Ephémérides des satellites de Mars, Jupiter, Saturne et Uranus pour 1992

Th. Derouazi, Ch. Ruatti, W Thuillot, D.T. Vu

SUPPLÉMENT À LA CONNAISSANCE DES TEMPS – PARIS 1991
BUREAU DES LONGITUDES

ÉPHÉMÉRIDES DES SATELLITES DE MARS, JUPITER, SATURNE ET URANUS POUR 1992

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les éditions de physique

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PUBLICATIONS DU BUREAU DES LONGITUDES

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• Éphémérides des satellites faibles de Jupiter (VI, VII, VIII, IX) et de Saturne (IX) pour 1992

• Phénomènes et configurations des satellites galiléens de Jupiter pour 1992

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• *Ephemerides of the faint satellites of Jupiter (VI, VII, VIII, IX) and of Saturn (IX) for 1992*

• *Phenomena and configurations of the Galilean satellites of Jupiter for 1992*

• *Configurations of the first eight satellites of Saturn for 1992*

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  - La physique (1981)
  - La terre, les eaux, l'atmosphère (épuisé)
  - Les étoiles, le système solaire (réédition, 1985)
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- Cahiers des Sciences de l'Univers (Masson, Paris)
  - Cahier n° 1 « Les profondeurs de la Terre », J.P. POIRIER, I.P.G.
- Le Calendrier Républicain (Éditions de l'Observatoire de Paris)

AVERTISSEMENT

Depuis 1980, la *Connaissance des Temps* publie les éphémérides du Soleil, de la Lune, des planètes et des satellites galiléens de Jupiter sous forme de coefficients de Tchébycheff. A partir de 1981, des éphémérides des huit premiers satellites de Saturne ont été publiées sous la même forme dans un supplément à la *Connaissance des Temps*. Ces éphémérides ayant été appréciées par les utilisateurs, nous avons décidé d'étendre ces publications à d'autres satellites naturels du Système Solaire.

Depuis 1985, nous publions dans un même recueil des éphémérides des satellites galiléens de Jupiter, des huit premiers satellites de Saturne et des cinq satellites d'Uranus. A partir de 1991, les éphémérides des satellites de Mars ont été ajoutées. Les éphémérides ne sont plus représentées à l'aide de coefficients de Tchébycheff, mais à l'aide de fonctions mixtes du paramètre « temps » comprenant des termes séculaires et des termes périodiques. Cette représentation permet de garder une bonne précision tout en diminuant notablement le nombre de valeurs numériques à publier et en autorisant une plus grande facilité d'emploi.

La liste des satellites dont nous publions les éphémérides n'est pas limitative et nous envisageons de l'étendre en fonction des données dont nous disposerons.

En dehors des éphémérides proprement dites cet ouvrage contient des données diverses sur les satellites de Jupiter, Saturne et Uranus et présente un formulaire permettant de calculer les phénomènes des satellites galiléens de Jupiter.

FOREWORD

Since 1980, Connaissance des Temps has published ephemerides of the Sun, the Moon, the Planets and the Galilean satellites of Jupiter as tables of Chebychev polynomials. From 1981, ephemerides of the first eight satellites of Saturn have been published under the same form in a supplement to the Connaissance des Temps. These ephemerides have been well received by the users; hence, we new intend to enlarge the publication to incorporate other natural satellites of the planets.

Starting from 1985, we have gathered in this booklet, the ephemerides of the Galilean satellites of Jupiter, the first eight satellites of Saturn and the five satellites of Uranus. From 1991, we added the ephemerides of the Satellites of Mars. The representation does not use Chebychev polynomials. It appears that a mixed form of representation, involving secular and periodic terms and depending directly on time, allow sufficient accuracy and reduces the amount of numerical data to be published. Furthermore, it is very easy to use these tables.

The list of the satellites, the ephemerides of which are published, is not limited and will be extended as soon as it is possible.

Beside the tables, the present publication contains various data concerning the satellites of Jupiter, Saturn and Uranus. We will also present, a formula which permits the calculation of the phenomena of the Galilean satellites.

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PRÉSENTATION DES ÉPHÉMÉRIDES

PRESENTATION OF THE EPHEMERIDES

CONTENU

On trouve dans cette publication :

— des données sur les satellites galiléens de Jupiter rassemblant les résultats d'un certain nombre de travaux théoriques ou d'observation effectués sur ces satellites, ainsi que des données (en général recommandées par l'UAI) sur l'ensemble des satellites de Mars, Jupiter, Saturne et Uranus ;
— des tables permettant de calculer les positions des satellites de Mars, des satellites galiléens de Jupiter, des huit premiers satellites de Saturne et des cinq satellites d'Uranus ;
— des tables permettant de calculer les prédictions des phénomènes des satellites galiléens de Jupiter.

Les éphémérides des satellites donnent les coordonnées différentielles tangentielles des satellites par rapport au centre de la planète :

$$X = \Delta\alpha \cos \delta \text{ et } Y = \Delta\delta$$

où δ est la déclinaison de la planète et où $\Delta\alpha$ et $\Delta\delta$ sont les différences en ascension droite et en déclinaison entre le satellite et la planète.

Ces coordonnées sont des coordonnées moyennes rapportées à l'équateur J2000 pour tous les satellites. L'axe des Y est dirigé vers le pôle de l'équateur moyen des coordonnées (nord) et l'axe des X est orienté dans le sens des ascensions droites croissantes (est).

Les théories utilisées pour la construction des éphémérides sont les suivantes :

— satellites de Mars : la théorie de Chapront-Touzé (1990) ;
— satellites galiléens : la théorie de Sampson (1921) améliorée par Lieske (1977) ; les constantes introduites ont été déterminées par Arlot (1982) ;
— huit premiers satellites de Saturne : les théories issues des travaux de Dourneau (1987), de Rapaport (1977), de Kozaï (1959) et de Struve (1930) ;
— satellites d'Uranus : la théorie de Laskar et Jacobson (1987).

CONTENTS

This publication contains the following :

— data on the Galilean satellites of Jupiter which sum the results of theoretical or observational studies in addition to various data (most of which are recommended by the IAU) concerning all known satellites of Mars, Jupiter, Saturn and Uranus ;
— tables which allow the computation of the positions of the satellites of Mars, the Galilean satellites of Jupiter, the first eight satellites of Saturn and the five satellites of Uranus ;
— tables to calculate the phenomena of the Galilean satellites of Jupiter.

These ephemerides of the satellites give the differential tangential coordinates of the satellites with respect to the centre of mass of the planet :

$$X = \Delta\alpha \cos \delta \text{ and } Y = \Delta\delta$$

where α is the declination of the planet, $\Delta\alpha$ and $\Delta\delta$ the separations in right ascension and declination between the satellite and the planet.

These coordinates are mean coordinates equator J2000 for all the satellites. The Y-axis is set towards the pole of the equator (North) and the X-axis towards the increasing right ascensions (East).

The theories which have been used for the construction of the ephemerides are :

— satellites of Mars : theory from Chapront-Touzé (1990) ;
— Galilean satellites : Sampson's theory (1921) improved by Lieske (1977) ; the constants introduced have been determined by Arlot (1982) ;
— first eight satellites of Saturn : theories from the studies of Dourneau (1987), Rapaport (1977), Kozaï (1959) and Struve (1930) ;
— satellites of Uranus : theory from Laskar and Jacobson (1987).

REPRÉSENTATION DES COORDONNÉES

Soit T une date Julienne appartenant à l'intervalle de temps $T0$, $T0 + \Delta t$, les coordonnées des satellites pour la date T sont données par la formule :

REPRESENTATION OF THE COORDINATES

Let T be a Julian date belonging to the interval of time T0, T0 + Δt. The coordinates of the satellites for the date T are given by the formula :

$$\left.\begin{matrix} X \\ Y \end{matrix}\right\} = A0 + A1 \cdot t + B0 \sin (Nt + F0) + B1 \cdot t \sin (Nt + F1) + B2 \cdot t^2 \sin (Nt + F2) + C0 \sin (2Nt + P0) \quad (1)$$

où :

- $t = T - T0$
- $A0, A1, B0, F0, B1, F1, B2, F2, C0, P0$ sont les coefficients numériques valables pour l'intervalle de temps $T0, T0 + \Delta t$ contenant T
- N est la fréquence associée au satellite considéré. Cette fréquence est en général proche de celle du satellite lui-même, sauf dans le cas d'Hypérion pour lequel on prend une fréquence proche de celle de Titan du fait de l'existence d'un très gros terme perturbateur de fréquence plus grande que celle du satellite lui-même.

Cette représentation sous forme de fonctions mixtes (termes séculaires et sinusoïdaux) utilise le caractère quasi périodique des variations des positions des satellites naturels des planètes. On trouvera des explications détaillées sur cette représentation dans Chapront et Vu (1984).

where :

- $t = T - T0$
- *$A0, A1, B0, F0, B1, F1, B2, F2, C0, P0$ are numerical coefficients valid for the time interval $T0, T0 + \Delta t$*
- *N is the frequency associated with the chosen satellite. Generally, N is close to the natural frequency of the satellite itself. Nevertheless, in the case of Hyperion, N is close to the frequency of Titan because of the appearance of a large disturbing term which frequency is larger than the proper frequency of the satellite.*

This representation with mixed functions (secular and sinusoidal terms) of time, makes use of the quasi-periodic character of the variations of the differential coordinates of the satellites. Detailed explanations about this representation are given in Chapront and Vu (1984).

DESCRIPTION DES ÉPHÉMÉRIDES

Pour chaque satellite et pour chaque intervalle de temps, on donne :

— les dates de début et de fin de l'intervalle de validité ainsi que la date Julienne du début de l'intervalle ; cet intervalle peut varier de 4 jours à 31 jours ;

— deux jeux de coefficients $A0, A1, B0, F0, B1, F1, B2, F2, C0, P0$: l'un pour la coordonnée X, l'autre pour la coordonnée Y. Notons que pour quelques satellites (Titan, par exemple), certains coefficients ne sont pas donnés car ils sont nuls ;

— la valeur de la fréquence N associée au satellite est indiquée en haut de chaque page.

Les unités sont : la seconde de degré pour les coefficients $A0, B0, C0$, la seconde de degré par jour pour $A1, B1$, la seconde de degré par (jour)^2 pour $B2$; les phases $F0, F1, F2, P0$ sont mesurées en radian. N est en radian par jour et le paramètre « temps » t est compté en jours à partir du début de l'intervalle (époque $T0$).

DESCRIPTION OF THE EPHEMERIDES

The following is given for each satellite and for each time interval :

— the dates of the beginning and end of the interval and the Julian date of the beginning. The duration of the time interval may cover from 4 days to 31 days ;

— two sets of coefficients $A0, A1, B0, F0, B1, F1, B2, F2, C0, P0$: the first set for the X-coordinate and the second set for the Y-coordinate. Let us note that for some satellites (Titan for example) some coefficients, with zero value, are not listed ;

— the value of frequency N, associated with the satellite indicated at the top of each page.

Units of the data : $A0, B0, C0$ in arcsecond ; $A1$ and $B1$ in arcsecond per day and $B2$ in arcsecond per (day)^2, For phases $F0, F1, F2, P0$ the unit is the radian. N is expressed in radian per day and t in days from the beginning of the interval (epoch $T0$).

ÉCHELLES DE TEMPS

L'argument « temps » des éphémérides publiées ici est le TDB (temps dynamique barycentrique) que l'on peut confondre, à la précision des éphémérides, avec le TDT (temps dynamique terrestre), proche du TE (temps des éphémérides) et réalisé physiquement par la mesure du TAI (temps atomique international). On a :

$$TDT = TAI + 32{,}184 \text{ s}$$

TIME-SCALES

The time argument of the ephemerides is TDB (barycentric dynamical time) which can be identified with TDT (terrestrial dynamic time) close to the former definition of ET (ephemeris time) and physically made by measuring TAI (international atomic time), so that :

$$TDT = TAI + 32.184 \text{ s}$$

Les événements astronomiques étant mesurés dans l'échelle UTC (temps universel coordonné), le tableau ci-dessous donne la relation (entre le 1 janvier 1982 et le 1 juillet 1991) entre TDT et UTC (d'après la relation entre TAI et UTC publiée par le BIPM).

Astronomical events are measured in the time-scale UTC (coordinate universal time). The table below gives the correspondence (from 1982 January 1 to 1991 July 1) between TDT and UTC (using the relationship between TAI and UTC published by BIPM).

	TDT-UTC
1982 Juil. 1 - 1983 Juil. 1	53.184 s
1983 Juil. 1 - 1985 Juil. 1	54.184 s
1985 Juil. 1 - 1988 Jan. 1	55.184 s
1988 Jan. 1 - 1990 Jan. 1	56.184 s
1990 Jan. 1 - 1991 Jan. 1	57.184 s
1991 Jan. 1 -	58.184 s

Pour 1992, on ne sait pas encore quelle en sera la valeur ; on peut cependant prendre 58 secondes, l'erreur commise n'ayant que peu d'influence sur la valeur des positions calculées des satellites.

For 1992 the value of TDT-UTC is not yet known ; one may take 58 seconds : the error made will have little effect on the values of the calculated positions of the satellites.

EXEMPLE DE CALCUL D'UNE POSITION

Pour calculer les coordonnées X et Y d'un satellite pour une date T exprimée en UTC :

— on effectue une correction déduite du tableau du paragraphe précédent pour se ramener à l'échelle TDT (identifiée à TDB) ;
— on cherche parmi les tableaux représentant X et Y celui qui correspond à l'intervalle $T0$, $T0 + \Delta t$ dans lequel se trouve T ;
— on applique la formule (1) avec $t = T - T0$.

Il faut insister sur le fait que la représentation n'est valable que sur son intervalle de validité : T doit être compris entre $T0$ et $T0 + \Delta t$.

EXEMPLE : Calculer les coordonnées tangentielles de Téthys (3e satellite de Saturne) par rapport à la planète, le 5 janvier 1992 à 23 h 30 min UTC.

On effectue d'abord une correction pour se ramener à l'échelle TDB. Pour 1992 nous avons choisi 58 secondes ; la date T est donc le 5 janvier 1992 à 23 h 30 min 58 s TDB.

Les coefficients nécessaires au calcul de X et Y sont ceux de la page 67 correspondant à l'intervalle du 1er janvier à 0 h au 17 janvier à 0 h. On a, pour X :

EXAMPLE OF A POSITION CALCULATION

To compute the X and Y coordinates of a satellite for a date T (expressed in UTC), one has to :

— apply the correction deduced from the preceding table to express the date T in TDT (identified with TDB) ;
— select from the tables of coefficients, the one which corresponds to the time interval $T0$, $T0 + \Delta t$ where T is found ;
— apply formula (1) with $t = T - T0$.

It is important to state that the representation is valid only for its time interval : T must belong to the interval $T0$, $T0 + \Delta t$.

EXAMPLE : Let us compute the tangential coordinates of Tethys (third satellite of Saturn) with respect to the planet for 1992 January 5, 23 h 30 min UTC.

First, the date must be corrected in order to fit with the TDB time-scale. For 1992, we choose 58 seconds ; so, the date T is 1992 January 5, 23 h 30 min 58 s TDB.

The coefficients necessary to compute X and Y are given on page 67 (interval from January, 1, 0 h to January 17, 0 h). We read for X :

$A0 = -0.000\,3$, $A1 = 0.$, $B0 = 37.424\,8$, $B1 = 0.073\,69$, $B2 = 0.000\,371$, $C0 = 0.003\,2$,
$F0 = 5.620\,711$, $F1 = 3.695\,7$, $F2 = 5.601\,1$, $P0 = 1.917\,7$,

et pour Y : *and for Y :*

$A0 = -0.000\,9$, $A1 = 0$, $B0 = 13.685\,6$, $B1 = 0.033\,54$, $B2 = 0.000\,110$, $C0 = 0.001\,2$,
$F0 = 1.176\,538$, $F1 = 4.786\,8$, $F2 = 1.713\,9$, $P0 = 3.771\,1$,

On applique ensuite la formule (1) : *We then apply formula (1) :*

$$\left.\begin{matrix} X \\ Y \end{matrix}\right\} = A0 + A1 \cdot t + B0 \sin(Nt + F0) + B1 \cdot t \sin(Nt + F1) + B2 \cdot t^2 \sin(Nt + F2) + C0 \sin(2Nt + P0)$$

On a ici :

N = 3,328 radian/jour

t est le nombre de jours écoulés entre le 1 janvier à 0 h (début de l'intervalle) et le 5 janvier à 23 h 30 m 58 s, soit 4,979 838 jours.

On obtient finalement :

$$X = -\ 7{,}17"$$
$$Y = -12{,}10"$$

PRÉCISION DES ÉPHÉMÉRIDES

Les théories dont sont issues les éphémérides sont construites pour la plupart avec une précision meilleure que 0,01" géocentrique.

Les observations utilisées pour l'ajustement des constantes et aussi certains défauts de la théorie ne permettent pas d'obtenir en réalité une précision meilleure que 0,05" ; cette précision peut n'être que de 0,5" pour Hyperion.

La représentation en fonctions mixtes publiée ici a été déterminée de façon à ce que l'écart avec la théorie-source soit de l'ordre de 0,01".

PHÉNOMÈNES DES SATELLITES GALILÉENS DE JUPITER

Les prédictions des phénomènes des satellites galiléens sont données suivant une représentation polynômiale en fonction d'une variable temporelle. La méthode (Thuillot, 1983) permet une représentation compacte puisque 14 coefficients suffisent à représenter chaque type de phénomène (passages, occultations, éclipses, passages d'ombre, débuts ou fins) de chaque satellite pour une année entière avec une précision de l'ordre de la minute de temps.

Des explications sur cette méthode, le formulaire et les tables de coefficients sont donnés pages 51 à 54.

Where :

N = 3.328 radian/day

t is the number of days elapsed between January 1, 0 h (beginning of the interval) and January 5, 23 h 30 m 58 s. Hence t = 4.979 838 days.

Finally, we get :

$$X = -\ 7.17"$$
$$Y = -12.10"$$

ACCURACY OF THE EPHEMERIDES

The theories from which are built the ephemerides have an internal precision better than 0.01" (in a geocentric reference frame).

In reality, the observations used to fit the constants and shortcomings in the theories, do not allow a precision better than 0.05" and may reach 0.5" for Hyperion.

The representation in mixed functions, as published here, has been determined in such a way that the difference between the representation and the source always remains around 0.01".

PHENOMENA OF THE GALILEAN SATELLITES OF JUPITER

The predictions of the phenomena of the Galilean satellites are given as a polynomial representation which depends directly on time. The method (Thuillot, 1983) allows a compact representation as only 14 coefficients are sufficient to represent each type of phenomenon (transits, occultations, eclipses, shadow transits, beginnings or ends) for each satellite for a complete year with an accuracy of about one minute of time.

Some explanations about the method, the formulae and the tables of coefficients are given on pages 51 to 54.

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Note : Les calculs nécesaires à l'élaboration de cet ouvrage ont été effectués sur l'ordinateur NAS 9080 du Centre Inter-Régional de Calcul Electronique du CNRS, F-91405 ORSAY (France).

Nota : The calculations performed in order to build these tables have been made on the NAS 9080 computer of the Centre Inter-Régional de Calcul Electronique of the CNRS, F-91405 ORSAY (France).

SATELLITES DE MARS

SATELLITES OF MARS

DONNÉES SUR LES SATELLITES DE MARS

DATA ON THE SATELLITES OF MARS

NOM	masse	rayon	période rotation sidérale	albédo géométrique	magnitude visuelle	période orbitale	élongation maximale	1/2 grand axe	excentricité	inclinaison sur l'équateur de Mars
unité →	masse de Mars	km	jour			jour	(') (")	10^3 km		degré
I Phobos	2.0×10^{-8}	13 x 11 x 9	(S)	0.06	11.6	0.3189	25	9.38	0.0151	1.1
II Deimos	0.3×10^{-8}	8 x 6 x 5	(S)	0.06	12.7	1.262	1 02	23.46	0.0002	09/2.7
NAME	*mass*	*radius*	*sidereal period*	*geometrical albedo*	*visual magnitude*	*orbital period*	*greatest elongation*	*semi major axis*	*eccentricity*	*inclination on Mars' equator*
unit →	*Mars' mass*	*km*	*day*			*day*	*(') (")*	*10^3 km*		*degree*

NOTES

(S) : Révolution synchrone

(S) : synchronous revolution

ÉPHÉMÉRIDES DES SATELLITES DE MARS

EPHEMERIDES OF THE SATELLITES OF MARS

Coordonnées différentielles tangentielles données en secondes de degré dans le repère équatorial moyen J2000.

Differential tangential coordinates given in arcsecond in the mean equatorial frame J2000.

$$\Delta\alpha \cos\delta = X$$
$$\Delta\delta = Y$$

$$\left.\begin{matrix} X \\ Y \end{matrix}\right\} = A0 + A1 \cdot t + B0 \sin(Nt + F0) + B1 \cdot t \sin(Nt + F1) + B2 \cdot t^2 \sin(Nt + F2) + C0 \sin(2Nt + P0)$$

où $t = T - T0$ avec $T0$ date du début de l'intervalle et T date du calcul

where $t = T - T0$ with $T0$ date of the beginning of the interval and T the date for the calculation

satellite	intervalle Δt (jours)	N (rad/j)	page
Phobos	7	19.702 7	16
Deimos	7	4.978 8	20
	(days)	*(rad/d)*	

1992 COORDONNEES EQUATORIALES DIFFERENTIELLES

DU SATELLITE 1 DE MARS: PHOBOS N=19.7027

		A0	A1	B0 F0	B1 F1	B2 F2	C0 P0
JAN. 1 (OH)	X:	+0.0495	+0.00100	+ 4.6293	+0.07401	+0.000449	+0.0358
(2448622.5)				5.731837	4.4778	2.7265	-0.7007
A JAN. 8 (OH)	Y:	-0.0274	+0.00065	+ 2.6945	+0.02291	+0.000435	+0.0199
				2.617485	5.9192	4.4545	-3.7592
JAN. 8 (OH)	X:	+0.0561	+0.00095	+ 4.7935	+0.07389	+0.000524	+0.0372
(2448629.5)				5.317267	4.0866	2.2933	-1.4715
A JAN.15 (OH)	Y:	-0.0229	+0.00072	+ 2.5313	+0.02415	+0.000423	+0.0186
				2.304123	5.3591	3.9651	-4.4264
JAN.15 (OH)	X:	+0.0627	+0.00084	+ 4.9661	+0.07307	+0.000547	+0.0383
(2448636.5)				4.906896	3.6858	1.9596	-2.2420
A JAN.22 (OH)	Y:	-0.0178	+0.00080	+ 2.3622	+0.02582	+0.000419	+0.0173
				2.007622	4.8206	3.4352	-5.0806
JAN.22 (OH)	X:	+0.0691	+0.00070	+ 5.1415	+0.07220	+0.000495	+0.0395
(2448643.5)				4.500928	3.2744	1.6026	-3.0185
A JAN.29 (OH)	Y:	-0.0122	+0.00087	+ 2.1961	+0.02761	+0.000427	+0.0161
				1.732060	4.3016	2.9161	-5.7141
JAN.29 (OH)	X:	+0.0750	+0.00062	+ 5.3133	+0.07163	+0.000440	+0.0410
(2448650.5)				4.099116	2.8608	1.0953	-3.7864
A FEV. 5 (OH)	Y:	-0.0061	+0.00094	+ 2.0452	+0.02936	+0.000424	+0.0151
				1.481312	3.7934	2.4261	-0.0322
FEV. 5 (OH)	X:	+0.0801	+0.00068	+ 5.4767	+0.07098	+0.000478	+0.0423
(2448657.5)				3.700892	2.4521	0.5400	-4.5428
A FEV.12 (OH)	Y:	+0.0004	+0.00100	+ 1.9254	+0.03113	+0.000401	+0.0144
				1.257377	3.2954	1.9188	-0.6047
FEV.12 (OH)	X:	+0.0847	+0.00080	+ 5.6289	+0.06977	+0.000570	+0.0432
(2448664.5)				3.305700	2.0441	0.1535	-5.2990
A FEV.19 (OH)	Y:	+0.0073	+0.00105	+ 1.8539	+0.03277	+0.000388	+0.0140
				1.057555	2.8116	1.3641	-1.1635
FEV.19 (OH)	X:	+0.0893	+0.00084	+ 5.7683	+0.06810	+0.000608	+0.0441
(2448671.5)				2.913188	1.6264	6.1705	-6.0586
A FEV.26 (OH)	Y:	+0.0146	+0.00109	+ 1.8449	+0.03403	+0.000402	+0.0142
				0.872023	2.3381	0.8277	-1.7168
FEV.26 (OH)	X:	+0.0940	+0.00071	+ 5.8926	+0.06678	+0.000554	+0.0451
(2448678.5)				2.523139	1.1954	5.8890	-0.5334
A MAR. 4 (OH)	Y:	+0.0221	+0.00110	+ 1.9045	+0.03488	+0.000417	+0.0150
				0.685307	1.8648	0.3464	-2.2731
MAR. 4 (OH)	X:	+0.0986	+0.00048	+ 5.9983	+0.06642	+0.000472	+0.0460
(2448685.5)				2.135126	0.7624	5.4463	-1.2819
A MAR.11 (OH)	Y:	+0.0298	+0.00108	+ 2.0288	+0.03553	+0.000412	+0.0161
				0.482380	1.3883	6.1464	-2.8483
MAR.11 (OH)	X:	+0.1026	+0.00029	+ 6.0837	+0.06655	+0.000477	+0.0465
(2448692.5)				1.748366	0.3392	4.8968	-2.0283
A MAR.18 (OH)	Y:	+0.0375	+0.00105	+ 2.2063	+0.03609	+0.000409	+0.0175
				0.254495	0.9126	5.6149	-3.4552
MAR.18 (OH)	X:	+0.1056	+0.00023	+ 6.1496	+0.06646	+0.000543	+0.0467
(2448699.5)				1.362114	6.2052	4.5031	-2.7817
A MAR.25 (OH)	Y:	+0.0450	+0.00103	+ 2.4224	+0.03647	+0.000436	+0.0193
				0.000011	0.4398	5.0856	-4.0927
MAR.25 (OH)	X:	+0.1079	+0.00030	+ 6.1984	+0.06618	+0.000582	+0.0471
(2448706.5)				0.975937	5.7844	4.2524	-3.5386
A AVR. 1 (OH)	Y:	+0.0523	+0.00102	+ 2.6631	+0.03660	+0.000475	+0.0213
				6.004803	6.2473	4.6190	-4.7463
AVR. 1 (OH)	X:	+0.1100	+0.00038	+ 6.2314	+0.06642	+0.000564	+0.0476
(2448713.5)				0.589635	5.3573	4.0144	-4.2873
A AVR. 8 (OH)	Y:	+0.0594	+0.00099	+ 2.9165	+0.03667	+0.000488	+0.0232
				5.706554	5.7620	4.1854	-5.4116

1992 COORDONNEES EQUATORIALES DIFFERENTIELLES

DU SATELLITE 1 DE MARS: PHOBOS N=19.7027

		A0	A1	B0 F0	B1 F1	B2 F2	C0 P0
AVR. 8 (OH)	X:	+0.1121	+0.00039	+ 6.2486	+0.06773	+0.000510	+0.0476
(2448720.5)				0.202864	4.9326	3.6593	-5.0324
A AVR.15 (OH)	Y:	+0.0662	+0.00094	+ 3.1732	+0.03701	+0.000471	+0.0250
				5.392296	5.2706	3.7110	-6.0988
AVR.15 (OH)	X:	+0.1144	+0.00035	+ 6.2506	+0.06972	+0.000487	+0.0472
(2448727.5)				6.098116	4.5187	3.1608	-5.7899
A AVR.22 (OH)	Y:	+0.0728	+0.00088	+ 3.4265	+0.03759	+0.000462	+0.0269
				5.065287	4.7823	3.1809	-0.5191
AVR.22 (OH)	X:	+0.1165	+0.00032	+ 6.2403	+0.07172	+0.000526	+0.0473
(2448734.5)				5.708290	4.1139	2.6660	-0.2699
A AVR.29 (OH)	Y:	+0.0788	+0.00083	+ 3.6717	+0.03820	+0.000480	+0.0289
				4.728215	4.3008	2.6562	-1.2245
AVR.29 (OH)	X:	+0.1184	+0.00029	+ 6.2216	+0.07347	+0.000583	+0.0474
(2448741.5)				5.316095	3.7115	2.2792	-1.0263
A MAI 6 (OH)	Y:	+0.0845	+0.00076	+ 3.9053	+0.03864	+0.000503	+0.0306
				4.383291	3.8222	2.2016	-1.9318
MAI 6 (OH)	X:	+0.1204	+0.00024	+ 6.1981	+0.07524	+0.000593	+0.0471
(2448748.5)				4.921280	3.3059	1.9845	-1.7807
A MAI 13 (OH)	Y:	+0.0897	+0.00065	+ 4.1244	+0.03904	+0.000486	+0.0320
				4.032346	3.3401	1.8003	-2.6517
MAI 13 (OH)	X:	+0.1224	+0.00018	+ 6.1727	+0.07758	+0.000525	+0.0465
(2448755.5)				4.523666	2.8984	1.7102	-2.5481
A MAI 20 (OH)	Y:	+0.0945	+0.00050	+ 4.3260	+0.03974	+0.000424	+0.0335
				3.676752	2.8587	1.3571	-3.3804
MAI 20 (OH)	X:	+0.1244	+0.00013	+ 6.1473	+0.08059	+0.000429	+0.0465
(2448762.5)				4.122926	2.4985	1.3343	-3.3229
A MAI 27 (OH)	Y:	+0.0986	+0.00040	+ 4.5080	+0.04067	+0.000379	+0.0350
				3.317441	2.3915	0.7867	-4.1046
MAI 27 (OH)	X:	+0.1261	+0.00020	+ 6.1254	+0.08373	+0.000402	+0.0466
(2448769.5)				3.718653	2.1113	0.8077	-4.0923
A JUN. 3 (OH)	Y:	+0.1019	+0.00040	+ 4.6696	+0.04133	+0.000400	+0.0361
				2.955212	1.9412	0.2153	-4.8289
JUN. 3 (OH)	X:	+0.1278	+0.00039	+ 6.1125	+0.08642	+0.000478	+0.0464
(2448776.5)				3.310602	1.7320	0.3675	-4.8611
A JUN.10 (OH)	Y:	+0.1046	+0.00045	+ 4.8110	+0.04133	+0.000440	+0.0369
				2.590947	1.4964	6.0786	-5.5591
JUN.10 (OH)	X:	+0.1298	+0.00058	+ 6.1150	+0.08866	+0.000560	+0.0461
(2448783.5)				2.898904	1.3507	0.1239	-5.6401
A JUN.17 (OH)	Y:	+0.1070	+0.00045	+ 4.9319	+0.04094	+0.000420	+0.0376
				2.225628	1.0433	5.7290	-0.0107
JUN.17 (OH)	X:	+0.1326	+0.00066	+ 6.1382	+0.09120	+0.000556	+0.0464
(2448790.5)				2.484127	0.9635	6.2186	-0.1449
A JUN.24 (OH)	Y:	+0.1093	+0.00033	+ 5.0306	+0.04071	+0.000349	+0.0384
				1.860079	0.5867	5.2430	-0.7423
JUN.24 (OH)	X:	+0.1362	+0.00058	+ 6.1853	+0.09460	+0.000462	+0.0472
(2448797.5)				2.066949	0.5784	5.9113	-0.9272
A JUL. 1 (OH)	Y:	+0.1114	+0.00013	+ 5.1055	+0.04049	+0.000332	+0.0389
				1.494798	0.1421	4.5263	-1.4687
JUL. 1 (OH)	X:	+0.1404	+0.00043	+ 6.2591	+0.09833	+0.000389	+0.0478
(2448804.5)				1.647872	0.2032	5.3398	-1.7052
A JUL. 8 (OH)	Y:	+0.1128	-0.00004	+ 5.1567	+0.03959	+0.000397	+0.0391
				1.130221	5.9921	3.9364	-2.1954
JUL. 8 (OH)	X:	+0.1445	+0.00037	+ 6.3643	+0.10144	+0.000438	+0.0484
(2448811.5)				1.227488	6.1186	4.7667	-2.4897
A JUL.15 (OH)	Y:	+0.1133	-0.00010	+ 5.1851	+0.03778	+0.000437	+0.0391
				0.766998	5.5534	3.5339	-2.9251

1992 COORDONNEES EQUATORIALES DIFFERENTIELLES

DU SATELLITE 1 DE MARS: PHOBOS N=19.7027

		AO	A1	BO FO	B1 F1	B2 F2	CO PO
JUL.15 (OH)	X:	+0.1483	+0.00048	+ 6.5063	+0.10363	+0.000528	+0.0495
(2448818.5)				0.806795	5.7508	4.4545	-3.2824
A JUL.22 (OH)	Y:	+0.1130	-0.00005	+ 5.1910	+0.03549	+0.000406	+0.0391
				0.405978	5.0966	3.1390	-3.6533
JUL.22 (OH)	X:	+0.1523	+0.00070	+ 6.6883	+0.10554	+0.000555	+0.0515
(2448825.5)				0.387245	5.3779	4.2565	-4.0669
A JUL.29 (OH)	Y:	+0.1125	-0.00001	+ 5.1736	+0.03329	+0.000358	+0.0391
				0.048027	4.6265	2.5984	-4.3707
JUL.29 (OH)	X:	+0.1569	+0.00090	+ 6.9100	+0.10795	+0.000498	+0.0534
(2448832.5)				6.253368	5.0040	3.9963	-4.8392
A AOU. 5 (OH)	Y:	+0.1118	-0.00004	+ 5.1325	+0.03112	+0.000372	+0.0386
				5.976973	4.1569	1.9885	-5.0832
AOU. 5 (OH)	X:	+0.1625	+0.00102	+ 7.1698	+0.11076	+0.000416	+0.0551
(2448839.5)				5.839612	4.6355	3.5548	-5.6151
A AOU.12 (OH)	Y:	+0.1110	-0.00013	+ 5.0690	+0.02858	+0.000423	+0.0379
				5.626976	3.6820	1.5108	-5.7983
AOU.12 (OH)	X:	+0.1688	+0.00107	+ 7.4669	+0.11342	+0.000396	+0.0574
(2448846.5)				5.429640	4.2750	2.9180	-0.1130
A AOU.19 (OH)	Y:	+0.1100	-0.00023	+ 4.9854	+0.02574	+0.000451	+0.0373
				5.281920	3.1830	1.1060	-0.2266
AOU.19 (OH)	X:	+0.1758	+0.00111	+ 7.8024	+0.11531	+0.000456	+0.0605
(2448853.5)				5.023936	3.9197	2.3634	-0.8835
A AOU.26 (OH)	Y:	+0.1084	-0.00029	+ 4.8845	+0.02304	+0.000446	+0.0366
				4.942716	2.6457	0.6793	-0.9262
AOU.26 (OH)	X:	+0.1833	+0.00116	+ 8.1765	+0.11633	+0.000489	+0.0636
(2448860.5)				4.623116	3.5640	2.0241	-1.6384
A SEP. 2 (OH)	Y:	+0.1064	-0.00031	+ 4.7696	+0.02097	+0.000428	+0.0357
				4.610345	2.0713	0.1803	-1.6153
SEP. 2 (OH)	X:	+0.1914	+0.00117	+ 8.5875	+0.11700	+0.000415	+0.0664
(2448867.5)				4.227689	3.2053	1.8402	-2.3938
A SEP. 9 (OH)	Y:	+0.1041	-0.00033	+ 4.6447	+0.01966	+0.000428	+0.0346
				4.285639	1.4740	5.9173	-2.3021
SEP. 9 (OH)	X:	+0.2003	+0.00116	+ 9.0321	+0.11806	+0.000257	+0.0697
(2448874.5)				3.837752	2.8493	1.7504	-3.1521
A SEP.16 (OH)	Y:	+0.1017	-0.00036	+ 4.5144	+0.01900	+0.000439	+0.0336
				3.969265	0.8600	5.3941	-2.9821
SEP.16 (OH)	X:	+0.2096	+0.00122	+ 9.5089	+0.11966	+0.000082	+0.0737
(2448881.5)				3.453157	2.5043	1.7437	-3.9016
A SEP.23 (OH)	Y:	+0.0992	-0.00040	+ 4.3854	+0.01903	+0.000438	+0.0327
				3.661888	0.2366	4.9041	-3.6490
SEP.23 (OH)	X:	+0.2194	+0.00146	+10.0193	+0.12124	+0.000034	+0.0779
(2448888.5)				3.073746	2.1754	5.1421	-4.6373
A SEP.30 (OH)	Y:	+0.0965	-0.00042	+ 4.2650	+0.01976	+0.000415	+0.0318
				3.363992	5.9071	4.4279	-4.3036
SEP.30 (OH)	X:	+0.2299	+0.00184	+10.5671	+0.12207	+0.000039	+0.0818
(2448895.5)				2.699552	1.8594	5.8369	-5.3683
A OCT. 7 (OH)	Y:	+0.0937	-0.00042	+ 4.1616	+0.02108	+0.000380	+0.0310
				3.075495	5.3253	3.9403	-4.9503
OCT. 7 (OH)	X:	+0.2416	+0.00226	+11.1559	+0.12252	+0.000100	+0.0860
(2448902.5)				2.330792	1.5492	1.4136	-6.1009
A OCT.14 (OH)	Y:	+0.0907	-0.00039	+ 4.0828	+0.02272	+0.000352	+0.0306
				2.795613	4.7808	3.4046	-5.5918
OCT.14 (OH)	X:	+0.2553	+0.00253	+11.7885	+0.12358	+0.000272	+0.0912
(2448909.5)				1.967682	1.2439	1.8446	-0.5444
A OCT.21 (OH)	Y:	+0.0876	-0.00036	+ 4.0358	+0.02429	+0.000338	+0.0304
				2.522758	4.2640	2.8323	-6.2249

1992 COORDONNEES EQUATORIALES DIFFERENTIELLES

DU SATELLITE 1 DE MARS: PHOBOS N=19.7027

		A0	A1	B0 F0	B1 F1	B2 F2	C0 P0
OCT.21 (OH) (2448916.5)	X:	+0.2714	+0.00257	+12.4678 1.610389	+0.12576 0.9498	+0.000495 2.0145	+0.0968 -1.2607
A OCT.28 (OH)	Y:	+0.0847	-0.00035	+ 4.0264 2.254341	+0.02549 3.7633	+0.000334 2.2007	+0.0304 -0.5715
OCT.28 (OH) (2448923.5)	X:	+0.2893	+0.00251	+13.1966 1.259070	+0.12859 0.6747	+0.000719 2.0239	+0.1025 -1.9676
A NOV. 4 (OH)	Y:	+0.0819	-0.00039	+ 4.0581 1.986771	+0.02598 3.2706	+0.000361 1.5396	+0.0308 -1.2054
NOV. 4 (OH) (2448930.5)	X:	+0.3084	+0.00257	+13.9788 0.913968	+0.13134 0.4238	+0.000890 1.9311	+0.1082 -2.6716
A NOV.11 (OH)	Y:	+0.0793	-0.00041	+ 4.1293 1.715916	+0.02560 2.7666	+0.000437 0.9002	+0.0316 -1.8426
NOV.11 (OH) (2448937.5)	X:	+0.3284	+0.00285	+14.8163 0.575658	+0.13342 0.1969	+0.001042 1.7781	+0.1146 -3.3729
A NOV.18 (OH)	Y:	+0.0767	-0.00037	+ 4.2355 1.437604	+0.02438 2.2170	+0.000577 0.3046	+0.0325 -2.4873
NOV.18 (OH) (2448944.5)	X:	+0.3494	+0.00324	+15.7054 0.245028	+0.13457 6.2775	+0.001245 1.6505	+0.1218 -4.0658
A NOV.25 (OH)	Y:	+0.0744	-0.00023	+ 4.3694 1.147685	+0.02287 1.5654	+0.000792 6.0632	+0.0335 -3.1488
NOV.25 (OH) (2448951.5)	X:	+0.3720	+0.00342	+16.6296 6.206236	+0.13407 6.1034	+0.001538 1.5818	+0.1294 -4.7459
A DEC. 2 (OH)	Y:	+0.0727	-0.00002	+ 4.5227 0.841978	+0.02322 0.7692	+0.001051 5.6276	+0.0347 -3.8320
DEC. 2 (OH) (2448958.5)	X:	+0.3955	+0.00313	+17.5555 5.893683	+0.13126 5.9650	+0.002011 1.5549	+0.1361 -5.4138
A DEC. 9 (OH)	Y:	+0.0722	+0.00022	+ 4.6882 0.516861	+0.02910 6.2306	+0.001296 5.2739	+0.0361 -4.5310
DEC. 9 (OH) (2448965.5)	X:	+0.4177	+0.00234	+18.4327 5.591013	+0.12573 5.8801	+0.002711 1.5376	+0.1417 -6.0771
A DEC.16 (OH)	Y:	+0.0735	+0.00051	+ 4.8654 0.169938	+0.04183 5.5668	+0.001393 4.9755	+0.0374 -5.2491
DEC.16 (OH) (2448972.5)	X:	+0.4353	+0.00120	+19.1928 5.298384	+0.11790 5.8821	+0.003502 1.5221	+0.1467 -0.4505
A DEC.23 (OH)	Y:	+0.0769	+0.00083	+ 5.0646 6.084089	+0.05890 5.0691	+0.001160 4.6826	+0.0388 -5.9986
DEC.23 (OH) (2448979.5)	X:	+0.4444	-0.00020	+19.7474 5.015360	+0.11135 6.0021	+0.004050 1.5081	+0.1500 -1.0962
A DEC.30 (OH)	Y:	+0.0826	+0.00109	+ 5.3050 5.696906	+0.07463 4.6740	+0.000515 4.2462	+0.0411 -0.4799
DEC.30 (OH) (2448986.5)	X:	+0.4424	-0.00181	+20.0047 4.740160	+0.11368 6.2035	+0.004140 1.5077	+0.1504 -1.7364
A JAN. 6 (OH)	Y:	+0.0899	+0.00110	+ 5.5972 5.301888	+0.08199 4.3299	+0.000456 1.5932	+0.0436 -1.2365

