

EPHEMERIDES

1 29.9

1 30.0

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
333620	2007 <i>TP</i> ₃₉₃		1 29.9	60°20	1°3/30.7	18	468412	2016 <i>GF</i> ₁₉₁		1 30.0	239°62	0°6/30.5	17
12 23	9 16.56	+14 55.3	2.073	2.842	14.5	20.4	12 23	9 10.00	+12 55.3	2.361	3.129	13.0	21.8
1 2	9 11.23	+14 30.1	2.003	2.864	11.4	20.2	1 2	9 6.26	+13 28.7	2.263	3.124	10.2	21.6
1 12	9 3.68	+14 12.5	1.956	2.885	7.8	20.0	1 12	9 0.53	+14 13.8	2.189	3.119	7.0	21.4
1 22	8 54.58	+14 1.0	1.936	2.907	3.9	19.8	1 22	8 53.27	+15 7.8	2.141	3.114	3.3	21.1
2 1	8 44.83	+13 53.7	1.945	2.928	1.4	19.7	2 1	8 45.18	+16 6.8	2.124	3.108	0.8	20.9
2 11	8 35.48	+13 48.2	1.984	2.950	4.8	19.9	2 11	8 37.13	+17 5.7	2.137	3.103	4.5	21.2
2 21	8 27.47	+13 42.7	2.053	2.972	8.4	20.2	2 21	8 29.98	+18 0.3	2.179	3.097	8.1	21.4
3 2	8 21.47	+13 35.9	2.146	2.994	11.6	20.5	3 2	8 24.48	+18 47.4	2.247	3.091	11.3	21.6
203925	2003 <i>OK</i> ₂₇		1 29.9	232°22	0°6/30.4	18	427239	2014 <i>WF</i> ₆₁		1 30.0	124°77	4°7/26.5	18
12 23	9 16.25	+14 25.6	1.973	2.744	15.1	21.4	12 23	9 17.57	+28 44.9	2.175	2.964	13.3	21.9
1 2	9 11.63	+14 38.8	1.869	2.732	12.0	21.2	1 2	9 12.38	+29 57.9	2.108	2.980	10.4	21.8
1 12	9 4.42	+15 3.4	1.787	2.719	8.2	20.9	1 12	9 4.70	+31 12.0	2.065	2.995	7.4	21.6
1 22	8 55.13	+15 36.7	1.732	2.705	3.9	20.6	1 22	8 55.16	+32 20.0	2.049	3.009	5.0	21.5
2 1	8 44.64	+16 14.5	1.706	2.691	1.0	20.4	2 1	8 44.72	+33 14.9	2.064	3.023	5.2	21.5
2 11	8 34.13	+16 52.0	1.710	2.676	5.5	20.6	2 11	8 34.56	+33 52.0	2.107	3.036	7.6	21.7
2 21	8 24.78	+17 25.0	1.742	2.660	9.8	20.9	2 21	8 25.78	+34 10.0	2.178	3.049	10.4	21.9
3 2	8 17.58	+17 50.8	1.799	2.643	13.7	21.1	3 2	8 19.19	+34 10.2	2.273	3.061	13.1	22.1
372985	2011 <i>CT</i> ₆₈		1 29.9	267°31	1°0/30.7	18	165127	2000 <i>KX</i> ₄₀		1 30.0	218°46	1°5/31.2	17
12 23	9 11.03	+12 19.2	2.015	2.790	14.7	21.3	12 23	9 10.45	+11 8.5	2.660	3.415	12.0	21.1
1 2	9 7.41	+12 44.0	1.920	2.784	11.7	21.1	1 2	9 6.33	+11 19.7	2.558	3.409	9.6	20.9
1 12	9 1.47	+13 22.4	1.848	2.779	8.0	20.8	1 12	9 0.44	+11 41.1	2.479	3.403	6.7	20.7
1 22	8 53.74	+14 11.7	1.801	2.773	4.0	20.6	1 22	8 53.19	+12 11.0	2.428	3.396	3.5	20.5
2 1	8 45.01	+15 7.5	1.783	2.768	1.2	20.3	2 1	8 45.21	+12 46.9	2.407	3.389	1.5	20.4
2 11	8 36.34	+16 4.4	1.795	2.762	5.1	20.6	2 11	8 37.27	+13 25.4	2.416	3.382	4.1	20.5
2 21	8 28.77	+16 57.5	1.835	2.756	9.1	20.8	2 21	8 30.14	+14 3.3	2.455	3.374	7.3	20.7
3 2	8 23.13	+17 43.0	1.899	2.751	12.7	21.0	3 2	8 24.46	+14 37.8	2.521	3.367	10.2	20.9
257797	2000 <i>EX</i> ₂₂		1 29.9	199°39	0°4/29.8	18	420955	2013 <i>PH</i> ₈		1 30.0	330°20	7°9/ 3.9	16
12 23	9 15.14	+17 13.0	1.930	2.712	15.0	21.5	12 23	9 6.51	- 2 3.4	1.535	2.281	19.7	20.8
1 2	9 10.69	+17 31.6	1.840	2.711	11.7	21.3	1 2	9 4.63	- 2 29.1	1.438	2.265	16.9	20.6
1 12	9 3.71	+17 59.6	1.773	2.709	7.9	21.1	1 12	9 0.06	- 2 28.1	1.359	2.250	13.6	20.3
1 22	8 54.76	+18 33.2	1.732	2.707	3.6	20.8	1 22	8 53.27	- 1 56.8	1.301	2.236	10.3	20.1
2 1	8 44.77	+19 7.7	1.720	2.704	1.1	20.6	2 1	8 45.15	- 0 54.8	1.267	2.223	8.1	19.9
2 11	8 34.93	+19 38.4	1.737	2.702	5.5	20.9	2 11	8 36.98	+ 0 33.1	1.258	2.211	8.8	19.9
2 21	8 26.37	+20 1.8	1.783	2.699	9.7	21.1	2 21	8 30.05	+ 2 18.4	1.273	2.199	11.9	20.1
3 2	8 19.99	+20 16.1	1.852	2.695	13.4	21.4	3 2	8 25.45	+ 4 10.3	1.312	2.189	15.7	20.2
373865	2003 <i>SP</i> ₆		1 29.9	121°73	0°6/29.6	18	16602	Anabuki		1 30.0	227°22	2°2/31.2	18
12 23	9 14.65	+18 55.3	2.185	2.965	13.5	21.5	12 23	9 15.38	+10 45.3	1.736	2.507	16.8	18.4
1 2	9 9.91	+19 4.5	2.101	2.970	10.5	21.3	1 2	9 11.23	+10 49.4	1.640	2.500	13.5	18.1
1 12	9 2.94	+19 19.8	2.040	2.976	7.0	21.1	1 12	9 4.29	+11 9.0	1.565	2.492	9.5	17.9
1 22	8 54.32	+19 38.0	2.006	2.981	3.2	20.9	1 22	8 55.13	+11 42.2	1.514	2.483	5.1	17.6
2 1	8 44.89	+19 55.3	2.002	2.986	1.2	20.8	2 1	8 44.70	+12 25.5	1.492	2.474	2.2	17.4
2 11	8 35.70	+20 8.5	2.028	2.991	5.0	21.0	2 11	8 34.29	+13 13.4	1.498	2.465	5.9	17.6
2 21	8 27.69	+20 15.2	2.082	2.996	8.7	21.3	2 21	8 25.20	+14 0.4	1.532	2.455	10.5	17.8
3 2	8 21.62	+20 14.8	2.162	3.001	11.9	21.5	3 2	8 18.46	+14 42.2	1.589	2.445	14.6	18.1
363173	2001 <i>TQ</i> ₈₇		1 29.9	102°10	6°0/ 3.5	18	314006	2004 <i>UX</i> ₃		1 30.0	182°99	0°2/29.9	18
12 23	9 14.43	- 1 32.0	2.192	2.894	15.7	21.4	12 23	9 18.45	+16 44.9	2.053	2.824	14.6	21.9
1 2	9 9.49	- 1 55.7	2.120	2.919	13.2	21.2	1 2	9 13.09	+17 1.6	1.961	2.825	11.5	21.7
1 12	9 2.52	- 2 0.3	2.068	2.943	10.4	21.1	1 12	9 5.23	+17 27.1	1.893	2.825	7.7	21.5
1 22	8 54.08	- 1 45.3	2.040	2.967	7.7	21.0	1 22	8 55.44	+17 58.1	1.851	2.825	3.5	21.2
2 1	8 44.97	- 1 11.5	2.041	2.990	6.1	20.9	2 1	8 44.64	+18 30.0	1.839	2.824	0.9	21.0
2 11	8 36.14	- 0 22.7	2.070	3.013	6.7	21.0	2 11	8 33.99	+18 58.4	1.858	2.822	5.3	21.3
2 21	8 28.45	+ 0 36.2	2.127	3.035	8.9	21.2	2 21	8 24.60	+19 20.3	1.905	2.819	9.4	21.6
3 2	8 22.57	+ 1 39.5	2.211	3.056	11.4	21.4	3 2	8 17.36	+19 34.0	1.978	2.815	12.9	21.8
362108	2009 <i>CD</i> ₂₇		1 30.0	74°46	0°3/29.8	18	323460	2004 <i>JO</i> ₁₈		1 30.0	219°12	1°4/29.0	18
12 23	9 14.30	+14 41.7	1.523	2.317	17.8	21.0	12 23	9 13.34	+18 34.0	2.020	2.806	14.3	21.0
1 2	9 10.50	+15 28.3	1.455	2.332	13.9	20.7	1 2	9 9.29	+19 19.8	1.928	2.802	11.1	20.8
1 12	9 3.77	+16 30.4	1.408	2.346	9.3	20.5	1 12	9 2.79	+20 15.4	1.859	2.797	7.4	20.5
1 22	8 54.81	+17 42.5	1.385	2.361	4.2	20.2	1 22	8 54.37	+21 16.1	1.818	2.793	3.4	20.3
2 1	8 44.78	+18 56.7	1.391	2.375	1.2	20.1	2 1	8 44.90	+22 15.8	1.805	2.788	1.9	20.1
2 11	8 35.10	+20 5.2	1.424	2.390	6.3	20.4	2 11	8 35.51	+23 8.7	1.823	2.782	5.8	20.4
2 21	8 27.07	+21 2.0	1.484	2.404	11.0	20.7	2 21	8 27.29	+23 50.5	1.868	2.777	9.8	20.6
3 2	8 21.64	+21 44.1	1.567	2.418	15.0	21.0	3 2	8 21.14	+24 19.4	1.937	2.771	13.3	20.8
327674	2006 <i>RT</i> ₁₇		1 30.0	40°05	6°7/ 2.4	18	335985	2007 <i>TD</i> ₂₄₈		1 30.0	160°90	0°5/30.3	18
12 23	9 12.92	+ 2 59.4	1.483	2.242	19.7	20.4	12 23	9 13.39	+15 51.0	2.582	3.347	12.1	20.8
1 2	9 9.35	+ 2 8.7	1.413	2.255	16.4	20.2	1 2	9 8.58	+15 51.5	2.490	3.350	9.5	20.6
1 12	9 2.96	+ 1 39.1	1.363	2.267	12.6	20.0	1 12	9 1.89	+15 58.6	2.423	3.354	6.4	20.4
1 22	8 54.43	+ 1 32.5	1.334	2.281	8.9	19.8	1 22	8 53.82	+16 10.3	2.384	3.357	3.0	20.2
2 1	8 44.88	+ 1 48.5	1.331	2.294	6.7	19.7	2 1	8 45.07	+16 24.0	2.375	3.360	0.8	20.0
2 11	8 35.67	+ 2 23.2	1.353	2.309	8.0	19.8	2 11	8 36.47	+16 36.9	2.397	3.362	4.2	20.3
2 21	8 28.04	+ 3 10.3	1.401	2.324	11.3	20.1	2 21	8 28.83	+16 47.1	2.449	3.364	7.5	20.5
3 2	8 22.93	+ 4 2.7	1.471	2.339	14.9	20.3	3 2	8 22.78	+16 53.0	2.527	3.366	10.4	20.7
32230	2000 <i>OP</i> ₂₇		1 30.0	81°75	3°1/ 1.9	18	431527	2007 <i>TX</i> ₂₆₈		1 30.0	94°50	2°0/31.6	18
12 23	9 8.85	+ 3 55.7	2.441	3.174	13.5	17.7	12 23						

EPHEMERIDES

1 30.0

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
377038	2002 <i>SH</i> ₅₆		1 30.0 102°04	0°1/29.9	18		479438	2013 <i>YM</i> ₁₀₁		1 30.0 272°86	1°3/30.7	17	
12 23	9 13.52	+16 46.3	2.410	3.181	12.7	21.3	12 23	9 15.89	+15 4.5	2.506	3.265	12.6	21.1
1 2	9 8.73	+17 1.2	2.334	3.198	9.8	21.1	1 2	9 10.71	+14 36.9	2.394	3.249	10.0	20.9
1 12	9 1.99	+17 23.2	2.281	3.215	6.6	20.9	1 12	9 3.47	+14 14.5	2.305	3.232	6.9	20.7
1 22	8 53.85	+17 49.4	2.257	3.231	3.0	20.7	1 22	8 54.62	+13 56.5	2.245	3.215	3.5	20.4
2 1	8 45.07	+18 16.2	2.262	3.247	0.8	20.6	2 1	8 44.90	+13 41.3	2.215	3.198	1.4	20.2
2 11	8 36.55	+18 40.5	2.299	3.263	4.4	20.9	2 11	8 35.21	+13 27.5	2.216	3.181	4.5	20.4
2 21	8 29.09	+18 59.6	2.364	3.278	7.8	21.1	2 21	8 26.45	+13 13.6	2.247	3.163	8.0	20.6
3 2	8 23.35	+19 12.3	2.456	3.293	10.7	21.3	3 2	8 19.37	+12 58.8	2.305	3.146	11.2	20.8
461439	2002 <i>CT</i> ₂₀₈		1 30.0 316°48	3°3/28.5	17		372399	2009 <i>QN</i> ₆₂		1 30.0 229°27	3°7/27.9	17	
12 23	9 15.34	+25 5.3	1.685	2.490	15.9	20.8	12 23	9 19.41	+27 50.2	2.182	2.966	13.4	21.7
1 2	9 11.52	+25 22.7	1.590	2.473	12.5	20.5	1 2	9 13.93	+28 18.1	2.086	2.957	10.6	21.5
1 12	9 4.66	+25 43.6	1.516	2.456	8.6	20.2	1 12	9 5.86	+28 46.7	2.015	2.947	7.4	21.3
1 22	8 55.34	+26 2.1	1.467	2.440	4.6	20.0	1 22	8 55.76	+29 10.3	1.970	2.937	4.4	21.1
2 1	8 44.66	+26 12.1	1.446	2.424	3.7	19.9	2 1	8 44.61	+29 23.6	1.956	2.926	4.1	21.1
2 11	8 34.08	+26 9.0	1.452	2.408	7.5	20.1	2 11	8 33.63	+29 22.8	1.971	2.915	6.9	21.2
2 21	8 25.03	+25 51.1	1.484	2.393	11.8	20.3	2 21	8 23.95	+29 7.1	2.014	2.903	10.2	21.4
3 2	8 18.64	+25 19.6	1.539	2.379	15.8	20.5	3 2	8 16.51	+28 37.9	2.082	2.891	13.4	21.6
83491	2001 <i>SA</i> ₁₀₇		1 30.0 71°05	9°9/ 7.9	18		66909	1999 <i>VD</i> ₁₆₃		1 30.0 125°73	0°2/29.9	18	
12 23	9 9.30	-14 41.4	2.429	3.049	16.1	19.2	12 23	9 13.44	+16 58.6	2.158	2.936	13.7	20.0
1 2	9 5.57	-15 38.3	2.348	3.059	14.6	19.1	1 2	9 9.03	+17 16.2	2.074	2.942	10.7	19.8
1 12	8 59.98	-16 12.5	2.285	3.070	12.8	19.0	1 12	9 2.41	+17 42.0	2.012	2.947	7.2	19.6
1 22	8 52.98	-16 20.8	2.242	3.081	11.2	18.9	1 22	8 54.14	+18 12.8	1.978	2.953	3.2	19.4
2 1	8 45.28	-16 1.5	2.222	3.092	10.1	18.8	2 1	8 45.04	+18 44.4	1.973	2.958	0.9	19.2
2 11	8 37.70	-15 16.0	2.228	3.103	9.9	18.8	2 11	8 36.14	+19 12.9	1.998	2.963	4.9	19.5
2 21	8 31.05	-14 8.7	2.258	3.114	10.7	18.9	2 21	8 28.39	+19 35.4	2.052	2.967	8.7	19.7
3 2	8 25.97	-12 46.0	2.312	3.125	12.1	19.0	3 2	8 22.54	+19 50.0	2.130	2.972	11.9	19.9
242413	2004 <i>GH</i> ₁₅		1 30.0 342°13	11°8/18.3	15		497123	2004 <i>KP</i> ₃		1 30.0 238°96	7°6/ 3.3	18	
12 23	9 14.14	+44 25.2	1.801	2.599	15.3	19.3	12 23	9 12.91	- 1 58.3	1.972	2.683	17.0	20.7
1 2	9 11.54	+46 59.9	1.739	2.589	13.4	19.1	1 2	9 8.87	- 2 55.3	1.878	2.680	14.6	20.5
1 12	9 5.28	+49 26.7	1.701	2.580	12.1	19.0	1 12	9 2.48	- 3 33.8	1.803	2.676	11.8	20.3
1 22	8 55.85	+51 32.3	1.687	2.571	11.9	19.0	1 22	8 54.25	- 3 50.8	1.752	2.673	9.2	20.2
2 1	8 44.49	+53 4.8	1.698	2.563	13.0	19.1	2 1	8 45.00	- 3 44.9	1.727	2.669	7.7	20.1
2 11	8 33.09	+53 57.7	1.731	2.556	14.8	19.2	2 11	8 35.81	- 3 18.0	1.729	2.666	8.3	20.1
2 21	8 23.57	+54 11.2	1.784	2.549	16.9	19.3	2 21	8 27.71	- 2 34.3	1.758	2.662	10.6	20.2
3 2	8 17.41	+53 50.5	1.854	2.544	18.9	19.4	3 2	8 21.57	- 1 39.9	1.810	2.658	13.4	20.4
126037	2001 <i>YA</i> ₆₉		1 30.0 329°41	2°5/28.4	18		384456	2010 <i>BW</i> ₁		1 30.0 266°58	1°5/30.9	18	
12 23	9 13.01	+21 30.4	1.838	2.637	15.0	19.8	12 23	9 12.91	+13 12.4	2.182	2.950	13.9	20.6
1 2	9 9.28	+22 18.0	1.754	2.635	11.7	19.5	1 2	9 8.62	+13 3.7	2.087	2.947	11.0	20.4
1 12	9 2.90	+23 13.5	1.693	2.633	7.8	19.3	1 12	9 2.16	+13 4.4	2.016	2.944	7.7	20.2
1 22	8 54.45	+24 11.1	1.658	2.631	3.9	19.1	1 22	8 54.05	+13 13.0	1.970	2.940	3.9	20.0
2 1	8 44.91	+25 4.2	1.651	2.630	3.0	19.0	2 1	8 45.06	+13 27.0	1.954	2.937	1.5	19.8
2 11	8 35.53	+25 46.6	1.672	2.628	6.7	19.2	2 11	8 36.21	+13 43.3	1.968	2.934	4.8	20.0
2 21	8 27.49	+26 14.9	1.720	2.627	10.7	19.4	2 21	8 28.42	+13 59.0	2.010	2.931	8.5	20.2
3 2	8 21.75	+26 28.1	1.792	2.625	14.2	19.7	3 2	8 22.47	+14 11.9	2.077	2.927	11.9	20.4
53319	1999 <i>JM</i> ₈		1 30.0 209°46	0°3/30.3	18		138742	2000 <i>SR</i> ₂₂₃		1 30.0 219°53	8°1/21.9	17	
12 23	9 12.86	+14 7.2	3.680	4.423	9.2	21.9	12 23	9 22.88	+48 40.5	3.057	3.801	10.8	20.5
1 2	9 7.70	+14 38.5	3.565	4.412	7.2	21.7	1 2	9 16.50	+49 47.5	2.983	3.793	9.5	20.4
1 12	9 1.12	+15 16.6	3.476	4.401	4.9	21.5	1 12	9 7.49	+50 44.5	2.932	3.784	8.5	20.3
1 22	8 53.45	+15 59.6	3.417	4.388	2.3	21.3	1 22	8 56.48	+51 24.8	2.908	3.774	8.1	20.3
2 1	8 45.18	+16 44.7	3.391	4.375	0.5	21.2	2 1	8 44.47	+51 43.1	2.910	3.764	8.5	20.3
2 11	8 36.89	+17 29.2	3.398	4.361	3.2	21.4	2 11	8 32.71	+51 37.1	2.938	3.754	9.6	20.3
2 21	8 29.15	+18 10.6	3.437	4.345	5.8	21.5	2 21	8 22.35	+51 7.7	2.991	3.743	11.0	20.4
3 2	8 22.50	+18 46.9	3.506	4.329	8.1	21.7	3 2	8 14.29	+50 18.2	3.064	3.732	12.4	20.5
201345	2002 <i>TJ</i> ₁₉₈		1 30.0 61°37	4°7/ 1.6	18		165769	2001 <i>QJ</i> ₂₄₄		1 30.0 143°66	3°2/27.7	18	
12 23	9 15.41	+ 5 25.2	2.048	2.786	15.6	19.8	12 23	9 14.47	+27 4.8	2.496	3.282	11.9	20.2
1 2	9 10.36	+ 4 36.1	1.978	2.809	12.8	19.7	1 2	9 9.64	+27 38.4	2.414	3.286	9.3	20.0
1 12	9 3.14	+ 4 1.0	1.930	2.833	9.6	19.5	1 12	9 2.72	+28 12.9	2.357	3.290	6.4	19.8
1 22	8 54.39	+ 3 40.7	1.908	2.856	6.5	19.4	1 22	8 54.25	+28 43.7	2.327	3.294	3.8	19.7
2 1	8 44.96	+ 3 34.6	1.914	2.880	4.8	19.3	2 1	8 45.04	+29 6.3	2.327	3.297	3.5	19.7
2 11	8 35.90	+ 3 40.5	1.949	2.903	6.1	19.4	2 11	8 36.04	+29 17.6	2.357	3.301	5.9	19.8
2 21	8 28.08	+ 3 55.2	2.012	2.927	8.9	19.7	2 21	8 28.14	+29 16.4	2.415	3.304	8.8	20.0
3 2	8 22.22	+ 4 14.8	2.101	2.950	11.8	19.9	3 2	8 22.06	+29 3.2	2.499	3.307	11.5	20.2
70665	1999 <i>TF</i> ₂₈₆		1 30.0 73°15	2°5/31.2	18		266377	2007 <i>ED</i> ₁₀₅		1 30.0 122°21	2°8/28.4	18	
12 23	9 15.40	+11 25.7	1.617	2.396	17.6	19.7	12 23	9 15.83	+24 0.3	1.982	2.775	14.3	20.5
1 2	9 11.20	+11 9.9	1.538	2.402	14.0	19.4	1 2	9 11.21	+24 31.7	1.901	2.778	11.1	20.3
1 12	9 4.18	+11 8.0	1.480	2.408	9.9	19.2	1 12	9 4.04	+25 7.1	1.844	2.781	7.5	20.1
1 22	8 55.02	+11 18.7	1.446	2.415	5.3	19.0	1 22	8 54.93	+25 41.1	1.812	2.784	3.9	19.9
2 1	8 44.78	+11 38.8	1.439	2.421	2.5	18.8	2 1	8 44.87	+26 8.1	1.810	2.787	3.2	19.8
2 11	8 34.83	+12 4.0	1.461	2.428	6.0	19.0	2 11	8 35.06	+26 24.0	1.837	2.790	6.4	20.0
2 21	8 26.41	+12 30.1	1.508	2.434	10.4	19.3	2 21	8 26.63	+26 26.9	1.891	2.793	10.1	20.3
3 2	8 20.46	+12 53.2	1.580	2.441	14.4	19.5	3 2	8 20.44	+26 17.1	1.969	2.796	13.4	20.5
391063	2005 <i>UT</i> ₅₉		1 30.0 175°91	3°6/ 1.1	18		458754	2011 <i>RF</i> ₄		1 30.0 172°66	3°7/27.9	18	
12 23	9 15.96	+ 6 57.6	1.759	2.514	17.								

EPHEMERIDES

1 30.0

1 30.0

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
82701	2001 <i>PQ</i> ₃₉		1 30.0	89° 92'	4.8/27.6	18	198940	2005 <i>UA</i> ₂₇₉		1 30.0	314° 06'	3.8/31.8	18
12 23	9 21.94	+30 2.0	1.882	2.672	15.0	18.9	12 23	9 11.86	+8 49.5	1.323	2.116	20.1	20.4
1 2	9 15.95	+30 38.9	1.820	2.692	11.8	18.8	1 2	9 9.32	+8 33.4	1.234	2.104	16.4	20.2
1 12	9 7.11	+31 14.2	1.782	2.713	8.3	18.6	1 12	9 3.52	+8 37.3	1.163	2.092	11.9	19.9
1 22	8 56.26	+31 40.7	1.771	2.732	5.4	18.5	1 22	8 55.00	+9 1.1	1.114	2.081	6.9	19.5
2 1	8 44.58	+31 52.5	1.788	2.752	5.2	18.5	2 1	8 44.88	+9 42.2	1.090	2.070	3.8	19.3
2 11	8 33.49	+31 46.5	1.833	2.771	7.8	18.7	2 11	8 34.76	+10 34.3	1.091	2.060	7.2	19.5
2 21	8 24.18	+31 23.4	1.906	2.790	11.0	18.9	2 21	8 26.25	+11 30.2	1.117	2.050	12.4	19.7
3 2	8 17.50	+30 45.9	2.002	2.809	14.0	19.1	3 2	8 20.62	+12 22.9	1.164	2.041	17.3	20.0
56047	1998 <i>XK</i> ₃₆		1 30.0	47° 11'	0.2/29.9	18	468844	2012 <i>VZ</i> ₇		1 30.0	221° 01'	4.2/2.4	17
12 23	9 15.96	+16 37.1	1.414	2.215	18.6	19.5	12 23	9 9.46	+2 24.2	2.647	3.367	12.9	22.1
1 2	9 12.17	+16 49.9	1.337	2.218	14.6	19.3	1 2	9 5.59	+2 13.5	2.545	3.362	10.7	21.9
1 12	9 5.14	+17 15.3	1.281	2.221	9.8	19.0	1 12	8 59.98	+2 17.1	2.464	3.357	8.2	21.8
1 22	8 55.58	+17 48.9	1.249	2.224	4.5	18.7	1 22	8 53.05	+2 34.9	2.409	3.351	5.7	21.6
2 1	8 44.71	+18 24.8	1.243	2.228	1.2	18.5	2 1	8 45.41	+3 6.1	2.383	3.346	4.2	21.5
2 11	8 34.15	+18 56.7	1.265	2.232	6.7	18.9	2 11	8 37.82	+3 47.9	2.386	3.340	5.1	21.5
2 21	8 25.38	+19 20.1	1.311	2.235	11.8	19.2	2 21	8 30.99	+4 36.5	2.419	3.334	7.6	21.7
3 2	8 19.49	+19 32.9	1.380	2.239	16.2	19.4	3 2	8 25.57	+5 28.1	2.478	3.328	10.2	21.8
506021	2015 <i>HO</i> ₉₈		1 30.0	226° 19'	2.7/27.7	17	137919	2000 <i>BD</i> ₁₄		1 30.0	230° 72'	1.6/29.2	18
12 23	9 11.44	+26 21.4	2.957	3.740	10.3	22.1	12 23	9 17.42	+21 6.0	2.068	2.850	14.1	19.3
1 2	9 7.05	+26 57.6	2.863	3.734	8.0	21.9	1 2	9 12.46	+21 23.6	1.969	2.840	11.1	19.0
1 12	9 0.90	+27 35.3	2.795	3.728	5.5	21.7	1 12	9 4.95	+21 46.9	1.894	2.830	7.4	18.8
1 22	8 53.42	+28 10.6	2.755	3.722	3.2	21.6	1 22	8 55.43	+22 11.6	1.845	2.820	3.5	18.5
2 1	8 45.25	+28 39.9	2.745	3.715	3.0	21.6	2 1	8 44.82	+22 33.1	1.826	2.808	2.0	18.4
2 11	8 37.18	+28 59.9	2.766	3.709	5.2	21.7	2 11	8 34.29	+22 47.1	1.837	2.797	5.8	18.6
2 21	8 29.94	+29 9.2	2.815	3.702	7.8	21.8	2 21	8 24.99	+22 51.5	1.877	2.785	9.8	18.8
3 2	8 24.16	+29 7.6	2.890	3.695	10.2	22.0	3 2	8 17.85	+22 45.6	1.941	2.772	13.3	19.0
466434	2013 <i>TW</i> ₅₁		1 30.0	101° 60'	0.6/30.4	18	242249	2003 <i>SV</i> ₂₄₄		1 30.0	195° 57'	2.5/31.8	17
12 23	9 12.76	+14 34.6	2.126	2.901	14.0	21.7	12 23	9 15.31	+8 19.7	2.278	3.021	14.1	22.4
1 2	9 8.50	+14 48.7	2.044	2.909	11.0	21.5	1 2	9 10.44	+8 27.7	2.177	3.018	11.4	22.2
1 12	9 2.06	+15 12.8	1.984	2.916	7.5	21.3	1 12	9 3.40	+8 49.4	2.099	3.015	8.2	22.0
1 22	8 53.99	+15 44.1	1.951	2.924	3.5	21.0	1 22	8 54.67	+9 23.5	2.047	3.010	4.7	21.8
2 1	8 45.12	+16 18.7	1.947	2.932	0.9	20.8	2 1	8 45.02	+10 7.2	2.025	3.004	2.5	21.6
2 11	8 36.45	+16 52.5	1.973	2.939	4.8	21.1	2 11	8 35.40	+10 56.4	2.034	2.998	4.9	21.7
2 21	8 28.92	+17 22.1	2.028	2.947	8.5	21.4	2 21	8 26.77	+11 46.7	2.072	2.991	8.4	21.9
3 2	8 23.28	+17 45.1	2.107	2.954	11.8	21.6	3 2	8 19.92	+12 34.1	2.137	2.983	11.8	22.1
420516	2012 <i>FK</i> ₄₈		1 30.0	138° 73'	0.3/30.2	18	429376	2010 <i>KD</i> ₁₂₈		1 30.0	236° 18'	3.5/26.5	17
12 23	9 13.81	+14 35.0	2.071	2.845	14.4	22.1	12 23	9 11.96	+24 8.4	2.569	3.354	11.6	20.9
1 2	9 9.41	+15 1.2	1.987	2.852	11.3	21.9	1 2	9 7.91	+25 43.9	2.474	3.347	9.0	20.7
1 12	9 2.73	+15 38.5	1.926	2.859	7.6	21.7	1 12	9 1.77	+27 26.2	2.405	3.340	6.2	20.5
1 22	8 54.32	+16 23.3	1.892	2.866	3.5	21.4	1 22	8 53.97	+29 9.1	2.366	3.333	3.8	20.3
2 1	8 45.03	+17 11.2	1.888	2.872	0.8	21.2	2 1	8 45.18	+30 45.4	2.359	3.325	4.0	20.3
2 11	8 35.94	+17 57.2	1.913	2.878	5.0	21.5	2 11	8 36.33	+32 8.9	2.383	3.317	6.5	20.5
2 21	8 28.01	+18 37.3	1.967	2.884	8.9	21.8	2 21	8 28.33	+33 15.7	2.435	3.309	9.4	20.7
3 2	8 22.06	+19 9.0	2.046	2.889	12.3	22.0	3 2	8 21.99	+34 4.6	2.513	3.301	12.0	20.8
34254	Mihirpatel		1 30.0	196° 87'	0.6/29.5	18	95983	2004 <i>MB</i> ₇		1 30.0	190° 00'	1.2/31.1	18
12 23	9 11.79	+18 51.7	2.818	3.589	11.0	19.9	12 23	9 12.30	+10 26.2	2.507	3.259	12.8	20.2
1 2	9 7.29	+19 9.4	2.722	3.587	8.6	19.7	1 2	9 7.92	+11 1.5	2.408	3.258	10.1	20.0
1 12	9 1.04	+19 32.4	2.650	3.585	5.7	19.5	1 12	9 1.62	+11 49.7	2.332	3.256	7.0	19.8
1 22	8 53.48	+19 57.9	2.608	3.582	2.6	19.3	1 22	8 53.83	+12 48.1	2.284	3.253	3.6	19.6
2 1	8 45.25	+20 22.7	2.595	3.579	1.0	19.2	2 1	8 45.23	+13 52.9	2.267	3.250	1.3	19.4
2 11	8 37.13	+20 44.0	2.614	3.576	4.2	19.4	2 11	8 36.68	+14 59.5	2.281	3.247	4.3	19.6
2 21	8 29.83	+20 59.7	2.663	3.572	7.2	19.6	2 21	8 28.98	+16 3.2	2.325	3.243	7.7	19.8
3 2	8 23.99	+21 8.6	2.738	3.568	9.9	19.8	3 2	8 22.86	+17 0.4	2.397	3.238	10.8	20.0
32003	2000 <i>HN</i> ₅₁		1 30.0	163° 75'	3.0/1.4	18	407957	2012 <i>DF</i> ₁₅		1 30.0	16° 10'	6.7/27.9	18
12 23	9 10.43	+6 24.6	2.634	3.370	12.6	19.3	12 23	9 22.59	+33 26.4	1.397	2.207	18.3	19.8
1 2	9 6.27	+6 21.6	2.539	3.373	10.2	19.1	1 2	9 17.63	+33 43.6	1.331	2.212	14.6	19.6
1 12	9 0.38	+6 30.9	2.468	3.376	7.5	18.9	1 12	9 8.85	+33 54.6	1.285	2.217	10.7	19.3
1 22	8 53.19	+6 51.7	2.423	3.379	4.7	18.8	1 22	8 57.24	+33 50.7	1.263	2.222	7.4	19.2
2 1	8 45.33	+7 22.3	2.407	3.381	3.0	18.7	2 1	8 44.43	+33 24.7	1.266	2.229	7.1	19.2
2 11	8 37.58	+7 59.7	2.422	3.383	4.5	18.8	2 11	8 32.40	+32 34.5	1.296	2.237	10.0	19.4
2 21	8 30.65	+8 40.4	2.466	3.385	7.3	18.9	2 21	8 22.80	+31 23.3	1.350	2.245	13.8	19.6
3 2	8 25.16	+9 21.1	2.537	3.386	10.0	19.1	3 2	8 16.66	+29 57.5	1.426	2.254	17.4	19.9
191840	2004 <i>VG</i> ₁₇		1 30.0	170° 78'	3.3/27.8	18	458295	2010 <i>UC</i> ₉₆		1 30.0	65° 54'	2.2/31.4	18
12 23	9 14.51	+25 5.9	2.096	2.889	13.6	20.5	12 23	9 15.41	+9 28.9	1.665	2.435	17.5	20.9
1 2	9 10.14	+25 52.3	2.013	2.890	10.6	20.3	1 2	9 10.85	+9 46.9	1.607	2.466	13.8	20.7
1 12	9 3.32	+26 42.5	1.954	2.891	7.2	20.1	1 12	9 3.72	+10 21.7	1.571	2.497	9.6	20.5
1 22	8 54.63	+27 30.7	1.921	2.891	4.1	19.9	1 22	8 54.76	+11 10.2	1.560	2.528	5.1	20.3
2 1	8 44.98	+28 11.0	1.918	2.891	3.7	19.9	2 1	8 45.04	+12 7.2	1.576	2.558	2.2	20.2
2 11	8 35.52	+28 38.7	1.944	2.892	6.7	20.1	2 11	8 35.81	+13 6.3	1.621	2.589	5.5	20.5
2 21	8 27.32	+28 51.6	1.998	2.892	10.1	20.3	2 21	8 28.15	+14 2.1	1.694	2.619	9.5	20.8
3 2	8 21.24	+28 50.0	2.075	2.892	13.1	20.5	3 2	8 22.81	+14 50.3	1.792	2.649	13.1	21.0
362062	2009 <i>BS</i> ₅₄		1 30.0	16° 02'	1.8/29.2	18	500782	2013 <i>EN</i> ₁₈		1 30.0	254° 74'	0.1/30.1	17
12 23	9 12.90	+19 28.7	1.220	2.043	19.6	21.0	12 23	9 15.70					

EPHEMERIDES

1 30.0

1 30.1

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
483366	2016 <i>SO</i> ₁₃		1 30.0 191°48	1°8/	1.0 17		438696	2008 <i>QF</i> ₂₆		1 30.0 166°21	0°4/29.6 17		
12 23	9 6.35	+ 8 12.2	3.923	4.655	8.8	21.8	12 23	9 6.95	+18 31.2	4.294	5.056	7.6	22.9
1 2	9 2.58	+ 8 16.1	3.819	4.653	7.1	21.7	1 2	9 2.95	+18 52.1	4.200	5.060	5.9	22.8
1 12	8 57.66	+ 8 27.7	3.741	4.651	5.1	21.5	1 12	8 57.87	+19 16.4	4.132	5.064	3.9	22.7
1 22	8 51.91	+ 8 46.1	3.690	4.649	3.0	21.4	1 22	8 52.01	+19 42.5	4.094	5.068	1.8	22.5
2 1	8 45.73	+ 9 10.1	3.670	4.647	1.8	21.3	2 1	8 45.76	+20 8.3	4.088	5.071	0.7	22.4
2 11	8 39.60	+ 9 37.8	3.682	4.644	3.0	21.4	2 11	8 39.59	+20 31.9	4.114	5.074	2.8	22.6
2 21	8 33.98	+10 7.1	3.724	4.641	5.1	21.5	2 21	8 33.92	+20 51.9	4.170	5.077	4.9	22.7
3 2	8 29.27	+10 36.1	3.795	4.638	7.1	21.7	3 2	8 29.13	+21 7.3	4.255	5.080	6.8	22.9
102757	1999 <i>VA</i> ₁₂₈		1 30.0 176°67	0°1/30.0 18			248735	2006 <i>QA</i> ₁₁₈		1 30.0 89°81	2°4/	1.1 18	
12 23	9 16.37	+15 57.4	2.122	2.893	14.2	21.2	12 23	9 9.83	+ 7 31.3	2.478	3.224	13.0	20.8
1 2	9 11.42	+16 18.2	2.031	2.895	11.1	21.0	1 2	9 5.89	+ 7 44.4	2.395	3.237	10.5	20.6
1 12	9 4.11	+16 48.6	1.964	2.897	7.5	20.8	1 12	9 0.17	+ 8 10.6	2.336	3.251	7.5	20.4
1 22	8 55.01	+17 25.1	1.924	2.898	3.4	20.6	1 22	8 53.15	+ 8 48.2	2.303	3.264	4.4	20.3
2 1	8 44.96	+18 3.3	1.914	2.899	0.8	20.4	2 1	8 45.49	+ 9 34.6	2.299	3.277	2.4	20.2
2 11	8 35.06	+18 38.8	1.934	2.899	5.1	20.7	2 11	8 38.00	+10 25.9	2.326	3.290	4.3	20.3
2 21	8 26.33	+19 8.2	1.983	2.898	9.0	20.9	2 21	8 31.42	+11 17.9	2.382	3.303	7.3	20.5
3 2	8 19.61	+19 29.4	2.058	2.896	12.4	21.1	3 2	8 26.36	+12 7.2	2.464	3.316	10.2	20.7
77598	2001 <i>KE</i> ₂₃		1 30.0 110°68	3°9/	1.8 18		53821	2000 <i>ET</i> ₁₄₄		1 30.0 81°12	1°7/30.9 18		
12 23	9 12.03	+ 4 44.5	2.416	3.147	13.7	19.4	12 23	9 17.65	+12 49.5	1.423	2.211	19.1	19.0
1 2	9 7.60	+ 4 26.0	2.332	3.159	11.2	19.2	1 2	9 13.27	+12 46.0	1.355	2.225	15.1	18.7
1 12	9 1.31	+ 4 21.1	2.269	3.171	8.4	19.1	1 12	9 5.74	+12 57.7	1.306	2.239	10.4	18.5
1 22	8 53.64	+ 4 29.5	2.233	3.183	5.6	18.9	1 22	8 55.85	+13 21.7	1.282	2.253	5.2	18.2
2 1	8 45.31	+ 4 50.0	2.226	3.194	3.9	18.8	2 1	8 44.83	+13 53.4	1.284	2.267	1.9	18.0
2 11	8 37.16	+ 5 19.8	2.249	3.206	5.1	18.9	2 11	8 34.27	+14 27.0	1.313	2.281	6.3	18.4
2 21	8 29.96	+ 5 55.3	2.300	3.216	7.8	19.1	2 21	8 25.53	+14 57.6	1.369	2.295	11.2	18.7
3 2	8 24.37	+ 6 32.8	2.377	3.227	10.6	19.3	3 2	8 19.61	+15 21.7	1.447	2.309	15.4	19.0
309774	2008 <i>YH</i> ₁₁₉		1 30.0 287°94	0°2/29.9 18			119395	2001 <i>TC</i> ₄₀		1 30.1 129°86	5°5/25.9 18		
12 23	9 16.92	+17 55.3	1.567	2.362	17.3	20.7	12 23	9 19.77	+33 12.1	2.361	3.143	12.6	19.5
1 2	9 12.79	+17 52.2	1.477	2.354	13.7	20.4	1 2	9 14.00	+34 19.4	2.295	3.159	10.0	19.4
1 12	9 5.55	+17 58.1	1.408	2.346	9.3	20.1	1 12	9 5.78	+35 24.0	2.255	3.175	7.5	19.2
1 22	8 55.83	+18 9.5	1.364	2.339	4.3	19.8	1 22	8 55.75	+36 19.0	2.242	3.190	5.7	19.1
2 1	8 44.75	+18 21.9	1.347	2.331	1.1	19.5	2 1	8 44.87	+36 58.1	2.259	3.204	6.0	19.2
2 11	8 33.83	+18 30.7	1.357	2.324	6.4	19.9	2 11	8 34.33	+37 17.9	2.305	3.218	7.9	19.3
2 21	8 24.50	+18 33.0	1.394	2.316	11.4	20.1	2 21	8 25.16	+37 18.1	2.378	3.231	10.4	19.5
3 2	8 17.88	+18 27.5	1.454	2.309	15.7	20.4	3 2	8 18.18	+37 0.7	2.475	3.243	12.7	19.7
66274	1999 <i>JS</i> ₈		1 30.0 330°42	7°6/	1.9 18		502029	2015 <i>AO</i> ₁₀₂		1 30.1 125°34	2°2/28.1 18		
12 23	9 9.84	+ 3 51.1	1.447	2.218	19.6	18.2	12 23	9 13.21	+20 18.6	2.380	3.161	12.5	21.8
1 2	9 7.51	+ 2 36.9	1.349	2.197	16.6	17.9	1 2	9 8.78	+21 34.0	2.301	3.173	9.7	21.7
1 12	9 2.20	+ 1 39.2	1.270	2.177	13.1	17.7	1 12	9 2.27	+22 57.0	2.248	3.185	6.4	21.5
1 22	8 54.40	+ 1 1.9	1.212	2.158	9.6	17.4	1 22	8 54.17	+24 22.0	2.224	3.197	3.2	21.3
2 1	8 45.08	+ 0 47.9	1.178	2.140	7.6	17.3	2 1	8 45.26	+25 42.6	2.230	3.208	2.6	21.3
2 11	8 35.65	+ 0 56.2	1.168	2.123	9.1	17.3	2 11	8 36.48	+26 53.2	2.268	3.219	5.6	21.5
2 21	8 27.57	+ 1 22.8	1.183	2.107	12.8	17.4	2 21	8 28.73	+27 50.1	2.335	3.229	8.8	21.7
3 2	8 22.06	+ 2 1.2	1.218	2.092	16.8	17.6	3 2	8 22.75	+28 32.0	2.427	3.239	11.6	21.9
85526	1997 <i>WM</i> ₁₀		1 30.0 94°60	3°1/31.7 18			240344	2003 <i>QP</i> ₆₇		1 30.1 117°23	2°0/31.3 18		
12 23	9 17.38	+ 9 1.5	1.615	2.382	18.1	19.3	12 23	9 16.78	+10 19.2	1.924	2.683	15.8	21.2
1 2	9 12.61	+ 8 53.2	1.546	2.401	14.5	19.1	1 2	9 11.76	+10 29.9	1.849	2.702	12.6	21.0
1 12	9 5.06	+ 9 1.6	1.497	2.420	10.3	18.9	1 12	9 4.32	+10 54.6	1.796	2.720	8.8	20.8
1 22	8 55.45	+ 9 25.0	1.473	2.438	5.8	18.6	1 22	8 55.10	+11 31.1	1.770	2.737	4.7	20.6
2 1	8 44.89	+10 0.0	1.476	2.456	3.1	18.5	2 1	8 45.05	+12 15.3	1.772	2.754	2.0	20.5
2 11	8 34.74	+10 41.3	1.508	2.474	6.0	18.7	2 11	8 35.30	+13 2.3	1.804	2.770	5.2	20.7
2 21	8 26.19	+11 23.5	1.567	2.491	10.2	19.0	2 21	8 26.89	+13 47.4	1.865	2.786	9.1	21.0
3 2	8 20.14	+12 2.3	1.649	2.508	14.0	19.3	3 2	8 20.61	+14 27.1	1.951	2.801	12.5	21.2
136985	1998 <i>SD</i> ₁₂		1 30.0 92°27	9°3/	6.4 18		47794	2000 <i>EP</i> ₃₈		1 30.1 81°76	0°7/29.6 18		
12 23	9 13.44	- 9 50.5	1.950	2.616	18.5	20.3	12 23	9 12.86	+18 12.9	2.169	2.951	13.5	19.1
1 2	9 9.12	-10 27.6	1.880	2.638	16.2	20.2	1 2	9 8.60	+18 34.6	2.088	2.960	10.5	18.9
1 12	9 2.52	-10 38.4	1.827	2.660	13.6	20.0	1 12	9 2.16	+19 3.6	2.032	2.968	7.0	18.7
1 22	8 54.25	-10 20.1	1.795	2.681	11.2	19.9	1 22	8 54.11	+19 36.4	2.002	2.977	3.2	18.5
2 1	8 45.19	- 9 32.6	1.788	2.703	9.5	19.8	2 1	8 45.28	+20 8.8	2.001	2.985	1.2	18.4
2 11	8 36.41	- 8 19.6	1.807	2.723	9.5	19.9	2 11	8 36.68	+20 36.7	2.030	2.993	5.0	18.6
2 21	8 28.86	- 6 48.2	1.852	2.744	10.9	20.0	2 21	8 29.21	+20 57.5	2.088	3.002	8.6	18.9
3 2	8 23.32	- 5 6.8	1.923	2.763	13.1	20.2	3 2	8 23.64	+21 9.6	2.170	3.010	11.8	19.1
224796	2006 <i>TA</i> ₅₃		1 30.0 150°12	4°6/27.6 18			15838	<i>Auclair</i>		1 30.1 127°77	0°7/29.6 18		
12 23	9 21.34	+25 24.5	1.572	2.371	17.1	21.5	12 23	9 12.91	+18 21.5	2.391	3.168	12.6	19.1
1 2	9 16.30	+26 28.9	1.500	2.379	13.4	21.2	1 2	9 8.45	+18 44.7	2.307	3.175	9.8	19.0
1 12	9 7.90	+27 39.1	1.449	2.387	9.2	21.0	1 12	9 1.97	+19 14.5	2.247	3.183	6.5	18.8
1 22	8 56.88	+28 46.1	1.425	2.393	5.4	20.8	1 22	8 54.01	+19 47.7	2.215	3.190	2.9	18.5
2 1	8 44.54	+29 40.2	1.428	2.399	5.1	20.8	2 1	8 45.31	+20 20.2	2.213	3.196	1.2	18.4
2 11	8 32.55	+30 14.8	1.459	2.405	8.6	21.0	2 11	8 36.80	+20 48.5	2.241	3.203	4.7	18.7
2 21	8 22.44	+30 27.7	1.516	2.409	12.7	21.3	2 21	8 29.33	+21 9.9	2.297	3.209	8.1	18.9
3 2	8 15.35	+30 20.7	1.595	2.413	16.4	21.5	3 2	8 23.57	+21 23.2	2.380	3.215	11.1	19.1
366154	2012 <i>EK</i> ₁₅		1 30.0 225°26	0°4/30.3 18			81072	2000 <i>EC</i> ₈₀		1 30.1 58°04	6°9/27.2 18		
12 23	9 11.87	+12 8.8	2.040	2.811	14.6	20.5	12 23						

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
363311	2002 <i>NV</i> ₆₃		1 30.1 249°55	1°0/29.4	17		259970	2004 <i>FT</i> ₂₈		1 30.1 279°42	18°5/ 8.8	18	
12 23	9 14.94	+17 46.8	1.872	2.658	15.2	21.9	12 23	9 12.79	-17 12.4	1.280	1.949	26.4	20.3
1 2	9 10.89	+18 22.5	1.772	2.645	12.0	21.7	1 2	9 10.33	-19 22.5	1.204	1.943	24.5	20.1
1 12	9 4.14	+19 9.4	1.694	2.632	8.1	21.4	1 12	9 4.43	-20 58.6	1.140	1.937	22.4	19.9
1 22	8 55.20	+20 2.9	1.643	2.618	3.7	21.1	1 22	8 55.59	-21 49.1	1.091	1.931	20.3	19.7
2 1	8 44.99	+20 57.1	1.620	2.604	1.6	20.9	2 1	8 44.94	-21 44.5	1.058	1.925	18.9	19.6
2 11	8 34.76	+21 45.7	1.627	2.589	6.1	21.2	2 11	8 34.17	-20 42.3	1.044	1.919	18.5	19.6
2 21	8 25.74	+22 24.3	1.661	2.574	10.5	21.4	2 21	8 25.03	-18 49.2	1.048	1.913	19.5	19.6
3 2	8 18.98	+22 50.3	1.719	2.559	14.4	21.6	3 2	8 18.96	-16 19.0	1.070	1.907	21.4	19.7
433020	2012 <i>RP</i> ₃₈		1 30.1 117°25	3°4/ 1.8	18		55315	2001 <i>SJ</i> ₆₅		1 30.1 301°83	4°2/ 1.3	18	
12 23	9 10.06	+ 4 50.7	2.485	3.219	13.3	21.5	12 23	9 12.30	+ 6 44.0	1.460	2.236	19.2	18.1
1 2	9 6.10	+ 4 53.8	2.397	3.228	10.9	21.3	1 2	9 9.34	+ 6 35.6	1.370	2.229	15.8	17.9
1 12	9 0.34	+ 5 11.3	2.331	3.236	8.0	21.2	1 12	9 3.38	+ 6 48.2	1.300	2.222	11.6	17.6
1 22	8 53.26	+ 5 42.3	2.291	3.245	5.1	21.0	1 22	8 54.96	+ 7 22.0	1.252	2.215	7.1	17.3
2 1	8 45.51	+ 6 24.7	2.281	3.253	3.4	20.9	2 1	8 45.12	+ 8 14.2	1.230	2.208	4.2	17.1
2 11	8 37.89	+ 7 14.9	2.300	3.260	4.7	21.0	2 11	8 35.33	+ 9 18.4	1.234	2.201	6.9	17.3
2 21	8 31.15	+ 8 8.7	2.348	3.268	7.5	21.2	2 21	8 27.00	+10 27.1	1.264	2.194	11.5	17.5
3 2	8 25.92	+ 9 2.1	2.423	3.276	10.3	21.4	3 2	8 21.29	+11 32.9	1.316	2.188	16.0	17.8
77678	2001 <i>MH</i> ₂₇		1 30.1 112°45	0°7/29.5	18		416884	2005 <i>QF</i> ₆₆		1 30.1 141°50	1°7/29.1	18	
12 23	9 13.57	+19 14.3	2.499	3.274	12.2	19.2	12 23	9 19.46	+22 27.4	2.261	3.036	13.3	21.6
1 2	9 8.82	+19 29.7	2.418	3.285	9.4	19.0	1 2	9 13.60	+22 39.9	2.180	3.047	10.3	21.4
1 12	9 2.14	+19 50.4	2.362	3.297	6.3	18.8	1 12	9 5.45	+22 55.7	2.123	3.057	6.9	21.2
1 22	8 54.06	+20 13.2	2.333	3.308	2.8	18.6	1 22	8 55.62	+23 10.6	2.094	3.067	3.3	21.0
2 1	8 45.32	+20 34.9	2.335	3.318	1.2	18.5	2 1	8 45.01	+23 20.9	2.096	3.077	2.0	20.9
2 11	8 36.81	+20 52.2	2.367	3.329	4.5	18.8	2 11	8 34.72	+23 23.4	2.128	3.086	5.3	21.1
2 21	8 29.32	+21 3.2	2.429	3.339	7.8	19.0	2 21	8 25.70	+23 17.1	2.190	3.094	8.8	21.4
3 2	8 23.52	+21 7.0	2.516	3.350	10.6	19.2	3 2	8 18.73	+23 2.1	2.277	3.101	11.9	21.6
426489	2013 <i>RW</i> ₂₃		1 30.1 104°49	1°3/30.9	18		130695	2000 <i>SJ</i> ₁₅₀		1 30.1 133°69	1°5/29.2	18	
12 23	9 13.04	+11 58.1	2.290	3.051	13.5	22.3	12 23	9 18.85	+19 54.3	1.861	2.645	15.4	20.9
1 2	9 8.51	+12 13.4	2.213	3.068	10.7	22.1	1 2	9 13.64	+20 25.2	1.785	2.657	12.0	20.7
1 12	9 1.98	+12 39.7	2.158	3.085	7.3	22.0	1 12	9 5.74	+21 3.7	1.732	2.669	8.0	20.5
1 22	8 54.00	+13 14.6	2.131	3.101	3.7	21.8	1 22	8 55.83	+21 44.6	1.706	2.680	3.7	20.2
2 1	8 45.34	+13 54.6	2.134	3.117	1.3	21.6	2 1	8 44.96	+22 22.1	1.708	2.691	2.0	20.2
2 11	8 36.90	+14 35.6	2.166	3.133	4.4	21.8	2 11	8 34.40	+22 51.3	1.741	2.701	6.0	20.4
2 21	8 29.54	+15 14.1	2.228	3.148	7.9	22.1	2 21	8 25.33	+23 9.4	1.801	2.710	10.1	20.7
3 2	8 23.91	+15 47.3	2.316	3.163	10.9	22.3	3 2	8 18.63	+23 15.8	1.885	2.719	13.6	20.9
6705	Rinaketty		1 30.1 233°41	0°9/30.5	18		441849	2009 <i>WO</i> ₂₀		1 30.1 53°05	0°4/30.2	18	
12 23	9 16.24	+13 40.8	1.635	2.418	17.2	18.1	12 23	9 18.00	+16 13.7	1.210	2.019	20.6	21.0
1 2	9 12.18	+13 55.5	1.541	2.410	13.7	17.8	1 2	9 14.10	+16 10.5	1.147	2.031	16.2	20.7
1 12	9 5.15	+14 24.8	1.467	2.401	9.4	17.6	1 12	9 6.60	+16 20.6	1.103	2.044	11.0	20.5
1 22	8 55.71	+15 5.6	1.419	2.392	4.6	17.3	1 22	8 56.35	+16 40.1	1.082	2.057	5.1	20.2
2 1	8 44.88	+15 52.9	1.398	2.383	1.2	17.0	2 1	8 44.83	+17 3.0	1.085	2.070	1.2	19.9
2 11	8 34.08	+16 40.5	1.406	2.373	6.1	17.3	2 11	8 33.88	+17 23.4	1.115	2.083	7.1	20.4
2 21	8 24.70	+17 22.8	1.440	2.362	11.1	17.5	2 21	8 25.10	+17 37.3	1.169	2.097	12.5	20.7
3 2	8 17.87	+17 56.2	1.498	2.352	15.4	17.8	3 2	8 19.57	+17 42.5	1.244	2.111	17.0	21.0
143524	2003 <i>ET</i> ₁₃		1 30.1 334°33	0°2/29.9	18		433891	2015 <i>BY</i> ₄₀₄		1 30.1 192°72	0°5/29.7	17	
12 23	9 11.78	+17 38.6	2.221	3.003	13.3	19.9	12 23	9 14.18	+18 58.9	2.406	3.181	12.6	21.7
1 2	9 7.80	+17 44.0	2.128	2.998	10.4	19.7	1 2	9 9.47	+19 5.5	2.313	3.180	9.8	21.5
1 12	9 1.68	+17 56.4	2.058	2.994	7.0	19.5	1 12	9 2.70	+19 17.5	2.245	3.179	6.6	21.3
1 22	8 53.94	+18 13.1	2.015	2.990	3.2	19.2	1 22	8 54.39	+19 32.0	2.204	3.178	3.0	21.0
2 1	8 45.35	+18 30.6	2.002	2.986	0.8	19.0	2 1	8 45.31	+19 45.8	2.193	3.177	1.0	20.9
2 11	8 36.90	+18 45.7	2.018	2.983	4.8	19.3	2 11	8 36.37	+19 56.0	2.213	3.176	4.6	21.1
2 21	8 29.50	+18 55.9	2.062	2.980	8.5	19.5	2 21	8 28.47	+20 0.6	2.261	3.174	8.1	21.3
3 2	8 23.92	+18 59.7	2.131	2.977	11.8	19.7	3 2	8 22.32	+19 58.6	2.336	3.172	11.2	21.5
236242	2005 <i>YH</i> ₆₆		1 30.1 25°90	2°9/28.7	18		98504	2000 <i>VY</i> ₁₅		1 30.1 58°44	0°4/29.9	18	R
12 23	9 13.40	+20 24.1	1.164	1.991	20.1	20.1	12 23	9 15.64	+15 40.8	1.373	2.175	19.0	18.9
1 2	9 10.84	+21 11.5	1.102	1.998	15.7	19.9	1 2	9 11.80	+16 16.1	1.314	2.195	14.8	18.7
1 12	9 4.61	+22 11.3	1.059	2.006	10.5	19.6	1 12	9 4.80	+17 5.9	1.275	2.215	9.9	18.5
1 22	8 55.50	+23 15.4	1.039	2.015	5.0	19.3	1 22	8 55.46	+18 4.6	1.261	2.236	4.4	18.2
2 1	8 44.99	+24 13.5	1.043	2.024	3.5	19.3	2 1	8 45.06	+19 4.3	1.273	2.257	1.3	18.1
2 11	8 34.95	+24 57.0	1.073	2.035	8.5	19.6	2 11	8 35.19	+19 57.5	1.312	2.278	6.6	18.5
2 21	8 27.07	+25 21.5	1.125	2.046	13.6	19.9	2 21	8 27.21	+20 39.0	1.376	2.299	11.4	18.8
3 2	8 22.49	+25 26.8	1.198	2.058	18.0	20.2	3 2	8 22.05	+21 6.8	1.463	2.320	15.5	19.1
243232	2007 <i>VJ</i> ₉₃		1 30.1 136°75	1°7/31.3	18		1668	Hanna		1 30.1 117°43	1°1/30.9	18	
12 23	9 13.15	+11 36.4	2.678	3.427	12.1	20.9	12 23	9 13.38	+12 6.8	2.365	3.124	13.2	17.3
1 2	9 8.32	+11 25.7	2.589	3.436	9.6	20.8	1 2	9 8.73	+12 27.7	2.286	3.141	10.4	17.1
1 12	9 1.74	+11 23.4	2.524	3.444	6.7	20.6	1 12	9 2.13	+12 59.5	2.231	3.157	7.1	17.0
1 22	8 53.89	+11 28.4	2.486	3.453	3.6	20.4	1 22	8 54.10	+13 39.5	2.202	3.173	3.6	16.8
2 1	8 45.41	+11 38.8	2.479	3.460	1.8	20.3	2 1	8 45.39	+14 24.1	2.204	3.188	1.2	16.6
2 11	8 37.09	+11 52.3	2.503	3.468	4.1	20.5	2 11	8 36.89	+15 9.2	2.237	3.203	4.3	16.9
2 21	8 29.68	+12 6.5	2.557	3.475	7.1	20.7	2 21	8 29.42	+15 51.2	2.299	3.217	7.7	17.1
3 2	8 23.76	+12 19.5	2.638	3.482	9.8	20.9	3 2	8 23.65	+16 27.3	2.387	3.231	10.7	17.3
432164	2009 <i>BM</i> ₁₇₀		1 30.1 22°48	0°5/29.6	18		157369	2004 <i>TE</i> ₁₂₈		1 30.1 100°14	3°7/27.5	18	
12 23	9 8.44	+13 12.7	1.829	2.617	15.4	19.7	12 23	9 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
12176	Hidayat		1 30.1 258°09	1.3/29.4	18		491744	2012 VM44		1 30.1 87°46	2°5/31.2	18	
12 23	9 15.73	+18 47.9	1.765	2.556	15.8	19.1	12 23	9 17.73	+11 29.9	1.421	2.206	19.3	21.8
1 2	9 11.70	+19 17.6	1.667	2.543	12.5	18.9	1 2	9 13.40	+11 18.5	1.350	2.217	15.4	21.5
1 12	9 4.81	+19 57.5	1.590	2.529	8.4	18.6	1 12	9 5.93	+11 23.0	1.299	2.229	10.8	21.3
1 22	8 55.58	+20 43.0	1.540	2.515	3.9	18.3	1 22	8 56.04	+11 41.7	1.271	2.240	5.7	21.0
2 1	8 44.99	+21 28.1	1.517	2.500	1.9	18.1	2 1	8 44.99	+12 10.4	1.269	2.252	2.5	20.9
2 11	8 34.40	+22 6.5	1.523	2.485	6.4	18.4	2 11	8 34.33	+12 43.7	1.295	2.263	6.4	21.1
2 21	8 25.13	+22 34.1	1.556	2.470	11.0	18.6	2 21	8 25.47	+13 16.4	1.347	2.274	11.3	21.4
3 2	8 18.30	+22 49.0	1.613	2.455	15.1	18.8	3 2	8 19.42	+13 44.3	1.422	2.285	15.5	21.7
378437	2007 RJ269		1 30.1 35°57	1°0/29.5	18		166905	2003 AJ72		1 30.1 20°12	10°2/24.3	18	
12 23	9 12.92	+19 28.6	2.005	2.794	14.2	20.8	12 23	9 17.40	+41 33.4	1.631	2.434	16.4	19.1
1 2	9 8.86	+19 43.1	1.926	2.801	11.1	20.6	1 2	9 13.59	+42 56.0	1.582	2.445	13.8	18.9
1 12	9 2.45	+20 4.2	1.870	2.809	7.4	20.4	1 12	9 6.21	+44 7.8	1.555	2.457	11.5	18.8
1 22	8 54.31	+20 28.2	1.841	2.816	3.3	20.2	1 22	8 56.17	+44 58.1	1.551	2.470	10.3	18.8
2 1	8 45.34	+20 50.7	1.841	2.824	1.4	20.1	2 1	8 44.98	+45 18.4	1.571	2.484	10.7	18.8
2 11	8 36.64	+21 8.0	1.869	2.832	5.3	20.4	2 11	8 34.47	+45 5.6	1.615	2.499	12.5	19.0
2 21	8 29.19	+21 17.5	1.925	2.841	9.2	20.6	2 21	8 26.18	+44 22.7	1.682	2.515	14.9	19.2
3 2	8 23.77	+21 18.5	2.006	2.849	12.5	20.8	3 2	8 21.09	+43 15.7	1.768	2.532	17.2	19.4
321512	2009 SY189		1 30.1 246°97	6°7/26.0	18		285315	1998 YZ12		1 30.1 87°39	2°3/28.5	18	
12 23	9 22.72	+36 8.5	2.152	2.934	13.7	20.9	12 23	9 15.84	+19 40.1	1.823	2.614	15.4	21.1
1 2	9 16.93	+36 57.9	2.060	2.920	11.2	20.7	1 2	9 11.32	+20 47.8	1.759	2.636	11.9	21.0
1 12	9 8.16	+37 43.2	1.991	2.906	8.6	20.5	1 12	9 4.21	+22 4.6	1.718	2.657	7.9	20.8
1 22	8 57.04	+38 16.2	1.949	2.891	6.9	20.4	1 22	8 55.16	+23 23.8	1.704	2.678	3.8	20.5
2 1	8 44.67	+38 29.9	1.935	2.876	7.1	20.4	2 1	8 45.21	+24 37.7	1.720	2.699	2.8	20.5
2 11	8 32.49	+38 20.3	1.949	2.860	9.2	20.4	2 11	8 35.61	+25 39.6	1.764	2.720	6.4	20.8
2 21	8 21.87	+37 47.6	1.990	2.844	12.0	20.6	2 21	8 27.47	+26 25.8	1.836	2.740	10.2	21.1
3 2	8 13.83	+36 55.3	2.053	2.827	14.8	20.7	3 2	8 21.65	+26 55.5	1.932	2.760	13.6	21.3
465492	2008 TF112		1 30.1 74°04	7°2/25.9	18		273261	2006 KK118		1 30.1 148°04	3°9/26.5	18	
12 23	9 21.64	+37 47.4	2.071	2.856	14.0	21.1	12 23	9 15.01	+30 37.9	2.950	3.729	10.4	21.1
1 2	9 15.80	+38 43.0	2.016	2.875	11.4	20.9	1 2	9 9.87	+31 32.2	2.874	3.739	8.2	20.9
1 12	9 7.11	+39 31.5	1.984	2.894	8.9	20.8	1 12	9 2.85	+32 25.7	2.824	3.749	5.9	20.8
1 22	8 56.40	+40 5.1	1.978	2.913	7.3	20.7	1 22	8 54.45	+33 13.4	2.803	3.758	4.2	20.7
2 1	8 44.87	+40 17.5	1.999	2.932	7.5	20.8	2 1	8 45.38	+33 50.9	2.812	3.767	4.3	20.7
2 11	8 33.93	+40 6.3	2.049	2.950	9.3	20.9	2 11	8 36.48	+34 15.2	2.852	3.775	6.1	20.8
2 21	8 24.78	+39 33.3	2.123	2.969	11.7	21.1	2 21	8 28.54	+34 25.1	2.919	3.783	8.3	21.0
3 2	8 18.23	+38 42.4	2.221	2.988	14.0	21.3	3 2	8 22.21	+34 21.5	3.012	3.790	10.4	21.2
343023	2009 BG115		1 30.1 306°19	3°2/27.9	18		10307	1990 QX1		1 30.1 48°26	0°8/29.7	18	
12 23	9 14.27	+26 36.4	2.286	3.076	12.7	20.6	12 23	9 16.86	+17 13.9	1.188	2.002	20.6	17.5
1 2	9 9.81	+27 4.8	2.197	3.071	9.9	20.4	1 2	9 13.13	+17 37.8	1.136	2.024	16.0	17.3
1 12	9 3.08	+27 34.6	2.131	3.067	6.8	20.2	1 12	9 5.87	+18 15.4	1.103	2.046	10.7	17.0
1 22	8 54.62	+28 1.1	2.093	3.062	4.0	20.0	1 22	8 56.00	+19 0.3	1.093	2.069	4.8	16.8
2 1	8 45.28	+28 19.5	2.085	3.057	3.6	20.0	2 1	8 45.03	+19 44.7	1.108	2.093	1.6	16.6
2 11	8 36.11	+28 26.4	2.106	3.053	6.2	20.1	2 11	8 34.78	+20 21.2	1.149	2.117	7.2	17.1
2 21	8 28.11	+28 20.4	2.154	3.048	9.4	20.3	2 21	8 26.74	+20 45.7	1.215	2.141	12.4	17.4
3 2	8 22.06	+28 2.1	2.227	3.044	12.4	20.5	3 2	8 21.88	+20 56.9	1.302	2.165	16.7	17.7
358028	2006 FX7		1 30.1 222°85	5°6/2.8	18		168309	2167 T-3		1 30.1 63°75	2°8/28.9	18	
12 23	9 13.97	+ 0 25.8	2.117	2.833	15.8	21.8	12 23	9 19.58	+23 4.8	1.458	2.263	17.9	19.8
1 2	9 9.69	+ 0 12.3	2.011	2.823	13.4	21.5	1 2	9 14.85	+23 26.8	1.395	2.278	13.9	19.6
1 12	9 3.12	+ 0 17.8	1.924	2.812	10.4	21.3	1 12	9 6.84	+23 54.1	1.353	2.294	9.3	19.4
1 22	8 54.72	+ 0 43.3	1.862	2.800	7.5	21.1	1 22	8 56.42	+24 20.3	1.336	2.309	4.6	19.1
2 1	8 45.24	+ 1 28.3	1.828	2.788	5.6	21.0	2 1	8 44.93	+24 38.6	1.345	2.325	3.2	19.1
2 11	8 35.71	+ 2 29.1	1.822	2.775	6.6	21.0	2 11	8 34.03	+24 44.5	1.382	2.341	7.4	19.4
2 21	8 27.15	+ 3 40.2	1.846	2.761	9.5	21.2	2 21	8 25.12	+24 36.5	1.444	2.357	11.8	19.7
3 2	8 20.43	+ 4 55.4	1.895	2.746	12.8	21.3	3 2	8 19.16	+24 15.9	1.529	2.373	15.7	20.0
424148	2007 GY22		1 30.1 206°09	2°5/28.3	18		140821	2001 UA164		1 30.1 311°87	3°7/27.3	18	
12 23	9 14.57	+23 23.8	2.375	3.159	12.5	22.1	12 23	9 12.12	+26 13.9	2.245	3.040	12.7	19.6
1 2	9 9.97	+24 4.0	2.283	3.155	9.7	21.9	1 2	9 8.27	+27 10.7	2.159	3.036	9.9	19.4
1 12	9 3.16	+24 48.7	2.215	3.151	6.6	21.7	1 12	9 2.15	+28 11.1	2.096	3.032	6.9	19.2
1 22	8 54.67	+25 33.1	2.175	3.146	3.4	21.5	1 22	8 54.25	+29 9.1	2.062	3.028	4.2	19.1
2 1	8 45.28	+26 12.1	2.164	3.141	2.8	21.5	2 1	8 45.42	+29 58.7	2.056	3.024	4.1	19.0
2 11	8 35.99	+26 41.7	2.184	3.136	5.7	21.6	2 11	8 36.70	+30 35.2	2.079	3.021	6.7	19.2
2 21	8 27.76	+26 59.3	2.233	3.130	9.0	21.8	2 21	8 29.09	+30 56.1	2.130	3.017	9.9	19.4
3 2	8 21.37	+27 4.6	2.306	3.124	12.0	22.0	3 2	8 23.42	+31 1.4	2.204	3.014	12.7	19.6
174223	2002 RZ29		1 30.1 188°66	3°0/1.0	18		81895	2000 LP31		1 30.1 289°92	6°4/2.5	18	
12 23	9 14.55	+ 7 36.8	2.142	2.889	14.8	21.6	12 23	9 13.64	+ 0 4.3	2.377	3.083	14.5	18.4
1 2	9 10.01	+ 7 34.3	2.046	2.888	12.0	21.4	1 2	9 9.09	- 1 2.6	2.276	3.077	12.4	18.3
1 12	9 3.22	+ 7 46.1	1.973	2.887	8.7	21.2	1 12	9 2.52	- 1 56.1	2.198	3.072	10.0	18.1
1 22	8 54.71	+ 8 11.3	1.925	2.885	5.2	21.0	1 22	8 54.39	- 2 34.0	2.144	3.066	7.7	17.9
2 1	8 45.27	+ 8 47.5	1.906	2.883	3.0	20.8	2 1	8 45.41	- 2 54.7	2.118	3.060	6.5	17.9
2 11	8 35.91	+ 9 30.8	1.916	2.880	5.2	20.9	2 11	8 36.46	- 2 58.9	2.121	3.055	7.1	17.9
2 21	8 27.60	+10 16.8	1.956	2.877	8.7	21.1	2 21	8 28.41	- 2 49.0	2.151	3.050	9.2	18.0
3 2	8 21.16	+11 1.2	2.022	2.873	12.1	21.3	3 2	8 22.01	- 2 28.7	2.207	3.044	11.7	18.2
152372	2005 UT169		1 30.1 9°98	0°3/29.9	18		421419	2013 WL54		1 30.1 137°57	3°3/27.7	18	
12 23	9 13.60	+17 2.9	1.811	2.600	15.5	20.3	12 23	9 15.63	+27 9.1	2.474	3.258	12.0	21.2
1 2	9 9.72	+17 19.1	1.726	2.600	12.2	20.1	1 2						

EPHEMERIDES

1 30.1

1 30.1

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
49918	2011 <i>GV</i> ₇₈		1 30.1 353°97	1.7/28.9	18		198562	2004 <i>XQ</i> ₁₅₃		1 30.1 164°40	0°2/30.3	18	
12 23	9 9.28	+17 26.1	1.687	2.490	15.9	21.0	12 23	9 13.13	+15 33.1	2.245	3.017	13.4	21.4
1 2	9 6.67	+18 30.9	1.604	2.487	12.4	20.7	1 2	9 8.82	+15 48.2	2.155	3.019	10.5	21.2
1 12	9 1.41	+19 49.9	1.542	2.484	8.3	20.5	1 12	9 2.39	+16 12.2	2.089	3.021	7.1	21.0
1 22	8 54.03	+21 16.9	1.506	2.482	3.8	20.2	1 22	8 54.35	+16 42.3	2.049	3.023	3.3	20.8
2 1	8 45.49	+22 43.8	1.498	2.480	2.3	20.1	2 1	8 45.48	+17 14.9	2.039	3.024	0.7	20.6
2 11	8 37.04	+24 2.4	1.518	2.480	6.6	20.4	2 11	8 36.75	+17 46.0	2.060	3.025	4.7	20.9
2 21	8 29.91	+25 6.5	1.565	2.479	11.0	20.6	2 21	8 29.08	+18 12.4	2.109	3.026	8.4	21.1
3 2	8 25.09	+25 53.0	1.635	2.480	14.8	20.9	3 2	8 23.21	+18 32.2	2.183	3.027	11.6	21.3
171947	2001 <i>SK</i> ₂₈₁		1 30.1 98°07	1°2/31.0	18		323471	2004 <i>LY</i> ₁		1 30.1 148°06	0°9/30.9	18	
12 23	9 12.25	+12 34.1	2.546	3.304	12.4	20.6	12 23	9 13.56	+11 30.9	2.994	3.736	11.1	22.0
1 2	9 7.72	+12 40.3	2.467	3.321	9.8	20.4	1 2	9 8.51	+12 3.4	2.905	3.750	8.7	21.9
1 12	9 1.40	+12 55.6	2.412	3.338	6.7	20.2	1 12	9 1.85	+12 45.3	2.842	3.764	6.0	21.7
1 22	8 53.79	+13 18.1	2.385	3.354	3.4	20.0	1 22	8 54.00	+13 34.2	2.807	3.776	3.0	21.5
2 1	8 45.59	+13 44.9	2.388	3.371	1.3	19.9	2 1	8 45.57	+14 27.0	2.804	3.788	1.0	21.4
2 11	8 37.60	+14 13.0	2.421	3.387	4.0	20.1	2 11	8 37.27	+15 20.0	2.834	3.799	3.6	21.6
2 21	8 30.57	+14 39.6	2.484	3.403	7.2	20.4	2 21	8 29.74	+16 10.0	2.895	3.809	6.5	21.8
3 2	8 25.08	+15 2.4	2.573	3.418	10.0	20.6	3 2	8 23.57	+16 54.6	2.984	3.818	9.1	22.0
420015	2011 <i>CQ</i> ₇₄		1 30.1 334°06	1°8/28.9	18		421809	2014 <i>QG</i> ₃₈		1 30.1 212°15	0°4/30.3	18	
12 23	9 11.19	+19 6.4	1.720	2.522	15.7	20.3	12 23	9 17.58	+15 16.2	2.088	2.855	14.5	22.1
1 2	9 8.15	+19 52.5	1.633	2.515	12.3	20.1	1 2	9 12.58	+15 27.6	1.987	2.848	11.5	21.9
1 12	9 2.40	+20 49.6	1.567	2.509	8.2	19.8	1 12	9 5.10	+15 48.7	1.909	2.840	7.8	21.6
1 22	8 54.49	+21 52.4	1.527	2.503	3.8	19.6	1 22	8 55.68	+16 16.9	1.858	2.831	3.7	21.4
2 1	8 45.40	+22 53.8	1.515	2.497	2.3	19.5	2 1	8 45.16	+16 48.1	1.837	2.821	0.8	21.1
2 11	8 36.39	+23 47.0	1.531	2.492	6.6	19.7	2 11	8 34.69	+17 18.0	1.846	2.811	5.2	21.4
2 21	8 28.73	+24 27.3	1.573	2.487	10.9	19.9	2 21	8 25.35	+17 43.3	1.884	2.800	9.3	21.6
3 2	8 23.40	+24 52.5	1.638	2.483	14.8	20.2	3 2	8 18.07	+18 1.6	1.947	2.788	12.9	21.8
5479	Grahamryder		1 30.1 157°10	5°6/ 3.5	18		134318	1141 <i>T</i> ₋₂		1 30.1 145°34	0°9/30.7	18	
12 23	9 13.24	- 1 34.5	2.388	3.085	14.7	18.4	12 23	9 16.86	+13 16.5	2.050	2.814	14.8	21.4
1 2	9 8.69	- 1 49.6	2.296	3.093	12.4	18.2	1 2	9 11.84	+13 33.6	1.967	2.825	11.7	21.2
1 12	9 2.18	- 1 46.7	2.225	3.100	9.8	18.0	1 12	9 4.46	+14 2.2	1.907	2.836	8.0	21.0
1 22	8 54.21	- 1 25.1	2.180	3.107	7.3	17.9	1 22	8 55.31	+14 39.3	1.874	2.845	3.9	20.8
2 1	8 45.48	- 0 45.7	2.162	3.113	5.7	17.8	2 1	8 45.27	+15 20.9	1.870	2.854	1.1	20.6
2 11	8 36.87	+ 0 8.4	2.173	3.118	6.3	17.8	2 11	8 35.45	+16 2.1	1.897	2.863	5.0	20.9
2 21	8 29.18	+ 1 12.4	2.214	3.123	8.5	18.0	2 21	8 26.87	+16 39.2	1.952	2.870	8.9	21.1
3 2	8 23.13	+ 2 20.9	2.281	3.127	11.1	18.2	3 2	8 20.32	+17 9.4	2.033	2.877	12.3	21.4
422905	2002 <i>RN</i> ₁₈₅		1 30.1 141°70	0°2/29.9	18		65144	2002 <i>CO</i> ₁₁₃		1 30.1 112°41	4°8/27.5	18	
12 23	9 14.95	+17 54.9	2.604	3.370	11.9	21.0	12 23	9 21.04	+27 27.5	1.673	2.471	16.3	19.4
1 2	9 9.83	+17 58.9	2.517	3.379	9.3	20.9	1 2	9 15.83	+28 23.0	1.607	2.485	12.7	19.2
1 12	9 2.83	+18 8.2	2.455	3.387	6.2	20.7	1 12	9 7.48	+29 20.7	1.563	2.498	8.9	19.0
1 22	8 54.46	+18 20.4	2.421	3.395	2.8	20.5	1 22	8 56.77	+30 12.3	1.545	2.511	5.5	18.8
2 1	8 45.44	+18 32.7	2.418	3.403	0.7	20.3	2 1	8 44.96	+30 49.8	1.555	2.524	5.3	18.8
2 11	8 36.61	+18 42.4	2.446	3.410	4.2	20.6	2 11	8 33.61	+31 7.9	1.593	2.536	8.4	19.0
2 21	8 28.77	+18 47.8	2.504	3.417	7.5	20.8	2 21	8 24.10	+31 6.0	1.657	2.547	12.0	19.3
3 2	8 22.55	+18 47.8	2.589	3.423	10.3	21.0	3 2	8 17.42	+30 46.2	1.744	2.559	15.4	19.5
110223	2001 <i>SL</i> ₂₂₄		1 30.1 18°72	1°3/29.4	18		168023	2005 <i>JX</i> ₄₆		1 30.1 159°71	1°0/29.3	17	
12 23	9 13.30	+18 37.2	1.653	2.452	16.4	19.8	12 23	9 12.11	+19 20.9	2.585	3.362	11.8	20.8
1 2	9 9.77	+19 8.7	1.573	2.454	12.8	19.6	1 2	9 7.78	+19 50.4	2.497	3.365	9.1	20.6
1 12	9 3.44	+19 50.5	1.516	2.456	8.5	19.3	1 12	9 1.57	+20 25.8	2.433	3.368	6.1	20.4
1 22	8 54.94	+20 37.6	1.483	2.459	3.9	19.1	1 22	8 53.95	+21 3.8	2.396	3.371	2.8	20.2
2 1	8 45.31	+21 23.6	1.478	2.462	1.8	18.9	2 1	8 45.62	+21 40.4	2.391	3.373	1.4	20.1
2 11	8 35.92	+22 2.6	1.501	2.465	6.3	19.2	2 11	8 37.41	+22 12.1	2.415	3.376	4.6	20.4
2 21	8 28.00	+22 30.4	1.551	2.468	10.8	19.5	2 21	8 30.13	+22 36.2	2.469	3.378	7.8	20.6
3 2	8 22.54	+22 45.5	1.623	2.472	14.7	19.7	3 2	8 24.44	+22 51.6	2.549	3.380	10.6	20.7
184201	2004 <i>PE</i> ₇₁		1 30.1 286°25	1°7/31.2	18		90830	Beihang		1 30.1 103°31	0°8/30.6	18	
12 23	9 11.59	+ 9 39.2	1.912	2.680	15.6	20.5	12 23	9 14.91	+14 48.3	2.027	2.801	14.7	20.3
1 2	9 8.36	+10 12.2	1.794	2.652	12.6	20.2	1 2	9 10.36	+14 47.6	1.944	2.808	11.5	20.1
1 12	9 2.59	+11 3.9	1.697	2.624	8.9	19.9	1 12	9 3.49	+14 56.2	1.884	2.815	7.9	19.9
1 22	8 54.66	+12 12.6	1.626	2.595	4.7	19.6	1 22	8 54.87	+15 11.7	1.850	2.822	3.8	19.6
2 1	8 45.34	+13 33.8	1.583	2.566	1.7	19.4	2 1	8 45.41	+15 31.0	1.845	2.829	1.0	19.4
2 11	8 35.77	+15 0.7	1.570	2.537	5.5	19.5	2 11	8 36.17	+15 50.3	1.869	2.836	4.9	19.7
2 21	8 27.13	+16 26.0	1.584	2.508	10.2	19.7	2 21	8 28.16	+16 6.7	1.922	2.842	8.9	20.0
3 2	8 20.52	+17 43.5	1.624	2.478	14.4	19.9	3 2	8 22.17	+16 18.1	2.000	2.849	12.3	20.2
197196	Jamestaylor		1 30.1 105°62	4°0/27.0	18		11244	Andrékuipers		1 30.1 49°39	1°6/29.3	18	
12 23	9 14.95	+27 47.1	2.315	3.105	12.6	20.2	12 23	9 15.04	+18 8.4	1.342	2.152	18.9	17.7
1 2	9 10.28	+28 47.4	2.245	3.118	9.8	20.1	1 2	9 11.53	+18 51.4	1.282	2.169	14.7	17.4
1 12	9 3.36	+29 49.1	2.199	3.131	6.8	19.9	1 12	9 4.78	+19 47.0	1.243	2.186	9.7	17.2
1 22	8 54.77	+30 46.1	2.181	3.144	4.4	19.8	1 22	8 55.58	+20 48.5	1.227	2.203	4.4	16.9
2 1	8 45.38	+31 32.6	2.193	3.157	4.4	19.8	2 1	8 45.25	+21 47.5	1.238	2.221	2.2	16.8
2 11	8 36.24	+32 4.4	2.234	3.170	6.8	20.0	2 11	8 35.42	+22 36.2	1.276	2.240	7.1	17.2
2 21	8 28.30	+32 20.1	2.303	3.182	9.6	20.2	2 21	8 27.52	+23 10.2	1.338	2.258	11.9	17.5
3 2	8 22.33	+32 20.2	2.396	3.194	12.2	20.4	3 2	8 22.53	+23 28.3	1.422	2.277	16.0	17.8
144429	2004 <i>EK</i> ₂₈		1 30.1 191°95	1°4/31.3	18		490397	2009 <i>QH</i> ₄₀		1 30.1 102°08	0°5/30.6	17	
12 23	9 10.21	+10 54.4	2.766	3.518	11.7	21.2	12 23	9 7.99	+14 5.5	3.556	4.311		

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
54319	2000 <i>JG</i> ₇₆		1 30.1 265°28	6°0/ 2.7 18			440938	2006 <i>YE</i> ₄		1 30.1 145°22	8°4/ 2.6 18		
12 23	9 11.95	+ 1 19.5	1.921	2.654	16.7	19.3	12 23	9 24.36	- 1 12.9	1.874	2.569	18.3	21.2
1 2	9 8.35	+ 0 50.8	1.822	2.645	14.1	19.1	1 2	9 17.84	- 2 43.3	1.790	2.582	15.6	21.0
1 12	9 2.36	+ 0 40.9	1.743	2.636	11.0	18.9	1 12	9 8.61	- 3 56.7	1.728	2.594	12.6	20.8
1 22	8 54.47	+ 0 51.4	1.687	2.627	7.9	18.7	1 22	8 57.29	- 4 48.9	1.690	2.605	9.9	20.7
2 1	8 45.49	+ 1 22.1	1.657	2.618	6.0	18.6	2 1	8 44.90	- 5 17.2	1.679	2.615	8.4	20.6
2 11	8 36.51	+ 2 9.6	1.656	2.609	7.1	18.6	2 11	8 32.73	- 5 22.0	1.697	2.625	9.2	20.7
2 21	8 28.59	+ 3 8.6	1.681	2.600	10.1	18.8	2 21	8 21.99	- 5 7.0	1.743	2.633	11.5	20.8
3 2	8 22.66	+ 4 13.1	1.731	2.590	13.4	18.9	3 2	8 13.63	- 4 37.9	1.813	2.640	14.3	21.0
456306	2006 <i>ST</i> ₁₇₁		1 30.1 40°53	4°7/28.1 16			205228	2000 <i>QH</i> ₁₀₀		1 30.1 85°66	3°0/28.6 18		
12 23	9 18.62	+27 25.0	1.456	2.268	17.6	21.5	12 23	9 20.52	+22 26.7	1.589	2.385	17.1	20.2
1 2	9 14.29	+27 59.0	1.394	2.279	13.8	21.3	1 2	9 15.29	+23 14.0	1.531	2.410	13.2	20.0
1 12	9 6.60	+28 34.5	1.352	2.291	9.5	21.1	1 12	9 7.02	+24 7.5	1.495	2.434	8.8	19.8
1 22	8 56.40	+29 3.6	1.334	2.303	5.7	20.9	1 22	8 56.53	+25 0.1	1.485	2.458	4.5	19.6
2 1	8 45.08	+29 18.7	1.343	2.316	5.1	20.9	2 1	8 45.10	+25 44.0	1.503	2.482	3.4	19.6
2 11	8 34.34	+29 15.6	1.379	2.329	8.5	21.1	2 11	8 34.24	+26 13.8	1.550	2.505	7.2	19.9
2 21	8 25.65	+28 54.1	1.439	2.342	12.6	21.4	2 21	8 25.26	+26 27.4	1.623	2.528	11.3	20.2
3 2	8 19.98	+28 17.0	1.522	2.356	16.2	21.6	3 2	8 19.04	+26 25.9	1.719	2.550	14.8	20.4
301738	2010 <i>GH</i> ₁₅₇		1 30.1 326°87	4°0/28.1 18			19349	Denjoy		1 30.1 154°19	1°4/31.1 18		
12 23	9 12.82	+22 30.2	1.277	2.101	18.8	20.6	12 23	9 11.88	+11 22.2	2.097	2.864	14.4	18.5
1 2	9 10.55	+23 26.0	1.195	2.090	14.8	20.3	1 2	9 8.03	+11 41.2	2.007	2.865	11.5	18.3
1 12	9 4.67	+24 33.4	1.133	2.079	10.1	20.0	1 12	9 1.98	+12 13.3	1.939	2.867	8.0	18.1
1 22	8 55.79	+25 44.2	1.095	2.069	5.4	19.7	1 22	8 54.24	+12 56.1	1.898	2.868	4.1	17.9
2 1	8 45.17	+26 47.9	1.081	2.059	4.6	19.6	2 1	8 45.62	+13 46.0	1.886	2.869	1.5	17.7
2 11	8 34.64	+27 34.7	1.093	2.050	9.2	19.9	2 11	8 37.11	+14 37.8	1.903	2.870	4.8	17.9
2 21	8 25.99	+27 59.7	1.128	2.042	14.3	20.1	2 21	8 29.66	+15 27.2	1.949	2.871	8.6	18.1
3 2	8 20.59	+28 2.6	1.183	2.034	18.8	20.4	3 2	8 24.07	+16 10.5	2.020	2.872	12.1	18.3
134441	1998 <i>SK</i> ₃₆		1 30.1 56°50	2°9/28.5 18			459691	2013 <i>NY</i> ₁₂		1 30.1 173°08	2°2/31.4 18		
12 23	9 18.22	+20 54.7	1.439	2.244	18.1	19.4	12 23	9 16.70	+11 4.3	2.307	3.056	13.8	22.0
1 2	9 13.62	+21 57.7	1.393	2.277	13.9	19.2	1 2	9 11.49	+10 46.9	2.213	3.059	11.0	21.8
1 12	9 5.92	+23 9.1	1.369	2.310	9.2	19.0	1 12	9 4.14	+10 39.2	2.142	3.061	7.8	21.6
1 22	8 56.00	+24 20.4	1.370	2.344	4.5	18.8	1 22	8 55.19	+10 40.2	2.098	3.063	4.3	21.4
2 1	8 45.20	+25 22.7	1.398	2.377	3.4	18.8	2 1	8 45.41	+10 48.3	2.084	3.064	2.2	21.3
2 11	8 35.10	+26 9.4	1.454	2.410	7.4	19.2	2 11	8 35.78	+11 0.6	2.101	3.065	4.7	21.5
2 21	8 26.98	+26 37.9	1.535	2.444	11.6	19.5	2 21	8 27.20	+11 14.6	2.147	3.066	8.2	21.7
3 2	8 21.69	+26 48.9	1.639	2.477	15.1	19.8	3 2	8 20.43	+11 27.9	2.220	3.065	11.4	21.9
451019	2008 <i>UX</i> ₂₆₈		1 30.1 122°71	4°6/ 1.8 18			425716	2011 <i>BX</i> ₂₈		1 30.1 92°88	2°4/28.3 18		
12 23	9 16.49	+ 4 36.7	1.732	2.479	17.8	22.0	12 23	9 16.13	+20 20.4	2.082	2.865	14.0	21.9
1 2	9 11.90	+ 4 25.1	1.655	2.492	14.6	21.8	1 2	9 11.26	+21 35.0	2.019	2.891	10.8	21.7
1 12	9 4.69	+ 4 32.9	1.597	2.505	10.8	21.6	1 12	9 4.06	+22 57.1	1.980	2.917	7.1	21.5
1 22	8 55.49	+ 4 59.7	1.564	2.518	7.0	21.4	1 22	8 55.14	+24 20.3	1.970	2.943	3.5	21.4
2 1	8 45.30	+ 5 43.2	1.558	2.530	4.6	21.3	2 1	8 45.43	+25 37.3	1.990	2.968	2.8	21.4
2 11	8 35.37	+ 6 38.0	1.580	2.542	6.4	21.4	2 11	8 36.03	+26 42.4	2.040	2.992	6.0	21.6
2 21	8 26.85	+ 7 38.2	1.630	2.553	10.0	21.6	2 21	8 27.92	+27 32.1	2.119	3.016	9.4	21.9
3 2	8 20.62	+ 8 37.6	1.705	2.563	13.6	21.9	3 2	8 21.88	+28 5.7	2.222	3.039	12.4	22.1
13375	1998 <i>VH</i> ₂₆		1 30.1 286°57	0°3/29.9 18			226008	2002 <i>EM</i> ₃₂		1 30.1 290°05	2°1/28.8 18		
12 23	9 12.53	+17 8.4	2.125	2.907	13.8	18.4	12 23	9 14.20	+21 27.8	1.964	2.757	14.4	20.7
1 2	9 8.58	+17 25.4	2.031	2.902	10.8	18.2	1 2	9 10.11	+22 1.4	1.879	2.756	11.2	20.5
1 12	9 2.37	+17 50.8	1.961	2.897	7.3	18.0	1 12	9 3.52	+22 41.6	1.816	2.754	7.5	20.2
1 22	8 54.42	+18 21.6	1.917	2.892	3.3	17.7	1 22	8 54.99	+23 23.4	1.779	2.753	3.7	20.0
2 1	8 45.54	+18 53.6	1.902	2.887	0.9	17.5	2 1	8 45.45	+24 1.2	1.771	2.752	2.5	19.9
2 11	8 36.77	+19 22.7	1.917	2.882	5.0	17.8	2 11	8 36.08	+24 30.2	1.792	2.750	6.1	20.1
2 21	8 29.08	+19 45.7	1.959	2.877	8.9	18.1	2 21	8 27.97	+24 47.4	1.841	2.749	10.0	20.4
3 2	8 23.29	+20 0.6	2.027	2.872	12.3	18.3	3 2	8 22.02	+24 52.2	1.913	2.748	13.4	20.6
156285	2001 <i>WG</i> ₁₂		1 30.1 151°43	0°8/30.6 18			21174	1994 <i>CG</i> ₁₂		1 30.1 223°17	1°8/29.0 18		
12 23	9 17.32	+13 9.3	1.875	2.644	15.8	21.5	12 23	9 16.74	+20 5.1	1.954	2.739	14.7	19.2
1 2	9 12.48	+13 33.2	1.792	2.653	12.5	21.3	1 2	9 12.22	+20 42.3	1.858	2.731	11.5	18.9
1 12	9 5.06	+14 10.4	1.731	2.661	8.5	21.1	1 12	9 5.04	+21 28.0	1.785	2.722	7.8	18.7
1 22	8 55.67	+14 57.4	1.696	2.669	4.1	20.9	1 22	8 55.75	+22 17.2	1.739	2.713	3.7	18.4
2 1	8 45.26	+15 49.3	1.691	2.675	1.0	20.6	2 1	8 45.27	+23 3.9	1.722	2.703	2.2	18.3
2 11	8 35.06	+16 40.3	1.715	2.681	5.4	21.0	2 11	8 34.83	+23 42.4	1.734	2.693	6.2	18.5
2 21	8 26.20	+17 25.8	1.768	2.687	9.6	21.2	2 21	8 25.64	+24 9.3	1.774	2.682	10.3	18.7
3 2	8 19.57	+18 2.7	1.846	2.692	13.3	21.5	3 2	8 18.68	+24 23.1	1.839	2.671	13.9	19.0
77889	2001 <i>SM</i> ₁₉₂		1 30.1 306°67	0°1/30.1 18			279915	2001 <i>RF</i> ₉		1 30.1 121°72	7°6/ 5.5 18		
12 23	9 11.13	+16 12.6	2.103	2.886	13.9	19.0	12 23	9 13.08	- 9 40.0	2.914	3.545	13.5	20.8
1 2	9 7.59	+16 27.5	2.002	2.872	10.9	18.8	1 2	9 8.20	-10 40.2	2.830	3.560	11.9	20.7
1 12	9 1.79	+16 51.8	1.924	2.859	7.4	18.5	1 12	9 1.70	-11 23.8	2.766	3.575	10.2	20.6
1 22	8 54.19	+17 22.7	1.872	2.846	3.4	18.3	1 22	8 54.00	-11 48.4	2.726	3.590	8.6	20.5
2 1	8 45.60	+17 56.3	1.848	2.833	0.8	18.0	2 1	8 45.71	-11 52.8	2.713	3.604	7.7	20.5
2 11	8 37.04	+18 28.3	1.854	2.820	5.0	18.3	2 11	8 37.53	-11 37.9	2.728	3.618	7.8	20.5
2 21	8 29.50	+18 55.1	1.888	2.808	9.0	18.5	2 21	8 30.14	-11 6.7	2.769	3.632	8.8	20.6
3 2	8 23.85	+19 14.3	1.947	2.796	12.6	18.7	3 2	8 24.11	-10 23.3	2.837	3.645	10.2	20.7
125969	2001 <i>YL</i> ₁₃		1 30.1 237°40	2°6/28.5 18			466171	2012 <i>JQ</i> ₂₇		1 30.1 195°81	1°7/28.9 18		
12 23	9 17.67	+21 29.5	1.852	2.641	15.2	20.5							

