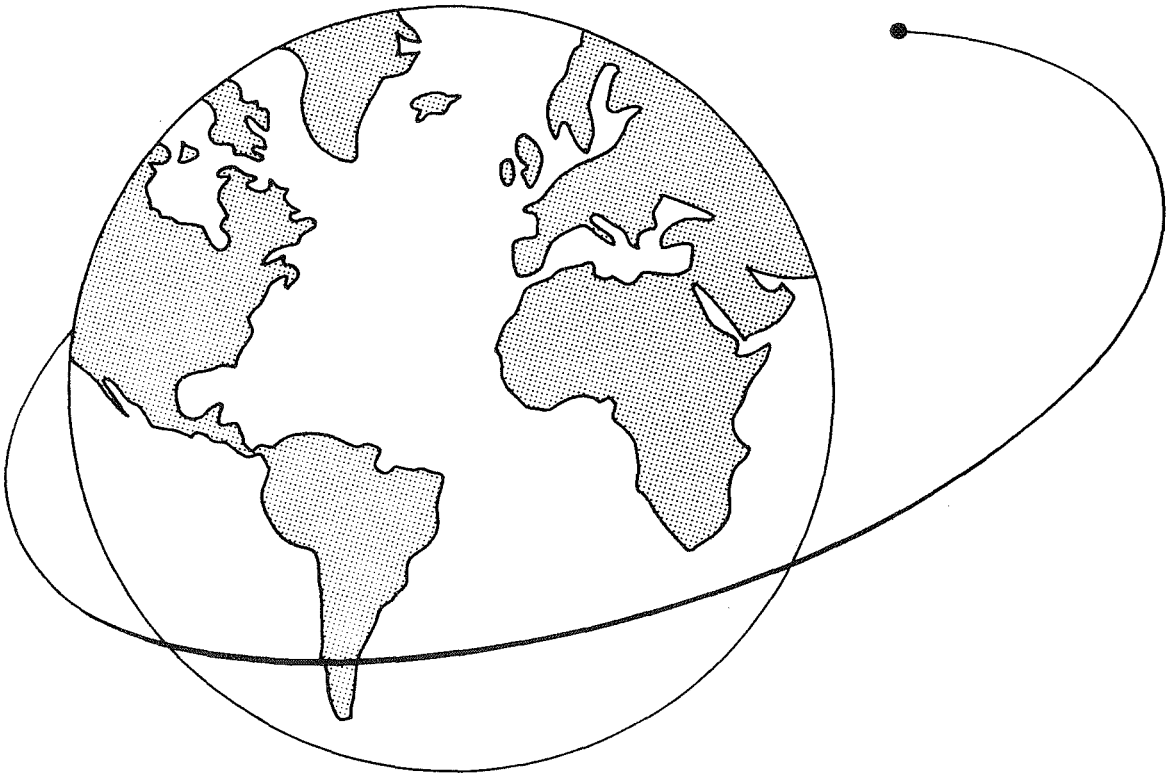
SATELLITE ORBITAL DATA



Smithsonian Astrophysical Observatory
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No. O-19

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ORBITAL INFORMATION

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

Field-reduced photographs from SAO Baker-Nunn cameras comprise the majority of observations used in computing these orbital data. SAO Moonwatch teams, the NASA Minitrack network, foreign observatories, and miscellaneous U.S. and foreign observers also contribute valuable observations.

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 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 in part 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 argument 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 single digit placed at the right of each value represents the standard error for that element and refers to the last digit 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 or the geocentric distance of perigee q (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.

SAO smoothed elements have been derived from observations covering about 2 weeks or more. They are given as functions of time and generally include both secular and periodic terms. The general expression for any element E is

$$E = E_0 + E_1 t + E_2 t^2 + \ldots + \sum A_i \sin (B_i + C_i t) \quad ,$$

where $t = T - T_0$ is again expressed in days. The presence of a standard error associated with a particular coefficient indicates that this quantity was determined by the process of differential orbit improvement; the absence of a standard error means that the quantity was taken from some other source.

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. 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, one uses

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

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

The mean (anomalistic) motion n can be obtained from the smoothed elements by differentiating the expression for M, and the orbital acceleration n′ can be obtained by twice differentiating the same expression for M.

See Catalog of Satellite Data (Smithsonian Astrophysical Observatory Special Report No. 276, p. 3) for a list of the coordinates used.

The values of the constants GM and J used in orbit calculation are the following:

GM	J
274.53848	0.0660644 .

Satellite 1958 Alpha 1 (Explorer 1)

I. SAO smoothed elements

The following elements are based on 46 observations and are valid for the period July 1 through July 16, 1965.

$T_0 = 38950.0$ MJD

$\omega = (105^\circ.32 \pm 2) + 7^\circ.77197\ t + 0^\circ.3571 \cos\omega$

$\Omega = (52^\circ.313 \pm 5) - 5^\circ.20373\ t + 0^\circ.0011 \cos\omega$

$i = (33^\circ.198 \pm 2) - 0^\circ.0038 \sin\omega$

$e = (0.08313 \pm 3) - (1.6 \pm 4) \times 10^{-5}\ t + 0.0005178 \sin\omega$

$M = (0.91675 \pm 5) + (13.832131 \pm 3)\ t + (1.263 \pm 7) \times 10^{-4}\ t^2 - (4.6 \pm 7) \times 10^{-7}\ t^3 - (1.1 \pm 1) \times 10^{-7}\ t^4 - 0.0009868 \cos\omega$

Standard error of one observation: $\sigma = \pm 1''.80$.

The following elements are based on 36 observations and are valid for the period July 16 through August 1, 1965.

$T_0 = 38965.0$ MJD

$\omega = (221^\circ.919 \pm 6) + 7^\circ.77739\ t + 0^\circ.3578 \cos\omega$

$\Omega = (334^\circ.238 \pm 3) - 5^\circ.20653\ t + 0^\circ.0011 \cos\omega$

$i = (33^\circ.202 \pm 1) - 0^\circ.0038 \sin\omega$

$e = (0.08299 \pm 2) - (4.0 \pm 41) \times 10^{-6}\ t + 0.0005179 \sin\omega$

$M = (0.42419 \pm 1) + (13.835358 \pm 1)\ t + (8.00 \pm 4) \times 10^{-5}\ t^2 - (1.74 \pm 4) \times 10^{-6}\ t^3 + (1.20 \pm 8) \times 10^{-7}\ t^4 - 0.0009886 \cos\omega$

Standard error of one observation: $\sigma = \pm 1''.33$.

The following elements are based on 65 observations and are valid for the period August 1 through August 16, 1965.

$$T_0 = 38981.0 \text{ MJD}$$

$$\omega = (346^\circ.306 \pm 6) + 7^\circ.77777\, t + 0^\circ.3580 \cos \omega$$

$$\Omega = (250^\circ.923 \pm 2) - 5^\circ.20787\, t + 0^\circ.0011 \cos \omega$$

$$i = (33^\circ.1982 \pm 7) - 0^\circ.0038 \sin \omega$$

$$e = (0.08294 \pm 2) - (2.0 \pm 26) \times 10^{-6}\, t + 0.0005179 \sin \omega$$

$$M = + (0.80826 \pm 2) + (13.837690 \pm 1)\, t + (9.42 \pm 4) \times 10^{-5}\, t^2 + (1.07 \pm 3) \times 10^{-6}\, t^3 - (9.0 \pm 7) \times 10^{-8}\, t^4 - 0.0009893 \cos \omega$$

Standard error of one observation: $\sigma = \pm 1''.23$.

The following elements are based on 51 observations and are valid for the period August 16 through September 1, 1965.

$$T_0 = 38996.0 \text{ MJD}$$

$$\omega = (103^\circ.042 \pm 7) + 7^\circ.78142\, t + 0^\circ.3585 \cos \omega$$

$$\Omega = (172^\circ.783 \pm 2) - 5^\circ.21040\, t + 0^\circ.0011 \cos \omega$$

$$i = (33^\circ.1977 \pm 8) - 0^\circ.0038 \sin \omega$$

$$e = (0.08284 \pm 1) - (1.0 \pm 2) \times 10^{-5}\, t + 0.0005180 \sin \omega$$

$$M = (0.39553 \pm 2) + (13.840623 \pm 1)\, t + (8.88 \pm 3) \times 10^{-5}\, t^2 - (1.24 \pm 3) \times 10^{-6}\, t^3 - (2.5 \pm 6) \times 10^{-8}\, t^4 - 0.0009907 \cos \omega$$

Standard error of one observation: $\sigma = \pm 1''.45$.

The following elements are based on 20 observations and are valid for the period September 1 through September 16, 1965.

$$T_0 = 39012.0 \text{ MJD}$$

$$\omega = (227^\circ.60 \pm 3) + 7^\circ.79666\, t + 0^\circ.3589 \cos \omega$$

$$\Omega = (89^\circ.415 \pm 4) - 5^\circ.21636\, t + 0^\circ.0011 \cos \omega$$

$$i = (33^\circ.190 \pm 2) - 0^\circ.0038 \sin \omega$$

$$e = (0.08276 \pm 3) - (1.95 \pm 430) \times 10^{-7}\, t + 0.0005180 \sin \omega$$

$$M = (0.86396 \pm 9) + (13.842757 \pm 3)\, t + (4.6 \pm 1) \times 10^{-5}\, t^2 - (1.07 \pm 9) \times 10^{-6}\, t^3 + (8.4 \pm 20) \times 10^{-8}\, t^4 - 0.0009916 \cos \omega$$

Standard error of one observation: $\sigma = \pm 2''.15$.

The following elements are based on 35 observations and are valid for the period September 16 through October 1, 1965.

$$T_0 = 39027.0 \text{ MJD}$$

$$\omega = (344^\circ.33 \pm 2) + 7^\circ.78597\, t + 0^\circ.3594 \cos\omega$$

$$\Omega = (11^\circ.210 \pm 3) - 5^\circ.21336\, t + 0^\circ.0011 \cos\omega$$

$$i = (33^\circ.2002 \pm 8) - 0^\circ.0038 \sin\omega$$

$$e = (0.082655 \pm 8) - (1.1 \pm 2) \times 10^{-5}\, t + 0.0005181 \sin\omega$$

$$M = (0.51698 \pm 4) + (13.844399 \pm 2)\, t + (6.58 \pm 6) \times 10^{-5}\, t^2 + (2.02 \pm 5) \times 10^{-6}\, t^3 + (1.6 \pm 1) \times 10^{-7}\, t^4 - 0.0009930 \cos\omega$$

Standard error of one observation: $\sigma = \pm 1''.58$.

The following elements are based on 30 observations and are valid for the period October 1 through October 16, 1965.

$$T_0 = 39042.0 \text{ MJD}$$

$$\omega = (101^\circ.14 \pm 2) + 7^\circ.78656\, t + 0^\circ.3597 \cos\omega$$

$$\Omega = (292^\circ.994 \pm 4) - 5^\circ.21475\, t + 0^\circ.0010 \cos\omega$$

$$i = (33^\circ.201 \pm 2) - 0^\circ.0038 \sin\omega$$

$$e = (0.08258 \pm 3) - (5.9 \pm 52) \times 10^{-6}\, t + 0.0005181 \sin\omega$$

$$M = (0.20164 \pm 5) + (13.846771 \pm 3)\, t + (6.77 \pm 8) \times 10^{-5}\, t^2 - (5.9 \pm 53) \times 10^{-8}\, t^3 + (4.2 \pm 14) \times 10^{-8}\, t^4 - 0.0009941 \cos\omega$$

Standard error of one observation: $\sigma = \pm 1''.93$.

The following elements are based on 52 observations and are valid for the period October 16 through November 1, 1965.

$$T_0 = 39057.0 \text{ MJD}$$

$$\omega = (217^\circ.97 \pm 2) + 7^\circ.79119\, t + 0^\circ.3600 \cos\omega$$

$$\Omega = (214^\circ.751 \pm 5) - 5^\circ.21694\, t + 0^\circ.0010 \cos\omega$$

$$i = (33^\circ.198 \pm 1) - 0^\circ.0038 \sin\omega$$

$$e = (0.08252 \pm 2) - (6.9 \pm 37) \times 10^{-6}\, t + 0.0005182 \sin\omega$$

$$M = (0.91814 \pm 4) + (13.848792 \pm 2)\, t + (8.63 \pm 6) \times 10^{-5}\, t^2 + (9.1 \pm 5) \times 10^{-7}\, t^3 - (1.0 \pm 1) \times 10^{-7}\, t^4 - 0.0009949 \cos\omega$$

Standard error of one observation: $\sigma = \pm 2''.10$.

The following elements are based on 24 observations and are valid for the period November 1 through November 16, 1965.

$$T_0 = 39073.0 \text{ MJD}$$

$$\omega = (342^\circ.6 \pm 1) + 7^\circ.79365\, t + 0^\circ.3604 \cos \omega$$

$$\Omega = (131^\circ.268 \pm 8) - 5^\circ.21818\, t + 0^\circ.0010 \cos \omega$$

$$i = (33^\circ.199 \pm 2) - 0^\circ.0038 \sin \omega$$

$$e = (0.0824 \pm 3) + (3.5 \pm 22) \times 10^{-5}\, t + 0.0005182 \sin \omega$$

$$M = (0.5197 \pm 5) + (13.85137 \pm 1)\, t + (7.6 \pm 1) \times 10^{-5}\, t^2 - (8.9 \pm 16) \times 10^{-7}\, t^3 + (4.7 \pm 26) \times 10^{-8}\, t^4 - 0.0009958 \cos \omega$$

Standard error of one observation: $\sigma = \pm 1''.70$.

The following elements are based on 38 observations and are valid for the period November 16 through December 1, 1965.

$$T_0 = 39088.0 \text{ MJD}$$

$$\omega = (99^\circ.55 \pm 3) + 7^\circ.79655\, t + 0^\circ.3644 \cos \omega$$

$$\Omega = (53^\circ.00 \pm 1) - 5^\circ.22071\, t + 0^\circ.0010 \cos \omega$$

$$i = (33^\circ.192 \pm 3) - 0^\circ.0037 \sin \omega$$

$$e = (0.08155 \pm 8) + (1.6 \pm 2) \times 10^{-4}\, t + 0.0005183 \sin \omega$$

$$M = (0.30584 \pm 7) + (13.853476 \pm 4)\, t + (5.4 \pm 2) \times 10^{-5}\, t^2 - (4.0 \pm 11) \times 10^{-7}\, t^3 + (1.5 \pm 3) \times 10^{-7}\, t^4 - 0.0010070 \cos \omega$$

Standard error of one observation: $\sigma = \pm 5''.05$.

The following elements are based on 33 observations and are valid for the period December 1 through December 16, 1965.

$$T_0 = 39103.0 \text{ MJD}$$

$$\omega = (216^\circ.56 \pm 2) + 7^\circ.79842\, t + 0^\circ.3616 \cos \omega$$

$$\Omega = (334^\circ.638 \pm 3) - 5^\circ.22215\, t + 0^\circ.0010 \cos \omega$$

$$i = (33^\circ.200 \pm 3) - 0^\circ.0038 \sin \omega$$

$$e = (0.08218 \pm 4) - (3.4 \pm 110) \times 10^{-6}\, t + 0.0005183 \sin \omega$$

$$M = (0.12340 \pm 5) + (13.855684 \pm 3)\, t + (7.3 \pm 1) \times 10^{-5}\, t^2 + (3.9 \pm 7) \times 10^{-7}\, t^3 + (1.4 \pm 2) \times 10^{-7}\, t^4 - 0.0009993 \cos \omega$$

Standard error of one observation: $\sigma = \pm 2''.38$.

The following elements are based on 105 observations and are valid for the period December 16, 1965, through January 1, 1966.

$$T_0 = 39118.0 \text{ MJD}$$

$$\omega = (333^\circ.57 \pm 1) + 7^\circ.80272\, t + 0^\circ.3624 \cos\omega$$

$$\Omega = (256^\circ.289 \pm 2) - 5^\circ.22459\, t + 0^\circ.0010 \cos\omega$$

$$i = (33^\circ.1962 \pm 7) - 0^\circ.0037 \sin\omega$$

$$e = (0.08201 \pm 1) - (9.0 \pm 16) \times 10^{-6}\, t + 0.0005184 \sin\omega$$

$$M = (0.97765 \pm 4) + (13.858270 \pm 1)\, t + (9.65 \pm 3) \times 10^{-5}\, t^2 + (7.0 \pm 3) \times 10^{-7}\, t^3 - (1.2 \pm 5) \times 10^{-8}\, t^4 - 0.0010015 \cos\omega$$

Standard error of one observation: $\sigma = \pm 1''.53$.

MJD	ω	Ω	i	e	M	n	n'/2	a	N	D	σ
38944.0	58.86 2	83.526 7	33.196 2	.08357 3	.92798 7	13.830663 2	.1236E-3 7	7.329503	39	8	.75
38948.0	89.80 2	62.716 8	33.194 3	.08370 5	.25295 8	13.831631 2	.124E-3 1	7.329161	29	8	.88
38952.0	120.68 4	41.903 9	33.195 6	.08363 7	.5820 1	13.832635 7	.124E-3 2	7.328806	17	8	.75
38956.0	151.63 2	21.088 4	33.200 3	.08326 4	.91472 5	13.833525 3	.111E-3 1	7.328492	11	8	.60
38960.0	182.66 3	.27 1	33.206 7	.08302 5	.250747 7	13.834390 4	.106E-3 1	7.328187	11	8	1.06
38964.0	213.88 1	339.42 1	33.190 5	.08271 5	.58970 4	13.835177 3	.88E-4 1	7.327907	18	8	1.02
38968.0	245.12 1	318.619 6	33.205 2	.08250 4	.93131 2	13.835810 2	.734E-4 9	7.327685	26	8	.81
38972.0	276.406 6	297.792 4	33.2044 8	.08253 2	.27517 1	13.8363649 8	.650E-4 4	7.327489	27	8	.40
38976.0	307.67 1	276.969 9	33.202 1	.08262 4	.62124 3	13.836890 3	.690E-4 9	7.327303	37	8	.72
38980.0	338.85 1	256.135 6	33.199 2	.08275 3	.96976 2	13.837520 4	.913E-4 8	7.327080	38	8	.45
38984.0	9.96 1	235.307 5	33.196 2	.08302 3	.32128 3	13.838274 3	.98E-4 1	7.326814	29	8	.41
38988.0	41.063 9	214.466 2	33.196 1	.08323 2	.67600 2	13.839046 1	.960E-4 7	7.326542	26	8	.55
38992.0	72.032 8	193.627 3	33.194 1	.08337 4	.03420 2	13.839853 3	.1031E-3 6	7.326257	30	8	.53
38996.0	102.94 1	172.790 6	33.195 2	.08335 2	.39580 3	13.840618 2	.903E-4 7	7.325987	24	8	.53
39000.0	133.88 2	151.945 8	33.196 2	.08320 3	.76013 5	13.841250 2	.72E-4 1	7.325763	23	8	.85
39004.0	164.95 3	131.12 1	33.192 4	.08291 3	.12638 8	13.841801 3	.68E-4 1	7.325569	15	8	.95
39008.0	196.14 4	110.30 1	33.183 7	.0831 3	.4943 1	13.8421 1	.58E-4 3	7.325450	11	8	.71
39012.0	227.24 8	89.47 4	33.16 2	.084 1	.8644 4	13.8426 1	.50E-4 3	7.325288	10	8	.86
39016.0	258.65 2	68.558 4	33.203 2	.08234 4	.23598 6	13.843115 4	.43E-4 1	7.325105	9	8	.40
39020.0	289.99 6	47.70 2	33.200 7	.08223 5	.6087 1	13.843545 8	.67E-4 3	7.324953	14	8	1.40
39024.0	321.31 5	26.84 1	33.199 4	.08237 3	.9834 1	13.844041 4	.56E-4 3	7.324778	17	8	1.26
39028.0	352.48 5	6.00 1	33.202 3	.08254 3	.3604 1	13.844559 4	.74E-4 2	7.324596	16	8	1.21
39032.0	23.56 2	345.147 7	33.200 2	.08289 1	.74020 5	13.845284 3	.880E-4 9	7.324340	26	8	.80

MJD	ω	Ω	i	e	M	n	n′/2	a	N	D	σ
39036.0	54.62 1	324.277 4	33.1996 9	.083041 9	.12296 3	13.845927 2	.709E-4 7	7.324113	23	8	.41
39040.0	85.44 6	303.43 1	33.178 8	.08303 5	.5087 2	13.846494 6	.67E-4 2	7.323912	15	8	1.89
39044.0	116.5 1	282.55 2	33.19 2	.0831 1	.8960 3	13.84709 2	.9E-4 1	7.323703	11	8	1.99
39048.0	147.41 7	261.70 2	33.20 1	.0811 9	.2855 3	13.84775 9	.66E-4 3	7.323471	20	8	1.53
39052.0	178.63 3	240.84 1	33.199 4	.08254 4	.67723 9	13.84807 1	.57E-4 1	7.323358	29	8	1.09
39056.0	209.93 3	219.98 1	33.200 2	.08229 3	.07009 8	13.848631 3	.83E-4 1	7.323159	32	8	.75
39060.0	241.21 2	199.098 7	33.200 1	.08210 3	.46569 5	13.849323 2	.886E-4 8	7.322915	30	8	.65
39064.0	272.52 3	178.238 9	33.197 2	.08206 8	.86394 7	13.849965 7	.73E-4 2	7.322689	14	8	.78
39068.0	303.71 2	157.39 3	33.18 2	.0839 4	.2653 1	13.85064 2	.69E-4 5	7.322448	6	10	1.79
39072.0	335.5 2	136.42 3	33.17 1	.0809 9	.6661 9	13.85127 6	.74E-4 3	7.322229	8	8	.46
39076.0	6.6 1	115.592 9	33.193 2	.0820 3	.0726 5	13.85182 1	.68E-4 1	7.322036	18	8	.44
39080.0	37.96 6	94.730 7	33.193 1	.08207 9	.4802 2	13.85238 1	.69E-4 1	7.321838	22	8	.53
39084.0	68.89 3	73.857 5	33.190 1	.08227 8	.89149 8	13.852936 8	.724E-4 9	7.321641	17	8	.53
39088.0	99.47 2	52.96 1	33.196 3	.0829 1	.30629 5	13.853422 7	.58E-4 1	7.321470	21	8	1.02
39092.0	130.46 2	32.08 1	33.197 3	.08265 4	.72145 3	13.853919 4	.70E-4 1	7.321295	21	8	1.09
39096.0	161.63 3	11.19 1	33.204 7	.08245 6	.13836 6	13.854545 5	.91E-4 2	7.321075	13	8	1.11
39100.0	192.84 3	350.298 8	33.208 8	.08212 7	.55793 7	13.855233 6	.80E-4 2	7.320832	12	8	1.27
39104.0	224.11 2	329.415 3	33.202 3	.08179 4	.97982 6	13.855838 4	.79E-4 1	7.320619	18	8	.63
39108.0	255.9 3	308.522 7	33.200 3	.0818 2	.403 1	13.856526 4	.874E-4 9	7.320376	23	8	.51
39112.0	286.79 2	287.628 4	33.202 1	.08162 2	.83124 5	13.857187 2	.911E-4 9	7.320143	30	8	.44
39116.0	318.17 2	266.733 4	33.201 1	.08174 2	.26099 6	13.857919 1	.915E-4 5	7.319885	35	8	.52
39120.0	349.46 3	245.843 5	33.196 1	.08195 2	.69379 9	13.858649 2	.1030E-3 8	7.319628	44	8	.81
39124.0	20.72 2	224.943 3	33.1943 8	.08214 1	.12995 6	13.859491 1	.1036E-3 5	7.319332	81	8	.62

Satellite 1959 Alpha 1 (Vanguard 2)

I. SAO smoothed elements

The following elements are based on 358 observations and are valid for the period July 1 through August 1, 1965.

$T_0 = 38957.0$ MJD

$\omega = (268^\circ.486 \pm 3) + 5^\circ.29407\, t + 0^\circ.1586 \cos \omega$

$\Omega = (232^\circ.241 \pm 1) - 3^\circ.52124\, t + 0^\circ.0073 \cos \omega$

$i = (32^\circ.8767 \pm 4) - 0^\circ.0069 \sin \omega$

$e = (0.163992 \pm 9) + (2.1 \pm 6) \times 10^{-6}\, t + 0.0004624 \sin \omega$

$M = (0.92100 \pm 1) + (11.4811150 \pm 3)\, t + (1.74 \pm 2) \times 10^{-6}\, t^2 - (1.5 \pm 2) \times 10^{-8}\, t^3 - 0.0004420 \cos \omega$

Standard error of one observation: $\sigma = 1''.10$.

The following elements are based on 181 observations and are valid for the period August 1 through September 1, 1965.

$T_0 = 38988.0$ MJD

$\omega = (72^\circ.621 \pm 3) + 5^\circ.29303\, t + 0^\circ.1585 \cos \omega$

$\Omega = (123^\circ.086 \pm 1) - 3^\circ.52099\, t + 0^\circ.0073 \cos \omega$

$i = (32^\circ.8778 \pm 6) - 0^\circ.0069 \sin \omega$

$e = (0.16404 \pm 1) + (3.9 \pm 9) \times 10^{-6}\, t + 0.0004625 \sin \omega$

$M = (0.837213 \pm 9) + (11.4812469 \pm 3)\, t + (3.01 \pm 2) \times 10^{-6}\, t^2 + (1.5 \pm 2) \times 10^{-8}\, t^3 - 0.0004419 \cos \omega$

Standard error of one observation $\sigma = \pm 1''.00$.

The following elements are based on 109 observations and are valid for the period September 1 through October 1, 1965.

$$T_0 = 39019.0 \text{ MJD}$$

$$\omega = (236^\circ.732 \pm 3) + 5^\circ.29408\, t + 0^\circ.1584 \cos\omega$$

$$\Omega = (13^\circ.922 \pm 2) - 3^\circ.52153\, t + 0^\circ.0073 \cos\omega$$

$$i = (32^\circ.8817 \pm 5) - 0^\circ.0069 \sin\omega$$

$$e = (0.16414 \pm 1) + (2.4 \pm 16) \times 10^{-6}\, t + 0.0004625 \sin\omega$$

$$M = (0.758950 \pm 5) + (11.4814497 \pm 3)\, t + (3.49 \pm 2) \times 10^{-6}\, t^2 + (5.7 \pm 24) \times 10^{-9}\, t^3 - 0.0004416 \cos\omega$$

Standard error of one observation $\sigma = 1''.15$.

The following elements are based on 100 observations and are valid for the period October 1 through November 1, 1965.

$$T_0 = 39049.0 \text{ MJD}$$

$$\omega = (35^\circ.525 \pm 4) + 5^\circ.29512\, t + 0^\circ.1584 \cos\omega$$

$$\Omega = (268^\circ.282 \pm 2) - 3^\circ.52181\, t + 0^\circ.0073 \cos\omega$$

$$i = (32^\circ.8781 \pm 8) - 0^\circ.0069 \sin\omega$$

$$e = (0.16421 \pm 2) - (2.8 \pm 13) \times 10^{-6}\, t + 0.0004625 \sin\omega$$

$$M = (0.205892 \pm 8) + (11.4816782 \pm 4)\, t + (3.60 \pm 4) \times 10^{-6}\, t^2 - (2.2 \pm 3) \times 10^{-8}\, t^3 - 0.0004414 \cos\omega$$

Standard error of one observation: $\sigma = \pm 1''.20$.

The following elements are based on 101 observations and are valid for the period November 1 through December 1, 1965.

$$T_0 = 39080.0 \text{ MJD}$$

$$\omega = (199^\circ.660 \pm 5) + 5^\circ.29475\, t + 0^\circ.1584 \cos\omega$$

$$\Omega = (159^\circ.097 \pm 2) - 3^\circ.52178\, t + 0^\circ.0073 \cos\omega$$

$$i = (32^\circ.8777 \pm 6) - 0^\circ.0069 \sin\omega$$

$$e = (0.16414 \pm 1) + (6.5 \pm 673) \times 10^{-8}\, t + 0.0004625 \sin\omega$$

$$M = (0.14098 \pm 1) + (11.4818595 \pm 4)\, t + (2.08 \pm 2) \times 10^{-6}\, t^2 - (1.5 \pm 2) \times 10^{-8}\, t^3 - 0.0004416 \cos\omega$$

Standard error of one observation: $\sigma = \pm 1''.15$.

The following elements are based on 127 observations and are valid for the period December 1, 1965, through January 1, 1966.

$$T_0 = 39110.0 \text{ MJD}$$

$$\omega = (358^\circ.472 \pm 5) + 5^\circ.29227\, t + 0^\circ.1584 \cos \omega$$

$$\Omega = (53^\circ.444 \pm 2) - 3^\circ.52055\, t + 0^\circ.0073 \cos \omega$$

$$i = (32^\circ.8799 \pm 7) - 0^\circ.0069 \sin \omega$$

$$e = (0.16415 \pm 1) - (3.3 \pm 864) \times 10^{-8}\, t + 0.0004625 \sin \omega$$

$$M = (0.59851 \pm 1) + (11.4819724 \pm 6)\, t + (1.66 \pm 2) \times 10^{-6}\, t^2 - (2.5 \pm 28) \times 10^{-9}\, t^3 - 0.0004416 \cos \omega$$

Standard error of one observation: $\sigma = \pm 1''.38$.

MJD	ω	Ω	i	e	M	n	n′/2	a	N	D	σ
38942.0	188.96 1	285.042 3	32.879 1	.16392 2	.70505 3	11.481053 1	.4E-5 1	8.298514	57	6	.43
38946.0	210.15 1	270.968 3	32.8823 9	.16380 2	.62922 3	11.481067 1	.4E-6 9	8.298507	60	6	.44
38950.0	231.35 1	256.887 3	32.886 1	.16367 3	.55346 4	11.481092 2	.4E-5 1	8.298495	53	6	.46
38954.0	252.576 8	242.805 3	32.884 1	.16367 3	.47772 3	11.481105 2	.4E-6 9	8.298489	40	6	.42
38958.0	273.788 6	228.726 3	32.883 1	.16359 2	.40207 2	11.481117 2	.1E-5 1	8.298482	59	6	.45
38962.0	295.007 6	214.643 3	32.8817 8	.16360 2	.32647 2	11.481128 2	-.7E-6 9	8.298477	90	6	.42
38966.0	316.241 7	200.555 2	32.879 8	.16366 2	.25085 3	11.481143 1	.51E-5 8	8.298470	79	6	.38
38970.0	337.464 7	186.470 2	32.8782 8	.16382 2	.17533 3	11.481155 1	-.1E-6 7	8.298464	84	6	.38
38974.0	358.665 8	172.388 3	32.8767 8	.16397 2	.09990 3	11.481170 1	.14E-5 8	8.298457	64	6	.38
38978.0	19.848 8	158.302 3	32.8742 7	.16415 2	.02459 3	11.481190 1	.26E-5 8	8.298447	57	6	.36
38982.0	40.99 1	144.214 3	32.873 1	.16431 2	.94951 3	11.481213 1	.21E-5 9	8.298437	33	6	.36
38986.0	62.104 8	130.126 4	32.874 2	.16443 2	.87455 2	11.481232 1	.28E-5 9	8.298427	32	6	.44
38990.0	83.233 8	116.039 4	32.873 2	.16453 3	.79965 2	11.481258 1	.43E-5 7	8.298415	36	6	.55
38994.0	104.346 6	101.956 3	32.874 2	.16454 3	.72490 2	11.481289 1	.49E-5 6	8.298400	30	6	.46
38998.0	125.455 8	87.878 6	32.873 4	.16448 4	.65027 2	11.481313 2	.1E-6 9	8.298388	25	6	.59
39002.0	146.586 8	73.787 4	32.877 3	.16429 5	.57569 2	11.481338 3	.4E-5 3	8.298376	20	6	.38
39006.0	167.767 6	59.691 3	32.878 2	.16421 3	.50109 1	11.481370 3	.5E-5 1	8.298361	24	6	.41
39010.0	188.940 5	45.607 3	32.882 2	.16402 2	.42659 1	11.481385 2	.41E-5 5	8.298353	20	6	.32
39014.0	210.143 6	31.519 5	32.883 1	.16393 2	.35213 1	11.481414 2	.26E-5 5	8.298339	24	6	.38
39018.0	231.35 1	17.43 1	32.885 2	.16382 4	.27777 2	11.481439 2	.30E-5 9	8.298327	22	6	.62
39022.0	252.574 6	3.348 5	32.8896 8	.16374 3	.20345 8	11.481473 2	.38E-5 9	8.298312	24	6	.39
39026.0	273.804 7	349.267 6	32.892 1	.16369 3	.12925 1	11.481500 1	.2E-5 1	8.298298	27	6	.51
39030.0	294.98 1	335.20 1	32.888 3	.16382 5	.05525 2	11.481529 4	.1E-5 2	8.298284	28	6	.84

MJD	ω	Ω	i	e	M	n	n′/2	a	N	D	σ
39034.0	316.21 2	321.11 2	32.884 4	.16389 9	.98133 4	11.481567 8	-.1E-5 3	8.298266	22	6	.47
39038.0	337.42 1	307.04 1	32.877 5	.16403 9	.90746 5	11.481588 7	.4E-5 2	8.298255	30	6	.41
39042.0	358.630 7	292.943 6	32.876 4	.16418 5	.83386 2	11.481636 4	-.2E-5 3	8.298232	23	6	.45
39046.0	19.73 3	278.86 9	32.870 7	.1643 1	.76058 8	11.481629 9	.12E-4 3	8.298235	8	6	.62
39050.0	40.95 6	264.77 5	32.87 2	.16445 8	.68725 8	11.481696 8	-.8E-5 4	8.298203	9	6	1.40
39054.0	62.09 1	250.671 8	32.869 3	.16462 3	.61415 2	11.481713 2	.31E-5 9	8.298195	18	6	.54
39058.0	83.23 1	236.587 9	32.877 3	.16461 3	.54112 2	11.481729 3	.10E-4 1	8.298188	25	6	.67
39062.0	104.30 1	222.50 1	32.874 2	.16464 3	.46842 3	11.481773 3	-.1E-5 2	8.298167	23	6	.65
39066.0	125.410 9	208.410 6	32.8709 9	.16460 2	.39571 2	11.481786 2	.50E-5 9	8.298160	23	6	.42
39070.0	146.63 4	194.32 2	32.873 6	.16432 7	.32277 7	11.48180 1	.8E-5 5	8.298155	18	6	1.66
39074.0	167.75 2	180.21 1	32.880 3	.16422 3	.25033 4	11.481843 3	-.2E-5 2	8.298133	14	6	.53
39078.0	188.92 2	166.130 7	32.882 2	.16401 3	.17770 4	11.481854 2	.2E-6 9	8.298128	15	6	.36
39082.0	210.11 2	152.052 3	32.880 2	.16388 3	.10507 4	11.481862 2	-.1E-5 2	8.298123	20	6	.46
39086.0	231.36 1	137.963 3	32.883 2	.16371 3	.03238 3	11.481889 2	.4E-5 1	8.298111	11	6	.45
39090.0	252.559 9	123.870 4	32.881 2	.16372 3	.95991 2	11.481896 2	.5E-6 9	8.298107	25	6	.50
39094.0	273.789 8	109.790 4	32.884 2	.16376 2	.88736 2	11.481911 1	.3E-5 1	8.298100	38	6	.53
39098.0	295.016 8	95.699 4	32.8839 8	.16377 2	.81493 2	11.481929 1	.9E-6 7	8.298091	41	6	.50
39102.0	316.21 1	81.632 7	32.883 1	.16387 2	.74258 2	11.481942 2	.2E-5 1	8.298085	26	6	.54
39106.0	337.45 2	67.52 1	32.886 3	.16395 5	.67024 5	11.481948 6	-.1E-5 3	8.298082	18	6	.60
39110.0	358.64 2	53.45 2	32.883 4	.1637 4	.5982 1	11.48190 7	-.3E-5 3	8.298104	22	6	.57
39114.0	19.83 2	39.35 1	32.886 5	.1644 2	.52590 5	11.48197 2	-.3E-5 1	8.298074	27	6	.43
39118.0	40.94 3	25.271 8	32.881 5	.1647 3	.45398 6	11.48203 3	.3E-5 2	8.298043	21	6	.49
39122.0	62.08 2	11.182 6	32.891 6	.16453 2	.38218 6	11.482007 4	.3E-5 2	8.298055	16	6	.40

Satellite 1959 Eta 1 (Vanguard 3)

I. SAO smoothed elements

The following elements are based on 134 observations and are valid for the period July 1 through August 1, 1965.

$$T_0 = 38957.0 \text{ MJD}$$

$$\omega = (98^\circ.978 \pm 4) + 4^\circ.89776\, t + 0^\circ.1345 \cos \omega$$

$$\Omega = (84^\circ.384 \pm 2) - 3^\circ.28902\, t + 0^\circ.0084 \cos \omega$$

$$i = (33^\circ.3431 \pm 9) - 0^\circ.0078 \sin \omega$$

$$e = (0.18831 \pm 2) + (1.0 \pm 2) \times 10^{-5}\, t + 0.0004560 \sin \omega$$

$$M = (0.871056 \pm 9) + (11.0917095 \pm 5) + (4.01 \pm 2) \times 10^{-6}\, t^2 + (3.8 \pm 3) \times 10^{-8}\, t^3 - 0.0003766 \cos \omega$$

Standard error of one observation: $\sigma = \pm 1''.38$.

The following elements are based on 73 observations and are valid for the period August 1 through September 1, 1965.

$$T_0 = 38988.0 \text{ MJD}$$

$$\omega = (250^\circ.761 \pm 4) + 4^\circ.90100\, t + 0^\circ.1344 \cos \omega$$

$$\Omega = (342^\circ.433 \pm 3) - 3^\circ.29051\, t + 0^\circ.0084 \cos \omega$$

$$i = (33^\circ.3481 \pm 8) - 0^\circ.0078 \sin \omega$$

$$e = (0.18844 \pm 2) - (6.5 \pm 19) \times 10^{-6}\, t + 0.0004560 \sin \omega$$

$$M = (0.718979 \pm 6) + (11.0920012 \pm 4)\, t + (3.01 \pm 4) \times 10^{-6}\, t^2 + (2.0 \pm 320) \times 10^{-10}\, t^3 - 0.0003764 \cos \omega$$

Standard error of one observation: $\sigma = \pm 1''.58$.

