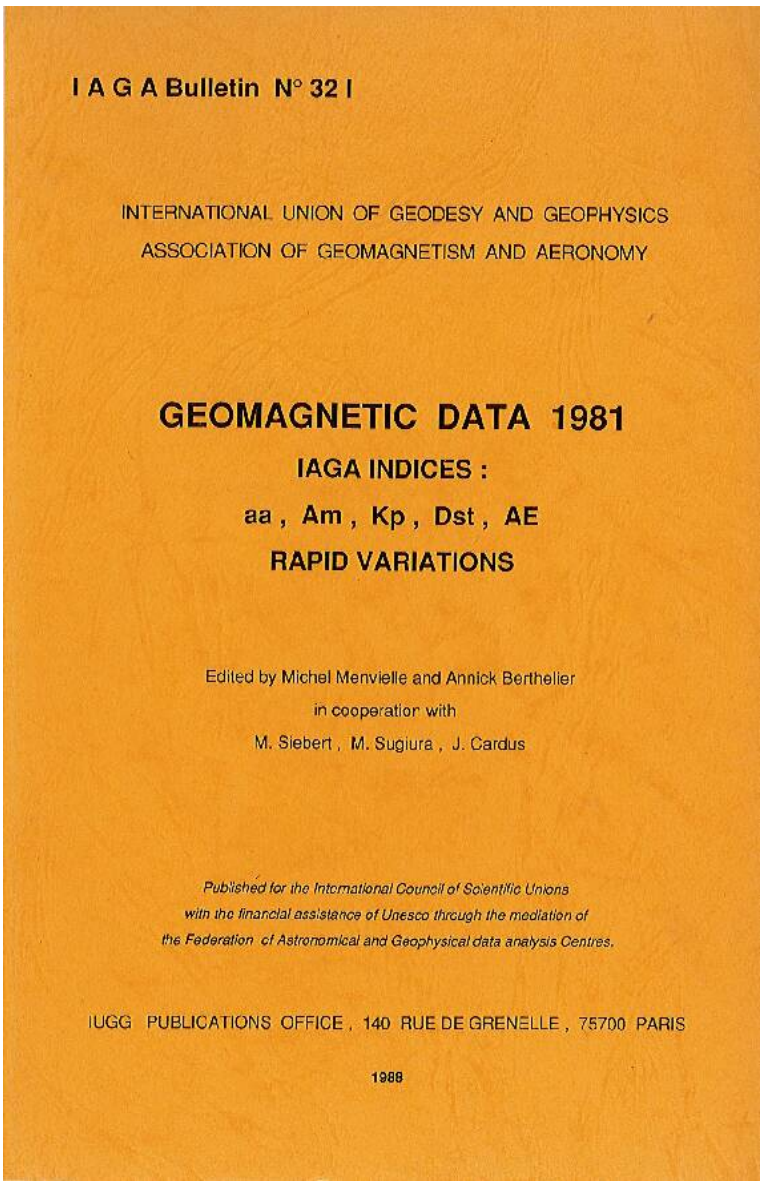


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I A G A Bulletin N° 32 I

INTERNATIONAL UNION OF GEODESY AND GEOPHYSICS
ASSOCIATION OF GEOMAGNETISM AND AERONOMY

GEOMAGNETIC DATA 1981

IAGA INDICES :

aa , Am , Kp , Dst , AE

RAPID VARIATIONS

Edited by Michel Menvielle and Annick Berthelier
in cooperation with
M. Siebert , M. Sugiura , J. Cardus

Published for the International Council of Scientific Unions
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IUGG PUBLICATIONS OFFICE , 140 RUE DE GRENELLE , 75700 PARIS

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A C K N O W L E D G E M E N T S

We wish to acknowledge J.O. CARDUS, M. SIEBERT and M. SUGIURA for their cooperation in preparing the data published in this bulletin. Thanks are also due to all the organisms, that are listed in tables 1 and 2, page 8, which support efficiently the elaboration and distribution of these geomagnetic data.

Let us add that M. SUGIURA, who has now moved from the Goddard Space Flight Center (Maryland, USA) to the WDC-C (Kyoto, Japan ; see Table 1), is wanting to specially acknowledge R. S. KENNON (Goddard Space Flight Center) and T. KAMEI and T. ARAKI (Data Analysis Center for Geomagnetism and Spacemagnetism, Kyoto University) for their assistance in the derivation of the indices and in the preparation of the published tables and figures, respectively for the Dst and for the AE indices.

As for us, we are pleased to express our thanks to Richard SCHEIB (IPGP), Patricia BARDIN (IPGP) and Christine GUERIN (CRPE) for their efficient contribution in the edition of this bulletin.

A. BERTHELIER, M. MENVIELLE

Saint Maur, Paris, Avril 1988

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SECTION 1

PRESENTATION OF THE BULLETIN

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1.1. Introduction :

The IAGA-Bulletin N° 32 series is a yearly compilation of magnetic indices and other geomagnetic data, based on the reports of a great number of magnetic observatories. The series is the continuation of the former IAGA-Bulletin N°12 and is prepared for publication by the International Service of Geomagnetic Indices (ISGI). The ISGI, formerly called Permanent Service or "C- and K-center", operates under the supervision of IAGA-Division V : Observatories, Instruments, Surveys and Analysis. Since 1954 it forms part of the Federation of Astronomical and Geophysical Data Analysis Centers. Its present address is : ISGI, Institut de Physique du Globe de Paris, Tour 14, 4 Place Jussieu, 75252 PARIS CEDEX 05, France.

As for 1981 the elaborated data were provided by the following Institutes, under the responsibility of the adjoining collaborators :

Institut für Geophysik, Göttingen (M. SIEBERT) :
Kp, ap, Ap, Cp, Q- and D-days.

Institut de Physique du Globe, Paris (M. MENVIELLE) :
aa, C- and K- days, an, Kn, An, as, Ks, As and am, Km, Am.

Nasa-Goddard Space Flight Center, Greenbelt (M. SUGIURA) :
Dst.

Data Analysis Center for Geomagnetism and Spacemagnetism, Kyoto (M. SUGIURA) :
AL, AU, AE.

Observatorio del Ebro, Roquetas (J.O. CARDUS) :
Rapid variations.

The work began in 1906 with the collection and publication of the daily character figure C and the international character figure Ci, together with lists of selected quiet and disturbed days. In 1938, this work was extended backwards to 1890.

The three-hourly K-index (scale 0-9) was introduced by Bartels in 1938. From the K-figures of 12 selected stations, planetary indices Kp were derived. Both K and Kp were officially adopted by the IAGA in 1951 and the series of Kp was extended backwards to 1932 during the subsequent period. The K-figures of the selected stations for these early years were published in IAGA-Bulletins N°12g and N°121. In addition to Kp, the corresponding range figures ap and related daily indices Ap and Cp have been regularly published in the IAGA-Bulletins N°12.