1992 COORDONNEES EQUATORIALES DIFFERENTIELLES

DU SATELLITE 2 DE MARS: DEIMOS N= 4.9788

		A0	A1	B0 F0	B1 F1	B2 F2	C0 P0
JAN. 1 (0H)	X:	+0.0014	-0.00008	+11.6987	+0.20093	+0.001401	+0.0009
(2448622.5)				0.831209	5.8045	4.1905	2.4839
A JAN. 8 (0H)	Y:	-0.0007	+0.00008	+ 6.5550	+0.06130	+0.001158	+0.0005
				3.908392	1.1997	5.7724	5.6891
JAN. 8 (0H)	X:	+0.0016	-0.00002	+12.0735	+0.20092	+0.001453	+0.0012
(2448629.5)				4.152346	2.8594	1.3548	2.7189
A JAN.15 (0H)	Y:	-0.0006	+0.00006	+ 6.1511	+0.06114	+0.001072	+0.0006
				1.039934	4.3682	2.7212	5.8916
JAN.15 (0H)	X:	+0.0019	-0.00001	+12.4679	+0.20349	+0.001467	+0.0012
(2448636.5)				1.194115	6.1935	4.4557	2.8476
A JAN.22 (0H)	Y:	-0.0005	+0.00005	+ 5.7250	+0.06188	+0.001211	+0.0005
				4.470724	1.2768	5.9783	6.0663
JAN.22 (0H)	X:	+0.0022	+0.00000	+12.8733	+0.20069	+0.001607	+0.0009
(2448643.5)				4.522152	3.2458	1.7347	3.2235
A JAN.29 (0H)	Y:	-0.0004	+0.00006	+ 5.2971	+0.06404	+0.001061	+0.0002
				1.638008	4.4413	2.8993	0.5701
JAN.29 (0H)	X:	+0.0024	+0.00004	+13.2781	+0.20332	+0.001523	+0.0006
(2448650.5)				1.571223	0.2859	4.7216	4.0640
A FEV. 5 (0H)	Y:	-0.0002	+0.00005	+ 4.8945	+0.06619	+0.001230	+0.0003
				5.114209	1.3667	6.1791	2.0032
FEV. 5 (0H)	X:	+0.0025	+0.00009	+13.6724	+0.19894	+0.001666	+0.0009
(2448657.5)				4.906132	3.6178	2.0349	5.0843
A FEV.12 (0H)	Y:	+0.0000	+0.00004	+ 4.5539	+0.06995	+0.001096	+0.0005
				2.335545	4.5557	3.0504	2.5030
FEV.12 (0H)	X:	+0.0028	+0.00009	+14.0483	+0.19974	+0.001565	+0.0014
(2448664.5)				1.961650	0.6524	5.1340	5.4317
A FEV.19 (0H)	Y:	+0.0000	+0.00006	+ 4.3199	+0.07270	+0.001186	+0.0005
				5.869634	1.4949	0.0430	2.6477
FEV.19 (0H)	X:	+0.0029	+0.00014	+14.3958	+0.19598	+0.001727	+0.0016
(2448671.5)				5.302642	3.9793	2.3622	5.5996
A FEV.26 (0H)	Y:	+0.0002	+0.00007	+ 4.2334	+0.07644	+0.001126	+0.0003
				3.141280	4.7123	3.2183	3.1160
FEV.26 (0H)	X:	+0.0030	+0.00017	+14.7120	+0.19607	+0.001546	+0.0016
(2448678.5)				2.363288	1.0084	5.5549	5.8321
A MAR. 4 (0H)	Y:	+0.0004	+0.00007	+ 4.3226	+0.07931	+0.001195	+0.0002
				0.418493	1.6643	0.1763	4.6670
MAR. 4 (0H)	X:	+0.0032	+0.00015	+14.9894	+0.19420	+0.001695	+0.0011
(2448685.5)				5.708767	4.3325	2.6508	6.1073
A MAR.11 (0H)	Y:	+0.0006	+0.00007	+ 4.5850	+0.08227	+0.001160	+0.0005
				3.965725	4.8947	3.4067	5.4783
MAR.11 (0H)	X:	+0.0034	+0.00017	+15.2300	+0.19244	+0.001563	+0.0007
(2448692.5)				2.772690	1.3628	6.0877	0.9129
A MAR.18 (0H)	Y:	+0.0007	+0.00009	+ 4.9965	+0.08530	+0.001266	+0.0006
				1.204008	1.8574	0.3084	5.7051
MAR.18 (0H)	X:	+0.0034	+0.00022	+15.4273	+0.19412	+0.001661	+0.0011
(2448699.5)				6.121078	4.6840	2.9628	1.8244
A MAR.25 (0H)	Y:	+0.0008	+0.00008	+ 5.5180	+0.08744	+0.001150	+0.0006
				4.696617	5.0871	3.6132	6.0431
MAR.25 (0H)	X:	+0.0036	+0.00019	+15.5864	+0.19207	+0.001584	+0.0018
(2448706.5)				3.186564	1.7176	0.2553	2.2052
A AVR. 1 (0H)	Y:	+0.0010	+0.00008	+ 6.1128	+0.09049	+0.001340	+0.0004
				1.878398	2.0604	0.5210	0.4393
AVR. 1 (0H)	X:	+0.0038	+0.00018	+15.7052	+0.19570	+0.001569	+0.0021
(2448713.5)				0.252646	5.0387	3.3747	2.3670
A AVR. 8 (0H)	Y:	+0.0012	+0.00006	+ 6.7497	+0.09296	+0.001178	+0.0005
				5.321452	5.2916	3.8131	1.6099

1992 COORDONNEES EQUATORIALES DIFFERENTIELLES

DU SATELLITE 2 DE MARS: DEIMOS N= 4.9788

		AO	A1	BO FO	B1 F1	B2 F2	CO PO
AVR. 8 (OH)	X:	+0.0037	+0.00024	+15.7882	+0.19482	+0.001611	+0.0019
(2448720.5)				3.601191	2.0795	0.6858	2.5795
A AVR.15 (OH)	Y:	+0.0012	+0.00008	+ 7.4032	+0.09602	+0.001410	+0.0009
				2.462885	2.2729	0.7493	2.0165
AVR.15 (OH)	X:	+0.0037	+0.00023	+15.8387	+0.19983	+0.001526	+0.0015
(2448727.5)				0.666341	5.4022	3.8362	2.9170
A AVR.22 (OH)	Y:	+0.0014	+0.00005	+ 8.0564	+0.09887	+0.001188	+0.0012
				5.874254	5.5072	4.0562	2.2797
AVR.22 (OH)	X:	+0.0038	+0.00020	+15.8583	+0.20168	+0.001581	+0.0010
(2448734.5)				4.013131	2.4486	1.0385	3.6086
A AVR.29 (OH)	Y:	+0.0016	+0.00005	+ 8.6920	+0.10239	+0.001364	+0.0012
				2.991160	2.4944	0.9945	2.4815
AVR.29 (OH)	X:	+0.0037	+0.00021	+15.8553	+0.20582	+0.001544	+0.0013
(2448741.5)				1.075304	5.7776	4.4068	4.5207
A MAI 6 (OH)	Y:	+0.0016	+0.00004	+ 9.3041	+0.10522	+0.001291	+0.0008
				0.100066	5.7499	4.3438	2.8701
MAI 6 (OH)	X:	+0.0035	+0.00023	+15.8330	+0.21154	+0.001556	+0.0018
(2448748.5)				4.418726	2.8294	1.3810	4.9064
A MAI 13 (OH)	Y:	+0.0016	+0.00004	+ 9.8798	+0.10983	+0.001271	+0.0007
				3.485671	2.7374	1.1891	3.7585
MAI 13 (OH)	X:	+0.0037	+0.00016	+15.8002	+0.21510	+0.001606	+0.0022
(2448755.5)				1.476364	6.1645	4.9103	5.2012
A MAI 20 (OH)	Y:	+0.0017	+0.00000	+10.4185	+0.11165	+0.001323	+0.0010
				0.582934	6.0135	4.6235	4.6711
MAI 20 (OH)	X:	+0.0037	+0.00012	+15.7625	+0.22345	+0.001529	+0.0021
(2448762.5)				4.814818	3.2200	1.7862	5.3930
A MAI 27 (OH)	Y:	+0.0016	+0.00000	+10.9101	+0.11652	+0.001174	+0.0015
				3.959904	3.0059	1.4073	5.0219
MAI 27 (OH)	X:	+0.0036	+0.00011	+15.7290	+0.22685	+0.001706	+0.0016
(2448769.5)				1.866561	0.2797	5.4171	5.7645
A JUN. 3 (OH)	Y:	+0.0016	-0.00003	+11.3558	+0.11694	+0.001338	+0.0016
				1.050301	0.0191	4.9204	5.2494
JUN. 3 (OH)	X:	+0.0035	+0.00006	+15.7112	+0.23774	+0.001495	+0.0013
(2448776.5)				5.198905	3.6222	2.1674	0.1054
A JUN.10 (OH)	Y:	+0.0015	-0.00006	+11.7506	+0.12184	+0.001118	+0.0015
				4.422531	3.3011	1.5535	5.5436
JUN.10 (OH)	X:	+0.0037	+0.00000	+15.7169	+0.24148	+0.001755	+0.0014
(2448783.5)				2.244139	0.6886	5.8117	0.8965
A JUN.17 (OH)	Y:	+0.0016	-0.00010	+12.0938	+0.12047	+0.001245	+0.0012
				1.509585	0.3241	5.1155	5.9639
JUN.17 (OH)	X:	+0.0035	-0.00001	+15.7602	+0.25197	+0.001505	+0.0021
(2448790.5)				5.569990	4.0336	2.7037	1.3502
A JUN.24 (OH)	Y:	+0.0014	-0.00010	+12.3827	+0.12282	+0.001104	+0.0011
				4.879822	3.6169	1.8245	0.5758
JUN.24 (OH)	X:	+0.0034	-0.00005	+15.8485	+0.25800	+0.001787	+0.0024
(2448797.5)				2.609235	1.1071	6.1691	1.5793
A JUL. 1 (OH)	Y:	+0.0015	-0.00016	+12.6158	+0.12047	+0.001179	+0.0015
				1.966423	0.6441	5.2678	1.1445
JUL. 1 (OH)	X:	+0.0034	-0.00010	+16.0005	+0.26732	+0.001523	+0.0026
(2448804.5)				5.929594	4.4547	3.1930	1.8107
A JUL. 8 (OH)	Y:	+0.0014	-0.00016	+12.7937	+0.11985	+0.001081	+0.0019
				5.337280	3.9425	2.0421	1.5196
JUL. 8 (OH)	X:	+0.0031	-0.00010	+16.2195	+0.27516	+0.001717	+0.0023
(2448811.5)				2.964643	1.5321	0.2078	2.0162
A JUL.15 (OH)	Y:	+0.0012	-0.00015	+12.9133	+0.11630	+0.001168	+0.0020
				2.426029	0.9695	5.3306	1.7310

1992 COORDONNEES EQUATORIALES DIFFERENTIELLES

DU SATELLITE 2 DE MARS: DEIMOS N= 4.9788

		A0	A1	B0 F0	B1 F1	B2 F2	C0 P0
JUL.15 (OH)	X:	+0.0029	-0.00014	+16.5229	+0.28141	+0.001664	+0.0017
(2448818.5)				6.282381	4.8853	3.7394	2.4282
A JUL.22 (OH)	Y:	+0.0010	-0.00016	+12.9762	+0.11122	+0.001028	+0.0017
				5.799952	4.2672	2.3605	1.9943
JUL.22 (OH)	X:	+0.0028	-0.00021	+16.9109	+0.29200	+0.001593	+0.0015
(2448825.5)				3.317077	1.9638	0.5245	3.1215
A JUL.29 (OH)	Y:	+0.0009	-0.00019	+12.9791	+0.10748	+0.001237	+0.0012
				2.893496	1.2909	5.4097	2.4979
JUL.29 (OH)	X:	+0.0025	-0.00022	+17.3979	+0.29592	+0.001699	+0.0018
(2448832.5)				0.352435	5.3254	4.1409	3.8780
A AOU. 5 (OH)	Y:	+0.0006	-0.00016	+12.9268	+0.09882	+0.001024	+0.0010
				6.273138	4.5825	2.5551	3.4121
AOU. 5 (OH)	X:	+0.0021	-0.00023	+17.9819	+0.30553	+0.001484	+0.0026
(2448839.5)				3.673674	2.4044	0.9524	4.2713
A AOU.12 (OH)	Y:	+0.0004	-0.00015	+12.8191	+0.09337	+0.001251	+0.0015
				3.374067	1.5942	5.6094	4.1023
AOU.12 (OH)	X:	+0.0020	-0.00033	+18.6661	+0.30868	+0.001674	+0.0030
(2448846.5)				0.714346	5.7735	4.5575	4.5155
A AOU.19 (OH)	Y:	+0.0004	-0.00019	+12.6596	+0.08313	+0.001025	+0.0019
				0.479271	4.8681	2.7353	4.4014
AOU.19 (OH)	X:	+0.0017	-0.00035	+19.4499	+0.31722	+0.001348	+0.0031
(2448853.5)				4.042494	2.8557	1.4089	4.7741
A AOU.26 (OH)	Y:	+0.0003	-0.00019	+12.4540	+0.07632	+0.001235	+0.0019
				3.873635	1.8578	5.8309	4.6808
AOU.26 (OH)	X:	+0.0012	-0.00033	+20.3317	+0.32087	+0.001420	+0.0028
(2448860.5)				1.091510	6.2319	4.8932	5.0518
A SEP. 2 (OH)	Y:	+0.0001	-0.00015	+12.2087	+0.06624	+0.001101	+0.0016
				0.990758	5.1028	2.8590	4.9564
SEP. 2 (OH)	X:	+0.0009	-0.00037	+21.3113	+0.32523	+0.001342	+0.0023
(2448867.5)				4.428787	3.3254	2.0079	5.6373
A SEP. 9 (OH)	Y:	+0.0001	-0.00017	+11.9360	+0.05761	+0.001083	+0.0012
				4.398343	2.0396	6.0927	5.6272
SEP. 9 (OH)	X:	+0.0008	-0.00043	+22.3843	+0.33095	+0.001067	+0.0026
(2448874.5)				1.488175	0.4214	5.2574	0.0345
A SEP.16 (OH)	Y:	+0.0001	-0.00018	+11.6461	+0.04991	+0.001174	+0.0013
				1.530672	5.2355	3.0613	0.1566
SEP.16 (OH)	X:	+0.0001	-0.00035	+23.5511	+0.33295	+0.001191	+0.0034
(2448881.5)				4.835794	3.8130	2.6317	0.5838
A SEP.23 (OH)	Y:	+0.0000	-0.00014	+11.3541	+0.04268	+0.000995	+0.0016
				4.954481	2.0630	6.2617	0.7272
SEP.23 (OH)	X:	-0.0005	-0.00032	+24.8149	+0.33996	+0.000601	+0.0043
(2448888.5)				1.905988	0.9184	5.6781	0.8955
A SEP.30 (OH)	Y:	-0.0001	-0.00011	+11.0777	+0.03781	+0.001160	+0.0019
				2.104364	5.1764	3.2709	1.0203
SEP.30 (OH)	X:	-0.0008	-0.00034	+26.1779	+0.33991	+0.001093	+0.0044
(2448895.5)				5.264422	4.3314	3.3334	1.1508
A OCT. 7 (OH)	Y:	+0.0000	-0.00013	+10.8363	+0.03598	+0.000879	+0.0016
				5.545930	1.8787	0.0755	1.3340
OCT. 7 (OH)	X:	-0.0014	-0.00030	+27.6473	+0.34830	+0.000069	+0.0040
(2448902.5)				2.345901	1.4451	2.8271	1.5164
A OCT.14 (OH)	Y:	+0.0000	-0.00012	+10.6499	+0.03533	+0.001112	+0.0011
				2.713171	4.9682	3.4840	1.9042
OCT.14 (OH)	X:	-0.0024	-0.00020	+29.2250	+0.34910	+0.000602	+0.0033
(2448909.5)				5.715562	4.8822	4.2932	2.0882
A OCT.21 (OH)	Y:	-0.0002	-0.00008	+10.5346	+0.03963	+0.000893	+0.0011
				6.169994	1.7201	0.1622	2.9033

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DU SATELLITE 2 DE MARS: DEIMOS N= 4.9788

		A0	A1	B0 F0	B1 F1	B2 F2	C0 P0
OCT.21 (OH)	X:	-0.0028	-0.00024	+30.9306	+0.35541	+0.000730	+0.0038
(2448916.5)				2.808446	2.0217	3.2560	2.9465
A OCT.28 (OH)	Y:	-0.0001	-0.00011	+10.5095	+0.04206	+0.001009	+0.0016
				3.348873	4.8518	3.4210	3.5701
OCT.28 (OH)	X:	-0.0034	-0.00023	+32.7617	+0.35957	+0.000547	+0.0055
(2448923.5)				6.190357	5.4838	0.6975	3.4596
A NOV. 4 (OH)	Y:	+0.0000	-0.00013	+10.5820	+0.04617	+0.000976	+0.0019
				0.528995	1.6942	0.1390	3.9153
NOV. 4 (OH)	X:	-0.0041	-0.00015	+34.7384	+0.36008	+0.001440	+0.0069
(2448930.5)				3.296021	2.6580	4.0577	3.8165
A NOV.11 (OH)	Y:	+0.0000	-0.00013	+10.7581	+0.04861	+0.001228	+0.0019
				3.990153	4.8468	3.2484	4.2740
NOV.11 (OH)	X:	-0.0046	-0.00018	+36.8381	+0.36493	+0.002192	+0.0075
(2448937.5)				0.408855	6.1441	1.7145	4.1058
A NOV.18 (OH)	Y:	-0.0001	-0.00009	+11.0270	+0.05101	+0.001464	+0.0015
				1.161952	1.6533	0.1260	4.7519
NOV.18 (OH)	X:	-0.0051	-0.00013	+39.0691	+0.35744	+0.002234	+0.0066
(2448944.5)				3.812571	3.3830	5.1537	4.5414
A NOV.25 (OH)	Y:	+0.0000	-0.00016	+11.3787	+0.05594	+0.002209	+0.0016
				4.606352	4.7220	3.3001	5.6321
NOV.25 (OH)	X:	-0.0054	-0.00009	+41.3746	+0.35323	+0.004651	+0.0063
(2448951.5)				0.942488	0.6200	2.6680	5.2449
A DEC. 2 (OH)	Y:	-0.0001	-0.00012	+11.7960	+0.06784	+0.002405	+0.0020
				1.753684	1.4013	0.3560	6.2605
DEC. 2 (OH)	X:	-0.0065	+0.00007	+43.6878	+0.32955	+0.004554	+0.0074
(2448958.5)				4.364724	4.2319	0.1179	6.0107
A DEC. 9 (OH)	Y:	-0.0002	-0.00010	+12.2646	+0.08985	+0.003226	+0.0026
				5.165801	4.5030	3.6866	0.4002
DEC. 9 (OH)	X:	-0.0066	+0.00006	+45.8709	+0.29879	+0.007434	+0.0100
(2448965.5)				1.514875	1.5641	3.6818	0.2510
A DEC.16 (OH)	Y:	-0.0005	-0.00009	+12.7869	+0.12552	+0.003008	+0.0027
				2.275607	1.3856	0.8387	0.7195
DEC.16 (OH)	X:	-0.0069	+0.00012	+47.7517	+0.26196	+0.008290	+0.0105
(2448972.5)				4.958334	5.3546	1.2376	0.6540
A DEC.23 (OH)	Y:	-0.0006	-0.00009	+13.3838	+0.16391	+0.002814	+0.0024
				5.648740	4.6861	4.1681	1.1742
DEC.23 (OH)	X:	-0.0078	+0.00037	+49.1121	+0.22009	+0.009934	+0.0094
(2448979.5)				2.129676	2.9714	4.7849	1.2060
A DEC.30 (OH)	Y:	-0.0009	-0.00003	+14.0938	+0.19992	+0.001012	+0.0023
				2.724665	1.7403	1.1430	1.8140
DEC.30 (OH)	X:	-0.0070	+0.00021	+49.7204	+0.22910	+0.010137	+0.0080
(2448986.5)				5.592397	0.7580	2.3370	1.9906
A JAN. 6 (OH)	Y:	-0.0011	-0.00006	+14.9134	+0.21267	+0.001420	+0.0025
				6.078463	5.1387	2.5221	2.6182

SATELLITES DE JUPITER

SATELLITES OF JUPITER

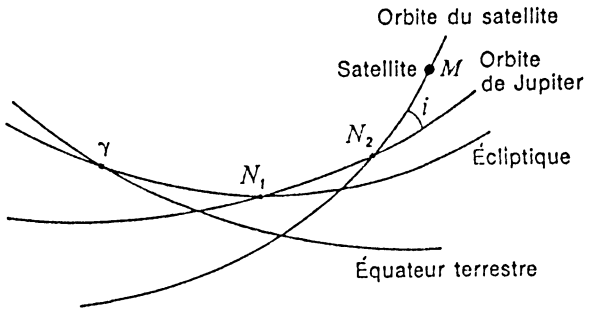
DONNÉES SUR LES SATELLITES GALILÉENS

DATA ON THE GALILEAN SATELLITES

	IO (I)	EUROPE (II)	GANYMÈDE (III)	CALLISTO (IV)
Masses (10^{-5} masse de Jupiter)				
Sampson (1921) :	4.50	2.54	7.99	4.50
De Sitter (1931) :	3.81	2.48	8.17	5.09
Pioneer 11 (1976) :	4.68	2.52	7.80	5.66
Rayons (km)				
Danjon (1954) :	1650	1400	2450	2300
Dollfus (1961) :	1775	1550	2800	2525
Pioneer 11 (1976) :	1840	1552	2650	2420
Voyager (1983) :	1816	1563	2638	2410
Magnitudes visuelles à l'opposition de Jupiter :				
Harris (1961) :	4.8	5.2	4.5	5.5
Albedos géométriques (Harris, 1961)				
U : 353 nm	0.19	0.47	0.29	0.14
B : 448 nm	0.56	0.67	0.41	0.21
V : 554 nm	0.92	0.83	0.49	0.26
R : 690 nm	1.12	0.93	0.56	0.30
I : 820 nm	1.15	0.95	0.57	0.31
Albédo de Bond (visuel)	0.54	0.49	0.29	0.15
Demi-grand axe (Sampson, 1921)				
en UA :	0.002820	0.004486	0.007155	0.012586
en rayons de Jupiter :	5.87	9.34	14.91	26.22
en kilomètres :	421810	671140	1070500	1882900
Plus grande élongation à l'opposition de Jupiter (minutes et secondes de degré)				
Sampson (1921) :	2' 17"	3' 40"	5' 48"	10' 13"
Période synodique (jours)				
Sampson (1921) :	1.7698604883	3.5540941742	7.1663872292	16.7535523007
Inclinaison moyenne sur l'équateur de Jupiter pour 1992.5 (minutes et secondes de degré)				
Sampson (1921) :	1' 52"	26' 46"	10' 12"	21' 32"
Valeur moyenne de l'excentricité pour 1992.5				
Sampson (1921) :	0.004	0.009	0.001	0.007
Partie séculaire du mouvement (degrés par an)				
nœud :	- 48.5	- 11.9	- 2.6	- 0.6
périjove :	57.0	14.6	2.7	0.7
Sampson (1921)				

Théorie du mouvement des satellites galiléens

Theory of the motion of the Galilean satellites



(repère moyen de la date)
(mean frame of the date)

Du fait de la complexité du mouvement des satellites galiléens, il est difficile de donner des valeurs précises sur les nœuds et les périjoves. En effet, les excentricités et les inclinaisons sont faibles (cf. tableau précédent) et tous ces éléments sont soumis à de grandes variations.

On donne ci-après les longitudes moyennes (d'après Sampson, 1921) dans le plan des orbites, ce plan étant confondu avec l'équateur de Jupiter.

Si τ est le temps en jours moyens compté à partir de 1900,0 on a :

Because of the complexity of the motion of the Galilean satellites of Jupiter it is difficult to provide precise values for nodes and perijoves. Indeed, eccentricities and inclinations are small (see the preceding table) and all these elements undergo large variations.

The mean longitudes (Sampson, 1921) in the orbital planes identified with Jupiter's equator are given below.

If τ *is the time in days which has elapsed from 1900.0, one gets :*

$$\gamma N_1 N_2 = 316.051° + 0.00003559\,\tau,\ i = 3.10350°$$

	$\gamma N_1 + N_1 N_2 + N_2 M$	Période sidérale en jours *Sidereal period in days*
Io	142.59987° + 203.488992435 τ	1.7691374639
Europe	99.55081° + 101.374761672 τ	3.5511797420
Ganymède	168.02628° + 50.317646290 τ	7.1545476894
Callisto	234.40790° + 21.571109630 τ	16.6889884746

DONNÉES SUR L'ENSEMBLE DES SATELLITES DE JUPITER

DATA ON THE GALILEAN AND OTHER SATELLITES OF JUPITER

NOM	masse	rayon	période rotation sidérale	albédo géométrique	magnitude visuelle	période orbitale	élongation maximale	1/2 grand axe	excentricité	inclinaison sur l'équateur de Jupiter
unité →	masse de Jupiter	km	jour			jour	(°) (') (")	10^3 km		degré
I Io	4.70×10^{-5}	1 815	(S)	0.61	5.02	1.769 137	2 18	422	0.004	0.04
II Europa	2.56×10^{-5}	1 569	(S)	0.64	5.29	3.551 181	3 40	671	0.009	0.47
III Ganymede	7.84×10^{-5}	2 631	(S)	0.42	4.61	7.154 552	5 51	1 070	0.002	0.21
IV Callisto	5.6×10^{-5}	2 400	(S)	0.20	5.65	16.689 018	10 18	1 883	0.007	0.51
V Amalthea	$38. \times 10^{-10}$	135 x 85 x 75	(S)	0.05	14.1	0.498 179	59	181	0.003	0.40
VI Himalia	$50. \times 10^{-10}$	90	0.4	0.03	14.84	250.566 2	1 02 46	11 480	0.158	27.63 (1) (2)
VII Elara	$4. \times 10^{-10}$	40	0.5	0.03	16.77	259.652 8	1 04 10	11 737	0.207	24.77 (1) (2)
VIII Pasiphae	$1. \times 10^{-10}$				17.0	735. (R)	2 08 26	23 500	0.378	145. (1) (2)
IX Sinope	0.4×10^{-10}	15			18.3	758. (R)	2 09 31	23 700	0.275	153. (1) (2)
X Lysithea	0.4×10^{-10}	10			18.4	259.22	1 04 04	11 720	0.107	29.02 (2)
XI Carme	0.5×10^{-10}	15			18.0	692. (R)	2 03 31	22 600	0.207	164. (2)
XII Ananke	0.2×10^{-10}	10			18.9	631. (R)	1 55 52	21 200	0.169	147. (2)
XIII Leda	0.03×10^{-10}	8			20.	238.72	1 00 39	11 094	0.148	26.07 (2)
XIV Thebe	$4. \times 10^{-10}$	40		0.05	16.0	0.674 55	1 13	221		
XV Adrastea	0.1×10^{-10}	10		0.05	18.9	0.298	42	129		
XVI Metis	0.5×10^{-10}	20		0.05	17.5	0.294 79	42	128		
NAME	*mass*	*radius*	*sidereal rotation*	*geometrical albedo*	*visual magnitude*	*orbital period*	*greatest elongation*	*semi major axis*	*eccentricity*	*inclination on Jupiter's equator*
unit →	*Jupiter's mass*	*km*	*day*			*day*	*(°) (') (")*	*10^3 km*		*degree*

NOTES

(S) : révolution synchrone
(R) : révolution rétrograde
(1) : les éphémérides des satellites VI, VII, VIII et IX sont données sous forme de coefficients de Tchébycheff dans le *« Supplément à la Connaissance des Temps : Satellites faibles... »*
(2) : inclinaison sur l'orbite de Jupiter

Données extraites de l'*Encyclopédie du Bureau des Longitudes.*

(S) : synchronous revolution
(R) : retrograde revolution
(1) : the ephemerides for satellites VI, VII, VIII and IX are given as Chebychev coefficients in the « Supplément à la Connaissance des Temps : Faint satellites... »
(2) : inclinaison on Jupiter's orbit

Data from the Encyclopédie du Bureau des Longitudes.

ÉPHÉMÉRIDES DES SATELLITES GALILÉENS

EPHEMERIDES OF THE GALILEAN SATELLITES

Coordonnées différentielles tangentielles données en secondes de degré dans le repère équatorial moyen J2000.

Differential tangential coordinates given in arcsecond in the mean equatorial frame J2000.

$$\Delta\alpha \cos\delta = X$$
$$\Delta\delta = Y$$

$$\left.\begin{matrix} X \\ Y \end{matrix}\right\} = A0 + A1 \cdot t + B0 \sin(Nt + F0) + B1 \cdot t \sin(Nt + F1) + B2 \cdot t^2 \sin(Nt + F2) + C0 \sin(2Nt + P0)$$

où $t = T - T0$ avec $T0$ date du début de l'intervalle et T date du calcul

where $t = T - T0$ with $T0$ date of beginning of the interval anbd T the date for the calculation

satellite	intervalle Δt (jours)	N (rad/j)	page
Io	4	3.551 6	30
Europe	5	1.769 3	37
Ganymède	8	0.878 2	43
Callisto	8	0.376 5	47
	(days)	*(rad/d)*	

1992 COORDONNEES EQUATORIALES DIFFERENTIELLES

DU SATELLITE 1 DE JUPITER: IO N=3.5516

		A0	A1	B0 F0	B1 F1	B2 F2	C0 P0
JAN. 1 (0H) (2448622.5)	X:	+0.5806	-0.00133	+107.6635 4.024093	+0.32647 4.0996	+0.005001 6.1592	+0.2342 3.9621
A JAN. 5 (0H)	Y:	-0.2794	+0.00036	+ 50.2129 0.950002	+0.14820 1.1530		+0.1095 0.8963
JAN. 5 (0H) (2448626.5)	X:	+0.5731	-0.00291	+108.9357 5.665754	+0.31265 5.7901	+0.006775 1.0363	+0.2379 1.0114
A JAN. 9 (0H)	Y:	-0.2770	+0.00095	+ 50.7966 2.592433	+0.14544 2.8635		+0.1118 4.2183
JAN. 9 (0H) (2448630.5)	X:	+0.5581	-0.00020	+110.1759 1.025007	+0.31148 1.2358	+0.006668 2.6678	+0.2438 4.3452
A JAN.13 (0H)	Y:	-0.2692	-0.00032	+ 51.3602 4.235506	+0.14296 4.6016		+0.1124 1.2668
JAN.13 (0H) (2448634.5)	X:	+0.5473	-0.00243	+111.3859 2.668213	+0.31670 2.9975	+0.004602 4.4949	+0.2469 1.3938
A JAN.17 (0H)	Y:	-0.2658	+0.00105	+ 51.8960 5.879415	+0.14180 0.0478		+0.1142 4.6084
JAN.17 (0H) (2448638.5)	X:	+0.5370	-0.00339	+112.5709 4.312274	+0.31492 4.7891	+0.000496 3.8445	+0.2522 4.7308
A JAN.21 (0H)	Y:	-0.2625	+0.00148	+ 52.4060 1.240876	+0.13829 1.7882		+0.1172 1.6600
JAN.21 (0H) (2448642.5)	X:	+0.5223	-0.00565	+113.6886 5.957312	+0.32225 0.2087	+0.002468 2.9270	+0.2547 1.7819
A JAN.25 (0H)	Y:	-0.2556	+0.00237	+ 52.8789 2.886312	+0.13397 3.5219		+0.1190 4.9950
JAN.25 (0H) (2448646.5)	X:	+0.5096	-0.00736	+114.7518 1.319923	+0.32089 1.9089	+0.004072 4.1552	+0.2592 5.1143
A JAN.29 (0H)	Y:	-0.2504	+0.00341	+ 53.3083 4.532357	+0.13159 5.2638		+0.1205 2.0378
JAN.29 (0H) (2448650.5)	X:	+0.4858	-0.00660	+115.7576 2.966336	+0.31596 3.6596	+0.003746 5.9878	+0.2624 2.1734
A FEV. 2 (0H)	Y:	-0.2412	+0.00296	+ 53.7004 6.178985	+0.12623 0.7543		+0.1208 5.3885
FEV. 2 (0H) (2448654.5)	X:	+0.4653	-0.00645	+116.6777 4.613592	+0.29490 5.3479	+0.007292 0.4994	+0.2653 5.5050
A FEV. 6 (0H)	Y:	-0.2328	+0.00285	+ 54.0343 1.542999	+0.12372 2.5266		+0.1235 2.4384
FEV. 6 (0H) (2448658.5)	X:	+0.4365	-0.00312	+117.5026 6.261253	+0.28437 0.8209	+0.007403 1.9437	+0.2701 2.5619
A FEV.10 (0H)	Y:	-0.2183	+0.00108	+ 54.3141 3.190674	+0.12028 4.3084		+0.1253 5.7621
FEV.10 (0H) (2448662.5)	X:	+0.4164	-0.00465	+118.2165 1.626057	+0.29754 2.6031	+0.004539 4.1350	+0.2721 5.8938
A FEV.14 (0H)	Y:	-0.2088	+0.00216	+ 54.5263 4.838614	+0.12187 6.0854		+0.1250 2.8177
FEV.14 (0H) (2448666.5)	X:	+0.3914	-0.00295	+118.8307 3.274601	+0.29321 4.3819	+0.003045 5.8232	+0.2755 2.9441
A FEV.18 (0H)	Y:	-0.1991	+0.00154	+ 54.6826 0.203771	+0.12096 1.6037		+0.1263 6.1608
FEV.18 (0H) (2448670.5)	X:	+0.3722	-0.00767	+119.3174 4.923436	+0.30291 6.1431	+0.005050 2.4698	+0.2769 6.2815
A FEV.22 (0H)	Y:	-0.1889	+0.00336	+ 54.7682 1.852430	+0.11809 3.3914		+0.1269 3.2205
FEV.22 (0H) (2448674.5)	X:	+0.3492	-0.00768	+119.6684 0.289375	+0.30008 1.5785	+0.007354 4.0439	+0.2784 3.3307
A FEV.26 (0H)	Y:	-0.1777	+0.00368	+ 54.7834 3.501102	+0.11888 5.1756		+0.1283 0.2595

1992 COORDONNEES EQUATORIALES DIFFERENTIELLES

DU SATELLITE 1 DE JUPITER: IO N=3.5516

		A0	A1	B0 F0	B1 F1	B2 F2	C0 P0
FEV.26 (OH)	X:	+0.3202	-0.00945	+119.9062	+0.28325	+0.004920	+0.2798
(2448678.5)				1.938611	3.3505	5.4615	0.3870
A MAR. 1 (OH)	Y:	-0.1660	+0.00450	+ 54.7331	+0.11897		+0.1270
				5.149862	0.6816		3.5891
MAR. 1 (OH)	X:	+0.2954	-0.00966	+120.0108	+0.26582	+0.006168	+0.2806
(2448682.5)				3.587857	5.1141	0.2737	3.7187
A MAR. 5 (OH)	Y:	-0.1553	+0.00449	+ 54.6189	+0.12409		+0.1272
				0.515236	2.4848		0.6524
MAR. 5 (OH)	X:	+0.2545	-0.00582	+119.9800	+0.24691	+0.006086	+0.2814
(2448686.5)				5.237026	0.6414	1.3638	0.7782
A MAR. 9 (OH)	Y:	-0.1358	+0.00250	+ 54.4323	+0.12549		+0.1284
				2.163740	4.2627		3.9887
MAR. 9 (OH)	X:	+0.2301	-0.00751	+119.8071	+0.25722	+0.003112	+0.2814
(2448690.5)				0.602561	2.4303	3.3131	4.1071
A MAR.13 (OH)	Y:	-0.1233	+0.00338	+ 54.1821	+0.13029		+0.1269
				3.811787	6.0195		1.0298
MAR.13 (OH)	X:	+0.1910	-0.00317	+119.4984	+0.26554	+0.004470	+0.2826
(2448694.5)				2.250947	4.1723	5.6598	1.1588
A MAR.17 (OH)	Y:	-0.1067	+0.00167	+ 53.8736	+0.13436		+0.1264
				5.459509	1.4914		4.3638
MAR.17 (OH)	X:	+0.1683	-0.00774	+119.0749	+0.27455	+0.004752	+0.2799
(2448698.5)				3.899011	5.9619	1.8208	4.4933
A MAR.21 (OH)	Y:	-0.0955	+0.00347	+ 53.5103	+0.13648		+0.1246
				0.823641	3.2441		1.4183
MAR.21 (OH)	X:	+0.1384	-0.00747	+118.5135	+0.27995	+0.009093	+0.2794
(2448702.5)				5.546517	1.3999	3.5655	1.5377
A MAR.25 (OH)	Y:	-0.0802	+0.00346	+ 53.0999	+0.13869		+0.1255
				2.470414	5.0012		4.7523
MAR.25 (OH)	X:	+0.1072	-0.01003	+117.8468	+0.26764	+0.007147	+0.2772
(2448706.5)				0.910370	3.1868	4.9602	4.8754
A MAR.29 (OH)	Y:	-0.0674	+0.00478	+ 52.6427	+0.13958		+0.1249
				4.116553	0.4511		1.7928
MAR.29 (OH)	X:	+0.0803	-0.01138	+117.0890	+0.26694	+0.003685	+0.2756
(2448710.5)				2.556752	5.0212	0.1497	1.9196
A AVR. 2 (OH)	Y:	-0.0557	+0.00522	+ 52.1591	+0.14404		+0.1223
				5.762010	2.1982		5.1228
AVR. 2 (OH)	X:	+0.0374	-0.00849	+116.2137	+0.25817	+0.004706	+0.2736
(2448714.5)				4.202371	0.5254	1.0062	5.2526
A AVR. 6 (OH)	Y:	-0.0359	+0.00375	+ 51.6363	+0.14499		+0.1215
				1.123525	3.9242		2.1771
AVR. 6 (OH)	X:	+0.0084	-0.00926	+115.2624	+0.27185	+0.002149	+0.2713
(2448718.5)				5.847074	2.3017	2.2862	2.2974
A AVR.10 (OH)	Y:	-0.0222	+0.00414	+ 51.0911	+0.14541		+0.1203
				2.767393	5.6422		5.4987
AVR.10 (OH)	X:	-0.0349	-0.00475	+114.2366	+0.28942	+0.002238	+0.2699
(2448722.5)				1.207633	4.0067	5.7314	5.6246
A AVR.14 (OH)	Y:	-0.0030	+0.00220	+ 50.5302	+0.14606		+0.1196
				4.410397	1.0688		2.5423
AVR.14 (OH)	X:	-0.0616	-0.00688	+113.1390	+0.29362	+0.003846	+0.2666
(2448726.5)				2.850620	5.7258	0.9437	2.6665
A AVR.18 (OH)	Y:	+0.0091	+0.00310	+ 49.9583	+0.14622		+0.1175
				6.052607	2 7812		5.8635
AVR.18 (OH)	X:	-0.0947	-0.00623	+111.9899	+0.30519	+0.008118	+0.2646
(2448730.5)				4.492688	1.1353	2.9311	5.9891
A AVR.22 (OH)	Y:	+0.0257	+0.00274	+ 49.3791	+0.14440		+0.1157
				1.410913	4.5176		2.9158

1992 COORDONNEES EQUATORIALES DIFFERENTIELLES

DU SATELLITE 1 DE JUPITER: IO N=3.5516

		A0	A1	B0 F0	B1 F1	B2 F2	C0 P0
AVR.22 (OH)	X:	-0.1218	-0.00921	+110.7875	+0.30055	+0.006969	+0.2596
(2448734.5)				6.133972	2.8848	4.3584	3.0340
A AVR.26 (OH)	Y:	+0.0375	+0.00433	+ 48.7983	+0.14290		+0.1149
				3.051398	6.2256		6.2421
AVR.26 (OH)	X:	-0.1517	-0.00967	+109.5598	+0.30417	+0.003016	+0.2573
(2448738.5)				1.491198	4.6678	5.4650	0.0710
A AVR.30 (OH)	Y:	+0.0500	+0.00451	+ 48.2241	+0.14225		+0.1133
				4.691106	1.6611		3.2668
AVR.30 (OH)	X:	-0.1844	-0.01001	+108.3130	+0.31503	+0.003285	+0.2540
(2448742.5)				3.130548	0.0938	1.0354	3.4003
A MAI 4 (OH)	Y:	+0.0652	+0.00443	+ 47.6586	+0.14260		+0.1114
				0.046677	3.3664		0.3138
MAI 4 (OH)	X:	-0.2157	-0.00873	+107.0427	+0.32679	+0.000808	+0.2493
(2448746.5)				4.769084	1.8418	0.8067	0.4357
A MAI 8 (OH)	Y:	+0.0796	+0.00402	+ 47.1003	+0.14111		+0.1096
				1.684617	5.0741		3.6323
MAI 8 (OH)	X:	-0.2520	-0.00627	+105.7665	+0.33956	+0.002382	+0.2474
(2448750.5)				0.123420	3.5433	0.9912	3.7588
A MAI 12 (OH)	Y:	+0.0958	+0.00285	+ 46.5550	+0.13868		+0.1086
				3.321682	0.4925		0.6757
MAI 12 (OH)	X:	-0.2793	-0.00593	+104.4836	+0.33502	+0.002904	+0.2425
(2448754.5)				1.759914	5.1848	0.4312	0.7956
A MAI 16 (OH)	Y:	+0.1084	+0.00278	+ 46.0277	+0.13750		+0.1071
				4.957905	2.1873		3.9910
MAI 16 (OH)	X:	-0.3117	-0.00341	+103.2088	+0.33826	+0.004413	+0.2396
(2448758.5)				3.395733	0.5854	2.1017	4.1140
A MAI 20 (OH)	Y:	+0.1242	+0.00158	+ 45.5146	+0.13539		+0.1049
				0.310266	3.8977		1.0238
MAI 20 (OH)	X:	-0.3300	-0.00683	+101.9442	+0.33752	+0.005687	+0.2346
(2448762.5)				5.030708	2.2692	3.6045	1.1489
A MAI 24 (OH)	Y:	+0.1339	+0.00325	+ 45.0251	+0.13594		+0.1036
				1.945071	5.6047		4.3527
MAI 24 (OH)	X:	-0.3571	-0.00530	+100.6945	+0.33511	+0.004670	+0.2310
(2448766.5)				0.381751	3.9819	4.8238	4.4672
A MAI 28 (OH)	Y:	+0.1456	+0.00279	+ 44.5515	+0.13449		+0.1032
				3.579101	1.0213		1.3802
MAI 28 (OH)	X:	-0.3758	-0.00875	+ 99.4803	+0.35263	+0.001592	+0.2272
(2448770.5)				2.015274	5.6879	1.0679	1.5058
A JUN. 1 (OH)	Y:	+0.1547	+0.00411	+ 44.1034	+0.13544		+0.1011
				5.212476	2.7165		4.7011
JUN. 1 (OH)	X:	-0.4006	-0.00654	+ 98.2816	+0.35828	+0.001040	+0.2237
(2448774.5)				3.647983	1.1056	4.7966	4.8197
A JUN. 5 (OH)	Y:	+0.1671	+0.00323	+ 43.6734	+0.13535		+0.0997
				0.561960	4.4073		1.7320
JUN. 5 (OH)	X:	-0.4258	-0.00554	+ 97.1123	+0.36377	+0.003242	+0.2211
(2448778.5)				5.279946	2.7963	0.4057	1.8569
A JUN. 9 (OH)	Y:	+0.1787	+0.00276	+ 43.2632	+0.13369		+0.0982
				2.193932	6.0914		5.0521
JUN. 9 (OH)	X:	-0.4443	-0.00449	+ 95.9801	+0.35886	+0.002068	+0.2167
(2448782.5)				0.627871	4.4255	0.5378	5.1686
A JUN.13 (OH)	Y:	+0.1883	+0.00232	+ 42.8763	+0.13307		+0.0972
				3.825320	1.4918		2.0849
JUN.13 (OH)	X:	-0.4697	-0.00098	+ 94.8759	+0.34715	+0.003315	+0.2149
(2448786.5)				2.258415	6.0798	0.8977	2.2022
A JUN.17 (OH)	Y:	+0.2009	+0.00071	+ 42.5108	+0.13315		+0.0963
				5.456165	3.1695		5.3956