The following elements are based on 80 observations and are valid for the period September 1 through October 1, 1965.

$$T_0 = 39019.0 \text{ MJD}$$

$$\omega = (42^\circ.630 \pm 5) + 4^\circ.89825\, t + 0^\circ.1345 \cos\omega$$

$$\Omega = (240^\circ.462 \pm 2) - 3^\circ.28940\, t + 0^\circ.0084 \cos\omega$$

$$i = (33^\circ.344 \pm 1) - 0^\circ.0078 \sin\omega$$

$$e = (0.18838 \pm 2) + (8.8 \pm 136) \times 10^{-7}\, t + 0.0004560 \sin\omega$$

$$M = (0.57418 \pm 1) + (11.0922268 \pm 5)\, t + (4.23 \pm 2) \times 10^{-6}\, t^2 - (1.9 \pm 3) \times 10^{-8}\, t^3 - 0.0003765 \cos\omega$$

Standard error of one observation: $\sigma = \pm 1''.45$.

The following elements are based on 109 observations and are valid for the period October 1 through November 1, 1965.

$$T_0 = 39049.0 \text{ MJD}$$

$$\omega = (189^\circ.552 \pm 5) + 4^\circ.89653\, t + 0^\circ.1345 \cos\omega$$

$$\Omega = (141^\circ.765 \pm 2) - 3^\circ.28912\, t + 0^\circ.0084 \cos\omega$$

$$i = (33^\circ.3437 \pm 9) - 0^\circ.0078 \sin\omega$$

$$e = (0.18836 \pm 1) + (2.4 \pm 9) \times 10^{-6}\, t + 0.0004560 \sin\omega$$

$$M = (0.34422 \pm 1) + (11.0924410 \pm 5)\, t + (3.81 \pm 2) \times 10^{-6}\, t^2 - (1.4 \pm 3) \times 10^{-8}\, t^3 - 0.0003765 \cos\omega$$

Standard error of one observation: $\sigma = \pm 1''.58$.

The following elements are based on 80 observations and are valid for the period November 1 through December 1, 1965.

$$T_0 = 39080.0 \text{ MJD}$$

$$\omega = (341^\circ.381 \pm 6) + 4^\circ.89616\, t + 0^\circ.1345 \cos\omega$$

$$\Omega = (39^\circ.800 \pm 2) - 3^\circ.28906\, t + 0^\circ.0084 \cos\omega$$

$$i = (33^\circ.3480 \pm 7) - 0^\circ.0078 \sin\omega$$

$$e = (0.18832 \pm 1) + (9.6 \pm 98) \times 10^{-7}\, t + 0.0004560 \sin\omega$$

$$M = (0.21271 \pm 1) + (11.0925989 \pm 5)\, t + (1.51 \pm 4) \times 10^{-6}\, t^2 - (3.1 \pm 36) \times 10^{-9}\, t^3 - 0.0003767 \cos\omega$$

Standard error of one observation: $\sigma = \pm 1''.30$.

The following elements are based on 98 observations and are valid for the period December 1, 1965, through January 1, 1966.

$$T_0 = 39110.0 \text{ MJD}$$

$$\omega = (128^\circ.331 \pm 7) + 4^\circ.89826\, t + 0^\circ.1345 \cos\omega$$

$$\Omega = (301^\circ.119 \pm 2) - 3^\circ.28943\, t + 0^\circ.0084 \cos\omega$$

$$i = (33^\circ.3447 \pm 8) - 0^\circ.0078 \sin\omega$$

$$e = (0.188330 \pm 8) - (5.3 \pm 8) \times 10^{-6}\, t + 0.0004560 \sin\omega$$

$$M = (0.99207 \pm 2) + (11.0926723 \pm 6)\, t - (4.9 \pm 4) \times 10^{-7}\, t^2 - (1.8 \pm 412) \times 10^{-10}\, t^3 - 0.0003766 \cos\omega$$

Standard error of one observation: $\sigma = \pm 1''.33$.

MJD	ω	Ω	i	e	M	n	n′/2	a	N	D	σ
38942.0	25.637 6	133.729 3	33.3377 9	.18840 2	.49584 2	11.091605 3	.43E-5 8	6.891898	67	6	.43
38946.0	45.216 7	120.574 4	33.336 1	.18860 3	.86234 2	11.091637 3	.31E-5 8	6.890148	49	6	.49
38950.0	64.770 7	107.414 4	33.334 1	.18869 3	.22904 2	11.091662 3	.53E-5 7	6.889390	32	6	.42
38954.0	84.309 6	94.255 4	33.335 2	.18881 3	.59590 1	11.091687 3	.3E-5 1	6.888332	23	6	.40
38958.0	103.848 8	81.098 5	33.336 2	.18881 3	.96284 2	11.091709 3	.27E-5 8	6.888333	21	6	.31
38962.0	123.377 8	67.946 8	33.334 3	.18879 5	.32993 2	11.091752 4	.2E-5 3	6.888527	17	6	.40
38966.0	142.94 2	54.78 2	33.335 8	.1885 1	.69700 4	11.091804 5	.21E-4 4	6.890540	14	6	.48
38970.0	162.51 2	41.62 1	33.33 1	.1885 2	.06441 2	11.091844 5	.9E-5 2	6.890924	19	6	.68
38974.0	182.11 2	28.46 1	33.34 1	.18829 9	.43189 3	11.091885 3	.5E-5 2	6.892727	8	6	.51
38978.0	201.5 3	15.33 3	33.36 1	.1884 4	.7998 6	11.091931 4	.4E-5 1	6.891733	7	6	.36
38982.0	221.32 3	2.16 2	33.353 6	.18806 5	.16724 3	11.091972 2	.5E-5 1	6.894585	8	6	.60
38986.0	240.98 3	348.99 3	33.349 7	.18799 7	.53509 5	11.092002 4	-.4E-5 2	6.895229	8	8	1.05
38990.0	260.58 1	335.84 1	33.353 2	.18783 6	.90302 3	11.092018 7	-.4E-5 3	6.896539	11	6	.66
38994.0	280.18 1	322.701 9	33.353 2	.18800 3	.27103 1	11.092041 2	.2E-5 1	6.895141	26	6	.66
38998.0	299.83 1	309.55 1	33.350 2	.18801 7	.63909 2	11.09206 1	.1E-5 4	6.895003	23	6	.62
39002.0	319.25 2	296.59 3	33.343 8	.1890 2	.007251 3	11.09214 2	.11E-4 7	6.886891	23	6	1.69
39006.0	339.07 2	283.22 2	33.351 3	.18824 7	.37567 2	11.092105 8	.2E-5 2	6.893039	18	6	.41
39010.0	358.72 5	270.080 5	33.340 4	.1887 3	.7439 2	11.09218 3	.16E-4 6	6.889019	17	6	.70
39014.0	18.26 3	256.919 5	33.333 5	.1885 1	.11282 6	11.092182 5	.7E-5 3	6.890812	15	6	.88
39018.0	37.77 3	243.75 1	33.333 7	.1887 1	.48180 6	11.092197 6	.10E-4 2	6.888807	13	6	1.01
39022.0	57.35 3	230.61 2	33.343 9	.18883 7	.85077 3	11.092259 3	.6E-5 1	6.887979	12	6	.76
39026.0	77.00 1	217.418 9	33.325 4	.18894 4	.21976 3	11.092273 3	.10E-4 1	6.887008	18	6	.54
39030.0	96.48 1	204.28 1	33.337 2	.18884 3	.58924 5	11.092296 4	.7E-5 2	6.887860	23	6	.63

MJD	ω	Ω	i	e	M	n	n′/2	a	N	D	σ
39034.0	116.03 2	191.11 2	33.336 2	.18878 3	.95867 3	11.092328 4	-.2E-5 2	6.888393	17	6	.69
39038.0	135.57 1	177.941 7	33.337 2	.18869 2	.32819 3	11.092351 3	.1E-5 1	6.889095	16	6	.51
39042.0	155.13 1	164.788 9	33.340 3	.18856 2	.69771 2	11.092377 2	.3E-5 1	6.890234	25	6	.47
39046.0	174.72 1	151.622 6	33.345 3	.18844 3	.06733 3	11.092422 2	.5E-5 1	6.891243	26	6	.71
39050.0	194.37 4	138.46 2	33.36 1	.1883 1	.4369 1	11.09242 2	-.1E-5 7	6.892564	20	6	1.50
39054.0	213.95 2	125.327 7	33.346 5	.18811 7	.80671 6	11.09249 1	.1E-5 3	6.894007	17	6	.69
39058.0	233.56 1	112.158 4	33.348 4	.18802 3	.17666 3	11.092508 4	.2E-5 2	6.894781	22	6	.49
39062.0	253.17 1	98.997 6	33.347 4	.18804 6	.54668 3	11.092534 7	-.1E-5 3	6.894538	23	6	.71
39066.0	272.83 1	85.845 6	33.352 2	.18789 3	.91665 2	11.092542 2	.5E-5 1	6.895862	28	6	.62
39070.0	292.43 1	72.69 1	33.353 2	.18793 3	.28682 3	11.092560 2	.3E-5 1	6.895451	20	6	.74
39074.0	312.03 2	59.54 1	33.353 2	.18799 3	.65707 3	11.092584 4	.1E-5 2	6.894957	19	6	.69
39078.0	331.70 4	46.36 2	33.355 3	.18801 7	.02724 8	11.09258 1	-.4E-5 6	6.894786	12	6	.87
39082.0	351.32 2	33.21 1	33.357 4	.18824 6	.39755 5	11.09262 1	.10E-4 4	6.892855	16	6	.70
39086.0	10.95 2	20.08 1	33.343 5	.18830 3	.76780 4	11.092613 3	.3E-5 2	6.892335	20	6	.68
39090.0	30.45 3	6.918 9	33.346 5	.1888 2	.13844 5	11.09259 3	.4E-5 2	6.888505	19	6	.45
39094.0	50.04 4	353.75 1	33.35 1	.1888 4	.50908 8	11.09266 3	.1E-5 2	6.888376	17	6	.51
39098.0	69.59 1	340.597 3	33.346 4	.18884 4	.87981 4	11.092681 7	.1E-5 3	6.887709	18	6	.41
39102.0	89.14 1	327.442 4	33.352 5	.18872 3	.25062 4	11.092663 7	-.1E-5 3	6.888722	12	6	.42
39106.0	108.61 9	314.26 2	33.34 1	.1883 3	.6216 1	11.09269 1	-.1E-5 2	6.892408	12	6	.41
39110.0	128.26 2	301.11 1	33.338 4	.18863 4	.99228 3	11.092682 7	.1E-5 1	6.889466	17	6	.51
39114.0	147.81 2	287.97 1	33.347 3	.18851 2	.36304 4	11.092665 3	-.2E-5 2	6.890533	18	6	.57
39118.0	167.40 1	274.800 7	33.345 1	.18840 1	.73373 3	11.092662 2	.2E-6 9	6.891413	28	6	.43
39122.0	187.00 1	261.636 4	33.3438 8	.188225 7	.10436 2	11.092664 1	.2E-5 1	6.892935	37	6	.36

MJD	ω	Ω	i	e	M	n	n'/2	a	N	D	σ
38942.0	262.18 3	184.190 2	47.283 1	.06458 2	.96657 8	12.694958 5	.24E-3 1	7.761594	40	2	.42
38943.0	265.59 3	180.758 2	47.284 1	.06442 2	.66137 8	12.695389 5	.22E-3 1	7.761418	44	2	.39
38944.0	269.60 2	177.323 3	47.288 2	.06419 2	.35474 7	12.695784 8	.20E-3 1	7.761257	40	2	.49
38945.0	272.99 2	173.889 3	47.287 2	.06397 2	.05040 6	12.696158 7	.19E-3 1	7.761105	50	2	.53
38946.0	276.57 2	170.454 2	47.285 2	.06359 2	.74582 7	12.696546 7	.19E-3 1	7.760947	51	2	.48
38947.0	280.37 3	167.014 3	47.287 2	.06326 2	.44098 8	12.696892 6	.17E-3 1	7.760806	49	2	.55
38948.0	283.74 2	163.585 2	47.288 2	.06287 2	.13780 8	12.697310 6	.22E-3 1	7.760636	47	2	.52
38949.0	287.54 3	160.163 3	47.284 2	.06241 4	.8337 1	12.697697 9	.13E-3 1	7.760478	39	2	.65
38950.0	291.16 3	156.726 3	47.282 2	.06194 4	.5305 1	12.69795 1	.6E-4 1	7.760376	39	2	.71
38951.0	294.74 3	153.296 3	47.281 2	.06159 3	.2276 1	12.697991 8	-.1E-4 1	7.760358	38	2	.54
38952.0	298.37 3	149.869 3	47.279 2	.06115 4	.9246 1	12.697993 9	-.6E-4 1	7.760357	32	2	.62
38953.0	302.11 6	146.432 7	47.278 3	.06062 6	.6212 1	12.69786 2	-.10E-3 4	7.760412	27	2	.98
38954.0	305.82 4	143.008 5	47.269 2	.06019 5	.3177 1	12.697683 8	-.11E-3 2	7.760482	31	2	.68
38955.0	309.39 5	139.574 6	47.269 3	.05975 6	.0145 2	12.69753 1	-.9E-4 2	7.760544	31	2	.78
38956.0	313.284 7	136.141 6	47.265 3	.05916 3	.71013 1	12.69732 1	-.8E-4 2	7.760631	26	2	.66
38957.0	316.613 9	132.706 6	47.263 3	.05854 4	.40733 3	12.697212 9	-.12E-3 1	7.760674	30	2	.51
38958.0	320.68 5	129.293 9	47.253 4	.05829 5	.1019 1	12.69690 1	-.13E-3 2	7.760802	28	2	.81
38959.0	324.52 9	125.86 1	47.255 6	.05773 8	.7971 3	12.696633 2	-.12E-3 3	7.760910	18	2	.95
38960.0	328.7 1	122.42 2	47.247 8	.05705 9	.4912 3	12.69640 3	-.17E-3 5	7.761004	21	2	1.22
38961.0	332.26 8	118.99 1	47.251 8	.05663 7	.1865 2	12.69620 2	-.2E-4 3	7.761086	31	2	1.14
38962.0	335.73 5	115.567 8	47.250 5	.05615 4	.8822 2	12.69612 1	-.12E-3 1	7.761120	28	2	.49
38963.0	339.71 6	112.153 9	47.240 6	.05602 5	.5760 2	12.69580 1	-.11E-3 2	7.761247	22	2	.64
38966.0	351.37 3	101.879 5	47.246 4	.05456 3	.65722 9	12.69536 1	-.10E-3 1	7.761432	31	2	.38
38965.0	347.68 8	105.30 1	47.243 9	.05502 6	.9631 2	12.69535 2	-.8E-4 3	7.761431	29	2	.90
38964.0	343.6 1	108.74 2	47.24 1	.05558 9	.2700 4	12.69555 2	-.19E-3 5	7.761351	14	2	.96
38967.0	355.48 9	98.46 1	47.24 1	.05426 5	.3499 3	12.69500 2	-.11E-3 2	7.761575	25	2	.69
38968.0	359.34 9	95.03 1	47.251 9	.05383 5	.0431 3	12.69480 1	-.8E-4 2	7.761657	26	2	.86
38969.0	3.22 9	91.607 9	47.261 9	.05344 5	.7361 2	12.69464 2	-.6E-4 2	7.761723	24	2	.85
38970.0	7.1 1	88.193 9	47.25 1	.05311 5	.4290 3	12.69448 1	-.7E-4 3	7.761789	21	2	.82
38971.0	11.0 1	84.775 9	47.26 1	.05267 7	.1214 4	12.69434 2	-.7E-4 3	7.761846	19	2	.79
38972.0	14.7 1	81.356 8	47.26 1	.05245 8	.8145 4	12.69425 2	.2E-4 4	7.761883	15	2	.85

MJD	ω	Ω	i	e	M	n	n′ /2	a	N	D	σ
38973.0	18.8 2	77.93 1	47.27 1	.0520 1	.5062 5	12.69403 2	-.10E-3 4	7.761971	13	2	1.05
38974.0	22.5 1	74.537 9	47.243 9	.05174 7	.1991 3	12.69392 2	-.8E-4 3	7.762017	14	2	.86
38975.0	26.5 1	71.117 7	47.247 9	.05136 7	.8907 4	12.69379 1	-.7E-4 3	7.762069	19	2	.92
38976.0	30.2 1	67.707 7	47.251 7	.05106 6	.5832 3	12.69365 2	-.6E-4 2	7.762125	18	2	.82
38977.0	34.29 9	64.291 6	47.250 7	.05065 6	.2746 3	12.69359 2	-.5E-4 3	7.762152	17	2	.80
38978.0	38.10 9	60.877 5	47.252 6	.05034 6	.9665 2	12.69345 1	-.6E-4 2	7.762209	23	2	.91
38979.0	41.89 9	57.460 4	47.249 4	.05003 5	.6585 2	12.69332 1	-.5E-4 2	7.762261	20	2	.73
38980.0	46.11 8	54.049 4	47.255 4	.04945 5	.3490 2	12.69320 1	-.3E-4 2	7.762308	22	2	.76
38981.0	49.66 6	50.632 3	47.254 4	.04926 5	.0413 2	12.69310 1	-.1E-4 2	7.762349	19	2	.64
38982.0	53.34 9	47.211 4	47.254 5	.04899 8	.7332 3	12.69294 1	-.8E-4 3	7.762417	13	2	.75
38983.0	57.4 2	43.815 7	47.24 1	.0484 1	.4237 5	12.69281 3	-.4E-4 5	7.762469	17	2	1.47
38984.0	61.21 9	40.392 4	47.247 5	.04796 6	.1149 2	12.69264 1	-.6E-4 4	7.762537	15	2	.73
38985.0	65.1 1	36.979 5	47.239 7	.04747 8	.8058 3	12.69248 1	-.6E-4 2	7.762601	15	2	.75
38986.0	68.7 1	33.572 6	47.238 7	.04717 7	.4972 3	12.69232 1	-.11E-3 3	7.762670	14	2	.73
38987.0	72.7 2	30.15 1	47.23 2	.0467 2	.1872 6	12.69209 3	-.8E-4 7	7.762759	12	2	1.49
38988.0	76.77 6	26.746 5	47.232 5	.04600 5	.8770 2	12.69190 2	-.8E-4 3	7.762838	28	2	.72
38989.0	80.11 5	23.328 5	47.235 4	.04574 3	.5686 1	12.691753 9	-.7E-4 2	7.762899	36	2	.70
38990.0	83.86 7	19.927 7	47.246 6	.04532 5	.2589 2	12.69155 1	-.7E-4 3	7.762983	29	2	.91
38991.0	87.88 9	16.518 9	47.234 8	.04477 7	.9482 2	12.69133 2	-.9E-4 3	7.763070	23	2	1.07
38992.0	91.5 1	13.09 1	47.23 1	.0443 1	.6384 3	12.69115 2	-.8E-4 4	7.763145	15	2	.95
38993.0	95.1 2	9.682 8	47.241 9	.0440 1	.3287 4	12.69102 2	-.1E-4 2	7.763198	15	2	.69
38994.0	99.2 3	6.30 2	47.23 2	.0433 2	.0171 9	12.69076 3	-.13E-3 6	7.763305	19	2	1.73
38995.0	103.61 9	2.849 8	47.198 7	.04240 7	.7045 3	12.69053 2	-.10E-3 3	7.763393	17	2	.79
38996.0	107.13 6	359.455 7	47.221 6	.04212 5	.3942 2	12.69030 2	-.12E-3 2	7.763491	22	2	.71
38997.0	110.86 9	356.04 1	47.224 7	.04174 7	.0831 3	12.69013 2	-.6E-4 3	7.763561	24	2	.95
38998.0	115.04 7	352.634 9	47.221 6	.04102 6	.7706 2	12.68995 2	-.10E-3 2	7.763634	27	2	.88
38999.0	118.8 1	349.21 1	47.214 8	.04062 8	.4590 3	12.68973 3	-.11E-3 3	7.763721	31	2	1.26
39000.0	122.8 1	345.80 2	47.214 9	.0401 1	.1466 4	12.68957 3	-.9E-4 4	7.763788	24	2	1.46
39001.0	127.0 1	342.40 1	47.221 5	.03944 6	.8336 3	12.68942 2	-.10E-3 4	7.763850	20	2	.97
39002.0	130.64 9	338.996 9	47.222 4	.03916 6	.5219 3	12.68926 2	-.8E-4 2	7.763914	19	2	.76
39003.0	135.2 2	335.56 2	47.225 5	.03838 9	.2076 5	12.68907 3	-.3E-4 4	7.763995	14	2	1.07

MJD	ω	Ω	i	e	M	n	n′/2	a	N	D	σ
39004.0	138.9 2	332.18 2	47.227 5	.03807 8	.8953 4	12.68899 2	-.5E-4 4	7.764024	15	2	1.09
39005.0	142.9 1	328.76 1	47.221 3	.03754 6	.5821 3	12.68885 2	-.8E-4 2	7.764084	15	2	.64
39006.0	146.8 2	325.37 1	47.233 4	.03713 8	.2692 4	12.68872 3	.7E-4 6	7.764134	13	2	.85
39007.0	151.2 3	321.95 3	47.229 8	.0365 1	.9545 8	12.68859 2	-.4E-4 5	7.764189	13	2	1.48
39008.0	155.3 3	318.52 2	47.229 8	.0360 2	.6406 8	12.68846 5	-.3E-4 4	7.764243	13	2	1.08
39009.0	160.1 3	315.11 2	47.25 1	.0354 1	.3249 8	12.68842 4	-.5E-4 4	7.764262	12	2	1.13
39010.0	163.8 2	311.71 1	47.250 8	.03513 8	.0121 6	12.68835 2	-.1E-4 3	7.764289	16	2	1.09
39011.0	167.6 2	308.307 9	47.244 7	.03478 8	.6987 5	12.68826 2	-.3E-4 3	7.764324	13	2	.88
39012.0	172.1 2	304.905 8	47.262 7	.03425 6	.3835 4	12.68818 1	-.1E-4 2	7.764361	21	2	.76
39013.0	175.9 1	301.503 7	47.250 7	.03395 6	.0702 4	12.68813 2	-.5E-4 2	7.764377	24	2	.71
39014.0	180.4 2	298.114 6	47.247 7	.03346 7	.7547 5	12.68808 1	.1E-4 2	7.764399	18	2	.80
39015.0	184.6 2	294.713 8	47.257 8	.03304 7	.4401 6	12.68799 2	-.5E-4 2	7.764437	18	2	.92
39016.0	188.7 1	291.309 7	47.258 5	.03264 5	.1257 4	12.68798 1	-.2E-4 2	7.764441	26	2	.89
39017.0	192.7 1	287.909 4	47.263 4	.03222 4	.8113 3	12.687963 8	-.1E-4 1	7.764448	31	2	.74
39018.0	196.6 3	284.511 4	47.261 5	.03191 5	.4975 3	12.68798 1	.2E-4 2	7.764442	28	2	.77
39019.0	201.00 8	281.114 3	47.262 3	.03137 4	.1822 2	12.68799 1	.2E-4 1	7.764438	36	2	.67
39020.0	204.683 4	277.709 3	47.256 3	.03119 3	.869022 6	12.68800 1	-.2E-4 2	7.764431	46	2	1.03
39021.0	207.99 2	274.309 6	47.255 5	.03111 5	.55689 7	12.68804 2	.6E-4 3	7.764417	38	2	1.59
39022.0	212.94 6	270.914 2	47.260 2	.03005 4	.2400 2	12.688059 7	.2E-4 1	7.764408	55	2	.59
39023.0	216.97 6	267.514 2	47.262 2	.02955 4	.9258 2	12.688062 7	.1E-4 1	7.764407	65	2	.72
39024.0	220.87 6	264.118 2	47.260 2	.02912 4	.6120 2	12.688085 8	.1E-4 1	7.764398	57	2	.61
39025.0	225.01 5	260.721 2	47.256 2	.02851 3	.2976 1	12.688060 6	-.17E-4 9	7.764408	58	2	.56
39026.0	228.91 4	257.327 2	47.252 2	.02799 3	.9837 1	12.687999 7	-.4E-4 1	7.764432	52	2	.49
39027.0	232.5 1	253.929 7	47.262 6	.02766 9	.6706 3	12.68792 2	-.11E-3 3	7.764463	42	2	.99
39028.0	236.2 2	250.54 1	47.272 9	.0274 2	.3575 6	12.68793 2	.5E-4 4	7.764462	33	2	1.25
39029.0	240.7 1	247.131 6	47.240 6	.02628 8	.0418 3	12.68789 1	.2E-4 3	7.764478	30	2	.80
39030.0	244.75 9	243.743 8	47.234 5	.02558 7	.7273 3	12.68780 1	-.1E-4 3	7.764512	30	2	1.00
39031.0	248.55 6	240.345 5	47.238 3	.02516 5	.4135 2	12.68778 1	.1E-4 2	7.764519	30	2	.58
39032.0	252.56 8	236.936 6	47.231 4	.02452 6	.0992 2	12.68771 1	-.3E-4 2	7.764549	42	2	.70
39033.0	256.59 6	233.535 5	47.233 3	.02394 4	.7847 2	12.687683 7	-.4E-4 1	7.764560	57	2	.66

MJD	ω	Ω	i	e	M	n	n'/2	a	N	D	σ
39034.0	260.60 5	230.142 3	47.229 2	.02329 3	.4702 1	12.687615 7	-.4E-4 1	7.764587	66	2	.60
39035.0	264.51 6	226.739 3	47.222 3	.02271 3	.1559 2	12.687559 7	.1E-4 1	7.764610	57	2	.65
39036.0	268.98 6	223.330 4	47.215 2	.02199 3	.8401 2	12.687494 8	-.3E-4 1	7.764636	62	2	.73
39037.0	273.05 6	219.928 4	47.209 3	.02138 3	.5253 2	12.687452 9	-.1E-4 1	7.764653	74	2	.82
39038.0	277.32 7	216.525 4	47.211 3	.02079 4	.2099 2	12.687415 9	.1E-4 1	7.764668	65	2	.93
39039.0	281.54 6	213.129 3	47.210 2	.02021 3	.8946 2	12.687424 7	.4E-4 1	7.764664	52	2	.65
39040.0	286.3 1	209.721 6	47.205 3	.01952 5	.5777 3	12.68734 1	-.7E-4 2	7.764697	48	2	1.06
39041.0	290.5 1	206.332 6	47.212 3	.01903 5	.2624 3	12.68729 1	-.1E-4 2	7.764718	36	2	.77
39042.0	295.7 2	202.907 9	47.203 3	.01820 7	.9442 5	12.68732 1	-.6E-4 3	7.764707	32	2	.72
39043.0	300.5 2	199.51 1	47.205 3	.01767 6	.6273 5	12.68728 1	-.2E-4 2	7.764725	32	2	.82
39044.0	305.1 2	196.114 9	47.211 3	.01721 6	.3108 5	12.68727 1	-.3E-4 2	7.764726	30	2	.88
39045.0	310.3 2	192.714 7	47.210 2	.01666 5	.9926 4	12.68725 1	-.5E-4 2	7.764737	32	2	.60
39046.0	315.2 3	189.31 1	47.209 3	.01621 7	.6754 8	12.68720 1	-.2E-4 3	7.764756	31	2	.90
39047.0	321.4 2	185.914 7	47.210 3	.01561 4	.3544 5	12.68719 2	-.5E-4 3	7.764761	31	2	.74
39048.0	326.5 2	182.508 7	47.218 3	.01519 4	.0363 5	12.68718 1	.1E-6 9	7.764765	54	2	1.09
39049.0	332.1 2	179.101 7	47.219 3	.01476 4	.7170 6	12.68717 1	-.2E-4 2	7.764767	66	2	1.22
39050.0	337.2 2	175.699 7	47.225 4	.01440 4	.3991 7	12.68712 2	-.5E-4 2	7.764790	47	2	1.05
39051.0	343.1 4	172.30 1	47.235 6	.01391 6	.079 1	12.68718 2	.1E-4 3	7.764766	26	2	.82
39052.0	350.5 4	168.91 1	47.24 1	.01380 6	.754 1	12.68715 3	-.5E-4 3	7.764777	29	2	1.00
39053.0	355.8 2	165.515 5	47.242 3	.01345 3	.4354 5	12.68703 1	.3E-4 2	7.764828	34	2	.49
39054.0	359.5 3	162.118 6	47.237 5	.01338 3	.1212 8	12.687020 9	-.4E-4 2	7.764831	37	2	.72
39055.0	7.7 3	158.719 6	47.249 6	.01306 3	.7946 9	12.68705 1	.4E-4 2	7.764821	31	2	.78
39056.0	12.3 3	155.337 6	47.240 5	.01296 3	.4778 8	12.68710 1	.3E-4 2	7.764797	26	2	.73
39057.0	17.2 5	151.941 7	47.236 8	.01286 4	.160 1	12.68720 1	.7E-4 3	7.764757	23	2	.88
39058.0	24.9 4	148.547 5	47.259 6	.01276 4	.835 1	12.68728 1	.5E-4 2	7.764726	37	2	.89
39059.0	30.5 3	145.149 5	47.263 5	.01254 3	.5156 8	12.68741 1	.10E-3 2	7.764674	35	2	1.03
39060.0	36.1 3	141.751 6	47.258 5	.01250 3	.1964 9	12.68754 1	.11E-3 3	7.764620	24	2	.99
39061.0	41.606 8	138.351 4	47.256 4	.01242 3	.87784 2	12.687744 9	.10E-3 2	7.764537	26	2	.90
39062.0	44.8 1	134.940 7	47.244 5	.01238 4	.5658 3	12.68795 2	.13E-3 3	7.764452	31	2	1.51
39063.0	51.778 4	131.552 4	47.254 3	.01219 3	.243380 8	12.688138 9	.9E-4 1	7.764377	34	2	.82
39064.0	54.877 5	128.135 6	47.246 4	.01221 4	.932095 7	12.68836 1	.13E-3 2	7.764287	35	2	1.15

MJD	ω	Ω	i	e	M	n	n'/2	a	N	D	σ
39065.0	62.9 3	124.753 4	47.257 3	.01182 4	.6071 9	12.68855 1	.13E-3 2	7.764207	30	2	.76
39066.0	69.6 2	121.358 5	47.256 3	.01152 4	.2858 6	12.68875 1	.9E-4 2	7.764129	20	2	.73
39067.0	74.0 4	117.960 8	47.261 5	.01146 6	.972 1	12.68889 2	.9E-4 3	7.764070	17	2	1.00
39068.0	78.7 3	114.552 5	47.257 3	.01117 4	.6565 9	12.68917 1	.8E-4 2	7.763957	19	2	.66
39069.0	85.6 2	111.165 6	47.249 4	.01064 4	.3354 7	12.68933 1	.12E-3 2	7.763888	28	2	.87
39070.0	89.1 3	107.754 5	47.257 5	.01042 5	.0240 7	12.68957 1	.13E-3 2	7.763791	26	2	.97
39071.0	94.2 5	104.354 9	47.257 7	.01004 9	.709 2	12.68979 2	.7E-4 4	7.763703	19	2	1.23
39072.0	100. 1	100.95 1	47.26 1	.0095 2	.391 3	12.68991 4	.16E-3 8	7.763652	13	2	1.24
39073.0	109. 1	97.56 1	47.24 1	.0089 1	.066 3	12.68999 3	-.1E-4 4	7.763619	18	2	1.40
39074.0	112.9 4	94.154 5	47.244 5	.00872 5	.753 1	12.68997 1	.5E-4 3	7.763629	19	2	.73
39075.0	117.97 1	90.75 1	47.242 8	.00829 7	.4382 1	12.69000 7	-.19E-3 3	7.763615	20	2	1.35
39076.0	126. 1	87.37 2	47.24 1	.0080 1	.114 3	12.68998 4	-.3E-4 4	7.763624	19	2	1.94
39077.0	132. 1	83.98 2	47.24 1	.0076 1	.796 4	12.68999 5	-.10E-3 4	7.763622	11	2	1.55
39078.0	143. 1	80.56 1	47.217 7	.00704 8	.465 3	12.68999 4	.2E-4 6	7.763618	15	2	1.14
39079.0	148.7 8	77.161 9	47.218 4	.00675 5	.149 2	12.68993 2	-.2E-4 3	7.763642	18	2	.89
39080.0	156. 1	73.76 2	47.221 5	.00643 9	.827 3	12.68994 4	-.2E-4 5	7.763640	11	2	1.04
39081.0	168. 2	70.39 2	47.201 6	.0062 1	.493 5	12.68994 5	-.1E-4 4	7.763636	11	2	1.11
39082.0	177. 1	66.95 1	47.210 4	.00605 4	.167 4	12.68995 2	-.2E-4 4	7.763634	13	2	1.08
39083.0	188. 1	63.55 1	47.204 3	.00593 3	.836 3	12.68994 2	-.4E-4 3	7.763640	16	2	.85
39084.0	197. 1	60.14 1	47.207 5	.00590 4	.509 3	12.68999 1	.4E-4 3	7.763616	15	2	.90
39085.0	208.1 7	56.712 8	47.209 4	.00603 3	.178 2	12.68999 2	-.4E-4 4	7.763618	15	2	.44
39086.0	219. 1	53.35 2	47.194 8	.00625 6	.846 3	12.69018 3	.5E-4 4	7.763539	19	2	.96
39087.0	228. 1	49.94 2	47.186 7	.00652 7	.519 3	12.69008 2	-.5E-4 4	7.763579	16	2	.96
39088.0	239.2 9	46.49 2	47.211 9	.0071 1	.189 3	12.69008 2	-.1E-4 4	7.763580	18	2	1.11
39089.0	246.5 6	43.12 1	47.197 6	.00750 9	.867 2	12.69017 2	.13E-3 3	7.763542	19	2	1.10
39090.0	253.2 5	39.75 1	47.180 6	.00788 8	.548 1	12.69031 1	.8E-4 2	7.763486	19	2	.98
39091.0	260.5 5	36.31 1	47.209 9	.0084 1	.227 1	12.69040 3	.4E-4 4	7.763452	15	2	.82
39092.0	268.1 7	32.92 1	47.20 1	.0093 2	.905 2	12.69066 2	.15E-3 4	7.763344	14	2	1.13
39093.0	274.2 9	29.52 3	47.20 2	.0097 3	.588 2	12.69079 3	.13E-3 6	7.763290	11	2	1.44
39094.0	280. 1	26.12 2	47.18 2	.0101 4	.273 3	12.69104 3	.6E-4 5	7.763189	9	2	1.26

MJD	ω	Ω	i	e	M	n	n′/2	a	N	D	σ
39095.0	284.9 6	22.73 2	47.19 1	.0110 2	.959 2	12.69126 2	.18E-3 3	7.763098	15	2	1.16
39096.0	290.8 3	19.35 2	47.19 1	.0117 1	.6429 8	12.69155 2	.13E-3 4	7.762981	17	2	1.00
39097.0	296.9 3	15.89 2	47.22 1	.01239 9	.32650 6	12.69183 2	.12E-3 3	7.762868	15	2	.93
39098.0	300.7 3	12.52 2	47.19 1	.0129 1	.0168 9	12.69211 2	.18E-3 4	7.762752	13	2	.98
39099.0	306.4 3	9.10 1	47.22 1	.0139 1	.7025 9	12.69235 2	.18E-3 3	7.762654	12	2	.91
39100.0	310.5 2	5.694 6	47.222 5	.01443 6	.3926 4	12.69269 1	.16E-3 2	7.762515	12	2	.48
39101.0	315.7 2	2.33 2	47.20 1	.01495 7	.0800 6	12.69308 1	.18E-3 2	7.762356	14	2	.68
39102.0	320.2 2	358.911 6	47.215 6	.01593 5	.76970 5	12.69334 2	.16E-3 3	7.762253	17	2	.75
39103.0	323.9 1	355.501 4	47.214 5	.01638 6	.4621 3	12.69369 2	.19E-3 2	7.762110	15	2	.59
39104.0	327.82 1	352.10 1	47.21 1	.0168 1	.15404 3	12.69408 2	.21E-3 4	7.761948	11	2	1.27
39105.0	333.0 2	348.708 5	47.209 7	.0178 1	.8428 5	12.69443 2	.14E-3 4	7.761809	15	2	1.05
39106.0	337.3 1	345.305 4	47.219 6	.01846 9	.5346 3	12.69481 2	.19E-3 3	7.761651	25	2	1.00
39107.0	341.4 1	341.901 5	47.217 6	.01915 8	.2271 3	12.69521 2	.23E-3 3	7.761488	27	2	1.03
39108.0	345.6 1	338.497 4	47.214 5	.01973 7	.9201 3	12.69562 2	.20E-3 3	7.761323	21	2	.79
39109.0	350.2 2	335.098 9	47.21 1	.0206 1	.6122 5	12.69598 3	.14E-3 4	7.761175	21	2	1.35
39110.0	353.8 1	331.689 6	47.209 5	.02149 6	.3073 3	12.69629 3	.21E-3 2	7.761047	21	2	.64
39111.0	358.8 1	328.289 8	47.215 6	.02174 6	.9993 3	12.69676 3	.23E-3 2	7.760857	25	2	.65
39112.0	2.4 1	324.88 1	47.214 8	.02259 7	.6953 3	12.69729 3	.24E-3 2	7.760642	27	2	.85
39113.0	6.5 1	321.48 1	47.207 7	.02331 7	.3906 3	12.69780 2	.25E-3 3	7.760431	24	2	.81
39114.0	10.77 9	318.08 1	47.209 6	.02398 6	.0861 2	12.69838 2	.19E-3 3	7.760198	27	2	.81
39115.0	14.48 8	314.654 8	47.202 5	.02468 7	.7835 2	12.69905 3	.42E-3 3	7.759924	24	2	.58
39116.0	19.1 1	311.25 1	47.200 9	.0257 1	.4789 4	12.69945 3	.25E-3 3	7.759759	18	2	1.13
39117.0	22.9 1	307.85 1	47.202 7	.0262 1	.1771 3	12.70011 3	.35E-3 3	7.759492	16	2	.95
39118.0	26.4 1	304.42 1	47.20 1	.0267 1	.8770 4	12.70079 5	.4E-3 1	7.759215	12	2	.77
39119.0	30.7 3	301.01 2	47.20 1	.0276 2	.5752 7	12.70138 5	.33E-3 4	7.758974	10	2	.94
39120.0	34.8 1	297.58 2	47.199 9	.0283 2	.2747 4	12.70193 7	.37E-3 6	7.758751	18	2	1.32
39121.0	38.38 9	294.17 1	47.199 6	.0291 1	.9762 3	12.70281 2	.37E-3 3	7.758392	22	2	1.28
39122.0	42.30 7	290.754 9	47.193 4	.02983 7	.6775 2	12.70355 2	.33E-3 3	7.758089	21	2	.93
39123.0	46.06 6	287.339 8	47.201 3	.03054 7	.3801 2	12.70431 2	.37E-3 3	7.757779	19	2	.83
39124.0	49.94 4	283.920 6	47.201 3	.03138 6	.0831 1	12.70514 1	.37E-3 2	7.757441	26	2	.73
39125.0	53.51 4	280.511 5	47.208 3	.03199 4	.7878 1	12.705943 8	.41E-3 1	7.757116	42	2	.76

Satellite 1960 Xi 1 (Explorer 8)

I. SAO smoothed elements

The following elements are based on 168 observations and are valid for the period July 1 through August 1, 1965.

$$T_0 = 38957.0 \text{ MJD}$$

$$\omega = (199^\circ.47 \pm 1) + (2^\circ.8125 \pm 7)\, t + 0^\circ.6 \times 10^{-5}\, t^2 + 0^\circ.3589 \cos \omega$$

$$\Omega = (325^\circ.075 \pm 2) - (3^\circ.3957 \pm 2)\, t - 0^\circ.7 \times 10^{-5}\, t^2 + 0^\circ.0188 \cos \omega$$

$$i = (49^\circ.989 \pm 2) - 0^\circ.0040\, t - 0^\circ.0044 \sin \omega$$

$$e = (0.11857 \pm 4) - 4.8 \times 10^{-5}\, t + 0.0007580 \sin \omega$$

$$M = (0.57095 \pm 3) + (12.826875 \pm 2)\, t + (0.1191 \pm 6) \times 10^{-4}\, t^2 - (0.80 \pm 6) \times 10^{-7}\, t^3 - 0.0010103 \cos \omega$$

Standard error of one observation: $\sigma = \pm 2''.85$.