In accordance with recommendations of the IAGA-Assemblies in Madrid (1969) and Moscow (1971), the publication in the IAGA-Bulletins of C- and K-indices of individual observatories ended with the 1969 data, whereas planetary indices (Dst, an, Kn, An, as, Ks, As, am, Km, Am) and a survey of magnetic storms were included since 1970. This change marked the end of the series IAGA-Bulletin N°12 and the beginning of the new series IAGA

Bulletin N°32. The publication of the Ci, Kp, ap, Ap indices, and of the international quiet and disturbed days Q- and D-days, continued in the new series. According to a recommendation of the IAGA-Assembly in Grenoble (1975) a new index aa is published instead of Ci since 1976 and the C-figures are no longer compiled.

A short recall of the definitions of the published indices is given in the section 1.3 below (pages 11-16). For more details one can refer to the following two general reports :

. M. Siebert, in "Handbuch der Physik", vol 4313, 206-275, Springer Verlag, 1971, for the description of several indices ;

. P. N. Mayaud, Derivation, meaning and use of geomagnetic indices, Geophysical Monograph 22, Am. Geoph. Union, Washington D.C., 1980, for an up to date complete review of the present IAGA indices.

Indications concerning their availability are given below, together with some more references.

- The K-indices of individual observatories are available on magnetic tape for the years 1969 through 1974, at the World Data Center A (W.D.C.-A, Table 1). Besides, tables of local K-indices can be found in the bulletins or yearbooks of many observatories. The results of an extensive study on the K index by P.N. Mayaud are given together with practical rules for its determination, in the "Atlas of Indices K", IAGA-Bulletin N°21, 1967.

- The aa-indices form a series of indices beginning in the year 1868. A full description can be found in the IAGA-Bulletin N°33, which contains tables and graphs of aa for the years 1868-1967. Values for the years 1968-1975 are published in IAGA Bulletin N°39 ; this index is regularly published in IAGA-Bulletin N°32 since 1976. The whole serie is available on magnetic tapes at World Data Center A (Table 1), and in France through CRPE-CNRS (Table 2). They also regularly appear in Geomagnetic and Solar Data monthly tables edited by H. Coffey in Journal of Geophysical Research and in Solar Geophysical Data Publications (Table 2). They can be sent on request by ISGI , by mail before the end of the next month, or by telex within 1 week (Table 1).

- The meaning of C, Ci, K and Kp is explained in textbooks, (e.g. Landolt-Börnstein, Zahlenwerte und Funktionen, Band 3., 731-744, Springer Verlag, 1952), in Terrestrial Magnetism and Atmospheric Electricity (44, 411, 1939 ; 45, 309, 1941) and in IAGA Bulletin N°12i. Tables and diagrams of these planetary indices for the whole period 1932-1961 are printed in IAGA-Bulletin N°18. Kp, Ap, Cp are published in the IAGA-Bulletin N°32, and also in the Geomagnetic and Solar Data monthly tables, edited by H. Coffey in Journal of Geophysical Research and in Solar Geophysical Data Publications (Table 2). They are sent on request before the end of the next month by the Institut für Geophysik, Göttingen (Table 2). They are available on magnetic tape at the World Data Centers (Table 1).

- The three hourly indices an, Kn, and as, Ks, for the Northern and Southern hemispheres and the mondial indices am, Km, are described by P.N. Mayaud in "Indices Kn, Ks et Km, 1964-1967" (Editions du CNRS, Paris 1968). The indices for the years 1959-1963 are published in the IAGA-Bulletin N° 39, and for 1964-1967 in the above quoted publication. They are published in the IAGA-Bulletin N°32 from 1968 onwards, and also appear in Geomagnetic and Solar Data monthly tables edited by H. Coffey, Journal of Geophysical Research and in Solar Geophysical Data Publications (Table 2). They are available on magnetic tape at World Data Centers (Table 1) and in France through CRPE-CNRS (Table 2). They can be sent on request by mail from ISGI within 6 weeks after the end of the month (Table 1).

- The equatorial Dst-index for ring current intensity is published in the IAGA-Bulletin N°32 from 1970 onwards. Hourly values of Dst for the years 1957-1970 based on the data of three stations, have been published by M. Sugiura and D.J. Poros in the report X-645-71-278 of the Goddard Space Flight Center. This report supersedes earlier Dst publications by Sugiura and co-workers. Recently, these Dst values have been recomputed, using the data of four stations. Hourly Dst-values for the IGY, based on the data of eight stations, are given in the Annals of the IGY, vol. 35. The same volume contains three-hourly values of Dst for the IGY as determined by W. Kertz in a somewhat different way. The hourly values from 1957 onwards are available on magnetic tape at the World Data Centers (Table 1).

- The auroral electrojet index AE was originally introduced by Davis and Sugiura in 1966 (J. Geophy. Res., 71, 785). It was first derived at the Geophysical Institute of the University of Alaska, and hourly values were published for the years 1957 to 1964 in the University of Alaska Reports prepared by T.N. Davis, Y.S. Wang and C. Echols and published in 1967 and 1968. The data for 1965 were prepared by NASA ; from 1966 to 1976, they were prepared by W.D.C.-A. Values from 1978 onwards are computed by the Data Analysis Center for Geomagnetism and Spacemagnetism of Kyoto University and published in the data books of this institution. They are available on magnetic tape at the World Data Centers (Table 1). Hourly mean values are published in IAGA-Bulletin N°32 since 1981.

- Data on rapid variation are collected and prepared for publication at the Observatorio del Ebro (Table 2), according to decisions made at the IAGA-Assemblies in Madrid (1969), and in Grenoble (1975). They are given less extensively than in the former IAGA-Bulletins. Provisional lists are available on request at ISGI within 6 weeks after the end of the month (Table 2).

Table 1 and Table 2 (next page) give present address of the ISGI, of the World Data Centers, and of the National Institutes and Data Centers related to this bulletin.

TABLE 1

ISGI and World Data Centers

ISGI	International Service of Geomagnetic Indices Tour 14 Institut de Physique du Globe de Paris 4, Place Jussieu 75252 PARIS CEDEX 05, France Telephone 33 1 43 36 25 25 ext. 4935 Telex 202 810 VOLSISM Telefax 33 1 43 26 40 29
WDC-A	World Data Center-A for Solar-Terrestrial Physics NOAA code E/GC2 325 Broadway BOULDER, Colorado 80303, USA Telephone 1 303 497 6324 Telex 592811 NOAA MASC BDR Telefax 1 303 497 6513
WDC-B	World Data Center-B Soviet Geophysical Committee Academy of Sciences of the USSR Molodezhnaya 3 MOSCOW 117296, USSR Telephone 7 095 130 05 46 7 095 228 67 88 Telex 411478 SGC SU
WDC-C	World Data Center-C for Geomagnetism Data Analysis Center for Geomagnetism and Spacemagnetism Faculty of Science, Kyoto University KYOTO 606, Japan Telephone 81 75 751 2111 ext. 3939 Telex 5422 693 LIB KYO J Telefax 81 75 722 7884

TABLE 2

National Institutes or Data Centers

M. MENVIELLE	Institut de Physique du Globe de Paris Tour 14 4, place Jussieu 75252 PARIS CEDEX 05, France.
M. SIEBERT	Geophysical Institute, Gottingen University Institut fur geophysik der Universitat Gottingen Postfach 2341 Herzberger Landstrasse 180 D-3400 GOTTINGEN, Federal Republic of Germany.
J.O. CARDUS	Observatorio del Ebro TARRAGONA Roquetas, Espana.
M. SUGIURA	Working Group on World Data Centers National Committee on Solar-Terrestrial Physics Science Council of Japan Geophysical Institute Faculty of Science, Kyoto University KYOTO 606, Japan.

