

EPHEMERIDES

1 3.9

1 4.0

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
334209	2001 SZ ₃₀₈		1 3.9	73°49	3°5/ 4.9	18	269628	2011 AN ₂₃		1 3.9	359°71	5°3/ 5.6	18
12 3	7 18.45	+11 40.2	2.237	3.055	12.1	21.2	12 3	7 15.28	+9 34.0	1.253	2.103	17.7	18.8
12 13	7 12.82	+11 27.1	2.175	3.070	9.1	21.0	12 13	7 11.75	+9 44.9	1.188	2.098	13.7	18.6
12 23	7 5.52	+11 23.5	2.139	3.085	6.0	20.9	12 23	7 5.45	+10 16.9	1.144	2.096	9.2	18.3
1 2	6 57.25	+11 29.4	2.130	3.100	3.7	20.7	1 2	6 57.32	+11 9.8	1.123	2.095	5.6	18.1
1 12	6 48.90	+11 43.7	2.152	3.115	4.4	20.8	1 12	6 48.79	+12 19.8	1.127	2.095	6.4	18.2
1 22	6 41.32	+12 5.0	2.202	3.130	7.2	21.0	1 22	6 41.34	+13 40.5	1.156	2.097	10.5	18.4
2 1	6 35.27	+12 31.2	2.279	3.144	10.1	21.2	2 1	6 36.28	+15 5.2	1.207	2.101	14.9	18.7
2 11	6 31.24	+13 0.4	2.380	3.159	12.7	21.4	2 11	6 34.43	+16 27.6	1.279	2.107	18.8	18.9
126667	2002 CQ ₂₁₂		1 3.9	98°05	1°0/ 3.8	18	9278	1981 EM ₁		1 4.0	8°67	0°4/ 4.1	18
12 3	7 22.73	+25 13.6	1.980	2.819	12.6	20.3	12 3	7 18.27	+20 45.7	1.820	2.667	13.2	17.2
12 13	7 16.23	+25 26.5	1.917	2.830	9.1	20.1	12 13	7 13.23	+20 59.8	1.752	2.669	9.5	17.0
12 23	7 7.56	+25 39.1	1.879	2.840	5.1	19.9	12 23	7 6.00	+21 18.5	1.708	2.671	5.4	16.7
1 2	6 57.60	+25 48.6	1.869	2.851	1.3	19.6	1 2	6 57.40	+21 39.4	1.691	2.674	1.0	16.4
1 12	6 47.53	+25 52.8	1.889	2.861	3.6	19.8	1 12	6 48.57	+22 0.0	1.703	2.677	3.6	16.6
1 22	6 38.47	+25 51.3	1.938	2.871	7.6	20.1	1 22	6 40.65	+22 18.6	1.743	2.682	7.8	16.9
2 1	6 31.37	+25 44.7	2.014	2.882	11.1	20.3	2 1	6 34.63	+22 34.2	1.808	2.686	11.6	17.1
2 11	6 26.86	+25 34.7	2.112	2.891	14.1	20.5	2 11	6 31.17	+22 46.9	1.895	2.692	14.8	17.4
434008	2000 WY ₂		1 3.9	2°87	6°6/ 2.9	18	13559	Werth		1 4.0	114°53	5°9/ 2.7	18
12 3	7 34.00	+19 26.7	0.967	1.824	21.2	19.3	12 3	7 25.95	+40 43.4	2.299	3.115	11.9	18.2
12 13	7 25.77	+16 39.5	0.906	1.823	16.0	19.0	12 13	7 18.65	+41 26.0	2.238	3.123	9.4	18.0
12 23	7 13.44	+13 45.9	0.865	1.823	10.3	18.6	12 23	7 8.99	+41 57.4	2.203	3.131	7.1	17.9
1 2	6 58.63	+10 56.7	0.850	1.823	6.6	18.5	1 2	6 57.90	+42 12.3	2.195	3.139	6.0	17.9
1 12	6 43.72	+8 25.6	0.862	1.824	9.3	18.6	1 12	6 46.67	+42 8.0	2.215	3.147	6.8	17.9
1 22	6 31.01	+6 23.6	0.898	1.825	14.8	18.9	1 22	6 36.56	+41 45.2	2.264	3.155	9.0	18.1
2 1	6 22.12	+4 55.5	0.955	1.826	20.0	19.2	2 1	6 28.62	+41 7.1	2.338	3.162	11.4	18.2
2 11	6 17.80	+3 58.3	1.028	1.829	24.3	19.5	2 11	6 23.48	+40 18.7	2.434	3.170	13.6	18.4
166276	2002 GN ₉₅		1 3.9	203°44	2°1/ 4.4	18	518223	2016 SO ₁		1 4.0	326°43	8°9/ 31.4	18
12 3	7 23.61	+17 19.3	1.932	2.761	13.3	20.8	12 3	7 31.47	+29 34.1	0.975	1.841	20.3	20.3
12 13	7 16.96	+17 5.2	1.852	2.757	9.8	20.6	12 13	7 25.48	+32 55.2	0.918	1.839	15.3	20.0
12 23	7 8.06	+16 56.8	1.797	2.753	5.9	20.3	12 23	7 14.30	+36 25.3	0.883	1.838	10.7	19.7
1 2	6 57.73	+16 53.2	1.770	2.749	2.4	20.1	1 2	6 58.97	+39 40.2	0.874	1.837	8.9	19.6
1 12	6 47.10	+16 53.6	1.773	2.743	4.1	20.2	1 12	6 42.00	+42 16.8	0.889	1.836	12.0	19.8
1 22	6 37.34	+16 57.1	1.805	2.738	8.1	20.4	1 22	6 26.62	+44 3.8	0.929	1.835	16.9	20.1
2 1	6 29.48	+17 3.2	1.863	2.732	11.8	20.7	2 1	6 15.68	+45 4.1	0.987	1.834	21.6	20.3
2 11	6 24.21	+17 11.0	1.945	2.725	15.1	20.9	2 11	6 10.72	+45 29.2	1.061	1.833	25.4	20.6
19552	1999 JJ ₆₈		1 3.9	103°00	1°2/ 4.3	18	341016	2007 FV ₄₇		1 4.0	348°87	1°1/ 3.7	18
12 3	7 25.26	+18 33.9	1.700	2.535	14.5	18.7	12 3	7 22.32	+22 2.2	1.195	2.058	17.5	19.7
12 13	7 18.16	+18 49.7	1.645	2.555	10.5	18.5	12 13	7 17.27	+22 53.4	1.129	2.054	12.7	19.4
12 23	7 8.68	+19 12.0	1.615	2.575	6.0	18.3	12 23	7 8.77	+23 52.9	1.085	2.051	7.2	19.1
1 2	6 57.81	+19 37.8	1.613	2.594	1.6	18.0	1 2	6 57.92	+24 54.3	1.065	2.048	1.5	18.7
1 12	6 46.88	+20 4.4	1.640	2.613	3.9	18.2	1 12	6 46.49	+25 50.5	1.071	2.046	5.2	18.9
1 22	6 37.14	+20 29.6	1.695	2.631	8.3	18.5	1 22	6 36.39	+26 36.5	1.103	2.044	10.9	19.2
2 1	6 29.64	+20 52.4	1.777	2.649	12.1	18.8	2 1	6 29.25	+27 10.9	1.156	2.043	16.0	19.5
2 11	6 24.99	+21 12.4	1.882	2.666	15.3	19.0	2 11	6 26.03	+27 34.6	1.229	2.043	20.3	19.8
101651	1999 CU ₆₆		1 3.9	327°60	0°1/ 3.9	18	425964	2011 HO ₂₃		1 4.0	238°30	4°4/ 2.6	18
12 3	7 20.83	+24 1.5	2.022	2.862	12.3	19.3	12 3	7 22.93	+34 47.5	2.303	3.133	11.4	21.4
12 13	7 14.92	+23 46.2	1.942	2.856	8.9	19.1	12 13	7 16.54	+35 38.7	2.226	3.127	8.6	21.2
12 23	7 6.88	+23 30.4	1.888	2.850	5.0	18.9	12 23	7 7.89	+36 24.2	2.175	3.121	5.9	21.0
1 2	6 57.53	+23 12.8	1.862	2.845	0.9	18.6	1 2	6 57.74	+36 59.0	2.152	3.114	4.4	20.9
1 12	6 47.95	+22 52.7	1.866	2.840	3.4	18.8	1 12	6 47.24	+37 19.2	2.158	3.108	5.6	21.0
1 22	6 39.26	+22 30.4	1.899	2.835	7.5	19.0	1 22	6 37.55	+37 24.0	2.193	3.101	8.3	21.1
2 1	6 32.40	+22 7.0	1.958	2.830	11.2	19.2	2 1	6 29.72	+37 14.9	2.255	3.094	11.2	21.3
2 11	6 28.02	+21 43.7	2.040	2.826	14.3	19.4	2 11	6 24.47	+36 55.1	2.338	3.088	13.7	21.5
30903	1993 FU ₃₇		1 3.9	295°68	3°6/ 3.3	18	32538	2001 PB ₄₄		1 4.0	54°24	0°8/ 4.2	18
12 3	7 25.30	+29 0.1	1.388	2.242	16.1	19.0	12 3	7 22.49	+20 20.5	1.561	2.408	15.0	19.4
12 13	7 19.26	+29 41.8	1.315	2.233	11.9	18.8	12 13	7 16.40	+20 25.6	1.506	2.422	10.8	19.2
12 23	7 9.82	+30 21.8	1.264	2.225	7.2	18.5	12 23	7 7.80	+20 35.6	1.474	2.436	6.2	19.0
1 2	6 58.07	+30 53.2	1.239	2.217	3.7	18.2	1 2	6 57.72	+20 48.1	1.469	2.451	1.3	18.7
1 12	6 45.75	+31 10.3	1.241	2.209	6.1	18.4	1 12	6 47.54	+21 0.8	1.491	2.466	4.0	18.9
1 22	6 34.74	+31 11.6	1.269	2.201	10.8	18.6	1 22	6 38.60	+21 12.2	1.542	2.481	8.6	19.2
2 1	6 26.60	+30 59.2	1.320	2.193	15.4	18.9	2 1	6 31.97	+21 21.7	1.617	2.496	12.7	19.5
2 11	6 22.28	+30 37.5	1.391	2.186	19.3	19.1	2 11	6 28.30	+21 29.5	1.714	2.512	16.1	19.7
165710	2001 QC ₁		1 3.9	208°65	1°7/ 4.5	18	502282	2015 BD ₁₃₈		1 4.0	202°04	5°9/ 2.8	17
12 3	7 18.38	+16 12.2	2.802	3.621	9.9	21.3	12 3	7 28.17	+46 15.5	3.100	3.883	9.9	21.4
12 13	7 12.67	+16 16.1	2.715	3.616	7.3	21.1	12 13	7 19.86	+46 39.1	3.023	3.878	8.1	21.3
12 23	7 5.45	+16 25.3	2.655	3.610	4.4	20.9	12 23	7 9.53	+46 50.2	2.971	3.874	6.6	21.2
1 2	6 57.29	+16 38.9	2.625	3.603	1.9	20.7	1 2	6 58.00	+46 44.8	2.948	3.868	5.9	21.2
1 12	6 48.91	+16 55.7	2.626	3.596	3.0	20.8	1 12	6 46.38	+46 20.8	2.955	3.862	6.4	21.2
1 22	6 41.05	+17 14.6	2.658	3.589	5.9	21.0	1 22	6 35.73	+45 39.3	2.991	3.856	7.9	21.3
2 1	6 34.41	+17 34.5	2.718	3.581	8.7	21.1	2 1	6 26.94	+44 43.4	3.054	3.849	9.7	21.4
2 11	6 29.50	+17 54.5	2.803	3.573	11.2	21.3	2 11	6 20.60	+43 37.7	3.140	3.842	11.5	21.5
206352	2003 QT ₂₈		1 3.9	155°70	0°8/ 3.8	18	457081	2008 EZ ₉₈		1 4.0	317°50	1°8/ 4.2	18
12 3	7 25.21	+23 53.1	1.999	2.833	12.7	21.2	12 3	7 21.32	+19 41.5	1.481	2.332	15.4	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
319651	2006 <i>TO</i> ₇		1 4.0 73°21	0°1/ 3.9 18			170055	2002 <i>VQ</i> ₇₃		1 4.0 109°40	7°0/ 5.7 18		
12 3	7 24.09	+21 52.5	1.619	2.463	14.7	21.3	12 3	7 18.04	+0 49.5	2.428	3.201	12.6	20.1
12 13	7 17.47	+22 12.7	1.567	2.482	10.5	21.1	12 13	7 12.48	+0 1.2	2.362	3.210	10.4	20.0
12 23	7 8.36	+22 36.5	1.539	2.502	5.9	20.9	12 23	7 5.36	-0 32.2	2.320	3.219	8.4	19.8
1 2	6 57.82	+23 0.2	1.539	2.521	1.0	20.6	1 2	6 57.33	-0 48.5	2.304	3.228	7.1	19.8
1 12	6 47.21	+23 21.0	1.567	2.541	3.9	20.9	1 12	6 49.18	-0 46.9	2.317	3.236	7.3	19.8
1 22	6 37.88	+23 37.1	1.623	2.560	8.4	21.2	1 22	6 41.68	-0 28.7	2.357	3.245	8.8	19.9
2 1	6 30.88	+23 48.4	1.705	2.580	12.4	21.5	2 1	6 35.54	+0 3.3	2.423	3.253	10.9	20.1
2 11	6 26.83	+23 55.8	1.808	2.599	15.7	21.7	2 11	6 31.26	+0 45.4	2.512	3.261	12.9	20.2
465951	2011 <i>BA</i> ₃₄		1 4.0 37°46	5°0/ 5.9 18			345221	2005 <i>UH</i> ₁₆₃		1 4.0 49°20	1°6/ 3.8 18		
12 3	7 19.38	+6 55.5	1.765	2.579	15.0	20.8	12 3	7 25.37	+25 13.8	1.288	2.145	16.9	20.8
12 13	7 14.01	+7 19.8	1.697	2.585	11.6	20.6	12 13	7 19.13	+25 35.6	1.230	2.151	12.2	20.5
12 23	7 6.45	+8 2.5	1.651	2.591	8.1	20.4	12 23	7 9.63	+25 58.4	1.193	2.158	7.0	20.3
1 2	6 57.52	+9 2.7	1.633	2.597	5.3	20.3	1 2	6 58.10	+26 16.9	1.183	2.164	1.9	20.0
1 12	6 48.32	+10 16.9	1.643	2.604	5.7	20.3	1 12	6 46.32	+26 27.3	1.198	2.172	5.0	20.2
1 22	6 39.99	+11 40.1	1.681	2.611	8.8	20.5	1 22	6 36.08	+26 28.6	1.240	2.179	10.3	20.5
2 1	6 33.51	+13 6.8	1.745	2.618	12.3	20.7	2 1	6 28.78	+26 22.1	1.305	2.187	15.0	20.8
2 11	6 29.56	+14 32.0	1.832	2.626	15.4	21.0	2 11	6 25.18	+26 10.6	1.390	2.195	18.8	21.1
458217	2010 <i>RZ</i> ₁₁₄		1 4.0 53°48	3°7/ 3.6 16			201258	2002 <i>RZ</i> ₁₃₈		1 4.0 51°64	4°3/ 2.8 18		
12 3	7 27.01	+31 5.0	1.454	2.303	15.8	21.3	12 3	7 23.24	+32 11.4	1.865	2.705	13.2	19.7
12 13	7 19.80	+31 27.8	1.413	2.327	11.5	21.1	12 13	7 16.88	+33 13.4	1.816	2.726	9.7	19.5
12 23	7 9.71	+31 43.7	1.394	2.353	7.0	20.9	12 23	7 8.08	+34 10.0	1.793	2.746	6.3	19.3
1 2	6 58.04	+31 47.7	1.402	2.378	3.8	20.8	1 2	6 57.82	+34 55.1	1.798	2.766	4.3	19.3
1 12	6 46.51	+31 37.4	1.437	2.404	5.6	20.9	1 12	6 47.44	+35 24.9	1.831	2.787	5.8	19.4
1 22	6 36.69	+31 14.0	1.500	2.430	9.7	21.2	1 22	6 38.23	+35 38.3	1.891	2.808	8.9	19.6
2 1	6 29.72	+30 41.3	1.586	2.456	13.5	21.5	2 1	6 31.26	+35 37.3	1.978	2.830	12.0	19.9
2 11	6 26.15	+30 3.8	1.694	2.482	16.7	21.8	2 11	6 27.16	+35 25.5	2.085	2.851	14.7	20.1
8307	<i>Peltan</i>		1 4.0 197°96	3°6/ 3.4 18			401945	2002 <i>JA</i> ₁₁₈		1 4.0 181°77	3°7/ 5.1 18		
12 3	7 28.78	+29 56.0	1.553	2.396	15.3	18.7	12 3	7 22.26	+10 31.7	2.260	3.067	12.4	22.1
12 13	7 21.46	+30 35.5	1.482	2.394	11.3	18.4	12 13	7 15.72	+10 31.7	2.180	3.068	9.4	22.0
12 23	7 10.94	+31 11.6	1.434	2.392	6.9	18.2	12 23	7 7.32	+10 42.4	2.126	3.069	6.3	21.8
1 2	6 58.31	+31 37.5	1.413	2.389	3.7	18.0	1 2	6 57.72	+11 3.6	2.100	3.068	3.9	21.6
1 12	6 45.23	+31 48.6	1.420	2.385	5.8	18.1	1 12	6 47.88	+11 33.7	2.105	3.068	4.6	21.6
1 22	6 33.46	+31 43.9	1.454	2.381	10.2	18.4	1 22	6 38.72	+12 10.7	2.141	3.066	7.5	21.8
2 1	6 24.47	+31 26.2	1.514	2.377	14.4	18.6	2 1	6 31.12	+12 52.0	2.203	3.063	10.6	22.0
2 11	6 19.09	+31 0.0	1.593	2.372	17.9	18.8	2 11	6 25.68	+13 35.4	2.290	3.060	13.4	22.2
341920	2008 <i>KZ</i> ₁₉		1 4.0 235°60	1°3/ 4.3 18			357217	2002 <i>GY</i> ₁₈₆		1 4.0 215°59	0°2/ 4.1 18		
12 3	7 25.13	+18 44.5	1.486	2.329	15.8	21.9	12 3	7 23.95	+21 5.4	1.953	2.787	12.9	22.1
12 13	7 18.77	+18 56.8	1.408	2.321	11.6	21.6	12 13	7 17.37	+21 23.1	1.870	2.780	9.4	21.9
12 23	7 9.44	+19 16.9	1.352	2.313	6.8	21.3	12 23	7 8.43	+21 44.9	1.812	2.773	5.4	21.6
1 2	6 58.07	+19 42.3	1.323	2.304	1.8	20.9	1 2	6 57.93	+22 8.0	1.782	2.765	1.0	21.3
1 12	6 46.15	+20 9.7	1.322	2.295	4.5	21.1	1 12	6 47.05	+22 29.7	1.783	2.756	3.6	21.5
1 22	6 35.29	+20 36.4	1.348	2.286	9.7	21.4	1 22	6 36.98	+22 48.3	1.812	2.747	7.9	21.7
2 1	6 26.89	+21 0.8	1.398	2.276	14.4	21.6	2 1	6 28.83	+23 3.0	1.869	2.737	11.8	22.0
2 11	6 21.85	+21 22.6	1.470	2.266	18.4	21.9	2 11	6 23.34	+23 14.4	1.948	2.727	15.1	22.2
454888	2015 <i>TD</i> ₇₉		1 4.0 15°62	1°9/ 4.3 18			351002	2003 <i>HJ</i> ₄₄		1 4.0 223°63	1°7/ 4.4 18		
12 3	7 22.11	+18 44.4	1.301	2.156	16.8	20.8	12 3	7 23.98	+17 26.8	1.814	2.646	13.9	21.9
12 13	7 16.63	+18 34.5	1.239	2.158	12.4	20.6	12 13	7 17.50	+17 32.8	1.730	2.637	10.2	21.7
12 23	7 8.17	+18 32.0	1.199	2.161	7.2	20.3	12 23	7 8.56	+17 46.0	1.670	2.629	6.1	21.4
1 2	6 57.83	+18 35.3	1.183	2.164	2.3	20.0	1 2	6 57.97	+18 4.7	1.639	2.619	2.1	21.1
1 12	6 47.20	+18 42.7	1.194	2.168	4.8	20.2	1 12	6 46.94	+18 26.8	1.637	2.609	4.0	21.2
1 22	6 37.91	+18 52.4	1.231	2.173	10.0	20.5	1 22	6 36.75	+18 50.2	1.663	2.598	8.4	21.5
2 1	6 31.28	+19 3.4	1.291	2.178	14.7	20.8	2 1	6 28.56	+19 13.5	1.716	2.587	12.5	21.7
2 11	6 28.05	+19 14.8	1.370	2.183	18.6	21.0	2 11	6 23.15	+19 35.8	1.791	2.576	16.0	21.9
350849	2002 <i>GB</i> ₇₆		1 4.0 248°83	2°1/ 3.6 18			17744	<i>Jodiefoster</i>		1 4.0 85°31	1°3/ 4.3 18		
12 3	7 25.35	+27 13.8	1.827	2.666	13.5	21.5	12 3	7 28.15	+19 11.9	1.626	2.459	15.1	18.9
12 13	7 18.67	+27 37.9	1.740	2.652	9.9	21.3	12 13	7 20.14	+19 11.9	1.584	2.493	10.9	18.8
12 23	7 9.28	+28 1.2	1.677	2.637	5.8	21.0	12 23	7 9.76	+19 17.1	1.566	2.525	6.2	18.6
1 2	6 58.04	+28 19.1	1.642	2.622	2.2	20.7	1 2	6 58.12	+19 25.1	1.576	2.557	1.7	18.3
1 12	6 46.27	+28 28.1	1.637	2.606	4.5	20.8	1 12	6 46.63	+19 34.1	1.615	2.588	4.0	18.6
1 22	6 35.42	+28 27.2	1.659	2.590	8.8	21.1	1 22	6 36.60	+19 42.7	1.684	2.619	8.4	18.9
2 1	6 26.75	+28 17.4	1.708	2.574	12.9	21.3	2 1	6 28.99	+19 50.8	1.778	2.649	12.2	19.2
2 11	6 21.12	+28 1.5	1.779	2.557	16.4	21.5	2 11	6 24.33	+19 58.3	1.895	2.678	15.3	19.5
300259	2007 <i>HJ</i> ₁₆		1 4.0 203°66	0°3/ 3.9 18			360824	2005 <i>KO</i> ₁₁		1 4.0 190°49	2°1/ 4.6 18		
12 3	7 25.92	+23 2.6	1.959	2.792	13.0	22.2	12 3	7 22.04	+15 41.7	2.117	2.941	12.5	21.9
12 13	7 18.76	+23 16.0	1.877	2.787	9.4	21.9	12 13	7 15.73	+15 49.7	2.037	2.940	9.2	21.7
12 23	7 9.17	+23 31.2	1.820	2.781	5.4	21.7	12 23	7 7.39	+16 5.3	1.983	2.938	5.6	21.5
1 2	6 58.00	+23 45.2	1.792	2.775	0.9	21.3	1 2	6 57.76	+16 27.2	1.958	2.936	2.4	21.3
1 12	6 46.47	+23 55.7	1.794	2.767	3.7	21.5	1 12	6 47.84	+16 53.5	1.963	2.934	3.7	21.4
1 22	6 35.84	+24 1.3	1.826	2.759	8.0	21.8	1 22	6 38.68	+17 22.2	1.997	2.931	7.4	21.6
2 1	6 27.21	+24 2.5	1.885	2.750	11.9	22.0	2 1	6 31.18	+17 51.7	2.059	2.927	10.9	21.8
2 11	6 21.34	+24 0.3	1.967	2.741	15.2	22.2	2 11	6 26.02	+18 20.6	2.145	2.923	13.9	22.0
204196	2004 <i>BU</i> ₁₀₇		1 4.0 3°67	0°0/ 4.0 18			320890	2008 <i>GW</i> ₅₀		1 4.0 212°20	0°3/ 4.1 18		
12 3	7 19.15	+20 8.0	2.122	2.959	11.9	19.9	12						

EPHEMERIDES

1 4.0

1 4.0

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
403299	2009 <i>BR</i> ₁₅₈		1 4.0 289°28	1.7/ 3.8	18		31693	1999 <i>JC</i> ₃₂		1 4.0 238°21	5.2/ 2.2	18	
12 3	7 24.29	+26 16.8	1.567	2.416	14.8	21.1	12 3	7 25.32	+35 6.0	2.091	2.921	12.4	18.5
12 13	7 18.30	+26 29.1	1.479	2.397	10.9	20.8	12 13	7 18.64	+36 17.9	2.012	2.912	9.5	18.3
12 23	7 9.27	+26 40.8	1.415	2.378	6.3	20.5	12 23	7 9.30	+37 24.6	1.959	2.903	6.7	18.1
1 2	6 58.14	+26 47.9	1.377	2.358	1.9	20.2	1 2	6 58.15	+38 19.2	1.934	2.893	5.2	18.0
1 12	6 46.38	+26 47.1	1.367	2.339	4.7	20.3	1 12	6 46.44	+38 56.6	1.938	2.883	6.6	18.0
1 22	6 35.62	+26 37.3	1.384	2.320	9.7	20.6	1 22	6 35.57	+39 14.7	1.970	2.873	9.4	18.2
2 1	6 27.30	+26 20.3	1.426	2.301	14.3	20.8	2 1	6 26.81	+39 15.1	2.028	2.863	12.5	18.4
2 11	6 22.38	+25 58.7	1.488	2.283	18.3	21.0	2 11	6 21.00	+39 1.9	2.107	2.852	15.2	18.5
93471	2000 <i>TU</i> ₁₂		1 4.0 109°00	3°0/ 3.1	18		457809	2009 <i>RF</i> ₂₆		1 4.0 61°61	6°0/ 3.4	16	
12 3	7 22.97	+28 44.3	1.927	2.768	12.8	19.5	12 3	7 31.23	+38 7.5	1.710	2.537	14.8	20.7
12 13	7 16.77	+29 38.1	1.858	2.770	9.4	19.3	12 13	7 22.59	+38 48.2	1.678	2.574	11.3	20.6
12 23	7 8.13	+30 30.8	1.814	2.772	5.7	19.1	12 23	7 11.19	+39 15.5	1.671	2.611	7.9	20.5
1 2	6 57.91	+31 16.7	1.798	2.774	3.1	18.9	1 2	6 58.39	+39 23.4	1.691	2.648	6.1	20.4
1 12	6 47.36	+31 51.6	1.812	2.777	4.9	19.0	1 12	6 45.89	+39 9.7	1.739	2.684	7.1	20.6
1 22	6 37.74	+32 13.6	1.854	2.779	8.5	19.2	1 22	6 35.20	+38 37.1	1.814	2.721	9.9	20.8
2 1	6 30.20	+32 23.3	1.922	2.781	12.0	19.5	2 1	6 27.39	+37 50.9	1.914	2.756	12.8	21.1
2 11	6 25.45	+32 23.2	2.012	2.783	15.0	19.7	2 11	6 22.94	+36 57.1	2.036	2.792	15.3	21.3
466828	2015 <i>BV</i> ₁₉₈		1 4.0 185°25	0°3/ 3.9	17		46504	3194 <i>T</i> ₋₃		1 4.0 173°08	3°3/ 3.3	18	
12 3	7 19.28	+23 3.4	2.737	3.566	9.8	22.0	12 3	7 26.45	+29 51.5	1.859	2.696	13.4	19.4
12 13	7 13.42	+23 20.2	2.657	3.566	7.1	21.8	12 13	7 19.36	+30 36.6	1.789	2.698	9.9	19.2
12 23	7 5.96	+23 38.4	2.605	3.566	4.0	21.6	12 23	7 9.63	+31 18.7	1.743	2.700	6.1	18.9
1 2	6 57.52	+23 56.0	2.582	3.565	0.7	21.3	1 2	6 58.18	+31 52.3	1.726	2.702	3.3	18.8
1 12	6 48.89	+24 11.2	2.591	3.564	2.7	21.5	1 12	6 46.41	+32 13.1	1.739	2.703	5.2	18.9
1 22	6 40.85	+24 23.2	2.630	3.562	5.9	21.7	1 22	6 35.71	+32 20.1	1.780	2.703	8.9	19.1
2 1	6 34.14	+24 31.5	2.698	3.561	8.8	21.9	2 1	6 27.28	+32 14.8	1.846	2.703	12.5	19.3
2 11	6 29.30	+24 36.7	2.790	3.558	11.3	22.1	2 11	6 21.89	+32 0.5	1.935	2.703	15.6	19.5
46628	1994 <i>PD</i> ₂₇		1 4.0 37°76	6°7/ 3.4	18		163150	2002 <i>CE</i> ₁₀₉		1 4.0 156°34	2°4/ 4.7	18	
12 3	7 27.91	+37 31.2	1.360	2.206	16.8	18.8	12 3	7 23.50	+15 1.0	1.863	2.689	13.8	20.4
12 13	7 21.03	+38 5.9	1.312	2.219	12.9	18.6	12 13	7 16.95	+15 12.9	1.792	2.696	10.2	20.2
12 23	7 10.69	+38 26.9	1.285	2.231	9.0	18.4	12 23	7 8.15	+15 34.2	1.746	2.701	6.2	20.0
1 2	6 58.33	+38 26.6	1.282	2.245	6.8	18.3	1 2	6 57.92	+16 3.2	1.728	2.706	2.7	19.7
1 12	6 45.96	+38 2.0	1.306	2.259	8.1	18.4	1 12	6 47.45	+16 37.5	1.740	2.711	4.1	19.8
1 22	6 35.51	+37 15.6	1.354	2.273	11.5	18.6	1 22	6 37.89	+17 14.2	1.781	2.715	8.1	20.1
2 1	6 28.33	+36 14.0	1.426	2.288	15.2	18.9	2 1	6 30.26	+17 51.3	1.848	2.718	11.8	20.3
2 11	6 25.06	+35 4.7	1.518	2.304	18.4	19.2	2 11	6 25.26	+18 27.1	1.938	2.721	15.0	20.5
395850	2012 <i>XX</i> ₁₅₀		1 4.0 53°79	4°9/ 4.9	17		229267	2005 <i>AM</i> ₃₈		1 4.0 201°36	0°1/ 4.0	18	
12 3	7 23.43	+12 14.9	1.234	2.078	18.3	20.8	12 3	7 21.70	+23 47.9	2.248	3.082	11.5	20.6
12 13	7 17.45	+11 52.8	1.185	2.094	13.8	20.6	12 13	7 15.40	+23 38.1	2.170	3.080	8.3	20.4
12 23	7 8.57	+11 46.3	1.158	2.110	9.0	20.3	12 23	7 7.16	+23 28.1	2.118	3.079	4.7	20.2
1 2	6 57.97	+11 55.5	1.154	2.127	5.2	20.2	1 2	6 57.75	+23 16.6	2.095	3.078	0.8	19.9
1 12	6 47.30	+12 18.6	1.177	2.144	6.4	20.3	1 12	6 48.16	+23 2.6	2.103	3.076	3.1	20.1
1 22	6 38.13	+12 52.0	1.225	2.162	10.6	20.6	1 22	6 39.39	+22 46.2	2.140	3.075	6.9	20.3
2 1	6 31.66	+13 31.8	1.296	2.179	14.9	20.9	2 1	6 32.29	+22 28.2	2.205	3.073	10.3	20.5
2 11	6 28.55	+14 14.1	1.387	2.197	18.6	21.2	2 11	6 27.48	+22 9.7	2.294	3.071	13.2	20.7
460996	2014 <i>WX</i> ₃₅₂		1 4.0 124°03	2°9/ 3.4	18		322268	2011 <i>EF</i> ₂₇		1 4.0 7°50	5°5/ 5.6	18	
12 3	7 23.23	+29 48.0	1.995	2.834	12.5	21.5	12 3	7 18.24	+ 6 48.2	1.957	2.767	13.9	20.7
12 13	7 16.83	+30 18.9	1.926	2.837	9.2	21.3	12 13	7 13.06	+ 6 36.0	1.884	2.767	10.9	20.5
12 23	7 8.09	+30 46.5	1.882	2.839	5.6	21.1	12 23	7 5.93	+ 6 38.7	1.834	2.768	7.9	20.3
1 2	6 57.90	+31 6.5	1.866	2.842	2.9	20.9	1 2	6 57.55	+ 6 57.4	1.811	2.768	5.7	20.2
1 12	6 47.47	+31 16.0	1.879	2.844	4.6	21.0	1 12	6 48.92	+ 7 30.9	1.815	2.769	6.1	20.2
1 22	6 38.03	+31 14.2	1.921	2.847	8.2	21.3	1 22	6 41.05	+ 8 16.6	1.848	2.770	8.7	20.3
2 1	6 30.62	+31 2.7	1.989	2.849	11.6	21.5	2 1	6 34.83	+ 9 10.9	1.906	2.771	11.8	20.5
2 11	6 25.92	+30 44.1	2.079	2.852	14.5	21.7	2 11	6 30.89	+10 9.7	1.987	2.773	14.6	20.7
169113	2001 <i>OB</i> ₄₃		1 4.0 151°82	0°2/ 4.0	18		185419	2006 <i>WU</i> ₁₈₅		1 4.0 2°40	0°0/ 3.9	18	
12 3	7 20.64	+23 53.9	2.452	3.285	10.7	20.3	12 3	7 20.73	+20 10.6	1.462	2.315	15.4	19.9
12 13	7 14.48	+23 46.3	2.377	3.287	7.7	20.1	12 13	7 15.59	+20 53.6	1.395	2.314	11.2	19.6
12 23	7 6.57	+23 38.5	2.328	3.289	4.3	19.9	12 23	7 7.66	+21 45.0	1.350	2.314	6.4	19.4
1 2	6 57.63	+23 29.3	2.309	3.292	0.8	19.6	1 2	6 57.87	+22 40.1	1.332	2.314	1.1	19.0
1 12	6 48.56	+23 17.7	2.321	3.294	2.9	19.8	1 12	6 47.67	+23 33.7	1.341	2.315	4.3	19.2
1 22	6 40.24	+23 3.7	2.362	3.296	6.4	20.0	1 22	6 38.55	+24 21.7	1.376	2.317	9.3	19.5
2 1	6 33.45	+22 48.0	2.432	3.298	9.5	20.2	2 1	6 31.81	+25 1.9	1.436	2.319	13.8	19.8
2 11	6 28.75	+22 31.5	2.525	3.300	12.2	20.4	2 11	6 28.28	+25 34.1	1.517	2.321	17.5	20.1
260779	2005 <i>NJ</i> ₁₆		1 4.0 115°18	1°0/ 3.8	18		215521	2002 <i>VJ</i> ₃₅		1 4.0 74°58	2°5/ 3.4	18	
12 3	7 23.72	+24 17.8	1.940	2.777	12.9	21.1	12 3	7 24.69	+27 1.9	1.652	2.497	14.3	20.1
12 13	7 17.07	+24 44.1	1.877	2.789	9.3	20.9	12 13	7 18.11	+27 51.0	1.598	2.513	10.4	19.9
12 23	7 8.17	+25 11.4	1.839	2.801	5.2	20.7	12 23	7 8.89	+28 39.3	1.568	2.529	6.1	19.7
1 2	6 57.91	+25 36.3	1.830	2.812	1.3	20.4	1 2	6 58.06	+29 21.3	1.565	2.544	2.6	19.5
1 12	6 47.49	+25 55.9	1.851	2.823	3.7	20.6	1 12	6 47.05	+29 52.5	1.591	2.560	4.8	19.7
1 22	6 38.09	+26 8.8	1.901	2.834	7.7	20.9	1 22	6 37.31	+30 11.3	1.645	2.575	8.9	19.9
2 1	6 30.70	+26 15.4	1.978	2.845	11.3	21.1	2 1	6 29.96	+30 18.8	1.724	2.591	12.7	20.2
2 11	6 25.95	+26 17.0	2.077	2.855	14.3	21.4	2 11	6 25.70	+30 17.4	1.824	2.606	15.9	20.4
351252	2004 <i>RO</i> ₇₀		1 4.0 96°60	3°0/ 3.4	18		323136	2003 <i>BE</i> ₇₆		1 4.0 284°80	2°7/ 3.1	18	
12 3	7 27.36	+28 14.0	1.531	2									

EPHEMERIDES

1 4.0

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
25201	1998 <i>SV</i> ₁₄₀		1 4.0 144°22	7.1/ 2.4	18		29914	1999 <i>JH</i> ₁₅		1 4.0 271°48	1.8/ 4.8	18	
12 3	7 30.87	+42 21.3	2.144	2.952	12.9	19.3	12 3	7 18.61	+14 24.9	2.402	3.223	11.2	18.3
12 13	7 22.53	+43 24.2	2.086	2.963	10.3	19.1	12 13	7 13.21	+15 0.6	2.311	3.212	8.4	18.1
12 23	7 11.38	+44 14.1	2.053	2.973	8.1	19.0	12 23	7 6.01	+15 45.8	2.246	3.201	5.1	17.9
1 2	6 58.49	+44 44.0	2.047	2.983	7.1	18.9	1 2	6 57.60	+16 38.5	2.211	3.189	2.1	17.7
1 12	6 45.37	+44 50.1	2.070	2.992	7.9	19.0	1 12	6 48.83	+17 36.0	2.206	3.178	3.3	17.8
1 22	6 33.56	+44 33.0	2.121	3.000	10.1	19.2	1 22	6 40.59	+18 35.1	2.232	3.166	6.7	17.9
2 1	6 24.27	+43 56.8	2.196	3.008	12.5	19.3	2 1	6 33.70	+19 33.2	2.286	3.155	9.9	18.1
2 11	6 18.25	+43 7.9	2.293	3.015	14.7	19.5	2 11	6 28.81	+20 28.1	2.365	3.143	12.8	18.3
194101	2001 <i>SE</i> ₂₁₂		1 4.0 134°00	1.4/ 3.8	15		459950	2014 <i>ND</i> ₄₆		1 4.0 42°12	4.8/ 4.9	18	
12 3	7 28.09	+25 22.4	1.850	2.684	13.6	22.5	12 3	7 21.60	+12 25.9	1.401	2.242	16.7	21.1
12 13	7 20.27	+25 48.3	1.790	2.700	9.8	22.3	12 13	7 15.88	+11 51.7	1.351	2.257	12.7	20.9
12 23	7 9.99	+26 13.9	1.755	2.715	5.6	22.0	12 23	7 7.61	+11 30.5	1.323	2.274	8.3	20.7
1 2	6 58.25	+26 35.2	1.748	2.730	1.6	21.8	1 2	6 57.85	+11 23.4	1.319	2.291	5.1	20.5
1 12	6 46.38	+26 49.2	1.772	2.744	4.0	22.0	1 12	6 48.05	+11 29.8	1.343	2.308	6.1	20.6
1 22	6 35.71	+26 54.9	1.826	2.756	8.2	22.3	1 22	6 39.54	+11 47.4	1.392	2.326	9.9	20.9
2 1	6 27.30	+26 53.4	1.906	2.768	11.9	22.5	2 1	6 33.41	+12 13.2	1.465	2.344	13.8	21.2
2 11	6 21.80	+26 47.0	2.008	2.780	15.0	22.8	2 11	6 30.28	+12 43.9	1.559	2.363	17.1	21.4
186562	2002 <i>YZ</i> ₁₀		1 4.0 4°71	1.4/ 3.7	18		165395	2000 <i>XN</i> ₁₆		1 4.0 3°36	4.9/ 3.5	18	
12 3	7 17.28	+22 35.1	1.110	1.985	17.6	19.0	12 3	7 25.67	+32 48.8	1.336	2.190	16.5	19.3
12 13	7 13.70	+23 28.4	1.054	1.984	12.8	18.8	12 13	7 19.57	+33 17.4	1.273	2.189	12.4	19.1
12 23	7 6.82	+24 29.4	1.018	1.985	7.2	18.5	12 23	7 10.04	+33 38.0	1.232	2.189	8.0	18.8
1 2	6 57.74	+25 31.2	1.005	1.988	1.8	18.1	1 2	6 58.30	+33 44.0	1.216	2.189	4.9	18.6
1 12	6 48.25	+26 27.0	1.018	1.992	5.3	18.4	1 12	6 46.27	+33 31.2	1.226	2.191	6.8	18.8
1 22	6 40.16	+27 11.7	1.054	1.999	10.9	18.7	1 22	6 35.83	+33 0.6	1.262	2.192	11.1	19.0
2 1	6 34.99	+27 43.9	1.112	2.007	15.8	19.0	2 1	6 28.47	+32 16.7	1.321	2.194	15.4	19.3
2 11	6 33.60	+28 4.4	1.189	2.017	19.9	19.3	2 11	6 24.99	+31 25.7	1.399	2.197	19.0	19.5
492083	2013 <i>JT</i> ₂₀		1 4.0 179°12	1°1/ 4.4	18		279064	2008 <i>WX</i> ₂₁		1 4.0 158°14	3°9/ 2.9	18	
12 3	7 22.18	+17 56.4	2.066	2.896	12.5	22.2	12 3	7 22.68	+33 16.5	2.311	3.142	11.3	20.4
12 13	7 15.91	+18 19.4	1.990	2.897	9.1	22.0	12 13	7 16.32	+34 5.3	2.241	3.144	8.5	20.2
12 23	7 7.55	+18 49.1	1.939	2.898	5.3	21.8	12 23	7 7.79	+34 49.2	2.197	3.146	5.6	20.0
1 2	6 57.84	+19 23.2	1.917	2.898	1.5	21.5	1 2	6 57.90	+35 23.4	2.181	3.148	3.9	19.9
1 12	6 47.85	+19 58.8	1.925	2.898	3.4	21.7	1 12	6 47.74	+35 44.6	2.195	3.150	5.2	20.0
1 22	6 38.63	+20 33.6	1.962	2.897	7.4	21.9	1 22	6 38.41	+35 51.9	2.238	3.151	7.9	20.2
2 1	6 31.16	+21 5.9	2.027	2.897	11.0	22.1	2 1	6 30.90	+35 46.5	2.308	3.152	10.8	20.4
2 11	6 26.10	+21 35.1	2.116	2.895	14.0	22.3	2 11	6 25.87	+35 31.5	2.400	3.154	13.3	20.6
28318	<i>Janecox</i>		1 4.0 58°62	3°1/ 4.7	18		111428	2001 <i>XM</i> ₂₀₆		1 4.0 86°34	1°9/ 4.5	18	
12 3	7 24.10	+15 25.7	1.278	2.126	17.6	17.9	12 3	7 25.85	+16 59.9	1.488	2.327	16.0	19.7
12 13	7 17.91	+15 21.7	1.229	2.143	13.0	17.7	12 13	7 18.86	+17 11.9	1.438	2.349	11.7	19.5
12 23	7 8.83	+15 29.4	1.202	2.160	7.9	17.4	12 23	7 9.26	+17 32.7	1.411	2.370	6.8	19.2
1 2	6 58.06	+15 47.4	1.199	2.178	3.5	17.2	1 2	6 58.14	+17 59.8	1.411	2.392	2.3	19.0
1 12	6 47.21	+16 12.9	1.224	2.196	5.2	17.4	1 12	6 46.98	+18 29.9	1.440	2.413	4.4	19.2
1 22	6 37.85	+16 42.8	1.274	2.214	10.0	17.7	1 22	6 37.20	+19 0.3	1.496	2.434	9.0	19.5
2 1	6 31.19	+17 14.5	1.348	2.232	14.4	18.0	2 1	6 29.89	+19 29.3	1.577	2.454	13.1	19.8
2 11	6 27.89	+17 45.7	1.442	2.250	18.1	18.3	2 11	6 25.69	+19 55.9	1.680	2.474	16.5	20.1
226883	2004 <i>TF</i> ₁₂₄		1 4.0 117°48	1°4/ 4.4	18		15752	<i>Eluard</i>		1 4.0 53°99	3°7/ 5.3	18	
12 3	7 21.33	+18 17.5	2.098	2.929	12.3	20.7	12 3	7 19.22	+10 30.6	1.968	2.788	13.4	17.5
12 13	7 15.15	+18 16.0	2.030	2.938	9.0	20.5	12 13	7 13.61	+10 41.3	1.915	2.810	10.1	17.3
12 23	7 7.04	+18 19.5	1.988	2.946	5.3	20.3	12 23	7 6.14	+11 4.4	1.887	2.833	6.7	17.1
1 2	6 57.75	+18 26.7	1.974	2.955	1.7	20.0	1 2	6 57.60	+11 38.8	1.886	2.856	4.0	17.0
1 12	6 48.32	+18 36.2	1.991	2.963	3.4	20.2	1 12	6 49.01	+12 22.2	1.914	2.879	4.6	17.1
1 22	6 39.75	+18 46.9	2.037	2.972	7.2	20.4	1 22	6 41.32	+13 11.4	1.971	2.902	7.6	17.3
2 1	6 32.90	+18 57.9	2.110	2.979	10.6	20.7	2 1	6 35.33	+14 3.1	2.055	2.926	10.8	17.6
2 11	6 28.36	+19 8.9	2.206	2.987	13.5	20.9	2 11	6 31.60	+14 54.5	2.162	2.949	13.5	17.8
395853	2012 <i>YT</i>		1 4.0 32°28	1.4/ 4.4	17		461020	2014 <i>WE</i> ₄₀₆		1 4.0 116°37	0°4/ 3.9	18	
12 3	7 22.34	+17 55.5	1.090	1.954	18.7	20.7	12 3	7 22.06	+23 4.7	2.077	2.914	12.2	21.7
12 13	7 17.18	+18 20.4	1.040	1.964	13.7	20.4	12 13	7 15.77	+23 22.0	2.011	2.922	8.8	21.5
12 23	7 8.66	+18 57.2	1.010	1.974	7.9	20.2	12 23	7 7.43	+23 41.0	1.969	2.931	4.9	21.3
1 2	6 58.06	+19 41.7	1.004	1.986	2.1	19.8	1 2	6 57.84	+23 59.2	1.957	2.939	0.9	21.0
1 12	6 47.22	+20 28.5	1.023	1.999	5.0	20.1	1 12	6 48.08	+24 14.2	1.974	2.947	3.3	21.3
1 22	6 37.99	+21 12.9	1.067	2.012	10.7	20.4	1 22	6 39.21	+24 24.9	2.021	2.955	7.2	21.5
2 1	6 31.80	+21 52.3	1.133	2.026	15.8	20.8	2 1	6 32.16	+24 31.1	2.094	2.963	10.7	21.7
2 11	6 29.40	+22 25.6	1.217	2.041	19.9	21.1	2 11	6 27.54	+24 33.8	2.191	2.970	13.6	22.0
468409	2016 <i>GK</i> ₁₇₅		1 4.0 198°52	3°9/ 5.2	18		241091	2006 <i>UO</i> ₂₉₆		1 4.0 227°04	0°4/ 4.2	18	
12 3	7 17.98	+ 9 47.7	2.413	3.222	11.6	21.7	12 3	7 18.99	+20 41.3	2.589	3.418	10.3	22.0
12 13	7 12.59	+ 9 40.0	2.334	3.221	8.9	21.5	12 13	7 13.32	+20 49.6	2.504	3.412	7.5	21.8
12 23	7 5.56	+ 9 42.5	2.280	3.220	6.1	21.3	12 23	7 5.99	+21 0.8	2.445	3.405	4.3	21.6
1 2	6 57.51	+ 9 55.4	2.254	3.219	4.0	21.2	1 2	6 57.60	+21 13.3	2.417	3.399	0.9	21.3
1 12	6 49.24	+10 18.0	2.258	3.217	4.6	21.2	1 12	6 48.97	+21 25.6	2.419	3.392	2.8	21.5
1 22	6 41.58	+10 48.5	2.291	3.216	7.1	21.4	1 22	6 40.94	+21 36.8	2.451	3.385	6.2	21.7
2 1	6 35.27	+11 24.6	2.352	3.214	10.0	21.5	2 1	6 34.26	+21 46.3	2.511	3.378	9.2	21.9
2 11	6 30.87	+12 4.0	2.436	3.212	12.5	21.7	2 11	6 29.50	+21 54.1	2.596	3.370	11.9	22.0
412116	2013 <i>GK</i> ₂₀		1 4.0 251°67	1°4/ 3.7	18		461056	2014 <i>XF</i> ₂₈		1 4.0 352°73	2°2/ 3.5		

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
402724	2006 <i>WR</i> ₆₇		1 4.0 85°26	3°5/ 4.5 18			203090	2000 <i>QU</i> ₂₁₄		1 4.1 87°24	5°0/ 3.3 18		
12 3	7 24.55	+14 39.3	1.808	2.633	14.2	20.4	12 3	7 28.82	+33 23.2	1.519	2.361	15.5	19.9
12 13	7 17.47	+13 59.3	1.755	2.656	10.6	20.2	12 13	7 21.43	+34 8.2	1.466	2.375	11.6	19.7
12 23	7 8.30	+13 27.0	1.727	2.678	6.7	20.0	12 23	7 10.91	+34 45.2	1.437	2.389	7.6	19.5
1 2	6 57.98	+13 3.3	1.727	2.700	3.7	19.9	1 2	6 58.51	+35 7.1	1.434	2.404	5.0	19.4
1 12	6 47.70	+12 48.4	1.757	2.722	4.9	20.0	1 12	6 45.99	+35 10.0	1.459	2.418	6.7	19.5
1 22	6 38.57	+12 41.6	1.815	2.744	8.3	20.3	1 22	6 35.08	+34 54.3	1.510	2.431	10.4	19.8
2 1	6 31.49	+12 42.1	1.899	2.765	11.8	20.5	2 1	6 27.07	+34 24.1	1.586	2.445	14.1	20.0
2 11	6 26.99	+12 48.0	2.005	2.786	14.7	20.8	2 11	6 22.68	+33 45.3	1.682	2.458	17.2	20.3
182608	2001 <i>UN</i> ₄₉		1 4.1 108°15	7°4/ 5.9 18			472628	2015 <i>DA</i> ₁₉₈		1 4.1 111°53	6°0/ 4.6 16		
12 3	7 20.52	+ 2 16.5	1.993	2.780	14.5	20.0	12 3	7 42.17	+38 3.1	1.117	1.956	20.2	20.9
12 13	7 14.56	+ 1 35.7	1.931	2.792	11.8	19.9	12 13	7 31.79	+37 32.5	1.059	1.964	15.4	20.6
12 23	7 6.71	+ 1 12.1	1.892	2.803	9.2	19.7	12 23	7 16.90	+36 39.7	1.022	1.973	10.2	20.4
1 2	6 57.73	+ 1 8.0	1.879	2.815	7.5	19.7	1 2	6 59.52	+35 17.6	1.009	1.981	6.2	20.2
1 12	6 48.61	+ 1 23.6	1.894	2.826	7.8	19.7	1 12	6 42.50	+33 27.5	1.024	1.989	7.7	20.3
1 22	6 40.34	+ 1 56.7	1.935	2.837	9.7	19.8	1 22	6 28.39	+31 19.5	1.065	1.996	12.6	20.6
2 1	6 33.75	+ 2 43.5	2.003	2.847	12.2	20.0	2 1	6 18.77	+29 7.5	1.130	2.003	17.4	20.9
2 11	6 29.42	+ 3 39.2	2.092	2.858	14.6	20.2	2 11	6 14.11	+27 2.9	1.215	2.010	21.5	21.2
173132	1994 <i>RY</i> ₂		1 4.1 212°60	1°0/ 3.8 18			154501	2003 <i>FR</i> ₃₀		1 4.1 185°44	1°2/ 3.7 18		
12 3	7 19.76	+25 56.9	2.792	3.622	9.6	20.7	12 3	7 22.35	+24 15.6	2.240	3.073	11.5	20.2
12 13	7 13.80	+26 7.5	2.709	3.617	7.0	20.5	12 13	7 16.04	+24 57.9	2.163	3.073	8.3	20.0
12 23	7 6.23	+26 17.4	2.652	3.612	4.0	20.3	12 23	7 7.68	+25 42.3	2.112	3.073	4.7	19.8
1 2	6 57.65	+26 24.5	2.625	3.606	1.1	20.0	1 2	6 57.97	+26 24.8	2.091	3.072	1.4	19.5
1 12	6 48.87	+26 27.4	2.629	3.600	2.9	20.2	1 12	6 47.94	+27 2.3	2.100	3.071	3.5	19.7
1 22	6 40.70	+26 25.5	2.663	3.594	6.0	20.4	1 22	6 38.66	+27 32.4	2.139	3.070	7.2	19.9
2 1	6 33.86	+26 19.3	2.727	3.587	8.8	20.5	2 1	6 31.05	+27 54.8	2.206	3.068	10.5	20.1
2 11	6 28.90	+26 9.6	2.814	3.580	11.2	20.7	2 11	6 25.80	+28 10.3	2.296	3.065	13.4	20.3
85453	1997 <i>GF</i> ₃₁		1 4.1 305°01	4°8/ 3.1 18			181783	1998 <i>BV</i> ₁₄		1 4.1 203°88	0°8/ 3.9 18		
12 3	7 25.72	+33 1.3	1.617	2.460	14.7	19.6	12 3	7 27.35	+23 5.2	1.782	2.617	14.0	20.6
12 13	7 19.29	+33 48.7	1.547	2.457	11.0	19.4	12 13	7 20.14	+23 39.1	1.701	2.612	10.2	20.4
12 23	7 9.80	+34 30.2	1.501	2.454	7.3	19.2	12 23	7 10.20	+24 16.4	1.645	2.606	5.8	20.1
1 2	6 58.31	+34 58.7	1.482	2.451	4.9	19.0	1 2	6 58.43	+24 52.8	1.617	2.600	1.2	19.8
1 12	6 46.39	+35 9.7	1.490	2.448	6.5	19.1	1 12	6 46.17	+25 24.1	1.620	2.592	4.1	20.0
1 22	6 35.73	+35 2.2	1.524	2.446	10.3	19.3	1 22	6 34.86	+25 48.0	1.651	2.584	8.7	20.2
2 1	6 27.71	+34 39.4	1.583	2.443	14.1	19.5	2 1	6 25.76	+26 4.3	1.709	2.575	12.9	20.5
2 11	6 23.16	+34 6.2	1.663	2.440	17.3	19.8	2 11	6 19.71	+26 14.2	1.789	2.565	16.4	20.7
293485	2007 <i>FQ</i> ₂₇		1 4.1 133°48	2°1/ 4.6 18			455078	2015 <i>UY</i> ₅₀		1 4.1 265°33	2°5/ 4.7 18		
12 3	7 20.92	+16 15.4	2.054	2.883	12.6	21.0	12 3	7 22.83	+15 19.2	1.505	2.346	15.8	21.6
12 13	7 14.94	+16 13.2	1.983	2.888	9.3	20.8	12 13	7 17.06	+15 34.8	1.431	2.342	11.8	21.3
12 23	7 6.98	+16 17.9	1.937	2.893	5.6	20.6	12 23	7 8.53	+16 2.4	1.380	2.338	7.1	21.1
1 2	6 57.80	+16 28.5	1.919	2.897	2.4	20.4	1 2	6 58.14	+16 39.9	1.355	2.334	2.9	20.8
1 12	6 48.43	+16 43.6	1.931	2.902	3.8	20.5	1 12	6 47.30	+17 23.9	1.357	2.330	4.7	20.9
1 22	6 39.87	+17 1.5	1.972	2.906	7.4	20.7	1 22	6 37.47	+18 10.6	1.387	2.326	9.4	21.2
2 1	6 33.04	+17 21.1	2.039	2.910	10.9	20.9	2 1	6 29.94	+18 56.9	1.442	2.322	13.9	21.4
2 11	6 28.52	+17 41.1	2.130	2.914	13.8	21.2	2 11	6 25.55	+19 40.6	1.518	2.318	17.7	21.7
399486	2002 <i>TQ</i> ₃₄		1 4.1 54°36	2°0/ 3.7 16			519888	2013 <i>OY</i> ₁₂		1 4.1 108°12	5°2/ 5.5 18		
12 3	7 25.97	+26 25.3	1.410	2.261	16.0	21.2	12 3	7 18.78	+ 5 58.8	2.404	3.199	12.1	21.5
12 13	7 19.13	+26 49.5	1.368	2.286	11.5	21.0	12 13	7 13.07	+ 5 31.4	2.339	3.212	9.6	21.3
12 23	7 9.46	+27 12.4	1.349	2.312	6.6	20.8	12 23	7 5.81	+ 5 16.1	2.299	3.224	7.1	21.2
1 2	6 58.21	+27 29.1	1.357	2.338	2.2	20.6	1 2	6 57.63	+ 5 14.3	2.287	3.237	5.4	21.1
1 12	6 47.05	+27 36.6	1.392	2.364	4.7	20.8	1 12	6 49.34	+ 5 25.5	2.304	3.249	5.7	21.1
1 22	6 37.50	+27 34.5	1.454	2.390	9.3	21.1	1 22	6 41.75	+ 5 48.4	2.349	3.261	7.7	21.3
2 1	6 30.70	+27 24.8	1.540	2.416	13.4	21.4	2 1	6 35.54	+ 6 20.4	2.422	3.272	10.1	21.4
2 11	6 27.22	+27 10.2	1.648	2.443	16.7	21.7	2 11	6 31.23	+ 6 58.5	2.518	3.284	12.4	21.6
215261	2001 <i>OT</i> ₁₄		1 4.1 104°90	4°7/ 5.8 18			461314	2015 <i>XS</i> ₁₇₉		1 4.1 172°69	1°5/ 4.5 18		
12 3	7 22.29	+ 6 54.2	2.092	2.891	13.5	20.6	12 3	7 23.70	+17 3.9	1.791	2.624	14.0	21.7
12 13	7 15.72	+ 7 4.0	2.035	2.914	10.5	20.4	12 13	7 17.29	+17 26.5	1.718	2.626	10.3	21.4
12 23	7 7.32	+ 7 28.3	2.002	2.936	7.3	20.3	12 23	7 8.49	+17 57.6	1.669	2.628	6.1	21.2
1 2	6 57.86	+ 8 6.6	1.998	2.958	5.0	20.2	1 2	6 58.13	+18 34.7	1.648	2.629	1.9	20.9
1 12	6 48.32	+ 8 56.5	2.023	2.979	5.3	20.2	1 12	6 47.43	+19 14.5	1.657	2.630	3.9	21.1
1 22	6 39.66	+ 9 54.6	2.077	3.000	7.9	20.4	1 22	6 37.66	+19 54.1	1.694	2.630	8.2	21.3
2 1	6 32.69	+10 57.2	2.160	3.020	10.8	20.7	2 1	6 29.90	+20 31.4	1.758	2.631	12.2	21.6
2 11	6 27.94	+12 0.6	2.266	3.039	13.4	20.9	2 11	6 24.91	+21 5.3	1.844	2.630	15.6	21.8
196827	2003 <i>SO</i> ₂₃₆		1 4.1 87°77	5°1/ 5.5 18			312305	2008 <i>CM</i> ₅₄		1 4.1 241°52	2°9/ 4.7 18		
12 3	7 19.47	+ 7 11.4	2.132	2.936	13.1	20.9	12 3	7 21.78	+14 4.8	2.103	2.925	12.6	21.4
12 13	7 13.72	+ 6 54.4	2.071	2.951	10.2	20.8	12 13	7 15.71	+13 59.1	2.012	2.911	9.5	21.2
12 23	7 6.21	+ 6 50.6	2.034	2.966	7.3	20.6	12 23	7 7.55	+14 1.9	1.945	2.896	6.0	20.9
1 2	6 57.67	+ 7 0.8	2.025	2.981	5.3	20.5	1 2	6 57.98	+14 12.6	1.906	2.881	3.1	20.7
1 12	6 49.03	+ 7 23.9	2.044	2.996	5.7	20.6	1 12	6 48.00	+14 30.2	1.898	2.866	4.2	20.8
1 22	6 41.19	+ 7 57.8	2.092	3.011	8.0	20.8	1 22	6 38.66	+14 53.2	1.919	2.850	7.8	20.9
2 1	6 34.93	+ 8 39.6	2.166	3.025	10.8	21.0	2 1	6 30.95	+15 19.6	1.966	2.833	11.4	21.1
2 11	6 30.78	+ 9 25.8	2.264	3.040	13.3	21.2	2 11	6 25.59	+15 48.0	2.037	2.816	14.5	21.3
157999	2000 <i>OE</i> ₉		1 4.1 185°45	1°3/ 4.6 17			153812	2001 <i>VJ</i> ₁₂₀		1 4.1 2°69	1°7/ 4.2 18		
12 3	7 14.02	+15 52.5	4.070										

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
218732	2005 <i>UK</i> ₂₇₅		1 4.1 32°80	0°1/ 4.1 18			94246	2001 <i>CP</i> ₁₅		1 4.1 217°76	2°6/ 3.5 18		
12 3	7 22.03	+22 41.4	1.698	2.544	14.0	20.2	12 3	7 20.23	+31 49.0	2.718	3.547	9.9	19.5
12 13	7 16.15	+22 46.7	1.632	2.548	10.1	19.9	12 13	7 14.25	+32 5.0	2.641	3.546	7.3	19.3
12 23	7 7.84	+22 54.2	1.589	2.552	5.7	19.7	12 23	7 6.55	+32 16.6	2.591	3.545	4.6	19.1
1 2	6 58.02	+23 1.6	1.574	2.557	1.0	19.4	1 2	6 57.81	+32 21.1	2.571	3.544	2.7	19.0
1 12	6 47.98	+23 6.6	1.588	2.562	3.8	19.6	1 12	6 48.91	+32 16.9	2.581	3.543	3.8	19.1
1 22	6 39.02	+23 8.4	1.629	2.567	8.3	19.9	1 22	6 40.72	+32 3.8	2.621	3.542	6.5	19.2
2 1	6 32.22	+23 7.2	1.696	2.573	12.3	20.1	2 1	6 34.00	+31 43.1	2.688	3.541	9.2	19.4
2 11	6 28.25	+23 3.7	1.784	2.578	15.7	20.4	2 11	6 29.31	+31 16.9	2.779	3.540	11.5	19.6
309353	2007 <i>TH</i> ₅₆		1 4.1 80°46	3°6/ 4.7 18			431151	2006 <i>QO</i> ₁₅₇		1 4.1 104°42	3°3/ 5.2 18		
12 3	7 23.50	+14 20.9	1.571	2.405	15.5	21.1	12 3	7 17.94	+10 56.3	2.496	3.307	11.2	21.5
12 13	7 17.15	+13 59.0	1.512	2.418	11.6	20.9	12 13	7 12.51	+10 55.3	2.426	3.317	8.5	21.3
12 23	7 8.35	+13 47.1	1.477	2.431	7.3	20.7	12 23	7 5.54	+11 3.7	2.382	3.326	5.7	21.1
1 2	6 58.10	+13 45.2	1.468	2.443	3.9	20.5	1 2	6 57.64	+11 21.1	2.367	3.335	3.5	21.0
1 12	6 47.72	+13 52.4	1.488	2.456	5.1	20.6	1 12	6 49.61	+11 46.4	2.382	3.344	4.1	21.1
1 22	6 38.53	+14 6.8	1.535	2.469	9.1	20.9	1 22	6 42.21	+12 17.8	2.426	3.353	6.6	21.3
2 1	6 31.58	+14 26.6	1.606	2.481	13.0	21.2	2 1	6 36.15	+12 53.2	2.498	3.362	9.4	21.4
2 11	6 27.52	+14 49.6	1.699	2.494	16.3	21.4	2 11	6 31.92	+13 30.5	2.594	3.371	11.8	21.6
285138	1995 <i>SZ</i> ₈₁		1 4.1 274°14	0°1/ 4.1 18			357586	2004 <i>VH</i> ₁₀		1 4.1 53°83	1°0/ 4.3 17		
12 3	7 21.35	+21 36.6	1.941	2.780	12.8	21.4	12 3	7 24.93	+19 44.5	1.260	2.114	17.4	20.8
12 13	7 15.49	+21 48.6	1.866	2.779	9.3	21.2	12 13	7 18.61	+19 54.4	1.215	2.134	12.6	20.6
12 23	7 7.43	+22 3.9	1.816	2.777	5.3	20.9	12 23	7 9.32	+20 11.2	1.191	2.155	7.2	20.4
1 2	6 57.96	+22 20.1	1.793	2.776	0.9	20.6	1 2	6 58.31	+20 31.8	1.193	2.176	1.6	20.1
1 12	6 48.20	+22 35.0	1.800	2.774	3.5	20.8	1 12	6 47.29	+20 52.6	1.222	2.197	4.5	20.3
1 22	6 39.31	+22 47.1	1.836	2.773	7.7	21.1	1 22	6 37.87	+21 11.5	1.277	2.219	9.7	20.7
2 1	6 32.29	+22 56.2	1.899	2.772	11.4	21.3	2 1	6 31.26	+21 27.7	1.355	2.241	14.3	21.0
2 11	6 27.82	+23 2.4	1.984	2.770	14.6	21.5	2 11	6 28.09	+21 41.0	1.454	2.263	17.9	21.3
394807	2008 <i>RK</i> ₁₀₇		1 4.1 137°97	5°5/ 5.2 18			358515	2007 <i>RQ</i> ₂₉₄		1 4.1 184°54	2°8/ 3.5 18		
12 3	7 24.76	+ 8 32.9	1.748	2.559	15.2	21.7	12 3	7 26.45	+28 52.4	1.802	2.640	13.7	22.1
12 13	7 17.88	+ 8 5.8	1.685	2.571	11.8	21.5	12 13	7 19.47	+29 25.8	1.730	2.641	10.0	21.8
12 23	7 8.71	+ 7 53.0	1.644	2.582	8.3	21.3	12 23	7 9.81	+29 56.5	1.682	2.641	6.0	21.6
1 2	6 58.17	+ 7 55.5	1.631	2.593	5.8	21.2	1 2	6 58.42	+30 19.8	1.663	2.640	2.9	21.4
1 12	6 47.47	+ 8 12.7	1.647	2.603	6.4	21.2	1 12	6 46.70	+30 31.7	1.672	2.639	4.9	21.5
1 22	6 37.80	+ 8 42.2	1.690	2.612	9.4	21.4	1 22	6 36.07	+30 31.5	1.710	2.638	8.9	21.8
2 1	6 30.17	+ 9 20.8	1.760	2.621	12.8	21.7	2 1	6 27.74	+30 20.9	1.774	2.636	12.7	22.0
2 11	6 25.22	+10 4.7	1.851	2.629	15.8	21.9	2 11	6 22.48	+30 3.0	1.859	2.634	15.9	22.2
229674	2006 <i>YK</i> ₂₃		1 4.1 192°47	1°4/ 3.8 18			375362	2008 <i>SW</i> ₁₁₉		1 4.1 31°51	1°1/ 4.4 18		
12 3	7 27.19	+24 48.9	1.558	2.401	15.2	21.1	12 3	7 20.00	+19 2.2	2.068	2.904	12.3	21.3
12 13	7 20.26	+25 14.7	1.486	2.401	11.1	20.9	12 13	7 14.36	+19 5.2	1.995	2.905	9.0	21.1
12 23	7 10.35	+25 41.9	1.437	2.399	6.3	20.6	12 23	7 6.74	+19 12.9	1.946	2.906	5.2	20.9
1 2	6 58.49	+26 5.9	1.416	2.398	1.7	20.3	1 2	6 57.87	+19 24.0	1.926	2.907	1.5	20.6
1 12	6 46.22	+26 22.6	1.423	2.395	4.5	20.5	1 12	6 48.78	+19 36.8	1.935	2.908	3.4	20.8
1 22	6 35.14	+26 30.6	1.458	2.393	9.4	20.7	1 22	6 40.49	+19 49.9	1.973	2.910	7.2	21.0
2 1	6 26.61	+26 30.6	1.518	2.389	13.8	21.0	2 1	6 33.90	+20 2.6	2.038	2.911	10.8	21.2
2 11	6 21.46	+26 25.0	1.598	2.386	17.5	21.2	2 11	6 29.62	+20 14.4	2.126	2.913	13.8	21.4
105417	2000 <i>QL</i> ₁₆₃		1 4.1 141°29	2°4/ 4.5 18			31962	2000 <i>GE</i> ₁₅₃		1 4.1 237°60	2°6/ 4.5 18		
12 3	7 25.45	+16 11.7	1.946	2.769	13.4	21.1	12 3	7 22.29	+15 49.3	2.037	2.863	12.8	19.4
12 13	7 18.21	+15 58.9	1.881	2.783	9.9	20.9	12 13	7 16.11	+15 30.9	1.950	2.853	9.6	19.2
12 23	7 8.84	+15 52.6	1.840	2.795	6.0	20.7	12 23	7 7.79	+15 18.8	1.888	2.842	5.9	18.9
1 2	6 58.20	+15 52.2	1.829	2.806	2.7	20.5	1 2	6 58.07	+15 12.8	1.854	2.831	2.9	18.7
1 12	6 47.43	+15 56.6	1.847	2.817	4.1	20.7	1 12	6 48.00	+15 12.5	1.850	2.819	4.2	18.8
1 22	6 37.66	+16 4.7	1.895	2.827	7.8	20.9	1 22	6 38.67	+15 17.0	1.875	2.807	7.9	19.0
2 1	6 29.84	+16 15.5	1.970	2.836	11.4	21.1	2 1	6 31.06	+15 25.5	1.927	2.795	11.5	19.2
2 11	6 24.57	+16 28.2	2.068	2.845	14.4	21.4	2 11	6 25.87	+15 36.8	2.002	2.782	14.7	19.4
124120	2001 <i>KR</i> ₂		1 4.1 129°07	0°9/ 3.8 18			463600	2013 <i>SP</i> ₄₈		1 4.1 75°11	4°7/ 3.1 18		
12 3	7 28.38	+23 25.1	1.830	2.661	13.8	20.9	12 3	7 24.99	+36 9.8	2.145	2.972	12.2	20.9
12 13	7 20.53	+24 2.5	1.771	2.681	9.9	20.7	12 13	7 18.01	+36 49.3	2.093	2.991	9.2	20.7
12 23	7 10.23	+24 41.9	1.738	2.699	5.6	20.5	12 23	7 8.76	+37 20.1	2.066	3.010	6.4	20.6
1 2	6 58.44	+25 18.7	1.734	2.716	1.3	20.2	1 2	6 58.21	+37 37.6	2.068	3.029	4.8	20.5
1 12	6 46.52	+25 49.3	1.760	2.732	3.9	20.5	1 12	6 47.60	+37 39.1	2.098	3.047	5.8	20.6
1 22	6 35.77	+26 11.8	1.816	2.748	8.1	20.8	1 22	6 38.14	+37 25.1	2.157	3.066	8.4	20.8
2 1	6 27.27	+26 26.5	1.899	2.762	11.9	21.0	2 1	6 30.80	+36 58.3	2.242	3.084	11.1	21.0
2 11	6 21.68	+26 35.0	2.004	2.776	15.0	21.3	2 11	6 26.16	+36 23.0	2.349	3.103	13.5	21.2
437374	2013 <i>VC</i> ₂₀		1 4.1 232°48	13°1/29.3 16			62296	2000 <i>SU</i> ₁₁₅		1 4.1 1°79	4°9/ 3.1 18		
12 3	7 36.24	+41 53.2	1.200	2.037	19.2	20.3	12 3	7 25.44	+31 40.6	1.387	2.240	16.1	18.9
12 13	7 29.37	+45 19.1	1.147	2.035	16.0	20.1	12 13	7 19.46	+32 35.8	1.324	2.240	12.0	18.7
12 23	7 16.91	+48 34.4	1.117	2.034	13.6	20.0	12 23	7 10.10	+33 26.5	1.283	2.239	7.8	18.4
1 2	6 59.82	+51 15.9	1.112	2.032	13.3	19.9	1 2	6 58.50	+34 4.4	1.267	2.239	5.0	18.3
1 12	6 40.77	+53 6.1	1.132	2.030	15.2	20.0	1 12	6 46.46	+34 23.9	1.278	2.240	6.9	18.4
1 22	6 23.34	+54 0.5	1.173	2.028	18.2	20.2	1 22	6 35.85	+34 23.7	1.314	2.241	11.1	18.6
2 1	6 10.67	+54 7.7	1.233	2.026	21.3	20.4	2 1	6 28.19	+34 6.7	1.374	2.242	15.3	18.9
2 11	6 4.40	+53 42.5	1.308	2.024	24.1	20.6	2 11	6 24.35	+33 38.5	1.453	2.243	18.8	19.1
131058	2000 <i>YE</i> ₅₈		1 4.1 63°00	0°7/ 4.2 17			18256	4195 <i>T</i> ₋₂		1 4.1 131°57	0°8/ 4.3 18		
12 3	7 25.25	+20 16.6	1.389										

EPHEMERIDES

1 4.1

1 4.1

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
78700	2002 <i>TB</i> ₁₇₃		1 4.1	79°77	4.4/ 2.9	18	320212	2007 <i>HH</i> ₃₂		1 4.1	103°49	0°9/ 3.9	18
12 3	7 23.41	+34 19.8	2.165	2.997	11.9	19.8	12 3	7 22.05	+24 40.3	2.013	2.851	12.4	21.3
12 13	7 16.95	+35 10.5	2.105	3.007	9.0	19.6	12 13	7 15.94	+24 58.0	1.943	2.855	9.0	21.1
12 23	7 8.24	+35 54.8	2.070	3.018	6.1	19.5	12 23	7 7.67	+25 16.4	1.898	2.859	5.1	20.9
1 2	6 58.14	+36 27.8	2.064	3.028	4.4	19.4	1 2	6 58.06	+25 32.4	1.881	2.863	1.2	20.6
1 12	6 47.84	+36 45.9	2.086	3.038	5.6	19.5	1 12	6 48.24	+25 43.7	1.894	2.867	3.6	20.8
1 22	6 38.52	+36 48.7	2.137	3.049	8.3	19.6	1 22	6 39.32	+25 49.2	1.936	2.871	7.5	21.1
2 1	6 31.19	+36 38.0	2.214	3.059	11.2	19.8	2 1	6 32.28	+25 49.4	2.005	2.874	11.1	21.3
2 11	6 26.50	+36 17.4	2.314	3.069	13.7	20.0	2 11	6 27.76	+25 45.4	2.097	2.878	14.1	21.5
50646	2000 <i>EA</i> ₈₈		1 4.1	296°87	4°8/ 4.5	18	416844	2005 <i>LU</i> ₂₁		1 4.1	191°43	2°8/ 5.0	18
12 3	7 21.85	+13 14.0	1.639	2.472	15.1	19.2	12 3	7 21.80	+12 38.4	2.134	2.951	12.6	21.7
12 13	7 16.27	+12 24.3	1.549	2.452	11.6	18.9	12 13	7 15.65	+13 1.0	2.053	2.950	9.5	21.5
12 23	7 8.11	+11 42.6	1.483	2.432	7.8	18.6	12 23	7 7.50	+13 34.5	1.998	2.948	6.0	21.3
1 2	6 58.16	+11 10.9	1.442	2.413	4.9	18.4	1 2	6 58.05	+14 17.4	1.971	2.946	3.0	21.1
1 12	6 47.69	+10 50.8	1.430	2.393	6.1	18.4	1 12	6 48.26	+15 7.1	1.974	2.943	4.0	21.2
1 22	6 38.02	+10 42.6	1.444	2.374	10.0	18.6	1 22	6 39.17	+16 0.5	2.008	2.940	7.4	21.4
2 1	6 30.39	+10 45.2	1.483	2.355	14.1	18.8	2 1	6 31.69	+16 54.7	2.069	2.937	10.9	21.6
2 11	6 25.66	+10 56.6	1.543	2.336	17.8	19.0	2 11	6 26.49	+17 47.3	2.154	2.933	13.9	21.8
219375	2000 <i>SH</i> ₄₉		1 4.1	105°42	0°2/ 4.1	18	253224	2002 <i>YA</i> ₆		1 4.1	356°51	0°5/ 4.2	18
12 3	7 23.27	+23 33.0	1.937	2.775	12.9	20.4	12 3	7 20.01	+19 12.4	1.404	2.259	15.8	19.9
12 13	7 16.79	+23 31.2	1.870	2.782	9.3	20.2	12 13	7 15.23	+19 48.1	1.336	2.256	11.6	19.6
12 23	7 8.12	+23 30.1	1.828	2.789	5.3	20.0	12 23	7 7.61	+20 33.3	1.290	2.254	6.6	19.3
1 2	6 58.12	+23 27.7	1.814	2.796	0.9	19.7	1 2	6 58.09	+21 24.1	1.269	2.252	1.3	19.0
1 12	6 47.99	+23 22.3	1.830	2.803	3.5	19.9	1 12	6 48.13	+22 15.4	1.276	2.251	4.3	19.2
1 22	6 38.85	+23 13.9	1.874	2.810	7.6	20.2	1 22	6 39.25	+23 3.0	1.309	2.251	9.5	19.5
2 1	6 31.69	+23 3.0	1.946	2.817	11.3	20.4	2 1	6 32.78	+23 44.4	1.366	2.252	14.1	19.7
2 11	6 27.12	+22 50.9	2.040	2.824	14.4	20.6	2 11	6 29.57	+24 18.8	1.443	2.254	17.9	20.0
281069	2006 <i>OO</i> ₁₀		1 4.1	118°32	5°4/ 6.4	18	115014	2003 <i>QL</i> ₇₉		1 4.1	71°04	7°6/ 3.7	18
12 3	7 17.62	+ 2 11.5	2.754	3.527	11.3	20.8	12 3	7 33.21	+41 13.3	1.514	2.342	16.4	19.4
12 13	7 12.13	+ 2 6.5	2.687	3.541	9.1	20.7	12 13	7 24.74	+41 41.0	1.464	2.356	12.9	19.2
12 23	7 5.28	+ 2 15.1	2.645	3.555	7.0	20.6	12 23	7 12.81	+41 51.3	1.437	2.371	9.5	19.1
1 2	6 57.62	+ 2 37.9	2.630	3.568	5.5	20.5	1 2	6 58.95	+41 36.8	1.434	2.386	7.6	19.0
1 12	6 49.86	+ 3 14.0	2.646	3.581	5.7	20.5	1 12	6 45.22	+40 55.1	1.458	2.401	8.6	19.1
1 22	6 42.67	+ 4 1.3	2.690	3.593	7.2	20.7	1 22	6 33.53	+39 49.9	1.509	2.416	11.5	19.3
2 1	6 36.67	+ 4 56.9	2.762	3.606	9.3	20.8	2 1	6 25.22	+38 29.1	1.584	2.431	14.7	19.6
2 11	6 32.32	+ 5 57.2	2.859	3.618	11.3	21.0	2 11	6 20.88	+37 1.5	1.679	2.446	17.6	19.8
288678	2004 <i>PU</i> ₈₃		1 4.1	110°78	3°6/ 5.2	18	519550	2012 <i>QN</i> ₅₃		1 4.1	118°60	5°4/ 2.6	18
12 3	7 20.62	+10 53.7	2.150	2.964	12.7	20.6	12 3	7 25.95	+42 37.7	2.917	3.717	10.0	21.8
12 13	7 14.61	+10 57.1	2.086	2.978	9.6	20.4	12 13	7 18.38	+43 20.9	2.863	3.735	8.0	21.7
12 23	7 6.79	+11 11.6	2.046	2.991	6.3	20.2	12 23	7 8.89	+43 53.4	2.836	3.753	6.3	21.6
1 2	6 57.89	+11 36.4	2.035	3.004	3.8	20.1	1 2	6 58.27	+44 11.1	2.837	3.770	5.4	21.6
1 12	6 48.85	+12 9.8	2.053	3.017	4.5	20.2	1 12	6 47.58	+44 11.9	2.867	3.787	6.1	21.7
1 22	6 40.60	+12 49.4	2.101	3.029	7.4	20.4	1 22	6 37.81	+43 56.4	2.927	3.803	7.7	21.8
2 1	6 33.95	+13 32.6	2.176	3.041	10.5	20.6	2 1	6 29.83	+43 27.1	3.013	3.819	9.6	21.9
2 11	6 29.47	+14 16.8	2.274	3.053	13.2	20.8	2 11	6 24.18	+42 47.8	3.122	3.834	11.3	22.1
192458	1998 <i>DG</i> ₁		1 4.1	16°19	13°0/ 2.7	18	37973	1998 <i>HG</i> ₁₀₆		1 4.1	129°83	0°9/ 4.4	18
12 3	7 26.21	+49 40.7	1.287	2.114	18.7	18.1	12 3	7 21.52	+18 11.4	2.241	3.068	11.7	19.1
12 13	7 20.79	+51 9.4	1.256	2.129	16.0	18.0	12 13	7 15.31	+18 40.2	2.173	3.079	8.5	18.9
12 23	7 11.02	+52 11.2	1.245	2.145	13.9	17.9	12 23	7 7.24	+19 15.0	2.130	3.089	4.9	18.7
1 2	6 58.64	+52 35.2	1.254	2.164	13.0	17.9	1 2	6 58.01	+19 53.2	2.117	3.099	1.3	18.5
1 12	6 46.27	+52 17.2	1.285	2.184	13.7	18.0	1 12	6 48.58	+20 32.1	2.135	3.108	3.1	18.6
1 22	6 36.33	+51 21.3	1.338	2.206	15.5	18.2	1 22	6 39.92	+21 9.4	2.183	3.118	6.8	18.9
2 1	6 30.42	+49 57.4	1.410	2.230	17.7	18.4	2 1	6 32.87	+21 43.5	2.258	3.126	10.1	19.1
2 11	6 29.09	+48 16.8	1.500	2.255	19.9	18.6	2 11	6 28.02	+22 14.0	2.358	3.135	12.9	19.3
412197	2013 <i>GV</i> ₁₀₁		1 4.1	215°08	3°1/ 4.7	18	388024	2005 <i>ST</i> ₄₆		1 4.1	192°82	2°3/ 3.7	18
12 3	7 22.27	+14 3.2	2.074	2.895	12.8	21.7	12 3	7 28.23	+27 41.2	1.719	2.557	14.2	21.6
12 13	7 16.03	+13 49.5	1.990	2.889	9.6	21.5	12 13	7 20.88	+28 8.8	1.644	2.555	10.4	21.4
12 23	7 7.72	+13 43.9	1.931	2.882	6.1	21.3	12 23	7 10.69	+28 34.6	1.594	2.554	6.2	21.1
1 2	6 58.08	+13 46.1	1.901	2.875	3.3	21.1	1 2	6 58.65	+28 53.7	1.572	2.551	2.5	20.9
1 12	6 48.11	+13 55.4	1.900	2.867	4.4	21.2	1 12	6 46.22	+29 2.4	1.578	2.548	4.7	21.0
1 22	6 38.88	+14 10.5	1.928	2.859	7.8	21.4	1 22	6 34.93	+28 59.9	1.614	2.544	9.1	21.3
2 1	6 31.33	+14 29.9	1.984	2.850	11.3	21.6	2 1	6 26.06	+28 47.8	1.675	2.539	13.2	21.5
2 11	6 26.13	+14 52.1	2.062	2.841	14.4	21.8	2 11	6 20.44	+28 29.5	1.757	2.534	16.6	21.7
401835	1999 <i>TC</i> ₂₆₃		1 4.1	175°67	3°8/ 3.2	18	227952	2007 <i>GY</i> ₆₀		1 4.1	340°88	1°8/ 4.4	18
12 3	7 26.69	+31 29.0	1.865	2.701	13.4	21.5	12 3	7 21.05	+18 10.9	1.940	2.775	13.0	20.2
12 13	7 19.64	+32 12.3	1.795	2.702	9.9	21.3	12 13	7 15.23	+17 58.5	1.866	2.775	9.5	20.0
12 23	7 9.91	+32 51.1	1.749	2.704	6.3	21.1	12 23	7 7.30	+17 51.3	1.816	2.774	5.7	19.8
1 2	6 58.47	+33 19.7	1.732	2.704	3.8	20.9	1 2	6 58.03	+17 48.3	1.794	2.774	2.1	19.5
1 12	6 46.69	+33 34.0	1.744	2.705	5.5	21.0	1 12	6 48.53	+17 48.8	1.801	2.773	3.8	19.6
1 22	6 36.01	+33 33.4	1.784	2.705	9.0	21.2	1 22	6 39.90	+17 51.7	1.836	2.773	7.7	19.9
2 1	6 27.64	+33 19.8	1.850	2.705	12.6	21.4	2 1	6 33.07	+17 56.5	1.899	2.772	11.4	20.1
2 11	6 22.32	+32 57.2	1.937	2.704	15.6	21.6	2 11	6 28.71	+18 2.6	1.983	2.772	14.5	20.3
460303	2014 <i>QZ</i> ₃₇₁		1 4.1	64°08	4°3/ 3.2	18	445899	2012 <i>VA</i> ₈₂		1 4.1	141°30	3°2/ 3.4	18
12 3	7 25.58	+31 44.6											

EPHEMERIDES

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
5172	Yoshiyuki		1 4.1 65°04	1.8/ 4.3	18		497112	2004 <i>EH</i>		1 4.1 236°53	7°9/ 6.9	17	
12 3	7 26.47	+19 23.8	1.302	2.151	17.2	17.1	12 3	7 20.81	- 6 45.1	2.873	3.589	12.1	23.0
12 13	7 19.64	+19 4.2	1.254	2.170	12.5	16.9	12 13	7 14.61	- 7 4.8	2.771	3.569	10.5	22.8
12 23	7 9.89	+18 50.5	1.228	2.189	7.3	16.7	12 23	7 6.85	- 7 7.0	2.691	3.547	9.0	22.7
1 2	6 58.48	+18 41.5	1.227	2.208	2.3	16.4	1 2	6 58.02	- 6 49.1	2.639	3.525	8.0	22.6
1 12	6 47.10	+18 35.8	1.254	2.227	4.7	16.6	1 12	6 48.85	- 6 10.4	2.614	3.502	8.0	22.6
1 22	6 37.31	+18 32.9	1.307	2.247	9.7	17.0	1 22	6 40.06	- 5 12.7	2.618	3.477	9.1	22.6
2 1	6 30.30	+18 32.3	1.384	2.266	14.2	17.3	2 1	6 32.38	- 3 59.1	2.649	3.452	10.8	22.7
2 11	6 26.71	+18 33.8	1.481	2.286	17.9	17.6	2 11	6 26.38	- 2 34.4	2.704	3.426	12.7	22.8
312525	2009 <i>DS</i> ₇₃		1 4.1 218°87	0°0/ 3.9	18		69417	1995 <i>WV</i> ₃₅		1 4.1 54°76	0°1/ 4.1	18	
12 3	7 23.47	+20 50.6	1.816	2.654	13.6	20.8	12 3	7 17.62	+22 2.1	2.699	3.531	9.8	19.2
12 13	7 17.28	+21 25.0	1.737	2.649	9.9	20.6	12 13	7 12.22	+22 10.0	2.642	3.551	7.1	19.1
12 23	7 8.62	+22 5.1	1.683	2.645	5.6	20.3	12 23	7 5.39	+22 19.7	2.610	3.571	4.0	18.9
1 2	6 58.30	+22 47.4	1.657	2.640	1.0	20.0	1 2	6 57.74	+22 29.5	2.608	3.591	0.7	18.7
1 12	6 47.55	+23 27.9	1.661	2.635	3.7	20.2	1 12	6 50.04	+22 38.2	2.637	3.611	2.6	18.9
1 22	6 37.67	+24 3.6	1.693	2.629	8.3	20.4	1 22	6 43.02	+22 45.1	2.696	3.631	5.6	19.1
2 1	6 29.80	+24 33.4	1.752	2.624	12.3	20.6	2 1	6 37.32	+22 49.8	2.783	3.651	8.4	19.3
2 11	6 24.73	+24 57.3	1.833	2.618	15.7	20.9	2 11	6 33.40	+22 52.7	2.895	3.672	10.7	19.5
302250	2001 <i>XD</i> ₃₃		1 4.1 86°93	3°2/ 3.8	16		461460	2002 <i>QO</i> ₁₇		1 4.1 141°93	0°3/ 4.2	18	
12 3	7 38.86	+23 33.5	0.998	1.850	21.0	19.8	12 3	7 20.55	+20 45.4	2.779	3.603	9.8	22.5
12 13	7 29.13	+21 29.7	0.946	1.863	15.4	19.5	12 13	7 14.33	+20 57.9	2.710	3.615	7.1	22.4
12 23	7 15.38	+19 19.2	0.914	1.876	9.0	19.2	12 23	7 6.61	+21 12.9	2.667	3.626	4.0	22.2
1 2	6 59.44	+17 7.3	0.908	1.889	3.4	18.9	1 2	6 57.98	+21 28.7	2.655	3.637	0.8	22.0
1 12	6 43.81	+15 3.2	0.930	1.901	6.7	19.1	1 12	6 49.23	+21 43.8	2.674	3.647	2.6	22.1
1 22	6 30.74	+13 15.8	0.978	1.914	12.8	19.5	1 22	6 41.12	+21 57.1	2.724	3.657	5.7	22.3
2 1	6 21.69	+11 50.8	1.048	1.926	18.1	19.9	2 1	6 34.34	+22 8.4	2.803	3.666	8.5	22.5
2 11	6 17.19	+10 48.0	1.136	1.938	22.4	20.2	2 11	6 29.37	+22 17.6	2.907	3.675	10.9	22.7
32189	2000 <i>NT</i> ₂₅		1 4.1 141°44	1°2/ 3.9	18		373979	2003 <i>YM</i> ₁₃₂		1 4.1 344°10	4°7/ 3.5	18	
12 3	7 23.51	+25 22.9	2.006	2.843	12.5	19.3	12 3	7 24.35	+35 54.4	1.952	2.785	13.0	20.2
12 13	7 17.02	+25 41.0	1.937	2.848	9.1	19.1	12 13	7 17.91	+36 11.3	1.879	2.781	9.9	20.0
12 23	7 8.31	+25 59.1	1.892	2.853	5.2	18.9	12 23	7 8.95	+36 19.0	1.830	2.777	6.7	19.8
1 2	6 58.24	+26 13.9	1.876	2.858	1.4	18.6	1 2	6 58.41	+36 12.8	1.808	2.774	4.7	19.7
1 12	6 47.95	+26 23.1	1.890	2.862	3.7	18.8	1 12	6 47.66	+35 50.4	1.815	2.771	5.9	19.8
1 22	6 38.61	+26 25.7	1.934	2.867	7.6	19.1	1 22	6 38.03	+35 12.8	1.850	2.768	9.0	20.0
2 1	6 31.20	+26 22.5	2.003	2.871	11.2	19.3	2 1	6 30.66	+34 23.4	1.911	2.766	12.2	20.1
2 11	6 26.38	+26 15.0	2.096	2.874	14.2	19.5	2 11	6 26.22	+33 27.0	1.993	2.764	15.1	20.3
265869	2005 <i>YQ</i> ₁₉₈		1 4.1 89°32	0°5/ 4.2	18		236078	2005 <i>JF</i> ₁₅₀		1 4.1 183°61	1°7/ 4.6	18	
12 3	7 22.04	+20 51.2	1.962	2.798	12.8	21.2	12 3	7 18.55	+16 12.3	2.697	3.518	10.2	21.6
12 13	7 15.89	+20 58.8	1.897	2.809	9.3	21.0	12 13	7 12.99	+16 16.8	2.617	3.518	7.5	21.5
12 23	7 7.64	+21 9.8	1.858	2.819	5.3	20.7	12 23	7 5.90	+16 26.8	2.563	3.518	4.5	21.3
1 2	6 58.13	+21 22.3	1.847	2.830	1.1	20.5	1 2	6 57.87	+16 41.4	2.539	3.517	1.9	21.1
1 12	6 48.48	+21 34.3	1.866	2.840	3.4	20.7	1 12	6 49.64	+16 59.3	2.546	3.517	3.0	21.2
1 22	6 39.76	+21 44.5	1.914	2.850	7.4	20.9	1 22	6 41.98	+17 19.3	2.583	3.516	6.0	21.4
2 1	6 32.92	+21 52.5	1.988	2.861	11.0	21.2	2 1	6 35.57	+17 40.2	2.649	3.515	8.8	21.5
2 11	6 28.56	+21 58.7	2.085	2.871	14.0	21.4	2 11	6 30.94	+18 1.2	2.739	3.513	11.3	21.7
473810	2016 <i>EF</i> ₁₁₀		1 4.1 300°30	1°5/ 3.7	16		502891	2015 <i>DC</i> ₂₂₁		1 4.1 280°06	1°9/ 3.7	18	
12 3	7 21.74	+25 5.3	1.797	2.642	13.4	21.6	12 3	7 20.52	+28 5.7	2.384	3.219	10.9	20.9
12 13	7 16.19	+25 37.8	1.713	2.629	9.8	21.3	12 13	7 14.71	+28 24.7	2.305	3.215	7.9	20.7
12 23	7 8.09	+26 12.2	1.653	2.616	5.6	21.0	12 23	7 6.99	+28 41.8	2.252	3.211	4.7	20.5
1 2	6 58.25	+26 44.6	1.621	2.602	1.7	20.7	1 2	6 58.07	+28 54.2	2.228	3.207	2.0	20.3
1 12	6 47.91	+27 10.9	1.618	2.589	4.2	20.9	1 12	6 48.91	+28 59.7	2.234	3.203	3.6	20.4
1 22	6 38.40	+27 29.1	1.642	2.577	8.6	21.1	1 22	6 40.47	+28 57.7	2.269	3.198	6.9	20.6
2 1	6 30.94	+27 39.1	1.692	2.564	12.6	21.3	2 1	6 33.64	+28 48.9	2.332	3.194	10.0	20.8
2 11	6 26.35	+27 42.1	1.763	2.552	16.1	21.5	2 11	6 29.01	+28 35.0	2.418	3.190	12.7	21.0
124487	2001 <i>RT</i> ₂₇		1 4.1 210°29	3°4/ 4.9	18		121014	1999 <i>AJ</i> ₂₂		1 4.1 9°30	4°9/ 2.9	18	
12 3	7 23.95	+13 16.7	1.642	2.471	15.2	20.1	12 3	7 23.17	+29 9.4	1.126	1.994	17.9	18.9
12 13	7 17.73	+13 19.6	1.565	2.467	11.5	19.8	12 13	7 18.34	+30 26.2	1.070	1.995	13.3	18.6
12 23	7 8.92	+13 34.6	1.511	2.463	7.3	19.6	12 23	7 9.75	+31 42.4	1.036	1.997	8.3	18.4
1 2	6 58.40	+14 0.9	1.483	2.459	3.7	19.4	1 2	6 58.62	+32 48.0	1.025	2.000	5.0	18.2
1 12	6 47.45	+14 36.3	1.485	2.454	5.0	19.4	1 12	6 46.98	+33 34.5	1.039	2.004	7.4	18.3
1 22	6 37.42	+15 17.6	1.514	2.449	9.2	19.7	1 22	6 36.95	+33 58.6	1.076	2.009	12.2	18.6
2 1	6 29.52	+16 1.8	1.569	2.443	13.3	19.9	2 1	6 30.23	+34 2.4	1.135	2.015	16.8	18.9
2 11	6 24.55	+16 46.1	1.645	2.437	16.9	20.1	2 11	6 27.73	+33 51.1	1.212	2.022	20.7	19.2
89732	2001 <i>YE</i> ₁₄₆		1 4.1 107°82	0°4/ 4.0	18		248574	2006 <i>BC</i> ₂₇		1 4.1 91°19	1°2/ 4.4	18	
12 3	7 28.32	+23 15.9	1.714	2.549	14.4	20.3	12 3	7 27.27	+17 58.8	1.139	1.993	18.8	20.1
12 13	7 20.53	+23 29.8	1.661	2.572	10.4	20.1	12 13	7 20.87	+18 30.0	1.083	2.002	13.8	19.9
12 23	7 10.27	+23 45.0	1.633	2.594	5.8	19.9	12 23	7 10.97	+19 13.0	1.049	2.012	8.0	19.6
1 2	6 58.60	+23 58.1	1.633	2.616	1.1	19.6	1 2	6 58.82	+20 3.1	1.039	2.021	2.0	19.2
1 12	6 46.91	+24 6.8	1.663	2.636	3.8	19.9	1 12	6 46.33	+20 54.3	1.055	2.030	5.0	19.5
1 22	6 36.54	+24 10.2	1.722	2.657	8.3	20.2	1 22	6 35.44	+21 41.7	1.097	2.039	10.8	19.8
2 1	6 28.55	+24 9.0	1.807	2.676	12.1	20.5	2 1	6 27.69	+22 23.0	1.161	2.048	16.0	20.1
2 11	6 23.54	+24 4.9	1.915	2.695	15.3	20.7	2 11	6 23.91	+22 57.4	1.245	2.057	20.2	20.4
370404	2002 <i>TM</i> ₂₆₇		1 4.1 75°02	0°3/ 4.0	18		178126	2006 <i>TZ</i> ₃₈		1 4.1 215°66	2°8/ 3.4	18	
12 3	7 23.53	+23 30.4	2.213	3.045	11.7								