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
345614	2006 SZ ₂₀₉		1 30.1 354°96	1.3°/29.2	17		314431	2005 UM ₄₈₀		1 30.1 206°21	13°0/20.4	18	
12 23	9 11.55	+20 9.4	2.263	3.050	12.9	21.2	12 23	9 22.48	+35 58.8	1.229	2.049	19.7	20.3
1 2	9 7.68	+20 36.1	2.175	3.049	10.0	21.0	1 2	9 19.53	+39 24.5	1.169	2.047	16.5	20.1
1 12	9 1.70	+21 9.0	2.110	3.048	6.7	20.7	1 12	9 11.75	+42 53.7	1.132	2.045	13.8	19.9
1 22	8 54.11	+21 44.3	2.073	3.047	3.1	20.5	1 22	8 59.52	+46 4.0	1.119	2.042	13.0	19.9
2 1	8 45.69	+22 17.7	2.065	3.047	1.7	20.4	2 1	8 44.39	+48 33.1	1.131	2.039	14.5	19.9
2 11	8 37.42	+22 45.1	2.086	3.047	5.1	20.6	2 11	8 29.08	+50 7.6	1.166	2.035	17.5	20.1
2 21	8 30.19	+23 3.9	2.136	3.047	8.6	20.9	2 21	8 16.39	+50 47.2	1.220	2.031	20.7	20.3
3 2	8 24.76	+23 12.9	2.211	3.047	11.8	21.1	3 2	8 8.40	+50 41.0	1.290	2.027	23.6	20.5
187106	2005 QW ₄₂		1 30.1 288°64	10°4/25.1	18		76850	2000 WE ₁₃		1 30.1 205°57	1°6/29.3	18	
12 23	9 29.66	+44 39.2	1.828	2.601	16.0	19.9	12 23	9 19.01	+19 1.5	1.501	2.298	17.9	19.8
1 2	9 23.18	+45 36.8	1.755	2.595	13.7	19.7	1 2	9 14.72	+19 34.2	1.417	2.295	14.1	19.6
1 12	9 12.76	+46 22.1	1.704	2.590	11.6	19.5	1 12	9 7.13	+20 18.3	1.353	2.292	9.5	19.3
1 22	8 59.32	+46 44.1	1.676	2.584	10.4	19.4	1 22	8 56.85	+21 8.2	1.314	2.289	4.4	19.0
2 1	8 44.50	+46 34.0	1.674	2.579	10.8	19.5	2 1	8 45.10	+21 56.1	1.302	2.285	2.2	18.8
2 11	8 30.37	+45 48.8	1.698	2.574	12.5	19.5	2 11	8 33.50	+22 35.0	1.318	2.280	7.2	19.1
2 21	8 18.72	+44 32.3	1.745	2.569	14.9	19.7	2 21	8 23.61	+23 0.5	1.360	2.276	12.2	19.4
3 2	8 10.67	+42 52.3	1.814	2.563	17.3	19.8	3 2	8 16.62	+23 11.5	1.424	2.270	16.5	19.6
83055	2001 QN ₂₀₂		1 30.1 46°92	1°2/29.3	18		207772	2007 TG ₄₉		1 30.1 86°03	1°8/31.4	18	
12 23	9 11.96	+18 58.9	2.054	2.843	14.0	19.2	12 23	9 11.99	+10 50.7	2.345	3.103	13.4	20.7
1 2	9 8.14	+19 31.5	1.976	2.852	10.8	19.0	1 2	9 7.75	+10 54.5	2.265	3.117	10.6	20.5
1 12	9 2.05	+20 11.8	1.922	2.860	7.2	18.8	1 12	9 1.59	+11 9.2	2.209	3.131	7.4	20.3
1 22	8 54.28	+20 55.7	1.894	2.869	3.3	18.6	1 22	8 54.03	+11 33.2	2.178	3.146	4.0	20.1
2 1	8 45.67	+21 38.0	1.896	2.879	1.6	18.5	2 1	8 45.80	+12 3.6	2.178	3.160	1.8	20.0
2 11	8 37.29	+22 14.2	1.926	2.888	5.4	18.8	2 11	8 37.78	+12 37.1	2.207	3.173	4.3	20.2
2 21	8 30.10	+22 41.1	1.984	2.898	9.1	19.0	2 21	8 30.77	+13 10.1	2.266	3.187	7.6	20.4
3 2	8 24.86	+22 57.3	2.067	2.907	12.3	19.2	3 2	8 25.41	+13 39.8	2.350	3.201	10.6	20.7
118009	1271 T- ₂		1 30.1 123°21	0°2/30.3	18		464273	2015 WU ₂		1 30.1 6°32	17°5/17.4	16	
12 23	9 17.78	+15 14.5	1.912	2.685	15.4	20.7	12 23	9 13.70	+47 49.0	1.111	1.937	21.0	19.6
1 2	9 12.71	+15 35.0	1.836	2.701	12.1	20.5	1 2	9 13.43	+50 50.9	1.076	1.937	18.9	19.5
1 12	9 5.13	+16 6.2	1.783	2.716	8.1	20.3	1 12	9 7.83	+53 32.9	1.059	1.939	17.7	19.4
1 22	8 55.69	+16 44.4	1.757	2.730	3.8	20.1	1 22	8 57.62	+55 35.6	1.062	1.943	17.6	19.4
2 1	8 45.36	+17 24.7	1.760	2.744	0.8	19.9	2 1	8 44.93	+56 43.6	1.084	1.948	18.7	19.5
2 11	8 35.33	+18 2.3	1.792	2.758	5.3	20.2	2 11	8 32.98	+56 52.0	1.123	1.956	20.6	19.6
2 21	8 26.68	+18 33.4	1.853	2.770	9.3	20.5	2 21	8 24.51	+56 7.1	1.177	1.964	22.7	19.8
3 2	8 20.25	+18 56.1	1.939	2.782	12.9	20.7	3 2	8 21.09	+54 40.2	1.244	1.975	24.6	20.0
122803	2000 SN ₉₈		1 30.1 88°44	1°5/31.0	18		89042	2001 TG ₁₁₂		1 30.1 28°67	2°4/29.3	18	
12 23	9 14.34	+12 20.2	1.954	2.724	15.3	20.3	12 23	9 16.19	+21 43.1	1.045	1.877	21.6	18.3
1 2	9 9.97	+12 25.2	1.877	2.737	12.1	20.1	1 2	9 13.25	+21 54.3	0.993	1.891	16.8	18.1
1 12	9 3.26	+12 42.2	1.823	2.751	8.3	19.9	1 12	9 6.34	+22 14.0	0.959	1.906	11.2	17.8
1 22	8 54.83	+13 8.9	1.794	2.764	4.2	19.7	1 22	8 56.45	+22 35.1	0.946	1.922	5.3	17.5
2 1	8 45.56	+13 41.7	1.794	2.777	1.5	19.5	2 1	8 45.27	+22 49.9	0.957	1.939	3.0	17.4
2 11	8 36.57	+14 16.3	1.823	2.790	5.0	19.8	2 11	8 34.88	+22 52.6	0.992	1.958	8.3	17.8
2 21	8 28.83	+14 48.6	1.880	2.803	8.9	20.0	2 21	8 26.99	+22 41.6	1.050	1.978	13.6	18.2
3 2	8 23.13	+15 15.9	1.963	2.816	12.3	20.2	3 2	8 22.64	+22 17.9	1.128	1.998	18.2	18.5
304847	2007 RY ₅₂		1 30.1 195°88	0°5/30.4	18		357133	2002 AU ₁₀₃		1 30.1 355°19	1°6/29.3	18	
12 23	9 17.25	+15 38.4	1.732	2.514	16.4	20.9	12 23	9 8.75	+17 6.5	1.133	1.964	20.3	20.3
1 2	9 12.76	+15 40.8	1.644	2.513	13.0	20.6	1 2	9 7.49	+17 52.3	1.061	1.958	16.0	20.1
1 12	9 5.45	+15 53.8	1.578	2.512	8.9	20.4	1 12	9 2.68	+18 56.4	1.006	1.954	10.7	19.7
1 22	8 55.95	+16 14.4	1.537	2.510	4.2	20.1	1 22	8 54.94	+20 12.2	0.974	1.951	4.9	19.4
2 1	8 45.29	+16 38.4	1.524	2.509	1.0	19.9	2 1	8 45.57	+21 29.7	0.966	1.950	2.4	19.2
2 11	8 34.80	+17 1.2	1.540	2.507	5.8	20.2	2 11	8 36.41	+22 38.0	0.982	1.949	8.1	19.6
2 21	8 25.74	+17 19.1	1.583	2.505	10.3	20.5	2 21	8 29.19	+23 29.4	1.021	1.950	13.8	19.9
3 2	8 19.11	+17 30.1	1.650	2.502	14.3	20.7	3 2	8 25.20	+24 0.6	1.080	1.953	18.6	20.2
104997	2000 KS ₂		1 30.1 179°90	5°6/ 5.1	18 R		361179	2006 PJ ₂₅		1 30.1 222°76	0°4/30.4	18	
12 23	9 9.35	- 7 5.9	3.348	3.996	11.6	20.2	12 23	9 15.65	+14 41.2	2.019	2.791	14.8	22.2
1 2	9 5.20	- 7 15.7	3.245	3.997	10.1	20.1	1 2	9 11.23	+15 0.8	1.919	2.783	11.7	22.0
1 12	8 59.66	- 7 10.1	3.163	3.998	8.4	20.0	1 12	9 4.32	+15 31.8	1.842	2.774	8.0	21.7
1 22	8 53.09	- 6 48.2	3.106	3.998	6.7	19.9	1 22	8 55.45	+16 11.2	1.791	2.765	3.8	21.4
2 1	8 45.98	- 6 10.2	3.076	3.998	5.7	19.8	2 1	8 45.46	+16 54.5	1.770	2.755	0.8	21.2
2 11	8 38.91	- 5 18.1	3.076	3.997	5.8	19.8	2 11	8 35.50	+17 36.8	1.778	2.744	5.2	21.5
2 21	8 32.44	- 4 15.2	3.106	3.996	7.0	19.9	2 21	8 26.66	+18 13.8	1.815	2.733	9.5	21.7
3 2	8 27.09	- 3 5.7	3.163	3.994	8.7	20.0	3 2	8 19.87	+18 42.8	1.877	2.722	13.2	21.9
462863	2010 VC ₄₂		1 30.1 78°26	0°1/30.1	18		53601	2000 CK ₇₂		1 30.1 146°68	1°5/29.4	18	
12 23	9 15.46	+16 29.6	1.737	2.524	16.2	22.1	12 23	9 18.58	+19 8.8	1.550	2.345	17.5	19.9
1 2	9 11.24	+16 43.0	1.659	2.532	12.7	21.9	1 2	9 14.15	+19 37.4	1.471	2.349	13.7	19.7
1 12	9 4.34	+17 6.8	1.604	2.540	8.5	21.6	1 12	9 6.57	+20 16.3	1.414	2.353	9.2	19.4
1 22	8 55.40	+17 37.3	1.573	2.548	3.9	21.4	1 22	8 56.54	+20 59.8	1.382	2.357	4.2	19.1
2 1	8 45.45	+18 9.5	1.571	2.556	0.9	21.2	2 1	8 45.23	+21 41.0	1.378	2.361	2.0	19.0
2 11	8 35.78	+18 38.5	1.597	2.563	5.7	21.5	2 11	8 34.20	+22 13.7	1.401	2.364	6.8	19.3
2 21	8 27.57	+19 0.8	1.651	2.571	10.0	21.8	2 21	8 24.87	+22 34.2	1.451	2.367	11.5	19.6
3 2	8 21.71	+19 14.4	1.728	2.579	13.8	22.0	3 2	8 18.33	+22 41.6	1.523	2.369	15.6	19.8
306904	2001 TT ₁₇₄		1 30.1 173°39	2°3/27.7	18		424737	2008 SH ₂₅₄		1 30.1 352°58	4°1/ 1.9	18	
12 23	9 13.37	+26 19.6	3.637	4.406	8.8	22.1	12 23	9 10.43	+ 4 52.0	2.044	2.791		

EPHEMERIDES

1 30.1

1 30.2

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
252960	2002 <i>PK</i> ₁₁₈		1 30.1 82°94	2.7°/31.8	18		453300	2008 <i>UF</i> ₁₇₉		1 30.2 129°19	4.7°/27.6	18	
12 23	9 17.62	+ 9 5.6	1.795	2.553	16.8	21.5	12 23	9 21.38	+26 58.0	1.708	2.503	16.1	21.2
1 2	9 12.52	+ 9 5.0	1.732	2.582	13.4	21.3	1 2	9 16.14	+27 55.0	1.639	2.515	12.6	21.0
1 12	9 4.94	+ 9 19.7	1.690	2.611	9.5	21.1	1 12	9 7.79	+28 54.9	1.592	2.526	8.8	20.8
1 22	8 55.59	+ 9 47.7	1.674	2.639	5.3	21.0	1 22	8 57.07	+29 49.6	1.571	2.537	5.4	20.6
2 1	8 45.49	+10 25.3	1.686	2.666	2.7	20.9	2 1	8 45.21	+30 30.9	1.578	2.547	5.1	20.6
2 11	8 35.83	+11 7.5	1.728	2.693	5.4	21.1	2 11	8 33.76	+30 53.4	1.614	2.557	8.2	20.9
2 21	8 27.65	+11 49.5	1.797	2.720	9.2	21.4	2 21	8 24.08	+30 55.8	1.676	2.566	11.9	21.1
3 2	8 21.71	+12 27.7	1.892	2.746	12.7	21.6	3 2	8 17.18	+30 40.3	1.761	2.575	15.3	21.3
207809	Wuzuze		1 30.1 118°85	3.7°/27.1	18		154028	2002 <i>CV</i> ₄₂		1 30.2 341°28	5.6°/2.9	18	
12 23	9 13.57	+27 27.4	2.478	3.266	11.9	20.2	12 23	9 8.03	+ 1 26.8	1.657	2.410	18.2	19.2
1 2	9 9.17	+28 26.0	2.401	3.274	9.3	20.0	1 2	9 5.71	+ 1 23.5	1.564	2.402	15.3	19.0
1 12	9 2.66	+29 26.3	2.350	3.282	6.5	19.8	1 12	9 0.85	+ 1 44.2	1.491	2.395	11.8	18.8
1 22	8 54.58	+30 22.8	2.326	3.290	4.2	19.7	1 22	8 53.95	+ 2 30.0	1.440	2.389	8.1	18.6
2 1	8 45.71	+31 10.1	2.333	3.297	4.1	19.7	2 1	8 45.90	+ 3 38.7	1.415	2.383	5.7	18.4
2 11	8 37.02	+31 44.1	2.368	3.305	6.4	19.9	2 11	8 37.88	+ 5 4.6	1.416	2.378	6.9	18.5
2 21	8 29.39	+32 3.0	2.432	3.312	9.1	20.0	2 21	8 31.05	+ 6 39.5	1.444	2.373	10.5	18.6
3 2	8 23.57	+32 7.1	2.520	3.319	11.7	20.2	3 2	8 26.39	+ 8 14.6	1.496	2.370	14.3	18.9
412311	2013 <i>JR</i> ₅₈		1 30.1 202°46	4.4°/1.8	18		359121	2009 <i>BP</i> ₅₁		1 30.2 307°64	0.7°/29.8	18	
12 23	9 14.25	+ 4 58.6	1.957	2.699	16.1	21.6	12 23	9 13.19	+16 44.7	1.461	2.265	17.9	21.1
1 2	9 10.08	+ 4 41.8	1.862	2.697	13.3	21.4	1 2	9 10.34	+17 10.8	1.369	2.252	14.2	20.9
1 12	9 3.52	+ 4 41.7	1.787	2.694	10.0	21.2	1 12	9 4.33	+17 51.0	1.298	2.239	9.6	20.5
1 22	8 55.07	+ 4 58.5	1.738	2.691	6.5	20.9	1 22	8 55.69	+18 41.0	1.251	2.226	4.4	20.2
2 1	8 45.59	+ 5 30.5	1.716	2.687	4.4	20.8	2 1	8 45.51	+19 34.2	1.230	2.214	1.4	20.0
2 11	8 36.18	+ 6 14.2	1.723	2.683	6.0	20.9	2 11	8 35.34	+20 22.8	1.235	2.202	6.9	20.3
2 21	8 27.88	+ 7 4.4	1.758	2.679	9.5	21.1	2 21	8 26.69	+21 1.2	1.266	2.191	12.1	20.5
3 2	8 21.60	+ 7 55.9	1.818	2.675	13.0	21.3	3 2	8 20.80	+21 26.3	1.319	2.179	16.7	20.8
170785	2004 <i>CH</i> ₁₁₂		1 30.1 117°28	1.7°/28.7	18		448300	2009 <i>BN</i> ₆₀		1 30.2 71°69	3.8°/28.1	18	
12 23	9 11.87	+19 49.9	2.421	3.202	12.3	20.3	12 23	9 18.43	+22 45.8	1.399	2.208	18.3	21.0
1 2	9 7.80	+20 46.0	2.339	3.211	9.5	20.1	1 2	9 14.24	+23 52.2	1.342	2.227	14.2	20.8
1 12	9 1.74	+21 49.2	2.282	3.219	6.3	19.9	1 12	9 6.69	+25 6.8	1.305	2.246	9.5	20.6
1 22	8 54.16	+22 55.0	2.253	3.227	3.0	19.7	1 22	8 56.60	+26 20.4	1.293	2.265	5.1	20.4
2 1	8 45.82	+23 58.1	2.254	3.234	2.1	19.7	2 1	8 45.35	+27 23.1	1.308	2.285	4.4	20.4
2 11	8 37.61	+24 53.5	2.286	3.242	5.2	19.9	2 11	8 34.65	+28 7.7	1.350	2.304	8.3	20.6
2 21	8 30.37	+25 37.9	2.347	3.249	8.4	20.1	2 21	8 25.95	+28 31.4	1.417	2.323	12.6	20.9
3 2	8 24.83	+26 9.8	2.433	3.256	11.2	20.3	3 2	8 20.27	+28 35.3	1.506	2.341	16.3	21.2
425492	2010 <i>GN</i> ₂₇		1 30.1 300°64	7.9°/5.0	17		375444	2008 <i>TN</i> ₈₆		1 30.2 42°43	0.5°/30.4	18	
12 23	9 8.68	- 6 46.5	2.288	2.968	15.7	20.7	12 23	9 13.34	+15 3.6	1.704	2.493	16.4	21.4
1 2	9 5.50	- 7 24.3	2.183	2.956	13.7	20.5	1 2	9 9.49	+15 15.3	1.641	2.513	12.8	21.2
1 12	9 0.33	- 7 41.9	2.096	2.943	11.5	20.4	1 12	9 3.08	+15 38.5	1.598	2.534	8.6	21.0
1 22	8 53.59	- 7 36.6	2.033	2.931	9.4	20.2	1 22	8 54.83	+16 9.6	1.581	2.555	4.0	20.8
2 1	8 45.95	- 7 7.3	1.994	2.919	8.1	20.1	2 1	8 45.76	+16 43.8	1.592	2.577	0.9	20.6
2 11	8 38.27	- 6 15.7	1.982	2.907	8.2	20.1	2 11	8 37.09	+17 16.2	1.631	2.599	5.4	21.0
2 21	8 31.43	- 5 6.4	1.997	2.895	9.9	20.2	2 21	8 29.90	+17 43.1	1.697	2.621	9.6	21.3
3 2	8 26.19	- 3 45.6	2.037	2.883	12.2	20.3	3 2	8 24.96	+18 2.2	1.787	2.644	13.2	21.5
167122	2003 <i>SL</i> ₁₂₃		1 30.1 193°29	1.5°/29.2	18		405951	2006 <i>SD</i> ₁		1 30.2 122°83	6.7°/26.9	18	
12 23	9 17.49	+19 31.5	2.046	2.825	14.3	20.9	12 23	9 24.35	+34 32.2	1.815	2.605	15.5	21.2
1 2	9 12.63	+20 7.1	1.954	2.823	11.2	20.7	1 2	9 18.46	+35 15.8	1.745	2.611	12.5	21.0
1 12	9 5.24	+20 50.8	1.885	2.821	7.5	20.5	1 12	9 9.32	+35 54.7	1.696	2.617	9.4	20.9
1 22	8 55.87	+21 38.0	1.844	2.818	3.5	20.2	1 22	8 57.76	+36 20.3	1.673	2.623	7.0	20.7
2 1	8 45.44	+22 23.0	1.832	2.814	1.9	20.1	2 1	8 45.10	+36 25.5	1.678	2.629	7.1	20.7
2 11	8 35.10	+23 0.6	1.850	2.810	5.8	20.3	2 11	8 32.96	+36 6.9	1.711	2.634	9.4	20.9
2 21	8 25.99	+23 27.5	1.897	2.805	9.7	20.6	2 21	8 22.77	+35 26.1	1.769	2.639	12.5	21.1
3 2	8 19.02	+23 42.6	1.969	2.800	13.2	20.8	3 2	8 15.50	+34 27.4	1.850	2.644	15.4	21.3
371762	2007 <i>GU</i> ₂₆		1 30.1 67°72	2.2°/28.7	18		276164	2002 <i>NF</i> ₆₀		1 30.2 179°22	1.3°/29.1	18	
12 23	9 13.73	+20 48.5	1.890	2.684	14.8	21.4	12 23	9 12.18	+18 27.5	2.383	3.162	12.6	21.2
1 2	9 9.82	+21 35.5	1.813	2.692	11.5	21.1	1 2	9 8.14	+19 17.9	2.292	3.162	9.8	21.0
1 12	9 3.37	+22 30.3	1.759	2.699	7.7	20.9	1 12	9 2.04	+20 16.8	2.227	3.163	6.5	20.8
1 22	8 55.00	+23 27.3	1.732	2.706	3.7	20.7	1 22	8 54.36	+21 19.9	2.189	3.163	3.0	20.6
2 1	8 45.66	+24 20.2	1.733	2.713	2.6	20.6	2 1	8 45.85	+22 22.0	2.181	3.163	1.7	20.5
2 11	8 36.54	+25 3.1	1.763	2.721	6.2	20.9	2 11	8 37.41	+23 17.9	2.203	3.163	5.0	20.7
2 21	8 28.75	+25 32.9	1.820	2.728	10.1	21.1	2 21	8 29.92	+24 4.2	2.255	3.162	8.5	20.9
3 2	8 23.16	+25 48.6	1.902	2.736	13.5	21.4	3 2	8 24.14	+24 38.8	2.332	3.161	11.5	21.1
118761	2000 <i>QB</i> ₂₂₀		1 30.1 78°61	0.6°/30.5	18		413995	2007 <i>EW</i> ₁₅₇		1 30.2 56°07	0.2°/30.1	18	
12 23	9 16.74	+14 48.9	1.897	2.672	15.5	20.4	12 23	9 13.53	+15 26.7	1.677	2.468	16.5	21.3
1 2	9 11.80	+14 59.3	1.832	2.697	12.1	20.2	1 2	9 9.81	+15 58.5	1.606	2.481	12.9	21.1
1 12	9 4.46	+15 20.1	1.789	2.721	8.2	20.0	1 12	9 3.43	+16 43.0	1.558	2.495	8.7	20.8
1 22	8 55.40	+15 47.8	1.773	2.746	3.8	19.8	1 22	8 55.05	+17 35.7	1.534	2.509	4.0	20.6
2 1	8 45.59	+16 18.4	1.785	2.770	0.9	19.6	2 1	8 45.71	+18 30.4	1.538	2.523	1.0	20.4
2 11	8 36.20	+16 47.5	1.827	2.794	5.0	20.0	2 11	8 36.67	+19 20.9	1.571	2.538	5.7	20.8
2 21	8 28.21	+17 11.8	1.897	2.817	9.0	20.2	2 21	8 29.11	+20 2.7	1.631	2.552	10.1	21.0
3 2	8 22.38	+17 29.3	1.992	2.841	12.4	20.5	3 2	8 23.88	+20 33.0	1.714	2.567	13.8	21.3
414017	2007 <i>HG</i> ₆₄		1 30.2 342°44	8.0°/25.4	18		373927	2003 <i>UX</i> ₂₄₆		1 30.2 105°66	0.5°/29.8	18	
12 23	9 12.32	+32 10.4	1.429	2.254	17.2								

EPHEMERIDES

1 30.2

1 30.2

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
310849	2003 <i>AS</i> ₉₀		1 30.2 352°77	6°2/27.7	18		432465	2010 <i>CT</i> ₁₅₂		1 30.2 203°23	1°4/29.3	17	
12 23	9 20.19	+31 50.4	1.519	2.328	17.1	19.6	12 23	9 15.44	+21 37.7	2.454	3.231	12.3	21.5
1 2	9 15.80	+32 18.9	1.444	2.324	13.7	19.4	1 2	9 10.57	+21 50.6	2.360	3.229	9.6	21.3
1 12	9 7.87	+32 44.5	1.389	2.321	10.0	19.2	1 12	9 3.61	+22 7.3	2.291	3.226	6.4	21.1
1 22	8 57.21	+32 58.7	1.358	2.319	6.8	19.0	1 22	8 55.07	+22 24.5	2.250	3.223	3.0	20.9
2 1	8 45.22	+32 54.0	1.353	2.317	6.6	19.0	2 1	8 45.74	+22 38.5	2.238	3.220	1.7	20.8
2 11	8 33.69	+32 26.3	1.375	2.316	9.5	19.1	2 11	8 36.55	+22 46.4	2.257	3.217	4.9	21.0
2 21	8 24.22	+31 37.2	1.422	2.316	13.4	19.4	2 21	8 28.39	+22 46.4	2.306	3.213	8.3	21.2
3 2	8 17.91	+30 31.0	1.490	2.316	16.9	19.6	3 2	8 22.00	+22 38.2	2.380	3.209	11.3	21.4
464937	2005 <i>UE</i> ₂₈₇		1 30.2 148°84	2°6/31.9	18		246700	2009 <i>AM</i> ₃₁		1 30.2 58°42	0°5/30.5	18	
12 23	9 12.72	+ 8 31.7	2.012	2.770	15.3	21.7	12 23	9 11.19	+14 18.3	2.263	3.035	13.3	21.0
1 2	9 8.80	+ 8 38.4	1.923	2.772	12.3	21.5	1 2	9 7.39	+14 37.7	2.174	3.038	10.5	20.8
1 12	9 2.60	+ 9 0.1	1.855	2.775	8.8	21.3	1 12	9 1.53	+15 7.2	2.109	3.041	7.1	20.6
1 22	8 54.66	+ 9 35.6	1.813	2.777	5.0	21.0	1 22	8 54.14	+15 44.0	2.071	3.043	3.4	20.3
2 1	8 45.79	+10 21.5	1.800	2.780	2.6	20.9	2 1	8 45.95	+16 24.3	2.062	3.046	0.8	20.1
2 11	8 37.05	+11 13.1	1.815	2.782	5.1	21.0	2 11	8 37.89	+17 4.1	2.082	3.049	4.5	20.4
2 21	8 29.41	+12 5.5	1.859	2.784	8.9	21.3	2 21	8 30.83	+17 39.8	2.132	3.052	8.1	20.6
3 2	8 23.71	+12 54.4	1.929	2.785	12.3	21.5	3 2	8 25.48	+18 8.7	2.207	3.055	11.3	20.8
334577	2002 <i>TE</i> ₁₁₃		1 30.2 110°83	3°0/ 1.2	18		241852	2001 <i>TL</i> ₉₄		1 30.2 32°25	0°6/29.9	18	
12 23	9 13.17	+ 7 52.7	2.394	3.137	13.5	20.5	12 23	9 16.07	+17 51.6	1.229	2.043	20.1	20.0
1 2	9 8.66	+ 7 34.5	2.308	3.147	10.9	20.3	1 2	9 12.77	+17 58.8	1.163	2.051	15.7	19.7
1 12	9 2.24	+ 7 28.0	2.245	3.156	7.9	20.1	1 12	9 5.93	+18 18.0	1.117	2.059	10.6	19.5
1 22	8 54.40	+ 7 32.6	2.208	3.166	4.9	19.9	1 22	8 56.36	+18 44.5	1.093	2.068	4.8	19.2
2 1	8 45.87	+ 7 46.7	2.200	3.176	3.0	19.8	2 1	8 45.46	+19 11.7	1.094	2.078	1.4	19.0
2 11	8 37.52	+ 8 7.7	2.223	3.185	4.7	20.0	2 11	8 35.04	+19 33.2	1.121	2.089	7.2	19.4
2 21	8 30.13	+ 8 32.4	2.274	3.194	7.7	20.2	2 21	8 26.68	+19 45.3	1.172	2.100	12.5	19.7
3 2	8 24.38	+ 8 57.9	2.352	3.203	10.6	20.4	3 2	8 21.49	+19 46.4	1.244	2.112	17.0	20.0
157144	2004 <i>PR</i> ₂		1 30.2 105°88	1°5/31.1	18		338909	2004 <i>DM</i> ₃₅		1 30.2 322°78	5°9/ 4.2	17	
12 23	9 14.85	+12 11.8	2.151	2.913	14.3	20.7	12 23	9 8.25	- 2 57.9	2.214	2.921	15.5	20.8
1 2	9 10.17	+12 16.3	2.073	2.928	11.3	20.5	1 2	9 5.20	- 2 55.5	2.114	2.915	13.2	20.6
1 12	9 3.33	+12 31.7	2.018	2.943	7.8	20.3	1 12	9 0.15	- 2 31.5	2.034	2.910	10.5	20.4
1 22	8 54.92	+12 56.0	1.989	2.958	4.0	20.1	1 22	8 53.55	- 1 44.9	1.977	2.905	7.9	20.3
2 1	8 45.76	+13 25.8	1.990	2.973	1.5	20.0	2 1	8 46.09	- 0 37.0	1.947	2.900	6.1	20.1
2 11	8 36.85	+13 57.4	2.021	2.987	4.6	20.2	2 11	8 38.66	+ 0 47.9	1.946	2.895	6.5	20.2
2 21	8 29.09	+14 27.3	2.080	3.001	8.3	20.5	2 21	8 32.11	+ 2 23.5	1.973	2.890	8.8	20.3
3 2	8 23.21	+14 52.9	2.166	3.015	11.5	20.7	3 2	8 27.19	+ 4 2.9	2.026	2.886	11.7	20.4
51805	2001 <i>NY</i> ₁₂		1 30.2 233°50	2°2/31.4	18		3999	Aristarchus		1 30.2 344°61	0°5/30.4	18	
12 23	9 15.24	+10 46.2	2.090	2.848	14.8	19.5	12 23	9 13.45	+16 1.1	1.389	2.195	18.6	16.0
1 2	9 10.81	+10 40.0	1.987	2.838	11.9	19.3	1 2	9 10.54	+15 59.0	1.306	2.189	14.7	15.7
1 12	9 4.02	+10 45.8	1.905	2.827	8.4	19.0	1 12	9 4.41	+16 9.3	1.243	2.183	10.1	15.4
1 22	8 55.36	+11 2.4	1.850	2.816	4.7	18.8	1 22	8 55.71	+16 28.9	1.204	2.178	4.8	15.1
2 1	8 45.63	+11 27.3	1.823	2.804	2.2	18.6	2 1	8 45.60	+16 53.0	1.189	2.174	1.0	14.8
2 11	8 35.91	+11 57.1	1.827	2.792	5.1	18.8	2 11	8 35.68	+17 16.0	1.202	2.171	6.6	15.2
2 21	8 27.24	+12 27.7	1.858	2.780	9.0	19.0	2 21	8 27.42	+17 33.5	1.239	2.168	11.8	15.5
3 2	8 20.50	+12 55.9	1.916	2.767	12.7	19.2	3 2	8 21.99	+17 42.7	1.298	2.166	16.4	15.7
446442	2014 <i>JG</i> ₄₅		1 30.2 199°08	1°6/29.3	18		369104	2008 <i>HN</i> ₃₅		1 30.2 174°69	1°4/29.1	18	
12 23	9 18.41	+19 13.5	1.655	2.446	16.7	21.6	12 23	9 14.55	+19 11.4	2.439	3.213	12.4	22.1
1 2	9 13.97	+19 47.3	1.568	2.444	13.1	21.4	1 2	9 9.92	+19 58.4	2.349	3.216	9.7	21.9
1 12	9 6.49	+20 31.3	1.503	2.442	8.8	21.1	1 12	9 3.22	+20 53.0	2.283	3.218	6.5	21.7
1 22	8 56.58	+21 20.2	1.464	2.439	4.1	20.8	1 22	8 54.93	+21 50.6	2.246	3.220	3.0	21.5
2 1	8 45.35	+22 7.1	1.453	2.435	2.1	20.7	2 1	8 45.80	+22 46.5	2.239	3.221	1.8	21.4
2 11	8 34.27	+22 45.4	1.470	2.432	6.7	21.0	2 11	8 36.76	+23 35.7	2.263	3.221	5.0	21.6
2 21	8 24.72	+23 11.2	1.514	2.427	11.3	21.2	2 21	8 28.69	+24 15.2	2.317	3.221	8.4	21.8
3 2	8 17.81	+23 23.2	1.581	2.423	15.4	21.5	3 2	8 22.36	+24 43.2	2.396	3.221	11.4	22.0
276330	2002 <i>TH</i> ₂₅₃		1 30.2 89°55	8°0/ 4.9	18		34121	2000 <i>PJ</i> ₂₉		1 30.2 91°81	2°6/28.3	18	
12 23	9 12.73	- 5 1.5	1.834	2.536	18.4	21.3	12 23	9 14.05	+20 55.4	1.898	2.692	14.8	18.9
1 2	9 8.92	- 5 31.7	1.757	2.550	15.8	21.1	1 2	9 10.12	+22 0.1	1.822	2.700	11.4	18.7
1 12	9 2.72	- 5 37.3	1.698	2.563	12.9	21.0	1 12	9 3.63	+23 13.3	1.770	2.709	7.7	18.5
1 22	8 54.72	- 5 15.9	1.661	2.576	10.0	20.8	1 22	8 55.20	+24 28.8	1.744	2.717	3.9	18.2
2 1	8 45.80	- 4 28.0	1.649	2.589	8.2	20.7	2 1	8 45.75	+25 39.2	1.748	2.726	3.1	18.2
2 11	8 37.09	- 3 17.6	1.664	2.602	8.4	20.8	2 11	8 36.50	+26 37.8	1.780	2.734	6.5	18.4
2 21	8 29.62	- 1 52.0	1.705	2.614	10.6	20.9	2 21	8 28.57	+27 20.9	1.840	2.742	10.3	18.7
3 2	8 24.21	- 0 19.3	1.771	2.627	13.3	21.1	3 2	8 22.85	+27 47.5	1.923	2.750	13.6	18.9
192911	1999 <i>XB</i> ₂₃₇		1 30.2 23°52	0°1/30.1	18		77207	2001 <i>FE</i> ₂₁		1 30.2 229°11	2°5/28.1	18	
12 23	9 12.85	+16 48.4	1.737	2.530	16.0	19.8	12 23	9 13.26	+22 59.4	2.563	3.344	11.7	20.0
1 2	9 9.27	+16 59.2	1.659	2.535	12.5	19.6	1 2	9 8.97	+23 52.3	2.463	3.335	9.1	19.8
1 12	9 3.08	+17 19.9	1.603	2.541	8.4	19.3	1 12	9 2.64	+24 50.7	2.389	3.324	6.2	19.6
1 22	8 54.91	+17 47.1	1.572	2.547	3.9	19.1	1 22	8 54.70	+25 49.8	2.343	3.314	3.3	19.4
2 1	8 45.76	+18 16.0	1.569	2.554	0.9	18.9	2 1	8 45.86	+26 44.5	2.327	3.303	2.8	19.3
2 11	8 36.87	+18 42.0	1.594	2.561	5.6	19.2	2 11	8 37.02	+27 30.0	2.342	3.292	5.6	19.5
2 21	8 29.38	+19 1.6	1.646	2.569	9.9	19.5	2 21	8 29.06	+28 3.5	2.386	3.280	8.7	19.7
3 2	8 24.16	+19 12.9	1.722	2.577	13.6	19.7	3 2	8 22.77	+28 24.0	2.455	3.268	11.5	19.8
7975	1974 <i>FD</i>		1 30.2 218°92	3°5/27.8	18	R	346180	2007 <i>WU</i> ₂₄		1 30.2 16°11	1°8/28.8	18	
12 23	9 16.10	+27 37.3	2.388	3.174	12.3	17.7	12 23</						

EPHEMERIDES

1 30.2

1 30.2

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
272312	2005 <i>SE</i> ₆₀		1 30.2 154°37'	3°1'	1.1	18	151192	2001 <i>XS</i> ₂₂₁		1 30.2 38°36'	0°8'	29.7	18
12 23	9 17.85	+ 7 13.1	1.900	2.646	16.4	21.6	12 23	9 14.63	+18 14.6	1.782	2.574	15.7	20.7
1 2	9 12.89	+ 7 19.1	1.814	2.656	13.3	21.4	1 2	9 10.69	+18 35.2	1.700	2.576	12.3	20.4
1 12	9 5.41	+ 7 42.0	1.750	2.665	9.6	21.2	1 12	9 4.09	+19 5.0	1.641	2.579	8.2	20.2
1 22	8 56.01	+ 8 20.4	1.712	2.673	5.6	21.0	1 22	8 55.45	+19 39.7	1.606	2.581	3.8	19.9
2 1	8 45.59	+ 9 10.8	1.702	2.680	3.1	20.8	2 1	8 45.77	+20 14.2	1.600	2.584	1.4	19.8
2 11	8 35.36	+10 8.1	1.722	2.686	5.5	21.0	2 11	8 36.29	+20 43.4	1.623	2.587	5.8	20.1
2 21	8 26.40	+11 6.5	1.770	2.692	9.4	21.2	2 21	8 28.20	+21 3.8	1.672	2.590	10.1	20.3
3 2	8 19.61	+12 1.3	1.844	2.696	13.0	21.4	3 2	8 22.42	+21 14.0	1.745	2.593	13.8	20.6
519552	2012 <i>QP</i> ₅₃		1 30.2 92°62'	2°2'	31.9	18	381225	2007 <i>RO</i> ₂₉₁		1 30.2 63°46'	0°6'	29.8	18
12 23	9 10.13	+ 8 11.0	2.339	3.091	13.5	21.8	12 23	9 13.35	+17 44.5	2.109	2.891	13.9	21.5
1 2	9 6.47	+ 8 29.7	2.249	3.096	10.9	21.6	1 2	9 9.10	+18 7.8	2.039	2.909	10.8	21.3
1 12	9 0.88	+ 9 2.3	2.182	3.101	7.8	21.4	1 12	9 2.68	+18 38.9	1.991	2.927	7.2	21.2
1 22	8 53.86	+ 9 47.1	2.142	3.106	4.4	21.2	1 22	8 54.68	+19 14.1	1.970	2.945	3.2	20.9
2 1	8 46.08	+10 40.9	2.131	3.111	2.2	21.1	2 1	8 45.96	+19 48.9	1.979	2.963	1.1	20.8
2 11	8 38.41	+11 39.2	2.149	3.116	4.4	21.2	2 11	8 37.52	+20 19.3	2.017	2.981	4.9	21.1
2 21	8 31.67	+12 37.6	2.197	3.121	7.7	21.4	2 21	8 30.28	+20 42.4	2.083	2.999	8.5	21.4
3 2	8 26.52	+13 32.0	2.271	3.126	10.8	21.6	3 2	8 24.95	+20 56.8	2.175	3.017	11.7	21.6
110967	2001 <i>UZ</i> ₁₇₁		1 30.2 341°13'	2°6'	28.8	18	370694	2004 <i>HA</i> ₅₆		1 30.2 222°53'	1°9'	28.6	17
12 23	9 13.05	+21 17.2	1.585	2.393	16.6	19.8	12 23	9 14.89	+20 0.3	2.415	3.191	12.5	21.8
1 2	9 9.95	+21 57.4	1.502	2.387	13.0	19.5	1 2	9 10.40	+20 59.1	2.311	3.180	9.8	21.6
1 12	9 3.88	+22 46.7	1.440	2.382	8.7	19.3	1 12	9 3.71	+22 6.4	2.233	3.168	6.6	21.3
1 22	8 55.44	+23 39.0	1.403	2.378	4.3	19.0	1 22	8 55.27	+23 17.4	2.183	3.156	3.2	21.1
2 1	8 45.71	+24 26.9	1.393	2.374	3.1	18.9	2 1	8 45.80	+24 26.3	2.163	3.143	2.3	21.0
2 11	8 36.13	+25 3.8	1.410	2.370	7.2	19.1	2 11	8 36.28	+25 27.5	2.175	3.129	5.5	21.2
2 21	8 28.08	+25 25.9	1.453	2.367	11.7	19.4	2 21	8 27.67	+26 17.0	2.216	3.115	9.0	21.4
3 2	8 22.62	+25 32.2	1.518	2.364	15.6	19.6	3 2	8 20.82	+26 53.0	2.283	3.100	12.1	21.6
466048	2011 <i>LV</i> ₂₁		1 30.2 252°87'	2°0'	28.7	17	489109	2006 <i>BL</i> ₂₃₄		1 30.2 296°04'	1°5'	29.4	17
12 23	9 12.68	+21 9.2	2.260	3.047	12.9	21.7	12 23	9 15.83	+18 53.1	1.474	2.277	17.8	22.3
1 2	9 8.74	+21 53.0	2.166	3.040	10.1	21.5	1 2	9 12.36	+19 21.6	1.389	2.271	14.0	22.0
1 12	9 2.59	+22 43.7	2.096	3.033	6.8	21.3	1 12	9 5.66	+20 1.7	1.324	2.265	9.5	21.7
1 22	8 54.71	+23 36.5	2.053	3.026	3.3	21.1	1 22	8 56.34	+20 47.9	1.284	2.259	4.4	21.4
2 1	8 45.89	+24 26.3	2.039	3.019	2.4	21.0	2 1	8 45.56	+21 33.1	1.270	2.254	2.1	21.2
2 11	8 37.12	+25 8.1	2.055	3.012	5.6	21.2	2 11	8 34.91	+22 10.4	1.284	2.248	7.1	21.5
2 21	8 29.37	+25 38.6	2.100	3.004	9.1	21.4	2 21	8 25.91	+22 35.1	1.323	2.243	12.1	21.8
3 2	8 23.47	+25 56.7	2.169	2.997	12.3	21.6	3 2	8 19.74	+22 45.7	1.384	2.237	16.5	22.0
153076	2000 <i>QO</i> ₂₂₈		1 30.2 40°22'	5°9'	3.4	18	239707	2009 <i>AP</i> ₄		1 30.2 4°93'	0°8'	29.7	17
12 23	9 10.07	+ 0 9.8	1.577	2.324	19.2	19.2	12 23	9 12.68	+18 37.8	2.209	2.991	13.3	21.1
1 2	9 7.19	+ 0 12.6	1.508	2.341	16.0	19.0	1 2	9 8.66	+18 56.9	2.120	2.991	10.4	20.9
1 12	9 1.73	+ 0 41.5	1.457	2.357	12.3	18.8	1 12	9 2.47	+19 23.0	2.055	2.991	7.0	20.7
1 22	8 54.34	+ 1 36.4	1.429	2.375	8.5	18.6	1 22	8 54.64	+19 52.8	2.017	2.992	3.2	20.4
2 1	8 46.00	+ 2 53.9	1.427	2.393	6.0	18.5	2 1	8 45.97	+20 22.2	2.008	2.992	1.2	20.3
2 11	8 37.95	+ 4 26.8	1.451	2.412	7.0	18.6	2 11	8 37.43	+20 47.2	2.029	2.992	5.0	20.5
2 21	8 31.30	+ 6 5.9	1.502	2.431	10.2	18.9	2 21	8 29.98	+21 5.1	2.078	2.993	8.6	20.8
3 2	8 26.91	+ 7 42.8	1.578	2.450	13.7	19.1	3 2	8 24.36	+21 14.6	2.152	2.993	11.8	21.0
263564	2008 <i>FS</i> ₆₉		1 30.2 307°34'	0°6'	30.5	18	100071	1992 <i>ET</i> ₃₀		1 30.2 243°76'	2°3'	31.6	18
12 23	9 12.96	+14 40.8	1.709	2.497	16.4	20.4	12 23	9 13.65	+ 9 50.8	1.961	2.723	15.5	20.2
1 2	9 9.62	+14 51.7	1.615	2.487	13.0	20.2	1 2	9 9.77	+ 9 57.2	1.860	2.714	12.5	20.0
1 12	9 3.54	+15 15.2	1.542	2.477	8.9	19.9	1 12	9 3.45	+10 18.3	1.781	2.705	8.9	19.7
1 22	8 55.27	+15 48.6	1.494	2.467	4.3	19.6	1 22	8 55.20	+10 52.6	1.728	2.695	4.9	19.5
2 1	8 45.76	+16 27.2	1.473	2.458	1.0	19.3	2 1	8 45.83	+11 36.9	1.703	2.684	2.3	19.3
2 11	8 36.30	+17 5.6	1.480	2.448	5.8	19.7	2 11	8 36.46	+12 26.5	1.707	2.674	5.3	19.4
2 21	8 28.13	+17 39.1	1.514	2.439	10.4	19.9	2 21	8 28.18	+13 16.3	1.739	2.663	9.4	19.6
3 2	8 22.29	+18 4.4	1.572	2.430	14.5	20.1	3 2	8 21.90	+14 1.9	1.796	2.652	13.1	19.9
459812	2013 <i>SP</i> ₂₃		1 30.2 164°85'	2°7'	28.5	18	462830	2010 <i>TB</i> ₂₁		1 30.2 72°52'	2°3'	28.9	18
12 23	9 15.85	+24 1.1	2.179	2.966	13.3	21.7	12 23	9 18.28	+21 46.5	1.673	2.468	16.4	21.8
1 2	9 11.22	+24 34.3	2.095	2.968	10.4	21.5	1 2	9 13.52	+22 18.7	1.610	2.488	12.7	21.6
1 12	9 4.23	+25 11.1	2.034	2.970	7.0	21.3	1 12	9 5.92	+22 57.1	1.569	2.508	8.5	21.4
1 22	8 55.45	+25 46.8	2.000	2.971	3.7	21.1	1 22	8 56.24	+23 35.9	1.554	2.528	4.1	21.1
2 1	8 45.77	+26 16.1	1.996	2.972	3.0	21.1	2 1	8 45.64	+24 8.5	1.567	2.548	2.7	21.1
2 11	8 36.28	+26 35.1	2.021	2.974	6.0	21.3	2 11	8 35.51	+24 30.3	1.608	2.567	6.6	21.4
2 21	8 27.99	+26 41.7	2.074	2.974	9.4	21.5	2 21	8 27.08	+24 39.1	1.677	2.587	10.6	21.7
3 2	8 21.73	+26 36.2	2.152	2.975	12.5	21.7	3 2	8 21.19	+24 35.1	1.768	2.606	14.2	21.9
213430	2001 <i>XP</i> ₂₀₁		1 30.2 328°08'	0°6'	29.9	18	279879	2001 <i>PZ</i> ₃₄		1 30.2 70°30'	5°3'	2.9	18
12 23	9 12.45	+16 2.7	1.369	2.177	18.7	19.9	12 23	9 13.64	+ 1 26.9	2.288	3.004	14.8	20.2
1 2	9 9.92	+16 33.5	1.284	2.169	14.8	19.6	1 2	9 9.02	+ 0 49.2	2.217	3.028	12.3	20.1
1 12	9 4.13	+17 20.3	1.219	2.161	10.0	19.4	1 12	9 2.47	+ 0 27.0	2.167	3.053	9.5	19.9
1 22	8 55.67	+18 18.5	1.178	2.154	4.6	19.0	1 22	8 54.55	+ 0 21.3	2.142	3.077	6.9	19.8
2 1	8 45.68	+19 20.5	1.162	2.147	1.4	18.8	2 1	8 46.02	+ 0 31.4	2.145	3.101	5.3	19.8
2 11	8 35.77	+20 18.0	1.173	2.140	7.0	19.1	2 11	8 37.74	+ 0 54.7	2.178	3.125	6.1	19.8
2 21	8 27.50	+21 4.5	1.208	2.134	12.4	19.4	2 21	8 30.53	+ 1 27.4	2.238	3.149	8.3	20.0
3 2	8 22.09	+21 36.3	1.265	2.129	17.0	19.7	3 2	8 25.01	+ 2 5.4	2.324	3.172	10.8	20.2
90156	2002 <i>YS</i> ₂₉		1 30.2 287°63'	1°7'	28.8	17	71366	2000 <i>AU</i> ₁₃₅		1 30.2 153°03'	0°3'	30.4	18
12 23	9 10.67	+19 45.1	2.359	3.144	12.5	19.6							

EPHEMERIDES

1 30.2

1 30.2

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
39161	2000 <i>WH</i> ₁₁₇		1 30.2 174°63		1°5/29.3 18		452314	1999 <i>LN</i> ₂₈		1 30.2 193°95		1°0/29.5 15 CR	
12 23	9 19.27	+20 34.0	2.113	2.889	14.1	19.6	12 23	9 20.55	+17 24.1	2.383	3.142	13.1	24.4
1 2	9 13.91	+21 0.8	2.025	2.892	11.0	19.4	1 2	9 14.74	+18 13.0	2.281	3.139	10.3	24.2
1 12	9 6.07	+21 33.9	1.960	2.895	7.4	19.2	1 12	9 6.60	+19 11.3	2.204	3.135	6.9	24.0
1 22	8 56.33	+22 8.7	1.923	2.897	3.5	19.0	1 22	8 56.61	+20 14.8	2.156	3.129	3.2	23.8
2 1	8 45.61	+22 40.1	1.916	2.898	1.9	18.9	2 1	8 45.57	+21 17.7	2.139	3.122	1.4	23.6
2 11	8 35.07	+23 3.9	1.939	2.898	5.6	19.1	2 11	8 34.52	+22 14.8	2.155	3.114	5.1	23.9
2 21	8 25.79	+23 17.6	1.991	2.898	9.4	19.3	2 21	8 24.48	+23 2.1	2.201	3.104	8.8	24.1
3 2	8 18.63	+23 20.6	2.068	2.897	12.8	19.5	3 2	8 16.32	+23 37.6	2.274	3.093	12.1	24.3
291908	2006 <i>QM</i> ₁₁		1 30.2 138°00		0°2/30.1 18		157129	2004 <i>NT</i> ₂₀		1 30.2 173°14		1°9/31.4 18	
12 23	9 10.66	+14 56.5	2.405	3.178	12.7	20.7	12 23	9 17.50	+10 36.6	1.971	2.728	15.6	21.6
1 2	9 6.92	+15 40.1	2.315	3.180	9.9	20.5	1 2	9 12.63	+10 47.2	1.881	2.732	12.5	21.4
1 12	9 1.24	+16 34.2	2.249	3.182	6.7	20.3	1 12	9 5.28	+11 11.7	1.812	2.735	8.7	21.2
1 22	8 54.07	+17 35.2	2.210	3.184	3.0	20.0	1 22	8 56.01	+11 48.2	1.770	2.738	4.7	20.9
2 1	8 46.12	+18 38.5	2.202	3.186	0.8	19.9	2 1	8 45.71	+12 32.7	1.757	2.739	1.9	20.7
2 11	8 38.24	+19 39.2	2.223	3.188	4.5	20.1	2 11	8 35.53	+13 20.5	1.773	2.740	5.2	21.0
2 21	8 31.28	+20 33.2	2.274	3.190	8.0	20.4	2 21	8 26.57	+14 6.6	1.819	2.740	9.2	21.2
3 2	8 25.93	+21 17.7	2.352	3.192	11.0	20.6	3 2	8 19.70	+14 47.5	1.890	2.739	12.9	21.4
455760	2005 <i>MF</i> ₃₁		1 30.2 126°87		1°0/29.5 18		263086	2007 <i>SX</i> ₁₅		1 30.2 227°21		12°2/ 7.7 18	
12 23	9 14.94	+16 23.8	2.001	2.780	14.6	21.1	12 23	9 13.34	-12 37.4	1.409	2.093	23.7	21.1
1 2	9 10.62	+17 22.6	1.922	2.791	11.4	21.0	1 2	9 10.52	-13 3.9	1.320	2.089	21.3	20.8
1 12	9 3.89	+18 33.1	1.867	2.802	7.6	20.7	1 12	9 4.54	-12 52.0	1.244	2.084	18.3	20.6
1 22	8 55.34	+19 50.1	1.838	2.813	3.4	20.5	1 22	8 55.92	-11 54.5	1.185	2.078	15.1	20.4
2 1	8 45.84	+21 6.9	1.840	2.823	1.5	20.4	2 1	8 45.70	-10 8.2	1.149	2.073	12.7	20.2
2 11	8 36.51	+22 16.9	1.871	2.833	5.5	20.7	2 11	8 35.40	-7 38.1	1.136	2.067	12.3	20.2
2 21	8 28.40	+23 15.4	1.931	2.842	9.4	20.9	2 21	8 26.58	-4 37.3	1.148	2.060	14.3	20.3
3 2	8 22.35	+24 0.0	2.016	2.851	12.8	21.2	3 2	8 20.49	-1 23.3	1.185	2.053	17.6	20.5
486009	2012 <i>QP</i> ₂₅		1 30.2 151°91		1°5/29.5 18		265027	2003 <i>MH</i> ₂		1 30.2 252°86		1°7/28.6 18	
12 23	9 21.97	+20 1.5	1.499	2.292	18.1	21.5	12 23	9 15.10	+15 38.7	2.314	3.081	13.2	20.3
1 2	9 16.94	+20 17.5	1.422	2.298	14.2	21.3	1 2	9 10.82	+17 22.7	2.200	3.064	10.4	20.1
1 12	9 8.58	+20 42.0	1.365	2.303	9.5	21.0	1 12	9 4.20	+19 23.3	2.112	3.046	7.0	19.9
1 22	8 57.62	+21 9.6	1.333	2.308	4.4	20.7	1 22	8 55.62	+21 34.6	2.053	3.027	3.2	19.6
2 1	8 45.33	+21 33.8	1.328	2.312	2.0	20.6	2 1	8 45.77	+23 48.3	2.028	3.008	2.2	19.5
2 11	8 33.39	+21 49.2	1.352	2.315	6.9	20.9	2 11	8 35.65	+25 55.2	2.035	2.989	5.9	19.7
2 21	8 23.31	+21 53.1	1.402	2.319	11.8	21.2	2 21	8 26.31	+27 47.8	2.074	2.969	9.7	19.9
3 2	8 16.20	+21 45.5	1.475	2.321	16.0	21.4	3 2	8 18.74	+29 21.9	2.139	2.949	13.1	20.1
419083	2009 <i>SU</i> ₁₂₄		1 30.2 144°24		3°6/ 1.4 18		168231	2006 <i>KK</i> ₄₀		1 30.2 208°02		4°2/ 2.4 18	
12 23	9 13.23	+7 4.3	2.007	2.758	15.5	21.7	12 23	9 10.96	+2 53.3	2.501	3.223	13.5	20.5
1 2	9 9.23	+6 49.7	1.917	2.760	12.6	21.5	1 2	9 7.03	+2 42.5	2.400	3.220	11.2	20.3
1 12	9 2.94	+6 49.9	1.848	2.761	9.3	21.3	1 12	9 1.27	+2 46.4	2.322	3.216	8.6	20.2
1 22	8 54.90	+7 4.5	1.805	2.763	5.7	21.0	1 22	8 54.09	+3 5.2	2.269	3.213	5.9	20.0
2 1	8 45.94	+7 31.6	1.789	2.764	3.6	20.9	2 1	8 46.15	+3 37.6	2.244	3.209	4.2	19.9
2 11	8 37.09	+8 7.5	1.802	2.766	5.5	21.0	2 11	8 38.25	+4 20.7	2.249	3.205	5.2	19.9
2 21	8 29.36	+8 47.8	1.843	2.767	9.0	21.2	2 21	8 31.17	+5 10.6	2.283	3.201	7.8	20.1
3 2	8 23.55	+9 28.1	1.910	2.768	12.4	21.5	3 2	8 25.59	+6 3.0	2.344	3.196	10.6	20.2
104963	2000 <i>JE</i> ₅₄		1 30.2 150°43		1°2/31.1 18		79342	1996 <i>VB</i> ₁₅		1 30.2 49°56		1°7/29.1 18	
12 23	9 15.71	+12 3.9	2.614	3.362	12.4	20.6	12 23	9 12.65	+20 45.4	2.148	2.937	13.4	19.8
1 2	9 10.51	+12 13.7	2.526	3.373	9.8	20.4	1 2	9 8.69	+21 17.4	2.069	2.944	10.4	19.6
1 12	9 3.45	+12 32.9	2.462	3.385	6.8	20.2	1 12	9 2.51	+21 55.5	2.014	2.952	7.0	19.4
1 22	8 55.02	+12 59.5	2.426	3.395	3.5	20.0	1 22	8 54.68	+22 35.4	1.985	2.959	3.3	19.2
2 1	8 45.92	+13 30.6	2.421	3.404	1.3	19.9	2 1	8 46.03	+23 12.1	1.986	2.967	2.1	19.1
2 11	8 36.98	+14 3.2	2.448	3.413	4.0	20.1	2 11	8 37.59	+23 41.6	2.016	2.975	5.4	19.3
2 21	8 28.97	+14 34.0	2.504	3.421	7.3	20.3	2 21	8 30.31	+24 1.1	2.073	2.983	8.9	19.6
3 2	8 22.53	+15 0.9	2.588	3.428	10.1	20.5	3 2	8 24.92	+24 9.7	2.156	2.991	12.1	19.8
183971	2004 <i>EG</i> ₈		1 30.2 57°01		11°3/25.5 18		347140	2010 <i>OU</i> ₇₀		1 30.2 83°29		2°0/28.4 18	
12 23	9 33.03	+46 21.9	1.704	2.475	17.1	20.0	12 23	9 11.27	+20 15.3	2.362	3.147	12.5	20.5
1 2	9 26.03	+47 21.0	1.645	2.481	14.7	19.9	1 2	9 7.49	+21 20.1	2.281	3.154	9.7	20.3
1 12	9 14.78	+48 4.9	1.607	2.487	12.6	19.8	1 12	9 1.66	+22 32.6	2.224	3.161	6.4	20.1
1 22	9 0.39	+48 21.9	1.592	2.493	11.4	19.7	1 22	8 54.29	+23 47.4	2.195	3.168	3.2	19.9
2 1	8 44.77	+48 3.1	1.602	2.500	11.6	19.7	2 1	8 46.11	+24 59.0	2.196	3.175	2.4	19.9
2 11	8 30.20	+47 7.0	1.637	2.507	13.2	19.8	2 11	8 38.04	+26 1.7	2.228	3.182	5.4	20.1
2 21	8 18.52	+45 38.9	1.695	2.513	15.4	20.0	2 21	8 30.95	+26 52.2	2.289	3.189	8.7	20.3
3 2	8 10.77	+43 48.0	1.773	2.520	17.7	20.2	3 2	8 25.58	+27 28.8	2.374	3.196	11.5	20.5
431469	2007 <i>RE</i> ₃₁₆		1 30.2 83°86		4°1/ 2.2 18		59203	1999 <i>BC</i> ₉		1 30.2 43°12		0°9/30.8 18	
12 23	9 12.79	+3 57.8	2.352	3.080	14.1	21.2	12 23	9 11.25	+10 3.8	1.495	2.283	18.3	18.4
1 2	9 8.35	+3 39.1	2.276	3.100	11.6	21.1	1 2	9 8.40	+11 6.4	1.426	2.297	14.5	18.2
1 12	9 2.04	+3 34.8	2.222	3.121	8.7	20.9	1 12	9 2.73	+12 30.8	1.378	2.312	9.9	18.0
1 22	8 54.37	+3 44.8	2.194	3.141	5.9	20.8	1 22	8 54.90	+14 11.7	1.355	2.327	4.8	17.7
2 1	8 46.08	+4 7.6	2.194	3.161	4.2	20.7	2 1	8 45.99	+16 0.3	1.359	2.343	1.1	17.5
2 11	8 38.01	+4 40.3	2.224	3.180	5.2	20.8	2 11	8 37.35	+17 46.4	1.391	2.360	5.9	17.8
2 21	8 30.94	+5 18.9	2.282	3.200	7.8	21.0	2 21	8 30.23	+19 21.4	1.450	2.376	10.7	18.2
3 2	8 25.50	+5 59.6	2.367	3.219	10.5	21.2	3 2	8 25.58	+20 39.8	1.533	2.393	14.7	18.4
283464	2001 <i>QN</i> ₇₂		1 30.2 108°74		1°5/29.6 18		12288	Verdun		1 30.2 43°56		6°5/27.5 18	
12 23	9 20.57	+20 29.2	1.486	2.284	18.0	21.2	12 23	9 19.95	+28 24.7				

EPHEMERIDES

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
120887	1998 <i>RF</i> ₇₀		1 30.2 154°53	2°8/28.6	18		471105	2010 <i>BN</i> ₅₅		1 30.2 163°51	4°6/25.5	17	
12 23	9 20.84	+22 34.5	1.780	2.568	15.8	20.6	12 23	9 13.83	+28 49.2	2.633	3.419	11.3	21.2
1 2	9 15.63	+23 19.2	1.702	2.576	12.4	20.3	1 2	9 9.54	+30 28.9	2.552	3.422	8.9	21.0
1 12	9 7.48	+24 10.6	1.646	2.583	8.3	20.1	1 12	9 3.13	+32 11.4	2.498	3.424	6.4	20.9
1 22	8 57.07	+25 2.0	1.617	2.589	4.3	19.9	1 22	8 55.04	+33 49.8	2.473	3.427	4.7	20.7
2 1	8 45.51	+25 46.2	1.617	2.595	3.3	19.8	2 1	8 46.02	+35 17.2	2.478	3.429	5.1	20.8
2 11	8 34.23	+26 17.6	1.646	2.600	7.0	20.1	2 11	8 36.99	+36 28.1	2.514	3.431	7.2	20.9
2 21	8 24.54	+26 33.5	1.702	2.605	11.0	20.3	2 21	8 28.88	+37 20.0	2.579	3.432	9.6	21.1
3 2	8 17.41	+26 34.3	1.782	2.609	14.6	20.6	3 2	8 22.48	+37 52.6	2.667	3.434	11.9	21.2
246059	2006 <i>VL</i> ₄₈		1 30.2 126°46	3°3/27.7	18		65784	Naderayama		1 30.2 86°16	3°4/28.6	18	
12 23	9 17.19	+23 10.2	2.105	2.890	13.8	20.8	12 23	9 24.81	+23 13.2	1.498	2.292	18.0	19.0
1 2	9 12.34	+24 25.4	2.033	2.906	10.7	20.6	1 2	9 18.82	+24 3.3	1.448	2.324	14.0	18.8
1 12	9 5.04	+25 46.7	1.985	2.920	7.2	20.4	1 12	9 9.55	+24 58.9	1.418	2.356	9.3	18.6
1 22	8 55.88	+27 7.3	1.965	2.935	4.0	20.3	1 22	8 57.95	+25 51.7	1.415	2.386	4.9	18.5
2 1	8 45.79	+28 19.7	1.976	2.948	3.7	20.3	2 1	8 45.43	+26 33.6	1.439	2.416	3.8	18.5
2 11	8 35.91	+29 18.0	2.016	2.962	6.6	20.5	2 11	8 33.66	+26 59.1	1.492	2.446	7.6	18.8
2 21	8 27.31	+29 59.4	2.085	2.974	10.0	20.7	2 21	8 24.01	+27 7.0	1.571	2.474	11.7	19.1
3 2	8 20.82	+30 23.6	2.178	2.986	12.9	20.9	3 2	8 17.38	+26 59.1	1.673	2.502	15.3	19.4
32758	1981 <i>ES</i> ₁₈		1 30.2 289°16	1°5/30.9	18		32804	1990 <i>SO</i> ₂		1 30.2 181°74	1°1/29.5	18	
12 23	9 14.33	+12 53.0	1.546	2.334	17.8	19.8	12 23	9 17.85	+17 30.3	2.037	2.812	14.6	19.0
1 2	9 11.19	+12 56.1	1.442	2.313	14.4	19.5	1 2	9 12.98	+18 16.9	1.947	2.813	11.4	18.8
1 12	9 4.97	+13 14.5	1.358	2.292	10.1	19.2	1 12	9 5.60	+19 14.0	1.879	2.814	7.6	18.6
1 22	8 56.15	+13 46.5	1.298	2.270	5.1	18.9	1 22	8 56.23	+20 16.8	1.840	2.814	3.5	18.3
2 1	8 45.69	+14 27.9	1.265	2.249	1.6	18.6	2 1	8 45.79	+21 19.1	1.830	2.813	1.6	18.2
2 11	8 35.06	+15 12.6	1.258	2.227	6.4	18.8	2 11	8 35.42	+22 15.0	1.850	2.811	5.6	18.4
2 21	8 25.75	+15 54.8	1.278	2.206	11.7	19.1	2 21	8 26.26	+23 0.2	1.899	2.809	9.6	18.7
3 2	8 19.04	+16 29.8	1.320	2.185	16.4	19.3	3 2	8 19.22	+23 32.6	1.974	2.805	13.2	18.9
73703	Billings		1 30.2 339°91	5°0/26.5	18		520802	2014 <i>SP</i> ₃₆₂		1 30.2 71°22	1°0/29.7	18	
12 23	9 14.14	+30 5.6	2.164	2.961	13.1	19.0	12 23	9 17.14	+19 16.2	1.748	2.538	16.0	21.3
1 2	9 10.14	+31 7.7	2.084	2.959	10.4	18.8	1 2	9 12.61	+19 28.0	1.674	2.549	12.5	21.1
1 12	9 3.67	+32 10.6	2.027	2.957	7.5	18.6	1 12	9 5.36	+19 47.4	1.622	2.560	8.4	20.9
1 22	8 55.30	+33 7.4	1.997	2.955	5.3	18.5	1 22	8 56.08	+20 10.0	1.596	2.571	3.8	20.6
2 1	8 45.93	+33 51.6	1.996	2.954	5.5	18.5	2 1	8 45.84	+20 31.1	1.598	2.582	1.5	20.5
2 11	8 36.71	+34 18.6	2.023	2.952	7.8	18.6	2 11	8 35.94	+20 46.2	1.629	2.593	5.8	20.8
2 21	8 28.73	+34 26.7	2.076	2.951	10.7	18.8	2 21	8 27.57	+20 53.0	1.687	2.604	10.1	21.1
3 2	8 22.87	+34 17.0	2.153	2.950	13.4	19.0	3 2	8 21.59	+20 50.6	1.769	2.616	13.7	21.3
375348	2008 <i>SX</i> ₅₁		1 30.2 42°81	0°9/30.8	18		26599	2000 <i>EZ</i> ₁₇₁		1 30.2 226°89	1°0/29.3	18	
12 23	9 12.48	+13 42.2	1.836	2.618	15.6	21.0	12 23	9 11.84	+18 9.8	2.766	3.536	11.2	18.6
1 2	9 8.80	+13 53.3	1.761	2.629	12.3	20.8	1 2	9 7.71	+18 55.5	2.661	3.526	8.8	18.5
1 12	9 2.71	+14 16.4	1.708	2.641	8.4	20.6	1 12	9 1.75	+19 49.0	2.582	3.516	5.9	18.3
1 22	8 54.81	+14 48.7	1.681	2.653	4.1	20.3	1 22	8 54.38	+20 46.6	2.531	3.505	2.7	18.0
2 1	8 46.05	+15 25.9	1.681	2.666	1.1	20.1	2 1	8 46.20	+21 44.1	2.511	3.494	1.4	17.9
2 11	8 37.54	+16 3.1	1.711	2.679	5.1	20.4	2 11	8 38.00	+22 37.2	2.522	3.482	4.4	18.1
2 21	8 30.34	+16 36.3	1.767	2.692	9.2	20.7	2 21	8 30.56	+23 22.6	2.564	3.470	7.6	18.3
3 2	8 25.23	+17 2.6	1.848	2.705	12.8	20.9	3 2	8 24.56	+23 58.3	2.631	3.457	10.4	18.5
286357	2001 <i>XU</i> ₁₃₄		1 30.2 110°25	3°2/27.9	18		415524	2014 <i>QF</i> ₃₂		1 30.2 141°57	7°1/25.9	18	
12 23	9 18.06	+24 37.2	2.225	3.007	13.2	21.5	12 23	9 25.51	+36 41.6	2.067	2.845	14.2	21.5
1 2	9 12.77	+25 35.9	2.159	3.030	10.3	21.3	1 2	9 19.14	+37 44.3	2.000	2.857	11.6	21.3
1 12	9 5.17	+26 38.1	2.118	3.052	7.0	21.2	1 12	9 9.75	+38 41.6	1.957	2.868	9.0	21.2
1 22	8 55.89	+27 37.6	2.104	3.073	3.9	21.0	1 22	8 58.10	+39 24.7	1.941	2.878	7.3	21.1
2 1	8 45.82	+28 28.4	2.121	3.093	3.6	21.0	2 1	8 45.41	+39 46.5	1.953	2.888	7.5	21.1
2 11	8 36.07	+29 6.1	2.168	3.113	6.3	21.2	2 11	8 33.19	+39 43.6	1.993	2.897	9.4	21.2
2 21	8 27.60	+29 28.8	2.244	3.133	9.4	21.5	2 21	8 22.75	+39 17.1	2.059	2.905	12.0	21.4
3 2	8 21.17	+29 36.9	2.344	3.152	12.1	21.7	3 2	8 15.05	+38 31.3	2.148	2.913	14.5	21.6
291015	2005 <i>YH</i> ₉		1 30.2 0°30	2°1/31.3	18		196014	2002 <i>RV</i> ₂₅₈		1 30.2 66°61	0°4/30.0	18	
12 23	9 13.55	+11 49.1	1.790	2.566	16.2	20.9	12 23	9 15.97	+17 10.7	1.676	2.466	16.6	21.6
1 2	9 9.82	+11 38.2	1.703	2.565	13.0	20.7	1 2	9 11.91	+17 24.8	1.596	2.470	13.0	21.3
1 12	9 3.53	+11 40.1	1.637	2.565	9.1	20.4	1 12	9 5.04	+17 49.1	1.537	2.474	8.8	21.1
1 22	8 55.26	+11 53.1	1.596	2.565	4.9	20.2	1 22	8 56.00	+18 19.8	1.504	2.479	4.0	20.8
2 1	8 45.96	+12 14.5	1.583	2.565	2.1	20.0	2 1	8 45.85	+18 51.6	1.498	2.483	1.0	20.6
2 11	8 36.81	+12 40.3	1.598	2.566	5.5	20.2	2 11	8 35.95	+19 19.4	1.521	2.487	5.9	21.0
2 21	8 28.94	+13 6.4	1.640	2.566	9.7	20.5	2 21	8 27.54	+19 39.5	1.570	2.492	10.4	21.2
3 2	8 23.25	+13 29.3	1.706	2.567	13.5	20.7	3 2	8 21.58	+19 50.2	1.644	2.496	14.3	21.5
211632	2003 <i>UQ</i> ₁₃₆		1 30.2 88°13	4°4/27.9	18		49409	1998 <i>XS</i> ₅₀		1 30.2 94°83	1°4/31.1	18	
12 23	9 19.85	+26 24.2	1.638	2.439	16.4	20.6	12 23	9 14.99	+13 13.9	2.276	3.038	13.6	19.0
1 2	9 15.06	+27 14.2	1.573	2.452	12.9	20.4	1 2	9 10.22	+13 4.7	2.196	3.051	10.8	18.8
1 12	9 7.16	+28 7.2	1.530	2.466	8.9	20.2	1 12	9 3.40	+13 4.3	2.138	3.064	7.4	18.6
1 22	8 56.93	+28 55.5	1.512	2.480	5.3	20.0	1 22	8 55.09	+13 11.2	2.108	3.077	3.8	18.4
2 1	8 45.62	+29 31.1	1.522	2.493	4.8	20.0	2 1	8 46.08	+13 22.9	2.107	3.090	1.4	18.3
2 11	8 34.76	+29 49.1	1.560	2.507	8.0	20.2	2 11	8 37.30	+13 36.6	2.136	3.102	4.4	18.5
2 21	8 25.72	+29 48.2	1.623	2.520	11.8	20.5	2 21	8 29.61	+13 49.7	2.194	3.115	7.9	18.7
3 2	8 19.44	+29 30.4	1.709	2.533	15.2	20.7	3 2	8 23.70	+14 0.1	2.279	3.127	11.0	19.0
222744	2002 <i>BQ</i> ₁₁		1 30.2 1°24	0°2/30.3	18		7562	Kagiroino-Oka		1 30.2 28°05	1°7/31.3	18	
12 23	9 12.76	+16 22.9	1.558	2.357	17.2	19.7	12 23	9 12.62	+11 32				

EPHEMERIDES

1 30.2

1 30.2

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
424640	2008 <i>LO</i> ₁₁		1 30.2 257°00	6°9/ 3.4 18			399523	2002 <i>XH</i> ₇₃		1 30.2 110°61	4°0/ 1.6 18		
12 23	9 12.54	- 1 31.8	2.073	2.784	16.3	21.8	12 23	9 17.66	+ 6 24.3	2.048	2.785	15.7	20.7
1 2	9 8.80	- 2 10.6	1.969	2.772	13.9	21.6	1 2	9 12.46	+ 5 56.4	1.971	2.804	12.7	20.6
1 12	9 2.79	- 2 30.9	1.884	2.760	11.2	21.4	1 12	9 4.99	+ 5 42.7	1.915	2.822	9.4	20.4
1 22	8 54.97	- 2 30.3	1.823	2.748	8.6	21.2	1 22	8 55.86	+ 5 43.1	1.885	2.839	6.0	20.2
2 1	8 46.08	- 2 8.1	1.788	2.735	7.0	21.1	2 1	8 45.95	+ 5 56.1	1.884	2.856	4.0	20.1
2 11	8 37.14	- 1 26.6	1.780	2.723	7.6	21.1	2 11	8 36.32	+ 6 18.6	1.913	2.873	5.6	20.3
2 21	8 29.15	- 0 30.2	1.800	2.710	10.0	21.2	2 21	8 27.93	+ 6 46.9	1.970	2.889	8.8	20.5
3 2	8 22.99	+ 0 34.8	1.844	2.697	13.0	21.3	3 2	8 21.52	+ 7 16.9	2.053	2.904	11.9	20.7
403574	2010 <i>NM</i> ₉₇		1 30.2 79°18	2°9/28.9 18			266797	2009 <i>SG</i> ₃₁₆		1 30.2 306°65	3°5/28.2 18		
12 23	9 22.64	+24 56.6	1.750	2.539	16.0	20.9	12 23	9 14.92	+24 34.6	1.806	2.607	15.1	21.0
1 2	9 16.76	+25 12.5	1.689	2.562	12.5	20.7	1 2	9 11.21	+25 16.8	1.716	2.597	11.9	20.8
1 12	9 8.02	+25 30.4	1.649	2.585	8.4	20.5	1 12	9 4.68	+26 4.4	1.650	2.588	8.1	20.5
1 22	8 57.24	+25 44.7	1.636	2.607	4.4	20.3	1 22	8 55.92	+26 51.1	1.608	2.579	4.5	20.3
2 1	8 45.64	+25 50.1	1.652	2.630	3.3	20.3	2 1	8 45.91	+27 30.0	1.595	2.570	3.9	20.2
2 11	8 34.64	+25 43.5	1.696	2.652	6.7	20.6	2 11	8 36.02	+27 55.4	1.610	2.562	7.3	20.4
2 21	8 25.44	+25 24.7	1.768	2.673	10.5	20.8	2 21	8 27.50	+28 4.7	1.651	2.554	11.3	20.6
3 2	8 18.86	+24 55.2	1.864	2.695	13.9	21.1	3 2	8 21.40	+27 58.0	1.715	2.546	14.9	20.8
453290	2008 <i>TX</i> ₁₇₂		1 30.2 188°44	3°7/ 1.2 18			322028	2010 <i>VO</i> ₂₀		1 30.2 116°70	1°4/29.2 18		
12 23	9 17.73	+ 7 33.8	1.840	2.591	16.7	22.5	12 23	9 16.53	+18 39.0	2.085	2.864	14.1	21.4
1 2	9 13.04	+ 7 18.0	1.747	2.591	13.7	22.3	1 2	9 11.73	+19 29.8	2.012	2.881	11.0	21.2
1 12	9 5.72	+ 7 17.7	1.675	2.590	10.0	22.0	1 12	9 4.59	+20 29.2	1.963	2.898	7.3	21.0
1 22	8 56.33	+ 7 32.6	1.628	2.588	6.1	21.8	1 22	8 55.71	+21 32.0	1.941	2.915	3.4	20.8
2 1	8 45.80	+ 8 0.7	1.609	2.586	3.7	21.6	2 1	8 45.98	+22 32.1	1.949	2.931	1.9	20.7
2 11	8 35.35	+ 8 37.8	1.619	2.583	5.9	21.8	2 11	8 36.51	+23 24.1	1.987	2.946	5.5	21.0
2 21	8 26.17	+ 9 19.1	1.657	2.580	9.9	22.0	2 21	8 28.28	+24 4.7	2.054	2.961	9.1	21.2
3 2	8 19.21	+ 9 59.9	1.720	2.575	13.7	22.2	3 2	8 22.08	+24 32.3	2.146	2.976	12.3	21.5
68900	2002 <i>JC</i> ₉₈		1 30.2 217°14	0°8/31.0 17			31424	1999 <i>BW</i> ₂		1 30.2 315°01	6°9/27.5 18		
12 23	9 8.73	+11 58.3	3.009	3.763	10.8	19.7	12 23	9 22.70	+31 56.3	1.418	2.227	18.1	18.0
1 2	9 5.06	+12 28.6	2.907	3.759	8.5	19.6	1 2	9 18.26	+32 36.6	1.340	2.221	14.6	17.8
1 12	8 59.84	+13 8.4	2.830	3.755	5.9	19.4	1 12	9 9.92	+33 15.1	1.283	2.215	10.7	17.5
1 22	8 53.46	+13 55.6	2.781	3.751	2.9	19.2	1 22	8 58.46	+33 41.8	1.249	2.208	7.5	17.3
2 1	8 46.44	+14 47.3	2.763	3.747	0.9	19.0	2 1	8 45.37	+33 47.2	1.240	2.203	7.3	17.3
2 11	8 39.46	+15 40.0	2.776	3.743	3.5	19.2	2 11	8 32.69	+33 26.2	1.258	2.197	10.4	17.5
2 21	8 33.14	+16 30.3	2.819	3.738	6.5	19.4	2 21	8 22.23	+32 39.9	1.299	2.192	14.5	17.7
3 2	8 28.05	+17 15.7	2.890	3.733	9.1	19.6	3 2	8 15.27	+31 33.4	1.362	2.187	18.3	17.9
466781	2015 <i>AH</i> ₂₇₄		1 30.2 222°02	2°6/28.1 16			144492	2004 <i>EQ</i> ₆₅		1 30.2 168°31	5°9/25.7 18		
12 23	9 12.95	+22 28.5	2.365	3.151	12.4	21.8	12 23	9 19.18	+32 15.1	2.218	3.004	13.1	20.0
1 2	9 8.94	+23 29.1	2.273	3.146	9.7	21.6	1 2	9 14.12	+33 36.8	2.142	3.009	10.5	19.8
1 12	9 2.77	+24 36.1	2.205	3.141	6.5	21.4	1 12	9 6.41	+34 58.1	2.091	3.012	7.9	19.7
1 22	8 54.92	+25 44.4	2.165	3.136	3.5	21.2	1 22	8 56.64	+36 11.0	2.067	3.015	6.0	19.5
2 1	8 46.12	+26 48.0	2.155	3.131	3.0	21.2	2 1	8 45.78	+37 8.1	2.072	3.018	6.4	19.6
2 11	8 37.36	+27 41.6	2.175	3.125	5.9	21.3	2 11	8 35.07	+37 44.2	2.107	3.020	8.5	19.7
2 21	8 29.57	+28 22.0	2.224	3.119	9.1	21.5	2 21	8 25.69	+37 58.2	2.167	3.021	11.2	19.9
3 2	8 23.55	+28 47.9	2.297	3.113	12.1	21.7	3 2	8 18.58	+37 51.9	2.251	3.022	13.7	20.1
472369	2015 <i>BN</i> ₅₈		1 30.2 319°13	1°9/28.8 17			373336	2012 <i>JC</i> ₃₄		1 30.2 248°35	7°0/ 3.5 17		
12 23	9 10.92	+18 45.6	1.974	2.767	14.3	21.1	12 23	9 13.20	- 2 10.7	2.217	2.917	15.6	21.3
1 2	9 7.78	+19 48.2	1.882	2.760	11.2	20.9	1 2	9 9.16	- 2 57.2	2.110	2.905	13.4	21.1
1 12	9 2.21	+21 2.1	1.813	2.753	7.5	20.6	1 12	9 2.97	- 3 26.6	2.024	2.893	10.9	20.9
1 22	8 54.73	+22 21.9	1.772	2.746	3.5	20.4	1 22	8 55.04	- 3 36.4	1.962	2.881	8.5	20.7
2 1	8 46.15	+23 40.6	1.759	2.740	2.4	20.3	2 1	8 46.12	- 3 25.6	1.926	2.868	7.0	20.6
2 11	8 37.60	+24 51.1	1.775	2.733	6.1	20.5	2 11	8 37.13	- 2 55.6	1.918	2.855	7.6	20.6
2 21	8 30.14	+25 48.6	1.818	2.727	10.0	20.7	2 21	8 29.04	- 2 10.4	1.937	2.841	9.8	20.7
3 2	8 24.71	+26 30.5	1.886	2.721	13.5	20.9	3 2	8 22.67	- 1 15.3	1.982	2.828	12.5	20.9
201962	2004 <i>NN</i> ₂₀		1 30.2 140°62	2°8/31.7 18			239259	2007 <i>DB</i> ₅₃		1 30.2 303°28	0°9/29.9 18		
12 23	9 18.39	+ 9 45.3	1.772	2.532	17.0	21.4	12 23	9 17.65	+19 1.9	1.349	2.156	19.0	20.6
1 2	9 13.53	+ 9 35.8	1.690	2.542	13.6	21.2	1 2	9 14.17	+19 5.1	1.262	2.146	15.1	20.3
1 12	9 5.99	+ 9 40.9	1.630	2.551	9.7	20.9	1 12	9 7.15	+19 18.2	1.195	2.136	10.2	20.0
1 22	8 56.42	+ 9 59.3	1.594	2.559	5.5	20.7	1 22	8 57.22	+19 36.8	1.151	2.127	4.7	19.7
2 1	8 45.81	+10 28.0	1.587	2.567	2.8	20.5	2 1	8 45.63	+19 54.9	1.133	2.118	1.6	19.4
2 11	8 35.43	+11 2.5	1.609	2.574	5.7	20.7	2 11	8 34.16	+20 6.7	1.142	2.109	7.3	19.7
2 21	8 26.46	+11 38.2	1.658	2.581	9.8	21.0	2 21	8 24.51	+20 8.8	1.175	2.100	12.7	20.0
3 2	8 19.81	+12 11.2	1.732	2.587	13.6	21.2	3 2	8 17.98	+20 0.1	1.230	2.092	17.5	20.3
235965	2005 <i>EG</i> ₂₁₈		1 30.2 42°84	3°5/28.0 18			323801	2005 <i>QT</i> ₁₅₆		1 30.2 75°51	2°2/31.3 18		
12 23	9 16.06	+27 5.5	2.199	2.989	13.1	20.4	12 23	9 18.00	+12 53.4	1.810	2.580	16.3	20.3
1 2	9 11.44	+27 35.8	2.117	2.990	10.3	20.2	1 2	9 13.11	+12 23.7	1.731	2.590	13.0	20.1
1 12	9 4.43	+28 7.3	2.058	2.992	7.1	20.0	1 12	9 5.64	+12 4.3	1.673	2.599	9.1	19.9
1 22	8 55.65	+28 34.9	2.026	2.993	4.2	19.8	1 22	8 56.23	+11 54.0	1.641	2.609	4.9	19.7
2 1	8 45.98	+28 53.3	2.023	2.994	3.8	19.8	2 1	8 45.89	+11 50.9	1.638	2.619	2.2	19.5
2 11	8 36.54	+28 59.3	2.049	2.996	6.5	19.9	2 11	8 35.86	+11 52.2	1.663	2.629	5.5	19.7
2 21	8 28.35	+28 51.6	2.103	2.997	9.6	20.1	2 21	8 27.24	+11 55.2	1.716	2.639	9.5	20.0
3 2	8 22.21	+28 31.1	2.181	2.999	12.6	20.3	3 2	8 20.91	+11 57.5	1.794	2.649	13.2	20.3
87054	2000 <i>KU</i> ₃₀		1 30.2 220°67	1°0/30.8 18			419145	2009 <i>SF</i> ₂₉₀		1 30.2 55°62	2°5/28.6 18		
12 23	9 15.09	+13 48.6	2.064	2.834									

EPHEMERIDES

1 30.2

1 30.2

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
319571	2006 SQ ₈₇		1 30.2 213°93		1°1/30.9 18		499138	2009 QC ₄₁		1 30.2 117°51		0°8/31.2 17	
12 23	9 14.73	+12 58.1	1.875	2.649	15.7	22.0	12 23	9 8.29	+12 32.4	3.934	4.678	8.6	22.7
1 2	9 10.72	+13 10.5	1.783	2.646	12.5	21.8	1 2	9 4.22	+12 44.6	3.849	4.696	6.8	22.6
1 12	9 4.17	+13 35.9	1.713	2.643	8.6	21.6	1 12	8 59.02	+13 2.8	3.791	4.713	4.6	22.5
1 22	8 55.63	+14 11.7	1.669	2.640	4.3	21.3	1 22	8 53.01	+13 25.6	3.761	4.730	2.4	22.3
2 1	8 46.01	+14 53.8	1.653	2.637	1.2	21.1	2 1	8 46.63	+13 51.2	3.763	4.746	0.8	22.2
2 11	8 36.47	+15 37.0	1.666	2.634	5.3	21.3	2 11	8 40.36	+14 17.6	3.797	4.763	2.7	22.4
2 21	8 28.15	+16 16.7	1.707	2.630	9.6	21.6	2 21	8 34.64	+14 43.0	3.862	4.779	4.9	22.5
3 2	8 21.97	+16 49.6	1.772	2.626	13.4	21.8	3 2	8 29.88	+15 5.9	3.955	4.794	6.9	22.7
217104	2001 XD ₇₂		1 30.2 111°66		1°1/29.5 18		317186	2001 XY ₂₅₈		1 30.2 74°82		0°2/30.4 18	
12 23	9 15.94	+18 2.6	2.098	2.876	14.1	21.1	12 23	9 14.84	+13 43.9	1.797	2.576	16.1	20.9
1 2	9 11.24	+18 44.0	2.024	2.892	10.9	20.9	1 2	9 10.66	+14 24.5	1.731	2.598	12.5	20.7
1 12	9 4.25	+19 34.0	1.974	2.909	7.3	20.7	1 12	9 3.98	+15 18.7	1.687	2.620	8.4	20.5
1 22	8 55.56	+20 27.9	1.950	2.925	3.3	20.5	1 22	8 55.47	+16 21.8	1.669	2.642	3.9	20.3
2 1	8 46.05	+21 20.2	1.957	2.940	1.5	20.4	2 1	8 46.10	+17 27.7	1.679	2.664	0.8	20.1
2 11	8 36.79	+22 6.0	1.994	2.955	5.2	20.7	2 11	8 37.07	+18 30.0	1.719	2.686	5.3	20.5
2 21	8 28.76	+22 41.9	2.059	2.970	8.9	20.9	2 21	8 29.42	+19 23.8	1.787	2.707	9.4	20.7
3 2	8 22.73	+23 6.4	2.150	2.984	12.1	21.2	3 2	8 23.98	+20 6.2	1.879	2.728	13.0	21.0
244997	2004 CT ₃		1 30.2 235°42		0°7/30.8 18		54271	2000 JD ₃₉		1 30.2 314°79		5°8/27.1 18	
12 23	9 10.47	+11 37.1	2.501	3.260	12.6	20.7	12 23	9 17.25	+26 52.3	1.410	2.226	17.9	18.5
1 2	9 6.80	+12 23.9	2.399	3.254	10.0	20.5	1 2	9 13.91	+28 3.7	1.334	2.221	14.1	18.3
1 12	9 1.24	+13 23.7	2.321	3.248	6.8	20.3	1 12	9 7.00	+29 21.4	1.278	2.217	10.0	18.0
1 22	8 54.20	+14 33.6	2.270	3.242	3.4	20.1	1 22	8 57.16	+30 35.6	1.247	2.213	6.4	17.8
2 1	8 46.33	+15 49.2	2.250	3.235	0.8	19.8	2 1	8 45.70	+31 35.0	1.241	2.209	6.3	17.8
2 11	8 38.45	+17 5.2	2.262	3.228	4.2	20.1	2 11	8 34.44	+32 11.4	1.262	2.206	9.9	18.0
2 21	8 31.37	+18 16.8	2.303	3.221	7.7	20.3	2 21	8 25.08	+32 22.1	1.306	2.202	14.2	18.2
3 2	8 25.81	+19 20.2	2.370	3.214	10.8	20.5	3 2	8 18.91	+32 9.0	1.371	2.199	18.1	18.4
230478	2002 TA ₁₄		1 30.2 67°93		1°6/31.1 18		32749	1981 EA ₉		1 30.2 108°90		1°7/29.4 18	
12 23	9 15.98	+10 58.8	1.302	2.095	20.3	19.9	12 23	9 22.81	+20 52.4	1.794	2.574	16.0	18.8
1 2	9 12.47	+11 23.6	1.238	2.110	16.1	19.7	1 2	9 16.86	+21 13.6	1.727	2.597	12.5	18.6
1 12	9 5.68	+12 9.0	1.193	2.126	11.1	19.4	1 12	9 8.12	+21 40.8	1.683	2.619	8.3	18.4
1 22	8 56.38	+13 10.9	1.170	2.142	5.6	19.1	1 22	8 57.36	+22 8.8	1.666	2.640	3.9	18.2
2 1	8 45.87	+14 22.2	1.174	2.158	1.7	18.9	2 1	8 45.71	+22 32.1	1.678	2.660	2.1	18.1
2 11	8 35.77	+15 33.9	1.205	2.174	6.5	19.3	2 11	8 34.55	+22 46.5	1.719	2.680	6.1	18.4
2 21	8 27.54	+16 38.4	1.261	2.190	11.6	19.6	2 21	8 25.07	+22 50.3	1.789	2.699	10.1	18.7
3 2	8 22.23	+17 30.7	1.339	2.206	16.0	19.9	3 2	8 18.12	+22 43.6	1.883	2.717	13.6	18.9
85142	1981 EO ₂₉		1 30.2 305°91		1°1/31.2 17		500274	2012 MV ₇		1 30.2 239°08		1°5/29.2 17	
12 23	9 8.73	+12 54.8	2.946	3.704	10.9	20.3	12 23	9 13.92	+19 25.0	2.176	2.959	13.5	21.8
1 2	9 5.14	+12 54.9	2.834	3.688	8.6	20.1	1 2	9 9.88	+20 6.0	2.079	2.950	10.5	21.6
1 12	8 59.96	+13 2.7	2.746	3.671	6.0	19.9	1 12	9 3.51	+20 55.3	2.005	2.941	7.1	21.4
1 22	8 53.55	+13 16.8	2.685	3.654	3.1	19.7	1 22	8 55.33	+21 48.7	1.958	2.932	3.3	21.1
2 1	8 46.47	+13 35.3	2.655	3.638	1.2	19.5	2 1	8 46.11	+22 40.7	1.941	2.923	1.9	21.0
2 11	8 39.40	+13 55.9	2.655	3.622	3.7	19.7	2 11	8 36.92	+23 26.0	1.954	2.914	5.5	21.2
2 21	8 32.98	+14 16.1	2.685	3.606	6.6	19.8	2 21	8 28.77	+24 1.1	1.995	2.904	9.3	21.4
3 2	8 27.82	+14 33.8	2.741	3.590	9.4	20.0	3 2	8 22.53	+24 24.2	2.061	2.894	12.6	21.6
55585	2002 PQ ₄₅		1 30.2 101°11		4°1/28.1 17		18324	1984 HA ₂		1 30.2 296°84		3°4/ 1.2 18	
12 23	9 22.14	+24 0.2	1.515	2.314	17.6	19.5	12 23	9 12.50	+ 7 54.4	2.217	2.966	14.3	18.5
1 2	9 17.00	+25 4.3	1.455	2.335	13.7	19.3	1 2	9 8.79	+ 7 33.0	2.093	2.936	11.7	18.3
1 12	9 8.57	+26 14.6	1.417	2.355	9.3	19.1	1 12	9 2.85	+ 7 23.6	1.992	2.905	8.7	18.0
1 22	8 57.65	+27 22.2	1.405	2.375	5.2	18.9	1 22	8 55.08	+ 7 26.5	1.916	2.875	5.4	17.7
2 1	8 45.61	+28 17.7	1.420	2.394	4.6	19.0	2 1	8 46.16	+ 7 40.7	1.868	2.844	3.4	17.6
2 11	8 34.08	+28 54.8	1.463	2.413	8.2	19.2	2 11	8 37.05	+ 8 3.9	1.850	2.813	5.4	17.6
2 21	8 24.54	+29 11.3	1.532	2.431	12.2	19.5	2 21	8 28.76	+ 8 32.6	1.860	2.782	9.0	17.8
3 2	8 17.98	+29 9.0	1.623	2.448	15.8	19.8	3 2	8 22.18	+ 9 3.0	1.895	2.751	12.6	17.9
46576	1992 EP ₁₀		1 30.2 291°77		5°0/ 2.7 18		426902	2013 WX ₇₀		1 30.2 142°19		2°1/28.6 18	
12 23	9 10.94	+ 1 37.1	1.765	2.508	17.6	18.3	12 23	9 13.99	+22 29.5	2.417	3.199	12.3	21.1
1 2	9 7.92	+ 1 49.3	1.670	2.503	14.7	18.0	1 2	9 9.57	+23 7.8	2.333	3.204	9.6	20.9
1 12	9 2.40	+ 2 25.5	1.594	2.497	11.2	17.8	1 12	9 3.09	+23 50.6	2.273	3.209	6.4	20.7
1 22	8 54.86	+ 3 25.8	1.542	2.492	7.5	17.6	1 22	8 55.05	+24 33.6	2.242	3.214	3.3	20.5
2 1	8 46.17	+ 4 47.5	1.517	2.487	5.0	17.4	2 1	8 46.22	+25 12.0	2.240	3.218	2.5	20.5
2 11	8 37.49	+ 6 24.0	1.519	2.482	6.4	17.5	2 11	8 37.54	+25 42.0	2.269	3.223	5.3	20.7
2 21	8 29.95	+ 8 7.0	1.549	2.477	10.0	17.7	2 21	8 29.90	+26 1.3	2.325	3.227	8.5	20.9
3 2	8 24.51	+ 9 47.9	1.604	2.472	13.8	17.9	3 2	8 24.02	+26 9.2	2.408	3.231	11.4	21.1
489208	2006 JX ₄₂		1 30.2 201°02		0°6/30.7 17		368586	2004 RG ₂₂		1 30.2 155°93		0°9/29.6 18	
12 23	9 16.41	+13 37.1	2.107	2.872	14.5	22.9	12 23	9 15.89	+18 53.9	2.447	3.217	12.5	22.0
1 2	9 11.78	+13 59.3	2.010	2.868	11.5	22.7	1 2	9 10.95	+19 17.8	2.360	3.224	9.7	21.8
1 12	9 4.77	+14 33.4	1.935	2.863	7.9	22.5	1 12	9 3.95	+19 47.9	2.298	3.231	6.5	21.6
1 22	8 55.89	+15 16.4	1.886	2.858	3.8	22.2	1 22	8 55.43	+20 20.7	2.263	3.237	3.0	21.4
2 1	8 45.97	+16 4.0	1.868	2.852	0.9	22.0	2 1	8 46.15	+20 52.3	2.259	3.243	1.2	21.3
2 11	8 36.08	+16 51.3	1.879	2.846	5.0	22.3	2 11	8 37.02	+21 19.0	2.286	3.248	4.7	21.6
2 21	8 27.28	+17 34.0	1.920	2.838	9.0	22.5	2 21	8 28.93	+21 38.4	2.343	3.252	8.0	21.8
3 2	8 20.44	+18 9.1	1.986	2.830	12.6	22.7	3 2	8 22.57	+21 49.4	2.425	3.256	11.0	22.0
127822	2003 FV ₉₁		1 30.2 122°81		8°4/ 6.4 18		256868	2008 DU ₇		1 30.2 196°06		0°2/30.1 18	
12 23	9 15.86	- 9 50.3	2.026	2.682	18.1	19.7	12 23	9 15.15	+15 39.9	2.021	2.797	14.6	21.3
1 2													