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		A0	A1	B0 F0	B1 F1	B2 F2	C0 P0
JUN.17 (OH)	X:	-0.4792	-0.00323	+ 93.8151	+0.35110	+0.003772	+0.2103
(2448790.5)				3.888524	1.4684	2.8033	5.5179
A JUN.21 (OH)	Y:	+0.2075	+0.00173	+ 42.1637	+0.13417		+0.0940
				0.803432	4.8662		2.4374
JUN.21 (OH)	X:	-0.4966	-0.00081	+ 92.7875	+0.34710	+0.004057	+0.2070
(2448794.5)				5.517999	3.1435	4.2455	2.5439
A JUN.25 (OH)	Y:	+0.2167	+0.00084	+ 41.8392	+0.13483		+0.0937
				2.433276	0.2597		5.7482
JUN.25 (OH)	X:	-0.5027	-0.00420	+ 91.8018	+0.34856	+0.001666	+0.2036
(2448798.5)				0.863802	4.8401	5.2239	5.8666
A JUN.29 (OH)	Y:	+0.2204	+0.00240	+ 41.5338	+0.13522		+0.0923
				4.062670	1.9345		2.7785
JUN.29 (OH)	X:	-0.5129	-0.00319	+ 90.8704	+0.36372	+0.001849	+0.2000
(2448802.5)				2.492350	0.2283	3.4685	2.8947
A JUL. 3 (OH)	Y:	+0.2269	+0.00188	+ 41.2508	+0.13669		+0.0912
				5.691643	3.6001		6.0929
JUL. 3 (OH)	X:	-0.5235	-0.00342	+ 89.9666	+0.36281	+0.002690	+0.1974
(2448806.5)				4.120315	1.9080	5.6187	6.2137
A JUL. 7 (OH)	Y:	+0.2329	+0.00203	+ 40.9840	+0.13679		+0.0901
				1.036967	5.2668		3.1242
JUL. 7 (OH)	X:	-0.5296	-0.00219	+ 89.1114	+0.35681	+0.001996	+0.1942
(2448810.5)				5.747730	3.5568	0.5738	3.2400
A JUL.11 (OH)	Y:	+0.2372	+0.00143	+ 40.7338	+0.13570		+0.0887
				2.665078	0.6547		0.1587
JUL.11 (OH)	X:	-0.5408	+0.00017	+ 88.3094	+0.34909	+0.003106	+0.1915
(2448814.5)				1.091531	5.1771	0.6813	0.2727
A JUL.15 (OH)	Y:	+0.2440	+0.00028	+ 40.5059	+0.13621		+0.0883
				4.292878	2.3133		3.4721
JUL.15 (OH)	X:	-0.5416	+0.00077	+ 87.5370	+0.34122	+0.001967	+0.1880
(2448818.5)				2.718297	0.5756	1.4983	3.5854
A JUL.19 (OH)	Y:	+0.2463	+0.00005	+ 40.2924	+0.13677		+0.0864
				5.920408	3.9763		0.5030
JUL.19 (OH)	X:	-0.5461	+0.00241	+ 86.8149	+0.33703	+0.002892	+0.1857
(2448822.5)				4.344711	2.2381	2.9971	0.6133
A JUL.23 (OH)	Y:	+0.2509	-0.00075	+ 40.0954	+0.13860		+0.0861
				1.264530	5.6460		3.8231
JUL.23 (OH)	X:	-0.5397	+0.00094	+ 86.1408	+0.33647	+0.002728	+0.1822
(2448826.5)				5.970819	3.9020	4.6127	3.9316
A JUL.27 (OH)	Y:	+0.2494	+0.00012	+ 39.9165	+0.13906		+0.0850
				2.891480	1.0180		0.8530
JUL.27 (OH)	X:	-0.5371	+0.00144	+ 85.5125	+0.35004	+0.001859	+0.1799
(2448830.5)				1.313588	5.5883	2.9374	0.9583
A JUL.31 (OH)	Y:	+0.2500	-0.00019	+ 39.7540	+0.13972		+0.0839
				4.518235	2.6703		4.1669
JUL.31 (OH)	X:	-0.5278	-0.00068	+ 84.9335	+0.35035	+0.002262	+0.1778
(2448834.5)				2.939107	0.9513	4.0779	4.2818
A AOU. 4 (OH)	Y:	+0.2476	+0.00079	+ 39.6065	+0.14034		+0.0833
				6.144756	4.3239		1.2028
AOU. 4 (OH)	X:	-0.5238	+0.00134	+ 84.3937	+0.34453	+0.001985	+0.1752
(2448838.5)				4.564339	2.6073	5.5712	1.3090
A AOU. 8 (OH)	Y:	+0.2469	-0.00011	+ 39.4726	+0.13916		+0.0817
				1.487829	5.9772		4.5148
AOU. 8 (OH)	X:	-0.5157	+0.00102	+ 83.9037	+0.34291	+0.002809	+0.1741
(2448842.5)				6.189415	4.2586	0.7971	4.6236
A AOU.12 (OH)	Y:	+0.2448	-0.00014	+ 39.3537	+0.13868		+0.0817
				3.113999	1.3496		1.5525

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DU SATELLITE 1 DE JUPITER: IO N=3.5516

		A0	A1	B0 F0	B1 F1	B2 F2	C0 P0
AOU.12 (OH) (2448846.5)	X:	-0.5073	+0.00370	+ 83.4581 1.531045	+0.32679 5.9049	+0.002180 0.6645	+0.1709 1.6592
A AOU.16 (OH)	Y:	+0.2425	-0.00131	+ 39.2510 4.740054	+0.13929 2.9970		+0.0803 4.8660
AOU.16 (OH) (2448850.5)	X:	-0.4988	+0.00489	+ 83.0510 3.155818	+0.31869 1.2957	+0.003297 1.6718	+0.1695 4.9708
A AOU.20 (OH)	Y:	+0.2404	-0.00202	+ 39.1584 0.082833	+0.13968 4.6556		+0.0796 1.9044
AOU.20 (OH) (2448854.5)	X:	-0.4608	+0.00481	+ 82.6979 4.780524	+0.32274 2.9553	+0.002112 3.5780	+0.1668 2.0080
A AOU.24 (OH)	Y:	+0.2342	-0.00186	+ 39.0827 1.708738	+0.14072 0.0228		+0.0792 5.2209
AOU.24 (OH) (2448858.5)	X:	-0.4690	+0.00647	+ 82.3917 0.121931	+0.32663 4.6208	+0.000484 4.8982	+0.1653 5.3226
A AOU.28 (OH)	Y:	+0.2298	-0.00261	+ 39.0215 3.334507	+0.14043 1.6654		+0.0784 2.2514
AOU.28 (OH) (2448862.5)	X:	-0.4423	+0.00313	+ 82.1306 1.746524	+0.33850 6.2811	+0.002792 3.1472	+0.1631 2.3617
A SEP. 1 (OH)	Y:	+0.2192	-0.00108	+ 38.9720 4.960270	+0.14037 3.3149		+0.0779 5.5753
SEP. 1 (OH) (2448866.5)	X:	-0.4270	+0.00514	+ 81.9145 3.370875	+0.33530 1.6462	+0.003094 4.4584	+0.1618 5.6770
A SEP. 5 (OH)	Y:	+0.2132	-0.00197	+ 38.9357 0.302789	+0.13994 4.9647		+0.0770 2.6027
SEP. 5 (OH) (2448870.5)	X:	-0.4021	+0.00280	+ 81.7406 4.995150	+0.32675 3.3126	+0.001964 6.2563	+0.1612 2.7136
A SEP. 9 (OH)	Y:	+0.2023	-0.00097	+ 38.9115 1.928417	+0.13759 0.3328		+0.0766 5.9325
SEP. 9 (OH) (2448874.5)	X:	-0.3837	+0.00548	+ 81.6188 0.336267	+0.31802 4.9577	+0.001670 0.4559	+0.1591 6.0279
A SEP.13 (OH)	Y:	+0.1950	-0.00229	+ 38.9020 3.554173	+0.13714 1.9822		+0.0760 2.9628
SEP.13 (OH) (2448878.5)	X:	-0.3632	+0.00558	+ 81.5366 1.960553	+0.30226 0.3423	+0.003880 0.6576	+0.1588 3.0615
A SEP.17 (OH)	Y:	+0.1862	-0.00287	+ 38.9053 5.180001	+0.13756 3.6291		+0.0753 0.0006
SEP.17 (OH) (2448882.5)	X:	-0.3373	+0.00756	+ 81.5010 3.585100	+0.30956 2.0134	+0.002243 2.2616	+0.1565 0.1017
A SEP.21 (OH)	Y:	+0.1758	-0.00336	+ 38.9190 0.522740	+0.13786 5.2860		+0.0749 3.3294
SEP.21 (OH) (2448886.5)	X:	-0.3150	+0.00930	+ 81.5160 5.209681	+0.31801 3.6701	+0.000883 5.3019	+0.1561 3.4167
A SEP.25 (OH)	Y:	+0.1663	-0.00416	+ 38.9490 2.148714	+0.13754 0.6505		+0.0746 0.3578
SEP.25 (OH) (2448890.5)	X:	-0.2817	+0.00751	+ 81.5735 0.551051	+0.31851 5.3472	+0.001050 3.0417	+0.1554 0.4613
A SEP.29 (OH)	Y:	+0.1517	-0.00324	+ 38.9922 3.774738	+0.13608 2.2950		+0.0743 3.6893
SEP.29 (OH) (2448894.5)	X:	-0.2541	+0.00809	+ 81.6858 2.175807	+0.32635 0.7007	+0.003211 3.4925	+0.1539 3.7813
A OCT. 3 (OH)	Y:	+0.1400	-0.00359	+ 39.0473 5.400937	+0.13510 3.9489		+0.0737 0.7189
OCT. 3 (OH) (2448898.5)	X:	-0.2192	+0.00567	+ 81.8407 3.800567	+0.32251 2.3522	+0.003570 4.7858	+0.1546 0.8235
A OCT. 7 (OH)	Y:	+0.1238	-0.00231	+ 39.1171 0.744066	+0.13356 5.5999		+0.0732 4.0477

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DU SATELLITE 1 DE JUPITER: IO N=3.5516

		A0	A1	B0 F0	B1 F1	B2 F2	C0 P0
OCT. 7 (0H)	X:	-0.1907	+0.00683	+ 82.0363	+0.31070	+0.001143	+0.1535
(2448902.5)				5.425399	4.0364	6.0097	4.1442
A OCT.11 (0H)	Y:	+0.1109	-0.00301	+ 39.1974	+0.13129		+0.0734
				2.370527	0.9797		1.0919
OCT.11 (0H)	X:	-0.1594	+0.00632	+ 82.2889	+0.30098	+0.003018	+0.1538
(2448906.5)				0.767320	5.6861	0.2053	1.1854
A OCT.15 (0H)	Y:	+0.0967	-0.00285	+ 39.2941	+0.13112		+0.0732
				3.997303	2.6341		4.4114
OCT.15 (0H)	X:	-0.1313	+0.00912	+ 82.5771	+0.30050	+0.002711	+0.1525
(2448910.5)				2.392691	1.0953	1.1196	4.5079
A OCT.19 (0H)	Y:	+0.0841	-0.00418	+ 39.4040	+0.13046		+0.0726
				5.624273	4.2891		1.4613
OCT.19 (0H)	X:	-0.0998	+0.00926	+ 82.9147	+0.30902	+0.001388	+0.1529
(2448914.5)				4.018353	2.7754	1.9196	1.5501
A OCT.23 (0H)	Y:	+0.0703	-0.00436	+ 39.5273	+0.13011		+0.0731
				0.968319	5.9515		4.7822
OCT.23 (0H)	X:	-0.0663	+0.01055	+ 83.3139	+0.30959	+0.001228	+0.1528
(2448918.5)				5.644218	4.4135	5.2406	4.8812
A OCT.27 (0H)	Y:	+0.0549	-0.00476	+ 39.6689	+0.12894		+0.0729
				2.595780	1.3227		1.8330
OCT.27 (0H)	X:	-0.0324	+0.00973	+ 83.7524	+0.32159	+0.002787	+0.1531
(2448922.5)				0.987244	6.0731	2.4390	1.9182
A OCT.31 (0H)	Y:	+0.0398	-0.00454	+ 39.8246	+0.12697		+0.0734
				4.223519	2.9804		5.1527
OCT.31 (0H)	X:	+0.0076	+0.00780	+ 84.2429	+0.32466	+0.004738	+0.1545
(2448926.5)				2.613681	1.4393	3.8863	5.2518
A NOV. 4 (0H)	Y:	+0.0219	-0.00344	+ 39.9930	+0.12575		+0.0730
				5.851582	4.6544		2.1999
NOV. 4 (0H)	X:	+0.0399	+0.00812	+ 84.7784	+0.30964	+0.002288	+0.1545
(2448930.5)				4.240253	3.1263	4.7780	2.2913
A NOV. 8 (0H)	Y:	+0.0062	-0.00360	+ 40.1796	+0.12296		+0.0730
				1.196703	0.0423		5.5377
NOV. 8 (0H)	X:	+0.0796	+0.00533	+ 85.3599	+0.30697	+0.001118	+0.1567
(2448934.5)				5.867321	4.8158	5.9910	5.6176
A NOV.12 (0H)	Y:	-0.0120	-0.00240	+ 40.3808	+0.12156		+0.0742
				2.825468	1.7186		2.5755
NOV.12 (0H)	X:	+0.1071	+0.00878	+ 85.9965	+0.30070	+0.002866	+0.1569
(2448938.5)				1.211633	0.2048	0.4275	2.6645
A NOV.16 (0H)	Y:	-0.0249	-0.00406	+ 40.6009	+0.12187		+0.0737
				4.454706	3.3835		5.9090
NOV.16 (0H)	X:	+0.1419	+0.00756	+ 86.6708	+0.30409	+0.003135	+0.1579
(2448942.5)				2.839553	1.9025	1.4964	5.9877
A NOV.20 (0H)	Y:	-0.0405	-0.00364	+ 40.8350	+0.12163		+0.0745
				6.084282	5.0653		2.9565
NOV.20 (0H)	X:	+0.1729	+0.01053	+ 87.4008	+0.31541	+0.000331	+0.1594
(2448946.5)				4.467990	3.5584	4.7704	3.0432
A NOV.24 (0H)	Y:	-0.0548	-0.00488	+ 41.0895	+0.12075		+0.0749
				1.431111	0.4628		0.0079
NOV.24 (0H)	X:	+0.2050	+0.01006	+ 88.1887	+0.31906	+0.002421	+0.1609
(2448950.5)				6.096874	5.2027	0.9826	0.0862
A NOV.28 (0H)	Y:	-0.0699	-0.00472	+ 41.3652	+0.11935		+0.0757
				3.061598	2.1353		3.3368
NOV.28 (0H)	X:	+0.2445	+0.00868	+ 89.0127	+0.32912	+0.004790	+0.1629
(2448954.5)				1.443092	0.5822	2.9561	3.4231
A DEC. 2 (0H)	Y:	-0.0872	-0.00403	+ 41.6562	+0.11798		+0.0761
				4.692523	3.8270		0.3775

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		A0	A1	B0 F0	B1 F1	B2 F2	C0 P0
DEC. 2 (0H) (2448958.5)	X:	+0.2742	+0.00875	+ 89.8867 3.072842	+0.32183 2.2653	+0.004148 4.2088	+0.1647 0.4651
A DEC. 6 (0H)	Y:	-0.1011	-0.00395	+ 41.9651 0.040809	+0.11846 5.5255		+0.0762 3.7165
DEC. 6 (0H) (2448962.5)	X:	+0.3152	+0.00520	+ 90.8087 4.703070	+0.30937 3.9806	+0.002090 4.8313	+0.1675 3.8000
A DEC.10 (0H)	Y:	-0.1208	-0.00225	+ 42.2963 1.672716	+0.11657 0.9456		+0.0783 0.7729
DEC.10 (0H) (2448966.5)	X:	+0.3412	+0.00679	+ 91.7726 0.050922	+0.31241 5.6649	+0.001556 0.1843	+0.1688 0.8472
A DEC.14 (0H)	Y:	-0.1332	-0.00319	+ 42.6460 3.305361	+0.11780 2.6385		+0.0783 4.0994
DEC.14 (0H) (2448970.5)	X:	+0.3742	+0.00531	+ 92.7792 1.682510	+0.31024 1.0858	+0.002785 0.7439	+0.1717 4.1738
A DEC.18 (0H)	Y:	-0.1486	-0.00258	+ 43.0165 4.938576	+0.11934 4.3290		+0.0793 1.1513
DEC.18 (0H) (2448974.5)	X:	+0.3980	+0.00810	+ 93.8255 3.314814	+0.31949 2.7685	+0.001280 1.9246	+0.1733 1.2313
A DEC.22 (0H)	Y:	-0.1594	-0.00393	+ 43.4064 0.289191	+0.12108 6.0308		+0.0804 4.4902
DEC.22 (0H) (2448978.5)	X:	+0.4254	+0.00820	+ 94.9225 4.947892	+0.32736 4.3981	+0.003842 0.0640	+0.1762 4.5597
A DEC.26 (0H)	Y:	-0.1730	-0.00391	+ 43.8205 1.923614	+0.12161 1.4515		+0.0818 1.5412
DEC.26 (0H) (2448982.5)	X:	+0.4537	+0.00884	+ 96.0521 0.298303	+0.32791 6.0930	+0.003684 1.9262	+0.1800 1.6169
A DEC.30 (0H)	Y:	-0.1863	-0.00422	+ 44.2560 3.558702	+0.12226 3.1497		+0.0836 4.8742
DEC.30 (0H) (2448986.5)	X:	+0.4808	+0.00742	+ 97.2156 1.932653	+0.32638 1.4925	+0.004645 3.3827	+0.1826 4.9487
A JAN. 3 (0H)	Y:	-0.1980	-0.00365	+ 44.7068 5.194406	+0.12502 4.8720		+0.0832 1.9254

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		A0	A1	B0 F0	B1 F1	B2 F2	C0 P0
JAN. 1 (OH)	X:	-1.9637	-0.07748	+170.8135	+0.76861	+0.054295	+0.7937
(2448622.5)				0.988894	1.2371	4.9281	0.7924
A JAN. 6 (OH)	Y:	+1.0927	-0.01290	+ 80.4543	+0.22641		+0.3670
				4.213262	4.4234		4.0241
JAN. 6 (OH)	X:	-1.8759	-0.09033	+173.6993	+0.34147	+0.057025	+0.7966
(2448627.5)				3.554647	3.1352	4.8086	6.0022
A JAN.11 (OH)	Y:	+1.0627	-0.00777	+ 81.5739	+0.23879		+0.3681
				0.496186	0.7770		2.9369
JAN.11 (OH)	X:	-2.0545	+0.00956	+175.9543	+0.58314	+0.018630	+0.7959
(2448632.5)				6.120123	0.0772	2.6658	4.9179
A JAN.16 (OH)	Y:	+0.9998	+0.00779	+ 82.6748	+0.24007		+0.3688
				3.063019	3.4828		1.8615
JAN.16 (OH)	X:	-2.5656	+0.23263	+178.5589	+0.64405	+0.115316	+0.8233
(2448637.5)				2.401403	3.9084	1.9033	3.8203
A JAN.21 (OH)	Y:	+1.0038	-0.00314	+ 83.7678	+0.20711		+0.3726
				5.632223	6.0918		0.7646
JAN.21 (OH)	X:	-2.0453	+0.04549	+180.5700	+0.57000	+0.028198	+0.8067
(2448642.5)				4.974661	5.2604	1.2981	2.7367
A JAN.26 (OH)	Y:	+0.9588	+0.00331	+ 84.6928	+0.22553		+0.3730
				1.917981	2.5789		5.9644
JAN.26 (OH)	X:	-1.6131	-0.08816	+182.4880	+0.76877	+0.054653	+0.8119
(2448647.5)				1.261091	1.8370	5.1139	1.6549
A JAN.31 (OH)	Y:	+0.9527	-0.00927	+ 85.5770	+0.21205		+0.3750
				4.488595	5.3111		4.8962
JAN.31 (OH)	X:	-1.4168	-0.12808	+185.1267	+0.11587	+0.095678	+0.8269
(2448652.5)				3.833878	3.0667	5.1430	0.5867
A FEV. 5 (OH)	Y:	+0.9432	-0.02397	+ 86.2810	+0.20255		+0.3749
				0.777754	1.6054		3.8032
FEV. 5 (OH)	X:	-1.7841	+0.06288	+186.3668	+0.52386	+0.035371	+0.8155
(2448657.5)				0.122424	0.7603	3.0212	5.7716
A FEV.10 (OH)	Y:	+0.9026	-0.01809	+ 86.9577	+0.19221		+0.3723
				3.350025	4.4871		2.7329
FEV.10 (OH)	X:	-1.7218	+0.07979	+187.8854	+0.55479	+0.036217	+0.8183
(2448662.5)				2.694337	4.0620	2.2572	4.7021
A FEV.15 (OH)	Y:	+0.8188	-0.00729	+ 87.3792	+0.19786		+0.3748
				5.923184	0.9010		1.6503
FEV.15 (OH)	X:	-1.5408	+0.05194	+188.9306	+0.47494	+0.034713	+0.8152
(2448667.5)				5.269861	6.0898	1.7309	3.6391
A FEV.20 (OH)	Y:	+0.7226	+0.00826	+ 87.6592	+0.21559		+0.3734
				2.213187	3.6357		0.5839
FEV.20 (OH)	X:	-1.4981	+0.06304	+190.0196	+0.58055	+0.034263	+0.8195
(2448672.5)				1.560173	3.1404	0.7288	2.5537
A FEV.25 (OH)	Y:	+0.7354	-0.01563	+ 87.8321	+0.18366		+0.3695
				4.788422	0.1481		5.7869
FEV.25 (OH)	X:	-1.2915	+0.03396	+190.3393	+0.44195	+0.021931	+0.8095
(2448677.5)				4.136284	5.3235	0.6803	1.4807
A MAR. 1 (OH)	Y:	+0.6558	-0.00624	+ 87.7653	+0.20511		+0.3683
				1.079130	2.6359		4.6956
MAR. 1 (OH)	X:	-0.9651	-0.02921	+190.5386	+0.61518	+0.034953	+0.8100
(2448682.5)				0.427057	1.8521	4.6761	0.4135
A MAR. 6 (OH)	Y:	+0.6217	-0.01772	+ 87.5958	+0.21861		+0.3669
				3.653243	5.6419		3.6452
MAR. 6 (OH)	X:	-0.6555	-0.09152	+190.8907	+0.17560	+0.077932	+0.8128
(2448687.5)				3.005126	6.2105	4.6559	5.6316
A MAR.11 (OH)	Y:	+0.5725	-0.02394	+ 87.1696	+0.20082		+0.3617
				6.227972	2.0278		2.5588

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		A0	A1	B0 F0	B1 F1	B2 F2	C0 P0
MAR.11 (OH)	X:	-0.9950	+0.08609	+190.0130	+0.38066	+0.046629	+0.8016
(2448692.5)				5.578174	0.7096	2.4889	4.5319
A MAR.16 (OH)	Y:	+0.4851	-0.00834	+ 86.6562	+0.22279		+0.3557
				2.518323	4.7366		1.4665
MAR.16 (OH)	X:	-0.9631	+0.12878	+189.5831	+0.73715	+0.058588	+0.7998
(2448697.5)				1.866828	4.1888	1.7291	3.4719
A MAR.21 (OH)	Y:	+0.3991	-0.00646	+ 85.9794	+0.22538		+0.3555
				5.091541	1.1823		0.4124
MAR.21 (OH)	X:	-0.8395	+0.13454	+187.9525	+0.32138	+0.066867	+0.7895
(2448702.5)				4.442999	5.6951	1.4442	2.4106
A MAR.26 (OH)	Y:	+0.3268	-0.00666	+ 85.1817	+0.23721		+0.3480
				1.380364	3.8500		5.6195
MAR.26 (OH)	X:	-0.0747	-0.12050	+186.5495	+0.71698	+0.099734	+0.7907
(2448707.5)				0.730503	2.3906	5.1974	1.3008
A MAR.31 (OH)	Y:	+0.3291	-0.03064	+ 84.3027	+0.24478		+0.3435
				3.952439	0.3169		4.5293
MAR.31 (OH)	X:	-0.0389	-0.06709	+185.5033	+0.40527	+0.046117	+0.7743
(2448712.5)				3.303983	0.0680	5.0489	0.2388
A AVR. 5 (OH)	Y:	+0.2103	-0.01040	+ 83.2468	+0.23426		+0.3426
				0.239542	2.9110		3.4523
AVR. 5 (OH)	X:	-0.1238	+0.03852	+183.4840	+0.42096	+0.019168	+0.7586
(2448717.5)				5.873198	2.0928	3.1517	5.4473
A AVR.10 (OH)	Y:	+0.1470	-0.01491	+ 82.2170	+0.24774		+0.3349
				2.808776	5.6056		2.3863
AVR.10 (OH)	X:	-0.2904	+0.16453	+181.7069	+0.82220	+0.072870	+0.7621
(2448722.5)				2.158222	4.9630	2.1273	4.3600
A AVR.15 (OH)	Y:	+0.0715	-0.01158	+ 81.0842	+0.23399		+0.3301
				5.377686	2.0597		1.2947
AVR.15 (OH)	X:	+0.1140	+0.04635	+179.1808	+0.38518	+0.022921	+0.7404
(2448727.5)				4.727356	1.1624	2.0321	3.2782
A AVR.20 (OH)	Y:	-0.0062	-0.00375	+ 79.9252	+0.23842		+0.3283
				1.660612	4.5897		0.2043
AVR.20 (OH)	X:	+0.3750	+0.00259	+176.9642	+0.52920	+0.021267	+0.7321
(2448732.5)				1.010157	3.8278	6.0503	2.2014
A AVR.25 (OH)	Y:	-0.0749	-0.00880	+ 78.7685	+0.23419		+0.3204
				4.226456	1.0079		5.4211
AVR.25 (OH)	X:	+0.4953	+0.01093	+174.5212	+0.43398	+0.027990	+0.7251
(2448737.5)				3.576512	0.6787	5.8851	1.1253
A AVR.30 (OH)	Y:	-0.1100	-0.02107	+ 77.5952	+0.22139		+0.3176
				0.507754	3.6880		4.3285
AVR.30 (OH)	X:	+0.6936	-0.00659	+171.9740	+0.49073	+0.040976	+0.7159
(2448742.5)				6.138758	2.6496	4.5208	0.0267
A MAI 5 (OH)	Y:	-0.1430	-0.02985	+ 76.5105	+0.24194		+0.3125
				3.071023	0.0698		3.2457
MAI 5 (OH)	X:	+0.9030	-0.03412	+169.5586	+0.50675	+0.026049	+0.7028
(2448747.5)				2.419680	5.9911	4.6217	5.2345
A MAI 10 (OH)	Y:	-0.2722	-0.00533	+ 75.3432	+0.22039		+0.3096
				5.632325	2.6724		2.1560
MAI 10 (OH)	X:	+0.9102	+0.01838	+167.0036	+0.50295	+0.010060	+0.6931
(2448752.5)				4.979113	1.9599	3.1348	4.1491
A MAI 15 (OH)	Y:	-0.3318	-0.00804	+ 74.2739	+0.22038		+0.3072
				1.909318	5.2953		1.0712
MAI 15 (OH)	X:	+0.6190	+0.16936	+164.9241	+0.95648	+0.078885	+0.6985
(2448757.5)				1.255212	4.6065	1.5954	3.0587
A MAI 20 (OH)	Y:	-0.3869	-0.00855	+ 73.2154	+0.21663		+0.3013
				4.469505	1.7677		6.2685

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		A0	A1	B0 F0	B1 F1	B2 F2	C0 P0
MAI 20 (OH)	X:	+1.0500	+0.04459	+161.8300	+0.41959	+0.019360	+0.6769
(2448762.5)				3.814185	0.9952	1.4303	1.9563
A MAI 25 (OH)	Y:	-0.4434	-0.00617	+ 72.2207	+0.20842		+0.3008
				0.743562	4.2981		5.1613
MAI 25 (OH)	X:	+1.3994	-0.04310	+159.4191	+0.49522	+0.034998	+0.6741
(2448767.5)				0.087130	3.3311	5.1448	0.8656
A MAI 30 (OH)	Y:	-0.4930	-0.01158	+ 71.2887	+0.21348		+0.2975
				3.300532	0.6646		4.0758
MAI 30 (OH)	X:	+1.6632	-0.10463	+157.1469	+0.73151	+0.071638	+0.6726
(2448772.5)				2.647057	0.5926	4.8579	6.0707
A JUN. 4 (OH)	Y:	-0.5280	-0.01628	+ 70.3572	+0.20194		+0.2944
				5.856629	3.3548		2.9879
JUN. 4 (OH)	X:	+1.2721	+0.06704	+154.6270	+0.40295	+0.039238	+0.6598
(2448777.5)				5.199587	2.8655	2.4238	4.9424
A JUN. 9 (OH)	Y:	-0.5785	-0.01232	+ 69.5405	+0.20919		+0.2904
				2.128376	5.9472		1.8771
JUN. 9 (OH)	X:	+1.3567	+0.08704	+152.7036	+0.74274	+0.043180	+0.6567
(2448782.5)				1.468578	5.0890	1.9339	3.8564
A JUN.14 (OH)	Y:	-0.6574	-0.00174	+ 68.7353	+0.20385		+0.2917
				4.682122	2.3017		0.7851
JUN.14 (OH)	X:	+1.5431	+0.03898	+150.2233	+0.45930	+0.016338	+0.6453
(2448787.5)				4.021920	1.6459	1.3863	2.7665
A JUN.19 (OH)	Y:	-0.6880	-0.00636	+ 68.0063	+0.20368		+0.2900
				0.951718	4.9002		5.9793
JUN.19 (OH)	X:	+1.8923	-0.08373	+148.0978	+0.41790	+0.060786	+0.6461
(2448792.5)				0.289126	3.6360	5.3664	1.6444
A JUN.24 (OH)	Y:	-0.7024	-0.01384	+ 67.3232	+0.21351		+0.2856
				3.504408	1.2541		4.8677
JUN.24 (OH)	X:	+1.7386	+0.00634	+146.2286	+0.50930	+0.004465	+0.6321
(2448797.5)				2.841135	0.5021	0.1708	0.5515
A JUN.29 (OH)	Y:	-0.7564	-0.00473	+ 66.6657	+0.19972		+0.2888
				6.055400	3.8562		3.7618
JUN.29 (OH)	X:	+1.7331	+0.03264	+144.3758	+0.52067	+0.011561	+0.6284
(2448802.5)				5.391520	3.1796	2.3649	5.7347
A JUL. 4 (OH)	Y:	-0.7818	-0.00712	+ 66.0941	+0.20850		+0.2874
				2.323004	0.1748		2.6725
JUL. 4 (OH)	X:	+1.7786	+0.03011	+142.6871	+0.66003	+0.025340	+0.6305
(2448807.5)				1.657892	5.7019	2.6781	4.6349
A JUL. 9 (OH)	Y:	-0.8186	-0.00042	+ 65.5312	+0.21413		+0.2850
				4.873511	2.8367		1.5621
JUL. 9 (OH)	X:	+1.8810	-0.01135	+140.9910	+0.53553	+0.001321	+0.6212
(2448812.5)				4.205714	1.9786	0.0544	3.5153
A JUL.14 (OH)	Y:	-0.8447	+0.00332	+ 65.0566	+0.20534		+0.2872
				1.139167	5.3484		0.4503
JUL.14 (OH)	X:	+1.8008	+0.02643	+139.5229	+0.61570	+0.016981	+0.6211
(2448817.5)				0.470623	4.5372	1.3306	2.4202
A JUL.19 (OH)	Y:	-0.8537	-0.00064	+ 64.5892	+0.20680		+0.2857
				3.688200	1.7037		5.6350
JUL.19 (OH)	X:	+1.7567	+0.04176	+137.8537	+0.41421	+0.017541	+0.6156
(2448822.5)				3.017099	0.8852	1.4081	1.3227
A JUL.24 (OH)	Y:	-0.8440	-0.00711	+ 64.1613	+0.20500		+0.2866
				6.236587	4.3260		4.5316
JUL.24 (OH)	X:	+2.0804	-0.08490	+136.6639	+0.45177	+0.051008	+0.6255
(2448827.5)				5.562645	2.9610	4.8009	0.1991
A JUL.29 (OH)	Y:	-0.8445	-0.00787	+ 63.8302	+0.22356		+0.2863
				2.501908	0.5880		3.4220

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		A0	A1	B0 F0	B1 F1	B2 F2	C0 P0
JUL.29 (OH)	X:	+2.0135	-0.06664	+135.3272	+0.54081	+0.030456	+0.6159
(2448832.5)				1.828897	0.1288	4.8775	5.3782
A AOU. 3 (OH)	Y:	-0.8704	+0.00172	+ 63.4758	+0.20946		+0.2878
				5.049024	3.1931		2.3050
AOU. 3 (OH)	X:	+1.7570	+0.01955	+134.2766	+0.46489	+0.013868	+0.6159
(2448837.5)				4.373573	2.5090	1.9167	4.2649
A AOU. 8 (OH)	Y:	-0.8644	+0.00265	+ 63.1901	+0.20928		+0.2887
				1.312884	5.7595		1.2077
AOU. 8 (OH)	X:	+1.4633	+0.11502	+133.7808	+0.88532	+0.070959	+0.6268
(2448842.5)				0.636974	4.8024	1.7048	3.1619
A AOU.13 (OH)	Y:	-0.8665	+0.00835	+ 62.9149	+0.22076		+0.2878
				3.660399	2.1076		0.0976
AOU.13 (OH)	X:	+1.8006	-0.03671	+132.5246	+0.54728	+0.011336	+0.6154
(2448847.5)				3.181485	1.3580	5.5853	2.0283
A AOU.18 (OH)	Y:	-0.8495	+0.00707	+ 62.7194	+0.21341		+0.2895
				0.123529	4.6364		5.2580
AOU.18 (OH)	X:	+1.8627	-0.08656	+131.7490	+0.39132	+0.041294	+0.6223
(2448852.5)				5.724145	3.4670	5.0750	0.9232
A AOU.23 (OH)	Y:	-0.8136	+0.00195	+ 62.5275	+0.21400		+0.2910
				2.669954	0.9411		4.1543
AOU.23 (OH)	X:	+1.7482	-0.07009	+131.0105	+0.60783	+0.031182	+0.6219
(2448857.5)				1.988817	0.4600	4.7067	6.1065
A AOU.28 (OH)	Y:	-0.7831	+0.00270	+ 62.3575	+0.21154		+0.2919
				5.216102	3.5439		3.0513
AOU.28 (OH)	X:	+1.3009	+0.08170	+130.3227	+0.43650	+0.055246	+0.6245
(2448862.5)				4.532675	3.3443	2.1204	4.9609
A SEP. 2 (OH)	Y:	-0.7718	+0.00931	+ 62.2641	+0.21878		+0.2919
				1.479437	6.0824		1.9256
SEP. 2 (OH)	X:	+1.3960	+0.00493	+130.2188	+0.54812	+0.012355	+0.6214
(2448867.5)				0.793272	5.3164	1.9530	3.8640
A SEP. 7 (OH)	Y:	-0.7354	+0.00787	+ 62.1591	+0.21359		+0.2955
				4.025389	2.4107		0.8126
SEP. 7 (OH)	X:	+1.4238	-0.05388	+129.9344	+0.58342	+0.018696	+0.6204
(2448872.5)				3.337729	1.6756	5.1845	2.7530
A SEP.12 (OH)	Y:	-0.6880	+0.00749	+ 62.1139	+0.20962		+0.2971
				0.287952	4.9668		5.9966
SEP.12 (OH)	X:	+1.3798	-0.08269	+129.7517	+0.43379	+0.037102	+0.6326
(2448877.5)				5.880706	3.9324	5.5329	1.6329
A SEP.17 (OH)	Y:	-0.6494	+0.00899	+ 62.1008	+0.22250		+0.2962
				2.834544	1.2518		4.8720
SEP.17 (OH)	X:	+1.0735	+0.00515	+129.6265	+0.44261	+0.012520	+0.6256
(2448882.5)				2.141996	0.4796	1.7723	0.5153
A SEP.22 (OH)	Y:	-0.6011	+0.00734	+ 62.0960	+0.20882		+0.3011
				5.380281	3.8569		3.7528
SEP.22 (OH)	X:	+0.9524	+0.00310	+129.6116	+0.45387	+0.012646	+0.6323
(2448887.5)				4.686679	3.2685	2.6103	5.6883
A SEP.27 (OH)	Y:	-0.5404	+0.00669	+ 62.1455	+0.21015		+0.3013
				1.643221	0.1357		2.6527
SEP.27 (OH)	X:	+0.9636	-0.05370	+129.7312	+0.55136	+0.013283	+0.6373
(2448892.5)				0.948635	5.9017	3.8294	4.5853
A OCT. 2 (OH)	Y:	-0.5115	+0.01910	+ 62.2110	+0.21886		+0.3026
				4.189813	2.7387		1.5349
OCT. 2 (OH)	X:	+0.7321	-0.01705	+130.0399	+0.45220	+0.016590	+0.6435
(2448897.5)				3.492375	2.2146	1.3290	3.4523
A OCT. 7 (OH)	Y:	-0.4640	+0.02069	+ 62.3567	+0.21165		+0.3060
				0.452981	5.2517		0.4199

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DU SATELLITE 2 DE JUPITER: EUROPE N=1.7693

		A0	A1	B0 F0	B1 F1	B2 F2	C0 P0
OCT. 7 (OH)	X:	+0.4829	+0.02651	+130.5880	+0.62417	+0.024897	+0.6473
(2448902.5)				6.038129	4.5911	1.4912	2.3506
A OCT.12 (OH)	Y:	-0.3730	+0.00924	+ 62.4717	+0.20598		+0.3067
				2.999458	1.5985		5.5901
OCT.12 (OH)	X:	+0.4332	-0.01435	+131.0105	+0.47080	+0.003355	+0.6501
(2448907.5)				2.298329	0.9575	2.3261	1.2372
A OCT.17 (OH)	Y:	-0.2967	+0.00798	+ 62.6476	+0.19924		+0.3110
				5.546031	4.1880		4.4857
OCT.17 (OH)	X:	+0.6344	-0.14374	+131.9128	+0.41027	+0.062056	+0.6687
(2448912.5)				4.842116	2.8288	4.8021	0.1173
A OCT.22 (OH)	Y:	-0.2443	+0.01109	+ 62.8757	+0.21732		+0.3114
				1.810981	0.4574		3.3671
OCT.22 (OH)	X:	+0.2479	-0.04971	+132.2969	+0.50487	+0.010642	+0.6615
(2448917.5)				1.106389	0.0243	4.8241	5.2815
A OCT.27 (OH)	Y:	-0.1839	+0.01269	+ 63.1044	+0.20079		+0.3143
				4.357982	3.0917		2.2471
OCT.27 (OH)	X:	-0.1312	+0.03222	+133.1084	+0.41740	+0.029341	+0.6728
(2448922.5)				3.651276	2.7925	1.8812	4.1686
A NOV. 1 (OH)	Y:	-0.1016	+0.01118	+ 63.4050	+0.19554		+0.3166
				0.622512	5.6539		1.1447
NOV. 1 (OH)	X:	-0.3985	+0.07571	+134.4682	+0.83137	+0.063928	+0.6865
(2448927.5)				6.201020	4.8500	1.6924	3.0680
A NOV. 6 (OH)	Y:	-0.0644	+0.02349	+ 63.7097	+0.20684		+0.3181
				3.171334	1.9972		0.0346
NOV. 6 (OH)	X:	-0.0700	-0.11198	+135.3036	+0.69361	+0.041177	+0.6856
(2448932.5)				2.463557	1.5121	5.3069	1.9245
A NOV.11 (OH)	Y:	+0.0155	+0.01680	+ 64.0979	+0.19688		+0.3196
				5.720154	4.5653		5.1961
NOV.11 (OH)	X:	-0.2468	-0.10363	+136.7638	+0.34414	+0.045802	+0.6963
(2448937.5)				5.007684	3.5465	5.0197	0.8249
A NOV.16 (OH)	Y:	+0.1181	+0.00655	+ 64.5011	+0.19482		+0.3232
				1.986232	0.8852		4.0886
NOV.16 (OH)	X:	-0.5715	-0.03718	+137.9243	+0.56039	+0.010284	+0.6977
(2448942.5)				1.274201	0.3224	3.5993	6.0046
A NOV.21 (OH)	Y:	+0.1784	+0.01427	+ 64.9519	+0.19160		+0.3259
				4.536008	3.5019		2.9909
NOV.21 (OH)	X:	-0.9808	+0.07568	+139.1625	+0.46521	+0.063180	+0.7125
(2448947.5)				3.821612	3.5421	2.1610	4.8718
A NOV.26 (OH)	Y:	+0.2301	+0.01855	+ 65.4534	+0.19525		+0.3263
				0.803937	6.0789		1.8675
NOV.26 (OH)	X:	-0.9229	-0.01359	+141.0232	+0.53748	+0.009706	+0.7126
(2448952.5)				0.088725	5.4702	1.6390	3.7729
A DEC. 1 (OH)	Y:	+0.3041	+0.01561	+ 65.9649	+0.19112		+0.3321
				3.354878	2.4890		0.7586
DEC. 1 (OH)	X:	-0.9154	-0.08547	+142.7386	+0.66176	+0.031535	+0.7190
(2448957.5)				2.639497	1.8088	5.1661	2.6621
A DEC. 6 (OH)	Y:	+0.3932	+0.01162	+ 66.5806	+0.18440		+0.3356
				5.906768	5.0711		5.9432
DEC. 6 (OH)	X:	-1.0830	-0.07664	+144.6838	+0.45350	+0.035259	+0.7359
(2448962.5)				5.189424	4.1458	5.6444	1.5570
A DEC.11 (OH)	Y:	+0.4534	+0.01159	+ 67.2122	+0.19948		+0.3346
				2.177125	1.3740		4.8269
DEC.11 (OH)	X:	-1.3766	-0.00121	+146.5310	+0.49102	+0.009715	+0.7351
(2448967.5)				1.457674	0.7348	2.4149	0.4406
A DEC.16 (OH)	Y:	+0.5234	+0.00844	+ 67.8961	+0.18434		+0.3412
				4.730189	4.0832		3.7182

