3.363	7.4	19.8	2 1	7 4.21	+ 4 16.5	1.389	2.295	12.4	20.3
2 11	6 59.01	+20 20.4	2.527	3.363	10.3	20.0	2 11	6 59.49	+ 5 53.3	1.457	2.308	15.7	20.5
63424	2001 <i>KW</i> ₇₃		1 10.0 189°90	0°4/10.2 18			139992	2001 <i>SD</i> ₃₆		1 10.0 70°19	4°1/ 8.5 18		
12 3	7 50.94												

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
117119	2004 PE ₂₁		1 10.0 127°59	0°3/ 9.9 18			33765	1999 RK ₁₀₀		1 10.0 245°43	0°5/ 9.9 18		
12 3	7 50.83	+21 49.2	2.174	2.952	13.7	20.6	12 3	7 53.23	+24 18.9	2.318	3.090	13.2	19.1
12 13	7 45.96	+22 2.4	2.093	2.960	10.7	20.4	12 13	7 47.89	+24 9.6	2.211	3.075	10.4	18.9
12 23	7 38.77	+22 19.8	2.035	2.969	7.2	20.2	12 23	7 40.15	+24 1.2	2.127	3.060	7.0	18.7
1 2	7 29.85	+22 39.1	2.003	2.977	3.3	20.0	1 2	7 30.55	+23 51.5	2.071	3.044	3.2	18.4
1 12	7 20.13	+22 57.2	2.002	2.985	0.9	19.8	1 12	7 19.96	+23 38.5	2.046	3.028	1.0	18.2
1 22	7 10.64	+23 12.0	2.031	2.992	4.9	20.1	1 22	7 9.47	+23 21.0	2.051	3.011	4.9	18.5
2 1	7 2.41	+23 22.2	2.088	2.999	8.6	20.4	2 1	7 0.12	+22 59.4	2.085	2.994	8.7	18.7
2 11	6 56.23	+23 27.7	2.171	3.006	11.8	20.6	2 11	6 52.82	+22 34.7	2.146	2.977	12.1	18.9
251182	2006 UR ₆₀		1 10.0 55°45	4°4/ 9.1 17			28492	Marik		1 10.0 193°26	4°1/ 8.8 18		
12 3	7 58.24	+30 48.5	1.474	2.271	18.2	20.1	12 3	7 56.90	+30 15.9	1.795	2.580	15.9	18.8
12 13	7 52.59	+31 31.2	1.430	2.306	14.2	19.9	12 13	7 51.64	+31 1.7	1.709	2.579	12.6	18.6
12 23	7 43.49	+32 11.5	1.407	2.340	9.8	19.7	12 23	7 43.13	+31 48.0	1.646	2.577	8.8	18.3
1 2	7 31.97	+32 41.9	1.409	2.375	5.7	19.6	1 2	7 32.03	+32 28.2	1.609	2.575	5.2	18.1
1 12	7 19.66	+32 56.7	1.438	2.409	4.6	19.6	1 12	7 19.60	+32 55.7	1.601	2.572	4.3	18.1
1 22	7 8.24	+32 53.9	1.494	2.444	7.7	19.9	1 22	7 7.37	+33 6.7	1.621	2.568	7.4	18.2
2 1	6 59.17	+32 35.7	1.577	2.478	11.5	20.2	2 1	6 56.88	+33 1.2	1.668	2.564	11.3	18.5
2 11	6 53.31	+32 6.4	1.682	2.513	14.9	20.5	2 11	6 49.28	+32 42.3	1.739	2.560	14.9	18.7
163620	2002 TE ₂₈₇		1 10.0 21°59	3°1/10.7 18			394891	2008 UC ₁₈₈		1 10.0 86°48	0°6/10.2 15		
12 3	7 48.30	+15 11.9	1.970	2.745	15.0	19.0	12 3	7 55.25	+18 37.8	1.556	2.342	17.9	21.9
12 13	7 44.11	+14 31.2	1.888	2.750	12.0	18.8	12 13	7 50.04	+18 57.4	1.495	2.366	14.0	21.7
12 23	7 37.58	+13 57.5	1.829	2.755	8.5	18.6	12 23	7 41.77	+19 26.4	1.455	2.390	9.4	21.5
1 2	7 29.32	+13 31.5	1.795	2.760	4.9	18.4	1 2	7 31.26	+20 1.3	1.441	2.414	4.4	21.3
1 12	7 20.27	+13 13.2	1.790	2.766	3.2	18.3	1 12	7 19.83	+20 37.5	1.454	2.437	1.1	21.1
1 22	7 11.48	+13 2.2	1.814	2.772	5.7	18.5	1 22	7 8.93	+21 11.1	1.496	2.459	6.0	21.5
2 1	7 3.97	+12 57.5	1.865	2.779	9.3	18.7	2 1	6 59.91	+21 39.7	1.565	2.482	10.5	21.8
2 11	6 58.53	+12 57.7	1.941	2.786	12.6	18.9	2 11	6 53.69	+22 2.4	1.658	2.503	14.4	22.1
252251	2001 QY ₁₀₉		1 10.0 106°20	1°4/ 9.5 18			98991	2001 DH ₃₅		1 10.0 49°07	0°8/10.3 18		
12 3	7 52.34	+23 51.0	1.934	2.718	15.0	20.5	12 3	7 48.56	+18 34.2	1.933	2.717	15.0	19.8
12 13	7 47.47	+24 24.4	1.859	2.731	11.7	20.3	12 13	7 44.49	+18 45.3	1.852	2.722	11.8	19.6
12 23	7 39.95	+25 2.1	1.808	2.744	7.8	20.1	12 23	7 37.96	+19 4.0	1.793	2.728	8.0	19.4
1 2	7 30.43	+25 40.0	1.783	2.756	3.7	19.9	1 2	7 29.54	+19 28.4	1.761	2.733	3.8	19.2
1 12	7 19.99	+26 13.6	1.787	2.768	1.8	19.8	1 12	7 20.23	+19 55.4	1.757	2.739	1.1	19.0
1 22	7 9.86	+26 39.5	1.820	2.779	5.6	20.1	1 22	7 11.14	+20 22.3	1.782	2.745	5.2	19.3
2 1	7 1.19	+26 56.4	1.882	2.791	9.5	20.3	2 1	7 3.37	+20 46.7	1.835	2.751	9.2	19.5
2 11	6 54.89	+27 4.9	1.969	2.802	12.9	20.6	2 11	6 57.76	+21 7.4	1.912	2.757	12.7	19.8
379112	2008 YD ₆₄		1 10.0 41°78	0°4/10.1 18			51542	2001 FA ₁₄₇		1 10.0 120°43	0°9/ 9.8 18		
12 3	7 53.53	+23 23.3	1.805	2.591	15.8	19.6	12 3	7 55.83	+24 21.3	2.323	3.089	13.3	20.1
12 13	7 48.18	+22 45.7	1.742	2.614	12.3	19.4	12 13	7 49.53	+24 33.0	2.251	3.112	10.3	19.9
12 23	7 40.21	+22 9.3	1.701	2.637	8.2	19.2	12 23	7 40.97	+24 46.4	2.203	3.135	6.9	19.7
1 2	7 30.44	+21 33.1	1.687	2.660	3.8	19.0	1 2	7 30.79	+24 58.6	2.184	3.156	3.2	19.5
1 12	7 20.03	+20 56.5	1.701	2.684	1.0	18.8	1 12	7 19.96	+25 6.8	2.195	3.177	1.3	19.4
1 22	7 10.22	+20 19.7	1.746	2.709	5.3	19.2	1 22	7 9.51	+25 9.3	2.238	3.197	4.8	19.7
2 1	7 2.10	+19 44.0	1.818	2.733	9.4	19.5	2 1	7 0.43	+25 6.1	2.311	3.216	8.2	19.9
2 11	6 56.42	+19 10.3	1.915	2.758	12.8	19.8	2 11	6 53.43	+24 57.9	2.410	3.234	11.2	20.2
49518	1999 CV ₃₂		1 10.0 145°24	0°4/ 9.9 18			447265	2005 UF ₃₄₇		1 10.0 129°23	1°5/ 9.6 15		
12 3	7 48.03	+20 52.2	2.488	3.262	12.3	18.8	12 3	7 56.78	+23 46.2	1.754	2.537	16.3	22.5
12 13	7 43.59	+21 26.9	2.400	3.266	9.6	18.6	12 13	7 51.17	+24 19.1	1.682	2.552	12.8	22.3
12 23	7 37.11	+22 7.1	2.337	3.270	6.4	18.4	12 23	7 42.55	+24 56.7	1.631	2.566	8.6	22.1
1 2	7 29.10	+22 50.2	2.301	3.274	2.9	18.2	1 2	7 31.66	+25 34.2	1.607	2.580	4.0	21.9
1 12	7 20.32	+23 32.8	2.296	3.278	0.9	18.0	1 12	7 19.73	+26 6.5	1.612	2.593	1.9	21.7
1 22	7 11.65	+24 11.9	2.321	3.282	4.4	18.3	1 22	7 8.18	+26 30.1	1.647	2.606	6.1	22.0
2 1	7 3.98	+24 45.4	2.376	3.285	7.8	18.5	2 1	6 58.37	+26 43.7	1.709	2.617	10.4	22.3
2 11	6 58.05	+25 12.6	2.457	3.288	10.7	18.7	2 11	6 51.28	+26 48.4	1.796	2.628	14.0	22.6
360102	2013 BQ ₇₉		1 10.0 332°47	2°0/10.5 18			425374	2010 CU ₃₃		1 10.0 209°56	2°5/ 9.2 18		
12 3	7 45.62	+17 4.2	1.207	2.027	20.2	20.5	12 3	7 51.29	+29 54.8	2.612	3.385	11.8	21.2
12 13	7 43.86	+17 1.3	1.121	2.011	16.2	20.2	12 13	7 46.13	+30 10.7	2.518	3.381	9.3	21.0
12 23	7 38.51	+17 11.6	1.054	1.996	11.3	19.9	12 23	7 38.81	+30 25.3	2.447	3.377	6.4	20.8
1 2	7 30.13	+17 34.1	1.008	1.982	5.7	19.6	1 2	7 29.88	+30 35.1	2.405	3.372	3.5	20.6
1 12	7 20.02	+18 5.8	0.987	1.969	2.2	19.3	1 12	7 20.16	+30 37.4	2.393	3.368	2.7	20.5
1 22	7 9.92	+18 42.2	0.990	1.957	7.5	19.6	1 22	7 10.61	+30 30.5	2.412	3.362	5.1	20.7
2 1	7 1.67	+19 18.8	1.016	1.946	13.3	19.9	2 1	7 2.17	+30 14.6	2.459	3.357	8.1	20.9
2 11	6 56.70	+19 52.3	1.063	1.937	18.4	20.1	2 11	6 55.59	+29 51.2	2.533	3.351	10.9	21.0
342963	2009 BY ₆		1 10.0 16°62	5°7/12.7 18			288631	2004 PW ₁₂		1 10.0 173°55	1°5/ 9.6 18		
12 3	7 43.83	+ 5 2.5	1.698	2.462	17.5	19.7	12 3	7 56.37	+25 6.0	2.031	2.806	14.7	22.4
12 13	7 41.01	+ 5 8.2	1.624	2.470	14.5	19.5	12 13	7 50.59	+25 28.8	1.944	2.810	11.5	22.2
12 23	7 35.71	+ 5 34.3	1.570	2.478	11.0	19.3	12 23	7 42.07	+25 54.3	1.880	2.813	7.8	22.0
1 2	7 28.54	+ 6 21.7	1.539	2.488	7.6	19.2	1 2	7 31.44	+26 18.4	1.843	2.815	3.7	21.7
1 12	7 20.46	+ 7 28.3	1.534	2.498	5.7	19.1	1 12	7 19.78	+26 37.1	1.836	2.817	1.9	21.6
1 22	7 12.60	+ 8 49.3	1.557	2.510	7.1	19.2	1 22	7 8.34	+26 47.7	1.860	2.817	5.7	21.9
2 1	7 6.05	+10 18.2	1.606	2.522	10.3	19.4	2 1	6 58.36	+26 49.5	1.912	2.817	9.6	22.1
2 11	7 1.68	+11 48.6	1.680	2.535	13.7	19.6	2 11	6 50.81	+26 43.6	1.990	2.816	13.1	22.3
419399	2010 AK ₃₅		1 10.0 247°21	0°8/ 9.8 18			493703	2015 TP ₇₅		1 10.0 91°68	1°5/ 9.6 15		
12 3	7 50.72	+24 56.7	2.459	3.234	12.4	21.0	12 3	7 56.79	+23 59.8	1.605	2.395	17	

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
58583	1997 SV ₄		1 10.0 295°79	4°3/ 9.1	18		231501	2008 QV ₄₃		1 10.1 56°49	4°6/ 8.3	18	
12 3	7 54.33	+30 22.7	1.462	2.267	18.0	18.6	12 3	7 51.74	+31 13.2	1.893	2.685	15.0	19.4
12 13	7 50.43	+30 52.9	1.375	2.255	14.4	18.4	12 13	7 47.33	+32 21.5	1.827	2.699	11.8	19.2
12 23	7 42.78	+31 23.0	1.307	2.243	10.1	18.1	12 23	7 40.03	+33 29.5	1.783	2.713	8.3	19.0
1 2	7 32.03	+31 46.0	1.263	2.232	5.8	17.8	1 2	7 30.56	+34 30.3	1.766	2.728	5.3	18.9
1 12	7 19.62	+31 55.2	1.246	2.220	4.6	17.7	1 12	7 20.05	+35 17.5	1.777	2.743	4.9	18.9
1 22	7 7.38	+31 46.5	1.255	2.209	8.3	17.9	1 22	7 9.86	+35 47.4	1.817	2.758	7.4	19.0
2 1	6 57.16	+31 20.8	1.289	2.198	13.0	18.1	2 1	7 1.28	+35 59.5	1.883	2.773	10.6	19.3
2 11	6 50.33	+30 42.2	1.345	2.187	17.3	18.4	2 11	6 55.28	+35 56.3	1.973	2.788	13.6	19.5
464356	2016 AC ₁₂₃		1 10.0 27°84	0°3/10.1	18		109726	2001 RY ₅₆		1 10.1 247°16	4°1/11.5	18	
12 3	7 48.81	+19 21.2	1.578	2.377	17.2	20.8	12 3	7 49.35	+ 9 22.9	2.171	2.921	14.6	20.9
12 13	7 45.27	+19 43.7	1.504	2.383	13.5	20.6	12 13	7 44.99	+ 9 12.4	2.063	2.905	12.0	20.7
12 23	7 38.79	+20 15.7	1.450	2.389	9.1	20.3	12 23	7 38.32	+ 9 14.0	1.977	2.889	8.9	20.5
1 2	7 30.02	+20 53.9	1.421	2.395	4.2	20.0	1 2	7 29.79	+ 9 28.8	1.917	2.871	5.7	20.3
1 12	7 20.14	+21 34.0	1.419	2.402	1.0	19.8	1 12	7 20.22	+ 9 56.0	1.885	2.854	4.2	20.1
1 22	7 10.54	+22 11.6	1.445	2.409	6.0	20.2	1 22	7 10.59	+10 33.7	1.883	2.836	6.1	20.2
2 1	7 2.56	+22 43.8	1.497	2.417	10.6	20.5	2 1	7 1.95	+11 18.8	1.909	2.817	9.5	20.4
2 11	6 57.21	+23 9.3	1.573	2.425	14.6	20.7	2 11	6 55.19	+12 7.9	1.961	2.798	12.8	20.6
110727	2001 TR ₂₃₅		1 10.0 167°23	0°1/10.1	18		458709	2011 HM ₈₆		1 10.1 94°60	1°7/ 9.3	18	
12 3	7 47.31	+19 32.3	2.951	3.714	10.8	20.3	12 3	7 49.61	+24 30.5	2.283	3.064	13.1	21.3
12 13	7 42.69	+20 1.0	2.858	3.718	8.4	20.1	12 13	7 45.03	+25 18.1	2.206	3.076	10.2	21.1
12 23	7 36.35	+20 34.8	2.791	3.722	5.7	19.9	12 23	7 38.18	+26 9.7	2.153	3.088	6.8	20.9
1 2	7 28.72	+21 11.7	2.752	3.725	2.6	19.7	1 2	7 29.64	+27 0.9	2.128	3.100	3.3	20.7
1 12	7 20.47	+21 49.2	2.744	3.727	0.6	19.6	1 12	7 20.28	+27 47.6	2.132	3.111	2.0	20.6
1 22	7 12.29	+22 25.0	2.769	3.730	3.8	19.8	1 22	7 11.12	+28 26.2	2.167	3.123	5.1	20.9
2 1	7 4.93	+22 57.3	2.823	3.731	6.7	20.0	2 1	7 3.14	+28 55.1	2.231	3.134	8.5	21.1
2 11	6 59.00	+23 25.1	2.905	3.733	9.4	20.2	2 11	6 57.13	+29 14.4	2.320	3.146	11.5	21.3
158232	2001 SO ₂₆₇		1 10.0 132°75	3°2/ 8.9	18		439893	2000 SN ₁₈₄		1 10.1 37°33	3°1/10.9	16	
12 3	7 57.16	+27 46.6	1.819	2.602	15.8	21.0	12 3	7 50.54	+13 56.3	1.062	1.877	22.6	20.6
12 13	7 51.54	+28 38.3	1.746	2.616	12.4	20.8	12 13	7 47.28	+14 1.5	1.019	1.904	17.9	20.4
12 23	7 42.86	+29 32.3	1.696	2.629	8.5	20.6	12 23	7 40.32	+14 25.0	0.994	1.932	12.3	20.2
1 2	7 31.84	+30 22.0	1.673	2.642	4.6	20.4	1 2	7 30.69	+15 4.4	0.991	1.961	6.5	19.9
1 12	7 19.72	+31 1.3	1.679	2.654	3.5	20.4	1 12	7 20.08	+15 54.3	1.011	1.991	3.2	19.8
1 22	7 7.94	+31 26.4	1.714	2.665	6.8	20.6	1 22	7 10.29	+16 48.4	1.056	2.022	7.4	20.2
2 1	6 57.91	+31 36.6	1.777	2.675	10.6	20.9	2 1	7 2.88	+17 41.0	1.126	2.054	12.4	20.6
2 11	6 50.63	+31 34.1	1.864	2.685	14.0	21.1	2 11	6 58.82	+18 28.2	1.216	2.086	16.8	20.9
373664	2002 QJ ₈₁		1 10.0 73°32	3°4/ 9.1	18		285558	2000 KR ₄₅		1 10.1 202°51	3°2/10.9	18	
12 3	7 52.78	+31 23.4	2.124	2.907	13.9	20.9	12 3	7 52.10	+13 54.8	1.683	2.459	17.2	21.4
12 13	7 47.66	+31 44.3	2.051	2.919	10.9	20.8	12 13	7 47.68	+13 40.1	1.596	2.457	13.8	21.2
12 23	7 39.98	+32 2.7	2.000	2.930	7.6	20.6	12 23	7 40.37	+13 36.6	1.529	2.455	9.8	20.9
1 2	7 30.43	+32 14.1	1.976	2.942	4.4	20.4	1 2	7 30.78	+13 44.3	1.487	2.453	5.5	20.7
1 12	7 20.07	+32 14.9	1.981	2.953	3.5	20.4	1 12	7 20.02	+14 1.7	1.472	2.450	3.3	20.5
1 22	7 10.11	+32 3.6	2.016	2.965	6.1	20.6	1 22	7 9.40	+14 26.3	1.486	2.446	6.5	20.7
2 1	7 1.63	+31 41.1	2.078	2.976	9.3	20.8	2 1	7 0.27	+14 55.2	1.527	2.443	10.8	20.9
2 11	6 55.48	+31 10.0	2.166	2.988	12.3	21.0	2 11	6 53.66	+15 25.6	1.592	2.439	14.8	21.2
502486	2015 BD ₃₅₆		1 10.1 359°10	2°7/ 9.3	18		367979	2012 EL ₁₆		1 10.1 173°11	3°5/11.7	18	
12 3	7 50.84	+30 2.6	2.260	3.042	13.1	21.3	12 3	7 48.58	+ 9 18.6	2.064	2.819	15.1	20.7
12 13	7 46.10	+30 17.8	2.173	3.042	10.3	21.1	12 13	7 44.38	+ 9 36.7	1.974	2.820	12.3	20.5
12 23	7 38.94	+30 31.5	2.110	3.042	7.1	20.9	12 23	7 37.86	+10 9.7	1.906	2.821	8.9	20.3
1 2	7 29.98	+30 39.8	2.074	3.042	3.9	20.7	1 2	7 29.55	+10 57.2	1.863	2.822	5.4	20.0
1 12	7 20.18	+30 39.6	2.067	3.042	2.9	20.6	1 12	7 20.32	+11 56.7	1.849	2.822	3.5	19.9
1 22	7 10.62	+30 29.3	2.090	3.042	5.6	20.8	1 22	7 11.17	+13 4.3	1.865	2.823	5.6	20.1
2 1	7 2.36	+30 9.3	2.141	3.042	8.9	21.0	2 1	7 3.13	+14 15.3	1.910	2.823	9.1	20.3
2 11	6 56.23	+29 41.5	2.217	3.042	11.9	21.2	2 11	6 57.07	+15 25.6	1.980	2.823	12.5	20.5
385130	2013 GH ₇₉		1 10.1 224°26	3°3/ 8.2	17		190685	2001 DF ₂₅		1 10.1 330°28	6°4/ 8.7	18	
12 3	7 46.93	+36 4.8	3.766	4.528	8.7	21.0	12 3	7 55.92	+38 49.7	1.904	2.685	15.3	20.4
12 13	7 42.25	+36 37.2	3.670	4.521	7.0	20.8	12 13	7 50.89	+39 20.8	1.821	2.679	12.5	20.2
12 23	7 35.99	+37 6.5	3.598	4.513	5.1	20.7	12 23	7 42.60	+39 44.3	1.759	2.674	9.5	20.0
1 2	7 28.55	+37 29.7	3.556	4.505	3.7	20.6	1 2	7 31.79	+39 53.0	1.722	2.670	7.0	19.8
1 12	7 20.53	+37 44.2	3.544	4.497	3.5	20.5	1 12	7 19.80	+39 41.3	1.713	2.665	6.6	19.8
1 22	7 12.59	+37 48.7	3.562	4.489	4.8	20.6	1 22	7 8.22	+39 7.7	1.731	2.661	8.6	19.9
2 1	7 5.39	+37 43.1	3.610	4.480	6.6	20.7	2 1	6 58.52	+38 14.6	1.775	2.657	11.6	20.1
2 11	6 59.50	+37 28.4	3.684	4.471	8.4	20.9	2 11	6 51.76	+37 7.4	1.843	2.653	14.6	20.3
141744	2002 LZ ₃₇		1 10.1 81°91	2°3/11.3	18		331710	2002 RK ₁₈₅		1 10.1 101°79	1°2/10.4	18	
12 3	7 56.27	+ 6 34.1	1.120	1.902	23.8	19.5	12 3	7 49.51	+18 48.6	2.314	3.085	13.2	20.7
12 13	7 52.37	+ 8 30.9	1.048	1.912	19.2	19.2	12 13	7 44.74	+18 36.0	2.232	3.094	10.4	20.6
12 23	7 44.37	+11 7.9	0.993	1.921	13.5	18.9	12 23	7 37.87	+18 28.2	2.173	3.103	7.1	20.4
1 2	7 32.88	+14 19.6	0.962	1.931	7.0	18.6	1 2	7 29.46	+18 24.1	2.141	3.112	3.5	20.2
1 12	7 19.42	+17 50.3	0.959	1.940	2.4	18.3	1 12	7 20.38	+18 22.6	2.139	3.121	1.3	20.0
1 22	7 6.04	+21 19.2	0.984	1.950	7.9	18.7	1 22	7 11.53	+18 22.3	2.168	3.130	4.6	20.3
2 1	6 54.86	+24 28.0	1.038	1.959	14.1	19.0	2 1	7 3.83	+18 22.4	2.225	3.138	8.0	20.5
2 11	6 47.47	+27 7.0	1.115	1.969	19.2	19.4	2 11	6 57.98	+18 22.4	2.309	3.146	11.1	20.7
414899	2010 XJ ₃₈		1 10.1 357°65	2°2/ 9.3	18		519904	2013 PU ₈₀		1 10.1 197°31	1°5/10.6	18	
12 3	7 48.49	+24 30.6	1.607	2.412	16.6	20.8	12 3	7 48.96	+16 45.5				

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
445923	2012 <i>XB</i> ₁₁₃		1 10.1	22°29	1°9/ 9.8	18	36525	2000 <i>QV</i> ₈₀		1 10.1	255°54	2°5/10.7	18
12 3	7 53.16	+26 10.0	1.183	2.003	20.5	20.5	12 3	7 51.41	+15 26.9	1.682	2.464	17.0	19.8
12 13	7 49.70	+26 9.8	1.117	2.008	16.1	20.2	12 13	7 47.32	+15 19.2	1.586	2.452	13.6	19.5
12 23	7 42.27	+26 11.4	1.070	2.013	10.9	19.9	12 23	7 40.27	+15 22.0	1.511	2.441	9.6	19.3
1 2	7 31.75	+26 10.0	1.045	2.020	5.2	19.7	1 2	7 30.83	+15 34.8	1.460	2.429	5.1	19.0
1 12	7 19.83	+26 1.0	1.045	2.027	2.4	19.5	1 12	7 20.05	+15 55.5	1.437	2.416	2.6	18.8
1 22	7 8.51	+25 42.5	1.070	2.035	7.7	19.8	1 22	7 9.28	+16 21.5	1.441	2.404	6.3	19.0
2 1	6 59.62	+25 15.7	1.120	2.043	13.1	20.2	2 1	6 59.93	+16 49.8	1.473	2.391	11.0	19.2
2 11	6 54.34	+24 43.5	1.190	2.052	17.7	20.5	2 11	6 53.13	+17 18.1	1.529	2.378	15.1	19.4
185643	2040 <i>P-L</i>		1 10.1	96°22	3°2/ 9.3	18	459109	2012 <i>BS</i> ₁₁₆		1 10.1	50°86	1°1/10.4	16
12 3	8 1.13	+27 57.6	1.506	2.295	18.3	20.4	12 3	7 51.70	+18 17.8	1.432	2.231	18.6	21.5
12 13	7 54.92	+28 33.6	1.449	2.322	14.3	20.2	12 13	7 47.53	+18 26.2	1.374	2.252	14.6	21.3
12 23	7 45.18	+29 10.5	1.413	2.347	9.7	20.0	12 23	7 40.24	+18 44.5	1.336	2.273	9.8	21.1
1 2	7 32.88	+29 41.2	1.402	2.372	5.1	19.8	1 2	7 30.66	+19 10.0	1.323	2.296	4.7	20.8
1 12	7 19.59	+29 59.8	1.420	2.397	3.5	19.8	1 12	7 20.14	+19 38.7	1.336	2.318	1.4	20.6
1 22	7 7.04	+30 3.5	1.466	2.420	7.3	20.1	1 22	7 10.18	+20 6.8	1.376	2.341	6.2	21.0
2 1	6 56.77	+29 53.4	1.538	2.443	11.5	20.4	2 1	7 2.12	+20 31.7	1.442	2.364	10.8	21.3
2 11	6 49.79	+29 33.1	1.634	2.465	15.2	20.7	2 11	6 56.90	+20 52.3	1.532	2.387	14.8	21.6
184091	2004 <i>GL</i> ₇₂		1 10.1	334°04	6°0/ 7.9	18	136097	2003 <i>CS</i> ₁₇		1 10.1	341°67	3°5/ 9.6	18
12 3	7 52.77	+33 23.2	1.698	2.495	16.2	20.3	12 3	7 54.10	+31 23.5	1.577	2.377	17.1	19.1
12 13	7 48.81	+34 37.8	1.619	2.492	13.0	20.1	12 13	7 49.77	+31 20.5	1.492	2.370	13.6	18.8
12 23	7 41.48	+35 52.2	1.562	2.489	9.5	19.9	12 23	7 42.01	+31 13.1	1.428	2.364	9.5	18.6
1 2	7 31.41	+36 57.8	1.529	2.487	6.6	19.7	1 2	7 31.59	+30 56.3	1.389	2.358	5.3	18.3
1 12	7 19.88	+37 46.3	1.524	2.484	6.3	19.7	1 12	7 19.91	+30 26.1	1.377	2.353	3.7	18.2
1 22	7 8.51	+38 12.7	1.546	2.482	8.9	19.8	1 22	7 8.62	+29 41.7	1.392	2.349	7.3	18.4
2 1	6 58.93	+38 16.6	1.594	2.480	12.4	20.0	2 1	6 59.30	+28 45.9	1.434	2.345	11.7	18.6
2 11	6 52.37	+38 1.5	1.664	2.478	15.8	20.2	2 11	6 53.06	+27 43.4	1.498	2.342	15.7	18.9
280689	2005 <i>ET</i> ₂₈₂		1 10.1	221°39	1°4/10.7	18	321684	2010 <i>EF</i> ₈₄		1 10.1	101°64	1°0/10.5	18
12 3	7 46.98	+15 25.2	2.387	3.154	13.0	20.5	12 3	7 47.83	+17 29.2	2.567	3.333	12.2	21.3
12 13	7 42.88	+15 49.4	2.292	3.151	10.3	20.4	12 13	7 43.23	+17 38.3	2.489	3.348	9.5	21.1
12 23	7 36.73	+16 22.8	2.221	3.149	7.1	20.1	12 23	7 36.77	+17 53.4	2.434	3.363	6.5	21.0
1 2	7 29.02	+17 3.9	2.177	3.147	3.6	19.9	1 2	7 28.97	+18 13.2	2.407	3.377	3.2	20.8
1 12	7 20.49	+17 49.9	2.163	3.144	1.4	19.8	1 12	7 20.56	+18 35.7	2.410	3.392	1.2	20.6
1 22	7 12.02	+18 37.8	2.179	3.142	4.5	20.0	1 22	7 12.36	+18 58.8	2.444	3.406	4.1	20.9
2 1	7 4.51	+19 24.6	2.225	3.139	8.0	20.2	2 1	7 5.15	+19 20.9	2.507	3.420	7.3	21.1
2 11	6 58.71	+20 8.1	2.297	3.136	11.1	20.4	2 11	6 59.58	+19 41.0	2.598	3.433	10.1	21.3
375052	2007 <i>LW</i> ₂₇		1 10.1	295°25	8°0/12.9	18	34008	2000 <i>OB</i> ₁₂		1 10.1	108°21	0°2/10.1	18
12 3	7 45.86	+ 0 10.7	1.995	2.721	16.5	21.3	12 3	7 56.21	+20 33.9	1.791	2.568	16.3	19.6
12 13	7 42.43	- 0 25.1	1.896	2.707	14.1	21.1	12 13	7 50.47	+20 43.8	1.724	2.590	12.7	19.4
12 23	7 36.68	- 0 42.7	1.816	2.693	11.6	20.9	12 23	7 41.95	+20 59.8	1.678	2.611	8.5	19.2
1 2	7 29.08	- 0 38.4	1.759	2.678	9.2	20.7	1 2	7 31.40	+21 18.7	1.659	2.632	3.9	19.0
1 12	7 20.46	- 0 10.7	1.727	2.664	8.0	20.6	1 12	7 19.99	+21 37.2	1.669	2.652	0.9	18.8
1 22	7 11.81	+ 0 39.1	1.723	2.650	8.8	20.6	1 22	7 9.05	+21 52.6	1.709	2.671	5.5	19.1
2 1	7 4.19	+ 1 47.3	1.745	2.637	11.2	20.7	2 1	6 59.79	+22 3.7	1.777	2.690	9.7	19.4
2 11	6 58.49	+ 3 7.9	1.791	2.623	14.1	20.9	2 11	6 53.08	+22 10.4	1.870	2.708	13.3	19.7
103899	2000 <i>DG</i> ₅₆		1 10.1	273°39	2°5/10.9	18	462031	2007 <i>BA</i> ₇₇		1 10.1	343°33	6°1/12.7	18
12 3	7 49.14	+14 26.2	1.844	2.621	15.9	20.1	12 3	7 43.13	+ 5 26.6	1.404	2.186	19.7	20.6
12 13	7 45.30	+14 27.4	1.744	2.607	12.8	19.8	12 13	7 41.29	+ 5 36.3	1.316	2.173	16.4	20.4
12 23	7 38.78	+14 39.9	1.665	2.593	9.0	19.6	12 23	7 36.46	+ 6 11.1	1.245	2.162	12.5	20.1
1 2	7 30.10	+15 3.2	1.611	2.579	4.9	19.3	1 2	7 29.16	+ 7 13.4	1.197	2.151	8.5	19.8
1 12	7 20.21	+15 35.0	1.585	2.564	2.6	19.1	1 12	7 20.47	+ 8 41.1	1.173	2.142	6.1	19.7
1 22	7 10.29	+16 12.4	1.588	2.550	5.9	19.3	1 22	7 11.76	+10 27.9	1.176	2.134	8.0	19.8
2 1	7 1.60	+16 52.0	1.618	2.535	10.2	19.5	2 1	7 4.49	+12 24.8	1.203	2.128	12.2	20.0
2 11	6 55.16	+17 31.1	1.673	2.521	14.1	19.7	2 11	6 59.88	+14 22.1	1.253	2.123	16.5	20.2
193290	2000 <i>SO</i> ₂₃₂		1 10.1	106°70	18°2/16.5	18	143405	2003 <i>BE</i> ₄₄		1 10.1	9°94	3°3/11.6	18
12 3	7 53.17	-13 11.7	1.264	1.953	25.9	20.3	12 3	7 47.06	+10 1.1	1.509	2.293	18.5	18.8
12 13	7 49.15	-15 21.8	1.210	1.964	23.7	20.2	12 13	7 44.06	+10 38.0	1.429	2.294	14.9	18.6
12 23	7 41.65	-16 57.3	1.169	1.975	21.4	20.1	12 23	7 38.13	+11 35.8	1.369	2.296	10.7	18.4
1 2	7 31.44	-17 46.8	1.144	1.986	19.4	20.0	1 2	7 29.85	+12 53.2	1.333	2.298	6.1	18.1
1 12	7 19.90	-17 42.8	1.137	1.996	18.3	19.9	1 12	7 20.33	+14 25.3	1.323	2.301	3.3	17.9
1 22	7 8.72	-16 45.4	1.149	2.006	18.4	20.0	1 22	7 10.94	+16 4.7	1.341	2.305	6.5	18.1
2 1	6 59.50	-15 2.2	1.181	2.015	19.5	20.1	2 1	7 3.05	+17 43.6	1.386	2.309	11.0	18.4
2 11	6 53.42	-12 47.0	1.230	2.024	21.4	20.2	2 11	6 57.76	+19 15.8	1.455	2.314	15.2	18.7
252771	2002 <i>EB</i> ₉₅		1 10.1	212°75	2°2/ 9.3	18	216245	2006 <i>VX</i> ₅₈		1 10.1	143°59	0°1/10.0	18
12 3	7 54.90	+26 35.5	2.111	2.888	14.1	21.6	12 3	7 52.30	+20 55.4	2.166	2.939	13.9	21.1
12 13	7 49.57	+27 6.1	2.014	2.881	11.1	21.4	12 13	7 47.16	+21 16.1	2.084	2.949	10.9	20.9
12 23	7 41.51	+27 39.0	1.940	2.873	7.6	21.2	12 23	7 39.65	+21 42.3	2.025	2.958	7.3	20.7
1 2	7 31.30	+28 9.9	1.893	2.864	3.9	20.9	1 2	7 30.37	+22 11.0	1.994	2.967	3.3	20.5
1 12	7 19.93	+28 34.2	1.876	2.854	2.5	20.8	1 12	7 20.24	+22 39.1	1.992	2.975	0.8	20.3
1 22	7 8.64	+28 48.8	1.889	2.844	5.9	21.0	1 22	7 10.33	+23 3.8	2.021	2.983	4.9	20.6
2 1	6 58.67	+28 52.7	1.931	2.833	9.7	21.2	2 1	7 1.68	+23 23.4	2.079	2.990	8.7	20.9
2 11	6 51.03	+28 47.3	1.998	2.821	13.1	21.4	2 11	6 55.11	+23 37.7	2.163	2.996	11.9	21.1
273043	2006 <i>DL</i> ₁₃₇		1 10.1	33°01	0°9/ 9.8	18	68778	2002 <i>FO</i> ₂		1 10.1	98°98	4°4/11.6	18
12 3	7 49.20												

EPHEMERIDES

1 10.1

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
375108	2007 <i>TE</i> ₁₄₄		1 10.1 86°63	0°2/10.2	18		79477	1998 <i>CN</i>		1 10.1 46°50	2°4/ 9.6	18	
12 3	7 49.43	+20 23.1	2.388	3.161	12.8	21.4	12 3	7 53.51	+29 22.5	1.917	2.705	15.0	18.4
12 13	7 44.59	+20 33.0	2.316	3.180	10.0	21.3	12 13	7 48.29	+29 20.3	1.853	2.725	11.7	18.2
12 23	7 37.72	+20 47.4	2.267	3.200	6.7	21.1	12 23	7 40.41	+29 15.9	1.811	2.745	7.9	18.0
1 2	7 29.41	+21 4.3	2.246	3.219	3.1	20.9	1 2	7 30.66	+29 5.7	1.795	2.765	4.1	17.9
1 12	7 20.49	+21 21.5	2.256	3.238	0.7	20.7	1 12	7 20.23	+28 47.1	1.808	2.786	2.6	17.8
1 22	7 11.84	+21 36.9	2.295	3.257	4.3	21.1	1 22	7 10.34	+28 19.8	1.850	2.807	5.8	18.0
2 1	7 4.34	+21 49.5	2.364	3.276	7.7	21.3	2 1	7 2.12	+27 45.1	1.921	2.829	9.4	18.3
2 11	6 58.65	+21 58.8	2.459	3.295	10.6	21.5	2 11	6 56.36	+27 5.7	2.016	2.850	12.6	18.5
138736	2000 <i>SV</i> ₁₉₉		1 10.1 151°77	0°6/ 9.8	18		193855	2001 <i>QZ</i> ₁₂₀		1 10.1 149°74	3°3/ 9.3	18	
12 3	7 47.90	+23 13.3	2.871	3.641	10.9	20.6	12 3	7 57.96	+28 54.5	1.713	2.499	16.5	21.0
12 13	7 43.21	+23 30.5	2.783	3.647	8.5	20.4	12 13	7 52.42	+29 24.6	1.636	2.507	13.0	20.8
12 23	7 36.75	+23 50.4	2.719	3.652	5.7	20.2	12 23	7 43.62	+29 55.1	1.580	2.513	9.0	20.6
1 2	7 28.98	+24 10.6	2.684	3.657	2.6	20.0	1 2	7 32.30	+30 19.9	1.551	2.519	4.9	20.4
1 12	7 20.58	+24 28.9	2.680	3.662	0.9	19.9	1 12	7 19.81	+30 33.5	1.549	2.525	3.5	20.3
1 22	7 12.34	+24 43.7	2.707	3.667	4.0	20.1	1 22	7 7.70	+30 33.1	1.577	2.530	7.0	20.5
2 1	7 4.99	+24 53.9	2.764	3.671	6.9	20.3	2 1	6 57.46	+30 19.3	1.632	2.535	11.1	20.8
2 11	6 59.16	+24 59.4	2.848	3.675	9.5	20.5	2 11	6 50.17	+29 55.0	1.710	2.539	14.8	21.0
61223	2000 <i>OL</i> ₁₃		1 10.1 98°00	0°8/10.3	18		165682	2001 <i>OY</i> ₆₅		1 10.1 90°40	4°5/ 8.8	18	
12 3	7 54.10	+19 40.2	1.584	2.373	17.5	19.7	12 3	7 55.66	+36 50.6	2.513	3.279	12.4	19.5
12 13	7 49.29	+19 38.0	1.512	2.385	13.8	19.5	12 13	7 49.53	+37 17.4	2.448	3.301	9.9	19.4
12 23	7 41.43	+19 42.9	1.461	2.396	9.3	19.2	12 23	7 41.05	+37 38.2	2.407	3.322	7.3	19.2
1 2	7 31.26	+19 52.8	1.435	2.407	4.4	19.0	1 2	7 30.92	+37 48.4	2.393	3.344	5.1	19.1
1 12	7 20.04	+20 4.5	1.436	2.419	1.2	18.8	1 12	7 20.17	+37 44.6	2.409	3.365	4.6	19.1
1 22	7 9.23	+20 15.5	1.466	2.429	6.0	19.1	1 22	7 9.89	+37 26.2	2.455	3.386	6.3	19.3
2 1	7 0.20	+20 24.3	1.522	2.440	10.7	19.4	2 1	7 1.06	+36 54.4	2.529	3.407	8.8	19.5
2 11	6 53.93	+20 30.3	1.603	2.450	14.6	19.7	2 11	6 54.42	+36 12.7	2.629	3.427	11.1	19.7
126259	2002 <i>AE</i> ₇₆		1 10.1 226°43	0°9/ 9.7	18		468356	2016 <i>EP</i> ₁₄₅		1 10.1 188°08	3°5/11.8	17	
12 3	7 50.27	+22 26.7	2.194	2.973	13.6	20.2	12 3	7 46.29	+ 7 57.8	3.012	3.742	11.3	22.6
12 13	7 45.78	+22 58.8	2.098	2.967	10.7	19.9	12 13	7 41.82	+ 7 52.0	2.913	3.742	9.3	22.4
12 23	7 38.89	+23 36.4	2.025	2.960	7.2	19.7	12 23	7 35.77	+ 7 56.0	2.838	3.740	6.9	22.2
1 2	7 30.10	+24 16.3	1.980	2.953	3.3	19.5	1 2	7 28.54	+ 8 10.1	2.790	3.738	4.6	22.1
1 12	7 20.30	+24 54.4	1.964	2.946	1.3	19.3	1 12	7 20.72	+ 8 33.5	2.773	3.736	3.5	22.0
1 22	7 10.54	+25 27.5	1.978	2.938	5.1	19.5	1 22	7 12.96	+ 9 4.8	2.786	3.733	4.7	22.1
2 1	7 1.93	+25 53.4	2.021	2.930	8.9	19.8	2 1	7 5.93	+ 9 42.0	2.829	3.730	7.0	22.2
2 11	6 55.35	+26 11.7	2.089	2.922	12.3	20.0	2 11	7 0.21	+10 22.7	2.899	3.726	9.4	22.4
251140	2006 <i>TK</i> ₄₅		1 10.1 89°27	2°4/ 9.3	18		461054	2014 <i>XR</i> ₂₅		1 10.1 256°06	0°2/10.1	18	
12 3	7 55.66	+26 29.5	1.894	2.676	15.3	20.7	12 3	7 50.25	+21 20.4	2.061	2.842	14.3	21.2
12 13	7 50.02	+27 9.9	1.833	2.702	11.9	20.5	12 13	7 45.81	+21 19.5	1.969	2.838	11.2	21.0
12 23	7 41.64	+27 52.2	1.794	2.728	8.0	20.3	12 23	7 38.90	+21 22.9	1.899	2.834	7.6	20.8
1 2	7 31.26	+28 31.0	1.783	2.754	4.1	20.1	1 2	7 30.10	+21 28.7	1.856	2.829	3.5	20.5
1 12	7 20.06	+29 1.7	1.801	2.779	2.7	20.1	1 12	7 20.34	+21 34.4	1.842	2.825	0.8	20.3
1 22	7 9.35	+29 21.2	1.849	2.803	6.0	20.3	1 22	7 10.74	+21 38.3	1.857	2.820	5.1	20.6
2 1	7 0.30	+29 29.2	1.924	2.827	9.7	20.6	2 1	7 2.40	+21 39.4	1.901	2.815	9.1	20.9
2 11	6 53.78	+29 27.3	2.025	2.851	12.9	20.9	2 11	6 56.18	+21 37.6	1.970	2.811	12.6	21.1
153632	2001 <i>TT</i> ₆₃		1 10.1 96°50	0°6/ 9.9	18		237498	2000 <i>QC</i> ₈₅		1 10.1 106°30	2°5/10.7	18	
12 3	7 57.38	+22 11.3	1.625	2.410	17.3	20.6	12 3	7 53.81	+15 52.1	1.673	2.451	17.2	20.6
12 13	7 51.65	+22 28.2	1.563	2.434	13.5	20.4	12 13	7 48.82	+15 38.0	1.601	2.465	13.6	20.4
12 23	7 42.87	+22 50.5	1.523	2.458	9.0	20.2	12 23	7 40.99	+15 33.5	1.550	2.479	9.5	20.1
1 2	7 31.85	+23 14.2	1.508	2.481	4.1	19.9	1 2	7 31.04	+15 37.7	1.524	2.492	5.0	19.9
1 12	7 19.93	+23 34.9	1.521	2.504	1.2	19.8	1 12	7 20.15	+15 48.6	1.526	2.505	2.5	19.8
1 22	7 8.57	+23 49.8	1.564	2.526	6.0	20.2	1 22	7 9.64	+16 4.0	1.556	2.518	6.0	20.0
2 1	6 59.12	+23 57.9	1.634	2.547	10.4	20.5	2 1	7 0.76	+16 21.7	1.614	2.530	10.3	20.3
2 11	6 52.50	+24 0.0	1.729	2.568	14.1	20.7	2 11	6 54.46	+16 39.8	1.696	2.542	14.1	20.6
133809	2003 <i>WE</i> ₁₅₃		1 10.1 55°93	0°2/10.2	17		422135	2014 <i>QF</i> ₄₂₅		1 10.1 68°99	0°9/10.4	18	
12 3	7 53.07	+16 10.0	1.392	2.186	19.3	19.1	12 3	7 52.46	+18 5.9	1.692	2.477	16.8	21.3
12 13	7 48.73	+17 20.2	1.338	2.213	15.0	18.9	12 13	7 47.67	+18 20.5	1.631	2.501	13.1	21.1
12 23	7 41.15	+18 45.8	1.304	2.241	10.1	18.7	12 23	7 40.13	+18 43.9	1.592	2.525	8.8	20.9
1 2	7 31.14	+20 20.8	1.295	2.269	4.6	18.4	1 2	7 30.61	+19 13.5	1.577	2.550	4.2	20.7
1 12	7 20.09	+21 56.5	1.314	2.297	1.0	18.3	1 12	7 20.27	+19 45.5	1.592	2.574	1.2	20.5
1 22	7 9.55	+23 24.9	1.361	2.325	6.4	18.7	1 22	7 10.40	+20 16.5	1.635	2.598	5.6	20.9
2 1	7 0.98	+24 40.6	1.435	2.353	11.2	19.0	2 1	7 2.18	+20 44.0	1.705	2.622	9.8	21.2
2 11	6 55.37	+25 41.6	1.532	2.381	15.1	19.3	2 11	6 56.46	+21 7.0	1.800	2.646	13.4	21.5
349249	2007 <i>TE</i> ₁₂₁		1 10.1 53°50	4°3/11.4	18		414246	2008 <i>GN</i> ₂₆		1 10.1 60°17	6°8/ 7.7	18	
12 3	7 49.98	+11 15.9	1.464	2.247	19.0	20.9	12 3	7 54.79	+36 50.3	1.812	2.599	15.7	21.1
12 13	7 46.22	+11 2.8	1.394	2.258	15.3	20.6	12 13	7 50.24	+38 5.2	1.740	2.604	12.7	20.9
12 23	7 39.45	+11 5.5	1.345	2.269	11.0	20.4	12 23	7 42.35	+39 16.2	1.690	2.608	9.7	20.8
1 2	7 30.39	+11 24.4	1.318	2.281	6.6	20.2	1 2	7 31.81	+40 14.5	1.665	2.612	7.3	20.6
1 12	7 20.26	+11 57.4	1.318	2.292	4.3	20.1	1 12	7 19.95	+40 52.5	1.668	2.617	7.1	20.6
1 22	7 10.49	+12 40.8	1.344	2.304	7.1	20.3	1 22	7 8.38	+41 6.3	1.698	2.621	9.2	20.8
2 1	7 2.41	+13 29.9	1.397	2.316	11.3	20.5	2 1	6 58.68	+40 56.7	1.753	2.626	12.2	20.9
2 11	6 57.03	+14 20.2	1.472	2.329	15.2	20.8	2 11	6 51.97	+40 28.3	1.830	2.630	15.1	21.2
201426	2003 <i>AG</i> ₁₄		1 10.1 61°52	1°0/10.5	18		358685	2007 <i>YY</i> ₅₃		1 10.1 178°18	1°7/10.7	18	
12 3	7 47.27	+16 3.4	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
18011	1999 <i>JQ</i> ₁₁₃		1 10.1 115°69	0°4/10.3	18		492695	2014 <i>PZ</i> ₅₇		1 10.1 131°14	2°0/10.8	18	
12 3	7 47.91	+19 37.8	2.735	3.501	11.5	19.5	12 3	7 51.52	+14 42.2	1.883	2.654	15.8	21.7
12 13	7 43.23	+19 49.4	2.654	3.515	9.0	19.4	12 13	7 46.87	+14 56.6	1.803	2.663	12.5	21.5
12 23	7 36.76	+20 5.5	2.597	3.528	6.0	19.2	12 23	7 39.65	+15 22.3	1.744	2.672	8.7	21.2
1 2	7 29.00	+20 24.5	2.569	3.541	2.8	19.0	1 2	7 30.48	+15 57.7	1.712	2.680	4.5	21.0
1 12	7 20.66	+20 44.3	2.571	3.553	0.7	18.8	1 12	7 20.35	+16 39.6	1.708	2.688	2.1	20.9
1 22	7 12.50	+21 3.2	2.604	3.566	3.9	19.1	1 22	7 10.43	+17 24.4	1.733	2.696	5.5	21.1
2 1	7 5.28	+21 19.7	2.667	3.578	7.0	19.3	2 1	7 1.87	+18 8.6	1.787	2.703	9.5	21.3
2 11	6 59.62	+21 33.3	2.757	3.589	9.7	19.5	2 11	6 55.57	+18 49.9	1.866	2.710	13.1	21.6
406080	2006 <i>UU</i> ₁₃₅		1 10.1 100°34	1°8/10.7	18		358080	2006 <i>JW</i> ₁₁		1 10.1 205°92	4°0/11.3	18	
12 3	7 52.36	+16 11.3	1.926	2.697	15.5	21.9	12 3	7 50.83	+11 5.4	1.858	2.622	16.3	21.8
12 13	7 47.31	+16 12.5	1.855	2.716	12.2	21.7	12 13	7 46.46	+10 52.6	1.767	2.619	13.2	21.6
12 23	7 39.78	+16 22.6	1.806	2.734	8.4	21.5	12 23	7 39.47	+10 52.6	1.697	2.616	9.6	21.4
1 2	7 30.45	+16 40.0	1.783	2.752	4.3	21.3	1 2	7 30.44	+11 5.7	1.652	2.612	5.9	21.1
1 12	7 20.32	+17 2.2	1.789	2.770	1.9	21.2	1 12	7 20.34	+11 31.0	1.635	2.608	4.0	21.0
1 22	7 10.55	+17 26.8	1.825	2.787	5.3	21.5	1 22	7 10.34	+12 5.7	1.647	2.604	6.4	21.1
2 1	7 2.19	+17 51.3	1.890	2.804	9.1	21.7	2 1	7 1.62	+12 46.7	1.686	2.599	10.2	21.4
2 11	6 56.06	+18 14.4	1.979	2.821	12.5	22.0	2 11	6 55.13	+13 30.5	1.750	2.594	13.8	21.6
19529	1999 <i>GQ</i> ₁₅		1 10.1 129°49	0°8/10.3	18		273398	2006 <i>VE</i> ₁₀₇		1 10.1 32°41	0°2/10.1	18	
12 3	7 54.67	+18 42.3	1.988	2.757	15.1	19.1	12 3	7 51.06	+22 21.8	1.508	2.311	17.7	20.2
12 13	7 49.10	+18 50.4	1.912	2.774	11.9	18.9	12 13	7 47.16	+22 19.6	1.438	2.319	13.8	20.0
12 23	7 40.99	+19 5.4	1.859	2.789	8.0	18.7	12 23	7 40.14	+22 22.4	1.388	2.328	9.3	19.8
1 2	7 31.01	+19 25.0	1.832	2.804	3.8	18.5	1 2	7 30.75	+22 27.3	1.363	2.337	4.3	19.5
1 12	7 20.19	+19 46.3	1.836	2.818	1.1	18.3	1 12	7 20.30	+22 31.2	1.364	2.347	1.0	19.3
1 22	7 9.70	+20 6.8	1.869	2.831	5.1	18.6	1 22	7 10.27	+22 31.7	1.393	2.357	6.2	19.7
2 1	7 0.64	+20 24.7	1.932	2.844	9.1	18.9	2 1	7 2.06	+22 28.1	1.447	2.368	10.9	20.0
2 11	6 53.84	+20 39.4	2.020	2.856	12.5	19.2	2 11	6 56.66	+22 20.9	1.525	2.379	14.9	20.2
258549	2002 <i>CU</i> ₃₉		1 10.1 337°21	5°0/10.9	18		413565	2005 <i>TY</i> ₅₅		1 10.1 50°49	2°6/10.9	18	
12 3	7 46.16	+13 15.0	1.477	2.272	18.3	19.7	12 3	7 49.24	+14 14.1	1.649	2.433	17.2	20.6
12 13	7 43.53	+12 18.9	1.386	2.257	14.9	19.4	12 13	7 45.33	+14 17.8	1.581	2.448	13.6	20.4
12 23	7 37.89	+11 32.0	1.315	2.242	10.9	19.1	12 23	7 38.69	+14 33.9	1.533	2.463	9.5	20.2
1 2	7 29.82	+10 56.8	1.266	2.229	6.9	18.9	1 2	7 30.03	+15 1.2	1.511	2.479	5.1	20.0
1 12	7 20.44	+10 35.1	1.244	2.216	5.1	18.7	1 12	7 20.47	+15 36.7	1.515	2.495	2.6	19.9
1 22	7 11.14	+10 26.9	1.247	2.205	7.8	18.9	1 22	7 11.25	+16 16.8	1.548	2.511	5.9	20.1
2 1	7 3.33	+10 30.8	1.275	2.194	12.1	19.1	2 1	7 3.58	+16 57.8	1.608	2.527	10.1	20.4
2 11	6 58.17	+10 44.1	1.324	2.185	16.3	19.3	2 11	6 58.33	+17 36.8	1.692	2.544	13.7	20.7
492520	2014 <i>OS</i> ₄₅		1 10.1 293°65	0°2/10.0	17		429033	Günterwendt		1 10.1 178°35	0°0/10.0	17	
12 3	7 51.55	+21 51.0	1.484	2.286	17.9	22.4	12 3	7 49.07	+22 13.0	2.951	3.715	10.8	21.9
12 13	7 48.03	+21 55.9	1.390	2.270	14.2	22.1	12 13	7 44.06	+22 11.6	2.856	3.717	8.4	21.7
12 23	7 41.12	+22 7.4	1.315	2.255	9.7	21.8	12 23	7 37.31	+22 12.3	2.786	3.717	5.7	21.5
1 2	7 31.39	+22 22.5	1.265	2.239	4.5	21.5	1 2	7 29.28	+22 13.7	2.745	3.718	2.6	21.3
1 12	7 20.06	+22 37.2	1.241	2.224	1.1	21.2	1 12	7 20.65	+22 14.3	2.735	3.718	0.6	21.2
1 22	7 8.73	+22 48.1	1.244	2.209	6.8	21.5	1 22	7 12.16	+22 12.9	2.757	3.718	3.8	21.4
2 1	6 59.09	+22 53.4	1.273	2.194	12.1	21.8	2 1	7 4.54	+22 9.0	2.809	3.717	6.8	21.6
2 11	6 52.44	+22 53.4	1.324	2.179	16.7	22.0	2 11	6 58.43	+22 2.8	2.888	3.716	9.4	21.8
386909	2011 <i>HG</i> ₇₃		1 10.1 121°48	0°2/10.2	18		73684	1990 <i>SV</i>		1 10.1 90°67	1°3/ 9.8	18	
12 3	7 48.24	+18 58.7	2.452	3.223	12.6	20.9	12 3	7 57.25	+24 44.0	1.901	2.678	15.5	19.8
12 13	7 43.78	+19 28.2	2.368	3.231	9.8	20.8	12 13	7 51.10	+24 59.6	1.841	2.708	12.0	19.6
12 23	7 37.30	+20 4.2	2.307	3.239	6.6	20.6	12 23	7 42.27	+25 17.3	1.804	2.737	8.0	19.4
1 2	7 29.32	+20 44.4	2.274	3.247	3.1	20.4	1 2	7 31.56	+25 33.2	1.793	2.766	3.7	19.2
1 12	7 20.60	+21 25.7	2.272	3.255	0.7	20.2	1 12	7 20.14	+25 43.9	1.812	2.794	1.6	19.1
1 22	7 12.03	+22 5.2	2.300	3.262	4.3	20.5	1 22	7 9.28	+25 47.4	1.862	2.821	5.5	19.4
2 1	7 4.47	+22 40.8	2.358	3.270	7.7	20.7	2 1	7 0.12	+25 43.8	1.939	2.848	9.3	19.7
2 11	6 58.63	+23 11.1	2.442	3.277	10.7	20.9	2 11	6 53.47	+25 34.3	2.042	2.874	12.6	20.0
8077	Hoyle		1 10.1 316°39	5°6/12.6	18		84911	2003 <i>UH</i> ₁₉₀		1 10.1 29°44	3°5/ 8.3	18	
12 3	7 45.72	+ 5 20.7	1.593	2.360	18.4	16.7	12 3	7 49.28	+25 37.6	1.784	2.582	15.5	18.3
12 13	7 43.13	+ 5 36.6	1.489	2.337	15.4	16.5	12 13	7 45.63	+27 11.9	1.714	2.592	12.1	18.1
12 23	7 37.69	+ 6 16.3	1.404	2.316	11.7	16.2	12 23	7 39.11	+28 53.0	1.666	2.603	8.3	17.9
1 2	7 29.80	+ 7 21.9	1.341	2.294	7.9	15.9	1 2	7 30.33	+30 33.1	1.646	2.615	4.6	17.7
1 12	7 20.43	+ 8 52.1	1.305	2.274	5.7	15.7	1 12	7 20.38	+32 4.1	1.654	2.627	3.9	17.7
1 22	7 10.84	+10 41.1	1.296	2.254	7.6	15.8	1 22	7 10.59	+33 19.4	1.691	2.640	7.1	17.9
2 1	7 2.45	+12 40.6	1.314	2.234	11.8	16.0	2 1	7 2.29	+34 15.8	1.756	2.653	10.8	18.1
2 11	6 56.51	+14 41.8	1.355	2.215	16.0	16.2	2 11	6 56.52	+34 54.0	1.843	2.667	14.1	18.4
87749	2000 <i>SU</i> ₇₂		1 10.1 86°02	4°9/ 8.5	18		165399	2000 <i>XK</i> ₂₈		1 10.1 50°34	9°0/ 7.2	17	
12 3	7 54.64	+33 21.6	1.954	2.739	14.8	19.5	12 3	7 58.06	+35 55.1	1.274	2.082	20.0	19.7
12 13	7 49.54	+34 17.1	1.888	2.754	11.8	19.3	12 13	7 53.84	+38 0.1	1.232	2.107	16.1	19.5
12 23	7 41.53	+35 10.0	1.843	2.769	8.5	19.1	12 23	7 45.24	+40 0.0	1.211	2.133	12.2	19.4
1 2	7 31.33	+35 53.5	1.826	2.784	5.6	19.0	1 2	7 33.23	+41 40.6	1.213	2.159	9.4	19.3
1 12	7 20.14	+36 22.0	1.836	2.798	5.1	19.0	1 12	7 19.72	+42 49.9	1.240	2.186	9.3	19.4
1 22	7 9.35	+36 32.6	1.875	2.813	7.4	19.2	1 22	7 6.98	+43 23.1	1.292	2.213	11.8	19.6
2 1	7 0.23	+36 25.9	1.941	2.828	10.5	19.4	2 1	6 57.03	+43 23.1	1.367	2.240	15.0	19.9
2 11	6 53.74	+36 5.3	2.031	2.842	13.5	19.6	2 11	6 51.12	+42 58.1	1.462	2.268	18.0	20.1
235653	2004 <i>RC</i> ₁₅₅		1 10.1 193°55	2°6/10.8	18		491062	2011 <i>QX</i> ₇₂		1 10.1 119°42	1°4/ 9.7	15	
12 3	7 53.57	+15 13.0	1.888	2.656	15.9								

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
186909	2004 <i>LC</i> ₂₄		1 10.1 259°39	2°5/10.9	18		194091	2001 <i>SH</i> ₁₈₂		1 10.1 122°98	0°7/10.3	17	
12 3	7 49.53	+14 52.8	1.987	2.759	15.1	20.9	12 3	7 55.33	+18 54.1	1.708	2.488	16.8	21.8
12 13	7 45.39	+14 45.6	1.887	2.747	12.1	20.7	12 13	7 50.08	+19 8.1	1.635	2.502	13.2	21.6
12 23	7 38.75	+14 47.7	1.809	2.736	8.5	20.5	12 23	7 41.92	+19 30.5	1.583	2.517	8.9	21.4
1 2	7 30.13	+14 58.8	1.757	2.724	4.7	20.2	1 2	7 31.56	+19 58.3	1.558	2.530	4.2	21.2
1 12	7 20.44	+15 17.2	1.733	2.712	2.5	20.0	1 12	7 20.19	+20 27.7	1.560	2.543	1.1	21.0
1 22	7 10.76	+15 40.7	1.738	2.700	5.6	20.2	1 22	7 9.18	+20 55.4	1.592	2.555	5.7	21.3
2 1	7 2.25	+16 7.1	1.772	2.687	9.6	20.4	2 1	6 59.84	+21 18.9	1.652	2.567	10.2	21.6
2 11	6 55.84	+16 34.0	1.830	2.675	13.3	20.6	2 11	6 53.11	+21 37.7	1.737	2.578	14.0	21.9
496502	2014 <i>US</i> ₆₇		1 10.1 200°30	5°3/11.6	18		445898	2012 <i>VD</i> ₈₁		1 10.1 40°74	5°3/11.7	17	
12 3	7 49.80	+7 24.6	2.206	2.946	14.7	21.2	12 3	7 50.01	+9 57.5	1.286	2.076	20.8	21.5
12 13	7 45.17	+6 44.4	2.112	2.944	12.1	21.0	12 13	7 46.73	+9 38.6	1.216	2.083	16.9	21.2
12 23	7 38.35	+6 15.5	2.040	2.941	9.3	20.8	12 23	7 40.11	+9 38.5	1.165	2.090	12.4	21.0
1 2	7 29.86	+6 0.0	1.994	2.938	6.5	20.6	1 2	7 30.87	+9 58.6	1.136	2.097	7.8	20.7
1 12	7 20.53	+5 58.4	1.976	2.934	5.3	20.6	1 12	7 20.35	+10 37.2	1.132	2.105	5.3	20.6
1 22	7 11.29	+6 10.0	1.987	2.930	6.7	20.6	1 22	7 10.16	+11 29.8	1.153	2.113	8.0	20.8
2 1	7 3.11	+6 32.9	2.026	2.925	9.5	20.8	2 1	7 1.84	+12 30.5	1.199	2.121	12.5	21.1
2 11	6 56.78	+7 3.9	2.091	2.920	12.4	21.0	2 11	6 56.53	+13 33.2	1.267	2.130	16.8	21.3
400153	2006 <i>VP</i> ₁₂		1 10.1 69°10	4°1/10.4	16		62736	2000 <i>TZ</i> ₆₀		1 10.1 96°03	0°8/10.4	18	
12 3	8 4.50	+16 16.7	1.711	2.466	17.8	20.5	12 3	7 55.17	+16 45.4	1.744	2.518	16.8	19.7
12 13	7 56.43	+14 44.6	1.655	2.504	14.1	20.3	12 13	7 49.76	+17 21.1	1.680	2.544	13.1	19.5
12 23	7 45.60	+13 18.0	1.622	2.541	9.9	20.1	12 23	7 41.58	+18 7.7	1.638	2.570	8.9	19.3
1 2	7 32.97	+11 59.3	1.617	2.578	5.9	20.0	1 2	7 31.36	+19 1.5	1.623	2.594	4.2	19.1
1 12	7 19.87	+10 51.2	1.643	2.614	4.2	19.9	1 12	7 20.26	+19 57.6	1.636	2.619	1.1	18.9
1 22	7 7.65	+9 55.6	1.699	2.650	6.9	20.2	1 22	7 9.58	+20 51.4	1.679	2.642	5.5	19.3
2 1	6 57.46	+9 13.2	1.785	2.685	10.5	20.5	2 1	7 0.54	+21 39.3	1.751	2.665	9.8	19.6
2 11	6 50.03	+8 42.8	1.896	2.720	13.7	20.7	2 11	6 54.02	+22 19.9	1.848	2.687	13.3	19.9
164473	2006 <i>EV</i> ₁		1 10.1 137°52	0°6/ 9.9	18		397452	2007 <i>EB</i> ₁₉₇		1 10.1 232°17	3°1/10.9	17	
12 3	7 54.82	+21 51.5	1.919	2.696	15.3	21.2	12 3	7 53.00	+13 44.9	1.826	2.594	16.3	22.6
12 13	7 49.46	+22 16.0	1.841	2.708	12.0	21.0	12 13	7 48.36	+13 31.8	1.726	2.583	13.2	22.3
12 23	7 41.39	+22 46.2	1.786	2.720	8.0	20.8	12 23	7 40.93	+13 29.3	1.647	2.570	9.4	22.1
1 2	7 31.28	+23 18.3	1.757	2.730	3.7	20.6	1 2	7 31.22	+13 37.4	1.593	2.558	5.4	21.8
1 12	7 20.21	+23 48.2	1.758	2.741	1.1	20.4	1 12	7 20.25	+13 54.8	1.567	2.544	3.2	21.6
1 22	7 9.42	+24 12.9	1.789	2.750	5.5	20.7	1 22	7 9.27	+14 19.2	1.571	2.530	6.3	21.8
2 1	7 0.13	+24 30.7	1.849	2.759	9.6	21.0	2 1	6 59.58	+14 48.1	1.602	2.516	10.5	22.0
2 11	6 53.24	+24 41.7	1.933	2.767	13.1	21.2	2 11	6 52.25	+15 18.7	1.658	2.500	14.5	22.2
58927	1998 <i>MB</i> ₁₀		1 10.1 207°52	6°1/11.9	18		304845	2007 <i>RO</i> ₄₁		1 10.1 134°53	3°8/ 8.9	18	
12 3	7 51.98	+6 51.9	1.686	2.440	18.0	19.8	12 3	7 56.78	+29 51.8	1.856	2.639	15.5	21.3
12 13	7 47.62	+6 23.7	1.596	2.437	14.9	19.6	12 13	7 51.33	+30 37.6	1.782	2.650	12.2	21.1
12 23	7 40.43	+6 11.9	1.526	2.433	11.4	19.3	12 23	7 42.83	+31 23.6	1.730	2.660	8.5	20.9
1 2	7 30.96	+6 18.9	1.480	2.428	7.9	19.1	1 2	7 32.01	+32 3.5	1.704	2.670	4.9	20.7
1 12	7 20.27	+6 44.9	1.460	2.423	6.1	19.0	1 12	7 20.10	+32 31.3	1.708	2.679	4.0	20.7
1 22	7 9.66	+7 27.6	1.468	2.417	7.9	19.1	1 22	7 8.53	+32 44.0	1.740	2.688	7.0	20.9
2 1	7 0.43	+8 22.5	1.503	2.411	11.5	19.3	2 1	6 58.67	+32 41.4	1.800	2.696	10.6	21.1
2 11	6 53.66	+9 24.4	1.562	2.404	15.2	19.5	2 11	6 51.55	+32 26.5	1.884	2.704	13.9	21.3
23636	1997 <i>AJ</i> ₄		1 10.1 252°59	0°7/10.2	18		116398	2003 <i>YX</i> ₁₃₂		1 10.1 81°96	2°6/ 8.9	18	
12 3	7 54.85	+20 53.6	1.570	2.360	17.6	18.1	12 3	7 49.93	+27 7.7	2.236	3.020	13.2	19.4
12 13	7 50.34	+20 39.4	1.476	2.349	14.0	17.8	12 13	7 45.48	+28 0.2	2.159	3.029	10.3	19.2
12 23	7 42.52	+20 30.4	1.402	2.338	9.6	17.5	12 23	7 38.67	+28 55.1	2.105	3.038	7.0	19.0
1 2	7 32.01	+20 24.4	1.353	2.326	4.6	17.2	1 2	7 30.05	+29 47.7	2.078	3.047	3.8	18.9
1 12	7 20.02	+20 19.1	1.331	2.313	1.2	16.9	1 12	7 20.56	+30 33.1	2.082	3.057	2.9	18.8
1 22	7 8.13	+20 12.6	1.337	2.301	6.5	17.2	1 22	7 11.24	+31 8.0	2.115	3.066	5.7	19.0
2 1	6 57.91	+20 4.2	1.370	2.288	11.6	17.5	2 1	7 3.16	+31 30.9	2.176	3.075	8.9	19.2
2 11	6 50.60	+19 54.5	1.426	2.275	16.1	17.7	2 11	6 57.13	+31 42.6	2.263	3.084	11.9	19.4
83633	2001 <i>SF</i> ₃₂₂		1 10.1 196°95	2°7/11.4	18		282508	2004 <i>PZ</i> ₁₁₂		1 10.1 113°72	1°6/ 9.6	17	
12 3	7 46.38	+11 34.6	2.569	3.322	12.5	19.9	12 3	7 55.43	+23 7.3	1.682	2.469	16.7	21.2
12 13	7 42.26	+11 42.6	2.474	3.320	10.1	19.7	12 13	7 50.37	+23 53.8	1.611	2.484	13.1	21.0
12 23	7 36.28	+12 0.8	2.402	3.319	7.2	19.5	12 23	7 42.24	+24 46.7	1.562	2.498	8.8	20.8
1 2	7 28.89	+12 28.5	2.356	3.318	4.3	19.3	1 2	7 31.76	+25 40.7	1.539	2.512	4.1	20.5
1 12	7 20.79	+13 4.2	2.341	3.316	2.7	19.2	1 12	7 20.17	+26 29.7	1.545	2.526	2.0	20.4
1 22	7 12.75	+13 45.6	2.356	3.314	4.6	19.4	1 22	7 8.93	+27 9.0	1.580	2.539	6.3	20.7
2 1	7 5.59	+14 30.0	2.401	3.312	7.6	19.5	2 1	6 59.42	+27 36.6	1.642	2.552	10.6	21.0
2 11	6 59.97	+15 14.8	2.472	3.310	10.5	19.7	2 11	6 52.67	+27 53.1	1.729	2.564	14.3	21.2
179327	2001 <i>WY</i> ₅₅		1 10.1 118°41	0°8/ 9.8	18		309291	2007 <i>RP</i> ₂₂₁		1 10.1 43°35	3°0/10.9	18	
12 3	7 52.70	+23 8.5	2.101	2.879	14.2	21.5	12 3	7 50.55	+15 6.6	1.397	2.193	19.1	21.1
12 13	7 47.57	+23 28.2	2.025	2.892	11.0	21.3	12 13	7 46.85	+14 51.6	1.331	2.205	15.2	20.9
12 23	7 39.99	+23 51.7	1.971	2.905	7.4	21.1	12 23	7 39.99	+14 48.9	1.284	2.217	10.6	20.6
1 2	7 30.60	+24 15.7	1.945	2.918	3.4	20.9	1 2	7 30.74	+14 57.9	1.261	2.230	5.7	20.4
1 12	7 20.40	+24 36.8	1.948	2.931	1.2	20.8	1 12	7 20.41	+15 16.5	1.263	2.243	3.0	20.3
1 22	7 10.48	+24 52.5	1.982	2.942	5.1	21.1	1 22	7 10.51	+15 41.4	1.293	2.256	6.7	20.5
2 1	7 1.92	+25 1.9	2.044	2.954	8.8	21.3	2 1	7 2.44	+16 9.3	1.347	2.270	11.3	20.8
2 11	6 55.53	+25 5.3	2.132	2.965	12.1	21.5	2 11	6 57.21	+16 37.5	1.425	2.284	15.5	21.1
7848	Bernasconi		1 10.1 194°23	0°8/ 9.8	18		341860	2008 <i>FM</i> ₁₁₇		1 10.1 139°09	5°7/ 8.6	18	
12 3	7 53.18	+23 37.6	2.278	3.050	13.4								

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
160120	2000 <i>UU</i> ₇		1 10.1 107°23	0°6/ 9.9	18		152190	2005 <i>QZ</i> ₅₆		1 10.1 62°72	3°2/11.2	18	
12 3	7 56.12	+22 7.7	1.820	2.599	16.0	20.3	12 3	7 51.66	+12 49.4	1.699	2.472	17.2	19.9
12 13	7 50.48	+22 30.4	1.753	2.621	12.4	20.2	12 13	7 46.95	+12 44.6	1.641	2.500	13.6	19.7
12 23	7 42.05	+22 58.4	1.708	2.642	8.3	19.9	12 23	7 39.63	+12 52.5	1.603	2.528	9.6	19.6
1 2	7 31.58	+23 27.6	1.689	2.663	3.8	19.7	1 2	7 30.45	+13 12.2	1.591	2.555	5.4	19.4
1 12	7 20.23	+23 54.1	1.700	2.683	1.2	19.6	1 12	7 20.54	+13 41.2	1.606	2.583	3.2	19.3
1 22	7 9.32	+24 14.8	1.741	2.702	5.6	19.9	1 22	7 11.10	+14 16.2	1.650	2.611	5.9	19.5
2 1	7 0.07	+24 28.4	1.810	2.721	9.7	20.2	2 1	7 3.25	+14 54.0	1.722	2.638	9.7	19.8
2 11	6 53.36	+24 35.5	1.903	2.739	13.2	20.5	2 11	6 57.78	+15 31.4	1.818	2.666	13.2	20.1
345631	2006 <i>SU</i> ₃₁₁		1 10.1 243°78	6°3/12.6	17		203586	2002 <i>CA</i> ₂₄₂		1 10.1 309°76	0°0/ 9.9	18	
12 3	7 45.66	+ 0 31.2	2.810	3.513	12.6	21.5	12 3	7 50.69	+21 41.0	1.437	2.242	18.2	20.4
12 13	7 41.55	- 0 8.2	2.706	3.501	10.8	21.4	12 13	7 47.46	+21 39.7	1.345	2.228	14.5	20.1
12 23	7 35.76	- 0 35.1	2.623	3.489	8.8	21.2	12 23	7 40.81	+21 44.7	1.273	2.213	9.9	19.8
1 2	7 28.67	- 0 47.2	2.565	3.477	7.1	21.1	1 2	7 31.33	+21 53.4	1.225	2.199	4.6	19.5
1 12	7 20.89	- 0 43.4	2.536	3.464	6.3	21.0	1 12	7 20.28	+22 2.2	1.203	2.186	1.1	19.2
1 22	7 13.13	- 0 24.0	2.535	3.451	6.9	21.0	1 22	7 9.28	+22 8.1	1.208	2.173	6.8	19.5
2 1	7 6.09	+ 0 9.1	2.562	3.438	8.7	21.1	2 1	7 0.01	+22 9.5	1.238	2.160	12.1	19.8
2 11	7 0.41	+ 0 52.8	2.615	3.425	10.8	21.2	2 11	6 53.76	+22 6.6	1.289	2.148	16.8	20.0
9602	Oya		1 10.1 118°83	1°3/ 9.8	18		176863	2002 <i>TL</i> ₂₉₅		1 10.1 47°53	7°4/ 9.1	18	
12 3	7 56.83	+23 59.2	1.670	2.457	16.9	18.3	12 3	7 59.75	+38 39.6	1.449	2.243	18.6	19.2
12 13	7 51.41	+24 21.3	1.599	2.471	13.2	18.1	12 13	7 54.48	+39 20.2	1.396	2.263	15.1	19.0
12 23	7 42.89	+24 47.7	1.550	2.485	8.9	17.8	12 23	7 45.24	+39 51.1	1.363	2.283	11.4	18.9
1 2	7 32.03	+25 13.7	1.526	2.499	4.1	17.6	1 2	7 33.12	+40 3.2	1.354	2.304	8.3	18.7
1 12	7 20.12	+25 34.7	1.531	2.512	1.7	17.4	1 12	7 19.95	+39 50.1	1.370	2.325	7.6	18.8
1 22	7 8.65	+25 47.6	1.565	2.525	6.2	17.8	1 22	7 7.73	+39 11.4	1.413	2.347	9.8	18.9
2 1	6 58.99	+25 51.8	1.626	2.537	10.6	18.0	2 1	6 58.15	+38 11.7	1.480	2.368	13.1	19.2
2 11	6 52.14	+25 48.4	1.711	2.549	14.3	18.3	2 11	6 52.21	+36 58.8	1.569	2.390	16.2	19.4
493118	2014 <i>TM</i> ₂₄		1 10.1 125°61	7°3/12.7	18		422118	2014 <i>QB</i> ₄₁₅		1 10.1 195°44	2°8/ 9.3	18	
12 3	7 49.94	+ 1 22.0	2.145	2.862	15.7	21.9	12 3	7 55.50	+28 22.3	1.948	2.730	15.0	22.2
12 13	7 45.20	+ 0 35.1	2.068	2.874	13.3	21.7	12 13	7 50.28	+28 49.8	1.860	2.728	11.8	21.9
12 23	7 38.32	+ 0 4.2	2.011	2.886	10.7	21.6	12 23	7 42.15	+29 18.0	1.794	2.726	8.1	21.7
1 2	7 29.85	- 0 7.8	1.978	2.897	8.4	21.5	1 2	7 31.75	+29 42.0	1.754	2.724	4.3	21.5
1 12	7 20.64	+ 0 0.0	1.973	2.908	7.3	21.4	1 12	7 20.22	+29 57.1	1.744	2.721	3.1	21.4
1 22	7 11.65	+ 0 26.5	1.995	2.919	8.1	21.5	1 22	7 8.88	+30 0.4	1.763	2.717	6.3	21.6
2 1	7 3.78	+ 1 8.4	2.045	2.929	10.2	21.6	2 1	6 59.06	+29 51.8	1.810	2.713	10.2	21.8
2 11	6 57.80	+ 2 1.3	2.120	2.939	12.7	21.8	2 11	6 51.80	+29 33.4	1.882	2.708	13.7	22.0
165775	2001 <i>QE</i> ₂₆₂		1 10.1 109°66	4°6/11.9	18		403665	2010 <i>TP</i> ₁₅₇		1 10.1 118°29	2°6/11.1	18	
12 3	7 47.28	+ 6 46.2	2.612	3.344	12.8	20.8	12 3	7 51.79	+13 34.9	2.053	2.815	15.0	22.2
12 13	7 42.75	+ 6 17.3	2.532	3.358	10.5	20.6	12 13	7 46.78	+13 33.1	1.977	2.830	11.9	22.1
12 23	7 36.48	+ 5 59.2	2.474	3.371	8.0	20.5	12 23	7 39.44	+13 41.4	1.923	2.846	8.4	21.9
1 2	7 28.95	+ 5 53.1	2.443	3.384	5.7	20.3	1 2	7 30.39	+13 59.0	1.895	2.860	4.7	21.7
1 12	7 20.86	+ 5 58.9	2.441	3.397	4.6	20.3	1 12	7 20.56	+14 24.1	1.897	2.874	2.7	21.6
1 22	7 12.95	+ 6 15.4	2.468	3.410	5.7	20.4	1 22	7 10.99	+14 53.9	1.929	2.888	5.3	21.8
2 1	7 5.95	+ 6 40.7	2.525	3.422	7.9	20.5	2 1	7 2.71	+15 26.0	1.989	2.901	8.9	22.0
2 11	7 0.47	+ 7 12.2	2.607	3.434	10.3	20.7	2 11	6 56.49	+15 58.1	2.075	2.914	12.1	22.2
502221	2015 <i>BB</i> ₈₈		1 10.1 295°77	0°5/10.3	18		221232	2005 <i>UZ</i> ₁₇₆		1 10.1 153°79	2°1/ 9.4	18	
12 3	7 47.68	+19 48.9	2.185	2.965	13.6	21.3	12 3	7 52.11	+26 21.7	2.105	2.887	14.0	20.8
12 13	7 43.81	+19 56.2	2.083	2.951	10.7	21.1	12 13	7 47.32	+26 51.8	2.021	2.890	10.9	20.6
12 23	7 37.63	+20 9.4	2.003	2.937	7.3	20.9	12 23	7 39.98	+27 24.2	1.960	2.894	7.4	20.4
1 2	7 29.64	+20 26.8	1.950	2.923	3.4	20.6	1 2	7 30.70	+27 54.5	1.926	2.897	3.7	20.2
1 12	7 20.67	+20 45.9	1.927	2.909	0.9	20.4	1 12	7 20.47	+28 18.8	1.921	2.900	2.3	20.1
1 22	7 11.72	+21 4.5	1.932	2.896	4.9	20.7	1 22	7 10.44	+28 34.2	1.946	2.902	5.6	20.3
2 1	7 3.84	+21 20.6	1.967	2.882	8.8	20.9	2 1	7 1.74	+28 39.9	1.999	2.905	9.3	20.5
2 11	6 57.88	+21 33.6	2.026	2.869	12.2	21.1	2 11	6 55.26	+28 36.9	2.078	2.907	12.5	20.7
379023	2008 <i>VW</i> ₃₅		1 10.1 222°47	1°9/10.7	18		375061	2007 <i>PM</i> ₅₀		1 10.1 35°26	4°0/11.8	18	
12 3	7 49.19	+16 47.2	2.380	3.146	13.0	21.3	12 3	7 46.33	+ 9 25.4	1.933	2.697	15.7	20.3
12 13	7 44.60	+16 26.9	2.284	3.142	10.4	21.1	12 13	7 42.75	+ 9 27.1	1.855	2.706	12.7	20.2
12 23	7 37.93	+16 12.0	2.212	3.138	7.2	20.9	12 23	7 36.86	+ 9 43.3	1.799	2.715	9.3	20.0
1 2	7 29.69	+16 2.4	2.167	3.135	3.8	20.7	1 2	7 29.25	+10 13.9	1.767	2.725	5.8	19.8
1 12	7 20.68	+15 57.1	2.151	3.131	2.0	20.6	1 12	7 20.82	+10 57.2	1.763	2.735	4.0	19.7
1 22	7 11.80	+15 55.2	2.166	3.126	4.7	20.8	1 22	7 12.58	+11 49.5	1.788	2.745	5.9	19.8
2 1	7 3.95	+15 55.8	2.210	3.122	8.1	21.0	2 1	7 5.55	+12 47.0	1.840	2.755	9.3	20.0
2 11	6 57.86	+15 58.0	2.280	3.118	11.2	21.2	2 11	7 0.51	+13 45.5	1.917	2.766	12.5	20.3
493663	2015 <i>RW</i> ₉₆		1 10.1 64°46	2°2/ 9.6	15		460584	2014 <i>UR</i> ₁₇		1 10.1 73°38	3°9/ 8.9	18	
12 3	7 56.88	+24 53.5	1.309	2.114	19.7	21.6	12 3	7 53.44	+30 15.1	1.825	2.616	15.5	21.3
12 13	7 52.04	+25 26.0	1.257	2.139	15.3	21.4	12 13	7 48.78	+30 59.4	1.754	2.627	12.2	21.1
12 23	7 43.54	+26 3.0	1.224	2.163	10.3	21.2	12 23	7 41.16	+31 43.4	1.705	2.637	8.5	20.9
1 2	7 32.35	+26 38.1	1.215	2.188	4.9	20.9	1 2	7 31.28	+32 21.1	1.682	2.648	5.0	20.8
1 12	7 20.10	+27 5.1	1.232	2.213	2.6	20.9	1 12	7 20.37	+32 46.9	1.687	2.658	4.1	20.7
1 22	7 8.60	+27 20.3	1.276	2.237	7.2	21.2	1 22	7 9.81	+32 57.8	1.720	2.669	7.0	20.9
2 1	6 59.44	+27 23.5	1.346	2.262	12.0	21.5	2 1	7 0.93	+32 53.8	1.780	2.679	10.6	21.2
2 11	6 53.65	+27 16.9	1.438	2.286	16.0	21.9	2 11	6 54.71	+32 37.5	1.864	2.690	13.9	21.4
296897	2010 <i>CH</i> ₃		1 10.1 291°13	2°2/ 9.6	18		156068	2001 <i>ST</i> ₈₂		1 10.1 78°28	2°4/10.8	18	
12 3	7 52.89	+25 27.5	1.435</										

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
363146	2001 <i>RU</i> ₈₅		1 10.1	60°86	2°6/11.1	18	362133	2009 <i>DT</i> ₆₀		1 10.1	61°21	0°2/10.2	18
12 3	7 48.22	+13 43.7	2.146	2.913	14.3	20.4	12 3	7 51.22	+19 1.0	1.560	2.354	17.5	21.1
12 13	7 43.86	+13 38.6	2.077	2.933	11.3	20.2	12 13	7 47.31	+19 30.3	1.486	2.362	13.8	20.9
12 23	7 37.40	+13 42.8	2.031	2.954	7.9	20.1	12 23	7 40.34	+20 9.9	1.432	2.369	9.3	20.7
1 2	7 29.43	+13 55.9	2.011	2.976	4.4	19.9	1 2	7 31.00	+20 56.4	1.403	2.377	4.3	20.4
1 12	7 20.82	+14 16.1	2.020	2.997	2.6	19.8	1 12	7 20.49	+21 44.6	1.402	2.385	1.0	20.2
1 22	7 12.52	+14 41.1	2.058	3.018	5.0	20.0	1 22	7 10.24	+22 29.6	1.428	2.393	6.1	20.5
2 1	7 5.39	+15 8.7	2.125	3.039	8.3	20.2	2 1	7 1.67	+23 8.1	1.482	2.401	10.8	20.8
2 11	7 0.15	+15 36.8	2.218	3.061	11.3	20.5	2 11	6 55.81	+23 38.8	1.558	2.409	14.8	21.1
427075	2014 <i>UR</i> ₂₃		1 10.1	59°12	1°3/10.6	18	54508	2000 <i>PD</i> ₄		1 10.1	34°05	4°5/12.1	18
12 3	7 49.46	+16 46.3	1.793	2.577	16.0	21.0	12 3	7 48.06	+ 7 31.8	1.850	2.608	16.5	18.7
12 13	7 45.45	+17 2.0	1.717	2.586	12.6	20.8	12 13	7 44.31	+ 7 43.4	1.764	2.609	13.5	18.5
12 23	7 38.81	+17 27.9	1.663	2.596	8.6	20.6	12 23	7 38.08	+ 8 12.7	1.698	2.611	10.0	18.3
1 2	7 30.20	+18 1.7	1.634	2.606	4.2	20.3	1 2	7 29.91	+ 8 59.8	1.658	2.613	6.5	18.1
1 12	7 20.63	+18 40.1	1.633	2.615	1.5	20.1	1 12	7 20.74	+10 2.4	1.644	2.614	4.5	18.0
1 22	7 11.32	+19 19.3	1.662	2.626	5.4	20.4	1 22	7 11.67	+11 16.2	1.660	2.616	6.4	18.1
2 1	7 3.42	+19 56.5	1.717	2.636	9.6	20.7	2 1	7 3.82	+12 35.8	1.703	2.618	9.9	18.3
2 11	6 57.83	+20 29.5	1.797	2.646	13.3	21.0	2 11	6 58.12	+13 55.6	1.772	2.620	13.4	18.5
199826	2007 <i>DB</i> ₁₀₅		1 10.1	161°03	0°9/ 9.9	18	446010	2013 <i>CB</i> ₄₀		1 10.1	69°82	11°9/10.6	17
12 3	7 56.63	+23 7.1	1.953	2.727	15.2	22.1	12 3	8 23.70	+51 22.3	1.463	2.204	20.9	20.1
12 13	7 50.93	+23 25.9	1.869	2.735	11.9	21.9	12 13	8 13.51	+52 6.5	1.425	2.239	17.9	19.9
12 23	7 42.46	+23 49.0	1.808	2.741	8.0	21.6	12 23	7 57.88	+52 27.7	1.405	2.273	14.9	19.8
1 2	7 31.87	+24 12.7	1.775	2.747	3.7	21.4	1 2	7 38.68	+52 12.4	1.406	2.306	12.6	19.8
1 12	7 20.26	+24 33.0	1.770	2.752	1.3	21.2	1 12	7 18.91	+51 13.6	1.433	2.340	11.9	19.9
1 22	7 8.90	+24 47.2	1.796	2.757	5.5	21.5	1 22	7 1.53	+49 35.2	1.486	2.373	13.0	20.0
2 1	6 59.04	+24 54.3	1.851	2.760	9.6	21.8	2 1	6 48.54	+47 29.1	1.563	2.405	15.2	20.2
2 11	6 51.63	+24 54.9	1.931	2.763	13.2	22.0	2 11	6 40.66	+45 9.8	1.663	2.437	17.5	20.5
280433	2003 <i>YV</i> ₁₂₀		1 10.1	21°11	1°2/ 9.7	18	68529	2001 <i>VP</i> ₆₃		1 10.1	140°31	1°1/ 9.8	18
12 3	7 47.67	+22 29.0	1.817	2.613	15.3	20.5	12 3	7 52.45	+24 11.7	2.061	2.842	14.3	20.2
12 13	7 44.19	+23 9.7	1.741	2.619	12.0	20.3	12 13	7 47.56	+24 29.6	1.979	2.848	11.2	20.0
12 23	7 38.05	+23 57.0	1.687	2.625	8.0	20.1	12 23	7 40.14	+24 50.7	1.919	2.853	7.5	19.8
1 2	7 29.88	+24 46.7	1.658	2.632	3.7	19.8	1 2	7 30.81	+25 11.6	1.886	2.859	3.5	19.6
1 12	7 20.71	+25 34.0	1.658	2.639	1.6	19.7	1 12	7 20.57	+25 28.7	1.882	2.864	1.5	19.5
1 22	7 11.75	+26 14.5	1.686	2.647	5.7	20.0	1 22	7 10.56	+25 39.7	1.908	2.869	5.3	19.7
2 1	7 4.20	+26 45.9	1.742	2.656	9.8	20.3	2 1	7 1.90	+25 43.8	1.963	2.873	9.1	20.0
2 11	6 58.97	+27 7.8	1.821	2.665	13.3	20.5	2 11	6 55.47	+25 41.4	2.043	2.877	12.5	20.2
76842	2000 <i>TQ</i> ₃₃		1 10.1	127°61	10°6/ 9.9	18	349940	2010 <i>AK</i> ₅₃		1 10.1	269°92	3°0/10.0	18
12 3	8 16.37	+44 42.3	1.221	1.999	22.3	18.1	12 3	8 4.03	+31 52.1	1.575	2.358	17.9	20.6
12 13	8 8.96	+45 13.9	1.157	2.006	18.8	17.9	12 13	7 57.83	+31 22.8	1.475	2.342	14.4	20.3
12 23	7 55.77	+45 27.9	1.109	2.013	14.9	17.7	12 23	7 47.73	+30 45.3	1.395	2.326	10.1	20.0
1 2	7 38.15	+45 9.4	1.083	2.020	11.6	17.5	1 2	7 34.50	+29 54.2	1.341	2.310	5.4	19.7
1 12	7 18.89	+44 8.0	1.082	2.026	10.7	17.5	1 12	7 19.70	+28 46.2	1.315	2.294	3.2	19.5
1 22	7 1.21	+42 25.1	1.106	2.032	12.8	17.6	1 22	7 5.25	+27 22.2	1.319	2.277	7.4	19.7
2 1	6 47.69	+40 12.5	1.154	2.037	16.4	17.8	2 1	6 52.99	+25 47.8	1.350	2.260	12.4	20.0
2 11	6 39.52	+37 46.6	1.224	2.042	20.1	18.1	2 11	6 44.24	+24 10.4	1.406	2.243	16.9	20.2
490177	2008 <i>UV</i> ₂₆₉		1 10.1	69°18	0°8/10.4	15	95206	2002 <i>BM</i> ₂₅		1 10.1	235°03	0°7/ 9.9	18
12 3	7 54.78	+18 43.9	1.389	2.185	19.2	22.1	12 3	7 52.04	+24 18.7	2.189	2.967	13.6	19.6
12 13	7 50.12	+18 55.6	1.331	2.207	15.1	21.9	12 13	7 47.18	+24 18.6	2.093	2.960	10.7	19.4
12 23	7 42.16	+19 17.2	1.293	2.230	10.2	21.7	12 23	7 39.88	+24 20.3	2.020	2.954	7.2	19.2
1 2	7 31.75	+19 45.6	1.279	2.252	4.8	21.4	1 2	7 30.70	+24 21.3	1.974	2.947	3.4	19.0
1 12	7 20.33	+20 16.1	1.291	2.274	1.2	21.2	1 12	7 20.59	+24 19.2	1.957	2.939	1.1	18.8
1 22	7 9.51	+20 44.8	1.332	2.296	6.4	21.6	1 22	7 10.61	+24 12.4	1.971	2.932	5.0	19.0
2 1	7 0.72	+21 9.2	1.398	2.318	11.2	21.9	2 1	7 1.87	+24 0.6	2.013	2.924	8.9	19.3
2 11	6 54.95	+21 28.4	1.487	2.340	15.3	22.3	2 11	6 55.22	+23 44.6	2.082	2.917	12.2	19.5
362563	2010 <i>VG</i> ₆₉		1 10.1	89°45	2°5/ 9.4	17	45898	2000 <i>XQ</i> ₄₉		1 10.1	338°55	15°2/ 9.7	18 R
12 3	7 57.18	+27 39.2	1.994	2.770	14.8	21.1	12 3	8 12.17	+50 15.1	1.047	1.837	24.6	16.7
12 13	7 51.08	+28 11.1	1.935	2.801	11.5	21.0	12 13	8 7.65	+51 17.3	0.985	1.832	21.5	16.4
12 23	7 42.33	+28 43.2	1.899	2.831	7.8	20.8	12 23	7 56.08	+51 57.7	0.937	1.827	18.4	16.2
1 2	7 31.70	+29 10.8	1.890	2.860	4.0	20.6	1 2	7 38.69	+51 56.3	0.907	1.823	15.9	16.1
1 12	7 20.35	+29 29.6	1.912	2.889	2.7	20.6	1 12	7 18.79	+50 57.4	0.897	1.820	15.3	16.0
1 22	7 9.54	+29 37.5	1.963	2.917	5.8	20.8	1 22	7 0.59	+48 59.9	0.908	1.817	16.9	16.1
2 1	7 0.38	+29 34.7	2.043	2.944	9.3	21.1	2 1	6 47.41	+46 17.4	0.940	1.815	20.0	16.3
2 11	6 53.68	+29 23.2	2.147	2.971	12.4	21.4	2 11	6 40.66	+43 11.6	0.991	1.813	23.5	16.5
337520	2001 <i>SL</i> ₁₅₈		1 10.1	46°35	12°6/17.7	18	363894	2005 <i>SK</i> ₁₁₉		1 10.1	92°74	4°7/ 8.4	18
12 3	7 45.75	-15 52.6	2.162	2.786	17.9	20.4	12 3	7 56.51	+32 51.6	2.027	2.805	14.6	20.9
12 13	7 42.03	-17 4.9	2.102	2.803	16.4	20.3	12 13	7 50.88	+33 54.7	1.966	2.829	11.5	20.7
12 23	7 36.24	-17 51.5	2.058	2.820	14.8	20.2	12 23	7 42.41	+34 55.4	1.928	2.852	8.2	20.6
1 2	7 28.95	-18 7.4	2.032	2.837	13.5	20.2	1 2	7 31.84	+35 47.0	1.917	2.875	5.4	20.4
1 12	7 20.97	-17 50.0	2.028	2.855	12.7	20.2	1 12	7 20.36	+36 23.6	1.936	2.897	5.0	20.5
1 22	7 13.23	-17 0.3	2.047	2.873	12.7	20.2	1 22	7 9.29	+36 42.3	1.983	2.919	7.2	20.6
2 1	7 6.60	-15 42.5	2.087	2.891	13.3	20.3	2 1	6 59.89	+36 43.6	2.058	2.941	10.2	20.9
2 11	7 1.79	-14 3.7	2.150	2.910	14.5	20.4	2 11	6 53.06	+36 30.6	2.157	2.962	13.0	21.1
124193	2001 <i>OS</i> ₆₈		1 10.1	195°54	1°2/10.4	18	92771	2000 <i>QS</i> ₁₃₂		1 10.1	109°45	3°6/ 9.2	18
12 3	7 55												