EPHEMERIDES

1 30.2

1 30.3

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
34363	2000 <i>RT</i> ₃₀		1 30.2 284°00		5°8/ 2.2 18		263146	2007 <i>VE</i> ₂₀₇		1 30.3 287°48		3°7/28.3 18	
12 23	9 13.46	+ 3 43.2	1.584	2.340	18.8	18.9	12 23	9 16.42	+23 45.2	1.596	2.401	16.6	21.1
1 2	9 10.26	+ 3 12.8	1.489	2.330	15.7	18.7	1 2	9 12.91	+24 31.4	1.502	2.386	13.1	20.8
1 12	9 4.20	+ 3 2.6	1.412	2.320	12.0	18.4	1 12	9 6.19	+25 25.5	1.430	2.370	9.0	20.6
1 22	8 55.81	+ 3 14.3	1.358	2.309	8.2	18.2	1 22	8 56.81	+26 20.6	1.383	2.355	4.9	20.3
2 1	8 46.04	+ 3 47.4	1.330	2.299	5.9	18.0	2 1	8 45.87	+27 8.1	1.363	2.340	4.2	20.2
2 11	8 36.23	+ 4 37.9	1.328	2.289	7.4	18.1	2 11	8 34.91	+27 40.9	1.370	2.325	8.1	20.4
2 21	8 27.71	+ 5 39.3	1.352	2.278	11.3	18.2	2 21	8 25.47	+27 55.4	1.403	2.309	12.6	20.6
3 2	8 21.61	+ 6 44.2	1.399	2.268	15.4	18.5	3 2	8 18.81	+27 51.3	1.458	2.294	16.7	20.8
69821	1998 <i>RA</i> ₆₅		1 30.2 116°80		0°7/30.8 18		341347	2007 <i>TW</i> ₄₉		1 30.3 148°35		4°5/ 2.9 18	
12 23	9 13.12	+13 48.6	2.209	2.978	13.7	19.8	12 23	9 11.13	+ 1 8.9	2.646	3.355	13.1	21.2
1 2	9 8.99	+14 4.1	2.123	2.984	10.8	19.6	1 2	9 7.06	+ 0 54.0	2.553	3.361	11.0	21.1
1 12	9 2.75	+14 29.9	2.060	2.990	7.4	19.4	1 12	9 1.27	+ 0 53.6	2.481	3.366	8.5	20.9
1 22	8 54.91	+15 3.3	2.024	2.996	3.6	19.2	1 22	8 54.20	+ 1 8.2	2.435	3.371	6.1	20.7
2 1	8 46.27	+15 40.9	2.017	3.002	0.9	19.0	2 1	8 46.47	+ 1 36.7	2.418	3.376	4.6	20.7
2 11	8 37.78	+16 18.4	2.040	3.007	4.5	19.2	2 11	8 38.82	+ 2 16.6	2.430	3.381	5.3	20.7
2 21	8 30.35	+16 52.2	2.092	3.013	8.2	19.5	2 21	8 31.97	+ 3 4.1	2.471	3.385	7.5	20.9
3 2	8 24.70	+17 19.8	2.170	3.018	11.5	19.7	3 2	8 26.54	+ 3 55.1	2.539	3.389	10.0	21.0
261189	2005 <i>TY</i> ₁₄₁		1 30.2 44°20		2°3/ 1.1 18		400309	Ralfhofner		1 30.3 166°68		1°8/31.3 18	
12 23	9 9.21	+ 8 15.4	2.469	3.220	12.9	20.3	12 23	9 17.91	+11 48.0	2.014	2.773	15.2	22.2
1 2	9 5.72	+ 8 25.5	2.380	3.225	10.4	20.1	1 2	9 12.93	+11 44.6	1.925	2.777	12.2	22.0
1 12	9 0.43	+ 8 48.2	2.314	3.231	7.4	19.9	1 12	9 5.53	+11 52.9	1.858	2.781	8.5	21.8
1 22	8 53.81	+ 9 22.2	2.275	3.237	4.3	19.7	1 22	8 56.27	+12 11.1	1.817	2.785	4.5	21.5
2 1	8 46.51	+10 4.8	2.264	3.243	2.3	19.6	2 1	8 46.04	+12 36.3	1.805	2.788	1.9	21.3
2 11	8 39.32	+10 52.2	2.284	3.250	4.2	19.7	2 11	8 35.96	+13 4.4	1.823	2.790	5.1	21.6
2 21	8 32.99	+11 40.6	2.332	3.256	7.3	19.9	2 21	8 27.10	+13 31.9	1.870	2.791	9.0	21.8
3 2	8 28.15	+12 26.4	2.407	3.263	10.2	20.1	3 2	8 20.30	+13 55.8	1.943	2.792	12.6	22.0
503175	2015 <i>GH</i> ₄₃		1 30.2 354°01		0°2/30.1 17		63707	2001 <i>QX</i> ₁₉₇		1 30.3 61°73		9°0/ 5.1 18	
12 23	9 9.09	+15 18.9	1.898	2.689	14.9	20.7	12 23	9 12.77	- 5 44.0	1.820	2.519	18.6	18.9
1 2	9 6.34	+15 53.8	1.810	2.685	11.7	20.4	1 2	9 9.12	- 6 41.4	1.742	2.529	16.2	18.7
1 12	9 1.24	+16 41.0	1.744	2.682	7.9	20.2	1 12	9 3.05	- 7 15.3	1.682	2.539	13.4	18.5
1 22	8 54.31	+17 37.0	1.704	2.679	3.6	19.9	1 22	8 55.14	- 7 22.4	1.644	2.549	10.8	18.4
2 1	8 46.39	+18 36.2	1.692	2.677	0.9	19.7	2 1	8 46.28	- 7 1.4	1.630	2.559	9.2	18.3
2 11	8 38.56	+19 32.8	1.709	2.676	5.3	20.0	2 11	8 37.58	- 6 14.9	1.642	2.570	9.4	18.3
2 21	8 31.86	+20 21.9	1.753	2.675	9.4	20.3	2 21	8 30.11	- 5 9.0	1.679	2.580	11.2	18.5
3 2	8 27.15	+21 0.2	1.821	2.675	13.1	20.5	3 2	8 24.70	- 3 51.4	1.740	2.591	13.7	18.7
399326	1999 <i>RA</i> ₁₁₄		1 30.2 135°08		5°4/ 2.9 18		161733	2006 <i>ST</i> ₄₄		1 30.3 183°04		7°9/21.8 17	
12 23	9 15.14	+ 1 0.6	1.992	2.713	16.5	21.6	12 23	9 23.90	+49 15.9	3.190	3.928	10.5	21.0
1 2	9 10.72	+ 0 49.2	1.908	2.725	13.8	21.4	1 2	9 17.49	+50 27.7	3.125	3.929	9.3	20.9
1 12	9 3.99	+ 0 57.4	1.845	2.736	10.6	21.2	1 12	9 8.52	+51 29.4	3.084	3.929	8.3	20.8
1 22	8 55.52	+ 1 25.8	1.805	2.746	7.4	21.0	1 22	8 57.62	+52 14.7	3.069	3.928	7.9	20.8
2 1	8 46.16	+ 2 12.5	1.794	2.756	5.4	20.9	2 1	8 45.75	+52 38.3	3.081	3.927	8.3	20.8
2 11	8 36.96	+ 3 13.4	1.811	2.766	6.4	21.0	2 11	8 34.12	+52 38.3	3.119	3.925	9.3	20.9
2 21	8 28.92	+ 4 22.3	1.856	2.775	9.3	21.2	2 21	8 23.84	+52 15.4	3.181	3.923	10.6	21.0
3 2	8 22.83	+ 5 33.1	1.927	2.783	12.4	21.4	3 2	8 15.78	+51 33.0	3.264	3.921	11.9	21.1
60978	2000 <i>KP</i> ₇		1 30.2 88°40		5°8/ 3.1 18		254533	2005 <i>EF</i> ₁₃₁		1 30.3 224°90		0°2/30.1 18	
12 23	9 16.53	+ 0 30.3	2.044	2.758	16.4	19.0	12 23	9 17.87	+17 8.6	2.035	2.809	14.6	21.5
1 2	9 11.53	- 0 1.6	1.976	2.785	13.7	18.9	1 2	9 13.11	+17 21.5	1.934	2.799	11.5	21.3
1 12	9 4.35	- 0 15.1	1.928	2.812	10.6	18.7	1 12	9 5.80	+17 43.1	1.856	2.789	7.8	21.0
1 22	8 55.61	- 0 9.4	1.905	2.839	7.6	18.6	1 22	8 56.47	+18 10.2	1.805	2.779	3.6	20.7
2 1	8 46.16	+ 0 14.5	1.909	2.865	5.9	18.6	2 1	8 45.99	+18 38.5	1.783	2.768	0.9	20.5
2 11	8 37.04	+ 0 53.2	1.942	2.890	6.6	18.6	2 11	8 35.55	+19 3.6	1.791	2.756	5.3	20.8
2 21	8 29.14	+ 1 41.5	2.003	2.915	9.1	18.8	2 21	8 26.26	+19 22.3	1.827	2.744	9.5	21.0
3 2	8 23.18	+ 2 34.3	2.090	2.940	11.8	19.1	3 2	8 19.07	+19 32.8	1.889	2.731	13.2	21.2
424515	2008 <i>EV</i> ₃₂		1 30.2 194°60		0°3/30.5 17		119750	2001 <i>YL</i> ₆₄		1 30.3 132°96		3°9/27.2 18	
12 23	9 14.31	+13 45.3	2.296	3.060	13.4	22.0	12 23	9 17.63	+27 5.5	2.321	3.105	12.7	20.3
1 2	9 9.96	+14 21.0	2.199	3.058	10.6	21.8	1 2	9 12.56	+28 10.5	2.249	3.119	9.9	20.2
1 12	9 3.46	+15 8.3	2.126	3.055	7.2	21.6	1 12	9 5.18	+29 17.7	2.201	3.132	6.9	20.0
1 22	8 55.30	+16 4.0	2.079	3.052	3.4	21.3	1 22	8 56.07	+30 20.8	2.182	3.145	4.4	19.9
2 1	8 46.21	+17 3.6	2.063	3.048	0.7	21.1	2 1	8 46.10	+31 13.6	2.192	3.157	4.3	19.9
2 11	8 37.16	+18 1.9	2.078	3.044	4.6	21.4	2 11	8 36.35	+31 51.4	2.232	3.168	6.7	20.1
2 21	8 29.06	+18 54.7	2.122	3.039	8.4	21.6	2 21	8 27.80	+32 12.7	2.301	3.179	9.6	20.3
3 2	8 22.73	+19 38.9	2.193	3.033	11.7	21.8	3 2	8 21.25	+32 17.9	2.393	3.190	12.2	20.4
269811	1999 <i>VN</i> ₁₁₅		1 30.2 191°20		1°1/29.5 18		313176	2001 <i>MH</i> ₂₂		1 30.3 184°58		2°5/31.6 18	
12 23	9 13.87	+18 50.5	2.227	3.007	13.3	21.2	12 23	9 18.18	+10 43.2	2.214	2.961	14.3	21.1
1 2	9 9.69	+19 22.3	2.136	3.006	10.4	21.0	1 2	9 12.93	+10 19.1	2.117	2.962	11.6	20.9
1 12	9 3.30	+20 1.8	2.070	3.006	6.9	20.8	1 12	9 5.43	+10 4.9	2.044	2.961	8.2	20.7
1 22	8 55.21	+20 45.0	2.030	3.005	3.2	20.5	1 22	8 56.20	+10 0.0	1.997	2.961	4.7	20.5
2 1	8 46.23	+21 27.3	2.020	3.003	1.5	20.4	2 1	8 46.07	+10 2.9	1.980	2.959	2.5	20.3
2 11	8 37.36	+22 4.0	2.040	3.002	5.1	20.7	2 11	8 36.05	+10 11.0	1.994	2.958	5.0	20.5
2 21	8 29.54	+22 32.1	2.089	3.000	8.8	20.9	2 21	8 27.12	+10 21.8	2.036	2.955	8.5	20.7
3 2	8 23.57	+22 50.0	2.163	2.999	12.0	21.1	3 2	8 20.07	+10 32.7	2.105	2.952	11.8	20.9
13414	Grantham		1 30.3 151°54		0°1/30.3 18		373315	2012 <i>JE</i> ₈		1 30.3 309°19		0°7/30.6 18	
12 23	9 14.18	+16 12.4	2.216	2.990	13.6	18.7	12 23	9 13.59					

EPHEMERIDES

1 30.3

1 30.3

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
55415	2001 <i>TA</i> ₁₁		1 30.3 181°20		1°0/30.9 18		265343	2004 <i>QJ</i> ₁₂		1 30.3 143°87		3°5/27.5 18	
12 23	9 14.89	+13 13.8	2.112	2.878	14.4	20.0	12 23	9 15.43	+24 36.5	2.207	2.995	13.2	20.9
1 2	9 10.54	+13 26.5	2.020	2.879	11.4	19.8	1 2	9 11.03	+25 45.5	2.128	3.002	10.2	20.7
1 12	9 3.92	+13 50.4	1.951	2.880	7.8	19.6	1 12	9 4.28	+26 59.4	2.073	3.008	7.0	20.5
1 22	8 55.54	+14 23.1	1.908	2.880	3.9	19.4	1 22	8 55.73	+28 12.0	2.046	3.014	4.1	20.3
2 1	8 46.22	+15 0.9	1.895	2.879	1.1	19.1	2 1	8 46.23	+29 16.4	2.049	3.020	3.9	20.3
2 11	8 37.02	+15 39.3	1.911	2.878	4.8	19.4	2 11	8 36.87	+30 7.2	2.082	3.025	6.6	20.5
2 21	8 28.90	+16 14.6	1.956	2.877	8.7	19.6	2 21	8 28.66	+30 41.7	2.143	3.031	9.8	20.7
3 2	8 22.69	+16 43.8	2.027	2.876	12.2	19.9	3 2	8 22.45	+30 59.7	2.228	3.035	12.7	20.9
278214	2007 <i>EX</i> ₄₂		1 30.3 203°11		2°9/28.2 17		248673	2006 <i>JT</i> ₄₄		1 30.3 224°60		5°4/26.3 17	
12 23	9 16.93	+25 22.2	2.483	3.262	12.1	21.6	12 23	9 20.07	+29 45.2	2.124	2.911	13.7	21.9
1 2	9 11.94	+25 58.5	2.389	3.258	9.5	21.4	1 2	9 15.11	+31 0.9	2.030	2.899	10.9	21.7
1 12	9 4.76	+26 37.4	2.320	3.253	6.5	21.2	1 12	9 7.34	+32 19.4	1.960	2.887	7.9	21.5
1 22	8 55.90	+27 14.3	2.279	3.248	3.7	21.0	1 22	8 57.29	+33 32.8	1.917	2.874	5.7	21.4
2 1	8 46.15	+27 44.3	2.269	3.242	3.2	21.0	2 1	8 45.89	+34 32.9	1.904	2.860	5.9	21.3
2 11	8 36.51	+28 3.6	2.289	3.236	5.8	21.1	2 11	8 34.45	+35 13.6	1.920	2.845	8.4	21.5
2 21	8 27.90	+28 10.6	2.337	3.229	8.9	21.3	2 21	8 24.26	+35 32.3	1.962	2.830	11.6	21.6
3 2	8 21.12	+28 5.3	2.411	3.222	11.7	21.5	3 2	8 16.40	+35 30.3	2.028	2.813	14.5	21.8
21768	1999 <i>RL</i> ₂₁₀		1 30.3 183°36		3°0/ 1.1 18		15644	4157 <i>P-L</i>		1 30.3 356°37		0°2/30.4 18	
12 23	9 13.98	+ 8 25.9	2.223	2.971	14.3	18.2	12 23	9 12.61	+16 51.2	1.098	1.924	21.2	18.0
1 2	9 9.67	+ 8 10.5	2.129	2.971	11.6	18.0	1 2	9 10.73	+16 44.8	1.026	1.919	16.8	17.7
1 12	9 3.24	+ 8 7.3	2.057	2.971	8.4	17.8	1 12	9 5.10	+16 52.2	0.971	1.916	11.5	17.4
1 22	8 55.20	+ 8 15.8	2.011	2.971	5.1	17.6	1 22	8 56.42	+17 9.8	0.938	1.914	5.4	17.0
2 1	8 46.31	+ 8 34.2	1.994	2.970	3.0	17.5	2 1	8 46.08	+17 31.6	0.928	1.913	1.1	16.7
2 11	8 37.50	+ 8 59.7	2.006	2.970	5.0	17.6	2 11	8 36.03	+17 51.2	0.942	1.913	7.5	17.1
2 21	8 29.71	+ 9 28.6	2.047	2.969	8.3	17.8	2 21	8 28.04	+18 3.5	0.979	1.915	13.4	17.4
3 2	8 23.67	+ 9 57.5	2.114	2.968	11.5	18.0	3 2	8 23.43	+18 6.1	1.035	1.917	18.5	17.7
415946	2001 <i>WD</i> ₉₆		1 30.3 108°96		1°8/28.9 18		207007	2004 <i>TE</i> ₂₇₇		1 30.3 33°88		3°0/28.9 18	
12 23	9 18.59	+21 12.0	2.350	3.122	12.9	22.5	12 23	9 15.60	+21 21.6	1.234	2.055	19.6	20.7
1 2	9 13.01	+21 55.2	2.283	3.149	10.0	22.3	1 2	9 12.59	+22 3.7	1.173	2.065	15.3	20.5
1 12	9 5.30	+22 43.3	2.241	3.175	6.6	22.2	1 12	9 6.01	+22 55.8	1.132	2.077	10.2	20.2
1 22	8 56.06	+23 31.5	2.228	3.200	3.2	22.0	1 22	8 56.69	+23 50.1	1.114	2.089	5.1	20.0
2 1	8 46.15	+24 15.0	2.245	3.225	2.2	21.9	2 1	8 46.05	+24 37.4	1.121	2.102	3.5	19.9
2 11	8 36.55	+24 49.6	2.293	3.249	5.2	22.2	2 11	8 35.91	+25 10.2	1.154	2.115	8.1	20.2
2 21	8 28.16	+25 13.2	2.371	3.272	8.4	22.4	2 21	8 27.86	+25 25.2	1.210	2.129	13.0	20.5
3 2	8 21.66	+25 25.4	2.474	3.294	11.2	22.7	3 2	8 22.98	+25 22.6	1.287	2.144	17.3	20.8
189468	1999 <i>RT</i> ₂₂₃		1 30.3 158°38		2°1/31.7 18		79472	Chiorny		1 30.3 52°31		13°1/20.3 18	
12 23	9 15.06	+10 32.7	2.446	3.193	13.1	20.9	12 23	9 18.42	+31 10.7	1.011	1.850	21.6	17.2
1 2	9 10.26	+10 24.5	2.354	3.198	10.5	20.8	1 2	9 16.82	+35 24.1	0.963	1.858	17.6	17.0
1 12	9 3.50	+10 26.4	2.285	3.204	7.5	20.6	1 12	9 10.29	+39 46.4	0.939	1.866	14.2	16.8
1 22	8 55.27	+10 37.3	2.244	3.209	4.2	20.4	1 22	8 59.27	+43 48.9	0.938	1.874	13.2	16.8
2 1	8 46.30	+10 55.1	2.233	3.213	2.1	20.2	2 1	8 45.42	+47 3.6	0.963	1.883	15.0	16.9
2 11	8 37.46	+11 16.9	2.252	3.217	4.4	20.4	2 11	8 31.59	+49 14.6	1.010	1.892	18.4	17.2
2 21	8 29.58	+11 39.8	2.300	3.220	7.6	20.6	2 21	8 20.65	+50 22.0	1.075	1.901	21.9	17.4
3 2	8 23.34	+12 1.3	2.376	3.223	10.7	20.8	3 2	8 14.59	+50 36.5	1.154	1.911	24.9	17.7
110777	2001 <i>UZ</i> ₂₉		1 30.3 212°16		0°4/30.6 18		41697	2000 <i>UJ</i> ₄₆		1 30.3 352°43		2°4/29.2 18	
12 23	9 11.15	+13 48.6	2.718	3.479	11.6	20.2	12 23	9 14.08	+20 50.0	1.290	2.110	19.0	18.7
1 2	9 7.17	+14 18.8	2.617	3.474	9.2	20.0	1 2	9 11.47	+21 16.5	1.214	2.105	14.9	18.5
1 12	9 1.43	+14 58.4	2.540	3.469	6.2	19.8	1 12	9 5.39	+21 53.2	1.157	2.102	10.1	18.2
1 22	8 54.33	+15 45.0	2.492	3.464	3.0	19.6	1 22	8 56.49	+22 33.9	1.123	2.099	4.8	17.9
2 1	8 46.50	+16 35.1	2.473	3.458	0.6	19.4	2 1	8 46.08	+23 10.7	1.115	2.097	2.9	17.7
2 11	8 38.68	+17 24.8	2.486	3.452	3.9	19.6	2 11	8 35.91	+23 36.2	1.131	2.096	7.8	18.0
2 21	8 31.64	+18 10.6	2.528	3.445	7.2	19.8	2 21	8 27.61	+23 46.8	1.172	2.095	13.0	18.3
3 2	8 26.01	+18 49.9	2.598	3.439	10.1	20.0	3 2	8 22.41	+23 41.8	1.234	2.096	17.5	18.6
122126	2000 <i>JG</i> ₁₉		1 30.3 192°03		0°2/30.4 18		247836	2003 <i>SA</i> ₂₅₈		1 30.3 239°48		1°7/29.4 17	
12 23	9 20.13	+16 18.0	1.963	2.732	15.2	20.8	12 23	9 20.83	+21 23.1	2.011	2.789	14.6	21.6
1 2	9 14.86	+16 24.4	1.869	2.731	12.0	20.6	1 2	9 15.61	+21 38.9	1.905	2.773	11.5	21.3
1 12	9 6.96	+16 39.9	1.798	2.729	8.2	20.3	1 12	9 7.63	+22 0.4	1.822	2.757	7.8	21.1
1 22	8 57.00	+17 1.3	1.753	2.726	3.9	20.1	1 22	8 57.41	+22 23.1	1.766	2.739	3.8	20.8
2 1	8 45.93	+17 24.6	1.738	2.722	0.8	19.8	2 1	8 45.90	+22 42.0	1.740	2.722	2.1	20.6
2 11	8 34.97	+17 45.7	1.753	2.718	5.3	20.1	2 11	8 34.36	+22 52.8	1.743	2.703	6.0	20.8
2 21	8 25.30	+18 1.3	1.796	2.713	9.6	20.4	2 21	8 24.06	+22 53.0	1.775	2.684	10.2	21.0
3 2	8 17.86	+18 9.9	1.865	2.707	13.3	20.6	3 2	8 16.04	+22 42.5	1.832	2.664	14.0	21.2
4895	Embla		1 30.3 77°62		5°0/27.8 18		68757	2002 <i>EH</i> ₈₆		1 30.3 209°88		0°4/30.6 18	
12 23	9 23.03	+26 42.2	1.484	2.286	17.8	17.1	12 23	9 13.61	+14 24.0	2.499	3.261	12.5	20.3
1 2	9 17.72	+27 44.4	1.433	2.313	13.9	16.9	1 2	9 9.26	+14 44.2	2.398	3.255	9.9	20.1
1 12	9 9.04	+28 49.3	1.404	2.339	9.6	16.7	1 12	9 2.93	+15 13.7	2.320	3.249	6.7	19.9
1 22	8 57.92	+29 47.2	1.399	2.366	5.8	16.6	1 22	8 55.09	+15 50.0	2.271	3.243	3.2	19.7
2 1	8 45.79	+30 29.5	1.423	2.392	5.4	16.6	2 1	8 46.41	+16 29.6	2.251	3.236	0.7	19.4
2 11	8 34.36	+30 50.8	1.473	2.418	8.6	16.8	2 11	8 37.76	+17 8.8	2.263	3.229	4.3	19.7
2 21	8 25.05	+30 50.8	1.549	2.443	12.4	17.1	2 21	8 29.98	+17 44.0	2.304	3.221	7.8	19.9
3 2	8 18.80	+30 32.3	1.647	2.468	15.8	17.4	3 2	8 23.80	+18 13.1	2.371	3.213	10.9	20.1
465830	2010 <i>HC</i> ₇₉		1 30.3 194°71		3°2/ 2.2 17		154357	2002 <i>XO</i> ₄₄		1 30.3 124°95		0°9/30.8 18	
12 23	9 10.51	+ 4 7.3	3.154	3.869	11.1	22.0	12 23	9					

EPHEMERIDES

1 30.3

1 30.3

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
361665	2007 <i>TH</i> ₄₁₀		1 30.3 58°68	1.4°/29.6	18		446856	2001 <i>UY</i> ₉₆		1 30.3 92°65	2.3°/29.0	18	
12 23	9 16.84	+17 59.7	1.418	2.221	18.4	20.7	12 23	9 20.05	+20 16.1	1.537	2.332	17.6	21.5
1 2	9 12.96	+18 38.6	1.358	2.240	14.3	20.5	1 2	9 15.31	+21 3.6	1.474	2.352	13.7	21.3
1 12	9 5.94	+19 29.5	1.319	2.259	9.6	20.3	1 12	9 7.46	+22 0.5	1.432	2.371	9.1	21.1
1 22	8 56.57	+20 26.1	1.303	2.279	4.4	20.0	1 22	8 57.28	+22 59.6	1.416	2.390	4.4	20.8
2 1	8 46.12	+21 20.5	1.315	2.299	1.9	19.9	2 1	8 46.02	+23 53.0	1.428	2.409	2.8	20.8
2 11	8 36.16	+22 5.7	1.354	2.319	6.7	20.3	2 11	8 35.22	+24 34.1	1.468	2.427	7.0	21.1
2 21	8 28.04	+22 37.4	1.419	2.339	11.4	20.6	2 21	8 26.24	+24 59.6	1.534	2.445	11.4	21.4
3 2	8 22.71	+22 54.6	1.506	2.359	15.4	20.9	3 2	8 20.04	+25 9.6	1.623	2.463	15.1	21.6
277826	2006 <i>HC</i> ₁₀		1 30.3 72°71	3.5°/ 1.9	18		152484	2005 <i>WX</i> ₅₉		1 30.3 133°32	0.3°/30.5	18	
12 23	9 11.13	+ 4 53.4	2.087	2.831	15.2	20.7	12 23	9 13.19	+12 28.2	2.091	2.859	14.4	20.1
1 2	9 7.55	+ 5 6.0	2.004	2.841	12.4	20.5	1 2	9 9.28	+13 21.3	2.005	2.865	11.4	19.9
1 12	9 1.87	+ 5 36.1	1.942	2.851	9.1	20.3	1 12	9 3.12	+14 28.9	1.942	2.872	7.7	19.7
1 22	8 54.60	+ 6 22.5	1.905	2.861	5.7	20.1	1 22	8 55.24	+15 46.9	1.906	2.878	3.7	19.4
2 1	8 46.53	+ 7 22.2	1.897	2.872	3.5	20.0	2 1	8 46.43	+17 9.5	1.899	2.884	0.7	19.2
2 11	8 38.61	+ 8 30.0	1.917	2.882	5.1	20.1	2 11	8 37.73	+18 30.1	1.924	2.890	4.9	19.5
2 21	8 31.73	+ 9 40.3	1.967	2.892	8.4	20.4	2 21	8 30.09	+19 43.1	1.977	2.896	8.8	19.8
3 2	8 26.63	+10 47.8	2.042	2.902	11.6	20.6	3 2	8 24.33	+20 44.7	2.056	2.901	12.2	20.0
296035	2008 <i>YV</i> ₁₆₇		1 30.3 71°53	4.2°/ 1.4	18		231812	2000 <i>GV</i> ₂₅		1 30.3 232°94	0.5°/30.6	17	
12 23	9 16.62	+ 7 28.1	1.491	2.260	19.2	20.8	12 23	9 12.49	+14 37.0	2.445	3.211	12.6	20.8
1 2	9 12.60	+ 7 3.8	1.419	2.273	15.6	20.6	1 2	9 8.44	+14 52.9	2.345	3.205	10.0	20.6
1 12	9 5.64	+ 6 58.0	1.367	2.286	11.4	20.4	1 12	9 2.43	+15 18.0	2.269	3.199	6.8	20.4
1 22	8 56.44	+ 7 10.4	1.338	2.299	7.0	20.2	1 22	8 54.89	+15 49.7	2.220	3.192	3.3	20.2
2 1	8 46.15	+ 7 38.5	1.336	2.312	4.2	20.0	2 1	8 46.52	+16 24.8	2.201	3.185	0.7	20.0
2 11	8 36.18	+ 8 17.2	1.360	2.325	6.6	20.2	2 11	8 38.20	+16 59.6	2.212	3.178	4.3	20.2
2 21	8 27.84	+ 9 0.6	1.410	2.338	10.8	20.5	2 21	8 30.75	+17 30.8	2.252	3.171	7.8	20.4
3 2	8 22.09	+ 9 43.1	1.484	2.352	14.7	20.7	3 2	8 24.92	+17 56.1	2.319	3.164	11.0	20.6
92424	2000 <i>JO</i> ₅₀		1 30.3 235°78	1°2°/29.7	18		298349	2003 <i>JW</i> ₁₀		1 30.3 332°91	3°1°/28.5	18	
12 23	9 19.38	+19 2.9	1.813	2.596	15.8	20.2	12 23	9 14.14	+20 19.3	1.355	2.170	18.5	20.5
1 2	9 14.73	+19 23.9	1.713	2.584	12.5	20.0	1 2	9 11.49	+21 21.8	1.276	2.165	14.5	20.2
1 12	9 7.17	+19 53.9	1.635	2.571	8.5	19.7	1 12	9 5.45	+22 38.1	1.217	2.160	9.8	19.9
1 22	8 57.25	+20 28.4	1.583	2.557	3.9	19.4	1 22	8 56.60	+24 0.4	1.182	2.156	4.9	19.6
2 1	8 45.95	+21 1.9	1.560	2.543	1.6	19.2	2 1	8 46.16	+25 18.3	1.173	2.152	3.7	19.6
2 11	8 34.64	+21 29.0	1.566	2.529	6.2	19.5	2 11	8 35.82	+26 22.0	1.190	2.149	8.3	19.8
2 21	8 24.65	+21 46.0	1.599	2.513	10.8	19.7	2 21	8 27.24	+27 5.6	1.231	2.146	13.3	20.1
3 2	8 17.09	+21 51.8	1.657	2.498	14.8	19.9	3 2	8 21.66	+27 27.7	1.294	2.143	17.6	20.3
358102	2006 <i>KF</i> ₆₃		1 30.3 329°88	5°4°/27.6	18		385926	2006 <i>TE</i> ₁₁₆		1 30.3 210°03	0°4°/29.9	17	
12 23	9 14.63	+26 0.4	1.294	2.118	18.6	20.5	12 23	9 11.13	+16 28.9	2.704	3.473	11.5	21.8
1 2	9 10.23	+26 58.2	1.213	2.107	14.8	20.3	1 2	9 7.21	+17 4.5	2.607	3.470	9.0	21.6
1 12	9 6.14	+28 3.4	1.153	2.096	10.3	20.0	1 12	9 1.51	+17 48.3	2.534	3.466	6.0	21.4
1 22	8 56.96	+29 6.6	1.116	2.086	6.3	19.7	1 22	8 54.45	+18 37.1	2.489	3.463	2.8	21.2
2 1	8 46.01	+29 56.9	1.104	2.076	6.0	19.7	2 1	8 46.64	+19 27.1	2.474	3.458	0.8	21.0
2 11	8 35.18	+30 25.6	1.116	2.067	9.9	19.9	2 11	8 38.88	+20 14.3	2.491	3.454	4.2	21.2
2 21	8 26.30	+30 29.4	1.152	2.059	14.6	20.1	2 21	8 31.90	+20 55.5	2.537	3.450	7.3	21.4
3 2	8 20.73	+30 10.0	1.207	2.052	18.9	20.3	3 2	8 26.37	+21 28.6	2.609	3.445	10.2	21.6
354977	2006 <i>HS</i> ₁₂₀		1 30.3 208°24	1°2°/31.1	17		90449	Brucestephenson		1 30.3 299°10	9°8°/22.5	18	
12 23	9 16.44	+12 9.6	2.185	2.942	14.2	22.5	12 23	9 21.74	+44 37.9	2.160	2.934	13.8	19.3
1 2	9 11.79	+12 28.2	2.083	2.936	11.3	22.3	1 2	9 17.03	+45 59.0	2.074	2.913	12.0	19.1
1 12	9 4.83	+12 59.3	2.003	2.928	7.9	22.1	1 12	9 8.97	+47 12.0	2.011	2.891	10.4	19.0
1 22	8 56.05	+13 40.2	1.951	2.921	4.0	21.8	1 22	8 58.18	+48 7.0	1.972	2.869	9.8	18.9
2 1	8 46.23	+14 27.4	1.928	2.912	1.2	21.6	2 1	8 45.84	+48 35.4	1.959	2.847	10.3	18.9
2 11	8 36.41	+15 16.1	1.936	2.902	4.8	21.9	2 11	8 33.61	+48 32.6	1.971	2.826	12.0	19.0
2 21	8 27.59	+16 1.8	1.973	2.892	8.7	22.1	2 21	8 23.06	+47 59.1	2.005	2.804	14.1	19.1
3 2	8 20.65	+16 41.4	2.036	2.881	12.3	22.3	3 2	8 15.42	+46 59.4	2.060	2.783	16.3	19.2
335630	2006 <i>JM</i> ₃		1 30.3 259°28	0°8°/29.8	18		493890	2015 <i>XL</i> ₁₇₀		1 30.3 75°13	1°3°/29.6	17	
12 23	9 13.44	+18 16.0	2.216	2.996	13.4	21.2	12 23	9 19.49	+18 30.8	1.485	2.280	18.1	21.8
1 2	9 9.44	+18 39.6	2.119	2.989	10.5	21.0	1 2	9 14.87	+19 1.4	1.424	2.302	14.1	21.6
1 12	9 3.23	+19 11.0	2.046	2.981	7.0	20.7	1 12	9 7.15	+19 42.4	1.385	2.324	9.4	21.4
1 22	8 55.28	+19 46.8	2.000	2.974	3.2	20.5	1 22	8 57.14	+20 27.9	1.370	2.345	4.3	21.1
2 1	8 46.40	+20 22.7	1.983	2.967	1.2	20.3	2 1	8 46.12	+21 10.8	1.383	2.367	1.8	21.0
2 11	8 37.57	+20 54.3	1.996	2.959	5.0	20.6	2 11	8 35.61	+21 45.0	1.424	2.388	6.5	21.4
2 21	8 29.77	+21 18.5	2.037	2.952	8.8	20.8	2 21	8 26.96	+22 7.3	1.491	2.409	11.1	21.7
3 2	8 23.80	+21 33.6	2.104	2.944	12.1	21.0	3 2	8 21.08	+22 16.7	1.581	2.430	15.0	22.0
140434	2001 <i>TB</i> ₁₀₃		1 30.3 151°56	1°3°/31.2	17		53975	2000 <i>GA</i> ₆₈		1 30.3 146°59	2°1°/28.5	18	
12 23	9 14.16	+13 7.9	2.760	3.511	11.7	20.6	12 23	9 14.20	+23 30.1	2.831	3.606	10.9	20.0
1 2	9 9.34	+12 58.7	2.667	3.516	9.3	20.5	1 2	9 9.47	+24 9.1	2.748	3.615	8.4	19.9
1 12	9 2.79	+12 56.9	2.599	3.522	6.4	20.3	1 12	9 2.93	+24 51.1	2.690	3.624	5.7	19.7
1 22	8 54.96	+13 1.1	2.559	3.527	3.4	20.1	1 22	8 55.06	+25 32.4	2.662	3.632	3.0	19.5
2 1	8 46.49	+13 9.4	2.549	3.532	1.3	20.0	2 1	8 46.54	+26 8.9	2.664	3.640	2.4	19.5
2 11	8 38.16	+13 19.5	2.571	3.536	3.8	20.1	2 11	8 38.16	+26 37.3	2.697	3.647	4.8	19.7
2 21	8 30.68	+13 29.4	2.622	3.541	6.9	20.4	2 21	8 30.66	+26 55.7	2.759	3.654	7.6	19.9
3 2	8 24.65	+13 37.4	2.701	3.545	9.6	20.5	3 2	8 24.69	+27 3.7	2.847	3.661	10.1	20.0
328746	2009 <i>UM</i> ₃₆		1 30.3 192°01	2°1°/31.8	18		367938	2012 <i>DD</i> ₁		1 30.3 57°77	0°7°/30.7	18	
12 23	9 13.60	+ 9 45.3	2.226	2.980	14.1</								

EPHEMERIDES

1 30.3

1 30.3

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
437789	2015 <i>CU</i> ₃₉		1 30.3 228°02	4.3/ 3.1	18		323097	2002 <i>VA</i> ₁₁₄		1 30.3 81°85	6.7/ 3.6	18	
12 23	9 9.36	+ 0 57.0	2.561	3.275	13.4	20.8	12 23	9 16.76	- 0 49.2	1.842	2.557	17.9	21.3
1 2	9 5.88	+ 1 3.0	2.460	3.273	11.2	20.6	1 2	9 12.02	- 1 27.4	1.775	2.583	15.0	21.1
1 12	9 0.64	+ 1 25.6	2.381	3.270	8.6	20.4	1 12	9 4.90	- 1 44.6	1.728	2.609	11.8	21.0
1 22	8 54.06	+ 2 4.8	2.327	3.268	6.0	20.3	1 22	8 56.04	- 1 39.2	1.705	2.634	8.7	20.9
2 1	8 46.74	+ 2 58.7	2.302	3.265	4.3	20.2	2 1	8 46.39	- 1 12.3	1.708	2.660	6.8	20.8
2 11	8 39.46	+ 4 4.0	2.307	3.263	5.1	20.2	2 11	8 37.08	- 0 27.6	1.739	2.685	7.4	20.9
2 21	8 32.95	+ 5 15.8	2.341	3.260	7.6	20.4	2 21	8 29.12	+ 0 29.0	1.797	2.709	9.9	21.1
3 2	8 27.85	+ 6 29.0	2.401	3.257	10.3	20.5	3 2	8 23.28	+ 1 31.0	1.879	2.733	12.8	21.3
419050	2009 <i>RJ</i> ₄₃		1 30.3 8°73	5.6/ 2.4	18		162680	2000 <i>TY</i> ₁₂		1 30.3 206°39	1.5/ 31.2	18	
12 23	9 11.27	+ 3 47.8	1.643	2.400	18.2	20.7	12 23	9 17.10	+ 12 13.0	1.914	2.679	15.7	21.2
1 2	9 8.32	+ 3 14.9	1.560	2.401	15.1	20.5	1 2	9 12.63	+ 12 21.4	1.817	2.675	12.5	21.0
1 12	9 2.76	+ 3 1.3	1.496	2.403	11.5	20.3	1 12	9 5.59	+ 12 42.8	1.743	2.670	8.8	20.7
1 22	8 55.18	+ 3 8.5	1.455	2.405	7.9	20.1	1 22	8 56.51	+ 13 15.2	1.695	2.664	4.5	20.5
2 1	8 46.51	+ 3 35.3	1.440	2.408	5.7	20.0	2 1	8 46.27	+ 13 54.6	1.675	2.658	1.5	20.2
2 11	8 37.98	+ 4 17.9	1.451	2.411	7.0	20.0	2 11	8 36.08	+ 14 36.2	1.684	2.652	5.3	20.5
2 21	8 30.75	+ 5 10.3	1.489	2.415	10.4	20.2	2 21	8 27.08	+ 15 15.4	1.722	2.645	9.6	20.7
3 2	8 25.74	+ 6 6.1	1.549	2.420	14.0	20.5	3 2	8 20.23	+ 15 48.8	1.785	2.637	13.4	20.9
429301	2010 <i>DC</i> ₁₄		1 30.3 253°57	5.3/ 3.4	17		102400	1999 <i>TW</i> ₁₆₉		1 30.3 152°25	0.2/ 30.2	18	
12 23	9 10.40	- 0 46.6	2.648	3.349	13.3	21.7	12 23	9 18.42	+ 16 38.5	2.106	2.875	14.3	21.2
1 2	9 6.67	- 1 9.9	2.539	3.338	11.3	21.5	1 2	9 13.29	+ 16 59.3	2.021	2.884	11.2	21.0
1 12	9 1.18	- 1 18.2	2.452	3.327	9.0	21.4	1 12	9 5.79	+ 17 29.0	1.960	2.892	7.6	20.8
1 22	8 54.32	- 1 10.2	2.389	3.315	6.8	21.2	1 22	8 56.49	+ 18 3.9	1.926	2.900	3.5	20.6
2 1	8 46.69	- 0 46.3	2.354	3.304	5.4	21.1	2 1	8 46.30	+ 18 39.7	1.922	2.907	0.8	20.4
2 11	8 39.04	- 0 8.3	2.348	3.292	5.9	21.1	2 11	8 36.29	+ 19 11.8	1.949	2.913	5.0	20.7
2 21	8 32.11	+ 0 40.0	2.371	3.280	8.0	21.2	2 21	8 27.50	+ 19 37.2	2.004	2.919	8.9	20.9
3 2	8 26.55	+ 1 34.4	2.420	3.268	10.4	21.4	3 2	8 20.75	+ 19 54.2	2.085	2.924	12.3	21.2
241489	2009 <i>BV</i> ₁₂₅		1 30.3 255°72	0.2/ 30.5	17		165258	2000 <i>SO</i> ₂₀₈		1 30.3 203°18	1.6/ 29.4	18	
12 23	9 11.72	+ 15 16.4	2.435	3.205	12.6	21.3	12 23	9 18.73	+ 19 41.0	1.854	2.638	15.4	21.0
1 2	9 7.86	+ 15 34.4	2.338	3.201	9.9	21.1	1 2	9 14.08	+ 20 11.6	1.763	2.634	12.1	20.8
1 12	9 2.04	+ 16 1.3	2.265	3.196	6.7	20.9	1 12	9 6.65	+ 20 50.8	1.694	2.631	8.2	20.5
1 22	8 54.73	+ 16 34.3	2.219	3.192	3.2	20.7	1 22	8 57.02	+ 21 33.7	1.652	2.626	3.9	20.2
2 1	8 46.61	+ 17 10.1	2.203	3.188	0.6	20.4	2 1	8 46.18	+ 22 14.3	1.639	2.621	2.0	20.1
2 11	8 38.56	+ 17 44.8	2.217	3.183	4.3	20.7	2 11	8 35.43	+ 22 47.1	1.655	2.616	6.1	20.4
2 21	8 31.40	+ 18 15.4	2.260	3.179	7.8	20.9	2 21	8 26.03	+ 23 8.7	1.698	2.610	10.4	20.6
3 2	8 25.84	+ 18 39.6	2.329	3.174	10.9	21.1	3 2	8 18.99	+ 23 18.0	1.766	2.603	14.2	20.8
44712	1999 <i>TJ</i> ₅		1 30.3 116°85	1.7/ 29.5	18		284981	2010 <i>GT</i> ₁₁₉		1 30.3 189°69	0.6/ 29.8	17	
12 23	9 22.59	+ 19 53.4	1.571	2.359	17.6	19.2	12 23	9 12.23	+ 18 3.1	3.015	3.780	10.5	22.1
1 2	9 17.26	+ 20 20.1	1.502	2.376	13.7	19.0	1 2	9 7.86	+ 18 31.3	2.918	3.779	8.2	21.9
1 12	9 8.78	+ 20 55.4	1.455	2.391	9.2	18.7	1 12	9 1.84	+ 19 5.4	2.845	3.777	5.5	21.7
1 22	8 57.93	+ 21 33.4	1.432	2.407	4.3	18.5	1 22	8 54.59	+ 19 42.7	2.802	3.775	2.5	21.5
2 1	8 45.97	+ 22 7.4	1.438	2.421	2.1	18.4	2 1	8 46.69	+ 20 19.8	2.789	3.773	0.9	21.4
2 11	8 34.45	+ 22 31.8	1.473	2.435	6.6	18.7	2 11	8 38.85	+ 20 53.6	2.808	3.770	3.9	21.6
2 21	8 24.76	+ 22 44.1	1.534	2.449	11.2	19.0	2 21	8 31.74	+ 21 21.7	2.857	3.766	6.8	21.8
3 2	8 17.89	+ 22 43.9	1.619	2.461	15.1	19.2	3 2	8 25.95	+ 21 42.6	2.933	3.763	9.4	21.9
269616	2010 <i>EO</i> ₁₁₁		1 30.3 208°18	0.5/ 30.6	18		511243	2014 <i>BS</i> ₃₂		1 30.3 260°74	7.6/ 28.7	18	
12 23	9 17.17	+ 13 49.2	1.893	2.664	15.6	21.2	12 23	9 35.58	+ 30 0.3	0.951	1.770	24.2	21.0
1 2	9 12.76	+ 14 13.6	1.797	2.659	12.4	20.9	1 2	9 31.31	+ 30 28.1	0.860	1.747	19.9	20.6
1 12	9 5.72	+ 14 51.2	1.722	2.653	8.5	20.7	1 12	9 20.95	+ 30 58.0	0.786	1.723	14.6	20.2
1 22	8 56.57	+ 15 38.9	1.674	2.647	4.1	20.4	1 22	9 4.73	+ 31 15.5	0.731	1.698	9.3	19.8
2 1	8 46.22	+ 16 31.6	1.655	2.640	0.8	20.1	2 1	8 44.46	+ 31 2.6	0.699	1.672	8.1	19.6
2 11	8 35.89	+ 17 23.6	1.665	2.632	5.4	20.5	2 11	8 23.68	+ 30 8.0	0.690	1.644	13.5	19.8
2 21	8 26.77	+ 18 9.9	1.704	2.624	9.8	20.7	2 21	8 6.11	+ 28 34.3	0.702	1.616	20.4	20.0
3 2	8 19.84	+ 18 47.1	1.767	2.615	13.7	20.9	3 2	7 54.35	+ 26 34.8	0.732	1.587	26.9	20.2
77121	2001 <i>DD</i> ₈₈		1 30.3 77°01	2.7/ 29.2	18		260053	2004 <i>HL</i> ₉		1 30.3 237°92	5.0/ 3.3	17	
12 23	9 21.48	+ 24 8.9	1.638	2.433	16.7	19.0	12 23	9 11.10	- 0 34.2	2.902	3.596	12.4	21.5
1 2	9 16.39	+ 24 18.1	1.563	2.440	13.1	18.8	1 2	9 7.05	- 1 1.7	2.790	3.584	10.5	21.4
1 12	9 8.21	+ 24 30.4	1.509	2.446	8.9	18.5	1 12	9 1.36	- 1 15.8	2.700	3.572	8.4	21.2
1 22	8 57.67	+ 24 40.4	1.481	2.453	4.5	18.3	1 22	8 54.40	- 1 15.6	2.635	3.560	6.3	21.0
2 1	8 46.03	+ 24 42.4	1.480	2.460	3.0	18.2	2 1	8 46.73	- 1 0.9	2.599	3.547	5.1	20.9
2 11	8 34.80	+ 24 32.9	1.508	2.467	6.9	18.5	2 11	8 39.03	- 0 33.6	2.592	3.534	5.6	21.0
2 21	8 25.35	+ 24 11.2	1.562	2.474	11.2	18.7	2 21	8 31.98	+ 0 3.7	2.615	3.521	7.5	21.1
3 2	8 18.66	+ 23 38.7	1.640	2.481	15.0	19.0	3 2	8 26.19	+ 0 47.1	2.664	3.507	9.8	21.2
362106	2009 <i>CK</i> ₂₅		1 30.3 314°17	2.4/ 29.2	18		148861	2001 <i>VL</i> ₆₀		1 30.3 28°11	1.2/ 29.6	18	
12 23	9 17.34	+ 21 42.7	1.527	2.330	17.3	21.7	12 23	9 15.54	+ 19 22.4	1.730	2.524	16.0	20.0
1 2	9 13.57	+ 22 7.7	1.443	2.326	13.6	21.4	1 2	9 11.64	+ 19 41.9	1.649	2.526	12.5	19.7
1 12	9 6.60	+ 22 40.4	1.381	2.321	9.2	21.1	1 12	9 4.99	+ 20 9.8	1.591	2.529	8.4	19.5
1 22	8 57.06	+ 23 15.0	1.342	2.316	4.5	20.9	1 22	8 56.22	+ 20 41.5	1.557	2.532	3.9	19.2
2 1	8 46.13	+ 23 44.7	1.331	2.312	2.8	20.7	2 1	8 46.36	+ 21 11.7	1.552	2.535	1.7	19.1
2 11	8 35.38	+ 24 3.5	1.347	2.308	7.2	21.0	2 11	8 36.73	+ 21 35.3	1.574	2.539	6.0	19.4
2 21	8 26.29	+ 24 8.5	1.388	2.304	11.9	21.2	2 21	8 28.54	+ 21 49.2	1.624	2.542	10.4	19.6
3 2	8 20.00	+ 23 59.6	1.452	2.300	16.1	21.5	3 2	8 22.73	+ 21 52.3	1.697	2.546	14.1	19.9
461409	2001 <i>TK</i> ₂₅		1 30.3 52°37	6.6/ 27.5	18		269220	2008 <i>OE</i> ₁₁		1 30.3 167°87	0.7/ 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
87409	2000 <i>QU</i> ₈₅		1 30.3 113°11		1.7°/31.7	18	163480	2002 <i>RB</i> ₂₃₂		1 30.3 180°39		1.5°/31.7	18
12 23	9 11.59	+10 13.1	2.650	3.398	12.2	20.4	12 23	9 11.41	+ 9 17.7	2.633	3.379	12.3	20.6
1 2	9 7.45	+10 22.7	2.564	3.410	9.7	20.2	1 2	9 7.45	+ 9 52.1	2.535	3.380	9.9	20.4
1 12	9 1.59	+10 42.7	2.502	3.421	6.8	20.1	1 12	9 1.70	+10 39.4	2.461	3.381	6.9	20.2
1 22	8 54.48	+11 11.6	2.467	3.432	3.7	19.9	1 22	8 54.60	+11 37.2	2.414	3.381	3.7	20.0
2 1	8 46.74	+11 46.7	2.462	3.443	1.7	19.8	2 1	8 46.75	+12 42.1	2.398	3.380	1.5	19.8
2 11	8 39.13	+12 24.7	2.488	3.454	3.9	19.9	2 11	8 38.94	+13 49.6	2.413	3.380	4.0	20.0
2 21	8 32.37	+13 2.4	2.543	3.464	6.9	20.1	2 21	8 31.91	+14 55.4	2.458	3.379	7.2	20.2
3 2	8 27.05	+13 37.0	2.625	3.475	9.7	20.3	3 2	8 26.32	+15 55.6	2.531	3.378	10.1	20.4
96657	1999 <i>JY</i> ₅		1 30.3 261°30		10°2/21.2	18	301594	2010 <i>CC</i> ₆₃		1 30.3 235°72		1°4/29.5	18
12 23	9 20.47	+36 42.0	1.731	2.530	15.8	18.9	12 23	9 19.74	+19 33.9	1.886	2.667	15.3	21.6
1 2	9 16.87	+39 22.1	1.649	2.514	13.2	18.7	1 2	9 14.99	+20 0.9	1.783	2.653	12.1	21.3
1 12	9 9.52	+42 5.2	1.591	2.497	11.0	18.5	1 12	9 7.39	+20 36.6	1.703	2.638	8.2	21.0
1 22	8 58.79	+44 36.6	1.559	2.479	10.2	18.4	1 22	8 57.46	+21 16.4	1.648	2.622	3.9	20.7
2 1	8 45.76	+46 41.2	1.555	2.462	11.3	18.4	2 1	8 46.14	+21 54.7	1.623	2.606	1.9	20.6
2 11	8 32.28	+48 8.3	1.577	2.444	13.8	18.5	2 11	8 34.77	+22 25.6	1.627	2.589	6.2	20.8
2 21	8 20.36	+48 55.0	1.621	2.425	16.7	18.7	2 21	8 24.65	+22 45.7	1.660	2.571	10.6	21.0
3 2	8 11.73	+49 5.0	1.684	2.407	19.4	18.8	3 2	8 16.88	+22 53.7	1.716	2.553	14.6	21.2
502778	2015 <i>DR</i> ₉₀		1 30.3 213°50		1°3/29.3	17	377215	2003 <i>XQ</i> ₃₈		1 30.3 34°34		7°3/25.6	16
12 23	9 13.84	+20 47.4	2.675	3.449	11.5	22.0	12 23	9 15.35	+32 11.1	1.600	2.413	16.2	19.8
1 2	9 9.37	+21 11.7	2.577	3.444	8.9	21.8	1 2	9 11.93	+33 45.4	1.551	2.433	12.9	19.6
1 12	9 3.00	+21 40.7	2.504	3.438	6.0	21.6	1 12	9 5.36	+35 17.8	1.525	2.453	9.6	19.5
1 22	8 55.18	+22 11.3	2.459	3.433	2.9	21.4	1 22	8 56.43	+36 37.9	1.523	2.474	7.5	19.4
2 1	8 46.59	+22 39.6	2.445	3.427	1.6	21.3	2 1	8 46.41	+37 36.4	1.548	2.495	7.9	19.5
2 11	8 38.07	+23 2.3	2.461	3.420	4.6	21.5	2 11	8 36.88	+38 8.0	1.598	2.517	10.3	19.7
2 21	8 30.42	+23 17.4	2.507	3.414	7.7	21.7	2 21	8 29.19	+38 12.5	1.673	2.540	13.2	19.9
3 2	8 24.32	+23 23.8	2.578	3.407	10.5	21.9	3 2	8 24.28	+37 53.4	1.768	2.563	16.0	20.1
335634	2006 <i>JR</i> ₂₀		1 30.3 161°69		4°1/ 2.6	18	468305	2015 <i>YA</i> ₈		1 30.3 321°32		7°6/ 3.4	16
12 23	9 11.04	+ 2 44.3	2.425	3.148	13.9	21.4	12 23	9 8.64	- 0 41.5	1.452	2.206	20.3	20.4
1 2	9 7.26	+ 2 44.6	2.330	3.151	11.5	21.2	1 2	9 7.45	- 0 53.0	1.313	2.149	17.7	20.1
1 12	9 1.62	+ 3 0.9	2.256	3.153	8.7	21.1	1 12	9 3.20	- 0 34.8	1.191	2.092	14.3	19.7
1 22	8 54.55	+ 3 33.0	2.209	3.155	5.9	20.9	1 22	8 55.98	+ 0 19.7	1.090	2.035	10.5	19.3
2 1	8 46.72	+ 4 18.9	2.189	3.156	4.1	20.8	2 1	8 46.39	+ 1 54.8	1.011	1.978	7.7	19.0
2 11	8 38.96	+ 5 15.1	2.200	3.158	5.1	20.8	2 11	8 35.70	+ 4 8.3	0.958	1.921	9.1	18.8
2 21	8 32.06	+ 6 17.0	2.239	3.159	7.8	21.0	2 21	8 25.59	+ 6 50.4	0.929	1.865	14.0	18.9
3 2	8 26.68	+ 7 19.8	2.305	3.160	10.6	21.2	3 2	8 17.86	+ 9 46.2	0.923	1.809	19.8	19.0
405055	2001 <i>SN</i> ₂₅₉		1 30.3 115°26		0°2/30.5	18	203836	2002 <i>VZ</i> ₄₄		1 30.3 57°57		1°1/29.6	18
12 23	9 15.73	+14 21.5	2.070	2.839	14.5	22.0	12 23	9 13.06	+17 54.9	2.011	2.797	14.3	20.1
1 2	9 11.18	+14 53.4	1.993	2.855	11.4	21.8	1 2	9 9.21	+18 36.7	1.941	2.814	11.1	19.9
1 12	9 4.35	+15 36.5	1.939	2.870	7.7	21.6	1 12	9 3.08	+19 27.5	1.894	2.831	7.4	19.7
1 22	8 55.83	+16 27.2	1.911	2.884	3.6	21.4	1 22	8 55.28	+20 22.6	1.874	2.849	3.4	19.5
2 1	8 46.47	+17 20.5	1.914	2.899	0.7	21.1	2 1	8 46.67	+21 16.4	1.883	2.867	1.5	19.4
2 11	8 37.33	+18 11.4	1.946	2.912	4.8	21.5	2 11	8 38.33	+22 3.8	1.922	2.885	5.3	19.7
2 21	8 29.38	+18 55.6	2.007	2.926	8.7	21.7	2 21	8 31.20	+22 41.2	1.988	2.903	9.0	19.9
3 2	8 23.40	+19 30.7	2.094	2.939	12.0	22.0	3 2	8 26.04	+23 7.0	2.079	2.921	12.2	20.1
261919	2006 <i>KF</i> ₃₁		1 30.3 261°16		2°0/28.3	17	239611	Likwohting		1 30.3 339°11		2°9/31.9	18
12 23	9 9.91	+24 29.3	3.449	4.225	9.1	21.1	12 23	9 14.23	+ 8 49.2	1.480	2.259	18.9	20.5
1 2	9 5.98	+25 1.7	3.343	4.211	7.1	21.0	1 2	9 11.06	+ 8 53.6	1.396	2.258	15.3	20.2
1 12	9 0.55	+25 36.5	3.264	4.197	4.8	20.8	1 12	9 4.90	+ 9 17.8	1.331	2.257	11.0	20.0
1 22	8 54.00	+26 10.6	3.213	4.183	2.6	20.6	1 22	8 56.34	+10 0.4	1.289	2.256	6.2	19.7
2 1	8 46.84	+26 40.9	3.194	4.168	2.2	20.6	2 1	8 46.43	+10 57.2	1.274	2.255	2.9	19.5
2 11	8 39.69	+27 4.7	3.205	4.154	4.2	20.7	2 11	8 36.63	+12 1.3	1.286	2.255	6.3	19.7
2 21	8 33.16	+27 20.4	3.246	4.139	6.6	20.8	2 21	8 28.31	+13 5.4	1.323	2.254	11.1	20.0
3 2	8 27.80	+27 27.2	3.313	4.124	8.8	21.0	3 2	8 22.59	+14 3.2	1.384	2.254	15.5	20.2
105320	2000 <i>QP</i> ₇₅		1 30.3 98°65		1°6/29.5	18	418082	2007 <i>VK</i> ₃₀₇		1 30.3 329°78		6°1/25.5	18
12 23	9 16.99	+20 49.2	1.918	2.705	14.9	19.9	12 23	9 14.32	+32 47.8	2.142	2.939	13.2	20.7
1 2	9 12.48	+21 7.2	1.836	2.710	11.6	19.7	1 2	9 10.60	+34 4.3	2.061	2.934	10.6	20.5
1 12	9 5.40	+21 31.3	1.777	2.714	7.8	19.5	1 12	9 4.30	+35 20.3	2.005	2.928	8.0	20.3
1 22	8 56.37	+21 57.2	1.744	2.718	3.7	19.2	1 22	8 55.96	+36 28.2	1.975	2.923	6.3	20.2
2 1	8 46.36	+22 19.8	1.740	2.723	1.9	19.1	2 1	8 46.52	+37 20.7	1.974	2.919	6.6	20.2
2 11	8 36.58	+22 35.0	1.765	2.727	5.8	19.4	2 11	8 37.17	+37 52.6	1.999	2.914	8.8	20.3
2 21	8 28.15	+22 40.6	1.818	2.731	9.8	19.6	2 21	8 29.09	+38 2.4	2.051	2.910	11.5	20.5
3 2	8 21.96	+22 36.1	1.895	2.735	13.2	19.8	3 2	8 23.20	+37 51.6	2.124	2.906	14.1	20.7
466275	2013 <i>OF</i> ₇		1 30.3 193°80		4°5/ 2.9	16	85336	1995 <i>SJ</i> ₂₇		1 30.3 9°25		0°2/30.4	18
12 23	9 12.41	+ 1 26.9	2.268	2.986	14.8	22.7	12 23	9 11.53	+15 48.7	2.063	2.845	14.1	20.5
1 2	9 8.52	+ 1 32.8	2.168	2.985	12.4	22.5	1 2	9 8.06	+16 3.2	1.976	2.846	11.1	20.3
1 12	9 2.58	+ 1 57.1	2.090	2.983	9.5	22.3	1 12	9 2.36	+16 27.3	1.913	2.847	7.5	20.1
1 22	8 55.05	+ 2 39.8	2.037	2.981	6.5	22.1	1 22	8 54.98	+16 57.9	1.876	2.849	3.5	19.9
2 1	8 46.65	+ 3 39.0	2.013	2.978	4.6	22.0	2 1	8 46.73	+17 31.2	1.867	2.852	0.7	19.7
2 11	8 38.27	+ 4 50.2	2.018	2.975	5.5	22.0	2 11	8 38.61	+18 3.0	1.887	2.854	4.8	20.0
2 21	8 30.79	+ 6 7.9	2.052	2.972	8.4	22.2	2 21	8 31.60	+18 29.7	1.935	2.857	8.7	20.2
3 2	8 24.97	+ 7 26.4	2.112	2.968	11.4	22.4	3 2	8 26.45	+18 49.0	2.008	2.861	12.1	20.4
446825	2001 <i>OM</i> ₅₀		1 30.3 123°23		3°4/28.2	15	430852	2005 <i>MX</i> ₁₅		1 30.3 211°63		2°2/ 1.6	18
12 23	9 23.54	+24 27.8	1.972	2.751	14.8	22.4	12 23						

EPHEMERIDES

1 30.3

1 30.3

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
176749	2002 <i>RG</i> ₁₁₃		1 30.3 108°81		0°4/30.6 18		360836	2005 <i>NN</i> ₃		1 30.3 150°87		0°3/30.1 18	
12 23	9 17.18	+14 20.3	1.930	2.701	15.4	21.5	12 23	9 15.02	+14 23.8	2.246	3.012	13.6	21.4
1 2	9 12.45	+14 46.4	1.856	2.718	12.1	21.3	1 2	9 10.61	+15 19.9	2.159	3.020	10.7	21.2
1 12	9 5.29	+15 24.2	1.805	2.736	8.2	21.1	1 12	9 4.02	+16 28.1	2.097	3.028	7.2	21.0
1 22	8 56.33	+16 9.8	1.780	2.753	3.9	20.9	1 22	8 55.78	+17 44.2	2.062	3.035	3.3	20.8
2 1	8 46.49	+16 58.4	1.785	2.769	0.7	20.7	2 1	8 46.64	+19 2.4	2.057	3.042	0.8	20.6
2 11	8 36.93	+17 44.6	1.819	2.785	5.1	21.0	2 11	8 37.59	+20 16.7	2.084	3.048	4.8	20.9
2 21	8 28.68	+18 24.3	1.881	2.801	9.1	21.3	2 21	8 29.57	+21 22.2	2.140	3.054	8.5	21.2
3 2	8 22.57	+18 55.1	1.969	2.816	12.6	21.6	3 2	8 23.35	+22 16.1	2.223	3.059	11.7	21.4
357498	2004 <i>PK</i> ₃₆		1 30.3 86°61		3°2/ 1.3 17		379004	2008 <i>UP</i> ₃₄₄		1 30.3 0°29		1°0/30.9 17	
12 23	9 19.07	+ 7 22.2	1.606	2.364	18.5	21.0	12 23	9 11.41	+13 55.4	1.793	2.579	15.8	21.2
1 2	9 14.19	+ 7 29.1	1.544	2.392	14.9	20.9	1 2	9 8.32	+13 59.6	1.707	2.577	12.5	21.0
1 12	9 6.56	+ 7 55.0	1.502	2.420	10.6	20.7	1 12	9 2.75	+14 15.8	1.643	2.577	8.6	20.7
1 22	8 56.92	+ 8 37.8	1.484	2.447	6.1	20.5	1 22	8 55.25	+14 41.6	1.604	2.576	4.3	20.5
2 1	8 46.39	+ 9 32.8	1.494	2.474	3.2	20.4	2 1	8 46.74	+15 13.0	1.592	2.577	1.1	20.2
2 11	8 36.31	+10 33.6	1.533	2.500	5.8	20.6	2 11	8 38.37	+15 45.5	1.609	2.578	5.2	20.5
2 21	8 27.84	+11 33.9	1.599	2.525	9.9	20.9	2 21	8 31.23	+16 14.9	1.652	2.580	9.5	20.8
3 2	8 21.85	+12 28.5	1.690	2.550	13.6	21.2	3 2	8 26.22	+16 38.0	1.719	2.582	13.3	21.0
415226	2012 <i>HM</i> ₆₇		1 30.3 25°57		3°4/ 1.4 18		465961	2011 <i>BE</i> ₁₀₃		1 30.3 325°55		2°6/28.8 17	
12 23	9 10.91	+ 7 4.8	1.577	2.351	18.1	20.6	12 23	9 15.12	+22 33.0	1.830	2.627	15.1	21.7
1 2	9 8.15	+ 7 12.0	1.500	2.358	14.7	20.4	1 2	9 11.35	+23 7.5	1.744	2.623	11.8	21.5
1 12	9 2.73	+ 7 39.5	1.443	2.365	10.6	20.1	1 12	9 4.87	+23 48.3	1.680	2.619	8.0	21.3
1 22	8 55.25	+ 8 26.0	1.410	2.373	6.3	19.9	1 22	8 56.27	+24 30.1	1.642	2.615	4.1	21.0
2 1	8 46.70	+ 9 27.2	1.402	2.382	3.4	19.7	2 1	8 46.53	+25 6.5	1.632	2.611	3.0	21.0
2 11	8 38.36	+10 36.5	1.422	2.391	5.9	19.9	2 11	8 36.93	+25 32.3	1.650	2.608	6.6	21.2
2 21	8 31.39	+11 46.6	1.469	2.400	10.1	20.2	2 21	8 28.68	+25 44.8	1.695	2.605	10.6	21.4
3 2	8 26.71	+12 51.4	1.539	2.411	14.1	20.4	3 2	8 22.74	+25 43.3	1.764	2.602	14.2	21.6
226844	2004 <i>SF</i> ₄₀		1 30.3 73°76		3°5/28.2 18		428998	2009 <i>BQ</i> ₃₁		1 30.3 34°72		0°9/29.8 18	
12 23	9 16.70	+25 26.8	1.932	2.726	14.5	20.1	12 23	9 15.17	+20 4.9	2.155	2.937	13.6	20.5
1 2	9 12.33	+26 9.8	1.858	2.735	11.3	19.9	1 2	9 10.77	+20 9.7	2.070	2.941	10.6	20.3
1 12	9 5.35	+26 56.2	1.807	2.743	7.8	19.7	1 12	9 4.13	+20 19.6	2.009	2.945	7.1	20.1
1 22	8 56.40	+27 39.9	1.783	2.752	4.4	19.5	1 22	8 55.80	+20 31.5	1.975	2.949	3.3	19.9
2 1	8 46.49	+28 14.5	1.787	2.760	3.9	19.5	2 1	8 46.65	+20 41.7	1.970	2.953	1.3	19.7
2 11	8 36.85	+28 35.4	1.820	2.769	6.9	19.7	2 11	8 37.70	+20 47.1	1.994	2.958	5.0	20.0
2 21	8 28.63	+28 41.0	1.879	2.778	10.4	20.0	2 21	8 29.93	+20 45.8	2.047	2.963	8.7	20.2
3 2	8 22.68	+28 32.0	1.963	2.786	13.5	20.2	3 2	8 24.08	+20 37.4	2.125	2.968	11.9	20.4
193997	2001 <i>RM</i> ₁₅₂		1 30.3 177°59		3°2/28.3 18		492572	2014 <i>OG</i> ₁₇₂		1 30.3 283°83		3°4/28.3 18	
12 23	9 21.06	+23 33.0	1.982	2.764	14.7	21.9	12 23	9 15.71	+21 30.5	1.531	2.337	17.2	21.3
1 2	9 15.78	+24 26.3	1.897	2.767	11.5	21.7	1 2	9 12.45	+22 33.8	1.447	2.331	13.5	21.0
1 12	9 7.75	+25 25.5	1.835	2.769	7.8	21.5	1 12	9 6.01	+23 48.6	1.384	2.325	9.1	20.7
1 22	8 57.57	+26 24.2	1.800	2.770	4.3	21.3	1 22	8 56.95	+25 7.3	1.345	2.318	4.8	20.5
2 1	8 46.24	+27 15.3	1.795	2.770	3.6	21.2	2 1	8 46.39	+26 20.4	1.334	2.312	3.9	20.4
2 11	8 35.04	+27 53.0	1.820	2.770	6.8	21.4	2 11	8 35.87	+27 19.2	1.351	2.306	8.0	20.6
2 21	8 25.21	+28 14.7	1.872	2.768	10.5	21.6	2 21	8 26.93	+27 58.6	1.392	2.300	12.6	20.9
3 2	8 17.73	+28 20.4	1.949	2.766	13.9	21.9	3 2	8 20.75	+28 17.7	1.456	2.294	16.6	21.1
92430	2000 <i>JW</i> ₆₃		1 30.3 212°77		0°2/30.2 18		225579	2000 <i>UP</i> ₁₀₂		1 30.3 56°54		8°9/25.3 18	
12 23	9 18.00	+15 40.4	1.956	2.728	15.2	21.0	12 23	9 22.62	+38 30.1	1.697	2.493	16.2	20.0
1 2	9 13.42	+16 11.5	1.857	2.721	12.0	20.7	1 2	9 17.61	+39 53.1	1.652	2.515	13.3	19.9
1 12	9 6.22	+16 54.6	1.780	2.713	8.2	20.5	1 12	9 9.17	+41 7.8	1.628	2.537	10.6	19.8
1 22	8 56.90	+17 45.7	1.730	2.704	3.8	20.2	1 22	8 58.21	+42 3.8	1.629	2.559	9.0	19.7
2 1	8 46.37	+18 39.5	1.710	2.695	0.9	20.0	2 1	8 46.19	+42 32.8	1.655	2.581	9.4	19.8
2 11	8 35.82	+19 30.1	1.719	2.684	5.5	20.3	2 11	8 34.85	+42 31.5	1.708	2.603	11.3	19.9
2 21	8 26.44	+20 13.0	1.757	2.673	9.8	20.5	2 21	8 25.66	+42 2.2	1.783	2.626	13.7	20.1
3 2	8 19.22	+20 45.3	1.820	2.662	13.7	20.7	3 2	8 19.55	+41 10.5	1.880	2.648	16.1	20.4
145125	2005 <i>GU</i> ₁₄₁		1 30.3 227°49		3°3/28.4 18		140783	2001 <i>UP</i> ₁₃₇		1 30.3 330°48		1°7/29.3 18	
12 23	9 18.81	+24 29.4	1.916	2.706	14.8	20.6	12 23	9 14.71	+19 39.7	1.767	2.562	15.7	20.2
1 2	9 14.20	+25 9.4	1.824	2.699	11.6	20.4	1 2	9 11.08	+20 16.2	1.682	2.560	12.3	20.0
1 12	9 6.80	+25 54.3	1.755	2.691	8.0	20.1	1 12	9 4.72	+21 2.0	1.619	2.558	8.2	19.8
1 22	8 57.18	+26 38.1	1.713	2.683	4.4	19.9	1 22	8 56.22	+21 52.2	1.582	2.556	3.9	19.5
2 1	8 46.32	+27 14.2	1.699	2.675	3.7	19.8	2 1	8 46.56	+22 40.1	1.572	2.554	2.2	19.4
2 11	8 35.55	+27 37.1	1.715	2.666	7.0	20.0	2 11	8 37.02	+23 20.0	1.591	2.553	6.3	19.6
2 21	8 26.13	+27 44.6	1.757	2.657	10.9	20.2	2 21	8 28.84	+23 47.8	1.637	2.551	10.5	19.9
3 2	8 19.08	+27 37.0	1.823	2.648	14.4	20.4	3 2	8 22.98	+24 2.2	1.706	2.550	14.3	20.1
304831	2007 <i>RQ</i> ₂₃		1 30.3 204°11		0°6/30.7 18		139761	2001 <i>QA</i> ₂₈₆		1 30.3 84°71		3°9/ 1.3 18	
12 23	9 18.23	+14 14.2	2.053	2.818	14.8	22.1	12 23	9 19.75	+ 8 12.2	1.876	2.624	16.6	19.4
1 2	9 13.39	+14 28.2	1.955	2.813	11.8	21.9	1 2	9 14.35	+ 7 33.2	1.806	2.646	13.4	19.3
1 12	9 6.08	+14 53.3	1.879	2.807	8.1	21.7	1 12	9 6.50	+ 7 7.6	1.757	2.669	9.8	19.1
1 22	8 56.79	+15 26.6	1.829	2.801	3.9	21.4	1 22	8 56.87	+ 6 55.4	1.734	2.691	6.0	18.9
2 1	8 46.41	+16 4.1	1.809	2.794	0.9	21.2	2 1	8 46.46	+ 6 55.3	1.739	2.713	3.9	18.8
2 11	8 36.05	+16 41.2	1.819	2.786	5.1	21.4	2 11	8 36.42	+ 7 4.6	1.773	2.735	5.8	19.0
2 21	8 26.82	+17 14.0	1.858	2.777	9.2	21.7	2 21	8 27.79	+ 7 19.7	1.836	2.756	9.2	19.2
3 2	8 19.64	+17 39.7	1.923	2.768	12.9	21.9	3 2	8 21.34	+ 7 37.2	1.923	2.777	12.5	19.5
135949	2002 <i>TQ</i> ₂₁₉		1 30.3 74°44		1°5/29.6 18		522397	2016 <i>CC</i> ₃₀₉		1 30.3 147°78		0°4/30.0 18	
12 23	9 21.42	+20 32.8	1.678	2.									

EPHEMERIDES

1 30.3

1 30.4

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
206273	2002 YF ₂₆		1 30.3 288°06	4.1/1.6	18		205917	2002 GT ₁₃₅		1 30.4 248°41	2.2/29.2	18	
12 23	9 14.00	+ 6 23.7	2.372	3.107	13.8	20.0	12 23	9 18.38	+21 15.8	1.781	2.571	15.7	21.2
1 2	9 9.77	+ 5 41.8	2.261	3.091	11.4	19.8	1 2	9 14.10	+21 45.5	1.686	2.561	12.4	20.9
1 12	9 3.47	+ 5 10.6	2.172	3.075	8.6	19.6	1 12	9 6.91	+22 23.0	1.612	2.549	8.4	20.7
1 22	8 55.55	+ 4 50.9	2.109	3.059	5.8	19.4	1 22	8 57.35	+23 3.0	1.564	2.538	4.1	20.4
2 1	8 46.70	+ 4 42.7	2.075	3.043	4.1	19.3	2 1	8 46.42	+23 39.2	1.544	2.526	2.6	20.2
2 11	8 37.81	+ 4 44.5	2.070	3.027	5.5	19.3	2 11	8 35.52	+24 5.8	1.554	2.513	6.6	20.5
2 21	8 29.76	+ 4 54.1	2.094	3.011	8.4	19.5	2 21	8 25.99	+24 19.6	1.590	2.501	11.0	20.7
3 2	8 23.33	+ 5 8.4	2.143	2.995	11.5	19.6	3 2	8 18.92	+24 19.8	1.649	2.488	15.0	20.9
52682	1998 DM ₃₄		1 30.3 172°02	3.2/27.9	18		274912	2009 SL ₁₃₈		1 30.4 202°52	1.8/29.2	18	
12 23	9 15.26	+27 26.4	2.629	3.411	11.4	19.7	12 23	9 15.97	+21 3.7	2.063	2.849	14.0	21.4
1 2	9 10.58	+28 2.2	2.543	3.412	9.0	19.5	1 2	9 11.66	+21 34.6	1.975	2.847	11.0	21.2
1 12	9 3.88	+28 39.0	2.482	3.413	6.2	19.3	1 12	9 4.92	+22 12.0	1.909	2.846	7.4	21.0
1 22	8 55.67	+29 12.1	2.449	3.414	3.8	19.2	1 22	8 56.29	+22 51.3	1.870	2.844	3.6	20.8
2 1	8 46.70	+29 37.3	2.446	3.415	3.5	19.1	2 1	8 46.65	+23 27.2	1.861	2.842	2.2	20.7
2 11	8 37.88	+29 51.2	2.473	3.415	5.8	19.3	2 11	8 37.14	+23 55.1	1.880	2.840	5.7	20.9
2 21	8 30.06	+29 52.7	2.528	3.416	8.5	19.5	2 21	8 28.82	+24 12.2	1.928	2.837	9.5	21.1
3 2	8 23.94	+29 42.0	2.609	3.416	11.1	19.6	3 2	8 22.55	+24 17.7	2.000	2.835	12.9	21.3
398684	2012 VS ₉₀		1 30.3 11.74	2.0/31.3	18		409430	2005 NE ₄₄		1 30.4 172°37	1.9/28.9	18	
12 23	9 14.94	+12 3.8	1.277	2.077	20.3	21.8	12 23	9 14.30	+17 42.7	1.879	2.666	15.1	21.2
1 2	9 12.07	+12 2.8	1.201	2.077	16.2	21.6	1 2	9 10.65	+18 57.6	1.793	2.667	11.8	21.0
1 12	9 5.83	+12 20.0	1.143	2.078	11.4	21.3	1 12	9 4.42	+20 25.7	1.730	2.668	7.9	20.8
1 22	8 56.88	+12 53.1	1.108	2.080	5.9	21.0	1 22	8 56.13	+22 0.7	1.694	2.669	3.7	20.5
2 1	8 46.45	+13 37.0	1.098	2.082	2.0	20.7	2 1	8 46.67	+23 34.5	1.688	2.669	2.4	20.4
2 11	8 36.23	+14 24.6	1.114	2.084	6.7	21.0	2 11	8 37.26	+24 59.0	1.711	2.669	6.3	20.7
2 21	8 27.81	+15 9.1	1.154	2.087	12.1	21.3	2 21	8 29.06	+26 8.5	1.762	2.669	10.4	20.9
3 2	8 22.36	+15 45.5	1.216	2.090	16.8	21.6	3 2	8 23.03	+27 0.2	1.837	2.669	14.0	21.1
168281	2007 QM ₈		1 30.3 104°33	1.8/31.5	18		296362	2009 FU ₂₅		1 30.4 108°30	5.0/26.5	18	
12 23	9 17.55	+10 21.1	1.790	2.554	16.7	20.7	12 23	9 16.94	+32 46.3	2.543	3.326	11.7	20.9
1 2	9 12.89	+10 41.3	1.719	2.574	13.3	20.5	1 2	9 12.02	+33 39.3	2.472	3.337	9.4	20.7
1 12	9 5.68	+11 17.2	1.669	2.593	9.2	20.3	1 12	9 4.91	+34 30.0	2.427	3.348	6.9	20.6
1 22	8 56.57	+12 5.8	1.644	2.612	4.9	20.1	1 22	8 56.18	+35 12.7	2.409	3.358	5.2	20.5
2 1	8 46.54	+13 2.2	1.648	2.631	1.8	19.9	2 1	8 46.69	+35 42.3	2.420	3.369	5.3	20.5
2 11	8 36.81	+14 0.3	1.681	2.649	5.2	20.2	2 11	8 37.44	+35 55.4	2.460	3.379	7.1	20.6
2 21	8 28.49	+14 54.9	1.743	2.666	9.4	20.5	2 21	8 29.37	+35 51.7	2.527	3.390	9.5	20.8
3 2	8 22.40	+15 42.0	1.829	2.683	13.0	20.7	3 2	8 23.18	+35 32.7	2.619	3.400	11.7	21.0
362927	2012 DO ₄₇		1 30.3 150°83	1.2/31.3	18		382229	2012 RW ₁₃		1 30.4 165°47	6.5/24.9	18	
12 23	9 15.00	+10 18.1	2.186	2.940	14.3	21.2	12 23	9 20.49	+39 59.1	2.775	3.543	11.2	21.5
1 2	9 10.62	+11 1.0	2.098	2.948	11.4	21.1	1 2	9 14.83	+40 57.5	2.702	3.547	9.3	21.3
1 12	9 4.06	+11 58.6	2.033	2.956	7.9	20.9	1 12	9 6.83	+41 49.8	2.654	3.550	7.6	21.2
1 22	8 55.82	+13 7.9	1.995	2.964	4.0	20.6	1 22	8 57.10	+42 29.6	2.634	3.553	6.6	21.2
2 1	8 46.70	+14 23.9	1.987	2.971	1.2	20.4	2 1	8 46.51	+42 51.7	2.642	3.556	6.9	21.2
2 11	8 37.68	+15 40.6	2.010	2.977	4.6	20.7	2 11	8 36.17	+42 53.5	2.678	3.558	8.3	21.3
2 21	8 29.68	+16 52.6	2.062	2.982	8.4	20.9	2 21	8 27.07	+42 35.2	2.740	3.560	10.1	21.4
3 2	8 23.51	+17 55.8	2.141	2.988	11.7	21.1	3 2	8 19.99	+41 59.5	2.825	3.562	12.0	21.5
320851	2008 FG ₁₀₄		1 30.3 254°77	6.4/3.8	18		235566	2004 GP ₇₃		1 30.4 159°51	0.4/30.7	17	
12 23	9 12.30	- 1 49.2	2.107	2.815	16.1	20.8	12 23	9 11.98	+14 30.6	2.883	3.641	11.1	21.2
1 2	9 8.76	- 2 7.8	1.999	2.802	13.8	20.6	1 2	9 7.73	+14 51.6	2.791	3.646	8.7	21.0
1 12	9 2.98	- 2 6.2	1.911	2.788	11.0	20.4	1 12	9 1.85	+15 20.3	2.723	3.650	5.9	20.9
1 22	8 55.42	- 1 42.6	1.846	2.775	8.3	20.2	1 22	8 54.73	+15 54.5	2.683	3.655	2.8	20.7
2 1	8 46.78	- 0 57.1	1.808	2.761	6.5	20.1	2 1	8 46.99	+16 31.3	2.674	3.659	0.6	20.5
2 11	8 38.06	+ 0 7.2	1.799	2.746	7.1	20.1	2 11	8 39.33	+17 7.3	2.696	3.662	3.7	20.7
2 21	8 30.24	+ 1 24.5	1.816	2.732	9.6	20.2	2 21	8 32.44	+17 40.0	2.748	3.665	6.7	20.9
3 2	8 24.19	+ 2 48.3	1.860	2.717	12.7	20.4	3 2	8 26.89	+18 7.3	2.828	3.668	9.4	21.1
249351	2008 WC ₁₄₀		1 30.4 15°83	0.9/30.8	18		430166	2013 TZ ₈₂		1 30.4 35°56	5.2/2.5	18	
12 23	9 16.47	+16 16.3	2.158	2.929	14.0	19.9	12 23	9 12.48	+ 4 9.4	1.753	2.504	17.4	21.1
1 2	9 11.75	+15 52.2	2.069	2.930	11.0	19.7	1 2	9 8.98	+ 3 35.3	1.683	2.520	14.4	20.9
1 12	9 4.78	+15 34.3	2.002	2.932	7.6	19.5	1 12	9 3.08	+ 3 19.4	1.633	2.538	10.9	20.8
1 22	8 56.14	+15 21.0	1.963	2.934	3.7	19.3	1 22	8 55.39	+ 3 22.3	1.606	2.555	7.4	20.6
2 1	8 46.66	+15 10.3	1.952	2.937	1.0	19.0	2 1	8 46.87	+ 3 42.5	1.606	2.574	5.2	20.5
2 11	8 37.38	+15 0.2	1.972	2.939	4.7	19.3	2 11	8 38.63	+ 4 16.4	1.634	2.593	6.5	20.6
2 21	8 29.25	+14 49.0	2.021	2.942	8.4	19.6	2 21	8 31.68	+ 4 58.7	1.687	2.612	9.6	20.9
3 2	8 23.03	+14 35.7	2.095	2.945	11.8	19.8	3 2	8 26.82	+ 5 43.9	1.766	2.632	12.8	21.1
258197	2001 SW ₂₈₅		1 30.4 83°95	5.9/26.0	18		371078	2005 US ₃₄₉		1 30.4 112°73	17.0/9.6	18	
12 23	9 20.92	+29 39.0	1.935	2.726	14.6	19.8	12 23	9 17.52	-16 52.0	1.325	1.983	26.1	21.2
1 2	9 15.66	+31 23.2	1.886	2.757	11.5	19.7	1 2	9 14.06	-18 51.5	1.260	1.992	23.9	21.0
1 12	9 7.61	+33 7.5	1.862	2.788	8.3	19.6	1 12	9 7.20	-20 15.6	1.207	2.002	21.5	20.9
1 22	8 57.49	+34 42.4	1.865	2.818	6.1	19.5	1 22	8 57.58	-20 54.2	1.170	2.011	19.2	20.7
2 1	8 46.41	+35 59.2	1.897	2.848	6.4	19.6	2 1	8 46.40	-20 40.0	1.150	2.019	17.5	20.6
2 11	8 35.74	+36 52.3	1.958	2.877	8.7	19.7	2 11	8 35.36	-19 33.4	1.150	2.027	17.0	20.6
2 21	8 26.68	+37 20.9	2.046	2.906	11.5	20.0	2 21	8 26.07	-17 42.9	1.171	2.035	17.9	20.7
3 2	8 20.11	+37 27.4	2.156	2.934	14.0	20.2	3 2	8 19.77	-15 22.6	1.210	2.043	19.7	20.9
325904	2010 UG ₅₆		1 30.4 93°41	0.6/30.7	18		329841	2004 TW ₄₆		1 30.4 135°06	5.6/3.6	18	
12 23	9 17.74	+14 46.5	1.896	2.668	15.6	21.3	12 23	9 13.02	- 0 53.7	2.329	3.032	14.9	21.4</

EPHEMERIDES

1 30.4

1 30.4

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
66760	1999 TV ₁₈₅		1 30.4 245°02	3°7/	1.3 18		218749	2005 UA ₄₉₉		1 30.4 112°26	4°5/	2.9 18	
12 23	9 15.59	+ 8 1.3	2.137	2.883	14.9	19.4	12 23	9 13.10	+ 1 24.8	2.108	2.831	15.7	21.2
1 2	9 11.16	+ 7 26.8	2.039	2.878	12.1	19.2	1 2	9 9.15	+ 1 35.0	2.024	2.844	13.0	21.1
1 12	9 4.50	+ 7 4.0	1.963	2.874	8.9	19.0	1 12	9 3.08	+ 2 4.9	1.961	2.856	9.9	20.9
1 22	8 56.09	+ 6 53.0	1.912	2.869	5.6	18.7	1 22	8 55.41	+ 2 54.1	1.923	2.868	6.7	20.7
2 1	8 46.73	+ 6 53.1	1.890	2.864	3.7	18.6	2 1	8 46.92	+ 3 59.7	1.913	2.880	4.6	20.6
2 11	8 37.43	+ 7 2.1	1.898	2.859	5.4	18.7	2 11	8 38.57	+ 5 16.7	1.932	2.891	5.6	20.7
2 21	8 29.17	+ 7 17.1	1.934	2.855	8.8	18.9	2 21	8 31.27	+ 6 38.8	1.980	2.902	8.5	20.9
3 2	8 22.75	+ 7 34.8	1.995	2.850	12.1	19.1	3 2	8 25.75	+ 7 59.9	2.054	2.913	11.6	21.1
31104	Annanetrebko		1 30.4 257°64	0°3/30.5	18		268550	2006 AV ₈₉		1 30.4 22°45	0°8/30.9	18	
12 23	9 18.97	+16 24.3	1.629	2.414	17.2	18.9	12 23	9 12.78	+13 13.8	1.867	2.646	15.5	20.8
1 2	9 14.79	+16 23.7	1.531	2.401	13.7	18.6	1 2	9 9.33	+13 34.0	1.781	2.647	12.3	20.6
1 12	9 7.51	+16 33.7	1.454	2.388	9.4	18.3	1 12	9 3.43	+14 7.3	1.718	2.649	8.5	20.4
1 22	8 57.70	+16 51.2	1.401	2.375	4.5	18.0	1 22	8 55.65	+14 50.9	1.679	2.652	4.2	20.1
2 1	8 46.39	+17 11.8	1.376	2.361	0.9	17.7	2 1	8 46.87	+15 40.2	1.669	2.654	1.0	19.9
2 11	8 35.06	+17 30.5	1.380	2.347	6.2	18.0	2 11	8 38.21	+16 29.6	1.688	2.656	5.1	20.2
2 21	8 25.16	+17 43.6	1.410	2.333	11.2	18.3	2 21	8 30.74	+17 14.5	1.734	2.659	9.3	20.4
3 2	8 17.86	+17 49.1	1.463	2.319	15.6	18.5	3 2	8 25.34	+17 51.3	1.805	2.662	13.0	20.7
73526	2003 NU		1 30.4 173°54	0°6/29.9	18		163802	2003 QG ₇₄		1 30.4 73°30	2°8/31.8	18	
12 23	9 18.05	+16 56.3	2.135	2.904	14.1	21.0	12 23	9 16.40	+ 9 54.3	1.556	2.331	18.3	20.3
1 2	9 13.15	+17 31.5	2.045	2.908	11.1	20.8	1 2	9 12.47	+ 9 48.5	1.483	2.343	14.7	20.1
1 12	9 5.86	+18 16.4	1.978	2.911	7.5	20.5	1 12	9 5.68	+ 9 59.3	1.430	2.355	10.4	19.9
1 22	8 56.73	+19 6.9	1.939	2.913	3.4	20.3	1 22	8 56.71	+10 25.1	1.401	2.367	5.8	19.7
2 1	8 46.61	+19 57.8	1.930	2.914	1.1	20.1	2 1	8 46.67	+11 2.3	1.398	2.379	2.8	19.5
2 11	8 36.60	+20 43.9	1.952	2.915	5.1	20.4	2 11	8 36.92	+11 45.1	1.423	2.392	5.9	19.7
2 21	8 27.72	+21 21.4	2.002	2.915	9.0	20.6	2 21	8 28.71	+12 28.1	1.475	2.404	10.3	20.0
3 2	8 20.84	+21 48.5	2.079	2.914	12.4	20.9	3 2	8 23.00	+13 6.7	1.551	2.416	14.3	20.3
10975	Schelderode		1 30.4 171°98	1°3/31.4	18		58355	1995 FN		1 30.4 279°30	7°2/25.9	18	
12 23	9 14.61	+11 30.4	2.493	3.244	12.8	19.8	12 23	9 21.58	+34 57.8	1.907	2.699	14.8	18.8
1 2	9 10.05	+11 44.5	2.399	3.247	10.2	19.6	1 2	9 16.93	+35 58.6	1.812	2.679	12.1	18.6
1 12	9 3.56	+12 9.2	2.328	3.250	7.1	19.4	1 12	9 9.02	+36 57.3	1.740	2.658	9.4	18.3
1 22	8 55.59	+12 42.6	2.284	3.252	3.7	19.2	1 22	8 58.44	+37 45.1	1.692	2.637	7.5	18.2
2 1	8 46.85	+13 21.7	2.271	3.254	1.4	19.0	2 1	8 46.30	+38 13.1	1.673	2.617	7.7	18.2
2 11	8 38.19	+14 2.7	2.288	3.255	4.2	19.2	2 11	8 34.19	+38 15.6	1.680	2.596	10.1	18.2
2 21	8 30.42	+14 42.0	2.336	3.256	7.5	19.4	2 21	8 23.64	+37 51.9	1.712	2.574	13.2	18.4
3 2	8 24.25	+15 17.0	2.410	3.256	10.6	19.6	3 2	8 15.87	+37 5.5	1.766	2.553	16.3	18.5
249562	5019 T ₋₂		1 30.4 130°08	4°4/28.0	18		66645	1999 RN ₂₃₂		1 30.4 68°09	0°3/30.6	18	
12 23	9 24.87	+30 4.8	2.111	2.889	14.0	20.9	12 23	9 14.94	+11 35.7	1.909	2.677	15.6	18.7
1 2	9 18.44	+30 33.3	2.038	2.903	11.1	20.7	1 2	9 10.72	+12 44.0	1.847	2.707	12.2	18.5
1 12	9 9.34	+31 0.1	1.989	2.916	7.8	20.6	1 12	9 4.16	+14 7.6	1.807	2.737	8.2	18.3
1 22	8 58.27	+31 19.0	1.967	2.928	5.1	20.4	1 22	8 55.90	+15 41.3	1.794	2.767	3.9	18.1
2 1	8 46.34	+31 24.5	1.975	2.940	4.7	20.4	2 1	8 46.85	+17 17.8	1.812	2.796	0.7	17.9
2 11	8 34.84	+31 13.8	2.013	2.952	7.1	20.6	2 11	8 38.10	+18 49.6	1.859	2.826	5.0	18.3
2 21	8 24.93	+30 47.2	2.079	2.963	10.2	20.8	2 21	8 30.65	+20 10.7	1.936	2.855	8.9	18.6
3 2	8 17.43	+30 7.4	2.169	2.973	13.1	21.0	3 2	8 25.24	+21 17.6	2.038	2.883	12.3	18.9
12018	1996 XJ ₁₅		1 30.4 180°06	1°8/29.1	18		141864	2002 PC ₂₈		1 30.4 242°37	0°6/30.8	18	
12 23	9 17.64	+19 39.7	2.073	2.852	14.2	19.3	12 23	9 15.98	+13 49.5	1.966	2.737	15.1	21.2
1 2	9 12.98	+20 28.1	1.984	2.853	11.1	19.1	1 2	9 11.90	+14 9.8	1.862	2.724	12.1	21.0
1 12	9 5.84	+21 25.3	1.919	2.854	7.5	18.8	1 12	9 5.27	+14 42.9	1.780	2.710	8.3	20.7
1 22	8 56.76	+22 26.0	1.881	2.855	3.6	18.6	1 22	8 56.59	+15 25.8	1.724	2.696	4.1	20.4
2 1	8 46.62	+23 24.0	1.873	2.854	2.2	18.5	2 1	8 46.68	+16 14.3	1.697	2.682	0.8	20.1
2 11	8 36.57	+24 13.6	1.895	2.853	5.8	18.7	2 11	8 36.70	+17 2.9	1.700	2.667	5.3	20.4
2 21	8 27.69	+24 51.1	1.945	2.852	9.6	19.0	2 21	8 27.80	+17 46.7	1.731	2.652	9.6	20.6
3 2	8 20.90	+25 15.1	2.021	2.849	13.0	19.2	3 2	8 20.98	+18 22.5	1.787	2.636	13.5	20.8
506334	2017 OV ₂₅		1 30.4 237°70	3°3/	1.3 17		395402	2011 SP ₁₂₁		1 30.4 211°82	2°4/31.9	14 C	
12 23	9 16.73	+ 7 55.7	2.396	3.130	13.7	21.7	12 23	9 17.98	+ 8 41.3	2.143	2.885	14.9	23.2
1 2	9 11.90	+ 7 28.4	2.283	3.116	11.2	21.5	1 2	9 13.17	+ 8 50.6	2.036	2.877	12.1	23.0
1 12	9 4.95	+ 7 11.7	2.193	3.102	8.3	21.2	1 12	9 5.97	+ 9 14.4	1.951	2.867	8.7	22.7
1 22	8 56.32	+ 7 5.8	2.130	3.087	5.2	21.0	1 22	8 56.86	+ 9 51.5	1.893	2.857	5.0	22.5
2 1	8 46.71	+ 7 9.8	2.097	3.071	3.3	20.9	2 1	8 46.63	+10 39.0	1.865	2.845	2.4	22.3
2 11	8 37.05	+ 7 21.7	2.093	3.054	5.1	21.0	2 11	8 36.33	+11 32.1	1.867	2.832	5.0	22.4
2 21	8 28.25	+ 7 38.6	2.120	3.038	8.3	21.1	2 21	8 27.03	+12 25.9	1.898	2.819	8.9	22.6
3 2	8 21.12	+ 7 57.8	2.172	3.020	11.5	21.3	3 2	8 19.62	+13 16.3	1.956	2.804	12.6	22.8
161224	2002 XP ₄₄		1 30.4 93°88	1°8/31.5	18		432113	2009 BY ₁₀		1 30.4 6°52	2°6/28.4	18	
12 23	9 17.05	+12 10.9	2.429	3.178	13.2	20.1	12 23	9 9.54	+19 48.9	1.731	2.537	15.5	20.0
1 2	9 11.78	+11 51.8	2.352	3.199	10.5	19.9	1 2	9 7.14	+21 0.6	1.654	2.538	12.0	19.7
1 12	9 4.58	+11 41.2	2.298	3.218	7.3	19.8	1 12	9 2.15	+22 23.8	1.598	2.540	8.0	19.5
1 22	8 56.00	+11 38.0	2.272	3.238	4.0	19.6	1 22	8 55.12	+23 51.8	1.569	2.543	4.0	19.3
2 1	8 46.81	+11 40.3	2.276	3.257	1.8	19.5	2 1	8 46.98	+25 16.1	1.568	2.547	3.1	19.2
2 11	8 37.88	+11 45.9	2.311	3.276	4.2	19.7	2 11	8 38.97	+26 29.0	1.594	2.551	6.8	19.5
2 21	8 30.00	+11 52.6	2.375	3.295	7.4	19.9	2 21	8 32.25	+27 25.3	1.647	2.556	10.8	19.7
3 2	8 23.82	+11 58.4	2.467	3.314	10.3	20.1	3 2	8 27.74	+28 3.0	1.723	2.563	14.4	19.9
59757	1999 ME		1 30.4 202°15	3°0/27.9	18		490289	2008 YS ₁₂₅		1 30.4 107°81	1°8/29.2	18	
12 23	9 15.25	+23 6.7	2.273	3.058	12.9	19.9	12 23	9 18.02	+18 21.0	1.678	2.467	16.6	21.6
1 2	9 11.02	+24 14.1											

