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SUPPLEMENT

Perseids - the list of photografhic orbits

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Abstract. The paper presents a list of 875 Perseids selected from the newest version of the IAU MDC database of photographic orbits. The selection was made by a method of indices described in detail in our paper on a strucure of Perseids published in this issue of Contributions.

Key words: meteors – photographic orbits – Perseids

1. Introduction

The paper presents a list of the Perseid meteoroid stream members selected from the newest completed version of the IAU Meteor Data Center catalogue of precise photographic orbits (Lindblad et al., 2005). The meteors with heliocentric velocities higher than 48 km s^{-1} were omitted from this analysis in the light of our previous results (Porubčan et al., 1995). Thus the final set of database consisted of 4526 orbits.

The method of indices was used to acquire a basic data set for the Perseids - totally 875 orbits were selected. A detailed description of the method of indices was published elsewhere (Svoreň et al., 2000 and Kaňuchová et al., 2005).

As input data we used 5 orbital elements incorporated in the Southworth-Hawkins D-criterion (1963): q - the perihelion distance, e - the eccentricity, ω - the argument of perihelion, Ω - the longitude of ascending node and i - the inclination of the plane of meteor orbit to the ecliptic. Next our parameters are α - right ascention and δ - declination, the coordinates of the radiant (which belong to the most accurately known parameters) and v_g - the geocentric velocity (a significant parameter characteristic for physically related orbits).

- in the first step of procedure the relative ratios, approximated by small integers, corresponding to the reciprocal values of the relative errors, were applied as the basic numbers for the division of the parameters, - next, indices to a meteor according to the interval pertinent to its parameters are assigned on the basis of a division of the observed ranges of parameters, - and finally a philosophy of the method says that a grouping of the meteors with the same indices reflects a similarity among the orbits.

On the basis of our previous results (Svoreň et al., 2000) the individual numbers of intervals were used in the division of each parameter. The divisions were

reciprocally proportional to the relative errors of parameters. This procedure homogenizes an infiltration of dispersed orbits of each group into neighbouring intervals. The errors of 8 individual parameters are determined as mean weight values calculated from primary errors derived for the 5 most numerous streams - Perseids, Geminids, Orionids, Quadrantids and Leonids. The primary errors of the streams were calculated as the root-of-mean-squares deviations for the selected numbers of the streams. An independent (concerning the method of indices) procedure had to be used to obtain input data - the method took the first break point on the curve of the cumulative number versus the D-discriminant (Neslušan et al., 1995).

Table 1. The mean errors (MEs) and the numbers of intervals of basic division.

parameter	q	e	ω	Ω	i	α	δ	v_g
ME	0.016	0.072	3.5	2.6	2.3	3.6	1.3	1.3
Range	1.1	1.6	360.0	360.0	180.0	360.0	148.0	76.0
Range/ME/11.11	6.19	2.00	9.26	12.46	7.04	8.30	10.25	5.26
Intervals	6	2	9	12	7	8	10	5

Table 1 lists:

- the parameters considered in the method of indices;

- the errors of the parameters - mean weight values calculated from the 5 most numerous streams - Perseids, Geminids, Orionids, Quadrantids and Leonids;

- the ranges - differences between the uppermost and lowest values for the whole IAU MDC database;

- the ratios of given ranges to the mean errors, the result moreover divided by the empirical value (11.11 in our case) fulfilled a condition of minimal sum of squares of differences between real values and closest integers.

- The corresponding nearest integers serving as a basic set of numbers for the division of the parameters into the equidistant intervals are in the last row.

Table 2. The ranges of parameters for 875 selected Perseids and the mean orbit.

parameter	q	e	ω	Ω	i	α	δ	v_g
Lowest value	0.791	0.389	123.9	109.1	103.4	2.7	47.1	51.6
Highest value	1.014	1.541	198.8	174.0	126.6	87.7	65.9	67.3
Mean orbit	0.951	0.961	151.4	138.8	113.1			
	$\pm$0.021	$\pm$0.136	$\pm$6.5	$\pm$4.7	$\pm$2.7			

The list of selected Perseids is given in Tab. 3. Only the indentification number, date and time of observation and the above-mentioned 8 parameters are

incorporated in the Table. The reader can obtain all the other data characterizing the selected meteors from the electronics version of the IAU MDC database (Lindblad et al., 2005). An indentification number is an easy way to identify in the database the meteors here selected.

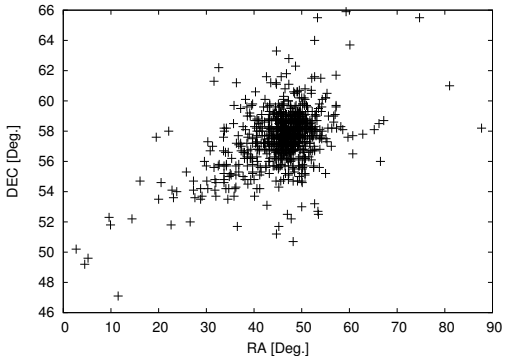

Figure 1. Radiants of 875 selected photographic Perseids.

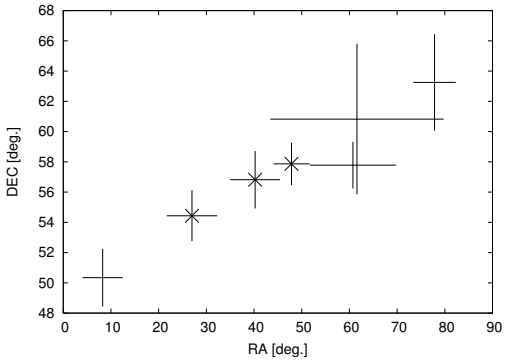

Figure 2. Mean radiants (and root-of-mean-squares of their coordinates) for groups of meteors observed in 10 day intervals. The daily motion of Perseid radiant is well seen. Points without × (July 11^{th} – 20^{th}, August 20^{th} – 29^{th}; August 30^{th} – September 8^{th}, and September 9^{th} – 17^{th}) represent mean radiants of very small numbers of meteors.

2. Statistics of selected Perseids

The selected Perseids cover interval from July 11^{th} to September 17^{th}. Ranges of parameters for 875 Perseids are listed in Table 2. In the last row is the mean orbit of this selected Perseids. Figure 1 depicts the radiants of 875 Perseids in the equatoreal coordinate system. The daily motion of the mean radiant is well seen in Fig. 2.

Table 3. Selected Perseids - IN - identification number, $d.t.$ - date (yymmdd.) and time (.ttttt), q - perihelion distance in AU, e - eccentricity, ω - argument of perihelion in degrees, Ω - longitude of ascending node and i - inclination of the plane of meteor orbit to the ecliptic in degrees, α - right ascension and δ - declination of the radiant in degrees, v_g - geocentric velocity in km per second.

IN	$d.t.$	q	e	ω	Ω	i	α	δ	v_g
306S1	580711.3832	0.950	0.905	149.6	109.1	113.3	11.5	47.1	58.56
032O1	580712.9100	0.967	1.166	155.4	110.6	107.2	9.6	52.3	59.10
019C1	560712.9891	1.005	1.046	167.9	111.2	107.0	2.7	50.2	58.00
044D1	530714.8330	1.007	0.941	168.7	112.7	108.6	4.5	49.2	57.60
199S1	660715.1363	1.005	1.184	168.4	112.7	110.1	5.2	49.6	60.36
271P1	580715.2776	0.978	0.972	157.4	112.9	107.1	9.9	51.8	57.30
088K1	650720.9000	0.989	0.969	161.2	118.4	109.4	14.4	52.2	58.10
016D3	630723.8680	0.960	0.935	152.4	120.8	112.8	22.6	51.8	58.80
023K3	790723.9360	0.987	0.923	160.3	120.8	106.3	16.1	54.7	56.60
022K2	690724.9910	0.973	0.940	155.9	122.3	103.4	19.5	57.6	55.70
017D3	620725.7870	0.948	0.906	149.3	122.9	113.8	26.6	52.0	58.80
014O4	620727.9680	0.957	0.961	152.0	125.0	110.8	27.3	54.7	58.40
010T1	850728.7425	0.971	0.955	155.7	125.8	109.7	25.8	55.3	58.04
026K3	790728.8770	1.002	1.224	167.6	125.5	112.6	20.0	53.5	61.60
050K1	620728.9060	0.965	0.919	153.6	125.8	112.5	27.6	53.6	58.60
104D8	820729.8480	0.953	0.966	151.2	126.6	109.7	29.6	56.0	58.10
003O1	570729.8890	0.958	0.985	152.4	127.1	113.1	30.3	54.2	59.40
027K3	790729.8980	0.970	0.919	155.1	126.5	111.8	27.3	54.1	58.40
006D8	760729.9170	0.948	1.008	150.2	127.2	111.3	31.6	55.6	59.00
162B1	900729.9173	0.991	0.972	162.0	126.6	111.5	23.8	54.0	58.89
055I1	760730.3230	0.956	1.017	152.1	127.6	108.5	30.3	57.3	58.20
111O1	590730.8580	0.964	1.043	154.2	127.5	112.8	30.1	54.7	59.90
112O1	590730.9670	0.883	0.612	131.1	127.6	114.6	36.5	51.7	55.50
006O1	570730.9730	0.934	0.823	145.4	128.1	111.9	33.7	54.6	57.30
142F1	670731.2700	0.976	0.984	157.1	127.8	114.1	28.8	53.5	59.78
019D3	600731.8530	0.963	0.882	153.0	129.2	113.3	31.8	54.1	58.50
342B1	920731.9613	0.944	0.952	149.1	129.1	111.7	34.2	55.7	58.59
018K2	680731.9640	0.929	0.771	143.7	129.2	111.2	35.2	55.1	56.50
005D4	640801.6850	0.949	0.925	149.8	129.9	107.9	33.8	58.0	57.10
096N1	840801.7400	0.977	1.308	159.0	129.9	115.8	32.0	54.6	63.40
113O1	590801.8410	0.960	0.984	153.0	129.4	111.8	32.5	55.7	59.00
114O1	590801.8460	0.953	1.005	151.5	129.4	112.2	33.7	55.7	59.30
417O6	710801.9230	0.990	1.437	163.5	129.4	117.1	29.1	53.7	64.97
003K1	570801.9330	0.961	1.209	154.5	130.0	113.8	34.2	55.8	61.80
055C1	570802.0000	0.948	0.893	149.5	130.0	107.3	33.7	58.2	56.59
017O4	620802.0400	0.978	0.628	154.9	129.8	110.2	28.8	54.2	55.00
030B1	840802.0519	0.957	0.928	151.9	130.2	115.5	34.5	53.5	59.63
167B1	900802.0529	0.951	0.971	150.7	129.6	114.6	34.7	54.2	59.73
021D3	620802.8290	0.957	0.975	152.2	130.6	113.6	34.8	55.0	59.50
022D3	620802.8780	0.963	0.913	153.2	130.6	113.3	33.7	54.8	58.80
021D6	760802.9350	0.952	0.893	150.3	131.1	111.2	35.3	56.2	57.90