EPHEMERIDES

1 10.1

1 10.2

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
32905	1994 <i>PX</i> ₃₂		1 10.1 181°82	0°8/10.4	18		17837	1998 <i>HQ</i> ₉₂		1 10.1 246°18	0°6/ 9.9	18	
12 3	7 47.67	+18 56.7	2.781	3.545	11.4	20.4	12 3	7 47.77	+22 45.6	2.637	3.411	11.7	19.2
12 13	7 43.15	+18 56.8	2.686	3.546	8.9	20.2	12 13	7 43.47	+23 2.3	2.538	3.404	9.1	19.0
12 23	7 36.85	+19 1.5	2.616	3.546	6.1	20.0	12 23	7 37.21	+23 22.4	2.463	3.397	6.2	18.8
1 2	7 29.22	+19 9.4	2.574	3.546	2.9	19.8	1 2	7 29.46	+23 43.7	2.416	3.389	2.8	18.6
1 12	7 20.95	+19 19.0	2.563	3.545	0.9	19.6	1 12	7 20.93	+24 3.7	2.400	3.382	0.9	18.4
1 22	7 12.80	+19 29.0	2.583	3.545	3.9	19.9	1 22	7 12.47	+24 20.2	2.414	3.374	4.3	18.6
2 1	7 5.51	+19 38.2	2.632	3.544	7.0	20.1	2 1	7 4.93	+24 32.2	2.457	3.367	7.5	18.8
2 11	6 59.74	+19 46.0	2.708	3.543	9.8	20.2	2 11	6 59.02	+24 39.4	2.527	3.359	10.4	19.0
483029	2015 <i>BE</i> ₃₂₄		1 10.1 137°59	1°2/ 9.6	18		47855	2000 <i>EU</i> ₁₅₃		1 10.1 43°58	0°9/10.5	18	
12 3	7 48.83	+23 17.1	2.451	3.227	12.4	21.3	12 3	7 48.58	+18 6.0	1.841	2.628	15.5	19.0
12 13	7 44.43	+23 59.4	2.364	3.232	9.7	21.1	12 13	7 44.66	+18 17.6	1.771	2.642	12.2	18.8
12 23	7 37.91	+24 46.3	2.302	3.236	6.5	21.0	12 23	7 38.23	+18 37.5	1.722	2.656	8.3	18.6
1 2	7 29.78	+25 34.2	2.267	3.239	3.1	20.7	1 2	7 29.95	+19 3.5	1.699	2.671	4.0	18.3
1 12	7 20.83	+26 19.3	2.262	3.243	1.5	20.6	1 12	7 20.83	+19 32.6	1.704	2.687	1.2	18.2
1 22	7 11.99	+26 58.5	2.289	3.247	4.7	20.9	1 22	7 12.03	+20 1.6	1.738	2.703	5.2	18.5
2 1	7 4.18	+27 29.8	2.344	3.250	8.0	21.1	2 1	7 4.61	+20 28.3	1.800	2.719	9.2	18.8
2 11	6 58.16	+27 52.9	2.425	3.253	11.0	21.3	2 11	6 59.42	+20 51.2	1.886	2.735	12.7	19.0
82123	2001 <i>FY</i> ₇₇		1 10.1 119°98	2°5/ 9.4	18		165418	2000 <i>YH</i> ₅₁		1 10.1 36°57	0°4/10.2	18	
12 3	7 57.59	+25 41.7	1.607	2.396	17.3	19.3	12 3	7 53.37	+22 15.0	1.331	2.138	19.3	19.0
12 13	7 52.28	+26 25.4	1.537	2.410	13.6	19.1	12 13	7 49.33	+21 52.6	1.266	2.149	15.2	18.8
12 23	7 43.68	+27 13.2	1.489	2.424	9.2	18.9	12 23	7 41.81	+21 34.5	1.220	2.160	10.2	18.6
1 2	7 32.53	+27 58.9	1.466	2.438	4.6	18.7	1 2	7 31.68	+21 18.6	1.198	2.172	4.7	18.3
1 12	7 20.21	+28 36.2	1.472	2.451	2.9	18.6	1 12	7 20.45	+21 2.7	1.202	2.185	1.1	18.1
1 22	7 8.30	+29 0.8	1.506	2.463	6.8	18.9	1 22	7 9.78	+20 45.8	1.232	2.198	6.6	18.5
2 1	6 58.30	+29 11.8	1.568	2.475	11.2	19.1	2 1	7 1.22	+20 27.8	1.288	2.211	11.7	18.8
2 11	6 51.30	+29 11.4	1.653	2.486	15.0	19.4	2 11	6 55.80	+20 9.7	1.366	2.226	16.0	19.1
254719	2005 <i>NL</i> ₄₀		1 10.1 43°64	1°6/10.8	18		464108	2014 <i>WU</i> ₄₃₄		1 10.1 21°94	2°8/11.0	18	
12 3	7 49.28	+14 17.9	1.693	2.475	16.9	20.1	12 3	7 48.38	+14 6.8	1.818	2.597	16.0	21.3
12 13	7 45.57	+14 56.6	1.612	2.479	13.4	19.9	12 13	7 44.61	+13 58.1	1.736	2.599	12.8	21.1
12 23	7 39.10	+15 50.2	1.553	2.484	9.2	19.6	12 23	7 38.30	+14 0.1	1.674	2.601	9.0	20.9
1 2	7 30.44	+16 56.0	1.519	2.490	4.7	19.4	1 2	7 30.03	+14 12.5	1.638	2.604	5.1	20.7
1 12	7 20.67	+18 9.2	1.513	2.495	1.7	19.2	1 12	7 20.80	+14 33.6	1.629	2.607	2.9	20.5
1 22	7 11.05	+19 23.9	1.536	2.501	5.7	19.5	1 22	7 11.76	+15 0.9	1.649	2.610	5.8	20.7
2 1	7 2.84	+20 34.7	1.587	2.506	10.2	19.8	2 1	7 4.05	+15 31.4	1.696	2.614	9.7	21.0
2 11	6 57.05	+21 38.2	1.662	2.512	14.1	20.0	2 11	6 58.55	+16 2.7	1.767	2.618	13.4	21.2
522535	2016 <i>EV</i> ₂₃₇		1 10.1 68°35	4°0/11.9	18		327318	2005 <i>UF</i> ₄₀		1 10.1 42°10	1°0/ 9.8	18	
12 3	7 46.97	+ 8 26.8	2.184	2.935	14.5	21.2	12 3	7 50.43	+23 3.8	1.785	2.578	15.7	21.1
12 13	7 42.97	+ 8 28.6	2.105	2.946	11.8	21.0	12 13	7 46.39	+23 28.3	1.707	2.583	12.3	20.9
12 23	7 36.90	+ 8 43.9	2.047	2.957	8.7	20.8	12 23	7 39.58	+23 58.1	1.651	2.589	8.3	20.6
1 2	7 29.30	+ 9 12.8	2.015	2.969	5.6	20.6	1 2	7 30.64	+24 29.4	1.621	2.594	3.8	20.4
1 12	7 20.96	+ 9 53.7	2.011	2.980	4.0	20.6	1 12	7 20.67	+24 57.9	1.618	2.600	1.5	20.2
1 22	7 12.81	+10 43.6	2.037	2.991	5.6	20.7	1 22	7 10.95	+25 20.3	1.645	2.606	5.8	20.5
2 1	7 5.72	+11 38.9	2.091	3.002	8.6	20.9	2 1	7 2.73	+25 35.0	1.698	2.613	10.0	20.8
2 11	7 0.43	+12 35.9	2.172	3.014	11.5	21.1	2 11	6 56.95	+25 42.1	1.776	2.619	13.6	21.0
390851	2004 <i>RD</i> ₁₈₃		1 10.1 158°35	2°7/11.0	18		19820	Stowers		1 10.2 355°52	5°8/11.9	18	
12 3	7 54.17	+13 49.1	2.053	2.809	15.1	22.2	12 3	7 46.47	+ 8 10.3	1.666	2.437	17.5	18.8
12 13	7 48.75	+13 43.0	1.967	2.818	12.1	22.0	12 13	7 43.35	+ 7 36.6	1.582	2.434	14.5	18.5
12 23	7 40.88	+13 46.7	1.905	2.826	8.5	21.8	12 23	7 37.58	+ 7 18.0	1.519	2.432	10.9	18.3
1 2	7 31.15	+13 59.5	1.868	2.833	4.8	21.6	1 2	7 29.75	+ 7 16.9	1.479	2.430	7.5	18.1
1 12	7 20.54	+14 19.6	1.862	2.839	2.7	21.5	1 12	7 20.87	+ 7 33.3	1.465	2.429	5.8	18.0
1 22	7 10.13	+14 44.8	1.885	2.844	5.5	21.7	1 22	7 12.13	+ 8 5.5	1.477	2.429	7.6	18.1
2 1	7 1.00	+15 12.6	1.938	2.849	9.2	21.9	2 1	7 4.74	+ 8 49.5	1.516	2.429	11.0	18.3
2 11	6 54.00	+15 41.0	2.016	2.852	12.5	22.1	2 11	6 59.64	+ 9 40.5	1.577	2.430	14.6	18.5
410006	2006 <i>WE</i> ₄₃		1 10.1 346°49	8°1/11.8	18		467827	2010 <i>OZ</i> ₁₀₁		1 10.2 210°78	6°6/14.2	17	
12 3	7 46.62	+ 6 14.9	1.477	2.251	19.3	20.9	12 3	7 45.07	- 6 14.2	3.402	4.055	11.4	23.2
12 13	7 43.81	+ 5 3.5	1.395	2.244	16.2	20.7	12 13	7 40.81	- 6 34.6	3.299	4.047	10.0	23.1
12 23	7 38.08	+ 4 7.4	1.332	2.238	12.7	20.4	12 23	7 35.15	- 6 40.8	3.216	4.039	8.6	23.0
1 2	7 30.03	+ 3 31.6	1.290	2.232	9.5	20.2	1 2	7 28.44	- 6 30.8	3.158	4.031	7.3	22.9
1 12	7 20.78	+ 3 19.1	1.273	2.228	8.1	20.1	1 12	7 21.19	- 6 3.9	3.127	4.022	6.6	22.8
1 22	7 11.65	+ 3 29.9	1.282	2.224	9.7	20.2	1 22	7 13.95	- 5 20.9	3.125	4.013	6.9	22.8
2 1	7 4.01	+ 4 0.8	1.314	2.221	12.9	20.4	2 1	7 7.32	- 4 24.1	3.151	4.003	8.0	22.9
2 11	6 58.92	+ 4 46.2	1.368	2.219	16.5	20.6	2 11	7 1.80	- 3 16.8	3.204	3.993	9.5	23.0
376614	2013 <i>PY</i> ₄₁		1 10.1 221°28	1°3/10.6	18		231645	2009 <i>VQ</i> ₈₈		1 10.2 184°14	0°6/ 9.9	18	
12 3	7 49.71	+17 43.8	2.127	2.901	14.1	21.9	12 3	7 50.93	+23 28.7	2.173	2.953	13.7	21.0
12 13	7 45.35	+17 42.7	2.034	2.898	11.2	21.6	12 13	7 46.29	+23 34.7	2.084	2.953	10.7	20.8
12 23	7 38.66	+17 48.5	1.964	2.895	7.7	21.4	12 23	7 39.27	+23 43.5	2.018	2.953	7.2	20.6
1 2	7 30.16	+18 0.0	1.921	2.891	3.8	21.2	1 2	7 30.45	+23 52.6	1.979	2.952	3.3	20.4
1 12	7 20.76	+18 15.1	1.906	2.888	1.4	21.0	1 12	7 20.75	+23 59.4	1.970	2.952	1.0	20.2
1 22	7 11.47	+18 31.8	1.921	2.884	5.0	21.2	1 22	7 11.23	+24 2.0	1.990	2.952	4.9	20.5
2 1	7 3.34	+18 48.3	1.965	2.880	8.8	21.5	2 1	7 2.95	+23 59.8	2.039	2.951	8.7	20.7
2 11	6 57.20	+19 3.4	2.035	2.877	12.2	21.7	2 11	6 56.73	+23 53.1	2.114	2.951	12.0	20.9
251994	2000 <i>EO</i> ₉₈		1 10.1 324°48	0°7/ 9.9	18		410786	2009 <i>FM</i> ₆₇		1 10.2 281°19	2°5/10.8	16	
12 3	7 51.89	+22 55.6	1.715	2.5									

EPHEMERIDES

1 10.2

1 10.2

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
82880	2001 <i>QN</i> ₇₀		1 10.2 102°43	4°9/12.5 18			3941	Haydn		1 10.2 358°74	0°8/10.4 18		
12 3	7 47.15	+ 4 33.7	2.630	3.353	13.0	19.4	12 3	7 48.72	+18 46.3	2.081	2.861	14.2	17.7
12 13	7 42.67	+ 4 16.4	2.553	3.371	10.7	19.3	12 13	7 44.64	+18 51.3	1.993	2.860	11.2	17.5
12 23	7 36.48	+ 4 11.8	2.499	3.388	8.3	19.1	12 23	7 38.21	+19 3.1	1.927	2.860	7.6	17.3
1 2	7 29.06	+ 4 20.7	2.470	3.406	6.0	19.0	1 2	7 30.00	+19 19.8	1.888	2.860	3.7	17.0
1 12	7 21.09	+ 4 42.8	2.471	3.423	4.9	19.0	1 12	7 20.89	+19 39.1	1.878	2.860	1.1	16.8
1 22	7 13.31	+ 5 16.2	2.501	3.439	5.8	19.0	1 22	7 11.93	+19 58.7	1.897	2.860	4.9	17.1
2 1	7 6.44	+ 5 58.4	2.560	3.456	7.9	19.2	2 1	7 4.16	+20 16.7	1.944	2.860	8.8	17.3
2 11	7 1.06	+ 6 46.1	2.645	3.472	10.2	19.4	2 11	6 58.40	+20 32.0	2.016	2.860	12.2	17.5
233574	2007 <i>PR</i> ₄₆		1 10.2 217°32	0°2/10.2 18			378456	2007 <i>RO</i> ₃₁₈		1 10.2 4°31	6°0/12.3 18		
12 3	7 48.84	+20 26.2	2.419	3.191	12.6	21.9	12 3	7 43.96	+ 6 32.5	1.713	2.482	17.2	20.5
12 13	7 44.44	+20 36.4	2.324	3.188	9.9	21.7	12 13	7 41.30	+ 6 7.2	1.634	2.482	14.3	20.2
12 23	7 37.93	+20 51.4	2.252	3.184	6.7	21.5	12 23	7 36.16	+ 5 58.8	1.573	2.483	10.9	20.0
1 2	7 29.83	+21 9.4	2.208	3.181	3.1	21.2	1 2	7 29.11	+ 6 9.4	1.537	2.485	7.7	19.9
1 12	7 20.91	+21 28.1	2.194	3.177	0.7	21.0	1 12	7 21.12	+ 6 38.7	1.525	2.488	6.0	19.8
1 22	7 12.09	+21 45.2	2.210	3.172	4.4	21.3	1 22	7 13.29	+ 7 24.1	1.541	2.491	7.5	19.9
2 1	7 4.28	+21 59.4	2.255	3.168	8.0	21.5	2 1	7 6.72	+ 8 21.2	1.582	2.496	10.6	20.1
2 11	6 58.24	+22 10.2	2.327	3.164	11.1	21.7	2 11	7 2.31	+ 9 24.6	1.647	2.502	14.0	20.3
77630	2001 <i>KV</i> ₄₇		1 10.2 179°59	4°0/ 8.4 18			360676	2004 <i>RN</i> ₂₂₅		1 10.2 35°79	3°8/ 9.4 17		
12 3	7 51.82	+32 42.3	2.473	3.248	12.3	19.7	12 3	7 53.64	+27 54.6	1.112	1.937	21.2	20.5
12 13	7 46.98	+33 35.7	2.387	3.249	9.8	19.5	12 13	7 50.29	+28 29.3	1.063	1.955	16.6	20.3
12 23	7 39.76	+34 28.0	2.326	3.249	7.0	19.3	12 23	7 42.81	+29 5.7	1.032	1.974	11.3	20.0
1 2	7 30.70	+35 13.9	2.292	3.250	4.6	19.2	1 2	7 32.25	+29 36.1	1.023	1.995	5.9	19.8
1 12	7 20.71	+35 48.7	2.287	3.250	4.2	19.1	1 12	7 20.45	+29 53.4	1.038	2.016	4.1	19.8
1 22	7 10.83	+36 9.5	2.313	3.249	6.3	19.3	1 22	7 9.49	+29 54.1	1.078	2.038	8.4	20.1
2 1	7 2.13	+36 15.8	2.366	3.249	9.1	19.4	2 1	7 1.16	+29 39.6	1.142	2.061	13.3	20.4
2 11	6 55.45	+36 9.3	2.445	3.248	11.7	19.6	2 11	6 56.54	+29 13.9	1.226	2.084	17.5	20.8
460238	2014 <i>QU</i> ₂₅₅		1 10.2 59°01	4°8/12.3 18			145703	4389 <i>T</i> ₋₃		1 10.2 145°85	12°1/ 4.5 18		
12 3	7 48.75	+ 6 42.1	1.759	2.516	17.3	21.3	12 3	8 10.52	+55 18.0	2.165	2.881	15.6	19.8
12 13	7 44.98	+ 6 55.2	1.677	2.520	14.2	21.1	12 13	8 3.93	+57 17.4	2.111	2.889	14.0	19.7
12 23	7 38.62	+ 7 27.4	1.614	2.525	10.6	20.9	12 23	7 52.53	+59 1.6	2.078	2.897	12.8	19.7
1 2	7 30.24	+ 8 19.2	1.576	2.529	6.9	20.7	1 2	7 37.03	+60 18.5	2.068	2.904	12.1	19.6
1 12	7 20.82	+ 9 28.1	1.565	2.533	4.8	20.6	1 12	7 19.30	+60 59.0	2.082	2.911	12.3	19.6
1 22	7 11.53	+10 49.0	1.582	2.538	6.7	20.7	1 22	7 1.92	+61 0.0	2.119	2.917	13.3	19.7
2 1	7 3.54	+12 15.9	1.627	2.543	10.3	20.9	2 1	6 47.38	+60 25.3	2.178	2.923	14.7	19.8
2 11	6 57.81	+13 42.9	1.697	2.547	13.8	21.2	2 11	6 37.35	+59 23.7	2.255	2.929	16.1	20.0
169184	Jameslee		1 10.2 81°61	0°2/10.2 18			171179	2005 <i>GX</i> ₂₁₄		1 10.2 159°80	0°6/10.4 18		
12 3	7 48.91	+20 41.2	2.317	3.093	13.1	20.5	12 3	7 51.97	+18 14.4	2.097	2.868	14.4	20.8
12 13	7 44.46	+20 46.1	2.236	3.102	10.2	20.4	12 13	7 47.14	+18 36.3	2.011	2.873	11.3	20.6
12 23	7 37.89	+20 55.6	2.178	3.111	6.9	20.2	12 23	7 39.89	+19 6.3	1.947	2.878	7.7	20.4
1 2	7 29.77	+21 7.6	2.147	3.120	3.2	19.9	1 2	7 30.79	+19 41.8	1.910	2.882	3.7	20.2
1 12	7 20.94	+21 20.0	2.146	3.129	0.7	19.8	1 12	7 20.76	+20 19.5	1.903	2.886	0.9	19.9
1 22	7 12.32	+21 31.0	2.175	3.138	4.5	20.1	1 22	7 10.87	+20 56.2	1.927	2.889	5.0	20.2
2 1	7 4.83	+21 39.5	2.233	3.147	8.0	20.3	2 1	7 2.21	+21 29.3	1.979	2.892	8.9	20.5
2 11	6 59.18	+21 44.9	2.317	3.156	11.0	20.5	2 11	6 55.63	+21 57.7	2.057	2.895	12.3	20.7
165474	2001 <i>AR</i> ₃₉		1 10.2 70°05	0°9/ 9.9 17			235675	2004 <i>RA</i> ₂₈₂		1 10.2 253°52	1°7/ 9.7 18		
12 3	7 56.28	+23 17.5	1.487	2.282	18.2	20.0	12 3	7 54.25	+24 53.8	1.596	2.391	17.2	20.9
12 13	7 51.16	+23 31.3	1.429	2.306	14.2	19.8	12 13	7 49.97	+25 12.8	1.507	2.384	13.6	20.7
12 23	7 42.80	+23 49.9	1.392	2.330	9.5	19.6	12 23	7 42.39	+25 36.1	1.440	2.377	9.2	20.4
1 2	7 32.08	+24 8.8	1.380	2.354	4.3	19.3	1 2	7 32.13	+25 59.1	1.397	2.370	4.4	20.1
1 12	7 20.44	+24 23.7	1.396	2.378	1.4	19.2	1 12	7 20.43	+26 16.7	1.381	2.362	2.1	19.9
1 22	7 9.44	+24 31.9	1.439	2.402	6.3	19.6	1 22	7 8.88	+26 25.4	1.394	2.355	6.7	20.2
2 1	7 0.48	+24 32.8	1.510	2.426	10.9	19.9	2 1	6 59.04	+26 24.3	1.433	2.347	11.5	20.4
2 11	6 54.49	+24 27.7	1.603	2.449	14.7	20.2	2 11	6 52.12	+26 14.7	1.495	2.339	15.7	20.7
458242	2010 <i>TO</i> ₄₁		1 10.2 64°39	1°0/10.4 16			205912	2002 <i>GC</i> ₁₀₇		1 10.2 219°90	0°2/10.1 18		
12 3	7 53.24	+18 56.9	1.628	2.416	17.2	22.0	12 3	7 53.16	+20 42.7	1.984	2.761	14.9	21.2
12 13	7 48.47	+18 57.2	1.567	2.439	13.5	21.8	12 13	7 48.43	+21 6.7	1.886	2.753	11.8	21.0
12 23	7 40.84	+19 5.3	1.528	2.462	9.1	21.6	12 23	7 40.99	+21 37.9	1.811	2.745	8.0	20.7
1 2	7 31.16	+19 18.8	1.513	2.485	4.3	21.4	1 2	7 31.39	+22 13.1	1.763	2.736	3.7	20.5
1 12	7 20.65	+19 34.7	1.526	2.509	1.3	21.2	1 12	7 20.61	+22 48.3	1.743	2.726	0.9	20.2
1 22	7 10.64	+19 50.4	1.568	2.532	5.7	21.5	1 22	7 9.85	+23 20.1	1.754	2.716	5.4	20.5
2 1	7 2.37	+20 4.2	1.637	2.555	10.0	21.9	2 1	7 0.35	+23 46.0	1.793	2.705	9.7	20.8
2 11	6 56.69	+20 15.2	1.730	2.578	13.7	22.1	2 11	6 53.13	+24 5.5	1.857	2.694	13.4	21.0
39622	1994 <i>PJ</i> ₅		1 10.2 289°87	0°8/10.4 18			194111	2001 <i>SK</i> ₂₃₆		1 10.2 168°51	0°2/10.2 18		
12 3	7 49.34	+19 4.3	2.008	2.789	14.6	19.2	12 3	7 55.77	+20 2.4	2.028	2.796	14.9	22.6
12 13	7 45.26	+19 9.6	1.917	2.785	11.5	18.9	12 13	7 50.20	+20 18.8	1.941	2.802	11.7	22.4
12 23	7 38.71	+19 21.6	1.848	2.782	7.9	18.7	12 23	7 42.00	+20 41.8	1.876	2.807	7.9	22.2
1 2	7 30.25	+19 38.7	1.806	2.778	3.8	18.5	1 2	7 31.77	+21 8.3	1.839	2.811	3.7	21.9
1 12	7 20.83	+19 58.1	1.792	2.775	1.0	18.2	1 12	7 20.54	+21 35.1	1.831	2.814	0.8	21.7
1 22	7 11.52	+20 17.5	1.808	2.772	5.1	18.5	1 22	7 9.50	+21 59.1	1.855	2.817	5.2	22.0
2 1	7 3.44	+20 35.0	1.852	2.768	9.1	18.8	2 1	6 59.81	+22 18.5	1.907	2.818	9.3	22.3
2 11	6 57.47	+20 49.5	1.920	2.765	12.7	19.0	2 11	6 52.41	+22 33.0	1.985	2.818	12.8	22.5
152476	2005 <i>WH</i> ₁₉		1 10.2 164°37	1°4/ 9.5 18			11671	1998 <i>BG</i> ₄		1 10.2 271°13	0°8/ 9.9 18		
12 3	7 51.41	+21 37.7	2.164	2.941	13.8								

EPHEMERIDES

1 10.2

1 10.2

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
180846	2005 <i>GE</i> ₁₃₃		1 10.2 110°03	0°9/ 9.9	18		178615	2000 <i>EL</i> ₁₁₉		1 10.2 265°76	1°1/ 9.7	18	
12 3	7 57.38	+21 49.0	1.479	2.270	18.5	20.6	12 3	7 51.39	+21 52.7	1.928	2.712	15.0	20.6
12 13	7 52.27	+22 21.6	1.412	2.286	14.5	20.4	12 13	7 47.31	+22 34.8	1.824	2.695	11.9	20.4
12 23	7 43.76	+23 2.0	1.365	2.302	9.7	20.1	12 23	7 40.44	+23 25.3	1.742	2.678	8.1	20.1
1 2	7 32.66	+23 45.1	1.344	2.317	4.5	19.9	1 2	7 31.24	+24 20.3	1.687	2.660	3.8	19.8
1 12	7 20.36	+24 24.9	1.350	2.332	1.5	19.7	1 12	7 20.69	+25 14.5	1.660	2.642	1.5	19.6
1 22	7 8.52	+24 56.9	1.385	2.347	6.6	20.1	1 22	7 10.01	+26 3.0	1.663	2.624	5.9	19.9
2 1	6 58.68	+25 19.0	1.446	2.361	11.4	20.4	2 1	7 0.52	+26 42.6	1.694	2.606	10.2	20.1
2 11	6 51.92	+25 31.9	1.530	2.374	15.4	20.6	2 11	6 53.37	+27 12.3	1.750	2.587	14.1	20.3
377244	2004 <i>BB</i> ₈₃		1 10.2 325°27	1°5/ 9.7	18		287789	2003 <i>SP</i> ₁₃₄		1 10.2 176°00	2°1/ 10.9	18	
12 3	7 48.40	+24 55.6	2.022	2.813	14.2	21.0	12 3	7 53.43	+15 22.5	2.166	2.925	14.4	22.2
12 13	7 44.69	+25 17.3	1.928	2.803	11.1	20.8	12 13	7 48.16	+15 17.5	2.075	2.928	11.4	22.0
12 23	7 38.44	+25 42.4	1.857	2.794	7.5	20.5	12 23	7 40.53	+15 20.6	2.006	2.930	8.0	21.8
1 2	7 30.19	+26 7.4	1.813	2.786	3.6	20.3	1 2	7 31.10	+15 31.0	1.965	2.932	4.3	21.6
1 12	7 20.90	+26 28.5	1.796	2.777	1.8	20.1	1 12	7 20.77	+15 47.0	1.953	2.933	2.2	21.4
1 22	7 11.70	+26 43.0	1.809	2.769	5.5	20.3	1 22	7 10.59	+16 6.5	1.972	2.933	5.1	21.6
2 1	7 3.75	+26 49.6	1.849	2.762	9.4	20.6	2 1	7 1.59	+16 27.6	2.020	2.932	8.8	21.9
2 11	6 57.97	+26 48.6	1.914	2.754	12.9	20.8	2 11	6 54.61	+16 48.6	2.095	2.930	12.2	22.1
56493	2000 <i>GU</i> ₁₃₄		1 10.2 141°66	1°9/ 10.9	18		180465	2004 <i>CT</i> ₂₆		1 10.2 287°55	5°9/ 9.2	18	
12 3	7 54.32	+14 49.6	1.889	2.654	16.0	19.2	12 3	7 58.75	+36 45.8	1.753	2.536	16.3	20.0
12 13	7 49.12	+15 5.1	1.809	2.666	12.7	19.0	12 13	7 53.57	+37 6.9	1.661	2.524	13.3	19.8
12 23	7 41.29	+15 31.7	1.752	2.678	8.8	18.8	12 23	7 44.83	+37 21.0	1.591	2.512	9.9	19.6
1 2	7 31.45	+16 7.7	1.720	2.688	4.6	18.5	1 2	7 33.26	+37 20.9	1.545	2.501	6.8	19.3
1 12	7 20.65	+16 49.8	1.718	2.698	2.0	18.4	1 12	7 20.29	+37 0.7	1.527	2.489	6.0	19.3
1 22	7 10.07	+17 34.1	1.745	2.707	5.5	18.6	1 22	7 7.63	+36 18.5	1.537	2.478	8.5	19.4
2 1	7 0.90	+18 17.5	1.802	2.716	9.5	18.9	2 1	6 56.96	+35 17.0	1.573	2.466	12.1	19.6
2 11	6 54.04	+18 57.5	1.883	2.723	13.1	19.1	2 11	6 49.48	+34 2.5	1.633	2.455	15.7	19.8
194894	2002 <i>AM</i> ₉₅		1 10.2 24°16	1°0/ 9.9	18		462361	2008 <i>RF</i> ₁₂₅		1 10.2 130°19	0°7/ 10.4	18	
12 3	7 51.17	+23 15.8	1.190	2.011	20.4	20.5	12 3	7 49.88	+19 10.2	2.217	2.990	13.6	21.9
12 13	7 48.17	+23 24.6	1.127	2.018	16.0	20.3	12 13	7 45.36	+19 16.0	2.131	2.995	10.7	21.7
12 23	7 41.39	+23 39.5	1.082	2.026	10.8	20.0	12 23	7 38.62	+19 27.8	2.069	3.000	7.3	21.5
1 2	7 31.67	+23 56.2	1.060	2.035	5.0	19.7	1 2	7 30.21	+19 43.7	2.033	3.005	3.5	21.3
1 12	7 20.60	+24 9.8	1.062	2.044	1.6	19.5	1 12	7 20.99	+20 1.4	2.027	3.010	0.9	21.1
1 22	7 10.05	+24 16.8	1.089	2.055	7.3	19.9	1 22	7 11.94	+20 18.7	2.051	3.014	4.7	21.4
2 1	7 1.75	+24 16.1	1.141	2.067	12.6	20.2	2 1	7 4.05	+20 34.1	2.104	3.018	8.3	21.6
2 11	6 56.87	+24 8.8	1.214	2.079	17.2	20.5	2 11	6 58.08	+20 46.8	2.182	3.022	11.6	21.8
15538	2000 <i>BW</i> ₁₄		1 10.2 92°31	1°9/ 9.4	18		464205	2015 <i>BO</i> ₁₀₀		1 10.2 22°67	3°3/ 11.6	18	
12 3	7 50.04	+24 38.5	2.193	2.975	13.5	18.2	12 3	7 46.31	+10 38.9	1.953	2.721	15.4	20.4
12 13	7 45.66	+25 26.8	2.112	2.983	10.5	18.0	12 13	7 42.85	+10 53.2	1.871	2.726	12.4	20.2
12 23	7 38.92	+26 19.3	2.055	2.990	7.1	17.8	12 23	7 37.08	+11 21.8	1.810	2.731	8.9	20.0
1 2	7 30.37	+27 11.7	2.026	2.997	3.5	17.6	1 2	7 29.55	+12 4.1	1.774	2.736	5.3	19.8
1 12	7 20.91	+27 59.5	2.026	3.005	2.1	17.5	1 12	7 21.13	+12 57.4	1.767	2.742	3.3	19.6
1 22	7 11.61	+28 38.9	2.055	3.012	5.3	17.7	1 22	7 12.85	+13 58.0	1.788	2.749	5.5	19.8
2 1	7 3.51	+29 8.1	2.114	3.019	8.8	17.9	2 1	7 5.74	+15 1.4	1.837	2.755	9.1	20.0
2 11	6 57.45	+29 27.2	2.198	3.026	11.9	18.1	2 11	7 0.62	+16 3.7	1.912	2.762	12.5	20.3
234149	2000 <i>FG</i> ₄		1 10.2 231°10	2°0/ 9.4	18		410448	2008 <i>CE</i> ₇₂		1 10.2 334°49	0°9/ 10.5	18	
12 3	7 50.46	+27 23.7	2.484	3.261	12.3	21.3	12 3	7 47.53	+18 4.6	1.455	2.259	18.1	20.9
12 13	7 45.80	+27 46.8	2.388	3.255	9.6	21.1	12 13	7 44.90	+18 19.5	1.367	2.249	14.4	20.7
12 23	7 38.92	+28 10.9	2.316	3.248	6.6	20.9	12 23	7 39.10	+18 46.1	1.300	2.239	9.9	20.4
1 2	7 30.35	+28 32.6	2.271	3.241	3.4	20.7	1 2	7 30.69	+19 22.2	1.256	2.230	4.8	20.0
1 12	7 20.91	+28 48.5	2.256	3.234	2.2	20.6	1 12	7 20.85	+20 3.7	1.238	2.221	1.3	19.8
1 22	7 11.57	+28 56.6	2.272	3.227	5.0	20.7	1 22	7 11.06	+20 45.8	1.247	2.213	6.5	20.1
2 1	7 3.30	+28 56.1	2.316	3.219	8.3	20.9	2 1	7 2.86	+21 24.5	1.281	2.206	11.6	20.4
2 11	6 56.89	+28 47.9	2.387	3.212	11.2	21.1	2 11	6 57.46	+21 57.5	1.338	2.200	16.1	20.6
372446	2009 <i>SS</i> ₉₅		1 10.2 186°24	3°1/ 9.1	18		432121	2009 <i>BX</i> ₃₀		1 10.2 289°63	0°8/ 10.6	18	
12 3	7 53.59	+29 50.7	2.181	2.960	13.6	21.4	12 3	7 47.08	+16 59.7	2.383	3.154	12.9	21.1
12 13	7 48.56	+30 23.8	2.094	2.960	10.8	21.2	12 13	7 43.14	+17 29.3	2.289	3.151	10.2	20.9
12 23	7 40.94	+30 56.6	2.030	2.960	7.5	21.0	12 23	7 37.14	+18 7.6	2.219	3.149	6.9	20.7
1 2	7 31.32	+31 24.4	1.993	2.959	4.3	20.8	1 2	7 29.55	+18 52.3	2.175	3.147	3.4	20.5
1 12	7 20.70	+31 42.8	1.985	2.958	3.4	20.8	1 12	7 21.13	+19 40.6	2.162	3.144	1.0	20.3
1 22	7 10.26	+31 49.2	2.007	2.957	6.1	20.9	1 22	7 12.76	+20 29.1	2.179	3.142	4.4	20.6
2 1	7 1.17	+31 43.5	2.057	2.955	9.4	21.1	2 1	7 5.35	+21 14.9	2.225	3.140	7.9	20.8
2 11	6 54.34	+31 27.4	2.132	2.953	12.5	21.3	2 11	6 59.65	+21 56.2	2.298	3.138	11.1	21.0
219699	2001 <i>XS</i> ₂₁		1 10.2 14°56	2°7/ 9.7	18		32181	2000 <i>NB</i> ₁₇		1 10.2 271°10	1°6/ 9.6	18	
12 3	7 51.64	+28 24.1	1.449	2.258	17.9	19.4	12 3	7 51.32	+24 36.1	1.900	2.688	15.0	19.0
12 13	7 48.03	+28 28.5	1.378	2.262	14.1	19.2	12 13	7 47.09	+25 4.9	1.814	2.687	11.8	18.8
12 23	7 41.03	+28 32.1	1.328	2.267	9.6	18.9	12 23	7 40.12	+25 37.9	1.750	2.686	8.0	18.5
1 2	7 31.44	+28 30.4	1.301	2.274	4.9	18.7	1 2	7 31.01	+26 11.0	1.712	2.685	3.8	18.3
1 12	7 20.69	+28 19.2	1.301	2.280	3.0	18.6	1 12	7 20.81	+26 39.7	1.703	2.684	2.0	18.1
1 22	7 10.41	+27 57.1	1.328	2.288	7.0	18.8	1 22	7 10.76	+27 0.7	1.723	2.683	5.8	18.4
2 1	7 2.14	+27 25.3	1.380	2.297	11.6	19.1	2 1	7 2.12	+27 12.6	1.771	2.682	9.9	18.6
2 11	6 56.91	+26 47.0	1.454	2.307	15.6	19.4	2 11	6 55.86	+27 15.8	1.843	2.681	13.5	18.8
376375	2012 <i>CB</i> ₅₅		1 10.2 119°39	15°5/ 17.8	18		379799	2011 <i>HP</i> ₉₃		1 10.2 100°07	5°4/ 7.6	18	
12 3	7 52.79												

EPHEMERIDES

1 10.2

1 10.2

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
107789	2001 <i>FM</i> ₅₂		1 10.2 204°38	2.4/ 9.6	18		245991	2006 <i>SK</i> ₂₇₄		1 10.2 136°77	4.5/12.4	18	
12 3	7 57.87	+26 59.3	1.722	2.507	16.5	20.1	12 3	7 45.98	+ 5 11.3	2.802	3.526	12.2	21.0
12 13	7 52.61	+27 21.0	1.633	2.504	13.1	19.8	12 13	7 41.79	+ 4 55.5	2.714	3.533	10.1	20.9
12 23	7 44.07	+27 44.7	1.565	2.499	8.9	19.6	12 23	7 35.96	+ 4 51.3	2.649	3.540	7.8	20.7
1 2	7 32.91	+28 5.2	1.523	2.494	4.5	19.3	1 2	7 28.93	+ 4 59.5	2.609	3.546	5.6	20.6
1 12	7 20.39	+28 17.3	1.510	2.489	2.7	19.2	1 12	7 21.33	+ 5 19.8	2.599	3.553	4.5	20.5
1 22	7 8.06	+28 17.9	1.525	2.482	6.7	19.4	1 22	7 13.84	+ 5 50.8	2.619	3.559	5.5	20.6
2 1	6 57.45	+28 7.0	1.568	2.476	11.1	19.6	2 1	7 7.15	+ 6 30.2	2.668	3.565	7.6	20.7
2 11	6 49.73	+27 46.9	1.634	2.468	15.1	19.9	2 11	7 1.84	+ 7 14.9	2.743	3.570	9.9	20.9
164149	2003 <i>YL</i> ₁₁₄		1 10.2 297°46	0°9/ 9.8	18		319814	2006 <i>VB</i> ₆₆		1 10.2 56°61	0°3/10.3	18	
12 3	7 48.38	+21 47.9	2.242	3.023	13.3	19.9	12 3	7 51.35	+20 8.6	1.655	2.447	16.8	21.1
12 13	7 44.38	+22 29.9	2.150	3.020	10.4	19.7	12 13	7 47.23	+20 20.4	1.583	2.457	13.2	20.9
12 23	7 38.10	+23 18.4	2.082	3.017	7.0	19.5	12 23	7 40.23	+20 39.7	1.532	2.468	8.9	20.7
1 2	7 30.04	+24 9.9	2.041	3.014	3.2	19.3	1 2	7 31.05	+21 3.6	1.505	2.479	4.1	20.4
1 12	7 21.04	+25 0.2	2.030	3.012	1.3	19.1	1 12	7 20.86	+21 28.4	1.507	2.490	0.9	20.2
1 22	7 12.09	+25 45.6	2.048	3.009	4.9	19.4	1 22	7 11.00	+21 50.8	1.537	2.501	5.7	20.6
2 1	7 4.21	+26 23.6	2.096	3.006	8.6	19.6	2 1	7 2.75	+22 8.9	1.594	2.513	10.2	20.9
2 11	6 58.24	+26 53.2	2.169	3.004	11.8	19.8	2 11	6 57.06	+22 22.1	1.674	2.524	14.0	21.1
274198	2008 <i>HY</i> ₂₂		1 10.2 106°25	3°5/ 9.4	17	R	373802	2002 <i>VP</i> ₄₁		1 10.2 94°98	4°1/ 8.5	18	
12 3	8 0.39	+28 30.3	1.499	2.291	18.2	21.0	12 3	7 51.90	+32 37.5	2.344	3.123	12.8	20.5
12 13	7 54.71	+29 6.6	1.436	2.309	14.3	20.8	12 13	7 47.10	+33 29.4	2.269	3.133	10.2	20.3
12 23	7 45.43	+29 43.6	1.393	2.327	9.8	20.6	12 23	7 39.88	+34 19.7	2.218	3.143	7.3	20.1
1 2	7 33.46	+30 14.4	1.375	2.345	5.3	20.4	1 2	7 30.83	+35 3.0	2.194	3.153	4.8	20.0
1 12	7 20.32	+30 32.7	1.385	2.362	3.8	20.3	1 12	7 20.91	+35 34.6	2.199	3.163	4.3	20.0
1 22	7 7.79	+30 35.4	1.423	2.378	7.4	20.6	1 22	7 11.21	+35 51.9	2.234	3.172	6.4	20.1
2 1	6 57.48	+30 23.4	1.488	2.394	11.8	20.9	2 1	7 2.80	+35 54.7	2.297	3.182	9.2	20.3
2 11	6 50.46	+30 0.5	1.575	2.409	15.6	21.1	2 11	6 56.50	+35 45.0	2.384	3.192	11.8	20.5
359234	2009 <i>EO</i> ₁₆		1 10.2 157°74	3°0/11.2	18		126261	2002 <i>AL</i> ₇₈		1 10.2 154°00	1°9/ 9.5	18	
12 3	7 52.01	+12 48.6	2.057	2.815	15.0	21.4	12 3	7 51.50	+24 58.7	2.049	2.833	14.3	20.4
12 13	7 47.14	+12 43.6	1.971	2.821	12.1	21.3	12 13	7 47.03	+25 37.6	1.964	2.835	11.2	20.2
12 23	7 39.89	+12 49.2	1.907	2.827	8.6	21.0	12 23	7 39.98	+26 20.4	1.903	2.837	7.6	20.0
1 2	7 30.83	+13 5.0	1.869	2.832	5.0	20.8	1 2	7 30.94	+27 3.0	1.868	2.839	3.7	19.8
1 12	7 20.88	+13 29.4	1.861	2.837	3.0	20.7	1 12	7 20.88	+27 40.7	1.862	2.841	2.2	19.7
1 22	7 11.10	+13 59.9	1.882	2.841	5.5	20.9	1 22	7 10.97	+28 9.9	1.885	2.843	5.6	19.9
2 1	7 2.54	+14 33.8	1.932	2.844	9.1	21.1	2 1	7 2.36	+28 29.1	1.937	2.844	9.4	20.1
2 11	6 56.03	+15 8.6	2.008	2.847	12.4	21.3	2 11	6 55.98	+28 38.6	2.014	2.846	12.7	20.3
414478	2009 <i>PG</i> ₆		1 10.2 197°46	5°5/ 7.9	18		354950	2006 <i>EF</i> ₇₃		1 10.2 348°97	3°4/ 9.4	18	
12 3	7 55.94	+35 19.5	2.228	3.001	13.6	21.1	12 3	7 51.95	+27 34.9	1.294	2.111	19.2	21.3
12 13	7 50.69	+36 28.3	2.141	2.998	11.0	20.9	12 13	7 48.94	+28 3.5	1.218	2.106	15.2	21.0
12 23	7 42.58	+37 35.1	2.078	2.995	8.2	20.7	12 23	7 42.11	+28 35.0	1.161	2.102	10.5	20.7
1 2	7 32.19	+38 32.7	2.042	2.992	5.9	20.6	1 2	7 32.18	+29 3.0	1.127	2.099	5.5	20.4
1 12	7 20.56	+39 14.9	2.036	2.988	5.7	20.6	1 12	7 20.64	+29 20.5	1.118	2.097	3.7	20.3
1 22	7 9.02	+39 37.8	2.058	2.984	7.7	20.7	1 22	7 9.38	+29 23.5	1.135	2.095	8.0	20.5
2 1	6 58.87	+39 41.1	2.108	2.979	10.5	20.9	2 1	7 0.27	+29 11.8	1.176	2.094	13.1	20.8
2 11	6 51.19	+39 27.8	2.181	2.973	13.3	21.0	2 11	6 54.62	+28 48.4	1.238	2.093	17.6	21.1
444175	2005 <i>OH</i> ₅		1 10.2 167°67	0°6/10.0	18		69568	1998 <i>BK</i> ₁₂		1 10.2 262°68	0°2/10.1	18	
12 3	7 58.29	+23 14.7	1.843	2.618	15.9	22.1	12 3	7 51.61	+19 37.7	1.649	2.440	16.9	19.0
12 13	7 52.46	+23 21.2	1.758	2.624	12.5	21.9	12 13	7 47.79	+20 11.9	1.558	2.432	13.4	18.8
12 23	7 43.68	+23 31.2	1.696	2.629	8.5	21.6	12 23	7 40.92	+20 56.8	1.489	2.425	9.1	18.5
1 2	7 32.63	+23 41.4	1.660	2.632	3.9	21.4	1 2	7 31.54	+21 48.7	1.444	2.418	4.2	18.2
1 12	7 20.49	+23 48.4	1.653	2.636	1.1	21.2	1 12	7 20.78	+22 42.3	1.427	2.410	1.0	17.9
1 22	7 8.62	+23 49.7	1.676	2.638	5.7	21.5	1 22	7 10.02	+23 32.4	1.439	2.403	6.1	18.3
2 1	6 58.37	+23 45.0	1.728	2.639	10.1	21.7	2 1	7 0.74	+24 15.1	1.478	2.395	11.0	18.5
2 11	6 50.73	+23 35.4	1.805	2.640	13.9	22.0	2 11	6 54.12	+24 49.0	1.540	2.387	15.1	18.8
272700	2005 <i>YY</i> ₁₀		1 10.2 95°95	0°6/ 9.9	18		260923	2005 <i>RK</i> ₃₁		1 10.2 89°70	2°5/10.9	18	
12 3	7 51.00	+22 4.8	1.995	2.778	14.6	21.4	12 3	7 53.75	+14 54.0	2.087	2.846	14.8	20.4
12 13	7 46.55	+22 29.3	1.915	2.786	11.4	21.2	12 13	7 48.18	+14 35.7	2.022	2.874	11.7	20.2
12 23	7 39.58	+22 59.3	1.859	2.794	7.7	21.0	12 23	7 40.37	+14 25.6	1.979	2.901	8.2	20.1
1 2	7 30.71	+23 31.3	1.828	2.802	3.5	20.8	1 2	7 30.97	+14 23.1	1.963	2.928	4.5	19.9
1 12	7 20.92	+24 1.6	1.827	2.809	1.1	20.6	1 12	7 20.96	+14 27.0	1.977	2.955	2.6	19.8
1 22	7 11.35	+24 27.1	1.855	2.817	5.2	20.9	1 22	7 11.36	+14 35.7	2.021	2.981	5.1	20.0
2 1	7 3.12	+24 46.2	1.912	2.825	9.1	21.2	2 1	7 3.11	+14 47.5	2.095	3.006	8.6	20.3
2 11	6 57.09	+24 58.6	1.993	2.832	12.5	21.4	2 11	6 56.93	+15 1.0	2.193	3.031	11.6	20.5
423127	2004 <i>CP</i> ₂₀		1 10.2 308°48	0°8/ 9.9	18		421385	2013 <i>UO</i> ₆		1 10.2 305°44	1°3/ 9.9	18	
12 3	7 47.86	+22 38.9	2.059	2.847	14.1	21.0	12 3	7 51.54	+26 10.0	2.197	2.978	13.5	20.5
12 13	7 44.33	+23 1.2	1.954	2.828	11.1	20.8	12 13	7 46.82	+26 9.5	2.107	2.976	10.6	20.3
12 23	7 38.29	+23 29.0	1.871	2.808	7.5	20.5	12 23	7 39.71	+26 9.5	2.040	2.974	7.2	20.0
1 2	7 30.22	+23 59.4	1.815	2.788	3.5	20.3	1 2	7 30.78	+26 7.1	1.999	2.972	3.4	19.8
1 12	7 21.00	+24 28.7	1.787	2.769	1.2	20.0	1 12	7 20.99	+26 0.0	1.988	2.970	1.6	19.7
1 22	7 11.73	+24 53.8	1.788	2.750	5.3	20.3	1 22	7 11.40	+25 46.9	2.007	2.968	5.1	19.9
2 1	7 3.57	+25 12.6	1.816	2.731	9.4	20.5	2 1	7 3.08	+25 27.8	2.055	2.966	8.7	20.1
2 11	6 57.50	+25 24.6	1.870	2.712	13.1	20.7	2 11	6 56.84	+25 4.1	2.128	2.964	12.0	20.3
75989	2000 <i>DF</i> ₇		1 10.2 353°22	1°7/ 9.4	18		22352	1992 <i>UP</i> ₃		1 10.2 44°10	3°1/ 9.5	18	
12 3	7 48.84	+23 24.2	2.0										

EPHEMERIDES

1 10.2

1 10.2

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
51099	2000 <i>HZ</i> ₈		1 10.2 117°70	3°8/11.7	18	R	83779	2001 <i>TE</i> ₁₉₈		1 10.2 90°74	2°0/ 9.5	18	
12 3	7 47.86	+ 9 44.5	2.501	3.246	13.0	20.0	12 3	7 52.74	+24 19.4	1.856	2.643	15.4	19.9
12 13	7 43.45	+ 9 23.8	2.417	3.255	10.6	19.8	12 13	7 48.18	+25 6.9	1.783	2.656	12.0	19.7
12 23	7 37.18	+ 9 13.1	2.355	3.264	7.8	19.7	12 23	7 40.85	+25 59.4	1.732	2.668	8.1	19.5
1 2	7 29.55	+ 9 12.7	2.320	3.273	5.1	19.5	1 2	7 31.40	+26 51.8	1.708	2.680	3.9	19.3
1 12	7 21.28	+ 9 22.3	2.315	3.281	3.8	19.5	1 12	7 20.94	+27 38.8	1.713	2.692	2.3	19.2
1 22	7 13.18	+ 9 40.5	2.339	3.290	5.2	19.6	1 22	7 10.74	+28 16.1	1.746	2.704	5.9	19.4
2 1	7 6.02	+10 5.3	2.392	3.298	7.9	19.7	2 1	7 2.04	+28 41.9	1.808	2.716	9.9	19.7
2 11	7 0.45	+10 34.3	2.472	3.306	10.6	19.9	2 11	6 55.79	+28 56.8	1.894	2.728	13.3	19.9
453176	2008 <i>EY</i> ₃₅		1 10.2 302°98	8°4/13.5	18		166896	2003 <i>AV</i> ₁		1 10.2 66°07	2°8/11.5	18	
12 3	7 47.09	+ 0 2.1	1.770	2.503	18.0	20.9	12 3	7 47.05	+11 44.1	2.268	3.028	13.8	20.1
12 13	7 43.84	- 0 27.0	1.677	2.493	15.5	20.7	12 13	7 43.10	+11 51.4	2.185	3.035	11.1	19.9
12 23	7 38.03	- 0 34.9	1.602	2.483	12.6	20.4	12 23	7 37.11	+12 9.8	2.123	3.043	7.9	19.7
1 2	7 30.15	- 0 17.6	1.549	2.473	9.9	20.3	1 2	7 29.60	+12 38.8	2.088	3.050	4.6	19.5
1 12	7 21.12	+ 0 26.2	1.521	2.463	8.4	20.1	1 12	7 21.34	+13 16.3	2.083	3.058	2.8	19.4
1 22	7 12.08	+ 1 34.3	1.520	2.453	9.3	20.2	1 22	7 13.23	+13 59.7	2.106	3.066	4.9	19.6
2 1	7 4.20	+ 3 1.4	1.544	2.444	11.9	20.3	2 1	7 6.14	+14 46.0	2.159	3.074	8.2	19.8
2 11	6 58.50	+ 4 39.8	1.593	2.434	15.0	20.5	2 11	7 0.80	+15 32.1	2.238	3.082	11.2	20.0
495497	2014 <i>UD</i> ₁₃₉		1 10.2 95°76	0°9/10.4	18		431573	2007 <i>UF</i> ₁₂₈		1 10.2 132°81	4°3/ 8.3	18	
12 3	7 52.16	+19 45.8	1.906	2.686	15.3	21.6	12 3	7 51.74	+33 48.1	2.534	3.308	12.1	21.3
12 13	7 47.49	+19 36.8	1.826	2.694	12.1	21.4	12 13	7 46.91	+34 42.6	2.454	3.313	9.6	21.2
12 23	7 40.23	+19 33.3	1.768	2.701	8.2	21.2	12 23	7 39.77	+35 35.0	2.397	3.319	7.0	21.0
1 2	7 31.05	+19 33.7	1.736	2.708	3.9	20.9	1 2	7 30.85	+36 20.3	2.369	3.324	4.8	20.9
1 12	7 20.97	+19 35.9	1.733	2.716	1.1	20.7	1 12	7 21.06	+36 53.7	2.370	3.329	4.5	20.9
1 22	7 11.16	+19 38.3	1.759	2.723	5.2	21.0	1 22	7 11.42	+37 12.8	2.401	3.334	6.3	21.0
2 1	7 2.77	+19 39.7	1.814	2.730	9.3	21.3	2 1	7 2.96	+37 17.1	2.460	3.339	8.9	21.2
2 11	6 56.65	+19 39.9	1.893	2.737	12.9	21.5	2 11	6 56.49	+37 8.5	2.544	3.343	11.4	21.3
488613	2002 <i>RC</i> ₂₆₃		1 10.2 77°97	0°5/10.5	18		41011	1999 <i>UB</i> ₁₆		1 10.2 101°85	0°9/10.5	18	
12 3	7 46.57	+19 21.4	3.223	3.983	10.1	22.1	12 3	7 49.95	+18 21.0	2.114	2.889	14.2	19.6
12 13	7 41.98	+19 24.5	3.152	4.009	7.8	22.0	12 13	7 45.55	+18 29.6	2.032	2.896	11.1	19.4
12 23	7 35.94	+19 31.1	3.107	4.035	5.3	21.8	12 23	7 38.85	+18 45.3	1.972	2.903	7.6	19.2
1 2	7 28.90	+19 40.0	3.090	4.061	2.5	21.7	1 2	7 30.42	+19 6.1	1.939	2.911	3.7	19.0
1 12	7 21.46	+19 50.0	3.105	4.087	0.7	21.5	1 12	7 21.16	+19 29.5	1.935	2.918	1.1	18.8
1 22	7 14.22	+19 59.9	3.151	4.113	3.3	21.8	1 22	7 12.10	+19 53.1	1.961	2.925	4.8	19.1
2 1	7 7.79	+20 8.6	3.227	4.138	5.9	22.0	2 1	7 4.24	+20 14.8	2.016	2.932	8.6	19.3
2 11	7 2.65	+20 15.9	3.331	4.163	8.2	22.2	2 11	6 58.37	+20 33.5	2.096	2.939	11.9	19.6
364395	2006 <i>VJ</i> ₈₇		1 10.2 104°96	2°8/10.9	18		458756	2011 <i>RQ</i> ₁₁		1 10.2 76°65	0°2/10.2	17	
12 3	7 53.68	+14 48.5	1.986	2.749	15.4	21.4	12 3	7 57.03	+21 35.2	1.544	2.332	17.9	21.8
12 13	7 48.35	+14 24.4	1.914	2.768	12.2	21.3	12 13	7 51.64	+21 47.4	1.487	2.359	14.0	21.6
12 23	7 40.63	+14 8.5	1.863	2.786	8.6	21.1	12 23	7 43.13	+22 5.6	1.451	2.386	9.4	21.4
1 2	7 31.17	+14 0.8	1.839	2.804	4.8	20.9	1 2	7 32.39	+22 26.1	1.440	2.413	4.3	21.2
1 12	7 20.96	+14 0.3	1.844	2.821	2.8	20.8	1 12	7 20.77	+22 44.7	1.457	2.439	1.0	21.0
1 22	7 11.11	+14 5.4	1.879	2.838	5.5	21.0	1 22	7 9.77	+22 58.6	1.502	2.465	6.0	21.4
2 1	7 2.64	+14 14.8	1.942	2.854	9.1	21.2	2 1	7 0.73	+23 6.7	1.575	2.491	10.5	21.7
2 11	6 56.32	+14 26.6	2.031	2.870	12.3	21.5	2 11	6 54.54	+23 9.5	1.671	2.516	14.3	22.0
50418	2000 <i>DC</i> ₇		1 10.2 342°25	6°9/13.2	18		210772	2001 <i>AN</i> ₈		1 10.2 356°26	3°0/11.1	18	
12 3	7 46.28	+ 3 10.7	1.514	2.276	19.4	18.2	12 3	7 43.58	+14 28.8	1.113	1.937	21.2	19.7
12 13	7 43.64	+ 3 14.5	1.427	2.269	16.3	17.9	12 13	7 42.52	+14 29.8	1.041	1.931	17.1	19.4
12 23	7 38.13	+ 3 43.3	1.359	2.263	12.7	17.7	12 23	7 37.88	+14 48.6	0.986	1.926	12.0	19.1
1 2	7 30.27	+ 4 39.7	1.312	2.257	9.0	17.5	1 2	7 30.31	+15 24.7	0.951	1.923	6.5	18.8
1 12	7 21.12	+ 6 2.2	1.290	2.252	6.9	17.3	1 12	7 21.18	+16 14.5	0.940	1.921	3.1	18.6
1 22	7 11.97	+ 7 45.4	1.295	2.248	8.3	17.4	1 22	7 12.22	+17 12.1	0.953	1.921	7.5	18.9
2 1	7 4.21	+ 9 40.7	1.326	2.244	11.9	17.6	2 1	7 5.20	+18 10.9	0.989	1.923	13.0	19.2
2 11	6 58.96	+11 39.0	1.381	2.241	15.8	17.8	2 11	7 1.43	+19 5.7	1.045	1.926	18.0	19.5
494878	2008 <i>HD</i> ₄₈		1 10.2 31°09	12°3/14.7	18		41307	1999 <i>XA</i> ₁₄₉		1 10.2 138°04	1°1/ 9.8	18	
12 3	7 47.83	- 9 4.1	1.878	2.556	18.8	21.4	12 3	7 50.82	+23 46.7	2.211	2.990	13.5	20.2
12 13	7 44.16	-10 27.0	1.801	2.557	16.9	21.2	12 13	7 46.26	+24 10.6	2.126	2.994	10.5	20.0
12 23	7 38.06	-11 26.7	1.742	2.559	14.9	21.1	12 23	7 39.36	+24 38.1	2.064	2.998	7.1	19.8
1 2	7 30.10	-11 56.8	1.703	2.561	13.2	21.0	1 2	7 30.67	+25 6.1	2.029	3.002	3.3	19.6
1 12	7 21.18	-11 53.5	1.686	2.563	12.3	20.9	1 12	7 21.12	+25 31.0	2.024	3.006	1.4	19.4
1 22	7 12.37	-11 16.8	1.693	2.565	12.6	20.9	1 22	7 11.74	+25 50.2	2.049	3.009	5.0	19.7
2 1	7 4.77	-10 10.7	1.723	2.567	13.9	21.0	2 1	7 3.56	+26 2.5	2.103	3.013	8.6	19.9
2 11	6 59.23	- 8 42.5	1.775	2.569	15.8	21.2	2 11	6 57.40	+26 8.0	2.182	3.016	11.8	20.1
414945	2011 <i>BR</i> ₅₆		1 10.2 21°40	2°8/ 9.1	18		236866	2007 <i>RR</i> ₂₁₆		1 10.2 201°58	3°3/ 9.1	18	
12 3	7 49.94	+25 35.5	1.656	2.457	16.4	20.9	12 3	7 52.33	+31 46.9	2.426	3.201	12.5	20.3
12 13	7 46.46	+26 32.4	1.581	2.461	12.8	20.7	12 13	7 47.38	+32 12.1	2.337	3.200	9.9	20.1
12 23	7 39.96	+27 34.8	1.528	2.466	8.7	20.5	12 23	7 40.08	+32 35.2	2.272	3.199	7.0	19.9
1 2	7 31.07	+28 36.6	1.500	2.472	4.5	20.2	1 2	7 31.00	+32 52.1	2.234	3.197	4.2	19.7
1 12	7 20.98	+29 31.2	1.500	2.477	3.2	20.2	1 12	7 21.06	+32 59.2	2.225	3.195	3.5	19.7
1 22	7 11.10	+30 13.5	1.527	2.484	6.8	20.4	1 22	7 11.30	+32 54.6	2.247	3.193	5.8	19.8
2 1	7 2.83	+30 41.2	1.581	2.491	11.0	20.7	2 1	7 2.77	+32 38.6	2.297	3.191	8.7	20.0
2 11	6 57.23	+30 55.2	1.658	2.498	14.6	20.9	2 11	6 56.27	+32 13.0	2.373	3.189	11.5	20.2
168372	1996 <i>XV</i> ₂₂		1 10.2 83°13	0°9/ 9.8	18		258045	2001 <i>MK</i> ₁₂		1 10.2 107°28	2°5/ 9.2	18	
12 3	7 49.22	+21 52.7											

EPHEMERIDES

1 10.2

1 10.2

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
276395	2002 <i>XK</i> ₁₇		1 10.2 102°76		0°0/10.1 18		449503	2014 <i>GW</i> ₁₇		1 10.2 282°14		0°7/10.1 18	
12 3	7 56.57	+22 43.0	1.957	2.731	15.2	20.5	12 3	7 54.10	+22 49.7	1.397	2.200	18.8	21.6
12 13	7 50.70	+22 31.0	1.886	2.751	11.9	20.3	12 13	7 50.54	+22 55.2	1.301	2.182	15.0	21.3
12 23	7 42.25	+22 21.6	1.838	2.770	8.0	20.1	12 23	7 43.29	+23 6.9	1.225	2.164	10.3	21.0
1 2	7 31.94	+22 12.6	1.816	2.789	3.7	19.9	1 2	7 32.89	+23 21.1	1.172	2.146	4.8	20.6
1 12	7 20.88	+22 2.0	1.824	2.807	0.8	19.7	1 12	7 20.64	+23 33.2	1.145	2.128	1.3	20.3
1 22	7 10.27	+21 48.8	1.863	2.825	5.1	20.0	1 22	7 8.30	+23 39.5	1.145	2.110	7.2	20.6
2 1	7 1.23	+21 33.2	1.930	2.843	9.1	20.3	2 1	6 57.76	+23 38.4	1.170	2.091	12.8	20.9
2 11	6 54.55	+21 16.0	2.023	2.860	12.5	20.6	2 11	6 50.48	+23 30.9	1.217	2.073	17.8	21.1
20442	1999 <i>JK</i> ₅₂		1 10.2 163°84		0°6/10.1 18		495860	2003 <i>SW</i> ₁₈₇		1 10.2 85°91		2°6/11.0 18	
12 3	7 57.58	+22 36.2	1.562	2.350	17.8	18.7	12 3	7 50.15	+14 44.7	2.121	2.887	14.4	21.0
12 13	7 52.49	+22 45.4	1.481	2.354	14.0	18.4	12 13	7 45.59	+14 23.9	2.042	2.898	11.5	20.9
12 23	7 44.05	+23 0.1	1.422	2.358	9.5	18.2	12 23	7 38.81	+14 11.0	1.985	2.909	8.1	20.7
1 2	7 32.99	+23 16.4	1.387	2.361	4.4	17.9	1 2	7 30.40	+14 6.0	1.955	2.920	4.6	20.5
1 12	7 20.62	+23 30.1	1.381	2.363	1.2	17.6	1 12	7 21.25	+14 7.8	1.954	2.931	2.7	20.4
1 22	7 8.55	+23 38.0	1.402	2.365	6.4	18.0	1 22	7 12.35	+14 15.2	1.982	2.942	5.2	20.6
2 1	6 58.33	+23 39.3	1.451	2.367	11.3	18.3	2 1	7 4.64	+14 26.6	2.039	2.952	8.6	20.8
2 11	6 51.10	+23 34.8	1.524	2.368	15.5	18.5	2 11	6 58.88	+14 40.2	2.121	2.963	11.8	21.0
308746	2006 <i>JT</i> ₃₇		1 10.2 207°92		4°3/11.5 18		125388	2001 <i>VF</i> ₈₄		1 10.2 305°15		4°2/ 8.3 18	
12 3	7 51.94	+10 29.8	1.945	2.700	15.9	21.8	12 3	7 50.69	+27 37.7	1.745	2.543	15.8	19.3
12 13	7 47.37	+10 8.3	1.850	2.696	13.0	21.6	12 13	7 47.35	+28 58.9	1.649	2.527	12.5	19.0
12 23	7 40.26	+9 58.8	1.777	2.691	9.5	21.3	12 23	7 40.87	+30 27.3	1.576	2.511	8.8	18.8
1 2	7 31.17	+10 2.1	1.730	2.686	6.1	21.1	1 2	7 31.70	+31 55.7	1.528	2.495	5.2	18.5
1 12	7 21.01	+10 17.7	1.710	2.680	4.3	21.0	1 12	7 20.91	+33 15.5	1.509	2.480	4.6	18.5
1 22	7 10.93	+10 43.8	1.719	2.674	6.4	21.1	1 22	7 9.94	+34 19.5	1.517	2.465	7.9	18.6
2 1	7 2.05	+11 17.6	1.757	2.667	10.0	21.3	2 1	7 0.37	+35 4.1	1.552	2.450	12.0	18.8
2 11	6 55.31	+11 55.7	1.819	2.660	13.5	21.5	2 11	6 53.51	+35 29.6	1.610	2.435	15.7	19.0
225200	2008 <i>JT</i> ₃₄		1 10.2 87°96		3°7/11.8 18		349100	2007 <i>EQ</i> ₂₂₀		1 10.2 352°79		2°2/10.8 18	
12 3	7 49.93	+9 54.9	2.012	2.768	15.4	21.3	12 3	7 50.10	+16 39.6	1.241	2.051	20.3	20.9
12 13	7 45.49	+9 57.1	1.939	2.785	12.4	21.1	12 13	7 47.34	+16 34.1	1.165	2.048	16.2	20.7
12 23	7 38.77	+10 12.7	1.887	2.802	9.0	20.9	12 23	7 40.99	+16 41.5	1.107	2.045	11.3	20.4
1 2	7 30.38	+10 41.5	1.860	2.818	5.6	20.7	1 2	7 31.73	+17 0.8	1.072	2.043	5.8	20.1
1 12	7 21.21	+11 21.4	1.862	2.835	3.7	20.7	1 12	7 20.94	+17 28.6	1.061	2.042	2.4	19.8
1 22	7 12.29	+12 9.1	1.894	2.851	5.7	20.8	1 22	7 10.35	+18 0.8	1.075	2.042	7.2	20.1
2 1	7 4.61	+13 1.0	1.954	2.867	9.0	21.0	2 1	7 1.71	+18 33.3	1.114	2.042	12.6	20.4
2 11	6 58.92	+13 53.6	2.039	2.883	12.1	21.3	2 11	6 56.28	+19 3.4	1.174	2.042	17.4	20.7
191609	2004 <i>HA</i> ₁₈		1 10.2 217°42		5°0/11.4 18		379996	2013 <i>CX</i> ₁₂₆		1 10.2 230°08		0°8/10.5 18	
12 3	7 53.57	+10 25.6	1.752	2.512	17.2	20.8	12 3	7 52.47	+18 6.7	1.771	2.552	16.3	21.7
12 13	7 48.95	+9 48.6	1.658	2.506	14.1	20.6	12 13	7 48.23	+18 25.6	1.678	2.546	12.9	21.4
12 23	7 41.50	+9 23.5	1.585	2.499	10.5	20.4	12 23	7 41.11	+18 54.4	1.606	2.539	8.9	21.2
1 2	7 31.80	+9 12.1	1.536	2.491	6.8	20.1	1 2	7 31.67	+19 30.6	1.559	2.532	4.3	20.9
1 12	7 20.88	+9 14.7	1.515	2.484	5.0	20.0	1 12	7 20.95	+20 10.6	1.541	2.524	1.1	20.6
1 22	7 10.01	+9 30.2	1.522	2.475	7.2	20.1	1 22	7 10.26	+20 50.1	1.552	2.516	5.7	20.9
2 1	7 0.50	+9 55.9	1.556	2.466	11.1	20.3	2 1	7 0.95	+21 26.0	1.591	2.508	10.3	21.2
2 11	6 53.41	+10 28.5	1.615	2.456	14.9	20.5	2 11	6 54.10	+21 56.6	1.653	2.499	14.4	21.4
461110	2015 <i>BX</i> ₄₁₃		1 10.2 200°71		1°3/ 9.6 17		452559	2004 <i>YV</i> ₂₆		1 10.2 343°52		0°6/10.4 18	
12 3	7 49.41	+25 35.3	2.782	3.553	11.2	21.8	12 3	7 48.44	+18 28.2	1.351	2.160	19.0	21.6
12 13	7 44.73	+25 57.1	2.686	3.550	8.8	21.6	12 13	7 45.88	+18 49.8	1.270	2.154	15.1	21.3
12 23	7 38.13	+26 20.5	2.615	3.547	5.9	21.4	12 23	7 39.95	+19 24.0	1.208	2.148	10.3	21.0
1 2	7 30.07	+26 42.8	2.572	3.543	2.9	21.2	1 2	7 31.25	+20 7.9	1.168	2.142	4.9	20.7
1 12	7 21.28	+27 1.5	2.560	3.540	1.6	21.1	1 12	7 21.04	+20 56.5	1.155	2.138	1.1	20.4
1 22	7 12.57	+27 14.5	2.578	3.536	4.3	21.3	1 22	7 10.93	+21 44.1	1.168	2.134	6.7	20.8
2 1	7 4.79	+27 21.0	2.627	3.531	7.3	21.5	2 1	7 2.57	+22 26.3	1.205	2.131	12.1	21.1
2 11	6 58.61	+27 21.2	2.702	3.527	10.1	21.6	2 11	6 57.22	+23 0.8	1.265	2.129	16.7	21.3
86686	2000 <i>FU</i> ₃₉		1 10.2 229°45		2°4/ 9.5 18		264592	2001 <i>TL</i> ₂₃₃		1 10.2 40°00		2°2/ 9.3 18	
12 3	7 55.46	+25 30.7	1.767	2.553	16.1	19.9	12 3	7 50.78	+23 13.6	1.565	2.366	17.2	20.1
12 13	7 50.81	+26 10.6	1.672	2.544	12.7	19.7	12 13	7 47.19	+24 17.9	1.496	2.377	13.4	19.9
12 23	7 42.99	+26 55.5	1.600	2.534	8.7	19.4	12 23	7 40.49	+25 30.5	1.449	2.388	9.0	19.7
1 2	7 32.58	+27 40.3	1.553	2.524	4.4	19.2	1 2	7 31.36	+26 44.8	1.427	2.400	4.4	19.5
1 12	7 20.70	+28 18.9	1.534	2.513	2.7	19.0	1 12	7 21.04	+27 53.6	1.433	2.413	2.6	19.4
1 22	7 8.83	+28 46.6	1.545	2.502	6.7	19.2	1 22	7 10.98	+28 50.7	1.467	2.425	6.7	19.7
2 1	6 58.47	+29 1.6	1.583	2.490	11.1	19.5	2 1	7 2.63	+29 33.1	1.527	2.439	11.1	19.9
2 11	6 50.85	+29 4.9	1.644	2.478	15.0	19.7	2 11	6 57.05	+30 1.0	1.610	2.452	14.9	20.2
166819	2002 <i>VK</i> ₉₃		1 10.2 104°78		5°7/12.6 18		6685	Boitsov		1 10.2 188°79		2°2/10.9 18	
12 3	7 48.48	+2 53.4	2.656	3.367	13.1	20.2	12 3	7 54.76	+15 27.4	1.855	2.622	16.1	18.6
12 13	7 43.73	+2 13.7	2.581	3.387	11.0	20.1	12 13	7 49.74	+15 25.5	1.764	2.622	12.9	18.4
12 23	7 37.27	+1 46.6	2.529	3.406	8.7	20.0	12 23	7 41.95	+15 33.5	1.695	2.621	9.0	18.1
1 2	7 29.60	+1 33.7	2.502	3.425	6.7	19.9	1 2	7 31.99	+15 50.2	1.651	2.619	4.8	17.9
1 12	7 21.40	+1 35.6	2.504	3.443	5.7	19.8	1 12	7 20.90	+16 13.5	1.636	2.616	2.3	17.7
1 22	7 13.40	+1 51.3	2.535	3.461	6.4	19.9	1 22	7 9.91	+16 40.5	1.651	2.613	5.7	17.9
2 1	7 6.31	+2 18.6	2.595	3.479	8.3	20.1	2 1	7 0.30	+17 8.6	1.694	2.609	10.0	18.2
2 11	7 0.72	+2 54.4	2.680	3.496	10.4	20.2	2 11	6 53.06	+17 35.8	1.762	2.604	13.8	18.4
114204	2002 <i>VU</i> ₁₀₃		1 10.2 304°73		6°2/11.2 18		409530	2005 <i>TB</i> ₁₃₈		1 10.2 58°69		2°3/ 9.5 18	
12 3	7 51.22	+9 36.4	1.742	2.50									

EPHEMERIDES

1 10.2

1 10.2

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
391777	2008 <i>PO</i>		1 10.2 103°41'	2°9/11.2	18		194857	2002 <i>AL</i> ₂₉		1 10.2 4°18'	9°5/9.1	18	
12 3	7 55.71	+12 51.9	1.673	2.440	17.7	21.8	12 3	7 59.62	+14 9.1	1.153	1.946	22.5	18.4
12 13	7 50.40	+13 0.5	1.607	2.463	14.1	21.6	12 13	7 54.70	+11 4.6	1.079	1.945	18.6	18.2
12 23	7 42.27	+13 22.7	1.562	2.486	9.9	21.4	12 23	7 45.83	+7 58.6	1.026	1.945	14.3	17.9
1 2	7 32.05	+13 57.0	1.542	2.508	5.5	21.2	1 2	7 33.90	+5 1.8	0.997	1.946	10.6	17.7
1 12	7 20.92	+14 40.0	1.551	2.529	2.9	21.1	1 12	7 20.55	+2 27.0	0.994	1.948	9.7	17.7
1 22	7 10.20	+15 27.6	1.588	2.550	6.0	21.3	1 22	7 7.75	+0 24.4	1.017	1.952	12.4	17.8
2 1	7 1.12	+16 15.9	1.654	2.570	10.1	21.6	2 1	6 57.31	-1 1.3	1.063	1.957	16.5	18.1
2 11	6 54.60	+17 1.8	1.744	2.589	13.8	21.9	2 11	6 50.46	-1 53.2	1.130	1.963	20.4	18.3
106865	2000 <i>YU</i> ₂₇		1 10.2 44°55'	1°1/9.9	18		280788	2005 <i>SK</i> ₁₈₇		1 10.2 107°07'	2°5/10.9	17	
12 3	7 53.87	+23 28.7	1.279	2.089	19.8	19.7	12 3	7 55.71	+16 2.6	1.545	2.325	18.3	20.8
12 13	7 49.92	+23 42.3	1.223	2.109	15.4	19.5	12 13	7 50.75	+15 47.0	1.474	2.340	14.5	20.6
12 23	7 42.38	+24 1.4	1.187	2.128	10.3	19.3	12 23	7 42.70	+15 41.6	1.424	2.353	10.1	20.4
1 2	7 32.18	+24 21.3	1.174	2.149	4.8	19.0	1 2	7 32.33	+15 45.4	1.398	2.367	5.3	20.1
1 12	7 20.90	+24 37.0	1.188	2.170	1.6	18.9	1 12	7 20.91	+15 56.4	1.400	2.380	2.6	20.0
1 22	7 10.28	+24 45.4	1.227	2.191	6.8	19.3	1 22	7 9.90	+16 11.9	1.430	2.392	6.3	20.3
2 1	7 1.88	+24 45.8	1.291	2.213	11.8	19.6	2 1	7 0.66	+16 29.7	1.487	2.405	10.8	20.5
2 11	6 56.73	+24 39.5	1.378	2.236	16.0	19.9	2 11	6 54.20	+16 47.8	1.567	2.417	14.8	20.8
152684	1998 <i>KV</i> ₂₆		1 10.2 197°01'	4°6/11.7	18		329652	2003 <i>SZ</i> ₂₈₃		1 10.2 82°14'	6°8/12.8	18	
12 3	7 49.73	+7 51.8	2.518	3.251	13.2	20.6	12 3	7 49.35	+2 16.8	2.181	2.902	15.4	21.1
12 13	7 44.99	+7 16.4	2.421	3.249	10.9	20.5	12 13	7 44.79	+1 30.9	2.112	2.922	12.9	20.9
12 23	7 38.32	+6 50.8	2.346	3.246	8.3	20.3	12 23	7 38.18	+1 0.4	2.063	2.942	10.3	20.8
1 2	7 30.19	+6 36.6	2.298	3.242	5.8	20.1	1 2	7 30.11	+0 47.7	2.039	2.962	7.9	20.7
1 12	7 21.31	+6 34.1	2.279	3.238	4.6	20.0	1 12	7 21.40	+0 53.6	2.043	2.982	6.8	20.6
1 22	7 12.51	+6 42.7	2.290	3.233	5.9	20.1	1 22	7 12.94	+1 16.7	2.074	3.001	7.6	20.7
2 1	7 4.61	+7 0.7	2.330	3.229	8.5	20.3	2 1	7 5.62	+1 54.0	2.133	3.020	9.7	20.9
2 11	6 58.32	+7 25.8	2.397	3.223	11.1	20.4	2 11	7 0.09	+2 41.0	2.217	3.039	12.0	21.1
149441	2003 <i>BO</i> ₈₇		1 10.2 278°35'	4°0/8.9	18		394461	2007 <i>RR</i> ₂₃₈		1 10.2 120°34'	2°7/9.3	18	
12 3	7 53.09	+30 24.6	1.920	2.709	14.9	20.4	12 3	7 57.90	+27 28.3	1.954	2.731	15.1	21.8
12 13	7 48.87	+31 8.9	1.822	2.693	11.9	20.2	12 13	7 52.04	+28 10.5	1.884	2.750	11.8	21.6
12 23	7 41.65	+31 54.2	1.746	2.677	8.4	19.9	12 23	7 43.36	+28 54.1	1.838	2.769	8.1	21.4
1 2	7 31.97	+32 34.6	1.695	2.661	5.1	19.7	1 2	7 32.58	+29 33.7	1.818	2.787	4.3	21.2
1 12	7 20.90	+33 4.2	1.673	2.644	4.2	19.6	1 12	7 20.86	+30 4.2	1.828	2.804	3.0	21.2
1 22	7 9.80	+33 18.8	1.680	2.628	7.2	19.8	1 22	7 9.52	+30 22.4	1.868	2.821	6.1	21.4
2 1	7 0.13	+33 17.6	1.713	2.612	11.0	19.9	2 1	6 59.80	+30 28.1	1.936	2.837	9.8	21.6
2 11	6 53.03	+33 2.6	1.770	2.595	14.5	20.1	2 11	6 52.62	+30 23.1	2.029	2.852	13.0	21.9
226114	2002 <i>PD</i> ₁₃₃		1 10.2 118°95'	1°3/9.9	17		422628	2014 <i>UV</i> ₁₀₂		1 10.2 164°74'	1°0/10.6	18	
12 3	7 58.76	+24 31.1	1.528	2.318	18.0	20.9	12 3	7 50.91	+17 41.6	2.036	2.810	14.7	21.6
12 13	7 53.36	+24 41.7	1.457	2.330	14.2	20.7	12 13	7 46.50	+17 56.0	1.949	2.812	11.6	21.4
12 23	7 44.57	+24 55.8	1.407	2.343	9.6	20.4	12 23	7 39.64	+18 18.6	1.884	2.814	7.9	21.2
1 2	7 33.20	+25 8.9	1.382	2.355	4.5	20.2	1 2	7 30.90	+18 47.5	1.845	2.816	3.9	20.9
1 12	7 20.68	+25 16.5	1.385	2.366	1.7	20.0	1 12	7 21.21	+19 19.8	1.835	2.818	1.2	20.7
1 22	7 8.63	+25 16.0	1.416	2.378	6.5	20.3	1 22	7 11.65	+19 52.4	1.855	2.819	5.0	21.0
2 1	6 58.60	+25 7.4	1.474	2.388	11.2	20.6	2 1	7 3.30	+20 22.8	1.904	2.820	9.0	21.3
2 11	6 51.65	+24 52.6	1.555	2.398	15.3	20.9	2 11	6 57.05	+20 49.5	1.978	2.821	12.5	21.5
304081	2006 <i>GK</i> ₄₀		1 10.2 231°03'	7°0/7.4	18		461759	2005 <i>UM</i> ₂₅₀		1 10.2 120°69'	3°8/11.4	18	
12 3	7 58.64	+37 10.5	1.914	2.691	15.4	21.4	12 3	7 52.47	+11 14.9	2.260	3.006	14.2	21.9
12 13	7 53.61	+38 32.3	1.825	2.681	12.6	21.2	12 13	7 47.17	+10 42.4	2.182	3.022	11.5	21.7
12 23	7 45.09	+39 51.9	1.757	2.671	9.7	21.0	12 23	7 39.77	+10 19.2	2.127	3.038	8.4	21.5
1 2	7 33.65	+41 0.1	1.716	2.660	7.4	20.8	1 2	7 30.84	+10 5.9	2.099	3.054	5.3	21.4
1 12	7 20.53	+41 48.1	1.703	2.648	7.3	20.8	1 12	7 21.24	+10 2.5	2.100	3.068	3.8	21.3
1 22	7 7.38	+42 10.8	1.717	2.636	9.5	20.9	1 22	7 11.91	+10 7.7	2.131	3.083	5.6	21.4
2 1	6 55.92	+42 7.9	1.758	2.623	12.6	21.1	2 1	7 3.73	+10 20.1	2.191	3.097	8.6	21.6
2 11	6 47.51	+41 43.8	1.820	2.610	15.6	21.2	2 11	6 57.42	+10 37.4	2.278	3.110	11.4	21.9
324551	2006 <i>WA</i> ₆₉		1 10.2 306°79'	3°9/11.3	18		145781	1998 <i>FO</i> ₄₁		1 10.2 352°29'	17°5/19.2	18	
12 3	7 49.63	+12 15.4	1.792	2.564	16.5	21.1	12 3	7 42.73	-17 43.5	1.521	2.179	23.3	19.0
12 13	7 45.78	+11 50.5	1.703	2.560	13.3	20.9	12 13	7 40.94	-19 16.2	1.450	2.171	21.8	18.8
12 23	7 39.31	+11 36.8	1.635	2.556	9.7	20.6	12 23	7 36.35	-20 15.3	1.391	2.165	20.2	18.7
1 2	7 30.78	+11 35.2	1.591	2.552	5.9	20.4	1 2	7 29.52	-20 31.3	1.347	2.160	18.7	18.6
1 12	7 21.19	+11 45.1	1.575	2.549	4.0	20.3	1 12	7 21.49	-19 57.7	1.321	2.156	17.7	18.5
1 22	7 11.71	+12 4.7	1.587	2.545	6.4	20.4	1 22	7 13.53	-18 33.8	1.313	2.153	17.5	18.5
2 1	7 3.53	+12 31.4	1.626	2.542	10.3	20.6	2 1	7 6.94	-16 25.1	1.324	2.152	18.2	18.5
2 11	6 57.61	+13 2.1	1.689	2.538	13.9	20.9	2 11	7 2.81	-13 43.1	1.354	2.152	19.6	18.6
518457	2005 <i>GF</i> ₁₇₇		1 10.2 169°27'	21°5/15.2	18		155519	1999 <i>RS</i> ₂₅₁		1 10.2 133°70'	1°4/9.8	18	
12 3	7 53.24	-16 26.4	1.243	1.915	27.0	21.7	12 3	7 52.01	+25 2.1	2.166	2.945	13.7	21.3
12 13	7 49.77	-19 22.4	1.186	1.916	25.3	21.5	12 13	7 47.25	+25 22.4	2.082	2.951	10.7	21.1
12 23	7 42.66	-21 45.0	1.142	1.917	23.6	21.4	12 23	7 40.07	+25 45.2	2.022	2.956	7.2	20.9
1 2	7 32.55	-23 20.1	1.112	1.918	22.3	21.3	1 2	7 31.07	+26 7.1	1.989	2.961	3.5	20.7
1 12	7 20.79	-23 56.8	1.098	1.918	21.6	21.3	1 12	7 21.19	+26 24.7	1.985	2.966	1.7	20.6
1 22	7 9.11	-23 31.7	1.101	1.918	21.7	21.3	1 22	7 11.51	+26 35.6	2.011	2.971	5.1	20.8
2 1	6 59.31	-22 9.6	1.119	1.918	22.7	21.3	2 1	7 3.11	+26 39.0	2.066	2.975	8.8	21.0
2 11	6 52.77	-20 3.4	1.153	1.918	24.2	21.5	2 11	6 56.81	+26 35.6	2.146	2.980	12.0	21.3
8043	Fukuhara		1 10.2 39°35'	3°9/8.9	18		31558	1999 <i>EE</i> ₆		1 10.2 354°09'	5°4/8.9	18	
12 3	7 52.97	+26 6.4	1.334	2.145	19.0								

EPHEMERIDES

1 10.2

1 10.3

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
264746	2002 <i>CP</i> ₂₀₉		1 10.2	10°21'	2°9'/11.4	18	445085	2008 <i>TR</i> ₉₆		1 10.3	22°48'	4°0'/9.6	17
12 3	7 46.10	+12 30.9	1.473	2.267	18.4	19.9	12 3	7 55.41	+29 55.4	1.256	2.070	19.9	20.7
12 13	7 43.56	+12 51.3	1.397	2.269	14.8	19.6	12 13	7 51.71	+30 12.6	1.188	2.074	15.7	20.4
12 23	7 38.09	+13 29.0	1.341	2.272	10.4	19.4	12 23	7 43.99	+30 28.5	1.139	2.078	10.9	20.2
1 2	7 30.30	+14 22.6	1.309	2.277	5.8	19.1	1 2	7 33.12	+30 36.4	1.113	2.083	6.0	19.9
1 12	7 21.35	+15 28.2	1.302	2.282	2.9	19.0	1 12	7 20.81	+30 30.1	1.112	2.089	4.2	19.8
1 22	7 12.57	+16 39.8	1.323	2.288	6.3	19.2	1 22	7 9.05	+30 7.5	1.137	2.096	8.2	20.1
2 1	7 5.32	+17 51.4	1.369	2.295	10.9	19.5	2 1	6 59.72	+29 30.6	1.186	2.103	13.1	20.4
2 11	7 0.67	+18 58.2	1.439	2.303	15.0	19.7	2 11	6 54.01	+28 44.3	1.257	2.111	17.5	20.6
105190	2000 <i>OZ</i> ₃₄		1 10.2	83°21'	2°2'/10.7	18	502312	2015 <i>BA</i> ₁₅₃		1 10.3	169°48'	1°4'/10.9	17
12 3	7 54.33	+17 24.8	1.923	2.693	15.5	19.5	12 3	7 48.02	+15 36.0	2.411	3.176	12.9	21.7
12 13	7 48.96	+16 51.5	1.852	2.712	12.3	19.3	12 13	7 43.87	+15 55.5	2.319	3.177	10.2	21.5
12 23	7 41.12	+16 24.3	1.804	2.731	8.5	19.1	12 23	7 37.70	+16 23.7	2.251	3.178	7.1	21.3
1 2	7 31.49	+16 2.8	1.782	2.750	4.5	18.9	1 2	7 29.98	+16 59.2	2.209	3.178	3.6	21.1
1 12	7 21.15	+15 46.4	1.790	2.769	2.3	18.8	1 12	7 21.47	+17 39.3	2.198	3.179	1.4	20.9
1 22	7 11.22	+15 34.5	1.827	2.788	5.4	19.1	1 22	7 13.05	+18 21.3	2.217	3.179	4.4	21.1
2 1	7 2.76	+15 26.3	1.892	2.806	9.2	19.3	2 1	7 5.57	+19 2.5	2.265	3.180	7.8	21.3
2 11	6 56.55	+15 21.1	1.983	2.825	12.5	19.6	2 11	6 59.79	+19 40.9	2.340	3.180	10.9	21.5
192058	2006 <i>BT</i> ₄₃		1 10.2	75°93'	0°8'/10.5	18	481884	2008 <i>YS</i> ₁₆₆		1 10.3	238°71'	2°7'/10.2	18
12 3	7 49.96	+18 31.8	2.018	2.796	14.6	21.0	12 3	8 3.72	+21 54.1	1.268	2.060	20.9	20.5
12 13	7 45.71	+18 41.4	1.938	2.804	11.5	20.8	12 13	7 58.07	+20 31.9	1.182	2.055	16.8	20.2
12 23	7 39.06	+18 58.4	1.880	2.813	7.8	20.6	12 23	7 48.29	+19 7.0	1.115	2.049	11.7	19.9
1 2	7 30.62	+19 20.7	1.849	2.821	3.8	20.3	1 2	7 35.17	+17 39.9	1.072	2.043	6.0	19.6
1 12	7 21.32	+19 45.5	1.847	2.830	1.0	20.1	1 12	7 20.37	+16 12.8	1.056	2.036	2.9	19.4
1 22	7 12.23	+20 10.1	1.874	2.838	4.9	20.4	1 22	7 5.98	+14 50.2	1.068	2.030	8.1	19.6
2 1	7 4.41	+20 32.6	1.930	2.847	8.8	20.7	2 1	6 53.96	+13 36.9	1.106	2.023	13.8	19.9
2 11	6 58.67	+20 51.7	2.011	2.855	12.2	20.9	2 11	6 45.68	+12 35.9	1.166	2.016	18.8	20.2
111184	2001 <i>WZ</i> ₆		1 10.2	155°61'	1°9'/11.1	18	311041	2004 <i>BV</i> ₇₀		1 10.3	47°85'	1°1'/10.0	17
12 3	7 47.52	+14 36.4	2.741	3.497	11.7	20.6	12 3	7 55.04	+23 32.4	1.338	2.144	19.3	20.0
12 13	7 43.15	+14 33.9	2.650	3.501	9.3	20.5	12 13	7 50.58	+23 44.8	1.288	2.170	15.0	19.8
12 23	7 37.02	+14 38.5	2.583	3.505	6.5	20.3	12 23	7 42.69	+24 2.1	1.256	2.196	10.0	19.6
1 2	7 29.60	+14 49.4	2.543	3.508	3.6	20.1	1 2	7 32.32	+24 19.7	1.249	2.223	4.6	19.3
1 12	7 21.54	+15 5.5	2.534	3.512	2.0	20.0	1 12	7 21.02	+24 33.1	1.268	2.250	1.5	19.2
1 22	7 13.60	+15 25.2	2.555	3.515	4.1	20.1	1 22	7 10.45	+24 39.4	1.314	2.278	6.5	19.6
2 1	7 6.51	+15 46.8	2.606	3.518	7.1	20.3	2 1	7 2.07	+24 38.4	1.386	2.306	11.3	19.9
2 11	7 0.89	+16 8.8	2.683	3.520	9.8	20.5	2 11	6 56.81	+24 31.2	1.480	2.334	15.3	20.2
100426	1996 <i>HB</i> ₇		1 10.2	44°21'	1°8'/10.8	17	430193	2013 <i>TV</i> ₁₂₇		1 10.3	37°65'	4°9'/8.8	18
12 3	7 51.27	+15 50.5	1.366	2.164	19.4	19.3	12 3	7 52.62	+33 48.5	1.916	2.705	14.9	20.9
12 13	7 47.53	+16 4.9	1.310	2.186	15.3	19.1	12 13	7 48.24	+34 31.4	1.847	2.716	11.9	20.7
12 23	7 40.63	+16 32.8	1.275	2.210	10.4	18.9	12 23	7 40.99	+35 11.0	1.801	2.727	8.6	20.5
1 2	7 31.39	+17 11.5	1.263	2.234	5.2	18.7	1 2	7 31.57	+35 41.1	1.780	2.738	5.7	20.4
1 12	7 21.17	+17 56.4	1.277	2.258	1.9	18.5	1 12	7 21.18	+35 56.6	1.787	2.750	5.1	20.4
1 22	7 11.49	+18 42.4	1.318	2.283	6.3	18.9	1 22	7 11.17	+35 55.2	1.822	2.763	7.4	20.5
2 1	7 3.71	+19 25.6	1.384	2.309	11.0	19.2	2 1	7 2.80	+35 37.7	1.883	2.775	10.5	20.8
2 11	6 58.78	+20 3.5	1.474	2.334	15.0	19.5	2 11	6 57.00	+35 7.4	1.968	2.788	13.5	21.0
419979	2011 <i>CP</i> ₁₀		1 10.2	325°54'	4°6'/9.2	18	115596	2003 <i>UC</i> ₉₉		1 10.3	111°52'	3°7'/8.4	18
12 3	7 55.20	+33 58.8	1.859	2.646	15.4	20.9	12 3	7 51.85	+29 30.0	2.270	3.050	13.2	19.0
12 13	7 50.47	+34 19.9	1.773	2.641	12.3	20.7	12 13	7 47.29	+30 41.7	2.190	3.056	10.4	18.8
12 23	7 42.63	+34 36.6	1.709	2.636	8.9	20.5	12 23	7 40.24	+31 55.3	2.134	3.063	7.3	18.6
1 2	7 32.37	+34 43.1	1.671	2.632	5.7	20.3	1 2	7 31.25	+33 4.8	2.106	3.069	4.5	18.4
1 12	7 20.95	+34 34.6	1.660	2.628	4.8	20.2	1 12	7 21.25	+34 4.4	2.107	3.075	4.0	18.4
1 22	7 9.83	+34 9.2	1.678	2.624	7.4	20.4	1 22	7 11.34	+34 50.1	2.139	3.081	6.4	18.6
2 1	7 0.42	+33 28.6	1.722	2.620	10.9	20.6	2 1	7 2.64	+35 20.3	2.199	3.087	9.4	18.8
2 11	6 53.78	+32 36.8	1.790	2.617	14.3	20.8	2 11	6 56.06	+35 36.1	2.284	3.093	12.2	19.0
454371	2014 <i>MX</i> ₄₅		1 10.2	179°15'	0°8'/9.9	18	17396	1981 <i>EK</i> ₄₅		1 10.3	116°05'	2°9'/9.6	18
12 3	7 54.87	+22 25.3	2.005	2.780	14.8	22.5	12 3	7 58.17	+28 26.9	1.680	2.467	16.8	19.5
12 13	7 49.74	+22 53.2	1.916	2.782	11.6	22.2	12 13	7 52.77	+28 48.3	1.607	2.478	13.2	19.3
12 23	7 41.93	+23 26.6	1.850	2.783	7.9	22.0	12 23	7 44.14	+29 9.7	1.556	2.490	9.0	19.0
1 2	7 32.01	+24 2.0	1.811	2.784	3.7	21.8	1 2	7 33.06	+29 25.9	1.531	2.500	4.8	18.8
1 12	7 21.02	+24 34.9	1.802	2.784	1.3	21.6	1 12	7 20.89	+29 31.8	1.533	2.511	3.1	18.7
1 22	7 10.15	+25 2.1	1.822	2.783	5.4	21.9	1 22	7 9.17	+29 25.2	1.565	2.521	6.7	19.0
2 1	7 0.64	+25 21.7	1.871	2.782	9.5	22.1	2 1	6 59.34	+29 6.9	1.623	2.531	10.9	19.2
2 11	6 53.43	+25 33.8	1.946	2.779	13.0	22.3	2 11	6 52.42	+28 39.8	1.706	2.540	14.5	19.5
121269	1999 <i>RK</i> ₁₀₈		1 10.2	194°10'	1°3'/10.6	18	466763	2015 <i>AM</i> ₁₄₅		1 10.3	156°29'	0°1'/10.2	18
12 3	7 51.48	+18 28.6	2.360	3.125	13.2	19.9	12 3	7 49.20	+19 36.5	2.394	3.166	12.8	21.5
12 13	7 46.57	+18 15.6	2.266	3.124	10.4	19.7	12 13	7 44.87	+20 11.6	2.305	3.168	10.0	21.3
12 23	7 39.50	+18 7.5	2.194	3.122	7.1	19.5	12 23	7 38.42	+20 53.6	2.239	3.171	6.8	21.1
1 2	7 30.80	+18 3.2	2.150	3.120	3.6	19.3	1 2	7 30.35	+21 39.7	2.201	3.173	3.1	20.8
1 12	7 21.29	+18 1.6	2.136	3.117	1.4	19.1	1 12	7 21.45	+22 26.6	2.193	3.176	0.7	20.6
1 22	7 11.91	+18 1.3	2.152	3.114	4.6	19.3	1 22	7 12.64	+23 10.8	2.215	3.178	4.4	20.9
2 1	7 3.60	+18 1.6	2.198	3.111	8.1	19.5	2 1	7 4.82	+23 50.0	2.268	3.180	8.0	21.2
2 11	6 57.13	+18 1.9	2.270	3.107	11.3	19.7	2 11	6 58.78	+24 23.0	2.346	3.181	11.0	21.4
180856	2005 <i>HX</i> ₅		1 10.3	91°24'	3°4'/11.5	18	398313	2011 <i>FT</i> ₄₇		1 10.3	183°06'	4°8'/12.1	18
12 3	7 52.09	+11 21.4											