. For access to CRPE available data, one have to contact :

Christine GUERIN	CRPE-CNRS 4, avenue de Neptune 94107 SAINT MAUR CEDEX, France. Telephone 33 1 48 86 12 63 Telex 680 327 CNET GRI Telefax 33 1 48 89 44 33

. Solar Geophysical Data monthly publications are issued by :

NOAA	National Geophysical Data Center NOAA, NESDIS EIGC4 325, Broadway BOULDER, Colorado 80303, U.S.A.

1.2. List of Observatories :

A list of the magnetic observatories at which continuous recordings have been made during at least five consecutive years is given page 23-32. In this table, the observatories are listed according to the alphabetic order and one has indicated for each station, from left to right :

- its name and three-letter IAGA international code ;
- the geographic and geomagnetic coordinates, and altitude ;
- the K=9 lower limit, given only for the stations which belong to Kp, am or aa networks (see section 1.3 for the description of these networks in 1981) ;
- the opening and closing years.

Note that temporary stations do not appear in this table, as for instance those operating during the International Polar and Geophysical years, but they can be found in the more extensive list published in IAGA Bulletin n° 20 (1965).

The values of the parameters given in the table has been obtained from the following publications :

- C.R. BOCK and R.W. SCHUMANN : Katalog der Jahres mittel der Magnetischen Elemente der Observatorien und der Stationen an deinen eine Zeitlang erdmagnetische Beobachtungen Stattfanden, Geophysikalisches Institut Postdam Abhandlungen n° 8, Postdam, 1948 ;
- Annual mean values of Geomagnetic elements, Geomagnetic Bulletin n° 10, Institut of Geological Sciences, Edinburgh, 1981 ;
- Yearbooks of individual observatories.



Figure 1



Figure 2

1.3. IAGA Indices :

1.3.1 aa indices

The aa indices are derived using data from two nearly antipodal observatories, where magnetograms were available since 1868. For each three hour interval, K indices are measured at the two stations and converted back into amplitude ; an individual aa index is the average of the northern and southern values, weighted to account for the small difference in latitude of the two stations, or for the slight changes in the very place of the observatory. The observatories and weighting coefficients used to derive aa are the followings :

Northern Hemisphere		Southern Hemisphere	
1868-1925	Greenwich 1.007	1868-1919	Melbourne 0.967
1926-1956	Abinger 0.934	1920-1979	Toolangui 1.033
1957- ...	Hartland 1.059	1980- ...	Canberra 1.084

Half-daily and daily mean values give an estimate of the activity level very close to the corresponding values derived from am-indices. aa is in nanotesla (nT) and it represents the activity level at an invariant magnetic latitude of about 50°. The following values are given p 38 - 39 :

N = daily values for the Northern observatory (Greenwich day)

S = same for the Southern observatory

am, pm = half-daily values of aa-indices for the half Greenwich day : before, and after noon.

For each month, the average value of daily N, S and aa, are given at the bottom of the tables.

The five international quietest days of the month (see section 4) are indicated by the letter Q. Letters C and K refer to the classification of the quiet 24 and 48 hour intervals as obtained from aa : C = really quiet, K = quiet, but with one or a few slightly disturbed three-hourly intervals (see section 4). The letter on the left column refers to the 24 hour Greenwich day, the right one to a period of 48 hours centered on the Greenwich noon.

A graph of 12-hour running mean values of aa indices is drawn page 37 for the whole year. Monthly and yearly mean values of aa for the years from 1868 onwards are listed page 40-41. A graph of 12-month running mean values of aa is drawn page 42, covering the full period when aa has been calculated so far, i.e. 1868-1981. In this graph, the point plotted at the abscissa of a given year corresponds to the average of aa from January to December of that year (unit : nT).

1.3.2. am indices

am, an and as indices are derived from K indices scaled at observatories located in the subauroral zones of the Northern and Southern hemispheres (Figure 1). The stations are arranged in groups (G1 to G9), each group representing a longitude sector in one of the hemisphere, namely :

Northern Hemisphere			Southern Hemisphere		
Observatory		Geomag. Lat.	Observatory		Geomag. Lat.
G1 Magadan	MGD	53.8°	G6 Eyrewell	EYR	50.2°
Petropavlosk	PET	46.4°	Lauder	LAU	
Memabetsu	MMB	37.4°			
G2 Podkammenkaya	POD	57.2°	G7 Toolangui	TOO	48.0°
Sverdlovsk	SVD	52.2°	Canberra	CAN	45.2°
			Gnangara	GNA	44.1°
G3 Witteveen	WIT	50.2°	G8 Kerguelen	PAF	58.8°
Hartland	HAD	50.0°	Crozet	CZT	52.4°
Niemegk	NGK	48.8°	Hermanus	HER	41.1°
G4 Ottawa	OTT	58.9°	G9 Argentine Islands	AIA	49.7°
Frederiksburg	FRD	51.8°	Trelew	TRW	27.8°
G5 Victoria	VIC	53.9°			
Tucson	TUC	39.7°			

For a given three-hour interval, the K values measured at the observatories of one group are averaged and converted back to amplitude. These amplitudes are weighted for balancing the differences in longitude width of the sectors, and the hemispheric averages of these weighted amplitudes give rise to the three-hour an and as indices respectively ; am is equal to (an + as)/2. Am, An and As are the mean daily values of am, an and as. They are all expressed in nanoteslas. For the sake of tradition and convenience, Km, Kn and Ks equivalent values are also made available by means of conversion table ; they are as usually expressed by values from Oo to 9o, and, for 3Km, 3Kn, 3Ks, by values from 0 to 27.

Monthly tables of an, and as are given pages 46 to 57 each line corresponding to a Greenwich UT day. Following values are displayed from left to right :

- 3Kn (3Ks) values for the 8 three-hour intervals ;
- σn (σs) values for the 8 three-hour intervals represent, by a code using one digit from 0 to 9, the variance of the sector values of K in Northern (Southern) hemisphere calculated for each given three-hour interval ;
- an (as) values for the 8 three-hour intervals ;
- An (As) daily mean value.

At the end of each table, one can find the monthly mean value.

Monthly tables of Am (pages 58 to 63) are displayed in a similar way :

- 3Km values for the 8 three-hour intervals ;
- daily sum ΣKm ;
- am values for the 8 three-hour intervals ;
- Am, daily mean value ;
- Am2, mean value of am over a 48 hours period centered at the middle of the Greenwich day.

Km values are displayed as "musical diagram" according to Bartels solar rotations (page 45) ; monthly and yearly mean values of Am from 1959 onwards are given page 64.

1.3.3. Kp indices

The planetary three-hour-range index Kp is the mean standardized K-index from 13 observatories between 44° and 60° northern or southern geomagnetic latitude (Figure 2). The scale is 0o to 9o, expressed in thirds of a unit, e.g. 5- is 4 2/3, 5o is 5, 5+ is 5 1/3. This planetary index is designed to measure solar particle radiation by its magnetic effects. Several other indices are derived from Kp, namely the three-hour index ap (the equivalent range) and the daily indices Ap as well as C1p and C9 from the daily sum of ap.