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
152244	2005 <i>SD</i> ₈₈		1 4.1 32°63	5°6/ 3.2	18		219404	2000 <i>SC</i> ₂₀₉		1 4.1 71°44	5°1/ 2.9	18	
12 3	7 27.27	+32 44.5	1.222	2.079	17.6	19.3	12 3	7 27.90	+34 28.7	1.805	2.638	13.9	20.0
12 13	7 21.10	+33 38.0	1.168	2.084	13.2	19.1	12 13	7 20.44	+35 30.0	1.763	2.666	10.4	19.8
12 23	7 11.18	+34 24.4	1.134	2.090	8.6	18.9	12 23	7 10.34	+36 23.0	1.746	2.694	7.0	19.7
1 2	6 58.88	+34 54.6	1.125	2.096	5.7	18.7	1 2	6 58.71	+37 1.1	1.757	2.721	5.1	19.6
1 12	6 46.25	+35 3.0	1.141	2.103	7.6	18.8	1 12	6 47.07	+37 20.4	1.797	2.748	6.4	19.8
1 22	6 35.39	+34 49.3	1.182	2.110	11.9	19.1	1 22	6 36.82	+37 21.2	1.864	2.775	9.4	20.0
2 1	6 27.90	+34 18.5	1.246	2.118	16.2	19.4	2 1	6 29.08	+37 6.6	1.956	2.802	12.4	20.2
2 11	6 24.58	+33 37.1	1.327	2.126	19.9	19.6	2 11	6 24.46	+36 41.4	2.070	2.828	15.0	20.5
230793	2004 <i>BQ</i> ₁₃₉		1 4.1 229°93	0°9/ 4.4	18		175305	2005 <i>MM</i> ₃		1 4.1 108°76	3°2/ 5.2	18	
12 3	7 19.17	+18 30.1	2.516	3.343	10.6	20.7	12 3	7 22.60	+11 39.3	1.883	2.703	14.0	20.2
12 13	7 13.62	+18 48.3	2.431	3.337	7.8	20.5	12 13	7 16.36	+12 6.6	1.819	2.716	10.5	20.0
12 23	7 6.36	+19 11.6	2.372	3.330	4.5	20.3	12 23	7 8.00	+12 46.8	1.779	2.729	6.7	19.8
1 2	6 58.00	+19 38.3	2.342	3.324	1.3	20.0	1 2	6 58.32	+13 38.0	1.767	2.741	3.5	19.7
1 12	6 49.37	+20 6.3	2.344	3.317	2.9	20.2	1 12	6 48.42	+14 36.7	1.785	2.753	4.4	19.7
1 22	6 41.30	+20 34.0	2.375	3.310	6.3	20.4	1 22	6 39.43	+15 38.9	1.831	2.765	7.9	20.0
2 1	6 34.59	+21 0.1	2.435	3.303	9.4	20.6	2 1	6 32.28	+16 41.2	1.905	2.777	11.5	20.2
2 11	6 29.82	+21 24.0	2.518	3.295	12.1	20.7	2 11	6 27.63	+17 40.7	2.003	2.788	14.5	20.5
422608	2014 <i>TL</i> ₇₄		1 4.1 54°97	2°4/ 4.8	18		375537	2008 <i>UJ</i> ₁₉₃		1 4.1 67°54	3°2/ 3.2	18	
12 3	7 20.94	+15 22.8	1.770	2.604	14.0	21.0	12 3	7 23.09	+29 50.3	2.011	2.849	12.4	20.6
12 13	7 15.31	+15 30.8	1.704	2.611	10.4	20.8	12 13	7 16.82	+30 43.4	1.954	2.864	9.1	20.5
12 23	7 7.45	+15 48.2	1.662	2.618	6.3	20.6	12 23	7 8.28	+31 33.5	1.924	2.880	5.6	20.3
1 2	6 58.20	+16 13.5	1.647	2.626	2.7	20.4	1 2	6 58.37	+32 15.6	1.921	2.895	3.2	20.1
1 12	6 48.73	+16 44.3	1.661	2.633	4.1	20.5	1 12	6 48.28	+32 45.9	1.948	2.911	4.8	20.3
1 22	6 40.20	+17 18.1	1.703	2.641	8.1	20.7	1 22	6 39.19	+33 3.1	2.004	2.926	8.1	20.5
2 1	6 33.60	+17 52.7	1.771	2.648	11.9	21.0	2 1	6 32.10	+33 8.4	2.085	2.942	11.3	20.7
2 11	6 29.61	+18 26.1	1.862	2.656	15.1	21.2	2 11	6 27.66	+33 4.2	2.189	2.958	14.0	21.0
374609	2006 <i>DH</i> ₁₅₀		1 4.1 36°36	1°6/ 3.9	18		414470	2009 <i>MQ</i> ₈		1 4.1 97°93	0°6/ 4.4	18	
12 3	7 22.50	+26 51.3	1.932	2.773	12.8	21.0	12 3	7 23.83	+18 7.3	2.025	2.853	12.8	20.8
12 13	7 16.41	+27 1.9	1.862	2.776	9.3	20.8	12 13	7 17.14	+18 55.7	1.968	2.874	9.3	20.6
12 23	7 8.06	+27 10.9	1.818	2.779	5.4	20.6	12 23	7 8.39	+19 51.0	1.936	2.895	5.3	20.4
1 2	6 58.31	+27 15.2	1.801	2.782	1.8	20.3	1 2	6 58.40	+20 49.3	1.934	2.916	1.2	20.1
1 12	6 48.36	+27 13.0	1.814	2.785	3.9	20.5	1 12	6 48.26	+21 46.5	1.962	2.936	3.3	20.3
1 22	6 39.40	+27 3.7	1.855	2.789	7.8	20.7	1 22	6 39.04	+22 39.6	2.021	2.956	7.2	20.6
2 1	6 32.43	+26 48.7	1.922	2.792	11.4	21.0	2 1	6 31.66	+23 26.6	2.108	2.975	10.7	20.9
2 11	6 28.10	+26 29.9	2.012	2.796	14.5	21.2	2 11	6 26.72	+24 7.0	2.217	2.994	13.6	21.1
327359	2005 <i>UL</i> ₂₄₃		1 4.1 52°48	3°6/ 3.3	18		130139	1999 <i>XF</i> ₁₄₈		1 4.1 355°18	0°4/ 4.0	18	
12 3	7 24.10	+30 59.4	1.832	2.673	13.4	20.9	12 3	7 20.44	+22 43.8	1.714	2.562	13.8	19.9
12 13	7 17.81	+31 37.7	1.765	2.676	9.9	20.7	12 13	7 15.20	+23 2.9	1.642	2.559	10.0	19.7
12 23	7 8.96	+32 11.8	1.723	2.679	6.2	20.5	12 23	7 7.52	+23 25.2	1.594	2.557	5.7	19.4
1 2	6 58.48	+32 36.5	1.709	2.683	3.6	20.4	1 2	6 58.26	+23 47.7	1.573	2.556	1.1	19.1
1 12	6 47.73	+32 48.3	1.723	2.686	5.3	20.5	1 12	6 48.68	+24 7.4	1.580	2.555	3.8	19.3
1 22	6 38.07	+32 46.3	1.765	2.690	8.8	20.7	1 22	6 40.06	+24 22.5	1.615	2.554	8.3	19.6
2 1	6 30.64	+32 32.6	1.832	2.693	12.4	20.9	2 1	6 33.51	+24 32.6	1.675	2.554	12.4	19.8
2 11	6 26.17	+32 10.5	1.921	2.697	15.4	21.1	2 11	6 29.75	+24 38.4	1.757	2.555	15.8	20.0
134577	1999 <i>SY</i> ₂₇		1 4.1 79°35	10°4/ 3.6	18		27086	1998 <i>UX</i> ₆		1 4.1 116°41	0°0/ 4.0	18	
12 3	7 27.98	+ 2 50.2	1.622	2.411	17.2	18.1	12 3	7 27.87	+22 37.3	1.573	2.413	15.2	19.5
12 13	7 20.34	+ 0 26.4	1.563	2.421	14.3	17.9	12 13	7 20.51	+22 38.8	1.514	2.427	11.0	19.3
12 23	7 10.25	- 1 41.7	1.528	2.430	11.7	17.8	12 23	7 10.44	+22 42.4	1.479	2.440	6.2	19.1
1 2	6 58.70	- 3 25.8	1.520	2.440	10.4	17.7	1 2	6 58.77	+22 45.2	1.471	2.453	1.1	18.8
1 12	6 47.01	- 4 40.1	1.540	2.449	11.1	17.8	1 12	6 46.98	+22 45.0	1.492	2.466	4.0	19.0
1 22	6 36.49	- 5 23.4	1.586	2.459	13.2	17.9	1 22	6 36.53	+22 41.4	1.541	2.478	8.8	19.3
2 1	6 28.22	- 5 38.2	1.654	2.469	15.8	18.1	2 1	6 28.59	+22 35.1	1.616	2.490	13.0	19.6
2 11	6 22.84	- 5 30.5	1.742	2.478	18.2	18.3	2 11	6 23.82	+22 27.5	1.712	2.501	16.5	19.8
205445	2001 <i>OJ</i> ₄₄		1 4.1 83°34	2°0/ 4.6	18		379075	2008 <i>WR</i> ₁₂₅		1 4.1 26°96	0°6/ 4.3	18	
12 3	7 20.33	+16 33.1	2.340	3.164	11.4	19.6	12 3	7 20.05	+21 10.0	1.884	2.726	13.0	20.8
12 13	7 14.30	+16 19.6	2.280	3.183	8.4	19.5	12 13	7 14.57	+21 5.0	1.819	2.733	9.4	20.6
12 23	7 6.64	+16 11.4	2.246	3.201	5.1	19.3	12 23	7 7.00	+21 3.1	1.780	2.742	5.4	20.4
1 2	6 58.04	+16 8.1	2.241	3.219	2.2	19.1	1 2	6 58.16	+21 2.7	1.768	2.750	1.2	20.1
1 12	6 49.40	+16 8.9	2.267	3.237	3.4	19.3	1 12	6 49.17	+21 2.5	1.785	2.759	3.4	20.3
1 22	6 41.55	+16 13.0	2.322	3.255	6.5	19.5	1 22	6 41.14	+21 1.7	1.830	2.769	7.5	20.6
2 1	6 35.22	+16 19.7	2.405	3.273	9.5	19.7	2 1	6 34.98	+21 0.3	1.901	2.779	11.2	20.8
2 11	6 30.91	+16 28.0	2.512	3.290	12.1	19.9	2 11	6 31.31	+20 58.5	1.995	2.789	14.3	21.0
21607	Robel		1 4.1 130°41	4°7/ 5.2	18	R	456617	2007 <i>GK</i> ₇₇		1 4.1 112°09	3°2/ 3.1	18	
12 3	7 21.18	+ 9 25.2	2.037	2.848	13.4	17.8	12 3	7 23.31	+29 47.9	2.082	2.918	12.2	21.0
12 13	7 15.19	+ 9 4.4	1.968	2.856	10.3	17.6	12 13	7 17.03	+30 42.2	2.015	2.924	8.9	20.9
12 23	7 7.27	+ 8 55.5	1.924	2.863	7.1	17.4	12 23	7 8.47	+31 34.1	1.973	2.929	5.5	20.7
1 2	6 58.17	+ 8 59.0	1.907	2.870	4.8	17.3	1 2	6 58.45	+32 18.7	1.960	2.934	3.2	20.5
1 12	6 48.90	+ 9 14.5	1.919	2.877	5.4	17.4	1 12	6 48.13	+32 51.9	1.977	2.939	4.8	20.6
1 22	6 40.43	+ 9 40.0	1.960	2.883	8.2	17.5	1 22	6 38.70	+33 12.1	2.023	2.945	8.1	20.8
2 1	6 33.64	+10 13.0	2.027	2.890	11.3	17.7	2 1	6 31.20	+33 20.0	2.095	2.949	11.3	21.1
2 11	6 29.12	+10 50.6	2.117	2.896	14.1	17.9	2 11	6 26.33	+33 18.2	2.189	2.954	14.1	21.3
286275	2001 <i>VW</i> ₈₁		1 4.1 165°01	9°2/ 5.4	18		23243	2000 <i>WT</i> ₁₄₅		1 4.1 83°94	7°6/ 6.9	18	
12 3	7 25.19	- 1 59.9	2.101	2.856	1								

EPHEMERIDES

1 4.1

1 4.2

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
142622	2002 <i>TK</i> ₁₅₈		1 4.1 54°43	5°9/ 6.2	18		157540	2005 <i>UO</i> ₃		1 4.2 293°46	3°5/ 4.6	18	
12 3	7 21.15	+ 5 56.1	1.579	2.394	16.4	19.2	12 3	7 23.69	+15 47.3	1.375	2.220	16.7	19.8
12 13	7 15.62	+ 6 8.9	1.518	2.404	12.9	19.0	12 13	7 18.06	+15 20.1	1.298	2.209	12.6	19.5
12 23	7 7.71	+ 6 42.1	1.478	2.415	9.1	18.8	12 23	7 9.41	+15 1.8	1.242	2.199	7.9	19.2
1 2	6 58.32	+ 7 35.5	1.464	2.426	6.3	18.6	1 2	6 58.71	+14 53.0	1.212	2.189	3.8	19.0
1 12	6 48.69	+ 8 45.8	1.478	2.437	6.6	18.7	1 12	6 47.47	+14 53.1	1.208	2.179	5.5	19.0
1 22	6 40.06	+10 7.5	1.519	2.448	9.6	18.9	1 22	6 37.32	+15 1.0	1.230	2.169	10.4	19.3
2 1	6 33.51	+11 34.4	1.585	2.460	13.2	19.1	2 1	6 29.65	+15 15.1	1.276	2.159	15.1	19.5
2 11	6 29.73	+13 0.9	1.673	2.471	16.4	19.4	2 11	6 25.38	+15 33.6	1.341	2.149	19.2	19.8
105451	2000 <i>QZ</i> ₁₉₂		1 4.1 30°93	0°4/ 4.0	18		202129	2004 <i>TM</i> ₁₇₀		1 4.2 25°34	4°1/ 3.1	17	
12 3	7 21.47	+21 42.1	1.505	2.356	15.1	18.7	12 3	7 22.52	+26 40.7	1.017	1.892	18.9	18.7
12 13	7 16.10	+22 19.2	1.447	2.366	11.0	18.5	12 13	7 17.88	+28 5.1	0.975	1.904	13.8	18.4
12 23	7 8.07	+23 1.6	1.413	2.376	6.2	18.2	12 23	7 9.48	+29 31.0	0.954	1.918	8.2	18.2
1 2	6 58.39	+23 44.8	1.405	2.387	1.1	17.9	1 2	6 58.71	+30 47.9	0.956	1.934	4.2	18.0
1 12	6 48.46	+24 24.6	1.424	2.399	4.1	18.1	1 12	6 47.67	+31 46.7	0.982	1.951	6.9	18.2
1 22	6 39.72	+24 57.9	1.471	2.411	8.9	18.4	1 22	6 38.46	+32 23.7	1.031	1.969	12.0	18.6
2 1	6 33.32	+25 23.7	1.542	2.424	13.1	18.7	2 1	6 32.67	+32 40.5	1.102	1.988	16.7	18.9
2 11	6 29.98	+25 42.5	1.635	2.437	16.6	19.0	2 11	6 31.05	+32 41.7	1.191	2.009	20.5	19.2
210379	2007 <i>VN</i> ₈₀		1 4.1 193°93	0°2/ 4.2	18		420846	2013 <i>JK</i> ₄₆		1 4.2 187°97	5°1/ 5.4	18	
12 3	7 19.40	+21 28.0	2.541	3.371	10.4	21.0	12 3	7 21.39	+ 6 18.1	2.456	3.246	12.0	22.0
12 13	7 13.76	+21 36.4	2.462	3.371	7.5	20.8	12 13	7 15.16	+ 5 50.7	2.375	3.245	9.5	21.9
12 23	7 6.44	+21 47.2	2.410	3.370	4.3	20.6	12 23	7 7.25	+ 5 34.7	2.319	3.244	7.0	21.7
1 2	6 58.09	+21 58.7	2.386	3.369	0.8	20.4	1 2	6 58.29	+ 5 31.5	2.291	3.242	5.3	21.6
1 12	6 49.53	+22 9.4	2.394	3.368	2.8	20.5	1 12	6 49.09	+ 5 41.2	2.293	3.239	5.7	21.6
1 22	6 41.60	+22 18.4	2.431	3.366	6.2	20.7	1 22	6 40.51	+ 6 2.4	2.325	3.236	7.8	21.7
2 1	6 35.07	+22 25.2	2.497	3.365	9.2	20.9	2 1	6 33.30	+ 6 33.0	2.384	3.232	10.4	21.9
2 11	6 30.48	+22 30.1	2.587	3.363	11.8	21.1	2 11	6 28.03	+ 7 10.1	2.467	3.227	12.8	22.1
425286	2009 <i>WA</i> ₂₀₂		1 4.1 58°02	0°8/ 3.9	18		224814	2006 <i>VW</i> ₂₈		1 4.2 87°16	0°8/ 4.1	18	
12 3	7 21.81	+21 57.9	1.908	2.747	13.0	20.0	12 3	7 28.89	+23 56.3	1.298	2.148	17.2	20.3
12 13	7 16.00	+22 54.6	1.840	2.753	9.4	19.7	12 13	7 21.69	+24 8.0	1.246	2.164	12.4	20.1
12 23	7 7.92	+23 56.4	1.798	2.760	5.3	19.5	12 23	7 11.30	+24 21.2	1.217	2.180	7.0	19.8
1 2	6 58.37	+24 58.5	1.784	2.766	1.2	19.2	1 2	6 59.01	+24 31.6	1.214	2.196	1.4	19.5
1 12	6 48.49	+25 56.3	1.800	2.772	3.7	19.4	1 12	6 46.65	+24 36.1	1.238	2.212	4.6	19.8
1 22	6 39.48	+26 46.4	1.844	2.779	7.8	19.7	1 22	6 35.95	+24 34.0	1.288	2.227	9.9	20.1
2 1	6 32.37	+27 27.3	1.916	2.786	11.5	19.9	2 1	6 28.24	+24 26.9	1.362	2.242	14.6	20.4
2 11	6 27.87	+27 59.4	2.010	2.792	14.6	20.2	2 11	6 24.19	+24 16.7	1.457	2.257	18.3	20.7
126486	2002 <i>CS</i> ₅₃		1 4.1 226°84	1°5/ 4.5	18		13918	<i>Tsukinada</i>		1 4.2 145°41	2°2/ 3.8	18	
12 3	7 24.18	+18 8.5	1.867	2.698	13.6	20.3	12 3	7 26.67	+29 39.2	2.258	3.085	11.7	17.7
12 13	7 17.80	+18 13.3	1.782	2.689	10.0	20.0	12 13	7 19.13	+29 48.3	2.191	3.096	8.5	17.5
12 23	7 9.00	+18 24.5	1.721	2.680	5.9	19.8	12 23	7 9.52	+29 53.2	2.150	3.106	5.1	17.3
1 2	6 58.59	+18 40.3	1.689	2.670	1.9	19.5	1 2	6 58.69	+29 50.7	2.138	3.116	2.3	17.2
1 12	6 47.74	+18 58.7	1.686	2.659	3.8	19.6	1 12	6 47.76	+29 39.4	2.157	3.125	3.9	17.3
1 22	6 37.70	+19 17.7	1.712	2.648	8.2	19.9	1 22	6 37.82	+29 19.4	2.206	3.133	7.2	17.5
2 1	6 29.60	+19 36.4	1.765	2.637	12.2	20.1	2 1	6 29.79	+28 52.8	2.283	3.141	10.4	17.7
2 11	6 24.20	+19 54.2	1.840	2.625	15.6	20.3	2 11	6 24.26	+28 22.3	2.384	3.148	13.1	17.9
231671	1994 <i>AH</i> ₁₀		1 4.1 69°33	2°6/ 3.7	18		105368	2000 <i>QG</i> ₁₂₄		1 4.2 72°19	4°9/ 3.2	18	
12 3	7 23.55	+30 21.6	2.071	2.907	12.2	20.4	12 3	7 28.15	+32 3.9	1.435	2.282	16.0	19.7
12 13	7 17.04	+30 34.9	2.009	2.918	9.0	20.2	12 13	7 21.26	+33 0.9	1.383	2.295	11.9	19.5
12 23	7 8.37	+30 43.5	1.972	2.929	5.4	20.1	12 23	7 11.13	+33 51.7	1.354	2.309	7.7	19.3
1 2	6 58.44	+30 44.4	1.963	2.940	2.7	19.9	1 2	6 59.00	+34 28.6	1.351	2.323	5.0	19.2
1 12	6 48.41	+30 35.5	1.984	2.951	4.3	20.0	1 12	6 46.67	+34 46.4	1.376	2.336	6.7	19.3
1 22	6 39.42	+30 17.2	2.034	2.962	7.6	20.2	1 22	6 35.91	+34 44.7	1.426	2.350	10.6	19.6
2 1	6 32.41	+29 51.5	2.110	2.973	10.9	20.5	2 1	6 28.12	+34 27.0	1.501	2.364	14.5	19.9
2 11	6 27.96	+29 21.1	2.209	2.984	13.7	20.7	2 11	6 24.02	+33 58.9	1.595	2.378	17.8	20.1
200131	1997 <i>UC</i> ₆		1 4.1 201°04	4°0/ 3.3	18		306294	2011 <i>SA</i> ₃₇		1 4.2 137°77	0°6/ 4.3	18	
12 3	7 27.69	+31 2.1	1.691	2.530	14.4	21.2	12 3	7 25.95	+19 59.8	1.927	2.756	13.3	21.8
12 13	7 20.75	+31 50.6	1.618	2.528	10.7	20.9	12 13	7 18.81	+20 18.0	1.862	2.770	9.6	21.6
12 23	7 10.82	+32 35.3	1.570	2.525	6.8	20.7	12 23	7 9.43	+20 40.7	1.823	2.783	5.5	21.4
1 2	6 58.92	+33 9.7	1.550	2.523	4.1	20.5	1 2	6 58.69	+21 5.2	1.813	2.795	1.2	21.1
1 12	6 46.57	+33 28.8	1.557	2.520	5.9	20.6	1 12	6 47.76	+21 28.9	1.832	2.806	3.5	21.3
1 22	6 35.37	+33 31.3	1.593	2.516	9.8	20.9	1 22	6 37.84	+21 49.9	1.882	2.817	7.6	21.6
2 1	6 26.69	+33 19.4	1.653	2.512	13.6	21.1	2 1	6 29.92	+22 7.7	1.958	2.827	11.4	21.8
2 11	6 21.38	+32 57.6	1.735	2.508	16.9	21.3	2 11	6 24.64	+22 22.3	2.058	2.836	14.4	22.0
238784	2005 <i>JK</i> ₁₅₁		1 4.1 235°97	0°6/ 4.4	18		246115	2007 <i>HC</i> ₇		1 4.2 252°04	3°4/ 3.5	18	
12 3	7 19.58	+18 27.1	2.649	3.473	10.2	20.8	12 3	7 27.42	+29 13.1	1.576	2.420	15.0	21.0
12 13	7 13.94	+19 4.4	2.559	3.463	7.5	20.6	12 13	7 20.81	+29 51.3	1.496	2.409	11.1	20.8
12 23	7 6.60	+19 47.5	2.495	3.453	4.3	20.4	12 23	7 11.02	+30 27.5	1.438	2.397	6.8	20.5
1 2	6 58.15	+20 34.1	2.461	3.443	1.0	20.1	1 2	6 59.03	+30 55.5	1.408	2.385	3.4	20.3
1 12	6 49.36	+21 21.6	2.459	3.433	2.7	20.2	1 12	6 46.41	+31 10.1	1.405	2.372	5.6	20.4
1 22	6 41.06	+22 7.5	2.488	3.422	6.1	20.4	1 22	6 34.90	+31 9.8	1.430	2.359	10.1	20.6
2 1	6 34.02	+22 50.1	2.546	3.411	9.2	20.6	2 1	6 25.98	+30 56.7	1.479	2.346	14.4	20.8
2 11	6 28.86	+23 28.5	2.628	3.400	11.8	20.8	2 11	6 20.61	+30 34.7	1.549	2.333	18.1	21.0
165738	2001 <i>QT</i> ₁₅₄		1 4.2 114°14	4°1/ 5.3	18		318711	2005 <i>QA</i> ₁₄₃		1 4.2 163°68	0°6/ 4.3	18	
12 3	7 18.71	+ 9 14.8	2.446										

EPHEMERIDES

1 4.2

1 4.2

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
144198	2004 <i>BN</i> ₁₄₇		1 4.2 158°97	2°1/ 4.8 18			315482	2007 <i>YL</i> ₆₃		1 4.2 56°15	0°1/ 4.2 18		
12 3	7 22.70	+15 14.4	1.887	2.715	13.6	20.6	12 3	7 23.81	+20 15.1	1.469	2.317	15.7	20.4
12 13	7 16.60	+15 35.2	1.814	2.718	10.1	20.4	12 13	7 17.78	+20 52.2	1.418	2.334	11.3	20.2
12 23	7 8.26	+16 5.7	1.766	2.721	6.1	20.2	12 23	7 9.04	+21 36.0	1.389	2.351	6.4	20.0
1 2	6 58.50	+16 43.8	1.745	2.724	2.5	20.0	1 2	6 58.67	+22 22.0	1.386	2.369	1.2	19.7
1 12	6 48.44	+17 26.6	1.754	2.726	3.9	20.1	1 12	6 48.14	+23 5.5	1.412	2.386	4.1	19.9
1 22	6 39.21	+18 11.1	1.792	2.729	7.9	20.3	1 22	6 38.89	+23 43.3	1.464	2.404	8.9	20.2
2 1	6 31.85	+18 54.7	1.857	2.730	11.6	20.5	2 1	6 32.09	+24 14.3	1.542	2.422	13.1	20.5
2 11	6 27.05	+19 35.8	1.945	2.732	14.8	20.8	2 11	6 28.42	+24 38.5	1.641	2.441	16.6	20.8
25367	Cicek		1 4.2 15°64	0°6/ 4.0 18			459822	2013 <i>SQ</i> ₅₂		1 4.2 156°57	0°7/ 4.1 18		
12 3	7 23.08	+22 32.7	1.438	2.290	15.7	18.2	12 3	7 23.78	+25 46.0	2.400	3.228	11.0	21.0
12 13	7 17.51	+23 2.3	1.373	2.292	11.4	18.0	12 13	7 16.95	+25 36.9	2.326	3.233	8.0	20.8
12 23	7 9.03	+23 36.5	1.330	2.294	6.5	17.7	12 23	7 8.29	+25 26.1	2.278	3.238	4.5	20.6
1 2	6 58.66	+24 11.0	1.314	2.296	1.3	17.4	1 2	6 58.52	+25 11.9	2.260	3.242	1.0	20.4
1 12	6 47.92	+24 41.5	1.324	2.299	4.3	17.6	1 12	6 48.64	+24 53.6	2.274	3.246	3.0	20.5
1 22	6 38.37	+25 5.2	1.362	2.302	9.4	17.9	1 22	6 39.59	+24 31.4	2.317	3.250	6.6	20.8
2 1	6 31.34	+25 21.8	1.424	2.305	13.9	18.2	2 1	6 32.20	+24 6.6	2.389	3.253	9.7	21.0
2 11	6 27.61	+25 32.1	1.506	2.309	17.7	18.4	2 11	6 27.02	+23 40.8	2.485	3.256	12.4	21.2
220910	2005 <i>EK</i> ₁₃₁		1 4.2 266°40	3°1/ 2.9 18			401786	2014 <i>FS</i> ₄₆		1 4.2 204°54	2°3/ 4.7 18		
12 3	7 18.54	+34 29.0	3.325	4.147	8.4	20.5	12 3	7 25.09	+15 36.1	1.883	2.707	13.8	21.9
12 13	7 13.06	+35 5.9	3.237	4.135	6.4	20.3	12 13	7 18.43	+15 45.6	1.800	2.702	10.2	21.7
12 23	7 6.07	+35 38.6	3.177	4.122	4.3	20.2	12 23	7 9.38	+16 3.8	1.742	2.697	6.3	21.4
1 2	6 58.10	+36 4.2	3.146	4.109	3.2	20.1	1 2	6 58.76	+16 29.4	1.712	2.691	2.6	21.2
1 12	6 49.87	+36 20.5	3.146	4.097	4.0	20.1	1 12	6 47.71	+16 59.9	1.712	2.684	4.1	21.3
1 22	6 42.11	+36 26.9	3.176	4.084	6.0	20.2	1 22	6 37.48	+17 32.9	1.742	2.676	8.2	21.5
2 1	6 35.52	+36 23.7	3.234	4.071	8.2	20.4	2 1	6 29.15	+18 6.4	1.798	2.668	12.1	21.7
2 11	6 30.64	+36 12.8	3.315	4.058	10.2	20.5	2 11	6 23.50	+18 39.0	1.877	2.658	15.5	21.9
150175	1998 <i>ED</i> ₁₁		1 4.2 328°06	8°9/ 2.4 18			315569	2008 <i>CE</i> ₄₈		1 4.2 5°64	1°6/ 4.2 18		
12 3	7 27.67	+43 5.2	1.630	2.457	15.4	19.4	12 3	7 24.81	+21 42.6	1.470	2.318	15.7	19.8
12 13	7 21.34	+44 7.3	1.560	2.446	12.6	19.2	12 13	7 18.55	+20 53.4	1.402	2.318	11.5	19.6
12 23	7 11.43	+44 54.7	1.512	2.436	10.1	19.0	12 23	7 9.51	+20 4.6	1.357	2.319	6.7	19.3
1 2	6 59.11	+45 18.0	1.488	2.426	8.9	18.9	1 2	6 58.77	+19 16.5	1.338	2.320	2.0	19.0
1 12	6 46.27	+45 11.5	1.490	2.417	9.9	18.9	1 12	6 47.82	+18 30.5	1.347	2.321	4.5	19.2
1 22	6 34.89	+44 35.6	1.517	2.408	12.5	19.1	1 22	6 38.16	+17 48.2	1.384	2.323	9.4	19.5
2 1	6 26.61	+43 36.0	1.567	2.400	15.5	19.2	2 1	6 31.00	+17 11.6	1.445	2.326	13.8	19.7
2 11	6 22.31	+42 21.0	1.635	2.393	18.4	19.4	2 11	6 27.02	+16 41.5	1.526	2.329	17.5	20.0
147751	2005 <i>OR</i> ₉		1 4.2 170°11	0°0/ 4.1 18			274659	2008 <i>TV</i> ₁₅₇		1 4.2 57°96	4°1/ 5.8 18		
12 3	7 23.20	+21 20.1	2.078	2.910	12.3	20.6	12 3	7 19.68	+ 8 44.6	2.000	2.812	13.5	20.2
12 13	7 16.86	+21 48.6	2.003	2.913	9.0	20.4	12 13	7 14.24	+ 9 8.2	1.933	2.822	10.4	20.0
12 23	7 8.38	+22 21.0	1.955	2.915	5.1	20.2	12 23	7 6.87	+ 9 46.4	1.889	2.832	7.0	19.9
1 2	6 58.53	+22 54.3	1.935	2.917	0.9	19.9	1 2	6 58.29	+10 38.2	1.874	2.841	4.4	19.7
1 12	6 48.39	+23 25.6	1.945	2.919	3.3	20.1	1 12	6 49.49	+11 40.5	1.887	2.851	4.8	19.8
1 22	6 39.06	+23 52.7	1.985	2.920	7.3	20.3	1 22	6 41.47	+12 49.4	1.930	2.861	7.8	20.0
2 1	6 31.51	+24 14.8	2.052	2.920	10.9	20.6	2 1	6 35.09	+14 0.8	2.000	2.871	11.0	20.2
2 11	6 26.42	+24 32.3	2.143	2.921	13.9	20.8	2 11	6 30.97	+15 11.0	2.093	2.882	13.9	20.4
444062	2004 <i>RQ</i> ₁₆₇		1 4.2 97°06	2°9/ 5.0 18			263203	2008 <i>AP</i> ₃		1 4.2 27°89	4°9/ 4.6 18		
12 3	7 25.88	+13 30.8	1.612	2.439	15.6	21.4	12 3	7 34.40	+37 39.7	1.483	2.315	16.4	19.1
12 13	7 18.94	+13 51.9	1.559	2.461	11.5	21.2	12 13	7 25.55	+37 3.1	1.418	2.320	12.5	18.8
12 23	7 9.56	+14 25.3	1.529	2.483	7.1	21.0	12 23	7 13.39	+36 8.9	1.376	2.325	8.3	18.6
1 2	6 58.73	+15 8.4	1.527	2.504	3.3	20.8	1 2	6 59.44	+34 53.2	1.361	2.332	5.1	18.4
1 12	6 47.81	+15 57.7	1.554	2.525	4.5	21.0	1 12	6 45.67	+33 16.9	1.375	2.338	6.3	18.5
1 22	6 38.08	+16 49.1	1.609	2.545	8.6	21.3	1 22	6 33.92	+31 26.7	1.417	2.345	10.3	18.8
2 1	6 30.61	+17 39.6	1.691	2.565	12.5	21.5	2 1	6 25.44	+29 31.7	1.485	2.353	14.3	19.0
2 11	6 26.03	+18 27.0	1.794	2.584	15.8	21.8	2 11	6 20.79	+27 39.9	1.574	2.361	17.8	19.3
51767	2001 <i>LH</i> ₁₅		1 4.2 144°46	1°2/ 4.4 18			298350	2003 <i>JY</i> ₁₄		1 4.2 197°65	1°2/ 4.4 18		
12 3	7 20.84	+19 31.3	2.416	3.243	11.0	19.1	12 3	7 25.49	+19 8.1	1.958	2.787	13.1	22.6
12 13	7 14.80	+19 17.7	2.341	3.247	8.0	18.9	12 13	7 18.62	+19 10.9	1.878	2.784	9.7	22.3
12 23	7 7.06	+19 7.0	2.293	3.251	4.7	18.7	12 23	7 9.45	+19 18.5	1.822	2.780	5.6	22.1
1 2	6 58.29	+18 58.5	2.274	3.255	1.5	18.4	1 2	6 58.78	+19 29.1	1.794	2.776	1.6	21.8
1 12	6 49.37	+18 51.6	2.286	3.259	3.0	18.6	1 12	6 47.76	+19 40.8	1.797	2.771	3.6	21.9
1 22	6 41.18	+18 45.8	2.328	3.262	6.4	18.8	1 22	6 37.59	+19 52.4	1.830	2.765	7.8	22.2
2 1	6 34.48	+18 41.1	2.398	3.266	9.6	19.0	2 1	6 29.33	+20 3.1	1.890	2.758	11.7	22.4
2 11	6 29.80	+18 37.5	2.492	3.269	12.2	19.2	2 11	6 23.69	+20 13.0	1.972	2.751	14.9	22.6
350695	2001 <i>VP</i> ₁₂₆		1 4.2 78°80	3°0/ 3.5 18			27906	1996 <i>TZ</i> ₇		1 4.2 136°28	1°1/ 3.9 18		
12 3	7 27.32	+27 6.7	1.416	2.265	16.1	21.0	12 3	7 20.97	+25 27.8	2.393	3.227	10.9	19.5
12 13	7 20.60	+28 4.4	1.363	2.280	11.7	20.8	12 13	7 15.04	+25 46.8	2.320	3.230	7.9	19.3
12 23	7 10.76	+29 1.8	1.334	2.294	6.9	20.5	12 23	7 7.27	+26 5.7	2.274	3.234	4.5	19.1
1 2	6 58.98	+29 51.7	1.330	2.309	3.1	20.4	1 2	6 58.37	+26 22.0	2.256	3.238	1.3	18.9
1 12	6 46.97	+30 28.3	1.355	2.323	5.5	20.5	1 12	6 49.28	+26 33.5	2.269	3.241	3.2	19.1
1 22	6 36.42	+30 49.6	1.406	2.338	10.0	20.8	1 22	6 40.92	+26 39.5	2.312	3.244	6.6	19.3
2 1	6 28.69	+30 57.2	1.482	2.352	14.2	21.1	2 1	6 34.13	+26 40.1	2.382	3.247	9.7	19.5
2 11	6 24.52	+30 54.4	1.577	2.366	17.6	21.4	2 11	6 29.48	+26 36.4	2.476	3.250	12.4	19.7
448766	2011 <i>RG</i> ₈		1 4.2 37°38	0°6/ 4.2 17			174961	2004 <i>DJ</i> ₄		1 4.2 234°46	1°8/ 3.4 18		
12 3	7 25.79	+22 57.4	1.100	1.964	18.6								

EPHEMERIDES

1 4.2

1 4.2

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
27701	1983 QR		1 4.2	69°65	0°1/ 4.2	18	79937	1999 CD ₇₃		1 4.2	61°55	2°8/ 4.1	18
12 3	7 28.02	+22 28.7	1.208	2.063	17.9	19.0	12 3	7 29.11	+31 22.3	1.619	2.459	14.9	17.9
12 13	7 21.20	+22 37.3	1.160	2.080	13.0	18.8	12 13	7 21.40	+31 5.0	1.563	2.474	10.9	17.7
12 23	7 11.10	+22 49.5	1.134	2.097	7.3	18.5	12 23	7 10.98	+30 39.7	1.531	2.489	6.6	17.5
1 2	6 59.08	+23 1.3	1.132	2.115	1.3	18.2	1 2	6 59.06	+30 3.3	1.527	2.505	3.0	17.3
1 12	6 46.99	+23 9.5	1.157	2.132	4.7	18.5	1 12	6 47.23	+29 15.6	1.551	2.520	4.8	17.5
1 22	6 36.64	+23 12.9	1.208	2.149	10.2	18.8	1 22	6 36.96	+28 19.5	1.603	2.536	8.9	17.7
2 1	6 29.35	+23 12.4	1.282	2.167	14.9	19.2	2 1	6 29.35	+27 19.2	1.681	2.552	12.8	18.0
2 11	6 25.80	+23 9.3	1.376	2.184	18.8	19.5	2 11	6 24.97	+26 19.2	1.782	2.568	16.0	18.3
403005	2007 VP ₂₈₃		1 4.2	139°09	1°1/ 3.9	18	194593	2001 XL ₁₁₈		1 4.2	41°68	2°9/ 3.6	17
12 3	7 26.04	+24 31.5	2.010	2.842	12.7	21.7	12 3	7 26.19	+25 39.8	1.062	1.929	18.9	18.5
12 13	7 18.92	+24 59.1	1.945	2.854	9.2	21.5	12 13	7 20.20	+26 41.7	1.028	1.953	13.6	18.3
12 23	7 9.54	+25 27.5	1.905	2.866	5.2	21.3	12 23	7 10.64	+27 44.4	1.014	1.979	7.9	18.1
1 2	6 58.80	+25 53.0	1.895	2.877	1.4	21.1	1 2	6 59.02	+28 39.2	1.024	2.005	3.1	17.9
1 12	6 47.86	+26 12.7	1.915	2.887	3.6	21.3	1 12	6 47.42	+29 19.5	1.060	2.031	5.9	18.1
1 22	6 37.92	+26 25.4	1.965	2.897	7.6	21.5	1 22	6 37.80	+29 43.2	1.120	2.059	11.1	18.5
2 1	6 29.96	+26 31.4	2.041	2.906	11.1	21.8	2 1	6 31.54	+29 52.2	1.202	2.087	15.7	18.9
2 11	6 24.63	+26 32.3	2.141	2.914	14.1	22.0	2 11	6 29.26	+29 50.3	1.302	2.115	19.4	19.2
382089	2011 FU ₁₄₂		1 4.2	178°68	4°3/ 5.4	18	262737	2006 XE ₄₅		1 4.2	171°25	1°1/ 3.9	18
12 3	7 19.15	+8 58.1	2.296	3.103	12.2	21.3	12 3	7 23.99	+24 38.3	2.222	3.053	11.7	21.8
12 13	7 13.70	+8 48.6	2.218	3.103	9.4	21.1	12 13	7 17.38	+25 11.4	2.148	3.057	8.5	21.6
12 23	7 6.52	+8 50.4	2.166	3.103	6.6	20.9	12 23	7 8.69	+25 45.7	2.099	3.059	4.8	21.4
1 2	6 58.26	+9 3.9	2.141	3.104	4.5	20.8	1 2	6 58.68	+26 17.6	2.080	3.062	1.4	21.1
1 12	6 49.77	+9 28.2	2.146	3.104	4.9	20.8	1 12	6 48.39	+26 44.1	2.092	3.063	3.4	21.3
1 22	6 41.92	+10 1.5	2.179	3.103	7.5	21.0	1 22	6 38.88	+27 3.7	2.134	3.065	7.1	21.5
2 1	6 35.50	+10 41.1	2.240	3.103	10.3	21.2	2 1	6 31.11	+27 16.3	2.203	3.065	10.5	21.7
2 11	6 31.07	+11 24.4	2.325	3.103	13.0	21.4	2 11	6 25.73	+27 23.0	2.295	3.065	13.4	21.9
28998	2184 P-L		1 4.2	286°76	7°3/ 5.2	18	182304	2001 OV ₇		1 4.2	168°29	0°8/ 4.4	18
12 3	7 20.85	+5 32.4	1.771	2.577	15.2	18.6	12 3	7 19.63	+19 19.5	3.108	3.926	9.0	21.0
12 13	7 15.51	+4 42.2	1.681	2.559	12.3	18.4	12 13	7 13.67	+19 22.3	3.029	3.931	6.6	20.9
12 23	7 7.83	+4 6.6	1.614	2.540	9.4	18.2	12 23	7 6.36	+19 27.8	2.978	3.935	3.8	20.7
1 2	6 58.53	+3 49.3	1.573	2.521	7.4	18.0	1 2	6 58.24	+19 35.1	2.958	3.939	1.1	20.5
1 12	6 48.72	+3 51.8	1.558	2.503	8.0	18.0	1 12	6 49.98	+19 43.0	2.969	3.942	2.4	20.6
1 22	6 39.58	+4 13.2	1.570	2.484	10.6	18.1	1 22	6 42.24	+19 50.9	3.012	3.945	5.2	20.8
2 1	6 32.24	+4 50.5	1.607	2.465	14.0	18.3	2 1	6 35.64	+19 58.4	3.084	3.947	7.8	21.0
2 11	6 27.50	+5 39.2	1.664	2.446	17.1	18.5	2 11	6 30.65	+20 5.1	3.182	3.948	10.1	21.1
321569	2009 SA ₃₅₉		1 4.2	75°85	2°5/ 4.7	18	51838	2001 OC ₆₁		1 4.2	103°12	0°3/ 4.1	18
12 3	7 21.72	+16 4.6	1.872	2.704	13.5	20.6	12 3	7 16.85	+23 24.1	3.607	4.431	7.8	20.5
12 13	7 15.82	+15 53.3	1.806	2.712	10.0	20.4	12 13	7 11.51	+23 35.8	3.544	4.450	5.6	20.3
12 23	7 7.80	+15 49.3	1.765	2.720	6.1	20.2	12 23	7 5.08	+23 48.0	3.510	4.469	3.1	20.2
1 2	6 58.49	+15 52.0	1.750	2.728	2.7	20.0	1 2	6 58.00	+23 59.4	3.505	4.488	0.6	20.0
1 12	6 49.01	+16 0.2	1.765	2.736	4.1	20.1	1 12	6 50.87	+24 9.0	3.533	4.506	2.1	20.2
1 22	6 40.46	+16 12.6	1.809	2.744	7.8	20.3	1 22	6 44.23	+24 16.3	3.592	4.524	4.5	20.3
2 1	6 33.77	+16 27.8	1.878	2.753	11.5	20.6	2 1	6 38.58	+24 21.0	3.680	4.542	6.7	20.5
2 11	6 29.56	+16 44.6	1.971	2.761	14.6	20.8	2 11	6 34.30	+24 23.4	3.794	4.560	8.6	20.7
29905	Kunitaka		1 4.2	274°49	9°4/ 5.5	18	176815	2002 TF ₇₅		1 4.2	80°17	1°2/ 3.9	18
12 3	7 20.20	-1 36.1	1.994	2.764	15.1	17.7	12 3	7 24.76	+23 44.5	1.656	2.499	14.4	20.4
12 13	7 14.80	-2 42.7	1.907	2.748	12.9	17.6	12 13	7 18.36	+24 26.5	1.599	2.513	10.4	20.2
12 23	7 7.32	-3 31.5	1.842	2.731	10.8	17.4	12 23	7 9.39	+25 11.1	1.565	2.527	5.9	20.0
1 2	6 58.44	-3 57.8	1.801	2.714	9.5	17.3	1 2	6 58.82	+25 53.5	1.559	2.541	1.5	19.7
1 12	6 49.11	-3 59.1	1.787	2.697	9.8	17.3	1 12	6 48.04	+26 29.4	1.582	2.555	4.1	19.9
1 22	6 40.39	-3 36.0	1.798	2.679	11.5	17.3	1 22	6 38.43	+26 56.6	1.633	2.569	8.6	20.2
2 1	6 33.24	-2 51.8	1.834	2.662	13.9	17.4	2 1	6 31.11	+27 14.8	1.710	2.582	12.5	20.5
2 11	6 28.39	-1 51.9	1.890	2.644	16.4	17.6	2 11	6 26.78	+27 25.6	1.808	2.596	15.8	20.7
418367	2008 GB ₁₂₇		1 4.2	247°13	4°5/ 2.4	16	361260	2006 SG ₃₄₂		1 4.2	198°70	0°9/ 4.4	18
12 3	7 25.70	+31 50.7	2.031	2.863	12.6	21.3	12 3	7 24.06	+19 57.8	2.133	2.961	12.2	21.9
12 13	7 19.22	+33 14.7	1.948	2.853	9.5	21.0	12 13	7 17.45	+19 55.6	2.052	2.958	9.0	21.7
12 23	7 10.05	+34 37.2	1.892	2.842	6.3	20.8	12 23	7 8.75	+19 56.9	1.996	2.955	5.2	21.5
1 2	6 58.96	+35 50.9	1.864	2.831	4.5	20.7	1 2	6 58.71	+20 0.1	1.969	2.951	1.4	21.2
1 12	6 47.20	+36 49.6	1.866	2.819	6.1	20.8	1 12	6 48.38	+20 3.8	1.972	2.946	3.3	21.3
1 22	6 36.16	+37 30.1	1.897	2.807	9.3	21.0	1 22	6 38.84	+20 7.3	2.006	2.941	7.3	21.6
2 1	6 27.15	+37 52.6	1.954	2.795	12.6	21.1	2 1	6 31.03	+20 10.1	2.067	2.935	10.9	21.8
2 11	6 21.08	+38 0.5	2.032	2.783	15.5	21.3	2 11	6 25.62	+20 12.5	2.151	2.928	13.9	22.0
170291	2003 RL ₁₆		1 4.2	123°87	4°0/ 5.0	18	370866	2005 EB ₃₇		1 4.2	268°74	5°4/ 5.7	16
12 3	7 24.21	+12 14.6	1.805	2.625	14.4	20.9	12 3	7 19.29	+2 29.5	3.024	3.791	10.5	22.9
12 13	7 17.62	+11 55.1	1.741	2.637	10.9	20.7	12 13	7 13.64	+2 10.3	2.908	3.757	8.6	22.7
12 23	7 8.81	+11 46.3	1.702	2.649	7.2	20.5	12 23	7 6.49	+2 2.7	2.817	3.723	6.8	22.5
1 2	6 58.68	+11 48.4	1.690	2.661	4.2	20.3	1 2	6 58.31	+2 8.2	2.754	3.689	5.5	22.4
1 12	6 48.40	+12 0.5	1.707	2.671	5.1	20.4	1 12	6 49.73	+2 27.2	2.722	3.653	5.7	22.3
1 22	6 39.11	+12 20.7	1.752	2.682	8.5	20.6	1 22	6 41.44	+2 58.8	2.719	3.617	7.4	22.4
2 1	6 31.80	+12 46.9	1.824	2.692	12.1	20.9	2 1	6 34.13	+3 41.0	2.745	3.580	9.6	22.5
2 11	6 27.08	+13 16.5	1.918	2.702	15.1	21.1	2 11	6 28.36	+4 30.9	2.795	3.542	11.8	22.6
171941	2001 SM ₂₄₁		1 4.2	10°52	5°1/ 5.4	18	43656	2002 ER ₁₀₄		1 4.2	171°25	5°0/ 2.9	18
12 3	7 17.88	+8 15.3	2.038	2.851	13.3	20.1	12 3	7 28.63	+34 23.6	1.872	2.703	13.6	19.4
12 13	7 12.94												

EPHEMERIDES

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
12757	Yangtze		1 4.2 121°67	0°4/ 4.3 18			432436	2010 <i>BF</i> ₈₁		1 4.2 198°26	6°6/ 5.9 18		
12 3	7 21.53	+20 53.2	2.195	3.027	11.8	18.3	12 3	7 17.69	- 0 28.8	2.794	3.553	11.4	21.5
12 13	7 15.52	+21 0.4	2.124	3.034	8.5	18.1	12 13	7 12.43	- 1 11.2	2.715	3.551	9.6	21.4
12 23	7 7.59	+21 10.7	2.080	3.040	4.9	17.9	12 23	7 5.76	- 1 40.0	2.659	3.549	7.8	21.2
1 2	6 58.51	+21 22.3	2.064	3.046	1.0	17.6	1 2	6 58.23	- 1 53.1	2.631	3.547	6.7	21.2
1 12	6 49.23	+21 33.4	2.078	3.052	3.1	17.8	1 12	6 50.50	- 1 49.7	2.631	3.544	6.9	21.2
1 22	6 40.76	+21 42.9	2.122	3.058	6.8	18.1	1 22	6 43.26	- 1 30.8	2.659	3.541	8.2	21.2
2 1	6 33.94	+21 50.5	2.193	3.064	10.2	18.3	2 1	6 37.16	- 0 58.7	2.714	3.537	10.0	21.4
2 11	6 29.36	+21 56.3	2.288	3.069	13.1	18.5	2 11	6 32.67	- 0 16.7	2.791	3.534	11.9	21.5
152400	2005 <i>UN</i> ₂₉₃		1 4.2 254°64	0°6/ 4.1 18			204891	2007 <i>TY</i> ₃₂₃		1 4.2 15°17	2°0/ 4.6 18		
12 3	7 23.16	+23 53.5	2.071	2.907	12.3	21.3	12 3	7 20.06	+17 34.4	2.105	2.937	12.2	20.2
12 13	7 17.01	+24 3.6	1.983	2.893	8.9	21.1	12 13	7 14.52	+17 12.0	2.032	2.938	9.0	20.0
12 23	7 8.61	+24 14.8	1.919	2.880	5.1	20.8	12 23	7 7.08	+16 54.3	1.983	2.940	5.5	19.8
1 2	6 58.72	+24 24.6	1.884	2.866	1.1	20.5	1 2	6 58.47	+16 41.2	1.963	2.942	2.3	19.6
1 12	6 48.42	+24 30.7	1.879	2.852	3.5	20.7	1 12	6 49.68	+16 32.3	1.973	2.944	3.7	19.7
1 22	6 38.86	+24 32.3	1.903	2.838	7.6	20.9	1 22	6 41.68	+16 27.2	2.011	2.947	7.2	19.9
2 1	6 31.09	+24 29.4	1.954	2.824	11.3	21.1	2 1	6 35.32	+16 25.4	2.076	2.949	10.6	20.1
2 11	6 25.84	+24 23.3	2.028	2.809	14.5	21.3	2 11	6 31.18	+16 26.3	2.165	2.952	13.5	20.3
65903	1998 <i>DS</i> ₂₅		1 4.2 106°54	0°2/ 4.2 18			461711	2005 <i>SS</i> ₈₃		1 4.2 26°84	3°3/ 3.7 18		
12 3	7 26.57	+22 2.2	1.739	2.575	14.2	19.3	12 3	7 23.82	+29 38.2	1.483	2.335	15.3	20.7
12 13	7 19.46	+22 25.4	1.683	2.594	10.2	19.1	12 13	7 18.05	+30 7.7	1.426	2.343	11.2	20.5
12 23	7 9.92	+22 51.7	1.651	2.612	5.8	18.8	12 23	7 9.37	+30 33.4	1.392	2.351	6.8	20.3
1 2	6 58.94	+23 17.6	1.648	2.630	1.0	18.5	1 2	6 58.90	+30 49.8	1.383	2.361	3.4	20.1
1 12	6 47.83	+23 40.0	1.674	2.647	3.7	18.8	1 12	6 48.24	+30 53.4	1.402	2.370	5.4	20.2
1 22	6 37.91	+23 57.3	1.728	2.664	8.1	19.1	1 22	6 38.93	+30 44.1	1.447	2.381	9.6	20.5
2 1	6 30.23	+24 9.3	1.809	2.680	12.0	19.4	2 1	6 32.24	+30 24.1	1.517	2.392	13.6	20.8
2 11	6 25.42	+24 17.1	1.913	2.696	15.2	19.6	2 11	6 28.87	+29 57.3	1.607	2.404	17.0	21.0
243231	2007 <i>VX</i> ₉₂		1 4.2 208°55	0°3/ 4.2 18			284579	2007 <i>TT</i> ₁₀₂		1 4.2 349°69	3°0/ 4.9 18		
12 3	7 21.29	+22 34.6	2.470	3.299	10.7	20.4	12 3	7 18.14	+14 25.9	1.904	2.738	13.2	20.1
12 13	7 15.21	+22 21.4	2.389	3.297	7.8	20.2	12 13	7 13.37	+14 14.9	1.828	2.733	9.9	19.8
12 23	7 7.38	+22 8.8	2.335	3.295	4.4	20.0	12 23	7 6.54	+14 12.7	1.775	2.728	6.3	19.6
1 2	6 58.49	+21 55.7	2.310	3.293	0.9	19.7	1 2	6 58.39	+14 19.1	1.749	2.724	3.3	19.4
1 12	6 49.41	+21 41.6	2.316	3.290	2.8	19.9	1 12	6 49.95	+14 33.3	1.752	2.721	4.3	19.5
1 22	6 41.04	+21 26.3	2.353	3.288	6.3	20.1	1 22	6 42.28	+14 53.3	1.782	2.718	7.9	19.7
2 1	6 34.16	+21 10.4	2.417	3.285	9.5	20.3	2 1	6 36.30	+15 17.5	1.838	2.716	11.5	19.9
2 11	6 29.32	+20 54.6	2.506	3.282	12.2	20.5	2 11	6 32.69	+15 43.9	1.917	2.715	14.6	20.1
35135	1992 <i>RO</i> ₁		1 4.2 125°10	3°6/ 5.4 18			502916	2015 <i>EC</i> ₁₉		1 4.2 213°29	4°4/ 3.0 17		
12 3	7 24.96	+10 38.9	1.985	2.794	13.7	19.4	12 3	7 24.12	+38 33.7	2.884	3.696	9.8	21.9
12 13	7 18.01	+10 56.3	1.923	2.813	10.4	19.2	12 13	7 17.31	+39 1.9	2.804	3.690	7.6	21.7
12 23	7 9.01	+11 26.2	1.886	2.831	6.8	19.0	12 23	7 8.63	+39 22.1	2.750	3.684	5.5	21.6
1 2	6 58.78	+12 7.2	1.877	2.848	3.9	18.9	1 2	6 58.76	+39 30.7	2.725	3.678	4.4	21.5
1 12	6 48.41	+12 56.5	1.899	2.865	4.6	19.0	1 12	6 48.68	+39 25.3	2.731	3.671	5.2	21.5
1 22	6 38.95	+13 50.7	1.950	2.880	7.8	19.2	1 22	6 39.33	+39 6.2	2.765	3.664	7.2	21.7
2 1	6 31.32	+14 46.4	2.030	2.895	11.1	19.4	2 1	6 31.57	+38 35.3	2.827	3.657	9.5	21.8
2 11	6 26.11	+15 41.1	2.132	2.910	14.0	19.7	2 11	6 25.99	+37 55.7	2.913	3.649	11.6	21.9
128502	2004 <i>PD</i> ₁₈		1 4.2 87°94	0°1/ 4.2 18			217779	2000 <i>SS</i> ₁₈		1 4.2 50°68	0°5/ 4.3 18		
12 3	7 27.91	+21 43.1	1.515	2.357	15.6	20.3	12 3	7 23.72	+22 21.1	1.777	2.617	13.7	20.0
12 13	7 20.60	+21 53.6	1.466	2.379	11.3	20.1	12 13	7 17.44	+22 3.0	1.710	2.623	10.0	19.8
12 23	7 10.61	+22 7.5	1.440	2.401	6.4	19.9	12 23	7 8.83	+21 46.3	1.667	2.628	5.7	19.6
1 2	6 59.09	+22 21.6	1.441	2.423	1.2	19.6	1 2	6 58.81	+21 29.5	1.651	2.634	1.2	19.3
1 12	6 47.55	+22 33.1	1.471	2.445	4.0	19.8	1 12	6 48.62	+21 12.1	1.665	2.639	3.6	19.5
1 22	6 37.44	+22 40.9	1.528	2.466	8.8	20.2	1 22	6 39.50	+20 54.1	1.707	2.645	8.0	19.7
2 1	6 29.88	+22 45.2	1.611	2.487	12.9	20.5	2 1	6 32.48	+20 36.5	1.775	2.651	11.9	20.0
2 11	6 25.49	+22 47.0	1.716	2.507	16.3	20.7	2 11	6 28.18	+20 20.0	1.865	2.657	15.2	20.2
310134	2011 <i>HD</i> ₃₂		1 4.2 106°59	1°6/ 4.8 18			55690	2696 <i>T</i> ₋₂		1 4.2 343°83	7°8/ 2.2 18		
12 3	7 19.75	+15 49.6	2.579	3.398	10.6	21.1	12 3	7 24.31	+41 38.3	1.843	2.670	13.9	18.5
12 13	7 13.96	+16 9.6	2.514	3.414	7.8	20.9	12 13	7 18.57	+42 43.1	1.773	2.662	11.2	18.3
12 23	7 6.62	+16 36.0	2.475	3.430	4.7	20.7	12 23	7 9.80	+43 36.0	1.727	2.654	8.8	18.1
1 2	6 58.36	+17 7.2	2.466	3.445	1.8	20.6	1 2	6 59.02	+44 9.3	1.707	2.647	7.8	18.0
1 12	6 49.98	+17 41.2	2.488	3.460	2.9	20.7	1 12	6 47.77	+44 17.8	1.713	2.641	8.8	18.1
1 22	6 42.24	+18 16.0	2.541	3.475	6.0	20.9	1 22	6 37.70	+44 1.4	1.744	2.635	11.2	18.2
2 1	6 35.86	+18 50.1	2.622	3.489	8.9	21.1	2 1	6 30.17	+43 23.7	1.799	2.630	14.0	18.4
2 11	6 31.32	+19 22.4	2.728	3.504	11.3	21.3	2 11	6 26.05	+42 31.0	1.874	2.626	16.6	18.5
192273	2299 <i>T</i> ₋₂		1 4.2 111°34	1°3/ 3.9 18			177378	2004 <i>BX</i> ₅₇		1 4.2 237°80	4°3/ 5.4 18		
12 3	7 27.61	+25 20.8	1.792	2.628	13.8	21.0	12 3	7 21.57	+10 10.9	1.895	2.712	14.0	20.2
12 13	7 20.20	+25 42.3	1.736	2.646	10.0	20.8	12 13	7 15.89	+10 11.0	1.813	2.705	10.8	19.9
12 23	7 10.34	+26 3.4	1.704	2.665	5.7	20.5	12 23	7 8.02	+10 24.3	1.755	2.699	7.3	19.7
1 2	6 59.05	+26 20.4	1.701	2.682	1.6	20.3	1 2	6 58.69	+10 50.8	1.724	2.692	4.5	19.5
1 12	6 47.66	+26 30.4	1.727	2.699	3.9	20.5	1 12	6 48.97	+11 29.1	1.721	2.685	5.2	19.6
1 22	6 37.49	+26 32.9	1.783	2.716	8.1	20.8	1 22	6 39.98	+12 16.0	1.747	2.678	8.5	19.7
2 1	6 29.60	+26 28.9	1.864	2.732	11.9	21.1	2 1	6 32.74	+13 8.3	1.800	2.670	12.1	19.9
2 11	6 24.60	+26 20.4	1.968	2.747	15.0	21.3	2 11	6 27.97	+14 2.6	1.875	2.663	15.3	20.1
94852	2001 <i>XJ</i> ₂₀₉		1 4.2 16°56	3°3/ 4.7 18			105143	2000 <i>NJ</i> ₁₂		1 4.2 111°65	2°5/ 4.7 18		
12 3	7 22.52	+16 12.2	1.218	2.073	17.8								

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
253012	2002 <i>RD</i> ₁₁₄		1 4.2 66°08	0°1/ 4.3 18			317637	2003 <i>EZ</i> ₁		1 4.2 299°40	4°1/ 3.3 18		
12 3	7 17.81	+21 31.1	2.904	3.732	9.3	20.3	12 3	7 24.60	+31 47.9	1.739	2.581	13.9	20.5
12 13	7 12.44	+21 46.8	2.846	3.754	6.7	20.1	12 13	7 18.64	+32 29.4	1.660	2.570	10.4	20.2
12 23	7 5.72	+22 4.5	2.816	3.776	3.8	20.0	12 23	7 9.83	+33 6.8	1.604	2.559	6.7	20.0
1 2	6 58.23	+22 22.6	2.815	3.798	0.7	19.8	1 2	6 59.07	+33 34.0	1.575	2.548	4.2	19.8
1 12	6 50.68	+22 39.6	2.846	3.820	2.4	19.9	1 12	6 47.80	+33 46.5	1.575	2.537	5.8	19.9
1 22	6 43.75	+22 54.5	2.907	3.841	5.3	20.2	1 22	6 37.53	+33 43.1	1.601	2.526	9.6	20.1
2 1	6 38.04	+23 7.0	2.996	3.863	7.9	20.4	2 1	6 29.61	+33 25.9	1.652	2.515	13.4	20.3
2 11	6 33.98	+23 16.9	3.111	3.885	10.1	20.6	2 11	6 24.89	+32 58.7	1.725	2.505	16.7	20.5
19238	1994 <i>AV</i> ₁		1 4.2 326°48	1°8/ 4.1 18			336702	2010 <i>CN</i> ₃₉		1 4.2 173°88	1°5/ 4.7 18		
12 3	7 23.82	+27 8.0	1.266	2.127	16.8	17.5	12 3	7 19.47	+16 46.2	2.655	3.475	10.3	21.3
12 13	7 18.69	+27 1.8	1.188	2.110	12.4	17.2	12 13	7 13.83	+16 54.8	2.576	3.477	7.6	21.1
12 23	7 10.10	+26 52.6	1.130	2.095	7.3	16.9	12 23	7 6.62	+17 8.7	2.523	3.479	4.6	20.9
1 2	6 59.12	+26 36.4	1.098	2.079	2.2	16.5	1 2	6 58.44	+17 26.9	2.501	3.480	1.7	20.7
1 12	6 47.51	+26 10.8	1.091	2.065	5.1	16.7	1 12	6 50.06	+17 47.9	2.509	3.481	2.9	20.8
1 22	6 37.19	+25 36.5	1.109	2.052	10.7	17.0	1 22	6 42.26	+18 10.2	2.547	3.481	6.0	21.0
2 1	6 29.78	+24 56.8	1.150	2.040	15.9	17.2	2 1	6 35.74	+18 32.7	2.614	3.481	8.9	21.2
2 11	6 26.24	+24 15.6	1.210	2.028	20.3	17.5	2 11	6 31.03	+18 54.6	2.706	3.481	11.4	21.4
80762	2000 <i>CG</i> ₅₄		1 4.2 166°45	0°1/ 4.2 18 R			12029	1997 <i>AQ</i> ₂₂		1 4.2 272°85	1°4/ 4.6 18		
12 3	7 24.56	+22 44.7	2.325	3.151	11.4	19.6	12 3	7 21.17	+17 14.3	2.045	2.875	12.6	18.1
12 13	7 17.66	+22 50.4	2.251	3.157	8.3	19.4	12 13	7 15.63	+17 36.9	1.953	2.860	9.3	17.9
12 23	7 8.83	+22 57.4	2.202	3.162	4.7	19.2	12 23	7 7.92	+18 7.5	1.886	2.844	5.5	17.6
1 2	6 58.82	+23 3.6	2.183	3.166	0.9	18.9	1 2	6 58.72	+18 44.1	1.848	2.828	1.8	17.3
1 12	6 48.62	+23 7.3	2.196	3.169	3.0	19.1	1 12	6 49.03	+19 23.9	1.839	2.812	3.5	17.4
1 22	6 39.22	+23 8.0	2.239	3.172	6.7	19.4	1 22	6 39.96	+20 4.2	1.859	2.796	7.6	17.6
2 1	6 31.49	+23 5.8	2.310	3.174	10.0	19.6	2 1	6 32.53	+20 42.9	1.907	2.780	11.4	17.8
2 11	6 26.01	+23 1.5	2.405	3.176	12.8	19.8	2 11	6 27.51	+21 18.8	1.977	2.764	14.6	18.0
304837	2007 <i>RK</i> ₃₂		1 4.2 138°75	6°2/ 2.9 18			39787	1997 <i>MM</i> ₃		1 4.2 69°88	0°5/ 3.9 18		
12 3	7 32.75	+39 37.6	2.063	2.875	13.2	20.9	12 3	7 32.06	+12 54.9	0.984	1.831	21.6	17.6
12 13	7 24.09	+40 32.3	2.006	2.890	10.3	20.8	12 13	7 25.25	+15 50.7	0.929	1.845	15.8	17.3
12 23	7 12.66	+41 15.3	1.974	2.904	7.6	20.6	12 23	7 14.14	+19 18.5	0.896	1.858	9.0	17.0
1 2	6 59.53	+41 39.9	1.970	2.918	6.3	20.6	1 2	6 59.93	+23 0.9	0.889	1.872	1.6	16.6
1 12	6 46.24	+41 42.4	1.995	2.930	7.2	20.7	1 12	6 44.84	+26 34.3	0.912	1.886	5.9	16.9
1 22	6 34.29	+41 23.6	2.049	2.942	9.6	20.8	1 22	6 31.38	+29 39.5	0.962	1.900	12.7	17.4
2 1	6 24.89	+40 47.7	2.128	2.953	12.3	21.0	2 1	6 21.64	+32 8.0	1.036	1.914	18.3	17.7
2 11	6 18.72	+40 0.6	2.229	2.963	14.7	21.2	2 11	6 16.76	+34 1.4	1.129	1.927	22.6	18.1
416863	2005 <i>NK</i> ₆₈		1 4.2 120°29	0°7/ 4.1 18			322279	2011 <i>FE</i> ₉		1 4.2 152°04	0°2/ 4.3 18		
12 3	7 25.53	+24 23.6	2.231	3.059	11.8	22.6	12 3	7 21.08	+21 11.2	2.578	3.404	10.4	21.6
12 13	7 18.31	+24 34.2	2.171	3.078	8.5	22.4	12 13	7 15.03	+21 28.7	2.504	3.411	7.5	21.4
12 23	7 9.15	+24 44.9	2.137	3.097	4.8	22.2	12 23	7 7.31	+21 49.0	2.458	3.417	4.3	21.2
1 2	6 58.88	+24 53.0	2.133	3.115	1.1	22.0	1 2	6 58.57	+22 10.0	2.441	3.423	0.8	20.9
1 12	6 48.53	+24 56.8	2.160	3.133	3.2	22.2	1 12	6 49.65	+22 29.9	2.455	3.429	2.7	21.1
1 22	6 39.14	+24 55.9	2.217	3.149	6.8	22.4	1 22	6 41.38	+22 47.3	2.500	3.434	6.1	21.3
2 1	6 31.56	+24 51.0	2.302	3.166	10.1	22.7	2 1	6 34.52	+23 1.8	2.573	3.439	9.1	21.5
2 11	6 26.33	+24 43.1	2.410	3.181	12.8	22.9	2 11	6 29.61	+23 13.3	2.671	3.443	11.6	21.7
158895	2004 <i>PD</i> ₈₅		1 4.2 113°64	1°0/ 4.5 18			445120	2008 <i>UL</i> ₂₂₅		1 4.2 88°34	2°1/ 3.9 15		
12 3	7 27.00	+18 56.1	1.761	2.591	14.3	20.8	12 3	7 30.11	+27 7.0	1.523	2.364	15.6	21.6
12 13	7 19.72	+19 11.5	1.704	2.612	10.4	20.6	12 13	7 22.26	+27 29.3	1.476	2.389	11.3	21.4
12 23	7 10.09	+19 32.7	1.672	2.631	6.0	20.4	12 23	7 11.60	+27 49.3	1.453	2.414	6.5	21.2
1 2	6 59.05	+19 57.0	1.668	2.650	1.5	20.1	1 2	6 59.35	+28 2.1	1.457	2.438	2.3	21.0
1 12	6 47.92	+20 21.5	1.694	2.668	3.7	20.3	1 12	6 47.14	+28 4.8	1.490	2.461	4.6	21.2
1 22	6 37.94	+20 44.4	1.749	2.686	8.0	20.6	1 22	6 36.50	+27 57.5	1.551	2.485	9.1	21.5
2 1	6 30.13	+21 4.6	1.831	2.702	11.9	20.9	2 1	6 28.59	+27 42.5	1.637	2.507	13.1	21.8
2 11	6 25.14	+21 22.1	1.935	2.719	15.0	21.1	2 11	6 24.02	+27 23.0	1.745	2.530	16.4	22.1
411660	2011 <i>WE</i> ₂₁		1 4.2 291°90	2°6/ 4.6 18			82468	2001 <i>OF</i> ₂₀		1 4.2 79°71	11°3/ 8.5 18		
12 3	7 23.60	+17 17.6	1.594	2.433	15.1	21.3	12 3	7 18.53	-13 58.8	2.391	3.077	15.0	19.5
12 13	7 17.69	+16 52.8	1.518	2.428	11.2	21.0	12 13	7 13.20	-15 4.9	2.337	3.089	13.6	19.4
12 23	7 9.16	+16 34.3	1.465	2.422	6.9	20.8	12 23	7 6.27	-15 47.2	2.302	3.102	12.3	19.3
1 2	6 58.92	+16 22.1	1.438	2.417	2.9	20.5	1 2	6 58.38	-16 1.7	2.289	3.114	11.5	19.3
1 12	6 48.31	+16 15.7	1.440	2.412	4.6	20.6	1 12	6 50.35	-15 47.3	2.300	3.127	11.4	19.3
1 22	6 38.70	+16 14.2	1.469	2.407	9.1	20.9	1 22	6 42.99	-15 5.9	2.334	3.140	12.0	19.3
2 1	6 31.30	+16 17.2	1.523	2.402	13.4	21.1	2 1	6 37.02	-14 1.7	2.390	3.152	13.1	19.4
2 11	6 26.87	+16 23.6	1.598	2.397	17.0	21.3	2 11	6 32.95	-12 40.8	2.467	3.164	14.3	19.6
52085	2002 <i>RC</i> ₁₀₂		1 4.2 77°98	1°9/ 3.8 18			144302	2004 <i>DV</i> ₄		1 4.2 228°28	1°8/ 3.8 18		
12 3	7 27.30	+26 14.3	1.684	2.524	14.4	19.0	12 3	7 24.94	+26 56.5	2.029	2.864	12.5	20.7
12 13	7 20.05	+26 47.7	1.638	2.550	10.4	18.8	12 13	7 18.41	+27 21.5	1.946	2.856	9.1	20.4
12 23	7 10.28	+27 20.1	1.616	2.577	6.0	18.6	12 23	7 9.50	+27 45.9	1.887	2.847	5.4	20.2
1 2	6 59.09	+27 46.9	1.623	2.603	2.1	18.4	1 2	6 59.01	+28 5.7	1.858	2.838	2.0	19.9
1 12	6 47.89	+28 4.6	1.658	2.629	4.3	18.6	1 12	6 48.10	+28 17.9	1.858	2.828	4.0	20.1
1 22	6 38.05	+28 12.6	1.722	2.654	8.4	18.9	1 22	6 38.03	+28 21.3	1.887	2.818	7.9	20.3
2 1	6 30.60	+28 12.0	1.811	2.680	12.1	19.2	2 1	6 29.88	+28 16.7	1.943	2.808	11.6	20.5
2 11	6 26.14	+28 5.4	1.923	2.704	15.2	19.4	2 11	6 24.42	+28 6.2	2.022	2.797	14.8	20.7
250169	2002 <i>TJ</i> ₁₀₂		1 4.2 84°69	1°9/ 4.6 16			235630	2004 <i>RX</i> ₃₈		1 4.2 135°99	0°0/ 4.2 18		
12 3	7 26.37	+17 37.4	1.783	2.612</									

EPHEMERIDES

1 4.2

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
148129	1999 <i>TK</i> ₁₉₂		1 4.2 101°13	2°5/ 3.9	17		143277	2003 <i>AG</i> ₁₉		1 4.2 43°89	2°8/ 4.9	17	
12 3	7 30.27	+28 28.6	1.386	2.233	16.5	20.2	12 3	7 23.98	+14 53.4	1.287	2.134	17.5	18.9
12 13	7 22.80	+28 38.1	1.329	2.244	12.1	20.0	12 13	7 17.94	+15 9.7	1.251	2.164	12.9	18.7
12 23	7 12.10	+28 43.4	1.295	2.255	7.1	19.8	12 23	7 9.19	+15 38.8	1.236	2.194	7.8	18.5
1 2	6 59.47	+28 39.7	1.286	2.266	2.7	19.5	1 2	6 58.95	+16 17.7	1.246	2.225	3.2	18.3
1 12	6 46.71	+28 24.4	1.306	2.277	5.1	19.7	1 12	6 48.78	+17 2.0	1.283	2.257	4.7	18.5
1 22	6 35.60	+27 58.4	1.352	2.288	10.0	20.0	1 22	6 40.12	+17 47.7	1.347	2.289	9.3	18.9
2 1	6 27.47	+27 25.3	1.423	2.298	14.4	20.3	2 1	6 34.07	+18 31.7	1.435	2.321	13.5	19.2
2 11	6 23.02	+26 49.2	1.514	2.308	18.0	20.6	2 11	6 31.19	+19 11.9	1.543	2.353	17.0	19.5
426887	2013 <i>WA</i> ₅₁		1 4.2 349°98	5°1/ 2.9	18		227521	2005 <i>YE</i> ₄₂		1 4.2 143°15	0°8/ 4.1	18	
12 3	7 23.80	+36 51.0	2.135	2.963	12.2	20.4	12 3	7 23.79	+25 24.7	2.014	2.851	12.5	20.2
12 13	7 17.62	+37 33.0	2.064	2.962	9.4	20.3	12 13	7 17.41	+25 21.3	1.941	2.852	9.1	20.0
12 23	7 9.03	+38 6.9	2.019	2.960	6.7	20.1	12 23	7 8.83	+25 17.0	1.892	2.853	5.2	19.8
1 2	6 58.91	+38 27.4	2.000	2.959	5.1	20.0	1 2	6 58.91	+25 9.4	1.872	2.854	1.2	19.5
1 12	6 48.50	+38 31.2	2.011	2.958	6.2	20.1	1 12	6 48.78	+24 57.3	1.882	2.856	3.5	19.7
1 22	6 39.07	+38 18.2	2.049	2.957	8.8	20.2	1 22	6 39.59	+24 40.6	1.921	2.857	7.5	19.9
2 1	6 31.68	+37 50.8	2.113	2.957	11.7	20.4	2 1	6 32.31	+24 20.6	1.987	2.858	11.1	20.2
2 11	6 27.06	+37 13.2	2.199	2.956	14.2	20.6	2 11	6 27.58	+23 58.9	2.076	2.859	14.2	20.4
452292	2015 <i>TS</i> ₂₂₃		1 4.2 46°58	5°0/ 3.4	17		451439	2011 <i>SZ</i> ₉₀		1 4.2 118°32	3°2/ 4.9	15	
12 3	7 28.19	+31 29.7	1.195	2.052	17.9	20.4	12 3	7 25.89	+13 40.3	1.868	2.687	14.1	21.8
12 13	7 21.60	+32 23.2	1.157	2.075	13.2	20.2	12 13	7 18.78	+13 29.7	1.809	2.706	10.5	21.6
12 23	7 11.49	+33 9.7	1.140	2.098	8.3	20.0	12 23	7 9.54	+13 28.5	1.775	2.725	6.7	21.4
1 2	6 59.35	+33 40.7	1.148	2.121	5.1	19.9	1 2	6 59.04	+13 36.1	1.769	2.743	3.5	21.3
1 12	6 47.23	+33 51.5	1.181	2.145	7.0	20.0	1 12	6 48.45	+13 51.1	1.793	2.761	4.5	21.4
1 22	6 37.07	+33 42.7	1.240	2.170	11.2	20.3	1 22	6 38.90	+14 11.6	1.846	2.777	8.0	21.6
2 1	6 30.23	+33 18.7	1.321	2.195	15.3	20.7	2 1	6 31.33	+14 35.8	1.926	2.793	11.6	21.9
2 11	6 27.34	+32 45.5	1.421	2.220	18.8	21.0	2 11	6 26.33	+15 1.9	2.028	2.809	14.5	22.1
495017	2010 <i>RK</i> ₁₂₁		1 4.2 347°40	8°4/ 4.9	18		414962	2011 <i>CD</i> ₇		1 4.2 9°07	3°2/ 4.0	18	
12 3	7 20.60	+ 6 55.8	1.395	2.222	17.5	20.0	12 3	7 24.13	+31 3.1	1.412	2.266	15.8	20.1
12 13	7 15.70	+ 5 35.6	1.326	2.215	14.1	19.7	12 13	7 18.42	+30 57.7	1.351	2.268	11.7	19.8
12 23	7 8.11	+ 4 30.9	1.278	2.210	10.7	19.5	12 23	7 9.67	+30 44.9	1.311	2.271	7.1	19.6
1 2	6 58.77	+ 3 47.2	1.254	2.205	8.5	19.4	1 2	6 59.08	+30 20.9	1.297	2.275	3.4	19.4
1 12	6 49.05	+ 3 27.4	1.255	2.202	9.2	19.4	1 12	6 48.33	+29 44.2	1.310	2.280	5.3	19.5
1 22	6 40.36	+ 3 31.1	1.281	2.199	12.1	19.6	1 22	6 39.05	+28 56.9	1.349	2.287	9.8	19.8
2 1	6 33.92	+ 3 55.1	1.329	2.196	15.7	19.8	2 1	6 32.52	+28 3.2	1.412	2.294	14.0	20.1
2 11	6 30.53	+ 4 33.7	1.396	2.195	19.0	20.0	2 11	6 29.43	+27 7.5	1.496	2.302	17.6	20.3
421411	2013 <i>WF</i> ₁		1 4.2 54°70	0°0/ 4.3	18		407277	2010 <i>FB</i> ₈₆		1 4.2 249°68	0°9/ 4.4	18	
12 3	7 20.84	+20 45.6	2.007	2.845	12.5	20.6	12 3	7 24.95	+19 28.7	1.732	2.568	14.2	21.7
12 13	7 15.19	+21 16.3	1.947	2.859	9.0	20.4	12 13	7 18.75	+19 42.2	1.643	2.554	10.5	21.5
12 23	7 7.53	+21 51.3	1.912	2.873	5.1	20.2	12 23	7 9.88	+20 2.1	1.579	2.539	6.1	21.2
1 2	6 58.64	+22 27.7	1.905	2.888	0.9	20.0	1 2	6 59.16	+20 25.9	1.543	2.524	1.5	20.9
1 12	6 49.58	+23 2.5	1.928	2.902	3.2	20.2	1 12	6 47.85	+20 50.6	1.535	2.509	3.9	21.0
1 22	6 41.40	+23 33.4	1.980	2.917	7.2	20.4	1 22	6 37.36	+21 13.9	1.556	2.493	8.7	21.2
2 1	6 34.99	+23 59.5	2.059	2.932	10.6	20.7	2 1	6 28.93	+21 34.8	1.602	2.477	13.1	21.5
2 11	6 30.95	+24 20.7	2.160	2.947	13.5	20.9	2 11	6 23.46	+21 52.8	1.671	2.461	16.8	21.7
273381	2006 <i>VE</i> ₁₆		1 4.2 351°42	4°5/ 3.4	18		358129	2006 <i>QJ</i> ₅₄		1 4.2 127°43	5°1/ 2.7	18	
12 3	7 26.43	+29 40.1	1.155	2.017	18.0	20.8	12 3	7 28.15	+33 41.8	1.875	2.707	13.5	20.4
12 13	7 20.88	+30 30.5	1.093	2.015	13.4	20.5	12 13	7 20.99	+34 55.1	1.815	2.717	10.2	20.2
12 23	7 11.47	+31 18.4	1.052	2.012	8.3	20.2	12 23	7 11.07	+36 2.8	1.780	2.727	6.9	20.0
1 2	6 59.43	+31 55.3	1.034	2.011	4.6	20.0	1 2	6 59.35	+36 57.3	1.772	2.736	5.1	20.0
1 12	6 46.82	+32 14.2	1.042	2.009	6.9	20.1	1 12	6 47.28	+37 33.6	1.794	2.745	6.5	20.1
1 22	6 35.82	+32 13.7	1.074	2.009	12.0	20.4	1 22	6 36.33	+37 50.2	1.844	2.754	9.5	20.3
2 1	6 28.19	+31 56.8	1.127	2.009	16.8	20.7	2 1	6 27.76	+37 49.3	1.919	2.762	12.7	20.5
2 11	6 24.86	+31 29.1	1.199	2.009	20.9	20.9	2 11	6 22.34	+37 35.5	2.016	2.770	15.5	20.7
429007	2009 <i>BQ</i> ₆₉		1 4.2 192°52	3°5/ 3.8	18		196875	2003 <i>SN</i> ₂₉₈		1 4.2 183°16	4°8/ 5.5	18	
12 3	7 25.82	+35 49.2	2.700	3.516	10.3	21.0	12 3	7 19.81	+ 7 5.0	2.486	3.281	11.7	20.9
12 13	7 18.48	+35 49.5	2.621	3.515	7.8	20.9	12 13	7 14.13	+ 6 43.5	2.407	3.281	9.2	20.7
12 23	7 9.27	+35 41.9	2.569	3.514	5.2	20.7	12 23	7 6.85	+ 6 33.2	2.353	3.281	6.7	20.5
1 2	6 58.96	+35 23.3	2.546	3.512	3.5	20.6	1 2	6 58.56	+ 6 35.0	2.327	3.281	4.9	20.4
1 12	6 48.54	+34 52.8	2.554	3.510	4.4	20.7	1 12	6 50.06	+ 6 48.7	2.330	3.280	5.3	20.5
1 22	6 39.00	+34 11.1	2.593	3.508	6.9	20.8	1 22	6 42.15	+ 7 12.9	2.363	3.279	7.4	20.6
2 1	6 31.16	+33 21.1	2.660	3.505	9.5	21.0	2 1	6 35.55	+ 7 45.4	2.424	3.278	10.0	20.7
2 11	6 25.56	+32 26.0	2.751	3.503	11.8	21.1	2 11	6 30.82	+ 8 23.4	2.508	3.276	12.4	20.9
439058	2011 <i>HR</i> ₂₉		1 4.2 190°36	2°2/ 3.7	18		76221	2000 <i>EH</i> ₆₉		1 4.2 309°51	4°9/ 5.4	18	
12 3	7 28.19	+26 6.5	1.617	2.458	14.8	21.7	12 3	7 18.97	+ 8 33.8	2.111	2.921	13.0	19.4
12 13	7 21.24	+26 50.7	1.545	2.457	10.9	21.5	12 13	7 13.82	+ 8 11.6	2.031	2.916	10.2	19.2
12 23	7 11.31	+27 36.1	1.496	2.456	6.4	21.2	12 23	7 6.79	+ 8 1.4	1.975	2.911	7.2	19.0
1 2	6 59.38	+28 16.8	1.474	2.455	2.4	21.0	1 2	6 58.57	+ 8 4.3	1.946	2.906	5.1	18.9
1 12	6 46.98	+28 47.8	1.482	2.452	4.8	21.1	1 12	6 50.06	+ 8 20.0	1.946	2.902	5.6	18.9
1 22	6 35.68	+29 6.7	1.518	2.450	9.4	21.4	1 22	6 42.21	+ 8 46.8	1.974	2.897	8.2	19.1
2 1	6 26.88	+29 14.3	1.579	2.446	13.6	21.6	2 1	6 35.88	+ 9 22.1	2.028	2.893	11.2	19.2
2 11	6 21.42	+29 13.3	1.661	2.442	17.2	21.8	2 11	6 31.69	+10 3.0	2.105	2.888	14.0	19.4
229780	2008 <i>OJ</i> ₂₁		1 4.2 7°66	0°8/ 4.1	18		247932	2003 <i>WB</i> ₁₅₉		1 4.2 109°10	3°1/ 3.3	18	
12 3	7 22.02	+24 15.5</											

EPHEMERIDES

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
428167	2006 <i>SM</i> ₃₇₃		1 4.2 192°86	0°2/ 4.3 17			517159	2013 <i>LP</i> ₂₉		1 4.2 125°92	4°2/ 6.0 18		
12 3	7 19.59	+21 17.3	2.692	3.520	10.0	22.1	12 3	7 32.18	+ 6 38.0	1.216	2.032	20.2	21.1
12 13	7 13.98	+21 32.2	2.612	3.518	7.2	21.9	12 13	7 24.57	+ 8 16.6	1.152	2.045	15.5	20.8
12 23	7 6.77	+21 49.8	2.557	3.517	4.1	21.7	12 23	7 13.43	+10 26.7	1.110	2.058	10.0	20.5
1 2	6 58.56	+22 8.2	2.533	3.516	0.8	21.5	1 2	6 59.87	+13 1.6	1.095	2.070	4.9	20.3
1 12	6 50.13	+22 25.8	2.540	3.514	2.6	21.6	1 12	6 45.71	+15 48.5	1.110	2.081	5.7	20.4
1 22	6 42.27	+22 41.3	2.577	3.512	5.9	21.8	1 22	6 32.91	+18 32.9	1.153	2.092	10.9	20.7
2 1	6 35.71	+22 54.3	2.643	3.509	8.8	22.0	2 1	6 23.12	+21 3.7	1.223	2.101	16.0	21.0
2 11	6 31.00	+23 4.7	2.732	3.507	11.3	22.2	2 11	6 17.32	+23 15.3	1.314	2.110	20.2	21.3
318934	2005 <i>UT</i> ₁₁₁		1 4.2 107°73	0°1/ 4.2 18			65581	4275 <i>T</i> ₋₂		1 4.2 138°55	3°4/ 5.1 18		
12 3	7 23.97	+22 36.2	2.031	2.864	12.5	21.5	12 3	7 25.60	+12 56.5	1.762	2.583	14.7	20.3
12 13	7 17.42	+22 43.2	1.968	2.878	9.1	21.3	12 13	7 18.82	+12 59.3	1.697	2.594	11.0	20.1
12 23	7 8.79	+22 52.0	1.930	2.891	5.1	21.1	12 23	7 9.69	+13 13.4	1.655	2.605	7.0	19.9
1 2	6 58.93	+23 0.3	1.921	2.904	0.9	20.8	1 2	6 59.13	+13 37.8	1.641	2.616	3.7	19.7
1 12	6 48.94	+23 6.3	1.942	2.917	3.3	21.0	1 12	6 48.34	+14 10.3	1.657	2.625	4.7	19.8
1 22	6 39.91	+23 9.0	1.993	2.929	7.2	21.3	1 22	6 38.55	+14 48.0	1.701	2.634	8.5	20.0
2 1	6 32.75	+23 8.9	2.071	2.941	10.7	21.5	2 1	6 30.80	+15 28.2	1.771	2.642	12.2	20.3
2 11	6 28.06	+23 6.5	2.171	2.953	13.7	21.7	2 11	6 25.78	+16 8.6	1.864	2.650	15.4	20.5
340972	2007 <i>EM</i> ₁₃₀		1 4.2 45°45	2°7/ 4.7 17			456259	2006 <i>QT</i> ₁₄₈		1 4.2 38°33	2°6/ 4.9 16		
12 3	7 24.61	+16 31.6	1.138	1.994	18.7	20.4	12 3	7 23.38	+15 19.1	1.187	2.040	18.3	20.9
12 13	7 18.92	+16 30.0	1.090	2.008	13.8	20.2	12 13	7 17.72	+15 38.5	1.151	2.068	13.4	20.7
12 23	7 10.02	+16 40.3	1.062	2.023	8.3	19.9	12 23	7 9.17	+16 11.1	1.137	2.096	8.0	20.4
1 2	6 59.18	+17 0.4	1.058	2.038	3.2	19.7	1 2	6 59.01	+16 53.6	1.146	2.126	3.1	20.2
1 12	6 48.19	+17 27.1	1.080	2.054	5.2	19.9	1 12	6 48.92	+17 41.2	1.182	2.157	4.8	20.4
1 22	6 38.80	+17 56.9	1.126	2.070	10.5	20.2	1 22	6 40.42	+18 29.3	1.244	2.188	9.7	20.8
2 1	6 32.33	+18 27.3	1.195	2.087	15.3	20.5	2 1	6 34.66	+19 14.6	1.329	2.219	14.1	21.2
2 11	6 29.51	+18 56.3	1.284	2.104	19.2	20.8	2 11	6 32.23	+19 55.2	1.434	2.251	17.7	21.5
462504	2008 <i>WU</i> ₃₂		1 4.2 88°80	5°4/ 2.5 18			223678	2004 <i>PH</i> ₈₂		1 4.2 118°95	2°1/ 3.8 18		
12 3	7 26.82	+37 15.5	2.276	3.097	11.8	21.4	12 3	7 24.56	+28 3.9	2.085	2.919	12.2	21.2
12 13	7 19.62	+38 26.3	2.228	3.119	9.1	21.2	12 13	7 17.94	+28 28.7	2.020	2.929	8.9	21.0
12 23	7 10.11	+39 28.5	2.205	3.141	6.6	21.1	12 23	7 9.15	+28 51.3	1.980	2.938	5.3	20.8
1 2	6 59.18	+40 16.3	2.211	3.163	5.4	21.1	1 2	6 59.03	+29 8.1	1.969	2.948	2.2	20.6
1 12	6 48.07	+40 45.9	2.247	3.184	6.3	21.2	1 12	6 48.73	+29 16.6	1.988	2.957	4.0	20.7
1 22	6 37.99	+40 56.8	2.311	3.206	8.6	21.3	1 22	6 39.39	+29 16.0	2.036	2.965	7.5	20.9
2 1	6 29.96	+40 51.4	2.400	3.226	11.1	21.5	2 1	6 31.97	+29 7.6	2.111	2.974	10.9	21.2
2 11	6 24.64	+40 33.9	2.512	3.247	13.2	21.7	2 11	6 27.11	+28 53.5	2.209	2.982	13.7	21.4
204607	2005 <i>JA</i> ₂₉		1 4.2 40°31	2°2/ 4.9 18			298979	2004 <i>WL</i> ₁		1 4.2 17°55	1°1/ 4.1 18		
12 3	7 19.13	+14 40.1	2.227	3.052	11.9	20.1	12 3	7 22.08	+23 55.7	1.072	1.943	18.4	20.3
12 13	7 13.86	+14 54.7	2.152	3.054	8.8	19.9	12 13	7 17.47	+24 15.5	1.022	1.949	13.4	20.1
12 23	7 6.78	+15 17.7	2.103	3.057	5.5	19.7	12 23	7 9.38	+24 38.6	0.991	1.957	7.6	19.8
1 2	6 58.57	+15 47.9	2.082	3.059	2.5	19.5	1 2	6 59.10	+24 59.9	0.983	1.966	1.7	19.4
1 12	6 50.12	+16 23.2	2.091	3.062	3.5	19.6	1 12	6 48.55	+25 15.2	1.001	1.976	5.1	19.7
1 22	6 42.34	+17 1.2	2.129	3.065	6.8	19.8	1 22	6 39.66	+25 22.6	1.042	1.988	10.8	20.1
2 1	6 36.05	+17 39.9	2.195	3.068	10.1	20.0	2 1	6 33.88	+25 22.8	1.104	2.000	15.9	20.4
2 11	6 31.84	+18 17.5	2.284	3.071	12.9	20.2	2 11	6 31.99	+25 17.6	1.186	2.014	20.0	20.7
134971	2001 <i>EE</i> ₂₁		1 4.2 242°24	8°5/ 6.1 18			522509	2016 <i>ER</i> ₂₃₃		1 4.2 244°64	4°3/ 3.0 18		
12 3	7 21.43	+ 1 6.8	1.785	2.573	15.9	20.2	12 3	7 23.95	+34 13.6	2.226	3.056	11.7	21.2
12 13	7 15.88	+ 0 23.6	1.708	2.568	13.2	20.0	12 13	7 17.68	+34 59.4	2.151	3.052	8.9	21.0
12 23	7 8.10	- 0 0.1	1.653	2.562	10.5	19.8	12 23	7 9.11	+35 39.7	2.101	3.048	6.0	20.8
1 2	6 58.84	- 0 0.7	1.623	2.556	8.7	19.7	1 2	6 59.04	+36 9.4	2.079	3.044	4.3	20.7
1 12	6 49.20	+ 0 22.6	1.619	2.551	8.9	19.7	1 12	6 48.62	+36 24.9	2.086	3.040	5.5	20.8
1 22	6 40.33	+ 1 7.5	1.642	2.545	11.0	19.8	1 22	6 39.04	+36 25.5	2.122	3.035	8.3	20.9
2 1	6 33.26	+ 2 9.5	1.688	2.538	13.8	20.0	2 1	6 31.36	+36 12.7	2.185	3.031	11.2	21.1
2 11	6 31.84	+ 3 22.4	1.757	2.532	16.6	20.1	2 11	6 26.28	+35 49.9	2.269	3.027	13.9	21.3
427086	2014 <i>UA</i> ₄₄		1 4.2 43°92	6°4/ 2.9 18			331228	2011 <i>BS</i> ₇₈		1 4.2 346°41	1°6/ 4.5 18		
12 3	7 26.67	+36 40.9	1.593	2.432	15.1	20.4	12 3	7 20.56	+18 52.6	1.566	2.414	14.9	20.6
12 13	7 20.21	+37 42.8	1.544	2.447	11.6	20.2	12 13	7 15.61	+18 48.0	1.492	2.408	11.0	20.4
12 23	7 10.69	+38 34.4	1.518	2.462	8.2	20.0	12 23	7 8.08	+18 49.8	1.441	2.402	6.5	20.1
1 2	6 59.30	+39 8.1	1.518	2.477	6.4	20.0	1 2	6 58.87	+18 56.6	1.416	2.397	2.0	19.8
1 12	6 47.74	+39 19.3	1.545	2.493	7.7	20.1	1 12	6 49.28	+19 6.6	1.419	2.393	4.1	19.9
1 22	6 37.66	+39 8.4	1.598	2.509	10.7	20.3	1 22	6 40.66	+19 18.2	1.448	2.390	8.8	20.2
2 1	6 30.36	+38 39.7	1.675	2.525	13.9	20.5	2 1	6 34.19	+19 30.4	1.502	2.387	13.1	20.4
2 11	6 26.54	+37 59.0	1.772	2.542	16.7	20.8	2 11	6 30.66	+19 42.3	1.577	2.385	16.8	20.7
185312	2006 <i>UV</i> ₃₂₅		1 4.2 293°44	1°8/ 4.6 18			168298	3230 <i>T</i> ₋₁		1 4.2 294°18	6°2/ 5.2 18		
12 3	7 22.32	+17 57.0	1.732	2.570	14.1	20.8	12 3	7 21.73	+ 8 54.3	1.565	2.389	16.1	19.9
12 13	7 16.69	+17 51.4	1.653	2.563	10.5	20.6	12 13	7 16.51	+ 8 16.1	1.480	2.373	12.7	19.7
12 23	7 8.62	+17 52.2	1.597	2.555	6.3	20.3	12 23	7 8.67	+ 7 52.2	1.416	2.356	9.1	19.4
1 2	6 58.94	+17 58.4	1.568	2.548	2.2	20.1	1 2	6 59.00	+ 7 45.1	1.378	2.340	6.5	19.2
1 12	6 48.86	+18 8.4	1.568	2.541	4.0	20.2	1 12	6 48.76	+ 7 55.6	1.366	2.324	7.2	19.2
1 22	6 39.66	+18 20.6	1.595	2.534	8.4	20.4	1 22	6 39.31	+ 8 22.1	1.381	2.308	10.6	19.4
2 1	6 32.46	+18 34.1	1.648	2.527	12.5	20.6	2 1	6 31.91	+ 9 1.4	1.419	2.292	14.5	19.6
2 11	6 28.02	+18 48.0	1.723	2.520	16.1	20.9	2 11	6 27.44	+ 9 49.1	1.478	2.277	18.2	19.8
3803	<i>Tuchkova</i>		1 4.2 303°26	3°6/ 4.7 18			416258	2003 <i>ED</i> ₄₈		1 4.2 268°76	3°2/ 3.8 17		
12 3	7 20.69	+13 42.4	2.163	2.98									

