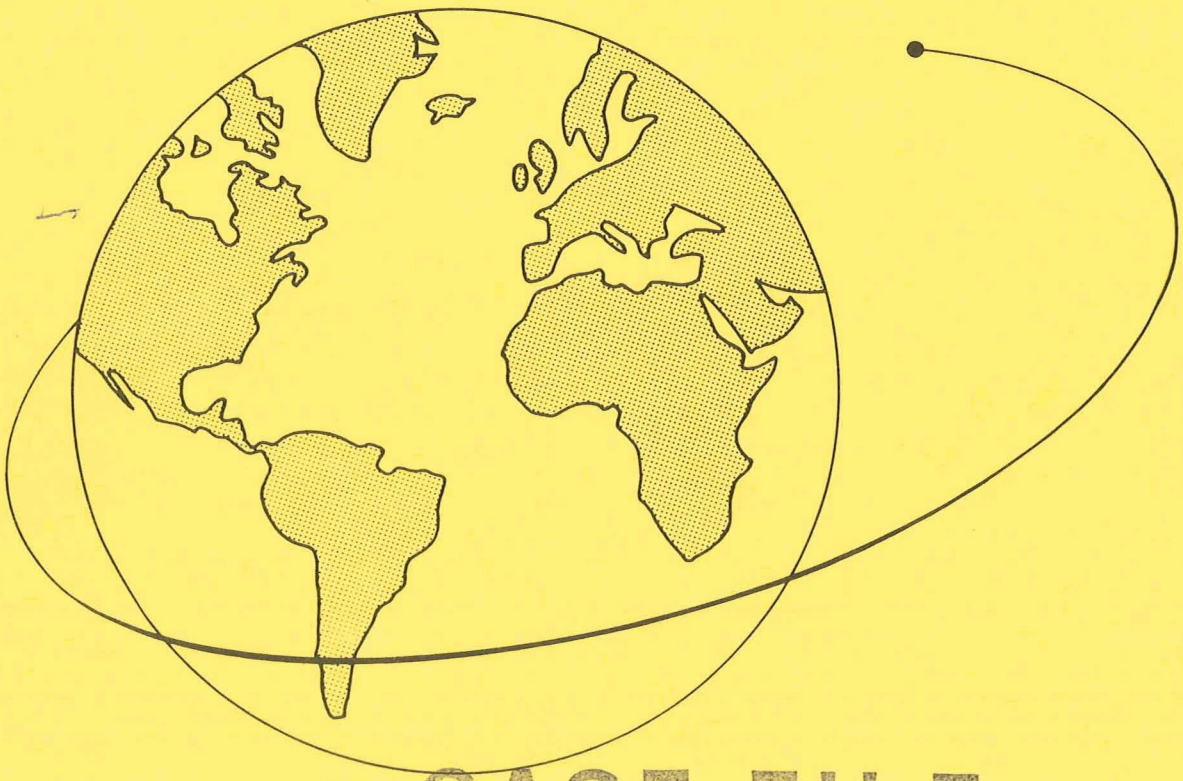
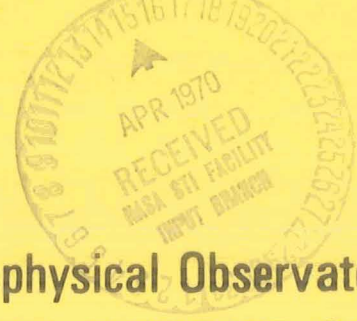
SATELLITE ORBITAL DATA





Smithsonian Astrophysical Observatory
SPECIAL REPORT 290
Catalog E-8

Research in Space Science
SAO Special Report No. 290

SATELLITE ORBITAL DATA

No. E-8

Material prepared under the supervision of
Mrs. Beatrice Miller, Data Division

December 27, 1968

Smithsonian Institution
Astrophysical Observatory
Cambridge, Massachusetts 02138

906-123

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SATELLITE ORBITAL DATA

1. ORBITAL INFORMATION

The orbital elements have been derived by the indicated staff members of the Satellite-Tracking Program, Smithsonian Astrophysical Observatory, employing the SAO Differential Orbit Improvement Program (DOI).

As opposed to osculating elements, the elements presented here are mean elements in the sense that the effects of the short-period perturbations due to the earth's oblateness have been eliminated.

SAO mean elements have been derived from precisely reduced observations covering several days and are given in the form of a table. The successive sets of elements are essentially independent of each other. They are dependent, however, in the sense that high-order coefficients in the secular and the long-periodic terms are generally considered as known and as constant for periods of several weeks or months, as dictated by convenience.

The times of epoch in the mean elements are reckoned in Julian Days, but for the sake of convenience the number 2400000.5 has been subtracted to provide an abbreviated notation, which we call "Modified Julian Days," or "MJD."

The units of the orbital elements are degrees for angular quantities, megameters (Mm = 10^6 meters) for linear quantities, and revolutions for the mean anomaly M and its derivatives.

This work was supported by grant NGR 09-015-002 from the National Aeronautics and Space Administration.

The tabulated values of the SAO mean elements give the values of arguments of perigee ω, right ascension of the ascending node Ω, inclination i, eccentricity e, and mean anomaly M as functions of time $t = T - T_0$ (where T_0 is the reference epoch) expressed in days. The two-digit number placed at the right of each value represents the standard error for that element and refers to the last digits given.

The same tabulation also gives the mean (anomalistic) motion n, the orbital acceleration $n'/2$ or $n'(dn/dt)$, and the semimajor axis a (in megameters). Of the last three columns, the one headed N indicates the number of observations used for the computation of a set of elements; the one headed D, the number of days used; and the one headed σ, the standard error of the representation of the observations relative to their assumed accuracy.

In our computer program, the inclination and the argument of perigee are referred to the true equator of date; the right ascension of the ascending node, however, is reckoned from the mean equinox of 1950.0 along the corresponding mean equator to the intersection with the moving true equator of date, and then along the true equator of date. To transform from right ascension of the node as determined by the DOI to right ascension of the node referred to the mean equinox of date, we use

$$\Omega^\circ = \Omega^\circ\,(\mathrm{DOI}) + 3.^\circ 508 \times 10^{-5}(\mathrm{MJD} - 33281) \quad ,$$

where MJD stands for the Modified Julian Day of the date.

Tables 1, 2, 3, and 4 show the station coordinates, the values of the tesseral harmonics, the values of the constants GM and J, and the zonal harmonics. The data were obtained by use of the DOI program written for the CDC 6400 computer and include the use of lunisolar perturbations and tesseral harmonics.

Table 1. Station coordinates

Station no.	X (Mm)	Y (Mm)	Z (Mm)	Stations
9001	-1.535759	-5.166995	3.401041	Organ Pass, New Mexico
9002	5.056126	2.716485	-2.775816	Olifantsfontein, South Africa
9003	-3.983750	3.743101	-3.275593	Woomera, Australia
9004	5.105593	-0.555232	3.769674	San Fernando, Spain
9005	-3.946697	3.366286	3.698843	Tokyo, Japan
9006	1.018205	5.471100	3.109614	Naini Tal, India
9007	1.942769	-5.804078	-1.796961	Arequipa, Peru
9008	3.376882	4.403985	3.136254	Shiraz, Iran
9009	2.251820	-5.816915	1.327164	Curaçao, Netherlands Antilles
9010	0.976282	-5.601389	2.880242	Jupiter, Florida
9011	2.280575	-4.914569	-3.355457	Villa Dolores, Argentina
9012	-5.466055	-2.404275	2.242170	Maui, Hawaii
9023	-3.977738	3.725115	-3.303060	Island Lagoon, Australia
9114	-1.264846	-3.466880	5.185464	Cold Lake, Canada
9115	3.121268	0.592616	5.512673	Oslo, Norway
9117	-6.007395	-1.111893	1.825725	Johnston Island

Table 2. Tesseral harmonics

THE COEFFICIENTS ARE –

C	2	2	2.3790E-06	S	2	2	-1.3510E-06	C	3	1	1.9360E-06	S	3	1	2.6600E-07
C	3	2	7.3400E-07	S	3	2	-5.3800E-07	C	3	3	5.6100E-07	S	3	3	1.6200E-06
C	4	1	-5.7200E-07	S	4	1	-4.6900E-07	C	4	2	3.3000E-07	S	4	2	6.6100E-07
C	4	3	8.5100E-07	S	4	3	-1.9000E-07	C	4	4	-5.3000E-08	S	4	4	2.3000E-07
C	5	1	-7.9000E-08	S	5	1	-1.0300E-07	C	5	2	6.3100E-07	S	5	2	-2.3200E-07
C	5	3	-5.2000E-07	S	5	3	7.0000E-09	C	5	4	-2.6500E-07	S	5	4	6.4000E-08
C	5	5	1.5600E-07	S	5	5	-5.9200E-07	C	6	1	-4.7000E-08	S	6	1	-2.7000E-08
C	6	2	6.9000E-08	S	6	2	-3.6600E-07	C	6	3	-5.4000E-08	S	6	3	3.1000E-08
C	6	4	-4.4000E-08	S	6	4	-5.1800E-07	C	6	5	-3.1300E-07	S	6	5	-4.5800E-07
C	6	6	-4.0000E-08	S	6	6	-1.5500E-07	C	7	1	1.9700E-07	S	7	1	1.5600E-07
C	7	2	3.6400E-07	S	7	2	1.6300E-07	C	7	3	2.5000E-07	S	7	3	1.8000E-08
C	7	4	-1.5200E-07	S	7	4	-1.0200E-07	C	7	5	7.6000E-08	S	7	5	5.4000E-08
C	7	6	-2.0900E-07	S	7	6	6.3000E-08	C	7	7	5.5000E-08	S	7	7	9.6000E-08
C	8	1	-7.5000E-08	S	8	1	6.5000E-08	C	8	2	2.6000E-08	S	8	2	3.9000E-08
C	8	3	-3.7000E-08	S	8	3	4.0000E-09	C	8	4	-2.1200E-07	S	8	4	-1.2000E-08
C	8	5	-5.3000E-08	S	8	5	1.1800E-07	C	8	6	-1.7000E-08	S	8	6	3.1800E-07
C	8	7	-8.7000E-09	S	8	7	3.1000E-08	C	8	8	-2.4800E-07	S	8	8	1.0200E-07
C	9	1	1.1700E-07	S	9	1	1.2000E-08	C	9	2	-4.0000E-09	S	9	2	3.5000E-08
C	10	1	1.0500E-07	S	10	1	-1.2600E-07	C	10	2	-1.0500E-07	S	10	2	-4.2000E-08
C	10	3	-6.5000E-08	S	10	3	3.0000E-08	C	10	4	-7.4000E-08	S	10	4	-1.1100E-07
C	11	1	-5.3000E-08	S	11	1	1.5000E-08	C	12	1	-1.6300E-07	S	12	1	-7.1000E-08
C	12	2	-1.0300E-07	S	12	2	-5.1000E-09	C	12	12	-3.1000E-08	S	12	12	8.0000E-10
C	13	12	-6.8480E-08	S	13	12	6.5700E-08	C	13	13	-5.9000E-08	S	13	13	7.7000E-08
C	14	1	-1.5000E-08	S	14	1	5.3000E-09	C	14	11	2.0000E-10	S	14	11	-1.0000E-10
C	14	12	2.6100E-09	S	14	12	-2.4570E-08	C	14	14	-1.4000E-08	S	14	14	-3.0000E-09
C	15	9	-9.0000E-10	S	15	9	-1.8000E-09	C	15	12	-7.4730E-08	S	15	12	-1.0260E-08
C	15	13	-5.8000E-08	S	15	13	-4.6000E-08	C	15	14	4.3000E-09	S	15	14	-2.1100E-08