The Kp-stations are :

Northern Hemisphere			Southern Hemisphere		
Observatory		Geomag. Lat.	Observatory		Geomag. Lat.
Meanook	MEA	62.5°	Eyrewell	EYR	50.2°
Sitka	SIT	60.0°	Canberra	CAN	45.2°
Lerwick	LER	58.9°			
Ottawa	OTT	58.7°			
Eskdalemuir	ESK	54.3°			
Brorfelde	BJE	52.7°			
Fredericksburg	FRD	51.8°			
Wingst	WNG	50.9°			
Witteveen	WIT	50.2°			
Hartland	HAD	50.0°			

The three-hour equivalent amplitude ap is related to Kp as follows :

Kp =	0o	0+	1-	1o	1+	2-	2o	2+	3-	3o	3+	4-	4o	4+
ap =	0	2	3	4	5	6	7	9	12	15	18	22	27	32

Kp =	5-	5o	5+	6-	6o	6+	7-	7o	7+	8-	8o	8+	9-	9o
ap =	39	48	56	67	80	94	111	132	154	179	207	236	300	400

In order to use ap as an equivalent amplitude, it is considered in relation to the conditions at a standard station, which is a station having the lower limit of 500 nT for K = 9. At such a station the average range in nT of the most disturbed of the three force components in a three-hour interval can be taken as 2.ap (for instance, for Kp = 3+, as 36 nT). In other words ap is an equivalent amplitude in the unit 2 nT. The column headed Ap gives the daily average for the eight values ap per day. Therefore, Ap may be called the "equivalent daily amplitude Ap", expressed in the unit 2 nT for a standard station.

Observatories wishing to compute, from their own K-indices, a local equivalent amplitude ak, may proceed as follows :

K =	0	1	2	3	4	5	6	7	8	9
ak =	0	3	7	15	27	48	80	140	240	400

This table is valid for all observatories. Using the values of the table, ak has the meaning of an index. If it is desired to convert the index ak into an equivalent amplitude in the unit nT, the conversion factor is obtained from the lower limit for K = 9 valid at the station by dividing the limit by 250. For instance, at Sodankylä, where the lower limit for K = 9 is 1500 nT, the factor is 6, so that, for K = 3, the equivalent amplitude is 90 nT, or, in other words the index ak for Sodankylä expresses equivalent amplitudes in the unit 6 nT. Similary, Ak is the daily average of the ak. Use of the daily Ap (planetary) or Ak (local value) is recommended in preference to the sum of the indices Kp or K.

The last column gives the daily planetary character figure Cp, as defined in Bulletin 12e, p. 111. It should be noted that Cp, introduced for a standardisation of the international character-figures Ci, has not been approved by the Association. Instead, Ap was preferred. For a rough conversion of Ci-figures (prior to 1932) into Ap, the following table (derived from Bulletin 12e, p. 111, Table 2) may be used :

10.Ci =	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Ap =	2	4	5	6	8	9	11	12	14	16	19	22	26	31	37	44	52	63	80	110	160

Monthly tables of Kp and derived indices are given pages 68 - 73. Kp values are displayed as "musical diagrams" according to Bartels solar rotation page 67. The frequencies of Kp indices is given by month page 74. Monthly and yearly mean values of Ap from 1932 onwards are given page 75.

1.3.4. Dst index

The equatorial Dst-index for the intensity of the ring current is the deviation of the horizontal component H from its quiet time value, averaged over a four low latitude stations given in the following table.

Observatory	Symbol	Dipole Lat.	Dipole Long.
Honolulu	HON	21.0°N	266.4°
San Juan	SJG	29.9°N	3.2°
Hermanus	HER	33.3°S	80.3°
Kakioka	KAK	26.0°N	206.0°

The exact definition of Dst is given in earlier data publications (see references page 7). Monthly tables of hourly Dst-values are given pages 82 to 93, followed by a table of daily mean values (page 94). The graph of hourly values for the whole year is given page 79-81 ; the table of monthly and yearly mean values from 1959 onwards is given page 95.

1.3.5. AE index

The AE indices are derived from geomagnetic variations in the horizontal component observed at selected observatories along the auroral zone in the northern hemisphere (Figure 3, Table 3). These variations are measured from a base line determined for each of the observatories. For each given time (UT), at one minute intervals the AU and AL indices are respectively defined as the maximum and minimum values among the one minute values of the variations from all the AE observatories at this UT. The AE index is defined by AU-AL, AO is (AU+AL)/2. For the sake of simplicity the term "AE (Auroral Electrojet) indices" is generally used to mean all the AE-associated indices, i.e. AU, AL, AE and AO. In a superposed plot of one minute values of H from all the AE observatories with a common time axis the AU and AL indices represent the upper and lower envelopes of the plotted points, respectively, and the AE value gives the separation of these envelopes. The AU and AL indices are intended to represent a measure of the maximum current density of the eastward and westward auroral electrojets, respectively. The AE index represents a measure of global auroral electrojet activity.

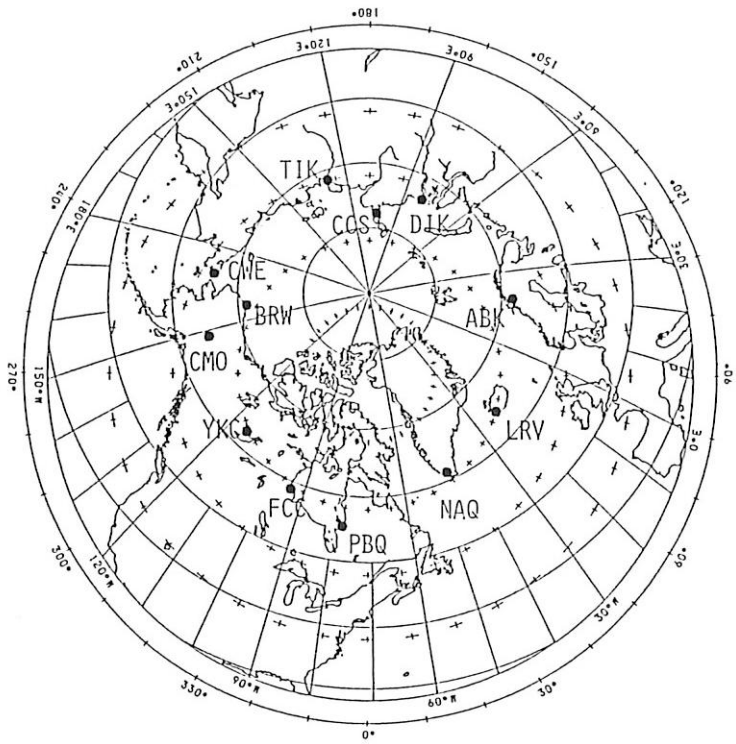
One minute values of the AE indices (AU, AL, AE and AO) are calculated at the Data Analysis Center for Geomagnetism and Spacemagnetism, (same address as WDC-C, Table 1) and more detailed plots and tables are given in the Data Book series of the World Data Center C2 for Geomagnetism. One minute values of these indices are available on magnetic tape at the World Data Center-A for Solar Terrestrial Physics in Boulder, Colorado and at the World Data Center C2 for Geomagnetism in Kyoto (See Table 1, above).