EPHEMERIDES

1 4.2

1 4.3

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
85768	1998 TV ₂₉		1 4.2 167°84	3°7/ 4.9 18			25598	1999 YK ₁₆		1 4.3 278°70	3°7/ 5.5 18	R	
12 3	7 26.01	+13 33.5	1.772	2.593	14.6	19.7	12 3	7 19.43	+10 30.7	2.164	2.978	12.6	18.2
12 13	7 19.16	+13 12.5	1.700	2.598	11.0	19.5	12 13	7 14.17	+10 37.0	2.083	2.975	9.6	18.0
12 23	7 9.93	+13 1.1	1.652	2.602	7.1	19.3	12 23	7 7.04	+10 55.0	2.027	2.971	6.4	17.8
1 2	6 59.21	+12 59.3	1.632	2.605	3.9	19.1	1 2	6 58.71	+11 24.3	1.999	2.968	3.9	17.6
1 12	6 48.21	+13 6.3	1.640	2.607	5.0	19.2	1 12	6 50.07	+12 3.3	2.000	2.964	4.5	17.7
1 22	6 38.19	+13 20.6	1.678	2.609	8.7	19.4	1 22	6 42.07	+12 49.4	2.030	2.961	7.5	17.8
2 1	6 30.20	+13 40.6	1.741	2.610	12.5	19.6	2 1	6 35.56	+13 39.5	2.087	2.957	10.7	18.0
2 11	6 24.95	+14 4.1	1.827	2.611	15.8	19.9	2 11	6 31.18	+14 30.9	2.168	2.954	13.5	18.2
78966	2003 SO ₂₇₅		1 4.2 28°68	0°5/ 4.4 18			269223	2008 OU ₂₁		1 4.3 325°50	0°9/ 4.5 18		
12 3	7 21.25	+21 2.5	1.891	2.731	13.0	19.9	12 3	7 21.27	+19 25.0	2.007	2.842	12.6	20.5
12 13	7 15.68	+21 8.0	1.822	2.735	9.5	19.7	12 13	7 15.65	+19 36.3	1.931	2.841	9.2	20.3
12 23	7 7.93	+21 17.1	1.778	2.739	5.4	19.5	12 23	7 7.93	+19 52.6	1.881	2.840	5.3	20.1
1 2	6 58.83	+21 27.9	1.761	2.743	1.1	19.2	1 2	6 58.87	+20 12.1	1.858	2.840	1.4	19.8
1 12	6 49.51	+21 38.3	1.773	2.748	3.4	19.4	1 12	6 49.52	+20 32.7	1.865	2.839	3.3	19.9
1 22	6 41.08	+21 47.1	1.814	2.753	7.6	19.6	1 22	6 40.96	+20 52.5	1.900	2.838	7.4	20.2
2 1	6 34.53	+21 54.0	1.881	2.758	11.3	19.9	2 1	6 34.14	+21 10.6	1.963	2.838	11.0	20.4
2 11	6 30.50	+21 58.9	1.970	2.763	14.5	20.1	2 11	6 29.72	+21 26.6	2.048	2.837	14.1	20.6
109936	2001 SD ₃₉		1 4.3 143°54	6°7/ 2.5 18			253278	2003 BZ ₉		1 4.3 334°90	3°0/ 4.9 18		
12 3	7 29.67	+40 39.9	2.092	2.906	12.9	20.1	12 3	7 20.36	+14 53.9	1.514	2.357	15.6	20.2
12 13	7 22.08	+41 44.8	2.031	2.914	10.3	19.9	12 13	7 15.57	+14 54.5	1.437	2.348	11.7	20.0
12 23	7 11.70	+42 38.4	1.995	2.921	7.9	19.8	12 23	7 8.15	+15 6.5	1.383	2.339	7.3	19.7
1 2	6 59.55	+43 13.7	1.986	2.928	6.7	19.7	1 2	6 58.95	+15 29.1	1.354	2.331	3.4	19.4
1 12	6 47.09	+43 26.5	2.006	2.934	7.7	19.8	1 12	6 49.27	+16 0.2	1.352	2.324	4.8	19.5
1 22	6 35.81	+43 16.9	2.053	2.940	9.9	19.9	1 22	6 40.50	+16 36.7	1.377	2.318	9.3	19.7
2 1	6 26.94	+42 48.4	2.125	2.946	12.5	20.1	2 1	6 33.89	+17 15.7	1.426	2.312	13.7	20.0
2 11	6 21.24	+42 6.7	2.218	2.951	14.8	20.3	2 11	6 30.26	+17 54.5	1.496	2.306	17.4	20.2
418844	2008 WZ ₅₅		1 4.3 215°15	4°3/ 2.9 18			214369	2005 LZ ₅		1 4.3 108°75	1°1/ 3.9 18		
12 3	7 24.01	+34 40.4	2.369	3.195	11.2	21.0	12 3	7 25.32	+22 9.2	1.865	2.700	13.4	20.1
12 13	7 17.64	+35 29.5	2.293	3.192	8.5	20.8	12 13	7 18.74	+23 15.4	1.802	2.713	9.7	19.9
12 23	7 9.07	+36 13.0	2.243	3.189	5.8	20.6	12 23	7 9.75	+24 26.5	1.764	2.725	5.5	19.7
1 2	6 59.06	+36 46.2	2.222	3.185	4.3	20.5	1 2	6 59.23	+25 36.9	1.756	2.737	1.4	19.4
1 12	6 48.71	+37 5.4	2.230	3.181	5.4	20.6	1 12	6 48.38	+26 41.4	1.777	2.749	3.8	19.6
1 22	6 39.14	+37 9.7	2.268	3.177	8.0	20.8	1 22	6 38.48	+27 36.3	1.828	2.761	8.0	19.9
2 1	6 31.36	+37 0.6	2.331	3.173	10.8	20.9	2 1	6 30.62	+28 20.3	1.906	2.773	11.7	20.1
2 11	6 26.07	+36 41.3	2.418	3.168	13.3	21.1	2 11	6 25.50	+28 54.2	2.007	2.784	14.8	20.4
235494	2004 BZ ₉₁		1 4.3 25°21	5°4/ 6.2 18			354503	2004 PN ₁₆		1 4.3 53°56	4°6/ 3.9 17		
12 3	7 18.62	+ 5 35.2	2.045	2.847	13.6	19.9	12 3	7 33.12	+32 5.2	1.170	2.022	18.6	20.0
12 13	7 13.59	+ 5 40.3	1.973	2.850	10.8	19.7	12 13	7 24.92	+32 31.4	1.141	2.057	13.6	19.8
12 23	7 6.69	+ 6 1.7	1.924	2.854	7.8	19.6	12 23	7 13.24	+32 48.0	1.134	2.091	8.4	19.7
1 2	6 58.61	+ 6 39.5	1.902	2.858	5.6	19.4	1 2	6 59.81	+32 48.4	1.152	2.126	4.7	19.5
1 12	6 50.29	+ 7 32.0	1.909	2.863	5.9	19.5	1 12	6 46.80	+32 30.3	1.195	2.162	6.5	19.8
1 22	6 42.66	+ 8 35.7	1.943	2.867	8.2	19.6	1 22	6 36.10	+31 56.6	1.265	2.197	10.9	20.1
2 1	6 36.58	+ 9 46.3	2.005	2.872	11.2	19.8	2 1	6 28.92	+31 13.0	1.357	2.232	15.0	20.4
2 11	6 32.67	+10 59.4	2.090	2.877	13.9	20.0	2 11	6 25.72	+30 25.6	1.470	2.267	18.3	20.8
329404	2002 CS ₂₁		1 4.3 278°92	3°4/ 5.4 18			196719	2003 SM ₁₀₇		1 4.3 167°52	0°6/ 4.4 18		
12 3	7 20.78	+11 15.7	1.954	2.773	13.5	20.8	12 3	7 21.82	+20 41.9	2.437	3.264	10.9	20.3
12 13	7 15.42	+11 38.6	1.866	2.762	10.3	20.5	12 13	7 15.70	+20 42.4	2.361	3.267	8.0	20.1
12 23	7 7.88	+12 15.2	1.803	2.751	6.7	20.3	12 23	7 7.81	+20 45.6	2.310	3.269	4.6	19.9
1 2	6 58.86	+13 4.3	1.767	2.740	3.7	20.1	1 2	6 58.85	+20 49.9	2.290	3.272	1.1	19.6
1 12	6 49.38	+14 3.1	1.760	2.729	4.5	20.1	1 12	6 49.70	+20 54.2	2.300	3.274	2.9	19.8
1 22	6 40.54	+15 7.9	1.783	2.718	8.0	20.3	1 22	6 41.24	+20 57.7	2.340	3.275	6.4	20.0
2 1	6 33.35	+16 14.8	1.832	2.706	11.7	20.5	2 1	6 34.27	+21 0.0	2.409	3.277	9.5	20.2
2 11	6 28.57	+17 20.3	1.905	2.695	15.0	20.7	2 11	6 29.35	+21 1.4	2.501	3.278	12.2	20.4
217032	2001 PJ ₄		1 4.3 77°07	1°5/ 3.9 18	R		414184	2008 CR ₈₁		1 4.3 269°86	5°5/ 6.2 18		
12 3	7 19.01	+28 21.7	3.079	3.906	8.9	19.9	12 3	7 21.39	+ 6 3.9	1.815	2.622	14.9	20.9
12 13	7 13.35	+28 30.8	3.016	3.923	6.4	19.8	12 13	7 15.96	+ 6 16.3	1.731	2.613	11.8	20.7
12 23	7 6.33	+28 37.6	2.981	3.939	3.8	19.6	12 23	7 8.24	+ 6 47.4	1.670	2.604	8.5	20.5
1 2	6 58.53	+28 40.5	2.976	3.955	1.6	19.5	1 2	6 58.97	+ 7 37.4	1.634	2.595	5.9	20.3
1 12	6 50.67	+28 38.3	3.003	3.972	2.8	19.6	1 12	6 49.22	+ 8 44.1	1.628	2.586	6.2	20.3
1 22	6 43.44	+28 30.9	3.059	3.988	5.4	19.8	1 22	6 40.17	+10 3.0	1.649	2.577	9.1	20.5
2 1	6 37.45	+28 18.8	3.144	4.004	7.8	20.0	2 1	6 32.89	+11 28.8	1.697	2.568	12.7	20.6
2 11	6 33.14	+28 3.2	3.254	4.020	9.9	20.1	2 11	6 28.15	+12 56.1	1.767	2.558	15.9	20.8
307629	2003 SE ₈₄		1 4.3 89°15	4°4/ 5.1 18			86881	2000 HD ₂₇		1 4.3 154°71	3°4/ 5.1 18		
12 3	7 26.95	+11 54.6	1.725	2.543	15.1	21.4	12 3	7 25.10	+13 5.8	1.724	2.547	14.9	19.7
12 13	7 19.55	+11 21.9	1.678	2.572	11.4	21.3	12 13	7 18.59	+13 7.0	1.654	2.554	11.2	19.5
12 23	7 9.97	+11 0.4	1.655	2.600	7.5	21.1	12 23	7 9.68	+13 19.7	1.608	2.559	7.1	19.3
1 2	6 59.21	+10 50.7	1.659	2.628	4.6	21.0	1 2	6 59.22	+13 43.0	1.590	2.564	3.7	19.1
1 12	6 48.50	+10 52.3	1.693	2.655	5.5	21.1	1 12	6 48.47	+14 14.8	1.600	2.569	4.8	19.2
1 22	6 39.02	+11 3.5	1.755	2.682	8.7	21.4	1 22	6 38.69	+14 52.1	1.638	2.573	8.6	19.4
2 1	6 31.67	+11 22.0	1.842	2.708	12.1	21.6	2 1	6 30.96	+15 32.3	1.703	2.576	12.5	19.7
2 11	6 27.01	+11 45.4	1.953	2.733	15.0	21.9	2 11	6 26.01	+16 12.9	1.790	2.579	15.9	19.9
47988	2000 YV ₂₅		1 4.3 81°40	1°6/ 3.9 18			424730	2008 SJ ₂₄₁		1 4.3 68°61	2°9/ 5.1 18		
12 3	7 23.02	+25 54.5	1.967	2.806									

EPHEMERIDES

1 4.3

1 4.3

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
296957	2010 <i>EJ</i> ₃₅		1 4.3 222°45	1.7/ 4.6	18		521006	2015 <i>CV</i> ₃₆		1 4.3 114°45	0.3/ 4.2	18	
12 3	7 25.32	+17 42.7	1.714	2.547	14.5	21.5	12 3	7 20.96	+21 11.9	2.243	3.075	11.5	20.5
12 13	7 18.96	+17 46.8	1.632	2.540	10.7	21.3	12 13	7 15.33	+21 54.3	2.167	3.077	8.4	20.3
12 23	7 10.01	+17 58.2	1.575	2.533	6.4	21.0	12 23	7 7.74	+22 41.3	2.118	3.079	4.8	20.1
1 2	6 59.32	+18 15.3	1.545	2.525	2.2	20.7	1 2	6 58.90	+23 29.5	2.098	3.080	0.9	19.8
1 12	6 48.16	+18 35.6	1.544	2.517	4.1	20.8	1 12	6 49.75	+24 15.7	2.108	3.082	3.1	20.0
1 22	6 37.89	+18 57.2	1.571	2.509	8.6	21.1	1 22	6 41.28	+24 57.1	2.148	3.084	6.8	20.2
2 1	6 29.71	+19 18.7	1.625	2.500	12.9	21.3	2 1	6 34.38	+25 32.5	2.216	3.085	10.2	20.4
2 11	6 24.45	+19 39.2	1.700	2.490	16.5	21.5	2 11	6 29.69	+26 1.7	2.307	3.087	13.0	20.6
287292	2002 <i>TB</i> ₁₉₇		1 4.3 68°30	1.3/ 3.9	18		399192	2014 <i>GG</i> ₈		1 4.3 138°10	3°0/ 3.3	18	
12 3	7 18.98	+26 46.1	2.971	3.800	9.1	21.3	12 3	7 29.44	+28 32.7	2.052	2.879	12.7	20.7
12 13	7 13.37	+27 7.1	2.916	3.823	6.6	21.1	12 13	7 21.64	+29 39.4	1.991	2.895	9.3	20.5
12 23	7 6.38	+27 27.1	2.888	3.846	3.8	21.0	12 23	7 11.39	+30 44.5	1.955	2.910	5.7	20.3
1 2	6 58.59	+27 43.8	2.889	3.869	1.4	20.8	1 2	6 59.60	+31 41.9	1.950	2.925	3.1	20.2
1 12	6 50.75	+27 55.8	2.922	3.892	2.7	21.0	1 12	6 47.51	+32 26.9	1.975	2.938	4.7	20.3
1 22	6 43.55	+28 2.4	2.986	3.915	5.4	21.2	1 22	6 36.42	+32 57.5	2.031	2.951	8.2	20.6
2 1	6 37.61	+28 4.0	3.078	3.938	7.9	21.4	2 1	6 27.42	+33 14.5	2.113	2.963	11.5	20.8
2 11	6 33.38	+28 1.3	3.194	3.961	10.0	21.6	2 11	6 21.25	+33 20.7	2.219	2.974	14.2	21.0
427215	2014 <i>WS</i> ₁₀		1 4.3 325°83	2°1/ 4.6	18		357935	2005 <i>XP</i> ₁₁₁		1 4.3 252°50	1°3/ 4.0	18	
12 3	7 21.66	+17 54.1	1.683	2.523	14.4	20.9	12 3	7 26.33	+25 7.4	1.750	2.589	14.0	21.7
12 13	7 16.29	+17 38.8	1.605	2.516	10.6	20.6	12 13	7 19.88	+25 28.1	1.662	2.574	10.3	21.4
12 23	7 8.46	+17 29.7	1.550	2.509	6.4	20.3	12 23	7 10.65	+25 50.0	1.598	2.559	6.0	21.1
1 2	6 59.02	+17 26.1	1.522	2.502	2.5	20.1	1 2	6 59.49	+26 9.0	1.562	2.544	1.6	20.8
1 12	6 49.21	+17 27.0	1.522	2.495	4.2	20.2	1 12	6 47.74	+26 21.6	1.555	2.528	4.2	20.9
1 22	6 40.30	+17 31.4	1.550	2.489	8.6	20.4	1 22	6 36.87	+26 26.2	1.576	2.511	8.8	21.2
2 1	6 33.42	+17 38.3	1.603	2.483	12.7	20.7	2 1	6 28.18	+26 23.5	1.623	2.495	13.1	21.4
2 11	6 29.33	+17 47.0	1.677	2.478	16.3	20.9	2 11	6 22.57	+26 15.5	1.692	2.477	16.8	21.6
217600	2008 <i>JD</i> ₆		1 4.3 234°01	4°9/ 5.2	18		46391	2001 <i>YJ</i> ₉₇		1 4.3 213°79	1°0/ 4.0	18	
12 3	7 21.77	+ 8 33.8	2.305	3.106	12.3	20.8	12 3	7 26.16	+23 17.5	1.690	2.529	14.4	19.5
12 13	7 15.80	+ 8 0.6	2.214	3.093	9.7	20.6	12 13	7 19.71	+23 51.9	1.612	2.525	10.5	19.2
12 23	7 7.98	+ 7 37.5	2.148	3.081	7.0	20.4	12 23	7 10.52	+24 29.9	1.559	2.521	6.0	18.9
1 2	6 58.93	+ 7 26.0	2.109	3.067	5.0	20.3	1 2	6 59.46	+25 7.1	1.534	2.516	1.4	18.6
1 12	6 49.54	+ 7 26.5	2.101	3.053	5.5	20.3	1 12	6 47.92	+25 39.3	1.537	2.510	4.1	18.8
1 22	6 40.72	+ 7 38.2	2.121	3.039	8.0	20.4	1 22	6 37.33	+26 3.9	1.569	2.505	8.8	19.1
2 1	6 33.33	+ 7 59.4	2.169	3.024	11.0	20.6	2 1	6 28.99	+26 20.5	1.626	2.499	13.0	19.3
2 11	6 28.00	+ 8 27.6	2.240	3.009	13.7	20.7	2 11	6 23.74	+26 30.5	1.705	2.492	16.6	19.5
377220	2003 <i>YR</i> ₉₃		1 4.3 345°73	1°1/ 4.1	18		153204	2000 <i>WR</i> ₁₂₉		1 4.3 74°21	2°5/ 3.7	18	
12 3	7 22.50	+26 24.8	2.067	2.905	12.2	20.1	12 3	7 24.19	+28 8.8	1.873	2.713	13.1	20.2
12 13	7 16.53	+26 20.6	1.991	2.903	8.9	19.9	12 13	7 17.96	+28 43.3	1.810	2.721	9.6	20.0
12 23	7 8.42	+26 14.6	1.940	2.901	5.1	19.7	12 23	7 9.33	+29 16.0	1.771	2.730	5.7	19.8
1 2	6 59.00	+26 4.6	1.918	2.899	1.4	19.4	1 2	6 59.21	+29 42.4	1.760	2.738	2.6	19.6
1 12	6 49.36	+25 49.4	1.925	2.898	3.5	19.6	1 12	6 48.85	+29 59.3	1.778	2.746	4.4	19.7
1 22	6 40.61	+25 29.1	1.961	2.896	7.3	19.8	1 22	6 39.53	+30 5.4	1.824	2.755	8.2	20.0
2 1	6 33.68	+25 5.0	2.024	2.895	10.9	20.0	2 1	6 32.30	+30 2.0	1.897	2.763	11.8	20.2
2 11	6 29.23	+24 39.1	2.110	2.894	13.9	20.2	2 11	6 27.85	+29 51.5	1.991	2.772	14.8	20.4
97732	2000 <i>GL</i> ₁₇₁		1 4.3 260°88	0°2/ 4.2	18		168243	2006 <i>KB</i> ₉₀		1 4.3 194°22	1°2/ 3.9	18	
12 3	7 20.80	+22 3.2	2.345	3.177	11.1	19.7	12 3	7 22.29	+26 37.4	2.621	3.449	10.2	20.8
12 13	7 15.21	+22 28.1	2.256	3.166	8.1	19.4	12 13	7 16.04	+26 48.2	2.540	3.447	7.4	20.6
12 23	7 7.69	+22 56.3	2.194	3.154	4.6	19.2	12 23	7 8.05	+26 57.7	2.486	3.445	4.3	20.4
1 2	6 58.89	+23 25.2	2.160	3.142	0.9	18.9	1 2	6 58.96	+27 3.8	2.461	3.442	1.4	20.2
1 12	6 49.72	+23 52.4	2.157	3.131	3.0	19.1	1 12	6 49.66	+27 4.7	2.468	3.439	3.0	20.4
1 22	6 41.14	+24 15.9	2.183	3.119	6.7	19.3	1 22	6 41.03	+27 0.0	2.505	3.436	6.2	20.6
2 1	6 34.05	+24 35.1	2.237	3.106	10.1	19.5	2 1	6 33.85	+26 50.3	2.571	3.432	9.2	20.7
2 11	6 29.11	+24 50.0	2.315	3.094	13.0	19.6	2 11	6 28.70	+26 36.9	2.660	3.429	11.8	20.9
124146	2001 <i>MQ</i> ₁₂		1 4.3 122°95	0°2/ 4.3	18		502592	2015 <i>CS</i> ₇		1 4.3 210°16	3°3/ 3.6	17	
12 3	7 28.89	+21 18.2	1.829	2.658	13.9	20.9	12 3	7 24.01	+34 34.2	2.732	3.552	10.1	21.8
12 13	7 21.12	+21 31.9	1.771	2.678	10.1	20.7	12 13	7 17.31	+34 47.6	2.651	3.548	7.6	21.6
12 23	7 10.99	+21 48.7	1.739	2.698	5.7	20.5	12 23	7 8.77	+34 54.6	2.596	3.543	5.0	21.4
1 2	6 59.48	+22 5.7	1.735	2.718	1.1	20.2	1 2	6 59.10	+34 52.1	2.571	3.538	3.4	21.3
1 12	6 47.88	+22 20.4	1.762	2.736	3.5	20.5	1 12	6 49.23	+34 38.6	2.577	3.533	4.3	21.4
1 22	6 37.45	+22 31.5	1.818	2.753	7.9	20.8	1 22	6 40.12	+34 14.1	2.612	3.528	6.8	21.5
2 1	6 29.22	+22 39.0	1.901	2.770	11.6	21.0	2 1	6 32.59	+33 40.6	2.676	3.523	9.4	21.7
2 11	6 23.80	+22 43.8	2.007	2.785	14.8	21.3	2 11	6 27.22	+33 1.0	2.764	3.517	11.7	21.9
437369	2013 <i>VZ</i> ₆		1 4.3 13°19	3°9/ 4.3	18		296188	2009 <i>BH</i> ₁₆₁		1 4.3 322°33	1°5/ 3.9	18	
12 3	7 21.49	+17 20.1	1.467	2.315	15.7	19.7	12 3	7 23.66	+24 24.8	1.395	2.250	15.9	20.0
12 13	7 16.12	+16 1.5	1.410	2.322	11.7	19.5	12 13	7 18.39	+24 58.5	1.320	2.241	11.7	19.8
12 23	7 8.27	+14 47.8	1.375	2.331	7.4	19.3	12 23	7 9.98	+25 35.7	1.268	2.232	6.8	19.5
1 2	6 58.98	+13 41.9	1.367	2.342	4.1	19.1	1 2	6 59.39	+26 11.3	1.241	2.223	1.9	19.1
1 12	6 49.61	+12 46.5	1.386	2.353	5.5	19.2	1 12	6 48.20	+26 40.4	1.241	2.215	4.8	19.3
1 22	6 41.49	+12 3.5	1.431	2.367	9.5	19.5	1 22	6 38.12	+27 0.0	1.267	2.207	10.0	19.6
2 1	6 35.64	+11 33.0	1.501	2.381	13.4	19.7	2 1	6 30.64	+27 10.2	1.317	2.200	14.8	19.8
2 11	6 32.66	+11 13.6	1.591	2.396	16.8	20.0	2 11	6 26.69	+27 12.7	1.387	2.194	18.8	20.1
518843	2010 <i>CC</i> ₂₄₀		1 4.3 304°97	2°0/ 4.7	18		88851	2001 <i>SW</i> ₂₂₂		1 4.3 61°34	1°0/ 4.0	18	
12 3	7 21.43	+17 3.8	1.971										

EPHEMERIDES

1 4.3

1 4.3

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
4374	Tadamori		1 4.3 339°40	4°0/ 5.1	18	R	204695	2006 ER ₇		1 4.3 161°17	0°2/ 4.3	18	
12 3	7 19.64	+14 16.1	1.048	1.912	19.3	15.8	12 3	7 26.53	+21 43.9	1.937	2.768	13.2	21.4
12 13	7 15.99	+14 12.5	0.979	1.900	14.7	15.5	12 13	7 19.51	+21 51.6	1.866	2.774	9.6	21.2
12 23	7 8.84	+14 25.7	0.928	1.888	9.3	15.1	12 23	7 10.19	+22 2.1	1.820	2.780	5.5	21.0
1 2	6 59.21	+14 55.6	0.900	1.878	4.5	14.8	1 2	6 59.43	+22 12.8	1.802	2.785	1.1	20.7
1 12	6 48.84	+15 39.0	0.895	1.869	6.1	14.9	1 12	6 48.42	+22 21.6	1.815	2.789	3.4	20.9
1 22	6 39.68	+16 31.1	0.913	1.861	11.7	15.2	1 22	6 38.38	+22 27.4	1.857	2.792	7.7	21.1
2 1	6 33.43	+17 26.6	0.953	1.855	17.2	15.4	2 1	6 30.32	+22 30.3	1.926	2.795	11.5	21.4
2 11	6 31.16	+18 20.9	1.010	1.850	21.8	15.7	2 11	6 24.93	+22 31.0	2.018	2.798	14.6	21.6
161524	2004 TU ₁₆		1 4.3 218°56	10°0/ 4.5	18		410071	2007 CY ₄₈		1 4.3 8°48	0°4/ 4.3	18	
12 3	7 26.01	- 0 43.7	1.909	2.675	15.8	19.9	12 3	7 20.18	+23 9.2	1.139	2.009	17.6	20.1
12 13	7 19.15	- 2 27.1	1.830	2.668	13.4	19.7	12 13	7 15.96	+22 46.6	1.084	2.011	12.9	19.9
12 23	7 10.03	- 3 54.5	1.773	2.659	11.3	19.6	12 23	7 8.53	+22 25.8	1.050	2.015	7.4	19.6
1 2	6 59.38	- 4 59.7	1.743	2.651	10.1	19.5	1 2	6 59.13	+22 5.2	1.039	2.021	1.5	19.2
1 12	6 48.33	- 5 38.6	1.740	2.641	10.5	19.5	1 12	6 49.50	+21 44.1	1.053	2.029	4.6	19.4
1 22	6 38.02	- 5 50.5	1.763	2.631	12.3	19.6	1 22	6 41.39	+21 22.9	1.091	2.039	10.2	19.8
2 1	6 29.50	- 5 37.8	1.810	2.620	14.8	19.7	2 1	6 36.12	+21 2.6	1.152	2.050	15.1	20.1
2 11	6 23.52	- 5 6.0	1.877	2.609	17.2	19.9	2 11	6 34.41	+20 44.1	1.231	2.063	19.2	20.4
299018	2004 YK ₂₁		1 4.3 28°43	0°0/ 4.3	18		137199	1999 KX ₄		1 4.3 311°43	1°5/ 5.1	18	
12 3	7 23.55	+22 0.8	1.189	2.050	17.6	20.6	12 3	7 16.37	+ 4 18.7	0.504	1.398	28.7	17.4
12 13	7 18.26	+22 8.1	1.137	2.060	12.8	20.3	12 13	7 17.01	+ 6 40.3	0.418	1.354	23.3	16.8
12 23	7 9.78	+22 20.0	1.107	2.071	7.3	20.0	12 23	7 12.16	+11 3.3	0.344	1.311	15.4	16.0
1 2	6 59.33	+22 33.1	1.100	2.083	1.4	19.7	1 2	7 0.54	+18 15.3	0.285	1.268	4.4	15.1
1 12	6 48.69	+22 44.3	1.120	2.096	4.6	19.9	1 12	6 41.57	+28 32.2	0.247	1.225	10.4	15.0
1 22	6 39.59	+22 51.7	1.164	2.109	10.1	20.3	1 22	6 15.79	+40 40.1	0.230	1.185	26.5	15.3
2 1	6 33.37	+22 55.6	1.232	2.123	14.9	20.6	2 1	5 46.07	+52 13.3	0.233	1.147	41.7	15.7
2 11	6 30.75	+22 56.5	1.319	2.138	18.8	20.9	2 11	5 17.16	+61 40.3	0.247	1.112	53.8	16.1
446933	2002 XA ₂₅		1 4.3 37°66	3°4/ 3.7	16		7936	Mikemagee		1 4.3 64°28	2°4/ 3.7	18	R
12 3	7 41.24	+24 28.8	1.154	1.994	19.6	19.2	12 3	7 26.98	+24 40.9	1.325	2.178	16.7	17.1
12 13	7 30.06	+21 42.6	1.115	2.026	14.3	19.0	12 13	7 20.68	+25 47.0	1.274	2.193	12.2	16.9
12 23	7 15.81	+18 51.2	1.101	2.060	8.3	18.8	12 23	7 11.18	+26 56.4	1.245	2.207	7.0	16.6
1 2	7 0.34	+16 3.4	1.116	2.094	3.6	18.6	1 2	6 59.64	+28 1.4	1.242	2.222	2.6	16.4
1 12	6 45.79	+13 30.4	1.161	2.130	6.2	18.8	1 12	6 47.81	+28 55.0	1.266	2.237	5.2	16.6
1 22	6 33.83	+11 21.0	1.235	2.166	11.2	19.2	1 22	6 37.44	+29 33.7	1.317	2.253	10.1	16.9
2 1	6 25.48	+ 9 39.0	1.335	2.202	15.7	19.6	2 1	6 29.93	+29 58.0	1.392	2.268	14.6	17.2
2 11	6 21.02	+ 8 23.0	1.454	2.239	19.1	19.9	2 11	6 26.07	+30 10.5	1.486	2.283	18.2	17.5
323486	2004 PM ₂₅		1 4.3 154°01	2°1/ 3.9	18		16698	1995 CX		1 4.3 107°81	2°8/ 5.2	18	
12 3	7 25.47	+29 13.2	2.366	3.193	11.2	21.6	12 3	7 26.29	+12 42.2	1.741	2.561	14.9	17.6
12 13	7 18.46	+29 27.4	2.296	3.201	8.2	21.4	12 13	7 19.36	+13 15.2	1.683	2.581	11.1	17.4
12 23	7 9.46	+29 38.3	2.251	3.208	4.9	21.2	12 23	7 10.10	+14 1.0	1.650	2.602	6.9	17.2
1 2	6 59.26	+29 42.7	2.236	3.214	2.2	21.0	1 2	6 59.43	+14 56.7	1.645	2.621	3.2	17.0
1 12	6 48.90	+29 38.9	2.252	3.220	3.7	21.2	1 12	6 48.58	+15 58.3	1.669	2.640	4.3	17.1
1 22	6 39.41	+29 26.8	2.298	3.225	6.9	21.4	1 22	6 38.80	+17 1.4	1.723	2.658	8.2	17.4
2 1	6 31.67	+29 7.7	2.372	3.230	10.0	21.6	2 1	6 31.10	+18 2.6	1.804	2.676	12.0	17.6
2 11	6 26.27	+28 44.1	2.469	3.234	12.7	21.8	2 11	6 26.13	+18 59.3	1.907	2.693	15.1	17.9
51893	2001 QD ₂₅		1 4.3 22°20	3°0/ 3.6	18		296266	2009 DO ₃₉		1 4.3 67°23	4°8/ 5.4	17	
12 3	7 22.28	+30 21.2	2.011	2.851	12.4	18.3	12 3	7 24.36	+11 8.7	1.436	2.267	16.9	20.6
12 13	7 16.52	+30 48.9	1.944	2.855	9.1	18.1	12 13	7 18.25	+10 56.4	1.384	2.285	12.9	20.4
12 23	7 8.50	+31 12.9	1.902	2.859	5.6	17.9	12 23	7 9.55	+10 59.3	1.354	2.303	8.5	20.2
1 2	6 59.09	+31 29.2	1.888	2.863	3.1	17.8	1 2	6 59.32	+11 17.0	1.350	2.321	5.1	20.0
1 12	6 49.45	+31 35.1	1.902	2.868	4.6	17.9	1 12	6 48.97	+11 47.6	1.373	2.339	5.9	20.1
1 22	6 40.76	+31 30.0	1.945	2.873	7.9	18.1	1 22	6 39.88	+12 27.5	1.422	2.357	9.6	20.4
2 1	6 34.01	+31 15.5	2.014	2.879	11.3	18.3	2 1	6 33.15	+13 12.8	1.496	2.375	13.6	20.6
2 11	6 29.87	+30 54.1	2.105	2.884	14.1	18.5	2 11	6 29.43	+13 59.8	1.591	2.393	16.9	20.9
467085	2016 EB ₄		1 4.3 326°95	5°2/ 5.5	18		485017	2009 WN ₅₃		1 4.3 26°04	4°4/ 3.3	17	
12 3	7 20.18	+ 9 26.9	1.696	2.519	15.1	20.8	12 3	7 23.06	+26 26.3	0.853	1.737	20.7	19.7
12 13	7 15.18	+ 9 8.4	1.618	2.512	11.7	20.6	12 13	7 18.89	+27 53.0	0.818	1.750	15.1	19.4
12 23	7 7.86	+ 9 4.1	1.563	2.505	8.2	20.3	12 23	7 10.54	+29 21.5	0.800	1.766	9.0	19.2
1 2	6 59.00	+ 9 15.3	1.533	2.498	5.5	20.2	1 2	6 59.54	+30 39.8	0.805	1.784	4.5	19.0
1 12	6 49.74	+ 9 41.2	1.531	2.492	6.1	20.2	1 12	6 48.33	+31 37.6	0.832	1.803	7.4	19.2
1 22	6 41.28	+10 19.3	1.556	2.487	9.3	20.4	1 22	6 39.25	+32 11.4	0.881	1.823	12.9	19.6
2 1	6 34.71	+11 6.0	1.606	2.481	13.0	20.6	2 1	6 33.97	+32 23.6	0.950	1.845	17.9	20.0
2 11	6 30.77	+11 57.3	1.677	2.476	16.3	20.8	2 11	6 33.22	+32 19.5	1.036	1.868	22.0	20.3
364222	2006 RO ₅₆		1 4.3 254°49	3°2/ 4.9	18		495124	2011 WZ ₂₆		1 4.3 95°84	3°2/ 4.2	18	
12 3	7 22.61	+14 6.2	1.805	2.632	14.1	21.2	12 3	7 29.83	+19 20.6	1.600	2.431	15.4	19.9
12 13	7 16.87	+13 56.0	1.723	2.625	10.7	21.0	12 13	7 22.14	+17 56.6	1.526	2.432	11.5	19.7
12 23	7 8.80	+13 55.2	1.665	2.617	6.8	20.7	12 23	7 11.76	+16 32.7	1.477	2.433	7.0	19.4
1 2	6 59.18	+14 3.8	1.635	2.610	3.5	20.5	1 2	6 59.75	+15 11.3	1.456	2.433	3.4	19.2
1 12	6 49.15	+14 20.6	1.633	2.602	4.6	20.5	1 12	6 47.58	+13 56.0	1.466	2.434	5.2	19.3
1 22	6 39.92	+14 43.6	1.659	2.594	8.5	20.8	1 22	6 36.67	+12 50.2	1.504	2.435	9.5	19.5
2 1	6 32.57	+15 10.9	1.711	2.585	12.4	21.0	2 1	6 28.19	+11 56.3	1.568	2.436	13.7	19.8
2 11	6 27.84	+15 40.3	1.785	2.577	15.8	21.2	2 11	6 22.83	+11 14.5	1.653	2.436	17.2	20.0
51148	2000 HB ₅₂		1 4.3 139°74	0°4/ 4.4	18		347728	2001 XN ₂₆₀		1 4.3 100°18	1°6/ 3.9	17	
12 3	7 20.88	+21 10.6	2.386	3.216	11.0	19.5	12 3	7 28.76	+24 28.6	1.573	2.413	15.2</	

EPHEMERIDES

1 4.3

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
179098	2001 SY ₁₉₉		1 4.3 69°84	2°0/ 4.8 18			12323	Haeckel		1 4.3 236°03	2°8/ 3.7 18		
12 3	7 23.10	+16 43.7	1.701	2.537	14.5	20.5	12 3	7 28.87	+28 0.8	1.614	2.454	14.9	18.0
12 13	7 17.16	+16 50.8	1.641	2.549	10.7	20.3	12 13	7 22.03	+28 37.1	1.531	2.443	11.0	17.8
12 23	7 8.90	+17 6.3	1.604	2.562	6.4	20.1	12 23	7 12.05	+29 12.6	1.473	2.432	6.6	17.5
1 2	6 59.22	+17 28.3	1.595	2.575	2.4	19.8	1 2	6 59.89	+29 41.3	1.441	2.420	3.0	17.2
1 12	6 49.35	+17 54.2	1.614	2.587	4.0	20.0	1 12	6 47.08	+29 58.5	1.438	2.407	5.2	17.3
1 22	6 40.52	+18 21.9	1.661	2.600	8.1	20.2	1 22	6 35.31	+30 2.1	1.463	2.394	9.8	17.6
2 1	6 33.75	+18 49.3	1.735	2.613	12.0	20.5	2 1	6 26.06	+29 53.9	1.513	2.381	14.1	17.8
2 11	6 29.69	+19 15.4	1.830	2.626	15.3	20.8	2 11	6 20.29	+29 37.5	1.584	2.366	17.9	18.0
401882	2001 QH ₂₈₃		1 4.3 110°74	2°9/ 4.9 18			355266	2007 PM ₁₉		1 4.3 104°94	1°8/ 4.1 18		
12 3	7 25.46	+14 33.4	2.236	3.048	12.3	21.8	12 3	7 28.69	+27 3.6	1.660	2.499	14.6	20.8
12 13	7 18.23	+14 8.2	2.179	3.073	9.1	21.6	12 13	7 21.32	+27 14.2	1.602	2.514	10.6	20.6
12 23	7 9.23	+13 49.6	2.148	3.097	5.8	21.5	12 23	7 11.29	+27 22.5	1.568	2.529	6.2	20.4
1 2	6 59.26	+13 37.7	2.147	3.120	3.1	21.3	1 2	6 59.68	+27 24.7	1.562	2.543	2.0	20.1
1 12	6 49.28	+13 32.2	2.176	3.143	4.0	21.4	1 12	6 47.97	+27 18.6	1.585	2.557	4.3	20.3
1 22	6 40.21	+13 32.2	2.236	3.164	7.0	21.7	1 22	6 37.60	+27 4.1	1.637	2.571	8.6	20.6
2 1	6 32.84	+13 36.9	2.324	3.186	10.1	21.9	2 1	6 29.70	+26 43.6	1.714	2.584	12.6	20.9
2 11	6 27.65	+13 45.1	2.435	3.206	12.7	22.1	2 11	6 24.92	+26 19.7	1.812	2.597	15.8	21.1
238373	2004 CL ₆₇		1 4.3 255°66	1°3/ 4.7 18			166594	2002 RQ ₁₇₃		1 4.3 161°02	4°8/ 5.6 18		
12 3	7 19.78	+17 34.4	2.367	3.194	11.2	20.5	12 3	7 19.41	+7 21.9	2.351	3.151	12.2	20.6
12 13	7 14.41	+17 47.9	2.284	3.188	8.2	20.3	12 13	7 14.02	+7 1.7	2.275	3.152	9.6	20.4
12 23	7 7.24	+18 7.2	2.226	3.183	4.9	20.1	12 23	7 6.97	+6 53.3	2.223	3.154	6.9	20.2
1 2	6 58.92	+18 31.0	2.197	3.177	1.6	19.8	1 2	6 58.87	+6 57.6	2.199	3.155	5.0	20.1
1 12	6 50.30	+18 57.3	2.198	3.171	3.0	19.9	1 12	6 50.56	+7 14.2	2.205	3.156	5.4	20.2
1 22	6 42.27	+19 24.3	2.229	3.165	6.5	20.1	1 22	6 42.87	+7 41.4	2.239	3.158	7.6	20.3
2 1	6 35.67	+19 50.6	2.287	3.159	9.8	20.3	2 1	6 36.56	+8 16.8	2.300	3.159	10.3	20.5
2 11	6 31.09	+20 15.4	2.370	3.153	12.6	20.5	2 11	6 32.17	+8 57.6	2.384	3.159	12.8	20.6
153799	2001 VZ ₉₆		1 4.3 316°11	7°4/ 6.7 18			135187	2001 RH ₁₀		1 4.3 1°29	2°0/ 4.4 18		
12 3	7 19.83	+2 22.7	1.770	2.567	15.7	19.9	12 3	7 24.02	+19 43.0	2.151	2.978	12.2	18.6
12 13	7 14.88	+2 12.5	1.690	2.559	12.8	19.7	12 13	7 17.44	+18 47.7	2.073	2.978	9.0	18.4
12 23	7 7.70	+2 23.0	1.632	2.551	9.8	19.5	12 23	7 8.92	+17 53.3	2.022	2.978	5.4	18.1
1 2	6 59.02	+2 56.3	1.599	2.544	7.7	19.4	1 2	6 59.24	+17 0.8	1.999	2.978	2.2	17.9
1 12	6 49.93	+3 51.5	1.592	2.537	7.8	19.4	1 12	6 49.41	+16 11.4	2.007	2.978	3.7	18.0
1 22	6 41.56	+5 4.8	1.613	2.530	10.1	19.5	1 22	6 40.45	+15 26.6	2.046	2.979	7.3	18.3
2 1	6 34.94	+6 30.5	1.658	2.524	13.2	19.7	2 1	6 33.20	+14 47.7	2.112	2.979	10.7	18.5
2 11	6 30.84	+8 2.2	1.726	2.517	16.3	19.9	2 11	6 28.26	+14 15.1	2.201	2.980	13.6	18.7
286625	2002 EF ₁₄		1 4.3 248°74	2°0/ 4.6 18			314869	2006 UM ₂₇₈		1 4.3 212°71	1°2/ 4.5 18		
12 3	7 24.75	+17 52.7	1.701	2.536	14.5	20.7	12 3	7 24.06	+19 17.8	1.976	2.807	13.0	21.0
12 13	7 18.62	+17 42.9	1.618	2.526	10.8	20.4	12 13	7 17.78	+19 14.2	1.896	2.803	9.5	20.8
12 23	7 9.91	+17 39.5	1.559	2.516	6.5	20.2	12 23	7 9.28	+19 15.0	1.840	2.798	5.6	20.5
1 2	6 59.45	+17 41.3	1.526	2.506	2.4	19.9	1 2	6 59.33	+19 18.8	1.812	2.793	1.7	20.2
1 12	6 48.52	+17 47.0	1.522	2.495	4.2	20.0	1 12	6 49.06	+19 24.1	1.814	2.788	3.5	20.4
1 22	6 38.47	+17 55.3	1.547	2.484	8.7	20.2	1 22	6 39.59	+19 29.9	1.845	2.782	7.6	20.6
2 1	6 30.50	+18 5.4	1.597	2.473	13.0	20.4	2 1	6 31.95	+19 35.7	1.904	2.776	11.4	20.8
2 11	6 25.43	+18 16.5	1.668	2.462	16.6	20.7	2 11	6 26.84	+19 41.4	1.984	2.770	14.6	21.0
89885	2002 CP ₂₂₈		1 4.3 227°09	0°4/ 4.2 17 7			122710	2000 SY ₃₁		1 4.3 167°06	1°2/ 4.0 18		
12 3	7 20.15	+24 31.1	2.859	3.686	9.5	20.1	12 3	7 24.25	+25 43.0	2.066	2.901	12.3	20.4
12 13	7 14.40	+24 29.6	2.774	3.681	6.9	20.0	12 13	7 17.86	+25 59.4	1.993	2.903	9.0	20.2
12 23	7 7.12	+24 27.9	2.715	3.675	3.9	19.8	12 23	7 9.29	+26 15.4	1.944	2.904	5.2	20.0
1 2	6 58.89	+24 24.5	2.687	3.669	0.8	19.5	1 2	6 59.33	+26 28.1	1.925	2.906	1.5	19.7
1 12	6 50.45	+24 18.5	2.689	3.663	2.6	19.6	1 12	6 49.11	+26 35.1	1.935	2.907	3.6	19.9
1 22	6 42.59	+24 9.4	2.723	3.656	5.6	19.8	1 22	6 39.77	+26 35.5	1.975	2.908	7.4	20.1
2 1	6 35.99	+23 57.8	2.784	3.650	8.5	20.0	2 1	6 32.29	+26 30.0	2.041	2.909	11.0	20.4
2 11	6 31.17	+23 44.4	2.871	3.643	10.9	20.2	2 11	6 27.34	+26 20.2	2.131	2.910	14.0	20.6
461034	2014 WU ₄₉₀		1 4.3 28°36	3°8/ 5.8 18			238706	2005 GF ₁₀		1 4.3 183°49	2°8/ 5.3 18		
12 3	7 20.53	+9 41.6	1.701	2.525	15.0	20.4	12 3	7 18.70	+11 16.9	3.076	3.878	9.5	21.8
12 13	7 15.38	+10 18.0	1.635	2.531	11.5	20.2	12 13	7 13.21	+11 15.1	2.993	3.878	7.3	21.7
12 23	7 7.95	+11 11.5	1.591	2.539	7.6	20.0	12 23	7 6.40	+11 20.8	2.937	3.878	4.8	21.5
1 2	6 59.07	+12 19.9	1.574	2.546	4.2	19.8	1 2	6 58.77	+11 33.6	2.910	3.877	3.0	21.4
1 12	6 49.87	+13 39.0	1.586	2.555	4.8	19.9	1 12	6 50.95	+11 52.8	2.914	3.876	3.4	21.4
1 22	6 41.54	+15 3.3	1.626	2.563	8.4	20.1	1 22	6 43.60	+12 17.1	2.949	3.875	5.7	21.5
2 1	6 35.12	+16 27.5	1.693	2.573	12.2	20.3	2 1	6 37.30	+12 45.1	3.013	3.873	8.1	21.7
2 11	6 31.31	+17 47.5	1.782	2.582	15.5	20.6	2 11	6 32.53	+13 15.1	3.102	3.870	10.3	21.9
29738	Ivobudil		1 4.3 80°86	2°0/ 4.7 18			473571	2015 XW ₂₂₂		1 4.3 99°70	0°9/ 4.1 18		
12 3	7 25.42	+17 21.0	1.436	2.278	16.3	18.2	12 3	7 26.34	+22 35.5	1.615	2.457	14.8	20.9
12 13	7 19.21	+17 25.0	1.376	2.288	12.0	17.9	12 13	7 19.77	+23 20.9	1.556	2.469	10.7	20.7
12 23	7 10.22	+17 38.0	1.339	2.298	7.1	17.7	12 23	7 10.51	+24 10.4	1.521	2.482	6.1	20.5
1 2	6 59.49	+17 57.8	1.328	2.308	2.5	17.4	1 2	6 59.57	+24 59.1	1.513	2.495	1.4	20.2
1 12	6 48.52	+18 21.7	1.344	2.318	4.4	17.6	1 12	6 48.35	+25 42.2	1.534	2.507	4.1	20.4
1 22	6 38.80	+18 46.9	1.388	2.328	9.2	17.9	1 22	6 38.30	+26 16.6	1.583	2.519	8.7	20.7
2 1	6 31.54	+19 11.9	1.456	2.338	13.6	18.1	2 1	6 30.59	+26 42.1	1.657	2.531	12.8	21.0
2 11	6 27.48	+19 35.4	1.545	2.348	17.3	18.4	2 11	6 25.97	+26 59.6	1.754	2.542	16.1	21.2
123126	2000 TS ₇		1 4.3 207°49	1°2/ 4.1 18			253041	2002 SV ₃₂		1 4.3 72°54	2°7/ 5.2 18		
12 3	7 27.05	+24 57.7	1.939	2.772	13.1	20.7	12 3	7 17.13	+12 10.4	3.053	3.861	9.4	20.5

EPHEMERIDES

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
131978	2002 <i>CE</i> ₆₂		1 4.3 267°86	3°5/ 3.4	18		237712	2001 <i>UT</i> ₂₀₀		1 4.3 257°87	1°5/ 4.7	18	
12 3	7 26.40	+28 26.8	1.551	2.397	15.1	19.6	12 3	7 20.06	+17 52.6	2.427	3.252	11.0	20.7
12 13	7 20.29	+29 24.5	1.478	2.392	11.1	19.3	12 13	7 14.56	+17 44.5	2.342	3.245	8.1	20.5
12 23	7 11.08	+30 22.2	1.429	2.388	6.8	19.1	12 23	7 7.33	+17 40.8	2.282	3.239	4.9	20.3
1 2	6 59.72	+31 12.8	1.406	2.383	3.6	18.9	1 2	6 58.99	+17 40.7	2.252	3.232	1.8	20.0
1 12	6 47.79	+31 50.2	1.411	2.378	5.7	19.0	1 12	6 50.39	+17 43.6	2.252	3.225	3.1	20.1
1 22	6 36.94	+32 11.7	1.443	2.372	10.0	19.2	1 22	6 42.40	+17 48.4	2.282	3.217	6.5	20.3
2 1	6 28.65	+32 18.4	1.500	2.367	14.2	19.5	2 1	6 35.81	+17 54.7	2.340	3.210	9.7	20.5
2 11	6 23.83	+32 13.5	1.576	2.362	17.8	19.7	2 11	6 31.20	+18 1.8	2.421	3.203	12.4	20.7
168194	2006 <i>JT</i> ₁		1 4.3 209°73	3°1/ 3.6	18		459564	2013 <i>GF</i> ₉₈		1 4.3 293°57	1°9/ 3.9	17	
12 3	7 27.22	+29 1.3	1.789	2.626	13.8	20.6	12 3	7 24.93	+25 56.9	1.532	2.380	15.1	22.0
12 13	7 20.50	+29 43.0	1.713	2.623	10.2	20.3	12 13	7 19.28	+26 24.7	1.447	2.364	11.1	21.8
12 23	7 11.03	+30 22.8	1.662	2.619	6.2	20.1	12 23	7 10.56	+26 53.9	1.386	2.348	6.5	21.5
1 2	6 59.70	+30 55.2	1.638	2.614	3.2	19.9	1 2	6 59.68	+27 19.4	1.351	2.332	2.2	21.1
1 12	6 47.91	+31 15.8	1.643	2.610	5.0	20.0	1 12	6 48.11	+27 37.0	1.343	2.316	4.8	21.3
1 22	6 37.13	+31 23.1	1.677	2.605	9.0	20.2	1 22	6 37.50	+27 44.5	1.363	2.300	9.7	21.5
2 1	6 28.62	+31 18.3	1.736	2.599	12.8	20.4	2 1	6 29.34	+27 42.4	1.406	2.284	14.3	21.7
2 11	6 23.22	+31 4.8	1.817	2.593	16.1	20.6	2 11	6 24.58	+27 33.4	1.471	2.269	18.3	22.0
187391	2005 <i>UF</i> ₄₈₅		1 4.3 111°50	0°1/ 4.4	18		381293	2007 <i>TM</i> ₄₅₀		1 4.3 167°12	12°4/ 30.0	18	
12 3	7 23.03	+20 40.1	1.907	2.743	13.1	20.7	12 3	7 33.06	+54 21.2	1.923	2.699	15.4	20.4
12 13	7 17.09	+21 8.5	1.837	2.748	9.5	20.4	12 13	7 26.17	+56 30.2	1.880	2.703	13.8	20.3
12 23	7 8.90	+21 41.8	1.792	2.753	5.5	20.2	12 23	7 14.94	+58 18.0	1.858	2.708	12.7	20.3
1 2	6 59.27	+22 17.0	1.775	2.758	1.1	19.9	1 2	7 0.54	+59 33.3	1.861	2.714	12.5	20.3
1 12	6 49.36	+22 50.9	1.788	2.762	3.4	20.1	1 12	6 45.19	+60 9.7	1.886	2.720	13.2	20.3
1 22	6 40.31	+23 20.9	1.829	2.767	7.6	20.4	1 22	6 31.41	+60 7.6	1.933	2.727	14.6	20.4
2 1	6 33.15	+23 46.2	1.897	2.771	11.4	20.6	2 1	6 21.31	+59 33.2	1.999	2.734	16.1	20.6
2 11	6 28.56	+24 6.6	1.988	2.775	14.5	20.8	2 11	6 16.00	+58 36.1	2.082	2.742	17.7	20.7
381308	2007 <i>VV</i> ₄₃		1 4.3 188°83	9°0/ 31.5	18		294055	2007 <i>TF</i> ₁₅₅		1 4.3 152°98	3°4/ 5.1	18	
12 3	7 31.48	+51 52.0	2.601	3.369	12.0	20.6	12 3	7 20.02	+12 23.3	2.394	3.208	11.5	20.4
12 13	7 23.73	+53 18.2	2.541	3.369	10.5	20.5	12 13	7 14.46	+11 58.3	2.318	3.210	8.8	20.3
12 23	7 12.95	+54 28.9	2.505	3.368	9.3	20.5	12 23	7 7.23	+11 41.1	2.267	3.211	5.8	20.1
1 2	7 0.08	+55 16.8	2.495	3.367	9.0	20.4	1 2	6 58.98	+11 32.1	2.244	3.213	3.6	19.9
1 12	6 46.62	+55 37.5	2.512	3.366	9.6	20.5	1 12	6 50.53	+11 31.2	2.252	3.214	4.3	20.0
1 22	6 34.22	+55 30.9	2.553	3.365	10.9	20.6	1 22	6 42.73	+11 37.5	2.288	3.216	7.0	20.2
2 1	6 24.29	+55 0.9	2.617	3.364	12.4	20.7	2 1	6 36.33	+11 49.8	2.353	3.217	9.9	20.3
2 11	6 17.73	+54 13.6	2.701	3.362	14.0	20.8	2 11	6 31.86	+12 6.4	2.440	3.218	12.4	20.5
520948	2014 <i>YP</i> ₅₀		1 4.3 89°19	18°7/ 12.7	18		502208	2015 <i>BA</i> ₇₆		1 4.3 231°37	1°4/ 3.8	17	
12 3	7 25.51	-16 44.3	1.136	1.866	26.3	21.2	12 3	7 21.21	+26 35.0	2.896	3.721	9.4	22.4
12 13	7 19.81	-17 39.2	1.085	1.873	23.9	21.1	12 13	7 15.30	+27 2.2	2.804	3.709	6.9	22.2
12 23	7 10.82	-17 45.5	1.047	1.880	21.5	20.9	12 23	7 7.74	+27 29.3	2.739	3.697	4.0	22.0
1 2	6 59.67	-16 53.4	1.025	1.887	19.6	20.8	1 2	6 59.09	+27 53.4	2.704	3.684	1.5	21.8
1 12	6 48.11	-15 1.1	1.022	1.894	18.8	20.8	1 12	6 50.12	+28 12.6	2.701	3.671	3.0	21.9
1 22	6 37.94	-12 16.7	1.038	1.902	19.4	20.9	1 22	6 41.65	+28 25.6	2.729	3.657	5.9	22.1
2 1	6 30.63	-8 55.9	1.075	1.908	21.1	21.0	2 1	6 34.44	+28 32.4	2.785	3.643	8.7	22.2
2 11	6 27.07	-5 18.2	1.131	1.915	23.5	21.2	2 11	6 29.06	+28 33.8	2.865	3.628	11.1	22.4
345241	2005 <i>UV</i> ₂₇₇		1 4.3 22°98	2°6/ 3.9	17		173380	2000 <i>BL</i> ₉		1 4.3 164°12	0°1/ 4.3	18	
12 3	7 23.93	+26 9.0	1.013	1.886	19.1	20.3	12 3	7 24.79	+21 53.2	1.901	2.735	13.2	21.1
12 13	7 19.12	+26 42.8	0.966	1.894	13.9	20.0	12 13	7 18.37	+22 1.9	1.828	2.738	9.6	20.9
12 23	7 10.55	+27 17.4	0.938	1.903	8.1	19.7	12 23	7 9.64	+22 13.5	1.780	2.741	5.5	20.7
1 2	6 59.61	+27 45.9	0.933	1.914	2.9	19.5	1 2	6 59.45	+22 25.5	1.760	2.743	1.1	20.4
1 12	6 48.42	+28 2.8	0.953	1.926	5.8	19.7	1 12	6 48.98	+22 35.7	1.770	2.745	3.4	20.6
1 22	6 39.05	+28 6.6	0.995	1.940	11.4	20.0	1 22	6 39.44	+22 42.8	1.809	2.746	7.7	20.8
2 1	6 33.07	+27 59.3	1.059	1.954	16.5	20.4	2 1	6 31.86	+22 46.9	1.875	2.747	11.6	21.1
2 11	6 31.22	+27 44.5	1.141	1.969	20.6	20.7	2 11	6 26.92	+22 48.6	1.963	2.748	14.8	21.3
191053	2002 <i>CS</i> ₇₂		1 4.3 248°48	3°6/ 3.7	18		518535	2006 <i>UH</i> ₁₇₅		1 4.3 92°44	7°6/ 6.4	18	
12 3	7 26.82	+33 34.0	2.212	3.038	11.9	20.1	12 3	7 22.86	+ 2 25.2	1.818	2.607	15.6	21.2
12 13	7 19.84	+33 49.0	2.125	3.025	9.0	19.8	12 13	7 16.76	+ 1 51.2	1.762	2.624	12.7	21.1
12 23	7 10.49	+33 57.3	2.062	3.012	5.9	19.6	12 23	7 8.61	+ 1 36.2	1.728	2.642	9.8	20.9
1 2	6 59.59	+33 54.8	2.028	2.998	3.7	19.5	1 2	6 59.24	+ 1 42.3	1.719	2.659	7.8	20.9
1 12	6 48.33	+33 39.1	2.024	2.985	4.9	19.5	1 12	6 49.75	+ 2 9.0	1.738	2.675	7.9	20.9
1 22	6 37.95	+33 10.4	2.049	2.970	8.1	19.7	1 22	6 41.21	+ 2 53.3	1.784	2.692	10.0	21.1
2 1	6 29.53	+32 31.1	2.102	2.956	11.3	19.9	2 1	6 34.50	+ 3 50.6	1.855	2.708	12.6	21.3
2 11	6 23.78	+31 45.3	2.177	2.941	14.2	20.0	2 11	6 30.24	+ 4 55.5	1.949	2.724	15.2	21.5
104321	2000 <i>FD</i> ₃		1 4.3 313°70	1°6/ 4.7	18		131421	2001 <i>OL</i> ₅₈		1 4.3 87°16	0°8/ 4.6	18	
12 3	7 21.55	+17 22.1	1.523	2.368	15.4	19.5	12 3	7 16.96	+18 44.4	3.195	4.017	8.7	20.2
12 13	7 16.66	+17 40.8	1.439	2.353	11.4	19.3	12 13	7 11.91	+18 52.5	3.127	4.030	6.3	20.1
12 23	7 8.98	+18 9.8	1.378	2.338	6.8	18.9	12 23	7 5.66	+19 3.8	3.086	4.043	3.7	19.9
1 2	6 59.35	+18 46.9	1.342	2.323	2.2	18.6	1 2	6 58.67	+19 17.4	3.075	4.056	1.1	19.7
1 12	6 49.08	+19 28.7	1.334	2.309	4.2	18.7	1 12	6 51.59	+19 32.1	3.096	4.069	2.3	19.9
1 22	6 39.64	+20 11.3	1.353	2.295	9.2	19.0	1 22	6 45.01	+19 47.0	3.147	4.082	4.9	20.1
2 1	6 32.39	+20 52.1	1.396	2.282	13.9	19.2	2 1	6 39.48	+20 1.4	3.227	4.095	7.4	20.2
2 11	6 28.24	+21 29.4	1.460	2.269	17.9	19.4	2 11	6 35.41	+20 14.7	3.332	4.107	9.5	20.4
400595	2009 <i>AJ</i> ₃₄		1 4.3 35°96	0°0/ 4.2	18		36495	2000 <i>QR</i> ₄₈		1 4.3 29°96	2°4/ 4.8	18	
12 3	7 23.82	+19 25.											

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
353261	2010 <i>EA</i> ₁₀₇		1 4.3 192°52	2.7/ 3.7	18		282185	2001 <i>TL</i> ₁₇₅		1 4.3 202°09	6.3/ 6.1	18	
12 3	7 28.53	+29 15.4	2.065	2.893	12.6	21.7	12 3	7 18.62	+0 13.3	2.850	3.610	11.2	21.2
12 13	7 21.14	+29 47.3	1.987	2.892	9.3	21.5	12 13	7 13.27	-0 21.9	2.767	3.606	9.3	21.0
12 23	7 11.27	+30 16.5	1.933	2.889	5.6	21.3	12 23	7 6.52	-0 44.0	2.708	3.602	7.5	20.9
1 2	6 59.79	+30 38.4	1.909	2.886	2.8	21.1	1 2	6 58.90	-0 51.1	2.677	3.598	6.4	20.8
1 12	6 47.93	+30 49.6	1.915	2.882	4.4	21.2	1 12	6 51.06	-0 42.7	2.675	3.593	6.5	20.8
1 22	6 37.00	+30 49.3	1.951	2.877	8.1	21.4	1 22	6 43.69	-0 19.8	2.701	3.588	7.9	20.9
2 1	6 28.10	+30 38.7	2.014	2.871	11.6	21.6	2 1	6 37.42	+0 15.4	2.753	3.582	9.7	21.0
2 11	6 21.99	+30 21.0	2.100	2.865	14.6	21.8	2 11	6 32.74	+0 59.7	2.830	3.576	11.6	21.1
19132	Le Clézio		1 4.3 349°07	4.0/ 4.8	18		80293	1999 <i>XS</i> ₅₆		1 4.3 19°05	0.3/ 4.4	18	
12 3	7 20.71	+14 55.1	1.526	2.368	15.5	17.8	12 3	7 25.06	+21 13.2	1.183	2.042	17.9	18.5
12 13	7 15.80	+14 14.6	1.453	2.361	11.7	17.6	12 13	7 19.61	+21 24.3	1.123	2.045	13.1	18.3
12 23	7 8.34	+13 42.6	1.402	2.356	7.6	17.3	12 23	7 10.78	+21 41.8	1.083	2.047	7.5	18.0
1 2	6 59.24	+13 20.3	1.377	2.351	4.2	17.1	1 2	6 59.75	+22 1.8	1.068	2.051	1.5	17.6
1 12	6 49.77	+13 8.2	1.379	2.348	5.4	17.2	1 12	6 48.32	+22 20.5	1.079	2.055	4.7	17.8
1 22	6 41.29	+13 5.8	1.407	2.344	9.5	17.4	1 22	6 38.33	+22 35.6	1.114	2.059	10.4	18.2
2 1	6 34.95	+13 11.8	1.460	2.342	13.6	17.7	2 1	6 31.29	+22 46.5	1.173	2.064	15.5	18.5
2 11	6 31.50	+13 24.1	1.533	2.341	17.2	17.9	2 11	6 28.04	+22 53.9	1.250	2.069	19.7	18.8
313410	2002 <i>PL</i> ₁₅₉		1 4.3 83°93	3.1/ 3.9	18		502392	2015 <i>BG</i> ₂₄₈		1 4.3 346°59	2.5/ 3.9	18	
12 3	7 28.33	+29 59.5	1.658	2.498	14.6	20.9	12 3	7 23.72	+30 8.4	2.009	2.846	12.5	20.7
12 13	7 21.14	+30 22.2	1.604	2.515	10.7	20.7	12 13	7 17.63	+30 13.3	1.934	2.844	9.2	20.5
12 23	7 11.25	+30 40.3	1.574	2.531	6.5	20.5	12 23	7 9.24	+30 13.7	1.884	2.841	5.6	20.3
1 2	6 59.76	+30 48.7	1.571	2.548	3.2	20.3	1 2	6 59.43	+30 6.3	1.862	2.839	2.6	20.1
1 12	6 48.19	+30 44.8	1.597	2.565	5.0	20.5	1 12	6 49.38	+29 49.4	1.869	2.837	4.2	20.2
1 22	6 38.01	+30 29.0	1.650	2.581	8.9	20.7	1 22	6 40.29	+29 23.4	1.904	2.836	7.8	20.4
2 1	6 30.34	+30 4.0	1.730	2.597	12.7	21.0	2 1	6 33.18	+28 50.3	1.967	2.835	11.3	20.6
2 11	6 25.83	+29 33.6	1.830	2.613	15.8	21.3	2 11	6 28.70	+28 13.2	2.051	2.834	14.3	20.8
160991	2002 <i>CP</i> ₁₆₈		1 4.3 299°19	8.6/ 2.7	18		75036	1999 <i>UD</i> ₂₆		1 4.3 194°45	7.5/ 2.6	18	
12 3	7 30.29	+44 31.5	1.853	2.665	14.4	19.6	12 3	7 31.87	+41 30.2	1.886	2.701	14.1	19.3
12 13	7 23.26	+45 23.5	1.775	2.650	11.9	19.4	12 13	7 24.17	+42 33.9	1.817	2.700	11.3	19.2
12 23	7 12.83	+46 0.5	1.719	2.635	9.6	19.2	12 23	7 13.26	+43 25.3	1.773	2.698	8.8	19.0
1 2	7 0.12	+46 14.0	1.689	2.621	8.6	19.1	1 2	7 0.23	+43 55.9	1.755	2.696	7.5	18.9
1 12	6 46.87	+45 59.1	1.685	2.606	9.4	19.1	1 12	6 46.74	+44 0.7	1.765	2.694	8.5	19.0
1 22	6 34.95	+45 16.0	1.707	2.592	11.8	19.2	1 22	6 34.55	+43 39.8	1.802	2.691	11.0	19.1
2 1	6 25.90	+44 10.2	1.753	2.577	14.6	19.4	2 1	6 25.11	+42 57.8	1.863	2.687	13.8	19.3
2 11	6 20.62	+42 49.7	1.819	2.563	17.2	19.6	2 11	6 19.27	+42 1.8	1.944	2.684	16.4	19.5
238808	2005 <i>MS</i> ₁₀		1 4.3 300°43	3.5/ 4.9	18		254765	2005 <i>QK</i> ₂₄		1 4.3 345°25	2.8/ 4.9	18	
12 3	7 19.96	+13 17.9	2.148	2.969	12.4	20.4	12 3	7 20.55	+15 14.3	1.521	2.364	15.5	19.9
12 13	7 14.71	+12 48.6	2.059	2.956	9.4	20.1	12 13	7 15.79	+15 16.5	1.447	2.358	11.6	19.7
12 23	7 7.52	+12 26.8	1.995	2.943	6.2	19.9	12 23	7 8.41	+15 29.8	1.396	2.353	7.2	19.4
1 2	6 59.08	+12 13.3	1.959	2.930	3.7	19.7	1 2	6 59.31	+15 53.2	1.370	2.348	3.2	19.2
1 12	6 50.29	+12 8.2	1.953	2.917	4.6	19.8	1 12	6 49.76	+16 24.3	1.371	2.344	4.6	19.2
1 22	6 42.14	+12 10.8	1.974	2.905	7.7	19.9	1 22	6 41.15	+17 0.1	1.399	2.340	9.1	19.5
2 1	6 35.50	+12 20.2	2.023	2.892	11.0	20.1	2 1	6 34.68	+17 37.8	1.451	2.337	13.4	19.7
2 11	6 31.02	+12 34.5	2.094	2.880	14.0	20.3	2 11	6 31.15	+18 15.0	1.524	2.335	17.1	20.0
338316	2002 <i>VY</i> ₅₉		1 4.3 101°41	3.4/ 4.9	18		343528	2010 <i>EH</i> ₁₃₄		1 4.3 184°02	3.8/ 3.3	18	
12 3	7 28.29	+15 12.5	1.485	2.317	16.4	20.6	12 3	7 23.50	+34 34.4	2.540	3.364	10.6	20.6
12 13	7 21.06	+14 50.0	1.432	2.336	12.2	20.4	12 13	7 17.20	+35 9.0	2.466	3.364	8.0	20.5
12 23	7 11.19	+14 37.0	1.401	2.355	7.6	20.1	12 23	7 8.91	+35 37.8	2.418	3.364	5.4	20.3
1 2	6 59.76	+14 33.2	1.397	2.373	3.7	20.0	1 2	6 59.37	+35 56.9	2.399	3.364	3.8	20.2
1 12	6 48.26	+14 37.6	1.421	2.391	5.0	20.1	1 12	6 49.59	+36 3.7	2.410	3.364	4.9	20.3
1 22	6 38.12	+14 48.4	1.473	2.408	9.3	20.4	1 22	6 40.57	+35 57.6	2.450	3.363	7.3	20.4
2 1	6 30.44	+15 4.0	1.549	2.425	13.4	20.7	2 1	6 33.20	+35 40.4	2.517	3.362	10.0	20.6
2 11	6 25.88	+15 22.5	1.648	2.441	16.8	20.9	2 11	6 28.12	+35 14.8	2.608	3.361	12.4	20.8
495589	2015 <i>AR</i> ₃₂		1 4.3 184°22	1.5/ 4.9	18		455539	2004 <i>CP</i> ₁₀₄		1 4.3 332°47	4.2/ 3.4	16	
12 3	7 20.73	+15 52.1	2.182	3.007	12.1	20.9	12 3	7 21.94	+29 21.5	1.274	2.137	16.6	21.1
12 13	7 15.24	+16 23.1	2.104	3.007	8.9	20.7	12 13	7 17.70	+30 10.0	1.196	2.118	12.4	20.8
12 23	7 7.82	+17 2.8	2.051	3.007	5.4	20.5	12 23	7 9.95	+30 58.0	1.139	2.101	7.8	20.4
1 2	6 59.14	+17 48.8	2.028	3.007	1.9	20.3	1 2	6 59.66	+31 37.9	1.107	2.084	4.3	20.2
1 12	6 50.15	+18 38.2	2.034	3.007	3.3	20.4	1 12	6 48.54	+32 3.2	1.100	2.068	6.5	20.3
1 22	6 41.82	+19 28.1	2.070	3.007	6.9	20.6	1 22	6 38.56	+32 10.7	1.117	2.054	11.5	20.5
2 1	6 35.03	+20 16.0	2.134	3.007	10.3	20.8	2 1	6 31.47	+32 2.0	1.156	2.040	16.3	20.7
2 11	6 30.42	+21 0.4	2.221	3.007	13.3	21.0	2 11	6 28.34	+31 41.2	1.214	2.028	20.5	21.0
518693	2008 <i>WY</i> ₁₄₃		1 4.3 93°14	0.9/ 4.0	18		424798	2008 <i>UW</i> ₃₄		1 4.3 33°88	0.8/ 4.1	18	
12 3	7 21.30	+23 22.0	2.286	3.119	11.3	21.3	12 3	7 21.60	+23 24.9	1.830	2.673	13.3	20.7
12 13	7 15.61	+24 2.9	2.214	3.124	8.2	21.1	12 13	7 16.15	+23 55.6	1.767	2.682	9.6	20.5
12 23	7 8.01	+24 46.3	2.168	3.129	4.7	20.9	12 23	7 8.43	+24 28.9	1.729	2.691	5.5	20.3
1 2	6 59.18	+25 28.9	2.151	3.133	1.2	20.6	1 2	6 59.29	+25 1.2	1.718	2.700	1.3	20.0
1 12	6 50.08	+26 7.6	2.165	3.138	3.2	20.8	1 12	6 49.92	+25 29.2	1.736	2.710	3.6	20.2
1 22	6 41.68	+26 40.1	2.209	3.143	6.8	21.0	1 22	6 41.49	+25 51.0	1.782	2.720	7.8	20.5
2 1	6 34.86	+27 5.7	2.280	3.147	10.0	21.2	2 1	6 35.03	+26 6.2	1.855	2.731	11.5	20.7
2 11	6 30.23	+27 24.8	2.375	3.152	12.8	21.4	2 11	6 31.19	+26 15.6	1.949	2.741	14.6	21.0
422451	2014 <i>SG</i> ₃₀₉		1 4.3 84°16	2.8/ 3.7	18		186256	2001 <i>XV</i> ₂₅₀		1 4.3 36°32	0.7/ 4.1	18	
12 3	7 26.19	+29 14.8	1.881	2.718									

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
160721	2000 <i>QB</i> ₁₅₉		1 4.3 214°32	5°3/ 6.2 17			63732	2001 <i>QR</i> ₂₄₁		1 4.3 176°37	0°7/ 4.5 18		
12 3	7 18.04	+ 1 19.8	3.223	3.983	10.0	21.5	12 3	7 20.40	+19 40.2	2.472	3.300	10.8	19.5
12 13	7 12.75	+ 0 58.7	3.132	3.974	8.3	21.4	12 13	7 14.80	+19 49.9	2.394	3.300	7.9	19.3
12 23	7 6.21	+ 0 49.1	3.066	3.965	6.6	21.2	12 23	7 7.50	+20 3.3	2.342	3.301	4.6	19.1
1 2	6 58.86	+ 0 52.3	3.028	3.955	5.4	21.1	1 2	6 59.12	+20 19.1	2.320	3.301	1.2	18.9
1 12	6 51.29	+ 1 8.4	3.020	3.945	5.5	21.1	1 12	6 50.52	+20 35.5	2.327	3.301	2.8	19.0
1 22	6 44.12	+ 1 36.4	3.041	3.934	6.9	21.2	1 22	6 42.54	+20 51.2	2.365	3.302	6.2	19.2
2 1	6 37.89	+ 2 14.2	3.091	3.923	8.7	21.3	2 1	6 35.97	+21 5.5	2.431	3.301	9.3	19.4
2 11	6 33.07	+ 2 59.1	3.164	3.911	10.5	21.4	2 11	6 31.36	+21 18.1	2.521	3.301	12.0	19.6
29143	1988 <i>DK</i>		1 4.3 338°66	5°2/ 5.1 18			225152	2008 <i>GB</i> ₅₂		1 4.3 94°36	2°5/ 3.9 18		
12 3	7 18.93	+10 30.4	1.796	2.621	14.3	18.1	12 3	7 31.98	+26 51.0	1.408	2.250	16.5	20.1
12 13	7 14.25	+ 9 50.1	1.716	2.611	11.1	17.8	12 13	7 24.05	+27 28.7	1.362	2.275	12.0	19.9
12 23	7 7.39	+ 9 20.9	1.659	2.601	7.8	17.6	12 23	7 13.02	+28 4.9	1.338	2.298	7.0	19.7
1 2	6 59.11	+ 9 4.8	1.628	2.592	5.4	17.5	1 2	7 0.17	+28 33.3	1.342	2.322	2.7	19.5
1 12	6 50.47	+ 9 2.2	1.624	2.583	6.0	17.5	1 12	6 47.29	+28 49.6	1.373	2.344	5.0	19.7
1 22	6 42.58	+ 9 12.4	1.647	2.576	9.1	17.6	1 22	6 36.08	+28 53.4	1.433	2.366	9.7	20.0
2 1	6 36.44	+ 9 33.3	1.695	2.569	12.6	17.8	2 1	6 27.82	+28 46.8	1.516	2.388	13.9	20.3
2 11	6 32.76	+10 1.6	1.765	2.562	15.7	18.0	2 11	6 23.16	+28 33.5	1.621	2.408	17.3	20.6
493368	2014 <i>WM</i> ₇₀		1 4.3 138°39	2°7/ 4.9 18			493701	2015 <i>TS</i> ₇₄		1 4.3 231°71	3°5/ 4.9 18		
12 3	7 22.56	+15 41.0	1.887	2.716	13.5	21.5	12 3	7 24.97	+14 40.4	1.581	2.413	15.5	21.8
12 13	7 16.73	+15 25.3	1.813	2.717	10.1	21.3	12 13	7 18.90	+14 20.1	1.505	2.409	11.7	21.5
12 23	7 8.73	+15 17.1	1.763	2.717	6.3	21.1	12 23	7 10.16	+14 9.3	1.451	2.404	7.5	21.3
1 2	6 59.36	+15 16.0	1.741	2.718	3.0	20.9	1 2	6 59.67	+14 8.2	1.424	2.400	3.8	21.0
1 12	6 49.71	+15 21.0	1.748	2.719	4.2	21.0	1 12	6 48.75	+14 15.8	1.425	2.395	5.1	21.1
1 22	6 40.92	+15 31.1	1.784	2.720	7.9	21.2	1 22	6 38.80	+14 30.6	1.453	2.389	9.3	21.3
2 1	6 33.96	+15 44.8	1.846	2.720	11.6	21.4	2 1	6 31.04	+14 50.8	1.507	2.384	13.6	21.6
2 11	6 29.48	+16 0.9	1.930	2.721	14.8	21.6	2 11	6 26.29	+15 14.4	1.581	2.378	17.2	21.8
470903	2009 <i>CH</i> ₄₉		1 4.3 264°07	4°1/ 6.1 17			32094	2000 <i>KX</i> ₃₂		1 4.3 235°56	0°3/ 4.3 18		
12 3	7 19.16	+ 7 8.1	2.514	3.310	11.6	21.6	12 3	7 21.18	+23 14.4	2.795	3.620	9.7	20.3
12 13	7 13.93	+ 7 26.2	2.421	3.298	9.1	21.4	12 13	7 15.31	+23 26.9	2.701	3.607	7.1	20.1
12 23	7 7.04	+ 7 57.6	2.353	3.286	6.4	21.2	12 23	7 7.79	+23 40.7	2.634	3.593	4.1	19.8
1 2	6 59.04	+ 8 41.9	2.313	3.274	4.3	21.1	1 2	6 59.19	+23 53.8	2.597	3.579	0.8	19.6
1 12	6 50.69	+ 9 37.5	2.304	3.262	4.6	21.1	1 12	6 50.29	+24 4.7	2.592	3.565	2.6	19.7
1 22	6 42.80	+10 41.4	2.325	3.250	7.0	21.2	1 22	6 41.89	+24 12.4	2.617	3.550	5.9	19.9
2 1	6 36.15	+11 50.3	2.374	3.237	9.8	21.4	2 1	6 34.75	+24 16.6	2.671	3.535	8.8	20.1
2 11	6 31.33	+13 0.8	2.447	3.225	12.4	21.5	2 11	6 29.46	+24 17.9	2.749	3.519	11.4	20.2
175947	2000 <i>GL</i> ₂₀		1 4.3 222°98	3°2/ 5.1 18			109507	2001 <i>QT</i> ₂₃₄		1 4.3 128°65	0°4/ 4.2 18		
12 3	7 22.78	+13 26.6	2.044	2.863	13.0	21.2	12 3	7 21.43	+23 29.7	2.583	3.411	10.3	20.6
12 13	7 16.83	+13 17.2	1.960	2.856	9.9	21.0	12 13	7 15.46	+23 44.7	2.513	3.420	7.5	20.4
12 23	7 8.79	+13 16.7	1.900	2.849	6.4	20.8	12 23	7 7.83	+24 0.6	2.470	3.429	4.2	20.2
1 2	6 59.38	+13 25.0	1.868	2.842	3.5	20.6	1 2	6 59.19	+24 15.6	2.456	3.438	0.9	20.0
1 12	6 49.61	+13 41.1	1.866	2.834	4.4	20.6	1 12	6 50.40	+24 27.7	2.473	3.447	2.7	20.1
1 22	6 40.53	+14 3.3	1.893	2.826	7.8	20.8	1 22	6 42.28	+24 36.2	2.521	3.455	6.0	20.4
2 1	6 33.12	+14 29.8	1.947	2.817	11.3	21.0	2 1	6 35.59	+24 40.9	2.597	3.463	9.0	20.6
2 11	6 28.05	+14 58.6	2.024	2.808	14.4	21.2	2 11	6 30.86	+24 42.4	2.697	3.471	11.5	20.8
229845	2009 <i>ST</i> ₂₂₉		1 4.3 53°84	0°6/ 4.5 18			44036	1998 <i>DO</i> ₇		1 4.3 143°05	1°0/ 4.1 18		
12 3	7 23.19	+20 55.5	1.762	2.602	13.8	20.4	12 3	7 30.25	+24 8.7	1.755	2.587	14.3	20.3
12 13	7 17.28	+20 55.1	1.698	2.610	10.1	20.2	12 13	7 22.47	+24 34.4	1.692	2.600	10.4	20.1
12 23	7 9.06	+20 58.5	1.658	2.619	5.8	19.9	12 23	7 12.06	+25 1.2	1.653	2.613	5.9	19.8
1 2	6 59.42	+21 3.6	1.646	2.628	1.3	19.7	1 2	7 0.03	+25 25.0	1.643	2.625	1.4	19.6
1 12	6 49.59	+21 8.6	1.662	2.637	3.6	19.8	1 12	6 47.78	+25 42.5	1.663	2.636	3.9	19.8
1 22	6 40.78	+21 12.6	1.707	2.646	7.9	20.1	1 22	6 36.72	+25 52.3	1.712	2.646	8.4	20.1
2 1	6 34.02	+21 15.3	1.778	2.656	11.8	20.4	2 1	6 27.99	+25 55.2	1.788	2.655	12.3	20.3
2 11	6 29.94	+21 16.9	1.870	2.665	15.0	20.6	2 11	6 22.31	+25 53.1	1.886	2.663	15.6	20.6
214287	2005 <i>GB</i> ₁₅₈		1 4.3 165°04	4°5/ 3.0 18			17587	1995 <i>BD</i>		1 4.3 178°96	0°7/ 4.1 18		
12 3	7 28.75	+35 21.1	2.388	3.206	11.4	22.0	12 3	7 19.58	+24 1.0	3.011	3.837	9.1	18.6
12 13	7 21.13	+36 13.5	2.319	3.212	8.7	21.9	12 13	7 14.03	+24 30.9	2.931	3.838	6.6	18.5
12 23	7 11.22	+36 59.4	2.276	3.218	6.0	21.7	12 23	7 7.01	+25 2.0	2.879	3.838	3.8	18.3
1 2	6 59.84	+37 33.3	2.263	3.223	4.5	21.6	1 2	6 59.05	+25 32.0	2.857	3.838	1.0	18.1
1 12	6 48.16	+37 51.7	2.280	3.227	5.5	21.7	1 12	6 50.87	+25 58.9	2.866	3.838	2.5	18.2
1 22	6 37.38	+37 54.0	2.326	3.231	8.1	21.8	1 22	6 43.20	+26 21.3	2.907	3.838	5.4	18.4
2 1	6 28.52	+37 42.2	2.400	3.234	10.8	22.0	2 1	6 36.69	+26 38.9	2.976	3.838	8.1	18.6
2 11	6 22.28	+37 20.0	2.496	3.236	13.2	22.2	2 11	6 31.87	+26 51.9	3.070	3.837	10.4	18.7
180503	2004 <i>CA</i> ₉₉		1 4.3 355°11	9°7/ 3.8 17			219869	2002 <i>CX</i> ₂₇₇		1 4.3 41°22	1°8/ 4.8 18		
12 3	7 28.32	+42 57.1	1.229	2.072	18.4	19.4	12 3	7 21.90	+16 57.6	1.724	2.562	14.2	20.3
12 13	7 22.67	+43 34.6	1.168	2.066	14.9	19.1	12 13	7 16.41	+17 7.1	1.659	2.568	10.5	20.1
12 23	7 12.78	+43 51.9	1.128	2.061	11.6	18.9	12 23	7 8.62	+17 24.8	1.617	2.575	6.3	19.9
1 2	7 0.17	+43 39.0	1.109	2.058	9.8	18.8	1 2	6 59.37	+17 48.9	1.603	2.583	2.3	19.6
1 12	6 47.23	+42 51.0	1.114	2.056	10.7	18.9	1 12	6 49.87	+18 17.0	1.616	2.590	3.8	19.8
1 22	6 36.35	+41 31.4	1.142	2.055	13.8	19.0	1 22	6 41.32	+18 46.5	1.658	2.598	8.1	20.0
2 1	6 29.27	+39 49.9	1.192	2.056	17.4	19.3	2 1	6 34.76	+19 15.5	1.725	2.606	12.0	20.3
2 11	6 26.72	+37 57.7	1.260	2.058	20.8	19.5	2 11	6 30.85	+19 42.8	1.815	2.614	15.3	20.5
167964	2005 <i>EU</i> ₂₇₅		1 4.3 218°97	0°0/ 4.4 18			224019	2005 <i>JX</i> ₇₈		1 4.3 82°78	2°6/ 3.9 17		
12 3	7 20.82	+21 16.4	2.539	3.366	10.5</								

EPHEMERIDES

1 4.3

1 4.4

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
231002	2005 <i>ED</i> ₁₀		1 4.3 258°91	2.7/ 3.7	18		212986	2009 <i>DG</i> ₁₄		1 4.4 265°53	0°1/ 4.3	18	
12 3	7 23.35	+30 18.9	2.254	3.087	11.5	20.4	12 3	7 25.25	+22 26.9	1.750	2.589	14.0	20.9
12 13	7 17.26	+30 40.7	2.175	3.082	8.5	20.2	12 13	7 19.18	+22 35.8	1.661	2.573	10.3	20.6
12 23	7 9.04	+30 59.0	2.121	3.076	5.2	20.0	12 23	7 10.42	+22 47.8	1.596	2.557	5.9	20.3
1 2	6 59.46	+31 10.3	2.095	3.071	2.8	19.8	1 2	6 59.82	+23 0.0	1.558	2.541	1.2	20.0
1 12	6 49.59	+31 12.1	2.100	3.066	4.2	19.9	1 12	6 48.64	+23 9.7	1.550	2.524	3.8	20.1
1 22	6 40.51	+31 3.9	2.134	3.060	7.4	20.1	1 22	6 38.27	+23 15.6	1.569	2.507	8.6	20.4
2 1	6 33.18	+30 47.0	2.194	3.055	10.6	20.3	2 1	6 29.99	+23 17.5	1.615	2.490	12.9	20.6
2 11	6 28.27	+30 23.9	2.278	3.050	13.4	20.5	2 11	6 24.67	+23 16.4	1.682	2.473	16.6	20.8
275923	2001 <i>TH</i> ₂₀₄		1 4.3 97°70	0°5/ 4.5	18		309406	2007 <i>TG</i> ₂₇₅		1 4.4 22°94	3°2/ 5.1	18	
12 3	7 29.42	+19 44.6	1.625	2.457	15.2	21.7	12 3	7 21.84	+15 2.4	1.223	2.077	17.8	20.4
12 13	7 21.77	+20 10.4	1.577	2.485	11.0	21.6	12 13	7 17.04	+15 3.9	1.168	2.084	13.3	20.1
12 23	7 11.58	+20 41.7	1.552	2.512	6.3	21.3	12 23	7 9.25	+15 18.9	1.133	2.092	8.2	19.8
1 2	6 59.93	+21 14.8	1.556	2.538	1.4	21.1	1 2	6 59.57	+15 46.0	1.122	2.101	3.7	19.6
1 12	6 48.25	+21 46.2	1.589	2.563	3.8	21.3	1 12	6 49.61	+16 21.7	1.137	2.111	5.1	19.7
1 22	6 37.89	+22 13.4	1.651	2.588	8.3	21.6	1 22	6 40.96	+17 2.2	1.177	2.122	10.0	20.0
2 1	6 29.94	+22 35.9	1.739	2.612	12.3	21.9	2 1	6 34.93	+17 43.8	1.241	2.133	14.7	20.3
2 11	6 25.00	+22 53.9	1.850	2.635	15.5	22.2	2 11	6 32.28	+18 23.8	1.323	2.146	18.6	20.6
195665	2002 <i>OU</i> ₄		1 4.3 59°67	3°6/ 4.8	18		72041	2000 <i>XX</i> ₅₃		1 4.4 238°23	1°8/ 4.7	18	
12 3	7 22.66	+14 30.7	2.012	2.835	13.1	19.3	12 3	7 24.85	+18 24.0	1.639	2.476	14.8	19.7
12 13	7 16.58	+13 43.3	1.945	2.843	9.8	19.2	12 13	7 18.79	+18 15.8	1.563	2.473	11.0	19.4
12 23	7 8.55	+13 2.4	1.902	2.851	6.4	19.0	12 23	7 10.12	+18 13.8	1.511	2.469	6.5	19.2
1 2	6 59.36	+12 29.3	1.887	2.859	3.7	18.8	1 2	6 59.75	+18 16.6	1.486	2.466	2.2	18.9
1 12	6 50.03	+12 4.7	1.902	2.867	4.7	18.9	1 12	6 48.99	+18 22.8	1.489	2.462	4.1	19.0
1 22	6 41.57	+11 48.7	1.946	2.875	7.8	19.1	1 22	6 39.20	+18 31.0	1.520	2.459	8.7	19.3
2 1	6 34.85	+11 40.6	2.016	2.884	11.1	19.3	2 1	6 31.59	+18 40.4	1.576	2.455	13.0	19.5
2 11	6 30.44	+11 39.2	2.109	2.892	14.0	19.5	2 11	6 26.92	+18 50.3	1.654	2.451	16.6	19.7
403527	2010 <i>EC</i> ₇₈		1 4.3 160°85	4°5/ 3.4	18		81792	2000 <i>JE</i> ₈₅		1 4.4 139°65	5°1/ 5.8	18	
12 3	7 30.00	+32 42.5	1.750	2.583	14.2	21.6	12 3	7 22.35	+ 6 48.1	2.243	3.037	12.8	19.8
12 13	7 22.62	+33 29.2	1.684	2.588	10.7	21.4	12 13	7 16.23	+ 6 30.7	2.174	3.048	10.1	19.7
12 23	7 12.31	+34 10.1	1.641	2.592	7.0	21.2	12 23	7 8.34	+ 6 26.1	2.130	3.059	7.3	19.5
1 2	7 0.12	+34 38.5	1.626	2.596	4.5	21.0	1 2	6 59.37	+ 6 35.2	2.114	3.068	5.3	19.4
1 12	6 47.57	+34 50.1	1.640	2.599	6.0	21.1	1 12	6 50.23	+ 6 57.1	2.127	3.078	5.6	19.4
1 22	6 36.25	+34 44.4	1.682	2.602	9.6	21.3	1 22	6 41.82	+ 7 29.9	2.169	3.087	7.9	19.6
2 1	6 27.45	+34 24.1	1.749	2.605	13.2	21.6	2 1	6 34.91	+ 8 10.8	2.238	3.095	10.6	19.8
2 11	6 21.97	+33 54.0	1.838	2.606	16.3	21.8	2 11	6 30.07	+ 8 56.5	2.331	3.103	13.1	20.0
85345	1995 <i>SH</i> ₆₅		1 4.3 185°10	0°8/ 4.5	18		96691	1999 <i>JH</i> ₇₃		1 4.4 227°24	0°3/ 4.3	18	
12 3	7 23.92	+20 24.6	2.495	3.317	10.9	20.3	12 3	7 25.36	+21 17.6	1.606	2.448	14.9	19.0
12 13	7 17.31	+20 14.0	2.414	3.317	8.0	20.1	12 13	7 19.34	+21 55.1	1.531	2.445	10.9	18.7
12 23	7 8.93	+20 5.6	2.359	3.316	4.6	19.9	12 23	7 10.54	+22 39.0	1.480	2.442	6.2	18.5
1 2	6 59.45	+19 58.3	2.334	3.315	1.3	19.6	1 2	6 59.85	+23 24.8	1.456	2.439	1.2	18.1
1 12	6 49.76	+19 51.3	2.340	3.313	2.9	19.7	1 12	6 48.65	+24 7.9	1.461	2.435	4.0	18.3
1 22	6 40.76	+19 44.3	2.377	3.311	6.3	20.0	1 22	6 38.42	+24 44.9	1.493	2.432	8.9	18.6
2 1	6 33.24	+19 37.4	2.443	3.308	9.5	20.2	2 1	6 30.46	+25 14.5	1.551	2.428	13.3	18.9
2 11	6 27.77	+19 30.9	2.533	3.305	12.2	20.3	2 11	6 25.62	+25 37.1	1.630	2.425	16.9	19.1
66467	1999 <i>RT</i> ₁₆		1 4.3 121°91	2°7/ 5.0	18		406037	2006 <i>TA</i> ₉₃		1 4.4 95°26	2°4/ 3.9	18	
12 3	7 25.42	+14 33.7	1.898	2.719	13.8	19.9	12 3	7 28.42	+28 34.9	1.871	2.704	13.5	21.5
12 13	7 18.68	+14 36.1	1.836	2.735	10.3	19.7	12 13	7 20.96	+29 0.8	1.820	2.728	9.8	21.3
12 23	7 9.79	+14 47.5	1.799	2.751	6.4	19.5	12 23	7 11.12	+29 23.4	1.793	2.750	5.8	21.1
1 2	6 59.61	+15 6.7	1.790	2.766	3.0	19.3	1 2	6 59.90	+29 38.6	1.795	2.773	2.6	21.0
1 12	6 49.27	+15 31.7	1.810	2.780	4.1	19.4	1 12	6 48.65	+29 43.6	1.826	2.795	4.3	21.1
1 22	6 39.90	+16 0.2	1.860	2.794	7.8	19.6	1 22	6 38.62	+29 38.4	1.886	2.816	8.0	21.4
2 1	6 32.44	+16 30.3	1.936	2.807	11.3	19.9	2 1	6 30.84	+29 24.8	1.973	2.837	11.5	21.6
2 11	6 27.50	+17 0.4	2.036	2.820	14.4	20.1	2 11	6 25.91	+29 5.6	2.083	2.858	14.4	21.9
393681	2004 <i>RV</i> ₂₅₁		1 4.3 90°05	1°1/ 4.1	16		457220	2008 <i>KY</i> ₆		1 4.4 270°78	0°9/ 4.7	17	
12 3	7 28.98	+24 10.9	1.548	2.388	15.4	21.5	12 3	7 23.16	+17 18.5	1.955	2.785	13.1	21.1
12 13	7 21.66	+24 38.2	1.498	2.411	11.1	21.3	12 13	7 17.47	+18 2.4	1.861	2.767	9.7	20.9
12 23	7 11.61	+25 6.9	1.472	2.433	6.3	21.1	12 23	7 9.40	+18 56.4	1.791	2.749	5.7	20.6
1 2	6 59.96	+25 32.2	1.473	2.455	1.6	20.8	1 2	6 59.64	+19 57.4	1.749	2.731	1.5	20.3
1 12	6 48.24	+25 50.7	1.503	2.476	4.1	21.0	1 12	6 49.24	+21 1.2	1.738	2.712	3.5	20.4
1 22	6 37.92	+26 1.2	1.561	2.497	8.8	21.4	1 22	6 39.42	+22 3.6	1.756	2.693	7.9	20.6
2 1	6 30.16	+26 4.4	1.644	2.518	12.8	21.6	2 1	6 31.30	+23 1.5	1.801	2.674	11.9	20.8
2 11	6 25.60	+26 2.4	1.749	2.538	16.2	21.9	2 11	6 25.75	+23 53.3	1.869	2.655	15.4	21.0
496642	2016 <i>AE</i> ₃		1 4.4 281°92	0°2/ 4.4	18		180851	2005 <i>GZ</i> ₁₆₁		1 4.4 165°65	4°1/ 3.8	18	
12 3	7 23.65	+20 23.6	1.709	2.550	14.2	21.1	12 3	7 30.49	+30 34.9	1.356	2.203	16.8	20.6
12 13	7 18.08	+20 51.3	1.620	2.532	10.5	20.8	12 13	7 23.58	+31 9.9	1.291	2.205	12.5	20.3
12 23	7 9.84	+21 25.9	1.554	2.515	6.1	20.5	12 23	7 13.13	+31 40.3	1.248	2.206	7.8	20.1
1 2	6 59.69	+22 4.2	1.515	2.498	1.2	20.2	1 2	7 0.35	+31 58.8	1.231	2.207	4.2	19.8
1 12	6 48.89	+22 42.2	1.506	2.480	3.8	20.3	1 12	6 47.14	+32 0.4	1.240	2.207	6.2	20.0
1 22	6 38.84	+23 16.9	1.524	2.463	8.7	20.6	1 22	6 35.45	+31 44.8	1.276	2.208	10.8	20.2
2 1	6 30.82	+23 46.6	1.567	2.445	13.1	20.8	2 1	6 26.84	+31 15.9	1.336	2.208	15.3	20.5
2 11	6 25.75	+24 11.0	1.633	2.428	16.9	21.0	2 11	6 22.19	+30 39.2	1.415	2.208	19.1	20.7
113998	2002 <i>UK</i> ₃₃		1 4.4 120°82	1°8/ 4.0	18		421379	2013 <i>TK</i> ₁₄₀		1 4.4 30°43	10°1/ 7.3	18	
12 3	7 30.50	+26 13.6	1.594										