The following elements are based on 310 observations and are valid for the period August 1 through September 1, 1965.

$$T_0 = 38988.0 \text{ MJD}$$

$$\omega = (286^\circ.901 \pm 5) + (2^\circ.8201 \pm 6)\, t + 0^\circ.3 \times 10^{-5}\, t^2 + 0^\circ.3585 \cos \omega$$

$$\Omega = (219^\circ.718 \pm 1) - (3^\circ.3988 \pm 1)\, t - 0^\circ.3 \times 10^{-5}\, t^2 + 0^\circ.0188 \cos \omega$$

$$i = (49^\circ.9527 \pm 8) + 0^\circ.00210\, t - 0^\circ.0044 \sin \omega$$

$$e = (0.11847 \pm 1) + 1.58 \times 10^{-5}\, t + 0.0007567 \sin \omega$$

$$M = (0.21235 \pm 2) + (12.827386 \pm 2)\, t + (0.815 \pm 3) \times 10^{-5}\, t^2 + (0.13 \pm 3) \times 10^{-7}\, t^3 - 0.0010093 \cos \omega$$

Standard error of one observation: $\sigma = \pm 1''.80$.

The following elements are based on 206 observations and are valid for the period September 1 through October 1, 1965.

$$T_0 = 39019.0 \text{ MJD}$$

$$\omega = (14^\circ.481 \pm 7) + (2^\circ.8260 \pm 6)\, t + 0^\circ.4 \times 10^{-5}\, t^2 + 0^\circ.3584 \cos \omega$$

$$\Omega = (114^\circ.384 \pm 1) - (3^\circ.3995 \pm 2)\, t - 0^\circ.5 \times 10^{-5}\, t^2 + 0^\circ.0187 \cos \omega$$

$$i = (49^\circ.940 \pm 1) + 0^\circ.0016\, t - 0^\circ.0044 \sin \omega$$

$$e = (0.11844 \pm 1) - 8.3 \times 10^{-6}\, t + 0.0007563 \sin \omega$$

$$M = (0.86888 \pm 2) + (12.827895 \pm 2)\, t + (0.834 \pm 3) \times 10^{-5}\, t^2 - (0.25 \pm 3) \times 10^{-7}\, t^3 - 0.0010089 \cos \omega$$

Standard error of one observation: $\sigma = \pm 1''.55$.

The following elements are based on 116 observations and are valid for the period October 1 through November 1, 1965.

$$T_0 = 39049.0 \text{ MJD}$$

$$\omega = (99^\circ.271 \pm 6) + (2^\circ.8284 \pm 5)\, t + 0^\circ.3 \times 10^{-5}\, t^2 + 0^\circ.3598 \cos \omega$$

$$\Omega = (12^\circ.399 \pm 2) - (3^\circ.3994 \pm 2)\, t - 0^\circ.3 \times 10^{-5}\, t^2 + 0^\circ.0187 \cos \omega$$

$$i = (49^\circ.954 \pm 2) + 0^\circ.0027\, t - 0^\circ.0044 \sin \omega$$

$$e = (0.11807 \pm 3) + 4.4 \times 10^{-5}\, t + 0.0007568 \sin \omega$$

$$M = (0.71252 \pm 2) + (12.828320 \pm 2)\, t + (0.56 \pm 2) \times 10^{-5}\, t^2 - (0.27 \pm 5) \times 10^{-7}\, t^3 + (0.18 \pm 57) \times 10^{-9}\, t^4 - 0.0010129 \cos \omega$$

Standard error of one observation: $\sigma = \pm 2''.28$.

The following elements are based on 76 observations and are valid for the period November 1 through December 1, 1965.

$$T_0 = 39080.0 \text{ MJD}$$

$$\omega = (186^\circ.747 \pm 7) + (2^\circ.8245 \pm 8)\, t + 0^\circ.3 \times 10^{-5}\, t^2 + 0^\circ.3589 \cos \omega$$

$$\Omega = (267^\circ.047 \pm 2) - (3^\circ.3990 \pm 2)\, t - 0^\circ.3 \times 10^{-5}\, t^2 + 0^\circ.0187 \cos \omega$$

$$i = (49^\circ.946 \pm 1) + 0^\circ.00018\, t - 0^\circ.0044 \sin \omega$$

$$e = (0.11831 \pm 1) + 1.60 \times 10^{-5}\, t + 0.0007565 \sin \omega$$

$$M = (0.39681 \pm 2) + (12.828723 \pm 2)\, t + (0.583 \pm 4) \times 10^{-5}\, t^2 - (0.34 \pm 4) \times 10^{-7}\, t^3 - 0.0010104 \cos \omega$$

Standard error of one observation: $\sigma = \pm 1''.05$.

The following elements are based on 108 observations and are valid for the period December 1, 1965, through January 1, 1966.

$$T_0 = 39110.0 \text{ MJD}$$

$$\omega = (271^\circ.440 \pm 5) + (2^\circ.8235 \pm 8)\, t + 0^\circ.1 \times 10^{-5}\, t^2 + 0^\circ.3589 \cos \omega$$

$$\Omega = (165^\circ.0744 \pm 9) - (3^\circ.3998 \pm 2)\, t - 0^\circ.1 \times 10^{-5}\, t^2 + 0^\circ.0187 \cos \omega$$

$$i = (49^\circ.946 \pm 1) + 0^\circ.0003\, t - 0^\circ.0044 \sin \omega$$

$$e = (0.11831 \pm 1) + 0.8 \times 10^{-5}\, t + 0.0007565 \sin \omega$$

$$M = (0.26307 \pm 1) + (12.829025 \pm 2)\, t + (0.514 \pm 3) \times 10^{-5}\, t^2 + (0.13 \pm 3) \times 10^{-7}\, t^3 - 0.0010104 \cos \omega$$

Standard error of one observation: $\sigma = \pm 1''.20$.

MJD	ω	Ω	i	e	M	n	n′/2	a	N	D	σ
38944.0	162.451 5	9.230 2	49.952 2	.11863 3	.82505 2	12.826501 3	.14E-4 1	6.794175	34	6	.47
38948.0	173.740 5	355.638 2	49.949 2	.11852 2	.13124 2	12.826599 2	.171E-5 9	6.794950	35	6	.44
38952.0	185.05 1	342.039 3	49.940 6	.11842 4	.43787 3	12.826722 2	.14E-4 1	6.795686	28	6	.45
38956.0	196.30 3	328.462 8	49.97 1	.11818 7	.74510 7	12.826818 6	.12E-4 3	6.797488	20	6	.55
38960.0	207.3 3	314.85 1	49.94 1	.1182 2	.0538 9	12.826919 4	.11E-4 2	6.797380	22	6	.41
38964.0	218.95 4	301.27 1	49.953 8	.11794 6	.3603 1	12.826996 5	.9E-5 2	6.799284	28	6	.49
38968.0	230.30 2	287.687 6	49.957 2	.11785 4	.66825 4	12.827072 3	.7E-5 2	6.799999	36	6	.43
38972.0	241.648 6	274.093 1	49.9525 9	.11778 2	.97651 2	12.827138 2	.75E-5 7	6.800470	63	6	.37
38976.0	253.002 5	260.503 1	49.9538 8	.11774 2	.28499 2	12.827190 2	.64E-5 5	6.800817	94	6	.40
38980.0	264.356 7	246.913 1	49.953 1	.11773 2	.59368 2	12.827245 2	.77E-5 9	6.800824	69	6	.44
38984.0	275.68 2	233.326 2	49.953 1	.11768 2	.90272 8	12.827323 2	.9E-5 1	6.801207	39	6	.48
38988.0	287.07 1	219.731 2	49.952 2	.11776 2	.21182 5	12.827375 2	.5E-5 1	6.800567	53	6	.45
38992.0	298.44 1	206.139 2	49.953 1	.11778 2	.52120 4	12.827438 2	.10E-4 1	6.800415	62	6	.47
38996.0	309.80 1	192.547 2	49.950 1	.11784 2	.83094 4	12.827526 2	.97E-5 8	6.799885	62	6	.45
39000.0	321.10 2	178.960 3	49.953 1	.11797 2	.14112 4	12.827578 2	.7E-5 1	6.798865	50	6	.44
39004.0	332.44 2	165.371 5	49.950 1	.11809 2	.45145 5	12.827646 2	.8E-5 1	6.797929	37	6	.41
39008.0	343.83 4	151.77 1	49.951 4	.11816 4	.76191 4	12.827715 2	.9E-5 2	6.797359	31	6	.57
39012.0	355.17 5	138.18 1	49.952 8	.11822 4	.0728 1	12.827793 4	.8E-5 2	6.796844	24	6	.58
39016.0	6.41 2	124.587 3	49.945 4	.11845 3	.38417 6	12.827840 4	.9E-5 2	6.795058	32	6	.40
39020.0	17.66 1	110.994 2	49.944 2	.11863 2	.69578 2	12.827913 2	.94E-5 8	6.793701	48	6	.41
39024.0	28.955 9	97.397 1	49.948 1	.11872 2	.00760 3	12.827993 2	.85E-5 9	6.792927	66	6	.45
39028.0	40.204 7	83.799 1	49.945 1	.11885 3	.31980 3	12.828045 2	.7E-5 1	6.791939	47	6	.43
39032.0	51.470 5	70.202 2	49.948 2	.11891 3	.63216 2	12.828109 3	.92E-5 7	6.791430	33	6	.43

MJD	ω	Ω	i	e	M	n	n′/2	a	N	D	σ
39036.0	62.704 5	56.598 2	49.945 2	.11901 3	.94488 1	12.828162 3	.1E-4 1	6.790617	32	6	.42
39040.0	73.94 1	43.01 7	49.949 6	.1190 2	.25776 4	12.828221 9	.15E-4 3	6.790605	27	6	.80
39044.0	85.0 2	29.45 4	49.94 1	.1191 4	.5715 9	12.82829 1	.5E-5 2	6.789605	25	6	.58
39048.0	96.4 2	15.72 3	50.00 1	.1196 3	.8846 7	12.828338 7	.5E-5 3	6.786368	21	6	.46
39052.0	107.8 3	2.2 3	49.95 2	.1188 4	.197 1	12.828380 7	.3E-5 3	6.792455	20	6	.64
39056.0	118.86 2	348.55 1	50.03 2	.1190 1	.51171 8	12.828394 8	.5E-5 2	6.790603	28	8	1.01
39060.0	130.041 9	335.006 5	49.966 7	.11879 5	.82562 2	12.828460 4	-.12E-5 8	6.792225	29	8	.58
39064.0	141.31 2	321.417 7	49.949 7	.11819 2	.13946 6	12.82845 1	.3E-5 4	6.796834	29	8	1.58
39068.0	152.40 8	307.82 1	49.94 2	.1192 2	.4545 2	12.82845 5	.7E-5 4	6.789000	18	8	1.46
39072.0	163.77 9	294.21 1	49.93 2	.1186 5	.7685 3	12.82860 6	.5E-5 4	6.793438	15	8	1.41
39076.0	175.09 2	280.627 8	49.945 6	.1183 1	.08301 7	12.82869 2	.10E-4 1	6.796258	22	8	.36
39080.0	186.402 8	267.025 5	49.946 3	.11820 2	.39779 2	12.828726 1	.49E-5 6	6.796728	31	8	.39
39084.0	197.712 8	253.431 5	49.948 3	.11808 1	.71274 2	12.828769 1	.34E-5 9	6.797570	19	6	.35
39088.0	209.02 2	239.84 1	49.949 3	.11793 4	.02782 7	12.828805 2	.6E-5 2	6.798743	17	6	.47
39092.0	220.38 2	226.25 1	49.947 2	.11757 8	.34289 8	12.82880 1	-.1E-5 2	6.801539	20	6	.36
39096.0	231.74 2	212.64 1	49.952 7	.1176 2	.6582 1	12.82890 6	.7E-5 2	6.801094	31	6	.48
39100.0	243.06 2	199.055 5	49.953 5	.1175 2	.97374 6	12.82898 3	.8E-5 2	6.801750	24	6	.38
39104.0	254.47 4	185.464 5	49.942 5	.1180 2	.28934 9	12.82890 3	.5E-5 3	6.798022	13	6	.97
39108.0	265.73 5	171.883 9	49.954 6	.11754 4	.6052 1	12.829011 4	.7E-5 2	6.801702	14	6	1.44
39112.0	277.13 1	158.278 2	49.949 2	.11762 3	.92102 3	12.829032 5	.6E-5 2	6.801063	23	6	.57
39116.0	288.50 2	144.680 3	49.944 4	.1184 2	.2369 1	12.829046 3	.2E-5 2	6.795346	25	6	.75
39120.0	299.85 3	131.09 1	49.955 7	.1178 2	.5533 1	12.82915 3	.6E-5 2	6.799526	24	6	.43
39124.0	311.16 7	117.47 4	49.94 1	.1176 6	.8700 4	12.82916 5	.5E-5 2	6.801533	15	6	.50

Satellite 1962 Beta Mu 1 (Anna 1B)

I. SAO smoothed elements

The following elements are based on 148 observations and are valid for the period July 1 through August 1, 1965.

$T_0 = 38957.0$ MJD

$\omega = (257^\circ.7 \pm 1) + 2^\circ.96193\ t + 6^\circ.3257 \cos \omega$

$\Omega = (86^\circ.247 \pm 1) - 3^\circ.60871\ t + 0^\circ.0012 \cos \omega$

$i = (50^\circ.1440 \pm 8) - 0^\circ.0003 \sin \omega$

$e = (0.00710 \pm 1) - (4.2 \pm 6) \times 10^{-6}\ t + 0.0007837 \sin \omega$

$M = (0.1069 \pm 3) + (13.3449879 \pm 4)\ t + (4.0 \pm 21) \times 10^{-8}\ t^2$
$- (6.3 \pm 23) \times 10^{-9}\ t^3 - 0.0175720 \cos \omega$

Standard error of one observation: $\sigma = \pm 1''.35$.

The following elements are based on 109 observations and are valid for the period August 1 through September 1, 1965.

$T_0 = 38988.0$ MJD

$\omega = (349^\circ.6 \pm 1) + 2^\circ.96238\ t + 6^\circ.3491 \cos \omega$

$\Omega = (334^\circ.367 \pm 1) - 3^\circ.60885\ t + 0^\circ.0012 \cos \omega$

$i = (50^\circ.142 \pm 1) - 0^\circ.0003 \sin \omega$

$e = (0.007071 \pm 7) + (6.2 \pm 601) \times 10^{-8}\ t + 0.0007836 \sin \omega$

$M = (0.8013 \pm 4) + (13.3449883 \pm 5)\ t + (1.9 \pm 2) \times 10^{-7}\ t^2$
$+ (6.4 \pm 26) \times 10^{-9}\ t^3 - 0.0176370 \cos \omega$

Standard error of one observation: $\sigma = \pm 1''.40$.

The following elements are based on 154 observations and are valid for the period September 1 through October 1, 1965.

$$T_0 = 39019.0 \text{ MJD}$$

$$\omega = (81^\circ.26 \pm 7) + 2^\circ.96012\, t + 6^\circ.3975 \cos\omega$$

$$\Omega = (222^\circ.494 \pm 1) - 3^\circ.60815\, t + 0^\circ.0011 \cos\omega$$

$$i = (50^\circ.1421 \pm 8) - 0^\circ.0003 \sin\omega$$

$$e = (0.00702 \pm 1) + (7.5 \pm 97) \times 10^{-7}\, t + 0.0007836 \sin\omega$$

$$M = (0.4965 \pm 2) + (13.3449981 \pm 5)\, t + (11.1 \pm 2) \times 10^{-7}\, t^2 - (9.2 \pm 277) \times 10^{-10}\, t^3 - 0.0177717 \cos\omega$$

Standard error of one observation: $\sigma = \pm 1''.48$.

The following elements are based on 171 observations and are valid for the period October 1 through November 1, 1965.

$$T_0 = 39049.0 \text{ MJD}$$

$$\omega = (170^\circ.04 \pm 4) + 2^\circ.96371\, t + 6^\circ.3386 \cos\omega$$

$$\Omega = (114^\circ.2169 \pm 8) - 3^\circ.60928\, t + 0^\circ.0012 \cos\omega$$

$$i = (50^\circ.1404 \pm 7) - 0^\circ.0003 \sin\omega$$

$$e = (0.007082 \pm 8) + (1.2 \pm 9) \times 10^{-6}\, t + 0.0007835 \sin\omega$$

$$M = (0.8467 \pm 1) + (13.3449972 \pm 4)\, t - (8.5 \pm 19) \times 10^{-8}\, t^2 - (6.0 \pm 23) \times 10^{-9}\, t^3 - 0.0176080 \cos\omega$$

Standard error of one observation: $\sigma = \pm 1''.30$.

The following elements are based on 108 observations and are valid for the period November 1 through December 1, 1965.

$$T_0 = 39080.0 \text{ MJD}$$

$$\omega = (261^\circ.6 \pm 1) + 2^\circ.96097\, t + 6^\circ.3711 \cos\omega$$

$$\Omega = (2^\circ.332 \pm 1) - 3^\circ.60845\, t + 0^\circ.0011 \cos\omega$$

$$i = (50^\circ.147 \pm 1) - 0^\circ.0003 \sin\omega$$

$$e = (0.00705 \pm 1) - (1.5 \pm 9) \times 10^{-6}\, t + 0.0007838 \sin\omega$$

$$M = (0.5425 \pm 4) + (13.3450039 \pm 5)\, t + (1.2 \pm 3) \times 10^{-7}\, t^2 + (7.2 \pm 33) \times 10^{-9}\, t^3 - 0.0176983 \cos\omega$$

Standard error of one observation: $\sigma = \pm 1''.45$.

The following elements are based on 153 observations and are valid for the period December 1, 1965, through January 1, 1966.

$$T_0 = 39110.0 \text{ MJD}$$

$$\omega = (350^\circ.91 \pm 9) + 2^\circ.96359\, t + 6^\circ.3121 \cos\omega$$

$$\Omega = (254^\circ.066 \pm 1) - 3^\circ.60926\, t + 0^\circ.0012 \cos\omega$$

$$i = (50^\circ.1415 \pm 8) - 0^\circ.0003 \sin\omega$$

$$e = (0.007112 \pm 6) - (7.7 \pm 589) \times 10^{-8}\, t + 0.0007836 \sin\omega$$

$$M = (0.8915 \pm 2) + (13.3450086 \pm 4)\, t + (8.4 \pm 25) \times 10^{-8}\, t^2 + (4.7 \pm 24) \times 10^{-9}\, t^3 - 0.0175342 \cos\omega$$

Standard error of one observation: $\sigma = \pm 1''.35$.

II. SAO mean elements -- Satellite 1962 Beta Mu 1

July 3-September 29, 1965

MJD	ω	Ω	i	e	M	n	n′/2	a	N	D	σ
38944.0	213.7 2	133.168 3	50.142 1	.00663 2	.6372 7	13.344988 2	-.1E-5 1	7.507644	34	6	.48
38948.0	226.7 3	118.733 6	50.138 3	.00650 3	.0141 7	13.344976 5	-.1E-5 1	7.507648	38	6	.60
38952.0	239.5 3	104.304 9	50.135 5	.00624 4	.3913 9	13.34493 1	.3E-5 1	7.507664	34	6	.65
38956.0	253.3 3	89.855 8	50.147 7	.00610 4	.7659 8	13.344996 3	-.4E-5 1	7.507641	22	6	.60
38960.0	265.9 3	75.420 5	50.152 5	.00620 3	.1437 7	13.344989 3	-.1E-5 1	7.507644	19	6	.49
38964.0	279.3 4	60.982 4	50.155 5	.00623 4	.519 1	13.344993 2	-.2E-5 2	7.507643	20	6	.60
38968.0	293.1 2	46.550 1	50.146 2	.00636 2	.8939 5	13.344984 2	.4E-5 1	7.507646	30	6	.43
38972.0	306.0 2	32.115 1	50.145 2	.00641 2	.2709 6	13.344986 2	-.1E-6 8	7.507645	34	6	.44
38976.0	318.6 4	17.674 4	50.137 5	.00666 2	.649 1	13.345007 2	.2E-5 1	7.507636	19	6	.50
38980.0	331.8 4	3.235 4	50.138 6	.00667 2	.025 1	13.344975 3	.10E-4 1	7.507649	21	6	.56
38984.0	343.0 5	348.79 1	50.13 1	.00671 4	.407 1	13.34501 2	.6E-5 3	7.507633	17	6	.69
38988.0	356.0 9	334.37 2	50.15 1	.00694 7	.784 3	13.34495 3	-.5E-5 4	7.507658	17	6	1.05
38992.0	7.7 8	319.93 1	50.146 3	.00711 4	.164 2	13.344988 5	-.6E-5 3	7.507644	17	6	.72
38996.0	19.5 6	305.500 8	50.143 3	.00728 3	.544 2	13.344993 3	-.2E-5 2	7.507642	20	6	.76
39000.0	30.5 3	291.066 3	50.142 2	.00740 1	.9264 7	13.344993 2	.2E-5 1	7.507642	28	6	.47
39004.0	41.0 3	276.630 2	50.146 3	.007518 9	.3101 8	13.344997 2	-.2E-5 1	7.507641	28	6	.43
39008.0	52.6 2	262.191 1	50.139 1	.00761 1	.6906 5	13.344988 1	.7E-6 7	7.507643	44	6	.47
39012.0	63.3 2	247.753 2	50.140 1	.00774 2	.0740 5	13.344992 2	.20E-5 8	7.507642	44	6	.55
39016.0	74.1 4	233.317 4	50.143 4	.00776 6	.457 1	13.344992 3	.1E-6 9	7.507643	20	6	.61
39020.0	84.9 2	218.890 5	50.152 4	.00773 4	.8397 5	13.344995 3	.1E-5 2	7.507642	26	6	.65
39024.0	95.5 1	204.450 5	50.145 3	.00778 3	.2231 3	13.344999 3	.1E-5 1	7.507640	24	6	.46
39028.0	106.6 5	190.01 3	50.139 9	.0077 2	.605 1	13.345004 9	-.1E-5 5	7.507638	25	6	1.80
39032.0	117.53 9	175.590 7	50.141 2	.00758 4	.9877 3	13.345002 4	-.1E-5 2	7.507639	30	6	.67

II. SAO mean elements -- Satellite 1962 Beta Mu 1

October 3-December 30, 1965

MJD	ω	Ω	i	e	M	n	n'/2	a	N	D	σ
39036.0	127.852 4	161.134 5	50.141 3	.00755 3	.3720 3	13.345001 2	.1E-5 1	7.507639	26	6	.56
39040.0	138.51 9	146.704 5	50.132 4	.00746 3	.7552 3	13.344992 2	-.2E-5 1	7.507641	23	6	.53
39044.0	149.66 8	132.263 2	50.136 3	.00735 3	.1372 2	13.344998 2	-.1E-5 1	7.507640	30	6	.51
39048.0	160.87 6	117.828 1	50.140 1	.00722 2	.5190 2	13.344997 4	.10E-5 7	7.507640	43	6	.46
39052.0	172.47 6	103.389 1	50.1376 9	.00709 2	.8997 2	13.344995 2	-.9E-6 6	7.507641	50	6	.37
39056.0	184.2 1	88.947 2	50.140 2	.00694 2	.2800 3	13.344987 1	.20E-5 8	7.507644	32	6	.42
39060.0	195.9 4	74.512 5	50.144 4	.00673 4	.661 1	13.344993 3	.1E-5 2	7.507642	33	6	.78
39064.0	208.5 4	60.071 7	50.143 3	.00664 4	.038 1	13.344996 3	-.1E-5 2	7.507641	28	6	.76
39068.0	220.1 9	45.65 2	50.143 4	.00643 9	.419 3	13.345005 6	.1E-5 3	7.507637	20	6	1.08
39072.0	233.4 6	31.21 1	50.145 8	.00637 8	.795 2	13.34500 1	-.1E-5 3	7.507641	11	6	.74
39076.0	246.9 2	16.776 5	50.144 5	.00630 4	.1703 8	13.345014 6	.2E-5 1	7.507634	15	6	.48
39080.0	260.0 9	2.34 1	50.151 2	.00639 9	.547 2	13.345017 8	.12E-4 5	7.507634	16	6	1.15
39084.0	274.2 5	347.90 5	50.147 5	.00632 4	.920 1	13.345003 3	.3E-5 2	7.507638	24	6	.81
39088.0	287.4 2	333.461 1	50.145 2	.00630 1	.2965 6	13.345005 1	-.14E-5 8	7.507638	33	6	.43
39092.0	300.7 2	319.029 2	50.145 2	.00636 1	.6725 6	13.345010 2	.2E-5 1	7.507636	32	6	.42
39096.0	313.6 4	304.588 4	50.141 4	.00655 2	.050 1	13.345023 3	.2E-5 1	7.507631	30	6	.58
39100.0	326.3 5	290.156 5	50.144 5	.00662 1	.427 1	13.345009 2	.1E-5 1	7.507636	18	6	.45
39104.0	339.6 6	275.72 1	50.14 1	.00671 8	.804 2	13.34500 2	-.2E-5 2	7.507641	14	6	.71
39108.0	351.1 4	261.279 7	50.136 5	.00688 3	.185 1	13.345009 5	.3E-5 2	7.507635	18	6	.55
39112.0	3.1 5	246.843 6	50.143 3	.00707 2	.564 1	13.345006 4	-.3E-5 2	7.507637	29	6	.79
39116.0	14.8 3	232.412 3	50.142 2	.00721 1	.9446 8	13.345004 2	.1E-5 2	7.507638	37	6	.54
39120.0	26.3 1	217.976 1	50.140 1	.007382 9	.3255 4	13.345014 1	-.27E-5 7	7.507634	50	6	.51
39124.0	37.6 2	203.541 2	50.138 2	.00750 1	.7071 4	13.345011 1	.18E-5 8	7.507635	48	6	.60

Satellite 1962 Beta Tau 2 (Injun 3)

I. SAO smoothed elements

The following elements are based on 124 observations and are valid for the period July 1 through July 16, 1965.

$T_0 = 38949.0$ MJD

$\omega = (160^\circ.373 \pm 7) - 1^\circ.19154\, t + 0^\circ.3059 \cos\omega$

$\Omega = (8^\circ.171 \pm 2) - 1^\circ.84307\, t + 0^\circ.0337 \cos\omega$

$i = (70^\circ.342 \pm 3) - 0^\circ.0021 \sin\omega$

$e = (0.13490 \pm 3) - (3.5 \pm 9) \times 10^{-5}\, t + 0.0007430 \sin\omega$

$M = (0.02351 \pm 2) + (12.985698 \pm 3)\, t + (5.001 \pm 8) \times 10^{-4}\, t^2$
$+ (9.5 \pm 10) \times 10^{-7}\, t^3 - (3.5 \pm 2) \times 10^{-7}\, t^4 - 0.0008715 \cos\omega$

Standard error of one observation: $\sigma = \pm 2''.73$.

The following elements are based on 110 observations and are valid for the period July 16 through August 1, 1965.

$T_0 = 38965.0$ MJD

$\omega = (141^\circ.28 \pm 1) - 1^\circ.19815\, t + 0^\circ.3086 \cos\omega$

$\Omega = (338^\circ.654 \pm 3) - 1^\circ.84548\, t + 0^\circ.0334 \cos\omega$

$i = (70^\circ.371 \pm 4) - 0^\circ.0021 \sin\omega$

$e = (0.13431 \pm 9) - (5.7 \pm 20) \times 10^{-5}\, t + 0.0007454 \sin\omega$

$M = (0.91996 \pm 5) + (13.001352 \pm 6)\, t + (4.727 \pm 3) \times 10^{-4}\, t^2$
$- (1.78 \pm 4) \times 10^{-6}\, t^3 - 0.0008784 \cos\omega$

Standard error of one observation: $\sigma = \pm 1''.88$.

The following elements are based on 33 observations and are valid for the period August 1 through August 16, 1965.

$$T_0 = 38981.0 \text{ MJD}$$

$$\omega = (122^\circ.05 \pm 3) - 1^\circ.21466\, t + 0^\circ.3074 \cos\omega$$

$$\Omega = (309^\circ.066 \pm 5) - 1^\circ.84626\, t + 0^\circ.0338 \cos\omega$$

$$i = (70^\circ.321 \pm 4) - 0^\circ.0021 \sin\omega$$

$$e = (0.13407 \pm 9) - (1.1 \pm 19) \times 10^{-5}\, t + 0.0007422 \sin\omega$$

$$M = (0.05759 \pm 9) + (13.015634 \pm 8)\, t + (3.992 \pm 6) \times 10^{-4}\, t^2 - (4.0 \pm 1) \times 10^{-6}\, t^3 - 0.0008762 \cos\omega$$

Standard error of one observation: $\sigma = \pm 2''.40$.

The following elements are based on 136 observations and are valid for the period August 16 through September 1, 1965.

$$T_0 = 38996.0 \text{ MJD}$$

$$\omega = (104^\circ.178 \pm 8) - 1^\circ.19829\, t + 0^\circ.3104 \cos\omega$$

$$\Omega = (281^\circ.267 \pm 1) - 1^\circ.85493\, t + 0^\circ.0335 \cos\omega$$

$$i = (70^\circ.338 \pm 2) - 0^\circ.0021 \sin\omega$$

$$e = (0.13317 \pm 3) - (5.0 \pm 8) \times 10^{-5}\, t + 0.0007437 \sin\omega$$

$$M = (0.37043 \pm 3) + (13.025761 \pm 3)\, t + (2.898 \pm 2) \times 10^{-4}\, t^2 - (3.15 \pm 4) \times 10^{-6}\, t^3 - 0.0008840 \cos\omega$$

Standard error of one observation: $\sigma = \pm 1''.73$.

The following elements are based on 69 observations and are valid for the period September 1 through September 16, 1965.

$$T_0 = 39012.0 \text{ MJD}$$

$$\omega = (84^\circ.95 \pm 1) - 1^\circ.19920\, t + 0^\circ.3111 \cos\omega$$

$$\Omega = (251^\circ.581 \pm 2) - 1^\circ.85813\, t + 0^\circ.0335 \cos\omega$$

$$i = (70^\circ.335 \pm 4) - 0^\circ.0021 \sin\omega$$

$$e = (0.13286 \pm 3) + (2.3 \pm 13) \times 10^{-5}\, t + 0.0007436 \sin\omega$$

$$M = (0.85007 \pm 3) + (13.034315 \pm 4)\, t + (2.69 \pm 1) \times 10^{-4}\, t^2 - (7.6 \pm 9) \times 10^{-7}\, t^3 + (3.1 \pm 2) \times 10^{-7}\, t^4 - 0.0008860 \cos\omega$$

Standard error of one observation: $\sigma = \pm 2''.95$.

The following elements are based on 139 observations and are valid for the period September 16 through October 1, 1965.

$$T_0 = 39027.0 \text{ MJD}$$

$$\omega = (166^\circ.95 \pm 2) - 1^\circ.20215\, t + 0^\circ.3130 \cos\omega$$

$$\Omega = (223^\circ.704 \pm 2) - 1^\circ.85990\, t + 0^\circ.0334 \cos\omega$$

$$i = (70^\circ.339 \pm 3) - 0^\circ.0020 \sin\omega$$

$$e = (0.13221 \pm 5) - (3.4 \pm 8) \times 10^{-5}\, t + 0.0007442 \sin\omega$$

$$M = (0.43686 \pm 6) + (13.044471 \pm 3)\, t + (3.756 \pm 5) \times 10^{-4}\, t^2 + (9.3 \pm 2) \times 10^{-6}\, t^3 + (5.06 \pm 9) \times 10^{-7}\, t^4 - (5.4 \pm 2) \times 10^{-8}\, t^5 - 0.0008911 \cos\omega$$

Standard error of one observation: $\sigma = \pm 1''.58$.

The following elements are based on 117 observations and are valid for the period October 1 through October 16, 1965.

$$T_0 = 39042.0 \text{ MJD}$$

$$\omega = (48^\circ.71 \pm 7) - 1^\circ.20499\, t + 0^\circ.3143 \cos\omega$$

$$\Omega = (195^\circ.761 \pm 8) - 1^\circ.86463\, t + 0^\circ.0335 \cos\omega$$

$$i = (70^\circ.327 \pm 8) - 0^\circ.0020 \sin\omega$$

$$e = (0.13158 \pm 3) - (4.0 \pm 8) \times 10^{-5}\, t + 0.0007437 \sin\omega$$

$$M = (0.2143 \pm 3) + (13.060099 \pm 2)\, t + (5.970 \pm 6) \times 10^{-4}\, t^2 - (3.5 \pm 4) \times 10^{-7}\, t^3 - (2.9 \pm 1) \times 10^{-7}\, t^4 - 0.0008948 \cos\omega$$

Standard error of one observation: $\sigma = \pm 1''.43$.

The following elements are based on 212 observations and are valid for the period October 16 through November 1, 1965.

$$T_0 = 39057.0 \text{ MJD}$$

$$\omega = (30^\circ.79 \pm 1) - 1^\circ.20803\, t + 0^\circ.3165 \cos\omega$$

$$\Omega = (167^\circ.779 \pm 1) - 1^\circ.86927\, t + 0^\circ.0332 \cos\omega$$

$$i = (70^\circ.340 \pm 2) - 0^\circ.0020 \sin\omega$$

$$e = (0.13095 \pm 3) - (3.6 \pm 5) \times 10^{-5}\, t + 0.0007450 \sin\omega$$

$$M = (0.23875 \pm 5) + (13.076193 \pm 2)\, t + (5.763 \pm 6) \times 10^{-4}\, t^2 + (2.99 \pm 5) \times 10^{-6}\, t^3 - (4.8 \pm 1) \times 10^{-7}\, t^4 - 0.0009009 \cos\omega$$

Standard error of one observation: $\sigma = \pm 2''.53$.

The following elements are based on 37 observations and are valid for the period November 1 through November 10, 1965.

$$T_0 = 39070.0 \text{ MJD}$$

$$\omega = (15^\circ.09 \pm 5) - 1^\circ.20917\, t + 0^\circ.3179 \cos\omega$$

$$\Omega = (143^\circ.453 \pm 3) - 1^\circ.87401\, t + 0^\circ.0331 \cos\omega$$

$$i = (70^\circ.334 \pm 5) - 0^\circ.0020 \sin\omega$$

$$e = (0.13038 \pm 5) - (2.3 \pm 12) \times 10^{-5}\, t + 0.0007449 \sin\omega$$

$$M = (0.3232 \pm 2) + (13.090413 \pm 7)\, t + (5.87 \pm 3) \times 10^{-4}\, t^2 + (5.0 \pm 5) \times 10^{-6}\, t^3 - (8.5 \pm 17) \times 10^{-7}\, t^4 - 0.0009048 \cos\omega$$

Standard error of one observation: $\sigma = \pm 2^{\prime}.05$.

The following elements are based on 10 observations and are valid for the period November 11 through November 21, 1965.

$$T_0 = 39080.0 \text{ MJD}$$

$$\omega = (2^\circ.95 \pm 4) - 1^\circ.21203\, t + 0^\circ.3190 \cos\omega$$

$$\Omega = (124^\circ.694 \pm 7) - 1^\circ.87678\, t + 0^\circ.0331 \cos\omega$$

$$i = (70^\circ.325 \pm 9) - 0^\circ.0020 \sin\omega$$

$$e = (0.12987 \pm 6) - (5.5 \pm 19) \times 10^{-5}\, t + 0.0007446 \sin\omega$$

$$M = (0.2808 \pm 1) + (13.10044 \pm 1)\, t + (4.18 \pm 6) \times 10^{-4}\, t^2 - (3.3 \pm 12) \times 10^{-6}\, t^3 + (1.0 \pm 3) \times 10^{-6}\, t^4 - 0.0009079 \cos\omega$$

Standard error of one observation: $\sigma = \pm 2^{\prime}.80$.

The following elements are based on 20 observations and are valid for the period December 28, 1965, through January 1, 1966.

$$T_0 = 39124.0 \text{ MJD}$$

$$\omega = (309^\circ.9 \pm 2) - 1^\circ.21515\, t + 0^\circ.3227 \cos\omega$$

$$\Omega = (41^\circ.90 \pm 2) - 1^\circ.88798\, t + 0^\circ.0330 \cos\omega$$

$$i = (70^\circ.31 \pm 2) - 0^\circ.0020 \sin\omega$$

$$e = (0.12837 \pm 9) - (1.6 \pm 4) \times 10^{-4}\, t + 0.0007443 \sin\omega$$

$$M = (0.4580 \pm 6) + (13.133478 \pm 7)\, t + (3.93 \pm 4) \times 10^{-4}\, t^2 - 0.0009184 \cos\omega$$

Standard error of one observation: $\sigma = \pm 1^{\prime}.10$.