Table 3. Values of the constants GM and J used in orbit calculation

GM	J
274.53848	0.0660644

Table 4. Zonal harmonics used in orbit calculation

J_2	1082.645
J_3	-2.546
J_4	-1.649
J_5	-0.210
J_6	0.646
J_7	-0.333
J_8	-0.270
J_9	-0.053
J_{10}	-0.054
J_{11}	0.302
J_{12}	-0.357
J_{13}	-0.114
J_{14}	0.179

T (MJD)	ω	Ω	i	e	M	n	n'/2	a	N	D	σ
38396.0	178.79 3	47.428 4	32.882 1	.16413 6	.30673 4	11.47973 2	-3.88E-7 91	8.299150	19	08	1.63
38398.0	189.400 4	40.3886 7	32.8829 3	.164089 9	.266167 6	11.479744 2	-1.53E-7 51	8.299145	23	08	1.47
38400.0	199.9939 6	33.3495 2	32.8839 1	.164001 2	.225632 1	11.47974211	-4.86E-7 26	8.299145	28	08	.91
38402.0	210.5924 5	26.3101 2	32.8851 2	.163918 2	.185080 2	11.479742 1	-4.25E-7 49	8.299146	39	08	1.36
38404.0	221.1954 4	19.2706 1	32.8860 1	.163848 1	.144514 1	11.479743 0	-2.00E-7 29	8.299145	61	08	1.17
38406.0	231.8004 4	12.2313 1	32.8868 1	.163791 1	.103941 1	11.479746 1	-1.73E-7 33	8.299144	64	08	.90
38408.0	242.4073 6	5.1922 2	32.8874 1	.163748 2	.063362 2	11.479745 1	-3.33E-7 34	8.299144	63	08	.85
38410.0	253.0152 7	358.1539 2	32.8880 1	.163721 2	.022778 2	11.479741 1	-3.55E-7 26	8.299146	57	08	.53
38412.0	263.6254 6	351.1144 2	32.8879 1	.163697 1	.982188 2	11.479744 1	-2.07E-7 24	8.299145	56	08	.52
38414.0	274.2369 7	344.0756 2	32.8879 1	.163689 1	.941591 2	11.479744 1	-1.76E-7 30	8.299145	56	08	.56
38416.0	284.846 4	337.037 1	32.8877 1	.163692 1	.901001 1	11.479739 1	-8.8E-8 34	8.299147	54	08	.63
38418.0	295.457 4	329.998 1	32.8871 1	.163706 1	.860403 1	11.479738 0	1.0E-8 21	8.299148	56	08	.69
38420.0	306.067 5	322.959 2	32.8862 1	.163735 1	.819808 2	11.479738 1	1.81E-7 27	8.299147	44	08	.83
38422.0	316.6746 7	315.9199 2	32.8851 1	.163774 1	.779222 2	11.479740 1	4.77E-7 26	8.299147	51	08	.84
38424.0	327.2794 7	308.8809 1	32.8840 1	.163826 1	.738645 2	11.479740 1	7.14E-7 32	8.299146	70	08	.93
38426.0	337.882 1	301.8424 2	32.8826 1	.163887 1	.698079 3	11.479740 2	7.57E-7 41	8.299147	80	08	1.04
38428.0	348.4781 9	294.8032 2	32.8811 1	.163963 1	.657537 3	11.479737 1	5.86E-7 37	8.299148	110	08	1.18
38430.0	359.0677 9	287.7641 1	32.8792 1	.164047 1	.617018 3	11.479737 1	8.11E-7 29	8.299148	132	08	1.19
38432.0	9.6551 8	280.7239 1	32.8775 1	.164131 1	.576513 3	11.479743 1	1.14E-6 03	8.299145	135	08	1.07
38434.0	20.2371 7	273.6836 1	32.8758 1	.164216 1	.536033 3	11.479750 1	1.13E-6 03	8.299142	150	08	1.17
38436.0	30.8110 6	266.6426 1	32.8738 1	.164300 1	.495587 2	11.479757 1	1.23E-6 03	8.299138	153	08	1.22
38438.0	41.3832 6	259.6009 1	32.8721 1	.164374 1	.455157 2	11.479767 1	1.47E-6 03	8.299134	134	08	1.15
38440.0	51.9480 7	252.5587 1	32.8708 0	.164438 1	.414764 2	11.479777 1	1.47E-6 03	8.299129	127	08	1.09

T (MJD)	ω	Ω	i	e	M	n	n'/2	a	N	D	σ
38442.0	62.3079 4	245.5162 1	32.8695 0	.164491 1	.374398 1	11.479787 1	1.20E-6 02	8.299124	117	08	.74
38444.0	73.0640 4	238.4741 1	32.8689 0	.164524 1	.334052 1	11.479795 1	1.33E-6 02	8.299120	119	08	.66
38446.0	83.6177 4	231.4316 1	32.8685 0	.164541 1	.293725 1	11.479800 1	1.63E-6 02	8.299118	126	08	.56
38448.0	94.1724 3	224.3887 1	32.8684 0	.164539 1	.253408 1	11.479804 0	1.93E-6 02	8.299115	117	08	.61
38450.0	104.7279 1	217.3462 1	32.8686 0	.164514 1	.213102 2	11.479809 1	2.00E-6 03	8.299113	87	08	.65
38452.0	115.2838 7	210.3037 2	32.8692 1	.164472 1	.172811 3	11.479818 1	2.16E-6 04	8.299109	59	08	.70
38454.0	125.844 1	203.2626 3	32.8707 1	.164415 1	.132521 4	11.479825 1	2.15E-6 04	8.299105	40	08	1.03
38456.0	136.4064 9	196.2208 2	32.8719 1	.164347 1	.092244 3	11.479826 1	1.99E-6 03	8.299105	44	08	.82
38458.0	146.9778 9	189.1799 2	32.8731 1	.164264 1	.051953 3	11.479835 2	2.42E-6 04	8.299101	47	08	.82
38460.0	157.5539 9	182.1391 2	32.8744 0	.164174 1	.011668 3	11.479844 1	2.65E-6 03	8.299096	66	08	.91
38462.0	168.1348 8	175.0988 2	32.8758 0	.164082 1	.971390 2	11.479856 1	2.36E-6 02	8.299091	75	08	.84
38464.0	178.7223 6	168.0588 1	32.8772 0	.163990 0	.931113 2	11.479866 1	2.16E-6 02	8.299086	82	08	.73
38466.0	189.3145 6	161.0188 1	32.8785 0	.163906 0	.890841 2	11.479875 1	2.22E-6 02	8.299081	99	08	.78
38468.0	199.9121 6	153.9790 1	32.8797 0	.163827 0	.850572 2	11.479883 1	2.47E-6 02	8.299078	94	08	.74
38470.0	210.5149 6	146.9395 2	32.8807 0	.163759 0	.810309 2	11.479891 1	2.49E-6 02	8.299074	85	08	.71
38472.0	221.1216 9	139.8996 2	32.8816 0	.163701 1	.770058 3	11.479902 1	2.24E-6 03	8.299068	68	08	.74
38474.0	231.7308 7	132.8601 2	32.8823 0	.163655 1	.729818 2	11.479915 1	2.23E-6 02	8.299062	59	08	.60
38476.0	242.341 1	125.8209 2	32.8827 1	.163622 1	.689594 3	11.479928 1	2.68E-6 04	8.299056	43	08	.72
38478.0	252.953 1	118.7813 2	32.8831 1	.163602 1	.649388 3	11.479941 2	3.12E-6 04	8.299049	36	08	.53
38480.0	263.565 2	111.7412 2	32.8834 1	.163592 2	.609210 7	11.479953 3	2.93E-6 05	8.299044	33	08	.74
38482.0	274.180 2	104.7009 2	32.8834 1	.163597 2	.569049 6	11.479966 2	2.57E-6 06	8.299037	19	08	.66
38484.0	284.794 2	97.6615 2	32.8840 1	.163614 2	.528905 7	11.479983 2	2.84E-6 05	8.299029	34	08	.91

T (MJD)	ω	Ω	i	e	M	n	n'/2	a	N	D	σ
38396.0	231.6962 7	129.1818 4	33.3542 1	.188219 4	.954477 3	11.090033 1	5.20E-6 05	8.492530	35	08	1.65
38398.0	241.5073 4	122.6057 4	33.3554 1	.188192 4	.134514 2	11.090060 1	5.40E-6 06	8.492516	24	08	.99
38400.0	251.3185 6	116.0308 9	33.3564 1	.188182 8	.314590 3	11.090080 1	4.55E-6 09	8.492506	28	08	1.67
38402.0	261.1296 2	109.4595 5	33.3576 1	.188211 4	.494693 1	11.090106 1	4.36E-6 03	8.492493	26	08	.50
38404.0	270.9372 4	102.8838 5	33.3577 1	.188195 3	.674858 1	11.090121 1	4.39E-6 04	8.492485	26	08	.40
38406.0	280.740 4	96.3095 5	33.3576 1	.188201 6	.85507 1	11.090143 5	4.13E-6 04	8.492474	40	08	.58
38408.0	290.552 4	89.7297 9	33.3579 1	.188230 7	.03530 2	11.090144 6	3.95E-6 05	8.492473	37	08	.49
38410.0	300.362 5	83.1559 6	33.3576 1	.188231 6	.21555 2	11.09011 2	4.06E-6 05	8.492489	34	08	.43
38412.0	310.178 6	76.5809 5	33.3570 1	.188271 5	.39580 2	11.090143 9	3.95E-6 04	8.492474	37	08	.47
38414.0	319.997 9	70.0064 6	33.3561 2	.188329 7	.57607 4	11.09019 2	3.51E-6 08	8.492450	24	08	.42
38416.0	329.794 6	63.4283 4	33.3563 2	.188411 7	.75645 2	11.090208 8	3.50E-6 07	8.492441	20	08	.40
38418.0	339.586 3	56.8530 5	33.3553 3	.188458 5	.93688 1	11.09020 1	2.79E-6 11	8.492445	18	08	.63
38420.0											
38432.0											
38434.0	57.8661 9	4.238 1	33.345 1	.18904 1	.381126 4	11.090320 2	4.71E-6 10	8.492383	17	08	.84
38436.0	67.6354 7	357.6599 3	33.3446 2	.189081 4	.561834 2	11.090335 1	4.00E-6 04	8.492376	22	08	.63
38438.0	77.4028 8	351.0818 3	33.3443 1	.189103 5	.742579 2	11.090350 1	3.97E-6 06	8.492368	19	08	.60
38440.0	87.167 1	344.5045 4	33.3441 1	.189117 8	.923363 4	11.090364 1	3.85E-6 09	8.492361	16	08	.53