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
143682	2003 <i>SQ</i> ₂₆₆		1 4.4 152°12	0°6/ 4.5	18		239550	2008 <i>SF</i> ₁₁₅		1 4.4 310°62	2°8/ 4.9	18	
12 3	7 26.09	+20 10.6	2.017	2.844	12.9	21.3	12 3	7 23.39	+15 29.0	1.353	2.199	16.9	20.5
12 13	7 19.21	+20 24.2	1.947	2.853	9.4	21.0	12 13	7 18.27	+15 37.2	1.277	2.190	12.7	20.2
12 23	7 10.16	+20 41.9	1.903	2.862	5.4	20.8	12 23	7 10.11	+15 58.1	1.223	2.181	7.8	19.9
1 2	6 59.75	+21 1.5	1.887	2.869	1.2	20.5	1 2	6 59.83	+16 30.2	1.193	2.172	3.2	19.6
1 12	6 49.10	+21 20.4	1.902	2.876	3.3	20.7	1 12	6 48.93	+17 10.2	1.190	2.164	4.9	19.7
1 22	6 39.35	+21 37.3	1.946	2.882	7.4	21.0	1 22	6 39.04	+17 54.3	1.213	2.156	10.0	19.9
2 1	6 31.47	+21 51.3	2.018	2.888	11.0	21.2	2 1	6 31.61	+18 39.0	1.260	2.148	14.9	20.2
2 11	6 26.11	+22 2.9	2.113	2.893	14.1	21.4	2 11	6 27.58	+19 21.7	1.327	2.141	19.0	20.4
378381	2007 <i>QG</i> ₁₃		1 4.4 77°70	6°6/ 2.3	18		122357	2000 <i>QH</i> ₄₉		1 4.4 44°02	0°9/ 4.2	17	
12 3	7 27.84	+41 3.1	2.250	3.063	12.2	20.3	12 3	7 26.29	+23 51.6	1.206	2.064	17.7	19.4
12 13	7 20.73	+42 18.9	2.203	3.083	9.7	20.2	12 13	7 20.30	+24 7.4	1.159	2.081	12.8	19.2
12 23	7 11.11	+43 23.6	2.181	3.103	7.5	20.1	12 23	7 11.09	+24 25.5	1.134	2.098	7.3	18.9
1 2	6 59.93	+44 10.6	2.186	3.123	6.6	20.1	1 2	6 59.97	+24 41.4	1.134	2.116	1.6	18.6
1 12	6 48.52	+44 36.1	2.221	3.143	7.4	20.2	1 12	6 48.75	+24 51.5	1.160	2.135	4.6	18.9
1 22	6 38.20	+44 40.0	2.282	3.162	9.4	20.3	1 22	6 39.19	+24 54.7	1.211	2.154	10.0	19.2
2 1	6 30.07	+44 25.4	2.369	3.182	11.6	20.5	2 1	6 32.60	+24 52.0	1.286	2.174	14.7	19.6
2 11	6 24.82	+43 57.1	2.476	3.201	13.7	20.7	2 11	6 29.64	+24 45.2	1.380	2.194	18.5	19.9
88942	2001 <i>TK</i> ₃₅		1 4.4 100°71	2°3/ 4.7	18		266378	2007 <i>ET</i> ₁₁₁		1 4.4 55°40	0°3/ 4.5	18	
12 3	7 25.42	+17 2.6	2.011	2.835	13.0	19.4	12 3	7 22.57	+20 38.0	1.904	2.740	13.1	20.9
12 13	7 18.51	+16 37.4	1.953	2.854	9.6	19.3	12 13	7 16.86	+20 56.0	1.832	2.743	9.6	20.6
12 23	7 9.63	+16 17.6	1.920	2.874	5.8	19.1	12 23	7 8.93	+21 18.7	1.784	2.745	5.5	20.4
1 2	6 59.63	+16 2.9	1.915	2.893	2.6	18.9	1 2	6 59.57	+21 43.4	1.765	2.747	1.2	20.1
1 12	6 49.58	+15 53.0	1.941	2.911	3.8	19.0	1 12	6 49.91	+22 7.6	1.775	2.750	3.4	20.3
1 22	6 40.52	+15 47.3	1.996	2.930	7.4	19.3	1 22	6 41.11	+22 29.1	1.813	2.752	7.6	20.5
2 1	6 33.31	+15 45.4	2.078	2.948	10.8	19.5	2 1	6 34.17	+22 47.2	1.878	2.755	11.4	20.8
2 11	6 28.50	+15 46.5	2.184	2.965	13.6	19.7	2 11	6 29.77	+23 1.8	1.966	2.757	14.6	21.0
204301	2004 <i>PU</i> ₈₄		1 4.4 72°66	0°0/ 4.3	17		200072	2132 <i>T-2</i>		1 4.4 35°35	6°1/ 5.9	18	
12 3	7 27.77	+21 25.8	1.405	2.250	16.4	20.3	12 3	7 19.98	+ 5 28.1	2.009	2.809	13.9	19.8
12 13	7 20.96	+21 50.2	1.358	2.273	11.9	20.1	12 13	7 14.77	+ 4 59.6	1.937	2.812	11.1	19.6
12 23	7 11.30	+22 19.4	1.333	2.295	6.7	19.8	12 23	7 7.66	+ 4 46.1	1.889	2.814	8.3	19.4
1 2	6 59.97	+22 49.0	1.335	2.317	1.3	19.5	1 2	6 59.33	+ 4 49.1	1.867	2.817	6.3	19.3
1 12	6 48.57	+23 15.3	1.364	2.339	4.1	19.8	1 12	6 50.76	+ 5 8.5	1.873	2.820	6.6	19.3
1 22	6 38.63	+23 36.0	1.421	2.361	9.1	20.1	1 22	6 42.92	+ 5 42.3	1.906	2.823	8.8	19.5
2 1	6 31.34	+23 51.0	1.503	2.383	13.4	20.4	2 1	6 36.67	+ 6 27.1	1.966	2.826	11.7	19.6
2 11	6 27.36	+24 1.1	1.605	2.405	16.9	20.7	2 11	6 32.62	+ 7 18.7	2.047	2.830	14.4	19.8
234254	2000 <i>UE</i> ₁₁		1 4.4 124°69	1°2/ 4.6	18 R		16198	Búzios		1 4.4 126°49	6°3/ 6.1	18	
12 3	7 27.20	+18 53.3	1.864	2.692	13.7	21.0	12 3	7 23.11	+ 4 28.5	2.051	2.841	14.1	17.9
12 13	7 20.03	+18 56.4	1.803	2.708	10.0	20.8	12 13	7 16.90	+ 4 1.2	1.987	2.854	11.3	17.8
12 23	7 10.61	+19 4.7	1.767	2.724	5.9	20.6	12 23	7 8.80	+ 3 49.4	1.946	2.866	8.4	17.6
1 2	6 59.84	+19 16.2	1.759	2.740	1.7	20.3	1 2	6 59.55	+ 3 54.6	1.932	2.879	6.5	17.5
1 12	6 48.94	+19 28.9	1.781	2.755	3.6	20.5	1 12	6 50.13	+ 4 16.3	1.947	2.890	6.7	17.6
1 22	6 39.08	+19 41.3	1.832	2.769	7.7	20.8	1 22	6 41.52	+ 4 52.3	1.990	2.902	8.8	17.7
2 1	6 31.27	+19 53.0	1.911	2.782	11.4	21.0	2 1	6 34.56	+ 5 39.1	2.059	2.912	11.5	17.9
2 11	6 26.13	+20 3.6	2.012	2.795	14.6	21.3	2 11	6 29.83	+ 6 32.4	2.151	2.923	14.1	18.1
330137	2005 <i>YW</i> ₁₅₁		1 4.4 302°66	1°3/ 4.0	18		54059	2000 <i>GN</i> ₁₃₄		1 4.4 140°69	5°9/ 2.4	18	
12 3	7 23.09	+24 44.5	1.950	2.789	12.8	20.8	12 3	7 28.68	+36 3.7	1.943	2.770	13.3	18.9
12 13	7 17.30	+25 18.7	1.875	2.788	9.3	20.6	12 13	7 21.71	+37 27.0	1.880	2.776	10.2	18.7
12 23	7 9.20	+25 54.7	1.826	2.786	5.4	20.4	12 23	7 11.91	+38 43.5	1.842	2.782	7.4	18.6
1 2	6 59.60	+26 28.6	1.804	2.785	1.6	20.1	1 2	6 59.02	+39 45.2	1.832	2.787	5.9	18.5
1 12	6 49.63	+26 56.9	1.812	2.784	3.7	20.3	1 12	6 48.01	+40 26.4	1.850	2.792	7.2	18.6
1 22	6 40.50	+27 17.7	1.848	2.783	7.8	20.5	1 22	6 36.85	+40 45.6	1.897	2.797	9.9	18.8
2 1	6 33.25	+27 30.7	1.911	2.782	11.5	20.7	2 1	6 28.04	+40 45.0	1.968	2.801	12.9	19.0
2 11	6 28.62	+27 37.1	1.997	2.781	14.6	20.9	2 11	6 22.39	+40 29.6	2.060	2.805	15.5	19.2
326737	2003 <i>KC</i> ₂		1 4.4 265°37	1°1/ 4.7	18		328328	2008 <i>JJ</i> ₂₆		1 4.4 321°56	19°3/ 28.8	18	
12 3	7 22.51	+17 32.7	2.087	2.915	12.5	21.0	12 3	7 22.43	-14 35.2	1.517	2.233	21.2	20.0
12 13	7 16.84	+17 59.8	1.992	2.897	9.2	20.7	12 13	7 17.58	-17 56.4	1.442	2.204	20.1	19.8
12 23	7 8.98	+18 34.9	1.922	2.879	5.5	20.5	12 23	7 9.82	-20 53.7	1.385	2.176	19.4	19.7
1 2	6 59.58	+19 15.7	1.880	2.861	1.6	20.2	1 2	6 59.85	-23 13.0	1.348	2.148	19.3	19.6
1 12	6 49.65	+19 59.3	1.869	2.843	3.4	20.3	1 12	6 48.92	-24 43.9	1.330	2.121	20.0	19.6
1 22	6 40.28	+20 42.8	1.887	2.824	7.4	20.5	1 22	6 38.51	-25 22.3	1.329	2.095	21.4	19.6
2 1	6 32.51	+21 23.9	1.932	2.805	11.3	20.7	2 1	6 30.11	-25 10.6	1.343	2.069	23.0	19.6
2 11	6 27.13	+22 1.5	2.001	2.786	14.5	20.8	2 11	6 24.85	-24 17.4	1.370	2.045	24.8	19.7
31252	1998 <i>DA</i> ₁₅		1 4.4 23°85	5°8/ 7.1	18		419856	2011 <i>AX</i> ₁₁		1 4.4 295°46	1°5/ 4.9	18	
12 3	7 19.62	+ 2 50.9	2.054	2.843	14.0	18.0	12 3	7 22.26	+15 40.1	1.898	2.727	13.5	21.1
12 13	7 14.50	+ 3 17.3	1.981	2.848	11.3	17.9	12 13	7 16.73	+16 24.4	1.818	2.723	10.0	20.9
12 23	7 7.48	+ 4 3.2	1.931	2.853	8.4	17.7	12 23	7 8.94	+17 19.7	1.763	2.720	6.0	20.7
1 2	6 59.27	+ 5 8.2	1.907	2.858	6.1	17.6	1 2	6 59.62	+18 23.0	1.737	2.717	2.0	20.4
1 12	6 50.77	+ 6 29.6	1.912	2.863	6.1	17.6	1 12	6 49.86	+19 30.0	1.740	2.714	3.5	20.5
1 22	6 42.95	+ 8 2.5	1.947	2.869	8.3	17.7	1 22	6 40.81	+20 36.4	1.772	2.711	7.7	20.8
2 1	6 36.67	+ 9 41.4	2.009	2.876	11.2	17.9	2 1	6 33.54	+21 38.8	1.832	2.708	11.6	21.0
2 11	6 32.55	+11 20.7	2.095	2.882	13.9	18.1	2 11	6 28.79	+22 35.4	1.914	2.705	14.9	21.2
314224	2005 <i>OU</i>		1 4.4 168°66	5°2/ 3.6	18		153214	2000 <i>XP</i> ₅₁		1 4.4 95°17	4°6/ 3.3	18	
12 3	7 30.77	+38 3.2	2.105	2.922									

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
115534	2003 <i>UZ</i> ₅₃		1 4.4 128°64	3°0/ 3.8 18			407941	2012 <i>CA</i> ₄₅		1 4.4 33°34	6°4/ 6.4 18		
12 3	7 25.02	+31 46.0	2.227	3.056	11.7	20.1	12 3	7 21.24	+ 5 55.0	1.556	2.371	16.6	20.9
12 13	7 18.46	+32 3.5	2.156	3.061	8.7	19.9	12 13	7 16.14	+ 5 51.4	1.492	2.378	13.1	20.7
12 23	7 9.76	+32 15.9	2.111	3.065	5.5	19.7	12 23	7 8.64	+ 6 7.8	1.450	2.385	9.5	20.5
1 2	6 59.75	+32 19.6	2.095	3.069	3.1	19.6	1 2	6 59.61	+ 6 45.0	1.433	2.392	6.7	20.4
1 12	6 49.55	+32 12.5	2.109	3.072	4.4	19.6	1 12	6 50.28	+ 7 40.6	1.443	2.400	6.9	20.4
1 22	6 40.27	+31 54.7	2.151	3.076	7.5	19.8	1 22	6 41.92	+ 8 50.1	1.479	2.408	9.8	20.6
2 1	6 32.86	+31 28.1	2.221	3.080	10.6	20.0	2 1	6 35.59	+10 7.6	1.540	2.417	13.4	20.8
2 11	6 27.93	+30 55.8	2.314	3.083	13.3	20.2	2 11	6 32.02	+11 27.4	1.623	2.426	16.6	21.1
412	Elisabetha		1 4.4 269°43	0°4/ 4.5 18			462043	2007 <i>DX</i> ₂₁		1 4.4 232°42	6°3/ 3.2 18		
12 3	7 22.59	+18 37.0	1.950	2.783	13.0	13.6	12 3	7 29.45	+40 17.2	2.050	2.867	13.1	21.5
12 13	7 16.97	+19 24.2	1.870	2.778	9.5	13.4	12 13	7 22.19	+40 55.9	1.977	2.863	10.4	21.3
12 23	7 9.08	+20 19.7	1.814	2.774	5.5	13.2	12 23	7 12.14	+41 23.1	1.927	2.858	7.8	21.2
1 2	6 59.65	+21 19.9	1.787	2.770	1.2	12.8	1 2	7 0.30	+41 32.5	1.905	2.854	6.4	21.1
1 12	6 49.77	+22 20.5	1.790	2.765	3.4	13.0	1 12	6 48.14	+41 20.6	1.911	2.849	7.3	21.1
1 22	6 40.60	+23 17.6	1.823	2.761	7.6	13.3	1 22	6 37.13	+40 47.8	1.945	2.844	9.7	21.3
2 1	6 33.18	+24 8.8	1.882	2.756	11.5	13.5	2 1	6 28.51	+39 58.3	2.004	2.839	12.6	21.4
2 11	6 28.30	+24 53.0	1.965	2.752	14.7	13.7	2 11	6 23.04	+38 57.9	2.084	2.834	15.2	21.6
461773	2005 <i>UB</i> ₃₈₄		1 4.4 309°62	7°4/ 5.4 18			429979	2013 <i>LH</i> ₃₀		1 4.4 189°03	15°1/10.4 18		
12 3	7 21.11	+ 5 6.2	1.811	2.614	15.1	21.1	12 3	7 26.63	-11 49.8	1.305	2.045	23.0	20.8
12 13	7 15.85	+ 4 6.6	1.732	2.606	12.3	20.9	12 13	7 20.60	-12 19.6	1.238	2.045	20.4	20.6
12 23	7 8.40	+ 3 21.6	1.676	2.598	9.4	20.7	12 23	7 11.46	-12 8.5	1.187	2.045	17.8	20.5
1 2	6 59.51	+ 2 54.9	1.645	2.590	7.6	20.6	1 2	7 0.21	-11 8.8	1.156	2.044	15.7	20.3
1 12	6 50.25	+ 2 48.1	1.642	2.582	8.0	20.6	1 12	6 48.38	- 9 19.5	1.146	2.043	15.1	20.3
1 22	6 41.73	+ 3 0.5	1.664	2.575	10.3	20.7	1 22	6 37.64	- 6 48.1	1.159	2.041	16.3	20.3
2 1	6 34.96	+ 3 29.2	1.711	2.567	13.4	20.9	2 1	6 29.44	- 3 47.9	1.196	2.039	18.7	20.5
2 11	6 30.66	+ 4 9.9	1.780	2.560	16.3	21.1	2 11	6 24.72	- 0 35.1	1.253	2.037	21.6	20.7
315480	2007 <i>YK</i> ₅₀		1 4.4 338°93	0°1/ 4.4 18			127804	2003 <i>FH</i> ₈₀		1 4.4 236°23	1°3/ 4.1 18		
12 3	7 23.21	+23 38.4	1.341	2.198	16.3	20.9	12 3	7 27.39	+24 18.8	1.828	2.663	13.7	20.4
12 13	7 18.21	+23 26.6	1.267	2.188	12.0	20.6	12 13	7 20.78	+24 52.8	1.740	2.650	10.0	20.2
12 23	7 10.09	+23 15.8	1.215	2.179	6.9	20.3	12 23	7 11.45	+25 29.6	1.676	2.636	5.8	19.9
1 2	6 59.88	+23 3.7	1.188	2.170	1.4	19.9	1 2	7 0.21	+26 4.7	1.640	2.622	1.6	19.6
1 12	6 49.18	+22 48.7	1.187	2.162	4.4	20.1	1 12	6 48.35	+26 34.0	1.634	2.607	4.0	19.7
1 22	6 39.66	+22 30.6	1.211	2.155	9.8	20.4	1 22	6 37.27	+26 55.1	1.657	2.591	8.6	20.0
2 1	6 32.76	+22 10.9	1.259	2.149	14.7	20.7	2 1	6 28.28	+27 7.7	1.706	2.575	12.7	20.2
2 11	6 29.34	+21 51.1	1.327	2.144	18.9	20.9	2 11	6 22.25	+27 13.4	1.777	2.558	16.3	20.4
110036	2001 <i>SP</i> ₇₉		1 4.4 10°83	4°6/ 5.8 18			245053	2004 <i>FT</i> ₉₁		1 4.4 217°44	2°2/ 3.5 18		
12 3	7 19.34	+ 8 8.1	2.246	3.051	12.5	19.9	12 3	7 21.84	+28 8.3	2.642	3.470	10.1	20.7
12 13	7 14.19	+ 7 58.1	2.169	3.051	9.8	19.7	12 13	7 16.04	+28 55.8	2.560	3.466	7.4	20.5
12 23	7 7.30	+ 8 0.5	2.116	3.051	6.9	19.6	12 23	7 8.41	+29 42.9	2.506	3.462	4.5	20.3
1 2	6 59.30	+ 8 15.5	2.091	3.052	4.8	19.4	1 2	6 59.58	+30 25.7	2.481	3.457	2.3	20.1
1 12	6 51.05	+ 8 42.5	2.095	3.052	5.2	19.5	1 12	6 50.41	+31 1.3	2.487	3.453	3.6	20.2
1 22	6 43.43	+ 9 19.2	2.128	3.052	7.6	19.6	1 22	6 41.80	+31 27.8	2.523	3.448	6.6	20.4
2 1	6 37.22	+10 2.9	2.187	3.052	10.5	19.8	2 1	6 34.60	+31 45.0	2.587	3.443	9.4	20.6
2 11	6 33.02	+10 50.6	2.270	3.053	13.1	20.0	2 11	6 29.42	+31 54.2	2.675	3.437	11.9	20.7
12070	Kilkis		1 4.4 213°71	1°3/ 4.1 18			424748	2008 <i>SN</i> ₃₀₅		1 4.4 85°88	5°6/ 2.6 18		
12 3	7 26.58	+25 6.6	1.979	2.811	12.9	19.1	12 3	7 26.84	+37 17.2	2.149	2.972	12.3	21.3
12 13	7 19.90	+25 32.7	1.896	2.805	9.4	18.9	12 13	7 20.08	+38 27.2	2.094	2.986	9.5	21.1
12 23	7 10.78	+25 59.8	1.838	2.798	5.5	18.6	12 23	7 10.84	+39 28.9	2.064	3.001	6.9	21.0
1 2	7 0.02	+26 24.1	1.809	2.790	1.6	18.3	1 2	7 0.06	+40 15.9	2.063	3.015	5.6	20.9
1 12	6 48.82	+26 42.4	1.810	2.782	3.8	18.5	1 12	6 48.99	+40 44.2	2.090	3.029	6.6	21.0
1 22	6 38.44	+26 53.0	1.840	2.773	7.9	18.7	1 22	6 38.94	+40 53.1	2.145	3.043	9.0	21.2
2 1	6 30.01	+26 56.4	1.897	2.764	11.7	18.9	2 1	6 31.01	+40 44.9	2.226	3.057	11.6	21.4
2 11	6 24.30	+26 54.0	1.977	2.754	15.0	19.1	2 11	6 25.89	+40 23.9	2.328	3.071	14.0	21.6
451224	2010 <i>CC</i> ₄₂		1 4.4 245°67	2°7/ 5.0 18			51945	2001 <i>QM</i> ₁₉₆		1 4.4 125°53	6°7/ 2.6 18		
12 3	7 25.16	+14 57.9	1.609	2.441	15.4	21.5	12 3	7 28.06	+43 48.5	2.462	3.264	11.6	19.5
12 13	7 19.23	+15 5.0	1.526	2.431	11.6	21.3	12 13	7 20.87	+44 42.0	2.400	3.270	9.5	19.4
12 23	7 10.56	+15 23.3	1.465	2.420	7.2	21.0	12 23	7 11.26	+45 23.5	2.364	3.276	7.6	19.3
1 2	7 0.00	+15 51.4	1.432	2.410	3.2	20.7	1 2	7 0.13	+45 47.2	2.354	3.282	6.7	19.2
1 12	6 48.85	+16 26.9	1.426	2.398	4.6	20.8	1 12	6 48.76	+45 50.1	2.373	3.288	7.4	19.3
1 22	6 38.55	+17 6.4	1.449	2.387	9.1	21.0	1 22	6 38.41	+45 32.4	2.419	3.294	9.2	19.4
2 1	6 30.38	+17 47.3	1.496	2.375	13.6	21.2	2 1	6 30.16	+44 57.3	2.491	3.299	11.3	19.6
2 11	6 25.23	+18 27.3	1.565	2.363	17.4	21.5	2 11	6 24.69	+44 9.8	2.584	3.304	13.2	19.7
61390	2000 <i>QR</i> ₃		1 4.4 222°35	0°0/ 4.3 18			378384	2007 <i>QR</i> ₁₄		1 4.4 30°95	6°2/ 4.1 18		
12 3	7 26.65	+21 37.3	1.850	2.682	13.6	20.1	12 3	7 28.25	+38 35.5	1.566	2.402	15.5	19.9
12 13	7 20.07	+21 53.4	1.765	2.674	10.0	19.8	12 13	7 21.35	+38 51.6	1.525	2.425	11.9	19.8
12 23	7 10.93	+22 13.3	1.705	2.665	5.8	19.5	12 23	7 11.54	+38 53.7	1.506	2.448	8.4	19.6
1 2	7 0.07	+22 34.1	1.672	2.655	1.1	19.2	1 2	7 0.15	+38 36.6	1.512	2.473	6.2	19.5
1 12	6 48.71	+22 53.0	1.670	2.644	3.6	19.4	1 12	6 48.93	+37 58.9	1.546	2.498	7.2	19.7
1 22	6 38.18	+23 8.1	1.697	2.633	8.2	19.6	1 22	6 39.44	+37 3.5	1.606	2.524	10.1	19.9
2 1	6 29.66	+23 19.0	1.750	2.622	12.3	19.8	2 1	6 32.78	+35 56.4	1.690	2.551	13.3	20.1
2 11	6 23.96	+23 26.3	1.825	2.610	15.8	20.0	2 11	6 29.48	+34 43.9	1.796	2.578	16.1	20.4
421212	2013 <i>SR</i> ₂₅		1 4.4 131°88	6°0/ 2.9 18			271199	2003 <i>SM</i> ₃₂₉		1 4.4 165°06	2°7/ 5.0 18		
12 3	7 28.03	+41 2.4	2.399	3.208	11.6	21.5							

EPHEMERIDES

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
159377	1997 <i>TO</i> ₁		1 4.4 147°63	2°1/ 4.8 18			114224	2002 <i>VZ</i> ₁₁₃		1 4.4 248°77	4°0/ 4.9 18		
12 3	7 26.98	+17 7.6	1.808	2.634	14.2	21.2	12 3	7 25.67	+14 21.6	1.444	2.280	16.6	19.9
12 13	7 20.05	+17 0.8	1.739	2.643	10.5	21.0	12 13	7 19.70	+13 54.1	1.371	2.277	12.6	19.6
12 23	7 10.78	+17 0.6	1.696	2.651	6.3	20.8	12 23	7 10.86	+13 36.8	1.320	2.273	8.1	19.4
1 2	7 0.05	+17 5.9	1.680	2.659	2.5	20.5	1 2	7 0.12	+13 30.5	1.294	2.269	4.3	19.1
1 12	6 49.09	+17 15.1	1.694	2.666	4.0	20.6	1 12	6 48.92	+13 34.5	1.295	2.265	5.6	19.2
1 22	6 39.12	+17 26.8	1.737	2.673	8.1	20.9	1 22	6 38.79	+13 47.4	1.323	2.260	10.0	19.4
2 1	6 31.21	+17 39.9	1.806	2.679	11.9	21.1	2 1	6 31.03	+14 7.2	1.376	2.256	14.4	19.7
2 11	6 26.01	+17 53.8	1.898	2.684	15.2	21.4	2 11	6 26.49	+14 31.4	1.448	2.252	18.2	19.9
132510	2002 <i>JB</i> ₄₂		1 4.4 129°62	2°9/ 4.9 18			8551	<i>Daitarabochi</i>		1 4.4 141°07	3°0/ 3.1 18		
12 3	7 25.41	+15 7.9	1.778	2.604	14.4	20.0	12 3	7 19.59	+35 3.8	3.672	4.488	7.8	17.8
12 13	7 18.92	+14 56.4	1.711	2.613	10.7	19.8	12 13	7 14.00	+35 41.8	3.602	4.495	5.9	17.7
12 23	7 10.14	+14 53.5	1.669	2.622	6.7	19.6	12 23	7 7.08	+36 15.3	3.560	4.502	4.1	17.6
1 2	6 59.92	+14 58.6	1.654	2.630	3.2	19.4	1 2	6 59.33	+36 41.8	3.548	4.508	3.0	17.5
1 12	6 49.49	+15 10.3	1.668	2.639	4.4	19.5	1 12	6 51.41	+36 59.4	3.567	4.515	3.7	17.6
1 22	6 40.04	+15 26.8	1.711	2.647	8.2	19.8	1 22	6 43.97	+37 7.6	3.616	4.521	5.5	17.7
2 1	6 32.60	+15 46.7	1.780	2.654	12.0	20.0	2 1	6 37.61	+37 6.9	3.694	4.527	7.4	17.9
2 11	6 27.82	+16 8.3	1.872	2.661	15.2	20.2	2 11	6 32.80	+36 58.8	3.795	4.533	9.1	18.0
216807	2006 <i>SE</i> ₃₉₂		1 4.4 47°96	1°1/ 4.8 18			462126	2007 <i>RX</i> ₁₉₁		1 4.4 126°59	4°0/ 5.7 18		
12 3	7 24.23	+16 22.5	1.423	2.267	16.4	19.1	12 3	7 19.98	+8 45.8	2.529	3.328	11.4	22.1
12 13	7 18.49	+17 18.6	1.374	2.286	12.0	18.9	12 13	7 14.46	+8 37.0	2.458	3.338	8.8	22.0
12 23	7 10.03	+18 26.8	1.347	2.307	7.0	18.7	12 23	7 7.40	+8 38.6	2.412	3.347	6.2	21.8
1 2	6 59.91	+19 41.8	1.346	2.328	1.9	18.4	1 2	6 59.41	+8 50.8	2.395	3.356	4.2	21.7
1 12	6 49.58	+20 57.3	1.374	2.349	4.0	18.6	1 12	6 51.25	+9 12.8	2.407	3.364	4.5	21.7
1 22	6 40.48	+22 7.8	1.428	2.371	8.9	18.9	1 22	6 43.69	+9 42.9	2.449	3.373	6.8	21.9
2 1	6 33.80	+23 10.0	1.509	2.393	13.1	19.3	2 1	6 37.44	+10 18.8	2.519	3.381	9.4	22.1
2 11	6 30.23	+24 2.6	1.610	2.415	16.7	19.5	2 11	6 32.98	+10 58.1	2.614	3.389	11.8	22.3
236247	2005 <i>YH</i> ₉₁		1 4.4 51°72	2°0/ 4.9 18			106074	2000 <i>SO</i> ₃₃₉		1 4.4 259°75	0°0/ 4.4 18		
12 3	7 24.88	+16 54.9	1.357	2.203	16.9	20.5	12 3	7 25.15	+20 21.5	1.572	2.415	15.1	19.1
12 13	7 19.19	+17 9.4	1.296	2.209	12.5	20.2	12 13	7 19.35	+21 2.9	1.496	2.409	11.1	18.9
12 23	7 10.56	+17 34.7	1.256	2.216	7.4	20.0	12 23	7 10.71	+21 52.2	1.442	2.404	6.4	18.6
1 2	7 0.04	+18 8.1	1.242	2.223	2.5	19.7	1 2	7 0.12	+22 45.1	1.416	2.398	1.3	18.2
1 12	6 49.17	+18 45.9	1.255	2.230	4.5	19.8	1 12	6 48.95	+23 36.4	1.418	2.393	4.0	18.4
1 22	6 39.52	+19 24.3	1.294	2.237	9.5	20.1	1 22	6 38.71	+24 22.2	1.448	2.387	9.0	18.7
2 1	6 32.41	+20 0.9	1.358	2.245	14.1	20.4	2 1	6 30.74	+25 0.5	1.503	2.382	13.5	18.9
2 11	6 28.62	+20 34.2	1.442	2.252	18.0	20.7	2 11	6 25.93	+25 31.2	1.579	2.376	17.3	19.2
456677	<i>Yepelijan</i>		1 4.4 95°86	2°0/ 4.9 18			419081	2009 <i>SZ</i> ₁₂₂		1 4.4 137°05	0°9/ 4.2 18		
12 3	7 26.67	+16 31.8	1.683	2.512	14.9	21.6	12 3	7 25.14	+25 18.7	2.170	3.001	12.0	22.0
12 13	7 19.84	+16 41.0	1.628	2.533	10.9	21.4	12 13	7 18.50	+25 26.3	2.101	3.009	8.7	21.8
12 23	7 10.63	+16 58.6	1.598	2.554	6.6	21.2	12 23	7 9.82	+25 33.4	2.058	3.017	5.0	21.6
1 2	7 0.02	+17 22.4	1.595	2.575	2.5	20.9	1 2	6 59.89	+25 37.5	2.043	3.025	1.3	21.3
1 12	6 49.30	+17 49.7	1.622	2.595	4.0	21.1	1 12	6 49.78	+25 36.8	2.059	3.032	3.3	21.5
1 22	6 39.73	+18 18.2	1.676	2.614	8.2	21.4	1 22	6 40.56	+25 30.8	2.105	3.039	7.0	21.7
2 1	6 32.33	+18 46.1	1.757	2.633	12.0	21.7	2 1	6 33.13	+25 20.5	2.178	3.046	10.4	22.0
2 11	6 27.73	+19 12.3	1.861	2.652	15.3	21.9	2 11	6 28.09	+25 7.1	2.275	3.052	13.2	22.2
453803	2011 <i>SO</i> ₂₁		1 4.4 120°65	0°4/ 4.3 15			160310	2003 <i>GA</i> ₃₂		1 4.4 214°36	1°0/ 4.6 18		
12 3	7 28.91	+23 20.3	1.799	2.631	14.0	22.1	12 3	7 26.46	+19 9.9	1.920	2.747	13.4	21.5
12 13	7 21.44	+23 32.5	1.740	2.649	10.1	21.9	12 13	7 19.84	+19 20.4	1.834	2.740	9.9	21.2
12 23	7 11.54	+23 46.1	1.706	2.666	5.8	21.6	12 23	7 10.79	+19 36.5	1.774	2.732	5.8	21.0
1 2	7 0.20	+23 57.8	1.700	2.682	1.2	21.4	1 2	7 0.12	+19 56.0	1.742	2.723	1.6	20.7
1 12	6 48.74	+24 5.4	1.724	2.698	3.6	21.6	1 12	6 48.98	+20 16.5	1.739	2.714	3.5	20.8
1 22	6 38.44	+24 7.9	1.777	2.713	7.9	21.9	1 22	6 38.63	+20 36.0	1.767	2.703	7.9	21.1
2 1	6 30.37	+24 6.1	1.857	2.728	11.8	22.1	2 1	6 30.17	+20 53.7	1.821	2.692	11.9	21.3
2 11	6 25.16	+24 1.2	1.960	2.742	14.9	22.4	2 11	6 24.39	+21 9.2	1.898	2.681	15.3	21.5
281332	2007 <i>TZ</i> ₃₁₁		1 4.4 126°01	0°1/ 4.5 18			414797	2010 <i>RN</i> ₁₇₃		1 4.4 29°98	3°6/ 3.6 18		
12 3	7 21.37	+21 20.3	2.503	3.330	10.7	21.6	12 3	7 24.94	+29 14.1	1.557	2.405	14.9	20.8
12 13	7 15.56	+21 36.1	2.432	3.339	7.7	21.4	12 13	7 19.20	+30 4.3	1.496	2.410	11.0	20.6
12 23	7 8.06	+21 54.6	2.388	3.347	4.4	21.2	12 23	7 10.57	+30 52.3	1.458	2.417	6.8	20.3
1 2	6 59.52	+22 13.8	2.373	3.355	0.9	20.9	1 2	7 0.07	+31 32.0	1.447	2.423	3.7	20.2
1 12	6 50.80	+22 31.9	2.389	3.363	2.7	21.1	1 12	6 49.22	+31 58.3	1.464	2.430	5.5	20.3
1 22	6 42.75	+22 47.6	2.435	3.370	6.1	21.3	1 22	6 39.58	+32 9.6	1.507	2.438	9.6	20.6
2 1	6 36.12	+23 0.5	2.509	3.378	9.1	21.6	2 1	6 32.43	+32 7.4	1.575	2.445	13.5	20.8
2 11	6 31.47	+23 10.5	2.607	3.385	11.7	21.7	2 11	6 28.55	+31 55.2	1.663	2.454	16.8	21.0
246716	2009 <i>BP</i> ₁₆		1 4.4 268°26	2°0/ 4.9 18			187394	2005 <i>UG</i> ₅₀₁		1 4.4 82°21	2°4/ 3.5 18		
12 3	7 19.59	+15 50.6	2.459	3.281	11.0	21.1	12 3	7 25.17	+25 29.1	1.854	2.692	13.3	19.9
12 13	7 14.37	+15 51.9	2.373	3.273	8.2	20.9	12 13	7 19.00	+26 43.6	1.790	2.701	9.7	19.7
12 23	7 7.44	+15 59.4	2.312	3.265	5.1	20.7	12 23	7 10.33	+28 0.5	1.750	2.710	5.7	19.4
1 2	6 59.42	+16 12.6	2.279	3.257	2.2	20.5	1 2	7 0.03	+29 13.6	1.740	2.719	2.5	19.2
1 12	6 51.10	+16 30.1	2.277	3.249	3.2	20.6	1 12	6 49.32	+30 17.2	1.759	2.727	4.5	19.4
1 22	6 43.33	+16 50.5	2.305	3.240	6.4	20.8	1 22	6 39.52	+31 7.7	1.807	2.736	8.4	19.7
2 1	6 36.89	+17 12.5	2.360	3.232	9.5	20.9	2 1	6 31.78	+31 44.5	1.882	2.745	12.0	19.9
2 11	6 32.37	+17 34.9	2.440	3.224	12.3	21.1	2 11	6 26.85	+32 9.3	1.979	2.754	15.0	20.1
381243	2007 <i>TD</i> ₆₃		1 4.4 179°28	1°4/ 3.9 17			166996	2003 <i>PC</i> ₄		1 4.4 273°53	10°5/ 3.8 18		
12 3	7 22.10	+27 11.2	3.002	3.825	9.2	22.4							

EPHEMERIDES

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
125349	2001 VA ₅₉		1 4.4 59°19'	5°9'	3.3	18	454472	2014 OT ₈₈		1 4.4 122°85'	2°0'	4.9	18
12 3	7 29.89	+33 27.0	1.312	2.161	17.1	19.0	12 3	7 25.13	+16 45.0	1.738	2.569	14.4	21.5
12 13	7 23.25	+34 30.1	1.263	2.174	12.9	18.8	12 13	7 18.85	+16 51.4	1.672	2.578	10.7	21.2
12 23	7 13.03	+35 25.5	1.236	2.188	8.6	18.5	12 23	7 10.19	+17 5.9	1.629	2.586	6.4	21.0
1 2	7 0.57	+36 3.9	1.233	2.202	5.9	18.4	1 2	7 0.02	+17 26.7	1.614	2.594	2.4	20.8
1 12	6 47.85	+36 19.7	1.257	2.216	7.6	18.6	1 12	6 49.60	+17 51.5	1.628	2.601	3.9	20.9
1 22	6 36.86	+36 12.7	1.306	2.230	11.4	18.8	1 22	6 40.15	+18 18.0	1.670	2.608	8.2	21.2
2 1	6 29.10	+35 47.5	1.379	2.244	15.4	19.1	2 1	6 32.75	+18 44.4	1.738	2.615	12.1	21.4
2 11	6 25.31	+35 10.6	1.470	2.259	18.7	19.4	2 11	6 28.10	+19 9.6	1.829	2.622	15.4	21.7
120883	1998 RH ₄₉		1 4.4 155°89'	0°3'	4.3	18	124427	2001 QW ₂₃₉		1 4.4 141°31'	0°6'	4.5	18
12 3	7 23.06	+23 14.7	2.429	3.256	10.9	21.3	12 3	7 28.69	+20 52.6	1.806	2.635	14.0	20.4
12 13	7 16.86	+23 27.1	2.355	3.262	7.9	21.1	12 13	7 21.34	+20 56.0	1.741	2.647	10.2	20.2
12 23	7 8.85	+23 40.6	2.307	3.267	4.5	20.9	12 23	7 11.56	+21 2.8	1.700	2.659	5.9	19.9
1 2	6 59.73	+23 53.3	2.289	3.271	0.9	20.6	1 2	7 0.29	+21 10.7	1.688	2.670	1.3	19.7
1 12	6 50.39	+24 3.3	2.302	3.276	2.8	20.8	1 12	6 48.82	+21 17.7	1.705	2.680	3.6	19.8
1 22	6 41.77	+24 9.6	2.345	3.279	6.4	21.0	1 22	6 38.45	+21 22.6	1.752	2.689	8.0	20.1
2 1	6 34.67	+24 12.3	2.416	3.283	9.5	21.2	2 1	6 30.23	+21 25.5	1.826	2.698	11.9	20.4
2 11	6 29.67	+24 12.0	2.511	3.286	12.2	21.4	2 11	6 24.83	+21 26.9	1.922	2.706	15.1	20.6
151258	2002 AT ₆₅		1 4.4 73°97'	1°1'	4.7	18	24645	Segon		1 4.4 73°83'	7°7'	7.4	18
12 3	7 23.41	+18 45.8	1.812	2.647	13.7	20.2	12 3	7 24.00	+0 46.3	1.695	2.480	16.7	18.1
12 13	7 17.51	+18 59.9	1.749	2.658	10.0	20.0	12 13	7 17.80	+0 42.6	1.646	2.505	13.6	18.0
12 23	7 9.37	+19 20.1	1.711	2.670	5.9	19.8	12 23	7 9.46	+1 1.8	1.618	2.531	10.4	17.8
1 2	6 59.83	+19 44.4	1.700	2.681	1.6	19.5	1 2	6 59.87	+1 44.7	1.615	2.556	8.1	17.7
1 12	6 50.09	+20 9.9	1.718	2.692	3.5	19.7	1 12	6 50.19	+2 48.7	1.640	2.580	8.0	17.8
1 22	6 41.30	+20 34.6	1.764	2.704	7.7	19.9	1 22	6 41.57	+4 8.6	1.691	2.605	10.0	18.0
2 1	6 34.46	+20 57.2	1.837	2.715	11.5	20.2	2 1	6 34.92	+5 38.0	1.769	2.629	12.8	18.2
2 11	6 30.23	+21 17.1	1.932	2.726	14.7	20.4	2 11	6 30.83	+7 10.3	1.869	2.653	15.5	18.4
152764	1999 LJ ₁₀		1 4.4 143°12'	3°4'	5.5	18	494824	2007 TA ₁₃₇		1 4.4 121°26'	3°8'	5.4	18
12 3	7 22.23	+10 29.7	2.503	3.305	11.5	20.7	12 3	7 21.37	+9 36.2	2.835	3.629	10.4	21.5
12 13	7 16.09	+10 28.8	2.433	3.317	8.7	20.5	12 13	7 15.25	+9 5.8	2.770	3.647	8.1	21.4
12 23	7 8.35	+10 37.5	2.388	3.328	5.9	20.4	12 23	7 7.78	+8 43.6	2.732	3.665	5.6	21.3
1 2	6 59.62	+10 55.5	2.372	3.338	3.6	20.2	1 2	6 59.53	+8 30.2	2.723	3.682	3.9	21.2
1 12	6 50.73	+11 21.6	2.386	3.349	4.1	20.3	1 12	6 51.20	+8 25.6	2.745	3.698	4.3	21.2
1 22	6 42.48	+11 53.8	2.431	3.358	6.6	20.5	1 22	6 43.49	+8 29.1	2.797	3.715	6.3	21.4
2 1	6 35.60	+12 30.1	2.505	3.367	9.4	20.7	2 1	6 36.99	+8 39.4	2.878	3.730	8.6	21.5
2 11	6 30.61	+13 8.2	2.602	3.375	11.9	20.8	2 11	6 32.15	+8 54.8	2.983	3.745	10.8	21.7
283976	2004 RW ₁₅₈		1 4.4 53°46'	0°5'	4.5	17	418296	2008 FA ₂₅		1 4.4 72°08'	3°6'	3.5	18
12 3	7 27.17	+21 10.8	1.246	2.099	17.6	20.8	12 3	7 26.39	+29 43.0	1.707	2.548	14.2	21.4
12 13	7 20.83	+21 14.2	1.200	2.119	12.8	20.6	12 13	7 20.05	+30 36.8	1.648	2.559	10.4	21.2
12 23	7 11.42	+21 22.7	1.176	2.139	7.3	20.3	12 23	7 11.00	+31 27.8	1.613	2.569	6.5	21.0
1 2	7 0.23	+21 33.0	1.178	2.160	1.6	20.0	1 2	7 0.22	+32 9.9	1.605	2.580	3.7	20.8
1 12	6 49.00	+21 42.4	1.205	2.181	4.3	20.3	1 12	6 49.14	+32 38.6	1.626	2.591	5.3	21.0
1 22	6 39.37	+21 49.3	1.259	2.203	9.6	20.6	1 22	6 39.22	+32 52.2	1.675	2.601	9.1	21.2
2 1	6 32.60	+21 53.8	1.337	2.224	14.3	21.0	2 1	6 31.65	+32 52.3	1.748	2.612	12.7	21.4
2 11	6 29.32	+21 56.3	1.434	2.246	18.0	21.3	2 11	6 27.17	+32 42.3	1.843	2.623	15.8	21.7
212075	2005 EK ₇₁		1 4.4 318°05'	4°1'	3.6	18	275780	2001 QQ ₂₀		1 4.4 55°96'	7°2'	7.2	18
12 3	7 26.02	+30 15.2	1.461	2.311	15.6	19.9	12 3	7 20.59	+0 33.7	2.042	2.820	14.5	19.7
12 13	7 20.37	+31 0.2	1.388	2.303	11.7	19.6	12 13	7 15.07	+0 13.6	1.994	2.847	11.9	19.6
12 23	7 11.46	+31 42.7	1.337	2.294	7.3	19.4	12 23	7 7.81	+0 12.5	1.969	2.874	9.3	19.5
1 2	7 0.30	+32 15.5	1.311	2.287	4.2	19.2	1 2	6 59.57	+0 31.6	1.969	2.901	7.5	19.4
1 12	6 48.54	+32 33.3	1.313	2.279	6.1	19.3	1 12	6 51.27	+1 9.7	1.996	2.928	7.5	19.5
1 22	6 37.95	+32 34.2	1.341	2.272	10.5	19.5	1 22	6 43.83	+2 3.4	2.051	2.955	9.1	19.6
2 1	6 30.06	+32 20.4	1.392	2.265	14.8	19.7	2 1	6 37.97	+3 8.4	2.132	2.982	11.3	19.8
2 11	6 25.80	+31 56.1	1.463	2.258	18.5	19.9	2 11	6 34.22	+4 19.3	2.236	3.010	13.6	20.0
426400	2013 PE ₄₉		1 4.4 170°73'	4°8'	6.1	18	27786	1992 PN ₁		1 4.4 58°62'	3°7'	4.2	18
12 3	7 21.51	+5 26.8	2.635	3.417	11.5	22.6	12 3	7 30.11	+32 51.1	1.590	2.428	15.2	17.9
12 13	7 15.55	+5 18.6	2.556	3.421	9.1	22.4	12 13	7 22.62	+32 51.7	1.540	2.447	11.3	17.7
12 23	7 8.05	+5 22.5	2.503	3.425	6.7	22.3	12 23	7 12.32	+32 43.5	1.512	2.467	7.1	17.5
1 2	6 59.57	+5 39.1	2.478	3.428	5.0	22.2	1 2	7 0.46	+32 22.4	1.512	2.486	3.9	17.3
1 12	6 50.89	+6 7.7	2.483	3.430	5.2	22.2	1 12	6 48.67	+31 47.2	1.539	2.506	5.3	17.5
1 22	6 42.76	+6 46.4	2.518	3.432	7.1	22.3	1 22	6 38.46	+31 0.2	1.595	2.525	9.1	17.7
2 1	6 35.88	+7 32.5	2.581	3.433	9.5	22.5	2 1	6 30.96	+30 6.0	1.676	2.545	12.9	18.0
2 11	6 30.78	+8 23.1	2.669	3.434	11.8	22.6	2 11	6 26.75	+29 9.2	1.778	2.565	16.0	18.3
311052	2004 BW ₁₄₈		1 4.4 25°23'	1°9'	4.1	18	463249	2012 FM ₄₇		1 4.4 228°95'	6°6'	6.4	16
12 3	7 25.28	+26 31.1	1.424	2.276	15.8	20.5	12 3	7 21.45	+2 41.5	2.141	2.924	13.8	22.2
12 13	7 19.52	+26 47.3	1.363	2.281	11.6	20.3	12 13	7 15.92	+2 22.0	2.057	2.917	11.2	22.0
12 23	7 10.78	+27 2.6	1.324	2.286	6.7	20.0	12 23	7 8.47	+2 18.9	1.995	2.909	8.7	21.8
1 2	7 0.15	+27 12.8	1.311	2.292	2.2	19.7	1 2	6 59.75	+2 34.2	1.960	2.901	6.9	21.7
1 12	6 49.23	+27 14.5	1.325	2.299	4.6	19.9	1 12	6 50.66	+3 7.5	1.953	2.893	7.0	21.7
1 22	6 39.64	+27 7.2	1.366	2.305	9.5	20.2	1 22	6 42.17	+3 56.7	1.974	2.884	9.0	21.8
2 1	6 32.66	+26 52.6	1.431	2.313	13.8	20.5	2 1	6 35.17	+4 58.0	2.022	2.875	11.7	21.9
2 11	6 29.06	+26 33.3	1.516	2.321	17.5	20.7	2 11	6 30.30	+6 6.5	2.093	2.866	14.4	22.1
461098	2015 BP ₇₅		1 4.4 71°56'	0°6'	4.6	18	164275	2004 XJ ₁₉		1 4.4 352°16'	0°6'	4.6	18
12 3	7 21.93	+18 20.6	2.129	2.958	12.2	20.7	12 3	7 22.24	+20 15.8	1.213	2.074	17.4	19.6
12 13	7 16.22	+19 4.2	2.065</										

EPHEMERIDES

1 4.4

1 4.5

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
376430	2012 <i>HF</i> ₉		1 4.4 212°26	2°6/ 5.3	18		150179	1998 <i>FN</i> ₁₅		1 4.4 308°12	8°2/ 5.2	18	
12 3	7 22.12	+13 31.6	2.218	3.034	12.2	21.2	12 3	7 21.14	+ 4 30.8	1.739	2.542	15.6	19.7
12 13	7 16.39	+13 42.5	2.134	3.030	9.2	21.0	12 13	7 16.16	+ 3 21.5	1.651	2.523	12.8	19.5
12 23	7 8.73	+14 2.8	2.075	3.025	5.8	20.8	12 23	7 8.83	+ 2 26.8	1.585	2.505	10.1	19.2
1 2	6 59.82	+14 31.4	2.045	3.020	2.9	20.6	1 2	6 59.88	+ 1 51.0	1.545	2.486	8.3	19.1
1 12	6 50.55	+15 6.4	2.045	3.015	3.8	20.6	1 12	6 50.41	+ 1 37.1	1.531	2.468	8.7	19.1
1 22	6 41.91	+15 45.5	2.075	3.009	7.1	20.8	1 22	6 41.59	+ 1 44.9	1.542	2.450	11.2	19.2
2 1	6 34.77	+16 26.3	2.132	3.003	10.4	21.0	2 1	6 34.56	+ 2 11.9	1.577	2.433	14.3	19.3
2 11	6 29.78	+17 6.9	2.213	2.997	13.4	21.2	2 11	6 30.11	+ 2 53.3	1.633	2.416	17.4	19.5
35999	1999 <i>NB</i> ₂₂		1 4.4 160°40	0°4/ 4.6	18		116284	2003 <i>YC</i> ₅₂		1 4.4 346°68	1°2/ 4.0	18	
12 3	7 23.32	+19 36.9	2.270	3.096	11.7	19.6	12 3	7 20.98	+22 45.7	1.766	2.611	13.6	19.1
12 13	7 17.21	+20 8.6	2.195	3.100	8.5	19.4	12 13	7 16.16	+23 41.6	1.689	2.605	9.9	18.9
12 23	7 9.18	+20 45.3	2.146	3.105	4.9	19.2	12 23	7 8.87	+24 43.2	1.637	2.599	5.7	18.6
1 2	6 59.90	+21 24.4	2.126	3.108	1.1	19.0	1 2	6 59.89	+25 45.7	1.612	2.594	1.5	18.3
1 12	6 50.33	+22 3.1	2.137	3.112	2.9	19.1	1 12	6 50.42	+26 43.9	1.616	2.590	3.9	18.5
1 22	6 41.45	+22 39.0	2.178	3.115	6.7	19.4	1 22	6 41.74	+27 33.9	1.648	2.586	8.3	18.7
2 1	6 34.14	+23 10.8	2.248	3.117	10.0	19.6	2 1	6 35.00	+28 13.9	1.706	2.582	12.3	19.0
2 11	6 29.03	+23 38.0	2.341	3.120	12.9	19.8	2 11	6 31.02	+28 44.2	1.785	2.580	15.7	19.2
234914	2002 <i>TZ</i> ₂₉₉		1 4.4 22°05	5°5/ 6.1	18		492136	2013 <i>NE</i> ₆		1 4.4 191°94	2°0/ 5.0	18	
12 3	7 19.27	+ 7 19.1	1.803	2.618	14.7	20.0	12 3	7 23.29	+15 42.2	2.294	3.112	11.8	22.6
12 13	7 14.52	+ 7 9.2	1.738	2.624	11.5	19.8	12 13	7 17.17	+15 48.9	2.212	3.111	8.8	22.4
12 23	7 7.71	+ 7 15.3	1.696	2.631	8.2	19.6	12 23	7 9.16	+16 2.6	2.156	3.109	5.4	22.2
1 2	6 59.61	+ 7 38.0	1.679	2.639	5.8	19.5	1 2	6 59.93	+16 22.1	2.128	3.106	2.3	22.0
1 12	6 51.28	+ 8 15.7	1.690	2.648	6.1	19.5	1 12	6 50.39	+16 45.9	2.131	3.103	3.4	22.0
1 22	6 43.76	+ 9 5.4	1.728	2.657	8.7	19.7	1 22	6 41.50	+17 12.1	2.165	3.099	6.8	22.2
2 1	6 37.98	+10 2.9	1.792	2.666	11.9	19.9	2 1	6 34.12	+17 39.1	2.226	3.095	10.1	22.4
2 11	6 34.56	+11 3.8	1.878	2.676	14.9	20.1	2 11	6 28.86	+18 5.7	2.311	3.091	13.0	22.6
492593	2014 <i>OW</i> ₁₉₄		1 4.4 168°84	4°1/ 5.6	18		401018	2011 <i>SQ</i> ₃₄		1 4.4 164°23	4°1/ 3.5	18	
12 3	7 23.45	+10 23.2	1.948	2.761	13.8	21.2	12 3	7 30.28	+32 9.1	1.902	2.730	13.5	21.8
12 13	7 17.48	+10 22.9	1.874	2.763	10.6	21.0	12 13	7 22.80	+32 56.4	1.833	2.736	10.1	21.6
12 23	7 9.40	+10 35.2	1.823	2.766	7.2	20.8	12 23	7 12.60	+33 38.8	1.790	2.741	6.5	21.3
1 2	6 59.95	+10 59.9	1.799	2.767	4.4	20.7	1 2	7 0.63	+34 10.2	1.775	2.745	4.1	21.2
1 12	6 50.20	+11 35.3	1.805	2.769	4.9	20.7	1 12	6 48.31	+34 26.2	1.789	2.748	5.5	21.3
1 22	6 41.20	+12 18.6	1.839	2.770	8.1	20.9	1 22	6 37.08	+34 26.2	1.832	2.751	8.9	21.5
2 1	6 33.94	+13 6.7	1.900	2.771	11.5	21.1	2 1	6 28.17	+34 12.3	1.901	2.753	12.4	21.7
2 11	6 29.08	+13 56.4	1.985	2.771	14.6	21.3	2 11	6 22.34	+33 48.8	1.992	2.755	15.3	21.9
204787	2006 <i>NB</i> ₁		1 4.4 101°70	4°5/ 3.6	18		37624	1993 <i>RT</i> ₈		1 4.4 54°43	1°5/ 4.7	18	
12 3	7 27.23	+38 21.5	2.654	3.464	10.6	20.0	12 3	7 27.01	+18 58.6	1.250	2.100	17.7	18.9
12 13	7 19.83	+38 45.9	2.598	3.484	8.2	19.9	12 13	7 20.70	+18 58.6	1.206	2.122	12.9	18.7
12 23	7 10.53	+39 1.3	2.569	3.504	5.8	19.7	12 23	7 11.40	+19 6.2	1.182	2.144	7.5	18.5
1 2	6 59.95	+39 4.0	2.569	3.524	4.5	19.7	1 2	7 0.36	+19 19.0	1.184	2.166	2.2	18.2
1 12	6 49.73	+38 52.2	2.599	3.543	5.2	19.8	1 12	6 49.29	+19 34.0	1.213	2.188	4.4	18.4
1 22	6 40.29	+38 26.9	2.658	3.561	7.3	19.9	1 22	6 39.79	+19 49.3	1.268	2.211	9.6	18.8
2 1	6 32.65	+37 50.4	2.745	3.580	9.6	20.1	2 1	6 33.08	+20 3.7	1.346	2.234	14.1	19.1
2 11	6 27.34	+37 6.6	2.856	3.598	11.7	20.3	2 11	6 29.79	+20 16.8	1.445	2.257	17.9	19.4
326700	2003 <i>BM</i> ₂		1 4.4 45°70	3°5/ 4.4	16		205259	2000 <i>RA</i> ₈₉		1 4.5 56°75	2°2/ 4.2	17	
12 3	7 31.75	+32 4.6	1.330	2.176	17.1	19.1	12 3	7 30.85	+27 25.8	1.258	2.109	17.6	19.8
12 13	7 23.94	+31 53.1	1.292	2.205	12.6	18.9	12 13	7 23.48	+27 37.1	1.221	2.138	12.7	19.6
12 23	7 13.06	+31 32.4	1.277	2.234	7.6	18.7	12 23	7 12.94	+27 45.5	1.205	2.166	7.4	19.4
1 2	6 59.95	+30 58.7	1.287	2.264	3.7	18.6	1 2	7 0.66	+27 46.0	1.214	2.195	2.6	19.2
1 12	6 48.50	+30 12.0	1.325	2.295	5.4	18.8	1 12	6 48.56	+27 36.2	1.251	2.224	4.9	19.4
1 22	6 38.36	+29 15.7	1.390	2.326	9.7	19.1	1 22	6 38.34	+27 17.1	1.313	2.252	9.8	19.8
2 1	6 31.33	+28 15.2	1.479	2.357	13.8	19.4	2 1	6 31.21	+26 51.9	1.400	2.281	14.2	20.1
2 11	6 27.86	+27 15.3	1.589	2.388	17.1	19.7	2 11	6 27.72	+26 23.8	1.507	2.310	17.7	20.4
426886	2013 <i>WZ</i> ₅₀		1 4.4 38°26	3°5/ 3.8	18		402296	2005 <i>SB</i> ₂₄₁		1 4.5 105°12	6°1/ 5.7	18	
12 3	7 24.47	+32 55.4	2.208	3.038	11.8	21.1	12 3	7 22.75	+ 6 32.8	1.952	2.753	14.2	21.1
12 13	7 18.21	+33 15.4	2.137	3.040	8.8	21.0	12 13	7 16.87	+ 5 50.8	1.886	2.762	11.3	20.9
12 23	7 9.79	+33 29.5	2.091	3.042	5.7	20.8	12 23	7 9.00	+ 5 22.8	1.844	2.771	8.4	20.7
1 2	6 50.04	+33 34.0	2.073	3.044	3.5	20.6	1 2	6 59.92	+ 5 10.6	1.828	2.779	6.3	20.6
1 12	6 40.97	+33 26.7	2.085	3.047	4.7	20.7	1 12	6 50.64	+ 5 14.6	1.840	2.788	6.7	20.7
1 22	6 30.97	+33 7.7	2.126	3.049	7.7	20.9	1 22	6 42.19	+ 5 33.2	1.881	2.796	9.0	20.8
2 1	6 33.77	+32 39.0	2.193	3.052	10.7	21.1	2 1	6 35.44	+ 6 3.6	1.947	2.805	11.9	21.0
2 11	6 29.08	+32 3.8	2.284	3.054	13.4	21.3	2 11	6 31.00	+ 6 42.1	2.035	2.813	14.6	21.2
133940	2004 <i>TM</i> ₄₈		1 4.4 235°93	0°3/ 4.5	18		183344	2002 <i>VE</i> ₉₃		1 4.5 9°26	1°0/ 4.7	18	
12 3	7 26.66	+21 8.0	1.789	2.623	14.0	20.8	12 3	7 21.28	+19 14.0	1.272	2.131	16.9	19.9
12 13	7 20.25	+21 21.5	1.703	2.612	10.3	20.5	12 13	7 16.85	+19 30.0	1.212	2.132	12.4	19.6
12 23	7 11.20	+21 39.4	1.640	2.600	6.0	20.2	12 23	7 9.42	+19 54.8	1.172	2.135	7.3	19.3
1 2	6 50.04	+21 59.0	1.605	2.587	1.3	19.9	1 2	7 0.05	+20 25.4	1.157	2.139	1.8	19.0
1 12	6 48.94	+22 17.4	1.600	2.574	3.7	20.0	1 12	6 50.29	+20 57.8	1.168	2.144	4.3	19.2
1 22	6 38.35	+22 32.6	1.623	2.561	8.4	20.3	1 22	6 41.75	+21 28.7	1.204	2.151	9.6	19.5
2 1	6 29.80	+22 44.2	1.673	2.547	12.6	20.5	2 1	6 35.77	+21 56.0	1.264	2.158	14.4	19.8
2 11	6 24.15	+22 52.6	1.744	2.532	16.2	20.7	2 11	6 33.16	+22 19.1	1.343	2.166	18.4	20.1
83775	2001 <i>TB</i> ₁₇₂		1 4.4 215°08	1°0/ 4.7	18		303538	2005 <i>EV</i> ₂₇₁		1 4.5 325°26	0°2/ 4.4	18	
12 3	7 23.79	+18 49.3	2.009	2									

EPHEMERIDES

1 4.5

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
82693	2001 <i>PX</i> ₃₄		1 4.5 339°60	1°0/ 4.6 18			414496	2009 <i>RE</i> ₁₅		1 4.5 53°60	2°6/ 5.1 18		
12 3	7 23.00	+21 24.9	2.136	2.968	12.1	19.0	12 3	7 22.46	+15 25.5	1.819	2.650	13.9	20.8
12 13	7 17.06	+20 55.9	2.057	2.965	8.8	18.8	12 13	7 16.89	+15 21.3	1.751	2.656	10.4	20.6
12 23	7 9.12	+20 27.8	2.004	2.963	5.2	18.6	12 23	7 9.13	+15 25.8	1.708	2.662	6.4	20.4
1 2	6 59.96	+20 0.5	1.979	2.960	1.4	18.3	1 2	7 0.00	+15 38.0	1.691	2.669	2.9	20.2
1 12	6 50.59	+19 33.7	1.984	2.958	3.2	18.5	1 12	6 50.62	+15 56.3	1.704	2.675	4.1	20.3
1 22	6 42.01	+19 8.0	2.019	2.956	7.0	18.7	1 22	6 42.13	+16 18.7	1.744	2.682	7.9	20.5
2 1	6 35.11	+18 44.1	2.081	2.955	10.5	18.9	2 1	6 35.50	+16 43.5	1.811	2.689	11.6	20.7
2 11	6 30.51	+18 22.7	2.166	2.953	13.5	19.1	2 11	6 31.39	+17 8.8	1.899	2.696	14.8	21.0
364321	2006 <i>UT</i> ₈₆		1 4.5 111°11	4°3/ 5.2 18			154042	2002 <i>CK</i> ₉₀		1 4.5 236°40	2°0/ 3.9 18		
12 3	7 24.08	+12 10.8	1.826	2.646	14.3	21.3	12 3	7 24.56	+27 24.7	2.017	2.852	12.5	20.2
12 13	7 17.99	+11 35.6	1.758	2.652	10.9	21.1	12 13	7 18.50	+27 52.0	1.939	2.849	9.2	20.0
12 23	7 9.72	+11 10.4	1.713	2.658	7.3	20.9	12 23	7 10.12	+28 18.2	1.887	2.846	5.5	19.8
1 2	7 0.09	+10 56.1	1.696	2.665	4.6	20.8	1 2	7 0.22	+28 39.6	1.863	2.843	2.2	19.6
1 12	6 50.24	+10 52.8	1.707	2.671	5.3	20.8	1 12	6 49.96	+28 53.2	1.869	2.839	4.0	19.7
1 22	6 41.30	+10 59.6	1.747	2.676	8.6	21.0	1 22	6 40.54	+28 57.6	1.904	2.836	7.8	19.9
2 1	6 34.24	+11 14.5	1.812	2.682	12.0	21.3	2 1	6 33.01	+28 53.8	1.965	2.832	11.3	20.1
2 11	6 29.70	+11 35.1	1.900	2.688	15.1	21.5	2 11	6 28.11	+28 43.6	2.048	2.829	14.4	20.3
180264	2003 <i>WK</i> ₂₄		1 4.5 127°54	1°7/ 4.7 18			27622	2001 <i>KS</i> ₇₁		1 4.5 132°86	0°1/ 4.4 18		
12 3	7 30.41	+18 42.2	1.549	2.381	15.8	20.5	12 3	7 25.64	+21 23.0	1.914	2.747	13.2	19.8
12 13	7 22.87	+18 33.5	1.489	2.396	11.6	20.3	12 13	7 19.19	+21 51.1	1.847	2.756	9.6	19.6
12 23	7 12.60	+18 30.6	1.453	2.410	6.9	20.0	12 23	7 10.46	+22 23.2	1.804	2.764	5.5	19.3
1 2	7 0.67	+18 32.0	1.444	2.424	2.2	19.8	1 2	7 0.28	+22 56.2	1.790	2.773	1.1	19.0
1 12	6 48.58	+18 35.8	1.464	2.437	4.2	19.9	1 12	6 49.82	+23 26.7	1.806	2.781	3.4	19.2
1 22	6 37.79	+18 40.8	1.512	2.450	8.9	20.2	1 22	6 40.27	+23 52.7	1.851	2.788	7.6	19.5
2 1	6 29.48	+18 46.6	1.586	2.461	13.1	20.5	2 1	6 32.67	+24 13.3	1.923	2.795	11.3	19.8
2 11	6 24.33	+18 53.0	1.681	2.472	16.6	20.8	2 11	6 27.68	+24 29.0	2.018	2.802	14.5	20.0
455371	2002 <i>TC</i> ₂₂₅		1 4.5 67°23	0°0/ 4.3 18			180867	2005 <i>JO</i> ₄₁		1 4.5 39°14	4°6/ 3.3 18		
12 3	7 28.83	+21 56.9	1.567	2.405	15.4	21.3	12 3	7 26.44	+30 11.5	1.364	2.217	16.3	19.6
12 13	7 21.49	+22 9.8	1.527	2.439	11.1	21.1	12 13	7 20.66	+31 22.0	1.314	2.230	12.1	19.4
12 23	7 11.65	+22 25.6	1.511	2.472	6.3	20.9	12 23	7 11.63	+32 29.4	1.286	2.243	7.7	19.1
1 2	7 0.45	+22 41.2	1.522	2.505	1.2	20.7	1 2	7 0.53	+33 25.2	1.284	2.257	4.7	19.0
1 12	6 49.35	+22 53.7	1.562	2.537	3.7	20.9	1 12	6 49.11	+34 3.0	1.308	2.271	6.5	19.2
1 22	6 39.68	+23 2.2	1.631	2.570	8.3	21.3	1 22	6 39.14	+34 20.9	1.358	2.286	10.6	19.4
2 1	6 32.46	+23 6.8	1.725	2.602	12.2	21.6	2 1	6 32.05	+34 21.3	1.432	2.302	14.6	19.7
2 11	6 28.24	+23 8.6	1.841	2.633	15.4	21.9	2 11	6 28.60	+34 8.7	1.525	2.318	18.0	20.0
340789	2006 <i>SE</i> ₄₀₃		1 4.5 313°04	5°9/ 2.4 18			118783	2000 <i>RJ</i> ₈₁		1 4.5 1°01	7°0/ 4.1 18		
12 3	7 24.86	+40 5.4	2.424	3.240	11.3	20.5	12 3	7 29.87	+40 7.6	1.543	2.375	15.9	19.0
12 13	7 18.71	+41 5.0	2.352	3.236	9.0	20.3	12 13	7 23.12	+40 25.3	1.478	2.374	12.5	18.8
12 23	7 10.23	+41 56.0	2.305	3.232	6.9	20.2	12 23	7 13.00	+40 27.7	1.434	2.373	9.2	18.6
1 2	7 0.22	+42 32.6	2.286	3.229	5.9	20.1	1 2	7 0.79	+40 7.8	1.416	2.373	7.1	18.5
1 12	6 49.82	+42 51.1	2.295	3.225	6.8	20.2	1 12	6 48.38	+39 22.7	1.425	2.373	8.0	18.5
1 22	6 40.21	+42 50.8	2.333	3.222	8.8	20.3	1 22	6 37.61	+38 15.3	1.459	2.375	11.1	18.7
2 1	6 32.48	+42 33.7	2.395	3.218	11.2	20.4	2 1	6 29.88	+36 52.2	1.518	2.377	14.6	18.9
2 11	6 27.35	+42 3.8	2.480	3.215	13.4	20.6	2 11	6 25.90	+35 21.8	1.597	2.380	17.7	19.1
128459	2004 <i>VS</i> ₂₉		1 4.5 112°52	3°1/ 5.2 18			424246	2007 <i>RD</i> ₂₅₅		1 4.5 238°41	4°5/ 5.7 18		
12 3	7 22.74	+13 45.2	1.983	2.804	13.3	20.5	12 3	7 20.21	+ 8 47.1	2.287	3.091	12.3	21.5
12 13	7 16.93	+13 35.8	1.913	2.811	10.0	20.3	12 13	7 14.94	+ 8 28.8	2.206	3.088	9.6	21.3
12 23	7 9.08	+13 35.4	1.867	2.817	6.4	20.1	12 23	7 7.91	+ 8 21.6	2.150	3.085	6.8	21.1
1 2	6 59.98	+13 43.7	1.849	2.823	3.4	19.9	1 2	6 59.77	+ 8 26.2	2.122	3.082	4.7	21.0
1 12	6 50.63	+13 59.5	1.861	2.829	4.2	20.0	1 12	6 51.35	+ 8 42.4	2.123	3.079	5.1	21.0
1 22	6 42.10	+14 21.0	1.901	2.835	7.6	20.2	1 22	6 43.54	+ 9 8.4	2.152	3.076	7.5	21.1
2 1	6 35.28	+14 46.3	1.968	2.841	11.1	20.4	2 1	6 37.12	+ 9 42.0	2.209	3.073	10.4	21.3
2 11	6 30.81	+15 13.6	2.057	2.846	14.1	20.6	2 11	6 32.69	+10 20.4	2.289	3.070	13.1	21.5
456954	2008 <i>AT</i> ₅₉		1 4.5 272°96	1°9/ 4.9 16			429268	2010 <i>CL</i> ₄₀		1 4.5 241°16	5°6/ 6.5 18		
12 3	7 23.56	+16 8.2	1.813	2.644	13.9	22.0	12 3	7 19.61	+ 4 16.1	2.310	3.098	12.7	21.1
12 13	7 18.02	+16 28.9	1.721	2.627	10.4	21.7	12 13	7 14.48	+ 4 10.0	2.230	3.097	10.2	21.0
12 23	7 9.99	+16 59.6	1.653	2.610	6.4	21.5	12 23	7 7.65	+ 4 18.7	2.174	3.095	7.6	20.8
1 2	7 0.21	+17 38.5	1.613	2.592	2.4	21.2	1 2	6 59.72	+ 4 43.3	2.146	3.094	5.8	20.7
1 12	6 49.81	+18 22.5	1.601	2.575	3.9	21.2	1 12	6 51.51	+ 5 22.6	2.145	3.092	5.9	20.7
1 22	6 40.06	+19 8.3	1.618	2.557	8.3	21.5	1 22	6 43.88	+ 6 14.3	2.174	3.090	7.9	20.8
2 1	6 32.14	+19 53.3	1.661	2.539	12.5	21.7	2 1	6 37.60	+ 7 14.9	2.229	3.088	10.5	21.0
2 11	6 26.93	+20 35.4	1.727	2.521	16.1	21.9	2 11	6 33.26	+ 8 20.3	2.309	3.087	13.1	21.1
385957	2006 <i>VK</i> ₆₀		1 4.5 40°63	3°5/ 5.3 18			116460	2004 <i>AD</i> ₇		1 4.5 19°18	4°4/ 5.8 18		
12 3	7 19.44	+11 50.9	2.388	3.202	11.6	21.2	12 3	7 19.67	+ 9 20.7	2.009	2.823	13.4	19.4
12 13	7 14.25	+11 26.8	2.315	3.206	8.8	21.1	12 13	7 14.71	+ 9 14.2	1.937	2.826	10.4	19.3
12 23	7 7.45	+11 11.0	2.267	3.210	5.9	20.9	12 23	7 7.84	+ 9 20.6	1.889	2.829	7.2	19.1
1 2	6 59.64	+11 4.0	2.248	3.215	3.7	20.7	1 2	6 59.76	+ 9 40.0	1.868	2.833	4.7	18.9
1 12	6 51.66	+11 5.5	2.257	3.220	4.3	20.8	1 12	6 51.42	+10 11.3	1.875	2.837	5.1	19.0
1 22	6 44.32	+11 14.6	2.296	3.225	6.9	21.0	1 22	6 43.79	+10 51.8	1.910	2.841	7.9	19.1
2 1	6 38.33	+11 29.9	2.363	3.230	9.7	21.1	2 1	6 37.74	+11 38.5	1.972	2.845	11.1	19.3
2 11	6 34.23	+11 49.5	2.452	3.235	12.3	21.3	2 11	6 33.89	+12 28.0	2.057	2.850	13.9	19.5
44858	1999 <i>UZ</i> ₁₃		1 4.5 79°86	0°1/ 4.5 18			212817	2007 <i>UH</i> ₁		1 4.5 357°09	0°4/ 4.6 18		
12 3	7 29.17	+20 48.4	1.296	2.1									

EPHEMERIDES

1 4.5

1 4.5

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
130344	2000 <i>FL</i> ₅₇		1 4.5 341°77	0°0/ 4.3 18			465539	2008 <i>UM</i> ₃₀₆		1 4.5 188°02	4°5/ 3.1 18		
12 3	7 21.69	+20 7.3	2.009	2.844	12.6	19.5	12 3	7 25.52	+35 19.9	2.351	3.174	11.4	22.0
12 13	7 16.38	+20 50.7	1.931	2.841	9.2	19.3	12 13	7 19.08	+36 7.5	2.278	3.174	8.7	21.8
12 23	7 8.91	+21 40.5	1.879	2.839	5.3	19.1	12 23	7 10.42	+36 49.1	2.231	3.174	6.0	21.6
1 2	7 0.00	+22 33.3	1.855	2.837	1.1	18.8	1 2	7 0.31	+37 19.5	2.212	3.173	4.5	21.5
1 12	6 50.69	+23 25.1	1.860	2.835	3.2	18.9	1 12	6 49.87	+37 35.4	2.222	3.172	5.5	21.6
1 22	6 42.09	+24 12.7	1.895	2.833	7.3	19.2	1 22	6 40.23	+37 35.9	2.262	3.171	8.1	21.7
2 1	6 35.18	+24 54.2	1.957	2.832	11.0	19.4	2 1	6 32.42	+37 22.8	2.328	3.170	10.8	21.9
2 11	6 30.69	+25 29.1	2.041	2.831	14.2	19.6	2 11	6 27.12	+36 59.4	2.416	3.168	13.3	22.1
177411	2004 <i>BE</i> ₁₆₂		1 4.5 200°21	0°2/ 4.4 18			4487	Pocahontas		1 4.5 58°12	22°0/ 14.5 18		
12 3	7 25.24	+22 12.7	2.141	2.970	12.2	21.0	12 3	7 34.80	-13 52.4	0.681	1.473	34.1	18.7
12 13	7 18.83	+22 34.9	2.060	2.967	8.9	20.8	12 13	7 26.67	-16 1.9	0.679	1.512	30.0	18.7
12 23	7 10.26	+23 0.1	2.003	2.963	5.1	20.6	12 23	7 14.75	-17 3.3	0.688	1.553	26.2	18.6
1 2	7 0.27	+23 25.4	1.976	2.959	1.0	20.3	1 2	7 1.07	-16 48.9	0.709	1.593	23.4	18.7
1 12	6 49.91	+23 48.2	1.980	2.954	3.2	20.5	1 12	6 48.18	-15 23.6	0.746	1.634	22.1	18.8
1 22	6 40.27	+24 6.8	2.013	2.948	7.2	20.7	1 22	6 38.12	-13 4.4	0.798	1.674	22.4	19.0
2 1	6 32.35	+24 20.6	2.073	2.942	10.8	20.9	2 1	6 32.11	-10 13.0	0.867	1.713	23.9	19.3
2 11	6 26.86	+24 30.2	2.157	2.936	13.8	21.1	2 11	6 30.52	-7 10.6	0.951	1.752	25.8	19.6
23723	1998 <i>HG</i> ₄₀		1 4.5 245°15	2°3/ 3.9 18			284994	2010 <i>KD</i> ₆₀		1 4.5 170°27	1°7/ 5.2 18		
12 3	7 28.76	+26 14.4	1.487	2.332	15.7	19.7	12 3	7 28.23	+13 53.8	1.934	2.747	13.9	21.0
12 13	7 22.40	+26 53.6	1.408	2.322	11.6	19.4	12 13	7 21.16	+14 56.3	1.856	2.752	10.3	20.8
12 23	7 12.76	+27 34.5	1.352	2.312	6.9	19.1	12 23	7 11.69	+16 11.9	1.803	2.756	6.3	20.6
1 2	7 0.82	+28 11.0	1.322	2.302	2.6	18.8	1 2	7 0.59	+17 36.6	1.779	2.759	2.2	20.3
1 12	6 48.18	+28 37.6	1.320	2.292	5.0	18.9	1 12	6 49.01	+19 4.9	1.788	2.761	3.6	20.4
1 22	6 36.60	+28 51.8	1.345	2.281	10.0	19.2	1 22	6 38.19	+20 31.3	1.827	2.763	7.8	20.7
2 1	6 27.64	+28 54.3	1.395	2.269	14.6	19.4	2 1	6 29.22	+21 51.6	1.895	2.763	11.7	20.9
2 11	6 22.28	+28 48.2	1.465	2.258	18.6	19.7	2 11	6 22.90	+23 3.8	1.987	2.763	14.9	21.1
369413	2009 <i>WX</i> ₉₁		1 4.5 148°14	0°0/ 4.4 18			274139	2008 <i>FE</i> ₁₅		1 4.5 332°48	4°6/ 5.6 18		
12 3	7 24.70	+22 44.1	2.577	3.398	10.6	21.9	12 3	7 20.68	+11 2.3	1.484	2.319	16.3	19.8
12 13	7 17.96	+22 42.3	2.506	3.409	7.7	21.7	12 13	7 16.20	+11 1.2	1.405	2.308	12.5	19.5
12 23	7 9.54	+22 41.4	2.461	3.419	4.4	21.5	12 23	7 9.07	+11 16.1	1.348	2.298	8.4	19.2
1 2	7 0.09	+22 39.7	2.446	3.428	0.9	21.3	1 2	7 0.09	+11 47.3	1.316	2.288	5.0	19.0
1 12	6 50.52	+22 36.1	2.463	3.437	2.7	21.4	1 12	6 50.56	+12 32.6	1.310	2.279	5.7	19.0
1 22	6 41.67	+22 30.4	2.511	3.445	6.0	21.7	1 22	6 41.86	+13 28.1	1.331	2.270	9.7	19.2
2 1	6 34.30	+22 22.8	2.588	3.453	9.0	21.9	2 1	6 35.27	+14 29.2	1.376	2.262	14.0	19.5
2 11	6 28.95	+22 14.0	2.689	3.460	11.6	22.1	2 11	6 31.66	+15 31.4	1.441	2.255	17.8	19.7
48530	1993 <i>PF</i>		1 4.5 37°23	0°3/ 4.5 18			86032	1999 <i>NK</i> ₅		1 4.5 89°16	5°8/ 6.4 18		
12 3	7 28.13	+24 24.1	1.602	2.442	15.0	18.3	12 3	7 22.56	+4 59.9	2.065	2.857	13.9	19.4
12 13	7 21.26	+23 43.3	1.534	2.446	11.0	18.1	12 13	7 16.60	+4 43.9	2.008	2.877	11.0	19.3
12 23	7 11.71	+23 0.3	1.489	2.450	6.3	17.8	12 23	7 8.83	+4 43.4	1.974	2.898	8.1	19.2
1 2	7 0.55	+22 14.5	1.472	2.454	1.3	17.5	1 2	6 59.98	+4 59.1	1.968	2.918	6.1	19.1
1 12	6 49.22	+21 26.5	1.483	2.458	3.8	17.7	1 12	6 51.03	+5 29.9	1.990	2.938	6.2	19.1
1 22	6 39.14	+20 38.4	1.523	2.463	8.6	18.0	1 22	6 42.90	+6 13.1	2.041	2.958	8.4	19.3
2 1	6 31.48	+19 52.8	1.589	2.468	12.9	18.2	2 1	6 36.40	+7 5.0	2.118	2.977	11.0	19.5
2 11	6 26.90	+19 11.6	1.676	2.472	16.5	18.5	2 11	6 32.06	+8 1.5	2.219	2.996	13.5	19.7
235495	2004 <i>BE</i> ₉₂		1 4.5 68°65	8°1/ 8.9 18			502515	2015 <i>BR</i> ₄₂₆		1 4.5 193°21	3°0/ 3.8 18		
12 3	7 21.00	-5 24.0	2.222	2.963	14.6	19.5	12 3	7 24.20	+32 23.9	2.444	3.270	10.9	21.3
12 13	7 15.43	-5 14.4	2.158	2.978	12.3	19.4	12 13	7 17.91	+32 40.5	2.368	3.270	8.1	21.1
12 23	7 8.15	-4 42.2	2.115	2.993	10.1	19.3	12 23	7 9.65	+32 52.0	2.318	3.269	5.2	20.9
1 2	6 59.83	-3 46.0	2.098	3.008	8.5	19.2	1 2	7 0.16	+32 55.1	2.297	3.269	3.1	20.8
1 12	6 51.35	-2 27.7	2.109	3.023	8.2	19.2	1 12	6 50.45	+32 47.8	2.306	3.268	4.2	20.9
1 22	6 43.57	-0 51.8	2.148	3.038	9.4	19.3	1 22	6 41.54	+32 30.2	2.344	3.267	7.1	21.0
2 1	6 37.26	+0 55.9	2.214	3.053	11.4	19.5	2 1	6 34.29	+32 3.9	2.410	3.267	9.9	21.2
2 11	6 32.96	+2 48.8	2.304	3.069	13.5	19.6	2 11	6 29.33	+31 31.6	2.499	3.266	12.5	21.4
454881	2015 <i>TJ</i> ₇₂		1 4.5 31°13	0°1/ 4.5 16			446053	2013 <i>CT</i> ₁₂₀		1 4.5 10°24	0°7/ 4.6 18		
12 3	7 24.91	+22 27.0	1.175	2.036	17.9	20.8	12 3	7 22.98	+20 8.5	1.171	2.032	17.9	20.4
12 13	7 19.58	+22 35.9	1.125	2.047	13.0	20.6	12 13	7 18.35	+20 21.6	1.111	2.034	13.1	20.1
12 23	7 11.00	+22 49.2	1.096	2.060	7.5	20.3	12 23	7 10.43	+20 42.9	1.072	2.036	7.6	19.8
1 2	7 0.42	+23 2.9	1.090	2.073	1.5	20.0	1 2	7 0.37	+21 8.9	1.057	2.039	1.8	19.5
1 12	6 49.64	+23 13.8	1.111	2.087	4.5	20.2	1 12	6 49.87	+21 35.6	1.067	2.044	4.5	19.7
1 22	6 40.42	+23 20.2	1.156	2.101	10.0	20.6	1 22	6 40.74	+21 59.8	1.102	2.049	10.2	20.0
2 1	6 34.10	+23 22.4	1.224	2.117	14.9	20.9	2 1	6 34.42	+22 20.1	1.160	2.056	15.3	20.3
2 11	6 31.42	+23 21.2	1.312	2.133	18.8	21.2	2 11	6 31.77	+22 36.1	1.237	2.063	19.4	20.6
64391	2001 <i>UF</i> ₁₅₀		1 4.5 317°09	0°3/ 4.4 18 R			206772	2004 <i>CM</i> ₆₃		1 4.5 320°68	0°0/ 4.5 18		
12 3	7 25.57	+22 26.1	1.389	2.239	16.3	19.4	12 3	7 21.06	+20 18.9	2.132	2.966	12.0	20.3
12 13	7 20.01	+22 42.9	1.316	2.233	11.9	19.2	12 13	7 15.85	+20 55.4	2.051	2.960	8.8	20.1
12 23	7 11.33	+23 4.3	1.265	2.228	6.9	18.9	12 23	7 8.59	+21 37.5	1.995	2.955	5.1	19.9
1 2	7 0.53	+23 26.5	1.240	2.223	1.4	18.5	1 2	6 59.98	+22 22.4	1.968	2.950	1.0	19.6
1 12	6 49.18	+23 45.5	1.242	2.218	4.3	18.7	1 12	6 50.97	+23 6.5	1.970	2.945	3.1	19.7
1 22	6 38.96	+23 59.2	1.271	2.213	9.7	19.0	1 22	6 42.61	+23 47.3	2.002	2.940	7.0	20.0
2 1	6 31.32	+24 7.4	1.323	2.209	14.5	19.2	2 1	6 35.84	+24 23.0	2.061	2.936	10.6	20.2
2 11	6 27.17	+24 11.0	1.395	2.205	18.5	19.5	2 11	6 31.35	+24 53.2	2.144	2.932	13.6	20.4
406845	2009 <i>AC</i> ₄₇		1 4.5 285°34	0°4/ 4.4 18			456520	2006 <i>YP</i> ₃₂		1 4.5 104°62	2°6/ 4.2 18		
12 3	7 25.63	+23 14.8	1.572	2.416	15.0	21.2	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
15085	1999 <i>CB</i> ₄₃		1 4.5 178°59	0°2/ 4.4	18		191268	2003 <i>CM</i> ₂₄		1 4.5 58°13	1°8/ 4.9	17	
12 3	7 21.65	+22 26.9	2.686	3.511	10.1	18.4	12 3	7 26.25	+17 9.5	1.266	2.114	17.7	20.4
12 13	7 15.84	+22 42.3	2.607	3.512	7.3	18.2	12 13	7 20.36	+17 29.1	1.214	2.128	13.0	20.1
12 23	7 8.39	+22 59.5	2.554	3.513	4.2	18.0	12 23	7 11.42	+17 59.9	1.183	2.143	7.7	19.9
1 2	6 59.92	+23 16.6	2.531	3.513	0.8	17.8	1 2	7 0.58	+18 38.4	1.177	2.158	2.5	19.6
1 12	6 51.22	+23 31.9	2.539	3.513	2.6	17.9	1 12	6 49.50	+19 20.1	1.198	2.173	4.5	19.8
1 22	6 43.10	+23 44.2	2.578	3.513	5.8	18.1	1 22	6 39.83	+20 1.0	1.245	2.189	9.7	20.1
2 1	6 36.30	+23 53.3	2.645	3.512	8.8	18.3	2 1	6 32.87	+20 38.7	1.316	2.204	14.4	20.4
2 11	6 31.37	+23 59.3	2.737	3.512	11.3	18.5	2 11	6 29.37	+21 11.8	1.407	2.220	18.2	20.7
133500	2003 <i>SN</i> ₂₈₂		1 4.5 130°73	0°4/ 4.6	18		122130	2000 <i>JE</i> ₂₈		1 4.5 181°49	0°1/ 4.5	18	
12 3	7 27.04	+20 29.3	1.929	2.757	13.3	21.2	12 3	7 28.41	+22 27.8	2.002	2.828	13.0	21.2
12 13	7 20.13	+20 45.9	1.865	2.771	9.7	21.0	12 13	7 21.22	+22 37.7	1.925	2.830	9.5	21.0
12 23	7 10.98	+21 6.8	1.826	2.785	5.6	20.8	12 23	7 11.68	+22 49.7	1.872	2.831	5.5	20.8
1 2	7 0.44	+21 29.0	1.815	2.797	1.2	20.5	1 2	7 0.65	+23 1.2	1.849	2.831	1.1	20.5
1 12	6 49.71	+21 50.2	1.835	2.810	3.3	20.7	1 12	6 49.28	+23 9.7	1.856	2.830	3.3	20.6
1 22	6 39.94	+22 8.5	1.884	2.821	7.5	21.0	1 22	6 38.79	+23 14.4	1.893	2.828	7.6	20.9
2 1	6 32.14	+22 23.4	1.960	2.832	11.2	21.2	2 1	6 30.24	+23 15.3	1.957	2.826	11.3	21.1
2 11	6 26.94	+22 35.1	2.060	2.842	14.3	21.4	2 11	6 24.34	+23 13.5	2.045	2.822	14.5	21.3
368572	2004 <i>LN</i> ₈		1 4.5 192°59	6°4/ 5.8	18		74558	1999 <i>LT</i> ₁₃		1 4.5 116°59	1°4/ 4.9	18	
12 3	7 22.61	+3 3.0	2.403	3.178	12.7	21.6	12 3	7 30.34	+16 47.1	1.611	2.438	15.6	19.6
12 13	7 16.59	+2 18.2	2.323	3.177	10.3	21.4	12 13	7 22.79	+17 20.8	1.556	2.460	11.5	19.4
12 23	7 8.85	+1 46.7	2.266	3.174	8.1	21.3	12 23	7 12.61	+18 3.8	1.524	2.481	6.7	19.2
1 2	7 0.02	+1 30.7	2.237	3.171	6.6	21.2	1 2	7 0.82	+18 52.4	1.520	2.501	2.1	18.9
1 12	6 50.92	+1 31.1	2.237	3.168	6.8	21.2	1 12	6 48.85	+19 42.1	1.546	2.521	3.9	19.1
1 22	6 42.41	+1 46.8	2.265	3.164	8.6	21.3	1 22	6 38.10	+20 29.3	1.601	2.539	8.5	19.4
2 1	6 35.26	+2 15.7	2.320	3.159	10.9	21.4	2 1	6 29.71	+21 11.7	1.683	2.557	12.6	19.7
2 11	6 30.05	+2 54.1	2.398	3.154	13.2	21.6	2 11	6 24.38	+21 48.9	1.786	2.574	16.0	20.0
84163	2002 <i>RL</i> ₉₃		1 4.5 61°61	1°7/ 4.3	18		368839	2006 <i>DP</i> ₁₁₁		1 4.5 30°83	5°4/ 3.6	18	
12 3	7 28.93	+27 17.6	1.506	2.350	15.6	19.1	12 3	7 27.96	+37 22.1	1.938	2.764	13.3	20.9
12 13	7 21.87	+27 14.9	1.457	2.370	11.3	18.9	12 13	7 21.20	+37 52.5	1.870	2.766	10.3	20.7
12 23	7 12.04	+27 9.3	1.430	2.391	6.6	18.7	12 23	7 11.76	+38 13.0	1.827	2.768	7.3	20.6
1 2	7 0.64	+26 57.4	1.430	2.411	2.1	18.4	1 2	7 0.66	+38 18.0	1.810	2.770	5.5	20.4
1 12	6 49.26	+26 37.7	1.459	2.432	4.3	18.6	1 12	6 49.30	+38 4.5	1.822	2.772	6.5	20.5
1 22	6 39.37	+26 11.3	1.515	2.453	8.8	18.9	1 22	6 39.11	+37 33.2	1.861	2.774	9.3	20.7
2 1	6 32.10	+25 40.7	1.596	2.474	12.9	19.2	2 1	6 31.27	+36 47.7	1.926	2.776	12.4	20.9
2 11	6 28.06	+25 8.7	1.698	2.495	16.3	19.5	2 11	6 26.47	+35 53.4	2.013	2.779	15.1	21.1
323764	2005 <i>PB</i> ₇		1 4.5 67°55	4°9/ 4.2	18		489161	2006 <i>EY</i> ₄₆		1 4.5 332°25	6°5/ 3.5	18	
12 3	7 32.00	+35 53.9	1.685	2.514	14.9	20.6	12 3	7 27.47	+34 44.4	1.256	2.110	17.4	21.1
12 13	7 24.00	+36 4.9	1.636	2.537	11.2	20.4	12 13	7 22.13	+35 33.4	1.187	2.100	13.4	20.9
12 23	7 13.20	+36 4.6	1.612	2.559	7.5	20.2	12 23	7 12.90	+36 14.4	1.139	2.091	9.2	20.6
1 2	7 0.87	+35 48.2	1.614	2.582	5.0	20.1	1 2	7 0.96	+36 37.8	1.114	2.082	6.5	20.4
1 12	6 48.65	+35 14.3	1.645	2.604	6.1	20.2	1 12	6 48.33	+36 37.1	1.114	2.074	8.2	20.5
1 22	6 38.07	+34 25.2	1.704	2.626	9.3	20.5	1 22	6 37.19	+36 11.8	1.139	2.066	12.3	20.7
2 1	6 30.22	+33 26.2	1.789	2.649	12.7	20.7	2 1	6 29.34	+35 27.0	1.186	2.060	16.7	20.9
2 11	6 25.66	+32 22.8	1.895	2.671	15.6	21.0	2 11	6 25.77	+34 30.0	1.250	2.054	20.6	21.2
373922	2003 <i>UH</i> ₂₀₁		1 4.5 64°41	7°1/ 2.7	18		489146	2006 <i>DJ</i> ₁₆₅		1 4.5 283°90	3°3/ 5.2	17	
12 3	7 28.60	+41 3.2	1.985	2.803	13.4	20.6	12 3	7 24.16	+13 57.0	1.538	2.372	15.8	22.0
12 13	7 21.74	+42 11.5	1.932	2.816	10.7	20.5	12 13	7 18.85	+13 59.7	1.449	2.354	12.1	21.7
12 23	7 12.10	+43 7.9	1.904	2.829	8.3	20.3	12 23	7 10.71	+14 15.2	1.382	2.336	7.7	21.4
1 2	7 0.69	+43 45.2	1.902	2.842	7.1	20.3	1 2	7 0.52	+14 42.8	1.341	2.317	3.8	21.1
1 12	6 49.01	+43 59.2	1.928	2.856	8.0	20.4	1 12	6 49.61	+15 20.3	1.328	2.299	5.0	21.1
1 22	6 38.56	+43 50.2	1.981	2.869	10.2	20.5	1 22	6 39.44	+16 4.2	1.341	2.281	9.6	21.4
2 1	6 30.56	+43 21.8	2.058	2.883	12.7	20.7	2 1	6 31.39	+16 51.3	1.380	2.263	14.2	21.6
2 11	6 25.74	+42 39.8	2.156	2.896	15.0	20.9	2 11	6 26.46	+17 38.6	1.439	2.245	18.2	21.8
411848	2012 <i>DW</i> ₇₂		1 4.5 350°69	0°7/ 4.7	18		97786	2000 <i>NU</i> ₂		1 4.5 151°73	1°1/ 4.8	18	
12 3	7 22.68	+19 45.5	1.505	2.352	15.4	21.0	12 3	7 27.80	+19 4.3	2.019	2.842	13.0	21.1
12 13	7 17.65	+20 3.7	1.433	2.349	11.3	20.7	12 13	7 20.62	+19 8.5	1.950	2.852	9.6	20.9
12 23	7 9.88	+20 29.3	1.384	2.346	6.6	20.5	12 23	7 11.27	+19 17.3	1.906	2.862	5.6	20.6
1 2	7 0.28	+20 59.1	1.361	2.343	1.6	20.1	1 2	7 0.57	+19 28.9	1.890	2.871	1.6	20.4
1 12	6 50.22	+21 29.8	1.365	2.341	3.9	20.3	1 12	6 49.65	+19 41.4	1.906	2.880	3.3	20.5
1 22	6 41.15	+21 58.4	1.397	2.340	8.9	20.6	1 22	6 39.65	+19 53.3	1.951	2.887	7.3	20.8
2 1	6 34.35	+22 23.4	1.453	2.339	13.4	20.8	2 1	6 31.52	+20 4.3	2.024	2.894	11.0	21.0
2 11	6 30.63	+22 44.3	1.529	2.339	17.2	21.1	2 11	6 25.92	+20 14.1	2.120	2.899	14.0	21.2
291100	2005 <i>YX</i> ₁₄₈		1 4.5 35°24	2°0/ 3.9	18		125217	2001 <i>UW</i> ₁₅₂		1 4.5 40°95	1°7/ 4.8	18	
12 3	7 24.05	+26 23.3	1.759	2.602	13.7	20.5	12 3	7 25.79	+19 0.3	1.311	2.160	17.1	19.6
12 13	7 18.34	+26 59.0	1.693	2.607	10.0	20.3	12 13	7 20.05	+18 53.7	1.251	2.167	12.6	19.3
12 23	7 10.13	+27 34.8	1.652	2.612	5.9	20.0	12 23	7 11.28	+18 54.3	1.213	2.173	7.5	19.0
1 2	7 0.31	+28 6.5	1.638	2.618	2.2	19.8	1 2	7 0.60	+19 0.3	1.200	2.181	2.3	18.7
1 12	6 50.18	+28 30.0	1.653	2.624	4.2	20.0	1 12	6 49.62	+19 9.4	1.213	2.188	4.5	18.9
1 22	6 41.05	+28 43.9	1.695	2.630	8.3	20.2	1 22	6 39.96	+19 19.9	1.253	2.196	9.7	19.2
2 1	6 34.04	+28 48.5	1.763	2.637	12.1	20.5	2 1	6 32.95	+19 30.8	1.316	2.205	14.4	19.5
2 11	6 29.88	+28 45.8	1.853	2.644	15.3	20.7	2 11	6 29.34	+19 41.5	1.400	2.213	18.3	19.8
492942	2014 <i>SE</i> ₁₄		1 4.5 133°84	0°7/ 4.3	18		455834	2005 <i>TC</i> ₈₄		1 4.5 64°30	3°4/ 3.9	18	
12 3	7 26.10	+23 24.3	1.887	2.722									