MJD	ω	Ω	i	e	M	n	n′/2	a	N	D	σ
38942.0	168.48 1	21.041 5	70.337 7	.13536 7	.14764 4	12.979099 4	.486E-3 2	6.613973	27	6	.65
38944.0	166.080 7	17.355 2	70.345 3	.13536 4	.10787 2	12.980976 6	.452E-3 2	7.648673	30	6	.56
38946.0	163.695 6	13.670 2	70.346 3	.13532 3	.07163 1	12.982758 4	.443E-3 2	7.647974	35	6	.72
38948.0	161.307 4	9.987 1	70.344 2	.13525 2	.03897 1	12.984714 2	.5118E-3 9	7.647206	49	6	.58
38950.0	158.922 4	6.303 1	70.343 2	.13515 2	.01044 1	12.986740 2	.505E-3 1	7.646411	63	6	.50
38952.0	156.551 7	2.615 2	70.339 2	.13511 3	.98588 2	12.988665 2	.471E-3 1	7.645655	74	6	.65
38954.0	154.18 1	358.930 2	70.335 3	.13511 4	.96506 5	12.990540 4	.466E-3 2	7.644919	57	6	.63
38956.0	151.75 2	355.239 2	70.339 5	.13508 6	.94816 7	12.992506 7	.510E-3 3	7.644148	38	6	.52
38958.0	149.34 9	351.546 3	70.347 9	.1351 2	.9353 4	12.99455 2	.504E-3 3	7.643348	17	6	.51
38960.0	147.03 7	347.857 2	70.348 8	.1350 2	.9261 3	12.99647 1	.478E-3 3	7.642595	22	6	.59
38962.0	144.63 6	344.169 4	70.35 1	.1350 2	.9210 2	12.99839 3	.490E-3 3	7.641843	22	6	.56
38964.0	142.26 3	340.480 3	70.361 7	.1348 2	.9197 1	13.00036 2	.489E-3 1	7.641072	39	6	.51
38966.0	139.89 2	336.786 6	70.36 1	.1345 2	.9223 1	13.00229 3	.472E-3 1	7.640314	58	6	.71
38968.0	137.49 1	333.095 4	70.363 7	.1345 2	.9288 7	13.00413 3	.445E-3 1	7.639594	67	6	.51
38970.0	135.10 1	329.406 6	70.369 7	.1344 2	.9388 6	13.00595 3	.4472E-3 9	7.638881	64	6	.53
38972.0	132.69 2	325.71 1	70.37 1	.1341 3	.95250 7	13.00770 4	.434E-3 2	7.638198	39	6	.72
38974.0	130.27 6	322.04 2	70.39 3	.1337 5	.96955 8	13.00941 5	.436E-3 3	7.637529	31	6	1.11
38976.0	127.87 3	318.314 8	70.350 8	.1343 1	.99043 6	13.01135 2	.474E-3 3	7.636766	16	6	.63
38978.0	125.59 5	314.59 1	70.33 1	.1343 2	.0147 1	13.01310 2	.464E-3 6	7.636083	14	8	1.00
38980.0	123.17 4	310.904 9	70.357 4	.1348 2	.0427 1	13.01477 2	.408E-3 6	7.635431	9	8	.33
38982.0											
38984.0											
38986.0	115.4 5	299.82 5	70.31 4	.1346 5	.147 2	13.01934 7	.32E-3 2	7.633643	13	6	.78
38988.0	113.2 3	296.12 2	70.32 2	.1347 2	.1863 7	13.02059 1	.331E-3 6	7.633154	25	6	.72
38990.0	111.10 9	292.383 8	70.340 9	.1344 1	.2279 4	13.021918 7	.335E-3 3	7.632636	41	6	.57
38992.0	108.89 5	288.678 5	70.337 6	.1340 1	.2725 2	13.023276 6	.336E-3 2	7.632105	64	6	.55
38994.0	106.51 4	284.974 4	70.331 6	.1339 1	.3203 2	13.024571 9	.302E-3 2	7.631599	69	6	.63
38996.0	104.15 3	281.264 3	70.333 4	.1338 1	.3705 1	13.025739 6	.283E-3 1	7.631143	56	6	.42
38998.0	101.72 1	277.555 2	70.333 4	.13383 7	.42328 6	13.02685 1	.281E-3 2	7.630709	41	6	.61
39000.0	99.350 9	273.845 1	70.337 3	.13370 5	.47804 3	13.027919 9	.244E-3 2	7.630292	44	6	.65
39002.0	96.973 8	270.135 1	70.341 3	.13363 5	.53481 2	13.02888 1	.240E-3 2	7.629919	37	6	.60

MJD	ω	Ω	i	e	M	n	n'/2	a	N	D	σ
39004.0	94.593 8	266.424 1	70.336 3	.13368 4	.59357 2	13.029912 4	.255E-3 1	7.629514	35	6	.53
39006.0	92.20 2	262.717 2	70.322 5	.13383 7	.65445 3	13.03090 1	.247E-3 2	7.629129	22	6	.56
39008.0	89.74 2	259.012 3	70.324 5	.13362 5	.71737 4	13.031977 8	.291E-3 3	7.628708	24	6	.78
39010.0	87.40 2	255.293 3	70.327 5	.13354 2	.78237 4	13.033194 4	.306E-3 3	7.628233	22	6	.72
39012.0	84.98 2	251.584 3	70.331 4	.13351 3	.84999 4	13.034331 5	.278E-3 2	7.627790	27	6	.82
39014.0	82.60 2	247.868 3	70.336 5	.13342 7	.91972 3	13.035406 6	.264E-3 1	7.627371	26	6	.81
39016.0	80.24 2	244.154 3	70.338 5	.13326 9	.99152 3	13.03654 1	.294E-3 1	7.626927	32	6	1.03
39018.0	77.82 1	240.439 2	70.338 3	.13323 8	.06585 3	13.03778 1	.310E-3 1	7.626446	27	6	.61
39020.0	75.45 2	236.728 3	70.341 6	.1329 2	.14281 8	13.03933 3	.393E-3 2	7.625840	38	6	1.28
39022.0	73.03 2	233.010 3	70.338 6	.1330 1	.22303 8	13.04089 1	.391E-3 2	7.625232	37	6	.66
39024.0	70.60 3	229.293 4	70.338 6	.1328 1	.3065 1	13.042369 9	.346E-3 2	7.624657	40	6	.50
39026.0	68.16 6	225.574 5	70.338 9	.1326 2	.3928 3	13.04377 1	.356E-3 2	7.624111	53	6	.72
39028.0	65.81 8	221.854 6	70.34 1	.1327 2	.4816 3	13.045293 8	.407E-3 2	7.623517	62	6	.79
39030.0	63.3 1	218.138 8	70.34 1	.1325 2	.5740 4	13.047050 9	.473E-3 2	7.622834	62	6	.84
39032.0	61.16 9	214.418 6	70.341 7	.1328 1	.6692 3	13.049052 5	.515E-3 2	7.622054	66	6	.57
39034.0	58.72 9	210.696 6	70.341 7	.13264 9	.7695 3	13.051086 3	.499E-3 2	7.621262	61	6	.52
39036.0	56.3 1	206.97 1	70.33 1	.1326 1	.8736 5	13.053184 4	.539E-3 2	7.620445	62	6	.68
39038.0	53.8 1	203.24 1	70.33 1	.13241 8	.9826 5	13.055401 3	.562E-3 2	7.619583	46	6	.48
39040.0	51.4 3	199.52 2	70.33 2	.1322 1	.096 1	13.057701 4	.590E-3 2	7.618688	37	6	.58
39042.0	48.8 3	195.80 2	70.34 2	.13212 7	.2141 9	13.060102 5	.609E-3 3	7.617755	32	6	.51
39044.0	46.1 2	192.05 2	70.32 2	.13204 5	.3377 9	13.062484 4	.579E-3 2	7.616828	38	6	.50
39046.0	44.0 2	188.33 1	70.33 1	.13195 5	.4641 6	13.064742 2	.559E-3 1	7.615951	45	6	.40
39048.0	41.5 2	184.58 2	70.32 2	.13193 9	.5959 7	13.066947 5	.540E-3 2	7.615094	47	6	.61
39050.0	39.43 3	180.883 4	70.347 4	.13171 4	.7308 1	13.069021 3	.497E-3 2	7.614290	45	6	.48
39052.0	37.01 1	177.149 3	70.346 3	.13160 3	.87092 5	13.070987 2	.487E-3 1	7.613526	49	6	.42
39054.0	34.59 1	173.407 2	70.338 2	.13150 4	.01487 5	13.072938 3	.487E-3 2	7.612768	63	6	.58
39056.0	32.22 1	169.672 1	70.338 2	.13145 3	.16250 4	13.074969 4	.602E-3 2	7.611980	82	6	.50
39058.0	29.82 1	165.936 1	70.337 2	.13132 2	.31480 4	13.077365 2	.598E-3 1	7.611051	107	6	.57
39060.0	27.41 1	162.197 1	70.335 2	.13124 2	.47190 4	13.079682 2	.562E-3 1	7.610152	107	6	.56
39062.0	25.01 1	158.459 1	70.333 2	.13107 2	.63349 5	13.081896 2	.545E-3 1	7.609294	82	6	.54
39064.0	22.60 2	154.717 1	70.333 2	.13097 2	.79943 6	13.084036 2	.526E-3 1	7.608464	60	6	.48

II. SAO mean elements -- Satellite 1962 Beta Tau 2

November 2-December 30, 1965

MJD	ω	Ω	i	e	M	n	n′/2	a	N	D	σ
39066.0	20.22 2	150.975 1	70.336 3	.13085 2	.96947 8	13.086125 2	.521E-3 1	7.607654	43	6	.50
39068.0	17.83 4	147.231 2	70.336 3	.13067 3	.1437 1	13.088193 4	.511E-3 2	7.606853	26	6	.53
39070.0	15.2 1	143.485 5	70.33 1	.1303 1	.3228 5	13.090435 9	.607E-3 5	7.605984	24	6	1.38
39072.0	12.7 2	139.746 7	70.31 2	.1301 2	.5064 8	13.09280 1	.603E-3 6	7.605066	20	6	1.38
39074.0	10.2 2	135.994 8	70.29 3	.1300 2	.6948 9	13.09489 1	.488E-3 6	7.604258	17	6	1.45
39076.0	7.85 7	132.240 6	70.29 1	.13012 7	.8862 3	13.09673 2	.43E-3 1	7.603547	10	6	.64
39078.0	5.59 8	128.45 1	70.32 2	.13037 9	.0811 2	13.09857 2	.447E-3 3	7.602834	10	8	1.84
39080.0	3.32 6	124.72 1	70.33 1	.13004 8	.2798 1	13.10041 1	.429E-3 6	7.602124	8	8	1.63
39082.0	.87 8	120.97 1	70.33 1	.12991 8	.4824 2	13.10213 2	.429E-3 6	7.601457	7	8	1.60
39084.0											
39120.0											
39122.0	312.3 2	45.69 2	70.32 2	.1283 1	.1927 7	13.13188 3	.41E-3 1	7.589976	12	6	.46
39124.0	310.1 2	41.93 2	70.31 2	.12779 9	.4573 6	13.133478 7	.393E-3 4	7.589360	20	6	.44

Satellite 1963 26A (Geophysics Research)

I. SAO smoothed elements

The following elements are based on 157 observations and are valid for the period July 1 through August 1, 1965.

$$T_0 = 38957.0 \text{ MJD}$$
$$\omega = (240^\circ.04 \pm 1) + (3^\circ.520 \pm 2)\, t + 0^\circ.6 \times 10^{-5}\, t^2 + 0^\circ.7441 \cos \omega$$
$$\Omega = (139^\circ.871 \pm 1) - (4^\circ.1789 \pm 1)\, t - 0^\circ.8 \times 10^{-5}\, t^2 + 0^\circ.0117 \cos \omega$$
$$i = (49^\circ.7354 \pm 8) - 0^\circ.0023 \sin \omega$$
$$e = (0.06073 \pm 2) - (0.45 \pm 24) \times 10^{-5}\, t + 0.0007943 \sin \omega$$
$$M = (0.83766 \pm 4) + (14.115570 \pm 5)\, t + (0.414 \pm 3) \times 10^{-5}\, t^2 - (0.48 \pm 3) \times 10^{-7}\, t^3 - 0.002078 \cos \omega$$

Standard error of one observation: $\sigma = \pm 1''.58$.

The following elements are based on 59 observations and are valid for the period August 1 through September 1, 1965.

$$T_0 = 38988.0 \text{ MJD}$$
$$\omega = (348^\circ.95 \pm 2) + (3^\circ.514 \pm 2)\, t + 0^\circ.2 \times 10^{-5}\, t^2 + 0^\circ.7442 \cos \omega$$
$$\Omega = (10^\circ.318 \pm 2) - (4^\circ.1789 \pm 2)\, t - 0^\circ.2 \times 10^{-5}\, t^2 + 0^\circ.0117 \cos \omega$$
$$i = (49^\circ.740 \pm 2) - 0^\circ.0024 \sin \omega$$
$$e = (0.06074 \pm 2) - (0.46 \pm 20) \times 10^{-5}\, t + 0.0007946 \sin \omega$$
$$M = (0.42436 \pm 5) + (14.115823 \pm 5)\, t + (0.504 \pm 4) \times 10^{-5}\, t^2 + (0.83 \pm 62) \times 10^{-8}\, t^3 - 0.0020781 \cos \omega$$

Standard error of one observation: $\sigma = \pm 2''.20$.

The following elements are based on 77 observations and are valid for the period September 1 through October 1, 1965.

$$T_0 = 39019.0 \text{ MJD}$$

$$\omega = (97^\circ.92 \pm 2) + (3^\circ.522 \pm 2)\, t + 0^\circ.7 \times 10^{-5}\, t^2 + 0^\circ.7449 \cos \omega$$

$$\Omega = (240^\circ.769 \pm 2) - (4^\circ.1789 \pm 4)\, t - 0^\circ.8 \times 10^{-5}\, t^2 + 0^\circ.0117 \cos \omega$$

$$i = (49^\circ.742 \pm 2) - 0^\circ.0023 \sin \omega$$

$$e = (0.06069 \pm 1) - (0.01 \pm 23) \times 10^{-5}\, t + 0.0007947 \sin \omega$$

$$M = (0.02010 \pm 5) + (14.116180 \pm 6)\, t + (0.828 \pm 6) \times 10^{-5}\, t^2 + (0.50 \pm 5) \times 10^{-7}\, t^3 - 0.0020801 \cos \omega$$

Standard error of one observation: $\sigma = \pm 2''.15$.

The following elements are based on 125 observations and are valid for the period October 1 through November 1, 1965.

$$T_0 = 39049.0 \text{ MJD}$$

$$\omega = (203^\circ.33 \pm 2) + (3^\circ.500 \pm 3)\, t + 0^\circ.7 \times 10^{-5}\, t^2 + 0^\circ.7447 \cos \omega$$

$$\Omega = (115^\circ.381 \pm 2) - (4^\circ.1800 \pm 4)\, t - 0^\circ.9 \times 10^{-5}\, t^2 + 0^\circ.0117 \cos \omega$$

$$i = (49^\circ.739 \pm 2) - 0^\circ.0023 \sin \omega$$

$$e = (0.06070 \pm 2) - (0.53 \pm 21) \times 10^{-5}\, t + 0.0007945 \sin \omega$$

$$M = (0.51557 \pm 4) + (14.116917 \pm 7)\, t + (0.1428 \pm 6) \times 10^{-4}\, t^2 + (0.115 \pm 6) \times 10^{-6}\, t^3 - 0.002080 \cos \omega$$

Standard error of one observation: $\sigma = \pm 2''.58$.

The following elements are based on 116 observations and are valid for the period November 1 through December 1, 1965.

$$T_0 = 39080.0 \text{ MJD}$$

$$\omega = (312^\circ.38 \pm 1) + (3^\circ.523 \pm 2)\, t + 0^\circ.9 \times 10^{-5}\, t^2 + 0^\circ.7459 \cos \omega$$

$$\Omega = (345^\circ.797 \pm 3) - (4^\circ.1804 \pm 5)\, t - 0^\circ.11 \times 10^{-4}\, t^2 + 0^\circ.0117 \cos \omega$$

$$i = (49^\circ.738 \pm 3) - 0^\circ.0023 \sin \omega$$

$$e = (0.06060 \pm 3) + (0.23 \pm 30) \times 10^{-5}\, t + 0.0007945 \sin \omega$$

$$M = (0.15488 \pm 4) + (14.117952 \pm 5)\, t + (0.1888 \pm 6) \times 10^{-4}\, t^2 + (0.28 \pm 7) \times 10^{-7}\, t^3 - 0.0020829 \cos \omega$$

Standard error of one observation: $\sigma = \pm 3''.00$.

The following elements are based on 191 observations and are valid for the period December 1, 1965, through January 1, 1966.

$$T_0 = 39110.0 \text{ MJD}$$

$$\omega = (57^\circ.80 \pm 1) + (3^\circ.524 \pm 1)\, t + 0^\circ.3 \times 10^{-5}\, t^2 + 0^\circ.7443 \cos \omega$$

$$\Omega = (220^\circ.370 \pm 2) - (4^\circ.1812 \pm 2)\, t - 0^\circ.4 \times 10^{-5}\, t^2 + 0^\circ.0117 \cos \omega$$

$$i = (49^\circ.738 \pm 1) - 0^\circ.0024 \sin \omega$$

$$e = (0.06073 \pm 2) - (0.12 \pm 2) \times 10^{-4}\, t + 0.0007946 \sin \omega$$

$$M = (0.71187 \pm 4) + (14.119072 \pm 4)\, t + (0.1378 \pm 4) \times 10^{-4}\, t^2 - (0.114 \pm 4) \times 10^{-6}\, t^3 - 0.0020785 \cos \omega$$

Standard error of one observation: $\sigma = \pm 2''.35$.

MJD	ω	Ω	i	e	M	n	n'/2	a	N	D	σ
38944.0	193.619 8	194.183 1	49.737 1	.06057 2	.33789 3	14.115472 2	.22E-5 7	6.793832	62	6	.50
38948.0	207.739 8	177.469 1	49.737 1	.06037 1	.79963 2	14.115493 2	.47E-5 5	6.795269	63	6	.50
38952.0	221.90 2	160.753 3	49.738 2	.06027 4	.26141 6	14.115547 5	.9E-5 2	6.795999	32	6	.86
38956.0	235.9 2	144.01 4	49.75 2	.0605 4	.7241 7	14.11560 2	.11E-4 3	6.794227	17	6	.89
38960.0	250.4 4	127.31 4	49.74 2	.0598 7	.185 1	14.11565 2	-.1E-5 3	6.799622	19	6	.74
38964.0	264.7 4	110.59 2	49.75 1	.0600 5	.647 1	14.11564 1	.5E-5 2	6.797751	22	6	.83
38968.0	278.1 2	93.918 9	49.727 8	.0601 3	.1095 7	14.115651 7	.6E-5 2	6.797281	29	6	.52
38972.0	293.07 3	77.195 8	49.73 1	.06001 5	.5714 1	14.115699 8	.5E-5 2	6.797817	17	6	.55
38976.0	307.24 1	60.477 2	49.739 3	.06009 2	.03392 3	14.115706 2	-.1E-5 1	6.797216	19	6	.46
38980.0	321.39 3	43.760 2	49.740 3	.06031 6	.49652 9	14.115747 8	.9E-5 2	6.795581	18	6	.63
38984.0	335.3 3	27.03 3	49.73 3	.0614 7	.960 1	14.11584 7	.11E-4 2	6.788021	11	6	.62
38988.0	349.74 8	10.32 1	49.74 2	.06061 6	.4222 2	14.11582 1	.3E-5 4	6.793428	8	6	.81
38992.0	3. 1	353.63 2	49.75 1	.0611 9	.887 3	14.11586 1	.9E-5 4	6.789989	6	6	.63
38996.0	17.8 2	336.93 3	49.75 2	.0609 1	.3492 5	14.11596 2	.9E-5 7	6.791628	7	6	2.03
39000.0	31.92 7	320.24 3	49.726 5	.06120 9	.8127 2	14.11596 1	-.2E-5 2	6.789133	10	6	.52
39004.0	45.77 4	303.43 1	49.761 9	.0614 5	.2773 2	14.11597 7	.3E-5 2	6.787416	13	6	.61
39008.0	59.65 4	286.739 5	49.740 7	.06141 2	.7417 1	14.116035 3	.13E-4 1	6.787583	16	6	.55
39012.0	73.51 2	270.021 2	49.741 2	.06143 1	.20658 7	14.116105 2	.3E-5 1	6.787362	12	6	.49
39016.0	87.39 6	253.304 4	49.741 4	.06152 2	.6716 2	14.116147 3	.1E-5 2	6.786734	16	6	1.12
39020.0	101.1 1	236.595 6	49.72 1	.06153 5	.1371 3	14.116225 4	.7E-5 2	6.786661	15	6	1.03
39024.0	115.21 2	219.858 6	49.732 5	.06144 4	.60213 6	14.116291 7	.7E-5 1	6.787269	23	6	.45
39028.0	129.2 1	203.15 3	49.74 2	.062 1	.0672 5	14.11640 8	.6E-5 2	6.781877	15	6	.59
39032.0	143.1 3	186.3 1	49.70 4	.059 2	.534 1	14.1166 2	.19E-4 2	6.804656	10	6	.49

MJD	ω	Ω	i	e	M	n	n′/2	a	N	D	σ
39036.0	157.0 2	169.70 3	49.742 9	.0611 1	.0001 5	14.116566 9	-.1E-4 1	6.789871	10	6	.94
39040.0	170.6 4	152.95 1	49.756 8	.0603 3	.468 1	14.116656 2	.14E-4 2	6.795065	11	6	.47
39044.0	185.09 4	136.280 7	49.723 7	.06056 3	.9334 1	14.116729 4	.13E-4 1	6.793455	20	6	.71
39048.0	199.25 3	119.542 3	49.741 2	.06032 3	.40030 8	14.116855 2	.15E-4 1	6.795174	20	6	.52
39052.0	213.36 2	102.830 2	49.741 2	.06018 2	.86780 4	14.116964 2	.10E-4 1	6.796159	30	6	.56
39056.0	227.52 2	86.110 3	49.741 4	.06000 4	.33555 7	14.117067 4	.17E-4 1	6.797441	31	6	.70
39060.0	241.8 2	69.397 7	49.746 6	.0599 1	.8035 8	14.117244 3	.25E-4 1	6.798000	34	6	.56
39064.0	256.6 9	52.69 4	49.75 2	.0601 4	.271 3	14.117393 7	.12E-4 4	6.796456	22	6	1.14
39068.0	270.14 4	36.00 2	49.742 5	.0598 1	.74207 9	14.117520 7	.15E-4 3	6.798421	17	6	1.07
39072.0	284.37 3	19.24 2	49.743 7	.05982 7	.21196 9	14.117674 4	.20E-4 2	6.798548	20	6	1.18
39076.0	298.57 3	2.52 1	49.74 1	.0599 1	.68259 8	14.117828 7	.24E-4 4	6.798100	27	6	1.41
39080.0	312.85 1	345.798 4	49.749 4	.06002 4	.15364 4	14.117987 2	.16E-4 1	6.796979	20	6	.51
39084.0	327.05 2	329.084 1	49.742 2	.06016 3	.62542 5	14.118109 2	.182E-4 9	6.795948	29	6	.43
39088.0	341.20 1	312.361 2	49.738 2	.06038 2	.09791 4	14.118276 2	.221E-4 8	6.794317	32	6	.45
39092.0	355.33 2	295.645 4	49.740 5	.06052 3	.57117 6	14.118459 2	.22E-4 1	6.793189	19	6	.50
39096.0	9.28 5	278.930 7	49.76 1	.06066 6	.0456 1	14.118615 6	.21E-4 3	6.792135	14	6	.63
39100.0	23.1 3	262.17 2	49.72 1	.0609 1	.521 1	14.118753 5	.19E-4 1	6.790307	20	6	.51
39104.0	37.40 3	245.453 6	49.729 3	.06105 3	.99573 8	14.118932 3	.23E-4 2	6.789204	29	6	.49
39108.0	51.30 2	228.738 2	49.735 1	.06119 2	.47225 5	14.119067 2	.11E-4 1	6.788198	32	6	.48
39112.0	65.22 1	212.016 1	49.735 1	.06137 2	.94904 3	14.119137 2	.113E-4 9	6.786872	48	6	.50
39116.0	79.12 1	195.290 2	49.735 2	.06144 2	.42626 4	14.119246 2	.135E-4 8	6.786294	48	6	.49
39120.0	92.98 3	178.558 2	49.733 1	.06142 1	.90402 8	14.119334 2	.79E-5 8	6.786452	48	6	.48
39124.0	106.87 2	161.829 2	49.734 1	.06140 2	.38202 6	14.119429 2	.138E-4 9	6.786518	46	6	.63

Satellite 1963 30D

I. SAO smoothed elements

The following elements are based on 234 observations and are valid for the period July 1 through August 1, 1965.

$T_0 = 38957.0$ MJD

$\omega = (20^\circ.50 \pm 2) - 1^\circ.01411\ t + 0^\circ.5898 \cos \omega$

$\Omega = (11^\circ.274 \pm 1) - 0^\circ.06693\ t + 0^\circ.0003 \cos \omega$

$i = (88^\circ.122 \pm 2) - 0^\circ.0001 \sin \omega$

$e = (0.07798 \pm 2) - (1.60 \pm 1) \times 10^{-4}\ t + 0.0007955 \sin \omega$

$M = (0.28362 \pm 4) + (8.5909742 \pm 6)\ t - (1.6 \pm 4) \times 10^{-7}\ t^2 + (2.2 \pm 4) \times 10^{-8}\ t^3 - 0.0016201 \cos \omega$

Standard error of one observation: $\sigma = \pm 1''.65$.

The following elements are based on 696 observations and are valid for the period August 1 through September 1, 1965.

$T_0 = 38988.0$ MJD

$\omega = (344^\circ.28 \pm 7) - 1^\circ.01276\ t + 0^\circ.6181 \cos \omega$

$\Omega = (9^\circ.177 \pm 3) - 0^\circ.06830\ t + 0^\circ.0003 \cos \omega$

$i = (88^\circ.075 \pm 5) - 0^\circ.0001 \sin \omega$

$e = (0.07434 \pm 5) - (7.5 \pm 5) \times 10^{-5}\ t + 0.0007953 \sin \omega$

$M = (0.6156 \pm 2) + (8.590946 \pm 3)\ t - (5.5 \pm 3) \times 10^{-6}\ t^2 - (2.1 \pm 45) \times 10^{-8}\ t^3 + (2.6 \pm 1) \times 10^{-8}\ t^4 + (7.6 \pm 16) \times 10^{-10}\ t^5 - 0.0016995 \cos \omega$

Standard error of one observation: $\sigma = \pm 4''.70$.

The following elements are based on 610 observations and are valid for the period September 1 through October 1, 1965.

T_0 = 39019.0 MJD

ω = (307°.531 ± 6) - 1°.01387 t + 0°.5924 cos ω

Ω = (7°.040 ± 4) - 0°.06984 t + 0°.0003 cos ω

i = (88°.040 ± 4) - 0°.0001 sin ω

e = (0.07763 ± 4) + (4.4 ± 4) × 10^{-5} t + 0.0007955 sin ω

M = (0.960512 ± 7) + (8.592086 ± 3) t + (4.19 ± 3) × 10^{-5} t^2 + (1.97 ± 4) × 10^{-6} t^3 + (2.0 ± 1) × 10^{-8} t^4 - (2.3 ± 1) × 10^{-9} t^5 - 0.0016274 cos ω

Standard error of one observation: σ = ± 5!28.

The following elements are based on 398 observations and are valid for the period October 1 through November 1, 1965.

T_0 = 39049.0 MJD

ω = (275°.28 ± 2) - 1°.01790 t + 0°.5358 cos ω

Ω = (4°.940 ± 2) - 0°.06990 t + 0°.0004 cos ω

i = (88°.047 ± 2) - 0°.0001 sin ω

e = (0.08606 ± 5) + (2.70 ± 6) × 10^{-4} t + 0.0007960 sin ω

M = (0.78942 ± 4) + (8.596254 ± 2) t + (8.43 ± 2) × 10^{-5} t^2 + (5.56 ± 8) × 10^{-7} t^3 - (3.27 ± 8) × 10^{-8} t^4 - 0.0014683 cos ω

Standard error of one observation: σ = ± 3!80.

The following elements are based on 863 observations and are valid for the period November 1 through December 1, 1965.

T_0 = 39080.0 MJD

ω = (246°.11 ± 3) - 1°.02208 t + 0°.4865 cos ω

Ω = (2°.742 ± 1) - 0°.06968 t + 0°.0004 cos ω

i = (88°.050 ± 2) - 0°.0001 sin ω

e = (0.09509 ± 4) + (3.0 ± 3) × 10^{-5} t + 0.0007966 sin ω

M = (0.32955 ± 9) + (8.5992785 ± 8) t + (1.9 ± 1) × 10^{-6} t^2 - (2.86 ± 4) × 10^{-7} t^3 + (1.28 ± 5) × 10^{-8} t^4 - 0.0013291 cos ω

Standard error of one observation: σ = ± 1!78.

The following elements are based on 801 observations and are valid for the period December 1, 1965, through January 1, 1966.

$$T_0 = 39110.0 \text{ MJD}$$

$$\omega = (219^\circ.380 \pm 4) - 1^\circ.02227\, t + 0^\circ.4821 \cos\omega$$

$$\Omega = (0^\circ.572 \pm 2) - 0^\circ.07130\, t + 0^\circ.0004 \cos\omega$$

$$i = (87^\circ.999 \pm 3) - 0^\circ.0002 \sin\omega$$

$$e = (0.09598 \pm 3) - (8.1 \pm 4) \times 10^{-5}\, t + 0.0007966 \sin\omega$$

$$M = (0.294666 \pm 9) + (8.599215 \pm 1)\, t - (3.9 \pm 2) \times 10^{-6}\, t^2 + (9.3 \pm 84) \times 10^{-9}\, t^3 + (1.8 \pm 10) \times 10^{-9}\, t^4 - 0.0013166 \cos\omega$$

Standard error of one observation: $\sigma = \pm 4!15$.

MJD	ω	Ω	i	e	M	n	n′/2	a	N	D	σ
38942.0	36.00 2	12.297 2	88.149 5	.08073 3	.41813 7	8.591001 4	-.5E-5 2	9.258279	43	6	.57
38946.0	32.20 2	12.025 3	88.137 5	.08018 4	.78137 5	8.590996 5	.2E-5 2	10.071340	35	6	.57
38950.0	28.26 1	11.755 2	88.134 3	.07945 3	.14497 4	8.590974 4	-.1E-5 1	10.071357	38	6	.40
38954.0	24.27 3	11.485 3	88.124 4	.07878 3	.50873 7	8.590983 4	-.2E-5 2	10.071350	29	6	.49
38958.0	20.22 6	11.216 3	88.119 5	.07809 5	.8726 1	8.590981 4	-.2E-5 2	10.071351	26	6	.49
38962.0	16.01 8	10.943 2	88.116 5	.07737 4	.2369 2	8.590966 4	.1E-5 2	10.071363	41	6	.50
38966.0	11.58 2	10.671 1	88.108 2	.07657 2	.60168 6	8.590976 2	.1E-5 1	10.071355	60	6	.42
38970.0	7.48 2	10.397 1	88.107 2	.07592 2	.96570 6	8.590981 1	-.1E-6 8	10.071351	84	6	.44
38974.0	2.84 4	10.126 1	88.103 2	.07525 1	.33105 9	8.590976 1	-.2E-6 8	10.071354	81	6	.46
38978.0	358.00 4	9.8566 8	88.093 2	.07472 1	.69685 9	8.590979 1	.14E-5 6	10.071352	113	6	.43
38982.0	353.36 4	9.5821 9	88.092 2	.07430 1	.06220 9	8.590982 1	.4E-6 9	10.071350	112	6	.48
38986.0	348.47 4	9.310 1	88.090 2	.07396 2	.4282 1	8.590975 1	-.24E-5 8	10.071355	130	6	.59
38990.0	343.56 4	9.037 1	88.086 2	.07375 2	.79409 9	8.590919 2	-.94E-5 9	10.071399	135	6	.57
38994.0	338.61 3	8.765 2	88.072 3	.07371 2	.15986 9	8.590893 3	.3E-5 1	10.071419	111	6	.61
38998.0	333.55 3	8.495 2	88.074 3	.07400 3	.52602 6	8.591042 4	.213E-4 7	10.071303	152	6	.43
39002.0	328.69 3	8.221 2	88.066 3	.07415 4	.89238 6	8.591307 6	.361E-4 7	10.071096	135	6	.42
39006.0	323.76 3	7.946 2	88.058 3	.07457 3	.25997 7	8.591476 4	.27E-4 1	10.070964	137	6	.57
39010.0	318.98 3	7.669 3	88.052 3	.07511 3	.62807 7	8.591661 4	.21E-4 1	10.070819	132	6	.58
39014.0	314.05 3	7.391 3	88.045 3	.07583 4	.99719 7	8.591807 6	.20E-4 1	10.070705	97	6	.56
39018.0	309.28 3	7.118 3	88.044 3	.07652 5	.36657 9	8.592011 5	.28E-4 2	10.070546	80	6	.58
39022.0	304.55 2	6.839 2	88.043 3	.07754 3	.73694 5	8.59280 3	.62E-4 1	10.069928	128	6	.48
39026.0	299.92 2	6.553 2	88.039 2	.07868 3	.10898 5	8.59324 2	.84E-4 1	10.069583	120	6	.42
39030.0	295.45 2	6.275 2	88.036 1	.07973 4	.48318 4	8.59383 2	.88E-4 1	10.069128	96	6	.41

MJD	ω	Ω	i	e	M	n	n'/2	a	N	D	σ
39034.0	291.01 1	5.999 1	88.035 1	.08091 3	.86011 3	8.59452 2	.675E-4 9	10.068584	124	6	.42
39038.0	286.61 1	5.716 1	88.036 1	.08223 3	.23914 3	8.59492 1	.578E-4 8	10.068272	107	6	.40
39042.0	282.34 1	5.441 2	88.037 2	.08348 5	.61973 3	8.59533 2	.55E-4 1	10.067957	54	6	.41
39046.0	278.14 2	5.157 2	88.045 2	.08482 5	.00193 4	8.59573 2	.70E-4 1	10.067640	50	6	.38
39050.0	274.04 1	4.875 2	88.044 2	.08621 5	.38613 3	8.59631 2	.90E-4 1	10.067191	73	6	.47
39054.0	270.12 1	4.585 3	88.056 3	.08758 6	.77272 4	8.59696 2	.93E-4 2	10.066681	51	6	.45
39058.0	266.23 1	4.303 2	88.055 2	.08879 8	.16226 4	8.59772 3	.80E-4 1	10.066096	46	6	.50
39062.0	262.39 1	4.027 2	88.054 2	.08983 6	.55426 5	8.59819 3	.50E-4 2	10.065724	67	6	.44
39066.0	258.54 1	3.745 2	88.057 2	.09089 6	.94792 5	8.598803 7	.38E-4 2	10.065248	138	6	.61
39070.0	254.76 1	3.462 2	88.062 2	.09186 7	.34265 7	8.599090 7	.34E-4 1	10.065024	104	6	.70
39074.0	251.27 2	3.178 1	88.061 2	.09322 5	.73726 6	8.599222 5	.12E-4 1	10.064921	178	6	.56
39078.0	247.49 2	2.893 2	88.059 2	.09373 5	.13318 8	8.599263 4	.4E-5 1	10.064890	231	6	.61
39082.0	244.08 2	2.605 1	88.052 2	.09458 4	.52794 6	8.599288 3	.3E-5 1	10.064870	186	6	.47
39086.0	240.30 2	2.322 1	88.052 2	.09507 3	.92398 7	8.599292 3	.23E-5 8	10.064867	231	6	.45
39090.0	236.96 2	2.031 1	88.042 2	.09567 3	.31862 7	8.599293 2	.11E-5 9	10.064867	200	6	.44
39094.0	233.31 2	1.747 1	88.044 2	.09594 2	.71427 6	8.599295 2	-.1E-6 7	10.064866	219	6	.43
39098.0	229.98 1	1.455 1	88.033 2	.09620 2	.10889 4	8.599282 2	-.4E-5 1	10.064876	199	6	.46
39102.0	225.997 9	1.171 1	88.033 2	.09596 2	.50562 3	8.599276 2	.12E-5 9	10.064880	174	6	.44
39106.0	222.45 1	.871 2	88.022 2	.09592 2	.90085 5	8.599242 2	.1E-5 1	10.064907	170	6	.57
39110.0	218.82 1	.579 2	88.013 2	.09562 2	.29627 4	8.599218 2	-.6E-5 1	10.064925	135	6	.51
39114.0	214.99 1	.289 1	88.005 2	.09515 2	.69224 3	8.599201 2	-.4E-5 1	10.064939	146	6	.46
39118.0	211.10 1	359.997 1	87.997 2	.09465 2	.08835 3	8.599167 2	-.2E-5 1	10.064965	128	6	.53
39122.0	207.212 8	359.708 1	87.992 1	.09398 2	.48432 3	8.599133 3	-.4E-6 9	10.064991	115	6	.43

Satellite 1963 53A (Explorer 19)

I. SAO smoothed elements

The following elements are based on 406 observations and are valid for the period July 1 through August 1, 1965.

$T_0 = 38957.0$ MJD

$\omega = (111^\circ.949 \pm 7) - 1^\circ.99287\, t + 0^\circ.5446 \cos\omega$

$\Omega = (241^\circ.496 \pm 1) - 0^\circ.97298\, t + 0^\circ.0059 \cos\omega$

$i = (78^\circ.647 \pm 2) - 0^\circ.0013 \sin\omega$

$e = (0.10744 \pm 3) - (4.0 \pm 3) \times 10^{-5}\, t + 0.0010028 \sin\omega$

$M = (0.86832 \pm 2) + (12.496896 \pm 1)\, t + (2.35 \pm 1) \times 10^{-5}\, t^2 + (2.79 \pm 4) \times 10^{-7}\, t^3 - (8.2 \pm 5) \times 10^{-9}\, t^4 - 0.0014820 \cos\omega$

Standard error of one observation: $\sigma = \pm 2''.70$.