Tables of hourly averages of AU, AL and AE are given page 100 to 123. The hourly averages of AU, AL and AE are computed from the one minute values of the respective indices, therefore they may not necessarily satisfy the relationship AU - AL = AE exactly. Similarly the daily mean indices are averages of the one minute values for the whole day and are not the daily means of the hourly averages. Monthly and yearly mean values from 1957 onwards are given page 124.

TABLE 3

List of AE observatories

Observatory	Symbol	Geographic		Geomagnetic	
		Lat. (°N)	Long. (°E)	Lat. (°N)	Long. (°E)
Abisko	ABK	68.36	18.82	66.04	115.08
Dixon Island	DIK	73.55	80.57	63.02	161.57
Cape Chelyuskin	CCS	77.72	104.28	66.26	176.46
Tixie Bay	TIK	71.58	129.00	60.44	191.41
Cape Wellen	CWE	66.17	190.17	61.79	237.10
Barrow	BRW	71.30	203.25	68.54	241.15
College	CMO	64.87	212.17	64.63	256.52
Yellowknife	YKC	62.40	245.60	69.00	292.80
Fort Churchill	FCC	58.80	265.90	68.70	322.77
Great Whale River	GWC	55.27	282.22	66.58	347.36
Narssarssuaq	NAQ	61.20	314.16	71.21	36.79
Leirvogur	LRV	64.18	338.30	70.22	71.04



Distribution of AE(12) stations

Figure 3

1.4. Classification of days :

The international five quietest days and the selection of the 24-hour and 48-hour intervals which are really quiet or very quiet are listed month by month page 127 to 129. The extensive list of international quietest and more disturbed days and a list of magnetic storms are given page 130. These classifications are made according to the following.

1.4.1. Classification deduced from Kp indices

The selection of the quietest and most disturbed days is made on the basis of three criteria :

- (a) the sum of the eight values of Kp ;
- (b) the sum of the squares of these values ;
- (c) the greatest of the eight values of Kp.

According to each of these criteria, a relative "order number" is assigned to each day of a month, the three order numbers are averaged and the days with the lowest and the highest mean order numbers are selected as the five quietest, the ten quietest and the five most disturbed days (Table page 130, with a list of magnetic storms).

It should be noted that these selection criteria give only a relative indication of the character of the selected days with respect to the other days of the same month. As the general disturbance level may be quite different for different years and also for different months of the same year, the selected quietest days of a month may sometimes be rather disturbed or vice versa. In order to indicate such a situation, selected days which do not satisfy certain absolute criteria are marked as follows :

- a selected "quiet day" is considered "not really quiet" and is marked by the letter A if for that day : Ap > 6, or marked by the letter K if Ap ≤ 6, with one Kp value greater than 3 or two Kp values greater than 2+ ;
- a selected "disturbed day" is considered "not really disturbed" and marked by an asterisk if Ap < 20. (see P.N. Mayaud, Ann. Géophysique (26), 901, 1969).

1.4.2 Classification deduced from aa indices

The selection of the quiet 24-hour intervals is made firstly on the basis of the mean value of aa which must be lower than the fixed value : 13 nT. Then, each individual aa value of the day is represented by a weight p, namely :

p	0	1	2	4	6
aa	≤17	17<aa≤21	21<aa≤28	28<aa≤32	>32

A day with a mean value of aa ≤ 13nT and for which Σp is higher than, or equal to 4 is a quiet K-day ; if Σp is lower than 4, the day is a really quiet C-day.

The same rules are applied to select the 48-hour quiet or really quiet intervals, with the same limit for the aa mean value (13 nT) and a limit for Σp equal to 6. One has to note that in these intervals every local day (0 h to 24 h in local time) is really quiet, at any longitude. For further details, see P.N. Mayaud, Derivation, Meaning and Use of Geomagnetic Indices, Geophysical Monograph 22, AGU, Washington 1980.

1.5. Rapid variations :

1.5.1. STORM SUDDEN COMMENCEMENTS (ssc)

Sudden commencements followed by a magnetic storm or by an increase in activity lasting at least one hour are listed according to the data reported monthly by the observatories mentioned in the heading of the list given page 133. The final identification of the storm sudden commencements (ssc) in made from copies of records supplied to the Service of Rapid Variations (J.O. CARDUS, Director ; see Table 2 p. 8) by five low-latitude observatories or their supplementary observatories (see heading of the list, p. 133). The copies are requested for all events, also for those reported by other observatories only. Furthermore all events are checked on the microfilm-copies of magnetograms of two low latitude observatories. In doubtful cases, attention is especially given to the monthly reports of all observatories. See IAGA-Bulletin N° 39, pp. 103-111 for a full explanation of this method, and some statistical results concerning the years 1968-1975.

In the list of ssc given pages 133-135, the time in the column at the left is the mean value obtained from all observatories ; but the earliest and latest times reported by the observatories for the beginning of the event are added in parenthesis. For printing reasons only the minutes are given. These minutes generally belong to the hour of the event ; but if they are underlined they belong to the preceding hour. The next five figures indicate the qualification given to the event by the Service of Rapid Variations, using the above mentioned copies of low latitude stations (if a figure is underlined, it means that the supplementary station is used). The meaning of these numbers is as follows:

- 2 or 3 = the event can be unmistakably identified as being an ssc from the single record under consideration ; 3 is imposed instead of 2 when the following three features are present : very sharp change of rythm, large amplitude of the sudden move, remarkably morphology of it ;
- 1 = means that the event seen in this particular record is possibly an ssc, but is not sufficiently clear by itself for stating that it is a true ssc ; one needs records from other longitudes for getting a firm judgement ;
- 0 = means that, from the record under consideration, the event could escape from the attention of the observer or does not deserve to be called an ssc.

After these numbers are given the average duration of the event in minutes (time-interval between the beginning and the maximum of the sudden move) and its average amplitude in nT at the five selected observatories. The next group indicate the number of observatories which have caracterised the ssc event by either letter A, or B, or C, in their monthly reports. A, B, C have the following meaning :

- A = very remarkable
- B = fair, ordinary but unmistakable
- C = very poor, doubtful

Note that the 0 to 3 qualification is given by the Service of Rapid Variations independently of these A, B, C, quality indications.

The last group indicates the number of observatories which have classified the event other than ssc namely :

- si = sudden magnetic change which could not be classified as ssc ;
- pg = giant pulsations, i.e. exceptional pulsations of very great period and regularity, with sufficient relative amplitude ;
- pi = train of pulsations of irregular shape, consisting of several series of oscillations, each series lasting about 10 minutes ; period of the pulsations : pi1 shorter than 40 s, pi2 40-150s, pi3 longer than 150s ;
- pc = pulsation of more continuous character, generally with long duration ; period : pc1 0,2-5s, pc2 5,1-10s, pc3 10-45s, pc4 45-150s, pc5 150-600s, pc6 longer than 600s ;
- b = bay-like disturbance in the magnetogram ;
- ncl = no classification given in the report ;
- cr = crochet-like disturbance ;

1.5.2. SOLAR FLARE EFFECTS (sfe)

Solar flare effects (sfe) were reported by many observatories. A check of the reported case has been made by the Service of Rapid Variations (Table 2, p. 8) using reports of the observatories mentioned in the heading of the list p. 136 In the list given pages 136-144 the time tabulated in the column at the left is the mean value of the times given for the beginning of the phenomenon. The stations that reported the sfe are listed behind the indicated time, grouped in accordance with the quality-indications A, B, C, D, E or X given in their reports. This letter index refers only to the existence of a movement in the curve, not to its being an sfe :

- A = very clear movement,
- B = fair, ordinary movement,
- C = very poor movement,
- D = movement not observed, although records are satisfactory,
- E = the movement cannot be observed because of heavy disturbance
- X = record missing.