T (MJD)	ω	Ω	i	e	M	n	n'/2	a	N	D	σ
38442.0	96.9352 6	337.9263 3	33.3442 1	.189100 3	.104171 1	11.090379 1	3.05E-6 03	8.492353	21	08	.45
38444.0	106.7015 4	331.3490 6	33.3444 1	.189076 2	.285005 1	11.090391 1	2.54E-6 07	8.492347	21	08	.59
38446.0	116.4696 9	324.772 1	33.3446 1	.189044 3	.465854 1	11.090394 1	1.90E-6 08	8.492346	31	08	.78
38448.0	126.242 2	318.200 2	33.3451 1	.188995 5	.646691 3	11.090395 1	1.64E-6 10	8.492345	33	08	.94
38450.0	136.033 4	311.626 2	33.3462 4	.18890 1	.827479 8	11.090464 6	-2.24E-6 41	8.492310	28	08	2.98
38452.0	145.802 3	305.044 2	33.3467 5	.188846 8	.008397 5	11.090433 4	-1.13E-6 38	8.492325	26	08	4.00
38454.0											
38464.0											
38466.0	214.349 3	258.9988 5	33.3512 6	.18835 3	.27429 2	11.090458 2	3.52E-6 03	8.492312	13	08	.54
38468.0											
38474.0											
38476.0	263.394 1	226.1173 4	33.3537 1	.188170 3	.178973 2	11.090527 1	3.13E-6 07	8.492277	15	08	.57
38478.0	273.207 1	219.5407 4	33.3537 1	.188165 4	.359974 3	11.090537 1	2.88E-6 07	8.492272	18	08	.57
38480.0	283.013 2	212.9650 4	33.3536 1	.18809 3	.54104 1	11.090565 6	2.70E-6 05	8.492258	17	08	.45
38482.0	292.81 1	206.390 2	33.3536 6	.1879 1	.72220 7	11.09058 2	3.20E-6 45	8.492249	10	08	.35
38484.0	302.634 2	199.8132 2	33.3528 0	.18809 3	.90318 1	11.090551 4	2.56E-6 04	8.492265	16	08	.38

T (MJD)	ω	Ω	i	e	M	n	n'/2	a	N	D	σ
38396.0	93.619 4	18.4083 1	47.2338 1	.012040 0	.29228 1	12.197045 3	-4.8E-8 15	7.971442	75	08	.55
38398.0	99.225 4	12.2057 0	47.2337 1	.012031 0	.68736 1	12.197052 4	-5.8E-8 15	7.971439	68	08	.56
38400.0	104.842 5	06.0032 1	47.2337 1	.012016 0	.08240 1	12.197061 5	-1.11E-7 11	7.971435	57	08	.47
38402.0	110.493 7	359.8009 1	47.2339 1	.011998 0	.47736 2	12.197069 6	-1.26E-7 23	7.971432	60	08	.70
38404.0	116.130 9	353.5984 1	47.2339 1	.011970 0	.87235 2	12.197065 6	-2.31E-7 17	7.971433	53	08	.68
38406.0	121.80 1	347.3960 2	47.2339 1	.011938 0	.26724 3	12.197065 6	-1.46E-7 24	7.971434	67	08	.83
38408.0	127.467 9	341.1936 2	47.2339 1	.011900 0	.66215 2	12.197064 7	-1.0E-8 13	7.971434	63	08	.58
38410.0	133.164 8	334.9912 1	47.2340 1	.011854 0	.05697 2	12.197073 7	9.7E-8 20	7.971430	64	08	.69
38412.0	138.864 7	328.7890 1	47.2339 1	.011803 0	.45178 2	12.197061 6	9.4E-8 15	7.971435	74	08	.78
38414.0	144.594 7	322.5868 2	47.2338 1	.011749 0	.84651 2	12.197060 6	9.2E-8 19	7.971436	77	08	.88
38416.0	150.352 6	316.3846 2	47.2337 1	.011690 0	.24116 2	12.197081 6	-5.1E-8 17	7.971427	71	08	.77
38418.0	156.152 9	310.1826 2	47.2335 1	.011629 0	.63569 3	12.197041 9	-2.31E-7 25	7.971444	68	08	.97
38420.0	161.95 1	303.9797 2	47.2330 1	.011566 0	.03022 3	12.19705 1	-2.22E-7 23	7.971439	60	08	.99
38422.0	167.783 8	297.7768 2	47.2327 1	.011501 0	.42467 2	12.197075 8	-1.8E-8 25	7.971429	51	08	.93
38424.0	173.675 9	291.5748 2	47.2326 1	.011433 0	.81894 3	12.197083 9	2.05E-7 20	7.971426	62	08	.86
38426.0	179.632 9	285.3730 1	47.2324 1	.011364 0	.21304 2	12.197087 9	1.79E-7 25	7.971424	64	08	.83
38428.0	185.614 7	279.1714 1	47.2318 1	.011295 0	.60707 2	12.197110 7	1.7E-8 21	7.971414	73	08	.73
38430.0	191.620 8	272.9694 1	47.2312 1	.011227 0	.00103 2	12.197148 7	-1.38E-7 17	7.971397	82	08	.78
38432.0	197.647 6	266.7668 1	47.2307 1	.011160 0	.39493 2	12.197122 7	-2.59E-7 21	7.971408	84	08	.86
38434.0	203.703 5	260.5640 1	47.2307 1	.011098 0	.78875 1	12.197117 4	-1.09E-7 15	7.971411	97	08	.86
38436.0	209.806 3	254.3613 1	47.2305 0	.011038 0	.182441 9	12.197096 4	1.18E-7 16	7.971420	100	08	.86
38438.0	215.938 3	248.1585 1	47.2303 0	.010983 0	.576054 8	12.197087 4	2.88E-7 13	7.971424	96	08	.92
38440.0	222.136 2	241.9555 1	47.2301 0	.010926 1	.969488 7	12.197080 2	2.80E-7 13	7.971427	95	08	.82

T (MJD)	ω	Ω	i	e	M	n	n'/2	a	N	D	σ
38442.0	228.338 3	235.7527 1	47.2301 0	.010879 1	.362910 7	12.197072 2	1.10E-7 13	7.971430	95	08	.82
38444.0	234.561 3	229.5498 0	47.2302 0	.010838 1	.756275 7	12.197061 2	1.6E-8 12	7.971435	91	08	.63
38446.0	240.815 3	223.3471 1	47.2302 0	.010803 1	.149554 8	12.197054 2	-3.4E-8 16	7.971438	81	08	.63
38448.0	247.089 4	217.1443 1	47.2304 0	.010774 1	.54278 1	12.197048 2	-1.09E-7 21	7.971440	63	08	.68
38450.0	253.384 6	210.9414 1	47.2304 1	.010753 1	.93594 2	12.197037 5	-3.20E-7 49	7.971446	41	08	.68
38452.0	259.695 8	204.7392 2	47.2309 2	.010738 3	.32906 2	12.197034 5	-2.45E-7 45	7.971447	34	08	.89
38454.0	265.993 4	198.5372 1	47.2313 1	.010738 1	.72221 1	12.197024 2	-1.53E-7 18	7.971451	46	08	.63
38456.0	272.312 3	192.3350 1	47.2316 1	.010737 1	.115296 8	12.197026 3	-1.69E-7 16	7.971450	74	08	.67
38458.0	278.624 2	186.1326 1	47.2316 0	.010745 1	.508403 7	12.197025 2	-2.10E-7 15	7.971451	91	08	.68
38460.0	284.928 2	179.9302 1	47.2316 0	.010760 1	.901530 6	12.197030 1	-1.70E-7 15	7.971449	97	08	.65
38462.0	291.222 2	173.7283 1	47.2317 0	.010781 1	.294685 3	12.197032 5	-1.45E-7 30	7.971448	94	08	.67
38464.0	297.490 2	167.5256 1	47.2317 0	.010815 1	.687911 6	12.197037 2	-1.82E-7 16	7.971446	82	08	.62
38466.0	303.743 3	161.3234 1	47.2318 0	.010853 1	.081178 7	12.197035 2	-1.64E-7 16	7.971446	82	08	.71
38468.0	309.973 3	155.1209 1	47.2319 0	.010897 1	.474506 8	12.197037 2	-7.6E-8 16	7.971446	75	08	.67
38470.0	316.186 3	148.9185 1	47.2319 1	.010945 1	.867880 8	12.197040 2	7.1E-8 20	7.971444	62	08	.60
38472.0	322.378 3	142.7163 1	47.2315 1	.010995 1	.261313 9	12.197045 2	1.29E-7 18	7.971442	53	08	.66
38474.0	328.530 3	136.5140 1	47.2311 1	.011054 1	.65486 1	12.197053 2	4.1E-8 20	7.971438	67	08	.72
38476.0	334.644 3	130.3115 1	47.2311 1	.011118 1	.048512 9	12.197061 2	6.6E-8 17	7.971435	64	08	.58
38478.0	340.732 3	124.1088 1	47.2309 1	.011181 1	.44224 1	12.197076 2	1.27E-7 21	7.971428	85	08	.76
38480.0	346.783 2	117.9058 1	47.2307 0	.011245 1	.836066 6	12.197083 2	1.37E-7 13	7.971426	102	08	.71
38482.0	352.792 2	111.7030 0	47.2307 0	.011316 1	.230013 5	12.197078 2	8.2E-8 13	7.971428	97	08	.71
38484.0	358.775 2	105.4999 0	47.2307 0	.011385 1	.624034 4	12.197073 2	3.8E-8 11	7.971430	97	08	.68

T (MJD)	ω	Ω	i	e	M	n	n′/2	a	N	D	σ
38306.0	49.4157 9	242.5993 1	38.9412 3	.1320 2	.706137 8*	12.49562 2	1.084E-3 05	7.843294	11	02	.71
38307.0	54.4624 9	238.7062 2	38.9416 2	.132005 2	.202931 2	12.497904 4	1.156E-3 04	7.842341	16	02	.46
38308.0	59.497 2	234.8076 9	38.9370 8	.132067 6	.702102 5	12.50034 1	1.255E-3 04	7.841322	26	02	2.71
38309.0	64.5420 7	230.9123 4	38.9400 2	.132051 3	.203722 1	12.502805 3	1.242E-3 02	7.840290	30	02	1.71
38310.0	69.589 1	227.012 9	38.9395 2	.132044 4	.707866 3	12.505500 4	1.587E-3 01	7.839163	36	02	2.05
38311.0	74.637 1	223.1095 4	38.9392 2	.132023 4	.215156 3	12.508963 5	1.732E-3 02	7.837716	31	02	1.61
38312.0	79.6867 7	219.2046 3	38.9388 2	.131992 2	.725894 2	12.51232 2	1.628E-3 08	7.836316	20	02	.47
38313.0	84.8 1	215.291 1	38.9356 7	.13197 3	.23982 4	12.51567 4	1.914E-3 03	7.834913	22	02	1.74
38314.0	89.759 8	211.392 1	38.9415 8	.13175 2	.75796 3	12.51996 7	2.494E-3 04	7.833126	18	02	2.15
38315.0	94.45 5	207.448 6	38.921 5	.1298 2	.2825 2	12.5286 3	2.710E-3 05	7.829522	14	02	1.74
38316.0	99.95 3	203.559 3	38.940 1	.13173 6	.8087 1	12.5302 8	2.557E-3 03	7.828863	10	02	1.92
38317.0	104.964 3	199.6385 7	38.9396 3	.13143 2	.34226 2	12.5361 1	2.63E-3 03	7.826384	12	02	.58
38318.0	110.01 7	195.710 5	38.939 1	.1312 1	.8810 3	12.5410 3	2.469E-3 08	7.824342	12	02	.69
38319.0	115.094 8	191.786 5	38.940 2	.13111 7	.42440 5	12.54559 7	2.289E-3 03	7.822451	08	02	.29
38320.0	120.171 2	187.8555 7	38.9405 3	.13101 2	.97239 1	12.54996 2	2.084E-3 01	7.820635	18	02	.53
38321.0	125.252 3	183.9217 8	38.9410 2	.13086 2	.52460 1	12.55443 3	2.230E-3 01	7.818774	32	02	1.83
38322.0	130.341 3	179.986 1	38.9421 3	.13075 2	.08125 2	12.55897 2	2.353E-3 02	7.816893	47	02	3.21
38323.0	135.431 2	176.0454 7	38.9428 1	.130583 9	.642645 8	12.56380 2	2.500E-3 02	7.814889	57	02	2.15
38324.0	140.5226 6	172.1040 4	38.9440 1	.130415 2	.13042 2	12.568654 3	2.177E-3 01	7.812875	39	02	.93
38325.0	145.6209 6	168.1578 4	38.9453 1	.130288 2	.779734 2	12.572697 4	1.930E-3 01	7.811199	29	02	.93
38326.0	150.71 1	164.198 5	38.9480 6	.13002 6	.35444 6	12.5767 2	2.34E-3 02	7.809556	24	02	3.09
38327.0	155.82 2	160.260 4	38.947 3	.12983 2	.93465 5	12.58471 3	3.65E-3 03	7.806226	21	02	7.06
38328.0	160.965 1	156.3048 5	38.948 2	.129634 2	.522055 3	12.589746 3	2.115E-3 01	7.804144	23	02	1.20
38329.0	166.087 1	152.3424 4	38.9506 1	.129475 2	.113770 2	12.593518 5	1.791E-3 01	7.802585	36	02	1.28
38330.0	171.217 1	148.3817 7	38.9522 2	.129332 4	.709047 4	12.596996 6	1.724E-3 01	7.801149	42	02	1.74
38331.0	176.360 3	144.419 1	38.9532 4	.12919 2	.30775 1	12.60053 2	2.006E-3 02	7.799689	35	02	3.17
38332.0	181.50 3	140.46 3	38.957 5	.1290 4	.9109 1	12.6067 1	4.43E-3 01	7.797134	22	02	11.18
38333.0											