The following elements are based on 350 observations and are valid for the period August 1 through September 1, 1965.

$T_0 = 38988.0$ MJD

$\omega = (50^\circ.474 \pm 9) - 1^\circ.99343\, t + 0^\circ.5470 \cos\omega$

$\Omega = (211^\circ.3631 \pm 9) - 0^\circ.97289\, t + 0^\circ.0059 \cos\omega$

$i = (78^\circ.645 \pm 1) - 0^\circ.0012 \sin\omega$

$e = (0.10694 \pm 2) + (5.7 \pm 13) \times 10^{-6}\, t + 0.0010028 \sin\omega$

$M = (0.29779 \pm 3) + (12.4988168 \pm 8)\, t + (4.433 \pm 9) \times 10^{-5}\, t^2 + (3.93 \pm 5) \times 10^{-7}\, t^3 + (3.6 \pm 5) \times 10^{-9}\, t^4 - 0.0014890 \cos\omega$

Standard error of one observation: $\sigma = \pm 2''.18$.

The following elements are based on 231 observations and are valid for the period September 1 through October 1, 1965.

T_0 = 39019.0 MJD

ω = (349°.36 ± 3) - 1°.99465 t + 0°.5472 cos ω

Ω = (181°.203 ± 3) - 0°.97423 t + 0°.0059 cos ω

i = (78°.659 ± 2) - 0°.0012 sin ω

e = (0.10696 ± 3) - (5.0 ± 3) $\times 10^{-5}$ t + 0.0010033 sin ω

M = (0.81733 ± 9) + (12.502886 ± 1) t + (6.09 ± 2) $\times 10^{-5}$ t^2 - (8.12 ± 7) $\times 10^{-7}$ t^3 - (1.17 ± 8) $\times 10^{-8}$ t^4 - 0.0014894 cos ω

Standard error of one observation: σ = ± 2!03.

The following elements are based on 651 observations and are valid for the period October 1 through November 1, 1965.

T_0 = 39049.0 MJD

ω = (290°.802 ± 5) - 1°.99461 t + 0°.5528 cos ω

Ω = (152°.0447 ± 7) - 0°.97308 t + 0°.0059 cos ω

i = (78°.6448 ± 9) - 0°.0012 sin ω

e = (0.10581 ± 2) - (5.8 ± 2) $\times 10^{-5}$ t + 0.0010031 sin ω

M = (0.92835 ± 2) + (12.5040589 ± 8) t + (1.0 ± 1) $\times 10^{-6}$ t^2 + (1.66 ± 1) $\times 10^{-6}$ t^3 + (5.04 ± 6) $\times 10^{-8}$ t^4 - (3.39 ± 5) $\times 10^{-9}$ t^5 - 0.0015053 cos ω

Standard error of one observation: σ = ± 1!73.

The following elements are based on 313 observations and are valid for the period November 1 through December 1, 1965.

T_0 = 39080.0 MJD

ω = (229°.18 ± 1) - 1°.99589 t + 0°.5573 cos ω

Ω = (121°.904 ± 1) - 0°.97207 t + 0°.0058 cos ω

i = (78°.655 ± 2) - 0°.0012 sin ω

e = (0.10496 ± 1) + (2.9 ± 14) $\times 10^{-6}$ t + 0.0010033 sin ω

M = (0.58713 ± 4) + (12.5066175 ± 8) t + (5.25 ± 1) $\times 10^{-5}$ t^2 + (5.2 ± 5) $\times 10^{-8}$ t^3 - (1.7 ± 6) $\times 10^{-9}$ t^4 - 0.0015181 cos ω

Standard error of one observation: σ = ± 2!13.

The following elements are based on 194 observations and are valid for the period December 1, 1965, through January 1, 1966.

$$T_0 = 39110.0 \text{ MJD}$$

$$\omega = (170^\circ.04 \pm 3) - 1^\circ.99850\, t + 0^\circ.5598 \cos\omega$$

$$\Omega = (92^\circ.740 \pm 3) - 0^\circ.97121\, t + 0^\circ.0058 \cos\omega$$

$$i = (78^\circ.664 \pm 3) - 0^\circ.0012 \sin\omega$$

$$e = (0.10450 \pm 3) - (4.82 \pm 2) \times 10^{-5}\, t + 0.0010037 \sin\omega$$

$$M = (0.8327 \pm 1) + (12.509723 \pm 1)\, t + (2.25 \pm 2) \times 10^{-5}\, t^2 - (1.052 \pm 7) \times 10^{-6}\, t^3 + (9.5 \pm 7) \times 10^{-9}\, t^4 - 0.0015252 \cos\omega$$

Standard error of one observation: $\sigma = \pm 2''.33$.

MJD	ω	Ω	i	e	M	n	n'/2	a	N	D	σ
38942.0	140.95 2	256.074 5	78.642 6	.1084 2	.42134 7	12.49638 4	3.3E-5 2	7.845413	49	4	.46
38943.0	138.99 2	255.100 5	78.639 6	.1084 2	.91765 6	12.49642 4	3.0E-5 2	7.845399	43	4	.44
38944.0	137.04 1	254.132 4	78.645 5	.1086 2	.41402 6	12.49642 6	2.1E-5 2	7.845399	43	4	.40
38945.0	135.12 1	253.153 3	78.639 5	.1087 1	.91036 4	12.49646 3	1.1E-5 2	7.845381	50	4	.38
38946.0	133.17 1	252.180 3	78.636 4	.1087 1	.40678 4	12.49653 2	8.E-6 2	7.845350	57	4	.39
38947.0	131.22 1	251.208 3	78.639 5	.10874 7	.90317 4	12.49655 2	1.8E-5 2	7.845344	57	4	.46
38948.0	129.32 1	250.237 2	78.641 3	.10871 5	.39948 4	12.49655 1	2.0E-5 2	7.845343	63	4	.45
38949.0	127.38 1	249.266 2	78.644 3	.10859 3	.89589 3	12.49660 1	1.6E-5 2	7.845321	64	4	.47
38950.0	125.43 1	248.298 2	78.647 3	.10858 4	.39238 3	12.49666 1	2.2E-5 2	7.845299	65	4	.52
38951.0	123.474 9	247.323 2	78.645 2	.10857 3	.88896 3	12.496678 8	1.3E-5 2	7.845290	69	4	.49
38952.0	121.520 9	246.348 2	78.640 2	.10850 3	.38554 3	12.496691 9	7.E-6 2	7.845284	74	4	.49
38953.0	119.57 1	245.377 1	78.642 2	.10844 3	.88212 3	12.496725 9	1.E-6 3	7.845270	75	4	.54
38954.0	117.614 8	244.405 1	78.640 2	.10841 3	.37874 3	12.496754 7	1.2E-5 2	7.845258	76	4	.53
38955.0	115.640 7	243.434 1	78.641 2	.10844 3	.87545 2	12.496788 7	2.6E-5 2	7.845244	73	4	.45
38956.0	113.703 7	242.462 1	78.640 2	.10835 3	.37207 3	12.496846 7	3.1E-5 2	7.845219	69	4	.47
38957.0	111.740 7	241.4887 9	78.640 2	.10839 3	.86886 2	12.496911 8	3.6E-5 2	7.845192	68	4	.45
38958.0	109.798 8	240.517 1	78.640 2	.10832 4	.36564 3	12.496956 9	2.2E-5 2	7.845173	63	4	.50
38959.0	107.846 8	239.546 1	78.639 2	.10831 4	.86250 3	12.496996 9	2.5E-5 2	7.845156	64	4	.47
38960.0	105.893 7	238.574 1	78.637 2	.10829 4	.35941 2	12.497048 9	2.8E-5 2	7.845135	67	4	.44
38961.0	103.927 7	237.6023 9	78.639 2	.10817 4	.85638 2	12.497111 9	3.2E-5 2	7.845108	69	4	.47
38962.0	101.956 7	236.630 1	78.639 2	.10814 4	.35346 2	12.497157 8	2.7E-5 2	7.845089	69	4	.49
38963.0	99.983 8	235.658 1	78.639 2	.10812 5	.85060 3	12.49721 1	2.5E-5 2	7.845068	58	4	.51
38964.0	98.031 9	234.685 1	78.642 3	.10800 6	.34771 3	12.49730 1	1.9E-5 2	7.845030	50	4	.58
38965.0	96.07 1	233.715 2	78.639 3	.10808 6	.84493 3	12.49733 1	2.5E-5 3	7.845016	44	4	.61
38966.0	94.11 1	232.745 2	78.638 3	.10811 7	.34220 3	12.49738 2	2.5E-5 4	7.844997	36	4	.58
38967.0	92.14 1	231.775 2	78.636 3	.10816 8	.83955 3	12.49740 2	2.5E-5 3	7.844988	32	4	.58
38968.0	90.18 1	230.803 2	78.638 3	.10810 5	.33688 3	12.497452 9	2.4E-5 3	7.844965	28	4	.56
38969.0	88.21 1	229.831 2	78.639 4	.10802 4	.83429 4	12.49750 1	2.4E-5 3	7.844945	23	4	.51
38970.0	86.25 2	228.859 2	78.639 4	.10795 3	.33173 5	12.497564 9	2.6E-5 4	7.844919	19	4	.53
38971.0	84.27 2	227.887 3	78.637 4	.10793 3	.82930 5	12.497616 8	2.0E-5 3	7.844897	17	4	.46
38972.0	82.33 1	226.913 2	78.637 3	.10789 2	.32680 3	12.497671 4	2.6E-5 3	7.844874	17	4	.34

MJD	ω	Ω	i	e	M	n	n'/2	a	N	D	σ
38973.0	80.36 2	225.943 3	78.631 5	.10787 3	.82441 5	12.497717 8	2.9E-5 7	7.844855	14	4	.52
38974.0	78.40 2	224.971 3	78.630 5	.10785 4	.32208 6	12.49776 1	2.5E-5 8	7.844834	15	4	.52
38975.0	76.43 2	224.000 3	78.631 5	.10783 3	.81981 7	12.497828 6	3.2E-5 8	7.844808	15	4	.51
38976.0	74.42 2	223.031 3	78.636 4	.10778 2	.31770 5	12.497892 6	3.7E-5 5	7.844781	15	4	.38
38977.0	72.47 1	222.055 2	78.638 4	.10779 2	.81551 4	12.497968 4	3.4E-5 3	7.844750	16	4	.35
38978.0	70.50 1	221.084 2	78.642 3	.10776 2	.31347 3	12.498034 7	3.6E-5 5	7.844722	20	4	.36
38979.0	68.52 1	220.112 2	78.644 3	.10774 2	.81150 3	12.498108 5	3.9E-5 3	7.844691	23	4	.37
38980.0	66.56 1	219.139 2	78.647 3	.10774 3	.30956 4	12.49817 2	3.8E-5 5	7.844666	20	4	.37
38981.0	64.60 2	218.169 2	78.639 4	.10798 8	.80760 6	12.49818 2	2.0E-5 3	7.844660	23	4	.53
38982.0	62.60 1	217.199 2	78.637 4	.10803 9	.30588 6	12.49833 2	4.5E-5 3	7.844598	18	4	.40
38983.0	60.66 2	216.227 2	78.628 4	.10790 9	.80412 7	12.49848 2	4.5E-5 3	7.844534	24	4	.59
38984.0	58.70 2	215.254 2	78.627 5	.1079 1	.30250 8	12.49856 3	4.1E-5 4	7.844502	24	4	.69
38985.0	56.74 2	214.280 2	78.630 5	.1078 1	.80098 8	12.49857 3	4.3E-5 4	7.844496	23	4	.67
38986.0	54.76 2	213.309 2	78.635 4	.10775 9	.29956 7	12.49862 1	2.9E-5 4	7.844476	27	4	.62
38987.0	52.79 1	212.339 1	78.642 2	.10789 6	.79813 5	12.498743 9	4.0E-5 2	7.844426	47	4	.41
38988.0	50.81 1	211.3655 9	78.643 2	.10779 4	.29686 4	12.498808 9	4.3E-5 2	7.844398	58	4	.34
38989.0	48.833 9	210.3936 9	78.645 2	.10774 3	.79568 3	12.498897 8	4.2E-5 2	7.844361	72	4	.39
38990.0	46.866 9	209.4212 8	78.645 2	.10769 3	.29455 3	12.498997 5	4.6E-5 2	7.844319	77	4	.39
38991.0	44.89 1	208.447 1	78.646 2	.10765 4	.79354 5	12.499095 6	5.2E-5 2	7.844278	64	4	.49
38992.0	42.91 1	207.476 1	78.645 2	.10761 4	.29262 5	12.499205 9	6.6E-5 3	7.844233	61	4	.52
38993.0	40.96 2	206.504 1	78.646 3	.10767 5	.79174 8	12.499304 6	5.7E-5 3	7.844191	58	4	.54
38994.0	39.03 3	205.533 1	78.651 3	.10777 6	.29089 9	12.499426 8	5.2E-5 3	7.844140	59	4	.60
38995.0	37.11 2	204.563 1	78.648 3	.10784 5	.79011 8	12.499528 7	4.8E-5 3	7.844098	58	4	.57
38996.0	35.15 2	203.591 1	78.645 3	.10785 5	.28957 8	12.499635 7	5.4E-5 3	7.844053	60	4	.62
38997.0	33.19 2	202.620 1	78.645 2	.10781 4	.78912 7	12.499735 6	5.1E-5 2	7.844011	63	4	.53
38998.0	31.23 2	201.647 1	78.648 2	.10780 4	.28878 8	12.499831 5	5.4E-5 2	7.843971	71	4	.51
38999.0	29.29 2	200.674 1	78.648 2	.10782 3	.78851 7	12.499955 5	6.9E-5 2	7.843919	71	4	.50
39000.0	27.33 2	199.703 1	78.648 2	.10781 3	.28840 7	12.500089 4	6.4E-5 2	7.843863	74	4	.50
39001.0	25.38 2	198.730 1	78.649 2	.10780 2	.78843 7	12.500226 3	6.3E-5 2	7.843806	70	4	.48
39002.0	23.44 2	197.761 1	78.650 2	.10778 3	.28855 7	12.500365 4	7.3E-5 3	7.843748	58	4	.49
39003.0	21.47 2	196.789 2	78.650 2	.10776 2	.78890 7	12.500510 3	7.6E-5 3	7.843687	51	4	.46

MJD	ω	Ω	i	e	M	n	n'/2	a	N	D	σ
39004.0	19.54 3	195.814 2	78.649 2	.10777 3	.28929 8	12.500671 4	7.8E-5 4	7.843619	47	4	.51
39005.0	17.59 3	194.839 2	78.646 2	.10777 3	.78990 9	12.500827 4	8.2E-5 4	7.843554	40	4	.49
39006.0	15.62 2	193.865 2	78.650 2	.10774 2	.29073 7	12.500988 4	7.1E-5 3	7.843487	39	4	.42
39007.0	13.68 2	192.892 2	78.652 2	.10771 2	.79162 7	12.501141 3	8.0E-5 3	7.843423	38	4	.40
39008.0	11.74 3	191.922 3	78.655 2	.10768 2	.29269 9	12.501319 5	9.0E-5 4	7.843349	35	4	.47
39009.0	9.78 3	190.950 3	78.654 2	.10768 2	.79396 9	12.501478 5	8.7E-5 4	7.843282	29	4	.48
39010.0	7.80 4	189.980 4	78.652 3	.10767 3	.2955 1	12.501644 6	7.7E-5 5	7.843213	26	4	.53
39011.0	5.82 5	189.009 5	78.649 4	.10765 3	.7972 2	12.501793 7	7.4E-5 6	7.843151	20	4	.59
39012.0	3.83 6	188.034 6	78.647 4	.10761 3	.2990 2	12.50193 1	5.4E-5 7	7.843092	17	4	.56
39013.0	1.86 7	187.062 8	78.649 5	.10748 6	.8009 2	12.50207 2	7.2E-5 7	7.843034	14	4	.58
39014.0	359.99 9	186.09 1	78.644 7	.10749 5	.3027 2	12.50218 1	5.E-5 1	7.842986	12	4	.64
39015.0	357.97 6	185.14 1	78.634 6	.10753 6	.8050 2	12.50232 2	6.2E-5 6	7.842929	15	4	.51
39016.0	356.03 6	184.16 1	78.635 6	.10745 4	.3072 2	12.50245 1	8.E-5 1	7.842875	17	4	.59
39017.0	354.10 5	183.182 9	78.638 6	.10737 4	.8095 2	12.50258 1	6.5E-5 6	7.842822	25	4	.60
39018.0	352.13 6	182.20 1	78.642 6	.10718 8	.3121 2	12.50274 2	6.5E-5 6	7.842753	29	4	.59
39019.0	350.18 6	181.23 1	78.638 7	.1071 2	.8147 2	12.50288 3	9.2E-5 7	7.842696	28	4	.53
39020.0	348.7 1	180.32 2	78.59 1	.1083 4	.3156 6	12.50308 3	8.1E-5 6	7.842611	27	4	.53
39021.0	346.7 1	179.35 2	78.60 1	.1081 3	.8187 5	12.50315 2	6.9E-5 5	7.842581	30	4	.47
39022.0	344.9 2	178.41 2	78.57 1	.1084 4	.3212 6	12.50330 3	5.5E-5 7	7.842518	33	4	.51
39023.0	342.8 1	177.40 2	78.60 1	.1081 3	.8249 5	12.50342 2	5.4E-5 6	7.842467	40	4	.54
39024.0	340.5 2	176.39 2	78.62 1	.1072 3	.3297 6	12.50350 2	2.0E-5 8	7.842436	45	4	.59
39025.0	338.6 2	175.43 2	78.61 1	.1072 3	.8330 6	12.50357 2	10.E-6 7	7.842408	43	4	.50
39026.0	336.6 2	174.42 2	78.63 1	.1071 3	.3365 7	12.50356 2	1.7E-5 8	7.842412	43	4	.58
39027.0	334.1 3	173.44 3	78.64 1	.1062 4	.8419 9	12.50360 3	9.E-6 9	7.842393	36	4	.61
39028.0	332.2 3	172.46 3	78.65 2	.1065 4	.345 1	12.50368 2	.6E-4 1	7.842362	33	4	.60
39029.0	330.8 6	171.50 4	78.64 3	.1072 7	.847 2	12.50386 4	.2E-4 1	7.842286	24	4	.77
39030.0	328.7 5	170.59 4	78.60 3	.1068 5	.351 2	12.50391 2	-.1E-5 9	7.842263	21	4	.55
39031.0	327.4 6	169.69 4	78.55 3	.1067 6	.852 2	12.50383 3	.6E-4 1	7.842294	29	4	.73
39032.0	325.0 2	168.63 2	78.60 1	.1065 2	.3579 8	12.50395 1	4.4E-5 5	7.842249	39	4	.46
39033.0	322.8 2	167.62 1	78.63 1	.1062 1	.8625 7	12.504007 9	1.7E-5 4	7.842224	51	4	.49

MJD	ω	Ω	i	e	M	n	n'/2	a	N	D	σ
39034.0	320.6 1	166.64 1	78.637 9	.10608 7	.3672 4	12.504040 7	6.E-6 4	7.842210	60	4	.50
39035.0	318.8 1	165.666 9	78.636 8	.10611 6	.8708 5	12.504063 5	1.4E-5 3	7.842201	70	4	.50
39036.0	317.0 1	164.704 7	78.626 6	.10601 5	.3742 4	12.504099 5	9.E-6 3	7.842185	77	4	.47
39037.0	314.95 9	163.733 5	78.626 5	.10589 4	.8784 3	12.504117 4	5.E-6 3	7.842178	90	4	.44
39038.0	313.059 5	162.758 5	78.628 4	.10583 3	.38213 2	12.504132 3	4.E-6 3	7.842172	101	4	.46
39039.0	311.052 2	161.780 5	78.632 4	.10570 3	.886304 7	12.504141 3	5.E-6 3	7.842168	110	4	.46
39040.0	309.045 2	160.801 5	78.636 5	.10561 3	.390490 8	12.504147 3	3.E-6 3	7.842165	94	4	.45
39041.0	307.15 9	159.809 5	78.656 5	.10552 3	.8943 3	12.504149 2	-1.E-6 2	7.842165	90	4	.42
39042.0	304.98 9	158.840 5	78.653 4	.10549 3	.3990 3	12.504153 3	-2.E-6 3	7.842163	82	4	.44
39043.0	302.90 2	157.873 4	78.648 3	.10546 3	.90348 7	12.504149 4	-6.E-6 3	7.842165	68	4	.46
39044.0	300.93 2	156.901 3	78.647 3	.10536 4	.40753 6	12.504147 4	-1.E-6 4	7.842166	70	4	.48
39045.0	298.95 1	155.927 3	78.648 2	.10526 4	.91161 4	12.504127 4	-8.E-6 3	7.842174	65	4	.56
39046.0	296.96 1	154.953 2	78.651 2	.10510 4	.41569 4	12.504109 5	1.E-6 3	7.842182	59	4	.44
39047.0	294.958 7	153.981 1	78.652 1	.10502 3	.91982 2	12.504096 3	-9.E-6 2	7.842187	88	4	.42
39048.0	292.957 6	153.0091 9	78.654 1	.10497 2	.42392 2	12.504081 3	-1.0E-5 2	7.842193	107	4	.44
39049.0	290.954 5	152.0373 9	78.654 1	.10489 2	.92801 2	12.504055 5	-8.E-6 2	7.842204	107	4	.45
39050.0	288.946 5	151.0653 8	78.6549 9	.10477 2	.43208 2	12.504046 5	-4.E-6 2	7.842208	112	4	.41
39051.0	286.941 6	150.0931 9	78.656 1	.10470 3	.93616 2	12.504069 4	1.4E-5 1	7.842198	110	4	.48
39052.0	284.953 8	149.123 1	78.654 1	.10457 3	.44020 3	12.504112 7	2.2E-5 2	7.842180	116	4	.52
39053.0	282.951 9	148.150 1	78.655 1	.10451 3	.94434 3	12.504163 8	2.5E-5 2	7.842159	129	4	.54
39054.0	280.955 8	147.178 1	78.653 2	.10447 4	.44853 3	12.504215 8	2.5E-5 2	7.842137	128	4	.50
39055.0	278.943 7	146.2065 9	78.653 2	.10439 4	.95280 3	12.504272 6	3.6E-5 2	7.842113	109	4	.46
39056.0	276.939 8	145.2331 9	78.655 2	.10432 4	.45712 3	12.504349 8	4.6E-5 2	7.842081	97	4	.45
39057.0	274.931 7	144.2617 8	78.653 1	.10425 4	.96154 3	12.504435 8	4.6E-5 1	7.842045	84	4	.43
39058.0	272.903 8	143.289 1	78.653 2	.10417 4	.46612 3	12.50452 1	4.2E-5 2	7.842010	87	4	.59
39059.0	270.883 8	142.319 1	78.649 2	.10408 5	.97075 3	12.50459 1	4.4E-5 2	7.841980	83	4	.61
39060.0	268.884 8	141.346 1	78.650 2	.10408 4	.47544 3	12.504721 8	4.7E-5 2	7.841926	88	4	.62
39061.0	266.872 7	140.375 1	78.648 2	.10406 4	.98025 2	12.50482 1	4.3E-5 2	7.841883	84	4	.55
39062.0	264.861 7	139.403 1	78.649 2	.10410 4	.48516 2	12.50490 1	4.0E-5 2	7.841850	81	4	.53
39063.0	262.85 1	138.430 2	78.652 2	.10403 7	.99011 4	12.50494 2	3.9E-5 3	7.841834	76	4	.56
39064.0	260.82 1	137.458 2	78.654 3	.10397 6	.49520 4	12.505024 8	3.3E-5 3	7.841799	56	4	.51

MJD	ω	Ω	i	e	M	n	n'/2	a	N	D	σ
39065.0	258.86 2	136.481 3	78.664 4	.10380 7	.00012 6	12.50514 2	4.3E-5 3	7.841750	46	4	.56
39066.0	256.82 2	135.511 3	78.659 5	.10383 6	.50543 5	12.50521 1	3.4E-5 4	7.841721	44	4	.69
39067.0	254.80 2	134.543 3	78.655 4	.10395 4	.01076 5	12.50530 1	3.2E-5 4	7.841682	47	4	.71
39068.0	252.79 1	133.572 3	78.652 4	.10406 3	.51614 4	12.505339 8	4.1E-5 3	7.841667	48	4	.64
39069.0	250.77 2	132.598 4	78.655 5	.10403 3	.02160 6	12.505438 8	4.4E-5 7	7.841626	42	4	.80
39070.0	248.75 3	131.631 5	78.655 6	.10404 3	.52717 7	12.505544 8	4.8E-5 6	7.841582	40	4	.92
39071.0	246.68 4	130.663 6	78.656 6	.10405 3	.0330 1	12.505676 8	7.3E-5 7	7.841527	30	4	.88
39072.0	244.72 5	129.689 7	78.652 9	.10411 4	.5386 1	12.505802 8	8.1E-5 8	7.841474	28	4	1.02
39073.0	242.66 5	128.722 7	78.660 8	.10411 4	.0447 2	12.505941 8	5.9E-5 7	7.841416	31	4	.90
39074.0	240.76 5	127.739 6	78.652 7	.10410 4	.5504 1	12.50604 1	4.5E-5 8	7.841375	30	4	.69
39075.0	238.68 5	126.778 6	78.669 8	.10418 5	.0567 2	12.506115 9	4.E-5 1	7.841344	34	4	.99
39076.0	236.71 4	125.803 4	78.666 7	.10414 4	.5628 1	12.506196 8	3.6E-5 5	7.841310	37	4	.79
39077.0	234.71 3	124.825 3	78.658 4	.10420 3	.06909 8	12.506315 5	3.9E-5 5	7.841260	42	4	.69
39078.0	232.68 3	123.853 3	78.662 5	.10420 4	.5755 1	12.50641 1	4.0E-5 4	7.841221	44	4	.74
39079.0	230.70 2	122.879 2	78.662 3	.10417 3	.08193 7	12.506510 8	5.8E-5 4	7.841178	40	4	.54
39080.0	228.69 2	121.906 2	78.661 3	.10419 4	.58858 8	12.506605 7	4.0E-5 4	7.841139	39	4	.57
39081.0	226.72 6	120.933 3	78.662 5	.1043 1	.0951 2	12.50672 1	4.2E-5 8	7.841090	35	4	.75
39082.0	224.77 3	119.960 2	78.661 3	.10432 7	.6017 1	12.506809 7	5.2E-5 3	7.841053	45	4	.59
39083.0	222.78 3	118.988 2	78.658 3	.10433 6	.1085 1	12.506925 7	5.7E-5 4	7.841005	49	4	.58
39084.0	220.84 2	118.015 1	78.659 2	.10443 4	.61531 8	12.507034 5	6.0E-5 2	7.840959	41	4	.41
39085.0	218.80 3	117.042 2	78.662 3	.10439 6	.1225 1	12.507153 5	6.6E-5 3	7.840910	47	4	.57
39086.0	216.82 4	116.070 2	78.662 4	.10441 6	.6297 1	12.507272 5	6.3E-5 3	7.840860	42	4	.57
39087.0	214.84 4	115.098 2	78.662 3	.10448 6	.1370 1	12.507386 6	5.1E-5 4	7.840812	44	4	.61
39088.0	212.88 3	114.126 2	78.664 3	.10453 4	.6443 1	12.507482 4	4.5E-5 3	7.840772	52	4	.59
39089.0	210.95 3	113.155 2	78.664 3	.10460 4	.1516 1	12.507574 3	5.0E-5 3	7.840734	62	4	.56
39090.0	208.99 3	112.184 1	78.665 2	.10466 3	.6591 1	12.507683 3	5.4E-5 2	7.840688	63	4	.51
39091.0	207.00 3	111.212 1	78.665 2	.10468 3	.1668 1	12.507787 3	5.0E-5 3	7.840645	64	4	.48
39092.0	205.05 3	110.240 1	78.663 2	.10471 2	.67443 8	12.507894 3	5.3E-5 2	7.840600	60	4	.40
39093.0	203.07 2	109.268 1	78.663 2	.10473 2	.18233 8	12.508004 3	5.7E-5 2	7.840554	48	4	.34
39094.0	201.08 3	108.296 1	78.662 2	.10476 1	.69037 8	12.508117 4	5.6E-5 3	7.840507	43	4	.35

MJD	ω	Ω	i	e	M	n	n'/2	a	N	D	σ
39095.0	199.14 2	107.322 1	78.662 2	.10477 1	.19837 8	12.508250 4	.69E-4 4	7.840451	35	4	.35
39096.0	197.19 3	106.351 2	78.662 2	.10477 3	.7065 1	12.508406 7	.81E-4 3	7.840386	32	4	.47
39097.0	195.22 4	105.378 2	78.662 2	.10477 6	.2149 1	12.50856 1	.73E-4 3	7.840322	27	4	.48
39098.0	193.28 5	104.407 3	78.659 3	.1048 1	.7234 2	12.50868 2	.58E-4 3	7.840272	23	4	.46
39099.0	191.31 4	103.432 3	78.662 3	.10483 5	.2320 1	12.50880 1	.56E-4 4	7.840222	23	4	.48
39100.0	189.37 3	102.458 3	78.665 3	.10484 4	.7407 1	12.50896 2	.56E-4 4	7.840156	21	4	.46
39101.0	187.38 5	101.484 3	78.665 3	.10477 6	.2497 2	12.50903 2	.46E-4 4	7.840127	21	4	.48
39102.0	185.38 6	100.513 3	78.665 3	.1047 1	.7587 2	12.50912 2	.41E-4 4	7.840089	25	4	.49
39103.0	183.4 2	99.54 2	78.67 2	.1047 5	.2678 9	12.50918 2	.43E-4 4	7.840061	24	4	.48
39104.0	181.4 3	98.56 2	78.67 3	.1046 5	.7770 9	12.50931 2	.40E-4 5	7.840009	21	4	.49
39105.0	179.7 3	97.61 2	78.65 2	.1049 5	.2854 9	12.50941 2	.46E-4 5	7.839966	22	4	.50
39106.0	177.5 2	96.66 1	78.63 2	.1045 4	.7956 8	12.50949 1	.49E-4 4	7.839933	19	4	.35
39107.0	175.5 2	95.67 2	78.65 2	.1045 4	.3050 9	12.50957 1	.42E-4 2	7.839898	25	6	.45
39108.0	173.8 4	94.69 2	78.65 2	.1049 6	.814 1	12.50963 1	.31E-4 2	7.839873	25	6	.55
39109.0	171.7 3	93.71 2	78.67 2	.1047 4	.324 1	12.50968 1	.26E-4 2	7.839853	28	6	.44
39110.0	169.8 3	92.72 2	78.68 2	.1048 4	.833 1	12.50973 1	.15E-4 2	7.839833	30	6	.46
39111.0	168.1 3	91.75 2	78.68 2	.1051 4	.342 1	12.50978 2	.16E-4 2	7.839815	28	6	.51
39112.0	166.0 3	90.78 2	78.68 3	.1051 4	.852 1	12.50981 1	.17E-4 2	7.839802	29	6	.50
39113.0	164.1 4	89.81 2	78.67 3	.1051 4	.361 1	12.50984 1	.17E-4 3	7.839787	30	6	.54
39114.0	162.1 4	88.83 2	78.68 2	.1049 4	.871 1	12.509875 9	.12E-4 2	7.839773	29	6	.51
39115.0	160.2 3	87.85 2	78.69 2	.1049 3	.381 1	12.509884 7	.5E-5 2	7.839770	27	6	.47
39116.0	158.1 4	86.89 2	78.68 3	.1048 3	.891 1	12.509887 9	.3E-5 3	7.839768	26	6	.49
39117.0	155.6 4	85.92 2	78.67 3	.1045 3	.403 1	12.509875 9	-.7E-5 2	7.839773	25	6	.47
39118.0	154.0 4	84.95 2	78.67 3	.1046 2	.911 1	12.509865 9	-.9E-5 2	7.839777	24	6	.49
39119.0	152.28 4	83.98 2	78.67 2	.10469 6	.4202 1	12.509862 6	-.1E-6 9	7.839778	29	6	.49
39120.0	150.30 4	83.02 2	78.66 2	.10468 6	.9300 1	12.509870 8	.15E-4 5	7.839774	18	4	.42
39121.0	148.31 4	82.10 1	78.60 1	.10448 7	.4399 1	12.50988 1	-.15E-4 9	7.839770	17	4	.50
39122.0	146.30 3	81.13 1	78.60 1	.10448 6	.9498 1	12.509847 7	-.9E-5 5	7.839782	20	4	.51
39123.0	144.34 3	80.118 7	78.642 8	.10442 4	.45951 9	12.509841 4	-.2E-5 3	7.839786	35	4	.44
39124.0	142.38 3	79.138 4	78.648 6	.10430 5	.9692 1	12.509837 5	-.8E-5 4	7.839788	45	4	.46
39125.0	140.39 4	78.161 4	78.654 6	.10430 3	.4791 1	12.509833 4	-.5E-5 3	7.839789	54	4	.49

Satellite 1964 4A (Echo 2)

I. SAO smoothed elements

The following elements are based on 140 observations and are valid for the period July 1 through July 16, 1965.

$$T_0 = 38950.0 \text{ MJD}$$

$$\omega = (205^\circ.59 \pm 3) - (2^\circ.125 \pm 7)\, t + 2^\circ.6485 \cos \omega$$

$$\Omega = (324^\circ.932 \pm 1) - (0^\circ.8277 \pm 2)\, t + 0^\circ.0009 \cos \omega$$

$$i = (81^\circ.463 \pm 2) - 0^\circ.0002 \sin \omega$$

$$e = (0.02338 \pm 2) + (2.28 \pm 4) \times 10^{-4}\, t + 0.0010925 \sin \omega$$

$$M = (0.90299 \pm 9) + (13.30109 \pm 2)\, t + (1.288 \pm 1) \times 10^{-4}\, t^2 - (4.9 \pm 24) \times 10^{-8}\, t^3 - 0.0073488 \cos \omega$$

Standard error of one observation: $\sigma = \pm 1'.60$.

The following elements are based on 121 observations and are valid for the period July 16 through August 1, 1965.

$$T_0 = 38965.0 \text{ MJD}$$

$$\omega = (176^\circ.07 \pm 4) - (1^\circ.767 \pm 8)\, t + 2^\circ.5586 \cos \omega$$

$$\Omega = (312^\circ.476 \pm 3) - (0^\circ.8313 \pm 2)\, t + 0^\circ.0010 \cos \omega$$

$$i = (81^\circ.447 \pm 4) - 0^\circ.0002 \sin \omega$$

$$e = (0.02593 \pm 2) + (7.0 \pm 3) \times 10^{-5}\, t + 0.0010928 \sin \omega$$

$$M = (0.4402 \pm 1) + (13.30358 \pm 2)\, t + (9.91 \pm 1) \times 10^{-5}\, t^2 - (1.09 \pm 2) \times 10^{-6}\, t^3 - 0.0070988 \cos \omega$$

Standard error of one observation: $\sigma = \pm 1'.28$.

The following elements are based on 127 observations and are valid for the period August 1 through August 16, 1965.

$$T_0 = 38981.0 \text{ MJD}$$

$$\omega = (146^\circ.89 \pm 3) - (1^\circ.897 \pm 7)\, t + 2^\circ.4097 \cos \omega$$

$$\Omega = (299^\circ.1665 \pm 9) - (0^\circ.8326 \pm 2)\, t + 0^\circ.0010 \cos \omega$$

$$i = (81^\circ.454 \pm 1) - 0^\circ.0002 \sin \omega$$

$$e = (0.02582 \pm 1) - (1.17 \pm 2) \times 10^{-4}\, t + 0.0010931 \sin \omega$$

$$M = (0.32041 \pm 8) + (13.30620 \pm 2)\, t + (4.3 \pm 1) \times 10^{-5}\, t^2 - (1.48 \pm 2) \times 10^{-6}\, t^3 - 0.0066847 \cos \omega$$

Standard error of one observation: $\sigma = \pm 1''.18$.

The following elements are based on 306 observations and are valid for the period August 16 through September 1, 1965.

$$T_0 = 38997.0 \text{ MJD}$$

$$\omega = (115^\circ.01 \pm 3) - (2^\circ.174 \pm 5)\, t + 2^\circ.6975 \cos \omega$$

$$\Omega = (285^\circ.8949 \pm 8) - (0^\circ.8291 \pm 1)\, t + 0^\circ.0009 \cos \omega$$

$$i = (81^\circ.488 \pm 1) - 0^\circ.0002 \sin \omega$$

$$e = (0.023214 \pm 7) - (2.03 \pm 2) \times 10^{-4}\, t + 0.0010933 \sin \omega$$

$$M = (0.22932 \pm 7) + (13.30744 \pm 1)\, t + (4.4 \pm 2) \times 10^{-6}\, t^2 + (8.1 \pm 2) \times 10^{-7}\, t^3 + (9.6 \pm 4) \times 10^{-8}\, t^4 - 0.0074851 \cos \omega$$

Standard error of one observation: $\sigma = \pm 1''.78$.

The following elements are based on 230 observations and are valid for the period September 1 through September 16, 1965.

$$T_0 = 39012.0 \text{ MJD}$$

$$\omega = (79^\circ.32 \pm 2) - (2^\circ.557 \pm 5)\, t + 3^\circ.0702 \cos \omega$$

$$\Omega = (273^\circ.4807 \pm 6) - (0^\circ.8275 \pm 1)\, t + 0^\circ.0008 \cos \omega$$

$$i = (81^\circ.494 \pm 1) - 0^\circ.0002 \sin \omega$$

$$e = (0.020417 \pm 7) - (9.4 \pm 2) \times 10^{-5}\, t + 0.0010934 \sin \omega$$

$$M = (0.85693 \pm 7) + (13.30984 \pm 1)\, t + (6.041 \pm 7) \times 10^{-5}\, t^2 + (1.4 \pm 2) \times 10^{-7}\, t^3 - 0.0085212 \cos \omega$$

Standard error of one observation: $\sigma = \pm 1''.68$.