IN	$d.t.$	q	e	ω	Ω	i	α	δ	v_g
431O6	750802.9470	0.952	1.004	151.3	130.4	116.1	35.8	53.7	60.53
008D8	760802.9510	0.960	0.772	151.3	131.1	111.5	33.7	55.2	56.80
452O6	790802.9530	0.978	1.164	158.8	130.3	114.7	31.8	54.8	61.71
064B1	860802.9546	0.947	0.893	149.0	130.5	114.4	36.0	54.2	58.89
124B1	890802.9754	0.955	0.949	151.6	130.8	110.8	34.6	56.6	58.34
333B1	920802.9797	0.959	1.046	153.3	131.0	109.1	34.2	58.2	58.71
016D1	510803.8367	1.012	1.047	174.2	131.3	113.1	23.1	53.6	60.20
003K2	670803.8780	0.970	0.992	155.8	131.3	115.1	34.1	54.2	60.20
115O1	590803.9210	0.968	1.094	155.9	131.4	112.1	34.0	56.6	60.20
041K2	710803.9660	0.962	0.831	152.3	131.4	109.6	33.6	56.7	56.80
457O6	800803.9970	0.953	0.995	151.5	132.0	111.2	36.8	57.1	58.90
143F1	670804.2960	0.986	1.009	160.7	131.7	115.7	32.0	53.7	60.60
230J1	530804.2969	0.943	0.952	148.7	132.3	112.4	38.6	56.3	58.85
021O4	620804.8120	0.942	1.000	149.0	132.5	106.7	38.2	60.1	57.40
025D3	620804.8180	0.952	0.961	151.1	132.5	111.3	37.3	57.0	58.60
025D2	570804.8510	0.960	0.836	152.0	132.8	112.2	36.2	55.7	57.70
053K1	620804.8900	0.941	0.992	148.8	132.5	110.4	39.0	57.8	58.60
020O4	620804.9090	0.947	0.687	146.7	132.5	105.8	35.7	58.5	54.00
021C1	560804.9138	0.943	0.883	148.1	133.1	112.4	39.3	56.2	58.14
027D2	570804.9240	0.929	0.858	144.8	132.8	110.4	40.3	57.2	57.20
432O6	750804.9380	1.014	1.130	178.7	132.3	111.2	20.5	54.6	60.32
337B1	920804.9512	0.961	0.938	153.1	132.9	113.1	36.8	55.8	59.00
033K1	590804.9900	0.955	0.941	151.4	132.4	106.5	35.8	59.7	56.80
151E1	840805.0141	1.014	1.201	177.7	133.0	113.3	22.8	54.1	61.70
339B1	920805.0229	0.955	0.861	150.9	133.0	109.3	36.7	57.7	56.97
039K3	810805.0270	0.940	1.131	149.5	132.8	110.3	40.2	58.7	59.90
009K3	780805.0400	0.966	0.993	154.7	132.6	114.5	36.2	55.1	60.00
017W1	420805.1800	0.955	0.991	151.9	132.9	113.1	38.0	56.2	59.49
174H1	530805.2460	0.966	0.977	154.7	133.2	114.3	36.8	55.3	59.79
103I1	780805.3070	0.953	1.028	151.7	132.8	109.9	37.7	58.3	58.80
028I1	750805.3150	0.952	0.957	150.9	132.6	112.0	37.7	56.6	58.80
056I1	760805.3240	0.955	0.915	151.3	133.3	115.5	38.7	54.5	59.50
100I2	840805.3430	0.964	1.027	154.4	133.3	115.4	37.7	55.0	60.60
237J1	530805.4557	0.960	0.957	153.0	133.4	111.2	37.2	57.2	58.57
106O4	650805.5810	0.923	0.790	142.7	133.4	108.7	41.1	58.0	55.90
023O4	620805.8090	0.966	1.300	156.3	133.4	107.4	36.3	61.2	60.50
005K2	670805.9090	0.937	0.783	145.8	133.2	113.0	39.7	55.3	57.30
428O6	730805.9120	0.958	1.010	152.9	133.7	113.5	38.6	56.2	59.85
087D8	810805.9360	0.966	0.896	154.1	133.7	110.6	36.3	57.2	57.80
022O4	620805.9720	0.961	0.941	153.2	133.6	115.2	38.1	54.8	59.70
020K2	680805.9890	0.949	0.875	149.5	134.0	112.7	39.7	56.2	58.20
117O1	590805.9910	0.940	0.983	148.4	133.4	111.6	40.5	57.3	58.90
345B1	920806.0459	0.955	1.035	152.4	133.9	116.3	40.0	54.8	60.95
346B1	920806.0919	0.958	0.955	152.4	134.0	112.7	38.7	56.5	59.05
146F1	670806.1040	0.963	1.020	154.2	133.4	112.5	37.3	56.7	59.64
017I2	800806.2420	0.957	1.031	152.8	134.2	114.0	39.6	56.2	60.20
038I2	810806.3870	0.947	0.938	149.6	134.1	107.5	39.5	59.7	57.10
009D4	640806.7380	0.939	0.929	147.8	134.8	112.0	42.2	57.2	58.50

IN	$d.t.$	q	e	ω	Ω	i	α	δ	v_g
010D4	640806.7550	0.956	1.038	152.6	134.8	114.7	40.7	56.0	60.50
025O4	620806.8220	0.954	0.975	151.7	134.4	112.0	39.7	57.2	59.00
011D4	640806.8450	0.944	1.002	149.5	134.9	115.4	42.5	55.6	60.30
019D1	510806.8467	0.911	0.951	142.3	134.2	110.5	45.1	58.2	58.10
016O3	610806.8520	0.950	0.972	150.7	134.7	111.5	40.6	57.6	58.80
024O4	620806.8680	0.955	1.158	153.0	134.4	112.7	40.5	57.7	61.00
012D4	640806.8820	0.954	0.978	151.7	134.9	108.0	39.7	59.8	57.70
023C1	560806.8910	0.957	0.736	150.2	135.0	109.8	38.5	57.2	55.91
006K2	670806.9060	0.940	0.660	144.7	134.2	114.9	40.1	53.7	56.60
010K3	780806.9180	0.964	0.977	154.3	134.4	114.3	38.6	55.7	59.80
028O4	620806.9250	0.913	0.987	143.1	134.5	115.0	45.7	55.8	59.90
007K2	670806.9410	0.864	0.572	126.3	134.2	112.2	45.6	54.7	54.20
081B1	880806.9506	0.951	0.991	151.0	134.8	113.1	41.1	56.8	59.50
092K1	650806.9760	0.950	0.815	149.3	134.7	110.2	39.7	57.5	56.80
017O3	610807.0020	0.888	0.912	137.6	134.8	115.0	48.3	55.5	59.00
027O4	620807.0060	0.949	0.979	150.5	134.6	112.6	40.8	57.0	59.20
031O5	670807.0230	0.931	1.061	147.3	134.3	110.6	43.2	58.7	59.30
009K2	670807.0340	0.964	0.929	153.8	134.3	112.3	38.0	56.6	58.70
018O3	610807.0350	0.998	0.998	165.7	134.8	110.9	31.3	57.0	59.00
108O4	650807.0350	0.968	1.081	155.9	134.8	113.6	38.7	56.7	60.60
019O3	610807.0530	0.950	0.956	150.6	134.8	114.8	41.3	55.6	59.70
214S1	560807.2992	0.947	0.953	149.7	135.4	113.1	42.2	56.8	59.11
219S1	560807.4032	0.944	0.979	149.5	135.5	116.1	43.2	55.2	60.31
221S1	560807.4217	0.960	0.985	153.3	135.5	114.0	40.6	56.3	59.78
020D1	510807.7679	0.966	0.988	154.8	135.1	113.9	39.2	56.2	59.79
030O4	620807.8030	0.920	1.073	145.2	135.3	109.4	46.2	59.8	59.00
021D1	510807.8521	0.945	0.798	147.9	135.2	111.7	41.1	56.7	57.09
023K2	690807.8590	0.891	0.750	135.8	135.6	119.6	47.8	52.2	58.60
088C1	590807.8738	0.951	0.937	150.6	135.2	109.4	40.6	58.8	57.78
022D1	510807.9050	0.949	0.827	149.2	135.2	111.1	40.7	57.2	57.22
089D8	810807.9110	0.949	0.933	150.2	135.5	111.5	41.7	57.7	58.40
071E1	780807.9190	0.944	1.106	150.3	135.3	123.8	44.7	51.2	63.80
158D2	590807.9230	0.920	0.551	137.6	135.2	108.0	41.5	57.2	53.10
159D2	590807.9620	0.970	1.188	156.8	135.3	110.9	38.6	59.0	60.70
109O4	650807.9800	0.889	0.807	136.4	135.7	105.5	48.3	60.6	54.90
110O4	650808.0280	0.926	1.043	146.1	135.8	113.6	46.1	57.2	60.10
112O4	650808.0350	0.973	0.956	156.6	135.8	116.1	39.3	54.8	60.20
029O4	620808.0380	0.956	1.021	152.4	135.5	107.4	40.3	60.6	57.90
114O4	650808.0490	0.949	1.089	151.4	135.8	115.4	43.3	56.2	61.20
287S1	560808.1645	0.958	1.051	153.3	136.2	113.5	42.0	57.2	60.25
018W1	400808.1900	0.937	0.975	147.8	136.3	111.9	44.8	58.0	58.91
018I2	800808.2960	0.946	0.805	148.1	136.2	110.5	42.2	57.7	56.80
147F1	670808.3040	0.991	0.895	162.3	135.5	109.9	33.6	57.6	57.66
104I1	780808.3110	0.967	0.854	154.0	135.7	110.6	38.7	57.6	57.40
182H1	530808.3586	0.948	0.969	150.2	136.1	113.6	43.2	56.8	59.45
184H1	530808.3646	0.956	0.978	152.1	136.2	112.9	42.0	57.2	59.34
001P1	530808.3905	0.954	1.128	152.7	136.2	109.4	42.3	60.1	59.63
185H1	530808.4095	0.934	0.995	147.3	136.2	106.9	44.7	61.1	57.44

IN	$d.t.$	q	e	ω	Ω	i	α	δ	v_g
165W1	510808.4517	0.969	0.970	155.5	135.8	114.7	39.7	55.8	59.88
073N1	830808.7200	0.946	0.952	149.5	135.8	114.7	43.2	56.0	59.60
024D6	770808.7540	0.938	1.021	148.4	136.4	112.0	45.0	58.2	59.40
160D2	590808.8220	0.917	0.616	138.6	136.1	104.9	43.3	59.7	52.80
023D1	510808.8404	0.942	0.964	148.8	136.1	112.1	43.8	57.7	58.90
036K2	700808.8500	0.938	0.936	147.7	136.3	109.6	44.1	59.1	57.80
163D2	590808.8750	0.934	1.005	147.4	136.1	106.8	44.6	61.2	57.50
024K2	690808.9000	0.935	0.975	147.5	136.6	115.0	45.7	56.2	59.90
119O1	590808.9030	0.959	0.960	152.7	136.2	110.5	41.0	58.5	58.40
285B1	910808.9117	0.944	0.958	149.2	136.0	111.1	43.1	58.2	58.52
118O1	590808.9290	0.935	0.977	147.5	136.2	111.5	44.8	58.2	58.80
164D2	590808.9310	0.953	0.966	151.5	136.2	112.8	42.3	57.2	59.20
165D2	590808.9390	0.946	1.014	150.0	136.2	112.7	43.7	57.6	59.60
017D4	640808.9400	0.946	0.965	149.7	136.9	106.6	43.5	61.2	57.10
286B1	910808.9490	0.971	1.182	157.1	136.0	119.0	41.2	54.2	63.27
084B1	880808.9534	0.946	0.946	149.6	136.7	113.9	44.2	56.7	59.31
036O1	580808.9830	0.955	1.014	152.1	136.5	113.2	42.8	57.3	59.80
117O4	650808.9830	0.925	0.853	144.1	136.7	113.7	46.2	56.4	58.20
127B1	890808.9914	0.934	0.969	147.2	136.5	114.1	45.7	56.7	59.56
115O4	650808.9960	0.950	0.983	150.8	136.7	113.6	43.7	57.0	59.60
116O4	650808.9990	0.918	1.113	145.1	136.7	112.2	48.8	58.7	60.30
287B1	910809.0011	0.931	0.909	145.9	136.1	114.2	45.1	56.2	58.96
037K2	700809.0080	0.937	1.336	150.1	136.4	126.6	48.2	50.7	66.80
021O3	610809.0320	0.956	1.069	152.9	136.7	113.1	43.1	57.7	60.30
070K1	640809.0400	0.962	1.526	156.2	137.0	121.6	45.2	54.3	67.20
289B1	910809.0562	0.992	0.965	163.0	136.1	116.4	36.2	54.3	60.45
039I2	810809.2300	0.959	1.118	153.7	136.8	113.8	43.1	57.5	61.00
040I2	810809.3310	0.946	0.875	149.1	136.9	109.3	43.3	59.1	57.10
237S1	560809.3952	0.912	0.931	142.3	137.4	117.2	49.5	55.0	60.00
240S1	560809.4263	0.939	0.922	147.9	137.4	113.2	45.8	57.2	58.83
102I2	840809.4280	0.945	0.946	149.5	137.2	110.8	44.5	58.7	58.30
074N1	830809.6800	0.899	0.707	136.6	136.8	111.2	47.7	57.0	55.70
055N1	800809.7200	0.939	0.681	145.0	137.5	110.6	44.0	57.3	55.50
018D4	640809.7430	0.945	1.110	150.6	137.6	110.8	46.0	59.7	59.90
056N1	800809.7500	0.882	0.684	132.9	137.6	109.4	50.1	58.0	54.80
072N1	810809.7500	0.946	1.007	150.2	137.3	113.8	45.2	57.2	59.90
070D2	580809.8080	0.955	0.995	152.1	137.3	110.1	43.2	59.3	58.60
019D4	640809.8100	0.944	0.835	148.1	137.7	111.1	44.8	58.0	57.30
024O3	610809.8260	0.965	0.896	153.8	137.5	115.2	42.5	55.7	59.30
028C1	560809.8656	0.961	0.996	153.8	137.8	111.1	43.0	58.8	58.96
029C1	560809.8795	0.949	0.754	148.5	137.8	114.2	44.2	55.7	57.48
122O1	590809.8860	0.940	0.946	148.3	137.1	111.4	45.2	58.3	58.50
025O3	610809.8900	0.944	1.001	149.7	137.6	113.1	45.7	57.7	59.60
132D8	830809.8970	0.942	0.905	148.4	137.0	109.6	44.2	59.1	57.50
072K1	640809.9100	0.948	1.024	150.8	137.8	114.9	45.8	56.8	60.40
119O4	650809.9220	0.942	0.938	148.6	137.6	112.9	45.7	57.5	58.90
409O6	670809.9300	0.987	1.514	162.9	137.1	116.8	39.3	56.8	65.61
032O4	620809.9610	0.912	0.929	142.4	137.4	109.9	49.1	59.3	57.70