1992 COORDONNEES EQUATORIALES DIFFERENTIELLES

DU SATELLITE 2 DE JUPITER: EUROPE N=1.7693

		A0	A1	B0 F0	B1 F1	B2 F2	C0 P0
DEC.16 (OH) (2448972.5)	X:	-1.4685	-0.02200	+148.5953 4.010138	+0.44854 3.3924	+0.012713 3.7577	+0.7492 5.6252
A DEC.21 (OH)	Y:	+0.6029	+0.00539	+ 68.6337 1.001757	+0.19161 0.4111		+0.3425 2.6201
DEC.21 (OH) (2448977.5)	X:	-1.4840	-0.06838	+150.5270 0.280990	+0.59405 6.1699	+0.014178 4.1323	+0.7563 4.5306
A DEC.26 (OH)	Y:	+0.6209	+0.02350	+ 69.4029 3.557483	+0.20608 3.0593		+0.3464 1.5166
DEC.26 (OH) (2448982.5)	X:	-1.9309	+0.05617	+152.8193 2.834045	+0.44953 2.9454	+0.053241 1.5948	+0.7764 3.4096
A DEC.31 (OH)	Y:	+0.6775	+0.02205	+ 70.2998 6.114274	+0.19202 5.6262		+0.3500 0.4101
DEC.31 (OH) (2448987.5)	X:	-2.0115	+0.04190	+155.2554 5.393027	+0.66909 4.8157	+0.032484 1.4065	+0.7782 2.3143
A JAN. 5 (OH)	Y:	+0.7691	+0.00784	+ 71.1647 2.388305	+0.20141 2.0628		+0.3519 5.5894

1992 COORDONNEES EQUATORIALES DIFFERENTIELLES

DU SATELLITE 3 DE JUPITER: GANYMEDE N=0.8782

		A0	A1	B0 F0	B1 F1	B2 F2	C0 P0
JAN. 1 (OH) (2448622.5)	X:	-0.3835	+0.01563	+273.3432 4.191065	+0.85565 4.2798	+0.005550 0.4191	+0.3148 5.5850
A JAN. 9 (OH)	Y:	+0.1902	-0.01463	+126.8722 1.104746	+0.38632 1.3077		+0.1474 2.5237
JAN. 9 (OH) (2448630.5)	X:	-0.5445	+0.05214	+279.6125 4.936377	+0.89938 5.2561	+0.011388 2.9623	+0.3446 0.8313
A JAN.17 (OH)	Y:	+0.1356	+0.00501	+129.8314 1.851463	+0.35583 2.2127		+0.1594 4.0500
JAN.17 (OH) (2448638.5)	X:	+0.0940	-0.12807	+286.1462 5.683420	+0.61125 0.1011	+0.028283 6.0856	+0.3633 2.4105
A JAN.25 (OH)	Y:	+0.1628	+0.00493	+132.4613 2.601241	+0.34380 3.1595		+0.1622 5.5961
JAN.25 (OH) (2448646.5)	X:	-0.7077	+0.07378	+291.5491 0.155110	+0.78855 0.5074	+0.028183 2.6008	+0.3328 3.9502
A FEV. 2 (OH)	Y:	+0.0657	+0.03006	+134.6742 3.353602	+0.34882 4.1576		+0.1529 0.8245
FEV. 2 (OH) (2448654.5)	X:	+0.1343	-0.12425	+295.8714 0.908436	+1.02465 1.8249	+0.026376 5.5648	+0.3200 5.3612
A FEV.10 (OH)	Y:	+0.1912	+0.00078	+136.5910 4.109681	+0.31053 5.1647		+0.1539 2.2467
FEV.10 (OH) (2448662.5)	X:	-0.4770	+0.02923	+300.4133 1.667083	+0.66208 2.6852	+0.014297 3.4783	+0.3753 0.5108
A FEV.18 (OH)	Y:	+0.1742	+0.00312	+137.7950 4.867304	+0.31133 6.1781		+0.1655 3.7148
FEV.18 (OH) (2448670.5)	X:	-0.2352	-0.03589	+302.9762 2.427362	+0.70064 3.4432	+0.025453 5.1909	+0.4310 2.0726
A FEV.26 (OH)	Y:	+0.3246	-0.03033	+138.3770 5.625614	+0.33901 0.9636		+0.1893 5.3066
FEV.26 (OH) (2448678.5)	X:	+0.2094	-0.17919	+304.6711 3.189666	+0.58296 4.1582	+0.048449 6.1328	+0.4485 3.6230
A MAR. 5 (OH)	Y:	+0.2670	-0.01814	+138.2846 0.102965	+0.34185 1.9746		+0.1929 0.5817
MAR. 5 (OH) (2448686.5)	X:	-0.9394	+0.07816	+304.3635 3.947993	+0.89422 5.4793	+0.027921 1.8565	+0.4475 5.2360
A MAR.13 (OH)	Y:	+0.2064	+0.00484	+137.5481 0.863147	+0.35069 3.0058		+0.1941 2.2034
MAR.13 (OH) (2448694.5)	X:	-0.2439	-0.06152	+303.9084 4.708525	+0.76501 0.5939	+0.009071 5.2527	+0.4265 0.5356
A MAR.21 (OH)	Y:	+0.1816	+0.01265	+136.1135 1.622255	+0.36750 3.9775		+0.1871 3.7199
MAR.21 (OH) (2448702.5)	X:	-0.2623	-0.08164	+301.3466 5.467771	+0.74240 1.5900	+0.014210 0.4975	+0.4059 2.0552
A MAR.29 (OH)	Y:	+0.1850	+0.01297	+134.1128 2.379717	+0.38287 4.8913		+0.1795 5.2207
MAR.29 (OH) (2448710.5)	X:	-0.6203	+0.04851	+297.3468 6.225469	+0.63697 2.2329	+0.023223 3.6203	+0.3889 3.4624
A AVR. 6 (OH)	Y:	+0.2063	+0.00388	+131.7106 3.135147	+0.38562 5.8148		+0.1806 0.3827

1992 COORDONNEES EQUATORIALES DIFFERENTIELLES

DU SATELLITE 3 DE JUPITER: GANYMEDE N=0.8782

		A0	A1	B0 F0	B1 F1	B2 F2	C0 P0
AVR. 6 (OH)	X:	-0.3108	-0.07052	+292.8384	+0.90488	+0.021271	+0.4219
(2448718.5)				0.695385	3.3021	0.0974	4.9206
A AVR.14 (OH)	Y:	+0.2717	-0.01146	+129.0447	+0.38742		+0.1854
				3.888032	0.4726		1.8728
AVR.14 (OH)	X:	-0.6345	+0.03253	+287.4664	+0.69678	+0.013785	+0.4451
(2448726.5)				1.447554	4.3820	4.2639	0.2379
A AVR.22 (OH)	Y:	+0.2769	-0.00977	+126.1456	+0.38230		+0.1902
				4.637169	1.3247		3.4150
AVR.22 (OH)	X:	-0.4209	-0.06727	+281.2436	+0.68975	+0.026482	+0.4207
(2448734.5)				2.194849	5.0160	0.1977	1.8591
A AVR.30 (OH)	Y:	+0.2965	-0.00888	+123.2217	+0.37442		+0.1847
				5.383273	2.1982		4.9970
AVR.30 (OH)	X:	-0.8620	+0.05278	+275.2038	+0.90311	+0.016591	+0.3857
(2448742.5)				2.938244	5.9955	2.1502	3.3770
A MAI 8 (OH)	Y:	+0.2142	+0.01196	+120.3582	+0.36352		+0.1672
				6.127006	3.1362		0.2488
MAI 8 (OH)	X:	-0.8459	+0.05227	+268.4909	+0.80175	+0.019186	+0.3646
(2448750.5)				3.679022	0.5374	2.3395	4.8520
A MAI 16 (OH)	Y:	+0.2020	+0.01560	+117.5818	+0.35340		+0.1549
				0.583188	3.9950		1.7509
MAI 16 (OH)	X:	-0.4574	-0.01929	+262.3225	+0.91341	+0.006563	+0.3370
(2448758.5)				4.416847	1.5850	4.7184	0.0228
A MAI 24 (OH)	Y:	+0.2440	+0.00168	+114.9222	+0.33263		+0.1455
				1.319573	4.8623		3.1830
MAI 24 (OH)	X:	-0.9177	+0.07912	+255.5062	+0.66789	+0.022806	+0.3219
(2448766.5)				5.151807	2.5157	2.6785	1.4466
A JUN. 1 (OH)	Y:	+0.2235	+0.00892	+112.5221	+0.32908		+0.1451
				2.052898	5.7080		4.6541
JUN. 1 (OH)	X:	-0.3722	-0.05319	+249.6692	+0.89809	+0.016640	+0.3527
(2448774.5)				5.880523	3.1054	5.3491	2.9379
A JUN. 9 (OH)	Y:	+0.3102	-0.00887	+110.3092	+0.32430		+0.1556
				2.783972	0.3179		6.1564
JUN. 9 (OH)	X:	-1.2124	+0.12204	+244.1265	+1.04761	+0.030163	+0.3634
(2448782.5)				0.328560	4.3445	2.4106	4.5522
A JUN.17 (OH)	Y:	+0.2766	+0.00423	+108.2839	+0.31279		+0.1537
				3.511847	1.1594		1.4404
JUN.17 (OH)	X:	-0.6543	+0.00754	+238.1681	+0.77665	+0.012800	+0.3262
(2448790.5)				1.051992	4.9692	4.6686	6.0991
A JUN.25 (OH)	Y:	+0.3513	-0.01161	+106.5733	+0.32206		+0.1440
				4.237555	1.9604		2.9612
JUN.25 (OH)	X:	-0.5757	-0.02932	+233.0973	+0.78924	+0.014768	+0.2760
(2448798.5)				1.774395	5.6123	0.6370	1.2871
A JUL. 3 (OH)	Y:	+0.2930	-0.00238	+104.9772	+0.32019		+0.1299
				4.961491	2.8017		4.4365
JUL. 3 (OH)	X:	-1.0871	+0.12570	+228.7784	+1.01160	+0.029274	+0.2482
(2448806.5)				2.494142	0.0133	2.8012	2.6853
A JUL.11 (OH)	Y:	+0.2478	+0.00507	+103.6072	+0.32998		+0.1194
				5.683900	3.6388		5.8609

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DU SATELLITE 3 DE JUPITER: GANYMEDE N=0.8782

		A0	A1	B0 F0	B1 F1	B2 F2	C0 P0
JUL.11 (OH)	X:	-0.5521	-0.00588	+224.2793	+0.84939	+0.003338	+0.2557
(2448814.5)				3.214806	1.0054	2.8405	4.1163
A JUL.19 (OH)	Y:	+0.2277	+0.00892	+102.4407	+0.33095		+0.1171
				0.120824	4.4234		1.0152
JUL.19 (OH)	X:	-0.6361	+0.00642	+220.4467	+0.82963	+0.003476	+0.2661
(2448822.5)				3.932030	1.7975	3.6776	5.5675
A JUL.27 (OH)	Y:	+0.2782	+0.00189	+101.4134	+0.32766		+0.1224
				0.839524	5.2160		2.4661
JUL.27 (OH)	X:	-0.7700	+0.03799	+217.0130	+0.73800	+0.013825	+0.2732
(2448830.5)				4.647982	2.5653	3.4373	0.7677
A AOU. 4 (OH)	Y:	+0.2756	+0.00775	+100.6001	+0.33702		+0.1225
				1.557433	5.9853		3.9790
AOU. 4 (OH)	X:	-0.5366	-0.03474	+214.4116	+0.87869	+0.011964	+0.2645
(2448838.5)				5.362627	3.3092	5.9657	2.3527
A AOU.12 (OH)	Y:	+0.3464	-0.00755	+ 99.8936	+0.33958		+0.1212
				2.274396	0.5062		5.5406
AOU.12 (OH)	X:	-0.9233	+0.07835	+211.8178	+0.86708	+0.017542	+0.2236
(2448846.5)				6.078118	4.3630	2.7872	3.9151
A AOU.20 (OH)	Y:	+0.2750	+0.00453	+ 99.3508	+0.32931		+0.1060
				2.989753	1.2629		0.7871
AOU.20 (OH)	X:	-0.4827	-0.01236	+209.8617	+0.71612	+0.010982	+0.1948
(2448854.5)				0.506254	4.9592	5.3280	5.3102
A AOU.28 (OH)	Y:	+0.3272	-0.01334	+ 99.0301	+0.34761		+0.0949
				3.705664	2.0013		2.1918
AOU.28 (OH)	X:	-0.4082	-0.02695	+208.3860	+0.75382	+0.006079	+0.1925
(2448862.5)				1.218999	5.7614	0.0278	0.3739
A SEP. 5 (OH)	Y:	+0.2455	+0.00050	+ 98.7255	+0.34345		+0.0925
				4.420489	2.7943		3.5644
SEP. 5 (OH)	X:	-0.5602	+0.00446	+207.5199	+0.80856	+0.003659	+0.2027
(2448870.5)				1.930988	0.2227	2.3437	1.7936
A SEP.13 (OH)	Y:	+0.2483	+0.00351	+ 98.6055	+0.34586		+0.0972
				5.135112	3.5594		4.9982
SEP.13 (OH)	X:	-0.5221	-0.00272	+207.0043	+0.82713	+0.004331	+0.1999
(2448878.5)				2.643079	1.0126	3.6759	3.2664
A SEP.21 (OH)	Y:	+0.2505	+0.00482	+ 98.6320	+0.34693		+0.0973
				5.849772	4.3144		0.2011
SEP.21 (OH)	X:	-0.4749	-0.02739	+206.8920	+0.83605	+0.005307	+0.1991
(2448886.5)				3.355008	1.8636	6.1538	4.8036
A SEP.29 (OH)	Y:	+0.2865	-0.00055	+ 98.7647	+0.34275		+0.0956
				0.280974	5.0824		1.7498
SEP.29 (OH)	X:	-0.4344	-0.00822	+207.4688	+0.83671	+0.013138	+0.1867
(2448894.5)				4.066359	2.4850	4.6683	0.1128
A OCT. 7 (OH)	Y:	+0.2916	-0.00710	+ 99.0284	+0.34540		+0.0852
				0.995979	5.8583		3.2687
OCT. 7 (OH)	X:	-0.2462	-0.06069	+208.4046	+0.90886	+0.018406	+0.1571
(2448902.5)				4.778693	3.2909	6.2330	1.6068
A OCT.15 (OH)	Y:	+0.2677	-0.00946	+ 99.4373	+0.34018		+0.0752
				1.711223	0.3522		4.7460

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DU SATELLITE 3 DE JUPITER: GANYMEDE N=0.8782

		A0	A1	B0 F0	B1 F1	B2 F2	C0 P0
OCT.15 (OH)	X:	-0.5172	+0.03463	+209.4273	+0.78650	+0.007902	+0.1303
(2448910.5)				5.491305	4.2753	3.3097	2.8121
A OCT.23 (OH)	Y:	+0.2007	+0.00025	+100.0165	+0.33141		+0.0648
				2.426742	1.1056		6.0489
OCT.23 (OH)	X:	-0.1791	-0.05869	+211.4316	+0.70383	+0.016892	+0.1448
(2448918.5)				6.203569	4.8582	6.0732	4.1097
A OCT.31 (OH)	Y:	+0.2300	-0.00681	+100.7392	+0.34140		+0.0679
				3.143919	1.8690		1.1111
OCT.31 (OH)	X:	-0.1779	-0.05543	+213.4873	+0.71219	+0.012588	+0.1504
(2448926.5)				0.634901	5.8811	5.6943	5.6687
A NOV. 8 (OH)	Y:	+0.2069	+0.00107	+101.5594	+0.32798		+0.0740
				3.861135	2.6803		2.5852
NOV. 8 (OH)	X:	-0.4623	-0.00091	+216.5937	+0.76417	+0.008494	+0.1470
(2448934.5)				1.350694	0.2436	1.2522	0.9298
A NOV.16 (OH)	Y:	+0.2076	+0.00288	+102.5751	+0.32585		+0.0739
				4.579937	3.4767		4.1569
NOV.16 (OH)	X:	-0.1787	-0.04940	+219.6973	+0.88875	+0.009760	+0.1456
(2448942.5)				2.068795	1.1864	5.7636	2.3837
A NOV.24 (OH)	Y:	+0.1946	+0.00205	+103.7666	+0.32725		+0.0664
				5.300372	4.2731		5.6371
NOV.24 (OH)	X:	-0.4540	+0.02400	+223.6371	+0.74941	+0.009496	+0.1213
(2448950.5)				2.785643	1.9224	2.1978	3.8639
A DEC. 2 (OH)	Y:	+0.1570	+0.00546	+105.1258	+0.32459		+0.0547
				6.022053	5.0965		0.7827
DEC. 2 (OH)	X:	-0.0806	-0.03377	+228.1689	+0.91774	+0.018820	+0.0878
(2448958.5)				3.507409	2.5567	4.9544	5.0905
A DEC.10 (OH)	Y:	+0.1996	-0.01029	+106.6317	+0.32265		+0.0471
				0.462203	5.9642		1.9105
DEC.10 (OH)	X:	-0.0616	-0.07034	+232.8509	+0.97747	+0.020477	+0.0945
(2448966.5)				4.229834	3.4610	0.3138	6.1860
A DEC.18 (OH)	Y:	+0.1578	-0.00243	+108.4230	+0.31992		+0.0513
				1.187885	0.5043		3.2114
DEC.18 (OH)	X:	-0.4967	+0.05435	+237.7781	+0.84086	+0.010769	+0.1397
(2448974.5)				4.953603	4.4750	3.4716	1.3580
A DEC.26 (OH)	Y:	+0.1994	-0.00872	+110.3758	+0.32721		+0.0624
				1.915844	1.3553		4.6654
DEC.26 (OH)	X:	-0.2328	-0.03733	+243.7235	+0.81808	+0.018825	+0.1500
(2448982.5)				5.681156	5.0399	0.5487	3.0383
A JAN. 3 (OH)	Y:	+0.1922	-0.00760	+112.5464	+0.33641		+0.0620
				2.646334	2.2046		6.2153

1992 COORDONNEES EQUATORIALES DIFFERENTIELLES

DU SATELLITE 4 DE JUPITER: CALLISTO N=0.3765

		A0	A1	B0 F0	B1 F1	C0 P0
JAN. 1 (OH) (2448622.5)	X:	- 9.1620	+ 2.07094	+477.6389 4.023781	+ 1.54102 5.2094	+2.5901 5.1063
A JAN. 9 (OH)	Y:	+ 4.6280	- 1.08375	+220.3555 0.943794	+ 0.83931 2.2330	+1.2157 2.0404
JAN. 9 (OH) (2448630.5)	X:	+ 0.8047	- 0.08221	+492.3551 0.775565	+ 1.36864 1.0960	+2.6915 4.6323
A JAN.17 (OH)	Y:	- 0.8368	+ 0.10178	+227.4263 3.981129	+ 0.60488 4.4634	+1.2421 1.5517
JAN.17 (OH) (2448638.5)	X:	- 5.6629	+ 1.67183	+504.5520 3.778314	+ 1.06776 5.2844	+2.1626 4.5583
A JAN.25 (OH)	Y:	+ 2.3434	- 0.72885	+232.6031 0.703977	+ 0.54235 2.2576	+1.0105 1.4765
JAN.25 (OH) (2448646.5)	X:	+22.8864	- 5.56521	+518.0690 0.477645	+ 3.79151 2.8726	+3.7423 3.8879
A FEV. 2 (OH)	Y:	-10.7671	+ 2.58189	+237.7724 3.685570	+ 1.87487 6.0539	+1.7023 0.8034
FEV. 2 (OH) (2448654.5)	X:	-16.2749	+ 3.55393	+523.9366 3.519813	+ 2.85129 5.6236	+2.3388 4.2649
A FEV.10 (OH)	Y:	+ 7.8493	- 1.75386	+240.0777 0.442971	+ 1.48885 2.6078	+1.0867 1.2132
FEV.10 (OH) (2448662.5)	X:	+ 1.0395	+ 0.35423	+525.9289 0.300445	+ 1.86357 1.3163	+2.6281 3.6111
A FEV.18 (OH)	Y:	- 1.0380	- 0.07528	+240.5785 3.508142	+ 0.77108 4.7518	+1.2043 0.5417
FEV.18 (OH) (2448670.5)	X:	- 4.7701	+ 1.23328	+535.8409 3.318581	+ 1.49858 5.2345	+2.5841 3.4576
A FEV.26 (OH)	Y:	+ 1.9062	- 0.51286	+243.4754 0.244547	+ 0.74963 2.3206	+1.1908 0.3943
FEV.26 (OH) (2448678.5)	X:	+18.6463	- 4.18250	+547.8354 0.042087	+ 3.46087 2.7473	+3.7585 3.2176
A MAR. 5 (OH)	Y:	- 8.4828	+ 1.87617	+247.2973 3.249310	+ 1.73400 5.9770	+1.6836 0.1354
MAR. 5 (OH) (2448686.5)	X:	-12.5360	+ 2.63182	+543.1398 3.081915	+ 2.85268 5.5634	+2.2460 3.1229
A MAR.13 (OH)	Y:	+ 5.9094	- 1.28609	+244.1823 0.003209	+ 1.49643 2.5866	+0.9952 0.0714
MAR.13 (OH) (2448694.5)	X:	- 4.5609	+ 1.92834	+525.6257 6.144433	+ 2.12056 1.0508	+2.3871 2.5455
A MAR.21 (OH)	Y:	+ 1.7428	- 0.81967	+235.1352 3.067408	+ 0.80179 4.4403	+1.0527 5.7601
MAR.21 (OH) (2448702.5)	X:	+ 5.4417	- 1.07873	+525.0942 2.888656	+ 1.17844 4.3985	+3.1451 2.5791
A MAR.29 (OH)	Y:	- 2.8583	+ 0.55465	+232.9710 6.094391	+ 0.47490 1.5513	+1.4045 5.7963
MAR.29 (OH) (2448710.5)	X:	+12.6695	- 2.82541	+535.9189 5.894921	+ 2.91338 2.7933	+2.8723 2.4436
A AVR. 6 (OH)	Y:	- 5.3509	+ 1.18042	+236.1259 2.814272	+ 1.39585 5.9958	+1.2628 5.6303

1992 COORDONNEES EQUATORIALES DIFFERENTIELLES

DU SATELLITE 4 DE JUPITER: CALLISTO N=0.3765

		AO	A1	BO FO	B1 F1	CO PO
AVR. 6 (OH)	X:	- 4.9584	+ 1.16445	+520.3773	+ 2.10132	+2.5058
(2448718.5)				2.641168	5.5798	2.0074
A AVR.14 (OH)	Y:	+ 2.1116	- 0.54757	+228.6775	+ 1.03960	+1.0862
				5.841659	2.5723	5.2141
AVR.14 (OH)	X:	- 5.4059	+ 1.92523	+496.2971	+ 1.49678	+2.5922
(2448726.5)				5.672696	1.2080	1.5715
A AVR.22 (OH)	Y:	+ 2.2601	- 0.82727	+217.3038	+ 0.58647	+1.1288
				2.590357	4.5180	4.7674
AVR.22 (OH)	X:	+10.9018	- 2.18750	+483.7362	+ 1.09787	+2.7953
(2448734.5)				2.410459	3.9684	1.7854
A AVR.30 (OH)	Y:	- 5.3188	+ 1.05170	+210.7671	+ 0.45248	+1.2251
				5.610641	0.7669	5.0020
AVR.30 (OH)	X:	+11.1668	- 2.69355	+497.6714	+ 3.10669	+1.8693
(2448742.5)				5.420492	2.9363	1.5256
A MAI 8 (OH)	Y:	- 4.5992	+ 1.10642	+216.6614	+ 1.32929	+0.8310
				2.333387	6.1311	4.7044
MAI 8 (OH)	X:	- 5.8665	+ 1.50062	+481.0092	+ 2.49406	+2.4778
(2448750.5)				2.144911	5.7760	0.8872
A MAI 16 (OH)	Y:	+ 2.4470	- 0.67021	+209.9026	+ 1.07095	+1.0712
				5.340307	2.7236	4.0779
MAI 16 (OH)	X:	- 5.4755	+ 1.80716	+452.8847	+ 1.35480	+2.5201
(2448758.5)				5.146416	1.3930	0.6579
A MAI 24 (OH)	Y:	+ 2.2695	- 0.77290	+197.9666	+ 0.47752	+1.1018
				2.059721	4.5219	3.8446
MAI 24 (OH)	X:	+ 7.5260	- 1.51305	+442.4973	+ 1.00720	+1.9763
(2448766.5)				1.868283	4.6416	0.5934
A JUN. 1 (OH)	Y:	- 3.7318	+ 0.74235	+193.6333	+ 0.32905	+0.8521
				5.063301	1.2875	3.7977
JUN. 1 (OH)	X:	+ 7.2593	- 1.62302	+446.3958	+ 2.47597	+1.6208
(2448774.5)				4.884189	2.7126	0.1565
A JUN. 9 (OH)	Y:	- 3.0277	+ 0.66318	+196.4455	+ 0.99808	+0.7296
				1.794371	5.9886	3.3493
JUN. 9 (OH)	X:	- 6.8071	+ 1.58479	+436.9003	+ 2.63460	+2.5402
(2448782.5)				1.598212	5.6932	6.1579
A JUN.17 (OH)	Y:	+ 2.9971	- 0.72684	+193.6889	+ 1.10965	+1.1296
				4.792339	2.6953	3.0578
JUN.17 (OH)	X:	- 8.1023	+ 2.61332	+412.2632	+ 2.10843	+2.3532
(2448790.5)				4.558259	1.0617	6.1403
A JUN.25 (OH)	Y:	+ 3.4246	- 1.14089	+183.5445	+ 0.75964	+1.0543
				1.471561	4.1454	3.0348
JUN.25 (OH)	X:	+10.7066	- 2.45716	+402.9052	+ 1.67600	+1.5161
(2448798.5)				1.268116	4.0508	5.3989
A JUL. 3 (OH)	Y:	- 5.1397	+ 1.16679	+180.3516	+ 0.62802	+0.6694
				4.463298	0.7450	2.2976
JUL. 3 (OH)	X:	+ 2.1903	- 0.30565	+403.3979	+ 1.72888	+1.7214
(2448806.5)				4.287409	2.1295	5.3062
A JUL.11 (OH)	Y:	- 0.8772	+ 0.09243	+182.1195	+ 0.66019	+0.7883
				1.199625	5.4660	2.2234

1992 COORDONNEES EQUATORIALES DIFFERENTIELLES

DU SATELLITE 4 DE JUPITER: CALLISTO N=0.3765

		A0	A1	B0 F0	B1 F1	C0 P0
JUL.11 (0H) (2448814.5)	X:	+ 0.2652	- 0.29053	+395.9701 0.986113	+ 1.77182 4.9309	+2.0503 4.9793
A JUL.19 (0H)	Y:	- 0.1204	+ 0.10328	+180.1766 4.184495	+ 0.68082 1.9977	+0.9357 1.8939
JUL.19 (0H) (2448822.5)	X:	-11.9124	+ 3.35864	+387.5632 3.933323	+ 2.81202 0.7501	+1.7102 5.2344
A JUL.27 (0H)	Y:	+ 5.2262	- 1.51003	+177.1729 0.850331	+ 1.09623 3.8743	+0.7974 2.1301
JUL.27 (0H) (2448830.5)	X:	+14.9990	- 3.55291	+381.8886 0.630644	+ 2.70367 3.6855	+2.1325 4.0515
A AOU. 4 (0H)	Y:	- 7.3140	+ 1.70990	+175.6598 3.829456	+ 1.13451 0.4756	+0.9826 0.9455
AOU. 4 (0H) (2448838.5)	X:	- 1.9296	+ 0.38205	+376.9972 3.657317	+ 1.30907 1.4739	+1.7643 4.2755
A AOU.12 (0H)	Y:	+ 0.9788	- 0.21801	+174.9106 0.575641	+ 0.49209 4.7794	+0.8225 1.1963
AOU.12 (0H) (2448846.5)	X:	+ 1.7946	- 0.62555	+374.5599 0.357153	+ 1.65253 4.5102	+1.8296 3.8541
A AOU.20 (0H)	Y:	- 0.9059	+ 0.26686	+174.7029 3.562095	+ 0.65150 1.5439	+0.8507 0.7705
AOU.20 (0H) (2448854.5)	X:	-13.1502	+ 3.28171	+377.9370 3.307018	+ 2.98579 0.5701	+0.9770 3.8377
A AOU.28 (0H)	Y:	+ 5.8807	- 1.49619	+176.7627 0.230543	+ 1.23440 3.7303	+0.4791 0.7695
AOU.28 (0H) (2448862.5)	X:	+10.4003	- 2.40865	+373.4902 0.015071	+ 2.25810 3.6926	+2.2030 3.1347
A SEP. 5 (0H)	Y:	- 5.3318	+ 1.20301	+175.7993 3.221373	+ 0.98154 0.5293	+1.0530 0.0473
SEP. 5 (0H) (2448870.5)	X:	- 0.4358	- 0.24472	+363.7837 3.025332	+ 1.06895 1.4658	+1.7523 3.1299
A SEP.13 (0H)	Y:	+ 0.2497	+ 0.09048	+172.0071 6.236449	+ 0.44441 4.7824	+0.8310 0.0572
SEP.13 (0H) (2448878.5)	X:	- 3.2475	+ 0.51409	+362.1552 6.014155	+ 1.48967 4.7561	+1.4523 2.6188
A SEP.21 (0H)	Y:	+ 1.6415	- 0.32016	+171.3864 2.946720	+ 0.66910 1.8427	+0.6791 5.8260
SEP.21 (0H) (2448886.5)	X:	-10.3218	+ 2.47324	+375.7755 2.691582	+ 2.75369 0.5589	+1.4105 2.1203
A SEP.29 (0H)	Y:	+ 4.4976	- 1.10201	+177.8343 5.907349	+ 1.16812 3.7329	+0.6641 5.3661
SEP.29 (0H) (2448894.5)	X:	+ 5.5438	- 1.42079	+371.7160 5.678671	+ 1.99141 3.7513	+1.8749 2.1574
A OCT. 7 (0H)	Y:	- 2.8241	+ 0.68036	+176.4582 2.613793	+ 0.86140 0.6169	+0.9000 5.3746
OCT. 7 (0H) (2448902.5)	X:	+ 2.8036	- 1.01159	+361.5539 2.385663	+ 1.04554 1.6005	+1.6563 1.9837
A OCT.15 (0H)	Y:	- 1.4593	+ 0.49011	+171.6402 5.609328	+ 0.45087 4.9225	+0.7937 5.2071

1992 COORDONNEES EQUATORIALES DIFFERENTIELLES

DU SATELLITE 4 DE JUPITER: CALLISTO N=0.3765

		AO	A1	BO FO	B1 F1	CO PO
OCT.15 (OH) (2448910.5)	X:	- 3.6237	+ 0.32206	+366.4626 5.371304	+ 1.58231 4.3748	+1.5085 1.3202
A OCT.23 (OH)	Y:	+ 2.1804	- 0.31797	+173.0392 2.314461	+ 0.64196 1.4879	+0.7249 4.5156
OCT.23 (OH) (2448918.5)	X:	- 9.7339	+ 2.36108	+383.6266 2.075599	+ 3.03570 0.4913	+2.1648 1.0189
A OCT.31 (OH)	Y:	+ 3.9294	- 0.99627	+181.0457 5.301879	+ 1.26782 3.6626	+1.0045 4.2566
OCT.31 (OH) (2448926.5)	X:	+ 7.2291	- 2.02949	+386.4006 5.058540	+ 2.73950 3.5171	+1.5081 1.1312
A NOV. 8 (OH)	Y:	- 3.4795	+ 0.94041	+182.4076 2.005096	+ 1.18460 0.3646	+0.7296 4.3759
NOV. 8 (OH) (2448934.5)	X:	+ 3.2947	- 1.23138	+376.2114 1.743428	+ 0.82951 1.3160	+1.5069 0.6788
A NOV.16 (OH)	Y:	- 1.8673	+ 0.61550	+176.6691 4.979623	+ 0.32020 4.7808	+0.7109 3.9369
NOV.16 (OH) (2448942.5)	X:	- 1.3296	- 0.33709	+387.1349 4.743427	+ 1.89149 3.8342	+1.6538 0.1935
A NOV.24 (OH)	Y:	+ 1.1624	- 0.01878	+180.7405 1.696102	+ 0.67207 0.8478	+0.8036 3.4398
NOV.24 (OH) (2448950.5)	X:	-11.8628	+ 2.60843	+403.0900 1.467405	+ 3.36290 0.2926	+2.4597 0.0513
A DEC. 2 (OH)	Y:	+ 4.7697	- 1.09209	+187.9160 4.704877	+ 1.35886 3.4589	+1.1250 3.2811
DEC. 2 (OH) (2448958.5)	X:	+ 6.3007	- 1.79325	+407.9459 4.450056	+ 2.77414 3.3343	+1.3510 5.9965
A DEC.10 (OH)	Y:	- 3.2028	+ 0.87251	+189.8734 1.411060	+ 1.18812 0.2005	+0.6191 2.9847
DEC.10 (OH) (2448966.5)	X:	+ 4.0154	- 1.77178	+407.7128 1.120228	+ 0.22603 1.2142	+1.8764 5.4649
A DEC.18 (OH)	Y:	- 2.0007	+ 0.81060	+188.1511 4.369171	+ 0.12245 5.5422	+0.8521 2.4398
DEC.18 (OH) (2448974.5)	X:	- 7.1942	+ 1.18301	+416.5750 4.120586	+ 0.83570 4.0083	+2.1931 5.5371
A DEC.26 (OH)	Y:	+ 3.7494	- 0.70477	+191.1799 1.085298	+ 0.29795 1.5958	+1.0428 2.5225
DEC.26 (OH) (2448982.5)	X:	-10.1968	+ 1.97489	+431.1039 0.871171	+ 2.95039 0.1874	+2.3559 5.3316
A JAN. 3 (OH)	Y:	+ 4.0606	- 0.81031	+197.9840 4.122102	+ 1.16498 3.3972	+1.0828 2.2797

PHÉNOMÈNES DES SATELLITES GALILÉENS

DESCRIPTION

Les satellites galiléens, dont les orbites sont faiblement inclinées sur l'équateur et sur l'écliptique, présentent de nombreux phénomènes. Au cours de chaque révolution, les trois premiers satellites, et en général le quatrième satellite, traversent le cône de visibilité et le cône d'ombre qui s'appuient sur la planète. On peut alors observer les passages des satellites devant Jupiter et les occultations par Jupiter lors de la traversée du cône de visibilité, ou les éclipses ou les passages d'ombre sur la planète lors de la traversée du cône d'ombre. Au cours d'une année, environ 3 000 tels événements (passages début ou fin, éclipses début ou fin, occultations début ou fin, passages d'ombre début ou fin) sont calculables (mais environ 2 200 seulement sont observables). Nous donnons ici une représentation compacte de ces prédictions utilisant un développement polynômial.

MÉTHODE DE CALCUL

Les tables des pages 53 et 54 permettent de calculer les dates en TDT des phénomènes des satellites galiléens de la manière suivante.

Soit P la période synodique moyenne d'un satellite ; la date approchée $T1$ du phénomène proche de la date T est donnée par la relation :

$$T1 = K \times P + \tau/24 + T0 \qquad (2)$$

où K représente la partie entière de la quantité $(T - T0)/P$ et où τ est donné, sur l'intervalle $T0$, $T0 + DT$ par un polynôme de la forme :

$$\tau = C0 + C1\,x + C2\,x^2 + \ldots\ldots + Cn\,x^n \qquad (3)$$

avec $$x = \{2(T - T0)/DT\} - 1 \qquad (4)$$

$T1$ ayant été obtenu par la relation (2), on peut réitérer le calcul en substituant $T1$ à T dans la formule (4) pour obtenir une date $T2$ plus proche du phénomène recherché que $T1$. La précision de ce type de prédiction est meilleure que 60 secondes de temps.

Les tables donnent les coefficients Ci de la formule (3), numérotés de $C0$ à $C7$ pour les quatre satellites et pour les phénomènes :

— débuts et fin des éclipses des satellites par Jupiter (notées respectivement EC.D et EC.F),

— débuts et fins des occultations des satellites par Jupiter (notées OC.D et OC.F),

— débuts et fins des passages de l'ombre des satellites sur le disque de Jupiter (OM.D et OM.F),

— débuts et fins des passages des satellites devant la planète (PA.D et PA.F).

EXEMPLE D'UTILISATION

Déterminons les dates des phénomènes du satellite I (Io) au voisinage du 30 juin 1992.

PHENOMA OF THE GALILEAN SATELLITES

DESCRIPTION

The Galilean satellites which orbits have low inclinations over the equator and the ecliptic, display many phenomena. During each revolution, the first three satellites and, often the fourth one, pass through the visibility and shadow cones which are tangent to the planet. It is then possible to observe the transits of the satellites across Jupiter and their occultations by Jupiter when they pass through the visibility cone, or the eclipses and the shadow transits when the shadow cone is involved. In the course of a year 3 000 such events may be computed (transits ingress and egress, eclipses disappearance and reappearance, occultations disappearance and reappearance, transits of the shadow ingress and egress). Only about 2 200 are observable. A compact representation of these predictions using a polynomial approximation is given here.

COMPUTATIONAL METHOD

The tables on p. 53 and 54 permit the computation of the dates in TDT of phenomena of the satellites of Jupiter in the following way.

Let P be the mean synodic period of a satellite ; the approximate date $T1$ of a phenomenon close to a date T is given by :

$$T1 = K \times P + \tau/24 + T0 \qquad (2)$$

where K is the integer part of $(T - T0)/P$ and where τ is given (on the interval $T0$, $T0 + DT$) by a polynomial :

$$\tau = C0 + C1\,x + C2\,x^2 + \ldots\ldots + Cn\,x^n \qquad (3)$$

with $$x = \{2(T - T0)/DT\} - 1 \qquad (4)$$

The value $T1$ deduced from equation (2) is then substituted in place of T in equation (4). The new iteration yields a date $T2$ closer to the date of the phenomenon than $T1$. The precision of this type of prediction is better than 60 seconds of time. The tables give the coefficients Ci in formula (3), numbered from $C0$ to $C7$, for the four satellites dans for the following phenomena :

— disappearance and reappearance of the satellites eclipsed by Jupiter (denoted respectively by EC.D and EC.F),

— disappearance and reappearance of the satellites occulted by Jupiter (denoted OC.D and OC.F),

— ingress and egress of the transits of the satellites shadow across the disc of Jupiter (OM.D and OM.F),

— ingress and egress of the satellites transits across the planet (PA.D and PA.F).

EXAMPLE

Let us find the dates of the phenomena of satellite I (Io) which takes place near the 30th of June 1992.

Voyons tout d'abord le calcul pour le début d'occultation pour lequel les tables donnent :

$T0 = 0$; $P = 1{,}769\,860\,5$; $DT = 366$

Du 0 janvier au 30 juin 1992, 182 jours se sont écoulés, on a donc :

$T = 182$ et la formule (4) donne alors :

$x = 2\,(182 - 0)/366 - 1 = -0{,}010\,928\,962$

La formule (3) donne ensuite :

$$\tau = 36.990\,082 + 0.263\,141\,x - 0.435\,330\,x^2 - 0.392\,364\,x^3 + 0.261\,255\,x^4 - 0.076\,487\,x^5 + 0.158\,011\,x^6 + 0.169\,491\,x^7 - 0.316\,933\,x^8 - 0.049\,518\,x^9 + 0.132\,982\,x^{10}$$

d'où = 36,988 631

On a d'autre part :

K = partie entière de
$(182 - 0)/1{,}769\,860\,5 = 102$

La formule (2) donne alors : 36,988 631

$T1 = 102 \times 1{,}769\,860\,5 + 36{,}988\,631/24 + 0$

$T1$ = 182,066 964 jours depuis le 0 janvier (début de l'intervalle pour les occultations) soit EC.D le 30 juin 1992 à 1 h 36 m 26 s TDT. Le calcul réitéré donne $T2$ = 182,066 964 jours soit le 30 juin 1992 à 1 h 36 m 26 s TDT.

On trouverait de même pour les autres phénomènes :

PA.D	le 29 juin	à 3 h	9 m	10 s
OM.D	le 29 juin	à 4 h	15 m	46 s
PA.F	le 29 juin	à 5 h	24 m	39 s
OM.F	le 29 juin	à 6 h	30 m	14 s
OC.D	le 30 juin	à 0 h	28 m	52 s
OC.F	le 30 juin	à 2 h	45 m	51 s
EC.F	le 30 juin	à 3 h	52 m	15 s

IMPORTANT : Conditions d'existence des phénomènes

Le recouvrement des cônes d'ombre et de visibilité, rend inexistants certains phénomènes. Ainsi, avant (ou après) l'opposition de Jupiter, les fins (respectivement débuts) d'éclipses et les débuts (respectivement fins) d'occultations sont inobservables. Ceci ne pouvant être pris en compte dans la représentation, il est nécessaire que l'utilisateur vérifie les conditions d'existence pour les éclipses et les occultations en calculant les quatre phases EC.D, EC.F, OC.D et OC.F. Ainsi, dans l'exemple précédent, on a dans l'ordre chronologique :

OC.D	le 30 juin	à 0 h	28 m	52 s observable
EC.D	le 30 juin	à 1 h	36 m	26 s inobservable car déjà occulté
OC.F	le 30 juin	à 2 h	45 m	51 s inobservable car éclipsé
EC.F	le 30 juin	à 3 h	52 m	15 s observable.