Following the three-letter symbol for each station reporting a movement of clas A, B, or C, a number is attached that refers to the opinion of the collaborating observatory about the type of movement :

- 3 = certainly a sfe
- 2 = probably a sfe
- 1 = probably not a sfe
- 0 = decidedly not a sfe

However some observatories did not follow the instructions given in the checking list and only reported "Yes" or "No". As the Service did not know whether these indications refer to the existence (or non existence) of a movement in the curves or to the opinion that the existing movement was (or was not) a sfe, we added these observatories, following the two letters Y and N, respectively. When some observatory identified the movement as a phenomenon different from a sfe they have been reported at the end of the list.

Stations in the twilight-zone reporting a movement (A, B or C and also E and X) are indicated by normal brackets ; those in the night-side of the earth by square brackets. Station in these two zones reporting D have been omitted from the list.

Doubtful solar-flare effects are listed page 145-152. They were considered as doubtful when most of the well located stations (with respect to the sub-solar point) did not report any movement, or when almost all stations around the world reported a clear movement. Further, some cases were considered doubtful because the totality of data was hindered by simultaneous world wide perturbation, and also when the solar, radio-electric and ionospheric records were available but did not show clear effect that could be associated with the sfe. Nevertheless it is probable that some of these cases are real solar-flare effects.

SECTION 2

LIST OF OBSERVATORIES

LIST OF OBSERVATORIES

IAGA CODE	OBSERVATORY	GEOGRAPHIC		GEOMAGNETIC		ELEV. (M)	K=9 lower limit	OPEN-CLOSED
		LAT.	LONG.	LAT.	LONG.			
ABN	ABINGER	51.18	359.61	53.58	84.55	244	520	1925-1957
ABK	ABISKO	68.36	18.82	65.88	115.50	380		1930
AAE	ADDIS ABABA	9.03	38.77	5.19	110.97	2442		1958
ADE	ADELAIDE	-34.60	138.40	-43.99	214.06			1973
AGN	AGINCOURT	43.78	280.73	54.65	349.54	175	700	1899-1969
AHM	AHMEDABAD	23.02	72.60	14.03	145.65			1973
ALE	ALERT	82.50	297.50	86.24	163.08	2260		1961
ABG	ALIBAG	18.63	72.87	9.64	145.39	10		1904
AAA	ALMA ATA	43.25	76.92	33.69	152.21	1300		1963
ALM	ALMERIA	36.85	357.53	40.16	76.83	65		1955
ALU	ALOUSHTA	44.68	34.42	40.86	114.94			1957
AML	AMBERLEY	-43.15	172.72	-47.16	254.00	40	530	1929-1977
AWS	ANDREWS AFB	38.20	282.63	49.13	352.23			1972
ANN	ANNAMALAINAGAR	11.40	79.68	1.77	151.20	0		1957
ANO	ANTIPOLO	14.60	121.17	3.50	191.60	220		1910-1938
APA	APATITY	67.55	33.33	62.78	125.99			1973
API	APIA	-13.80	188.22	-15.61	261.99	2		1905
ART	ARCTOWSKI	-62.16	301.52	-51.33	9.25	16		1978
ARE	AREQUIPA	-16.47	288.52	- 5.45	359.45			1958
AIA	ARGENTINE ISLAND	-65.20	295.70	-54.23	4.73	10	490	1957
SV3	ARTI	56.43	58.43	48.50	139.90			1973
ASH	ASHKHABAD	37.95	58.10	30.58	134.62	300		1958
ASO	ASO	32.88	131.02	22.58	199.85	570		1940
PEG	ATHENS	37.97	23.72	32.60	121.60	110		1900-1908
AUT	AU-TAU	22.45	114.05	11.20	184.60	60		1928-1939
AVE	AVERROES	37.99	14.02	38.13	93.59	230		1970
BKC	BACK	57.69	265.77	67.43	326.54			1978
BAG	BAGUIO	16.42	120.60	5.61	191.08	440		1967
BAL	BALDWIN	38.78	264.83	48.90	330.60	340		1901-1909
BLC	BAKER LAKE	64.33	263.97	73.67	319.15	30		1951
BNG	BANGUI	4.43	18.57	4.45	90.33	390		1952
BAP	BARRACKPORE	22.78	88.36	12.20	160.30	10		1904-1914
BRW	BARROW	71.30	203.25	69.10	243.67	7		1949
BTH	BARTH	54.37	12.75	55.00	99.90	20		1898-1903
BTV	BATAVIA	-6.18	106.83	-17.19	177.64	10		1884-1944
BJI	BEI-JING	40.06	116.18	29.12	186.20	43		1957
KGD	BEREZNIAKI	49.82	73.08	40.30	150.00			1965

LIST OF OBSERVATORIES (continued)

IAGA CODE	OBSERVATORY	GEOGRAPHIC		GEOMAGNETIC		ELEV. (M)	K=9 lower limit	OPEN-CLOSED
		LAT.	LONG.	LAT.	LONG.			
BEL	BELSK	51.83	20.80	50.19	105.24	180		1960
BIN	BINZA	-4.38	15.26	-3.57	85.40	300		1953
BJN	BJORNOYA	74.50	19.20	71.06	124.67	80		1951
BOC	BOCHUM	51.49	7.23	52.42	92.24	120		1893-1912
BGA	BORGA	-72.97	356.20	-66.46	42.49			1975
BOX	BOROK	58.03	38.97	52.97	324.23			1977
BOU	BOULDER	40.13	254.77	48.88	319.04	1675		1964
BZR	BOUZAREAH	36.80	3.02	39.20	82.40	340		1912-1920
BJF	BRORFELDE	55.63	11.67	55.80	97.60	80		1978
BVZ	BUDAKESZI	47.52	18.90	46.40	101.80	410		1949-1955
BDV	BUDKOV	49.07	14.02	48.82	97.64	496		1967
BY1	BYRD STATION 1	-79.98	240.00	-70.60	336.60	1515		1957-1961
BY2	BYRD STATION 2	-80.01	240.51	-70.60	336.90	1515		1962-1965
CBB	CAMBRIDGE BAY	69.10	255.00	76.77	299.13	17		1972
CAN	CANBERRA	-35.30	149.00	-43.38	226.09	850	420	1973
CCS	CAPE CHELYUSKIN	77.72	104.28	66.72	177.41	10		1935
CGH	CAPE OF GOOD HOPE	-33.93	18.48	-33.10	81.80			1842-1846
CTO	CAPE TOWN	-33.95	18.47	-33.12	82.06	20		1932-1940
CWE	CAPE WELLEN	66.17	190.17	62.36	239.37	10		1933
CY.	CAPO DI MONTE	40.86	14.26	40.90	94.80	160		1883-1911
CPI	CAPRI	40.55	14.22	40.58	94.60			1957
CAO	CASTELLACCIO	44.43	8.93	45.34	90.82	1175	350	1933
CRC	CASTLE ROCK	37.23	237.87	43.56	301.06		460	1970
HVN	CENTRO GEOFISICO	22.97	277.86	34.00	347.40			1965
CPA	CHA-PA	22.35	103.83	11.38	175.03	1550		1957
CLF	CHAMBON LA FORET	48.02	2.27	50.06	85.71			1936
CLH	CHELTENHAM	38.70	283.20	49.65	352.89	72	530	1901-1956
CBI	CHICHIJIMA	27.15	142.30	17.80	210.78	154		1973
CHR	CHRISTCHURCH	43.54	172.62	47.60	254.3	10		1902-1928
COI	COIMBRA	40.22	351.58	44.53	71.78	140		1867
BOM	COLABA	18.90	72.82	9.70	145.30	10		1846-1905
CMO	COLLEGE 2	64.87	212.17	65.10	259.23	200		1948
CLL	COLLMBERG	51.32	13.00	51.16	97.70			1935
CSS	COLORADO SPRINGS	38.50	255.51	47.36	320.27			1973
COP	COPENHAGEN	55.69	12.58	55.39	99.64			1892-1900
CZT	CROZET	-46.43	51.87	-51.49	111.46		500	1974
DAL	DALLAS	32.98	263.25	42.73	330.14	210		1964-1974