IN	$d.t.$	q	e	ω	Ω	i	α	δ	v_g
089C1	590809.9626	0.938	0.971	148.0	137.2	111.1	45.7	58.7	58.62
090C1	590809.9635	0.950	0.993	151.0	137.2	115.5	44.6	56.1	60.28
040O1	580809.9650	0.898	0.798	138.1	137.4	110.6	49.6	58.1	56.50
121O1	590809.9710	0.958	0.990	152.8	137.2	113.3	43.1	57.3	59.60
034O4	620809.9820	0.948	0.977	150.2	137.4	114.5	45.1	56.7	59.80
011K2	670809.9860	0.952	1.063	151.8	137.1	110.9	44.0	59.2	59.50
027O3	610809.9890	0.946	1.078	150.6	137.7	110.5	45.7	59.7	59.50
028O3	610809.9900	0.945	0.942	149.3	137.7	114.6	45.7	56.5	59.50
016B1	830810.0075	0.957	1.053	153.0	137.1	110.0	42.8	59.6	59.12
029O3	610810.0150	0.958	0.977	152.6	137.7	112.8	43.7	57.7	59.30
031C1	560810.0178	0.950	1.027	151.1	138.0	116.1	46.0	56.1	60.83
048O5	720810.0180	0.894	0.647	134.4	137.9	106.2	48.8	59.7	53.42
030O3	610810.0230	0.934	0.953	147.1	137.7	107.7	46.5	60.8	57.30
128B1	890810.0319	0.961	0.967	153.4	137.5	114.2	43.2	56.7	59.68
005O5	650810.0430	0.939	1.009	148.7	137.7	110.0	46.3	59.7	58.64
032O5	670810.0520	0.932	0.923	146.4	137.2	110.8	46.2	58.6	58.04
148F1	670810.1940	0.975	1.039	157.7	137.3	111.7	40.1	58.3	59.61
103I2	840810.2380	0.988	0.998	161.6	138.0	111.5	38.2	58.1	59.20
247J1	530810.2467	0.949	0.972	150.6	138.0	111.1	45.1	58.8	58.70
279P1	580810.2675	0.947	0.905	149.5	137.7	110.6	44.7	58.7	57.85
105I1	780810.3520	0.953	0.902	151.0	137.7	114.5	44.3	56.3	59.10
188H1	530810.3573	0.970	0.977	155.9	138.1	110.3	41.6	59.1	58.56
242S1	560810.3606	0.965	1.036	154.8	138.3	118.4	44.6	54.7	61.68
022W1	500810.4394	0.927	0.756	143.4	137.9	112.8	46.8	56.7	56.92
251J1	530810.4406	0.934	0.955	147.2	138.1	113.7	47.7	57.3	59.31
135I1	790810.4970	0.942	0.829	147.5	137.6	113.6	45.2	56.5	58.00
009D7	670810.7370	0.955	1.008	152.3	137.9	114.6	44.7	56.8	60.20
023D4	640810.7770	0.931	0.958	146.4	138.6	111.1	48.7	59.0	58.50
034O5	670810.7920	0.962	0.507	148.2	137.9	105.1	39.2	59.0	52.01
133D8	830810.8140	0.964	0.820	153.1	137.8	110.4	41.7	58.2	57.00
012K2	670810.8190	0.966	0.833	153.8	137.9	110.8	41.7	58.0	57.30
134D8	830810.8230	0.918	0.870	142.9	137.8	113.2	48.7	57.1	58.20
075K1	640810.8380	0.955	0.765	150.1	138.7	113.8	44.6	56.2	57.50
074K1	640810.8580	0.920	0.880	143.5	138.7	110.3	49.6	59.1	57.40
044O5	700810.8650	0.902	0.722	137.5	138.2	119.1	50.0	53.0	58.26
025D6	770810.8650	0.933	0.691	143.6	138.4	110.7	46.1	57.6	55.60
014K3	780810.8740	1.012	1.042	176.3	138.2	113.1	30.0	55.7	60.20
025D4	640810.8790	0.938	0.988	148.2	138.7	112.9	48.2	58.1	59.40
124O1	590810.8920	0.971	0.995	156.2	138.1	111.1	41.7	58.7	59.00
040B1	850810.8935	0.964	0.941	154.1	138.4	111.6	43.2	58.3	58.62
032O2	600810.9010	0.934	0.886	146.4	138.8	113.4	48.2	57.3	58.50
028D3	620810.9020	0.989	0.998	162.0	138.3	116.4	39.7	55.2	60.80
123O1	590810.9050	0.963	0.985	154.2	138.1	112.7	43.3	57.8	59.40
062C1	580810.9069	0.958	1.014	153.0	138.3	114.9	45.0	56.8	60.35
076K1	640810.9150	0.945	0.953	149.6	138.8	111.7	46.8	58.6	58.70
067B1	860810.9159	0.952	0.947	151.0	138.2	113.2	45.2	57.5	59.12
059D8	800810.9230	0.791	1.212	126.9	138.7	111.7	67.2	58.7	60.90
125O1	590810.9390	0.918	0.727	140.9	138.1	111.0	47.7	57.6	56.00

IN	$d.t.$	q	e	ω	Ω	i	α	δ	v_g
033O5	670810.9410	1.008	0.998	171.9	138.1	113.5	32.7	55.8	59.94
060K2	750810.9420	0.923	0.797	143.0	138.0	112.4	47.7	57.2	57.20
042B1	850810.9449	0.917	1.340	146.5	138.4	103.6	53.3	65.5	59.56
077K1	640810.9460	0.976	1.003	157.9	138.8	113.9	42.3	57.2	60.00
092D8	810810.9470	0.957	0.865	151.6	138.5	112.5	44.3	57.5	58.10
091C1	590810.9473	0.954	0.980	151.7	138.1	111.4	44.7	58.7	58.88
033O3	610810.9550	0.944	0.925	148.9	138.6	111.4	46.6	58.6	58.30
043B1	850810.9580	0.953	0.900	151.0	138.4	115.9	45.5	55.7	59.51
435O6	750810.9760	0.979	1.338	160.2	138.0	114.1	41.3	58.3	63.18
044B1	850810.9941	0.982	0.907	159.3	138.5	115.2	40.8	55.7	59.51
041O1	580811.0120	0.967	0.991	155.3	138.4	112.2	43.0	58.2	59.30
028B1	830811.0168	0.952	0.933	151.0	138.0	112.8	44.8	57.6	58.86
045B1	850811.0417	0.969	0.923	155.2	138.5	112.4	42.7	57.7	58.72
037O3	610811.0510	0.906	0.921	141.2	138.7	112.0	51.7	58.3	58.30
031O3	610811.0840	0.931	0.975	146.7	138.7	114.7	49.1	57.0	59.80
129B1	890811.0929	0.964	1.037	154.8	138.6	113.5	44.1	57.7	60.17
130B1	890811.1054	0.923	0.916	144.4	138.6	115.3	49.6	56.3	59.35
136I1	790811.2680	0.985	1.195	161.6	138.3	118.2	41.2	55.1	63.20
024W1	410811.3000	0.961	1.007	153.7	139.0	111.9	45.0	58.7	59.36
086I1	770811.3240	0.953	1.062	152.3	138.8	114.2	46.5	57.6	60.60
041I2	810811.3430	0.953	0.930	151.2	138.8	113.3	45.8	57.5	59.00
020I2	800811.3850	0.960	1.041	153.6	139.1	112.9	45.6	58.3	60.00
106I1	780811.3960	0.981	0.963	159.2	138.7	111.6	40.5	58.2	58.90
254J1	530811.4681	0.952	0.989	151.4	139.1	113.6	46.7	57.7	59.69
025W1	500811.4703	0.974	0.972	157.1	138.9	115.8	43.1	56.0	60.29
057N1	800811.5500	0.957	0.880	151.7	139.3	114.2	45.8	56.8	58.80
058N1	800811.6000	0.950	1.046	151.3	139.3	110.4	47.2	60.0	59.20
059N1	800811.6400	0.967	1.153	156.1	139.4	112.7	45.0	59.0	61.00
005N1	740811.6500	0.928	0.758	143.5	138.9	113.3	48.2	56.7	57.10
021N1	780811.6700	0.946	0.781	148.0	138.9	112.5	46.0	57.2	57.20
060D8	800811.6850	0.954	0.851	150.7	139.4	114.5	46.3	56.5	58.60
022N1	780811.6900	0.953	0.850	150.4	139.0	117.2	46.2	54.8	59.40
027D4	640811.7070	0.960	0.927	153.1	139.5	112.6	45.5	58.0	58.80
063D8	800811.7120	0.952	1.031	151.8	139.4	113.6	47.3	58.0	60.10
003N1	690811.7200	0.929	0.715	143.2	139.3	109.3	47.8	58.8	55.40
060N1	800811.7200	0.908	0.950	141.9	139.4	112.6	52.8	58.3	58.80
023N1	780811.7300	0.961	0.715	151.2	139.0	121.2	45.2	51.7	59.20
071D2	580811.7350	0.955	1.037	152.4	139.1	115.0	46.7	57.1	60.60
062D8	800811.7360	0.956	0.925	151.9	139.5	114.0	46.3	57.2	59.20
011D7	670811.7390	0.948	0.954	150.3	138.8	113.2	46.6	57.7	59.20
024N1	780811.7400	0.928	0.973	146.1	139.0	111.9	49.7	58.7	58.90
061N1	800811.7500	0.996	1.030	165.2	139.5	109.6	37.2	59.5	58.90
047D1	530811.7521	0.958	1.011	153.1	139.4	104.6	44.7	63.3	56.89
040D8	780811.7540	0.940	0.830	147.2	139.0	114.8	47.5	56.2	58.40
025N1	780811.7600	0.947	0.992	150.2	139.0	116.5	47.7	56.0	60.60
035D6	770811.7720	0.953	0.964	151.5	139.3	113.5	46.6	57.7	59.40
072D2	580811.7920	0.914	0.852	141.9	139.2	108.5	50.7	60.1	56.50
038O3	610811.7940	0.946	1.063	150.6	139.4	111.8	48.1	59.3	59.80