D'autre part, les caractéristiques de l'orbite du satellite IV (Callisto) font qu'il n'existe pas toujours de phénomènes. Les coefficients relatifs à ce satellite ne sont donc donnés que sur l'intervalle où ils existent.

Let us start with the computation of the disappearance for the occultation of the satellite for which the tables give :

$T0 = 0$; $P = 1.769\,860\,5$; $DT = 366$

Between January 0 to June the 30 th 1992, 182 days have elapsed

$T = 182$ and formula (4) gives :

$x = 2\,(182 - 0)/366 - 1 = -0.010\,928\,962$

Formula (3) then gives :

$$\tau = 36.990\,082 + 0.263\,141\,x - 0.435\,330\,x^2 - 0.392\,364\,x^3 + 0.261\,255\,x^4 - 0.076\,487\,x^5 + 0.158\,011\,x^6 + 0.169\,491\,x^7 - 0.316\,933\,x^8 - 0.049\,518\,x^9 + 0.132\,982\,x^{10}$$

therefore = 36.988 631

On the other hand,

K = integer part of
$(182 - 0)/1.769\,860\,5 = 102$

Formula (2) then gives : 36.988 631

$T1 = 102 \times 1.769\,860\,5 + 36.988\,631/24 + 0$

$T1$ = 182.066 964 days from January 0 (beginning of the interval for the occultations) that is June the 30th 1992 at 1 h 36 m 26 s TDT. Another iteration gives $T2$ = 182.066 964 days that is June the 30th 1992 at 1 h 36 m 26 s TDT.

One would find as well for the other phenomena :

PA.D	*June the 29th*	*at 3 h*	*9 m*	*10 s*
OM.D	*June the 29th*	*at 4 h*	*15 m*	*46 s*
PA.F	*June the 29th*	*at 5 h*	*24 m*	*39 s*
OM.F	*June the 29th*	*at 6 h*	*30 m*	*14 s*
OC.D	*June the 30th*	*at 0 h*	*28 m*	*52 s*
OC.F	*June the 30th*	*at 2 h*	*45 m*	*51 s*
EC.F	*June the 30th*	*at 3 h*	*52 m*	*15 s*

IMPORTANT : Conditions for the existence of the phenomena

As the visibility and shadow cones may sometimes overlap, some of the computed phenomena may not exist. Thus, before (or after) the opposition of Jupiter, the reappearances (respectively the disappearances) for the eclipses, and the disappearances (respectively reappearances) for the occultations are not observable. This could not be taken into account in the representation ; so the user will have to check the existence conditions of the eclipses and occultations by computing the four steps EC.D, EC.F, OC.D and OC.F For instance, in the example above one has, in chronological order :

OC.D	*June 30th*	*at 0 h*	*28 m*	*52 s observable*
EC.D	*June 30th*	*at 1 h*	*36 m*	*26 s unobservable as occulted*
OC.F	*June 30th*	*at 2 h*	*45 m*	*51 s unobservable as eclipsed*
EC.F	*June 30th*	*at 3 h*	*52 m*	*15 s observable.*

Moreover, the orbit of satellite IV (Callisto) is such that phenomena are not always present. The coefficients for this satellite are given on the interval for which they exist.

AN 1992 SATELLITE 1 P = 1.7698605 JOURS TO = 0.0 DT = 366.JOURS

	EC.D		EC.F		OM.D		OM.F
0	36.990082	0	39.253334	0	15.645939	0	17.887330
1	0.263141	1	0.210020	1	0.169097	1	0.206663
2	-0.435330	2	-0.443802	2	-0.082247	2	-0.019430
3	-0.392364	3	-0.365082	3	-0.318740	3	-0.588172
4	0.261255	4	0.259017	4	0.099366	4	0.100181
5	-0.076487	5	-0.085213	5	0.047757	5	0.467150
6	0.158011	6	0.168851	6	0.117783	6	-0.197634
7	0.169491	7	0.170296	7	-0.031685	7	-0.315923
8	-0.316933	8	-0.328008	8	-0.163470	8	0.223280
9	-0.049518	9	-0.049306	9	0.030212	9	0.100661
10	0.132982	10	0.137019	10	0.041716	10	-0.094812

	OC.D		OC.F		PA.D		PA.F
0	35.872714	0	38.155853	0	14.551431	0	16.809232
1	1.929099	1	1.880130	1	1.728118	1	1.774026
2	2.934621	2	2.856688	2	3.230589	2	3.254039
3	-3.804537	3	-3.767679	3	-3.140068	3	-3.418877
4	1.395199	4	1.403373	4	1.227103	4	1.155922
5	1.635192	5	1.616380	5	0.599606	5	1.044993
6	-3.873281	6	-3.811837	6	-3.755487	6	-3.924697
7	0.912010	7	0.886712	7	1.744543	7	1.402434
8	1.875255	8	1.825894	8	1.783304	8	2.077382
9	-0.714085	9	-0.695284	9	-0.983830	9	-0.884051
10	-0.228807	10	-0.216815	10	-0.205345	10	-0.321357

TO = 0 CORRESPOND AU 0 JANVIER 1992 à 0 H SOIT LA DATE JULIENNE 2448621.5

AN 1992 SATELLITE 2 P = 3.5540942 JOURS TO = 0.0 DT = 366.JOURS

	EC.D		EC.F		OM.D		OM.F
0	6.391619	0	9.087194	0	49.516085	0	52.199365
1	-0.101811	1	-0.182697	1	0.292334	1	0.159589
2	0.541049	2	0.531737	2	-1.144208	2	-1.090399
3	-0.189764	3	-0.240549	3	-0.579503	3	-0.791438
4	-0.395485	4	-0.353989	4	0.915522	4	0.868400
5	0.300400	5	0.302489	5	0.157803	5	0.562450
6	0.864233	6	0.769053	6	-0.441499	6	-0.624708
7	-0.521462	7	-0.501631	7	-0.071158	7	-0.298439
8	-1.234057	8	-1.134532	8	0.170207	8	0.375339
9	0.276561	9	0.267593	9	0.040393	9	0.068872
10	0.562542	10	0.523996	10	-0.041527	10	-0.090659

	OC.D		OC.F		PA.D		PA.F
0	4.149543	0	6.921323	0	47.261403	0	50.027722
1	3.057825	1	2.997630	1	3.646484	1	3.524597
2	7.414798	2	7.190848	2	5.575589	2	5.356815
3	-6.200061	3	-6.237818	3	-7.374941	3	-7.530160
4	1.677983	4	1.565218	4	3.428364	4	3.356161
5	2.678973	5	2.688895	5	2.960826	5	3.364400
6	-6.992777	6	-6.700182	6	-8.724874	6	-8.635743
7	1.502887	7	1.393127	7	2.412813	7	1.984723
8	3.043554	8	2.919709	8	4.445764	8	4.511531
9	-1.153790	9	-1.086869	9	-1.729880	9	-1.576858
10	-0.146052	10	-0.144798	10	-0.633425	10	-0.681438

TO = 0 CORRESPOND AU 0 JANVIER 1992 à 0 H SOIT LA DATE JULIENNE 2448621.5

AN 1992 SATELLITE 3 P = 7.1663872 JOURS TO = 0.0 DT = 366.JOURS

	EC.D		EC.F		OM.D		OM.F
0	74.460941	0	77.820423	0	160.256328	0	163.582400
1	-0.062649	1	-0.347017	1	-0.122147	1	-0.330339
2	-0.326776	2	-0.401179	2	-0.156465	2	-0.134228
3	-0.536162	3	-0.535360	3	-0.317849	3	-0.668717
4	0.018112	4	0.178891	4	0.158222	4	0.199237
5	0.648915	5	0.699686	5	-0.256567	5	0.325189
6	0.566144	6	0.145079	6	0.144173	6	-0.337274
7	-1.002938	7	-1.074707	7	0.608626	7	0.224259
8	-0.659586	8	-0.207514	8	-0.237779	8	0.297667
9	0.552636	9	0.583578	9	-0.342484	9	-0.253059
10	0.243123	10	0.072201	10	0.077440	10	-0.097699

	OC.D		OC.F		PA.D		PA.F
0	69.906475	0	73.426175	0	155.732245	0	159.214922
1	6.562454	1	6.356681	1	6.375115	1	6.259591
2	13.415193	2	12.877767	2	13.541719	2	13.127293
3	-13.891103	3	-13.936963	3	-12.948436	3	-13.402831
4	4.895384	4	4.761624	4	4.552307	4	4.239142
5	7.050264	5	7.102737	5	4.580733	5	5.273905
6	-16.624596	6	-16.276486	6	-15.296668	6	-14.987164
7	2.307865	7	1.938479	7	5.451788	7	4.667722
8	9.195177	8	9.161539	8	7.401627	8	7.519948
9	-2.211463	9	-1.989641	9	-3.660169	9	-3.344529
10	-1.615007	10	-1.679091	10	-0.842229	10	-0.961652

TO = 0 CORRESPOND AU 0 JANVIER 1992 à 0 H SOIT LA DATE JULIENNE 2448621.5

AN 1992 SATELLITE 4 P = 16.7535520 JOURS TO = 0.0 DT = 317.JOURS

	EC.D		EC.F		OM.D		OM.F
0	153.223336	0	156.471160	0	354.291063	0	357.490739
1	0.070758	1	-1.409286	1	-0.346451	1	-1.699757
2	0.108826	2	-0.434461	2	0.074571	2	-0.221862
3	-0.075870	3	-0.050114	3	-0.257279	3	-0.668400
4	0.281807	4	0.687600	4	0.323148	4	-0.111731
5	-0.604478	5	-1.566758	5	0.250054	5	0.748446
6	-0.479234	6	-2.268690	6	-0.463382	6	-0.126558
7	1.128624	7	2.558332	7	-0.370097	7	-0.786328
8	0.723389	8	3.057987	8	0.568353	8	0.285409
9	-0.510639	9	-1.399765	9	0.271418	9	0.266230
10	-0.323406	10	-1.523714	10	-0.215200	10	-0.195524

AN 1992 SATELLITE 4 P = 16.7535520 JOURS TO = 0.0 DT = 300.JOURS

	OC.D		OC.F		PA.D		PA.F
0	140.636329	0	144.723754	0	342.133373	0	346.122692
1	0.219945	1	0.186405	1	-0.154939	1	-0.180757
2	33.762107	2	31.836875	2	32.625385	2	30.988543
3	-17.179587	3	-16.842639	3	-16.865882	3	-16.525864
4	-5.027201	4	-5.765027	4	-5.135487	4	-6.139163
5	22.270675	5	20.201701	5	22.287059	5	20.139834
6	-20.648247	6	-17.394408	6	-18.309323	6	-15.422241
7	-8.879809	7	-8.053100	7	-9.645628	7	-8.426602
8	18.732251	8	15.719925	8	15.733263	8	13.702053
9	0.812413	9	0.596825	9	1.302578	9	0.841500
10	-5.436403	10	-4.699611	10	-4.210503	10	-3.996627

TO = 0 CORRESPOND AU 0 JANVIER 1992 à 0 H SOIT LA DATE JULIENNE 2448621.5

SATELLITES DE SATURNE

SATELLITES OF SATURN

DONNÉES SUR LES SATELLITES DE SATURNE

DATA ON THE SATELLITES OF SATURN

	NOM	masse	rayon	période rotation sidérale	albédo géométrique	magnitude visuelle	période orbitale	élongation maximale	1/2 grand axe	excentricité	inclinaison sur l'équateur de Saturne
	unité →	masse de Saturne	km	jour			jour	(') (")	10^3 km		degré
I	Mimas	6.5×10^{-8}	199	(S)	0.53	12.9	0.942 421 95	30	184.85	0.0191	1.56
II	Enceladus	2.1×10^{-7}	251	(S)	0.99	11.7	1.370 218 081	38	237.39	0.0049	0.026
III	Tethys	1.09×10^{-6}	524	(S)	0.88	10.2	1.887 802 524	48	293.99	0.	1.098
IV	Dione	1.95×10^{-6}	559	(S)	0.65	10.4	2.736 915 55	1 01	376.37	0.00216	0.014
V	Rhea	4.1×10^{-6}	764	(S)	0.67	9.7	4.517 502 66	1 25	525.58	0.000 27 (6)	0.347
VI	Titan	2.367×10^{-4}	2 575	(S)	0.21	8.28	15.945 446 3	3 17	1 217.66	0.029 09	0.30
VII	Hyperion	$3. \times 10^{-8}$	370 x 280 x 225		0.3	14.19	21.276 673 3	3 59	1 476.0	0.103 46	0.644
VIII	Iapetus	2.8×10^{-6}	718	(S)	0.5-0.05	11.2	79.330 954	9 34	3 549.77	0.028 30	18.460 (1)
IX	Phoebe	$7. \times 10^{-10}$	221 x 212	0.4	0.06	16.45	(R) 550.48	34 51	12 952.	0.163 2	177. (1)
X	Janus (5)		110 x 100 x 80	(S)	0.4	14.	0.694 5	24	151.472	0.007	0.14
XI	Epimetheus (5)		70 x 60 x 50	(S)	0.4	15.	0.694 2	24	151.422	0.009	0.34
XII	Hélène (2)		18 x 16 x 15		0.5	17.	2.736 9	1 01	377.40	0.005	0.2
XIII	Telesto (3)		17 x 14 x 13		0.6	18.	1.887 8	48	294.66		
XIV	Calypso (3)		17 x 11 x 11		0.8	18.5	1.887 8	48	294.66		
XV	Atlas		20 x 10		0.4	18.	0.601 9	22	137.670		0.3
XVI	Prometheus (4)		70 x 11 x 40		0.6	15.	0.613 0	23	139.353		0.
XVII	Pandora (4)		55 x 45 x 35		0.6	15.5	0.628 5	23	141.700	0.004	0.1
	NAME	*mass*	*radius*	*sidereal period*	*geometrical albedo*	*visual magnitude*	*orbital period*	*greatest elongation*	*semi major axis*	*eccentricity*	*inclination on Saturn's equator*
	unit →	*Saturn's mass*	*km*	*day*			*day*	*(') (")*	*10^3 km*		*degree*

NOTES

(S) : révolution synchrone
(R) : révolution rétrograde
(1) : inclinaison par rapport à l'écliptique. Les éphémérides de Phœbé sont données sous la forme de coefficients de Tchébycheff dans le *« Supplément à la Connaissance des Temps : Satellites faibles... »*
(2) : Hélène : même orbite que Dioné
(3) : Telesto et Calypso : même orbite que Téthys
(4) : satellites coorbitaux « gardiens » de l'anneau F
(5) : Janus et Epimetheus : même orbite
(6) : excentricité propre. L'excentricité forcée due à Titan est de 0,0010

(S) : synchronous revolution
(R) : retrograde revolution
(1) : inclination on the ecliptic. The ephemerides of Phœbe are given as Chebychev coefficients in the « Supplément à la Connaissance des Temps : Faint Satellites... »
(2) : Helene : same orbit as Dione
(3) : Telesto and Calypso : same orbit as Tethys
(4) : satellites on the same orbit « shepherding » F ring
(5) : Janus and Epimetheus : same orbit
(6) : proper eccentricity. The forced eccentricity due to Titan is 0.0010

ÉPHÉMÉRIDES DES HUIT PREMIERS SATELLITES DE SATURNE

EPHEMERIDES OF THE FIRST EIGHT SATELLITES OF SATURN

Coordonnées différentielles tangentielles données en secondes de degré dans le repère équatorial moyen J2000.

Differential tangential coordinates given in arcsecond in the mean equatorial frame J2000.

$$\Delta\alpha \cos\delta = X$$
$$\Delta\delta = Y$$

$$\left.\begin{matrix} X \\ Y \end{matrix}\right\} = A0 + A1 \cdot t + B0 \sin(Nt + F0) + B1 \cdot t \sin(Nt + F1) + B2 \cdot t^2 \sin(Nt + F2) + C0 \sin(2Nt + P0)$$

où $t = T - T0$ avec $T0$ date du début de l'intervalle et T date du calcul

where $t = T - T0$ with $T0$ date if the beginning of the interval and T the date for the calculation

satellite	intervalle Δt (jours)	N (rad/j)	page
Mimas	4	6.667 0	58
Encelade	16	4.586 0	65
Téthys	16	3.328 0	67
Dioné	16	2.296 0	69
Rhéa	16	1.391 0	71
Titan	11	0.394 0	73
Hypérion	8	0.394 0	76
Japet	17	0.079 0	80
	(days)	*(rad/d)*	

1992 COORDONNEES EQUATORIALES DIFFERENTIELLES

DU SATELLITE 1 DE SATURNE: MIMAS N=6.667

		A0	A1	B0 F0	B1 F1	B2 F2	C0 P0
JAN. 1 (OH)	X:	+0.6645	-0.00245	+23.5592	+0.05354	+0.000157	+0.2225
(2448622.5)				5.963665	4.1360	5.0306	0.7344
A JAN. 5 (OH)	Y:	-0.0932	-0.00282	+ 7.8375	+0.02565	+0.000218	+0.0743
				1.514897	5.7172	2.4438	2.5665
JAN. 5 (OH)	X:	+0.6540	-0.00295	+23.5053	+0.05178	+0.000258	+0.2223
(2448626.5)				1.206755	5.6621	0.7774	3.7268
A JAN. 9 (OH)	Y:	-0.1044	-0.00271	+ 7.7894	+0.02440	+0.000206	+0.0735
				3.038903	0.9652	4.1629	5.5524
JAN. 9 (OH)	X:	+0.6428	-0.00347	+23.4597	+0.05277	+0.000327	+0.2229
(2448630.5)				2.733297	0.9202	2.6016	0.4327
A JAN.13 (OH)	Y:	-0.1154	-0.00263	+ 7.7449	+0.02342	+0.000157	+0.0730
				4.563436	2.5191	5.7993	2.2598
JAN.13 (OH)	X:	+0.6283	-0.00400	+23.4183	+0.05298	+0.000475	+0.2229
(2448634.5)				4.259862	2.4963	4.2831	3.4213
A JAN.17 (OH)	Y:	-0.1259	-0.00247	+ 7.7041	+0.02222	+0.000216	+0.0728
				6.088271	4.0688	0.6778	5.2540
JAN.17 (OH)	X:	+0.6128	-0.00457	+23.3838	+0.05132	+0.000307	+0.2217
(2448638.5)				5.786363	4.1003	6.0061	0.1289
A JAN.21 (OH)	Y:	-0.1359	-0.00240	+ 7.6675	+0.02071	+0.000230	+0.0726
				1.330324	5.6361	2.5519	1.9624
JAN.21 (OH)	X:	+0.5938	-0.00502	+23.3629	+0.04888	+0.000365	+0.2205
(2448642.5)				1.029686	5.6456	1.3529	3.1219
A JAN.25 (OH)	Y:	-0.1455	-0.00226	+ 7.6356	+0.01883	+0.000171	+0.0723
				2.855991	0.8968	4.2855	4.9489
JAN.25 (OH)	X:	+0.5744	-0.00548	+23.3520	+0.04955	+0.000379	+0.2207
(2448646.5)				2.556577	0.9030	3.2148	6.1162
A JAN.29 (OH)	Y:	-0.1546	-0.00215	+ 7.6080	+0.01757	+0.000135	+0.0720
				4.382351	2.4373	5.8743	1.6529
JAN.29 (OH)	X:	+0.5519	-0.00603	+23.3446	+0.04928	+0.000444	+0.2217
(2448650.5)				4.083583	2.4847	4.3767	2.8267
A FEV. 2 (OH)	Y:	-0.1632	-0.00198	+ 7.5837	+0.01636	+0.000167	+0.0716
				5.909283	3.9809	0.5081	4.6467
FEV. 2 (OH)	X:	+0.5282	-0.00644	+23.3451	+0.04833	+0.000456	+0.2221
(2448654.5)				5.610632	4.0863	0.0241	5.8178
A FEV. 6 (OH)	Y:	-0.1711	-0.00189	+ 7.5626	+0.01506	+0.000206	+0.0713
				1.153630	5.5611	2.3362	1.3620
FEV. 6 (OH)	X:	+0.5019	-0.00688	+23.3572	+0.04602	+0.000399	+0.2214
(2448658.5)				0.854596	5.6684	1.8479	2.5241
A FEV.10 (OH)	Y:	-0.1788	-0.00172	+ 7.5451	+0.01287	+0.000120	+0.0713
				2.681660	0.8543	4.0558	4.3573
FEV.10 (OH)	X:	+0.4749	-0.00729	+23.3805	+0.04556	+0.000405	+0.2208
(2448662.5)				2.382138	0.9328	3.6371	5.5163
A FEV.14 (OH)	Y:	-0.1856	-0.00157	+ 7.5325	+0.01137	+0.000120	+0.0714
				4.210459	2.3785	5.3927	1.0649
FEV.14 (OH)	X:	+0.4452	-0.00781	+23.4080	+0.04492	+0.000269	+0.2211
(2448666.5)				3.909930	2.5171	4.5393	2.2301
A FEV.18 (OH)	Y:	-0.1921	-0.00139	+ 7.5225	+0.01028	+0.000158	+0.0714
				5.740070	3.9285	0.2249	4.0567
FEV.18 (OH)	X:	+0.4143	-0.00808	+23.4438	+0.04438	+0.000434	+0.2222
(2448670.5)				5.437875	4.1084	0.0330	5.2280
A FEV.22 (OH)	Y:	-0.1976	-0.00125	+ 7.5151	+0.00912	+0.000207	+0.0711
				0.987178	5.5362	1.8899	0.7712
FEV.22 (OH)	X:	+0.3817	-0.00854	+23.4883	+0.04314	+0.000362	+0.2230
(2448674.5)				0.682838	5.7247	2.2193	1.9376
A FEV.26 (OH)	Y:	-0.2028	-0.00103	+ 7.5103	+0.00710	+0.000130	+0.0708
				2.518030	0.9215	3.5057	3.7723

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DU SATELLITE 1 DE SATURNE: MIMAS N=6.667

		A0	A1	B0 F0	B1 F1	B2 F2	C0 P0
FEV.26 (0H) (2448678.5)	X:	+0.3477	-0.00888	+23.5445 2.211308	+0.04140 1.0114	+0.000290 3.8368	+0.2233 4.9272
A MAR. 1 (0H)	Y:	-0.2067	-0.00085	+ 7.5104 4.049647	+0.00544 2.4707	+0.000165 4.9429	+0.0709 0.4890
MAR. 1 (0H) (2448682.5)	X:	+0.3119	-0.00930	+23.6068 3.740167	+0.04061 2.5900	+0.000109 4.4293	+0.2234 1.6373
A MAR. 5 (0H)	Y:	-0.2104	-0.00066	+ 7.5128 5.582213	+0.00460 4.0832	+0.000194 0.1648	+0.0713 3.4865
MAR. 5 (0H) (2448686.5)	X:	+0.2747	-0.00950	+23.6763 5.269290	+0.04036 4.1731	+0.000327 5.9289	+0.2238 4.6372
A MAR. 9 (0H)	Y:	-0.2129	-0.00045	+ 7.5169 0.832266	+0.00368 5.8660	+0.000241 1.6076	+0.0715 0.2010
MAR. 9 (0H) (2448690.5)	X:	+0.2368	-0.00994	+23.7525 0.515515	+0.04062 5.8058	+0.000266 2.1858	+0.2247 1.3544
A MAR.13 (0H)	Y:	-0.2149	-0.00021	+ 7.5234 2.366109	+0.00302 1.7250	+0.000192 3.3154	+0.0713 3.2012
MAR.13 (0H) (2448694.5)	X:	+0.1967	-0.01018	+23.8398 2.045172	+0.03830 1.1326	+0.000106 3.3694	+0.2262 4.3494
A MAR.17 (0H)	Y:	-0.2155	+0.00000	+ 7.5341 3.900663	+0.00269 3.8659	+0.000213 4.9082	+0.0711 6.2044
MAR.17 (0H) (2448698.5)	X:	+0.1562	-0.01047	+23.9356 3.575339	+0.03724 2.6989	+0.000144 3.6459	+0.2276 1.0584
A MAR.21 (0H)	Y:	-0.2157	+0.00023	+ 7.5473 5.436178	+0.00308 5.6634	+0.000229 0.2998	+0.0713 2.9263
MAR.21 (0H) (2448702.5)	X:	+0.1140	-0.01065	+24.0363 5.105878	+0.03745 4.2778	+0.000348 5.3348	+0.2283 4.0544
A MAR.25 (0H)	Y:	-0.2147	+0.00050	+ 7.5617 0.689131	+0.00417 1.1573	+0.000236 1.5585	+0.0719 5.9309
MAR.25 (0H) (2448706.5)	X:	+0.0717	-0.01098	+24.1421 0.353551	+0.03893 5.9022	+0.000266 1.3565	+0.2284 0.7726
A MAR.29 (0H)	Y:	-0.2128	+0.00074	+ 7.5783 2.225861	+0.00579 2.8285	+0.000227 3.3212	+0.0721 2.6500
MAR.29 (0H) (2448710.5)	X:	+0.0272	-0.01108	+24.2577 1.884622	+0.03742 1.2669	+0.000214 2.2180	+0.2294 3.7744
A AVR. 2 (0H)	Y:	-0.2097	+0.00099	+ 7.5983 3.763213	+0.00726 4.5045	+0.000216 5.0610	+0.0720 5.6516
AVR. 2 (0H) (2448714.5)	X:	-0.0165	-0.01124	+24.3838 3.416259	+0.03599 2.8326	+0.000328 3.8473	+0.2315 0.4898
A AVR. 6 (0H)	Y:	-0.2059	+0.00124	+ 7.6210 5.301403	+0.00804 6.0990	+0.000229 0.4552	+0.0720 2.3739
AVR. 6 (0H) (2448718.5)	X:	-0.0620	-0.01138	+24.5122 4.948373	+0.03682 4.4093	+0.000412 5.3033	+0.2338 3.4867
A AVR.10 (0H)	Y:	-0.2008	+0.00153	+ 7.6448 0.556983	+0.00931 1.3951	+0.000178 1.6192	+0.0723 5.3843
AVR.10 (0H) (2448722.5)	X:	-0.1071	-0.01150	+24.6448 0.197620	+0.03866 6.0161	+0.000465 0.9971	+0.2347 0.2020
A AVR.14 (0H)	Y:	-0.1948	+0.00176	+ 7.6708 2.096270	+0.01067 2.9496	+0.000200 3.3135	+0.0729 2.1113
AVR.14 (0H) (2448726.5)	X:	-0.1537	-0.01146	+24.7849 1.730298	+0.03878 1.3896	+0.000385 2.4542	+0.2348 3.2033
A AVR.18 (0H)	Y:	-0.1877	+0.00204	+ 7.6992 3.636068	+0.01228 4.5082	+0.000176 5.3179	+0.0732 5.1160
AVR.18 (0H) (2448730.5)	X:	-0.1989	-0.01147	+24.9355 3.263528	+0.03731 2.9738	+0.000493 4.1489	+0.2360 6.2065
A AVR.22 (0H)	Y:	-0.1796	+0.00229	+ 7.7307 5.176475	+0.01315 6.0868	+0.000171 0.6089	+0.0734 1.8360

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DU SATELLITE 1 DE SATURNE: MIMAS N=6.667

		A0	A1	B0 F0	B1 F1	B2 F2	C0 P0
AVR.22 (OH)	X:	-0.2455	-0.01148	+25.0867	+0.03851	+0.000414	+0.2386
(2448734.5)				4.797309	4.5435	5.7189	2.9268
A AVR.26 (OH)	Y:	-0.1704	+0.00256	+ 7.7634	+0.01414	+0.000093	+0.0736
				0.434216	1.3636	1.6903	4.8443
AVR.26 (OH)	X:	-0.2909	-0.01131	+25.2407	+0.04007	+0.000585	+0.2411
(2448738.5)				0.048200	6.1401	1.0109	5.9283
A AVR.30 (OH)	Y:	-0.1601	+0.00277	+ 7.7980	+0.01509	+0.000124	+0.0739
				1.975538	2.9085	3.0949	1.5756
AVR.30 (OH)	X:	-0.3367	-0.01115	+25.3999	+0.04159	+0.000532	+0.2422
(2448742.5)				1.582589	1.4918	2.8183	2.6446
A MAI 4 (OH)	Y:	-0.1491	+0.00304	+ 7.8342	+0.01646	+0.000113	+0.0744
				3.517236	4.4331	5.5423	4.5881
MAI 4 (OH)	X:	-0.3808	-0.01094	+25.5672	+0.04092	+0.000550	+0.2427
(2448746.5)				3.117462	3.1043	4.5218	5.6454
A MAI 8 (OH)	Y:	-0.1369	+0.00326	+ 7.8735	+0.01741	+0.000075	+0.0750
				5.059269	6.0062	0.7159	1.3116
MAI 8 (OH)	X:	-0.4252	-0.01073	+25.7346	+0.04179	+0.000451	+0.2441
(2448750.5)				4.652930	4.6735	0.0785	2.3677
A MAI 12 (OH)	Y:	-0.1239	+0.00348	+ 7.9145	+0.01792	+0.000024	+0.0754
				0.318556	1.2793	1.0905	4.3169
MAI 12 (OH)	X:	-0.4678	-0.01026	+25.9024	+0.04269	+0.000503	+0.2466
(2448754.5)				6.188695	6.2685	1.1736	5.3758
A MAI 16 (OH)	Y:	-0.1099	+0.00365	+ 7.9567	+0.01845	+0.000070	+0.0757
				1.861279	2.8191	2.1942	1.0447
MAI 16 (OH)	X:	-0.5092	-0.00994	+26.0724	+0.04448	+0.000583	+0.2490
(2448758.5)				1.441638	1.5873	3.0945	2.0971
A MAI 20 (OH)	Y:	-0.0954	+0.00387	+ 7.9999	+0.01936	+0.000043	+0.0759
				3.404208	4.3335	5.5239	4.0600
MAI 20 (OH)	X:	-0.5488	-0.00944	+26.2458	+0.04526	+0.000510	+0.2505
(2448762.5)				2.978146	3.2139	5.0072	5.0969
A MAI 24 (OH)	Y:	-0.0798	+0.00402	+ 8.0456	+0.02023	+0.000012	+0.0765
				4.947207	5.8999	4.2512	0.7900
MAI 24 (OH)	X:	-0.5869	-0.00893	+26.4195	+0.04529	+0.000508	+0.2516
(2448766.5)				4.515216	4.7957	0.5478	1.8152
A MAI 28 (OH)	Y:	-0.0638	+0.00416	+ 8.0933	+0.02021	+0.000044	+0.0773
				0.207329	1.1738	6.1868	3.7985
MAI 28 (OH)	X:	-0.6225	-0.00821	+26.5905	+0.04542	+0.000318	+0.2529
(2448770.5)				6.052624	0.1073	1.5343	4.8234
A JUN. 1 (OH)	Y:	-0.0471	+0.00428	+ 8.1411	+0.02034	+0.000083	+0.0779
				1.750753	2.7052	1.4428	0.5233
JUN. 1 (OH)	X:	-0.6554	-0.00766	+26.7600	+0.04644	+0.000488	+0.2548
(2448774.5)				1.307211	1.6891	3.2593	1.5511
A JUN. 5 (OH)	Y:	-0.0301	+0.00441	+ 8.1894	+0.02072	+0.000031	+0.0782
				3.294185	4.2187	3.8614	3.5343
JUN. 5 (OH)	X:	-0.6862	-0.00682	+26.9272	+0.04856	+0.000480	+0.2571
(2448778.5)				2.845263	3.3099	5.5563	4.5569
A JUN. 9 (OH)	Y:	-0.0123	+0.00445	+ 8.2391	+0.02138	+0.000040	+0.0783
				4.837488	5.7749	4.1241	0.2648
JUN. 9 (OH)	X:	-0.7135	-0.00602	+27.0942	+0.04772	+0.000473	+0.2592
(2448782.5)				4.383777	4.9163	0.8653	1.2750
A JUN.13 (OH)	Y:	+0.0053	+0.00450	+ 8.2906	+0.02091	+0.000039	+0.0790
				0.097732	1.0520	0.1242	3.2778
JUN.13 (OH)	X:	-0.7377	-0.00507	+27.2547	+0.04671	+0.000202	+0.2606
(2448786.5)				5.922675	0.2259	2.1993	4.2784
A JUN.17 (OH)	Y:	+0.0234	+0.00454	+ 8.3409	+0.02057	+0.000044	+0.0799
				1.641171	2.5775	1.0052	0.0055

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DU SATELLITE 1 DE SATURNE: MIMAS N=6.667

		A0	A1	B0 F0	B1 F1	B2 F2	C0 P0
JUN.17 (0H)	X:	-0.7578	-0.00424	+27.4086	+0.04655	+0.000274	+0.2613
(2448790.5)				1.178674	1.8035	3.2625	1.0051
A JUN.21 (0H)	Y:	+0.0414	+0.00452	+ 8.3905	+0.02043	+0.000040	+0.0806
				3.184410	4.0994	3.7693	3.0141
JUN.21 (0H)	X:	-0.7752	-0.00310	+27.5548	+0.04910	+0.000438	+0.2625
(2448794.5)				2.718037	3.4024	5.8767	4.0163
A JUN.25 (0H)	Y:	+0.0597	+0.00447	+ 8.4401	+0.02069	+0.000006	+0.0807
				4.727388	5.6457	2.2091	6.0226
JUN.25 (0H)	X:	-0.7871	-0.00207	+27.6993	+0.04808	+0.000362	+0.2647
(2448798.5)				4.257701	5.0339	1.0027	0.7402
A JUN.29 (0H)	Y:	+0.0774	+0.00441	+ 8.4903	+0.01998	+0.000033	+0.0809
				6.270285	0.9267	2.5964	2.7500
JUN.29 (0H)	X:	-0.7959	-0.00097	+27.8340	+0.04575	+0.000209	+0.2672
(2448802.5)				5.797769	0.3489	2.3626	3.7440
A JUL. 3 (0H)	Y:	+0.0952	+0.00433	+ 8.5380	+0.01917	+0.000080	+0.0815
				1.529922	2.4525	4.9134	5.7631
JUL. 3 (0H)	X:	-0.7994	+0.00013	+27.9566	+0.04474	+0.000098	+0.2683
(2448806.5)				1.054810	1.9366	3.0751	0.4662
A JUL. 7 (0H)	Y:	+0.1124	+0.00417	+ 8.5837	+0.01850	+0.000030	+0.0824
				3.072380	3.9910	6.0931	2.4917
JUL. 7 (0H)	X:	-0.7994	+0.00141	+28.0669	+0.04637	+0.000354	+0.2681
(2448810.5)				2.595108	3.5140	5.8515	3.4751
A JUL.11 (0H)	Y:	+0.1292	+0.00402	+ 8.6274	+0.01813	+0.000098	+0.0829
				4.614493	5.5337	1.4575	5.4985
JUL.11 (0H)	X:	-0.7931	+0.00255	+28.1719	+0.04574	+0.000303	+0.2686
(2448814.5)				4.135514	5.1584	0.8597	0.2020
A JUL.15 (0H)	Y:	+0.1452	+0.00383	+ 8.6695	+0.01734	+0.000157	+0.0830
				6.156310	0.8236	3.1625	2.2196
JUL.15 (0H)	X:	-0.7836	+0.00370	+28.2653	+0.04237	+0.000315	+0.2706
(2448818.5)				5.676249	0.4935	2.0327	3.2108
A JUL.19 (0H)	Y:	+0.1606	+0.00362	+ 8.7080	+0.01600	+0.000219	+0.0832
				1.414773	2.3687	4.8144	5.2274
JUL.19 (0H)	X:	-0.7682	+0.00495	+28.3415	+0.04105	+0.000084	+0.2727
(2448822.5)				0.933801	2.0963	3.8307	6.2172
A JUL.23 (0H)	Y:	+0.1750	+0.00333	+ 8.7425	+0.01476	+0.000139	+0.0836
				2.955967	3.9359	0.3351	1.9566
JUL.23 (0H)	X:	-0.7489	+0.00613	+28.4031	+0.04108	+0.000328	+0.2730
(2448826.5)				2.474478	3.6712	5.4938	2.9390
A JUL.27 (0H)	Y:	+0.1884	+0.00310	+ 8.7730	+0.01366	+0.000185	+0.0841
				4.496746	5.4880	1.6239	4.9670
JUL.27 (0H)	X:	-0.7238	+0.00722	+28.4551	+0.04100	+0.000429	+0.2720
(2448830.5)				4.015085	5.3095	0.6653	5.9448
A JUL.31 (0H)	Y:	+0.2008	+0.00278	+ 8.7994	+0.01289	+0.000292	+0.0845
				6.037043	0.7930	3.3395	1.6871
JUL.31 (0H)	X:	-0.6956	+0.00828	+28.4949	+0.03783	+0.000517	+0.2720
(2448834.5)				5.555847	0.6846	2.0322	2.6702
A AOU. 4 (0H)	Y:	+0.2119	+0.00247	+ 8.8216	+0.01117	+0.000324	+0.0847
				1.293856	2.4031	4.8859	4.6878
AOU. 4 (0H)	X:	-0.6619	+0.00942	+28.5149	+0.03645	+0.000326	+0.2732
(2448838.5)				0.813289	2.3112	4.2708	5.6803
A AOU. 8 (0H)	Y:	+0.2218	+0.00210	+ 8.8379	+0.00942	+0.000250	+0.0846
				2.833390	4.0489	0.4351	1.4097
AOU. 8 (0H)	X:	-0.6246	+0.01027	+28.5197	+0.03513	+0.000387	+0.2742
(2448842.5)				2.353699	3.9200	5.4662	2.4042
A AOU.12 (0H)	Y:	+0.2302	+0.00180	+ 8.8481	+0.00777	+0.000235	+0.0846
				4.372420	5.6859	1.8522	4.4196

1992 COORDONNEES EQUATORIALES DIFFERENTIELLES

DU SATELLITE 1 DE SATURNE: MIMAS N=6.667

		A0	A1	B0 F0	B1 F1	B2 F2	C0 P0
AOU.12 (OH)	X:	-0.5832	+0.01117	+28.5111	+0.03486	+0.000633	+0.2738
(2448846.5)				3.893870	5.5378	0.7293	5.4063
A AOU.16 (OH)	Y:	+0.2375	+0.00140	+ 8.8521	+0.00709	+0.000364	+0.0847
				5.910820	1.0501	3.4474	1.1431
AOU.16 (OH)	X:	-0.5389	+0.01194	+28.4912	+0.03361	+0.000677	+0.2726
(2448850.5)				5.433929	0.9492	2.2787	2.1251
A AOU.20 (OH)	Y:	+0.2430	+0.00104	+ 8.8516	+0.00604	+0.000340	+0.0850
				1.165570	2.9124	4.9920	4.1434
AOU.20 (OH)	X:	-0.4907	+0.01272	+28.4529	+0.03271	+0.000645	+0.2718
(2448854.5)				0.690579	2.6123	4.3850	5.1321
A AOU.24 (OH)	Y:	+0.2472	+0.00066	+ 8.8442	+0.00532	+0.000286	+0.0850
				2.703077	4.9015	0.4532	0.8585
AOU.24 (OH)	X:	-0.4400	+0.01315	+28.4001	+0.03155	+0.000475	+0.2717
(2448858.5)				2.230062	4.2829	5.8488	1.8587
A AOU.28 (OH)	Y:	+0.2497	+0.00031	+ 8.8295	+0.00538	+0.000238	+0.0846
				4.239978	0.5797	2.0751	3.8604
AOU.28 (OH)	X:	-0.3874	+0.01373	+28.3322	+0.03047	+0.000754	+0.2716
(2448862.5)				3.769172	5.9021	0.9235	4.8636
A SEP. 1 (OH)	Y:	+0.2511	-0.00008	+ 8.8077	+0.00581	+0.000334	+0.0841
				5.776151	2.3195	3.4895	0.5817
SEP. 1 (OH)	X:	-0.3323	+0.01407	+28.2549	+0.03181	+0.000774	+0.2711
(2448866.5)				5.307878	1.2952	2.6762	1.5790
A SEP. 5 (OH)	Y:	+0.2505	-0.00043	+ 8.7814	+0.00776	+0.000282	+0.0838
				1.028512	4.0675	5.0428	3.5843
SEP. 5 (OH)	X:	-0.2760	+0.01437	+28.1640	+0.03237	+0.000831	+0.2698
(2448870.5)				0.563112	2.9919	4.5374	4.5779
A SEP. 9 (OH)	Y:	+0.2490	-0.00077	+ 8.7485	+0.00990	+0.000238	+0.0839
				2.563653	5.8272	0.3277	0.2996
SEP. 9 (OH)	X:	-0.2184	+0.01439	+28.0597	+0.03267	+0.000594	+0.2681
(2448874.5)				2.101089	4.6946	0.0175	1.2994
A SEP.13 (OH)	Y:	+0.2457	-0.00111	+ 8.7080	+0.01162	+0.000206	+0.0837
				4.098096	1.2101	2.1799	3.2961
SEP.13 (OH)	X:	-0.1611	+0.01458	+27.9420	+0.03150	+0.000671	+0.2666
(2448878.5)				3.638577	0.0631	1.2143	4.3061
A SEP.17 (OH)	Y:	+0.2414	-0.00144	+ 8.6610	+0.01265	+0.000223	+0.0829
				5.631765	2.8233	3.4431	0.0095
SEP.17 (OH)	X:	-0.1023	+0.01445	+27.8173	+0.03367	+0.000796	+0.2659
(2448882.5)				5.175438	1.6589	3.0640	1.0246
A SEP.21 (OH)	Y:	+0.2354	-0.00171	+ 8.6101	+0.01452	+0.000190	+0.0820
				0.881516	4.3806	4.8839	3.0073
SEP.21 (OH)	X:	-0.0450	+0.01430	+27.6862	+0.03642	+0.000776	+0.2655
(2448886.5)				0.428789	3.3359	4.7292	4.0210
A SEP.25 (OH)	Y:	+0.2287	-0.00197	+ 8.5542	+0.01689	+0.000174	+0.0815
				2.414028	5.9849	6.1974	6.0060
SEP.25 (OH)	X:	+0.0126	+0.01402	+27.5433	+0.03807	+0.000654	+0.2642
(2448890.5)				1.964873	5.0195	0.2920	0.7346
A SEP.29 (OH)	Y:	+0.2206	-0.00225	+ 8.4918	+0.01852	+0.000170	+0.0812
				3.945822	1.2851	1.9715	2.7204
SEP.29 (OH)	X:	+0.0681	+0.01379	+27.3905	+0.03805	+0.000489	+0.2615
(2448894.5)				3.500374	0.3951	1.7303	3.7352
A OCT. 3 (OH)	Y:	+0.2117	-0.00244	+ 8.4247	+0.01973	+0.000123	+0.0807
				5.476849	2.8651	3.1923	5.7140
OCT. 3 (OH)	X:	+0.1240	+0.01329	+27.2333	+0.03900	+0.000674	+0.2592
(2448898.5)				5.035141	1.9542	3.3976	0.4537
A OCT. 7 (OH)	Y:	+0.2017	-0.00264	+ 8.3542	+0.02084	+0.000146	+0.0798
				0.723937	4.4134	4.3731	2.4209