The following elements are based on 237 observations and are valid for the period September 16 through October 1, 1965.

$$T_0 = 39027.0 \text{ MJD}$$

$$\omega = (40^\circ.45 \pm 2) - (2^\circ.464 \pm 5)\, t + 3^\circ.0744 \cos \omega$$

$$\Omega = (261^\circ.0792 \pm 7) - (0^\circ.8268 \pm 2)\, t + 0^\circ.0008 \cos \omega$$

$$i = (81^\circ.4955 \pm 9) - 0^\circ.0002 \sin \omega$$

$$e = (0.020405 \pm 7) + (8.7 \pm 2) \times 10^{-5}\, t + 0.0010936 \sin \omega$$

$$M = (0.52090 \pm 5) + (13.31168 \pm 1)\, t + (8.07 \pm 1) \times 10^{-5}\, t^2 + (9.5 \pm 2) \times 10^{-7}\, t^3 - 0.0085330 \cos \omega$$

Standard error of one observation: $\sigma = \pm 1''.48$.

The following elements are based on 291 observations and are valid for the period October 1 through October 16, 1965.

$$T_0 = 39042.0 \text{ MJD}$$

$$\omega = (7^\circ.97 \pm 2) - (1^\circ.970 \pm 4)\, t + 2^\circ.7497 \cos \omega$$

$$\Omega = (248^\circ.6758 \pm 7) - (0^\circ.8267 \pm 2)\, t + 0^\circ.0009 \cos \omega$$

$$i = (81^\circ.497 \pm 1) - 0^\circ.0002 \sin \omega$$

$$e = (0.02222 \pm 1) + (1.16 \pm 2) \times 10^{-4}\, t + 0.0010939 \sin \omega$$

$$M = (0.20431 \pm 5) + (13.31326 \pm 1)\, t + (1.134 \pm 1) \times 10^{-4}\, t^2 + (2.4 \pm 21) \times 10^{-8}\, t^3 - 0.0076302 \cos \omega$$

Standard error of one observation: $\sigma = \pm 1''.88$.

The following elements are based on 113 observations and are valid for the period October 16 through November 1, 1965.

$$T_0 = 39058.0 \text{ MJD}$$

$$\omega = (338^\circ.47 \pm 6) - (1^\circ.73 \pm 1)\, t + 2^\circ.7696 \cos \omega$$

$$\Omega = (235^\circ.418 \pm 2) - (0^\circ.8294 \pm 3)\, t + 0^\circ.0009 \cos \omega$$

$$i = (81^\circ.476 \pm 3) - 0^\circ.0002 \sin \omega$$

$$e = (0.02299 \pm 2) - (1.7 \pm 3) \times 10^{-5}\, t + 0.0010940 \sin \omega$$

$$M = (0.2372 \pm 2) + (13.31570 \pm 3)\, t + (8.90 \pm 2) \times 10^{-5}\, t^2 - (9.0 \pm 32) \times 10^{-8}\, t^3 - 0.0076855 \cos \omega$$

Standard error of one observation: $\sigma = \pm 2''.68$.

The following elements are based on 53 observations and are valid for the period November 1 through November 16, 1965.

$$T_0 = 39073.0 \text{ MJD}$$

$$\omega = (312^\circ.06 \pm 9) - (1^\circ.81 \pm 2)\, t + 2^\circ.9048 \cos \omega$$

$$\Omega = (222^\circ.945 \pm 2) - (0^\circ.8323 \pm 4)\, t + 0^\circ.0009 \cos \omega$$

$$i = (81^\circ.456 \pm 3) - 0^\circ.0002 \sin \omega$$

$$e = (0.02154 \pm 2) - (1.70 \pm 4) \times 10^{-4}\, t + 0.0010937 \sin \omega$$

$$M = (0.9924 \pm 2) + (13.31826 \pm 5)\, t + (6.37 \pm 3) \times 10^{-5}\, t^2 - (1.00 \pm 6) \times 10^{-6}\, t^3 - 0.0080615 \cos \omega$$

Standard error of one observation: $\sigma = \pm 2''.35$.

The following elements are based on 55 observations and are valid for the period November 16 through December 1, 1965.

$$T_0 = 39088.0 \text{ MJD}$$

$$\omega = (283^\circ.0 \pm 1) - (2^\circ.00 \pm 2)\, t + 3^\circ.0132 \cos \omega$$

$$\Omega = (210^\circ.495 \pm 3) - (0^\circ.8326 \pm 3)\, t + 0^\circ.0008 \cos \omega$$

$$i = (81^\circ.505 \pm 3) - 0^\circ.0002 \sin \omega$$

$$e = (0.01797 \pm 9) - (2.2 \pm 1) \times 10^{-4}\, t + 0.0010942 \sin \omega$$

$$M = (0.7828 \pm 4) + (13.32025 \pm 5)\, t + (4.23 \pm 2) \times 10^{-5}\, t^2 - (5.1 \pm 4) \times 10^{-7}\, t^3 - 0.0083627 \cos \omega$$

Standard error of one observation: $\sigma = \pm 1''.63$.

The following elements are based on 123 observations and are valid for the period December 1 through December 16, 1965.

$$T_0 = 39103.0 \text{ MJD}$$

$$\omega = (250^\circ.88 \pm 6) - (2^\circ.35 \pm 1)\, t + 4^\circ.3573 \cos \omega$$

$$\Omega = (198^\circ.0380 \pm 9) - (0^\circ.8275 \pm 2)\, t + 0^\circ.0006 \cos \omega$$

$$i = (81^\circ.511 \pm 2) - 0^\circ.0001 \sin \omega$$

$$e = (0.01453 \pm 2) - (2.22 \pm 5) \times 10^{-4}\, t + 0.0010945 \sin \omega$$

$$M = (0.6010 \pm 2) + (13.32235 \pm 3)\, t + (4.87 \pm 1) \times 10^{-5}\, t^2 + (1.67 \pm 3) \times 10^{-6}\, t^3 - 0.0120986 \cos \omega$$

Standard error of one observation: $\sigma = \pm 1''.98$.

The following elements are based on 188 observations and are valid for the period December 16, 1965, through January 1, 1966.

$$T_0 = 39119.0 \text{ MJD}$$

$$\omega = (213^\circ.38 \pm 4) - (2^\circ.26 \pm 1)\, t + 5^\circ.3712 \cos \omega$$

$$\Omega = (184^\circ.8091 \pm 7) - (0^\circ.8263 \pm 1)\, t + 0^\circ.0005 \cos \omega$$

$$i = (81^\circ.518 \pm 1) - 0^\circ.0001 \sin \omega$$

$$e = (0.01177 \pm 1) - (1.04 \pm 2) \times 10^{-4}\, t + 0.0010947 \sin \omega$$

$$M = (0.7745 \pm 1) + (13.32419 \pm 3)\, t + (6.95 \pm 1) \times 10^{-5}\, t^2 + (3.9 \pm 1) \times 10^{-7}\, t^3 - 0.0149159 \cos \omega$$

Standard error of one observation: $\sigma = \pm 1''.63$.

MJD	ω	Ω	i	e	M	n	n′/2	a	N	D	σ
38942.0	221.38 3	331.552 11	81.478 2	.02068 2	.50577 9	13.300106 1	.1250E-3 9	7.370579	60	6	.51
38943.0	218.91 4	330.727 2	81.476 3	.02098 2	.8059 1	13.300350 2	.123E-3 1	7.368232	61	6	.70
38944.0	216.39 4	329.899 2	81.474 3	.02130 3	.1065 1	13.300603 2	.126E-3 1	7.365731	67	6	.84
38945.0	213.92 5	329.074 2	81.472 3	.02165 3	.4072 1	13.300853 2	.127E-3 1	7.362992	58	6	.82
38946.0	211.65 4	328.247 2	81.471 3	.02191 3	.7075 1	13.301111 2	.126E-3 1	7.361013	50	6	.62
38947.0	209.26 6	327.418 2	81.470 3	.02215 3	.0084 2	13.301363 2	.129E-3 1	7.359043	54	6	.65
38948.0	207.07 9	326.590 2	81.466 3	.02247 3	.3091 3	13.301627 2	.133E-3 1	7.356549	50	6	.61
38949.0	205.88 4	325.763 2	81.467 3	.02274 3	.6070 1	13.301890 2	.135E-3 1	7.354427	50	6	.59
38950.0	203.60 4	324.930 2	81.460 3	.02304 4	.9084 1	13.302160 3	.132E-3 1	7.352092	51	6	.71
38951.0	201.51 4	324.102 1	81.458 2	.02328 3	.2096 1	13.302422 2	.1303E-3 9	7.350220	48	6	.44
38952.0	198.97 5	323.272 2	81.457 2	.02359 3	.5123 2	13.302684 3	.129E-3 1	7.347781	48	6	.46
38953.0	196.52 4	322.444 1	81.457 2	.02389 3	.8150 1	13.302940 3	.1255E-3 8	7.345438	46	6	.38
38954.0	194.01 5	321.614 1	81.456 2	.02429 3	.1181 1	13.303197 2	.1239E-3 8	7.342335	48	6	.40
38955.0	191.54 6	320.785 2	81.455 2	.02461 3	.4214 2	13.303445 2	.1235E-3 9	7.339766	46	6	.40
38956.0	190.09 4	319.957 2	81.455 3	.02470 3	.7219 1	13.303693 4	.1218E-3 9	7.339060	47	6	.40
38957.0	187.60 5	319.127 2	81.455 3	.02510 3	.0257 1	13.303940 5	.1221E-3 9	7.335910	44	6	.39
38958.0	185.8 2	318.293 5	81.450 7	.02533 8	.3276 7	13.304188 5	.119E-3 1	7.334125	40	6	.39
38959.0	184.1 7	317.46 1	81.440 1	.0255 2	.630 2	13.304421 7	.116E-3 1	7.332419	40	6	.43
38960.0	184.7 2	316.634 6	81.450 8	.02496 8	.9251 7	13.304627 5	.113E-3 1	7.336732	38	6	.41
38961.0	182.4 2	315.803 6	81.450 7	.02523 8	.2294 6	13.304874 6	.114E-3 1	7.334577	37	6	.37
38962.0	180.7 1	314.968 8	81.444 9	.02519 5	.5319 3	13.305065 7	.111E-3 1	7.334820	36	6	.52
38963.0	178.36 9	314.136 8	81.44 1	.02549 4	.8367 3	13.305291 8	.106E-3 1	7.332499	39	6	.60
38964.0	176.00 8	313.301 9	81.44 1	.02583 3	.1418 2	13.305504 9	.98E-4 2	7.329864	42	6	.66
38965.0	173.67 7	312.470 9	81.44 1	.02627 4	.4469 2	13.30575 1	.98E-4 2	7.326495	44	6	.66
38966.0	171.8 2	311.64 2	81.44 3	.02618 6	.7509 4	13.305771 7	.86E-4 3	7.327124	43	6	1.40
38967.0	170.2 1	310.83 2	81.47 2	.02643 6	.0544 4	13.305944 6	.89E-4 3	7.325208	46	6	1.31
38968.0	169.11 5	309.998 9	81.474 9	.02617 3	.3563 1	13.306342 7	.85E-4 1	7.326973	49	6	.50
38969.0	166.61 5	309.166 8	81.464 9	.02677 2	.6627 1	13.306532 9	.83E-4 1	7.322400	47	6	.47
38970.0	165.1 1	308.36 1	81.49 1	.02667 5	.9665 4	13.306467 6	.70E-4 2	7.323193	54	6	1.43
38971.0	163.1 1	307.50 1	81.46 2	.02672 4	.2716 3	13.306623 6	.80E-4 3	7.322779	51	6	1.35
38972.0	161.74 6	306.660 5	81.452 5	.02650 2	.5750 2	13.30703 1	.80E-4 2	7.324293	44	6	.55

MJD	ω	Ω	i	e	M	n	n′/2	a	N	D	σ
38973.0	159.41 6	305.826 5	81.449 5	.02724 4	.8817 2	13.30719 2	.67E-4 1	7.318644	35	6	.52
38974.0	158.0 1	304.976 7	81.425 7	.02681 3	.1856 3	13.307038 4	.67E-4 3	7.321896	47	6	1.10
38975.0	156.0 1	304.150 7	81.431 8	.02677 3	.4913 4	13.307160 4	.64E-4 3	7.322201	58	6	1.35
38976.0	155.03 8	303.329 3	81.455 3	.02691 3	.7945 2	13.307293 9	.48E-4 2	7.321086	44	6	.77
38977.0	152.79 9	302.494 2	81.453 3	.02677 3	.1011 2	13.307392 8	.46E-4 3	7.322093	51	6	.89
38978.0	150.40 9	301.664 2	81.455 2	.02660 4	.4083 2	13.307488 5	.47E-4 2	7.323376	54	6	.90
38979.0	148.2 1	300.829 3	81.458 3	.02644 4	.7150 3	13.307591 3	.48E-4 2	7.324497	60	6	1.08
38980.0	146.4 1	299.999 3	81.455 3	.02638 6	.0209 3	13.307677 5	.43E-4 2	7.324899	53	6	1.31
38981.0	145.0 1	299.166 3	81.455 2	.02658 6	.3256 3	13.307745 4	.42E-4 2	7.323373	48	6	.90
38982.0	144.04 9	298.331 2	81.463 2	.02681 4	.6295 2	13.307833 4	.43E-4 2	7.321649	52	6	.90
38983.0	141.72 8	297.503 2	81.460 3	.02656 3	.9369 2	13.307920 4	.39E-4 2	7.323451	56	6	.85
38984.0	139.50 8	296.672 2	81.463 3	.02629 2	.2441 2	13.307968 4	.29E-4 2	7.325484	56	6	.91
38985.0	137.27 8	295.843 3	81.464 3	.02601 3	.5514 2	13.308029 6	.24E-4 2	7.327556	54	6	.89
38986.0	136.4 1	295.010 4	81.465 4	.02605 2	.8552 3	13.308130 5	.14E-4 2	7.327265	58	6	.80
38987.0	134.65 9	294.184 5	81.473 6	.02591 2	.1612 3	13.308158 2	.15E-4 2	7.328284	77	6	.81
38988.0	132.66 7	293.348 4	81.469 5	.02576 2	.4680 2	13.308192 2	.14E-4 1	7.329381	75	6	.63
38989.0	130.44 7	292.520 4	81.470 5	.02566 5	.7755 2	13.30820 3	.6E-5 3	7.330134	74	6	.62
38990.0	128.11 6	291.689 4	81.469 5	.02548 1	.0833 2	13.308242 3	.6E-5 2	7.331495	83	6	.62
38991.0	125.70 6	290.862 2	81.473 3	.02521 2	.3912 2	13.308230 2	.4E-5 1	7.333563	84	6	.63
38992.0	123.51 7	290.034 2	81.475 3	.02497 2	.6987 2	13.308249 2	.10E-4 1	7.335351	72	6	.64
38993.0	121.75 9	289.205 3	81.480 3	.02478 3	.0049 2	13.308215 7	.8E-5 2	7.336787	55	6	.78
38994.0	120.57 7	288.375 3	81.485 2	.02475 2	.3097 2	13.308297 3	-.2E-5 2	7.336993	60	6	.85
38995.0	118.52 6	287.545 2	81.486 2	.02451 2	.6168 2	13.308309 2	.4E-5 1	7.338757	74	6	.78
38996.0	116.57 5	286.715 2	81.488 2	.02448 2	.9237 1	13.308291 3	.9E-5 1	7.338970	85	6	.76
38997.0	114.34 4	285.888 1	81.490 1	.02428 1	.2312 1	13.308300 2	.67E-5 9	7.340528	107	6	.70
38998.0	112.19 4	285.061 1	81.489 1	.02405 1	.5386 1	13.308320 2	.78E-5 9	7.342215	127	6	.67
38999.0	110.03 3	284.233 1	81.490 1	.02385 1	.84602 9	13.308343 2	.130E-4 8	7.343719	141	6	.71
39000.0	107.91 3	283.406 1	81.490 1	.02365 1	.15335 8	13.308382 2	.212E-4 8	7.345180	147	6	.69
39001.0	105.65 3	282.5781 8	81.491 1	.02345 1	.46110 7	13.308411 2	.257E-4 6	7.346687	144	6	.58
39002.0	103.36 2	281.7504 8	81.491 1	.02321 1	.76897 7	13.308467 2	.292E-4 7	7.348523	141	6	.59
39003.0	101.19 3	280.924 1	81.492 2	.02301 2	.0766 9	13.308569 3	.496E-4 8	7.349946	131	6	.81

MJD	ω	Ω	i	e	M	n	n'/2	a	N	D	σ
39004.0	98.90 3	280.0964 9	81.493 1	.02282 1	.38463 8	13.308681 2	.563E-4 7	7.351304	115	6	.66
39005.0	96.65 2	279.2702 7	81.493 1	.02261 1	.69269 7	13.308795 2	.606E-4 5	7.352851	111	6	.54
39006.0	94.33 3	278.4432 7	81.493 1	.022417 9	.00107 7	13.308914 2	.586E-4 5	7.354287	100	6	.52
39007.0	91.99 3	277.6162 7	81.493 1	.022221 9	.30962 7	13.309040 2	.593E-4 5	7.355715	89	6	.52
39008.0	89.59 3	276.7884 8	81.493 1	.022055 8	.61845 8	13.309164 1	.618E-4 7	7.356913	87	6	.56
39009.0	87.34 2	275.9631 6	81.4938 9	.021912 6	.92702 7	13.3092895 7	.627E-4 4	7.357947	85	6	.40
39010.0	84.93 2	275.1365 5	81.4934 7	.021740 5	.23613 5	13.3094164 7	.628E-4 4	7.359189	85	6	.37
39011.0	82.41 3	274.3088 7	81.493 1	.021579 7	.54568 7	13.309541 1	.583E-4 6	7.360358	94	6	.51
39012.0	79.98 3	273.4813 8	81.494 1	.021459 7	.85509 8	13.309661 1	.600E-4 7	7.361216	97	6	.55
39013.0	77.57 3	272.6542 8	81.494 1	.021345 8	.16459 9	13.309782 1	.599E-4 7	7.362031	92	6	.58
39014.0	75.13 3	271.8278 8	81.494 1	.021235 8	.47428 9	13.309906 1	.617E-4 7	7.362811	80	6	.52
39015.0	72.58 4	271.002 1	81.494 1	.021140 9	.7844 1	13.310024 1	.573E-4 8	7.363480	75	6	.59
39016.0	69.85 4	270.175 1	81.494 2	.02105 1	.0951 1	13.310157 1	.652E-4 8	7.364115	82	6	.67
39017.0	67.33 4	269.349 1	81.494 1	.020989 8	.4054 1	13.310287 1	.666E-4 8	7.364518	83	6	.61
39018.0	64.76 3	268.5221 8	81.493 1	.020944 7	.71594 9	13.310427 1	.684E-4 6	7.364808	75	6	.48
39019.0	62.31 3	267.6948 9	81.493 1	.020901 7	.02633 8	13.310568 1	.695E-4 7	7.365076	74	6	.46
39020.0	59.74 3	266.868 1	81.494 1	.020874 9	.33715 8	13.310719 1	.768E-4 7	7.365223	91	6	.53
39021.0	57.25 3	266.042 1	81.495 1	.020883 9	.64792 8	13.310874 1	.777E-4 8	7.365100	98	6	.56
39022.0	54.79 3	265.214 1	81.495 1	.02087 1	.95878 8	13.311028 1	.763E-4 9	7.365120	91	6	.52
39023.0	52.35 3	264.387 1	81.495 1	.02088 1	.26975 8	13.311173 1	.717E-4 7	7.365005	96	6	.54
39024.0	49.89 3	263.560 1	81.495 1	.02091 1	.58089 7	13.311320 1	.708E-4 7	7.364756	108	6	.54
39025.0	47.48 3	262.7339 9	81.497 1	.02094 1	.89205 7	13.311464 1	.752E-4 8	7.364451	113	6	.52
39026.0	45.09 3	261.9072 9	81.495 1	.020986 9	.20331 7	13.311613 1	.761E-4 7	7.364050	108	6	.53
39027.0	42.72 3	261.0808 9	81.495 1	.02102 1	.51463 7	13.311766 1	.771E-4 6	7.363729	103	6	.54
39028.0	40.37 2	260.2535 9	81.495 1	.021081 9	.82607 6	13.311922 1	.775E-4 6	7.363227	96	6	.59
39029.0	37.97 2	259.4267 8	81.496 1	.021165 8	.13780 6	13.312082 1	.860E-4 6	7.362534	93	6	.57
39030.0	35.68 3	258.5995 9	81.497 1	.021261 9	.44939 7	13.312258 1	.920E-4 7	7.361749	102	6	.65
39031.0	33.38 3	257.7727 8	81.497 1	.02133 1	.76120 7	13.312443 2	.970E-4 7	7.361172	102	6	.58
39032.0	31.03 3	256.9445 9	81.498 2	.02140 1	.07334 8	13.312642 2	.966E-4 7	7.360583	104	6	.63
39033.0	28.86 3	256.118 1	81.499 2	.02157 1	.3851 1	13.312813 2	.89E-4 1	7.359197	110	6	.79

MJD	ω	Ω	i	e	M	n	n′/2	a	N	D	σ
39034.0	27.03 3	255.291 1	81.498 2	.02163 1	.6962 1	13.313012 2	.992E-4 9	7.358661	122	6	.83
39035.0	24.89 2	254.4635 8	81.499 1	.02182 1	.00829 7	13.313237 2	.1003E-3 6	7.357165	141	6	.58
39036.0	22.46 2	253.6363 7	81.500 1	.021842 9	.32143 7	13.313438 2	.1018E-3 6	7.356944	154	6	.57
39037.0	20.63 2	252.8102 7	81.500 1	.022011 8	.63302 7	13.313644 1	.1069E-3 7	7.355599	149	6	.52
39038.0	18.53 2	251.9828 7	81.500 1	.022099 7	.94565 5	13.313861 1	.1079E-3 6	7.354851	162	6	.56
39039.0	16.30 3	251.1557 7	81.501 1	.022174 9	.25884 7	13.314080 1	.1103E-3 7	7.354207	157	6	.59
39040.0	14.24 2	250.3284 8	81.501 1	.02225 1	.57178 7	13.314308 2	.1125E-3 9	7.353567	142	6	.62
39041.0	11.78 3	249.5005 8	81.503 1	.02224 2	.88608 7	13.314540 2	.115E-3 1	7.353582	107	6	.61
39042.0	9.32 3	248.6732 9	81.504 2	.02223 2	.20063 7	13.314772 3	.117E-3 1	7.353527	76	6	.59
39043.0	7.30 4	247.847 1	81.503 2	.02230 3	.5142 1	13.315014 3	.121E-3 1	7.352889	53	6	.63
39044.0	8.03 8	247.022 2	81.489 4	.02291 3	.8200 2	13.315262 3	.100E-3 2	7.348254	41	6	.80
39045.0	5.96 4	246.197 2	81.492 3	.02282 3	.1342 1	13.315475 2	.104E-3 1	7.348822	55	6	.72
39046.0	3.87 5	245.368 2	81.489 4	.02280 4	.4486 1	13.315688 3	.99E-4 2	7.348879	67	6	.98
39047.0	1.63 4	244.540 2	81.488 3	.02274 2	.7637 1	13.315926 3	.103E-3 1	7.349289	75	6	.65
39048.0	359.33 4	243.711 2	81.487 3	.02274 2	.0791 1	13.316111 2	.97E-4 1	7.349214	75	6	.76
39049.0	356.85 5	242.882 3	81.486 4	.02274 2	.3953 1	13.316268 4	.86E-4 2	7.349160	73	6	.92
39050.0	354.37 5	242.051 3	81.484 4	.02274 2	.7116 1	13.316442 4	.82E-4 2	7.349116	69	6	.89
39051.0	353.0 1	241.225 8	81.49 1	.02266 4	.0250 3	13.316604 4	.82E-4 2	7.349652	69	6	1.40
39052.0	351.45 9	240.399 4	81.484 6	.02272 3	.3390 3	13.316798 3	.74E-4 2	7.349133	57	6	1.09
39053.0	349.51 8	239.567 3	81.482 4	.02285 3	.6543 2	13.316935 3	.72E-4 2	7.348105	40	6	.97
39054.0	347.13 8	238.740 4	81.481 4	.02275 3	.9710 2	13.317084 4	.72E-4 2	7.348772	39	6	1.00
39055.0	345.2 1	237.911 5	81.476 6	.02269 5	.2865 4	13.317251 6	.91E-4 4	7.349177	37	6	1.42
39056.0	344.7 2	237.082 7	81.471 7	.02287 5	.5983 5	13.317438 6	.78E-4 4	7.347774	36	6	1.66
39057.0	343.2 1	236.250 5	81.473 5	.02280 3	.9132 4	13.317619 5	.95E-4 3	7.348188	29	6	1.11
39058.0	341.2 2	235.421 5	81.474 7	.02271 5	.2296 5	13.317811 6	.90E-4 3	7.348809	27	6	1.48
39059.0	339.9 2	234.590 5	81.472 7	.02278 5	.5441 5	13.318003 7	.80E-4 4	7.348193	34	6	1.67
39060.0	338.2 1	233.761 4	81.474 5	.02266 4	.8602 4	13.318194 6	.81E-4 4	7.349034	32	6	1.30
39061.0	336.0 2	232.928 4	81.473 6	.02255 3	.1776 4	13.318362 5	.81E-4 3	7.349782	34	6	1.30
39062.0	333.6 2	232.098 4	81.469 6	.02240 3	.4959 4	13.318526 5	.84E-4 3	7.350888	33	6	1.28
39063.0	331.7 2	231.268 5	81.468 7	.02227 4	.8128 5	13.318655 5	.65E-4 4	7.351780	33	6	1.72
39064.0	330.0 2	230.436 6	81.467 8	.02220 5	.1293 6	13.318819 7	.82E-4 5	7.352253	31	6	2.04

MJD	ω	Ω	i	e	M	n	n'/2	a	N	D	σ
39065.0	328.6 2	229.604 5	81.466 6	.02212 3	.4451 5	13.318998 6	.81E-4 4	7.352821	21	6	1.19
39066.0	327.0 2	228.773 5	81.464 7	.02218 5	.7618 7	13.31911 1	.60E-4 4	7.352323	25	6	1.81
39067.0	325.3 2	227.939 5	81.463 7	.02184 6	.0789 6	13.319259 7	.60E-4 5	7.354825	23	6	1.99
39068.0	322.9 2	227.108 5	81.461 7	.02171 6	.3979 6	13.319394 8	.78E-4 5	7.355757	21	6	1.84
39069.0	321.2 2	226.277 4	81.461 5	.02147 4	.7153 5	13.319561 8	.75E-4 4	7.357470	19	6	1.38
39070.0	319.7 2	225.445 3	81.463 4	.02129 5	.0320 4	13.319634 6	.73E-4 4	7.358821	22	6	1.23
39071.0	317.4 2	224.614 3	81.463 5	.02134 5	.3514 4	13.319788 6	.79E-4 3	7.358375	23	6	1.33
39072.0	315.7 2	223.781 4	81.460 6	.02109 6	.6690 6	13.31999 1	.81E-4 6	7.360155	16	6	1.46
39073.0	313.6 2	222.950 3	81.464 4	.02095 7	.9882 4	13.32014 2	.67E-4 3	7.361174	17	6	.91
39074.0	311.6 2	222.117 4	81.464 6	.02062 6	.3071 6	13.320268 8	.53E-4 5	7.363596	19	6	1.54
39075.0	309.6 3	221.286 5	81.463 6	.02045 6	.6259 7	13.320364 7	.61E-4 4	7.364858	19	6	1.59
39076.0	308.6 3	220.447 8	81.458 8	.01993 8	.9423 8	13.32044 1	.57E-4 4	7.368707	14	6	1.20
39077.0	306.8 2	219.629 7	81.475 7	.01996 3	.2610 5	13.320583 9	.57E-4 4	7.368468	17	6	.65
39078.0	304.7 2	218.793 9	81.473 9	.01977 3	.5804 6	13.320698 5	.52E-4 4	7.369832	21	6	.86
39079.0	303.0 3	217.94 1	81.45 1	.01947 5	.8989 7	13.320790 7	.46E-4 5	7.372039	18	6	.91
39080.0	300.9 3	217.13 1	81.47 1	.01916 6	.2187 7	13.320869 9	.36E-4 3	7.374343	18	6	.91
39081.0	298.8 2	216.29 1	81.46 1	.01885 8	.5386 6	13.32094 1	.38E-4 4	7.376669	16	6	.68
39082.0	295.9 2	215.45 1	81.46 1	.0179 1	.8603 6	13.32096 2	.48E-4 2	7.383645	16	6	.61
39083.0	293.5 2	214.60 2	81.43 2	.0175 2	.1812 6	13.32102 2	.49E-4 2	7.386943	13	6	.54
39084.0	290.9 2	213.77 2	81.44 2	.0169 2	.5027 5	13.32113 2	.51E-4 2	7.391136	15	8	.53
39085.0	288. 2	212.94 5	81.44 5	.016 1	.825 4	13.32126 5	.50E-4 1	7.395558	15	8	.49
39086.0	290.3 2	212.14 1	81.48 2	.0196 3	.1340 3	13.32123 2	.50E-4 1	7.371258	24	8	.73
39087.0	282. 2	211.36 2	81.54 3	.015 1	.471 5	13.32149 3	.42E-4 2	7.407066	23	8	.64
39088.0	283. 1	210.47 3	81.48 3	.016 1	.783 3	13.32157 5	.42E-4 2	7.399972	24	8	.68
39089.0	284.0 4	209.60 2	81.42 2	.018 3	.095 1	13.32157 2	.41E-4 1	7.383500	24	8	.67
39090.0	280.4 2	208.795 9	81.45 1	.01670 9	.4199 5	13.32168 1	.49E-4 5	7.392577	22	6	.59
39091.0	277.8 2	207.96 1	81.46 1	.0163 1	.7419 6	13.32177 1	.41E-4 2	7.395855	26	6	.54
39092.0	277.3 2	207.138 9	81.47 1	.01689 8	.0585 5	13.32182 1	.38E-4 1	7.391090	28	6	.61
39093.0	274.7 2	206.327 4	81.499 5	.0160 1	.3804 5	13.32194 2	.40E-4 3	7.397449	28	6	.89
39094.0	272.02 8	205.492 2	81.502 3	.01552 5	.7030 2	13.322065 8	.42E-4 3	7.401292	31	6	.68

MJD	ω	Ω	i	e	M	n .	n′/2	a	N	D	σ
39095.0	269.42 6	204.663 2	81.501 2	.01532 3	.0254 2	13.322143 4	.44E-4 1	7.402793	39	6	.57
39096.0	266.82 5	203.834 1	81.500 2	.01506 2	.3479 2	13.322232 3	.40E-4 1	7.404713	41	6	.55
39097.0	264.27 6	203.004 1	81.501 2	.01485 2	.6703 2	13.322315 2	.39E-4 1	7.406280	45	6	.71
39098.0	261.77 7	202.173 1	81.500 2	.01462 2	.9926 2	13.322388 2	.34E-4 1	7.407983	45	6	.78
39099.0	259.75 8	201.349 2	81.511 3	.01433 2	.3137 2	13.322448 3	.35E-4 1	7.410097	47	6	.83
39100.0	257.32 7	200.520 1	81.514 2	.01407 2	.6360 2	13.322512 3	.33E-4 1	7.412002	42	6	.69
39101.0	254.85 7	199.694 1	81.517 2	.01388 3	.9585 2	13.322598 4	.35E-4 1	7.413455	42	6	.66
39102.0	252.20 7	198.866 1	81.518 2	.01364 3	.2815 2	13.322664 4	.38E-4 1	7.415248	43	6	.64
39103.0	249.65 7	198.036 1	81.516 2	.01331 4	.6044 2	13.322737 5	.47E-4 1	7.417669	45	6	.68
39104.0	247.01 9	197.208 1	81.517 2	.01317 6	.9275 2	13.32284 1	.54E-4 1	7.418706	49	6	.82
39105.0	244.6 1	196.381 1	81.513 3	.01311 6	.2502 3	13.322957 7	.65E-4 1	7.419118	48	6	.78
39106.0	241.95 9	195.553 1	81.515 2	.01282 5	.5736 3	13.323096 6	.71E-4 1	7.421219	49	6	.65
39107.0	239.6 1	194.728 1	81.510 2	.01269 5	.8964 3	13.323236 5	.730E-4 9	7.422141	50	6	.61
39108.0	236.8 1	193.901 2	81.511 3	.01246 5	.2206 3	13.323375 7	.681E-4 9	7.423836	54	6	.69
39109.0	234.1 1	193.074 1	81.514 3	.01226 5	.5445 3	13.323504 6	.641E-4 8	7.425245	53	6	.63
39110.0	231.7 1	192.249 2	81.512 3	.01212 4	.8680 3	13.323634 4	.632E-4 8	7.426275	55	6	.58
39111.0	228.9 1	191.423 2	81.511 3	.01194 4	.1925 3	13.323767 4	.648E-4 8	7.427601	59	6	.54
39112.0	226.43 9	190.597 2	81.511 3	.01183 3	.5162 2	13.323903 4	.655E-4 9	7.428357	66	6	.58
39113.0	223.85 6	189.7681 9	81.513 2	.01172 2	.8404 2	13.324040 3	.663E-4 7	7.429171	72	6	.51
39114.0	221.25 5	188.9410 8	81.514 1	.01152 2	.1647 1	13.324188 3	.685E-4 6	7.430582	82	6	.52
39115.0	218.63 4	188.1139 9	81.514 1	.01142 1	.4893 1	13.324323 2	.690E-4 8	7.431256	84	6	.52
39116.0	215.98 4	187.2868 8	81.515 1	.01134 1	.8141 1	13.324459 2	.689E-4 8	7.431804	79	6	.50
39117.0	213.47 4	186.4597 9	81.517 2	.01125 1	.1387 1	13.324591 2	.625E-4 8	7.432499	73	6	.52
39118.0	210.87 4	185.6334 8	81.517 2	.01116 1	.4636 1	13.324715 1	.612E-4 7	7.433071	76	6	.52
39119.0	208.87 6	184.808 1	81.519 2	.01108 2	.7870 2	13.324854 2	.67E-4 1	7.433652	78	6	.85
39120.0	206.71 5	183.982 1	81.523 2	.01100 1	.1110 1	13.324998 2	.678E-4 8	7.434178	68	6	.61
39121.0	204.21 6	183.155 1	81.522 2	.01097 2	.4361 2	13.325144 2	.70E-4 1	7.434332	71	6	.70
39122.0	201.56 5	182.330 1	81.523 2	.01095 2	.7617 2	13.325286 3	.80E-4 1	7.434460	68	6	.67
39123.0	198.99 5	181.503 1	81.523 2	.01094 2	.0872 2	13.325452 2	.81E-4 1	7.434487	66	6	.65
39124.0	197.4 1	180.674 2	81.520 2	.01079 2	.4102 3	13.325603 2	.78E-4 1	7.435566	67	6	.75
39125.0	195.8 1	179.845 1	81.516 2	.01073 2	.7334 3	13.325755 2	.80E-4 1	7.435967	79	6	.73

Satellite 1964 5A (Saturn 5)

I. SAO smoothed elements

The following elements are based on 70 observations and are valid for the period July 1 through July 16, 1965.

$$T_0 = 38949.0 \text{ MJD}$$

$$\omega = (161.^\circ13 \pm 4) + 10.^\circ63781\, t + 1.^\circ4491 \cos\omega$$

$$\Omega = (261.^\circ426 \pm 3) - 6.^\circ88269\, t - 0.^\circ0006 \cos\omega$$

$$i = (31.^\circ4598 \pm 9) - 0.^\circ0012 \sin\omega$$

$$e = (0.02223 \pm 1) - (2.8 \pm 3) \times 10^{-5}\, t + 0.0005613 \sin\omega$$

$$M = (0.3623 \pm 1) + (15.548421 \pm 2)\, t + (5.01 \pm 1) \times 10^{-4}\, t^2 - (3.1 \pm 1) \times 10^{-6}\, t^3 - (1.52 \pm 4) \times 10^{-6}\, t^4 + (1.18 \pm 4) \times 10^{-7}\, t^5 - 0.0040197 \cos\omega$$

Standard error of one observation: $\sigma = \pm 2.''83$.

The following elements are based on 90 observations and are valid for the period July 16 through August 1, 1965.

$$T_0 = 38966.0 \text{ MJD}$$

$$\omega = (342.^\circ00 \pm 5) + 10.^\circ65942\, t + 1.^\circ4831 \cos\omega$$

$$\Omega = (144.^\circ298 \pm 4) - 6.^\circ89657\, t - 0.^\circ0006 \cos\omega$$

$$i = (31.^\circ4595 \pm 9) - 0.^\circ0011 \sin\omega$$

$$e = (0.021731 \pm 9) - (3.2 \pm 2) \times 10^{-5}\, t + 0.0005617 \sin\omega$$

$$M = (0.8039 \pm 1) + (15.562037 \pm 2)\, t + (4.217 \pm 5) \times 10^{-4}\, t^2 + (3.7 \pm 1) \times 10^{-6}\, t^3 + (1.84 \pm 7) \times 10^{-7}\, t^4 - (1.7 \pm 17) \times 10^{-9}\, t^5 - 0.0041144 \cos\omega$$

Standard error of one observation: $\sigma = \pm 2.''73$.

The following elements are based on 33 observations and are valid for the period August 1 through August 16, 1965.

$$T_0 = 38981.0 \text{ MJD}$$

$$\omega = (142.^\circ14 \pm 7) + 10.^\circ68493\, t + 1.^\circ5235 \cos\omega$$

$$\Omega = (40.^\circ747 \pm 3) - 6.^\circ91293\, t - 0.^\circ0006 \cos\omega$$

$$i = (31.^\circ458 \pm 2) - 0.^\circ0011 \sin\omega$$

$$e = (0.02117 \pm 3) - (3.8 \pm 5) \times 10^{-5}\, t + 0.0005622 \sin\omega$$

$$M = (0.3465 \pm 2) + (15.578072 \pm 6)\, t + (6.030 \pm 8) \times 10^{-4}\, t^2 - (1.8 \pm 2) \times 10^{-6}\, t^3 - (3.0 \pm 1) \times 10^{-7}\, t^4 - (1.6 \pm 26) \times 10^{-9}\, t^5 - 0.0042267 \cos\omega$$

Standard error of one observation: $\sigma = \pm 2.''88$.