IN	$d.t.$	q	e	ω	Ω	i	α	δ	v_g
029D3	610811.7940	0.935	0.899	146.7	139.4	116.5	49.3	55.7	59.60
013D8	770811.8020	0.953	0.952	151.4	139.3	113.5	46.6	57.6	59.30
010K1	580811.8070	0.974	0.964	157.0	139.2	113.8	43.1	57.2	59.60
048D1	530811.8200	0.846	1.314	135.2	139.5	115.4	62.8	57.8	63.20
042O4	620811.8230	0.950	0.971	150.9	139.2	112.7	46.8	58.2	59.20
030D4	640811.8240	0.969	0.915	155.3	139.6	112.9	44.2	57.7	58.80
015K3	780811.8260	0.946	0.652	146.3	139.1	109.2	44.8	58.3	54.80
026D6	770811.8330	0.949	0.922	150.2	139.3	115.2	47.3	56.5	59.50
040O3	610811.8340	0.953	0.951	151.3	139.4	113.3	46.8	57.8	59.20
029D4	640811.8350	0.946	0.984	150.1	139.7	113.2	48.2	58.1	59.50
028D4	640811.8370	0.952	0.927	150.9	139.7	114.0	47.2	57.3	59.20
027D6	770811.8380	0.922	0.932	144.5	139.3	114.6	50.8	57.0	59.30
078K1	640811.8470	0.955	0.987	152.1	139.7	111.5	46.7	59.1	59.00
001D8	750811.8470	0.931	0.906	146.1	138.9	112.5	48.7	58.0	58.40
012D7	670811.8490	0.964	1.056	154.8	138.9	113.1	44.7	58.2	60.20
067D8	800811.8500	0.979	0.900	158.1	139.6	114.5	42.7	56.5	59.20
035O5	670811.8510	0.952	0.998	151.4	138.9	118.5	47.2	54.8	61.27
068D8	800811.8520	0.959	0.771	151.1	139.6	113.2	45.2	56.8	57.40
064D8	800811.8610	0.952	0.913	150.7	139.6	113.5	47.0	57.5	58.90
066D8	800811.8620	0.916	0.744	140.8	139.6	111.7	50.2	57.7	56.40
063C1	580811.8632	0.971	0.985	156.3	139.2	112.6	43.5	58.1	59.40
041O2	600811.8640	0.905	0.750	138.6	139.7	112.7	51.7	57.2	56.70
013D7	670811.8730	0.958	0.854	151.7	139.0	109.7	44.3	59.2	57.10
168D2	590811.8760	0.952	0.949	151.0	139.0	114.9	46.6	56.7	59.70
049D1	530811.8771	0.962	0.891	153.3	139.5	110.9	44.7	58.8	57.90
044O2	600811.8810	0.943	0.865	148.2	139.7	113.9	48.2	57.1	58.50
042O2	600811.8810	0.975	0.945	157.3	139.7	112.5	43.2	58.0	59.00
043O2	600811.8810	0.955	0.927	151.7	139.7	113.3	46.7	57.7	59.00
045O3	610811.8820	0.926	1.051	146.2	139.5	116.8	51.5	56.3	61.20
070D8	800811.8820	0.968	1.004	155.7	139.6	115.5	45.1	56.6	60.50
039O2	600811.8870	0.965	1.033	155.0	139.7	111.6	45.2	59.2	59.50
069D8	800811.8870	0.961	0.973	153.7	139.6	113.7	45.8	57.6	59.60
044O1	580811.8880	0.949	0.973	150.6	139.3	112.9	47.2	58.1	59.30
032D4	640811.8880	0.952	0.763	149.5	139.7	112.6	46.1	57.2	57.10
072D8	800811.8900	0.964	0.962	154.3	139.6	115.9	45.7	56.2	60.20
028D6	770811.8940	0.951	0.942	150.9	139.4	111.7	46.7	58.7	58.60
093D8	810811.8940	0.955	1.016	152.3	139.4	113.4	46.7	58.0	59.90
011K1	580811.8980	0.954	0.956	151.6	139.3	111.2	46.1	59.0	58.60
031D4	640811.8990	0.942	0.726	146.3	139.7	112.1	47.2	57.3	56.50
003E1	530811.9035	0.953	0.916	151.2	139.5	112.1	46.5	58.3	58.50
071D8	800811.9050	0.971	0.976	156.3	139.6	112.9	44.0	58.0	59.40
014D8	770811.9060	0.953	0.963	151.5	139.4	113.5	46.8	57.7	59.40
070O4	630811.9100	0.955	1.141	153.0	139.0	113.1	46.7	58.7	61.00
064C1	580811.9105	0.954	1.008	152.0	139.3	113.0	46.6	58.2	59.68
015D6	750811.9130	0.924	0.915	144.6	138.9	112.3	49.8	58.2	58.40
065C1	580811.9156	0.956	0.990	152.4	139.3	112.8	46.2	58.2	59.46
012K1	580811.9160	0.946	0.951	149.8	139.3	114.6	47.7	57.0	59.60
017K3	780811.9190	0.962	0.949	153.6	139.2	114.1	45.1	57.1	59.50

IN	$d.t.$	q	e	ω	Ω	i	α	δ	v_g
010B1	820811.9197	0.957	0.984	152.5	139.1	111.0	45.6	59.2	58.82
040O4	620811.9200	0.956	1.114	153.2	139.3	112.3	46.6	59.1	60.50
008D6	720811.9200	0.937	0.858	146.9	139.7	112.3	48.7	58.0	57.90
046O2	600811.9220	0.965	1.293	156.4	139.8	109.7	45.7	61.6	61.30
034D4	640811.9230	0.961	0.955	153.4	139.7	113.6	46.0	57.6	59.40
037D4	640811.9230	0.957	0.914	152.1	139.7	114.3	46.5	57.0	59.20
047O2	600811.9260	0.981	1.118	160.1	139.8	111.1	42.0	59.6	60.20
033D4	640811.9260	0.967	0.997	155.2	139.7	116.0	45.6	56.3	60.60
029D6	770811.9260	0.946	0.945	149.6	139.4	115.1	48.0	56.7	59.70
050D1	530811.9279	0.967	1.071	155.9	139.6	115.0	45.3	57.2	61.00
017B1	830811.9291	0.951	0.951	150.8	138.9	112.7	46.3	58.0	59.02
017D8	770811.9300	0.954	0.922	151.4	139.4	111.6	46.2	58.6	58.40
171D2	590811.9310	0.949	0.821	149.2	139.1	110.2	45.7	58.8	56.90
170D2	590811.9310	0.946	0.755	147.8	139.1	111.4	45.8	57.7	56.60
041O4	620811.9320	0.966	0.976	154.8	139.3	114.5	44.8	57.0	59.90
049O2	600811.9350	0.964	1.125	155.2	139.8	113.2	46.1	58.7	60.90
032D6	770811.9350	0.934	0.790	145.5	139.4	112.1	48.2	57.7	57.10
073D8	800811.9350	0.959	0.975	153.2	139.7	114.3	46.3	57.3	59.80
018D8	770811.9360	0.959	0.929	152.6	139.4	112.3	45.6	58.2	58.70
074D8	800811.9360	0.947	0.860	149.2	139.7	114.6	47.6	56.6	58.70
094D8	810811.9380	0.949	0.919	150.3	139.4	113.3	47.1	57.6	58.90
051D1	530811.9387	0.957	0.992	152.8	139.6	113.8	46.5	57.7	59.79
065D8	800811.9410	0.948	0.782	148.5	139.7	116.3	47.3	55.2	58.40
033D6	770811.9420	0.948	0.823	148.9	139.4	113.0	46.8	57.3	57.80
013K1	580811.9430	0.943	0.993	149.3	139.3	113.0	48.3	58.2	59.50
015D8	770811.9450	0.955	0.878	151.3	139.4	110.2	45.6	59.2	57.50
052D1	530811.9458	0.963	1.115	154.9	139.6	115.0	46.3	57.5	61.39
053D1	530811.9470	0.976	1.137	158.6	139.6	115.5	44.0	57.1	61.79
127O1	590811.9470	0.959	1.055	153.5	139.1	112.2	45.6	58.8	59.90
054D1	530811.9479	0.975	1.004	157.7	139.6	114.5	43.6	57.1	60.20
031D6	770811.9480	0.957	0.936	152.2	139.4	112.4	46.0	58.2	58.80
035D4	640811.9500	0.952	0.930	151.0	139.8	113.6	47.3	57.6	59.10
030D6	770811.9500	0.903	0.827	139.5	139.4	110.7	52.2	58.7	56.90
041D8	780811.9530	0.940	0.956	148.3	139.2	115.2	48.6	56.7	59.80
066C1	580811.9557	0.952	0.942	151.0	139.3	113.6	46.8	57.5	59.24
036D4	640811.9560	0.939	0.915	147.8	139.8	114.6	49.2	57.0	59.20
011B1	820811.9579	0.963	0.911	153.6	139.2	113.6	44.7	57.2	58.96
001K3	770811.9600	0.946	1.001	150.1	139.5	112.1	48.0	58.8	59.30
341B1	920811.9642	0.946	0.996	150.0	139.6	114.8	48.5	57.2	60.11
050O3	610811.9650	0.952	0.998	151.6	139.6	113.1	47.2	58.2	59.60
042D8	780811.9710	0.985	0.897	160.0	139.2	116.1	41.5	55.3	59.70
051O2	600811.9830	0.929	0.815	144.6	139.8	116.8	50.0	55.2	58.80
043O4	620811.9890	0.924	0.909	144.5	139.3	109.7	50.2	59.8	57.50
067C1	580811.9896	0.952	0.941	151.1	139.4	112.6	46.6	58.1	58.90
052O3	610812.0000	0.951	0.912	150.7	139.6	113.8	47.1	57.3	59.00
019B1	830812.0026	0.957	1.095	153.4	139.0	113.0	46.0	58.5	60.54
053O3	610812.0100	0.945	0.969	149.7	139.6	113.1	48.2	58.1	59.30
012B1	820812.0118	0.938	0.907	147.5	139.2	111.4	48.2	58.7	58.10

IN	$d.t.$	q	e	ω	Ω	i	α	δ	v_g
032E1	720812.0201	0.961	0.979	153.5	139.8	111.4	45.8	59.1	58.90
013B1	820812.0206	1.008	0.907	171.2	139.2	114.6	35.0	55.2	59.44
092C1	590812.0208	0.964	1.034	154.7	139.1	113.8	45.0	57.7	60.23
038O4	620812.0280	0.956	0.976	152.3	139.4	113.1	46.3	58.0	59.40
049O5	720812.0330	0.961	1.025	154.0	139.8	113.2	46.2	58.2	59.96
042O1	580812.0340	0.953	1.149	152.6	139.4	112.9	47.6	59.0	61.00
033K3	800812.0360	0.951	1.536	153.9	139.8	121.6	50.7	55.2	67.30
034K3	800812.0390	0.962	0.871	153.0	139.8	113.7	45.5	57.1	58.60
035K3	800812.0400	0.951	0.883	150.4	139.8	113.8	47.2	57.2	58.70
036K3	800812.0450	0.988	1.168	162.4	139.8	112.7	41.0	58.7	61.20
047B1	850812.0461	0.934	0.978	147.4	139.5	111.2	49.5	59.3	58.73
049E1	770812.0480	0.956	1.069	152.9	139.5	112.1	46.8	59.1	60.00
046B1	850812.0525	0.960	0.975	153.4	139.5	110.4	45.3	59.6	58.53
037K3	800812.0560	0.928	0.915	145.5	139.8	113.4	50.5	57.7	58.80
048B1	850812.0560	0.895	0.872	138.5	139.5	116.5	53.7	55.6	59.11
039O4	620812.0670	0.920	0.915	143.8	139.4	112.6	51.0	58.1	58.50
093C1	590812.0708	0.951	1.074	151.7	139.2	114.4	47.5	57.7	60.75
049B1	850812.0912	0.940	0.980	148.6	139.5	113.2	49.0	58.1	59.42
078F1	660812.1430	0.961	0.974	153.5	139.5	114.3	45.8	57.2	59.81
059O1	580812.1950	0.959	0.971	153.2	139.6	112.2	45.8	58.5	59.10
137I1	790812.2600	0.955	0.940	151.8	139.3	113.6	46.2	57.5	59.20
248S1	560812.2639	0.954	0.903	151.3	140.1	112.8	47.2	58.0	58.59
057I1	760812.2700	0.966	0.943	154.6	140.0	112.1	45.2	58.5	58.80
021I2	800812.2910	0.960	0.924	153.0	140.0	113.7	46.3	57.5	59.10
026W1	450812.3200	0.960	0.922	153.0	140.0	114.8	46.5	56.8	59.45
138I1	790812.3240	0.955	1.009	152.3	139.3	113.0	46.5	58.2	59.70
280P1	580812.3278	0.951	0.888	150.5	139.7	113.8	47.1	57.2	58.76
281P1	580812.3318	1.013	1.425	177.6	139.7	114.4	30.8	56.7	64.07
027W1	450812.3500	0.950	0.882	150.1	140.0	113.1	47.6	57.7	58.46
164W1	510812.3705	0.968	1.009	155.7	139.5	113.5	44.6	57.8	59.91
163W1	510812.3799	0.962	0.939	153.6	139.5	113.9	45.5	57.3	59.32
066I2	820812.3900	0.946	0.639	146.0	139.6	119.5	47.0	52.5	57.80
065I2	820812.3950	0.957	0.977	152.5	139.6	111.2	46.2	59.2	58.80
028W1	510812.4281	0.957	1.022	152.9	139.6	116.7	47.1	56.1	61.00
075N1	830812.5500	0.957	1.324	154.6	139.5	120.1	48.5	55.3	64.90
098N1	850812.5800	0.952	0.974	151.3	140.0	112.2	47.7	58.7	59.10
006N1	750812.6000	0.960	0.911	152.9	139.6	112.2	45.5	58.2	58.50
048N1	790812.6000	0.968	1.216	156.7	139.6	115.4	45.7	57.6	62.50
004T1	830812.6068	0.963	1.038	154.4	139.6	113.2	45.7	58.2	60.08
005T1	830812.6097	0.960	0.938	153.0	139.6	112.8	45.7	58.0	58.94
062N1	800812.6100	0.952	1.246	153.1	140.3	116.2	49.7	57.6	63.00
007N1	750812.6200	0.954	0.908	151.3	139.6	113.9	46.7	57.2	59.00
026N1	780812.6300	0.956	0.990	152.3	139.9	113.2	47.1	58.1	59.60
063N1	800812.6300	0.959	0.939	152.7	140.3	114.5	47.2	57.2	59.50
020T2	910812.6321	0.961	0.956	153.5	139.5	113.7	45.7	57.5	59.44
006T1	830812.6398	0.949	0.952	150.5	139.6	114.6	47.7	57.1	59.61
027N1	780812.6400	0.961	0.705	151.0	139.9	114.7	45.2	55.6	57.20
078N1	830812.6400	0.965	0.912	154.2	139.6	114.6	45.1	56.7	59.30