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
451516	2011 <i>UA</i> ₃₆₇		1 4.5 48°82	0°0/ 4.4 16			27720	1989 <i>UP</i> ₃		1 4.5 33°15	8°9/ 6.4 18	R	
12 3	7 26.09	+21 12.5	1.299	2.151	17.1	21.1	12 3	7 21.78	+2 49.9	1.479	2.286	17.7	18.1
12 13	7 20.20	+21 36.9	1.250	2.169	12.4	20.9	12 13	7 16.71	+1 53.1	1.423	2.295	14.5	17.9
12 23	7 11.30	+22 7.0	1.224	2.187	7.1	20.7	12 23	7 9.21	+1 17.7	1.387	2.305	11.3	17.7
1 2	7 0.59	+22 38.6	1.223	2.205	1.4	20.3	1 2	7 0.20	+1 7.6	1.375	2.316	9.2	17.6
1 12	6 49.72	+23 7.4	1.249	2.224	4.2	20.6	1 12	6 50.97	+1 23.4	1.388	2.327	9.3	17.7
1 22	6 40.31	+23 30.9	1.300	2.244	9.4	20.9	1 22	6 42.78	+2 2.1	1.426	2.339	11.6	17.8
2 1	6 33.61	+23 48.4	1.376	2.263	13.9	21.3	2 1	6 36.69	+2 58.5	1.488	2.351	14.6	18.0
2 11	6 30.31	+24 0.6	1.473	2.283	17.6	21.6	2 11	6 33.40	+4 5.5	1.569	2.364	17.5	18.3
349603	2008 <i>TH</i> ₁₈₉		1 4.5 337°62	5°6/ 3.6 18			306020	2010 <i>DC</i> ₃₄		1 4.5 67°09	7°8/ 1.1 18		
12 3	7 28.51	+33 25.0	1.334	2.184	16.8	20.4	12 3	7 36.25	+25 36.2	0.928	1.790	21.4	19.0
12 13	7 22.60	+34 12.8	1.267	2.179	12.8	20.2	12 13	7 29.65	+29 29.4	0.883	1.804	15.9	18.8
12 23	7 13.04	+34 53.7	1.222	2.175	8.5	19.9	12 23	7 17.89	+33 34.6	0.860	1.818	10.3	18.5
1 2	7 1.00	+35 19.4	1.202	2.172	5.7	19.7	1 2	7 2.14	+37 24.0	0.864	1.832	7.9	18.5
1 12	6 48.39	+35 23.9	1.208	2.169	7.4	19.8	1 12	6 45.04	+40 31.5	0.895	1.847	11.0	18.7
1 22	6 37.24	+35 6.6	1.238	2.166	11.5	20.0	1 22	6 29.76	+42 45.1	0.950	1.861	16.1	19.0
2 1	6 29.20	+34 31.8	1.292	2.163	15.8	20.3	2 1	6 18.97	+44 7.9	1.026	1.876	20.7	19.3
2 11	6 25.19	+33 46.1	1.365	2.162	19.5	20.5	2 11	6 14.01	+44 52.3	1.117	1.891	24.3	19.7
164337	2005 <i>BR</i> ₁₂		1 4.5 56°66	0°1/ 4.5 17			288767	2004 <i>RY</i> ₉₄		1 4.5 82°89	3°4/ 5.1 17		
12 3	7 27.43	+22 18.9	1.334	2.184	16.8	19.8	12 3	7 27.00	+14 57.5	1.466	2.300	16.5	20.6
12 13	7 21.06	+22 30.4	1.287	2.204	12.2	19.6	12 13	7 20.52	+14 38.7	1.411	2.316	12.3	20.4
12 23	7 11.74	+22 45.6	1.261	2.224	7.0	19.4	12 23	7 11.38	+14 30.1	1.378	2.332	7.7	20.2
1 2	7 0.67	+23 0.8	1.262	2.244	1.4	19.0	1 2	7 0.64	+14 31.5	1.371	2.347	3.8	20.0
1 12	6 49.52	+23 12.8	1.289	2.265	4.1	19.3	1 12	6 49.75	+14 41.3	1.392	2.363	5.0	20.1
1 22	6 39.88	+23 20.2	1.343	2.285	9.3	19.7	1 22	6 40.12	+14 57.6	1.440	2.378	9.2	20.4
2 1	6 32.95	+23 23.4	1.421	2.306	13.7	20.0	2 1	6 32.88	+15 18.3	1.513	2.393	13.3	20.7
2 11	6 29.40	+23 23.4	1.520	2.327	17.3	20.3	2 11	6 28.71	+15 41.4	1.607	2.408	16.8	20.9
308724	2006 <i>HE</i> ₂₄		1 4.5 169°33	1°1/ 4.2 18			467177	2016 <i>EC</i> ₁₁₁		1 4.5 264°40	4°0/ 5.4 17		
12 3	7 27.34	+24 23.3	2.038	2.867	12.7	21.6	12 3	7 21.84	+11 7.7	2.134	2.947	12.8	21.7
12 13	7 20.47	+24 54.4	1.965	2.872	9.2	21.4	12 13	7 16.41	+10 52.9	2.042	2.932	9.9	21.5
12 23	7 11.28	+25 26.9	1.916	2.875	5.3	21.1	12 23	7 8.97	+10 48.4	1.975	2.918	6.7	21.3
1 2	7 0.60	+25 57.0	1.897	2.878	1.5	20.9	1 2	7 0.18	+10 54.5	1.935	2.903	4.2	21.1
1 12	6 49.59	+26 21.6	1.908	2.881	3.5	21.0	1 12	6 50.96	+11 10.8	1.924	2.887	4.8	21.1
1 22	6 39.44	+26 38.9	1.949	2.882	7.5	21.3	1 22	6 42.32	+11 35.8	1.942	2.872	7.8	21.3
2 1	6 31.19	+26 48.9	2.017	2.883	11.2	21.5	2 1	6 35.18	+12 7.2	1.987	2.857	11.2	21.5
2 11	6 25.55	+26 53.1	2.108	2.884	14.2	21.7	2 11	6 30.23	+12 42.6	2.055	2.841	14.2	21.6
82000	2000 <i>QD</i> ₂₁₉		1 4.5 225°53	1°2/ 4.2 18			468093	2013 <i>UZ</i> ₉		1 4.5 192°40	4°4/ 5.7 18		
12 3	7 22.34	+26 12.9	2.620	3.448	10.2	20.1	12 3	7 20.73	+8 57.2	2.316	3.120	12.2	21.9
12 13	7 16.47	+26 26.3	2.535	3.442	7.5	19.9	12 13	7 15.34	+8 39.1	2.237	3.119	9.5	21.7
12 23	7 8.85	+26 39.2	2.477	3.435	4.4	19.7	12 23	7 8.22	+8 31.8	2.183	3.118	6.7	21.6
1 2	7 0.10	+26 49.0	2.448	3.429	1.4	19.5	1 2	7 0.01	+8 36.0	2.156	3.117	4.6	21.4
1 12	6 51.08	+26 54.1	2.450	3.422	3.0	19.6	1 12	6 51.53	+8 51.4	2.159	3.116	5.0	21.5
1 22	6 42.66	+26 53.8	2.482	3.415	6.2	19.8	1 22	6 43.66	+9 16.3	2.191	3.115	7.4	21.6
2 1	6 35.64	+26 48.3	2.542	3.407	9.2	20.0	2 1	6 37.19	+9 48.6	2.250	3.114	10.3	21.8
2 11	6 30.61	+26 38.8	2.627	3.400	11.8	20.2	2 11	6 32.68	+10 25.5	2.333	3.113	12.9	22.0
284078	2005 <i>GN</i> ₁₄₁		1 4.5 245°55	1°6/ 5.0 17			227352	2005 <i>UG</i> ₈₈		1 4.5 109°28	2°5/ 5.1 18		
12 3	7 20.84	+16 20.6	2.629	3.446	10.5	21.3	12 3	7 23.54	+15 28.5	1.938	2.764	13.4	20.8
12 13	7 15.37	+16 27.5	2.534	3.433	7.8	21.1	12 13	7 17.62	+15 22.2	1.870	2.771	10.0	20.6
12 23	7 8.23	+16 40.3	2.466	3.419	4.8	20.8	12 23	7 9.61	+15 23.8	1.825	2.778	6.2	20.4
1 2	6 59.99	+16 58.0	2.427	3.405	2.0	20.6	1 2	7 0.29	+15 32.5	1.808	2.785	2.9	20.2
1 12	6 51.40	+17 19.2	2.419	3.391	3.0	20.7	1 12	6 50.74	+15 46.9	1.821	2.792	3.9	20.3
1 22	6 43.29	+17 42.4	2.441	3.376	6.1	20.9	1 22	6 42.03	+16 5.3	1.862	2.798	7.6	20.5
2 1	6 36.42	+18 6.4	2.492	3.361	9.2	21.0	2 1	6 35.10	+16 26.2	1.930	2.805	11.2	20.8
2 11	6 31.38	+18 30.1	2.567	3.346	11.9	21.2	2 11	6 30.59	+16 48.0	2.021	2.811	14.2	21.0
373751	2002 <i>TF</i> ₁₄₃		1 4.5 95°17	2°4/ 5.3 18			375358	2008 <i>SU</i> ₁₀₁		1 4.5 101°94	2°2/ 5.0 18		
12 3	7 21.98	+13 50.1	2.403	3.217	11.5	21.0	12 3	7 22.07	+16 4.8	2.183	3.006	12.2	21.0
12 13	7 16.06	+13 59.5	2.343	3.238	8.6	20.9	12 13	7 16.38	+15 56.9	2.112	3.013	9.0	20.8
12 23	7 8.52	+14 16.9	2.309	3.258	5.4	20.7	12 23	7 8.83	+15 55.5	2.066	3.019	5.6	20.6
1 2	7 0.02	+14 41.0	2.303	3.278	2.7	20.6	1 2	7 0.13	+15 59.9	2.048	3.025	2.5	20.4
1 12	6 51.41	+15 10.1	2.328	3.298	3.4	20.7	1 12	6 51.24	+16 9.0	2.060	3.032	3.5	20.5
1 22	6 43.51	+15 42.2	2.383	3.317	6.3	20.9	1 22	6 43.08	+16 21.5	2.102	3.038	6.9	20.7
2 1	6 37.04	+16 15.5	2.467	3.336	9.3	21.1	2 1	6 36.48	+16 36.2	2.171	3.044	10.2	21.0
2 11	6 32.52	+16 48.4	2.574	3.355	11.8	21.3	2 11	6 32.04	+16 52.2	2.263	3.050	13.0	21.2
245848	2006 <i>KR</i> ₁₀₁		1 4.5 117°75	4°0/ 5.2 18			245883	2006 <i>QK</i> ₃₈		1 4.5 172°54	3°4/ 5.7 18		
12 3	7 21.98	+10 26.5	2.600	3.400	11.1	21.1	12 3	7 19.71	+9 20.9	2.950	3.745	10.1	21.4
12 13	7 15.95	+9 42.1	2.531	3.411	8.6	21.0	12 13	7 14.29	+9 14.3	2.869	3.747	7.8	21.2
12 23	7 8.42	+9 5.5	2.487	3.422	6.0	20.8	12 23	7 7.50	+9 16.3	2.815	3.750	5.4	21.1
1 2	7 0.00	+8 37.8	2.473	3.433	4.2	20.7	1 2	6 59.86	+9 27.0	2.790	3.752	3.6	20.9
1 12	6 51.47	+8 19.7	2.489	3.443	4.6	20.8	1 12	6 52.04	+9 45.9	2.795	3.753	3.9	21.0
1 22	6 43.58	+8 10.9	2.535	3.454	6.8	20.9	1 22	6 44.70	+10 11.5	2.831	3.754	6.0	21.1
2 1	6 37.00	+8 10.5	2.609	3.464	9.3	21.1	2 1	6 38.44	+10 42.2	2.896	3.755	8.4	21.3
2 11	6 32.22	+8 16.6	2.707	3.473	11.6	21.3	2 11	6 33.74	+11 15.9	2.985	3.755	10.6	21.4
284205	2006 <i>BF</i> ₁₉₄		1 4.5 12°35	1°9/ 4.3 18			326464	2001 <i>YL</i> ₃₁		1 4.5 295°52	1°9/ 4.8 18		
12 3	7 28.01	+27 24.9	1.315	2.168	16.9	20.							

EPHEMERIDES

1 4.5

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
463554	2013 <i>RL</i> ₅₃		1 4.5 65°13	4°0/ 3.8 18			308174	2005 <i>CX</i> ₁₂		1 4.5 358°19	1°3/ 4.9 18		
12 3	7 26.30	+33 53.5	2.036	2.866	12.6	21.2	12 3	7 23.81	+17 32.6	1.425	2.270	16.2	20.4
12 13	7 19.78	+34 19.2	1.973	2.875	9.5	21.0	12 13	7 18.64	+18 3.7	1.355	2.269	12.0	20.2
12 23	7 10.89	+34 37.9	1.934	2.883	6.3	20.8	12 23	7 10.59	+18 45.8	1.308	2.268	7.1	19.9
1 2	7 0.57	+34 45.3	1.923	2.892	4.1	20.7	1 2	7 0.58	+19 35.7	1.286	2.268	2.0	19.6
1 12	6 50.06	+34 38.7	1.942	2.901	5.2	20.8	1 12	6 50.07	+20 28.4	1.292	2.268	4.1	19.7
1 22	6 40.62	+34 18.6	1.988	2.910	8.2	21.0	1 22	6 40.59	+21 19.6	1.324	2.268	9.3	20.0
2 1	6 33.26	+33 47.4	2.061	2.919	11.4	21.2	2 1	6 33.48	+22 6.1	1.381	2.269	13.9	20.3
2 11	6 28.63	+33 9.1	2.156	2.927	14.1	21.4	2 11	6 29.59	+22 46.6	1.459	2.270	17.8	20.5
488861	2005 <i>SB</i> ₈₀		1 4.5 153°11	3°0/ 3.8 18			304920	2007 <i>RN</i> ₃₀₁		1 4.5 140°35	0°7/ 4.7 18		
12 3	7 27.08	+30 23.6	2.127	2.956	12.2	22.3	12 3	7 27.29	+19 44.2	2.009	2.834	13.0	22.1
12 13	7 20.28	+30 56.8	2.058	2.962	9.0	22.1	12 13	7 20.31	+19 59.8	1.943	2.847	9.5	21.9
12 23	7 11.18	+31 26.4	2.013	2.967	5.6	21.9	12 23	7 11.16	+20 19.9	1.901	2.859	5.5	21.7
1 2	7 0.64	+31 48.1	1.998	2.972	3.1	21.8	1 2	7 0.66	+20 42.2	1.889	2.871	1.4	21.5
1 12	6 49.82	+31 58.9	2.012	2.977	4.5	21.9	1 12	6 49.94	+21 4.2	1.907	2.881	3.2	21.6
1 22	6 39.92	+31 57.9	2.056	2.981	7.8	22.1	1 22	6 40.14	+21 24.0	1.955	2.892	7.3	21.9
2 1	6 31.96	+31 46.6	2.127	2.985	11.0	22.3	2 1	6 32.22	+21 41.1	2.030	2.901	10.9	22.1
2 11	6 26.62	+31 28.0	2.220	2.989	13.8	22.5	2 11	6 26.81	+21 55.3	2.129	2.910	13.9	22.4
464912	2005 <i>TQ</i> ₂₀		1 4.5 132°27	3°5/ 5.7 18			419453	2010 <i>CN</i> ₁₃₉		1 4.5 283°46	5°2/ 5.9 17		
12 3	7 18.93	+9 43.3	2.809	3.609	10.4	21.6	12 3	7 19.91	+6 37.0	2.267	3.065	12.6	21.3
12 13	7 13.76	+9 30.2	2.734	3.615	8.0	21.4	12 13	7 14.91	+6 18.6	2.176	3.051	10.0	21.1
12 23	7 7.21	+9 25.8	2.685	3.621	5.6	21.3	12 23	7 8.09	+6 13.1	2.108	3.036	7.4	20.9
1 2	6 59.82	+9 30.3	2.664	3.626	3.7	21.2	1 2	7 0.05	+6 21.6	2.067	3.021	5.4	20.7
1 12	6 52.25	+9 43.3	2.673	3.632	4.1	21.2	1 12	6 51.64	+6 44.0	2.055	3.007	5.7	20.7
1 22	6 45.21	+10 3.4	2.713	3.637	6.2	21.4	1 22	6 43.73	+7 18.5	2.072	2.992	8.0	20.8
2 1	6 39.30	+10 29.1	2.780	3.642	8.6	21.5	2 1	6 37.18	+8 2.5	2.115	2.977	10.9	21.0
2 11	6 35.00	+10 58.3	2.872	3.647	10.8	21.7	2 11	6 32.62	+8 52.6	2.181	2.963	13.6	21.1
347177	2011 <i>FE</i> ₁₄₉		1 4.5 146°90	2°0/ 3.9 18			249690	2000 <i>DP</i> ₁₃		1 4.5 313°54	3°3/ 4.0 18		
12 3	7 30.40	+25 21.2	1.803	2.633	14.0	21.4	12 3	7 27.19	+30 29.0	1.628	2.470	14.7	20.4
12 13	7 22.96	+26 15.1	1.737	2.645	10.2	21.2	12 13	7 21.01	+30 47.9	1.554	2.465	10.9	20.2
12 23	7 12.84	+27 10.5	1.697	2.656	6.0	20.9	12 23	7 11.89	+31 2.2	1.502	2.459	6.8	19.9
1 2	7 1.00	+28 1.7	1.686	2.665	2.2	20.7	1 2	7 0.85	+31 6.8	1.478	2.454	3.5	19.7
1 12	6 48.79	+28 43.6	1.704	2.675	4.3	20.9	1 12	6 49.37	+30 58.5	1.481	2.449	5.2	19.8
1 22	6 37.63	+29 13.8	1.752	2.683	8.5	21.1	1 22	6 39.04	+30 37.1	1.512	2.444	9.4	20.1
2 1	6 28.74	+29 32.6	1.827	2.690	12.3	21.4	2 1	6 31.18	+30 5.4	1.567	2.440	13.4	20.3
2 11	6 22.86	+29 42.1	1.924	2.697	15.5	21.6	2 11	6 26.59	+29 27.6	1.644	2.435	16.9	20.5
351233	2004 <i>PJ</i> ₅₇		1 4.5 76°31	1°9/ 4.8 18			261020	2005 <i>SU</i> ₁₂₀		1 4.5 273°83	1°4/ 4.2 18		
12 3	7 29.44	+18 17.7	1.427	2.264	16.6	20.7	12 3	7 25.09	+25 29.0	1.835	2.673	13.4	20.8
12 13	7 22.22	+18 7.4	1.381	2.291	12.2	20.5	12 13	7 19.11	+25 48.7	1.760	2.672	9.8	20.6
12 23	7 12.29	+18 4.1	1.359	2.317	7.2	20.3	12 23	7 10.65	+26 8.7	1.709	2.670	5.7	20.4
1 2	7 0.84	+18 6.2	1.362	2.343	2.5	20.1	1 2	7 0.58	+26 25.7	1.687	2.668	1.7	20.1
1 12	6 49.41	+18 11.6	1.394	2.368	4.3	20.3	1 12	6 50.15	+26 36.5	1.693	2.666	3.8	20.2
1 22	6 39.46	+18 19.2	1.454	2.394	8.9	20.6	1 22	6 40.63	+26 40.1	1.727	2.664	8.1	20.5
2 1	6 32.10	+18 27.9	1.538	2.419	13.2	20.9	2 1	6 33.15	+26 37.0	1.788	2.662	12.0	20.7
2 11	6 27.91	+18 37.2	1.644	2.443	16.6	21.2	2 11	6 28.46	+26 28.8	1.871	2.661	15.2	20.9
464521	2016 <i>CM</i> ₈		1 4.5 213°55	0°5/ 4.6 18			9526	Billmckinnon		1 4.5 232°08	1°5/ 4.3 18		
12 3	7 24.32	+20 45.9	1.869	2.704	13.4	21.6	12 3	7 24.54	+27 5.4	2.139	2.972	12.0	19.2
12 13	7 18.41	+20 51.9	1.794	2.703	9.8	21.4	12 13	7 18.40	+27 12.0	2.062	2.971	8.8	19.0
12 23	7 10.18	+21 1.9	1.742	2.702	5.7	21.1	12 23	7 10.11	+27 16.9	2.010	2.969	5.2	18.8
1 2	7 0.45	+21 13.8	1.719	2.701	1.3	20.8	1 2	7 0.46	+27 17.3	1.986	2.967	1.7	18.6
1 12	6 50.38	+21 25.5	1.725	2.700	3.4	21.0	1 12	6 50.55	+27 11.4	1.993	2.965	3.5	18.7
1 22	6 41.17	+21 35.5	1.759	2.698	7.7	21.2	1 22	6 41.46	+26 58.9	2.028	2.963	7.2	18.9
2 1	6 33.86	+21 43.4	1.820	2.697	11.6	21.5	2 1	6 34.16	+26 40.8	2.091	2.961	10.7	19.1
2 11	6 29.18	+21 49.3	1.903	2.696	14.9	21.7	2 11	6 29.30	+26 19.3	2.177	2.958	13.6	19.3
269473	2009 <i>TR</i> ₂₅		1 4.5 65°15	0°3/ 4.5 18			169273	2001 <i>SR</i> ₂₁₀		1 4.5 57°38	2°5/ 5.2 18		
12 3	7 24.67	+23 47.1	1.906	2.742	13.1	20.6	12 3	7 20.80	+14 36.4	2.170	2.992	12.2	20.1
12 13	7 18.59	+23 46.4	1.834	2.744	9.6	20.3	12 13	7 15.48	+14 35.4	2.102	3.001	9.1	19.9
12 23	7 10.24	+23 46.6	1.787	2.747	5.5	20.1	12 23	7 8.35	+14 42.5	2.059	3.010	5.7	19.7
1 2	7 0.45	+23 45.3	1.767	2.750	1.2	19.8	1 2	7 0.10	+14 56.7	2.044	3.020	2.8	19.5
1 12	6 50.42	+23 40.9	1.777	2.752	3.4	20.0	1 12	6 51.65	+15 16.8	2.058	3.029	3.6	19.6
1 22	6 41.31	+23 33.0	1.816	2.755	7.6	20.2	1 22	6 43.94	+15 40.8	2.102	3.038	6.9	19.8
2 1	6 34.14	+23 22.2	1.882	2.758	11.4	20.5	2 1	6 37.75	+16 7.1	2.173	3.048	10.1	20.1
2 11	6 29.58	+23 9.6	1.970	2.760	14.5	20.7	2 11	6 33.66	+16 34.1	2.267	3.057	12.9	20.3
462651	2009 <i>SA</i> ₂₁₇		1 4.5 73°64	2°0/ 4.1 18			160191	2001 <i>XK</i> ₂₁₂		1 4.5 73°78	1°1/ 4.8 18		
12 3	7 26.51	+27 8.2	1.840	2.677	13.5	21.5	12 3	7 23.92	+18 14.7	1.792	2.626	13.9	20.1
12 13	7 19.90	+27 34.6	1.787	2.697	9.8	21.4	12 13	7 18.09	+18 34.6	1.728	2.637	10.2	19.8
12 23	7 10.93	+27 59.5	1.759	2.718	5.7	21.2	12 23	7 9.98	+19 1.7	1.689	2.647	6.0	19.6
1 2	7 0.58	+28 18.9	1.758	2.738	2.2	21.0	1 2	7 0.44	+19 33.3	1.677	2.658	1.7	19.4
1 12	6 50.13	+28 29.8	1.787	2.758	4.0	21.1	1 12	6 50.65	+20 6.4	1.694	2.669	3.5	19.5
1 22	6 40.81	+28 31.6	1.844	2.778	7.9	21.4	1 22	6 41.81	+20 38.5	1.740	2.680	7.7	19.8
2 1	6 33.62	+28 25.6	1.928	2.798	11.4	21.7	2 1	6 34.91	+21 7.9	1.812	2.691	11.6	20.0
2 11	6 29.20	+28 14.0	2.034	2.818	14.4	21.9	2 11	6 30.63	+21 33.9	1.907	2.702	14.8	20.3
20726	1999 <i>XE</i> ₁₂₂		1 4.5 224°77	1°0/ 4.4 18			368977	2007 <i>EL</i> ₇		1 4.5 220°46	6°9/ 6.6 18		

EPHEMERIDES

1 4.5

1 4.6

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
379489	2010 <i>EZ</i> ₁₀₇		1 4.5 344°98	11.2°/ 6.6	18		194180	2001 <i>TF</i> ₅₉		1 4.5 58°32	1°3/ 4.8	18	
12 3	7 16.68	- 1 36.3	1.515	2.310	17.9	20.0	12 3	7 29.13	+19 31.6	1.214	2.063	18.2	20.0
12 13	7 13.26	- 2 45.5	1.438	2.294	15.4	19.7	12 13	7 22.37	+19 32.6	1.174	2.090	13.2	19.8
12 23	7 7.44	- 3 31.3	1.381	2.280	12.9	19.6	12 23	7 12.55	+19 40.8	1.155	2.117	7.7	19.6
1 2	6 59.96	- 3 47.8	1.346	2.266	11.4	19.4	1 2	7 0.99	+19 53.1	1.162	2.143	2.1	19.3
1 12	6 51.98	- 3 31.9	1.334	2.254	11.4	19.4	1 12	6 49.48	+20 6.7	1.195	2.171	4.4	19.6
1 22	6 44.74	- 2 45.4	1.344	2.244	13.2	19.5	1 22	6 39.68	+20 19.5	1.254	2.198	9.7	19.9
2 1	6 39.39	- 1 33.5	1.377	2.235	15.9	19.6	2 1	6 32.79	+20 31.0	1.337	2.225	14.2	20.3
2 11	6 36.74	- 0 4.4	1.429	2.227	18.7	19.8	2 11	6 29.41	+20 41.0	1.440	2.252	17.9	20.6
495608	2015 <i>BX</i> ₅₀₀		1 4.5 333°06	1°5/ 4.2	18		330435	2007 <i>DF</i> ₃₄		1 4.5 323°64	1°9/ 4.2	18	
12 3	7 23.41	+27 15.2	2.207	3.040	11.7	20.7	12 3	7 24.15	+26 42.0	1.656	2.502	14.3	21.0
12 13	7 17.52	+27 22.1	2.130	3.039	8.5	20.5	12 13	7 18.78	+27 2.4	1.577	2.492	10.5	20.7
12 23	7 9.59	+27 27.1	2.078	3.037	5.0	20.3	12 23	7 10.65	+27 22.5	1.521	2.482	6.2	20.5
1 2	7 0.37	+27 27.8	2.056	3.036	1.8	20.1	1 2	7 0.67	+27 38.2	1.492	2.473	2.2	20.2
1 12	6 50.89	+27 22.3	2.063	3.035	3.4	20.2	1 12	6 50.19	+27 46.1	1.491	2.464	4.3	20.3
1 22	6 42.21	+27 10.4	2.099	3.033	7.0	20.4	1 22	6 40.66	+27 44.9	1.517	2.455	8.8	20.6
2 1	6 35.23	+26 53.1	2.162	3.032	10.4	20.6	2 1	6 33.35	+27 35.5	1.568	2.447	13.1	20.8
2 11	6 30.60	+26 32.2	2.249	3.031	13.2	20.8	2 11	6 29.10	+27 20.3	1.641	2.439	16.7	21.0
49899	1999 <i>XA</i> ₁₆₃		1 4.5 27°61	0°7/ 4.6	18		170318	2003 <i>SY</i> ₅₃		1 4.5 145°03	0°9/ 4.8	18	
12 3	7 26.48	+20 56.9	1.219	2.074	17.8	18.1	12 3	7 27.09	+19 6.9	2.016	2.840	13.0	21.8
12 13	7 20.86	+20 55.8	1.158	2.077	13.1	17.9	12 13	7 20.20	+19 19.7	1.948	2.851	9.5	21.6
12 23	7 11.94	+21 0.4	1.119	2.081	7.6	17.6	12 23	7 11.15	+19 37.7	1.904	2.862	5.6	21.3
1 2	7 0.88	+21 7.7	1.104	2.086	1.8	17.2	1 2	7 0.75	+19 58.4	1.890	2.872	1.5	21.1
1 12	6 49.44	+21 15.2	1.115	2.091	4.5	17.4	1 12	6 50.12	+20 19.6	1.906	2.881	3.2	21.2
1 22	6 39.41	+21 21.0	1.151	2.096	10.1	17.8	1 22	6 40.37	+20 39.6	1.953	2.889	7.3	21.5
2 1	6 32.25	+21 25.1	1.211	2.102	15.1	18.1	2 1	6 32.48	+20 57.4	2.026	2.897	10.9	21.7
2 11	6 28.77	+21 27.7	1.289	2.108	19.2	18.3	2 11	6 27.09	+21 12.9	2.123	2.904	13.9	21.9
235641	2004 <i>RL</i> ₉₀		1 4.5 166°33	1°1/ 4.4	18		288481	2004 <i>FL</i> ₂₂		1 4.5 269°94	0°8/ 4.5	18	
12 3	7 29.63	+25 36.2	1.720	2.554	14.4	21.0	12 3	7 27.54	+25 58.9	1.841	2.676	13.6	20.3
12 13	7 22.46	+25 40.0	1.649	2.558	10.5	20.8	12 13	7 20.97	+25 43.6	1.752	2.662	10.0	20.1
12 23	7 12.59	+25 42.9	1.602	2.561	6.1	20.5	12 23	7 11.81	+25 25.8	1.688	2.648	5.8	19.8
1 2	7 1.00	+25 41.6	1.582	2.564	1.6	20.2	1 2	7 0.91	+25 3.2	1.652	2.634	1.4	19.5
1 12	6 49.12	+25 33.9	1.592	2.566	3.9	20.4	1 12	6 49.58	+24 34.9	1.646	2.620	3.7	19.6
1 22	6 38.37	+25 19.6	1.631	2.568	8.5	20.7	1 22	6 39.15	+24 1.3	1.668	2.606	8.2	19.9
2 1	6 29.95	+25 0.4	1.696	2.569	12.6	20.9	2 1	6 30.82	+23 24.8	1.717	2.591	12.4	20.1
2 11	6 24.59	+24 38.6	1.783	2.570	16.0	21.2	2 11	6 25.38	+22 47.7	1.788	2.577	15.9	20.3
277973	2006 <i>TZ</i> ₂₈		1 4.5 113°25	1°2/ 4.8	18		138053	2000 <i>DL</i> ₃₇		1 4.5 230°72	0°1/ 4.5	18	
12 3	7 26.37	+18 32.0	2.025	2.849	12.9	21.8	12 3	7 25.14	+21 56.7	1.815	2.652	13.7	19.7
12 13	7 19.55	+18 38.1	1.965	2.868	9.5	21.6	12 13	7 19.18	+22 15.6	1.738	2.648	10.0	19.5
12 23	7 10.68	+18 49.2	1.930	2.887	5.6	21.4	12 23	7 10.76	+22 38.4	1.684	2.645	5.8	19.2
1 2	7 0.59	+19 3.7	1.924	2.905	1.7	21.2	1 2	7 0.70	+23 2.1	1.659	2.641	1.2	18.9
1 12	6 50.38	+19 19.6	1.949	2.923	3.3	21.3	1 12	6 50.22	+23 23.5	1.662	2.637	3.5	19.0
1 22	6 41.11	+19 35.3	2.003	2.940	7.1	21.6	1 22	6 40.60	+23 40.9	1.694	2.633	8.0	19.3
2 1	6 33.68	+19 50.1	2.085	2.956	10.6	21.8	2 1	6 32.96	+23 53.5	1.752	2.629	12.0	19.5
2 11	6 28.67	+20 3.7	2.190	2.972	13.5	22.0	2 11	6 28.08	+24 2.1	1.833	2.624	15.4	19.8
419913	2011 <i>BM</i> ₁₀		1 4.5 319°94	5°1/ 5.9	18		465435	2008 <i>RL</i> ₆₉		1 4.5 347°63	1°0/ 4.4	18	
12 3	7 20.51	+ 8 55.1	1.737	2.556	14.9	20.9	12 3	7 23.76	+25 15.3	1.963	2.800	12.7	21.4
12 13	7 15.84	+ 8 49.2	1.652	2.543	11.7	20.6	12 13	7 18.00	+25 21.8	1.888	2.799	9.3	21.1
12 23	7 8.85	+ 8 58.7	1.590	2.531	8.2	20.4	12 23	7 9.98	+25 28.3	1.837	2.797	5.4	20.9
1 2	7 0.27	+ 9 24.5	1.553	2.519	5.4	20.2	1 2	7 0.53	+25 31.9	1.814	2.796	1.4	20.6
1 12	6 51.18	+10 5.3	1.544	2.507	5.8	20.2	1 12	6 50.78	+25 30.9	1.821	2.795	3.4	20.8
1 22	6 42.78	+10 57.8	1.562	2.495	9.1	20.4	1 22	6 41.89	+25 24.5	1.856	2.794	7.5	21.0
2 1	6 36.15	+11 58.1	1.606	2.484	12.8	20.6	2 1	6 34.88	+25 13.5	1.918	2.794	11.2	21.2
2 11	6 32.10	+13 1.7	1.671	2.474	16.2	20.8	2 11	6 30.43	+24 59.3	2.003	2.793	14.4	21.4
132239	2002 <i>EF</i> ₈₀		1 4.5 146°37	1°3/ 4.2	18		166856	2002 <i>WC</i> ₂₁		1 4.5 107°14	4°2/ 5.5	18	
12 3	7 28.49	+25 13.6	1.992	2.821	12.9	20.4	12 3	7 21.09	+ 9 47.3	2.375	3.180	11.9	20.6
12 13	7 21.32	+25 40.6	1.925	2.831	9.4	20.2	12 13	7 15.54	+ 9 18.1	2.304	3.187	9.2	20.4
12 23	7 11.82	+26 7.9	1.883	2.842	5.5	20.0	12 23	7 8.36	+ 8 58.4	2.258	3.194	6.4	20.3
1 2	7 0.85	+26 31.6	1.870	2.851	1.6	19.7	1 2	7 0.18	+ 8 49.2	2.240	3.202	4.4	20.2
1 12	6 49.64	+26 48.9	1.887	2.860	3.6	19.9	1 12	6 51.82	+ 8 50.5	2.252	3.209	4.8	20.2
1 22	6 39.39	+26 58.4	1.934	2.868	7.6	20.2	1 22	6 44.11	+ 9 1.1	2.292	3.216	7.2	20.4
2 1	6 31.15	+27 0.8	2.009	2.875	11.2	20.4	2 1	6 37.78	+ 9 19.3	2.360	3.223	9.9	20.5
2 11	6 25.59	+26 57.7	2.106	2.882	14.2	20.6	2 11	6 33.37	+ 9 43.0	2.452	3.229	12.4	20.7
318778	2005 <i>SC</i> ₉₃		1 4.5 159°18	0°7/ 4.4	18		324062	2005 <i>VF</i> ₆₃		1 4.5 77°95	2°6/ 5.1	18	
12 3	7 25.39	+24 10.5	2.082	2.913	12.4	21.4	12 3	7 24.02	+15 56.1	1.803	2.632	14.1	21.1
12 13	7 19.02	+24 25.7	2.009	2.917	9.0	21.1	12 13	7 18.13	+15 44.2	1.737	2.641	10.5	20.9
12 23	7 10.49	+24 41.8	1.961	2.921	5.2	20.9	12 23	7 10.02	+15 40.1	1.695	2.649	6.5	20.7
1 2	7 0.59	+24 56.0	1.942	2.924	1.2	20.6	1 2	7 0.53	+15 43.1	1.681	2.658	2.9	20.5
1 12	6 50.41	+25 6.1	1.953	2.927	3.3	20.8	1 12	6 50.82	+15 52.1	1.695	2.667	4.1	20.5
1 22	6 41.08	+25 10.9	1.993	2.929	7.2	21.1	1 22	6 42.04	+16 5.4	1.738	2.676	7.9	20.8
2 1	6 33.55	+25 10.8	2.061	2.931	10.8	21.3	2 1	6 35.18	+16 21.7	1.807	2.684	11.7	21.0
2 11	6 28.50	+25 6.9	2.151	2.933	13.8	21.5	2 11	6 30.88	+16 39.5	1.898	2.693	14.8	21.3
437336	2013 <i>SY</i> ₂₉		1 4.5 14°12	11°1/ 3.3	18		193924	2001 <i>QR</i> ₂₉₃		1 4.6 196°89	1°6/ 4.2	18	
12 3	7 28.41	+47 49.0	1.4										

EPHEMERIDES

1 4.6

1 4.6

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
467590	2007 VG ₅		1 4.6 68°28'	3.4/ 5.2	18		454503	2014 OY ₁₇₈		1 4.6 114°66'	3.6/ 3.9	18	
12 3	7 21.81	+13 15.5	2.204	3.020	12.3	20.6	12 3	7 29.87	+31 19.7	1.803	2.635	13.9	21.2
12 13	7 16.15	+12 46.9	2.139	3.033	9.3	20.4	12 13	7 22.63	+31 54.1	1.743	2.648	10.3	21.0
12 23	7 8.73	+12 26.1	2.099	3.045	6.1	20.2	12 23	7 12.71	+32 23.3	1.708	2.661	6.5	20.8
1 2	7 0.27	+12 13.5	2.087	3.058	3.6	20.1	1 2	7 1.16	+32 42.0	1.700	2.673	3.7	20.6
1 12	6 51.68	+12 9.1	2.105	3.070	4.3	20.1	1 12	6 49.40	+32 46.8	1.722	2.686	5.2	20.8
1 22	6 43.84	+12 11.9	2.152	3.083	7.1	20.3	1 22	6 38.86	+32 37.6	1.771	2.697	8.7	21.0
2 1	6 37.54	+12 20.7	2.226	3.095	10.1	20.5	2 1	6 30.68	+32 16.8	1.847	2.709	12.3	21.2
2 11	6 33.30	+12 33.8	2.323	3.108	12.8	20.7	2 11	6 25.58	+31 48.5	1.945	2.719	15.3	21.5
469041	2015 AM ₂₅₃		1 4.6 110°01'	0°0/ 4.5	18		379085	2008 XZ ₁		1 4.6 351°22'	9°8/ 29.9	15	
12 3	7 22.06	+20 30.0	2.216	3.047	11.7	21.3	12 3	7 27.09	+39 43.0	1.604	2.439	15.2	19.4
12 13	7 16.58	+21 5.4	2.139	3.047	8.6	21.1	12 13	7 22.08	+42 37.0	1.540	2.430	12.5	19.2
12 23	7 9.12	+21 45.8	2.088	3.047	4.9	20.8	12 23	7 13.28	+45 25.4	1.500	2.422	10.4	19.1
1 2	7 0.39	+22 28.4	2.065	3.047	1.0	20.6	1 2	7 1.43	+47 53.5	1.488	2.415	9.9	19.0
1 12	6 51.31	+23 9.8	2.073	3.048	2.9	20.7	1 12	6 48.20	+49 48.9	1.503	2.409	11.5	19.1
1 22	6 42.90	+23 47.7	2.110	3.048	6.7	20.9	1 22	6 35.71	+51 6.0	1.542	2.405	14.1	19.2
2 1	6 36.03	+24 20.6	2.175	3.048	10.2	21.2	2 1	6 26.04	+51 46.7	1.603	2.402	16.9	19.4
2 11	6 31.37	+24 48.3	2.264	3.048	13.1	21.4	2 11	6 20.64	+51 58.4	1.682	2.400	19.4	19.6
21635	Micahottl		1 4.6 111°34'	0°6/ 4.7	18		121996	2000 FV ₄₁		1 4.6 348°69'	2°7/ 5.2	18	
12 3	7 28.14	+20 33.7	1.803	2.633	14.0	19.2	12 3	7 24.11	+15 13.9	1.260	2.108	17.7	19.3
12 13	7 21.09	+20 39.6	1.745	2.651	10.2	19.0	12 13	7 19.19	+15 28.6	1.191	2.105	13.3	19.1
12 23	7 11.69	+20 49.4	1.710	2.669	5.9	18.8	12 23	7 11.12	+15 57.7	1.144	2.102	8.2	18.8
1 2	7 0.90	+21 0.8	1.704	2.686	1.4	18.5	1 2	7 0.89	+16 38.9	1.121	2.100	3.3	18.5
1 12	6 49.97	+21 11.4	1.728	2.703	3.4	18.7	1 12	6 50.08	+17 28.3	1.123	2.098	4.9	18.6
1 22	6 40.14	+21 20.2	1.781	2.719	7.7	19.0	1 22	6 40.39	+18 20.8	1.152	2.097	10.1	18.9
2 1	6 32.42	+21 26.9	1.861	2.735	11.6	19.2	2 1	6 33.29	+19 12.5	1.204	2.096	15.1	19.1
2 11	6 27.45	+21 31.8	1.963	2.750	14.7	19.5	2 11	6 29.71	+20 0.6	1.275	2.096	19.3	19.4
222913	2002 JA ₆₇		1 4.6 232°17'	0°5/ 4.7	18		285728	2000 SO ₃₂₅		1 4.6 46°84'	2°1/ 4.2	17	
12 3	7 28.86	+20 5.8	1.591	2.426	15.3	21.6	12 3	7 27.80	+25 48.7	1.230	2.087	17.5	20.7
12 13	7 22.34	+20 24.9	1.506	2.415	11.4	21.3	12 13	7 21.75	+26 21.3	1.185	2.105	12.8	20.4
12 23	7 12.83	+20 50.8	1.444	2.403	6.7	21.0	12 23	7 12.42	+26 54.3	1.161	2.123	7.4	20.2
1 2	7 1.21	+21 20.0	1.409	2.391	1.5	20.6	1 2	7 1.12	+27 21.7	1.161	2.142	2.5	20.0
1 12	6 48.90	+21 49.0	1.403	2.378	4.0	20.8	1 12	6 49.68	+27 39.1	1.188	2.162	5.0	20.2
1 22	6 37.47	+22 14.9	1.424	2.364	9.2	21.0	1 22	6 39.87	+27 45.2	1.241	2.182	10.0	20.5
2 1	6 28.33	+22 36.5	1.472	2.350	13.8	21.3	2 1	6 33.05	+27 41.6	1.317	2.202	14.6	20.8
2 11	6 22.45	+22 54.0	1.541	2.334	17.8	21.5	2 11	6 29.89	+27 31.2	1.413	2.223	18.3	21.1
142472	2002 TH ₁₄		1 4.6 112°15'	4°9/ 3.2	18		354162	2002 CW ₂₀₉		1 4.6 309°26'	1°2/ 4.4	18	
12 3	7 31.92	+35 31.9	2.147	2.964	12.6	20.8	12 3	7 25.66	+24 17.5	1.414	2.265	16.0	21.0
12 13	7 23.83	+36 33.3	2.097	2.989	9.5	20.6	12 13	7 20.31	+24 38.7	1.356	2.253	11.8	20.7
12 23	7 13.28	+37 26.7	2.072	3.013	6.6	20.5	12 23	7 11.79	+25 2.9	1.280	2.242	6.9	20.4
1 2	7 1.25	+38 6.0	2.077	3.036	4.9	20.4	1 2	7 1.05	+25 25.4	1.250	2.232	1.8	20.0
1 12	6 49.04	+38 27.5	2.111	3.058	6.0	20.5	1 12	6 49.66	+25 42.3	1.246	2.221	4.5	20.2
1 22	6 37.99	+38 30.9	2.175	3.080	8.6	20.7	1 22	6 39.31	+25 51.2	1.269	2.211	9.8	20.5
2 1	6 29.14	+38 18.9	2.265	3.101	11.3	20.9	2 1	6 31.51	+25 52.5	1.316	2.201	14.6	20.7
2 11	6 23.17	+37 56.0	2.378	3.121	13.7	21.1	2 11	6 27.23	+25 48.1	1.383	2.192	18.7	21.0
269133	2007 SP ₃		1 4.6 108°21'	6°8/ 7.1	18		333626	2008 AT ₁₀		1 4.6 48°06'	3°5/ 5.7	18	
12 3	7 20.57	- 1 27.4	2.674	3.425	12.1	21.0	12 3	7 23.93	+11 47.8	1.455	2.287	16.6	21.0
12 13	7 14.97	- 1 57.3	2.613	3.443	10.1	20.9	12 13	7 18.51	+12 18.3	1.397	2.300	12.6	20.8
12 23	7 7.97	- 2 11.6	2.576	3.462	8.2	20.8	12 23	7 10.45	+13 5.2	1.362	2.313	8.0	20.6
1 2	7 0.14	- 2 8.7	2.566	3.480	6.9	20.8	1 2	7 0.73	+14 6.1	1.352	2.327	4.0	20.4
1 12	6 52.21	- 1 48.9	2.584	3.498	6.9	20.8	1 12	6 50.72	+15 16.1	1.370	2.342	4.8	20.4
1 22	6 44.87	- 1 13.8	2.630	3.515	8.1	20.9	1 22	6 41.80	+16 29.6	1.415	2.356	9.0	20.7
2 1	6 38.75	- 0 26.6	2.703	3.532	9.9	21.0	2 1	6 35.14	+17 41.6	1.485	2.371	13.2	21.0
2 11	6 34.31	+ 0 28.9	2.799	3.548	11.7	21.2	2 11	6 31.47	+18 48.6	1.577	2.386	16.7	21.3
467689	2008 UU ₃₅₇		1 4.6 39°23'	2°9/ 5.2	18		349006	2006 UZ ₂₇₃		1 4.6 12°32'	3°8/ 3.9	18	
12 3	7 21.54	+14 40.9	2.022	2.847	12.9	21.3	12 3	7 24.24	+29 16.9	1.301	2.159	16.6	20.3
12 13	7 16.18	+14 25.6	1.952	2.852	9.7	21.1	12 13	7 19.34	+29 56.9	1.243	2.163	12.3	20.1
12 23	7 8.87	+14 18.3	1.907	2.858	6.2	20.9	12 23	7 11.18	+30 34.3	1.207	2.167	7.6	19.8
1 2	7 0.35	+14 18.6	1.889	2.864	3.2	20.7	1 2	7 0.90	+31 2.5	1.195	2.172	3.9	19.6
1 12	6 51.61	+14 25.8	1.901	2.870	4.0	20.8	1 12	6 50.24	+31 16.5	1.209	2.179	5.9	19.8
1 22	6 43.65	+14 38.5	1.941	2.876	7.4	21.0	1 22	6 40.97	+31 15.1	1.249	2.186	10.4	20.0
2 1	6 37.33	+14 55.3	2.007	2.883	10.8	21.2	2 1	6 34.53	+31 0.6	1.311	2.195	14.8	20.3
2 11	6 33.26	+15 14.5	2.097	2.890	13.7	21.4	2 11	6 31.71	+30 37.0	1.393	2.204	18.5	20.6
383689	2007 TD ₃₁₉		1 4.6 120°68'	3°4/ 5.5	18		424974	2009 BA ₄₉		1 4.6 265°34'	0°9/ 4.9	18	
12 3	7 20.74	+11 27.7	2.500	3.307	11.3	21.8	12 3	7 20.87	+18 36.3	2.435	3.260	11.0	21.6
12 13	7 15.27	+11 9.9	2.427	3.314	8.6	21.6	12 13	7 15.60	+18 51.0	2.348	3.252	8.1	21.4
12 23	7 8.22	+11 0.4	2.380	3.321	5.8	21.5	12 23	7 8.55	+19 10.8	2.287	3.244	4.8	21.2
1 2	7 0.21	+10 59.7	2.361	3.328	3.6	21.3	1 2	7 0.33	+19 34.2	2.254	3.235	1.4	20.9
1 12	6 52.03	+11 7.1	2.372	3.334	4.1	21.4	1 12	6 51.79	+19 59.2	2.253	3.227	2.8	21.0
1 22	6 44.45	+11 21.6	2.413	3.341	6.6	21.5	1 22	6 43.79	+20 24.1	2.281	3.219	6.3	21.2
2 1	6 38.18	+11 41.5	2.481	3.347	9.4	21.7	2 1	6 37.14	+20 47.7	2.337	3.210	9.5	21.4
2 11	6 33.75	+12 5.0	2.574	3.353	11.8	21.9	2 11	6 32.47	+21 9.3	2.417	3.202	12.3	21.6
58740	1998 ES ₁₂		1 4.6 288°86'	1°1/ 4.3	18		327427	2005 WC ₃₆		1 4.6 52°31'	0°8/ 4.4	18	
12 3	7 21.97	+25 2.0	2.314	3.147	11.2	19.7	12 3	7 24.31	+22 56.4	1.738	2.579	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
400341	2007 <i>UB</i> ₁₂₇		1 4.6 155°15	2.4/ 3.9	18		80255	1999 <i>WZ</i> ₁₉		1 4.6 79°66	3.9/ 5.6	18	R
12 3	7 27.97	+27 14.6	1.858	2.692	13.5	21.3	12 3	7 28.65	+12 8.9	1.321	2.153	18.1	19.3
12 13	7 21.28	+27 59.9	1.789	2.697	9.9	21.1	12 13	7 21.97	+12 22.7	1.274	2.176	13.6	19.1
12 23	7 12.01	+28 44.9	1.744	2.702	5.9	20.8	12 23	7 12.43	+12 52.6	1.248	2.199	8.7	18.9
1 2	7 1.06	+29 24.4	1.728	2.706	2.6	20.6	1 2	7 1.16	+13 36.4	1.247	2.222	4.4	18.7
1 12	6 49.73	+29 54.1	1.741	2.710	4.4	20.8	1 12	6 49.77	+14 29.6	1.274	2.245	5.3	18.8
1 22	6 39.37	+30 12.2	1.783	2.714	8.3	21.0	1 22	6 39.79	+15 27.4	1.327	2.267	9.7	19.1
2 1	6 31.14	+30 19.3	1.852	2.717	12.1	21.2	2 1	6 32.44	+16 25.3	1.405	2.289	14.0	19.4
2 11	6 25.81	+30 17.7	1.942	2.720	15.2	21.5	2 11	6 28.38	+17 20.1	1.505	2.311	17.6	19.7
194727	2001 <i>XU</i> ₂₅₉		1 4.6 121°74	1.6/ 4.1	18		166112	2002 <i>CN</i> ₁₉₅		1 4.6 233°26	0.5/ 4.5	18	
12 3	7 30.62	+24 8.3	1.824	2.652	13.9	20.6	12 3	7 27.55	+23 21.2	1.851	2.684	13.6	21.5
12 13	7 23.06	+25 4.2	1.766	2.673	10.1	20.4	12 13	7 21.06	+23 35.8	1.765	2.673	10.0	21.2
12 23	7 12.94	+26 2.3	1.733	2.692	5.9	20.2	12 23	7 11.98	+23 52.7	1.702	2.662	5.8	20.9
1 2	7 1.24	+26 57.0	1.730	2.711	1.9	20.0	1 2	7 1.12	+24 8.6	1.668	2.650	1.3	20.6
1 12	6 49.29	+27 43.4	1.757	2.729	4.0	20.2	1 12	6 49.73	+24 20.7	1.664	2.638	3.6	20.8
1 22	6 38.44	+28 18.9	1.814	2.746	8.1	20.5	1 22	6 39.15	+24 27.4	1.688	2.625	8.2	21.0
2 1	6 29.80	+28 43.6	1.897	2.762	11.8	20.7	2 1	6 30.59	+24 28.9	1.739	2.612	12.3	21.2
2 11	6 24.09	+28 59.2	2.003	2.777	14.9	21.0	2 11	6 24.87	+24 26.5	1.812	2.598	15.8	21.4
277970	2006 <i>SR</i> ₃₉₁		1 4.6 108°00	2.3/ 5.1	18		359605	2010 <i>WG</i> ₁₃		1 4.6 211°08	0.8/ 4.2	18	
12 3	7 25.44	+16 8.6	1.860	2.685	13.8	21.6	12 3	7 18.32	+25 16.0	3.630	4.452	7.8	20.7
12 13	7 19.12	+16 6.5	1.797	2.699	10.3	21.4	12 13	7 13.30	+25 37.6	3.544	4.448	5.6	20.5
12 23	7 10.60	+16 12.1	1.758	2.712	6.3	21.2	12 23	7 7.06	+25 59.4	3.485	4.443	3.3	20.4
1 2	7 0.75	+16 24.2	1.747	2.725	2.7	21.0	1 2	7 0.05	+26 19.7	3.457	4.438	1.0	20.2
1 12	6 50.71	+16 41.0	1.765	2.737	3.8	21.1	1 12	6 52.84	+26 37.1	3.461	4.433	2.2	20.3
1 22	6 41.61	+17 0.8	1.812	2.749	7.7	21.3	1 22	6 46.02	+26 50.8	3.496	4.428	4.6	20.4
2 1	6 34.41	+17 21.9	1.886	2.761	11.4	21.6	2 1	6 40.12	+27 0.3	3.560	4.423	6.9	20.6
2 11	6 29.76	+17 43.2	1.982	2.773	14.5	21.8	2 11	6 35.58	+27 6.1	3.650	4.417	8.9	20.7
116716	2004 <i>DM</i> ₇		1 4.6 144°55	7.8/ 8.1	18		154755	2004 <i>PT</i> ₉		1 4.6 82°42	0.4/ 4.5	18	
12 3	7 19.84	- 4 58.7	2.531	3.268	13.1	20.0	12 3	7 25.33	+23 43.6	1.891	2.726	13.2	20.2
12 13	7 14.65	- 5 10.3	2.456	3.271	11.2	19.8	12 13	7 19.13	+23 49.1	1.825	2.735	9.6	20.0
12 23	7 7.91	- 5 2.8	2.402	3.274	9.3	19.7	12 23	7 10.67	+23 55.7	1.784	2.745	5.5	19.8
1 2	7 0.20	- 4 34.3	2.375	3.277	8.0	19.6	1 2	7 0.81	+24 0.9	1.772	2.754	1.2	19.5
1 12	6 52.26	- 3 45.3	2.374	3.280	7.9	19.6	1 12	6 50.75	+24 2.7	1.788	2.763	3.3	19.7
1 22	6 44.86	- 2 38.3	2.401	3.282	9.0	19.7	1 22	6 41.66	+24 0.4	1.833	2.772	7.5	20.0
2 1	6 38.70	- 1 17.5	2.455	3.285	10.7	19.8	2 1	6 34.55	+23 54.5	1.905	2.781	11.2	20.2
2 11	6 34.30	+ 0 11.8	2.533	3.287	12.7	20.0	2 11	6 30.04	+23 46.1	2.000	2.790	14.4	20.4
400037	2006 <i>QA</i> ₁₃₅		1 4.6 73°10	0.3/ 4.6	16		95764	2003 <i>EC</i> ₄₆		1 4.6 181°15	4.9/ 5.6	18	
12 3	7 28.55	+21 54.3	1.626	2.462	15.0	21.3	12 3	7 26.14	+10 1.0	1.831	2.641	14.7	20.0
12 13	7 21.47	+21 54.3	1.579	2.489	10.9	21.2	12 13	7 19.76	+ 9 34.2	1.755	2.642	11.4	19.8
12 23	7 11.94	+21 57.1	1.556	2.516	6.2	20.9	12 23	7 11.08	+ 9 19.6	1.703	2.642	7.9	19.6
1 2	7 1.02	+22 0.1	1.560	2.542	1.3	20.7	1 2	7 0.92	+ 9 18.2	1.678	2.643	5.2	19.5
1 12	6 50.12	+22 1.5	1.593	2.568	3.6	20.9	1 12	6 50.40	+ 9 29.7	1.682	2.642	5.8	19.5
1 22	6 40.53	+22 0.6	1.654	2.594	8.1	21.2	1 22	6 40.72	+ 9 52.4	1.714	2.641	8.9	19.7
2 1	6 33.27	+21 57.8	1.741	2.619	12.0	21.5	2 1	6 32.91	+10 23.6	1.772	2.639	12.4	19.9
2 11	6 28.93	+21 53.7	1.851	2.645	15.2	21.8	2 11	6 27.69	+11 0.2	1.852	2.637	15.6	20.1
353508	2011 <i>SG</i> ₉₈		1 4.6 257°68	4.6/ 3.7	18		335633	2006 <i>JN</i> ₂₀		1 4.6 115°42	1.8/ 3.9	18	
12 3	7 29.46	+32 20.3	1.577	2.417	15.2	20.8	12 3	7 24.15	+26 16.3	2.549	3.375	10.5	21.3
12 13	7 22.99	+33 3.7	1.503	2.411	11.5	20.6	12 13	7 17.89	+27 7.3	2.485	3.390	7.7	21.2
12 23	7 13.29	+33 42.1	1.452	2.405	7.5	20.4	12 23	7 9.83	+27 58.4	2.447	3.404	4.5	21.0
1 2	7 1.39	+34 8.3	1.427	2.398	4.7	20.2	1 2	7 0.64	+28 45.9	2.440	3.419	1.9	20.8
1 12	6 48.91	+34 17.3	1.429	2.392	6.3	20.3	1 12	6 51.22	+29 26.5	2.464	3.433	3.3	21.0
1 22	6 37.61	+34 7.9	1.459	2.385	10.2	20.5	1 22	6 42.47	+29 58.5	2.518	3.446	6.4	21.2
2 1	6 28.97	+33 43.1	1.513	2.378	14.3	20.7	2 1	6 35.20	+30 21.5	2.601	3.460	9.2	21.4
2 11	6 23.90	+33 8.1	1.587	2.371	17.8	20.9	2 11	6 30.01	+30 36.6	2.708	3.473	11.7	21.6
179210	2001 <i>TJ</i> ₂₀₂		1 4.6 130°54	1.3/ 4.2	18		271796	2004 <i>TN</i> ₅₇		1 4.6 217°92	0.6/ 4.5	18	
12 3	7 26.45	+24 24.0	2.151	2.979	12.1	21.0	12 3	7 24.44	+23 50.6	2.066	2.899	12.4	21.2
12 13	7 19.78	+25 6.4	2.085	2.992	8.8	20.8	12 13	7 18.47	+24 3.0	1.988	2.897	9.0	21.0
12 23	7 10.99	+25 50.4	2.046	3.005	5.1	20.6	12 23	7 10.32	+24 16.8	1.935	2.895	5.2	20.8
1 2	7 0.87	+26 31.9	2.036	3.017	1.6	20.3	1 2	7 0.77	+24 29.3	1.910	2.892	1.2	20.5
1 12	6 50.48	+27 7.4	2.056	3.028	3.4	20.5	1 12	6 50.88	+24 38.3	1.915	2.889	3.2	20.6
1 22	6 40.93	+27 35.0	2.106	3.039	7.1	20.8	1 22	6 41.77	+24 42.6	1.949	2.886	7.2	20.9
2 1	6 33.16	+27 54.5	2.185	3.050	10.5	21.0	2 1	6 34.44	+24 42.3	2.010	2.884	10.9	21.1
2 11	6 27.83	+28 6.9	2.286	3.060	13.3	21.2	2 11	6 29.56	+24 38.6	2.095	2.880	14.0	21.3
128588	2004 <i>QW</i> ₁		1 4.6 65°96	1.0/ 4.5	18		243862	2000 <i>WZ</i> ₁₄₃		1 4.6 62°43	12.4/ 30.2	18	
12 3	7 26.96	+26 40.4	1.896	2.730	13.2	19.6	12 3	7 37.66	+36 7.2	1.002	1.855	20.8	19.5
12 13	7 20.32	+26 24.7	1.825	2.735	9.7	19.4	12 13	7 31.43	+40 4.1	0.958	1.863	16.6	19.2
12 23	7 11.34	+26 6.2	1.779	2.739	5.6	19.2	12 23	7 19.50	+43 56.2	0.936	1.871	13.3	19.1
1 2	7 0.93	+25 43.0	1.762	2.743	1.5	18.9	1 2	7 2.91	+47 15.9	0.940	1.879	12.5	19.1
1 12	6 50.35	+25 14.2	1.774	2.748	3.5	19.1	1 12	6 44.48	+49 41.0	0.968	1.888	14.8	19.2
1 22	6 40.80	+24 40.8	1.815	2.752	7.7	19.3	1 22	6 27.82	+51 5.2	1.018	1.896	18.4	19.5
2 1	6 33.33	+24 4.8	1.882	2.757	11.4	19.6	2 1	6 16.09	+51 37.2	1.087	1.905	22.0	19.7
2 11	6 28.56	+23 28.5	1.973	2.761	14.6	19.8	2 11	6 10.83	+51 32.8	1.170	1.914	25.0	20.0
490873	2011 <i>BH</i> ₆		1 4.6 67°56	1.6/ 5.2	18		253103	2002 <i>TL</i> ₃₈₃		1 4.6 168°66	1.5/ 4.9	18	
12 3	7 23.58	+15 16.7	1.847	2.675</									

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
423020	2003 SV ₄₂₇		1 4.6 358°88	3°9/ 3.3	17		182778	2001 YK ₂₂		1 4.6 157°70	2°2/ 3.9	18	
12 3	7 24.22	+30 12.0	1.843	2.684	13.3	20.9	12 3	7 25.87	+26 37.0	2.054	2.887	12.5	20.4
12 13	7 18.76	+31 19.8	1.773	2.683	9.9	20.7	12 13	7 19.63	+27 28.8	1.982	2.890	9.1	20.2
12 23	7 10.71	+32 26.1	1.728	2.682	6.3	20.5	12 23	7 11.07	+28 21.2	1.935	2.893	5.4	20.0
1 2	7 0.88	+33 24.7	1.710	2.682	4.0	20.4	1 2	7 0.99	+29 9.6	1.917	2.896	2.3	19.8
1 12	6 50.57	+34 10.0	1.720	2.682	5.5	20.5	1 12	6 50.51	+29 49.5	1.929	2.898	4.1	19.9
1 22	6 41.14	+34 39.4	1.758	2.682	9.0	20.7	1 22	6 40.83	+30 18.8	1.971	2.901	7.7	20.1
2 1	6 33.78	+34 53.5	1.822	2.683	12.4	20.9	2 1	6 33.00	+30 37.4	2.039	2.903	11.2	20.4
2 11	6 29.33	+34 55.0	1.907	2.684	15.5	21.1	2 11	6 27.77	+30 46.8	2.130	2.904	14.1	20.6
50658	2000 ES ₉₄		1 4.6 17°17	4°1/ 5.0	18		327876	2007 AO ₁₇		1 4.6 313°21	3°2/ 5.6	18	
12 3	7 22.26	+16 10.6	1.125	1.985	18.6	17.7	12 3	7 21.80	+12 28.7	1.597	2.429	15.4	20.2
12 13	7 17.79	+15 22.3	1.075	1.993	14.0	17.4	12 13	7 17.25	+12 56.3	1.503	2.406	11.8	19.9
12 23	7 10.22	+14 44.2	1.044	2.002	8.8	17.2	12 23	7 10.03	+13 40.5	1.431	2.384	7.6	19.6
1 2	7 0.76	+14 18.0	1.037	2.013	4.5	17.0	1 2	7 0.82	+14 40.0	1.385	2.362	3.7	19.3
1 12	6 51.11	+14 3.9	1.054	2.026	5.9	17.1	1 12	6 50.83	+15 51.0	1.367	2.340	4.7	19.3
1 22	6 42.89	+14 1.0	1.096	2.040	10.6	17.4	1 22	6 41.42	+17 8.5	1.376	2.318	9.1	19.5
2 1	6 37.42	+14 7.4	1.159	2.056	15.2	17.7	2 1	6 33.95	+18 27.1	1.411	2.298	13.7	19.7
2 11	6 35.37	+14 20.1	1.242	2.072	19.1	18.0	2 11	6 29.41	+19 42.6	1.467	2.278	17.7	19.9
240332	2003 OH ₄		1 4.6 193°39	1°7/ 5.1	18		61495	2000 QJ ₄₉		1 4.6 193°22	0°0/ 4.5	18	
12 3	7 26.47	+16 38.5	2.052	2.872	13.0	21.4	12 3	7 27.99	+21 39.2	1.951	2.778	13.2	20.7
12 13	7 19.93	+16 53.4	1.970	2.870	9.6	21.2	12 13	7 21.19	+21 55.0	1.870	2.776	9.7	20.5
12 23	7 11.19	+17 15.8	1.913	2.867	5.8	21.0	12 23	7 11.98	+22 14.2	1.815	2.774	5.6	20.3
1 2	7 0.98	+17 44.0	1.884	2.864	2.1	20.7	1 2	7 1.18	+22 34.0	1.789	2.771	1.2	19.9
1 12	6 50.37	+18 15.5	1.886	2.860	3.5	20.8	1 12	6 49.98	+22 51.7	1.792	2.767	3.3	20.1
1 22	6 40.48	+18 47.8	1.918	2.855	7.4	21.0	1 22	6 39.60	+23 5.7	1.825	2.762	7.7	20.4
2 1	6 32.31	+19 19.3	1.978	2.849	11.1	21.2	2 1	6 31.15	+23 15.5	1.886	2.757	11.6	20.6
2 11	6 26.59	+19 48.8	2.061	2.843	14.3	21.4	2 11	6 25.37	+23 22.0	1.969	2.751	14.9	20.8
283523	2001 TX ₁₁₂		1 4.6 179°29	4°9/ 3.6	18		181056	2005 PX ₁₇		1 4.6 10°09	10°0/ 8.7	18	
12 3	7 31.79	+33 43.1	1.719	2.550	14.6	20.9	12 3	7 22.07	- 5 25.4	1.795	2.549	17.1	20.1
12 13	7 24.46	+34 30.4	1.649	2.551	11.0	20.7	12 13	7 16.87	- 5 39.8	1.722	2.549	14.6	19.9
12 23	7 14.04	+35 11.1	1.603	2.552	7.4	20.5	12 23	7 9.49	- 5 27.3	1.669	2.550	12.2	19.8
1 2	7 1.59	+35 38.3	1.585	2.552	5.0	20.4	1 2	7 0.66	- 4 44.9	1.640	2.550	10.4	19.7
1 12	6 48.69	+35 47.0	1.595	2.552	6.4	20.4	1 12	6 51.47	- 3 33.0	1.636	2.551	10.1	19.7
1 22	6 36.99	+35 36.8	1.632	2.552	9.9	20.6	1 22	6 43.03	- 1 56.1	1.658	2.552	11.5	19.7
2 1	6 27.90	+35 11.0	1.695	2.550	13.5	20.9	2 1	6 36.34	- 0 1.6	1.705	2.553	13.8	19.9
2 11	6 22.23	+34 34.7	1.779	2.549	16.7	21.1	2 11	6 32.11	+ 2 2.0	1.775	2.554	16.4	20.1
488826	2005 NM ₅₈		1 4.6 110°22	5°2/ 6.5	18		86570	2000 EH ₃₈		1 4.6 239°22	3°3/ 4.0	18	
12 3	7 23.93	+ 5 48.8	2.096	2.888	13.7	22.0	12 3	7 30.38	+29 46.9	1.649	2.486	14.8	19.5
12 13	7 17.80	+ 5 51.5	2.034	2.906	10.8	21.8	12 13	7 23.56	+30 14.7	1.567	2.476	11.0	19.2
12 23	7 9.80	+ 6 9.5	1.995	2.923	7.8	21.7	12 23	7 13.64	+30 39.2	1.509	2.465	6.8	19.0
1 2	7 0.67	+ 6 42.7	1.984	2.940	5.5	21.6	1 2	7 1.57	+30 54.8	1.477	2.454	3.4	18.7
1 12	6 51.36	+ 7 29.4	2.003	2.956	5.6	21.6	1 12	6 48.90	+30 57.2	1.474	2.443	5.2	18.8
1 22	6 42.84	+ 8 26.1	2.050	2.972	8.0	21.8	1 22	6 37.27	+30 45.4	1.499	2.431	9.6	19.0
2 1	6 35.93	+ 9 29.0	2.125	2.988	10.8	22.0	2 1	6 28.14	+30 21.9	1.550	2.418	13.8	19.3
2 11	6 31.20	+10 34.2	2.223	3.003	13.4	22.2	2 11	6 22.42	+29 50.9	1.621	2.405	17.4	19.5
286183	2001 UQ ₅₀		1 4.6 62°19	5°9/ 2.5	18		378439	2007 RJ ₂₈₅		1 4.6 97°42	1°4/ 4.2	18	
12 3	7 29.13	+33 20.1	1.663	2.500	14.7	19.5	12 3	7 23.65	+26 7.5	2.337	3.167	11.2	21.3
12 13	7 22.60	+35 5.5	1.612	2.516	11.1	19.3	12 13	7 17.64	+26 30.1	2.271	3.178	8.2	21.2
12 23	7 13.01	+36 45.8	1.586	2.533	7.7	19.2	12 23	7 9.75	+26 52.2	2.231	3.190	4.8	21.0
1 2	7 1.39	+38 11.2	1.588	2.549	5.9	19.1	1 2	7 0.71	+27 11.0	2.220	3.201	1.6	20.8
1 12	6 49.32	+39 14.6	1.618	2.566	7.4	19.2	1 12	6 51.48	+27 24.3	2.240	3.212	3.2	20.9
1 22	6 38.44	+39 53.5	1.675	2.583	10.5	19.4	1 22	6 43.02	+27 31.0	2.289	3.223	6.6	21.1
2 1	6 30.15	+40 10.0	1.757	2.600	13.7	19.7	2 1	6 36.17	+27 31.5	2.366	3.234	9.7	21.4
2 11	6 25.27	+40 9.2	1.859	2.617	16.5	19.9	2 11	6 31.50	+27 27.2	2.467	3.244	12.3	21.6
421152	2013 RZ ₃₁		1 4.6 263°07	4°1/ 3.5	18		111306	2001 XW ₆₁		1 4.6 25°93	1°6/ 4.9	18	
12 3	7 26.58	+33 7.4	2.125	2.954	12.2	21.0	12 3	7 23.42	+19 37.0	1.270	2.125	17.1	19.2
12 13	7 20.32	+33 49.6	2.038	2.940	9.3	20.8	12 13	7 18.39	+19 22.1	1.221	2.140	12.6	18.9
12 23	7 11.57	+34 27.3	1.977	2.926	6.2	20.6	12 23	7 10.49	+19 13.8	1.194	2.155	7.4	18.7
1 2	7 1.10	+34 55.2	1.943	2.911	4.1	20.4	1 2	7 0.87	+19 10.6	1.191	2.172	2.3	18.4
1 12	6 50.10	+35 9.4	1.939	2.897	5.4	20.5	1 12	6 51.12	+19 10.8	1.214	2.190	4.3	18.6
1 22	6 39.86	+35 8.6	1.963	2.882	8.5	20.6	1 22	6 42.77	+19 13.1	1.263	2.209	9.3	18.9
2 1	6 31.55	+34 54.3	2.013	2.867	11.8	20.8	2 1	6 36.99	+19 16.9	1.336	2.229	13.8	19.3
2 11	6 25.98	+34 29.9	2.086	2.852	14.7	21.0	2 11	6 34.45	+19 21.3	1.428	2.250	17.5	19.6
290374	2005 SR ₂₈₀		1 4.6 11°39	2°0/ 5.1	18		288622	2004 NE ₂₄		1 4.6 144°79	0°9/ 4.8	18	
12 3	7 22.68	+16 14.5	1.663	2.499	14.7	20.0	12 3	7 29.42	+20 15.0	1.914	2.738	13.6	21.7
12 13	7 17.53	+16 28.0	1.592	2.500	10.9	19.8	12 13	7 22.03	+20 10.0	1.847	2.750	10.0	21.5
12 23	7 9.93	+16 51.3	1.545	2.502	6.7	19.5	12 23	7 12.35	+20 8.4	1.805	2.762	5.8	21.3
1 2	7 0.75	+17 22.4	1.524	2.504	2.6	19.3	1 2	7 1.26	+20 8.5	1.791	2.773	1.6	21.0
1 12	6 51.18	+17 58.6	1.532	2.506	3.9	19.4	1 12	6 49.98	+20 8.7	1.808	2.782	3.4	21.1
1 22	6 42.51	+18 36.6	1.567	2.508	8.3	19.6	1 22	6 39.70	+20 8.4	1.855	2.791	7.6	21.4
2 1	6 35.83	+19 14.0	1.627	2.511	12.3	19.9	2 1	6 31.44	+20 7.5	1.929	2.800	11.4	21.7
2 11	6 31.90	+19 49.1	1.710	2.514	15.8	20.1	2 11	6 25.86	+20 6.4	2.025	2.807	14.5	21.9
323871	2005 SL ₁₆₃		1 4.6 60°25	0°5/ 4.5	18		118	Peitho		1 4.6 14°98	5°7/ 3.3	18	
12 3	7 25.02	+22 51.0	1.719	2.559	14.1	20.7	12 3	7 25.57	+31 20.1	1.178	2.040	17.7	

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
308204	2005 <i>EW</i> ₆₀		1 4.6 296°16	2°6/ 4.2 18			218374	2004 <i>JT</i> ₃₁		1 4.6 126°59	5°2/ 3.3 18		
12 3	7 ^h 26.94 ^m	+28 1.8	1.551	2.397	15.1	20.9	12 3	7 ^h 31.68 ^m	+39 13.8	2.521	3.325	11.3	21.3
12 13	7 21.22	+28 21.8	1.466	2.380	11.2	20.6	12 13	7 23.51	+39 59.3	2.465	3.346	8.8	21.2
12 23	7 12.38	+28 40.3	1.403	2.363	6.8	20.3	12 23	7 13.14	+40 35.0	2.436	3.365	6.5	21.1
1 2	7 1.34	+28 52.2	1.367	2.346	2.8	20.0	1 2	7 1.45	+40 55.9	2.436	3.384	5.2	21.0
1 12	6 49.61	+28 53.6	1.358	2.330	4.9	20.1	1 12	6 49.63	+40 59.4	2.466	3.402	6.0	21.1
1 22	6 38.86	+28 43.3	1.376	2.314	9.7	20.3	1 22	6 38.84	+40 45.7	2.525	3.419	8.0	21.2
2 1	6 30.56	+28 23.1	1.419	2.297	14.2	20.6	2 1	6 30.04	+40 17.9	2.611	3.435	10.3	21.4
2 11	6 25.68	+27 56.4	1.482	2.282	18.1	20.8	2 11	6 23.85	+39 40.1	2.720	3.451	12.4	21.6
336482	2008 <i>VL</i> ₅₁		1 4.6 249°72	0°1/ 4.6 18			424910	2008 <i>WK</i> ₈₂		1 4.6 348°87	1°3/ 5.0 18		
12 3	7 22.75	+22 5.3	2.336	3.165	11.3	21.0	12 3	7 20.93	+17 41.8	1.839	2.676	13.5	20.5
12 13	7 17.08	+22 9.9	2.251	3.157	8.3	20.8	12 13	7 16.16	+17 59.9	1.762	2.671	10.0	20.3
12 23	7 9.50	+22 16.5	2.191	3.150	4.8	20.6	12 23	7 9.15	+18 26.0	1.709	2.667	6.0	20.1
1 2	7 0.68	+22 23.5	2.161	3.143	1.0	20.3	1 2	7 0.66	+18 58.0	1.683	2.663	1.9	19.8
1 12	6 51.54	+22 29.2	2.160	3.135	2.8	20.4	1 12	6 51.77	+19 33.1	1.685	2.660	3.4	19.9
1 22	6 43.04	+22 32.8	2.190	3.128	6.5	20.7	1 22	6 43.63	+20 8.6	1.716	2.658	7.7	20.1
2 1	6 36.04	+22 34.0	2.247	3.120	9.9	20.9	2 1	6 37.27	+20 42.3	1.773	2.656	11.5	20.4
2 11	6 31.17	+22 33.3	2.328	3.112	12.8	21.1	2 11	6 33.41	+21 13.1	1.852	2.654	14.9	20.6
169281	2001 <i>SM</i> ₂₃₄		1 4.6 10°04	2°1/ 5.1 18			447039	2004 <i>RQ</i> ₄₈		1 4.6 78°90	0°1/ 4.7 18		
12 3	7 19.04	+17 10.7	1.479	2.330	15.4	18.8	12 3	7 30.77	+20 59.0	1.478	2.315	16.2	21.1
12 13	7 15.03	+17 12.6	1.419	2.335	11.4	18.6	12 13	7 23.33	+21 21.9	1.435	2.345	11.7	21.0
12 23	7 8.54	+17 23.7	1.382	2.342	6.9	18.4	12 23	7 13.17	+21 49.5	1.415	2.375	6.7	20.7
1 2	7 0.48	+17 42.4	1.370	2.350	2.6	18.1	1 2	7 1.46	+22 17.6	1.422	2.405	1.4	20.5
1 12	6 52.16	+18 6.3	1.385	2.360	4.0	18.2	1 12	6 49.75	+22 42.7	1.458	2.434	3.8	20.7
1 22	6 44.85	+18 32.8	1.425	2.371	8.5	18.5	1 22	6 39.51	+23 2.7	1.522	2.462	8.6	21.1
2 1	6 39.66	+18 59.7	1.491	2.383	12.7	18.8	2 1	6 31.86	+23 17.6	1.612	2.490	12.8	21.4
2 11	6 37.27	+19 25.1	1.577	2.397	16.2	19.1	2 11	6 27.40	+23 28.1	1.723	2.518	16.1	21.7
199703	2006 <i>HR</i> ₄₂		1 4.6 304°93	0°4/ 4.7 18			239409	2007 <i>TL</i> ₅₅		1 4.6 203°57	5°0/ 3.1 18		
12 3	7 22.87	+20 55.7	1.984	2.819	12.7	20.4	12 3	7 25.81	+37 19.6	2.432	3.251	11.2	20.7
12 13	7 17.44	+21 2.7	1.903	2.812	9.4	20.2	12 13	7 19.51	+38 9.6	2.359	3.250	8.7	20.5
12 23	7 9.82	+21 13.5	1.846	2.806	5.5	19.9	12 23	7 11.00	+38 52.5	2.312	3.248	6.3	20.4
1 2	7 0.76	+21 26.1	1.817	2.799	1.3	19.6	1 2	7 1.04	+39 23.0	2.293	3.247	5.0	20.3
1 12	6 51.32	+21 38.6	1.818	2.793	3.2	19.7	1 12	6 50.73	+39 38.0	2.303	3.246	5.9	20.3
1 22	6 42.62	+21 49.5	1.847	2.787	7.4	20.0	1 22	6 41.20	+39 36.5	2.342	3.245	8.2	20.5
2 1	6 35.65	+21 58.2	1.903	2.781	11.1	20.2	2 1	6 33.47	+39 20.5	2.407	3.243	10.7	20.6
2 11	6 31.14	+22 4.7	1.981	2.775	14.4	20.4	2 11	6 28.22	+38 53.5	2.495	3.242	13.0	20.8
503442	2016 <i>EL</i> ₈₈		1 4.6 270°40	5°7/ 5.6 17			44532	1998 <i>YA</i> ₉		1 4.6 173°19	3°2/ 5.3 18		
12 3	7 23.00	+ 6 49.3	2.192	2.987	13.1	21.7	12 3	7 22.42	+13 19.1	2.332	3.145	11.8	19.1
12 13	7 17.42	+ 6 13.5	2.090	2.962	10.5	21.5	12 13	7 16.70	+12 54.1	2.254	3.146	9.0	19.0
12 23	7 9.81	+ 5 49.3	2.011	2.937	7.8	21.3	12 23	7 9.23	+12 36.3	2.202	3.147	5.9	18.8
1 2	7 0.77	+ 5 38.8	1.960	2.912	5.9	21.1	1 2	7 0.66	+12 26.1	2.177	3.148	3.4	18.6
1 12	6 51.21	+ 5 42.9	1.937	2.886	6.3	21.1	1 12	6 51.85	+12 23.3	2.183	3.149	4.1	18.7
1 22	6 42.11	+ 6 0.9	1.943	2.859	8.7	21.2	1 22	6 43.70	+12 27.2	2.219	3.149	6.9	18.8
2 1	6 34.41	+ 6 30.8	1.976	2.832	11.8	21.4	2 1	6 36.97	+12 36.7	2.281	3.149	10.0	19.0
2 11	6 28.86	+ 7 9.2	2.031	2.805	14.7	21.5	2 11	6 32.25	+12 50.3	2.368	3.149	12.7	19.2
490341	2009 <i>DW</i> ₅₉		1 4.6 243°66	3°0/ 3.9 17			234169	2000 <i>LR</i>		1 4.6 228°90	3°4/ 3.8 18		
12 3	7 28.23	+29 7.9	1.883	2.716	13.4	22.4	12 3	7 29.62	+29 12.4	1.691	2.527	14.5	20.8
12 13	7 21.73	+29 45.1	1.796	2.704	10.0	22.2	12 13	7 23.00	+30 0.4	1.611	2.519	10.8	20.5
12 23	7 12.49	+30 20.8	1.735	2.691	6.2	21.9	12 23	7 13.35	+30 47.2	1.555	2.511	6.7	20.3
1 2	7 1.35	+30 49.5	1.701	2.678	3.1	21.7	1 2	7 1.58	+31 26.3	1.527	2.502	3.5	20.0
1 12	6 49.62	+31 7.2	1.697	2.664	4.8	21.8	1 12	6 49.18	+31 52.5	1.527	2.493	5.3	20.1
1 22	6 38.71	+31 12.0	1.721	2.650	8.7	22.0	1 22	6 37.75	+32 3.5	1.555	2.484	9.5	20.4
2 1	6 29.92	+31 5.2	1.771	2.635	12.6	22.2	2 1	6 28.70	+32 0.6	1.608	2.474	13.6	20.6
2 11	6 24.11	+30 49.6	1.843	2.620	15.9	22.4	2 11	6 22.98	+31 47.5	1.683	2.463	17.1	20.8
412523	2014 <i>MO</i> ₃₄		1 4.6 202°57	0°8/ 4.4 18			409979	2006 <i>VR</i> ₉₃		1 4.6 175°05	5°1/ 5.7 18		
12 3	7 28.55	+23 12.3	1.933	2.761	13.3	21.4	12 3	7 24.38	+ 7 47.4	2.234	3.029	12.9	22.2
12 13	7 21.73	+23 45.9	1.850	2.757	9.7	21.2	12 13	7 18.16	+ 7 13.7	2.157	3.031	10.2	22.0
12 23	7 12.38	+24 22.7	1.793	2.752	5.7	20.9	12 23	7 10.09	+ 6 51.4	2.104	3.033	7.3	21.9
1 2	7 1.33	+24 58.8	1.764	2.746	1.4	20.6	1 2	7 0.84	+ 6 41.8	2.080	3.035	5.3	21.7
1 12	6 49.77	+25 30.2	1.766	2.739	3.6	20.8	1 12	6 51.34	+ 6 45.1	2.085	3.036	5.7	21.8
1 22	6 39.00	+25 54.7	1.797	2.732	7.9	21.0	1 22	6 42.51	+ 7 0.2	2.118	3.036	8.0	21.9
2 1	6 30.20	+26 11.8	1.855	2.724	11.9	21.2	2 1	6 35.18	+ 7 24.9	2.179	3.036	10.9	22.1
2 11	6 24.16	+26 22.6	1.936	2.715	15.2	21.4	2 11	6 29.96	+ 7 56.4	2.264	3.035	13.5	22.3
373063	2011 <i>FC</i> ₃₇		1 4.6 4°70	5°3/ 6.0 18			1292	<i>Luce</i>		1 4.6 314°47	0°3/ 4.7 18		
12 3	7 20.98	+ 8 18.5	1.786	2.601	14.8	21.0	12 3	7 25.25	+21 46.6	1.616	2.458	14.8	15.2
12 13	7 16.10	+ 8 3.4	1.713	2.601	11.6	20.8	12 13	7 19.60	+21 47.7	1.539	2.452	10.9	15.0
12 23	7 9.06	+ 8 3.3	1.664	2.601	8.2	20.6	12 23	7 11.26	+21 52.3	1.486	2.447	6.3	14.7
1 2	7 0.61	+ 8 19.0	1.640	2.602	5.6	20.4	1 2	7 1.12	+21 58.1	1.460	2.442	1.4	14.4
1 12	6 51.83	+ 8 49.6	1.644	2.603	6.0	20.4	1 12	6 50.54	+22 2.7	1.462	2.437	3.7	14.5
1 22	6 43.82	+ 9 32.2	1.675	2.605	8.8	20.6	1 22	6 40.93	+22 5.0	1.491	2.433	8.6	14.8
2 1	6 37.57	+10 23.1	1.731	2.607	12.2	20.8	2 1	6 33.51	+22 5.0	1.546	2.428	13.0	15.0
2 11	6 33.77	+11 18.2	1.810	2.609	15.3	21.0	2 11	6 29.10	+22 3.2	1.621	2.424	16.6	15.3
218760	2005 <i>VD</i> ₁₁₀		1 4.6 145°71	2°2/ 3.9 18			252473	2001 <i>UH</i> ₂₁		1 4.6 85°68	4°8/ 5.4 18		
12 3	7 26.51	+27 44.0	2.233	3.061</									