The following elements are based on 51 observations and are valid for the period August 16 through September 1, 1965.

$$T_0 = 38997.0 \text{ MJD}$$

$$\omega = (313.^\circ31 \pm 6) + 10.^\circ70911\, t + 1.^\circ5692 \cos\omega$$

$$\Omega = (289.^\circ999 \pm 7) - 6.^\circ92913\, t - 0.^\circ0006 \cos\omega$$

$$i = (31.^\circ463 \pm 2) - 0.^\circ0011 \sin\omega$$

$$e = (0.02057 \pm 4) - (6.7 \pm 11) \times 10^{-5}\, t + 0.0005627 \sin\omega$$

$$M = (0.7327 \pm 2) + (15.594450 \pm 5)\, t + (4.78 \pm 1) \times 10^{-4}\, t^2 + (5.8 \pm 3) \times 10^{-6}\, t^3 + (6.4 \pm 285) \times 10^{-9}\, t^4 - (8.5 \pm 6) \times 10^{-8}\, t^5 - 0.0043538 \cos\omega$$

Standard error of one observation: $\sigma = \pm 4.''75$.

The following elements are based on 39 observations and are valid for the period September 1 through September 16, 1965.

$$T_0 = 39012.0 \text{ MJD}$$

$$\omega = (114.^\circ29 \pm 7) + 10.^\circ73710\, t + 1.^\circ6095 \cos\omega$$

$$\Omega = (185.^\circ948 \pm 7) - 6.^\circ94677\, t - 0.^\circ0006 \cos\omega$$

$$i = (31.^\circ459 \pm 2) - 0.^\circ0011 \sin\omega$$

$$e = (0.02007 \pm 3) - (5.3 \pm 7) \times 10^{-5}\, t + 0.0005631 \sin\omega$$

$$M = (0.7618 \pm 2) + (15.609559 \pm 5)\, t + (4.58 \pm 2) \times 10^{-4}\, t^2 - (1.2 \pm 5) \times 10^{-6}\, t^3 + (8.4 \pm 5) \times 10^{-7}\, t^4 - (5.6 \pm 11) \times 10^{-8}\, t^5 - 0.0044656 \cos\omega$$

Standard error of one observation: $\sigma = \pm 4.''70$.

The following elements are based on 18 observations and are valid for the period September 16 through October 1, 1965.

$$T_0 = 39027.0 \text{ MJD}$$

$$\omega = (275^\circ.6 \pm 3) + 10^\circ.76381\, t + 1^\circ.7046 \cos\omega$$

$$\Omega = (81^\circ.65 \pm 2) - 6^\circ.96366\, t - 0^\circ.0006 \cos\omega$$

$$i = (31^\circ.457 \pm 4) - 0^\circ.0010 \sin\omega$$

$$e = (0.0190 \pm 3) + (3.9 \pm 35) \times 10^{-5}\, t + 0.0005635 \sin\omega$$

$$M = (0.0122 \pm 7) + (15.62316 \pm 3)\, t + (3.92 \pm 7) \times 10^{-4}\, t^2 + (1.6 \pm 1) \times 10^{-5}\, t^3 + (1.0 \pm 1) \times 10^{-6}\, t^4 - (1.4 \pm 2) \times 10^{-7}\, t^5 - 0.0047301 \cos\omega$$

Standard error of one observation: $\sigma = \pm 8''.73$.

The following elements are based on 34 observations and are valid for the period October 1 through October 16, 1965.

$$T_0 = 39042.0 \text{ MJD}$$

$$\omega = (77^\circ.35 \pm 7) + 10^\circ.77852\, t + 1^\circ.6954 \cos\omega$$

$$\Omega = (337^\circ.152 \pm 6) - 6^\circ.97401\, t - 0^\circ.0006 \cos\omega$$

$$i = (31^\circ.460 \pm 1) - 0^\circ.0010 \sin\omega$$

$$e = (0.01908 \pm 3) - (2.1 \pm 6) \times 10^{-5}\, t + 0.0005640 \sin\omega$$

$$M = (0.4782 \pm 2) + (15.63947 \pm 1)\, t + (6.03 \pm 6) \times 10^{-4}\, t^2 + (6.5 \pm 5) \times 10^{-6}\, t^3 - (6.9 \pm 12) \times 10^{-7}\, t^4 - (1.2 \pm 1) \times 10^{-7}\, t^5 - 0.0047044 \cos\omega$$

Standard error of one observation: $\sigma = \pm 3''.58$.

The following elements are based on 67 observations and are valid for the period October 16 through November 1, 1965.

$$T_0 = 39057.0 \text{ MJD}$$

$$\omega = (238^\circ.70 \pm 9) + 10^\circ.80817\, t + 1^\circ.7484 \cos\omega$$

$$\Omega = (232^\circ.391 \pm 9) - 6^\circ.99229\, t - 0^\circ.0006 \cos\omega$$

$$i = (31^\circ.455 \pm 3) - 0^\circ.0010 \sin\omega$$

$$e = (0.01852 \pm 5) - (5.4 \pm 12) \times 10^{-5}\, t + 0.0005645 \sin\omega$$

$$M = (0.1943 \pm 3) + (15.655534 \pm 8)\, t + (6.40 \pm 2) \times 10^{-4}\, t^2 + (1.10 \pm 6) \times 10^{-5}\, t^3 - (1.38 \pm 9) \times 10^{-6}\, t^4 - (6.0 \pm 10) \times 10^{-8}\, t^5 + (1.05 \pm 1) \times 10^{-8}\, t^6 - (0.0048519) \cos\omega$$

Standard error of one observation: $\sigma = \pm 5''.85$.

The following elements are based on 37 observations and are valid for the period November 1 through November 16, 1965.

$$T_0 = 39073.0 \text{ MJD}$$

$$\omega = (51^\circ.4 \pm 1) + 10^\circ.84685\, t + 1^\circ.8404 \cos \omega$$

$$\Omega = (120^\circ.35 \pm 1) - 7^\circ.01806\, t - 0^\circ.0006 \cos \omega$$

$$i = (31^\circ.454 \pm 3) - 0^\circ.0009 \sin \omega$$

$$e = (0.01761 \pm 5) - (6.8 \pm 10) \times 10^{-5}\, t + 0.0005652 \sin \omega$$

$$M = (0.8550 \pm 4) + (15.67821 \pm 1)\, t + (7.94 \pm 2) \times 10^{-4}\, t^2 - (1.42 \pm 5) \times 10^{-5}\, t^3 - (1.5 \pm 3) \times 10^{-7}\, t^4 + (1.46 \pm 6) \times 10^{-7}\, t^5 - 0.0051075 \cos \omega$$

Standard error of one observation: $\sigma = \pm 4''.78$.

The following elements are based on 39 observations and are valid for the period November 16 through December 1, 1965.

$$T_0 = 39088.0 \text{ MJD}$$

$$\omega = (214^\circ.8 \pm 1) + 10^\circ.87833\, t + 1^\circ.9065 \cos \omega$$

$$\Omega = (14^\circ.945 \pm 8) - 7^\circ.03867\, t - 0^\circ.0006 \cos \omega$$

$$i = (31^\circ.462 \pm 2) - 0^\circ.0009 \sin \omega$$

$$e = (0.01702 \pm 3) - (3.6 \pm 8) \times 10^{-5}\, t + 0.0005659 \sin \omega$$

$$M = (0.1962 \pm 3) + (15.701360 \pm 6)\, t + (7.34 \pm 2) \times 10^{-4}\, t^2 - (1.73 \pm 4) \times 10^{-5}\, t^3 + (2.1 \pm 2) \times 10^{-7}\, t^4 + (1.48 \pm 6) \times 10^{-7}\, t^5 - 0.0052913 \cos \omega$$

Standard error of one observation: $\sigma = \pm 5''.18$.

The following elements are based on 32 observations and are valid for the period December 1 through December 16, 1965.

$$T_0 = 39103.0 \text{ MJD}$$

$$\omega = (18^\circ.1 \pm 1) + 10^\circ.91892\, t + 1^\circ.9832 \cos \omega$$

$$\Omega = (269^\circ.176 \pm 9) - 7^\circ.06348\, t - 0^\circ.0006 \cos \omega$$

$$i = (31^\circ.454 \pm 2) - 0^\circ.0009 \sin \omega$$

$$e = (0.01639 \pm 9) - (9.5 \pm 22) \times 10^{-5}\, t + 0.0005666 \sin \omega$$

$$M = (0.8821 \pm 3) + (15.724592 \pm 9)\, t + (8.58 \pm 2) \times 10^{-4}\, t^2 + (2.9 \pm 5) \times 10^{-6}\, t^3 - (9.6 \pm 36) \times 10^{-8}\, t^4 - (3.4 \pm 8) \times 10^{-8}\, t^5 - 0.0055045 \cos \omega$$

Standard error of one observation: $\sigma = \pm 5''.70$.

The following elements are based on 54 observations and are valid for the period December 16, 1965, through January 1, 1966.

$$T_0 = 39118.0 \text{ MJD}$$

$$\omega = (182^\circ.482 \pm 7) + 10^\circ.95971\, t + 2^\circ.1272 \cos\omega$$

$$\Omega = (163^\circ.044 \pm 6) - 7^\circ.08944\, t - 0^\circ.0005 \cos\omega$$

$$i = (31^\circ.455 \pm 1) - 0^\circ.0008 \sin\omega$$

$$e = (0.01529 \pm 4) - (6.0 \pm 7) \times 10^{-5}\, t + 0.0005674 \sin\omega$$

$$M = (0.93880 \pm 2) + (15.749402 \pm 6)\, t + (7.97 \pm 1) \times 10^{-4}\, t^2 + (7.7 \pm 2) \times 10^{-6}\, t^3 + (8.4 \pm 3) \times 10^{-7}\, t^4 - (1.20 \pm 3) \times 10^{-7}\, t^5 - 0.0059048 \cos\omega$$

Standard error of one observation: $\sigma = \pm 3\overset{\prime}{.}70$.

The following elements are based on 34 observations and are valid for the period January 1 through January 16, 1966.

$$T_0 = 39134.0 \text{ MJD}$$

$$\omega = (358^\circ.18 \pm 6) + 10^\circ.99718\, t + 2^\circ.2645 \cos\omega$$

$$\Omega = (49^\circ.421 \pm 5) - 7^\circ.11546\, t - 0^\circ.0005 \cos\omega$$

$$i = (31^\circ.458 \pm 1) - 0^\circ.0008 \sin\omega$$

$$e = (0.01439 \pm 3) - (6.2 \pm 8) \times 10^{-5}\, t + 0.0005682 \sin\omega$$

$$M = (0.1398 \pm 2) + (15.775368 \pm 9)\, t + (8.69 \pm 4) \times 10^{-4}\, t^2 + (1.7 \pm 3) \times 10^{-5}\, t^3 (1.8 \pm 5) \times 10^{-6}\, t^4 + (8.2 \pm 31) \times 10^{-8}\, t^5 - 0.0062862 \cos\omega$$

Standard error of one observation: $\sigma = \pm 2\overset{\prime}{.}10$.

The following elements are based on 31 observations and are valid for the period January 16 through February 1, 1966.

$$T_0 = 39149.0 \text{ MJD}$$

$$\omega = (164^\circ.3 \pm 1) + 11^\circ.04599\, t + 2^\circ.3973 \cos\omega$$

$$\Omega = (302^\circ.456 \pm 6) - 7^\circ.14594\, t - 0^\circ.0005 \cos\omega$$

$$i = (31^\circ.455 \pm 1) - 0^\circ.0007 \sin\omega$$

$$e = (0.01361 \pm 2) - (7.4 \pm 6) \times 10^{-5}\, t + 0.0005691 \sin\omega$$

$$M = (0.9698 \pm 3) + (15.803906 \pm 6)\, t + (1.127 \pm 3) \times 10^{-3}\, t^2 - (2.67 \pm 6) \times 10^{-5}\, t^3 - (2.4 \pm 1) \times 10^{-6}\, t^4 + (2.6 \pm 2) \times 10^{-7}\, t^5 - 0.0066553 \cos\omega$$

Standard error of one observation: $\sigma = \pm 4\overset{\prime}{.}18$.

The following elements are based on 58 observations and are valid for the period February 1 through February 18, 1966.

$$T_0 = 39165.0 \text{ MJD}$$

$$\omega = (341^\circ.6 \pm 1) + 11^\circ.08814\, t + 2^\circ.5402 \cos\omega$$

$$\Omega = (187^\circ.916 \pm 6) - 7^\circ.17262\, t - 0^\circ.0005 \cos\omega$$

$$i = (31^\circ.452 \pm 2) - 0^\circ.0007 \sin\omega$$

$$e = (0.01286 \pm 2) - (9.6 \pm 7) \times 10^{-5}\, t + 0.0005699 \sin\omega$$

$$M = (0.0389 \pm 3) + (15.829105 \pm 3)\, t + (8.23 \pm 2) \times 10^{-4}\, t^2 + (2.40 \pm 3) \times 10^{-5}\, t^3 + (1.34 \pm 4) \times 10^{-6}\, t^4 - (2.69 \pm 5) \times 10^{-7}\, t^5 - 0.0070524 \cos\omega$$

Standard error of one observation: $\sigma = \pm 2''.65$.

The following elements are based on 23 observations and are valid for the period March 1 through March 16, 1966.

$$T_0 = 39193.0 \text{ MJD}$$

$$\omega = (292^\circ.4 \pm 1) + 11^\circ.18570\, t + 2^\circ.9568 \cos\omega$$

$$\Omega = (346^\circ.196 \pm 7) - 7^\circ.23650\, t - 0^\circ.0005 \cos\omega$$

$$i = (31^\circ.458 \pm 2) - 0^\circ.0006 \sin\omega$$

$$e = (0.01108 \pm 3) - (8.2 \pm 10) \times 10^{-5}\, t + 0.0005717 \sin\omega$$

$$M = (0.0847 \pm 4) + (15.890329 \pm 5)\, t + (1.138 \pm 2) \times 10^{-3}\, t^2 + (1.38 \pm 8) \times 10^{-5}\, t^3 + (2.80 \pm 8) \times 10^{-6}\, t^4 + (9.5 \pm 21) \times 10^{-8}\, t^5 - 0.0082101 \cos\omega$$

Standard error of one observation: $\sigma = \pm 2''.98$.

The following elements are based on 24 observations and are valid for the period March 16 through April 1, 1966.

$$T_0 = 39208.0 \text{ MJD}$$

$$\omega = (99^\circ.5 \pm 5) + 11^\circ.29236\, t + 3^\circ.4886 \cos\omega$$

$$\Omega = (237^\circ.24 \pm 1) - 7^\circ.30425\, t - 0^\circ.0004 \cos\omega$$

$$i = (31^\circ.439 \pm 4) - 0^\circ.0005 \sin\omega$$

$$e = (0.00943 \pm 8) - (1.6 \pm 2) \times 10^{-4}\, t + 0.0005737 \sin\omega$$

$$M = (0.826 \pm 1) + (15.94822 \pm 1)\, t + (2.511 \pm 4) \times 10^{-3}\, t^2 + (1.52 \pm 6) \times 10^{-5}\, t^3 + (4.6 \pm 122) \times 10^{-8}\, t^4 - (3.2 \pm 12) \times 10^{-8}\, t^5 - 0.0096876 \cos\omega$$

Standard error of one observation: $\sigma = \pm 7''.83$.

MJD	ω	Ω	i	e	M	n	n'/2	a	N	D	σ
38942.0	86.89 4	309.585 5	31.456 2	.02303 2	.5453 1	15.542024 2	4.66E-4 1	6.780692	25	6	.97
38943.0	97.30 6	302.71 1	31.455 2	.02297 3	.0884 2	15.542990 2	4.81E-4 2	6.780411	22	6	1.09
38944.0	107.6 1	295.83 2	31.457 3	.02293 5	.6328 3	15.543895 4	4.44E-4 2	6.780148	24	6	2.10
38945.0	117.97 4	288.955 5	31.4585 8	.02289 2	.1779 1	15.544827 4	4.02E-4 1	6.779877	25	6	.74
38946.0	128.42 5	282.073 7	31.458 1	.02277 2	.7236 1	15.545632 2	4.04E-4 2	6.779643	28	6	1.05
38947.0	138.7 1	275.19 1	31.459 3	.02262 4	.2707 3	15.546538 4	4.44E-4 2	6.779379	34	6	2.37
38948.0	149.4 1	268.32 1	31.458 2	.02253 3	.8175 3	15.547443 4	4.88E-4 2	6.779116	36	6	2.05
38949.0	159.80 4	261.432 4	31.4593 9	.02241 1	.3660 1	15.548400 1	4.872E-4 8	6.778838	40	6	.78
38950.0	170.34 4	254.551 3	31.4598 7	.022305 9	.9151 1	15.549390 1	4.72E-4 1	6.778550	35	6	.68
38951.0	180.92 7	247.668 6	31.460 1	.02217 2	.4652 2	15.550316 4	4.60E-4 2	6.778280	39	6	1.23
38952.0	191.62 5	240.786 4	31.461 1	.02196 2	.0158 1	15.551192 6	4.37E-4 2	6.778026	33	6	.86
38953.0	202.41 8	233.902 7	31.460 2	.02180 6	.5670 2	15.55199 1	4.00E-4 2	6.777795	34	6	1.39
38954.0	213.16 4	227.011 4	31.461 1	.02182 2	.1192 1	15.552784 3	3.82E-4 2	6.777563	30	6	.69
38955.0	223.97 7	220.124 4	31.461 2	.02165 4	.6718 2	15.553559 5	3.86E-4 1	6.777338	20	6	.78
38956.0	234.8 1	213.235 5	31.461 2	.02161 4	.2254 3	15.554314 5	3.84E-4 2	6.777118	23	6	1.21
38957.0	245.9 2	206.349 6	31.461 3	.02155 4	.7789 5	15.555055 8	3.60E-4 8	6.776903	19	6	1.45
38958.0	256.8 1	199.460 4	31.460 2	.02152 2	.3334 3	15.555735 4	3.29E-4 2	6.776705	27	6	.89
38959.0	267.8 3	192.571 7	31.463 4	.02158 8	.8884 9	15.55641 1	3.46E-4 4	6.776509	27	6	1.64
38960.0	278.5 3	185.676 7	31.464 3	.0217 1	.4451 9	15.55714 1	3.84E-4 4	6.776296	31	6	1.43
38961.0	289.27 9	178.785 8	31.462 2	.02131 6	.0023 3	15.557959 9	4.18E-4 2	6.776059	42	6	.99
38962.0	300.09 5	171.883 8	31.461 2	.02133 2	.5603 2	15.558769 4	4.15E-4 2	6.775824	42	6	.73
38963.0	310.98 5	164.993 6	31.461 1	.02136 1	.1188 1	15.559589 3	4.09E-4 1	6.775585	50	6	.77
38964.0	321.87 4	158.101 5	31.4609 9	.02141 1	.6782 1	15.560414 2	4.03E-4 1	6.775346	47	6	.68
38965.0	332.62 4	151.206 4	31.4603 8	.021471 8	.2387 1	15.561227 2	4.14E-4 1	6.775110	52	6	.80
38966.0	343.37 4	144.310 4	31.4600 8	.021564 8	.8001 1	15.562056 2	4.18E-4 1	6.774869	50	6	.84
38967.0	354.08 4	137.417 4	31.4595 7	.021666 6	.3624 1	15.562906 1	4.311E-4 7	6.774622	41	6	.68
38968.0	4.73 4	130.522 4	31.4590 7	.021751 6	.9258 1	15.563767 2	4.33E-4 1	6.774372	35	6	.65
38969.0	15.2 1	123.63 2	31.458 2	.02179 2	.4904 3	15.564713 4	4.78E-4 2	6.774097	32	6	1.89
38970.0	25.74 9	116.718 9	31.458 2	.02189 2	.0560 3	15.565664 3	4.85E-4 2	6.773821	31	6	1.42
38971.0	36.37 7	109.820 7	31.458 2	.02191 1	.6222 2	15.566656 2	5.06E-4 1	6.773533	24	6	1.01
38972.0	46.91 7	102.921 6	31.458 2	.02195 1	.1897 2	15.567674 2	5.12E-4 1	6.773238	24	6	.97

MJD	ω	Ω	i	e	M	n	n′/2	a	N	D	σ
38973.0	57.4 1	96.01 1	31.459 4	.02197 3	.7585 3	15.568706 5	.528E-3 3	6.772939	18	6	1.58
38974.0	67.9 1	89.11 1	31.460 4	.02195 3	.3280 3	15.569800 4	.556E-3 2	6.772621	21	6	1.54
38975.0	78.27 9	82.21 1	31.459 5	.02192 3	.8992 3	15.570922 6	.566E-3 3	6.772296	18	6	1.21
38976.0	88.76 6	75.300 8	31.462 3	.02187 3	.4712 2	15.572081 5	.589E-3 2	6.771960	16	6	.68
38977.0	99.15 6	68.388 7	31.464 3	.02185 3	.0447 2	15.573265 4	.588E-3 1	6.771616	15	6	.60
38978.0	109.44 9	61.477 8	31.464 5	.02184 4	.6197 3	15.574440 4	.582E-3 3	6.771276	11	6	.52
38979.0	119.4 1	54.574 7	31.460 4	.02190 4	.1968 4	15.575591 8	.578E-3 3	6.770942	8	6	.37
38980.0	130.7 1	47.667 6	31.463 5	.02150 6	.7712 3	15.57685 1	.622E-3 4	6.770576	6	6	.80
38981.0	141.1 1	40.757 8	31.463 6	.02136 6	.3494 4	15.57809 1	.617E-3 5	6.770218	8	6	1.06
38982.0	152.5 4	33.851 8	31.467 6	.0209 1	.926 1	15.57934 2	.576E-3 8	6.769854	8	6	1.24
38983.0	161.9 1	26.936 6	31.465 4	.02128 7	.5096 4	15.58049 1	.576E-3 4	6.769522	8	6	.48
38984.0	172.7 3	20.02 1	31.466 9	.0210 1	.0904 7	15.58159 1	.556E-3 2	6.769204	9	6	1.23
38985.0	183.3 2	13.11 1	31.466 6	.02092 7	.6727 5	15.582693 7	.531E-3 4	6.768883	10	6	1.10
38986.0	194.4 1	6.16 1	31.456 6	.02088 5	.2550 4	15.583739 7	.514E-3 4	6.768579	13	6	.91
38987.0	205.4 1	359.25 3	31.457 9	.02065 6	.8384 4	15.58474 1	.500E-3 3	6.768290	13	6	1.15
38988.0	216.1 1	352.34 2	31.461 7	.02054 4	.4236 3	15.585751 8	.481E-3 4	6.767997	16	6	.86
38989.0	226.80 7	345.42 2	31.464 5	.02041 4	.0098 2	15.586718 4	.478E-3 3	6.767717	19	6	.86
38990.0	237.80 8	338.47 1	31.458 3	.02027 5	.5962 2	15.587688 6	.499E-3 5	6.767436	22	6	1.51
38991.0	248.73 6	331.56 1	31.461 2	.02028 4	.1837 2	15.588690 4	.522E-3 3	6.767146	23	6	1.34
38992.0	259.65 4	324.637 8	31.462 2	.02016 4	.7723 1	15.589729 4	.528E-3 2	6.766845	26	6	1.26
38993.0	270.66 4	317.711 8	31.462 2	.02012 3	.3617 1	15.590785 4	.533E-3 3	6.766539	24	6	1.19
38994.0	281.48 8	310.79 2	31.463 3	.02004 6	.9527 2	15.591731 8	.461E-3 4	6.766266	24	6	2.36
38995.0	292.40 6	303.85 1	31.462 2	.02003 5	.5443 2	15.592628 6	.441E-3 2	6.766006	23	6	1.66
38996.0	303.34 9	296.93 1	31.462 2	.02001 6	.1367 3	15.593530 7	.447E-3 2	6.765745	23	6	1.98
38997.0	314.5 1	289.99 2	31.463 4	.02010 7	.7294 4	15.594459 9	.480E-3 3	6.765476	26	6	2.56
38998.0	325.4 9	283.06 1	31.464 2	.0202 2	.324 3	15.595440 7	.506E-3 2	6.765192	21	6	1.04
38999.0	335.8 7	276.136 7	31.464 2	.0201 2	.921 2	15.596437 6	.506E-3 1	6.764904	23	6	.92
39000.0	348.5 9	269.22 1	31.459 4	.0208 3	.512 3	15.59741 1	.496E-3 2	6.764621	22	6	1.37
39001.0	358.7 7	262.284 7	31.461 3	.0206 2	.111 2	15.598381 7	.479E-3 1	6.764341	19	6	.88
39002.0	8.6 7	255.349 7	31.460 4	.0205 2	.712 2	15.599327 8	.471E-3 2	6.764067	15	6	.71
39003.0	20. 1	248.42 1	31.46 1	.0209 4	.310 3	15.60027 2	.473E-3 6	6.763795	9	6	.90

MJD	ω	Ω	i	e	M	n	n′/2	a	N	D	σ
39004.0	30. 1	241.477 9	31.459 8	.0205 4	.914 3	15.601409 7	.533E-3 2	6.763465	8	6	.82
39005.0	41.2 5	234.531 4	31.475 5	.0209 2	.513 1	15.602492 4	.541E-3 1	6.763153	5	6	.20
39006.0	51. 2	227.60 2	31.48 2	.0207 7	.118 7	15.60347 3	.497E-3 4	6.762872	7	6	1.62
39007.0	62.9 9	220.62 3	31.44 3	.0210 3	.720 3	15.60436 2	.57E-3 1	6.762610	6	6	.54
39008.0	72.0 1	213.724 8	31.459 3	.02074 6	.3293 3	15.605476 7	.551E-3 2	6.762289	13	6	.70
39009.0	82.3 1	206.79 1	31.460 5	.02071 7	.9367 3	15.60658 1	.542E-3 3	6.761971	16	6	1.30
39010.0	92.87 6	199.848 7	31.460 2	.02071 3	.5443 2	15.607643 5	.498E-3 2	6.761663	19	6	.97
39011.0	103.26 8	192.91 1	31.460 3	.02064 4	.1534 2	15.608629 6	.490E-3 2	6.761378	23	6	1.57
39012.0	113.71 6	185.957 7	31.459 1	.02058 2	.7634 2	15.609589 4	.447E-3 2	6.761101	21	6	1.12
39013.0	124.21 7	179.008 8	31.458 2	.02049 2	.3741 2	15.610486 3	.452E-3 2	6.760842	25	6	1.44
39014.0	134.69 8	172.06 1	31.459 2	.02040 3	.9857 2	15.611386 4	.453E-3 3	6.760582	19	6	1.53
39015.0	145.21 9	165.12 1	31.459 2	.02021 3	.5981 3	15.612353 4	.484E-3 2	6.760302	20	6	1.84
39016.0	155.8 1	158.16 1	31.459 2	.02009 3	.2115 3	15.613317 3	.488E-3 2	6.760024	18	6	1.73
39017.0	166.4 1	151.22 1	31.458 2	.01993 3	.8256 3	15.614288 5	.484E-3 4	6.759744	14	6	1.60
39018.0	177.2 2	144.27 2	31.459 4	.01975 4	.4402 5	15.615284 9	.495E-3 3	6.759456	14	6	2.32
39019.0	187.9 2	137.33 4	31.45 1	.0197 1	.0560 7	15.61625 4	.517E-3 5	6.759177	12	6	2.85
39020.0	199.0 1	130.40 2	31.452 5	.0192 1	.6719 3	15.61736 2	.552E-3 5	6.758855	12	6	1.49
39021.0	209.9 2	123.41 3	31.459 7	.0185 6	.2896 5	15.61847 7	.539E-3 5	6.758536	12	6	2.10
39022.0	221.4 3	116.54 4	31.43 1	.017 1	.9067 7	15.6188 4	.48E-3 1	6.758450	6	6	1.50
39023.0	232.4 3	109.58 4	31.43 1	.019 1	.5251 9	15.6197 4	.48E-3 1	6.758174	6	6	1.49
39024.0	243.5 6	102.56 8	31.47 4	.019 1	.145 2	15.6210 1	.4E-3 2	6.757800	5	6	2.34
39025.0	254.6 3	95.605 9	31.468 7	.0186 1	.7657 9	15.62180 1	.41E-3 1	6.757577	7	8	1.51
39026.0										6	
39030.0										6	
39031.0	320.7 2	53.81 3	31.457 6	.0198 3	.5067 4	15.62730 4	.601E-3 3	6.755988	7	6	.43
39032.0	330.9 3	46.86 3	31.459 4	.0194 7	.1359 7	15.62850 8	.51E-3 1	6.755642	9	6	2.21
39033.0	341.8 2	39.89 2	31.459 3	.0194 4	.7647 5	15.62951 6	.514E-3 7	6.755351	12	6	1.80

MJD	ω	Ω	i	e	M	n	n′/2	a	N	D	σ
39034.0	352.4 1	32.93 1	31.460 3	.01911 8	.3949 4	15.63061 1	.525E-3 4	6.755035	20	6	2.01
39035.0	3.5 2	25.96 2	31.459 3	.01919 6	.0253 4	15.63167 1	.552E-3 4	6.754729	25	6	2.58
39036.0	14.25 8	18.99 1	31.460 1	.01936 2	.6574 2	15.632737 5	.576E-3 3	6.754421	26	6	1.25
39037.0	24.92 8	12.03 1	31.460 1	.01941 2	.2910 2	15.633888 3	.576E-3 3	6.754090	26	6	1.24
39038.0	35.66 7	5.055 8	31.458 1	.01951 2	.9256 2	15.634990 3	.546E-3 1	6.753772	25	6	1.10
39039.0	46.17 7	358.085 8	31.458 1	.01960 2	.5619 2	15.636078 2	.541E-3 1	6.753458	24	6	1.14
39040.0	56.6 1	351.12 2	31.455 4	.01959 3	.1993 4	15.637175 3	.564E-3 3	6.753142	21	6	2.01
39041.0	67.0 1	344.14 1	31.462 3	.01955 3	.8382 3	15.638301 5	.585E-3 4	6.752818	12	6	1.25
39042.0										6	
39050.0										6	
39051.0	169. 2	274.40 1	31.500 9	.0202 9	.295 6	15.64926 4	.493E-3 5	6.749667	12	6	1.43
39052.0	183. 1	267.36 1	31.460 7	.0186 3	.934 3	15.65031 1	.487E-3 2	6.749361	12	6	.80
39053.0	196. 1	260.37 2	31.457 8	.0181 3	.581 4	15.65125 1	.483E-3 3	6.749092	14	6	1.04
39054.0	207. 1	253.38 1	31.459 4	.0179 3	.232 4	15.65220 1	.478E-3 2	6.748818	19	6	1.15
39055.0	217. 3	246.39 4	31.46 1	.0179 5	.886 8	15.65319 2	.510E-3 8	6.748534	23	6	2.58
39056.0	222. 2	239.43 3	31.461 6	.0192 4	.555 6	15.65438 2	.615E-3 3	6.748190	25	6	1.97
39057.0	238.25 4	232.413 9	31.459 2	.01801 3	.1954 1	15.655566 4	.680E-3 2	6.747850	26	6	.84
39058.0	248.98 4	225.440 8	31.463 2	.01792 3	.8518 1	15.656894 3	.679E-3 2	6.747468	29	6	.81
39059.0	260.31 6	218.44 1	31.461 2	.01779 4	.5080 2	15.658210 4	.651E-3 3	6.747090	33	6	1.39
39060.0	271.64 6	211.43 1	31.460 2	.01775 3	.1654 2	15.659478 4	.628E-3 2	6.746725	33	6	1.38
39061.0	282.74 5	204.436 9	31.460 2	.01777 4	.8248 1	15.660738 4	.621E-3 3	6.746363	33	6	1.33
39062.0	294.46 5	197.424 5	31.460 1	.01779 3	.4836 2	15.662028 2	.658E-3 1	6.745993	29	6	.84
39063.0	306.15 2	190.422 7	31.460 2	.01786 2	.14375 5	15.663318 2	.651E-3 8	6.745622	25	6	.59
39064.0										6	

MJD	ω	Ω	i	e	M	n	n'/2	a	N	D	σ
39065.0											
39074.0											
39075.0	70.63 2	106.36 2	31.461 5	.01798 6	.221323 8	15.681208 6	7.13E-4 3	6.740488	20	6	1.74
39076.0	81.29 2	99.31 2	31.455 4	.01788 7	.90380 1	15.682614 6	7.21E-4 5	6.740084	25	6	2.39
39077.0	91.80 1	92.29 2	31.455 2	.01777 5	.58794 1	15.684096 5	7.70E-4 3	6.739659	26	6	1.47
39078.0	105.60 5	85.254 7	31.455 1	.01798 3	.2643 2	15.685599 2	7.74E-4 1	6.739229	25	6	.73
39079.0	116.07 9	78.23 1	31.456 1	.01792 3	.9518 3	15.687148 6	7.49E-4 3	6.738785	28	6	1.37
39080.0	126.84 6	71.218 6	31.4563 9	.01783 2	.6399 2	15.688641 2	7.26E-4 2	6.738357	29	6	.86
39081.0	137.38 6	64.193 7	31.457 1	.01772 2	.3302 2	15.690104 3	7.32E-4 2	6.737938	29	6	1.01
39082.0	147.9 1	57.16 1	31.457 3	.01752 4	.0221 4	15.691630 5	7.50E-4 2	6.737501	23	6	2.12
39083.0	158.8 1	50.13 1	31.458 2	.01717 4	.7143 4	15.693178 4	7.86E-4 3	6.737058	19	6	1.67
39084.0	169.2 3	43.10 3	31.454 6	.01743 6	.4093 9	15.694843 7	8.48E-4 6	6.736580	22	6	3.60
39085.0	180.5 2	36.06 2	31.460 5	.01730 4	.1038 5	15.696535 5	8.45E-4 3	6.736096	26	6	2.31
39086.0	191.6 3	29.02 2	31.466 8	.01706 5	.8008 8	15.698182 8	8.05E-4 4	6.735625	24	6	3.73
39087.0	202.5 2	22.00 2	31.461 7	.01692 4	.4995 7	15.699781 8	7.59E-4 6	6.735167	22	6	3.02
39088.0	213.3 1	14.95 1	31.464 4	.01664 2	.2006 4	15.701265 7	7.15E-4 4	6.734743	20	6	1.50
39089.0	224.4 1	7.91 1	31.464 5	.01643 4	.9019 4	15.70269 1	7.12E-4 5	6.734336	18	6	1.51
39090.0	235.41 8	.878 8	31.464 3	.01625 4	.6048 2	15.704052 5	6.90E-4 3	6.733946	14	6	.79
39091.0											
39094.0											

MJD	ω	Ω	i	e	M	n	n'/2	a	N	D	σ
39095.0										6	
39097.0										6	
39098.0	325.1 3	304.54 1	31.479 4	.0158 6	.2760 6	15.71616 6	.821E-3 3	6.730485	6	6	.79
39099.0	336.3 4	297.45 2	31.462 5	.0160 4	.9923 9	15.71780 4	.851E-3 3	6.730016	8	6	.42
39100.0	347.2 4	290.38 2	31.457 5	.0162 3	.7108 9	15.71951 2	.856E-3 1	6.729529	11	6	.54
39101.0	358.6 8	283.30 1	31.451 3	.0160 5	.430 2	15.72121 2	.848E-3 3	6.729043	13	6	.71
39102.0	9.0 8	276.244 9	31.451 2	.0164 5	.153 2	15.72289 2	.840E-3 2	6.728563	16	6	.80
39103.0	20.4 1	269.184 9	31.453 2	.01620 6	.8758 3	15.724567 8	.839E-3 2	6.728084	18	6	.86
39104.0	31.3 1	262.12 1	31.453 2	.01625 4	.6014 3	15.726231 9	.832E-3 2	6.727609	15	6	.71
39105.0	41.3 1	255.07 1	31.455 2	.01659 7	.3308 4	15.72805 1	.876E-3 3	6.727090	15	6	1.97
39106.0	52.3 1	248.00 1	31.452 2	.01662 6	.0596 3	15.729791 8	.872E-3 3	6.726593	16	6	2.15
39107.0	62.7 1	240.94 1	31.453 2	.01655 5	.7917 3	15.731517 6	.854E-3 3	6.726101	16	6	2.08
39108.0	73.49 4	233.871 6	31.456 1	.01640 2	.5245 1	15.733213 3	.821E-3 2	6.725617	13	6	.95
39109.0	84.05 5	226.797 7	31.454 1	.01633 3	.2596 1	15.734841 3	.786E-3 2	6.725153	14	6	1.04
39110.0	94.64 1	219.72 1	31.455 2	.01617 4	.99618 2	15.736396 3	.778E-3 2	6.724710	18	6	1.63
39111.0	105.21 1	212.64 1	31.456 3	.01607 4	.734396 8	15.737945 5	.770E-3 3	6.724268	16	6	1.64
39112.0	115.76 2	205.59 3	31.454 4	.01589 6	.474129 2	15.73948 1	.764E-3 4	6.723831	12	6	1.73
39113.0	126.35 9	198.48 5	31.45 1	.0161 2	.2154 2	15.74115 3	.88E-3 2	6.723355	10	6	3.74
39114.0	136.8 3	191.42 4	31.451 9	.0159 3	.9589 9	15.74290 5	.89E-3 2	6.722857	9	6	2.98
39115.0	147.5 5	184.31 2	31.461 7	.0161 3	.703 1	15.74456 2	.866E-3 9	6.722385	8	6	2.85
39116.0	156.2 5	177.25 1	31.455 4	.0160 1	.455 1	15.74619 3	.817E-3 5	6.721920	6	6	1.66
39117.0	169.2 4	170.151 6	31.452 3	.0153 1	.197 1	15.74790 2	.774E-3 5	6.721431	6	6	.33
39118.0	180.8 2	163.056 9	31.450 5	.0150 1	.9435 5	15.74947 1	.773E-3 5	6.720984	9	6	1.00
39119.0	191.16 9	155.96 2	31.45 1	.01510 6	.6953 2	15.75106 1	.839E-3 4	6.720532	15	6	1.02
39120.0	202.39 2	148.87 2	31.452 7	.01497 4	.44644 2	15.752739 5	.850E-3 2	6.720055	22	6	1.19
39121.0	213.57 1	141.77 2	31.448 6	.01475 4	.19941 1	15.754457 5	.868E-3 2	6.719566	26	6	1.46
39122.0	224.757 7	134.701 7	31.459 2	.01456 2	.95403 1	15.756187 3	.897E-3 2	6.719075	29	6	.93
39123.0	236.03 5	127.59 1	31.453 3	.01451 5	.7104 1	15.757952 5	.869E-3 3	6.718572	40	6	2.30
39124.0	247.36 8	120.49 2	31.455 4	.01440 6	.4682 2	15.759637 6	.841E-3 4	6.718093	43	6	3.43
39125.0	258.81 2	113.39 2	31.453 3	.01439 4	.22746 4	15.761277 5	.771E-3 3	6.717627	42	6	2.30