IN	$d.t.$	q	e	ω	Ω	i	α	δ	v_g
021T2	910812.6410	0.965	0.987	154.7	139.5	111.7	44.8	58.8	59.11
080N1	830812.6500	0.963	1.222	155.6	139.6	116.6	46.8	57.0	62.90
079N1	830812.6500	0.956	1.237	153.8	139.6	117.1	48.2	56.8	63.20
022T2	910812.6550	0.969	0.886	155.2	139.6	111.7	43.7	58.2	58.14
023T2	910812.6564	0.953	0.884	150.9	139.6	114.4	46.7	56.8	58.89
008N1	750812.6600	0.954	0.873	151.1	139.7	113.5	46.5	57.3	58.50
081N1	830812.6600	0.948	1.215	152.1	139.6	118.9	49.5	55.7	63.50
019D8	770812.6670	0.943	0.987	149.5	140.1	106.5	48.7	62.3	57.30
030N1	780812.6700	0.956	0.948	152.0	139.9	114.2	47.1	57.3	59.50
028N1	780812.6700	0.960	0.954	153.1	139.9	113.1	46.3	58.0	59.20
029N1	780812.6700	0.962	0.947	153.6	139.9	112.6	45.8	58.2	59.00
136D8	830812.6720	0.951	0.885	150.2	139.6	113.8	47.1	57.2	58.70
073D2	580812.6750	0.962	1.020	154.2	140.0	114.1	46.5	57.7	60.20
024T2	910812.6770	0.961	0.948	153.4	139.6	113.7	45.7	57.5	59.34
001N1	640812.6800	0.936	0.930	147.3	140.5	116.4	50.8	56.2	59.90
105D8	820812.6810	0.948	0.941	150.1	139.9	113.6	48.1	57.7	59.20
064N1	800812.6900	0.945	0.983	149.8	140.4	114.2	49.5	57.7	59.80
007T1	830812.6902	0.959	1.059	153.6	139.6	116.8	47.1	56.2	61.40
135D8	830812.6990	0.964	1.071	155.0	139.6	114.2	45.8	57.8	60.70
011N1	750812.7000	0.962	0.911	153.3	139.7	114.1	45.7	57.1	59.10
012N1	750812.7000	0.918	0.922	143.6	139.7	114.3	51.7	57.2	59.10
009N1	750812.7000	0.949	0.810	149.1	139.7	112.1	46.8	57.8	57.40
010N1	750812.7000	0.948	0.890	149.8	139.7	114.9	47.7	56.6	59.10
031N1	780812.7000	0.973	0.972	157.0	139.9	111.7	43.7	58.7	59.00
032N1	780812.7000	0.963	0.956	154.0	139.9	112.0	45.6	58.6	58.90
065N1	800812.7000	0.957	0.945	152.3	140.4	115.3	47.7	56.8	59.80
082N1	830812.7000	0.981	1.396	160.9	139.6	114.3	43.3	58.8	63.80
106D8	820812.7050	0.960	0.983	153.5	139.9	112.5	46.2	58.5	59.30
013N1	750812.7100	0.947	0.872	149.4	139.7	113.9	47.6	57.1	58.60
033N1	780812.7100	0.957	0.984	152.7	139.9	114.0	47.0	57.6	59.80
014N1	750812.7200	0.956	0.947	152.1	139.7	116.8	47.2	55.7	60.30
015N1	750812.7200	0.969	0.961	155.5	139.7	113.7	44.7	57.5	59.50
034N1	780812.7200	0.945	0.977	149.8	139.9	113.1	48.7	58.2	59.40
083N1	830812.7200	0.953	1.369	153.7	139.7	117.4	49.3	57.2	64.50
034D6	770812.7230	0.967	0.917	154.7	140.2	114.7	45.7	56.8	59.40
002D6	690812.7260	0.955	0.976	152.2	140.2	114.0	47.7	57.7	59.70
035N1	780812.7300	0.968	0.827	154.3	139.9	116.0	45.1	55.5	58.90
067N1	800812.7300	0.910	0.560	135.9	140.4	107.1	49.6	59.2	52.90
066N1	800812.7300	0.922	0.557	138.5	140.4	111.0	48.7	57.0	54.20
087N1	830812.7300	0.929	0.755	143.8	139.7	110.8	48.8	58.3	56.30
084N1	830812.7300	0.948	0.928	150.1	139.7	113.7	47.7	57.5	59.10
085N1	830812.7300	0.973	1.541	159.1	139.7	118.1	46.1	57.1	66.30
086N1	830812.7300	0.959	0.785	151.6	139.7	112.7	45.2	57.2	57.40
003D7	660812.7350	0.944	0.937	149.3	140.0	112.8	48.7	58.2	58.90
008T1	830812.7384	0.934	0.874	146.3	139.7	110.5	49.1	59.2	57.45
017N1	750812.7400	0.952	1.163	152.6	139.7	115.6	48.5	57.5	62.00
016N1	750812.7400	0.956	0.936	151.9	139.7	112.7	46.6	58.1	58.90
023D8	770812.7400	0.982	0.828	158.7	140.2	113.5	42.5	56.8	58.20

IN	$d.t.$	q	e	ω	Ω	i	α	δ	v_g
051N1	790812.7400	0.968	0.834	154.4	139.7	108.6	43.3	59.8	56.60
049N1	790812.7400	0.978	0.991	158.5	139.7	114.5	43.2	57.0	60.10
050N1	790812.7400	0.951	0.916	150.7	139.7	113.1	47.2	57.8	58.80
068N1	800812.7400	0.954	0.704	149.1	140.4	109.2	46.0	59.0	55.40
088N1	830812.7400	0.965	0.960	154.6	139.7	113.7	45.2	57.5	59.50
137D8	830812.7460	0.956	0.862	151.5	139.7	112.8	46.1	57.6	58.20
036N1	780812.7500	0.962	0.935	153.6	140.0	112.4	45.8	58.3	58.80
069N1	800812.7500	0.970	1.312	157.8	140.4	117.4	47.0	57.0	64.00
076D2	580812.7520	0.920	1.067	145.2	140.1	112.2	53.1	59.3	59.90
055D1	530812.7550	0.921	0.706	141.3	140.4	116.2	50.7	55.1	57.39
037N1	780812.7600	0.959	0.930	152.8	140.0	112.5	46.3	58.2	58.80
038N1	780812.7600	0.942	0.599	144.3	140.0	110.4	46.3	57.5	54.60
052N1	790812.7600	0.958	0.904	152.3	139.7	113.1	46.1	57.7	58.70
089N1	830812.7600	0.954	0.887	151.2	139.7	114.0	46.7	57.1	58.80
020D8	770812.7630	0.954	0.934	151.6	140.2	113.1	47.5	58.0	59.00
079D2	580812.7670	0.957	0.897	151.9	140.1	112.3	46.7	58.2	58.40
072D1	550812.7675	0.895	0.829	138.0	139.9	111.9	53.8	58.1	57.27
039N1	780812.7700	0.941	0.942	148.5	140.0	112.7	49.2	58.3	58.90
090N1	830812.7700	0.953	0.748	149.4	139.7	110.9	45.7	58.1	56.40
030D3	630812.7730	0.944	1.045	150.1	139.8	115.2	49.3	57.3	60.70
053N1	790812.7800	0.965	0.956	154.5	139.8	113.6	45.3	57.6	59.40
070N1	800812.7800	0.931	0.812	145.0	140.5	116.2	50.6	55.7	58.60
091N1	830812.7800	0.938	0.720	145.2	139.7	112.1	47.7	57.3	56.40
004D7	660812.7840	0.954	0.949	151.5	140.1	114.5	47.7	57.2	59.60
455O6	790812.7840	0.954	1.103	152.8	139.8	115.9	48.0	57.0	61.54
138D8	830812.7840	0.961	0.910	153.1	139.7	112.2	45.5	58.2	58.50
078D2	580812.7920	0.970	1.374	157.8	140.1	117.2	46.8	57.3	64.50
044D8	780812.8020	0.919	0.963	144.2	140.0	117.5	52.5	55.6	60.50
044K1	610812.8050	0.955	0.969	152.1	140.4	112.6	47.7	58.5	59.20
454O6	790812.8080	0.965	1.104	155.3	139.8	114.0	46.0	58.1	60.96
081D2	580812.8100	0.962	1.167	154.9	140.1	117.0	47.7	56.7	62.50
016D6	750812.8120	0.949	0.978	150.7	139.8	113.7	48.0	57.8	59.60
014D7	670812.8150	0.973	1.007	157.0	139.9	115.4	44.6	56.7	60.50
078D8	800812.8150	0.851	0.971	132.4	140.5	113.6	60.7	57.7	59.10
107D8	820812.8160	0.956	0.991	152.5	140.0	114.1	47.3	57.6	59.90
082D2	580812.8190	0.904	0.547	134.0	140.2	106.8	49.7	59.2	52.60
037K1	600812.8220	0.946	0.956	149.8	140.6	111.6	49.3	59.2	58.70
080D2	580812.8260	0.966	1.363	156.8	140.2	115.3	47.3	58.5	63.80
060O1	580812.8270	0.945	0.962	149.6	140.2	113.9	49.1	57.7	59.50
077D8	800812.8270	0.963	0.934	153.8	140.5	113.9	46.7	57.5	59.30
061O1	580812.8280	0.939	0.935	148.1	140.2	113.9	49.7	57.6	59.20
014K1	580812.8280	0.957	0.975	152.6	140.2	113.1	47.2	58.2	59.40
056D1	530812.8283	0.928	0.836	144.5	140.4	111.6	50.8	58.5	57.42
047D8	780812.8380	0.941	0.783	146.9	140.1	113.4	48.3	57.0	57.50
005D7	660812.8400	0.950	0.972	150.8	140.1	112.3	48.2	58.7	59.10
006D7	660812.8400	0.950	0.996	151.1	140.1	115.6	48.6	56.8	60.40
057O3	610812.8410	0.930	0.970	146.4	140.4	114.2	51.6	57.7	59.60
079K1	640812.8440	0.954	0.924	151.5	140.6	111.5	47.8	59.0	58.40