1992 COORDONNEES EQUATORIALES DIFFERENTIELLES

DU SATELLITE 1 DE SATURNE: MIMAS N=6.667

		AO	A1	BO FO	B1 F1	B2 F2	CO PO
OCT. 7 (OH)	X:	+0.1764	+0.01281	+27.0765	+0.04276	+0.000530	+0.2582
(2448902.5)				0.286349	3.5743	4.9858	3.4527
A OCT.11 (OH)	Y:	+0.1913	-0.00279	+ 8.2812	+0.02261	+0.000161	+0.0787
				2.253709	5.9689	5.7642	5.4122
OCT.11 (OH)	X:	+0.2283	+0.01233	+26.9112	+0.04490	+0.000509	+0.2579
(2448906.5)				1.820344	5.2253	0.3851	0.1654
A OCT.15 (OH)	Y:	+0.1799	-0.00297	+ 8.2040	+0.02386	+0.000165	+0.0779
				3.782852	1.2425	1.6237	2.1246
OCT.15 (OH)	X:	+0.2771	+0.01174	+26.7402	+0.04593	+0.000387	+0.2563
(2448910.5)				3.353707	0.5711	2.3926	3.1599
A OCT.19 (OH)	Y:	+0.1681	-0.00304	+ 8.1242	+0.02500	+0.000078	+0.0773
				5.311315	2.8061	3.0005	5.1205
OCT.19 (OH)	X:	+0.3247	+0.01106	+26.5679	+0.04571	+0.000410	+0.2533
(2448914.5)				4.886375	2.1395	3.6854	6.1548
A OCT.23 (OH)	Y:	+0.1559	-0.00316	+ 8.0422	+0.02540	+0.000143	+0.0767
				0.555907	4.3621	4.0402	1.8272
OCT.23 (OH)	X:	+0.3682	+0.01041	+26.4001	+0.04860	+0.000254	+0.2506
(2448918.5)				0.135438	3.7137	5.1599	2.8680
A OCT.27 (OH)	Y:	+0.1432	-0.00322	+ 7.9599	+0.02625	+0.000151	+0.0758
				2.083102	5.8925	5.7679	4.8122
OCT.27 (OH)	X:	+0.4105	+0.00979	+26.2283	+0.05078	+0.000264	+0.2495
(2448922.5)				1.667365	5.3341	0.0594	5.8658
A OCT.31 (OH)	Y:	+0.1303	-0.00329	+ 7.8763	+0.02721	+0.000157	+0.0749
				3.609859	1.1515	1.5140	1.5159
OCT.31 (OH)	X:	+0.4492	+0.00896	+26.0548	+0.05219	+0.000330	+0.2469
(2448926.5)				3.198678	0.6458	2.6761	2.5785
A NOV. 4 (OH)	Y:	+0.1171	-0.00327	+ 7.7918	+0.02812	+0.000068	+0.0739
				5.136098	2.7062	3.5441	4.5085
NOV. 4 (OH)	X:	+0.4854	+0.00828	+25.8829	+0.05179	+0.000153	+0.2473
(2448930.5)				4.729419	2.2296	4.1229	5.5699
A NOV. 8 (OH)	Y:	+0.1040	-0.00333	+ 7.7063	+0.02803	+0.000084	+0.0730
				0.378596	4.2679	4.0827	1.2185
NOV. 8 (OH)	X:	+0.5182	+0.00753	+25.7169	+0.05246	+0.000111	+0.2447
(2448934.5)				6.259705	3.7851	4.1692	2.2759
A NOV.12 (OH)	Y:	+0.0905	-0.00331	+ 7.6226	+0.02795	+0.000100	+0.0724
				1.903695	5.7874	6.2436	4.2060
NOV.12 (OH)	X:	+0.5487	+0.00684	+25.5530	+0.05429	+0.000238	+0.2423
(2448938.5)				1.506561	5.3707	5.3814	5.2685
A NOV.16 (OH)	Y:	+0.0774	-0.00330	+ 7.5404	+0.02861	+0.000095	+0.0718
				3.428602	1.0369	1.8431	0.9062
NOV.16 (OH)	X:	+0.5758	+0.00595	+25.3905	+0.05570	+0.000263	+0.2409
(2448942.5)				3.036119	0.6565	2.2627	1.9822
A NOV.20 (OH)	Y:	+0.0640	-0.00325	+ 7.4582	+0.02908	+0.000085	+0.0709
				4.953232	2.5887	4.2810	3.8914
NOV.20 (OH)	X:	+0.5997	+0.00535	+25.2314	+0.05590	+0.000068	+0.2399
(2448946.5)				4.565257	2.2446	4.3326	4.9775
A NOV.24 (OH)	Y:	+0.0512	-0.00325	+ 7.3766	+0.02871	+0.000037	+0.0699
				0.194293	4.1496	0.1520	0.5975
NOV.24 (OH)	X:	+0.6211	+0.00454	+25.0778	+0.05450	+0.000247	+0.2387
(2448950.5)				6.093931	3.8038	3.7931	1.6830
A NOV.28 (OH)	Y:	+0.0379	-0.00318	+ 7.2977	+0.02793	+0.000074	+0.0689
				1.718091	5.6695	1.2560	3.5877
NOV.28 (OH)	X:	+0.6392	+0.00384	+24.9323	+0.05566	+0.000288	+0.2371
(2448954.5)				1.339212	5.3553	5.4066	4.6692
A DEC. 2 (OH)	Y:	+0.0254	-0.00313	+ 7.2222	+0.02818	+0.000076	+0.0684
				3.241931	0.9119	3.4090	0.2923

1992 COORDONNEES EQUATORIALES DIFFERENTIELLES

DU SATELLITE 1 DE SATURNE: MIMAS N=6.667

		A0	A1	B0 F0	B1 F1	B2 F2	C0 P0
DEC. 2 (OH) (2448958.5)	X:	+0.6547	+0.00303	+24.7905 2.867411	+0.05711 0.6286	+0.000330 1.8180	+0.2352 1.3764
A DEC. 6 (OH)	Y:	+0.0126	-0.00308	+ 7.1475 4.765773	+0.02810 2.4625	+0.000101 4.9702	+0.0680 3.2778
DEC. 6 (OH) (2448962.5)	X:	+0.6666	+0.00247	+24.6529 4.395320	+0.05781 2.2132	+0.000192 3.9181	+0.2333 4.3721
A DEC.10 (OH)	Y:	+0.0004	-0.00302	+ 7.0746 0.006256	+0.02746 4.0163	+0.000144 0.6406	+0.0673 6.2627
DEC.10 (OH) (2448966.5)	X:	+0.6769	+0.00167	+24.5207 5.922820	+0.05531 3.7863	+0.000294 4.1416	+0.2322 1.0828
A DEC.14 (OH)	Y:	-0.0118	-0.00294	+ 7.0048 1.529756	+0.02624 5.5447	+0.000133 2.2372	+0.0663 2.9655
DEC.14 (OH) (2448970.5)	X:	+0.6831	+0.00102	+24.4008 1.166951	+0.05548 5.3128	+0.000275 6.0737	+0.2317 4.0713
A DEC.18 (OH)	Y:	-0.0233	-0.00286	+ 6.9392 3.053484	+0.02586 0.7815	+0.000148 4.0768	+0.0654 5.9539
DEC.18 (OH) (2448974.5)	X:	+0.6876	+0.00035	+24.2864 2.694245	+0.05717 0.5823	+0.000365 1.9112	+0.2312 0.7745
A DEC.22 (OH)	Y:	-0.0350	-0.00281	+ 6.8750 4.577501	+0.02529 2.3264	+0.000117 5.6167	+0.0650 2.6612
DEC.22 (OH) (2448978.5)	X:	+0.6885	-0.00022	+24.1760 4.221337	+0.05787 2.1623	+0.000403 3.9464	+0.2296 3.7642
A DEC.26 (OH)	Y:	-0.0462	-0.00270	+ 6.8132 6.101596	+0.02445 3.8668	+0.000190 0.7231	+0.0647 5.6506
DEC.26 (OH) (2448982.5)	X:	+0.6882	-0.00095	+24.0715 5.748119	+0.05543 3.7497	+0.000262 4.9664	+0.2276 0.4742
A DEC.30 (OH)	Y:	-0.0571	-0.00263	+ 6.7543 1.342670	+0.02308 5.4039	+0.000190 2.5535	+0.0641 2.3529
DEC.30 (OH) (2448986.5)	X:	+0.6836	-0.00152	+23.9811 0.991568	+0.05442 5.2734	+0.000315 0.6532	+0.2265 3.4671
A JAN. 3 (OH)	Y:	-0.0675	-0.00254	+ 6.6993 2.867281	+0.02196 0.6356	+0.000172 4.2825	+0.0633 5.3374

1992 COORDONNEES EQUATORIALES DIFFERENTIELLES

DU SATELLITE 2 DE SATURNE: ENCELADE N=4.586

		A0	A1	B0 F0	B1 F1	B2 F2	C0 P0
JAN. 1 (OH)	X:	-0.2183	-0.00006	+30.1901	+0.08340	+0.000299	+0.0734
(2448622.5)				0.591474	5.0460	0.6822	5.8636
A JAN.17 (OH)	Y:	+0.0173	+0.00033	+10.6993	+0.03366	+0.000098	+0.0256
				2.469180	0.0276	3.5053	1.4639
JAN.17 (OH)	X:	-0.2197	+0.00021	+29.9535	+0.08037	+0.000314	+0.0731
(2448638.5)				4.809544	3.1159	5.0376	1.6737
A FEV. 2 (OH)	Y:	+0.0220	+0.00027	+10.3056	+0.03059	+0.000118	+0.0248
				0.415393	4.2713	1.3540	3.5700
FEV. 1 (OH)	X:	-0.2184	+0.00010	+29.8972	+0.07793	+0.000345	+0.0734
(2448653.5)				4.445064	2.8882	4.9660	0.8912
A FEV.17 (OH)	Y:	+0.0258	+0.00029	+ 9.9781	+0.02687	+0.000122	+0.0241
				0.062317	3.9266	0.8322	2.7981
FEV.17 (OH)	X:	-0.2187	+0.00008	+30.0151	+0.07410	+0.000370	+0.0740
(2448669.5)				2.382769	0.9803	3.0173	2.9901
A MAR. 4 (OH)	Y:	+0.0305	+0.00019	+ 9.6817	+0.02256	+0.000139	+0.0235
				4.296212	1.9028	4.9964	4.9128
MAR. 1 (OH)	X:	-0.2189	+0.00008	+30.2386	+0.07004	+0.000310	+0.0748
(2448682.5)				5.421841	4.1755	6.0764	2.7395
A MAR.17 (OH)	Y:	+0.0335	+0.00020	+ 9.4872	+0.01903	+0.000177	+0.0231
				1.062962	4.9785	1.6295	4.6689
MAR.17 (OH)	X:	-0.2170	-0.00018	+30.6742	+0.06685	+0.000328	+0.0763
(2448698.5)				3.366588	2.3112	4.1915	4.8511
A AVR. 2 (OH)	Y:	+0.0371	+0.00025	+ 9.3098	+0.01391	+0.000187	+0.0228
				5.303654	3.0326	5.7750	0.5107
AVR. 1 (OH)	X:	-0.2179	-0.00008	+31.2301	+0.06380	+0.000374	+0.0779
(2448713.5)				3.015361	2.1466	3.9094	4.0887
A AVR.17 (OH)	Y:	+0.0410	+0.00023	+ 9.2137	+0.00928	+0.000193	+0.0227
				4.963442	2.9492	5.4079	6.0402
AVR.17 (OH)	X:	-0.2178	+0.00006	+31.9565	+0.06149	+0.000390	+0.0801
(2448729.5)				0.971100	0.3247	2.0612	6.2132
A MAI 3 (OH)	Y:	+0.0446	+0.00032	+ 9.1958	+0.00625	+0.000205	+0.0228
				2.928946	1.6141	3.2958	1.8920
MAI 1 (OH)	X:	-0.2181	+0.00033	+32.6833	+0.06048	+0.000470	+0.0821
(2448743.5)				2.329562	1.8695	3.6780	2.5807
A MAI 17 (OH)	Y:	+0.0490	+0.00026	+ 9.2552	+0.00822	+0.000184	+0.0231
				4.293480	3.7787	4.5833	4.5483
MAI 17 (OH)	X:	-0.2126	+0.00028	+33.5787	+0.05833	+0.000477	+0.0845
(2448759.5)				0.298026	0.0794	1.8810	4.7211
A JUN. 2 (OH)	Y:	+0.0535	+0.00033	+ 9.4151	+0.01340	+0.000173	+0.0237
				2.265840	2.0979	2.5578	0.4056
JUN. 1 (OH)	X:	-0.2072	+0.00056	+34.4300	+0.05670	+0.000501	+0.0868
(2448774.5)				6.253775	6.2686	1.9420	3.9837
A JUN.17 (OH)	Y:	+0.0586	+0.00032	+ 9.6504	+0.01852	+0.000136	+0.0244
				1.938431	1.9090	2.2037	5.9510
JUN.17 (OH)	X:	-0.1970	+0.00090	+35.2863	+0.05300	+0.000527	+0.0889
(2448790.5)				4.235255	4.5108	0.2899	6.1349
A JUL. 3 (OH)	Y:	+0.0635	+0.00039	+ 9.9797	+0.02303	+0.000070	+0.0254
				6.199436	6.2395	0.3535	1.8122

1992 COORDONNEES EQUATORIALES DIFFERENTIELLES

DU SATELLITE 2 DE SATURNE: ENCELADE N=4.586

		A0	A1	B0 F0	B1 F1	B2 F2	C0 P0
JUL. 1 (OH) (2448804.5)	X:	-0.1855	+0.00130	+35.9280 5.615025	+0.04867 6.1632	+0.000546 2.1044	+0.0906 2.5223
A JUL.17 (OH)	Y:	+0.0691	+0.00028	+10.3146 1.290222	+0.02494 1.3670	+0.000027 2.9391	+0.0263 4.4787
JUL.17 (OH) (2448820.5)	X:	-0.1644	+0.00136	+36.4634 3.605285	+0.04167 4.4954	+0.000626 0.4482	+0.0919 4.6794
A AOU. 2 (OH)	Y:	+0.0740	+0.00030	+10.7113 5.554678	+0.02458 5.6660	+0.000109 2.3632	+0.0273 0.3419
AOU. 1 (OH) (2448835.5)	X:	-0.1429	+0.00165	+36.7202 3.293526	+0.03467 4.6382	+0.000645 0.4610	+0.0922 3.9514
A AOU.17 (OH)	Y:	+0.0786	+0.00017	+11.0530 5.233531	+0.02112 5.3597	+0.000209 2.1624	+0.0281 5.8861
AOU.17 (OH) (2448851.5)	X:	-0.1149	+0.00170	+36.6910 1.284638	+0.03123 3.2592	+0.000679 5.0336	+0.0918 6.1027
A SEP. 2 (OH)	Y:	+0.0812	+0.00013	+11.3349 3.214702	+0.01413 3.3412	+0.000277 0.2643	+0.0287 1.7470
SEP. 1 (OH) (2448866.5)	X:	-0.0675	+0.00166	+36.3856 0.969051	+0.03490 3.5778	+0.000634 4.9784	+0.0907 5.3652
A SEP.17 (OH)	Y:	+0.0828	+0.00000	+11.4834 2.890946	+0.00580 2.8592	+0.000318 0.0171	+0.0289 1.0008
SEP.17 (OH) (2448882.5)	X:	-0.0603	+0.00181	+35.8011 5.234444	+0.04464 2.0405	+0.000609 3.2338	+0.0890 1.2197
A OCT. 3 (OH)	Y:	+0.0822	-0.00011	+11.4979 0.866591	+0.00499 4.7259	+0.000308 4.3432	+0.0287 3.1336
OCT. 1 (OH) (2448896.5)	X:	-0.0357	+0.00156	+35.1244 0.321315	+0.05391 3.7243	+0.000527 4.6834	+0.0871 3.8675
A OCT.17 (OH)	Y:	+0.0809	-0.00027	+11.3885 2.232877	+0.01327 5.8460	+0.000265 5.8529	+0.0282 5.7788
OCT.17 (OH) (2448912.5)	X:	-0.0090	+0.00122	+34.2477 4.572109	+0.06493 1.9416	+0.000426 2.8879	+0.0847 5.9859
A NOV. 2 (OH)	Y:	+0.0764	-0.00024	+11.1397 0.199223	+0.02153 3.8079	+0.000206 3.8382	+0.0275 1.6163
NOV. 1 (OH) (2448927.5)	X:	+0.0120	+0.00100	+33.3911 4.229963	+0.07255 1.7780	+0.000370 2.7303	+0.0825 5.2169
A NOV.17 (OH)	Y:	+0.0723	-0.00033	+10.8128 6.141954	+0.02773 3.4763	+0.000121 3.4838	+0.0265 0.8484
NOV.17 (OH) (2448943.5)	X:	+0.0293	+0.00111	+32.5139 2.182162	+0.07880 6.1752	+0.000282 0.9945	+0.0802 1.0366
A DEC. 3 (OH)	Y:	+0.0662	-0.00031	+10.3940 4.098807	+0.03187 1.4404	+0.000054 1.2969	+0.0254 2.9569
DEC. 1 (OH) (2448957.5)	X:	+0.0439	+0.00095	+31.8236 3.526578	+0.08233 1.3478	+0.000304 2.7962	+0.0784 3.6584
A DEC.17 (OH)	Y:	+0.0620	-0.00043	+ 9.9910 5.449961	+0.03367 2.8109	+0.000049 1.4250	+0.0244 5.5861
DEC.17 (OH) (2448973.5)	X:	+0.0604	+0.00066	+31.1499 1.467952	+0.08336 5.7059	+0.000293 1.0279	+0.0769 5.7548
A JAN. 2 (OH)	Y:	+0.0552	-0.00034	+ 9.5149 3.401496	+0.03412 0.7572	+0.000065 4.8525	+0.0231 1.4095

1992 COORDONNEES EQUATORIALES DIFFERENTIELLES

DU SATELLITE 3 DE SATURNE: TETHYS N=3.328

		A0	A1	B0 F0	B1 F1	B2 F2	C0 P0
JAN. 1 (0H)	X:	-0.0003	+0.00000	+37.4248	+0.07369	+0.000371	+0.0032
(2448622.5)				5.620711	3.6957	5.6011	1.9177
A JAN.17 (0H)	Y:	-0.0009	+0.00000	+13.6856	+0.03354	+0.000110	+0.0012
				1.176538	4.7865	1.7139	3.7711
JAN.17 (0H)	X:	-0.0003	+0.00000	+37.1275	+0.07062	+0.000367	+0.0032
(2448638.5)				2.290223	0.5539	2.4814	1.5371
A FEV. 2 (0H)	Y:	-0.0009	+0.00000	+13.2331	+0.03003	+0.000139	+0.0011
				4.141833	1.4777	4.7336	3.3879
FEV.17 (0H)	X:	-0.0003	+0.00000	+37.1921	+0.06430	+0.000439	+0.0033
(2448669.5)				4.871495	3.5466	5.3843	0.4195
A MAR. 4 (0H)	Y:	-0.0008	+0.00000	+12.5281	+0.02065	+0.000186	+0.0011
				0.467727	4.0669	1.0213	2.3156
MAR. 1 (0H)	X:	-0.0003	+0.00000	+37.4684	+0.06246	+0.000466	+0.0034
(2448682.5)				4.132534	3.0059	4.7785	5.2351
A MAR.17 (0H)	Y:	-0.0008	+0.00000	+12.3145	+0.01588	+0.000205	+0.0011
				6.024326	3.3178	0.2520	0.8472
MAR.17 (0H)	X:	-0.0003	+0.00000	+38.0020	+0.06127	+0.000495	+0.0035
(2448698.5)				0.810023	6.2288	1.6029	4.8753
A AVR. 2 (0H)	Y:	-0.0008	+0.00000	+12.1303	+0.00938	+0.000222	+0.0011
				2.716945	6.2463	3.1741	0.4951
AVR. 1 (0H)	X:	-0.0003	+0.00000	+38.6815	+0.06192	+0.000524	+0.0036
(2448713.5)				0.448527	6.1257	1.4125	4.1537
A AVR.17 (0H)	Y:	-0.0008	+0.00000	+12.0450	+0.00275	+0.000238	+0.0011
				2.368879	5.7315	2.7807	6.0734
AVR.17 (0H)	X:	-0.0003	+0.00000	+39.5742	+0.06427	+0.000553	+0.0038
(2448729.5)				3.419584	3.0892	4.5840	3.8043
A MAI 3 (0H)	Y:	-0.0009	+0.00000	+12.0578	+0.00492	+0.000248	+0.0012
				5.352614	5.8682	5.7285	5.7544
MAI 1 (0H)	X:	-0.0003	+0.00000	+40.4683	+0.06757	+0.000576	+0.0040
(2448743.5)				6.024535	5.9300	1.1230	2.7492
A MAI 17 (0H)	Y:	-0.0009	+0.00000	+12.1629	+0.01187	+0.000245	+0.0012
				1.683387	2.1115	2.0540	4.6917
MAI 17 (0H)	X:	-0.0003	+0.00000	+41.5711	+0.07188	+0.000606	+0.0043
(2448759.5)				2.724899	2.8885	4.3849	2.4236
A JUN. 2 (0H)	Y:	-0.0010	+0.00000	+12.3944	+0.01973	+0.000226	+0.0013
				4.674100	5.0702	5.0755	4.3898
JUN. 1 (0H)	X:	-0.0003	+0.00000	+42.6230	+0.07581	+0.000637	+0.0045
(2448774.5)				2.386714	2.7869	4.3604	1.7609
A JUN.17 (0H)	Y:	-0.0010	+0.00000	+12.7147	+0.02663	+0.000178	+0.0013
				4.339164	4.7248	4.8557	3.7266
JUN.17 (0H)	X:	-0.0004	+0.00000	+43.6790	+0.07868	+0.000688	+0.0046
(2448790.5)				5.383472	6.0339	1.4200	1.4684
A JUL. 3 (0H)	Y:	-0.0011	+0.00000	+13.1498	+0 03237	+0.000108	+0.0014
				1.052396	1.4474	1.9391	3.3865
JUL. 1 (0H)	X:	-0.0004	+0.00000	+44.4701	+0.07971	+0.000734	+0.0047
(2448804.5)				1.727192	2.6066	4.3777	0.4554
A JUL.17 (0H)	Y:	-0.0012	+0.00000	+13.5824	+0.03530	+0.000082	+0.0014
				3.676145	4.0969	5.7794	2.4008

1992 COORDONNEES EQUATORIALES DIFFERENTIELLES

DU SATELLITE 3 DE SATURNE: TETHYS N=3.328

		A0	A1	B0 F0	B1 F1	B2 F2	C0 P0
JUL.17 (OH)	X:	-0.0004	+0.00000	+45.1295	+0.07866	+0.000795	+0.0048
(2448820.5)				4.733402	5.8895	1.4564	0.1587
A AOU. 2 (OH)	Y:	-0.0012	+0.00000	+14.0885	+0.03513	+0.000178	+0.0016
				0.393133	0.8725	3.3084	2.0983
AOU. 1 (OH)	X:	-0.0005	+0.00000	+45.4412	+0.07594	+0.000835	+0.0048
(2448835.5)				4.412188	5.8559	1.4661	5.8017
A AOU.17 (OH)	Y:	-0.0013	+0.00000	+14.5187	+0.03128	+0.000289	+0.0016
				0.065000	0.6408	3.2288	1.4645
AOU.17 (OH)	X:	-0.0004	+0.00000	+45.4011	+0.07210	+0.000860	+0.0047
(2448851.5)				1.137112	2.9179	4.7910	5.5356
A SEP. 2 (OH)	Y:	-0.0014	+0.00000	+14.8662	+0.02382	+0.000374	+0.0016
				3.065713	3.8323	0.0951	1.1790
SEP. 1 (OH)	X:	-0.0005	+0.00000	+45.0182	+0.06906	+0.000841	+0.0046
(2448866.5)				0.813001	2.9418	4.7534	4.8845
A SEP.17 (OH)	Y:	-0.0014	+0.00000	+15.0425	+0.01579	+0.000402	+0.0015
				2.735747	3.9042	6.1588	0.5173
SEP.17 (OH)	X:	-0.0005	+0.00000	+44.2916	+0.06778	+0.000796	+0.0044
(2448882.5)				3.813179	0.0392	1.7500	4.6001
A OCT. 3 (OH)	Y:	-0.0013	+0.00000	+15.0443	+0.01257	+0.000383	+0.0015
				5.731808	1.5289	2.9699	0.2547
OCT. 1 (OH)	X:	-0.0005	+0.00000	+43.4550	+0.06857	+0.000721	+0.0043
(2448896.5)				0.149444	2.9814	4.6076	3.5644
A OCT.17 (OH)	Y:	-0.0013	+0.00000	+14.8896	+0.01768	+0.000327	+0.0015
				2.066779	4.7965	5.6672	5.4599
OCT.17 (OH)	X:	-0.0005	+0.00000	+42.3655	+0.07103	+0.000632	+0.0040
(2448912.5)				3.135645	0.0122	1.5768	3.2371
A NOV. 2 (OH)	Y:	-0.0012	+0.00000	+14.5559	+0.02573	+0.000249	+0.0013
				5.054543	1.8158	2.4434	5.1642
NOV. 1 (OH)	X:	-0.0005	+0.00000	+41.3029	+0.07367	+0.000540	+0.0038
(2448927.5)				2.786263	6.2126	1.4896	2.5362
A NOV.17 (OH)	Y:	-0.0012	+0.00000	+14.1237	+0.03213	+0.000165	+0.0013
				4.709719	1.6102	2.1575	4.4529
NOV.17 (OH)	X:	-0.0005	+0.00000	+40.2123	+0.07579	+0.000465	+0.0036
(2448943.5)				5.757260	3.1419	4.7471	2.2032
A DEC. 3 (OH)	Y:	-0.0011	+0.00001	+13.5754	+0.03675	+0.000085	+0.0012
				1.405752	4.6687	5.1659	4.1523
DEC. 1 (OH)	X:	-0.0005	+0.00000	+39.3481	+0.07658	+0.000411	+0.0035
(2448957.5)				2.068280	5.9243	1.3328	1.1005
A DEC.17 (OH)	Y:	-0.0010	+0.00000	+13.0514	+0.03893	+0.000023	+0.0012
				4.009947	1.0263	1.4686	3.0369
DEC.17 (OH)	X:	-0.0004	+0.00000	+38.5108	+0.07611	+0.000385	+0.0034
(2448973.5)				5.028138	2.7960	4.5949	0.7413
A JAN. 2 (OH)	Y:	-0.0010	+0.00000	+12.4321	+0.03958	+0.000035	+0.0011
				0.701153	4.0167	1.4458	2.7297

1992 COORDONNEES EQUATORIALES DIFFERENTIELLES

DU SATELLITE 4 DE SATURNE: DIONE N=2.296

		A0	A1	B0 F0	B1 F1	B2 F2	C0 P0
JAN. 1 (0H)	X:	-0.0676	-0.00003	+47.8604	+0.11944	+0.000426	+0.0565
(2448622.5)				1.046895	5.4851	0.9971	5.6133
A JAN.17 (0H)	Y:	+0.0528	-0.00012	+16.9359	+0.05065	+0.000133	+0.0197
				2.924784	0.4054	3.5512	1.2150
JAN.17 (0H)	X:	-0.0686	-0.00005	+47.4879	+0.11721	+0.000436	+0.0563
(2448638.5)				0.044909	4.6332	0.1726	3.6205
A FEV. 2 (0H)	Y:	+0.0507	-0.00009	+16.3115	+0.04641	+0.000170	+0.0190
				1.933928	5.7236	2.5693	5.5130
FEV. 1 (0H)	X:	-0.0697	-0.00009	+47.3986	+0.11480	+0.000452	+0.0563
(2448653.5)				3.032432	1.4855	3.3686	3.3216
A FEV.17 (0H)	Y:	+0.0492	-0.00008	+15.7924	+0.04134	+0.000199	+0.0184
				4.932835	2.4651	5.5546	5.2279
FEV.17 (0H)	X:	-0.0712	-0.00012	+47.5859	+0.11134	+0.000483	+0.0568
(2448669.5)				2.031536	0.6471	2.5194	1.3303
A MAR. 4 (0H)	Y:	+0.0477	-0.00006	+15.3222	+0.03498	+0.000228	+0.0180
				3.944719	1.5124	4.5086	3.2497
MAR. 1 (0H)	X:	-0.0731	-0.00009	+47.9466	+0.10858	+0.000526	+0.0574
(2448682.5)				0.434730	5.4733	1.0532	4.4272
A MAR.17 (0H)	Y:	+0.0468	-0.00004	+15.0124	+0.02921	+0.000252	+0.0176
				2.358428	6.2540	2.8457	0.0744
MAR.17 (0H)	X:	-0.0749	-0.00009	+48.6382	+0.10495	+0.000560	+0.0584
(2448698.5)				5.722558	4.6619	0.1895	2.4455
A AVR. 2 (0H)	Y:	+0.0459	-0.00001	+14.7317	+0.02158	+0.000273	+0.0174
				1.375621	5.3860	1.7907	4.3869
AVR. 1 (0H)	X:	-0.0765	-0.00008	+49.5151	+0.10243	+0.000592	+0.0597
(2448713.5)				2.437433	1.5640	3.3998	2.1612
A AVR.17 (0H)	Y:	+0.0455	+0.00000	+14.5806	+0.01465	+0.000294	+0.0174
				4.384440	2.3740	4.7401	4.1134
AVR.17 (0H)	X:	-0.0777	-0.00006	+50.6667	+0.09947	+0.000642	+0.0613
(2448729.5)				1.451996	0.7863	2.6054	0.1924
A MAI 3 (0H)	Y:	+0.0454	+0.00003	+14.5528	+0.01035	+0.000311	+0.0175
				3.408545	2.1041	3.7169	2.1516
MAI 1 (0H)	X:	-0.0785	+0.00000	+51.8179	+0.09714	+0.000675	+0.0630
(2448743.5)				2.165685	1.6969	3.5523	1.6135
A MAI 17 (0H)	Y:	+0.0457	+0.00006	+14.6494	+0.01331	+0.000311	+0.0177
				4.128339	3.5513	4.4126	3.5796
MAI 17 (0H)	X:	-0.0784	+0.00006	+53.2377	+0.09370	+0.000732	+0.0648
(2448759.5)				1.192583	0.9575	2.8412	5.9423
A JUN. 2 (0H)	Y:	+0.0466	+0.00008	+14.9044	+0.02127	+0.000291	+0.0182
				3.158925	2.9514	3.4633	1.6234
JUN. 1 (0H)	X:	-0.0775	+0.00018	+54.5910	+0.08976	+0.000774	+0.0667
(2448774.5)				4.213650	4.2203	6.1762	5.6832
A JUN.17 (0H)	Y:	+0.0478	+0.00011	+15.2789	+0.02937	+0.000234	+0.0187
				6.179968	6.1232	0.2668	1.3668
JUN.17 (0H)	X:	-0.0748	+0.00028	+55.9495	+0.08388	+0.000844	+0.0684
(2448790.5)				3.253963	3.5392	5.5506	3.7426
A JUL. 3 (0H)	Y:	+0.0494	+0.00012	+15.8031	+0.03646	+0.000140	+0.0195
				5.216532	5.2472	5.8743	5.6981

1992 COORDONNEES EQUATORIALES DIFFERENTIELLES

DU SATELLITE 4 DE SATURNE: DIONE N=2.296

		A0	A1	B0 F0	B1 F1	B2 F2	C0 P0
JUL. 1 (OH)	X:	-0.0710	+0.00039	+56.9677	+0.07745	+0.000907	+0.0697
(2448804.5)				3.989988	4.5550	0.3223	5.1861
A JUL.17 (OH)	Y:	+0.0511	+0.00013	+16.3346	+0.04002	+0.000077	+0.0201
				5.946577	6.0352	1.5227	0.8581
JUL.17 (OH)	X:	-0.0651	+0.00047	+57.8172	+0.06921	+0.000977	+0.0705
(2448820.5)				3.040329	3.9790	5.9985	3.2557
A AOU. 2 (OH)	Y:	+0.0529	+0.00012	+16.9656	+0.03966	+0.000198	+0.0210
				4.987905	5.1363	1.6140	5.1930
AOU. 1 (OH)	X:	-0.0579	+0.00049	+58.2210	+0.06266	+0.001014	+0.0708
(2448835.5)				6.079445	1.1643	3.0827	3.0102
A AOU.17 (OH)	Y:	+0.0547	+0.00007	+17.5104	+0.03426	+0.000337	+0.0215
				1.734384	1.9445	4.8847	4.9482
AOU.17 (OH)	X:	-0.0498	+0.00050	+58.1739	+0.06004	+0.001037	+0.0705
(2448851.5)				5.132517	0.7405	2.4587	1.0787
A SEP. 2 (OH)	Y:	+0.0559	+0.00003	+17.9598	+0.02367	+0.000449	+0.0220
				0.777560	1.0759	4.0719	2.9996
SEP. 1 (OH)	X:	-0.0423	+0.00049	+57.6878	+0.06370	+0.001002	+0.0695
(2448866.5)				1.886378	4.2773	5.7911	0.8289
A SEP.17 (OH)	Y:	+0.0564	+0.00000	+18.1994	+0.01038	+0.000488	+0.0221
				3.806510	4.2940	0.9134	2.7477
SEP.17 (OH)	X:	-0.0346	+0.00043	+56.7616	+0.07303	+0.000946	+0.0682
(2448882.5)				0.932361	3.7729	5.1261	5.1666
A OCT. 3 (OH)	Y:	+0.0563	-0.00005	+18.2256	+0.00617	+0.000468	+0.0220
				2.845956	5.8350	0.0471	0.7950
OCT. 1 (OH)	X:	-0.0286	+0.00035	+55.6941	+0.08342	+0.000853	+0.0665
(2448896.5)				1.662986	4.8223	6.1061	0.3138
A OCT.17 (OH)	Y:	+0.0555	-0.00008	+18.0542	+0.01900	+0.000401	+0.0217
				3.573045	0.6206	0.8380	2.2238
OCT.17 (OH)	X:	-0.0234	+0.00027	+54.3036	+0.09497	+0.000758	+0.0648
(2448912.5)				0.695551	4.1401	5.4045	4.6350
A NOV. 2 (OH)	Y:	+0.0540	-0.00011	+17.6624	+0.03176	+0.000306	+0.0210
				2.604392	6.0304	6.2187	0.2613
NOV. 1 (OH)	X:	-0.0194	+0.00016	+52.9468	+0.10425	+0.000640	+0.0629
(2448927.5)				3.708388	1.0934	2.3849	4.3573
A NOV.17 (OH)	Y:	+0.0523	-0.00013	+17.1449	+0.04089	+0.000207	+0.0203
				5.618855	2.8151	2.9508	6.2705
NOV.17 (OH)	X:	-0.0168	+0.00007	+51.5557	+0.11162	+0.000545	+0.0612
(2448943.5)				2.725953	0.3100	1.6844	2.3777
A DEC. 3 (OH)	Y:	+0.0501	-0.00014	+16.4831	+0.04746	+0.000106	+0.0193
				4.641144	1.8726	1.9141	4.2977
DEC. 1 (OH)	X:	-0.0157	+0.00003	+50.4531	+0.11581	+0.000478	+0.0598
(2448957.5)				3.431648	1.1717	2.6582	3.7830
A DEC.17 (OH)	Y:	+0.0480	-0.00014	+15.8474	+0.05052	+0.000038	+0.0186
				5.353412	2.6053	2.1421	5.7100
DEC.17 (OH)	X:	-0.0151	-0.00003	+49.3865	+0.11817	+0.000441	+0.0587
(2448973.5)				2.437860	0.3398	1.9590	1.7929
A JAN. 2 (OH)	Y:	+0.0456	-0.00014	+15.0949	+0.05163	+0.000053	+0.0176
				4.369829	1.6327	5.5018	3.7312

1992 COORDONNEES EQUATORIALES DIFFERENTIELLES

DU SATELLITE 5 DE SATURNE: RHEA N=1.391

		A0	A1	B0 F0	B1 F1	B2 F2	C0 P0
JAN. 1 (OH)	X:	-0.0339	+0.00026	+66.8220	+0.15542	+0.000617	+0.0314
(2448622.5)				4.453695	2.5882	4.2996	2.2404
A JAN.17 (OH)	Y:	-0.0406	+0.00007	+24.0137	+0.06843	+0.000180	+0.0111
				0.047067	3.7601	0.5351	4.1222
JAN.17 (OH)	X:	-0.0299	+0.00024	+66.2993	+0.15374	+0.000612	+0.0311
(2448638.5)				1.540704	6.1220	1.6042	2.7378
A FEV. 2 (OH)	Y:	-0.0395	+0.00005	+23.1408	+0.06267	+0.000231	+0.0107
				3.428861	0.8906	3.9885	4.6341
FEV. 1 (OH)	X:	-0.0261	+0.00023	+66.1748	+0.15133	+0.000643	+0.0310
(2448653.5)				3.521721	1.9742	3.7648	0.4575
A FEV.17 (OH)	Y:	-0.0386	+0.00005	+22.4165	+0.05577	+0.000275	+0.0104
				5.421733	2.9114	5.9630	2.3628
FEV.17 (OH)	X:	-0.0224	+0.00021	+66.4334	+0.14816	+0.000675	+0.0310
(2448669.5)				0.609145	5.5163	1.0313	0.9548
A MAR. 4 (OH)	Y:	-0.0379	+0.00003	+21.7624	+0.04702	+0.000315	+0.0100
				2.522461	0.0511	3.0277	2.8776
MAR. 1 (OH)	X:	-0.0196	+0.00019	+66.9354	+0.14557	+0.000719	+0.0312
(2448682.5)				6.098239	4.8676	0.3851	5.6826
A MAR.17 (OH)	Y:	-0.0375	+0.00002	+21.3330	+0.03905	+0.000348	+0.0098
				1.739312	5.6002	2.1917	1.3317
MAR.17 (OH)	X:	-0.0163	+0.00017	+67.8995	+0.14209	+0.000766	+0.0315
(2448698.5)				3.190621	2.1481	3.9210	6.1906
A AVR. 2 (OH)	Y:	-0.0371	+0.00001	+20.9468	+0.02845	+0.000379	+0.0096
				5.127956	2.8254	5.5171	1.8493
AVR. 1 (OH)	X:	-0.0139	+0.00014	+69.1235	+0.13949	+0.000827	+0.0319
(2448713.5)				5.181106	4.3260	6.1134	3.9186
A AVR.17 (OH)	Y:	-0.0370	+0.00000	+20.7428	+0.01881	+0.000413	+0.0094
				0.846464	5.1066	1.1831	5.8708
AVR.17 (OH)	X:	-0.0115	+0.00009	+70.7295	+0.13641	+0.000889	+0.0322
(2448729.5)				2.282960	1.6393	3.4238	4.4316
A MAI 3 (OH)	Y:	-0.0372	-0.00002	+20.7126	+0.01326	+0.000436	+0.0094
				4.241510	3.0066	4.5349	0.1110
MAI 1 (OH)	X:	-0.0103	+0.00005	+72.3359	+0.13376	+0.000948	+0.0327
(2448743.5)				2.893746	2.4480	4.2614	5.6707
A MAI 17 (OH)	Y:	-0.0376	-0.00004	+20.8560	+0.01845	+0.000436	+0.0094
				4.858733	4.3585	5.1424	1.3543
MAI 17 (OH)	X:	-0.0094	-0.00003	+74.3165	+0.13004	+0.001033	+0.0335
(2448759.5)				0.007794	6.0849	1.6582	6.1920
A JUN. 2 (OH)	Y:	-0.0385	-0.00006	+21.2223	+0.03008	+0.000409	+0.0095
				1.976791	1.8159	2.2877	1.8789
JUN. 1 (OH)	X:	-0.0098	-0.00005	+76.2060	+0.12525	+0.001118	+0.0338
(2448774.5)				2.021033	2.0604	3.9637	3.9337
A JUN.17 (OH)	Y:	-0.0396	-0.00007	+21.7547	+0.04163	+0.000327	+0.0097
				3.990203	3.9662	4.3989	5.9008
JUN.17 (OH)	X:	-0.0109	-0.00016	+78.1020	+0.11865	+0.001221	+0.0344
(2448790.5)				5.431879	5.7594	1.4168	4.4727
A JUL. 3 (OH)	Y:	-0.0409	-0.00009	+22.4961	+0.05152	+0.000204	+0.0100
				1.114241	1.1745	1.8621	0.1530