LIST OF OBSERVATORIES (continued)

IAGA CODE	OBSERVATORY	GEOGRAPHIC		GEOMAGNETIC		ELEV. (M)	K=9 lower limit	OPEN-CLOSED
		LAT.	LONG.	LAT.	LONG.			
DRS	DAR ES SALAAM	-6.51	39.18	-10.17	108.56			1896-1900
DAV	DAVAO	7.08	125.58	-3.49	196.39			1968
DVS	DAVIS	-68.60	78.00	-76.81	124.34			1973
DBN	DE BILT	52.10	5.18	53.40	90.56			1899-1938
DDI	DEHRA DUN	30.32	78.06	20.50	151.60	680		1903-1943
DIK	DIXON	73.55	80.57	63.36	162.45	20		1933
DOB	DOMBAS	62.07	9.12	61.97	100.94	660		1916
DOU	DOURBES	50.10	4.60	51.60	88.99	208		1955
DL	DUBLIN	53.35	353.73	56.90	80.00			1841-1850
DRV	DUMONT DURVILLE	-66.66	140.01	-75.06	232.15	40		1957
TFS	DUSHETI	42.08	44.70	36.50	23.50	982		1938
KIV	DYMER	50.72	30.30	47.30	113.60	100		1964
EAA	EAST ANGLIA	52.63	1.30	54.64	87.01			1973
EIC	EASTER ISLAND	-27.17	250.58	-18.37	324.28			1959-1963
EP.	EASTPORT	44.90	293.02	56.20	4.80			1860-1867
EBR	EBRO	40.82	0.50	43.45	81.13	50		1910
ENB	EIELSON AFB	64.67	212.92	65.06	260.11			1966
ELI	ELIZABETHVILLE	-11.63	27.42	-13.00	95.93	1230		1932-1957
ESK	ESKDALEMUIR	55.32	356.80	58.04	84.07	245	660	1908
EKP	ESKIMO POINT	61.10	265.93	70.78	324.73			1973
EYR	EYREWELL	-43.41	172.35	-47.48	253.71	390	540	1979
FAL	FALMOUTH	50.15	354.92	53.60	79.40	50		1892-1912
FCC	FORT CHURCHILL 1	58.80	265.90	68.53	325.60	15		1964
FCC	FORT CHURCHILL 2	58.77	265.73	68.70	325.20	15		1964
FMM	FORT MCMURRAY	56.70	248.60	64.18	305.05			1973
FSV	FORT SEVERN	55.98	272.35	66.34	336.32			1977
FSM	FORT SMITH	58.00	246.00	65.01	301.02			1973
FYU	FORT YUKON	66.57	214.70	67.08	259.59			1957
FRD	FREDERICKSBURG	38.20	282.63	49.13	352.23	69	520	1956
FTN	FREETOWN	8.46	346.79	14.21	59.59			1961-1967
FUQ	FUQUENE	5.47	286.27	16.47	357.07	2543		1954
FUR	FURSTENFELDBRUCK	48.17	11.28	48.48	94.62	572		1939
GEN	GENOVA MC	44.55	8.96	45.50	91.00	700		1958-1962
GEN	GENOVA C	44.43	8.93	45.50	91.00	350		1933-1969
GIT	GILGIT	35.93	74.30	26.67	148.86	1494		1967
GIM	GILLAM	56.40	265.30	66.11	326.54			1975
GIR	GIRARDVILLE	49.00	287.40	60.01	357.77			1973

LIST OF OBSERVATORIES (continued)

IAGA CODE	OBSERVATORY	GEOGRAPHIC		GEOMAGNETIC		ELEV. (M)	K=9 lower limit	OPEN-CLOSED
		LAT.	LONG.	LAT.	LONG.			
GNA	GNANGARA	-31.78	115.95	-42.71	187.94	60	440	1959
GDH	GODHAVN	69.23	306.48	79.25	34.62	8		1926
GVD	GONZALES VIDELA	-64.82	297.15	-53.88	5.80	60		1961
VLA	GORNOTAYEZHNAYA	43.68	132.17	30.10	199.60	200		1958
GRM	GRAHAMSTOWN	-33.28	26.48	-34.01	90.04	650		1974
GWC	GREAT WHALE RIVER	55.30	282.25	66.21	350.32	25		1965
GRW	GREENWICH	51.48	0.00	53.79	85.10	50		1846-1926
GCK	GROCKA	44.63	20.77	43.28	102.27	231		1958
GUA	GUAM	13.58	144.87	4.57	214.76	150		1957
HLL	HALLET	-72.32	170.22	-74.42	278.16			1957-1963
HBA	HALLEY BAY	-75.50	333.40	-66.36	25.85	30		1957
HBK	HARTEBEESTHOEK	-25.88	27.71	-27.01	93.14			1980
HAD	HARTLAND	50.98	355.52	54.17	80.29	95	530	1957
HTY	HATIZYO	33.07	139.83	23.45	207.83			1978
HVN	HAVANA	22.97	277.85	33.75	347.53			1964
HII	HEARD ISLAND	-53.03	73.37	-61.50	132.30	10		1950-1954
HIS	HEISS ISLAND	80.62	58.05	71.60	156.33	20		1958
HLP	HEL	54.60	18.82	53.19	104.80	4		1957
HLW	HELWAN	29.87	31.33	26.98	108.01	120		1903-1960
HCR	HERCHMER	57.40	265.90	67.16	326.86			1973
HER	HERMANUS	-34.42	19.23	-33.73	82.67	26	300	1941
HNA	HOLLANDIA	-2.57	140.52	-11.94	212.17	98		1957-1962
HKC	HONG KONG 1	22.30	114.18	11.00	184.70	30		1884-1928
HKC	HONG KONG 2	22.20	114.20	11.22	184.82	555		1971
HON	HONOLULU 1-2-3	21.32	202.00	21.46	268.57	4		1902
HUA	HUANCAYO	-12.05	284.67	-1.06	355.67	3313		1922
HRB	HURBANOVO	47.87	18.18	46.89	101.07	120		1938
HYB	HYDERABAD	17.42	78.55	7.86	150.69	500		1965
IBD	IBADAN	7.43	3.90	10.17	76.46	300		1956
IRT	IRKUTSK	52.17	104.45	41.18	176.22	470		1887-1914
ISL	ISLAND LAKE	53.90	265.30	63.65	327.61			1976
ISK	ISTANBUL KANDILLY	41.07	29.07	38.31	108.87	130		1947
JSS	JASSY	47.18	27.53	44.40	109.60			1935-1957
KAK	KAKIOKA	36.23	140.18	26.62	207.77	28		1924
KNG	KALININGRAD	54.60	20.20	52.94	106.06			1964
KNY	KANOYA	31.42	130.88	21.12	199.85	105		1957
KNZ	KANOZAN	35.25	139.97	25.63	207.70	342		1961