IN	$d.t.$	q	e	ω	Ω	i	α	δ	v_g
080D8	800812.8450	0.937	0.942	147.6	140.5	112.1	50.5	58.8	58.70
058O3	610812.8460	0.996	1.012	165.2	140.4	109.8	38.5	59.6	58.80
085D8	800812.8470	0.950	0.907	150.3	140.5	113.4	48.5	57.8	58.80
084D2	580812.8480	0.934	0.807	145.6	140.2	110.9	49.3	58.7	56.90
059O2	600812.8520	0.954	0.955	151.8	140.7	112.1	48.1	58.8	58.90
057D1	530812.8571	0.940	0.848	147.5	140.5	111.5	49.2	58.6	57.57
079D8	800812.8600	0.959	1.060	153.8	140.5	113.2	47.7	58.6	60.30
046D8	780812.8610	0.947	0.991	150.4	140.1	113.6	48.7	58.0	59.70
050B1	850812.8665	0.953	0.926	151.3	140.3	113.6	47.8	57.7	59.07
013D6	740812.8690	0.968	0.974	155.6	140.1	114.8	45.5	57.0	60.00
006O5	650812.8730	0.951	1.007	151.4	140.4	113.7	48.7	58.1	59.90
007O5	650812.8730	0.907	0.743	138.9	140.4	119.9	52.7	53.2	58.78
060O2	600812.8740	0.960	1.017	153.6	140.7	113.6	47.7	58.2	60.00
012D6	740812.8740	0.940	1.029	149.1	140.1	116.3	50.3	56.6	60.90
014D6	740812.8760	0.952	0.974	151.4	140.1	113.8	48.0	57.8	59.60
045O4	620812.8790	0.964	1.098	155.2	140.2	114.0	46.6	58.2	60.90
015K1	580812.8820	0.932	0.934	146.5	140.2	112.8	50.7	58.3	58.80
002K3	770812.8820	1.009	1.080	172.5	140.3	106.0	31.6	61.3	58.10
024D8	770812.8840	0.959	0.879	152.4	140.3	112.2	46.5	58.2	58.20
290B1	910812.8840	0.950	1.013	151.1	139.8	115.0	48.2	57.2	60.35
039D4	640812.8890	0.938	0.928	147.9	140.7	110.4	50.2	59.8	58.00
291B1	910812.8920	0.973	1.009	157.1	139.8	114.5	44.3	57.2	60.25
061O2	600812.8950	0.966	0.926	154.5	140.7	115.1	46.6	56.8	59.60
083D2	580812.8960	0.934	0.845	146.1	140.2	108.7	49.5	60.2	56.60
071O4	630812.8970	0.959	0.943	152.8	140.0	111.8	46.3	58.7	58.70
085B1	880812.8977	0.969	0.990	156.0	140.5	115.1	46.0	57.0	60.25
086B1	880812.9017	0.968	0.956	155.4	140.5	114.5	46.0	57.2	59.73
046O4	620812.9020	0.957	1.013	152.9	140.2	111.9	47.2	59.1	59.40
057O1	580812.9030	0.952	1.239	153.1	140.2	121.1	50.1	54.6	64.40
003D6	690812.9030	0.961	1.176	154.7	140.4	113.2	47.7	59.1	61.40
017D6	750812.9030	0.952	0.802	149.8	139.9	113.3	46.7	57.1	57.70
037D6	770812.9060	0.961	0.967	153.5	140.4	114.2	47.0	57.5	59.70
087B1	880812.9068	0.960	0.962	153.4	140.5	115.7	47.5	56.6	60.14
139D8	830812.9090	0.962	0.960	153.8	139.9	114.7	46.1	57.0	59.80
015K2	670812.9100	0.923	0.909	144.3	139.9	115.3	51.5	56.6	59.30
080O4	640812.9120	0.940	1.031	149.1	140.7	112.4	50.8	59.1	59.70
048D8	780812.9140	0.974	1.000	157.2	140.1	114.9	44.7	57.0	60.30
088B1	880812.9144	0.951	0.993	151.3	140.5	113.0	48.7	58.5	59.53
003K3	770812.9150	1.006	1.145	170.8	140.4	105.5	32.6	62.2	58.50
081D8	800812.9150	0.947	0.933	149.9	140.6	113.8	49.2	57.7	59.20
040D4	640812.9170	0.947	1.051	150.8	140.7	115.5	50.1	57.3	60.90
058O1	580812.9180	0.932	1.174	148.4	140.3	119.0	52.5	55.7	63.10
062O3	610812.9190	0.949	0.936	150.4	140.5	112.5	48.6	58.5	58.80
087D2	580812.9210	0.973	1.026	157.2	140.3	115.7	45.2	56.7	60.80
050O4	620812.9210	0.945	0.997	150.0	140.2	114.1	49.3	57.8	59.90
068B1	860812.9210	0.944	0.959	149.5	140.1	116.4	49.3	56.2	60.23
089B1	880812.9211	0.939	0.957	148.3	140.6	112.4	50.3	58.7	58.95
058D1	530812.9217	0.948	0.840	149.2	140.5	111.6	48.2	58.5	57.54

IN	$d.t.$	q	e	ω	Ω	i	α	δ	v_g
069B1	860812.9217	0.955	0.925	151.6	140.1	113.5	47.3	57.7	59.02
059D1	530812.9221	0.951	1.017	151.5	140.5	113.0	48.8	58.6	59.78
460O6	820812.9260	0.856	0.638	127.1	140.1	111.0	55.3	57.3	54.60
053O1	580812.9280	0.946	0.997	150.1	140.3	113.4	49.2	58.2	59.70
004D6	690812.9280	0.963	1.009	154.2	140.4	115.7	47.2	56.8	60.60
292B1	910812.9286	0.971	0.910	155.9	139.8	116.3	44.7	55.7	59.82
097D8	810812.9290	0.957	0.869	151.7	140.4	113.2	47.0	57.6	58.40
095D8	810812.9290	0.947	0.939	149.8	140.4	112.1	48.8	58.7	58.70
442O6	750812.9300	0.972	1.133	157.3	139.9	111.6	44.5	59.6	60.49
090B1	880812.9314	0.958	0.978	152.8	140.6	110.3	47.2	60.0	58.52
083D8	800812.9320	0.940	0.959	148.6	140.6	116.7	50.6	56.2	60.30
096D8	810812.9320	0.963	0.935	153.7	140.4	112.0	46.2	58.6	58.70
088D2	580812.9340	0.958	0.712	150.3	140.3	112.6	45.8	57.0	56.60
086D2	580812.9340	0.881	0.416	123.9	140.3	109.0	49.6	56.8	51.60
025D8	770812.9360	0.952	0.896	150.8	140.4	111.2	47.6	59.0	58.00
141D8	830812.9360	0.955	1.188	153.3	139.9	114.8	48.3	58.1	62.00
084D8	800812.9380	0.929	0.950	146.1	140.6	116.8	52.0	56.1	60.20
018D6	750812.9390	0.958	0.858	151.8	139.9	113.6	46.3	57.2	58.40
064O1	580812.9400	0.956	1.144	153.4	140.3	115.1	48.5	57.8	61.70
018K3	780812.9420	0.964	0.925	154.1	140.2	114.8	46.1	56.8	59.50
131B1	890812.9423	0.952	0.952	151.2	140.3	114.5	48.3	57.3	59.62
140D8	830812.9430	0.957	1.001	152.8	139.9	113.8	47.0	57.8	59.90
060D1	530812.9450	0.970	0.986	156.0	140.5	113.8	45.7	57.8	59.79
051O4	620812.9480	0.995	1.359	165.5	140.3	115.0	40.6	58.0	63.70
082D8	800812.9500	0.943	0.991	149.5	140.6	112.7	50.0	58.7	59.40
091B1	880812.9510	0.945	0.957	149.6	140.6	112.6	49.5	58.6	59.02
004K3	770812.9550	0.953	1.255	153.3	140.4	114.1	49.5	59.0	62.40
440O6	750812.9560	0.958	0.992	152.9	139.9	111.4	46.6	59.2	59.04
090D2	580812.9580	0.945	1.361	152.1	140.3	115.4	51.2	58.6	63.80
032C1	560812.9586	0.951	0.980	151.1	140.8	115.0	49.3	57.3	60.04
092D2	580812.9590	0.948	0.854	149.4	140.3	113.8	48.2	57.2	58.40
092B1	880812.9595	0.959	0.982	153.1	140.6	114.8	47.8	57.3	60.03
129O1	590812.9600	0.934	0.860	146.3	140.0	111.3	49.5	58.7	57.60
026D8	770812.9610	0.937	0.896	147.3	140.4	112.7	50.0	58.2	58.40
027D8	770812.9610	0.959	0.984	153.2	140.4	113.4	47.3	58.1	59.60
051B1	850812.9623	0.954	0.979	151.9	140.4	114.9	48.2	57.2	60.02
132B1	890812.9624	0.950	0.959	150.8	140.3	114.6	48.6	57.3	59.70
041K3	810812.9630	0.964	1.017	154.6	140.4	113.6	46.6	58.1	60.00
024D1	510812.9638	0.953	0.894	151.1	140.1	113.4	47.3	57.6	58.68
050D8	780812.9640	0.944	0.865	148.5	140.2	112.9	48.6	57.8	58.20
101D8	810812.9650	0.946	0.980	150.0	140.4	113.3	49.3	58.2	59.50
099D8	810812.9660	0.947	0.868	149.4	140.4	112.1	48.3	58.3	58.00
143D8	830812.9660	0.951	1.085	151.8	139.9	115.8	48.7	57.1	61.30
005K3	770812.9670	0.976	1.140	158.6	140.4	115.7	45.2	57.2	61.90
093B1	880812.9676	0.948	0.984	150.5	140.6	112.8	49.2	58.6	59.37
028D8	770812.9680	0.968	0.973	155.4	140.4	115.8	46.2	56.5	60.30
047O1	580812.9690	0.955	1.238	153.7	140.3	116.8	49.2	57.2	63.10
046O1	580812.9690	0.943	1.164	150.7	140.3	115.6	50.7	57.7	62.00

IN	$d.t.$	q	e	ω	Ω	i	α	δ	v_g
052O4	620812.9690	0.957	1.050	153.1	140.3	113.9	47.8	58.1	60.40
042K3	810812.9690	0.971	1.173	157.4	140.4	114.8	46.0	58.0	61.90
293B1	910812.9695	0.960	0.972	153.3	139.9	113.2	46.3	58.0	59.42
030D8	770812.9710	0.937	0.638	143.9	140.4	113.6	48.2	56.1	56.00
071B1	860812.9732	0.956	0.942	152.1	140.1	115.5	47.5	56.6	59.83
049D8	780812.9740	0.954	0.987	151.9	140.2	112.7	47.7	58.5	59.40
081O4	640812.9770	0.930	0.995	146.8	140.8	113.0	52.1	58.6	59.50
418O6	710812.9780	0.968	1.491	157.7	140.0	119.7	47.7	56.1	66.35
029D8	770812.9780	0.952	0.978	151.4	140.4	113.9	48.5	57.8	59.70
055O1	580812.9790	0.940	0.895	147.8	140.3	113.6	49.6	57.6	58.70
061D8	800812.9790	0.964	0.972	154.4	140.7	114.0	46.8	57.7	59.70
063O2	600812.9810	0.937	0.969	148.0	140.8	113.5	51.0	58.2	59.40
100D8	810812.9810	0.948	0.970	150.4	140.4	111.7	48.8	59.1	58.90
052B1	850812.9810	0.936	0.912	147.2	140.4	116.0	50.5	56.3	59.61
142D8	830812.9820	0.930	0.981	146.5	139.9	108.9	50.7	60.8	58.00
117B1	880812.9837	0.953	1.010	151.9	140.6	113.0	48.6	58.6	59.70
057K1	620812.9850	0.965	0.972	154.6	140.3	114.6	46.3	57.2	59.90
091E1	790812.9860	0.963	1.279	155.7	139.9	118.4	47.8	56.2	64.00
135B1	890812.9869	0.955	0.950	151.9	140.4	113.3	47.7	58.0	59.22
118B1	880812.9878	0.952	0.960	151.2	140.6	114.2	48.7	57.6	59.60
038D6	770812.9880	0.904	0.974	141.4	140.4	110.0	55.0	60.2	58.20
048O4	620812.9900	0.963	1.073	154.7	140.3	112.5	46.7	59.0	60.20
098D8	810812.9920	0.937	0.995	148.1	140.4	110.2	50.5	60.2	58.60
136B1	890812.9921	0.968	1.061	156.1	140.4	111.9	45.6	59.3	59.88
054O1	580812.9950	0.947	0.928	149.9	140.3	114.0	48.8	57.5	59.20
082O4	640812.9970	0.934	0.435	138.0	140.8	110.3	46.5	56.5	52.70
056O1	580813.0010	0.937	0.983	148.0	140.3	112.7	50.5	58.6	59.30
049O1	580813.0010	0.955	1.226	153.6	140.3	114.6	49.0	58.5	62.30
045O1	580813.0010	0.955	1.174	153.4	140.3	114.2	48.7	58.5	61.70
053B1	850813.0041	0.971	0.944	156.1	140.4	112.8	45.0	58.1	59.07
092E1	790813.0050	0.955	1.036	152.4	140.0	114.7	47.8	57.5	60.50
072B1	860813.0050	0.960	1.013	153.5	140.2	113.5	47.0	58.1	59.93
054B1	850813.0068	0.948	0.893	149.8	140.4	113.2	48.5	57.8	58.61
065O3	610813.0070	0.937	0.883	147.2	140.6	115.0	50.3	56.8	59.00
064O3	610813.0070	0.962	0.923	153.6	140.6	113.0	46.6	58.0	58.90
062O1	580813.0110	0.946	0.938	149.8	140.3	110.6	48.6	59.6	58.20
094B1	880813.0116	0.958	0.949	152.8	140.6	111.7	47.3	59.0	58.71
047O4	620813.0120	0.896	1.085	141.0	140.3	112.8	56.7	59.0	60.20
033C1	560813.0132	0.954	0.993	152.1	140.8	112.7	48.6	58.7	59.47
053O4	620813.0150	0.950	0.998	151.0	140.3	112.8	48.6	58.6	59.50
066O3	610813.0180	0.984	1.094	161.0	140.6	117.6	44.0	55.7	62.10
067O3	610813.0190	0.942	0.998	149.3	140.6	113.8	50.2	58.1	59.80
006K3	770813.0210	0.943	0.976	149.3	140.5	117.4	50.2	55.8	60.70
072E1	780813.0217	0.961	1.141	154.5	140.2	116.2	47.8	57.1	62.00
141B1	890813.0225	0.962	1.018	154.1	140.4	114.3	47.1	57.7	60.23
138B1	890813.0226	0.959	0.992	153.3	140.4	112.3	47.1	58.8	59.33
034C1	560813.0235	0.951	0.887	150.3	140.8	111.7	48.5	58.8	58.06
294B1	910813.0239	0.952	1.011	151.7	139.9	115.0	48.0	57.2	60.34