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
463224	2012 <i>DG</i> ₆₂		1 4.6 318°74	7°9/ 3.8	18		224010	2005 <i>GS</i> ₉₉		1 4.6 185°46	3°4/ 3.9	18	
12 3	7 30.96	+40 55.7	1.522	2.353	16.1	20.7	12 3	7 31.83	+29 6.2	1.571	2.408	15.4	20.9
12 13	7 24.61	+41 27.1	1.442	2.335	13.0	20.5	12 13	7 24.69	+29 50.8	1.500	2.409	11.4	20.7
12 23	7 14.51	+41 43.6	1.383	2.318	9.8	20.3	12 23	7 14.34	+30 33.4	1.452	2.408	7.1	20.4
1 2	7 1.85	+41 36.5	1.348	2.301	7.9	20.1	1 2	7 1.84	+31 7.3	1.431	2.408	3.6	20.2
1 12	6 48.56	+41 0.6	1.340	2.284	8.9	20.1	1 12	6 48.79	+31 27.2	1.439	2.406	5.4	20.3
1 22	6 36.71	+39 57.2	1.356	2.269	12.1	20.3	1 22	6 36.94	+31 31.5	1.474	2.404	9.8	20.6
2 1	6 28.00	+38 33.0	1.397	2.254	15.7	20.4	2 1	6 27.74	+31 22.3	1.535	2.402	14.0	20.8
2 11	6 23.37	+36 57.2	1.457	2.239	19.2	20.6	2 11	6 22.08	+31 3.8	1.616	2.399	17.6	21.1
451663	2013 <i>AU</i> ₁₂		1 4.6 294°22	1°0/ 4.8	18		303994	2006 <i>BN</i> ₁₆₈		1 4.6 181°03	0°0/ 4.5	18	
12 3	7 26.67	+20 47.6	1.443	2.288	16.1	21.1	12 3	7 28.21	+22 10.3	2.026	2.851	12.9	21.7
12 13	7 20.93	+20 36.4	1.365	2.279	11.9	20.8	12 13	7 21.27	+22 20.7	1.948	2.853	9.4	21.4
12 23	7 12.17	+20 29.3	1.310	2.270	7.0	20.5	12 23	7 12.04	+22 33.6	1.895	2.854	5.5	21.2
1 2	7 1.35	+20 24.6	1.280	2.262	1.9	20.1	1 2	7 1.32	+22 46.3	1.871	2.854	1.2	20.9
1 12	6 49.97	+20 20.6	1.278	2.253	4.2	20.3	1 12	6 50.26	+22 56.6	1.878	2.853	3.2	21.1
1 22	6 39.64	+20 16.4	1.302	2.245	9.5	20.6	1 22	6 40.05	+23 3.3	1.915	2.852	7.4	21.3
2 1	6 31.77	+20 12.1	1.351	2.237	14.2	20.8	2 1	6 31.71	+23 6.4	1.979	2.849	11.2	21.5
2 11	6 27.24	+20 8.3	1.420	2.229	18.3	21.0	2 11	6 25.95	+23 6.7	2.066	2.847	14.3	21.8
48287	2002 <i>GE</i> ₁₆₇		1 4.6 187°57	1°7/ 4.9	18		161913	2007 <i>EA</i>		1 4.6 197°59	2°9/ 5.4	18	
12 3	7 27.27	+18 44.0	1.832	2.660	13.9	19.7	12 3	7 27.40	+14 2.5	1.727	2.549	14.9	21.5
12 13	7 20.70	+18 28.7	1.755	2.660	10.3	19.5	12 13	7 21.00	+14 10.2	1.648	2.547	11.3	21.3
12 23	7 11.74	+18 17.9	1.703	2.659	6.2	19.3	12 23	7 12.04	+14 29.0	1.593	2.544	7.1	21.1
1 2	7 1.22	+18 10.9	1.678	2.658	2.2	19.0	1 2	7 1.35	+14 57.8	1.564	2.540	3.4	20.8
1 12	6 50.37	+18 6.6	1.683	2.657	3.7	19.1	1 12	6 50.17	+15 34.0	1.565	2.536	4.4	20.9
1 22	6 40.43	+18 4.3	1.717	2.655	8.0	19.4	1 22	6 39.83	+16 14.6	1.594	2.531	8.6	21.1
2 1	6 32.47	+18 3.7	1.777	2.653	12.0	19.6	2 1	6 31.51	+16 56.7	1.650	2.526	12.7	21.3
2 11	6 27.21	+18 4.7	1.860	2.650	15.3	19.8	2 11	6 26.01	+17 38.1	1.728	2.520	16.2	21.6
152272	2005 <i>SK</i> ₂₁₇		1 4.6 206°20	5°1/ 3.0	18		343218	2009 <i>WR</i> ₃₇		1 4.6 35°83	1°8/ 4.8	17	
12 3	7 28.89	+36 32.2	2.267	3.085	11.9	19.8	12 3	7 27.76	+20 28.7	1.087	1.946	19.1	20.4
12 13	7 21.96	+37 28.9	2.189	3.080	9.2	19.7	12 13	7 22.03	+19 56.9	1.035	1.956	14.1	20.1
12 23	7 12.52	+38 18.8	2.137	3.076	6.6	19.5	12 23	7 12.83	+19 30.2	1.004	1.966	8.3	19.9
1 2	7 1.41	+38 56.0	2.114	3.070	5.1	19.4	1 2	7 1.50	+19 7.9	0.997	1.978	2.6	19.6
1 12	6 49.82	+39 16.3	2.120	3.064	6.2	19.4	1 12	6 49.97	+18 49.4	1.014	1.990	4.9	19.7
1 22	6 39.05	+39 18.6	2.155	3.058	8.7	19.6	1 22	6 40.13	+18 34.6	1.056	2.003	10.6	20.1
2 1	6 30.25	+39 4.7	2.216	3.051	11.5	19.8	2 1	6 33.39	+18 23.9	1.121	2.016	15.7	20.4
2 11	6 24.20	+38 38.9	2.299	3.044	14.0	19.9	2 11	6 30.49	+18 16.9	1.204	2.030	19.9	20.7
325774	2010 <i>NR</i> ₇₃		1 4.6 43°85	8°8/ 4.3	17		327021	2004 <i>RT</i> ₂₀₉		1 4.6 96°08	4°5/ 5.6	18	
12 3	7 35.16	+42 35.2	1.350	2.180	17.9	19.8	12 3	7 24.35	+10 17.7	2.071	2.878	13.3	20.9
12 13	7 27.26	+43 17.2	1.317	2.207	14.2	19.6	12 13	7 18.14	+9 42.4	2.011	2.895	10.3	20.7
12 23	7 15.63	+43 39.4	1.305	2.234	10.8	19.5	12 23	7 10.07	+9 17.6	1.975	2.912	7.1	20.5
1 2	7 1.99	+43 33.4	1.316	2.263	8.9	19.5	1 2	7 0.89	+9 4.3	1.966	2.929	4.8	20.4
1 12	6 48.62	+42 56.8	1.353	2.291	9.6	19.6	1 12	6 51.59	+9 2.4	1.987	2.945	5.2	20.5
1 22	6 37.54	+41 54.3	1.415	2.321	12.2	19.8	1 22	6 43.14	+9 10.9	2.037	2.961	7.9	20.7
2 1	6 30.06	+40 34.4	1.500	2.350	15.2	20.1	2 1	6 36.34	+9 27.8	2.113	2.977	10.8	20.9
2 11	6 26.68	+39 6.5	1.605	2.380	18.0	20.3	2 11	6 31.75	+9 50.5	2.213	2.993	13.5	21.1
258652	2002 <i>EA</i> ₆₆		1 4.6 252°37	2°2/ 5.0	18		445969	2013 <i>AP</i> ₁₃₀		1 4.6 5°08	5°3/ 3.8	18	
12 3	7 26.15	+17 0.0	1.786	2.614	14.2	21.5	12 3	7 27.58	+32 15.7	1.210	2.067	17.7	20.9
12 13	7 20.13	+16 54.1	1.696	2.599	10.7	21.2	12 13	7 22.27	+33 0.6	1.150	2.067	13.3	20.7
12 23	7 11.57	+16 55.3	1.629	2.585	6.6	20.9	12 23	7 13.20	+33 39.4	1.111	2.067	8.7	20.4
1 2	7 1.23	+17 2.8	1.590	2.569	2.6	20.6	1 2	7 1.62	+34 3.7	1.095	2.068	5.5	20.2
1 12	6 50.32	+17 14.9	1.581	2.554	4.0	20.7	1 12	6 49.54	+34 7.6	1.105	2.070	7.2	20.3
1 22	6 40.13	+17 30.1	1.599	2.538	8.4	20.9	1 22	6 39.03	+33 50.8	1.139	2.073	11.6	20.6
2 1	6 31.87	+17 47.0	1.644	2.521	12.6	21.1	2 1	6 31.76	+33 17.4	1.196	2.076	16.1	20.8
2 11	6 26.39	+18 4.7	1.711	2.504	16.3	21.3	2 11	6 28.60	+32 33.9	1.271	2.080	20.0	21.1
285547	2000 <i>HL</i> ₃₂		1 4.6 205°73	1°4/ 4.3	18		388413	2006 <i>WY</i> ₁₅₇		1 4.6 224°54	1°4/ 4.3	18	
12 3	7 29.42	+25 24.8	1.959	2.787	13.2	22.1	12 3	7 28.90	+23 29.2	1.429	2.274	16.2	21.1
12 13	7 22.38	+25 50.7	1.875	2.782	9.7	21.8	12 13	7 22.74	+24 13.4	1.356	2.270	11.9	20.9
12 23	7 12.79	+26 17.2	1.817	2.775	5.7	21.6	12 23	7 13.33	+25 2.9	1.305	2.266	7.0	20.6
1 2	7 1.48	+26 40.4	1.787	2.768	1.8	21.3	1 2	7 1.66	+25 51.6	1.280	2.262	1.9	20.2
1 12	6 49.68	+26 56.9	1.788	2.760	3.8	21.4	1 12	6 49.33	+26 33.7	1.283	2.257	4.6	20.4
1 22	6 38.72	+27 5.2	1.818	2.752	8.0	21.7	1 22	6 38.09	+27 5.6	1.313	2.252	9.8	20.7
2 1	6 29.76	+27 5.7	1.875	2.742	11.8	21.9	2 1	6 29.45	+27 26.8	1.368	2.247	14.6	21.0
2 11	6 23.60	+27 0.4	1.955	2.732	15.1	22.1	2 11	6 24.40	+27 38.9	1.443	2.242	18.5	21.2
442783	2012 <i>XU</i> ₁₃₆		1 4.6 73°74	0°2/ 4.6	18		414222	2008 <i>FZ</i> ₆		1 4.6 313°01	6°5/ 6.6	18	
12 3	7 31.54	+23 11.4	1.312	2.157	17.4	21.3	12 3	7 21.76	+5 16.9	1.633	2.443	16.2	20.6
12 13	7 24.20	+23 11.3	1.267	2.181	12.6	21.1	12 13	7 17.04	+5 15.4	1.549	2.430	13.0	20.3
12 23	7 13.79	+23 13.1	1.244	2.205	7.2	20.8	12 23	7 9.84	+5 34.3	1.486	2.418	9.6	20.1
1 2	7 1.64	+23 13.6	1.247	2.229	1.5	20.5	1 2	7 0.91	+6 15.1	1.448	2.406	6.9	19.9
1 12	6 49.50	+23 10.4	1.277	2.253	4.2	20.8	1 12	6 51.41	+7 16.3	1.437	2.394	7.0	19.9
1 22	6 39.03	+23 3.1	1.334	2.276	9.4	21.1	1 22	6 42.59	+8 33.6	1.453	2.383	9.9	20.0
2 1	6 31.46	+22 53.1	1.416	2.300	13.9	21.5	2 1	6 35.64	+10 0.9	1.494	2.372	13.6	20.2
2 11	6 27.40	+22 41.9	1.519	2.323	17.5	21.8	2 11	6 31.42	+11 31.9	1.557	2.361	17.1	20.4
288962	2004 <i>TM</i> ₂₃		1 4.6 305°83	4°6/ 5.3	18		316700	1996 <i>VQ</i> ₉		1 4.6 108°91	1°2/ 4.9	18	
12 3	7 25.05	+13 1.5	1.451	2.285	16.6								

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1 4.6

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
80116	1999 RZ ₁₀₉		1 4.6 80°39	1.3/ 4.8	18		320961	2008 HL ₂₈		1 4.6 328°13	0.9/ 4.8	18	
12 3	7 30.95	+21 4.6	1.297	2.142	17.5	19.3	12 3	7 24.19	+20 50.0	1.551	2.396	15.1	20.7
12 13	7 23.89	+20 40.5	1.244	2.157	12.9	19.1	12 13	7 18.96	+20 41.4	1.473	2.387	11.2	20.4
12 23	7 13.71	+20 20.0	1.213	2.173	7.5	18.8	12 23	7 10.99	+20 36.8	1.418	2.378	6.6	20.1
1 2	7 1.69	+20 1.7	1.207	2.189	2.0	18.6	1 2	7 1.18	+20 34.7	1.389	2.370	1.7	19.8
1 12	6 49.55	+19 44.7	1.229	2.205	4.4	18.8	1 12	6 50.88	+20 33.4	1.387	2.363	3.9	19.9
1 22	6 38.99	+19 29.0	1.278	2.220	9.6	19.1	1 22	6 41.53	+20 31.8	1.412	2.355	8.8	20.2
2 1	6 31.29	+19 15.5	1.350	2.235	14.3	19.4	2 1	6 34.40	+20 29.9	1.462	2.349	13.3	20.5
2 11	6 27.12	+19 4.7	1.443	2.251	18.1	19.7	2 11	6 30.32	+20 27.9	1.534	2.343	17.1	20.7
166224	2002 FH ₉		1 4.6 308°51	1.0/ 4.8	18		272837	2006 BH ₁₀		1 4.6 248°12	0.5/ 4.5	18	
12 3	7 25.36	+20 59.7	1.388	2.238	16.3	19.6	12 3	7 24.34	+23 39.3	2.032	2.866	12.5	21.2
12 13	7 20.22	+20 47.2	1.304	2.220	12.2	19.3	12 13	7 18.52	+23 51.8	1.954	2.864	9.2	21.0
12 23	7 11.93	+20 38.7	1.241	2.202	7.2	19.0	12 23	7 10.50	+24 5.9	1.902	2.861	5.3	20.7
1 2	7 1.39	+20 32.5	1.203	2.185	1.9	18.6	1 2	7 1.05	+24 18.9	1.877	2.859	1.2	20.4
1 12	6 50.12	+20 27.0	1.192	2.168	4.3	18.7	1 12	6 51.27	+24 28.5	1.882	2.857	3.2	20.6
1 22	6 39.80	+20 21.2	1.207	2.151	9.9	19.0	1 22	6 42.28	+24 33.7	1.917	2.855	7.3	20.8
2 1	6 31.95	+20 15.4	1.245	2.135	14.9	19.3	2 1	6 35.07	+24 34.4	1.978	2.852	10.9	21.0
2 11	6 27.57	+20 10.1	1.304	2.119	19.2	19.5	2 11	6 30.32	+24 31.6	2.062	2.850	14.1	21.2
423093	2003 YS ₁₂₇		1 4.6 318°11	2.8/ 3.4	15		223747	2004 RA ₁₈₄		1 4.6 108°85	3.8/ 5.6	18	
12 3	7 23.81	+25 22.7	1.904	2.743	13.0	20.8	12 3	7 23.25	+11 34.9	2.080	2.893	13.1	20.3
12 13	7 18.64	+26 53.0	1.814	2.726	9.6	20.5	12 13	7 17.46	+11 20.7	2.012	2.902	10.0	20.1
12 23	7 10.87	+28 29.6	1.750	2.709	5.8	20.2	12 23	7 9.76	+11 16.7	1.969	2.912	6.7	19.9
1 2	7 1.16	+30 5.6	1.715	2.692	2.8	20.0	1 2	7 0.89	+11 23.0	1.953	2.922	4.0	19.7
1 12	6 50.67	+31 33.7	1.709	2.676	4.8	20.1	1 12	6 51.80	+11 38.7	1.966	2.931	4.6	19.8
1 22	6 40.70	+32 48.7	1.733	2.660	8.8	20.3	1 22	6 43.48	+12 1.9	2.009	2.940	7.5	20.0
2 1	6 32.55	+33 47.9	1.783	2.645	12.6	20.5	2 1	6 36.76	+12 30.5	2.078	2.949	10.7	20.2
2 11	6 27.20	+34 32.1	1.854	2.630	15.9	20.7	2 11	6 32.26	+13 2.1	2.171	2.957	13.5	20.4
136392	2004 PL ₉₃		1 4.6 174°60	0.7/ 4.8	18		175382	2006 JM ₁₅		1 4.6 124°01	1.3/ 4.3	18	
12 3	7 24.85	+20 27.8	2.170	2.996	12.1	21.0	12 3	7 28.94	+24 54.3	1.867	2.698	13.6	21.3
12 13	7 18.67	+20 29.0	2.093	2.998	8.9	20.8	12 13	7 21.90	+25 25.4	1.805	2.713	9.9	21.1
12 23	7 10.49	+20 33.6	2.041	2.999	5.2	20.6	12 23	7 12.44	+25 57.3	1.768	2.727	5.7	20.9
1 2	7 1.01	+20 39.9	2.018	3.000	1.3	20.3	1 2	7 1.46	+26 25.9	1.760	2.741	1.7	20.6
1 12	6 51.27	+20 46.3	2.026	3.001	3.0	20.4	1 12	6 50.25	+26 47.8	1.781	2.754	3.7	20.8
1 22	6 42.27	+20 51.8	2.063	3.001	6.9	20.7	1 22	6 40.09	+27 1.4	1.832	2.767	7.8	21.1
2 1	6 34.92	+20 56.0	2.128	3.001	10.4	20.9	2 1	6 32.04	+27 7.3	1.909	2.779	11.5	21.3
2 11	6 29.87	+20 59.1	2.216	3.001	13.3	21.1	2 11	6 26.78	+27 7.3	2.009	2.790	14.6	21.6
75788	2000 AM ₂₁₄		1 4.6 59°83	0.1/ 4.6	18		10564	1993 XQ ₂		1 4.6 14°94	4.1/ 6.2	18	
12 3	7 28.19	+22 49.9	1.458	2.302	16.0	19.3	12 3	7 22.03	+9 51.1	1.447	2.278	16.8	16.4
12 13	7 21.61	+22 52.2	1.410	2.324	11.6	19.1	12 13	7 17.37	+10 25.3	1.381	2.281	12.9	16.1
12 23	7 12.28	+22 56.8	1.385	2.346	6.7	18.9	12 23	7 10.06	+11 19.2	1.337	2.285	8.5	15.9
1 2	7 1.38	+23 0.9	1.386	2.368	1.4	18.6	1 2	7 0.99	+12 30.9	1.317	2.290	4.7	15.7
1 12	6 50.42	+23 2.1	1.415	2.391	3.8	18.8	1 12	6 51.49	+13 55.3	1.325	2.296	5.2	15.7
1 22	6 40.88	+22 59.8	1.471	2.413	8.7	19.1	1 22	6 42.93	+15 25.7	1.360	2.302	9.2	16.0
2 1	6 33.86	+22 54.6	1.553	2.436	12.9	19.4	2 1	6 36.54	+16 55.8	1.420	2.310	13.4	16.3
2 11	6 30.00	+22 47.7	1.655	2.458	16.3	19.7	2 11	6 33.12	+18 20.6	1.502	2.317	17.1	16.5
500279	2012 PL ₉		1 4.6 197°36	2.9/ 5.4	18		295308	2008 GU ₁₂₂		1 4.6 251°50	1.1/ 4.4	18	
12 3	7 21.69	+13 15.2	2.485	3.296	11.2	21.8	12 3	7 25.64	+24 26.5	2.005	2.838	12.7	21.3
12 13	7 16.15	+13 2.2	2.403	3.294	8.5	21.6	12 13	7 19.64	+24 51.5	1.917	2.826	9.3	21.1
12 23	7 8.95	+12 56.6	2.346	3.292	5.6	21.4	12 23	7 11.27	+25 18.4	1.854	2.814	5.5	20.8
1 2	7 0.69	+12 58.3	2.318	3.290	3.1	21.2	1 2	7 1.26	+25 43.7	1.820	2.801	1.5	20.5
1 12	6 52.18	+13 6.7	2.321	3.288	3.7	21.3	1 12	6 50.74	+26 4.2	1.815	2.788	3.5	20.7
1 22	6 44.23	+13 20.7	2.353	3.285	6.5	21.4	1 22	6 40.92	+26 18.2	1.839	2.775	7.7	20.9
2 1	6 37.60	+13 38.9	2.413	3.282	9.5	21.6	2 1	6 32.92	+26 25.4	1.890	2.762	11.5	21.1
2 11	6 32.86	+13 59.8	2.498	3.279	12.1	21.8	2 11	6 27.53	+26 27.0	1.964	2.748	14.8	21.3
286492	2002 AM ₂₀₉		1 4.6 30°84	1.5/ 4.2	18		102099	1999 RW ₁₅₈		1 4.7 139°42	0.6/ 4.8	18	
12 3	7 24.93	+22 58.8	1.638	2.481	14.6	20.5	12 3	7 27.60	+19 54.8	1.979	2.804	13.2	20.9
12 13	7 19.42	+24 1.1	1.571	2.485	10.6	20.2	12 13	7 20.77	+20 9.8	1.912	2.816	9.6	20.7
12 23	7 11.22	+25 8.9	1.528	2.490	6.2	20.0	12 23	7 11.74	+20 29.3	1.870	2.828	5.6	20.5
1 2	7 1.21	+26 16.4	1.513	2.494	1.8	19.7	1 2	7 1.33	+20 50.9	1.857	2.838	1.4	20.2
1 12	6 50.73	+27 17.6	1.526	2.499	4.1	19.9	1 12	6 50.67	+21 12.2	1.874	2.849	3.2	20.4
1 22	6 41.20	+28 8.6	1.567	2.504	8.7	20.2	1 22	6 40.92	+21 31.3	1.920	2.858	7.3	20.6
2 1	6 33.85	+28 47.7	1.633	2.509	12.8	20.4	2 1	6 33.06	+21 47.5	1.994	2.867	11.0	20.9
2 11	6 29.51	+29 16.0	1.721	2.515	16.2	20.7	2 11	6 27.73	+22 0.9	2.092	2.875	14.0	21.1
397211	2006 FP ₂₇		1 4.6 153°74	5.1/ 3.3	18		448255	2008 XJ ₁₇		1 4.7 17°30	2.3/ 5.0	18	
12 3	7 32.30	+36 33.6	2.231	3.044	12.3	21.9	12 3	7 24.29	+18 8.4	1.167	2.025	18.2	20.7
12 13	7 24.33	+37 28.3	2.166	3.055	9.4	21.7	12 13	7 19.47	+17 56.3	1.110	2.029	13.5	20.4
12 23	7 13.84	+38 15.0	2.127	3.065	6.7	21.6	12 23	7 11.42	+17 53.3	1.073	2.034	8.2	20.2
1 2	7 1.74	+38 47.8	2.117	3.073	5.1	21.5	1 2	7 1.29	+17 58.2	1.059	2.040	2.9	19.9
1 12	6 49.33	+39 2.6	2.136	3.082	6.1	21.6	1 12	6 50.80	+18 8.7	1.071	2.046	4.8	20.0
1 22	6 37.94	+38 59.3	2.185	3.089	8.6	21.7	1 22	6 41.68	+18 22.6	1.107	2.054	10.2	20.3
2 1	6 28.68	+38 40.4	2.261	3.095	11.4	21.9	2 1	6 35.34	+18 38.3	1.167	2.063	15.2	20.6
2 11	6 22.29	+38 10.4	2.359	3.101	13.8	22.1	2 11	6 32.58	+18 54.3	1.245	2.072	19.3	20.9
282081	2000 NG		1 4.6 112°57	0.4/ 4.6	18		474015	2016 GU ₃		1 4.7 243°72	2.3/ 5.4	18	
12 3	7 32.94	+24 42.9	1.877	2.701	13.8	21.1	12 3	7 22.09	+14 6.4	2.183	3.002	12.3	

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1 4.7

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
353989	2000 <i>QJ</i> ₂₃₈		1 4.7 351°02	1.5/ 4.4	18		460245	2014 <i>QS</i> ₂₆₇		1 4.7 108°04	0.8/ 4.5	18	
12 3	7 24.15	+24 20.9	1.170	2.033	17.7	21.2	12 3	7 29.00	+25 21.0	1.906	2.736	13.4	21.8
12 13	7 19.71	+24 48.5	1.104	2.027	13.1	20.9	12 13	7 21.81	+25 19.1	1.845	2.752	9.7	21.6
12 23	7 11.77	+25 19.9	1.058	2.022	7.7	20.6	12 23	7 12.32	+25 16.2	1.809	2.768	5.6	21.4
1 2	7 1.40	+25 49.7	1.037	2.019	2.1	20.3	1 2	7 1.47	+25 9.8	1.802	2.784	1.4	21.1
1 12	6 50.42	+26 12.8	1.040	2.016	4.9	20.4	1 12	6 50.52	+24 58.5	1.825	2.799	3.4	21.3
1 22	6 40.73	+26 26.4	1.068	2.014	10.7	20.7	1 22	6 40.68	+24 42.3	1.877	2.814	7.5	21.6
2 1	6 33.97	+26 30.6	1.118	2.013	15.8	21.0	2 1	6 32.92	+24 22.7	1.956	2.829	11.2	21.8
2 11	6 31.10	+26 27.5	1.187	2.013	20.1	21.3	2 11	6 27.87	+24 1.4	2.059	2.843	14.2	22.0
245827	2006 <i>JB</i> ₄₆		1 4.7 151°39	2°6/ 5.3	18		299526	2006 <i>DD</i> ₁₇		1 4.7 216°70	3°0/ 4.0	18	
12 3	7 21.85	+14 31.1	2.477	3.291	11.2	20.5	12 3	7 29.27	+28 47.1	1.651	2.489	14.7	21.2
12 13	7 16.25	+14 11.9	2.400	3.294	8.4	20.4	12 13	7 22.74	+29 22.3	1.576	2.486	10.9	20.9
12 23	7 9.01	+13 58.9	2.349	3.297	5.4	20.2	12 23	7 13.24	+29 55.7	1.525	2.482	6.7	20.7
1 2	7 0.75	+13 52.2	2.326	3.300	2.9	20.0	1 2	7 1.73	+30 21.5	1.501	2.478	3.2	20.5
1 12	6 52.28	+13 51.4	2.334	3.302	3.6	20.1	1 12	6 49.71	+30 35.4	1.505	2.474	5.0	20.6
1 22	6 44.43	+13 55.6	2.372	3.305	6.4	20.3	1 22	6 38.75	+30 35.9	1.537	2.470	9.3	20.8
2 1	6 37.92	+14 4.0	2.438	3.307	9.4	20.5	2 1	6 30.22	+30 24.8	1.595	2.465	13.4	21.0
2 11	6 33.30	+14 15.3	2.527	3.309	12.0	20.6	2 11	6 24.97	+30 5.5	1.673	2.460	16.9	21.3
519610	2012 <i>UN</i> ₆₈		1 4.7 133°40	0°3/ 4.7	18		81592	2000 <i>HU</i> ₅₀		1 4.7 163°03	2°8/ 5.3	18	
12 3	7 32.37	+21 18.7	1.978	2.796	13.4	22.7	12 3	7 24.77	+14 32.1	2.138	2.954	12.6	19.8
12 13	7 24.12	+21 28.8	1.917	2.818	9.8	22.5	12 13	7 18.60	+14 20.1	2.063	2.958	9.5	19.6
12 23	7 13.59	+21 41.6	1.881	2.838	5.7	22.3	12 23	7 10.47	+14 15.7	2.013	2.962	6.0	19.3
1 2	7 1.72	+21 54.3	1.876	2.858	1.2	22.0	1 2	7 1.10	+14 18.5	1.991	2.965	3.1	19.2
1 12	6 49.72	+22 4.7	1.901	2.876	3.2	22.2	1 12	6 51.47	+14 27.7	1.999	2.968	3.9	19.2
1 22	6 38.80	+22 11.8	1.958	2.893	7.4	22.5	1 22	6 42.57	+14 41.7	2.037	2.971	7.2	19.4
2 1	6 29.95	+22 15.7	2.042	2.908	11.0	22.8	2 1	6 35.29	+14 59.3	2.102	2.973	10.6	19.6
2 11	6 23.81	+22 17.4	2.149	2.923	14.0	23.0	2 11	6 30.25	+15 19.0	2.191	2.975	13.5	19.8
309327	2007 <i>SL</i> ₈		1 4.7 84°76	0°8/ 4.5	17		77882	2001 <i>SV</i> ₁₂₄		1 4.7 230°44	1°7/ 4.3	18	
12 3	7 29.20	+23 22.4	1.597	2.435	15.1	21.3	12 3	7 24.03	+27 55.2	2.510	3.337	10.6	19.6
12 13	7 22.26	+23 49.0	1.546	2.457	11.0	21.1	12 13	7 18.02	+28 8.3	2.426	3.331	7.8	19.4
12 23	7 12.68	+24 18.0	1.519	2.479	6.3	20.9	12 23	7 10.13	+28 19.5	2.368	3.324	4.7	19.2
1 2	7 1.53	+24 44.9	1.519	2.501	1.5	20.6	1 2	7 1.03	+28 26.2	2.339	3.318	1.9	19.0
1 12	6 50.25	+25 6.4	1.547	2.522	3.8	20.8	1 12	6 51.63	+28 26.5	2.340	3.311	3.3	19.1
1 22	6 40.25	+25 20.8	1.604	2.543	8.4	21.1	1 22	6 42.88	+28 19.9	2.372	3.304	6.5	19.3
2 1	6 32.65	+25 28.5	1.687	2.564	12.4	21.4	2 1	6 35.63	+28 7.0	2.431	3.296	9.6	19.4
2 11	6 28.10	+25 30.9	1.791	2.584	15.7	21.7	2 11	6 30.50	+27 49.6	2.515	3.289	12.2	19.6
449583	2014 <i>JQ</i> ₃₁		1 4.7 250°61	5°7/ 5.5	18		5618	Saitama		1 4.7 342°75	4°3/ 5.7	18	
12 3	7 26.49	+10 26.1	1.509	2.331	16.7	21.3	12 3	7 22.77	+12 29.4	1.153	2.004	18.9	17.1
12 13	7 20.66	+9 48.1	1.429	2.322	13.0	21.1	12 13	7 18.59	+12 36.8	1.084	1.996	14.5	16.8
12 23	7 12.03	+9 23.2	1.370	2.313	9.1	20.8	12 23	7 11.12	+13 3.1	1.034	1.989	9.4	16.5
1 2	7 1.46	+9 13.7	1.337	2.303	6.0	20.6	1 2	7 1.33	+13 47.7	1.008	1.984	4.9	16.2
1 12	6 50.31	+9 20.1	1.331	2.293	6.7	20.6	1 12	6 50.83	+14 46.7	1.006	1.979	5.8	16.3
1 22	6 40.03	+9 40.7	1.351	2.282	10.4	20.8	1 22	6 41.42	+15 54.1	1.028	1.975	10.9	16.5
2 1	6 31.96	+10 12.7	1.396	2.272	14.6	21.0	2 1	6 34.69	+17 3.9	1.073	1.971	16.0	16.8
2 11	6 26.96	+10 52.1	1.461	2.261	18.3	21.2	2 11	6 31.64	+18 11.1	1.137	1.969	20.4	17.1
187898	2000 <i>ST</i> ₂₁₃		1 4.7 48°41	4°2/ 6.0	18		413516	2005 <i>SS</i> ₁₆		1 4.7 50°38	0°7/ 4.8	18	
12 3	7 23.69	+10 24.6	1.570	2.394	16.0	19.6	12 3	7 24.85	+20 31.7	1.692	2.531	14.4	21.4
12 13	7 18.17	+10 38.9	1.520	2.416	12.2	19.5	12 13	7 19.11	+20 36.3	1.628	2.539	10.5	21.1
12 23	7 10.31	+11 8.9	1.492	2.439	8.0	19.3	12 23	7 10.93	+20 45.6	1.587	2.547	6.1	20.9
1 2	7 1.04	+11 53.1	1.490	2.461	4.6	19.1	1 2	7 1.22	+20 57.2	1.573	2.555	1.5	20.6
1 12	6 51.62	+12 48.0	1.516	2.484	5.1	19.2	1 12	6 51.24	+21 9.0	1.587	2.563	3.5	20.8
1 22	6 43.28	+13 49.0	1.570	2.508	8.6	19.5	1 22	6 42.28	+21 19.4	1.630	2.571	8.0	21.1
2 1	6 37.03	+14 51.7	1.649	2.531	12.3	19.7	2 1	6 35.39	+21 27.9	1.698	2.580	12.0	21.3
2 11	6 33.48	+15 52.5	1.750	2.555	15.5	20.0	2 11	6 31.27	+21 34.5	1.788	2.589	15.4	21.6
414566	2009 <i>SM</i> ₃₂₀		1 4.7 72°57	5°7/ 5.7	18		489930	2008 <i>RP</i> ₂₄		1 4.7 31°84	7°3/ 6.9	14 C	
12 3	7 25.05	+8 26.9	1.855	2.661	14.7	20.8	12 3	7 28.72	+7 13.7	0.720	1.582	25.9	19.2
12 13	7 18.78	+7 38.8	1.802	2.683	11.5	20.6	12 13	7 22.55	+7 19.5	0.715	1.628	19.6	19.0
12 23	7 10.51	+7 3.8	1.773	2.706	8.2	20.5	12 23	7 12.84	+7 57.0	0.726	1.676	13.2	18.9
1 2	7 1.07	+6 43.8	1.771	2.728	5.9	20.4	1 2	7 1.52	+9 1.8	0.756	1.726	8.2	18.8
1 12	6 51.57	+6 38.9	1.797	2.750	6.3	20.5	1 12	6 50.89	+10 24.3	0.808	1.777	8.2	19.1
1 22	6 43.04	+6 47.9	1.851	2.771	8.8	20.6	1 22	6 42.77	+11 53.8	0.882	1.828	12.2	19.5
2 1	6 36.35	+7 8.0	1.931	2.793	11.8	20.9	2 1	6 38.22	+13 21.4	0.977	1.881	16.7	19.9
2 11	6 32.05	+7 35.9	2.033	2.815	14.5	21.1	2 11	6 37.55	+14 41.0	1.090	1.933	20.3	20.3
33936	Johnwells		1 4.7 221°40	1°8/ 5.1	18		516976	2012 <i>HM</i> ₁		1 4.7 180°49	3°4/ 5.4	18 C	
12 3	7 24.49	+16 50.1	2.289	3.107	11.8	20.2	12 3	7 30.66	+12 11.3	2.265	3.060	12.7	26.4
12 13	7 18.43	+16 51.0	2.199	3.098	8.8	20.0	12 13	7 22.80	+12 0.2	2.181	3.063	9.7	26.2
12 23	7 10.42	+16 57.9	2.135	3.089	5.4	19.7	12 23	7 12.88	+11 57.8	2.124	3.065	6.4	26.0
1 2	7 1.09	+17 9.7	2.100	3.079	2.1	19.5	1 2	7 1.64	+12 3.8	2.096	3.066	3.7	25.8
1 12	6 51.38	+17 24.9	2.095	3.068	3.3	19.6	1 12	6 50.07	+12 17.3	2.100	3.065	4.3	25.8
1 22	6 42.27	+17 42.3	2.121	3.057	6.8	19.8	1 22	6 39.21	+12 36.9	2.136	3.062	7.4	26.0
2 1	6 34.64	+18 0.5	2.174	3.046	10.3	20.0	2 1	6 30.00	+13 0.8	2.200	3.058	10.7	26.2
2 11	6 29.16	+18 18.8	2.252	3.033	13.2	20.1	2 11	6 23.10	+13 27.5	2.289	3.053	13.6	26.4
15451	1998 <i>XK</i> ₄₂		1 4.7 211°96	2°2/ 3.9	18		192998	2000 <i>DJ</i> ₁₁₀		1 4.7 9°46	2°2/ 5.3	18	
12 3	7 24.05	+27 21.5	2.336	3.166	11.2	17.5	12 3	7					

EPHEMERIDES

1 4.7

1 4.7

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
365147	2009 <i>DF</i> ₆₂		1 4.7 259°04	3°2/ 3.9 18			251092	2006 <i>SW</i> ₁₉₇		1 4.7 42°83	1°7/ 4.9 17		
12 3	7 28.09	+29 17.8	1.670	2.509	14.5	21.5	12 3	7 25.84	+18 37.5	1.352	2.199	16.8	19.9
12 13	7 21.90	+29 54.9	1.593	2.503	10.8	21.3	12 13	7 20.05	+18 32.0	1.306	2.220	12.3	19.6
12 23	7 12.77	+30 30.0	1.540	2.497	6.7	21.0	12 23	7 11.51	+18 34.1	1.282	2.242	7.3	19.4
1 2	7 1.65	+30 57.3	1.514	2.491	3.4	20.8	1 2	7 1.36	+18 41.8	1.284	2.264	2.4	19.2
1 12	6 49.99	+31 12.3	1.516	2.484	5.1	20.9	1 12	6 51.13	+18 52.9	1.312	2.287	4.2	19.4
1 22	6 39.34	+31 13.5	1.546	2.478	9.3	21.1	1 22	6 42.29	+19 5.4	1.367	2.311	9.0	19.7
2 1	6 31.06	+31 2.5	1.601	2.471	13.3	21.4	2 1	6 35.96	+19 18.2	1.446	2.334	13.3	20.0
2 11	6 26.02	+30 42.9	1.677	2.465	16.8	21.6	2 11	6 32.78	+19 30.5	1.546	2.359	16.8	20.3
122720	2000 <i>SD</i> ₃₉		1 4.7 351°58	5°8/ 3.0 18			351263	2004 <i>RL</i> ₁₇₈		1 4.7 65°73	2°0/ 4.9 17		
12 3	7 24.80	+33 6.5	1.480	2.330	15.5	18.4	12 3	7 28.67	+18 45.6	1.352	2.195	17.1	20.9
12 13	7 19.94	+34 20.5	1.413	2.324	11.8	18.2	12 13	7 22.14	+18 29.2	1.301	2.213	12.6	20.6
12 23	7 11.84	+35 30.4	1.368	2.320	8.0	18.0	12 23	7 12.73	+18 19.6	1.273	2.232	7.5	20.4
1 2	7 1.48	+36 27.6	1.349	2.316	5.8	17.8	1 2	7 1.62	+18 15.4	1.270	2.251	2.6	20.2
1 12	6 50.48	+37 5.2	1.356	2.313	7.4	17.9	1 12	6 50.41	+18 15.1	1.295	2.270	4.3	20.3
1 22	6 40.60	+37 20.6	1.389	2.311	11.0	18.1	1 22	6 40.64	+18 17.5	1.346	2.289	9.3	20.7
2 1	6 33.38	+37 15.7	1.444	2.309	14.8	18.3	2 1	6 33.49	+18 21.8	1.422	2.308	13.7	21.0
2 11	6 29.76	+36 55.6	1.519	2.309	18.2	18.6	2 11	6 29.63	+18 27.5	1.518	2.327	17.3	21.3
27805	1993 <i>FJ</i> ₄₀		1 4.7 341°10	4°3/ 5.6 18			156710	2002 <i>NA</i> ₄₁		1 4.7 264°93	14°6/ 10.7 18		
12 3	7 24.90	+12 51.9	1.337	2.176	17.5	17.7	12 3	7 27.44	-10 37.4	1.235	1.986	23.5	20.2
12 13	7 19.72	+12 41.6	1.267	2.173	13.4	17.5	12 13	7 21.97	-10 46.1	1.158	1.977	20.8	19.9
12 23	7 11.58	+12 45.8	1.218	2.170	8.7	17.2	12 23	7 13.13	-10 10.9	1.096	1.968	17.8	19.7
1 2	7 1.41	+13 4.6	1.194	2.168	4.7	17.0	1 2	7 1.82	- 8 43.3	1.053	1.958	15.4	19.5
1 12	6 50.71	+13 35.8	1.196	2.166	5.7	17.0	1 12	6 49.61	- 6 22.4	1.034	1.949	14.6	19.4
1 22	6 41.07	+14 16.1	1.223	2.164	10.1	17.3	1 22	6 38.29	- 3 17.0	1.038	1.939	16.0	19.5
2 1	6 33.86	+15 1.6	1.274	2.163	14.7	17.5	2 1	6 29.54	+ 0 16.7	1.065	1.929	19.0	19.6
2 11	6 29.97	+15 48.5	1.346	2.162	18.7	17.8	2 11	6 24.47	+ 3 59.7	1.114	1.919	22.5	19.8
394381	2007 <i>EF</i> ₅		1 4.7 245°01	3°5/ 5.4 18			375589	2008 <i>VJ</i> ₂₀		1 4.7 75°55	0°9/ 4.9 18		
12 3	7 26.71	+13 31.7	1.588	2.414	15.8	21.8	12 3	7 22.91	+19 26.5	2.133	2.962	12.2	21.6
12 13	7 20.82	+13 28.7	1.503	2.404	12.0	21.5	12 13	7 17.31	+19 34.8	2.064	2.970	8.9	21.4
12 23	7 12.16	+13 37.8	1.441	2.392	7.8	21.2	12 23	7 9.76	+19 47.9	2.020	2.978	5.2	21.2
1 2	7 1.55	+13 58.7	1.406	2.381	4.0	21.0	1 2	7 1.00	+20 3.7	2.004	2.986	1.5	21.0
1 12	6 50.30	+14 29.2	1.398	2.369	5.0	21.0	1 12	6 52.01	+20 20.5	2.019	2.994	3.0	21.1
1 22	6 39.85	+15 6.7	1.418	2.356	9.3	21.2	1 22	6 43.79	+20 36.8	2.062	3.002	6.8	21.4
2 1	6 31.52	+15 47.9	1.463	2.343	13.7	21.5	2 1	6 37.19	+20 51.6	2.133	3.010	10.2	21.6
2 11	6 26.22	+16 30.2	1.530	2.330	17.6	21.7	2 11	6 32.81	+21 4.6	2.227	3.018	13.1	21.8
114321	2002 <i>XP</i> ₅₈		1 4.7 351°71	0°5/ 4.6 18			204424	2004 <i>VR</i> ₇₄		1 4.7 357°27	1°4/ 4.9 18		
12 3	7 28.76	+25 3.6	1.250	2.104	17.5	19.2	12 3	7 22.96	+18 27.8	1.190	2.048	17.9	20.0
12 13	7 22.81	+24 42.2	1.183	2.101	12.9	18.9	12 13	7 18.67	+18 43.2	1.125	2.045	13.3	19.7
12 23	7 13.43	+24 19.4	1.137	2.099	7.5	18.6	12 23	7 11.12	+19 9.3	1.080	2.042	7.9	19.4
1 2	7 1.80	+23 52.6	1.115	2.098	1.7	18.3	1 2	7 1.35	+19 43.3	1.059	2.041	2.3	19.0
1 12	6 49.76	+23 20.8	1.121	2.097	4.5	18.4	1 12	6 51.02	+20 20.7	1.064	2.040	4.5	19.2
1 22	6 39.14	+22 45.3	1.151	2.096	10.2	18.8	1 22	6 41.88	+20 57.5	1.093	2.041	10.2	19.5
2 1	6 31.47	+22 8.8	1.206	2.096	15.3	19.1	2 1	6 35.45	+21 31.1	1.145	2.042	15.3	19.8
2 11	6 27.57	+21 34.2	1.279	2.096	19.5	19.3	2 11	6 32.64	+22 0.1	1.216	2.045	19.5	20.1
205533	2001 <i>SL</i> ₁₃₄		1 4.7 95°92	1°2/ 4.4 18			7491	Linzerag		1 4.7 48°66	0°4/ 4.7 18		
12 3	7 24.15	+26 13.0	2.425	3.252	10.9	20.8	12 3	7 25.31	+22 1.6	1.717	2.556	14.2	17.3
12 13	7 18.00	+26 27.2	2.361	3.267	8.0	20.6	12 13	7 19.39	+21 55.2	1.655	2.566	10.4	17.1
12 23	7 10.05	+26 40.6	2.324	3.282	4.6	20.4	12 23	7 11.07	+21 51.2	1.616	2.576	6.0	16.9
1 2	7 1.03	+26 50.6	2.316	3.297	1.5	20.2	1 2	7 1.29	+21 47.9	1.605	2.587	1.4	16.6
1 12	6 51.87	+26 55.4	2.339	3.311	3.0	20.4	1 12	6 51.31	+21 43.8	1.622	2.598	3.4	16.8
1 22	6 43.49	+26 54.6	2.392	3.326	6.3	20.6	1 22	6 42.39	+21 38.2	1.668	2.609	7.9	17.1
2 1	6 36.68	+26 48.6	2.472	3.340	9.3	20.8	2 1	6 35.56	+21 31.4	1.739	2.620	11.8	17.3
2 11	6 31.98	+26 38.7	2.577	3.354	11.9	21.0	2 11	6 31.47	+21 24.1	1.832	2.632	15.1	17.6
332181	2006 <i>BM</i> ₁₂₇		1 4.7 96°82	1°0/ 4.9 18			240296	2003 <i>FJ</i> ₄		1 4.7 334°73	16°5/ 26.5 17		
12 3	7 23.75	+19 11.9	2.072	2.901	12.5	21.4	12 3	7 30.18	+46 36.6	1.089	1.930	20.4	19.4
12 13	7 17.95	+19 18.3	2.003	2.908	9.2	21.2	12 13	7 26.89	+50 18.9	1.032	1.912	18.0	19.2
12 23	7 10.14	+19 29.5	1.958	2.916	5.4	21.0	12 23	7 17.68	+53 49.0	0.996	1.896	16.6	19.1
1 2	7 1.07	+19 43.8	1.942	2.923	1.6	20.8	1 2	7 3.09	+56 42.2	0.982	1.880	16.9	19.0
1 12	6 51.76	+19 59.4	1.956	2.931	3.1	20.9	1 12	6 45.67	+58 38.6	0.988	1.866	18.8	19.1
1 22	6 43.24	+20 14.7	1.999	2.938	6.9	21.2	1 22	6 29.48	+59 31.7	1.013	1.853	21.6	19.2
2 1	6 36.42	+20 28.9	2.069	2.946	10.5	21.4	2 1	6 18.47	+59 29.0	1.053	1.842	24.5	19.4
2 11	6 31.89	+20 41.6	2.163	2.953	13.4	21.6	2 11	6 14.84	+58 45.9	1.104	1.832	27.1	19.5
330509	2007 <i>MX</i> ₁		1 4.7 147°89	4°2/ 6.2 18			319662	2006 <i>TZ</i> ₃₄		1 4.7 356°05	3°9/ 3.9 18		
12 3	7 22.14	+ 7 44.0	2.481	3.274	11.8	22.0	12 3	7 24.93	+29 47.3	1.366	2.221	16.2	19.9
12 13	7 16.47	+ 7 45.4	2.406	3.281	9.2	21.8	12 13	7 20.03	+30 27.5	1.300	2.218	12.1	19.6
12 23	7 9.18	+ 7 58.7	2.357	3.288	6.5	21.6	12 23	7 11.87	+31 5.2	1.256	2.215	7.5	19.4
1 2	7 0.87	+ 8 23.6	2.335	3.295	4.4	21.5	1 2	7 1.52	+31 33.5	1.236	2.213	4.1	19.2
1 12	6 52.33	+ 8 59.1	2.344	3.301	4.6	21.5	1 12	6 50.64	+31 47.5	1.243	2.212	5.9	19.3
1 22	6 44.38	+ 9 42.7	2.383	3.307	6.9	21.7	1 22	6 41.01	+31 45.6	1.275	2.212	10.4	19.5
2 1	6 37.74	+10 31.8	2.450	3.313	9.6	21.9	2 1	6 34.11	+31 29.9	1.331	2.212	14.7	19.8
2 11	6 32.95	+11 23.5	2.541	3.318	12.0	22.1	2 11	6 30.82	+31 4.5	1.406	2.214	18.5	20.0
83289	2001 <i>RR</i> ₉₁		1 4.7 324°65	7°6/ 6.9 18			248952	2006 <i>XB</i> ₅		1 4.7 49°97	7°8/ 7.3 18		
12 3	7 19.60	+ 0 6.3	2.150										

EPHEMERIDES

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
160474	2006 <i>JM</i> ₃₁		1 4.7 104 ^o .76	5 ^o .4/ 6.5 18			88357	2001 <i>OX</i> ₉₉		1 4.7 118 ^o .36	0 ^o .3/ 4.8 18		
12 3	7 21.76	+ 3 30.3	2.699	3.471	11.5	20.3	12 3	7 30.31	+20 40.5	1.697	2.527	14.8	20.8
12 13	7 15.97	+ 3 3.7	2.639	3.493	9.3	20.1	12 13	7 23.02	+21 0.6	1.639	2.545	10.8	20.6
12 23	7 8.78	+2 49.7	2.605	3.515	7.1	20.0	12 23	7 13.18	+21 25.3	1.605	2.563	6.2	20.4
1 2	7 0.79	+2 49.2	2.598	3.536	5.6	20.0	1 2	7 1.77	+21 51.3	1.599	2.581	1.4	20.1
1 12	6 52.70	+ 3 2.1	2.621	3.557	5.7	20.0	1 12	6 50.18	+22 15.3	1.622	2.597	3.5	20.3
1 22	6 45.23	+ 3 26.8	2.673	3.578	7.2	20.1	1 22	6 39.74	+22 35.3	1.675	2.613	8.1	20.6
2 1	6 38.98	+ 4 0.8	2.753	3.597	9.2	20.3	2 1	6 31.57	+22 50.9	1.754	2.629	12.1	20.8
2 11	6 34.41	+ 4 41.3	2.857	3.617	11.2	20.5	2 11	6 26.34	+23 2.6	1.855	2.643	15.4	21.1
351716	2006 <i>BM</i> ₂₄₂		1 4.7 284 ^o .19	0 ^o .1/ 4.7 18			87846	2000 <i>SS</i> ₂₀₉		1 4.7 92 ^o .92	1 ^o .4/ 5.1 18		
12 3	7 26.37	+21 26.9	1.495	2.339	15.7	21.2	12 3	7 24.22	+17 0.7	1.928	2.755	13.4	19.8
12 13	7 20.89	+21 51.2	1.411	2.325	11.6	20.9	12 13	7 18.44	+17 22.5	1.861	2.765	9.9	19.6
12 23	7 12.36	+22 21.9	1.350	2.311	6.8	20.6	12 23	7 10.51	+17 52.1	1.818	2.774	5.9	19.4
1 2	7 1.65	+22 55.2	1.315	2.297	1.5	20.2	1 2	7 1.22	+18 27.4	1.803	2.783	2.0	19.1
1 12	6 50.20	+23 26.9	1.308	2.283	4.1	20.3	1 12	6 51.64	+19 5.3	1.817	2.792	3.3	19.3
1 22	6 39.63	+23 53.6	1.327	2.269	9.4	20.6	1 22	6 42.89	+19 43.1	1.861	2.801	7.3	19.5
2 1	6 31.40	+24 14.4	1.371	2.256	14.2	20.9	2 1	6 35.92	+20 18.8	1.932	2.810	11.0	19.8
2 11	6 26.51	+24 29.5	1.436	2.242	18.3	21.1	2 11	6 31.40	+20 51.4	2.025	2.818	14.1	20.0
281301	2007 <i>RX</i> ₂₉₁		1 4.7 149 ^o .56	1 ^o .1/ 4.4 18			27763	1991 <i>RN</i> ₂₂		1 4.7 150 ^o .79	2 ^o .8/ 4.1 18		
12 3	7 23.51	+25 28.2	2.387	3.216	11.0	21.1	12 3	7 32.11	+29 1.6	1.832	2.660	13.9	19.8
12 13	7 17.68	+25 47.7	2.312	3.219	8.1	20.9	12 13	7 24.45	+29 36.0	1.766	2.670	10.3	19.6
12 23	7 9.97	+26 7.4	2.263	3.222	4.7	20.7	12 23	7 14.08	+30 7.5	1.724	2.679	6.3	19.4
1 2	7 1.07	+26 24.6	2.243	3.224	1.4	20.5	1 2	7 2.00	+30 31.0	1.711	2.688	3.0	19.2
1 12	6 51.91	+26 37.0	2.253	3.226	3.0	20.6	1 12	6 49.61	+30 42.5	1.728	2.696	4.6	19.3
1 22	6 43.44	+26 43.7	2.294	3.228	6.5	20.8	1 22	6 38.36	+30 41.5	1.774	2.703	8.5	19.6
2 1	6 36.50	+26 44.8	2.361	3.230	9.6	21.0	2 1	6 29.42	+30 29.7	1.846	2.709	12.2	19.8
2 11	6 31.70	+26 41.3	2.453	3.232	12.3	21.2	2 11	6 23.56	+30 10.7	1.941	2.715	15.3	20.1
468398	2016 <i>GW</i> ₁₂₅		1 4.7 348 ^o .78	0 ^o .0/ 4.6 18			319554	2006 <i>SP</i> ₁₄		1 4.7 41 ^o .95	13 ^o .0/ 3.5 18		
12 3	7 23.39	+22 22.5	1.915	2.753	13.0	20.9	12 3	7 42.15	+54 28.5	1.623	2.400	17.7	20.7
12 13	7 17.97	+22 30.5	1.840	2.751	9.5	20.6	12 13	7 33.36	+55 38.9	1.574	2.406	15.6	20.5
12 23	7 10.29	+22 41.2	1.789	2.749	5.5	20.4	12 23	7 19.79	+56 23.0	1.545	2.412	13.8	20.4
1 2	7 1.16	+22 52.2	1.765	2.747	1.2	20.1	1 2	7 3.23	+56 29.3	1.538	2.419	13.0	20.4
1 12	6 51.68	+23 1.5	1.770	2.746	3.2	20.3	1 12	6 46.51	+55 52.5	1.554	2.425	13.5	20.5
1 22	6 43.02	+23 7.8	1.804	2.745	7.5	20.5	1 22	6 32.37	+54 36.3	1.592	2.433	15.0	20.6
2 1	6 36.19	+23 10.8	1.865	2.744	11.3	20.7	2 1	6 22.64	+52 50.8	1.652	2.440	17.0	20.7
2 11	6 31.89	+23 11.2	1.947	2.743	14.5	21.0	2 11	6 17.96	+50 48.6	1.731	2.448	19.0	20.9
89075	2001 <i>TG</i> ₁₅₈		1 4.7 86 ^o .44	0 ^o .0/ 4.7 17			242587	2005 <i>GP</i> ₁₅₄		1 4.7 212 ^o .24	1 ^o .6/ 5.2 18		
12 3	7 28.82	+20 42.9	1.453	2.294	16.2	20.3	12 3	7 21.62	+16 30.7	2.607	3.424	10.6	20.9
12 13	7 22.31	+21 19.2	1.398	2.311	11.8	20.1	12 13	7 16.17	+16 39.1	2.522	3.420	7.9	20.7
12 23	7 12.92	+22 1.9	1.366	2.327	6.8	19.8	12 23	7 9.08	+16 53.3	2.462	3.415	4.8	20.5
1 2	7 1.72	+22 46.3	1.361	2.343	1.4	19.5	1 2	7 0.92	+17 12.2	2.432	3.410	1.9	20.3
1 12	6 50.25	+23 27.4	1.383	2.359	3.9	19.7	1 12	6 52.48	+17 34.4	2.432	3.405	2.9	20.4
1 22	6 40.06	+24 2.2	1.433	2.375	8.9	20.1	1 22	6 44.55	+17 58.3	2.463	3.400	6.0	20.6
2 1	6 32.40	+24 29.6	1.509	2.390	13.3	20.4	2 1	6 37.87	+18 22.5	2.522	3.394	9.0	20.8
2 11	6 28.00	+24 50.1	1.605	2.405	16.9	20.6	2 11	6 33.03	+18 46.1	2.606	3.388	11.6	20.9
177368	2004 <i>BH</i> ₂₄		1 4.7 275 ^o .76	1 ^o .1/ 4.9 18			7526	Ohtsuka		1 4.7 50 ^o .21	2 ^o .7/ 5.1 18		
12 3	7 25.20	+19 7.3	1.780	2.614	14.0	20.2	12 3	7 28.55	+17 13.6	1.245	2.090	18.1	17.0
12 13	7 19.60	+19 15.7	1.688	2.596	10.4	20.0	12 13	7 22.04	+16 54.9	1.207	2.119	13.3	16.8
12 23	7 11.43	+19 30.5	1.621	2.579	6.2	19.7	12 23	7 12.65	+16 45.7	1.190	2.148	8.0	16.6
1 2	7 1.44	+19 49.7	1.580	2.561	1.8	19.4	1 2	7 1.66	+16 44.6	1.233	2.177	3.2	16.4
1 12	6 50.83	+20 10.8	1.568	2.543	3.6	19.4	1 12	6 50.74	+16 50.0	1.233	2.207	4.7	16.6
1 22	6 40.90	+20 31.7	1.584	2.525	8.3	19.7	1 22	6 41.44	+16 59.8	1.294	2.237	9.5	16.9
2 1	6 32.88	+20 51.1	1.627	2.507	12.6	19.9	2 1	6 34.88	+17 12.6	1.379	2.267	13.8	17.3
2 11	6 27.65	+21 8.4	1.691	2.488	16.3	20.1	2 11	6 31.64	+17 26.7	1.484	2.297	17.4	17.6
113912	2002 <i>TD</i> ₂₈₂		1 4.7 75 ^o .16	1 ^o .6/ 4.3 18			227577	2005 <i>YO</i> ₂₄₀		1 4.7 16 ^o .75	1 ^o .3/ 4.4 18		
12 3	7 25.05	+26 56.7	2.164	2.995	11.9	19.6	12 3	7 25.00	+25 35.9	1.774	2.615	13.7	20.8
12 13	7 18.83	+27 11.5	2.104	3.011	8.7	19.4	12 13	7 19.31	+25 49.2	1.705	2.617	10.1	20.6
12 23	7 10.61	+27 24.8	2.070	3.028	5.1	19.2	12 23	7 11.14	+26 2.5	1.659	2.619	5.9	20.4
1 2	7 1.20	+27 33.8	2.064	3.044	1.8	19.0	1 2	7 1.38	+26 12.5	1.640	2.621	1.7	20.1
1 12	6 51.66	+27 36.4	2.088	3.060	3.4	19.2	1 12	6 51.31	+26 16.8	1.650	2.624	3.7	20.2
1 22	6 43.02	+27 32.3	2.141	3.076	6.9	19.4	1 22	6 42.20	+26 14.3	1.687	2.626	8.0	20.5
2 1	6 36.15	+27 22.4	2.222	3.092	10.1	19.6	2 1	6 35.17	+26 5.9	1.751	2.630	11.9	20.7
2 11	6 31.63	+27 8.2	2.326	3.108	12.9	19.9	2 11	6 30.92	+25 53.3	1.837	2.633	15.2	21.0
176764	2002 <i>RO</i> ₁₈₇		1 4.7 41 ^o .53	7 ^o .9/ 4.2 18			492012	2013 <i>FD</i> ₂₃		1 4.7 264 ^o .31	3 ^o .9/ 5.4 18		
12 3	7 33.96	+41 37.7	1.522	2.347	16.4	19.7	12 3	7 25.19	+13 24.6	1.667	2.494	15.2	21.5
12 13	7 26.48	+42 8.3	1.466	2.355	13.1	19.6	12 13	7 19.56	+13 3.2	1.586	2.485	11.6	21.3
12 23	7 15.44	+42 22.2	1.431	2.363	9.8	19.4	12 23	7 11.38	+12 52.1	1.528	2.477	7.6	21.0
1 2	7 2.26	+42 11.6	1.422	2.372	7.9	19.3	1 2	7 1.47	+12 51.7	1.495	2.468	4.3	20.8
1 12	6 48.95	+41 33.1	1.438	2.380	8.7	19.4	1 12	6 51.07	+13 1.6	1.491	2.460	5.1	20.8
1 22	6 37.46	+40 29.8	1.481	2.389	11.5	19.6	1 22	6 41.47	+13 19.9	1.515	2.451	9.0	21.1
2 1	6 29.23	+39 8.9	1.547	2.399	14.8	19.8	2 1	6 33.87	+13 44.6	1.563	2.442	13.1	21.3
2 11	6 24.92	+37 39.4	1.634	2.409	17.7	20.0	2 11	6 29.08	+14 13.3	1.634	2.433	16.7	21.5
426361	2013 <i>NA</i> ₁₁		1 4.7 155										

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
254670	2005 <i>LR</i> ₂₅		1 4.7 93°72	1.9°/ 5.2	18		146323	2001 <i>LX</i> ₁₈		1 4.7 111°38	1.9°/ 4.9	18	
12 3	7 27.15	+16 52.2	1.907	2.730	13.7	21.3	12 3	7 27.99	+18 11.6	2.044	2.864	13.0	19.2
12 13	7 20.39	+16 53.2	1.853	2.754	10.1	21.1	12 13	7 20.90	+17 44.8	1.983	2.883	9.6	19.0
12 23	7 11.53	+17 1.1	1.824	2.778	6.1	20.9	12 23	7 11.80	+17 22.0	1.947	2.901	5.8	18.8
1 2	7 1.45	+17 14.2	1.822	2.801	2.4	20.7	1 2	7 1.53	+17 3.2	1.940	2.918	2.3	18.6
1 12	6 51.27	+17 30.8	1.851	2.824	3.5	20.8	1 12	6 51.18	+16 47.9	1.963	2.935	3.5	18.7
1 22	6 42.11	+17 49.0	1.909	2.846	7.3	21.1	1 22	6 41.79	+16 36.1	2.016	2.952	7.2	19.0
2 1	6 34.86	+18 7.7	1.994	2.868	10.9	21.4	2 1	6 34.24	+16 27.5	2.097	2.968	10.6	19.2
2 11	6 30.10	+18 25.9	2.102	2.890	13.8	21.6	2 11	6 29.09	+16 22.0	2.201	2.983	13.5	19.5
241577	1995 <i>SK</i> ₃₁		1 4.7 183°80	6°2/ 6.6	18		450018	2015 <i>PN</i> ₃₁₀		1 4.7 86°71	2°6/ 4.1	18	
12 3	7 20.33	+ 1 18.3	2.672	3.437	11.8	20.9	12 3	7 32.07	+26 14.9	1.453	2.294	16.2	21.0
12 13	7 15.12	+ 0 46.7	2.592	3.437	9.7	20.8	12 13	7 24.72	+27 8.9	1.407	2.318	11.8	20.8
12 23	7 8.43	+ 0 28.6	2.537	3.437	7.7	20.7	12 23	7 14.33	+28 2.9	1.383	2.342	7.0	20.6
1 2	7 0.80	+ 0 25.9	2.509	3.437	6.4	20.6	1 2	7 2.10	+28 50.0	1.386	2.366	2.8	20.4
1 12	6 52.94	+ 0 38.8	2.510	3.436	6.4	20.6	1 12	6 49.70	+29 24.9	1.418	2.389	4.9	20.6
1 22	6 45.57	+ 1 6.1	2.538	3.435	7.9	20.7	1 22	6 38.79	+29 45.6	1.477	2.412	9.4	20.9
2 1	6 39.37	+ 1 45.2	2.594	3.434	9.9	20.8	2 1	6 30.64	+29 53.8	1.562	2.434	13.5	21.2
2 11	6 34.84	+ 2 32.7	2.673	3.433	11.9	20.9	2 11	6 25.96	+29 52.5	1.667	2.456	16.8	21.5
519369	2011 <i>OD</i> ₃₁		1 4.7 151°07	1°5/ 4.2	18		455853	2005 <i>UD</i> ₁₃		1 4.7 92°58	2°9/ 5.3	18	
12 3	7 22.73	+26 36.3	2.711	3.537	10.0	22.1	12 3	7 24.25	+15 4.7	1.869	2.694	13.8	21.6
12 13	7 16.97	+27 4.6	2.637	3.541	7.3	21.9	12 13	7 18.53	+14 48.7	1.797	2.697	10.4	21.4
12 23	7 9.54	+27 32.6	2.588	3.546	4.3	21.7	12 23	7 10.62	+14 40.8	1.748	2.700	6.6	21.2
1 2	7 1.04	+27 57.3	2.570	3.550	1.6	21.5	1 2	7 1.31	+14 40.7	1.727	2.703	3.3	21.0
1 12	6 52.30	+28 16.7	2.583	3.553	3.0	21.6	1 12	6 51.70	+14 47.6	1.735	2.705	4.2	21.0
1 22	6 44.16	+28 29.6	2.625	3.557	6.0	21.8	1 22	6 42.92	+15 0.0	1.771	2.708	7.9	21.3
2 1	6 37.37	+28 36.1	2.697	3.560	8.8	22.0	2 1	6 35.96	+15 16.4	1.833	2.711	11.5	21.5
2 11	6 32.48	+28 37.0	2.792	3.563	11.2	22.2	2 11	6 31.47	+15 35.3	1.918	2.713	14.7	21.7
519446	2011 <i>YL</i> ₉		1 4.7 25°43	10°6/30.5	18		204211	2004 <i>CX</i> ₄₂		1 4.7 292°92	0°6/ 4.9	18	
12 3	7 34.11	+28 27.7	0.858	1.728	21.9	20.6	12 3	7 21.88	+19 47.5	2.228	3.057	11.7	20.1
12 13	7 29.16	+32 56.5	0.809	1.732	16.7	20.3	12 13	7 16.72	+20 3.5	2.139	3.045	8.6	19.9
12 23	7 18.58	+37 38.5	0.784	1.737	12.0	20.1	12 23	7 9.58	+20 24.5	2.075	3.033	5.1	19.6
1 2	7 3.28	+42 0.5	0.784	1.743	10.8	20.1	1 2	7 1.10	+20 48.5	2.039	3.020	1.3	19.3
1 12	6 45.89	+45 31.2	0.810	1.749	14.0	20.3	1 12	6 52.21	+21 13.3	2.033	3.008	2.9	19.4
1 22	6 30.03	+47 56.0	0.857	1.757	18.7	20.5	1 22	6 43.89	+21 37.0	2.056	2.996	6.8	19.7
2 1	6 19.01	+49 19.7	0.924	1.765	23.1	20.9	2 1	6 37.05	+21 58.3	2.107	2.984	10.3	19.9
2 11	6 14.59	+49 57.6	1.003	1.774	26.7	21.2	2 11	6 32.38	+22 17.0	2.182	2.972	13.3	20.0
100651	1997 <i>WU</i> ₁₀		1 4.7 118°69	3°6/ 3.8	18		325064	2008 <i>CW</i> ₂₀₈		1 4.7 323°76	7°5/ 6.7	18	
12 3	7 27.92	+30 38.9	1.874	2.708	13.4	20.6	12 3	7 21.67	+ 3 59.2	1.586	2.393	16.7	20.6
12 13	7 21.46	+31 23.1	1.808	2.714	10.0	20.4	12 13	7 17.08	+ 3 38.4	1.507	2.383	13.6	20.4
12 23	7 12.41	+32 3.9	1.766	2.720	6.3	20.2	12 23	7 10.01	+ 3 38.2	1.448	2.373	10.3	20.1
1 2	7 1.69	+32 35.8	1.752	2.725	3.6	20.0	1 2	7 1.22	+ 4 1.4	1.413	2.364	7.9	20.0
1 12	6 50.62	+32 54.8	1.767	2.731	5.1	20.1	1 12	6 51.90	+ 4 47.4	1.405	2.355	8.0	20.0
1 22	6 40.55	+32 59.7	1.810	2.736	8.6	20.4	1 22	6 43.31	+ 5 52.8	1.422	2.347	10.6	20.1
2 1	6 32.65	+32 52.0	1.879	2.741	12.1	20.6	2 1	6 36.63	+ 7 11.7	1.464	2.339	14.1	20.3
2 11	6 27.67	+32 35.2	1.970	2.746	15.0	20.8	2 11	6 32.71	+ 8 37.6	1.527	2.331	17.4	20.5
249187	2008 <i>CB</i> ₁₄₁		1 4.7 88°17	7°1/ 6.9	18		373827	2002 <i>XD</i> ₂₀		1 4.7 20°41	2°0/ 4.4	18	
12 3	7 24.34	+ 2 48.8	1.839	2.627	15.5	20.3	12 3	7 24.03	+27 43.5	1.823	2.665	13.4	20.1
12 13	7 18.43	+ 2 28.0	1.782	2.645	12.5	20.1	12 13	7 18.53	+27 54.7	1.759	2.671	9.8	19.9
12 23	7 10.46	+ 2 26.1	1.747	2.663	9.5	20.0	12 23	7 10.66	+28 3.8	1.718	2.677	5.8	19.7
1 2	7 1.25	+ 2 44.7	1.737	2.680	7.4	19.9	1 2	7 1.32	+28 7.5	1.704	2.684	2.2	19.5
1 12	6 51.87	+ 3 22.6	1.756	2.698	7.4	19.9	1 12	6 51.75	+28 3.7	1.719	2.692	3.9	19.6
1 22	6 43.38	+ 4 16.3	1.801	2.715	9.4	20.1	1 22	6 43.17	+27 52.0	1.762	2.700	7.9	19.8
2 1	6 36.68	+ 5 21.1	1.873	2.732	12.2	20.3	2 1	6 36.63	+27 33.7	1.831	2.708	11.6	20.1
2 11	6 32.37	+ 6 31.6	1.967	2.749	14.8	20.5	2 11	6 32.79	+27 11.2	1.922	2.717	14.7	20.3
33221	Raqueljacobson		1 4.7 170°12	1°2/ 4.5	18		64275	2001 <i>TG</i> ₂₁₃		1 4.7 76°79	4°3/ 5.3	18	
12 3	7 31.83	+25 34.3	1.756	2.586	14.4	18.9	12 3	7 24.86	+12 50.8	1.810	2.631	14.4	19.4
12 13	7 24.31	+25 44.9	1.684	2.590	10.5	18.7	12 13	7 19.00	+12 10.1	1.738	2.633	11.0	19.2
12 23	7 14.06	+25 54.9	1.636	2.594	6.2	18.4	12 23	7 10.90	+11 38.5	1.690	2.636	7.4	19.0
1 2	7 2.05	+26 0.7	1.616	2.597	1.7	18.1	1 2	7 1.38	+11 17.3	1.669	2.638	4.5	18.8
1 12	6 49.71	+25 59.5	1.626	2.599	3.9	18.3	1 12	6 51.58	+11 6.8	1.677	2.641	5.2	18.9
1 22	6 38.46	+25 50.8	1.665	2.601	8.4	18.6	1 22	6 42.65	+11 6.4	1.712	2.643	8.5	19.1
2 1	6 29.53	+25 36.2	1.730	2.601	12.5	18.8	2 1	6 35.58	+11 14.6	1.773	2.646	12.1	19.3
2 11	6 23.67	+25 18.0	1.818	2.601	15.9	19.0	2 11	6 31.04	+11 29.2	1.857	2.649	15.2	19.5
73645	1978 <i>VX</i> ₂		1 4.7 330°59	6°6/ 5.2	18		191095	2002 <i>ER</i> ₅		1 4.7 245°84	19°1/10.8	18	
12 3	7 24.38	+ 9 51.4	1.548	2.371	16.3	18.6	12 3	7 26.27	-16 12.7	1.228	1.951	25.0	19.9
12 13	7 19.02	+ 8 41.6	1.473	2.364	12.9	18.4	12 13	7 21.06	-17 38.7	1.167	1.946	23.0	19.7
12 23	7 11.08	+ 7 43.2	1.420	2.358	9.3	18.1	12 23	7 12.59	-18 22.3	1.119	1.942	21.1	19.5
1 2	7 1.43	+ 7 0.1	1.392	2.352	6.8	18.0	1 2	7 1.82	-18 12.4	1.087	1.937	19.6	19.4
1 12	6 51.34	+ 6 34.6	1.391	2.346	7.4	18.0	1 12	6 50.33	-17 3.6	1.073	1.932	19.1	19.4
1 22	6 42.16	+ 6 27.0	1.416	2.341	10.6	18.2	1 22	6 39.87	-14 59.5	1.078	1.926	19.9	19.4
2 1	6 35.06	+ 6 35.2	1.465	2.337	14.3	18.4	2 1	6 32.01	-12 11.5	1.102	1.921	21.7	19.5
2 11	6 30.83	+ 6 55.6	1.535	2.332	17.7	18.6	2 11	6 27.75	- 8 56.7	1.143	1.916	23.9	19.6
352730	2008 <i>SX</i> ₂₉₃		1 4.7 96°38	4°6/ 3.7	17		273195	2006 <i>HG</i> ₁₅₁		1 4.7 230°35	5°1/ 5.9	18	
12 3	7 32.30	+31 13.2	1.495	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
334667	2002 XS ₁₁₀		1 4.7 45°09	2°6/ 5.0	18		310167	2011 SD		1 4.7 121°28	1°2/ 4.9	16	
12 3	7 24.05	+17 5.3	1.968	2.795	13.1	19.7	12 3	7 29.17	+18 46.7	1.830	2.655	14.1	21.9
12 13	7 18.15	+16 26.8	1.906	2.808	9.8	19.5	12 13	7 22.05	+18 53.7	1.770	2.673	10.3	21.7
12 23	7 10.28	+15 53.5	1.868	2.822	6.1	19.3	12 23	7 12.61	+19 6.4	1.734	2.690	6.1	21.5
1 2	7 1.23	+15 25.8	1.859	2.835	2.9	19.1	1 2	7 1.77	+19 22.4	1.726	2.707	1.8	21.3
1 12	6 52.06	+15 3.9	1.878	2.849	3.9	19.2	1 12	6 50.74	+19 39.5	1.748	2.723	3.4	21.4
1 22	6 43.80	+14 47.9	1.927	2.863	7.4	19.4	1 22	6 40.76	+19 56.0	1.800	2.738	7.7	21.7
2 1	6 37.31	+14 37.4	2.002	2.878	10.8	19.7	2 1	6 32.83	+20 11.1	1.878	2.753	11.5	22.0
2 11	6 33.14	+14 31.6	2.100	2.892	13.7	19.9	2 11	6 27.60	+20 24.6	1.980	2.767	14.6	22.2
422295	2014 SQ ₁₅₈		1 4.7 183°82	2°3/ 5.3	18		65914	1998 FB ₃₂		1 4.7 25°05	4°5/ 5.5	18	
12 3	7 25.31	+15 17.0	2.142	2.958	12.6	21.3	12 3	7 24.55	+13 8.9	1.335	2.175	17.4	18.4
12 13	7 19.12	+15 15.7	2.062	2.959	9.4	21.1	12 13	7 19.39	+12 44.6	1.274	2.180	13.3	18.2
12 23	7 10.92	+15 21.9	2.008	2.959	5.9	20.8	12 23	7 11.38	+12 33.5	1.233	2.185	8.7	17.9
1 2	7 1.40	+15 34.7	1.982	2.958	2.7	20.6	1 2	7 1.54	+12 36.3	1.217	2.190	4.9	17.7
1 12	6 51.56	+15 52.7	1.986	2.957	3.6	20.7	1 12	6 51.33	+12 51.8	1.227	2.197	5.8	17.8
1 22	6 42.41	+16 14.2	2.020	2.955	7.1	20.9	1 22	6 42.28	+13 17.4	1.263	2.203	10.0	18.1
2 1	6 34.87	+16 37.5	2.081	2.953	10.6	21.1	2 1	6 35.65	+13 49.8	1.322	2.211	14.3	18.3
2 11	6 29.60	+17 1.5	2.166	2.951	13.6	21.3	2 11	6 32.21	+14 25.6	1.402	2.218	18.1	18.6
333674	2008 TC ₅₂		1 4.7 223°00	3°7/ 5.3	18		460601	2014 UO ₄₈		1 4.7 334°80	2°0/ 5.1	18	
12 3	7 23.25	+12 49.8	2.196	3.009	12.5	20.5	12 3	7 24.14	+17 45.6	1.729	2.564	14.3	21.0
12 13	7 17.55	+12 15.3	2.116	3.007	9.5	20.3	12 13	7 18.71	+17 35.8	1.653	2.560	10.7	20.8
12 23	7 9.97	+11 48.4	2.061	3.005	6.4	20.1	12 23	7 10.86	+17 32.5	1.601	2.557	6.5	20.6
1 2	7 1.19	+11 29.9	2.033	3.002	3.9	20.0	1 2	7 1.42	+17 34.9	1.575	2.555	2.5	20.3
1 12	6 52.14	+11 20.2	2.036	3.000	4.5	20.0	1 12	6 51.60	+17 41.5	1.578	2.552	3.9	20.4
1 22	6 43.75	+11 18.6	2.067	2.997	7.4	20.2	1 22	6 42.63	+17 50.9	1.609	2.550	8.2	20.6
2 1	6 36.87	+11 24.2	2.126	2.994	10.6	20.4	2 1	6 35.63	+18 2.1	1.665	2.548	12.2	20.9
2 11	6 32.11	+11 35.3	2.208	2.991	13.4	20.6	2 11	6 31.32	+18 14.2	1.743	2.546	15.7	21.1
420522	2012 FY ₅₈		1 4.7 271°90	7°2/ 6.7	18		130369	2000 GZ ₁₂₄		1 4.7 111°92	6°5/ 7.4	18	
12 3	7 22.34	+ 2 35.6	1.945	2.732	14.8	21.1	12 3	7 21.17	- 3 17.2	3.094	3.826	11.0	20.4
12 13	7 17.19	+ 2 10.6	1.859	2.720	12.2	20.9	12 13	7 15.45	- 3 53.1	3.037	3.849	9.3	20.3
12 23	7 9.92	+ 2 3.4	1.795	2.709	9.5	20.7	12 23	7 8.51	- 4 14.8	3.003	3.872	7.7	20.2
1 2	7 1.21	+ 2 16.5	1.756	2.697	7.5	20.5	1 2	7 0.87	- 4 20.5	2.997	3.895	6.7	20.1
1 12	6 52.03	+ 2 50.1	1.744	2.685	7.6	20.5	1 12	6 53.15	- 4 10.2	3.019	3.917	6.7	20.2
1 22	6 43.44	+ 3 41.7	1.760	2.673	9.7	20.6	1 22	6 45.96	- 3 45.2	3.069	3.938	7.6	20.3
2 1	6 36.43	+ 4 47.1	1.802	2.661	12.6	20.8	2 1	6 39.82	- 3 8.0	3.146	3.959	9.0	20.4
2 11	6 31.75	+ 6 1.0	1.865	2.649	15.5	20.9	2 11	6 35.17	- 2 21.9	3.247	3.980	10.6	20.5
113649	2002 TX ₇₉		1 4.7 11°06	7°5/ 1.7	18		389590	2011 FQ ₁₄₁		1 4.7 216°74	2°1/ 5.3	18	
12 3	7 27.69	+40 19.3	1.963	2.784	13.4	18.7	12 3	7 28.08	+15 50.6	1.613	2.442	15.5	21.4
12 13	7 21.74	+41 58.3	1.901	2.786	10.8	18.5	12 13	7 21.86	+16 8.3	1.532	2.436	11.6	21.2
12 23	7 12.84	+43 28.1	1.863	2.787	8.5	18.4	12 23	7 12.85	+16 37.0	1.475	2.430	7.1	20.9
1 2	7 1.87	+44 39.9	1.853	2.790	7.5	18.3	1 2	7 1.90	+17 14.5	1.444	2.423	2.7	20.6
1 12	6 50.26	+45 27.6	1.870	2.792	8.6	18.4	1 12	6 50.34	+17 57.4	1.441	2.415	4.1	20.7
1 22	6 39.60	+45 49.2	1.913	2.795	10.8	18.5	1 22	6 39.63	+18 42.0	1.467	2.407	8.9	20.9
2 1	6 31.28	+45 47.5	1.980	2.798	13.4	18.7	2 1	6 31.08	+19 25.5	1.519	2.399	13.3	21.2
2 11	6 26.22	+45 27.7	2.068	2.802	15.7	18.9	2 11	6 25.57	+20 6.1	1.593	2.390	17.1	21.4
329006	2010 XQ ₅₉		1 4.7 189°65	1°3/ 5.2	18		495519	2014 VR ₂₀		1 4.7 73°02	1°5/ 4.3	18	
12 3	7 23.78	+16 51.5	2.027	2.852	12.9	20.6	12 3	7 26.11	+24 52.1	1.834	2.671	13.5	21.0
12 13	7 18.18	+17 20.8	1.949	2.852	9.5	20.4	12 13	7 20.00	+25 29.8	1.775	2.686	9.8	20.8
12 23	7 10.46	+17 58.5	1.896	2.852	5.7	20.1	12 23	7 11.52	+26 8.9	1.741	2.701	5.7	20.6
1 2	7 1.32	+18 42.2	1.871	2.851	1.9	19.9	1 2	7 1.57	+26 44.9	1.735	2.716	1.8	20.4
1 12	6 51.79	+19 28.7	1.876	2.851	3.2	20.0	1 12	6 51.37	+27 14.3	1.758	2.731	3.7	20.6
1 22	6 42.96	+20 14.9	1.910	2.850	7.2	20.2	1 22	6 42.17	+27 35.2	1.809	2.746	7.8	20.8
2 1	6 35.78	+20 58.4	1.972	2.849	10.9	20.4	2 1	6 35.01	+27 47.5	1.887	2.761	11.5	21.1
2 11	6 30.97	+21 38.0	2.057	2.849	14.0	20.6	2 11	6 30.56	+27 52.9	1.987	2.776	14.5	21.3
190859	2001 SE ₂₇₈		1 4.7 122°29	2°6/ 4.3	18		127227	2002 JS ₈		1 4.7 192°89	2°6/ 5.7	18	
12 3	7 32.18	+28 54.0	1.649	2.482	14.9	19.9	12 3	7 23.01	+12 20.4	2.395	3.202	11.7	20.4
12 13	7 24.64	+29 11.4	1.588	2.495	11.0	19.7	12 13	7 17.34	+12 45.1	2.311	3.201	8.9	20.2
12 23	7 14.25	+29 25.1	1.551	2.508	6.6	19.5	12 23	7 9.87	+13 20.0	2.253	3.200	5.7	20.0
1 2	7 2.12	+29 30.3	1.542	2.520	2.9	19.2	1 2	7 1.23	+14 3.8	2.224	3.198	2.9	19.9
1 12	6 49.79	+29 24.2	1.561	2.532	4.6	19.4	1 12	6 52.24	+14 54.0	2.225	3.195	3.5	19.9
1 22	6 38.79	+29 7.0	1.609	2.543	8.8	19.7	1 22	6 43.79	+15 47.9	2.257	3.192	6.5	20.1
2 1	6 30.32	+28 41.3	1.683	2.554	12.8	19.9	2 1	6 36.70	+16 42.5	2.318	3.189	9.7	20.3
2 11	6 25.11	+28 10.8	1.779	2.564	16.1	20.2	2 11	6 31.59	+17 35.7	2.403	3.186	12.5	20.5
195810	2002 QP ₁₈		1 4.7 54°39	1°3/ 4.4	18		58207	1992 EF ₁₄		1 4.7 26°96	4°4/ 5.6	17	
12 3	7 24.35	+25 20.7	1.972	2.808	12.7	20.3	12 3	7 24.23	+13 23.3	1.140	1.990	19.0	18.6
12 13	7 18.58	+25 43.4	1.909	2.819	9.3	20.1	12 13	7 19.48	+13 8.7	1.086	1.998	14.4	18.4
12 23	7 10.64	+26 6.6	1.871	2.831	5.4	19.9	12 23	7 11.56	+13 9.8	1.053	2.007	9.3	18.1
1 2	7 1.34	+26 26.8	1.861	2.842	1.6	19.6	1 2	7 1.61	+13 26.5	1.042	2.018	4.9	17.9
1 12	6 51.82	+26 41.4	1.881	2.854	3.5	19.8	1 12	6 51.34	+13 56.2	1.057	2.029	5.9	18.0
1 22	6 43.22	+26 49.3	1.929	2.866	7.3	20.0	1 22	6 42.43	+14 34.9	1.096	2.040	10.6	18.3
2 1	6 36.47	+26 50.8	2.004	2.878	10.8	20.3	2 1	6 36.26	+15 18.4	1.157	2.053	15.3	18.6
2 11	6 32.23	+26 47.1	2.101	2.890	13.8	20.5	2 11	6 33.60	+16 2.6	1.238	2.066	19.3	18.9
193813	2001 PM ₅₂		1 4.7 139°42	3°9/ 3.7	18		456078	2006 BE ₅₆		1 4.7 301°76	6°0/ 6.8	18	
12 3	7 31.65	+30 6.8	1.654	2.488	14.9	20.4	12 3	7 21.59	+ 4 26.0	1.982	2.776	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
321940	2010 <i>TT</i> ₁₂₉		1 4.7 60°71	2°9/ 5.5	17		25073	Lautakshing		1 4.7 90°13	1°6/ 5.1	18	
12 3	7 25.92	+14 15.2	1.558	2.388	15.8	20.7	12 3	7 26.38	+18 12.5	1.690	2.523	14.7	18.7
12 13	7 19.91	+14 26.2	1.508	2.411	11.8	20.5	12 13	7 20.28	+18 12.2	1.626	2.532	10.8	18.5
12 23	7 11.46	+14 48.8	1.481	2.434	7.3	20.3	12 23	7 11.74	+18 18.5	1.585	2.542	6.5	18.2
1 2	7 1.57	+15 21.2	1.481	2.458	3.4	20.1	1 2	7 1.67	+18 29.8	1.572	2.552	2.2	18.0
1 12	6 51.54	+16 0.0	1.508	2.481	4.3	20.2	1 12	6 51.34	+18 43.9	1.587	2.561	3.7	18.1
1 22	6 42.67	+16 41.8	1.564	2.505	8.4	20.5	1 22	6 42.02	+18 59.1	1.630	2.571	8.1	18.4
2 1	6 35.98	+17 23.7	1.645	2.528	12.3	20.8	2 1	6 34.79	+19 14.4	1.699	2.580	12.1	18.6
2 11	6 32.12	+18 3.5	1.748	2.551	15.6	21.1	2 11	6 30.33	+19 28.9	1.791	2.590	15.5	18.9
297483	2000 <i>UA</i> ₁₄		1 4.7 118°34	0°6/ 4.6	18		404930	2014 <i>LF</i> ₂₀		1 4.7 193°63	3°3/ 5.4	18	
12 3	7 30.22	+24 23.9	1.716	2.549	14.5	21.0	12 3	7 27.07	+13 46.1	1.780	2.600	14.6	21.8
12 13	7 23.05	+24 25.4	1.654	2.562	10.6	20.8	12 13	7 20.79	+13 37.1	1.702	2.599	11.1	21.6
12 23	7 13.29	+24 27.2	1.616	2.575	6.1	20.6	12 23	7 12.09	+13 38.1	1.648	2.597	7.1	21.4
1 2	7 1.97	+24 26.2	1.606	2.588	1.4	20.3	1 2	7 1.76	+13 48.9	1.620	2.595	3.7	21.2
1 12	6 50.47	+24 20.5	1.625	2.600	3.6	20.5	1 12	6 51.02	+14 7.9	1.622	2.592	4.6	21.2
1 22	6 40.14	+24 9.9	1.673	2.611	8.1	20.8	1 22	6 41.10	+14 33.1	1.653	2.589	8.4	21.4
2 1	6 32.10	+23 55.7	1.747	2.622	12.1	21.0	2 1	6 33.12	+15 2.3	1.709	2.585	12.3	21.7
2 11	6 27.03	+23 39.5	1.843	2.633	15.4	21.3	2 11	6 27.84	+15 33.4	1.788	2.580	15.7	21.9
473996	2016 <i>FY</i> ₁₉		1 4.7 192°43	0°6/ 4.5	18		373256	2012 <i>GC</i> ₃₃		1 4.7 171°85	1°7/ 4.2	18	
12 3	7 23.82	+22 12.2	2.181	3.011	11.9	20.6	12 3	7 25.94	+27 10.7	2.457	3.281	10.9	21.3
12 13	7 18.18	+22 53.3	2.104	3.011	8.7	20.4	12 13	7 19.52	+27 38.8	2.380	3.284	8.0	21.1
12 23	7 10.47	+23 38.5	2.051	3.011	5.0	20.2	12 23	7 11.15	+28 6.0	2.330	3.287	4.8	20.9
1 2	7 1.38	+24 24.3	2.028	3.010	1.2	19.9	1 2	7 1.54	+28 29.1	2.310	3.289	1.9	20.7
1 12	6 51.92	+25 7.1	2.035	3.009	3.1	20.0	1 12	6 51.65	+28 45.4	2.320	3.290	3.3	20.8
1 22	6 43.11	+25 44.4	2.072	3.009	6.9	20.3	1 22	6 42.44	+28 54.0	2.361	3.292	6.6	21.1
2 1	6 35.90	+26 15.0	2.136	3.008	10.4	20.5	2 1	6 34.79	+28 55.1	2.430	3.292	9.7	21.2
2 11	6 30.99	+26 39.0	2.224	3.007	13.3	20.7	2 11	6 29.33	+28 50.3	2.522	3.292	12.3	21.4
51113	2000 <i>HZ</i> ₂₈		1 4.7 4°44	4°4/ 3.7	18		206010	2002 <i>PS</i> ₁₁₉		1 4.7 194°30	5°7/ 6.8	18	
12 3	7 26.29	+34 58.0	2.148	2.974	12.2	19.0	12 3	7 21.31	+ 3 36.2	2.380	3.161	12.6	20.5
12 13	7 20.15	+35 33.9	2.076	2.974	9.3	18.8	12 13	7 16.06	+ 3 26.1	2.300	3.160	10.2	20.4
12 23	7 11.65	+36 3.0	2.029	2.974	6.4	18.6	12 23	7 9.13	+ 3 30.8	2.243	3.159	7.7	20.2
1 2	7 1.63	+36 20.7	2.010	2.975	4.5	18.5	1 2	7 1.10	+ 3 51.2	2.213	3.157	6.0	20.1
1 12	6 51.30	+36 23.6	2.020	2.975	5.5	18.5	1 12	6 52.79	+ 4 26.7	2.212	3.156	6.0	20.1
1 22	6 41.86	+36 11.6	2.059	2.975	8.3	18.7	1 22	6 45.02	+ 5 15.0	2.240	3.154	7.9	20.2
2 1	6 34.37	+35 46.6	2.123	2.976	11.3	18.9	2 1	6 38.56	+ 6 12.8	2.295	3.152	10.4	20.4
2 11	6 29.54	+35 12.4	2.210	2.977	13.9	19.1	2 11	6 33.98	+ 7 16.1	2.374	3.150	12.8	20.5
452473	2004 <i>BT</i> ₁₀		1 4.7 8°31	11°5/ 7.9	18		408170	2013 <i>CP</i> ₁₈₁		1 4.7 240°86	0°5/ 4.8	18	
12 3	7 17.95	+ 0 36.7	1.075	1.903	21.6	19.4	12 3	7 27.50	+20 57.7	1.818	2.649	13.9	21.8
12 13	7 14.98	+ 0 18.2	1.023	1.905	18.0	19.2	12 13	7 21.26	+21 2.0	1.731	2.638	10.3	21.6
12 23	7 9.02	+ 0 41.9	0.988	1.909	14.5	19.0	12 23	7 12.45	+21 10.2	1.668	2.626	6.0	21.3
1 2	7 1.10	+ 0 28.8	0.973	1.914	11.9	18.9	1 2	7 1.87	+21 20.2	1.632	2.614	1.5	20.9
1 12	6 52.78	+ 0 21.5	0.979	1.922	11.7	18.9	1 12	6 50.74	+21 29.5	1.626	2.601	3.5	21.1
1 22	6 45.64	+ 1 42.9	1.007	1.932	13.9	19.0	1 22	6 40.39	+21 36.9	1.649	2.588	8.1	21.3
2 1	6 41.03	+ 3 25.4	1.056	1.943	17.2	19.3	2 1	6 32.01	+21 41.9	1.698	2.575	12.3	21.5
2 11	6 39.75	+ 5 17.6	1.123	1.956	20.5	19.5	2 11	6 26.44	+21 45.0	1.769	2.561	15.9	21.7
399560	2003 <i>SC</i> ₈₈		1 4.7 61°79	0°8/ 4.6	18		409465	2005 <i>SG</i> ₂₁		1 4.7 52°88	2°0/ 4.4	18	
12 3	7 30.22	+23 5.9	1.389	2.233	16.6	21.2	12 3	7 26.96	+27 26.5	1.712	2.552	14.2	20.8
12 13	7 23.26	+23 31.9	1.349	2.262	12.1	21.0	12 13	7 20.82	+27 41.1	1.649	2.560	10.4	20.6
12 23	7 13.45	+24 0.5	1.331	2.292	6.9	20.8	12 23	7 12.09	+27 53.8	1.609	2.568	6.2	20.4
1 2	7 2.00	+24 27.1	1.340	2.322	1.6	20.6	1 2	7 1.76	+28 0.9	1.597	2.577	2.3	20.1
1 12	6 50.56	+24 47.9	1.377	2.352	4.0	20.8	1 12	6 51.17	+27 59.6	1.613	2.586	4.1	20.3
1 22	6 40.67	+25 1.4	1.440	2.381	8.9	21.2	1 22	6 41.70	+27 49.7	1.657	2.594	8.3	20.5
2 1	6 33.47	+25 8.2	1.529	2.411	13.1	21.5	2 1	6 34.46	+27 32.6	1.727	2.603	12.2	20.8
2 11	6 29.56	+25 9.8	1.639	2.440	16.5	21.8	2 11	6 30.16	+27 10.9	1.819	2.613	15.4	21.0
194554	2001 <i>XZ</i> ₇₆		1 4.7 89°14	2°6/ 4.1	17		495172	2012 <i>JK</i> ₂₆		1 4.7 291°53	14°8/ 8.1	18	
12 3	7 30.53	+25 45.2	1.484	2.325	15.9	20.6	12 3	7 21.65	-17 35.3	2.001	2.670	18.0	21.1
12 13	7 23.72	+26 46.6	1.431	2.343	11.6	20.3	12 13	7 16.80	-19 0.1	1.923	2.654	16.8	20.9
12 23	7 13.89	+27 49.5	1.402	2.361	6.9	20.1	12 23	7 9.80	-19 57.0	1.862	2.639	15.7	20.8
1 2	7 2.14	+28 46.7	1.399	2.378	2.8	19.9	1 2	7 1.29	-20 18.9	1.820	2.623	14.9	20.7
1 12	6 50.08	+29 32.2	1.425	2.396	4.9	20.1	1 12	6 52.27	-20 2.1	1.799	2.607	14.9	20.7
1 22	6 39.35	+30 3.4	1.478	2.412	9.4	20.4	1 22	6 43.81	-19 6.9	1.799	2.592	15.5	20.7
2 1	6 31.26	+30 20.8	1.556	2.429	13.5	20.7	2 1	6 36.91	-17 38.0	1.818	2.576	16.7	20.7
2 11	6 26.58	+30 27.5	1.656	2.445	16.9	20.9	2 11	6 32.36	-15 43.5	1.856	2.561	18.2	20.8
338071	2002 <i>PJ</i> ₂₇		1 4.7 81°85	3°3/ 5.6	18		455821	2005 <i>SU</i> ₂₄₀		1 4.7 86°47	2°4/ 4.3	18	
12 3	7 29.91	+13 27.2	1.334	2.166	17.9	21.0	12 3	7 27.41	+28 38.9	1.847	2.683	13.5	21.4
12 13	7 23.12	+13 41.5	1.287	2.190	13.4	20.8	12 13	7 21.07	+28 56.0	1.779	2.687	10.0	21.1
12 23	7 13.43	+14 10.2	1.261	2.214	8.4	20.6	12 23	7 12.23	+29 10.2	1.734	2.692	6.0	20.9
1 2	7 2.02	+14 50.9	1.261	2.238	3.9	20.4	1 2	7 1.80	+29 17.7	1.718	2.696	2.6	20.7
1 12	6 50.47	+15 39.1	1.288	2.261	4.9	20.5	1 12	6 51.09	+29 15.8	1.730	2.700	4.2	20.8
1 22	6 40.34	+16 30.4	1.343	2.284	9.4	20.9	1 22	6 41.40	+29 4.2	1.771	2.705	8.1	21.1
2 1	6 32.84	+17 21.1	1.422	2.307	13.8	21.2	2 1	6 33.83	+28 44.5	1.838	2.709	11.8	21.3
2 11	6 28.64	+18 8.6	1.523	2.329	17.4	21.5	2 11	6 29.10	+28 19.6	1.927	2.714	15.0	21.5
256760	2008 <i>BA</i> ₃₉		1 4.7 318°56	10°8/ 2.4	18		321026	2008 <i>MD</i> ₂		1 4.7 145°76	4°3/ 6.0	18	
12 3	7 32.17	+45 45.5	1.500	2.320</									