EPHEMERIDES

1 30.4

1 30.4

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
492416	2014 <i>KG</i> ₈₉		1 30.4 188°54	1.2°/29.6	18		175450	Phillipklu		1 30.4 205°76	1.8°/29.2	18	
12 23	9 18.33	+17 27.2	1.960	2.736	15.0	22.4	12 23	9 16.08	+19 1.0	1.875	2.662	15.2	21.2
1 2	9 13.70	+18 15.3	1.869	2.736	11.8	22.2	1 2	9 12.10	+19 49.7	1.786	2.659	11.9	21.0
1 12	9 6.44	+19 14.8	1.800	2.734	7.9	21.9	1 12	9 5.46	+20 48.8	1.719	2.657	8.0	20.8
1 22	8 57.10	+20 20.5	1.759	2.733	3.7	21.7	1 22	8 56.71	+21 53.0	1.679	2.654	3.8	20.5
2 1	8 46.61	+21 26.1	1.747	2.730	1.6	21.5	2 1	8 46.78	+22 55.5	1.668	2.650	2.2	20.4
2 11	8 36.15	+22 25.0	1.765	2.726	5.8	21.8	2 11	8 36.92	+23 49.7	1.686	2.647	6.2	20.6
2 21	8 26.91	+23 12.6	1.811	2.722	9.9	22.0	2 21	8 28.30	+24 31.3	1.732	2.643	10.3	20.9
3 2	8 19.86	+23 46.7	1.883	2.717	13.6	22.2	3 2	8 21.93	+24 58.3	1.802	2.639	14.0	21.1
416039	2002 <i>EX</i> ₁₀₃		1 30.4 336°51	6.9°/26.1	16		161896	2007 <i>DE</i> ₃₄		1 30.4 29°07	0.9°/29.9	18	
12 23	9 9.95	+28 21.4	1.370	2.200	17.5	20.3	12 23	9 15.19	+18 20.5	1.833	2.621	15.4	20.9
1 2	9 8.65	+29 45.6	1.284	2.179	14.0	20.0	1 2	9 11.33	+18 42.3	1.749	2.623	12.1	20.6
1 12	9 3.92	+31 17.3	1.219	2.159	10.2	19.8	1 12	9 4.87	+19 13.1	1.688	2.624	8.1	20.4
1 22	8 56.23	+32 46.0	1.178	2.141	7.3	19.5	1 22	8 56.40	+19 48.8	1.652	2.626	3.8	20.1
2 1	8 46.76	+33 59.4	1.161	2.124	7.7	19.5	2 1	8 46.88	+20 24.1	1.644	2.628	1.3	20.0
2 11	8 37.23	+34 47.6	1.169	2.108	11.1	19.6	2 11	8 37.53	+20 54.2	1.666	2.630	5.7	20.3
2 21	8 29.40	+35 6.3	1.199	2.094	15.3	19.8	2 21	8 29.49	+21 15.5	1.714	2.633	9.9	20.5
3 2	8 24.68	+34 56.3	1.249	2.081	19.2	20.0	3 2	8 23.67	+21 26.4	1.786	2.635	13.5	20.7
176745	2002 <i>RN</i> ₉₄		1 30.4 82°18	1.3°/31.2	18		119131	2001 <i>PN</i>		1 30.4 252°34	1.6°/29.7	18	
12 23	9 17.11	+11 33.7	1.761	2.530	16.7	20.9	12 23	9 20.34	+20 10.1	1.571	2.365	17.4	20.2
1 2	9 12.58	+11 56.0	1.695	2.555	13.2	20.8	1 2	9 16.07	+20 24.9	1.478	2.354	13.8	19.9
1 12	9 5.51	+12 33.0	1.651	2.579	9.1	20.6	1 12	9 8.53	+20 48.3	1.405	2.343	9.4	19.6
1 22	8 56.56	+13 21.3	1.633	2.603	4.6	20.3	1 22	8 58.29	+21 15.3	1.357	2.331	4.4	19.3
2 1	8 46.76	+14 15.7	1.643	2.627	1.4	20.2	2 1	8 46.50	+21 39.8	1.336	2.319	2.0	19.1
2 11	8 37.33	+15 10.3	1.682	2.650	5.2	20.5	2 11	8 34.73	+21 56.0	1.343	2.307	6.9	19.4
2 21	8 29.33	+16 0.0	1.749	2.673	9.3	20.8	2 21	8 24.54	+22 0.8	1.376	2.295	11.9	19.6
3 2	8 23.59	+16 41.4	1.841	2.696	12.9	21.0	3 2	8 17.15	+21 53.5	1.433	2.282	16.2	19.8
321130	2008 <i>UT</i> ₈₆		1 30.4 7°70	2.4°/29.3	18		26842	Hefele		1 30.4 37°29	3.5°/1.7	18	
12 23	9 14.94	+20 21.9	1.217	2.038	19.8	20.6	12 23	9 11.80	+ 6 56.4	1.881	2.640	16.2	18.0
1 2	9 12.42	+20 54.3	1.146	2.038	15.5	20.3	1 2	9 8.40	+ 6 46.6	1.806	2.653	13.1	17.8
1 12	9 6.28	+21 38.2	1.095	2.039	10.5	20.0	1 12	9 2.72	+ 6 52.9	1.751	2.666	9.6	17.6
1 22	8 57.23	+22 27.0	1.065	2.041	5.1	19.7	1 22	8 55.33	+ 7 14.5	1.721	2.680	5.9	17.4
2 1	8 46.64	+23 11.7	1.061	2.044	3.0	19.6	2 1	8 47.11	+ 7 49.0	1.718	2.694	3.6	17.3
2 11	8 36.35	+23 44.5	1.082	2.047	8.0	19.9	2 11	8 39.11	+ 8 31.9	1.743	2.708	5.4	17.4
2 21	8 28.06	+24 1.0	1.127	2.051	13.3	20.2	2 21	8 32.29	+ 9 18.3	1.795	2.723	8.9	17.6
3 2	8 22.99	+24 0.7	1.192	2.056	17.8	20.5	3 2	8 27.43	+10 3.4	1.873	2.738	12.2	17.9
253056	2002 <i>TG</i> ₄₈		1 30.4 46°48	6.7°/3.4	18		235396	2003 <i>WH</i> ₁₅₅		1 30.4 57°65	1.6°/29.2	18	
12 23	9 13.41	+ 0 51.4	1.499	2.247	20.0	19.9	12 23	9 12.67	+18 30.2	2.056	2.842	14.0	20.2
1 2	9 10.14	+ 0 19.8	1.433	2.264	16.7	19.7	1 2	9 9.10	+19 24.6	1.975	2.848	10.9	20.0
1 12	9 4.11	+ 0 12.4	1.384	2.282	13.0	19.6	1 12	9 3.24	+20 28.7	1.918	2.855	7.3	19.8
1 22	8 56.00	+ 0 30.7	1.358	2.300	9.2	19.4	1 22	8 55.61	+21 37.4	1.887	2.861	3.4	19.6
2 1	8 46.89	+ 1 13.1	1.357	2.319	6.8	19.3	2 1	8 47.06	+22 44.6	1.886	2.868	1.9	19.5
2 11	8 38.10	+ 2 14.1	1.381	2.338	7.7	19.4	2 11	8 38.64	+23 44.2	1.914	2.874	5.5	19.8
2 21	8 30.82	+ 3 25.9	1.431	2.357	10.9	19.6	2 21	8 31.34	+24 32.1	1.970	2.881	9.3	20.0
3 2	8 25.95	+ 4 40.5	1.505	2.377	14.3	19.9	3 2	8 25.97	+25 6.4	2.051	2.888	12.5	20.2
168261	Puglia		1 30.4 288°53	2.1°/1.1	17		500323	2012 <i>RE</i> ₄₃		1 30.4 39°81	1.2°/29.8	17	
12 23	9 10.56	+ 8 13.1	2.274	3.027	13.9	20.3	12 23	9 16.55	+20 53.9	2.063	2.846	14.1	21.1
1 2	9 7.19	+ 8 38.7	2.177	3.024	11.2	20.1	1 2	9 12.01	+20 56.4	1.981	2.852	11.0	20.9
1 12	9 1.82	+ 9 19.3	2.101	3.020	8.0	19.9	1 12	9 5.11	+21 3.5	1.922	2.858	7.4	20.7
1 22	8 54.89	+10 13.2	2.052	3.017	4.5	19.7	1 22	8 56.44	+21 11.8	1.890	2.864	3.5	20.5
2 1	8 47.10	+11 16.9	2.032	3.013	2.1	19.5	2 1	8 46.92	+21 17.6	1.887	2.870	1.5	20.4
2 11	8 39.33	+12 25.3	2.042	3.010	4.5	19.6	2 11	8 37.64	+21 17.7	1.913	2.877	5.2	20.6
2 21	8 32.45	+13 33.3	2.081	3.007	8.0	19.8	2 21	8 29.62	+21 10.7	1.968	2.884	9.0	20.9
3 2	8 27.19	+14 36.4	2.147	3.003	11.3	20.0	3 2	8 23.65	+20 56.2	2.047	2.891	12.3	21.1
125460	2001 <i>WS</i> ₅		1 30.4 30°72	2.0°/29.5	18		91438	1999 <i>RA</i> ₁₂		1 30.4 59°35	6.4°/28.1	18	
12 23	9 16.12	+19 53.1	1.148	1.971	20.6	19.4	12 23	9 30.30	+36 2.5	1.851	2.629	15.7	18.8
1 2	9 13.30	+20 16.9	1.089	1.982	16.1	19.1	1 2	9 23.10	+36 13.4	1.782	2.641	12.7	18.6
1 12	9 6.77	+20 52.0	1.049	1.993	10.8	18.9	1 12	9 12.66	+36 16.2	1.736	2.653	9.5	18.4
1 22	8 57.38	+21 31.8	1.031	2.006	5.1	18.6	1 22	8 59.91	+36 3.4	1.715	2.665	6.9	18.3
2 1	8 46.63	+22 7.8	1.037	2.020	2.5	18.5	2 1	8 46.29	+35 29.7	1.723	2.677	6.6	18.3
2 11	8 36.43	+22 32.8	1.068	2.035	7.8	18.8	2 11	8 33.44	+34 34.0	1.760	2.689	8.8	18.5
2 21	8 28.42	+22 43.4	1.123	2.050	13.0	19.2	2 21	8 22.72	+33 19.6	1.824	2.701	11.8	18.7
3 2	8 23.70	+22 39.3	1.199	2.066	17.5	19.5	3 2	8 15.02	+31 52.2	1.913	2.714	14.7	18.9
227989	2007 <i>JP</i> ₇		1 30.4 196°14	0.6°/29.9	18		496543	2014 <i>WM</i> ₂₆₁		1 30.4 116°35	0.3°/30.2	18	
12 23	9 14.61	+17 39.1	2.122	2.901	13.9	21.2	12 23	9 15.35	+15 49.4	2.035	2.810	14.5	21.9
1 2	9 10.52	+18 3.5	2.032	2.900	10.9	21.0	1 2	9 11.11	+16 23.3	1.955	2.821	11.4	21.7
1 12	9 4.14	+18 36.4	1.965	2.899	7.4	20.8	1 12	9 4.54	+17 7.7	1.898	2.831	7.7	21.5
1 22	8 55.99	+19 14.3	1.924	2.898	3.4	20.6	1 22	8 56.20	+17 58.8	1.867	2.841	3.5	21.3
2 1	8 46.90	+19 52.6	1.913	2.897	1.1	20.4	2 1	8 46.96	+18 51.4	1.866	2.851	0.8	21.1
2 11	8 37.91	+20 26.8	1.932	2.896	5.0	20.7	2 11	8 37.91	+19 40.2	1.895	2.860	5.0	21.4
2 21	8 30.01	+20 53.5	1.978	2.895	8.9	20.9	2 21	8 30.03	+20 21.1	1.951	2.869	8.9	21.6
3 2	8 24.04	+21 11.0	2.050	2.893	12.3	21.1	3 2	8 24.14	+20 52.0	2.034	2.878	12.3	21.9
15829	1995 <i>BA</i> ₁		1 30.4 54°84	1.9°/29.1	18		163610	2002 <i>TX</i> ₂₆₀		1 30.4 48°36	10.7°/21.1	18	
12 23	9 14.11	+16 18.0	1.540	2.338	17.4	17.6	12 23	9 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
107306	2001 CX ₇		1 30.4	1°91	4°2/28.6	18	16246	Cantor		1 30.4	121°36	0°1/30.4	18
12 23	9 17.70	+25 21.4	1.391	2.205	18.1	19.6	12 23	9 13.82	+16 11.5	2.663	3.426	11.8	19.8
1 2	9 14.30	+25 54.6	1.316	2.204	14.3	19.3	1 2	9 9.31	+16 32.7	2.580	3.439	9.2	19.7
1 12	9 7.41	+26 32.5	1.263	2.203	9.9	19.1	1 12	9 3.02	+17 1.1	2.522	3.453	6.2	19.5
1 22	8 57.77	+27 7.6	1.232	2.203	5.5	18.8	1 22	8 55.43	+17 33.9	2.493	3.465	2.9	19.3
2 1	8 46.69	+27 31.6	1.228	2.204	4.6	18.8	2 1	8 47.19	+18 7.8	2.493	3.478	0.6	19.1
2 11	8 35.93	+27 38.7	1.250	2.206	8.4	19.0	2 11	8 39.12	+18 39.4	2.525	3.490	4.0	19.4
2 21	8 27.09	+27 27.2	1.296	2.207	13.0	19.2	2 21	8 31.93	+19 6.2	2.586	3.502	7.1	19.6
3 2	8 21.33	+26 58.9	1.363	2.210	17.1	19.5	3 2	8 26.25	+19 26.5	2.674	3.513	9.9	19.8
317535	2002 TR ₃₁₂		1 30.4	4°46	4°2/27.9	18	433067	2012 TY ₂₇		1 30.4	118°70	1°7/29.1	18
12 23	9 12.14	+22 15.6	1.379	2.199	17.9	20.3	12 23	9 14.63	+22 3.0	2.675	3.450	11.4	21.9
1 2	9 9.97	+23 31.9	1.306	2.198	14.0	20.1	1 2	9 9.99	+22 33.9	2.596	3.463	8.9	21.8
1 12	9 4.53	+24 59.8	1.255	2.199	9.5	19.8	1 12	9 3.50	+23 8.6	2.542	3.475	5.9	21.6
1 22	8 56.45	+26 30.3	1.227	2.200	5.3	19.6	1 22	8 55.65	+23 43.5	2.516	3.488	3.0	21.4
2 1	8 46.93	+27 52.6	1.226	2.202	4.7	19.6	2 1	8 47.15	+24 14.6	2.520	3.500	2.0	21.4
2 11	8 37.59	+28 57.1	1.251	2.205	8.7	19.8	2 11	8 38.83	+24 38.7	2.555	3.512	4.7	21.6
2 21	8 29.97	+29 38.7	1.299	2.208	13.2	20.1	2 21	8 31.45	+24 54.0	2.620	3.523	7.6	21.8
3 2	8 25.22	+29 56.9	1.369	2.213	17.2	20.3	3 2	8 25.65	+24 59.8	2.710	3.534	10.2	22.0
434323	2004 HD ₁₀		1 30.4	264°96	10°7/ 8.9	18	19591	Michaelklein		1 30.4	132°64	1°9/29.1	18
12 23	9 10.65	-19 25.3	2.744	3.312	15.3	21.1	12 23	9 15.44	+20 20.3	2.143	2.925	13.7	19.2
1 2	9 7.10	-20 30.7	2.640	3.300	14.2	21.0	1 2	9 11.18	+21 6.2	2.061	2.932	10.6	19.0
1 12	9 1.72	-21 15.3	2.552	3.288	12.9	20.9	1 12	9 4.60	+21 59.6	2.003	2.939	7.1	18.8
1 22	8 54.90	-21 35.0	2.484	3.276	11.8	20.8	1 22	8 56.28	+22 55.3	1.972	2.946	3.5	18.6
2 1	8 47.24	-21 26.8	2.437	3.263	10.9	20.7	2 1	8 47.04	+23 47.8	1.971	2.952	2.2	18.5
2 11	8 39.50	-20 50.7	2.414	3.251	10.7	20.6	2 11	8 37.95	+24 31.9	2.000	2.958	5.6	18.7
2 21	8 32.47	-19 49.3	2.415	3.238	11.2	20.7	2 21	8 30.00	+25 4.4	2.057	2.964	9.1	18.9
3 2	8 26.83	-18 27.9	2.439	3.226	12.3	20.7	3 2	8 24.00	+25 24.2	2.138	2.969	12.3	19.2
338973	2004 FN ₇₄		1 30.4	134°05	3°3/ 2.2	18	459524	2013 ES ₁₁₆		1 30.4	326°62	2°6/29.1	17
12 23	9 11.06	+ 4 49.2	2.565	3.294	13.0	21.3	12 23	9 14.65	+20 27.4	1.374	2.187	18.4	21.8
1 2	9 7.27	+ 4 51.7	2.472	3.299	10.7	21.1	1 2	9 12.02	+21 7.3	1.290	2.178	14.5	21.6
1 12	9 1.72	+ 5 8.0	2.401	3.304	7.9	21.0	1 12	9 6.02	+21 59.1	1.227	2.169	9.8	21.3
1 22	8 54.84	+ 5 37.6	2.357	3.309	5.1	20.8	1 22	8 57.23	+22 56.1	1.186	2.161	4.8	21.0
2 1	8 47.27	+ 6 18.5	2.341	3.313	3.3	20.7	2 1	8 46.83	+23 49.9	1.172	2.153	3.1	20.8
2 11	8 39.78	+ 7 7.3	2.356	3.318	4.5	20.8	2 11	8 36.50	+24 32.3	1.184	2.146	7.8	21.1
2 21	8 33.10	+ 7 59.9	2.400	3.322	7.3	20.9	2 21	8 27.86	+24 58.2	1.220	2.140	12.9	21.3
3 2	8 27.85	+ 8 52.5	2.471	3.326	10.0	21.1	3 2	8 22.19	+25 6.4	1.277	2.134	17.4	21.6
340156	2005 YR ₉₇		1 30.4	312°81	4°1/28.1	18	498939	2009 BZ ₄₇		1 30.4	77°90	0°3/30.3	18
12 23	9 14.41	+22 2.8	1.349	2.167	18.4	20.6	12 23	9 16.14	+18 23.5	2.289	3.061	13.2	21.4
1 2	9 12.04	+23 11.2	1.264	2.155	14.5	20.3	1 2	9 11.42	+18 21.5	2.205	3.070	10.3	21.2
1 12	9 6.17	+24 32.7	1.200	2.143	9.9	20.0	1 12	9 4.59	+18 25.1	2.145	3.078	7.0	21.0
1 22	8 57.35	+25 59.1	1.159	2.132	5.4	19.7	1 22	8 56.20	+18 31.8	2.113	3.086	3.2	20.8
2 1	8 46.75	+27 19.0	1.144	2.121	4.7	19.6	2 1	8 47.06	+18 38.4	2.110	3.095	0.7	20.6
2 11	8 36.12	+28 22.2	1.155	2.111	9.0	19.8	2 11	8 38.14	+18 42.3	2.138	3.103	4.5	20.9
2 21	8 27.20	+29 2.5	1.190	2.101	14.0	20.1	2 21	8 30.33	+18 41.7	2.194	3.112	8.1	21.1
3 2	8 21.37	+29 19.1	1.246	2.092	18.4	20.3	3 2	8 24.32	+18 35.6	2.276	3.120	11.2	21.4
467652	2008 SK ₂₉₅		1 30.4	179°71	3°5/ 1.9	17	322820	2001 SJ ₁₆₂		1 30.4	108°57	1°9/31.7	18
12 23	9 14.74	+ 5 19.8	2.705	3.425	12.6	21.8	12 23	9 16.92	+10 29.0	2.137	2.889	14.7	21.4
1 2	9 10.02	+ 5 1.6	2.605	3.427	10.4	21.6	1 2	9 12.06	+10 36.7	2.062	2.909	11.7	21.2
1 12	9 3.52	+ 4 55.1	2.529	3.427	7.8	21.4	1 12	9 5.03	+10 57.0	2.009	2.929	8.2	21.0
1 22	8 55.68	+ 5 0.2	2.479	3.428	5.1	21.3	1 22	8 56.41	+11 27.6	1.983	2.949	4.4	20.8
2 1	8 47.12	+ 5 15.8	2.459	3.428	3.5	21.2	2 1	8 47.03	+12 5.2	1.986	2.968	1.9	20.7
2 11	8 38.61	+ 5 39.7	2.469	3.427	4.7	21.2	2 11	8 37.91	+12 45.5	2.019	2.986	4.6	20.9
2 21	8 30.91	+ 6 8.9	2.509	3.426	7.3	21.4	2 21	8 29.94	+13 24.7	2.082	3.004	8.2	21.2
3 2	8 24.63	+ 6 40.3	2.577	3.424	9.9	21.6	3 2	8 23.86	+13 59.5	2.170	3.021	11.4	21.4
245872	2006 PD ₃₂		1 30.4	23°86	0°5/30.8	18	418248	2008 DL ₆₇		1 30.4	102°60	1°4/29.8	18
12 23	9 10.69	+12 35.5	2.157	2.929	13.9	20.0	12 23	9 19.05	+20 48.6	1.805	2.592	15.7	21.1
1 2	9 7.42	+13 17.5	2.069	2.931	11.0	19.8	1 2	9 14.42	+20 55.0	1.720	2.593	12.3	20.9
1 12	9 2.06	+14 12.8	2.004	2.934	7.5	19.6	1 12	9 7.02	+21 7.1	1.658	2.594	8.3	20.6
1 22	8 55.08	+15 18.1	1.965	2.937	3.6	19.4	1 22	8 57.47	+21 20.9	1.621	2.595	3.9	20.4
2 1	8 47.22	+16 28.5	1.955	2.940	0.7	19.1	2 1	8 46.83	+21 31.7	1.613	2.596	1.7	20.2
2 11	8 39.45	+17 38.3	1.976	2.943	4.6	19.4	2 11	8 36.41	+21 35.5	1.633	2.597	5.9	20.5
2 21	8 32.65	+18 42.2	2.025	2.947	8.4	19.7	2 21	8 27.45	+21 30.4	1.681	2.598	10.2	20.8
3 2	8 27.59	+19 36.7	2.099	2.950	11.7	19.9	3 2	8 20.88	+21 16.2	1.754	2.599	13.9	21.0
403792	2011 SB ₁₉₅		1 30.4	161°38	3°6/28.3	18	182645	2001 UL ₁₆₂		1 30.4	107°29	4°5/ 2.5	18
12 23	9 20.70	+24 48.4	1.848	2.637	15.3	21.6	12 23	9 15.17	+ 3 18.6	2.098	2.825	15.6	20.8
1 2	9 15.75	+25 35.5	1.768	2.642	12.0	21.4	1 2	9 10.77	+ 3 5.2	2.018	2.842	12.9	20.7
1 12	9 7.94	+26 27.2	1.711	2.646	8.2	21.2	1 12	9 4.22	+ 3 8.8	1.960	2.857	9.7	20.5
1 22	8 57.90	+27 16.9	1.681	2.650	4.6	20.9	1 22	8 56.06	+ 3 29.3	1.926	2.873	6.5	20.3
2 1	8 46.70	+27 57.5	1.679	2.653	4.0	20.9	2 1	8 47.11	+ 4 4.7	1.921	2.888	4.6	20.2
2 11	8 35.72	+28 23.4	1.706	2.656	7.2	21.1	2 11	8 38.35	+ 4 51.3	1.945	2.903	5.7	20.3
2 21	8 26.24	+28 32.6	1.760	2.658	11.0	21.3	2 21	8 30.70	+ 5 44.2	1.997	2.917	8.6	20.5
3 2	8 19.24	+28 25.9	1.838	2.660	14.4	21.6	3 2	8 24.89	+ 6 38.3	2.075	2.931	11.6	20.7
523611	2005 UY ₅		1 30.4	154°43	3°1/28.2	18	347492	1996 AT ₁₃		1 30.4	24°99	2°8/28.9	18
12 23	9 23.53	+24 27.2	2.304	3.073	13.2	23.6	12 23	9 15.50	+20 8.3	1.258	2.076	19.5	21.0
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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
252977	2002 <i>QF</i> ₂₃		1 30.4 198°08	0°4/30.7	18		373844	2003 <i>FE</i> ₇₉		1 30.4 230°70	3°7/ 2.1	17	
12 23	9 16.59	+14 14.1	2.093	2.859	14.5	22.3	12 23	9 14.05	+ 4 44.5	2.453	3.178	13.7	21.4
1 2	9 12.16	+14 37.1	1.997	2.857	11.5	22.1	1 2	9 9.84	+ 4 36.3	2.342	3.166	11.3	21.2
1 12	9 5.35	+15 11.5	1.924	2.854	7.9	21.9	1 12	9 3.64	+ 4 42.0	2.253	3.154	8.5	21.0
1 22	8 56.68	+15 54.4	1.878	2.850	3.8	21.6	1 22	8 55.86	+ 5 1.8	2.190	3.141	5.6	20.8
2 1	8 46.98	+16 41.3	1.861	2.845	0.7	21.3	2 1	8 47.17	+ 5 34.3	2.157	3.127	3.7	20.7
2 11	8 37.31	+17 27.3	1.874	2.841	4.9	21.6	2 11	8 38.42	+ 6 16.5	2.153	3.113	5.1	20.8
2 21	8 28.73	+18 8.0	1.916	2.835	8.9	21.9	2 21	8 30.47	+ 7 4.4	2.178	3.098	8.0	20.9
3 2	8 22.10	+18 40.7	1.983	2.829	12.5	22.1	3 2	8 24.07	+ 7 53.8	2.230	3.083	11.1	21.1
468079	2013 <i>TH</i> ₂₉		1 30.4 78°71	5°3/26.8	18		61664	2000 <i>QE</i> ₁₁₆		1 30.4 117°71	3°0/28.7	18	
12 23	9 18.16	+31 46.2	2.145	2.935	13.4	21.5	12 23	9 17.74	+24 6.3	1.953	2.743	14.5	19.3
1 2	9 13.43	+32 40.9	2.077	2.946	10.7	21.3	1 2	9 13.26	+24 40.8	1.872	2.747	11.4	19.1
1 12	9 6.16	+33 33.9	2.032	2.957	7.8	21.1	1 12	9 6.16	+25 19.4	1.815	2.751	7.7	18.8
1 22	8 57.00	+34 18.5	2.014	2.968	5.7	21.0	1 22	8 57.07	+25 56.8	1.784	2.754	4.2	18.6
2 1	8 46.94	+34 48.5	2.025	2.979	5.7	21.1	2 1	8 46.96	+26 27.0	1.781	2.758	3.3	18.6
2 11	8 37.18	+35 0.2	2.064	2.990	7.8	21.2	2 11	8 37.07	+26 45.5	1.808	2.762	6.5	18.8
2 21	8 28.82	+34 53.0	2.129	3.001	10.6	21.4	2 21	8 28.53	+26 50.3	1.861	2.765	10.1	19.0
3 2	8 22.68	+34 29.1	2.218	3.012	13.2	21.6	3 2	8 22.25	+26 41.7	1.939	2.768	13.5	19.2
127768	2003 <i>FS</i> ₄₄		1 30.4 223°02	1°2/31.1	18		64439	2001 <i>VA</i> ₂₃		1 30.4 230°03	1°4/29.6	18	
12 23	9 17.27	+12 13.5	1.896	2.661	15.8	20.7	12 23	9 16.19	+19 44.4	1.921	2.708	14.9	20.0
1 2	9 13.03	+12 33.2	1.795	2.652	12.7	20.4	1 2	9 12.10	+20 11.2	1.833	2.706	11.7	19.8
1 12	9 6.16	+13 7.2	1.715	2.643	8.8	20.2	1 12	9 5.43	+20 45.9	1.767	2.704	7.9	19.6
1 22	8 57.15	+13 53.1	1.662	2.632	4.5	19.9	1 22	8 56.76	+21 24.0	1.728	2.702	3.7	19.3
2 1	8 46.89	+14 46.4	1.637	2.621	1.2	19.6	2 1	8 47.01	+22 0.3	1.717	2.700	1.8	19.2
2 11	8 36.56	+15 41.4	1.642	2.610	5.3	19.9	2 11	8 37.38	+22 29.6	1.735	2.697	5.8	19.4
2 21	8 27.38	+16 32.6	1.675	2.597	9.8	20.1	2 21	8 29.00	+22 48.8	1.780	2.695	9.8	19.6
3 2	8 20.35	+17 16.2	1.733	2.585	13.8	20.3	3 2	8 22.79	+22 56.8	1.850	2.693	13.4	19.9
370808	2004 <i>TT</i> ₂₄₁		1 30.4 37°55	2°5/29.3	18		369373	2009 <i>UK</i> ₁₁₆		1 30.4 115°50	2°3/29.1	18	
12 23	9 18.08	+23 20.8	1.587	2.389	16.8	20.1	12 23	9 17.56	+22 47.2	1.997	2.784	14.4	21.4
1 2	9 13.82	+23 34.6	1.524	2.405	13.1	19.9	1 2	9 13.02	+23 11.5	1.914	2.787	11.2	21.2
1 12	9 6.61	+23 52.6	1.482	2.422	8.8	19.7	1 12	9 5.96	+23 40.6	1.855	2.791	7.6	21.0
1 22	8 57.23	+24 9.4	1.466	2.439	4.4	19.5	1 22	8 56.96	+24 9.4	1.821	2.794	3.8	20.8
2 1	8 46.91	+24 19.5	1.477	2.457	2.9	19.4	2 1	8 46.99	+24 33.0	1.817	2.797	2.6	20.7
2 11	8 37.09	+24 19.0	1.515	2.476	6.7	19.7	2 11	8 37.23	+24 47.1	1.842	2.800	6.0	20.9
2 21	8 29.01	+24 6.7	1.580	2.495	10.8	20.0	2 21	8 28.78	+24 49.8	1.895	2.803	9.7	21.2
3 2	8 23.54	+23 43.6	1.667	2.514	14.4	20.2	3 2	8 22.50	+24 41.1	1.972	2.806	13.1	21.4
57935	2002 <i>JL</i> ₁₇		1 30.4 172°28	0°9/29.8	18		393227	2013 <i>GC</i> ₅₃		1 30.4 209°19	0°9/30.9	18	
12 23	9 15.40	+18 53.7	2.592	3.360	11.9	20.5	12 23	9 15.25	+12 56.5	1.708	2.488	16.7	21.1
1 2	9 10.71	+19 19.2	2.500	3.363	9.3	20.3	1 2	9 11.63	+13 18.3	1.621	2.487	13.3	20.9
1 12	9 4.08	+19 50.8	2.433	3.366	6.3	20.1	1 12	9 5.27	+13 55.1	1.554	2.486	9.2	20.6
1 22	8 55.99	+20 25.3	2.394	3.368	2.9	19.9	1 22	8 56.75	+14 43.7	1.513	2.485	4.6	20.4
2 1	8 47.14	+20 58.7	2.386	3.369	1.2	19.8	2 1	8 47.02	+15 39.0	1.499	2.484	1.0	20.1
2 11	8 38.39	+21 27.5	2.408	3.370	4.4	20.0	2 11	8 37.38	+16 34.7	1.514	2.483	5.6	20.4
2 21	8 30.55	+21 49.4	2.460	3.371	7.7	20.2	2 21	8 29.06	+17 25.0	1.556	2.481	10.2	20.7
3 2	8 24.31	+22 2.9	2.539	3.371	10.6	20.4	3 2	8 23.05	+18 6.1	1.622	2.480	14.2	20.9
377060	2002 <i>TT</i> ₂₉₈		1 30.4 78°74	4°1/ 2.5	18		243520	2010 <i>CH</i> ₄₄		1 30.4 336°84	0°5/30.1	18	
12 23	9 14.04	+ 3 58.7	2.306	3.032	14.4	21.4	12 23	9 12.62	+16 54.6	2.022	2.806	14.3	20.9
1 2	9 9.62	+ 3 43.8	2.233	3.056	11.8	21.3	1 2	9 9.17	+17 20.3	1.931	2.802	11.3	20.7
1 12	9 3.29	+ 3 43.8	2.182	3.080	8.9	21.1	1 12	9 3.39	+17 55.9	1.863	2.799	7.6	20.4
1 22	8 55.58	+ 3 58.4	2.157	3.104	5.9	21.0	1 22	8 55.79	+18 37.7	1.821	2.796	3.5	20.2
2 1	8 47.24	+ 4 25.8	2.160	3.127	4.1	20.9	2 1	8 47.21	+19 21.0	1.808	2.793	1.0	20.0
2 11	8 39.13	+ 5 2.8	2.193	3.151	5.2	21.0	2 11	8 38.71	+20 0.8	1.824	2.790	5.1	20.3
2 21	8 32.04	+ 5 45.3	2.254	3.174	7.8	21.2	2 21	8 31.30	+20 33.4	1.867	2.787	9.1	20.5
3 2	8 26.61	+ 6 29.1	2.342	3.197	10.5	21.4	3 2	8 25.84	+20 56.4	1.936	2.785	12.6	20.7
30297	2000 <i>HO</i> ₇₇		1 30.4 244°36	6°9/25.0	18		440670	2005 <i>YL</i> ₄		1 30.4 51°84	1°4/31.0	17	
12 23	9 18.52	+32 22.5	1.977	2.771	14.2	18.3	12 23	9 20.39	+14 2.5	1.180	1.982	21.5	20.8
1 2	9 14.42	+34 0.5	1.891	2.761	11.5	18.1	1 2	9 16.21	+13 53.2	1.129	2.007	16.9	20.6
1 12	9 7.35	+35 40.7	1.829	2.750	8.8	17.9	1 12	9 8.49	+13 59.6	1.096	2.033	11.6	20.3
1 22	8 57.80	+37 13.3	1.793	2.739	7.0	17.8	1 22	8 58.18	+14 18.4	1.086	2.059	5.7	20.1
2 1	8 46.78	+38 28.8	1.786	2.728	7.5	17.8	2 1	8 46.80	+14 44.0	1.101	2.085	1.6	19.9
2 11	8 35.69	+39 19.9	1.806	2.716	9.9	17.9	2 11	8 36.14	+15 10.2	1.142	2.112	6.6	20.3
2 21	8 25.95	+39 44.4	1.852	2.704	12.9	18.1	2 21	8 27.69	+15 32.1	1.207	2.139	11.8	20.7
3 2	8 18.73	+39 43.8	1.919	2.692	15.7	18.2	3 2	8 22.42	+15 47.0	1.294	2.166	16.2	21.0
381641	2008 <i>YJ</i> ₁₁₃		1 30.4 46°59	2°1/28.8	18		47184	1999 <i>TX</i> ₁₂₇		1 30.4 147°99	0°3/30.6	18	
12 23	9 12.65	+20 43.9	2.225	3.012	13.1	20.9	12 23	9 16.55	+15 8.8	1.679	2.463	16.8	19.4
1 2	9 9.00	+21 38.2	2.140	3.013	10.2	20.7	1 2	9 12.67	+15 23.4	1.594	2.464	13.3	19.1
1 12	9 3.16	+22 40.0	2.078	3.015	6.8	20.5	1 12	9 5.98	+15 50.5	1.531	2.465	9.1	18.9
1 22	8 55.64	+23 44.3	2.044	3.017	3.4	20.3	1 22	8 57.08	+16 26.6	1.492	2.465	4.3	18.6
2 1	8 47.21	+24 45.3	2.039	3.019	2.5	20.2	2 1	8 46.98	+17 6.6	1.481	2.466	0.8	18.3
2 11	8 38.87	+25 37.7	2.065	3.021	5.6	20.4	2 11	8 37.02	+17 44.8	1.499	2.467	5.7	18.7
2 21	8 31.56	+26 17.9	2.118	3.023	9.0	20.6	2 21	8 28.47	+18 16.8	1.543	2.467	10.3	19.0
3 2	8 26.06	+26 44.5	2.196	3.025	12.1	20.8	3 2	8 22.33	+18 39.8	1.612	2.468	14.4	19.2
519927	2013 <i>RD</i> ₁₀₅		1 30.4 181°22	1°3/31.3	16		399957	2006 <i>AQ</i> ₁₀₄		1 30.4 54°75	1°0/31.0	18	
12 23	9 13.88	+12 3.2	2.261	3.021									

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
330126	2005 YQ ₅₇		1 30.4 133°27	1°2/29.6	18		265349	2004 RY ₅₀		1 30.4 105°63	2°3/28.9	18	
12 23	9 15.36	+18 45.7	2.158	2.937	13.7	21.7	12 23	9 17.12	+22 22.3	2.067	2.852	14.0	20.7
1 2	9 11.08	+19 23.6	2.075	2.944	10.7	21.5	1 2	9 12.55	+22 58.3	1.991	2.863	10.9	20.5
1 12	9 4.55	+20 9.5	2.016	2.951	7.2	21.3	1 12	9 5.56	+23 39.4	1.938	2.874	7.3	20.3
1 22	8 56.29	+20 59.2	1.983	2.957	3.3	21.1	1 22	8 56.77	+24 20.7	1.912	2.884	3.7	20.1
2 1	8 47.14	+21 47.5	1.981	2.964	1.6	20.9	2 1	8 47.10	+24 56.7	1.916	2.895	2.6	20.0
2 11	8 38.14	+22 29.5	2.008	2.970	5.2	21.2	2 11	8 37.66	+25 23.0	1.949	2.905	5.8	20.2
2 21	8 30.26	+23 1.8	2.063	2.975	8.8	21.4	2 21	8 29.49	+25 37.2	2.009	2.915	9.4	20.5
3 2	8 24.29	+23 23.1	2.144	2.981	12.1	21.7	3 2	8 23.40	+25 39.2	2.095	2.925	12.6	20.7
430322	2013 YB ₂₃		1 30.4 79°64	4°0/27.4	18		227595	2006 AX ₃₇		1 30.4 162°62	0°9/29.8	18	
12 23	9 15.52	+27 10.1	2.220	3.010	13.0	21.1	12 23	9 13.85	+16 25.6	2.228	3.003	13.5	20.4
1 2	9 11.22	+28 11.8	2.151	3.024	10.2	20.9	1 2	9 9.90	+17 19.0	2.139	3.006	10.5	20.2
1 12	9 4.62	+29 15.6	2.106	3.039	7.1	20.8	1 12	9 3.78	+18 23.1	2.074	3.008	7.1	20.0
1 22	8 56.31	+30 15.2	2.089	3.053	4.5	20.6	1 22	8 55.97	+19 33.7	2.036	3.010	3.3	19.8
2 1	8 47.15	+31 4.6	2.101	3.067	4.4	20.6	2 1	8 47.24	+20 45.1	2.029	3.013	1.3	19.6
2 11	8 38.22	+31 39.2	2.143	3.081	6.8	20.8	2 11	8 38.57	+21 51.3	2.052	3.014	5.0	19.9
2 21	8 30.50	+31 57.3	2.211	3.095	9.7	21.0	2 21	8 30.90	+22 48.1	2.103	3.016	8.7	20.1
3 2	8 24.76	+31 59.4	2.304	3.109	12.4	21.2	3 2	8 25.02	+23 32.7	2.181	3.017	11.9	20.3
327313	2005 UL ₂₁		1 30.4 85°40	1°0/31.0	18		332767	2009 UB ₁₁₂		1 30.4 188°48	2°5/28.8	18	
12 23	9 15.93	+13 51.2	1.889	2.662	15.6	21.3	12 23	9 15.92	+22 33.7	2.120	2.906	13.7	21.2
1 2	9 11.73	+13 56.7	1.809	2.672	12.3	21.1	1 2	9 11.70	+23 15.5	2.033	2.906	10.7	21.0
1 12	9 5.07	+14 13.5	1.752	2.682	8.5	20.8	1 12	9 5.08	+24 3.0	1.970	2.906	7.2	20.8
1 22	8 56.55	+14 39.1	1.720	2.691	4.2	20.6	1 22	8 56.60	+24 51.2	1.933	2.905	3.8	20.6
2 1	8 47.10	+15 9.4	1.716	2.701	1.1	20.4	2 1	8 47.14	+25 34.4	1.926	2.904	2.8	20.5
2 11	8 37.87	+15 40.2	1.742	2.710	5.0	20.7	2 11	8 37.79	+26 7.6	1.948	2.903	6.0	20.7
2 21	8 29.92	+16 7.5	1.795	2.720	9.1	21.0	2 21	8 29.59	+26 28.1	1.999	2.902	9.5	20.9
3 2	8 24.08	+16 28.9	1.874	2.729	12.7	21.2	3 2	8 23.41	+26 35.4	2.073	2.901	12.8	21.1
70312	1999 RM ₁₃₇		1 30.4 223°02	1°7/31.6	18		508578	2017 OW ₅		1 30.4 182°00	1°0/29.7	17	
12 23	9 16.81	+10 39.1	2.117	2.870	14.7	20.2	12 23	9 13.38	+18 55.2	2.701	3.472	11.5	22.3
1 2	9 12.39	+10 52.4	2.010	2.859	11.9	20.0	1 2	9 9.13	+19 26.7	2.608	3.472	8.9	22.1
1 12	9 5.59	+11 19.4	1.926	2.848	8.4	19.8	1 12	9 3.03	+20 4.4	2.539	3.472	6.0	21.9
1 22	8 56.87	+11 58.1	1.869	2.836	4.5	19.5	1 22	8 55.55	+20 45.1	2.498	3.472	2.8	21.7
2 1	8 47.02	+12 45.3	1.841	2.823	1.7	19.3	2 1	8 47.34	+21 24.9	2.488	3.471	1.3	21.6
2 11	8 37.11	+13 36.1	1.842	2.810	4.9	19.5	2 11	8 39.20	+22 0.1	2.509	3.471	4.3	21.8
2 21	8 28.18	+14 25.9	1.873	2.795	8.9	19.7	2 21	8 31.88	+22 28.2	2.560	3.470	7.4	22.0
3 2	8 21.16	+15 10.5	1.930	2.780	12.6	19.9	3 2	8 26.06	+22 47.7	2.636	3.468	10.2	22.2
357381	2003 UH ₁₄		1 30.4 189°21	2°2/31.8	18		129531	1996 EX ₉		1 30.4 5°34	0°1/30.5	18	
12 23	9 17.25	+ 9 51.4	2.137	2.886	14.8	22.1	12 23	9 10.29	+14 59.0	1.489	2.293	17.6	19.6
1 2	9 12.58	+ 9 56.4	2.040	2.885	11.9	21.9	1 2	9 8.09	+15 21.5	1.412	2.293	13.9	19.3
1 12	9 5.60	+10 14.6	1.965	2.884	8.5	21.7	1 12	9 3.04	+15 58.6	1.355	2.295	9.5	19.1
1 22	8 56.82	+10 44.5	1.917	2.882	4.7	21.4	1 22	8 55.76	+16 46.5	1.322	2.297	4.5	18.8
2 1	8 47.05	+11 23.1	1.898	2.879	2.2	21.2	2 1	8 47.29	+17 39.0	1.316	2.300	0.8	18.5
2 11	8 37.32	+12 6.1	1.909	2.876	4.9	21.4	2 11	8 39.01	+18 29.4	1.335	2.305	6.0	18.9
2 21	8 28.63	+12 49.2	1.949	2.871	8.6	21.6	2 21	8 32.18	+19 11.9	1.381	2.311	10.8	19.2
3 2	8 21.84	+13 28.7	2.015	2.866	12.1	21.8	3 2	8 27.82	+19 43.1	1.449	2.317	15.0	19.5
201418	2002 XR ₃₃		1 30.4 57°31	3°0/ 1.2	18		464245	2015 DR ₁₀₉		1 30.4 166°05	4°5/26.9	18	
12 23	9 14.97	+ 9 23.0	2.144	2.896	14.6	20.0	12 23	9 17.28	+30 41.8	2.503	3.286	11.9	21.5
1 2	9 10.61	+ 8 54.6	2.061	2.906	11.8	19.8	1 2	9 12.47	+31 32.7	2.422	3.289	9.5	21.3
1 12	9 4.13	+ 8 37.6	2.000	2.916	8.5	19.6	1 12	9 5.43	+32 23.0	2.366	3.291	6.9	21.2
1 22	8 56.06	+ 8 31.5	1.966	2.926	5.1	19.4	1 22	8 56.71	+33 7.1	2.337	3.293	4.8	21.0
2 1	8 47.21	+ 8 34.8	1.960	2.937	3.0	19.3	2 1	8 47.13	+33 39.7	2.338	3.295	4.8	21.0
2 11	8 38.56	+ 8 45.1	1.983	2.947	5.0	19.5	2 11	8 37.71	+33 57.1	2.368	3.297	6.9	21.2
2 21	8 31.00	+ 8 59.5	2.035	2.958	8.3	19.7	2 21	8 29.39	+33 58.2	2.426	3.298	9.5	21.3
3 2	8 25.26	+ 9 14.9	2.112	2.969	11.4	19.9	3 2	8 22.96	+33 44.1	2.508	3.299	11.9	21.5
453796	2011 QC ₇₃		1 30.4 99°71	1°2/29.8	17		201249	2002 RK ₉₇		1 30.4 26°19	5°3/27.5	18	
12 23	9 20.98	+18 23.8	1.683	2.466	16.8	22.3	12 23	9 17.69	+30 49.6	1.863	2.662	14.8	19.2
1 2	9 15.90	+18 57.8	1.617	2.488	13.1	22.1	1 2	9 13.45	+31 31.1	1.793	2.669	11.7	19.0
1 12	9 7.96	+19 41.4	1.574	2.509	8.7	21.9	1 12	9 6.38	+32 11.2	1.746	2.676	8.5	18.8
1 22	8 57.91	+20 29.1	1.556	2.530	4.0	21.6	1 22	8 57.21	+32 43.1	1.724	2.684	5.8	18.7
2 1	8 46.88	+21 14.5	1.567	2.550	1.7	21.5	2 1	8 47.05	+33 0.2	1.730	2.692	5.7	18.7
2 11	8 36.26	+21 51.7	1.607	2.570	6.0	21.9	2 11	8 37.24	+32 58.7	1.764	2.700	8.1	18.9
2 21	8 27.29	+22 17.4	1.674	2.589	10.3	22.1	2 21	8 29.01	+32 38.6	1.823	2.709	11.3	19.1
3 2	8 20.85	+22 30.8	1.766	2.608	14.0	22.4	3 2	8 23.24	+32 2.2	1.905	2.719	14.3	19.3
341219	2007 RV ₁₃₀		1 30.4 258°41	3°2/ 1.9	17		498176	2007 TK ₂₁₁		1 30.4 76°43	4°3/ 2.5	18	
12 23	9 11.37	+ 5 58.9	2.343	3.083	13.9	21.5	12 23	9 12.74	+ 3 53.2	2.305	3.034	14.4	21.4
1 2	9 7.80	+ 5 59.5	2.243	3.078	11.3	21.3	1 2	9 8.75	+ 3 31.1	2.221	3.045	11.8	21.3
1 12	9 2.28	+ 6 14.6	2.165	3.074	8.4	21.1	1 12	9 2.83	+ 3 23.6	2.158	3.056	9.0	21.1
1 22	8 55.24	+ 6 43.5	2.113	3.069	5.3	20.9	1 22	8 55.47	+ 3 30.8	2.121	3.066	6.1	20.9
2 1	8 47.36	+ 7 24.3	2.089	3.064	3.2	20.8	2 1	8 47.37	+ 3 51.6	2.111	3.077	4.3	20.8
2 11	8 39.50	+ 8 13.2	2.095	3.059	4.8	20.8	2 11	8 39.43	+ 4 23.1	2.131	3.088	5.4	20.9
2 21	8 32.49	+ 9 5.9	2.130	3.054	7.9	21.0	2 21	8 32.43	+ 5 1.4	2.179	3.099	8.0	21.1
3 2	8 27.07	+ 9 58.1	2.191	3.050	11.0	21.2	3 2	8 27.06	+ 5 42.4	2.253	3.110	10.8	21.3
108903	2001 PR ₈		1 30.4 47°46	2°5/28.4	18		247670	2002 XE ₁₁₈		1 30.4 15°03	9°9/20.6	16	
12 23	9 12.49	+21 5.8	2.068	2.860	13.8	19.0	12 23	9 16.88	+40 25.9	1.967	2.761	14.3	20.0

EPHEMERIDES

1 30.4

1 30.5

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
365139	2009 <i>DY</i> ₅₄		1 30.4 294°16	1°0/29.9	15		35156	1993 <i>FH</i> ₅₉		1 30.5 150°36	0°6/29.9	18	
12 23	9 15.12	+17 31.6	1.557	2.355	17.3	21.9	12 23	9 13.55	+18 18.4	2.911	3.676	10.9	20.9
1 2	9 12.13	+17 59.9	1.458	2.336	13.7	21.6	1 2	9 9.05	+18 42.6	2.823	3.683	8.5	20.8
1 12	9 6.04	+18 41.4	1.379	2.317	9.4	21.3	1 12	9 2.88	+19 12.4	2.759	3.690	5.7	20.6
1 22	8 57.32	+19 31.8	1.324	2.299	4.4	21.0	1 22	8 55.47	+19 45.0	2.724	3.697	2.6	20.4
2 1	8 46.99	+20 24.5	1.296	2.280	1.5	20.8	2 1	8 47.43	+20 17.1	2.720	3.704	0.9	20.3
2 11	8 36.51	+21 12.0	1.295	2.261	6.7	21.0	2 11	8 39.50	+20 45.6	2.747	3.710	3.9	20.5
2 21	8 27.39	+21 48.8	1.320	2.243	11.9	21.3	2 21	8 32.37	+21 8.5	2.804	3.716	6.8	20.7
3 2	8 20.89	+22 11.9	1.368	2.225	16.4	21.5	3 2	8 26.62	+21 24.2	2.888	3.721	9.4	20.9
129503	1995 <i>OZ</i> ₁		1 30.4 209°02	2°0/31.9	18		240536	2004 <i>GK</i> ₂₈		1 30.5 246°01	2°8/2.3	17	
12 23	9 16.12	+ 8 11.7	2.324	3.064	14.0	21.2	12 23	9 10.97	+ 3 38.8	2.934	3.649	11.8	21.5
1 2	9 11.62	+ 8 42.6	2.217	3.056	11.3	21.0	1 2	9 7.17	+ 4 9.6	2.815	3.634	9.8	21.3
1 12	9 4.95	+ 9 29.1	2.132	3.048	8.1	20.7	1 12	9 1.73	+ 4 55.5	2.719	3.618	7.3	21.1
1 22	8 56.56	+10 29.2	2.075	3.039	4.5	20.5	1 22	8 54.99	+ 5 55.5	2.650	3.601	4.6	20.9
2 1	8 47.16	+11 39.1	2.047	3.029	2.0	20.3	2 1	8 47.50	+ 7 7.2	2.611	3.584	2.9	20.8
2 11	8 37.68	+12 53.6	2.051	3.018	4.6	20.5	2 11	8 39.93	+ 8 26.7	2.604	3.567	4.0	20.8
2 21	8 29.08	+14 7.1	2.085	3.006	8.2	20.7	2 21	8 32.95	+ 9 49.3	2.628	3.550	6.7	21.0
3 2	8 22.17	+15 15.0	2.146	2.993	11.6	20.9	3 2	8 27.20	+11 10.4	2.681	3.532	9.5	21.1
458292	2010 <i>US</i> ₈₁		1 30.4 229°57	1°4/31.3	16		360578	2003 <i>UH</i> ₂₀₃		1 30.5 99°71	3°9/28.3	18	
12 23	9 16.15	+12 26.7	2.005	2.770	15.1	22.2	12 23	9 21.66	+25 43.3	1.742	2.534	16.0	21.1
1 2	9 11.97	+12 31.2	1.906	2.762	12.1	21.9	1 2	9 16.55	+26 29.9	1.676	2.551	12.5	20.9
1 12	9 5.35	+12 47.8	1.828	2.754	8.5	21.7	1 12	9 8.48	+27 19.8	1.633	2.568	8.6	20.7
1 22	8 56.79	+13 14.5	1.777	2.746	4.4	21.4	1 22	8 58.22	+28 5.7	1.616	2.584	4.9	20.5
2 1	8 47.12	+13 48.0	1.754	2.738	1.5	21.2	2 1	8 46.93	+28 40.5	1.627	2.600	4.3	20.5
2 11	8 37.45	+14 23.9	1.761	2.729	5.0	21.4	2 11	8 36.06	+28 59.2	1.667	2.616	7.4	20.7
2 21	8 28.88	+14 58.0	1.796	2.719	9.2	21.7	2 21	8 26.88	+29 0.7	1.733	2.631	11.1	21.0
3 2	8 22.31	+15 27.2	1.856	2.710	12.9	21.9	3 2	8 20.32	+28 46.4	1.823	2.646	14.4	21.2
262058	2006 <i>RJ</i> ₂₇		1 30.5 224°28	5°5/3.4	17		124241	2001 <i>PS</i> ₅₁		1 30.5 49°90	0°9/30.9	18	
12 23	9 15.46	- 0 43.5	2.382	3.079	14.7	22.3	12 23	9 18.21	+13 40.7	1.167	1.972	21.5	19.9
1 2	9 11.06	- 0 59.2	2.269	3.067	12.5	22.1	1 2	9 14.65	+13 53.9	1.115	1.995	16.9	19.6
1 12	9 4.56	- 0 57.5	2.176	3.053	9.9	21.9	1 12	9 7.57	+14 24.9	1.082	2.019	11.5	19.4
1 22	8 56.39	- 0 37.1	2.109	3.039	7.3	21.7	1 22	8 57.86	+15 8.8	1.071	2.044	5.6	19.1
2 1	8 47.21	+ 0 1.5	2.069	3.024	5.6	21.5	2 1	8 47.01	+15 58.6	1.084	2.069	1.1	18.9
2 11	8 37.93	+ 0 55.7	2.059	3.008	6.3	21.5	2 11	8 36.80	+16 46.0	1.124	2.095	6.7	19.4
2 21	8 29.45	+ 2 0.9	2.078	2.991	8.8	21.7	2 21	8 28.75	+17 25.3	1.188	2.120	11.9	19.7
3 2	8 22.58	+ 3 11.4	2.124	2.973	11.7	21.8	3 2	8 23.84	+17 53.2	1.274	2.146	16.4	20.1
344109	1999 <i>TF</i> ₂₆₄		1 30.5 124°24	1°2/31.1	18		139529	2001 <i>QO</i> ₉		1 30.5 87°24	0°1/30.4	18	
12 23	9 20.63	+12 43.6	1.618	2.390	17.8	22.4	12 23	9 19.45	+16 40.4	1.890	2.664	15.5	20.0
1 2	9 15.80	+12 58.6	1.543	2.405	14.1	22.2	1 2	9 14.33	+16 52.8	1.824	2.688	12.1	19.8
1 12	9 8.04	+13 28.5	1.490	2.419	9.8	21.9	1 12	9 6.73	+17 14.1	1.779	2.711	8.2	19.6
1 22	8 58.05	+14 9.7	1.461	2.432	4.9	21.7	1 22	8 57.32	+17 40.7	1.761	2.735	3.8	19.4
2 1	8 46.93	+14 57.1	1.461	2.445	1.3	21.4	2 1	8 47.10	+18 8.1	1.772	2.757	0.7	19.2
2 11	8 36.12	+15 44.4	1.489	2.458	5.7	21.8	2 11	8 37.28	+18 32.1	1.813	2.780	5.1	19.5
2 21	8 26.89	+16 26.5	1.545	2.469	10.3	22.1	2 21	8 28.88	+18 49.7	1.882	2.801	9.1	19.8
3 2	8 20.23	+17 0.1	1.625	2.480	14.3	22.3	3 2	8 22.70	+18 59.6	1.976	2.823	12.5	20.1
162877	2001 <i>FB</i> ₂₈		1 30.5 291°53	1°2/31.3	17		264485	2001 <i>OW</i> ₄₉		1 30.5 104°66	2°0/31.7	18	
12 23	9 12.33	+11 39.8	2.085	2.853	14.5	20.6	12 23	9 18.14	+10 42.8	2.090	2.842	15.0	21.4
1 2	9 9.10	+12 3.7	1.968	2.826	11.7	20.3	1 2	9 13.07	+10 42.8	2.017	2.864	11.9	21.2
1 12	9 3.53	+12 42.1	1.873	2.800	8.2	20.1	1 12	9 5.78	+10 54.9	1.966	2.886	8.4	21.0
1 22	8 56.01	+13 33.1	1.803	2.773	4.2	19.8	1 22	8 56.86	+11 17.3	1.941	2.907	4.5	20.9
2 1	8 47.28	+14 32.8	1.763	2.747	1.2	19.5	2 1	8 47.19	+11 46.7	1.946	2.927	2.0	20.7
2 11	8 38.34	+15 35.9	1.751	2.720	5.0	19.7	2 11	8 37.81	+12 19.4	1.980	2.947	4.7	20.9
2 21	8 30.26	+16 36.7	1.768	2.693	9.2	19.9	2 21	8 29.63	+12 51.5	2.044	2.967	8.3	21.2
3 2	8 24.00	+17 30.8	1.811	2.666	13.1	20.1	3 2	8 23.40	+13 20.0	2.134	2.985	11.5	21.4
349192	2007 <i>RL</i> ₁₇₄		1 30.5 112°37	2°7/28.9	18		169537	2002 <i>EH</i> ₇₃		1 30.5 269°78	0°9/30.9	18	
12 23	9 19.73	+22 1.7	1.738	2.529	16.0	21.8	12 23	9 17.08	+14 9.2	1.755	2.532	16.4	20.4
1 2	9 15.06	+22 48.5	1.667	2.542	12.5	21.6	1 2	9 13.28	+14 14.9	1.647	2.512	13.2	20.2
1 12	9 7.52	+23 42.3	1.618	2.555	8.4	21.4	1 12	9 6.61	+14 33.2	1.561	2.492	9.2	19.9
1 22	8 57.79	+24 36.7	1.595	2.567	4.3	21.1	1 22	8 57.56	+15 1.9	1.500	2.472	4.6	19.5
2 1	8 46.99	+25 24.5	1.600	2.579	3.1	21.1	2 1	8 47.02	+15 36.8	1.467	2.451	1.0	19.2
2 11	8 36.49	+25 59.8	1.634	2.591	6.8	21.3	2 11	8 36.32	+16 12.8	1.462	2.430	5.8	19.5
2 21	8 27.55	+26 20.0	1.695	2.602	10.8	21.6	2 21	8 26.80	+16 45.0	1.484	2.409	10.6	19.7
3 2	8 21.13	+26 24.8	1.780	2.613	14.3	21.8	3 2	8 19.60	+17 10.1	1.530	2.387	15.0	19.9
242630	2005 <i>MW</i> ₄		1 30.5 140°34	5°4/24.7	18		71644	2000 <i>EF</i> ₁₀₅		1 30.5 343°15	7°4/25.2	18	
12 23	9 16.59	+35 40.2	3.033	3.807	10.2	21.0	12 23	9 16.01	+34 30.4	1.880	2.682	14.6	18.3
1 2	9 11.71	+37 1.6	2.964	3.818	8.3	20.8	1 2	9 12.53	+35 52.3	1.804	2.677	11.9	18.1
1 12	9 4.83	+38 20.1	2.922	3.829	6.5	20.7	1 12	9 6.07	+37 12.7	1.752	2.672	9.2	18.0
1 22	8 56.43	+39 29.9	2.908	3.839	5.4	20.7	1 22	8 57.23	+38 22.3	1.725	2.668	7.5	17.9
2 1	8 47.24	+40 25.7	2.924	3.849	5.8	20.7	2 1	8 47.11	+39 12.5	1.725	2.664	7.9	17.9
2 11	8 38.13	+41 4.1	2.969	3.859	7.2	20.8	2 11	8 37.13	+39 37.6	1.751	2.661	10.1	18.0
2 21	8 29.95	+41 24.2	3.041	3.868	9.1	21.0	2 21	8 28.67	+39 36.7	1.801	2.658	12.9	18.2
3 2	8 23.42	+41 27.1	3.137	3.876	10.9	21.1	3 2	8 22.78	+39 12.4	1.872	2.656	15.7	18.3
9697	Louwman		1 30.5 68°94	2°5/1.2	18		375764	2009 <i>SJ</i> ₁₃₀		1 30.5 278°86	6°4/3.6	17	
12 23	9 12.76	+ 8 49.1	2.095	2.851	14.8	18.6	12						

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
365685	2010 VR ₁₀₂		1 30.5 153°37	1°5/31.4	18		229157	2004 TC ₂		1 30.5 150°63	2°5/28.9	18	
12 23	9 16.59	+11 40.6	2.208	2.963	14.2	22.2	12 23	9 17.57	+23 23.0	2.146	2.929	13.6	20.8
1 2	9 11.93	+11 50.4	2.120	2.970	11.3	22.0	1 2	9 12.93	+23 54.1	2.062	2.933	10.6	20.6
1 12	9 5.09	+12 11.9	2.054	2.977	7.9	21.8	1 12	9 5.89	+24 29.3	2.002	2.936	7.2	20.4
1 22	8 56.60	+12 42.8	2.016	2.984	4.1	21.6	1 22	8 57.04	+25 3.9	1.968	2.940	3.8	20.2
2 1	8 47.25	+13 19.9	2.006	2.990	1.5	21.4	2 1	8 47.25	+25 32.7	1.965	2.943	2.8	20.1
2 11	8 38.03	+13 59.0	2.028	2.995	4.5	21.6	2 11	8 37.64	+25 51.7	1.990	2.946	5.9	20.3
2 21	8 29.87	+14 36.3	2.078	3.000	8.2	21.8	2 21	8 29.24	+25 58.7	2.044	2.948	9.4	20.5
3 2	8 23.53	+15 8.7	2.155	3.004	11.5	22.1	3 2	8 22.87	+25 53.8	2.123	2.951	12.5	20.7
133387	2003 SD ₁₅₇		1 30.5 187°32	0°8/29.9	18		8414	Atsuko		1 30.5 164°55	0°1/30.4	18	
12 23	9 18.80	+17 47.0	2.078	2.850	14.4	21.4	12 23	9 17.79	+15 28.3	1.844	2.620	15.8	18.0
1 2	9 13.96	+18 14.6	1.985	2.849	11.3	21.2	1 2	9 13.43	+15 55.2	1.758	2.623	12.5	17.8
1 12	9 6.65	+18 51.2	1.916	2.849	7.7	20.9	1 12	9 6.43	+16 33.9	1.694	2.627	8.5	17.5
1 22	8 57.40	+19 32.7	1.873	2.847	3.6	20.7	1 22	8 57.36	+17 20.7	1.656	2.630	4.0	17.3
2 1	8 47.11	+20 14.1	1.861	2.845	1.2	20.5	2 1	8 47.18	+18 10.1	1.647	2.632	0.8	17.0
2 11	8 36.89	+20 50.5	1.878	2.842	5.3	20.8	2 11	8 37.13	+18 56.4	1.667	2.634	5.4	17.4
2 21	8 27.83	+21 18.4	1.924	2.838	9.3	21.0	2 21	8 28.38	+19 35.1	1.715	2.635	9.8	17.6
3 2	8 20.84	+21 36.2	1.996	2.834	12.8	21.2	3 2	8 21.86	+20 3.7	1.788	2.636	13.6	17.8
423179	2004 GV ₇₄		1 30.5 279°28	3°6/2.5	17		460050	2014 OO ₁₉₇		1 30.5 60°70	3°0/29.3	18	
12 23	9 10.87	+3 11.1	2.625	3.345	13.0	21.3	12 23	9 23.80	+24 59.2	1.595	2.388	17.1	21.0
1 2	9 7.38	+3 21.1	2.499	3.319	10.8	21.1	1 2	9 18.23	+25 7.7	1.536	2.411	13.4	20.8
1 12	9 2.05	+3 46.7	2.396	3.293	8.2	20.9	1 12	9 9.58	+25 18.3	1.498	2.434	9.1	20.6
1 22	8 55.23	+4 27.9	2.318	3.267	5.5	20.6	1 22	8 58.72	+25 25.2	1.486	2.457	4.7	20.4
2 1	8 47.50	+5 23.2	2.270	3.240	3.7	20.5	2 1	8 46.98	+25 23.0	1.502	2.481	3.3	20.4
2 11	8 39.62	+6 29.1	2.252	3.212	4.8	20.5	2 11	8 35.89	+25 8.9	1.546	2.504	6.9	20.7
2 21	8 32.36	+7 41.0	2.263	3.185	7.6	20.6	2 21	8 26.74	+24 42.8	1.617	2.527	10.9	20.9
3 2	8 26.48	+8 54.1	2.302	3.157	10.7	20.8	3 2	8 20.38	+24 6.7	1.711	2.551	14.5	21.2
14407	1991 PQ ₈		1 30.5 154°64	0°2/30.3	18		69737	1998 KS ₁₂		1 30.5 273°06	1°1/31.1	18	
12 23	9 13.73	+16 17.4	2.498	3.266	12.4	19.2	12 23	9 16.45	+13 45.3	1.706	2.485	16.8	19.9
1 2	9 9.51	+16 41.3	2.409	3.270	9.7	19.0	1 2	9 12.79	+13 47.5	1.605	2.471	13.4	19.7
1 12	9 3.37	+17 13.1	2.343	3.274	6.5	18.8	1 12	9 6.28	+14 2.6	1.526	2.457	9.4	19.4
1 22	8 55.78	+17 50.1	2.304	3.277	3.1	18.6	1 22	8 57.42	+14 28.4	1.471	2.442	4.7	19.1
2 1	8 47.43	+18 28.4	2.296	3.281	0.6	18.4	2 1	8 47.16	+15 0.9	1.443	2.428	1.2	18.8
2 11	8 39.17	+19 4.2	2.318	3.284	4.2	18.7	2 11	8 36.82	+15 35.1	1.444	2.413	5.7	19.1
2 21	8 31.83	+19 34.7	2.370	3.287	7.6	18.9	2 21	8 27.74	+16 6.1	1.472	2.398	10.6	19.3
3 2	8 26.08	+19 57.8	2.448	3.289	10.6	19.1	3 2	8 21.02	+16 30.6	1.523	2.383	14.8	19.5
462626	2009 QY ₃₁		1 30.5 122°33	1°4/31.5	18		101606	1999 CK ₆		1 30.5 61°28	3°3/29.5	18	
12 23	9 16.07	+10 54.0	2.398	3.145	13.4	22.1	12 23	9 28.58	+27 53.6	1.701	2.484	16.6	19.3
1 2	9 11.26	+11 13.7	2.318	3.164	10.6	21.9	1 2	9 21.97	+27 37.8	1.625	2.493	13.1	19.1
1 12	9 4.48	+11 44.8	2.262	3.182	7.4	21.7	1 12	9 12.14	+27 19.6	1.571	2.503	9.1	18.9
1 22	8 56.27	+12 25.0	2.233	3.200	3.9	21.5	1 22	8 59.95	+26 53.6	1.543	2.512	5.0	18.7
2 1	8 47.35	+13 10.9	2.234	3.217	1.4	21.4	2 1	8 46.75	+26 15.6	1.544	2.522	3.5	18.6
2 11	8 38.62	+13 58.2	2.266	3.233	4.2	21.6	2 11	8 34.16	+25 24.5	1.575	2.531	7.0	18.8
2 21	8 30.89	+14 43.1	2.328	3.249	7.5	21.8	2 21	8 23.55	+24 22.3	1.633	2.541	11.0	19.1
3 2	8 24.83	+15 22.9	2.417	3.264	10.5	22.1	3 2	8 15.87	+23 12.6	1.717	2.551	14.7	19.3
54078	2000 GC ₁₅₇		1 30.5 70°67	2°1/29.3	18		47858	2000 EB ₁₅₈		1 30.5 14°45	0°3/30.7	18	
12 23	9 17.60	+20 57.3	1.697	2.491	16.2	19.3	12 23	9 15.97	+16 45.3	2.056	2.832	14.4	17.9
1 2	9 13.44	+21 31.6	1.626	2.503	12.6	19.1	1 2	9 11.68	+16 37.5	1.968	2.833	11.4	17.7
1 12	9 6.46	+22 13.4	1.576	2.514	8.5	18.9	1 12	9 5.05	+16 37.1	1.902	2.834	7.7	17.5
1 22	8 57.34	+22 57.2	1.552	2.526	4.1	18.6	1 22	8 56.65	+16 41.7	1.863	2.836	3.7	17.3
2 1	8 47.16	+23 36.4	1.556	2.537	2.5	18.6	2 1	8 47.33	+16 48.3	1.852	2.837	0.7	17.0
2 11	8 37.30	+24 5.6	1.588	2.549	6.4	18.8	2 11	8 38.18	+16 53.8	1.871	2.839	4.8	17.3
2 21	8 28.98	+24 22.0	1.647	2.561	10.6	19.1	2 21	8 30.20	+16 56.0	1.918	2.841	8.8	17.6
3 2	8 23.11	+24 25.0	1.730	2.573	14.2	19.3	3 2	8 24.19	+16 53.5	1.991	2.843	12.2	17.8
395395	2011 ST ₁₀₂		1 30.5 193°66	3°4/28.5	18		432178	2009 CC ₃₆		1 30.5 349°63	2°8/28.8	17	
12 23	9 22.90	+25 11.9	2.000	2.780	14.6	22.1	12 23	9 17.61	+25 57.1	2.263	3.047	13.0	21.2
1 2	9 17.43	+25 53.4	1.910	2.778	11.5	21.9	1 2	9 12.86	+26 13.1	2.176	3.046	10.2	21.0
1 12	9 9.14	+26 39.0	1.843	2.775	7.9	21.7	1 12	9 5.79	+26 30.4	2.112	3.046	7.0	20.8
1 22	8 58.64	+27 22.3	1.803	2.772	4.5	21.5	1 22	8 56.98	+26 44.6	2.076	3.045	3.9	20.6
2 1	8 46.93	+27 56.8	1.793	2.767	3.8	21.4	2 1	8 47.30	+26 51.3	2.069	3.045	3.1	20.5
2 11	8 35.33	+28 17.2	1.813	2.762	6.9	21.6	2 11	8 37.82	+26 47.6	2.092	3.044	5.8	20.7
2 21	8 25.11	+28 21.7	1.860	2.756	10.6	21.8	2 21	8 29.52	+26 32.6	2.142	3.044	9.1	20.9
3 2	8 17.28	+28 11.0	1.932	2.749	14.0	22.0	3 2	8 23.19	+26 6.9	2.218	3.044	12.1	21.1
68548	2001 XR ₃₁		1 30.5 141°87	2°6/31.3	18		462662	2009 SM ₃₄₁		1 30.5 180°99	0°4/30.8	18	
12 23	9 40.64	+13 6.5	1.571	2.306	19.8	20.3	12 23	9 14.91	+13 56.3	2.236	3.001	13.7	22.4
1 2	9 31.40	+12 27.0	1.493	2.330	15.9	20.1	1 2	9 10.72	+14 21.9	2.143	3.001	10.8	22.2
1 12	9 18.56	+11 57.6	1.436	2.352	11.2	19.8	1 12	9 4.37	+14 58.6	2.073	3.002	7.4	22.0
1 22	9 2.99	+11 37.0	1.406	2.372	6.0	19.6	1 22	8 56.34	+15 43.4	2.030	3.002	3.6	21.8
2 1	8 46.18	+11 22.8	1.408	2.389	2.6	19.4	2 1	8 47.41	+16 32.0	2.017	3.001	0.7	21.5
2 11	8 29.98	+11 12.6	1.441	2.405	6.6	19.7	2 11	8 38.54	+17 19.9	2.034	3.001	4.5	21.8
2 21	8 16.04	+11 4.4	1.505	2.418	11.4	20.0	2 21	8 30.66	+18 3.0	2.080	3.000	8.3	22.1
3 2	8 5.43	+10 56.5	1.594	2.429	15.6	20.3	3 2	8 24.56	+18 38.4	2.151	2.998	11.6	22.3
492566	2014 OF ₁₅₁		1 30.5 204°33	2°7/28.9	18		54798	2001 ME ₁₄		1 30.5 129°38	0°2/30.6	18	
12 23	9 21.11	+22 55.3	1.926	2.708	15.0	22.2	12 23	9 14.79	+16 0.4	2.615	3.376	12.0	19.5
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EPHEMERIDES

1 30.5

1 30.5

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
303461	2005 <i>CR</i> ₁₄		1 30.5 94°33	0°2/30.3	18		394053	2005 <i>WT</i> ₁₈₇		1 30.5 151°69	3°7/28.3	18	
12 23	9 17.14	+14 36.9	1.667	2.449	17.0	21.3	12 23	9 21.09	+23 43.5	1.755	2.545	15.9	21.5
1 2	9 13.07	+15 20.8	1.596	2.465	13.3	21.0	1 2	9 16.31	+24 45.2	1.679	2.553	12.5	21.3
1 12	9 6.23	+16 19.1	1.546	2.480	9.0	20.8	1 12	9 8.54	+25 53.8	1.625	2.560	8.5	21.1
1 22	8 57.28	+17 26.7	1.521	2.495	4.2	20.6	1 22	8 58.43	+27 1.5	1.597	2.567	4.8	20.9
2 1	8 47.27	+18 36.7	1.525	2.510	0.9	20.4	2 1	8 47.09	+28 0.2	1.598	2.572	4.1	20.8
2 11	8 37.52	+19 41.8	1.558	2.524	5.7	20.7	2 11	8 35.95	+28 43.2	1.628	2.578	7.5	21.1
2 21	8 29.25	+20 36.5	1.618	2.539	10.2	21.0	2 21	8 26.37	+29 7.5	1.684	2.582	11.4	21.3
3 2	8 23.37	+21 17.9	1.702	2.553	14.0	21.3	3 2	8 19.37	+29 13.6	1.764	2.586	14.9	21.5
395118	2009 <i>WO</i> ₇₃		1 30.5 24°85	2°4/29.6	17		330445	2007 <i>DQ</i> ₁₀₅		1 30.5 296°67	3°0/1.4	18	
12 23	9 18.28	+21 1.3	1.123	1.946	21.0	21.2	12 23	9 13.07	+ 7 43.5	1.931	2.688	15.8	21.3
1 2	9 15.36	+21 19.0	1.058	1.951	16.5	21.0	1 2	9 9.63	+ 7 47.1	1.838	2.686	12.9	21.1
1 12	9 8.51	+21 46.8	1.012	1.956	11.2	20.7	1 12	9 3.83	+ 8 7.0	1.766	2.683	9.3	20.9
1 22	8 58.56	+22 17.8	0.988	1.963	5.4	20.4	1 22	8 56.18	+ 8 42.1	1.719	2.681	5.5	20.7
2 1	8 47.03	+22 43.7	0.988	1.970	2.8	20.2	2 1	8 47.49	+ 9 29.4	1.700	2.679	3.0	20.5
2 11	8 35.98	+22 57.5	1.012	1.978	8.1	20.6	2 11	8 38.86	+10 24.2	1.710	2.677	5.2	20.6
2 21	8 27.19	+22 56.5	1.060	1.987	13.6	20.9	2 21	8 31.30	+11 21.0	1.747	2.675	9.1	20.9
3 2	8 21.89	+22 40.9	1.128	1.997	18.3	21.2	3 2	8 25.70	+12 14.8	1.810	2.673	12.7	21.1
488554	2001 <i>UF</i> ₁		1 30.5 156°70	9°9/9.7	17		502963	2015 <i>EL</i> ₇₁		1 30.5 324°40	0°2/30.4	18	
12 23	9 15.66	-20 7.0	2.911	3.456	14.8	22.8	12 23	9 13.51	+16 36.2	2.155	2.932	13.8	21.7
1 2	9 10.79	-20 59.8	2.823	3.466	13.6	22.7	1 2	9 9.75	+16 53.7	2.063	2.929	10.8	21.5
1 12	9 4.15	-21 31.4	2.751	3.476	12.3	22.6	1 12	9 3.78	+17 20.1	1.994	2.927	7.3	21.3
1 22	8 56.17	-21 38.2	2.699	3.485	11.1	22.6	1 22	8 56.11	+17 52.3	1.951	2.925	3.4	21.0
2 1	8 47.47	-21 18.4	2.670	3.493	10.2	22.5	2 1	8 47.52	+18 26.3	1.938	2.923	0.7	20.8
2 11	8 38.83	-20 32.7	2.666	3.500	9.9	22.5	2 11	8 39.01	+18 57.8	1.954	2.920	4.8	21.1
2 21	8 30.97	-19 24.6	2.687	3.507	10.4	22.5	2 21	8 31.53	+19 23.6	1.998	2.918	8.6	21.3
3 2	8 24.54	-17 59.5	2.734	3.512	11.4	22.6	3 2	8 25.89	+19 41.6	2.068	2.916	12.0	21.5
209088	2003 <i>SE</i> ₃₁		1 30.5 177°92	0°1/30.4	18		89247	2001 <i>UE</i> ₁₆₈		1 30.5 333°74	8°9/26.1	18	
12 23	9 18.66	+16 4.6	2.101	2.868	14.4	22.0	12 23	9 21.54	+37 19.6	1.568	2.371	16.9	18.1
1 2	9 13.80	+16 26.6	2.010	2.871	11.4	21.8	1 2	9 17.61	+38 17.2	1.490	2.361	14.0	17.8
1 12	9 6.53	+16 58.3	1.942	2.872	7.7	21.6	1 12	9 9.93	+39 9.2	1.433	2.350	11.1	17.6
1 22	8 57.39	+17 36.2	1.900	2.873	3.6	21.3	1 22	8 59.23	+39 44.8	1.400	2.341	9.1	17.5
2 1	8 47.25	+18 15.9	1.889	2.873	0.7	21.1	2 1	8 46.95	+39 54.3	1.392	2.332	9.3	17.5
2 11	8 37.20	+18 52.6	1.907	2.873	5.0	21.4	2 11	8 35.00	+39 32.8	1.409	2.324	11.7	17.6
2 21	8 28.30	+19 22.8	1.955	2.872	9.0	21.7	2 21	8 25.13	+38 41.5	1.449	2.317	14.8	17.8
3 2	8 21.40	+19 44.4	2.028	2.870	12.4	21.9	3 2	8 18.57	+37 26.3	1.510	2.310	18.0	17.9
307679	2003 <i>ST</i> ₃₅₂		1 30.5 186°29	2°9/1.3	18		136383	2004 <i>FT</i> ₆₅		1 30.5 312°33	0°3/30.3	17	
12 23	9 16.25	+ 7 44.2	1.971	2.720	15.8	21.6	12 23	9 11.78	+16 19.1	2.200	2.979	13.5	20.1
1 2	9 12.06	+ 7 50.1	1.877	2.720	12.9	21.4	1 2	9 8.43	+16 46.8	2.102	2.970	10.6	19.8
1 12	9 5.44	+ 8 12.2	1.804	2.719	9.3	21.2	1 12	9 2.93	+17 24.3	2.027	2.961	7.2	19.6
1 22	8 56.91	+ 8 49.2	1.757	2.719	5.5	20.9	1 22	8 55.73	+18 8.5	1.979	2.953	3.4	19.4
2 1	8 47.33	+ 9 38.0	1.738	2.717	2.9	20.8	2 1	8 47.58	+18 54.8	1.960	2.944	0.8	19.1
2 11	8 37.79	+10 33.7	1.748	2.715	5.2	20.9	2 11	8 39.45	+19 38.7	1.970	2.936	4.8	19.4
2 21	8 29.36	+11 30.9	1.787	2.712	9.1	21.1	2 21	8 32.26	+20 16.2	2.008	2.928	8.6	19.6
3 2	8 22.92	+12 24.7	1.852	2.709	12.7	21.4	3 2	8 26.83	+20 44.8	2.072	2.920	12.0	19.8
233946	2009 <i>WG</i> ₁₂₅		1 30.5 124°52	1°5/29.5	18		466956	2016 <i>AO</i> ₁₂₉		1 30.5 341°80	9°4/26.1	18	
12 23	9 15.67	+19 31.6	2.174	2.954	13.6	20.7	12 23	9 20.18	+37 0.5	1.429	2.241	17.8	20.3
1 2	9 11.37	+20 10.3	2.093	2.962	10.6	20.5	1 2	9 16.87	+38 1.2	1.355	2.231	14.8	20.0
1 12	9 4.82	+20 56.4	2.035	2.970	7.1	20.3	1 12	9 9.60	+38 56.4	1.301	2.221	11.7	19.8
1 22	8 56.56	+21 45.5	2.005	2.978	3.4	20.1	1 22	8 59.13	+39 34.6	1.269	2.213	9.6	19.7
2 1	8 47.42	+22 32.3	2.004	2.986	1.8	20.0	2 1	8 46.97	+39 45.2	1.262	2.205	9.8	19.7
2 11	8 38.45	+23 12.1	2.033	2.993	5.2	20.3	2 11	8 35.18	+39 22.7	1.279	2.198	12.3	19.8
2 21	8 30.59	+23 41.9	2.090	3.000	8.8	20.5	2 21	8 25.61	+38 28.7	1.318	2.192	15.6	20.0
3 2	8 24.63	+24 0.2	2.172	3.007	12.0	20.7	3 2	8 19.56	+37 9.6	1.378	2.188	18.9	20.2
374047	2004 <i>OF</i> ₁₁		1 30.5 161°18	2°3/28.7	17		229612	2006 <i>DS</i> ₃₆		1 30.5 73°60	0°2/30.4	18	
12 23	9 18.92	+24 26.0	2.764	3.532	11.3	22.5	12 23	9 15.08	+16 38.8	2.027	2.805	14.5	20.8
1 2	9 13.39	+24 57.5	2.677	3.540	8.8	22.4	1 2	9 11.03	+16 55.2	1.945	2.812	11.4	20.6
1 12	9 5.92	+25 31.4	2.616	3.547	6.0	22.2	1 12	9 4.65	+17 20.6	1.886	2.819	7.7	20.4
1 22	8 57.00	+26 3.6	2.584	3.554	3.2	22.0	1 22	8 56.51	+17 51.8	1.853	2.826	3.6	20.1
2 1	8 47.35	+26 30.0	2.584	3.559	2.6	22.0	2 1	8 47.47	+18 24.4	1.849	2.833	0.7	19.9
2 11	8 37.86	+26 47.5	2.614	3.565	5.0	22.2	2 11	8 38.62	+18 54.1	1.874	2.841	4.9	20.2
2 21	8 29.34	+26 54.6	2.674	3.569	7.8	22.4	2 21	8 30.94	+19 17.6	1.927	2.848	8.8	20.5
3 2	8 22.46	+26 51.4	2.761	3.573	10.4	22.5	3 2	8 25.23	+19 33.2	2.006	2.855	12.3	20.7
427617	2003 <i>SL</i> ₄₃₃		1 30.5 75°17	4°9/26.9	18		89280	2001 <i>VS</i> ₁₆		1 30.5 71°52	5°9/2.7	18	
12 23	9 16.72	+28 56.8	2.048	2.842	13.8	20.8	12 23	9 17.16	+ 3 8.5	1.784	2.520	17.7	19.4
1 2	9 12.50	+30 5.6	1.980	2.854	10.9	20.6	1 2	9 12.77	+ 2 19.4	1.710	2.536	14.7	19.2
1 12	9 5.73	+31 15.7	1.935	2.865	7.8	20.5	1 12	9 5.87	+ 1 48.0	1.655	2.551	11.3	19.0
1 22	8 57.02	+32 19.8	1.918	2.877	5.3	20.3	1 22	8 57.09	+ 1 35.7	1.625	2.567	8.0	18.9
2 1	8 47.34	+33 10.9	1.929	2.889	5.4	20.4	2 1	8 47.39	+ 1 42.2	1.621	2.583	6.0	18.8
2 11	8 37.91	+33 44.1	1.968	2.901	7.7	20.5	2 11	8 37.95	+ 2 4.7	1.645	2.599	7.0	18.9
2 21	8 29.82	+33 57.8	2.034	2.912	10.7	20.7	2 21	8 29.84	+ 2 38.4	1.696	2.615	9.9	19.1
3 2	8 23.93	+33 53.3	2.123	2.924	13.4	20.9	3 2	8 23.90	+ 3 17.9	1.771	2.631	13.1	19.3
505017	2011 <i>QU</i> ₂		1 30.5 241°14	1°5/31.6	17		369845	2012 <i>JV</i> ₃₈		1 30.5 142°01	0°9/31.2	18	
12 23	9 15.25	+12 7.0	2.812	3.556									

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
434028	2001 <i>SG</i> ₁₈₂		1 30.5 155°96	0°6/30.1	18		129809	1999 <i>LO</i> ₂₀		1 30.5 198°16	0°5/30.8	18	
12 23	9 17.69	+17 41.5	2.215	2.985	13.7	22.2	12 23	9 18.62	+14 25.9	2.058	2.822	14.8	20.7
1 2	9 12.88	+18 6.9	2.129	2.992	10.7	22.0	1 2	9 13.89	+14 40.9	1.961	2.819	11.7	20.5
1 12	9 5.83	+18 40.3	2.066	2.998	7.2	21.8	1 12	9 6.70	+15 6.7	1.887	2.815	8.1	20.3
1 22	8 57.06	+19 18.0	2.030	3.004	3.4	21.6	1 22	8 57.56	+15 40.6	1.839	2.811	3.9	20.0
2 1	8 47.40	+19 55.5	2.025	3.009	1.0	21.4	2 1	8 47.34	+16 18.5	1.821	2.806	0.7	19.8
2 11	8 37.89	+20 28.6	2.050	3.014	4.9	21.7	2 11	8 37.15	+16 55.6	1.833	2.800	5.0	20.1
2 21	8 29.48	+20 54.2	2.104	3.018	8.6	21.9	2 21	8 28.08	+17 28.2	1.874	2.794	9.1	20.3
3 2	8 22.97	+21 10.8	2.183	3.022	11.8	22.1	3 2	8 21.04	+17 53.5	1.940	2.786	12.7	20.5
85916	1999 <i>CT</i> ₉₈		1 30.5 24°00	2°0/29.3	18		130987	2000 <i>WO</i> ₁₄₀		1 30.5 123°88	3°9/28.1	18	
12 23	9 13.50	+18 40.4	1.500	2.306	17.4	19.1	12 23	9 20.47	+24 31.3	1.816	2.606	15.5	19.8
1 2	9 10.71	+19 33.3	1.428	2.312	13.6	18.9	1 2	9 15.68	+25 35.8	1.745	2.619	12.1	19.6
1 12	9 4.93	+20 38.8	1.376	2.318	9.1	18.6	1 12	9 8.03	+26 45.8	1.697	2.632	8.3	19.4
1 22	8 56.80	+21 50.4	1.349	2.324	4.3	18.4	1 22	8 58.19	+27 53.7	1.676	2.644	4.8	19.2
2 1	8 47.45	+22 59.8	1.349	2.332	2.5	18.3	2 1	8 47.24	+28 51.5	1.684	2.656	4.3	19.2
2 11	8 38.31	+23 59.0	1.376	2.339	6.9	18.6	2 11	8 36.57	+29 33.1	1.720	2.668	7.4	19.4
2 21	8 30.73	+24 42.7	1.429	2.348	11.5	18.8	2 21	8 27.42	+29 56.1	1.784	2.678	11.0	19.7
3 2	8 25.74	+25 9.2	1.504	2.356	15.4	19.1	3 2	8 20.75	+30 1.0	1.870	2.689	14.3	19.9
407316	2010 <i>OJ</i> ₃		1 30.5 82°16	2°3/29.4	18		204649	2006 <i>BT</i> ₇₉		1 30.5 32°96	1°5/29.7	18	
12 23	9 23.48	+23 28.1	1.781	2.565	16.0	21.3	12 23	9 14.62	+16 34.4	1.324	2.133	19.2	20.0
1 2	9 17.74	+23 38.8	1.716	2.587	12.5	21.1	1 2	9 11.96	+17 28.9	1.253	2.138	15.1	19.8
1 12	9 9.18	+23 52.8	1.674	2.609	8.4	20.9	1 12	9 6.00	+18 40.2	1.203	2.144	10.1	19.5
1 22	8 58.60	+24 4.8	1.658	2.630	4.2	20.7	1 22	8 57.40	+20 1.6	1.175	2.151	4.7	19.2
2 1	8 47.17	+24 10.1	1.671	2.651	2.6	20.6	2 1	8 47.37	+21 23.6	1.174	2.158	2.0	19.1
2 11	8 36.25	+24 5.3	1.713	2.672	6.2	20.9	2 11	8 37.58	+22 36.1	1.199	2.165	7.2	19.4
2 21	8 27.04	+23 49.8	1.783	2.693	10.1	21.2	2 21	8 29.55	+23 32.6	1.249	2.173	12.3	19.7
3 2	8 20.36	+23 24.7	1.877	2.713	13.5	21.4	3 2	8 24.41	+24 10.2	1.321	2.181	16.7	20.0
95893	2003 <i>HY</i> ₁₁		1 30.5 190°85	2°7/28.3	18		247796	2003 <i>SL</i> ₅₉		1 30.5 145°02	1°1/31.1	18	
12 23	9 16.11	+23 4.5	2.450	3.228	12.3	20.1	12 23	9 23.00	+14 38.6	2.128	2.881	14.7	22.0
1 2	9 11.64	+24 2.8	2.358	3.227	9.6	19.9	1 2	9 16.96	+14 24.5	2.043	2.893	11.7	21.8
1 12	9 5.02	+25 6.6	2.292	3.225	6.5	19.7	1 12	9 8.54	+14 18.5	1.981	2.905	8.0	21.6
1 22	8 56.71	+26 11.0	2.253	3.223	3.6	19.5	1 22	8 58.32	+14 18.6	1.946	2.916	4.1	21.3
2 1	8 47.47	+27 10.0	2.245	3.220	3.0	19.5	2 1	8 47.24	+14 22.2	1.942	2.926	1.2	21.1
2 11	8 38.27	+27 58.7	2.268	3.217	5.7	19.7	2 11	8 36.40	+14 26.6	1.969	2.935	4.7	21.4
2 21	8 30.02	+28 34.3	2.319	3.213	8.9	19.9	2 21	8 26.83	+14 29.6	2.025	2.944	8.6	21.7
3 2	8 23.52	+28 55.7	2.396	3.209	11.7	20.0	3 2	8 19.34	+14 29.5	2.108	2.951	12.0	21.9
197659	2004 <i>NA</i> ₂		1 30.5 188°46	0°9/31.0	18		284095	2005 <i>MG</i> ₄₂		1 30.5 188°10	3°9/2.9	17	
12 23	9 20.64	+14 17.0	1.938	2.702	15.6	21.0	12 23	9 12.00	+ 2 19.8	2.932	3.639	12.0	21.7
1 2	9 15.58	+14 19.1	1.844	2.701	12.4	20.8	1 2	9 7.90	+ 2 5.8	2.830	3.638	10.0	21.5
1 12	9 7.88	+14 31.9	1.773	2.700	8.6	20.6	1 12	9 2.20	+ 2 4.4	2.750	3.637	7.7	21.4
1 22	8 58.12	+14 52.7	1.727	2.698	4.3	20.3	1 22	8 55.31	+ 2 15.7	2.697	3.635	5.4	21.2
2 1	8 47.23	+15 18.0	1.711	2.696	1.0	20.1	2 1	8 47.77	+ 2 39.0	2.672	3.634	4.0	21.1
2 11	8 36.41	+15 43.3	1.725	2.692	5.2	20.4	2 11	8 40.25	+ 3 12.0	2.678	3.631	4.7	21.1
2 21	8 26.85	+16 5.3	1.767	2.688	9.5	20.6	2 21	8 33.41	+ 3 51.6	2.714	3.629	6.8	21.3
3 2	8 19.49	+16 21.5	1.835	2.684	13.3	20.8	3 2	8 27.83	+ 4 34.4	2.777	3.626	9.2	21.4
290973	2005 <i>XS</i> ₁₆		1 30.5 47°86	2°6/31.7	18		247036	2000 <i>EA</i> ₃₁		1 30.5 337°23	6°5/27.5	18	
12 23	9 17.65	+11 24.4	1.230	2.026	21.1	20.2	12 23	9 17.11	+27 45.3	1.208	2.035	19.6	20.1
1 2	9 14.22	+11 10.2	1.169	2.041	16.9	20.0	1 2	9 14.75	+28 48.4	1.134	2.027	15.6	19.9
1 12	9 7.39	+11 14.3	1.125	2.057	11.9	19.7	1 12	9 8.40	+29 57.2	1.079	2.020	11.2	19.6
1 22	8 57.95	+11 34.5	1.104	2.074	6.4	19.5	1 22	8 58.71	+31 1.0	1.046	2.013	7.3	19.3
2 1	8 47.28	+12 6.3	1.108	2.091	2.6	19.3	2 1	8 47.14	+31 47.7	1.038	2.007	7.1	19.3
2 11	8 37.08	+12 43.3	1.138	2.109	6.6	19.6	2 11	8 35.75	+32 8.4	1.054	2.002	10.8	19.5
2 21	8 28.84	+13 19.2	1.193	2.127	11.7	19.9	2 21	8 26.53	+32 0.9	1.092	1.997	15.5	19.7
3 2	8 23.63	+13 49.5	1.269	2.145	16.2	20.2	3 2	8 20.88	+31 28.2	1.149	1.994	19.7	20.0
259029	2002 <i>TX</i> ₂₂₁		1 30.5 86°57	4°9/28.2	18		371200	2005 <i>YQ</i> ₁₉₃		1 30.5 122°29	0°6/30.1	18	
12 23	9 25.91	+29 46.0	1.779	2.566	15.9	21.0	12 23	9 14.33	+16 9.9	2.095	2.871	14.1	21.4
1 2	9 19.78	+30 18.6	1.719	2.588	12.5	20.8	1 2	9 10.45	+16 50.3	2.010	2.876	11.1	21.2
1 12	9 10.62	+30 49.7	1.682	2.611	8.8	20.6	1 12	9 4.30	+17 41.5	1.948	2.882	7.5	21.0
1 22	8 59.28	+31 12.0	1.671	2.633	5.7	20.5	1 22	8 56.40	+18 39.2	1.913	2.887	3.5	20.7
2 1	8 47.06	+31 19.2	1.688	2.655	5.2	20.5	2 1	8 47.57	+19 38.3	1.907	2.892	1.0	20.6
2 11	8 35.45	+31 8.3	1.734	2.676	7.8	20.7	2 11	8 38.86	+20 33.1	1.932	2.897	5.0	20.9
2 21	8 25.74	+30 40.0	1.807	2.697	11.2	20.9	2 21	8 31.23	+21 19.5	1.984	2.901	8.8	21.1
3 2	8 18.77	+29 57.7	1.903	2.718	14.3	21.2	3 2	8 25.50	+21 55.0	2.062	2.906	12.2	21.3
18923	Jennifersass		1 30.5 269°46	4°6/28.1	18		335649	2006 <i>KG</i> ₁₁₉		1 30.5 151°09	2°7/1.7	18	
12 23	9 20.51	+26 1.9	1.625	2.425	16.6	18.9	12 23	9 12.19	+ 6 38.4	2.434	3.172	13.4	21.4
1 2	9 16.51	+26 49.5	1.529	2.407	13.2	18.6	1 2	9 8.39	+ 6 50.9	2.340	3.176	10.9	21.2
1 12	9 9.15	+27 42.9	1.454	2.390	9.3	18.3	1 12	9 2.71	+ 7 17.4	2.269	3.179	7.9	21.1
1 22	8 58.96	+28 34.5	1.403	2.371	5.6	18.1	1 22	8 55.60	+ 7 56.8	2.224	3.183	4.8	20.9
2 1	8 47.06	+29 15.4	1.380	2.353	5.0	18.0	2 1	8 47.72	+ 8 46.5	2.209	3.186	2.7	20.7
2 11	8 35.06	+29 38.5	1.385	2.334	8.6	18.1	2 11	8 39.91	+ 9 42.4	2.223	3.189	4.4	20.8
2 21	8 24.61	+29 40.7	1.415	2.316	12.9	18.3	2 21	8 32.95	+10 40.1	2.267	3.191	7.5	21.0
3 2	8 17.03	+29 23.0	1.467	2.296	17.0	18.5	3 2	8 27.51	+11 35.5	2.338	3.194	10.5	21.2
104863	2000 <i>HA</i> ₈₂		1 30.5 258°23	2°9/28.9	18		386595	2009 <i>FY</i> ₅₆		1 30.5 318°75	2°3/31.3	17	
12 23	9 18.59	+21 38.4	1.563	2.362	17.2	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
95687	2002 JK ₂₃		1 30.5 349°75	6°1/ 2.9 18			164316	2005 AP ₃₂		1 30.5 57°75	0°9/30.9 17		
12 23	9 10.14	+ 2 55.4	1.582	2.341	18.7	19.3	12 23	9 18.37	+13 19.0	1.356	2.148	19.7	20.4
1 2	9 7.88	+ 2 21.5	1.493	2.334	15.7	19.1	1 2	9 14.42	+13 37.7	1.300	2.173	15.5	20.2
1 12	9 2.96	+ 2 8.2	1.424	2.328	12.1	18.8	1 12	9 7.31	+14 12.8	1.263	2.198	10.6	20.0
1 22	8 55.91	+ 2 17.6	1.376	2.324	8.5	18.6	1 22	8 57.87	+14 59.7	1.250	2.223	5.1	19.7
2 1	8 47.65	+ 2 49.1	1.353	2.319	6.2	18.5	2 1	8 47.39	+15 51.9	1.264	2.248	1.0	19.5
2 11	8 39.42	+ 3 38.7	1.356	2.316	7.3	18.5	2 11	8 37.44	+16 42.1	1.304	2.274	6.1	19.9
2 21	8 32.44	+ 4 40.0	1.384	2.314	10.8	18.7	2 21	8 29.36	+17 24.8	1.370	2.299	10.9	20.3
3 2	8 27.70	+ 5 45.5	1.436	2.313	14.5	18.9	3 2	8 24.08	+17 56.7	1.460	2.325	15.1	20.6
117060	2004 KD ₃		1 30.5 225°49	3°8/ 2.4 18			137959	2000 CZ ₁₈		1 30.5 285°99	0°4/30.7 18		
12 23	9 11.55	+ 4 15.9	2.556	3.282	13.2	20.1	12 23	9 15.29	+14 50.5	1.722	2.506	16.4	19.5
1 2	9 7.82	+ 4 1.8	2.457	3.280	10.9	19.9	1 2	9 11.85	+15 5.8	1.628	2.497	13.1	19.2
1 12	9 2.29	+ 4 1.1	2.381	3.279	8.2	19.7	1 12	9 5.65	+15 34.1	1.554	2.488	9.0	18.9
1 22	8 55.40	+ 4 13.7	2.330	3.277	5.5	19.6	1 22	8 57.21	+16 12.1	1.506	2.479	4.4	18.6
2 1	8 47.77	+ 4 38.5	2.308	3.275	3.8	19.4	2 1	8 47.47	+16 55.1	1.485	2.470	0.7	18.3
2 11	8 40.18	+ 5 12.8	2.315	3.274	4.9	19.5	2 11	8 37.74	+17 37.3	1.492	2.460	5.6	18.7
2 21	8 33.37	+ 5 53.2	2.351	3.272	7.5	19.7	2 21	8 29.26	+18 13.7	1.526	2.451	10.3	18.9
3 2	8 28.00	+ 6 35.7	2.414	3.270	10.2	19.8	3 2	8 23.10	+18 41.1	1.584	2.443	14.5	19.2
383810	2008 AD ₆		1 30.5 301°06	3°9/ 2.2 18			341443	2007 TY ₂₄₆		1 30.5 64°55	1°9/31.6 18		
12 23	9 12.64	+ 5 15.9	2.398	3.131	13.8	21.4	12 23	9 15.92	+12 25.4	2.255	3.012	13.8	20.2
1 2	9 8.78	+ 4 52.6	2.301	3.129	11.3	21.2	1 2	9 11.37	+12 3.0	2.169	3.020	11.0	20.0
1 12	9 3.00	+ 4 42.1	2.226	3.128	8.5	21.0	1 12	9 4.73	+11 49.4	2.106	3.028	7.8	19.8
1 22	8 55.76	+ 4 44.8	2.177	3.127	5.7	20.8	1 22	8 56.56	+11 43.7	2.070	3.037	4.2	19.6
2 1	8 47.72	+ 4 59.7	2.156	3.125	3.9	20.7	2 1	8 47.62	+11 44.1	2.064	3.045	1.9	19.4
2 11	8 39.73	+ 5 24.4	2.165	3.124	5.1	20.8	2 11	8 38.86	+11 48.2	2.087	3.054	4.5	19.6
2 21	8 32.60	+ 5 55.4	2.201	3.123	7.9	20.9	2 21	8 31.15	+11 53.7	2.139	3.063	7.9	19.8
3 2	8 27.03	+ 6 29.1	2.265	3.121	10.8	21.1	3 2	8 25.21	+11 58.4	2.218	3.071	11.1	20.1
475715	2006 WL ₄		1 30.5 157°71	17°7/18.8 18			327039	2004 RY ₃₅₆		1 30.5 130°48	4°6/27.4 18		
12 23	9 36.33	+49 5.8	1.217	2.006	21.7	21.4	12 23	9 19.38	+29 26.1	2.165	2.951	13.4	21.1
1 2	9 32.45	+52 17.8	1.177	2.011	19.5	21.3	1 2	9 14.48	+30 18.5	2.090	2.959	10.6	20.9
1 12	9 22.08	+55 13.2	1.157	2.016	18.0	21.2	1 12	9 7.05	+31 11.4	2.039	2.967	7.6	20.8
1 22	9 5.75	+57 29.2	1.157	2.020	17.8	21.2	1 22	8 57.71	+31 58.0	2.015	2.975	5.1	20.6
2 1	8 45.90	+58 46.6	1.177	2.023	18.8	21.2	2 1	8 47.42	+32 32.3	2.020	2.982	5.0	20.6
2 11	8 26.61	+58 58.9	1.216	2.026	20.7	21.4	2 11	8 37.36	+32 50.0	2.054	2.989	7.3	20.8
2 21	8 11.62	+58 13.9	1.270	2.028	22.8	21.5	2 21	8 28.63	+32 50.1	2.115	2.996	10.3	21.0
3 2	8 3.00	+56 46.4	1.339	2.030	24.9	21.7	3 2	8 22.07	+32 34.1	2.201	3.002	13.0	21.2
245749	2006 DD ₁₆₀		1 30.5 111°40	0°8/30.1 18			174500	2003 BN ₄₂		1 30.5 4°50	1°5/31.3 18		
12 23	9 20.24	+17 43.0	1.674	2.458	16.9	21.2	12 23	9 14.39	+14 20.2	1.912	2.689	15.3	19.4
1 2	9 15.54	+18 6.6	1.601	2.471	13.2	21.0	1 2	9 10.65	+13 57.4	1.825	2.689	12.2	19.2
1 12	9 7.95	+18 40.3	1.549	2.484	8.9	20.7	1 12	9 4.52	+13 43.5	1.760	2.690	8.5	19.0
1 22	8 58.17	+19 19.5	1.523	2.497	4.1	20.5	1 22	8 56.54	+13 37.2	1.721	2.691	4.4	18.7
2 1	8 47.31	+19 58.1	1.525	2.509	1.2	20.3	2 1	8 47.63	+13 36.3	1.710	2.693	1.5	18.5
2 11	8 36.76	+20 30.7	1.556	2.521	5.9	20.6	2 11	8 38.87	+13 38.0	1.727	2.696	5.0	18.8
2 21	8 27.78	+20 53.6	1.614	2.533	10.4	20.9	2 21	8 31.32	+13 39.8	1.772	2.699	9.0	19.0
3 2	8 21.31	+21 5.6	1.696	2.544	14.2	21.2	3 2	8 25.80	+13 39.5	1.841	2.703	12.6	19.2
345293	2005 WD ₁₀₃		1 30.5 8°78	0°5/30.3 18			462271	2008 ES ₁₃₁		1 30.5 19°01	5°0/28.1 18		
12 23	9 8.86	+14 37.4	0.997	1.831	22.2	19.7	12 23	9 13.00	+24 37.0	1.139	1.973	20.0	20.1
1 2	9 8.29	+15 15.1	0.934	1.832	17.6	19.4	1 2	9 11.21	+25 36.8	1.084	1.983	15.6	19.8
1 12	9 3.97	+16 15.1	0.888	1.835	12.0	19.1	1 12	9 5.69	+26 43.8	1.049	1.995	10.7	19.6
1 22	8 56.59	+17 31.5	0.863	1.839	5.6	18.8	1 22	8 57.29	+27 48.1	1.036	2.008	6.2	19.4
2 1	8 47.57	+18 54.0	0.861	1.846	1.2	18.5	2 1	8 47.50	+28 38.9	1.047	2.022	5.5	19.4
2 11	8 38.84	+20 10.4	0.882	1.853	7.7	18.9	2 11	8 38.25	+29 8.4	1.082	2.038	9.4	19.6
2 21	8 32.19	+21 11.7	0.925	1.862	13.7	19.3	2 21	8 31.15	+29 14.3	1.140	2.056	14.0	19.9
3 2	8 28.90	+21 53.0	0.987	1.873	18.8	19.6	3 2	8 27.32	+28 58.5	1.218	2.074	18.0	20.2
506236	2016 NV ₉		1 30.5 281°02	2°3/31.9 17			412756	2014 OE ₃₇₇		1 30.5 264°93	3°5/28.9 18		
12 23	9 15.21	+11 7.4	2.485	3.233	12.9	21.4	12 23	9 20.34	+24 17.6	1.600	2.398	16.9	21.2
1 2	9 10.82	+10 40.5	2.373	3.217	10.5	21.2	1 2	9 16.19	+24 49.0	1.513	2.392	13.3	21.0
1 12	9 4.43	+10 21.9	2.284	3.201	7.5	21.0	1 12	9 8.78	+25 26.0	1.447	2.385	9.2	20.7
1 22	8 56.46	+10 11.1	2.222	3.185	4.4	20.7	1 22	8 58.74	+26 1.8	1.406	2.378	5.0	20.4
2 1	8 47.60	+10 7.0	2.189	3.169	2.3	20.6	2 1	8 47.24	+26 29.2	1.393	2.371	3.8	20.4
2 11	8 38.71	+10 7.8	2.187	3.152	4.5	20.7	2 11	8 35.86	+26 42.2	1.407	2.363	7.6	20.6
2 21	8 30.63	+10 11.4	2.214	3.136	7.8	20.9	2 21	8 26.12	+26 38.5	1.447	2.356	12.1	20.8
3 2	8 24.13	+10 15.6	2.268	3.120	10.9	21.0	3 2	8 19.18	+26 19.1	1.510	2.349	16.1	21.0
84137	2002 RT ₅₁		1 30.5 46°87	3°1/28.8 18			365163	2009 DK ₁₂₄		1 30.5 330°87	1°9/31.5 14 C		
12 23	9 17.16	+22 25.4	1.565	2.368	17.0	19.6	12 23	9 11.65	+11 3.4	1.373	2.170	19.2	21.2
1 2	9 13.50	+23 9.8	1.494	2.376	13.3	19.4	1 2	9 9.65	+11 16.6	1.284	2.159	15.5	21.0
1 12	9 6.77	+24 1.9	1.444	2.383	9.0	19.2	1 12	9 4.53	+11 49.8	1.215	2.148	11.0	20.7
1 22	8 57.69	+24 54.7	1.419	2.391	4.7	19.0	1 22	8 56.82	+12 41.2	1.167	2.138	5.8	20.3
2 1	8 47.40	+25 40.5	1.421	2.399	3.5	18.9	2 1	8 47.56	+13 45.3	1.146	2.129	1.9	20.1
2 11	8 37.39	+26 13.1	1.450	2.408	7.3	19.1	2 11	8 38.26	+14 54.3	1.150	2.121	6.4	20.3
2 21	8 29.04	+26 29.4	1.505	2.417	11.5	19.4	2 21	8 30.43	+16 0.0	1.179	2.114	11.7	20.6
3 2	8 23.34	+26 29.4	1.583	2.425	15.3	19.7	3 2	8 25.30	+16 56.1	1.230	2.107	16.5	20.9
226973	2004 WZ ₅		1 30.5 31°98	3°3/ 1.3 18			404147	2013 CF ₂₄		1 30.5 331°08	3°0/29.5 18		
12 23	9 15.17	+ 9 24.8	1.829	2.592	16.4	20.0	12 23	9 19.90	+24 4.6	1.302	2.116	19.	