IN	$d.t.$	q	e	ω	Ω	i	α	δ	v_g
027K2	690813.0240	0.960	1.360	155.4	140.5	112.3	48.5	60.5	62.80
140B1	890813.0247	0.952	0.834	150.1	140.4	112.8	47.6	57.7	57.89
139B1	890813.0249	0.993	0.914	163.3	140.4	113.9	40.7	56.8	59.22
035C1	560813.0268	0.973	0.956	156.7	140.8	115.6	45.8	56.6	60.08
028K2	690813.0270	0.921	0.844	143.3	140.5	111.7	51.8	58.5	57.50
020B1	830813.0273	0.988	1.067	162.3	140.0	112.0	40.8	58.7	60.04
142B1	890813.0275	0.950	0.961	150.8	140.4	113.3	48.6	58.1	59.32
063O1	580813.0280	0.941	0.953	148.7	140.4	117.5	50.2	55.6	60.50
067O1	580813.0290	0.941	1.064	149.5	140.4	115.5	50.6	57.3	61.00
054O4	620813.0290	0.937	0.928	147.5	140.3	112.3	50.1	58.6	58.60
072O4	630813.0290	0.922	0.995	145.1	140.1	114.4	52.3	57.6	59.90
144B1	890813.0300	0.945	1.031	150.3	140.4	113.8	49.7	58.2	60.14
145B1	890813.0301	0.954	0.931	151.5	140.4	112.3	47.7	58.5	58.72
146B1	890813.0319	0.969	0.956	155.7	140.4	113.8	45.5	57.6	59.49
147B1	890813.0323	0.964	0.942	154.2	140.4	113.4	46.3	57.8	59.23
036C1	560813.0325	0.966	0.955	154.8	140.9	113.9	46.7	57.7	59.51
143B1	890813.0325	0.951	0.965	151.0	140.4	113.8	48.6	57.8	59.53
048O1	580813.0340	0.944	1.007	149.7	140.4	111.9	49.6	59.2	59.30
055O4	620813.0340	0.955	0.989	152.2	140.3	115.8	48.2	56.7	60.40
068O3	610813.0370	0.912	0.786	140.6	140.6	112.6	52.5	57.7	57.10
020K3	780813.0390	0.957	0.983	152.7	140.2	115.7	47.7	56.7	60.30
037C1	560813.0399	0.964	1.013	154.6	140.9	115.2	47.5	57.2	60.50
066O1	580813.0400	0.899	1.131	141.9	140.4	113.9	56.7	58.6	61.00
065O1	580813.0420	0.996	1.109	165.3	140.4	111.3	39.1	59.2	60.20
055O3	610813.0440	0.945	0.947	149.5	140.6	109.1	49.1	60.6	57.80
069O3	610813.0450	0.945	0.890	149.0	140.6	114.3	49.3	57.2	58.90
019K3	780813.0450	0.957	1.017	153.0	140.3	114.3	47.6	57.7	60.20
148B1	890813.0462	0.961	0.913	153.1	140.4	114.1	46.8	57.3	59.13
021B1	830813.0463	0.955	0.873	151.1	140.0	112.1	46.7	58.2	58.06
073E1	780813.0480	0.965	0.999	154.7	140.3	115.7	46.6	56.7	60.50
008B1	810813.0487	0.971	0.951	156.1	140.5	113.9	45.3	57.5	59.49
149B1	890813.0495	0.959	0.976	153.0	140.4	112.3	47.2	58.7	59.19
056B1	850813.0509	0.944	0.948	149.3	140.5	113.8	49.5	57.8	59.31
150B1	890813.0544	0.950	0.930	150.5	140.4	111.2	48.2	59.2	58.33
038C1	560813.0586	0.954	0.982	152.0	140.9	114.5	48.8	57.6	59.92
057B1	850813.0627	0.946	0.938	149.7	140.5	113.2	49.1	58.1	59.03
022B1	830813.0642	0.955	0.904	151.4	140.0	114.4	47.2	57.0	59.11
058B1	850813.0650	0.959	0.909	152.7	140.5	114.3	47.1	57.2	59.14
151B1	890813.0815	0.949	0.953	150.5	140.5	112.9	48.7	58.3	59.11
152B1	890813.0858	0.965	0.972	154.6	140.5	113.2	46.3	58.1	59.45
004D1	400813.0862	0.962	0.933	153.6	141.0	115.3	47.7	56.8	59.74
073B1	860813.0878	0.961	0.945	153.5	140.2	115.3	46.8	56.7	59.83
093E1	790813.0970	0.973	1.089	157.6	140.1	114.4	44.8	57.7	61.00
153B1	890813.1025	0.941	0.959	148.7	140.5	114.2	50.1	57.6	59.56
154B1	890813.1040	0.941	0.947	148.6	140.5	111.8	49.8	59.0	58.65
155B1	890813.1100	0.950	0.936	150.6	140.5	113.6	48.6	57.8	59.17
156B1	890813.1195	0.939	0.952	148.2	140.5	109.9	50.0	60.2	58.06
029W1	470813.2400	0.950	0.976	150.9	140.4	112.3	48.5	58.8	59.13

IN	$d.t.$	q	e	ω	Ω	i	α	δ	v_g
255J1	530813.2421	0.940	0.961	148.5	140.8	113.6	50.7	58.1	59.37
193H1	530813.3616	0.949	0.920	150.1	140.9	111.4	49.1	59.2	58.28
030W1	500813.3756	0.960	0.973	153.4	140.7	114.1	47.6	57.7	59.73
251S1	560813.4041	0.969	1.027	156.0	141.2	115.2	47.2	57.3	60.66
252S1	560813.4237	0.966	1.137	155.8	141.2	112.2	47.6	59.7	60.72
031W1	500813.4375	0.949	0.940	150.5	140.8	114.8	49.3	57.2	59.59
258J1	530813.4553	0.959	0.938	152.7	141.0	113.9	48.1	57.7	59.34
040N1	780813.6300	0.943	0.985	149.5	140.8	112.3	50.2	59.0	59.20
092N1	830813.6300	0.948	0.859	149.5	140.5	118.2	49.1	54.7	59.80
108D8	820813.6450	0.955	0.913	151.7	140.8	110.6	47.7	59.5	58.00
018N1	750813.6500	0.953	0.884	150.8	140.6	115.0	48.3	56.7	59.10
071N1	800813.6500	0.954	1.160	153.1	141.3	113.4	50.1	59.2	61.30
041N1	780813.6600	0.925	0.981	145.6	140.8	112.3	52.8	59.0	59.10
093N1	830813.6700	0.954	0.914	151.3	140.6	107.9	47.3	61.1	57.10
011T1	850813.6791	0.953	1.008	151.8	141.1	112.1	49.2	59.2	59.42
019N1	750813.7000	0.951	0.947	151.0	140.7	112.1	48.5	58.8	58.80
099N1	850813.7000	0.905	0.963	141.6	141.1	112.2	55.6	59.0	58.80
039D6	770813.7090	0.951	0.929	150.7	141.1	114.9	49.5	57.2	59.50
094N1	830813.7100	0.931	0.958	146.5	140.6	115.9	51.8	56.7	60.00
144D8	830813.7130	0.970	0.858	155.1	140.6	110.3	44.7	59.2	57.40
042N1	780813.7200	0.965	0.963	154.6	140.9	109.7	46.2	60.3	58.20
043N1	780813.7300	0.928	0.976	146.0	140.9	116.0	52.7	56.8	60.20
095N1	830813.7300	0.932	0.736	144.2	140.6	115.9	50.1	55.5	57.70
044N1	780813.7400	0.955	0.976	152.0	140.9	112.1	48.5	59.0	59.10
032D3	630813.7420	0.957	0.964	152.5	140.8	110.9	47.7	59.6	58.60
033D3	610813.7500	0.993	1.279	164.6	141.3	114.1	42.2	58.6	62.70
045N1	780813.7500	0.949	0.979	150.7	140.9	112.7	49.5	58.7	59.30
046N1	780813.7600	0.972	0.975	156.6	140.9	117.3	46.5	55.7	60.80
047N1	780813.7700	0.932	0.978	147.0	140.9	116.1	52.2	56.7	60.30
034D3	630813.7760	0.954	0.983	151.8	140.8	113.5	48.7	58.2	59.60
109D8	820813.7900	0.950	0.976	150.9	140.9	114.7	49.6	57.5	59.90
061D1	530813.8008	0.957	1.274	154.4	141.4	115.0	50.3	58.7	62.90
062D1	530813.8075	0.946	0.831	148.8	141.4	111.4	49.5	58.8	57.39
099D2	580813.8280	0.953	0.984	151.8	141.1	112.8	49.1	58.7	59.40
068O1	580813.8280	0.952	0.987	151.5	141.1	109.7	49.0	60.6	58.40
019D6	750813.8340	0.918	0.696	140.5	140.8	111.7	51.2	57.7	55.90
101D2	580813.8350	0.963	0.760	152.3	141.1	116.7	47.2	55.1	58.40
097D2	580813.8380	0.942	0.887	148.4	141.1	115.4	50.5	56.7	59.20
098D2	580813.8400	0.936	0.867	146.8	141.1	114.2	51.1	57.3	58.60
096D2	580813.8410	0.969	1.040	156.1	141.1	114.7	47.0	57.7	60.60
145D8	830813.8460	0.925	0.900	144.7	140.7	108.7	52.0	60.7	57.10
061K2	750813.8500	0.966	1.389	156.8	140.8	108.9	47.3	62.8	61.90
035D3	630813.8520	1.000	0.843	166.1	140.9	117.5	40.6	54.2	59.70
102D2	580813.8570	0.955	1.016	152.4	141.2	113.0	49.1	58.7	59.80
103D2	580813.8570	0.931	0.861	145.6	141.2	113.9	51.7	57.5	58.40
042D4	640813.8570	0.956	0.897	151.9	141.6	111.7	48.7	59.0	58.20
015D7	670813.8730	0.933	1.048	147.7	140.9	114.2	52.3	58.2	60.40
147D8	830813.8830	0.969	1.075	156.3	140.8	113.9	46.5	58.2	60.70