*A 3rd or 4th degree polynomial has been used in the mean-anomaly equation to facilitate computation.

T (MJD)	ω	Ω	i	e	M	n	n'/2	a	N	D	σ
38334.0	191.84 2	132.508 3	38.955 2	.1285 1	.14076 9	12.62010 9	1.93E-3 02	7.791622	12	02	.67
38335.0											
38336.0	202.170 1	124.5453 6	38.9606 3	.12798 1	.390064 4	12.62952 2	2.637E-3 04	7.787748	21	02	1.75
38337.0	207.355 2	120.5646 9	38.9599 5	.12784 2	.022119 8	12.63464 3	2.465E-3 02	7.785641	20	02	1.88
38338.0	212.5470 4	116.5759 2	38.9615 1	.127652 2	.659126 2	12.639420 2	2.367F-3 01	7.783678	20	02	.52
38339.0	217.740 2	112.5850 5	38.9624 4	.127500 5	.300889 5	12.64422 1	2.406F-3 05	7.781706	16	02	2.50
38340.0	222.9538 8	108.5916 2	38.9631 1	.127293 2	.947519 2	12.649436 5	2.912F-3 01	7.779568	21	02	1.01
38341.0	228.175 5	104.5947 9	38.959 1	.12714 2	.60006 2	12.65607 4	3.818F-3 05	7.776847	20	02	2.90
38342.0	233.3918 8	100.5918 3	38.9634 3	.126781 3	.260214 2	12.663985 6	3.568F-3 02	7.773607	29	02	1.51
38343.0	238.634 4	96.582 2	38.959 1	.12659 1	.92756 1	12.67082 2	3.488E-3 05	7.770810	40	02	7.21
38344.0	243.84 1	92.573 1	38.965 1	.12627 3	.60204 4	12.67782 4	3.201F-3 02	7.767950	31	02	3.10
38345.0	249.096 3	88.5554 5	38.9643 6	.12611 1	.28283 1	12.68389 3	2.940F-3 03	7.765471	18	02	1.34
38346.0	254.333 2	84.5347 4	38.9645 2	.125914 2	.969632 4	12.689749 7	2.863E-3 03	7.763079	17	02	1.17
38347.0	259.589 2	80.5092 3	38.9638 2	.125765 4	.662061 6	12.69510 2	2.551F-3 02	7.760896	16	02	.55
38348.0	264.799 9	76.4812 7	38.9633 4	.12552 2	.35979 4	12.69971 8	2.584F-3 04	7.759020	22	02	1.75
38349.0	270.1030 4	72.4503 3	38.9634 1	.125498 1	.062319 1	12.705416 2	2.617F-3 01	7.756694	31	02	1.14
38350.0	275.366 2	68.415 1	38.9628 4	.125369 7	.770259 7	12.71043 1	2.36E-3 01	7.754652	43	02	5.86
38351.0	280.636 4	64.378 1	38.9636 4	.12521 1	.48338 1	12.71657 2	4.028F-3 09	7.752156	40	02	2.80
38352.0	285.919 7	60.331 2	38.9620 6	.12504 2	.20346 2	12.72320 6	2.897F-3 03	7.749463	42	02	3.51
38353.0	291.1936 5	56.2818 2	38.9614 1	.124907 2	.929423 1	12.728773 3	2.723E-3 01	7.747199	51	02	1.61
38354.0	296.4787 7	52.2292 2	38.9608 1	.124775 3	.660829 2	12.734135 2	2.655E-3 02	7.745024	44	02	1.24
38355.0	301.7637 6	48.1742 3	38.9604 1	.124666 2	.397584 2	12.739461 3	2.669E-3 01	7.742864	42	02	1.43
38356.0	307.0549 5	44.1130 4	38.9598 1	.124557 2	.139703 1	12.744983 3	2.990E-3 01	7.740627	30	02	.84
38357.0	312.352 2	40.046 2	38.9588 4	.12439 1	.887818 3	12.7514 1	3.064E-3 05	7.738047	24	02	2.16
38358.0	317.49 2	35.951 4	38.9639 6	.12393 5	.64303 9	12.7593 1	3.945E-3 04	7.734852	18	02	1.10
38359.0	322.969 9	31.905 2	38.9587 3	.12408 4	.40459 4	12.7660 1	3.440E-3 05	7.732112	21	02	1.43
38360.0	328.252 3	27.8255 7	38.9583 1	.12386 1	.17394 2	12.77228 3	2.902F-3 01	7.729590	42	02	1.22
38361.0	333.571 9	23.743 1	38.9578 2	.12377 3	.94900 4	12.77793 6	2.871E-3 02	7.727313	34	02	1.65
38362.0	338.902 8	19.658 2	38.9572 4	.12375 3	.72973 3	12.78382 5	2.693F-3 07	7.724939	20	02	1.79
38363.0	344.200 4	15.5657 6	38.9570 2	.12355 1	.51613 2	12.78916 5	3.094F-3 02	7.722787	28	02	1.06

T (MJD)	ω	Ω	i	e	M	n	n'/2	a	N	D	σ
38364.0	349.49 1	11.471 3	38.957 1	.12330 6	.30876 6	12.79567 8	3.170E-3 03	7.720166	28	02	2.39
38365.0	354.86 2	07.378 3	38.953 1	.12340 7	.10735 7	12.8022 1	2.798E-3 05	7.717559	24	02	2.70
38366.0	0.11 1	03.265 2	38.9573 9	.12292 5	.91228 5	12.80758 9	3.438E-3 05	7.715377	22	02	1.94
38367.0	05.50 2	359.156 4	38.958 3	.12308 8	.72356 9	12.8160 2	4.24E-3 01	7.711986	23	02	3.70
38368.0	10.80 1	355.043 3	38.958 2	.12270 4	.54338 5	12.82329 5	3.753E-3 06	7.709075	26	02	2.61
38369.0	16.171 1	350.929 1	38.9531 9	.122596 5	.370453 6	12.83106 6	3.728E-3 03	7.705959	23	02	1.56
38370.0	21.529 8	346.801 1	38.956 1	.12250 3	.20506 2	12.83866 6	3.543E-3 03	7.702919	22	02	.71
38371.0	26.87 1	342.674 2	38.953 2	.12236 5	.04680 5	12.84508 6	3.465E-3 03	7.700351	24	02	1.29
38372.0	32.27 2	338.533 2	38.964 4	.12239 6	.89531 7	12.8526 1	3.527E-3 04	7.697331	24	02	1.88
38373.0											
38376.0	53.6343 4	321.9590 2	38.9520 3	.121554 2	.355951 1	12.87720 1	3.246E-3 01	7.687536	16	02	.45
38377.0	59.001 1	317.801 1	38.9495 9	.121381 3	.236525 3	12.88392 7	3.388E-3 01	7.684863	20	02	1.63
38378.0	64.362 3	313.643 1	38.9519 9	.121192 3	.123897 5	12.89113 1	3.814E-3 04	7.681995	22	02	4.04
38379.0	69.754 7	309.473 4	38.949 2	.120966 7	.01883 1	12.89852 2	3.415E-3 05	7.679059	20	02	4.82
38380.0											
38381.0											
38382.0	85.899 1	296.9437 4	38.9461 4	.120549 2	.741942 3	12.915931 5	2.681E-3 06	7.672156	25	02	1.30
38383.0	91.258 1	292.7676 5	38.9527 4	.120304 4	.660619 5	12.92121 1	2.846E-3 07	7.670066	31	02	1.95
38384.0	96.676 3	288.5747 6	38.9472 4	.12022 1	.58511 1	12.92825 4	3.717E-3 02	7.667280	26	02	2.02
38385.0	102.072 4	284.3836 8	38.9494 5	.11993 2	.51705 2	12.93527 3	3.488E-3 01	7.664506	18	02	1.01
38386.0	107.466 7	280.186 2	38.9494 8	.11965 2	.45612 3	12.94264 5	3.533E-3 02	7.661595	25	02	2.14
38387.0	112.873 4	275.983 1	38.9496 7	.11942 2	.40222 2	12.94929 4	3.363F-3 08	7.658972	33	02	2.11
38388.0	118.284 3	271.779 1	38.9508 6	.11923 2	.35465 1	12.95514 2	2.687F-3 02	7.656662	24	02	1.64
38389.0	123.713 1	267.5645 6	38.9505 3	.119051 2	.312462 3	12.96032 2	2.609F-3 03	7.654624	24	02	1.70
38390.0	129.141 1	263.3531 7	38.9518 2	.118837 3	.275532 4	12.96560 1	2.730F-3 02	7.652546	23	02	1.69
38391.0	134.569 2	259.1306 8	38.9516 2	.118640 3	.244132 5	12.97137 2	2.74E-3 01	7.650275	24	02	2.43
38392.0	140.016 2	254.9101 9	38.9526 2	.118408 5	.218297 6	12.97700 1	2.982F-3 08	7.648063	27	02	2.39
38393.0	145.456 3	250.6849 7	38.9535 2	.118119 4	.198595 8	12.98386 1	3.922F-3 09	7.645364	27	02	3.71
38394.0	150.944 6	246.451 2	38.9534 6	.11771 3	.18623 1	12.99117 3	3.269E-3 08	7.642495	21	02	5.22