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
64239	2001 <i>TH</i> ₁₃₇		1 30.5 190°63	3°5/27.4	18		500210	2012 <i>HN</i> ₃₀		1 30.5 295°65	7°8/24.9	18	
12 23	9 14.47	+26 32.7	2.582	3.366	11.6	19.5	12 23	9 17.90	+34 0.9	1.805	2.606	15.1	20.6
1 2	9 10.32	+27 34.4	2.495	3.365	9.1	19.3	1 2	9 14.37	+35 34.1	1.722	2.595	12.3	20.4
1 12	9 4.12	+28 39.1	2.433	3.364	6.3	19.2	1 12	9 7.64	+37 7.6	1.663	2.583	9.6	20.2
1 22	8 56.33	+29 41.6	2.399	3.363	4.0	19.0	1 22	8 58.27	+38 31.3	1.629	2.572	7.9	20.1
2 1	8 47.67	+30 36.2	2.395	3.362	3.9	19.0	2 1	8 47.35	+39 35.0	1.622	2.561	8.4	20.1
2 11	8 39.07	+31 18.6	2.422	3.360	6.1	19.1	2 11	8 36.43	+40 11.7	1.642	2.551	10.8	20.2
2 21	8 31.38	+31 46.3	2.476	3.358	8.9	19.3	2 21	8 27.05	+40 19.6	1.685	2.540	13.8	20.3
3 2	8 25.37	+31 59.2	2.555	3.356	11.4	19.5	3 2	8 20.41	+40 1.3	1.749	2.529	16.7	20.5
224626	2005 <i>YV</i> ₁₁₃		1 30.5 208°80	2°1/29.1	18		448201	2008 <i>UD</i> ₁₄₃		1 30.5 57°46	9°1/4.5	18	
12 23	9 15.97	+21 34.2	2.141	2.925	13.6	21.0	12 23	9 15.28	- 2 44.6	1.458	2.189	21.2	21.1
1 2	9 11.82	+22 13.2	2.051	2.922	10.7	20.8	1 2	9 12.02	- 3 43.3	1.384	2.197	18.2	20.9
1 12	9 5.30	+22 58.7	1.984	2.920	7.2	20.5	1 12	9 5.82	- 4 16.1	1.326	2.205	14.8	20.7
1 22	8 56.94	+23 45.8	1.945	2.917	3.6	20.3	1 22	8 57.30	- 4 18.9	1.289	2.214	11.4	20.5
2 1	8 47.57	+24 29.1	1.935	2.915	2.5	20.2	2 1	8 47.55	- 3 50.8	1.276	2.223	9.3	20.4
2 11	8 38.29	+25 3.7	1.954	2.912	5.7	20.4	2 11	8 37.96	- 2 55.4	1.288	2.232	9.7	20.4
2 21	8 30.11	+25 26.6	2.002	2.909	9.4	20.6	2 21	8 29.88	- 1 40.5	1.324	2.241	12.3	20.6
3 2	8 23.91	+25 36.9	2.074	2.905	12.6	20.8	3 2	8 24.33	- 0 15.8	1.383	2.251	15.6	20.8
171375	2006 <i>OH</i>		1 30.5 94°39	1°0/31.2	18		451090	2009 <i>BX</i> ₁₇₆		1 30.5 3°87	1°7/29.9	18	
12 23	9 15.46	+14 13.8	2.396	3.156	13.0	20.7	12 23	9 14.53	+20 25.7	1.134	1.961	20.6	20.9
1 2	9 10.90	+14 8.0	2.312	3.167	10.3	20.5	1 2	9 12.47	+20 30.2	1.065	1.960	16.2	20.6
1 12	9 4.36	+14 10.2	2.251	3.177	7.1	20.3	1 12	9 6.66	+20 44.3	1.014	1.960	11.0	20.3
1 22	8 56.38	+14 18.5	2.218	3.188	3.6	20.1	1 22	8 57.85	+21 2.8	0.985	1.961	5.2	20.0
2 1	8 47.69	+14 30.7	2.214	3.198	1.0	19.9	2 1	8 47.46	+21 18.6	0.980	1.964	2.2	19.8
2 11	8 39.18	+14 43.7	2.241	3.209	4.1	20.2	2 11	8 37.41	+21 25.5	0.999	1.968	7.7	20.1
2 21	8 31.66	+14 55.4	2.297	3.219	7.5	20.4	2 21	8 29.46	+21 20.6	1.041	1.973	13.2	20.4
3 2	8 25.81	+15 3.7	2.380	3.229	10.6	20.6	3 2	8 24.82	+21 3.5	1.104	1.980	18.0	20.7
185321	Kammerlander		1 30.5 13°56	0°6/30.8	18		419016	2009 <i>QE</i> ₇		1 30.5 110°59	3°8/2.5	18	
12 23	9 17.47	+16 52.2	1.495	2.290	18.0	19.8	12 23	9 16.29	+ 3 47.8	2.339	3.058	14.4	22.5
1 2	9 13.77	+16 35.2	1.416	2.292	14.3	19.6	1 2	9 11.49	+ 3 44.2	2.262	3.081	11.8	22.3
1 12	9 6.99	+16 27.6	1.358	2.295	9.8	19.3	1 12	9 4.74	+ 3 56.0	2.206	3.103	8.8	22.2
1 22	8 57.82	+16 26.7	1.324	2.298	4.7	19.0	1 22	8 56.57	+ 4 22.6	2.177	3.125	5.8	22.0
2 1	8 47.43	+16 28.8	1.317	2.302	0.9	18.7	2 1	8 47.71	+ 5 1.7	2.177	3.146	3.9	21.9
2 11	8 37.31	+16 30.2	1.337	2.306	6.0	19.1	2 11	8 39.06	+ 5 49.6	2.207	3.166	5.0	22.0
2 21	8 28.82	+16 28.1	1.383	2.312	10.9	19.4	2 21	8 31.42	+ 6 42.0	2.266	3.186	7.7	22.2
3 2	8 23.01	+16 20.8	1.451	2.317	15.1	19.7	3 2	8 25.45	+ 7 34.5	2.352	3.205	10.6	22.5
384600	2010 <i>OV</i> ₉₇		1 30.5 221°03	2°3/1.3	17		327452	2005 <i>WU</i> ₁₅₃		1 30.5 133°31	2°0/29.1	18	
12 23	9 13.35	+ 8 51.3	2.885	3.619	11.6	21.6	12 23	9 15.47	+19 53.3	1.968	2.755	14.6	20.5
1 2	9 9.04	+ 8 40.8	2.777	3.612	9.4	21.4	1 2	9 11.61	+20 44.5	1.885	2.758	11.4	20.3
1 12	9 3.04	+ 8 39.6	2.693	3.604	6.8	21.2	1 12	9 5.26	+21 44.6	1.824	2.761	7.7	20.1
1 22	8 55.77	+ 8 47.3	2.636	3.595	4.1	21.1	1 22	8 56.97	+22 48.3	1.790	2.764	3.7	19.8
2 1	8 47.79	+ 9 2.3	2.610	3.587	2.3	20.9	2 1	8 47.63	+23 49.1	1.786	2.767	2.4	19.7
2 11	8 39.82	+ 9 22.4	2.614	3.578	3.9	21.0	2 11	8 38.40	+24 41.0	1.810	2.769	5.9	20.0
2 21	8 32.54	+ 9 45.2	2.648	3.568	6.7	21.2	2 21	8 30.36	+25 20.1	1.862	2.772	9.8	20.2
3 2	8 26.58	+10 8.1	2.709	3.559	9.4	21.3	3 2	8 24.42	+25 44.8	1.939	2.774	13.2	20.4
395301	2011 <i>LT</i>		1 30.5 234°30	3°1/1.2	18		133197	2003 <i>QS</i> ₅₉		1 30.5 193°64	2°6/28.9	18	
12 23	9 17.60	+ 8 42.4	1.616	2.382	18.1	21.6	12 23	9 20.65	+22 53.5	2.170	2.946	13.7	20.7
1 2	9 13.85	+ 8 40.7	1.520	2.373	14.8	21.3	1 2	9 15.50	+23 35.3	2.077	2.944	10.8	20.5
1 12	9 7.14	+ 8 57.0	1.443	2.364	10.7	21.0	1 12	9 7.82	+24 22.6	2.008	2.941	7.3	20.3
1 22	8 57.99	+ 9 30.5	1.390	2.354	6.2	20.8	1 22	8 58.17	+25 10.1	1.966	2.937	3.9	20.1
2 1	8 47.39	+10 18.1	1.364	2.344	3.1	20.5	2 1	8 47.43	+25 51.9	1.955	2.933	2.9	20.0
2 11	8 36.70	+11 14.0	1.365	2.334	6.1	20.7	2 11	8 36.74	+26 23.0	1.974	2.927	6.0	20.2
2 21	8 27.32	+12 11.5	1.394	2.323	10.8	20.9	2 21	8 27.23	+26 41.0	2.021	2.921	9.7	20.4
3 2	8 20.40	+13 5.0	1.447	2.311	15.2	21.2	3 2	8 19.81	+26 45.3	2.093	2.914	12.9	20.6
4960	Mayo		1 30.5 79°25	0°1/30.5	18		489694	2007 <i>VN</i> ₁₀₈		1 30.5 198°10	2°8/1.2	18	
12 23	9 14.18	+16 3.6	2.190	2.964	13.7	18.1	12 23	9 17.35	+ 8 53.0	1.973	2.724	15.8	22.1
1 2	9 10.17	+16 24.4	2.109	2.973	10.7	18.0	1 2	9 12.98	+ 8 47.3	1.877	2.722	12.8	21.9
1 12	9 4.02	+16 54.2	2.051	2.983	7.3	17.8	1 12	9 6.17	+ 8 55.8	1.803	2.719	9.2	21.7
1 22	8 56.28	+17 29.7	2.019	2.992	3.4	17.5	1 22	8 57.41	+ 9 17.7	1.753	2.716	5.4	21.4
2 1	8 47.72	+18 7.1	2.017	3.002	0.6	17.3	2 1	8 47.56	+ 9 50.3	1.733	2.712	2.8	21.3
2 11	8 39.34	+18 41.9	2.044	3.011	4.6	17.6	2 11	8 37.74	+10 29.6	1.741	2.708	5.3	21.4
2 21	8 32.01	+19 11.0	2.100	3.020	8.2	17.9	2 21	8 29.03	+11 11.0	1.778	2.703	9.2	21.6
3 2	8 26.49	+19 32.3	2.182	3.030	11.5	18.1	3 2	8 22.35	+11 50.2	1.841	2.698	12.8	21.8
326996	2004 <i>QJ</i> ₄		1 30.5 235°66	6°1/26.4	18		262221	2006 <i>SA</i> ₂₆₁		1 30.5 63°43	1°1/29.9	18	
12 23	9 21.00	+33 18.9	2.140	2.925	13.6	20.9	12 23	9 17.78	+18 49.9	1.645	2.437	16.8	20.6
1 2	9 16.11	+34 18.8	2.052	2.916	11.0	20.7	1 2	9 13.73	+19 10.2	1.571	2.446	13.1	20.4
1 12	9 8.41	+35 17.4	1.987	2.907	8.3	20.5	1 12	9 6.82	+19 39.8	1.518	2.455	8.8	20.2
1 22	8 58.48	+36 7.1	1.949	2.897	6.3	20.3	1 22	8 57.72	+20 13.8	1.491	2.465	4.1	19.9
2 1	8 47.33	+36 40.6	1.939	2.887	6.5	20.3	2 1	8 47.52	+20 46.5	1.491	2.475	1.5	19.7
2 11	8 36.26	+36 53.1	1.958	2.877	8.7	20.4	2 11	8 37.60	+21 12.6	1.519	2.484	6.0	20.1
2 21	8 26.55	+36 43.7	2.002	2.866	11.5	20.6	2 21	8 29.23	+21 28.8	1.574	2.494	10.5	20.3
3 2	8 19.21	+36 14.7	2.070	2.855	14.3	20.8	3 2	8 23.34	+21 34.0	1.652	2.504	14.3	20.6
226849	2004 <i>SX</i> ₄₆		1 30.5 77°85	0°7/30.1	18		452225	2015 <i>RZ</i> ₂₃₇		1 30.5 64°40	1°9/29.4	18	
12 23	9 16.67	+18 23.9	1.949	2.731	14.9	20.5	12 23	9 16.55					

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
124149	2001 <i>MG</i> ₂₂		1 30.5 162°12	3°0/28.9	18		132309	2002 <i>GV</i> ₁₂		1 30.5 13°74	1°8/31.4	18	
12 23	9 22.54	+23 16.6	1.803	2.588	15.8	20.4	12 23	9 13.03	+12 56.7	1.174	1.985	21.0	19.5
1 2	9 17.39	+23 58.0	1.723	2.594	12.4	20.2	1 2	9 11.00	+12 51.2	1.105	1.989	16.8	19.2
1 12	9 9.29	+24 45.3	1.665	2.599	8.4	20.0	1 12	9 5.52	+13 3.6	1.055	1.993	11.7	18.9
1 22	8 58.90	+25 32.1	1.633	2.604	4.5	19.7	1 22	8 57.29	+13 31.4	1.026	1.999	6.0	18.6
2 1	8 47.31	+26 11.4	1.630	2.608	3.4	19.7	2 1	8 47.63	+14 9.5	1.022	2.006	1.8	18.4
2 11	8 35.94	+26 37.5	1.656	2.611	6.9	19.9	2 11	8 38.26	+14 50.5	1.042	2.014	6.7	18.7
2 21	8 26.10	+26 48.1	1.710	2.613	10.9	20.1	2 21	8 30.77	+15 27.9	1.085	2.023	12.2	19.0
3 2	8 18.79	+26 43.7	1.787	2.615	14.5	20.4	3 2	8 26.32	+15 57.0	1.150	2.033	16.9	19.3
330769	2008 <i>SE</i> ₂₉₆		1 30.5 123°45	5°2/26.0	18		227680	2006 <i>CR</i> ₃₅		1 30.5 78°20	2°0/29.2	18	
12 23	9 18.97	+32 24.4	2.577	3.355	11.7	21.6	12 23	9 15.53	+20 30.1	1.948	2.737	14.6	20.4
1 2	9 13.84	+33 40.5	2.511	3.373	9.3	21.5	1 2	9 11.63	+21 15.0	1.870	2.744	11.4	20.2
1 12	9 6.48	+34 55.1	2.471	3.389	7.0	21.3	1 12	9 5.24	+22 7.7	1.815	2.752	7.7	19.9
1 22	8 57.45	+36 1.7	2.459	3.405	5.3	21.3	1 22	8 56.96	+23 2.9	1.787	2.760	3.8	19.7
2 1	8 47.58	+36 54.3	2.476	3.420	5.5	21.3	2 1	8 47.69	+23 54.5	1.787	2.768	2.4	19.6
2 11	8 37.90	+37 29.1	2.523	3.435	7.3	21.4	2 11	8 38.61	+24 36.9	1.816	2.775	5.9	19.9
2 21	8 29.35	+37 45.0	2.598	3.450	9.6	21.6	2 21	8 30.77	+25 6.9	1.873	2.783	9.7	20.1
3 2	8 22.70	+37 43.5	2.696	3.464	11.8	21.8	3 2	8 25.04	+25 23.3	1.954	2.791	13.0	20.3
148570	2001 <i>QK</i> ₂₅₅		1 30.5 64°99	0°4/30.4	18		382704	2002 <i>VJ</i> ₁₄₂		1 30.5 105°09	4°5/27.0	18	
12 23	9 22.91	+19 26.7	1.660	2.443	17.0	19.8	12 23	9 15.98	+28 57.4	2.322	3.110	12.6	21.1
1 2	9 17.45	+19 12.8	1.594	2.464	13.3	19.6	1 2	9 11.74	+29 59.7	2.246	3.117	9.9	21.0
1 12	9 9.11	+19 4.9	1.551	2.485	9.0	19.4	1 12	9 5.19	+31 3.1	2.194	3.123	7.1	20.8
1 22	8 58.69	+18 59.8	1.533	2.506	4.2	19.2	1 22	8 56.90	+32 1.5	2.170	3.129	4.8	20.7
2 1	8 47.39	+18 53.7	1.543	2.528	0.9	19.0	2 1	8 47.71	+32 48.8	2.175	3.135	4.8	20.7
2 11	8 36.61	+18 43.6	1.582	2.549	5.6	19.4	2 11	8 38.67	+33 20.6	2.209	3.141	7.0	20.8
2 21	8 27.57	+18 28.5	1.649	2.571	10.0	19.7	2 21	8 30.76	+33 35.2	2.270	3.147	9.8	21.0
3 2	8 21.12	+18 8.0	1.740	2.592	13.7	20.0	3 2	8 24.79	+33 33.4	2.355	3.153	12.4	21.2
496746	2016 <i>JZ</i> ₂₆		1 30.5 13°10	4°7/ 2.9	18		81701	2000 <i>JX</i> ₁₉		1 30.5 274°85	3°3/ 1.2	18	
12 23	9 11.79	+ 2 49.2	2.051	2.786	15.7	21.2	12 23	9 16.07	+ 9 12.4	1.848	2.608	16.4	19.8
1 2	9 8.49	+ 2 36.9	1.960	2.786	13.1	21.1	1 2	9 12.25	+ 8 49.3	1.747	2.596	13.4	19.6
1 12	9 3.03	+ 2 42.4	1.889	2.787	10.0	20.9	1 12	9 5.84	+ 8 39.6	1.666	2.584	9.7	19.3
1 22	8 55.89	+ 3 6.1	1.842	2.788	6.8	20.7	1 22	8 57.34	+ 8 43.2	1.611	2.573	5.8	19.1
2 1	8 47.84	+ 3 46.4	1.823	2.790	4.8	20.5	2 1	8 47.62	+ 8 58.5	1.583	2.561	3.3	18.9
2 11	8 39.85	+ 4 39.5	1.832	2.791	5.8	20.6	2 11	8 37.84	+ 9 22.2	1.583	2.549	5.7	19.0
2 21	8 32.85	+ 5 40.1	1.868	2.793	8.8	20.8	2 21	8 29.20	+ 9 50.2	1.611	2.537	9.8	19.2
3 2	8 27.63	+ 6 42.6	1.930	2.795	12.0	21.0	3 2	8 22.67	+10 18.3	1.663	2.526	13.7	19.4
115992	2003 <i>WV</i> ₆₅		1 30.5 42°19	5°5/ 2.9	18		464072	2014 <i>WM</i> ₂₇₃		1 30.6 52°12	0°6/30.2	18	
12 23	9 13.35	+ 2 37.9	1.882	2.619	16.9	19.3	12 23	9 14.53	+15 51.6	1.704	2.493	16.4	21.0
1 2	9 9.76	+ 2 2.6	1.806	2.632	14.0	19.1	1 2	9 11.06	+16 31.9	1.634	2.507	12.8	20.8
1 12	9 3.88	+ 1 45.2	1.750	2.646	10.8	18.9	1 12	9 4.94	+17 24.9	1.586	2.522	8.6	20.6
1 22	8 56.27	+ 1 46.7	1.717	2.660	7.6	18.7	1 22	8 56.84	+18 25.7	1.562	2.537	4.0	20.4
2 1	8 47.79	+ 2 6.3	1.711	2.674	5.6	18.7	2 1	8 47.73	+19 27.7	1.567	2.552	1.0	20.2
2 11	8 39.52	+ 2 40.6	1.733	2.688	6.5	18.7	2 11	8 38.89	+20 24.3	1.600	2.567	5.6	20.5
2 21	8 32.42	+ 3 24.8	1.781	2.703	9.3	18.9	2 21	8 31.43	+21 10.8	1.661	2.583	9.9	20.8
3 2	8 27.27	+ 4 13.2	1.854	2.718	12.4	19.2	3 2	8 26.25	+21 44.5	1.745	2.598	13.6	21.1
522483	2016 <i>EJ</i> ₂₂₂		1 30.5 169°20	0°7/31.1	17		343131	2009 <i>EM</i> ₃₀		1 30.6 304°41	1°6/31.4	17	
12 23	9 12.41	+13 6.0	2.772	3.527	11.6	21.9	12 23	9 15.45	+13 45.9	2.269	3.031	13.6	20.4
1 2	9 8.38	+13 29.0	2.677	3.529	9.2	21.7	1 2	9 11.24	+13 22.1	2.162	3.017	10.9	20.2
1 12	9 2.64	+14 1.2	2.606	3.532	6.3	21.5	1 12	9 4.86	+13 5.9	2.079	3.003	7.7	19.9
1 22	8 55.62	+14 40.3	2.563	3.534	3.1	21.3	1 22	8 56.78	+12 56.1	2.022	2.990	4.1	19.7
2 1	8 47.91	+15 23.2	2.551	3.535	0.7	21.1	2 1	8 47.74	+12 51.2	1.994	2.976	1.6	19.5
2 11	8 40.25	+16 6.4	2.569	3.537	3.7	21.3	2 11	8 38.70	+12 49.1	1.996	2.963	4.6	19.7
2 21	8 33.36	+16 46.7	2.617	3.538	6.8	21.5	2 21	8 30.60	+12 47.6	2.026	2.950	8.3	19.9
3 2	8 27.84	+17 21.7	2.693	3.538	9.6	21.7	3 2	8 24.25	+12 45.0	2.083	2.937	11.7	20.0
200654	2001 <i>TN</i> ₁₇		1 30.5 123°63	2°5/28.9	18		52456	1995 <i>AY</i> ₃		1 30.6 347°08	3°8/28.3	18	
12 23	9 21.73	+20 51.1	1.822	2.603	15.8	20.9	12 23	9 11.52	+21 48.4	1.352	2.174	18.1	18.2
1 2	9 16.56	+21 48.3	1.752	2.622	12.3	20.7	1 2	9 9.79	+22 52.7	1.273	2.166	14.3	17.9
1 12	9 8.60	+22 53.6	1.705	2.640	8.3	20.5	1 12	9 4.76	+24 9.4	1.214	2.158	9.7	17.6
1 22	8 58.53	+24 0.4	1.684	2.656	4.1	20.3	1 22	8 57.01	+25 30.4	1.178	2.152	5.2	17.4
2 1	8 47.41	+25 1.2	1.693	2.673	2.9	20.3	2 1	8 47.69	+26 45.4	1.169	2.146	4.4	17.3
2 11	8 36.59	+25 49.6	1.732	2.688	6.5	20.5	2 11	8 38.44	+27 44.7	1.184	2.142	8.5	17.5
2 21	8 27.28	+26 22.6	1.798	2.703	10.4	20.8	2 21	8 30.84	+28 22.8	1.224	2.139	13.3	17.8
3 2	8 20.40	+26 39.7	1.889	2.716	13.8	21.0	3 2	8 26.13	+28 38.4	1.284	2.137	17.5	18.0
13652	Elowitz		1 30.5 142°17	0°7/30.9	18		241329	2007 <i>VV</i> ₁₅₈		1 30.6 258°22	3°7/27.4	18	
12 23	9 19.78	+12 41.0	1.771	2.538	16.7	19.5	12 23	9 14.44	+26 43.7	2.457	3.244	12.0	21.1
1 2	9 15.08	+13 14.9	1.691	2.550	13.2	19.2	1 2	9 10.51	+27 43.1	2.363	3.234	9.5	20.9
1 12	9 7.66	+14 3.8	1.633	2.561	9.1	19.0	1 12	9 4.41	+28 46.0	2.293	3.225	6.6	20.7
1 22	8 58.13	+15 3.9	1.600	2.572	4.5	18.8	1 22	8 56.58	+29 46.8	2.251	3.215	4.2	20.6
2 1	8 47.48	+16 9.3	1.597	2.581	0.8	18.5	2 1	8 47.79	+30 39.7	2.239	3.206	4.1	20.6
2 11	8 37.01	+17 13.1	1.622	2.590	5.4	18.9	2 11	8 38.99	+31 19.9	2.256	3.196	6.4	20.7
2 21	8 27.93	+18 9.7	1.677	2.598	9.8	19.1	2 21	8 31.13	+31 45.0	2.301	3.186	9.4	20.8
3 2	8 21.18	+18 55.7	1.756	2.606	13.7	19.4	3 2	8 25.03	+31 54.4	2.371	3.176	12.1	21.0
411798	2012 <i>CO</i> ₅₁		1 30.5 97°35	0°6/30.9	18		7279	Hagfors		1 30.6 92°74	2°1/29.1	18	
12 23	9 17.13	+14 55.2	1.800	2.578	16.1	21.4	12 23	9 16.41					

EPHEMERIDES

1 30.6

1 30.6

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
431279	2006 <i>UA</i> ₁₃₉		1 30.6 173°16	3°6/	2.9 17		522559	2016 <i>EU</i> ₂₄₂		1 30.6 176°37	0°1/30.6 18		
12 23	9 12.22	+ 2 6.0	3.379	4.075	10.8	22.3	12 23	9 16.05	+16 7.1	2.260	3.028	13.5	22.1
1 2	9 7.86	+ 1 51.3	3.277	4.078	9.0	22.1	1 2	9 11.67	+16 19.8	2.168	3.029	10.6	21.9
1 12	9 2.11	+ 1 47.6	3.199	4.081	6.9	22.0	1 12	9 5.12	+16 40.9	2.100	3.030	7.2	21.6
1 22	8 55.34	+ 1 54.9	3.148	4.083	4.9	21.9	1 22	8 56.91	+17 7.6	2.058	3.030	3.4	21.4
2 1	8 48.02	+ 2 12.6	3.126	4.085	3.6	21.8	2 1	8 47.81	+17 36.2	2.046	3.031	0.6	21.2
2 11	8 40.74	+ 2 38.8	3.136	4.086	4.2	21.8	2 11	8 38.82	+18 3.1	2.064	3.031	4.5	21.5
2 21	8 34.06	+ 3 11.0	3.175	4.087	6.1	21.9	2 21	8 30.84	+18 25.1	2.111	3.031	8.2	21.7
3 2	8 28.46	+ 3 46.5	3.243	4.087	8.2	22.1	3 2	8 24.66	+18 40.4	2.184	3.030	11.5	21.9
256092	2006 <i>UE</i> ₂₂₀		1 30.6 70°76	5°2/27.6 18			385138	2013 <i>SA</i> ₆₇		1 30.6 153°09	3°3/28.0 18		
12 23	9 21.04	+27 49.4	1.644	2.444	16.4	20.6	12 23	9 18.51	+26 38.2	2.550	3.326	11.9	21.6
1 2	9 16.37	+28 55.3	1.589	2.466	12.9	20.4	1 2	9 13.41	+27 24.8	2.469	3.335	9.3	21.4
1 12	9 8.60	+30 3.1	1.556	2.489	9.1	20.2	1 12	9 6.18	+28 13.3	2.413	3.343	6.5	21.2
1 22	8 58.56	+31 3.9	1.548	2.511	5.9	20.1	1 22	8 57.37	+28 58.5	2.385	3.350	3.9	21.1
2 1	8 47.48	+31 49.4	1.568	2.534	5.6	20.1	2 1	8 47.75	+29 35.5	2.388	3.357	3.6	21.1
2 11	8 36.90	+32 14.5	1.615	2.556	8.4	20.4	2 11	8 38.28	+30 0.5	2.421	3.363	5.9	21.2
2 21	8 28.13	+32 18.3	1.689	2.578	11.9	20.6	2 21	8 29.86	+30 11.8	2.482	3.369	8.7	21.4
3 2	8 22.10	+32 3.1	1.784	2.600	15.0	20.9	3 2	8 23.22	+30 10.0	2.570	3.374	11.3	21.6
506310	2017 <i>OV</i>		1 30.6 219°72	5°0/	2.9 17		49794	1999 <i>XH</i> ₃₂		1 30.6 162°99	0°7/30.9 18		
12 23	9 14.59	+ 1 56.0	2.334	3.048	14.6	21.8	12 23	9 20.35	+13 24.2	1.878	2.642	16.0	19.0
1 2	9 10.47	+ 1 32.0	2.229	3.041	12.2	21.6	1 2	9 15.46	+13 46.4	1.792	2.649	12.7	18.8
1 12	9 4.30	+ 1 23.4	2.146	3.034	9.5	21.4	1 12	9 7.91	+14 21.6	1.727	2.655	8.8	18.6
1 22	8 56.52	+ 1 31.1	2.088	3.026	6.8	21.2	1 22	8 58.30	+15 6.6	1.689	2.660	4.3	18.3
2 1	8 47.82	+ 1 54.5	2.058	3.018	5.0	21.1	2 1	8 47.58	+15 56.4	1.680	2.664	0.8	18.1
2 11	8 39.09	+ 2 31.3	2.057	3.010	5.9	21.1	2 11	8 36.99	+16 45.4	1.700	2.668	5.2	18.4
2 21	8 31.21	+ 3 17.3	2.085	3.001	8.5	21.3	2 21	8 27.69	+17 28.8	1.749	2.671	9.5	18.7
3 2	8 24.95	+ 4 7.9	2.138	2.992	11.4	21.4	3 2	8 20.62	+18 3.6	1.824	2.672	13.3	18.9
293791	2007 <i>RJ</i> ₁₃₉		1 30.6 175°29	1°8/31.7 18			345533	2006 <i>QL</i> ₉		1 30.6 145°26	3°2/	2.9 18	
12 23	9 18.73	+11 2.1	2.077	2.829	15.0	22.1	12 23	9 11.59	+ 2 32.9	3.040	3.746	11.6	21.7
1 2	9 13.92	+11 9.1	1.984	2.832	12.1	21.9	1 2	9 7.54	+ 2 47.8	2.946	3.756	9.6	21.6
1 12	9 6.72	+11 29.0	1.913	2.834	8.5	21.7	1 12	9 1.99	+ 3 16.1	2.875	3.766	7.3	21.4
1 22	8 57.68	+11 59.6	1.869	2.836	4.6	21.4	1 22	8 55.33	+ 3 57.1	2.830	3.774	4.9	21.3
2 1	8 47.63	+12 37.7	1.854	2.837	1.8	21.2	2 1	8 48.10	+ 4 48.9	2.816	3.783	3.3	21.2
2 11	8 37.65	+13 18.8	1.870	2.837	4.8	21.4	2 11	8 40.92	+ 5 48.2	2.832	3.791	4.1	21.2
2 21	8 28.79	+13 58.7	1.914	2.836	8.8	21.7	2 21	8 34.42	+ 6 51.3	2.879	3.799	6.3	21.4
3 2	8 21.90	+14 33.9	1.984	2.835	12.3	21.9	3 2	8 29.12	+ 7 54.4	2.955	3.806	8.7	21.5
89537	2001 <i>XJ</i> ₈₅		1 30.6 328°38	1°7/29.3 18			85620	1998 <i>HJ</i> ₁₀₇		1 30.6 347°17	0°5/30.2 18	R	
12 23	9 13.41	+17 36.8	1.814	2.606	15.5	18.9	12 23	9 11.06	+16 9.7	2.017	2.803	14.3	18.8
1 2	9 10.30	+18 39.6	1.727	2.602	12.1	18.7	1 2	9 8.13	+16 46.0	1.926	2.798	11.3	18.6
1 12	9 4.58	+19 55.6	1.661	2.599	8.2	18.4	1 12	9 2.93	+17 33.6	1.858	2.794	7.6	18.3
1 22	8 56.77	+21 19.0	1.622	2.596	3.9	18.2	1 22	8 55.95	+18 28.7	1.816	2.790	3.6	18.1
2 1	8 47.77	+22 42.4	1.611	2.594	2.1	18.1	2 1	8 47.98	+19 26.1	1.802	2.786	0.9	17.9
2 11	8 38.78	+23 57.8	1.630	2.591	6.2	18.3	2 11	8 40.05	+20 20.1	1.817	2.783	5.1	18.1
2 21	8 30.99	+24 59.6	1.675	2.589	10.4	18.5	2 21	8 33.16	+21 6.3	1.860	2.781	9.1	18.4
3 2	8 25.38	+25 44.9	1.744	2.587	14.1	18.8	3 2	8 28.14	+21 41.7	1.927	2.779	12.6	18.6
67978	2000 <i>XE</i> ₁₀		1 30.6 94°88	0°8/30.2 18			404232	2013 <i>EZ</i> ₃		1 30.6 314°62	0°7/30.9 18		
12 23	9 25.24	+19 37.6	1.741	2.516	16.6	19.1	12 23	9 15.73	+15 16.2	1.402	2.201	18.8	21.0
1 2	9 19.16	+19 36.2	1.675	2.540	13.0	18.9	1 2	9 12.93	+15 15.9	1.311	2.189	15.0	20.7
1 12	9 10.24	+19 41.0	1.631	2.563	8.8	18.7	1 12	9 6.85	+15 29.3	1.240	2.177	10.4	20.4
1 22	8 59.26	+19 48.0	1.613	2.586	4.1	18.5	1 22	8 58.04	+15 53.6	1.191	2.165	5.1	20.1
2 1	8 47.41	+19 52.8	1.624	2.609	1.2	18.3	2 1	8 47.61	+16 23.7	1.169	2.154	0.9	19.8
2 11	8 36.08	+19 52.0	1.666	2.631	5.6	18.7	2 11	8 37.16	+16 53.8	1.173	2.143	6.5	20.1
2 21	8 26.46	+19 44.3	1.735	2.652	9.9	19.0	2 21	8 28.26	+17 18.6	1.202	2.133	11.9	20.4
3 2	8 19.42	+19 29.6	1.829	2.673	13.5	19.2	3 2	8 22.17	+17 34.8	1.253	2.123	16.7	20.6
223693	2004 <i>RG</i> ₁₆		1 30.6 95°09	0°2/30.5 18			109020	2001 <i>QN</i> ₇		1 30.6 109°98	0°7/30.2 18		
12 23	9 17.03	+16 51.9	2.015	2.790	14.7	20.8	12 23	9 18.39	+17 56.5	1.934	2.712	15.1	20.1
1 2	9 12.59	+17 5.2	1.936	2.801	11.5	20.6	1 2	9 13.78	+18 16.6	1.857	2.724	11.8	19.9
1 12	9 5.78	+17 27.1	1.880	2.812	7.8	20.4	1 12	9 6.66	+18 45.2	1.802	2.735	8.0	19.7
1 22	8 57.20	+17 54.3	1.850	2.823	3.7	20.1	1 22	8 57.66	+19 18.3	1.773	2.747	3.7	19.5
2 1	8 47.74	+18 22.5	1.849	2.834	0.7	19.9	2 1	8 47.71	+19 51.0	1.773	2.758	1.1	19.3
2 11	8 38.51	+18 47.7	1.878	2.845	4.9	20.3	2 11	8 38.01	+20 18.7	1.803	2.768	5.3	19.6
2 21	8 30.50	+19 6.9	1.935	2.856	8.8	20.5	2 21	8 29.62	+20 38.5	1.861	2.779	9.3	19.9
3 2	8 24.51	+19 18.3	2.018	2.866	12.2	20.7	3 2	8 23.38	+20 48.9	1.944	2.789	12.8	20.1
235577	2004 <i>LO</i> ₂₈		1 30.6 294°03	4°0/	1.6 18		376346	2011 <i>HG</i> ₃₆		1 30.6 38°66	2°0/29.3 18		
12 23	9 14.50	+ 7 21.9	1.437	2.213	19.5	20.9	12 23	9 14.85	+20 35.9	1.918	2.709	14.7	21.0
1 2	9 11.82	+ 7 11.0	1.343	2.201	16.1	20.6	1 2	9 11.18	+21 15.5	1.838	2.713	11.5	20.8
1 12	9 6.04	+ 7 20.7	1.267	2.188	11.8	20.3	1 12	9 5.02	+22 2.9	1.780	2.718	7.7	20.6
1 22	8 57.64	+ 7 51.3	1.213	2.176	7.2	20.0	1 22	8 56.93	+22 52.9	1.749	2.723	3.8	20.3
2 1	8 47.64	+ 8 40.3	1.185	2.164	4.0	19.8	2 1	8 47.83	+23 39.6	1.746	2.727	2.3	20.3
2 11	8 37.52	+ 9 41.7	1.183	2.152	6.8	19.9	2 11	8 38.89	+24 17.6	1.772	2.732	5.9	20.5
2 21	8 28.77	+10 47.7	1.206	2.140	11.6	20.2	2 21	8 31.20	+24 43.5	1.825	2.738	9.8	20.7
3 2	8 22.67	+11 51.1	1.252	2.128	16.3	20.4	3 2	8 25.63	+24 56.3	1.903	2.743	13.2	21.0
291319	2006 <i>BV</i> ₁₇₀		1 30.6 185°24	0°1/30.6 18			245760	2006 <i>ER</i> ₁₄		1 30.6 218°67	0°7/30.1 17		
12 23	9 17.77	+14 3.4	1.833	2.605	16.0	21.							

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
60600	2000 <i>EG</i> ₁₅₇		1 30.6 272°68	1.4°/29.6	18		466832	2015 <i>BC</i> ₂₁₅		1 30.6 148°67	3°8'/27.3	18	
12 23	9 14.26	+16 12.7	1.855	2.640	15.4	19.3	12 23	9 16.74	+25 58.5	2.402	3.185	12.4	21.3
1 2	9 11.06	+17 18.8	1.754	2.626	12.2	19.0	1 2	9 12.28	+27 13.0	2.323	3.192	9.7	21.1
1 12	9 5.22	+18 40.6	1.675	2.611	8.2	18.8	1 12	9 5.59	+28 31.3	2.268	3.199	6.7	20.9
1 22	8 57.18	+20 12.9	1.623	2.597	3.9	18.5	1 22	8 57.18	+29 47.3	2.242	3.206	4.3	20.8
2 1	8 47.77	+21 47.9	1.599	2.582	1.8	18.3	2 1	8 47.85	+30 54.5	2.246	3.212	4.1	20.8
2 11	8 38.21	+23 17.2	1.605	2.567	6.1	18.6	2 11	8 38.60	+31 47.6	2.280	3.218	6.5	20.9
2 21	8 29.73	+24 33.9	1.639	2.553	10.6	18.8	2 21	8 30.38	+32 24.1	2.343	3.223	9.4	21.1
3 2	8 23.39	+25 33.9	1.696	2.538	14.5	19.0	3 2	8 24.01	+32 43.8	2.430	3.228	12.0	21.3
15855	Mariasalvatore		1 30.6 263°92	0°2'/30.5	18		163213	2002 <i>EJ</i> ₆₂		1 30.6 159°15	1°5'/31.5	18	
12 23	9 16.43	+14 55.7	1.564	2.353	17.6	18.9	12 23	9 18.28	+11 27.5	2.011	2.767	15.3	20.7
1 2	9 13.16	+15 27.8	1.471	2.343	14.0	18.6	1 2	9 13.64	+11 42.2	1.923	2.774	12.2	20.5
1 12	9 6.85	+16 15.8	1.398	2.334	9.6	18.3	1 12	9 6.60	+12 10.2	1.857	2.780	8.5	20.3
1 22	8 58.00	+17 15.5	1.350	2.324	4.6	18.0	1 22	8 57.68	+12 49.0	1.817	2.786	4.5	20.0
2 1	8 47.64	+18 20.4	1.329	2.314	0.9	17.7	2 1	8 47.77	+13 34.8	1.807	2.790	1.5	19.8
2 11	8 37.22	+19 22.6	1.336	2.304	6.3	18.0	2 11	8 37.98	+14 22.5	1.826	2.794	4.9	20.1
2 21	8 28.18	+20 15.7	1.369	2.293	11.3	18.3	2 21	8 29.34	+15 7.5	1.875	2.798	8.9	20.3
3 2	8 21.71	+20 55.7	1.425	2.283	15.8	18.5	3 2	8 22.72	+15 46.4	1.949	2.801	12.4	20.5
197559	2004 <i>FU</i> ₁₂₅		1 30.6 247°28	2°9'/1.2	18		156115	2001 <i>SQ</i> ₂₇₅		1 30.6 248°67	3°4'/1.5	18	
12 23	9 17.02	+ 8 38.2	1.624	2.389	18.0	21.2	12 23	9 16.63	+ 7 22.0	1.700	2.458	17.6	21.5
1 2	9 13.48	+ 8 41.6	1.524	2.378	14.7	20.9	1 2	9 13.06	+ 7 22.6	1.597	2.445	14.5	21.3
1 12	9 7.01	+ 9 3.7	1.444	2.365	10.7	20.6	1 12	9 6.66	+ 7 41.9	1.514	2.431	10.6	21.0
1 22	8 58.07	+ 9 43.6	1.388	2.353	6.1	20.3	1 22	8 57.91	+ 8 19.7	1.456	2.417	6.4	20.7
2 1	8 47.64	+10 37.9	1.359	2.340	2.9	20.1	2 1	8 47.71	+ 9 13.0	1.424	2.403	3.4	20.5
2 11	8 37.06	+11 40.4	1.357	2.326	6.1	20.3	2 11	8 37.37	+10 16.2	1.421	2.388	6.0	20.6
2 21	8 27.74	+12 44.3	1.383	2.312	10.8	20.5	2 21	8 28.18	+11 22.6	1.444	2.373	10.5	20.8
3 2	8 20.86	+13 43.3	1.433	2.298	15.3	20.7	3 2	8 21.31	+12 25.9	1.492	2.357	14.8	21.1
180604	2004 <i>FX</i> ₈₉		1 30.6 0°61	3°1'/1.7	18		17286	Bisei		1 30.6 145°85	2°9'/1.2	18	
12 23	9 12.79	+ 6 22.4	1.724	2.485	17.3	20.3	12 23	9 19.58	+ 9 21.4	1.847	2.600	16.6	18.9
1 2	9 9.80	+ 6 44.5	1.635	2.485	14.1	20.0	1 2	9 14.82	+ 9 9.5	1.762	2.608	13.4	18.7
1 12	9 4.25	+ 7 27.4	1.567	2.485	10.3	19.8	1 12	9 7.46	+ 9 11.9	1.699	2.616	9.6	18.5
1 22	8 56.65	+ 8 29.8	1.522	2.485	6.1	19.6	1 22	8 58.11	+ 9 27.6	1.660	2.623	5.6	18.2
2 1	8 47.90	+ 9 47.2	1.505	2.485	3.1	19.4	2 1	8 47.72	+ 9 53.7	1.651	2.630	2.9	18.1
2 11	8 39.18	+11 12.6	1.516	2.485	5.5	19.5	2 11	8 37.48	+10 26.3	1.670	2.636	5.4	18.3
2 21	8 31.66	+12 38.3	1.555	2.486	9.7	19.8	2 21	8 28.55	+11 0.7	1.717	2.642	9.4	18.5
3 2	8 26.28	+13 57.5	1.618	2.486	13.7	20.0	3 2	8 21.81	+11 33.2	1.790	2.647	13.1	18.7
74044	1998 <i>HQ</i> ₉₈		1 30.6 242°09	2°0'/29.4	18		273875	2007 <i>HM</i>		1 30.6 228°98	2°7'/1.6	17	
12 23	9 18.90	+20 35.5	1.985	2.765	14.7	19.8	12 23	9 13.72	+ 7 14.8	2.363	3.103	13.8	21.6
1 2	9 14.53	+21 12.5	1.882	2.751	11.6	19.6	1 2	9 9.84	+ 7 22.6	2.257	3.094	11.2	21.4
1 12	9 7.47	+21 57.9	1.801	2.736	7.9	19.3	1 12	9 3.93	+ 7 44.4	2.174	3.085	8.2	21.2
1 22	8 58.21	+22 46.7	1.748	2.721	3.9	19.0	1 22	8 56.42	+ 8 19.4	2.116	3.076	4.9	21.0
2 1	8 47.63	+23 32.9	1.723	2.704	2.3	18.9	2 1	8 47.99	+ 9 5.2	2.088	3.066	2.7	20.8
2 11	8 36.96	+24 10.8	1.728	2.688	6.1	19.1	2 11	8 39.53	+ 9 57.7	2.090	3.056	4.6	20.9
2 21	8 27.42	+24 36.5	1.761	2.670	10.3	19.3	2 21	8 31.89	+10 52.6	2.121	3.045	7.9	21.1
3 2	8 20.08	+24 48.7	1.818	2.653	14.0	19.5	3 2	8 25.85	+11 45.6	2.179	3.035	11.2	21.3
326019	2010 <i>WZ</i> ₆₃		1 30.6 324°13	0°9'/31.1	18		263327	2008 <i>CX</i> ₅₅		1 30.6 242°91	3°0'/28.8	18	
12 23	9 15.47	+14 7.8	1.771	2.551	16.2	20.9	12 23	9 18.84	+23 48.5	1.938	2.726	14.7	21.2
1 2	9 11.87	+14 13.1	1.682	2.548	12.9	20.7	1 2	9 14.51	+24 25.3	1.845	2.718	11.6	21.0
1 12	9 5.62	+14 30.5	1.613	2.545	8.9	20.5	1 12	9 7.45	+25 7.5	1.774	2.709	8.0	20.8
1 22	8 57.29	+14 57.4	1.570	2.542	4.5	20.2	1 22	8 58.20	+25 49.4	1.730	2.700	4.3	20.5
2 1	8 47.80	+15 29.9	1.555	2.539	1.0	19.9	2 1	8 47.72	+26 24.7	1.714	2.691	3.3	20.4
2 11	8 38.39	+16 2.9	1.568	2.537	5.3	20.2	2 11	8 37.27	+26 48.2	1.727	2.682	6.7	20.6
2 21	8 30.24	+16 32.3	1.608	2.535	9.8	20.5	2 21	8 28.11	+26 57.2	1.768	2.672	10.5	20.8
3 2	8 24.32	+16 54.9	1.672	2.532	13.7	20.7	3 2	8 21.22	+26 51.6	1.832	2.662	14.1	21.0
444326	2005 <i>WL</i> ₃₅		1 30.6 124°37	0°1'/30.5	16		373003	2011 <i>CF</i> ₁₀₆		1 30.6 67°56	0°7'/30.2	18	
12 23	9 22.59	+15 39.7	1.871	2.637	16.0	22.4	12 23	9 17.03	+18 29.7	1.927	2.709	15.0	21.4
1 2	9 17.05	+16 5.8	1.798	2.658	12.5	22.2	1 2	9 12.81	+18 41.2	1.845	2.714	11.8	21.2
1 12	9 8.86	+16 42.8	1.748	2.678	8.5	22.0	1 12	9 6.09	+19 0.4	1.785	2.720	8.0	21.0
1 22	8 58.70	+17 26.3	1.724	2.697	4.0	21.8	1 22	8 57.46	+19 23.6	1.751	2.725	3.7	20.7
2 1	8 47.59	+18 10.9	1.730	2.715	0.7	21.6	2 1	8 47.85	+19 46.5	1.746	2.730	1.1	20.6
2 11	8 36.80	+18 51.4	1.766	2.732	5.3	22.0	2 11	8 38.44	+20 4.9	1.770	2.736	5.3	20.9
2 21	8 27.45	+19 24.0	1.831	2.748	9.4	22.2	2 21	8 30.30	+20 16.1	1.822	2.741	9.3	21.1
3 2	8 20.42	+19 46.9	1.921	2.763	13.0	22.5	3 2	8 24.30	+20 18.8	1.898	2.747	12.9	21.3
320617	2008 <i>CH</i> ₂₇		1 30.6 40°94	2°2'/29.4	18		222077	1999 <i>KK</i> ₇		1 30.6 234°48	4°6'/26.9	18	
12 23	9 17.42	+20 54.4	1.576	2.375	17.0	21.4	12 23	9 17.35	+27 23.9	2.192	2.980	13.2	20.3
1 2	9 13.73	+21 26.0	1.501	2.381	13.3	21.1	1 2	9 13.19	+28 39.3	2.099	2.970	10.5	20.1
1 12	9 7.02	+22 6.0	1.447	2.386	9.0	20.9	1 12	9 6.50	+29 59.1	2.030	2.960	7.5	19.9
1 22	8 57.97	+22 48.7	1.419	2.392	4.4	20.6	1 22	8 57.75	+31 16.5	1.989	2.950	5.0	19.8
2 1	8 47.71	+23 27.0	1.417	2.399	2.6	20.5	2 1	8 47.79	+32 23.8	1.977	2.939	5.0	19.7
2 11	8 37.70	+23 55.1	1.443	2.405	6.7	20.8	2 11	8 37.77	+33 14.9	1.994	2.928	7.6	19.9
2 21	8 29.29	+24 9.9	1.495	2.412	11.2	21.1	2 21	8 28.84	+33 46.7	2.038	2.916	10.7	20.0
3 2	8 23.49	+24 10.6	1.569	2.419	15.1	21.3	3 2	8 21.98	+33 59.3	2.106	2.904	13.6	20.2
230900	2004 <i>TT</i> ₅₉		1 30.6 161°40	3°6'/27.9	18		143174	2002 <i>XD</i> ₆₈		1 30.6 95°96	2°0'/1.0	18	
12 23	9 19.05	+27 24.7	2.505	3.281	12.1	21.5	12 23						

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
363100	2000 SZ ₃₄₆		1 30.6 172°28	5°2/ 3.1	18		216560	2001 WP ₄₇		1 30.6 353°10	7°0/24.7	18	
12 23	9 16.83	+ 0 52.2	2.540	3.238	13.9	21.2	12 23	9 14.31	+33 21.7	2.022	2.823	13.7	19.4
1 2	9 11.97	+ 0 13.6	2.443	3.241	11.7	21.0	1 2	9 11.16	+35 0.7	1.947	2.820	11.1	19.2
1 12	9 5.20	- 0 11.0	2.367	3.244	9.2	20.8	1 12	9 5.28	+36 39.9	1.897	2.817	8.6	19.0
1 22	8 56.97	- 0 20.5	2.317	3.246	6.8	20.7	1 22	8 57.22	+38 10.2	1.873	2.815	7.1	18.9
2 1	8 47.94	- 0 14.9	2.296	3.248	5.3	20.6	2 1	8 47.92	+39 23.0	1.876	2.814	7.6	19.0
2 11	8 38.97	+ 0 4.1	2.304	3.249	5.9	20.6	2 11	8 38.67	+40 12.0	1.907	2.813	9.7	19.1
2 21	8 30.84	+ 0 33.4	2.342	3.250	8.1	20.8	2 21	8 30.72	+40 35.4	1.962	2.812	12.3	19.2
3 2	8 24.25	+ 1 9.0	2.406	3.250	10.7	20.9	3 2	8 25.06	+40 34.8	2.038	2.812	14.9	19.4
262855	2007 BS ₃₁		1 30.6 20°51	3°6/28.0	18		210477	1995 UD ₁₈		1 30.6 218°06	0°3/30.4	18	
12 23	9 12.72	+20 12.2	1.506	2.316	17.2	19.7	12 23	9 18.89	+16 44.1	2.054	2.823	14.6	21.9
1 2	9 10.32	+21 47.2	1.434	2.321	13.4	19.5	1 2	9 14.30	+17 2.5	1.954	2.816	11.6	21.7
1 12	9 4.91	+23 36.2	1.384	2.326	9.0	19.2	1 12	9 7.19	+17 30.4	1.876	2.807	7.9	21.5
1 22	8 57.08	+25 30.0	1.360	2.332	4.8	19.0	1 22	8 58.08	+18 4.3	1.826	2.798	3.7	21.2
2 1	8 47.91	+27 17.4	1.363	2.339	4.2	19.0	2 1	8 47.81	+18 39.9	1.804	2.789	0.8	20.9
2 11	8 38.88	+28 48.0	1.393	2.347	8.1	19.2	2 11	8 37.53	+19 12.4	1.813	2.779	5.1	21.2
2 21	8 31.35	+29 55.8	1.449	2.355	12.3	19.5	2 21	8 28.36	+19 38.2	1.850	2.768	9.3	21.5
3 2	8 26.44	+30 39.1	1.527	2.363	16.1	19.8	3 2	8 21.23	+19 55.3	1.913	2.757	13.0	21.7
215274	2001 PH ₃₈		1 30.6 119°77	3°9/27.6	18		363139	2001 QG ₂₅₈		1 30.6 128°98	3°4/ 1.8	18	
12 23	9 19.85	+25 56.0	2.237	3.017	13.2	20.4	12 23	9 17.49	+ 6 58.1	2.185	2.921	14.9	21.3
1 2	9 14.75	+27 9.8	2.169	3.037	10.3	20.3	1 2	9 12.73	+ 6 44.0	2.101	2.934	12.1	21.1
1 12	9 7.26	+28 26.8	2.125	3.056	7.2	20.1	1 12	9 5.82	+ 6 43.5	2.039	2.947	8.9	20.9
1 22	8 57.97	+29 40.3	2.110	3.074	4.5	20.0	1 22	8 57.30	+ 6 56.0	2.003	2.959	5.5	20.7
2 1	8 47.79	+30 43.5	2.125	3.092	4.2	20.0	2 1	8 47.96	+ 7 19.8	1.996	2.970	3.4	20.6
2 11	8 37.83	+31 31.3	2.170	3.109	6.7	20.2	2 11	8 38.78	+ 7 51.3	2.018	2.982	5.0	20.7
2 21	8 29.10	+32 1.6	2.244	3.126	9.7	20.4	2 21	8 30.67	+ 8 26.7	2.070	2.992	8.2	20.9
3 2	8 22.41	+32 14.8	2.341	3.141	12.4	20.6	3 2	8 24.38	+ 9 2.3	2.148	3.002	11.3	21.1
167629	2004 CZ ₇₆		1 30.6 33°99	3°1/28.9	18		428187	2006 UP ₇₁		1 30.6 314°53	2°5/ 1.2	17	
12 23	9 18.19	+25 46.8	1.915	2.708	14.7	19.9	12 23	9 13.81	+ 9 47.4	2.341	3.091	13.6	20.9
1 2	9 13.75	+26 4.5	1.842	2.717	11.5	19.7	1 2	9 9.86	+ 9 30.0	2.243	3.088	11.0	20.7
1 12	9 6.71	+26 24.0	1.791	2.726	7.9	19.5	1 12	9 3.90	+ 9 23.1	2.169	3.085	7.9	20.5
1 22	8 57.73	+26 40.0	1.767	2.736	4.4	19.3	1 22	8 56.42	+ 9 26.3	2.120	3.082	4.7	20.3
2 1	8 47.84	+26 47.8	1.770	2.747	3.4	19.3	2 1	8 48.10	+ 9 37.8	2.100	3.079	2.5	20.1
2 11	8 38.28	+26 43.8	1.803	2.757	6.4	19.5	2 11	8 39.84	+ 9 55.0	2.110	3.076	4.5	20.3
2 21	8 30.16	+26 27.3	1.862	2.769	10.0	19.7	2 21	8 32.48	+10 15.1	2.149	3.074	7.8	20.5
3 2	8 24.31	+25 59.4	1.946	2.780	13.2	19.9	3 2	8 26.74	+10 35.1	2.214	3.071	10.9	20.6
68054	2000 YK ₅₄		1 30.6 55°08	1°2/29.9	18		479311	2013 ME ₇		1 30.6 205°64	17°6/ 8.0	18	
12 23	9 17.41	+17 18.6	1.392	2.194	18.8	19.0	12 23	9 20.25	-16 53.1	1.414	2.057	25.2	21.5
1 2	9 13.90	+17 59.0	1.330	2.211	14.7	18.8	1 2	9 16.63	-19 5.9	1.333	2.054	23.3	21.3
1 12	9 7.20	+18 52.8	1.289	2.228	9.9	18.5	1 12	9 9.56	-20 48.6	1.266	2.050	21.2	21.1
1 22	8 58.08	+19 53.5	1.271	2.246	4.6	18.3	1 22	8 59.50	-21 50.1	1.214	2.045	19.2	21.0
2 1	8 47.79	+20 53.2	1.280	2.264	1.7	18.1	2 1	8 47.55	-22 1.1	1.180	2.040	17.9	20.8
2 11	8 37.90	+21 44.2	1.316	2.282	6.6	18.5	2 11	8 35.36	-21 18.7	1.167	2.033	17.6	20.8
2 21	8 29.82	+22 21.7	1.378	2.301	11.4	18.8	2 21	8 24.65	-19 48.3	1.173	2.026	18.6	20.8
3 2	8 24.52	+22 43.9	1.462	2.320	15.5	19.1	3 2	8 16.86	-17 42.0	1.198	2.019	20.6	20.9
340787	2006 SV ₃₉₅		1 30.6 238°64	4°8/26.8	17		274245	2008 OS ₆		1 30.6 196°24	2°1/ 1.3	18	
12 23	9 17.68	+32 22.5	2.607	3.387	11.6	21.1	12 23	9 14.06	+ 8 23.2	2.432	3.173	13.4	21.1
1 2	9 12.98	+33 9.4	2.517	3.380	9.3	21.0	1 2	9 10.02	+ 8 42.5	2.331	3.171	10.8	20.9
1 12	9 6.05	+33 54.9	2.452	3.373	6.9	20.8	1 12	9 4.02	+ 9 15.4	2.254	3.168	7.7	20.7
1 22	8 57.43	+34 33.6	2.414	3.365	5.1	20.7	1 22	8 56.49	+10 0.3	2.202	3.165	4.4	20.5
2 1	8 47.89	+35 0.1	2.405	3.357	5.1	20.7	2 1	8 48.10	+10 54.1	2.181	3.162	2.1	20.3
2 11	8 38.44	+35 11.0	2.425	3.349	7.0	20.8	2 11	8 39.72	+11 52.7	2.190	3.158	4.3	20.5
2 21	8 30.03	+35 5.3	2.473	3.340	9.5	20.9	2 21	8 32.17	+12 51.3	2.229	3.153	7.6	20.7
3 2	8 23.44	+34 44.2	2.546	3.332	11.9	21.1	3 2	8 26.18	+13 46.1	2.295	3.148	10.8	20.9
212724	2007 RP ₁₄₄		1 30.6 65°15	4°3/ 2.0	18		265789	2005 WM ₁₅₀		1 30.6 107°71	1°9/29.3	18	
12 23	9 16.19	+ 6 6.2	1.516	2.279	19.2	20.5	12 23	9 18.19	+21 5.1	2.087	2.867	14.1	21.0
1 2	9 12.64	+ 5 52.6	1.443	2.292	15.7	20.3	1 2	9 13.51	+21 41.4	2.012	2.881	11.0	20.8
1 12	9 6.23	+ 5 59.3	1.389	2.304	11.6	20.0	1 12	9 6.45	+22 23.8	1.961	2.896	7.4	20.6
1 22	8 57.61	+ 6 26.0	1.358	2.317	7.2	19.8	1 22	8 57.63	+23 7.5	1.937	2.910	3.6	20.4
2 1	8 47.87	+ 7 9.7	1.354	2.329	4.4	19.7	2 1	8 47.93	+23 46.9	1.943	2.924	2.2	20.3
2 11	8 38.37	+ 8 4.4	1.376	2.342	6.4	19.8	2 11	8 38.48	+24 17.7	1.978	2.937	5.5	20.6
2 21	8 30.38	+ 9 3.4	1.425	2.355	10.5	20.1	2 21	8 30.27	+24 37.3	2.042	2.951	9.1	20.8
3 2	8 24.86	+10 0.4	1.497	2.368	14.4	20.4	3 2	8 24.10	+24 45.0	2.131	2.963	12.3	21.0
63405	2001 KP ₃₃		1 30.6 130°50	3°2/28.2	18		278417	2007 RR ₁₄₆		1 30.6 161°88	2°9/ 1.6	18	
12 23	9 19.42	+23 46.4	2.129	2.910	13.8	20.4	12 23	9 14.55	+ 8 3.0	2.397	3.137	13.6	21.0
1 2	9 14.53	+24 50.8	2.055	2.924	10.8	20.2	1 2	9 10.35	+ 7 48.2	2.302	3.139	11.0	20.8
1 12	9 7.18	+26 0.5	2.005	2.938	7.3	20.0	1 12	9 4.19	+ 7 45.1	2.230	3.141	8.1	20.6
1 22	8 57.97	+27 9.0	1.983	2.952	4.1	19.8	1 22	8 56.54	+ 7 53.2	2.185	3.143	4.9	20.4
2 1	8 47.81	+28 9.4	1.991	2.965	3.6	19.8	2 1	8 48.11	+ 8 10.8	2.168	3.144	2.9	20.3
2 11	8 37.84	+28 56.5	2.029	2.977	6.4	20.0	2 11	8 39.74	+ 8 35.2	2.181	3.146	4.6	20.4
2 21	8 29.11	+29 27.6	2.095	2.988	9.7	20.2	2 21	8 32.27	+ 9 3.1	2.224	3.147	7.7	20.6
3 2	8 22.48	+29 42.5	2.186	2.999	12.7	20.4	3 2	8 26.40	+ 9 31.4	2.292	3.148	10.7	20.8
172955	2005 KR ₁₁		1 30.6 214°67	5°4/ 3.8	17		361861	2008 ED ₆₉		1 30.6 121°61	3°0/ 3.4	18	
12 23	9 13.31	- 1 42.9	2.887	3.569	12.7	21.0	12 23	9 15.39	+ 0 7.3	3.938	4.606	9.7	23

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
490664	2010	<i>HZ</i> ₇₇	1 30.6 229°12	0°3/30.5	17		207981	1996	<i>XO</i> ₈	1 30.6 222°77	1°8/29.7	18	
12 23	9 19.82	+16 31.1	1.996	2.766	15.0	22.9	12 23	9 20.58	+20 56.0	1.825	2.609	15.7	21.1
1 2	9 15.18	+16 50.6	1.892	2.753	11.9	22.7	1 2	9 15.98	+21 16.1	1.732	2.603	12.4	20.9
1 12	9 7.91	+17 20.3	1.810	2.740	8.2	22.4	1 12	9 8.52	+21 43.2	1.662	2.597	8.4	20.7
1 22	8 58.48	+17 56.8	1.754	2.727	3.9	22.2	1 22	8 58.78	+22 12.4	1.617	2.590	4.1	20.4
2 1	8 47.78	+18 35.4	1.727	2.712	0.8	21.9	2 1	8 47.77	+22 38.2	1.601	2.583	2.1	20.2
2 11	8 36.99	+19 11.0	1.731	2.697	5.3	22.2	2 11	8 36.82	+22 55.7	1.614	2.576	6.2	20.5
2 21	8 27.31	+19 39.6	1.763	2.681	9.7	22.4	2 21	8 27.24	+23 2.0	1.654	2.568	10.5	20.7
3 2	8 19.75	+19 59.0	1.820	2.664	13.6	22.6	3 2	8 20.06	+22 56.7	1.719	2.560	14.3	20.9
410529	2008	<i>FK</i> ₄	1 30.6 137°86	6°4/26.9	18		206928	2004	<i>RC</i> ₁₃	1 30.6 109°82	0°3/30.8	18	
12 23	9 24.22	+34 5.1	1.980	2.765	14.6	21.2	12 23	9 19.09	+14 8.6	1.656	2.433	17.3	20.5
1 2	9 18.73	+34 58.2	1.908	2.771	11.8	21.0	1 2	9 14.77	+14 37.9	1.582	2.447	13.6	20.3
1 12	9 10.25	+35 48.1	1.859	2.778	8.9	20.9	1 12	9 7.62	+15 21.4	1.529	2.461	9.3	20.1
1 22	8 59.50	+36 26.5	1.836	2.784	6.7	20.7	1 22	8 58.30	+16 14.8	1.502	2.474	4.5	19.8
2 1	8 47.64	+36 46.4	1.841	2.789	6.8	20.8	2 1	8 47.87	+17 11.9	1.502	2.487	0.7	19.6
2 11	8 36.14	+36 44.0	1.874	2.795	8.9	20.9	2 11	8 37.70	+18 6.1	1.532	2.500	5.6	20.0
2 21	8 26.29	+36 19.6	1.933	2.800	11.7	21.1	2 21	8 29.02	+18 52.3	1.589	2.512	10.1	20.3
3 2	8 19.06	+35 36.6	2.016	2.805	14.5	21.3	3 2	8 22.78	+19 27.5	1.670	2.524	14.1	20.5
193828	2001	<i>QC</i> ₃₅	1 30.6 114°27	0°3/30.5	17		417119	2005	<i>UB</i> ₄₉₆	1 30.6 148°68	5°7/3.4	18	
12 23	9 24.19	+16 44.6	1.838	2.604	16.2	21.6	12 23	9 16.51	+0 24.2	2.254	2.959	15.3	21.5
1 2	9 18.31	+17 1.9	1.769	2.629	12.7	21.4	1 2	9 11.98	-0 13.0	2.164	2.966	12.9	21.3
1 12	9 9.73	+17 28.6	1.722	2.652	8.6	21.2	1 12	9 5.36	-0 34.0	2.094	2.973	10.1	21.1
1 22	8 59.17	+18 0.5	1.702	2.675	4.0	21.0	1 22	8 57.14	-0 37.5	2.049	2.980	7.5	21.0
2 1	8 47.71	+18 32.5	1.712	2.697	0.8	20.8	2 1	8 48.07	-0 23.5	2.032	2.985	5.8	20.9
2 11	8 36.65	+19 0.0	1.752	2.718	5.3	21.1	2 11	8 39.08	+0 5.5	2.044	2.991	6.5	20.9
2 21	8 27.12	+19 20.0	1.820	2.737	9.5	21.4	2 21	8 31.06	+0 45.7	2.084	2.996	8.8	21.1
3 2	8 20.00	+19 31.1	1.914	2.756	13.0	21.7	3 2	8 24.77	+1 32.2	2.150	3.001	11.5	21.3
459170	2012	<i>DF</i> ₂₃	1 30.6 51°99	2°5/29.5	18		200590	2001	<i>RU</i> ₁₅	1 30.6 139°59	3°1/1.6	18	
12 23	9 22.64	+24 20.2	1.748	2.536	16.1	21.5	12 23	9 19.22	+7 6.9	1.853	2.598	16.8	21.6
1 2	9 17.57	+24 22.7	1.666	2.538	12.7	21.3	1 2	9 14.54	+7 14.2	1.771	2.611	13.7	21.4
1 12	9 9.51	+24 27.5	1.606	2.541	8.7	21.0	1 12	9 7.31	+7 39.0	1.710	2.623	9.9	21.2
1 22	8 59.18	+24 29.8	1.571	2.543	4.4	20.8	1 22	8 58.12	+8 19.7	1.674	2.634	5.9	21.0
2 1	8 47.70	+24 24.6	1.565	2.546	2.8	20.7	2 1	8 47.91	+9 12.7	1.666	2.645	3.1	20.8
2 11	8 36.53	+24 8.8	1.588	2.548	6.5	20.9	2 11	8 37.85	+10 12.6	1.688	2.655	5.4	21.0
2 21	8 26.97	+23 41.7	1.638	2.551	10.7	21.2	2 21	8 29.08	+11 13.3	1.738	2.664	9.3	21.2
3 2	8 20.02	+23 4.8	1.712	2.553	14.4	21.4	3 2	8 22.46	+12 10.0	1.814	2.672	13.0	21.5
324522	2006	<i>VJ</i> ₁₀₁	1 30.6 121°64	7°4/4.0	18		175411	Yilan	1 30.6 251°04	0°3/30.5	18		
12 23	9 16.64	-2 0.6	1.984	2.687	17.1	20.2	12 23	9 17.47	+16 2.0	1.882	2.658	15.5	20.7
1 2	9 12.38	-2 56.5	1.898	2.694	14.7	20.1	1 2	9 13.54	+16 27.1	1.778	2.644	12.3	20.5
1 12	9 5.78	-3 33.6	1.832	2.701	11.9	19.9	1 12	9 6.91	+17 4.0	1.697	2.630	8.5	20.2
1 22	8 57.37	-3 49.2	1.789	2.708	9.2	19.7	1 22	8 58.07	+17 49.3	1.641	2.614	4.0	19.9
2 1	8 47.99	-3 42.3	1.772	2.714	7.5	19.7	2 1	8 47.89	+18 37.7	1.614	2.599	0.8	19.6
2 11	8 38.71	-3 14.9	1.783	2.720	8.0	19.7	2 11	8 37.61	+19 23.5	1.616	2.583	5.6	20.0
2 21	8 30.53	-2 31.7	1.820	2.727	10.2	19.8	2 21	8 28.45	+20 1.8	1.646	2.567	10.1	20.2
3 2	8 24.30	-1 38.5	1.882	2.733	12.9	20.0	3 2	8 21.47	+20 29.8	1.700	2.550	14.1	20.4
150566	2000	<i>SG</i> ₃₁₃	1 30.6 218°87	2°0/31.6	18		154674	2004	<i>GS</i> ₁₄	1 30.6 267°04	0°1/30.6	18	
12 23	9 19.20	+12 51.5	2.118	2.874	14.7	19.7	12 23	9 19.58	+16 32.6	1.556	2.343	17.8	21.0
1 2	9 14.31	+12 24.1	2.020	2.870	11.8	19.5	1 2	9 15.84	+16 40.5	1.455	2.326	14.2	20.8
1 12	9 7.06	+12 5.3	1.944	2.866	8.3	19.3	1 12	9 8.86	+17 0.5	1.374	2.309	9.8	20.4
1 22	8 57.98	+11 54.2	1.896	2.862	4.6	19.1	1 22	8 59.14	+17 29.1	1.317	2.291	4.7	20.1
2 1	8 47.89	+11 49.2	1.876	2.858	2.0	18.9	2 1	8 47.71	+18 1.1	1.288	2.273	0.8	19.8
2 11	8 37.89	+11 47.9	1.886	2.853	4.9	19.1	2 11	8 36.12	+18 30.4	1.286	2.254	6.4	20.1
2 21	8 28.98	+11 48.2	1.926	2.849	8.7	19.3	2 21	8 25.93	+18 52.4	1.311	2.236	11.7	20.3
3 2	8 22.02	+11 47.9	1.991	2.844	12.2	19.5	3 2	8 18.44	+19 4.5	1.358	2.217	16.4	20.6
309458	2007	<i>UF</i> ₁₃₇	1 30.6 85°74	1°1/29.9	18		412865	2014	<i>QT</i>	1 30.6 190°72	0°6/31.0	18	
12 23	9 18.05	+16 33.3	1.626	2.413	17.1	21.3	12 23	9 18.40	+13 38.7	2.109	2.870	14.6	22.4
1 2	9 14.01	+17 24.4	1.558	2.430	13.4	21.1	1 2	9 13.77	+14 0.2	2.013	2.869	11.6	22.2
1 12	9 7.12	+18 28.6	1.511	2.447	9.0	20.8	1 12	9 6.77	+14 33.4	1.940	2.867	8.0	22.0
1 22	8 58.05	+19 40.0	1.490	2.465	4.2	20.6	1 22	8 57.88	+15 15.4	1.893	2.864	3.9	21.7
2 1	8 47.89	+20 50.7	1.498	2.481	1.5	20.5	2 1	8 47.94	+16 2.0	1.876	2.861	0.7	21.5
2 11	8 38.03	+21 53.4	1.533	2.498	6.1	20.8	2 11	8 38.03	+16 48.2	1.890	2.857	4.8	21.8
2 21	8 29.71	+22 43.2	1.596	2.515	10.5	21.1	2 21	8 29.19	+17 29.8	1.932	2.852	8.8	22.0
3 2	8 23.86	+23 17.7	1.683	2.531	14.3	21.4	3 2	8 22.29	+18 3.7	2.000	2.847	12.4	22.2
236027	2005	<i>GM</i> ₁₄₁	1 30.6 288°45	3°0/28.5	18		226905	2004	<i>TN</i> ₁₈₅	1 30.6 232°55	4°1/27.9	18	
12 23	9 14.92	+24 17.4	2.213	3.001	13.1	20.5	12 23	9 19.37	+28 9.7	2.211	2.995	13.3	20.4
1 2	9 11.11	+25 1.4	2.120	2.993	10.3	20.3	1 2	9 14.66	+28 52.2	2.118	2.987	10.5	20.2
1 12	9 4.98	+25 50.1	2.051	2.986	7.1	20.1	1 12	9 7.43	+29 36.3	2.049	2.979	7.4	20.0
1 22	8 57.02	+26 38.3	2.008	2.978	4.0	19.8	1 22	8 58.21	+30 16.1	2.007	2.970	4.8	19.8
2 1	8 48.05	+27 20.5	1.995	2.970	3.3	19.8	2 1	8 47.89	+30 45.6	1.995	2.962	4.4	19.7
2 11	8 39.11	+27 51.7	2.011	2.963	6.2	20.0	2 11	8 37.65	+31 0.4	2.011	2.953	7.0	19.9
2 21	8 31.23	+28 9.5	2.055	2.955	9.5	20.1	2 21	8 28.59	+30 58.9	2.055	2.943	10.1	20.1
3 2	8 25.25	+28 13.3	2.123	2.948	12.6	20.3	3 2	8 21.63	+30 42.0	2.124	2.934	13.1	20.2
67987	2000	<i>XX</i> ₁₈	1 30.6 202°23	1°3/29.8	18		371209	2006	<i>AF</i> ₅₂	1 30.6 125°65	0°1/30.7	18	
12 23	9 22.40	+20 25.4	2.267	3.032	13.6	20.3	12 23	9 15.07	+14				

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
167217	2003 <i>US</i> ₂₈		1 30.6	16°32'	2°2'/29.5	18	414861	2010 <i>VQ</i> ₉₅		1 30.6	213°89'	2°8'/28.9	18
12 23	9 14.07	+19 38.7	1.229	2.050	19.7	19.6	12 23	9 17.91	+22 37.1	1.849	2.640	15.2	21.7
1 2	9 11.89	+20 14.0	1.163	2.055	15.4	19.3	1 2	9 13.85	+23 17.8	1.764	2.639	11.9	21.5
1 12	9 6.22	+21 1.7	1.116	2.060	10.4	19.1	1 12	9 7.05	+24 5.2	1.701	2.637	8.1	21.2
1 22	8 57.81	+21 54.9	1.092	2.067	5.0	18.8	1 22	8 58.09	+24 53.5	1.664	2.636	4.3	21.0
2 1	8 47.97	+22 45.0	1.093	2.075	2.7	18.7	2 1	8 47.94	+25 36.1	1.656	2.634	3.1	20.9
2 11	8 38.45	+23 24.0	1.118	2.084	7.6	19.0	2 11	8 37.91	+26 7.3	1.676	2.633	6.6	21.1
2 21	8 30.85	+23 47.1	1.168	2.094	12.7	19.3	2 21	8 29.22	+26 24.2	1.723	2.631	10.6	21.4
3 2	8 26.30	+23 53.4	1.239	2.105	17.1	19.6	3 2	8 22.85	+26 26.3	1.794	2.629	14.1	21.6
201871	2003 <i>YN</i> ₁₅₄		1 30.6	13°41'	6°8'/25.6	18	490262	2008 <i>XA</i> ₃₈		1 30.6	88°61'	3°4'/28.9	18
12 23	9 16.06	+33 14.2	1.930	2.730	14.3	19.5	12 23	9 21.58	+22 58.4	1.522	2.320	17.6	21.6
1 2	9 12.56	+34 36.6	1.860	2.733	11.5	19.3	1 2	9 17.08	+23 46.3	1.457	2.336	13.8	21.3
1 12	9 6.24	+35 57.9	1.813	2.735	8.8	19.2	1 12	9 9.35	+24 41.2	1.414	2.351	9.3	21.1
1 22	8 57.70	+37 9.6	1.792	2.738	7.0	19.1	1 22	8 59.17	+25 35.4	1.395	2.367	4.9	20.9
2 1	8 47.99	+38 3.3	1.798	2.741	7.3	19.1	2 1	8 47.79	+26 20.8	1.404	2.382	3.8	20.9
2 11	8 38.45	+38 33.8	1.830	2.745	9.5	19.2	2 11	8 36.82	+26 51.0	1.441	2.397	7.5	21.1
2 21	8 30.35	+38 39.7	1.888	2.749	12.2	19.4	2 21	8 27.69	+27 3.6	1.504	2.412	11.7	21.4
3 2	8 24.67	+38 23.5	1.967	2.754	14.9	19.6	3 2	8 21.39	+26 59.5	1.589	2.427	15.5	21.7
436659	2011 <i>SU</i> ₁		1 30.6	257°08'	0°9'/29.9	17	187875	2000 <i>QX</i> ₉₁		1 30.6	103°63'	2°0'/1.1	18
12 23	9 14.35	+19 40.0	2.573	3.345	11.9	21.5	12 23	9 15.70	+9 13.6	2.104	2.855	14.9	21.0
1 2	9 10.21	+19 55.9	2.474	3.339	9.3	21.3	1 2	9 11.46	+9 31.8	2.026	2.872	11.9	20.8
1 12	9 4.13	+20 17.2	2.399	3.332	6.3	21.1	1 12	9 5.04	+10 4.3	1.969	2.888	8.4	20.7
1 22	8 56.56	+20 40.8	2.352	3.326	3.0	20.9	1 22	8 56.99	+10 48.8	1.939	2.904	4.7	20.5
2 1	8 48.18	+21 3.4	2.335	3.319	1.2	20.7	2 1	8 48.14	+11 41.6	1.939	2.920	2.0	20.3
2 11	8 39.86	+21 21.7	2.349	3.312	4.4	20.9	2 11	8 39.47	+12 37.7	1.968	2.936	4.6	20.5
2 21	8 32.40	+21 33.5	2.391	3.305	7.7	21.1	2 21	8 31.89	+13 32.3	2.026	2.951	8.2	20.8
3 2	8 26.50	+21 37.6	2.460	3.298	10.6	21.3	3 2	8 26.16	+14 21.5	2.110	2.966	11.5	21.0
244501	2002 <i>TB</i> ₁₁₇		1 30.6	73°99'	2°2'/1.0	18	464257	2015 <i>EY</i> ₁₁		1 30.6	109°09'	1°4'/29.5	18
12 23	9 16.00	+10 49.8	2.186	2.939	14.3	20.3	12 23	9 14.16	+18 41.1	2.292	3.070	13.0	20.8
1 2	9 11.56	+10 35.6	2.108	2.955	11.5	20.2	1 2	9 10.26	+19 33.2	2.210	3.078	10.2	20.6
1 12	9 5.02	+10 32.4	2.052	2.971	8.1	20.0	1 12	9 4.26	+20 33.9	2.151	3.086	6.8	20.4
1 22	8 56.95	+10 38.9	2.023	2.987	4.6	19.8	1 22	8 56.65	+21 38.3	2.121	3.094	3.2	20.2
2 1	8 48.14	+10 52.8	2.023	3.003	2.2	19.7	2 1	8 48.19	+22 41.2	2.120	3.102	1.8	20.1
2 11	8 39.54	+11 11.1	2.052	3.019	4.5	19.9	2 11	8 39.83	+23 37.2	2.149	3.109	5.0	20.3
2 21	8 32.04	+11 30.8	2.110	3.035	7.9	20.1	2 21	8 32.47	+24 22.7	2.207	3.117	8.5	20.6
3 2	8 26.32	+11 49.1	2.194	3.051	11.1	20.3	3 2	8 26.85	+24 55.9	2.290	3.124	11.5	20.8
326076	2011 <i>AC</i> ₇₄		1 30.6	54°59'	3°5'/28.3	18	192583	1999 <i>AY</i> ₉		1 30.6	21°42'	9°9'/31.7	16
12 23	9 15.93	+22 39.4	1.719	2.519	15.8	20.3	12 23	9 31.58	+8 1.8	1.068	1.842	25.0	19.9
1 2	9 12.42	+23 46.7	1.649	2.529	12.3	20.1	1 2	9 26.19	+5 20.2	0.992	1.843	21.0	19.6
1 12	9 6.10	+25 1.9	1.601	2.539	8.4	19.9	1 12	9 16.36	+2 45.8	0.935	1.844	16.4	19.4
1 22	8 57.62	+26 17.5	1.579	2.549	4.6	19.7	1 22	9 2.81	+0 27.5	0.898	1.845	12.0	19.1
2 1	8 48.02	+27 25.5	1.584	2.560	3.9	19.7	2 1	8 47.18	-1 24.8	0.887	1.847	10.0	19.0
2 11	8 38.63	+28 18.6	1.618	2.571	7.2	19.9	2 11	8 31.80	-2 44.7	0.900	1.849	12.2	19.1
2 21	8 30.69	+28 53.6	1.679	2.582	11.1	20.2	2 21	8 18.88	-3 32.4	0.937	1.851	16.5	19.4
3 2	8 25.16	+29 10.0	1.762	2.593	14.5	20.4	3 2	8 9.95	-3 53.5	0.993	1.853	20.9	19.7
15126	Brittanyanderson		1 30.6	151°24'	1°8'/31.8	18	114036	2002 <i>VK</i> ₉		1 30.6	4°80'	1°9'/31.7	18
12 23	9 19.36	+10 29.3	1.847	2.605	16.5	20.0	12 23	9 14.45	+12 20.1	2.000	2.768	15.0	19.6
1 2	9 14.74	+10 43.5	1.763	2.614	13.2	19.8	1 2	9 10.73	+12 4.0	1.911	2.768	12.0	19.4
1 12	9 7.51	+11 12.9	1.700	2.622	9.3	19.6	1 12	9 4.69	+11 58.5	1.843	2.768	8.5	19.2
1 22	8 58.25	+11 55.1	1.662	2.629	5.0	19.3	1 22	8 56.89	+12 2.4	1.802	2.769	4.6	19.0
2 1	8 47.92	+12 45.9	1.653	2.636	1.8	19.1	2 1	8 48.15	+12 13.3	1.788	2.770	1.9	18.8
2 11	8 37.72	+13 39.6	1.674	2.642	5.2	19.4	2 11	8 39.53	+12 28.2	1.803	2.772	4.8	19.0
2 21	8 28.80	+14 30.8	1.723	2.647	9.4	19.6	2 21	8 32.01	+12 43.9	1.846	2.774	8.7	19.2
3 2	8 22.08	+15 15.6	1.797	2.652	13.2	19.9	3 2	8 26.41	+12 57.5	1.914	2.776	12.2	19.5
11693	Grantelliott		1 30.6	261°68'	1°0'/30.1	18	114870	2003 <i>QF</i> ₇		1 30.6	81°63'	0°8'/30.1	18
12 23	9 18.05	+18 10.5	1.717	2.504	16.4	18.1	12 23	9 16.48	+17 54.6	2.077	2.854	14.2	20.0
1 2	9 14.22	+18 31.6	1.621	2.494	13.0	17.9	1 2	9 12.14	+18 21.1	2.004	2.870	11.1	19.8
1 12	9 7.49	+19 3.1	1.547	2.483	8.8	17.6	1 12	9 5.52	+18 55.7	1.954	2.887	7.5	19.6
1 22	8 58.38	+19 40.8	1.498	2.472	4.2	17.3	1 22	8 57.22	+19 34.5	1.931	2.904	3.5	19.4
2 1	8 47.88	+20 18.9	1.477	2.461	1.4	17.1	2 1	8 48.12	+20 12.6	1.937	2.921	1.1	19.2
2 11	8 37.36	+20 51.6	1.484	2.450	6.1	17.4	2 11	8 39.25	+20 45.6	1.972	2.937	4.9	19.5
2 21	8 28.16	+21 14.7	1.519	2.439	10.8	17.6	2 21	8 31.58	+21 10.7	2.036	2.954	8.6	19.8
3 2	8 21.40	+21 26.5	1.576	2.428	14.9	17.8	3 2	8 25.86	+21 26.2	2.126	2.970	11.9	20.0
417691	2007 <i>BM</i> ₄₇		1 30.6	90°44'	3°9'/28.7	18	430086	2013 <i>SC</i> ₅₈		1 30.6	100°68'	0°1'/30.6	18
12 23	9 23.73	+28 0.2	1.907	2.692	15.0	21.3	12 23	9 20.48	+18 28.6	2.210	2.976	13.8	21.3
1 2	9 18.12	+28 19.7	1.835	2.704	11.8	21.1	1 2	9 15.07	+18 16.1	2.129	2.988	10.9	21.1
1 12	9 9.70	+28 38.9	1.786	2.717	8.3	20.9	1 12	9 7.40	+18 8.8	2.070	3.000	7.4	20.9
1 22	8 59.21	+28 52.1	1.763	2.729	4.9	20.7	1 22	8 58.08	+18 4.1	2.039	3.012	3.5	20.7
2 1	8 47.78	+28 53.7	1.769	2.741	4.2	20.7	2 1	8 47.99	+17 59.4	2.038	3.023	0.6	20.5
2 11	8 36.77	+28 40.8	1.804	2.753	6.9	20.9	2 11	8 38.15	+17 52.4	2.068	3.034	4.6	20.8
2 21	8 27.38	+28 13.5	1.866	2.765	10.4	21.1	2 21	8 29.52	+17 41.5	2.127	3.045	8.2	21.0
3 2	8 20.48	+27 33.9	1.953	2.776	13.6	21.4	3 2	8 22.85	+17 26.4	2.212	3.056	11.5	21.3
79305	1995 <i>XK</i>		1 30.6	150°46'	3°4'/28.4	18	470900	2009 <i>CA</i> ₄₂		1 30.6	11°44'	1°1'/31.5	18
12 23													