MJD	ω	Ω	i	e	M	n	n'/2	a	N	D	σ
39126.0	270.25 5	106.287 7	31.455 1	.01425 2	.9883 1	15.762822 2	.740E-3 2	6.717188	35	6	.84
39127.0	281.80 5	99.190 7	31.458 1	.01424 3	.7503 1	15.764332 2	.749E-3 1	6.716759	34	6	1.05
39128.0	293.04 7	92.087 8	31.458 1	.01421 3	.5146 2	15.765838 3	.757E-3 1	6.716330	35	6	1.21
39129.0	304.35 8	84.996 8	31.457 1	.01418 2	.2802 2	15.767369 3	.774E-3 2	6.715895	27	6	.89
39130.0	315.77 7	77.873 9	31.460 2	.01421 2	.0472 2	15.768916 3	.781E-3 2	6.715456	22	6	.74
39131.0	327.1 1	70.76 1	31.460 3	.01426 3	.8159 3	15.770475 6	.800E-3 3	6.715013	18	6	.98
39132.0	338.3 1	63.65 1	31.460 2	.01431 4	.5866 3	15.772081 6	.803E-3 2	6.714557	17	6	.94
39133.0	349.4 2	56.53 2	31.462 5	.01431 7	.3593 6	15.773757 8	.827E-3 3	6.714082	17	6	2.05
39134.0	0.3 1	49.41 1	31.463 7	.01430 5	.1340 4	15.775433 8	.854E-3 4	6.713606	10	6	1.06
39135.0	13. 1	42.27 7	31.49 5	.0147 4	.906 3	15.77722 4	.92E-3 3	6.713101	8	6	2.84
39136.0	23. 1	35.19 4	31.46 3	.0147 5	.685 4	15.77897 5	.89E-3 1	6.712603	6	6	.77
39137.0											
39145.0											
39146.0	130.0 3	323.94 2	31.457 3	.01455 8	.572 1	15.79704 2	.112E-2 1	6.707479	8	6	.77
39147.0	139.7 1	316.766 8	31.457 1	.0137 1	.3734 4	15.79919 1	.1204E-2 8	6.706870	10	6	.61
39148.0	151.5 3	309.63 2	31.458 2	.0143 1	.1720 7	15.80161 5	.112E-2 1	6.706185	14	6	1.93
39149.0	161.8 2	302.49 2	31.455 2	.01374 8	.9766 6	15.80401 3	.100E-2 1	6.705504	18	6	2.19
39150.0	172.6 2	295.34 2	31.453 2	.01351 5	.7825 7	15.80601 1	.951E-3 7	6.704940	23	6	2.77
39151.0	183.6 2	288.179 9	31.453 2	.01328 3	.5896 5	15.807888 4	.928E-3 4	6.704407	24	6	2.09
39152.0	194.8 4	281.04 2	31.454 4	.01319 4	.398 1	15.80969 1	.876E-3 8	6.703897	24	6	4.55
39153.0	206.3 4	273.88 2	31.457 4	.01294 5	.207 1	15.81127 2	.790E-3 7	6.703450	22	6	4.88
39154.0	217.6 2	266.73 1	31.454 3	.01279 3	.0187 6	15.812736 8	.728E-3 3	6.703037	18	6	2.21
39155.0	228.8 1	259.568 5	31.455 1	.01283 3	.8319 3	15.814100 7	.680E-3 3	6.702651	14	6	.95
39156.0	240.2 1	252.40 1	31.458 4	.01268 3	.6456 3	15.815494 5	.691E-3 1	6.702257	11	6	.74
39157.0	252.2 4	245.23 2	31.458 7	.0125 1	.4595 9	15.81689 2	.688E-3 5	6.701864	6	6	.85
39158.0											
39159.0	276. 1	230.94 2	31.450 6	.0122 3	.090 3	15.81953 5	.67E-3 1	6.701116	5	6	.68
39160.0	286.6 2	223.762 7	31.455 4	.01253 5	.9122 4	15.82095 1	.826E-3 7	6.700713	6	6	.42
39161.0	298.4 2	216.597 8	31.452 4	.01251 3	.7319 5	15.822617 4	.837E-3 5	6.700244	11	6	.58
39162.0	309.9 2	209.43 1	31.455 5	.01253 5	.5543 5	15.82431 3	.826E-3 9	6.699767	15	6	.95
39163.0	321.3 2	202.27 1	31.456 6	.01257 4	.3785 6	15.82598 1	.789E-3 5	6.699294	20	6	1.27

MJD	ω	Ω	i	e	M	n	n′/2	a	N	D	σ
39164.0	332.8 1	195.090 9	31.452 3	.01263 2	.2042 4	15.827580 5	.815E-3 2	6.698842	25	6	.78
39165.0	344.3 1	187.91 1	31.451 4	.01263 2	.0314 4	15.829213 3	.830E-3 2	6.698381	36	6	1.20
39166.0	355.4 2	180.75 1	31.456 3	.01274 4	.8612 7	15.830893 6	.892E-3 5	6.697907	43	6	2.22
39167.0	6.3 3	173.57 2	31.452 3	.01270 5	.6936 7	15.832823 7	.970E-3 4	6.697362	41	6	1.93
39168.0	17.0 1	166.40 1	31.453 1	.01297 2	.5283 3	15.834829 4	.1027E-2 2	6.696796	42	6	1.01
39169.0	28.4 1	159.20 2	31.454 2	.01290 5	.3634 4	15.836860 8	.1052E-2 3	6.696224	40	6	1.02
39170.0	38.9 2	151.98 2	31.456 2	.01302 7	.2029 4	15.838827 9	.998E-3 3	6.695669	36	6	1.12
39171.0	49.5 2	144.90 3	31.452 4	.01285 8	.0438 7	15.84064 2	.942E-3 3	6.695157	24	6	1.36
39172.0	60.3 2	137.71 3	31.446 4	.01281 5	.8862 4	15.842512 8	.922E-3 2	6.694629	19	6	.77
39173.0											
39189.0											
39190.0	274.2 9	8.0 1	31.467 8	.0109 2	.380 3	15.88358 2	.114E-2 1	6.683081	12	6	1.58
39191.0	285.7 2	.70 3	31.458 3	.01108 6	.2640 7	15.885851 9	.1126E-2 4	6.682442	14	6	1.63
39192.0	280.6 1	353.46 2	31.458 2	.01060 4	.1973 4	15.888114 7	.1111E-2 6	6.681807	11	6	.80
39193.0	293.5 2	346.23 2	31.458 3	.01051 5	.0816 7	15.890404 5	.1147E-2 4	6.681164	16	6	1.77
39194.0	306.3 5	339.02 6	31.455 9	.0103 1	.969 1	15.89276 2	.118E-2 1	6.680502	15	6	3.75
39195.0	317.1 6	331.77 8	31.45 1	.0107 1	.864 2	15.89536 2	.130E-2 1	6.679774	13	6	4.80
39196.0	329.2 4	324.51 2	31.463 6	.0110 1	.758 1	15.89814 1	.1454E-2 7	6.678995	12	6	3.36
39197.0	340.7 4	317.27 2	31.463 6	.0114 2	.656 1	15.90108 2	.150E-2 3	6.678173	9	6	3.02
39198.0	351.4 3	310.02 1	31.460 4	.0114 2	.5602 8	15.90430 8	.159E-2 3	6.677270	8	8	1.95
39199.0	2.3 6	302.74 2	31.457 9	.0100 3	.468 2	15.90844 8	.194E-2 1	6.676111	10	8	4.06
39200.0											
39201.0	24.9 4	288.274 9	31.407 8	.01003 7	.293 1	15.916567 4	.1951E-2 6	6.673833	6	8	1.38
39202.0	35.5 6	280.952 8	31.421 7	.0077 2	.213 2	15.92037 2	.2111E-2 6	6.672771	6	8	1.58
39203.0	43.1 2	273.772 8	31.528 9	.0121 2	.145 5	15.92399 4	.250E-2 3	6.671766	5	8	.27

MJD	ω	Ω	i	e	M	n	n′/2	a	N	D	σ
39204.0	55.5 6	266.45 1	31.481 9	.0104 1	.069 2	15.92897 2	.2308E-2 7	6.670371	6	8	1.24
39205.0	66.0 6	259.18 1	31.469 7	.01032 9	.002 2	15.93355 2	.2308E-2 6	6.669092	6	8	1.07
39206.0											
39211.0											
39212.0	142.5 2	208.131 9	31.451 1	.0098 1	.6652 5	15.96864 1	.2583E-2 4	6.659310	17	6	.83
39213.0	154. 1	200.72 1	31.4488 7	.0094 5	.636 4	15.97395 2	.2802E-2 1	6.657836	11	6	.52
39214.0											
39215.0	174. 1	186.23 6	31.439 5	.0057 7	.605 4	15.9848 2	.268E-2 1	6.654810	10	6	2.82
*39216.0	184. 1	178.64 7	31.446 6	.0081 3	.596 3	15.9907 2	.272E-2 1	6.653179	11	6	2.03
39217.0	197.4 9	171.60 8	31.41 1	.00775 7	.583 2	15.99608 5	.276E-2 2	6.651687	13	6	1.67
39218.0	208.8 9	164.26 9	31.41 1	.0075 1	.581 3	16.00169 4	.278E-2 1	6.650131	14	6	1.86
39219.0	221.0 6	156.88 5	31.403 8	.00742 8	.584 2	16.00737 2	.2760E-2 6	6.648555	13	6	.98
39220.0	232.6 6	148.7 1	31.58 3	.00723 9	.595 2	16.01257 4	.267E-2 1	6.647129	9	6	.62
39221.0	246.7 7	141.84 2	31.46 1	.0065 1	.601 2	16.01808 4	.280E-2 1	6.645595	8	6	.58
39222.0	258.2 9	134.52 1	31.46 1	.00666 8	.622 2	16.02381 2	.2991E-2 6	6.644008	9	6	.54
39223.0	271.7 7	127.14 1	31.475 8	.0062 1	.643 2	16.03006 3	.3198E-2 4	6.642283	7	6	.46
39224.0	281.6 5	119.765 4	31.470 3	.0066 1	.681 1	16.03666 4	.3290E-2 5	6.640458	7	6	.39
39225.0	293.9 3	112.386 3	31.460 2	.00654 4	.7183 9	16.04318 2	.329E-2 2	6.638657	7	6	.31
39226.0											
39232.0											
39233.0	28. 1	52.89 2	31.434 6	.00562 9	.308 3	16.11104 3	.516E-2 1	6.619989	13	6	3.84
39234.0	40.1 8	45.48 2	31.453 4	.00540 7	.421 2	16.12143 2	.545E-2 1	6.617144	14	6	2.82
39235.0	59. 1	37.94 2	31.440 4	.0051 1	.527 4	16.13289 4	.5963E-2 6	6.614007	14	6	3.16
39236.0	56. 1	30.45 2	31.448 3	.00557 8	.706 3	16.14477 3	.6728E-2 5	6.610762	18	6	3.18
39237.0	71.6 6	22.95 2	31.447 2	.00500 5	.847 2	16.15881 2	.7553E-2 4	6.606931	16	6	1.46
39238.0	81.3 5	15.44 4	31.445 4	.00472 4	.019 1	16.17480 1	.8494E-2 5	6.602572	14	6	1.10

*A cubic term was used in the mean-anomaly equation to the end.

Satellite 1964 76A (Explorer 24)

I. SAO smoothed elements

The following elements are based on 220 observations and are valid for the period July 1 through July 16, 1965.

$T_0 = 38950.0$ MJD

$\omega = (30^\circ.407 \pm 3) - 2^\circ.18437\, t + 0^\circ.5117 \cos\omega$

$\Omega = (215^\circ.8212 \pm 6) - 0^\circ.73645\, t + 0^\circ.0044 \cos\omega$

$i = (81^\circ.3860 \pm 7) - 0^\circ.0011 \sin\omega$

$e = (0.118961 \pm 6) - (4.6 \pm 1) \times 10^{-5}\, t + 0.0010374 \sin\omega$

$M = (0.516506 \pm 8) + (12.4442931 \pm 7)\, t + (1.088 \pm 2) \times 10^{-4}\, t^2$
$+ (6.6 \pm 2) \times 10^{-7}\, t^3 - (2.12 \pm 3) \times 10^{-7}\, t^4 - 0.0013830 \cos\omega$

Standard error of one observation: $\sigma = \pm 2''.20$.

The following elements are based on 233 observations and are valid for the period July 16 through August 1, 1965.

$T_0 = 38965.0$ MJD

$\omega = (357^\circ.594 \pm 2) - 2^\circ.18554\, t + 0^\circ.5141 \cos\omega$

$\Omega = (204^\circ.7878 \pm 5) - 0^\circ.73589\, t + 0^\circ.0044 \cos\omega$

$i = (81^\circ.3949 \pm 6) - 0^\circ.0011 \sin\omega$

$e = (0.118427 \pm 6) - (3.5 \pm 1) \times 10^{-5}\, t + 0.0010377 \sin\omega$

$M = (0.203253 \pm 6) + (12.4472025 \pm 7)\, t + (9.22 \pm 2) \times 10^{-5}\, t^2$
$- (4.0 \pm 1) \times 10^{-7}\, t^3 - (2.3 \pm 28) \times 10^{-9}\, t^4 - 0.0013897 \cos\omega$

Standard error of one observation: $\sigma = \pm 1''.55$.

The following elements are based on 293 observations and are valid for the period August 1 through August 16, 1965.

$$T_0 = 38981.0 \text{ MJD}$$

$$\omega = (322^\circ.7580 \pm 7) - 2^\circ.18676\, t + 0^\circ.5169 \cos\omega$$

$$\Omega = (193^\circ.0225 \pm 5) - 0^\circ.73526\, t + 0^\circ.0044 \cos\omega$$

$$i = (81^\circ.4040 \pm 6) - 0^\circ.0011 \sin\omega$$

$$e = (0.117771 \pm 9) - (5.1 \pm 2) \times 10^{-5}\, t\ \ 0.0010379 \sin\omega$$

$$M = (0.3821769 \pm 6) + (12.4503989 \pm 8)\, t + (1.062 \pm 2) \times 10^{-4}\, t^2 - (1.67 \pm 2) \times 10^{-6}\, t^3 - (1.20 \pm 4) \times 10^{-7}\, t^4 - 0.0013978 \cos\omega$$

Standard error of one observation: $\sigma = \pm 1''.25$.

The following elements are based on 333 observations and are valid for the period August 16 through September 1, 1965.

$$T_0 = 38996.0 \text{ MJD}$$

$$\omega = (290^\circ.214 \pm 2) - 2^\circ.18648\, t + 0^\circ.5213 \cos\omega$$

$$\Omega = (181^\circ.9909 \pm 4) - 0^\circ.73502\, t + 0^\circ.0043 \cos\omega$$

$$i = (81^\circ.4055 \pm 5) - 0^\circ.0011 \sin\omega$$

$$e = (0.116733 \pm 6) - (7.4 \pm 1) \times 10^{-5}\, t + 0.0010379 \sin\omega$$

$$M = (0.152536 \pm 6) + (12.4519811 \pm 7)\, t + (1.23 \pm 2) \times 10^{-5}\, t^2 - (1.68 \pm 2) \times 10^{-6}\, t^3 + (3.1 \pm 3) \times 10^{-8}\, t^4 - 0.0014104 \cos\omega$$

Standard error of one observation: $\sigma = \pm 1''.03$.

The following elements are based on 291 observations and are valid for the period September 1 through September 16, 1965.

$$T_0 = 39012.0 \text{ MJD}$$

$$\omega = (255^\circ.139 \pm 2) - 2^\circ.18498\, t + 0^\circ.52651 \cos\omega$$

$$\Omega = (170^\circ.2308 \pm 4) - 0^\circ.73470\, t + 0^\circ.0043 \cos\omega$$

$$i = (81^\circ.4039 \pm 4) - 0^\circ.0011 \sin\omega$$

$$e = (0.115511 \pm 4) - (7.69 \pm 9) \times 10^{-5}\, t + 0.0010378 \sin\omega$$

$$M = (0.383337 \pm 7) + (12.4516933 \pm 5)\, t - (2.00 \pm 2) \times 10^{-5}\, t^2 - (3.1 \pm 1) \times 10^{-7}\, t^3 + (3.8 \pm 3) \times 10^{-8}\, t^4 - 0.0014252 \cos\omega$$

Standard error of one observation: $\sigma = \pm 0''.95$.

The following elements are based on 293 observations and are valid for the period September 16 through October 1, 1965.

T_0 = 39027.0 MJD

$\omega = (222.042 \pm 4) - 2.18439\ t + 0.5304 \cos \omega$

$\Omega = (159^\circ.2157 \pm 8) - 0^\circ.73467\ t + 0^\circ.0043 \cos \omega$

$i = (81^\circ.4038 \pm 8) - 0^\circ.0010 \sin \omega$

$e = (0.114616 \pm 7) - (5.9 \pm 2) \times 10^{-5}\ t + 0.0010377 \sin \omega$

$M = (0.15651 \pm 1) + (12.4513586 \pm 9)\ t - (3.9 \pm 3) \times 10^{-6}\ t^2$
$+ (1.03 \pm 2) \times 10^{-6}\ t^3 + (8.2 \pm 5) \times 10^{-8}\ t^4 - 0.0014362 \cos \omega$

Standard error of one observation: $\sigma = \pm 2''.15$.

The following elements are based on 303 observations and are valid for the period October 1 through October 16, 1965.

T_0 = 39042.0 MJD

$\omega = (188^\circ.807 \pm 5) - 2^\circ.18431\ t + 0^\circ.5323 \cos \omega$

$\Omega = (148^\circ.214 \pm 1) - 0^\circ.73355\ t + 0^\circ.0042 \cos \omega$

$i = (81^\circ.415 \pm 1) - 0^\circ.0010 \sin \omega$

$e = (0.11420 \pm 2) - (1.1 \pm 3) \times 10^{-5}\ t + 0.0010378 \sin \omega$

$M = (0.93189 \pm 2) + (12.452083 \pm 1)\ t + (4.68 \pm 4) \times 10^{-5}\ t^2$
$+ (8.1 \pm 2) \times 10^{-7}\ t^3 - (4.8 \pm 6) \times 10^{-8}\ t^4 - 0.0014416 \cos \omega$

Standard error of one observation: $\sigma = \pm 3''.18$.

The following elements are based on 383 observations and are valid for the period October 16 through November 1, 1965.

T_0 = 39057.0 MJD

$\omega = (155^\circ.751 \pm 4) - 2^\circ.18561\ t + 0^\circ.5330 \cos \omega$

$\Omega = (137^\circ.2223 \pm 7) - 0^\circ.73274\ t + 0^\circ.0042 \cos \omega$

$i = (81^\circ.4258 \pm 9) - 0^\circ.0010 \sin \omega$

$e = (0.114070 \pm 7) - (6.0 \pm 1366) \times 10^{-8}\ t + 0.0010380 \sin \omega$

$M = (0.72559 \pm 1) + (12.4538310 \pm 6)\ t + (9.29 \pm 2) \times 10^{-5}\ t^2$
$+ (1.67 \pm 1) \times 10^{-6}\ t^3 - (1.25 \pm 3) \times 10^{-7}\ t^4 - 0.0014436 \cos \omega$

Standard error of one observation: $\sigma = \pm 3''.13$.

The following elements are based on 269 observations and are valid for the period November 1 through November 16, 1965.

$$T_0 = 39073.0 \text{ MJD}$$

$$\omega = (120^\circ.610 \pm 4) - 2^\circ.18731\, t + 0^\circ.5343 \cos\omega$$

$$\Omega = (125^\circ.4990 \pm 6) - 0^\circ.73247\, t + 0^\circ.0042 \cos\omega$$

$$i = (81^\circ.4333 \pm 7) - 0^\circ.0010 \sin\omega$$

$$e = (0.113817 \pm 5) - (2.7 \pm 1) \times 10^{-5}\, t + 0.0010383 \sin\omega$$

$$M = (0.01323 \pm 1) + (12.457258 \pm 1)\, t + (1.118 \pm 2) \times 10^{-4}\, t^2 - (3.39 \pm 8) \times 10^{-6}\, t^3 - (2.0 \pm 4) \times 10^{-8}\, t^4 + (3.4 \pm 1) \times 10^{-8}\, t^5 - 0.0014473 \cos\omega$$

Standard error of one observation: $\sigma = \pm 2''.18$.

The following elements are based on 264 observations and are valid for the period November 16 through December 1, 1965.

$$T_0 = 39088.0 \text{ MJD}$$

$$\omega = (87^\circ.677 \pm 5) - 2^\circ.18789\, t + 0^\circ.5374 \cos\omega$$

$$\Omega = (114^\circ.5064 \pm 7) - 0^\circ.73249\, t + 0^\circ.0042 \cos\omega$$

$$i = (81^\circ.4353 \pm 8) - 0^\circ.0010 \sin\omega$$

$$e = (0.113135 \pm 6) - (5.2 \pm 1) \times 10^{-5}\, t + 0.0010385 \sin\omega$$

$$M = (0.89424 \pm 1) + (12.4600088 \pm 7)\, t + (5.54 \pm 3) \times 10^{-5}\, t^2 - (2.15 \pm 2) \times 10^{-6}\, t^3 + (1.19 \pm 5) \times 10^{-7}\, t^4 - 0.0014563 \cos\omega$$

Standard error of one observation: $\sigma = \pm 2''.78$.

The following elements are based on 215 observations and are valid for the period December 1 through December 16, 1965.

$$T_0 = 39103.0 \text{ MJD}$$

$$\omega = (54^\circ.505 \pm 8) - 2^\circ.18738\, t + 0^\circ.5410 \cos\omega$$

$$\Omega = (103^\circ.511 \pm 1) - 0^\circ.73275\, t + 0^\circ.0042 \cos\omega$$

$$i = (81^\circ.429 \pm 1) - 0^\circ.0010 \sin\omega$$

$$e = (0.11236 \pm 1) - (4.8 \pm 2) \times 10^{-5}\, t + 0.0010384 \sin\omega$$

$$M = (0.80527 \pm 2) + (12.461254 \pm 3)\, t + (3.58 \pm 5) \times 10^{-5}\, t^2 + (1.4 \pm 2) \times 10^{-6}\, t^3 + (2.8 \pm 9) \times 10^{-8}\, t^4 - (1.9 \pm 2) \times 10^{-8}\, t^5 - 0.0014663 \cos\omega$$

Standard error of one observation: $\sigma = \pm 4''.25$.

The following elements are based on 206 observations and are valid for the period December 16, 1965, through January 1, 1966.

$$T_0 = 39118.0 \text{ MJD}$$

$$\omega = (21^\circ.172 \pm 7) - 2^\circ.18716\, t + 0^\circ.5426 \cos\omega$$

$$\Omega = (92^\circ.515 \pm 1) - 0^\circ.73321\, t + 0^\circ.0042 \cos\omega$$

$$i = (81^\circ.424 \pm 1) - 0^\circ.0010 \sin\omega$$

$$e = (0.11200 \pm 1) - (1.8 \pm 3) \times 10^{-5}\, t + 0.0010384 \sin\omega$$

$$M = (0.73417 \pm 2) + (12.462454 \pm 2)\, t + (4.85 \pm 5) \times 10^{-5}\, t^2 + (7.6 \pm 15) \times 10^{-7}\, t^3 + (2.1 \pm 9) \times 10^{-8}\, t^4 + (3.4 \pm 20) \times 10^{-9}\, t^5 - 0.0014711 \cos\omega$$

Standard error of one observation: $\sigma = \pm 4''.53$.

MJD	ω	Ω	i	e	M	n	n'/2	a	N	D	σ
38942.0	48.256 4	221.7133 7	81.3797 7	.120164 7	.96695 1	12.4430223 7	5.78E-5 4	7.867895	81	6	.58
38944.0	43.905 5	220.2416 7	81.3816 8	.119961 7	.85317 1	12.4432654 7	6.36E-5 5	7.867792	83	6	.64
38946.0	39.559 4	218.7706 7	81.3834 8	.119791 7	.73988 1	12.4435265 9	7.30E-5 6	7.867682	86	6	.66
38948.0	35.196 4	217.2980 7	81.3843 7	.119639 6	.627198 9	12.4438763 9	1.033E-4 5	7.867535	93	6	.59
38950.0	30.842 3	215.8269 5	81.3854 6	.119463 5	.515321 7	12.4443055 6	1.119E-4 4	7.867354	104	6	.51
38952.0	26.478 4	214.3553 8	81.3862 9	.119306 8	.40438 1	12.4447358 9	9.91E-5 5	7.867172	85	6	.65
38954.0	22.116 3	212.8836 6	81.3867 6	.119136 6	.294227 7	12.4451113 8	8.86E-5 4	7.867014	78	6	.48
38956.0	17.754 3	211.4130 6	81.3881 6	.118998 6	.184779 7	12.4454914 6	9.88E-5 3	7.866854	81	6	.50
38958.0	13.378 4	209.9419 8	81.3904 8	.118850 7	.076176 9	12.4458695 8	9.16E-5 5	7.866695	87	6	.64
38960.0	9.021 4	208.4703 9	81.391 1	.118720 8	.96825 1	12.446240 1	9.28E-5 6	7.866539	80	6	.66
38962.0	4.662 3	206.9981 6	81.3932 7	.118595 6	.861080 7	12.4466342 6	1.007E-4 4	7.866373	95	6	.52
38964.0	360.306 2	205.5272 5	81.3949 6	.118448 6	.754721 6	12.4470243 7	8.92E-5 5	7.866208	100	6	.44
38966.0	355.936 3	204.0551 6	81.3956 6	.118314 7	.649128 7	12.447383 1	8.90E-5 7	7.866057	99	6	.41
38968.0	351.563 4	202.5842 8	81.3956 9	.11816 1	.54425 1	12.447729 2	8.42E-5 8	7.865912	80	6	.43
38970.0	347.236 4	201.1152 8	81.398 1	.11801 1	.43988 1	12.448089 1	9.86E-5 8	7.865760	67	6	.38
38972.0	342.873 3	199.6433 5	81.4007 8	.11790 1	.336431 7	12.448468 1	8.85E-5 5	7.865600	89	6	.42
38974.0	338.486 2	198.1719 6	81.4030 8	.117704 8	.233767 6	12.448842 1	1.004E-4 6	7.865443	123	6	.51
38976.0	334.150 2	196.7011 5	81.4040 6	.117559 6	.131731 7	12.4492791 8	1.137E-4 4	7.865259	153	6	.44
38978.0	329.766 2	195.2304 5	81.4051 6	.117366 6	.030773 7	12.4497275 9	1.106E-4 5	7.865070	159	6	.45
38980.0	325.397 3	193.7591 7	81.4053 8	.11721 1	.930639 9	12.450162 2	1.100E-4 7	7.864887	126	6	.49
38982.0	321.013 4	192.2883 9	81.407 1	.11704 2	.83143 1	12.450595 2	1.06E-4 1	7.864705	97	6	.49
38984.0	316.61 3	190.817 2	81.408 2	.11693 4	.7331 1	12.450970 3	8.7E-5 1	7.864547	72	6	.56
38986.0	312.25 3	189.346 2	81.406 2	.11671 4	.6354 1	12.451253 2	5.8E-5 1	7.864428	70	6	.45
38988.0	307.82 5	187.877 3	81.403 4	.11661 4	.5383 2	12.451457 2	4.5E-5 1	7.864342	92	6	.46
38990.0	303.52 5	186.404 3	81.406 4	.11634 6	.4411 2	12.451623 3	3.9E-5 1	7.864272	101	6	.45
38992.0	299.16 1	184.932 1	81.407 2	.11610 2	.34440 5	12.451779 2	3.8E-5 1	7.864206	96	6	.43
38994.0	294.791 4	183.4608 9	81.407 1	.11596 2	.24811 1	12.451902 2	1.84E-5 9	7.864154	92	6	.41
38996.0	290.383 3	181.9911 6	81.4070 6	.115771 8	.152084 8	12.451973 1	1.16E-5 7	7.864124	113	6	.38
38998.0	285.982 3	180.5206 7	81.4070 7	.115598 6	.05615 1	12.4520040 8	3.7E-6 5	7.864111	134	6	.45
39000.0	281.575 3	179.0507 6	81.4070 7	.115436 5	.96028 1	12.4520009 7	-6.7E-6 6	7.864112	145	6	.45
39002.0	277.169 3	177.5801 5	81.4059 6	.115282 5	.864344 9	12.4519682 8	-1.00E-5 5	7.864126	137	6	.43

MJD	ω	Ω	i	e	M	n	n'/2	a	N	D	σ
39004.0	272.752 3	176.1101 5	81.4053 6	.115103 4	.768361 8	12.4519268 6	-1.00E-5 4	7.864143	132	6	.39
39006.0	268.317 3	174.6398 5	81.4050 6	.114943 4	.672357 8	12.4518753 6	-1.44E-5 4	7.864165	113	6	.33
39008.0	263.896 3	173.1698 5	81.4045 6	.114796 4	.576186 9	12.4518260 6	-1.07E-5 4	7.864186	111	6	.36
39010.0	259.452 3	171.6996 5	81.4041 6	.114651 4	.480004 8	12.4517695 7	-1.67E-5 4	7.864209	109	6	.36
39012.0	255.018 3	170.2293 5	81.4053 6	.114502 5	.383656 8	12.4516965 7	-2.01E-5 4	7.864240	117	6	.38
39014.0	250.609 2	168.7605 5	81.4053 6	.114388 5	.287078 7	12.4516110 7	-2.36E-5 3	7.864276	125	6	.40
39016.0	246.138 2	167.2918 5	81.4047 5	.114299 4	.190509 7	12.4515314 6	-1.87E-5 4	7.864309	132	6	.35
39018.0	241.713 2	165.8219 5	81.4037 6	.114193 5	.093652 6	12.4514723 7	-1.23E-5 4	7.864334	126	6	.40
39020.0	237.297 3	164.3523 7	81.4030 7	.114096 6	.996678 9	12.451442 1	-5.4E-6 5	7.864347	136	6	.54
39022.0	232.796 3	162.8843 6	81.4039 8	.114033 7	.899935 9	12.451439 1	-3.E-7 5	7.864348	123	6	.54
39024.0	228.356 4	161.4153 8	81.4051 9	.113965 8	.80300 1	12.451407 1	-1.09E-5 6	7.864362	123	6	.58
39026.0	223.915 4	159.9463 8	81.406 1	.113904 9	.70598 1	12.451376 1	-9.4E-6 8	7.864375	124	6	.67
39028.0	219.435 4	158.4804 7	81.4046 9	.113902 8	.60901 1	12.451361 1	1.7E-6 6	7.864381	117	6	.61
39030.0	215.026 3	157.0121 5	81.4066 7	.113861 6	.511837 7	12.4513736 9	1.03E-5 6	7.864376	108	6	.42
39032.0	210.608 4	155.5451 8	81.4070 9	.113800 9	.41479 1	12.451458 1	2.28E-5 6	7.864340	110	6	.61
39034.0	206.117 5	154.078 1	81.407 1	.11384 1	.31815 2	12.451533 3	1.6E-5 1	7.864308	86	6	.57
39036.0	201.640 6	152.610 1	81.410 1	.11390 1	.22162 1	12.451625 2	2.4E-5 1	7.864270	102	6	.72
39038.0	197.195 4	151.1437 8	81.4125 9	.113847 9	.12518 1	12.451758 2	3.11E-5 7	7.864214	100	6	.56
39040.0	192.816 4	149.6762 8	81.4124 8	.113883 9	.02885 1	12.451899 1	3.68E-5 6	7.864154	123	6	.59
39042.0	188.360 5	148.210 1	81.413 1	.11397 1	.93307 2	12.452081 2	4.78E-5 8	7.864078	110	6	.69
39044.0	183.913 5	146.743 1	81.415 1	.11406 1	.83766 1	12.452279 2	4.91E-5 7	7.863994	100	6	.66
39046.0	179.464 5	145.2770 9	81.4181 9	.11411 1	.74263 1	12.452474 2	5.36E-5 7	7.863912	124	6	.74
39048.0	175.066 4	143.8110 8	81.4199 9	.114160 8	.64787 1	12.4526907 9	5.10E-5 5	7.863821	150	6	.79
39050.0	170.651 4	142.3457 8	81.4209 9	.114226 7	.55357 1	12.4528985 8	5.03E-5 4	7.863734	173	6	.84
39052.0	166.242 4	140.8804 7	81.4230 8	.114284 6	.459659 9	12.4531130 8	5.85E-5 5	7.863644	163	6	.72
39054.0	161.851 4	139.4150 6	81.4233 7	.114362 6	.366167 9	12.4533486 7	5.89E-5 4	7.863545	157	6	.68
39056.0	157.464 6	137.9492 9	81.424 1	.114438 9	.27314 1	12.4536517 9	8.58E-5 6	7.863417	124	6	.98
39058.0	153.059 5	136.4843 7	81.4250 9	.114521 7	.18086 1	12.4540294 6	1.007E-4 4	7.863258	124	6	.76
39060.0	148.676 4	135.0201 6	81.4276 8	.114580 6	.08935 1	12.4544272 7	9.79E-5 4	7.863091	120	6	.69
39062.0	144.304 4	133.5539 6	81.4280 7	.114638 6	.998584 9	12.4548171 7	9.94E-5 5	7.862927	124	6	.61
39064.0	139.937 4	132.0886 7	81.4293 8	.114681 6	.90860 1	12.4552129 7	9.73E-5 5	7.862760	105	6	.63

MJD	ω	Ω	i	e	M	n	n'/2	a	N	D	σ
39066.0	135.569 4	130.6241 7	81.4312 8	.114707 6	.81940 1	12.4556094 7	9.95E-5 5	7.862593	100	6	.57
39068.0	131.217 5	129.1578 9	81.4301 9	.114725 8	.73096 1	12.4560228 9	1.056E-4 7	7.862419	95	6	.76
39070.0	126.854 3	127.6936 6	81.4301 7	.114754 5	.643396 8	12.4565073 6	1.350E-4 4	7.862216	85	6	.51
39072.0	122.502 5	126.2278 8	81.4319 9	.114754 7	.55689 1	12.4570210 9	1.212E-4 6	7.862000	87	6	.70
39074.0	118.167 4	124.7632 6	81.4319 7	.114731 6	.471310 9	12.4574545 7	9.70E-5 5	7.861817	92	6	.57
39076.0	113.817 4	123.2973 6	81.4326 7	.114698 5	.386535 9	12.4578443 7	9.82E-5 4	7.861653	105	6	.56
39078.0	109.460 3	121.8326 5	81.4344 6	.114646 4	.302563 7	12.4582429 6	1.030E-4 4	7.861486	95	6	.41
39080.0	105.110 3	120.3672 5	81.4349 6	.114586 4	.219388 8	12.4586355 5	9.49E-5 3	7.861321	107	6	.47
39082.0	100.767 4	118.9017 5	81.4361 7	.114512 4	.136947 9	12.4590156 6	9.63E-5 4	7.861161	121	6	.55
39084.0	96.419 4	117.4370 5	81.4355 7	.114417 5	.05529 1	12.4594069 7	9.75E-5 4	7.860996	119	6	.58
39086.0	92.099 6	115.9728 9	81.434 1	.114289 8	.97434 1	12.459748 1	7.19E-5 7	7.860852	102	6	.85
39088.0	87.706 5	114.5074 7	81.4333 9	.114189 6	.89418 1	12.4599991 6	5.15E-5 5	7.860747	78	6	.62
39090.0	83.347 4	113.0415 6	81.4338 7	.114065 5	.81434 1	12.4601938 8	4.71E-5 4	7.860665	75	6	.53
39092.0	78.983 4	111.5771 6	81.4332 7	.113966 6	.73488 1	12.4603749 8	4.43E-5 5	7.860589	80	6	.57
39094.0	74.599 4	110.1112 7	81.4326 8	.113828 6	.65582 1	12.4605472 9	4.37E-5 5	7.860516	87	6	.62
39096.0	70.232 4	108.6452 7	81.4315 7	.113700 6	.57706 1	12.4607302 8	4.67E-5 6	7.860439	86	6	.61
39098.0	65.863 5	107.180 1	81.430 1	.113552 9	.49869 1	12.460906 2	4.0E-5 1	7.860365	76	6	.79
39100.0	61.469 5	105.7137 8	81.429 1	.113437 8	.42070 1	12.461048 1	3.61E-5 7	7.860306	67	6	.54
39102.0	57.008 6	104.248 1	81.430 1	.11327 1	.34318 2	12.461194 1	3.35E-5 8	7.860244	59	6	.60
39104.0	52.643 4	102.7819 7	81.4287 7	.113153 7	.26567 1	12.461328 2	3.8E-5 1	7.860188	68	6	.51
39106.0	48.263 5	101.3152 9	81.4284 8	.113013 7	.18850 1	12.461493 1	4.13E-5 6	7.860118	87	6	.71
39108.0	43.807 4	99.8504 7	81.4255 7	.112865 6	.11187 1	12.4616556 8	3.58E-5 5	7.860050	86	6	.66
39110.0	39.427 5	98.3854 8	81.4244 8	.112733 7	.03533 1	12.4618005 8	3.61E-5 6	7.859989	88	6	.72
39112.0	34.974 7	96.918 1	81.425 1	.11264 1	.95927 2	12.461946 1	3.53E-5 7	7.859928	87	6	1.05
39114.0	30.556 5	95.4522 8	81.4253 8	.112530 7	.88340 1	12.462098 1	3.91E-5 6	7.859864	75	6	.64
39116.0	26.131 6	93.986 1	81.426 1	.11243 1	.80789 2	12.462267 2	4.16E-5 8	7.859793	82	6	.84
39118.0	21.668 5	92.521 1	81.425 1	.11234 1	.73283 1	12.462454 1	4.57E-5 7	7.859714	96	6	.97
39120.0	17.238 5	91.055 1	81.424 1	.11228 1	.65805 1	12.462659 2	6.16E-5 8	7.859628	94	6	.89
39122.0	12.828 5	89.588 1	81.424 1	.11218 1	.58370 1	12.462905 2	6.06E-5 9	7.859525	77	6	.82
39124.0	8.401 5	88.122 1	81.425 1	.11213 2	.50990 1	12.463181 3	7.1E-5 1	7.859409	44	6	.52

NOTICE

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