T (MJD)	ω	Ω	i	e	M	n	n'/2	a	N	D	σ
38395.0	156.404 2	242.212 1	38.9547 2	.11738 2	.180575 5	12.997403 7	3.137E-3 05	7.640053	18	02	1.02
38396.0	161.8603 8	237.9787 3	38.9572 1	.117284 1	.180948 2	13.003197 7	2.818E-3 08	7.637782	25	02	1.34
38397.0	167.334 6	233.735 2	38.9599 8	.116881 6	.18829 1	13.01252 3	5.58E-3 02	7.634133	34	02	11.23
38398.0	172.848 1	229.4855 4	38.9598 1	.116485 2	.205540 3	13.021324 5	3.703E-3 01	7.630691	28	02	1.28
38399.0	178.361 3	225.229 1	38.9612 2	.11616 2	.230258 6	13.027990 8	3.160E-3 01	7.628087	19	02	1.56
38400.0	183.883 2	220.9695 9	38.9627 2	.11589 1	.261279 4	13.03398 1	2.988E-3 04	7.625751	21	02	1.95
38401.0	189.47 2	216.725 6	38.956 2	.1161 1	.2979 1	13.039 3	3.04E-3 02	7.623790	15	02	1.56
38402.0	194.884 6	212.448 3	38.965 1	.11550 5	.34147 2	13.04639 5	3.98E-3 02	7.620911	14	02	4.10
38403.0	200.509 4	208.169 1	38.9656 5	.11495 3	.391772 6	13.054266 8	4.082E-3 02	7.617845	16	02	2.23
38404.0	206.046 5	203.889 2	38.9679 8	.11462 3	.45052 1	13.06344 2	4.812E-3 03	7.614277	16	02	3.15
38405.0	211.632 3	199.6073 4	38.9670 3	.11423 7	.518749 5	13.07318 5	4.710E-3 08	7.610495	17	02	.65
38406.0											
38407.0	222.7980 5	191.0278 2	38.9685 1	.113521 4	.680712 2	13.090197 5	3.973E-3 02	7.603895	34	02	.94
38408.0	228.4048 5	186.7262 3	38.9696 1	.113200 2	.774892 2	13.098173 2	3.849E-3 06	7.600807	35	02	1.23
38409.0	234.0202 6	182.4193 2	38.9696 1	.112922 1	.876849 2	13.105802 2	3.699E-3 06	7.597856	37	02	1.07
38410.0	239.673 6	178.1053 8	38.967 1	.11268 2	.98622 2	13.11306 4	3.833E-3 06	7.595050	29	02	1.62
38411.0	245.34 2	173.779 2	38.966 3	.11238 8	.10586 8	13.1228 2	5.587E-3 16	7.591304	15	02	.99
38412.0	250.92 4	169.465 2	38.976 1	.11179 7	.2345 1	13.1329 2	4.310E-3 04	7.587389	17	02	1.11
38413.0	256.590 2	165.133 1	38.9725 7	.111603 5	.371771 4	13.14131 1	3.765E-3 09	7.584160	34	02	2.75
38414.0	262.253 1	160.7959 7	38.9719 5	.111336 4	.516868 3	13.14922 5	4.201E-3 06	7.581118	38	02	2.75
38415.0	267.924 2	156.4535 9	38.9715 6	.111067 5	.670180 5	13.15749 1	3.99E-3 01	7.577938	28	02	3.19
38416.0	273.593 5	152.1042 9	38.9692 5	.11082 1	.83138 2	13.16487 3	3.54E-3 01	7.575104	28	02	2.69
38417.0	279.282 9	147.748 1	38.9669 5	.11061 2	.99999 3	13.17265 5	3.923E-3 05	7.572122	44	02	2.70
38418.0	284.961 1	143.3884 7	38.9666 3	.110375 4	.176533 3	13.18053 5	4.118E-3 05	7.569102	60	02	3.30
38419.0	290.649 1	139.0139 7	38.9635 2	.110128 4	.361567 4	13.189913 6	5.077E-3 06	7.565511	52	02	2.67
38420.0	296.364 1	134.6414 6	38.9651 2	.109829 4	.557924 2	13.198206 6	4.452E-3 05	7.562341	35	02	1.37
38421.0	302.072 1	130.261 1	38.9643 3	.109592 6	.760337 4	13.206704 1	4.21E-3 01	7.559096	35	02	4.15
38422.0	307.784 3	125.8773 8	38.9637 2	.109381 2	.970921 9	13.214313 9	3.59E-3 02	7.556193	26	02	2.88
38423.0	313.523 8	121.492 4	38.9630 6	.10923 5	.18885 4	13.22198 8	4.359E-3 10	7.553272	18	02	1.70
38424.0	319.25 3	117.09 1	38.962 1	.1089 1	.4157 1	13.2319 3	5.41E-3 01	7.549509	18	02	5.60
38425.0	324.946 2	112.6855 6	38.9614 2	.10860 3	.652908 4	13.24143 7	4.312E-3 08	7.545870	22	02	1.77

T (MJD)	ω	Ω	i	e	M	n	n'/2	a	N	D	σ
38426.0	330.62 6	108.25 2	38.961 1	.1079 3	.8992 3	13.2510 3	5.44E-3 04	7.542233	24	02	9.83
38427.0	336.398 4	103.853 1	38.9605 1	.10802 2	.15478 2	13.26029 4	4.439E-3 04	7.538713	30	02	1.31
38428.0	342.157 4	99.433 1	38.9592 3	.10786 2	.41924 2	13.26862 2	3.957E-3 05	7.535554	37	02	2.44
38429.0											
38430.0	353.669 2	90.574 2	38.9563 6	.10749 3	.97140 2	13.2848 1	4.59E-3 01	7.529439	12	02	.35
38431.0											
38432.0	05.182 7	81.671 3	38.960 1	.10663 5	.56097 4	13.30777 7	6.916E-3 03	7.520766	17	02	2.56
38433.0											
38434.0	16.821 7	72.762 3	38.95 1	.10615 5	.20244 3	13.33425 3	7.33E-3 02	7.510799	17	03	.71
38435.0											
38445.0											
38446.0	86.3 2	18.42 4	39.02 3	.0977 5	.2415 8	13.5064 7	8.540E-3 07	7.446822	08	05	1.14
38447.0											
38448.0	98.34 6	09.177 3	38.990 1	.0972 1	.2906 2	13.5411 1	8.176E-3 03	7.434105	08	05	.23
38449.0											
38452.0	122.2 5	350.59 5	38.943 3	.0946 5	.609 1	13.6261 5	1.221F-2 02	7.403133	07	04	.75
38453.0											
38456.0	147.01 1	331.611 4	38.9523 8	.09093 2	.30564 5	13.71936 5	9.95E-3 01	7.369540	10	04	2.24
38457.0											
38460.0	171.80 2	312.494 4	38.949 2	.0864 1	.36715 3	13.82634 7	1.594E-2 00	7.331466	10	04	1.14
38461.0											
38465.0	203.492 4	288.0485 9	38.9441 4	.080806 5	.83892 1	13.95950 5	1.196E-2 00	7.284753	08	03	.78
38466.0	209.83 2	283.100 5	38.954 4	.0790 1	.81122 9	13.98428 5	1.395F-2 01	7.276144	10	03	7.93
38467.0	216.31 4	278.14 1	38.948 8	.0782 5	.8100 3	14.0137 4	1.420F-2 01	7.265958	10	03	5.50
38468.0											
38472.0											
38473.0	255.81 2	247.916 2	38.954 2	.07166 1	.38573 4	14.17870 6	1.068F-2 01	7.209456	07	05	1.37

T (MJD)	ω	Ω	i	e	M	n	n'/2	a	N	D	σ
38396.0	329.02 5	105.0577 1	95.8672 2	.011650 2	.7865 1	8.67698 5	1.05E-7 45	10.004670	23	06	.38
38398.0	326.92 4	105.4791 1	95.8673 2	.011624 3	.1407 1	8.67703 7	-2.86E-7 80	10.004629	27	06	.47
38400.0	324.81 4	105.9001 1	95.8670 2	.011604 3	.4950 1	8.67699 5	-3.22E-7 76	10.004662	25	06	.44
38402.0											
38404.0	320.3 2	106.7431 8	95.8674 9	.01158 1	.2042 7	8.6770 3	-1.6E-7 31	10.004684	13	06	1.17
38406.0	318.50 1	107.1648 3	95.8672 4	.011552 3	.55763 3	8.67707 1	1.3E-7 13	10.004602	17	06	.74
38408.0	316.335 2	107.5865 2	95.8667 4	.011538 2	.912036 5	8.67706 1	-1.7E-7 13	10.004610	23	06	.64
38410.0	314.33 6	108.0080 3	95.8664 5	.011529 4	.2660 2	8.67683 9	-8.2E-8 83	10.004788	21	06	.51
38412.0	312.68 9	108.4294 2	95.8662 3	.011488 3	.6190 2	8.67688 7	3.09E-7 35	10.004744	29	06	.41
38414.0	310.72 9	108.8509 4	95.8657 5	.011457 4	.9728 4	8.67700 8	1.20E-7 42	10.004655	29	06	.37
38416.0	308.66 9	109.2726 4	95.8648 5	.011449 4	.3270 3	8.67689 5	1.14E-7 40	10.004739	33	06	.40
38418.0	306.6 1	109.6940 4	95.8644 4	.011423 5	.6810 3	8.67698 6	-4.2E-8 49	10.004668	29	06	.41
38420.0	304.7 2	110.1152 5	95.8643 6	.011405 7	.0349 4	8.67694 8	-1.91E-7 64	10.004702	25	06	.51
38422.0	303.2 7	110.536 2	95.865 2	.01137 3	.387 2	8.6768 3	1.6E-7 16	10.004779	19	06	.52
38424.0	301.7 4	110.951 2	95.870 3	.01129 3	.740 1	8.6772 1	-1.E-9 79	10.004499	17	06	.54
38426.0	298.10 3	111.3794 2	95.8625 2	.011383 3	.09825 9	8.67691 3	-5.86E-7 81	10.004722	33	06	.74
38428.0	296.040 7	111.8001 1	95.8625 1	.011374 2	.45235 2	8.67692 1	-8.43E-7 56	10.004718	47	06	.66
38430.0	293.962 3	112.2212 1	95.8623 1	.011364 2	.806508 9	8.676941 5	8.5E-8 48	10.004699	62	06	.65
38432.0	291.870 3	112.6422 1	95.8618 1	.011355 2	.160701 8	8.676925 4	2.19E-7 48	10.004711	99	06	.76
38434.0	289.780 2	113.0634 0	95.8612 0	.011350 1	.514890 6	8.676915 3	-3.3E-8 34	10.004719	137	06	.62
38436.0	287.699 2	113.4844 0	95.8607 0	.011342 1	.869054 5	8.676916 2	-3.37E-7 26	10.004718	172	06	.52
38438.0	285.610 1	113.9056 0	95.8604 0	.011336 1	.223238 4	8.676918 2	-3.52E-7 22	10.004716	233	06	.52
38440.0	283.520 2	114.3267 0	95.8600 0	.011330 1	.577422 5	8.676922 3	-1.54E-7 23	10.004714	247	06	.50