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
447102	2004 <i>TM</i> ₁₅₄		1 10.3	44°46'	1°5'/ 9.9	17	453786	2011 <i>OE</i> ₄₁		1 10.3	160°42'	0°2'/10.2	18
12 3	7 53.78	+23 43.3	1.260	2.072	19.9	21.5	12 3	7 57.28	+21 54.8	2.040	2.808	14.8	22.4
12 13	7 50.05	+24 4.3	1.202	2.088	15.6	21.3	12 13	7 51.46	+22 3.9	1.955	2.816	11.7	22.2
12 23	7 42.65	+24 31.2	1.162	2.104	10.5	21.0	12 23	7 43.00	+22 17.4	1.893	2.824	7.9	22.0
1 2	7 32.46	+24 58.8	1.146	2.120	4.9	20.7	1 2	7 32.53	+22 32.2	1.858	2.830	3.6	21.8
1 12	7 21.07	+25 21.4	1.156	2.138	1.9	20.6	1 12	7 21.10	+22 45.5	1.853	2.836	0.8	21.5
1 22	7 10.27	+25 35.3	1.191	2.155	7.1	21.0	1 22	7 9.91	+22 54.7	1.879	2.841	5.2	21.9
2 1	7 1.70	+25 39.4	1.252	2.173	12.1	21.3	2 1	7 0.13	+22 59.0	1.934	2.845	9.2	22.1
2 11	6 56.44	+25 35.2	1.334	2.192	16.4	21.6	2 11	6 52.67	+22 58.7	2.015	2.848	12.7	22.3
203086	2000 <i>QX</i> ₁₀₃		1 10.3	69°46'	1°3'/ 9.9	18	460512	2014 <i>SS</i> ₃₄₅		1 10.3	184°00'	2°4'/ 9.5	18
12 3	7 55.78	+22 43.6	1.448	2.245	18.5	20.3	12 3	7 54.16	+27 7.6	2.045	2.825	14.4	21.8
12 13	7 51.09	+23 16.8	1.390	2.267	14.4	20.1	12 13	7 49.25	+27 37.3	1.957	2.826	11.3	21.6
12 23	7 43.08	+23 56.6	1.352	2.290	9.7	19.9	12 23	7 41.65	+28 8.9	1.893	2.825	7.7	21.4
1 2	7 32.59	+24 37.7	1.338	2.312	4.5	19.6	1 2	7 31.96	+28 37.8	1.855	2.825	4.0	21.2
1 12	7 21.05	+25 14.3	1.352	2.334	1.7	19.5	1 12	7 21.21	+28 59.6	1.846	2.824	2.6	21.1
1 22	7 10.06	+25 42.1	1.394	2.357	6.5	19.9	1 22	7 10.63	+29 11.4	1.867	2.823	5.9	21.3
2 1	7 1.10	+25 59.7	1.462	2.379	11.1	20.2	2 1	7 1.42	+29 12.6	1.917	2.822	9.6	21.5
2 11	6 55.15	+26 8.0	1.553	2.401	15.0	20.5	2 11	6 54.55	+29 4.4	1.991	2.820	13.0	21.7
493860	2015 <i>XX</i> ₆₁		1 10.3	100°98'	2°9'/11.2	18	127570	2003 <i>AH</i> ₁₆		1 10.3	59°52'	0°6'/10.0	18
12 3	7 53.34	+13 49.3	1.666	2.440	17.4	22.0	12 3	7 52.49	+18 28.7	1.572	2.363	17.6	19.1
12 13	7 48.73	+13 45.4	1.594	2.454	13.9	21.8	12 13	7 48.38	+19 35.8	1.508	2.382	13.7	18.9
12 23	7 41.31	+13 53.7	1.542	2.468	9.8	21.5	12 23	7 41.26	+20 55.4	1.465	2.401	9.2	18.6
1 2	7 31.76	+14 13.3	1.515	2.481	5.4	21.3	1 2	7 31.81	+22 21.7	1.447	2.421	4.2	18.4
1 12	7 21.22	+14 42.0	1.515	2.494	2.9	21.2	1 12	7 21.26	+23 47.4	1.458	2.441	1.2	18.2
1 22	7 10.99	+15 16.2	1.545	2.507	6.1	21.4	1 22	7 11.03	+25 5.4	1.498	2.460	6.1	18.6
2 1	7 2.33	+15 52.7	1.601	2.519	10.2	21.7	2 1	7 2.47	+26 11.1	1.564	2.480	10.6	18.9
2 11	6 56.17	+16 28.6	1.682	2.531	14.0	21.9	2 11	6 56.61	+27 3.2	1.655	2.500	14.4	19.2
492011	2013 <i>FA</i> ₂₃		1 10.3	244°62'	0°5'/10.1	18	281142	2007 <i>DH</i> ₁₅		1 10.3	62°80'	4°8'/ 9.2	18
12 3	7 53.40	+22 1.0	1.864	2.647	15.5	22.3	12 3	7 57.08	+30 17.6	1.341	2.148	19.2	20.6
12 13	7 48.95	+22 15.7	1.766	2.636	12.3	22.1	12 13	7 52.94	+31 3.7	1.273	2.154	15.3	20.3
12 23	7 41.65	+22 36.1	1.690	2.624	8.4	21.8	12 23	7 44.84	+31 50.3	1.225	2.161	10.7	20.1
1 2	7 32.03	+22 59.2	1.639	2.613	3.9	21.5	1 2	7 33.62	+32 29.1	1.200	2.167	6.3	19.9
1 12	7 21.14	+23 21.2	1.618	2.601	1.0	21.3	1 12	7 20.89	+32 52.1	1.201	2.174	5.1	19.8
1 22	7 10.26	+23 39.0	1.625	2.588	5.7	21.6	1 22	7 8.62	+32 55.1	1.229	2.181	8.6	20.0
2 1	7 0.73	+23 50.8	1.661	2.575	10.2	21.8	2 1	6 58.68	+32 39.2	1.281	2.188	13.1	20.3
2 11	6 53.63	+23 56.5	1.721	2.562	14.1	22.0	2 11	6 52.32	+32 8.8	1.354	2.196	17.2	20.6
460810	2014 <i>WV</i> ₅₁		1 10.3	40°76'	3°3'/ 9.2	18	337033	1995 <i>SH</i> ₆₉		1 10.3	78°74'	0°1'/10.3	18
12 3	7 52.10	+28 36.6	1.834	2.626	15.4	21.5	12 3	7 49.59	+20 47.6	2.346	3.120	13.0	21.9
12 13	7 47.95	+29 19.6	1.757	2.631	12.1	21.3	12 13	7 45.06	+20 58.2	2.270	3.135	10.1	21.7
12 23	7 40.90	+30 4.1	1.702	2.636	8.4	21.0	12 23	7 38.47	+21 13.4	2.218	3.150	6.8	21.5
1 2	7 31.62	+30 44.5	1.672	2.641	4.7	20.8	1 2	7 30.37	+21 31.0	2.192	3.165	3.2	21.3
1 12	7 21.24	+31 15.3	1.671	2.646	3.6	20.8	1 12	7 21.58	+21 48.7	2.197	3.180	0.6	21.1
1 22	7 11.10	+31 33.1	1.699	2.651	6.7	21.0	1 22	7 13.04	+22 4.4	2.232	3.195	4.3	21.5
2 1	7 2.50	+31 37.0	1.753	2.657	10.4	21.2	2 1	7 5.61	+22 16.8	2.296	3.210	7.8	21.7
2 11	6 56.46	+31 29.0	1.831	2.663	13.8	21.4	2 11	7 0.01	+22 25.6	2.386	3.225	10.8	21.9
14538	1997 <i>RR</i> ₈		1 10.3	209°72'	4°5'/11.9	18	410732	2009 <i>CF</i> ₂₅		1 10.3	232°23'	2°3'/ 9.6	17
12 3	7 47.64	+ 7 43.4	2.417	3.157	13.5	18.9	12 3	7 55.28	+26 48.6	1.967	2.748	14.9	22.8
12 13	7 43.53	+ 7 22.6	2.322	3.154	11.1	18.7	12 13	7 50.39	+27 16.3	1.869	2.737	11.8	22.6
12 23	7 37.46	+ 7 13.2	2.249	3.152	8.4	18.5	12 23	7 42.61	+27 46.5	1.793	2.726	8.1	22.3
1 2	7 29.91	+ 7 16.3	2.202	3.149	5.8	18.4	1 2	7 32.49	+28 14.5	1.744	2.715	4.2	22.1
1 12	7 21.61	+ 7 31.7	2.184	3.146	4.5	18.3	1 12	7 21.11	+28 35.7	1.725	2.703	2.6	21.9
1 22	7 13.37	+ 7 57.9	2.196	3.143	5.8	18.4	1 22	7 9.76	+28 46.6	1.734	2.691	6.1	22.1
2 1	7 6.04	+ 8 32.6	2.236	3.140	8.5	18.5	2 1	6 59.79	+28 46.5	1.772	2.678	10.2	22.3
2 11	7 0.34	+ 9 12.8	2.301	3.137	11.2	18.7	2 11	6 52.28	+28 36.6	1.834	2.664	13.8	22.5
472964	2015 <i>GA</i> ₃₉		1 10.3	19°99'	2°2'/ 9.3	18	112653	2002 <i>PN</i> ₈₅		1 10.3	127°25'	2°2'/11.3	18
12 3	7 48.20	+25 59.0	2.308	3.093	12.8	20.7	12 3	7 48.36	+13 11.3	2.348	3.107	13.4	20.1
12 13	7 44.31	+26 46.7	2.224	3.095	10.0	20.5	12 13	7 44.16	+13 25.5	2.260	3.112	10.7	19.9
12 23	7 38.16	+27 37.8	2.164	3.098	6.8	20.3	12 23	7 37.93	+13 49.8	2.196	3.117	7.5	19.7
1 2	7 30.29	+28 27.9	2.130	3.101	3.5	20.1	1 2	7 30.16	+14 23.3	2.158	3.122	4.2	19.5
1 12	7 21.55	+29 12.9	2.127	3.104	2.4	20.1	1 12	7 21.62	+15 3.8	2.149	3.127	2.2	19.4
1 22	7 12.90	+29 49.2	2.153	3.108	5.3	20.3	1 22	7 13.20	+15 48.3	2.171	3.132	4.6	19.6
2 1	7 5.35	+30 15.2	2.207	3.111	8.6	20.5	2 1	7 5.76	+16 33.9	2.222	3.137	7.9	19.8
2 11	6 59.71	+30 31.0	2.287	3.115	11.5	20.7	2 11	7 0.04	+17 18.2	2.300	3.141	11.0	20.0
26361	1999 <i>AJ</i> ₅		1 10.3	34°68'	5°2'/ 8.5	18	496263	2012 <i>PA</i> ₄₃		1 10.3	115°53'	4°9'/ 8.7	18
12 3	7 52.19	+28 50.3	1.337	2.151	18.9	16.5	12 3	7 56.25	+38 41.2	2.701	3.459	11.8	21.5
12 13	7 48.95	+30 15.2	1.282	2.168	14.8	16.2	12 13	7 50.24	+39 10.5	2.627	3.473	9.6	21.3
12 23	7 42.04	+31 43.4	1.247	2.185	10.3	16.0	12 23	7 41.92	+39 33.3	2.578	3.486	7.2	21.2
1 2	7 32.26	+33 5.0	1.237	2.203	6.3	15.9	1 2	7 31.94	+39 45.1	2.556	3.500	5.3	21.1
1 12	7 21.14	+34 10.3	1.252	2.222	5.5	15.9	1 12	7 21.27	+39 42.3	2.564	3.513	5.0	21.1
1 22	7 10.51	+34 53.6	1.293	2.242	8.8	16.1	1 22	7 10.97	+39 24.1	2.602	3.525	6.4	21.2
2 1	7 2.04	+35 13.8	1.359	2.262	12.9	16.4	2 1	7 2.01	+38 51.6	2.668	3.538	8.6	21.4
2 11	6 56.90	+35 14.5	1.446	2.283	16.5	16.7	2 11	6 55.15	+38 8.1	2.759	3.550	10.8	21.5
452992	2007 <i>GK</i> ₆₅		1 10.3	183°91'	0°7'/10.5	18	154557	2003 <i>HB</i> ₈		1 10.3	285°01'	1°9'/ 9.7	18
12 3	7 55.66	+19											

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
456582	2007 <i>DU</i> ₃₄		1 10.3 227°53	4°1/11.9	16		262721	2006 <i>XA</i> ₂₂		1 10.3 55°94	0°5/10.1	18	
12 3	7 48.93	+ 8 24.3	2.329	3.071	13.9	22.3	12 3	7 51.70	+21 51.9	1.750	2.540	16.1	21.1
12 13	7 44.70	+ 8 17.4	2.227	3.063	11.4	22.1	12 13	7 47.61	+22 11.4	1.671	2.545	12.6	20.9
12 23	7 38.38	+ 8 22.8	2.148	3.054	8.5	21.9	12 23	7 40.69	+22 37.1	1.613	2.549	8.5	20.7
1 2	7 30.42	+ 8 41.2	2.094	3.046	5.6	21.7	1 2	7 31.58	+23 5.5	1.581	2.554	3.9	20.4
1 12	7 21.58	+ 9 11.9	2.070	3.036	4.1	21.6	1 12	7 21.39	+23 32.8	1.576	2.559	1.1	20.2
1 22	7 12.74	+ 9 52.6	2.075	3.027	5.7	21.6	1 22	7 11.43	+23 55.4	1.601	2.564	5.7	20.5
2 1	7 4.82	+10 40.5	2.109	3.017	8.7	21.8	2 1	7 2.98	+24 11.6	1.652	2.569	10.0	20.8
2 11	6 58.61	+11 32.1	2.169	3.007	11.7	22.0	2 11	6 57.01	+24 21.2	1.728	2.575	13.8	21.0
205860	2002 <i>EQ</i> ₈₀		1 10.3 273°23	1°8/ 9.8	18		59592	1999 <i>JW</i> ₅₈		1 10.3 325°56	7°8/11.9	18	
12 3	7 53.56	+24 31.7	1.681	2.473	16.5	20.9	12 3	7 48.42	+ 5 32.7	1.703	2.459	17.8	18.6
12 13	7 49.59	+24 57.5	1.581	2.457	13.1	20.6	12 13	7 45.05	+ 4 21.9	1.612	2.449	15.0	18.4
12 23	7 42.40	+25 28.7	1.503	2.440	9.0	20.3	12 23	7 39.01	+ 3 24.8	1.542	2.440	11.9	18.2
1 2	7 32.54	+26 0.8	1.450	2.423	4.4	20.0	1 2	7 30.85	+ 2 45.8	1.495	2.431	9.0	18.0
1 12	7 21.11	+26 28.7	1.424	2.405	2.1	19.8	1 12	7 21.55	+ 2 27.8	1.473	2.422	7.8	17.9
1 22	7 9.62	+26 47.9	1.427	2.388	6.6	20.1	1 22	7 12.30	+ 2 31.2	1.477	2.414	9.1	18.0
2 1	6 59.62	+26 56.8	1.457	2.370	11.4	20.3	2 1	7 4.31	+ 2 53.9	1.507	2.407	12.1	18.1
2 11	6 52.38	+26 56.1	1.509	2.353	15.6	20.5	2 11	6 58.61	+ 3 31.2	1.559	2.400	15.4	18.3
167164	2003 <i>ST</i> ₂₄₇		1 10.3 130°04	1°6/ 9.8	18		90836	1995 <i>VF</i> ₃		1 10.3 190°92	0°7/10.0	18	
12 3	7 56.14	+24 55.5	1.950	2.728	15.1	21.5	12 3	7 50.95	+22 0.9	2.152	2.931	13.8	20.2
12 13	7 50.73	+25 23.0	1.874	2.741	11.8	21.3	12 13	7 46.56	+22 28.0	2.063	2.930	10.9	20.0
12 23	7 42.58	+25 53.5	1.821	2.754	8.0	21.1	12 23	7 39.77	+23 0.6	1.996	2.929	7.3	19.8
1 2	7 32.36	+26 22.9	1.795	2.766	3.8	20.8	1 2	7 31.12	+23 35.6	1.956	2.929	3.4	19.5
1 12	7 21.20	+26 46.9	1.798	2.778	1.9	20.7	1 12	7 21.51	+24 9.3	1.945	2.927	1.1	19.3
1 22	7 10.33	+27 2.5	1.831	2.789	5.6	21.0	1 22	7 11.99	+24 38.5	1.964	2.926	5.0	19.6
2 1	7 0.99	+27 8.9	1.892	2.800	9.5	21.2	2 1	7 3.64	+25 1.4	2.013	2.925	8.8	19.8
2 11	6 54.07	+27 7.2	1.978	2.810	12.9	21.5	2 11	6 57.34	+25 17.4	2.086	2.923	12.1	20.1
167129	2003 <i>SO</i> ₁₅₅		1 10.3 134°74	4°2/11.7	18		403318	2009 <i>CK</i> ₆₂		1 10.3 150°35	2°2/ 9.7	18	
12 3	7 53.55	+ 9 32.8	2.123	2.865	15.1	21.6	12 3	7 56.49	+27 7.7	1.864	2.646	15.5	21.6
12 13	7 48.24	+ 9 14.1	2.044	2.881	12.3	21.4	12 13	7 51.25	+27 24.3	1.782	2.651	12.2	21.4
12 23	7 40.67	+ 9 7.3	1.987	2.895	9.0	21.2	12 23	7 43.08	+27 41.8	1.723	2.656	8.3	21.2
1 2	7 31.42	+ 9 12.8	1.956	2.909	5.8	21.0	1 2	7 32.68	+27 55.9	1.690	2.661	4.2	20.9
1 12	7 21.40	+ 9 30.0	1.954	2.922	4.2	21.0	1 12	7 21.21	+28 2.4	1.686	2.665	2.4	20.8
1 22	7 11.61	+ 9 56.7	1.982	2.934	5.9	21.1	1 22	7 10.03	+27 59.2	1.711	2.669	6.0	21.1
2 1	7 3.04	+10 30.2	2.040	2.946	9.0	21.3	2 1	7 0.47	+27 46.2	1.764	2.673	10.1	21.3
2 11	6 56.45	+11 7.5	2.123	2.957	12.1	21.5	2 11	6 53.50	+27 25.5	1.842	2.676	13.6	21.5
426023	2011 <i>LK</i> ₁₄		1 10.3 164°95	4°7/12.1	18		406824	2008 <i>YR</i> ₁₆		1 10.3 270°25	0°1/10.2	18	
12 3	7 47.77	+ 6 48.2	2.550	3.283	13.1	21.8	12 3	7 52.38	+20 35.8	1.675	2.465	16.7	22.0
12 13	7 43.48	+ 6 19.2	2.459	3.285	10.8	21.6	12 13	7 48.55	+20 56.0	1.578	2.452	13.3	21.7
12 23	7 37.37	+ 6 1.2	2.390	3.287	8.3	21.5	12 23	7 41.64	+21 24.7	1.502	2.438	9.1	21.4
1 2	7 29.88	+ 5 55.3	2.347	3.289	5.9	21.3	1 2	7 32.19	+21 58.9	1.451	2.425	4.3	21.1
1 12	7 21.72	+ 6 1.9	2.334	3.290	4.7	21.2	1 12	7 21.29	+22 34.0	1.428	2.411	0.9	20.8
1 22	7 13.65	+ 6 19.7	2.349	3.292	5.8	21.3	1 22	7 10.34	+23 5.9	1.433	2.397	6.1	21.2
2 1	7 6.47	+ 6 46.9	2.394	3.293	8.2	21.5	2 1	7 0.82	+23 31.8	1.465	2.384	11.0	21.4
2 11	7 0.83	+ 7 20.6	2.464	3.294	10.7	21.6	2 11	6 53.94	+23 50.7	1.521	2.370	15.2	21.6
16387	1981 <i>EB</i> ₃₇		1 10.3 162°62	4°2/ 9.0	18		235068	2003 <i>GF</i> ₁		1 10.3 202°44	0°7/10.5	18	
12 3	7 55.01	+32 17.9	1.976	2.759	14.7	18.7	12 3	7 54.70	+18 49.3	1.995	2.765	15.1	21.5
12 13	7 50.14	+32 54.4	1.894	2.760	11.7	18.5	12 13	7 49.69	+19 1.7	1.899	2.760	11.9	21.3
12 23	7 42.36	+33 28.9	1.834	2.761	8.4	18.3	12 23	7 42.01	+19 21.7	1.825	2.755	8.2	21.1
1 2	7 32.33	+33 55.7	1.800	2.762	5.2	18.1	1 2	7 32.23	+19 47.1	1.778	2.750	3.9	20.8
1 12	7 21.20	+34 9.6	1.795	2.763	4.4	18.1	1 12	7 21.31	+20 14.6	1.761	2.743	1.0	20.6
1 22	7 10.32	+34 8.0	1.818	2.764	7.0	18.2	1 22	7 10.44	+20 41.2	1.773	2.736	5.3	20.9
2 1	7 1.00	+33 51.3	1.869	2.764	10.4	18.4	2 1	7 0.84	+21 4.8	1.815	2.729	9.5	21.1
2 11	6 54.24	+33 22.5	1.944	2.765	13.6	18.6	2 11	6 53.48	+21 24.2	1.882	2.720	13.2	21.3
83769	2001 <i>TU</i> ₁₆₁		1 10.3 317°58	4°6/11.9	18		462794	2010 <i>OM</i> ₁₂₁		1 10.3 71°89	0°6/10.2	18	
12 3	7 46.77	+ 8 33.1	2.263	3.012	14.1	19.9	12 3	7 55.91	+24 24.2	1.728	2.514	16.4	21.1
12 13	7 43.03	+ 8 6.2	2.168	3.007	11.6	19.7	12 13	7 50.72	+24 11.7	1.658	2.529	12.9	20.9
12 23	7 37.24	+ 7 50.6	2.096	3.002	8.7	19.5	12 23	7 42.62	+24 0.9	1.609	2.544	8.7	20.7
1 2	7 29.88	+ 7 47.4	2.049	2.998	5.9	19.3	1 2	7 32.41	+23 49.0	1.586	2.560	4.0	20.4
1 12	7 21.72	+ 7 56.9	2.029	2.993	4.6	19.2	1 12	7 21.31	+23 33.8	1.592	2.575	1.1	20.2
1 22	7 13.62	+ 8 17.6	2.039	2.989	6.0	19.3	1 22	7 10.70	+23 14.4	1.627	2.590	5.6	20.6
2 1	7 6.48	+ 8 47.3	2.077	2.984	8.8	19.5	2 1	7 1.82	+22 51.2	1.689	2.605	9.9	20.9
2 11	7 1.05	+ 9 23.1	2.140	2.980	11.8	19.6	2 11	6 55.57	+22 25.9	1.776	2.620	13.6	21.1
252386	2001 <i>SW</i> ₃₄₂		1 10.3 233°10	0°0/10.3	18		57419	2001 <i>SJ</i> ₅		1 10.3 17°32	3°1/11.2	18	
12 3	7 51.77	+20 42.7	1.983	2.763	14.8	21.3	12 3	7 48.10	+14 2.0	1.468	2.262	18.4	19.6
12 13	7 47.41	+20 54.4	1.890	2.758	11.7	21.1	12 13	7 45.15	+13 56.0	1.394	2.267	14.8	19.3
12 23	7 40.46	+21 12.2	1.818	2.752	7.9	20.9	12 23	7 39.22	+14 3.6	1.341	2.272	10.4	19.1
1 2	7 31.46	+21 33.6	1.773	2.746	3.7	20.6	1 2	7 30.97	+14 24.3	1.310	2.278	5.8	18.8
1 12	7 21.38	+21 55.4	1.757	2.740	0.8	20.3	1 12	7 21.59	+14 55.6	1.306	2.285	3.1	18.7
1 22	7 11.39	+22 14.9	1.770	2.734	5.2	20.7	1 22	7 12.46	+15 33.9	1.328	2.292	6.4	18.9
2 1	7 2.65	+22 30.3	1.812	2.727	9.4	20.9	2 1	7 4.93	+16 15.0	1.376	2.301	11.0	19.2
2 11	6 56.13	+22 41.0	1.878	2.721	13.0	21.1	2 11	7 0.04	+16 55.3	1.447	2.310	15.0	19.5
278310	2007 <i>HH</i> ₁₇		1 10.3 281°57	5°5/ 7.7	18		382234	2012 <i>RE</i> ₂₉		1 10.3 141°87	2°6/ 9.4	18	
12 3	7 53.06	+33 5.3											

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
283293	2011 JZ ₂₈		1 10.3 222°82	3°5/11.6	18		36816	2000 SD ₇₅		1 10.3 354°82	6°6/12.4	18	
12 3	7 48.17	+10 47.7	2.526	3.272	12.9	21.1	12 3	7 42.31	+7 43.9	1.296	2.094	20.3	17.7
12 13	7 43.92	+10 28.8	2.427	3.267	10.4	21.0	12 13	7 41.05	+7 15.9	1.218	2.085	16.8	17.4
12 23	7 37.76	+10 19.0	2.350	3.262	7.7	20.8	12 23	7 36.73	+7 8.2	1.158	2.079	12.8	17.2
1 2	7 30.14	+10 18.8	2.301	3.256	4.9	20.6	1 2	7 29.94	+7 23.8	1.118	2.074	8.8	16.9
1 12	7 21.77	+10 27.8	2.281	3.250	3.5	20.5	1 12	7 21.82	+8 2.9	1.102	2.070	6.6	16.8
1 22	7 13.46	+10 44.7	2.290	3.244	5.1	20.6	1 22	7 13.80	+9 1.6	1.110	2.069	8.5	16.9
2 1	7 6.01	+11 7.8	2.329	3.237	8.0	20.7	2 1	7 7.35	+10 13.7	1.142	2.069	12.5	17.1
2 11	7 0.15	+11 34.9	2.394	3.231	10.8	20.9	2 11	7 3.62	+11 31.4	1.196	2.071	16.7	17.4
257812	2000 FC ₂₁		1 10.3 280°49	5°6/ 8.0	18		415202	2012 HH ₁₁		1 10.3 109°89	2°1/11.1	18	
12 3	7 54.02	+32 29.8	1.791	2.582	15.7	20.2	12 3	7 50.15	+14 21.3	2.055	2.822	14.8	20.9
12 13	7 50.08	+33 44.8	1.699	2.569	12.6	19.9	12 13	7 45.86	+14 31.7	1.973	2.830	11.8	20.8
12 23	7 42.84	+35 1.5	1.629	2.556	9.2	19.7	12 23	7 39.26	+14 52.5	1.912	2.838	8.2	20.5
1 2	7 32.82	+36 11.9	1.585	2.543	6.3	19.5	1 2	7 30.89	+15 22.6	1.878	2.845	4.4	20.3
1 12	7 21.18	+37 7.6	1.569	2.530	5.9	19.5	1 12	7 21.65	+15 59.3	1.873	2.853	2.1	20.2
1 22	7 9.46	+37 42.6	1.580	2.517	8.6	19.6	1 22	7 12.57	+16 39.6	1.897	2.860	5.0	20.4
2 1	6 59.30	+37 55.6	1.617	2.504	12.2	19.8	2 1	7 4.68	+17 20.5	1.950	2.867	8.8	20.6
2 11	6 52.01	+37 49.2	1.677	2.491	15.7	20.0	2 11	6 58.79	+17 59.4	2.029	2.874	12.1	20.9
239275	2007 KL ₇		1 10.3 79°47	1°9/ 9.8	18		182526	2001 SH ₃₅₃		1 10.3 170°34	2°4/11.1	18	
12 3	8 0.20	+24 41.4	1.648	2.429	17.3	20.3	12 3	7 50.72	+14 30.7	2.013	2.780	15.0	21.0
12 13	7 54.03	+25 19.0	1.596	2.465	13.4	20.2	12 13	7 46.42	+14 29.7	1.924	2.782	12.0	20.8
12 23	7 44.79	+26 0.0	1.567	2.501	9.0	20.0	12 23	7 39.70	+14 38.6	1.858	2.783	8.4	20.5
1 2	7 33.37	+26 38.7	1.564	2.536	4.3	19.8	1 2	7 31.12	+14 56.7	1.817	2.784	4.6	20.3
1 12	7 21.15	+27 9.8	1.589	2.570	2.2	19.7	1 12	7 21.60	+15 22.0	1.806	2.784	2.4	20.2
1 22	7 9.61	+27 30.1	1.644	2.603	6.1	20.0	1 22	7 12.19	+15 51.9	1.823	2.785	5.3	20.4
2 1	7 0.05	+27 39.2	1.727	2.636	10.2	20.3	2 1	7 3.98	+16 23.7	1.869	2.785	9.1	20.6
2 11	6 53.35	+27 39.1	1.834	2.668	13.7	20.6	2 11	6 57.84	+16 55.2	1.940	2.786	12.6	20.8
111890	2002 EK ₁₅₃		1 10.3 136°42	0°2/10.4	18		331508	1999 XC ₂₆₁		1 10.3 66°35	3°2/11.1	18	
12 3	7 55.40	+20 24.0	2.004	2.775	15.0	20.7	12 3	7 51.50	+14 36.8	1.994	2.760	15.2	20.3
12 13	7 50.01	+20 36.2	1.926	2.788	11.8	20.5	12 13	7 46.84	+13 57.8	1.916	2.772	12.1	20.2
12 23	7 42.05	+20 54.3	1.869	2.801	7.9	20.3	12 23	7 39.84	+13 26.4	1.861	2.783	8.6	20.0
1 2	7 32.16	+21 15.5	1.840	2.812	3.7	20.0	1 2	7 31.11	+13 3.2	1.832	2.795	5.0	19.8
1 12	7 21.38	+21 36.7	1.840	2.823	0.7	19.8	1 12	7 21.62	+12 48.0	1.831	2.806	3.2	19.7
1 22	7 10.86	+21 55.2	1.871	2.834	5.1	20.1	1 22	7 12.41	+12 40.3	1.860	2.818	5.6	19.9
2 1	7 1.74	+22 9.5	1.931	2.844	9.1	20.4	2 1	7 4.50	+12 38.9	1.917	2.830	9.1	20.1
2 11	6 54.89	+22 19.4	2.016	2.853	12.5	20.6	2 11	6 58.66	+12 42.3	1.999	2.842	12.4	20.3
294883	2008 DG ₂		1 10.3 359°02	3°1/ 9.7	18		68076	2000 YT ₈₇		1 10.3 85°88	0°8/10.6	18	
12 3	7 53.93	+28 47.9	1.540	2.341	17.4	21.2	12 3	7 54.76	+18 10.4	1.637	2.420	17.3	19.3
12 13	7 49.96	+29 1.9	1.461	2.340	13.8	21.0	12 13	7 49.93	+18 26.8	1.572	2.440	13.6	19.1
12 23	7 42.60	+29 15.8	1.402	2.339	9.5	20.7	12 23	7 42.18	+18 52.6	1.527	2.460	9.2	18.9
1 2	7 32.59	+29 24.1	1.368	2.339	5.1	20.4	1 2	7 32.26	+19 24.9	1.508	2.480	4.4	18.7
1 12	7 21.28	+29 22.2	1.361	2.339	3.3	20.3	1 12	7 21.39	+19 59.6	1.517	2.500	1.1	18.5
1 22	7 10.29	+29 7.6	1.380	2.339	7.1	20.6	1 22	7 10.93	+20 32.9	1.555	2.519	5.7	18.8
2 1	7 1.20	+28 41.1	1.426	2.340	11.6	20.8	2 1	7 2.16	+21 2.3	1.620	2.538	10.1	19.1
2 11	6 55.12	+28 6.1	1.495	2.341	15.6	21.1	2 11	6 56.02	+21 26.4	1.709	2.557	13.9	19.4
412242	2013 HE ₂₄		1 10.3 160°85	1°8/11.2	18		196269	2003 EG ₁₇		1 10.3 300°58	1°0/10.6	18	
12 3	7 51.66	+13 34.2	2.499	3.247	12.9	21.6	12 3	7 51.19	+17 0.2	1.451	2.247	18.5	20.0
12 13	7 46.63	+14 0.5	2.408	3.255	10.3	21.4	12 13	7 47.95	+17 25.8	1.364	2.240	14.8	19.8
12 23	7 39.58	+14 36.7	2.341	3.262	7.2	21.2	12 23	7 41.41	+18 5.3	1.297	2.233	10.2	19.5
1 2	7 30.99	+15 21.3	2.302	3.268	3.9	21.0	1 2	7 32.16	+18 56.2	1.254	2.227	5.0	19.1
1 12	7 21.61	+16 11.7	2.293	3.273	1.8	20.9	1 12	7 21.37	+19 53.5	1.237	2.220	1.3	18.9
1 22	7 12.32	+17 4.4	2.316	3.278	4.4	21.1	1 22	7 10.59	+20 51.2	1.248	2.214	6.5	19.2
2 1	7 3.99	+17 56.7	2.370	3.282	7.7	21.3	2 1	7 1.43	+21 44.3	1.284	2.208	11.7	19.5
2 11	6 57.35	+18 46.0	2.451	3.285	10.7	21.5	2 11	6 55.17	+22 30.0	1.344	2.202	16.3	19.7
442696	2012 UY ₉₄		1 10.3 63°75	5°6/11.8	17		279079	2008 WF ₉₂		1 10.3 131°36	1°4/ 9.8	18	
12 3	7 53.83	+10 2.9	1.273	2.058	21.2	21.2	12 3	7 50.78	+25 5.5	2.346	3.123	12.9	21.2
12 13	7 49.77	+9 32.5	1.215	2.077	17.2	21.0	12 13	7 46.22	+25 30.4	2.261	3.128	10.1	21.0
12 23	7 42.34	+9 20.3	1.175	2.096	12.6	20.8	12 23	7 39.42	+25 57.7	2.199	3.132	6.8	20.8
1 2	7 32.39	+9 27.7	1.156	2.115	8.0	20.6	1 2	7 30.95	+26 24.4	2.165	3.137	3.3	20.6
1 12	7 21.35	+9 53.1	1.163	2.135	5.6	20.5	1 12	7 21.65	+26 46.9	2.161	3.141	1.7	20.5
1 22	7 10.83	+10 32.8	1.196	2.154	8.0	20.7	1 22	7 12.52	+27 3.1	2.186	3.145	4.8	20.7
2 1	7 2.32	+11 21.4	1.254	2.174	12.3	21.0	2 1	7 4.51	+27 11.7	2.241	3.149	8.2	20.9
2 11	6 56.84	+12 13.4	1.334	2.194	16.3	21.3	2 11	6 58.42	+27 13.3	2.322	3.153	11.3	21.1
65610	3470 T- ₃		1 10.3 159°00	5°8/ 7.9	18		276348	2002 TW ₃₈₀		1 10.3 73°85	0°9/ 9.9	18	
12 3	7 57.63	+38 53.0	2.477	3.238	12.7	19.6	12 3	7 50.18	+23 40.7	2.218	2.998	13.4	21.1
12 13	7 51.82	+39 52.4	2.400	3.245	10.4	19.4	12 13	7 45.86	+23 57.7	2.133	3.002	10.5	20.9
12 23	7 43.34	+40 46.5	2.345	3.251	8.0	19.3	12 23	7 39.24	+24 18.0	2.071	3.005	7.1	20.7
1 2	7 32.80	+41 28.8	2.318	3.256	6.2	19.2	1 2	7 30.88	+24 38.9	2.036	3.008	3.3	20.5
1 12	7 21.25	+41 54.3	2.320	3.261	6.0	19.2	1 12	7 21.67	+24 57.1	2.030	3.012	1.2	20.3
1 22	7 9.91	+42 0.2	2.352	3.265	7.6	19.3	1 22	7 12.63	+25 10.3	2.054	3.015	4.8	20.6
2 1	6 59.98	+41 47.4	2.410	3.269	9.9	19.4	2 1	7 4.77	+25 17.6	2.106	3.019	8.5	20.8
2 11	6 52.39	+41 19.3	2.493	3.273	12.2	19.6	2 11	6 58.88	+25 19.1	2.185	3.022	11.7	21.0
158541	2002 GL ₉₄		1 10.3 249°27	3°4/11.4	18		156059	2001 SP ₅₇		1 10.3 104°78	0°3/10.2	18	
12 3	7 49.58	+12 3.2	2.301	3.054	13.8	21.0	12 3	7 57.55	+21 8.0	1.675	2.456</		

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
155453	1998 <i>HS</i> ₁₅₄		1 10.3 280°93	5°8/ 8.6	18		460579	2014 <i>UV</i> ₁₃		1 10.3 88°74	2°7/ 9.5	18	
12 3	7 56.00	+36 33.7	1.965	2.745	14.9	20.2	12 3	7 55.11	+27 58.3	1.944	2.727	15.0	21.2
12 13	7 51.24	+37 16.1	1.876	2.736	12.1	20.0	12 13	7 49.96	+28 28.3	1.875	2.744	11.7	21.0
12 23	7 43.34	+37 53.8	1.809	2.728	9.1	19.8	12 23	7 42.10	+28 58.9	1.829	2.762	8.0	20.8
1 2	7 32.93	+38 20.0	1.768	2.719	6.5	19.6	1 2	7 32.22	+29 25.3	1.810	2.779	4.2	20.6
1 12	7 21.24	+38 28.7	1.754	2.710	6.0	19.6	1 12	7 21.47	+29 43.1	1.819	2.796	2.9	20.5
1 22	7 9.73	+38 16.9	1.768	2.702	8.2	19.7	1 22	7 11.09	+29 50.0	1.858	2.813	6.0	20.8
2 1	6 59.87	+37 45.6	1.809	2.693	11.3	19.8	2 1	7 2.29	+29 45.9	1.925	2.830	9.6	21.0
2 11	6 52.78	+36 59.3	1.873	2.684	14.4	20.0	2 11	6 55.93	+29 32.6	2.016	2.846	12.8	21.2
376405	2012 <i>FB</i> ₆₂		1 10.3 252°92	0°6/10.5	18		189100	2001 <i>RQ</i> ₅₄		1 10.3 90°57	0°9/10.6	18	
12 3	7 50.62	+18 49.4	2.109	2.884	14.2	21.4	12 3	7 51.07	+18 10.6	1.828	2.610	15.8	20.6
12 13	7 46.43	+19 3.4	2.008	2.873	11.3	21.2	12 13	7 47.02	+18 23.2	1.743	2.611	12.5	20.3
12 23	7 39.80	+19 24.8	1.930	2.861	7.7	21.0	12 23	7 40.29	+18 44.6	1.680	2.612	8.6	20.1
1 2	7 31.23	+19 51.7	1.878	2.850	3.7	20.7	1 2	7 31.48	+19 12.6	1.642	2.614	4.1	19.8
1 12	7 21.58	+20 21.2	1.855	2.838	0.9	20.4	1 12	7 21.60	+19 44.0	1.633	2.615	1.1	19.6
1 22	7 11.93	+20 50.4	1.862	2.826	5.0	20.7	1 22	7 11.87	+20 15.4	1.652	2.617	5.4	19.9
2 1	7 3.38	+21 16.9	1.898	2.814	9.0	20.9	2 1	7 3.49	+20 44.2	1.699	2.618	9.7	20.2
2 11	6 56.85	+21 39.4	1.959	2.801	12.6	21.1	2 11	6 57.43	+21 8.9	1.771	2.619	13.4	20.4
381618	2008 <i>WJ</i> ₁₂₀		1 10.3 72°72	2°1/ 9.4	18		26895	1995 <i>MC</i>		1 10.3 127°40	1°8/ 9.8	18	
12 3	7 50.20	+25 20.8	2.221	3.003	13.4	21.2	12 3	7 54.67	+29 9.0	2.947	3.706	10.9	18.4
12 13	7 45.93	+26 9.9	2.142	3.012	10.4	21.0	12 13	7 48.59	+29 9.2	2.866	3.722	8.5	18.2
12 23	7 39.33	+27 2.7	2.087	3.021	7.1	20.8	12 23	7 40.66	+29 7.6	2.811	3.738	5.8	18.1
1 2	7 30.94	+27 54.8	2.060	3.030	3.6	20.6	1 2	7 31.42	+29 1.6	2.785	3.753	3.0	17.9
1 12	7 21.67	+28 41.7	2.061	3.040	2.3	20.5	1 12	7 21.64	+28 49.5	2.790	3.768	1.9	17.8
1 22	7 12.55	+29 19.6	2.093	3.049	5.3	20.8	1 22	7 12.16	+28 30.7	2.828	3.782	4.2	18.0
2 1	7 4.62	+29 47.0	2.153	3.058	8.7	21.0	2 1	7 3.75	+28 5.6	2.896	3.796	6.9	18.2
2 11	6 58.69	+30 4.1	2.239	3.067	11.7	21.2	2 11	6 57.03	+27 35.7	2.992	3.809	9.4	18.4
34954	1032 <i>T</i> ₋₂		1 10.3 119°39	1°2/ 9.9	18		408805	2000 <i>SG</i> ₂₃₉		1 10.3 35°35	6°8/12.7	16	
12 3	7 52.70	+24 12.9	2.036	2.817	14.4	19.2	12 3	7 49.11	+ 6 13.8	1.385	2.159	20.3	20.4
12 13	7 48.01	+24 32.5	1.954	2.824	11.3	19.0	12 13	7 45.71	+ 5 38.9	1.334	2.185	16.7	20.2
12 23	7 40.78	+24 55.5	1.896	2.830	7.6	18.8	12 23	7 39.40	+ 5 24.6	1.301	2.211	12.7	20.0
1 2	7 31.62	+25 18.4	1.864	2.836	3.6	18.6	1 2	7 30.99	+ 5 33.1	1.290	2.238	8.8	19.9
1 12	7 21.54	+25 37.5	1.861	2.843	1.5	18.4	1 12	7 21.74	+ 6 3.3	1.304	2.266	6.8	19.9
1 22	7 11.67	+25 50.4	1.888	2.849	5.3	18.7	1 22	7 13.00	+ 6 51.1	1.344	2.295	8.3	20.0
2 1	7 3.15	+25 56.0	1.943	2.854	9.1	18.9	2 1	7 6.00	+ 7 50.7	1.409	2.324	11.6	20.3
2 11	6 56.85	+25 54.9	2.023	2.860	12.5	19.2	2 11	7 1.60	+ 8 55.6	1.496	2.354	14.9	20.6
300258	2007 <i>HT</i> ₄		1 10.3 162°26	1°3/10.8	18		136897	1998 <i>HJ</i> ₄₁		1 10.3 131°20	39°3/11.0	17	R
12 3	7 55.20	+16 55.5	2.065	2.827	14.9	22.4	12 3	8 8.26	-44 15.4	0.933	1.446	42.5	20.8
12 13	7 49.83	+17 6.0	1.979	2.835	11.8	22.2	12 13	8 4.26	-49 24.4	0.941	1.460	41.8	20.8
12 23	7 41.96	+17 24.8	1.915	2.841	8.1	21.9	12 23	7 54.32	-53 27.3	0.949	1.474	41.2	20.8
1 2	7 32.18	+17 50.2	1.877	2.847	4.1	21.7	1 2	7 38.86	-56 12.4	0.956	1.486	40.7	20.9
1 12	7 21.43	+18 19.3	1.870	2.852	1.4	21.5	1 12	7 20.00	-57 31.5	0.962	1.497	40.2	20.9
1 22	7 10.86	+18 49.1	1.894	2.856	5.0	21.8	1 22	7 11.11	-57 23.1	0.965	1.507	39.8	20.9
2 1	7 1.55	+19 17.4	1.946	2.859	9.0	22.0	2 1	6 45.83	-55 52.3	0.966	1.515	39.5	20.9
2 11	6 54.40	+19 42.8	2.025	2.862	12.5	22.3	2 11	6 36.58	-53 11.5	0.966	1.522	39.3	20.9
48784	1997 <i>SX</i>		1 10.3 89°74	4°3/ 8.6	18		375434	2008 <i>TZ</i> ₅₂		1 10.3 75°60	1°2/ 9.9	18	
12 3	7 52.68	+32 48.5	2.284	3.063	13.1	18.1	12 3	7 51.12	+24 0.7	2.092	2.875	14.1	21.5
12 13	7 47.96	+33 43.0	2.210	3.073	10.4	17.9	12 13	7 46.69	+24 25.1	2.015	2.885	11.0	21.3
12 23	7 40.73	+34 35.8	2.159	3.083	7.5	17.8	12 23	7 39.85	+24 53.0	1.961	2.895	7.4	21.1
1 2	7 31.60	+35 21.4	2.135	3.093	4.9	17.6	1 2	7 31.19	+25 21.1	1.933	2.906	3.5	20.9
1 12	7 21.56	+35 54.8	2.140	3.103	4.5	17.6	1 12	7 21.69	+25 45.7	1.935	2.916	1.5	20.8
1 22	7 11.73	+36 13.2	2.175	3.113	6.6	17.8	1 22	7 12.41	+26 4.1	1.966	2.927	5.1	21.0
2 1	7 3.22	+36 16.4	2.237	3.122	9.4	17.9	2 1	7 4.43	+26 15.2	2.025	2.937	8.8	21.3
2 11	6 56.88	+36 6.5	2.324	3.132	12.0	18.1	2 11	6 58.56	+26 19.3	2.110	2.947	12.0	21.5
257545	1998 <i>RS</i> ₁₂		1 10.3 97°31	0°0/10.2	14	C	221084	2005 <i>SX</i> ₄₉		1 10.3 177°72	6°0/12.5	18	
12 3	7 55.94	+20 54.7	1.945	2.718	15.3	23.2	12 3	7 49.92	+ 4 18.6	2.237	2.964	14.9	21.7
12 13	7 50.36	+21 9.8	1.880	2.743	11.9	23.0	12 13	7 45.49	+ 3 44.0	2.147	2.965	12.5	21.6
12 23	7 42.21	+21 30.2	1.836	2.768	8.0	22.8	12 23	7 38.93	+ 3 23.2	2.078	2.966	9.8	21.4
1 2	7 32.22	+21 53.1	1.820	2.793	3.7	22.6	1 2	7 30.76	+ 3 18.4	2.034	2.967	7.3	21.2
1 12	7 21.46	+22 15.0	1.834	2.817	0.8	22.4	1 12	7 21.77	+ 3 30.1	2.018	2.967	6.0	21.2
1 22	7 11.11	+22 33.3	1.877	2.840	5.1	22.8	1 22	7 12.87	+ 3 57.1	2.030	2.967	7.1	21.2
2 1	7 2.27	+22 46.7	1.949	2.862	9.0	23.0	2 1	7 4.98	+ 4 36.6	2.071	2.966	9.5	21.4
2 11	6 55.75	+22 55.3	2.047	2.884	12.3	23.3	2 11	6 58.87	+ 5 24.7	2.137	2.965	12.2	21.5
122155	2000 <i>JY</i> ₆₀		1 10.3 149°60	0°7/10.1	18		73646	1978 <i>VT</i> ₃		1 10.3 188°74	6°3/ 7.6	18	
12 3	7 57.37	+23 10.2	1.905	2.680	15.5	20.7	12 3	7 56.14	+34 16.7	1.890	2.673	15.3	18.9
12 13	7 51.77	+23 22.1	1.824	2.689	12.2	20.5	12 13	7 51.57	+35 48.0	1.810	2.673	12.3	18.7
12 23	7 43.38	+23 37.9	1.766	2.698	8.2	20.3	12 23	7 43.75	+37 19.4	1.752	2.673	9.2	18.5
1 2	7 32.85	+23 54.2	1.734	2.706	3.8	20.0	1 2	7 33.24	+38 41.9	1.722	2.672	6.7	18.3
1 12	7 21.32	+24 7.3	1.731	2.714	1.1	19.8	1 12	7 21.24	+39 46.9	1.719	2.671	6.6	18.3
1 22	7 10.07	+24 14.7	1.759	2.721	5.5	20.1	1 22	7 9.27	+40 28.8	1.744	2.670	8.9	18.4
2 1	7 0.35	+24 15.9	1.815	2.727	9.6	20.4	2 1	6 58.91	+40 46.8	1.796	2.669	12.0	18.6
2 11	6 53.12	+24 11.5	1.897	2.732	13.2	20.6	2 11	6 51.38	+40 44.1	1.870	2.667	15.0	18.8
502554	2015 <i>BO</i> ₄₇₂		1 10.3 198°93	1°4/ 9.8	17		421818	2014 <i>QW</i> ₆₄		1 10.3 68°29	2°1/10.9	18	
12 3	7 52.11	+27 25.1	3.045</										

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
285072	2011 <i>KQ</i> ₂₅		1 10.3 213°78	0°6/10.5 18			190173	2005 <i>UJ</i> ₃₅₄		1 10.3 99°79	0°7/10.5 18		
12 3	7 49.18	+19 12.8	2.397	3.168	12.8	21.5	12 3	7 58.23	+20 4.4	1.568	2.350	18.0	20.5
12 13	7 44.91	+19 21.4	2.303	3.165	10.1	21.3	12 13	7 52.76	+20 1.0	1.502	2.371	14.1	20.3
12 23	7 38.55	+19 35.7	2.232	3.163	6.9	21.1	12 23	7 44.15	+20 4.3	1.457	2.390	9.6	20.0
1 2	7 30.59	+19 54.0	2.189	3.161	3.3	20.8	1 2	7 33.23	+20 11.9	1.438	2.410	4.5	19.8
1 12	7 21.82	+20 14.0	2.175	3.158	0.8	20.6	1 12	7 21.33	+20 20.4	1.446	2.429	1.1	19.6
1 22	7 13.14	+20 33.8	2.192	3.155	4.4	20.9	1 22	7 9.95	+20 27.5	1.483	2.447	5.9	20.0
2 1	7 5.45	+20 51.5	2.238	3.152	7.9	21.1	2 1	7 0.45	+20 32.1	1.547	2.465	10.5	20.3
2 11	6 59.51	+21 6.4	2.309	3.149	11.0	21.3	2 11	6 53.80	+20 34.1	1.636	2.482	14.5	20.6
377248	2004 <i>BD</i> ₁₁₅		1 10.3 9°89	1°1/ 9.9 18			202673	2006 <i>LA</i> ₅		1 10.3 208°75	1°2/ 9.8 18		
12 3	7 49.49	+23 59.0	1.962	2.752	14.6	21.3	12 3	7 50.51	+24 57.1	2.934	3.699	10.8	21.6
12 13	7 45.66	+24 13.2	1.879	2.753	11.4	21.1	12 13	7 45.64	+25 20.0	2.833	3.693	8.5	21.4
12 23	7 39.30	+24 31.0	1.818	2.755	7.7	20.8	12 23	7 38.91	+25 45.0	2.756	3.686	5.7	21.2
1 2	7 31.00	+24 49.2	1.784	2.757	3.6	20.6	1 2	7 30.74	+26 9.4	2.707	3.678	2.8	21.0
1 12	7 21.74	+25 4.5	1.777	2.759	1.4	20.4	1 12	7 21.83	+26 30.7	2.690	3.670	1.4	20.9
1 22	7 12.68	+25 14.4	1.800	2.762	5.3	20.7	1 22	7 12.96	+26 46.9	2.704	3.662	4.1	21.1
2 1	7 4.94	+25 17.8	1.850	2.765	9.2	21.0	2 1	7 4.92	+26 56.9	2.748	3.653	7.1	21.2
2 11	6 59.39	+25 15.3	1.924	2.769	12.7	21.2	2 11	6 58.41	+27 0.9	2.820	3.643	9.7	21.4
110784	2001 <i>UL</i> ₃₃		1 10.3 109°89	5°6/ 7.9 18			502507	2015 <i>BQ</i> ₄₂₀		1 10.3 281°87	2°1/ 9.7 17		
12 3	7 56.27	+34 0.2	1.990	2.770	14.7	19.2	12 3	7 51.49	+28 9.9	2.313	3.092	13.0	21.2
12 13	7 51.28	+35 21.3	1.919	2.782	11.8	19.1	12 13	7 46.97	+28 22.3	2.216	3.083	10.2	21.0
12 23	7 43.28	+36 40.9	1.872	2.793	8.7	18.9	12 23	7 40.08	+28 34.5	2.143	3.075	7.0	20.8
1 2	7 32.91	+37 51.1	1.852	2.804	6.2	18.8	1 2	7 31.36	+28 43.3	2.096	3.066	3.7	20.6
1 12	7 21.35	+38 44.6	1.860	2.815	5.9	18.8	1 12	7 21.71	+28 45.5	2.079	3.057	2.3	20.5
1 22	7 9.99	+39 17.4	1.897	2.826	8.0	18.9	1 22	7 12.17	+28 39.4	2.092	3.048	5.2	20.7
2 1	7 0.24	+39 29.1	1.960	2.836	11.0	19.1	2 1	7 3.80	+28 24.7	2.133	3.039	8.7	20.9
2 11	6 53.13	+39 23.0	2.047	2.846	13.8	19.3	2 11	6 57.43	+28 2.9	2.200	3.031	11.8	21.0
132846	2002 <i>RD</i> ₄₁		1 10.3 152°66	0°8/10.0 18			521942	2015 <i>VN</i> ₆₅		1 10.3 99°67	4°6/12.3 18		
12 3	7 50.71	+23 20.5	2.598	3.367	12.0	20.6	12 3	7 55.11	+ 7 16.4	1.777	2.522	17.5	21.8
12 13	7 45.91	+23 41.0	2.510	3.373	9.3	20.5	12 13	7 49.85	+ 7 24.4	1.712	2.548	14.3	21.6
12 23	7 39.11	+24 4.6	2.447	3.379	6.3	20.3	12 23	7 41.98	+ 7 50.1	1.666	2.574	10.5	21.4
1 2	7 30.82	+24 28.6	2.412	3.384	2.9	20.1	1 2	7 32.19	+ 8 33.0	1.646	2.599	6.7	21.3
1 12	7 21.79	+24 50.3	2.407	3.389	1.1	19.9	1 12	7 21.57	+ 9 30.3	1.654	2.623	4.7	21.2
1 22	7 12.90	+25 7.7	2.434	3.394	4.3	20.2	1 22	7 11.31	+10 37.5	1.691	2.646	6.5	21.3
2 1	7 5.01	+25 19.5	2.489	3.398	7.5	20.4	2 1	7 2.54	+11 49.1	1.757	2.669	9.9	21.6
2 11	6 58.83	+25 25.9	2.572	3.402	10.3	20.6	2 11	6 56.11	+13 0.4	1.849	2.691	13.2	21.9
194009	2001 <i>SE</i> ₁₈		1 10.3 80°02	0°5/10.2 18			496208	2011 <i>SE</i> ₂₀₇		1 10.3 123°08	6°4/12.8 16		
12 3	7 57.76	+21 13.2	1.464	2.255	18.7	21.0	12 3	7 53.36	+ 3 58.8	1.865	2.597	17.3	22.5
12 13	7 52.58	+21 38.5	1.407	2.281	14.6	20.7	12 13	7 48.46	+ 3 37.4	1.790	2.613	14.4	22.4
12 23	7 44.11	+22 11.5	1.370	2.306	9.8	20.5	12 23	7 41.07	+ 3 33.9	1.736	2.628	11.1	22.2
1 2	7 33.22	+22 47.3	1.358	2.331	4.5	20.3	1 2	7 31.80	+ 3 50.1	1.705	2.643	8.0	22.0
1 12	7 21.33	+23 20.8	1.373	2.356	1.1	20.1	1 12	7 21.65	+ 4 25.4	1.703	2.657	6.4	22.0
1 22	7 10.02	+23 48.0	1.417	2.381	6.2	20.5	1 22	7 11.75	+ 5 17.0	1.728	2.670	7.6	22.1
2 1	7 0.75	+24 7.1	1.487	2.405	10.9	20.9	2 1	7 3.19	+ 6 20.1	1.781	2.683	10.4	22.3
2 11	6 54.47	+24 18.5	1.581	2.428	14.8	21.1	2 11	6 56.82	+ 7 29.2	1.859	2.695	13.4	22.5
79894	1999 <i>BP</i> ₄		1 10.3 328°97	0°3/10.4 18			326078	2011 <i>AA</i> ₇₇		1 10.3 83°29	2°3/11.3 18		
12 3	7 47.64	+20 17.4	1.877	2.668	15.1	19.7	12 3	7 50.54	+13 36.0	1.946	2.714	15.5	21.0
12 13	7 44.44	+20 25.3	1.780	2.654	12.0	19.5	12 13	7 46.28	+13 52.1	1.870	2.727	12.3	20.8
12 23	7 38.65	+20 39.9	1.705	2.641	8.2	19.2	12 23	7 39.61	+14 20.1	1.816	2.741	8.6	20.6
1 2	7 30.78	+20 59.2	1.656	2.629	3.9	19.0	1 2	7 31.13	+14 58.5	1.788	2.754	4.7	20.4
1 12	7 21.78	+21 20.2	1.634	2.617	0.8	18.7	1 12	7 21.79	+15 44.2	1.788	2.768	2.3	20.2
1 22	7 12.81	+21 40.0	1.641	2.606	5.3	19.0	1 22	7 12.67	+16 33.5	1.818	2.781	5.2	20.4
2 1	7 5.06	+21 56.8	1.675	2.596	9.7	19.2	2 1	7 4.81	+17 22.9	1.877	2.794	9.0	20.7
2 11	6 59.51	+22 9.4	1.733	2.586	13.5	19.4	2 11	6 59.05	+18 9.4	1.960	2.807	12.4	20.9
234502	2001 <i>TJ</i> ₁₃₂		1 10.3 142°05	3°5/12.1 18			84305	2002 <i>TH</i> ₄₀		1 10.3 153°40	5°2/11.9 18		
12 3	7 47.34	+ 8 26.8	2.750	3.485	12.2	21.1	12 3	7 52.04	+ 7 38.6	2.159	2.897	15.0	19.4
12 13	7 43.07	+ 8 25.0	2.661	3.492	9.9	21.0	12 13	7 47.17	+ 6 59.2	2.074	2.904	12.4	19.2
12 23	7 37.09	+ 8 33.9	2.595	3.499	7.4	20.8	12 23	7 40.08	+ 6 31.5	2.010	2.910	9.4	19.1
1 2	7 29.85	+ 8 53.5	2.556	3.506	4.8	20.7	1 2	7 31.33	+ 6 17.3	1.971	2.915	6.6	18.9
1 12	7 22.00	+ 9 22.8	2.546	3.512	3.5	20.6	1 12	7 21.76	+ 6 17.0	1.962	2.921	5.2	18.8
1 22	7 14.24	+10 0.0	2.567	3.518	4.8	20.7	1 22	7 12.35	+ 6 29.6	1.981	2.925	6.6	18.9
2 1	7 7.30	+10 42.5	2.618	3.524	7.3	20.9	2 1	7 4.06	+ 6 53.1	2.029	2.930	9.4	19.1
2 11	7 1.79	+11 27.6	2.695	3.530	9.8	21.0	2 11	6 57.68	+ 7 24.0	2.102	2.933	12.3	19.3
216289	2007 <i>BG</i> ₅		1 10.3 63°77	5°2/ 7.6 18			104751	2000 <i>HM</i> ₁₃		1 10.3 192°10	3°1/ 8.9 18		
12 3	7 54.62	+29 0.0	1.810	2.599	15.7	19.7	12 3	7 51.77	+31 42.4	2.946	3.712	10.8	20.4
12 13	7 50.39	+30 56.3	1.733	2.603	12.4	19.5	12 13	7 46.72	+32 21.5	2.853	3.711	8.5	20.2
12 23	7 42.97	+32 58.6	1.679	2.608	8.8	19.3	12 23	7 39.69	+32 59.4	2.785	3.708	6.0	20.0
1 2	7 32.91	+34 57.3	1.652	2.613	5.8	19.1	1 2	7 31.13	+33 32.5	2.745	3.706	3.8	19.9
1 12	7 21.34	+36 42.2	1.655	2.617	5.6	19.1	1 12	7 21.80	+33 57.2	2.736	3.703	3.2	19.8
1 22	7 9.71	+38 5.7	1.687	2.622	8.4	19.3	1 22	7 12.54	+34 11.3	2.757	3.699	5.1	20.0
2 1	6 59.58	+39 4.7	1.746	2.627	11.8	19.5	2 1	7 4.22	+34 14.4	2.808	3.695	7.6	20.1
2 11	6 52.21	+39 40.7	1.829	2.632	15.0	19.7	2 11	6 57.55	+34 7.5	2.886	3.691	10.0	20.3
321632	2009 <i>WF</i> ₁₉₅		1 10.3 93°36	2°4/ 9.2 18			403077	2008 <i>CW</i> ₁₂		1 10.3 29°01	3°2/ 9.5 17		
12 3	7 51.20	+24 58.2	2.0										

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1 10.3

1 10.4

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
277876	2006 <i>JG</i> ₅₀		1 10.3 317°39	1.7/10.9	18		223696	2004 <i>RL</i> ₂₆		1 10.4 89°72	5°1/ 9.1	18	
12 3	7 49.21	+16 55.7	2.088	2.862	14.3	21.3	12 3	7 58.82	+36 7.9	2.060	2.832	14.6	21.0
12 13	7 45.24	+16 48.7	1.996	2.859	11.4	21.1	12 13	7 52.90	+36 41.3	1.994	2.851	11.7	20.9
12 23	7 38.94	+16 49.0	1.927	2.855	7.9	20.9	12 23	7 44.10	+37 8.8	1.952	2.870	8.6	20.7
1 2	7 30.85	+16 55.8	1.883	2.852	4.1	20.6	1 2	7 33.22	+37 24.6	1.935	2.888	5.9	20.6
1 12	7 21.85	+17 7.5	1.868	2.849	1.8	20.5	1 12	7 21.47	+37 23.9	1.947	2.906	5.3	20.6
1 22	7 12.96	+17 21.9	1.883	2.846	5.0	20.7	1 22	7 10.25	+37 5.7	1.988	2.924	7.3	20.8
2 1	7 5.19	+17 37.6	1.926	2.843	8.8	20.9	2 1	7 0.77	+36 31.6	2.057	2.941	10.1	21.0
2 11	6 59.40	+17 52.9	1.994	2.841	12.2	21.1	2 11	6 53.93	+35 46.0	2.150	2.959	12.9	21.2
370479	2003 <i>HA</i> ₄₆		1 10.3 231°83	5°0/ 8.0	18		177499	2004 <i>EF</i> ₅₀		1 10.4 8°97	3°5/11.3	18	
12 3	7 54.70	+33 46.9	2.263	3.038	13.3	21.0	12 3	7 47.13	+14 17.1	1.275	2.082	20.0	20.3
12 13	7 49.92	+34 56.7	2.169	3.029	10.7	20.8	12 13	7 44.89	+13 59.6	1.204	2.084	16.1	20.1
12 23	7 42.37	+36 6.3	2.099	3.019	7.9	20.6	12 23	7 39.37	+13 56.3	1.152	2.086	11.4	19.8
1 2	7 32.57	+37 8.9	2.056	3.009	5.6	20.4	1 2	7 31.25	+14 7.4	1.122	2.091	6.4	19.5
1 12	7 21.50	+37 58.2	2.043	2.999	5.3	20.4	1 12	7 21.84	+14 31.1	1.117	2.096	3.5	19.4
1 22	7 10.38	+38 29.8	2.058	2.989	7.4	20.5	1 22	7 12.71	+15 3.5	1.137	2.102	7.1	19.6
2 1	7 0.51	+38 42.8	2.102	2.978	10.3	20.6	2 1	7 5.37	+15 40.5	1.181	2.110	11.9	19.9
2 11	6 52.95	+38 39.3	2.169	2.967	13.1	20.8	2 11	7 0.96	+16 18.1	1.247	2.119	16.4	20.2
351214	2004 <i>ND</i> ₁		1 10.3 82°32	1°2/10.7	18		35769	1999 <i>JX</i> ₁		1 10.4 148°01	2°4/11.2	18	
12 3	7 57.47	+17 41.3	1.538	2.319	18.3	20.8	12 3	7 53.55	+13 48.1	1.869	2.633	16.1	19.8
12 13	7 52.10	+17 50.7	1.481	2.347	14.4	20.6	12 13	7 48.83	+13 58.7	1.786	2.641	12.9	19.6
12 23	7 43.67	+18 10.0	1.443	2.375	9.8	20.4	12 23	7 41.48	+14 21.4	1.724	2.648	9.1	19.4
1 2	7 33.01	+18 36.2	1.431	2.403	4.7	20.2	1 2	7 32.09	+14 54.8	1.689	2.655	4.9	19.2
1 12	7 21.46	+19 5.6	1.447	2.429	1.4	20.0	1 12	7 21.69	+15 36.1	1.682	2.661	2.4	19.0
1 22	7 10.48	+19 34.3	1.492	2.456	5.9	20.4	1 22	7 11.45	+16 21.4	1.704	2.667	5.5	19.2
2 1	7 1.39	+20 0.0	1.563	2.482	10.4	20.7	2 1	7 2.55	+17 7.3	1.755	2.672	9.6	19.5
2 11	6 55.10	+20 21.5	1.659	2.507	14.2	21.0	2 11	6 55.92	+17 51.0	1.832	2.676	13.2	19.7
213655	2002 <i>RT</i> ₂₁₅		1 10.3 131°62	0°2/10.4	18		459188	2012 <i>DM</i> ₄₆		1 10.4 272°67	6°3/12.6	17	
12 3	7 53.83	+19 2.8	2.090	2.859	14.5	21.2	12 3	7 49.04	+ 4 12.9	2.035	2.771	15.9	22.1
12 13	7 48.76	+19 32.7	2.011	2.872	11.4	21.0	12 13	7 45.30	+ 3 49.8	1.927	2.752	13.4	21.9
12 23	7 41.26	+20 10.4	1.955	2.885	7.7	20.8	12 23	7 39.18	+ 3 42.6	1.839	2.732	10.6	21.7
1 2	7 31.91	+20 52.6	1.925	2.897	3.6	20.6	1 2	7 31.09	+ 3 54.0	1.775	2.712	7.8	21.5
1 12	7 21.67	+21 35.7	1.926	2.909	0.7	20.4	1 12	7 21.87	+ 4 24.5	1.738	2.692	6.3	21.3
1 22	7 11.63	+22 15.9	1.957	2.920	4.9	20.7	1 22	7 12.51	+ 5 12.6	1.729	2.672	7.5	21.4
2 1	7 2.86	+22 51.0	2.018	2.931	8.7	21.0	2 1	7 4.11	+ 6 14.6	1.748	2.651	10.5	21.5
2 11	6 56.21	+23 19.7	2.104	2.941	12.1	21.2	2 11	6 57.64	+ 7 25.5	1.791	2.630	13.7	21.7
493095	2014 <i>SL</i> ₃₂₆		1 10.3 184°65	3°9/11.8	18		247595	2002 <i>TR</i> ₁₇₉		1 10.4 70°55	1°6/10.6	18	
12 3	7 51.08	+ 9 57.7	2.140	2.889	14.8	22.0	12 3	7 57.46	+20 10.8	1.666	2.446	17.2	20.2
12 13	7 46.58	+ 9 47.6	2.048	2.889	12.1	21.8	12 13	7 51.87	+19 31.4	1.601	2.467	13.5	20.0
12 23	7 39.79	+ 9 49.5	1.978	2.889	8.9	21.6	12 23	7 43.41	+18 56.3	1.557	2.489	9.2	19.8
1 2	7 31.26	+10 3.9	1.933	2.889	5.6	21.4	1 2	7 32.89	+18 24.7	1.539	2.510	4.6	19.5
1 12	7 21.81	+10 29.7	1.917	2.888	3.9	21.3	1 12	7 21.57	+17 56.1	1.550	2.531	1.7	19.4
1 22	7 12.45	+11 4.7	1.931	2.886	5.8	21.4	1 22	7 10.82	+17 30.2	1.589	2.552	5.7	19.7
2 1	7 4.16	+11 45.9	1.973	2.884	9.0	21.6	2 1	7 1.86	+17 7.4	1.657	2.574	10.0	20.0
2 11	6 57.78	+12 30.2	2.041	2.882	12.3	21.8	2 11	6 55.54	+16 47.8	1.748	2.594	13.7	20.3
86608	2000 <i>EK</i> ₈₅		1 10.3 255°52	1°8/10.9	18		383783	2007 <i>VH</i> ₃₃₀		1 10.4 25°35	1°9/ 9.4	18	
12 3	7 54.18	+15 6.9	1.870	2.637	16.0	19.9	12 3	7 48.86	+23 45.5	2.141	2.926	13.7	20.3
12 13	7 49.79	+15 25.1	1.757	2.615	12.9	19.7	12 13	7 45.08	+24 44.2	2.058	2.930	10.7	20.1
12 23	7 42.50	+15 55.8	1.665	2.591	9.1	19.4	12 23	7 38.92	+25 48.9	1.999	2.934	7.2	19.9
1 2	7 32.76	+16 37.9	1.598	2.567	4.8	19.1	1 2	7 30.91	+26 54.9	1.967	2.939	3.6	19.7
1 12	7 21.48	+17 28.1	1.560	2.542	1.9	18.8	1 12	7 21.93	+27 56.9	1.965	2.944	2.2	19.6
1 22	7 9.91	+18 22.1	1.552	2.516	5.8	19.0	1 22	7 13.03	+28 50.7	1.993	2.950	5.4	19.8
2 1	6 59.45	+19 15.8	1.573	2.489	10.5	19.2	2 1	7 5.29	+29 33.4	2.048	2.956	9.0	20.0
2 11	6 51.31	+20 5.8	1.618	2.461	14.8	19.4	2 11	6 59.56	+30 4.7	2.129	2.962	12.1	20.2
190203	2005 <i>YA</i> ₁₅₈		1 10.3 236°23	0°8/10.6	18		100348	1995 <i>SJ</i> ₇₂		1 10.4 92°65	4°1/12.0	18	
12 3	7 50.66	+18 34.0	2.353	3.120	13.1	21.5	12 3	7 49.06	+ 8 25.6	2.546	3.282	13.0	20.0
12 13	7 46.21	+18 42.5	2.250	3.110	10.4	21.3	12 13	7 44.43	+ 8 0.5	2.471	3.302	10.6	19.8
12 23	7 39.56	+18 57.5	2.169	3.099	7.1	21.1	12 23	7 38.02	+ 7 45.7	2.419	3.321	7.9	19.7
1 2	7 31.17	+19 17.3	2.116	3.087	3.5	20.8	1 2	7 30.33	+ 7 42.0	2.394	3.341	5.4	19.6
1 12	7 21.83	+19 39.6	2.093	3.076	0.9	20.6	1 12	7 22.07	+ 7 49.1	2.398	3.360	4.1	19.5
1 22	7 12.50	+20 2.0	2.100	3.063	4.6	20.8	1 22	7 14.04	+ 8 5.7	2.431	3.379	5.3	19.6
2 1	7 4.15	+20 22.8	2.137	3.051	8.2	21.0	2 1	7 6.96	+ 8 29.6	2.494	3.397	7.8	19.8
2 11	6 57.60	+20 40.8	2.199	3.038	11.5	21.2	2 11	7 1.45	+ 8 58.5	2.583	3.416	10.2	20.0
297863	2002 <i>CF</i> ₇₃		1 10.4 336°92	1°4/10.0	18		232394	2003 <i>BK</i> ₈₈		1 10.4 358°54	1°0/10.8	18	
12 3	7 50.24	+23 46.8	1.271	2.089	19.5	20.6	12 3	7 47.52	+16 20.5	2.330	3.100	13.2	20.0
12 13	7 47.82	+24 0.2	1.190	2.079	15.4	20.3	12 13	7 43.72	+16 49.7	2.239	3.099	10.4	19.8
12 23	7 41.68	+24 19.9	1.127	2.069	10.6	20.0	12 23	7 37.85	+17 28.1	2.170	3.099	7.2	19.6
1 2	7 32.47	+24 41.5	1.086	2.061	5.0	19.7	1 2	7 30.37	+18 13.7	2.128	3.099	3.6	19.3
1 12	7 21.57	+24 59.8	1.070	2.053	1.8	19.4	1 12	7 22.06	+19 3.4	2.116	3.099	1.1	19.1
1 22	7 10.79	+25 10.5	1.080	2.046	7.3	19.8	1 22	7 13.80	+19 53.9	2.135	3.099	4.4	19.4
2 1	7 1.97	+25 11.9	1.114	2.040	12.8	20.0	2 1	7 6.50	+20 42.2	2.182	3.099	8.0	19.6
2 11	6 56.49	+25 5.0	1.169	2.035	17.7	20.3	2 11	7 0.93	+21 26.0	2.256	3.099	11.1	19.8
170340	2003 <i>SA</i> ₁₂₆		1 10.4 46°64	4°4/ 9.2	18		306343	2011 <i>SM</i> ₁₄₁		1 10.4 109°26	1°1/10.0	18	
12 3	7 55.10	+29 57.6											

EPHEMERIDES

1 10.4

1 10.4

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
458312	2010 VA ₇₀		1 10.4 64°12	1.7°/10.8	18		221821	2008 EU ₂₈		1 10.4 237°90	6°0/12.6	18	
12 3	7 53.51	+17 51.2	1.669	2.452	17.0	21.6	12 3	7 49.94	+3 34.4	2.354	3.074	14.4	21.3
12 13	7 48.89	+17 39.5	1.604	2.471	13.4	21.4	12 13	7 45.61	+3 8.7	2.246	3.059	12.2	21.1
12 23	7 41.50	+17 35.8	1.559	2.491	9.2	21.2	12 23	7 39.17	+2 56.9	2.160	3.045	9.6	20.9
1 2	7 32.06	+17 38.6	1.540	2.511	4.6	20.9	1 2	7 31.06	+3 1.2	2.099	3.030	7.2	20.7
1 12	7 21.76	+17 46.0	1.549	2.530	1.8	20.8	1 12	7 22.00	+3 22.2	2.065	3.014	6.0	20.6
1 22	7 11.90	+17 55.6	1.586	2.550	5.6	21.1	1 22	7 12.88	+3 58.8	2.061	2.998	7.0	20.7
2 1	7 3.66	+18 5.8	1.651	2.570	9.8	21.4	2 1	7 4.62	+4 48.2	2.085	2.981	9.5	20.8
2 11	6 57.93	+18 15.4	1.739	2.590	13.5	21.6	2 11	6 58.03	+5 46.3	2.135	2.963	12.2	20.9
133759	2003 WC ₄₉		1 10.4 165°37	0°1/10.3	18		306195	2011 PP ₁		1 10.4 68°52	1°3/10.7	17	
12 3	7 50.72	+21 24.6	2.501	3.269	12.4	21.2	12 3	7 55.74	+17 43.8	1.464	2.252	18.8	21.3
12 13	7 46.04	+21 38.7	2.411	3.273	9.7	21.0	12 13	7 50.97	+17 48.4	1.406	2.277	14.8	21.1
12 23	7 39.30	+21 57.0	2.344	3.276	6.6	20.8	12 23	7 43.05	+18 3.1	1.369	2.302	10.0	20.8
1 2	7 31.01	+22 17.3	2.306	3.278	3.1	20.6	1 2	7 32.84	+18 25.4	1.356	2.327	4.9	20.6
1 12	7 21.96	+22 37.2	2.298	3.280	0.6	20.4	1 12	7 21.69	+18 51.5	1.370	2.352	1.5	20.4
1 22	7 13.03	+22 54.4	2.320	3.282	4.3	20.7	1 22	7 11.09	+19 17.8	1.412	2.377	6.0	20.8
2 1	7 5.11	+23 7.7	2.372	3.284	7.7	20.9	2 1	7 2.41	+19 41.7	1.481	2.401	10.6	21.1
2 11	6 58.92	+23 16.8	2.451	3.285	10.6	21.1	2 11	6 56.57	+20 2.0	1.573	2.426	14.6	21.4
283298	2011 KB ₈		1 10.4 125°46	2°1/ 9.6	17		237428	1999 FZ ₉₅		1 10.4 223°14	4°6/12.8	18	
12 3	7 58.30	+24 43.0	1.755	2.535	16.4	21.7	12 3	7 46.76	+3 48.2	2.998	3.709	11.7	21.0
12 13	7 52.85	+25 29.4	1.683	2.551	12.9	21.5	12 13	7 42.61	+3 38.9	2.891	3.700	9.8	20.9
12 23	7 44.33	+26 20.5	1.634	2.567	8.7	21.3	12 23	7 36.86	+3 41.4	2.807	3.691	7.7	20.7
1 2	7 33.47	+27 10.8	1.610	2.582	4.3	21.1	1 2	7 29.88	+3 56.7	2.749	3.681	5.7	20.6
1 12	7 21.49	+27 54.2	1.616	2.596	2.4	21.0	1 12	7 22.24	+4 24.7	2.721	3.671	4.6	20.5
1 22	7 9.83	+28 26.4	1.652	2.609	6.3	21.3	1 22	7 14.61	+5 3.9	2.722	3.660	5.4	20.5
2 1	6 59.88	+28 46.0	1.715	2.622	10.4	21.5	2 1	7 7.63	+5 52.0	2.754	3.649	7.4	20.6
2 11	6 52.66	+28 54.3	1.802	2.634	14.0	21.8	2 11	7 1.93	+6 45.9	2.812	3.637	9.7	20.8
130115	1999 XO ₇₈		1 10.4 57°25	0°4/10.5	18		240530	2004 FM ₁₄₅		1 10.4 304°46	0°6/10.2	17	
12 3	7 50.49	+20 4.3	2.023	2.803	14.6	20.2	12 3	7 48.89	+22 29.7	2.211	2.992	13.4	21.1
12 13	7 46.31	+20 9.9	1.940	2.807	11.4	20.0	12 13	7 45.07	+22 46.2	2.112	2.981	10.6	20.9
12 23	7 39.71	+20 21.3	1.879	2.812	7.8	19.8	12 23	7 38.93	+23 7.3	2.036	2.971	7.2	20.6
1 2	7 31.26	+20 36.5	1.844	2.816	3.7	19.5	1 2	7 30.96	+23 30.3	1.987	2.960	3.4	20.4
1 12	7 21.92	+20 53.0	1.838	2.820	0.8	19.3	1 12	7 22.02	+23 52.3	1.967	2.950	1.0	20.2
1 22	7 12.76	+21 8.3	1.861	2.825	4.9	19.6	1 22	7 13.12	+24 10.7	1.977	2.940	4.8	20.4
2 1	7 4.84	+21 20.9	1.912	2.830	8.9	19.9	2 1	7 5.28	+24 23.8	2.015	2.930	8.6	20.6
2 11	6 59.03	+21 30.3	1.989	2.834	12.3	20.1	2 11	6 59.37	+24 31.4	2.079	2.920	12.0	20.8
417304	2006 BS ₉₇		1 10.4 17°62	0°9/10.0	18		99246	2001 KY ₆₂		1 10.4 113°70	7°5/13.3	18	
12 3	7 50.17	+22 1.9	1.817	2.607	15.6	20.8	12 3	7 51.59	+0 47.6	2.054	2.768	16.4	19.8
12 13	7 46.47	+22 33.0	1.735	2.609	12.2	20.6	12 13	7 46.88	+0 5.0	1.980	2.784	13.9	19.6
12 23	7 40.05	+23 10.7	1.675	2.611	8.2	20.4	12 23	7 39.94	-0 20.2	1.926	2.799	11.2	19.5
1 2	7 31.50	+23 51.5	1.641	2.614	3.9	20.1	1 2	7 31.34	-0 25.1	1.896	2.814	8.7	19.3
1 12	7 21.87	+24 30.8	1.634	2.617	1.3	19.9	1 12	7 21.97	-0 9.0	1.893	2.829	7.5	19.3
1 22	7 12.40	+25 4.6	1.657	2.620	5.6	20.2	1 22	7 12.83	+0 26.5	1.918	2.843	8.2	19.4
2 1	7 4.30	+25 30.7	1.707	2.623	9.8	20.5	2 1	7 4.88	+1 17.6	1.970	2.857	10.4	19.5
2 11	6 58.56	+25 48.6	1.781	2.627	13.5	20.7	2 11	6 58.87	+2 19.1	2.047	2.870	12.9	19.7
130275	2000 DD ₇₀		1 10.4 81°61	0°6/10.1	18		145630	2214 P-L		1 10.4 76°51	0°6/10.2	18	
12 3	7 50.34	+22 24.8	2.184	2.963	13.6	20.1	12 3	7 53.88	+22 55.5	1.736	2.524	16.3	20.1
12 13	7 46.06	+22 44.7	2.101	2.969	10.7	19.9	12 13	7 49.35	+23 3.4	1.662	2.534	12.8	19.9
12 23	7 39.47	+23 9.0	2.040	2.974	7.2	19.7	12 23	7 41.94	+23 15.6	1.608	2.544	8.6	19.6
1 2	7 31.14	+23 34.9	2.007	2.980	3.3	19.5	1 2	7 32.36	+23 29.0	1.581	2.554	4.0	19.4
1 12	7 21.96	+23 59.3	2.003	2.986	1.0	19.3	1 12	7 21.78	+23 40.2	1.581	2.564	1.1	19.2
1 22	7 12.94	+24 19.6	2.029	2.991	4.8	19.6	1 22	7 11.51	+23 46.5	1.610	2.574	5.6	19.5
2 1	7 5.10	+24 34.3	2.083	2.997	8.5	19.9	2 1	7 2.84	+23 47.2	1.667	2.584	10.0	19.8
2 11	6 59.25	+24 43.2	2.163	3.003	11.7	20.1	2 11	6 56.72	+23 42.8	1.747	2.593	13.7	20.1
114948	2003 QU ₅₄		1 10.4 171°91	0°2/10.5	18		381323	2007 VV ₂₅₂		1 10.4 75°92	6°2/ 7.3	18	
12 3	7 54.79	+19 37.6	2.122	2.889	14.4	21.2	12 3	7 55.48	+37 49.3	2.326	3.095	13.2	20.4
12 13	7 49.60	+19 56.7	2.033	2.893	11.3	21.0	12 13	7 50.37	+39 18.1	2.266	3.116	10.7	20.2
12 23	7 41.92	+20 22.6	1.966	2.896	7.7	20.8	12 23	7 42.54	+40 42.4	2.230	3.137	8.2	20.1
1 2	7 32.32	+20 52.6	1.927	2.899	3.6	20.6	1 2	7 32.64	+41 54.7	2.221	3.158	6.5	20.0
1 12	7 21.74	+21 23.4	1.918	2.901	0.7	20.4	1 12	7 21.71	+42 48.9	2.241	3.178	6.4	20.1
1 22	7 11.28	+21 51.9	1.939	2.902	4.9	20.7	1 22	7 11.01	+43 21.9	2.290	3.199	8.0	20.2
2 1	7 2.05	+22 16.2	1.990	2.902	8.9	20.9	2 1	7 1.74	+43 33.8	2.366	3.219	10.2	20.4
2 11	6 54.94	+22 35.4	2.066	2.902	12.3	21.1	2 11	6 54.84	+43 27.8	2.465	3.239	12.4	20.6
255900	2006 SR ₂₉₈		1 10.4 265°23	4°8/ 9.0	18		251102	2006 SZ ₂₈₀		1 10.4 107°02	1°0/10.8	18	
12 3	7 56.04	+32 42.8	1.842	2.628	15.5	20.8	12 3	7 55.19	+17 7.7	2.191	2.950	14.2	21.6
12 13	7 51.48	+33 22.5	1.750	2.617	12.5	20.5	12 13	7 49.54	+17 28.2	2.122	2.977	11.2	21.4
12 23	7 43.71	+34 0.8	1.679	2.606	9.0	20.3	12 23	7 41.63	+17 56.6	2.077	3.003	7.6	21.2
1 2	7 33.32	+34 30.9	1.634	2.595	5.8	20.1	1 2	7 32.09	+18 30.3	2.059	3.029	3.7	21.0
1 12	7 21.53	+34 46.8	1.616	2.584	5.0	20.0	1 12	7 21.85	+19 6.3	2.071	3.053	1.1	20.9
1 22	7 9.83	+34 44.9	1.627	2.572	7.7	20.2	1 22	7 11.92	+19 41.6	2.115	3.077	4.6	21.2
2 1	6 59.75	+34 25.4	1.665	2.561	11.4	20.3	2 1	7 3.28	+20 13.9	2.188	3.101	8.2	21.4
2 11	6 52.47	+33 51.9	1.726	2.549	14.9	20.5	2 11	6 56.65	+20 42.1	2.288	3.123	11.3	21.7
518744	2009 RP ₇₁		1 10.4 107°08	1°1/10.7	18		161797	2006 VL ₄₅		1 10.4 36°00	7°9/12.1	18	
12 3	7 58.55	+18 24.6	1.496	2.278	18.7	21.9	12 3	7 50.90	+5 34.2	1.651	2.405	18.4	19.4