EPHEMERIDES

1 30.6

1 30.6

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
253704	2003 <i>UU</i> ₃₀₉		1 30.6 166°85	1°0/29.9	18		459335	2012 <i>HC</i> ₃₉		1 30.6 342°56	9°9/27.2	18	
12 23	9 19.45	+17 54.0	2.161	2.929	14.0	21.8	12 23	9 20.44	+37 11.4	1.223	2.046	19.6	19.5
1 2	9 14.52	+18 30.6	2.073	2.935	11.0	21.6	1 2	9 17.92	+37 52.5	1.146	2.028	16.3	19.2
1 12	9 7.23	+19 16.1	2.008	2.940	7.4	21.4	1 12	9 10.95	+38 25.9	1.087	2.013	12.9	19.0
1 22	8 58.09	+20 6.1	1.971	2.944	3.5	21.2	1 22	9 0.29	+38 39.5	1.049	1.998	10.3	18.8
2 1	8 47.98	+20 55.5	1.964	2.947	1.3	21.0	2 1	8 47.63	+38 21.6	1.034	1.986	10.3	18.7
2 11	8 37.96	+21 39.1	1.987	2.950	5.1	21.3	2 11	8 35.34	+37 27.1	1.043	1.975	13.0	18.8
2 21	8 29.07	+22 13.4	2.039	2.952	8.9	21.5	2 21	8 25.60	+35 59.2	1.072	1.965	16.8	19.0
3 2	8 22.15	+22 36.8	2.118	2.953	12.2	21.7	3 2	8 19.82	+34 6.5	1.121	1.958	20.7	19.2
283974	2004 <i>RE</i> ₁₄₈		1 30.6 161°57	3°9/28.4	18		403545	2010 <i>HM</i> ₈₀		1 30.6 231°00	2°9/28.8	18	
12 23	9 22.69	+25 30.3	1.817	2.604	15.6	21.3	12 23	9 20.48	+22 31.6	1.935	2.717	14.9	22.0
1 2	9 17.66	+26 19.8	1.738	2.610	12.3	21.1	1 2	9 15.95	+23 19.5	1.835	2.705	11.8	21.8
1 12	9 9.66	+27 13.7	1.682	2.615	8.5	20.9	1 12	9 8.59	+24 15.0	1.758	2.693	8.1	21.5
1 22	8 59.33	+28 4.8	1.651	2.619	5.0	20.7	1 22	8 58.91	+25 12.4	1.708	2.679	4.3	21.3
2 1	8 47.78	+28 45.6	1.649	2.622	4.3	20.7	2 1	8 47.85	+26 4.4	1.687	2.665	3.3	21.2
2 11	8 36.44	+29 10.5	1.677	2.625	7.4	20.9	2 11	8 36.70	+26 44.8	1.696	2.650	6.8	21.4
2 21	8 26.64	+29 17.5	1.731	2.628	11.2	21.1	2 21	8 26.77	+27 9.8	1.732	2.635	10.8	21.6
3 2	8 19.39	+29 7.7	1.809	2.629	14.6	21.3	3 2	8 19.15	+27 18.8	1.792	2.618	14.5	21.8
331258	2011 <i>CL</i> ₃₉		1 30.6 33°68	1°3/29.7	18		55899	1998 <i>BJ</i> ₁₀		1 30.6 254°00	1°5/31.8	18	
12 23	9 12.15	+13 10.7	1.396	2.196	18.8	19.4	12 23	9 13.66	+9 35.0	2.073	2.830	14.9	19.4
1 2	9 9.82	+14 49.1	1.336	2.216	14.6	19.2	1 2	9 10.22	+10 9.2	1.968	2.820	12.0	19.1
1 12	9 4.52	+16 48.5	1.297	2.237	9.8	19.0	1 12	9 4.48	+11 0.0	1.886	2.809	8.5	18.9
1 22	8 56.92	+19 0.1	1.283	2.259	4.5	18.7	1 22	8 56.88	+12 5.1	1.830	2.797	4.6	18.6
2 1	8 48.17	+21 12.0	1.297	2.281	1.8	18.6	2 1	8 48.18	+13 20.1	1.802	2.786	1.5	18.4
2 11	8 39.71	+23 12.0	1.339	2.304	6.7	19.0	2 11	8 39.38	+14 38.9	1.805	2.774	4.8	18.6
2 21	8 32.85	+24 51.5	1.407	2.328	11.4	19.3	2 21	8 31.51	+15 55.2	1.837	2.762	8.8	18.8
3 2	8 28.56	+26 6.8	1.499	2.353	15.4	19.6	3 2	8 25.47	+17 4.0	1.894	2.750	12.6	19.0
378452	2007 <i>RA</i> ₃₁₃		1 30.6 127°68	4°4/ 2.9	18		186217	2001 <i>WN</i> ₄₈		1 30.6 20°70	11°5/ 8.6	18	
12 23	9 14.18	+ 2 28.2	2.530	3.242	13.6	21.2	12 23	9 12.10	-13 59.1	1.903	2.547	19.5	19.9
1 2	9 9.92	+ 2 5.2	2.440	3.252	11.3	21.0	1 2	9 9.13	-14 57.3	1.817	2.548	17.6	19.7
1 12	9 3.84	+ 1 56.2	2.373	3.261	8.7	20.8	1 12	9 3.77	-15 28.0	1.747	2.550	15.5	19.6
1 22	8 56.40	+ 2 1.7	2.331	3.270	6.1	20.7	1 22	8 56.54	-15 26.3	1.695	2.551	13.4	19.5
2 1	8 48.26	+ 2 20.7	2.317	3.278	4.5	20.6	2 1	8 48.24	-14 49.3	1.665	2.553	11.9	19.4
2 11	8 40.21	+ 2 50.8	2.333	3.287	5.3	20.7	2 11	8 39.96	-13 38.7	1.659	2.555	11.5	19.3
2 21	8 33.02	+ 3 28.5	2.378	3.295	7.6	20.8	2 21	8 32.76	-12 0.7	1.678	2.558	12.5	19.4
3 2	8 27.31	+ 4 9.9	2.450	3.302	10.2	21.0	3 2	8 27.51	-10 4.5	1.720	2.560	14.4	19.5
104354	2000 <i>FX</i> ₁₉		1 30.6 275°42	4°5/27.1	18		342882	2008 <i>YO</i> ₅₈		1 30.6 154°70	0°7/31.2	17	
12 23	9 15.66	+28 1.4	2.213	3.004	13.0	19.5	12 23	9 15.71	+14 8.8	2.974	3.721	11.0	21.8
1 2	9 11.84	+29 5.6	2.122	2.995	10.3	19.3	1 2	9 10.84	+14 11.5	2.882	3.729	8.7	21.7
1 12	9 5.58	+30 12.9	2.056	2.987	7.4	19.1	1 12	9 4.32	+14 20.9	2.814	3.737	6.0	21.5
1 22	8 57.38	+31 16.9	2.017	2.978	4.9	18.9	1 22	8 56.59	+14 35.4	2.775	3.744	3.0	21.3
2 1	8 48.09	+32 10.7	2.007	2.970	4.9	18.9	2 1	8 48.25	+14 52.8	2.767	3.751	0.8	21.1
2 11	8 38.80	+32 49.1	2.025	2.961	7.3	19.0	2 11	8 40.02	+15 10.5	2.790	3.757	3.5	21.3
2 21	8 30.60	+33 9.5	2.071	2.952	10.4	19.2	2 21	8 32.56	+15 26.5	2.844	3.763	6.4	21.5
3 2	8 24.40	+33 12.0	2.140	2.944	13.3	19.4	3 2	8 26.44	+15 39.2	2.926	3.768	9.0	21.7
117175	2004 <i>RF</i> ₅₉		1 30.6 86°93	0°6/30.2	18		401963	2002 <i>SW</i> ₂₁		1 30.6 94°21	3°3/28.8	18	
12 23	9 15.53	+16 29.7	1.987	2.765	14.7	19.9	12 23	9 22.29	+24 27.1	1.848	2.634	15.4	21.6
1 2	9 11.58	+17 5.7	1.910	2.777	11.5	19.7	1 2	9 16.99	+25 8.0	1.785	2.656	12.0	21.4
1 12	9 5.27	+17 52.2	1.855	2.788	7.8	19.5	1 12	9 8.94	+25 52.7	1.744	2.678	8.2	21.2
1 22	8 57.16	+18 44.8	1.826	2.800	3.6	19.3	1 22	8 58.88	+26 34.6	1.730	2.699	4.5	21.0
2 1	8 48.14	+19 38.2	1.827	2.811	1.0	19.1	2 1	8 47.90	+27 7.4	1.745	2.720	3.6	21.0
2 11	8 39.29	+20 26.9	1.857	2.822	5.1	19.4	2 11	8 37.33	+27 26.8	1.788	2.741	6.7	21.3
2 21	8 31.64	+21 7.0	1.915	2.833	9.0	19.7	2 21	8 28.35	+27 31.1	1.860	2.761	10.3	21.5
3 2	8 25.98	+21 36.3	1.998	2.844	12.4	19.9	3 2	8 21.81	+27 21.4	1.955	2.781	13.5	21.8
502833	2015 <i>DQ</i> ₁₅₁		1 30.6 267°96	2°2/28.7	17		223718	2004 <i>RW</i> ₉₄		1 30.6 149°77	1°5/31.6	18	
12 23	9 13.65	+21 23.7	2.458	3.239	12.2	21.6	12 23	9 16.49	+12 31.9	2.083	2.844	14.7	20.6
1 2	9 9.96	+22 18.6	2.353	3.223	9.6	21.4	1 2	9 12.23	+12 28.6	1.993	2.847	11.7	20.4
1 12	9 4.17	+23 21.0	2.272	3.207	6.5	21.2	1 12	9 5.68	+12 36.1	1.925	2.850	8.2	20.2
1 22	8 56.68	+24 26.2	2.219	3.191	3.4	21.0	1 22	8 57.37	+12 52.6	1.884	2.852	4.3	19.9
2 1	8 48.20	+25 28.7	2.196	3.174	2.6	20.9	2 1	8 48.13	+13 15.4	1.871	2.854	1.5	19.7
2 11	8 39.62	+26 23.4	2.203	3.158	5.5	21.1	2 11	8 39.00	+13 40.7	1.888	2.856	4.7	20.0
2 21	8 31.87	+27 6.4	2.239	3.141	8.8	21.2	2 21	8 30.96	+14 5.1	1.933	2.858	8.5	20.2
3 2	8 25.75	+27 36.1	2.300	3.124	11.8	21.4	3 2	8 24.82	+14 25.7	2.004	2.860	12.0	20.4
379830	2011 <i>LU</i> ₉		1 30.6 84°72	4°1/ 2.6	18		405401	2004 <i>PH</i> ₃₅		1 30.6 252°74	5°3/28.6	17	
12 23	9 13.09	+ 3 58.6	2.252	2.982	14.6	20.7	12 23	9 33.70	+31 37.7	1.869	2.639	15.8	21.8
1 2	9 9.33	+ 3 46.0	2.164	2.989	12.1	20.5	1 2	9 26.74	+31 54.0	1.760	2.617	12.9	21.6
1 12	9 3.58	+ 3 48.7	2.098	2.997	9.1	20.3	1 12	9 16.17	+32 7.3	1.673	2.595	9.4	21.3
1 22	8 56.32	+ 4 6.9	2.057	3.004	6.1	20.1	1 22	9 2.60	+32 9.5	1.612	2.571	6.2	21.1
2 1	8 48.28	+ 4 38.8	2.043	3.012	4.2	20.0	2 1	8 47.28	+31 53.0	1.581	2.547	5.6	21.0
2 11	8 40.33	+ 5 21.0	2.059	3.019	5.2	20.1	2 11	8 31.97	+31 13.5	1.580	2.521	8.5	21.1
2 21	8 33.31	+ 6 9.4	2.104	3.027	8.1	20.3	2 21	8 18.42	+30 12.2	1.608	2.495	12.5	21.3
3 2	8 27.95	+ 6 59.3	2.174	3.034	11.0	20.5	3 2	8 7.94	+28 54.1	1.660	2.468	16.3	21.4
467880	2011 <i>DZ</i> ₉		1 30.6 359°08	2°9/ 1.5	18		486809	2014 <i>HP</i> ₁₈₇		1 30.6 229°60	1°6/29.6	18	
12 23	9 9.86	+ 7 44.3	1.547	2.327	18.2								

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
233982	1995 <i>PW</i>		1 30.6 195°43	0°1/30.6 17			348482	2005 <i>SR</i> ₁₇₅		1 30.6 88°55	3°7/ 1.5 18		
12 23	9 13.98	+16 22.2	2.812	3.573	11.3	22.1	12 23	9 18.93	+ 8 12.8	1.447	2.217	19.7	20.8
1 2	9 9.72	+16 41.8	2.713	3.570	8.9	21.9	1 2	9 15.00	+ 7 57.9	1.375	2.229	16.0	20.6
1 12	9 3.70	+17 8.5	2.639	3.568	6.0	21.7	1 12	9 8.00	+ 8 2.0	1.321	2.241	11.6	20.4
1 22	8 56.36	+17 39.7	2.593	3.565	2.9	21.5	1 22	8 58.60	+ 8 24.3	1.290	2.252	6.9	20.1
2 1	8 48.30	+18 12.2	2.577	3.562	0.5	21.3	2 1	8 47.97	+ 9 1.4	1.285	2.264	3.7	20.0
2 11	8 40.27	+18 42.9	2.592	3.558	3.8	21.6	2 11	8 37.61	+ 9 47.5	1.307	2.275	6.4	20.2
2 21	8 33.01	+19 9.2	2.638	3.554	6.9	21.8	2 21	8 28.89	+10 36.3	1.355	2.286	10.9	20.4
3 2	8 27.14	+19 29.3	2.710	3.550	9.7	22.0	3 2	8 22.83	+11 22.0	1.427	2.297	15.1	20.7
435945	2009 <i>CY</i> ₅₃		1 30.6 329°72	11°8/18.4 15			306437	1998 <i>TV</i> ₁₇		1 30.6 100°82	0°5/30.4 18		
12 23	9 14.54	+42 6.5	1.742	2.545	15.5	20.0	12 23	9 18.96	+16 40.2	1.850	2.626	15.7	21.1
1 2	9 12.81	+44 47.3	1.662	2.519	13.5	19.8	1 2	9 14.37	+17 7.4	1.777	2.643	12.3	20.9
1 12	9 7.46	+47 26.3	1.606	2.494	12.1	19.6	1 12	9 7.20	+17 44.9	1.727	2.660	8.3	20.7
1 22	8 58.79	+49 49.1	1.575	2.469	11.9	19.6	1 22	8 58.11	+18 28.3	1.703	2.676	3.9	20.5
2 1	8 47.83	+51 41.8	1.568	2.446	13.1	19.6	2 1	8 48.07	+19 12.1	1.708	2.692	0.9	20.3
2 11	8 36.41	+52 55.1	1.585	2.423	15.3	19.7	2 11	8 38.30	+19 51.2	1.742	2.708	5.3	20.6
2 21	8 26.55	+53 26.6	1.621	2.401	17.7	19.8	2 21	8 29.91	+20 21.9	1.804	2.723	9.4	20.9
3 2	8 19.98	+53 20.2	1.674	2.381	20.0	19.9	3 2	8 23.74	+20 42.2	1.891	2.738	13.0	21.1
297880	2002 <i>CL</i> ₁₃₉		1 30.6 36°83	4°5/ 2.1 18			152311	2005 <i>TU</i> ₁₃₂		1 30.6 151°39	0°4/30.9 18		
12 23	9 13.95	+ 6 0.6	1.239	2.024	21.6	19.8	12 23	9 16.65	+14 41.0	2.113	2.880	14.3	21.5
1 2	9 11.49	+ 5 53.1	1.175	2.037	17.6	19.6	1 2	9 12.35	+14 59.5	2.026	2.885	11.3	21.3
1 12	9 5.79	+ 6 10.6	1.129	2.051	12.9	19.4	1 12	9 5.77	+15 28.4	1.961	2.890	7.8	21.1
1 22	8 57.58	+ 6 52.2	1.103	2.065	8.0	19.1	1 22	8 57.43	+16 4.7	1.923	2.894	3.8	20.9
2 1	8 48.10	+ 7 53.6	1.102	2.080	4.5	19.0	2 1	8 48.17	+16 44.4	1.914	2.898	0.6	20.6
2 11	8 38.95	+ 9 6.7	1.127	2.096	6.9	19.2	2 11	8 39.01	+17 22.9	1.934	2.902	4.7	20.9
2 21	8 31.56	+10 22.1	1.176	2.113	11.5	19.5	2 21	8 30.95	+17 56.4	1.984	2.906	8.6	21.2
3 2	8 26.99	+11 31.9	1.247	2.130	15.9	19.8	3 2	8 24.78	+18 22.6	2.059	2.909	12.0	21.4
207586	2006 <i>QA</i> ₂₇		1 30.6 155°19	0°7/31.3 18			295764	2008 <i>UB</i> ₁₆₀		1 30.6 60°52	2°4/29.1 18		
12 23	9 13.20	+13 11.8	2.963	3.713	11.0	21.5	12 23	9 16.45	+22 19.3	2.004	2.792	14.3	20.6
1 2	9 8.94	+13 31.3	2.870	3.719	8.7	21.3	1 2	9 12.29	+22 56.4	1.935	2.808	11.1	20.5
1 12	9 3.09	+13 59.1	2.802	3.726	6.0	21.2	1 12	9 5.72	+23 38.7	1.889	2.825	7.5	20.3
1 22	8 56.03	+14 33.1	2.762	3.732	3.0	21.0	1 22	8 57.38	+24 21.1	1.869	2.841	3.8	20.1
2 1	8 48.36	+15 10.5	2.753	3.737	0.7	20.8	2 1	8 48.19	+24 58.1	1.879	2.858	2.7	20.0
2 11	8 40.75	+15 48.1	2.775	3.742	3.5	21.0	2 11	8 39.28	+25 25.2	1.918	2.875	5.8	20.3
2 21	8 33.88	+16 23.2	2.827	3.747	6.4	21.2	2 21	8 31.65	+25 40.2	1.984	2.892	9.3	20.5
3 2	8 28.29	+16 53.7	2.907	3.752	9.0	21.4	3 2	8 26.09	+25 42.7	2.074	2.909	12.5	20.7
87598	2000 <i>RY</i> ₃₂		1 30.6 121°89	1°7/31.8 18			496586	2015 <i>BB</i> ₁₀₁		1 30.6 118°79	1°3/31.7 18		
12 23	9 16.80	+10 59.8	2.228	2.979	14.2	20.2	12 23	9 13.13	+10 30.4	2.370	3.123	13.4	21.4
1 2	9 12.22	+11 4.0	2.146	2.993	11.3	20.0	1 2	9 9.33	+10 59.6	2.282	3.131	10.6	21.2
1 12	9 5.52	+11 19.8	2.086	3.006	7.9	19.8	1 12	9 3.58	+11 41.7	2.217	3.139	7.4	21.1
1 22	8 57.24	+11 45.3	2.052	3.019	4.3	19.6	1 22	8 56.36	+12 34.0	2.179	3.147	3.9	20.8
2 1	8 48.17	+12 17.5	2.049	3.031	1.7	19.5	2 1	8 48.35	+13 32.8	2.171	3.154	1.3	20.7
2 11	8 39.27	+12 52.5	2.075	3.043	4.4	19.7	2 11	8 40.43	+14 33.4	2.193	3.161	4.1	20.9
2 21	8 31.43	+13 26.7	2.131	3.054	7.9	19.9	2 21	8 33.41	+15 31.3	2.244	3.168	7.6	21.1
3 2	8 25.36	+13 57.2	2.213	3.065	11.1	20.1	3 2	8 27.97	+16 22.9	2.322	3.175	10.7	21.3
427450	2001 <i>SC</i> ₆		1 30.6 166°92	2°9/ 2.2 18			175933	2000 <i>EA</i> ₁₀		1 30.6 267°70	1°6/29.8 18		
12 23	9 12.34	+ 5 27.9	2.680	3.406	12.6	21.7	12 23	9 18.41	+20 20.3	1.843	2.630	15.4	20.9
1 2	9 8.46	+ 5 35.5	2.582	3.409	10.3	21.6	1 2	9 14.35	+20 39.8	1.746	2.618	12.2	20.6
1 12	9 2.87	+ 5 56.4	2.508	3.411	7.6	21.4	1 12	9 7.51	+21 7.0	1.670	2.605	8.3	20.4
1 22	8 55.98	+ 6 29.7	2.460	3.414	4.8	21.2	1 22	8 58.41	+21 37.3	1.620	2.593	4.0	20.1
2 1	8 48.38	+ 7 13.4	2.442	3.415	3.0	21.1	2 1	8 48.01	+22 5.4	1.598	2.581	1.9	19.9
2 11	8 40.82	+ 8 4.0	2.454	3.417	4.2	21.2	2 11	8 37.60	+22 26.2	1.605	2.568	6.0	20.1
2 21	8 34.01	+ 8 57.7	2.495	3.418	7.0	21.4	2 21	8 28.44	+22 36.7	1.639	2.555	10.4	20.4
3 2	8 28.57	+ 9 50.7	2.564	3.419	9.7	21.5	3 2	8 21.59	+22 35.7	1.697	2.543	14.3	20.6
259826	2004 <i>CJ</i> ₈		1 30.6 54°56	0°5/30.4 18			220584	2004 <i>JF</i> ₂₈		1 30.6 147°74	5°5/26.4 18		
12 23	9 15.70	+15 3.4	1.519	2.312	17.9	20.6	12 23	9 21.22	+32 26.0	2.329	3.108	12.8	20.5
1 2	9 12.40	+15 46.7	1.451	2.326	14.0	20.3	1 2	9 16.00	+33 35.1	2.256	3.118	10.2	20.3
1 12	9 6.18	+16 45.2	1.404	2.340	9.5	20.1	1 12	9 8.27	+34 43.0	2.207	3.127	7.6	20.1
1 22	8 57.71	+17 53.4	1.381	2.355	4.4	19.9	1 22	8 58.62	+35 42.4	2.187	3.135	5.8	20.0
2 1	8 48.11	+19 3.9	1.385	2.370	1.0	19.6	2 1	8 47.99	+36 26.9	2.195	3.143	5.9	20.1
2 11	8 38.78	+20 8.7	1.417	2.385	6.0	20.0	2 11	8 37.55	+36 52.2	2.233	3.150	7.9	20.2
2 21	8 31.01	+21 2.2	1.475	2.400	10.7	20.3	2 21	8 28.38	+36 57.5	2.297	3.156	10.4	20.4
3 2	8 25.77	+21 41.2	1.557	2.415	14.7	20.6	3 2	8 21.35	+36 44.4	2.385	3.162	12.9	20.5
369779	2012 <i>GU</i> ₂₆		1 30.6 123°37	3°0/ 1.5 18			158952	2004 <i>RG</i> ₁₄₈		1 30.6 124°54	0°3/30.9 18		
12 23	9 15.38	+ 8 23.6	1.976	2.729	15.7	21.2	12 23	9 15.22	+14 6.1	2.121	2.889	14.3	20.9
1 2	9 11.49	+ 8 14.0	1.886	2.731	12.7	21.0	1 2	9 11.22	+14 34.1	2.036	2.896	11.3	20.7
1 12	9 5.25	+ 8 18.7	1.818	2.734	9.2	20.8	1 12	9 4.99	+15 13.5	1.973	2.903	7.7	20.5
1 22	8 57.21	+ 8 37.0	1.775	2.736	5.5	20.6	1 22	8 57.07	+16 1.1	1.937	2.909	3.7	20.3
2 1	8 48.19	+ 9 6.4	1.760	2.739	3.0	20.4	2 1	8 48.24	+16 52.2	1.931	2.916	0.6	20.1
2 11	8 39.25	+ 9 43.1	1.774	2.741	5.2	20.6	2 11	8 39.53	+17 42.0	1.954	2.922	4.6	20.4
2 21	8 31.42	+10 22.6	1.816	2.743	8.8	20.8	2 21	8 31.87	+18 26.2	2.006	2.928	8.5	20.6
3 2	8 25.53	+11 0.7	1.884	2.745	12.4	21.0	3 2	8 26.07	+19 2.0	2.084	2.934	11.8	20.8
264529	2001 <i>RP</i> ₁₁₁		1 30.6 66°59	0°8/30.2 18			274143	2008 <i>FF</i> ₅₆		1 30.6 188°72	1°2/31.3 18		
12 23	9 19.34	+17 49.6	1.674	2.460	16.8								

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
106983	2000 YC ₉₈		1 30.6 336°96	1°5/29.9	18		100708	1998 BL ₁₇		1 30.7 67°07	1°8/29.7	18	
12 23	9 13.18	+17 57.2	1.335	2.148	18.8	19.0	12 23	9 19.81	+21 49.8	1.814	2.601	15.6	19.4
1 2	9 11.18	+18 31.4	1.251	2.138	14.9	18.8	1 2	9 15.20	+22 1.4	1.737	2.610	12.2	19.2
1 12	9 5.87	+19 20.3	1.186	2.129	10.1	18.5	1 12	9 7.87	+22 18.1	1.683	2.618	8.3	19.0
1 22	8 57.81	+20 18.4	1.145	2.120	4.8	18.1	1 22	8 58.48	+22 35.3	1.654	2.627	4.0	18.8
2 1	8 48.12	+21 17.8	1.129	2.112	2.0	17.9	2 1	8 48.09	+22 48.2	1.654	2.636	2.1	18.6
2 11	8 38.44	+22 9.8	1.138	2.105	7.2	18.2	2 11	8 37.99	+22 52.8	1.683	2.646	5.9	18.9
2 21	8 30.38	+22 48.1	1.172	2.099	12.5	18.5	2 21	8 29.36	+22 47.5	1.739	2.655	10.0	19.2
3 2	8 25.20	+23 10.0	1.227	2.094	17.2	18.8	3 2	8 23.08	+22 32.3	1.819	2.664	13.5	19.4
61069	2000 LS ₇		1 30.7 201°37	3°7/1.8	18		104240	2000 ET ₁₃₃		1 30.7 10°80	0°6/31.1	18	
12 23	9 17.96	+6 27.7	1.893	2.636	16.6	19.4	12 23	9 12.14	+12 8.5	2.059	2.829	14.6	19.4
1 2	9 13.74	+6 21.6	1.795	2.633	13.6	19.2	1 2	9 8.97	+12 49.2	1.969	2.830	11.6	19.2
1 12	9 6.95	+6 32.3	1.719	2.629	10.1	18.9	1 12	9 3.59	+13 44.3	1.902	2.831	8.0	19.0
1 22	8 58.12	+6 59.6	1.667	2.625	6.2	18.7	1 22	8 56.47	+14 50.6	1.861	2.832	4.0	18.8
2 1	8 48.10	+7 41.2	1.643	2.620	3.7	18.5	2 1	8 48.40	+16 2.9	1.848	2.833	0.7	18.5
2 11	8 38.07	+8 32.4	1.649	2.614	5.7	18.6	2 11	8 40.36	+17 15.1	1.865	2.834	4.7	18.8
2 21	8 29.15	+9 27.7	1.682	2.608	9.5	18.8	2 21	8 33.33	+18 21.7	1.911	2.836	8.6	19.1
3 2	8 22.33	+10 21.9	1.741	2.601	13.3	19.1	3 2	8 28.11	+19 18.7	1.982	2.838	12.1	19.3
258898	2002 QE ₈₀		1 30.7 202°38	1°7/29.5	18		379963	2012 QR ₂₅		1 30.7 315°86	0°9/31.2	17	
12 23	9 17.36	+18 45.6	1.928	2.710	15.0	21.0	12 23	9 13.49	+13 57.4	2.073	2.845	14.4	20.6
1 2	9 13.34	+19 35.0	1.838	2.708	11.8	20.8	1 2	9 10.06	+14 2.8	1.974	2.836	11.5	20.3
1 12	9 6.72	+20 35.0	1.770	2.705	8.0	20.6	1 12	9 4.35	+14 18.7	1.898	2.827	8.0	20.1
1 22	8 58.01	+21 40.3	1.728	2.702	3.8	20.3	1 22	8 56.85	+14 43.2	1.848	2.819	4.0	19.9
2 1	8 48.12	+22 44.3	1.716	2.698	2.0	20.2	2 1	8 48.34	+15 12.8	1.826	2.811	0.9	19.6
2 11	8 38.24	+23 40.5	1.733	2.694	5.9	20.4	2 11	8 39.84	+15 43.5	1.833	2.802	4.7	19.9
2 21	8 29.55	+24 24.4	1.778	2.690	10.0	20.6	2 21	8 32.34	+16 11.5	1.869	2.795	8.7	20.1
3 2	8 23.02	+24 53.9	1.847	2.685	13.6	20.9	3 2	8 26.69	+16 34.1	1.929	2.787	12.3	20.3
347358	2012 QR ₄₀		1 30.7 86°89	5°9/27.1	18		461415	2001 TY ₁₄₅		1 30.7 99°57	3°1/28.6	18	
12 23	9 27.17	+37 57.3	2.526	3.289	12.4	20.3	12 23	9 21.03	+23 59.7	2.111	2.889	14.0	21.6
1 2	9 20.15	+38 28.7	2.467	3.313	10.1	20.2	1 2	9 15.70	+24 53.4	2.048	2.916	10.9	21.5
1 12	9 10.72	+38 53.1	2.433	3.337	7.8	20.1	1 12	9 7.96	+25 51.0	2.009	2.942	7.4	21.3
1 22	8 59.63	+39 4.5	2.426	3.361	6.2	20.0	1 22	8 58.45	+26 46.4	1.998	2.967	4.1	21.1
2 1	8 47.92	+38 58.4	2.448	3.384	6.2	20.1	2 1	8 48.13	+27 33.3	2.017	2.991	3.4	21.1
2 11	8 36.74	+38 33.3	2.500	3.407	7.7	20.2	2 11	8 38.14	+28 7.4	2.065	3.015	6.2	21.3
2 21	8 27.11	+37 50.8	2.580	3.429	9.8	20.4	2 21	8 29.50	+28 26.8	2.142	3.038	9.4	21.6
3 2	8 19.73	+36 54.3	2.685	3.452	11.8	20.6	3 2	8 22.99	+28 31.7	2.244	3.061	12.3	21.8
20087	1994 PC ₇		1 30.7 306°25	1°6/31.8	18 R		428444	2007 TV ₃₆₁		1 30.7 97°81	2°9/28.4	18	
12 23	9 12.41	+10 6.7	1.913	2.681	15.6	18.1	12 23	9 15.71	+24 47.4	2.433	3.215	12.2	21.5
1 2	9 9.43	+10 35.0	1.816	2.673	12.5	17.9	1 2	9 11.39	+25 33.0	2.356	3.226	9.5	21.3
1 12	9 4.05	+11 20.0	1.740	2.665	8.9	17.6	1 12	9 5.00	+26 21.7	2.305	3.237	6.5	21.2
1 22	8 56.75	+12 19.5	1.689	2.657	4.7	17.4	1 22	8 57.06	+27 8.7	2.280	3.249	3.7	21.0
2 1	8 48.33	+13 28.9	1.666	2.649	1.6	17.1	2 1	8 48.34	+27 49.0	2.286	3.260	3.2	21.0
2 11	8 39.87	+14 41.9	1.672	2.642	5.0	17.3	2 11	8 39.79	+28 18.6	2.322	3.270	5.6	21.2
2 21	8 32.43	+15 52.3	1.706	2.634	9.2	17.6	2 21	8 32.27	+28 35.6	2.385	3.281	8.6	21.4
3 2	8 26.95	+16 54.9	1.765	2.627	13.0	17.8	3 2	8 26.51	+28 39.8	2.474	3.292	11.3	21.6
3256	Daguerre		1 30.7 38°83	3°2/1.8	18		294119	2007 TS ₂₅₀		1 30.7 56°56	0°8/31.2	18	
12 23	9 12.96	+6 48.3	1.795	2.554	16.8	16.7	12 23	9 14.70	+14 28.3	2.226	2.993	13.7	20.5
1 2	9 9.82	+6 54.7	1.713	2.561	13.7	16.5	1 2	9 10.71	+14 31.4	2.138	2.997	10.9	20.3
1 12	9 4.24	+7 19.3	1.652	2.568	10.0	16.3	1 12	9 4.61	+14 43.6	2.072	3.000	7.5	20.1
1 22	8 56.79	+8 1.0	1.615	2.575	6.0	16.1	1 22	8 56.90	+15 2.8	2.033	3.004	3.7	19.9
2 1	8 48.34	+8 56.2	1.605	2.583	3.3	15.9	2 1	8 48.36	+15 25.8	2.023	3.008	0.8	19.7
2 11	8 40.01	+9 59.3	1.623	2.591	5.4	16.1	2 11	8 39.94	+15 49.2	2.043	3.011	4.4	19.9
2 21	8 32.87	+11 4.2	1.669	2.599	9.2	16.3	2 21	8 32.53	+16 9.9	2.091	3.015	8.0	20.2
3 2	8 27.77	+12 5.2	1.739	2.608	12.9	16.5	3 2	8 26.86	+16 25.7	2.165	3.019	11.3	20.4
81776	2000 JL ₇₁		1 30.7 219°72	1°2/31.5	17		359635	2011 QB ₆₁		1 30.7 10°56	0°1/30.6	18	
12 23	9 17.78	+12 42.7	2.497	3.245	12.9	21.0	12 23	9 19.79	+17 51.1	1.372	2.172	19.1	20.7
1 2	9 12.99	+12 48.2	2.387	3.234	10.3	20.8	1 2	9 16.11	+17 41.3	1.294	2.172	15.2	20.5
1 12	9 6.13	+13 3.3	2.301	3.222	7.2	20.6	1 12	9 9.02	+17 41.3	1.236	2.173	10.4	20.2
1 22	8 57.64	+13 26.1	2.242	3.210	3.8	20.3	1 22	8 59.22	+17 47.6	1.200	2.174	5.0	19.9
2 1	8 48.20	+13 54.1	2.213	3.197	1.2	20.1	2 1	8 47.99	+17 55.5	1.191	2.176	0.8	19.6
2 11	8 38.71	+14 23.7	2.216	3.183	4.2	20.3	2 11	8 37.01	+18 0.1	1.209	2.178	6.5	20.0
2 21	8 30.05	+14 52.0	2.248	3.169	7.8	20.5	2 21	8 27.83	+17 58.6	1.252	2.181	11.7	20.3
3 2	8 23.00	+15 16.2	2.308	3.153	11.0	20.7	3 2	8 21.60	+17 49.6	1.317	2.184	16.3	20.6
15193	5148 T- ₂		1 30.7 121°02	0°1/30.7	18		34546	2000 SG ₂₃₄		1 30.7 163°98	2°8/28.7	18	
12 23	9 23.63	+16 27.3	1.800	2.569	16.4	18.8	12 23	9 21.51	+22 50.1	2.149	2.924	13.9	19.1
1 2	9 18.05	+16 33.8	1.726	2.587	12.9	18.6	1 2	9 16.27	+23 44.3	2.065	2.931	10.9	18.9
1 12	9 9.71	+16 49.8	1.675	2.604	8.8	18.4	1 12	9 8.52	+24 44.5	2.006	2.938	7.4	18.7
1 22	8 59.33	+17 11.5	1.649	2.621	4.2	18.2	1 22	8 58.82	+25 44.7	1.973	2.943	4.0	18.5
2 1	8 47.96	+17 34.6	1.652	2.637	0.6	17.9	2 1	8 48.07	+26 38.5	1.972	2.948	3.1	18.4
2 11	8 36.93	+17 54.5	1.686	2.653	5.3	18.3	2 11	8 37.44	+27 20.4	2.000	2.952	6.2	18.6
2 21	8 27.42	+18 8.5	1.747	2.667	9.6	18.6	2 21	8 28.03	+27 47.8	2.057	2.955	9.7	18.9
3 2	8 20.33	+18 15.1	1.834	2.681	13.3	18.8	3 2	8 20.72	+28 0.2	2.139	2.957	12.8	19.1
222800	2002 CY ₂₃₂		1 30.7 101°17	1°3/31.7	18		219398	2000 SD ₁₈₀		1 30.7 129°25	4°6/2.6	18	
12 23	9 13.51	+10 8.4	2.002	2.764	15.2	20.0	12 23	9 16.39	+3 49.7	2.193	2.917	15.1	20.3
1 2	9 10.												

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
242106	2002 <i>VJ</i> ₂₉		1 30.7	64°33	10°8/	9.8 18	31108	1997 <i>PW</i> ₃		1 30.7	354°15	3°8/29.0	18 R
12 23	9 12.63	-16 38.0	2.289	2.893	17.4	19.8	12 23	9 21.16	+24 40.0	1.410	2.216	18.3	18.5
1 2	9 9.05	-17 39.4	2.215	2.909	15.8	19.7	1 2	9 17.32	+25 8.0	1.333	2.215	14.5	18.3
1 12	9 3.45	-18 16.1	2.157	2.926	14.0	19.6	1 12	9 9.94	+25 41.3	1.276	2.214	10.0	18.0
1 22	8 56.35	-18 24.2	2.118	2.943	12.3	19.5	1 22	8 59.72	+26 12.6	1.242	2.214	5.5	17.7
2 1	8 48.47	-18 1.8	2.101	2.959	11.1	19.5	2 1	8 47.98	+26 33.9	1.235	2.213	4.1	17.7
2 11	8 40.71	-17 10.5	2.108	2.976	10.8	19.5	2 11	8 36.50	+26 39.4	1.255	2.213	8.1	17.9
2 21	8 33.91	-15 55.0	2.140	2.993	11.3	19.5	2 21	8 26.92	+26 27.2	1.299	2.213	12.8	18.1
3 2	8 28.78	-14 22.4	2.195	3.010	12.6	19.6	3 2	8 20.43	+25 59.2	1.366	2.214	17.0	18.4
264688	2002 <i>AB</i> ₈		1 30.7	32°34	1°7/31.5	18	93444	2000 <i>SN</i> ₃₃₆		1 30.7	9°20	4°1/28.9	18
12 23	9 15.95	+13 3.9	1.605	2.388	17.5	20.8	12 23	9 17.46	+26 9.5	1.452	2.265	17.6	18.2
1 2	9 12.43	+12 53.6	1.530	2.397	13.9	20.6	1 2	9 14.21	+26 32.2	1.381	2.267	13.9	18.0
1 12	9 6.14	+12 56.2	1.475	2.405	9.7	20.4	1 12	9 7.66	+26 57.7	1.330	2.270	9.6	17.7
1 22	8 57.74	+13 9.8	1.445	2.415	5.1	20.1	1 22	8 58.56	+27 19.2	1.303	2.274	5.5	17.5
2 1	8 48.26	+13 30.8	1.441	2.425	1.7	19.9	2 1	8 48.17	+27 29.7	1.302	2.278	4.4	17.5
2 11	8 39.03	+13 54.7	1.465	2.435	5.5	20.2	2 11	8 38.14	+27 24.5	1.327	2.284	7.9	17.7
2 21	8 31.25	+14 17.3	1.516	2.446	10.0	20.5	2 21	8 29.93	+27 2.7	1.377	2.291	12.2	17.9
3 2	8 25.84	+14 35.3	1.590	2.458	13.9	20.8	3 2	8 24.58	+26 26.2	1.449	2.299	16.1	18.2
445038	2008 <i>RL</i> ₁₀₆		1 30.7	83°99	4°1/28.9	18	26506	2000 <i>CO</i> ₂₅		1 30.7	182°48	2°4/	1.6 18
12 23	9 23.70	+25 12.5	1.435	2.237	18.3	21.2	12 23	9 12.59	+7 16.4	2.289	3.033	14.0	19.2
1 2	9 19.04	+25 49.6	1.370	2.250	14.4	21.0	1 2	9 9.07	+7 39.6	2.193	3.033	11.4	19.0
1 12	9 10.88	+26 31.2	1.325	2.262	9.9	20.7	1 12	9 3.54	+8 18.3	2.119	3.033	8.2	18.8
1 22	9 0.04	+27 9.3	1.305	2.275	5.5	20.5	1 22	8 56.45	+9 10.7	2.072	3.033	4.8	18.6
2 1	8 47.91	+27 35.6	1.311	2.287	4.4	20.5	2 1	8 48.50	+10 13.5	2.053	3.033	2.4	18.4
2 11	8 36.25	+27 44.7	1.345	2.300	8.1	20.7	2 11	8 40.57	+11 21.9	2.065	3.033	4.4	18.6
2 21	8 26.62	+27 35.5	1.404	2.312	12.4	21.0	2 21	8 33.52	+12 30.6	2.106	3.032	7.8	18.8
3 2	8 20.09	+27 10.1	1.485	2.324	16.3	21.3	3 2	8 28.08	+13 35.1	2.173	3.032	11.1	19.0
130523	2000 <i>QX</i> ₁₈₃		1 30.7	185°04	0°1/30.6	18	59484	1999 <i>JJ</i>		1 30.7	246°70	16°0/	4.7 18
12 23	9 19.92	+15 27.9	2.073	2.837	14.7	21.7	12 23	9 21.34	-8 45.5	1.270	1.973	25.1	18.4
1 2	9 15.08	+15 54.0	1.979	2.837	11.6	21.5	1 2	9 17.80	-11 19.3	1.190	1.969	22.6	18.1
1 12	9 7.76	+16 30.9	1.908	2.837	8.0	21.2	1 12	9 10.60	-13 29.4	1.126	1.964	20.0	17.9
1 22	8 58.50	+17 15.0	1.864	2.836	3.8	21.0	1 22	9 0.24	-15 4.3	1.080	1.959	17.5	17.7
2 1	8 48.15	+18 1.5	1.849	2.834	0.6	20.7	2 1	8 47.88	-15 54.0	1.054	1.954	16.1	17.6
2 11	8 37.84	+18 45.3	1.865	2.832	5.0	21.0	2 11	8 35.30	-15 54.9	1.049	1.948	16.3	17.6
2 21	8 28.66	+19 22.4	1.910	2.828	9.1	21.3	2 21	8 24.35	-15 11.4	1.064	1.943	18.1	17.7
3 2	8 21.51	+19 50.4	1.981	2.824	12.6	21.5	3 2	8 16.53	-13 54.4	1.098	1.937	20.8	17.9
283980	2004 <i>RN</i> ₁₇₂		1 30.7	100°15	4°0/	1.8 18	54927	2001 <i>OD</i> ₁₀₀		1 30.7	128°22	0°7/30.2	18
12 23	9 19.16	+7 0.0	1.614	2.370	18.5	20.8	12 23	9 17.27	+19 25.6	2.528	3.295	12.3	19.1
1 2	9 14.87	+6 41.8	1.539	2.384	15.1	20.6	1 2	9 12.43	+19 33.5	2.442	3.303	9.6	19.0
1 12	9 7.77	+6 41.7	1.484	2.397	11.1	20.3	1 12	9 5.63	+19 46.4	2.381	3.312	6.5	18.8
1 22	8 58.51	+6 59.2	1.452	2.411	6.8	20.1	1 22	8 57.37	+20 1.2	2.347	3.320	3.0	18.6
2 1	8 48.16	+7 31.6	1.448	2.424	4.0	20.0	2 1	8 48.40	+20 14.9	2.344	3.328	1.0	18.4
2 11	8 38.05	+8 14.0	1.471	2.437	6.1	20.1	2 11	8 39.58	+20 24.6	2.371	3.335	4.3	18.7
2 21	8 29.42	+9 0.7	1.521	2.449	10.1	20.4	2 21	8 31.75	+20 28.6	2.428	3.343	7.5	18.9
3 2	8 23.22	+9 46.2	1.596	2.462	14.0	20.7	3 2	8 25.57	+20 25.9	2.511	3.350	10.5	19.1
491182	2011 <i>UC</i> ₅₃		1 30.7	131°08	0°4/30.4	18	36074	1999 <i>RF</i> ₅₈		1 30.7	219°59	1°0/31.4	18
12 23	9 19.89	+15 56.8	1.913	2.683	15.5	22.3	12 23	9 15.35	+12 40.0	2.353	3.109	13.3	20.2
1 2	9 15.10	+16 30.4	1.835	2.697	12.2	22.1	1 2	9 11.24	+12 57.0	2.250	3.102	10.7	20.0
1 12	9 7.76	+17 15.2	1.780	2.711	8.3	21.9	1 12	9 5.04	+13 25.1	2.171	3.095	7.4	19.8
1 22	8 58.46	+18 6.6	1.751	2.724	3.9	21.7	1 22	8 57.20	+14 1.9	2.118	3.087	3.8	19.5
2 1	8 48.17	+18 59.2	1.751	2.736	0.8	21.4	2 1	8 48.41	+14 44.3	2.095	3.079	1.0	19.3
2 11	8 38.08	+19 47.3	1.781	2.747	5.2	21.8	2 11	8 39.61	+15 27.8	2.102	3.070	4.3	19.5
2 21	8 29.29	+20 26.6	1.840	2.758	9.3	22.0	2 21	8 31.69	+16 8.8	2.139	3.061	8.0	19.7
3 2	8 22.70	+20 55.1	1.924	2.768	12.9	22.3	3 2	8 25.41	+16 44.2	2.202	3.052	11.3	19.9
373021	2011 <i>DO</i> ₃₇		1 30.7	49°04	0°5/30.9	18	416921	2005 <i>SF</i> ₅₁		1 30.7	96°44	0°6/31.0	18
12 23	9 15.63	+14 58.2	1.951	2.726	15.1	21.8	12 23	9 17.22	+14 29.7	1.933	2.704	15.3	21.8
1 2	9 11.80	+15 8.2	1.865	2.729	11.9	21.6	1 2	9 12.98	+14 41.8	1.854	2.715	12.1	21.6
1 12	9 5.55	+15 28.8	1.800	2.731	8.2	21.3	1 12	9 6.30	+15 4.9	1.797	2.726	8.3	21.4
1 22	8 57.43	+15 57.2	1.762	2.734	4.0	21.1	1 22	8 57.79	+15 36.0	1.765	2.737	4.1	21.2
2 1	8 48.32	+16 29.2	1.752	2.736	0.7	20.8	2 1	8 48.34	+16 10.8	1.763	2.748	0.7	21.0
2 11	8 39.34	+17 0.5	1.771	2.739	4.9	21.1	2 11	8 39.09	+16 44.8	1.790	2.758	4.9	21.3
2 21	8 31.51	+17 27.3	1.817	2.742	9.0	21.4	2 21	8 31.08	+17 14.1	1.845	2.769	8.9	21.5
3 2	8 25.71	+17 47.2	1.889	2.745	12.6	21.6	3 2	8 25.13	+17 36.4	1.925	2.779	12.5	21.8
366445	2001 <i>XO</i> ₂₁₆		1 30.7	80°08	5°0/	2.4 18	488922	2005 <i>UT</i> ₂₂		1 30.7	140°16	2°1/29.6	18
12 23	9 17.20	+4 48.7	1.895	2.633	16.7	20.8	12 23	9 22.22	+20 37.7	1.612	2.400	17.2	22.0
1 2	9 12.94	+4 7.4	1.813	2.642	13.8	20.6	1 2	9 17.56	+21 10.7	1.535	2.408	13.5	21.8
1 12	9 6.26	+3 41.8	1.751	2.652	10.5	20.4	1 12	9 9.79	+21 52.3	1.479	2.415	9.2	21.6
1 22	8 57.75	+3 32.7	1.714	2.662	7.1	20.2	1 22	8 59.57	+22 36.6	1.449	2.422	4.5	21.3
2 1	8 48.28	+3 39.6	1.704	2.672	5.1	20.1	2 1	8 48.07	+23 16.5	1.446	2.428	2.5	21.2
2 11	8 38.98	+3 59.7	1.723	2.681	6.3	20.2	2 11	8 36.82	+23 45.8	1.472	2.434	6.7	21.5
2 21	8 30.88	+4 28.9	1.769	2.691	9.4	20.4	2 21	8 27.21	+24 1.5	1.525	2.439	11.2	21.7
3 2	8 24.82	+5 2.5	1.840	2.700	12.7	20.6	3 2	8 20.30	+24 3.2	1.601	2.444	15.1	22.0
202656	2006 <i>KE</i> ₁₁		1 30.7	104°51	5°2/26.6	18	37088	2000 <i>UE</i> ₇₀		1 30.7	234°41	2°8/	1.1 18
12 23	9 16.82	+30 11.2	2.188	2.979	13.2	20.5	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
421520	2014 <i>OH</i> ₁₀₉		1 30.7 111°05	1°3/29.9	18		296100	2009 <i>BS</i> ₃₉		1 30.7 240°08	1°4/29.9	18	
12 23	9 21.26	+19 21.0	1.875	2.653	15.5	22.2	12 23	9 20.63	+20 3.8	1.779	2.563	16.0	20.9
1 2	9 16.20	+19 48.2	1.803	2.670	12.1	22.0	1 2	9 16.22	+20 18.7	1.684	2.555	12.7	20.6
1 12	9 8.50	+20 23.2	1.754	2.687	8.2	21.8	1 12	9 8.89	+20 41.2	1.611	2.546	8.6	20.4
1 22	8 58.83	+21 1.1	1.730	2.703	3.9	21.6	1 22	8 59.21	+21 6.9	1.564	2.537	4.2	20.1
2 1	8 48.21	+21 36.4	1.736	2.719	1.6	21.5	2 1	8 48.19	+21 30.5	1.545	2.528	1.7	19.9
2 11	8 37.89	+22 4.3	1.772	2.735	5.6	21.8	2 11	8 37.20	+21 46.9	1.554	2.519	6.1	20.1
2 21	8 29.00	+22 22.0	1.835	2.750	9.6	22.0	2 21	8 27.56	+21 53.2	1.591	2.509	10.6	20.4
3 2	8 22.40	+22 28.8	1.923	2.764	13.1	22.3	3 2	8 20.36	+21 48.7	1.652	2.499	14.6	20.6
174361	Rickwhite		1 30.7 339°51	2°8/28.8	18		87538	2000 <i>QA</i> ₂₀₆		1 30.7 47°04	6°7/5.9	18	
12 23	9 8.91	+17 15.2	1.304	2.125	18.7	19.2	12 23	9 10.58	- 6 38.8	2.454	3.126	14.9	19.5
1 2	9 8.02	+18 39.3	1.218	2.110	14.8	18.9	1 2	9 7.36	- 6 49.2	2.360	3.128	13.0	19.3
1 12	9 3.91	+20 24.9	1.152	2.097	10.0	18.6	1 12	9 2.32	- 6 39.0	2.284	3.131	10.7	19.1
1 22	8 57.03	+22 24.5	1.109	2.085	4.9	18.2	1 22	8 55.89	- 6 6.8	2.232	3.135	8.5	19.0
2 1	8 48.44	+24 26.0	1.092	2.073	3.4	18.1	2 1	8 48.71	- 5 12.9	2.206	3.138	6.9	18.9
2 11	8 39.71	+26 16.0	1.101	2.064	8.3	18.4	2 11	8 41.57	- 4 0.4	2.207	3.141	7.0	18.9
2 21	8 32.48	+27 44.6	1.134	2.055	13.6	18.6	2 21	8 35.22	- 2 34.7	2.237	3.144	8.5	19.0
3 2	8 28.11	+28 46.6	1.188	2.048	18.2	18.9	3 2	8 30.32	- 1 2.0	2.294	3.148	10.7	19.2
307626	2003 <i>SS</i> ₇₆		1 30.7 68°08	5°6/2.9	18		415074	2012 <i>BF</i> ₇₀		1 30.7 357°24	1°6/29.8	18	
12 23	9 18.20	+ 2 55.3	1.543	2.288	19.7	20.4	12 23	9 16.56	+19 19.0	1.574	2.373	17.1	21.6
1 2	9 14.08	+ 2 32.3	1.480	2.313	16.2	20.2	1 2	9 13.28	+19 48.2	1.493	2.372	13.5	21.3
1 12	9 7.18	+ 2 31.7	1.436	2.338	12.3	20.1	1 12	9 7.00	+20 27.8	1.432	2.371	9.1	21.1
1 22	8 58.23	+ 2 53.7	1.415	2.363	8.3	19.9	1 22	8 58.32	+21 12.4	1.396	2.370	4.4	20.8
2 1	8 48.31	+ 3 35.7	1.420	2.388	5.7	19.8	2 1	8 48.34	+21 55.5	1.387	2.370	2.0	20.6
2 11	8 38.77	+ 4 32.3	1.452	2.413	6.9	19.9	2 11	8 38.48	+22 30.5	1.405	2.370	6.5	20.9
2 21	8 30.79	+ 5 36.2	1.510	2.437	10.3	20.2	2 21	8 30.13	+22 53.5	1.449	2.371	11.1	21.2
3 2	8 25.23	+ 6 40.4	1.593	2.462	13.8	20.5	3 2	8 24.33	+23 3.0	1.517	2.371	15.2	21.4
125883	2001 <i>XQ</i> ₂₀₅		1 30.7 118°18	3°9/1.9	18		379119	2008 <i>YL</i> ₁₇₁		1 30.7 58°02	0°6/31.1	18	
12 23	9 18.95	+ 6 30.2	1.694	2.445	18.0	19.9	12 23	9 16.30	+15 1.8	2.019	2.791	14.8	20.8
1 2	9 14.63	+ 6 19.1	1.616	2.457	14.7	19.7	1 2	9 12.07	+15 5.2	1.948	2.810	11.6	20.6
1 12	9 7.60	+ 6 26.2	1.557	2.469	10.8	19.5	1 12	9 5.58	+15 18.2	1.898	2.828	7.9	20.4
1 22	8 58.48	+ 6 50.8	1.523	2.480	6.7	19.3	1 22	8 57.43	+15 37.8	1.875	2.847	3.9	20.2
2 1	8 48.28	+ 7 30.3	1.515	2.491	3.9	19.1	2 1	8 48.50	+16 0.7	1.881	2.866	0.7	20.0
2 11	8 38.26	+ 8 19.4	1.537	2.502	5.9	19.3	2 11	8 39.84	+16 23.0	1.916	2.885	4.6	20.3
2 21	8 29.63	+ 9 12.3	1.585	2.512	9.9	19.5	2 21	8 32.39	+16 41.6	1.979	2.904	8.4	20.6
3 2	8 23.32	+10 3.6	1.658	2.522	13.6	19.8	3 2	8 26.89	+16 54.7	2.068	2.923	11.7	20.8
307892	2004 <i>CL</i> ₇		1 30.7 290°30	2°0/29.6	18		233483	2006 <i>SC</i> ₃₅₂		1 30.7 129°13	4°0/2.9	18	
12 23	9 17.74	+20 45.7	1.719	2.512	16.1	20.7	12 23	9 12.35	+ 3 9.9	2.581	3.299	13.2	20.5
1 2	9 14.24	+21 10.6	1.615	2.491	12.8	20.5	1 2	9 8.60	+ 2 57.4	2.486	3.303	11.0	20.4
1 12	9 7.76	+21 44.2	1.532	2.469	8.8	20.2	1 12	9 3.08	+ 2 58.9	2.414	3.306	8.4	20.2
1 22	8 58.76	+22 21.7	1.475	2.448	4.3	19.9	1 22	8 56.24	+ 3 14.4	2.367	3.310	5.7	20.0
2 1	8 48.21	+22 56.8	1.445	2.427	2.3	19.7	2 1	8 48.68	+ 3 42.7	2.348	3.313	4.1	19.9
2 11	8 37.50	+23 23.4	1.443	2.406	6.6	19.9	2 11	8 41.17	+ 4 21.0	2.359	3.317	4.9	20.0
2 21	8 28.05	+23 37.7	1.467	2.384	11.3	20.1	2 21	8 34.45	+ 5 5.6	2.399	3.320	7.3	20.1
3 2	8 21.07	+23 38.3	1.515	2.363	15.6	20.3	3 2	8 29.13	+ 5 52.6	2.466	3.323	10.0	20.3
170863	2004 <i>GD</i> ₁₃		1 30.7 285°91	1°1/31.4	17		322097	2010 <i>VR</i> ₁₃₇		1 30.7 114°11	5°9/4.4	18	
12 23	9 13.51	+13 13.8	2.381	3.142	13.1	20.5	12 23	9 16.19	- 2 17.2	2.180	2.874	16.0	20.8
1 2	9 9.82	+13 17.3	2.273	3.128	10.4	20.3	1 2	9 11.82	- 2 28.9	2.100	2.893	13.5	20.6
1 12	9 4.11	+13 30.3	2.188	3.114	7.3	20.1	1 12	9 5.35	- 2 20.4	2.040	2.911	10.7	20.4
1 22	8 56.78	+13 51.3	2.130	3.100	3.8	19.9	1 22	8 57.33	- 1 51.0	2.004	2.929	7.9	20.3
2 1	8 48.53	+14 17.6	2.101	3.085	1.1	19.6	2 1	8 48.52	- 1 2.0	1.995	2.946	6.1	20.2
2 11	8 40.24	+14 45.7	2.103	3.071	4.2	19.8	2 11	8 39.86	+ 0 2.5	2.016	2.963	6.5	20.3
2 21	8 32.78	+15 12.4	2.132	3.057	7.9	20.0	2 21	8 32.24	+ 1 16.9	2.064	2.979	8.7	20.4
3 2	8 26.92	+15 35.0	2.188	3.043	11.2	20.2	3 2	8 26.37	+ 2 34.9	2.140	2.994	11.4	20.6
191330	2003 <i>OX</i> ₂₈		1 30.7 101°36	0°3/30.5	18		285113	1995 <i>OE</i> ₁₃		1 30.7 9°57	2°5/29.5	18	
12 23	9 15.43	+16 11.4	2.131	2.905	14.0	20.4	12 23	9 21.27	+24 20.5	1.881	2.667	15.2	20.8
1 2	9 11.43	+16 39.5	2.049	2.913	11.0	20.2	1 2	9 16.43	+24 27.7	1.796	2.667	12.0	20.6
1 12	9 5.19	+17 17.2	1.990	2.921	7.5	20.0	1 12	9 8.82	+24 37.6	1.733	2.667	8.2	20.4
1 22	8 57.27	+18 1.0	1.957	2.930	3.5	19.7	1 22	8 59.08	+24 45.2	1.697	2.668	4.3	20.2
2 1	8 48.47	+18 46.3	1.953	2.938	0.7	19.5	2 1	8 48.25	+24 45.9	1.688	2.668	2.8	20.1
2 11	8 39.81	+19 28.3	1.980	2.946	4.7	19.8	2 11	8 37.65	+24 36.2	1.709	2.669	6.2	20.3
2 21	8 32.24	+20 3.4	2.034	2.954	8.5	20.1	2 21	8 28.50	+24 15.3	1.758	2.669	10.2	20.5
3 2	8 26.51	+20 29.4	2.115	2.962	11.8	20.3	3 2	8 21.72	+23 44.1	1.831	2.670	13.7	20.7
464018	2014 <i>WB</i> ₁₂₃		1 30.7 148°46	3°0/28.9	18		52059	2002 <i>PH</i> ₁₃₃		1 30.7 194°44	0°4/30.5	18	
12 23	9 19.04	+24 0.5	1.965	2.752	14.6	22.0	12 23	9 19.14	+16 54.3	2.115	2.883	14.3	20.3
1 2	9 14.61	+24 35.2	1.882	2.754	11.4	21.8	1 2	9 14.47	+17 15.1	2.020	2.881	11.3	20.1
1 12	9 7.55	+25 14.4	1.822	2.756	7.8	21.6	1 12	9 7.38	+17 45.0	1.948	2.878	7.7	19.9
1 22	8 58.46	+25 52.5	1.788	2.759	4.2	21.3	1 22	8 58.39	+18 20.5	1.903	2.875	3.7	19.6
2 1	8 48.30	+26 23.7	1.783	2.760	3.3	21.3	2 1	8 48.35	+18 57.2	1.887	2.872	0.8	19.4
2 11	8 38.31	+26 43.3	1.807	2.762	6.4	21.5	2 11	8 38.35	+19 30.4	1.902	2.867	5.0	19.7
2 21	8 29.63	+26 49.1	1.859	2.764	10.1	21.7	2 21	8 29.45	+19 56.7	1.945	2.863	8.9	19.9
3 2	8 23.18	+26 41.3	1.935	2.765	13.4	21.9	3 2	8 22.52	+20 14.2	2.014	2.857	12.5	20.1
179275	2001 <i>UH</i> ₂₁₄		1 30.7 285°01	3°5/28.5	18		245939	2006 <i>RR</i> ₇₈		1 30.7 103°54	3°2/2.6	18	
12 23	9 17.07	+23 23.8	1.847	2.641	15.1	19.8							

EPHEMERIDES

1 30.7

1 30.7

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
289956	2005 <i>NU</i> ₆₇		1 30.7 38°47'	1.4°/31.4	18		309221	2007 <i>PO</i> ₂₀		1 30.7 157°95'	0.6°/31.1	18	
12 23	9 17.07	+13 51.9	1.490	2.279	18.4	20.0	12 23	9 19.66	+13 26.0	2.101	2.858	14.7	22.1
1 2	9 13.52	+13 43.5	1.420	2.291	14.6	19.8	1 2	9 14.77	+13 49.8	2.013	2.866	11.7	21.9
1 12	9 7.02	+13 48.3	1.371	2.303	10.1	19.5	1 12	9 7.52	+14 25.5	1.948	2.874	8.0	21.7
1 22	8 58.26	+14 3.8	1.345	2.316	5.2	19.3	1 22	8 58.44	+15 9.7	1.910	2.881	4.0	21.5
2 1	8 48.39	+14 25.9	1.345	2.329	1.4	19.1	2 1	8 48.39	+15 58.2	1.902	2.887	0.7	21.2
2 11	8 38.84	+14 49.8	1.373	2.343	5.7	19.4	2 11	8 38.44	+16 45.9	1.925	2.892	4.7	21.5
2 21	8 30.89	+15 11.0	1.426	2.358	10.4	19.7	2 21	8 29.63	+17 28.5	1.976	2.897	8.7	21.8
3 2	8 25.50	+15 26.5	1.503	2.372	14.5	20.0	3 2	8 22.78	+18 3.3	2.054	2.901	12.1	22.0
55071	2001 <i>QE</i> ₈₆		1 30.7 129°89'	4.4°/26.4	18		205326	2000 <i>UG</i> ₄₁		1 30.7 78°13'	4.0°/1.8	18	
12 23	9 16.33	+29 54.1	2.743	3.523	11.1	18.9	12 23	9 18.88	+ 7 17.4	1.561	2.321	18.9	19.9
1 2	9 11.86	+31 11.7	2.670	3.534	8.8	18.8	1 2	9 14.72	+ 6 59.1	1.491	2.339	15.3	19.7
1 12	9 5.38	+32 30.0	2.622	3.545	6.4	18.6	1 12	9 7.73	+ 6 59.2	1.441	2.356	11.2	19.4
1 22	8 57.36	+33 43.1	2.602	3.555	4.6	18.5	1 22	8 58.58	+ 7 17.0	1.414	2.373	6.8	19.2
2 1	8 48.52	+34 45.3	2.613	3.566	4.7	18.6	2 1	8 48.38	+ 7 49.6	1.414	2.391	4.0	19.1
2 11	8 39.76	+35 32.4	2.654	3.575	6.6	18.7	2 11	8 38.48	+ 8 31.8	1.442	2.408	6.1	19.3
2 21	8 31.93	+36 2.6	2.723	3.585	8.9	18.8	2 21	8 30.12	+ 9 17.8	1.496	2.425	10.2	19.6
3 2	8 25.75	+36 16.3	2.817	3.594	11.1	19.0	3 2	8 24.22	+10 2.2	1.574	2.442	14.0	19.8
8764	Gallinago		1 30.7 235°21'	0.5°/30.4	18		110865	2001 <i>UL</i> ₈₉		1 30.7 112°99'	2.5°/1.6	18	
12 23	9 19.38	+17 20.8	1.916	2.691	15.3	19.8	12 23	9 14.97	+ 6 58.7	2.003	2.750	15.7	19.9
1 2	9 15.04	+17 39.2	1.816	2.680	12.2	19.6	1 2	9 11.18	+ 7 26.0	1.918	2.761	12.7	19.7
1 12	9 8.01	+18 7.4	1.737	2.669	8.3	19.3	1 12	9 5.11	+ 8 10.9	1.856	2.771	9.1	19.5
1 22	8 58.80	+18 41.8	1.684	2.658	4.0	19.0	1 22	8 57.30	+ 9 11.3	1.819	2.781	5.3	19.3
2 1	8 48.29	+19 17.5	1.661	2.645	0.9	18.8	2 1	8 48.56	+10 23.0	1.810	2.790	2.5	19.1
2 11	8 37.74	+19 49.2	1.666	2.633	5.5	19.1	2 11	8 39.93	+11 40.0	1.831	2.800	4.8	19.3
2 21	8 28.35	+20 13.3	1.700	2.619	9.9	19.3	2 21	8 32.37	+12 56.1	1.881	2.809	8.5	19.5
3 2	8 21.15	+20 27.6	1.759	2.606	13.8	19.5	3 2	8 26.70	+14 5.9	1.958	2.818	12.0	19.7
56979	2000 <i>SB</i> ₁₇₅		1 30.7 243°92'	3.2°/28.6	18		295433	2008 <i>KW</i> ₃₈		1 30.7 195°41'	1.2°/29.8	16	
12 23	9 18.19	+27 36.0	2.533	3.311	11.9	19.3	12 23	9 17.11	+18 54.0	2.412	3.181	12.7	22.4
1 2	9 13.36	+27 57.0	2.442	3.308	9.4	19.2	1 2	9 12.62	+19 30.3	2.316	3.179	10.0	22.2
1 12	9 6.41	+28 18.3	2.376	3.306	6.6	19.0	1 12	9 6.00	+20 14.0	2.244	3.176	6.7	22.0
1 22	8 57.84	+28 35.6	2.338	3.303	3.9	18.8	1 22	8 57.71	+21 1.3	2.199	3.172	3.2	21.7
2 1	8 48.46	+28 44.8	2.329	3.301	3.4	18.8	2 1	8 48.51	+21 47.7	2.185	3.168	1.5	21.6
2 11	8 39.21	+28 43.1	2.351	3.298	5.7	18.9	2 11	8 39.32	+22 28.5	2.202	3.164	4.8	21.8
2 21	8 31.01	+28 29.4	2.401	3.295	8.6	19.1	2 21	8 31.06	+23 0.6	2.248	3.159	8.3	22.0
3 2	8 24.59	+28 4.6	2.476	3.293	11.3	19.3	3 2	8 24.51	+23 22.4	2.320	3.153	11.4	22.2
399565	2003 <i>SZ</i> ₁₂₈		1 30.7 135°35'	0.5°/30.4	18		116512	2004 <i>BN</i> ₃₈		1 30.7 337°98'	1.1°/29.8	18	
12 23	9 21.83	+18 3.8	1.876	2.649	15.7	21.6	12 23	9 10.99	+19 55.3	2.640	3.419	11.5	20.0
1 2	9 16.72	+18 13.2	1.795	2.659	12.3	21.4	1 2	9 7.67	+20 19.4	2.543	3.411	9.0	19.8
1 12	9 8.93	+18 30.6	1.737	2.669	8.4	21.2	1 12	9 2.54	+20 49.2	2.470	3.404	6.1	19.6
1 22	8 59.11	+18 52.2	1.705	2.678	4.0	21.0	1 22	8 56.03	+21 21.5	2.424	3.397	2.9	19.4
2 1	8 48.27	+19 13.6	1.702	2.687	0.9	20.7	2 1	8 48.76	+21 52.8	2.407	3.390	1.4	19.2
2 11	8 37.66	+19 30.5	1.729	2.695	5.3	21.1	2 11	8 41.52	+22 19.6	2.421	3.384	4.3	19.5
2 21	8 28.45	+19 40.3	1.784	2.703	9.5	21.3	2 21	8 35.07	+22 39.4	2.463	3.378	7.5	19.6
3 2	8 21.53	+19 41.8	1.864	2.710	13.2	21.6	3 2	8 30.07	+22 50.9	2.532	3.372	10.3	19.8
417845	2007 <i>HT</i> ₃₂		1 30.7 351°04'	6.3°/27.3	18		55050	2001 <i>QU</i> ₆₇		1 30.7 257°05'	0.8°/31.1	18	
12 23	9 18.78	+31 12.5	1.658	2.463	16.1	20.6	12 23	9 19.89	+15 1.0	1.544	2.328	18.0	19.8
1 2	9 15.17	+32 6.1	1.582	2.460	12.9	20.4	1 2	9 16.04	+14 57.3	1.451	2.319	14.5	19.5
1 12	9 8.35	+32 59.6	1.527	2.456	9.5	20.2	1 12	9 9.02	+15 5.8	1.378	2.310	10.1	19.3
1 22	8 58.99	+33 44.4	1.496	2.454	6.8	20.0	1 22	8 59.39	+15 24.1	1.329	2.301	5.0	18.9
2 1	8 48.28	+34 12.1	1.492	2.452	6.7	20.0	2 1	8 48.24	+15 47.7	1.307	2.292	1.0	18.6
2 11	8 37.79	+34 17.4	1.515	2.450	9.3	20.2	2 11	8 37.06	+16 11.4	1.313	2.282	6.1	19.0
2 21	8 28.99	+33 59.5	1.562	2.450	12.8	20.4	2 21	8 27.35	+16 30.9	1.345	2.273	11.2	19.2
3 2	8 22.97	+33 21.3	1.631	2.449	16.1	20.6	3 2	8 20.31	+16 43.4	1.400	2.263	15.7	19.5
164503	2006 <i>GY</i> ₃₈		1 30.7 291°00'	4.2°/2.0	18		163382	2002 <i>PZ</i> ₁₁₆		1 30.7 109°96'	1.5°/29.8	18	
12 23	9 15.46	+ 6 22.3	1.572	2.335	18.6	20.6	12 23	9 19.09	+21 53.8	2.376	3.148	12.8	20.4
1 2	9 12.35	+ 6 10.8	1.482	2.331	15.3	20.3	1 2	9 14.00	+22 3.9	2.296	3.160	10.0	20.2
1 12	9 6.37	+ 6 19.0	1.411	2.326	11.4	20.1	1 12	9 6.78	+22 17.5	2.239	3.171	6.7	20.1
1 22	8 58.07	+ 6 47.1	1.363	2.322	7.1	19.8	1 22	8 58.01	+22 31.2	2.210	3.182	3.3	19.9
2 1	8 48.41	+ 7 32.7	1.341	2.317	4.2	19.6	2 1	8 48.48	+22 41.4	2.211	3.193	1.7	19.8
2 11	8 38.73	+ 8 30.3	1.346	2.313	6.4	19.8	2 11	8 39.18	+22 45.1	2.243	3.204	4.8	20.0
2 21	8 30.37	+ 9 33.0	1.377	2.308	10.7	20.0	2 21	8 30.99	+22 41.1	2.304	3.215	8.1	20.2
3 2	8 24.40	+10 34.1	1.432	2.304	14.9	20.2	3 2	8 24.62	+22 29.1	2.391	3.225	11.1	20.4
113288	2002 <i>RP</i> ₁₇₁		1 30.7 53°76'	2.9°/29.0	18		104714	2000 <i>GT</i> ₁₇₁		1 30.7 219°58'	3.2°/27.9	18	
12 23	9 17.40	+21 21.8	1.563	2.364	17.1	19.6	12 23	9 15.33	+24 41.4	2.470	3.252	12.1	19.4
1 2	9 13.89	+22 14.4	1.493	2.373	13.3	19.4	1 2	9 11.33	+25 45.4	2.378	3.247	9.5	19.2
1 12	9 7.36	+23 16.2	1.444	2.383	9.0	19.2	1 12	9 5.19	+26 54.4	2.310	3.242	6.6	19.0
1 22	8 58.47	+24 20.3	1.420	2.392	4.6	19.0	1 22	8 57.36	+28 2.9	2.270	3.236	3.9	18.8
2 1	8 48.37	+25 18.2	1.423	2.402	3.3	18.9	2 1	8 48.56	+29 5.0	2.260	3.230	3.6	18.8
2 11	8 38.52	+26 3.1	1.454	2.413	7.1	19.1	2 11	8 39.75	+29 55.7	2.280	3.224	6.1	18.9
2 21	8 30.26	+26 31.2	1.510	2.423	11.4	19.4	2 21	8 31.85	+30 31.9	2.328	3.218	9.0	19.1
3 2	8 24.62	+26 41.9	1.590	2.434	15.2	19.7	3 2	8 25.65	+30 52.8	2.402	3.211	11.8	19.3
287792	2003 <i>SO</i> ₁₄₃		1 30.7 151°78'	1.3°/29.9	18		196905	2003 <i>TH</i> ₁₇		1 30.7 147°62'	0.8°/31.3	18	R
12 23	9 21.41	+19 45.1	1.948	2.723</									

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
458866	2011 <i>UZ</i> ₁₂₂		1 30.7 153°97	0°4/30.9	18		284193	2006 <i>BK</i> ₁₃		1 30.7 27°22	2°2/ 1.3	18	
12 23	9 20.39	+14 20.0	1.978	2.741	15.3	23.1	12 23	9 12.31	+ 8 29.8	1.693	2.464	17.2	20.2
1 2	9 15.50	+14 42.8	1.893	2.750	12.1	22.9	1 2	9 9.56	+ 8 55.3	1.613	2.470	13.8	20.0
1 12	9 8.09	+15 17.2	1.831	2.758	8.3	22.7	1 12	9 4.27	+ 9 40.1	1.553	2.477	9.9	19.8
1 22	8 58.75	+15 59.9	1.794	2.766	4.1	22.4	1 22	8 57.00	+10 41.6	1.518	2.484	5.5	19.5
2 1	8 48.38	+16 46.0	1.788	2.773	0.6	22.2	2 1	8 48.66	+11 54.8	1.509	2.492	2.2	19.3
2 11	8 38.14	+17 30.4	1.811	2.779	5.0	22.5	2 11	8 40.44	+13 12.7	1.529	2.500	5.2	19.5
2 21	8 29.13	+18 8.8	1.863	2.784	9.1	22.8	2 21	8 33.46	+14 28.0	1.576	2.508	9.5	19.8
3 2	8 22.23	+18 38.7	1.941	2.788	12.7	23.0	3 2	8 28.61	+15 35.2	1.648	2.517	13.4	20.1
243092	2007 <i>QY</i> ₁₂		1 30.7 111°34	4°2/ 2.3	18		41565	2000 <i>RJ</i> ₇₂		1 30.7 125°37	1°5/29.9	18	
12 23	9 15.22	+ 5 1.2	1.620	2.376	18.5	20.7	12 23	9 23.90	+18 44.6	1.510	2.297	18.3	19.5
1 2	9 12.02	+ 5 3.7	1.534	2.377	15.2	20.4	1 2	9 19.01	+19 17.7	1.439	2.310	14.3	19.3
1 12	9 6.06	+ 5 27.8	1.466	2.378	11.3	20.2	1 12	9 10.86	+20 1.8	1.388	2.324	9.7	19.1
1 22	8 57.90	+ 6 13.3	1.422	2.380	7.1	20.0	1 22	9 0.17	+20 50.7	1.363	2.336	4.6	18.8
2 1	8 48.49	+ 7 16.8	1.405	2.381	4.2	19.8	2 1	8 48.20	+21 37.0	1.365	2.348	1.9	18.7
2 11	8 39.13	+ 8 32.0	1.415	2.382	6.1	19.9	2 11	8 36.56	+22 14.0	1.395	2.360	6.6	19.0
2 21	8 31.05	+ 9 51.0	1.452	2.383	10.2	20.2	2 21	8 26.70	+22 37.9	1.453	2.370	11.4	19.3
3 2	8 25.29	+11 6.7	1.513	2.384	14.3	20.4	3 2	8 19.71	+22 47.9	1.533	2.381	15.5	19.6
197777	2004 <i>PW</i> ₄₅		1 30.7 93°77	2°6/29.6	18		317969	2003 <i>YG</i> ₆₇		1 30.7 109°46	0°7/30.3	18	
12 23	9 23.75	+22 35.3	1.514	2.307	17.9	20.5	12 23	9 20.03	+17 4.9	1.864	2.639	15.7	21.4
1 2	9 18.89	+22 55.7	1.444	2.319	14.0	20.3	1 2	9 15.29	+17 37.8	1.791	2.656	12.3	21.2
1 12	9 10.75	+23 22.0	1.395	2.331	9.5	20.1	1 12	9 7.96	+18 20.8	1.741	2.674	8.3	21.0
1 22	9 0.08	+23 48.1	1.371	2.343	4.8	19.8	1 22	8 58.68	+19 9.3	1.717	2.691	3.9	20.8
2 1	8 48.19	+24 7.3	1.374	2.355	2.9	19.7	2 1	8 48.43	+19 57.5	1.723	2.707	1.1	20.6
2 11	8 36.72	+24 14.6	1.405	2.366	7.0	20.0	2 11	8 38.45	+20 39.9	1.758	2.723	5.4	20.9
2 21	8 27.11	+24 8.4	1.462	2.378	11.5	20.3	2 21	8 29.85	+21 12.9	1.821	2.738	9.4	21.2
3 2	8 20.39	+23 49.6	1.543	2.389	15.4	20.6	3 2	8 23.47	+21 34.6	1.909	2.753	13.0	21.5
402640	2006 <i>TF</i> ₁₁₈		1 30.7 119°65	2°7/28.7	18		468892	2013 <i>XN</i> ₁₄		1 30.7 103°82	3°8/27.6	18	
12 23	9 18.44	+21 4.6	1.978	2.761	14.6	21.4	12 23	9 16.24	+26 48.2	2.390	3.174	12.4	21.4
1 2	9 14.08	+22 13.4	1.904	2.775	11.4	21.2	1 2	9 12.00	+27 51.2	2.315	3.185	9.7	21.3
1 12	9 7.18	+23 30.6	1.853	2.788	7.7	21.0	1 12	9 5.59	+28 56.7	2.266	3.196	6.8	21.1
1 22	8 58.33	+24 49.5	1.829	2.800	4.0	20.8	1 22	8 57.52	+29 59.0	2.244	3.207	4.3	21.0
2 1	8 48.45	+26 2.8	1.835	2.813	3.1	20.8	2 1	8 48.61	+30 52.1	2.251	3.218	4.1	21.0
2 11	8 38.72	+27 3.9	1.871	2.824	6.3	21.0	2 11	8 39.83	+31 31.5	2.289	3.228	6.4	21.1
2 21	8 30.26	+27 49.2	1.934	2.836	9.9	21.2	2 21	8 32.12	+31 55.3	2.354	3.238	9.2	21.3
3 2	8 23.95	+28 17.5	2.022	2.847	13.2	21.5	3 2	8 26.22	+32 3.5	2.444	3.248	11.8	21.5
341503	2007 <i>TO</i> ₄₀₅		1 30.7 125°64	4°7/27.1	18		371968	2008 <i>FM</i> ₁₂₆		1 30.7 191°93	1°0/31.5	16	
12 23	9 17.69	+30 57.5	2.476	3.258	12.0	21.3	12 23	9 16.23	+12 4.1	2.606	3.352	12.5	22.7
1 2	9 13.13	+31 51.2	2.399	3.264	9.6	21.1	1 2	9 11.71	+12 24.4	2.505	3.350	9.9	22.6
1 12	9 6.33	+32 44.4	2.346	3.270	7.0	20.9	1 12	9 5.28	+12 55.2	2.427	3.348	6.9	22.4
1 22	8 57.86	+33 31.1	2.321	3.276	5.0	20.8	1 22	8 57.37	+13 34.2	2.376	3.345	3.6	22.1
2 1	8 48.52	+34 5.9	2.326	3.281	5.0	20.8	2 1	8 48.63	+14 18.3	2.357	3.341	1.0	21.9
2 11	8 39.34	+34 25.2	2.359	3.287	6.9	21.0	2 11	8 39.89	+15 3.7	2.368	3.336	3.9	22.2
2 21	8 31.27	+34 27.8	2.420	3.292	9.5	21.1	2 21	8 31.96	+15 46.7	2.410	3.331	7.3	22.4
3 2	8 25.06	+34 14.9	2.505	3.297	11.9	21.3	3 2	8 25.53	+16 24.6	2.479	3.325	10.3	22.5
81192	2000 <i>EX</i> ₁₉₅		1 30.7 232°62	0°3/30.9	18		282997	2007 <i>TR</i> ₃₁₆		1 30.7 112°88	1°5/29.5	18	
12 23	9 17.48	+15 17.6	1.994	2.765	15.0	20.6	12 23	9 15.49	+20 35.3	2.551	3.324	12.0	21.3
1 2	9 13.38	+15 31.5	1.896	2.758	11.9	20.4	1 2	9 11.13	+21 11.4	2.472	3.337	9.3	21.1
1 12	9 6.78	+15 56.1	1.820	2.750	8.2	20.2	1 12	9 4.83	+21 52.8	2.417	3.350	6.3	20.9
1 22	8 58.19	+16 28.5	1.770	2.742	4.0	19.9	1 22	8 57.11	+22 35.6	2.390	3.362	3.1	20.7
2 1	8 48.46	+17 4.3	1.749	2.734	0.6	19.6	2 1	8 48.68	+23 15.6	2.393	3.374	1.8	20.7
2 11	8 38.72	+17 39.0	1.757	2.725	5.0	19.9	2 11	8 40.38	+23 49.1	2.427	3.386	4.6	20.9
2 21	8 30.08	+18 8.6	1.794	2.716	9.2	20.2	2 21	8 33.03	+24 13.6	2.490	3.398	7.7	21.1
3 2	8 23.46	+18 30.4	1.855	2.707	13.0	20.4	3 2	8 27.28	+24 28.1	2.579	3.409	10.5	21.3
287616	2003 <i>HG</i> ₄		1 30.7 276°15	4°4/ 1.9	18		330402	2007 <i>BT</i> ₁₃		1 30.7 274°91	1°4/30.0	18	
12 23	9 16.51	+ 6 43.1	1.563	2.326	18.7	20.7	12 23	9 20.31	+21 15.9	1.927	2.708	15.0	20.6
1 2	9 13.26	+ 6 20.4	1.469	2.317	15.5	20.4	1 2	9 15.77	+21 17.9	1.827	2.696	11.9	20.4
1 12	9 7.08	+ 6 16.2	1.394	2.308	11.5	20.1	1 12	9 8.51	+21 24.8	1.750	2.684	8.1	20.1
1 22	8 58.47	+ 6 31.0	1.341	2.300	7.3	19.9	1 22	8 59.06	+21 32.8	1.699	2.672	4.0	19.8
2 1	8 48.41	+ 7 3.2	1.315	2.291	4.5	19.7	2 1	8 48.37	+21 37.6	1.676	2.660	1.7	19.7
2 11	8 38.28	+ 7 48.4	1.315	2.282	6.6	19.8	2 11	8 37.72	+21 35.4	1.683	2.647	5.7	19.9
2 21	8 29.44	+ 8 40.3	1.342	2.273	11.0	20.0	2 21	8 28.31	+21 24.6	1.718	2.635	10.0	20.1
3 2	8 23.06	+ 9 32.5	1.392	2.264	15.2	20.2	3 2	8 21.17	+21 4.8	1.777	2.623	13.8	20.3
334234	2001 <i>TT</i> ₈₃		1 30.7 66°85	1°3/31.6	18		128805	2004 <i>RK</i> ₂₅₀		1 30.7 148°19	1°2/30.0	18	
12 23	9 15.40	+12 34.6	2.216	2.976	14.0	21.0	12 23	9 22.09	+19 2.5	1.916	2.690	15.4	21.5
1 2	9 11.17	+12 35.7	2.141	2.995	11.1	20.8	1 2	9 16.95	+19 30.2	1.835	2.700	12.1	21.3
1 12	9 4.90	+12 47.1	2.089	3.013	7.7	20.6	1 12	9 9.14	+20 6.2	1.777	2.709	8.2	21.1
1 22	8 57.13	+13 6.8	2.064	3.032	4.0	20.4	1 22	8 59.28	+20 45.7	1.745	2.718	3.9	20.8
2 1	8 48.65	+13 31.7	2.068	3.051	1.3	20.3	2 1	8 48.35	+21 23.1	1.742	2.726	1.6	20.7
2 11	8 40.39	+13 58.3	2.102	3.070	4.2	20.5	2 11	8 37.63	+21 53.5	1.770	2.733	5.6	21.0
2 21	8 33.20	+14 23.5	2.164	3.089	7.7	20.8	2 21	8 28.27	+22 13.8	1.825	2.739	9.7	21.2
3 2	8 27.75	+14 44.8	2.252	3.108	10.8	21.0	3 2	8 21.18	+22 23.0	1.906	2.745	13.2	21.5
142535	2002 <i>TD</i> ₄₉		1 30.7 153°73	7°4/25.6	18		109892	2001 <i>SZ</i> ₁₀		1 30.7 198°53	5°6/ 4.3	18	
12 23	9 25.37	+37 14.1	2.136	2.913	1								

EPHEMERIDES

1 30.7

1 30.7

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
23795	1998 <i>QW</i> ₃₂		1 30.7 118°15	2°8/	1.9 18	R	488827	2005 <i>NY</i> ₇₉		1 30.7 195°89	4°0/27.4	18	
12 23	9 13.55	+ 6 7.9	2.245	2.984	14.4	19.0	12 23	9 19.67	+26 52.1	2.413	3.190	12.5	22.2
1 2	9 9.84	+ 6 25.4	2.156	2.991	11.7	18.9	1 2	9 14.86	+28 2.4	2.322	3.187	9.8	22.0
1 12	9 4.11	+ 6 58.9	2.089	2.999	8.6	18.7	1 12	9 7.69	+29 16.5	2.256	3.184	7.0	21.8
1 22	8 56.83	+ 7 46.9	2.048	3.006	5.2	18.5	1 22	8 58.65	+30 28.1	2.218	3.179	4.5	21.6
2 1	8 48.72	+ 8 46.2	2.035	3.013	2.9	18.3	2 1	8 48.54	+31 30.5	2.210	3.174	4.4	21.6
2 11	8 40.68	+ 9 52.0	2.053	3.020	4.6	18.5	2 11	8 38.40	+32 18.4	2.233	3.169	6.7	21.8
2 21	8 33.57	+10 59.2	2.100	3.026	7.8	18.7	2 21	8 29.28	+32 49.2	2.284	3.162	9.7	21.9
3 2	8 28.12	+12 3.0	2.173	3.033	11.0	18.9	3 2	8 22.04	+33 2.8	2.359	3.155	12.4	22.1
243226	2007 <i>VH</i> ₇₂		1 30.7 139°12	7°8/22.2	18		109140	2001 <i>QK</i> ₅₅		1 30.7 64°70	6°1/28.1	18	
12 23	9 22.81	+45 30.3	2.941	3.694	11.0	21.2	12 23	9 26.78	+32 44.9	1.678	2.469	16.5	19.4
1 2	9 17.33	+47 3.5	2.885	3.706	9.5	21.1	1 2	9 21.12	+33 16.1	1.615	2.483	13.2	19.2
1 12	9 9.32	+48 28.3	2.854	3.717	8.3	21.0	1 12	9 12.14	+33 43.3	1.573	2.498	9.7	19.0
1 22	8 59.35	+49 37.7	2.850	3.727	7.8	21.0	1 22	9 0.73	+33 58.4	1.557	2.513	6.8	18.9
2 1	8 48.34	+50 25.8	2.873	3.737	8.3	21.0	2 1	8 48.27	+33 54.7	1.568	2.528	6.4	18.9
2 11	8 37.44	+50 49.7	2.922	3.747	9.4	21.1	2 11	8 36.41	+33 29.2	1.606	2.543	8.8	19.1
2 21	8 27.76	+50 49.8	2.996	3.756	10.8	21.2	2 21	8 26.57	+32 43.7	1.671	2.558	12.1	19.3
3 2	8 20.19	+50 29.1	3.091	3.765	12.2	21.4	3 2	8 19.69	+31 42.6	1.758	2.573	15.3	19.5
187306	2005 <i>UG</i> ₄		1 30.7 143°99	2°7/	1.6 18		955	Alstede		1 30.7 233°31	3°4/28.5	18	A
12 23	9 16.09	+ 8 0.9	2.168	2.912	14.7	20.6	12 23	9 21.89	+26 45.4	2.425	3.197	12.6	16.0
1 2	9 11.89	+ 8 2.4	2.079	2.919	11.9	20.4	1 2	9 16.60	+27 20.4	2.319	3.182	10.0	15.8
1 12	9 5.53	+ 8 18.0	2.012	2.925	8.6	20.2	1 12	9 8.88	+27 57.6	2.238	3.166	7.0	15.6
1 22	8 57.51	+ 8 46.4	1.971	2.931	5.1	20.0	1 22	8 59.23	+28 31.8	2.184	3.149	4.2	15.4
2 1	8 48.62	+ 9 25.0	1.959	2.937	2.7	19.9	2 1	8 48.46	+28 57.7	2.161	3.132	3.6	15.3
2 11	8 39.82	+10 9.7	1.976	2.943	4.7	20.0	2 11	8 37.65	+29 11.2	2.168	3.114	6.2	15.4
2 21	8 32.02	+10 56.1	2.022	2.948	8.2	20.2	2 21	8 27.87	+29 10.5	2.204	3.095	9.4	15.6
3 2	8 26.01	+11 40.2	2.095	2.953	11.5	20.5	3 2	8 20.01	+28 56.0	2.265	3.075	12.4	15.8
30232	2000 <i>GV</i> ₁₅₃		1 30.7 132°57	3°6/	1.6 18		380688	2005 <i>JA</i> ₁₃		1 30.7 298°08	5°3/26.9	18	
12 23	9 20.47	+ 8 1.8	1.705	2.458	17.8	19.3	12 23	9 17.65	+31 18.1	2.229	3.018	13.0	21.2
1 2	9 15.87	+ 7 43.3	1.624	2.468	14.5	19.1	1 2	9 13.49	+32 16.3	2.147	3.015	10.4	21.0
1 12	9 8.52	+ 7 40.9	1.563	2.477	10.6	18.9	1 12	9 6.84	+33 14.2	2.088	3.013	7.7	20.8
1 22	8 59.02	+ 7 54.1	1.527	2.487	6.4	18.7	1 22	8 58.25	+34 5.4	2.056	3.010	5.6	20.7
2 1	8 48.40	+ 8 20.5	1.518	2.495	3.6	18.5	2 1	8 48.62	+34 43.4	2.053	3.008	5.6	20.7
2 11	8 37.95	+ 8 55.7	1.537	2.503	5.9	18.7	2 11	8 39.09	+35 3.6	2.078	3.005	7.8	20.8
2 21	8 28.91	+ 9 34.5	1.584	2.511	9.9	18.9	2 21	8 30.76	+35 4.9	2.130	3.003	10.5	21.0
3 2	8 22.21	+10 12.4	1.656	2.518	13.7	19.2	3 2	8 24.51	+34 48.4	2.205	3.000	13.2	21.2
130450	2000 <i>QP</i> ₅₀		1 30.7 94°65	0°4/30.9	18		39341	2002 <i>AM</i> ₅₀		1 30.7 338°49	0°7/31.1	18	
12 23	9 19.36	+13 37.7	1.625	2.402	17.6	20.2	12 23	9 13.96	+14 48.5	1.589	2.382	17.2	19.5
1 2	9 15.11	+14 7.2	1.555	2.420	13.9	20.0	1 2	9 11.26	+14 50.7	1.499	2.372	13.8	19.2
1 12	9 8.02	+14 51.4	1.506	2.437	9.5	19.8	1 12	9 5.70	+15 5.5	1.429	2.364	9.5	19.0
1 22	8 58.77	+15 46.0	1.482	2.454	4.6	19.5	1 22	8 57.85	+15 30.4	1.383	2.356	4.8	18.7
2 1	8 48.44	+16 44.9	1.486	2.471	0.7	19.2	2 1	8 48.67	+16 1.2	1.364	2.349	0.9	18.4
2 11	8 38.40	+17 41.1	1.519	2.488	5.5	19.6	2 11	8 39.51	+16 32.3	1.372	2.342	5.7	18.7
2 21	8 29.89	+18 29.5	1.579	2.504	10.1	19.9	2 21	8 31.68	+16 59.2	1.405	2.337	10.5	18.9
3 2	8 23.82	+19 6.8	1.663	2.520	14.0	20.2	3 2	8 26.24	+17 18.7	1.462	2.332	14.8	19.2
337367	2001 <i>PD</i> ₄₃		1 30.7 167°06	1°0/29.7	17		429015	2009 <i>BQ</i> ₁₀₉		1 30.7 293°08	0°3/30.9	18	
12 23	9 14.36	+18 50.3	3.169	3.929	10.2	22.2	12 23	9 12.21	+13 22.1	2.372	3.137	13.0	21.0
1 2	9 9.92	+19 33.9	3.076	3.934	7.9	22.1	1 2	9 8.85	+14 0.5	2.275	3.134	10.3	20.8
1 12	9 3.88	+20 23.3	3.009	3.939	5.3	21.9	1 12	9 3.50	+14 50.6	2.202	3.130	7.1	20.6
1 22	8 56.65	+21 15.3	2.971	3.943	2.5	21.7	1 22	8 56.61	+15 49.5	2.156	3.127	3.5	20.4
2 1	8 48.77	+22 6.1	2.964	3.947	1.2	21.6	2 1	8 48.86	+16 52.9	2.139	3.124	0.5	20.1
2 11	8 40.93	+22 52.4	2.990	3.950	3.8	21.8	2 11	8 41.11	+17 55.6	2.153	3.121	4.2	20.4
2 21	8 33.77	+23 31.6	3.046	3.952	6.5	22.0	2 21	8 34.20	+18 53.1	2.196	3.118	7.8	20.6
3 2	8 27.86	+24 2.1	3.129	3.954	9.0	22.2	3 2	8 28.86	+19 42.3	2.265	3.115	11.0	20.8
401893	2001 <i>SR</i> ₂₇		1 30.7 48°56	6°4/	4.4 18		203574	2002 <i>CW</i> ₁₈₅		1 30.7 62°95	2°2/29.7	18	
12 23	9 14.22	- 1 16.3	1.526	2.262	20.2	20.7	12 23	9 21.27	+20 25.3	1.373	2.175	19.0	20.4
1 2	9 11.07	- 1 17.9	1.465	2.287	16.9	20.5	1 2	9 17.15	+20 57.4	1.313	2.193	14.8	20.2
1 12	9 5.24	- 0 51.9	1.422	2.313	13.2	20.4	1 12	9 9.67	+21 38.8	1.273	2.212	10.0	20.0
1 22	8 57.42	+ 0 1.9	1.400	2.339	9.3	20.2	1 22	8 59.65	+22 22.9	1.258	2.232	4.9	19.8
2 1	8 48.67	+ 1 19.9	1.404	2.366	6.6	20.1	2 1	8 48.45	+23 1.9	1.269	2.251	2.6	19.7
2 11	8 40.25	+ 2 54.6	1.435	2.393	7.2	20.2	2 11	8 37.74	+23 29.5	1.307	2.271	7.0	20.0
2 21	8 33.29	+ 4 36.4	1.492	2.421	10.2	20.4	2 21	8 28.99	+23 42.6	1.370	2.290	11.7	20.3
3 2	8 28.64	+ 6 16.5	1.573	2.448	13.6	20.7	3 2	8 23.19	+23 41.2	1.456	2.310	15.8	20.6
456054	2006 <i>AA</i> ₂₄		1 30.7 294°69	0°4/30.4	18		57485	2001 <i>SN</i> ₁₆₁		1 30.7 64°10	1°5/29.9	18	
12 23	9 13.55	+14 49.9	1.982	2.760	14.8	20.6	12 23	9 18.55	+19 55.9	1.748	2.537	16.1	19.2
1 2	9 10.36	+15 37.7	1.887	2.754	11.7	20.4	1 2	9 14.44	+20 16.9	1.672	2.545	12.6	19.0
1 12	9 4.79	+16 39.1	1.815	2.748	8.0	20.2	1 12	9 7.58	+20 45.7	1.618	2.554	8.5	18.8
1 22	8 57.30	+17 50.2	1.768	2.742	3.8	19.9	1 22	8 58.62	+21 17.4	1.590	2.563	4.1	18.5
2 1	8 48.71	+19 5.1	1.751	2.736	0.8	19.6	2 1	8 48.60	+21 46.7	1.589	2.572	1.8	18.4
2 11	8 40.08	+20 16.9	1.763	2.730	5.2	19.9	2 11	8 38.81	+22 8.6	1.617	2.582	5.9	18.7
2 21	8 32.48	+21 20.2	1.803	2.724	9.3	20.2	2 21	8 30.47	+22 20.2	1.672	2.591	10.1	18.9
3 2	8 26.81	+22 11.2	1.869	2.719	13.0	20.4	3 2	8 24.49	+22 20.9	1.751	2.600	13.8	19.2
162425	2000 <i>EF</i> ₁₃₆		1 30.7 119°26	1°9/29.4	18		27129	1998 <i>XN</i> ₁		1 30.7 147°12	6°6/25.1	18	
12 23	9 16.22	+21 40.4	2.242	3.022	13.2	20.4	1						