T (MJD)	ω	Ω	i	e	M	n	n′/2	a	N	D	σ
38442.0	281.428 2	114.7476 0	95.8595 0	.011326 1	.931612 5	8.676919 3	1.06E-7 20	10.004716	280	06	.52
38444.0	279.327 1	115.1683 0	95.8586 0	.011322 1	.285823 4	8.676934 3	-1.03E-7 29	10.004704	252	06	.50
38446.0	277.235 2	115.5893 0	95.8583 0	.011321 1	.640012 4	8.676917 2	-4.1E-8 23	10.004717	271	06	.56
38448.0	275.149 2	116.0103 0	95.8580 0	.011320 1	.994185 6	8.676908 3	5.0E-8 22	10.004724	186	06	.53
38450.0	273.057 3	116.4312 0	95.8573 1	.011323 2	.348372 8	8.676918 4	2.0E-8 36	10.004717	119	06	.70
38452.0	270.962 3	116.8521 0	95.8563 1	.011322 2	.702570 8	8.676928 5	-1.25E-7 32	10.004709	143	06	.65
38454.0	268.864 2	117.2728 0	95.8555 0	.011325 1	.056774 6	8.676928 3	-1.47E-7 20	10.004709	225	06	.55
38456.0	266.769 2	117.6935 0	95.8552 0	.011328 1	.410969 7	8.676921 3	-1.61E-7 24	10.004715	260	06	.49
38458.0	264.677 2	118.1141 0	95.8546 0	.011333 1	.765152 7	8.676920 4	1.83E-7 46	10.004715	203	04	.48
38460.0	262.579 3	118.5348 0	95.8541 1	.011336 1	.119355 9	8.676924 6	2.59E-7 52	10.004712	157	04	.44
38462.0	260.492 3	118.9554 0	95.8532 0	.011341 1	.473530 8	8.676907 4	-1.36E-7 34	10.004725	156	04	.38
38464.0	258.409 3	119.3761 0	95.8528 1	.011349 1	.827689 9	8.676912 5	-1.53E-7 48	10.004721	130	04	.46
38466.0	256.319 3	119.7967 0	95.8523 1	.011361 1	.18187 1	8.676946 5	2.12E-7 64	10.004695	96	04	.51
38468.0	254.216 5	120.2173 0	95.8518 1	.011367 1	.53609 1	8.676923 8	-2.1E-8 61	10.004713	125	04	.44
38470.0	252.145 5	120.6378 0	95.8509 1	.011379 1	.89021 1	8.676924 5	1.93E-7 57	10.004712	150	04	.45
38472.0	250.058 6	121.0584 1	95.8507 1	.011389 2	.24439 2	8.676929 9	1.2E-7 12	10.004709	89	04	.48
38474.0	247.972 5	121.4789 0	95.8501 1	.011399 2	.59855 2	8.676904 6	-2.28E-7 86	10.004727	80	04	.50
38476.0	245.899 7	121.8994 0	95.8495 1	.011415 2	.95269 2	8.676903 9	-2.5E-8 84	10.004728	59	04	.56
38478.0	243.829 7	122.3198 1	95.8488 1	.011427 2	.30681 2	8.67691 1	1.25E-7 92	10.004721	74	04	.54
38480.0	241.733 6	122.7403 1	95.8483 1	.011437 2	.66101 2	8.676922 8	-3.28E-7 94	10.004714	88	04	.52
38482.0	239.659 6	123.1607 0	95.8477 1	.011451 1	.01515 2	8.676905 5	-1.78E-7 54	10.004727	94	04	.45
38484.0	237.587 6	123.5811 0	95.8475 1	.011463 1	.36928 2	8.676914 8	2.56E-7 66	10.004720	97	04	.45

T (MJD)	ω	Ω	i	e	M	n	n'/2	a	N	D	σ
38396.0	158.7304 9	278.5987 3	44.8015 2	.242685 1	.881454 2	9.126133 1	-9.35E-7 75	9.671988	49	08	1.64
38398.0	162.7003 6	274.8812 2	44.8018 1	.242645 1	.133719 1	9.126126 1	-1.73E-6 04	9.671993	45	08	1.02
38400.0	166.675 1	271.1615 3	44.8011 1	.242606 1	.385965 2	9.126117 1	-1.73E-6 05	9.671999	45	08	1.74
38402.0	170.649 2	267.4428 5	44.8009 2	.242576 1	.638193 4	9.126116 2	-1.13E-7 97	9.671999	28	08	2.23
38404.0	174.623 1	263.7243 4	44.8006 1	.242543 1	.890421 3	9.126117 1	1.44E-6 07	9.671999	41	08	1.87
38406.0	178.5994 5	260.0074 2	44.8005 1	.242506 1	.142652 1	9.126123 1	2.06E-6 03	9.671995	49	08	.94
38408.0	182.5762 7	256.2883 2	44.8011 1	.242474 1	.394903 1	9.126134 1	1.53E-6 04	9.671986	57	08	1.55
38410.0	186.5546 5	252.5690 2	44.8013 1	.242440 1	.647163 1	9.126137 0	5.31E-7 42	9.671985	57	08	1.38
38412.0	190.5261 8	248.8505 3	44.8010 2	.242415 1	.899442 2	9.126137 1	-4.98E-7 50	9.671984	57	08	2.15
38414.0	194.5046 5	245.1323 2	44.7999 1	.242384 1	.151699 1	9.126133 1	-1.06E-6 05	9.671987	44	08	1.21
38416.0	198.4828 8	241.4141 3	44.7995 2	.242357 2	.403943 2	9.126129 1	-7.63E-7 55	9.671990	43	08	1.99
38418.0	202.461 1	237.6953 3	44.7995 2	.242329 2	.656181 2	9.126127 1	3.78E-7 57	9.671991	42	08	2.01
38420.0	206.4385 7	233.9761 2	44.7996 1	.242306 3	.908423 1	9.126130 1	1.40E-6 04	9.671989	37	08	1.27
38422.0	210.4167 6	230.2568 1	44.7999 1	.242284 1	.160674 1	9.126135 0	1.69E-6 02	9.671986	34	08	.94
38424.0	214.392 2	226.5382 4	44.8000 2	.242274 1	.412943 3	9.126141 1	8.97E-7 74	9.671981	32	08	2.89
38426.0	218.370 2	222.8191 4	44.8005 6	.242254 3	.665217 3	9.126142 1	-8.7E-8 50	9.671980	33	08	2.96
38428.0	222.3491 7	219.0997 1	44.8005 1	.242231 2	.917487 1	9.126141 0	-1.03E-6 02	9.671982	37	08	.96
38430.0	226.3272 4	215.3810 1	44.8008 1	.242215 1	.169748 1	9.126136 0	-1.05E-6 02	9.671985	46	08	.87
38432.0	230.3067 5	211.6620 2	44.8015 1	.242193 2	.422000 1	9.126134 0	-5.97E-7 24	9.671986	47	08	1.00
38434.0	234.2833 4	207.9441 1	44.8013 1	.242192 1	.674246 1	9.126133 0	3.88E-7 20	9.671987	59	08	.88
38436.0	238.2613 5	204.2256 1	44.8019 1	.242181 1	.926496 1	9.126135 0	1.04E-6 03	9.671986	51	08	.83
38438.0	242.2386 3	200.5071 1	44.8021 1	.242178 1	.178754 0	9.126140 0	1.12E-6 01	9.671982	47	08	.62
38440.0	246.2175 4	196.7886 2	44.8030 1	.242165 2	.431020 1	9.126144 0	6.46E-7 21	9.671979	47	08	.93

T (MJD)	ω	Ω	i	e	M	n	n'/2	a	N	D	σ
38442.0	250.1932 4	193.0708 3	44.8035 2	.242162 3	.683294 1	9.126146 1	1.51E-7 30	9.671978	39	08	1.19
38444.0	254.1696 3	189.3527 3	44.8036 1	.242163 2	.935567 0	9.126145 0	-1.60E-7 17	9.671979	40	08	.75
38446.0	258.1470 3	185.6342 3	44.8042 1	.242159 2	.187838 0	9.126145 0	-5.6E-8 18	9.671979	38	08	.86
38448.0	262.1233 4	181.9157 4	44.8043 2	.242165 3	.440110 1	9.126145 0	2.04E-7 18	9.671979	34	08	.78
38450.0											
38452.0	270.0757 8	174.481 1	44.8055 4	.242157 6	.944660 0	9.126150 1	9.5E-7 16	9.671975	22	08	.78
38454.0											
38458.0											
38460.0	285.9813 3	159.6093 9	44.8056 1	.242179 6	.953821 1	9.126157 0	4.65E-7 26	9.671970	20	08	.58
38462.0	289.9572 3	155.8922 6	44.8055 1	.242181 3	.206118 0	9.126158 0	5.73E-7 57	9.671969	24	08	.54
38464.0	293.9335 2	152.1735 2	44.8054 6	.242192 1	.458421 0	9.126162 0	9.03E-7 17	9.671967	36	08	.52
38466.0	297.9093 2	148.4553 1	44.8053 1	.242203 2	.710731 0	9.126166 0	9.44E-7 12	9.671964	38	08	.48
38468.0	301.8850 3	144.7371 1	44.8052 1	.242214 2	.963050 0	9.126170 0	8.54E-7 17	9.671961	35	08	.56
38470.0	305.8606 3	141.0185 2	44.8051 1	.242226 2	.215377 1	9.126172 0	2.15E-7 31	9.671960	30	08	.69
38472.0	309.8365 3	137.2997 2	44.8046 1	.242237 1	.467704 0	9.126173 0	2.7E-8 34	9.671959	25	08	.52
38474.0	313.8133 3	133.5812 3	44.8041 1	.242253 2	.720029 1	9.126170 0	-4.14E-7 50	9.671961	22	08	.41
38476.0	317.790 2	129.8625 7	44.8036 2	.242263 9	.97235 1	9.126170 4	1.1E-7 23	9.671961	17	08	.41
38478.0	321.761 3	126.1427 5	44.8035 2	.24225 1	.22471 2	9.126179 5	4.51E-7 71	9.671955	21	08	.45
38480.0	325.7446 5	122.4249 2	44.8028 1	.242309 3	.476987 2	9.126175 1	1.13E-6 07	9.671958	19	08	.42
38482.0	329.7200 4	118.7057 1	44.8026 1	.242338 3	.729327 1	9.126179 0	9.44E-7 66	9.671955	21	08	.55
38484.0	333.6965 3	114.9869 1	44.8024 1	.242352 2	.981676 1	9.126183 0	7.03E-7 53	9.671952	32	08	.65