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
364309	2006 <i>UT</i> ₄₀		1 10.4 143°34	1°5/ 9.9 18			327451	2005 <i>WR</i> ₁₄₉		1 10.4 83°09	2°7/ 9.5 18		
12 3	7 53.82	+24 22.3	1.929	2.711	15.1	22.0	12 3	7 53.11	+27 25.6	1.937	2.724	14.9	21.4
12 13	7 49.17	+24 49.0	1.846	2.716	11.8	21.8	12 13	7 48.67	+28 2.5	1.859	2.730	11.7	21.2
12 23	7 41.80	+25 19.8	1.786	2.720	8.0	21.6	12 23	7 41.49	+28 41.3	1.803	2.736	8.0	21.0
1 2	7 32.32	+25 50.5	1.752	2.724	3.9	21.4	1 2	7 32.21	+29 17.2	1.773	2.743	4.3	20.8
1 12	7 21.79	+26 16.9	1.747	2.728	1.8	21.2	1 12	7 21.89	+29 45.3	1.772	2.749	2.9	20.7
1 22	7 11.46	+26 35.9	1.771	2.732	5.6	21.5	1 22	7 11.79	+30 2.5	1.800	2.755	6.1	21.0
2 1	7 2.54	+26 46.1	1.824	2.735	9.6	21.7	2 1	7 3.14	+30 7.8	1.855	2.762	9.8	21.2
2 11	6 55.98	+26 48.2	1.901	2.738	13.1	21.9	2 11	6 56.89	+30 2.7	1.935	2.768	13.1	21.4
266419	2007 <i>GH</i> ₄		1 10.4 175°84	1°9/ 9.7 18			454396	2014 <i>NL</i> ₂₆		1 10.4 193°09	1°2/10.7 18		
12 3	7 51.98	+25 27.0	2.117	2.898	13.9	20.9	12 3	7 55.19	+19 12.9	1.819	2.595	16.1	21.4
12 13	7 47.57	+26 2.1	2.030	2.899	10.9	20.7	12 13	7 50.34	+19 0.2	1.730	2.594	12.8	21.2
12 23	7 40.65	+26 40.6	1.966	2.899	7.4	20.5	12 23	7 42.66	+18 53.5	1.662	2.593	8.8	21.0
1 2	7 31.78	+27 18.5	1.928	2.900	3.7	20.3	1 2	7 32.78	+18 51.3	1.620	2.591	4.3	20.7
1 12	7 21.90	+27 51.3	1.920	2.900	2.2	20.2	1 12	7 21.78	+18 51.7	1.606	2.589	1.4	20.5
1 22	7 12.14	+28 15.9	1.942	2.900	5.5	20.4	1 22	7 10.94	+18 52.8	1.622	2.586	5.6	20.8
2 1	7 3.62	+28 30.8	1.992	2.900	9.1	20.6	2 1	7 1.54	+18 53.6	1.666	2.583	10.0	21.0
2 11	6 57.24	+28 36.5	2.067	2.900	12.4	20.8	2 11	6 54.58	+18 53.6	1.735	2.580	13.8	21.2
393220	2013 <i>EC</i> ₆₁		1 10.4 357°78	2°6/ 9.8 17			385402	2002 <i>WZ</i> ₂		1 10.4 167°68	8°3/15.3 14 C		
12 3	7 50.99	+25 57.9	1.237	2.058	19.7	21.1	12 3	7 56.24	-18 59.2	4.086	4.603	11.1	24.1
12 13	7 48.49	+26 21.6	1.164	2.054	15.6	20.8	12 13	7 49.40	-20 1.6	3.997	4.611	10.3	24.0
12 23	7 42.16	+26 49.7	1.109	2.052	10.7	20.6	12 23	7 41.14	-20 49.0	3.929	4.619	9.4	23.9
1 2	7 32.74	+27 16.7	1.077	2.051	5.4	20.3	1 2	7 31.83	-21 18.2	3.885	4.626	8.7	23.9
1 12	7 21.72	+27 35.9	1.070	2.050	2.9	20.1	1 12	7 21.99	-21 27.2	3.866	4.631	8.4	23.8
1 22	7 10.98	+27 43.3	1.088	2.051	7.7	20.4	1 22	7 12.19	-21 15.8	3.875	4.635	8.5	23.9
2 1	7 2.37	+27 37.8	1.130	2.053	13.0	20.7	2 1	7 3.01	-20 45.2	3.910	4.638	8.9	23.9
2 11	6 57.19	+27 21.8	1.192	2.055	17.6	21.0	2 11	6 54.96	-19 58.8	3.970	4.639	9.7	24.0
87021	2000 <i>JR</i> ₆₅		1 10.4 157°89	1°2/10.8 18			198174	2004 <i>TY</i> ₁₀₁		1 10.4 205°86	2°3/11.1 18		
12 3	7 55.26	+16 23.8	1.995	2.759	15.3	20.5	12 3	7 50.36	+15 12.1	2.156	2.921	14.2	20.9
12 13	7 50.07	+16 46.0	1.910	2.767	12.1	20.3	12 13	7 46.08	+15 0.0	2.064	2.920	11.4	20.7
12 23	7 42.31	+17 18.0	1.847	2.774	8.3	20.1	12 23	7 39.53	+14 55.9	1.994	2.918	8.0	20.5
1 2	7 32.56	+17 57.7	1.811	2.781	4.2	19.9	1 2	7 31.25	+14 59.3	1.951	2.917	4.4	20.3
1 12	7 21.80	+18 41.5	1.805	2.787	1.3	19.7	1 12	7 22.09	+15 9.1	1.937	2.915	2.3	20.1
1 22	7 11.17	+19 25.6	1.829	2.792	5.1	20.0	1 22	7 13.03	+15 23.6	1.952	2.913	5.0	20.3
2 1	7 1.85	+20 6.9	1.882	2.796	9.2	20.2	2 1	7 5.07	+15 40.8	1.996	2.912	8.6	20.5
2 11	6 54.73	+20 43.7	1.961	2.800	12.7	20.4	2 11	6 59.02	+15 59.1	2.065	2.910	12.0	20.7
302911	2003 <i>SS</i> ₅₁		1 10.4 92°57	2°6/ 9.6 18			61707	2000 <i>QU</i> ₁₃₇		1 10.4 143°08	2°8/11.4 18		
12 3	7 57.08	+26 6.3	1.717	2.503	16.5	21.0	12 3	7 53.93	+13 0.7	1.872	2.634	16.2	20.5
12 13	7 51.91	+26 49.8	1.652	2.523	12.9	20.8	12 13	7 49.13	+13 4.3	1.790	2.643	13.0	20.3
12 23	7 43.70	+27 36.6	1.610	2.544	8.8	20.6	12 23	7 41.72	+13 20.0	1.730	2.652	9.2	20.1
1 2	7 33.20	+28 20.7	1.593	2.563	4.5	20.3	1 2	7 32.30	+13 47.0	1.696	2.660	5.2	19.9
1 12	7 21.69	+28 56.3	1.605	2.583	2.8	20.3	1 12	7 21.90	+14 22.8	1.690	2.667	2.8	19.8
1 22	7 10.59	+29 20.0	1.645	2.602	6.4	20.5	1 22	7 11.68	+15 4.1	1.713	2.675	5.6	20.0
2 1	7 1.26	+29 30.8	1.713	2.621	10.4	20.8	2 1	7 2.80	+15 47.4	1.765	2.681	9.6	20.2
2 11	6 54.67	+29 30.5	1.805	2.639	13.9	21.1	2 11	6 56.18	+16 29.9	1.842	2.687	13.2	20.4
172565	2003 <i>UZ</i> ₁₆₄		1 10.4 64°92	1°5/10.0 12 C			257396	2009 <i>SF</i> ₂₂₀		1 10.4 200°78	1°2/ 9.9 18		
12 3	7 56.21	+24 3.9	1.493	2.288	18.1	21.7	12 3	7 51.59	+23 1.9	1.961	2.745	14.8	20.6
12 13	7 51.49	+24 25.9	1.434	2.310	14.1	21.5	12 13	7 47.46	+23 33.6	1.874	2.745	11.6	20.4
12 23	7 43.50	+24 52.5	1.395	2.332	9.5	21.3	12 23	7 40.69	+24 10.8	1.809	2.744	7.9	20.1
1 2	7 33.11	+25 18.7	1.382	2.355	4.5	21.1	1 2	7 31.87	+24 49.8	1.771	2.744	3.7	19.9
1 12	7 21.72	+25 39.6	1.395	2.377	1.8	20.9	1 12	7 21.98	+25 26.3	1.762	2.744	1.5	19.7
1 22	7 10.88	+25 52.1	1.437	2.399	6.3	21.3	1 22	7 12.19	+25 56.5	1.782	2.744	5.4	20.0
2 1	7 2.02	+25 55.6	1.505	2.421	10.8	21.6	2 1	7 3.70	+26 18.6	1.830	2.743	9.5	20.2
2 11	6 56.11	+25 51.3	1.596	2.444	14.7	21.9	2 11	6 57.46	+26 32.3	1.903	2.743	13.0	20.5
197290	2003 <i>WP</i> ₁₁₉		1 10.4 69°35	4°9/ 8.3 18			30964	1994 <i>WW</i> ₇		1 10.4 290°31	3°7/11.5 18		
12 3	7 53.48	+32 55.1	2.093	2.875	14.0	20.0	12 3	7 50.75	+12 34.1	1.504	2.287	18.6	18.9
12 13	7 48.92	+34 4.9	2.024	2.889	11.2	19.8	12 13	7 47.57	+12 26.3	1.410	2.275	15.1	18.7
12 23	7 41.64	+35 13.4	1.978	2.902	8.1	19.7	12 23	7 41.25	+12 33.4	1.336	2.262	10.9	18.4
1 2	7 32.26	+36 14.0	1.960	2.916	5.5	19.5	1 2	7 32.31	+12 55.8	1.285	2.250	6.4	18.1
1 12	7 21.87	+37 0.5	1.970	2.929	5.1	19.5	1 12	7 21.87	+13 31.8	1.260	2.238	3.7	17.9
1 22	7 11.70	+37 29.5	2.008	2.943	7.2	19.7	1 22	7 11.35	+14 17.7	1.262	2.225	6.9	18.1
2 1	7 2.98	+37 40.6	2.074	2.957	10.1	19.9	2 1	7 2.29	+15 9.0	1.290	2.213	11.7	18.3
2 11	6 56.64	+37 36.2	2.164	2.971	12.9	20.1	2 11	6 55.93	+16 1.2	1.341	2.201	16.2	18.5
136006	2002 <i>VR</i> ₅₆		1 10.4 97°03	7°3/13.6 18			502524	2015 <i>BY</i> ₄₃₅		1 10.4 250°08	2°4/11.5 17		
12 3	7 53.10	+ 0 10.1	2.081	2.787	16.4	20.7	12 3	7 47.61	+12 13.1	2.509	3.262	12.8	21.6
12 13	7 47.91	- 0 23.1	2.017	2.815	13.9	20.6	12 13	7 43.68	+12 27.1	2.407	3.255	10.3	21.4
12 23	7 40.54	- 0 38.0	1.973	2.843	11.1	20.4	12 23	7 37.82	+12 51.5	2.329	3.248	7.3	21.2
1 2	7 31.61	- 0 32.3	1.953	2.869	8.6	20.3	1 2	7 30.44	+13 25.8	2.278	3.240	4.2	21.0
1 12	7 22.02	- 0 6.0	1.960	2.895	7.3	20.3	1 12	7 22.26	+14 7.9	2.256	3.233	2.4	20.9
1 22	7 12.75	+ 0 38.5	1.996	2.921	8.0	20.4	1 22	7 14.07	+14 55.2	2.265	3.226	4.5	21.0
2 1	7 4.72	+ 1 37.0	2.059	2.945	10.0	20.6	2 1	7 6.73	+15 44.8	2.303	3.218	7.7	21.2
2 11	6 58.65	+ 2 44.2	2.148	2.969	12.4	20.8	2 11	7 0.95	+16 33.9	2.368	3.210	10.7	21.4
165549	2001 <i>DM</i> ₃₉		1 10.4 283°26	1°2/10.7 18			406185	2006 <i>WE</i> ₁₁₇		1 10.4 19°01	4°3/10.9 18		
12 3	7 52.97	+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
3163	Randi		1 10.4 130°48	1°5/10.9	18	A	455535	2004 CY ₃		1 10.4 309°21	8°9/15.2	17	
12 3	7 56.35	+16 31.9	2.215	2.969	14.2	18.9	12 3	7 49.58	- 4 8.5	1.626	2.342	20.0	21.1
12 13	7 50.48	+16 37.3	2.139	2.990	11.2	18.7	12 13	7 46.58	- 3 48.4	1.515	2.317	17.5	20.8
12 23	7 42.32	+16 50.3	2.085	3.009	7.7	18.5	12 23	7 40.64	- 2 55.4	1.420	2.292	14.5	20.6
1 2	7 32.49	+17 9.2	2.059	3.028	3.9	18.3	1 2	7 32.12	- 1 24.0	1.347	2.268	11.3	20.3
1 12	7 21.90	+17 31.7	2.064	3.045	1.5	18.2	1 12	7 21.94	+ 0 46.7	1.299	2.244	9.1	20.1
1 22	7 11.59	+17 55.2	2.100	3.062	4.7	18.4	1 22	7 11.36	+ 3 31.2	1.278	2.220	9.7	20.1
2 1	7 2.53	+18 18.0	2.165	3.077	8.3	18.7	2 1	7 1.86	+ 6 38.1	1.286	2.197	12.8	20.2
2 11	6 55.50	+18 38.9	2.258	3.092	11.4	18.9	2 11	6 54.76	+ 9 52.9	1.320	2.175	16.8	20.4
199008	2005 WP ₇₂		1 10.4 349°02	0°8/10.5	18		452241	2015 TX ₁		1 10.4 48°34	5°6/11.9	18	
12 3	7 53.40	+21 1.1	1.319	2.125	19.5	20.1	12 3	7 51.97	+10 4.4	1.352	2.135	20.3	20.9
12 13	7 50.00	+20 44.6	1.240	2.122	15.5	19.9	12 13	7 48.47	+ 9 30.3	1.281	2.142	16.6	20.7
12 23	7 43.00	+20 34.2	1.180	2.119	10.6	19.6	12 23	7 41.72	+ 9 13.0	1.229	2.150	12.3	20.4
1 2	7 33.12	+20 28.0	1.144	2.117	5.1	19.2	1 2	7 32.44	+ 9 14.3	1.200	2.157	7.9	20.2
1 12	7 21.76	+20 23.3	1.133	2.116	1.2	19.0	1 12	7 21.93	+ 9 33.8	1.195	2.166	5.6	20.1
1 22	7 10.65	+20 17.9	1.148	2.114	6.8	19.3	1 22	7 11.71	+10 8.4	1.216	2.174	8.0	20.3
2 1	7 1.50	+20 11.1	1.188	2.114	12.2	19.6	2 1	7 3.26	+10 53.4	1.262	2.183	12.2	20.5
2 11	6 55.55	+20 2.9	1.250	2.114	16.9	19.9	2 11	6 57.70	+11 43.6	1.331	2.191	16.2	20.8
227340	2005 UR ₅₀		1 10.4 107°87	2°3/ 9.7	18		357233	2002 JQ ₁₅₀		1 10.4 210°25	2°8/11.4	18	
12 3	7 54.26	+27 5.6	1.997	2.779	14.6	20.5	12 3	7 53.22	+13 4.2	2.281	3.030	14.0	22.6
12 13	7 49.42	+27 30.8	1.919	2.788	11.5	20.3	12 13	7 48.27	+12 58.1	2.178	3.023	11.3	22.4
12 23	7 41.92	+27 57.5	1.864	2.797	7.8	20.1	12 23	7 41.04	+13 1.5	2.097	3.014	8.1	22.2
1 2	7 32.40	+28 21.2	1.835	2.805	4.0	19.9	1 2	7 32.01	+13 14.0	2.043	3.006	4.7	21.9
1 12	7 21.92	+28 37.9	1.835	2.814	2.5	19.8	1 12	7 22.01	+13 34.4	2.020	2.996	2.8	21.8
1 22	7 11.71	+28 45.0	1.865	2.822	5.7	20.1	1 22	7 12.01	+14 0.5	2.026	2.985	5.2	21.9
2 1	7 2.94	+28 42.2	1.923	2.830	9.4	20.3	2 1	7 3.01	+14 30.2	2.063	2.974	8.7	22.1
2 11	6 56.52	+28 30.9	2.005	2.838	12.7	20.5	2 11	6 55.86	+15 1.2	2.125	2.962	12.0	22.3
56915	2000 QW ₂₀₆		1 10.4 209°83	5°6/ 8.4	18		296953	2010 EX ₃₃		1 10.4 339°94	2°7/ 9.6	18	
12 3	7 57.92	+37 35.8	2.344	3.109	13.2	19.6	12 3	7 48.53	+26 58.8	1.713	2.515	15.9	20.3
12 13	7 52.36	+38 23.7	2.254	3.104	10.8	19.4	12 13	7 45.65	+27 28.7	1.623	2.503	12.5	20.1
12 23	7 43.99	+39 7.0	2.187	3.098	8.2	19.2	12 23	7 39.82	+28 1.6	1.554	2.492	8.6	19.8
1 2	7 33.42	+39 39.4	2.147	3.092	6.1	19.1	1 2	7 31.60	+28 32.9	1.510	2.481	4.5	19.6
1 12	7 21.71	+39 55.4	2.136	3.085	5.7	19.1	1 12	7 22.09	+28 57.4	1.493	2.471	2.9	19.4
1 22	7 10.14	+39 52.4	2.153	3.078	7.5	19.1	1 22	7 12.64	+29 11.4	1.503	2.462	6.6	19.6
2 1	6 59.99	+39 30.9	2.199	3.070	10.2	19.3	2 1	7 4.65	+29 13.6	1.539	2.454	10.8	19.9
2 11	6 52.25	+38 54.7	2.269	3.062	12.8	19.5	2 11	6 59.22	+29 5.1	1.599	2.447	14.7	20.1
24617	1978 WU		1 10.4 99°81	3°7/11.4	18		209644	2005 CR		1 10.4 320°31	3°0/11.0	18	
12 3	7 54.56	+12 32.1	1.911	2.669	16.1	18.9	12 3	7 48.88	+16 7.6	1.365	2.168	19.1	19.8
12 13	7 49.35	+12 2.7	1.841	2.689	12.9	18.7	12 13	7 46.51	+15 44.8	1.271	2.149	15.5	19.5
12 23	7 41.67	+11 43.5	1.792	2.709	9.3	18.5	12 23	7 40.77	+15 32.6	1.196	2.130	11.0	19.2
1 2	7 32.21	+11 35.0	1.768	2.728	5.6	18.4	1 2	7 32.20	+15 31.4	1.143	2.113	6.0	18.9
1 12	7 21.97	+11 36.5	1.774	2.747	3.7	18.3	1 12	7 21.97	+15 39.9	1.115	2.095	3.0	18.7
1 22	7 12.08	+11 46.5	1.809	2.765	5.9	18.5	1 22	7 11.63	+15 55.8	1.113	2.079	7.1	18.8
2 1	7 3.59	+12 2.9	1.872	2.783	9.4	18.7	2 1	7 2.88	+16 16.4	1.136	2.063	12.4	19.1
2 11	6 57.30	+12 23.1	1.960	2.801	12.6	18.9	2 11	6 57.07	+16 38.9	1.180	2.049	17.3	19.3
24489	2000 YC ₁₁₇		1 10.4 109°14	1°7/ 9.9	18		206957	2004 RW ₃₄₁		1 10.4 328°58	0°2/10.3	18	
12 3	7 59.52	+23 25.3	1.538	2.325	18.1	19.0	12 3	7 49.30	+20 19.6	1.275	2.089	19.6	20.4
12 13	7 54.13	+24 4.3	1.473	2.344	14.2	18.8	12 13	7 47.14	+20 40.8	1.189	2.076	15.6	20.1
12 23	7 45.38	+24 49.5	1.429	2.363	9.5	18.6	12 23	7 41.36	+21 13.5	1.122	2.064	10.7	19.8
1 2	7 34.08	+25 35.2	1.410	2.382	4.5	18.3	1 2	7 32.52	+21 54.3	1.078	2.053	5.1	19.4
1 12	7 21.61	+26 15.0	1.419	2.400	2.0	18.2	1 12	7 21.92	+22 37.6	1.059	2.042	1.0	19.1
1 22	7 9.59	+26 44.5	1.456	2.417	6.5	18.5	1 22	7 11.29	+23 17.6	1.065	2.032	7.1	19.5
2 1	6 59.55	+27 2.4	1.521	2.434	11.1	18.8	2 1	7 2.46	+23 50.2	1.095	2.023	12.8	19.8
2 11	6 52.54	+27 9.7	1.610	2.450	15.0	19.1	2 11	6 56.88	+24 13.8	1.147	2.015	17.8	20.0
230686	2003 TC ₄₅		1 10.4 344°61	3°2/11.2	18		244315	2002 GA ₁₄₂		1 10.4 35°03	21°1/16.4	18	
12 3	7 50.08	+13 59.9	2.083	2.848	14.7	20.4	12 3	7 51.12	-12 37.9	1.060	1.778	28.5	20.0
12 13	7 45.91	+13 28.3	1.993	2.847	11.8	20.2	12 13	7 48.60	-15 31.3	1.011	1.783	26.3	19.9
12 23	7 39.44	+13 4.4	1.925	2.846	8.5	20.0	12 23	7 42.28	-17 48.8	0.973	1.788	24.1	19.7
1 2	7 31.23	+12 49.0	1.883	2.845	5.0	19.8	1 2	7 32.87	-19 15.5	0.950	1.794	22.3	19.6
1 12	7 22.15	+12 41.8	1.870	2.845	3.2	19.6	1 12	7 21.87	-19 40.8	0.943	1.801	21.2	19.6
1 22	7 13.20	+12 41.8	1.885	2.844	5.5	19.8	1 22	7 11.11	-19 2.7	0.951	1.808	21.3	19.6
2 1	7 5.39	+12 47.8	1.929	2.843	9.0	20.0	2 1	7 2.44	-17 28.2	0.976	1.815	22.4	19.7
2 11	6 59.53	+12 58.0	1.998	2.843	12.3	20.2	2 11	6 57.20	-15 12.6	1.017	1.823	24.1	19.9
393189	2013 CN ₁₃₅		1 10.4 282°89	1°8/ 9.5	18		285716	2000 SW ₂₆₈		1 10.4 87°69	1°6/ 9.9	17	
12 3	7 46.96	+27 47.0	3.138	3.910	10.0	20.9	12 3	7 57.16	+23 30.2	1.619	2.406	17.3	20.7
12 13	7 42.90	+28 10.7	3.038	3.902	7.9	20.7	12 13	7 52.08	+24 8.8	1.556	2.428	13.5	20.5
12 23	7 37.14	+28 34.9	2.963	3.894	5.4	20.6	12 23	7 43.90	+24 53.0	1.515	2.450	9.1	20.3
1 2	7 30.08	+28 57.1	2.917	3.885	2.9	20.4	1 2	7 33.38	+25 37.4	1.499	2.471	4.3	20.0
1 12	7 22.37	+29 14.9	2.901	3.877	1.9	20.3	1 12	7 21.83	+26 16.3	1.511	2.493	1.9	19.9
1 22	7 14.71	+29 26.4	2.915	3.869	4.1	20.4	1 22	7 10.73	+26 45.8	1.553	2.513	6.2	20.2
2 1	7 7.81	+29 31.0	2.959	3.861	6.7	20.6	2 1	7 1.46	+27 4.2	1.621	2.534	10.5	20.5
2 11	7 2.29	+29 28.9	3.030	3.853	9.1	20.7	2 11	6 54.99	+27 12.7	1.713	2.554	14.2	20.8
369374	2009 UP ₁₁₇		1 10.4 155°59	0°7/10.1	18		209633	2005 AP ₇₉		1 10.4 92°43	0°5/10.7	18	
12 3	7 52.34	+22 13.6	2.355	3.125	13.0	21.9	12 3	7 50.08	+17 48.5	2.211	2.9		

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
66219	1999 <i>CR</i> ₅₀		1 10.4 166°73	4.7/ 9.2	18		502733	2015 <i>DZ</i> ₃₄		1 10.4 173°43	3.5/12.4	17	
12 3	7 58.79	+35 11.3	2.175	2.944	14.0	18.8	12 3	7 46.42	+ 6 46.5	3.196	3.917	10.9	22.5
12 13	7 52.98	+35 39.2	2.092	2.948	11.2	18.6	12 13	7 42.24	+ 6 49.0	3.099	3.920	8.9	22.3
12 23	7 44.34	+36 2.5	2.031	2.950	8.2	18.5	12 23	7 36.59	+ 7 1.7	3.025	3.921	6.7	22.2
1 2	7 33.57	+36 15.5	1.998	2.953	5.5	18.3	1 2	7 29.84	+ 7 24.8	2.979	3.923	4.6	22.0
1 12	7 21.79	+36 13.6	1.993	2.955	4.8	18.3	1 12	7 22.54	+ 7 57.3	2.963	3.924	3.5	22.0
1 22	7 10.32	+35 55.1	2.018	2.957	6.9	18.4	1 22	7 15.29	+ 8 37.7	2.977	3.925	4.4	22.0
2 1	7 0.41	+35 21.4	2.071	2.958	9.9	18.6	2 1	7 8.69	+ 9 23.7	3.022	3.926	6.5	22.2
2 11	6 53.01	+34 36.2	2.148	2.959	12.8	18.8	2 11	7 3.28	+10 12.7	3.095	3.926	8.8	22.3
5268	Černohorský		1 10.4 105°43	6°5/12.8	18		59185	1999 <i>AT</i> ₁₅		1 10.4 188°57	1°2/10.1	18	
12 3	7 52.89	+ 3 14.4	2.188	2.905	15.4	18.1	12 3	7 57.61	+24 49.3	1.816	2.595	16.0	19.6
12 13	7 47.71	+ 2 28.2	2.118	2.927	12.9	17.9	12 13	7 52.40	+24 57.2	1.728	2.595	12.6	19.4
12 23	7 40.43	+ 1 56.6	2.069	2.950	10.2	17.8	12 23	7 44.18	+25 7.8	1.661	2.594	8.6	19.2
1 2	7 31.63	+ 1 42.1	2.045	2.971	7.7	17.7	1 2	7 33.60	+25 17.2	1.621	2.593	4.1	18.9
1 12	7 22.17	+ 1 45.2	2.050	2.992	6.5	17.6	1 12	7 21.82	+25 21.8	1.609	2.591	1.5	18.7
1 22	7 12.99	+ 2 4.7	2.083	3.013	7.4	17.7	1 22	7 10.24	+25 19.1	1.627	2.589	5.8	19.0
2 1	7 4.97	+ 2 37.7	2.144	3.032	9.6	17.9	2 1	7 0.23	+25 9.0	1.673	2.586	10.2	19.2
2 11	6 58.81	+ 3 20.1	2.230	3.052	12.0	18.1	2 11	6 52.84	+24 52.8	1.743	2.582	14.1	19.5
204698	2006 <i>EB</i> ₁₈		1 10.4 318°51	1°1/10.1	18		413628	2005 <i>UV</i> ₃₅₃		1 10.4 82°50	4°5/11.5	18	
12 3	7 50.88	+22 25.1	1.362	2.172	18.8	20.8	12 3	7 53.78	+11 20.0	1.941	2.696	15.9	20.4
12 13	7 48.23	+22 49.3	1.274	2.159	14.9	20.5	12 13	7 48.70	+10 33.0	1.872	2.716	12.9	20.2
12 23	7 42.03	+23 22.2	1.205	2.146	10.2	20.2	12 23	7 41.23	+ 9 56.3	1.823	2.736	9.4	20.0
1 2	7 32.82	+23 59.8	1.159	2.134	4.9	19.9	1 2	7 32.05	+ 9 31.1	1.801	2.756	6.1	19.9
1 12	7 21.90	+24 36.2	1.139	2.122	1.6	19.6	1 12	7 22.14	+ 9 17.8	1.807	2.775	4.5	19.8
1 22	7 10.94	+25 6.0	1.145	2.110	7.1	19.9	1 22	7 12.58	+ 9 15.5	1.843	2.795	6.3	19.9
2 1	7 1.73	+25 26.3	1.176	2.099	12.5	20.2	2 1	7 4.38	+ 9 22.6	1.906	2.814	9.5	20.2
2 11	6 55.69	+25 36.9	1.228	2.089	17.3	20.5	2 11	6 58.31	+ 9 36.5	1.994	2.833	12.6	20.4
245643	2005 <i>YA</i> ₈₄		1 10.4 260°61	1°0/10.7	18		430319	2013 <i>YX</i> ₁₂		1 10.4 290°11	3°0/ 8.9	18	
12 3	7 52.96	+17 50.8	1.619	2.405	17.3	21.5	12 3	7 50.41	+28 3.8	2.341	3.121	12.8	20.7
12 13	7 49.18	+18 4.8	1.524	2.394	13.8	21.2	12 13	7 46.30	+28 59.9	2.250	3.118	10.1	20.5
12 23	7 42.29	+18 29.6	1.450	2.384	9.6	20.9	12 23	7 39.83	+29 58.6	2.184	3.115	7.0	20.3
1 2	7 32.83	+19 3.1	1.401	2.373	4.7	20.6	1 2	7 31.52	+30 55.2	2.145	3.112	4.0	20.1
1 12	7 21.91	+19 41.5	1.379	2.362	1.2	20.3	1 12	7 22.21	+31 44.5	2.136	3.109	3.2	20.0
1 22	7 10.94	+20 20.4	1.385	2.350	6.1	20.6	1 22	7 12.92	+32 23.1	2.157	3.106	5.7	20.2
2 1	7 1.42	+20 56.4	1.418	2.339	11.0	20.9	2 1	7 4.71	+32 49.0	2.206	3.103	8.9	20.4
2 11	6 54.55	+21 27.3	1.475	2.327	15.4	21.1	2 11	6 58.45	+33 2.7	2.280	3.101	11.8	20.6
63595	2001 <i>QW</i> ₆₃		1 10.4 38°74	5°1/11.9	18		462236	2008 <i>AK</i> ₁₁₈		1 10.4 344°22	5°3/12.7	18	
12 3	7 51.23	+10 33.4	1.330	2.117	20.4	19.5	12 3	7 46.48	+ 6 55.5	1.418	2.198	19.7	21.1
12 13	7 47.98	+10 10.8	1.259	2.123	16.6	19.2	12 13	7 44.30	+ 7 7.6	1.332	2.189	16.3	20.8
12 23	7 41.46	+10 5.7	1.207	2.130	12.2	19.0	12 23	7 39.09	+ 7 43.3	1.264	2.182	12.2	20.5
1 2	7 32.38	+10 19.2	1.177	2.137	7.6	18.7	1 2	7 31.37	+ 8 44.1	1.218	2.175	8.0	20.3
1 12	7 22.02	+10 50.0	1.172	2.145	5.1	18.6	1 12	7 22.22	+10 7.3	1.198	2.170	5.3	20.1
1 22	7 11.94	+11 34.2	1.193	2.153	7.7	18.8	1 22	7 13.06	+11 46.6	1.203	2.165	7.5	20.2
2 1	7 3.63	+12 26.6	1.239	2.162	12.1	19.1	2 1	7 5.33	+13 33.4	1.235	2.161	11.8	20.4
2 11	6 58.23	+13 21.8	1.307	2.171	16.3	19.3	2 11	7 0.26	+15 19.1	1.289	2.158	16.1	20.7
409492	2005 <i>SE</i> ₁₃₁		1 10.4 0°95	1°0/10.2	16		163170	2002 <i>CQ</i> ₂₁₈		1 10.4 164°50	0°6/10.2	18	
12 3	7 45.55	+22 57.4	1.218	2.046	19.5	21.0	12 3	7 54.95	+21 46.0	1.851	2.630	15.7	20.4
12 13	7 44.14	+23 10.3	1.147	2.042	15.4	20.7	12 13	7 50.21	+22 12.1	1.766	2.634	12.4	20.2
12 23	7 39.19	+23 30.1	1.095	2.040	10.5	20.4	12 23	7 42.65	+22 44.6	1.704	2.637	8.4	19.9
1 2	7 31.41	+23 53.1	1.065	2.040	4.9	20.1	1 2	7 32.87	+23 19.9	1.667	2.640	3.9	19.7
1 12	7 22.20	+24 14.4	1.059	2.042	1.5	19.9	1 12	7 21.96	+23 53.7	1.660	2.642	1.1	19.5
1 22	7 13.26	+24 29.8	1.078	2.045	7.0	20.2	1 22	7 11.20	+24 22.2	1.681	2.644	5.6	19.8
2 1	7 6.26	+24 37.3	1.121	2.051	12.3	20.5	2 1	7 1.88	+24 43.5	1.731	2.646	9.8	20.0
2 11	7 2.42	+24 36.9	1.184	2.058	16.9	20.8	2 11	6 55.00	+24 57.3	1.806	2.647	13.6	20.3
185263	2006 <i>UK</i> ₁₂₇		1 10.4 248°55	3°0/ 9.4	18		258540	2002 <i>CD</i> ₁₆		1 10.4 359°99	8°3/13.2	18	
12 3	7 55.09	+28 34.1	1.992	2.773	14.7	20.9	12 3	7 43.79	+ 4 17.3	1.334	2.115	20.6	19.2
12 13	7 50.47	+29 8.1	1.893	2.761	11.7	20.7	12 13	7 42.19	+ 3 34.1	1.259	2.111	17.4	18.9
12 23	7 42.94	+29 43.6	1.817	2.748	8.1	20.5	12 23	7 37.60	+ 3 12.9	1.202	2.109	13.7	18.7
1 2	7 33.07	+30 15.8	1.767	2.735	4.5	20.2	1 2	7 30.62	+ 3 18.3	1.165	2.108	10.2	18.5
1 12	7 21.89	+30 39.3	1.745	2.721	3.3	20.1	1 12	7 22.39	+ 3 51.5	1.152	2.109	8.3	18.4
1 22	7 10.71	+30 50.6	1.753	2.707	6.4	20.3	1 22	7 14.30	+ 4 49.3	1.162	2.111	9.5	18.5
2 1	7 0.88	+30 48.9	1.789	2.693	10.3	20.5	2 1	7 7.74	+ 6 5.4	1.196	2.115	12.9	18.7
2 11	6 53.49	+30 35.9	1.849	2.678	13.8	20.7	2 11	7 3.81	+ 7 31.4	1.252	2.120	16.6	18.9
201192	2002 <i>PR</i> ₈₉		1 10.4 134°59	3°7/11.8	18		47576	2000 <i>AW</i> ₁₇₂		1 10.4 35°65	6°4/11.9	18	
12 3	7 49.92	+ 9 42.4	2.679	3.415	12.5	20.6	12 3	7 54.61	+11 32.1	0.832	1.656	26.6	19.1
12 13	7 45.14	+ 9 16.9	2.594	3.426	10.1	20.5	12 13	7 51.32	+10 38.2	0.803	1.689	21.3	18.9
12 23	7 38.61	+ 9 0.4	2.532	3.437	7.5	20.3	12 23	7 43.80	+10 7.6	0.790	1.723	15.3	18.7
1 2	7 30.78	+ 8 53.4	2.498	3.448	5.0	20.2	1 2	7 33.33	+10 2.3	0.795	1.759	9.5	18.6
1 12	7 22.36	+ 8 55.9	2.493	3.458	3.7	20.1	1 12	7 21.96	+10 19.8	0.822	1.796	6.4	18.5
1 22	7 14.08	+ 9 6.6	2.518	3.468	5.0	20.2	1 22	7 11.78	+10 54.5	0.871	1.834	9.2	18.8
2 1	7 6.70	+ 9 24.1	2.573	3.477	7.5	20.4	2 1	7 4.46	+11 39.2	0.942	1.872	14.0	19.2
2 11	7 0.82	+ 9 46.2	2.655	3.486	10.0	20.6	2 11	7 0.88	+12 27.1	1.032	1.912	18.3	19.6
87428	2000 <i>QY</i> ₁₀₂		1 10.4 32°76	0°2/10.3	18		52693	1998 <i>FH</i> ₁₃		1 10.4 267°23	1°0/10.9	18	
12 3	7 50.01	+19 12.9											

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
263034	2007 <i>FK</i> ₄₅		1 10.4 86°84	2°8/ 9.6 18			410012	2006 <i>WX</i> ₇₇		1 10.4 146°98	5°3/ 8.2 18		
12 3	7 54.03	+28 35.7	1.952	2.737	14.8	21.3	12 3	7 57.35	+34 2.9	2.109	2.883	14.2	21.1
12 13	7 49.44	+29 0.4	1.870	2.740	11.7	21.1	12 13	7 52.12	+35 16.4	2.032	2.891	11.4	20.9
12 23	7 42.07	+29 25.5	1.811	2.743	8.1	20.8	12 23	7 43.98	+36 28.5	1.979	2.898	8.4	20.8
1 2	7 32.58	+29 46.4	1.778	2.746	4.4	20.6	1 2	7 33.53	+37 31.8	1.953	2.905	5.9	20.6
1 12	7 22.04	+29 58.6	1.773	2.750	3.0	20.5	1 12	7 21.89	+38 19.6	1.955	2.911	5.5	20.6
1 22	7 11.75	+29 59.8	1.797	2.753	6.1	20.7	1 22	7 10.40	+38 48.0	1.987	2.917	7.7	20.8
2 1	7 2.92	+29 49.9	1.849	2.756	9.8	21.0	2 1	7 0.40	+38 56.6	2.046	2.923	10.6	21.0
2 11	6 56.52	+29 30.7	1.926	2.759	13.2	21.2	2 11	6 52.92	+38 48.4	2.130	2.928	13.3	21.1
346199	2007 <i>XD</i> ₂₇		1 10.4 111°74	3°4/11.3 18			137967	2000 <i>CS</i> ₂₆		1 10.4 266°59	0°8/10.6 18		
12 3	7 50.95	+12 48.5	2.557	3.304	12.7	20.4	12 3	7 52.44	+19 26.7	1.805	2.587	16.0	19.5
12 13	7 46.05	+12 1.2	2.468	3.309	10.3	20.2	12 13	7 48.37	+19 26.2	1.711	2.580	12.7	19.3
12 23	7 39.28	+11 20.1	2.403	3.315	7.5	20.0	12 23	7 41.50	+19 32.5	1.640	2.572	8.7	19.0
1 2	7 31.13	+10 46.3	2.365	3.320	4.7	19.9	1 2	7 32.40	+19 43.9	1.593	2.565	4.2	18.7
1 12	7 22.33	+10 20.3	2.356	3.326	3.4	19.8	1 12	7 22.11	+19 57.8	1.575	2.558	1.0	18.5
1 22	7 13.70	+10 2.1	2.379	3.331	5.1	19.9	1 22	7 11.88	+20 11.5	1.585	2.550	5.5	18.8
2 1	7 6.04	+9 51.1	2.431	3.336	7.8	20.1	2 1	7 3.00	+20 23.4	1.623	2.543	10.0	19.0
2 11	6 59.98	+9 46.3	2.509	3.341	10.5	20.3	2 11	6 56.51	+20 32.5	1.686	2.535	13.9	19.3
89654	2001 <i>XL</i> ₂₅₀		1 10.4 26°61	0°0/10.4 18			399223	2014 <i>GK</i> ₄₂		1 10.4 48°86	4°7/ 9.3 18		
12 3	7 50.63	+19 32.6	1.783	2.570	15.9	19.5	12 3	7 57.00	+29 52.0	1.367	2.172	19.0	21.1
12 13	7 46.91	+19 58.9	1.701	2.573	12.6	19.3	12 13	7 53.07	+30 38.9	1.295	2.175	15.1	20.9
12 23	7 40.46	+20 34.1	1.640	2.575	8.5	19.0	12 23	7 45.25	+31 27.2	1.243	2.179	10.6	20.6
1 2	7 31.87	+21 14.9	1.605	2.578	4.0	18.8	1 2	7 34.29	+32 8.8	1.215	2.182	6.2	20.4
1 12	7 22.19	+21 57.3	1.598	2.581	0.7	18.5	1 12	7 21.76	+32 35.6	1.212	2.185	4.9	20.3
1 22	7 12.64	+22 37.1	1.619	2.584	5.4	18.9	1 22	7 9.56	+32 43.1	1.236	2.189	8.5	20.5
2 1	7 4.46	+23 11.3	1.668	2.587	9.8	19.1	2 1	6 59.57	+32 31.6	1.284	2.193	13.0	20.8
2 11	6 58.64	+23 38.7	1.741	2.591	13.6	19.4	2 11	6 53.08	+32 5.2	1.354	2.197	17.1	21.1
44714	1999 <i>TS</i> ₅		1 10.4 83°65	2°2/ 9.9 18			465466	2008 <i>SD</i> ₁₄₂		1 10.4 56°20	5°1/ 8.6 18		
12 3	8 0.32	+25 43.7	1.368	2.165	19.4	18.8	12 3	7 53.87	+33 38.5	1.981	2.766	14.6	21.1
12 13	7 55.09	+26 4.4	1.309	2.185	15.2	18.6	12 13	7 49.41	+34 38.4	1.914	2.779	11.7	20.9
12 23	7 46.18	+26 28.2	1.270	2.206	10.3	18.4	12 23	7 42.09	+35 36.1	1.869	2.793	8.5	20.8
1 2	7 34.53	+26 49.2	1.255	2.227	5.0	18.2	1 2	7 32.61	+36 24.7	1.850	2.806	5.8	20.6
1 12	7 21.72	+27 2.0	1.266	2.247	2.4	18.0	1 12	7 22.09	+36 58.4	1.860	2.820	5.3	20.6
1 22	7 9.57	+27 3.6	1.306	2.267	7.0	18.4	1 22	7 11.88	+37 14.2	1.897	2.834	7.4	20.8
2 1	6 59.72	+26 54.4	1.371	2.287	11.8	18.7	2 1	7 3.23	+37 12.2	1.962	2.848	10.4	21.0
2 11	6 53.22	+26 37.1	1.459	2.306	15.9	19.0	2 11	6 57.09	+36 55.4	2.050	2.862	13.3	21.2
57002	2000 <i>ST</i> ₃₄₃		1 10.4 285°01	1°2/10.0 18			70522	1999 <i>TE</i> ₁₁₀		1 10.4 193°01	2°9/ 9.5 18		
12 3	7 50.23	+25 15.9	2.432	3.208	12.5	20.0	12 3	7 58.45	+29 44.3	2.258	3.026	13.6	20.5
12 13	7 45.90	+25 26.2	2.338	3.204	9.8	19.8	12 13	7 52.61	+30 10.4	2.165	3.024	10.8	20.3
12 23	7 39.41	+25 38.2	2.267	3.200	6.6	19.6	12 23	7 44.10	+30 35.9	2.094	3.021	7.5	20.0
1 2	7 31.27	+25 49.2	2.224	3.196	3.2	19.4	1 2	7 33.54	+30 56.2	2.051	3.017	4.2	19.8
1 12	7 22.31	+25 56.6	2.210	3.191	1.4	19.2	1 12	7 21.91	+31 7.0	2.039	3.013	3.1	19.8
1 22	7 13.45	+25 58.8	2.226	3.187	4.6	19.5	1 22	7 10.43	+31 6.1	2.057	3.008	5.8	19.9
2 1	7 5.64	+25 55.0	2.272	3.183	8.0	19.7	2 1	7 0.28	+30 53.3	2.104	3.002	9.3	20.1
2 11	6 59.65	+25 45.7	2.343	3.179	11.0	19.8	2 11	6 52.40	+30 30.9	2.177	2.995	12.4	20.3
327022	2004 <i>RR</i> ₂₁₂		1 10.4 182°66	2°2/11.0 18			500302	2012 <i>QQ</i> ₃₁		1 10.4 151°88	1°4/ 9.9 18		
12 3	7 53.16	+16 11.1	2.447	3.200	13.0	21.0	12 3	7 52.24	+26 28.5	2.615	3.384	11.9	21.3
12 13	7 47.96	+15 43.6	2.351	3.201	10.4	20.8	12 13	7 47.22	+26 34.9	2.526	3.388	9.3	21.1
12 23	7 40.67	+15 21.4	2.280	3.201	7.3	20.6	12 23	7 40.16	+26 41.5	2.462	3.393	6.3	20.9
1 2	7 31.83	+15 4.3	2.236	3.201	4.0	20.4	1 2	7 31.58	+26 46.0	2.426	3.397	3.1	20.7
1 12	7 22.21	+14 51.9	2.222	3.200	2.2	20.3	1 12	7 22.30	+26 46.0	2.420	3.400	1.5	20.6
1 22	7 12.73	+14 43.5	2.239	3.198	4.7	20.5	1 22	7 13.20	+26 40.1	2.445	3.404	4.4	20.8
2 1	7 4.27	+14 38.5	2.286	3.197	8.0	20.7	2 1	7 5.15	+26 28.3	2.500	3.407	7.5	21.0
2 11	6 57.57	+14 36.1	2.360	3.194	11.0	20.9	2 11	6 58.86	+26 11.5	2.581	3.410	10.3	21.2
334558	2002 <i>TV</i> ₅		1 10.4 129°64	4°1/ 8.8 18			349098	2007 <i>EN</i> ₁₇₅		1 10.4 81°48	4°9/ 9.4 17		
12 3	7 53.32	+33 11.6	2.402	3.176	12.7	20.7	12 3	8 1.21	+31 38.0	1.447	2.241	18.7	20.9
12 13	7 48.49	+33 58.3	2.322	3.182	10.1	20.5	12 13	7 55.87	+32 21.7	1.389	2.262	14.8	20.7
12 23	7 41.25	+34 43.0	2.264	3.187	7.3	20.3	12 23	7 46.77	+33 3.3	1.351	2.282	10.4	20.5
1 2	7 32.15	+35 20.6	2.235	3.192	4.8	20.2	1 2	7 34.84	+33 34.7	1.338	2.302	6.3	20.3
1 12	7 22.15	+35 46.5	2.234	3.197	4.3	20.2	1 12	7 21.72	+33 49.0	1.351	2.322	5.1	20.3
1 22	7 12.32	+35 58.3	2.263	3.202	6.3	20.3	1 22	7 9.28	+33 43.5	1.392	2.342	8.2	20.5
2 1	7 3.72	+35 55.7	2.320	3.206	9.1	20.5	2 1	6 59.19	+33 20.1	1.458	2.361	12.2	20.8
2 11	6 57.21	+35 40.9	2.403	3.211	11.7	20.6	2 11	6 52.53	+32 43.9	1.547	2.380	15.9	21.1
117454	2005 <i>AG</i> ₅₉		1 10.4 281°59	0°2/10.5 18			92521	2000 <i>NM</i> ₂₈		1 10.4 179°77	1°6/10.9 18		
12 3	7 49.89	+19 52.2	2.156	2.933	13.9	20.5	12 3	7 56.02	+17 14.6	2.052	2.813	15.0	20.7
12 13	7 45.87	+20 8.2	2.064	2.930	10.9	20.3	12 13	7 50.67	+17 6.6	1.960	2.815	11.9	20.5
12 23	7 39.53	+20 30.6	1.996	2.928	7.4	20.1	12 23	7 42.78	+17 5.7	1.891	2.816	8.3	20.3
1 2	7 31.38	+20 57.3	1.953	2.926	3.5	19.8	1 2	7 32.92	+17 10.6	1.848	2.817	4.3	20.1
1 12	7 22.30	+21 25.3	1.940	2.923	0.7	19.6	1 12	7 22.06	+17 19.5	1.836	2.817	1.7	19.9
1 22	7 13.30	+21 51.8	1.957	2.921	4.7	19.9	1 22	7 11.33	+17 30.4	1.853	2.816	5.2	20.1
2 1	7 5.40	+22 14.7	2.002	2.919	8.6	20.1	2 1	7 1.87	+17 41.9	1.900	2.814	9.1	20.4
2 11	6 59.46	+22 33.2	2.073	2.916	11.9	20.3	2 11	6 54.58	+17 52.8	1.972	2.811	12.7	20.6
489586	2007 <i>TP</i> ₁₂₂		1 10.4 59°56	0°2/10.5 18			82658	2001 <i>PA</i> ₁₆		1 10.4 208°86	4°1/ 9.1 18		
12 3	7 50.14	+19 56.6											

EPHEMERIDES

1 10.4

1 10.5

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
468505	2005 <i>LC</i> ₅₂		1 10.4 214°88	0°2/10.5 17			210807	2001 <i>HQ</i> ₄₀		1 10.4 163°25	3°9/12.3 18		
12 3	7 50.61	+21 34.2	3.091	3.848	10.5	21.7	12 3	7 52.08	+7 28.9	2.576	3.300	13.2	21.3
12 13	7 45.65	+21 26.7	2.985	3.841	8.3	21.6	12 13	7 47.00	+7 28.0	2.484	3.308	10.8	21.2
12 23	7 38.98	+21 21.3	2.905	3.833	5.6	21.4	12 23	7 40.01	+7 39.1	2.415	3.315	8.1	21.0
1 2	7 31.03	+21 16.8	2.853	3.824	2.7	21.2	1 2	7 31.57	+8 2.4	2.374	3.321	5.4	20.8
1 12	7 22.44	+21 12.0	2.832	3.815	0.5	21.0	1 12	7 22.40	+8 36.8	2.362	3.326	3.9	20.7
1 22	7 13.91	+21 5.9	2.844	3.806	3.6	21.2	1 22	7 13.33	+9 20.0	2.381	3.331	5.2	20.8
2 1	7 6.16	+20 58.2	2.886	3.796	6.5	21.4	2 1	7 5.15	+10 9.2	2.430	3.334	7.9	21.0
2 11	6 59.81	+20 48.8	2.956	3.786	9.1	21.6	2 11	6 58.58	+11 1.2	2.506	3.337	10.6	21.2
248293	2005 <i>LN</i> ₁		1 10.4 51°68	1°7/11.2 18			85026	2653 <i>P-L</i>		1 10.5 125°26	1°7/ 9.8 18		
12 3	7 48.10	+14 28.6	2.282	3.046	13.6	20.5	12 3	7 51.09	+26 48.6	2.680	3.451	11.6	20.3
12 13	7 44.26	+14 50.4	2.194	3.050	10.8	20.3	12 13	7 46.32	+27 9.6	2.597	3.460	9.1	20.2
12 23	7 38.33	+15 22.4	2.129	3.055	7.5	20.1	12 23	7 39.56	+27 31.5	2.538	3.468	6.2	20.0
1 2	7 30.81	+16 3.0	2.092	3.059	4.0	19.9	1 2	7 31.35	+27 51.1	2.507	3.477	3.1	19.8
1 12	7 22.47	+16 49.6	2.083	3.063	1.7	19.7	1 12	7 22.45	+28 5.9	2.506	3.485	1.8	19.7
1 22	7 14.23	+17 38.8	2.104	3.068	4.5	19.9	1 22	7 13.72	+28 14.0	2.537	3.493	4.4	19.9
2 1	7 6.98	+18 27.5	2.155	3.072	8.0	20.2	2 1	7 6.00	+28 14.9	2.596	3.501	7.4	20.1
2 11	7 1.47	+19 13.3	2.232	3.077	11.1	20.4	2 11	6 59.97	+28 9.2	2.682	3.509	10.1	20.3
473487	2015 <i>XW</i> ₈₆		1 10.4 47°05	6°5/ 7.6 17			110679	2001 <i>TN</i> ₁₉₈		1 10.5 173°98	5°7/12.8 18		
12 3	7 55.23	+32 31.3	1.640	2.435	16.8	20.5	12 3	7 50.05	+4 55.7	2.022	2.758	15.9	20.2
12 13	7 51.36	+34 15.7	1.569	2.440	13.4	20.3	12 13	7 46.02	+4 43.6	1.933	2.759	13.3	20.0
12 23	7 43.99	+36 1.9	1.520	2.446	9.9	20.1	12 23	7 39.66	+4 48.0	1.864	2.760	10.2	19.8
1 2	7 33.74	+37 39.9	1.497	2.452	7.0	19.9	1 2	7 31.51	+5 10.4	1.820	2.761	7.3	19.6
1 12	7 21.91	+38 59.3	1.501	2.457	6.8	19.9	1 12	7 22.41	+5 50.2	1.803	2.761	5.7	19.5
1 22	7 10.17	+39 53.7	1.533	2.464	9.4	20.1	1 22	7 13.38	+6 44.6	1.815	2.762	6.9	19.6
2 1	7 0.25	+40 21.6	1.589	2.470	12.8	20.3	2 1	7 5.44	+7 49.6	1.855	2.762	9.8	19.8
2 11	6 53.42	+40 26.6	1.668	2.476	16.0	20.5	2 11	6 59.45	+8 59.9	1.920	2.761	12.8	20.0
403014	2007 <i>VH</i> ₃₃₃		1 10.4 37°73	1°6/ 9.9 17			110597	2001 <i>TD</i> ₁₃₂		1 10.5 5°50	0°3/10.5 18		
12 3	7 51.98	+21 1.4	1.260	2.072	19.9	20.4	12 3	7 51.62	+20 21.1	1.721	2.510	16.4	20.4
12 13	7 48.84	+22 2.8	1.206	2.092	15.5	20.2	12 13	7 47.81	+20 26.6	1.638	2.510	12.9	20.1
12 23	7 42.15	+23 15.3	1.172	2.113	10.4	19.9	12 23	7 41.16	+20 38.8	1.575	2.510	8.8	19.9
1 2	7 32.75	+24 32.0	1.161	2.135	4.9	19.7	1 2	7 32.28	+20 55.5	1.538	2.511	4.2	19.6
1 12	7 22.13	+25 44.5	1.176	2.158	2.0	19.6	1 12	7 22.28	+21 13.5	1.528	2.511	0.8	19.4
1 22	7 12.00	+26 45.5	1.218	2.182	7.0	19.9	1 22	7 12.44	+21 29.9	1.547	2.512	5.6	19.7
2 1	7 3.96	+27 31.6	1.285	2.206	11.9	20.3	2 1	7 4.06	+21 42.9	1.593	2.514	10.1	20.0
2 11	6 59.09	+28 2.7	1.373	2.231	16.0	20.6	2 11	6 58.14	+21 51.7	1.663	2.515	14.0	20.2
240488	2004 <i>CW</i> ₄₀		1 10.4 271°78	0°8/10.9 17			305903	2009 <i>FQ</i> ₃₈		1 10.5 355°92	0°4/10.6 18		
12 3	7 48.70	+15 57.3	2.435	3.198	12.8	20.3	12 3	7 49.95	+20 21.8	1.294	2.107	19.5	20.4
12 13	7 44.77	+16 38.2	2.330	3.187	10.2	20.1	12 13	7 47.43	+20 23.3	1.218	2.103	15.4	20.1
12 23	7 38.76	+17 29.4	2.248	3.175	7.0	19.9	12 23	7 41.41	+20 33.5	1.160	2.100	10.6	19.8
1 2	7 31.07	+18 28.9	2.194	3.164	3.5	19.6	1 2	7 32.55	+20 50.0	1.124	2.098	5.1	19.5
1 12	7 22.43	+19 33.0	2.170	3.152	0.9	19.4	1 12	7 22.22	+21 8.9	1.114	2.097	1.0	19.2
1 22	7 13.72	+20 38.0	2.177	3.141	4.4	19.7	1 22	7 12.09	+21 26.4	1.130	2.097	6.7	19.6
2 1	7 5.85	+21 40.1	2.214	3.129	7.9	19.9	2 1	7 3.83	+21 40.0	1.170	2.098	12.1	19.9
2 11	6 59.64	+22 36.9	2.278	3.117	11.2	20.0	2 11	6 58.68	+21 48.9	1.232	2.100	16.8	20.2
149251	2002 <i>SL</i> ₅₀		1 10.4 19°27	3°5/ 9.6 18			98727	2000 <i>YN</i> ₁₆		1 10.5 318°67	1°8/10.0 18		
12 3	7 53.84	+26 31.5	1.198	2.016	20.4	19.2	12 3	7 52.48	+24 58.2	1.465	2.270	18.0	19.1
12 13	7 50.93	+27 13.8	1.130	2.019	16.1	19.0	12 13	7 49.29	+25 14.9	1.377	2.259	14.3	18.9
12 23	7 43.99	+28 1.5	1.081	2.023	11.1	18.7	12 23	7 42.64	+25 36.2	1.309	2.248	9.8	18.6
1 2	7 33.79	+28 47.2	1.055	2.027	5.8	18.4	1 2	7 33.16	+25 57.5	1.264	2.237	4.8	18.3
1 12	7 21.94	+29 22.6	1.053	2.031	3.8	18.3	1 12	7 22.10	+26 13.9	1.246	2.227	2.1	18.1
1 22	7 10.44	+29 42.1	1.076	2.037	8.3	18.6	1 22	7 11.11	+26 21.3	1.254	2.218	6.9	18.3
2 1	7 1.23	+29 44.9	1.123	2.042	13.4	18.9	2 1	7 1.85	+26 18.6	1.288	2.209	12.0	18.6
2 11	6 55.66	+29 33.6	1.191	2.049	17.9	19.2	2 11	6 55.64	+26 7.2	1.345	2.200	16.4	18.8
327368	2005 <i>UN</i> ₂₈₃		1 10.4 52°92	1°1/10.8 18			384151	2009 <i>AO</i> ₁₃		1 10.5 187°92	1°0/10.9 18		
12 3	7 51.16	+17 54.1	1.754	2.538	16.3	21.0	12 3	7 48.64	+16 23.6	2.554	3.316	12.4	21.1
12 13	7 47.24	+18 4.3	1.679	2.548	12.9	20.8	12 13	7 44.50	+16 46.5	2.459	3.315	9.8	20.9
12 23	7 40.63	+18 23.5	1.625	2.557	8.8	20.6	12 23	7 38.43	+17 17.4	2.388	3.315	6.7	20.7
1 2	7 31.96	+18 49.6	1.595	2.567	4.3	20.3	1 2	7 30.88	+17 54.7	2.345	3.314	3.4	20.5
1 12	7 22.30	+19 19.5	1.594	2.577	1.2	20.1	1 12	7 22.55	+18 35.8	2.331	3.313	1.1	20.3
1 22	7 12.88	+19 49.6	1.622	2.587	5.4	20.5	1 22	7 14.26	+19 17.8	2.349	3.312	4.1	20.5
2 1	7 4.89	+20 17.5	1.677	2.597	9.6	20.7	2 1	7 6.84	+19 58.4	2.396	3.311	7.4	20.7
2 11	6 59.25	+20 41.5	1.756	2.608	13.4	21.0	2 11	7 1.02	+20 35.7	2.470	3.310	10.4	20.9
189180	2003 <i>AH</i> ₈		1 10.4 29°82	0°3/10.4 17			477927	2011 <i>QG</i> ₄₆		1 10.5 294°94	21°4/ 4.8 17		
12 3	7 54.72	+23 49.1	1.098	1.920	21.6	19.8	12 3	8 17.66	+57 25.6	1.047	1.816	25.8	20.1
12 13	7 51.47	+23 29.6	1.040	1.930	17.1	19.5	12 13	8 15.64	+59 56.7	0.993	1.806	23.9	19.9
12 23	7 44.17	+23 13.8	0.999	1.941	11.6	19.2	12 23	8 4.66	+62 6.7	0.953	1.797	22.3	19.7
1 2	7 33.76	+22 58.7	0.979	1.954	5.4	19.0	1 2	7 44.84	+63 30.4	0.929	1.787	21.4	19.6
1 12	7 22.00	+22 41.2	0.984	1.967	1.1	18.7	1 12	7 19.90	+63 44.0	0.921	1.778	21.7	19.6
1 22	7 10.92	+22 19.9	1.014	1.982	7.3	19.1	1 22	6 56.25	+62 39.7	0.929	1.769	23.1	19.7
2 1	7 2.33	+21 55.7	1.068	1.997	12.9	19.5	2 1	6 39.55	+60 28.8	0.953	1.761	25.1	19.8
2 11	6 57.36	+21 30.1	1.142	2.013	17.6	19.8	2 11	6 31.94	+57 34.6	0.991	1.753	27.5	19.9
327976	2007 <i>FP</i> ₃₃		1 10.4 204°13	1°9/11.1 18			456232	2006 <i>KB</i> ₉₃		1 10.5 18°51	3°0/11.2 18		
12 3	7 50.76	+15 43.1	2.150										

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
485381	2011 <i>GK</i> ₂₄		1 10.5 262°64	0°7/10.3	18		351219	2004 <i>OR</i> ₉		1 10.5 202°06	0°6/10.8	18	
12 3	7 56.58	+23 24.3	1.406	2.205	18.9	21.1	12 3	7 55.76	+14 27.4	1.779	2.544	16.8	20.9
12 13	7 52.57	+23 25.5	1.320	2.198	15.0	20.8	12 13	7 51.19	+15 40.3	1.683	2.542	13.4	20.6
12 23	7 44.91	+23 31.6	1.253	2.190	10.3	20.6	12 23	7 43.65	+17 11.3	1.610	2.538	9.2	20.4
1 2	7 34.24	+23 38.8	1.210	2.183	4.9	20.2	1 2	7 33.62	+18 56.3	1.564	2.534	4.5	20.1
1 12	7 21.94	+23 42.8	1.193	2.176	1.2	19.9	1 12	7 22.11	+20 48.1	1.547	2.530	0.9	19.8
1 22	7 9.76	+23 40.6	1.203	2.168	6.9	20.3	1 22	7 10.46	+22 38.3	1.561	2.525	5.8	20.1
2 1	6 59.49	+23 31.6	1.240	2.161	12.2	20.6	2 1	7 0.07	+24 19.6	1.605	2.520	10.5	20.4
2 11	6 52.45	+23 17.1	1.298	2.153	16.9	20.8	2 11	6 52.16	+25 47.7	1.675	2.514	14.5	20.6
314740	2006 <i>SC</i> ₁₂₇		1 10.5 44°82	5°9/11.4	16		244551	2002 <i>VJ</i> ₄₅		1 10.5 16°15	3°7/ 8.9	18	
12 3	7 58.92	+12 45.8	1.305	2.085	21.0	19.9	12 3	7 49.36	+27 15.7	1.745	2.546	15.7	19.5
12 13	7 53.38	+11 18.9	1.262	2.121	16.9	19.7	12 13	7 46.25	+28 28.6	1.673	2.551	12.3	19.3
12 23	7 44.63	+10 5.1	1.238	2.157	12.3	19.6	12 23	7 40.24	+29 46.1	1.622	2.558	8.5	19.1
1 2	7 33.71	+9 7.8	1.238	2.194	7.9	19.4	1 2	7 31.93	+31 1.5	1.597	2.565	4.9	18.9
1 12	7 22.12	+8 28.6	1.263	2.232	5.9	19.4	1 12	7 22.44	+32 7.5	1.600	2.573	4.0	18.8
1 22	7 11.41	+8 7.5	1.316	2.269	8.1	19.6	1 22	7 13.10	+32 58.7	1.631	2.582	7.0	19.0
2 1	7 2.88	+8 1.9	1.394	2.307	11.9	20.0	2 1	7 5.24	+33 32.8	1.688	2.591	10.8	19.3
2 11	6 57.33	+8 8.1	1.495	2.344	15.4	20.3	2 11	6 59.91	+33 50.8	1.768	2.602	14.1	19.5
19016	2000 <i>RY</i> ₇₈		1 10.5 98°98	5°6/12.3	18		256977	2008 <i>ES</i> ₁₁₉		1 10.5 57°17	2°4/ 9.8	18	
12 3	7 50.50	+6 47.7	2.027	2.770	15.7	18.4	12 3	7 53.82	+26 15.6	1.734	2.525	16.1	20.6
12 13	7 46.26	+6 9.7	1.946	2.778	13.0	18.2	12 13	7 49.63	+26 46.1	1.656	2.530	12.7	20.4
12 23	7 39.76	+5 45.0	1.886	2.785	10.0	18.0	12 23	7 42.45	+27 19.7	1.600	2.536	8.7	20.1
1 2	7 31.54	+5 35.7	1.850	2.793	7.1	17.9	1 2	7 32.95	+27 51.3	1.570	2.541	4.4	19.9
1 12	7 22.48	+5 42.0	1.842	2.800	5.6	17.8	1 12	7 22.30	+28 16.1	1.567	2.547	2.6	19.8
1 22	7 13.60	+6 2.7	1.863	2.807	6.9	17.9	1 22	7 11.89	+28 30.5	1.593	2.552	6.3	20.0
2 1	7 5.86	+6 35.0	1.911	2.815	9.7	18.1	2 1	7 3.07	+28 33.8	1.646	2.558	10.4	20.3
2 11	7 0.08	+7 15.0	1.984	2.822	12.6	18.3	2 11	6 56.89	+28 27.2	1.722	2.564	14.1	20.5
110702	2001 <i>TR</i> ₂₁₆		1 10.5 23°71	4°0/ 8.7	18		295202	2008 <i>FR</i> ₁₁₆		1 10.5 290°31	0°1/10.5	18	
12 3	7 49.91	+23 12.4	1.270	2.088	19.5	18.1	12 3	7 51.62	+20 39.7	1.795	2.582	15.9	21.1
12 13	7 47.55	+25 5.9	1.211	2.101	15.2	17.9	12 13	7 47.94	+20 48.1	1.695	2.567	12.6	20.8
12 23	7 41.58	+27 11.9	1.173	2.115	10.3	17.6	12 23	7 41.40	+21 3.4	1.617	2.552	8.7	20.6
1 2	7 32.67	+29 19.8	1.159	2.131	5.5	17.4	1 2	7 32.54	+21 23.1	1.564	2.537	4.1	20.3
1 12	7 22.27	+31 17.0	1.172	2.148	4.4	17.4	1 12	7 22.35	+21 44.0	1.539	2.522	0.7	20.0
1 22	7 12.12	+32 53.4	1.211	2.166	8.4	17.7	1 22	7 12.12	+22 2.9	1.543	2.508	5.6	20.3
2 1	7 3.99	+34 4.1	1.275	2.185	13.0	18.0	2 1	7 3.19	+22 17.8	1.573	2.493	10.2	20.5
2 11	6 59.12	+34 50.1	1.360	2.205	16.9	18.3	2 11	6 56.66	+22 27.9	1.628	2.479	14.3	20.7
283908	2004 <i>FY</i> ₈		1 10.5 339°14	4°3/12.2	18		455270	2001 <i>WK</i> ₉₆		1 10.5 108°00	4°2/ 8.8	18	
12 3	7 45.82	+8 55.1	1.911	2.676	15.8	20.0	12 3	7 55.06	+30 32.2	1.954	2.737	14.9	21.7
12 13	7 43.00	+8 54.8	1.816	2.666	13.0	19.8	12 13	7 50.43	+31 33.2	1.878	2.745	11.8	21.5
12 23	7 37.81	+9 9.8	1.741	2.656	9.6	19.6	12 23	7 42.92	+32 34.9	1.825	2.753	8.3	21.3
1 2	7 30.74	+9 40.8	1.691	2.647	6.2	19.3	1 2	7 33.16	+33 30.9	1.798	2.761	5.2	21.1
1 12	7 22.63	+10 26.4	1.668	2.639	4.3	19.2	1 12	7 22.26	+34 14.7	1.801	2.769	4.4	21.1
1 22	7 14.51	+11 23.4	1.673	2.632	6.1	19.3	1 22	7 11.54	+34 42.5	1.831	2.776	7.0	21.3
2 1	7 7.46	+12 27.4	1.706	2.625	9.6	19.5	2 1	7 2.33	+34 53.5	1.890	2.783	10.4	21.5
2 11	7 2.39	+13 33.8	1.763	2.619	13.1	19.7	2 11	6 55.63	+34 49.8	1.972	2.791	13.5	21.7
238870	2005 <i>XA</i> ₃₇		1 10.5 326°49	1°5/10.1	18		296509	2009 <i>KN</i> ₉		1 10.5 156°02	1°2/10.9	18	
12 3	7 50.55	+23 55.6	1.233	2.053	19.8	20.2	12 3	7 53.32	+17 13.7	2.160	2.924	14.2	21.9
12 13	7 48.44	+24 9.2	1.147	2.037	15.8	19.9	12 13	7 48.47	+17 21.9	2.073	2.930	11.3	21.7
12 23	7 42.49	+24 29.4	1.079	2.022	10.9	19.6	12 23	7 41.27	+17 37.8	2.009	2.936	7.8	21.5
1 2	7 33.26	+24 51.9	1.034	2.008	5.3	19.2	1 2	7 32.29	+17 59.8	1.972	2.941	3.9	21.3
1 12	7 22.15	+25 10.9	1.013	1.995	1.9	19.0	1 12	7 22.43	+18 25.3	1.965	2.946	1.3	21.1
1 22	7 11.02	+25 21.8	1.016	1.983	7.6	19.3	1 22	7 12.70	+18 51.7	1.987	2.951	4.7	21.3
2 1	7 1.84	+25 22.6	1.044	1.971	13.3	19.5	2 1	7 4.14	+19 16.9	2.039	2.955	8.5	21.6
2 11	6 56.12	+25 14.5	1.092	1.961	18.4	19.8	2 11	6 57.57	+19 39.6	2.117	2.958	11.8	21.8
19076	5002 <i>T</i> ₋₃		1 10.5 256°43	1°1/10.0	18	R	287622	2003 <i>HO</i> ₁₆		1 10.5 250°70	3°8/11.3	18	
12 3	7 51.44	+22 22.0	2.010	2.792	14.6	19.0	12 3	7 53.60	+13 40.3	1.641	2.415	17.6	20.9
12 13	7 47.42	+22 58.8	1.919	2.788	11.5	18.7	12 13	7 49.53	+13 9.2	1.549	2.408	14.3	20.7
12 23	7 40.81	+23 42.2	1.850	2.784	7.8	18.5	12 23	7 42.49	+12 48.4	1.478	2.401	10.3	20.4
1 2	7 32.15	+24 28.4	1.808	2.780	3.7	18.3	1 2	7 33.05	+12 38.8	1.430	2.393	6.1	20.1
1 12	7 22.39	+25 12.8	1.794	2.776	1.4	18.1	1 12	7 22.30	+12 40.1	1.410	2.385	3.8	20.0
1 22	7 12.65	+25 51.5	1.810	2.772	5.3	18.3	1 22	7 11.60	+12 50.6	1.417	2.378	6.7	20.1
2 1	7 4.13	+26 22.1	1.855	2.768	9.4	18.6	2 1	7 2.32	+13 8.2	1.451	2.369	11.1	20.4
2 11	6 57.78	+26 43.8	1.924	2.764	12.9	18.8	2 11	6 55.60	+13 30.2	1.509	2.361	15.1	20.6
315651	2008 <i>DH</i> ₄₆		1 10.5 10°88	2°1/ 9.8	18		8255	Masiero		1 10.5 126°40	0°1/10.5	18	
12 3	7 51.91	+24 24.2	1.560	2.360	17.2	21.0	12 3	7 52.82	+21 0.3	1.976	2.754	14.9	18.5
12 13	7 48.50	+25 3.3	1.482	2.361	13.6	20.8	12 13	7 48.36	+21 6.9	1.892	2.758	11.7	18.3
12 23	7 41.90	+25 48.6	1.425	2.363	9.2	20.6	12 23	7 41.35	+21 18.9	1.829	2.762	8.0	18.1
1 2	7 32.75	+26 34.8	1.392	2.364	4.6	20.3	1 2	7 32.38	+21 33.9	1.793	2.766	3.8	17.8
1 12	7 22.28	+27 16.0	1.386	2.367	2.4	20.1	1 12	7 22.45	+21 48.9	1.786	2.769	0.7	17.6
1 22	7 11.99	+27 47.2	1.408	2.369	6.6	20.4	1 22	7 12.69	+22 1.7	1.808	2.773	5.0	17.9
2 1	7 3.36	+28 6.5	1.456	2.372	11.2	20.7	2 1	7 4.24	+22 10.8	1.859	2.776	9.1	18.2
2 11	6 57.53	+28 14.3	1.527	2.376	15.2	20.9	2 11	6 57.98	+22 15.9	1.935	2.779	12.6	18.4
409489	2005 <i>SS</i> ₁₁₂		1 10.5 75°49	1°6/10.1	18		14721	2000 <i>CW</i> ₉₁		1 10.5 84°57	6°2/13.2	18	
12 3	7 57.70	+26 17.1	1.843	2.623	15								

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
522501	2016 <i>EV</i> ₂₃₂		1 10.5 134°91	1.1/10.0	18		255833	2006 <i>SK</i> ₉₅		1 10.5 85°89	1.7/ 9.9	17	
12 3	7 51.38	+24 47.5	2.626	3.395	11.9	22.2	12 3	7 57.32	+24 48.8	1.838	2.617	15.8	22.2
12 13	7 46.60	+25 6.4	2.542	3.404	9.3	22.0	12 13	7 51.89	+25 17.9	1.776	2.643	12.3	22.0
12 23	7 39.82	+25 27.3	2.481	3.412	6.3	21.8	12 23	7 43.68	+25 50.2	1.736	2.669	8.3	21.8
1 2	7 31.57	+25 47.6	2.449	3.420	3.0	21.6	1 2	7 33.43	+26 21.1	1.723	2.694	4.0	21.6
1 12	7 22.61	+26 4.5	2.447	3.428	1.3	21.5	1 12	7 22.34	+26 46.0	1.739	2.719	1.9	21.5
1 22	7 13.81	+26 16.1	2.475	3.435	4.3	21.7	1 22	7 11.69	+27 2.3	1.784	2.744	5.6	21.8
2 1	7 6.01	+26 21.6	2.534	3.442	7.4	21.9	2 1	7 2.70	+27 9.1	1.857	2.768	9.5	22.1
2 11	6 59.91	+26 21.4	2.619	3.449	10.2	22.1	2 11	6 56.22	+27 7.8	1.955	2.791	12.9	22.3
259151	2002 <i>XZ</i> ₁₀₂		1 10.5 66°46	3°6/ 9.0	18		297891	2002 <i>CD</i> ₁₇₉		1 10.5 238°85	0°9/10.2	18	
12 3	7 54.21	+26 39.2	1.685	2.478	16.5	20.5	12 3	7 55.17	+22 41.3	1.841	2.622	15.7	21.4
12 13	7 50.12	+27 53.3	1.615	2.490	12.9	20.3	12 13	7 50.72	+23 4.5	1.742	2.611	12.5	21.1
12 23	7 42.90	+29 12.6	1.567	2.501	8.9	20.1	12 23	7 43.31	+23 33.8	1.666	2.599	8.5	20.9
1 2	7 33.23	+30 29.8	1.544	2.512	5.0	19.9	1 2	7 33.49	+24 5.6	1.615	2.587	4.1	20.6
1 12	7 22.30	+31 37.0	1.550	2.524	3.9	19.8	1 12	7 22.29	+24 35.4	1.592	2.575	1.3	20.3
1 22	7 11.57	+32 28.5	1.584	2.536	7.1	20.0	1 22	7 11.05	+24 59.3	1.599	2.562	5.8	20.6
2 1	7 2.50	+33 2.3	1.645	2.547	11.1	20.3	2 1	7 1.16	+25 15.4	1.634	2.548	10.3	20.9
2 11	6 56.16	+33 19.7	1.729	2.559	14.6	20.5	2 11	6 53.76	+25 23.7	1.693	2.534	14.3	21.1
464747	2003 <i>SL</i> ₂₃		1 10.5 99°72	0°6/10.7	18		473544	2015 <i>XB</i> ₁₉₂		1 10.5 112°86	0°1/10.5	17	
12 3	7 53.46	+19 53.4	2.375	3.138	13.1	21.5	12 3	7 56.97	+19 57.6	1.804	2.578	16.3	21.9
12 13	7 48.18	+19 50.2	2.302	3.160	10.3	21.4	12 13	7 51.70	+20 17.4	1.733	2.597	12.8	21.7
12 23	7 40.84	+19 51.4	2.253	3.181	7.0	21.2	12 23	7 43.63	+20 44.4	1.683	2.615	8.6	21.5
1 2	7 32.01	+19 55.3	2.231	3.202	3.3	21.0	1 2	7 33.46	+21 15.5	1.660	2.632	4.1	21.3
1 12	7 22.55	+20 0.3	2.240	3.222	0.8	20.8	1 12	7 22.33	+21 46.6	1.666	2.649	0.7	21.0
1 22	7 13.38	+20 4.7	2.279	3.242	4.2	21.1	1 22	7 11.53	+22 14.3	1.702	2.666	5.3	21.4
2 1	7 5.38	+20 7.8	2.348	3.262	7.6	21.4	2 1	7 2.30	+22 36.6	1.766	2.681	9.6	21.7
2 11	6 59.21	+20 9.2	2.444	3.281	10.6	21.6	2 11	6 55.55	+22 53.2	1.855	2.697	13.2	22.0
381662	2009 <i>BJ</i> ₉		1 10.5 3°05	3°5/12.3	18		289343	2005 <i>BE</i> ₅		1 10.5 61°42	2°3/ 9.9	17	
12 3	7 47.54	+ 8 35.0	2.149	2.900	14.7	20.2	12 3	7 56.72	+24 57.4	1.404	2.204	18.8	20.6
12 13	7 44.02	+ 8 58.0	2.058	2.900	12.0	20.0	12 13	7 52.30	+25 35.3	1.347	2.226	14.7	20.4
12 23	7 38.34	+ 9 36.4	1.988	2.900	8.8	19.8	12 23	7 44.41	+26 18.0	1.310	2.247	10.0	20.2
1 2	7 30.97	+10 29.7	1.944	2.901	5.5	19.6	1 2	7 33.90	+26 59.3	1.297	2.269	4.9	20.0
1 12	7 22.72	+11 35.3	1.929	2.901	3.5	19.5	1 12	7 22.27	+27 32.9	1.311	2.291	2.6	19.9
1 22	7 14.50	+12 49.3	1.943	2.902	5.3	19.6	1 22	7 11.19	+27 54.6	1.352	2.314	6.9	20.2
2 1	7 7.26	+14 7.0	1.986	2.903	8.6	19.8	2 1	7 2.21	+28 3.5	1.420	2.336	11.4	20.5
2 11	7 1.82	+15 23.8	2.056	2.905	11.8	20.0	2 11	6 56.35	+28 1.7	1.510	2.358	15.4	20.8
297429	2000 <i>SH</i> ₉₄		1 10.5 108°92	1°3/10.8	18		233796	2008 <i>UU</i> ₆₁		1 10.5 331°85	1°8/ 9.9	18	
12 3	7 57.45	+18 19.0	1.792	2.563	16.5	21.6	12 3	7 51.53	+26 3.6	2.114	2.896	13.9	20.9
12 13	7 51.96	+18 13.4	1.722	2.583	13.0	21.4	12 13	7 47.37	+26 23.6	2.025	2.894	10.9	20.7
12 23	7 43.73	+18 15.1	1.673	2.602	8.9	21.2	12 23	7 40.71	+26 45.6	1.959	2.892	7.5	20.5
1 2	7 33.46	+18 22.2	1.651	2.621	4.4	21.0	1 2	7 32.13	+27 6.2	1.919	2.890	3.7	20.3
1 12	7 22.30	+18 32.4	1.657	2.639	1.4	20.8	1 12	7 22.57	+27 21.8	1.908	2.888	2.0	20.1
1 22	7 11.53	+18 43.3	1.693	2.657	5.4	21.1	1 22	7 13.14	+27 29.8	1.927	2.887	5.3	20.4
2 1	7 2.34	+18 53.5	1.757	2.674	9.6	21.4	2 1	7 4.94	+27 29.6	1.974	2.885	9.0	20.6
2 11	6 55.63	+19 2.1	1.846	2.690	13.2	21.6	2 11	6 58.87	+27 21.8	2.046	2.883	12.3	20.8
462928	2011 <i>BL</i> ₂₉		1 10.5 63°57	4°5/ 9.6	18		121137	1999 <i>JV</i> ₃₂		1 10.5 257°20	1°1/10.1	18	
12 3	7 58.05	+34 22.8	1.947	2.726	15.1	20.9	12 3	7 54.67	+22 40.1	1.753	2.538	16.2	20.2
12 13	7 52.76	+34 39.3	1.866	2.728	12.1	20.7	12 13	7 50.56	+23 8.1	1.652	2.523	12.9	20.0
12 23	7 44.46	+34 50.9	1.806	2.730	8.7	20.5	12 23	7 43.36	+23 43.1	1.573	2.508	8.8	19.7
1 2	7 33.87	+34 51.9	1.772	2.732	5.6	20.3	1 2	7 33.58	+24 21.3	1.520	2.492	4.2	19.4
1 12	7 22.22	+34 38.1	1.766	2.734	4.6	20.2	1 12	7 22.29	+24 57.8	1.494	2.476	1.5	19.1
1 22	7 10.93	+34 8.1	1.790	2.736	7.0	20.4	1 22	7 10.89	+25 27.9	1.497	2.460	6.1	19.4
2 1	7 1.34	+33 23.7	1.840	2.738	10.4	20.6	2 1	7 0.86	+25 49.2	1.528	2.443	10.8	19.6
2 11	6 54.44	+32 29.2	1.916	2.740	13.6	20.8	2 11	6 53.43	+26 1.5	1.582	2.426	15.0	19.9
73425	2002 <i>LJ</i> ₄₁		1 10.5 208°51	3°9/11.8	18		110187	2001 <i>SE</i> ₁₇₈		1 10.5 128°03	1°1/10.9	18	
12 3	7 52.20	+10 38.1	1.932	2.688	16.0	19.9	12 3	7 49.42	+17 3.5	2.739	3.497	11.7	20.5
12 13	7 47.95	+10 30.0	1.838	2.684	13.0	19.7	12 13	7 44.91	+17 13.0	2.654	3.507	9.2	20.4
12 23	7 41.15	+10 34.8	1.765	2.680	9.5	19.5	12 23	7 38.62	+17 28.6	2.593	3.518	6.3	20.2
1 2	7 32.36	+10 53.1	1.718	2.676	5.9	19.3	1 2	7 31.02	+17 48.9	2.559	3.528	3.2	20.0
1 12	7 22.47	+11 23.5	1.698	2.671	3.9	19.1	1 12	7 22.79	+18 12.2	2.556	3.538	1.1	19.8
1 22	7 12.62	+12 3.4	1.708	2.666	6.0	19.3	1 22	7 14.69	+18 36.4	2.584	3.548	3.8	20.1
2 1	7 3.93	+12 49.3	1.746	2.660	9.7	19.5	2 1	7 7.46	+19 0.0	2.643	3.557	6.9	20.3
2 11	6 57.36	+13 37.5	1.809	2.655	13.3	19.7	2 11	7 1.74	+19 21.7	2.728	3.566	9.6	20.5
427673	2004 <i>BG</i> ₁₄₂		1 10.5 286°11	2°4/11.6	18		228026	2008 <i>FF</i> ₉₄		1 10.5 132°42	1°6/ 9.9	18	
12 3	7 48.03	+12 27.1	2.298	3.056	13.6	21.4	12 3	7 57.67	+22 41.1	1.523	2.313	18.1	21.1
12 13	7 44.34	+12 42.5	2.198	3.048	11.0	21.2	12 13	7 53.05	+23 26.0	1.448	2.322	14.2	20.8
12 23	7 38.53	+13 9.2	2.120	3.040	7.8	21.0	12 23	7 45.03	+24 19.1	1.395	2.330	9.7	20.6
1 2	7 31.08	+13 46.6	2.069	3.032	4.5	20.8	1 2	7 34.31	+25 14.8	1.366	2.338	4.6	20.3
1 12	7 22.71	+14 32.6	2.047	3.025	2.4	20.6	1 12	7 22.19	+26 6.1	1.364	2.346	2.0	20.2
1 22	7 14.33	+15 23.9	2.055	3.017	4.8	20.8	1 22	7 10.32	+26 47.6	1.391	2.353	6.6	20.5
2 1	7 6.86	+16 17.3	2.092	3.009	8.2	21.0	2 1	7 0.28	+27 16.7	1.445	2.360	11.4	20.8
2 11	7 1.11	+17 9.8	2.155	3.001	11.4	21.2	2 11	6 53.24	+27 33.9	1.522	2.366	15.5	21.0
287714	2003 <i>QC</i> ₉₀		1 10.5 204°83	0°9/10.8	18		207844	2007 <i>UP</i> ₈₈		1 10.5 278°22	0°5/10.7	18	
12 3	7 50.58	+18 19.7	2.1										

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
327954	2007 <i>ES</i> ₁₀₄		1 10.5 152°53	2°1/ 9.8 18			427084	2014 <i>UE</i> ₄₃		1 10.5 84°84	0°4/10.6 18		
12 3	7 53.62	+26 37.1	2.114	2.893	14.0	21.7	12 3	7 53.28	+20 56.5	1.879	2.659	15.5	21.0
12 13	7 48.98	+27 4.1	2.028	2.896	11.0	21.5	12 13	7 48.86	+20 52.3	1.795	2.663	12.2	20.8
12 23	7 41.79	+27 33.0	1.966	2.898	7.5	21.3	12 23	7 41.78	+20 53.2	1.734	2.667	8.3	20.6
1 2	7 32.63	+27 59.9	1.931	2.901	3.9	21.1	1 2	7 32.66	+20 57.0	1.698	2.671	4.0	20.3
1 12	7 22.50	+28 20.6	1.924	2.903	2.3	21.0	1 12	7 22.55	+21 1.3	1.691	2.674	0.7	20.1
1 22	7 12.53	+28 32.6	1.948	2.905	5.5	21.2	1 22	7 12.65	+21 4.3	1.713	2.678	5.2	20.4
2 1	7 3.85	+28 35.0	1.999	2.907	9.1	21.4	2 1	7 4.14	+21 4.8	1.764	2.682	9.4	20.7
2 11	6 57.35	+28 28.8	2.076	2.909	12.4	21.6	2 11	6 57.94	+21 2.7	1.838	2.686	13.1	20.9
18213	4607 <i>P-L</i>		1 10.5 277°52	3°1/ 9.5 18			157101	2004 <i>JL</i> ₁₄		1 10.5 285°50	1°1/10.1 18		
12 3	7 53.55	+28 32.8	1.949	2.735	14.8	18.4	12 3	7 53.58	+20 27.1	1.436	2.234	18.6	20.2
12 13	7 49.40	+29 7.5	1.853	2.723	11.8	18.1	12 13	7 50.23	+21 17.5	1.352	2.230	14.7	19.9
12 23	7 42.39	+29 44.0	1.778	2.711	8.2	17.9	12 23	7 43.41	+22 20.7	1.287	2.225	10.0	19.6
1 2	7 33.04	+30 17.2	1.730	2.698	4.6	17.6	1 2	7 33.70	+23 31.4	1.247	2.221	4.8	19.3
1 12	7 22.41	+30 42.0	1.711	2.686	3.3	17.5	1 12	7 22.34	+24 42.4	1.234	2.217	1.5	19.1
1 22	7 11.79	+30 54.7	1.719	2.674	6.4	17.7	1 22	7 10.97	+25 46.3	1.248	2.212	6.8	19.4
2 1	7 2.51	+30 54.4	1.756	2.661	10.3	17.9	2 1	7 1.29	+26 38.2	1.288	2.208	12.0	19.7
2 11	6 55.66	+30 42.7	1.816	2.649	13.9	18.1	2 11	6 54.65	+27 16.8	1.351	2.204	16.5	20.0
408672	2014 <i>MN</i> ₃₇		1 10.5 210°08	0°2/10.4 18			178383	1997 <i>PD</i> ₄		1 10.5 153°26	1°1/10.2 18		
12 3	7 54.83	+20 18.2	1.979	2.752	15.1	21.8	12 3	7 56.27	+24 48.5	2.237	3.006	13.7	20.8
12 13	7 50.14	+20 44.8	1.883	2.746	11.9	21.6	12 13	7 50.76	+24 56.6	2.152	3.014	10.7	20.6
12 23	7 42.74	+21 19.1	1.809	2.740	8.1	21.3	12 23	7 42.83	+25 6.5	2.090	3.021	7.3	20.4
1 2	7 33.17	+21 57.9	1.761	2.733	3.9	21.1	1 2	7 33.09	+25 15.2	2.056	3.028	3.5	20.2
1 12	7 22.39	+22 37.3	1.743	2.726	0.7	20.8	1 12	7 22.49	+25 19.9	2.052	3.034	1.3	20.1
1 22	7 11.61	+23 13.3	1.755	2.718	5.3	21.1	1 22	7 12.11	+25 18.8	2.079	3.040	4.8	20.3
2 1	7 2.06	+23 43.3	1.796	2.710	9.5	21.4	2 1	7 3.01	+25 11.6	2.135	3.045	8.5	20.5
2 11	6 54.78	+24 6.5	1.862	2.701	13.3	21.6	2 11	6 56.02	+24 59.2	2.217	3.049	11.7	20.8
206347	2003 <i>QL</i> ₁		1 10.5 180°15	0°9/10.2 18			361571	2007 <i>RP</i> ₉₈		1 10.5 32°60	5°4/ 8.9 18		
12 3	7 57.07	+23 52.0	2.107	2.877	14.4	21.5	12 3	7 54.78	+30 42.7	1.391	2.198	18.6	20.6
12 13	7 51.62	+24 3.6	2.017	2.878	11.3	21.3	12 13	7 51.36	+31 47.7	1.324	2.205	14.8	20.4
12 23	7 43.55	+24 18.4	1.949	2.880	7.7	21.1	12 23	7 44.18	+32 54.0	1.278	2.213	10.5	20.1
1 2	7 33.47	+24 33.0	1.908	2.880	3.7	20.8	1 2	7 34.00	+33 52.7	1.256	2.220	6.6	19.9
1 12	7 22.36	+24 44.1	1.897	2.879	1.2	20.7	1 12	7 22.32	+34 35.0	1.260	2.229	5.7	19.9
1 22	7 11.40	+24 49.6	1.917	2.878	5.1	20.9	1 22	7 10.99	+34 55.9	1.289	2.238	8.8	20.1
2 1	7 1.76	+24 48.5	1.966	2.877	9.1	21.2	2 1	7 1.78	+34 55.2	1.343	2.247	12.9	20.4
2 11	6 54.35	+24 41.8	2.040	2.874	12.5	21.4	2 11	6 55.94	+34 37.0	1.419	2.257	16.7	20.6
320827	2008 <i>FU</i> ₃₉		1 10.5 188°40	0°2/10.4 18			250168	2002 <i>TF</i> ₁₀₂		1 10.5 136°66	3°0/11.6 18		
12 3	7 52.54	+20 52.5	1.977	2.756	14.9	21.5	12 3	7 54.23	+12 37.6	2.243	2.990	14.3	21.6
12 13	7 48.25	+21 12.3	1.888	2.755	11.7	21.3	12 13	7 48.97	+12 23.7	2.161	3.004	11.5	21.5
12 23	7 41.38	+21 38.6	1.822	2.755	8.0	21.1	12 23	7 41.52	+12 19.1	2.102	3.018	8.2	21.3
1 2	7 32.48	+22 8.5	1.782	2.754	3.8	20.8	1 2	7 32.45	+12 23.6	2.071	3.031	4.9	21.1
1 12	7 22.53	+22 38.4	1.771	2.754	0.7	20.6	1 12	7 22.62	+12 36.2	2.068	3.043	3.0	21.0
1 22	7 12.67	+23 5.2	1.789	2.753	5.1	20.9	1 22	7 13.00	+12 55.1	2.097	3.054	5.1	21.2
2 1	7 4.08	+23 26.7	1.836	2.752	9.2	21.1	2 1	7 4.52	+13 18.1	2.154	3.065	8.4	21.4
2 11	6 57.68	+23 42.3	1.907	2.751	12.8	21.4	2 11	6 57.93	+13 43.2	2.238	3.075	11.4	21.6
113829	2002 <i>TN</i> ₂₂₆		1 10.5 50°46	7°4/ 7.1 18			460559	2014 <i>TE</i> ₆₈		1 10.5 150°12	11°1/ 5.3 18		
12 3	7 55.61	+39 1.2	2.010	2.788	14.7	19.2	12 3	8 3.08	+48 54.4	1.955	2.706	16.0	20.6
12 13	7 51.19	+40 39.8	1.950	2.803	12.1	19.0	12 13	7 58.23	+50 50.7	1.890	2.707	13.9	20.4
12 23	7 43.64	+42 13.2	1.913	2.818	9.5	18.9	12 23	7 49.17	+52 36.1	1.846	2.708	12.2	20.3
1 2	7 33.61	+43 32.4	1.901	2.834	7.7	18.8	1 2	7 36.53	+53 58.9	1.826	2.708	11.2	20.3
1 12	7 22.32	+44 30.0	1.918	2.850	7.7	18.8	1 12	7 21.85	+54 49.4	1.831	2.709	11.4	20.3
1 22	7 11.25	+45 2.2	1.961	2.866	9.3	19.0	1 22	7 7.28	+55 3.2	1.860	2.709	12.7	20.4
2 1	7 1.85	+45 9.2	2.030	2.882	11.7	19.1	2 1	6 54.96	+54 42.4	1.912	2.710	14.6	20.5
2 11	6 55.20	+44 55.5	2.121	2.899	14.1	19.3	2 11	6 46.47	+53 54.5	1.983	2.710	16.5	20.6
82081	2001 <i>BC</i> ₄₀		1 10.5 227°50	5°4/10.3 18			308669	2006 <i>BP</i> ₂₇₆		1 10.5 226°83	0°3/10.4 18		
12 3	8 9.60	+35 2.5	1.297	2.086	20.7	19.5	12 3	7 55.63	+21 35.5	1.878	2.655	15.6	21.6
12 13	8 3.58	+34 57.0	1.213	2.081	16.8	19.2	12 13	7 50.97	+21 47.7	1.781	2.647	12.4	21.4
12 23	7 52.78	+34 42.4	1.147	2.075	12.2	18.9	12 23	7 43.43	+22 5.8	1.705	2.637	8.5	21.1
1 2	7 38.11	+34 9.5	1.105	2.068	7.4	18.6	1 2	7 33.58	+22 26.9	1.655	2.627	4.0	20.9
1 12	7 21.54	+33 11.7	1.089	2.062	5.5	18.5	1 12	7 22.44	+22 47.3	1.634	2.617	0.8	20.6
1 22	7 5.57	+31 48.9	1.100	2.055	9.1	18.7	1 22	7 11.30	+23 3.9	1.642	2.606	5.5	20.9
2 1	6 52.50	+30 8.4	1.137	2.047	14.2	18.9	2 1	7 1.49	+23 15.1	1.679	2.595	10.0	21.1
2 11	6 43.78	+28 20.8	1.197	2.039	18.9	19.2	2 11	6 54.10	+23 20.7	1.740	2.583	13.9	21.4
277809	2006 <i>FP</i> ₃₃		1 10.5 142°26	4°6/ 8.6 18			101144	1998 <i>RT</i> ₆₉		1 10.5 98°49	4°1/ 9.3 18		
12 3	7 54.61	+34 49.9	2.435	3.206	12.6	21.0	12 3	7 59.03	+31 15.2	1.871	2.650	15.6	19.8
12 13	7 49.62	+35 41.1	2.355	3.211	10.1	20.8	12 13	7 53.48	+31 57.7	1.805	2.669	12.3	19.7
12 23	7 42.16	+36 29.4	2.299	3.217	7.5	20.7	12 23	7 44.93	+32 38.7	1.762	2.689	8.7	19.5
1 2	7 32.81	+37 9.4	2.269	3.222	5.2	20.6	1 2	7 34.14	+33 11.9	1.745	2.708	5.2	19.3
1 12	7 22.51	+37 36.4	2.269	3.226	4.8	20.5	1 12	7 22.37	+33 31.9	1.757	2.726	4.3	19.3
1 22	7 12.37	+37 47.7	2.299	3.231	6.6	20.7	1 22	7 11.02	+33 36.0	1.797	2.745	6.9	19.5
2 1	7 3.49	+37 43.3	2.356	3.235	9.2	20.8	2 1	7 1.43	+33 25.0	1.866	2.762	10.3	19.7
2 11	6 56.73	+37 25.7	2.438	3.239	11.8	21.0	2 11	6 54.54	+33 2.1	1.958	2.780	13.4	20.0
169232	2001 <i>SB</i> ₂₄		1 10.5 40°74	4°2/12.2 18			354584	2004 <i>VP</i> ₅₂		1 10.5 105°46	3°5/11.6 18		
12 3	7 47.83	+ 8 54.7											