EPHEMERIDES

1 4.7

1 4.8

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
94592	2001 <i>VV</i> ₆₀		1 4.7 133°48	0°4/ 4.7 18			195612	2002 <i>LB</i> ₁₄		1 4.7 165°12	1°9/ 5.2 18		
12 3	7 29.34	+23 51.7	1.519	2.360	15.6	20.4	12 3	7 24.13	+16 45.6	2.597	3.410	10.8	20.5
12 13	7 22.83	+23 50.2	1.451	2.363	11.5	20.2	12 13	7 17.96	+16 27.0	2.519	3.414	8.0	20.3
12 23	7 13.39	+23 49.8	1.405	2.366	6.7	19.9	12 23	7 10.16	+16 12.8	2.467	3.419	5.0	20.1
1 2	7 2.07	+23 47.4	1.386	2.368	1.5	19.6	1 2	7 1.36	+16 2.6	2.445	3.422	2.2	20.0
1 12	6 50.39	+23 40.9	1.395	2.370	3.9	19.8	1 12	6 52.37	+15 56.1	2.454	3.425	3.1	20.0
1 22	6 39.90	+23 29.8	1.432	2.373	8.9	20.1	1 22	6 43.99	+15 52.7	2.494	3.428	6.1	20.2
2 1	6 31.89	+23 15.4	1.493	2.375	13.4	20.3	2 1	6 36.96	+15 52.1	2.562	3.430	9.0	20.4
2 11	6 27.15	+22 59.4	1.576	2.377	17.1	20.6	2 11	6 31.80	+15 53.6	2.655	3.432	11.6	20.6
82051	2000 <i>SQ</i> ₃₁₄		1 4.7 251°33	5°0/ 5.4 17			447774	2007 <i>RL</i> ₁₃		1 4.7 34°46	2°4/ 4.3 18		
12 3	7 22.22	+7 39.8	2.630	3.419	11.3	19.5	12 3	7 26.78	+25 47.6	1.204	2.063	17.7	20.5
12 13	7 16.61	+6 46.8	2.539	3.409	9.0	19.3	12 13	7 21.43	+26 26.8	1.156	2.077	12.9	20.3
12 23	7 9.42	+6 2.4	2.474	3.398	6.7	19.1	12 23	7 12.74	+27 7.2	1.129	2.092	7.6	20.0
1 2	7 1.19	+5 28.4	2.438	3.387	5.1	19.0	1 2	7 1.96	+27 42.4	1.126	2.107	2.7	19.8
1 12	6 52.68	+5 6.1	2.432	3.377	5.5	19.0	1 12	6 50.92	+28 7.0	1.150	2.123	5.1	20.0
1 22	6 44.66	+4 55.6	2.455	3.365	7.4	19.1	1 22	6 41.42	+28 19.3	1.198	2.140	10.2	20.3
2 1	6 37.84	+4 55.9	2.505	3.354	9.9	19.3	2 1	6 34.87	+28 20.5	1.270	2.158	14.8	20.6
2 11	6 32.77	+5 5.0	2.579	3.343	12.2	19.4	2 11	6 32.01	+28 13.4	1.361	2.177	18.6	20.9
436349	2010 <i>JK</i> ₇₇		1 4.7 243°64	7°1/ 7.8 17			421029	2013 <i>PZ</i> ₆₄		1 4.7 212°88	5°3/ 6.2 18		
12 3	7 20.28	-5 15.1	2.990	3.714	11.5	22.4	12 3	7 23.35	+6 25.0	2.222	3.014	13.0	22.1
12 13	7 15.11	-5 29.9	2.893	3.698	9.9	22.3	12 13	7 17.71	+6 8.1	2.137	3.009	10.4	21.9
12 23	7 8.53	-5 28.3	2.818	3.682	8.4	22.2	12 23	7 10.18	+6 4.5	2.077	3.003	7.6	21.7
1 2	7 1.00	-5 8.6	2.770	3.665	7.3	22.1	1 2	7 1.40	+6 15.2	2.043	2.997	5.5	21.6
1 12	6 53.16	-4 30.3	2.750	3.648	7.2	22.0	1 12	6 52.26	+6 39.9	2.038	2.990	5.8	21.6
1 22	6 45.68	-3 35.1	2.758	3.631	8.2	22.1	1 22	6 43.70	+7 16.6	2.063	2.983	8.1	21.7
2 1	6 39.19	-2 26.0	2.793	3.613	9.9	22.2	2 1	6 36.57	+8 2.4	2.114	2.976	10.9	21.9
2 11	6 34.21	-1 7.2	2.853	3.595	11.7	22.3	2 11	6 31.52	+8 53.8	2.189	2.968	13.7	22.0
408036	2012 <i>FE</i> ₄₉		1 4.7 101°71	2°3/ 5.4 18			256154	2006 <i>VU</i> ₄₃		1 4.7 18°99	1°9/ 4.9 18		
12 3	7 24.42	+15 27.5	1.904	2.729	13.6	21.1	12 3	7 25.28	+20 2.0	1.380	2.229	16.4	19.3
12 13	7 18.67	+15 33.1	1.834	2.735	10.2	20.9	12 13	7 19.91	+19 28.6	1.319	2.234	12.2	19.1
12 23	7 10.77	+15 47.4	1.789	2.742	6.3	20.6	12 23	7 11.71	+18 59.5	1.280	2.240	7.3	18.8
1 2	7 1.49	+16 9.1	1.771	2.749	2.7	20.4	1 2	7 1.74	+18 34.3	1.266	2.247	2.5	18.5
1 12	6 51.93	+16 36.0	1.783	2.756	3.7	20.5	1 12	6 51.52	+18 13.0	1.280	2.255	4.3	18.7
1 22	6 43.18	+17 5.9	1.823	2.762	7.5	20.8	1 22	6 42.53	+17 55.6	1.319	2.263	9.2	19.0
2 1	6 36.22	+17 36.6	1.890	2.769	11.2	21.0	2 1	6 36.01	+17 42.4	1.383	2.273	13.7	19.3
2 11	6 31.71	+18 6.7	1.980	2.775	14.3	21.2	2 11	6 32.65	+17 33.0	1.467	2.283	17.4	19.5
73249	2002 <i>JG</i> ₄₁		1 4.7 167°61	1°4/ 4.4 18			52408	1993 <i>TJ</i> ₃₄		1 4.7 334°86	2°8/ 5.4 18		
12 3	7 28.87	+25 39.0	2.061	2.888	12.6	20.6	12 3	7 21.35	+15 38.1	1.360	2.209	16.6	18.2
12 13	7 21.92	+26 4.3	1.988	2.893	9.3	20.4	12 13	7 17.40	+15 39.3	1.279	2.193	12.6	17.9
12 23	7 12.66	+26 29.8	1.939	2.897	5.4	20.2	12 23	7 10.51	+15 52.8	1.220	2.178	7.9	17.6
1 2	7 1.91	+26 51.6	1.920	2.900	1.7	19.9	1 2	7 1.54	+16 17.6	1.185	2.164	3.4	17.3
1 12	6 50.83	+27 7.0	1.931	2.903	3.5	20.1	1 12	6 51.88	+16 51.3	1.176	2.151	4.7	17.3
1 22	6 40.61	+27 14.5	1.972	2.905	7.4	20.3	1 22	6 43.07	+17 30.3	1.193	2.139	9.7	17.6
2 1	6 32.29	+27 14.9	2.040	2.907	11.0	20.6	2 1	6 36.54	+18 11.4	1.233	2.128	14.6	17.8
2 11	6 26.58	+27 9.7	2.131	2.908	14.0	20.8	2 11	6 33.27	+18 51.7	1.293	2.119	18.8	18.0
356971	1991 <i>TK</i> ₂		1 4.7 78°22	5°6/ 6.7 18			64096	2001 <i>SR</i> ₃₃₂		1 4.7 343°50	1°8/ 4.4 18		
12 3	7 28.10	+4 47.1	2.182	2.959	13.7	20.4	12 3	7 25.38	+26 6.7	1.542	2.390	15.1	19.4
12 13	7 20.67	+4 26.7	2.144	3.004	10.8	20.3	12 13	7 20.09	+26 25.9	1.469	2.385	11.1	19.1
12 23	7 11.58	+4 20.9	2.131	3.049	7.9	20.2	12 23	7 11.92	+26 45.3	1.419	2.380	6.6	18.8
1 2	7 1.62	+4 30.3	2.145	3.092	5.9	20.2	1 2	7 1.82	+27 0.7	1.395	2.376	2.2	18.6
1 12	6 51.74	+4 53.7	2.190	3.135	6.0	20.3	1 12	6 51.24	+27 8.7	1.398	2.372	4.3	18.7
1 22	6 42.84	+5 28.5	2.264	3.176	7.9	20.4	1 22	6 41.69	+27 8.0	1.429	2.369	9.0	19.0
2 1	6 35.63	+6 11.3	2.366	3.217	10.3	20.7	2 1	6 34.50	+26 59.4	1.483	2.367	13.4	19.2
2 11	6 30.55	+6 58.6	2.491	3.256	12.6	20.9	2 11	6 30.50	+26 45.3	1.559	2.364	17.1	19.4
201697	2003 <i>UX</i> ₁₃₁		1 4.7 51°43	1°1/ 4.9 18			220239	2002 <i>XG</i> ₁₅		1 4.7 38°83	2°5/ 4.9 18		
12 3	7 24.46	+20 27.0	1.976	2.808	12.9	19.7	12 3	7 26.51	+18 47.2	1.716	2.549	14.5	19.2
12 13	7 18.61	+20 10.1	1.908	2.815	9.5	19.5	12 13	7 20.12	+17 50.2	1.663	2.569	10.7	19.0
12 23	7 10.68	+19 56.1	1.865	2.823	5.6	19.3	12 23	7 11.51	+16 57.1	1.635	2.590	6.5	18.8
1 2	7 1.47	+19 44.2	1.849	2.831	1.6	19.0	1 2	7 1.66	+16 9.0	1.633	2.611	2.9	18.6
1 12	6 52.06	+19 33.6	1.864	2.839	3.2	19.1	1 12	6 51.81	+15 27.2	1.661	2.633	4.1	18.8
1 22	6 43.53	+19 24.0	1.907	2.847	7.2	19.4	1 22	6 43.12	+14 52.7	1.717	2.655	8.0	19.1
2 1	6 36.79	+19 15.4	1.977	2.855	10.8	19.6	2 1	6 36.50	+14 25.7	1.800	2.678	11.7	19.3
2 11	6 32.45	+19 7.9	2.070	2.863	13.8	19.9	2 11	6 32.51	+14 5.9	1.904	2.701	14.8	19.6
334190	2001 <i>SQ</i> ₁₉₉		1 4.7 270°81	8°0/ 2.2 18			86860	2000 <i>HX</i> ₁₁		1 4.7 124°69	0°9/ 4.9 18		
12 3	7 31.93	+47 37.9	2.442	3.228	12.2	19.9	12 3	7 30.36	+19 39.5	1.877	2.699	13.9	20.6
12 13	7 24.66	+48 35.6	2.360	3.211	10.3	19.8	12 13	7 22.92	+19 43.6	1.817	2.719	10.2	20.4
12 23	7 14.50	+49 19.8	2.301	3.194	8.7	19.6	12 23	7 13.18	+19 52.2	1.781	2.738	6.0	20.2
1 2	7 2.36	+49 43.6	2.269	3.177	8.0	19.6	1 2	7 2.05	+20 3.0	1.774	2.755	1.6	20.0
1 12	6 49.65	+49 42.6	2.264	3.160	8.7	19.6	1 12	6 50.78	+20 14.0	1.798	2.772	3.3	20.1
1 22	6 37.89	+49 16.4	2.286	3.143	10.4	19.6	1 22	6 40.56	+20 23.9	1.851	2.789	7.5	20.4
2 1	6 28.42	+48 28.7	2.332	3.125	12.4	19.8	2 1	6 32.40	+20 32.3	1.931	2.804	11.3	20.7
2 11	6 22.10	+47 25.3	2.399	3.108	14.4	19.9	2 11	6 26.92	+20 39.3	2.035	2.819	14.4	20.9
468729	2010 <i>MT</i> ₂₀		1 4.7 284°43	0°9/ 5.1 17			316612	2011 <i>WS</i> ₃₅		1 4.8 333°89	3°7/ 3.8 18		
12 3	7 22.56	+16 49.9	2.254	3.077	11.8	20.4	12 3						

EPHEMERIDES

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
137875	2000 <i>AE</i> ₉₈		1 4.8	3°78	1°6/ 4.3	18	468490	2005 <i>FV</i> ₁₄		1 4.8	273°19	2°5/ 3.8	18
12 3	7 21.48	+22 48.2	1.127	1.996	17.9	18.1	12 3	7 24.60	+27 54.2	2.303	3.132	11.4	21.1
12 13	7 17.92	+23 41.3	1.068	1.994	13.1	17.8	12 13	7 18.94	+28 45.3	2.210	3.116	8.4	20.9
12 23	7 10.95	+24 42.1	1.029	1.994	7.7	17.5	12 23	7 11.08	+29 37.0	2.143	3.099	5.2	20.6
1 2	7 1.65	+25 44.1	1.014	1.996	2.1	17.2	1 2	7 1.68	+30 25.0	2.105	3.082	2.6	20.4
1 12	6 51.76	+26 39.7	1.024	1.999	4.9	17.4	1 12	6 51.71	+31 5.0	2.098	3.065	4.0	20.5
1 22	6 43.16	+27 24.0	1.057	2.004	10.6	17.7	1 22	6 42.27	+31 34.7	2.120	3.048	7.4	20.7
2 1	6 37.41	+27 55.3	1.113	2.011	15.6	18.0	2 1	6 34.40	+31 53.5	2.169	3.030	10.7	20.9
2 11	6 35.43	+28 14.6	1.188	2.019	19.8	18.3	2 11	6 28.87	+32 2.9	2.242	3.013	13.6	21.0
421604	2014 <i>OD</i> ₂₃₁		1 4.8	14°62	9°3/ 3.8	18	168461	1999 <i>HY</i> ₄		1 4.8	221°46	2°4/ 4.0	17
12 3	7 30.73	+42 41.6	1.369	2.203	17.4	20.1	12 3	7 24.33	+30 8.5	2.720	3.543	10.0	20.9
12 13	7 24.71	+43 33.4	1.316	2.207	14.1	19.9	12 13	7 18.34	+30 36.9	2.635	3.536	7.4	20.7
12 23	7 14.81	+44 7.4	1.284	2.213	11.0	19.8	12 23	7 10.53	+31 2.7	2.576	3.528	4.7	20.5
1 2	7 2.45	+44 14.2	1.275	2.219	9.3	19.7	1 2	7 1.52	+31 22.9	2.546	3.521	2.5	20.3
1 12	6 49.82	+43 49.1	1.290	2.227	10.2	19.7	1 12	6 52.19	+31 35.0	2.548	3.513	3.6	20.4
1 22	6 39.03	+42 54.4	1.330	2.235	12.9	19.9	1 22	6 43.43	+31 38.0	2.579	3.504	6.4	20.6
2 1	6 31.69	+41 37.7	1.391	2.244	16.0	20.1	2 1	6 36.07	+31 32.7	2.639	3.496	9.2	20.7
2 11	6 28.52	+40 8.6	1.472	2.254	19.0	20.4	2 11	6 30.71	+31 20.6	2.723	3.487	11.6	20.9
321154	2008 <i>UO</i> ₃₁₅		1 4.8	2°59	4°0/ 5.1	18	360291	2001 <i>DQ</i> ₉₇		1 4.8	280°07	8°7/ 3.4	18
12 3	7 25.53	+16 35.9	1.189	2.041	18.3	20.4	12 3	7 34.58	+43 10.7	1.661	2.477	15.7	20.1
12 13	7 20.51	+15 44.2	1.126	2.040	13.8	20.1	12 13	7 27.32	+44 2.2	1.588	2.468	12.8	19.9
12 23	7 12.27	+15 0.5	1.083	2.039	8.8	19.8	12 23	7 16.34	+44 38.4	1.537	2.459	10.1	19.7
1 2	7 1.91	+14 26.6	1.063	2.040	4.5	19.6	1 2	7 2.85	+44 50.1	1.511	2.450	8.7	19.6
1 12	6 51.14	+14 3.4	1.069	2.041	5.8	19.7	1 12	6 48.78	+44 31.6	1.511	2.441	9.5	19.7
1 22	6 41.66	+13 51.2	1.100	2.043	10.7	19.9	1 22	6 36.18	+43 43.7	1.537	2.432	12.1	19.8
2 1	6 34.91	+13 48.8	1.153	2.046	15.6	20.2	2 1	6 26.73	+42 32.8	1.586	2.423	15.2	20.0
2 11	6 31.71	+13 54.2	1.225	2.050	19.7	20.5	2 11	6 21.33	+41 7.8	1.655	2.414	18.2	20.1
278903	2008 <i>TX</i> ₁₂₃		1 4.8	45°95	1°0/ 4.9	18	424040	2007 <i>AU</i> ₂₀		1 4.8	309°36	9°8/ 9.3	16
12 3	7 23.61	+19 30.8	2.057	2.887	12.5	20.9	12 3	7 28.66	- 3 24.3	1.053	1.851	23.9	21.1
12 13	7 18.04	+19 31.6	1.982	2.888	9.2	20.7	12 13	7 23.51	- 2 20.2	0.976	1.844	20.0	20.8
12 23	7 10.41	+19 36.9	1.932	2.890	5.5	20.5	12 23	7 14.50	- 0 25.4	0.916	1.837	15.3	20.5
1 2	7 1.48	+19 45.2	1.910	2.891	1.6	20.2	1 2	7 2.54	+ 2 23.3	0.877	1.829	11.1	20.2
1 12	6 52.25	+19 54.8	1.918	2.893	3.1	20.3	1 12	6 49.38	+ 5 58.1	0.864	1.823	10.0	20.1
1 22	6 43.77	+20 4.5	1.954	2.894	7.0	20.6	1 22	6 37.15	+ 9 59.3	0.877	1.816	13.4	20.3
2 1	6 36.97	+20 13.6	2.018	2.896	10.6	20.8	2 1	6 27.84	+14 3.7	0.916	1.810	18.4	20.5
2 11	6 32.48	+20 21.8	2.105	2.898	13.7	21.0	2 11	6 22.81	+17 51.9	0.976	1.805	23.3	20.8
417158	2005 <i>WN</i> ₂₃		1 4.8	38°81	4°3/ 3.6	18	110584	2001 <i>TC</i> ₁₂₀		1 4.8	51°01	3°9/ 5.1	18
12 3	7 26.88	+31 9.8	1.647	2.489	14.6	20.7	12 3	7 27.34	+15 45.0	1.553	2.384	15.8	18.0
12 13	7 21.08	+32 8.4	1.588	2.497	10.9	20.5	12 13	7 20.96	+14 47.6	1.498	2.401	11.9	17.8
12 23	7 12.43	+33 3.3	1.553	2.506	7.0	20.3	12 23	7 12.12	+13 57.7	1.467	2.419	7.6	17.6
1 2	7 1.94	+33 47.9	1.544	2.515	4.4	20.1	1 2	7 1.85	+13 16.8	1.463	2.437	4.2	17.4
1 12	6 51.07	+34 16.9	1.563	2.525	5.9	20.2	1 12	6 51.51	+12 46.1	1.486	2.455	5.2	17.5
1 22	6 41.34	+34 28.8	1.608	2.534	9.5	20.5	1 22	6 42.38	+12 25.8	1.537	2.473	9.0	17.8
2 1	6 34.00	+34 25.5	1.679	2.545	13.1	20.7	2 1	6 35.50	+12 15.1	1.614	2.492	12.8	18.1
2 11	6 29.85	+34 10.6	1.771	2.555	16.2	21.0	2 11	6 31.46	+12 12.3	1.711	2.510	16.0	18.3
245451	2005 <i>LV</i>		1 4.8	172°16	2°5/ 5.7	18	425094	2009 <i>SU</i> ₅₉		1 4.8	97°22	6°0/ 6.2	18
12 3	7 21.24	+13 8.9	2.442	3.255	11.4	20.9	12 3	7 24.22	+ 5 46.2	2.072	2.863	13.9	21.8
12 13	7 16.05	+13 20.6	2.362	3.255	8.6	20.7	12 13	7 18.25	+ 5 8.5	2.011	2.880	11.0	21.6
12 23	7 9.17	+13 41.0	2.308	3.255	5.5	20.5	12 23	7 10.43	+ 4 44.7	1.974	2.896	8.2	21.5
1 2	7 1.21	+14 9.4	2.282	3.256	2.9	20.4	1 2	7 1.49	+ 4 36.7	1.964	2.913	6.2	21.4
1 12	6 52.96	+14 43.8	2.286	3.256	3.4	20.4	1 12	6 52.41	+ 4 44.3	1.983	2.928	6.4	21.4
1 22	6 45.27	+15 22.3	2.320	3.256	6.4	20.6	1 22	6 44.11	+ 5 5.9	2.029	2.944	8.5	21.6
2 1	6 38.88	+16 2.5	2.383	3.256	9.4	20.8	2 1	6 37.43	+ 5 38.6	2.102	2.959	11.2	21.8
2 11	6 34.38	+16 42.6	2.469	3.256	12.0	21.0	2 11	6 32.91	+ 6 18.6	2.198	2.974	13.7	22.0
205955	2002 <i>JC</i> ₁₃₃		1 4.8	269°84	1°1/ 4.9	18	309888	2009 <i>DU</i> ₁₃₃		1 4.8	302°19	0°3/ 4.8	18
12 3	7 27.76	+20 40.7	1.689	2.523	14.6	20.3	12 3	7 25.87	+21 21.1	1.469	2.315	15.8	20.9
12 13	7 21.68	+20 24.0	1.598	2.506	10.9	20.0	12 13	7 20.66	+21 27.8	1.385	2.300	11.7	20.6
12 23	7 12.83	+20 10.1	1.531	2.489	6.5	19.7	12 23	7 12.41	+21 39.6	1.324	2.285	6.9	20.3
1 2	7 2.06	+19 58.0	1.491	2.472	1.9	19.4	1 2	7 2.02	+21 53.8	1.288	2.270	1.6	19.9
1 12	6 50.67	+19 46.3	1.479	2.454	3.8	19.5	1 12	6 50.91	+22 7.3	1.279	2.255	4.0	20.1
1 22	6 40.09	+19 34.8	1.496	2.437	8.7	19.7	1 22	6 40.69	+22 18.0	1.297	2.241	9.4	20.3
2 1	6 31.60	+19 23.9	1.538	2.419	13.2	19.9	2 1	6 32.82	+22 25.6	1.339	2.227	14.2	20.6
2 11	6 26.12	+19 14.2	1.602	2.400	17.0	20.1	2 11	6 28.27	+22 30.3	1.402	2.213	18.3	20.8
6472	Rosema		1 4.8	122°71	1°7/ 5.2	18	52923	1998 <i>SR</i> ₁₁₄		1 4.8	173°04	0°4/ 4.9	18
12 3	7 22.74	+16 36.7	2.601	3.416	10.7	18.6	12 3	7 29.25	+20 12.6	1.716	2.546	14.6	19.7
12 13	7 16.95	+16 32.3	2.531	3.428	7.9	18.5	12 13	7 22.57	+20 32.4	1.642	2.549	10.8	19.5
12 23	7 9.59	+16 32.9	2.488	3.440	4.8	18.3	12 23	7 13.24	+20 57.8	1.593	2.551	6.3	19.2
1 2	7 1.29	+16 37.8	2.473	3.451	2.1	18.1	1 2	7 2.15	+21 25.8	1.571	2.553	1.5	18.9
1 12	6 52.83	+16 46.1	2.490	3.462	2.9	18.2	1 12	6 50.64	+21 53.0	1.579	2.554	3.6	19.1
1 22	6 44.99	+16 56.7	2.537	3.473	5.9	18.4	1 22	6 40.07	+22 16.9	1.615	2.555	8.3	19.4
2 1	6 38.47	+17 8.6	2.613	3.484	8.8	18.6	2 1	6 31.65	+22 36.7	1.678	2.555	12.5	19.6
2 11	6 33.77	+17 21.2	2.713	3.494	11.2	18.8	2 11	6 26.18	+22 52.5	1.763	2.554	16.0	19.8
248016	2004 <i>FM</i> ₂₁		1 4.8	271°25	5°2/ 5.8	18	70264	1999 <i>RP</i> ₉₃		1 4.8	158°27	1°1/ 4.5	18
12 3	7 23.89	+ 9 22.1	1.821	2.634	14.7								

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
256403	2007 <i>AJ</i> ₁₆		1 4.8	9°55	0°8/ 4.9	18	518119	2016 <i>CN</i> ₂₈₇		1 4.8	240°40	2°8/ 5.7	18
12 3	7 23.41	+21 34.9	1.285	2.142	16.9	19.6	12 3	7 22.54	+12 45.2	2.297	3.109	12.0	21.5
12 13	7 18.83	+21 22.0	1.225	2.145	12.4	19.3	12 13	7 17.18	+12 57.4	2.209	3.101	9.1	21.3
12 23	7 11.24	+21 13.2	1.186	2.148	7.3	19.1	12 23	7 9.95	+13 19.4	2.146	3.094	5.9	21.1
1 2	7 1.72	+21 6.6	1.171	2.153	1.8	18.7	1 2	7 1.48	+13 50.3	2.112	3.086	3.1	20.9
1 12	6 51.87	+21 0.6	1.182	2.159	4.1	18.9	1 12	6 52.62	+14 28.4	2.108	3.078	3.7	20.9
1 22	6 43.28	+20 54.5	1.219	2.166	9.4	19.2	1 22	6 44.29	+15 11.2	2.133	3.069	6.8	21.1
2 1	6 37.26	+20 48.3	1.279	2.175	14.2	19.5	2 1	6 37.35	+15 56.1	2.187	3.061	10.1	21.3
2 11	6 34.56	+20 42.3	1.359	2.184	18.1	19.8	2 11	6 32.45	+16 41.0	2.264	3.052	13.0	21.5
458972	2011 <i>WZ</i> ₂₄		1 4.8	33°99	1°0/ 4.5	18	21603	1999 <i>BY</i>		1 4.8	237°57	15°1/ 8.3	18
12 3	7 26.41	+22 24.5	1.441	2.288	16.0	20.3	12 3	7 23.61	-21 19.0	2.175	2.804	17.7	18.7
12 13	7 20.93	+23 11.6	1.377	2.293	11.7	20.0	12 13	7 18.14	-22 54.3	2.106	2.796	16.7	18.5
12 23	7 12.47	+24 4.8	1.336	2.297	6.8	19.7	12 23	7 10.60	-24 1.7	2.054	2.787	15.7	18.4
1 2	7 2.02	+24 58.5	1.320	2.302	1.7	19.4	1 2	7 1.64	-24 34.4	2.020	2.778	15.2	18.4
1 12	6 51.09	+25 47.0	1.332	2.307	4.2	19.6	1 12	6 52.23	-24 28.9	2.006	2.769	15.1	18.4
1 22	6 41.26	+26 26.5	1.371	2.313	9.2	19.9	1 22	6 43.40	-23 45.7	2.011	2.760	15.6	18.4
2 1	6 33.90	+26 55.9	1.435	2.319	13.7	20.2	2 1	6 36.09	-22 28.9	2.036	2.750	16.5	18.4
2 11	6 29.84	+27 16.0	1.519	2.325	17.4	20.5	2 11	6 31.05	-20 46.1	2.078	2.740	17.6	18.5
458386	2010 <i>WZ</i> ₆₉		1 4.8	35°78	4°1/ 5.1	18	79510	1998 <i>HO</i> ₁₅₃		1 4.8	273°23	1°1/ 4.3	18
12 3	7 26.40	+15 42.6	1.494	2.330	16.1	20.8	12 3	7 23.10	+23 12.3	2.479	3.306	10.8	19.2
12 13	7 20.43	+14 40.1	1.436	2.341	12.2	20.6	12 13	7 17.67	+24 6.0	2.387	3.293	7.9	19.0
12 23	7 11.90	+13 45.0	1.401	2.353	7.8	20.3	12 23	7 10.30	+25 3.6	2.321	3.279	4.6	18.8
1 2	7 1.85	+12 59.2	1.393	2.366	4.4	20.2	1 2	7 1.58	+26 1.7	2.285	3.266	1.4	18.6
1 12	6 51.65	+12 24.4	1.411	2.379	5.4	20.3	1 12	6 52.38	+26 56.4	2.280	3.252	3.0	18.7
1 22	6 42.65	+12 0.9	1.457	2.393	9.3	20.5	1 22	6 43.63	+27 44.7	2.305	3.239	6.5	18.9
2 1	6 35.92	+11 48.2	1.527	2.407	13.3	20.8	2 1	6 36.22	+28 25.3	2.359	3.225	9.8	19.0
2 11	6 32.12	+11 44.3	1.618	2.422	16.6	21.1	2 11	6 30.87	+28 57.9	2.437	3.212	12.5	19.2
523496	2017 <i>HX</i> ₄₀		1 4.8	143°33	1°2/ 5.1	18	280707	2005 <i>GV</i> ₅₉		1 4.8	154°74	2°9/ 3.8	18
12 3	7 24.95	+18 24.3	2.242	3.063	11.9	22.0	12 3	7 25.11	+32 44.9	3.017	3.833	9.3	21.7
12 13	7 18.84	+18 30.1	2.170	3.071	8.8	21.8	12 13	7 18.72	+33 15.5	2.945	3.840	7.0	21.6
12 23	7 10.83	+18 40.8	2.123	3.079	5.2	21.6	12 23	7 10.69	+33 41.9	2.900	3.847	4.6	21.4
1 2	7 1.62	+18 55.0	2.105	3.086	1.7	21.4	1 2	7 1.63	+34 1.1	2.886	3.854	2.9	21.3
1 12	6 52.18	+19 11.0	2.118	3.092	3.0	21.5	1 12	6 52.37	+34 10.9	2.902	3.861	3.8	21.4
1 22	6 43.45	+19 27.2	2.161	3.099	6.6	21.7	1 22	6 43.72	+34 10.9	2.949	3.866	6.0	21.6
2 1	6 36.30	+19 42.8	2.231	3.105	9.9	21.9	2 1	6 36.42	+34 1.9	3.024	3.872	8.4	21.7
2 11	6 31.32	+19 57.3	2.326	3.110	12.8	22.2	2 11	6 31.00	+33 45.9	3.124	3.877	10.5	21.9
422583	2014 <i>TK</i> ₅₈		1 4.8	201°95	6°2/ 3.1	18	452447	2003 <i>SE</i> ₂₀₃		1 4.8	66°67	0°1/ 4.8	17
12 3	7 32.01	+39 54.7	2.177	2.988	12.6	21.6	12 3	7 29.10	+21 43.7	1.451	2.292	16.2	21.4
12 13	7 26.41	+40 48.7	2.103	2.984	10.0	21.4	12 13	7 22.52	+21 53.1	1.402	2.314	11.8	21.2
12 23	7 14.46	+41 32.9	2.052	2.980	7.6	21.3	12 23	7 13.17	+22 6.4	1.376	2.336	6.8	20.9
1 2	7 2.46	+42 0.5	2.030	2.976	6.3	21.2	1 2	7 2.18	+22 20.3	1.376	2.358	1.5	20.7
1 12	6 49.99	+42 7.3	2.036	2.971	7.1	21.2	1 12	6 51.08	+22 32.1	1.404	2.380	3.8	20.9
1 22	6 38.51	+41 53.0	2.071	2.966	9.5	21.4	1 22	6 41.36	+22 40.2	1.459	2.402	8.7	21.2
2 1	6 29.25	+41 20.5	2.131	2.960	12.2	21.5	2 1	6 34.16	+22 44.8	1.540	2.424	12.9	21.5
2 11	6 23.03	+40 35.4	2.213	2.953	14.7	21.7	2 11	6 30.13	+22 46.6	1.642	2.445	16.4	21.8
310091	2010 <i>OY</i> ₂₇		1 4.8	100°50	1°7/ 4.6	18	219010	2009 <i>MJ</i> ₈		1 4.8	140°28	0°5/ 4.9	18
12 3	7 31.77	+28 42.5	1.873	2.701	13.7	19.6	12 3	7 26.23	+19 56.0	2.652	3.466	10.5	22.6
12 13	7 24.00	+28 27.5	1.812	2.717	10.0	19.4	12 13	7 19.49	+20 9.3	2.584	3.482	7.7	22.4
12 23	7 13.83	+28 7.8	1.776	2.733	5.9	19.2	12 23	7 11.10	+20 25.7	2.542	3.497	4.5	22.2
1 2	7 2.27	+27 40.8	1.769	2.749	2.1	19.0	1 2	7 1.72	+20 43.4	2.531	3.512	1.2	22.0
1 12	6 50.68	+27 6.0	1.792	2.765	3.7	19.1	1 12	6 52.17	+21 0.7	2.551	3.526	2.5	22.1
1 22	6 40.33	+26 24.8	1.845	2.780	7.7	19.4	1 22	6 43.29	+21 16.5	2.603	3.539	5.8	22.4
2 1	6 32.23	+25 40.2	1.924	2.795	11.4	19.7	2 1	6 35.80	+21 30.1	2.684	3.551	8.7	22.6
2 11	6 26.99	+24 55.2	2.027	2.810	14.5	19.9	2 11	6 30.24	+21 41.5	2.790	3.562	11.2	22.8
456271	2006 <i>RX</i> ₄₉		1 4.8	61°36	0°6/ 4.9	18	419901	2011 <i>AQ</i> ₆₇		1 4.8	342°68	0°4/ 4.9	18
12 3	7 27.67	+20 39.8	1.528	2.368	15.6	21.6	12 3	7 24.76	+20 48.9	1.898	2.731	13.3	21.8
12 13	7 21.35	+20 47.8	1.478	2.389	11.4	21.4	12 13	7 19.12	+21 2.1	1.823	2.731	9.8	21.6
12 23	7 12.43	+21 0.7	1.451	2.411	6.6	21.2	12 23	7 11.20	+21 19.6	1.772	2.731	5.7	21.4
1 2	7 1.98	+21 15.6	1.451	2.433	1.6	20.9	1 2	7 1.78	+21 39.2	1.749	2.731	1.3	21.1
1 12	6 51.42	+21 29.8	1.479	2.455	3.6	21.1	1 12	6 51.99	+21 58.3	1.755	2.730	3.2	21.2
1 22	6 42.13	+21 41.8	1.535	2.478	8.3	21.5	1 22	6 43.01	+22 15.1	1.789	2.730	7.5	21.5
2 1	6 35.18	+21 51.1	1.616	2.500	12.4	21.8	2 1	6 35.86	+22 28.8	1.851	2.730	11.3	21.7
2 11	6 31.23	+21 58.0	1.719	2.522	15.8	22.0	2 11	6 31.27	+22 39.4	1.935	2.730	14.6	21.9
105	<i>Artemis</i>		1 4.8	233°77	11°6/ 7.4	18	411264	2010 <i>RZ</i> ₁₂₇		1 4.8	133°57	4°8/ 4.0	18
12 3	7 24.79	- 8 19.4	1.974	2.700	16.6	13.2	12 3	7 32.81	+36 11.0	2.062	2.879	13.0	21.6
12 13	7 19.08	- 9 23.8	1.891	2.689	14.7	13.0	12 13	7 24.92	+36 39.2	1.999	2.891	9.9	21.5
12 23	7 11.18	-10 4.8	1.828	2.677	12.9	12.8	12 23	7 14.47	+36 58.2	1.961	2.903	6.8	21.3
1 2	7 1.76	-10 16.8	1.788	2.664	11.7	12.7	1 2	7 2.47	+37 3.0	1.952	2.914	4.8	21.2
1 12	6 51.83	- 9 57.3	1.773	2.651	11.7	12.7	1 12	6 50.31	+36 50.8	1.972	2.925	5.8	21.3
1 22	6 42.49	- 9 7.5	1.782	2.638	12.9	12.7	1 22	6 39.32	+36 22.3	2.021	2.936	8.6	21.5
2 1	6 34.75	- 7 52.1	1.814	2.623	14.8	12.8	2 1	6 30.63	+35 41.2	2.097	2.945	11.6	21.7
2 11	6 29.37	- 6 18.4	1.868	2.609	17.0	13.0	2 11	6 24.87	+34 52.3	2.195	2.954	14.2	21.9
426914	2013 <i>WK</i> ₈₅		1 4.8	127°62	2°1/ 3.9	18	379103	2008 <i>YS</i> ₁₃		1 4.8	42°34	4°0/ 5.1	18
12 3	7 24.05	+26 54.8	2.445	3.273	10.9								

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
409515	2005 TY ₅₃		1 4.8 60°71	1.6/ 4.4	18		256335	2006 XQ ₂₇		1 4.8 27°42	0°1/ 4.8	18	
12 3	7 27.40	+25 15.7	1.649	2.490	14.6	20.7	12 3	7 25.53	+22 18.8	1.455	2.303	15.8	20.4
12 13	7 21.17	+25 47.9	1.598	2.510	10.6	20.5	12 13	7 20.12	+22 19.1	1.394	2.310	11.6	20.1
12 23	7 12.37	+26 20.8	1.570	2.530	6.2	20.3	12 23	7 11.92	+22 22.8	1.356	2.318	6.7	19.9
1 2	7 2.02	+26 49.8	1.569	2.550	2.0	20.0	1 2	7 1.96	+22 27.1	1.344	2.326	1.5	19.6
1 12	6 51.50	+27 11.4	1.597	2.570	4.0	20.2	1 12	6 51.72	+22 29.7	1.359	2.336	3.8	19.8
1 22	6 42.17	+27 24.2	1.653	2.591	8.2	20.5	1 22	6 42.67	+22 29.7	1.401	2.345	8.8	20.1
2 1	6 35.11	+27 28.6	1.734	2.611	12.1	20.8	2 1	6 36.01	+22 27.1	1.467	2.356	13.2	20.4
2 11	6 30.99	+27 26.6	1.837	2.632	15.3	21.1	2 11	6 32.47	+22 22.8	1.555	2.366	16.8	20.6
109999	2001 SZ ₆₂		1 4.8 85°37	4°5/ 6.2	18 R		127960	2003 HP ₂₀		1 4.8 206°64	3°8/ 3.9	18	
12 3	7 21.57	+ 7 44.7	2.380	3.176	12.1	19.7	12 3	7 30.39	+30 4.2	1.691	2.526	14.6	20.4
12 13	7 16.22	+ 7 29.3	2.314	3.190	9.5	19.6	12 13	7 23.79	+30 55.8	1.616	2.523	10.9	20.1
12 23	7 9.26	+ 7 25.4	2.274	3.204	6.8	19.4	12 23	7 14.18	+31 45.2	1.566	2.520	6.9	19.9
1 2	7 1.33	+ 7 33.6	2.260	3.218	4.8	19.3	1 2	7 2.50	+32 25.8	1.543	2.517	3.9	19.7
1 12	6 53.23	+ 7 53.2	2.276	3.231	5.0	19.4	1 12	6 50.24	+32 52.2	1.548	2.513	5.5	19.8
1 22	6 45.77	+ 8 22.4	2.322	3.245	7.1	19.5	1 22	6 38.99	+33 2.5	1.581	2.509	9.5	20.0
2 1	6 39.67	+ 8 58.6	2.394	3.258	9.7	19.7	2 1	6 30.15	+32 58.1	1.639	2.504	13.4	20.2
2 11	6 35.43	+ 9 39.2	2.491	3.272	12.1	19.9	2 11	6 24.61	+32 42.9	1.719	2.499	16.8	20.5
248027	2004 FU ₉₂		1 4.8 279°94	7°5/ 2.6	18		397901	2008 UE ₂₇₇		1 4.8 212°29	2°1/ 4.3	18	
12 3	7 29.93	+45 25.6	2.385	3.181	12.1	20.4	12 3	7 29.65	+26 9.0	1.643	2.481	14.8	21.7
12 13	7 23.11	+46 21.5	2.311	3.174	10.1	20.3	12 13	7 23.20	+26 43.0	1.567	2.477	10.9	21.4
12 23	7 13.61	+47 4.8	2.262	3.167	8.3	20.2	12 23	7 13.82	+27 18.0	1.514	2.473	6.5	21.2
1 2	7 2.33	+47 29.2	2.239	3.160	7.5	20.1	1 2	7 2.42	+27 48.8	1.489	2.469	2.4	20.9
1 12	6 50.60	+47 30.6	2.244	3.153	8.1	20.1	1 12	6 50.47	+28 10.9	1.492	2.464	4.4	21.0
1 22	6 39.83	+47 9.1	2.276	3.145	9.9	20.2	1 22	6 39.50	+28 22.2	1.523	2.459	9.0	21.3
2 1	6 31.23	+46 27.8	2.332	3.138	12.0	20.3	2 1	6 30.88	+28 23.4	1.580	2.454	13.3	21.5
2 11	6 25.61	+45 32.3	2.410	3.131	14.1	20.5	2 11	6 25.49	+28 17.1	1.658	2.448	16.9	21.7
142730	2002 TN ₂₈₄		1 4.8 43°57	3°0/ 5.2	18		407405	2010 TV ₄₀		1 4.8 5°72	14°1/ 1.5	16	
12 3	7 26.71	+17 4.6	1.387	2.229	16.8	18.8	12 3	7 39.82	+55 13.0	1.586	2.365	18.0	20.7
12 13	7 20.80	+16 29.7	1.337	2.246	12.5	18.6	12 13	7 32.48	+56 56.4	1.537	2.365	16.1	20.6
12 23	7 12.19	+16 2.7	1.308	2.264	7.7	18.4	12 23	7 19.97	+58 14.6	1.508	2.365	14.7	20.5
1 2	7 1.98	+15 43.8	1.305	2.283	3.5	18.2	1 2	7 3.84	+58 54.4	1.499	2.366	14.1	20.5
1 12	6 51.67	+15 32.7	1.329	2.302	4.7	18.3	1 12	6 46.96	+58 48.4	1.513	2.368	14.8	20.5
1 22	6 42.67	+15 28.5	1.379	2.321	9.2	18.6	1 22	6 32.41	+57 58.6	1.547	2.370	16.2	20.6
2 1	6 36.12	+15 30.2	1.454	2.341	13.4	18.9	2 1	6 22.43	+56 34.3	1.601	2.372	18.1	20.7
2 11	6 32.65	+15 36.1	1.550	2.361	16.9	19.2	2 11	6 17.92	+54 47.8	1.672	2.375	20.0	20.9
249843	2001 PD ₃₄		1 4.8 38°23	10°4/ 7.6	17		57924	2002 FO ₂₈		1 4.8 35°65	4°7/ 3.8	18	
12 3	7 23.43	- 0 4.4	1.368	2.166	19.3	19.3	12 3	7 29.25	+27 50.7	0.949	1.819	20.3	17.2
12 13	7 18.33	- 1 6.1	1.326	2.188	16.1	19.2	12 13	7 23.72	+29 14.2	0.923	1.848	14.8	17.0
12 23	7 10.73	- 1 41.2	1.303	2.210	12.9	19.1	12 23	7 14.24	+30 34.9	0.916	1.878	9.1	16.8
1 2	7 1.66	- 1 45.6	1.303	2.233	10.7	19.0	1 2	7 2.46	+31 41.8	0.933	1.910	4.8	16.7
1 12	6 52.49	- 1 19.5	1.327	2.257	10.6	19.1	1 12	6 50.72	+32 26.9	0.973	1.942	7.0	16.9
1 22	6 44.50	- 0 27.2	1.374	2.281	12.4	19.2	1 22	6 41.13	+32 48.7	1.037	1.976	11.8	17.3
2 1	6 38.74	+ 0 44.0	1.444	2.306	15.0	19.4	2 1	6 35.17	+32 50.8	1.122	2.010	16.3	17.6
2 11	6 35.84	+ 2 6.0	1.535	2.331	17.7	19.7	2 11	6 33.41	+32 39.2	1.225	2.045	20.0	18.0
51284	2000 KE ₉		1 4.8 124°57	0°8/ 5.1	18		372426	2009 SP ₃₅		1 4.8 192°51	4°2/ 3.8	18	
12 3	7 18.76	+18 44.6	3.831	4.643	7.6	20.8	12 3	7 28.73	+34 12.7	2.214	3.036	12.0	21.6
12 13	7 13.72	+18 48.3	3.760	4.657	5.6	20.7	12 13	7 21.98	+34 49.9	2.138	3.035	9.2	21.4
12 23	7 7.65	+18 54.5	3.717	4.671	3.3	20.5	12 23	7 12.86	+35 21.2	2.088	3.033	6.2	21.2
1 2	7 0.97	+19 2.6	3.705	4.685	1.1	20.4	1 2	7 2.19	+35 41.5	2.066	3.031	4.2	21.1
1 12	6 54.19	+19 11.7	3.725	4.699	1.9	20.4	1 12	6 51.15	+35 47.6	2.073	3.029	5.3	21.1
1 22	6 47.80	+19 21.1	3.776	4.712	4.1	20.6	1 22	6 40.97	+35 39.0	2.110	3.027	8.1	21.3
2 1	6 42.27	+19 30.3	3.857	4.725	6.3	20.8	2 1	6 32.72	+35 17.5	2.173	3.024	11.1	21.5
2 11	6 37.97	+19 38.9	3.964	4.738	8.1	20.9	2 11	6 27.12	+34 46.8	2.259	3.021	13.8	21.7
376069	2010 LP ₆₂		1 4.8 334°04	7°5/ 5.6	16		412334	2013 KF ₁₈		1 4.8 216°12	1°4/ 4.3	18	
12 3	7 21.33	+ 4 36.2	1.945	2.741	14.5	20.1	12 3	7 27.20	+23 21.2	1.982	2.812	12.9	20.7
12 13	7 16.51	+ 3 27.0	1.864	2.731	11.8	20.0	12 13	7 21.05	+24 19.6	1.900	2.807	9.5	20.5
12 23	7 9.66	+ 2 31.3	1.806	2.722	9.3	19.8	12 23	7 12.44	+25 22.7	1.843	2.801	5.6	20.2
1 2	7 1.47	+ 1 52.8	1.773	2.712	7.6	19.7	1 2	7 2.13	+26 25.5	1.815	2.796	1.7	19.9
1 12	6 52.89	+ 1 33.7	1.768	2.704	7.9	19.7	1 12	6 51.24	+27 23.0	1.817	2.789	3.7	20.1
1 22	6 44.95	+ 1 33.9	1.789	2.696	10.0	19.8	1 22	6 41.03	+28 11.6	1.849	2.783	7.8	20.3
2 1	6 38.58	+ 1 51.3	1.835	2.688	12.7	19.9	2 1	6 32.64	+28 49.9	1.908	2.776	11.6	20.5
2 11	6 34.46	+ 2 21.9	1.902	2.681	15.4	20.1	2 11	6 26.91	+29 18.4	1.990	2.769	14.8	20.7
458188	2010 NK ₈₀		1 4.8 42°71	4°2/ 3.3	18		345119	2005 QJ ₇₀		1 4.8 160°37	2°3/ 5.4	18	
12 3	7 28.21	+27 5.0	1.377	2.227	16.4	19.9	12 3	7 29.39	+15 24.4	1.777	2.596	14.7	21.6
12 13	7 22.40	+28 51.0	1.332	2.247	12.0	19.7	12 13	7 22.54	+15 34.9	1.705	2.604	11.0	21.4
12 23	7 13.39	+30 38.2	1.310	2.268	7.4	19.5	12 23	7 13.21	+15 55.0	1.658	2.610	6.8	21.2
1 2	7 2.30	+32 16.3	1.314	2.289	4.2	19.4	1 2	7 2.28	+16 22.7	1.638	2.616	2.8	21.0
1 12	6 50.82	+33 36.6	1.347	2.311	6.2	19.5	1 12	6 50.97	+16 55.4	1.648	2.621	3.9	21.0
1 22	6 40.68	+34 34.7	1.405	2.334	10.3	19.8	1 22	6 40.57	+17 30.3	1.687	2.625	8.1	21.3
2 1	6 33.29	+35 11.2	1.488	2.357	14.3	20.1	2 1	6 32.21	+18 5.1	1.753	2.628	12.1	21.5
2 11	6 29.46	+35 30.2	1.591	2.380	17.5	20.4	2 11	6 26.61	+18 38.5	1.841	2.631	15.5	21.8
200171	1999 FO ₆₁		1 4.8 253°62	2°3/ 4.3	18		333916	1999 TF ₁₁₇		1 4.8 77°22	1°7/ 4.5	18	
12 3	7 29.10	+27 2.2	1.619	2.459	14.9	20.2	12 3	7 33.34	+25 38.4	1.275			

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
377000	2002 QY ₃₃		1 4.8 62°99	0°7/ 4.6 18			323479	2004 LP ₃₁		1 4.8 175°27	2°2/ 5.4 18		
12 3	7 25.96	+23 44.4	1.977	2.809	12.9	21.2	12 3	7 24.62	+14 43.6	2.699	3.504	10.6	21.9
12 13	7 19.71	+24 5.0	1.927	2.835	9.3	21.0	12 13	7 18.38	+14 36.1	2.618	3.507	8.0	21.7
12 23	7 11.38	+24 26.9	1.902	2.861	5.4	20.8	12 23	7 10.55	+14 34.5	2.563	3.510	5.1	21.5
1 2	7 1.84	+24 47.0	1.905	2.887	1.3	20.6	1 2	7 1.72	+14 38.3	2.537	3.512	2.5	21.3
1 12	6 52.22	+25 2.9	1.938	2.913	3.2	20.8	1 12	6 52.65	+14 46.8	2.544	3.513	3.2	21.4
1 22	6 43.59	+25 13.4	2.000	2.938	7.0	21.1	1 22	6 44.14	+14 58.8	2.581	3.513	6.0	21.6
2 1	6 36.84	+25 18.7	2.089	2.964	10.4	21.3	2 1	6 36.89	+15 13.5	2.647	3.513	8.8	21.7
2 11	6 32.54	+25 19.8	2.201	2.990	13.3	21.6	2 11	6 31.45	+15 29.7	2.738	3.512	11.3	21.9
125735	2001 XD ₁₁₅		1 4.8 312°10	3°7/ 3.9 18			138190	2000 EK ₁₁₈		1 4.8 278°93	9°2/ 2.5 18		
12 3	7 27.45	+28 25.3	1.373	2.224	16.4	19.4	12 3	7 33.66	+44 7.8	1.741	2.553	15.2	19.2
12 13	7 22.25	+29 18.4	1.297	2.213	12.2	19.1	12 13	7 26.72	+45 24.9	1.674	2.549	12.6	19.0
12 23	7 13.60	+30 12.2	1.242	2.201	7.6	18.8	12 23	7 16.14	+46 27.7	1.630	2.544	10.2	18.8
1 2	7 2.45	+30 59.3	1.213	2.190	3.9	18.6	1 2	7 3.03	+47 6.3	1.611	2.540	9.2	18.8
1 12	6 50.49	+31 32.8	1.211	2.179	5.9	18.7	1 12	6 49.27	+47 14.4	1.618	2.535	10.1	18.8
1 22	6 39.58	+31 49.5	1.234	2.169	10.7	18.9	1 22	6 36.85	+46 51.8	1.650	2.531	12.4	18.9
2 1	6 31.41	+31 50.4	1.280	2.159	15.4	19.2	2 1	6 27.46	+46 3.6	1.705	2.526	15.1	19.1
2 11	6 27.04	+31 39.2	1.346	2.150	19.3	19.4	2 11	6 22.04	+44 58.4	1.780	2.522	17.7	19.3
135317	2001 SO ₂₈₀		1 4.8 45°81	0°4/ 4.9 18			236664	2006 LB ₆		1 4.8 132°08	0°2/ 4.9 18		
12 3	7 23.23	+21 0.8	2.019	2.852	12.6	19.0	12 3	7 23.04	+20 1.1	2.591	3.412	10.5	20.8
12 13	7 17.77	+21 8.7	1.958	2.866	9.2	18.9	12 13	7 17.37	+20 34.2	2.518	3.420	7.7	20.6
12 23	7 10.31	+21 20.1	1.921	2.880	5.3	18.7	12 23	7 10.02	+21 11.4	2.471	3.428	4.5	20.4
1 2	7 1.62	+21 33.0	1.913	2.894	1.3	18.4	1 2	7 1.61	+21 50.5	2.454	3.436	1.0	20.2
1 12	6 52.76	+21 45.5	1.933	2.909	3.0	18.6	1 12	6 52.94	+22 28.8	2.468	3.443	2.5	20.3
1 22	6 44.74	+21 56.2	1.983	2.924	6.9	18.8	1 22	6 44.85	+23 4.3	2.513	3.451	5.8	20.6
2 1	6 38.44	+22 4.7	2.060	2.939	10.4	19.1	2 1	6 38.08	+23 35.9	2.587	3.458	8.8	20.8
2 11	6 34.45	+22 10.9	2.159	2.955	13.3	19.3	2 11	6 33.19	+24 3.0	2.685	3.465	11.4	20.9
139393	2001 ND ₁₁		1 4.8 152°59	1°4/ 5.2 18			420277	2011 LB ₂₂		1 4.8 137°80	6°9/ 7.9 18		
12 3	7 26.41	+17 52.6	2.223	3.040	12.2	21.0	12 3	7 21.37	- 1 19.6	2.402	3.158	13.2	21.0
12 13	7 19.95	+17 55.4	2.150	3.049	9.0	20.8	12 13	7 16.19	- 1 21.3	2.324	3.161	11.0	20.8
12 23	7 11.54	+18 3.5	2.103	3.057	5.4	20.6	12 23	7 9.36	- 1 4.8	2.269	3.163	8.8	20.7
1 2	7 1.91	+18 15.4	2.084	3.064	1.9	20.4	1 2	7 1.46	- 0 28.7	2.241	3.166	7.2	20.6
1 12	6 52.03	+18 29.6	2.097	3.071	3.1	20.5	1 12	6 53.30	+ 0 25.9	2.240	3.168	7.0	20.6
1 22	6 42.90	+18 44.5	2.139	3.077	6.7	20.7	1 22	6 45.68	+ 1 36.2	2.268	3.170	8.4	20.7
2 1	6 35.37	+18 59.3	2.210	3.082	10.1	20.9	2 1	6 39.35	+ 2 57.7	2.324	3.172	10.6	20.8
2 11	6 30.07	+19 13.5	2.305	3.087	12.9	21.1	2 11	6 34.86	+ 4 25.4	2.403	3.174	12.8	21.0
93918	2000 WW ₁₅₉		1 4.8 166°67	2°6/ 3.9 18			44606	1999 RQ ₁₇		1 4.8 210°23	0°3/ 4.8 18		
12 3	7 26.92	+28 21.3	2.321	3.146	11.5	20.0	12 3	7 30.78	+22 56.0	1.561	2.397	15.5	19.8
12 13	7 20.52	+29 15.9	2.247	3.150	8.5	19.8	12 13	7 24.09	+23 4.7	1.483	2.393	11.5	19.6
12 23	7 11.99	+30 9.8	2.199	3.153	5.2	19.6	12 23	7 14.39	+23 16.1	1.428	2.388	6.7	19.3
1 2	7 2.03	+30 58.4	2.181	3.156	2.7	19.5	1 2	7 2.64	+23 26.8	1.401	2.383	1.5	18.9
1 12	6 51.68	+31 37.8	2.193	3.159	4.0	19.6	1 12	6 50.33	+23 33.7	1.402	2.377	3.9	19.1
1 22	6 42.02	+32 5.9	2.235	3.161	7.2	19.8	1 22	6 39.06	+23 35.5	1.430	2.371	9.0	19.4
2 1	6 34.02	+32 22.7	2.305	3.162	10.3	20.0	2 1	6 30.21	+23 32.7	1.485	2.364	13.6	19.6
2 11	6 28.38	+32 30.1	2.398	3.163	13.0	20.2	2 11	6 24.67	+23 26.8	1.560	2.357	17.5	19.8
189702	2001 TQ ₈₅		1 4.8 181°71	1°6/ 5.5 18			407281	2010 GA ₁₁₇		1 4.8 273°40	2°0/ 4.4 18		
12 3	7 17.75	+14 40.3	4.118	4.920	7.3	21.6	12 3	7 28.79	+26 0.6	1.558	2.399	15.3	21.6
12 13	7 12.99	+14 33.6	4.032	4.920	5.5	21.4	12 13	7 22.90	+26 29.2	1.471	2.383	11.3	21.3
12 23	7 7.27	+14 30.8	3.974	4.921	3.5	21.3	12 23	7 13.87	+26 59.3	1.407	2.367	6.8	21.0
1 2	7 0.95	+14 31.7	3.947	4.920	1.8	21.2	1 2	7 2.56	+27 25.8	1.370	2.350	2.4	20.7
1 12	6 54.50	+14 35.9	3.951	4.920	2.2	21.2	1 12	6 50.46	+27 44.1	1.360	2.333	4.6	20.8
1 22	6 48.37	+14 42.7	3.987	4.919	4.1	21.3	1 22	6 39.24	+27 51.7	1.378	2.316	9.5	21.0
2 1	6 42.98	+14 51.5	4.053	4.918	6.1	21.5	2 1	6 30.41	+27 49.5	1.421	2.299	14.2	21.3
2 11	6 38.69	+15 1.8	4.145	4.916	7.8	21.6	2 11	6 24.99	+27 39.8	1.484	2.282	18.1	21.5
52657	1998 AK ₇		1 4.8 255°85	5°8/ 3.9 18			330087	2005 WD ₉₀		1 4.8 66°30	1°8/ 5.1 18		
12 3	7 31.26	+42 8.0	2.481	3.281	11.6	18.6	12 3	7 25.36	+18 16.9	1.833	2.663	13.8	20.5
12 13	7 23.72	+42 24.3	2.399	3.273	9.3	18.4	12 13	7 19.52	+18 2.9	1.765	2.670	10.2	20.3
12 23	7 13.81	+42 28.7	2.342	3.265	7.1	18.2	12 23	7 11.43	+17 54.3	1.721	2.677	6.2	20.1
1 2	7 2.42	+42 16.3	2.313	3.256	5.8	18.1	1 2	7 1.94	+17 50.3	1.704	2.684	2.3	19.9
1 12	6 50.79	+41 44.9	2.313	3.248	6.4	18.2	1 12	6 52.19	+17 49.7	1.716	2.690	3.6	20.0
1 22	6 40.15	+40 55.5	2.342	3.239	8.4	18.3	1 22	6 43.35	+17 51.7	1.757	2.697	7.6	20.2
2 1	6 31.55	+39 51.8	2.399	3.230	10.9	18.4	2 1	6 36.40	+17 55.6	1.824	2.704	11.4	20.5
2 11	6 25.65	+38 38.9	2.478	3.221	13.2	18.6	2 11	6 32.01	+18 0.8	1.914	2.711	14.7	20.7
83909	2001 UB ₁₈₉		1 4.8 18°21	0°6/ 4.8 18 R			417114	2005 UT ₄₅₂		1 4.8 328°42	0°9/ 4.9 18		
12 3	7 26.63	+26 27.1	1.928	2.762	13.1	18.1	12 3	7 25.11	+20 30.7	1.755	2.592	14.1	21.2
12 13	7 20.35	+25 54.0	1.858	2.766	9.6	17.9	12 13	7 19.57	+20 23.1	1.678	2.588	10.4	21.0
12 23	7 11.83	+25 17.7	1.812	2.771	5.6	17.7	12 23	7 11.59	+20 19.4	1.625	2.584	6.1	20.7
1 2	7 1.97	+24 37.1	1.795	2.777	1.4	17.4	1 2	7 2.00	+20 18.1	1.598	2.580	1.7	20.4
1 12	6 51.97	+23 52.5	1.807	2.782	3.2	17.5	1 12	6 52.01	+20 17.6	1.601	2.576	3.5	20.5
1 22	6 42.98	+23 5.3	1.849	2.789	7.3	17.8	1 22	6 42.89	+20 17.1	1.631	2.573	8.0	20.8
2 1	6 35.96	+22 17.9	1.917	2.796	11.1	18.0	2 1	6 35.74	+20 16.4	1.687	2.570	12.1	21.0
2 11	6 31.52	+21 32.6	2.009	2.803	14.2	18.3	2 11	6 31.31	+20 15.4	1.766	2.567	15.5	21.2
410802	2009 HV ₁₀₆		1 4.8 266°60	0°3/ 4.8 18			348155	2004 GU ₁₆		1 4.8 241°80	4°0/ 3.1 15		
12 3	7 27.29	+22 49.8	1.780	2.615	14.0	21.6	12 3	7 25.52	+34 27.3	2.802	3.618		

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
519123	2010 <i>MS</i> ₄₂		1 4.8 183°11	4.3/ 3.2	17		104774	2000 <i>HP</i> ₂₉		1 4.8 260°00	3.8/ 3.3	18	
12 3	7 26.45	+38 51.8	3.155	3.958	9.3	22.4	12 3	7 25.81	+31 12.6	2.223	3.052	11.8	19.3
12 13	7 19.84	+39 32.2	3.079	3.959	7.3	22.3	12 13	7 19.96	+32 20.9	2.148	3.050	8.8	19.1
12 23	7 11.47	+40 5.6	3.030	3.959	5.4	22.1	12 23	7 11.81	+33 27.2	2.099	3.049	5.8	18.9
1 2	7 1.95	+40 28.1	3.010	3.958	4.3	22.1	1 2	7 2.10	+34 26.0	2.078	3.047	3.8	18.8
1 12	6 52.16	+40 37.5	3.021	3.957	5.0	22.1	1 12	6 51.90	+35 12.4	2.088	3.046	5.1	18.8
1 22	6 42.98	+40 33.3	3.061	3.956	6.8	22.2	1 22	6 42.37	+35 44.1	2.126	3.044	8.0	19.0
2 1	6 35.20	+40 16.8	3.129	3.954	8.8	22.4	2 1	6 34.59	+36 1.4	2.191	3.043	11.0	19.2
2 11	6 29.40	+39 50.7	3.221	3.951	10.7	22.5	2 11	6 29.30	+36 6.6	2.279	3.041	13.7	19.4
425518	2010 <i>LF</i> ₁		1 4.8 247°00	2.7/ 5.3	17		104959	2000 <i>JN</i> ₅₀		1 4.8 156°09	5.2/ 5.9	18	
12 3	7 22.49	+14 7.8	2.799	3.606	10.2	21.4	12 3	7 22.86	+ 5 18.4	2.806	3.582	11.0	19.9
12 13	7 16.89	+13 40.8	2.703	3.592	7.8	21.2	12 13	7 17.02	+ 4 28.7	2.730	3.587	8.9	19.8
12 23	7 9.74	+13 19.0	2.632	3.577	5.1	21.0	12 23	7 9.75	+ 3 49.0	2.680	3.593	6.8	19.6
1 2	7 1.58	+13 2.7	2.591	3.562	2.9	20.8	1 2	7 1.60	+ 3 21.1	2.658	3.598	5.4	19.5
1 12	6 53.12	+12 51.9	2.581	3.547	3.5	20.8	1 12	6 53.28	+ 3 5.8	2.667	3.603	5.6	19.6
1 22	6 45.10	+12 46.4	2.602	3.532	6.1	21.0	1 22	6 45.47	+ 3 2.6	2.704	3.607	7.2	19.7
2 1	6 38.23	+12 45.8	2.651	3.516	8.8	21.1	2 1	6 38.83	+ 3 10.3	2.770	3.611	9.3	19.8
2 11	6 33.06	+12 49.0	2.725	3.500	11.3	21.3	2 11	6 33.82	+ 3 26.6	2.859	3.615	11.3	20.0
125163	2001 <i>UG</i> ₉₅		1 4.8 324°88	5.9/ 3.7	18		487863	2015 <i>TP</i> ₁₁₄		1 4.8 184°03	3.8/ 5.7	18	
12 3	7 30.17	+33 43.2	1.364	2.210	16.7	19.8	12 3	7 27.17	+12 25.9	1.761	2.578	14.9	22.0
12 13	7 24.35	+34 37.2	1.295	2.205	12.8	19.5	12 13	7 21.02	+12 19.1	1.685	2.579	11.4	21.8
12 23	7 14.85	+35 25.0	1.249	2.200	8.7	19.3	12 23	7 12.44	+12 24.0	1.632	2.579	7.5	21.6
1 2	7 2.79	+35 57.6	1.226	2.195	6.0	19.1	1 2	7 2.25	+12 40.3	1.606	2.578	4.2	21.4
1 12	6 50.06	+36 8.6	1.230	2.190	7.5	19.2	1 12	6 51.63	+13 6.4	1.609	2.577	4.8	21.4
1 22	6 38.67	+35 56.7	1.259	2.186	11.5	19.4	1 22	6 41.84	+13 39.8	1.640	2.576	8.5	21.6
2 1	6 30.32	+35 25.9	1.312	2.182	15.7	19.6	2 1	6 33.98	+14 17.6	1.698	2.574	12.4	21.8
2 11	6 25.99	+34 42.6	1.383	2.178	19.4	19.9	2 11	6 28.81	+14 57.3	1.778	2.572	15.7	22.1
258206	2001 <i>SW</i> ₃₂₆		1 4.8 170°96	5.2/ 3.8	18		258228	2001 <i>TO</i> ₈₂		1 4.8 31°54	10°0/ 6.8	18	
12 3	7 31.21	+36 39.9	2.037	2.857	13.0	21.4	12 3	7 23.49	+ 2 33.7	1.322	2.133	19.2	19.5
12 13	7 24.02	+37 18.3	1.966	2.859	10.1	21.2	12 13	7 18.53	+ 1 13.5	1.278	2.151	15.8	19.4
12 23	7 14.15	+37 48.1	1.920	2.861	7.1	21.0	12 23	7 10.98	+ 0 17.0	1.253	2.169	12.5	19.2
1 2	7 2.58	+38 3.6	1.902	2.862	5.2	20.9	1 2	7 1.89	+ 0 10.8	1.251	2.189	10.3	19.1
1 12	6 50.66	+38 1.1	1.913	2.863	6.2	21.0	1 12	6 52.66	+ 0 8.6	1.274	2.209	10.4	19.2
1 22	6 39.79	+37 40.6	1.952	2.864	9.0	21.1	1 22	6 44.64	+ 0 20.5	1.320	2.231	12.4	19.4
2 1	6 31.17	+37 5.4	2.017	2.865	12.0	21.3	2 1	6 38.91	+ 1 10.5	1.388	2.253	15.3	19.6
2 11	6 25.53	+36 20.3	2.105	2.865	14.7	21.5	2 11	6 36.10	+ 2 13.4	1.475	2.276	18.1	19.9
401758	2013 <i>KY</i> ₆		1 4.8 316°38	2.3/ 4.3	18		474066	2016 <i>JV</i> ₁₁		1 4.8 323°86	7°3/ 6.0	18	
12 3	7 26.89	+26 23.2	1.606	2.449	14.8	20.6	12 3	7 21.80	+ 5 55.9	1.678	2.488	15.8	20.7
12 13	7 21.28	+27 2.9	1.532	2.445	10.9	20.4	12 13	7 17.25	+ 5 6.8	1.595	2.474	12.8	20.4
12 23	7 12.79	+27 44.0	1.481	2.440	6.5	20.1	12 23	7 10.35	+ 4 33.2	1.533	2.460	9.7	20.2
1 2	7 2.32	+28 21.0	1.457	2.436	2.6	19.8	1 2	7 1.80	+ 4 18.5	1.497	2.447	7.5	20.1
1 12	6 51.29	+28 49.1	1.460	2.432	4.5	19.9	1 12	6 52.73	+ 4 24.1	1.486	2.434	7.8	20.0
1 22	6 41.22	+29 6.0	1.491	2.428	9.1	20.2	1 22	6 44.35	+ 4 48.9	1.501	2.422	10.4	20.2
2 1	6 33.46	+29 12.0	1.547	2.425	13.3	20.4	2 1	6 37.75	+ 5 29.5	1.540	2.411	13.8	20.3
2 11	6 28.88	+29 9.2	1.624	2.421	16.9	20.7	2 11	6 33.76	+ 6 20.8	1.601	2.400	17.0	20.5
56806	2000 <i>PM</i> ₁₄		1 4.8 194°32	1°1/ 5.1	18		494175	2016 <i>GR</i> ₁₆₅		1 4.8 91°15	4°5/ 3.5	18	
12 3	7 25.54	+19 8.4	1.998	2.825	13.0	20.3	12 3	7 26.63	+34 56.6	2.282	3.105	11.7	21.2
12 13	7 19.63	+19 10.2	1.919	2.824	9.6	20.1	12 13	7 20.44	+35 47.6	2.216	3.111	8.9	21.0
12 23	7 11.53	+19 17.0	1.866	2.823	5.7	19.9	12 23	7 12.02	+36 32.6	2.175	3.118	6.2	20.8
1 2	7 2.01	+19 27.2	1.841	2.821	1.7	19.6	1 2	7 2.15	+37 6.6	2.163	3.124	4.5	20.7
1 12	6 52.14	+19 38.9	1.845	2.820	3.2	19.7	1 12	6 51.96	+37 26.0	2.179	3.131	5.5	20.8
1 22	6 43.02	+19 50.8	1.878	2.818	7.3	19.9	1 22	6 42.60	+37 30.0	2.225	3.137	8.0	21.0
2 1	6 35.65	+20 2.0	1.939	2.816	11.0	20.2	2 1	6 35.06	+37 20.1	2.297	3.143	10.8	21.2
2 11	6 30.71	+20 12.3	2.023	2.814	14.2	20.4	2 11	6 30.05	+36 59.7	2.391	3.149	13.2	21.4
135938	2002 <i>TV</i> ₁₉₁		1 4.8 104°65	4.3/ 4.3	18		241100	2007 <i>GL</i> ₂₉		1 4.8 67°82	19°7/ 9.6	18	
12 3	7 33.66	+34 52.6	1.918	2.739	13.7	20.2	12 3	7 27.81	-13 5.3	1.099	1.849	25.9	19.7
12 13	7 25.57	+35 11.5	1.863	2.759	10.3	20.0	12 13	7 22.27	-15 28.2	1.060	1.860	23.6	19.6
12 23	7 14.90	+35 21.4	1.832	2.778	6.9	19.8	12 23	7 13.44	-17 8.4	1.036	1.872	21.5	19.5
1 2	7 2.72	+35 17.5	1.830	2.797	4.5	19.7	1 2	7 2.49	-17 54.2	1.028	1.884	20.1	19.4
1 12	6 50.49	+34 57.7	1.856	2.815	5.5	19.8	1 12	6 51.17	-17 40.8	1.038	1.896	19.8	19.5
1 22	6 39.60	+34 23.2	1.912	2.833	8.5	20.1	1 22	6 41.25	-16 32.5	1.065	1.908	20.6	19.6
2 1	6 31.13	+33 37.9	1.995	2.851	11.7	20.3	2 1	6 34.17	-14 40.4	1.109	1.920	22.1	19.7
2 11	6 25.69	+32 46.7	2.100	2.868	14.5	20.5	2 11	6 30.76	-12 20.3	1.169	1.932	24.0	19.9
430084	2013 <i>SB</i> ₅₇		1 4.8 5°71	1°0/ 5.1	18		201305	2002 <i>TY</i> ₄₁		1 4.8 6°34	2°3/ 4.3	18	
12 3	7 20.84	+18 50.2	1.484	2.334	15.4	20.0	12 3	7 22.25	+26 21.6	1.543	2.395	14.8	19.0
12 13	7 16.77	+19 11.1	1.418	2.334	11.4	19.8	12 13	7 17.87	+26 59.5	1.479	2.397	10.9	18.7
12 23	7 10.09	+19 40.6	1.376	2.336	6.7	19.5	12 23	7 10.77	+27 38.4	1.438	2.399	6.5	18.5
1 2	7 1.70	+20 15.9	1.358	2.340	1.9	19.2	1 2	7 1.90	+28 13.3	1.423	2.403	2.5	18.2
1 12	6 52.92	+20 53.2	1.368	2.344	3.7	19.4	1 12	6 52.63	+28 39.9	1.435	2.407	4.5	18.4
1 22	6 45.09	+21 29.3	1.404	2.350	8.5	19.7	1 22	6 44.38	+28 56.0	1.473	2.413	8.8	18.7
2 1	6 39.40	+22 1.8	1.464	2.357	12.9	19.9	2 1	6 38.37	+29 1.8	1.536	2.420	12.9	18.9
2 11	6 36.61	+22 29.7	1.546	2.365	16.5	20.2	2 11	6 35.37	+28 59.2	1.620	2.429	16.4	19.2
61741	2000 <i>QK</i> ₁₅₃		1 4.8 202°10	3°6/ 5.5	18		151794	2003 <i>FX</i> ₄₂		1 4.8 267°39	6°0/ 3.3	18	
12 3	7 27.18	+13 35.1	1.724</										

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
496594	2015 <i>BD</i> ₄₆₂		1 4.8 143°78	2°9/ 6.0 17			423498	2005 <i>TG</i> ₁₂₂		1 4.8 28°54	3°2/ 5.5 18	R	
12 3	7 21.33	+11 9.2	2.611	3.414	11.0	21.2	12 3	7 24.11	+14 44.8	1.623	2.456	15.2	21.1
12 13	7 16.11	+11 22.9	2.533	3.418	8.4	21.1	12 13	7 18.89	+14 32.8	1.557	2.461	11.5	20.9
12 23	7 9.33	+11 46.1	2.480	3.422	5.6	20.9	12 23	7 11.24	+14 30.9	1.514	2.466	7.3	20.7
1 2	7 1.56	+12 18.2	2.456	3.425	3.2	20.7	1 2	7 2.04	+14 38.6	1.497	2.472	3.6	20.5
1 12	6 53.54	+12 57.3	2.462	3.429	3.6	20.8	1 12	6 52.51	+14 54.5	1.507	2.479	4.5	20.6
1 22	6 46.03	+13 41.4	2.499	3.432	6.1	20.9	1 22	6 43.93	+15 16.4	1.545	2.486	8.5	20.8
2 1	6 39.72	+14 27.9	2.564	3.435	8.9	21.1	2 1	6 37.36	+15 42.0	1.608	2.493	12.4	21.1
2 11	6 35.17	+15 14.8	2.654	3.438	11.4	21.3	2 11	6 33.53	+16 9.3	1.693	2.500	15.8	21.3
443632	2014 <i>NA</i> ₁		1 4.8 345°13	3°7/ 5.8 18			243728	2000 <i>JP</i> ₆₃		1 4.8 244°16	5°6/ 5.7 18		
12 3	7 25.13	+13 0.2	1.332	2.171	17.5	20.4	12 3	7 23.00	+ 4 46.6	2.721	3.496	11.3	20.7
12 13	7 20.21	+13 8.4	1.261	2.167	13.4	20.2	12 13	7 17.32	+ 3 53.6	2.626	3.481	9.2	20.5
12 23	7 12.28	+13 32.4	1.212	2.165	8.6	19.9	12 23	7 10.07	+ 3 10.5	2.555	3.466	7.2	20.4
1 2	7 2.29	+14 11.4	1.187	2.162	4.3	19.6	1 2	7 1.77	+ 2 39.4	2.513	3.451	5.8	20.3
1 12	6 51.70	+15 1.7	1.188	2.160	5.2	19.7	1 12	6 53.14	+ 2 21.8	2.501	3.435	6.0	20.2
1 22	6 42.11	+15 58.7	1.215	2.159	9.9	19.9	1 22	6 44.93	+ 2 17.5	2.518	3.419	7.7	20.3
2 1	6 34.92	+16 57.6	1.266	2.158	14.6	20.2	2 1	6 37.86	+ 2 25.3	2.562	3.402	10.0	20.4
2 11	6 31.06	+17 54.7	1.337	2.157	18.6	20.5	2 11	6 32.48	+ 2 43.0	2.630	3.385	12.2	20.6
169354	2001 <i>UF</i> ₂₄		1 4.8 72°02	5°6/ 5.9 18			256542	2007 <i>GG</i> ₅₄		1 4.8 104°18	2°7/ 6.0 18		
12 3	7 23.00	+ 6 39.5	2.289	3.081	12.7	19.9	12 3	7 18.40	+10 29.7	3.473	4.267	8.7	21.0
12 13	7 17.34	+ 5 47.1	2.226	3.095	10.1	19.7	12 13	7 13.61	+10 28.7	3.403	4.282	6.7	20.9
12 23	7 10.02	+ 5 6.2	2.187	3.109	7.5	19.6	12 23	7 7.74	+10 34.6	3.360	4.296	4.5	20.8
1 2	7 1.71	+ 4 38.9	2.175	3.123	5.8	19.5	1 2	7 1.22	+10 47.3	3.346	4.311	2.9	20.7
1 12	6 53.25	+ 4 26.0	2.193	3.137	6.0	19.6	1 12	6 54.58	+11 6.0	3.363	4.325	3.1	20.7
1 22	6 45.48	+ 4 26.6	2.239	3.151	8.0	19.7	1 22	6 48.34	+11 29.6	3.411	4.339	4.9	20.9
2 1	6 39.14	+ 4 38.9	2.311	3.165	10.4	19.9	2 1	6 43.00	+11 56.6	3.488	4.352	7.0	21.0
2 11	6 34.75	+ 5 0.1	2.407	3.179	12.8	20.1	2 11	6 38.94	+12 25.6	3.591	4.366	8.8	21.2
338169	2002 <i>RP</i> ₇₈		1 4.8 118°01	3°0/ 4.4 17			73452	2002 <i>MS</i> ₃₃		1 4.8 42°25	1°3/ 5.0 18		
12 3	7 34.93	+29 27.7	1.590	2.422	15.5	21.6	12 3	7 24.90	+19 57.5	1.969	2.799	13.0	18.7
12 13	7 26.90	+29 52.0	1.535	2.440	11.5	21.4	12 13	7 19.12	+19 37.4	1.898	2.804	9.6	18.5
12 23	7 15.87	+30 12.0	1.502	2.458	7.0	21.2	12 23	7 11.23	+19 20.6	1.852	2.809	5.7	18.2
1 2	7 3.03	+30 22.1	1.498	2.475	3.3	21.0	1 2	7 2.02	+19 6.3	1.834	2.814	1.8	18.0
1 12	6 50.03	+30 19.2	1.522	2.491	4.9	21.1	1 12	6 52.59	+18 53.9	1.845	2.820	3.3	18.1
1 22	6 38.48	+30 3.4	1.574	2.507	9.1	21.4	1 22	6 44.00	+18 43.2	1.885	2.825	7.2	18.4
2 1	6 29.65	+30 37.9	1.652	2.521	13.1	21.7	2 1	6 37.19	+18 34.1	1.952	2.831	10.9	18.6
2 11	6 24.22	+29 6.8	1.752	2.535	16.4	21.9	2 11	6 32.78	+18 26.7	2.042	2.837	13.9	18.8
421727	2014 <i>PV</i> ₃₆		1 4.8 194°74	1°1/ 5.2 18			468298	2015 <i>EP</i> ₁₇		1 4.8 64°87	0°0/ 4.7 18		
12 3	7 27.81	+18 11.0	2.171	2.988	12.4	22.3	12 3	7 23.16	+20 32.1	2.220	3.049	11.8	21.1
12 13	7 21.21	+18 26.8	2.086	2.985	9.2	22.1	12 13	7 17.77	+21 7.3	2.148	3.054	8.6	20.9
12 23	7 12.47	+18 48.6	2.027	2.982	5.5	21.9	12 23	7 10.44	+21 47.2	2.102	3.060	5.0	20.7
1 2	7 2.30	+19 14.3	1.997	2.978	1.7	21.6	1 2	7 1.86	+22 29.1	2.084	3.066	1.1	20.4
1 12	6 51.72	+19 41.6	1.998	2.973	3.1	21.7	1 12	6 52.97	+23 9.8	2.097	3.072	2.8	20.5
1 22	6 41.79	+20 8.3	2.029	2.967	7.0	21.9	1 22	6 44.74	+23 46.8	2.139	3.078	6.6	20.8
2 1	6 33.50	+20 33.1	2.089	2.960	10.6	22.1	2 1	6 38.05	+24 18.9	2.209	3.084	9.9	21.0
2 11	6 27.55	+20 55.6	2.172	2.953	13.7	22.3	2 11	6 33.53	+24 45.5	2.302	3.090	12.8	21.2
341572	2007 <i>UW</i> ₅₅		1 4.8 102°00	0°2/ 4.9 18			78466	2002 <i>RL</i> ₄₄		1 4.8 63°89	2°0/ 5.5 18	R	
12 3	7 23.72	+21 22.9	2.486	3.309	10.9	22.0	12 3	7 23.57	+15 28.1	2.025	2.848	13.0	19.4
12 13	7 17.87	+21 33.6	2.420	3.324	7.9	21.8	12 13	7 18.04	+15 44.2	1.964	2.864	9.6	19.2
12 23	7 10.35	+21 46.9	2.381	3.338	4.6	21.6	12 23	7 10.56	+16 8.7	1.928	2.881	5.9	19.0
1 2	7 1.79	+22 0.9	2.370	3.352	1.1	21.4	1 2	7 1.87	+16 39.8	1.920	2.898	2.5	18.8
1 12	6 53.08	+22 13.9	2.391	3.366	2.5	21.5	1 12	6 52.99	+17 15.2	1.941	2.915	3.3	18.9
1 22	6 45.04	+22 24.8	2.441	3.379	5.9	21.7	1 22	6 44.90	+17 52.1	1.992	2.932	6.9	19.1
2 1	6 38.43	+22 33.3	2.520	3.393	9.0	22.0	2 1	6 38.47	+18 28.5	2.070	2.949	10.3	19.4
2 11	6 33.78	+22 39.3	2.623	3.406	11.5	22.2	2 11	6 34.30	+19 2.9	2.171	2.966	13.2	19.6
445550	2011 <i>HD</i> ₈₉		1 4.8 257°07	2°1/ 5.3 18			37917	1998 <i>FJ</i> ₁₀₃		1 4.8 169°42	3°7/ 5.7 18		
12 3	7 27.97	+16 35.7	1.447	2.284	16.5	22.0	12 3	7 27.04	+12 4.1	2.119	2.925	13.1	19.3
12 13	7 22.29	+16 47.3	1.366	2.273	12.4	21.7	12 13	7 20.54	+11 45.3	2.043	2.929	10.0	19.1
12 23	7 13.55	+17 10.0	1.306	2.263	7.6	21.4	12 23	7 12.02	+11 35.8	1.991	2.933	6.7	18.9
1 2	7 2.61	+17 41.8	1.272	2.252	2.8	21.1	1 2	7 2.22	+11 35.8	1.967	2.936	4.0	18.8
1 12	6 50.93	+18 19.2	1.265	2.240	4.3	21.1	1 12	6 52.12	+11 44.7	1.974	2.939	4.5	18.8
1 22	6 40.12	+18 58.5	1.286	2.229	9.5	21.4	1 22	6 42.75	+12 1.0	2.010	2.941	7.6	19.0
2 1	6 31.65	+19 37.1	1.331	2.217	14.4	21.7	2 1	6 35.01	+12 23.0	2.074	2.942	10.8	19.2
2 11	6 26.53	+20 13.2	1.397	2.206	18.5	21.9	2 11	6 29.54	+12 48.7	2.161	2.942	13.7	19.4
519548	2012 <i>QJ</i> ₅₃		1 4.8 317°18	2°9/ 5.4 18			83791	2001 <i>TR</i> ₂₁₀		1 4.8 188°37	2°2/ 5.2 18		
12 3	7 22.74	+14 44.5	2.215	3.034	12.2	20.8	12 3	7 26.55	+17 2.6	2.143	2.961	12.5	20.2
12 13	7 17.39	+14 19.1	2.135	3.030	9.2	20.6	12 13	7 20.22	+16 41.6	2.062	2.960	9.4	20.0
12 23	7 10.18	+14 0.3	2.079	3.027	5.9	20.4	12 23	7 11.86	+16 25.6	2.007	2.959	5.8	19.7
1 2	7 1.78	+13 48.3	2.051	3.024	3.2	20.2	1 2	7 2.19	+16 14.3	1.981	2.958	2.5	19.5
1 12	6 53.10	+13 43.0	2.053	3.021	3.9	20.2	1 12	6 52.22	+16 7.2	1.984	2.956	3.5	19.6
1 22	6 45.05	+13 43.7	2.084	3.018	7.0	20.4	1 22	6 42.97	+16 3.8	2.018	2.954	7.1	19.8
2 1	6 38.47	+13 49.4	2.142	3.016	10.3	20.6	2 1	6 35.36	+16 3.5	2.079	2.951	10.6	20.0
2 11	6 33.98	+13 58.9	2.223	3.013	13.1	20.8	2 11	6 30.03	+16 5.8	2.163	2.948	13.6	20.2
383716	2007 <i>UY</i> ₄₅		1 4.8 45°50	3°5/ 3.7 18			72246	2001 <i>AL</i> ₂₆		1 4.8 339°99	4°4/ 3.8 18		
12 3	7 25.35	+30 2.4	1.990	2.825	12.								