1992 COORDONNEES EQUATORIALES DIFFERENTIELLES

DU SATELLITE 5 DE SATURNE: RHEA N=1.391

		A0	A1	B0 F0	B1 F1	B2 F2	C0 P0
JUL. 1 (OH)	X:	-0.0127	-0.00020	+79.5227	+0.11187	+0.001307	+0.0348
(2448804.5)				6.065329	0.3960	2.3624	5.7243
A JUL.17 (OH)	Y:	-0.0423	-0.00008	+23.2451	+0.05652	+0.000134	+0.0104
				1.741716	1.8631	3.6069	1.3938
JUL.17 (OH)	X:	-0.0162	-0.00020	+80.7094	+0.10350	+0.001393	+0.0350
(2448820.5)				3.203538	4.1889	6.1160	6.2484
A AOU. 2 (OH)	Y:	-0.0439	-0.00008	+24.1317	+0.05593	+0.000284	+0.0105
				5.154029	5.3460	1.6943	1.9141
AOU. 1 (OH)	X:	-0.0188	-0.00023	+81.2732	+0.09774	+0.001424	+0.0351
(2448835.5)				5.235745	0.3412	2.1989	4.0091
A AOU.17 (OH)	Y:	-0.0450	-0.00005	+24.8940	+0.04867	+0.000485	+0.0110
				0.893505	1.1652	3.9890	5.9506
AOU.17 (OH)	X:	-0.0229	-0.00017	+81.2080	+0.09562	+0.001440	+0.0355
(2448851.5)				2.377427	4.2272	5.9520	4.5401
A SEP. 2 (OH)	Y:	-0.0461	-0.00001	+25.5204	+0.03414	+0.000631	+0.0112
				4.308330	4.7150	1.2784	0.1796
SEP. 1 (OH)	X:	-0.0251	-0.00015	+80.5301	+0.09916	+0.001385	+0.0352
(2448866.5)				4.408282	0.4109	2.0104	2.2868
A SEP.17 (OH)	Y:	-0.0463	+0.00002	+25.8502	+0.01676	+0.000684	+0.0114
				0.047796	0.7872	3.4152	4.2096
SEP.17 (OH)	X:	-0.0278	-0.00005	+79.2370	+0.10753	+0.001316	+0.0350
(2448882.5)				1.543602	4.2455	5.7291	2.8263
A OCT. 3 (OH)	Y:	-0.0460	+0.00004	+25.8786	+0.01106	+0.000655	+0.0115
				3.459689	5.9915	0.6440	4.7391
OCT. 1 (OH)	X:	-0.0286	-0.00001	+77.7468	+0.11713	+0.001201	+0.0346
(2448896.5)				2.173424	5.1927	0.3260	4.0708
A OCT.17 (OH)	Y:	-0.0453	+0.00007	+25.6305	+0.02673	+0.000561	+0.0114
				4.085982	0.9280	1.3550	5.9831
OCT.17 (OH)	X:	-0.0288	+0.00009	+75.8057	+0.12864	+0.001070	+0.0340
(2448912.5)				5.578992	2.6179	4.0111	4.5840
A NOV. 2 (OH)	Y:	-0.0443	+0.00009	+25.0720	+0.04379	+0.000431	+0.0112
				1.207230	4.5064	4.8394	0.2121
NOV. 1 (OH)	X:	-0.0276	+0.00011	+73.9114	+0.13800	+0.000935	+0.0334
(2448927.5)				1.303318	4.8668	6.2746	2.3231
A NOV.17 (OH)	Y:	-0.0428	+0.00010	+24.3388	+0.05631	+0.000286	+0.0109
				3.216579	0.3151	0.6102	4.2407
NOV.17 (OH)	X:	-0.0257	+0.00019	+71.9685	+0.14577	+0.000825	+0.0329
(2448943.5)				4.694002	2.1945	3.6524	2.8308
A DEC. 3 (OH)	Y:	-0.0413	+0.00011	+23.4032	+0.06517	+0.000152	+0.0106
				0.329095	3.7626	4.0478	4.7508
DEC. 1 (OH)	X:	-0.0234	+0.00022	+70.4294	+0.15039	+0.000731	+0.0324
(2448957.5)				5.299121	2.9734	4.5072	4.0592
A DEC.17 (OH)	Y:	-0.0397	+0.00011	+22.5065	+0.06941	+0.000045	+0.0102
				0.941150	4.4046	4.6036	5.9870
DEC.17 (OH)	X:	-0.0199	+0.00022	+68.9382	+0.15304	+0.000670	+0.0319
(2448973.5)				2.395038	0.2503	1.8614	4.5653
A JAN. 2 (OH)	Y:	-0.0379	+0.00011	+21.4462	+0.07081	+0.000054	+0.0098
				4.330968	1.5308	5.1740	0.2265

1992 COORDONNEES EQUATORIALES DIFFERENTIELLES

DU SATELLITE 6 DE SATURNE: TITAN N=0.394

		A0	A1	B0 F0	B1 F1	C0 P0
JAN. 1 (OH)	X:	- 5.8534	+ 0.72458	+158.2629	+ 0.98073	+1.7742
(2448622.5)				1.534247	5.9758	2.6648
A JAN.12 (OH)	Y:	+ 0.0078	- 0.30809	+ 54.0734	+ 0.30522	+0.6012
				3.432441	1.8809	4.4608
JAN.12 (OH)	X:	- 2.7858	+ 0.21465	+152.4282	+ 0.19020	+2.2409
(2448633.5)				5.829016	5.2127	5.1301
A JAN.23 (OH)	Y:	+ 0.2039	- 0.36511	+ 50.4389	+ 0.22100	+0.7760
				1.411194	2.9358	0.8331
JAN.23 (OH)	X:	- 1.1451	- 0.04827	+154.9588	+ 0.49090	+2.3714
(2448644.5)				3.860185	1.8042	1.0121
A FEV. 3 (OH)	Y:	- 0.1457	- 0.31456	+ 52.6627	+ 0.39032	+0.8214
				5.727602	2.8363	2.8547
FEV. 1 (OH)	X:	- 7.7241	+ 1.01050	+158.1692	+ 1.19149	+1.6796
(2448653.5)				1.128866	5.6925	1.8903
A FEV.12 (OH)	Y:	- 1.3836	- 0.02079	+ 50.4632	+ 0.19206	+0.6062
				3.009442	0.7542	3.8089
FEV.12 (OH)	X:	- 7.4818	+ 1.04166	+147.8546	+ 0.90650	+2.4460
(2448664.5)				5.429684	5.3825	4.3940
A FEV.23 (OH)	Y:	- 0.4899	- 0.18698	+ 47.9256	+ 0.09932	+0.7156
				1.021821	2.6449	0.0281
FEV.23 (OH)	X:	- 6.7347	+ 0.97045	+155.0028	+ 0.57266	+2.3671
(2448675.5)				3.405573	6.0741	0.1257
A MAR. 5 (OH)	Y:	- 0.2593	- 0.24373	+ 49.5751	+ 0.29593	+0.7672
				5.340769	2.4990	2.1266
MAR. 1 (OH)	X:	+ 3.5127	- 0.88316	+156.7584	+ 0.53115	+1.9943
(2448682.5)				6.151480	2.6986	6.0084
A MAR.12 (OH)	Y:	- 1.6560	- 0.04643	+ 47.5216	+ 0.08607	+0.6518
				1.814666	4.5675	1.6044
MAR.12 (OH)	X:	+ 4.6209	- 1.09543	+161.7592	+ 1.20477	+2.6950
(2448693.5)				4.246269	2.6602	1.8808
A MAR.23 (OH)	Y:	- 2.3149	+ 0.06960	+ 47.1251	+ 0.14312	+0.7422
				6.160536	4.4037	3.8369
MAR.23 (OH)	X:	+ 4.4006	- 1.07711	+152.1521	+ 1.10149	+1.9799
(2448704.5)				2.265478	2.3169	4.0550
A AVR. 3 (OH)	Y:	- 2.6596	+ 0.13943	+ 45.5283	+ 0.09130	+0.6253
				4.175749	5.2032	6.0561
AVR. 1 (OH)	X:	- 1.0866	+ 0.07247	+159.2879	+ 0.30638	+2.2947
(2448713.5)				5.776472	5.8559	5.1854
A AVR.12 (OH)	Y:	- 0.1320	- 0.29295	+ 44.6478	+ 0.21982	+0.6857
				1.423518	2.6104	0.9357
AVR.12 (OH)	X:	+ 0.8801	- 0.26288	+164.8357	+ 0.47263	+2.5969
(2448724.5)				3.828085	2.3986	1.0996
A AVR.23 (OH)	Y:	- 0.4042	- 0.26573	+ 47.3952	+ 0.23029	+0.7466
				5.749513	2.8835	2.9830
AVR.23 (OH)	X:	+ 3.2920	- 0.70428	+160.5799	+ 0.90597	+2.1326
(2448735.5)				1.865989	1.9621	3.3683
A MAI 4 (OH)	Y:	- 0.9986	- 0.16586	+ 46.1912	+ 0.19250	+0.5603
				3.833342	3.0287	5.4072

1992 COORDONNEES EQUATORIALES DIFFERENTIELLES

DU SATELLITE 6 DE SATURNE: TITAN N=0.394

		AO	A1	BO FO	B1 F1	CO PO
MAI 1 (OH)	X:	- 6.4582	+ 0.83603	+162.0916	+ 0.99237	+2.6241
(2448743.5)				5.011883	5.1982	3.6774
A MAI 12 (OH)	Y:	- 2.3109	+ 0.14066	+ 46.3481	+ 0.18597	+0.7409
				0.696250	0.0173	5.5652
MAI 12 (OH)	X:	- 7.5339	+ 1.07311	+172.7395	+ 0.70094	+2.7021
(2448754.5)				3.009871	5.3262	5.7449
A MAI 23 (OH)	Y:	- 1.6977	+ 0.02542	+ 46.8834	+ 0.07568	+0.6889
				5.000305	6.0604	1.4675
MAI 23 (OH)	X:	- 7.0561	+ 1.08922	+178.7090	+ 0.96229	+1.9452
(2448765.5)				1.123616	6.0424	2.0322
A JUN. 3 (OH)	Y:	- 0.7633	- 0.14911	+ 47.6117	+ 0.20686	+0.5799
				3.081460	2.4080	3.9419
JUN. 1 (OH)	X:	+ 0.0689	- 0.39673	+177.8197	+ 0.52759	+2.8648
(2448774.5)				4.655465	3.8199	2.8486
A JUN.12 (OH)	Y:	- 3.7990	+ 0.35822	+ 48.5326	+ 0.37905	+0.8380
				0.366931	5.9062	4.8503
JUN.12 (OH)	X:	- 2.4802	+ 0.04136	+179.0612	+ 0.50899	+2.5751
(2448785.5)				2.687016	3.7363	5.0916
A JUN.23 (OH)	Y:	- 3.5205	+ 0.31777	+ 47.7772	+ 0.35533	+0.6880
				4.638695	5.5303	0.6706
JUN.23 (OH)	X:	- 5.3744	+ 0.62379	+185.5005	+ 0.43981	+2.1805
(2448796.5)				0.773013	5.7916	1.3548
A JUL. 4 (OH)	Y:	- 2.5753	+ 0.15614	+ 51.6086	+ 0.03198	+0.6335
				2.701944	0.3994	3.3770
JUL. 1 (OH)	X:	+ 3.2997	- 0.73376	+187.9671	+ 0.47631	+3.0682
(2448804.5)				3.933802	2.4569	1.3435
A JUL.12 (OH)	Y:	- 0.8374	- 0.23976	+ 52.9357	+ 0.08863	+0.8441
				5.850856	2.8125	3.2008
JUL.12 (OH)	X:	+ 4.7185	- 1.08013	+179.6046	+ 1.16531	+2.3979
(2448815.5)				1.984102	2.5463	3.5827
A JUL.23 (OH)	Y:	- 1.9379	- 0.05850	+ 52.8156	+ 0.22269	+0.6840
				3.927869	3.9601	5.6016
JUL.23 (OH)	X:	+ 5.3535	- 1.25065	+189.5529	+ 1.20613	+2.4438
(2448826.5)				0.000010	2.3102	0.0869
A AOU. 3 (OH)	Y:	- 2.8844	+ 0.11201	+ 55.3405	+ 0.05510	+0.7112
				1.968962	3.7930	1.9197
AOU. 1 (OH)	X:	- 4.3667	+ 0.61936	+189.4069	+ 0.77940	+2.9144
(2448835.5)				3.579444	5.8977	0.5814
A AOU.12 (OH)	Y:	+ 0.2845	- 0.41465	+ 57.7598	+ 0.26062	+0.9409
				5.506966	2.3724	2.4919
AOU.12 (OH)	X:	- 0.8678	- 0.05496	+187.3914	+ 0.20054	+2.3571
(2448846.5)				1.670077	2.2853	3.0417
A AOU.23 (OH)	Y:	- 0.4447	- 0.32044	+ 56.7498	+ 0.30062	+0.6492
				3.623509	2.9754	4.9424
AOU.23 (OH)	X:	+ 2.7434	- 0.70240	+189.0102	+ 0.91812	+2.5193
(2448857.5)				5.985585	2.0143	5.6585
A SEP. 3 (OH)	Y:	- 0.9075	- 0.25722	+ 56.0836	+ 0.29065	+0.8439
				1.636642	2.7844	1.2897

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DU SATELLITE 6 DE SATURNE: TITAN N=0.394

		A0	A1	B0 F0	B1 F1	C0 P0
SEP. 1 (OH)	X:	- 9.2681	+ 1.33472	+188.2045	+ 1.42314	+2.9108
(2448866.5)				3.242965	5.7048	6.1376
A SEP.12 (OH)	Y:	- 0.8674	- 0.16809	+ 58.9188	+ 0.17177	+0.9021
				5.188537	1.7326	1.8445
SEP.12 (OH)	X:	- 6.9913	+ 0.94554	+189.3498	+ 0.78298	+2.0989
(2448877.5)				1.365713	5.5013	2.4619
A SEP.23 (OH)	Y:	- 0.4965	- 0.26525	+ 57.9586	+ 0.20005	+0.6724
				3.289965	2.3529	4.2723
SEP.23 (OH)	X:	- 4.3143	+ 0.54935	+179.0387	+ 0.44019	+2.7634
(2448888.5)				5.694395	0.4507	4.9595
A OCT. 4 (OH)	Y:	+ 0.2573	- 0.41818	+ 55.4787	+ 0.37024	+0.8625
				1.292206	2.6643	0.6620
OCT. 1 (OH)	X:	+ 0.4225	- 0.59059	+176.9586	+ 0.36093	+2.3182
(2448896.5)				2.570720	3.4422	4.7113
A OCT.12 (OH)	Y:	- 4.1276	+ 0.37567	+ 55.3352	+ 0.31492	+0.7803
				4.450457	5.8805	0.2623
OCT.12 (OH)	X:	- 2.6513	- 0.06466	+178.7850	+ 0.60335	+2.2269
(2448907.5)				0.616241	3.8386	1.0448
A OCT.23 (OH)	Y:	- 3.9658	+ 0.36188	+ 58.3772	+ 0.41113	+0.6740
				2.501502	5.7159	3.0304
OCT.23 (OH)	X:	- 5.6511	+ 0.52267	+170.1402	+ 0.21760	+2.6879
(2448918.5)				4.959279	5.1765	3.4484
A NOV. 3 (OH)	Y:	- 3.3198	+ 0.28153	+ 55.6396	+ 0.20833	+0.9158
				0.603201	5.4751	5.3036
NOV. 1 (OH)	X:	+ 3.7796	- 1.03931	+165.2257	+ 0.60034	+2.1071
(2448927.5)				2.226450	2.4958	3.9510
A NOV.12 (OH)	Y:	- 2.6637	+ 0.09575	+ 53.7012	+ 0.08088	+0.7088
				4.113232	0.1612	5.9339
NOV.12 (OH)	X:	+ 3.1457	- 0.99576	+169.2417	+ 1.04450	+2.1823
(2448938.5)				0.220626	2.9874	0.4416
A NOV.23 (OH)	Y:	- 3.5711	+ 0.27057	+ 54.6520	+ 0.38521	+0.6366
				2.148735	5.4351	2.2989
NOV.23 (OH)	X:	+ 1.6694	- 0.73549	+168.5760	+ 0.92976	+2.6977
(2448949.5)				4.595431	2.6275	2.6044
A DEC. 4 (OH)	Y:	- 3.8569	+ 0.35709	+ 51.4974	+ 0.27386	+0.8646
				0.252977	5.1012	4.6038
DEC. 1 (OH)	X:	- 5.2569	+ 0.74279	+166.6142	+ 0.94973	+1.8696
(2448957.5)				1.454848	5.7763	2.6359
A DEC.12 (OH)	Y:	- 0.1561	- 0.27981	+ 50.4151	+ 0.24267	+0.5607
				3.393143	1.7563	4.4762
DEC.12 (OH)	X:	- 1.8340	+ 0.18049	+159.4303	+ 0.03232	+2.3161
(2448968.5)				5.753389	2.8098	5.1192
A DEC.23 (OH)	Y:	+ 0.0805	- 0.33973	+ 46.8249	+ 0.24280	+0.7164
				1.376715	3.1424	0.8613
DEC.23 (OH)	X:	- 0.0432	- 0.11515	+160.4008	+ 0.58748	+2.4549
(2448979.5)				3.795121	1.5640	1.0142
A JAN. 3 (OH)	Y:	- 0.3219	- 0.27077	+ 48.3310	+ 0.39283	+0.7498
				5.703483	2.7744	2.8969

1992 COORDONNEES EQUATORIALES DIFFERENTIELLES

DU SATELLITE 7 DE SATURNE: HYPERION N=0.394

		AO	A1	BO FO	B1 F1	CO PO
JAN. 1 (OH)	X:	+ 4.3580	+ 5.26918	+149.4378	+12.07704	+0.4616
(2448622.5)				5.772966	3.9513	4.3006
A JAN. 9 (OH)	Y:	+17.1189	- 1.64666	+ 51.2238	+ 4.02664	+0.1419
				1.304093	5.7093	5.5221
JAN. 9 (OH)	X:	+56.8534	-11.04478	+133.2692	+ 5.42975	+2.0200
(2448630.5)				1.585991	6.1546	5.2336
A JAN.17 (OH)	Y:	-10.2091	+ 1.17585	+ 53.5946	+ 2.93081	+0.8765
				3.504283	1.6262	0.9820
JAN.17 (OH)	X:	-41.8628	+ 7.63651	+162.5951	+10.60085	+0.3803
(2448638.5)				3.966102	1.7936	6.0275
A JAN.25 (OH)	Y:	+11.6763	+ 0.51065	+ 55.5474	+ 3.76327	+0.0294
				5.998935	3.9188	5.4037
JAN.25 (OH)	X:	+20.6850	+ 3.63144	+148.0518	+12.22338	+0.3298
(2448646.5)				0.250065	4.8867	5.7351
A FEV. 2 (OH)	Y:	+14.9239	- 2.45970	+ 42.9005	+ 3.17308	+0.0648
				2.093484	0.4700	3.1265
FEV. 1 (OH)	X:	+28.1043	- 7.91382	+145.5569	+ 7.60777	+2.5386
(2448653.5)				2.171252	0.4521	0.4017
A FEV. 9 (OH)	Y:	- 8.9424	+ 1.59361	+ 50.0085	+ 2.73295	+0.8524
				4.016658	2.1422	2.2240
FEV. 9 (OH)	X:	-27.8914	+ 6.68027	+155.6756	+11.02839	+0.2508
(2448661.5)				4.523606	2.4825	1.4503
A FEV.17 (OH)	Y:	+14.4503	- 0.31447	+ 52.5081	+ 3.92212	+0.1356
				0.202780	4.4456	3.9898
FEV.17 (OH)	X:	+37.5434	- 0.02495	+150.3906	+10.93660	+0.4688
(2448669.5)				0.627599	5.3201	3.4719
A FEV.25 (OH)	Y:	+12.5422	- 3.01749	+ 38.1853	+ 2.67375	+0.1835
				2.630214	1.2502	4.1628
FEV.25 (OH)	X:	- 5.0961	- 5.07524	+155.4258	+ 8.30072	+2.1438
(2448677.5)				2.996733	1.2162	2.3174
A MAR. 4 (OH)	Y:	- 9.8899	+ 3.57560	+ 40.1760	+ 1.44983	+0.4689
				4.769965	2.7543	4.5893
MAR. 1 (OH)	X:	-32.0142	+ 6.73960	+158.9272	+11.16522	+0.2606
(2448682.5)				4.395910	2.3444	1.2108
A MAR. 9 (OH)	Y:	+13.5515	- 0.18271	+ 50.7910	+ 3.76171	+0.1194
				0.105684	4.3490	3.9231
MAR. 9 (OH)	X:	+31.7837	+ 1.16187	+152.5738	+11.38131	+0.3278
(2448690.5)				0.542154	5.2471	3.3545
A MAR.17 (OH)	Y:	+13.0311	- 2.91059	+ 36.8501	+ 2.54206	+0.1850
				2.519501	1.1318	4.0512
MAR.17 (OH)	X:	+ 0.1578	- 6.38511	+154.5000	+ 8.07292	+2.2647
(2448698.5)				2.901112	1.1720	2.2075
A MAR.25 (OH)	Y:	- 9.8934	+ 3.37671	+ 39.7905	+ 1.48853	+0.4435
				4.665459	2.6369	4.3842
MAR.25 (OH)	X:	-13.6777	+ 6.09623	+153.6499	+11.89921	+0.3490
(2448706.5)				5.271051	3.4180	3.6480
A AVR. 2 (OH)	Y:	+14.8216	- 0.95750	+ 46.0183	+ 3.61518	+0.1439
				0.902700	5.2795	5.0945

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DU SATELLITE 7 DE SATURNE: HYPERION N=0.394

		AO	A1	BO FO	B1 F1	CO PO
AVR. 1 (OH)	X:	+60.5218	- 7.44899	+153.5373	+ 7.80567	+1.9156
(2448713.5)				0.820952	5.3817	3.9632
A AVR. 9 (OH)	Y:	+ 4.3752	- 1.84136	+ 40.8791	+ 2.54115	+0.3168
				3.001419	1.5286	6.1266
AVR. 9 (OH)	X:	-41.8204	+ 2.94545	+182.4926	+11.08952	+0.6539
(2448721.5)				3.271587	1.1783	2.9851
A AVR.17 (OH)	Y:	- 0.8313	+ 2.52911	+ 42.0496	+ 2.06189	+0.3422
				5.302976	3.3152	5.4672
AVR.17 (OH)	X:	- 2.9348	+ 5.68280	+156.3864	+12.55850	+0.3951
(2448729.5)				5.807453	4.0860	4.8243
A AVR.25 (OH)	Y:	+14.4914	- 1.41400	+ 42.9219	+ 3.32646	+0.0698
				1.412889	5.9190	5.9556
AVR.25 (OH)	X:	+39.4998	- 9.23455	+157.0578	+ 7.63247	+2.5669
(2448737.5)				1.710841	6.2454	6.0039
A MAI 3 (OH)	Y:	- 7.3070	+ 1.10026	+ 47.2282	+ 2.61096	+0.7831
				3.663678	1.7998	1.6430
MAI 1 (OH)	X:	-51.1248	+ 5.74526	+189.7000	+12.17219	+0.1342
(2448743.5)				3.463391	1.3192	4.4381
A MAI 9 (OH)	Y:	+ 4.7781	+ 1.58854	+ 46.2007	+ 2.74761	+0.1915
				5.559162	3.5442	5.6390
MAI 9 (OH)	X:	+ 0.3124	+ 5.84570	+160.9967	+12.94354	+0.3779
(2448751.5)				6.044744	4.3951	5.4827
A MAI 17 (OH)	Y:	+14.4685	- 1.69369	+ 42.0661	+ 3.17356	+0.0104
				1.640480	6.2272	0.6793
MAI 17 (OH)	X:	+31.4057	- 9.24129	+163.3386	+ 8.05625	+2.7084
(2448759.5)				1.985803	0.2698	0.3941
A MAI 25 (OH)	Y:	- 6.9757	+ 1.29057	+ 47.6992	+ 2.62409	+0.7856
				3.919362	2.0798	2.2777
MAI 25 (OH)	X:	-37.6279	+ 6.88717	+180.5885	+12.84618	+0.2919
(2448767.5)				4.379925	2.3690	1.5517
A JUN. 2 (OH)	Y:	+13.8809	- 0.23075	+ 50.7585	+ 3.80829	+0.1295
				0.113762	4.4015	4.1524
JUN. 1 (OH)	X:	+15.6296	+ 4.52191	+170.1912	+13.14753	+0.1130
(2448774.5)				0.291897	5.0342	1.6265
A JUN. 9 (OH)	Y:	+14.8484	- 2.74581	+ 38.7458	+ 2.60116	+0.1926
				2.191540	0.7575	3.7938
JUN. 9 (OH)	X:	+14.9167	- 9.95138	+166.0138	+ 7.89221	+2.6539
(2448782.5)				2.616373	0.9919	1.8871
A JUN.17 (OH)	Y:	-10.1468	+ 3.08063	+ 44.8719	+ 1.90200	+0.4918
				4.389480	2.3950	3.7329
JUN.17 (OH)	X:	-25.0789	+ 6.72171	+178.9496	+13.45973	+0.3319
(2448790.5)				4.990769	3.1105	3.1375
A JUN.25 (OH)	Y:	+15.8295	- 0.81203	+ 50.9724	+ 3.98085	+0.1552
				0.654262	5.0304	4.9057
JUN.25 (OH)	X:	+67.5733	- 9.88551	+176.7961	+ 8.06641	+2.5757
(2448798.5)				0.848534	5.3163	4.1862
A JUL. 3 (OH)	Y:	+ 1.6441	- 1.27993	+ 48.0651	+ 2.79976	+0.5329
				3.013265	1.4495	0.1730

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DU SATELLITE 7 DE SATURNE: HYPERION N=0.394

		AO	A1	BO FO	B1 F1	CO PO
JUL. 1 (OH)	X:	- 7.7515	- 6.28025	+186.3719	+ 9.54199	+2.3070
(2448804.5)				2.865808	1.0571	2.3382
A JUL. 9 (OH)	Y:	- 9.8385	+ 3.82395	+ 44.6355	+ 1.66193	+0.4586
				4.649020	2.5871	4.6476
JUL. 9 (OH)	X:	-19.4412	+ 6.69599	+180.8795	+13.67025	+0.3568
(2448812.5)				5.280572	3.4629	3.8009
A JUL.17 (OH)	Y:	+16.8142	- 1.08791	+ 52.4136	+ 4.10811	+0.1419
				0.907185	5.3361	5.3012
JUL.17 (OH)	X:	+65.5832	-11.72765	+175.8087	+ 7.38114	+2.7203
(2448820.5)				1.124685	5.5471	4.7837
A JUL.25 (OH)	Y:	- 4.5902	+ 0.12010	+ 54.9162	+ 3.07096	+0.8375
				3.198071	1.4347	0.6954
JUL.25 (OH)	X:	-56.2255	+ 6.91836	+210.5725	+13.77987	+0.2880
(2448828.5)				3.608540	1.4612	5.8334
A AOU. 2 (OH)	Y:	+ 9.0292	+ 1.27102	+ 57.0068	+ 3.66713	+0.1163
				5.671480	3.6491	5.5769
AOU. 1 (OH)	X:	- 7.2927	+ 6.80632	+178.1909	+14.00758	+0.3630
(2448835.5)				5.892234	4.2180	5.2964
A AOU. 9 (OH)	Y:	+17.4545	- 1.71830	+ 51.6721	+ 3.94449	+0.0435
				1.459872	6.0203	6.2509
AOU. 9 (OH)	X:	+37.3194	- 9.64579	+180.9284	+ 8.83363	+3.0398
(2448843.5)				1.836079	0.0772	0.1046
A AOU.17 (OH)	Y:	- 7.5430	+ 1.22042	+ 57.9195	+ 3.20097	+0.9752
				3.751453	1.9172	1.9810
AOU.17 (OH)	X:	-43.0605	+ 6.97438	+197.6178	+13.86384	+0.3470
(2448851.5)				4.251564	2.2055	1.1631
A AOU.25 (OH)	Y:	+15.6217	+ 0.01619	+ 61.0628	+ 4.50004	+0.1325
				6.238206	4.2304	3.9812
AOU.25 (OH)	X:	+24.9852	+ 3.04560	+182.9326	+13.11641	+0.5389
(2448859.5)				0.436722	5.1693	3.1760
A SEP. 2 (OH)	Y:	+18.0659	- 3.65604	+ 44.6598	+ 2.84288	+0.2926
				2.342492	1.0115	4.1187
SEP. 1 (OH)	X:	+24.2353	-11.32318	+168.7846	+ 7.62628	+2.7984
(2448866.5)				2.496379	0.8833	1.6840
A SEP. 9 (OH)	Y:	-11.1918	+ 3.00171	+ 55.0068	+ 2.52913	+0.6790
				4.252157	2.2832	3.3497
SEP. 9 (OH)	X:	-29.8385	+ 6.79812	+183.9884	+13.71718	+0.3555
(2448874.5)				4.875789	2.9516	2.6912
A SEP.17 (OH)	Y:	+17.8358	- 0.59031	+ 59.6895	+ 4.64685	+0.1886
				0.514665	4.8631	4.6922
SEP.17 (OH)	X:	+64.3230	- 7.98727	+178.7281	+ 8.75766	+2.4430
(2448882.5)				0.765585	5.2642	4.0108
A SEP.25 (OH)	Y:	+ 7.2976	- 2.45837	+ 51.2376	+ 3.00504	+0.4691
				2.895444	1.4283	6.1001
SEP.25 (OH)	X:	-46.6551	+ 2.89522	+205.5948	+12.64098	+0.5456
(2448890.5)				3.242515	1.1175	3.1640
A OCT. 3 (OH)	Y:	- 1.1541	+ 3.14850	+ 53.2849	+ 2.65814	+0.3870
				5.209964	3.1718	5.5273

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DU SATELLITE 7 DE SATURNE: HYPERION N=0.394

		A0	A1	B0 F0	B1 F1	C0 P0
OCT. 1 (OH)	X:	-24.7088	+ 6.78115	+174.3061	+13.31307	+0.3496
(2448896.5)				5.148469	3.2825	3.3394
A OCT. 9 (OH)	Y:	+18.2969	- 0.82195	+ 57.6047	+ 4.54434	+0.1832
				0.760291	5.1464	5.0210
OCT. 9 (OH)	X:	+67.1785	-10.62944	+167.8263	+ 7.27898	+2.6655
(2448904.5)				0.966886	5.3497	4.4578
A OCT.17 (OH)	Y:	+ 0.0096	- 0.93766	+ 55.4418	+ 3.11675	+0.7749
				3.070861	1.3780	0.4166
OCT.17 (OH)	X:	-52.8141	+ 5.30012	+198.2627	+13.00311	+0.1946
(2448912.5)				3.458404	1.2936	5.3522
A OCT.25 (OH)	Y:	+ 5.0421	+ 2.02279	+ 55.8938	+ 3.36962	+0.1891
				5.486248	3.4335	5.7722
OCT.25 (OH)	X:	- 7.0306	+ 6.82474	+160.1719	+12.81806	+0.3572
(2448920.5)				6.031228	4.3856	5.6011
A NOV. 2 (OH)	Y:	+18.9453	- 1.92074	+ 49.8017	+ 3.74085	+0.0157
				1.559978	6.1336	5.0715
NOV. 1 (OH)	X:	+41.4868	- 9.18194	+163.0665	+ 7.99226	+2.8056
(2448927.5)				1.609115	6.0830	5.9400
A NOV. 9 (OH)	Y:	- 6.1736	+ 0.71270	+ 56.0138	+ 3.15270	+0.9738
				3.544875	1.6797	1.5656
NOV. 9 (OH)	X:	-45.9713	+ 6.06823	+179.8593	+12.75845	+0.4032
(2448935.5)				4.016092	1.9222	0.8159
A NOV.17 (OH)	Y:	+12.2620	+ 0.59350	+ 56.3698	+ 4.09242	+0.0954
				6.027780	3.9847	3.6281
NOV.17 (OH)	X:	+ 7.9203	+ 5.51174	+156.3119	+12.24579	+0.1427
(2448943.5)				0.249141	4.9934	1.2960
A NOV.25 (OH)	Y:	+19.3918	- 3.15274	+ 40.9757	+ 2.63381	+0.2333
				2.065250	0.6041	3.8409
NOV.25 (OH)	X:	+19.6936	-10.70615	+146.0679	+ 6.53403	+2.4580
(2448951.5)				2.530106	0.8987	1.9043
A DEC. 3 (OH)	Y:	-11.1060	+ 2.97160	+ 47.3729	+ 2.11431	+0.5124
				4.261461	2.1812	3.6555
DEC. 1 (OH)	X:	-42.0807	+ 5.86327	+169.3810	+12.45320	+0.4219
(2448957.5)				4.234945	2.1893	1.4214
A DEC. 9 (OH)	Y:	+12.7703	+ 0.36596	+ 52.4737	+ 3.97172	+0.1390
				6.242839	4.2266	3.9169
DEC. 9 (OH)	X:	+18.1103	+ 3.31515	+154.2646	+11.27639	+0.4901
(2448965.5)				0.383941	5.1272	3.0887
A DEC.17 (OH)	Y:	+18.1393	- 3.43414	+ 36.4148	+ 2.21965	+0.2825
				2.284761	0.9680	4.1640
DEC.17 (OH)	X:	+ 2.7104	- 8.21314	+151.3175	+ 7.33911	+2.1229
(2448973.5)				2.710438	0.9319	2.2830
A DEC.25 (OH)	Y:	-11.0341	+ 3.47934	+ 41.8054	+ 1.70250	+0.3945
				4.430943	2.2046	4.5149
DEC.25 (OH)	X:	-29.7573	+ 6.47354	+149.8354	+11.74430	+0.3460
(2448981.5)				5.059386	3.2026	3.3004
A JAN. 2 (OH)	Y:	+15.3191	- 0.49310	+ 46.1253	+ 3.73165	+0.1673
				0.726578	5.1141	5.0215

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DU SATELLITE 8 DE SATURNE: JAPET N=0.079

		AO	A1	BO FO	CO PO
JAN. 1 (OH) (2448622.5)	X:	-24.4938	+ 0.02076	+451.9438 5.739032	+ 6.9962 3.1983
A JAN.18 (OH)	Y:	+ 6.3680	+ 0.14546	+ 35.5911 1.697795	+ 0.5110 0.8832
JAN.17 (OH) (2448638.5)	X:	- 3.2390	- 0.21569	+443.3994 0.656272	+ 3.3325 0.9892
A FEV. 3 (OH)	Y:	- 3.8241	+ 0.84904	+ 48.3185 2.664689	+ 3.5680 4.4367
FEV. 1 (OH) (2448653.5)	X:	+ 0.0081	- 1.45604	+428.9080 1.791104	+ 7.8800 2.9460
A FEV.18 (OH)	Y:	-13.0484	+ 1.55885	+ 44.1364 3.189781	+ 6.0118 5.1037
FEV.17 (OH) (2448669.5)	X:	- 3.0352	- 3.31079	+396.2715 3.114270	+ 1.6666 0.1611
A MAR. 5 (OH)	Y:	+ 0.7139	- 1.06860	+ 37.7564 5.439614	+ 2.5942 1.6810
MAR. 1 (OH) (2448682.5)	X:	-22.6023	- 0.59199	+448.6354 4.089670	+10.4474 1.0205
A MAR.18 (OH)	Y:	- 0.7686	- 0.92539	+ 37.2904 6.010980	+ 3.8949 2.2411
MAR.17 (OH) (2448698.5)	X:	+ 0.0586	- 0.73391	+481.5712 5.297565	+ 9.4795 2.5000
A AVR. 3 (OH)	Y:	-13.5023	+ 1.80364	+ 32.0572 2.017218	+ 3.6666 4.7554
AVR. 1 (OH) (2448713.5)	X:	+ 5.7152	- 0.36627	+467.1711 0.157294	+ 5.8443 5.5702
A AVR.18 (OH)	Y:	+17.3424	- 1.67825	+ 21.0200 5.966352	+ 3.8738 1.9804
AVR.17 (OH) (2448729.5)	X:	+ 4.4876	- 2.53548	+465.9056 1.358021	+ 7.9109 1.8527
A MAI 4 (OH)	Y:	- 2.2990	- 0.22144	+ 8.3062 2.178733	+ 1.6273 3.6280
MAI 1 (OH) (2448743.5)	X:	-37.0415	+ 1.16140	+516.1147 2.525317	+ 7.8765 4.9426
A MAI 18 (OH)	Y:	-11.4968	+ 1.16068	+ 25.9419 2.881435	+ 2.7149 5.1493
MAI 17 (OH) (2448759.5)	X:	-34.0247	+ 2.21795	+525.9622 3.731106	+ 8.6782 0.3123
A JUN. 3 (OH)	Y:	+19.2842	- 2.29305	+ 50.8213 5.445106	+ 6.5796 1.8308
JUN. 1 (OH) (2448774.5)	X:	-15.2028	+ 2.01977	+507.5856 4.924458	+ 6.7384 3.2272
A JUN.18 (OH)	Y:	+ 7.6912	- 1.34350	+ 37.0514 5.909338	+ 3.4115 2.4137
JUN.17 (OH) (2448790.5)	X:	- 9.8106	+ 0.02246	+529.9483 6.259275	+13.3490 5.1970
A JUL. 4 (OH)	Y:	- 3.4466	+ 0.25501	+ 15.9179 1.514099	+ 2.0446 5.8941

1992 COORDONNEES EQUATORIALES DIFFERENTIELLES

DU SATELLITE 8 DE SATURNE: JAPET N=0.079

		AO	A1	BO FO	CO PO
JUL. 1 (OH) (2448804.5)	X:	-26.0116	- 0.16632	+550.1235 1.099955	+ 9.0308 0.7587
A JUL.18 (OH)	Y:	+14.8136	- 1.85573	+ 15.7742 5.526322	+ 6.0554 1.5438
JUL.17 (OH) (2448820.5)	X:	-29.9228	+ 0.97583	+568.8044 2.390816	+ 4.7335 3.6089
A AOU. 3 (OH)	Y:	- 0.8632	+ 0.19927	+ 20.6837 3.741485	+ 1.2662 2.7644
AOU. 1 (OH) (2448835.5)	X:	-20.7726	+ 1.83536	+576.8276 3.554125	+ 6.5716 5.6356
A AOU.18 (OH)	Y:	- 1.7601	+ 1.27809	+ 18.8529 4.027454	+ 3.4111 5.2774
AOU.17 (OH) (2448851.5)	X:	- 7.6581	- 0.72467	+560.8609 4.892823	+ 5.7491 3.0266
A SEP. 3 (OH)	Y:	+23.8255	- 2.81501	+ 67.7924 5.939290	+ 5.4051 1.7171
SEP. 1 (OH) (2448866.5)	X:	-44.1517	+ 1.51915	+522.4179 6.129527	+14.4616 5.1255
A SEP.18 (OH)	Y:	-10.0090	+ 0.73675	+ 39.9500 1.800946	+ 1.9207 5.6480
SEP.17 (OH) (2448882.5)	X:	-39.7357	+ 2.04969	+542.6161 1.146956	+ 8.4513 1.0833
A OCT. 4 (OH)	Y:	+ 2.4431	+ 0.11914	+ 35.2976 3.054206	+ 1.4666 0.8888
OCT. 1 (OH) (2448896.5)	X:	-28.8614	+ 2.82689	+567.2841 2.240383	+10.8969 3.8489
A OCT.18 (OH)	Y:	+14.9217	- 1.58943	+ 43.8740 4.729285	+ 3.0829 1.6706
OCT.17 (OH) (2448912.5)	X:	-17.6300	+ 0.57644	+514.7412 3.452416	+10.1513 5.2196
A NOV. 3 (OH)	Y:	-15.6903	+ 1.60917	+ 7.6604 4.057172	+ 4.2947 5.1022
NOV. 1 (OH) (2448927.5)	X:	-32.3175	+ 0.17569	+483.6169 4.656031	+ 2.7212 1.7292
A NOV.18 (OH)	Y:	-11.7176	+ 1.74494	+ 20.7224 1.578274	+ 4.1832 5.4191
NOV.17 (OH) (2448943.5)	X:	-54.7035	+ 2.75611	+441.1670 5.961440	+ 9.5576 4.6423
A DEC. 4 (OH)	Y:	+ 8.0292	- 0.59067	+ 19.3324 1.005929	+ 2.2454 1.9111
DEC. 1 (OH) (2448957.5)	X:	-15.9779	+ 0.49455	+470.1694 0.722824	+ 6.0389 1.1869
A DEC.18 (OH)	Y:	-10.2770	+ 1.51548	+ 47.9270 2.484825	+ 4.5544 4.5949
DEC.17 (OH) (2448973.5)	X:	- 6.3624	+ 0.17201	+463.1472 1.964630	+ 9.4343 3.4213
A JAN. 3 (OH)	Y:	- 2.0562	+ 0.38837	+ 23.4277 3.375677	+ 3.1178 5.3564

SATELLITES D'URANUS

SATELLITES OF URANUS

DONNÉES SUR LES SATELLITES D'URANUS

DATA ON THE SATELLITES OF URANUS

NOM	masse	rayon	période rotation sidérale	albédo géométrique	magnitude visuelle	période orbitale	élongation maximale	1/2 grand axe	excentricité	inclinaison sur l'équateur d'Uranus
unité →	masse d'Uranus	km	jour			jour	(")	10^3 km		degré
I Ariel	1.49×10^{-5}	580		0.40	14.4	2.520 379 05	14	190.945	0.001 78	0.071
II Umbriel	1.45×10^{-5}	595		0.19	15.3	4.144 176 46	20	265.998	0.004 33	0.128
III Titania	3.97×10^{-5}	805		0.28	14.0	8.705 866 94	33	436.298	0.002 15	0.047
IV Oberon	3.45×10^{-5}	775	(S)	0.24	14.2	13.463 234 20	44	583.519	0.001 56	0.117
V Miranda	0.075×10^{-5}	242		0.34	16.5	1.413 479 41	10	129.872	0.001 52	4.339
NAME	*mass*	*radius*	*sidereal rotation*	*geometrical albedo*	*visual magnitude*	*orbital period*	*greatest elongation*	*semi major axis*	*eccentricity*	*inclination on Uranus' equator*
unit →	*Uranus' mass*	*km*	*day*			*day*	*(")*	*10^3 km*		*degree*

NOTES

(S) : rotation synchrone

Données extraites de *Science* (vol. 233, 1986, p. 41) pour les valeurs des rayons et des albédos, et de *Astronomy and Astrophysics* (vol. 188, 1987, p. 212 : GUST86, J. Laskar et R.A. Jacobson) pour les autres données.

(S) synchronous rotation

Data from Science (vol. 233, 1986, P. 41) for the values of the radii and the albedoes, and from Astronomy and Astrophysics (vol. 188, 1987, p. 212 : GUST86, J. Laskar and R.A. Jacobson) for the other data.

ÉPHÉMÉRIDES DES CINQ PREMIERS SATELLITES D'URANUS

EPHEMERIDES OF THE FIRST FIVE SATELLITES OF URANUS

Coordonnées différentielles tangentielles données en secondes de degré dans le repère équatorial moyen J2000.