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
237363	1993 <i>HV</i> ₄		1 10.5 330°02	3°8/ 8.9	18		193857	2001 <i>QY</i> ₁₂₅		1 10.5 74°87	1°3/10.2	18	
12 3	7 51.45	+30 56.4	2.271	3.053	13.1	20.6	12 3	7 59.33	+22 44.2	1.414	2.207	19.1	20.8
12 13	7 47.35	+31 47.2	2.184	3.050	10.4	20.4	12 13	7 54.20	+23 18.1	1.360	2.235	14.9	20.6
12 23	7 40.76	+32 38.3	2.120	3.048	7.4	20.2	12 23	7 45.63	+23 58.6	1.326	2.262	10.0	20.4
1 2	7 32.24	+33 24.5	2.083	3.045	4.6	20.0	1 2	7 34.53	+24 40.0	1.317	2.289	4.7	20.2
1 12	7 22.70	+34 0.8	2.075	3.043	4.0	20.0	1 12	7 22.38	+25 16.4	1.334	2.316	1.7	20.1
1 22	7 13.22	+34 24.0	2.097	3.041	6.3	20.1	1 22	7 10.86	+25 43.4	1.380	2.343	6.5	20.4
2 1	7 4.92	+34 33.1	2.146	3.039	9.3	20.3	2 1	7 1.45	+25 59.7	1.452	2.369	11.1	20.8
2 11	6 58.71	+34 29.5	2.219	3.038	12.2	20.5	2 11	6 55.17	+26 6.6	1.548	2.395	15.1	21.1
228722	2002 <i>TZ</i> ₃₇		1 10.5 81°92	3°3/ 9.6	18		377552	2005 <i>JV</i> ₄₇		1 10.5 268°71	3°8/ 8.8	18	
12 3	7 59.60	+26 36.2	1.383	2.180	19.2	20.2	12 3	7 51.94	+31 5.0	2.345	3.123	12.8	20.5
12 13	7 54.77	+27 25.0	1.324	2.201	15.1	20.0	12 13	7 47.70	+31 59.0	2.254	3.118	10.2	20.3
12 23	7 46.25	+28 17.7	1.285	2.221	10.3	19.7	12 23	7 41.02	+32 53.4	2.187	3.113	7.3	20.1
1 2	7 34.89	+29 6.8	1.270	2.241	5.4	19.5	1 2	7 32.39	+33 43.1	2.146	3.108	4.6	19.9
1 12	7 22.27	+29 44.6	1.283	2.261	3.5	19.5	1 12	7 22.72	+34 23.0	2.136	3.102	4.0	19.9
1 22	7 10.21	+30 6.8	1.322	2.280	7.5	19.7	1 22	7 13.07	+34 49.8	2.154	3.097	6.2	20.0
2 1	7 0.37	+30 12.9	1.388	2.299	12.0	20.0	2 1	7 4.55	+35 2.2	2.201	3.092	9.2	20.2
2 11	6 53.88	+30 5.9	1.476	2.318	16.0	20.3	2 11	6 58.06	+35 1.5	2.272	3.087	12.1	20.4
114219	2002 <i>VQ</i> ₁₁₁		1 10.5 112°44	1°1/10.3	17		134878	2000 <i>QS</i> ₁₉₅		1 10.5 112°01	3°6/12.0	18	
12 3	7 59.64	+24 18.0	1.529	2.317	18.1	20.8	12 3	7 50.78	+10 4.1	2.036	2.790	15.3	20.3
12 13	7 54.42	+24 22.6	1.458	2.330	14.3	20.6	12 13	7 46.62	+10 6.0	1.953	2.797	12.4	20.1
12 23	7 45.83	+24 30.7	1.407	2.342	9.7	20.3	12 23	7 40.16	+10 21.4	1.891	2.805	9.1	19.9
1 2	7 34.66	+24 38.1	1.381	2.354	4.6	20.1	1 2	7 31.93	+10 49.9	1.855	2.813	5.6	19.7
1 12	7 22.31	+24 40.7	1.383	2.365	1.4	19.9	1 12	7 22.82	+11 29.8	1.847	2.820	3.6	19.6
1 22	7 10.40	+24 36.3	1.413	2.376	6.3	20.2	1 22	7 13.83	+12 18.1	1.869	2.827	5.6	19.8
2 1	7 0.46	+24 24.7	1.470	2.387	11.0	20.5	2 1	7 5.99	+13 10.8	1.919	2.834	9.0	20.0
2 11	6 53.54	+24 7.8	1.550	2.397	15.1	20.8	2 11	7 0.11	+14 4.5	1.994	2.841	12.2	20.2
167044	2003 <i>QG</i> ₅₃		1 10.5 190°26	5°6/ 8.8	18		75911	2000 <i>CJ</i> ₅₄		1 10.5 357°46	1°9/11.0	18	
12 3	8 2.20	+36 55.2	2.148	2.911	14.3	21.0	12 3	7 47.85	+17 23.3	1.281	2.093	19.7	19.1
12 13	7 56.06	+37 40.8	2.060	2.910	11.7	20.8	12 13	7 45.83	+17 18.1	1.204	2.088	15.7	18.9
12 23	7 46.82	+38 21.6	1.996	2.908	8.8	20.6	12 23	7 40.44	+17 24.7	1.147	2.085	10.9	18.6
1 2	7 35.14	+38 50.8	1.958	2.905	6.3	20.5	1 2	7 32.31	+17 41.8	1.111	2.083	5.6	18.3
1 12	7 22.22	+39 2.2	1.949	2.902	5.8	20.4	1 12	7 22.74	+18 6.6	1.101	2.083	1.9	18.0
1 22	7 9.52	+38 53.2	1.969	2.898	7.8	20.5	1 22	7 13.33	+18 34.9	1.115	2.083	6.7	18.3
2 1	6 58.44	+38 24.9	2.017	2.893	10.7	20.7	2 1	7 5.70	+19 3.2	1.154	2.085	11.9	18.6
2 11	6 50.07	+37 41.7	2.089	2.888	13.6	20.9	2 11	7 1.07	+19 28.8	1.215	2.088	16.6	18.9
243225	2007 <i>VJ</i> ₆₉		1 10.5 21°30	2°1/11.6	18		79117	<i>Brydonejack</i>		1 10.5 131°68	1°9/11.1	18	
12 3	7 48.24	+12 44.2	2.246	3.007	13.9	20.5	12 3	7 58.07	+15 49.7	1.876	2.636	16.2	20.3
12 13	7 44.52	+13 10.1	2.156	3.008	11.1	20.4	12 13	7 52.44	+15 51.2	1.800	2.654	12.9	20.2
12 23	7 38.69	+13 48.0	2.088	3.010	7.9	20.1	12 23	7 44.12	+16 2.2	1.746	2.670	9.0	19.9
1 2	7 31.23	+14 36.5	2.047	3.012	4.4	19.9	1 2	7 33.78	+16 21.0	1.719	2.686	4.7	19.7
1 12	7 22.91	+15 32.7	2.034	3.014	2.1	19.8	1 12	7 22.51	+16 45.1	1.721	2.701	2.0	19.6
1 22	7 14.63	+16 32.9	2.052	3.016	4.6	20.0	1 22	7 11.53	+17 11.5	1.752	2.715	5.4	19.8
2 1	7 7.33	+17 33.5	2.099	3.018	8.1	20.2	2 1	7 2.02	+17 37.8	1.813	2.728	9.4	20.1
2 11	7 1.77	+18 31.2	2.173	3.020	11.3	20.4	2 11	6 54.88	+18 2.4	1.899	2.741	13.0	20.3
240374	2003 <i>ST</i> ₂₄₅		1 10.5 165°29	2°3/11.3	18		179088	2001 <i>SE</i> ₁₆₁		1 10.5 123°84	2°5/ 9.7	18	
12 3	7 54.76	+14 17.2	2.188	2.940	14.4	21.8	12 3	7 57.37	+28 21.3	2.343	3.110	13.2	21.3
12 13	7 49.58	+14 14.3	2.099	2.946	11.6	21.6	12 13	7 51.53	+28 51.8	2.269	3.129	10.3	21.1
12 23	7 42.08	+14 20.5	2.032	2.952	8.2	21.4	12 23	7 43.31	+29 22.3	2.220	3.147	7.1	20.9
1 2	7 32.81	+14 35.0	1.992	2.957	4.5	21.1	1 2	7 33.34	+29 48.7	2.198	3.165	3.8	20.8
1 12	7 22.64	+14 56.1	1.982	2.960	2.4	21.0	1 12	7 22.59	+30 7.2	2.206	3.182	2.6	20.7
1 22	7 12.60	+15 21.4	2.003	2.964	5.0	21.2	1 22	7 12.13	+30 15.6	2.246	3.199	5.2	20.9
2 1	7 3.70	+15 48.7	2.053	2.966	8.6	21.4	2 1	7 2.99	+30 13.7	2.315	3.215	8.4	21.1
2 11	6 56.76	+16 16.0	2.129	2.968	11.9	21.6	2 11	6 55.95	+30 3.2	2.409	3.230	11.3	21.4
321721	2010 <i>JN</i> ₁₄₇		1 10.5 215°32	0°0/10.4	18		316263	2010 <i>OT</i> ₁₂₁		1 10.5 89°25	2°5/ 9.8	17	
12 3	7 49.21	+20 35.0	2.666	3.432	11.8	21.4	12 3	7 59.80	+27 48.5	2.029	2.799	14.8	20.7
12 13	7 44.99	+20 51.2	2.569	3.429	9.2	21.2	12 13	7 53.57	+28 18.6	1.970	2.832	11.6	20.5
12 23	7 38.86	+21 12.3	2.496	3.426	6.3	21.0	12 23	7 44.70	+28 48.8	1.935	2.864	7.9	20.4
1 2	7 31.27	+21 36.1	2.450	3.422	3.0	20.8	1 2	7 33.96	+29 14.4	1.927	2.895	4.1	20.2
1 12	7 22.92	+22 0.3	2.435	3.418	0.5	20.6	1 12	7 22.50	+29 31.2	1.949	2.926	2.7	20.2
1 22	7 14.61	+22 22.8	2.451	3.414	4.0	20.9	1 22	7 11.53	+29 37.1	2.001	2.956	5.6	20.4
2 1	7 7.17	+22 42.1	2.496	3.410	7.2	21.1	2 1	7 2.20	+29 32.5	2.082	2.985	9.1	20.7
2 11	7 1.30	+22 57.4	2.568	3.406	10.1	21.3	2 11	6 55.28	+29 19.4	2.189	3.014	12.1	20.9
170625	2003 <i>YN</i> ₆₁		1 10.5 305°63	0°3/10.6	18		415457	2014 <i>HL</i> ₄₁		1 10.5 212°23	0°8/10.1	17	
12 3	7 52.02	+19 54.0	1.654	2.444	16.9	19.9	12 3	7 46.32	+24 35.5	3.862	4.623	8.5	21.7
12 13	7 48.46	+20 5.7	1.564	2.437	13.4	19.7	12 13	7 42.16	+24 54.0	3.759	4.617	6.6	21.6
12 23	7 41.90	+20 25.7	1.495	2.430	9.2	19.4	12 23	7 36.66	+25 13.9	3.682	4.611	4.5	21.4
1 2	7 32.92	+20 51.5	1.451	2.424	4.4	19.1	1 2	7 30.16	+25 33.7	3.634	4.605	2.2	21.3
1 12	7 22.62	+21 19.3	1.434	2.418	0.8	18.8	1 12	7 23.14	+25 51.5	3.617	4.598	0.9	21.2
1 22	7 12.37	+21 45.4	1.446	2.411	5.8	19.2	1 22	7 16.15	+26 6.1	3.632	4.591	3.1	21.3
2 1	7 3.56	+22 7.4	1.484	2.405	10.6	19.4	2 1	7 9.74	+26 16.6	3.678	4.584	5.4	21.5
2 11	6 57.33	+22 24.0	1.545	2.400	14.7	19.7	2 11	7 4.38	+26 22.8	3.751	4.576	7.5	21.6
268706	2006 <i>HD</i> ₂₃		1 10.5 147°21	4°1/ 8.7	18		8768	<i>Barnowl</i>		1 10.5 334°55	3°4/11.3	18	
12 3	7 54.01	+32 56.3	2.480	3.251									

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
424205	2007 <i>PJ</i> ₃₂		1 10.5 70°02	5°0/13.2	18		248564	2005 <i>YD</i> ₂₅₇		1 10.5 316°47	2°7/11.5	18	
12 3	7 50.45	+ 4 13.0	2.263	2.987	14.8	21.0	12 3	7 49.35	+13 13.6	1.942	2.711	15.4	21.0
12 13	7 45.89	+ 4 16.2	2.198	3.017	12.2	20.8	12 13	7 45.79	+13 17.1	1.849	2.706	12.4	20.7
12 23	7 39.37	+ 4 35.0	2.154	3.046	9.3	20.7	12 23	7 39.79	+13 32.4	1.778	2.702	8.9	20.5
1 2	7 31.45	+ 5 9.8	2.137	3.076	6.5	20.6	1 2	7 31.85	+13 59.1	1.732	2.697	5.0	20.3
1 12	7 22.93	+ 5 58.9	2.147	3.105	5.0	20.5	1 12	7 22.87	+14 34.9	1.715	2.693	2.7	20.1
1 22	7 14.67	+ 6 59.0	2.188	3.134	5.9	20.6	1 22	7 13.92	+15 16.9	1.725	2.688	5.4	20.3
2 1	7 7.50	+ 8 5.9	2.257	3.162	8.3	20.8	2 1	7 6.10	+16 1.7	1.764	2.684	9.3	20.5
2 11	7 2.06	+ 9 15.4	2.353	3.191	10.9	21.1	2 11	7 0.33	+16 45.9	1.828	2.680	12.9	20.7
214088	2004 <i>JN</i> ₁₃		1 10.5 23°00	6°1/ 9.1	18		217601	2008 <i>JZ</i> ₁₄		1 10.5 133°88	0°1/10.6	18	
12 3	8 32.76	+22 28.9	0.671	1.478	33.0	16.7	12 3	7 52.57	+19 36.9	2.167	2.937	14.0	20.9
12 13	8 19.61	+26 6.3	0.694	1.575	24.3	16.6	12 13	7 48.00	+20 2.8	2.083	2.945	11.0	20.7
12 23	8 1.48	+29 26.0	0.734	1.671	15.6	16.6	12 23	7 41.09	+20 35.6	2.023	2.953	7.5	20.5
1 2	7 40.98	+32 5.3	0.797	1.766	8.3	16.6	1 2	7 32.39	+21 12.7	1.989	2.961	3.5	20.3
1 12	7 21.51	+33 52.3	0.886	1.859	6.4	16.9	1 12	7 22.80	+21 50.5	1.985	2.968	0.6	20.1
1 22	7 5.75	+34 50.6	1.001	1.951	10.5	17.4	1 22	7 13.34	+22 25.9	2.011	2.975	4.7	20.4
2 1	6 55.08	+35 12.4	1.138	2.041	14.8	18.0	2 1	7 5.04	+22 56.5	2.067	2.982	8.4	20.6
2 11	6 49.61	+35 10.8	1.296	2.130	18.3	18.4	2 11	6 58.72	+23 21.4	2.148	2.988	11.7	20.9
300284	2007 <i>NX</i> ₂		1 10.5 141°92	0°9/10.2	18		120868	1998 <i>RA</i> ₁₃		1 10.5 86°43	0°9/10.3	18	
12 3	7 57.35	+22 27.4	2.000	2.771	15.0	22.1	12 3	8 0.19	+22 36.3	1.494	2.281	18.5	20.8
12 13	7 51.92	+22 57.2	1.921	2.783	11.8	21.9	12 13	7 54.71	+22 57.4	1.436	2.307	14.5	20.6
12 23	7 43.81	+23 32.3	1.864	2.795	8.0	21.6	12 23	7 45.91	+23 24.3	1.399	2.333	9.8	20.4
1 2	7 33.67	+24 8.9	1.835	2.807	3.8	21.4	1 2	7 34.67	+23 52.4	1.386	2.358	4.6	20.2
1 12	7 22.53	+24 42.5	1.835	2.817	1.2	21.2	1 12	7 22.42	+24 16.6	1.401	2.384	1.3	20.0
1 22	7 11.61	+25 9.9	1.865	2.827	5.2	21.5	1 22	7 10.77	+24 33.4	1.445	2.408	6.2	20.4
2 1	7 2.10	+25 29.5	1.925	2.836	9.2	21.8	2 1	7 1.14	+24 42.0	1.515	2.432	10.8	20.7
2 11	6 54.90	+25 41.3	2.010	2.844	12.7	22.0	2 11	6 54.54	+24 43.4	1.609	2.455	14.7	21.0
406104	2006 <i>VZ</i> ₇		1 10.5 57°76	1°7/10.9	18		283002	2007 <i>TH</i> ₃₈₇		1 10.5 155°94	1°8/11.3	18	
12 3	7 53.29	+17 32.1	1.613	2.399	17.4	21.4	12 3	7 49.62	+15 16.9	2.617	3.372	12.3	21.6
12 13	7 49.12	+17 25.2	1.545	2.414	13.8	21.1	12 13	7 45.23	+15 13.7	2.526	3.376	9.8	21.4
12 23	7 42.06	+17 27.3	1.498	2.430	9.5	20.9	12 23	7 38.97	+15 17.5	2.458	3.380	6.8	21.2
1 2	7 32.86	+17 36.9	1.475	2.445	4.8	20.7	1 2	7 31.32	+15 27.5	2.418	3.383	3.7	21.0
1 12	7 22.68	+17 51.4	1.480	2.462	1.7	20.5	1 12	7 22.99	+15 42.4	2.407	3.387	1.8	20.9
1 22	7 12.87	+18 8.1	1.513	2.478	5.7	20.8	1 22	7 14.75	+16 0.6	2.428	3.390	4.2	21.1
2 1	7 4.67	+18 24.9	1.572	2.494	10.1	21.1	2 1	7 7.39	+16 20.3	2.478	3.392	7.2	21.3
2 11	6 59.02	+18 40.3	1.656	2.511	13.9	21.4	2 11	7 1.59	+16 40.2	2.555	3.395	10.1	21.4
417706	2007 <i>BB</i> ₇₈		1 10.5 166°52	3°0/ 9.6	18		379961	2012 <i>QA</i> ₉		1 10.5 118°63	1°5/11.0	18	
12 3	7 55.91	+29 59.8	2.162	2.938	13.9	21.6	12 3	7 51.11	+17 35.7	2.462	3.223	12.8	21.1
12 13	7 50.79	+30 22.1	2.077	2.940	11.0	21.4	12 13	7 46.46	+17 21.9	2.376	3.231	10.1	20.9
12 23	7 43.05	+30 43.5	2.014	2.942	7.7	21.2	12 23	7 39.82	+17 13.4	2.314	3.239	7.0	20.7
1 2	7 33.32	+30 59.5	1.978	2.944	4.3	21.0	1 2	7 31.72	+17 9.4	2.278	3.246	3.6	20.5
1 12	7 22.60	+31 6.1	1.971	2.946	3.1	20.9	1 12	7 22.93	+17 8.8	2.273	3.254	1.5	20.3
1 22	7 12.09	+31 1.3	1.994	2.947	5.8	21.1	1 22	7 14.30	+17 10.4	2.298	3.261	4.3	20.6
2 1	7 2.95	+30 45.3	2.046	2.948	9.2	21.3	2 1	7 6.68	+17 13.2	2.353	3.268	7.5	20.8
2 11	6 56.07	+30 20.1	2.123	2.949	12.4	21.5	2 11	7 0.77	+17 16.5	2.435	3.275	10.5	21.0
22283	Pytheas		1 10.5 100°69	3°2/11.7	18		15260	1990 <i>SY</i> ₈		1 10.5 166°28	1°9/ 9.9	18	
12 3	7 58.33	+11 59.2	1.567	2.331	18.8	18.6	12 3	7 57.73	+24 56.9	1.897	2.673	15.5	19.2
12 13	7 53.00	+12 11.3	1.504	2.356	15.0	18.4	12 13	7 52.55	+25 32.7	1.812	2.678	12.2	19.0
12 23	7 44.66	+12 39.0	1.460	2.381	10.6	18.2	12 23	7 44.46	+26 12.9	1.750	2.682	8.3	18.7
1 2	7 34.07	+13 20.6	1.442	2.406	6.0	18.0	1 2	7 34.08	+26 52.5	1.715	2.686	4.1	18.5
1 12	7 22.49	+14 12.2	1.451	2.429	3.2	17.9	1 12	7 22.51	+27 26.4	1.709	2.689	2.2	18.4
1 22	7 11.33	+15 8.9	1.490	2.452	6.2	18.1	1 22	7 11.10	+27 50.8	1.732	2.691	5.9	18.6
2 1	7 1.92	+16 5.9	1.556	2.474	10.4	18.4	2 1	7 1.17	+28 4.3	1.784	2.693	10.0	18.9
2 11	6 55.22	+16 59.6	1.646	2.495	14.3	18.7	2 11	6 53.76	+28 7.9	1.861	2.694	13.6	19.1
218634	2005 <i>RP</i> ₃₁		1 10.5 97°47	0°5/10.4	18		425468	2010 <i>EK</i> ₁₀₆		1 10.5 343°64	21°6/ 2.8	17	
12 3	7 58.07	+24 10.0	2.073	2.842	14.6	20.1	12 3	8 15.29	+57 13.0	1.055	1.826	25.6	20.0
12 13	7 52.13	+23 59.8	2.002	2.864	11.4	19.9	12 13	8 14.00	+60 20.3	1.013	1.824	23.7	19.8
12 23	7 43.71	+23 51.1	1.955	2.885	7.7	19.7	12 23	8 3.96	+63 5.5	0.986	1.823	22.2	19.7
1 2	7 33.51	+23 41.3	1.935	2.907	3.6	19.5	1 2	7 45.00	+65 3.4	0.975	1.821	21.7	19.7
1 12	7 22.59	+23 28.6	1.945	2.927	0.8	19.3	1 12	7 20.52	+65 51.8	0.980	1.820	22.1	19.7
1 22	7 12.11	+23 12.0	1.985	2.948	4.8	19.6	1 22	6 56.94	+65 23.6	1.001	1.819	23.4	19.8
2 1	7 3.12	+22 52.0	2.055	2.968	8.6	19.9	2 1	6 40.23	+63 50.0	1.037	1.819	25.2	19.9
2 11	6 56.38	+22 29.6	2.151	2.987	11.8	20.2	2 11	6 32.79	+61 32.6	1.084	1.818	27.2	20.1
433326	2013 <i>QP</i> ₇₁		1 10.5 43°34	1°3/11.0	15		123281	2000 <i>UY</i> ₉₆		1 10.5 359°30	1°1/10.8	18	
12 3	7 52.99	+15 59.1	1.634	2.415	17.4	20.9	12 3	7 52.02	+19 34.5	1.847	2.629	15.7	19.7
12 13	7 48.59	+16 26.1	1.585	2.452	13.6	20.7	12 13	7 47.99	+19 21.5	1.761	2.628	12.4	19.5
12 23	7 41.50	+17 4.3	1.558	2.489	9.3	20.6	12 23	7 41.30	+19 14.2	1.696	2.628	8.5	19.2
1 2	7 32.51	+17 50.7	1.556	2.526	4.6	20.4	1 2	7 32.56	+19 11.2	1.657	2.628	4.2	19.0
1 12	7 22.78	+18 40.7	1.582	2.564	1.4	20.2	1 12	7 22.80	+19 10.7	1.646	2.628	1.2	18.8
1 22	7 13.56	+19 29.8	1.636	2.602	5.3	20.6	1 22	7 13.19	+19 11.0	1.663	2.628	5.3	19.0
2 1	7 5.99	+20 14.7	1.718	2.640	9.4	20.9	2 1	7 4.94	+19 11.2	1.708	2.629	9.5	19.3
2 11	7 0.84	+20 53.3	1.825	2.677	12.9	21.2	2 11	6 58.96	+19 10.5	1.778	2.629	13.2	19.5
139760	2001 <i>QW</i> ₂₈₅		1 10.5 34°11	5°5/ 8.0	18		14748	2620 <i>P-L</i>		1 10.5 288°33	1°0/10.2	18	
12 3	7 54.46	+30 38.7	1.720	2.513</									

EPHEMERIDES

1 10.5

1 10.6

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
238604	2005 <i>AP</i> ₅₃		1 10.5 282°88	0°6/10.4	18		466044	2011 <i>KY</i> ₃₇		1 10.5 188°08	0°6/10.8	17	
12 3	7 53.12	+24 20.3	2.181	2.957	13.8	20.3	12 3	7 50.59	+19 27.8	2.857	3.615	11.3	22.5
12 13	7 48.49	+24 13.5	2.089	2.954	10.8	20.1	12 13	7 45.89	+19 29.1	2.759	3.614	8.9	22.3
12 23	7 41.46	+24 8.2	2.019	2.952	7.4	19.9	12 23	7 39.39	+19 34.5	2.686	3.613	6.1	22.1
1 2	7 32.59	+24 2.1	1.977	2.949	3.5	19.7	1 2	7 31.55	+19 42.8	2.641	3.611	3.0	21.9
1 12	7 22.82	+23 53.2	1.964	2.947	0.9	19.5	1 12	7 23.03	+19 52.3	2.626	3.609	0.7	21.7
1 22	7 13.20	+23 40.2	1.981	2.944	4.8	19.7	1 22	7 14.58	+20 1.6	2.643	3.607	3.7	21.9
2 1	7 4.80	+23 23.1	2.027	2.942	8.6	20.0	2 1	7 6.96	+20 9.7	2.691	3.604	6.8	22.1
2 11	6 58.45	+23 2.6	2.098	2.939	11.9	20.2	2 11	7 0.81	+20 16.0	2.765	3.601	9.5	22.3
233774	2008 <i>TE</i> ₁₅₈		1 10.5 89°63	5°3/ 8.8	18		87967	2000 <i>TR</i> ₃₃		1 10.5 55°54	0°4/10.7	18	
12 3	7 56.59	+36 45.4	2.220	2.991	13.7	20.2	12 3	7 51.59	+16 45.0	1.759	2.540	16.4	19.2
12 13	7 51.41	+37 29.5	2.148	3.002	11.1	20.0	12 13	7 47.75	+17 37.2	1.686	2.553	12.9	19.0
12 23	7 43.50	+38 8.6	2.098	3.013	8.3	19.9	12 23	7 41.20	+18 42.0	1.634	2.567	8.8	18.8
1 2	7 33.55	+38 36.7	2.076	3.024	5.9	19.8	1 2	7 32.55	+19 55.5	1.609	2.580	4.2	18.6
1 12	7 22.66	+38 48.9	2.081	3.035	5.5	19.7	1 12	7 22.85	+21 12.0	1.611	2.594	0.7	18.3
1 22	7 12.09	+38 43.4	2.116	3.046	7.3	19.9	1 22	7 13.32	+22 25.5	1.644	2.609	5.3	18.7
2 1	7 3.02	+38 20.9	2.177	3.056	9.9	20.1	2 1	7 5.19	+23 31.3	1.704	2.623	9.6	19.0
2 11	6 56.36	+37 45.2	2.263	3.067	12.5	20.3	2 11	6 59.40	+24 27.2	1.789	2.638	13.3	19.2
483544	2003 <i>WG</i> ₇		1 10.5 103°36	17°6/ 3.7	18		64776	2001 <i>XP</i> ₁₈₈		1 10.6 112°59	1°5/11.1	18	
12 3	8 13.65	+49 41.8	1.145	1.926	23.4	20.4	12 3	7 56.38	+15 58.8	1.781	2.549	16.7	19.8
12 13	8 10.27	+53 5.8	1.105	1.936	20.7	20.3	12 13	7 51.30	+16 14.8	1.710	2.568	13.2	19.6
12 23	7 59.81	+56 14.4	1.083	1.947	18.6	20.2	12 23	7 43.47	+16 41.5	1.659	2.586	9.1	19.4
1 2	7 42.52	+58 43.5	1.081	1.957	17.6	20.2	1 2	7 33.56	+17 16.7	1.635	2.604	4.6	19.1
1 12	7 21.02	+60 12.5	1.100	1.968	18.1	20.2	1 12	7 22.69	+17 56.7	1.639	2.621	1.6	19.0
1 22	6 59.86	+60 34.4	1.138	1.977	19.7	20.4	1 22	7 12.11	+18 37.6	1.673	2.637	5.4	19.3
2 1	6 43.55	+59 57.9	1.194	1.987	21.9	20.5	2 1	7 3.04	+19 16.2	1.735	2.653	9.6	19.5
2 11	6 34.52	+58 41.1	1.264	1.996	24.0	20.7	2 11	6 56.39	+19 50.7	1.822	2.668	13.2	19.8
405378	2004 <i>BJ</i> ₁₂₈		1 10.5 32°18	0°3/10.5	18		67401	2000 <i>PS</i> ₂₁		1 10.6 26°57	2°8/ 9.6	18	
12 3	7 52.77	+21 50.8	1.412	2.215	18.6	21.1	12 3	7 52.75	+26 44.7	1.674	2.470	16.4	19.1
12 13	7 49.32	+21 58.2	1.344	2.224	14.6	20.9	12 13	7 49.05	+27 24.2	1.598	2.474	12.9	18.8
12 23	7 42.56	+22 12.3	1.295	2.234	9.9	20.7	12 23	7 42.29	+28 7.1	1.543	2.479	8.9	18.6
1 2	7 33.24	+22 29.7	1.270	2.244	4.7	20.4	1 2	7 33.12	+28 47.8	1.514	2.484	4.7	18.4
1 12	7 22.71	+22 46.4	1.271	2.254	0.9	20.1	1 12	7 22.75	+29 20.8	1.511	2.489	3.1	18.3
1 22	7 12.55	+22 59.0	1.299	2.266	6.2	20.5	1 22	7 12.60	+29 42.0	1.537	2.495	6.6	18.5
2 1	7 4.25	+23 6.0	1.353	2.277	11.2	20.8	2 1	7 4.06	+29 50.1	1.589	2.501	10.7	18.8
2 11	6 58.87	+23 7.5	1.430	2.290	15.4	21.1	2 11	6 58.20	+29 46.8	1.665	2.508	14.4	19.0
50792	2000 <i>FZ</i> ₂₂		1 10.5 350°54	8°1/ 7.1	18		427204	2014 <i>VA</i> ₃₅		1 10.6 75°85	3°0/11.5	18	
12 3	7 57.46	+38 2.9	1.752	2.537	16.3	18.8	12 3	7 51.44	+13 48.6	1.913	2.681	15.7	20.8
12 13	7 53.37	+39 43.1	1.677	2.536	13.4	18.6	12 13	7 47.35	+13 31.2	1.829	2.684	12.6	20.6
12 23	7 45.64	+41 20.5	1.625	2.536	10.5	18.4	12 23	7 40.79	+13 23.7	1.766	2.688	9.0	20.4
1 2	7 34.87	+42 44.6	1.597	2.535	8.4	18.3	1 2	7 32.32	+13 26.0	1.728	2.692	5.2	20.2
1 12	7 22.41	+43 45.6	1.596	2.535	8.4	18.3	1 12	7 22.90	+13 37.2	1.719	2.695	3.1	20.0
1 22	7 10.00	+44 18.0	1.622	2.535	10.4	18.4	1 22	7 13.63	+13 55.1	1.738	2.699	5.6	20.2
2 1	6 59.43	+44 21.7	1.673	2.535	13.3	18.6	2 1	7 5.60	+14 17.5	1.785	2.703	9.4	20.4
2 11	6 52.08	+44 1.7	1.744	2.535	16.1	18.8	2 11	6 59.70	+14 42.0	1.857	2.707	12.9	20.7
114026	Emalanushenko		1 10.5 285°30	0°4/10.7	18		334268	2001 <i>UE</i> ₃₈		1 10.6 52°15	4°3/11.6	17	
12 3	7 49.92	+19 37.4	2.209	2.984	13.6	20.5	12 3	7 54.12	+13 7.8	1.289	2.080	20.7	20.8
12 13	7 46.05	+19 48.5	2.108	2.973	10.8	20.3	12 13	7 50.35	+12 36.2	1.228	2.096	16.6	20.5
12 23	7 39.89	+20 6.0	2.030	2.961	7.4	20.0	12 23	7 43.22	+12 19.1	1.186	2.113	11.9	20.3
1 2	7 31.91	+20 27.9	1.979	2.950	3.6	19.8	1 2	7 33.53	+12 17.2	1.165	2.129	7.1	20.1
1 12	7 22.94	+20 51.7	1.956	2.939	0.7	19.5	1 12	7 22.70	+12 29.2	1.170	2.146	4.3	20.0
1 22	7 13.96	+21 14.8	1.964	2.928	4.7	19.8	1 22	7 12.34	+12 52.0	1.202	2.164	7.3	20.2
2 1	7 6.00	+21 35.1	2.000	2.917	8.5	20.0	2 1	7 3.94	+13 21.9	1.258	2.182	11.9	20.5
2 11	6 59.92	+21 51.8	2.061	2.906	11.9	20.2	2 11	6 58.54	+13 54.9	1.336	2.200	16.0	20.8
416778	2005 <i>FY</i> ₄		1 10.5 301°14	4°2/ 9.6	17		336947	2011 <i>HD</i> ₇₈		1 10.6 88°86	0°2/10.6	18	
12 3	7 56.89	+33 55.6	2.095	2.870	14.3	20.4	12 3	7 50.14	+18 37.8	2.254	3.025	13.5	20.6
12 13	7 52.14	+34 7.9	1.979	2.840	11.6	20.2	12 13	7 46.06	+19 11.9	2.169	3.031	10.6	20.5
12 23	7 44.39	+34 16.1	1.886	2.810	8.4	19.9	12 23	7 39.78	+19 54.0	2.107	3.038	7.2	20.3
1 2	7 34.17	+34 14.9	1.819	2.780	5.4	19.7	1 2	7 31.82	+20 41.4	2.072	3.044	3.4	20.0
1 12	7 22.54	+33 59.5	1.781	2.750	4.4	19.5	1 12	7 23.00	+21 30.3	2.067	3.050	0.6	19.8
1 22	7 10.85	+33 27.5	1.772	2.720	6.9	19.6	1 22	7 14.27	+22 17.4	2.092	3.056	4.5	20.1
2 1	7 0.52	+32 40.1	1.791	2.690	10.5	19.8	2 1	7 6.59	+22 59.8	2.147	3.063	8.1	20.4
2 11	6 52.68	+31 41.0	1.834	2.659	14.1	19.9	2 11	7 0.74	+23 36.0	2.227	3.069	11.3	20.6
331613	2001 <i>YB</i> ₈₈		1 10.5 348°01	1°5/ 9.9	18		378365	2007 <i>LL</i> ₂₅		1 10.6 79°77	3°5/11.6	18	
12 3	7 45.89	+20 45.2	1.337	2.155	18.7	20.1	12 3	7 50.98	+12 28.7	2.179	2.935	14.4	21.1
12 13	7 44.47	+21 41.7	1.254	2.143	14.8	19.8	12 13	7 46.59	+11 56.9	2.098	2.944	11.6	21.0
12 23	7 39.70	+22 52.1	1.190	2.133	10.1	19.5	12 23	7 40.04	+11 33.9	2.038	2.953	8.4	20.8
1 2	7 32.11	+24 11.3	1.150	2.124	4.8	19.1	1 2	7 31.90	+11 20.3	2.004	2.962	5.2	20.6
1 12	7 22.89	+25 31.5	1.135	2.117	1.9	18.9	1 12	7 23.00	+11 16.0	2.000	2.972	3.5	20.5
1 22	7 13.62	+26 44.5	1.145	2.111	7.1	19.2	1 22	7 14.29	+11 19.8	2.024	2.981	5.4	20.6
2 1	7 5.99	+27 44.4	1.181	2.106	12.3	19.5	2 1	7 6.69	+11 30.2	2.078	2.990	8.6	20.9
2 11	7 1.34	+28 28.9	1.238	2.103	16.9	19.8	2 11	7 0.94	+11 45.2	2.156	2.999	11.6	21.1
232272	2002 <i>QS</i> ₉₉		1 10.5 189°51	1°3/11.1	18		201967	2004 <i>PB</i> ₁₃		1 10.6 142°99	0°8/10.8	18	
12 3	7 49.78	+15 48.2											

EPHEMERIDES

1 10.6

1 10.6

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
49422	1998 <i>XM</i> ₇₇		1 10.6 61°03	2.5/11.4	18		430271	2013 <i>WJ</i> ₄₈		1 10.6 102°25	0.6/10.7	18	
12 3	7 52.18	+14 38.2	1.647	2.426	17.4	18.4	12 3	7 53.06	+21 21.8	2.299	3.068	13.4	20.4
12 13	7 48.28	+14 39.7	1.574	2.438	13.9	18.2	12 13	7 48.21	+21 0.3	2.210	3.071	10.5	20.2
12 23	7 41.58	+14 53.1	1.522	2.449	9.7	18.0	12 23	7 41.15	+20 41.4	2.144	3.073	7.2	20.0
1 2	7 32.74	+15 17.6	1.494	2.461	5.3	17.8	1 2	7 32.45	+20 23.9	2.105	3.076	3.5	19.8
1 12	7 22.87	+15 50.1	1.494	2.473	2.5	17.6	1 12	7 22.97	+20 6.7	2.096	3.079	0.8	19.6
1 22	7 13.26	+16 27.2	1.521	2.486	5.8	17.8	1 22	7 13.68	+19 49.2	2.118	3.082	4.4	19.9
2 1	7 5.14	+17 5.3	1.576	2.498	10.0	18.1	2 1	7 5.53	+19 31.2	2.169	3.085	8.1	20.1
2 11	6 59.47	+17 41.6	1.655	2.510	13.8	18.4	2 11	6 59.28	+19 13.2	2.246	3.087	11.2	20.3
136759	1996 <i>FB</i> ₂		1 10.6 303°05	14.6/16.6	18		170325	2003 <i>SA</i> ₇₈		1 10.6 181°82	2.9/11.4	18	
12 3	7 48.44	-14 43.0	1.820	2.465	20.3	19.9	12 3	7 54.52	+14 30.4	1.911	2.674	15.9	21.1
12 13	7 45.35	-16 5.6	1.735	2.455	18.7	19.7	12 13	7 49.84	+14 12.2	1.821	2.675	12.8	20.9
12 23	7 39.68	-17 1.5	1.665	2.445	17.1	19.6	12 23	7 42.54	+14 3.2	1.753	2.675	9.1	20.7
1 2	7 31.93	-17 22.8	1.613	2.435	15.6	19.4	1 2	7 33.21	+14 3.2	1.711	2.675	5.2	20.4
1 12	7 22.99	-17 3.9	1.581	2.426	14.8	19.3	1 12	7 22.83	+14 11.2	1.697	2.674	2.9	20.3
1 22	7 14.00	-16 4.0	1.570	2.417	14.8	19.3	1 22	7 12.56	+14 25.1	1.712	2.673	5.7	20.5
2 1	7 6.14	-14 27.0	1.581	2.408	15.8	19.4	2 1	7 3.58	+14 43.1	1.756	2.672	9.6	20.7
2 11	7 0.42	-12 21.6	1.612	2.399	17.4	19.5	2 11	6 56.81	+15 3.0	1.825	2.670	13.2	20.9
349141	2007 <i>KX</i> ₆		1 10.6 277°79	11.8/ 9.9	18		372477	2009 <i>SH</i> ₂₀₃		1 10.6 236°95	4.3/12.1	18	
12 3	7 58.16	+ 1 46.2	1.655	2.378	19.4	20.3	12 3	7 50.23	+ 9 5.5	2.127	2.875	14.9	21.5
12 13	7 53.44	- 0 37.3	1.548	2.353	17.1	20.0	12 13	7 46.26	+ 8 51.2	2.030	2.869	12.2	21.3
12 23	7 45.53	- 2 53.3	1.461	2.327	14.5	19.8	12 23	7 40.02	+ 8 49.4	1.955	2.863	9.1	21.1
1 2	7 34.87	- 4 53.0	1.398	2.301	12.4	19.6	1 2	7 32.01	+ 9 1.0	1.905	2.857	6.0	20.8
1 12	7 22.47	- 6 27.7	1.361	2.275	11.8	19.5	1 12	7 23.03	+ 9 25.4	1.883	2.851	4.3	20.7
1 22	7 9.71	- 7 30.8	1.350	2.248	13.3	19.5	1 22	7 14.06	+10 0.5	1.890	2.844	5.9	20.8
2 1	6 58.14	- 8 0.4	1.363	2.220	16.0	19.6	2 1	7 6.11	+10 43.3	1.925	2.837	9.1	21.0
2 11	6 49.11	- 8 0.0	1.397	2.193	19.2	19.7	2 11	7 0.01	+11 30.3	1.986	2.831	12.4	21.2
73775	1994 <i>PB</i> ₂₄		1 10.6 74°57	4°0/ 9.8	18		151952	2004 <i>FO</i> ₁₃₉		1 10.6 226°38	1°0/10.8	18	
12 3	7 59.99	+31 30.4	1.648	2.435	17.1	19.2	12 3	7 56.93	+18 51.5	1.832	2.603	16.2	21.5
12 13	7 54.59	+31 52.1	1.585	2.453	13.5	19.0	12 13	7 52.11	+18 50.9	1.731	2.593	12.9	21.2
12 23	7 45.88	+32 11.0	1.542	2.472	9.5	18.8	12 23	7 44.35	+18 57.7	1.652	2.581	9.0	21.0
1 2	7 34.73	+32 20.9	1.525	2.490	5.5	18.6	1 2	7 34.18	+19 10.1	1.599	2.569	4.4	20.7
1 12	7 22.56	+32 17.1	1.536	2.509	4.1	18.6	1 12	7 22.66	+19 25.2	1.574	2.556	1.2	20.4
1 22	7 10.99	+31 58.0	1.574	2.527	7.1	18.8	1 22	7 11.08	+19 40.4	1.578	2.543	5.6	20.7
2 1	7 1.43	+31 25.5	1.640	2.545	10.9	19.1	2 1	7 0.84	+19 53.7	1.611	2.528	10.2	20.9
2 11	6 54.86	+30 43.6	1.729	2.563	14.4	19.3	2 11	6 53.05	+20 4.4	1.669	2.513	14.3	21.1
495826	2017 <i>FV</i> ₁₅₅		1 10.6 325°10	3°4/ 9.6	18		178281	2635 <i>T</i> ₋₃		1 10.6 117°16	0°8/10.8	18	
12 3	7 52.86	+26 7.6	1.265	2.080	19.7	21.0	12 3	7 54.64	+18 49.2	1.972	2.743	15.2	21.2
12 13	7 50.36	+26 51.1	1.183	2.070	15.7	20.7	12 13	7 49.76	+18 53.2	1.894	2.756	12.0	21.0
12 23	7 43.96	+27 41.4	1.120	2.061	10.9	20.4	12 23	7 42.36	+19 4.1	1.839	2.768	8.2	20.8
1 2	7 34.23	+28 31.8	1.080	2.052	5.7	20.1	1 2	7 33.07	+19 19.8	1.809	2.780	4.0	20.6
1 12	7 22.59	+29 14.0	1.064	2.043	3.7	19.9	1 12	7 22.87	+19 37.7	1.809	2.792	1.0	20.4
1 22	7 10.97	+29 41.4	1.074	2.035	8.2	20.2	1 22	7 12.92	+19 55.4	1.839	2.803	4.9	20.7
2 1	7 1.37	+29 51.8	1.108	2.028	13.5	20.4	2 1	7 4.31	+20 11.0	1.897	2.814	8.9	20.9
2 11	6 55.28	+29 47.0	1.163	2.022	18.2	20.7	2 11	6 57.90	+20 23.8	1.980	2.824	12.4	21.2
368603	2004 <i>RR</i> ₂₀₆		1 10.6 172°16	5°1/12.9	18		168969	2001 <i>BX</i> ₅₅		1 10.6 355°34	1°4/10.2	18	
12 3	7 50.92	+ 2 58.0	2.954	3.653	12.2	22.6	12 3	7 50.43	+22 17.5	1.319	2.132	19.1	19.8
12 13	7 45.97	+ 2 31.6	2.859	3.657	10.2	22.5	12 13	7 48.02	+22 51.1	1.242	2.128	15.1	19.5
12 23	7 39.38	+ 2 16.6	2.787	3.661	8.1	22.3	12 23	7 42.08	+23 34.1	1.184	2.125	10.3	19.3
1 2	7 31.55	+ 2 14.5	2.741	3.664	6.1	22.2	1 2	7 33.23	+24 21.9	1.149	2.123	4.9	19.0
1 12	7 23.10	+ 2 25.7	2.725	3.667	5.1	22.1	1 12	7 22.82	+25 7.9	1.140	2.122	1.7	18.7
1 22	7 14.71	+ 2 49.1	2.739	3.668	5.8	22.2	1 22	7 12.53	+25 46.1	1.157	2.122	7.0	19.1
2 1	7 7.08	+ 3 22.7	2.782	3.669	7.7	22.3	2 1	7 4.09	+26 13.4	1.198	2.123	12.2	19.4
2 11	7 0.78	+ 4 3.7	2.853	3.669	9.8	22.4	2 11	6 58.79	+26 29.4	1.261	2.124	16.8	19.6
178741	2000 <i>TK</i> ₄₉		1 10.6 221°17	1°6/11.2	17		499978	2011 <i>KC</i> ₄₈		1 10.6 240°10	3°9/12.4	17	
12 3	7 52.47	+15 22.2	2.730	3.476	12.0	21.9	12 3	7 48.57	+ 7 47.8	2.551	3.286	13.0	22.2
12 13	7 47.55	+15 28.1	2.618	3.464	9.6	21.7	12 13	7 44.59	+ 7 44.7	2.447	3.276	10.7	22.0
12 23	7 40.67	+15 41.1	2.530	3.450	6.8	21.5	12 23	7 38.71	+ 7 53.7	2.364	3.267	8.1	21.8
1 2	7 32.26	+16 0.4	2.471	3.436	3.6	21.3	1 2	7 31.34	+ 8 15.0	2.309	3.257	5.4	21.6
1 12	7 22.98	+16 24.3	2.442	3.422	1.6	21.1	1 12	7 23.16	+ 8 48.1	2.282	3.247	3.9	21.5
1 22	7 13.66	+16 51.0	2.444	3.406	4.1	21.3	1 22	7 14.96	+ 9 30.9	2.285	3.237	5.3	21.6
2 1	7 5.12	+17 18.3	2.478	3.390	7.4	21.5	2 1	7 7.54	+10 20.6	2.317	3.226	8.0	21.7
2 11	6 58.10	+17 44.9	2.538	3.372	10.3	21.6	2 11	7 1.64	+11 13.9	2.376	3.215	10.8	21.9
427272	2014 <i>WA</i> ₁₇₀		1 10.6 120°18	1°1/10.1	18		113669	2002 <i>TO</i> ₉₁		1 10.6 183°89	3°2/11.6	18	
12 3	7 55.00	+22 39.8	2.075	2.848	14.5	21.5	12 3	7 50.03	+12 9.5	2.516	3.263	12.9	20.0
12 13	7 50.04	+23 19.2	1.998	2.862	11.3	21.3	12 13	7 45.66	+11 45.9	2.421	3.263	10.4	19.9
12 23	7 42.56	+24 4.1	1.944	2.876	7.6	21.1	12 23	7 39.36	+11 30.4	2.350	3.263	7.6	19.7
1 2	7 33.17	+24 50.3	1.918	2.890	3.6	20.9	1 2	7 31.61	+11 23.3	2.306	3.263	4.7	19.5
1 12	7 22.84	+25 33.4	1.921	2.903	1.4	20.7	1 12	7 23.13	+11 24.2	2.290	3.262	3.2	19.4
1 22	7 12.71	+26 9.6	1.955	2.916	5.1	21.0	1 22	7 14.73	+11 32.3	2.306	3.261	4.9	19.5
2 1	7 3.89	+26 37.2	2.017	2.928	8.9	21.3	2 1	7 7.24	+11 46.0	2.350	3.261	7.8	19.7
2 11	6 57.24	+26 55.9	2.105	2.940	12.2	21.5	2 11	7 1.33	+12 3.4	2.421	3.259	10.6	19.9
34056	2000 <i>OJ</i> ₄₂		1 10.6 190°85	4°6/12.3	18		461924	2006 <i>ST</i> ₆₅		1 10.6 136°22	0°5/10.4	18	
12 3	7 50.94	+ 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
16745	Zappa		1 10.6 278°30	0°3/10.5 18			388864	2008 QH ₁		1 10.6 166°62	0°9/10.9 18		
12 3	7 55.37	+23 49.3	1.889	2.669	15.4	19.2	12 3	7 56.99	+17 55.4	1.855	2.623	16.1	21.8
12 13	7 50.83	+23 34.1	1.787	2.654	12.3	18.9	12 13	7 51.93	+18 12.1	1.769	2.629	12.8	21.6
12 23	7 43.42	+23 20.4	1.706	2.639	8.4	18.6	12 23	7 44.06	+18 38.0	1.705	2.633	8.8	21.4
1 2	7 33.72	+23 5.9	1.652	2.624	4.0	18.4	1 2	7 33.99	+19 10.5	1.667	2.637	4.3	21.1
1 12	7 22.76	+22 48.5	1.626	2.609	0.8	18.1	1 12	7 22.77	+19 45.9	1.657	2.640	1.0	20.9
1 22	7 11.84	+22 27.0	1.630	2.594	5.5	18.4	1 22	7 11.67	+20 20.7	1.678	2.642	5.3	21.2
2 1	7 2.27	+22 1.7	1.661	2.579	10.0	18.6	2 1	7 1.98	+20 52.0	1.728	2.644	9.7	21.4
2 11	6 55.13	+21 33.9	1.718	2.563	13.9	18.8	2 11	6 54.68	+21 18.5	1.802	2.645	13.5	21.7
40289	1999 JS ₆₄		1 10.6 103°39	3°6/11.9 18			227530	2005 YZ ₆₉		1 10.6 84°56	1°0/10.1 18		
12 3	7 52.03	+11 11.3	2.099	2.851	15.0	19.0	12 3	7 54.31	+21 10.7	2.051	2.824	14.6	20.5
12 13	7 47.48	+10 55.1	2.021	2.865	12.1	18.8	12 13	7 49.44	+22 2.9	1.983	2.848	11.4	20.4
12 23	7 40.70	+10 50.0	1.965	2.879	8.8	18.7	12 23	7 42.12	+23 1.9	1.939	2.871	7.7	20.2
1 2	7 32.26	+10 56.0	1.935	2.892	5.5	18.5	1 2	7 32.97	+24 3.3	1.922	2.894	3.6	20.0
1 12	7 23.04	+11 12.3	1.934	2.905	3.6	18.4	1 12	7 22.95	+25 1.9	1.935	2.917	1.2	19.8
1 22	7 14.02	+11 36.8	1.962	2.918	5.5	18.5	1 22	7 13.19	+25 53.7	1.979	2.940	5.0	20.1
2 1	7 6.17	+12 6.9	2.018	2.931	8.7	18.8	2 1	7 4.74	+26 36.0	2.051	2.962	8.7	20.4
2 11	7 0.24	+12 39.8	2.100	2.944	11.8	19.0	2 11	6 58.45	+27 8.3	2.149	2.984	11.9	20.7
467807	2010 CL ₂₉		1 10.6 299°66	5°0/12.8 17			298925	2004 TD ₁₅₁		1 10.6 249°29	13°7/14.0 18		
12 3	7 47.86	+5 36.8	2.262	2.998	14.5	21.5	12 3	7 52.41	-11 40.2	1.934	2.584	19.1	21.6
12 13	7 44.24	+5 27.1	2.167	2.994	12.0	21.3	12 13	7 48.40	-13 17.5	1.839	2.568	17.5	21.4
12 23	7 38.57	+5 31.9	2.093	2.990	9.3	21.1	12 23	7 41.78	-14 33.2	1.760	2.551	15.8	21.2
1 2	7 31.31	+5 52.3	2.044	2.986	6.5	20.9	1 2	7 33.00	-15 19.6	1.700	2.534	14.4	21.1
1 12	7 23.19	+6 27.8	2.022	2.982	5.0	20.8	1 12	7 22.91	-15 30.5	1.663	2.516	13.7	21.0
1 22	7 15.09	+7 16.3	2.030	2.978	6.2	20.9	1 22	7 12.65	-15 3.9	1.648	2.498	14.0	21.0
2 1	7 7.90	+8 14.2	2.066	2.974	8.8	21.0	2 1	7 3.41	-14 1.9	1.656	2.479	15.4	21.0
2 11	7 2.39	+9 17.2	2.127	2.970	11.7	21.2	2 11	6 56.26	-12 31.5	1.685	2.460	17.3	21.1
142560	2002 TW ₆₇		1 10.6 38°88	2°7/10.7 18			453668	2010 UB ₈₁		1 10.6 114°86	5°7/ 8.4 18		
12 3	8 0.28	+20 12.1	1.656	2.430	17.5	18.6	12 3	7 59.06	+35 17.7	2.039	2.812	14.7	21.0
12 13	7 54.58	+18 53.7	1.573	2.435	14.0	18.4	12 13	7 53.69	+36 29.4	1.971	2.827	11.8	20.8
12 23	7 45.82	+17 35.7	1.511	2.439	9.8	18.2	12 23	7 45.29	+37 38.1	1.926	2.842	8.8	20.7
1 2	7 34.75	+16 19.3	1.476	2.444	5.2	17.9	1 2	7 34.56	+38 36.0	1.907	2.856	6.3	20.6
1 12	7 22.64	+15 6.4	1.469	2.448	2.8	17.8	1 12	7 22.69	+39 16.6	1.917	2.870	5.9	20.6
1 22	7 10.94	+13 59.7	1.493	2.454	6.4	18.0	1 22	7 11.08	+39 36.5	1.956	2.883	7.9	20.7
2 1	7 1.00	+13 1.6	1.544	2.459	10.8	18.3	2 1	7 1.10	+39 35.9	2.021	2.896	10.7	20.9
2 11	6 53.80	+12 13.2	1.620	2.464	14.7	18.5	2 11	6 53.78	+39 18.6	2.111	2.909	13.4	21.1
467710	2009 AG ₁		1 10.6 157°36	0°7/10.2 16			18961	Hampfreeman		1 10.6 25°91	2°3/10.0 18		
12 3	7 50.23	+21 19.8	2.421	3.193	12.7	20.9	12 3	7 52.60	+25 6.2	1.150	1.972	20.8	18.1
12 13	7 46.09	+22 0.0	2.331	3.194	9.9	20.7	12 13	7 49.98	+25 31.4	1.092	1.983	16.4	17.9
12 23	7 39.81	+22 46.2	2.264	3.195	6.7	20.5	12 23	7 43.44	+26 1.9	1.051	1.994	11.1	17.6
1 2	7 31.89	+23 35.4	2.225	3.197	3.2	20.3	1 2	7 33.84	+26 31.8	1.033	2.007	5.5	17.3
1 12	7 23.10	+24 23.8	2.215	3.198	1.0	20.1	1 12	7 22.82	+26 54.5	1.039	2.021	2.6	17.2
1 22	7 14.35	+25 8.0	2.237	3.199	4.4	20.4	1 22	7 12.34	+27 5.8	1.071	2.035	7.5	17.5
2 1	7 6.56	+25 45.6	2.288	3.200	7.9	20.6	2 1	7 4.16	+27 4.8	1.126	2.051	12.7	17.9
2 11	7 0.53	+26 15.8	2.365	3.201	10.9	20.8	2 11	6 59.48	+26 53.7	1.201	2.068	17.2	18.2
283239	2010 UC ₆₅		1 10.6 95°74	1°1/10.2 18			147518	2004 DT ₃₇		1 10.6 92°07	4°5/ 9.2 18		
12 3	7 54.52	+23 24.4	1.854	2.637	15.6	21.0	12 3	7 58.56	+32 15.1	1.895	2.674	15.4	19.3
12 13	7 49.97	+23 44.8	1.778	2.647	12.2	20.8	12 13	7 53.23	+33 4.4	1.830	2.693	12.2	19.1
12 23	7 42.68	+24 9.7	1.723	2.657	8.3	20.6	12 23	7 44.91	+33 51.6	1.787	2.712	8.7	18.9
1 2	7 33.29	+24 35.5	1.694	2.666	3.9	20.3	1 2	7 34.33	+34 30.3	1.771	2.731	5.5	18.8
1 12	7 22.88	+24 58.1	1.694	2.676	1.3	20.2	1 12	7 22.75	+34 54.7	1.783	2.749	4.7	18.8
1 22	7 12.71	+25 14.5	1.722	2.685	5.4	20.5	1 22	7 11.57	+35 2.1	1.824	2.768	7.1	18.9
2 1	7 4.02	+25 23.4	1.779	2.694	9.6	20.7	2 1	7 2.10	+34 53.0	1.892	2.785	10.4	19.2
2 11	6 57.72	+25 25.4	1.860	2.703	13.1	21.0	2 11	6 55.31	+34 30.9	1.984	2.803	13.4	19.4
425493	2010 GG ₃₁		1 10.6 287°12	2°8/11.7 17			335667	2006 SM ₂₁₃		1 10.6 47°88	1°3/10.3 17		
12 3	7 48.49	+12 5.5	2.314	3.070	13.6	21.7	12 3	7 56.54	+23 26.7	1.123	1.939	21.6	20.8
12 13	7 44.87	+12 10.3	2.203	3.051	11.1	21.5	12 13	7 53.11	+23 42.3	1.064	1.952	17.0	20.6
12 23	7 39.11	+12 26.1	2.113	3.031	8.0	21.3	12 23	7 45.59	+24 4.9	1.023	1.964	11.6	20.3
1 2	7 31.63	+12 52.8	2.050	3.012	4.7	21.1	1 2	7 34.86	+24 29.1	1.004	1.978	5.5	20.0
1 12	7 23.14	+13 28.8	2.016	2.992	2.8	20.9	1 12	7 22.67	+24 48.8	1.009	1.991	1.7	19.8
1 22	7 14.55	+14 11.7	2.012	2.973	5.0	21.0	1 22	7 11.04	+24 59.7	1.039	2.006	7.4	20.2
2 1	7 6.79	+14 58.5	2.036	2.953	8.4	21.2	2 1	7 1.86	+25 0.9	1.094	2.020	13.0	20.6
2 11	7 0.72	+15 46.2	2.087	2.933	11.8	21.3	2 11	6 56.36	+24 53.9	1.169	2.035	17.7	20.9
331081	2009 WW ₁₀₀		1 10.6 135°31	0°9/10.2 18			147283	2003 AD ₁₄		1 10.6 13°76	2°8/11.9 18		
12 3	7 52.72	+22 51.2	2.224	2.997	13.6	21.6	12 3	7 45.38	+10 1.3	1.150	1.958	21.7	18.6
12 13	7 48.16	+23 20.5	2.139	3.004	10.7	21.4	12 13	7 44.12	+11 1.6	1.087	1.965	17.5	18.4
12 23	7 41.27	+23 54.5	2.078	3.010	7.2	21.2	12 23	7 39.44	+12 29.4	1.041	1.974	12.4	18.1
1 2	7 32.58	+24 29.8	2.045	3.017	3.4	21.0	1 2	7 32.00	+14 21.5	1.016	1.985	6.8	17.8
1 12	7 23.00	+25 2.8	2.041	3.023	1.2	20.8	1 12	7 23.14	+16 29.2	1.017	1.998	2.8	17.6
1 22	7 13.55	+25 30.4	2.067	3.028	4.8	21.1	1 22	7 14.49	+18 40.5	1.043	2.012	6.8	17.9
2 1	7 5.25	+25 51.0	2.122	3.034	8.4	21.3	2 1	7 7.67	+20 44.0	1.094	2.028	12.1	18.3
2 11	6 58.93	+26 4.4	2.203	3.039	11.6	21.5	2 11	7 3.92	+22 32.0	1.168	2.046	16.8	18.6
147702	2005 GD ₁₄₃		1 10.6 128°43	0°7/10.8 18			427681	2004 CU ₁₀₈		1 10.6 341°35	0°3/10.5 18		
12 3	7 55.38	+18 32.6	2.384	3.140	13.3	21.3	12 3	7 50.59	+23 36.1	1.806	2.598	15.6	20.3</

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
399613	2004 <i>BQ</i> ₆₅		1 10.6	47°76'	0°3'/10.7	18	192	Nausikaa		1 10.6	64°32'	4°1'/9.8	18
12 3	7 57.59	+17 46.8	1.255	2.053	20.8	20.0	12 3	8 2.05	+30 25.9	1.403	2.197	19.1	10.7
12 13	7 52.95	+18 28.0	1.216	2.092	16.2	19.8	12 13	7 56.57	+30 55.1	1.352	2.225	15.1	10.5
12 23	7 44.85	+19 21.7	1.195	2.131	10.9	19.6	12 23	7 47.39	+31 22.5	1.321	2.253	10.4	10.3
1 2	7 34.29	+20 22.4	1.198	2.171	5.1	19.4	1 2	7 35.53	+31 40.8	1.315	2.282	5.9	10.1
1 12	7 22.84	+21 23.0	1.228	2.211	0.8	19.2	1 12	7 22.67	+31 44.3	1.335	2.310	4.3	10.0
1 22	7 12.18	+22 17.4	1.284	2.251	6.3	19.7	1 22	7 10.62	+31 31.2	1.382	2.337	7.6	10.3
2 1	7 3.75	+23 2.3	1.367	2.291	11.1	20.1	2 1	7 0.97	+31 3.7	1.456	2.365	11.7	10.6
2 11	6 58.46	+23 36.8	1.473	2.330	15.1	20.4	2 11	6 54.68	+30 26.4	1.552	2.393	15.4	11.0
427800	2005 <i>GF</i> ₇₆		1 10.6	274°03'	4°3'/8.5	17	348533	2005 <i>UC</i> ₁₄₁		1 10.6	66°09'	5°9'/8.7	17
12 3	7 54.00	+33 2.3	2.544	3.314	12.2	21.9	12 3	7 58.14	+30 13.2	1.344	2.148	19.3	20.2
12 13	7 49.46	+33 59.5	2.431	3.288	9.8	21.7	12 13	7 54.23	+31 41.0	1.283	2.162	15.3	20.0
12 23	7 42.43	+34 57.1	2.341	3.262	7.2	21.4	12 23	7 46.37	+33 11.6	1.243	2.175	10.9	19.7
1 2	7 33.31	+35 49.7	2.280	3.235	4.9	21.3	1 2	7 35.32	+34 34.4	1.226	2.189	7.0	19.6
1 12	7 22.94	+36 31.8	2.248	3.208	4.5	21.2	1 12	7 22.67	+35 38.8	1.236	2.203	6.2	19.6
1 22	7 12.37	+36 59.7	2.245	3.181	6.6	21.3	1 22	7 10.40	+36 18.1	1.272	2.217	9.3	19.8
2 1	7 2.74	+37 11.8	2.272	3.153	9.4	21.4	2 1	7 0.40	+36 32.1	1.332	2.231	13.4	20.0
2 11	6 55.06	+37 9.3	2.323	3.125	12.2	21.5	2 11	6 53.97	+36 25.2	1.414	2.246	17.1	20.3
375384	2008 <i>SE</i> ₁₉₈		1 10.6	61°32'	0°1'/10.5	18	35076	Yataro		1 10.6	282°91'	7°1'/8.5	18
12 3	7 50.82	+20 46.0	2.158	2.934	13.9	21.4	12 3	7 58.69	+38 49.1	1.869	2.646	15.7	18.1
12 13	7 46.76	+21 4.2	2.071	2.937	10.9	21.2	12 13	7 54.00	+39 45.8	1.787	2.642	12.9	17.9
12 23	7 40.39	+21 28.2	2.007	2.939	7.4	21.0	12 23	7 45.88	+40 36.8	1.727	2.638	10.0	17.7
1 2	7 32.23	+21 55.6	1.969	2.941	3.5	20.8	1 2	7 35.01	+41 13.7	1.692	2.635	7.6	17.6
1 12	7 23.16	+22 23.2	1.960	2.943	0.6	20.5	1 12	7 22.72	+41 29.5	1.684	2.631	7.3	17.6
1 22	7 14.19	+22 48.3	1.981	2.945	4.7	20.8	1 22	7 10.64	+41 20.8	1.703	2.627	9.2	17.7
2 1	7 6.35	+23 8.9	2.031	2.948	8.5	21.1	2 1	7 0.39	+40 48.9	1.748	2.623	12.1	17.8
2 11	7 0.47	+23 24.5	2.106	2.950	11.8	21.3	2 11	6 53.15	+39 59.0	1.815	2.619	15.1	18.0
277948	2006 <i>QF</i> ₁₄₄		1 10.6	105°74'	0°6'/10.9	18	32234	Jesslihuang		1 10.6	286°86'	3°7'/11.4	18
12 3	7 50.94	+16 23.8	2.807	3.558	11.6	20.6	12 3	7 53.00	+14 16.5	1.530	2.313	18.3	18.8
12 13	7 46.15	+17 7.7	2.728	3.578	9.1	20.5	12 13	7 49.53	+13 46.2	1.436	2.300	14.9	18.5
12 23	7 39.60	+17 59.3	2.673	3.598	6.2	20.3	12 23	7 42.91	+13 26.5	1.360	2.287	10.8	18.2
1 2	7 31.74	+18 56.1	2.647	3.617	3.0	20.1	1 2	7 33.67	+13 18.2	1.309	2.274	6.3	18.0
1 12	7 23.25	+19 55.0	2.653	3.636	0.7	19.9	1 12	7 22.94	+13 20.8	1.284	2.261	3.8	17.8
1 22	7 14.86	+20 52.7	2.691	3.654	3.7	20.2	1 22	7 12.15	+13 32.8	1.285	2.248	6.9	17.9
2 1	7 7.33	+21 46.6	2.760	3.672	6.7	20.4	2 1	7 2.81	+13 51.7	1.313	2.235	11.6	18.1
2 11	7 1.28	+22 35.0	2.856	3.690	9.3	20.6	2 11	6 56.17	+14 14.7	1.363	2.222	16.0	18.4
456996	2008 <i>CO</i> ₄₅		1 10.6	292°45'	0°6'/10.4	18	334594	2002 <i>TS</i> ₂₃₃		1 10.6	53°51'	0°8'/10.4	18
12 3	7 52.01	+21 2.8	1.754	2.542	16.1	21.6	12 3	7 54.81	+25 13.2	1.988	2.768	14.8	20.3
12 13	7 48.45	+21 32.7	1.661	2.533	12.8	21.4	12 13	7 49.86	+25 1.9	1.918	2.785	11.6	20.1
12 23	7 41.99	+22 11.0	1.589	2.524	8.7	21.1	12 23	7 42.39	+24 51.4	1.870	2.803	7.8	20.0
1 2	7 33.16	+22 54.4	1.542	2.515	4.2	20.8	1 2	7 33.11	+24 39.4	1.849	2.821	3.7	19.7
1 12	7 22.99	+23 38.0	1.524	2.506	1.0	20.6	1 12	7 23.08	+24 23.8	1.856	2.839	1.1	19.6
1 22	7 12.79	+24 17.4	1.533	2.498	5.7	20.9	1 22	7 13.44	+24 3.9	1.894	2.857	4.9	19.9
2 1	7 3.93	+24 49.4	1.570	2.489	10.3	21.1	2 1	7 5.27	+23 40.0	1.959	2.875	8.8	20.2
2 11	6 57.52	+25 13.1	1.631	2.481	14.3	21.3	2 11	6 59.34	+23 13.6	2.051	2.894	12.1	20.4
323762	2005 <i>OY</i> ₂₈		1 10.6	176°08'	2°7'/9.4	18	29177	1990 <i>RF</i> ₇		1 10.6	55°55'	0°0'/10.5	18
12 3	7 54.98	+26 15.0	2.171	2.946	13.9	21.1	12 3	7 50.90	+20 30.7	2.080	2.858	14.3	18.8
12 13	7 50.23	+27 15.0	2.083	2.948	10.9	20.9	12 13	7 46.78	+20 47.7	2.007	2.874	11.2	18.6
12 23	7 42.89	+28 19.4	2.019	2.949	7.5	20.7	12 23	7 40.33	+21 10.6	1.957	2.889	7.6	18.4
1 2	7 33.48	+29 22.8	1.982	2.950	4.1	20.5	1 2	7 32.17	+21 36.8	1.933	2.905	3.6	18.2
1 12	7 22.95	+30 19.7	1.975	2.951	2.9	20.4	1 12	7 23.22	+22 3.2	1.938	2.922	0.6	18.0
1 22	7 12.44	+31 5.4	1.998	2.951	5.8	20.6	1 22	7 14.50	+22 27.1	1.973	2.938	4.6	18.3
2 1	7 3.12	+31 38.0	2.050	2.950	9.3	20.8	2 1	7 7.01	+22 46.8	2.036	2.954	8.4	18.6
2 11	6 55.96	+31 57.8	2.127	2.949	12.5	21.0	2 11	7 1.52	+23 1.5	2.125	2.971	11.6	18.8
412790	2014 <i>PZ</i> ₂₀		1 10.6	220°78'	1°7'/10.1	18	495400	2014 <i>QW</i> ₃₃₁		1 10.6	25°77'	3°0'/11.7	18
12 3	7 57.14	+25 3.7	1.993	2.767	14.9	22.4	12 3	7 49.78	+12 34.1	1.593	2.375	17.8	20.7
12 13	7 52.16	+25 27.2	1.894	2.758	11.8	22.2	12 13	7 46.63	+12 45.2	1.517	2.380	14.3	20.5
12 23	7 44.34	+25 54.3	1.818	2.749	8.1	22.0	12 23	7 40.66	+13 11.6	1.460	2.386	10.2	20.3
1 2	7 34.22	+26 21.0	1.768	2.739	4.0	21.7	1 2	7 32.47	+13 52.3	1.427	2.392	5.8	20.0
1 12	7 22.83	+26 42.8	1.747	2.728	1.9	21.5	1 12	7 23.16	+14 44.2	1.421	2.399	3.0	19.9
1 22	7 11.43	+26 56.4	1.757	2.717	5.7	21.7	1 22	7 14.00	+15 42.5	1.442	2.407	6.0	20.1
2 1	7 1.34	+27 0.8	1.795	2.705	9.8	22.0	2 1	7 6.28	+16 42.2	1.490	2.415	10.3	20.3
2 11	6 53.63	+26 56.7	1.858	2.692	13.5	22.2	2 11	7 1.00	+17 39.2	1.562	2.423	14.2	20.6
351262	2004 <i>RT</i> ₁₇₆		1 10.6	113°77'	1°0'/10.8	18	152203	2005 <i>QD</i> ₁₅₃		1 10.6	109°23'	0°8'/10.4	18
12 3	7 57.91	+19 33.3	1.685	2.462	17.1	21.3	12 3	7 59.95	+22 51.2	1.620	2.401	17.6	20.6
12 13	7 52.74	+19 23.1	1.612	2.476	13.6	21.1	12 13	7 54.50	+23 7.0	1.552	2.420	13.8	20.4
12 23	7 44.61	+19 19.4	1.559	2.489	9.3	20.9	12 23	7 45.88	+23 28.0	1.505	2.438	9.3	20.1
1 2	7 34.25	+19 20.2	1.531	2.502	4.6	20.6	1 2	7 34.87	+23 49.9	1.484	2.456	4.4	19.9
1 12	7 22.85	+19 23.1	1.532	2.515	1.2	20.4	1 12	7 22.79	+24 8.4	1.490	2.473	1.2	19.7
1 22	7 11.81	+19 26.1	1.562	2.527	5.6	20.7	1 22	7 11.14	+24 20.3	1.526	2.490	5.9	20.1
2 1	7 2.43	+19 28.0	1.620	2.539	10.1	21.0	2 1	7 1.33	+24 24.9	1.590	2.506	10.4	20.4
2 11	6 55.68	+19 28.5	1.702	2.550	13.9	21.3	2 11	6 54.37	+24 23.0	1.677	2.521	14.3	20.6
218645	2005 <i>SF</i> ₅₄		1 10.6	282°19'	6°5'/12.4	18	323115	2003 <i>AG</i> ₁₆		1 10.6	29°83'	0°5'/10.8	18
12 3	7 50.18	+ 5 31.2	1.947	2.688	16.3	20							

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
32338	2000 <i>QS</i> ₈₇		1 10.6	22°57'	8°6/15.4	18	363156	2001 <i>SK</i> ₁₀₁		1 10.6	158°58'	1°9/11.3	18
12 3	7 46.79	- 5 57.8	2.293	2.973	15.7	18.7	12 3	7 53.50	+15 3.2	2.395	3.146	13.4	22.8
12 13	7 43.35	- 6 25.5	2.208	2.976	13.8	18.6	12 13	7 48.50	+15 3.7	2.306	3.154	10.7	22.6
12 23	7 37.95	- 6 32.8	2.142	2.980	11.7	18.4	12 23	7 41.39	+15 12.1	2.240	3.161	7.5	22.4
1 2	7 31.06	- 6 16.5	2.098	2.983	9.8	18.3	1 2	7 32.69	+15 27.6	2.202	3.167	4.1	22.2
1 12	7 23.40	- 5 35.6	2.080	2.987	8.7	18.3	1 12	7 23.20	+15 48.3	2.193	3.173	1.9	22.0
1 22	7 15.82	- 4 31.9	2.088	2.991	9.0	18.3	1 22	7 13.83	+16 12.1	2.216	3.177	4.5	22.2
2 1	7 9.16	- 3 9.5	2.122	2.995	10.4	18.4	2 1	7 5.47	+16 37.1	2.268	3.182	7.9	22.4
2 11	7 4.11	- 1 34.7	2.182	3.000	12.4	18.5	2 11	6 58.89	+17 1.6	2.347	3.185	10.9	22.7
32080	Sanashareef		1 10.6	199°70'	1°4/10.9	18	193999	2001 <i>RO</i> ₁₅₃		1 10.6	44°28'	0°3/10.5	18
12 3	7 56.56	+17 47.5	1.954	2.719	15.5	19.0	12 3	7 53.05	+23 45.3	2.060	2.839	14.4	20.2
12 13	7 51.54	+17 42.8	1.859	2.716	12.4	18.8	12 13	7 48.48	+23 32.7	1.983	2.850	11.3	20.1
12 23	7 43.81	+17 45.5	1.785	2.712	8.6	18.5	12 23	7 41.50	+23 22.0	1.929	2.862	7.6	19.9
1 2	7 33.94	+17 54.1	1.738	2.707	4.4	18.3	1 2	7 32.75	+23 11.1	1.901	2.873	3.6	19.6
1 12	7 22.93	+18 6.4	1.720	2.702	1.5	18.0	1 12	7 23.21	+22 58.3	1.902	2.885	0.7	19.4
1 22	7 11.96	+18 20.1	1.732	2.696	5.3	18.3	1 22	7 13.97	+22 42.6	1.933	2.898	4.8	19.7
2 1	7 2.28	+18 33.5	1.773	2.689	9.5	18.5	2 1	7 6.06	+22 24.1	1.993	2.910	8.6	20.0
2 11	6 54.86	+18 45.5	1.839	2.681	13.3	18.7	2 11	7 0.27	+22 3.5	2.077	2.923	11.9	20.2
34449	2000 <i>SJ</i> ₇₉		1 10.6	195°76'	0°4/10.8	18	65378	2002 <i>PD</i> ₈₂		1 10.6	42°76'	0°7/10.4	18
12 3	7 49.44	+19 33.8	2.840	3.600	11.3	20.2	12 3	7 52.29	+23 22.4	1.859	2.646	15.4	18.7
12 13	7 45.11	+19 45.4	2.742	3.599	8.9	20.1	12 13	7 48.18	+23 30.5	1.789	2.660	12.1	18.5
12 23	7 38.99	+20 1.7	2.669	3.596	6.0	19.9	12 23	7 41.45	+23 42.3	1.740	2.675	8.1	18.3
1 2	7 31.51	+20 21.2	2.623	3.594	2.9	19.7	1 2	7 32.77	+23 54.8	1.717	2.689	3.8	18.1
1 12	7 23.34	+20 41.8	2.609	3.591	0.6	19.5	1 12	7 23.22	+24 5.0	1.722	2.705	1.0	17.9
1 22	7 15.21	+21 1.8	2.625	3.589	3.7	19.7	1 22	7 13.98	+24 10.5	1.756	2.720	5.2	18.2
2 1	7 7.88	+21 19.7	2.671	3.585	6.8	19.9	2 1	7 6.18	+24 10.6	1.818	2.736	9.2	18.5
2 11	7 2.01	+21 34.7	2.745	3.582	9.6	20.1	2 11	7 0.67	+24 5.7	1.904	2.752	12.6	18.7
17508	Takumadan		1 10.6	186°17'	1°2/11.0	18	450550	2006 <i>DR</i> ₁₀₉		1 10.6	327°61'	2°2/11.1	18
12 3	7 55.69	+17 11.5	2.128	2.887	14.6	19.6	12 3	7 51.86	+16 55.0	1.395	2.192	19.1	21.3
12 13	7 50.60	+17 21.1	2.033	2.887	11.6	19.4	12 13	7 48.92	+16 43.6	1.310	2.185	15.3	21.0
12 23	7 43.04	+17 38.8	1.961	2.887	8.0	19.1	12 23	7 42.63	+16 42.9	1.244	2.178	10.8	20.7
1 2	7 33.54	+18 2.8	1.916	2.885	4.1	18.9	1 2	7 33.60	+16 52.4	1.201	2.171	5.7	20.4
1 12	7 23.00	+18 30.5	1.901	2.883	1.3	18.7	1 12	7 23.06	+17 9.5	1.184	2.165	2.3	20.2
1 22	7 12.52	+18 59.1	1.917	2.880	4.9	18.9	1 22	7 12.57	+17 31.2	1.193	2.159	6.6	20.5
2 1	7 3.19	+19 26.2	1.961	2.877	8.8	19.2	2 1	7 3.74	+17 54.5	1.227	2.154	11.8	20.7
2 11	6 55.92	+19 50.5	2.032	2.872	12.3	19.4	2 11	6 57.82	+18 16.8	1.283	2.149	16.4	21.0
189714	2001 <i>TL</i> ₂₂₉		1 10.6	161°49'	0°9/11.2	17	463682	2014 <i>OQ</i> ₁₈₇		1 10.6	38°86'	3°4/10.0	18
12 3	7 45.46	+16 33.2	3.732	4.482	9.0	20.6	12 3	7 56.80	+29 48.8	1.452	2.252	18.3	20.3
12 13	7 41.54	+16 47.5	3.637	4.485	7.1	20.5	12 13	7 52.49	+30 0.5	1.392	2.270	14.4	20.1
12 23	7 36.34	+17 6.7	3.566	4.488	4.9	20.3	12 23	7 44.70	+30 10.5	1.354	2.289	10.0	19.9
1 2	7 30.19	+17 29.8	3.524	4.491	2.5	20.2	1 2	7 34.37	+30 13.4	1.339	2.308	5.4	19.7
1 12	7 23.57	+17 55.5	3.513	4.494	0.9	20.0	1 12	7 22.99	+30 4.5	1.350	2.327	3.6	19.6
1 22	7 16.99	+18 22.2	3.534	4.497	2.9	20.2	1 22	7 12.23	+29 42.5	1.389	2.348	7.0	19.9
2 1	7 10.97	+18 48.7	3.586	4.499	5.3	20.4	2 1	7 3.59	+29 9.3	1.453	2.368	11.3	20.2
2 11	7 5.99	+19 13.8	3.666	4.502	7.4	20.5	2 11	6 58.04	+28 28.5	1.541	2.390	15.1	20.5
131575	2001 <i>VP</i> ₈₆		1 10.6	26°56'	3°0/11.0	18	3514	Hooke		1 10.6	79°91'	1°1/10.1	18
12 3	7 54.44	+16 34.6	2.132	2.893	14.5	18.4	12 3	7 48.44	+25 28.0	3.154	3.921	10.1	17.8
12 13	7 49.39	+15 32.3	2.044	2.897	11.6	18.2	12 13	7 44.11	+25 47.3	3.077	3.937	7.9	17.7
12 23	7 42.04	+14 33.7	1.980	2.900	8.3	18.0	12 23	7 38.19	+26 7.9	3.024	3.954	5.3	17.5
1 2	7 32.97	+13 40.1	1.942	2.905	4.8	17.8	1 2	7 31.11	+26 27.4	3.000	3.971	2.6	17.4
1 12	7 23.12	+12 52.5	1.934	2.909	3.1	17.7	1 12	7 23.52	+26 43.8	3.007	3.987	1.3	17.3
1 22	7 13.49	+12 11.9	1.956	2.914	5.4	17.8	1 22	7 16.07	+26 55.6	3.045	4.004	3.6	17.5
2 1	7 5.08	+11 38.8	2.007	2.918	8.9	18.0	2 1	7 9.43	+27 2.1	3.113	4.020	6.2	17.7
2 11	6 58.68	+11 12.9	2.084	2.924	12.1	18.3	2 11	7 4.15	+27 3.4	3.208	4.036	8.5	17.8
363095	2000 <i>SU</i> ₂₁₆		1 10.6	78°58'	3°1/ 9.5	18	427226	2014 <i>WX</i> ₄₃		1 10.6	335°57'	1°6/10.0	18
12 3	7 58.43	+28 18.1	2.013	2.787	14.8	21.0	12 3	7 51.80	+23 18.4	1.789	2.579	15.8	20.8
12 13	7 52.72	+29 10.3	1.958	2.821	11.6	20.8	12 13	7 48.23	+23 56.8	1.702	2.576	12.4	20.6
12 23	7 44.35	+30 2.9	1.926	2.854	7.9	20.7	12 23	7 41.82	+24 41.9	1.637	2.573	8.5	20.3
1 2	7 34.05	+30 50.3	1.921	2.887	4.4	20.5	1 2	7 33.11	+25 29.4	1.597	2.570	4.1	20.0
1 12	7 22.95	+31 27.5	1.945	2.919	3.3	20.5	1 12	7 23.17	+26 13.9	1.586	2.567	1.8	19.9
1 22	7 12.30	+31 51.3	2.000	2.951	6.0	20.7	1 22	7 13.28	+26 50.9	1.602	2.564	5.9	20.1
2 1	7 3.22	+32 1.6	2.083	2.982	9.3	21.0	2 1	7 4.75	+27 18.0	1.646	2.562	10.2	20.4
2 11	6 56.56	+32 0.4	2.191	3.012	12.2	21.2	2 11	6 58.65	+27 34.9	1.714	2.560	13.9	20.6
301625	2010 <i>EC</i> ₂₁		1 10.6	196°39'	1°4/10.1	18	484995	2009 <i>VZ</i> ₁₄		1 10.6	143°48'	2°7/ 9.9	18
12 3	7 57.42	+23 52.8	2.048	2.819	14.7	21.8	12 3	7 58.34	+26 16.7	1.426	2.223	18.7	22.2
12 13	7 52.25	+24 23.8	1.954	2.816	11.6	21.6	12 13	7 54.11	+26 48.1	1.349	2.226	14.8	21.9
12 23	7 44.33	+24 59.5	1.882	2.813	7.9	21.4	12 23	7 46.18	+27 23.6	1.292	2.228	10.2	21.7
1 2	7 34.21	+25 36.0	1.837	2.809	3.9	21.1	1 2	7 35.28	+27 57.2	1.259	2.230	5.3	21.4
1 12	7 22.90	+26 8.6	1.822	2.803	1.6	21.0	1 12	7 22.83	+28 22.2	1.253	2.233	3.0	21.2
1 22	7 11.62	+26 33.9	1.837	2.798	5.5	21.2	1 22	7 10.62	+28 34.2	1.274	2.234	7.3	21.5
2 1	7 1.62	+26 50.0	1.882	2.791	9.5	21.4	2 1	7 0.41	+28 32.5	1.321	2.236	12.2	21.8
2 11	6 53.92	+26 57.4	1.951	2.784	13.1	21.6	2 11	6 53.48	+28 19.5	1.390	2.238	16.4	22.0
270929	2002 <i>UQ</i> ₃₉		1 10.6	85°74'	4°4/12.4	18	123239	2000 <i>UQ</i> ₅₈		1 10.6	52°80'	2°3/ 9.9	18
12 3	7 52.17	+ 7 22.7	2.537	3.262	13.3	21.3	12 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
327317	2005 <i>UA</i> ₃₅		1 10.6 300°64	5°9/ 8.2 18			4349	Tibúrcio		1 10.6 67°94	2°2/ 9.8 18		
12 3	7 55.33	+34 19.5	1.897	2.682	15.2	21.2	12 3	7 56.46	+23 24.4	1.661	2.448	16.9	15.7
12 13	7 51.25	+35 33.4	1.814	2.678	12.3	21.0	12 13	7 51.77	+24 28.7	1.603	2.474	13.2	15.6
12 23	7 44.03	+36 46.6	1.753	2.674	9.1	20.8	12 23	7 44.08	+25 39.5	1.567	2.501	8.9	15.4
1 2	7 34.22	+37 51.1	1.718	2.671	6.5	20.6	1 2	7 34.11	+26 50.3	1.556	2.527	4.4	15.2
1 12	7 22.99	+38 39.4	1.711	2.667	6.2	20.6	1 12	7 23.11	+27 54.3	1.574	2.554	2.4	15.1
1 22	7 11.80	+39 6.7	1.732	2.664	8.4	20.7	1 22	7 12.50	+28 46.2	1.621	2.580	6.2	15.4
2 1	7 2.15	+39 12.3	1.779	2.661	11.6	20.9	2 1	7 3.60	+29 23.7	1.695	2.606	10.3	15.7
2 11	6 55.21	+38 59.3	1.848	2.658	14.6	21.1	2 11	6 57.39	+29 47.6	1.794	2.631	13.8	16.0
7366	Agata		1 10.6 64°12	2°6/ 9.6 18			35275	1996 <i>RB</i> ₂₅		1 10.6 186°61	1°1/ 10.3 18		
12 3	7 52.41	+27 47.3	2.189	2.969	13.6	17.1	12 3	7 57.34	+23 42.1	2.064	2.834	14.6	20.6
12 13	7 48.04	+28 25.9	2.115	2.983	10.6	17.0	12 13	7 52.12	+24 4.1	1.972	2.834	11.5	20.3
12 23	7 41.27	+29 5.8	2.065	2.996	7.3	16.8	12 23	7 44.22	+24 30.1	1.903	2.834	7.9	20.1
1 2	7 32.70	+29 42.6	2.042	3.010	4.0	16.6	1 2	7 34.21	+24 56.6	1.861	2.832	3.8	19.9
1 12	7 23.27	+30 12.0	2.048	3.024	2.8	16.6	1 12	7 23.08	+25 19.7	1.848	2.830	1.4	19.7
1 22	7 14.07	+30 31.4	2.084	3.038	5.5	16.8	1 22	7 12.04	+25 36.4	1.866	2.827	5.3	19.9
2 1	7 6.12	+30 39.8	2.148	3.052	8.7	17.0	2 1	7 2.30	+25 45.3	1.913	2.824	9.3	20.2
2 11	7 0.25	+30 38.4	2.237	3.066	11.7	17.2	2 11	6 54.82	+25 46.9	1.985	2.819	12.8	20.4
146072	2000 <i>GR</i> ₉₀		1 10.6 255°18	1°4/ 10.1 18			362630	2011 <i>SY</i> ₁₂₈		1 10.6 31°87	5°5/ 9.2 18		
12 3	7 54.73	+23 49.7	2.206	2.977	13.8	20.9	12 3	7 54.94	+30 36.4	1.226	2.042	20.1	20.6
12 13	7 50.17	+24 23.2	2.093	2.956	10.9	20.6	12 13	7 51.93	+31 36.5	1.169	2.055	16.0	20.4
12 23	7 43.01	+25 2.1	2.004	2.935	7.5	20.4	12 23	7 44.90	+32 37.1	1.132	2.068	11.3	20.1
1 2	7 33.70	+25 42.8	1.941	2.912	3.7	20.1	1 2	7 34.69	+33 29.0	1.117	2.083	6.9	20.0
1 12	7 23.08	+26 20.8	1.908	2.889	1.6	19.9	1 12	7 23.02	+34 3.2	1.127	2.098	5.8	19.9
1 22	7 12.28	+26 52.3	1.906	2.866	5.3	20.1	1 22	7 11.88	+34 15.0	1.162	2.114	9.1	20.2
2 1	7 2.49	+27 15.1	1.933	2.842	9.3	20.3	2 1	7 3.14	+34 5.4	1.221	2.131	13.4	20.5
2 11	6 54.76	+27 28.9	1.985	2.817	12.9	20.5	2 11	6 58.00	+33 39.1	1.300	2.149	17.3	20.7
419841	2010 <i>XB</i> ₈₅		1 10.6 54°16	6°0/ 12.0 18			228038	2008 <i>GE</i> ₇₉		1 10.6 137°79	2°8/ 9.4 18		
12 3	7 53.32	+ 9 11.6	1.664	2.424	18.0	20.7	12 3	7 55.86	+29 12.8	2.618	3.381	12.0	21.9
12 13	7 49.02	+ 8 10.0	1.596	2.440	14.7	20.5	12 13	7 50.36	+29 56.9	2.539	3.396	9.5	21.7
12 23	7 42.05	+ 7 21.3	1.548	2.456	11.1	20.3	12 23	7 42.68	+30 41.1	2.485	3.410	6.6	21.5
1 2	7 33.08	+ 6 48.5	1.524	2.472	7.7	20.1	1 2	7 33.36	+31 21.3	2.459	3.423	3.8	21.4
1 12	7 23.22	+ 6 32.5	1.527	2.489	6.0	20.1	1 12	7 23.24	+31 53.4	2.464	3.436	2.9	21.3
1 22	7 13.70	+ 6 32.9	1.557	2.506	7.6	20.2	1 22	7 13.28	+32 14.9	2.500	3.448	5.1	21.5
2 1	7 5.67	+ 6 47.0	1.614	2.523	10.8	20.4	2 1	7 4.43	+32 25.1	2.565	3.459	8.0	21.7
2 11	7 0.00	+ 7 11.0	1.694	2.540	14.1	20.7	2 11	6 57.43	+32 25.1	2.657	3.470	10.6	21.9
161104	2002 <i>PF</i> ₁₇₄		1 10.6 61°94	2°9/ 11.8 18			56181	1999 <i>FU</i> ₂₉		1 10.6 313°26	1°9/ 11.3 18		
12 3	7 49.90	+12 4.2	2.069	2.830	14.9	20.2	12 3	7 49.88	+15 23.1	1.695	2.478	16.8	18.6
12 13	7 45.98	+12 6.7	1.992	2.842	12.0	20.0	12 13	7 46.85	+15 35.5	1.599	2.466	13.5	18.4
12 23	7 39.83	+12 20.9	1.936	2.855	8.6	19.8	12 23	7 41.00	+16 0.5	1.523	2.453	9.5	18.1
1 2	7 32.02	+12 46.1	1.907	2.868	5.0	19.6	1 2	7 32.82	+16 36.9	1.472	2.441	5.0	17.8
1 12	7 23.40	+13 20.4	1.905	2.881	2.9	19.5	1 12	7 23.31	+17 21.6	1.448	2.430	1.9	17.6
1 22	7 14.96	+14 0.8	1.933	2.894	5.1	19.7	1 22	7 13.71	+18 10.5	1.452	2.418	5.7	17.8
2 1	7 7.65	+14 44.1	1.989	2.908	8.5	19.9	2 1	7 5.37	+18 59.3	1.483	2.407	10.4	18.0
2 11	7 2.23	+15 27.5	2.071	2.921	11.7	20.1	2 11	6 59.41	+19 44.8	1.538	2.397	14.5	18.3
131957	2002 <i>CG</i> ₃₉		1 10.6 254°65	0°8/ 10.8 18			460266	2014 <i>QM</i> ₃₁₃		1 10.6 53°87	0°0/ 10.7 16		
12 3	7 54.84	+19 35.7	1.688	2.470	16.9	20.4	12 3	7 55.02	+19 42.5	1.484	2.276	18.4	21.6
12 13	7 50.75	+19 32.7	1.593	2.461	13.5	20.1	12 13	7 50.79	+20 6.4	1.428	2.302	14.4	21.4
12 23	7 43.63	+19 36.9	1.520	2.452	9.3	19.9	12 23	7 43.45	+20 39.4	1.392	2.328	9.7	21.2
1 2	7 34.03	+19 46.3	1.471	2.443	4.6	19.6	1 2	7 33.81	+21 17.5	1.381	2.354	4.6	21.0
1 12	7 23.06	+19 58.2	1.451	2.433	1.0	19.3	1 12	7 23.20	+21 55.8	1.397	2.380	0.7	20.7
1 22	7 12.10	+20 9.9	1.458	2.424	5.8	19.6	1 22	7 13.08	+22 30.0	1.441	2.407	5.8	21.2
2 1	7 2.59	+20 19.4	1.493	2.414	10.6	19.9	2 1	7 4.80	+22 57.6	1.511	2.433	10.4	21.5
2 11	6 55.65	+20 26.2	1.552	2.404	14.8	20.1	2 11	6 59.28	+23 17.9	1.605	2.460	14.2	21.8
265728	2005 <i>UY</i> ₄₂₀		1 10.6 24°65	1°9/ 9.9 18			203554	2002 <i>CD</i> ₉₀		1 10.6 347°94	1°3/ 10.3 18		
12 3	7 52.28	+24 28.9	1.742	2.535	16.0	20.4	12 3	7 51.71	+23 31.8	1.270	2.085	19.6	20.2
12 13	7 48.62	+25 6.4	1.663	2.538	12.6	20.2	12 13	7 49.28	+23 46.4	1.191	2.078	15.6	19.9
12 23	7 42.06	+25 49.1	1.606	2.542	8.6	19.9	12 23	7 43.15	+24 7.7	1.132	2.073	10.7	19.6
1 2	7 33.22	+26 32.3	1.574	2.545	4.3	19.7	1 2	7 33.97	+24 31.4	1.095	2.069	5.2	19.3
1 12	7 23.20	+27 10.9	1.569	2.550	2.2	19.6	1 12	7 23.14	+24 52.0	1.083	2.065	1.7	19.1
1 22	7 13.34	+27 40.6	1.593	2.554	6.0	19.8	1 22	7 12.46	+25 5.1	1.096	2.063	7.1	19.4
2 1	7 4.96	+27 59.5	1.644	2.559	10.2	20.1	2 1	7 3.72	+25 9.1	1.134	2.061	12.5	19.7
2 11	6 59.08	+28 8.0	1.719	2.564	13.9	20.3	2 11	6 58.28	+25 4.6	1.193	2.060	17.3	20.0
216843	2006 <i>XE</i> ₅₃		1 10.6 94°94	4°4/ 8.7 18			166853	2002 <i>WZ</i> ₁₀		1 10.6 74°96	0°4/ 10.8 18		
12 3	7 58.28	+30 5.3	1.986	2.762	14.9	20.1	12 3	7 50.44	+18 14.0	2.256	3.026	13.5	19.9
12 13	7 53.00	+31 27.0	1.922	2.785	11.8	20.0	12 13	7 46.33	+18 45.1	2.177	3.038	10.7	19.7
12 23	7 44.84	+32 49.8	1.881	2.807	8.3	19.8	12 23	7 40.06	+19 24.2	2.120	3.050	7.3	19.5
1 2	7 34.47	+34 6.1	1.868	2.829	5.2	19.6	1 2	7 32.16	+20 8.5	2.091	3.062	3.5	19.3
1 12	7 23.01	+35 8.9	1.885	2.851	4.6	19.7	1 12	7 23.46	+20 54.6	2.091	3.074	0.6	19.1
1 22	7 11.81	+35 53.9	1.931	2.872	7.0	19.8	1 22	7 14.90	+21 39.3	2.122	3.086	4.4	19.4
2 1	7 2.15	+36 20.0	2.005	2.892	10.2	20.1	2 1	7 7.39	+22 19.7	2.181	3.098	7.9	19.6
2 11	6 55.01	+36 29.5	2.103	2.913	13.1	20.3	2 11	7 1.71	+22 54.5	2.267	3.110	11.1	19.8
458245	2010 <i>TD</i> ₅₁		1 10.6 64°55	2°1/ 11.3 18			523186	2016 <i>UG</i> ₅		1 10.6 230°03	18°8/ 14.0 18 R		
12 3	7 52.44	+15 24.3	1.694	2.4									