EPHEMERIDES

1 4.8

1 4.9

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
161120	2002 <i>RH</i> ₁₈		1 4.8	19°46'	10°1'	3.7 18	451419	2011 <i>QU</i> ₆₈		1 4.9	77°00'	1°3'	5.1 18
12 3	7 31.15	+46 26.9	1.528	2.346	16.7	18.2	12 3	7 30.17	+18 40.4	1.492	2.327	16.2	21.4
12 13	7 24.95	+47 24.2	1.483	2.357	13.9	18.0	12 13	7 23.29	+18 47.4	1.445	2.352	11.9	21.2
12 23	7 15.06	+48 1.3	1.458	2.370	11.4	17.9	12 23	7 13.74	+19 1.5	1.420	2.378	7.0	21.0
1 2	7 2.91	+48 9.5	1.457	2.383	10.2	17.9	1 2	7 2.64	+19 19.8	1.422	2.403	2.1	20.7
1 12	6 50.60	+47 44.8	1.480	2.397	10.8	17.9	1 12	6 51.46	+19 39.7	1.453	2.428	3.8	20.9
1 22	6 40.15	+46 49.8	1.527	2.413	12.8	18.1	1 22	6 41.61	+19 58.8	1.511	2.453	8.5	21.2
2 1	6 33.01	+45 32.0	1.596	2.429	15.4	18.3	2 1	6 34.20	+20 16.2	1.595	2.477	12.6	21.5
2 11	6 29.85	+44 0.7	1.685	2.447	17.8	18.5	2 11	6 29.86	+20 31.5	1.700	2.501	16.1	21.8
327931	2007 <i>DK</i> ₇₄		1 4.8	79°30'	2°4'	5.5 18	414912	2010 <i>YN</i> ₂		1 4.9	112°65'	3°5'	3.9 18
12 3	7 24.80	+15 21.3	1.871	2.695	13.8	21.0	12 3	7 28.12	+30 54.7	1.981	2.811	12.9	21.5
12 13	7 19.12	+15 23.3	1.805	2.705	10.3	20.8	12 13	7 21.74	+31 38.6	1.915	2.819	9.6	21.3
12 23	7 11.27	+15 34.0	1.763	2.716	6.4	20.6	12 23	7 12.91	+32 19.0	1.873	2.826	6.1	21.1
1 2	7 2.06	+15 52.3	1.749	2.726	2.9	20.4	1 2	7 2.49	+32 50.6	1.860	2.833	3.6	21.0
1 12	6 52.59	+16 16.2	1.763	2.736	3.8	20.5	1 12	6 51.73	+33 9.7	1.876	2.839	4.9	21.0
1 22	6 43.97	+16 43.4	1.806	2.746	7.5	20.7	1 22	6 41.91	+33 15.3	1.920	2.846	8.2	21.3
2 1	6 37.16	+17 12.0	1.876	2.756	11.2	21.0	2 1	6 34.12	+33 8.5	1.991	2.852	11.5	21.5
2 11	6 32.80	+17 40.3	1.969	2.766	14.3	21.2	2 11	6 29.09	+32 52.7	2.084	2.859	14.4	21.7
13158	1995 <i>UE</i>		1 4.8	272°32'	4°0'	4.2 18	194076	2001 <i>SP</i> ₁₄₈		1 4.9	30°06'	3°3'	5.3 17
12 3	7 31.31	+30 47.4	1.420	2.264	16.4	18.4	12 3	7 25.97	+17 0.0	1.033	1.894	19.8	19.2
12 13	7 25.02	+31 17.3	1.346	2.256	12.3	18.1	12 13	7 21.10	+16 32.7	0.988	1.907	14.8	18.9
12 23	7 15.23	+31 42.9	1.293	2.249	7.8	17.9	12 23	7 12.82	+16 16.7	0.963	1.922	9.1	18.6
1 2	7 3.02	+31 57.3	1.265	2.241	4.2	17.6	1 2	7 2.47	+16 11.6	0.960	1.938	3.9	18.4
1 12	6 50.14	+31 55.6	1.265	2.233	5.9	17.7	1 12	6 51.93	+16 15.8	0.981	1.956	5.3	18.6
1 22	6 38.51	+31 37.1	1.291	2.225	10.5	18.0	1 22	6 43.01	+16 27.0	1.026	1.974	10.6	18.9
2 1	6 29.73	+31 5.1	1.341	2.217	15.0	18.2	2 1	6 37.10	+16 43.0	1.093	1.993	15.6	19.2
2 11	6 24.77	+30 24.9	1.411	2.210	18.9	18.4	2 11	6 34.89	+17 1.2	1.179	2.013	19.7	19.6
371705	2007 <i>EW</i> ₂₇		1 4.8	269°60'	5°2'	6.5 18	152919	2000 <i>EU</i> ₂₁		1 4.9	202°90'	8°0'	7.7 18
12 3	7 23.23	+6 40.9	2.036	2.834	13.8	20.9	12 3	7 27.17	-1 28.4	2.042	2.798	15.2	20.5
12 13	7 18.04	+6 39.4	1.943	2.819	11.0	20.7	12 13	7 20.84	-1 37.8	1.956	2.793	12.7	20.3
12 23	7 10.74	+6 53.4	1.874	2.805	8.0	20.5	12 23	7 12.35	-1 25.9	1.892	2.787	10.2	20.2
1 2	7 1.98	+7 23.5	1.832	2.790	5.6	20.3	1 2	7 2.38	-0 50.6	1.854	2.780	8.3	20.0
1 12	6 52.71	+8 8.8	1.818	2.775	5.8	20.3	1 12	6 51.95	+0 7.8	1.844	2.773	8.2	20.0
1 22	6 43.96	+9 6.2	1.832	2.760	8.4	20.4	1 22	6 42.12	+1 25.8	1.862	2.765	9.9	20.1
2 1	6 36.71	+10 12.0	1.874	2.745	11.7	20.6	2 1	6 33.87	+2 57.8	1.908	2.755	12.6	20.2
2 11	6 31.72	+11 21.6	1.939	2.729	14.8	20.7	2 11	6 27.95	+4 37.2	1.977	2.745	15.3	20.4
382075	2011 <i>FK</i> ₁₆		1 4.9	164°85'	1°9'	4.1 18	70777	1999 <i>VG</i> ₄₀		1 4.9	146°83'	0°8'	5.1 18
12 3	7 24.80	+28 14.6	2.900	3.719	9.6	21.8	12 3	7 24.29	+19 40.4	2.330	3.152	11.5	19.3
12 13	7 18.65	+28 50.0	2.824	3.724	7.0	21.6	12 13	7 18.49	+19 47.5	2.255	3.157	8.5	19.1
12 23	7 10.84	+29 24.2	2.775	3.729	4.3	21.5	12 23	7 10.84	+19 58.5	2.206	3.162	5.0	18.9
1 2	7 1.98	+29 54.1	2.756	3.733	2.0	21.3	1 2	7 2.02	+20 11.9	2.185	3.166	1.4	18.7
1 12	6 52.86	+30 17.4	2.769	3.736	3.1	21.4	1 12	6 52.95	+20 26.0	2.195	3.170	2.7	18.8
1 22	6 44.28	+30 32.8	2.813	3.740	5.8	21.6	1 22	6 44.54	+20 39.4	2.235	3.174	6.3	19.0
2 1	6 37.00	+30 40.5	2.885	3.742	8.5	21.7	2 1	6 37.62	+20 51.5	2.303	3.178	9.6	19.3
2 11	6 31.58	+30 41.7	2.982	3.745	10.8	21.9	2 11	6 32.79	+21 1.9	2.395	3.181	12.4	19.4
441458	2008 <i>PN</i> ₂		1 4.9	95°60'	0°2'	4.8 18	84078	2002 <i>QA</i> ₂		1 4.9	40°78'	1°2'	4.7 18
12 3	7 33.25	+23 30.2	1.517	2.351	16.0	21.3	12 3	7 28.88	+26 6.7	1.381	2.229	16.5	19.2
12 13	7 25.55	+23 26.8	1.465	2.374	11.7	21.1	12 13	7 22.75	+25 59.8	1.327	2.242	12.1	19.0
12 23	7 15.04	+23 24.5	1.437	2.396	6.8	20.9	12 23	7 13.61	+25 51.3	1.294	2.255	7.0	18.7
1 2	7 2.91	+23 20.3	1.436	2.418	1.5	20.6	1 2	7 2.66	+25 38.2	1.287	2.269	1.9	18.5
1 12	6 50.72	+23 12.4	1.464	2.440	3.7	20.8	1 12	6 51.54	+25 18.9	1.308	2.283	4.1	18.6
1 22	6 39.98	+23 0.6	1.521	2.461	8.6	21.2	1 22	6 41.86	+24 53.8	1.355	2.298	9.1	19.0
2 1	6 31.84	+22 46.4	1.603	2.481	12.8	21.5	2 1	6 34.85	+24 25.4	1.426	2.313	13.6	19.3
2 11	6 26.94	+22 31.3	1.706	2.501	16.3	21.7	2 11	6 31.21	+23 56.2	1.519	2.329	17.2	19.6
361350	2006 <i>UQ</i> ₁₈₇		1 4.9	137°88'	4°8'	3.9 18	382351	2013 <i>TS</i> ₇₅		1 4.9	30°43'	2°6'	5.2 18
12 3	7 33.92	+37 21.6	2.322	3.130	12.0	22.1	12 3	7 24.82	+17 50.8	1.772	2.604	14.1	19.9
12 13	7 25.61	+37 53.4	2.260	3.146	9.3	22.0	12 13	7 19.17	+17 8.2	1.710	2.615	10.5	19.7
12 23	7 14.96	+38 16.0	2.224	3.161	6.5	21.8	12 23	7 11.32	+16 30.5	1.673	2.627	6.5	19.5
1 2	7 2.90	+38 24.4	2.217	3.175	4.8	21.7	1 2	7 2.15	+15 58.4	1.662	2.640	2.9	19.3
1 12	6 50.69	+38 16.0	2.241	3.188	5.6	21.8	1 12	6 52.83	+15 32.1	1.680	2.653	4.0	19.4
1 22	6 39.57	+37 51.5	2.294	3.201	8.1	22.0	1 22	6 44.49	+15 12.1	1.727	2.666	7.8	19.7
2 1	6 30.56	+37 14.0	2.374	3.213	10.7	22.2	2 1	6 38.08	+14 58.0	1.799	2.680	11.5	19.9
2 11	6 24.30	+36 28.1	2.477	3.224	13.1	22.4	2 11	6 34.19	+14 49.3	1.894	2.695	14.7	20.2
267228	2001 <i>FT</i> ₁₂₅		1 4.9	352°32'	1°2'	5.1 18	424256	2007 <i>RM</i> ₃₁₆		1 4.9	96°33'	4°7'	3.6 18
12 3	7 23.58	+18 51.4	1.837	2.672	13.6	20.4	12 3	7 27.75	+36 21.2	2.312	3.132	11.7	21.0
12 13	7 18.43	+18 55.9	1.762	2.670	10.1	20.2	12 13	7 21.27	+37 4.6	2.249	3.141	9.0	20.9
12 23	7 10.99	+19 6.5	1.710	2.668	6.0	20.0	12 23	7 12.55	+37 40.5	2.211	3.151	6.3	20.7
1 2	7 2.06	+19 21.4	1.686	2.667	1.9	19.7	1 2	7 2.44	+38 4.2	2.202	3.160	4.8	20.6
1 12	6 52.75	+19 38.6	1.690	2.665	3.3	19.8	1 12	6 52.07	+38 12.7	2.221	3.170	5.6	20.7
1 22	6 44.22	+19 56.2	1.722	2.665	7.6	20.1	1 22	6 42.58	+38 5.4	2.269	3.179	8.0	20.9
2 1	6 37.51	+20 13.1	1.781	2.664	11.5	20.3	2 1	6 34.98	+37 44.7	2.344	3.188	10.7	21.0
2 11	6 33.34	+20 28.5	1.862	2.664	14.8	20.5	2 11	6 29.90	+37 14.2	2.441	3.197	13.0	21.2
493646	2015 <i>RM</i>		1 4.9	52°23'	1°0'	4.7 15	367584	2009 <i>SE</i> ₂₄₁		1 4.9	93°56'	0°6'	4.8 18
12 3	7 30.77	+24 14.7	1.170	2.024	18.4	21.5	12 3	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
3998	Tezuka		1 4.9	13°37'	7.2°/ 3.9	18 R	37984	1998 HA ₁₃₈		1 4.9	148°67'	3.8°/ 6.1	18
12 3	7 27.06	+34 24.4	0.964	1.834	20.1	15.0	12 3	7 23.99	+10 3.3	2.332	3.132	12.2	19.9
12 13	7 22.87	+35 17.8	0.916	1.838	15.4	14.8	12 13	7 18.22	+9 58.1	2.258	3.139	9.4	19.7
12 23	7 14.33	+36 1.1	0.888	1.843	10.5	14.5	12 23	7 10.70	+10 3.5	2.208	3.146	6.5	19.5
1 2	7 2.91	+36 23.5	0.880	1.850	7.3	14.4	1 2	7 2.07	+10 19.4	2.187	3.153	4.1	19.4
1 12	6 51.05	+36 18.6	0.896	1.859	8.8	14.5	1 12	6 53.19	+10 44.7	2.196	3.158	4.4	19.4
1 22	6 41.18	+35 47.2	0.933	1.869	13.2	14.8	1 22	6 44.93	+11 17.4	2.234	3.164	7.0	19.6
2 1	6 35.11	+34 56.0	0.991	1.881	17.8	15.1	2 1	6 38.08	+11 55.2	2.301	3.169	9.9	19.8
2 11	6 33.63	+33 53.7	1.065	1.894	21.8	15.4	2 11	6 33.21	+12 35.5	2.391	3.174	12.5	19.9
30779	Sankt-Stephan		1 4.9	58°94'	17.8°/ 12.2	18	125142	2001 UF ₆₄		1 4.9	358°16'	1°6'/ 5.0	18
12 3	7 26.24	-16 52.5	1.384	2.089	23.4	18.2	12 3	7 28.32	+20 33.0	1.321	2.168	17.1	19.2
12 13	7 20.60	-18 42.6	1.350	2.110	21.4	18.1	12 13	7 22.60	+20 3.4	1.253	2.167	12.7	18.9
12 23	7 12.31	-19 52.0	1.332	2.132	19.6	18.1	12 23	7 13.74	+19 37.6	1.206	2.166	7.6	18.6
1 2	7 2.39	-20 12.9	1.330	2.153	18.3	18.0	1 2	7 2.80	+19 14.7	1.185	2.166	2.4	18.3
1 12	6 52.31	-19 43.2	1.347	2.175	17.8	18.1	1 12	6 51.42	+18 54.2	1.190	2.166	4.4	18.4
1 22	6 43.44	-18 27.6	1.382	2.197	18.2	18.2	1 22	6 41.27	+18 36.3	1.221	2.166	9.7	18.7
2 1	6 36.94	-16 35.7	1.437	2.220	19.3	18.3	2 1	6 33.76	+18 21.5	1.276	2.167	14.6	19.0
2 11	6 33.47	-14 20.4	1.508	2.242	20.7	18.5	2 11	6 29.72	+18 10.3	1.352	2.168	18.6	19.3
473764	2016 EP ₅₄		1 4.9	1°36'	3°8'/ 6.1	18	104731	2000 HB ₂		1 4.9	309°97'	1°4'/ 5.3	18
12 3	7 21.83	+10 35.0	2.102	2.913	13.0	21.0	12 3	7 23.15	+17 47.5	2.202	3.026	12.0	20.3
12 13	7 16.87	+10 36.2	2.024	2.913	10.0	20.8	12 13	7 17.81	+17 52.2	2.123	3.025	8.9	20.1
12 23	7 10.01	+10 49.1	1.971	2.913	6.8	20.6	12 23	7 10.55	+18 2.7	2.069	3.024	5.4	19.9
1 2	7 1.90	+11 13.6	1.945	2.913	4.1	20.4	1 2	7 2.05	+18 17.7	2.044	3.023	1.9	19.7
1 12	6 53.46	+11 48.1	1.948	2.913	4.5	20.5	1 12	6 53.24	+18 35.5	2.048	3.023	3.0	19.8
1 22	6 45.65	+12 30.1	1.979	2.914	7.4	20.6	1 22	6 45.07	+18 54.4	2.082	3.022	6.7	20.0
2 1	6 39.32	+13 16.7	2.038	2.914	10.6	20.8	2 1	6 38.40	+19 13.3	2.143	3.021	10.1	20.2
2 11	6 35.13	+14 4.9	2.120	2.915	13.5	21.0	2 11	6 33.87	+19 31.3	2.228	3.020	13.0	20.4
27863	1995 DZ ₅		1 4.9	107°05'	0°8'/ 4.7	18	237625	2001 RA ₁₀₁		1 4.9	170°74'	0°0'/ 4.7	18
12 3	7 27.94	+24 6.6	1.925	2.756	13.2	19.9	12 3	7 23.49	+21 47.6	2.750	3.570	10.0	21.1
12 13	7 21.46	+24 25.2	1.862	2.769	9.7	19.7	12 13	7 17.74	+22 3.4	2.671	3.573	7.3	20.9
12 23	7 12.69	+24 45.0	1.824	2.782	5.6	19.5	12 23	7 10.39	+22 21.3	2.618	3.575	4.3	20.7
1 2	7 2.50	+25 2.8	1.813	2.795	1.5	19.2	1 2	7 2.02	+22 39.8	2.595	3.577	1.0	20.5
1 12	6 52.07	+25 15.9	1.833	2.808	3.3	19.4	1 12	6 53.39	+22 56.9	2.604	3.579	2.4	20.6
1 22	6 42.61	+25 23.1	1.882	2.820	7.4	19.7	1 22	6 45.31	+23 11.5	2.643	3.580	5.6	20.8
2 1	6 35.10	+25 24.9	1.957	2.832	11.1	19.9	2 1	6 38.49	+23 23.0	2.711	3.581	8.5	21.0
2 11	6 30.20	+25 22.3	2.056	2.843	14.1	20.1	2 11	6 33.47	+23 31.7	2.804	3.582	11.0	21.2
30825	1990 TG ₁		1 4.9	306°72'	5°6'/ 5.3	18	67397	2000 PR ₄		1 4.9	97°78'	2°9'/ 5.4	18
12 3	7 33.86	+9 37.7	1.921	2.712	14.8	19.1	12 3	7 28.83	+16 7.2	1.573	2.402	15.8	18.9
12 13	7 26.81	+9 5.2	1.769	2.645	12.0	18.8	12 13	7 22.38	+15 47.0	1.512	2.415	11.8	18.7
12 23	7 16.60	+8 42.2	1.641	2.575	8.6	18.4	12 23	7 13.35	+15 35.3	1.474	2.427	7.4	18.5
1 2	7 3.60	+8 31.2	1.540	2.503	5.8	18.1	1 2	7 2.71	+15 31.3	1.462	2.439	3.4	18.3
1 12	6 48.80	+8 33.8	1.470	2.429	6.7	18.0	1 12	6 51.83	+15 34.2	1.479	2.452	4.4	18.4
1 22	6 33.63	+8 50.2	1.431	2.352	10.8	18.0	1 22	6 42.07	+15 42.3	1.524	2.463	8.7	18.7
2 1	6 19.70	+9 19.1	1.419	2.274	15.7	18.1	2 1	6 34.55	+15 54.4	1.594	2.475	12.7	18.9
2 11	6 8.46	+9 58.0	1.430	2.192	20.4	18.2	2 11	6 29.97	+16 8.9	1.686	2.487	16.2	19.2
384455	2010 AY ₁₁₇		1 4.9	107°56'	4°2'/ 6.7	18	459108	2012 BB ₁₁₂		1 4.9	12°01'	5°8'/ 6.7	18
12 3	7 21.76	+6 50.3	2.491	3.281	11.8	21.3	12 3	7 22.05	+8 15.7	1.291	2.125	18.3	20.8
12 13	7 16.52	+7 4.7	2.416	3.288	9.3	21.1	12 13	7 17.94	+8 18.0	1.229	2.128	14.3	20.6
12 23	7 9.68	+7 32.0	2.366	3.296	6.6	21.0	12 23	7 11.02	+8 41.9	1.188	2.132	10.0	20.4
1 2	7 1.82	+8 11.9	2.344	3.303	4.5	20.8	1 2	7 2.22	+9 27.4	1.169	2.137	6.4	20.2
1 12	6 53.72	+9 2.5	2.352	3.310	4.6	20.9	1 12	6 52.97	+10 31.4	1.177	2.143	6.6	20.2
1 22	6 46.16	+10 1.1	2.390	3.317	6.7	21.0	1 22	6 44.76	+11 47.9	1.209	2.150	10.2	20.4
2 1	6 39.86	+11 4.3	2.456	3.324	9.4	21.2	2 1	6 38.86	+13 10.1	1.265	2.158	14.4	20.7
2 11	6 35.36	+12 8.8	2.548	3.331	11.8	21.4	2 11	6 36.09	+14 31.7	1.341	2.168	18.2	21.0
271261	2003 UP ₁₄₁		1 4.9	101°11'	0°2'/ 4.9	18	169597	2002 GZ ₇₇		1 4.9	259°41'	1°0'/ 5.1	18
12 3	7 24.55	+20 23.5	2.141	2.969	12.2	20.5	12 3	7 27.73	+19 51.2	1.742	2.573	14.4	21.2
12 13	7 18.86	+20 50.4	2.071	2.976	8.9	20.4	12 13	7 21.82	+19 53.3	1.652	2.558	10.7	20.9
12 23	7 11.16	+21 21.9	2.026	2.984	5.2	20.1	12 23	7 13.22	+20 0.8	1.585	2.543	6.4	20.6
1 2	7 2.17	+21 55.3	2.010	2.992	1.2	19.9	1 2	7 2.74	+20 11.5	1.546	2.527	1.8	20.3
1 12	6 52.89	+22 27.9	2.024	2.999	2.9	20.0	1 12	6 51.62	+20 23.2	1.536	2.511	3.6	20.4
1 22	6 44.34	+22 57.5	2.067	3.007	6.7	20.3	1 22	6 41.23	+20 34.3	1.554	2.495	8.4	20.6
2 1	6 37.40	+23 22.8	2.138	3.014	10.2	20.5	2 1	6 32.84	+20 44.0	1.598	2.479	12.7	20.8
2 11	6 32.73	+23 43.8	2.232	3.021	13.1	20.7	2 11	6 27.33	+20 52.3	1.664	2.462	16.5	21.0
411388	2010 VN ₈₆		1 4.9	29°86'	2°1'/ 4.4	18	83666	2001 TZ ₂₁		1 4.9	83°78'	4°2'/ 6.8	18
12 3	7 25.68	+24 36.0	1.219	2.078	17.5	20.3	12 3	7 22.51	+6 49.5	2.372	3.163	12.3	18.8
12 13	7 20.73	+25 26.7	1.176	2.097	12.7	20.1	12 13	7 17.09	+7 5.9	2.306	3.179	9.6	18.7
12 23	7 12.60	+26 20.2	1.155	2.117	7.4	19.9	12 23	7 10.03	+7 35.7	2.264	3.194	6.8	18.5
1 2	7 2.51	+27 9.8	1.157	2.138	2.5	19.6	1 2	7 1.96	+8 18.4	2.250	3.210	4.6	18.4
1 12	6 52.19	+27 49.6	1.186	2.160	4.8	19.9	1 12	6 53.68	+9 11.8	2.267	3.225	4.6	18.4
1 22	6 43.36	+28 16.8	1.240	2.184	9.8	20.2	1 22	6 46.02	+10 12.8	2.313	3.241	6.9	18.6
2 1	6 37.33	+28 31.8	1.318	2.208	14.2	20.5	2 1	6 39.72	+11 17.9	2.387	3.256	9.6	18.8
2 11	6 34.79	+28 36.7	1.415	2.233	17.9	20.8	2 11	6 35.30	+12 23.7	2.486	3.271	12.0	19.0
165772	2001 QL ₂₅₁		1 4.9	155°29'	2°2'/ 5.5	18	229989	1999 YR ₂		1 4.9	73°23'	0°7'/ 4.8	17
12 3	7 22.83	+14 51.0	2.638	3.448	10.7	20.9	12 3	7 32.58	+25 17.9	1.308	2.153	17.4	20.5
12 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
177809	2005 <i>MO</i> ₂		1 4.9 50°67	0°5/ 5.1	18		433802	2015 <i>BU</i> ₁₀₀		1 4.9 11°31	1°3/ 4.7	18	
12 3	7 26.72	+16 55.2	1.527	2.363	15.8	19.5	12 3	7 25.05	+26 21.4	1.902	2.739	13.1	20.5
12 13	7 21.14	+18 6.3	1.465	2.374	11.7	19.3	12 13	7 19.52	+26 25.9	1.831	2.741	9.6	20.3
12 23	7 12.81	+19 30.1	1.427	2.385	6.9	19.1	12 23	7 11.69	+26 29.4	1.784	2.743	5.7	20.1
1 2	7 2.64	+21 0.8	1.415	2.397	1.7	18.8	1 2	7 2.39	+26 29.1	1.764	2.745	1.8	19.8
1 12	6 52.01	+22 31.2	1.432	2.408	3.6	18.9	1 12	6 52.79	+26 23.1	1.774	2.748	3.5	20.0
1 22	6 42.36	+23 54.9	1.478	2.421	8.6	19.3	1 22	6 44.10	+26 11.0	1.812	2.751	7.5	20.2
2 1	6 34.94	+25 8.0	1.549	2.433	12.9	19.5	2 1	6 37.32	+25 53.8	1.876	2.755	11.2	20.5
2 11	6 30.58	+26 9.3	1.643	2.445	16.5	19.8	2 11	6 33.13	+25 33.4	1.963	2.759	14.4	20.7
1010	Marlene		1 4.9 72°92	0°2/ 4.9	18		370478	2003 <i>HQ</i> ₈		1 4.9 280°46	10°7/ 6.9	17	
12 3	7 24.99	+21 49.6	2.010	2.841	12.7	15.2	12 3	7 23.06	- 6 19.4	2.055	2.793	15.7	21.3
12 13	7 19.29	+22 13.0	1.944	2.852	9.3	15.0	12 13	7 18.02	- 7 21.0	1.961	2.770	13.8	21.1
12 23	7 11.46	+22 39.8	1.903	2.862	5.4	14.8	12 23	7 10.88	- 8 1.9	1.888	2.748	12.0	20.9
1 2	7 2.30	+23 7.3	1.890	2.872	1.2	14.5	1 2	7 2.24	- 8 16.8	1.838	2.725	10.9	20.8
1 12	6 52.87	+23 32.6	1.907	2.883	3.0	14.7	1 12	6 53.03	- 8 2.9	1.812	2.702	10.9	20.7
1 22	6 44.26	+23 53.8	1.953	2.893	7.0	15.0	1 22	6 44.26	- 7 20.8	1.812	2.678	12.2	20.8
2 1	6 37.40	+24 10.4	2.026	2.904	10.6	15.2	2 1	6 36.92	- 6 14.2	1.836	2.655	14.2	20.8
2 11	6 32.95	+24 22.5	2.122	2.914	13.6	15.4	2 11	6 31.81	- 4 49.6	1.880	2.631	16.5	21.0
365541	2010 <i>SK</i> ₂₅		1 4.9 91°65	0°9/ 4.7	18		334549	2002 <i>SU</i> ₂₉		1 4.9 53°52	3°3/ 3.9	18	
12 3	7 28.91	+23 56.8	1.788	2.620	14.0	21.8	12 3	7 24.30	+33 14.5	2.675	3.497	10.2	20.4
12 13	7 22.28	+24 19.2	1.731	2.639	10.2	21.6	12 13	7 18.38	+33 48.9	2.626	3.523	7.6	20.3
12 23	7 13.23	+24 43.1	1.698	2.657	5.9	21.3	12 23	7 10.76	+34 18.2	2.603	3.550	5.0	20.2
1 2	7 2.69	+25 4.9	1.693	2.674	1.5	21.1	1 2	7 2.14	+34 39.1	2.610	3.577	3.3	20.1
1 12	6 51.97	+25 21.6	1.717	2.692	3.5	21.3	1 12	6 53.43	+34 49.6	2.646	3.604	4.1	20.2
1 22	6 42.31	+25 31.8	1.770	2.709	7.7	21.6	1 22	6 45.49	+34 49.4	2.712	3.630	6.4	20.4
2 1	6 34.78	+25 35.8	1.850	2.726	11.5	21.8	2 1	6 39.05	+34 39.6	2.805	3.657	8.9	20.6
2 11	6 30.03	+25 35.1	1.952	2.743	14.7	22.1	2 11	6 34.63	+34 22.5	2.922	3.684	11.0	20.7
279067	2008 <i>WF</i> ₄₅		1 4.9 131°99	1°1/ 4.6	18		33625	Slepyan		1 4.9 294°00	1°3/ 5.2	18	
12 3	7 24.90	+24 58.5	2.384	3.210	11.2	21.3	12 3	7 26.72	+18 22.7	1.490	2.330	15.9	19.0
12 13	7 19.01	+25 23.4	2.312	3.217	8.1	21.1	12 13	7 21.34	+18 38.8	1.413	2.324	11.9	18.7
12 23	7 11.24	+25 49.0	2.265	3.223	4.8	20.9	12 23	7 13.07	+19 4.0	1.359	2.317	7.1	18.4
1 2	7 2.26	+26 12.4	2.248	3.229	1.4	20.7	1 2	7 2.77	+19 35.5	1.330	2.311	2.1	18.1
1 12	6 53.02	+26 31.3	2.262	3.235	3.0	20.8	1 12	6 51.85	+20 9.7	1.329	2.305	3.9	18.2
1 22	6 44.46	+26 44.2	2.305	3.241	6.4	21.1	1 22	6 41.84	+20 43.4	1.355	2.299	9.0	18.5
2 1	6 37.43	+26 51.2	2.376	3.246	9.5	21.3	2 1	6 34.10	+21 14.4	1.405	2.293	13.7	18.7
2 11	6 32.52	+26 53.1	2.472	3.252	12.2	21.5	2 11	6 29.54	+21 41.8	1.477	2.287	17.6	19.0
254925	2005 <i>SW</i> ₁₂₁		1 4.9 276°51	0°4/ 4.8	18		26552	2000 <i>DT</i> ₇₄		1 4.9 177°38	5°2/ 6.3	18	
12 3	7 26.68	+23 5.3	1.798	2.633	13.8	20.8	12 3	7 25.03	+ 7 12.6	2.095	2.890	13.6	18.9
12 13	7 20.85	+23 15.9	1.722	2.631	10.2	20.5	12 13	7 19.21	+ 6 53.5	2.017	2.891	10.8	18.7
12 23	7 12.54	+23 28.7	1.670	2.630	5.9	20.3	12 23	7 11.42	+ 6 47.8	1.964	2.892	7.8	18.5
1 2	7 2.58	+23 41.2	1.646	2.628	1.4	20.0	1 2	7 2.35	+ 6 56.5	1.937	2.893	5.5	18.4
1 12	6 52.22	+23 50.6	1.651	2.626	3.4	20.1	1 12	6 52.94	+ 7 19.0	1.939	2.893	5.7	18.4
1 22	6 42.73	+23 55.6	1.684	2.625	7.9	20.4	1 22	6 44.18	+ 7 53.3	1.970	2.893	8.2	18.5
2 1	6 35.24	+23 56.3	1.743	2.623	11.9	20.6	2 1	6 36.98	+ 8 36.4	2.028	2.893	11.2	18.7
2 11	6 30.50	+23 53.7	1.825	2.622	15.3	20.8	2 11	6 31.97	+ 9 24.8	2.109	2.892	14.0	18.9
65875	1997 <i>WY</i> ₁₄		1 4.9 308°53	5°2/ 3.4	18		407304	2010 <i>LM</i> ₁₂₇		1 4.9 42°58	0°3/ 4.9	18	
12 3	7 27.50	+32 40.2	1.620	2.461	14.8	19.1	12 3	7 30.01	+24 5.7	1.385	2.230	16.6	20.2
12 13	7 22.24	+33 43.2	1.535	2.443	11.3	18.9	12 13	7 23.44	+23 28.3	1.334	2.248	12.1	20.0
12 23	7 13.76	+34 43.5	1.474	2.424	7.7	18.6	12 23	7 14.00	+22 50.5	1.305	2.266	7.1	19.8
1 2	7 2.93	+35 33.2	1.438	2.407	5.3	18.4	1 2	7 2.90	+22 11.2	1.303	2.285	1.6	19.5
1 12	6 51.24	+36 5.7	1.430	2.389	6.8	18.5	1 12	6 51.78	+21 31.0	1.328	2.304	3.8	19.7
1 22	6 40.38	+36 18.0	1.449	2.372	10.5	18.6	1 22	6 42.15	+20 51.3	1.380	2.324	8.9	20.0
2 1	6 31.96	+36 11.4	1.491	2.355	14.5	18.8	2 1	6 35.17	+20 14.4	1.457	2.344	13.3	20.3
2 11	6 27.02	+35 50.4	1.553	2.339	18.0	19.0	2 11	6 31.44	+19 41.6	1.555	2.365	16.9	20.6
28239	1999 <i>AQ</i> ₁₉		1 4.9 229°05	2°4/ 5.7	18		39889	1998 <i>FG</i>		1 4.9 351°72	3°2/ 5.3	18	
12 3	7 22.47	+13 39.1	2.352	3.166	11.7	19.1	12 3	7 27.22	+16 51.2	1.456	2.294	16.4	18.6
12 13	7 17.25	+13 52.7	2.270	3.163	8.9	18.9	12 13	7 21.57	+16 14.7	1.385	2.292	12.3	18.3
12 23	7 10.24	+14 15.3	2.212	3.160	5.7	18.7	12 23	7 13.10	+15 45.1	1.336	2.291	7.8	18.1
1 2	7 2.05	+14 45.8	2.182	3.157	2.8	18.5	1 2	7 2.77	+15 23.1	1.313	2.290	3.6	17.8
1 12	6 53.53	+15 22.2	2.183	3.154	3.4	18.5	1 12	6 52.00	+15 8.7	1.317	2.289	4.8	17.9
1 22	6 45.55	+16 2.2	2.214	3.151	6.5	18.7	1 22	6 42.30	+15 1.5	1.347	2.289	9.4	18.2
2 1	6 38.91	+16 43.7	2.272	3.148	9.7	18.9	2 1	6 34.91	+15 0.7	1.403	2.289	13.8	18.4
2 11	6 34.25	+17 24.6	2.355	3.145	12.5	19.1	2 11	6 30.65	+15 5.0	1.478	2.289	17.6	18.7
54194	2000 <i>HV</i> ₇₆		1 4.9 271°93	6°5/ 5.8	18		90647	1016 <i>T</i> ₃		1 4.9 133°49	1°1/ 5.1	18	
12 3	7 26.59	+ 8 47.0	1.542	2.358	16.7	19.8	12 3	7 26.83	+19 44.1	2.194	3.014	12.2	20.2
12 13	7 21.14	+ 8 2.7	1.455	2.343	13.3	19.5	12 13	7 20.41	+19 31.4	2.123	3.024	9.0	20.0
12 23	7 12.92	+ 7 32.5	1.391	2.328	9.6	19.3	12 23	7 12.04	+19 21.9	2.078	3.033	5.3	19.8
1 2	7 2.72	+ 7 19.2	1.351	2.312	6.8	19.1	1 2	7 2.48	+19 14.6	2.061	3.042	1.7	19.6
1 12	6 51.84	+ 7 24.1	1.339	2.297	7.3	19.1	1 12	6 52.72	+19 8.6	2.076	3.050	3.0	19.7
1 22	6 41.70	+ 7 45.9	1.352	2.281	10.6	19.2	1 22	6 43.74	+19 3.4	2.120	3.058	6.7	20.0
2 1	6 33.61	+ 8 21.5	1.390	2.265	14.7	19.4	2 1	6 36.42	+18 59.0	2.192	3.066	10.1	20.2
2 11	6 28.52	+ 9 6.4	1.448	2.249	18.4	19.6	2 11	6 31.33	+18 55.3	2.288	3.073	12.9	20.4
30756	1981 <i>ET</i> ₃₉		1 4.9 8°74	1°9/ 4.5	18		498324	2007 <i>VD</i> ₁₇₈		1 4.9 101°82	4°2/ 6.2	18	
12 3	7 24.20	+27 23.8	1.824	2.665	13.4	18.6	12 3	7					

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
409928	2006 <i>UZ</i> ₁₈		1 4.9 150°90	3°0/ 5.5 18			148697	2001 <i>SH</i> ₂₆₁		1 4.9 63°01	0°0/ 4.8 18		
12 3	7 26.85	+14 23.7	2.023	2.837	13.3	22.4	12 3	7 27.39	+22 13.7	1.666	2.503	14.6	20.3
12 13	7 20.57	+14 6.5	1.950	2.844	10.1	22.2	12 13	7 21.34	+22 20.4	1.607	2.517	10.7	20.1
12 23	7 12.21	+13 57.2	1.902	2.850	6.5	22.0	12 23	7 12.79	+22 30.1	1.572	2.532	6.2	19.9
1 2	7 2.54	+13 55.6	1.882	2.856	3.4	21.8	1 2	7 2.71	+22 40.0	1.564	2.546	1.4	19.6
1 12	6 52.59	+14 1.0	1.892	2.861	4.1	21.8	1 12	6 52.41	+22 47.9	1.585	2.561	3.4	19.8
1 22	6 43.43	+14 12.0	1.931	2.866	7.5	22.1	1 22	6 43.20	+22 52.6	1.633	2.575	7.9	20.1
2 1	6 35.97	+14 27.4	1.997	2.870	10.9	22.3	2 1	6 36.15	+22 54.0	1.708	2.590	11.9	20.4
2 11	6 30.87	+14 45.4	2.086	2.874	13.9	22.5	2 11	6 31.94	+22 52.9	1.804	2.605	15.3	20.6
326975	2004 <i>MJ</i>		1 4.9 62°31	2°7/ 4.1 18			297422	2000 <i>SO</i> ₅₉		1 4.9 86°82	0°8/ 4.8 17		
12 3	7 28.17	+26 54.7	1.704	2.542	14.3	20.1	12 3	7 31.61	+24 9.5	1.553	2.389	15.6	21.5
12 13	7 21.99	+27 53.7	1.652	2.562	10.5	19.9	12 13	7 24.49	+24 22.8	1.501	2.411	11.4	21.3
12 23	7 13.19	+28 52.8	1.624	2.582	6.3	19.7	12 23	7 14.62	+24 37.2	1.473	2.432	6.6	21.1
1 2	7 2.77	+29 45.7	1.624	2.602	2.9	19.5	1 2	7 3.12	+24 48.9	1.472	2.454	1.7	20.8
1 12	6 52.08	+30 27.5	1.653	2.622	4.6	19.7	1 12	6 51.48	+24 55.0	1.499	2.474	3.8	21.0
1 22	6 42.50	+30 56.1	1.710	2.643	8.4	20.0	1 22	6 41.19	+24 54.9	1.555	2.495	8.4	21.3
2 1	6 35.16	+31 11.9	1.793	2.663	12.1	20.2	2 1	6 33.38	+24 49.4	1.636	2.515	12.6	21.6
2 11	6 30.77	+31 17.3	1.897	2.684	15.2	20.5	2 11	6 28.73	+24 40.4	1.739	2.535	16.0	21.9
488768	2004 <i>TT</i> ₁₄₅		1 4.9 96°50	4°7/ 4.1 18			104586	2000 <i>GP</i> ₈₅		1 4.9 220°49	3°1/ 5.9 18		
12 3	7 33.16	+32 33.8	1.551	2.386	15.7	21.3	12 3	7 25.44	+11 26.3	2.313	3.115	12.3	20.8
12 13	7 25.98	+33 18.5	1.496	2.401	11.8	21.1	12 13	7 19.53	+11 40.7	2.220	3.105	9.4	20.6
12 23	7 15.65	+33 56.7	1.464	2.415	7.7	20.9	12 23	7 11.67	+12 6.1	2.152	3.095	6.2	20.4
1 2	7 3.34	+34 21.4	1.458	2.429	4.8	20.8	1 2	7 2.48	+12 41.5	2.113	3.084	3.5	20.2
1 12	6 50.75	+34 28.2	1.480	2.442	6.1	20.9	1 12	6 52.83	+13 25.2	2.105	3.073	3.9	20.2
1 22	6 39.59	+34 17.0	1.530	2.456	9.8	21.1	1 22	6 43.68	+14 14.4	2.127	3.061	7.0	20.4
2 1	6 31.20	+33 51.2	1.604	2.469	13.6	21.4	2 1	6 35.92	+15 6.2	2.177	3.048	10.3	20.6
2 11	6 26.32	+33 16.2	1.699	2.482	16.8	21.6	2 11	6 30.23	+15 58.2	2.252	3.035	13.2	20.7
405592	2005 <i>SV</i> ₄₆		1 4.9 39°86	6°0/ 4.1 18			34079	Samoylova		1 4.9 55°82	3°5/ 4.1 18		
12 3	7 30.52	+35 21.2	1.414	2.256	16.5	20.2	12 3	7 29.83	+27 39.1	1.343	2.192	16.8	17.9
12 13	7 24.19	+36 7.0	1.371	2.277	12.5	20.0	12 13	7 23.86	+28 39.6	1.290	2.204	12.4	17.7
12 23	7 14.60	+36 42.6	1.350	2.298	8.6	19.8	12 23	7 14.58	+29 40.1	1.259	2.217	7.6	17.5
1 2	7 3.08	+37 0.5	1.355	2.320	6.1	19.8	1 2	7 3.16	+30 32.7	1.253	2.231	3.7	17.3
1 12	6 51.45	+36 57.0	1.386	2.343	7.2	19.9	1 12	6 51.34	+31 11.0	1.275	2.244	5.6	17.4
1 22	6 41.47	+36 33.1	1.442	2.366	10.5	20.1	1 22	6 40.90	+31 32.4	1.322	2.258	10.1	17.7
2 1	6 34.43	+35 53.7	1.523	2.390	14.1	20.4	2 1	6 33.30	+31 38.5	1.394	2.272	14.4	18.0
2 11	6 30.99	+35 4.9	1.623	2.414	17.2	20.7	2 11	6 29.35	+31 33.1	1.485	2.286	18.0	18.3
15709	1988 <i>XH</i> ₁		1 4.9 119°11	2°9/ 3.9 18			206879	2004 <i>FC</i> ₁₄₈		1 4.9 251°62	6°1/ 3.3 18		
12 3	7 29.21	+28 24.8	2.114	2.940	12.4	17.7	12 3	7 29.53	+42 33.5	2.540	3.341	11.3	20.0
12 13	7 22.45	+29 28.2	2.052	2.955	9.1	17.5	12 13	7 22.75	+43 14.1	2.462	3.334	9.2	19.9
12 23	7 13.39	+30 30.5	2.016	2.969	5.6	17.3	12 23	7 13.61	+43 44.1	2.409	3.326	7.2	19.7
1 2	7 2.83	+31 26.3	2.009	2.984	3.0	17.2	1 2	7 2.92	+43 58.2	2.383	3.319	6.2	19.7
1 12	6 51.93	+32 11.0	2.032	2.997	4.4	17.3	1 12	6 51.86	+43 53.2	2.386	3.311	6.8	19.7
1 22	6 41.88	+32 42.5	2.085	3.011	7.7	17.5	1 22	6 41.64	+43 29.2	2.417	3.303	8.7	19.8
2 1	6 33.71	+33 1.1	2.166	3.024	10.9	17.8	2 1	6 33.33	+42 48.8	2.474	3.296	10.9	19.9
2 11	6 28.13	+33 9.2	2.269	3.036	13.6	18.0	2 11	6 27.64	+41 56.7	2.553	3.288	13.1	20.1
288315	2004 <i>BM</i> ₃₇		1 4.9 313°07	2°3/ 4.6 18			455513	2003 <i>WP</i> ₉₇		1 4.9 20°77	7°0/ 2.9 16		
12 3	7 28.97	+28 12.7	1.673	2.512	14.5	21.2	12 3	7 23.13	+28 48.3	0.820	1.705	21.1	20.0
12 13	7 22.78	+28 24.4	1.600	2.510	10.8	21.0	12 13	7 20.12	+31 4.5	0.794	1.725	15.6	19.7
12 23	7 13.79	+28 33.5	1.550	2.508	6.5	20.7	12 23	7 12.82	+33 17.6	0.787	1.748	10.2	19.5
1 2	7 2.95	+28 35.9	1.527	2.506	2.6	20.5	1 2	7 2.78	+35 11.4	0.801	1.773	7.0	19.5
1 12	6 51.69	+28 28.7	1.532	2.504	4.3	20.6	1 12	6 52.44	+36 33.2	0.837	1.801	9.1	19.7
1 22	6 41.49	+28 11.6	1.565	2.503	8.7	20.9	1 22	6 44.18	+37 19.8	0.895	1.831	13.7	20.1
2 1	6 33.60	+27 46.7	1.624	2.501	12.8	21.1	2 1	6 39.70	+37 35.1	0.972	1.862	18.1	20.4
2 11	6 28.81	+27 17.1	1.704	2.500	16.3	21.3	2 11	6 39.68	+37 27.2	1.066	1.896	21.7	20.8
39107	2000 <i>WS</i> ₂₄		1 4.9 114°30	3°5/ 5.9 18			283961	2004 <i>RB</i> ₁₉		1 4.9 166°93	1°5/ 5.3 18		
12 3	7 28.91	+12 16.0	1.882	2.691	14.4	19.9	12 3	7 29.49	+17 38.1	1.976	2.793	13.5	22.0
12 13	7 22.06	+12 13.2	1.823	2.712	10.9	19.8	12 13	7 22.64	+17 46.4	1.900	2.799	10.0	21.8
12 23	7 13.05	+12 21.3	1.788	2.733	7.1	19.6	12 23	7 13.52	+18 1.2	1.850	2.804	6.0	21.5
1 2	7 2.74	+12 39.7	1.781	2.753	3.9	19.4	1 2	7 2.91	+18 20.6	1.829	2.808	2.1	21.3
1 12	6 52.25	+13 6.4	1.804	2.772	4.4	19.5	1 12	6 51.95	+18 42.3	1.837	2.812	3.3	21.4
1 22	6 42.72	+13 39.0	1.856	2.790	7.8	19.7	1 22	6 41.80	+19 4.4	1.876	2.814	7.4	21.6
2 1	6 35.07	+14 14.8	1.935	2.808	11.2	20.0	2 1	6 33.50	+19 25.6	1.942	2.816	11.2	21.9
2 11	6 29.93	+14 51.5	2.037	2.825	14.2	20.2	2 11	6 27.73	+19 45.3	2.032	2.817	14.3	22.1
400110	2006 <i>TC</i> ₁₂₅		1 4.9 105°29	0°6/ 4.8 18			174904	2004 <i>BP</i> ₁₂₂		1 4.9 19°07	0°8/ 4.8 18		
12 3	7 29.07	+23 51.9	1.924	2.753	13.3	21.3	12 3	7 26.62	+23 46.0	1.506	2.351	15.5	20.2
12 13	7 22.27	+24 1.1	1.864	2.770	9.7	21.1	12 13	7 21.20	+24 3.1	1.440	2.354	11.4	20.0
12 23	7 13.21	+24 11.4	1.828	2.786	5.6	20.9	12 23	7 12.93	+24 22.9	1.396	2.357	6.7	19.7
1 2	7 2.78	+24 19.7	1.821	2.803	1.4	20.6	1 2	7 2.80	+24 41.6	1.379	2.361	1.7	19.4
1 12	6 52.17	+24 24.1	1.844	2.819	3.2	20.8	1 12	6 52.26	+24 55.6	1.389	2.364	3.9	19.5
1 22	6 42.57	+24 23.7	1.896	2.834	7.3	21.1	1 22	6 42.80	+25 3.4	1.426	2.369	8.8	19.8
2 1	6 34.96	+24 19.1	1.975	2.849	11.0	21.3	2 1	6 35.70	+25 5.1	1.487	2.374	13.2	20.1
2 11	6 29.97	+24 11.6	2.077	2.864	14.0	21.6	2 11	6 31.75	+25 2.1	1.570	2.379	16.8	20.4
45535	2000 <i>CK</i> ₂₅		1 4.9 173°10	3°7/ 6.0 18			66396	1999 <i>KQ</i> ₁₃		1 4.9 288°12	2°2/ 5.2 18		
12 3	7 22.83	+10 45.8	2.272	3.078	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
77763	2001 <i>PU</i> ₄₉		1 4.9 177°09	13°3/ 2.0	18		59337	1999 <i>CT</i> ₁₁₁		1 4.9 34°46	0°2/ 4.9	18	
12 3	7 52.89	+61 57.6	2.123	2.836	15.9	19.1	12 3	7 25.66	+23 6.2	1.987	2.819	12.8	18.5
12 13	7 42.07	+63 20.8	2.071	2.838	14.7	19.0	12 13	7 19.83	+22 49.5	1.917	2.824	9.4	18.3
12 23	7 25.78	+64 18.3	2.039	2.838	13.7	18.9	12 23	7 11.86	+22 33.6	1.871	2.830	5.5	18.1
1 2	7 5.80	+64 38.7	2.029	2.839	13.3	18.9	1 2	7 2.57	+22 17.0	1.854	2.836	1.3	17.8
1 12	6 45.30	+64 15.9	2.040	2.839	13.7	18.9	1 12	6 53.07	+21 59.1	1.867	2.843	3.0	17.9
1 22	6 27.56	+63 12.4	2.074	2.839	14.7	19.0	1 22	6 44.43	+21 39.9	1.908	2.849	7.1	18.2
2 1	6 14.79	+61 37.1	2.128	2.838	16.0	19.1	2 1	6 37.61	+21 20.2	1.976	2.856	10.7	18.4
2 11	6 7.75	+59 41.8	2.199	2.837	17.3	19.2	2 11	6 33.22	+21 1.0	2.068	2.863	13.8	18.7
122712	2000 <i>SS</i> ₃₂		1 4.9 185°72	1°6/ 5.4	18		256290	2006 <i>WL</i> ₁₂₈		1 4.9 294°00	2°1/ 4.4	18	
12 3	7 28.67	+16 52.6	2.110	2.924	12.8	21.4	12 3	7 27.25	+26 21.2	1.757	2.595	14.0	21.0
12 13	7 21.99	+17 3.5	2.028	2.925	9.6	21.2	12 13	7 21.51	+26 56.6	1.682	2.592	10.3	20.8
12 23	7 13.14	+17 21.3	1.971	2.924	5.8	21.0	12 23	7 13.11	+27 33.0	1.630	2.588	6.2	20.5
1 2	7 2.85	+17 44.4	1.944	2.923	2.2	20.7	1 2	7 2.90	+28 5.5	1.606	2.585	2.4	20.3
1 12	6 52.16	+18 10.4	1.947	2.920	3.3	20.8	1 12	6 52.19	+28 29.9	1.610	2.582	4.2	20.4
1 22	6 42.15	+18 37.3	1.980	2.917	7.1	21.0	1 22	6 42.36	+28 44.4	1.642	2.579	8.4	20.6
2 1	6 33.83	+19 3.6	2.041	2.914	10.8	21.2	2 1	6 34.62	+28 49.0	1.700	2.576	12.4	20.8
2 11	6 27.89	+19 28.4	2.126	2.909	13.9	21.4	2 11	6 29.81	+28 45.9	1.780	2.573	15.8	21.1
23914	1998 <i>SO</i> ₁₂₉		1 4.9 68°53	1°1/ 4.6	18		298823	2004 <i>RA</i> ₇₉		1 4.9 106°87	1°3/ 4.7	17	
12 3	7 25.47	+24 53.8	2.040	2.873	12.5	18.2	12 3	7 33.18	+25 20.9	1.780	2.606	14.3	21.4
12 13	7 19.75	+25 16.4	1.970	2.878	9.2	18.0	12 13	7 25.39	+25 42.0	1.727	2.631	10.5	21.3
12 23	7 11.84	+25 39.9	1.925	2.883	5.4	17.8	12 23	7 15.09	+26 2.9	1.699	2.656	6.1	21.0
1 2	7 2.54	+26 1.2	1.907	2.889	1.6	17.5	1 2	7 3.30	+26 19.4	1.699	2.680	1.8	20.8
1 12	6 52.94	+26 17.5	1.920	2.894	3.3	17.6	1 12	6 51.40	+26 28.7	1.729	2.702	3.7	21.0
1 22	6 44.13	+26 27.4	1.961	2.899	7.1	17.9	1 22	6 40.74	+26 30.1	1.788	2.725	7.9	21.3
2 1	6 37.11	+26 31.1	2.030	2.905	10.7	18.1	2 1	6 32.37	+26 24.8	1.874	2.746	11.6	21.6
2 11	6 32.52	+26 29.7	2.121	2.910	13.7	18.3	2 11	6 26.93	+26 15.0	1.983	2.766	14.7	21.8
162416	2000 <i>EH</i> ₂₆		1 4.9 280°93	0°3/ 4.9	05 C		160935	2001 <i>YV</i> ₆₈		1 4.9 262°45	1°5/ 4.6	18	
12 3	7 37.98	+20 58.5	1.408	2.236	17.3	25.1	12 3	7 28.60	+24 10.5	1.572	2.413	15.2	20.1
12 13	7 30.95	+21 11.1	1.285	2.190	13.3	24.7	12 13	7 22.83	+24 49.4	1.493	2.404	11.3	19.9
12 23	7 19.66	+21 31.1	1.184	2.141	8.1	24.3	12 23	7 14.06	+25 32.3	1.436	2.396	6.7	19.6
1 2	7 4.63	+21 54.6	1.109	2.091	2.0	23.8	1 2	7 3.16	+26 14.1	1.406	2.387	2.0	19.3
1 12	6 47.35	+22 16.3	1.063	2.038	4.8	23.8	1 12	6 51.57	+26 49.7	1.404	2.379	4.2	19.4
1 22	6 30.02	+22 32.1	1.044	1.983	11.7	24.0	1 22	6 40.86	+27 15.8	1.430	2.370	9.1	19.7
2 1	6 15.04	+22 41.1	1.051	1.926	18.3	24.2	2 1	6 32.47	+27 32.1	1.481	2.361	13.6	19.9
2 11	6 4.25	+22 45.4	1.077	1.867	24.0	24.3	2 11	6 27.34	+27 40.1	1.553	2.352	17.4	20.1
299420	2005 <i>YW</i> ₁₀₅		1 4.9 232°31	0°4/ 5.0	18		226737	2004 <i>QA</i> ₂₈		1 4.9 115°35	1°6/ 5.4	18	
12 3	7 28.75	+20 27.0	1.665	2.498	14.9	21.3	12 3	7 25.47	+17 17.7	2.057	2.879	12.8	21.2
12 13	7 22.68	+20 46.2	1.583	2.491	11.0	21.1	12 13	7 19.62	+17 24.8	1.987	2.888	9.5	21.0
12 23	7 13.84	+21 11.4	1.525	2.483	6.5	20.8	12 23	7 11.73	+17 38.5	1.942	2.896	5.8	20.8
1 2	7 3.06	+21 39.6	1.493	2.475	1.6	20.4	1 2	7 2.56	+17 57.1	1.925	2.905	2.1	20.6
1 12	6 51.66	+22 7.3	1.490	2.466	3.6	20.6	1 12	6 53.11	+18 18.7	1.938	2.913	3.2	20.7
1 22	6 41.09	+22 31.8	1.516	2.457	8.5	20.8	1 22	6 44.42	+18 41.5	1.980	2.920	6.9	20.9
2 1	6 32.65	+22 52.0	1.567	2.448	12.9	21.1	2 1	6 37.40	+19 3.9	2.050	2.928	10.5	21.2
2 11	6 27.23	+23 8.0	1.640	2.438	16.7	21.3	2 11	6 32.68	+19 25.1	2.143	2.936	13.5	21.4
435208	2007 <i>RD</i> ₂₁₃		1 4.9 82°20	4°1/ 6.2	18		81110	2000 <i>ET</i> ₁₂₀		1 4.9 98°95	0°3/ 5.0	18	
12 3	7 23.60	+ 9 36.8	2.288	3.089	12.4	21.0	12 3	7 30.26	+19 18.7	1.473	2.309	16.3	19.1
12 13	7 17.92	+ 9 20.6	2.229	3.109	9.6	20.8	12 13	7 23.80	+19 59.2	1.415	2.324	12.0	18.9
12 23	7 10.58	+ 9 15.1	2.194	3.130	6.6	20.7	12 23	7 14.43	+20 48.0	1.380	2.339	7.0	18.7
1 2	7 2.24	+ 9 20.6	2.187	3.150	4.4	20.6	1 2	7 3.21	+21 40.5	1.371	2.353	1.7	18.4
1 12	6 53.77	+ 9 36.2	2.210	3.170	4.6	20.6	1 12	6 51.62	+22 31.3	1.391	2.367	3.7	18.5
1 22	6 46.01	+10 0.2	2.262	3.190	7.0	20.8	1 22	6 41.21	+23 16.5	1.438	2.381	8.8	18.9
2 1	6 39.69	+10 30.3	2.342	3.209	9.8	21.0	2 1	6 33.25	+23 54.3	1.511	2.394	13.2	19.2
2 11	6 35.34	+11 4.0	2.445	3.229	12.2	21.2	2 11	6 28.54	+24 24.7	1.606	2.407	16.8	19.4
325840	2010 <i>TJ</i> ₁₄		1 4.9 346°77	8°3/ 3.5	18		171364	2006 <i>LG</i> ₁		1 4.9 70°79	8°0/ 7.9	18	
12 3	7 31.73	+40 52.6	1.527	2.356	16.2	21.1	12 3	7 23.11	- 2 29.1	2.237	2.988	14.2	20.1
12 13	7 25.59	+41 49.6	1.461	2.352	13.0	20.8	12 13	7 17.56	- 3 6.7	2.185	3.014	11.9	20.0
12 23	7 15.79	+42 33.2	1.417	2.348	10.0	20.7	12 23	7 10.37	- 3 25.3	2.156	3.039	9.8	19.9
1 2	7 3.53	+42 54.1	1.397	2.345	8.3	20.6	1 2	7 2.23	- 3 22.8	2.153	3.064	8.3	19.9
1 12	6 50.71	+42 46.6	1.404	2.342	9.3	20.6	1 12	6 53.97	- 2 59.3	2.176	3.088	8.1	19.9
1 22	6 39.33	+42 11.0	1.435	2.340	12.1	20.8	1 22	6 46.44	- 2 17.3	2.227	3.113	9.3	20.0
2 1	6 31.02	+41 12.9	1.489	2.339	15.4	21.0	2 1	6 40.36	- 1 21.0	2.303	3.137	11.2	20.2
2 11	6 26.68	+40 0.8	1.563	2.338	18.4	21.2	2 11	6 36.22	- 0 15.3	2.402	3.162	13.1	20.4
518618	2008 <i>CE</i> ₂₁₈		1 4.9 217°83	3°6/ 6.0	18		20028	1992 <i>EZ</i> ₂₁		1 4.9 113°90	2°6/ 5.9	18	
12 3	7 25.25	+11 10.4	2.141	2.947	13.0	22.2	12 3	7 24.26	+13 17.0	2.078	2.893	13.0	18.9
12 13	7 19.50	+11 13.1	2.054	2.940	10.0	22.0	12 13	7 18.76	+13 37.0	2.004	2.899	9.8	18.7
12 23	7 11.72	+11 26.9	1.991	2.933	6.7	21.7	12 23	7 11.27	+14 7.5	1.955	2.904	6.2	18.5
1 2	7 2.57	+11 51.7	1.956	2.925	3.9	21.5	1 2	7 2.48	+14 47.1	1.933	2.909	3.0	18.3
1 12	6 52.98	+12 25.8	1.951	2.917	4.3	21.6	1 12	6 53.35	+15 33.1	1.942	2.914	3.6	18.3
1 22	6 43.96	+13 6.8	1.975	2.909	7.4	21.7	1 22	6 44.89	+16 22.4	1.980	2.918	7.0	18.5
2 1	6 36.44	+13 52.0	2.027	2.900	10.8	21.9	2 1	6 38.01	+17 12.2	2.045	2.923	10.5	18.7
2 11	6 31.14	+14 38.7	2.103	2.891	13.8	22.1	2 11	6 33.35	+18 0.3	2.134	2.928	13.5	19.0
365227	2009 <i>HJ</i> ₉₂		1 4.9 121°25	1°6/ 5.3	18		426925	2013 <i>WG</i> ₁₀₉		1 4.9 22°69	3°7/ 5.4	18	
12 3	7 27.68	+17 36.8											

EPHEMERIDES

1 4.9

1 4.9

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
382130	2011 <i>JR</i> ₂₇		1 4.9 209°89	2.4/ 4.0	18		378320	2007 <i>GR</i> ₆		1 4.9 249°97	1.2/ 5.4	17	
12 3	7 25.58	+27 42.5	2.293	3.121	11.5	20.8	12 3	7 25.19	+17 14.5	2.341	3.157	11.7	21.7
12 13	7 19.83	+28 35.9	2.215	3.120	8.5	20.6	12 13	7 19.49	+17 38.6	2.242	3.140	8.7	21.4
12 23	7 11.95	+29 29.7	2.163	3.118	5.2	20.4	12 23	7 11.79	+18 10.0	2.169	3.123	5.3	21.2
1 2	7 2.65	+30 19.1	2.140	3.117	2.6	20.2	1 2	7 2.68	+18 46.6	2.125	3.105	1.8	20.9
1 12	6 52.91	+31 0.4	2.147	3.115	3.9	20.3	1 12	6 53.04	+19 26.1	2.111	3.086	2.9	21.0
1 22	6 43.79	+31 31.1	2.184	3.113	7.2	20.5	1 22	6 43.85	+20 5.9	2.128	3.067	6.6	21.2
2 1	6 36.27	+31 51.0	2.248	3.111	10.3	20.7	2 1	6 36.03	+20 43.9	2.174	3.048	10.1	21.4
2 11	6 31.06	+32 1.6	2.336	3.109	13.1	20.9	2 11	6 30.32	+21 19.2	2.244	3.028	13.2	21.5
375591	2008 <i>VP</i> ₂₉		1 4.9 102°35	1.6/ 5.3	18		222328	2000 <i>UQ</i> ₃₈		1 4.9 93°95	4.7/ 3.8	18	
12 3	7 25.21	+18 22.5	2.258	3.078	11.9	21.1	12 3	7 30.39	+34 28.6	2.001	2.825	13.1	20.2
12 13	7 19.23	+18 5.3	2.188	3.088	8.8	20.9	12 13	7 23.54	+35 21.0	1.945	2.841	9.9	20.1
12 23	7 11.43	+17 52.2	2.144	3.098	5.3	20.8	12 23	7 14.16	+36 6.7	1.913	2.857	6.8	19.9
1 2	7 2.50	+17 42.6	2.129	3.108	2.0	20.5	1 2	7 3.19	+36 39.7	1.910	2.873	4.8	19.8
1 12	6 53.39	+17 35.9	2.144	3.118	3.0	20.6	1 12	6 51.96	+36 56.3	1.935	2.889	5.8	19.9
1 22	6 45.03	+17 31.5	2.189	3.128	6.5	20.9	1 22	6 41.79	+36 55.9	1.989	2.904	8.6	20.1
2 1	6 38.20	+17 29.0	2.262	3.137	9.7	21.1	2 1	6 33.79	+36 40.9	2.069	2.920	11.6	20.3
2 11	6 33.49	+17 28.2	2.358	3.146	12.5	21.3	2 11	6 28.65	+36 15.4	2.171	2.934	14.2	20.5
124307	2001 <i>QY</i> ₆₄		1 4.9 178°90	1.8/ 5.5	18		375066	2007 <i>RZ</i> ₄		1 4.9 49°38	0.4/ 5.1	18	
12 3	7 28.94	+16 11.4	1.731	2.555	14.8	19.8	12 3	7 24.77	+21 1.9	1.976	2.808	12.9	21.3
12 13	7 22.62	+16 33.5	1.655	2.556	11.1	19.5	12 13	7 19.24	+21 7.2	1.908	2.815	9.5	21.1
12 23	7 13.73	+17 5.4	1.603	2.557	6.8	19.3	12 23	7 11.59	+21 16.1	1.864	2.822	5.6	20.9
1 2	7 3.09	+17 44.9	1.578	2.558	2.5	19.0	1 2	7 2.60	+21 26.5	1.848	2.830	1.4	20.6
1 12	6 51.97	+18 28.4	1.583	2.558	3.7	19.1	1 12	6 53.34	+21 36.7	1.861	2.837	3.0	20.7
1 22	6 41.67	+19 12.4	1.616	2.557	8.1	19.4	1 22	6 44.90	+21 45.2	1.904	2.845	7.0	21.0
2 1	6 33.40	+19 54.5	1.676	2.556	12.3	19.6	2 1	6 38.21	+21 51.7	1.973	2.853	10.7	21.2
2 11	6 27.95	+20 33.0	1.759	2.554	15.8	19.8	2 11	6 33.92	+21 56.1	2.065	2.861	13.8	21.4
251061	2006 <i>SJ</i> ₁₄		1 4.9 137°53	0.5/ 4.8	18		125566	2001 <i>XJ</i> ₁₇		1 4.9 76°62	3.0/ 4.6	17	
12 3	7 29.50	+23 56.3	2.070	2.894	12.7	21.4	12 3	7 33.89	+29 13.6	1.415	2.255	16.6	19.6
12 13	7 22.57	+24 4.8	2.002	2.906	9.3	21.2	12 13	7 26.50	+29 34.9	1.368	2.277	12.2	19.4
12 23	7 13.46	+24 13.9	1.960	2.917	5.4	21.0	12 23	7 15.98	+29 51.9	1.343	2.300	7.4	19.2
1 2	7 2.99	+24 21.2	1.946	2.928	1.3	20.8	1 2	7 3.61	+29 59.0	1.344	2.322	3.3	19.0
1 12	6 52.29	+24 24.5	1.963	2.938	3.1	20.9	1 12	6 51.15	+29 53.1	1.373	2.344	5.0	19.2
1 22	6 42.50	+24 23.2	2.010	2.948	7.0	21.2	1 22	6 40.31	+29 34.8	1.429	2.365	9.4	19.5
2 1	6 34.56	+24 17.7	2.085	2.957	10.6	21.4	2 1	6 32.34	+29 7.3	1.510	2.387	13.6	19.8
2 11	6 29.13	+24 9.4	2.183	2.966	13.6	21.6	2 11	6 27.91	+28 34.9	1.611	2.408	17.0	20.0
395124	2009 <i>XX</i> ₇		1 4.9 335°12	0.6/ 5.0	18		218648	2005 <i>SP</i> ₉₃		1 4.9 162°62	1.0/ 4.7	18	
12 3	7 28.24	+22 6.8	1.197	2.052	18.0	20.3	12 3	7 27.68	+24 43.5	2.311	3.133	11.6	21.5
12 13	7 23.06	+21 50.9	1.127	2.045	13.4	20.0	12 13	7 21.18	+25 3.6	2.236	3.139	8.5	21.3
12 23	7 14.38	+21 38.2	1.078	2.039	8.0	19.7	12 23	7 12.66	+25 24.3	2.187	3.144	5.0	21.1
1 2	7 3.28	+21 26.6	1.052	2.034	2.0	19.3	1 2	7 2.86	+25 42.8	2.167	3.148	1.4	20.9
1 12	6 51.55	+21 14.2	1.052	2.029	4.4	19.4	1 12	6 52.76	+25 56.7	2.178	3.152	3.0	21.0
1 22	6 41.09	+21 0.6	1.077	2.025	10.3	19.8	1 22	6 43.38	+26 4.7	2.219	3.155	6.6	21.2
2 1	6 33.50	+20 46.9	1.125	2.021	15.6	20.0	2 1	6 35.63	+26 7.1	2.289	3.158	9.9	21.4
2 11	6 29.72	+20 34.0	1.192	2.018	20.1	20.3	2 11	6 30.14	+26 5.0	2.382	3.160	12.7	21.6
329627	2003 <i>RP</i> ₂₄		1 4.9 60°20	0.2/ 4.9	18		324065	2005 <i>VB</i> ₈₇		1 4.9 50°11	3.0/ 5.6	18	
12 3	7 26.66	+22 58.8	1.962	2.793	13.0	20.0	12 3	7 25.27	+15 7.5	1.808	2.633	14.2	20.6
12 13	7 20.59	+22 44.2	1.893	2.800	9.5	19.7	12 13	7 19.73	+14 50.1	1.737	2.637	10.7	20.4
12 23	7 12.34	+22 30.4	1.849	2.807	5.6	19.5	12 23	7 11.94	+14 41.0	1.690	2.641	6.8	20.2
1 2	7 2.74	+22 16.1	1.832	2.814	1.3	19.2	1 2	7 2.70	+14 40.0	1.670	2.645	3.4	20.0
1 12	6 52.93	+22 0.4	1.845	2.821	3.0	19.4	1 12	6 53.15	+14 46.3	1.678	2.650	4.2	20.0
1 22	6 44.01	+21 43.2	1.888	2.829	7.1	19.7	1 22	6 44.43	+14 58.3	1.715	2.654	7.9	20.2
2 1	6 36.95	+21 25.3	1.957	2.836	10.8	19.9	2 1	6 37.55	+15 14.5	1.778	2.659	11.6	20.5
2 11	6 32.37	+21 7.6	2.049	2.844	13.9	20.1	2 11	6 33.20	+15 33.3	1.863	2.663	14.9	20.7
378996	2008 <i>UD</i> ₃₁₄		1 4.9 18°67	6.0/ 3.3	18		88856	2001 <i>SE</i> ₂₃₇		1 4.9 40°43	4.5/ 6.1	18	
12 3	7 27.40	+36 36.7	1.830	2.661	13.8	19.9	12 3	7 26.21	+11 44.5	1.228	2.067	18.7	18.8
12 13	7 21.75	+37 38.7	1.768	2.666	10.7	19.7	12 13	7 21.15	+11 47.2	1.173	2.078	14.3	18.5
12 23	7 13.29	+38 32.8	1.730	2.670	7.7	19.6	12 23	7 13.05	+12 7.7	1.138	2.089	9.4	18.3
1 2	7 3.00	+39 12.0	1.718	2.675	6.0	19.5	1 2	7 2.98	+12 45.0	1.126	2.100	5.1	18.1
1 12	6 52.28	+39 31.7	1.734	2.681	7.0	19.6	1 12	6 52.53	+13 35.5	1.141	2.112	5.7	18.2
1 22	6 42.60	+39 30.8	1.776	2.687	9.8	19.7	1 22	6 43.33	+14 33.9	1.181	2.125	10.1	18.4
2 1	6 35.23	+39 12.0	1.843	2.694	12.8	19.9	2 1	6 36.69	+15 34.9	1.244	2.138	14.6	18.7
2 11	6 30.95	+38 40.2	1.932	2.701	15.5	20.1	2 11	6 33.43	+16 34.1	1.328	2.151	18.5	19.0
359195	2009 <i>DQ</i> ₁₁		1 4.9 261°71	0.0/ 4.8	18		215533	2002 <i>VG</i> ₁₁₁		1 4.9 119°82	1.2/ 5.3	18	
12 3	7 28.12	+21 56.2	1.765	2.598	14.2	21.7	12 3	7 28.43	+18 25.5	2.103	2.921	12.8	21.3
12 13	7 22.23	+22 9.2	1.674	2.582	10.5	21.4	12 13	7 21.67	+18 31.2	2.040	2.939	9.4	21.1
12 23	7 13.63	+22 26.3	1.608	2.566	6.2	21.2	12 23	7 12.90	+18 42.0	2.003	2.957	5.6	20.9
1 2	7 3.11	+22 44.5	1.568	2.550	1.5	20.8	1 2	7 2.91	+18 56.1	1.995	2.975	1.8	20.7
1 12	6 51.93	+23 0.8	1.558	2.534	3.5	20.9	1 12	6 52.73	+19 11.8	2.017	2.992	3.0	20.8
1 22	6 41.46	+23 13.3	1.576	2.517	8.3	21.2	1 22	6 43.41	+19 27.3	2.069	3.008	6.8	21.1
2 1	6 32.99	+23 21.5	1.620	2.500	12.6	21.4	2 1	6 35.84	+19 42.0	2.149	3.023	10.2	21.3
2 11	6 27.41	+23 26.0	1.686	2.482	16.4	21.6	2 11	6 30.60	+19 55.4	2.253	3.038	13.1	21.5
31860	2000 <i>ES</i> ₆₈		1 4.9 158°17	1.6/ 5.4	18		307634	2003 <i>SK</i> ₁₁₄		1 4.9 116°42	1.1/ 4.8	18	
12 3	7 29.98	+17 19.3	2.001	2.81									

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
318796	2005 SZ ₁₃₆		1 4.9 170°45	1°0/ 4.7 18			323562	2004 TA ₈₁		1 4.9 109°33	1°1/ 5.2 18		
12 3	7 27.93	+25 2.5	2.239	3.063	11.9	21.8	12 3	7 26.05	+19 8.7	2.086	2.910	12.6	21.2
12 13	7 21.44	+25 19.2	2.163	3.066	8.7	21.6	12 13	7 20.04	+19 8.0	2.017	2.920	9.3	21.0
12 23	7 12.85	+25 36.2	2.112	3.069	5.1	21.4	12 23	7 12.02	+19 11.7	1.974	2.930	5.5	20.8
1 2	7 2.91	+25 50.7	2.090	3.072	1.5	21.1	1 2	7 2.74	+19 18.6	1.959	2.939	1.8	20.5
1 12	6 52.67	+26 0.3	2.099	3.073	3.1	21.3	1 12	6 53.23	+19 27.0	1.974	2.949	3.0	20.6
1 22	6 43.17	+26 3.9	2.138	3.075	6.8	21.5	1 22	6 44.50	+19 35.8	2.018	2.958	6.8	20.9
2 1	6 35.34	+26 2.0	2.205	3.076	10.2	21.7	2 1	6 37.46	+19 44.1	2.090	2.967	10.3	21.1
2 11	6 29.86	+25 55.8	2.296	3.076	13.1	21.9	2 11	6 32.72	+19 51.9	2.185	2.976	13.3	21.3
403017	2007 WJ ₂₄		1 4.9 8°18	3°2/ 4.1 18			261290	2005 UA ₁₅₆		1 4.9 28°57	1°9/ 4.3 18		
12 3	7 25.86	+26 4.5	1.259	2.117	17.1	20.6	12 3	7 26.18	+23 22.3	1.585	2.428	15.0	19.9
12 13	7 21.32	+27 10.5	1.198	2.118	12.6	20.4	12 13	7 20.93	+24 35.6	1.521	2.435	11.0	19.6
12 23	7 13.38	+28 20.2	1.158	2.120	7.7	20.1	12 23	7 12.91	+25 54.8	1.481	2.441	6.4	19.4
1 2	7 3.11	+29 25.6	1.143	2.122	3.4	19.9	1 2	7 3.00	+27 13.1	1.468	2.449	2.2	19.1
1 12	6 52.20	+30 18.9	1.154	2.126	5.6	20.0	1 12	6 52.57	+28 23.7	1.484	2.456	4.3	19.3
1 22	6 42.50	+30 56.0	1.190	2.130	10.5	20.3	1 22	6 43.09	+29 21.9	1.527	2.465	8.8	19.6
2 1	6 35.59	+31 16.7	1.249	2.136	15.1	20.6	2 1	6 35.83	+30 6.2	1.595	2.473	12.9	19.8
2 11	6 32.41	+31 23.7	1.328	2.142	19.0	20.8	2 11	6 31.63	+30 37.7	1.685	2.482	16.3	20.1
76132	2000 EF ₁₀		1 4.9 60°34	4°4/ 6.3 18			235482	2004 BS ₄₆		1 4.9 348°33	3°2/ 4.8 18		
12 3	7 23.07	+9 22.7	2.041	2.848	13.5	19.9	12 3	7 29.19	+32 52.2	1.839	2.671	13.7	19.0
12 13	7 17.86	+9 12.0	1.974	2.858	10.5	19.7	12 13	7 22.81	+32 35.5	1.762	2.666	10.3	18.8
12 23	7 10.74	+9 13.7	1.930	2.867	7.3	19.5	12 23	7 13.81	+32 10.3	1.708	2.661	6.6	18.6
1 2	7 2.42	+9 28.1	1.913	2.877	4.8	19.4	1 2	7 3.17	+31 33.3	1.682	2.657	3.4	18.4
1 12	6 53.85	+9 54.1	1.925	2.886	5.0	19.4	1 12	6 52.26	+30 43.7	1.684	2.653	4.6	18.4
1 22	6 46.00	+10 29.3	1.965	2.896	7.6	19.6	1 22	6 42.45	+29 43.4	1.716	2.650	8.3	18.7
2 1	6 39.70	+11 10.8	2.032	2.906	10.7	19.8	2 1	6 34.86	+28 36.5	1.773	2.648	12.0	18.9
2 11	6 35.56	+11 55.5	2.122	2.916	13.5	20.0	2 11	6 30.21	+27 27.6	1.854	2.646	15.3	19.1
130508	2000 QG ₁₄₅		1 4.9 348°51	4°9/ 3.9 18			131189	2001 DO ₃		1 4.9 37°97	3°0/ 4.2 18		
12 3	7 29.29	+31 10.2	1.371	2.219	16.6	19.0	12 3	7 28.14	+25 46.8	1.225	2.081	17.6	18.8
12 13	7 23.82	+32 8.9	1.304	2.216	12.5	18.7	12 13	7 22.84	+26 53.4	1.177	2.096	12.9	18.5
12 23	7 14.86	+33 4.7	1.259	2.214	8.1	18.5	12 23	7 14.15	+28 2.5	1.151	2.112	7.7	18.3
1 2	7 3.45	+33 49.1	1.239	2.212	5.0	18.3	1 2	7 3.28	+29 5.7	1.149	2.128	3.3	18.1
1 12	6 51.38	+34 15.5	1.246	2.210	6.7	18.4	1 12	6 52.03	+29 55.9	1.174	2.145	5.4	18.2
1 22	6 40.54	+34 21.6	1.278	2.209	10.9	18.6	1 22	6 42.24	+30 29.6	1.223	2.163	10.3	18.6
2 1	6 32.56	+34 9.8	1.333	2.208	15.2	18.9	2 1	6 35.36	+30 47.4	1.296	2.182	14.8	18.9
2 11	6 28.40	+33 45.3	1.408	2.208	18.9	19.1	2 11	6 32.20	+30 52.5	1.389	2.201	18.5	19.2
399453	2002 NQ ₆₁		1 4.9 94°45	3°1/ 4.3 17			74208	1998 RD ₆₀		1 4.9 102°88	8°4/ 7.4 18		
12 3	7 32.04	+29 28.9	1.807	2.636	14.0	21.2	12 3	7 25.89	+0 15.1	1.857	2.630	15.9	19.6
12 13	7 24.73	+30 11.1	1.756	2.660	10.4	21.0	12 13	7 20.00	+0 27.5	1.797	2.645	13.2	19.5
12 23	7 14.83	+30 50.0	1.729	2.683	6.4	20.8	12 23	7 12.03	+0 50.1	1.759	2.659	10.5	19.3
1 2	7 3.37	+31 20.0	1.730	2.706	3.3	20.7	1 2	7 2.76	+0 49.9	1.745	2.673	8.7	19.2
1 12	6 51.74	+31 37.4	1.761	2.728	4.7	20.8	1 12	6 53.27	+0 26.7	1.759	2.687	8.6	19.3
1 22	6 41.31	+31 41.6	1.821	2.750	8.3	21.1	1 22	6 44.61	+0 16.9	1.799	2.701	10.3	19.4
2 1	6 33.19	+31 34.3	1.906	2.771	11.8	21.3	2 1	6 37.70	+1 15.9	1.864	2.714	12.7	19.6
2 11	6 28.04	+31 18.9	2.014	2.792	14.7	21.6	2 11	6 33.17	+2 24.7	1.952	2.727	15.2	19.8
390806	2004 HD ₃₆		1 4.9 231°54	4°8/ 6.0 18			458277	2010 UK ₄₆		1 4.9 47°46	3°1/ 4.4 18		
12 3	7 28.20	+10 15.5	1.722	2.532	15.5	22.2	12 3	7 28.79	+29 8.8	1.565	2.407	15.2	21.1
12 13	7 22.18	+10 1.6	1.634	2.521	12.1	22.0	12 13	7 22.79	+29 40.1	1.506	2.417	11.2	20.9
12 23	7 13.57	+10 1.3	1.570	2.510	8.3	21.8	12 23	7 13.92	+30 8.6	1.471	2.428	6.9	20.7
1 2	7 3.15	+10 15.3	1.531	2.498	5.2	21.5	1 2	7 3.22	+30 28.9	1.461	2.439	3.3	20.5
1 12	6 52.09	+10 42.8	1.521	2.486	5.7	21.5	1 12	6 52.22	+30 37.1	1.480	2.450	4.9	20.6
1 22	6 41.73	+11 21.2	1.540	2.473	9.2	21.7	1 22	6 42.43	+30 32.5	1.525	2.461	9.0	20.9
2 1	6 33.26	+12 7.1	1.584	2.459	13.2	21.9	2 1	6 35.11	+30 17.1	1.596	2.473	13.0	21.1
2 11	6 27.57	+12 56.9	1.650	2.445	16.7	22.1	2 11	6 30.98	+29 54.4	1.688	2.485	16.3	21.4
500014	2011 QL ₄₇		1 4.9 179°42	5°1/ 3.5 17			295244	2008 GN ₂₇		1 4.9 135°47	2°0/ 5.5 18		
12 3	7 30.77	+44 47.9	3.498	4.277	9.0	23.1	12 3	7 26.59	+16 33.8	1.987	2.807	13.3	21.4
12 13	7 23.08	+45 14.1	3.424	4.278	7.3	23.0	12 13	7 20.55	+16 30.5	1.915	2.814	9.9	21.2
12 23	7 13.62	+45 30.1	3.376	4.279	5.9	22.9	12 23	7 12.38	+16 34.1	1.868	2.821	6.1	21.0
1 2	7 3.08	+45 32.5	3.356	4.280	5.1	22.8	1 2	7 2.86	+16 43.5	1.849	2.827	2.5	20.8
1 12	6 52.37	+45 19.4	3.367	4.280	5.5	22.8	1 12	6 53.05	+16 57.2	1.860	2.834	3.5	20.8
1 22	6 42.38	+44 51.2	3.407	4.279	6.9	22.9	1 22	6 44.02	+17 13.6	1.900	2.840	7.2	21.1
2 1	6 33.90	+44 10.0	3.475	4.278	8.5	23.0	2 1	6 36.74	+17 31.4	1.967	2.845	10.9	21.3
2 11	6 27.48	+43 19.5	3.568	4.276	10.1	23.2	2 11	6 31.85	+17 49.5	2.058	2.850	13.9	21.5
217286	2004 FP ₅₈		1 4.9 207°22	1°8/ 5.4 18			357399	2003 UE ₂₃₂		1 4.9 129°63	2°2/ 5.5 18		
12 3	7 26.23	+16 41.0	2.132	2.950	12.6	21.5	12 3	7 27.94	+16 34.2	1.761	2.586	14.5	21.3
12 13	7 20.28	+16 45.8	2.048	2.946	9.4	21.3	12 13	7 21.76	+16 29.7	1.693	2.594	10.9	21.1
12 23	7 12.24	+16 57.4	1.989	2.941	5.8	21.1	12 23	7 13.18	+16 32.9	1.647	2.601	6.7	20.9
1 2	7 2.80	+17 14.7	1.958	2.936	2.3	20.9	1 2	7 3.06	+16 42.8	1.630	2.608	2.8	20.6
1 12	6 52.96	+17 35.7	1.957	2.931	3.3	20.9	1 12	6 52.61	+16 57.5	1.641	2.614	3.8	20.7
1 22	6 43.76	+17 58.6	1.986	2.925	7.0	21.1	1 22	6 43.08	+17 15.1	1.680	2.621	7.9	21.0
2 1	6 36.14	+18 21.9	2.042	2.918	10.6	21.3	2 1	6 35.53	+17 34.2	1.746	2.627	11.9	21.2
2 11	6 30.80	+18 44.7	2.122	2.911	13.7	21.5	2 11	6 30.66	+17 53.6	1.835	2.632	15.2	21.5
132356	2002 GY ₅₈		1 4.9 172°97	0°8/ 5.2 18			164502	2006 GM ₃₅		1 4.9 310°37	5°1/ 3.9 18		
12 3	7 28.60	+19 56.6	1.842	2.669	13.9	21.0	12 3	7 30.41	+32 23.2	1.469	2.311	16	

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2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
416904	2005 <i>QL</i> ₁₉₀		1 4.9 26°61	1.4/ 5.3	18		317039	2001 <i>RE</i> ₆₀		1 4.9 75°36	0°1/ 5.0	18	
12 3	7 25.83	+18 32.4	1.777	2.609	14.1	20.9	12 3	7 27.44	+20 22.2	1.729	2.562	14.4	20.9
12 13	7 20.30	+18 36.2	1.704	2.610	10.5	20.7	12 13	7 21.43	+20 54.2	1.670	2.578	10.5	20.7
12 23	7 12.38	+18 46.4	1.654	2.611	6.3	20.5	12 23	7 13.00	+21 32.0	1.635	2.594	6.1	20.5
1 2	7 2.89	+19 1.3	1.631	2.612	2.1	20.2	1 2	7 3.04	+22 11.8	1.628	2.610	1.4	20.2
1 12	6 53.02	+19 18.8	1.638	2.613	3.4	20.3	1 12	6 52.81	+22 49.8	1.650	2.626	3.3	20.4
1 22	6 43.97	+19 36.8	1.672	2.614	7.8	20.6	1 22	6 43.56	+23 23.2	1.700	2.642	7.7	20.7
2 1	6 36.85	+19 54.1	1.732	2.616	11.8	20.8	2 1	6 36.37	+23 50.9	1.777	2.658	11.6	21.0
2 11	6 32.36	+20 10.1	1.815	2.617	15.2	21.0	2 11	6 31.92	+24 12.8	1.876	2.674	14.9	21.2
423564	2005 <i>UK</i> ₄₅₇		1 4.9 44°57	0°7/ 4.8	16		146648	2001 <i>UM</i> ₈₀		1 4.9 108°59	1°6/ 4.6	18	
12 3	7 27.71	+20 34.9	1.418	2.262	16.4	20.8	12 3	7 29.37	+26 12.9	2.067	2.893	12.6	20.7
12 13	7 21.94	+21 39.1	1.375	2.289	11.9	20.6	12 13	7 22.54	+26 42.2	2.008	2.912	9.2	20.6
12 23	7 13.37	+22 50.4	1.355	2.316	6.8	20.4	12 23	7 13.52	+27 11.0	1.974	2.931	5.5	20.4
1 2	7 3.10	+24 2.2	1.361	2.343	1.6	20.1	1 2	7 3.15	+27 35.6	1.969	2.949	2.0	20.2
1 12	6 52.63	+25 8.2	1.396	2.371	3.8	20.4	1 12	6 52.59	+27 52.9	1.994	2.967	3.5	20.3
1 22	6 43.43	+26 4.0	1.457	2.400	8.7	20.7	1 22	6 42.96	+28 2.0	2.049	2.984	7.1	20.6
2 1	6 36.69	+26 48.0	1.544	2.428	12.9	21.0	2 1	6 35.23	+28 3.4	2.131	3.001	10.5	20.8
2 11	6 33.10	+27 21.0	1.652	2.457	16.3	21.3	2 11	6 30.02	+27 58.8	2.237	3.017	13.4	21.0
500484	2012 <i>TC</i> ₂₅₄		1 4.9 191°87	4°7/ 3.6	17		339561	2005 <i>JR</i> ₁₄₉		1 4.9 135°46	2°1/ 4.5	17	
12 3	7 28.44	+39 57.5	3.001	3.801	9.8	21.9	12 3	7 33.88	+26 5.7	1.646	2.477	15.1	22.5
12 13	7 21.63	+40 31.0	2.923	3.800	7.7	21.8	12 13	7 26.39	+26 45.0	1.585	2.491	11.1	22.3
12 23	7 12.92	+40 56.4	2.872	3.797	5.8	21.6	12 23	7 16.01	+27 24.7	1.547	2.504	6.6	22.0
1 2	7 3.00	+41 9.7	2.850	3.795	4.7	21.6	1 2	7 3.76	+27 59.0	1.537	2.517	2.5	21.8
1 12	6 52.79	+41 8.5	2.857	3.792	5.3	21.6	1 12	6 51.17	+28 23.5	1.556	2.528	4.3	22.0
1 22	6 43.27	+40 52.8	2.894	3.789	7.1	21.7	1 22	6 39.76	+28 36.5	1.604	2.539	8.7	22.2
2 1	6 35.26	+40 24.3	2.959	3.785	9.2	21.9	2 1	6 30.83	+28 39.0	1.678	2.549	12.8	22.5
2 11	6 29.39	+39 46.3	3.047	3.781	11.2	22.0	2 11	6 25.13	+28 33.9	1.774	2.559	16.1	22.8
24495	Degroff		1 4.9 298°23	11°9/ 28.7	18 R		466791	2015 <i>BS</i> ₂₃		1 4.9 278°33	4°0/ 6.3	18	
12 3	7 39.97	+37 49.7	1.365	2.194	17.7	18.1	12 3	7 22.00	+ 9 23.5	2.334	3.136	12.2	21.1
12 13	7 34.24	+41 26.6	1.263	2.152	14.7	17.8	12 13	7 17.03	+ 9 19.4	2.251	3.132	9.5	20.9
12 23	7 22.95	+45 17.0	1.186	2.109	12.3	17.5	12 23	7 10.30	+ 9 26.6	2.191	3.128	6.6	20.7
1 2	7 5.94	+48 58.2	1.138	2.066	12.2	17.4	1 2	7 2.42	+ 9 45.2	2.160	3.123	4.3	20.5
1 12	6 44.59	+52 4.4	1.117	2.022	14.7	17.4	1 12	6 54.21	+10 14.2	2.157	3.119	4.5	20.5
1 22	6 21.96	+54 17.2	1.122	1.977	18.8	17.5	1 22	6 46.52	+10 51.5	2.184	3.115	7.0	20.7
2 1	6 2.17	+55 34.2	1.147	1.932	23.1	17.6	2 1	6 40.14	+11 34.6	2.238	3.111	10.0	20.9
2 11	5 48.59	+56 7.5	1.187	1.887	26.9	17.8	2 11	6 35.69	+12 20.7	2.317	3.106	12.7	21.0
351782	2006 <i>HX</i>		1 4.9 237°21	0°6/ 5.2	18		62094	2000 <i>RU</i> ₉₂		1 4.9 156°49	1°9/ 5.4	18	
12 3	7 28.49	+19 39.2	1.902	2.727	13.6	21.8	12 3	7 25.89	+17 10.6	2.033	2.855	13.0	19.3
12 13	7 22.34	+19 57.8	1.811	2.714	10.1	21.5	12 13	7 20.05	+17 1.6	1.958	2.858	9.7	19.1
12 23	7 13.67	+20 22.4	1.744	2.701	6.0	21.2	12 23	7 12.12	+16 58.5	1.907	2.860	6.0	18.9
1 2	7 3.24	+20 50.6	1.706	2.687	1.6	20.9	1 2	7 2.85	+17 0.6	1.883	2.862	2.4	18.6
1 12	6 52.18	+21 19.3	1.697	2.673	3.3	21.0	1 12	6 53.26	+17 6.7	1.890	2.864	3.4	18.7
1 22	6 41.77	+21 46.1	1.717	2.657	7.8	21.3	1 22	6 44.41	+17 15.5	1.926	2.865	7.1	18.9
2 1	6 33.17	+22 9.5	1.764	2.642	11.9	21.5	2 1	6 37.24	+17 26.2	1.989	2.867	10.7	19.2
2 11	6 27.26	+22 29.3	1.835	2.625	15.5	21.7	2 11	6 32.41	+17 37.8	2.075	2.868	13.8	19.4
243716	2000 <i>GE</i> ₁₁₇		1 4.9 322°58	4°3/ 5.8	18		468705	2010 <i>BZ</i> ₁₂		1 4.9 182°42	6°0/ 8.1	17	
12 3	7 24.40	+12 49.0	1.538	2.369	16.0	20.1	12 3	7 21.44	- 2 27.2	3.071	3.807	11.0	22.2
12 13	7 19.62	+12 29.0	1.458	2.359	12.3	19.8	12 13	7 16.21	- 2 26.9	2.987	3.808	9.3	22.1
12 23	7 12.17	+12 21.2	1.400	2.349	8.2	19.6	12 23	7 9.66	- 2 11.5	2.927	3.808	7.5	22.0
1 2	7 2.89	+12 26.2	1.368	2.340	4.7	19.3	1 2	7 2.26	- 1 40.2	2.893	3.807	6.3	21.9
1 12	6 53.03	+12 43.1	1.362	2.331	5.3	19.3	1 12	6 54.63	- 0 53.4	2.889	3.807	6.1	21.9
1 22	6 43.97	+13 9.9	1.383	2.323	9.3	19.6	1 22	6 47.39	+ 0 6.7	2.914	3.806	7.2	22.0
2 1	6 36.96	+13 43.6	1.428	2.315	13.6	19.8	2 1	6 41.14	+ 1 17.0	2.968	3.804	8.9	22.1
2 11	6 32.85	+14 20.9	1.494	2.307	17.3	20.0	2 11	6 36.35	+ 2 33.7	3.047	3.802	10.7	22.2
328261	2008 <i>GV</i> ₆		1 4.9 62°65	1°8/ 5.4	18		194259	2001 <i>TQ</i> ₂₃₇		1 4.9 43°01	2°1/ 5.5	17	
12 3	7 25.72	+17 9.9	1.790	2.619	14.2	20.8	12 3	7 27.41	+16 27.8	1.307	2.150	17.5	20.3
12 13	7 20.18	+17 15.1	1.718	2.622	10.5	20.5	12 13	7 22.07	+16 43.3	1.246	2.156	13.1	20.0
12 23	7 12.30	+17 28.1	1.670	2.625	6.4	20.3	12 23	7 13.68	+17 10.8	1.205	2.163	8.0	19.7
1 2	7 2.89	+17 47.3	1.648	2.628	2.4	20.0	1 2	7 3.25	+17 47.6	1.190	2.170	2.9	19.5
1 12	6 53.10	+18 10.3	1.656	2.631	3.5	20.1	1 12	6 52.36	+18 29.7	1.201	2.177	4.3	19.6
1 22	6 44.14	+18 35.0	1.692	2.634	7.7	20.4	1 22	6 42.63	+19 12.9	1.238	2.184	9.5	19.9
2 1	6 37.06	+18 59.7	1.754	2.637	11.7	20.6	2 1	6 35.45	+19 53.9	1.300	2.192	14.2	20.2
2 11	6 32.58	+19 23.2	1.838	2.640	15.0	20.9	2 11	6 31.65	+20 31.1	1.382	2.200	18.2	20.5
499450	2010 <i>EC</i> ₈₁		1 4.9 223°25	1°4/ 5.4	18		417719	2007 <i>CQ</i> ₂₁		1 4.9 304°13	1°1/ 4.9	18	
12 3	7 23.23	+17 20.4	2.424	3.243	11.2	21.8	12 3	7 28.45	+26 32.8	1.765	2.600	14.0	20.7
12 13	7 17.89	+17 26.4	2.341	3.240	8.4	21.6	12 13	7 22.40	+26 20.8	1.682	2.591	10.4	20.5
12 23	7 10.79	+17 38.1	2.283	3.236	5.1	21.4	12 23	7 13.70	+26 6.4	1.623	2.582	6.2	20.2
1 2	7 2.52	+17 54.2	2.254	3.233	1.9	21.1	1 2	7 3.24	+25 47.0	1.592	2.573	1.8	19.9
1 12	6 53.94	+18 13.2	2.255	3.229	2.8	21.2	1 12	6 52.34	+25 21.3	1.589	2.564	3.6	20.0
1 22	6 45.91	+18 33.6	2.286	3.226	6.2	21.4	1 22	6 42.37	+24 49.8	1.615	2.556	8.1	20.2
2 1	6 39.22	+18 54.0	2.346	3.222	9.4	21.6	2 1	6 34.52	+24 14.5	1.667	2.548	12.3	20.5
2 11	6 34.49	+19 13.7	2.429	3.218	12.2	21.8	2 11	6 29.58	+23 38.1	1.741	2.540	15.9	20.7
308752	2006 <i>JG</i> ₅₃		1 4.9 31°66	3°8/ 3.9	18		369512	2010 <i>VC</i> ₁₅₃		1 4.9 250°41	2°4/ 5.3	18	
12 3	7 28.67	+27 59.4	1.367	2.217	16								

EPHEMERIDES

1 4.9

1 5.0

2019/20	α_{2000}	δ_{2000}	Δ	r	β	V	2019/20	α_{2000}	δ_{2000}	Δ	r	β	V
301224	2009 <i>BX</i> ₈		1 4.9 13°75	0°2/ 5.0	18		110215	2001 <i>SR</i> ₂₁₉		1 4.9 126°79	0°4/ 4.9	18	
12 3	7 25.76	+21 40.4	1.154	2.014	18.2	20.5	12 3	7 24.53	+23 23.0	2.589	3.411	10.5	21.2
12 13	7 21.21	+21 45.1	1.096	2.017	13.4	20.2	12 13	7 18.71	+23 38.2	2.518	3.420	7.7	21.0
12 23	7 13.30	+21 55.4	1.059	2.022	7.9	19.9	12 23	7 11.20	+23 54.7	2.473	3.430	4.5	20.8
1 2	7 3.17	+22 8.1	1.045	2.027	1.9	19.6	1 2	7 2.64	+24 10.3	2.457	3.439	1.1	20.6
1 12	6 52.59	+22 19.8	1.056	2.033	4.3	19.7	1 12	6 53.86	+24 23.4	2.472	3.448	2.5	20.7
1 22	6 43.37	+22 28.4	1.092	2.041	10.0	20.1	1 22	6 45.71	+24 32.7	2.518	3.456	5.8	21.0
2 1	6 36.98	+22 33.6	1.150	2.049	15.1	20.4	2 1	6 38.94	+24 38.1	2.593	3.464	8.8	21.2
2 11	6 34.28	+22 35.7	1.228	2.059	19.3	20.7	2 11	6 34.09	+24 40.2	2.691	3.472	11.3	21.4
379884	2012 <i>HJ</i> ₆₂		1 4.9 232°54	7°2/ 6.9	18		15399	Hudec		1 4.9 224°59	0°8/ 4.8	18	
12 3	7 23.81	+ 2 12.6	2.099	2.876	14.2	21.4	12 3	7 27.77	+24 8.2	2.120	2.946	12.4	19.4
12 13	7 18.50	+ 1 37.7	2.016	2.870	11.7	21.2	12 13	7 21.57	+24 24.1	2.034	2.938	9.1	19.2
12 23	7 11.24	+ 1 19.1	1.957	2.864	9.2	21.1	12 23	7 13.11	+24 41.2	1.973	2.930	5.4	18.9
1 2	7 2.66	+ 1 19.3	1.923	2.858	7.4	20.9	1 2	7 3.13	+24 56.9	1.940	2.921	1.4	18.7
1 12	6 53.70	+ 1 38.7	1.917	2.852	7.4	20.9	1 12	6 52.69	+25 8.5	1.937	2.912	3.1	18.8
1 22	6 45.31	+ 2 15.8	1.938	2.846	9.3	21.0	1 22	6 42.93	+25 14.6	1.965	2.903	7.1	19.0
2 1	6 38.39	+ 3 6.9	1.986	2.839	11.9	21.2	2 1	6 34.88	+25 15.5	2.019	2.893	10.8	19.2
2 11	6 33.60	+ 4 7.4	2.056	2.832	14.5	21.3	2 11	6 29.28	+25 12.1	2.097	2.882	14.0	19.4
423292	2005 <i>EN</i> ₄₈		1 4.9 261°92	3°5/ 4.2	18		185175	2006 <i>SB</i> ₂₈₅		1 4.9 51°14	2°1/ 5.6	17	
12 3	7 27.78	+33 8.9	2.274	3.097	11.7	21.5	12 3	7 27.14	+15 23.6	1.433	2.269	16.7	19.6
12 13	7 21.55	+33 30.4	2.190	3.089	8.9	21.3	12 13	7 21.44	+15 53.0	1.385	2.292	12.4	19.3
12 23	7 13.07	+33 46.6	2.132	3.080	5.8	21.0	12 23	7 13.08	+16 34.5	1.359	2.315	7.5	19.1
1 2	7 3.10	+33 53.2	2.102	3.071	3.6	20.9	1 2	7 3.09	+17 24.6	1.359	2.338	2.8	18.9
1 12	6 52.73	+33 47.7	2.101	3.063	4.6	20.9	1 12	6 52.90	+18 18.8	1.387	2.362	3.9	19.0
1 22	6 43.13	+33 29.8	2.130	3.054	7.6	21.1	1 22	6 43.92	+19 12.4	1.442	2.387	8.5	19.4
2 1	6 35.31	+33 1.2	2.185	3.045	10.7	21.3	2 1	6 37.27	+20 2.4	1.522	2.411	12.7	19.7
2 11	6 29.97	+32 25.2	2.264	3.036	13.5	21.5	2 11	6 33.62	+20 46.8	1.624	2.435	16.2	20.0
428171	2006 <i>SL</i> ₃₉₈		1 4.9 123°42	5°3/ 3.5	18		53106	1999 <i>AG</i> ₄		1 4.9 210°55	1°1/ 5.3	18	
12 3	7 28.88	+40 20.6	2.646	3.451	10.8	21.4	12 3	7 29.05	+18 27.2	1.772	2.598	14.4	19.0
12 13	7 22.13	+41 1.6	2.581	3.459	8.6	21.2	12 13	7 22.81	+18 43.2	1.690	2.594	10.7	18.8
12 23	7 13.28	+41 33.3	2.542	3.467	6.5	21.1	12 23	7 13.98	+19 6.5	1.632	2.588	6.5	18.5
1 2	7 3.12	+41 51.2	2.531	3.475	5.3	21.1	1 2	7 3.36	+19 34.8	1.601	2.582	2.0	18.2
1 12	6 52.72	+41 52.7	2.550	3.483	6.0	21.1	1 12	6 52.18	+20 4.9	1.600	2.576	3.5	18.3
1 22	6 43.14	+41 37.8	2.597	3.491	7.8	21.2	1 22	6 41.79	+20 34.1	1.628	2.569	8.1	18.6
2 1	6 35.32	+41 8.7	2.671	3.498	10.0	21.4	2 1	6 33.37	+21 1.0	1.682	2.561	12.3	18.8
2 11	6 29.89	+40 29.4	2.767	3.505	12.1	21.6	2 11	6 27.76	+21 24.7	1.759	2.553	15.9	19.0
338245	2002 <i>TV</i> ₁₅₁		1 4.9 206°71	5°2/ 4.1	18		83933	2001 <i>VJ</i> ₇₄		1 4.9 74°29	0°3/ 5.1	18	
12 3	7 34.06	+33 23.2	1.485	2.321	16.2	20.9	12 3	7 27.77	+18 39.0	1.759	2.588	14.4	18.5
12 13	7 27.20	+34 6.2	1.415	2.319	12.3	20.6	12 13	7 21.65	+19 32.3	1.702	2.608	10.5	18.3
12 23	7 16.81	+34 42.7	1.367	2.317	8.2	20.4	12 23	7 13.15	+20 33.6	1.670	2.628	6.1	18.1
1 2	7 4.02	+35 4.8	1.345	2.314	5.3	20.2	1 2	7 3.13	+21 38.2	1.666	2.648	1.5	17.8
1 12	6 50.62	+35 6.8	1.350	2.311	6.7	20.3	1 12	6 52.82	+22 41.1	1.692	2.668	3.2	18.0
1 22	6 38.53	+34 48.3	1.382	2.308	10.7	20.5	1 22	6 43.48	+23 38.4	1.747	2.688	7.6	18.3
2 1	6 29.34	+34 13.3	1.438	2.305	14.8	20.7	2 1	6 36.14	+24 27.7	1.828	2.707	11.5	18.6
2 11	6 24.00	+33 28.0	1.514	2.302	18.3	21.0	2 11	6 31.51	+25 8.8	1.933	2.727	14.6	18.8
457122	2008 <i>FP</i> ₃₈		1 4.9 204°92	2°1/ 5.6	18		35737	1999 <i>GN</i> ₂₀		1 5.0 231°27	2°9/ 5.7	18	
12 3	7 25.75	+15 37.6	2.142	2.959	12.6	22.3	12 3	7 28.12	+14 21.6	1.948	2.762	13.8	20.0
12 13	7 19.94	+15 43.0	2.059	2.955	9.5	22.0	12 13	7 21.96	+14 17.6	1.856	2.750	10.5	19.8
12 23	7 12.09	+15 56.2	2.000	2.952	5.9	21.8	12 23	7 13.43	+14 22.7	1.788	2.737	6.7	19.6
1 2	7 2.87	+16 15.9	1.970	2.948	2.6	21.6	1 2	7 3.25	+14 36.4	1.748	2.723	3.3	19.3
1 12	6 53.26	+16 40.4	1.970	2.943	3.4	21.6	1 12	6 52.50	+14 57.0	1.738	2.709	4.1	19.3
1 22	6 44.27	+17 7.7	2.000	2.938	7.0	21.9	1 22	6 42.36	+15 22.8	1.757	2.694	7.9	19.5
2 1	6 36.83	+17 36.0	2.057	2.933	10.5	22.1	2 1	6 33.93	+15 51.7	1.803	2.678	11.8	19.7
2 11	6 31.64	+18 4.0	2.137	2.927	13.6	22.3	2 11	6 28.03	+16 21.8	1.872	2.662	15.2	19.9
239537	2008 <i>SW</i> ₃₁		1 4.9 220°96	1°1/ 4.8	18		242066	2002 <i>TS</i> ₅₅		1 5.0 94°10	1°6/ 5.4	18	
12 3	7 31.74	+25 20.5	1.698	2.529	14.7	21.0	12 3	7 28.87	+17 4.9	1.855	2.676	14.1	21.0
12 13	7 24.95	+25 26.4	1.616	2.523	10.9	20.7	12 13	7 22.22	+17 20.2	1.800	2.700	10.4	20.8
12 23	7 15.28	+25 32.1	1.557	2.515	6.4	20.5	12 23	7 13.36	+17 43.0	1.769	2.723	6.2	20.6
1 2	7 3.65	+25 34.1	1.526	2.507	1.8	20.1	1 2	7 3.18	+18 10.8	1.767	2.746	2.2	20.4
1 12	6 51.46	+25 29.7	1.524	2.499	3.8	20.3	1 12	6 52.83	+18 40.9	1.794	2.769	3.3	20.5
1 22	6 40.22	+25 18.2	1.550	2.490	8.6	20.5	1 22	6 43.47	+19 11.0	1.850	2.791	7.3	20.8
2 1	6 31.25	+25 0.9	1.603	2.480	12.9	20.8	2 1	6 36.05	+19 39.4	1.934	2.812	11.0	21.1
2 11	6 25.42	+24 40.3	1.677	2.470	16.6	21.0	2 11	6 31.19	+20 5.2	2.041	2.833	14.0	21.3
279302	2009 <i>WK</i> ₁₈₃		1 4.9 5°63	1°9/ 5.4	18		132806	2002 <i>QF</i> ₉		1 5.0 216°67	1°2/ 5.5	18	
12 3	7 24.12	+17 17.1	1.821	2.653	13.9	21.0	12 3	7 24.14	+16 42.5	2.704	3.515	10.4	20.8
12 13	7 19.00	+17 15.7	1.748	2.653	10.3	20.8	12 13	7 18.48	+17 5.6	2.612	3.507	7.8	20.6
12 23	7 11.63	+17 21.6	1.698	2.653	6.3	20.6	12 23	7 11.15	+17 35.1	2.546	3.498	4.7	20.4
1 2	7 2.77	+17 33.4	1.675	2.654	2.4	20.3	1 2	7 2.69	+18 9.2	2.510	3.489	1.7	20.1
1 12	6 53.54	+17 49.6	1.680	2.655	3.5	20.4	1 12	6 53.86	+18 45.9	2.505	3.480	2.6	20.2
1 22	6 45.10	+18 8.1	1.714	2.656	7.6	20.6	1 22	6 45.45	+19 23.2	2.532	3.470	5.8	20.4
2 1	6 38.46	+18 27.5	1.774	2.658	11.5	20.9	2 1	6 38.24	+19 59.2	2.587	3.459	8.8	20.6
2 11	6 34.34	+18 46.7	1.856	2.660	14.8	21.1	2 11	6 32.82	+20 33.0	2.668	3.448	11.4	20.7
234412	2001 <i>RY</i> ₄₈		1 4.9 99°84	2°6/ 6.1	18		459158	2012 <i>DL</i> ₆		1 5.0 349°30	6°0/ 6.7	18	
12 3	7 31.36	+10 49.8	1.583	2.395	16.5								