Differential tangential coordinates given in arcsecond in the mean equatorial frame J2000.

$$\Delta\alpha \cos\delta = X$$
$$\Delta\delta = Y$$

$$\left.\begin{matrix} X \\ Y \end{matrix}\right\} = A0 + A1 \cdot t + B0 \sin(Nt + F0) + B1 \cdot t \sin(Nt + F1) + B2 \cdot t^2 \sin(Nt + F2) + C0 \sin(2Nt + P0)$$

où $t = T - T0$ avec $T0$ date du début de l'intervalle et T date du calcul

where $t = T - T0$ with $T0$ date of the beginning of the interval and T the date for the calculation

satellite	intervalle Δt (jours)	N (rad/j)	page
Miranda	9	4.488 0	86
Ariel	31	2.493 0	89
Umbriel	27	1.516 2	90
Titiana	17	0.721 7	91
Obéron	27	0.466 7	93
	(days)	*(rad/d)*	

1992 COORDONNEES EQUATORIALES DIFFERENTIELLES

DU SATELLITE 5 D'URANUS: MIRANDA N=4.4880

		A0	A1	B0 F0	B1 F1	B2 F2	C0 P0
JAN. 1 (0H) (2448622.5)	X:	+0.0004	+0.00024	+ 7.5017 6.077034	+0.32992 4.4876	+0.006961 2.7023	+0.0051 5.6708
A JAN.10 (0H)	Y:	-0.0184	+0.00044	+ 8.7155 1.321427	+0.38240 6.0296	+0.008020 4.2542	+0.0053 0.8345
JAN.10 (0H) (2448631.5)	X:	+0.0041	-0.00057	+ 7.4596 2.097147	+0.32700 0.5101	+0.006682 5.0192	+0.0056 3.8704
A JAN.19 (0H)	Y:	-0.0185	+0.00031	+ 8.7148 3.625856	+0.38099 2.0586	+0.008179 0.2955	+0.0046 5.5786
JAN.19 (0H) (2448640.5)	X:	+0.0033	-0.00026	+ 7.4253 4.401171	+0.32487 2.8160	+0.006797 1.0466	+0.0047 2.2708
A JAN.28 (0H)	Y:	-0.0155	-0.00032	+ 8.7290 5.031265	+0.38085 4.3625	+0.007978 2.6051	+0.0056 3.8246
JAN.28 (0H) (2448649.5)	X:	+0.0008	+0.00026	+ 7.3965 0.422750	+0.32412 5.1285	+0.006925 3.3465	+0.0050 0.4552
A FEV. 6 (0H)	Y:	-0.0139	-0.00054	+ 8.7506 1.954283	+0.38179 0.3877	+0.007964 4.9077	+0.0055 2.2546
FEV. 6 (0H) (2448658.5)	X:	+0.0002	+0.00027	+ 7.3814 2.727785	+0.32158 1.1506	+0.006752 5.6746	+0.0043 5.1506
A FEV.15 (0H)	Y:	-0.0181	+0.00040	+ 8.7802 4.260752	+0.38122 2.6990	+0.008032 0.9527	+0.0064 0.4926
FEV.15 (0H) (2448667.5)	X:	+0.0015	-0.00010	+ 7.3751 5.034046	+0.32164 3.4582	+0.006682 1.6878	+0.0045 3.5239
A FEV.24 (0H)	Y:	-0.0194	+0.00051	+ 8.8188 0.265211	+0.38334 5.0088	+0.008072 3.2514	+0.0060 5.0403
FEV.24 (0H) (2448676.5)	X:	+0.0041	-0.00057	+ 7.3748 1.057476	+0.32125 5.7723	+0.006782 4.0021	+0.0039 1.9095
A MAR. 4 (0H)	Y:	-0.0162	-0.00030	+ 8.8652 2.593009	+0.38336 1.0368	+0.008097 5.5817	+0.0069 3.3625
MAR. 4 (0H) (2448685.5)	X:	+0.0019	-0.00001	+ 7.3888 3.364771	+0.32056 1.7962	+0.006653 0.0411	+0.0048 0.2244
A MAR.13 (0H)	Y:	-0.0150	-0.00045	+ 8.9205 4.901887	+0.38549 3.3459	+0.008083 1.6037	+0.0057 1.6398
MAR.13 (0H) (2448694.5)	X:	-0.0010	+0.00053	+ 7.4095 5.672832	+0.32063 4.1092	+0.006700 2.3645	+0.0048 4.8699
A MAR.22 (0H)	Y:	-0.0161	-0.00011	+ 8.9782 0.928471	+0.38959 5.6592	+0.008245 3.8934	+0.0060 6.2318
MAR.22 (0H) (2448703.5)	X:	+0.0009	-0.00004	+ 7.4394 1.698273	+0.32134 0.1388	+0.006732 4.6786	+0.0053 3.1917
A MAR.31 (0H)	Y:	-0.0194	+0.00049	+ 9.0446 3.237978	+0.38982 1.6852	+0.008174 6.2295	+0.0054 4.5827
MAR.31 (0H) (2448712.5)	X:	+0.0027	-0.00041	+ 7.4787 4.007952	+0.32367 2.4507	+0.006782 0.6933	+0.0053 1.3865
A AVR. 9 (0H)	Y:	-0.0194	+0.00028	+ 9.1151 5.548475	+0.39275 3.9952	+0.008209 2.2534	+0.0054 3.0314
AVR. 9 (0H) (2448721.5)	X:	+0.0024	-0.00022	+ 7.5239 0.034398	+0.32413 4.7661	+0.006877 3.0286	+0.0056 6.0522
A AVR.18 (0H)	Y:	-0.0148	-0.00070	+ 9.1848 1.576098	+0.39592 0.0239	+0.008280 4.5607	+0.0051 1.3359
AVR.18 (0H) (2448730.5)	X:	+0.0000	+0.00024	+ 7.5797 2.344948	+0.32664 0.7926	+0.006841 5.3308	+0.0051 4.2872
A AVR.27 (0H)	Y:	-0.0157	-0.00034	+ 9.2579 3.887031	+0.39806 2.3335	+0.008305 0.5948	+0.0059 6.0000
AVR.27 (0H) (2448739.5)	X:	-0.0016	+0.00044	+ 7.6397 4.656157	+0.32990 3.1037	+0.006859 1.3490	+0.0048 2.6455
A MAI 6 (0H)	Y:	-0.0194	+0.00043	+ 9.3262 6.196272	+0.40060 4.6485	+0.008566 2.9154	+0.0064 4.3408

1992 COORDONNEES EQUATORIALES DIFFERENTIELLES

DU SATELLITE 5 D'URANUS: MIRANDA N=4.4880

		A0	A1	B0 F0	B1 F1	B2 F2	C0 P0
MAI 6 (OH) (2448748.5)	X:	+0.0016	-0.00033	+ 7.7030 0.683825	+0.33106 5.4167	+0.006912 3.6823	+0.0048 0.9913
A MAI 15 (OH)	Y:	-0.0198	+0.00030	+ 9.3950 2.226443	+0.40387 0.6731	+0.008512 5.2160	+0.0063 2.6747
MAI 15 (OH) (2448757.5)	X:	+0.0031	-0.00053	+ 7.7695 2.995256	+0.33402 1.4467	+0.007059 5.9913	+0.0044 5.7291
A MAI 24 (OH)	Y:	-0.0180	-0.00017	+ 9.4597 4.538066	+0.40772 2.9819	+0.008587 1.2262	+0.0071 0.8779
MAI 24 (OH) (2448766.5)	X:	-0.0002	+0.00025	+ 7.8370 5.306717	+0.33643 3.7560	+0.007035 2.0274	+0.0046 4.0320
A JUN. 2 (OH)	Y:	-0.0151	-0.00065	+ 9.5137 0.566026	+0.40960 5.2943	+0.008764 3.5466	+0.0066 5.5174
JUN. 2 (OH) (2448775.5)	X:	-0.0017	+0.00038	+ 7.9027 1.335065	+0.33967 6.0668	+0.007133 4.3297	+0.0049 2.3933
A JUN.11 (OH)	Y:	-0.0176	-0.00003	+ 9.5649 2.877163	+0.41250 1.3164	+0.008693 5.8418	+0.0067 3.7963
JUN.11 (OH) (2448784.5)	X:	-0.0006	+0.00002	+ 7.9626 3.646520	+0.34312 2.0982	+0.007412 0.3520	+0.0056 0.7597
A JUN.20 (OH)	Y:	-0.0218	+0.00073	+ 9.6056 5.188005	+0.41383 3.6228	+0.008682 1.8742	+0.0057 2.0843
JUN.20 (OH) (2448793.5)	X:	+0.0017	-0.00043	+ 8.0212 5.957478	+0.34554 4.4021	+0.007280 2.6606	+0.0051 5.2883
A JUN.29 (OH)	Y:	-0.0189	-0.00004	+ 9.6326 1.215238	+0.41526 5.9313	+0.008754 4.1812	+0.0061 0.4867
JUN.29 (OH) (2448802.5)	X:	+0.0016	-0.00032	+ 8.0714 1.984958	+0.34837 0.4266	+0.007374 4.9600	+0.0062 3.5731
A JUL. 8 (OH)	Y:	-0.0158	-0.00061	+ 9.6479 3.525353	+0.41735 1.9576	+0.008946 0.1909	+0.0051 5.1408
JUL. 8 (OH) (2448811.5)	X:	-0.0027	+0.00055	+ 8.1102 4.295055	+0.35067 2.7347	+0.007488 0.9824	+0.0055 1.8410
A JUL.17 (OH)	Y:	-0.0171	-0.00017	+ 9.6535 5.834654	+0.41632 4.2617	+0.008842 2.5171	+0.0057 3.5234
JUL.17 (OH) (2448820.5)	X:	-0.0025	+0.00032	+ 8.1400 0.321357	+0.35291 5.0382	+0.007463 3.2768	+0.0056 0.2161
A JUL.26 (OH)	Y:	-0.0196	+0.00032	+ 9.6460 1.860694	+0.41813 0.2836	+0.008848 4.8004	+0.0058 1.8167
JUL.26 (OH) (2448829.5)	X:	+0.0009	-0.00046	+ 8.1567 2.629821	+0.35275 1.0620	+0.007578 5.6025	+0.0048 4.6754
A AOU. 4 (OH)	Y:	-0.0211	+0.00051	+ 9.6244 4.169148	+0.41883 2.5916	+0.009005 0.8121	+0.0066 0.2571
AOU. 4 (OH) (2448838.5)	X:	+0.0005	-0.00029	+ 8.1621 4.938004	+0.35459 3.3639	+0.007539 1.6046	+0.0051 3.1625
A AOU.13 (OH)	Y:	-0.0172	-0.00034	+ 9.5950 0.193443	+0.41693 4.8922	+0.008793 3.1277	+0.0062 4.6689
AOU.13 (OH) (2448847.5)	X:	-0.0014	+0.00016	+ 8.1528 0.962204	+0.35620 5.6689	+0.007644 3.8867	+0.0043 1.4569
A AOU.22 (OH)	Y:	-0.0147	-0.00070	+ 9.5525 2.500326	+0.41600 0.9152	+0.008878 5.4283	+0.0071 3.0624
AOU.22 (OH) (2448856.5)	X:	-0.0035	+0.00046	+ 8.1326 3.268193	+0.35409 1.6887	+0.007637 6.2147	+0.0047 6.1841
A AOU.31 (OH)	Y:	-0.0190	+0.00034	+ 9.5017 4.806517	+0.41452 3.2182	+0.008816 1.4455	+0.0067 1.2473
AOU.31 (OH) (2448865.5)	X:	-0.0022	+0.00006	+ 8.1024 5.574035	+0.35473 3.9879	+0.007550 2.2112	+0.0049 4.4247
A SEP. 9 (OH)	Y:	-0.0204	+0.00054	+ 9.4426 0.829047	+0.41354 5.5206	+0.008751 3.7367	+0.0062 5.9427

1992 COORDONNEES EQUATORIALES DIFFERENTIELLES

DU SATELLITE 5 D'URANUS: MIRANDA N=4.4850

		A0	A1	B0 F0	B1 F1	B2 F2	C0 P0
SEP. 9 (0H) (2448674.5)	X:	+0.0011	-0.00062	+ 8.0593 1.595577	+0.35366 0.0069	+0.007547 4.5083	+0.0053 2.6833
A SEP.18 (0H)	Y:	-0.0179	-0.00008	+ 9.3746 3.133604	+0.41002 1.5456	+0.008892 6.0580	+0.0059 4.0646
SEP.18 (0H) (2448883.5)	X:	-0.0011	-0.00001	+ 8.0080 3.899439	+0.35119 2.3072	+0.007491 0.5350	+0.0055 0.9984
A SEP.27 (0H)	Y:	-0.0158	-0.00043	+ 9.3085 5.437983	+0.40839 3.6438	+0.008643 2.0619	+0.0056 2.5713
SEP.27 (0H) (2448892.5)	X:	-0.0042	+0.00058	+ 7.9463 6.202729	+0.34953 4.6113	+0.007580 2.8306	+0.0057 5.6687
A OCT. 6 (0H)	Y:	-0.0156	-0.00028	+ 9.2360 1.458718	+0.40685 0.1473	+0.008606 4.3523	+0.0051 0.8375
OCT. 6 (0H) (2448901.5)	X:	-0.0029	+0.00011	+ 7.8809 2.222047	+0.34662 0.6264	+0.007417 5.1318	+0.0057 3.8746
A OCT.15 (0H)	Y:	-0.0195	+0.00057	+ 9.1623 3.761556	+0.40243 2.1695	+0.008613 0.3931	+0.0050 5.5367
OCT.15 (0H) (2448910.5)	X:	-0.0011	-0.00026	+ 7.8103 4.524578	+0.34508 2.9259	+0.007355 1.1312	+0.0049 2.2101
A OCT.24 (0H)	Y:	-0.0196	+0.00044	+ 9.0932 6.064547	+0.40038 4.4703	+0.008479 2.6871	+0.0057 3.8417
OCT.24 (0H) (2448919.5)	X:	-0.0003	-0.00031	+ 7.7328 0.543002	+0.34182 5.2310	+0.007427 3.4380	+0.0051 0.4242
A NOV. 2 (0H)	Y:	-0.0150	-0.00054	+ 9.0238 2.083754	+0.39682 0.4906	+0.008388 5.0016	+0.0056 2.2367
NOV. 2 (0H) (2448928.5)	X:	-0.0027	+0.00023	+ 7.6594 2.844333	+0.33839 1.2437	+0.007171 5.7353	+0.0045 5.1387
A NOV.11 (0H)	Y:	-0.0151	-0.00030	+ 8.9597 4.386137	+0.39429 2.7951	+0.008383 1.0181	+0.0063 0.4597
NOV.11 (0H) (2448937.5)	X:	-0.0051	+0.00059	+ 7.5835 5.145673	+0.33520 3.5444	+0.007083 1.7548	+0.0042 3.4727
A NOV.20 (0H)	Y:	-0.0176	+0.00033	+ 8.8984 0.405373	+0.39241 5.1022	+0.008470 3.3177	+0.0063 5.0287
NOV.20 (0H) (2448946.5)	X:	-0.0018	-0.00020	+ 7.5069 1.163428	+0.33153 5.8480	+0.007061 4.0611	+0.0042 1.7888
A NOV.29 (0H)	Y:	-0.0188	+0.00045	+ 8.8466 2.707499	+0.38897 1.1209	+0.008265 5.6325	+0.0064 3.3426
NOV.29 (0H) (2448955.5)	X:	-0.0001	-0.00045	+ 7.4346 3.464660	+0.32863 1.8668	+0.007013 0.0756	+0.0046 0.2106
A DEC. 8 (0H)	Y:	-0.0174	+0.00007	+ 8.8035 5.010384	+0.38790 3.4239	+0.008186 1.6396	+0.0057 1.5471
DEC. 8 (0H) (2448964.5)	X:	-0.0025	+0.00014	+ 7.3650 5.765716	+0.32430 4.1699	+0.006917 2.3995	+0.0046 4.7851
A DEC.17 (0H)	Y:	-0.0137	-0.00057	+ 8.7642 1.030043	+0.38591 5.7313	+0.008195 3.9497	+0.0057 6.1760
DEC.17 (0H) (2448973.5)	X:	-0.0039	+0.00036	+ 7.3015 1.784154	+0.32232 0.1892	+0.006847 4.6821	+0.0049 3.1138
A DEC.26 (0H)	Y:	-0.0156	-0.00002	+ 8.7372 3.333145	+0.38364 1.7518	+0.008050 6.2608	+0.0052 4.5109
DEC.26 (0H) (2448982.5)	X:	-0.0038	+0.00018	+ 7.2418 4.086101	+0.32003 2.4950	+0.006861 0.6985	+0.0053 1.3137
A JAN. 4 (0H)	Y:	-0.0195	+0.00073	+ 8.7186 5.636798	+0.38139 4.0592	+0.008049 2.3015	+0.0046 2.9017

1992 COORDONNEES EQUATORIALES DIFFERENTIELLES

DU SATELLITE 1 D'URANUS: ARIEL N=2.4930

		A0	A1	B0 F0	B1 F1	B2 F2	C0 P0
JAN. 1 (0H)	X:	+0.0291	-0.00001	+11.4647	+0.00835	+0.000076	+0.0112
(2448622.5)				4.382239	1.8454	4.6289	4.0923
A FEV. 1 (0H)	Y:	+0.0025	+0.00005	+12.7898	+0.00540	+0.000095	+0.0101
				5.905392	4.2357	6.2551	5.6350
FEV. 1 (0H)	X:	+0.0296	-0.00006	+11.3442	+0.00409	+0.000096	+0.0095
(2448653.5)				5.255767	4.1244	0.3721	1.5433
A MAR. 3 (0H)	Y:	+0.0027	+0.00003	+12.8594	+0.00597	+0.000081	+0.0119
				1.496503	0.9228	2.0337	3.1479
MAR. 3 (0H)	X:	+0.0297	-0.00002	+11.3612	+0.00349	+0.000088	+0.0102
(2448684.5)				1.851016	1.4711	2.3164	5.3622
A AVR. 3 (0H)	Y:	+0.0045	-0.00005	+13.0812	+0.00960	+0.000049	+0.0118
				3.376660	3.3104	4.1611	0.5870
AVR. 3 (0H)	X:	+0.0285	+0.00006	+11.5355	+0.00837	+0.000049	+0.0098
(2448715.5)				3.735497	3.8737	4.3343	2.9028
A MAI 4 (0H)	Y:	+0.0042	+0.00000	+13.4107	+0.01193	+0.000023	+0.0120
				5.262347	5.4066	0.9348	4.3670
MAI 4 (0H)	X:	+0.0300	+0.00000	+11.8298	+0.01153	+0.000019	+0.0105
(2448746.5)				5.625550	5.8878	1.7988	0.3545
A JUN. 4 (0H)	Y:	+0.0029	+0.00003	+13.7676	+0.01131	+0.000059	+0.0111
				0.869297	1.1346	3.7984	1.6317
JUN. 4 (0H)	X:	+0.0311	-0.00001	+12.1596	+0.01100	+0.000075	+0.0105
(2448777.5)				1.235714	1.5773	4.5241	4.0449
A JUL. 5 (0H)	Y:	+0.0036	-0.00004	+14.0476	+0.00784	+0.000111	+0.0117
				2.761400	3.2221	6.0176	5.6864
JUL. 5 (0H)	X:	+0.0307	+0.00002	+12.4104	+0.00604	+0.000109	+0.0096
(2448808.5)				3.128785	3.6237	0.3148	1.6197
A AOU. 5 (0H)	Y:	+0.0028	-0.00002	+14.1597	+0.00291	+0.000120	+0.0129
				4.652834	6.1088	1.8707	3.0938
AOU. 5 (0H)	X:	+0.0317	-0.00005	+12.4759	+0.00165	+0.000111	+0.0108
(2448839.5)				5.018039	1.5826	2.2178	5.3595
A SEP. 5 (0H)	Y:	+0.0016	+0.00000	+14.0632	+0.00659	+0.000085	+0.0107
				0.257993	3.3445	3.9340	0.5260
SEP. 5 (0H)	X:	+0.0315	-0.00004	+12.3270	+0.00825	+0.000079	+0.0101
(2448870.5)				0.617822	4.0133	4.2502	2.7716
A OCT. 6 (0H)	Y:	+0.0028	-0.00009	+13.7913	+0.01150	+0.000039	+0.0115
				2.140552	5.4974	0.2484	4.2944
OCT. 6 (0H)	X:	+0.0291	+0.00003	+12.0151	+0.01284	+0.000028	+0.0102
(2448901.5)				2.494241	5.9752	0.3617	0.1976
A NOV. 6 (0H)	Y:	+0.0024	-0.00005	+13.4329	+0.01297	+0.000040	+0.0104
				4.017002	1.2599	3.4558	1.7826
NOV. 6 (0H)	X:	+0.0283	+0.00000	+11.6278	+0.01437	+0.000033	+0.0085
(2448932.5)				4.365846	1.6506	4.5049	3.9606
A DEC. 7 (0H)	Y:	+0.0011	+0.00001	+13.0938	+0.01153	+0.000062	+0.0122
				5.888903	3.3301	6.0527	5.4861
DEC. 7 (0H)	X:	+0.0273	+0.00002	+11.2560	+0.01266	+0.000063	+0.0101
(2448963.5)				6.234615	3.5689	0.1433	1.4765
A JAN. 7 (0H)	Y:	+0.0013	+0.00000	+12.8562	+0.00776	+0.000080	+0.0102
				1.475846	5.4569	1.6868	2.8606

1992 COORDONNEES EQUATORIALES DIFFERENTIELLES

DU SATELLITE 2 D'URANUS: UMBRIEL N=1.5162

		A0	A1	B0 F0	B1 F1	B2 F2	C0 P0
JAN. 1 (0H) (2448622.5)	X:	+0.0524	-0.00006	+15.9921 1.202628	+0.01174 4.9227	+0.000109 1.1987	+0.0278 4.8455
A JAN.28 (0H)	Y:	+0.0887	-0.00095	+17.8205 2.726438	+0.00737 1.0492	+0.000125 2.9120	+0.0318 0.0779
JAN.28 (0H) (2448649.5)	X:	+0.0549	+0.00069	+15.8063 4.430033	+0.00648 2.3173	+0.000102 4.7069	+0.0290 4.8795
A FEV.24 (0H)	Y:	+0.0618	+0.00029	+17.8925 5.954612	+0.00790 5.1141	+0.000142 0.0466	+0.0323 0.0997
FEV.24 (0H) (2448676.5)	X:	+0.0770	-0.00063	+15.7872 1.377055	+0.00455 0.4793	+0.000116 1.7516	+0.0331 5.1265
A MAR.22 (0H)	Y:	+0.0773	+0.00071	+18.1294 2.903098	+0.01195 2.6061	+0.000100 3.4919	+0.0382 0.3529
MAR.22 (0H) (2448703.5)	X:	+0.0572	-0.00035	+15.9422 4.611468	+0.00888 4.4173	+0.000111 5.1393	+0.0292 5.4221
A AVR.18 (0H)	Y:	+0.0945	-0.00072	+18.4929 6.138592	+0.01627 6.0462	+0.000066 1.4873	+0.0351 0.6262
AVR.18 (0H) (2448730.5)	X:	+0.0509	+0.00091	+16.2452 1.566104	+0.01323 1.6319	+0.000071 2.3432	+0.0292 5.4439
A MAI 15 (0H)	Y:	+0.0666	+0.00015	+18.9255 3.093920	+0.01736 3.1720	+0.000080 5.8701	+0.0343 0.6819
MAI 15 (0H) (2448757.5)	X:	+0.0782	-0.00017	+16.6357 4.807687	+0.01588 5.0629	+0.000034 1.6826	+0.0347 5.6473
A JUN.11 (0H)	Y:	+0.0737	+0.00102	+19.3403 0.052010	+0.01440 0.2910	+0.000121 3.1040	+0.0403 0.9128
JUN.11 (0H) (2448784.5)	X:	+0.0664	-0.00047	+17.0249 1.769075	+0.01422 2.1112	+0.000126 5.1304	+0.0325 6.0133
A JUL. 8 (0H)	Y:	+0.1007	-0.00065	+19.6325 3.295213	+0.00890 3.8827	+0.000148 0.4897	+0.0377 1.2030
JUL. 8 (0H) (2448811.5)	X:	+0.0511	+0.00093	+17.2965 5.013867	+0.00790 5.4163	+0.000169 1.9608	+0.0294 6.0622
A AOU. 4 (0H)	Y:	+0.0761	-0.00047	+19.7323 0.255297	+0.00366 2.2247	+0.000131 3.7409	+0.0343 1.2991
AOU. 4 (0H) (2448838.5)	X:	+0.0795	+0.00007	+17.3708 1.973145	+0.00178 4.5356	+0.000159 5.2454	+0.0341 6.2006
A AOU.31 (0H)	Y:	+0.0697	+0.00079	+19.6022 3.496727	+0.00922 0.2446	+0.000098 0.6120	+0.0396 1.4846
AOU.31 (0H) (2448865.5)	X:	+0.0771	-0.00088	+17.2160 5.211965	+0.01021 2.1525	+0.000109 2.5977	+0.0335 0.2841
A SEP.27 (0H)	Y:	+0.0972	-0.00052	+19.2841 0.452237	+0.01432 3.7184	+0.000065 4.1657	+0.0373 1.7901
SEP.27 (0H) (2448892.5)	X:	+0.0531	+0.00043	+16.8709 2.163187	+0.01589 5.5304	+0.000074 6.1588	+0.0285 0.3759
A OCT.24 (0H)	Y:	+0.0788	-0.00080	+18.8642 3.686625	+0.01749 0.8331	+0.000026 3.0092	+0.0323 1.9016
OCT.24 (0H) (2448919.5)	X:	+0.0722	+0.00019	+16.4200 5.393053	+0.01883 2.5299	+0.000049 4.1192	+0.0310 0.4430
A NOV.20 (0H)	Y:	+0.0595	+0.00080	+18.4294 0.633636	+0.01621 4.1585	+0.000070 0.2124	+0.0366 1.9959
NOV.20 (0H) (2448946.5)	X:	+0.0770	-0.00093	+15.9465 2.337631	+0.01890 5.8783	+0.000065 2.4095	+0.0319 0.7633
A DEC.17 (0H)	Y:	+0.0848	+0.00006	+18.0730 3.861735	+0.01313 1.2640	+0.000110 3.7004	+0.0367 2.3089
DEC.17 (0H) (2448973.5)	X:	+0.0486	+0.00025	+15.5260 5.563511	+0.01646 2.9597	+0.000102 6.0114	+0.0272 0.9029
A JAN.13 (0H)	Y:	+0.0786	-0.00073	+17.8508 0.805912	+0.00865 4.8573	+0.000126 0.8371	+0.0308 2.4548

1992 COORDONNEES EQUATORIALES DIFFERENTIELLES

DU SATELLITE 3 D'URANUS: TITANIA N=0.7217

		A0	A1	B0 F0	B1 F1	B2 F2	C0 P0
JAN. 1 (OH) (2448622.5)	X:	-0.1046	+0.00015	+26.2248 5.051093	+0.01825 2.4484	+0.000157 5.4267	+0.0355 1.9301
A JAN.18 (OH)	Y:	+0.0216	+0.00103	+29.2297 0.290053	+0.00987 4.6755	+0.000331 0.4803	+0.0396 3.4661
JAN.18 (OH) (2448639.5)	X:	-0.0809	+0.00054	+26.0060 4.747649	+0.01635 2.4676	+0.000382 5.7603	+0.0236 1.4567
A FEV. 4 (OH)	Y:	+0.0371	-0.00306	+29.2483 0.271203	+0.01911 5.3355	+0.000446 1.9606	+0.0282 2.9652
FEV. 4 (OH) (2448656.5)	X:	-0.0863	+0.00141	+25.8808 4.444345	+0.00369 0.6401	+0.000684 3.2101	+0.0245 0.7923
A FEV.21 (OH)	Y:	+0.0022	+0.00161	+29.4194 5.968376	+0.01205 5.7992	+0.000418 4.8938	+0.0267 2.2939
FEV.21 (OH) (2448673.5)	X:	-0.0458	-0.00044	+25.8620 4.143073	+0.00765 2.9636	+0.000254 4.8520	+0.0154 0.1458
A MAR. 9 (OH)	Y:	+0.0121	+0.00015	+29.6812 5.667547	+0.01881 5.2418	+0.000303 0.3605	+0.0184 1.6811
MAR. 9 (OH) (2448690.5)	X:	-0.0561	+0.00161	+25.9854 3.842023	+0.01236 3.3583	+0.000231 5.0886	+0.0212 5.2096
A MAR.26 (OH)	Y:	+0.0529	+0.00004	+30.0186 5.366299	+0.02328 5.4316	+0.000133 4.4514	+0.0240 0.4244
MAR.26 (OH) (2448707.5)	X:	-0.0187	-0.00432	+26.2316 3.542899	+0.00749 3.5768	+0.000652 3.3311	+0.0245 4.7656
A AVR.12 (OH)	Y:	+0.0358	+0.00239	+30.4391 5.069252	+0.02516 5.0575	+0.000182 4.0244	+0.0277 0.0761
AVR.12 (OH) (2448724.5)	X:	-0.0635	-0.00006	+26.5111 3.245192	+0.02056 3.2248	+0.000251 4.4681	+0.0313 4.0332
A AVR.29 (OH)	Y:	+0.0864	-0.00050	+30.8873 4.771233	+0.02585 4.8218	+0.000181 6.1787	+0.0370 5.5673
AVR.29 (OH) (2448741.5)	X:	-0.0976	-0.00057	+26.8884 2.948195	+0.02457 3.2655	+0.000130 2.1234	+0.0366 3.7715
A MAI 16 (OH)	Y:	+0.0641	+0.00045	+31.3304 4.474476	+0.02692 4.7679	+0.000136 2.1576	+0.0455 5.2899
MAI 16 (OH) (2448758.5)	X:	-0.0764	-0.00268	+27.3367 2.655984	+0.01756 2.4157	+0.000647 3.5883	+0.0335 3.3488
A JUN. 2 (OH)	Y:	+0.0791	-0.00449	+31.7492 4.181323	+0.02074 4.1520	+0.000220 6.1233	+0.0367 4.8572
JUN. 2 (OH) (2448775.5)	X:	-0.1236	+0.00175	+27.7111 2.360349	+0.02674 2.8334	+0.000213 0.2901	+0.0367 2.8400
A JUN.19 (OH)	Y:	+0.0184	+0.00127	+32.0571 3.886085	+0.02093 4.1896	+0.000487 0.4858	+0.0422 4.3987
JUN.19 (OH) (2448792.5)	X:	-0.0770	-0.00033	+28.0764 2.067580	+0.02202 2.5686	+0.000237 5.6730	+0.0253 2.5258
A JUL. 6 (OH)	Y:	+0.0047	-0.00038	+32.2793 3.591670	+0.01418 4.5173	+0.000268 1.0649	+0.0291 4.0215
JUL. 6 (OH) (2448809.5)	X:	-0.0736	+0.00192	+28.3494 1.777297	+0.01435 1.3246	+0.000767 3.8230	+0.0201 1.5292
A JUL.23 (OH)	Y:	+0.0211	+0.00064	+32.3640 3.299973	+0.00408 1.3724	+0.000611 5.2136	+0.0233 3.0160
JUL.23 (OH) (2448826.5)	X:	-0.0476	-0.00083	+28.4749 1.481816	+0.01375 2.6981	+0.000500 5.4709	+0.0194 0.9788
A AOU. 9 (OH)	Y:	-0.0031	+0.00363	+32.2504 3.004321	+0.01756 4.6425	+0.000899 0.7373	+0.0220 2.4428
AOU. 9 (OH) (2448843.5)	X:	-0.0486	+0.00050	+28.4650 1.188135	+0.00902 3.3815	+0.000287 4.9120	+0.0235 6.1086
A AOU.26 (OH)	Y:	+0.0731	-0.00104	+32.0778 2.710696	+0.01877 5.5888	+0.000083 5.8664	+0.0263 1.3395

1992 COORDONNEES EQUATORIALES DIFFERENTIELLES

DU SATELLITE 3 D'URANUS: TITANIA N=0.7217

		A0	A1	B0 F0	B1 F1	B2 F2	C0 P0
AOU.26 (OH)	X:	-0.0568	-0.00202	+26.3046	+0.01448	+0.000674	+0.0327
(2448860.5)				0.894370	4.6014	3.0392	5.7269
A SEP.12 (OH)	Y:	+0.0537	+0.00252	+31.7330	+0.01944	+0.000450	+0.0375
				2.416162	5.7856	4.7912	0.9633
SEP.12 (OH)	X:	-0.0593	-0.00171	+28.0031	+0.02174	+0.000692	+0.0316
(2448877.5)				0.596288	3.2846	5.0829	5.1431
A SEP.29 (OH)	Y:	+0.0821	-0.00112	+31.3200	+0.02516	+0.000801	+0.0361
				2.118260	4.8334	0.3117	0.3722
SEP.29 (OH)	X:	-0.1074	+0.00071	+27.6207	+0.02706	+0.000031	+0.0392
(2448894.5)				0.298645	3.5399	2.7330	4.7387
A OCT.16 (OH)	Y:	+0.0656	+0.00018	+30.8808	+0.02741	+0.000043	+0.0440
				1.820958	5.0912	3.0420	6.2395
OCT.16 (OH)	X:	-0.0828	-0.00201	+27.1379	+0.02456	+0.000322	+0.0331
(2448911.5)				6.282514	3.4115	2.9017	4.4323
A NOV. 2 (OH)	Y:	+0.0367	-0.00124	+30.4356	+0.02879	+0.000197	+0.0363
				1.520385	4.8353	1.8567	5.9928
NOV. 2 (OH)	X:	-0.1216	+0.00380	+26.6797	+0.03345	+0.000301	+0.0289
(2448928.5)				5.981920	3.0325	5.2704	3.7408
A NOV.19 (OH)	Y:	+0.0257	+0.00000	+30.0126	+0.02593	+0.000832	+0.0341
				1.220131	4.2563	0.1070	5.3034
NOV.19 (OH)	X:	-0.0746	+0.00015	+26.1787	+0.03045	+0.000169	+0.0234
(2448945.5)				5.679243	2.8798	0.3692	3.4293
A DEC. 6 (OH)	Y:	-0.0022	+0.00053	+29.6605	+0.02180	+0.000258	+0.0263
				0.918760	4.4987	1.3758	4.9411
DEC. 6 (OH)	X:	-0.0440	+0.00050	+25.7222	+0.02667	+0.000236	+0.0143
(2448962.5)				5.374752	2.4332	4.6297	2.3185
A DEC.23 (OH)	Y:	+0.0294	-0.00056	+29.3864	+0.01320	+0.000145	+0.0162
				0.615587	4.2705	0.1147	3.8165
DEC.23 (OH)	X:	-0.0528	+0.00053	+25.3361	+0.02847	+0.000344	+0.0219
(2448979.5)				5.073162	2.5085	5.7217	1.5975
A JAN. 9 (OH)	Y:	-0.0046	+0.00579	+29.2653	+0.01839	+0.000731	+0.0236
				0.314137	4.0728	0.3213	3.1305

1992 COORDONNEES EQUATORIALES DIFFERENTIELLES

DU SATELLITE 4 D'URANUS: OBERON N=0.4667

		A0	A1	B0 F0	B1 F1	B2 F2	C0 P0
JAN. 1 (OH)	X:	+0.0044	-0.00044	+35.1206	+0.02591	+0.000212	+0.0026
(2448622.5)				3.936175	1.4082	4.1343	3.6125
A JAN.23 (OH)	Y:	+0.0182	-0.00093	+39.0763	+0.01011	+0.000479	+0.0047
				5.457688	3.5545	4.9767	5.4760
JAN.23 (OH)	X:	-0.0153	-0.00164	+34.7552	+0.01726	+0.000140	+0.0162
(2448644.5)				1.629509	5.8420	2.2026	0.6369
A FEV.14 (OH)	Y:	+0.0400	+0.00030	+39.1736	+0.01815	+0.000201	+0.0181
				3.151981	2.2785	3.4334	2.2286
FEV.14 (OH)	X:	-0.0781	+0.00002	+34.6441	+0.01483	+0.000264	+0.0269
(2448666.5)				5.606727	4.1640	0.1587	2.9869
A MAR. 7 (OH)	Y:	+0.0303	-0.00011	+39.5361	+0.02264	+0.000302	+0.0294
				0.846914	0.2953	1.2547	4.4995
MAR. 7 (OH)	X:	-0.0633	-0.00236	+34.8275	+0.00911	+0.000573	+0.0297
(2448688.5)				3.301362	2.1351	3.6079	5.2264
A MAR.29 (OH)	Y:	+0.0086	-0.00292	+40.0982	+0.02599	+0.000370	+0.0344
				4.826196	4.6730	4.7002	0.4414
MAR.29 (OH)	X:	-0.1119	+0.00401	+35.1962	+0.01422	+0.000647	+0.0268
(2448710.5)				0.997634	1.4108	0.6554	1.1479
A AVR.20 (OH)	Y:	-0.0670	+0.00099	+40.8024	+0.03457	+0.000591	+0.0308
				2.522981	2.8978	1.3685	2.6578
AVR.20 (OH)	X:	-0.0408	+0.00145	+35.7239	+0.03354	+0.000297	+0.0166
(2448732.5)				4.980642	5.3422	3.5884	3.3668
A MAI 12 (OH)	Y:	-0.0063	-0.00414	+41.4945	+0.05552	+0.001023	+0.0220
				0.224015	0.5405	4.1692	4.8489
MAI 12 (OH)	X:	-0.0066	-0.00043	+36.4151	+0.04080	+0.000479	+0.0055
(2448754.5)				2.685211	2.7375	5.2733	5.3909
A JUN. 3 (OH)	Y:	-0.1238	+0.00946	+42.2201	+0.05540	+0.001300	+0.0082
				4.211692	4.2190	0.9813	1.2499
JUN. 3 (OH)	X:	-0.0193	+0.00064	+37.1810	+0.02567	+0.000622	+0.0065
(2448776.5)				0.390489	0.3414	1.9512	3.8766
A JUN.25 (OH)	Y:	+0.0588	-0.00299	+42.8954	+0.03215	+0.001201	+0.0115
				1.916971	1.4937	4.2224	5.7047
JUN.25 (OH)	X:	+0.0073	-0.00562	+37.8075	+0.01063	+0.000425	+0.0226
(2448798.5)				4.379208	5.0865	5.0422	0.0817
A JUL.17 (OH)	Y:	+0.0364	+0.00048	+43.2567	+0.00156	+0.000454	+0.0233
				5.903918	6.0976	1.4210	1.6820
JUL.17 (OH)	X:	-0.1119	+0.00177	+38.1062	+0.01361	+0.000219	+0.0306
(2448820.5)				2.085699	3.3323	0.2193	2.3798
A AOU. 8 (OH)	Y:	+0.0329	-0.00112	+43.2358	+0.01189	+0.000316	+0.0343
				3.609180	5.9757	0.7751	3.8663
AOU. 8 (OH)	X:	-0.1010	+0.00032	+38.1230	+0.00769	+0.000419	+0.0324
(2448842.5)				6.075415	2.0760	3.2166	4.5932
A AOU.30 (OH)	Y:	-0.0208	-0.00151	+42.8999	+0.01998	+0.000363	+0.0367
				1.314507	4.1713	4.8683	6.1361
AOU.30 (OH)	X:	-0.0760	+0.00169	+37.8128	+0.01809	+0.000383	+0.0264
(2448864.5)				3.779602	0.6121	0.9053	0.6020
A SEP.21 (OH)	Y:	-0.0651	-0.00006	+42.3209	+0.02998	+0.000211	+0.0286
				5.301202	2.1091	2.7718	2.1099
SEP.21 (OH)	X:	-0.0300	+0.00172	+37.2436	+0.03312	+0.000158	+0.0127
(2448886.5)				1.480366	4.6545	5.9031	2.9181
A OCT.13 (OH)	Y:	-0.0265	-0.00120	+41.6272	+0.04394	+0.000273	+0.0154
				3.002820	0.0364	3.4768	4.4324
OCT.13 (OH)	X:	+0.0202	-0.00240	+36.4896	+0.04351	+0.000645	+0.0019
(2448908.5)				5.460625	2.1746	4.3132	0.6142
A NOV. 4 (OH)	Y:	-0.0555	+0.00546	+40.8470	+0.04896	+0.000747	+0.0051
				0.699859	3.8459	0.3916	2.2623

1992 COORDONNEES EQUATORIALES DIFFERENTIELLES

DU SATELLITE 4 D'URANUS: OBERON N=0.4667

		A0	A1	B0 F0	B1 F1	B2 F2	C0 P0
NOV. 4 (OH)	X:	-0.0560	+0.00236	+35.5631	+0.03094	+0.000926	+0.0143
(2448930.5)				3.156535	6.0121	1.3664	3.6115
A NOV.26 (OH)	Y:	+0.0367	+0.00024	-40.0750	+0.03225	+0.000529	+0.0174
				4.679077	1.4877	3.6435	5.3906
NOV.26 (OH)	X:	+0.0114	-0.00710	+34.7137	+0.01978	+0.000725	+0.0254
(2448952.5)				0.852818	4.4580	4.3556	5.9413
A DEC.18 (OH)	Y:	+0.0575	-0.00304	+39.4646	+0.01813	+0.000187	+0.0248
				2.375692	3.2705	5.2187	1.1694
DEC.18 (OH)	X:	-0.1268	+0.00375	+34.0324	+0.03191	+0.000571	+0.0277
(2448974.5)				4.830628	2.5904	0.7588	1.8458
A JAN. 9 (OH)	Y:	-0.0048	+0.00026	+39.1624	+0.02848	+0.000771	+0.0329
				0.070632	4.2673	1.2526	3.2859

Imprimé en France
EUROPE MEDIA DUPLICATION
53110 Lassay-les-Châteaux
N° 2076 - Dépôt légal OCTOBRE 1991

Directrice de la Publication : Jeanne BERGER

Composé par STDI. Imprimé par EMD.
53110 LASSAY-LES-CHATEAUX

Ces éphémérides donnent les positions des satellites de Mars, des satellites galiléens de Jupiter, des huit premiers satellites de Saturne et des cinq satellites d'Uranus pour 1992 avec une précision de 0.01 seconde de degré ('). Elles sont ainsi très utiles aux astronomes pour préparer ou réduire des observations de haute précision ainsi que pour étudier les mouvements des satellites naturels des planètes.

Les positions sont données sous forme de coefficients de fonctions élémentaires dépendant directement du temps. Les calculs sont faciles à programmer sur une calculatrice de poche ou sur un micro-ordinateur.

Cet ouvrage donne aussi une méthode pour effectuer les prédictions des phénomènes des satellites de Jupiter en 1992.

De telles éphémérides, uniques par leur contenu, méritent de figurer dans les bibliothèques des Universités et des Observatoires.

These ephemerides give the positions of the satellites of Mars, of the Galilean satellites of Jupiter, of the First eight satellites of Saturn and of the five satellites of Uranus for 1992 with an accuracy of 0.01 arcsecond (').

Thus, they are very useful to astronomers in order to prepare or reduce precise observations and to study the motions of the natural satellites of the planets.

The positions are given as coefficients of elementary functions depending directly on time. The calculations are easy to program on a pocket calculator or on a micro-computer.

This booklet also contains a method of calculation to predict the phenomena of the satellites of Jupiter in 1992 .

Such ephemerides of unique nature, have their place in the libraries of Universities and Observatories.

ISBN : 2-86883-164-8

France : 180 FF
Etranger : 200 FF