EPHEMERIDES

1 10.6

1 10.7

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
458371	2010 <i>WO</i> ₃		1 10.6	27°68	0°7/10.8	18	50125	2000 <i>AB</i> ₁₂₄		1 10.6	24°72	3°0/11.4	18
12 3	7 52.77	+19 56.9	1.681	2.468	16.7	21.4	12 3	7 51.69	+14 53.6	1.164	1.972	21.5	18.9
12 13	7 48.95	+19 54.7	1.600	2.471	13.2	21.2	12 13	7 49.16	+14 45.8	1.098	1.978	17.2	18.6
12 23	7 42.26	+19 59.4	1.541	2.475	9.1	20.9	12 23	7 42.96	+14 53.7	1.049	1.984	12.2	18.3
1 2	7 33.33	+20 8.8	1.507	2.479	4.4	20.7	1 2	7 33.83	+15 16.6	1.022	1.991	6.6	18.0
1 12	7 23.29	+20 20.3	1.500	2.483	0.9	20.4	1 12	7 23.24	+15 51.1	1.019	1.999	3.0	17.9
1 22	7 13.44	+20 31.1	1.521	2.487	5.5	20.7	1 22	7 12.94	+16 32.4	1.041	2.008	7.2	18.1
2 1	7 5.09	+20 39.9	1.570	2.492	10.0	21.0	2 1	7 4.66	+17 15.4	1.086	2.017	12.5	18.4
2 11	6 59.24	+20 45.7	1.642	2.497	14.0	21.3	2 11	6 59.64	+17 56.1	1.154	2.028	17.2	18.8
197801	2004 <i>PR</i> ₆₅		1 10.6	175°06	4°3/9.3	18	91461	1999 <i>RQ</i> ₇₁		1 10.6	114°51	1°3/11.1	18
12 3	8 1.65	+32 10.2	2.044	2.812	14.8	21.7	12 3	7 52.08	+16 40.8	2.177	2.942	14.1	20.5
12 13	7 55.75	+32 56.2	1.959	2.816	11.8	21.5	12 13	7 47.66	+16 53.6	2.095	2.952	11.2	20.4
12 23	7 46.82	+33 40.9	1.896	2.819	8.5	21.3	12 23	7 41.00	+17 14.6	2.036	2.962	7.7	20.2
1 2	7 35.50	+34 18.0	1.861	2.821	5.4	21.1	1 2	7 32.64	+17 42.3	2.003	2.972	3.9	19.9
1 12	7 22.94	+34 41.6	1.855	2.822	4.5	21.1	1 12	7 23.44	+18 13.9	1.999	2.981	1.3	19.8
1 22	7 10.56	+34 48.3	1.878	2.822	7.0	21.2	1 22	7 14.38	+18 46.7	2.026	2.990	4.6	20.0
2 1	6 59.73	+34 38.3	1.930	2.821	10.3	21.4	2 1	7 6.45	+19 18.2	2.081	2.999	8.2	20.2
2 11	6 51.53	+34 14.8	2.007	2.820	13.5	21.6	2 11	7 0.42	+19 46.8	2.163	3.008	11.5	20.5
507315	2011 <i>QF</i> ₄₀		1 10.6	155°26	2°1/11.7	17	424775	2008 <i>TQ</i> ₁₀₁		1 10.6	49°99	5°0/12.4	18
12 3	7 48.51	+13 17.9	2.980	3.724	11.1	21.9	12 3	7 50.53	+8 32.4	1.873	2.628	16.4	21.2
12 13	7 44.24	+13 14.9	2.887	3.729	8.9	21.8	12 13	7 46.60	+8 4.0	1.805	2.647	13.4	21.1
12 23	7 38.36	+13 19.1	2.818	3.734	6.4	21.6	12 23	7 40.31	+7 49.6	1.758	2.666	10.0	20.9
1 2	7 31.29	+13 30.1	2.777	3.738	3.7	21.4	1 2	7 32.29	+7 50.3	1.736	2.686	6.7	20.7
1 12	7 23.62	+13 46.7	2.767	3.743	2.1	21.3	1 12	7 23.50	+8 5.5	1.741	2.706	5.0	20.7
1 22	7 16.03	+14 7.5	2.787	3.747	3.9	21.5	1 22	7 14.99	+8 33.0	1.774	2.726	6.4	20.8
2 1	7 9.18	+14 31.0	2.837	3.750	6.5	21.6	2 1	7 7.75	+9 9.5	1.834	2.747	9.5	21.0
2 11	7 3.65	+14 55.5	2.915	3.753	9.0	21.8	2 11	7 2.56	+9 51.2	1.919	2.767	12.6	21.3
50371	2000 <i>CT</i> ₈₄		1 10.6	162°00	2°0/11.6	18	246656	2008 <i>YA</i> ₄₁		1 10.6	353°55	0°7/10.8	18
12 3	7 50.03	+13 28.3	2.459	3.212	13.0	18.7	12 3	7 53.42	+21 45.5	2.175	2.947	13.9	20.2
12 13	7 45.85	+13 44.4	2.367	3.215	10.4	18.6	12 13	7 48.76	+21 14.5	2.083	2.945	11.0	20.0
12 23	7 39.68	+14 10.4	2.297	3.217	7.4	18.4	12 23	7 41.76	+20 45.2	2.014	2.944	7.5	19.8
1 2	7 31.99	+14 45.1	2.255	3.219	4.1	18.2	1 2	7 33.00	+20 17.0	1.972	2.943	3.7	19.6
1 12	7 23.51	+15 26.3	2.243	3.222	2.0	18.0	1 12	7 23.39	+19 48.8	1.960	2.943	0.9	19.3
1 22	7 15.07	+16 11.1	2.261	3.223	4.3	18.2	1 22	7 13.96	+19 20.7	1.978	2.942	4.6	19.6
2 1	7 7.54	+16 56.9	2.309	3.225	7.6	18.4	2 1	7 5.73	+18 52.9	2.024	2.942	8.4	19.9
2 11	7 1.64	+17 41.0	2.383	3.226	10.6	18.6	2 11	6 59.49	+18 26.0	2.097	2.942	11.8	20.1
437596	2014 <i>BZ</i> ₁		1 10.6	338°87	1°1/11.2	17	85315	1995 <i>BE</i>		1 10.6	340°31	1°6/11.2	18
12 3	7 48.12	+16 10.6	2.548	3.310	12.4	21.3	12 3	7 47.05	+16 13.9	1.351	2.158	19.1	19.1
12 13	7 44.35	+16 34.1	2.453	3.309	9.8	21.1	12 13	7 45.35	+16 28.5	1.263	2.144	15.3	18.8
12 23	7 38.66	+17 5.9	2.382	3.308	6.8	20.9	12 23	7 40.39	+16 58.0	1.195	2.132	10.7	18.5
1 2	7 31.51	+17 44.2	2.338	3.307	3.5	20.7	1 2	7 32.69	+17 41.0	1.149	2.121	5.5	18.2
1 12	7 23.58	+18 26.7	2.324	3.306	1.1	20.5	1 12	7 23.41	+18 33.3	1.128	2.110	1.7	17.9
1 22	7 15.68	+19 10.5	2.341	3.306	4.0	20.7	1 22	7 14.05	+19 29.3	1.133	2.101	6.5	18.2
2 1	7 8.62	+19 52.9	2.387	3.305	7.3	20.9	2 1	7 6.25	+20 23.6	1.163	2.094	11.8	18.5
2 11	7 3.12	+20 32.1	2.460	3.304	10.3	21.1	2 11	7 1.31	+21 12.2	1.214	2.087	16.6	18.7
290741	2005 <i>UZ</i> ₄₆₆		1 10.6	115°03	0°9/10.4	18	400162	2006 <i>VM</i> ₈₅		1 10.6	71°93	0°4/10.8	18
12 3	7 54.88	+24 4.7	2.028	2.804	14.6	21.2	12 3	7 54.92	+19 1.5	1.709	2.489	16.8	21.1
12 13	7 50.10	+24 13.3	1.946	2.812	11.5	21.0	12 13	7 50.39	+19 21.4	1.644	2.511	13.2	20.9
12 23	7 42.77	+24 24.8	1.887	2.820	7.8	20.8	12 23	7 43.05	+19 49.9	1.601	2.533	9.0	20.7
1 2	7 33.49	+24 36.1	1.855	2.827	3.7	20.5	1 2	7 33.64	+20 23.7	1.583	2.554	4.3	20.5
1 12	7 23.28	+24 44.2	1.852	2.834	1.2	20.4	1 12	7 23.30	+20 58.8	1.593	2.576	0.7	20.3
1 22	7 13.29	+24 47.0	1.878	2.841	5.1	20.7	1 22	7 13.31	+21 31.5	1.632	2.597	5.3	20.7
2 1	7 4.65	+24 43.7	1.933	2.848	8.9	20.9	2 1	7 4.90	+21 59.4	1.699	2.619	9.6	21.0
2 11	6 58.23	+24 35.3	2.013	2.854	12.4	21.1	2 11	6 58.96	+22 21.5	1.790	2.640	13.3	21.2
454965	2015 <i>TF</i> ₂₀₃		1 10.6	69°16	1°1/10.9	18	199865	2007 <i>ED</i> ₁₃₃		1 10.6	269°68	2°1/11.2	18
12 3	7 58.16	+18 39.2	1.410	2.199	19.4	21.8	12 3	7 53.96	+16 8.4	1.490	2.277	18.6	20.9
12 13	7 53.32	+18 40.7	1.354	2.224	15.2	21.6	12 13	7 50.44	+16 6.6	1.400	2.269	14.9	20.6
12 23	7 45.20	+18 51.7	1.317	2.250	10.4	21.4	12 23	7 43.66	+16 16.6	1.330	2.261	10.5	20.4
1 2	7 34.65	+19 9.4	1.305	2.276	5.1	21.2	1 2	7 34.19	+16 37.6	1.284	2.253	5.6	20.1
1 12	7 23.12	+19 30.0	1.319	2.302	1.2	21.0	1 12	7 23.18	+17 6.6	1.264	2.245	2.2	19.8
1 22	7 12.16	+19 50.0	1.362	2.328	6.0	21.4	1 22	7 12.16	+17 39.9	1.271	2.237	6.4	20.1
2 1	7 3.20	+20 7.3	1.430	2.353	10.8	21.7	2 1	7 2.68	+18 13.8	1.304	2.229	11.5	20.3
2 11	6 57.20	+20 21.1	1.522	2.378	14.8	22.0	2 11	6 56.02	+18 45.6	1.361	2.221	16.0	20.6
402572	2006 <i>RB</i> ₄₇		1 10.6	119°21	2°5/11.6	18	74547	1999 <i>JE</i> ₆₃		1 10.7	268°19	2°8/11.3	18
12 3	7 55.09	+13 27.8	2.183	2.933	14.5	22.4	12 3	7 54.28	+15 38.0	1.713	2.488	17.0	19.6
12 13	7 49.84	+13 28.2	2.108	2.953	11.6	22.3	12 13	7 50.35	+15 17.9	1.610	2.471	13.8	19.4
12 23	7 42.35	+13 38.4	2.055	2.972	8.2	22.1	12 23	7 43.44	+15 6.8	1.527	2.453	9.8	19.1
1 2	7 33.22	+13 57.5	2.028	2.991	4.6	21.9	1 2	7 34.05	+15 4.6	1.469	2.436	5.5	18.8
1 12	7 23.34	+14 23.4	2.032	3.009	2.5	21.8	1 12	7 23.21	+15 10.3	1.438	2.418	2.8	18.6
1 22	7 13.68	+14 53.7	2.066	3.027	4.9	22.0	1 22	7 12.24	+15 22.1	1.436	2.399	6.2	18.8
2 1	7 5.22	+15 25.8	2.129	3.044	8.3	22.2	2 1	7 2.55	+15 37.7	1.461	2.381	10.8	19.0
2 11	6 58.69	+15 57.7	2.219	3.060	11.4	22.5	2 11	6 55.33	+15 55.4	1.509	2.362	15.1	19.2
216981	2000 <i>QD</i> ₂₂		1 10.6	46°11	0°5/10.8	18	283944	2004 <i>PS</i> ₆₂		1 10.7	90°28	1°3/10.2	17
12 3	7 53.76	+19 54.7	1.552										

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
360234	2000 <i>BF</i> ₄₁		1 10.7 56°22	1.2°/11.0	17		25168	1998 <i>SC</i> ₆₅		1 10.7 135°14	0.2°/10.7	18	
12 3	7 56.60	+17 13.7	1.426	2.213	19.2	20.3	12 3	7 54.80	+19 44.6	1.985	2.757	15.1	19.7
12 13	7 51.99	+17 31.6	1.375	2.245	15.1	20.1	12 13	7 50.09	+20 2.7	1.903	2.765	11.9	19.5
12 23	7 44.23	+18 0.8	1.345	2.277	10.3	19.9	12 23	7 42.82	+20 27.8	1.844	2.774	8.1	19.3
1 2	7 34.19	+18 38.2	1.338	2.310	5.0	19.7	1 2	7 33.58	+20 57.3	1.811	2.782	3.9	19.1
1 12	7 23.25	+19 18.8	1.359	2.342	1.3	19.5	1 12	7 23.36	+21 27.6	1.807	2.790	0.6	18.8
1 22	7 12.90	+19 58.1	1.408	2.374	5.8	19.9	1 22	7 13.30	+21 55.7	1.832	2.797	4.9	19.2
2 1	7 4.48	+20 33.1	1.483	2.406	10.4	20.2	2 1	7 4.54	+22 19.3	1.887	2.804	9.0	19.4
2 11	6 58.90	+21 2.2	1.582	2.438	14.3	20.5	2 11	6 57.98	+22 37.8	1.967	2.810	12.5	19.7
455741	2005 <i>JL</i> ₃₁		1 10.7 235°21	5.9°/ 7.3	17		2128	Wetherill		1 10.7 96°74	6.8°/ 8.7	18	
12 3	7 55.63	+39 6.1	2.706	3.465	11.8	21.2	12 3	8 6.31	+42 42.3	2.357	3.101	13.7	19.4
12 13	7 50.77	+40 22.1	2.613	3.455	9.7	21.0	12 13	7 58.95	+43 38.7	2.305	3.133	11.4	19.3
12 23	7 43.37	+41 35.0	2.544	3.445	7.6	20.9	12 23	7 48.65	+44 25.5	2.275	3.165	9.0	19.2
1 2	7 33.91	+42 38.3	2.503	3.434	6.1	20.7	1 2	7 36.22	+44 55.7	2.273	3.195	7.2	19.1
1 12	7 23.25	+43 26.3	2.490	3.424	6.1	20.7	1 12	7 22.97	+45 4.3	2.299	3.225	6.9	19.2
1 22	7 12.50	+43 55.4	2.507	3.412	7.6	20.8	1 22	7 10.32	+44 50.2	2.353	3.254	8.2	19.3
2 1	7 2.80	+44 5.0	2.552	3.401	9.7	20.9	2 1	6 59.53	+44 15.8	2.436	3.283	10.2	19.5
2 11	6 55.15	+43 57.4	2.620	3.389	11.9	21.1	2 11	6 51.49	+43 26.4	2.542	3.310	12.3	19.7
290134	2005 <i>QB</i> ₁₅₄		1 10.7 221°15	0.8°/10.3	18		369395	2009 <i>VZ</i> ₈₂		1 10.7 136°71	2.5°/11.4	18	
12 3	7 53.54	+21 32.7	2.122	2.895	14.2	20.9	12 3	7 53.75	+14 48.8	2.352	3.103	13.6	21.5
12 13	7 49.18	+22 10.4	2.025	2.889	11.2	20.7	12 13	7 48.71	+14 23.9	2.267	3.113	10.9	21.3
12 23	7 42.30	+22 55.2	1.951	2.882	7.6	20.5	12 23	7 41.58	+14 5.9	2.205	3.123	7.7	21.1
1 2	7 33.39	+23 43.5	1.903	2.875	3.6	20.2	1 2	7 32.90	+13 54.6	2.170	3.132	4.4	21.0
1 12	7 23.34	+24 31.1	1.886	2.868	1.1	20.0	1 12	7 23.48	+13 49.6	2.164	3.141	2.5	20.8
1 22	7 13.25	+25 13.8	1.898	2.860	5.1	20.3	1 22	7 14.25	+13 49.6	2.189	3.149	4.8	21.0
2 1	7 4.27	+25 48.9	1.939	2.852	9.0	20.5	2 1	7 6.08	+13 53.7	2.244	3.157	8.0	21.2
2 11	6 57.36	+26 15.6	2.006	2.844	12.5	20.7	2 11	6 59.70	+14 0.5	2.325	3.165	11.0	21.4
461832	2006 <i>BR</i> ₂₆₃		1 10.7 15°49	1°3/10.2	18		239378	2007 <i>RC</i> ₃₁₃		1 10.7 160°35	0°1/10.7	18	
12 3	7 52.24	+24 1.0	1.991	2.774	14.6	21.6	12 3	7 56.81	+19 59.5	1.994	2.762	15.2	21.6
12 13	7 48.24	+24 25.2	1.905	2.775	11.5	21.4	12 13	7 51.69	+20 17.5	1.908	2.768	12.0	21.4
12 23	7 41.65	+24 53.6	1.842	2.776	7.8	21.2	12 23	7 43.94	+20 42.4	1.845	2.774	8.2	21.2
1 2	7 33.05	+25 22.7	1.805	2.777	3.8	21.0	1 2	7 34.13	+21 11.3	1.808	2.780	3.9	21.0
1 12	7 23.41	+25 48.5	1.796	2.778	1.5	20.8	1 12	7 23.28	+21 40.7	1.801	2.784	0.6	20.7
1 22	7 13.89	+26 7.9	1.817	2.779	5.3	21.0	1 22	7 12.57	+22 7.4	1.824	2.788	5.0	21.1
2 1	7 5.64	+26 19.6	1.865	2.780	9.2	21.3	2 1	7 3.17	+22 29.3	1.876	2.792	9.1	21.3
2 11	6 59.58	+26 23.6	1.938	2.781	12.7	21.5	2 11	6 56.03	+22 45.9	1.954	2.794	12.7	21.5
139300	2001 <i>KC</i> ₁₃		1 10.7 104°25	2°7/ 9.5	18		113631	2002 <i>TB</i> ₇₁		1 10.7 56°28	1°8/11.1	18	
12 3	7 57.86	+26 16.7	2.071	2.843	14.5	20.4	12 3	7 51.84	+17 32.0	2.154	2.921	14.2	19.5
12 13	7 52.41	+27 16.6	2.004	2.867	11.4	20.2	12 13	7 47.48	+17 9.4	2.070	2.928	11.2	19.3
12 23	7 44.32	+28 19.6	1.961	2.890	7.8	20.0	12 23	7 40.88	+16 52.6	2.008	2.935	7.8	19.1
1 2	7 34.25	+29 20.0	1.945	2.913	4.1	19.8	1 2	7 32.61	+16 41.0	1.974	2.941	4.1	18.9
1 12	7 23.24	+30 12.2	1.959	2.935	2.9	19.8	1 12	7 23.53	+16 33.8	1.968	2.948	1.8	18.7
1 22	7 12.49	+30 52.2	2.003	2.956	5.8	20.0	1 22	7 14.65	+16 29.8	1.992	2.955	4.7	19.0
2 1	7 3.17	+31 18.6	2.076	2.977	9.2	20.3	2 1	7 6.91	+16 28.1	2.044	2.962	8.3	19.2
2 11	6 56.15	+31 32.7	2.174	2.997	12.3	20.5	2 11	7 1.10	+16 27.9	2.123	2.969	11.6	19.4
419115	2009 <i>SU</i> ₁₉₈		1 10.7 1°66	9°9/ 8.5	18		451714	2013 <i>CO</i> ₁₄₇		1 10.7 14°49	1°6/10.3	18	
12 3	7 54.41	+41 46.5	1.367	2.171	19.1	19.9	12 3	7 51.59	+23 28.9	1.167	1.988	20.6	20.7
12 13	7 51.96	+42 52.3	1.302	2.168	16.0	19.7	12 13	7 49.35	+23 52.6	1.101	1.992	16.3	20.5
12 23	7 45.22	+43 47.9	1.255	2.167	12.8	19.5	12 23	7 43.25	+24 23.9	1.053	1.996	11.1	20.2
1 2	7 35.01	+44 22.2	1.230	2.167	10.4	19.4	1 2	7 34.05	+24 57.6	1.028	2.002	5.4	19.9
1 12	7 23.11	+44 26.0	1.229	2.169	10.1	19.4	1 12	7 23.30	+25 27.4	1.026	2.008	2.0	19.7
1 22	7 11.69	+43 56.2	1.251	2.173	12.0	19.5	1 22	7 12.88	+25 48.2	1.050	2.016	7.3	20.1
2 1	7 2.78	+42 56.4	1.295	2.177	15.0	19.7	2 1	7 4.63	+25 57.9	1.097	2.025	12.7	20.4
2 11	6 57.71	+41 35.0	1.360	2.184	18.1	19.9	2 11	6 59.80	+25 57.5	1.165	2.035	17.4	20.7
151939	2004 <i>FC</i> ₆₄		1 10.7 211°74	1°7/11.2	18		417231	2005 <i>YT</i> ₅₇		1 10.7 59°86	0°4/10.6	18	
12 3	7 55.91	+16 29.8	1.710	2.483	17.1	20.6	12 3	7 53.86	+22 17.7	1.817	2.600	15.8	21.6
12 13	7 51.53	+16 35.6	1.617	2.478	13.7	20.4	12 13	7 49.52	+22 24.5	1.745	2.614	12.4	21.4
12 23	7 44.16	+16 52.0	1.545	2.473	9.6	20.1	12 23	7 42.48	+22 35.9	1.694	2.628	8.4	21.2
1 2	7 34.36	+17 17.5	1.498	2.467	5.0	19.9	1 2	7 33.42	+22 49.2	1.670	2.642	4.0	21.0
1 12	7 23.20	+17 49.1	1.479	2.461	1.7	19.6	1 12	7 23.42	+23 1.1	1.673	2.656	0.8	20.8
1 22	7 12.03	+18 23.0	1.489	2.454	5.8	19.9	1 22	7 13.74	+23 9.3	1.706	2.671	5.2	21.1
2 1	7 2.26	+18 56.2	1.527	2.447	10.5	20.1	2 1	7 5.53	+23 12.7	1.766	2.685	9.3	21.4
2 11	6 55.02	+19 26.5	1.589	2.439	14.6	20.4	2 11	6 59.69	+23 11.6	1.851	2.700	12.9	21.7
92656	2000 <i>QU</i> ₃₉		1 10.7 87°24	3°1/11.7	18		55916	1998 <i>FM</i> ₂₅		1 10.7 235°50	4°8/ 8.7	18	
12 3	7 54.75	+12 42.9	1.577	2.349	18.3	19.7	12 3	7 56.46	+38 52.9	2.975	3.728	11.0	19.4
12 13	7 50.49	+12 46.7	1.507	2.365	14.7	19.5	12 13	7 50.96	+39 25.5	2.875	3.715	9.0	19.2
12 23	7 43.29	+13 5.0	1.457	2.380	10.4	19.3	12 23	7 43.21	+39 53.0	2.799	3.703	6.9	19.1
1 2	7 33.84	+13 36.9	1.431	2.395	5.9	19.0	1 2	7 33.74	+40 10.7	2.750	3.690	5.2	19.0
1 12	7 23.30	+14 19.3	1.432	2.410	3.1	18.9	1 12	7 23.37	+40 15.0	2.731	3.677	4.9	18.9
1 22	7 13.05	+15 7.8	1.461	2.425	6.1	19.1	1 22	7 13.08	+40 4.0	2.742	3.663	6.3	19.0
2 1	7 4.40	+15 58.0	1.518	2.440	10.4	19.4	2 1	7 3.84	+39 38.2	2.782	3.649	8.4	19.1
2 11	6 58.32	+16 46.3	1.599	2.454	14.3	19.7	2 11	6 56.47	+39 0.0	2.847	3.635	10.6	19.2
171936	2001 <i>SH</i> ₂₂₆		1 10.7 156°46	0°7/10.4	18		88197	2000 <i>YY</i> ₆₈		1 10.7 238°38	9°4/15.3	18	
12 3	7 51.17	+23 3.4											

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
425063	2009 <i>RQ</i> ₁₀		1 10.7 102°15	2°4/11.6	18		222887	2002 <i>GS</i> ₉₁		1 10.7 0°15	5°3/12.4	18	
12 3	7 52.99	+14 4.7	2.123	2.881	14.6	22.1	12 3	7 46.86	+9 20.8	1.474	2.258	18.9	19.7
12 13	7 48.34	+14 2.3	2.047	2.898	11.7	21.9	12 13	7 44.67	+9 0.5	1.395	2.255	15.5	19.4
12 23	7 41.44	+14 9.4	1.993	2.914	8.2	21.7	12 23	7 39.60	+8 57.4	1.334	2.254	11.6	19.2
1 2	7 32.87	+14 25.2	1.965	2.930	4.6	21.5	1 2	7 32.23	+9 13.1	1.296	2.253	7.6	19.0
1 12	7 23.52	+14 47.8	1.967	2.945	2.4	21.4	1 12	7 23.64	+9 46.9	1.283	2.254	5.3	18.8
1 22	7 14.39	+15 14.8	1.998	2.960	4.9	21.6	1 22	7 15.14	+10 35.4	1.295	2.255	7.3	19.0
2 1	7 6.43	+15 43.9	2.059	2.975	8.4	21.8	2 1	7 8.07	+11 33.4	1.333	2.258	11.2	19.2
2 11	7 0.41	+16 12.8	2.145	2.990	11.5	22.0	2 11	7 3.49	+12 35.2	1.394	2.262	15.2	19.4
183573	2003 <i>QH</i> ₄₆		1 10.7 197°86	0°6/10.5	18		365702	2010 <i>VZ</i> ₁₂₈		1 10.7 102°46	2°2/11.4	18	
12 3	7 56.62	+22 24.1	2.006	2.777	14.9	21.6	12 3	7 54.89	+14 54.7	2.007	2.767	15.3	21.6
12 13	7 51.69	+22 41.1	1.912	2.775	11.8	21.3	12 13	7 49.92	+14 51.9	1.934	2.787	12.2	21.4
12 23	7 44.04	+23 3.1	1.841	2.772	8.1	21.1	12 23	7 42.55	+14 58.6	1.884	2.806	8.5	21.2
1 2	7 34.25	+23 27.1	1.796	2.768	3.9	20.8	1 2	7 33.41	+15 13.6	1.860	2.825	4.7	21.0
1 12	7 23.30	+23 49.2	1.781	2.763	0.9	20.6	1 12	7 23.47	+15 34.7	1.865	2.844	2.2	20.9
1 22	7 12.40	+24 6.5	1.795	2.758	5.2	20.9	1 22	7 13.81	+15 59.5	1.899	2.862	5.0	21.1
2 1	7 2.79	+24 17.5	1.838	2.753	9.4	21.1	2 1	7 5.44	+16 25.7	1.963	2.880	8.7	21.4
2 11	6 55.46	+24 22.2	1.907	2.746	13.0	21.4	2 11	6 59.17	+16 51.3	2.052	2.897	12.0	21.6
145926	1999 <i>VP</i> ₂₁₆		1 10.7 168°84	0°5/10.8	18		40691	1999 <i>RH</i> ₂₂₇		1 10.7 165°09	3°5/11.8	18	
12 3	7 59.48	+20 13.4	1.810	2.579	16.4	20.6	12 3	7 55.52	+11 33.2	2.313	3.052	14.1	19.9
12 13	7 54.06	+20 15.3	1.724	2.584	13.0	20.4	12 13	7 50.18	+11 10.3	2.223	3.059	11.5	19.8
12 23	7 45.70	+20 23.5	1.659	2.589	8.9	20.2	12 23	7 42.65	+10 56.6	2.155	3.065	8.4	19.6
1 2	7 35.03	+20 35.4	1.621	2.592	4.3	19.9	1 2	7 33.47	+10 52.6	2.114	3.070	5.2	19.4
1 12	7 23.18	+20 47.8	1.612	2.595	0.8	19.6	1 12	7 23.46	+10 57.6	2.103	3.074	3.5	19.3
1 22	7 11.51	+20 58.3	1.632	2.596	5.5	20.0	1 22	7 13.57	+11 10.3	2.123	3.078	5.3	19.4
2 1	7 1.35	+21 5.4	1.681	2.597	9.9	20.2	2 1	7 4.74	+11 29.0	2.172	3.080	8.4	19.6
2 11	6 53.74	+21 9.0	1.755	2.598	13.8	20.5	2 11	6 57.75	+11 51.5	2.247	3.082	11.5	19.8
463226	2012 <i>DV</i> ₈₂		1 10.7 233°91	3°7/ 9.2	17		168395	1998 <i>BQ</i> ₁₈		1 10.7 226°98	2°2/11.5	18	
12 3	7 56.03	+30 54.1	2.281	3.053	13.3	22.1	12 3	7 54.24	+14 2.3	2.117	2.873	14.8	20.6
12 13	7 51.20	+31 38.5	2.181	3.042	10.7	21.9	12 13	7 49.69	+14 10.0	2.012	2.861	11.9	20.4
12 23	7 43.72	+32 23.1	2.105	3.030	7.6	21.7	12 23	7 42.66	+14 28.4	1.928	2.849	8.5	20.2
1 2	7 34.12	+33 3.0	2.056	3.018	4.7	21.5	1 2	7 33.63	+14 56.8	1.871	2.836	4.7	19.9
1 12	7 23.31	+33 32.8	2.036	3.006	3.9	21.4	1 12	7 23.43	+15 32.7	1.843	2.823	2.3	19.7
1 22	7 12.48	+33 49.2	2.046	2.992	6.3	21.5	1 22	7 13.14	+16 13.4	1.846	2.808	5.1	19.9
2 1	7 2.81	+33 51.3	2.085	2.979	9.5	21.7	2 1	7 3.86	+16 55.5	1.877	2.794	9.1	20.1
2 11	6 55.32	+33 40.8	2.149	2.965	12.6	21.9	2 11	6 56.57	+17 36.6	1.935	2.778	12.7	20.3
435811	2008 <i>WN</i> ₁		1 10.7 18°70	17°2/ 1.1	17		26348	1998 <i>XO</i> ₉₄		1 10.7 86°50	7°0/12.5	18	
12 3	8 2.66	+41 36.2	0.978	1.797	23.9	20.0	12 3	7 53.83	+5 31.8	1.839	2.577	17.3	17.6
12 13	8 1.75	+46 1.7	0.931	1.799	20.6	19.8	12 13	7 49.28	+4 27.5	1.765	2.591	14.4	17.4
12 23	7 54.50	+50 26.4	0.903	1.802	18.1	19.7	12 23	7 42.23	+3 37.5	1.712	2.604	11.3	17.2
1 2	7 40.70	+54 20.4	0.898	1.805	17.2	19.7	1 2	7 33.31	+3 5.1	1.683	2.617	8.4	17.1
1 12	7 22.16	+57 15.1	0.915	1.808	18.4	19.7	1 12	7 23.52	+2 52.0	1.681	2.631	7.0	17.0
1 22	7 2.76	+58 56.1	0.952	1.813	20.9	19.9	1 22	7 13.96	+2 57.6	1.707	2.644	8.1	17.1
2 1	6 47.23	+59 27.4	1.005	1.818	23.8	20.1	2 1	7 5.73	+3 19.4	1.759	2.657	10.8	17.3
2 11	6 38.78	+59 6.4	1.071	1.823	26.4	20.3	2 11	6 59.67	+3 52.9	1.835	2.669	13.7	17.5
329836	2004 <i>SJ</i> ₁₈		1 10.7 88°57	3°4/ 9.3	18		464263	2015 <i>FE</i> ₅₃		1 10.7 341°93	4°4/12.4	18	
12 3	7 55.54	+28 39.5	2.055	2.834	14.4	20.5	12 3	7 48.52	+8 46.2	2.008	2.763	15.5	21.3
12 13	7 50.75	+29 36.7	1.986	2.851	11.3	20.4	12 13	7 45.17	+8 34.9	1.917	2.760	12.7	21.1
12 23	7 43.30	+30 35.3	1.940	2.869	7.9	20.2	12 23	7 39.53	+8 37.3	1.846	2.756	9.5	20.9
1 2	7 33.83	+31 29.6	1.921	2.886	4.5	20.0	1 2	7 32.09	+8 54.3	1.800	2.753	6.3	20.7
1 12	7 23.39	+32 14.1	1.931	2.904	3.6	20.0	1 12	7 23.69	+9 25.2	1.782	2.750	4.4	20.5
1 22	7 13.19	+32 45.1	1.971	2.920	6.2	20.2	1 22	7 15.32	+10 7.5	1.792	2.748	6.0	20.6
2 1	7 4.39	+33 1.7	2.039	2.937	9.5	20.4	2 1	7 8.00	+10 57.5	1.830	2.746	9.3	20.8
2 11	6 57.90	+33 5.4	2.131	2.954	12.5	20.6	2 11	7 2.58	+11 51.3	1.893	2.744	12.6	21.0
384945	2012 <i>TA</i> ₁₂₅		1 10.7 196°13	0°1/10.6	17		413530	2005 <i>SQ</i> ₈₅		1 10.7 55°51	3°0/ 9.7	18	
12 3	7 50.65	+21 1.2	2.742	3.505	11.6	21.9	12 3	7 54.85	+28 12.9	1.869	2.655	15.4	21.1
12 13	7 46.22	+21 17.4	2.645	3.503	9.1	21.7	12 13	7 50.60	+28 47.5	1.787	2.656	12.1	20.9
12 23	7 39.91	+21 37.8	2.572	3.501	6.2	21.6	12 23	7 43.44	+29 23.6	1.726	2.658	8.4	20.7
1 2	7 32.15	+22 0.6	2.527	3.498	2.9	21.3	1 2	7 34.01	+29 56.3	1.690	2.659	4.6	20.5
1 12	7 23.65	+22 23.4	2.512	3.495	0.5	21.1	1 12	7 23.40	+30 20.3	1.684	2.660	3.2	20.4
1 22	7 15.18	+22 44.1	2.528	3.492	3.9	21.4	1 22	7 12.94	+30 32.4	1.705	2.661	6.3	20.6
2 1	7 7.56	+23 1.3	2.575	3.488	7.1	21.6	2 1	7 3.96	+30 31.7	1.754	2.662	10.2	20.8
2 11	7 1.47	+23 14.4	2.648	3.485	9.9	21.8	2 11	6 57.47	+30 20.1	1.828	2.663	13.6	21.0
466490	2013 <i>WK</i> ₁₁		1 10.7 177°16	1°8/ 9.7	17		189645	2001 <i>OQ</i> ₈₅		1 10.7 145°84	1°2/10.9	18	
12 3	7 52.50	+26 24.0	2.918	3.680	10.9	21.9	12 3	7 59.14	+19 3.6	1.809	2.577	16.5	20.9
12 13	7 47.63	+27 4.0	2.824	3.682	8.6	21.8	12 13	7 53.67	+18 51.4	1.728	2.587	13.1	20.7
12 23	7 40.85	+27 46.1	2.756	3.684	5.9	21.6	12 23	7 45.35	+18 45.4	1.669	2.597	9.0	20.5
1 2	7 32.60	+28 26.8	2.716	3.685	3.1	21.4	1 2	7 34.84	+18 44.0	1.635	2.605	4.5	20.2
1 12	7 23.59	+29 3.0	2.708	3.685	2.0	21.3	1 12	7 23.29	+18 45.1	1.631	2.613	1.3	20.0
1 22	7 14.60	+29 31.9	2.731	3.685	4.3	21.5	1 22	7 12.00	+18 46.7	1.656	2.621	5.4	20.3
2 1	7 6.47	+29 52.4	2.784	3.685	7.1	21.7	2 1	7 2.24	+18 47.9	1.710	2.627	9.7	20.6
2 11	6 59.88	+30 4.6	2.864	3.684	9.7	21.9	2 11	6 54.98	+18 48.2	1.789	2.633	13.5	20.8
76642	2000 <i>HD</i> ₂₁		1 10.7 100°96	3°4/ 9.2	18		429929	2012 <i>TD</i> ₂₅₃		1 10.7 188°63	0°5/10.5	17	
12 3	7 53.17	+30 1.7	2.349	3.124									

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
302890	2003 <i>OE</i> ₆		1 10.7 108°56	2°7/11.4	18		492034	2013 <i>GY</i> ₇₆		1 10.7 215°54	2°3/ 9.9	18	
12 3	7 55.98	+15 29.7	1.738	2.508	17.0	21.0	12 3	7 56.65	+26 18.7	2.046	2.821	14.6	22.0
12 13	7 51.22	+15 9.8	1.662	2.520	13.6	20.8	12 13	7 51.85	+26 52.8	1.950	2.815	11.5	21.8
12 23	7 43.69	+14 59.3	1.607	2.531	9.6	20.6	12 23	7 44.26	+27 30.3	1.877	2.808	8.0	21.6
1 2	7 34.05	+14 57.5	1.577	2.543	5.3	20.4	1 2	7 34.44	+28 6.4	1.830	2.800	4.1	21.3
1 12	7 23.42	+15 3.2	1.575	2.554	2.7	20.2	1 12	7 23.38	+28 36.4	1.813	2.792	2.5	21.2
1 22	7 13.05	+15 14.2	1.602	2.565	5.7	20.4	1 22	7 12.32	+28 56.6	1.826	2.783	5.8	21.4
2 1	7 4.18	+15 28.5	1.657	2.576	9.9	20.7	2 1	7 2.54	+29 5.6	1.867	2.774	9.7	21.6
2 11	6 57.74	+15 44.3	1.736	2.586	13.6	20.9	2 11	6 55.07	+29 4.5	1.933	2.764	13.2	21.8
52818	1998 <i>QH</i> ₁₀₃		1 10.7 109°18	4°9/ 9.2	18		131518	2001 <i>TW</i> ₁₂₀		1 10.7 96°02	4°8/12.2	18	
12 3	8 0.91	+33 45.9	1.985	2.756	15.1	19.5	12 3	7 51.18	+ 7 36.0	2.531	3.259	13.3	19.7
12 13	7 55.12	+34 36.6	1.918	2.776	12.0	19.4	12 13	7 46.52	+ 6 48.8	2.451	3.273	11.0	19.5
12 23	7 46.33	+35 24.2	1.875	2.795	8.7	19.2	12 23	7 40.03	+ 6 11.5	2.393	3.287	8.4	19.4
1 2	7 35.29	+36 2.0	1.858	2.814	5.8	19.1	1 2	7 32.21	+ 5 45.6	2.361	3.301	6.0	19.2
1 12	7 23.23	+36 24.3	1.870	2.832	5.1	19.0	1 12	7 23.76	+ 5 31.8	2.359	3.314	4.8	19.2
1 22	7 11.57	+36 28.3	1.910	2.849	7.2	19.2	1 22	7 15.48	+ 5 29.6	2.386	3.328	5.8	19.3
2 1	7 1.61	+36 15.1	1.979	2.866	10.3	19.4	2 1	7 8.14	+ 5 37.8	2.443	3.341	8.1	19.4
2 11	6 54.33	+35 48.3	2.072	2.883	13.2	19.6	2 11	7 2.37	+ 5 53.8	2.525	3.354	10.6	19.6
15285	1991 <i>RW</i> ₁₈		1 10.7 88°52	0°8/10.9	18		49433	1998 <i>YS</i>		1 10.7 345°01	1°0/10.3	18	
12 3	7 52.05	+19 15.3	2.292	3.059	13.4	18.8	12 3	7 50.19	+22 39.7	1.917	2.704	15.0	18.7
12 13	7 47.53	+19 10.5	2.211	3.071	10.6	18.6	12 13	7 46.82	+23 5.4	1.827	2.700	11.8	18.5
12 23	7 40.87	+19 10.9	2.154	3.082	7.2	18.4	12 23	7 40.84	+23 37.0	1.760	2.695	8.0	18.2
1 2	7 32.63	+19 15.0	2.123	3.093	3.6	18.2	1 2	7 32.80	+24 11.1	1.719	2.692	3.9	18.0
1 12	7 23.65	+19 21.1	2.122	3.104	0.9	18.0	1 12	7 23.65	+24 43.7	1.706	2.688	1.2	17.8
1 22	7 14.86	+19 27.5	2.151	3.115	4.3	18.3	1 22	7 14.56	+25 11.2	1.721	2.685	5.3	18.1
2 1	7 7.18	+19 33.1	2.209	3.126	7.8	18.6	2 1	7 6.70	+25 31.6	1.764	2.683	9.4	18.3
2 11	7 1.33	+19 37.3	2.293	3.137	10.9	18.8	2 11	7 1.03	+25 44.4	1.832	2.681	13.0	18.5
340574	2006 <i>MG</i> ₁₂		1 10.7 130°51	0°0/10.6	18		171412	2006 <i>RS</i> ₃₅		1 10.7 22°95	0°2/10.6	18	
12 3	7 52.75	+21 58.6	3.004	3.759	10.8	22.1	12 3	7 56.22	+23 54.2	1.572	2.363	17.5	19.7
12 13	7 47.51	+21 56.4	2.921	3.774	8.5	22.0	12 13	7 51.93	+23 32.5	1.493	2.366	13.9	19.4
12 23	7 40.57	+21 56.4	2.862	3.789	5.7	21.8	12 23	7 44.45	+23 12.6	1.434	2.369	9.5	19.2
1 2	7 32.41	+21 57.2	2.832	3.803	2.7	21.6	1 2	7 34.51	+22 52.2	1.400	2.373	4.5	18.9
1 12	7 23.69	+21 57.2	2.833	3.816	0.4	21.5	1 12	7 23.40	+22 29.3	1.394	2.377	0.7	18.6
1 22	7 15.15	+21 55.5	2.867	3.830	3.5	21.7	1 22	7 12.61	+22 3.1	1.416	2.381	5.9	19.0
2 1	7 7.50	+21 51.6	2.931	3.842	6.4	21.9	2 1	7 3.57	+21 34.3	1.464	2.386	10.6	19.3
2 11	7 1.31	+21 45.4	3.022	3.855	8.9	22.1	2 11	6 57.33	+21 4.4	1.536	2.391	14.8	19.5
62810	2000 <i>UH</i> ₄₂		1 10.7 127°67	2°5/ 9.7	18		430510	2001 <i>WQ</i> ₁₅		1 10.7 346°89	20°6/29.4	16	
12 3	7 54.51	+26 57.6	2.121	2.899	14.0	19.6	12 3	8 1.85	+46 48.6	0.904	1.725	25.3	20.2
12 13	7 49.92	+27 39.2	2.040	2.905	11.1	19.5	12 13	8 2.63	+51 26.5	0.860	1.720	22.7	20.0
12 23	7 42.76	+28 23.4	1.981	2.912	7.6	19.3	12 23	7 56.34	+55 57.2	0.834	1.716	21.0	19.9
1 2	7 33.63	+29 5.4	1.950	2.918	4.1	19.0	1 2	7 42.22	+59 48.9	0.828	1.713	20.7	19.9
1 12	7 23.49	+29 40.5	1.948	2.925	2.7	19.0	1 12	7 22.02	+62 31.8	0.840	1.710	22.0	20.0
1 22	7 13.49	+30 5.3	1.975	2.931	5.6	19.2	1 22	7 0.54	+63 52.0	0.869	1.708	24.3	20.1
2 1	7 4.77	+30 18.7	2.031	2.936	9.1	19.4	2 1	6 43.90	+63 55.7	0.911	1.708	26.9	20.3
2 11	6 58.22	+30 21.5	2.112	2.942	12.3	19.6	2 11	6 36.04	+63 3.5	0.964	1.708	29.3	20.5
355282	2007 <i>RV</i> ₇₀		1 10.7 347°37	2°0/11.3	18		328412	2008 <i>SK</i> ₉₄		1 10.7 153°46	5°0/12.9	18	
12 3	7 52.54	+15 20.7	1.544	2.329	18.1	20.8	12 3	7 50.51	+ 4 33.8	2.606	3.321	13.2	21.7
12 13	7 49.14	+15 31.3	1.460	2.327	14.5	20.6	12 13	7 46.05	+ 4 14.0	2.516	3.328	11.0	21.5
12 23	7 42.68	+15 55.3	1.396	2.326	10.2	20.3	12 23	7 39.77	+ 4 6.6	2.449	3.335	8.6	21.3
1 2	7 33.74	+16 31.0	1.356	2.326	5.4	20.0	1 2	7 32.12	+ 4 13.1	2.408	3.341	6.3	21.2
1 12	7 23.46	+17 15.1	1.344	2.325	2.1	19.8	1 12	7 23.79	+ 4 33.1	2.395	3.347	5.0	21.1
1 22	7 13.25	+18 2.8	1.358	2.324	6.0	20.1	1 22	7 15.53	+ 5 5.4	2.413	3.352	5.9	21.2
2 1	7 4.53	+18 49.8	1.399	2.324	10.8	20.3	2 1	7 8.13	+ 5 47.2	2.459	3.357	8.1	21.3
2 11	6 58.45	+19 33.0	1.464	2.324	15.1	20.6	2 11	7 2.22	+ 6 35.2	2.532	3.362	10.5	21.5
27351	2000 <i>DO</i> ₇₃		1 10.7 95°38	2°2/10.1	18		379111	2008 <i>YU</i> ₆₀		1 10.7 14°13	2°1/10.5	18	
12 3	8 2.65	+25 48.7	1.644	2.423	17.4	18.4	12 3	7 56.95	+29 58.4	1.639	2.431	16.9	19.7
12 13	7 56.60	+26 18.7	1.585	2.451	13.7	18.2	12 13	7 52.33	+29 24.1	1.564	2.437	13.4	19.5
12 23	7 47.36	+26 51.3	1.548	2.479	9.3	18.0	12 23	7 44.56	+28 45.0	1.510	2.444	9.2	19.3
1 2	7 35.76	+27 20.9	1.536	2.506	4.6	17.8	1 2	7 34.49	+27 58.1	1.482	2.452	4.7	19.0
1 12	7 23.19	+27 42.3	1.553	2.532	2.4	17.7	1 12	7 23.44	+27 2.2	1.481	2.461	2.2	18.9
1 22	7 11.20	+27 52.6	1.599	2.558	6.2	18.0	1 22	7 12.92	+25 58.2	1.509	2.472	6.0	19.1
2 1	7 1.16	+27 51.7	1.672	2.583	10.4	18.3	2 1	7 4.26	+24 49.6	1.564	2.483	10.3	19.4
2 11	6 54.04	+27 41.8	1.771	2.607	14.0	18.6	2 11	6 58.40	+23 40.4	1.643	2.495	14.1	19.7
66338	1999 <i>JV</i> ₆₃		1 10.7 198°62	2°3/11.5	18		217422	2005 <i>QC</i> ₁₇₀		1 10.7 137°85	2°8/11.3	18	
12 3	7 54.77	+14 31.8	1.977	2.737	15.5	20.5	12 3	7 55.48	+15 40.7	2.064	2.823	15.0	20.1
12 13	7 50.19	+14 33.4	1.882	2.734	12.5	20.3	12 13	7 50.43	+15 1.1	1.978	2.829	12.0	19.9
12 23	7 43.02	+14 45.4	1.809	2.731	8.8	20.1	12 23	7 42.97	+14 27.8	1.914	2.834	8.5	19.7
1 2	7 33.80	+15 6.9	1.762	2.727	4.9	19.8	1 2	7 33.69	+14 1.0	1.876	2.840	4.9	19.4
1 12	7 23.46	+15 35.7	1.743	2.723	2.3	19.6	1 12	7 23.55	+13 40.8	1.868	2.845	2.9	19.3
1 22	7 13.14	+16 9.1	1.755	2.718	5.3	19.8	1 22	7 13.60	+13 26.7	1.890	2.850	5.4	19.5
2 1	7 4.00	+16 44.0	1.795	2.712	9.3	20.1	2 1	7 4.89	+13 18.1	1.941	2.855	9.0	19.7
2 11	6 57.00	+17 18.0	1.860	2.706	13.0	20.3	2 11	6 58.25	+13 13.9	2.017	2.859	12.3	19.9
306274	2011 <i>SM</i> ₇		1 10.7 99°80	2°6/11.5	17		466042	2011 <i>KM</i> ₂₆		1 10.7 130°41	3°1/11.8	18	
12 3	7 57.52	+14 19.7	1.785										

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
341433	2007 <i>TW</i> ₂₃₀		1 10.7 154°91	0°6/10.9	17		158308	2001 <i>UB</i> ₂₀₆		1 10.7 59°78	8°9/7.8	18	
12 3	7 50.61	+18 32.0	3.062	3.814	10.7	22.7	12 3	8 0.74	+40 54.7	1.664	2.444	17.2	19.4
12 13	7 45.91	+18 44.9	2.971	3.822	8.4	22.6	12 13	7 56.14	+42 26.3	1.608	2.460	14.2	19.2
12 23	7 39.56	+19 2.6	2.905	3.829	5.8	22.4	12 23	7 47.69	+43 49.9	1.573	2.476	11.3	19.1
1 2	7 31.99	+19 23.6	2.867	3.837	2.8	22.2	1 2	7 36.19	+44 54.9	1.562	2.492	9.3	19.0
1 12	7 23.82	+19 46.2	2.860	3.843	0.7	22.0	1 12	7 23.22	+45 32.3	1.577	2.508	9.1	19.0
1 22	7 15.72	+20 8.6	2.886	3.849	3.4	22.3	1 22	7 10.71	+45 38.9	1.617	2.525	10.8	19.1
2 1	7 8.40	+20 29.3	2.942	3.855	6.3	22.5	2 1	7 0.43	+45 16.8	1.682	2.541	13.4	19.3
2 11	7 2.42	+20 47.5	3.025	3.860	8.8	22.6	2 11	6 53.62	+44 32.8	1.768	2.558	16.0	19.5
78451	2002 <i>RY</i> ₂₄		1 10.7 138°21	6°8/7.9	18		91573	1999 <i>SN</i> ₂		1 10.7 130°73	2°7/11.7	18	
12 3	8 0.37	+38 6.0	2.040	2.809	14.8	18.9	12 3	7 51.18	+13 31.6	2.077	2.838	14.8	21.2
12 13	7 55.12	+39 26.3	1.967	2.817	12.1	18.7	12 13	7 47.18	+13 25.0	1.988	2.840	11.9	21.0
12 23	7 46.65	+40 42.3	1.918	2.825	9.4	18.6	12 23	7 40.87	+13 28.4	1.921	2.841	8.5	20.8
1 2	7 35.62	+41 45.5	1.894	2.833	7.3	18.5	1 2	7 32.77	+13 41.6	1.879	2.842	4.9	20.6
1 12	7 23.25	+42 28.5	1.899	2.840	7.0	18.5	1 12	7 23.74	+14 3.0	1.867	2.844	2.7	20.4
1 22	7 11.06	+42 47.6	1.932	2.847	8.8	18.6	1 22	7 14.81	+14 30.3	1.883	2.845	5.1	20.6
2 1	7 0.53	+42 43.1	1.991	2.854	11.4	18.8	2 1	7 6.96	+15 0.9	1.928	2.846	8.7	20.8
2 11	6 52.81	+42 19.4	2.073	2.860	14.0	19.0	2 11	7 1.05	+15 32.5	1.998	2.847	12.1	21.0
57178	2001 <i>QC</i> ₂₅		1 10.7 67°66	0°3/10.8	18		217999	2001 <i>XH</i> ₅₄		1 10.7 73°88	1°6/9.9	18	
12 3	7 55.13	+18 54.7	1.704	2.484	16.8	19.2	12 3	7 55.22	+21 44.6	1.805	2.585	16.0	19.9
12 13	7 50.59	+19 20.8	1.642	2.509	13.2	19.0	12 13	7 50.74	+22 51.1	1.738	2.606	12.5	19.7
12 23	7 43.25	+19 55.9	1.601	2.533	9.0	18.8	12 23	7 43.46	+24 5.8	1.694	2.627	8.4	19.5
1 2	7 33.85	+20 36.3	1.586	2.558	4.3	18.6	1 2	7 34.04	+25 23.0	1.677	2.648	4.1	19.3
1 12	7 23.54	+21 17.7	1.600	2.583	0.7	18.4	1 12	7 23.57	+26 35.9	1.688	2.669	1.9	19.2
1 22	7 13.61	+21 56.0	1.642	2.607	5.3	18.8	1 22	7 13.34	+27 39.0	1.730	2.690	5.7	19.5
2 1	7 5.25	+22 28.5	1.712	2.632	9.5	19.1	2 1	7 4.59	+28 29.2	1.799	2.711	9.7	19.8
2 11	6 59.37	+22 54.4	1.806	2.656	13.2	19.4	2 11	6 58.27	+29 6.2	1.893	2.731	13.2	20.0
369286	2009 <i>RL</i> ₂₉		1 10.7 117°01	2°5/11.4	18		2303	Retsina		1 10.7 315°47	9°8/14.3	18	R
12 3	7 52.48	+15 4.7	2.013	2.778	15.1	21.2	12 3	7 47.77	- 4 51.1	2.109	2.800	16.6	16.0
12 13	7 48.23	+14 49.2	1.927	2.782	12.1	21.0	12 13	7 44.55	- 5 54.0	2.015	2.790	14.7	15.9
12 23	7 41.58	+14 42.2	1.862	2.785	8.6	20.8	12 23	7 39.13	- 6 38.2	1.940	2.780	12.6	15.7
1 2	7 33.08	+14 43.4	1.824	2.789	4.8	20.5	1 2	7 31.99	- 6 59.0	1.887	2.771	10.8	15.6
1 12	7 23.65	+14 51.5	1.814	2.792	2.5	20.4	1 12	7 23.88	- 6 53.3	1.858	2.761	9.9	15.5
1 22	7 14.36	+15 4.8	1.833	2.795	5.2	20.6	1 22	7 15.74	- 6 21.2	1.855	2.752	10.3	15.5
2 1	7 6.25	+15 21.3	1.880	2.799	8.9	20.8	2 1	7 8.53	- 5 25.5	1.876	2.743	11.8	15.6
2 11	7 0.18	+15 39.2	1.953	2.802	12.4	21.0	2 11	7 3.09	- 4 11.9	1.921	2.735	14.0	15.7
263858	2009 <i>BJ</i> ₁₇₁		1 10.7 217°84	2°3/10.0	18		98002	2000 <i>QG</i> ₁₉₉		1 10.7 210°97	0°3/10.5	17	
12 3	7 57.51	+26 54.3	1.979	2.755	15.0	21.3	12 3	7 46.50	+22 7.9	3.814	4.572	8.7	20.4
12 13	7 52.60	+27 18.9	1.884	2.749	11.9	21.1	12 13	7 42.51	+22 25.0	3.711	4.567	6.8	20.3
12 23	7 44.82	+27 45.7	1.811	2.742	8.2	20.9	12 23	7 37.20	+22 44.7	3.634	4.562	4.6	20.1
1 2	7 34.73	+28 10.1	1.764	2.734	4.3	20.6	1 2	7 30.89	+23 5.6	3.585	4.556	2.2	19.9
1 12	7 23.39	+28 27.6	1.747	2.726	2.5	20.5	1 12	7 24.06	+23 25.9	3.568	4.551	0.5	19.7
1 22	7 12.09	+28 35.0	1.759	2.717	5.9	20.7	1 22	7 17.26	+23 44.3	3.583	4.545	2.9	20.0
2 1	7 2.14	+28 31.7	1.799	2.708	9.9	20.9	2 1	7 11.00	+23 59.8	3.628	4.539	5.3	20.1
2 11	6 54.63	+28 19.1	1.864	2.698	13.5	21.1	2 11	7 5.79	+24 11.9	3.702	4.533	7.4	20.3
35841	1999 <i>JR</i> ₅₉		1 10.7 164°63	3°2/11.7	18		248657	2006 <i>HC</i> ₇₇		1 10.7 147°11	0°5/10.5	17	
12 3	7 54.77	+12 43.3	1.901	2.659	16.1	19.7	12 3	7 51.59	+20 41.2	2.657	3.419	11.9	21.1
12 13	7 50.19	+12 35.9	1.814	2.663	13.0	19.5	12 13	7 47.05	+21 21.8	2.569	3.426	9.3	20.9
12 23	7 43.01	+12 40.1	1.748	2.667	9.4	19.3	12 23	7 40.56	+22 8.1	2.504	3.433	6.3	20.8
1 2	7 33.81	+12 55.6	1.708	2.670	5.5	19.0	1 2	7 32.58	+22 57.3	2.468	3.439	3.0	20.5
1 12	7 23.56	+13 20.7	1.696	2.673	3.2	18.9	1 12	7 23.81	+23 46.0	2.463	3.445	0.7	20.4
1 22	7 13.41	+13 52.7	1.714	2.675	5.7	19.1	1 22	7 15.10	+24 31.1	2.489	3.451	4.0	20.6
2 1	7 4.52	+14 28.6	1.759	2.676	9.5	19.3	2 1	7 7.27	+25 10.3	2.545	3.457	7.2	20.9
2 11	6 57.82	+15 5.6	1.830	2.677	13.1	19.5	2 11	7 1.03	+25 42.6	2.629	3.462	10.1	21.0
152324	2005 <i>UO</i> ₁₇		1 10.7 83°60	1°3/11.2	18		364363	2006 <i>UP</i> ₂₇₈		1 10.7 159°14	4°0/12.0	18	
12 3	7 53.25	+17 0.6	1.917	2.689	15.5	20.4	12 3	7 54.04	+10 8.9	2.223	2.963	14.6	23.0
12 13	7 48.89	+17 9.1	1.843	2.703	12.3	20.2	12 13	7 49.16	+ 9 43.8	2.135	2.970	11.9	22.8
12 23	7 42.04	+17 26.4	1.790	2.718	8.5	20.0	12 23	7 42.08	+ 9 29.3	2.069	2.976	8.8	22.6
1 2	7 33.29	+17 50.7	1.763	2.732	4.3	19.8	1 2	7 33.31	+ 9 26.0	2.029	2.981	5.7	22.5
1 12	7 23.65	+18 19.1	1.764	2.746	1.4	19.6	1 12	7 23.71	+ 9 33.7	2.018	2.986	4.0	22.4
1 22	7 14.24	+18 48.7	1.795	2.760	4.9	19.9	1 22	7 14.21	+ 9 50.9	2.036	2.990	5.7	22.5
2 1	7 6.14	+19 16.9	1.854	2.774	8.9	20.2	2 1	7 5.79	+10 15.4	2.084	2.993	8.7	22.7
2 11	7 0.21	+19 42.1	1.938	2.788	12.4	20.4	2 11	6 59.22	+10 44.6	2.158	2.996	11.8	22.9
376506	2012 <i>KK</i> ₄₈		1 10.7 222°14	0°7/11.0	17		293072	2006 <i>WA</i> ₁₇₁		1 10.7 271°98	2°2/11.3	16	
12 3	7 52.08	+17 38.6	2.450	3.210	12.9	22.2	12 3	7 52.79	+16 8.6	1.909	2.680	15.6	21.6
12 13	7 47.68	+18 1.3	2.347	3.201	10.2	22.0	12 13	7 48.88	+15 56.0	1.807	2.666	12.6	21.4
12 23	7 41.13	+18 31.7	2.266	3.192	7.1	21.8	12 23	7 42.31	+15 51.8	1.726	2.652	8.9	21.1
1 2	7 32.89	+19 8.1	2.213	3.183	3.5	21.6	1 2	7 33.59	+15 55.4	1.670	2.637	4.8	20.8
1 12	7 23.70	+19 47.5	2.191	3.173	0.8	21.3	1 12	7 23.65	+16 5.4	1.643	2.623	2.2	20.6
1 22	7 14.46	+20 27.0	2.199	3.163	4.3	21.6	1 22	7 13.64	+16 19.9	1.644	2.608	5.5	20.8
2 1	7 6.11	+21 4.2	2.237	3.152	7.9	21.8	2 1	7 4.78	+16 36.7	1.673	2.593	9.7	21.0
2 11	6 59.46	+21 37.3	2.302	3.141	11.1	22.0	2 11	6 58.10	+16 54.3	1.727	2.578	13.6	21.2
125983	2001 <i>YH</i> ₂₅		1 10.7 174°12	1°6/10.3	18		359095	2009 <i>AF</i> ₂₆		1 10.7 329°69	0°2/10.8	18	
12 3	7 58.48	+25 2.2	1.791	2.571									

EPHEMERIDES

1 10.7

1 10.7

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
185413	2006 <i>WP</i> ₁₆₃		1 10.7 111°20	1.7°/11.3	18		463292	2012 <i>HR</i> ₃₃		1 10.7 266°18	5°6/12.8	16	
12 3	7 54.47	+16 35.0	1.957	2.723	15.4	21.4	12 3	7 50.41	+5 43.5	2.049	2.787	15.7	22.1
12 13	7 49.81	+16 34.5	1.878	2.736	12.3	21.2	12 13	7 46.75	+5 24.4	1.947	2.775	13.2	21.9
12 23	7 42.66	+16 42.6	1.822	2.748	8.5	21.0	12 23	7 40.73	+5 20.4	1.865	2.763	10.2	21.7
1 2	7 33.62	+16 57.8	1.792	2.760	4.4	20.8	1 2	7 32.82	+5 33.5	1.808	2.750	7.3	21.5
1 12	7 23.68	+17 17.8	1.791	2.772	1.7	20.6	1 12	7 23.84	+6 3.7	1.778	2.738	5.6	21.4
1 22	7 13.95	+17 40.0	1.819	2.783	5.0	20.8	1 22	7 14.77	+6 49.1	1.777	2.725	6.9	21.4
2 1	7 5.52	+18 2.3	1.875	2.794	8.9	21.1	2 1	7 6.68	+7 46.2	1.803	2.712	9.8	21.6
2 11	6 59.24	+18 23.1	1.957	2.805	12.4	21.3	2 11	7 0.47	+8 50.1	1.855	2.699	13.1	21.8
29658	Henrylin		1 10.7 227°00	0°9/10.9	18		292870	2006 <i>VF</i> ₈		1 10.7 13°52	1°0/11.0	18	
12 3	7 56.78	+19 18.2	1.725	2.502	16.8	18.9	12 3	7 51.75	+18 34.8	1.554	2.347	17.6	20.7
12 13	7 52.31	+19 14.5	1.630	2.494	13.4	18.6	12 13	7 48.50	+18 38.1	1.476	2.349	14.0	20.5
12 23	7 44.80	+19 17.9	1.556	2.487	9.3	18.4	12 23	7 42.24	+18 50.6	1.417	2.351	9.7	20.2
1 2	7 34.83	+19 26.7	1.507	2.478	4.6	18.1	1 2	7 33.60	+19 10.4	1.383	2.354	4.8	20.0
1 12	7 23.48	+19 38.1	1.487	2.469	1.1	17.8	1 12	7 23.74	+19 34.1	1.375	2.358	1.1	19.7
1 22	7 12.14	+19 49.4	1.495	2.460	5.7	18.1	1 22	7 14.04	+19 58.5	1.395	2.362	5.8	20.0
2 1	7 2.22	+19 58.8	1.530	2.450	10.4	18.3	2 1	7 5.88	+20 20.7	1.441	2.366	10.5	20.3
2 11	6 54.87	+20 5.7	1.590	2.440	14.6	18.6	2 11	7 0.34	+20 39.3	1.510	2.371	14.6	20.6
420915	2013 <i>ML</i> ₇		1 10.7 301°36	0°3/10.7	16		143435	2003 <i>BD</i> ₆₄		1 10.7 6°38	2°1/10.5	18	
12 3	8 9.41	+29 31.3	1.020	1.828	23.9	20.3	12 3	7 56.46	+28 25.9	1.424	2.227	18.5	18.8
12 13	8 4.47	+28 6.6	0.936	1.818	19.3	19.9	12 13	7 52.62	+28 8.0	1.348	2.227	14.7	18.5
12 23	7 54.26	+26 27.8	0.870	1.808	13.5	19.6	12 23	7 45.21	+27 47.8	1.291	2.228	10.2	18.2
1 2	7 39.65	+24 30.9	0.826	1.799	6.6	19.2	1 2	7 35.03	+27 21.4	1.258	2.230	5.1	18.0
1 12	7 22.77	+22 16.0	0.807	1.790	1.0	18.8	1 12	7 23.54	+26 45.8	1.251	2.233	2.3	17.8
1 22	7 6.43	+19 53.0	0.814	1.781	8.6	19.2	1 22	7 12.46	+26 0.8	1.272	2.236	6.7	18.1
2 1	6 53.24	+17 33.0	0.845	1.773	15.6	19.5	2 1	7 3.41	+25 8.8	1.318	2.240	11.5	18.4
2 11	6 44.83	+15 27.5	0.898	1.765	21.6	19.8	2 11	6 57.49	+24 13.7	1.387	2.246	15.8	18.6
365242	2009 <i>MR</i> ₄		1 10.7 177°81	3°2/12.2	18		200378	2000 <i>QV</i> ₁₃₄		1 10.7 88°02	0°2/10.6	18	
12 3	7 52.67	+9 52.6	2.430	3.166	13.6	22.1	12 3	7 56.76	+19 53.7	1.575	2.359	17.8	20.4
12 13	7 48.00	+10 2.4	2.334	3.168	11.0	21.9	12 13	7 52.29	+20 26.5	1.507	2.376	14.0	20.2
12 23	7 41.27	+10 24.2	2.261	3.170	8.1	21.7	12 23	7 44.70	+21 8.8	1.460	2.393	9.5	19.9
1 2	7 32.95	+10 57.6	2.215	3.171	5.0	21.6	1 2	7 34.72	+21 56.3	1.438	2.410	4.5	19.7
1 12	7 23.78	+11 40.8	2.198	3.171	3.2	21.4	1 12	7 23.59	+22 43.5	1.444	2.427	0.8	19.5
1 22	7 14.64	+12 31.0	2.213	3.170	4.9	21.5	1 22	7 12.78	+23 25.7	1.478	2.443	5.8	19.8
2 1	7 6.40	+13 25.0	2.257	3.169	8.0	21.7	2 1	7 3.67	+23 59.8	1.539	2.459	10.4	20.2
2 11	6 59.83	+14 19.6	2.328	3.168	11.0	21.9	2 11	6 57.31	+24 25.2	1.624	2.475	14.4	20.4
427723	2004 <i>HW</i> ₅₆		1 10.7 302°98	3°5/ 8.7	16		262465	2006 <i>UR</i> ₁₄₅		1 10.7 17°02	4°7/10.2	18	
12 3	7 51.97	+26 39.8	2.198	2.978	13.5	20.8	12 3	7 58.31	+33 7.8	1.383	2.185	19.0	20.3
12 13	7 48.31	+28 6.9	2.092	2.959	10.7	20.5	12 13	7 54.30	+33 11.6	1.313	2.189	15.2	20.0
12 23	7 42.05	+29 41.6	2.009	2.940	7.5	20.3	12 23	7 46.44	+33 9.9	1.262	2.194	10.8	19.8
1 2	7 33.56	+31 17.9	1.955	2.921	4.4	20.1	1 2	7 35.62	+32 56.3	1.235	2.200	6.5	19.6
1 12	7 23.66	+32 48.6	1.931	2.902	3.7	20.0	1 12	7 23.47	+32 25.7	1.234	2.207	4.8	19.5
1 22	7 13.46	+34 7.2	1.936	2.883	6.5	20.1	1 22	7 11.87	+31 37.7	1.259	2.215	7.9	19.7
2 1	7 4.20	+35 9.7	1.971	2.864	10.0	20.3	2 1	7 2.56	+30 35.7	1.309	2.224	12.3	20.0
2 11	6 56.98	+35 55.3	2.030	2.846	13.3	20.5	2 11	6 56.67	+29 25.8	1.381	2.233	16.3	20.2
28883	2000 <i>KS</i> ₅₂		1 10.7 86°00	2°6/11.6	18		301243	2009 <i>BF</i> ₄₅		1 10.7 16°61	0°8/10.9	18	
12 3	7 52.51	+14 1.4	1.826	2.595	16.3	19.0	12 3	7 51.33	+19 2.1	1.244	2.055	20.2	20.5
12 13	7 48.53	+14 0.3	1.744	2.601	13.1	18.7	12 13	7 48.85	+19 8.2	1.175	2.059	16.0	20.3
12 23	7 41.95	+14 10.7	1.684	2.607	9.3	18.5	12 23	7 42.83	+19 25.4	1.125	2.064	11.0	20.0
1 2	7 33.36	+14 31.8	1.648	2.613	5.2	18.3	1 2	7 33.98	+19 51.1	1.097	2.070	5.4	19.7
1 12	7 23.74	+15 1.2	1.640	2.619	2.6	18.1	1 12	7 23.69	+20 20.8	1.094	2.077	1.0	19.4
1 22	7 14.26	+15 36.0	1.661	2.625	5.5	18.3	1 22	7 13.68	+20 49.9	1.117	2.085	6.6	19.8
2 1	7 6.08	+16 12.9	1.710	2.631	9.5	18.6	2 1	7 5.60	+21 15.2	1.163	2.094	11.9	20.2
2 11	7 0.12	+16 49.2	1.784	2.637	13.1	18.8	2 11	7 0.65	+21 35.0	1.232	2.103	16.5	20.5
234379	2001 <i>QD</i> ₅₃		1 10.7 123°69	0°2/10.8	18		419019	2009 <i>QQ</i> ₁₂		1 10.7 83°56	3°0/ 9.9	18	
12 3	7 51.49	+19 55.9	2.644	3.405	12.0	21.3	12 3	7 57.39	+29 46.0	1.919	2.699	15.2	21.2
12 13	7 46.88	+20 9.5	2.560	3.416	9.4	21.1	12 13	7 52.39	+30 3.6	1.845	2.711	12.0	21.0
12 23	7 40.38	+20 27.8	2.500	3.428	6.4	21.0	12 23	7 44.55	+30 20.1	1.792	2.722	8.4	20.8
1 2	7 32.48	+20 49.1	2.468	3.439	3.1	20.8	1 2	7 34.58	+30 30.8	1.766	2.733	4.7	20.6
1 12	7 23.89	+21 11.0	2.467	3.450	0.5	20.5	1 12	7 23.62	+30 31.6	1.768	2.744	3.2	20.5
1 22	7 15.44	+21 31.5	2.496	3.461	3.8	20.8	1 22	7 13.01	+30 20.7	1.799	2.755	6.1	20.7
2 1	7 7.92	+21 49.2	2.556	3.471	7.0	21.1	2 1	7 3.97	+29 58.8	1.858	2.765	9.7	21.0
2 11	7 2.00	+22 3.4	2.643	3.481	9.8	21.3	2 11	6 57.44	+29 28.4	1.942	2.776	13.0	21.2
125980	2001 <i>YV</i> ₂₁		1 10.7 236°75	4°7/ 8.6	18		427794	2005 <i>ES</i> ₃₂₇		1 10.7 1°57	5°6/ 8.6	18	
12 3	7 56.68	+32 47.0	2.224	2.997	13.6	20.5	12 3	7 54.57	+35 36.6	2.073	2.853	14.2	20.5
12 13	7 51.98	+33 49.6	2.127	2.986	11.0	20.3	12 13	7 50.42	+36 33.2	1.993	2.853	11.5	20.3
12 23	7 44.48	+34 52.7	2.053	2.974	8.0	20.1	12 23	7 43.41	+37 26.8	1.934	2.853	8.6	20.1
1 2	7 34.68	+35 49.7	2.006	2.962	5.4	19.9	1 2	7 34.13	+38 10.8	1.902	2.853	6.2	20.0
1 12	7 23.55	+36 34.4	1.988	2.949	4.9	19.9	1 12	7 23.68	+38 39.2	1.898	2.853	5.8	19.9
1 22	7 12.32	+37 2.5	1.999	2.936	7.1	20.0	1 22	7 13.36	+38 48.8	1.921	2.854	7.7	20.0
2 1	7 2.30	+37 12.7	2.039	2.923	10.2	20.1	2 1	7 4.47	+38 39.7	1.972	2.854	10.6	20.2
2 11	6 54.57	+37 7.1	2.102	2.909	13.2	20.3	2 11	6 58.05	+38 14.7	2.045	2.855	13.4	20.4
256171	2006 <i>VT</i> ₆₃		1 10.7 126°08	0°9/10.4	18		468261	2015 <i>BR</i> ₃₉₆		1 10.7 68°78	0°6/10.4	18	
12 3	7 56.40	+22 55.5	2.193	2.960									

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
109723	2001 <i>RR</i> ₅₅		1 10.7 164°62	0°4/10.6	18		399365	2001 <i>NM</i> ₁₁		1 10.7 63°70	2°3/10.9	16	
12 3	7 51.41	+22 11.6	2.480	3.249	12.5	20.3	12 3	8 9.03	+20 54.4	1.678	2.435	18.0	20.3
12 13	7 47.09	+22 25.1	2.389	3.250	9.8	20.1	12 13	8 0.91	+19 32.6	1.621	2.473	14.2	20.1
12 23	7 40.69	+22 42.5	2.321	3.252	6.7	19.9	12 23	7 49.88	+18 12.5	1.587	2.511	9.7	19.9
1 2	7 32.71	+23 1.5	2.281	3.253	3.2	19.7	1 2	7 36.90	+16 55.0	1.581	2.548	5.1	19.7
1 12	7 23.93	+23 19.5	2.271	3.254	0.7	19.5	1 12	7 23.41	+15 42.2	1.605	2.585	2.4	19.7
1 22	7 15.24	+23 34.5	2.291	3.255	4.2	19.7	1 22	7 10.82	+14 36.4	1.661	2.621	5.9	20.0
2 1	7 7.52	+23 45.1	2.341	3.255	7.6	20.0	2 1	7 0.35	+13 39.7	1.746	2.657	10.0	20.3
2 11	7 1.52	+23 51.2	2.417	3.256	10.6	20.2	2 11	6 52.73	+12 52.7	1.857	2.693	13.5	20.6
147259	2002 <i>XP</i> ₁₁₀		1 10.7 137°22	2°0/10.0	18		242822	2006 <i>BW</i> ₂₅₉		1 10.7 203°67	1°4/11.1	18	
12 3	7 57.66	+26 27.6	2.314	3.079	13.4	20.8	12 3	7 55.83	+17 45.6	1.761	2.535	16.6	21.0
12 13	7 52.08	+26 58.0	2.235	3.094	10.5	20.7	12 13	7 51.44	+17 43.1	1.671	2.533	13.3	20.8
12 23	7 44.11	+27 30.1	2.180	3.108	7.2	20.5	12 23	7 44.15	+17 49.1	1.601	2.530	9.2	20.6
1 2	7 34.34	+27 59.9	2.152	3.121	3.7	20.3	1 2	7 34.55	+18 2.0	1.557	2.527	4.7	20.3
1 12	7 23.70	+28 23.5	2.155	3.134	2.1	20.2	1 12	7 23.71	+18 19.3	1.541	2.523	1.5	20.0
1 22	7 13.27	+28 38.3	2.188	3.145	5.0	20.4	1 22	7 12.93	+18 38.2	1.554	2.519	5.5	20.3
2 1	7 4.10	+28 43.8	2.252	3.156	8.4	20.6	2 1	7 3.53	+18 56.6	1.595	2.515	10.1	20.6
2 11	6 56.98	+28 40.9	2.341	3.167	11.4	20.9	2 11	6 56.58	+19 12.9	1.660	2.511	14.1	20.8
490038	2008 <i>TY</i> ₁₉		1 10.7 79°25	1°5/10.3	15		74443	1999 <i>CY</i> ₁₁		1 10.7 358°60	13°1/12.0	16	
12 3	7 59.50	+23 39.9	1.471	2.261	18.6	21.8	12 3	8 19.68	+48 31.4	0.958	1.750	26.2	18.3
12 13	7 54.59	+24 5.5	1.411	2.284	14.6	21.6	12 13	8 14.28	+48 42.2	0.894	1.748	22.6	18.0
12 23	7 46.30	+24 36.6	1.371	2.306	9.9	21.3	12 23	8 1.62	+48 27.1	0.843	1.746	18.5	17.8
1 2	7 35.48	+25 7.9	1.356	2.328	4.8	21.1	1 2	7 43.18	+47 26.7	0.811	1.745	14.8	17.6
1 12	7 23.54	+25 34.0	1.368	2.350	1.7	21.0	1 12	7 22.53	+45 27.6	0.800	1.745	13.1	17.5
1 22	7 12.12	+25 51.2	1.408	2.371	6.3	21.3	1 22	7 3.88	+42 33.5	0.811	1.746	14.8	17.6
2 1	7 2.70	+25 58.5	1.475	2.393	10.9	21.6	2 1	6 50.40	+39 4.2	0.846	1.748	18.7	17.8
2 11	6 56.30	+25 57.4	1.565	2.414	14.9	21.9	2 11	6 43.30	+35 25.3	0.900	1.751	23.0	18.1
130207	2000 <i>AV</i> ₂₀₅		1 10.7 21°07	0°8/10.4	18		109682	2001 <i>RS</i> ₂₉		1 10.7 192°37	3°5/9.5	18	
12 3	7 50.91	+20 41.3	1.904	2.688	15.2	19.2	12 3	7 54.72	+32 23.1	2.462	3.232	12.5	20.2
12 13	7 47.40	+21 26.7	1.821	2.691	12.0	19.0	12 13	7 49.89	+32 49.5	2.373	3.231	10.0	20.1
12 23	7 41.29	+22 20.7	1.760	2.694	8.1	18.7	12 23	7 42.71	+33 13.7	2.307	3.231	7.1	19.9
1 2	7 33.13	+23 19.5	1.725	2.697	3.9	18.5	1 2	7 33.73	+33 31.5	2.269	3.230	4.4	19.7
1 12	7 23.88	+24 18.0	1.719	2.701	1.1	18.3	1 12	7 23.85	+33 39.2	2.260	3.229	3.6	19.7
1 22	7 14.69	+25 11.3	1.742	2.706	5.2	18.6	1 22	7 14.12	+33 34.8	2.282	3.228	5.7	19.8
2 1	7 6.74	+25 56.2	1.793	2.710	9.3	18.9	2 1	7 5.55	+33 18.4	2.331	3.227	8.6	20.0
2 11	7 0.98	+26 31.4	1.868	2.715	12.9	19.1	2 11	6 58.97	+32 52.2	2.407	3.226	11.3	20.1
31536	1999 <i>CX</i> ₁₅₀		1 10.7 217°12	2°9/12.2	17		492519	2014 <i>OC</i> ₄₂		1 10.7 230°34	2°2/10.1	17	
12 3	7 49.15	+10 9.0	2.997	3.729	11.3	20.0	12 3	7 58.94	+26 28.7	1.948	2.722	15.2	23.3
12 13	7 44.93	+10 8.3	2.890	3.721	9.2	19.9	12 13	7 53.93	+26 52.8	1.847	2.710	12.1	23.0
12 23	7 39.05	+10 16.5	2.806	3.713	6.8	19.7	12 23	7 45.92	+27 19.8	1.767	2.697	8.4	22.8
1 2	7 31.91	+10 33.7	2.750	3.704	4.3	19.5	1 2	7 35.45	+27 44.9	1.714	2.684	4.4	22.5
1 12	7 24.07	+10 59.1	2.724	3.694	2.9	19.4	1 12	7 23.58	+28 3.4	1.690	2.670	2.4	22.3
1 22	7 16.22	+11 30.9	2.729	3.685	4.2	19.5	1 22	7 11.65	+28 11.9	1.696	2.655	6.0	22.5
2 1	7 9.03	+12 7.2	2.764	3.674	6.8	19.6	2 1	7 1.07	+28 9.3	1.730	2.639	10.2	22.8
2 11	7 3.13	+12 45.8	2.827	3.664	9.3	19.8	2 11	6 52.98	+27 57.3	1.789	2.623	14.0	23.0
90479	Donalek		1 10.7 84°19	6°4/9.5	18		100997	1998 <i>QF</i> ₄₁		1 10.7 72°88	4°0/12.0	18	
12 3	8 2.60	+37 59.7	1.785	2.559	16.4	18.9	12 3	7 57.20	+11 25.5	1.374	2.150	20.4	20.0
12 13	7 57.01	+38 34.8	1.716	2.571	13.4	18.7	12 13	7 52.72	+11 22.2	1.317	2.175	16.4	19.8
12 23	7 47.95	+39 2.5	1.668	2.582	10.0	18.5	12 23	7 45.01	+11 36.0	1.278	2.200	11.8	19.6
1 2	7 36.27	+39 15.3	1.645	2.593	7.2	18.4	1 2	7 34.88	+12 6.3	1.263	2.225	6.9	19.4
1 12	7 23.45	+39 7.3	1.649	2.604	6.5	18.4	1 12	7 23.70	+12 49.7	1.274	2.250	4.0	19.3
1 22	7 11.16	+38 37.0	1.681	2.615	8.5	18.5	1 22	7 13.00	+13 41.3	1.312	2.275	6.7	19.5
2 1	7 0.93	+37 47.2	1.740	2.626	11.5	18.7	2 1	7 4.19	+14 35.7	1.376	2.299	11.1	19.8
2 11	6 53.80	+36 43.9	1.822	2.637	14.6	18.9	2 11	6 58.27	+15 28.7	1.464	2.323	15.1	20.1
355998	2009 <i>BS</i> ₅₀		1 10.7 236°14	0°4/10.6	18		253949	2004 <i>DC</i> ₁₅		1 10.7 194°94	3°1/11.9	18	
12 3	7 55.48	+21 14.3	1.876	2.653	15.6	21.7	12 3	7 53.06	+11 42.2	2.150	2.900	14.7	20.7
12 13	7 51.17	+21 35.1	1.778	2.643	12.4	21.5	12 13	7 48.67	+11 43.7	2.055	2.898	11.9	20.5
12 23	7 44.01	+22 3.0	1.701	2.633	8.5	21.2	12 23	7 41.95	+11 56.8	1.981	2.896	8.6	20.3
1 2	7 34.51	+22 34.8	1.650	2.622	4.1	21.0	1 2	7 33.42	+12 21.3	1.933	2.893	5.2	20.1
1 12	7 23.68	+23 6.6	1.628	2.611	0.8	20.7	1 12	7 23.89	+12 55.4	1.915	2.890	3.1	19.9
1 22	7 12.79	+23 34.4	1.635	2.600	5.5	21.0	1 22	7 14.38	+13 36.4	1.926	2.886	5.2	20.1
2 1	7 3.17	+23 56.0	1.671	2.588	9.9	21.2	2 1	7 5.89	+14 21.2	1.966	2.882	8.7	20.3
2 11	6 55.92	+24 10.8	1.731	2.576	13.9	21.4	2 11	6 59.30	+15 6.6	2.033	2.878	12.1	20.5
453896	2011 <i>UE</i> ₂₅₅		1 10.7 28°14	0°4/10.6	18		113488	2002 <i>TR</i> ₂		1 10.7 109°46	0°9/11.1	18	
12 3	7 53.18	+21 49.2	1.247	2.059	20.1	21.0	12 3	7 52.01	+18 6.9	2.499	3.258	12.6	20.4
12 13	7 50.26	+21 56.7	1.184	2.069	15.9	20.7	12 13	7 47.38	+18 12.8	2.419	3.273	10.0	20.2
12 23	7 43.74	+22 11.9	1.140	2.080	10.8	20.5	12 23	7 40.78	+18 24.6	2.362	3.288	6.8	20.1
1 2	7 34.39	+22 31.2	1.118	2.092	5.1	20.2	1 2	7 32.74	+18 40.8	2.333	3.302	3.4	19.9
1 12	7 23.72	+22 49.7	1.121	2.104	0.9	19.9	1 12	7 24.01	+18 59.3	2.333	3.316	1.0	19.7
1 22	7 13.46	+23 3.8	1.150	2.118	6.6	20.3	1 22	7 15.44	+19 18.2	2.365	3.329	4.0	19.9
2 1	7 5.26	+23 11.6	1.204	2.132	11.8	20.7	2 1	7 7.87	+19 36.0	2.426	3.343	7.3	20.2
2 11	7 0.24	+23 13.2	1.279	2.147	16.3	21.0	2 11	7 1.97	+19 51.6	2.514	3.356	10.2	20.4
276609	2003 <i>UF</i> ₆₉		1 10.7 87°06	0°9/11.1	18		199405	2006 <i>CV</i> ₁₇		1 10.7 253°96	0°7/10.5	18	
12 3	7 51.94	+18 17.6	2.137										

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
463071	2011 <i>JY</i> ₃₀		1 10.7 173°02	6°7/14.2	17		426263	2012 <i>QW</i> ₃₈		1 10.8 146°96	1°1/10.4	18	
12 3	7 48.76	- 4 47.1	3.303	3.957	11.7	22.5	12 3	7 53.79	+25 40.5	2.515	3.282	12.4	20.9
12 13	7 44.37	- 5 29.3	3.210	3.960	10.3	22.4	12 13	7 48.91	+25 42.0	2.425	3.286	9.7	20.7
12 23	7 38.54	- 5 58.5	3.138	3.963	8.7	22.3	12 23	7 41.90	+25 44.2	2.360	3.289	6.6	20.6
1 2	7 31.63	- 6 12.4	3.091	3.965	7.4	22.2	1 2	7 33.32	+25 44.9	2.322	3.293	3.2	20.3
1 12	7 24.18	- 6 9.8	3.072	3.967	6.7	22.1	1 12	7 23.98	+25 41.6	2.314	3.296	1.2	20.2
1 22	7 16.75	- 5 51.2	3.081	3.968	7.0	22.2	1 22	7 14.79	+25 33.3	2.338	3.299	4.3	20.4
2 1	7 9.96	- 5 18.2	3.117	3.969	8.1	22.2	2 1	7 6.67	+25 19.7	2.390	3.302	7.6	20.6
2 11	7 4.31	- 4 33.8	3.180	3.969	9.6	22.3	2 11	7 0.34	+25 1.7	2.470	3.305	10.6	20.8
123818	<i>Helenzier</i>		1 10.7 23°92	0°2/10.8	18		304840	2007 <i>RJ</i> ₃₆		1 10.8 161°19	2°5/11.6	18	
12 3	7 51.81	+19 46.8	2.031	2.808	14.6	20.1	12 3	7 56.14	+13 48.9	2.158	2.907	14.7	21.8
12 13	7 47.89	+20 3.4	1.943	2.808	11.6	19.9	12 13	7 50.98	+13 45.4	2.070	2.914	11.8	21.6
12 23	7 41.52	+20 27.1	1.878	2.809	7.9	19.7	12 23	7 43.45	+13 51.4	2.004	2.921	8.4	21.4
1 2	7 33.23	+20 55.4	1.838	2.810	3.8	19.4	1 2	7 34.11	+14 6.3	1.964	2.927	4.8	21.2
1 12	7 23.94	+21 25.0	1.827	2.810	0.6	19.2	1 12	7 23.86	+14 28.3	1.955	2.932	2.5	21.1
1 22	7 14.72	+21 53.1	1.846	2.811	4.8	19.5	1 22	7 13.72	+14 55.0	1.975	2.937	5.0	21.2
2 1	7 6.68	+22 17.3	1.893	2.812	8.8	19.7	2 1	7 4.72	+15 24.1	2.026	2.940	8.6	21.5
2 11	7 0.69	+22 36.6	1.965	2.813	12.3	19.9	2 11	6 57.70	+15 53.4	2.102	2.943	11.9	21.7
489574	2007 <i>TP</i> ₆₅		1 10.7 82°36	1°3/10.5	18		6935	<i>Morisorot</i>		1 10.8 73°75	0°4/10.8	18	
12 3	7 58.46	+24 49.6	1.614	2.401	17.4	21.5	12 3	7 56.55	+20 4.0	1.416	2.209	19.0	18.0
12 13	7 53.60	+24 54.3	1.544	2.415	13.7	21.2	12 13	7 52.55	+20 10.9	1.345	2.219	15.1	17.8
12 23	7 45.59	+25 1.7	1.495	2.429	9.3	21.0	12 23	7 45.15	+20 26.5	1.293	2.228	10.3	17.6
1 2	7 35.18	+25 8.1	1.471	2.443	4.5	20.8	1 2	7 35.09	+20 47.7	1.266	2.238	5.0	17.3
1 12	7 23.69	+25 9.6	1.475	2.457	1.5	20.6	1 12	7 23.72	+21 10.3	1.265	2.248	0.8	17.0
1 22	7 12.60	+25 4.1	1.507	2.471	5.9	20.9	1 22	7 12.66	+21 30.6	1.291	2.258	6.2	17.4
2 1	7 3.32	+24 51.6	1.566	2.484	10.4	21.2	2 1	7 3.47	+21 46.4	1.343	2.268	11.2	17.7
2 11	6 56.84	+24 33.7	1.649	2.498	14.3	21.5	2 11	6 57.27	+21 57.0	1.419	2.277	15.5	18.0
466823	2015 <i>BX</i> ₁₆₇		1 10.7 183°88	0°5/10.5	17		307829	2003 <i>YB</i> ₂₆		1 10.8 329°12	6°6/ 6.9	17	
12 3	7 51.35	+22 13.2	2.864	3.624	11.2	22.1	12 3	7 56.13	+18 51.0	0.977	1.799	23.7	19.2
12 13	7 46.80	+22 36.4	2.767	3.625	8.8	21.9	12 13	7 54.76	+22 17.9	0.898	1.791	18.9	18.9
12 23	7 40.39	+23 3.4	2.696	3.624	6.0	21.7	12 23	7 48.59	+26 28.1	0.839	1.783	13.1	18.5
1 2	7 32.59	+23 31.9	2.652	3.624	2.8	21.5	1 2	7 37.66	+31 4.1	0.805	1.775	7.6	18.2
1 12	7 24.05	+23 59.3	2.640	3.623	0.7	21.3	1 12	7 23.23	+35 35.4	0.798	1.769	7.7	18.2
1 22	7 15.55	+24 23.4	2.659	3.621	3.8	21.6	1 22	7 7.73	+39 30.2	0.818	1.763	13.2	18.5
2 1	7 7.86	+24 42.8	2.708	3.619	6.9	21.8	2 1	6 54.30	+42 29.7	0.862	1.758	19.2	18.8
2 11	7 1.66	+24 57.0	2.784	3.617	9.6	21.9	2 11	6 45.64	+44 33.4	0.924	1.754	24.2	19.1
235652	2004 <i>RW</i> ₁₅₀		1 10.7 100°09	4°6/ 9.4	18		181372	2006 <i>SQ</i> ₄		1 10.8 42°22	3°2/11.6	18	
12 3	8 0.02	+30 26.3	1.606	2.394	17.4	20.2	12 3	7 53.20	+14 54.4	1.477	2.263	18.7	19.4
12 13	7 55.19	+31 20.6	1.538	2.408	13.8	20.0	12 13	7 49.53	+14 30.9	1.412	2.279	15.0	19.2
12 23	7 46.90	+32 15.4	1.492	2.421	9.8	19.8	12 23	7 42.84	+14 18.8	1.367	2.294	10.6	19.0
1 2	7 35.89	+33 3.0	1.470	2.434	5.9	19.6	1 2	7 33.89	+14 18.1	1.345	2.311	6.0	18.7
1 12	7 23.58	+33 36.2	1.476	2.446	4.8	19.6	1 12	7 23.90	+14 27.2	1.349	2.328	3.2	18.6
1 22	7 11.61	+33 50.9	1.509	2.459	7.7	19.8	1 22	7 14.28	+14 43.5	1.381	2.345	6.2	18.8
2 1	7 1.59	+33 47.2	1.570	2.471	11.6	20.1	2 1	7 6.34	+15 4.3	1.438	2.363	10.6	19.1
2 11	6 54.64	+33 28.8	1.653	2.483	15.1	20.3	2 11	7 1.04	+15 26.8	1.519	2.381	14.5	19.4
146061	2000 <i>FG</i> ₇		1 10.7 186°57	0°1/10.7	18		459742	2013 <i>QS</i> ₁₆		1 10.8 134°89	2°7/ 9.8	18	
12 3	7 54.97	+21 2.1	2.296	3.060	13.5	21.7	12 3	7 56.99	+29 49.9	2.431	3.197	12.8	21.6
12 13	7 50.07	+21 15.7	2.202	3.060	10.7	21.5	12 13	7 51.53	+30 14.6	2.351	3.209	10.1	21.4
12 23	7 42.86	+21 34.4	2.131	3.059	7.3	21.3	12 23	7 43.73	+30 38.3	2.295	3.221	7.0	21.3
1 2	7 33.84	+21 55.7	2.087	3.058	3.5	21.1	1 2	7 34.21	+30 57.0	2.267	3.232	4.0	21.1
1 12	7 23.87	+22 16.8	2.073	3.056	0.5	20.8	1 12	7 23.86	+31 7.4	2.268	3.242	2.9	21.0
1 22	7 13.96	+22 35.2	2.090	3.054	4.5	21.1	1 22	7 13.74	+31 7.4	2.300	3.252	5.2	21.2
2 1	7 5.13	+22 49.4	2.136	3.051	8.2	21.3	2 1	7 4.85	+30 57.2	2.362	3.262	8.3	21.4
2 11	6 58.22	+22 59.0	2.209	3.047	11.5	21.5	2 11	6 57.97	+30 38.3	2.449	3.271	11.1	21.6
453031	2007 <i>RW</i> ₂₆₆		1 10.7 31°20	2°5/10.1	16		171992	2001 <i>TK</i> ₂₁₄		1 10.8 127°21	0°3/10.6	18	
12 3	7 53.90	+25 11.3	1.187	2.005	20.6	21.2	12 3	7 53.09	+23 0.3	2.863	3.621	11.2	21.0
12 13	7 51.06	+25 42.9	1.131	2.019	16.2	21.0	12 13	7 47.98	+23 0.9	2.780	3.635	8.8	20.8
12 23	7 44.38	+26 20.0	1.094	2.035	11.0	20.7	12 23	7 41.08	+23 3.6	2.721	3.648	6.0	20.7
1 2	7 34.74	+26 56.0	1.079	2.052	5.5	20.5	1 2	7 32.87	+23 6.5	2.690	3.661	2.8	20.5
1 12	7 23.75	+27 24.3	1.089	2.069	2.8	20.4	1 12	7 24.07	+23 7.9	2.691	3.674	0.5	20.3
1 22	7 13.30	+27 40.3	1.124	2.088	7.4	20.7	1 22	7 15.44	+23 6.7	2.723	3.686	3.7	20.6
2 1	7 5.10	+27 43.3	1.183	2.108	12.4	21.0	2 1	7 7.73	+23 2.3	2.786	3.698	6.6	20.8
2 11	7 0.30	+27 35.2	1.264	2.128	16.7	21.3	2 11	7 1.57	+22 54.9	2.876	3.709	9.3	21.0
132069	2002 <i>CH</i> ₁₅₂		1 10.7 256°23	2°4/10.0	18		392245	2009 <i>WU</i> ₈₇		1 10.8 108°79	2°6/10.1	17	
12 3	7 56.01	+25 31.6	1.698	2.486	16.6	20.2	12 3	8 2.27	+26 14.5	1.550	2.334	18.1	21.6
12 13	7 52.03	+26 7.2	1.605	2.477	13.2	20.0	12 13	7 56.81	+26 50.4	1.484	2.353	14.2	21.4
12 23	7 44.84	+26 47.8	1.534	2.468	9.1	19.7	12 23	7 47.89	+27 29.6	1.440	2.372	9.7	21.2
1 2	7 35.02	+27 28.5	1.488	2.459	4.7	19.4	1 2	7 36.34	+28 5.8	1.420	2.390	5.0	21.0
1 12	7 23.69	+28 3.3	1.470	2.449	2.6	19.3	1 12	7 23.57	+28 32.8	1.429	2.408	2.8	20.9
1 22	7 12.32	+28 27.6	1.480	2.440	6.5	19.5	1 22	7 11.27	+28 47.0	1.466	2.425	6.7	21.2
2 1	7 2.46	+28 39.5	1.516	2.430	11.0	19.7	2 1	7 0.96	+28 47.9	1.530	2.442	11.1	21.5
2 11	6 55.31	+28 39.9	1.577	2.420	15.1	19.9	2 11	6 53.75	+28 38.2	1.618	2.458	14.9	21.7
466940	2016 <i>AT</i> ₁₂₀		1 10.8 354°84	6°5/10.3	18		378407	2007 <i>RQ</i> ₉₆		1 10.8 304°93	7°6/ 7.4	18	
12 3	7 57.35	+36 52.2	1.276	2.085									