EPHEMERIDES

1 30.7

1 30.8

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
403549	2010 JJ		1 30.7 220°47'	2°5'/29.1	18		416931	2005 SY ₈₆		1 30.8 103°15'	6°2'/27.0	18	
12 23	9 19.69	+20 44.4	1.924	2.706	15.0	21.6	12 23	9 24.55	+33 48.0	2.016	2.798	14.4	21.5
1 2	9 15.43	+21 41.0	1.828	2.698	11.9	21.4	1 2	9 18.99	+34 44.7	1.953	2.815	11.6	21.3
1 12	9 8.42	+22 47.6	1.754	2.688	8.1	21.1	1 12	9 10.57	+35 38.0	1.913	2.831	8.7	21.2
1 22	8 59.14	+23 58.1	1.707	2.679	4.1	20.9	1 22	9 0.01	+36 20.0	1.899	2.846	6.6	21.1
2 1	8 48.51	+25 5.2	1.689	2.668	2.9	20.8	2 1	8 48.48	+36 44.0	1.914	2.862	6.6	21.1
2 11	8 37.80	+26 1.8	1.701	2.657	6.5	21.0	2 11	8 37.34	+36 46.2	1.957	2.877	8.6	21.2
2 21	8 28.26	+26 43.5	1.740	2.646	10.6	21.2	2 21	8 27.85	+36 27.2	2.026	2.892	11.3	21.4
3 2	8 20.97	+27 8.6	1.804	2.634	14.3	21.4	3 2	8 20.88	+35 50.2	2.118	2.906	13.9	21.6
107925	2001 FQ ₁₀₃		1 30.8 249°19'	0°7'/31.2	18		167634	2004 CQ ₁₁₁		1 30.8 52°47'	4°7'/27.7	18	
12 23	9 16.75	+13 20.5	1.852	2.624	15.9	20.6	12 23	9 18.22	+29 38.5	2.111	2.901	13.6	20.1
1 2	9 13.09	+13 41.4	1.752	2.613	12.7	20.4	1 2	9 13.89	+30 24.5	2.039	2.910	10.8	19.9
1 12	9 6.80	+14 16.3	1.674	2.603	8.9	20.1	1 12	9 7.05	+31 10.5	1.991	2.920	7.7	19.8
1 22	8 58.36	+15 2.4	1.621	2.592	4.4	19.8	1 22	8 58.34	+31 50.1	1.970	2.930	5.2	19.6
2 1	8 48.64	+15 54.9	1.596	2.581	0.8	19.5	2 1	8 48.71	+32 17.5	1.977	2.940	5.0	19.6
2 11	8 38.84	+16 47.9	1.601	2.570	5.3	19.8	2 11	8 39.34	+32 28.7	2.012	2.950	7.2	19.8
2 21	8 30.16	+17 36.2	1.633	2.558	9.8	20.0	2 21	8 31.29	+32 23.0	2.075	2.960	10.2	20.0
3 2	8 23.62	+18 15.9	1.690	2.546	13.8	20.3	3 2	8 25.37	+32 1.8	2.161	2.971	12.9	20.2
409562	2005 UV ₁₁₄		1 30.8 47°49'	0°5'/30.4	18		453801	2011 SP ₁₈		1 30.8 10°92'	7°0'/3.1	17	
12 23	9 17.90	+14 16.8	1.449	2.239	18.7	20.4	12 23	9 12.33	+ 3 42.1	1.177	1.961	22.6	21.2
1 2	9 14.07	+15 15.7	1.402	2.275	14.5	20.2	1 2	9 10.65	+ 2 54.4	1.106	1.963	18.9	20.9
1 12	9 7.31	+16 30.1	1.375	2.311	9.7	20.0	1 12	9 5.64	+ 2 31.7	1.052	1.966	14.5	20.7
1 22	8 58.44	+17 53.0	1.374	2.347	4.5	19.8	1 22	8 57.94	+ 2 36.9	1.018	1.970	10.0	20.5
2 1	8 48.67	+19 15.8	1.399	2.384	1.0	19.7	2 1	8 48.76	+ 3 9.4	1.006	1.975	7.1	20.3
2 11	8 39.43	+20 30.0	1.453	2.421	5.9	20.1	2 11	8 39.75	+ 4 3.6	1.018	1.982	8.4	20.4
2 21	8 31.93	+21 30.1	1.533	2.457	10.4	20.4	2 21	8 32.46	+ 5 10.8	1.053	1.990	12.5	20.6
3 2	8 26.99	+22 13.9	1.637	2.494	14.2	20.8	3 2	8 28.06	+ 6 21.2	1.109	1.999	16.8	20.9
200083	5037 T ₋₃		1 30.8 56°79'	0°5'/31.1	18		70342	1999 RA ₁₇₅		1 30.8 237°86'	0°4'/31.0	18	
12 23	9 14.36	+12 39.6	1.914	2.687	15.4	20.1	12 23	9 18.44	+14 7.3	2.001	2.766	15.1	20.3
1 2	9 10.79	+13 19.6	1.845	2.707	12.2	19.9	1 2	9 14.29	+14 29.4	1.894	2.752	12.1	20.0
1 12	9 4.90	+14 13.5	1.797	2.727	8.3	19.7	1 12	9 7.57	+15 4.1	1.810	2.738	8.4	19.8
1 22	8 57.29	+15 17.2	1.776	2.747	4.1	19.5	1 22	8 58.75	+15 48.4	1.751	2.723	4.1	19.5
2 1	8 48.83	+16 25.1	1.783	2.768	0.6	19.3	2 1	8 48.65	+16 37.9	1.722	2.707	0.6	19.2
2 11	8 40.58	+17 31.1	1.819	2.788	4.7	19.6	2 11	8 38.41	+17 27.1	1.723	2.691	5.1	19.5
2 21	8 33.53	+18 30.0	1.884	2.809	8.7	19.9	2 21	8 29.20	+18 11.2	1.752	2.674	9.5	19.7
3 2	8 28.45	+19 18.4	1.974	2.830	12.1	20.2	3 2	8 22.01	+18 46.8	1.806	2.656	13.4	19.9
283745	2003 BL ₈		1 30.8 305°29'	2°3'/1.1	17		117788	2005 GU ₁₂₃		1 30.8 187°82'	2°7'/27.9	18	
12 23	9 16.25	+11 31.0	2.300	3.052	13.7	20.1	12 23	9 15.07	+24 58.0	3.083	3.855	10.2	20.1
1 2	9 12.02	+11 1.8	2.198	3.044	11.1	19.9	1 2	9 10.70	+25 58.8	2.990	3.854	7.9	20.0
1 12	9 5.66	+10 41.3	2.118	3.036	8.0	19.7	1 12	9 4.58	+27 3.0	2.923	3.852	5.5	19.8
1 22	8 57.67	+10 29.0	2.065	3.028	4.6	19.5	1 22	8 57.12	+28 6.3	2.885	3.850	3.3	19.7
2 1	8 48.77	+10 23.7	2.041	3.021	2.3	19.3	2 1	8 48.90	+29 4.1	2.878	3.848	3.0	19.6
2 11	8 39.88	+10 23.4	2.047	3.013	4.6	19.4	2 11	8 40.67	+29 52.5	2.903	3.845	5.0	19.8
2 21	8 31.92	+10 25.9	2.081	3.006	8.0	19.6	2 21	8 33.16	+30 29.1	2.957	3.842	7.5	19.9
3 2	8 25.66	+10 28.9	2.142	2.999	11.3	19.8	3 2	8 26.99	+30 53.1	3.038	3.838	9.8	20.1
459294	2012 GL ₁₄		1 30.8 345°14'	7°9'/26.7	18		255249	2005 UZ ₅₀₈		1 30.8 110°99'	2°2'/1.6	17	
12 23	9 22.26	+35 2.0	1.622	2.423	16.6	20.7	12 23	9 12.24	+ 8 32.9	2.838	3.575	11.7	21.3
1 2	9 18.20	+36 0.5	1.548	2.419	13.5	20.4	1 2	9 8.40	+ 8 30.8	2.746	3.581	9.5	21.2
1 12	9 10.62	+36 55.5	1.495	2.416	10.4	20.3	1 12	9 2.95	+ 8 38.9	2.676	3.587	6.9	21.0
1 22	9 0.24	+37 37.1	1.466	2.413	8.2	20.1	1 22	8 56.30	+ 8 56.2	2.634	3.593	4.1	20.9
2 1	8 48.40	+37 56.1	1.463	2.410	8.3	20.1	2 1	8 49.03	+ 9 21.1	2.621	3.599	2.2	20.7
2 11	8 36.85	+37 47.4	1.485	2.408	10.6	20.2	2 11	8 41.83	+ 9 50.7	2.639	3.605	3.7	20.8
2 21	8 27.22	+37 11.8	1.532	2.406	13.8	20.4	2 21	8 35.35	+10 22.3	2.686	3.611	6.5	21.0
3 2	8 20.66	+37 13.8	1.600	2.405	17.0	20.6	3 2	8 30.16	+10 53.0	2.761	3.616	9.1	21.2
414881	2010 VY ₂₁₈		1 30.8 63°65'	6°9'/3.9	18		179961	2002 XV ₃		1 30.8 94°69'	1°9'/31.9	18	
12 23	9 16.79	- 0 7.9	1.722	2.447	18.6	20.8	12 23	9 17.66	+11 17.5	1.815	2.580	16.4	20.3
1 2	9 12.86	- 0 52.7	1.653	2.466	15.7	20.6	1 2	9 13.57	+11 16.9	1.735	2.590	13.2	20.1
1 12	9 6.39	- 1 16.2	1.602	2.486	12.4	20.4	1 12	9 6.93	+11 29.9	1.676	2.599	9.3	19.9
1 22	8 58.03	- 1 16.4	1.573	2.505	9.1	20.3	1 22	8 58.34	+11 54.7	1.642	2.609	5.0	19.7
2 1	8 48.73	- 0 53.9	1.571	2.525	7.1	20.2	2 1	8 48.74	+12 27.7	1.636	2.618	1.9	19.5
2 11	8 39.68	- 0 12.2	1.595	2.545	7.6	20.3	2 11	8 39.31	+13 4.3	1.659	2.628	5.1	19.7
2 21	8 31.96	+ 0 42.5	1.646	2.564	10.2	20.5	2 21	8 31.16	+13 39.8	1.709	2.637	9.2	20.0
3 2	8 26.40	+ 1 43.4	1.721	2.584	13.3	20.7	3 2	8 25.17	+14 10.8	1.784	2.646	12.9	20.2
354937	2006 EA ₁₇		1 30.8 211°89'	3°8'/28.6	18		237538	2000 TP ₁₈		1 30.8 120°42'	1°6'/29.8	18	
12 23	9 22.25	+25 27.6	1.829	2.616	15.5	21.6	12 23	9 22.85	+19 54.9	1.911	2.685	15.4	21.4
1 2	9 17.58	+26 10.8	1.740	2.612	12.3	21.4	1 2	9 17.50	+20 27.9	1.839	2.704	12.0	21.2
1 12	9 9.92	+26 58.6	1.674	2.607	8.5	21.2	1 12	9 9.50	+21 8.3	1.790	2.722	8.1	21.0
1 22	8 59.86	+27 44.3	1.633	2.601	5.0	21.0	1 22	8 59.52	+21 50.9	1.767	2.740	3.9	20.8
2 1	8 48.45	+28 20.6	1.622	2.595	4.2	20.9	2 1	8 48.58	+22 29.9	1.774	2.757	1.9	20.7
2 11	8 37.12	+28 41.7	1.638	2.589	7.4	21.1	2 11	8 37.94	+23 0.4	1.811	2.773	5.7	21.0
2 21	8 27.23	+28 45.4	1.682	2.582	11.3	21.3	2 21	8 28.73	+23 19.6	1.877	2.788	9.6	21.2
3 2	8 19.85	+28 32.6	1.749	2.575	14.8	21.5	3 2	8 21.82	+23 27.0	1.967	2.803	13.0	21.5
278622	2008 QC ₂₅		1 30.8 199°92'	2°9'/28.6	17		323953	2005 UW ₄₇		1 30.8 68°67'	6°0'/3.7	18	
12 23	9 19.33	+25 22.2	2.524	3.297	12.1	21.5	12 23	9 14.44	+ 0 27.2	1.899	2.623	17.2	20.4

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
304966	2007 <i>TM</i> ₁₂₆		1 30.8	29°77	5°2/28.1	18	364304	2006 <i>UC</i> ₂₈		1 30.8	135°43	3°9/ 2.6	18
12 23	9 19.42	+26 43.2	1.439	2.249	17.8	20.5	12 23	9 17.95	+ 3 58.6	2.297	3.014	14.7	22.4
1 2	9 16.01	+27 39.8	1.370	2.254	14.1	20.2	1 2	9 13.18	+ 3 52.9	2.211	3.030	12.1	22.3
1 12	9 9.15	+28 40.9	1.321	2.258	9.9	20.0	1 12	9 6.37	+ 4 2.6	2.148	3.044	9.1	22.1
1 22	8 59.57	+29 37.7	1.297	2.264	6.2	19.8	1 22	8 58.00	+ 4 27.4	2.110	3.058	6.0	21.9
2 1	8 48.56	+30 20.7	1.299	2.270	5.6	19.8	2 1	8 48.85	+ 5 5.3	2.101	3.071	3.9	21.8
2 11	8 37.86	+30 43.1	1.327	2.276	8.9	20.0	2 11	8 39.82	+ 5 52.6	2.123	3.083	5.1	21.9
2 21	8 29.01	+30 43.1	1.379	2.282	13.0	20.3	2 21	8 31.79	+ 6 44.8	2.174	3.095	7.9	22.1
3 2	8 23.17	+30 22.8	1.453	2.289	16.8	20.5	3 2	8 25.45	+ 7 37.5	2.252	3.106	10.9	22.3
93351	2000 <i>SX</i> ₂₅₂		1 30.8	6°81	1°8/29.6	18	362310	2009 <i>UM</i> ₃		1 30.8	268°56	2°5/ 1.7	13 C
12 23	9 13.93	+18 34.6	1.630	2.430	16.6	18.9	12 23	9 22.21	+ 6 15.1	3.035	3.734	11.8	24.0
1 2	9 11.18	+19 21.7	1.550	2.430	13.0	18.6	1 2	9 16.48	+ 6 30.0	2.880	3.691	9.8	23.8
1 12	9 5.62	+20 20.8	1.492	2.431	8.8	18.4	1 12	9 8.73	+ 6 57.5	2.749	3.647	7.3	23.5
1 22	8 57.83	+21 26.1	1.458	2.432	4.2	18.1	1 22	8 59.28	+ 7 37.1	2.647	3.601	4.5	23.3
2 1	8 48.81	+22 30.3	1.452	2.434	2.2	18.0	2 1	8 48.65	+ 8 27.2	2.577	3.554	2.5	23.1
2 11	8 39.90	+23 26.1	1.473	2.437	6.4	18.3	2 11	8 37.61	+ 9 24.3	2.542	3.504	4.2	23.1
2 21	8 32.35	+24 8.5	1.520	2.440	10.8	18.5	2 21	8 26.99	+10 24.8	2.539	3.453	7.3	23.2
3 2	8 27.18	+24 35.1	1.591	2.444	14.7	18.8	3 2	8 17.59	+11 24.6	2.567	3.400	10.4	23.4
471163	2010 <i>HD</i> ₅₇		1 30.8	307°00	3°6/ 1.5	17	234391	2001 <i>QH</i> ₂₀₄		1 30.8	272°97	2°5/31.8	18
12 23	9 17.71	+ 9 7.9	2.286	3.027	14.1	20.7	12 23	9 20.68	+12 46.4	1.498	2.277	18.7	20.3
1 2	9 13.24	+ 8 16.2	2.175	3.011	11.6	20.5	1 2	9 16.80	+12 16.6	1.405	2.267	15.2	20.1
1 12	9 6.58	+ 7 32.9	2.087	2.996	8.6	20.3	1 12	9 9.69	+11 59.1	1.331	2.258	10.9	19.8
1 22	8 58.18	+ 6 58.6	2.025	2.980	5.5	20.0	1 22	8 59.92	+11 52.9	1.281	2.249	6.0	19.5
2 1	8 48.76	+ 6 33.6	1.992	2.965	3.6	19.9	2 1	8 48.57	+11 55.9	1.257	2.239	2.5	19.2
2 11	8 39.30	+ 6 17.0	1.989	2.950	5.3	20.0	2 11	8 37.19	+12 4.3	1.261	2.230	6.3	19.4
2 21	8 30.72	+ 6 7.1	2.015	2.936	8.5	20.1	2 21	8 27.29	+12 14.5	1.290	2.221	11.3	19.7
3 2	8 23.85	+ 6 1.7	2.067	2.921	11.7	20.3	3 2	8 20.11	+12 23.1	1.343	2.211	15.9	19.9
168721	2000 <i>KB</i> ₄₅		1 30.8	189°35	3°9/27.1	18	429248	2010 <i>AW</i> ₁₂₅		1 30.8	104°54	1°9/ 1.5	18
12 23	9 16.06	+27 57.5	2.686	3.466	11.3	20.9	12 23	9 12.77	+ 7 50.0	2.472	3.213	13.2	21.0
1 2	9 11.81	+29 4.8	2.599	3.465	8.9	20.8	1 2	9 9.10	+ 8 23.8	2.384	3.223	10.6	20.8
1 12	9 5.51	+30 14.5	2.536	3.464	6.3	20.6	1 12	9 3.59	+ 9 11.8	2.318	3.233	7.6	20.6
1 22	8 57.62	+31 21.0	2.503	3.462	4.3	20.5	1 22	8 56.69	+10 11.9	2.280	3.242	4.3	20.4
2 1	8 48.85	+32 18.6	2.499	3.460	4.2	20.5	2 1	8 49.05	+11 20.4	2.271	3.252	1.9	20.3
2 11	8 40.09	+33 3.1	2.526	3.458	6.3	20.6	2 11	8 41.48	+12 32.4	2.293	3.261	4.0	20.4
2 21	8 32.21	+33 32.1	2.581	3.456	8.8	20.8	2 21	8 34.74	+13 43.0	2.345	3.271	7.2	20.7
3 2	8 25.95	+33 45.4	2.661	3.453	11.3	20.9	3 2	8 29.49	+14 48.2	2.424	3.280	10.2	20.9
381982	2010 <i>GC</i> ₁₃₆		1 30.8	312°66	2°1/ 1.2	17	418315	2008 <i>FY</i> ₉₈		1 30.8	307°30	4°2/ 2.4	18
12 23	9 12.05	+ 9 44.3	2.056	2.818	14.8	20.9	12 23	9 12.49	+ 4 51.0	1.690	2.447	17.8	21.5
1 2	9 9.13	+ 9 51.8	1.950	2.803	12.0	20.7	1 2	9 10.01	+ 4 53.4	1.588	2.433	14.7	21.3
1 12	9 3.96	+10 13.7	1.866	2.788	8.6	20.5	1 12	9 4.89	+ 5 17.3	1.506	2.418	11.1	21.0
1 22	8 56.99	+10 48.7	1.807	2.773	4.9	20.2	1 22	8 57.58	+ 6 2.8	1.447	2.404	7.1	20.7
2 1	8 48.94	+11 33.8	1.777	2.758	2.1	20.0	2 1	8 48.92	+ 7 7.6	1.414	2.390	4.3	20.5
2 11	8 40.80	+12 24.7	1.775	2.744	4.8	20.1	2 11	8 40.12	+ 8 25.8	1.409	2.377	6.1	20.6
2 21	8 33.57	+13 16.2	1.801	2.730	8.7	20.4	2 21	8 32.39	+ 9 49.7	1.430	2.363	10.2	20.8
3 2	8 28.13	+14 4.1	1.852	2.717	12.4	20.5	3 2	8 26.82	+11 11.7	1.476	2.351	14.4	21.0
258139	2001 <i>RM</i> ₁₁₀		1 30.8	183°49	0°5/30.5	18	336550	2009 <i>CM</i> ₄₅		1 30.8	98°67	0°5/30.4	18
12 23	9 18.08	+16 47.3	2.251	3.017	13.6	22.1	12 23	9 19.38	+19 3.0	2.568	3.328	12.2	21.1
1 2	9 13.56	+17 14.7	2.157	3.017	10.7	21.9	1 2	9 14.02	+19 8.1	2.493	3.351	9.6	20.9
1 12	9 6.78	+17 51.1	2.087	3.017	7.3	21.7	1 12	9 6.75	+19 17.8	2.444	3.373	6.4	20.8
1 22	8 58.26	+18 33.0	2.044	3.017	3.5	21.5	1 22	8 58.13	+19 29.5	2.422	3.394	3.0	20.6
2 1	8 48.78	+19 16.0	2.031	3.016	0.8	21.3	2 1	8 48.89	+19 40.2	2.431	3.416	0.8	20.4
2 11	8 39.34	+19 55.3	2.048	3.014	4.7	21.6	2 11	8 39.90	+19 47.4	2.472	3.436	4.1	20.7
2 21	8 30.91	+20 27.7	2.095	3.012	8.4	21.8	2 21	8 31.95	+19 49.3	2.542	3.457	7.2	20.9
3 2	8 24.30	+20 51.0	2.167	3.009	11.8	22.0	3 2	8 25.65	+19 45.4	2.639	3.477	10.0	21.2
503843	2017 <i>KW</i> ₃₅		1 30.8	255°65	1°8/31.8	17	127036	2002 <i>GZ</i> ₃₄		1 30.8	305°26	0°9/30.3	18
12 23	9 18.12	+11 23.8	1.876	2.638	16.1	21.9	12 23	9 17.40	+16 54.5	1.587	2.378	17.3	19.7
1 2	9 14.24	+11 28.3	1.767	2.621	13.0	21.7	1 2	9 14.02	+17 29.4	1.503	2.377	13.7	19.5
1 12	9 7.67	+11 46.9	1.679	2.602	9.3	21.4	1 12	9 7.65	+18 17.6	1.440	2.377	9.3	19.2
1 22	8 58.87	+12 18.2	1.616	2.583	5.0	21.1	1 22	8 58.88	+19 14.2	1.402	2.376	4.4	18.9
2 1	8 48.68	+12 58.7	1.581	2.564	1.8	20.9	2 1	8 48.76	+20 12.2	1.391	2.375	1.3	18.7
2 11	8 38.29	+13 43.4	1.575	2.544	5.3	21.1	2 11	8 38.70	+21 4.4	1.407	2.374	6.2	19.0
2 21	8 28.93	+14 27.4	1.597	2.524	9.9	21.3	2 21	8 30.08	+21 45.5	1.450	2.373	11.0	19.3
3 2	8 21.70	+15 6.4	1.644	2.503	14.0	21.5	3 2	8 23.98	+22 12.9	1.517	2.373	15.1	19.5
175651	3094 <i>T</i> ₋₂		1 30.8	196°84	1°4/29.8	18	136435	2005 <i>EH</i> ₃₂		1 30.8	183°47	4°8/27.9	18
12 23	9 19.24	+19 49.9	2.306	3.075	13.2	20.6	12 23	9 22.70	+28 27.3	1.900	2.687	15.0	20.2
1 2	9 14.47	+20 22.3	2.210	3.072	10.4	20.4	1 2	9 17.84	+29 16.9	1.818	2.687	11.9	20.0
1 12	9 7.42	+21 1.6	2.137	3.069	7.1	20.2	1 12	9 10.05	+30 8.3	1.758	2.688	8.5	19.8
1 22	8 58.58	+21 43.8	2.092	3.065	3.4	20.0	1 22	8 59.96	+30 54.3	1.725	2.687	5.5	19.6
2 1	8 48.74	+22 24.1	2.077	3.060	1.7	19.8	2 1	8 48.62	+31 27.5	1.720	2.686	5.1	19.6
2 11	8 38.93	+22 57.8	2.093	3.054	5.1	20.1	2 11	8 37.45	+31 42.8	1.744	2.685	7.8	19.7
2 21	8 30.12	+23 22.1	2.138	3.048	8.7	20.3	2 21	8 27.76	+31 38.8	1.795	2.684	11.3	19.9
3 2	8 23.15	+23 35.7	2.209	3.041	11.9	20.5	3 2	8 20.56	+31 17.2	1.869	2.682	14.5	20.1
105067	2000 <i>KA</i> ₆₆		1 30.8	218°58	6°4/ 4.5	18	496908	2001 <i>QC</i> ₂₃₇		1 30.8	128°93	3°2/27.3	17
12 23	9 13.73	- 2 17.9	1.973	2.682									

EPHEMERIDES

1 30.8

1 30.8

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
358996	2008 <i>SN</i> ₂₈₉		1 30.8 14°20	1.9°/30.0	18		210248	2007 <i>RV</i> ₂₃₅		1 30.8 73°18	0°1/30.8	18	
12 23	9 16.08	+20 11.9	1.081	1.909	21.3	21.1	12 23	9 21.03	+16 10.8	1.539	2.324	18.0	20.8
1 2	9 14.10	+20 24.1	1.018	1.913	16.8	20.8	1 2	9 16.58	+16 24.3	1.475	2.344	14.2	20.6
1 12	9 8.23	+20 47.3	0.973	1.918	11.4	20.6	1 12	9 9.14	+16 49.6	1.432	2.365	9.6	20.4
1 22	8 59.28	+21 15.5	0.949	1.924	5.5	20.3	1 22	8 59.47	+17 22.3	1.413	2.386	4.6	20.1
2 1	8 48.73	+21 40.7	0.948	1.932	2.3	20.1	2 1	8 48.76	+17 56.7	1.422	2.407	0.7	19.9
2 11	8 38.58	+21 55.9	0.972	1.941	7.8	20.4	2 11	8 38.46	+18 27.3	1.459	2.427	5.7	20.3
2 21	8 30.62	+21 57.6	1.018	1.951	13.4	20.8	2 21	8 29.85	+18 50.2	1.522	2.448	10.3	20.6
3 2	8 26.04	+21 45.4	1.085	1.962	18.1	21.1	3 2	8 23.85	+19 3.6	1.610	2.468	14.3	20.9
130714	2000 <i>SR</i> ₁₉₈		1 30.8 332°62	0°8/30.5	18		522658	2016 <i>GT</i> ₂₆₃		1 30.8 183°02	3°4/2.8	17	
12 23	9 15.72	+17 53.2	1.295	2.106	19.4	19.1	12 23	9 12.59	+3 48.7	2.740	3.457	12.6	22.3
1 2	9 13.46	+18 1.9	1.209	2.094	15.5	18.8	1 2	9 8.82	+3 48.6	2.640	3.457	10.4	22.2
1 12	9 7.73	+18 23.1	1.143	2.084	10.6	18.5	1 12	9 3.36	+4 1.9	2.562	3.457	7.8	22.0
1 22	8 59.09	+18 52.7	1.099	2.074	5.1	18.1	1 22	8 56.62	+4 28.5	2.510	3.457	5.2	21.8
2 1	8 48.74	+19 24.2	1.081	2.065	1.2	17.8	2 1	8 49.16	+5 6.6	2.487	3.456	3.5	21.7
2 11	8 38.40	+19 50.8	1.087	2.057	7.0	18.2	2 11	8 41.73	+5 53.3	2.495	3.455	4.4	21.8
2 21	8 29.74	+20 7.6	1.118	2.050	12.5	18.4	2 21	8 35.00	+6 44.9	2.532	3.454	6.9	21.9
3 2	8 24.09	+20 12.2	1.170	2.043	17.4	18.7	3 2	8 29.59	+7 37.5	2.596	3.453	9.6	22.1
429719	2011 <i>JB</i> ₂₉		1 30.8 203°45	3°8/2.9	17		82250	2001 <i>KW</i> ₂		1 30.8 190°54	2°8/28.9	18	
12 23	9 14.27	+3 16.9	2.893	3.599	12.2	21.8	12 23	9 22.58	+21 49.1	1.981	2.757	14.9	21.0
1 2	9 10.03	+3 0.9	2.786	3.595	10.1	21.7	1 2	9 17.61	+22 44.8	1.890	2.756	11.7	20.8
1 12	9 4.13	+2 57.1	2.701	3.590	7.8	21.5	1 12	9 9.88	+23 48.7	1.821	2.754	8.0	20.6
1 22	8 56.96	+3 5.5	2.643	3.584	5.4	21.3	1 22	8 59.93	+24 54.5	1.780	2.751	4.2	20.3
2 1	8 49.07	+3 25.5	2.615	3.578	3.8	21.2	2 1	8 48.70	+25 55.0	1.769	2.747	3.1	20.2
2 11	8 41.17	+3 54.9	2.616	3.572	4.6	21.3	2 11	8 37.47	+26 43.7	1.788	2.742	6.5	20.4
2 21	8 33.93	+4 30.7	2.648	3.565	6.9	21.4	2 21	8 27.48	+27 16.9	1.835	2.737	10.4	20.7
3 2	8 27.97	+5 9.6	2.707	3.558	9.4	21.5	3 2	8 19.76	+27 33.8	1.907	2.730	13.9	20.9
496019	2008 <i>ON</i> ₁₁		1 30.8 217°24	0°4/31.1	17		414955	2011 <i>BC</i> ₁₁₇		1 30.8 71°19	2°9/28.9	18	
12 23	9 18.77	+15 41.1	2.582	3.334	12.4	21.8	12 23	9 18.28	+21 54.7	1.777	2.569	15.7	21.3
1 2	9 13.83	+15 43.0	2.474	3.325	9.8	21.6	1 2	9 14.25	+22 49.5	1.711	2.586	12.2	21.1
1 12	9 6.87	+15 52.0	2.390	3.315	6.8	21.4	1 12	9 7.50	+23 51.7	1.667	2.603	8.3	20.9
1 22	8 58.32	+16 5.9	2.335	3.305	3.4	21.2	1 22	8 58.70	+24 54.5	1.649	2.620	4.3	20.7
2 1	8 48.89	+16 22.0	2.309	3.294	0.5	20.9	2 1	8 48.89	+25 50.7	1.659	2.637	3.2	20.6
2 11	8 39.44	+16 37.4	2.316	3.283	4.1	21.2	2 11	8 39.36	+26 34.3	1.698	2.655	6.6	20.9
2 21	8 30.83	+16 49.8	2.352	3.271	7.5	21.4	2 21	8 31.27	+27 2.2	1.764	2.672	10.4	21.1
3 2	8 23.80	+16 57.5	2.415	3.258	10.7	21.6	3 2	8 25.51	+27 14.2	1.854	2.689	13.7	21.4
343578	2010 <i>FH</i> ₈₈		1 30.8 123°02	3°9/28.1	18		151545	2002 <i>SH</i> ₄₇		1 30.8 49°49	2°8/29.7	18	
12 23	9 19.06	+29 6.2	2.429	3.209	12.3	20.8	12 23	9 22.11	+22 7.1	1.267	2.077	19.9	19.9
1 2	9 14.23	+29 41.6	2.349	3.215	9.7	20.6	1 2	9 18.39	+22 29.3	1.199	2.083	15.6	19.6
1 12	9 7.17	+30 17.0	2.293	3.220	6.9	20.5	1 12	9 10.94	+22 59.8	1.151	2.091	10.7	19.4
1 22	8 58.45	+30 47.1	2.264	3.226	4.5	20.3	1 22	9 0.55	+23 31.4	1.125	2.098	5.4	19.1
2 1	8 48.88	+31 7.0	2.265	3.231	4.2	20.3	2 1	8 48.65	+23 56.1	1.124	2.106	3.1	19.0
2 11	8 39.50	+31 13.6	2.296	3.236	6.3	20.4	2 11	8 37.13	+24 7.7	1.150	2.114	7.8	19.3
2 21	8 31.25	+31 6.0	2.354	3.240	9.1	20.6	2 21	8 27.70	+24 3.8	1.200	2.122	12.8	19.6
3 2	8 24.88	+30 45.0	2.437	3.245	11.7	20.8	3 2	8 21.55	+23 45.2	1.272	2.131	17.3	19.9
416890	2005 <i>QY</i> ₁₂₅		1 30.8 59°54	2°2/29.7	18		169014	2001 <i>DM</i> ₆₀		1 30.8 330°42	0°8/31.2	18	
12 23	9 20.10	+21 52.7	1.680	2.472	16.5	21.4	12 23	9 14.17	+13 31.3	1.426	2.222	18.7	20.2
1 2	9 15.76	+22 13.8	1.611	2.486	12.9	21.2	1 2	9 11.86	+13 45.8	1.338	2.213	15.0	19.9
1 12	9 8.55	+22 40.9	1.564	2.500	8.7	21.0	1 12	9 6.44	+14 17.1	1.269	2.204	10.4	19.6
1 22	8 59.18	+23 8.7	1.541	2.514	4.3	20.7	1 22	8 58.45	+15 2.3	1.223	2.196	5.3	19.3
2 1	8 48.78	+23 31.3	1.547	2.529	2.5	20.6	2 1	8 48.92	+15 55.9	1.203	2.188	0.9	18.9
2 11	8 38.72	+23 44.2	1.581	2.543	6.3	20.9	2 11	8 39.37	+16 50.5	1.210	2.181	6.1	19.3
2 21	8 30.25	+23 45.3	1.642	2.558	10.4	21.2	2 21	8 31.25	+17 39.3	1.241	2.174	11.4	19.6
3 2	8 24.27	+23 34.8	1.726	2.573	14.0	21.4	3 2	8 25.78	+18 17.7	1.295	2.168	16.1	19.8
520041	2013 <i>VA</i> ₂₉		1 30.8 34°03	5°1/3.3	18		50979	2000 <i>GX</i> ₉₂		1 30.8 182°59	4°3/27.5	18	
12 23	9 13.28	+2 9.8	2.098	2.824	15.7	21.1	12 23	9 18.72	+29 49.7	2.455	3.236	12.2	19.2
1 2	9 9.86	+1 44.5	2.009	2.828	13.1	20.9	1 2	9 14.07	+30 37.2	2.371	3.236	9.7	19.1
1 12	9 4.31	+1 36.2	1.941	2.833	10.1	20.8	1 12	9 7.16	+31 24.9	2.310	3.236	7.0	18.9
1 22	8 57.13	+1 45.7	1.896	2.837	7.2	20.6	1 22	8 58.51	+32 7.1	2.278	3.236	4.8	18.7
2 1	8 49.07	+2 12.2	1.879	2.842	5.2	20.5	2 1	8 48.94	+32 38.5	2.275	3.235	4.6	18.7
2 11	8 41.08	+2 52.4	1.890	2.846	6.0	20.5	2 11	8 39.48	+32 55.3	2.301	3.235	6.7	18.9
2 21	8 34.05	+3 41.7	1.929	2.851	8.7	20.7	2 21	8 31.11	+32 56.1	2.355	3.234	9.4	19.0
3 2	8 28.76	+4 35.0	1.993	2.857	11.7	20.9	3 2	8 24.61	+32 42.0	2.433	3.233	12.0	19.2
18762	1999 <i>HC</i> ₉		1 30.8 122°90	0°2/30.9	18		104785	2000 <i>HL</i> ₃₃		1 30.8 161°79	1°3/29.6	18	
12 23	9 24.44	+15 24.8	1.564	2.339	18.2	18.7	12 23	9 14.50	+18 27.7	2.843	3.607	11.1	20.2
1 2	9 19.31	+15 40.5	1.492	2.355	14.4	18.4	1 2	9 10.34	+19 25.1	2.752	3.613	8.7	20.1
1 12	9 11.07	+16 8.9	1.441	2.371	9.9	18.2	1 12	9 4.42	+20 29.9	2.686	3.617	5.8	19.9
1 22	9 0.44	+16 45.6	1.414	2.386	4.8	17.9	1 22	8 57.14	+21 38.2	2.649	3.622	2.8	19.7
2 1	8 48.62	+17 25.0	1.416	2.401	0.6	17.7	2 1	8 49.13	+22 45.4	2.644	3.625	1.5	19.6
2 11	8 37.13	+18 0.8	1.447	2.415	5.8	18.1	2 11	8 41.13	+23 46.9	2.670	3.629	4.3	19.8
2 21	8 27.33	+18 29.0	1.504	2.428	10.6	18.4	2 21	8 33.87	+24 39.5	2.726	3.632	7.2	20.0
3 2	8 20.26	+18 47.3	1.586	2.440	14.7	18.7	3 2	8 28.00	+25 21.3	2.809	3.635	9.8	20.2
214323	2005 <i>JW</i> ₅₅		1 30.8 170°86	3°6/28.2	18		408734	2014 <i>OB</i> ₆₃		1 30.8 268°83	2°7/29.1	18	
12 23	9 20.37	+25 31.5	2.256	3.034	13.2	21.2	12 23						

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
326689	2002 <i>XO</i> ₈₀		1 30.8	42°57'	14°0'/18.3	18	454386	2014 <i>MZ</i> ₆₃		1 30.8	275°17'	3°7'/1.5	18
12 23	9 24.15	+40 7.6	1.342	2.150	19.0	19.5	12 23	9 18.48	+9 7.9	1.584	2.350	18.4	21.4
1 2	9 21.43	+44 25.0	1.314	2.174	16.2	19.4	1 2	9 15.01	+8 40.2	1.482	2.335	15.1	21.1
1 12	9 14.05	+48 30.7	1.313	2.199	14.4	19.3	1 12	9 8.51	+8 27.6	1.400	2.319	11.1	20.8
1 22	9 2.50	+52 2.1	1.337	2.225	14.1	19.4	1 22	8 59.45	+8 30.5	1.341	2.304	6.7	20.6
2 1	8 48.35	+54 41.4	1.387	2.251	15.4	19.5	2 1	8 48.81	+8 47.6	1.309	2.288	3.7	20.3
2 11	8 34.19	+56 21.6	1.460	2.278	17.4	19.7	2 11	8 37.99	+9 15.0	1.304	2.272	6.4	20.4
2 21	8 22.63	+57 7.0	1.550	2.305	19.4	19.9	2 21	8 28.42	+9 47.8	1.325	2.255	11.1	20.7
3 2	8 15.49	+57 8.2	1.656	2.333	21.2	20.2	3 2	8 21.34	+10 20.9	1.369	2.239	15.6	20.9
296062	2009 <i>AC</i> ₄₁		1 30.8	110°45'	0°9'/30.3	18	421583	2014 <i>OU</i> ₁₉₆		1 30.8	219°24'	0°5'/30.5	18
12 23	9 22.16	+17 43.9	1.786	2.561	16.3	21.8	12 23	9 20.69	+17 45.7	1.935	2.708	15.3	21.9
1 2	9 17.15	+18 11.3	1.715	2.580	12.8	21.6	1 2	9 16.11	+17 58.0	1.838	2.701	12.1	21.7
1 12	9 9.41	+18 48.4	1.666	2.598	8.6	21.4	1 12	9 8.86	+18 19.2	1.763	2.694	8.3	21.5
1 22	8 59.61	+19 30.2	1.643	2.616	4.1	21.1	1 22	8 59.46	+18 45.5	1.714	2.687	4.0	21.2
2 1	8 48.80	+20 11.1	1.649	2.633	1.2	21.0	2 1	8 48.83	+19 12.4	1.694	2.678	0.9	20.9
2 11	8 38.30	+20 45.8	1.685	2.650	5.5	21.3	2 11	8 38.20	+19 35.3	1.703	2.670	5.3	21.2
2 21	8 29.29	+21 10.8	1.748	2.666	9.7	21.6	2 21	8 28.78	+19 50.9	1.741	2.661	9.7	21.5
3 2	8 22.64	+21 24.8	1.836	2.682	13.4	21.8	3 2	8 21.54	+19 57.7	1.804	2.651	13.5	21.7
264419	2000 <i>QM</i> ₁₆₂		1 30.8	157°26'	1°5'/31.7	18	334562	2002 <i>TM</i> ₅₃		1 30.8	82°14'	7°2'/5.5	18
12 23	9 19.93	+13 9.0	2.280	3.030	13.9	20.8	12 23	9 15.23	-5 40.4	2.404	3.072	15.3	20.5
1 2	9 14.86	+12 55.7	2.189	3.036	11.1	20.6	1 2	9 10.99	-6 27.0	2.327	3.093	13.2	20.4
1 12	9 7.61	+12 51.2	2.120	3.041	7.8	20.4	1 12	9 4.86	-6 55.1	2.271	3.114	10.9	20.2
1 22	8 58.70	+12 54.0	2.079	3.046	4.1	20.2	1 22	8 57.34	-7 2.5	2.237	3.134	8.8	20.1
2 1	8 48.94	+13 1.8	2.067	3.050	1.5	20.0	2 1	8 49.14	-6 49.0	2.231	3.155	7.4	20.1
2 11	8 39.29	+13 11.9	2.087	3.054	4.4	20.2	2 11	8 41.08	-6 16.6	2.251	3.175	7.4	20.1
2 21	8 30.69	+13 21.7	2.135	3.058	8.0	20.4	2 21	8 33.95	-5 29.4	2.300	3.195	8.9	20.2
3 2	8 23.89	+13 29.2	2.210	3.061	11.2	20.6	3 2	8 28.38	-4 32.8	2.374	3.215	10.9	20.4
203393	2001 <i>XB</i> ₁₃₉		1 30.8	50°69'	5°0'/2.1	18	118658	2000 <i>JO</i> ₅₈		1 30.8	233°08'	1°1'/31.6	17
12 23	9 18.41	+6 49.1	1.445	2.211	19.9	20.4	12 23	9 16.51	+11 52.4	2.250	3.004	14.0	20.4
1 2	9 14.87	+6 9.7	1.367	2.217	16.4	20.2	1 2	9 12.47	+12 13.1	2.142	2.992	11.2	20.2
1 12	9 8.25	+5 48.7	1.308	2.223	12.2	20.0	1 12	9 6.20	+12 46.3	2.057	2.980	7.9	20.0
1 22	8 59.21	+5 47.1	1.272	2.229	7.8	19.7	1 22	8 58.14	+13 30.0	1.998	2.967	4.1	19.7
2 1	8 48.86	+6 3.5	1.261	2.235	5.0	19.6	2 1	8 49.02	+14 20.5	1.969	2.953	1.1	19.5
2 11	8 38.68	+6 33.8	1.277	2.242	6.9	19.7	2 11	8 39.80	+15 13.0	1.971	2.939	4.5	19.7
2 21	8 30.05	+7 12.1	1.318	2.249	11.1	19.9	2 21	8 31.45	+16 3.1	2.001	2.925	8.4	19.9
3 2	8 24.05	+7 52.5	1.382	2.256	15.2	20.2	3 2	8 24.82	+16 47.1	2.058	2.910	11.9	20.1
168304	3125 <i>T</i> ₂		1 30.8	29°80'	9°5'/9.1	18	428511	2007 <i>YK</i> ₂₁		1 30.8	256°86'	4°3'/2.5	17
12 23	9 10.76	-13 48.8	2.168	2.802	17.6	19.3	12 23	9 15.90	+4 22.4	2.625	3.340	13.1	21.1
1 2	9 7.91	-14 7.9	2.081	2.808	15.7	19.2	1 2	9 11.51	+3 38.9	2.518	3.332	10.9	20.9
1 12	9 3.01	-14 0.2	2.009	2.815	13.6	19.0	1 12	9 5.27	+3 6.4	2.434	3.324	8.4	20.7
1 22	8 56.54	-13 22.5	1.959	2.822	11.5	18.9	1 22	8 57.60	+2 45.6	2.375	3.316	5.9	20.5
2 1	8 49.23	-12 14.2	1.931	2.830	9.9	18.8	2 1	8 49.10	+2 36.7	2.346	3.308	4.4	20.4
2 11	8 41.98	-10 38.4	1.930	2.838	9.5	18.8	2 11	8 40.59	+2 38.6	2.347	3.300	5.3	20.5
2 21	8 35.66	-8 42.0	1.955	2.846	10.4	18.9	2 21	8 32.83	+2 48.9	2.377	3.292	7.7	20.6
3 2	8 31.00	-6 33.7	2.006	2.854	12.3	19.0	3 2	8 26.50	+3 4.8	2.433	3.283	10.3	20.8
94642	2001 <i>WE</i> ₃₉		1 30.8	36°43'	0°9'/31.3	18	61943	2000 <i>RT</i> ₁₂		1 30.8	111°51'	4°3'/2.4	18
12 23	9 15.07	+12 5.1	1.224	2.027	20.8	19.2	12 23	9 19.18	+5 16.0	1.741	2.484	17.8	19.0
1 2	9 12.73	+12 35.1	1.160	2.038	16.5	19.0	1 2	9 14.86	+5 1.9	1.664	2.499	14.6	18.8
1 12	9 7.03	+13 26.3	1.114	2.050	11.4	18.7	1 12	9 7.90	+5 6.4	1.606	2.513	10.9	18.6
1 22	8 58.67	+14 33.9	1.090	2.063	5.7	18.4	1 22	8 58.93	+5 29.2	1.573	2.526	7.0	18.4
2 1	8 48.94	+15 50.0	1.092	2.076	1.0	18.1	2 1	8 48.93	+6 7.8	1.566	2.540	4.4	18.3
2 11	8 39.50	+17 4.9	1.119	2.091	6.4	18.5	2 11	8 39.11	+6 57.4	1.588	2.552	6.0	18.4
2 21	8 31.88	+18 10.3	1.170	2.105	11.8	18.9	2 21	8 30.63	+7 52.2	1.638	2.565	9.6	18.6
3 2	8 27.19	+19 1.2	1.244	2.121	16.4	19.2	3 2	8 24.38	+8 46.3	1.713	2.577	13.3	18.9
316577	2011 <i>SB</i> ₂₁₀		1 30.8	118°81'	0°7'/31.3	18	47645	2000 <i>CD</i> ₃₇		1 30.8	196°17'	2°6'/2.0	18
12 23	9 18.87	+12 20.4	1.756	2.524	16.8	21.5	12 23	9 13.39	+6 31.5	2.539	3.272	13.1	18.7
1 2	9 14.69	+12 55.2	1.678	2.537	13.3	21.3	1 2	9 9.63	+6 44.0	2.439	3.270	10.7	18.5
1 12	9 7.84	+13 45.6	1.622	2.550	9.2	21.1	1 12	9 4.03	+7 10.2	2.361	3.268	7.8	18.3
1 22	8 58.92	+14 47.6	1.592	2.563	4.6	20.9	1 22	8 57.01	+7 49.1	2.309	3.266	4.8	18.1
2 1	8 48.91	+15 55.4	1.590	2.575	0.8	20.6	2 1	8 49.19	+8 38.2	2.287	3.264	2.7	17.9
2 11	8 39.07	+17 1.9	1.617	2.586	5.2	20.9	2 11	8 41.37	+9 33.8	2.295	3.261	4.2	18.0
2 21	8 30.56	+18 1.4	1.672	2.597	9.6	21.2	2 21	8 34.31	+10 31.5	2.332	3.258	7.2	18.2
3 2	8 24.33	+18 50.1	1.752	2.608	13.4	21.5	3 2	8 28.70	+11 27.3	2.397	3.255	10.2	18.4
488531	2001 <i>RL</i> ₉₈		1 30.8	161°09'	4°6'/27.5	18	49429	1998 <i>XZ</i> ₉₅		1 30.8	76°34'	0°1'/30.8	18
12 23	9 23.80	+31 22.5	2.509	3.280	12.2	22.5	12 23	9 21.67	+14 34.0	1.797	2.564	16.5	19.2
1 2	9 17.94	+32 10.5	2.430	3.287	9.8	22.3	1 2	9 16.50	+15 10.5	1.741	2.601	12.9	19.0
1 12	9 9.72	+32 57.3	2.375	3.294	7.1	22.2	1 12	9 8.79	+15 58.9	1.707	2.637	8.7	18.9
1 22	8 59.71	+33 36.8	2.348	3.301	5.0	22.1	1 22	8 59.24	+16 54.5	1.700	2.672	4.1	18.7
2 1	8 48.81	+34 3.6	2.351	3.306	4.9	22.1	2 1	8 48.91	+17 51.2	1.722	2.707	0.6	18.4
2 11	8 38.09	+34 14.1	2.384	3.311	6.9	22.2	2 11	8 39.02	+18 43.1	1.773	2.741	5.1	18.9
2 21	8 28.56	+34 7.8	2.445	3.315	9.5	22.4	2 21	8 30.63	+19 26.2	1.853	2.774	9.1	19.2
3 2	8 21.05	+33 46.3	2.532	3.319	11.9	22.5	3 2	8 24.52	+19 58.3	1.958	2.807	12.5	19.4
161118	2002 <i>RB</i> ₁₇		1 30.8	77°82'	2°7'/1.9	18	67414	2000 <i>QQ</i> ₆₀		1 30.8	87°17'	2°1'/29.6	18
12 23	9 13.23	+6 59.6	2.197	2.941	14.5	19.9	12 23	9 18.03	+21 3.9	1.8			

EPHEMERIDES

1 30.8

1 30.8

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
250252	2003 <i>AE</i> ₆₈		1 30.8	52°29	1°8/31.7	18	453576	2010 <i>GV</i> ₅		1 30.8	281°68	0°2/30.7	17
12 23	9 18.63	+12 12.3	1.508	2.288	18.6	19.9	12 23	9 18.27	+16 1.8	1.546	2.335	17.8	21.9
1 2	9 14.67	+12 10.5	1.447	2.311	14.7	19.7	1 2	9 15.13	+16 19.4	1.441	2.314	14.3	21.6
1 12	9 7.84	+12 23.8	1.407	2.335	10.3	19.5	1 12	9 8.80	+16 51.1	1.357	2.292	9.9	21.3
1 22	8 58.89	+12 49.4	1.390	2.359	5.4	19.3	1 22	8 59.71	+17 33.3	1.297	2.271	4.8	21.0
2 1	8 48.96	+13 22.7	1.400	2.384	1.8	19.1	2 1	8 48.84	+18 20.3	1.264	2.249	0.8	20.6
2 11	8 39.45	+13 58.2	1.438	2.408	5.5	19.4	2 11	8 37.69	+19 5.1	1.258	2.227	6.4	20.9
2 21	8 31.57	+14 31.1	1.502	2.433	10.0	19.8	2 21	8 27.83	+19 41.7	1.278	2.205	11.8	21.2
3 2	8 26.19	+14 57.9	1.590	2.458	13.9	20.1	3 2	8 20.60	+20 6.8	1.321	2.183	16.6	21.4
153809	2001 <i>VP</i> ₁₁₈		1 30.8	29°99	5°1/28.0	18	122649	2000 <i>RX</i> ₈₇		1 30.8	86°19	1°5/31.7	18
12 23	9 17.44	+26 33.3	1.500	2.311	17.2	18.9	12 23	9 17.77	+12 26.7	1.937	2.701	15.6	20.3
1 2	9 14.28	+27 33.7	1.436	2.320	13.5	18.7	1 2	9 13.52	+12 26.0	1.859	2.714	12.4	20.2
1 12	9 7.90	+28 38.4	1.393	2.330	9.5	18.5	1 12	9 6.88	+12 37.1	1.802	2.726	8.7	19.9
1 22	8 59.04	+29 38.7	1.375	2.341	5.9	18.3	1 22	8 58.42	+12 57.9	1.771	2.739	4.6	19.7
2 1	8 48.93	+30 25.7	1.383	2.353	5.5	18.3	2 1	8 49.06	+13 25.1	1.768	2.751	1.5	19.5
2 11	8 39.15	+30 53.1	1.417	2.365	8.6	18.5	2 11	8 39.89	+13 54.5	1.795	2.764	4.8	19.8
2 21	8 31.12	+30 58.9	1.476	2.378	12.4	18.8	2 21	8 31.93	+14 22.3	1.849	2.776	8.7	20.0
3 2	8 25.87	+30 44.8	1.557	2.392	15.9	19.0	3 2	8 26.01	+14 45.5	1.929	2.788	12.2	20.3
413048	2001 <i>QA</i> ₁₈₈		1 30.8	122°69	1°2/31.5	18	94733	2001 <i>XG</i> ₇₀		1 30.8	6°22	1°3/30.1	18
12 23	9 21.36	+13 54.9	2.194	2.946	14.3	21.4	12 23	9 15.63	+16 48.6	1.307	2.115	19.4	19.9
1 2	9 15.96	+13 46.1	2.114	2.963	11.4	21.2	1 2	9 13.26	+17 29.9	1.231	2.115	15.3	19.6
1 12	9 8.33	+13 46.1	2.056	2.978	7.9	21.0	1 12	9 7.51	+18 27.6	1.175	2.115	10.5	19.3
1 22	8 59.04	+13 52.9	2.025	2.993	4.1	20.8	1 22	8 59.01	+19 35.6	1.141	2.116	5.0	19.0
2 1	8 48.94	+14 4.0	2.024	3.008	1.2	20.6	2 1	8 48.96	+20 45.4	1.134	2.118	1.7	18.8
2 11	8 39.07	+14 16.1	2.054	3.022	4.4	20.9	2 11	8 39.02	+21 47.5	1.152	2.120	7.0	19.2
2 21	8 30.36	+14 26.9	2.113	3.035	8.1	21.1	2 21	8 30.79	+22 35.3	1.195	2.122	12.3	19.5
3 2	8 23.57	+14 34.3	2.199	3.048	11.3	21.3	3 2	8 25.48	+23 5.9	1.259	2.126	16.9	19.7
6464	Kaburaki		1 30.8	9°60	2°2/29.1	18	42751	1998 <i>SP</i> ₅₅		1 30.8	159°93	0°6/31.3	18
12 23	9 13.78	+19 42.2	2.043	2.831	14.1	16.8	12 23	9 15.65	+13 43.7	2.495	3.251	12.7	20.2
1 2	9 10.56	+20 43.9	1.958	2.831	11.0	16.6	1 2	9 11.42	+14 4.5	2.403	3.255	10.1	20.0
1 12	9 5.00	+21 55.4	1.896	2.832	7.4	16.4	1 12	9 5.25	+14 34.8	2.335	3.260	6.9	19.8
1 22	8 57.58	+23 11.0	1.860	2.833	3.7	16.2	1 22	8 57.61	+15 12.3	2.294	3.264	3.5	19.6
2 1	8 49.13	+24 24.2	1.854	2.834	2.5	16.1	2 1	8 49.18	+15 53.5	2.283	3.267	0.6	19.4
2 11	8 40.71	+25 28.4	1.877	2.835	5.8	16.3	2 11	8 40.82	+16 34.5	2.302	3.271	4.0	19.6
2 21	8 33.35	+26 19.2	1.928	2.837	9.5	16.5	2 21	8 33.32	+17 11.7	2.352	3.273	7.4	19.9
3 2	8 27.93	+26 54.7	2.003	2.839	12.8	16.7	3 2	8 27.38	+17 42.9	2.428	3.276	10.4	20.1
452787	2006 <i>FS</i> ₁₇		1 30.8	297°28	0°8/31.2	17	379993	2013 <i>BU</i> ₃₉		1 30.8	262°15	0°3/30.9	17
12 23	9 15.80	+13 43.1	1.491	2.282	18.3	21.6	12 23	9 18.25	+14 17.7	1.722	2.499	16.7	21.9
1 2	9 13.20	+13 56.6	1.391	2.263	14.7	21.3	1 2	9 14.72	+14 41.5	1.616	2.481	13.4	21.6
1 12	9 7.47	+14 26.5	1.310	2.243	10.3	21.0	1 12	9 8.28	+15 20.2	1.532	2.463	9.3	21.3
1 22	8 59.05	+15 10.2	1.252	2.224	5.2	20.7	1 22	8 59.38	+16 10.5	1.472	2.444	4.6	21.0
2 1	8 48.91	+16 2.5	1.220	2.205	0.9	20.3	2 1	8 48.92	+17 7.2	1.440	2.425	0.6	20.6
2 11	8 38.54	+16 56.3	1.216	2.186	6.2	20.6	2 11	8 38.23	+18 3.5	1.436	2.405	5.8	21.0
2 21	8 29.46	+17 45.0	1.237	2.168	11.6	20.9	2 21	8 28.68	+18 53.5	1.460	2.385	10.7	21.2
3 2	8 23.01	+18 23.6	1.280	2.150	16.5	21.1	3 2	8 21.48	+19 32.9	1.507	2.365	15.1	21.4
205536	2001 <i>SY</i> ₁₆₆		1 30.8	349°67	1°4/29.9	17	297228	1012 <i>T</i> ₋₃		1 30.8	189°42	2°4/28.8	17
12 23	9 15.33	+20 4.1	2.264	3.043	13.1	20.5	12 23	9 17.67	+26 16.3	3.239	4.005	9.8	21.5
1 2	9 11.46	+20 29.4	2.175	3.043	10.3	20.3	1 2	9 12.60	+26 40.4	3.144	4.003	7.7	21.4
1 12	9 5.43	+21 1.2	2.108	3.042	7.0	20.1	1 12	9 5.84	+27 5.4	3.074	4.001	5.3	21.2
1 22	8 57.72	+21 35.5	2.069	3.042	3.4	19.8	1 22	8 57.83	+27 27.9	3.033	3.999	3.1	21.0
2 1	8 49.12	+22 8.1	2.059	3.041	1.6	19.7	2 1	8 49.16	+27 44.7	3.023	3.996	2.6	21.0
2 11	8 40.60	+22 34.8	2.078	3.041	4.9	19.9	2 11	8 40.57	+27 53.3	3.045	3.993	4.5	21.1
2 21	8 33.08	+22 53.0	2.126	3.041	8.5	20.1	2 21	8 32.73	+27 52.6	3.097	3.989	6.9	21.3
3 2	8 27.33	+23 1.3	2.199	3.041	11.6	20.3	3 2	8 26.25	+27 42.6	3.176	3.985	9.2	21.4
241553	2010 <i>FT</i> ₈₈		1 30.8	31°66	3°1/29.3	18	227563	2005 <i>YP</i> ₁₉₀		1 30.8	320°55	0°4/30.6	18
12 23	9 17.77	+20 46.0	1.290	2.103	19.4	20.4	12 23	9 15.96	+16 39.2	1.974	2.752	14.8	20.9
1 2	9 14.98	+21 36.4	1.222	2.108	15.2	20.2	1 2	9 12.28	+17 3.8	1.884	2.751	11.7	20.7
1 12	9 8.66	+22 38.7	1.173	2.114	10.3	19.9	1 12	9 6.18	+17 38.6	1.817	2.750	8.0	20.5
1 22	8 59.52	+23 45.0	1.147	2.121	5.2	19.7	1 22	8 58.17	+18 19.9	1.776	2.750	3.8	20.2
2 1	8 48.88	+24 45.6	1.147	2.128	3.5	19.6	2 1	8 49.11	+19 3.0	1.764	2.749	0.8	20.0
2 11	8 38.49	+25 31.7	1.173	2.135	7.9	19.9	2 11	8 40.10	+19 42.6	1.781	2.748	5.1	20.3
2 21	8 29.99	+25 59.0	1.223	2.143	12.9	20.1	2 21	8 32.23	+20 14.9	1.826	2.748	9.1	20.5
3 2	8 24.55	+26 6.8	1.295	2.151	17.2	20.4	3 2	8 26.35	+20 37.6	1.895	2.747	12.7	20.7
522597	2016 <i>EW</i> ₂₄₇		1 30.8	208°55	0°0/30.8	17	197574	2004 <i>GU</i> ₃₃		1 30.8	225°22	5°6/27.5	18
12 23	9 15.20	+15 35.1	2.614	3.374	12.1	22.8	12 23	9 22.94	+27 41.2	1.681	2.475	16.4	20.8
1 2	9 11.06	+15 59.5	2.513	3.369	9.5	22.6	1 2	9 18.68	+28 51.6	1.594	2.468	13.0	20.5
1 12	9 5.02	+16 32.4	2.436	3.364	6.5	22.4	1 12	9 11.09	+30 7.5	1.528	2.460	9.4	20.3
1 22	8 57.50	+17 11.1	2.386	3.358	3.1	22.1	1 22	9 0.74	+31 19.6	1.489	2.451	6.2	20.1
2 1	8 49.16	+17 52.0	2.367	3.352	0.4	21.9	2 1	8 48.75	+32 18.1	1.477	2.442	6.0	20.1
2 11	8 40.81	+18 31.3	2.379	3.346	4.0	22.2	2 11	8 36.73	+32 55.4	1.493	2.432	9.1	20.2
2 21	8 33.26	+19 5.8	2.420	3.339	7.4	22.4	2 21	8 26.27	+33 8.5	1.534	2.422	12.9	20.4
3 2	8 27.19	+19 33.4	2.488	3.332	10.4	22.6	3 2	8 18.64	+32 58.9	1.597	2.412	16.5	20.6
261262	2005 <i>UE</i> ₉₈		1 30.8	325°27	0°8/31.3	18	309234	2007 <i>QB</i> ₁₆		1 30.8	117°32	0°1/30.8	18
12 23	9 15.03	+13 25.7	1.810	2.587	16.0	21.1							

EPHEMERIDES

1 30.8

1 30.8

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
29198 Weathers			1 30.8 243°90	5°4/26.5	18		105750 2000 SY ₉₄			1 30.8 90°52	3°7/ 1.8	18	
12 23	9 18.15	+27 31.2	1.968	2.760	14.4	17.7	12 23	9 19.62	+7 45.2	1.610	2.368	18.5	20.2
1 2	9 14.47	+29 7.1	1.879	2.752	11.4	17.5	1 2	9 15.42	+7 28.4	1.537	2.383	15.0	20.0
1 12	9 8.00	+30 49.3	1.814	2.744	8.2	17.3	1 12	9 8.42	+7 29.2	1.483	2.398	10.9	19.7
1 22	8 59.20	+32 29.3	1.776	2.735	5.8	17.1	1 22	8 59.27	+7 46.7	1.452	2.412	6.6	19.5
2 1	8 48.99	+33 57.4	1.768	2.726	5.9	17.1	2 1	8 49.02	+8 18.1	1.449	2.426	3.7	19.4
2 11	8 38.65	+35 5.8	1.787	2.717	8.6	17.2	2 11	8 39.02	+8 58.6	1.473	2.441	5.9	19.5
2 21	8 29.50	+35 50.7	1.834	2.708	11.9	17.4	2 21	8 30.48	+9 42.5	1.525	2.454	10.0	19.8
3 2	8 22.64	+36 12.1	1.902	2.698	15.0	17.6	3 2	8 24.35	+10 24.7	1.601	2.468	13.9	20.1
433566 2013 YZ ₈			1 30.8 63°33	2°2/28.9	18		333110 2011 UZ ₃₈₄			1 30.8 193°67	1°0/31.4	18	
12 23	9 13.72	+19 58.2	2.297	3.078	12.9	20.7	12 23	9 21.08	+14 0.3	1.939	2.701	15.6	21.3
1 2	9 10.21	+21 8.5	2.217	3.088	10.0	20.5	1 2	9 16.34	+14 0.0	1.845	2.699	12.5	21.0
1 12	9 4.59	+22 27.1	2.162	3.097	6.8	20.3	1 12	9 8.98	+14 10.3	1.772	2.697	8.7	20.8
1 22	8 57.36	+23 48.7	2.135	3.107	3.4	20.1	1 22	8 59.56	+14 29.1	1.725	2.695	4.5	20.5
2 1	8 49.25	+25 6.9	2.137	3.116	2.5	20.1	2 1	8 48.98	+14 52.8	1.707	2.691	1.1	20.3
2 11	8 41.22	+26 15.9	2.170	3.126	5.4	20.3	2 11	8 38.43	+15 17.3	1.719	2.688	5.0	20.5
2 21	8 34.14	+27 11.7	2.232	3.136	8.7	20.5	2 21	8 29.08	+15 39.0	1.759	2.683	9.3	20.8
3 2	8 28.77	+27 52.7	2.318	3.146	11.6	20.7	3 2	8 21.87	+15 55.3	1.825	2.678	13.1	21.0
237141 2008 UV ₆₁			1 30.8 59°59	1°0/30.3	18		500238 2012 JG ₂₄			1 30.8 312°62	6°2/ 2.5	17	
12 23	9 18.15	+18 47.1	1.937	2.717	15.0	20.7	12 23	9 15.47	+4 34.2	1.674	2.425	18.1	20.9
1 2	9 13.77	+19 7.3	1.872	2.740	11.7	20.6	1 2	9 12.47	+3 36.7	1.570	2.406	15.3	20.6
1 12	9 6.99	+19 34.9	1.829	2.763	7.9	20.4	1 12	9 6.71	+2 54.4	1.485	2.387	11.9	20.4
1 22	8 58.46	+20 5.9	1.813	2.786	3.7	20.2	1 22	8 58.62	+2 30.1	1.423	2.369	8.4	20.1
2 1	8 49.13	+20 35.4	1.825	2.809	1.2	20.0	2 1	8 49.09	+2 24.9	1.386	2.352	6.2	19.9
2 11	8 40.12	+20 59.3	1.867	2.833	5.1	20.3	2 11	8 39.36	+2 37.4	1.376	2.334	7.6	20.0
2 21	8 32.44	+21 14.9	1.937	2.856	8.9	20.6	2 21	8 30.74	+3 3.7	1.392	2.317	11.1	20.1
3 2	8 26.84	+21 21.2	2.031	2.879	12.2	20.9	3 2	8 24.35	+3 38.4	1.431	2.301	15.0	20.3
77312 2001 FO ₈₁			1 30.8 270°15	2°1/31.8	18		368743 2005 UP ₃₄₆			1 30.8 239°51	7°0/ 4.4	17	
12 23	9 19.19	+12 34.3	1.735	2.504	16.9	20.1	12 23	9 16.56	-3 46.0	2.423	3.099	15.0	21.6
1 2	9 15.21	+12 14.0	1.638	2.496	13.7	19.8	1 2	9 12.36	-4 29.4	2.308	3.084	13.0	21.4
1 12	9 8.43	+12 5.3	1.562	2.487	9.7	19.6	1 12	9 6.10	-4 56.3	2.214	3.068	10.7	21.2
1 22	8 59.37	+12 7.1	1.511	2.479	5.3	19.3	1 22	8 58.15	-5 4.1	2.143	3.051	8.5	21.1
2 1	8 48.99	+12 16.9	1.487	2.470	2.1	19.1	2 1	8 49.17	-4 51.5	2.099	3.034	7.1	20.9
2 11	8 38.59	+12 31.2	1.492	2.461	5.5	19.3	2 11	8 40.03	-4 19.8	2.083	3.016	7.4	20.9
2 21	8 29.44	+12 46.2	1.524	2.453	10.1	19.5	2 21	8 31.63	-3 32.4	2.096	2.997	9.3	21.0
3 2	8 22.61	+12 59.0	1.580	2.444	14.2	19.7	3 2	8 24.77	-2 34.4	2.134	2.978	11.8	21.1
63703 2001 QB ₁₈₅			1 30.8 88°86	5°3/ 3.7	18		80059 1999 JM ₇₅			1 30.8 287°52	0°8/30.1	18	
12 23	9 14.65	+0 33.4	2.377	3.083	14.5	19.7	12 23	9 12.91	+15 43.8	2.334	3.105	13.0	19.2
1 2	9 10.64	+0 0.5	2.291	3.094	12.2	19.6	1 2	9 9.71	+16 42.6	2.224	3.087	10.3	18.9
1 12	9 4.72	-0 16.8	2.226	3.105	9.6	19.4	1 12	9 4.40	+17 54.1	2.138	3.070	7.0	18.7
1 22	8 57.37	-0 17.4	2.186	3.116	7.1	19.3	1 22	8 57.37	+19 14.2	2.079	3.052	3.3	18.4
2 1	8 49.27	-0 1.9	2.174	3.127	5.4	19.2	2 1	8 49.27	+20 37.4	2.051	3.035	1.1	18.2
2 11	8 41.27	+0 27.4	2.190	3.138	6.0	19.3	2 11	8 41.02	+21 57.5	2.053	3.017	4.8	18.5
2 21	8 34.16	+1 6.7	2.234	3.149	8.1	19.4	2 21	8 33.54	+23 9.0	2.084	2.999	8.6	18.7
3 2	8 28.61	+1 51.6	2.305	3.160	10.7	19.6	3 2	8 27.67	+24 8.3	2.141	2.981	11.9	18.8
461934 2006 SS ₂₁₁			1 30.8 39°74	1°0/31.4	16		47893 2000 GY ₁₁			1 30.8 47°54	3°1/29.1	18	
12 23	9 16.64	+11 10.6	1.229	2.026	21.0	21.0	12 23	9 19.50	+25 39.5	2.022	2.808	14.2	18.2
1 2	9 13.62	+11 50.9	1.183	2.057	16.6	20.8	1 2	9 14.98	+26 0.9	1.944	2.815	11.2	18.0
1 12	9 7.36	+12 52.2	1.156	2.090	11.3	20.6	1 12	9 7.93	+26 24.4	1.889	2.822	7.7	17.8
1 22	8 58.74	+14 8.4	1.151	2.123	5.7	20.4	1 22	8 58.98	+26 44.9	1.861	2.830	4.3	17.6
2 1	8 49.10	+15 30.8	1.173	2.158	1.1	20.2	2 1	8 49.08	+26 57.3	1.861	2.837	3.3	17.5
2 11	8 40.04	+16 49.5	1.221	2.192	6.0	20.6	2 11	8 39.43	+26 58.2	1.891	2.845	6.2	17.7
2 21	8 32.89	+17 57.2	1.294	2.227	11.0	21.0	2 21	8 31.11	+26 46.5	1.947	2.853	9.7	18.0
3 2	8 28.55	+18 49.7	1.389	2.262	15.2	21.3	3 2	8 24.96	+26 23.0	2.029	2.861	12.8	18.2
122360 2000 QJ ₅₁			1 30.8 131°20	1°3/30.1	18		145667 9537 P-L			1 30.8 50°48	2°4/ 1.3	18	
12 23	9 22.40	+19 21.6	1.775	2.554	16.2	20.7	12 23	9 15.44	+9 22.2	1.678	2.447	17.4	19.3
1 2	9 17.52	+19 44.8	1.697	2.564	12.8	20.4	1 2	9 12.18	+9 31.1	1.597	2.453	14.0	19.1
1 12	9 9.81	+20 16.2	1.641	2.575	8.6	20.2	1 12	9 6.26	+9 57.4	1.537	2.459	10.0	18.8
1 22	8 59.93	+20 51.1	1.611	2.584	4.1	20.0	1 22	8 58.27	+10 39.1	1.500	2.466	5.6	18.6
2 1	8 48.93	+21 23.8	1.610	2.594	1.6	19.8	2 1	8 49.17	+11 32.1	1.491	2.473	2.4	18.4
2 11	8 38.16	+21 49.0	1.638	2.603	5.8	20.1	2 11	8 40.18	+12 30.2	1.510	2.480	5.3	18.6
2 21	8 28.87	+22 3.9	1.694	2.611	10.1	20.4	2 21	8 32.48	+13 27.4	1.556	2.487	9.7	18.9
3 2	8 22.01	+22 7.6	1.774	2.619	13.8	20.6	3 2	8 27.01	+14 18.7	1.626	2.495	13.6	19.1
7687 Matthias			1 30.8 324°85	4°8/ 2.2	18		406863 2009 BF ₁₂₁			1 30.8 313°67	0°6/31.1	16	
12 23	9 13.95	+6 29.1	1.317	2.098	20.7	17.4	12 23	9 15.88	+14 39.8	1.450	2.245	18.5	21.8
1 2	9 11.93	+6 6.9	1.228	2.088	17.2	17.2	1 2	9 13.27	+14 47.7	1.357	2.232	14.8	21.5
1 12	9 6.68	+6 6.7	1.157	2.078	12.8	16.9	1 12	9 7.50	+15 10.3	1.284	2.220	10.3	21.2
1 22	8 58.70	+6 29.6	1.108	2.068	8.2	16.6	1 22	8 59.07	+15 44.9	1.235	2.208	5.2	20.9
2 1	8 49.07	+7 13.9	1.082	2.059	4.9	16.4	2 1	8 49.04	+16 26.3	1.211	2.196	0.8	20.6
2 11	8 39.32	+8 13.6	1.082	2.051	7.2	16.5	2 11	8 38.93	+17 7.8	1.214	2.185	6.2	20.9
2 21	8 31.05	+9 20.5	1.106	2.043	12.0	16.7	2 21	8 30.24	+17 43.6	1.242	2.174	11.5	21.2
3 2	8 25.53	+10 26.4	1.152	2.036	16.8	16.9	3 2	8 24.22	+18 9.9	1.293	2.164	16.2	21.4
445073 2008 SE ₃₀₀			1 30.8 72°99	2°5/29.7	17		196420 2003 HO ₉			1 30.8 237°75	6°2/ 4.3	18	
12 23	9 25.31	+21 36.9	1.406	2.201	19.0	21.7	12 23	9 14.56	-2 0.9	2.308	3.003	15.2	20.4
1 2	9 20.23	+22 7.3	1.3										

EPHEMERIDES

1 30.8

1 30.9

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
496034	2008 <i>TG</i> ₁₀₇		1 30.8 152°03		0°8/30.3 18		159906	2004 <i>VH</i> ₁₅		1 30.8 29°77		0°2/30.9 18	
12 23	9 16.12	+17 43.0	2.269	3.040	13.3	22.2	12 23	9 15.12	+14 50.6	1.940	2.716	15.1	20.3
1 2	9 12.07	+18 13.8	2.180	3.044	10.5	22.0	1 2	9 11.66	+15 14.8	1.853	2.718	12.0	20.1
1 12	9 5.85	+18 52.9	2.115	3.047	7.1	21.8	1 12	9 5.78	+15 50.9	1.789	2.720	8.2	19.9
1 22	8 57.98	+19 36.7	2.077	3.050	3.4	21.5	1 22	8 58.03	+16 35.3	1.750	2.722	4.0	19.7
2 1	8 49.21	+20 20.5	2.069	3.053	1.1	21.4	2 1	8 49.26	+17 23.4	1.739	2.724	0.5	19.4
2 11	8 40.52	+21 0.0	2.090	3.055	4.7	21.6	2 11	8 40.56	+18 9.9	1.758	2.727	4.9	19.7
2 21	8 32.82	+21 31.7	2.141	3.058	8.3	21.9	2 21	8 32.98	+18 50.2	1.804	2.729	9.0	20.0
3 2	8 26.88	+21 53.8	2.217	3.060	11.5	22.1	3 2	8 27.39	+19 21.6	1.876	2.732	12.7	20.2
182430	2001 <i>RF</i> ₁₃₁		1 30.8 71°94		0°7/31.3 18		269209	2008 <i>KG</i> ₂₀		1 30.8 116°85		0°2/31.0 18	
12 23	9 16.40	+13 15.3	1.771	2.546	16.4	20.6	12 23	9 17.62	+14 28.3	2.260	3.020	13.7	21.8
1 2	9 12.80	+13 38.1	1.692	2.555	13.0	20.3	1 2	9 13.10	+14 56.7	2.181	3.036	10.8	21.6
1 12	9 6.61	+14 14.9	1.634	2.564	9.0	20.1	1 12	9 6.47	+15 35.4	2.125	3.053	7.4	21.4
1 22	8 58.41	+15 2.2	1.601	2.572	4.5	19.9	1 22	8 58.26	+16 20.8	2.097	3.068	3.6	21.2
2 1	8 49.16	+15 54.9	1.596	2.581	0.8	19.6	2 1	8 49.24	+17 8.9	2.098	3.083	0.4	20.9
2 11	8 40.06	+16 47.2	1.620	2.590	5.1	19.9	2 11	8 40.39	+17 54.9	2.130	3.098	4.3	21.3
2 21	8 32.23	+17 33.8	1.672	2.599	9.4	20.2	2 21	8 32.58	+18 35.2	2.192	3.112	7.9	21.5
3 2	8 26.58	+18 11.3	1.748	2.608	13.2	20.5	3 2	8 26.53	+19 7.3	2.279	3.126	11.1	21.8
463300	2012 <i>HE</i> ₇₉		1 30.8 227°67		3°8/ 2.5 17		278409	2007 <i>RJ</i> ₃₃		1 30.8 133°09		0°7/30.3 18	
12 23	9 16.27	+ 4 38.1	2.506	3.224	13.6	22.2	12 23	9 14.74	+16 38.4	2.539	3.304	12.3	20.7
1 2	9 12.00	+ 4 23.1	2.394	3.213	11.3	22.0	1 2	9 10.73	+17 21.7	2.452	3.312	9.6	20.5
1 12	9 5.76	+ 4 21.3	2.304	3.201	8.5	21.8	1 12	9 4.82	+18 13.8	2.390	3.320	6.5	20.3
1 22	8 57.95	+ 4 33.0	2.241	3.188	5.7	21.6	1 22	8 57.47	+19 10.8	2.356	3.328	3.1	20.1
2 1	8 49.22	+ 4 57.2	2.206	3.175	3.9	21.5	2 1	8 49.35	+20 8.4	2.352	3.336	0.9	19.9
2 11	8 40.40	+ 5 31.2	2.201	3.161	5.0	21.5	2 11	8 41.29	+21 1.9	2.379	3.343	4.2	20.2
2 21	8 32.34	+ 6 11.6	2.226	3.147	7.8	21.7	2 21	8 34.09	+21 47.9	2.435	3.350	7.5	20.4
3 2	8 25.78	+ 6 54.4	2.278	3.132	10.8	21.8	3 2	8 28.42	+22 24.3	2.518	3.357	10.4	20.6
371622	2006 <i>YA</i> ₃₀		1 30.8 283°92		0°1/30.8 18		494995	2010 <i>GP</i> ₉₇		1 30.9 270°75		7°1/26.5 17	
12 23	9 19.08	+17 31.5	1.865	2.643	15.6	21.0	12 23	9 21.42	+30 21.9	1.585	2.388	16.8	22.1
1 2	9 15.05	+17 27.6	1.762	2.628	12.4	20.8	1 2	9 17.93	+31 45.7	1.497	2.374	13.6	21.8
1 12	9 8.29	+17 31.6	1.681	2.613	8.6	20.5	1 12	9 10.89	+33 14.0	1.431	2.360	10.1	21.6
1 22	8 59.32	+17 40.9	1.626	2.598	4.2	20.2	1 22	9 0.82	+34 36.4	1.390	2.345	7.5	21.4
2 1	8 49.04	+17 51.6	1.598	2.583	0.6	19.9	2 1	8 48.89	+35 41.3	1.375	2.330	7.6	21.4
2 11	8 38.70	+17 59.9	1.600	2.568	5.4	20.2	2 11	8 36.83	+36 19.9	1.386	2.316	10.6	21.5
2 21	8 29.53	+18 2.9	1.629	2.554	9.9	20.4	2 21	8 26.41	+36 29.4	1.422	2.301	14.4	21.7
3 2	8 22.58	+17 59.2	1.683	2.539	13.9	20.6	3 2	8 19.03	+36 12.0	1.478	2.286	18.0	21.9
144403	2004 <i>EH</i> ₇		1 30.8 18°07		1°9/31.9 18		359140	2009 <i>BW</i> ₉₁		1 30.9 74°14		0°2/30.7 17	
12 23	9 12.98	+10 27.6	1.384	2.176	19.3	19.6	12 23	9 20.33	+14 15.4	1.501	2.284	18.5	21.3
1 2	9 10.82	+10 45.7	1.310	2.181	15.5	19.3	1 2	9 16.15	+15 0.1	1.441	2.310	14.5	21.1
1 12	9 5.64	+11 24.1	1.255	2.186	11.0	19.1	1 12	9 8.98	+16 0.3	1.402	2.335	9.8	20.9
1 22	8 58.07	+12 19.8	1.223	2.193	5.8	18.8	1 22	8 59.56	+17 10.3	1.388	2.361	4.7	20.7
2 1	8 49.21	+13 27.2	1.216	2.200	1.9	18.6	2 1	8 49.10	+18 22.1	1.402	2.387	0.7	20.4
2 11	8 40.50	+14 37.9	1.236	2.208	5.9	18.8	2 11	8 39.03	+19 28.1	1.444	2.412	5.8	20.9
2 21	8 33.32	+15 44.2	1.281	2.217	10.9	19.1	2 21	8 30.65	+20 22.4	1.512	2.437	10.5	21.2
3 2	8 28.70	+16 40.3	1.349	2.227	15.3	19.4	3 2	8 24.87	+21 2.4	1.605	2.461	14.4	21.5
347392	2012 <i>RP</i> ₃₅		1 30.8 123°47		0°1/30.9 18		116782	2004 <i>EV</i> ₃₁		1 30.9 255°03		5°1/27.9 18	
12 23	9 15.21	+16 3.6	2.575	3.337	12.2	21.7	12 23	9 23.06	+29 53.6	1.970	2.755	14.6	20.4
1 2	9 11.01	+16 19.0	2.488	3.345	9.6	21.5	1 2	9 18.29	+30 34.9	1.875	2.743	11.7	20.2
1 12	9 4.94	+16 41.9	2.424	3.353	6.5	21.3	1 12	9 10.56	+31 16.9	1.803	2.730	8.5	19.9
1 22	8 57.48	+17 9.6	2.388	3.360	3.1	21.1	1 22	9 0.44	+31 52.6	1.757	2.717	5.7	19.8
2 1	8 49.31	+17 39.0	2.382	3.367	0.4	20.9	2 1	8 48.96	+32 14.7	1.739	2.703	5.4	19.7
2 11	8 41.23	+18 6.7	2.407	3.375	3.9	21.2	2 11	8 37.51	+32 18.5	1.750	2.689	8.0	19.8
2 21	8 34.03	+18 30.0	2.461	3.381	7.2	21.4	2 21	8 27.43	+32 2.6	1.787	2.675	11.4	20.0
3 2	8 28.34	+18 47.3	2.542	3.388	10.1	21.6	3 2	8 19.82	+31 29.1	1.848	2.661	14.7	20.2
464807	2004 <i>RY</i> ₇₃		1 30.8 187°04		0°4/30.5 18		18232	3322 <i>T</i> ₋₁		1 30.9 101°97		7°1/26.9 18	
12 23	9 18.40	+17 40.4	2.355	3.119	13.1	22.0	12 23	9 28.60	+36 23.3	1.981	2.758	14.9	18.3
1 2	9 13.77	+17 56.0	2.260	3.119	10.3	21.8	1 2	9 22.34	+37 22.5	1.924	2.779	12.1	18.2
1 12	9 6.98	+18 18.8	2.189	3.118	7.0	21.6	1 12	9 13.00	+38 15.9	1.890	2.800	9.3	18.0
1 22	8 58.52	+18 45.7	2.145	3.117	3.4	21.4	1 22	9 1.42	+38 54.9	1.882	2.820	7.4	18.0
2 1	8 49.16	+19 13.0	2.131	3.115	0.7	21.1	2 1	8 48.86	+39 12.5	1.902	2.840	7.4	18.0
2 11	8 39.86	+19 36.9	2.147	3.113	4.5	21.4	2 11	8 36.84	+39 5.5	1.950	2.859	9.3	18.1
2 21	8 31.53	+19 54.8	2.193	3.111	8.1	21.6	2 21	8 26.65	+38 35.6	2.023	2.878	11.8	18.3
3 2	8 24.95	+20 5.2	2.265	3.108	11.3	21.8	3 2	8 19.21	+37 46.9	2.120	2.897	14.3	18.5
1909	Alekhin		1 30.8 281°05		1°2/31.5 18 R		347002	2010 <i>CC</i> ₂₂₇		1 30.9 253°22		5°2/26.2 15	
12 23	9 17.70	+13 8.3	1.740	2.514	16.7	16.9	12 23	9 16.06	+30 26.4	2.394	3.181	12.3	21.4
1 2	9 14.31	+13 12.9	1.628	2.490	13.5	16.6	1 2	9 12.27	+31 47.4	2.312	3.180	9.8	21.3
1 12	9 8.05	+13 31.2	1.537	2.465	9.6	16.3	1 12	9 6.16	+33 10.0	2.254	3.178	7.2	21.1
1 22	8 59.33	+14 1.5	1.471	2.441	5.0	16.0	1 22	8 58.23	+34 27.3	2.224	3.176	5.4	21.0
2 1	8 49.03	+14 40.0	1.432	2.416	1.3	15.7	2 1	8 49.27	+35 32.5	2.224	3.174	5.6	21.0
2 11	8 38.44	+15 21.2	1.421	2.391	5.6	15.9	2 11	8 40.30	+36 20.3	2.252	3.173	7.6	21.1
2 21	8 28.92	+16 0.0	1.437	2.366	10.6	16.1	2 21	8 32.36	+36 48.6	2.307	3.171	10.2	21.3
3 2	8 21.68	+16 32.2	1.477	2.340	15.1	16.3	3 2	8 26.28	+36 57.7	2.385	3.169	12.7	21.4
222293	2000 <i>SP</i> ₁₆₈		1 30.8 122°99		5°2/ 3.7 18		492707	2014 <i>QF</i> ₂₃		1 30.9 172°53		3°1/ 1.8 18	
12 23	9 16.54	+ 0 27.2	2.319	3.022	14.9	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
331193	2011 <i>AO</i> ₆₁		1 30.9 120°54	1°0/30.1	18		461694	2005 <i>QV</i> ₁₁₆		1 30.9 117°03	0°4/30.6	18	
12 23	9 16.48	+17 16.3	1.992	2.770	14.7	21.3	12 23	9 18.63	+16 51.6	1.974	2.748	15.0	22.0
1 2	9 12.69	+18 0.0	1.908	2.776	11.6	21.1	1 2	9 14.31	+17 13.1	1.893	2.757	11.8	21.8
1 12	9 6.48	+18 54.3	1.847	2.781	7.8	20.9	1 12	9 7.53	+17 44.1	1.835	2.766	8.0	21.6
1 22	8 58.39	+19 54.6	1.812	2.785	3.7	20.7	1 22	8 58.88	+18 20.8	1.802	2.775	3.8	21.4
2 1	8 49.27	+20 55.1	1.806	2.790	1.3	20.5	2 1	8 49.25	+18 58.5	1.799	2.784	0.7	21.1
2 11	8 40.23	+21 49.8	1.830	2.795	5.3	20.8	2 11	8 39.78	+19 32.3	1.825	2.792	5.0	21.5
2 21	8 32.32	+22 34.4	1.882	2.799	9.2	21.0	2 21	8 31.53	+19 58.9	1.879	2.800	9.0	21.7
3 2	8 26.42	+23 6.6	1.959	2.804	12.7	21.2	3 2	8 25.33	+20 16.2	1.959	2.808	12.5	21.9
116406	2003 <i>YP</i> ₁₃₆		1 30.9 188°74	1°5/29.6	18		273188	2006 <i>HD</i> ₁₀₆		1 30.9 110°33	5°6/26.5	18	
12 23	9 14.56	+18 59.8	2.423	3.197	12.5	20.1	12 23	9 18.09	+31 5.2	2.156	2.945	13.4	21.0
1 2	9 10.81	+19 50.4	2.331	3.197	9.8	19.9	1 2	9 14.09	+32 19.7	2.078	2.947	10.7	20.8
1 12	9 5.02	+20 49.1	2.263	3.196	6.6	19.7	1 12	9 7.52	+33 34.9	2.025	2.948	7.9	20.6
1 22	8 57.64	+21 51.8	2.223	3.196	3.2	19.5	1 22	8 58.93	+34 43.3	1.998	2.950	5.9	20.5
2 1	8 49.37	+22 53.3	2.213	3.195	1.7	19.4	2 1	8 49.24	+35 37.7	2.000	2.951	6.0	20.5
2 11	8 41.11	+23 48.5	2.234	3.194	4.9	19.6	2 11	8 39.63	+36 12.8	2.030	2.953	8.2	20.7
2 21	8 33.73	+24 33.8	2.283	3.193	8.2	19.8	2 21	8 31.24	+36 26.9	2.086	2.954	10.9	20.8
3 2	8 27.97	+25 7.2	2.358	3.192	11.2	20.0	3 2	8 24.99	+36 21.2	2.165	2.956	13.6	21.0
93256	Stach		1 30.9 92°71	1°6/29.9	18		154638	2003 <i>YT</i> ₇₉		1 30.9 55°10	10°0/1.5	18	
12 23	9 19.24	+20 32.2	1.983	2.763	14.7	19.8	12 23	9 31.16	+ 7 1.1	1.034	1.809	25.6	18.9
1 2	9 14.77	+20 55.9	1.906	2.774	11.5	19.6	1 2	9 26.06	+ 4 26.1	0.967	1.817	21.5	18.7
1 12	9 7.81	+21 25.9	1.852	2.786	7.8	19.4	1 12	9 16.59	+ 2 3.4	0.918	1.825	16.8	18.4
1 22	8 58.98	+21 57.9	1.825	2.797	3.8	19.2	1 22	9 3.56	+ 0 1.7	0.889	1.834	12.3	18.2
2 1	8 49.21	+22 26.8	1.826	2.809	1.8	19.1	2 1	8 48.65	- 1 30.5	0.884	1.843	10.0	18.1
2 11	8 39.66	+22 48.3	1.857	2.820	5.4	19.3	2 11	8 34.15	- 2 29.2	0.903	1.853	11.8	18.2
2 21	8 31.39	+22 59.9	1.916	2.831	9.2	19.6	2 21	8 22.15	- 2 56.7	0.945	1.862	15.9	18.5
3 2	8 25.23	+23 1.0	1.999	2.842	12.6	19.8	3 2	8 14.08	- 3 0.4	1.006	1.872	20.2	18.8
400558	2008 <i>WJ</i> ₆₃		1 30.9 67°07	4°2/28.7	18		387437	2013 <i>WO</i> ₅₅		1 30.9 49°80	1°1/30.2	18	
12 23	9 21.62	+23 52.9	1.392	2.197	18.6	20.7	12 23	9 15.74	+18 48.5	2.096	2.876	14.0	21.0
1 2	9 17.72	+24 50.8	1.331	2.213	14.5	20.5	1 2	9 11.96	+19 14.1	2.014	2.882	11.0	20.8
1 12	9 10.37	+25 55.8	1.291	2.229	10.0	20.2	1 12	9 5.89	+19 47.4	1.954	2.888	7.4	20.6
1 22	9 0.36	+26 59.2	1.275	2.245	5.6	20.0	1 22	8 58.09	+20 24.5	1.921	2.894	3.6	20.4
2 1	8 49.04	+27 51.2	1.286	2.262	4.6	20.0	2 1	8 49.37	+21 0.7	1.916	2.900	1.3	20.2
2 11	8 38.14	+28 24.9	1.323	2.278	8.2	20.3	2 11	8 40.78	+21 31.6	1.942	2.906	5.0	20.5
2 21	8 29.19	+28 37.8	1.386	2.294	12.5	20.6	2 21	8 33.30	+21 54.2	1.995	2.913	8.7	20.7
3 2	8 23.26	+28 31.4	1.470	2.311	16.4	20.8	3 2	8 27.70	+22 6.9	2.073	2.920	12.0	20.9
448225	2008 <i>VP</i> ₃		1 30.9 87°71	7°6/26.7	17		4583	Lugo		1 30.9 183°23	1°1/31.6	18	
12 23	9 29.34	+32 56.7	1.597	2.386	17.3	21.7	12 23	9 19.55	+12 4.2	2.049	2.804	15.1	17.9
1 2	9 23.47	+34 28.9	1.552	2.418	13.8	21.6	1 2	9 15.03	+12 23.4	1.954	2.805	12.1	17.7
1 12	9 14.06	+35 58.0	1.529	2.448	10.4	21.4	1 12	9 8.07	+12 55.7	1.882	2.805	8.5	17.5
1 22	9 2.02	+37 12.5	1.532	2.478	7.9	21.4	1 22	8 59.19	+13 38.6	1.836	2.804	4.4	17.2
2 1	8 48.84	+38 2.5	1.562	2.508	8.0	21.4	2 1	8 49.23	+14 28.0	1.819	2.803	1.1	17.0
2 11	8 36.31	+38 23.3	1.619	2.536	10.3	21.6	2 11	8 39.27	+15 18.6	1.832	2.801	4.7	17.3
2 21	8 25.97	+38 16.2	1.701	2.564	13.3	21.9	2 21	8 30.39	+16 5.8	1.875	2.799	8.8	17.5
3 2	8 18.82	+37 46.0	1.804	2.591	16.0	22.1	3 2	8 23.48	+16 46.0	1.943	2.795	12.5	17.7
403826	2011 <i>UM</i> ₁₇₉		1 30.9 1°18	4°7/1.9	18		202316	2005 <i>EZ</i> ₂₈		1 30.9 31°29	4°7/27.9	18	
12 23	9 18.62	+ 8 9.5	1.502	2.270	19.2	20.5	12 23	9 19.21	+29 20.5	2.031	2.821	14.1	19.8
1 2	9 15.07	+ 7 20.8	1.418	2.269	15.8	20.3	1 2	9 14.95	+30 2.0	1.954	2.825	11.1	19.6
1 12	9 8.50	+ 6 47.4	1.353	2.269	11.7	20.1	1 12	9 8.06	+30 43.8	1.900	2.828	8.0	19.4
1 22	8 59.50	+ 6 30.4	1.311	2.269	7.5	19.8	1 22	8 59.16	+31 19.6	1.871	2.832	5.3	19.3
2 1	8 49.15	+ 6 29.5	1.294	2.269	4.7	19.6	2 1	8 49.24	+31 43.3	1.871	2.836	5.0	19.2
2 11	8 38.88	+ 6 41.6	1.304	2.270	6.8	19.8	2 11	8 39.53	+31 50.7	1.900	2.841	7.4	19.4
2 21	8 30.08	+ 7 2.4	1.340	2.271	11.0	20.0	2 21	8 31.16	+31 40.9	1.955	2.845	10.5	19.6
3 2	8 23.83	+ 7 26.8	1.399	2.272	15.1	20.2	3 2	8 25.02	+31 15.4	2.034	2.850	13.4	19.8
117222	2004 <i>RD</i> ₃₀₈		1 30.9 197°67	1°5/31.9	18		180709	2004 <i>HA</i> ₆₂		1 30.9 265°64	5°2/3.4	18	
12 23	9 16.97	+11 42.6	2.378	3.127	13.4	20.7	12 23	9 14.59	+ 1 21.4	2.032	2.754	16.2	20.1
1 2	9 12.63	+11 45.3	2.278	3.124	10.8	20.5	1 2	9 11.29	+ 1 13.0	1.921	2.738	13.7	19.9
1 12	9 6.23	+11 58.4	2.202	3.122	7.6	20.3	1 12	9 5.66	+ 1 24.0	1.830	2.721	10.7	19.7
1 22	8 58.22	+12 20.5	2.152	3.118	4.1	20.1	1 22	8 58.11	+ 1 55.8	1.763	2.704	7.5	19.4
2 1	8 49.32	+12 48.8	2.132	3.115	1.5	19.9	2 1	8 49.36	+ 2 47.4	1.722	2.687	5.3	19.3
2 11	8 40.44	+13 19.8	2.142	3.111	4.2	20.1	2 11	8 40.43	+ 3 54.9	1.711	2.670	6.2	19.3
2 21	8 32.44	+13 50.3	2.182	3.106	7.7	20.3	2 21	8 32.38	+ 5 12.4	1.727	2.652	9.3	19.4
3 2	8 26.08	+14 17.2	2.248	3.101	11.0	20.5	3 2	8 26.12	+ 6 33.2	1.769	2.634	12.8	19.6
30815	1990 <i>QH</i> ₂		1 30.9 94°29	2°3/29.7	18		443800	1995 <i>VL</i> ₅		1 30.9 87°14	1°2/30.2	15	
12 23	9 24.15	+21 17.6	1.572	2.360	17.6	18.7	12 23	9 21.78	+16 56.0	1.441	2.231	18.8	21.7
1 2	9 19.18	+21 47.1	1.507	2.379	13.8	18.5	1 2	9 17.57	+17 39.0	1.377	2.250	14.8	21.5
1 12	9 11.08	+22 24.0	1.462	2.398	9.3	18.2	1 12	9 10.13	+18 35.7	1.334	2.270	10.0	21.3
1 22	9 0.61	+23 2.1	1.443	2.416	4.6	18.0	1 22	9 0.23	+19 39.5	1.315	2.289	4.7	21.0
2 1	8 49.03	+23 34.4	1.452	2.434	2.6	17.9	2 1	8 49.11	+20 42.4	1.324	2.308	1.5	20.8
2 11	8 37.86	+23 55.6	1.490	2.452	6.6	18.2	2 11	8 38.37	+21 36.5	1.360	2.327	6.4	21.2
2 21	8 28.47	+24 3.3	1.554	2.469	11.0	18.5	2 21	8 29.42	+22 17.0	1.423	2.345	11.2	21.5
3 2	8 21.83	+23 57.8	1.641	2.486	14.7	18.8	3 2	8 23.27	+22 42.1	1.509	2.363	15.3	21.8
110553	2001 <i>TU</i> ₁₀₃		1 30.9 59°31	1°3/31.6	18		122458	2000 <i>QV</i> ₁₄₄		1 30.9 217°84	1°6/29.9	18	
12 23	9 16.82	+12 42.8	1.779	2.552	16.4	19.8	12 23						