T (MJD)	ω	Ω	i	e	M	n	n'/2	a	N	D	σ
38396.0	39.644 9	310.9191 3	50.1438 1	.007528 2	.58229 2	13.344977 6	1.57E-7 19	7.507648	19	08	.54
38398.0	45.212 5	303.7016 2	50.1439 1	.007587 1	.27309 1	13.344902 6	1.89E-7 41	7.507676	18	08	.54
38400.0	50.689 4	296.4842 3	50.1440 1	.007634 2	.96414 1	13.344940 9	2.38E-7 25	7.507662	18	08	.45
38402.0	56.112 6	289.2661 3	50.1436 2	.007690 2	.65535 2	13.34491 1	4.39E-7 69	7.507673	16	08	.57
38404.0	61.547 6	282.0475 2	50.1429 1	.007735 2	.34652 2	13.344859 8	1.41E-7 46	7.507692	22	08	.79
38406.0	66.957 7	274.8291 2	50.1423 1	.007778 3	.03777 2	13.344826 8	4.2E-8 33	7.507705	26	08	1.09
38408.0	72.330 6	267.6114 2	50.1423 1	.007805 2	.72912 2	13.344791 9	2.26E-7 56	7.507718	34	08	1.13
38410.0	77.700 5	260.3942 1	50.1416 1	.007832 2	.42047 1	13.344798 7	2.14E-7 26	7.507715	44	08	1.07
38412.0	83.051 5	253.1758 1	50.1415 1	.007843 2	.11188 1	13.344788 6	1.1E-8 40	7.507719	43	08	1.19
38414.0	88.380 4	245.9577 1	50.1411 1	.007849 1	.80336 1	13.344798 5	6.2E-8 26	7.507715	44	08	.90
38416.0	93.717 7	238.7391 1	50.1409 1	.007843 1	.49481 2	13.344778 8	5.9E-8 27	7.507723	41	08	1.03
38418.0	99.033 7	231.5206 1	50.1405 1	.007834 1	.18632 2	13.344839 7	9.2E-8 24	7.507700	43	08	.79
38420.0	104.356 6	224.3020 1	50.1406 1	.007817 1	.87782 2	13.344843 6	7.2E-8 17	7.507698	42	08	.64
38422.0	109.709 9	217.0835 1	50.1407 1	.007793 1	.56923 3	13.34479 1	-8.6E-8 29	7.507717	37	08	.69
38424.0	115.137 8	209.8653 1	50.1405 1	.007763 1	.26043 2	13.344839 7	-2.59E-7 20	7.507700	47	08	.77
38426.0	120.536 7	202.6467 1	50.1406 1	.007726 1	.95171 2	13.344840 7	-1.55E-7 16	7.507699	39	08	.77
38428.0	125.987 7	195.4283 1	50.1407 1	.007680 1	.64284 2	13.344855 8	-6.2E-8 19	7.507694	37	08	.75
38430.0	131.44 1	188.2102 1	50.1411 1	.007630 1	.33398 3	13.34486 1	3.6E-8 28	7.507693	42	08	.90
38432.0	136.94 1	180.9923 1	50.1415 1	.007574 1	.02498 3	13.34490 1	1.78E-7 29	7.507676	35	08	.66
38434.0	142.468 8	173.7744 1	50.1418 1	.007513 1	.71589 2	13.344882 9	6.0E-8 27	7.507684	37	08	.59
38436.0	148.07 1	166.5564 2	50.1420 1	.007446 1	.40661 3	13.34489 1	7.3E-8 30	7.507681	41	08	.66
38438.0	153.67 1	159.3391 2	50.1419 1	.007377 1	.09732 3	13.34498 1	4.2E-8 25	7.507646	40	08	.78
38440.0	159.36 1	152.1207 3	50.1423 1	.007303 1	.78781 3	13.34497 1	-1.4E-8 22	7.507650	43	08	.74

T (MJD)	ω	Ω	i	e	M	n	n'/2	a	N	D	σ
38442.0	165.12 1	144.9025 3	50.1426 1	.007225 1	.47808 3	13.34495 2	3.4E-8 35	7.507658	40	08	.78
38444.0	170.94 1	137.6847 2	50.1426 1	.007147 1	.16819 3	13.34497 2	-1.8E-8 24	7.507651	41	08	.78
38446.0	176.80 6	130.4666 5	50.1426 4	.007067 4	.8582 2	13.34498 5	-1.86E-7 32	7.507646	40	08	.89
38448.0	182.73 2	123.2497 5	50.1418 4	.006986 2	.54801 6	13.34503 2	-1.94E-7 39	7.507630	35	08	.92
38450.0	188.68 4	116.0317 6	50.1411 8	.006904 2	.2377 1	13.34502 4	-7.E-8 10	7.507630	25	08	.92
38452.0	194.76 3	108.8127 3	50.1416 4	.006824 2	.92714 8	13.34499 2	2.04E-7 49	7.507643	25	08	.81
38454.0	200.92 3	101.5939 2	50.1421 3	.006748 2	.61632 8	13.34496 2	1.24E-7 51	7.507654	22	08	.77
38456.0	207.19 1	94.3753 1	50.1427 1	.006671 1	.30517 4	13.34495 1	2.3E-8 27	7.507658	32	08	.81
38458.0	213.46 1	87.1573 1	50.1427 1	.006602 1	.99405 3	13.34492 1	2.7E-8 23	7.507671	44	08	.80
38460.0	219.813 8	79.9390 1	50.1428 1	.006537 1	.68267 2	13.34490 1	-1.4E-8 21	7.507676	55	08	.94
38462.0	226.231 9	72.7207 1	50.1428 1	.006477 1	.37113 2	13.34490 1	1.8E-8 25	7.507675	58	08	1.06
38464.0	232.693 9	65.5022 1	50.1428 1	.006424 1	.05945 3	13.34490 1	1.02E-7 24	7.507679	51	08	1.08
38466.0	239.18 1	58.2839 2	50.1434 1	.006383 2	.74770 3	13.34487 1	9.6E-8 31	7.507687	50	08	1.28
38468.0	245.73 1	51.0663 2	50.1443 2	.006348 2	.43579 3	13.344816 9	4.4E-8 33	7.507708	45	08	1.10
38470.0	252.334 7	43.8481 2	50.1446 2	.006321 2	.12374 2	13.34480 1	4.6E-8 31	7.507713	50	08	.97
38472.0	258.970 6	36.6303 2	50.1449 1	.006299 1	.81159 2	13.344812 6	7.9E-8 24	7.507710	54	08	1.07
38474.0	265.626 5	29.4127 2	50.1452 1	.006285 1	.49938 1	13.344820 6	1.04E-7 26	7.507707	53	08	1.05
38476.0	272.284 4	22.1950 1	50.1455 1	.006280 1	.18717 1	13.344827 6	2.18E-7 21	7.507705	42	08	.55
38478.0	278.930 5	14.9770 2	50.1455 1	.006284 2	.87499 1	13.344824 7	1.68E-7 42	7.507706	32	08	.58
38480.0	285.557 8	07.7596 1	50.1456 1	.006300 1	.56287 2	13.344837 9	1.93E-7 27	7.507701	29	08	.53
38482.0	292.19 2	0.5421 1	50.1456 1	.006323 2	.25072 7	13.34482 2	1.5E-8 26	7.507707	22	08	.62
38484.0	298.08 8	353.326 1	50.1449 6	.006335 4	.9407 2	13.34428 8	-5.6E-8 38	7.507908	20	08	.60

T (MJD)	ω	Ω	i	e	M	n	n'/2	a	N	D	σ
38402.0	290.457 9	79.560 3	47.5243 8	.2843 1	.62004 8	7.780929 2	4.68E-7 33	10.757150	19	08	.42
38404.0											
38426.0											
38428.0	321.9965 6	46.2930 1	47.5261 1	.284491 4	.924334 2	7.780945 1	3.18E-7 50	10.757135	45	08	.60
38430.0	324.4217 4	43.7333 1	47.5261 1	.284515 3	.486224 2	7.780948 1	2.86E-7 33	10.757133	59	08	.62
38432.0	326.8487 4	41.1735 1	47.5261 1	.284541 3	.048110 2	7.780943 1	-3.9E-8 30	10.757138	58	08	.70
38434.0	329.2768 5	38.6145 1	47.5261 1	.284571 4	.609991 2	7.780943 1	-1.04E-7 49	10.757138	61	08	.70
38436.0	331.7049 6	36.0551 1	47.5261 1	.284596 5	.171873 3	7.780944 2	-1.61E-7 72	10.757137	43	08	.52
38438.0	334.1316 7	33.4952 1	47.5265 1	.284621 5	.733762 4	7.780945 1	9.7E-8 82	10.757136	38	08	.70
38440.0	336.5580 7	30.9354 1	47.5267 1	.284644 4	.295653 3	7.780947 2	3.55E-7 87	10.757135	31	08	.48
38442.0	338.986 2	28.3761 1	47.5265 1	.284670 8	.857537 8	7.780949 3	-1.E-8 18	10.757132	22	08	.49
38444.0	341.40 1	25.8165 2	47.5267 2	.28472 3	.41948 7	7.78096 2	1.8E-7 13	10.757123	18	08	.41
38446.0	343.81 4	23.2565 3	47.527 1	.2848 1	.9815 2	7.78096 6	8.E-8 34	10.757121	12	08	.46
38448.0											
38466.0											
38468.0	10.547 4	355.1058 7	47.5263 3	.28511 6	.16209 1	7.780949 3	1.12E-7 24	10.757133	20	08	.68

T (MJD)	ω	Ω	i	e	M	n	n′/2	a	N	D	σ
38396.0	103.310 2	292.3096 7	42.7469 1	.401237 2	.765444 2	6.391425 1	3.44E-7 25	12.264359	24	08	1.30
38398.0	105.734 2	290.2013 4	42.7469 2	.401194 2	.548303 2	6.391424 1	3.08E-7 27	12.264359	25	08	1.56
38400.0	108.162 1	288.0928 1	42.7468 2	.401160 2	.331160 1	6.391424 1	4.82E-7 36	12.264360	26	08	1.95
38402.0	110.5908 5	285.9859 3	42.7471 1	.401116 1	.114018 1	6.391428 0	8.12E-7 28	12.264355	26	08	1.04
38404.0	113.021 1	283.8776 9	42.7465 2	.401086 3	.896882 1	6.391429 1	4.21E-7 32	12.264353	24	08	2.21
38406.0	115.4475 8	281.7695 4	42.7458 2	.401051 1	.679752 1	6.391430 0	2.10E-7 44	12.264352	32	08	1.58
38408.0	117.8782 5	279.6607 2	42.7455 1	.401017 1	.462621 1	6.391430 0	2.79E-7 19	12.264352	31	08	1.23
38410.0	120.3099 3	277.5532 2	42.7457 1	.400975 1	.245488 0	6.391432 0	5.52E-7 27	12.264350	36	08	1.41
38412.0	122.7382 5	275.4449 3	42.7445 2	.400946 1	.028364 1	6.391436 0	8.25E-7 28	12.264344	43	08	1.99
38414.0	125.1655 6	273.3377 3	42.7436 2	.400912 2	.811249 1	6.391438 0	2.91E-7 30	12.264341	43	08	2.14
38416.0	127.5961 7	271.2292 2	42.7437 1	.400878 1	.594132 1	6.391440 0	6.5E-8 29	12.264340	42	08	1.87
38418.0	130.0272 7	269.1211 2	42.7440 1	.400843 1	.377015 1	6.391440 0	1.51E-7 25	12.264339	38	08	1.11
38420.0	132.459 2	267.0132 4	42.7437 2	.400812 2	.159898 2	6.391442 1	4.81E-7 34	12.264337	32	08	2.62
38422.0	134.890 2	264.9066 3	42.7421 2	.400778 1	.942786 2	6.391444 1	2.96E-7 28	12.264334	23	08	1.03
38424.0	137.322 2	262.7982 3	42.7418 3	.400744 2	.725677 2	6.391446 1	3.14E-7 26	12.264332	26	08	1.41
38426.0	139.750 1	260.6897 3	42.7420 3	.400719 2	.508575 2	6.391446 1	-5.1E-8 37	12.264331	25	08	1.67
38428.0	142.178 1	258.5825 3	42.7412 3	.400695 2	.291472 1	6.391446 0	1.68E-7 29	12.264332	29	08	1.70
38430.0	144.608 5	256.4748 2	42.7413 2	.400671 1	.074366 1	6.391446 0	3.35E-7 23	12.264331	29	08	.96
38432.0	147.041 6	254.3662 2	42.7413 2	.400646 2	.857262 1	6.391447 0	1.04E-7 21	12.264331	28	08	1.18
38434.0	149.4730 6	252.2582 2	42.7415 2	.400624 2	.640157 1	6.391445 0	-3.35E-7 38	12.264332	30	08	1.34
38436.0	151.9042 4	250.1503 2	42.7411 1	.400603 1	.423050 0	6.391445 0	4.15E-7 36	12.264332	37	08	.98
38438.0	154.3371 4	248.0426 2	42.7413 1	.400585 1	.205944 0	6.391447 2	4.23E-7 27	12.264330	39	08	.84
38440.0	156.7691 4	245.9347 2	42.7416 1	.400567 2	.988841 0	6.391448 0	2.64E-7 37	12.264328	41	08	.83