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
306502	1999 VY ₃₁		1 10.8 63°05	1.9°/10.2	18		344332	2001 VL ₇₅		1 10.8 333°11	16°0/ 6.5	18	
12 3	7 57.56	+24 29.3	1.494	2.287	18.2	20.1	12 3	7 50.19	+7 16.3	1.022	1.824	24.2	18.3
12 13	7 53.09	+25 2.3	1.435	2.310	14.3	19.9	12 13	7 49.05	+3 32.0	0.929	1.791	21.3	17.9
12 23	7 45.33	+25 40.2	1.397	2.332	9.7	19.7	12 23	7 43.88	-0 20.7	0.856	1.758	18.3	17.6
1 2	7 35.09	+26 17.3	1.383	2.355	4.8	19.5	1 2	7 35.03	-4 6.4	0.803	1.728	16.3	17.4
1 12	7 23.76	+26 48.1	1.396	2.377	2.2	19.4	1 12	7 23.73	-7 25.7	0.772	1.699	16.4	17.3
1 22	7 12.92	+27 8.6	1.438	2.400	6.3	19.7	1 22	7 11.86	-10 0.6	0.761	1.673	19.0	17.3
2 1	7 4.00	+27 18.0	1.505	2.423	10.8	20.0	2 1	7 1.63	-11 40.9	0.770	1.649	22.8	17.4
2 11	6 58.02	+27 17.5	1.596	2.445	14.6	20.3	2 11	6 54.95	-12 28.4	0.792	1.628	26.7	17.6
148589	2001 RQ ₁₁		1 10.8 51°73	3°3/11.9	18		503080	2015 FF ₂₆₈		1 10.8 331°22	0°1/10.7	18	
12 3	7 53.39	+12 51.3	1.559	2.335	18.3	19.3	12 3	7 50.34	+21 0.6	2.334	3.107	13.1	21.4
12 13	7 49.44	+12 44.0	1.498	2.358	14.7	19.1	12 13	7 46.46	+21 16.7	2.242	3.105	10.3	21.2
12 23	7 42.65	+12 50.5	1.457	2.381	10.4	18.9	12 23	7 40.43	+21 38.0	2.172	3.103	7.0	21.0
1 2	7 33.76	+13 10.1	1.441	2.404	6.0	18.7	1 2	7 32.73	+22 2.3	2.130	3.101	3.4	20.7
1 12	7 23.95	+13 40.3	1.451	2.428	3.3	18.6	1 12	7 24.16	+22 26.8	2.116	3.100	0.5	20.5
1 22	7 14.53	+14 17.4	1.488	2.452	6.0	18.8	1 22	7 15.63	+22 49.1	2.133	3.098	4.3	20.8
2 1	7 6.71	+14 57.7	1.553	2.476	10.1	19.1	2 1	7 8.10	+23 7.5	2.179	3.096	7.9	21.0
2 11	7 1.38	+15 37.7	1.641	2.500	13.8	19.4	2 11	7 2.35	+23 21.1	2.251	3.095	11.1	21.2
175995	2000 QO ₁₅₅		1 10.8 182°40	5°0/12.9	18		81608	2000 HF ₆₅		1 10.8 221°40	2°6/ 9.8	18	
12 3	7 52.00	+4 45.6	2.638	3.350	13.2	21.1	12 3	7 55.35	+26 36.5	1.992	2.771	14.8	20.2
12 13	7 47.32	+4 26.1	2.541	3.351	11.0	20.9	12 13	7 51.00	+27 18.1	1.900	2.767	11.7	20.0
12 23	7 40.77	+4 18.9	2.466	3.351	8.6	20.8	12 23	7 43.87	+28 3.2	1.831	2.762	8.1	19.8
1 2	7 32.81	+4 25.1	2.417	3.350	6.2	20.6	1 2	7 34.50	+28 47.1	1.789	2.758	4.3	19.5
1 12	7 24.09	+4 44.9	2.397	3.349	5.0	20.5	1 12	7 23.90	+29 24.3	1.775	2.752	2.8	19.4
1 22	7 15.40	+5 16.7	2.407	3.348	5.9	20.6	1 22	7 13.30	+29 51.1	1.790	2.747	6.0	19.6
2 1	7 7.52	+5 58.2	2.447	3.345	8.1	20.7	2 1	7 4.00	+30 5.6	1.834	2.742	9.8	19.8
2 11	7 1.14	+6 46.0	2.514	3.342	10.6	20.9	2 11	6 57.03	+30 8.8	1.902	2.736	13.3	20.1
225108	2008 DQ ₆₉		1 10.8 154°88	0°8/10.5	18		92703	2000 QE ₈₃		1 10.8 84°26	1°2/10.4	18	
12 3	7 59.67	+21 38.7	1.650	2.428	17.4	21.3	12 3	7 58.84	+23 34.6	1.567	2.353	17.8	19.4
12 13	7 54.69	+22 7.9	1.569	2.435	13.8	21.1	12 13	7 53.97	+23 55.0	1.502	2.373	14.0	19.2
12 23	7 46.49	+22 44.8	1.510	2.442	9.4	20.9	12 23	7 45.89	+24 20.4	1.458	2.392	9.5	18.9
1 2	7 35.74	+23 25.0	1.477	2.448	4.5	20.6	1 2	7 35.39	+24 46.2	1.439	2.411	4.6	18.7
1 12	7 23.66	+24 3.2	1.471	2.454	1.1	20.4	1 12	7 23.80	+25 7.7	1.448	2.430	1.5	18.5
1 22	7 11.75	+24 34.9	1.495	2.459	5.9	20.7	1 22	7 12.64	+25 21.5	1.485	2.449	6.0	18.9
2 1	7 1.49	+24 57.8	1.546	2.463	10.6	21.0	2 1	7 3.33	+25 26.6	1.549	2.467	10.5	19.2
2 11	6 54.02	+25 12.0	1.622	2.466	14.7	21.2	2 11	6 56.86	+25 24.3	1.637	2.485	14.4	19.5
236321	2006 BR ₆₁		1 10.8 90°48	14°0/ 9.8	17		457054	2008 DZ ₄₉		1 10.8 241°34	2°6/ 9.8	18	
12 3	8 28.10	+57 7.2	1.665	2.375	19.8	19.9	12 3	7 55.41	+26 16.0	1.976	2.756	14.9	21.9
12 13	8 19.11	+58 28.4	1.623	2.399	17.7	19.8	12 13	7 51.15	+27 0.2	1.880	2.746	11.8	21.7
12 23	8 3.90	+59 27.4	1.599	2.423	15.7	19.7	12 23	7 44.04	+27 48.7	1.806	2.737	8.2	21.4
1 2	7 44.00	+59 48.8	1.596	2.446	14.4	19.7	1 2	7 34.62	+28 36.7	1.758	2.727	4.3	21.2
1 12	7 22.56	+59 22.8	1.616	2.469	14.1	19.7	1 12	7 23.88	+29 18.6	1.739	2.717	2.8	21.1
1 22	7 3.13	+58 9.9	1.658	2.491	14.8	19.8	1 22	7 13.07	+29 50.0	1.750	2.707	6.1	21.3
2 1	6 48.35	+56 19.9	1.724	2.513	16.3	20.0	2 1	7 3.52	+30 8.9	1.789	2.696	10.0	21.5
2 11	6 39.27	+54 7.3	1.809	2.534	18.0	20.1	2 11	6 56.32	+30 15.9	1.852	2.685	13.6	21.7
169318	2001 TH ₁₃₂		1 10.8 115°42	5°8/ 7.9	18		256408	2007 AW ₁₈		1 10.8 30°68	0°0/10.6	18	
12 3	7 56.12	+38 29.1	2.544	3.307	12.4	20.9	12 3	7 51.04	+17 10.8	1.299	2.104	19.8	19.4
12 13	7 51.20	+39 38.8	2.470	3.316	10.1	20.7	12 13	7 48.39	+18 7.8	1.241	2.122	15.6	19.2
12 23	7 43.74	+40 44.1	2.420	3.325	7.8	20.6	12 23	7 42.40	+19 20.2	1.203	2.141	10.6	18.9
1 2	7 34.32	+41 38.8	2.397	3.333	6.1	20.5	1 2	7 33.82	+20 42.7	1.189	2.162	5.0	18.7
1 12	7 23.88	+42 17.6	2.403	3.342	5.9	20.5	1 12	7 24.02	+22 7.2	1.200	2.183	0.7	18.4
1 22	7 13.55	+42 37.7	2.437	3.350	7.4	20.6	1 22	7 14.56	+23 25.9	1.238	2.206	6.2	18.9
2 1	7 4.46	+42 39.0	2.499	3.358	9.6	20.7	2 1	7 6.97	+24 33.1	1.302	2.229	11.2	19.2
2 11	6 57.51	+42 24.2	2.585	3.366	11.7	20.9	2 11	7 2.30	+25 26.5	1.389	2.253	15.5	19.5
325986	2010 VL ₁₇₈		1 10.8 342°88	1°3/11.1	18		262865	2007 BZ ₄₀		1 10.8 23°99	0°6/10.9	18	
12 3	7 51.23	+18 44.4	1.560	2.354	17.5	20.9	12 3	7 52.20	+18 57.4	1.676	2.463	16.8	21.0
12 13	7 48.23	+18 37.5	1.474	2.348	14.0	20.7	12 13	7 48.71	+19 8.6	1.596	2.466	13.3	20.7
12 23	7 42.21	+18 39.0	1.408	2.342	9.7	20.4	12 23	7 42.36	+19 28.6	1.537	2.470	9.2	20.5
1 2	7 33.74	+18 47.3	1.365	2.337	4.9	20.1	1 2	7 33.76	+19 55.1	1.503	2.474	4.5	20.2
1 12	7 23.96	+19 0.1	1.349	2.332	1.4	19.9	1 12	7 24.02	+20 24.5	1.496	2.478	0.8	20.0
1 22	7 14.24	+19 14.4	1.361	2.328	5.8	20.2	1 22	7 14.42	+20 53.2	1.517	2.483	5.4	20.3
2 1	7 6.01	+19 28.2	1.398	2.325	10.7	20.4	2 1	7 6.27	+21 18.6	1.565	2.488	10.0	20.6
2 11	7 0.37	+19 39.9	1.459	2.322	14.9	20.7	2 11	7 0.55	+21 39.3	1.637	2.494	13.9	20.8
335950	2007 TR ₉₁		1 10.8 79°63	1°7/11.4	18		183331	2002 VF ₆₇		1 10.8 35°62	3°3/11.7	18	
12 3	7 50.99	+15 47.0	2.305	3.066	13.5	21.1	12 3	7 52.46	+14 31.5	1.403	2.194	19.3	19.6
12 13	7 46.77	+15 46.9	2.225	3.079	10.8	21.0	12 13	7 49.15	+14 9.3	1.339	2.208	15.5	19.4
12 23	7 40.49	+15 54.5	2.168	3.092	7.5	20.8	12 23	7 42.72	+13 59.7	1.293	2.222	11.0	19.2
1 2	7 32.67	+16 8.9	2.138	3.105	4.0	20.6	1 2	7 33.91	+14 2.5	1.271	2.237	6.2	19.0
1 12	7 24.13	+16 28.3	2.138	3.118	1.7	20.4	1 12	7 24.01	+14 16.2	1.274	2.253	3.4	18.8
1 22	7 15.75	+16 50.4	2.167	3.131	4.4	20.6	1 22	7 14.47	+14 37.7	1.304	2.269	6.5	19.0
2 1	7 8.41	+17 13.5	2.225	3.144	7.7	20.9	2 1	7 6.65	+15 3.7	1.360	2.286	10.9	19.3
2 11	7 2.81	+17 35.8	2.310	3.156	10.8	21.1	2 11	7 1.56	+15 31.2	1.438	2.303	15.0	19.6
281747	2008 YX ₁₅₆		1 10.8 29°23	1°8/ 9.8	18		488752	2004 SH ₃₆		1 10.8 155°32	3°1/12.1	17	
12 3	7 51.57	+21 59.9	1.999	2.781	14.6	20.2	12 3	7 52.68	+10 49.7	2.684			

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
151634	2002 <i>XX</i> ₁₉		1 10.8 44°92	2.6/10.1	18		65092	2002 <i>CK</i> ₁		1 10.8 188°57	5°0/ 8.5	18	
12 3	7 57.53	+26 0.4	1.387	2.187	19.0	20.4	12 3	7 56.49	+33 36.8	2.201	2.974	13.7	19.7
12 13	7 53.75	+26 27.9	1.311	2.189	15.1	20.1	12 13	7 51.86	+34 46.3	2.116	2.974	11.0	19.5
12 23	7 46.26	+26 59.7	1.255	2.191	10.4	19.9	12 23	7 44.45	+35 55.3	2.054	2.973	8.1	19.3
1 2	7 35.78	+27 30.0	1.222	2.194	5.3	19.6	1 2	7 34.80	+36 57.0	2.019	2.972	5.7	19.1
1 12	7 23.74	+27 52.4	1.216	2.196	2.8	19.4	1 12	7 23.92	+37 45.1	2.014	2.971	5.2	19.1
1 22	7 11.92	+28 2.7	1.236	2.198	7.2	19.7	1 22	7 13.06	+38 15.5	2.037	2.970	7.3	19.2
2 1	7 2.10	+27 59.9	1.282	2.201	12.1	20.0	2 1	7 3.48	+38 27.2	2.088	2.968	10.2	19.4
2 11	6 55.54	+27 46.3	1.350	2.203	16.5	20.3	2 11	6 56.22	+38 22.5	2.163	2.966	13.0	19.6
111369	2001 <i>XF</i> ₁₃₂		1 10.8 118°43	2°1/ 9.7	18		258050	2001 <i>NO</i> ₁₀		1 10.8 118°81	0°5/10.9	18	
12 3	7 52.66	+27 22.8	2.824	3.589	11.2	20.5	12 3	7 56.75	+19 55.0	2.211	2.971	14.1	21.6
12 13	7 47.85	+28 2.0	2.745	3.603	8.8	20.4	12 13	7 51.34	+19 59.3	2.135	2.990	11.1	21.4
12 23	7 41.14	+28 42.4	2.690	3.618	6.0	20.2	12 23	7 43.63	+20 8.8	2.082	3.009	7.5	21.2
1 2	7 32.99	+29 20.4	2.665	3.632	3.3	20.1	1 2	7 34.22	+20 21.3	2.056	3.026	3.7	21.0
1 12	7 24.15	+29 52.8	2.670	3.646	2.2	20.0	1 12	7 24.04	+20 34.6	2.061	3.044	0.6	20.8
1 22	7 15.44	+30 17.2	2.706	3.659	4.4	20.2	1 22	7 14.11	+20 46.4	2.096	3.060	4.4	21.1
2 1	7 7.65	+30 32.7	2.771	3.672	7.2	20.4	2 1	7 5.42	+20 55.7	2.161	3.076	8.1	21.4
2 11	7 1.48	+30 39.7	2.864	3.685	9.7	20.6	2 11	6 58.73	+21 2.1	2.252	3.091	11.3	21.6
450340	2004 <i>TA</i> ₁₉₁		1 10.8 21°52	0°9/10.9	17		327908	2007 <i>CV</i> ₇₈		1 10.8 349°34	0°8/10.5	18	
12 3	7 52.00	+19 0.9	1.192	2.005	20.8	21.2	12 3	7 52.41	+21 35.5	1.792	2.578	15.9	20.9
12 13	7 49.54	+19 3.6	1.127	2.012	16.5	21.0	12 13	7 48.85	+22 6.0	1.706	2.577	12.6	20.7
12 23	7 43.43	+19 17.4	1.080	2.019	11.4	20.7	12 23	7 42.48	+22 44.1	1.641	2.575	8.6	20.4
1 2	7 34.41	+19 40.0	1.054	2.027	5.6	20.4	1 2	7 33.88	+23 26.1	1.602	2.574	4.1	20.1
1 12	7 23.95	+20 6.7	1.054	2.037	1.1	20.1	1 12	7 24.07	+24 7.3	1.591	2.573	1.1	19.9
1 22	7 13.82	+20 33.3	1.078	2.047	6.7	20.5	1 22	7 14.31	+24 43.6	1.608	2.572	5.5	20.2
2 1	7 5.71	+20 56.3	1.127	2.058	12.1	20.9	2 1	7 5.89	+25 12.3	1.653	2.572	9.9	20.5
2 11	7 0.83	+21 14.3	1.197	2.070	16.8	21.2	2 11	6 59.83	+25 32.5	1.722	2.572	13.7	20.7
323518	2004 <i>RP</i> ₉₃		1 10.8 210°25	3°5/11.9	18		259865	2004 <i>CR</i> ₁₀₅		1 10.8 23°17	7°9/ 7.3	17	
12 3	7 52.65	+11 22.3	2.368	3.111	13.7	21.0	12 3	7 56.54	+34 52.7	1.537	2.334	17.6	19.6
12 13	7 48.14	+11 0.0	2.268	3.106	11.2	20.8	12 13	7 53.25	+36 47.7	1.468	2.338	14.3	19.4
12 23	7 41.52	+10 46.9	2.190	3.100	8.2	20.6	12 23	7 46.17	+38 43.3	1.421	2.342	10.9	19.2
1 2	7 33.26	+10 43.4	2.139	3.094	5.2	20.4	1 2	7 35.88	+40 27.8	1.399	2.346	8.4	19.1
1 12	7 24.11	+10 49.2	2.117	3.087	3.5	20.3	1 12	7 23.77	+41 49.7	1.403	2.351	8.3	19.1
1 22	7 14.98	+11 3.2	2.125	3.080	5.2	20.4	1 22	7 11.70	+42 41.9	1.433	2.356	10.6	19.2
2 1	7 6.77	+11 23.4	2.162	3.073	8.3	20.6	2 1	7 1.56	+43 3.2	1.487	2.361	13.9	19.4
2 11	7 0.27	+11 47.8	2.225	3.065	11.4	20.8	2 11	6 54.81	+42 58.6	1.562	2.367	17.0	19.6
251079	2006 <i>SC</i> ₈₁		1 10.8 39°79	1°2/11.1	18 R		235605	2004 <i>PN</i> ₆₄		1 10.8 87°07	1°2/11.1	17	
12 3	7 53.38	+18 14.2	1.633	2.418	17.2	20.3	12 3	7 58.95	+17 57.0	1.599	2.375	18.0	20.8
12 13	7 49.66	+18 14.9	1.554	2.423	13.7	20.1	12 13	7 53.80	+18 2.7	1.537	2.400	14.2	20.6
12 23	7 43.02	+18 24.6	1.496	2.428	9.5	19.8	12 23	7 45.65	+18 17.6	1.495	2.425	9.7	20.4
1 2	7 34.09	+18 41.4	1.462	2.433	4.8	19.6	1 2	7 35.27	+18 39.2	1.479	2.449	4.8	20.2
1 12	7 23.99	+19 2.3	1.455	2.438	1.3	19.3	1 12	7 23.92	+19 4.0	1.490	2.473	1.3	20.0
1 22	7 14.08	+19 24.2	1.477	2.443	5.6	19.6	1 22	7 13.02	+19 28.5	1.531	2.496	5.6	20.4
2 1	7 5.66	+19 44.6	1.525	2.449	10.2	19.9	2 1	7 3.88	+19 50.5	1.599	2.519	10.0	20.7
2 11	6 59.77	+20 2.1	1.597	2.455	14.2	20.2	2 11	6 57.41	+20 8.9	1.691	2.542	13.8	21.0
491876	2013 <i>BA</i> ₂₁		1 10.8 20°37	1°6/10.2	18		79826	Finardi		1 10.8 1°84	0°6/10.9	18	
12 3	7 53.52	+20 28.8	1.347	2.151	19.3	21.2	12 3	7 46.52	+18 28.4	1.167	1.990	20.5	18.6
12 13	7 50.65	+21 33.1	1.272	2.153	15.3	20.9	12 13	7 45.44	+18 46.2	1.097	1.988	16.3	18.4
12 23	7 44.22	+22 51.5	1.217	2.156	10.4	20.7	12 23	7 40.81	+19 17.6	1.044	1.986	11.3	18.1
1 2	7 34.86	+24 17.7	1.185	2.159	5.0	20.4	1 2	7 33.27	+20 0.0	1.013	1.987	5.5	17.8
1 12	7 23.87	+25 42.8	1.180	2.162	1.9	20.2	1 12	7 24.17	+20 47.8	1.006	1.989	0.9	17.4
1 22	7 12.94	+26 58.3	1.202	2.166	7.0	20.5	1 22	7 15.23	+21 35.0	1.023	1.993	6.7	17.9
2 1	7 3.79	+27 58.8	1.249	2.171	12.2	20.8	2 1	7 8.16	+22 16.7	1.064	1.998	12.3	18.2
2 11	6 57.78	+28 42.9	1.319	2.175	16.6	21.1	2 11	7 4.23	+22 50.0	1.126	2.006	17.1	18.5
265851	2005 <i>YE</i> ₉₅		1 10.8 102°80	1°1/11.1	18		34875	2001 <i>US</i> ₂₂		1 10.8 61°89	8°3/ 8.4	18	
12 3	7 53.35	+19 2.0	2.029	2.801	14.8	20.5	12 3	8 1.33	+40 48.5	1.743	2.519	16.7	17.9
12 13	7 49.06	+18 52.4	1.941	2.802	11.7	20.3	12 13	7 56.42	+42 3.5	1.686	2.536	13.8	17.7
12 23	7 42.31	+18 48.6	1.875	2.804	8.1	20.1	12 23	7 47.86	+43 10.2	1.650	2.553	10.9	17.6
1 2	7 33.67	+18 49.3	1.836	2.806	4.1	19.8	1 2	7 36.46	+43 59.1	1.638	2.571	8.7	17.5
1 12	7 24.07	+18 52.7	1.825	2.808	1.2	19.6	1 12	7 23.75	+44 22.5	1.652	2.588	8.4	17.5
1 22	7 14.61	+18 57.0	1.844	2.809	4.8	19.9	1 22	7 11.54	+44 17.8	1.693	2.605	10.1	17.7
2 1	7 6.36	+19 1.1	1.891	2.811	8.8	20.1	2 1	7 1.48	+43 47.4	1.759	2.623	12.6	17.9
2 11	7 0.18	+19 4.2	1.964	2.813	12.3	20.3	2 11	6 54.69	+42 57.7	1.846	2.641	15.2	18.1
315488	2007 <i>YZ</i> ₇₁		1 10.8 277°43	0°5/11.0	18		49405	1998 <i>XW</i> ₄₆		1 10.8 35°77	2°0/10.3	18	
12 3	7 52.94	+15 55.6	1.766	2.541	16.5	20.9	12 3	7 55.08	+25 45.1	1.477	2.277	18.1	18.5
12 13	7 49.36	+16 49.4	1.672	2.535	13.2	20.7	12 13	7 51.39	+26 1.5	1.409	2.287	14.2	18.2
12 23	7 42.94	+17 58.5	1.599	2.529	9.1	20.4	12 23	7 44.37	+26 21.1	1.361	2.298	9.7	18.0
1 2	7 34.16	+19 19.5	1.552	2.523	4.5	20.2	1 2	7 34.79	+26 39.0	1.337	2.309	4.9	17.8
1 12	7 23.99	+20 46.6	1.534	2.517	0.7	19.9	1 12	7 24.00	+26 50.4	1.340	2.321	2.2	17.6
1 22	7 13.70	+22 12.9	1.546	2.511	5.5	20.2	1 22	7 13.58	+26 52.5	1.370	2.334	6.4	17.9
2 1	7 4.64	+23 32.6	1.585	2.505	10.1	20.4	2 1	7 5.03	+26 44.9	1.426	2.347	11.0	18.2
2 11	6 57.92	+24 42.0	1.650	2.500	14.2	20.7	2 11	6 59.39	+26 29.3	1.505	2.360	15.0	18.5
481516	2007 <i>FY</i> ₁₁		1 10.8 330°60	20°1/ 6.7	18		250210	2002 <i>VP</i> ₃₁		1 10.8 26°44	5°5/12.1	18	
12 3	8 21.31	+61 39.7	1.268	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
439259	2012 <i>TX</i> ₃₀₈		1 10.8 127°57	0°1/10.7 18			373872	2003 <i>SN</i> ₆₃		1 10.8 316°89	0°1/10.8 18		
12 3	7 59.99	+20 17.3	1.616	2.393	17.8	21.8	12 3	7 53.37	+22 10.2	2.095	2.870	14.3	20.9
12 13	7 54.89	+20 41.2	1.543	2.407	14.0	21.5	12 13	7 49.10	+22 10.1	2.005	2.869	11.3	20.7
12 23	7 46.60	+21 13.6	1.490	2.421	9.6	21.3	12 23	7 42.39	+22 13.8	1.937	2.869	7.7	20.5
1 2	7 35.84	+21 50.6	1.463	2.434	4.6	21.1	1 2	7 33.78	+22 19.2	1.896	2.868	3.7	20.2
1 12	7 23.87	+22 27.1	1.464	2.447	0.7	20.8	1 12	7 24.22	+22 23.8	1.884	2.867	0.5	20.0
1 22	7 12.17	+22 59.0	1.494	2.459	5.8	21.2	1 22	7 14.76	+22 25.8	1.902	2.867	4.7	20.3
2 1	7 2.19	+23 23.8	1.552	2.470	10.5	21.5	2 1	7 6.50	+22 24.3	1.948	2.866	8.7	20.5
2 11	6 54.99	+23 41.2	1.633	2.480	14.5	21.8	2 11	7 0.29	+22 19.3	2.019	2.866	12.1	20.7
465168	2007 <i>EM</i> ₁₆		1 10.8 288°87	2°8/11.9 17			378981	2008 <i>UJ</i> ₂₆₃		1 10.8 92°17	2°8/11.6 18		
12 3	7 50.99	+12 40.6	1.955	2.719	15.5	21.5	12 3	7 52.51	+14 24.4	2.282	3.037	13.8	21.1
12 13	7 47.60	+12 49.6	1.844	2.697	12.7	21.2	12 13	7 48.00	+13 55.3	2.198	3.045	11.1	20.9
12 23	7 41.66	+13 11.7	1.754	2.675	9.2	21.0	12 23	7 41.40	+13 33.4	2.136	3.054	7.9	20.7
1 2	7 33.56	+13 46.7	1.689	2.652	5.3	20.7	1 2	7 33.23	+13 19.0	2.101	3.063	4.7	20.5
1 12	7 24.16	+14 32.7	1.652	2.630	2.8	20.5	1 12	7 24.31	+13 11.5	2.095	3.071	2.8	20.4
1 22	7 14.53	+15 26.1	1.643	2.607	5.5	20.6	1 22	7 15.55	+13 10.1	2.120	3.079	4.9	20.6
2 1	7 5.86	+16 22.9	1.663	2.585	9.7	20.8	2 1	7 7.85	+13 13.6	2.173	3.088	8.1	20.8
2 11	6 59.22	+17 19.2	1.709	2.562	13.6	21.0	2 11	7 1.93	+13 20.6	2.252	3.096	11.1	21.0
417054	2005 <i>UB</i> ₁₈₃		1 10.8 116°20	2°5/11.6 18			87750	2000 <i>SN</i> ₇₃		1 10.8 148°40	5°3/8.6 18		
12 3	7 54.10	+14 23.3	2.170	2.924	14.5	21.7	12 3	7 58.94	+36 7.8	2.356	3.120	13.2	20.6
12 13	7 49.33	+14 9.6	2.090	2.938	11.6	21.5	12 13	7 53.54	+37 7.1	2.278	3.128	10.7	20.4
12 23	7 42.32	+14 4.4	2.032	2.951	8.2	21.4	12 23	7 45.45	+38 2.9	2.224	3.136	8.0	20.3
1 2	7 33.65	+14 7.3	2.001	2.964	4.7	21.2	1 2	7 35.27	+38 49.0	2.196	3.143	5.8	20.2
1 12	7 24.18	+14 17.0	1.999	2.976	2.5	21.0	1 12	7 24.03	+39 19.9	2.198	3.150	5.4	20.1
1 22	7 14.91	+14 31.7	2.027	2.988	4.9	21.2	1 22	7 12.93	+39 32.7	2.229	3.156	7.2	20.3
2 1	7 6.78	+14 49.6	2.084	3.000	8.3	21.5	2 1	7 3.19	+39 27.5	2.288	3.162	9.7	20.4
2 11	7 0.57	+15 8.8	2.167	3.012	11.5	21.7	2 11	6 55.75	+39 7.3	2.372	3.167	12.2	20.6
69080	2003 <i>AA</i> ₆₂		1 10.8 110°49	6°3/14.9 18			109703	2001 <i>RX</i> ₄₁		1 10.8 308°83	6°7/13.9 18		
12 3	7 55.69	- 1 56.1	2.172	2.858	16.3	19.2	12 3	7 48.15	+ 0 55.2	2.263	2.977	15.0	20.0
12 13	7 50.55	- 1 22.0	2.088	2.875	13.9	19.1	12 13	7 44.77	+ 0 33.1	2.165	2.970	12.8	19.8
12 23	7 43.16	- 0 25.0	2.025	2.892	11.0	18.9	12 23	7 39.36	+ 0 27.6	2.088	2.963	10.4	19.6
1 2	7 34.07	+ 0 55.3	1.987	2.909	8.2	18.8	1 2	7 32.33	+ 0 41.2	2.035	2.956	8.1	19.5
1 12	7 24.13	+ 1 26.7	1.979	2.925	6.4	18.7	1 12	7 24.43	+ 1 14.4	2.008	2.949	6.7	19.4
1 22	7 14.30	+ 2 33.6	2.001	2.941	6.9	18.8	1 22	7 16.50	+ 2 5.6	2.009	2.942	7.4	19.4
2 1	7 5.57	+ 3 39.0	2.054	2.956	9.2	18.9	2 1	7 9.43	+ 3 11.1	2.038	2.935	9.5	19.5
2 11	6 58.73	+ 4 45.3	2.136	2.971	12.0	19.1	2 11	7 4.00	+ 4 26.0	2.092	2.929	12.1	19.7
354928	2006 <i>DN</i> ₁₄₀		1 10.8 228°30	0°2/10.9 18			424975	2009 <i>BQ</i> ₅₅		1 10.8 356°17	6°0/10.3 18		
12 3	7 56.24	+19 21.2	2.018	2.784	15.0	21.8	12 3	7 56.27	+37 30.0	1.524	2.321	17.8	20.1
12 13	7 51.65	+19 44.6	1.914	2.773	12.0	21.5	12 13	7 52.75	+37 29.5	1.444	2.314	14.5	19.8
12 23	7 44.36	+20 16.3	1.832	2.760	8.3	21.3	12 23	7 45.52	+37 19.2	1.384	2.309	10.8	19.6
1 2	7 34.84	+20 53.8	1.777	2.747	4.0	21.0	1 2	7 35.43	+36 52.5	1.348	2.305	7.3	19.4
1 12	7 24.02	+21 33.3	1.751	2.734	0.6	20.7	1 12	7 24.01	+36 4.5	1.337	2.302	6.1	19.3
1 22	7 13.07	+22 10.8	1.755	2.719	5.1	21.0	1 22	7 13.05	+34 55.3	1.352	2.301	8.4	19.4
2 1	7 3.24	+22 43.6	1.788	2.704	9.4	21.2	2 1	7 4.21	+33 29.1	1.393	2.302	12.2	19.7
2 11	6 55.60	+23 10.3	1.847	2.689	13.3	21.5	2 11	6 58.61	+31 53.3	1.457	2.304	15.9	19.9
344487	2002 <i>QR</i> ₄₈		1 10.8 92°54	0°0/10.7 18			381321	2007 <i>VU</i> ₂₂₈		1 10.8 211°08	1°7/10.1 18		
12 3	8 0.46	+19 35.3	1.468	2.250	19.0	21.8	12 3	7 52.07	+26 10.9	2.550	3.321	12.1	21.3
12 13	7 55.37	+20 1.2	1.407	2.274	14.9	21.6	12 13	7 47.75	+26 38.0	2.457	3.319	9.5	21.1
12 23	7 46.93	+20 36.8	1.365	2.298	10.2	21.3	12 23	7 41.31	+27 7.1	2.387	3.316	6.5	20.9
1 2	7 35.98	+21 17.7	1.349	2.321	4.9	21.1	1 2	7 33.24	+27 35.1	2.344	3.314	3.4	20.7
1 12	7 23.89	+21 58.5	1.360	2.343	0.7	20.8	1 12	7 24.31	+27 58.7	2.332	3.311	1.9	20.6
1 22	7 12.26	+22 34.5	1.399	2.365	6.0	21.3	1 22	7 15.43	+28 15.4	2.350	3.309	4.6	20.8
2 1	7 2.58	+23 3.1	1.466	2.386	10.8	21.6	2 1	7 7.51	+28 24.1	2.398	3.306	7.8	20.9
2 11	6 55.87	+23 23.8	1.556	2.407	14.8	21.9	2 11	7 1.32	+28 25.2	2.471	3.303	10.7	21.1
381231	2007 <i>ST</i> ₂₃		1 10.8 73°50	1°5/10.1 18			127231	2002 <i>JM</i> ₁₅		1 10.8 316°91	5°0/12.4 18		
12 3	7 51.58	+23 56.9	2.312	3.087	13.1	20.6	12 3	7 49.10	+ 9 0.2	1.797	2.560	16.7	19.6
12 13	7 47.54	+24 39.5	2.227	3.092	10.3	20.4	12 13	7 46.20	+ 8 39.2	1.698	2.545	13.9	19.4
12 23	7 41.25	+25 26.6	2.165	3.097	7.0	20.3	12 23	7 40.72	+ 8 32.5	1.618	2.530	10.5	19.1
1 2	7 33.22	+26 14.5	2.131	3.102	3.5	20.0	1 2	7 33.13	+ 8 41.8	1.562	2.516	7.0	18.9
1 12	7 24.28	+26 59.2	2.126	3.107	1.7	19.9	1 12	7 24.31	+ 9 7.1	1.533	2.502	5.0	18.7
1 22	7 15.41	+27 37.0	2.152	3.112	4.8	20.1	1 22	7 15.39	+ 9 46.2	1.531	2.488	6.7	18.8
2 1	7 7.59	+28 6.1	2.206	3.117	8.2	20.4	2 1	7 7.57	+10 35.4	1.556	2.475	10.4	19.0
2 11	7 1.63	+28 26.1	2.287	3.122	11.3	20.6	2 11	7 1.87	+11 30.2	1.605	2.463	14.1	19.2
94977	2001 <i>YU</i> ₁₁₃		1 10.8 323°01	2°4/10.2 18			241162	2007 <i>RC</i> ₉₈		1 10.8 160°89	3°3/12.1 18		
12 3	7 52.71	+24 48.7	1.327	2.138	19.1	19.6	12 3	7 55.47	+10 57.5	2.121	2.864	15.1	22.0
12 13	7 50.36	+25 18.8	1.240	2.125	15.3	19.3	12 13	7 50.56	+10 56.9	2.032	2.871	12.3	21.8
12 23	7 44.30	+25 56.0	1.172	2.111	10.6	19.0	12 23	7 43.30	+11 8.4	1.966	2.877	8.9	21.6
1 2	7 35.08	+26 34.9	1.126	2.099	5.4	18.7	1 2	7 34.22	+11 31.7	1.925	2.883	5.4	21.4
1 12	7 24.00	+27 8.8	1.106	2.087	2.6	18.5	1 12	7 24.19	+12 5.2	1.914	2.888	3.3	21.2
1 22	7 12.83	+27 32.0	1.111	2.076	7.4	18.8	1 22	7 14.24	+12 45.9	1.933	2.892	5.3	21.4
2 1	7 3.47	+27 42.0	1.141	2.065	12.8	19.0	2 1	7 5.41	+13 30.7	1.981	2.896	8.8	21.6
2 11	6 57.37	+27 39.8	1.192	2.055	17.6	19.3	2 11	6 58.54	+14 16.5	2.056	2.898	12.1	21.8
328331	2008 <i>JT</i> ₃₀		1 10.8 126°00	2°7/12.0 18			457032	2008 <i>CZ</i> ₁₆₉		1 10.8 277°51	2°0/10.4 18		
12 3	7 52.60	+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
443919	2002 <i>QJ</i> ₃₆		1 10.8 155°25	0°1/10.8 18			258077	2001 <i>PR</i> ₁₆		1 10.8 139°77	2°7/11.5 18		
12 3	7 59.94	+19 28.5	1.908	2.671	15.9	22.7	12 3	7 56.30	+15 9.5	2.151	2.903	14.6	21.3
12 13	7 54.48	+20 4.2	1.824	2.682	12.6	22.5	12 13	7 51.11	+14 38.2	2.066	2.913	11.7	21.1
12 23	7 46.19	+20 48.6	1.763	2.691	8.6	22.3	12 23	7 43.59	+14 13.8	2.003	2.922	8.4	20.9
1 2	7 35.67	+21 38.1	1.729	2.700	4.1	22.0	1 2	7 34.34	+13 56.4	1.968	2.930	4.8	20.7
1 12	7 23.99	+22 27.7	1.724	2.707	0.6	21.8	1 12	7 24.24	+13 45.5	1.962	2.938	2.7	20.6
1 22	7 12.43	+23 12.9	1.750	2.714	5.2	22.1	1 22	7 14.34	+13 40.3	1.986	2.946	5.1	20.8
2 1	7 2.27	+23 50.9	1.805	2.720	9.5	22.4	2 1	7 5.62	+13 39.7	2.039	2.953	8.6	21.0
2 11	6 54.51	+24 20.8	1.886	2.724	13.2	22.6	2 11	6 58.89	+13 42.6	2.118	2.960	11.8	21.2
37929	1998 <i>FY</i> ₁₂₂		1 10.8 241°56	6°9/13.5 18			286776	2002 <i>JY</i> ₆₅		1 10.8 287°50	0°4/10.7 18		
12 3	7 50.86	+0 28.6	2.416	3.117	14.5	19.7	12 3	7 54.05	+21 9.9	1.608	2.398	17.3	20.7
12 13	7 46.80	-0 6.5	2.310	3.104	12.5	19.5	12 13	7 50.70	+21 30.2	1.511	2.384	13.8	20.5
12 23	7 40.71	-0 26.8	2.224	3.090	10.2	19.3	12 23	7 44.15	+21 59.1	1.435	2.370	9.5	20.2
1 2	7 32.99	-0 29.4	2.162	3.076	8.1	19.2	1 2	7 34.93	+22 33.2	1.384	2.356	4.6	19.9
1 12	7 24.35	-0 13.1	2.128	3.062	6.9	19.1	1 12	7 24.14	+23 8.0	1.359	2.342	0.8	19.6
1 22	7 15.63	+0 21.5	2.122	3.047	7.6	19.1	1 22	7 13.21	+23 38.9	1.362	2.328	6.1	19.9
2 1	7 7.70	+1 11.6	2.144	3.031	9.6	19.2	2 1	7 3.70	+24 2.9	1.392	2.314	11.1	20.1
2 11	7 1.35	+2 13.0	2.191	3.015	12.1	19.3	2 11	6 56.89	+24 19.2	1.445	2.301	15.5	20.4
191955	2005 <i>UB</i> ₁₅₅		1 10.8 125°35	3°8/ 9.6 18			278428	2007 <i>RW</i> ₂₅₇		1 10.8 146°74	2°5/11.9 18		
12 3	8 2.43	+28 55.0	1.796	2.570	16.3	21.2	12 3	7 50.93	+12 36.6	2.736	3.477	12.1	21.4
12 13	7 56.72	+29 50.1	1.726	2.588	12.9	21.0	12 13	7 46.47	+12 30.1	2.646	3.485	9.7	21.3
12 23	7 47.83	+30 46.8	1.678	2.606	9.0	20.8	12 23	7 40.23	+12 31.6	2.580	3.493	7.0	21.1
1 2	7 36.46	+31 38.0	1.657	2.622	5.2	20.6	1 2	7 32.68	+12 40.9	2.541	3.500	4.2	20.9
1 12	7 23.89	+32 17.1	1.665	2.638	3.9	20.6	1 12	7 24.48	+12 56.8	2.532	3.506	2.5	20.8
1 22	7 11.64	+32 40.2	1.702	2.653	6.9	20.8	1 22	7 16.36	+13 17.9	2.553	3.513	4.2	20.9
2 1	7 1.14	+32 46.7	1.767	2.667	10.6	21.0	2 1	7 9.06	+13 42.4	2.605	3.519	7.0	21.1
2 11	6 53.46	+32 39.4	1.856	2.680	14.0	21.3	2 11	7 3.22	+14 8.4	2.684	3.524	9.7	21.3
113477	2002 <i>SS</i> ₅₈		1 10.8 29°07	0°5/10.9 18			124163	2001 <i>OG</i> ₁₄		1 10.8 200°44	1°2/10.5 18		
12 3	7 51.32	+20 2.9	1.632	2.425	16.9	19.6	12 3	8 0.24	+24 34.6	1.817	2.591	16.2	20.6
12 13	7 47.93	+20 5.3	1.568	2.442	13.3	19.4	12 13	7 55.05	+24 41.0	1.725	2.588	12.8	20.4
12 23	7 41.75	+20 15.0	1.524	2.459	9.1	19.2	12 23	7 46.78	+24 50.3	1.654	2.585	8.8	20.2
1 2	7 33.50	+20 29.4	1.505	2.477	4.4	18.9	1 2	7 36.05	+24 58.8	1.609	2.580	4.3	19.9
1 12	7 24.30	+20 45.6	1.513	2.496	0.7	18.7	1 12	7 24.01	+25 2.8	1.593	2.575	1.4	19.7
1 22	7 15.45	+21 0.8	1.549	2.516	5.3	19.1	1 22	7 12.06	+24 59.7	1.607	2.570	5.7	19.9
2 1	7 8.13	+21 13.1	1.611	2.536	9.6	19.4	2 1	7 1.63	+24 49.1	1.648	2.563	10.2	20.2
2 11	7 3.23	+21 21.8	1.698	2.557	13.3	19.7	2 11	6 53.81	+24 32.5	1.715	2.556	14.1	20.4
376421	2012 <i>GO</i> ₃₁		1 10.8 159°45	1°3/11.3 18			296970	2010 <i>EA</i> ₇₇		1 10.8 216°60	2°0/11.5 18		
12 3	7 53.32	+17 12.7	2.478	3.233	12.9	22.1	12 3	7 56.22	+15 20.4	2.037	2.794	15.2	22.3
12 13	7 48.56	+17 11.6	2.387	3.238	10.2	21.9	12 13	7 51.50	+15 20.7	1.935	2.786	12.3	22.1
12 23	7 41.77	+17 16.7	2.320	3.243	7.1	21.7	12 23	7 44.19	+15 30.5	1.855	2.777	8.7	21.9
1 2	7 33.43	+17 26.8	2.280	3.248	3.7	21.5	1 2	7 34.78	+15 48.8	1.801	2.767	4.7	21.6
1 12	7 24.31	+17 40.4	2.271	3.252	1.3	21.3	1 12	7 24.18	+16 13.5	1.776	2.756	2.1	21.4
1 22	7 15.30	+17 55.5	2.292	3.256	4.2	21.5	1 22	7 13.51	+16 41.9	1.781	2.745	5.2	21.6
2 1	7 7.25	+18 10.7	2.343	3.259	7.5	21.8	2 1	7 3.94	+17 11.5	1.815	2.733	9.3	21.8
2 11	7 0.90	+18 24.9	2.421	3.262	10.5	22.0	2 11	6 56.48	+17 40.2	1.875	2.720	13.0	22.0
363196	2001 <i>UQ</i> ₅₇		1 10.8 128°73	0°0/10.7 18			363373	2002 <i>TB</i> ₁₉₄		1 10.8 42°69	10°1/14.5 18		
12 3	7 55.87	+20 47.4	2.228	2.991	13.9	22.3	12 3	7 51.11	-1 2.5	1.535	2.268	20.4	20.5
12 13	7 50.77	+21 1.4	2.148	3.005	10.9	22.1	12 13	7 47.83	-2 8.3	1.470	2.281	17.6	20.3
12 23	7 43.36	+21 20.6	2.091	3.019	7.4	21.9	12 23	7 41.77	-2 51.1	1.422	2.294	14.5	20.2
1 2	7 34.20	+21 42.4	2.061	3.032	3.6	21.7	1 2	7 33.58	-3 5.6	1.395	2.308	11.7	20.1
1 12	7 24.22	+22 3.9	2.062	3.045	0.5	21.5	1 12	7 24.36	-2 49.6	1.392	2.322	10.2	20.0
1 22	7 14.42	+22 22.6	2.093	3.057	4.5	21.8	1 22	7 15.38	-2 5.0	1.413	2.337	10.7	20.1
2 1	7 5.81	+22 37.1	2.153	3.068	8.1	22.1	2 1	7 7.84	-0 57.4	1.458	2.352	12.9	20.2
2 11	6 59.18	+22 47.2	2.240	3.079	11.3	22.3	2 11	7 2.71	+0 25.0	1.526	2.367	15.6	20.4
455500	2003 <i>UD</i> ₃₈₈		1 10.8 54°36	0°3/10.7 16			234913	2002 <i>TB</i> ₂₈₃		1 10.8 86°84	1°7/11.4 18		
12 3	7 55.25	+19 47.8	1.419	2.214	18.9	21.4	12 3	7 53.88	+16 58.5	2.369	3.125	13.4	20.4
12 13	7 51.49	+20 23.4	1.358	2.233	14.9	21.1	12 13	7 48.91	+16 39.9	2.295	3.146	10.6	20.3
12 23	7 44.45	+21 9.6	1.316	2.252	10.1	20.9	12 23	7 41.93	+16 27.1	2.244	3.166	7.4	20.1
1 2	7 34.89	+22 1.6	1.299	2.272	4.8	20.7	1 2	7 33.48	+16 19.5	2.220	3.187	3.9	19.9
1 12	7 24.14	+22 53.3	1.308	2.291	0.8	20.4	1 12	7 24.39	+16 16.0	2.227	3.207	1.8	19.8
1 22	7 13.76	+23 39.4	1.345	2.311	6.1	20.8	1 22	7 15.55	+16 15.6	2.264	3.227	4.3	20.0
2 1	7 5.23	+24 16.5	1.408	2.331	10.9	21.2	2 1	7 7.82	+16 17.1	2.330	3.246	7.6	20.2
2 11	6 59.59	+24 43.8	1.494	2.352	15.0	21.5	2 11	7 1.85	+16 19.7	2.423	3.265	10.5	20.5
461116	2015 <i>DL</i> ₁₁₇		1 10.8 54°95	4°8/ 9.0 18			440019	2002 <i>NG</i> ₆₉		1 10.8 112°87	1°8/11.2 18		
12 3	7 54.96	+33 49.4	2.138	2.916	13.9	21.1	12 3	8 1.12	+17 59.2	1.588	2.360	18.2	21.9
12 13	7 50.59	+34 40.2	2.063	2.924	11.2	20.9	12 13	7 55.64	+17 42.8	1.519	2.379	14.5	21.7
12 23	7 43.53	+35 28.8	2.010	2.932	8.1	20.7	12 23	7 47.03	+17 34.5	1.469	2.396	10.0	21.5
1 2	7 34.39	+36 9.1	1.984	2.940	5.5	20.6	1 2	7 36.07	+17 32.7	1.445	2.414	5.2	21.2
1 12	7 24.21	+36 36.0	1.986	2.948	4.9	20.6	1 12	7 24.04	+17 35.2	1.449	2.430	1.8	21.1
1 22	7 14.23	+36 46.6	2.017	2.956	6.9	20.7	1 22	7 12.41	+17 39.9	1.482	2.446	5.8	21.4
2 1	7 5.62	+36 40.8	2.075	2.964	9.8	20.9	2 1	7 2.57	+17 45.3	1.542	2.462	10.4	21.7
2 11	6 59.33	+36 21.3	2.157	2.973	12.6	21.1	2 11	6 55.51	+17 50.6	1.626	2.476	14.3	21.9
325291	2008 <i>HB</i> ₁₅		1 10.8 205°63	0°5/11.0 18			382364	2013 <i>TZ</i> ₉₄		1 10.8 59°57	4°1/ 9.1 18		
12 3	7 53.58	+18 31.6	2.26										

EPHEMERIDES

1 10.8

1 10.8

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
39155	2000 <i>WK</i> ₁₀₃		1 10.8 94°61	4.4/12.4	18		409425	2005 <i>JU</i> ₁₄₃		1 10.8 311°68	1°0/10.5	18	
12 3	7 54.94	+ 9 50.5	1.678	2.436	17.9	19.1	12 3	7 53.32	+21 28.9	1.643	2.434	16.9	21.0
12 13	7 50.65	+ 9 39.7	1.605	2.451	14.6	18.9	12 13	7 49.97	+22 4.6	1.555	2.428	13.4	20.8
12 23	7 43.61	+ 9 44.4	1.553	2.466	10.7	18.7	12 23	7 43.56	+22 49.5	1.487	2.422	9.2	20.5
1 2	7 34.45	+10 4.8	1.524	2.480	6.7	18.5	1 2	7 34.62	+23 39.4	1.444	2.416	4.5	20.2
1 12	7 24.27	+10 39.3	1.523	2.495	4.4	18.4	1 12	7 24.26	+24 28.8	1.429	2.411	1.2	20.0
1 22	7 14.32	+11 24.2	1.549	2.508	6.4	18.5	1 22	7 13.87	+25 12.5	1.441	2.406	6.0	20.3
2 1	7 5.81	+12 15.3	1.604	2.522	10.2	18.8	2 1	7 4.91	+25 47.1	1.480	2.401	10.7	20.5
2 11	6 59.69	+13 8.2	1.682	2.536	13.8	19.0	2 11	6 58.56	+26 11.7	1.543	2.396	14.8	20.8
415469	2014 <i>NL</i> ₅₈		1 10.8 83°80	1°9/10.0	18		76370	2000 <i>EC</i> ₁₈₁		1 10.8 161°13	4°1/ 8.9	18	
12 3	7 57.10	+23 17.3	1.797	2.577	16.1	21.1	12 3	7 54.88	+32 15.5	2.405	3.176	12.8	19.4
12 13	7 52.38	+24 16.1	1.731	2.599	12.6	20.9	12 13	7 50.29	+33 10.5	2.320	3.178	10.2	19.2
12 23	7 44.79	+25 21.3	1.688	2.620	8.6	20.7	12 23	7 43.25	+34 5.0	2.259	3.180	7.3	19.0
1 2	7 35.02	+26 27.2	1.671	2.642	4.2	20.5	1 2	7 34.30	+34 53.5	2.225	3.182	4.8	18.9
1 12	7 24.20	+27 27.6	1.683	2.663	2.2	20.4	1 12	7 24.33	+35 31.2	2.221	3.184	4.2	18.8
1 22	7 13.64	+28 17.3	1.724	2.684	5.8	20.7	1 22	7 14.42	+35 54.7	2.246	3.186	6.2	19.0
2 1	7 4.62	+28 54.2	1.794	2.705	9.8	21.0	2 1	7 5.65	+36 3.4	2.299	3.187	9.0	19.1
2 11	6 58.10	+29 18.5	1.888	2.725	13.2	21.2	2 11	6 58.91	+35 58.7	2.378	3.189	11.7	19.3
417790	2007 <i>EK</i> ₈₇		1 10.8 331°57	5°1/ 8.9	18		363123	2001 <i>PV</i> ₁₆		1 10.8 121°49	4°8/12.3	18	
12 3	7 54.74	+32 4.3	1.812	2.601	15.6	20.9	12 3	7 55.46	+ 8 33.8	2.200	2.932	14.9	20.9
12 13	7 51.08	+33 4.7	1.728	2.597	12.5	20.7	12 13	7 50.31	+ 7 52.5	2.122	2.949	12.3	20.7
12 23	7 44.29	+34 5.6	1.665	2.592	9.1	20.5	12 23	7 42.99	+ 7 22.2	2.065	2.964	9.3	20.6
1 2	7 34.94	+35 0.0	1.628	2.588	6.0	20.3	1 2	7 34.06	+ 7 4.3	2.035	2.980	6.3	20.4
1 12	7 24.19	+35 40.8	1.619	2.584	5.3	20.2	1 12	7 24.37	+ 6 59.2	2.033	2.994	4.8	20.3
1 22	7 13.47	+36 3.3	1.637	2.580	7.8	20.4	1 22	7 14.89	+ 7 6.0	2.061	3.009	6.1	20.4
2 1	7 4.27	+36 6.6	1.681	2.577	11.3	20.6	2 1	7 6.54	+ 7 22.7	2.118	3.022	8.9	20.6
2 11	6 57.75	+35 53.4	1.748	2.574	14.6	20.8	2 11	7 0.06	+ 7 46.4	2.201	3.035	11.7	20.8
381673	2009 <i>BB</i> ₇₀		1 10.8 336°81	1°4/10.3	18		316451	2010 <i>UQ</i> ₇₂		1 10.8 115°87	2°5/11.8	18	
12 3	7 50.37	+23 19.4	2.044	2.828	14.3	20.7	12 3	7 53.96	+13 6.3	1.970	2.729	15.6	21.0
12 13	7 47.02	+23 54.5	1.951	2.822	11.3	20.5	12 13	7 49.57	+13 16.2	1.890	2.740	12.5	20.8
12 23	7 41.17	+24 35.3	1.882	2.815	7.7	20.3	12 23	7 42.74	+13 38.2	1.831	2.751	8.9	20.6
1 2	7 33.34	+25 18.3	1.838	2.810	3.8	20.0	1 2	7 34.03	+14 10.9	1.798	2.762	5.0	20.4
1 12	7 24.41	+25 59.1	1.823	2.804	1.5	19.8	1 12	7 24.37	+14 51.8	1.794	2.773	2.5	20.3
1 22	7 15.48	+26 33.9	1.837	2.799	5.2	20.1	1 22	7 14.86	+15 37.4	1.820	2.783	5.1	20.4
2 1	7 7.67	+27 0.4	1.878	2.795	9.1	20.3	2 1	7 6.55	+16 24.2	1.874	2.793	8.9	20.7
2 11	7 1.92	+27 18.0	1.945	2.790	12.5	20.5	2 11	7 0.32	+17 9.3	1.953	2.803	12.3	20.9
462331	2008 <i>KG</i> ₄		1 10.8 245°31	6°3/12.9	16		12468	Zachotín		1 10.8 217°10	1°2/10.6	18	
12 3	7 51.72	+ 4 29.5	2.152	2.878	15.4	22.6	12 3	8 0.22	+24 38.6	1.709	2.487	16.9	18.3
12 13	7 47.74	+ 3 49.6	2.051	2.868	13.0	22.4	12 13	7 55.30	+24 43.7	1.615	2.481	13.4	18.1
12 23	7 41.50	+ 3 23.4	1.970	2.858	10.3	22.2	12 23	7 47.13	+24 51.9	1.543	2.475	9.3	17.8
1 2	7 33.46	+ 3 13.3	1.915	2.847	7.7	22.0	1 2	7 36.32	+24 59.4	1.496	2.467	4.5	17.5
1 12	7 24.41	+ 3 20.7	1.886	2.836	6.3	21.9	1 12	7 24.05	+25 2.1	1.477	2.460	1.4	17.3
1 22	7 15.29	+ 3 44.7	1.886	2.824	7.3	22.0	1 22	7 11.85	+24 57.3	1.488	2.451	6.0	17.6
2 1	7 7.12	+ 4 22.7	1.913	2.813	9.9	22.1	2 1	7 1.22	+24 44.7	1.526	2.442	10.7	17.8
2 11	7 0.75	+ 5 10.9	1.965	2.801	12.8	22.3	2 11	6 53.38	+24 25.9	1.588	2.433	14.9	18.1
406025	2006 <i>TX</i> ₆₈		1 10.8 78°82	2°1/11.6	18		356351	2010 <i>LO</i> ₆₃		1 10.8 330°33	2°0/11.5	18	
12 3	7 55.60	+14 54.2	1.751	2.519	16.9	21.7	12 3	7 48.82	+15 15.6	1.242	2.051	20.4	20.2
12 13	7 51.01	+15 3.6	1.685	2.542	13.4	21.5	12 13	7 47.33	+15 30.8	1.154	2.035	16.5	19.9
12 23	7 43.73	+15 24.4	1.640	2.565	9.4	21.3	12 23	7 42.31	+16 3.5	1.084	2.021	11.7	19.6
1 2	7 34.46	+15 54.9	1.621	2.588	5.0	21.1	1 2	7 34.24	+16 52.8	1.036	2.007	6.2	19.3
1 12	7 24.29	+16 31.8	1.630	2.610	2.1	21.0	1 12	7 24.32	+17 54.4	1.012	1.994	2.1	19.0
1 22	7 14.44	+17 11.4	1.668	2.633	5.3	21.2	1 22	7 14.21	+19 1.6	1.013	1.982	6.9	19.2
2 1	7 6.07	+17 50.3	1.734	2.655	9.3	21.5	2 1	7 5.72	+20 7.6	1.038	1.972	12.6	19.5
2 11	7 0.04	+18 26.3	1.824	2.676	12.9	21.8	2 11	7 0.34	+21 7.3	1.084	1.962	17.8	19.8
333045	2011 <i>SE</i> ₁₃₄		1 10.8 30°82	4°0/11.9	18		39239	2000 <i>YN</i> ₆₉		1 10.8 70°48	1°5/11.3	18	
12 3	7 52.19	+13 5.3	1.296	2.090	20.4	20.4	12 3	7 53.29	+17 36.5	1.936	2.708	15.4	18.8
12 13	7 49.33	+12 46.1	1.229	2.099	16.5	20.1	12 13	7 49.13	+17 29.9	1.856	2.716	12.2	18.6
12 23	7 43.14	+12 42.2	1.181	2.109	11.9	19.9	12 23	7 42.47	+17 30.9	1.797	2.724	8.5	18.4
1 2	7 34.36	+12 54.1	1.155	2.120	7.0	19.7	1 2	7 33.91	+17 38.1	1.764	2.733	4.4	18.2
1 12	7 24.30	+13 19.7	1.154	2.131	4.0	19.5	1 12	7 24.41	+17 49.5	1.759	2.741	1.5	18.0
1 22	7 14.53	+13 55.1	1.178	2.143	7.0	19.7	1 22	7 15.09	+18 3.0	1.784	2.749	4.9	18.3
2 1	7 6.56	+14 35.9	1.228	2.156	11.6	20.0	2 1	7 7.04	+18 16.8	1.836	2.757	8.9	18.5
2 11	7 1.50	+15 17.7	1.300	2.170	15.9	20.3	2 11	7 1.11	+18 29.7	1.914	2.766	12.4	18.8
49595	1999 <i>FG</i>		1 10.8 321°13	4°3/12.5	18		368422	2002 <i>TL</i> ₃₃₆		1 10.8 67°34	0°2/10.8	18	
12 3	7 49.50	+ 8 48.9	2.293	3.037	14.1	18.8	12 3	7 52.63	+20 47.6	2.123	2.897	14.2	21.0
12 13	7 45.79	+ 8 27.8	2.200	3.035	11.6	18.6	12 13	7 48.38	+21 8.6	2.050	2.913	11.1	20.9
12 23	7 40.03	+ 8 18.0	2.128	3.033	8.7	18.4	12 23	7 41.83	+21 35.3	1.999	2.930	7.5	20.7
1 2	7 32.69	+ 8 20.6	2.082	3.031	5.9	18.3	1 2	7 33.55	+22 5.1	1.975	2.947	3.6	20.5
1 12	7 24.52	+ 8 35.3	2.064	3.029	4.3	18.2	1 12	7 24.46	+22 34.6	1.980	2.964	0.5	20.2
1 22	7 16.39	+ 9 0.5	2.075	3.027	5.6	18.2	1 22	7 15.58	+23 0.9	2.015	2.980	4.5	20.6
2 1	7 9.17	+ 9 33.9	2.114	3.026	8.5	18.4	2 1	7 7.89	+23 22.4	2.079	2.997	8.2	20.8
2 11	7 3.62	+10 12.2	2.179	3.024	11.4	18.6	2 11	7 2.18	+23 38.4	2.169	3.014	11.4	21.1
452304	1996 <i>VC</i> ₃₃		1 10.8 90°02	0°6/10.9	16		45624	2000 <i>DY</i> ₉₃		1 10.8 135°53	0°5/10.6	18	
12 3	7 58.98	+19 20.1	1.701	2.475	17.1								

EPHEMERIDES

1 10.8

1 10.9

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
108019	2001 <i>FS</i> ₁₄₆		1 10.8 256°84	0°6/10.7	18		338114	2002 <i>QG</i> ₅₆		1 10.8 332°35	2°7/10.2	18	
12 3	7 58.31	+23 11.5	1.468	2.260	18.6	20.5	12 3	7 57.95	+25 54.2	1.367	2.168	19.2	20.9
12 13	7 54.30	+23 10.7	1.379	2.252	14.8	20.2	12 13	7 54.30	+26 24.1	1.289	2.167	15.3	20.7
12 23	7 46.73	+23 14.7	1.310	2.245	10.2	19.9	12 23	7 46.88	+26 58.9	1.230	2.166	10.6	20.4
1 2	7 36.23	+23 20.0	1.264	2.237	5.0	19.6	1 2	7 36.34	+27 32.7	1.194	2.166	5.5	20.1
1 12	7 24.09	+23 22.8	1.246	2.229	1.0	19.3	1 12	7 24.14	+27 58.7	1.185	2.165	2.9	19.9
1 22	7 12.00	+23 19.9	1.255	2.221	6.4	19.6	1 22	7 12.09	+28 12.0	1.202	2.165	7.3	20.2
2 1	7 1.67	+23 10.7	1.290	2.213	11.7	19.9	2 1	7 2.02	+28 11.7	1.245	2.164	12.4	20.5
2 11	6 54.42	+22 56.5	1.348	2.205	16.3	20.1	2 11	6 55.27	+27 59.8	1.309	2.164	16.9	20.8
451413	2011 <i>QZ</i> ₃₁		1 10.8 96°49	2°2/10.2	15		34634	2000 <i>VQ</i> ₁₇		1 10.8 204°44	2°2/ 9.9	18	
12 3	8 2.33	+26 26.4	1.759	2.533	16.6	22.4	12 3	7 54.54	+25 58.2	2.260	3.032	13.4	19.4
12 13	7 56.40	+26 53.3	1.697	2.560	13.0	22.3	12 13	7 50.09	+26 42.4	2.166	3.029	10.6	19.2
12 23	7 47.44	+27 21.9	1.657	2.587	8.9	22.1	12 23	7 43.19	+27 30.4	2.096	3.026	7.3	18.9
1 2	7 36.26	+27 47.3	1.643	2.613	4.5	21.9	1 2	7 34.34	+28 17.9	2.054	3.023	3.9	18.7
1 12	7 24.13	+28 4.5	1.658	2.638	2.4	21.8	1 12	7 24.41	+29 0.0	2.041	3.019	2.4	18.6
1 22	7 12.49	+28 11.0	1.703	2.662	5.9	22.0	1 22	7 14.47	+29 33.1	2.058	3.015	5.3	18.8
2 1	7 2.66	+28 6.8	1.776	2.686	9.9	22.3	2 1	7 5.62	+29 55.5	2.104	3.010	8.8	19.0
2 11	6 55.57	+27 54.1	1.873	2.709	13.4	22.6	2 11	6 58.78	+30 7.4	2.176	3.006	12.0	19.2
152343	2005 <i>UW</i> ₇₃		1 10.8 90°87	2°8/ 9.9	18		429927	2012 <i>TW</i> ₂₃₈		1 10.8 157°12	1°5/10.1	17	
12 3	7 56.16	+27 23.5	1.956	2.736	15.0	20.1	12 3	7 51.75	+25 9.8	2.657	3.425	11.8	21.5
12 13	7 51.56	+28 3.8	1.883	2.749	11.8	19.9	12 13	7 47.43	+25 41.8	2.567	3.428	9.2	21.3
12 23	7 44.21	+28 46.1	1.831	2.762	8.1	19.7	12 23	7 41.09	+26 16.5	2.501	3.431	6.3	21.2
1 2	7 34.77	+29 25.5	1.807	2.775	4.4	19.5	1 2	7 33.23	+26 50.8	2.463	3.433	3.2	21.0
1 12	7 24.31	+29 56.8	1.811	2.787	2.9	19.4	1 12	7 24.57	+27 21.5	2.456	3.436	1.6	20.8
1 22	7 14.08	+30 16.9	1.844	2.800	5.9	19.6	1 22	7 15.96	+27 46.0	2.479	3.438	4.3	21.0
2 1	7 5.28	+30 24.7	1.905	2.812	9.5	19.9	2 1	7 8.27	+28 3.0	2.531	3.440	7.4	21.2
2 11	6 58.84	+30 21.8	1.991	2.825	12.8	20.1	2 11	7 2.21	+28 12.6	2.610	3.441	10.2	21.4
749	Malzovia		1 10.8 245°19	0°0/10.7	18		179666	2002 <i>QB</i> ₃₄		1 10.8 113°51	0°5/10.7	18	
12 3	7 56.67	+19 27.4	1.721	2.499	16.8	15.9	12 3	7 56.39	+21 47.0	1.859	2.636	15.8	21.6
12 13	7 52.60	+19 54.7	1.620	2.485	13.5	15.6	12 13	7 51.76	+22 7.8	1.782	2.647	12.4	21.4
12 23	7 45.41	+20 32.3	1.540	2.471	9.3	15.3	12 23	7 44.39	+22 34.7	1.726	2.658	8.5	21.2
1 2	7 35.60	+21 17.3	1.484	2.456	4.5	15.0	1 2	7 34.89	+23 4.1	1.696	2.668	4.1	20.9
1 12	7 24.19	+22 4.7	1.457	2.440	0.6	14.7	1 12	7 24.35	+23 32.0	1.695	2.678	0.8	20.7
1 22	7 12.57	+22 49.5	1.459	2.424	5.8	15.0	1 22	7 14.01	+23 55.2	1.724	2.688	5.2	21.1
2 1	7 2.26	+23 28.2	1.488	2.408	10.7	15.3	2 1	7 5.10	+24 11.9	1.780	2.698	9.4	21.3
2 11	6 54.50	+23 59.0	1.542	2.391	15.1	15.5	2 11	6 58.55	+24 21.9	1.862	2.707	13.0	21.6
297005	Ellirichter		1 10.8 278°15	1°4/11.2	17		295737	2008 <i>UW</i> ₇₉		1 10.8 163°22	4°4/ 9.6	18	
12 3	7 54.69	+17 41.2	1.575	2.359	17.8	21.8	12 3	8 1.85	+31 30.6	1.794	2.571	16.2	21.1
12 13	7 51.30	+17 44.2	1.473	2.341	14.4	21.5	12 13	7 56.55	+32 13.6	1.714	2.576	13.0	20.9
12 23	7 44.67	+17 57.7	1.391	2.323	10.1	21.2	12 23	7 47.94	+32 56.0	1.655	2.580	9.3	20.7
1 2	7 35.29	+18 20.3	1.333	2.304	5.2	20.9	1 2	7 36.70	+33 30.8	1.622	2.584	5.7	20.5
1 12	7 24.23	+18 48.9	1.302	2.285	1.4	20.6	1 12	7 24.11	+33 51.5	1.617	2.587	4.6	20.4
1 22	7 12.93	+19 19.5	1.299	2.266	6.1	20.8	1 22	7 11.73	+33 54.8	1.641	2.589	7.3	20.6
2 1	7 2.99	+19 48.9	1.322	2.247	11.3	21.1	2 1	7 1.09	+33 40.9	1.692	2.591	11.0	20.8
2 11	6 55.74	+20 15.0	1.368	2.227	16.0	21.3	2 11	6 53.34	+33 13.4	1.768	2.593	14.5	21.0
200732	2001 <i>VE</i> ₅₄		1 10.8 91°78	2°2/10.3	18		366885	2005 <i>TT</i> ₂₈		1 10.9 103°58	0°7/11.0	18	
12 3	8 0.70	+26 14.5	1.536	2.323	18.1	20.6	12 3	7 56.44	+20 35.3	1.977	2.747	15.2	20.8
12 13	7 55.69	+26 33.8	1.469	2.340	14.2	20.4	12 13	7 51.52	+20 20.8	1.898	2.758	12.0	20.6
12 23	7 47.30	+26 55.6	1.423	2.356	9.8	20.2	12 23	7 44.05	+20 10.8	1.840	2.769	8.2	20.4
1 2	7 36.31	+27 14.6	1.401	2.372	4.9	19.9	1 2	7 34.67	+20 3.5	1.809	2.779	4.0	20.2
1 12	7 24.14	+27 25.8	1.407	2.388	2.4	19.8	1 12	7 24.39	+19 57.3	1.807	2.790	0.8	19.9
1 22	7 12.42	+27 26.3	1.441	2.403	6.4	20.1	1 22	7 14.36	+19 50.7	1.834	2.800	4.8	20.3
2 1	7 2.66	+27 16.2	1.502	2.418	10.9	20.4	2 1	7 5.69	+19 43.3	1.891	2.810	8.8	20.5
2 11	6 55.90	+26 58.0	1.587	2.433	14.8	20.7	2 11	6 59.22	+19 35.0	1.973	2.819	12.3	20.8
50975	2000 <i>GQ</i> ₉₁		1 10.8 136°41	0°2/10.9	18		278410	2007 <i>RV</i> ₃₈		1 10.9 135°06	8°4/15.3	18	
12 3	7 51.46	+18 48.4	2.474	3.237	12.7	19.2	12 3	7 49.17	- 6 9.5	2.505	3.171	14.8	20.7
12 13	7 47.25	+19 20.9	2.385	3.242	10.0	19.0	12 13	7 45.33	- 6 47.9	2.418	3.175	13.1	20.6
12 23	7 41.01	+20 0.5	2.320	3.248	6.8	18.8	12 23	7 39.63	- 7 8.0	2.351	3.179	11.2	20.5
1 2	7 33.19	+20 44.8	2.282	3.252	3.3	18.6	1 2	7 32.51	- 7 6.8	2.306	3.182	9.5	20.4
1 12	7 24.55	+21 30.6	2.274	3.257	0.4	18.3	1 12	7 24.68	- 6 42.7	2.287	3.186	8.5	20.3
1 22	7 15.96	+22 14.7	2.297	3.262	4.1	18.6	1 22	7 16.89	- 5 57.1	2.295	3.189	8.7	20.3
2 1	7 8.28	+22 54.6	2.350	3.266	7.5	18.9	2 1	7 9.93	- 4 52.8	2.329	3.193	10.0	20.4
2 11	7 2.27	+23 28.8	2.429	3.270	10.5	19.1	2 11	7 4.47	- 3 35.2	2.389	3.196	11.8	20.5
90889	1997 <i>AQ</i> ₁₁		1 10.8 354°42	0°5/10.9	18		488582	2002 <i>LD</i> ₃₅		1 10.9 157°93	0°9/10.3	17	
12 3	7 53.48	+20 36.8	1.900	2.679	15.4	19.6	12 3	7 53.06	+23 40.3	3.606	4.354	9.3	23.7
12 13	7 49.48	+20 31.8	1.813	2.678	12.2	19.4	12 13	7 47.80	+24 14.1	3.515	4.364	7.3	23.6
12 23	7 42.85	+20 32.2	1.747	2.678	8.4	19.1	12 23	7 41.02	+24 50.2	3.449	4.374	4.9	23.4
1 2	7 34.16	+20 36.0	1.706	2.677	4.1	18.9	1 2	7 33.10	+25 26.3	3.413	4.383	2.4	23.2
1 12	7 24.42	+20 40.9	1.694	2.677	0.7	18.6	1 12	7 24.61	+26 0.1	3.410	4.391	1.0	23.1
1 22	7 14.80	+20 44.9	1.711	2.677	5.0	18.9	1 22	7 16.15	+26 29.6	3.440	4.399	3.3	23.3
2 1	7 6.46	+20 46.9	1.755	2.677	9.2	19.2	2 1	7 8.37	+26 53.6	3.501	4.405	5.7	23.5
2 11	7 0.35	+20 46.4	1.825	2.677	12.9	19.4	2 11	7 1.79	+27 11.8	3.591	4.411	7.9	23.7
450139	1998 <i>SR</i> ₁₄₈		1 10.8 63°33	1°3/11.2	16		265677	2005 <i>UB</i> ₆₇		1 10.9 44°14	1°4/11.2	18	
12 3	7 59.66	+18 36.2	1.554	2.332	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
151227	2001 YR ₁₀₃		1 10.9	8°47'	1°8'/11.4	18	204582	2005 GG ₄₃		1 10.9	264°40'	2°3'/11.5	18
12 3	7 50.63	+17 2.4	1.510	2.304	18.0	19.8	12 3	7 52.08	+15 54.0	2.334	3.092	13.5	20.3
12 13	7 47.84	+16 57.4	1.432	2.305	14.4	19.6	12 13	7 47.85	+15 29.5	2.236	3.087	10.8	20.1
12 23	7 42.06	+17 2.8	1.374	2.307	10.1	19.4	12 23	7 41.48	+15 11.2	2.160	3.081	7.7	19.9
1 2	7 33.90	+17 17.4	1.340	2.310	5.3	19.1	1 2	7 33.47	+14 58.9	2.111	3.075	4.3	19.6
1 12	7 24.51	+17 38.8	1.332	2.313	1.9	18.9	1 12	7 24.60	+14 52.0	2.092	3.070	2.3	19.5
1 22	7 15.27	+18 3.5	1.350	2.318	5.8	19.1	1 22	7 15.77	+14 49.6	2.102	3.064	4.7	19.6
2 1	7 7.56	+18 28.7	1.395	2.323	10.5	19.4	2 1	7 7.91	+14 50.7	2.141	3.058	8.1	19.8
2 11	7 2.42	+18 52.0	1.463	2.329	14.7	19.7	2 11	7 1.79	+14 54.2	2.207	3.053	11.2	20.0
154880	2004 RL ₁₄₃		1 10.9	191°77'	6°3'/8.1	18	467716	2009 BA ₆₉		1 10.9	26°29'	4°8'/13.4	18
12 3	7 59.98	+39 44.3	2.437	3.194	13.0	20.6	12 3	7 48.82	+5 8.5	2.124	2.861	15.3	21.2
12 13	7 54.59	+40 48.4	2.352	3.192	10.7	20.5	12 13	7 45.44	+5 20.2	2.038	2.866	12.7	21.0
12 23	7 46.38	+41 47.5	2.290	3.190	8.4	20.3	12 23	7 39.91	+5 49.0	1.973	2.871	9.7	20.8
1 2	7 35.92	+42 34.9	2.256	3.188	6.7	20.2	1 2	7 32.74	+6 35.3	1.932	2.877	6.6	20.6
1 12	7 24.25	+43 4.4	2.249	3.185	6.4	20.2	1 12	7 24.70	+7 37.4	1.920	2.883	4.8	20.5
1 22	7 12.64	+43 13.2	2.272	3.182	8.0	20.3	1 22	7 16.72	+8 51.5	1.936	2.889	5.9	20.6
2 1	7 2.38	+43 1.4	2.321	3.179	10.2	20.4	2 1	7 9.71	+10 12.8	1.981	2.896	8.7	20.8
2 11	6 54.50	+42 32.5	2.395	3.175	12.6	20.6	2 11	7 4.46	+11 36.0	2.052	2.903	11.7	21.0
325135	2008 EK ₁₄₆		1 10.9	344°08'	9°5'/14.3	18	291890	2006 PD ₃₁		1 10.9	113°27'	1°1'/11.3	18
12 3	7 49.50	-0 43.1	1.635	2.367	19.3	20.7	12 3	7 51.05	+17 0.3	2.616	3.372	12.2	21.3
12 13	7 46.68	-1 32.4	1.551	2.363	16.7	20.5	12 13	7 46.73	+17 9.7	2.531	3.383	9.7	21.1
12 23	7 41.16	-1 59.8	1.485	2.359	13.8	20.3	12 23	7 40.53	+17 25.7	2.471	3.394	6.7	20.9
1 2	7 33.46	-2 0.4	1.439	2.356	11.1	20.1	1 2	7 32.95	+17 46.9	2.437	3.405	3.4	20.7
1 12	7 24.57	-1 31.9	1.417	2.353	9.5	20.0	1 12	7 24.68	+18 11.2	2.434	3.416	1.1	20.6
1 22	7 15.67	-0 35.8	1.421	2.350	10.2	20.1	1 22	7 16.53	+18 36.6	2.461	3.426	3.8	20.8
2 1	7 8.00	+0 42.6	1.449	2.348	12.5	20.2	2 1	7 9.27	+19 1.4	2.519	3.436	7.0	21.0
2 11	7 2.60	+2 15.4	1.500	2.347	15.5	20.4	2 11	7 3.55	+19 24.0	2.603	3.446	9.8	21.2
120370	2005 OS ₁		1 10.9	193°08'	16°7'/7.3	18	51184	2000 HQ ₇₈		1 10.9	179°96'	2°2'/11.6	18
12 3	8 22.28	+54 8.3	1.308	2.056	22.6	19.4	12 3	7 52.17	+15 32.4	2.478	3.231	12.9	19.1
12 13	8 17.02	+56 7.0	1.249	2.056	20.3	19.3	12 13	7 47.73	+15 11.4	2.383	3.231	10.3	18.9
12 23	8 4.50	+57 48.1	1.207	2.055	18.2	19.1	12 23	7 41.30	+14 56.6	2.312	3.232	7.3	18.7
1 2	7 45.48	+58 51.0	1.183	2.053	16.9	19.0	1 2	7 33.35	+14 47.8	2.268	3.232	4.1	18.5
1 12	7 23.00	+58 58.2	1.180	2.051	16.8	19.0	1 12	7 24.63	+14 44.3	2.254	3.232	2.2	18.4
1 22	7 1.57	+58 4.3	1.197	2.049	18.1	19.1	1 22	7 15.99	+14 45.2	2.270	3.231	4.4	18.5
2 1	6 45.17	+56 18.5	1.235	2.046	20.2	19.2	2 1	7 8.28	+14 49.2	2.315	3.231	7.6	18.7
2 11	6 35.68	+53 58.9	1.289	2.043	22.6	19.4	2 11	7 2.21	+14 55.3	2.387	3.230	10.6	18.9
287331	2002 TV ₃₁₄		1 10.9	191°61'	6°6'/13.6	18	123393	2000 WH ₇₂		1 10.9	273°27'	4°3'/11.7	18
12 3	7 52.56	+2 6.9	2.127	2.842	15.9	21.6	12 3	7 54.12	+12 21.9	2.042	2.795	15.3	19.6
12 13	7 48.38	+1 45.2	2.034	2.841	13.5	21.4	12 13	7 49.77	+11 28.1	1.942	2.786	12.5	19.4
12 23	7 41.95	+1 40.4	1.960	2.840	10.7	21.2	12 23	7 42.98	+10 41.5	1.864	2.776	9.3	19.2
1 2	7 33.73	+1 54.9	1.911	2.838	8.1	21.0	1 2	7 34.27	+10 4.0	1.812	2.767	6.0	19.0
1 12	7 24.54	+2 29.0	1.889	2.836	6.6	20.9	1 12	7 24.51	+9 36.6	1.788	2.757	4.4	18.9
1 22	7 15.35	+3 20.6	1.895	2.833	7.4	21.0	1 22	7 14.76	+9 19.6	1.794	2.748	6.2	18.9
2 1	7 7.15	+4 25.8	1.930	2.830	9.8	21.1	2 1	7 6.10	+9 12.5	1.827	2.738	9.6	19.1
2 11	7 0.79	+5 39.3	1.990	2.826	12.7	21.3	2 11	6 59.43	+9 13.6	1.885	2.728	13.0	19.3
8909	Ohnshitaka		1 10.9	114°03'	1°5'/10.2	18	114514	2003 BX ₅		1 10.9	272°02'	1°3'/11.5	18
12 3	7 54.66	+24 6.5	2.200	2.972	13.8	18.0	12 3	7 52.46	+14 23.0	1.932	2.699	15.6	19.2
12 13	7 50.05	+24 43.2	2.121	2.984	10.8	17.8	12 13	7 48.83	+15 5.5	1.832	2.689	12.5	19.0
12 23	7 43.05	+25 24.0	2.065	2.995	7.4	17.6	12 23	7 42.58	+16 2.6	1.754	2.679	8.8	18.8
1 2	7 34.23	+26 5.1	2.036	3.006	3.6	17.4	1 2	7 34.18	+17 12.1	1.701	2.670	4.6	18.5
1 12	7 24.49	+26 42.2	2.036	3.017	1.7	17.3	1 12	7 24.51	+18 29.5	1.678	2.660	1.3	18.2
1 22	7 14.89	+27 12.1	2.067	3.028	4.9	17.5	1 22	7 14.68	+19 49.3	1.684	2.650	5.1	18.5
2 1	7 6.47	+27 33.2	2.127	3.038	8.5	17.7	2 1	7 5.91	+21 6.1	1.719	2.640	9.4	18.7
2 11	7 0.08	+27 45.7	2.212	3.048	11.6	18.0	2 11	6 59.24	+22 15.9	1.780	2.630	13.3	18.9
381211	2007 RO ₁₆₀		1 10.9	38°21'	2°6'/9.9	18	340731	2006 SQ ₁₅₅		1 10.9	105°22'	3°6'/12.7	18
12 3	7 53.11	+27 35.0	1.939	2.725	14.9	20.8	12 3	7 49.41	+8 18.2	2.542	3.277	13.1	20.6
12 13	7 49.18	+28 6.6	1.868	2.738	11.7	20.7	12 13	7 45.50	+8 22.2	2.453	3.284	10.7	20.4
12 23	7 42.61	+28 39.6	1.819	2.751	8.0	20.5	12 23	7 39.74	+8 38.2	2.387	3.290	8.0	20.2
1 2	7 34.04	+29 9.6	1.796	2.764	4.3	20.3	1 2	7 32.60	+9 6.2	2.347	3.297	5.2	20.1
1 12	7 24.51	+29 32.1	1.801	2.778	2.8	20.2	1 12	7 24.74	+9 44.8	2.336	3.304	3.6	20.0
1 22	7 15.24	+29 44.3	1.835	2.793	5.7	20.4	1 22	7 16.94	+10 31.7	2.355	3.311	4.8	20.1
2 1	7 7.36	+29 45.7	1.896	2.807	9.3	20.7	2 1	7 9.98	+11 23.7	2.404	3.317	7.5	20.3
2 11	7 1.77	+29 37.5	1.982	2.822	12.6	20.9	2 11	7 4.53	+12 17.7	2.480	3.324	10.2	20.4
369587	2011 BG ₁₃₂		1 10.9	101°55'	2°2'/11.7	18	397033	2005 UN ₄₇		1 10.9	106°85'	0°4'/10.9	18
12 3	7 52.57	+14 21.9	2.093	2.853	14.8	21.2	12 3	7 58.76	+20 40.3	1.523	2.308	18.3	21.3
12 13	7 48.38	+14 26.0	2.011	2.863	11.8	21.0	12 13	7 54.19	+20 38.6	1.449	2.318	14.5	21.0
12 23	7 41.90	+14 40.1	1.950	2.872	8.3	20.8	12 23	7 46.35	+20 43.9	1.395	2.327	10.0	20.8
1 2	7 33.67	+15 3.2	1.916	2.881	4.6	20.6	1 2	7 35.95	+20 53.2	1.365	2.337	4.8	20.5
1 12	7 24.56	+15 33.1	1.911	2.890	2.2	20.5	1 12	7 24.31	+21 3.3	1.363	2.346	0.7	20.2
1 22	7 15.58	+16 6.9	1.935	2.899	4.8	20.7	1 22	7 12.97	+21 11.2	1.389	2.355	5.9	20.6
2 1	7 7.72	+16 42.0	1.988	2.908	8.4	20.9	2 1	7 3.40	+21 15.6	1.442	2.364	10.7	20.9
2 11	7 1.80	+17 16.0	2.067	2.916	11.7	21.1	2 11	6 56.69	+21 16.5	1.518	2.373	14.9	21.2
370556	2003 UV ₆₉		1 10.9	56°63'	0°8'/11.2	18	197127	2003 UJ ₂₂₇		1 10.9	42°68'	1°8'/11.4	18
12 3	7 52.03	+18 19.8	2.026	2.799	14.8	21.5	12 3	7 52.40	+17 10.4	1.934	2.707	15.4	19.7
12													

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
262585	2006 VA ₈₃		1 10.9	11°55'	0°6'/11.0	18	202369	2005 EH ₂₇₆		1 10.9	30°20'	0°1'/10.9	18
12 3	7 54.28	+20 1.0	1.736	2.519	16.5	21.7	12 3	7 51.62	+20 27.6	2.103	2.879	14.2	20.5
12 13	7 50.39	+20 0.5	1.651	2.519	13.1	21.5	12 13	7 47.79	+20 40.2	2.018	2.882	11.2	20.3
12 23	7 43.65	+20 6.8	1.588	2.520	9.0	21.2	12 23	7 41.60	+20 58.6	1.954	2.885	7.7	20.1
1 2	7 34.66	+20 17.7	1.549	2.520	4.4	20.9	1 2	7 33.60	+21 20.8	1.917	2.889	3.7	19.9
1 12	7 24.49	+20 30.5	1.538	2.521	0.8	20.7	1 12	7 24.68	+21 43.8	1.909	2.892	0.5	19.6
1 22	7 14.44	+20 42.5	1.555	2.522	5.4	21.0	1 22	7 15.85	+22 4.9	1.930	2.896	4.6	19.9
2 1	7 5.81	+20 51.9	1.600	2.523	9.9	21.3	2 1	7 8.15	+22 22.4	1.980	2.900	8.4	20.2
2 11	6 59.60	+20 58.2	1.669	2.524	13.8	21.5	2 11	7 2.42	+22 35.4	2.055	2.904	11.8	20.4
119376	2001 SP ₃₁₆		1 10.9	103°35'	2°6'/10.3	18	491950	2013 CS ₁₅₀		1 10.9	26°70'	2°4'/11.6	18
12 3	8 0.12	+29 47.1	1.982	2.755	15.1	19.6	12 3	7 51.37	+14 41.4	1.184	1.991	21.3	20.9
12 13	7 54.57	+29 48.6	1.905	2.766	11.9	19.4	12 13	7 49.10	+14 53.4	1.121	2.000	17.0	20.7
12 23	7 46.21	+29 48.0	1.849	2.777	8.3	19.2	12 23	7 43.27	+15 22.7	1.076	2.011	12.0	20.4
1 2	7 35.76	+29 41.3	1.820	2.787	4.5	19.0	1 2	7 34.62	+16 7.4	1.053	2.022	6.4	20.1
1 12	7 24.37	+29 25.2	1.820	2.797	2.7	18.9	1 12	7 24.55	+17 2.5	1.054	2.035	2.4	19.9
1 22	7 13.35	+28 58.7	1.849	2.807	5.7	19.1	1 22	7 14.77	+18 1.6	1.080	2.048	6.7	20.2
2 1	7 3.90	+28 23.1	1.908	2.817	9.4	19.4	2 1	7 6.94	+18 58.7	1.130	2.063	12.0	20.6
2 11	6 56.93	+27 41.3	1.991	2.827	12.7	19.6	2 11	7 2.22	+19 49.7	1.203	2.078	16.6	20.9
8765	Limosa		1 10.9	25°58'	1°1'/10.5	18	164641	1995 MK ₄		1 10.9	120°58'	3°6'/12.6	18
12 3	7 54.09	+23 36.5	1.848	2.632	15.6	18.5	12 3	7 50.00	+ 8 37.7	2.553	3.288	13.0	20.6
12 13	7 50.14	+23 54.6	1.764	2.634	12.3	18.3	12 13	7 45.95	+ 8 36.5	2.465	3.296	10.7	20.4
12 23	7 43.42	+24 17.3	1.702	2.635	8.4	18.0	12 23	7 40.06	+ 8 46.7	2.400	3.303	7.9	20.3
1 2	7 34.54	+24 41.0	1.665	2.637	4.1	17.8	1 2	7 32.78	+ 9 8.5	2.361	3.311	5.2	20.1
1 12	7 24.52	+25 1.9	1.657	2.639	1.3	17.6	1 12	7 24.80	+ 9 40.6	2.351	3.318	3.6	20.0
1 22	7 14.63	+25 16.8	1.677	2.641	5.4	17.9	1 22	7 16.89	+10 21.0	2.371	3.325	4.9	20.1
2 1	7 6.11	+25 24.4	1.725	2.643	9.6	18.1	2 1	7 9.82	+11 6.8	2.420	3.333	7.5	20.3
2 11	6 59.94	+25 25.0	1.797	2.645	13.3	18.4	2 11	7 4.26	+11 55.0	2.497	3.339	10.2	20.5
183880	2004 CC ₅₇		1 10.9	170°52'	3°3'/ 9.3	18	39277	2001 BE ₆		1 10.9	171°77'	3°9'/ 9.7	18
12 3	7 53.54	+30 4.8	2.452	3.224	12.5	20.5	12 3	7 59.60	+30 13.5	1.869	2.647	15.6	19.3
12 13	7 49.19	+30 55.7	2.364	3.225	9.9	20.4	12 13	7 54.68	+30 56.4	1.786	2.650	12.5	19.1
12 23	7 42.52	+31 47.4	2.300	3.226	7.0	20.2	12 23	7 46.66	+31 39.8	1.725	2.652	8.8	18.9
1 2	7 34.04	+32 35.1	2.264	3.226	4.3	20.0	1 2	7 36.16	+32 17.6	1.689	2.653	5.3	18.7
1 12	7 24.59	+33 14.2	2.257	3.227	3.5	19.9	1 12	7 24.36	+32 43.6	1.682	2.654	4.1	18.6
1 22	7 15.17	+33 41.6	2.281	3.227	5.7	20.1	1 22	7 12.70	+32 54.4	1.704	2.655	6.8	18.8
2 1	7 6.80	+33 56.1	2.332	3.228	8.6	20.3	2 1	7 2.60	+32 49.4	1.754	2.655	10.6	19.0
2 11	7 0.34	+33 58.6	2.410	3.228	11.3	20.5	2 11	6 55.16	+32 31.5	1.827	2.655	14.0	19.2
198985	2005 VH ₇₃		1 10.9	98°56'	0°1'/10.8	18	158493	2002 EF ₃₂		1 10.9	27°05'	1°9'/11.5	18
12 3	7 57.23	+19 59.8	1.502	2.290	18.4	21.0	12 3	7 51.71	+15 40.9	1.798	2.575	16.2	20.2
12 13	7 53.11	+20 24.3	1.429	2.299	14.6	20.8	12 13	7 48.20	+15 44.5	1.716	2.578	13.0	20.0
12 23	7 45.71	+20 58.5	1.375	2.309	10.0	20.6	12 23	7 42.07	+15 58.7	1.655	2.582	9.1	19.8
1 2	7 35.70	+21 38.5	1.346	2.318	4.8	20.3	1 2	7 33.89	+16 22.2	1.619	2.586	4.9	19.5
1 12	7 24.38	+22 19.1	1.344	2.327	0.6	20.0	1 12	7 24.66	+16 52.4	1.610	2.591	1.9	19.3
1 22	7 13.27	+22 55.5	1.370	2.336	6.0	20.4	1 22	7 15.52	+17 26.1	1.630	2.596	5.2	19.6
2 1	7 3.89	+23 24.8	1.423	2.345	10.9	20.7	2 1	7 7.67	+18 0.2	1.677	2.601	9.4	19.8
2 11	6 57.38	+23 46.1	1.499	2.354	15.1	21.0	2 11	7 2.03	+18 32.4	1.749	2.606	13.1	20.1
482766	2013 GF ₆₉		1 10.9	91°60'	5°9'/13.0	17	8610	Goldhaber		1 10.9	16°62'	2°7'/10.1	18
12 3	8 9.38	+ 5 43.6	1.548	2.269	20.7	23.0	12 3	7 52.30	+24 36.1	1.203	2.022	20.3	16.6
12 13	8 1.61	+ 5 33.1	1.500	2.319	16.9	22.9	12 13	7 50.15	+25 18.0	1.138	2.027	16.0	16.4
12 23	7 50.79	+ 5 42.6	1.471	2.366	12.6	22.8	12 23	7 44.18	+26 7.4	1.091	2.033	11.0	16.1
1 2	7 37.83	+ 6 12.3	1.467	2.411	8.3	22.6	1 2	7 35.13	+26 58.0	1.067	2.040	5.6	15.8
1 12	7 24.14	+ 6 59.5	1.491	2.455	5.9	22.6	1 12	7 24.50	+27 41.8	1.067	2.048	2.9	15.7
1 22	7 11.21	+ 7 59.1	1.546	2.496	7.5	22.8	1 22	7 14.15	+28 12.9	1.093	2.057	7.5	16.0
2 1	7 0.33	+ 9 5.3	1.629	2.536	10.9	23.1	2 1	7 5.89	+28 29.1	1.142	2.067	12.7	16.3
2 11	6 52.36	+10 12.5	1.738	2.573	14.3	23.4	2 11	7 1.00	+28 31.7	1.212	2.078	17.1	16.6
170957	2005 BB ₂₅		1 10.9	345°49'	1°3'/11.1	18	122703	2000 SQ ₂₇		1 10.9	53°91'	0°5'/11.0	18
12 3	7 52.91	+19 19.8	1.379	2.180	19.1	20.1	12 3	7 54.57	+20 36.2	1.771	2.553	16.2	19.9
12 13	7 50.10	+19 6.4	1.297	2.175	15.3	19.8	12 13	7 50.43	+20 31.8	1.696	2.563	12.8	19.6
12 23	7 43.90	+19 1.1	1.234	2.170	10.6	19.5	12 23	7 43.54	+20 33.1	1.642	2.573	8.8	19.4
1 2	7 34.93	+19 2.7	1.194	2.165	5.4	19.2	1 2	7 34.56	+20 38.1	1.613	2.584	4.3	19.2
1 12	7 24.47	+19 8.4	1.179	2.162	1.4	18.9	1 12	7 24.59	+20 44.2	1.612	2.595	0.7	18.9
1 22	7 14.10	+19 15.7	1.191	2.159	6.3	19.2	1 22	7 14.86	+20 49.2	1.640	2.606	5.1	19.3
2 1	7 5.43	+19 22.5	1.228	2.157	11.6	19.5	2 1	7 6.59	+20 52.0	1.695	2.617	9.4	19.6
2 11	6 59.70	+19 27.8	1.287	2.155	16.2	19.8	2 11	7 0.69	+20 52.2	1.775	2.629	13.2	19.8
416978	2005 TF ₅₈		1 10.9	4°81'	8°7'/ 7.9	18	240054	2001 WC ₃₆		1 10.9	358°41'	0°9'/11.2	18
12 3	7 56.89	+39 14.7	1.581	2.372	17.4	20.2	12 3	7 46.79	+16 35.1	1.056	1.883	21.9	19.5
12 13	7 53.63	+40 38.7	1.511	2.372	14.5	20.0	12 13	7 46.16	+17 6.2	0.986	1.878	17.6	19.2
12 23	7 46.53	+41 57.4	1.461	2.373	11.4	19.8	12 23	7 41.73	+17 56.5	0.932	1.875	12.2	18.8
1 2	7 36.26	+43 0.2	1.435	2.374	9.1	19.7	1 2	7 34.08	+19 3.0	0.899	1.873	6.1	18.5
1 12	7 24.30	+43 37.9	1.435	2.376	8.9	19.7	1 12	7 24.63	+20 18.7	0.890	1.873	1.1	18.2
1 22	7 12.54	+43 45.6	1.459	2.378	10.8	19.8	1 22	7 15.22	+21 34.8	0.904	1.874	7.1	18.6
2 1	7 2.84	+43 24.5	1.507	2.381	13.8	20.0	2 1	7 7.79	+22 43.5	0.941	1.878	13.2	18.9
2 11	6 56.54	+42 40.7	1.577	2.385	16.8	20.2	2 11	7 3.79	+23 40.1	0.997	1.882	18.3	19.2
317010	2001 QV ₉₂		1 10.9	98°70'	0°1'/10.8	18	111152	2001 VZ ₁₀₂		1 10.9	117°52'	3°9'/ 9.5	18
12 3	7 56.99	+18 50.2	2.097	2.858	14.7	20.9	12 3	7 57.95	+30 54.7	2.050	2.825	14.5	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
322381	2011 <i>OW</i> ₅₄		1 10.9 171°57	0°3/10.7	18		11498	Julgeerts		1 10.9 200°94	1°0/11.3	18	
12 3	7 50.79	+20 39.8	2.796	3.557	11.4	21.1	12 3	7 53.50	+17 53.1	2.404	3.162	13.1	19.2
12 13	7 46.57	+21 11.2	2.702	3.559	9.0	20.9	12 13	7 48.98	+17 59.7	2.306	3.159	10.4	19.0
12 23	7 40.51	+21 47.8	2.632	3.560	6.1	20.7	12 23	7 42.31	+18 12.8	2.231	3.155	7.2	18.8
1 2	7 33.03	+22 27.4	2.590	3.561	2.9	20.5	1 2	7 33.97	+18 31.0	2.183	3.151	3.7	18.5
1 12	7 24.81	+23 6.9	2.579	3.562	0.5	20.3	1 12	7 24.72	+18 52.2	2.164	3.147	1.0	18.3
1 22	7 16.60	+23 43.8	2.599	3.563	3.8	20.6	1 22	7 15.49	+19 14.1	2.177	3.142	4.2	18.6
2 1	7 9.18	+24 16.2	2.650	3.564	6.9	20.8	2 1	7 7.20	+19 34.9	2.219	3.137	7.8	18.8
2 11	7 3.24	+24 43.0	2.727	3.564	9.6	21.0	2 11	7 0.65	+19 53.4	2.288	3.131	11.0	19.0
192294	1991 <i>TE</i> ₁₅		1 10.9 43°25	1°9/11.4	18		30604	2107 <i>P-L</i>		1 10.9 221°15	2°3/11.5	18	
12 3	7 56.52	+16 29.4	1.060	1.871	23.0	19.7	12 3	7 57.45	+16 16.3	1.799	2.564	16.6	20.0
12 13	7 53.17	+16 33.9	1.016	1.897	18.2	19.5	12 13	7 52.89	+16 1.0	1.701	2.557	13.4	20.0
12 23	7 45.93	+16 53.8	0.988	1.925	12.5	19.2	12 23	7 45.44	+15 54.2	1.625	2.549	9.5	19.5
1 2	7 35.79	+17 25.9	0.982	1.953	6.4	19.0	1 2	7 35.63	+15 55.3	1.574	2.540	5.2	19.2
1 12	7 24.49	+18 5.0	1.000	1.983	2.0	18.8	1 12	7 24.50	+16 2.7	1.551	2.531	2.3	19.0
1 22	7 13.91	+18 45.2	1.044	2.012	6.8	19.2	1 22	7 13.34	+16 14.4	1.557	2.521	5.7	19.2
2 1	7 5.72	+19 22.3	1.111	2.043	12.2	19.6	2 1	7 3.49	+16 28.4	1.591	2.511	10.1	19.5
2 11	7 0.97	+19 53.8	1.200	2.073	16.7	20.0	2 11	6 56.02	+16 43.2	1.650	2.500	14.2	19.7
25308	1998 <i>XW</i> ₈₂		1 10.9 50°48	5°0/12.9	18		456514	2006 <i>XD</i> ₇₂		1 10.9 50°96	0°6/11.1	18	
12 3	7 50.29	+ 7 5.9	2.032	2.776	15.6	18.0	12 3	7 53.81	+18 46.1	1.630	2.416	17.3	21.4
12 13	7 46.65	+ 6 47.1	1.952	2.785	12.9	17.8	12 13	7 50.12	+19 2.5	1.557	2.426	13.7	21.2
12 23	7 40.78	+ 6 42.7	1.892	2.794	9.8	17.7	12 23	7 43.51	+19 28.3	1.504	2.437	9.4	20.9
1 2	7 33.21	+ 6 53.9	1.858	2.803	6.8	17.5	1 2	7 34.64	+20 0.8	1.476	2.447	4.6	20.7
1 12	7 24.80	+ 7 20.0	1.850	2.813	5.0	17.4	1 12	7 24.64	+20 35.9	1.475	2.458	0.7	20.4
1 22	7 16.50	+ 7 58.7	1.871	2.823	6.3	17.5	1 22	7 14.86	+21 9.8	1.503	2.470	5.4	20.8
2 1	7 9.29	+ 8 46.5	1.920	2.832	9.1	17.7	2 1	7 6.58	+21 39.4	1.557	2.481	10.0	21.1
2 11	7 3.95	+ 9 39.2	1.993	2.842	12.1	17.9	2 11	7 0.83	+22 3.3	1.636	2.493	13.9	21.3
153987	2002 <i>AS</i> ₁₅₀		1 10.9 21°31	2°4/10.3	18		416838	2005 <i>JQ</i> ₁₄₇		1 10.9 132°20	10°5/16.1	18	
12 3	7 53.20	+25 58.3	1.475	2.279	17.9	19.8	12 3	7 54.90	-13 24.5	2.648	3.248	15.3	22.1
12 13	7 50.11	+26 22.8	1.406	2.286	14.1	19.5	12 13	7 49.64	-14 43.5	2.577	3.266	13.9	22.0
12 23	7 43.73	+26 50.8	1.357	2.295	9.7	19.3	12 23	7 42.51	-15 43.1	2.525	3.284	12.5	21.9
1 2	7 34.79	+27 17.3	1.332	2.304	5.0	19.1	1 2	7 33.96	-16 18.7	2.495	3.301	11.3	21.9
1 12	7 24.60	+27 37.1	1.333	2.314	2.5	18.9	1 12	7 24.74	-16 27.5	2.489	3.317	10.6	21.9
1 22	7 14.71	+27 46.6	1.361	2.325	6.5	19.2	1 22	7 15.63	-16 9.7	2.508	3.333	10.7	21.9
2 1	7 6.59	+27 45.0	1.415	2.336	11.0	19.5	2 1	7 7.43	-15 27.7	2.551	3.347	11.4	22.0
2 11	7 1.34	+27 33.8	1.492	2.348	15.0	19.8	2 11	7 0.81	-14 26.6	2.618	3.361	12.6	22.1
193933	2001 <i>RR</i> ₂₅		1 10.9 140°91	2°1/10.3	18		164346	2005 <i>CH</i> ₃₁		1 10.9 193°96	0°1/10.8	18	
12 3	8 0.59	+25 46.8	1.739	2.517	16.6	21.1	12 3	7 52.27	+20 52.7	2.803	3.561	11.5	20.9
12 13	7 55.44	+26 14.2	1.661	2.527	13.2	20.9	12 13	7 47.72	+21 10.3	2.704	3.559	9.0	20.7
12 23	7 47.14	+26 44.9	1.605	2.536	9.0	20.7	12 23	7 41.30	+21 32.3	2.630	3.556	6.2	20.5
1 2	7 36.38	+27 13.8	1.574	2.544	4.6	20.4	1 2	7 33.44	+21 56.7	2.583	3.554	3.0	20.3
1 12	7 24.40	+27 35.8	1.572	2.552	2.3	20.3	1 12	7 24.81	+22 21.1	2.567	3.550	0.4	20.1
1 22	7 12.66	+27 47.6	1.599	2.560	6.1	20.5	1 22	7 16.19	+22 43.5	2.582	3.546	3.7	20.4
2 1	7 2.57	+27 48.3	1.654	2.567	10.3	20.8	2 1	7 8.39	+23 2.3	2.628	3.542	6.9	20.6
2 11	6 55.22	+27 39.6	1.733	2.573	14.1	21.0	2 11	7 2.08	+23 16.9	2.701	3.537	9.7	20.7
82463	Mluigiaborsi		1 10.9 67°45	1°6/11.4	18		424702	2008 <i>SH</i> ₄₅		1 10.9 32°46	9°5/14.8	18	
12 3	7 52.39	+16 50.6	2.184	2.948	14.1	18.8	12 3	7 49.26	- 2 11.7	1.793	2.510	18.4	20.6
12 13	7 48.10	+16 43.9	2.109	2.964	11.2	18.7	12 13	7 46.09	- 3 11.2	1.725	2.523	15.9	20.5
12 23	7 41.64	+16 44.2	2.056	2.980	7.8	18.5	12 23	7 40.51	- 3 49.4	1.675	2.536	13.3	20.3
1 2	7 33.57	+16 50.6	2.029	2.996	4.1	18.3	1 2	7 33.12	- 4 2.1	1.646	2.550	10.9	20.2
1 12	7 24.76	+17 1.4	2.031	3.012	1.6	18.1	1 12	7 24.85	- 3 47.4	1.642	2.564	9.6	20.2
1 22	7 16.16	+17 14.7	2.063	3.028	4.5	18.4	1 22	7 16.76	- 3 7.0	1.663	2.579	9.9	20.2
2 1	7 8.68	+17 28.9	2.124	3.044	8.0	18.6	2 1	7 9.89	- 2 5.3	1.709	2.595	11.7	20.3
2 11	7 3.06	+17 42.7	2.211	3.060	11.1	18.8	2 11	7 5.04	- 0 49.2	1.778	2.611	14.1	20.5
28797	2000 <i>HH</i> ₆₈		1 10.9 143°98	3°8/12.7	18		31124	Slaviček		1 10.9 23°42	1°3/10.6	18	
12 3	7 50.27	+ 8 13.8	2.616	3.346	12.8	19.5	12 3	7 56.07	+23 44.6	1.354	2.156	19.3	19.1
12 13	7 46.13	+ 8 2.7	2.525	3.352	10.5	19.3	12 13	7 52.70	+23 57.2	1.280	2.159	15.3	18.9
12 23	7 40.17	+ 8 2.4	2.457	3.358	7.9	19.1	12 23	7 45.73	+24 15.5	1.225	2.162	10.5	18.6
1 2	7 32.86	+ 8 13.4	2.416	3.363	5.3	19.0	1 2	7 35.86	+24 35.1	1.193	2.166	5.1	18.3
1 12	7 24.85	+ 8 35.2	2.404	3.368	3.8	18.9	1 12	7 24.50	+24 51.0	1.188	2.170	1.5	18.1
1 22	7 16.91	+ 9 5.9	2.421	3.373	5.0	19.0	1 22	7 13.39	+24 59.5	1.208	2.175	6.6	18.4
2 1	7 9.78	+ 9 43.2	2.468	3.378	7.5	19.1	2 1	7 4.20	+24 59.2	1.255	2.179	11.8	18.7
2 11	7 4.13	+10 24.2	2.542	3.382	10.1	19.3	2 11	6 58.18	+24 51.4	1.323	2.185	16.3	19.0
151275	2002 <i>AH</i> ₁₈₁		1 10.9 43°28	6°3/ 9.6	18		235009	2003 <i>DB</i> ₁₂		1 10.9 192°53	3°6/12.2	18	
12 3	8 1.57	+38 5.6	1.824	2.599	16.1	20.2	12 3	7 55.38	+11 11.3	1.769	2.527	17.2	21.2
12 13	7 56.42	+38 35.0	1.748	2.603	13.1	20.0	12 13	7 51.21	+11 10.4	1.679	2.526	14.0	20.9
12 23	7 47.88	+38 57.1	1.693	2.607	9.9	19.8	12 23	7 44.25	+11 23.9	1.609	2.525	10.2	20.7
1 2	7 36.73	+39 4.8	1.663	2.612	7.1	19.6	1 2	7 35.05	+11 51.9	1.563	2.523	6.2	20.5
1 12	7 24.37	+38 52.4	1.661	2.616	6.4	19.6	1 12	7 24.60	+12 32.3	1.545	2.521	3.6	20.3
1 22	7 12.43	+38 18.2	1.685	2.621	8.3	19.7	1 22	7 14.15	+13 21.5	1.556	2.518	6.0	20.4
2 1	7 2.41	+37 24.9	1.737	2.626	11.4	19.9	2 1	7 4.96	+14 15.3	1.595	2.515	10.1	20.7
2 11	6 55.40	+36 18.1	1.812	2.631	14.5	20.1	2 11	6 58.09	+15 9.7	1.659	2.511	14.0	20.9
354142	2002 <i>CP</i> ₈₉		1 10.9 345°82	2°4/10.3	18		393424	2001 <i>SB</i> ₆₈		1 10.9 69°37	1°2/11.2	18	
12 3	7 53.94	+25 33.8	1.304	2.115	19.4	21.1	12 3						