IN	$d.t.$	q	e	ω	Ω	i	α	δ	v_g
104D2	580813.8920	0.976	1.200	158.9	141.2	115.5	46.3	57.8	62.40
041D6	770813.8950	0.937	0.986	148.1	141.3	114.2	52.0	58.0	59.80
016K1	580813.9010	0.970	0.920	155.6	141.2	116.2	46.8	56.2	59.90
068C1	580813.9014	0.957	0.992	152.9	141.2	114.5	48.8	57.7	60.03
044D4	640813.9060	0.967	1.238	156.7	141.6	115.7	48.8	58.1	62.80
295B1	910813.9121	0.937	0.965	147.8	140.8	112.4	51.0	58.8	59.03
146D8	830813.9130	0.937	0.996	148.1	140.8	111.4	51.2	59.6	59.00
106D2	580813.9170	0.939	0.948	148.1	141.2	113.5	51.3	58.2	59.20
016D7	670813.9200	0.950	1.045	151.4	140.9	112.2	49.6	59.3	59.80
069C1	580813.9201	0.944	0.967	149.5	141.2	114.4	50.7	57.7	59.71
005D6	690813.9250	0.998	0.977	165.8	141.4	120.9	42.7	53.1	62.00
019D7	670813.9260	0.957	0.857	151.7	140.9	114.2	47.8	57.1	58.60
042D6	770813.9260	0.970	0.933	155.7	141.3	114.2	46.7	57.5	59.40
031D8	770813.9310	0.983	1.025	160.5	141.3	107.8	42.6	61.6	58.20
001E1	470813.9325	0.951	0.938	150.9	141.0	112.4	49.1	58.7	58.80
109D2	580813.9460	0.917	0.964	143.9	141.2	110.4	54.3	60.1	58.30
108D2	580813.9460	0.944	0.798	147.8	141.2	114.4	49.8	56.8	58.00
110D2	580813.9470	0.953	1.059	152.4	141.2	113.6	49.7	58.6	60.40
032D8	770813.9480	0.931	1.049	147.4	141.4	113.6	53.2	58.7	60.20
017D7	670813.9500	0.940	0.946	148.4	140.9	114.2	50.8	57.7	59.40
107D2	580813.9520	0.941	0.840	147.7	141.2	112.5	50.2	58.2	57.80
017K1	580813.9550	0.977	1.099	158.6	141.2	113.5	45.6	58.6	60.80
021K3	780813.9550	0.960	0.941	153.3	141.1	112.5	47.7	58.6	58.90
070O3	610813.9570	0.922	0.917	144.3	141.5	115.7	53.8	56.8	59.50
148D8	830813.9660	0.959	0.890	152.4	140.9	117.0	48.1	55.6	59.80
039C1	560813.9804	0.925	0.990	145.7	141.8	111.7	54.2	59.6	59.02
445O6	750813.9860	0.875	0.531	127.4	140.9	118.6	53.4	52.7	55.72
019O5	660813.9940	1.005	0.843	190.8	141.2	104.6	22.1	58.0	55.41
096B1	880813.9974	0.951	0.879	150.3	141.6	113.6	49.7	57.8	58.60
018K1	580814.0050	0.957	0.988	152.7	141.3	112.0	48.7	59.2	59.20
119B1	880814.0109	0.965	0.953	154.5	141.6	111.9	47.6	59.1	58.85
071O3	610814.0170	0.895	0.896	138.9	141.5	107.0	57.2	61.7	56.40
072O3	610814.0210	0.935	0.945	147.2	141.5	111.7	52.2	59.3	58.60
097B1	880814.0259	0.965	0.971	154.6	141.6	112.7	47.8	58.7	59.29
040C1	560814.0303	0.971	0.910	155.9	141.8	109.8	46.2	60.1	57.77
073O3	610814.0370	0.929	0.922	145.9	141.5	111.9	52.8	59.1	58.40
098B1	880814.0372	0.956	1.077	153.1	141.6	110.4	49.5	60.7	59.54
036K1	590814.0410	0.949	0.996	150.8	141.1	111.3	49.7	59.7	59.00
041C1	560814.0420	0.955	1.004	152.4	141.8	116.4	50.3	56.8	60.74
443O6	750814.0480	0.927	0.888	145.1	141.0	112.9	52.1	58.2	58.35
045O5	700814.0630	0.941	1.009	149.1	141.3	114.0	51.5	58.2	59.98
120B1	880814.0998	0.950	0.987	151.0	141.7	113.1	50.5	58.7	59.51
157B1	890814.1049	0.974	0.977	157.3	141.4	113.3	46.0	58.2	59.58
259J1	530814.1944	0.937	0.901	147.4	141.7	114.1	52.0	57.7	58.93
260J1	530814.2906	0.959	0.942	153.0	141.8	115.5	49.3	57.0	59.87
002I2	790814.3280	0.943	0.665	145.9	141.2	112.5	48.7	57.1	56.00
140S1	560814.3511	0.958	0.923	152.6	142.1	113.3	49.5	58.3	58.98
198H1	530814.3628	0.956	0.939	152.2	141.9	117.1	50.1	56.1	60.31

IN	$d.t.$	q	e	ω	Ω	i	α	δ	v_g
166W1	510814.3816	0.955	0.995	152.3	141.5	114.7	49.6	57.7	60.11
146S1	560814.3940	0.960	0.914	152.9	142.2	114.9	49.5	57.3	59.41
283P1	580814.4527	0.949	0.994	150.8	141.7	111.5	50.6	59.7	59.07
282P1	580814.4558	0.944	0.842	148.4	141.7	112.5	50.5	58.3	57.85
004N1	690814.7100	0.932	0.801	145.1	142.1	114.6	52.6	57.0	58.00
002N1	670814.7400	0.937	0.879	147.1	141.7	112.2	51.7	58.7	58.10
006D6	690814.8110	0.970	1.276	157.6	142.2	115.2	49.1	58.7	63.00
036D3	630814.8490	0.960	0.692	150.8	141.8	117.1	48.2	54.7	57.80
020D7	670814.8580	0.965	0.921	154.3	141.8	115.2	48.3	57.0	59.60
045D4	640814.8920	0.955	1.228	153.7	142.6	112.3	52.0	60.5	61.60
034D8	770814.8920	0.936	0.883	147.1	142.3	113.7	52.7	58.0	58.60
075O3	610814.9260	0.927	1.015	146.3	142.4	111.2	55.0	60.2	59.10
046D4	640814.9500	0.933	0.941	146.8	142.6	112.2	54.1	59.3	58.70
022K3	780814.9530	0.884	0.681	133.4	142.1	111.0	56.3	58.2	55.30
076O3	610814.9760	0.927	0.899	145.2	142.4	113.9	54.3	58.0	58.80
042C1	560815.0042	0.937	0.996	148.3	142.7	115.3	54.1	57.7	60.27
461O6	820815.0080	0.978	1.015	158.6	142.1	115.3	46.7	57.3	60.60
062K2	750815.0250	0.935	0.968	147.6	141.9	114.8	53.0	57.7	59.80
038O5	670815.0280	0.921	0.656	140.4	142.0	110.9	52.1	58.2	55.24
100B1	880815.0360	0.943	1.006	149.5	142.6	113.2	53.0	59.0	59.70
101B1	880815.0424	0.956	0.945	152.2	142.6	114.0	50.7	58.1	59.43
446O6	750815.0530	0.964	0.389	145.8	142.0	109.8	44.5	56.6	52.29
023B1	830815.0563	0.939	0.930	148.1	141.9	114.4	52.2	57.7	59.33
102B1	880815.0720	0.943	0.916	148.9	142.6	116.3	52.7	56.7	59.78
032W1	370815.2600	0.968	0.952	155.4	142.9	119.7	50.0	54.7	61.30
201H1	530815.4195	0.946	0.934	149.7	142.9	123.6	53.5	52.5	62.12
203H1	530815.4437	0.935	0.892	146.8	142.9	114.7	54.0	57.6	59.02
054N1	790815.5900	0.911	0.768	140.2	142.4	113.5	55.1	57.5	57.20
037D3	630815.7470	0.904	0.765	138.7	142.7	114.4	56.2	57.0	57.40
038K1	600815.8190	0.932	0.936	146.7	143.5	110.4	55.3	60.5	58.10
038D3	630815.8670	0.959	0.922	152.9	142.8	115.2	50.5	57.3	59.60
039D3	630815.8790	0.950	0.881	150.3	142.8	111.6	51.3	59.3	58.00
077B1	870815.9038	0.940	0.997	148.9	142.7	112.3	53.5	59.5	59.34
095E1	790815.9217	0.925	1.228	147.5	142.8	113.7	57.2	59.7	62.00
048D4	640815.9220	0.937	1.027	148.5	143.6	115.1	55.5	58.2	60.50
024B1	830815.9504	0.941	0.931	148.5	142.8	114.3	53.2	58.0	59.31
419O6	710815.9600	0.980	1.276	160.4	142.9	110.2	46.8	61.8	61.37
063K2	750816.0120	0.972	0.795	155.5	142.9	111.5	47.3	58.7	57.20
096E1	790816.0530	0.953	0.905	151.3	142.9	111.2	51.0	59.7	58.10
074B1	860816.0990	0.898	0.934	139.9	143.1	104.6	60.1	63.7	56.00
054D8	790816.7930	0.952	0.801	150.0	143.6	113.2	51.8	58.1	57.70
112D2	580816.8080	0.947	1.036	150.8	144.0	120.2	55.0	55.2	62.20
049D4	640816.8400	0.931	0.967	146.7	144.5	112.6	57.2	59.6	59.10
019K1	580816.8620	0.954	0.876	151.2	144.0	108.3	52.1	61.5	56.90
113D2	580816.9190	0.943	0.849	148.4	144.1	114.9	54.2	57.5	58.70
050D4	640816.9440	0.915	1.009	144.0	144.6	116.2	59.7	57.6	60.60
078O3	610816.9710	0.929	0.932	146.1	144.4	113.1	57.0	59.1	58.90
050E1	770817.0660	0.962	1.052	154.6	144.4	115.5	52.8	58.1	61.00

IN	*d.t.*	q	e	ω	Ω	i	α	δ	v_g
079O2	600817.7870	0.971	1.256	157.9	145.4	118.2	53.7	57.5	63.80
021K2	680817.8180	0.935	0.876	146.8	145.4	114.5	57.3	58.2	58.80
269J1	520818.3579	0.961	0.898	153.2	146.0	109.3	54.0	61.5	57.48
044K2	710818.8110	0.968	1.012	155.8	145.6	109.9	52.7	61.6	58.80
080O2	600819.7990	0.952	0.934	151.3	147.3	115.5	58.2	58.3	59.80
039D1	520819.8117	0.951	0.976	151.5	147.4	116.2	58.6	58.1	60.43
456O6	790819.9720	0.966	0.791	153.8	146.7	111.3	53.7	59.8	57.10
058K2	740821.0020	0.945	1.036	150.6	147.9	119.5	60.7	56.5	62.00
085O3	610822.0410	0.914	0.944	143.4	149.2	115.6	66.2	58.5	59.80
029K2	690823.0470	0.937	1.037	148.8	150.2	117.4	65.2	58.1	61.40
281J1	520825.2688	1.010	0.973	182.3	152.7	111.9	45.1	59.8	59.29
058K1	620827.0020	0.958	0.906	153.1	153.8	121.1	66.5	56.0	61.30
152S1	560830.2437	1.001	0.914	169.5	157.4	105.3	59.3	65.9	56.47
283J1	520830.3645	1.009	0.972	179.1	157.6	107.6	52.7	64.0	57.85
060K1	620830.9900	0.985	0.844	198.8	157.6	117.8	46.6	55.2	59.80
053D4	640908.8940	0.948	0.934	151.5	166.7	119.4	87.7	58.2	61.20
057D4	640912.7280	1.006	0.922	179.2	170.5	108.4	74.7	65.5	57.80
074O4	630917.0710	1.005	0.871	180.1	174.0	115.8	81.0	61.0	59.80

3. Access to the data in a digital form

The list of selected Perseids published in Table 3 is available in a digital form as a plain ASCII file from the web address:
`http://www.astro.sk/caosp/Eedition/FullTexts/vol35no3/pp199-220.dat/`.
Please, feel free to use the catalogue data, only this paper should be quoted in each official using of the catalogue or its part.

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