T (MJD)	ω	Ω	i	e	M	n	n'/2	a	N	D	σ
38442.0	159.2008 4	243.8270 3	42.7421 8	.400550 8	.771742 1	6.391449 1	-6.5E-8 41	12.264327	37	08	.67
38444.0	161.6342 6	241.7185 5	42.7426 1	.40054 1	.554637 3	6.391446 1	-4.5E-8 55	12.264331	25	08	.73
38446.0	164.069 1	239.6095 5	42.7432 1	.40051 1	.337535 3	6.391449 1	-5.1E-8 74	12.264328	19	08	.66
38448.0	166.512 2	237.4993 8	42.7440 1	.40040 2	.120438 4	6.391451 2	2.65E-7 55	12.264325	13	08	.37
38450.0	168.939 5	235.3932 6	42.7445 2	.40048 3	.903319 3	6.391446 2	1.6E-7 11	12.264331	13	08	.68
38452.0	171.383 4	233.2877 4	42.7464 2	.40042 2	.686206 2	6.391447 1	-1.99E-7 58	12.264330	10	08	.27
38454.0	173.794 4	231.1793 5	42.7469 2	.40055 2	.469107 3	6.391444 1	-8.8E-8 98	12.264334	14	08	.77
38456.0	176.230 2	229.0716 4	42.7481 2	.400541 8	.251997 1	6.391446 0	8.1E-8 41	12.264332	21	08	.92
38458.0	178.668 1	226.9640 5	42.7490 2	.400518 6	.034888 1	6.391447 1	1.08E-7 90	12.264331	22	08	1.14
38460.0	181.105 1	224.8556 5	42.7498 2	.400504 7	.817779 1	6.391443 1	3.0E-8 72	12.264335	22	08	1.11
38462.0	183.541 2	222.7487 6	42.7504 2	.40050 2	.600667 3	6.391444 1	-1.6E-7 13	12.264334	18	08	.99
38464.0	185.979 2	220.638 1	42.7525 4	.40049 2	.383562 4	6.391442 1	1.6E-7 12	12.264336	10	08	.67
38466.0	188.412 4	218.531 2	42.7531 8	.40052 4	.166446 8	6.391444 2	2.3E-7 13	12.264334	09	08	.38
38468.0	190.851 2	216.4222 8	42.7547 4	.40049 2	.949345 3	6.391444 1	-2.11E-7 60	12.264334	12	08	.42
38470.0	193.281 3	214.316 1	42.7551 4	.40055 2	.732230 3	6.391444 1	9.2E-8 57	12.264333	18	08	.92
38472.0	195.718 1	212.2075 6	42.7564 2	.40055 1	.515121 1	6.391444 1	5.13E-7 45	12.264334	32	08	.75
38474.0	198.154 1	210.1005 4	42.7570 1	.40057 1	.298011 2	6.391447 1	3.67E-7 55	12.264331	35	08	.74
38476.0	200.5880 6	207.9934 3	42.7574 2	.400612 6	.080901 1	6.391449 1	5.88E-7 80	12.264328	30	08	.67
38478.0	203.020 1	205.8869 4	42.7579 2	.40065 1	.863799 2	6.391451 1	1.28E-7 45	12.264325	25	08	.55
38480.0	205.453 9	203.779 1	42.7586 4	.40069 5	.646700 3	6.391453 2	5.74E-7 54	12.264323	15	08	.85
38482.0	207.87 2	201.674 2	42.7583 4	.40081 9	.429607 9	6.391451 2	5.59E-7 46	12.264325	12	08	.67
38484.0	210.327 2	199.5630 4	42.7591 1	.40074 1	.212504 2	6.391457 1	6.90E-7 25	12.264317	33	08	.67

T (MJD)	ω	Ω	i	e	M	n	n′/2	a	N	D	σ
38396.0	70.245 3	322.0115 5	49.7380 4	.061966 8	.423516 8	14.103381 2	9.64E-6 36	7.235970	14	06	1.92
38398.0	77.21 2	313.6687 5	49.7381 6	.06201 2	.63045 7	14.103427 1	1.04E-5 02	7.235954	15	06	1.04
38400.0	84.14 3	305.3252 6	49.7373 6	.06203 4	.83757 9	14.103465 1	9.34E-6 20	7.235942	13	06	1.19
38402.0	91.041 9	296.9823 4	49.7370 4	.06199 1	.04485 3	14.103501 1	1.024E-5 07	7.235929	19	06	.87
38404.0	97.969 6	288.6399 6	49.7372 4	.061983 8	.25213 2	14.103546 0	1.140E-5 09	7.235914	23	06	.97
38406.0	104.903 7	280.2967 8	49.7367 5	.06196 1	.45948 2	14.103590 1	9.79E-6 15	7.235899	26	06	1.25
38408.0	111.816 6	271.952 1	49.7362 5	.0619 1	.66699 2	14.103622 1	6.8E-6 17	7.235888	15	6	.79
38410.0	118.775 2	263.6102 4	49.7363 2	.061900 2	.874402 7	14.103657 1	1.04E-5 02	7.235876	15	6	1.02
38412.0	125.713 3	255.2678 6	49.7363 1	.061843 3	.081976 5	14.103705 1	1.09E-5 04	7.235859	17	6	.78
38414.0	132.660 1	246.9243 2	49.7361 1	.061776 2	.289618 3	14.103746 0	9.14E-6 08	7.235845	29	6	1.05
38416.0	139.616 1	238.5805 2	49.7363 1	.061707 2	.497307 3	14.103777 0	8.15E-6 17	7.235834	30	6	1.14
38418.0	146.579 1	230.2367 2	49.7361 1	.061628 2	.705045 4	14.103815 0	1.280F-5 07	7.235822	37	6	1.30
38420.0	153.5521 8	221.8937 2	49.7361 1	.061550 2	.912853 3	14.103877 0	1.526E-5 05	7.235800	37	6	1.07
38422.0	160.535 1	213.5494 1	49.7366 1	.061459 1	.120764 3	14.103939 0	1.673F-5 07	7.235779	38	6	1.31
38424.0	167.534 1	205.2059 1	49.7368 1	.061367 1	.328760 5	14.104011 0	1.804F-5 06	7.235754	34	6	1.12
38426.0	174.535 3	196.8622 1	49.7376 2	.061267 1	.53690 1	14.104081 0	1.54E-5 01	7.235730	30	6	1.28
38428.0	181.555 3	188.5195 2	49.7379 2	.061168 2	.74511 1	14.104135 1	1.12E-5 04	7.235712	23	6	1.41
38430.0	188.586 3	180.1756 4	49.7381 4	.061067 2	.953390 8	14.104188 0	1.49E-5 01	7.235694	22	6	1.13
38432.0	195.631 5	171.8318 6	49.7381 4	.060968 3	.16175 1	14.104253 1	1.669F-5 09	7.235672	20	6	1.04
38434.0	202.669 6	163.4906 5	49.7397 2	.060886 3	.37026 2	14.104319 1	1.85E-5 01	7.235649	21	6	.88
38436.0	209.714 3	155.1498 5	49.7402 1	.060796 2	.578901 7	14.104396 1	1.790F-5 08	7.235623	14	6	.39
38438.0	216.799 3	146.8052 5	49.7404 1	.060714 2	.787572 7	14.104461 1	1.77E-5 02	7.235601	12	6	.66
38440.0	223.876 3	138.4626 6	49.7409 2	.060647 2	.996404 7	14.104540 1	1.80E-5 02	7.235574	14	6	.94

T (MJD)	ω	Ω	i	e	M	n	n'/2	a	N	D	σ
38442.0	230.971 3	130.1184 5	49.7415 2	.060585 2	.205330 6	14.104602 0	1.398E-5 08	7.235553	21	6	.82
38444.0	238.055 2	121.7771 4	49.7413 2	.060524 2	.414392 6	14.104651 1	1.17E-5 01	7.235536	24	6	.92
38446.0	245.150 3	113.4354 3	49.7411 3	.060480 2	.623520 7	14.104701 0	1.436E-5 08	7.235519	26	6	1.27
38448.0	252.246 3	105.0935 2	49.7407 3	.060446 2	.832759 8	14.104766 0	1.62E-5 01	7.235496	23	6	1.31
38450.0	259.351 4	96.7511 2	49.7406 4	.060423 3	.04211 1	14.104832 1	1.849E-5 09	7.235474	24	6	1.48
38452.0	266.472 3	88.4079 1	49.7414 2	.060414 1	.251553 7	14.104915 0	2.024E-5 08	7.235445	34	6	1.14
38454.0	273.574 2	80.0647 1	49.7414 1	.060410 1	.461221 5	14.104993 0	1.664E-5 08	7.235419	38	6	1.12
38456.0	280.682 2	71.7217 1	49.7415 1	.060422 1	.671006 6	14.105048 0	1.299E-5 08	7.235400	50	6	1.88
38458.0	287.789 2	63.3788 2	49.7415 2	.060442 1	.880893 7	14.105100 0	1.769E-5 08	7.235382	47	6	1.99
38460.0	294.886 3	55.0354 3	49.7416 3	.060474 1	.090952 9	14.105187 0	2.31E-5 01	7.235352	53	6	2.89
38462.0	301.979 3	46.6917 5	49.7422 3	.060517 1	.301207 9	14.105281 1	2.03E-5 01	7.235320	47	6	1.88
38464.0	309.072 3	38.3495 3	49.7431 2	.060569 1	.511623 8	14.105351 0	1.529E-5 07	7.235296	40	6	1.17
38466.0	316.173 4	30.0050 3	49.7418 3	.060623 2	.72214 1	14.105404 0	1.38E-5 02	7.235278	32	6	1.05
38468.0	323.244 3	21.6616 3	49.7423 2	.060693 1	.932845 8	14.105459 1	1.530E-5 07	7.235259	29	6	1.09
38470.0	330.308 2	13.3181 4	49.7425 1	.060773 1	.143694 6	14.105526 0	2.044E-5 05	7.235237	31	6	.81
38472.0	337.372 2	4.9731 5	49.7422 1	.060855 1	.354704 5	14.105621 0	2.44E-5 03	7.235204	28	6	.84
38474.0	344.419 1	356.6297 2	49.7423 1	.060939 1	.565953 4	14.105710 0	1.914E-5 05	7.235174	35	6	.80
38476.0	351.459 1	348.2847 2	49.7421 1	.061024 1	.777376 0	14.105774 1	1.60E-5 03	7.235152	31	6	.81
38478.0	358.488 3	339.9390 8	49.7418 6	.061116 4	.988961 1	14.105844 1	1.576E-5 09	7.235128	39	6	1.76
38480.0	5.507 6	331.594 1	49.7409 9	.061206 4	.20070 2	14.105898 1	1.18E-5 01	7.235109	32	6	1.92
38482.0	12.506 3	323.2482 5	49.7406 5	.061304 1	.412590 8	14.105943 1	1.36E-5 01	7.235094	33	6	1.47
38484.0	19.501 3	314.9036 3	49.7397 4	.061390 1	.624599 8	14.106008 0	1.85E-5 02	7.235072	29	6	1.39

NOTICE

This series of Special Reports was instituted under the supervision of Dr. F. L. Whipple, Director of the Astrophysical Observatory of the Smithsonian Institution, shortly after the launching of the first artificial earth satellite on October 4, 1957. Contributions come from the Staff of the Observatory.

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