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
407321	2010 <i>OK</i> ₉₁		1 30.9 68°81'	0°4/30.7	18		522437	2016 <i>CD</i> ₃₁₈		1 30.9 301°32'	8°0/25.1	18	
12 23	9 23.76	+18 57.9	1.681	2.460	17.0	20.3	12 23	9 19.83	+35 48.8	1.898	2.693	14.7	21.2
1 2	9 18.54	+18 47.3	1.613	2.480	13.3	20.1	1 2	9 16.20	+37 13.6	1.815	2.680	12.2	21.0
1 12	9 10.46	+18 43.5	1.567	2.500	9.1	19.9	1 12	9 9.44	+38 36.9	1.754	2.668	9.6	20.8
1 22	9 0.28	+18 43.0	1.547	2.520	4.3	19.6	1 22	9 0.08	+39 49.0	1.718	2.655	8.1	20.7
2 1	8 49.15	+18 42.0	1.555	2.539	0.7	19.4	2 1	8 49.20	+40 40.6	1.710	2.643	8.5	20.7
2 11	8 38.46	+18 37.3	1.591	2.559	5.4	19.8	2 11	8 38.30	+41 5.3	1.727	2.631	10.6	20.8
2 21	8 29.42	+18 27.1	1.656	2.579	9.8	20.1	2 21	8 28.88	+41 2.0	1.769	2.620	13.4	20.9
3 2	8 22.90	+18 11.1	1.744	2.599	13.6	20.4	3 2	8 22.10	+40 33.4	1.831	2.608	16.2	21.1
384824	2012 <i>RA</i> ₂₁		1 30.9 185°10'	4°0/2.9	18		234517	2001 <i>UP</i> ₁₄		1 30.9 127°94'	3°6/27.9	18	
12 23	9 14.07	+3 51.9	2.431	3.153	13.9	20.9	12 23	9 18.94	+29 10.9	2.826	3.598	11.0	20.9
1 2	9 10.29	+3 36.2	2.334	3.153	11.5	20.7	1 2	9 13.89	+29 51.8	2.750	3.612	8.6	20.8
1 12	9 4.61	+3 34.7	2.258	3.153	8.8	20.6	1 12	9 6.91	+30 32.3	2.700	3.625	6.1	20.6
1 22	8 57.46	+3 47.5	2.207	3.153	5.9	20.4	1 22	8 58.51	+31 8.0	2.678	3.637	4.0	20.5
2 1	8 49.50	+4 13.5	2.185	3.152	4.1	20.3	2 1	8 49.43	+31 34.6	2.687	3.650	3.8	20.5
2 11	8 41.56	+4 49.9	2.192	3.152	5.0	20.3	2 11	8 40.51	+31 49.1	2.725	3.661	5.7	20.6
2 21	8 34.43	+5 32.8	2.228	3.151	7.7	20.5	2 21	8 32.56	+31 50.6	2.793	3.673	8.1	20.8
3 2	8 28.81	+6 18.2	2.291	3.150	10.5	20.7	3 2	8 26.22	+31 39.7	2.886	3.684	10.3	21.0
179011	2001 <i>RF</i> ₅₄		1 30.9 115°37'	10°4/25.1	18		414426	2009 <i>DF</i> ₁₉		1 30.9 165°51'	2°3/29.5	18	
12 23	9 32.94	+45 36.9	1.934	2.697	15.6	20.2	12 23	9 22.36	+22 21.4	2.148	2.920	14.0	22.1
1 2	9 26.53	+46 47.1	1.874	2.704	13.5	20.1	1 2	9 17.16	+22 54.0	2.062	2.926	11.0	21.9
1 12	9 16.32	+47 45.2	1.835	2.710	11.6	20.0	1 12	9 9.48	+23 31.8	1.999	2.930	7.5	21.7
1 22	9 3.22	+48 20.5	1.820	2.717	10.5	19.9	1 22	8 59.87	+24 9.8	1.964	2.935	3.9	21.5
2 1	8 48.80	+48 24.6	1.831	2.723	10.8	20.0	2 1	8 49.25	+24 42.7	1.959	2.938	2.5	21.4
2 11	8 35.01	+47 54.7	1.867	2.729	12.2	20.1	2 11	8 38.75	+25 6.0	1.984	2.941	5.7	21.6
2 21	8 23.53	+46 54.0	1.926	2.735	14.2	20.2	2 21	8 29.46	+25 17.5	2.037	2.943	9.3	21.8
3 2	8 15.45	+45 29.5	2.007	2.741	16.3	20.4	3 2	8 22.25	+25 16.9	2.116	2.945	12.5	22.0
6352	Schlaun		1 30.9 262°60'	0°3/30.7	18 R		233591	2007 <i>RS</i> ₁₀₃		1 30.9 91°05'	7°3/26.1	18	
12 23	9 19.89	+17 14.8	1.626	2.411	17.2	17.9	12 23	9 24.99	+39 42.3	2.321	3.092	13.1	20.2
1 2	9 15.97	+17 22.7	1.541	2.411	13.6	17.6	1 2	9 19.32	+40 35.1	2.257	3.103	10.9	20.1
1 12	9 9.07	+17 41.0	1.477	2.411	9.4	17.4	1 12	9 10.92	+41 20.8	2.215	3.113	8.7	20.0
1 22	8 59.80	+18 5.9	1.438	2.411	4.5	17.1	1 22	9 0.52	+41 52.0	2.200	3.124	7.4	19.9
2 1	8 49.22	+18 32.3	1.426	2.411	0.7	16.8	2 1	8 49.18	+42 2.8	2.212	3.134	7.5	19.9
2 11	8 38.76	+18 55.2	1.442	2.411	5.8	17.2	2 11	8 38.21	+41 50.6	2.252	3.145	9.1	20.1
2 21	8 29.75	+19 10.7	1.485	2.411	10.5	17.4	2 21	8 28.79	+41 16.4	2.318	3.155	11.2	20.2
3 2	8 23.26	+19 17.0	1.552	2.411	14.7	17.7	3 2	8 21.76	+40 23.9	2.406	3.165	13.3	20.4
170505	2003 <i>WW</i> ₁₅		1 30.9 198°05'	0°9/31.4	18		86868	2000 <i>HA</i> ₂₀		1 30.9 152°03'	1°6/31.9	18	
12 23	9 19.22	+13 8.8	2.086	2.844	14.8	21.0	12 23	9 19.60	+10 24.7	1.866	2.622	16.4	20.2
1 2	9 14.78	+13 24.7	1.988	2.841	11.8	20.8	1 2	9 15.25	+10 48.9	1.780	2.630	13.1	20.0
1 12	9 7.93	+13 52.4	1.913	2.837	8.2	20.5	1 12	9 8.32	+11 29.0	1.716	2.637	9.2	19.8
1 22	8 59.16	+14 29.5	1.864	2.833	4.2	20.3	1 22	8 59.37	+12 22.3	1.677	2.644	4.9	19.6
2 1	8 49.30	+15 12.1	1.844	2.829	0.9	20.0	2 1	8 49.31	+13 24.0	1.667	2.651	1.6	19.3
2 11	8 39.43	+15 55.2	1.855	2.823	4.7	20.3	2 11	8 39.33	+14 27.9	1.687	2.656	5.0	19.6
2 21	8 30.60	+16 34.8	1.894	2.817	8.8	20.5	2 21	8 30.57	+15 28.3	1.735	2.661	9.2	19.8
3 2	8 23.70	+17 7.6	1.959	2.811	12.4	20.7	3 2	8 23.94	+16 20.8	1.809	2.665	13.0	20.1
237491	2000 <i>OS</i> ₃₃		1 30.9 121°76'	2°5/1.4	18		417170	2005 <i>WQ</i> ₇₁		1 30.9 96°96'	4°2/27.9	18	
12 23	9 21.04	+9 3.8	1.891	2.638	16.5	21.4	12 23	9 22.98	+27 56.0	2.196	2.973	13.6	21.6
1 2	9 16.17	+9 6.4	1.814	2.656	13.3	21.2	1 2	9 17.48	+28 56.0	2.137	3.001	10.6	21.4
1 12	9 8.79	+9 24.1	1.758	2.673	9.5	21.0	1 12	9 9.54	+29 56.7	2.102	3.029	7.5	21.3
1 22	8 59.51	+9 55.1	1.727	2.690	5.4	20.8	1 22	8 59.82	+30 51.7	2.095	3.056	4.8	21.1
2 1	8 49.28	+10 35.8	1.725	2.706	2.5	20.6	2 1	8 49.28	+31 34.8	2.117	3.082	4.5	21.2
2 11	8 39.25	+11 21.5	1.753	2.721	5.0	20.8	2 11	8 39.09	+32 1.8	2.170	3.107	6.8	21.4
2 21	8 30.50	+12 7.1	1.809	2.735	8.9	21.1	2 21	8 30.25	+32 11.7	2.250	3.132	9.6	21.6
3 2	8 23.89	+12 48.6	1.891	2.749	12.5	21.3	3 2	8 23.55	+32 5.9	2.355	3.157	12.3	21.8
467994	2012 <i>TF</i> ₁₆₄		1 30.9 160°67'	5°0/4.4	17		289846	2005 <i>LR</i> ₄₃		1 30.9 263°18'	5°0/2.7	17	
12 23	9 12.49	-1 41.0	2.679	3.369	13.4	21.4	12 23	9 18.14	+3 40.0	2.481	3.191	13.9	20.3
1 2	9 8.88	-1 49.2	2.581	3.371	11.4	21.2	1 2	9 13.43	+2 41.5	2.380	3.189	11.6	20.1
1 12	9 3.56	-1 41.0	2.504	3.374	9.1	21.0	1 12	9 6.73	+1 54.1	2.301	3.186	9.1	19.9
1 22	8 56.94	-1 15.8	2.452	3.376	6.7	20.9	1 22	8 58.51	+1 19.2	2.248	3.184	6.5	19.8
2 1	8 49.61	-0 34.6	2.427	3.378	5.2	20.8	2 1	8 49.44	+0 57.7	2.224	3.181	5.0	19.7
2 11	8 42.29	+0 20.0	2.432	3.380	5.5	20.8	2 11	8 40.39	+0 48.7	2.230	3.179	5.8	19.7
2 21	8 35.70	+1 23.6	2.466	3.382	7.4	20.9	2 21	8 32.17	+0 50.3	2.265	3.177	8.2	19.9
3 2	8 30.43	+2 31.6	2.528	3.383	9.8	21.1	3 2	8 25.51	+0 59.5	2.326	3.174	10.8	20.0
297079	2010 <i>JH</i> ₁₇₆		1 30.9 256°12'	4°5/3.4	18		32752	1981 <i>EZ</i> ₁₃		1 30.9 331°88'	4°3/29.3	18	
12 23	9 12.94	+1 50.9	2.501	3.213	13.7	20.4	12 23	9 21.33	+27 36.9	1.487	2.293	17.6	19.0
1 2	9 9.42	+1 35.6	2.396	3.207	11.5	20.2	1 2	9 17.77	+27 42.8	1.397	2.278	14.1	18.7
1 12	9 4.05	+1 35.3	2.313	3.200	9.0	20.1	1 12	9 10.70	+27 48.9	1.327	2.263	10.0	18.4
1 22	8 57.22	+1 50.5	2.254	3.193	6.3	19.9	1 22	9 0.74	+27 48.9	1.280	2.249	5.8	18.2
2 1	8 49.57	+2 20.6	2.224	3.185	4.6	19.8	2 1	8 49.16	+27 35.8	1.260	2.236	4.5	18.0
2 11	8 41.88	+3 2.7	2.223	3.178	5.3	19.8	2 11	8 37.68	+27 5.5	1.266	2.224	8.1	18.2
2 21	8 34.94	+3 53.0	2.250	3.171	7.7	19.9	2 21	8 27.95	+26 18.1	1.297	2.213	12.7	18.4
3 2	8 29.42	+4 47.0	2.304	3.163	10.5	20.1	3 2	8 21.25	+25 16.6	1.351	2.202	16.9	18.7
355365	2007 <i>TF</i> ₂₆₆		1 30.9 278°96'	5°2/3.1	18		224606	2005 <i>YR</i> ₄₆		1 30.9 222°48'	1°0/31.5	18	
12 23	9 14.78	+2 46.8	1.619	2.367	18.8	21.2	12 23	9 17.20	+13				

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
394028	2005 WE ₂₀		1 30.9	93°66'	0°1'/30.9	18	200855	2001 YB ₅₈		1 30.9	86°09'	0°9'/30.5	17
12 23	9 23.10	+15 41.1	1.511	2.292	18.5	21.3	12 23	9 23.97	+17 45.0	1.546	2.328	18.1	21.0
1 2	9 18.43	+15 53.6	1.444	2.310	14.6	21.1	1 2	9 18.99	+18 9.0	1.484	2.353	14.2	20.8
1 12	9 10.65	+16 18.6	1.397	2.329	10.0	20.9	1 12	9 10.94	+18 43.5	1.444	2.377	9.6	20.6
1 22	9 0.51	+16 51.9	1.374	2.347	4.8	20.7	1 22	9 0.63	+19 23.3	1.428	2.401	4.5	20.4
2 1	8 49.22	+17 27.7	1.380	2.365	0.6	20.4	2 1	8 49.26	+20 1.9	1.441	2.425	1.2	20.2
2 11	8 38.30	+18 0.1	1.413	2.382	5.8	20.8	2 11	8 38.36	+20 33.4	1.481	2.448	6.0	20.6
2 21	8 29.11	+18 25.0	1.473	2.399	10.6	21.1	2 21	8 29.21	+20 54.5	1.549	2.471	10.5	20.9
3 2	8 22.63	+18 40.4	1.557	2.415	14.7	21.4	3 2	8 22.77	+21 4.2	1.641	2.493	14.4	21.2
34779	Chungchiyung		1 30.9	314°14'	3°5'/1.8	18	194055	2001 SS ₁₁₈		1 30.9	81°11'	2°9'/29.8	18
12 23	9 14.98	+7 37.1	1.407	2.185	19.8	18.6	12 23	9 25.70	+23 31.8	1.441	2.236	18.6	20.7
1 2	9 12.61	+7 36.4	1.317	2.177	16.2	18.4	1 2	9 20.83	+23 45.8	1.373	2.248	14.6	20.5
1 12	9 7.12	+7 57.7	1.246	2.169	11.9	18.1	1 12	9 12.48	+24 4.6	1.325	2.261	10.0	20.2
1 22	8 59.04	+8 40.5	1.198	2.161	7.1	17.8	1 22	9 1.46	+24 21.9	1.301	2.273	5.2	20.0
2 1	8 49.38	+9 41.1	1.174	2.154	3.6	17.6	2 1	8 49.17	+24 31.0	1.305	2.285	3.1	19.9
2 11	8 39.63	+10 52.6	1.176	2.147	6.4	17.7	2 11	8 37.33	+24 27.3	1.336	2.298	7.2	20.2
2 21	8 31.28	+12 6.4	1.204	2.141	11.4	18.0	2 21	8 27.48	+24 9.9	1.392	2.310	11.8	20.5
3 2	8 25.55	+13 15.0	1.255	2.134	16.0	18.2	3 2	8 20.67	+23 40.4	1.472	2.322	15.9	20.7
91732	1999 TK ₁₆₄		1 30.9	157°19'	4°0'/28.6	18	213848	2003 ST ₅₄		1 30.9	49°49'	0°8'/31.2	18
12 23	9 21.79	+28 7.3	2.096	2.878	13.9	19.2	12 23	9 20.55	+15 43.9	1.468	2.256	18.6	19.8
1 2	9 16.88	+28 35.8	2.012	2.879	11.0	19.0	1 2	9 16.62	+15 32.9	1.395	2.265	14.8	19.5
1 12	9 9.36	+29 4.9	1.952	2.881	7.8	18.8	1 12	9 9.55	+15 33.1	1.342	2.275	10.2	19.3
1 22	8 59.85	+29 28.9	1.918	2.882	4.8	18.6	1 22	9 0.06	+15 41.9	1.313	2.285	5.1	19.0
2 1	8 49.30	+29 42.3	1.913	2.883	4.2	18.6	2 1	8 49.34	+15 54.9	1.310	2.295	0.9	18.7
2 11	8 38.95	+29 41.4	1.937	2.884	6.8	18.7	2 11	8 38.91	+16 7.6	1.335	2.305	5.8	19.1
2 21	8 29.92	+29 25.5	1.989	2.884	10.0	18.9	2 21	8 30.15	+16 16.5	1.386	2.316	10.7	19.4
3 2	8 23.10	+28 55.8	2.065	2.885	13.1	19.1	3 2	8 24.09	+16 19.4	1.460	2.327	14.9	19.7
349096	2007 ED ₁₀₂		1 30.9	331°15'	2°5'/29.7	18	184039	2004 FG ₈₂		1 30.9	148°80'	4°4'/27.8	18
12 23	9 17.68	+19 39.4	1.300	2.110	19.4	20.9	12 23	9 21.86	+28 8.9	2.185	2.965	13.5	20.5
1 2	9 15.15	+20 21.2	1.220	2.105	15.3	20.6	1 2	9 16.88	+29 8.7	2.108	2.973	10.7	20.4
1 12	9 9.07	+21 16.5	1.159	2.100	10.5	20.3	1 12	9 9.36	+30 10.4	2.054	2.981	7.6	20.2
1 22	9 0.03	+22 18.7	1.122	2.096	5.2	20.0	1 22	8 59.88	+31 7.2	2.029	2.989	5.0	20.0
2 1	8 49.26	+23 18.5	1.109	2.092	2.9	19.8	2 1	8 49.37	+31 52.6	2.032	2.996	4.7	20.0
2 11	8 38.52	+24 6.8	1.123	2.088	7.7	20.1	2 11	8 39.01	+32 21.8	2.065	3.003	7.1	20.2
2 21	8 29.54	+24 38.0	1.161	2.084	13.0	20.4	2 21	8 29.91	+32 33.1	2.126	3.009	10.1	20.4
3 2	8 23.63	+24 50.6	1.220	2.082	17.7	20.6	3 2	8 22.94	+32 27.5	2.211	3.014	12.9	20.6
166795	2002 VV ₄₉		1 30.9	48°31'	9°1'/22.5	18	403604	2010 RZ ₃₇		1 30.9	39°59'	6°7'/28.6	18
12 23	9 20.15	+41 10.0	2.156	2.938	13.6	19.1	12 23	9 27.07	+32 3.8	1.307	2.115	19.4	19.5
1 2	9 16.25	+43 6.4	2.096	2.943	11.5	19.0	1 2	9 22.13	+32 34.7	1.261	2.140	15.5	19.3
1 12	9 9.34	+44 56.6	2.060	2.948	9.8	18.9	1 12	9 13.33	+33 1.5	1.235	2.165	11.2	19.1
1 22	9 0.00	+46 30.6	2.050	2.953	9.1	18.8	1 22	9 1.78	+33 14.7	1.232	2.191	7.6	19.0
2 1	8 49.28	+47 39.9	2.066	2.959	9.7	18.9	2 1	8 49.18	+33 6.6	1.254	2.218	6.9	19.0
2 11	8 38.62	+48 19.4	2.109	2.965	11.3	19.0	2 11	8 37.51	+32 34.8	1.302	2.245	9.7	19.3
2 21	8 29.42	+48 29.2	2.174	2.970	13.2	19.1	2 21	8 28.33	+31 42.2	1.374	2.273	13.4	19.5
3 2	8 22.77	+48 12.6	2.259	2.976	15.2	19.3	3 2	8 22.56	+30 34.4	1.468	2.302	16.8	19.8
204152	2003 YZ ₁₃₈		1 30.9	353°88'	0°7'/31.3	18	191778	2004 TA ₈₆		1 30.9	211°96'	0°9'/31.6	17
12 23	9 10.14	+14 11.5	1.490	2.292	17.7	20.0	12 23	9 16.80	+12 57.0	2.367	3.121	13.3	21.8
1 2	9 8.58	+14 20.3	1.405	2.284	14.1	19.7	1 2	9 12.62	+13 11.1	2.265	3.116	10.7	21.6
1 12	9 4.20	+14 43.8	1.340	2.277	9.8	19.5	1 12	9 6.35	+13 35.6	2.186	3.110	7.4	21.4
1 22	8 57.55	+15 19.3	1.298	2.271	4.9	19.2	1 22	8 58.43	+14 8.6	2.134	3.103	3.8	21.2
2 1	8 49.59	+16 1.8	1.282	2.267	0.8	18.9	2 1	8 49.58	+14 46.7	2.112	3.096	0.9	20.9
2 11	8 41.68	+16 45.2	1.292	2.264	5.7	19.2	2 11	8 40.70	+15 25.9	2.120	3.089	4.2	21.2
2 21	8 35.10	+17 23.7	1.327	2.263	10.6	19.5	2 21	8 32.68	+16 2.5	2.158	3.081	7.8	21.4
3 2	8 30.90	+17 53.2	1.385	2.263	14.9	19.7	3 2	8 26.32	+16 33.8	2.222	3.073	11.1	21.6
490544	2009 VV ₆₈		1 30.9	46°08'	3°5'/1.3	18	138038	2000 DV ₁₈		1 30.9	176°47'	1°3'/30.2	18
12 23	9 19.98	+10 39.8	1.192	1.985	21.8	21.0	12 23	9 23.30	+21 0.9	2.175	2.941	14.0	20.1
1 2	9 16.73	+10 8.9	1.127	1.996	17.7	20.8	1 2	9 17.86	+21 8.7	2.083	2.944	11.0	19.9
1 12	9 9.92	+9 56.3	1.079	2.007	12.7	20.5	1 12	9 9.96	+21 21.2	2.015	2.945	7.5	19.7
1 22	9 0.31	+10 1.2	1.053	2.020	7.3	20.3	1 22	9 0.16	+21 34.5	1.974	2.946	3.7	19.5
2 1	8 49.27	+10 20.7	1.051	2.032	3.5	20.1	2 1	8 49.37	+21 44.7	1.964	2.947	1.5	19.3
2 11	8 38.58	+10 48.9	1.074	2.045	6.8	20.3	2 11	8 38.71	+21 48.4	1.984	2.947	5.1	19.6
2 21	8 29.85	+11 19.7	1.122	2.059	12.0	20.6	2 21	8 29.25	+21 43.9	2.033	2.946	8.9	19.8
3 2	8 24.23	+11 48.0	1.192	2.072	16.6	21.0	3 2	8 21.83	+21 31.0	2.108	2.945	12.2	20.0
432965	2012 JO ₅₀		1 30.9	49°26'	11°8'/8.8	18	397068	2005 UU ₁₆₁		1 30.9	88°54'	4°6'/28.5	16
12 23	9 14.21	-14 24.9	1.949	2.582	19.3	21.6	12 23	9 25.06	+25 2.3	1.465	2.262	18.2	21.0
1 2	9 11.03	-15 37.6	1.865	2.586	17.5	21.4	1 2	9 20.29	+26 5.5	1.407	2.284	14.3	20.8
1 12	9 5.48	-16 24.2	1.797	2.590	15.5	21.3	1 12	9 12.10	+27 14.2	1.370	2.305	9.9	20.6
1 22	8 58.04	-16 39.5	1.748	2.594	13.6	21.2	1 22	9 1.29	+28 19.1	1.359	2.326	5.8	20.5
2 1	8 49.55	-16 20.1	1.720	2.598	12.2	21.1	2 1	8 49.25	+29 10.6	1.374	2.347	5.0	20.5
2 11	8 41.05	-15 27.2	1.716	2.602	11.8	21.1	2 11	8 37.69	+29 42.2	1.417	2.367	8.3	20.7
2 21	8 33.59	-14 5.9	1.736	2.606	12.7	21.1	2 21	8 28.12	+29 52.3	1.485	2.387	12.4	21.0
3 2	8 28.07	-12 24.6	1.779	2.610	14.4	21.2	3 2	8 21.56	+29 42.8	1.576	2.406	16.0	21.3
466504	2014 AX ₂₀		1 30.9	68°93'	4°4'/27.4	18	107740	2001 FN ₃₂		1 30.9	299°27'	0°6'/31.3	18
12 23	9 16.38	+27 29.0	2.215	3.004	13.1	20.8	12 23	9 15.58	+12 55.5	1.656	2.437	17.1	20.2

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
126808	2002 <i>ED</i> ₄₀		1 30.9 112°86	1°2/30.1	18		152249	2005 <i>SF</i> ₉₇		1 30.9 52°89	0°2/30.9	18	
12 23	9 18.66	+19 23.9	2.123	2.897	14.0	20.0	12 23	9 23.08	+18 28.6	1.743	2.520	16.6	20.0
1 2	9 14.23	+19 48.0	2.042	2.907	11.0	19.9	1 2	9 18.13	+18 4.4	1.662	2.527	13.1	19.8
1 12	9 7.47	+20 19.1	1.984	2.917	7.5	19.7	1 12	9 10.34	+17 46.1	1.604	2.535	9.0	19.6
1 22	8 58.96	+20 53.1	1.953	2.926	3.6	19.4	1 22	9 0.41	+17 31.4	1.570	2.543	4.4	19.3
2 1	8 49.54	+21 25.4	1.952	2.935	1.4	19.3	2 1	8 49.41	+17 17.2	1.566	2.551	0.5	19.0
2 11	8 40.28	+21 51.7	1.980	2.944	5.0	19.5	2 11	8 38.68	+17 1.1	1.590	2.559	5.3	19.4
2 21	8 32.18	+22 9.4	2.037	2.953	8.7	19.8	2 21	8 29.47	+16 41.7	1.642	2.567	9.7	19.7
3 2	8 26.01	+22 17.3	2.119	2.961	12.0	20.0	3 2	8 22.69	+16 18.6	1.719	2.576	13.6	19.9
30466	2000 <i>OP</i> ₁₄		1 30.9 101°49	0°2/31.1	18		237237	2008 <i>WE</i> ₁₂		1 30.9 205°65	0°6/31.4	17	
12 23	9 13.83	+13 36.4	2.473	3.233	12.7	18.9	12 23	9 15.42	+13 47.3	2.321	3.082	13.4	21.0
1 2	9 10.12	+14 15.7	2.387	3.242	10.0	18.7	1 2	9 11.57	+14 2.8	2.225	3.080	10.6	20.9
1 12	9 4.53	+15 5.6	2.325	3.251	6.9	18.5	1 12	9 5.64	+14 28.5	2.153	3.079	7.4	20.6
1 22	8 57.50	+16 3.1	2.290	3.261	3.4	18.3	1 22	8 58.11	+15 2.1	2.107	3.077	3.7	20.4
2 1	8 49.72	+17 3.9	2.285	3.270	0.4	18.1	2 1	8 49.68	+15 39.9	2.090	3.075	0.7	20.2
2 11	8 42.00	+18 3.2	2.311	3.279	4.0	18.4	2 11	8 41.28	+16 18.0	2.103	3.072	4.2	20.4
2 21	8 35.13	+18 57.1	2.366	3.288	7.4	18.6	2 21	8 33.77	+16 52.8	2.146	3.070	7.8	20.6
3 2	8 29.78	+19 42.7	2.448	3.296	10.3	18.8	3 2	8 27.92	+17 21.6	2.214	3.068	11.1	20.9
426848	2013 <i>VF</i> ₁₉		1 30.9 46°03	0°1/30.8	18		130630	2000 <i>SB</i> ₅₇		1 30.9 37°09	3°0/1.5	18	
12 23	9 17.14	+15 3.0	1.735	2.516	16.5	20.3	12 23	9 16.57	+ 9 25.1	1.341	2.126	20.2	19.9
1 2	9 13.24	+15 35.9	1.680	2.547	12.9	20.1	1 2	9 13.76	+ 9 18.2	1.270	2.135	16.4	19.6
1 12	9 6.84	+16 20.8	1.647	2.579	8.7	19.9	1 12	9 7.79	+ 9 31.1	1.218	2.144	11.8	19.4
1 22	8 58.62	+17 13.0	1.639	2.612	4.1	19.7	1 22	8 59.32	+10 2.3	1.188	2.154	6.7	19.1
2 1	8 49.60	+18 6.5	1.659	2.644	0.6	19.5	2 1	8 49.54	+10 47.6	1.183	2.164	3.1	19.0
2 11	8 40.97	+18 55.6	1.709	2.677	5.0	19.9	2 11	8 39.98	+11 40.1	1.204	2.175	6.2	19.2
2 21	8 33.76	+19 36.2	1.785	2.710	9.1	20.2	2 21	8 32.05	+12 32.7	1.251	2.187	11.0	19.5
3 2	8 28.72	+20 5.9	1.886	2.743	12.6	20.5	3 2	8 26.85	+13 19.7	1.320	2.199	15.4	19.8
155783	2000 <i>SH</i> ₃₃₈		1 30.9 18°57	6°1/27.0	18		336538	2009 <i>AG</i> ₃₂		1 30.9 66°73	0°3/31.1	18	
12 23	9 13.12	+25 28.2	1.310	2.136	18.4	18.1	12 23	9 15.27	+14 48.7	2.193	2.961	13.9	21.2
1 2	9 11.50	+27 9.5	1.252	2.145	14.4	17.9	1 2	9 11.45	+15 8.6	2.115	2.974	10.9	21.0
1 12	9 6.47	+28 59.0	1.215	2.155	10.2	17.6	1 12	9 5.52	+15 38.4	2.058	2.987	7.5	20.8
1 22	8 58.74	+30 45.1	1.201	2.167	6.7	17.5	1 22	8 58.01	+16 15.0	2.029	3.000	3.7	20.6
2 1	8 49.57	+32 15.3	1.213	2.180	6.7	17.5	2 1	8 49.71	+16 54.6	2.028	3.013	0.4	20.3
2 11	8 40.67	+33 20.0	1.251	2.194	10.0	17.7	2 11	8 41.54	+17 32.7	2.058	3.026	4.3	20.7
2 21	8 33.59	+33 55.8	1.311	2.210	13.9	18.0	2 21	8 34.41	+18 5.9	2.115	3.040	8.0	20.9
3 2	8 29.45	+34 3.9	1.392	2.226	17.5	18.3	3 2	8 29.02	+18 31.9	2.199	3.053	11.2	21.1
412735	2014 <i>OD</i> ₃₅₅		1 30.9 150°85	0°6/31.3	18		411351	2010 <i>UO</i> ₇₆		1 30.9 73°32	6°8/3.9	18	
12 23	9 19.90	+13 27.1	2.040	2.799	15.1	23.0	12 23	9 19.14	+ 0 16.7	1.779	2.497	18.3	20.9
1 2	9 15.28	+13 49.6	1.954	2.808	12.0	22.8	1 2	9 14.80	+ 0 34.2	1.709	2.519	15.4	20.7
1 12	9 8.26	+14 24.1	1.891	2.816	8.3	22.6	1 12	9 7.95	+ 1 5.1	1.658	2.540	12.2	20.6
1 22	8 59.38	+15 7.6	1.853	2.824	4.1	22.4	1 22	8 59.22	+ 1 14.1	1.630	2.561	9.0	20.4
2 1	8 49.50	+15 55.5	1.846	2.831	0.7	22.1	2 1	8 49.56	+ 1 1.1	1.628	2.582	6.9	20.3
2 11	8 39.72	+16 42.7	1.868	2.837	4.7	22.4	2 11	8 40.15	+ 0 29.3	1.654	2.602	7.5	20.4
2 21	8 31.08	+17 24.8	1.920	2.843	8.7	22.7	2 21	8 32.06	+ 0 15.7	1.706	2.623	10.0	20.6
3 2	8 24.42	+17 59.1	1.997	2.848	12.2	22.9	3 2	8 26.10	+ 1 7.8	1.783	2.644	13.0	20.8
463270	2012 <i>GG</i> ₂₅		1 30.9 226°57	2°2/1.6	17		312932	2011 <i>WV</i> ₆₉		1 30.9 70°80	0°5/31.2	18	
12 23	9 16.40	+ 8 25.0	2.602	3.334	12.8	22.7	12 23	9 21.42	+15 57.0	1.547	2.330	18.0	20.6
1 2	9 12.16	+ 8 35.9	2.489	3.322	10.4	22.6	1 2	9 17.15	+15 51.8	1.474	2.342	14.3	20.4
1 12	9 5.98	+ 8 59.1	2.398	3.308	7.6	22.3	1 12	9 9.86	+15 57.6	1.422	2.354	9.8	20.2
1 22	8 58.27	+ 9 33.5	2.334	3.294	4.4	22.1	1 22	9 0.24	+16 11.1	1.393	2.365	4.9	19.9
2 1	8 49.64	+10 16.8	2.300	3.279	2.2	21.9	2 1	8 49.45	+16 28.1	1.392	2.377	0.7	19.6
2 11	8 40.90	+11 5.5	2.297	3.264	4.1	22.0	2 11	8 38.95	+16 43.8	1.419	2.389	5.6	20.0
2 21	8 32.87	+11 55.4	2.324	3.248	7.3	22.2	2 21	8 30.07	+16 54.9	1.472	2.401	10.4	20.3
3 2	8 26.29	+12 43.1	2.378	3.231	10.5	22.4	3 2	8 23.80	+16 59.3	1.550	2.413	14.5	20.6
340686	2006 <i>RX</i> ₁₀₁		1 30.9 116°70	9°3/23.1	18		14369	1988 <i>UV</i>		1 30.9 59°23	6°0/3.1	18	
12 23	9 32.81	+52 7.0	2.812	3.536	12.1	21.1	12 23	9 17.71	+ 3 30.9	1.365	2.125	21.1	18.3
1 2	9 25.55	+53 13.4	2.763	3.550	10.8	21.0	1 2	9 14.58	+ 2 59.9	1.293	2.135	17.6	18.1
1 12	9 15.23	+54 6.5	2.736	3.564	9.8	21.0	1 12	9 8.32	+ 2 52.4	1.238	2.145	13.4	17.9
1 22	9 2.67	+54 38.9	2.734	3.577	9.3	21.0	1 22	8 59.58	+ 3 10.0	1.205	2.155	9.1	17.7
2 1	8 49.13	+54 45.3	2.758	3.591	9.6	21.0	2 1	8 49.52	+ 3 50.9	1.196	2.166	6.1	17.5
2 11	8 36.14	+54 23.9	2.806	3.604	10.5	21.1	2 11	8 39.64	+ 4 49.2	1.213	2.177	7.5	17.6
2 21	8 25.00	+53 37.2	2.879	3.616	11.7	21.2	2 21	8 31.37	+ 5 57.0	1.255	2.188	11.4	17.9
3 2	8 16.64	+52 29.9	2.971	3.629	13.0	21.3	3 2	8 25.77	+ 7 6.0	1.320	2.199	15.5	18.2
325028	2008 <i>CJ</i> ₄₂		1 30.9 38°27	2°4/1.2	16		394801	2008 <i>RY</i> ₄₃		1 30.9 158°37	0°5/31.2	18	
12 23	9 17.02	+11 7.0	1.466	2.248	18.9	21.6	12 23	9 21.43	+13 56.9	1.787	2.553	16.6	22.1
1 2	9 13.81	+10 57.4	1.395	2.259	15.2	21.3	1 2	9 16.89	+14 18.2	1.701	2.560	13.2	21.9
1 12	9 7.64	+11 4.0	1.343	2.270	10.8	21.1	1 12	9 9.60	+14 52.9	1.638	2.566	9.1	21.6
1 22	8 59.18	+11 25.1	1.314	2.282	5.9	20.9	1 22	9 0.12	+15 37.3	1.600	2.571	4.5	21.4
2 1	8 49.54	+11 56.9	1.312	2.294	2.4	20.7	2 1	8 49.46	+16 26.4	1.590	2.575	0.6	21.1
2 11	8 40.16	+12 33.7	1.336	2.307	5.7	20.9	2 11	8 38.88	+17 14.1	1.610	2.579	5.3	21.4
2 21	8 32.32	+13 10.1	1.387	2.321	10.4	21.2	2 21	8 29.64	+17 55.6	1.658	2.583	9.7	21.7
3 2	8 27.01	+13 41.7	1.460	2.334	14.5	21.5	3 2	8 22.69	+18 27.9	1.731	2.585	13.7	21.9
452460	2003 <i>UY</i> ₁₁₉		1 30.9 95°04	0°8/31.4	18		468767	2011 <i>NW</i> ₁		1 30.9 180°71	2°2/1.9	17	
12 23	9 21.26	+13 44.8	1.751	2.519	16.8	21.7							

EPHEMERIDES

1 30.9

1 30.9

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
520746	2014 <i>QR</i> ₄₇₄		1 30.9 56°80	0°1/30.9	18		455322	2002 <i>NX</i> ₁₈		1 30.9 32°21	1°6/31.7	16	
12 23	9 16.14	+14 33.9	1.772	2.551	16.2	21.4	12 23	9 38.70	+9 32.1	0.862	1.651	28.6	19.3
1 2	9 12.77	+15 5.7	1.690	2.557	12.8	21.1	1 2	9 30.31	+10 21.6	0.862	1.729	21.9	19.2
1 12	9 6.78	+15 51.2	1.630	2.562	8.8	20.9	1 12	9 18.03	+11 34.1	0.878	1.808	14.6	19.1
1 22	8 58.76	+16 46.2	1.596	2.568	4.3	20.6	1 22	9 3.60	+12 59.1	0.915	1.886	7.2	19.0
2 1	8 49.62	+17 45.1	1.589	2.574	0.5	20.4	2 1	8 49.19	+14 24.2	0.978	1.963	1.7	18.9
2 11	8 40.59	+18 41.4	1.611	2.580	5.2	20.7	2 11	8 36.85	+15 38.9	1.067	2.039	6.8	19.5
2 21	8 32.80	+19 30.1	1.660	2.586	9.6	21.0	2 21	8 27.84	+16 38.0	1.181	2.113	12.0	20.0
3 2	8 27.19	+20 7.7	1.734	2.592	13.4	21.2	3 2	8 22.65	+17 20.1	1.317	2.187	16.1	20.5
163588	2002 <i>TR</i> ₁₉₁		1 30.9 33°03	7°7/4.3	18		105398	2000 <i>QX</i> ₁₄₃		1 30.9 313°13	20°3/22.8	17	
12 23	9 16.21	-1 18.4	1.908	2.619	17.5	19.1	12 23	9 49.48	+55 29.9	1.118	1.888	24.3	19.0
1 2	9 12.45	-2 31.9	1.830	2.630	15.0	18.9	1 2	9 44.69	+57 35.0	1.072	1.885	22.4	18.8
1 12	9 6.35	-3 27.2	1.772	2.642	12.2	18.8	1 12	9 31.73	+59 16.5	1.041	1.883	21.0	18.7
1 22	8 58.48	-4 1.2	1.736	2.654	9.5	18.6	1 22	9 11.65	+60 10.7	1.027	1.880	20.3	18.6
2 1	8 49.67	-4 12.4	1.726	2.667	7.8	18.6	2 1	8 48.14	+59 57.6	1.030	1.878	20.8	18.7
2 11	8 40.99	-4 2.3	1.743	2.680	8.2	18.6	2 11	8 26.61	+58 32.7	1.051	1.876	22.2	18.7
2 21	8 33.44	-3 34.9	1.786	2.694	10.2	18.8	2 21	8 11.07	+56 8.7	1.088	1.874	24.3	18.9
3 2	8 27.84	-2 55.8	1.853	2.708	12.8	19.0	3 2	8 2.96	+53 5.2	1.140	1.872	26.4	19.0
154346	2002 <i>XP</i>		1 30.9 122°89	1°8/1.1	17		140645	2001 <i>UO</i> ₂₆		1 30.9 192°65	3°0/28.6	18	
12 23	9 21.54	+9 46.1	1.721	2.477	17.5	21.3	12 23	9 19.01	+27 20.0	2.791	3.562	11.1	19.9
1 2	9 16.91	+10 11.9	1.645	2.494	14.1	21.1	1 2	9 14.09	+27 48.2	2.699	3.560	8.8	19.7
1 12	9 9.54	+10 55.2	1.590	2.511	9.9	20.9	1 12	9 7.21	+28 17.1	2.631	3.559	6.1	19.5
1 22	9 0.06	+11 52.8	1.561	2.528	5.3	20.6	1 22	8 58.83	+28 42.7	2.592	3.556	3.7	19.4
2 1	8 49.48	+12 59.3	1.560	2.543	1.8	20.4	2 1	8 49.67	+29 0.8	2.584	3.554	3.2	19.3
2 11	8 39.10	+14 7.8	1.588	2.558	5.2	20.7	2 11	8 40.60	+29 8.7	2.605	3.551	5.3	19.5
2 21	8 30.12	+15 12.1	1.645	2.572	9.6	21.0	2 21	8 32.43	+29 5.0	2.656	3.548	8.0	19.6
3 2	8 23.48	+16 7.5	1.727	2.585	13.5	21.2	3 2	8 25.86	+28 50.1	2.733	3.545	10.5	19.8
302409	2002 <i>CS</i> ₁₅₆		1 30.9 19°48	1°3/30.2	18		120025	2003 <i>AT</i> ₅₂		1 30.9 103°55	3°5/28.9	17	
12 23	9 17.70	+16 41.5	1.542	2.334	17.7	20.6	12 23	9 24.21	+22 35.6	1.576	2.366	17.5	20.0
1 2	9 14.54	+17 28.7	1.460	2.334	14.0	20.4	1 2	9 19.42	+23 35.5	1.512	2.386	13.7	19.8
1 12	9 8.33	+18 30.9	1.398	2.334	9.5	20.1	1 12	9 11.45	+24 43.2	1.470	2.405	9.3	19.6
1 22	8 59.64	+19 42.4	1.361	2.335	4.6	19.8	1 22	9 1.03	+25 50.6	1.453	2.424	5.0	19.4
2 1	8 49.53	+20 55.3	1.351	2.335	1.6	19.6	2 1	8 49.41	+26 48.7	1.465	2.442	3.8	19.3
2 11	8 39.46	+22 1.2	1.369	2.335	6.4	19.9	2 11	8 38.15	+27 30.8	1.505	2.460	7.4	19.6
2 21	8 30.83	+22 53.8	1.413	2.335	11.2	20.2	2 21	8 28.65	+27 54.1	1.571	2.477	11.5	19.9
3 2	8 24.78	+23 30.4	1.480	2.336	15.5	20.4	3 2	8 21.93	+27 59.2	1.660	2.493	15.1	20.1
109342	2001 <i>QR</i> ₁₄₈		1 30.9 83°59	7°5/25.5	18		373309	2012 <i>JG</i> ₂		1 30.9 237°67	6°2/4.2	18	
12 23	9 24.37	+40 32.1	2.356	3.126	12.9	19.8	12 23	9 15.13	-1 31.1	2.234	2.933	15.5	21.1
1 2	9 18.88	+41 36.1	2.299	3.142	10.8	19.7	1 2	9 11.47	-2 0.9	2.130	2.925	13.3	20.9
1 12	9 10.70	+42 32.6	2.265	3.159	8.8	19.6	1 12	9 5.69	-2 12.9	2.045	2.917	10.7	20.8
1 22	9 0.53	+43 14.0	2.258	3.175	7.6	19.5	1 22	8 58.22	-2 5.2	1.984	2.908	8.1	20.6
2 1	8 49.45	+43 34.5	2.278	3.192	7.8	19.6	2 1	8 49.75	-1 37.5	1.950	2.899	6.4	20.5
2 11	8 38.74	+43 31.2	2.325	3.208	9.3	19.7	2 11	8 41.19	-0 52.4	1.944	2.890	6.8	20.5
2 21	8 29.56	+43 5.3	2.398	3.224	11.2	19.8	2 21	8 33.47	+0 5.8	1.966	2.881	9.0	20.6
3 2	8 22.73	+42 20.3	2.493	3.240	13.2	20.0	3 2	8 27.39	+1 11.3	2.014	2.871	11.9	20.7
81861	2000 <i>KK</i> ₇₁		1 30.9 127°63	1°6/1.3	18		47765	2000 <i>DZ</i> ₁₀₂		1 30.9 121°74	0°3/31.2	18	
12 23	9 17.62	+8 50.9	2.442	3.177	13.5	20.1	12 23	9 15.03	+13 9.0	2.414	3.171	13.0	18.9
1 2	9 13.02	+9 25.1	2.359	3.196	10.8	20.0	1 2	9 11.13	+13 47.9	2.328	3.181	10.3	18.7
1 12	9 6.47	+10 12.7	2.299	3.213	7.6	19.8	1 12	9 5.27	+14 38.0	2.265	3.191	7.1	18.5
1 22	8 58.46	+11 11.4	2.266	3.230	4.2	19.6	1 22	8 57.93	+15 36.1	2.230	3.200	3.5	18.3
2 1	8 49.70	+12 17.0	2.264	3.246	1.6	19.4	2 1	8 49.79	+16 38.0	2.224	3.209	0.4	18.1
2 11	8 41.04	+13 24.8	2.293	3.262	4.0	19.6	2 11	8 41.72	+17 38.8	2.250	3.218	4.0	18.4
2 21	8 33.30	+14 30.0	2.353	3.277	7.3	19.9	2 21	8 34.53	+18 34.1	2.305	3.227	7.5	18.6
3 2	8 27.16	+15 28.9	2.440	3.291	10.3	20.1	3 2	8 28.92	+19 21.1	2.387	3.235	10.6	18.8
281334	2007 <i>TD</i> ₃₃₆		1 30.9 165°89	0°5/31.3	17		152034	2004 <i>NH</i> ₂₇		1 30.9 125°29	1°0/31.7	18	
12 23	9 16.12	+14 26.8	2.494	3.251	12.7	21.7	12 23	9 16.12	+11 54.7	2.023	2.785	15.0	20.8
1 2	9 11.92	+14 37.6	2.400	3.253	10.0	21.5	1 2	9 12.40	+12 20.3	1.936	2.791	12.0	20.6
1 12	9 5.78	+14 56.9	2.330	3.256	6.9	21.3	1 12	9 6.37	+12 59.6	1.871	2.796	8.4	20.4
1 22	8 58.15	+15 22.6	2.287	3.258	3.5	21.1	1 22	8 58.54	+13 49.9	1.831	2.800	4.3	20.1
2 1	8 49.73	+15 51.7	2.274	3.259	0.6	20.9	2 1	8 49.72	+14 46.5	1.821	2.805	1.0	19.9
2 11	8 41.37	+16 20.6	2.292	3.261	3.9	21.1	2 11	8 40.96	+15 44.1	1.840	2.810	4.6	20.2
2 21	8 33.87	+16 46.5	2.339	3.262	7.4	21.3	2 21	8 33.26	+16 37.6	1.887	2.814	8.6	20.4
3 2	8 27.93	+17 7.1	2.413	3.263	10.4	21.5	3 2	8 27.45	+17 23.4	1.961	2.818	12.1	20.6
36244	1999 <i>VJ</i> ₈₅		1 30.9 166°34	8°1/26.3	18		423275	2004 <i>WG</i> ₇		1 30.9 75°16	6°7/26.4	18	
12 23	9 34.99	+41 16.7	2.223	2.978	14.1	19.0	12 23	9 21.49	+33 52.5	1.969	2.758	14.5	20.7
1 2	9 27.49	+42 12.6	2.151	2.984	11.8	18.9	1 2	9 17.03	+35 5.6	1.905	2.771	11.7	20.5
1 12	9 16.73	+43 0.0	2.101	2.990	9.6	18.7	1 12	9 9.69	+36 16.2	1.865	2.783	8.9	20.4
1 22	9 3.50	+43 29.9	2.077	2.994	8.2	18.6	1 22	9 0.16	+37 15.9	1.850	2.795	7.0	20.3
2 1	8 49.10	+43 35.2	2.082	2.998	8.4	18.7	2 1	8 49.53	+37 57.0	1.864	2.807	7.1	20.3
2 11	8 35.16	+43 12.7	2.116	3.001	9.9	18.8	2 11	8 39.18	+38 15.0	1.904	2.820	9.1	20.5
2 21	8 23.09	+42 24.6	2.175	3.003	12.1	18.9	2 21	8 30.36	+38 9.7	1.970	2.832	11.8	20.6
3 2	8 13.94	+41 16.2	2.258	3.004	14.4	19.1	3 2	8 24.01	+37 43.7	2.058	2.844	14.3	20.8
291077	2005 <i>YG</i> ₁₂₀		1 30.9 179°22	1°4/31.9	18		425339	2010 <i>AX</i> ₁₁₀		1 30.9 74°77	4°8/27.2	18	
12 23	9 17.28	+12 0.4	2.289	3.041	13.8	21.4	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
460169	2014 <i>QZ</i> ₂₇		1 30.9 184°56	0°2/31.1	18		89550	2001 <i>XU</i> ₉₇		1 30.9 357°94	5°7/ 2.3	18	R
12 23	9 20.84	+15 25.8	2.130	2.889	14.5	22.4	12 23	9 17.33	+ 6 20.6	1.592	2.350	18.6	18.4
1 2	9 16.04	+15 40.8	2.035	2.890	11.5	22.2	1 2	9 13.98	+ 5 15.9	1.505	2.348	15.5	18.2
1 12	9 8.83	+16 5.6	1.963	2.890	7.9	21.9	1 12	9 7.80	+ 4 25.9	1.439	2.346	11.8	18.0
1 22	8 59.74	+16 37.1	1.918	2.889	3.9	21.7	1 22	8 59.37	+ 3 52.7	1.395	2.345	8.1	17.7
2 1	8 49.59	+17 11.3	1.902	2.887	0.4	21.4	2 1	8 49.66	+ 3 37.4	1.376	2.345	5.8	17.6
2 11	8 39.48	+17 43.7	1.917	2.885	4.7	21.7	2 11	8 40.02	+ 3 38.1	1.385	2.345	7.2	17.7
2 21	8 30.44	+18 10.9	1.961	2.882	8.7	22.0	2 21	8 31.69	+ 3 51.2	1.419	2.346	10.8	17.9
3 2	8 23.35	+18 30.7	2.031	2.879	12.2	22.2	3 2	8 25.73	+ 4 11.8	1.477	2.348	14.5	18.1
461744	2005 <i>UK</i> ₁₂₈		1 30.9 28°43	7°7/26.3	18		460663	2014 <i>UR</i> ₁₅₅		1 30.9 97°17	5°3/ 4.0	18	
12 23	9 20.35	+33 33.8	1.637	2.441	16.3	20.7	12 23	9 16.74	- 0 8.6	2.000	2.712	16.8	21.5
1 2	9 16.79	+34 52.7	1.573	2.446	13.2	20.5	1 2	9 12.74	- 0 8.9	1.923	2.731	14.0	21.3
1 12	9 9.89	+36 9.9	1.530	2.452	10.1	20.3	1 12	9 6.50	+ 0 11.8	1.865	2.750	10.9	21.1
1 22	9 0.38	+37 15.4	1.511	2.459	7.9	20.2	1 22	8 58.57	+ 0 53.6	1.831	2.768	7.6	21.0
2 1	8 49.51	+37 59.5	1.519	2.466	8.1	20.2	2 1	8 49.78	+ 1 54.2	1.825	2.787	5.4	20.9
2 11	8 38.93	+38 16.6	1.553	2.473	10.4	20.4	2 11	8 41.15	+ 3 8.6	1.847	2.805	6.0	20.9
2 21	8 30.12	+38 6.4	1.611	2.481	13.5	20.6	2 21	8 33.61	+ 4 30.1	1.898	2.822	8.7	21.1
3 2	8 24.20	+37 32.6	1.689	2.489	16.4	20.8	3 2	8 27.94	+ 5 52.1	1.976	2.839	11.8	21.4
370842	2005 <i>BH</i> ₃₀		1 30.9 92°19	0°5/30.6	18		290335	2005 <i>SF</i> ₂₃₅		1 30.9 146°53	0°5/30.6	18	
12 23	9 17.28	+17 19.4	2.149	2.921	14.0	21.4	12 23	9 19.56	+17 16.9	2.520	3.276	12.6	22.0
1 2	9 13.13	+17 38.8	2.067	2.930	11.0	21.2	1 2	9 14.55	+17 43.2	2.434	3.289	9.9	21.9
1 12	9 6.75	+18 6.3	2.009	2.940	7.5	21.0	1 12	9 7.54	+18 16.8	2.373	3.300	6.7	21.7
1 22	8 58.68	+18 38.7	1.977	2.949	3.6	20.8	1 22	8 59.03	+18 54.4	2.339	3.311	3.2	21.5
2 1	8 49.73	+19 11.6	1.974	2.959	0.7	20.6	2 1	8 49.73	+19 32.0	2.337	3.321	0.7	21.3
2 11	8 40.94	+19 40.9	2.001	2.968	4.6	20.9	2 11	8 40.55	+20 5.8	2.365	3.331	4.2	21.6
2 21	8 33.22	+20 3.6	2.057	2.978	8.4	21.1	2 21	8 32.32	+20 33.0	2.424	3.339	7.5	21.8
3 2	8 27.37	+20 18.0	2.138	2.987	11.6	21.3	3 2	8 25.73	+20 52.2	2.509	3.347	10.5	22.0
55781	1993 <i>FN</i> ₃₆		1 30.9 298°45	0°8/31.4	18		184154	2004 <i>KF</i> ₆		1 30.9 196°52	1°4/31.9	18	
12 23	9 16.33	+13 18.5	1.411	2.204	19.0	19.9	12 23	9 17.54	+11 36.0	2.255	3.006	14.0	21.1
1 2	9 13.89	+13 35.7	1.317	2.190	15.3	19.6	1 2	9 13.32	+11 46.7	2.156	3.004	11.3	20.9
1 12	9 8.21	+14 10.8	1.241	2.175	10.8	19.3	1 12	9 6.93	+12 9.0	2.080	3.001	7.9	20.6
1 22	8 59.76	+15 1.0	1.189	2.161	5.5	19.0	1 22	8 58.83	+12 41.3	2.031	2.998	4.3	20.4
2 1	8 49.57	+16 0.7	1.162	2.147	0.9	18.6	2 1	8 49.76	+13 20.1	2.011	2.994	1.4	20.2
2 11	8 39.19	+17 1.7	1.162	2.133	6.3	19.0	2 11	8 40.68	+14 1.4	2.021	2.990	4.3	20.4
2 21	8 30.20	+17 56.8	1.187	2.120	11.8	19.2	2 21	8 32.53	+14 41.2	2.061	2.986	8.1	20.6
3 2	8 23.95	+18 40.7	1.234	2.107	16.7	19.5	3 2	8 26.11	+15 16.3	2.126	2.981	11.4	20.8
217083	2001 <i>TE</i> ₁₃₂		1 30.9 168°09	0°4/30.7	18		145772	1997 <i>WC</i> ₄		1 30.9 32°74	1°9/ 1.0	18	
12 23	9 19.69	+17 14.7	2.282	3.045	13.5	21.9	12 23	9 16.80	+11 32.0	1.750	2.520	16.8	20.1
1 2	9 14.94	+17 33.9	2.191	3.049	10.7	21.7	1 2	9 13.32	+11 31.5	1.664	2.522	13.5	19.9
1 12	9 7.97	+18 1.0	2.124	3.053	7.3	21.5	1 12	9 7.21	+11 45.1	1.600	2.525	9.5	19.7
1 22	8 59.28	+18 32.7	2.084	3.056	3.5	21.3	1 22	8 59.04	+12 11.1	1.560	2.527	5.2	19.4
2 1	8 49.67	+19 5.0	2.073	3.058	0.7	21.0	2 1	8 49.74	+12 45.7	1.547	2.530	1.9	19.2
2 11	8 40.14	+19 33.9	2.094	3.060	4.5	21.3	2 11	8 40.51	+13 24.1	1.563	2.533	5.1	19.4
2 21	8 31.63	+19 56.3	2.143	3.062	8.2	21.6	2 21	8 32.53	+14 1.5	1.605	2.536	9.5	19.7
3 2	8 24.94	+20 10.7	2.219	3.062	11.5	21.8	3 2	8 26.73	+14 33.9	1.673	2.539	13.4	19.9
462036	2007 <i>CV</i> ₃₈		1 30.9 75°59	1°3/31.9	18		365132	2009 <i>DZ</i> ₃₁		1 30.9 343°03	0°3/31.1	18	
12 23	9 15.60	+ 9 22.6	1.821	2.583	16.5	21.3	12 23	9 14.68	+14 1.3	1.395	2.193	18.9	21.0
1 2	9 12.20	+10 12.7	1.743	2.596	13.2	21.1	1 2	9 12.48	+14 26.1	1.311	2.188	15.1	20.7
1 12	9 6.33	+11 21.3	1.686	2.610	9.2	20.9	1 12	9 7.13	+15 8.4	1.246	2.182	10.5	20.4
1 22	8 58.56	+12 44.8	1.655	2.623	4.8	20.7	1 22	8 59.19	+16 4.5	1.205	2.178	5.2	20.1
2 1	8 49.76	+14 16.8	1.653	2.637	1.3	20.5	2 1	8 49.71	+17 7.8	1.189	2.174	0.6	19.8
2 11	8 41.07	+15 49.4	1.680	2.650	4.9	20.8	2 11	8 40.23	+18 10.0	1.199	2.171	6.2	20.2
2 21	8 33.57	+17 15.5	1.735	2.663	9.1	21.0	2 21	8 32.23	+19 4.0	1.235	2.168	11.5	20.4
3 2	8 28.13	+18 29.8	1.816	2.677	12.8	21.3	3 2	8 26.91	+19 45.2	1.293	2.166	16.1	20.7
67525	2000 <i>RW</i> ₈₃		1 30.9 207°04	0°1/30.9	18		40541	1999 <i>RE</i> ₁₀₆		1 30.9 110°97	3°9/ 2.9	18	
12 23	9 21.36	+15 48.8	2.065	2.827	14.8	20.2	12 23	9 16.32	+ 4 6.3	2.269	2.992	14.7	19.5
1 2	9 16.63	+16 6.9	1.964	2.821	11.8	19.9	1 2	9 12.16	+ 3 59.9	2.185	3.007	12.1	19.3
1 12	9 9.36	+16 35.3	1.887	2.814	8.1	19.7	1 12	9 5.99	+ 4 9.1	2.123	3.021	9.1	19.1
1 22	9 0.06	+17 10.6	1.835	2.807	4.0	19.4	1 22	8 58.31	+ 4 33.5	2.087	3.035	6.0	19.0
2 1	8 49.58	+17 48.6	1.814	2.799	0.5	19.1	2 1	8 49.84	+ 5 11.0	2.078	3.048	3.9	18.9
2 11	8 39.04	+18 24.2	1.822	2.790	4.9	19.4	2 11	8 41.49	+ 5 58.1	2.100	3.062	5.0	19.0
2 21	8 29.59	+18 53.8	1.860	2.780	9.1	19.7	2 21	8 34.09	+ 6 50.1	2.150	3.075	7.8	19.2
3 2	8 22.15	+19 14.9	1.923	2.770	12.8	19.9	3 2	8 28.35	+ 7 42.6	2.227	3.087	10.8	19.4
430500	2001 <i>UX</i> ₆₁		1 30.9 99°51	0°7/30.4	18		408161	2013 <i>CY</i> ₁₅₈		1 30.9 275°41	0°9/31.5	17	
12 23	9 16.50	+18 22.2	2.494	3.261	12.4	21.7	12 23	9 17.70	+13 14.2	1.652	2.430	17.3	22.2
1 2	9 12.17	+18 43.8	2.414	3.274	9.7	21.5	1 2	9 14.52	+13 28.4	1.550	2.414	13.9	22.0
1 12	9 5.91	+19 11.8	2.357	3.288	6.6	21.3	1 12	9 8.40	+13 57.9	1.467	2.397	9.8	21.7
1 22	8 58.22	+19 42.9	2.328	3.301	3.1	21.1	1 22	8 59.80	+14 40.3	1.409	2.380	5.0	21.3
2 1	8 49.81	+20 13.5	2.330	3.314	0.9	21.0	2 1	8 49.64	+15 30.9	1.378	2.363	0.9	21.0
2 11	8 41.55	+20 40.0	2.362	3.327	4.2	21.3	2 11	8 39.27	+16 23.1	1.375	2.346	5.7	21.3
2 21	8 34.22	+21 0.0	2.423	3.339	7.5	21.5	2 21	8 30.08	+17 11.0	1.399	2.328	10.7	21.5
3 2	8 28.50	+21 12.3	2.510	3.352	10.3	21.7	3 2	8 23.28	+17 50.2	1.446	2.311	15.2	21.8
73982	1998 <i>DB</i> ₁₇		1 30.9 57°10	3°7/ 3.2	18		275406	2011 <i>BR</i> ₄₈		1 30.9 103°01	1°6/31.9	18	
12 23	9 13.62	+ 2 34.5	2.070	2.799	15.8								

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
462663	2009 <i>SF</i> ₃₄₃		1 30.9 123°88	1°6/	1.1 18		394824	2008 <i>SG</i> ₁₁₂		1 30.9 202°06	1°9/	1.1 18	
12 23	9 15.86	+10 37.4	2.022	2.780	15.2	21.9	12 23	9 19.94	+ 9 58.3	1.858	2.612	16.5	21.6
1 2	9 12.22	+10 56.7	1.933	2.784	12.2	21.7	1 2	9 15.78	+10 15.9	1.760	2.608	13.3	21.4
1 12	9 6.28	+11 30.4	1.866	2.788	8.6	21.5	1 12	9 8.96	+10 50.0	1.684	2.604	9.5	21.1
1 22	8 58.54	+12 16.1	1.825	2.792	4.6	21.2	1 22	8 59.97	+11 38.4	1.633	2.599	5.2	20.9
2 1	8 49.82	+13 9.8	1.813	2.796	1.6	21.0	2 1	8 49.70	+12 36.9	1.610	2.593	1.9	20.6
2 11	8 41.14	+14 6.3	1.830	2.800	4.6	21.2	2 11	8 39.35	+13 39.6	1.617	2.586	5.1	20.8
2 21	8 33.51	+15 0.5	1.875	2.803	8.5	21.5	2 21	8 30.13	+14 40.4	1.652	2.579	9.5	21.1
3 2	8 27.76	+15 48.4	1.946	2.807	12.1	21.7	3 2	8 23.05	+15 34.5	1.712	2.571	13.5	21.3
118952	2000 <i>WA</i> ₉₂		1 30.9 70°39	0°1/31.0	18		262626	2006 <i>WO</i> ₁₄		1 30.9 121°63	5°0/27.1	18	
12 23	9 17.55	+15 48.9	1.921	2.695	15.3	20.2	12 23	9 21.60	+28 15.8	2.073	2.857	14.0	20.9
1 2	9 13.65	+16 1.5	1.838	2.702	12.1	20.0	1 2	9 16.90	+29 39.7	2.004	2.872	11.1	20.7
1 12	9 7.28	+16 24.3	1.778	2.709	8.3	19.8	1 12	9 9.56	+31 6.1	1.960	2.886	8.0	20.5
1 22	8 59.03	+16 54.0	1.743	2.715	4.0	19.5	1 22	9 0.17	+32 27.2	1.943	2.900	5.5	20.4
2 1	8 49.77	+17 26.3	1.737	2.722	0.5	19.3	2 1	8 49.69	+33 34.8	1.955	2.914	5.4	20.4
2 11	8 40.65	+17 56.7	1.760	2.729	4.9	19.6	2 11	8 39.37	+34 23.4	1.996	2.927	7.8	20.6
2 21	8 32.72	+18 21.5	1.811	2.736	9.0	19.9	2 21	8 30.37	+34 50.8	2.065	2.940	10.7	20.8
3 2	8 26.85	+18 38.5	1.886	2.743	12.6	20.1	3 2	8 23.59	+34 58.1	2.157	2.952	13.5	21.0
308687	2006 <i>DX</i> ₁₀₉		1 30.9 249°64	0°1/31.0	18		230873	2004 <i>RE</i> ₂₀₈		1 30.9 166°91	4°7/	2.9 18	
12 23	9 20.25	+15 51.7	1.777	2.551	16.4	21.4	12 23	9 18.43	+ 3 50.8	2.296	3.012	14.7	20.4
1 2	9 16.28	+16 3.5	1.675	2.539	13.1	21.1	1 2	9 13.89	+ 3 13.1	2.201	3.015	12.3	20.2
1 12	9 9.45	+16 26.9	1.595	2.525	9.1	20.8	1 12	9 7.25	+ 2 48.8	2.127	3.018	9.4	20.1
1 22	9 0.25	+16 58.6	1.540	2.512	4.5	20.5	1 22	8 58.99	+ 2 38.9	2.078	3.020	6.6	19.9
2 1	8 49.61	+17 33.9	1.512	2.497	0.5	20.2	2 1	8 49.83	+ 2 43.2	2.058	3.022	4.8	19.8
2 11	8 38.84	+18 7.4	1.514	2.483	5.5	20.5	2 11	8 40.71	+ 2 59.5	2.068	3.023	5.7	19.8
2 21	8 29.26	+18 34.7	1.543	2.468	10.3	20.8	2 21	8 32.51	+ 3 24.7	2.106	3.024	8.3	20.0
3 2	8 21.99	+18 53.1	1.597	2.453	14.5	21.0	3 2	8 25.99	+ 3 54.8	2.171	3.025	11.2	20.2
497249	2005 <i>GO</i> ₅₇		1 30.9 265°72	6°5/25.8	17		403830	2011 <i>UB</i> ₂₁₀		1 30.9 327°58	3°8/	1.7 18	
12 23	9 20.96	+36 10.4	2.427	3.204	12.4	21.7	12 23	9 17.70	+ 9 15.9	1.470	2.244	19.2	20.7
1 2	9 16.42	+37 14.1	2.334	3.189	10.2	21.5	1 2	9 14.64	+ 8 46.5	1.382	2.239	15.7	20.4
1 12	9 9.28	+38 15.1	2.265	3.173	8.0	21.3	1 12	9 8.51	+ 8 33.5	1.313	2.234	11.5	20.1
1 22	9 0.07	+39 6.5	2.222	3.158	6.6	21.2	1 22	8 59.85	+ 8 36.9	1.266	2.229	7.0	19.9
2 1	8 49.66	+39 41.5	2.208	3.142	6.8	21.2	2 1	8 49.72	+ 8 55.1	1.245	2.224	3.8	19.7
2 11	8 39.22	+39 55.7	2.222	3.126	8.6	21.3	2 11	8 39.58	+ 9 23.5	1.251	2.220	6.4	19.8
2 21	8 29.92	+39 48.1	2.262	3.109	11.0	21.4	2 21	8 30.86	+ 9 57.0	1.282	2.217	11.0	20.1
3 2	8 22.71	+39 20.4	2.325	3.093	13.4	21.6	3 2	8 24.72	+10 30.2	1.337	2.213	15.5	20.3
377511	2005 <i>EA</i> ₂₅₅		1 30.9 42°64	2°0/29.8	18		335941	2007 <i>TO</i> ₆₁		1 30.9 92°47	0°3/31.2	18	
12 23	9 19.45	+22 54.0	2.148	2.927	13.8	20.9	12 23	9 16.10	+14 42.4	2.430	3.189	12.9	21.0
1 2	9 14.96	+23 7.0	2.061	2.929	10.8	20.7	1 2	9 11.89	+15 2.2	2.351	3.206	10.2	20.8
1 12	9 8.09	+23 23.7	1.997	2.930	7.4	20.5	1 12	9 5.76	+15 31.0	2.297	3.223	7.0	20.7
1 22	8 59.40	+23 40.0	1.960	2.932	3.8	20.2	1 22	8 58.20	+16 5.8	2.269	3.240	3.4	20.5
2 1	8 49.75	+23 51.7	1.952	2.933	2.2	20.1	2 1	8 49.94	+16 43.1	2.271	3.256	0.4	20.2
2 11	8 40.25	+23 55.4	1.974	2.935	5.4	20.4	2 11	8 41.82	+17 19.2	2.304	3.272	3.9	20.5
2 21	8 31.91	+23 49.3	2.023	2.936	9.0	20.6	2 21	8 34.65	+17 50.9	2.366	3.288	7.3	20.8
3 2	8 25.56	+23 33.6	2.098	2.938	12.2	20.8	3 2	8 29.07	+18 16.1	2.455	3.304	10.3	21.0
122623	2000 <i>RK</i> ₆₇		1 30.9 143°27	1°4/30.1	18		262656	2006 <i>WM</i> ₉₀		1 30.9 19°43	2°1/	1.0 18	
12 23	9 22.55	+19 1.9	2.075	2.842	14.6	20.8	12 23	9 15.23	+11 45.3	1.459	2.247	18.7	20.4
1 2	9 17.39	+19 39.2	1.994	2.855	11.4	20.6	1 2	9 12.55	+11 39.4	1.385	2.253	15.0	20.2
1 12	9 9.75	+20 24.6	1.937	2.868	7.7	20.4	1 12	9 6.93	+11 49.6	1.329	2.259	10.6	20.0
1 22	9 0.20	+21 13.3	1.907	2.879	3.7	20.1	1 22	8 59.00	+12 13.8	1.297	2.266	5.8	19.7
2 1	8 49.67	+21 59.8	1.907	2.890	1.6	20.0	2 1	8 49.84	+12 48.1	1.291	2.274	2.1	19.5
2 11	8 39.29	+22 38.8	1.938	2.900	5.3	20.3	2 11	8 40.86	+13 26.7	1.311	2.283	5.7	19.7
2 21	8 30.15	+23 7.3	1.997	2.910	9.1	20.5	2 21	8 33.36	+14 4.0	1.357	2.292	10.4	20.0
3 2	8 23.08	+23 24.0	2.082	2.918	12.4	20.8	3 2	8 28.36	+14 35.6	1.426	2.302	14.7	20.3
70236	1999 <i>RL</i> ₆₇		1 30.9 6°34	1°5/31.7	18		87197	2000 <i>OE</i> ₂₂		1 30.9 54°10	6°4/	1.6 18	
12 23	9 15.49	+13 17.4	1.301	2.102	19.9	18.3	12 23	9 33.70	+ 9 27.8	1.288	2.044	22.4	18.2
1 2	9 13.20	+13 12.5	1.225	2.102	16.0	18.0	1 2	9 26.81	+ 7 31.5	1.233	2.075	18.3	18.0
1 12	9 7.64	+13 23.8	1.168	2.103	11.2	17.7	1 12	9 16.36	+ 5 48.9	1.197	2.106	13.6	17.8
1 22	8 59.43	+13 49.0	1.133	2.104	5.8	17.4	1 22	9 3.37	+ 4 23.9	1.186	2.138	8.9	17.6
2 1	8 49.75	+14 23.3	1.123	2.107	1.5	17.2	2 1	8 49.38	+ 3 19.5	1.201	2.170	6.4	17.6
2 11	8 40.21	+15 0.2	1.138	2.111	6.2	17.5	2 11	8 36.21	+ 2 36.0	1.244	2.202	8.3	17.8
2 21	8 32.32	+15 33.9	1.178	2.115	11.5	17.8	2 21	8 25.37	+ 2 10.5	1.314	2.234	12.1	18.1
3 2	8 27.24	+16 0.0	1.240	2.120	16.1	18.1	3 2	8 17.79	+ 1 58.4	1.407	2.266	15.9	18.4
88448	2001 <i>QH</i> ₈₂		1 30.9 16°69	1°1/31.4	18		61046	2000 <i>KB</i> ₆₃		1 30.9 73°51	8°5/	6.2 18	
12 23	9 22.12	+15 30.8	1.450	2.235	18.9	19.0	12 23	9 15.63	- 6 14.2	1.829	2.518	18.8	19.7
1 2	9 18.14	+15 10.7	1.367	2.236	15.2	18.8	1 2	9 12.18	- 6 51.7	1.752	2.532	16.3	19.5
1 12	9 10.86	+15 1.5	1.305	2.236	10.6	18.5	1 12	9 6.31	- 7 4.3	1.693	2.547	13.5	19.4
1 22	9 0.95	+15 1.0	1.266	2.237	5.4	18.2	1 22	8 58.59	- 6 49.0	1.656	2.562	10.7	19.2
2 1	8 49.58	+15 5.5	1.253	2.238	1.2	17.9	2 1	8 49.90	- 6 5.7	1.643	2.576	8.8	19.1
2 11	8 38.36	+15 10.9	1.268	2.239	6.0	18.2	2 11	8 41.34	- 4 58.2	1.656	2.591	8.7	19.2
2 21	8 28.80	+15 13.8	1.309	2.240	11.2	18.5	2 21	8 33.94	- 3 33.4	1.696	2.606	10.5	19.3
3 2	8 22.05	+15 12.2	1.372	2.241	15.7	18.8	3 2	8 28.54	- 1 59.8	1.760	2.620	13.1	19.5
344352	2001 <i>WS</i> ₆₈		1 30.9 354°15	5°6/26.7	18		40629	1999 <i>RX</i> ₁₇₃		1 30.9 169°85	0°6/30.6	18	
12 23	9 17.60	+32 0.4	2.247	3.036									

EPHEMERIDES

1 30.9

1 30.9

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
456790	2007 <i>TK</i> ₂₀₀		1 30.9 74°63	0°1/30.9	18		86815	2000 <i>GL</i> ₁₃₄		1 30.9 191°08	2°5/29.3	18	
12 23	9 20.83	+16 12.1	1.535	2.320	18.1	22.0	12 23	9 21.99	+20 48.5	1.999	2.773	14.8	20.0
1 2	9 16.79	+16 22.3	1.463	2.333	14.3	21.8	1 2	9 17.35	+21 46.5	1.907	2.772	11.7	19.8
1 12	9 9.73	+16 44.5	1.412	2.345	9.8	21.5	1 12	9 10.01	+22 53.8	1.838	2.770	8.0	19.6
1 22	9 0.31	+17 14.6	1.385	2.357	4.7	21.3	1 22	9 0.50	+24 4.2	1.796	2.767	4.1	19.4
2 1	8 49.71	+17 47.0	1.385	2.370	0.6	21.0	2 1	8 49.72	+25 10.7	1.784	2.764	2.8	19.3
2 11	8 39.38	+18 16.3	1.413	2.382	5.7	21.4	2 11	8 38.91	+26 6.5	1.803	2.759	6.2	19.5
2 21	8 30.66	+18 38.3	1.467	2.395	10.5	21.7	2 21	8 29.27	+26 47.4	1.849	2.754	10.1	19.7
3 2	8 24.54	+18 51.0	1.545	2.407	14.6	22.0	3 2	8 21.80	+27 12.1	1.920	2.748	13.6	19.9
498325	2007 <i>VC</i> ₁₈₂		1 30.9 161°57	0°5/30.5	17		46875	1998 <i>QD</i> ₁₀₄		1 30.9 16°07	0°9/31.5	18	R
12 23	9 16.20	+17 37.2	2.979	3.735	10.8	23.3	12 23	9 10.33	+10 57.0	1.169	1.980	21.1	16.7
1 2	9 11.69	+18 2.7	2.887	3.741	8.5	23.2	1 2	9 9.38	+11 40.6	1.104	1.987	16.8	16.4
1 12	9 5.51	+18 34.2	2.819	3.747	5.8	23.0	1 12	9 5.14	+12 48.8	1.058	1.996	11.7	16.1
1 22	8 58.08	+19 8.9	2.780	3.752	2.8	22.8	1 22	8 58.27	+14 16.8	1.033	2.006	5.9	15.8
2 1	8 49.98	+19 43.8	2.772	3.757	0.7	22.6	2 1	8 49.99	+15 55.1	1.033	2.018	0.9	15.5
2 11	8 41.93	+20 15.6	2.796	3.761	3.6	22.9	2 11	8 41.91	+17 32.3	1.057	2.031	6.4	15.9
2 21	8 34.62	+20 41.9	2.850	3.765	6.6	23.1	2 21	8 35.54	+18 58.1	1.106	2.045	11.8	16.3
3 2	8 28.63	+21 1.3	2.931	3.768	9.2	23.2	3 2	8 32.01	+20 6.0	1.177	2.061	16.5	16.6
19825	2000 <i>SN</i> ₁₇₉		1 30.9 246°59	6°3/ 3.8	18		74462	1999 <i>CR</i> ₃₇		1 30.9 338°56	1°4/30.1	18	
12 23	9 16.09	+ 0 0.2	2.111	2.820	16.1	18.7	12 23	9 15.12	+19 17.8	2.000	2.785	14.4	19.8
1 2	9 12.37	- 0 41.5	2.011	2.815	13.7	18.6	1 2	9 11.85	+19 46.6	1.909	2.780	11.4	19.6
1 12	9 6.41	- 1 6.3	1.931	2.809	10.9	18.4	1 12	9 6.17	+20 23.8	1.841	2.776	7.7	19.4
1 22	8 58.67	- 1 12.1	1.875	2.804	8.2	18.2	1 22	8 58.60	+21 5.3	1.798	2.771	3.8	19.1
2 1	8 49.90	- 0 58.5	1.846	2.798	6.4	18.1	2 1	8 49.96	+21 45.8	1.784	2.767	1.6	19.0
2 11	8 41.07	- 0 27.5	1.844	2.792	6.9	18.1	2 11	8 41.35	+22 20.4	1.799	2.764	5.3	19.2
2 21	8 33.15	+ 0 16.7	1.870	2.786	9.4	18.2	2 21	8 33.81	+22 45.4	1.841	2.760	9.3	19.4
3 2	8 26.99	+ 1 8.8	1.921	2.780	12.3	18.4	3 2	8 28.24	+22 59.3	1.908	2.757	12.8	19.7
466774	2015 <i>AG</i> ₂₄₃		1 30.9 116°81	1°4/29.7	17		306665	2000 <i>SO</i> ₂₇₇		1 30.9 231°48	1°6/31.9	17	
12 23	9 14.87	+17 9.9	2.403	3.172	12.7	21.1	12 23	9 22.45	+11 32.3	2.384	3.120	13.7	21.9
1 2	9 11.18	+18 19.8	2.316	3.179	10.0	20.9	1 2	9 17.26	+11 33.8	2.264	3.102	11.1	21.7
1 12	9 5.46	+19 40.0	2.253	3.185	6.7	20.7	1 12	9 9.75	+11 45.9	2.167	3.082	8.0	21.5
1 22	8 58.15	+21 5.8	2.219	3.192	3.2	20.5	1 22	9 0.35	+12 7.4	2.097	3.062	4.4	21.2
2 1	8 49.97	+22 31.0	2.215	3.198	1.6	20.4	2 1	8 49.76	+12 35.5	2.057	3.040	1.6	21.0
2 11	8 41.79	+23 49.7	2.243	3.204	4.8	20.6	2 11	8 38.97	+13 6.7	2.049	3.017	4.5	21.1
2 21	8 34.48	+24 57.3	2.300	3.210	8.2	20.8	2 21	8 28.98	+13 37.5	2.072	2.993	8.3	21.3
3 2	8 28.78	+25 51.3	2.383	3.216	11.2	21.0	3 2	8 20.71	+14 5.0	2.121	2.967	11.8	21.5
410493	2008 <i>DZ</i> ₆₈		1 30.9 26°82	13°5/23.9	18		466639	2014 <i>WO</i> ₄₆		1 30.9 32°09	1°0/31.6	18	
12 23	9 34.45	+49 57.3	1.634	2.400	17.9	20.6	12 23	9 17.01	+13 53.6	1.719	2.497	16.7	21.6
1 2	9 29.03	+51 25.9	1.582	2.404	15.9	20.5	1 2	9 13.54	+13 55.3	1.638	2.502	13.3	21.3
1 12	9 18.83	+52 38.0	1.550	2.408	14.3	20.4	1 12	9 7.41	+14 9.3	1.578	2.508	9.3	21.1
1 22	9 4.89	+53 20.1	1.538	2.412	13.5	20.3	1 22	8 59.21	+14 33.2	1.543	2.514	4.7	20.8
2 1	8 49.21	+53 21.6	1.550	2.417	13.9	20.4	2 1	8 49.91	+15 2.8	1.535	2.520	1.0	20.6
2 11	8 34.40	+52 39.7	1.584	2.423	15.2	20.5	2 11	8 40.74	+15 33.4	1.555	2.526	5.1	20.9
2 21	8 22.62	+51 19.6	1.638	2.428	17.1	20.6	2 21	8 32.88	+16 0.6	1.603	2.533	9.5	21.2
3 2	8 15.10	+49 30.7	1.711	2.434	19.1	20.8	3 2	8 27.24	+16 21.5	1.674	2.540	13.4	21.4
297966	2002 <i>HJ</i> ₁₅		1 30.9 320°83	3°8/28.0	18		90059	2002 <i>VW</i> ₅₆		1 30.9 87°81	4°6/28.4	18	
12 23	9 16.20	+28 12.0	2.500	3.283	11.9	20.5	12 23	9 22.44	+23 56.8	1.419	2.222	18.4	19.5
1 2	9 12.27	+28 55.1	2.411	3.279	9.4	20.3	1 2	9 18.59	+25 10.4	1.355	2.236	14.5	19.3
1 12	9 6.22	+29 39.5	2.347	3.276	6.7	20.1	1 12	9 11.26	+26 32.4	1.312	2.249	10.0	19.1
1 22	8 58.52	+30 20.2	2.310	3.272	4.3	20.0	1 22	9 1.18	+27 53.0	1.294	2.262	5.8	18.9
2 1	8 49.93	+30 52.2	2.302	3.268	4.0	20.0	2 1	8 49.68	+29 1.6	1.302	2.276	5.0	18.9
2 11	8 41.40	+31 11.7	2.324	3.265	6.2	20.1	2 11	8 38.49	+29 49.9	1.337	2.289	8.6	19.1
2 21	8 33.84	+31 17.0	2.373	3.262	8.9	20.2	2 21	8 29.18	+30 14.7	1.398	2.302	12.8	19.4
3 2	8 27.99	+31 8.4	2.447	3.259	11.6	20.4	3 2	8 22.89	+30 17.4	1.480	2.314	16.6	19.7
253212	2002 <i>XC</i> ₉₉		1 30.9 151°58	1°3/31.9	18		93630	2000 <i>UR</i> ₇₇		1 30.9 105°20	3°6/28.6	18	
12 23	9 20.03	+11 55.5	2.384	3.126	13.6	21.4	12 23	9 18.88	+24 41.8	1.962	2.750	14.5	20.0
1 2	9 15.04	+12 2.1	2.294	3.137	10.8	21.3	1 2	9 14.89	+25 32.9	1.881	2.754	11.4	19.8
1 12	9 7.97	+12 19.0	2.228	3.147	7.6	21.1	1 12	9 8.28	+26 29.1	1.824	2.757	7.9	19.6
1 22	8 59.32	+12 44.4	2.190	3.156	4.1	20.9	1 22	8 59.62	+27 23.9	1.793	2.761	4.6	19.4
2 1	8 49.85	+13 15.1	2.181	3.164	1.3	20.7	2 1	8 49.86	+28 10.8	1.791	2.765	3.8	19.3
2 11	8 40.48	+13 47.7	2.203	3.172	4.1	20.9	2 11	8 40.21	+28 44.1	1.817	2.768	6.7	19.5
2 21	8 32.07	+14 18.7	2.256	3.179	7.6	21.1	2 21	8 31.82	+29 1.3	1.871	2.772	10.3	19.7
3 2	8 25.36	+14 45.6	2.335	3.185	10.7	21.3	3 2	8 25.62	+29 2.5	1.948	2.775	13.5	19.9
117021	2004 <i>JH</i> ₁₀		1 30.9 142°31	2°7/ 2.2	18		187887	2000 <i>RW</i> ₆₄		1 30.9 211°82	0°8/30.5	17	
12 23	9 16.15	+ 6 3.1	2.211	2.945	14.7	19.8	12 23	9 21.63	+19 31.8	2.518	3.276	12.5	21.1
1 2	9 12.22	+ 6 25.0	2.121	2.953	12.0	19.6	1 2	9 16.38	+19 39.3	2.413	3.268	9.9	20.9
1 12	9 6.18	+ 7 3.3	2.053	2.961	8.8	19.4	1 12	9 8.97	+19 51.8	2.332	3.260	6.8	20.7
1 22	8 58.51	+ 7 56.7	2.010	2.968	5.3	19.2	1 22	8 59.88	+20 6.4	2.279	3.251	3.3	20.5
2 1	8 49.95	+ 9 1.6	1.997	2.975	2.8	19.1	2 1	8 49.84	+20 19.7	2.257	3.241	1.0	20.3
2 11	8 41.43	+10 12.8	2.014	2.982	4.5	19.2	2 11	8 39.79	+20 28.6	2.267	3.231	4.4	20.5
2 21	8 33.85	+11 25.0	2.060	2.988	7.9	19.4	2 21	8 30.67	+20 31.1	2.306	3.220	7.9	20.7
3 2	8 27.97	+12 33.0	2.133	2.993	11.2	19.6	3 2	8 23.25	+20 26.4	2.372	3.209	11.0	20.9
29854	1999 <i>FK</i> ₂₇		1 30.9 43°46	8°5/26.4	18		84550	2002 <i>UN</i> ₃₃		1 30.9 24°56	0°3/31.1	18	
12 23	9 24.00	+36 16.2	1.616	2.414	16.8								

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1 30.9

1 31.0

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
414884	2010 <i>WR</i> ₂₁		1 30.9 51°07	0°7/30.6	18		104471	2000 <i>GO</i> ₁₆		1 30.9 212°97	1°5/	1.0	17
12 23	9 17.99	+17 23.0	1.699	2.486	16.5	21.6	12 23	9 18.36	+11 19.9	2.387	3.132	13.5	21.1
1 2	9 14.39	+17 46.1	1.622	2.492	13.0	21.4	1 2	9 13.94	+11 29.1	2.281	3.124	10.9	20.9
1 12	9 8.04	+18 19.9	1.565	2.499	8.9	21.2	1 12	9 7.40	+11 49.6	2.198	3.116	7.7	20.7
1 22	8 59.54	+19 0.1	1.534	2.507	4.3	20.9	1 22	8 59.18	+12 19.7	2.141	3.107	4.2	20.5
2 1	8 49.90	+19 41.0	1.530	2.514	1.0	20.7	2 1	8 49.98	+12 56.4	2.114	3.097	1.5	20.3
2 11	8 40.42	+20 16.9	1.554	2.522	5.6	21.0	2 11	8 40.70	+13 36.0	2.118	3.087	4.2	20.5
2 21	8 32.32	+20 43.9	1.605	2.530	10.0	21.3	2 21	8 32.27	+14 14.7	2.152	3.076	7.8	20.7
3 2	8 26.54	+20 59.8	1.680	2.538	13.8	21.5	3 2	8 25.48	+14 49.3	2.212	3.065	11.1	20.8
140915	2001 <i>VY</i> ₆₁		1 30.9 168°86	2°1/	1.6	18	241820	2001 <i>SY</i> ₈₇		1 31.0 117°79	2°8/29.2	18	
12 23	9 15.29	+ 9 31.0	2.758	3.494	12.1	20.4	12 23	9 21.31	+26 33.2	2.516	3.287	12.2	21.1
1 2	9 11.11	+ 9 25.3	2.661	3.496	9.8	20.3	1 2	9 16.03	+26 51.1	2.436	3.298	9.6	21.0
1 12	9 5.21	+ 9 29.4	2.587	3.498	7.0	20.1	1 12	9 8.63	+27 9.6	2.379	3.308	6.6	20.8
1 22	8 57.99	+ 9 42.3	2.540	3.500	4.1	19.9	1 22	8 59.66	+27 24.6	2.351	3.317	3.8	20.6
2 1	8 50.08	+10 2.3	2.522	3.501	2.1	19.8	2 1	8 49.94	+27 32.1	2.353	3.327	3.0	20.6
2 11	8 42.20	+10 26.8	2.536	3.503	3.8	19.9	2 11	8 40.43	+27 29.5	2.385	3.336	5.3	20.7
2 21	8 35.06	+10 52.9	2.579	3.504	6.7	20.1	2 21	8 32.01	+27 16.0	2.446	3.345	8.2	20.9
3 2	8 29.28	+11 18.2	2.650	3.505	9.4	20.3	3 2	8 25.39	+26 52.4	2.533	3.354	10.9	21.1
7726	Olegbykov		1 30.9 218°89	1°9/29.9	18		260719	2005 <i>JC</i> ₁₇₉		1 31.0 161°39	1°7/29.7	18	
12 23	9 24.10	+20 58.1	1.836	2.613	15.8	18.4	12 23	9 20.41	+20 30.9	2.488	3.251	12.5	22.2
1 2	9 19.28	+21 22.1	1.739	2.605	12.6	18.1	1 2	9 15.42	+21 14.5	2.400	3.259	9.8	22.0
1 12	9 11.50	+21 53.6	1.664	2.596	8.6	17.9	1 12	9 8.30	+22 4.4	2.337	3.267	6.7	21.8
1 22	9 1.30	+22 27.5	1.615	2.587	4.3	17.6	1 22	8 59.56	+22 56.2	2.302	3.273	3.3	21.6
2 1	8 49.69	+22 57.8	1.594	2.576	2.2	17.4	2 1	8 49.95	+23 44.8	2.298	3.279	1.9	21.5
2 11	8 38.03	+23 19.1	1.603	2.565	6.2	17.6	2 11	8 40.40	+24 25.8	2.325	3.284	4.9	21.7
2 21	8 27.68	+23 28.4	1.640	2.554	10.6	17.9	2 21	8 31.81	+24 56.5	2.382	3.288	8.1	21.9
3 2	8 19.76	+23 25.1	1.701	2.542	14.5	18.1	3 2	8 24.93	+25 15.8	2.465	3.291	11.0	22.1
409805	2006 <i>HH</i> ₅₃		1 30.9 202°93	3°7/28.6	18		351253	2004 <i>RZ</i> ₇₅		1 31.0 135°33	3°6/28.9	18	
12 23	9 20.99	+23 38.3	1.834	2.621	15.5	21.1	12 23	9 25.36	+24 58.0	1.906	2.684	15.3	21.7
1 2	9 16.88	+24 40.0	1.747	2.618	12.2	20.8	1 2	9 19.95	+25 45.8	1.832	2.698	12.0	21.5
1 12	9 9.87	+25 49.4	1.682	2.615	8.5	20.6	1 12	9 11.70	+26 37.7	1.782	2.712	8.3	21.3
1 22	9 0.51	+26 59.5	1.643	2.612	4.8	20.4	1 22	9 1.28	+27 27.0	1.758	2.725	4.8	21.1
2 1	8 49.78	+28 2.0	1.633	2.608	4.0	20.3	2 1	8 49.76	+28 6.6	1.763	2.737	3.9	21.1
2 11	8 39.05	+28 49.9	1.652	2.603	7.3	20.5	2 11	8 38.49	+28 31.5	1.798	2.749	6.8	21.3
2 21	8 29.62	+29 19.6	1.698	2.598	11.1	20.7	2 21	8 28.71	+28 39.9	1.861	2.759	10.4	21.5
3 2	8 22.59	+29 30.7	1.767	2.593	14.7	20.9	3 2	8 21.37	+28 32.6	1.948	2.769	13.7	21.7
394356	2007 <i>BB</i> ₄₈		1 30.9 48°37	2°8/29.7	17		235600	2004 <i>PV</i> ₅₅		1 31.0 135°94	0°2/31.1	18	
12 23	9 20.33	+20 6.5	1.184	1.998	20.7	21.2	12 23	9 20.81	+13 26.1	1.856	2.620	16.2	21.4
1 2	9 17.36	+20 50.2	1.123	2.010	16.3	20.9	1 2	9 16.34	+14 6.0	1.776	2.632	12.8	21.2
1 12	9 10.64	+21 46.4	1.081	2.023	11.0	20.7	1 12	9 9.25	+15 0.2	1.717	2.645	8.8	21.0
1 22	9 0.95	+22 47.2	1.062	2.036	5.5	20.4	1 22	9 0.12	+16 4.4	1.685	2.656	4.3	20.7
2 1	8 49.75	+23 42.4	1.068	2.050	3.1	20.3	2 1	8 49.89	+17 12.7	1.682	2.667	0.5	20.5
2 11	8 38.96	+24 23.6	1.099	2.064	7.9	20.6	2 11	8 39.79	+18 18.3	1.709	2.677	5.1	20.8
2 21	8 30.26	+24 46.5	1.154	2.079	13.0	21.0	2 21	8 30.96	+19 15.7	1.764	2.687	9.4	21.1
3 2	8 24.84	+24 50.8	1.231	2.094	17.5	21.3	3 2	8 24.31	+20 1.7	1.845	2.696	13.1	21.3
500613	2012 <i>UO</i> ₁₃₉		1 30.9 112°08	2°1/29.5	17		244547	2002 <i>UO</i> ₇₈		1 31.0 57°19	2°6/	1.8	18
12 23	9 19.19	+24 11.2	2.608	3.378	11.8	21.5	12 23	9 15.26	+ 8 57.2	2.147	2.897	14.7	20.7
1 2	9 14.27	+24 28.3	2.526	3.389	9.3	21.4	1 2	9 11.57	+ 8 50.6	2.062	2.905	11.9	20.5
1 12	9 7.38	+24 47.4	2.469	3.399	6.3	21.2	1 12	9 5.77	+ 8 57.0	1.998	2.913	8.6	20.3
1 22	8 59.04	+25 5.1	2.440	3.409	3.4	21.0	1 22	8 58.35	+ 9 15.3	1.961	2.922	5.1	20.1
2 1	8 49.98	+25 17.5	2.441	3.419	2.3	21.0	2 1	8 50.10	+ 9 43.1	1.951	2.930	2.6	20.0
2 11	8 41.10	+25 22.1	2.473	3.429	4.8	21.2	2 11	8 41.94	+10 16.9	1.971	2.939	4.5	20.1
2 21	8 33.20	+25 17.6	2.534	3.439	7.7	21.4	2 21	8 34.77	+10 52.6	2.019	2.948	8.0	20.3
3 2	8 26.96	+25 4.1	2.621	3.448	10.4	21.5	3 2	8 29.34	+11 26.6	2.093	2.957	11.2	20.6
468404	2016 <i>GB</i> ₁₃₃		1 30.9 205°13	0°9/30.4	18		88638	2001 <i>RL</i> ₄₆		1 31.0 171°50	7°2/	4.8	18
12 23	9 16.44	+17 48.4	2.166	2.940	13.8	21.2	12 23	9 15.28	- 2 39.9	1.901	2.607	17.7	20.0
1 2	9 12.66	+18 19.4	2.074	2.939	10.9	21.0	1 2	9 11.99	- 3 12.1	1.809	2.608	15.2	19.8
1 12	9 6.61	+18 59.2	2.006	2.938	7.4	20.8	1 12	9 6.30	- 3 22.6	1.736	2.608	12.3	19.6
1 22	8 58.80	+19 44.1	1.964	2.937	3.6	20.5	1 22	8 58.72	- 3 8.9	1.685	2.608	9.4	19.4
2 1	8 50.00	+20 29.4	1.952	2.936	1.1	20.4	2 1	8 50.05	- 2 31.0	1.660	2.608	7.4	19.3
2 11	8 41.23	+21 10.1	1.969	2.935	4.8	20.6	2 11	8 41.36	- 1 32.1	1.662	2.608	7.7	19.3
2 21	8 33.46	+21 42.6	2.015	2.933	8.6	20.8	2 21	8 33.70	- 0 18.2	1.690	2.608	10.0	19.5
3 2	8 27.52	+22 4.9	2.086	2.932	12.0	21.1	3 2	8 27.96	+ 1 3.2	1.743	2.608	13.0	19.7
194326	2001 <i>UA</i> ₁₂₂		1 30.9 50°82	4°6/	2.3	18	17247	Vanverst		1 31.0 170°24	0°9/31.6	18	
12 23	9 18.07	+ 6 35.9	1.411	2.179	20.2	19.8	12 23	9 20.73	+12 20.0	1.920	2.678	15.9	19.5
1 2	9 14.89	+ 6 11.1	1.336	2.186	16.6	19.6	1 2	9 16.27	+12 44.2	1.830	2.682	12.7	19.3
1 12	9 8.63	+ 6 6.7	1.278	2.194	12.3	19.4	1 12	9 9.23	+13 22.5	1.762	2.686	8.9	19.1
1 22	8 59.92	+ 6 22.9	1.243	2.202	7.8	19.1	1 22	9 0.14	+14 11.9	1.720	2.689	4.6	18.8
2 1	8 49.87	+ 6 57.4	1.234	2.210	4.7	19.0	2 1	8 49.91	+15 7.6	1.706	2.691	0.9	18.6
2 11	8 39.98	+ 7 44.7	1.250	2.218	6.6	19.1	2 11	8 39.70	+16 3.6	1.723	2.692	4.9	18.8
2 21	8 31.63	+ 8 37.9	1.292	2.226	11.0	19.4	2 21	8 30.66	+16 54.9	1.768	2.693	9.2	19.1
3 2	8 25.91	+ 9 30.2	1.357	2.235	15.2	19.6	3 2	8 23.73	+17 37.8	1.839	2.693	13.0	19.3
324152	2005 <i>YH</i> ₁₆₈		1 30.9 234°68	13°0/20.9	18		393705	2004 <i>TE</i> ₁₆₃		1 31.0 151°38	1°8/29.9	18	
12 23	9 23.68	+34 34.6	1.193	2.013	20.2	20.0	12 23</						