EPHEMERIDES

1 10.9

1 10.9

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
412328	2013 <i>KH</i> ₁₃		1 10.9 206°79	2°8/11.7	18		318067	2004 <i>FS</i> ₁₄₀		1 10.9 257°70	1°0/11.2	18	
12 3	7 54.96	+13 59.3	2.206	2.957	14.4	21.3	12 3	7 56.50	+18 29.0	1.542	2.326	18.2	21.6
12 13	7 50.29	+13 41.4	2.107	2.952	11.6	21.1	12 13	7 52.80	+18 32.6	1.446	2.314	14.6	21.3
12 23	7 43.30	+13 31.9	2.030	2.947	8.4	20.9	12 23	7 45.79	+18 46.1	1.371	2.302	10.2	21.1
1 2	7 34.49	+13 30.6	1.979	2.941	4.9	20.6	1 2	7 35.99	+19 7.6	1.319	2.290	5.2	20.7
1 12	7 24.69	+13 36.7	1.958	2.935	2.8	20.5	1 12	7 24.54	+19 33.5	1.294	2.277	1.1	20.4
1 22	7 14.89	+13 48.7	1.967	2.928	5.1	20.6	1 22	7 12.96	+20 0.0	1.297	2.264	6.1	20.7
2 1	7 6.12	+14 4.9	2.005	2.920	8.6	20.8	2 1	7 2.85	+20 24.2	1.327	2.251	11.3	21.0
2 11	6 59.23	+14 23.3	2.069	2.913	12.0	21.0	2 11	6 55.55	+20 44.3	1.380	2.238	15.9	21.2
140705	2001 <i>UG</i> ₇₈		1 10.9 268°50	7°4/ 7.2	18		425418	2010 <i>CE</i> ₁₆₅		1 10.9 289°28	3°8/12.4	17	
12 3	7 58.33	+43 20.8	2.503	3.256	12.8	19.8	12 3	7 50.03	+ 9 48.0	2.242	2.989	14.3	21.4
12 13	7 53.59	+44 32.7	2.411	3.243	10.8	19.6	12 13	7 46.56	+ 9 43.0	2.129	2.968	11.7	21.2
12 23	7 45.94	+45 38.5	2.343	3.230	8.9	19.5	12 23	7 40.89	+ 9 50.3	2.037	2.947	8.8	21.0
1 2	7 35.90	+46 30.9	2.301	3.216	7.6	19.4	1 2	7 33.41	+10 10.4	1.971	2.925	5.6	20.8
1 12	7 24.50	+47 3.7	2.286	3.203	7.5	19.4	1 12	7 24.87	+10 42.6	1.933	2.904	3.8	20.6
1 22	7 13.04	+47 13.5	2.299	3.190	8.9	19.4	1 22	7 16.16	+11 24.8	1.924	2.882	5.5	20.7
2 1	7 2.88	+47 0.2	2.338	3.176	10.9	19.5	2 1	7 8.27	+12 13.8	1.944	2.861	8.8	20.8
2 11	6 55.13	+46 27.5	2.400	3.163	13.0	19.7	2 11	7 2.08	+13 6.1	1.990	2.839	12.1	21.0
29944	1999 <i>JF</i> ₈₀		1 10.9 191°11	0°3/11.1	18		101485	1998 <i>WH</i> ₃₆		1 10.9 118°15	4°0/ 9.5	18	
12 3	7 46.99	+18 56.9	3.910	4.659	8.6	19.3	12 3	7 59.65	+30 34.0	2.018	2.790	14.8	21.5
12 13	7 43.07	+19 18.8	3.808	4.658	6.8	19.2	12 13	7 54.39	+31 27.5	1.946	2.806	11.8	21.3
12 23	7 37.87	+19 44.8	3.732	4.656	4.6	19.0	12 23	7 46.28	+32 21.0	1.897	2.821	8.3	21.1
1 2	7 31.71	+20 13.5	3.685	4.654	2.3	18.8	1 2	7 35.97	+33 8.3	1.874	2.836	5.1	21.0
1 12	7 25.05	+20 43.4	3.669	4.652	0.4	18.6	1 12	7 24.58	+33 43.7	1.881	2.850	4.1	20.9
1 22	7 18.39	+21 12.9	3.685	4.649	2.7	18.9	1 22	7 13.43	+34 3.7	1.917	2.864	6.6	21.1
2 1	7 12.25	+21 40.6	3.732	4.647	5.1	19.0	2 1	7 3.78	+34 7.9	1.981	2.877	9.8	21.3
2 11	7 7.08	+22 5.7	3.808	4.644	7.2	19.2	2 11	6 56.60	+33 58.8	2.070	2.890	12.9	21.5
200862	2001 <i>YY</i> ₇₀		1 10.9 70°42	1°5/10.4	18		413501	2005 <i>QU</i> ₆₄		1 10.9 151°59	5°8/ 9.1	18	
12 3	7 56.69	+21 36.2	1.450	2.244	18.7	20.2	12 3	8 2.67	+38 33.7	2.305	3.061	13.7	21.4
12 13	7 52.88	+22 27.5	1.382	2.257	14.7	20.0	12 13	7 56.65	+39 18.6	2.227	3.070	11.2	21.3
12 23	7 45.67	+23 28.8	1.334	2.270	10.0	19.8	12 23	7 47.75	+39 57.7	2.172	3.077	8.5	21.1
1 2	7 35.79	+24 34.3	1.311	2.283	4.8	19.5	1 2	7 36.66	+40 24.5	2.143	3.084	6.4	21.0
1 12	7 24.54	+25 36.5	1.315	2.297	1.7	19.3	1 12	7 24.51	+40 33.6	2.144	3.091	5.9	21.0
1 22	7 13.53	+26 29.3	1.346	2.310	6.4	19.7	1 22	7 12.62	+40 23.0	2.173	3.097	7.5	21.1
2 1	7 4.33	+27 9.2	1.404	2.324	11.2	20.0	2 1	7 2.28	+39 53.9	2.231	3.102	10.0	21.2
2 11	6 58.10	+27 36.0	1.485	2.337	15.3	20.2	2 11	6 54.44	+39 10.5	2.313	3.107	12.5	21.4
304083	2006 <i>GW</i> ₄₇		1 10.9 234°67	1°7/10.3	18		486077	2012 <i>UX</i> ₂₈		1 10.9 137°27	2°3/10.4	17	
12 3	7 57.47	+24 34.5	1.862	2.640	15.7	21.9	12 3	8 3.03	+26 45.3	1.670	2.448	17.3	22.1
12 13	7 53.06	+25 3.0	1.764	2.630	12.5	21.7	12 13	7 57.46	+27 4.1	1.595	2.459	13.7	21.9
12 23	7 45.66	+25 36.5	1.689	2.620	8.6	21.4	12 23	7 48.58	+27 24.8	1.540	2.471	9.4	21.6
1 2	7 35.80	+26 10.7	1.638	2.609	4.3	21.1	1 2	7 37.14	+27 42.2	1.511	2.481	4.8	21.4
1 12	7 24.52	+26 40.6	1.617	2.598	1.9	20.9	1 12	7 24.45	+27 51.2	1.511	2.491	2.4	21.2
1 22	7 13.18	+27 2.2	1.625	2.586	5.8	21.2	1 22	7 12.09	+27 49.1	1.539	2.500	6.3	21.5
2 1	7 3.16	+27 13.8	1.660	2.574	10.2	21.4	2 1	7 1.57	+27 36.2	1.596	2.508	10.6	21.8
2 11	6 55.62	+27 15.8	1.721	2.562	14.1	21.6	2 11	6 53.96	+27 14.9	1.676	2.516	14.5	22.0
220552	2004 <i>GD</i> ₃₈		1 10.9 217°37	5°6/13.0	18		519187	2010 <i>OE</i> ₁₂₅		1 10.9 133°06	4°6/ 9.6	18	
12 3	7 52.76	+ 4 8.9	2.507	3.218	13.8	21.3	12 3	8 1.27	+34 3.3	2.083	2.851	14.6	21.7
12 13	7 48.28	+ 3 38.1	2.402	3.209	11.6	21.1	12 13	7 55.63	+34 38.3	2.007	2.862	11.7	21.5
12 23	7 41.79	+ 3 19.8	2.318	3.199	9.2	21.0	12 23	7 47.09	+35 9.9	1.953	2.872	8.5	21.3
1 2	7 33.73	+ 3 15.9	2.259	3.189	6.9	20.8	1 2	7 36.35	+35 32.0	1.925	2.881	5.6	21.2
1 12	7 24.79	+ 3 27.1	2.230	3.178	5.6	20.7	1 12	7 24.56	+35 39.7	1.926	2.891	4.7	21.1
1 22	7 15.80	+ 3 52.4	2.229	3.166	6.5	20.7	1 22	7 13.06	+35 30.9	1.957	2.899	6.8	21.3
2 1	7 7.60	+ 4 29.7	2.258	3.154	8.8	20.9	2 1	7 3.13	+35 6.4	2.016	2.908	9.9	21.5
2 11	7 0.95	+ 5 15.4	2.313	3.141	11.4	21.0	2 11	6 55.74	+34 29.9	2.099	2.916	12.9	21.7
8333	1982 <i>VF</i>		1 10.9 136°61	4°2/ 9.4	18		376664	2013 <i>QX</i> ₉		1 10.9 259°22	1°4/10.5	17	
12 3	7 58.10	+32 40.2	2.172	2.944	13.9	17.7	12 3	7 56.02	+25 2.2	2.140	2.912	14.1	21.8
12 13	7 53.06	+33 22.4	2.093	2.951	11.1	17.5	12 13	7 51.55	+25 15.8	2.033	2.895	11.2	21.5
12 23	7 45.31	+34 2.8	2.036	2.958	8.0	17.4	12 23	7 44.44	+25 32.2	1.948	2.878	7.8	21.3
1 2	7 35.47	+34 35.9	2.006	2.964	5.2	17.2	1 2	7 35.18	+25 48.2	1.889	2.860	3.9	21.0
1 12	7 24.58	+34 56.5	2.005	2.971	4.3	17.2	1 12	7 24.68	+26 0.2	1.860	2.842	1.5	20.8
1 22	7 13.88	+35 2.1	2.033	2.977	6.5	17.3	1 22	7 14.09	+26 5.5	1.861	2.823	5.2	21.0
2 1	7 4.56	+34 52.6	2.089	2.982	9.6	17.5	2 1	7 4.61	+26 3.2	1.890	2.804	9.2	21.2
2 11	6 57.57	+34 30.7	2.170	2.988	12.5	17.7	2 11	6 57.26	+25 53.9	1.945	2.785	12.8	21.4
278935	2008 <i>UK</i> ₂₁		1 10.9 13°84	2°5/11.7	18		177495	2004 <i>EG</i> ₄₁		1 10.9 257°19	5°7/ 8.7	18	
12 3	7 51.43	+14 38.3	2.065	2.830	14.8	21.1	12 3	7 59.31	+35 0.9	2.062	2.834	14.6	21.3
12 13	7 47.64	+14 25.5	1.976	2.830	11.9	20.9	12 13	7 54.69	+36 1.1	1.961	2.817	11.9	21.0
12 23	7 41.53	+14 21.5	1.909	2.831	8.5	20.6	12 23	7 46.92	+37 0.4	1.882	2.799	8.9	20.8
1 2	7 33.64	+14 26.2	1.868	2.832	4.8	20.4	1 2	7 36.51	+37 51.3	1.829	2.780	6.4	20.6
1 12	7 24.82	+14 38.3	1.855	2.833	2.5	20.3	1 12	7 24.51	+38 26.9	1.805	2.761	5.9	20.6
1 22	7 16.07	+14 55.7	1.871	2.835	5.0	20.4	1 22	7 12.35	+38 42.4	1.809	2.742	8.0	20.6
2 1	7 8.42	+15 16.5	1.916	2.836	8.6	20.7	2 1	7 1.53	+38 36.9	1.840	2.723	11.2	20.8
2 11	7 2.68	+15 38.6	1.986	2.838	12.0	20.9	2 11	6 53.32	+38 13.6	1.895	2.703	14.4	21.0
6932	Tanigawadake		1 10.9 169°09	0°1/10.9	18	R	325313	2008 <i>HU</i> ₆₈		1 10.9 120°71	2°8/11.9	18	
12 3	7 58.31	+19 41.8	2.131	2.890									

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
206285	2003 <i>AT</i> ₆₇		1 10.9 27°76	0°3/10.7	17		450715	2007 <i>CE</i> ₃₁		1 10.9 239°38	0°9/11.2	18	
12 3	7 54.42	+15 5.8	2.080	2.839	14.9	19.2	12 3	7 56.85	+18 15.0	1.610	2.390	17.7	21.9
12 13	7 50.20	+16 47.3	1.990	2.845	11.8	19.0	12 13	7 52.91	+18 25.0	1.515	2.381	14.2	21.6
12 23	7 43.47	+18 45.1	1.925	2.852	8.1	18.8	12 23	7 45.78	+18 45.2	1.441	2.371	9.9	21.3
1 2	7 34.71	+20 53.9	1.888	2.859	3.9	18.5	1 2	7 35.98	+19 13.5	1.391	2.362	5.0	21.0
1 12	7 24.75	+23 6.0	1.883	2.866	0.6	18.3	1 12	7 24.63	+19 46.2	1.369	2.352	1.0	20.7
1 22	7 14.68	+25 12.9	1.910	2.874	4.9	18.6	1 22	7 13.17	+20 19.0	1.374	2.341	5.9	21.0
2 1	7 5.64	+27 8.0	1.969	2.882	8.9	18.9	2 1	7 3.14	+20 48.8	1.407	2.330	10.9	21.3
2 11	6 58.60	+28 47.4	2.055	2.890	12.4	19.1	2 11	6 55.80	+21 13.9	1.464	2.319	15.3	21.5
233477	2006 <i>RV</i> ₇₈		1 10.9 300°68	7°1/14.2	18		108486	2001 <i>KL</i> ₆₂		1 10.9 82°05	3°3/ 9.5	18 R	
12 3	7 48.32	- 1 3.5	2.437	3.135	14.5	20.4	12 3	7 54.35	+28 27.1	2.169	2.946	13.8	19.5
12 13	7 44.86	- 1 35.8	2.340	3.130	12.5	20.3	12 13	7 50.11	+29 24.2	2.090	2.955	10.9	19.3
12 23	7 39.50	- 1 52.2	2.264	3.124	10.3	20.1	12 23	7 43.33	+30 23.5	2.035	2.963	7.6	19.1
1 2	7 32.66	- 1 49.9	2.211	3.118	8.3	20.0	1 2	7 34.59	+31 19.7	2.007	2.972	4.4	19.0
1 12	7 25.02	- 1 27.9	2.185	3.113	7.2	19.9	1 12	7 24.82	+32 7.2	2.008	2.981	3.4	18.9
1 22	7 17.35	- 0 47.2	2.186	3.107	7.6	19.9	1 22	7 15.14	+32 42.5	2.039	2.989	5.9	19.1
2 1	7 10.49	+ 0 9.2	2.215	3.102	9.4	20.0	2 1	7 6.68	+33 3.9	2.098	2.998	9.2	19.3
2 11	7 5.14	+ 1 16.7	2.269	3.096	11.7	20.1	2 11	7 0.34	+33 12.4	2.181	3.007	12.1	19.5
418593	2008 <i>SY</i> ₂₄₆		1 10.9 104°79	3°6/11.9	18		108892	2001 <i>PM</i> ₂		1 10.9 126°16	0°4/10.8	18 R	
12 3	7 56.00	+11 48.8	2.500	3.233	13.3	21.4	12 3	7 54.50	+23 38.8	2.554	3.317	12.3	20.0
12 13	7 50.49	+11 6.6	2.424	3.255	10.8	21.3	12 13	7 49.56	+23 35.3	2.468	3.325	9.7	19.8
12 23	7 43.06	+10 32.1	2.372	3.277	7.9	21.1	12 23	7 42.58	+23 33.6	2.405	3.333	6.6	19.6
1 2	7 34.26	+10 6.0	2.347	3.299	5.1	21.0	1 2	7 34.09	+23 31.8	2.371	3.342	3.2	19.4
1 12	7 24.84	+ 9 48.7	2.352	3.320	3.6	20.9	1 12	7 24.89	+23 27.9	2.367	3.349	0.6	19.2
1 22	7 15.67	+ 9 39.5	2.388	3.340	5.0	21.0	1 22	7 15.85	+23 20.9	2.393	3.357	4.0	19.5
2 1	7 7.54	+ 9 37.6	2.454	3.360	7.7	21.2	2 1	7 7.84	+23 10.4	2.450	3.364	7.3	19.7
2 11	7 1.09	+ 9 41.3	2.546	3.380	10.3	21.4	2 11	7 1.56	+22 56.9	2.533	3.372	10.2	19.9
125728	2001 <i>XJ</i> ₁₁₁		1 10.9 306°69	2°3/11.5	18		399895	2005 <i>WH</i> ₈₆		1 10.9 21°16	4°2/11.7	18	
12 3	7 53.68	+16 37.5	1.454	2.245	18.8	20.1	12 3	7 55.28	+14 21.7	1.349	2.138	20.1	21.1
12 13	7 50.66	+16 24.3	1.364	2.234	15.2	19.9	12 13	7 51.88	+13 38.2	1.273	2.140	16.3	20.9
12 23	7 44.35	+16 21.6	1.292	2.223	10.8	19.6	12 23	7 45.09	+13 5.7	1.216	2.142	11.8	20.6
1 2	7 35.31	+16 29.0	1.244	2.213	5.8	19.3	1 2	7 35.59	+12 45.8	1.181	2.145	7.0	20.3
1 12	7 24.68	+16 44.5	1.222	2.203	2.3	19.0	1 12	7 24.70	+12 38.4	1.171	2.148	4.2	20.2
1 22	7 13.99	+17 4.9	1.226	2.193	6.4	19.2	1 22	7 13.99	+12 42.1	1.188	2.151	7.2	20.4
2 1	7 4.83	+17 27.5	1.257	2.184	11.5	19.5	2 1	7 5.05	+12 54.6	1.230	2.155	11.9	20.6
2 11	6 58.47	+17 49.7	1.309	2.175	16.1	19.7	2 11	6 59.04	+13 12.7	1.294	2.159	16.3	20.9
52293	Mommsen		1 10.9 6°38	6°6/ 8.7	18		320283	2007 <i>RN</i> ₁₇₈		1 10.9 355°59	2°3/10.0	18	
12 3	7 53.58	+36 25.5	1.761	2.553	15.9	18.0	12 3	7 51.79	+25 57.7	2.005	2.791	14.5	20.6
12 13	7 50.41	+37 27.0	1.689	2.554	13.0	17.8	12 13	7 48.31	+26 35.1	1.919	2.789	11.4	20.3
12 23	7 44.01	+38 24.6	1.637	2.556	9.8	17.6	12 23	7 42.23	+27 16.2	1.855	2.788	7.9	20.1
1 2	7 35.03	+39 10.6	1.610	2.559	7.2	17.5	1 2	7 34.10	+27 56.7	1.817	2.786	4.1	19.9
1 12	7 24.73	+39 38.0	1.609	2.563	6.8	17.5	1 12	7 24.88	+28 31.8	1.807	2.786	2.4	19.8
1 22	7 14.63	+39 43.2	1.635	2.567	8.8	17.6	1 22	7 15.71	+28 58.1	1.826	2.785	5.6	20.0
2 1	7 6.21	+39 26.6	1.686	2.573	11.8	17.8	2 1	7 7.76	+29 13.8	1.873	2.785	9.3	20.2
2 11	7 0.60	+38 52.4	1.759	2.579	14.8	18.0	2 11	7 1.96	+29 19.3	1.944	2.786	12.7	20.4
165836	2001 <i>RJ</i> ₁₄₀		1 10.9 56°84	2°6/ 9.9	18		419367	2009 <i>XQ</i> ₃		1 10.9 324°85	2°8/ 9.5	16	
12 3	7 54.19	+27 44.0	2.102	2.882	14.1	19.7	12 3	7 52.61	+24 19.8	1.885	2.671	15.2	20.3
12 13	7 49.85	+28 20.5	2.034	2.900	11.1	19.5	12 13	7 49.30	+25 36.1	1.793	2.664	12.1	20.0
12 23	7 43.02	+28 58.2	1.989	2.919	7.6	19.4	12 23	7 43.17	+27 1.2	1.723	2.656	8.3	19.8
1 2	7 34.36	+29 32.7	1.971	2.938	4.2	19.2	1 2	7 34.69	+28 29.2	1.680	2.649	4.5	19.5
1 12	7 24.84	+29 59.6	1.981	2.957	2.7	19.1	1 12	7 24.81	+29 52.8	1.666	2.643	3.0	19.4
1 22	7 15.57	+30 16.3	2.021	2.977	5.4	19.3	1 22	7 14.77	+31 5.2	1.681	2.636	6.4	19.6
2 1	7 7.61	+30 22.1	2.088	2.996	8.8	19.6	2 1	7 5.93	+32 2.3	1.723	2.631	10.3	19.8
2 11	7 1.79	+30 18.2	2.181	3.016	11.8	19.8	2 11	6 59.40	+32 43.4	1.790	2.625	13.9	20.1
377010	2002 <i>QE</i> ₁₂₅		1 10.9 76°93	5°3/ 9.5	18		270477	2002 <i>EK</i> ₅		1 10.9 327°52	2°6/10.1	18	
12 3	7 59.47	+37 23.7	2.193	2.960	14.0	21.1	12 3	7 55.71	+28 1.3	1.954	2.735	14.9	21.1
12 13	7 54.14	+37 53.6	2.119	2.970	11.3	20.9	12 13	7 51.44	+28 24.8	1.867	2.734	11.9	20.9
12 23	7 46.02	+38 17.6	2.067	2.980	8.5	20.7	12 23	7 44.39	+28 49.4	1.802	2.733	8.2	20.6
1 2	7 35.82	+38 29.8	2.042	2.990	6.1	20.6	1 2	7 35.15	+29 10.7	1.764	2.732	4.5	20.4
1 12	7 24.67	+38 25.8	2.044	3.000	5.4	20.6	1 12	7 24.77	+29 24.2	1.754	2.731	2.8	20.3
1 22	7 13.86	+38 4.3	2.076	3.010	7.1	20.7	1 22	7 14.51	+29 27.3	1.773	2.731	5.8	20.5
2 1	7 4.60	+37 26.6	2.135	3.020	9.8	20.9	2 1	7 5.62	+29 19.4	1.819	2.730	9.7	20.7
2 11	6 57.80	+36 36.8	2.219	3.030	12.5	21.1	2 11	6 59.10	+29 2.3	1.890	2.729	13.1	20.9
6282	Edwelda		1 10.9 30°09	2°8/10.3	17		77817	2001 <i>QR</i> ₁₆₄		1 10.9 126°92	5°1/ 9.2	18	
12 3	7 54.62	+25 16.0	1.038	1.865	22.2	16.8	12 3	7 59.66	+39 11.9	2.682	3.434	12.1	19.7
12 13	7 52.32	+25 49.3	0.987	1.880	17.5	16.6	12 13	7 53.82	+39 46.3	2.606	3.446	9.8	19.6
12 23	7 45.80	+26 28.7	0.953	1.896	12.0	16.3	12 23	7 45.58	+40 14.5	2.554	3.457	7.5	19.5
1 2	7 35.97	+27 7.1	0.940	1.913	6.1	16.1	1 2	7 35.57	+40 31.6	2.529	3.468	5.6	19.4
1 12	7 24.65	+27 36.6	0.951	1.932	3.0	15.9	1 12	7 24.74	+40 33.6	2.533	3.478	5.2	19.4
1 22	7 13.94	+27 52.2	0.987	1.952	7.9	16.3	1 22	7 14.18	+40 19.0	2.567	3.489	6.6	19.5
2 1	7 5.74	+27 53.2	1.045	1.973	13.2	16.6	2 1	7 4.93	+39 49.1	2.629	3.499	8.8	19.6
2 11	7 1.27	+27 42.3	1.123	1.995	17.8	17.0	2 11	6 57.77	+39 6.9	2.717	3.508	11.0	19.8
170409	2003 <i>UK</i> ₂₇		1 10.9 83°31	0°7/11.2	17		522370	2016 <i>CE</i> ₃₀₂		1 10.9 168°92	3°6/12.5	18	
12 3	7 58.10	+17 5.1	1.706	2.476	17.2</								

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
405966	2006 <i>SN</i> ₇₆		1 10.9 116°31'	5°9/13.5	18		274373	2008 <i>RU</i> ₇₇		1 10.9 153°08'	0°1/10.9	18	
12 3	7 55.17	+ 3 36.7	2.209	2.922	15.4	22.4	12 3	7 53.37	+20 49.4	2.274	3.042	13.5	20.7
12 13	7 50.17	+ 3 11.7	2.135	2.943	12.9	22.2	12 13	7 49.04	+20 58.2	2.184	3.044	10.7	20.5
12 23	7 43.04	+ 3 2.0	2.081	2.963	10.1	22.1	12 23	7 42.46	+21 12.0	2.118	3.047	7.3	20.3
1 2	7 34.34	+ 3 9.0	2.053	2.983	7.4	22.0	1 2	7 34.15	+21 28.6	2.078	3.049	3.5	20.0
1 12	7 24.89	+ 3 32.7	2.053	3.002	5.9	21.9	1 12	7 24.96	+21 45.6	2.068	3.051	0.4	19.8
1 22	7 15.64	+ 4 10.8	2.082	3.021	6.7	22.0	1 22	7 15.85	+22 0.7	2.087	3.053	4.3	20.1
2 1	7 7.48	+ 5 0.1	2.139	3.038	9.1	22.2	2 1	7 7.80	+22 12.4	2.136	3.054	8.0	20.3
2 11	7 1.15	+ 5 56.0	2.223	3.055	11.7	22.4	2 11	7 1.61	+22 20.2	2.211	3.056	11.3	20.5
466591	2014 <i>US</i> ₁₁₈		1 10.9 148°32'	4°1/12.1	18		110117	2001 <i>SK</i> ₁₃₈		1 10.9 334°65'	1°5/10.5	18	
12 3	7 53.86	+11 25.1	1.998	2.750	15.6	21.1	12 3	7 54.37	+24 34.3	1.678	2.469	16.6	19.6
12 13	7 49.60	+10 53.6	1.910	2.753	12.7	20.9	12 13	7 50.84	+24 49.9	1.591	2.464	13.2	19.3
12 23	7 42.92	+10 32.5	1.844	2.756	9.4	20.7	12 23	7 44.25	+25 9.8	1.525	2.460	9.1	19.1
1 2	7 34.38	+10 22.8	1.803	2.758	6.0	20.5	1 2	7 35.20	+25 30.0	1.484	2.456	4.5	18.8
1 12	7 24.88	+10 24.2	1.790	2.760	4.1	20.3	1 12	7 24.83	+25 46.1	1.470	2.452	1.7	18.6
1 22	7 15.47	+10 35.5	1.806	2.763	5.9	20.5	1 22	7 14.52	+25 55.0	1.484	2.448	5.9	18.9
2 1	7 7.21	+10 54.7	1.850	2.765	9.3	20.7	2 1	7 5.71	+25 55.4	1.525	2.445	10.4	19.1
2 11	7 0.95	+11 18.9	1.919	2.766	12.6	20.9	2 11	6 59.50	+25 48.0	1.589	2.442	14.5	19.4
79107	1981 <i>EX</i> ₃₇		1 10.9 232°39'	2°8/11.6	18		488761	2004 <i>TD</i> ₅₈		1 10.9 89°49'	0°5/11.1	16	
12 3	7 56.36	+15 10.4	1.541	2.318	18.5	20.3	12 3	7 59.53	+19 26.4	1.606	2.382	17.9	22.2
12 13	7 52.52	+14 58.0	1.452	2.314	14.9	20.1	12 13	7 54.52	+19 36.7	1.541	2.405	14.1	22.0
12 23	7 45.48	+14 57.0	1.382	2.309	10.7	19.8	12 23	7 46.46	+19 55.2	1.497	2.428	9.6	21.8
1 2	7 35.83	+15 7.2	1.337	2.303	5.9	19.5	1 2	7 36.12	+20 18.9	1.479	2.450	4.7	21.6
1 12	7 24.69	+15 26.4	1.318	2.298	2.8	19.3	1 12	7 24.74	+20 43.7	1.488	2.471	0.7	21.3
1 22	7 13.55	+15 51.8	1.327	2.292	6.3	19.5	1 22	7 13.77	+21 6.3	1.526	2.492	5.5	21.7
2 1	7 3.90	+16 20.2	1.362	2.286	11.1	19.8	2 1	7 4.52	+21 24.7	1.592	2.513	10.0	22.1
2 11	6 56.96	+16 48.9	1.421	2.280	15.5	20.0	2 11	6 57.97	+21 38.2	1.682	2.533	13.9	22.3
258971	2002 <i>SL</i> ₃₇		1 10.9 44°23'	2°5/10.2	18		122199	2000 <i>LS</i> ₂₀		1 10.9 152°95'	3°8/12.4	18	
12 3	7 57.08	+25 19.3	1.343	2.146	19.4	20.3	12 3	7 54.40	+ 9 17.0	2.660	3.384	12.8	21.0
12 13	7 53.25	+25 56.5	1.291	2.171	15.2	20.1	12 13	7 49.31	+ 8 53.2	2.571	3.394	10.5	20.9
12 23	7 45.88	+26 38.2	1.259	2.196	10.3	19.9	12 23	7 42.36	+ 8 38.8	2.504	3.404	7.8	20.7
1 2	7 35.87	+27 18.2	1.250	2.221	5.2	19.7	1 2	7 34.03	+ 8 34.3	2.465	3.413	5.2	20.6
1 12	7 24.73	+27 49.9	1.267	2.248	2.7	19.6	1 12	7 25.01	+ 8 39.6	2.456	3.421	3.8	20.5
1 22	7 14.15	+28 9.4	1.312	2.274	6.8	19.9	1 22	7 16.09	+ 8 53.3	2.478	3.428	5.0	20.6
2 1	7 5.66	+28 15.9	1.381	2.301	11.3	20.2	2 1	7 8.05	+ 9 14.0	2.530	3.435	7.5	20.7
2 11	7 0.29	+28 11.4	1.474	2.329	15.3	20.5	2 11	7 1.54	+ 9 39.2	2.609	3.441	10.1	20.9
38790	2000 <i>RE</i> ₄₆		1 10.9 50°84'	2°4/10.5	18		297100	2010 <i>NR</i> ₃		1 10.9 184°77'	0°7/10.7	18	
12 3	7 58.75	+27 3.2	1.456	2.252	18.5	17.9	12 3	7 57.89	+22 40.4	2.174	2.938	14.2	22.1
12 13	7 54.58	+27 12.0	1.385	2.260	14.7	17.7	12 13	7 52.78	+22 57.1	2.081	2.938	11.2	21.9
12 23	7 46.88	+27 22.3	1.333	2.268	10.1	17.5	12 23	7 45.14	+23 18.1	2.010	2.938	7.7	21.7
1 2	7 36.43	+27 29.0	1.305	2.276	5.2	17.2	1 2	7 35.51	+23 40.5	1.967	2.937	3.7	21.5
1 12	7 24.67	+27 27.4	1.304	2.285	2.5	17.0	1 12	7 24.82	+24 0.9	1.953	2.936	0.9	21.2
1 22	7 13.27	+27 15.2	1.331	2.294	6.6	17.3	1 22	7 14.19	+24 16.5	1.970	2.933	4.8	21.5
2 1	7 3.84	+26 52.9	1.383	2.303	11.3	17.6	2 1	7 4.73	+24 26.0	2.016	2.930	8.7	21.7
2 11	6 57.51	+26 23.4	1.458	2.312	15.5	17.9	2 11	6 57.37	+24 29.5	2.089	2.927	12.1	22.0
349777	2009 <i>BS</i> ₁₇		1 10.9 219°01'	2°4/10.0	18		519493	2012 <i>DW</i> ₁₀₃		1 10.9 10°06'	0°2/10.9	18	
12 3	7 57.81	+24 48.4	1.725	2.508	16.6	21.0	12 3	7 52.98	+21 36.0	1.419	2.221	18.6	21.4
12 13	7 53.62	+25 37.3	1.634	2.503	13.2	20.7	12 13	7 50.05	+21 28.6	1.344	2.223	14.7	21.2
12 23	7 46.25	+26 33.0	1.565	2.498	9.1	20.5	12 23	7 43.84	+21 27.4	1.288	2.225	10.1	20.9
1 2	7 36.22	+27 29.9	1.522	2.492	4.7	20.2	1 2	7 35.02	+21 29.8	1.256	2.229	4.9	20.7
1 12	7 24.67	+28 21.4	1.506	2.486	2.6	20.0	1 12	7 24.88	+21 32.9	1.250	2.233	0.6	20.3
1 22	7 13.05	+29 2.0	1.520	2.479	6.5	20.3	1 22	7 14.97	+21 34.0	1.270	2.238	6.0	20.7
2 1	7 2.88	+29 28.8	1.560	2.472	10.9	20.5	2 1	7 6.79	+21 32.0	1.316	2.244	11.0	21.0
2 11	6 55.40	+29 42.5	1.625	2.465	14.9	20.7	2 11	7 1.46	+21 26.8	1.384	2.251	15.4	21.3
421924	2014 <i>QS</i> ₂₃₆		1 10.9 217°87'	0°5/10.8	18		365161	2009 <i>DU</i> ₁₁₈		1 10.9 244°63'	0°6/11.1	18	
12 3	7 57.11	+22 5.2	1.975	2.746	15.2	22.2	12 3	7 55.67	+19 19.2	1.864	2.638	15.8	21.5
12 13	7 52.50	+22 18.4	1.878	2.740	12.0	22.0	12 13	7 51.55	+19 27.2	1.765	2.627	12.7	21.3
12 23	7 45.14	+22 36.8	1.803	2.733	8.3	21.7	12 23	7 44.62	+19 43.0	1.687	2.617	8.8	21.0
1 2	7 35.56	+22 57.7	1.754	2.725	4.0	21.5	1 2	7 35.38	+20 4.3	1.635	2.606	4.4	20.7
1 12	7 24.76	+23 17.3	1.734	2.717	0.7	21.2	1 12	7 24.83	+20 28.2	1.612	2.595	0.7	20.4
1 22	7 13.94	+23 32.8	1.744	2.709	5.1	21.5	1 22	7 14.20	+20 51.3	1.617	2.583	5.3	20.7
2 1	7 4.36	+23 42.6	1.783	2.700	9.4	21.7	2 1	7 4.80	+21 11.4	1.650	2.571	9.8	21.0
2 11	6 57.05	+23 46.6	1.846	2.690	13.2	21.9	2 11	6 57.70	+21 27.3	1.709	2.559	13.7	21.2
20897	Deborahdomingue		1 10.9 140°04'	1°3/11.5	18		455345	2002 <i>RS</i> ₅₉		1 10.9 88°65'	2°5/10.1	17	
12 3	7 52.69	+14 39.4	2.057	2.819	14.9	19.0	12 3	8 1.40	+26 52.2	1.918	2.688	15.6	21.6
12 13	7 48.79	+15 19.5	1.967	2.821	11.9	18.8	12 13	7 55.57	+27 31.7	1.859	2.719	12.2	21.5
12 23	7 42.47	+16 12.2	1.898	2.823	8.3	18.6	12 23	7 46.95	+28 12.8	1.822	2.750	8.3	21.3
1 2	7 34.23	+17 15.2	1.856	2.824	4.3	18.4	1 2	7 36.29	+28 50.3	1.812	2.780	4.4	21.1
1 12	7 24.93	+18 24.3	1.844	2.826	1.3	18.2	1 12	7 24.76	+29 19.1	1.832	2.810	2.7	21.0
1 22	7 15.61	+19 34.8	1.861	2.827	4.7	18.4	1 22	7 13.67	+29 36.4	1.882	2.839	5.7	21.3
2 1	7 7.35	+20 42.2	1.908	2.829	8.7	18.7	2 1	7 4.21	+29 41.9	1.960	2.867	9.3	21.6
2 11	7 1.06	+21 43.3	1.981	2.830	12.2	18.9	2 11	6 57.25	+29 37.3	2.063	2.894	12.5	21.8
304047	2006 <i>DL</i> ₁₉₄		1 10.9 173°59'	0°5/10.8	18		343513	2010 <i>EF</i> ₁₁₃		1 10.9 147°99'	4°2/ 8.9	18	
12 3	7 58.86	+22 18.7											

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
457818	2009 <i>RB</i> ₅₈		1 10.9 160°85	5°0/ 9.5 18			62444	2000 <i>SO</i> ₂₀₆		1 10.9 171°95	1°2/10.5 18		
12 3	8 2.59	+37 17.9	2.426	3.180	13.1	21.8	12 3	7 55.52	+24 7.2	2.396	3.161	13.0	20.5
12 13	7 56.39	+37 48.0	2.343	3.186	10.7	21.6	12 13	7 50.70	+24 33.5	2.306	3.164	10.2	20.3
12 23	7 47.51	+38 12.6	2.283	3.192	8.0	21.5	12 23	7 43.60	+25 3.2	2.238	3.167	7.0	20.1
1 2	7 36.60	+38 26.0	2.250	3.197	5.7	21.3	1 2	7 34.75	+25 33.1	2.198	3.169	3.5	19.8
1 12	7 24.74	+38 24.0	2.247	3.201	5.0	21.3	1 12	7 24.98	+25 59.8	2.189	3.170	1.4	19.7
1 22	7 13.14	+38 5.0	2.273	3.205	6.7	21.4	1 22	7 15.27	+26 20.5	2.210	3.171	4.6	19.9
2 1	7 2.98	+37 30.1	2.329	3.209	9.3	21.6	2 1	7 6.60	+26 34.0	2.261	3.172	8.0	20.1
2 11	6 55.15	+36 43.0	2.410	3.211	11.9	21.8	2 11	6 59.81	+26 40.3	2.338	3.172	11.1	20.3
337547	2001 <i>SJ</i> ₂₅₀		1 10.9 197°24	5°9/ 7.9 18			137187	1999 <i>JC</i> ₇₄		1 10.9 220°19	3°4/12.5 17		
12 3	7 57.40	+40 29.0	2.777	3.529	11.7	21.1	12 3	7 49.92	+ 9 0.9	2.937	3.664	11.6	20.7
12 13	7 52.36	+41 32.7	2.691	3.527	9.7	20.9	12 13	7 45.81	+ 8 49.6	2.831	3.656	9.6	20.5
12 23	7 44.86	+42 31.5	2.629	3.525	7.7	20.8	12 23	7 40.03	+ 8 47.5	2.748	3.648	7.2	20.3
1 2	7 35.40	+43 19.6	2.594	3.522	6.2	20.7	1 2	7 32.97	+ 8 55.1	2.692	3.640	4.8	20.2
1 12	7 24.88	+43 51.9	2.588	3.519	6.0	20.7	1 12	7 25.20	+ 9 11.8	2.665	3.631	3.4	20.1
1 22	7 14.37	+44 5.6	2.611	3.516	7.3	20.7	1 22	7 17.41	+ 9 36.4	2.669	3.622	4.6	20.1
2 1	7 4.98	+44 0.8	2.662	3.512	9.3	20.9	2 1	7 10.29	+10 7.1	2.703	3.612	7.0	20.3
2 11	6 57.61	+43 40.1	2.736	3.508	11.4	21.0	2 11	7 4.46	+10 41.6	2.765	3.602	9.5	20.4
226175	2002 <i>TP</i> ₉₇		1 10.9 191°11	3°2/11.5 18			380241	2001 <i>UW</i> ₁₁		1 10.9 52°41	3°2/ 9.7 18		
12 3	7 58.59	+16 30.7	1.468	2.248	19.1	20.4	12 3	7 58.56	+28 6.8	1.991	2.766	14.9	20.3
12 13	7 54.34	+15 50.2	1.385	2.248	15.4	20.1	12 13	7 53.21	+29 5.0	1.946	2.808	11.6	20.2
12 23	7 46.74	+15 17.8	1.321	2.248	11.0	19.8	12 23	7 45.26	+30 3.5	1.923	2.851	8.0	20.1
1 2	7 36.46	+14 53.8	1.281	2.247	6.2	19.6	1 2	7 35.47	+30 56.8	1.928	2.893	4.5	19.9
1 12	7 24.75	+14 38.0	1.268	2.246	3.2	19.4	1 12	7 24.93	+31 39.4	1.962	2.935	3.3	19.9
1 22	7 13.19	+14 29.3	1.282	2.246	6.7	19.6	1 22	7 14.86	+32 8.5	2.026	2.977	5.8	20.2
2 1	7 3.33	+14 26.6	1.322	2.245	11.5	19.9	2 1	7 6.34	+32 23.6	2.118	3.019	9.0	20.4
2 11	6 56.35	+14 28.5	1.385	2.244	15.9	20.1	2 11	7 0.16	+32 26.6	2.235	3.060	11.9	20.7
376570	2013 <i>PP</i> ₁₃		1 10.9 216°54	3°9/12.7 18			413983	2007 <i>EA</i> ₂₈		1 10.9 69°41	0°8/10.7 18		
12 3	7 51.97	+ 8 28.9	2.207	2.947	14.7	21.1	12 3	7 56.02	+23 41.9	1.828	2.609	15.8	21.4
12 13	7 48.02	+ 8 33.9	2.109	2.943	12.1	20.9	12 13	7 51.68	+23 47.6	1.749	2.616	12.5	21.1
12 23	7 41.86	+ 8 52.8	2.033	2.939	9.0	20.7	12 23	7 44.55	+23 56.9	1.692	2.624	8.5	20.9
1 2	7 33.94	+ 9 26.0	1.982	2.934	5.8	20.5	1 2	7 35.27	+24 6.7	1.660	2.631	4.1	20.7
1 12	7 25.05	+10 11.9	1.959	2.929	3.9	20.4	1 12	7 24.94	+24 13.6	1.656	2.639	1.0	20.5
1 22	7 16.12	+11 7.5	1.967	2.924	5.4	20.4	1 22	7 14.82	+24 15.4	1.681	2.646	5.3	20.8
2 1	7 8.12	+12 9.0	2.003	2.919	8.6	20.6	2 1	7 6.16	+24 11.3	1.735	2.654	9.5	21.0
2 11	7 1.88	+13 12.4	2.066	2.913	11.8	20.8	2 11	6 59.89	+24 2.2	1.812	2.662	13.1	21.3
190183	2005 <i>VX</i> ₇₃		1 10.9 104°75	3°1/11.9 18			414844	2010 <i>VY</i> ₃₀		1 10.9 117°77	3°6/12.3 18		
12 3	7 59.15	+13 45.8	1.637	2.400	18.1	21.0	12 3	7 55.20	+10 58.1	2.102	2.846	15.2	21.8
12 13	7 54.13	+13 34.2	1.568	2.421	14.5	20.8	12 13	7 50.43	+10 42.5	2.023	2.861	12.3	21.6
12 23	7 46.18	+13 34.7	1.520	2.440	10.3	20.6	12 23	7 43.38	+10 38.2	1.966	2.876	9.0	21.5
1 2	7 36.01	+13 46.7	1.496	2.459	5.9	20.4	1 2	7 34.62	+10 45.3	1.936	2.891	5.6	21.3
1 12	7 24.82	+14 7.9	1.500	2.478	3.1	20.3	1 12	7 25.03	+11 2.7	1.934	2.905	3.7	21.2
1 22	7 13.96	+14 35.2	1.532	2.496	5.9	20.5	1 22	7 15.62	+11 28.4	1.961	2.919	5.4	21.3
2 1	7 4.71	+15 5.7	1.593	2.513	10.1	20.8	2 1	7 7.36	+11 59.7	2.018	2.932	8.6	21.6
2 11	6 58.02	+15 36.5	1.678	2.530	13.9	21.0	2 11	7 1.05	+12 33.7	2.100	2.945	11.8	21.8
148716	2001 <i>TR</i> ₄₀		1 10.9 86°68	0°4/11.0 18			404635	2014 <i>HL</i> ₁₃		1 10.9 251°81	0°7/11.3 17		
12 3	7 59.36	+21 49.0	1.962	2.728	15.4	19.5	12 3	7 47.68	+18 15.6	3.517	4.268	9.5	21.8
12 13	7 53.78	+21 31.7	1.893	2.751	12.1	19.3	12 13	7 43.85	+18 23.1	3.406	4.256	7.5	21.6
12 23	7 45.64	+21 17.7	1.846	2.774	8.3	19.1	12 23	7 38.60	+18 35.0	3.321	4.244	5.2	21.5
1 2	7 35.65	+21 5.1	1.825	2.796	4.0	18.9	1 2	7 32.25	+18 50.2	3.263	4.232	2.6	21.3
1 12	7 24.88	+20 52.4	1.835	2.818	0.6	18.7	1 12	7 25.32	+19 7.5	3.237	4.219	0.7	21.1
1 22	7 14.51	+20 38.5	1.874	2.840	4.8	19.0	1 22	7 18.36	+19 25.3	3.242	4.206	3.0	21.3
2 1	7 5.61	+20 23.3	1.943	2.861	8.7	19.3	2 1	7 11.96	+19 42.6	3.277	4.193	5.6	21.4
2 11	6 59.00	+20 7.3	2.037	2.882	12.1	19.6	2 11	7 6.64	+19 58.4	3.341	4.180	7.9	21.6
125511	2001 <i>WY</i> ₃₇		1 10.9 249°26	0°9/11.2 18			505773	2015 <i>BN</i> ₂₆₀		1 10.9 287°57	0°8/10.7 18		
12 3	7 55.93	+18 15.8	1.650	2.429	17.3	20.2	12 3	7 54.07	+24 28.4	2.263	3.034	13.4	20.9
12 13	7 52.13	+18 24.8	1.556	2.421	13.9	20.0	12 13	7 49.70	+24 28.4	2.169	3.031	10.6	20.7
12 23	7 45.23	+18 43.7	1.482	2.412	9.7	19.7	12 23	7 42.99	+24 30.4	2.098	3.028	7.3	20.4
1 2	7 35.77	+19 10.4	1.432	2.403	4.9	19.4	1 2	7 34.49	+24 31.9	2.054	3.025	3.6	20.2
1 12	7 24.84	+19 41.4	1.411	2.393	1.0	19.1	1 12	7 25.06	+24 30.4	2.039	3.022	1.0	20.0
1 22	7 13.82	+20 12.8	1.417	2.384	5.7	19.4	1 22	7 15.72	+24 24.5	2.054	3.018	4.6	20.3
2 1	7 4.18	+20 41.4	1.451	2.374	10.6	19.7	2 1	7 7.48	+24 13.7	2.099	3.015	8.2	20.5
2 11	6 57.14	+21 5.6	1.508	2.364	14.9	19.9	2 11	7 1.18	+23 58.6	2.169	3.012	11.5	20.7
214736	2006 <i>TY</i> ₃₈		1 10.9 180°98	2°7/ 9.9 18			218284	2003 <i>GS</i> ₃₇		1 10.9 86°45	3°5/ 9.7 18		
12 3	7 58.10	+28 1.2	2.269	3.036	13.6	21.2	12 3	7 56.18	+28 59.1	1.922	2.704	15.1	20.1
12 13	7 52.98	+28 40.8	2.178	3.037	10.7	21.0	12 13	7 51.94	+29 44.8	1.842	2.708	12.0	19.9
12 23	7 45.31	+29 22.3	2.111	3.038	7.5	20.8	12 23	7 44.84	+30 32.1	1.784	2.713	8.4	19.7
1 2	7 35.63	+30 0.8	2.072	3.038	4.2	20.6	1 2	7 35.48	+31 15.4	1.753	2.718	4.9	19.5
1 12	7 24.87	+30 31.8	2.062	3.037	2.8	20.5	1 12	7 24.95	+31 49.0	1.749	2.723	3.6	19.4
1 22	7 14.15	+30 51.9	2.082	3.036	5.5	20.7	1 22	7 14.54	+32 9.3	1.775	2.728	6.4	19.6
2 1	7 4.61	+31 0.2	2.132	3.034	8.9	20.9	2 1	7 5.56	+32 15.3	1.828	2.733	10.0	19.8
2 11	6 57.19	+30 57.8	2.207	3.032	12.0	21.1	2 11	6 59.01	+32 8.6	1.905	2.737	13.3	20.1
450026	2015 <i>QL</i> ₁₀		1 10.9 113°89	1°3/10.6 17			165477	2001 <i>AP</i> ₄₄		1 10.9 297°58	0°4/10.8 18		
12 3	8 1.21	+23 29.6	1.597</										

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
489264	2006 <i>RD</i> ₁₂₁		1 10.9 57°33	8°0/ 8.6 17			202070	2004 <i>SG</i> ₁₁		1 10.9 174°69	1°3/10.5 18		
12 3	8 1.33	+37 44.3	1.556	2.343	17.9	21.3	12 3	7 58.78	+22 25.8	1.901	2.672	15.7	21.0
12 13	7 56.92	+39 8.7	1.502	2.362	14.6	21.2	12 13	7 53.96	+23 7.6	1.813	2.674	12.4	20.8
12 23	7 48.68	+40 27.4	1.468	2.382	11.2	21.0	12 23	7 46.26	+23 56.7	1.747	2.677	8.5	20.5
1 2	7 37.42	+41 30.0	1.458	2.401	8.6	20.9	1 2	7 36.24	+24 48.4	1.707	2.678	4.2	20.3
1 12	7 24.74	+42 7.5	1.475	2.421	8.1	20.9	1 12	7 24.94	+25 37.5	1.697	2.679	1.5	20.1
1 22	7 12.53	+42 16.2	1.517	2.441	10.1	21.1	1 22	7 13.66	+26 19.2	1.717	2.680	5.5	20.4
2 1	7 2.55	+41 58.3	1.584	2.461	13.1	21.3	2 1	7 3.72	+26 50.9	1.766	2.679	9.7	20.6
2 11	6 55.99	+41 19.9	1.673	2.481	16.0	21.6	2 11	6 56.18	+27 12.3	1.839	2.678	13.4	20.8
79087	Scheidt		1 10.9 73°29	2°7/11.5 18 R			428712	2008 <i>RB</i> ₂₆		1 10.9 55°95	5°1/12.3 18		
12 3	7 59.60	+17 16.5	1.700	2.468	17.4	18.3	12 3	7 54.83	+10 6.0	1.875	2.626	16.6	20.8
12 13	7 54.28	+16 30.5	1.633	2.489	13.8	18.1	12 13	7 50.30	+9 10.0	1.808	2.647	13.5	20.7
12 23	7 46.15	+15 51.0	1.587	2.511	9.7	17.9	12 23	7 43.35	+8 25.2	1.762	2.668	10.1	20.5
1 2	7 35.97	+15 18.3	1.567	2.532	5.4	17.7	1 2	7 34.65	+7 53.8	1.741	2.690	6.8	20.4
1 12	7 24.92	+14 52.2	1.575	2.554	2.7	17.6	1 12	7 25.17	+7 36.3	1.748	2.712	5.1	20.3
1 22	7 14.32	+14 32.4	1.612	2.575	5.7	17.8	1 22	7 15.99	+7 32.3	1.783	2.734	6.6	20.4
2 1	7 5.35	+14 18.3	1.677	2.596	9.8	18.1	2 1	7 8.15	+7 39.7	1.845	2.756	9.6	20.7
2 11	6 58.88	+14 9.0	1.767	2.617	13.4	18.4	2 11	7 2.41	+7 55.5	1.933	2.778	12.6	20.9
450296	2004 <i>PE</i> ₄₀		1 10.9 106°39	3°1/12.1 18			378424	2007 <i>RK</i> ₂₁₂		1 10.9 32°78	1°6/10.5 18		
12 3	7 58.72	+12 0.9	1.817	2.568	17.0	22.0	12 3	7 53.71	+25 43.5	1.840	2.627	15.5	20.6
12 13	7 53.48	+12 4.1	1.748	2.592	13.7	21.9	12 13	7 49.84	+25 54.5	1.770	2.641	12.2	20.4
12 23	7 45.60	+12 20.5	1.701	2.616	9.8	21.7	12 23	7 43.27	+26 7.7	1.721	2.655	8.3	20.2
1 2	7 35.73	+12 49.0	1.678	2.639	5.7	21.5	1 2	7 34.68	+26 19.4	1.698	2.669	4.2	20.0
1 12	7 24.95	+13 27.0	1.685	2.661	3.1	21.4	1 12	7 25.16	+26 26.1	1.703	2.684	1.8	19.8
1 22	7 14.46	+14 10.8	1.721	2.683	5.5	21.6	1 22	7 15.92	+26 25.9	1.736	2.699	5.3	20.1
2 1	7 5.41	+14 56.7	1.785	2.703	9.3	21.8	2 1	7 8.14	+26 18.2	1.797	2.715	9.2	20.4
2 11	6 58.67	+15 41.6	1.875	2.723	12.8	22.1	2 11	7 2.68	+26 4.2	1.882	2.732	12.7	20.6
452489	2004 <i>FN</i> ₃₈		1 10.9 265°08	9°0/ 8.3 18			59159	1998 <i>YX</i> ₇		1 10.9 34°70	0°1/11.0 18		
12 3	8 5.29	+44 27.9	1.943	2.700	15.9	20.9	12 3	7 54.38	+18 0.8	1.345	2.143	19.6	19.1
12 13	8 0.05	+45 28.9	1.854	2.687	13.5	20.7	12 13	7 51.43	+18 39.6	1.272	2.148	15.6	18.8
12 23	7 50.95	+46 21.1	1.786	2.673	11.1	20.5	12 23	7 45.02	+19 32.9	1.218	2.153	10.8	18.6
1 2	7 38.65	+46 54.6	1.742	2.660	9.4	20.3	1 2	7 35.78	+20 36.4	1.187	2.159	5.3	18.3
1 12	7 24.59	+47 1.0	1.724	2.646	9.1	20.3	1 12	7 25.02	+21 43.7	1.182	2.165	0.6	18.0
1 22	7 10.67	+46 36.7	1.732	2.633	10.6	20.4	1 22	7 14.37	+22 47.5	1.204	2.172	6.3	18.4
2 1	6 58.76	+45 43.6	1.766	2.619	13.2	20.5	2 1	7 5.48	+23 42.7	1.252	2.179	11.6	18.7
2 11	6 50.22	+44 28.6	1.822	2.605	15.8	20.6	2 11	6 59.61	+24 26.9	1.322	2.186	16.1	19.0
406718	2008 <i>GT</i> ₁₄		1 10.9 358°11	4°8/ 9.5 18			271284	2003 <i>UP</i> ₂₄₀		1 10.9 101°41	0°3/10.9 18		
12 3	7 55.75	+30 54.4	1.579	2.376	17.2	21.4	12 3	7 54.83	+22 23.3	2.288	3.055	13.5	20.6
12 13	7 52.39	+31 43.4	1.501	2.375	13.8	21.2	12 13	7 50.12	+22 29.2	2.209	3.068	10.6	20.4
12 23	7 45.58	+32 33.2	1.443	2.374	9.9	20.9	12 23	7 43.18	+22 38.6	2.152	3.081	7.2	20.2
1 2	7 35.99	+33 16.7	1.409	2.373	6.1	20.7	1 2	7 34.57	+22 49.3	2.122	3.093	3.5	20.0
1 12	7 24.91	+33 46.5	1.402	2.373	5.0	20.6	1 12	7 25.18	+22 58.7	2.123	3.106	0.5	19.8
1 22	7 13.96	+33 58.2	1.422	2.373	7.9	20.8	1 22	7 15.98	+23 5.0	2.153	3.118	4.3	20.1
2 1	7 4.76	+33 51.4	1.467	2.374	11.8	21.0	2 1	7 7.91	+23 7.3	2.213	3.130	7.9	20.4
2 11	6 58.54	+33 29.2	1.535	2.375	15.6	21.3	2 11	7 1.74	+23 5.7	2.299	3.142	11.0	20.6
441600	2008 <i>UC</i> ₂₀₁		1 10.9 106°92	0°7/11.1 18			168247	2006 <i>KA</i> ₁₀₂		1 10.9 141°71	2°7/12.3 18		
12 3	8 2.36	+19 50.4	1.801	2.564	16.7	21.9	12 3	7 51.26	+11 29.3	2.587	3.328	12.7	21.0
12 13	7 56.38	+19 48.8	1.735	2.591	13.2	21.7	12 13	7 47.06	+11 33.1	2.497	3.334	10.3	20.9
12 23	7 47.57	+19 53.5	1.689	2.616	9.0	21.5	12 23	7 40.99	+11 46.7	2.430	3.341	7.5	20.7
1 2	7 36.68	+20 2.0	1.671	2.640	4.4	21.3	1 2	7 33.51	+12 9.7	2.390	3.347	4.5	20.5
1 12	7 24.89	+20 11.2	1.681	2.664	0.8	21.1	1 12	7 25.30	+12 40.6	2.379	3.353	2.7	20.4
1 22	7 13.53	+20 19.0	1.722	2.687	5.1	21.5	1 22	7 17.15	+13 17.2	2.399	3.359	4.4	20.5
2 1	7 3.80	+20 24.2	1.791	2.709	9.3	21.7	2 1	7 9.85	+13 57.0	2.449	3.365	7.2	20.7
2 11	6 56.59	+20 26.8	1.886	2.730	12.9	22.0	2 11	7 4.05	+14 37.5	2.525	3.370	10.0	20.9
260538	2005 <i>ED</i> ₁₅₂		1 10.9 233°78	0°1/10.9 18			266673	2008 <i>YY</i> ₁₇₀		1 10.9 39°26	1°3/11.3 18		
12 3	7 56.01	+20 38.4	2.007	2.777	15.0	22.2	12 3	7 53.77	+19 12.8	2.231	2.996	13.8	20.3
12 13	7 51.68	+20 56.5	1.906	2.767	11.9	21.9	12 13	7 49.34	+18 46.6	2.142	2.999	11.0	20.1
12 23	7 44.66	+21 21.6	1.827	2.756	8.2	21.7	12 23	7 42.69	+18 24.5	2.077	3.003	7.6	19.9
1 2	7 35.46	+21 50.9	1.774	2.745	4.0	21.4	1 2	7 34.36	+18 5.9	2.038	3.006	4.0	19.7
1 12	7 25.01	+22 20.8	1.751	2.734	0.5	21.1	1 12	7 25.21	+17 49.9	2.028	3.010	1.4	19.5
1 22	7 14.47	+22 48.0	1.757	2.722	5.0	21.4	1 22	7 16.21	+17 35.9	2.049	3.014	4.4	19.7
2 1	7 5.06	+23 10.1	1.792	2.710	9.3	21.6	2 1	7 8.30	+17 23.3	2.099	3.018	8.1	20.0
2 11	6 57.83	+23 26.3	1.852	2.697	13.1	21.9	2 11	7 2.27	+17 12.0	2.174	3.022	11.3	20.2
221343	2005 <i>WT</i> ₅₈		1 10.9 10°98	0°8/11.3 18			284143	2005 <i>WV</i> ₄₃		1 10.9 173°59	3°1/11.7 18		
12 3	7 50.93	+17 11.7	1.622	2.410	17.2	19.9	12 3	7 57.08	+15 28.0	1.532	2.309	18.6	21.0
12 13	7 48.08	+17 39.1	1.542	2.412	13.7	19.6	12 13	7 53.05	+15 0.8	1.449	2.310	15.0	20.8
12 23	7 42.37	+18 18.6	1.482	2.415	9.5	19.4	12 23	7 45.85	+14 43.6	1.385	2.310	10.7	20.5
1 2	7 34.37	+19 7.6	1.447	2.418	4.8	19.1	1 2	7 36.10	+14 36.4	1.345	2.310	6.1	20.2
1 12	7 25.14	+20 1.6	1.439	2.422	0.9	18.9	1 12	7 25.01	+14 38.1	1.332	2.311	3.1	20.1
1 22	7 15.98	+20 55.5	1.458	2.426	5.4	19.2	1 22	7 14.02	+14 46.9	1.346	2.311	6.4	20.3
2 1	7 8.19	+21 45.0	1.505	2.431	10.0	19.5	2 1	7 4.60	+15 0.4	1.387	2.311	11.0	20.5
2 11	7 2.85	+22 27.5	1.575	2.437	14.1	19.7	2 11	6 57.90	+15 16.6	1.452	2.311	15.2	20.8
347323	2011 <i>SM</i> ₃₉		1 10.9 119°07	3°5/12.5 18			104436	2000 <i>FG</i> ₆₈		1 10.9 48°04	5°2/ 9.3 18		
12 3	7 49.79	+9 26.2	2.814	3.5									

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
217891	2001 <i>RN</i> ₁₁₈		1 10.9 123°95	0°6/11.3	17		252241	2001 <i>PD</i> ₆₅		1 10.9 112°18	2°8/10.1	18	
12 3	7 47.77	+18 23.7	3.819	4.566	8.8	21.4	12 3	7 58.42	+28 3.2	1.978	2.753	15.0	20.5
12 13	7 43.71	+18 32.9	3.731	4.579	6.9	21.3	12 13	7 53.50	+28 37.9	1.903	2.766	11.8	20.3
12 23	7 38.39	+18 45.9	3.669	4.591	4.8	21.1	12 23	7 45.79	+29 13.9	1.850	2.779	8.2	20.1
1 2	7 32.16	+19 1.6	3.635	4.604	2.4	21.0	1 2	7 35.96	+29 46.2	1.824	2.791	4.5	19.9
1 12	7 25.48	+19 18.8	3.633	4.615	0.6	20.8	1 12	7 25.09	+30 9.9	1.826	2.802	3.0	19.8
1 22	7 18.87	+19 36.2	3.663	4.627	2.7	21.0	1 22	7 14.44	+30 22.2	1.858	2.814	5.8	20.1
2 1	7 12.84	+19 52.7	3.723	4.639	5.0	21.2	2 1	7 5.25	+30 22.3	1.918	2.825	9.5	20.3
2 11	7 7.82	+20 7.7	3.812	4.650	7.1	21.4	2 11	6 58.44	+30 12.2	2.003	2.836	12.7	20.5
1077	Campanula		1 10.9 84°41	3°0/10.3	18		252281	2001 <i>QF</i> ₂₅₄		1 10.9 206°37	5°6/ 8.8	18	
12 3	8 2.12	+28 3.2	1.590	2.374	17.7	16.1	12 3	8 1.85	+37 27.2	2.373	3.130	13.3	21.0
12 13	7 56.85	+28 30.5	1.528	2.396	14.0	15.9	12 13	7 56.24	+38 20.6	2.280	3.124	10.9	20.8
12 23	7 48.24	+28 58.7	1.487	2.418	9.6	15.7	12 23	7 47.77	+39 10.2	2.211	3.118	8.3	20.7
1 2	7 37.13	+29 21.9	1.471	2.439	5.2	15.5	1 2	7 37.00	+39 49.4	2.168	3.110	6.2	20.5
1 12	7 24.92	+29 34.7	1.483	2.460	3.1	15.4	1 12	7 24.98	+40 12.4	2.154	3.103	5.8	20.5
1 22	7 13.20	+29 34.4	1.523	2.481	6.6	15.7	1 22	7 12.97	+40 16.0	2.170	3.094	7.5	20.6
2 1	7 3.45	+29 21.6	1.590	2.502	10.7	16.0	2 1	7 2.30	+40 0.3	2.214	3.085	10.1	20.7
2 11	6 56.67	+28 59.2	1.681	2.522	14.4	16.2	2 11	6 54.00	+39 28.7	2.282	3.076	12.7	20.9
354916	2006 <i>DJ</i> ₄₃		1 10.9 52°85	3°7/10.1	18		138772	2000 <i>SH</i> ₃₁₇		1 10.9 181°37	3°4/12.4	17	
12 3	7 59.28	+29 7.4	1.463	2.259	18.4	21.5	12 3	7 50.98	+ 9 32.6	3.119	3.842	11.1	20.8
12 13	7 55.25	+29 36.5	1.390	2.264	14.7	21.3	12 13	7 46.50	+ 9 6.3	3.020	3.843	9.1	20.6
12 23	7 47.57	+30 6.5	1.336	2.269	10.3	21.1	12 23	7 40.45	+ 8 47.6	2.944	3.843	6.8	20.5
1 2	7 36.98	+30 31.0	1.306	2.274	5.8	20.8	1 2	7 33.24	+ 8 37.2	2.896	3.843	4.6	20.3
1 12	7 24.93	+30 43.5	1.302	2.279	3.9	20.7	1 12	7 25.43	+ 8 34.9	2.878	3.842	3.4	20.2
1 22	7 13.15	+30 40.5	1.326	2.284	7.4	20.9	1 22	7 17.65	+ 8 40.2	2.892	3.841	4.4	20.3
2 1	7 3.36	+30 22.4	1.375	2.290	11.9	21.2	2 1	7 10.55	+ 8 51.9	2.935	3.840	6.6	20.5
2 11	6 56.76	+29 52.7	1.447	2.295	15.9	21.5	2 11	7 4.68	+ 9 8.3	3.005	3.838	8.9	20.6
284086	2005 <i>LA</i> ₁		1 10.9 249°45	8°2/13.3	17		27543	2000 <i>JC</i> ₁₃		1 10.9 68°52	3°5/ 9.5	18	
12 3	7 51.54	- 3 28.5	2.698	3.368	13.8	21.4	12 3	7 55.54	+29 42.5	2.163	2.939	13.9	18.3
12 13	7 47.30	- 4 43.5	2.594	3.356	12.1	21.2	12 13	7 51.03	+30 35.5	2.096	2.959	10.9	18.1
12 23	7 41.21	- 5 45.6	2.511	3.343	10.4	21.1	12 23	7 44.00	+31 29.0	2.052	2.978	7.7	18.0
1 2	7 33.67	- 6 31.0	2.453	3.330	8.9	21.0	1 2	7 35.07	+32 17.6	2.035	2.998	4.6	17.8
1 12	7 25.31	- 6 56.9	2.421	3.317	8.2	20.9	1 12	7 25.23	+32 56.1	2.047	3.017	3.6	17.8
1 22	7 16.87	- 7 2.3	2.417	3.304	8.6	20.9	1 22	7 15.60	+33 21.6	2.088	3.037	5.9	18.0
2 1	7 9.14	- 6 48.3	2.439	3.291	10.0	21.0	2 1	7 7.28	+33 33.2	2.158	3.056	9.0	18.2
2 11	7 2.81	- 6 18.1	2.486	3.277	11.9	21.1	2 11	7 1.11	+33 32.5	2.252	3.076	11.8	18.4
428401	2007 <i>TZ</i> ₁₄		1 10.9 47°04	4°7/ 9.2	18		301240	2009 <i>BE</i> ₄₃		1 10.9 56°94	2°7/10.5	18	
12 3	7 55.11	+33 0.2	2.064	2.844	14.3	20.6	12 3	8 0.04	+27 32.1	1.408	2.204	19.0	20.5
12 13	7 50.97	+33 56.2	1.994	2.857	11.4	20.4	12 13	7 55.66	+27 46.3	1.345	2.220	15.0	20.3
12 23	7 44.11	+34 50.5	1.947	2.869	8.3	20.2	12 23	7 47.68	+28 1.5	1.303	2.237	10.3	20.1
1 2	7 35.15	+35 37.1	1.925	2.882	5.5	20.1	1 2	7 36.96	+28 12.5	1.284	2.254	5.4	19.8
1 12	7 25.15	+36 10.4	1.932	2.895	4.9	20.1	1 12	7 25.02	+28 14.0	1.291	2.271	2.8	19.7
1 22	7 15.36	+36 27.3	1.967	2.908	6.9	20.2	1 22	7 13.59	+28 3.6	1.326	2.288	6.8	20.0
2 1	7 6.96	+36 27.6	2.030	2.922	9.9	20.4	2 1	7 4.26	+27 42.3	1.386	2.305	11.4	20.3
2 11	7 0.89	+36 13.7	2.116	2.935	12.7	20.6	2 11	6 58.10	+27 13.1	1.470	2.323	15.4	20.6
82348	2001 <i>LB</i> ₁₉		1 10.9 65°20	2°2/11.4	18		148821	2001 <i>UV</i> ₁₃₀		1 10.9 108°75	0°3/10.9	18	
12 3	7 58.66	+17 58.7	1.669	2.442	17.4	18.6	12 3	7 55.31	+20 58.3	1.953	2.727	15.2	20.9
12 13	7 53.65	+17 22.1	1.604	2.464	13.9	18.4	12 13	7 51.00	+21 20.1	1.872	2.735	12.0	20.7
12 23	7 45.81	+16 52.0	1.560	2.486	9.7	18.2	12 23	7 44.09	+21 48.5	1.813	2.743	8.2	20.5
1 2	7 35.89	+16 28.3	1.541	2.508	5.2	18.0	1 2	7 35.17	+22 20.4	1.780	2.752	4.0	20.2
1 12	7 25.09	+16 10.1	1.550	2.530	2.2	17.8	1 12	7 25.21	+22 52.0	1.776	2.759	0.6	20.0
1 22	7 14.74	+15 56.7	1.588	2.552	5.5	18.1	1 22	7 15.39	+23 19.8	1.802	2.767	4.9	20.3
2 1	7 6.03	+15 47.2	1.653	2.575	9.7	18.4	2 1	7 6.85	+23 41.9	1.856	2.775	9.0	20.6
2 11	6 59.83	+15 40.8	1.743	2.597	13.4	18.7	2 11	7 0.50	+23 57.7	1.935	2.782	12.5	20.8
103051	1999 <i>XD</i> ₁₃₀		1 10.9 32°75	0°8/10.9	18		72052	2000 <i>YW</i> ₇		1 10.9 105°82	4°3/ 9.8	18	
12 3	7 59.63	+24 37.1	1.309	2.110	20.0	19.7	12 3	8 0.64	+30 42.8	1.716	2.499	16.7	19.5
12 13	7 55.71	+24 23.3	1.235	2.113	15.9	19.4	12 13	7 55.79	+31 26.6	1.645	2.510	13.3	19.3
12 23	7 47.98	+24 12.0	1.179	2.116	10.9	19.2	12 23	7 47.66	+32 10.3	1.594	2.521	9.4	19.0
1 2	7 37.22	+23 59.9	1.147	2.119	5.4	18.9	1 2	7 36.97	+32 47.1	1.569	2.532	5.7	18.9
1 12	7 24.93	+23 43.3	1.140	2.123	1.1	18.6	1 12	7 25.02	+33 10.5	1.572	2.543	4.4	18.8
1 22	7 12.96	+23 20.7	1.160	2.127	6.6	19.0	1 22	7 13.35	+33 17.2	1.602	2.553	7.2	19.0
2 1	7 3.10	+22 52.8	1.205	2.132	12.0	19.3	2 1	7 3.46	+33 7.4	1.660	2.564	10.9	19.2
2 11	6 56.59	+22 22.1	1.273	2.136	16.7	19.6	2 11	6 56.44	+32 44.3	1.742	2.574	14.4	19.5
142318	2002 <i>RQ</i> ₁₆₆		1 10.9 54°60	1°8/10.6	17		234158	2000 <i>HQ</i> ₄		1 10.9 297°40	2°2/10.3	18	
12 3	8 0.09	+24 57.0	1.428	2.221	18.9	20.2	12 3	7 55.44	+23 54.5	1.414	2.215	18.7	21.0
12 13	7 55.34	+25 15.1	1.377	2.250	14.8	20.0	12 13	7 52.58	+24 33.9	1.324	2.203	14.9	20.8
12 23	7 47.20	+25 36.9	1.346	2.280	10.1	19.8	12 23	7 46.10	+25 22.2	1.253	2.190	10.4	20.5
1 2	7 36.60	+25 57.1	1.339	2.310	5.0	19.6	1 2	7 36.51	+26 13.8	1.206	2.178	5.3	20.1
1 12	7 25.02	+26 11.0	1.359	2.340	1.9	19.4	1 12	7 25.04	+27 1.8	1.184	2.165	2.4	19.9
1 22	7 14.07	+26 15.8	1.406	2.370	6.2	19.8	1 22	7 13.40	+27 39.6	1.189	2.153	7.1	20.2
2 1	7 5.19	+26 11.4	1.480	2.400	10.7	20.1	2 1	7 3.41	+28 3.8	1.220	2.141	12.4	20.4
2 11	6 59.33	+25 59.5	1.577	2.430	14.5	20.4	2 11	6 56.54	+28 14.7	1.272	2.130	17.1	20.7
256353	2006 <i>XG</i> ₅₄		1 10.9 316°71	6°1/ 7.8	18		381646	2008 <i>YR</i> ₁₄₃		1 10.9 333°68	1°9/11.9	18	
12 3	7 53.86	+29 8.1	1.589										

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
144648	2004 <i>FH</i> ₁₀₅		1 10.9 198°28	8°1/14.4	18		17742	1998 <i>BP</i> ₂₅		1 11.0 292°42	0°5/11.2	18	
12 3	7 50.46	- 8 5.4	3.146	3.779	12.6	20.7	12 3	7 51.05	+19 2.6	2.318	3.087	13.3	18.5
12 13	7 46.14	- 9 11.6	3.051	3.776	11.3	20.6	12 13	7 47.41	+19 14.3	2.213	3.073	10.6	18.3
12 23	7 40.25	-10 4.0	2.976	3.772	9.9	20.5	12 23	7 41.57	+19 32.6	2.131	3.059	7.3	18.1
1 2	7 33.17	-10 39.2	2.925	3.768	8.7	20.4	1 2	7 33.97	+19 55.9	2.075	3.046	3.7	17.9
1 12	7 25.45	-10 55.0	2.899	3.764	8.1	20.4	1 12	7 25.37	+20 21.7	2.049	3.032	0.6	17.6
1 22	7 17.70	-10 51.1	2.901	3.760	8.3	20.4	1 22	7 16.70	+20 47.5	2.052	3.018	4.3	17.8
2 1	7 10.58	-10 28.7	2.929	3.755	9.3	20.4	2 1	7 8.93	+21 11.0	2.085	3.005	8.1	18.0
2 11	7 4.66	- 9 51.0	2.981	3.750	10.6	20.5	2 11	7 2.89	+21 31.2	2.143	2.992	11.4	18.2
116821	2004 <i>FF</i> ₁₂		1 11.0 262°39	3°8/11.9	18		15480	1999 <i>CB</i> ₁₄		1 11.0 4°37	2°4/12.1	18	
12 3	7 54.32	+12 47.2	1.921	2.679	16.0	20.4	12 3	7 50.37	+12 42.0	2.096	2.857	14.7	17.6
12 13	7 50.34	+12 14.6	1.821	2.668	13.0	20.2	12 13	7 46.95	+12 58.1	2.006	2.857	11.9	17.4
12 23	7 43.76	+11 51.3	1.742	2.657	9.6	20.0	12 23	7 41.27	+13 26.4	1.937	2.857	8.5	17.2
1 2	7 35.08	+11 38.4	1.688	2.646	5.9	19.7	1 2	7 33.81	+14 6.0	1.894	2.857	4.9	17.0
1 12	7 25.23	+11 35.7	1.662	2.635	3.8	19.6	1 12	7 25.40	+14 54.4	1.880	2.858	2.4	16.8
1 22	7 15.32	+11 42.3	1.664	2.624	6.0	19.7	1 22	7 16.99	+15 48.0	1.894	2.859	4.8	17.0
2 1	7 6.52	+11 56.4	1.695	2.612	9.8	19.9	2 1	7 9.58	+16 43.1	1.938	2.860	8.4	17.2
2 11	6 59.83	+12 15.5	1.750	2.601	13.5	20.1	2 11	7 4.01	+17 36.3	2.007	2.862	11.8	17.4
486051	2012 <i>TJ</i> ₁₈₁		1 11.0 314°66	0°3/10.9	18		38935	2000 <i>SC</i> ₂₃₉		1 11.0 75°79	0°4/11.2	18	
12 3	7 57.64	+22 35.8	1.318	2.119	19.8	21.7	12 3	7 55.76	+18 0.7	1.925	2.693	15.6	19.0
12 13	7 54.29	+22 30.5	1.236	2.114	15.8	21.4	12 13	7 51.19	+18 34.8	1.859	2.718	12.3	18.9
12 23	7 47.18	+22 30.9	1.172	2.109	11.0	21.2	12 23	7 44.10	+19 18.1	1.814	2.742	8.4	18.7
1 2	7 36.96	+22 33.9	1.131	2.104	5.4	20.8	1 2	7 35.12	+20 7.1	1.797	2.767	4.1	18.5
1 12	7 25.02	+22 35.4	1.116	2.100	0.7	20.5	1 12	7 25.27	+20 57.6	1.808	2.791	0.5	18.2
1 22	7 13.17	+22 32.5	1.128	2.095	6.7	20.9	1 22	7 15.67	+21 45.4	1.850	2.816	4.7	18.6
2 1	7 3.23	+22 24.3	1.164	2.091	12.2	21.2	2 1	7 7.42	+22 27.5	1.920	2.839	8.7	18.9
2 11	6 56.57	+22 11.8	1.222	2.088	17.1	21.4	2 11	7 1.33	+23 2.7	2.015	2.863	12.1	19.1
203083	2000 <i>QT</i> ₉₅		1 11.0 79°03	2°5/10.4	18		338979	2004 <i>FC</i> ₁₀₅		1 11.0 159°86	0°7/10.7	18	
12 3	8 0.35	+26 38.1	1.523	2.312	18.1	20.6	12 3	7 52.25	+23 9.6	2.663	3.427	11.8	21.5
12 13	7 55.69	+26 59.7	1.456	2.328	14.3	20.4	12 13	7 47.94	+23 27.3	2.571	3.430	9.3	21.3
12 23	7 47.62	+27 23.7	1.410	2.343	9.8	20.1	12 23	7 41.67	+23 48.2	2.503	3.432	6.4	21.2
1 2	7 36.94	+27 44.6	1.389	2.359	5.1	19.9	1 2	7 33.92	+24 9.9	2.463	3.434	3.1	20.9
1 12	7 25.04	+27 57.3	1.394	2.374	2.6	19.8	1 12	7 25.40	+24 29.9	2.453	3.436	0.8	20.8
1 22	7 13.56	+27 58.7	1.428	2.390	6.5	20.1	1 22	7 16.94	+24 46.1	2.474	3.438	4.0	21.0
2 1	7 4.01	+27 48.8	1.488	2.405	10.9	20.4	2 1	7 9.36	+24 57.3	2.525	3.439	7.1	21.2
2 11	6 57.45	+27 30.1	1.572	2.420	14.8	20.6	2 11	7 3.38	+25 3.3	2.602	3.441	10.0	21.4
303247	2004 <i>QE</i> ₁₀		1 11.0 80°68	1°7/10.4	18		417450	2006 <i>PM</i> ₂₅		1 11.0 235°35	2°8/9.9	17	
12 3	7 58.25	+22 28.3	1.494	2.283	18.4	20.5	12 3	7 56.45	+31 27.7	2.986	3.742	10.9	21.9
12 13	7 54.13	+23 19.0	1.427	2.299	14.5	20.3	12 13	7 51.23	+31 49.2	2.876	3.726	8.7	21.7
12 23	7 46.65	+24 18.3	1.380	2.314	9.9	20.1	12 23	7 43.95	+32 9.2	2.790	3.710	6.2	21.6
1 2	7 36.53	+25 20.3	1.358	2.330	4.9	19.8	1 2	7 35.06	+32 24.3	2.733	3.694	3.7	21.4
1 12	7 25.08	+26 17.8	1.364	2.345	2.0	19.7	1 12	7 25.28	+32 31.5	2.706	3.677	2.9	21.3
1 22	7 13.90	+27 5.0	1.397	2.361	6.4	20.0	1 22	7 15.48	+32 28.9	2.711	3.659	4.8	21.4
2 1	7 4.52	+27 39.0	1.457	2.376	11.0	20.3	2 1	7 6.54	+32 16.1	2.746	3.641	7.4	21.5
2 11	6 58.06	+28 0.2	1.541	2.391	15.0	20.6	2 11	6 59.22	+31 54.5	2.807	3.622	10.0	21.7
495255	2013 <i>PE</i> ₁₆		1 11.0 197°77	3°8/12.8	18		394806	2008 <i>RV</i> ₉₇		1 11.0 79°52	3°4/10.1	17	
12 3	7 53.08	+ 7 51.7	2.614	3.337	13.0	22.5	12 3	8 0.91	+27 21.3	1.484	2.275	18.4	21.4
12 13	7 48.55	+ 7 50.8	2.512	3.334	10.7	22.3	12 13	7 56.26	+28 5.9	1.422	2.294	14.6	21.2
12 23	7 42.09	+ 8 1.5	2.431	3.329	8.1	22.1	12 23	7 48.09	+28 53.4	1.381	2.313	10.1	21.0
1 2	7 34.14	+ 8 24.3	2.378	3.325	5.4	21.9	1 2	7 37.20	+29 36.9	1.364	2.332	5.5	20.8
1 12	7 25.35	+ 8 58.3	2.353	3.319	3.8	21.8	1 12	7 25.05	+30 9.5	1.374	2.351	3.5	20.7
1 22	7 16.53	+ 9 41.4	2.360	3.313	5.0	21.9	1 22	7 13.33	+30 27.0	1.412	2.370	7.0	20.9
2 1	7 8.49	+10 30.7	2.397	3.306	7.7	22.0	2 1	7 3.62	+30 29.1	1.477	2.389	11.4	21.2
2 11	7 1.94	+11 23.0	2.461	3.299	10.5	22.2	2 11	6 57.01	+30 18.6	1.564	2.407	15.2	21.5
212042	2005 <i>CJ</i> ₅₈		1 11.0 257°84	0°5/11.1	18		256872	2008 <i>DB</i> ₁₅		1 11.0 342°55	2°4/11.7	18	
12 3	7 56.89	+20 50.4	1.734	2.513	16.6	20.5	12 3	7 52.18	+15 24.7	1.585	2.369	17.7	20.5
12 13	7 52.74	+20 40.9	1.640	2.506	13.3	20.2	12 13	7 49.20	+15 19.6	1.498	2.364	14.3	20.3
12 23	7 45.60	+20 36.6	1.567	2.498	9.2	20.0	12 23	7 43.27	+15 26.1	1.431	2.360	10.2	20.0
1 2	7 36.03	+20 35.8	1.520	2.490	4.6	19.7	1 2	7 34.95	+15 43.7	1.388	2.356	5.6	19.7
1 12	7 25.13	+20 35.8	1.500	2.483	0.7	19.4	1 12	7 25.30	+16 10.0	1.372	2.352	2.4	19.5
1 22	7 14.25	+20 34.7	1.508	2.475	5.5	19.7	1 22	7 15.67	+16 41.6	1.383	2.349	5.8	19.7
2 1	7 4.76	+20 31.3	1.544	2.467	10.2	20.0	2 1	7 7.42	+17 15.2	1.420	2.347	10.5	20.0
2 11	6 57.79	+20 25.7	1.605	2.459	14.3	20.2	2 11	7 1.66	+17 47.8	1.481	2.345	14.7	20.2
258122	2001 <i>QX</i> ₂₉₂		1 11.0 121°69	1°0/11.3	18		336466	2008 <i>VJ</i> ₄		1 11.0 8°08	6°1/12.2	18	
12 3	7 57.39	+19 26.3	2.094	2.856	14.7	20.9	12 3	7 51.25	+ 9 32.3	1.716	2.480	17.4	19.5
12 13	7 52.30	+19 14.4	2.013	2.868	11.7	20.7	12 13	7 48.00	+ 8 21.8	1.636	2.481	14.4	19.3
12 23	7 44.77	+19 7.7	1.955	2.880	8.0	20.5	12 23	7 42.14	+ 7 22.3	1.576	2.484	11.0	19.1
1 2	7 35.43	+19 4.6	1.923	2.892	4.1	20.3	1 2	7 34.28	+ 6 37.1	1.540	2.487	7.8	18.9
1 12	7 25.22	+19 3.4	1.921	2.904	1.0	20.1	1 12	7 25.40	+ 6 8.4	1.531	2.492	6.1	18.8
1 22	7 15.23	+19 2.7	1.950	2.915	4.6	20.4	1 22	7 16.66	+ 5 56.3	1.548	2.497	7.6	18.9
2 1	7 6.50	+19 1.5	2.007	2.926	8.4	20.6	2 1	7 9.20	+ 5 59.5	1.591	2.503	10.7	19.1
2 11	6 59.84	+18 59.5	2.090	2.936	11.8	20.9	2 11	7 3.93	+ 6 14.4	1.658	2.510	14.0	19.3
381945	2010 <i>DZ</i> ₁₁		1 11.0 74°13	1°3/11.7	18		206806	2004 <i>DT</i> ₅₁		1 11.0 288°68	2°8/12.3	18	
12 3	7 51.48	+14 38.0	2.2										