LIST OF OBSERVATORIES (continued)

IAGA CODE	OBSERVATORY	GEOGRAPHIC		GEOMAGNETIC		ELEV. (M)	K=9 lower limit	OPEN-CLOSED
		LAT.	LONG.	LAT.	LONG.			
KGD	KARAGANDA	49.82	73.08	40.56	150.04			1966
TFS	KARSANI	41.83	42.70	36.20	123.50	1100		1926-1934
KZN	KAZAN	55.83	48.85	49.36	131.52	80		1909
KEL	KELES	41.42	69.20	32.40	145.20	450		1936-1963
KEM	KEM	65.00	34.40	60.26	124.74			1973
KEW	KEW	51.47	359.68	54.10	85.10	10		1857-1924
KHB	KHABAROVSK	48.48	135.07	38.39	201.74			1972
KIV	KIEV	50.72	30.30	47.42	113.40	100		1963
KIR	KIRUNA	67.83	20.42	65.14	116.19	390		1965
KLY	KLYUCHI	55.03	82.90	44.70	159.00			1967
KOD	KODAIKANAL	10.23	77.47	0.81	148.93	2323		1902
KTS	KORETS	50.60	61.07	42.64	140.10			1968
KOR	KOROR	7.33	134.50	-2.64	205.21	10		1957-1966
MOS	KRASNAYA	55.47	37.32	50.70	121.70	190		1930
KSA	KSARA	33.82	35.88	30.03	113.26	920		1937-1968
KUY	KUYPER	-6.03	106.73	-17.04	177.54	1		1949-1962
KWJ	KWAJALEIN	9.05	167.20	3.13	237.11			1973
AQU	L'AQUILA	42.38	13.32	42.52	94.35	682		1960
LQA	LA QUIACA	-22.10	294.40	-11.13	5.01	3464		1920
LAS	LAS ACACIAS	-35.00	302.32	-24.24	11.86	20		1964
LDR	LAUDER	-43.03	169.41	-37.70	232.10	370		1977
LRV	LEIRVOGUR	64.18	338.30	69.71	71.98	30		1957
LNN	LENINGRAD	59.95	30.70	56.14	118.32	70		1869-1877
LER	LERWICK	60.13	358.82	62.15	89.55	105	920	1923
LIS	LISBON	38.72	350.85	43.30	70.60			1890-1900
LGR	LOGRONO	42.45	357.50	45.59	78.66	445		1957
MMK	LOPARSKAYA	68.25	33.08	63.30	126.70	200		1961
LOB	LORING AFB	46.95	292.12	57.95	3.89			1966
LA.	LOS ANGELES	34.05	241.74	41.20	305.70			1882-1889
LMM	LOURENCO MARQUES	-25.92	32.58	-27.98	97.96	40		1957
LOV	LOVO	59.35	17.83	57.84	106.75	25	720	1928
LOZ	LOVOZERO	67.97	35.02	62.90	127.64			1957
LUA	LUANDA	-8.92	13.17	-7.63	82.48	53		1956
LB	LUBECK	53.86	10.69	54.00	97.00			1885-1893
LUK	LUKIAPANG	31.32	121.03	20.20	190.80	100		1908-1933
LNP	LUNPING	25.00	121.17	14.21	191.28	100		1965

LIST OF OBSERVATORIES (continued)

IAGA CODE	OBSERVATORY	GEOGRAPHIC		GEOMAGNETIC		ELEV. (M)	K=9 lower limit	OPEN-CLOSED
		LAT.	LONG.	LAT.	LONG.			
LVV	LVOV	49.90	23.75	47.80	107.10	400		1952
LWI	LWIRO	-2.25	28.80	-4.06	99.10	1680		1958-1970
MBO	MBOUR	14.40	343.02	20.68	56.80	10		1952
MCQ	MACQUARIE ISLAND	-54.50	158.95	-60.54	244.48	4		1951
MGD	MAGADAN	60.12	151.02	51.28	212.15		610	1966
MSC	MAISACH	48.20	11.26	48.50	94.90	480		1927-1932
MQ	MAKERSTOUN	55.58	357.48	52.20	85.30			1841-1849
MAB	MANHAY	50.30	5.68	51.60	90.15	440		1936-1971
MAN	MANILA	14.58	120.98	3.50	191.40			1891-1904
MRN	MARION ISLAND	-46.85	37.87	-49.30	96.75	45		1972
AMS	MARTIN DE VIVIES	-37.83	77.57	-46.94	142.78			1981
MSR	MATOCHKIN SHAR	73.26	56.40	64.80	147.40	250		1937-1944
MRI	MAURITIUS	-20.09	57.55	-26.80	124.40	50		1892-1965
MAW	MAWSON	-67.60	62.88	-73.32	106.62	6		1955
MEA	MEANOOK	54.62	246.67	61.88	304.02	686	1360	1916
MEL	MELBOURNE	-37.83	144.98	46.60	222.30	30		1895-1921
MEV	MELVILLE AFB	53.28	299.47	64.05	14.25			1966
MMB	MEMAMBETSU	43.90	144.20	34.61	210.23	39	340	1950
MNK	MINSK	54.10	26.52	51.32	111.51			1961
MIR	MIRNY	-66.55	93.02	-76.80	151.15	20		1956
MLT	MISALLAT	29.52	30.90	26.72	107.52	120		1960
MIU	MIYAZU	35.32	135.11	25.30	203.32			1973
MIZ	MIZUSAWA	39.01	141.08	29.47	208.21			1969
MFP	MOCA	3.35	8.67	5.27	80.39	1949		1958-1971
MOL	MOLODEZHNAYA	67.67	45.85	70.10	87.50	854		1965
MOS	MOSCOW	55.48	37.32	50.79	121.62	190		1880-1888
MBC	MOULD BAY	76.30	240.60	79.62	259.89	150		1962
MWC	MT WILSON	34.14	241.97	41.19	306.30			1926-1958
MNH	MUNCHEN	48.15	11.61	48.40	95.20	530		1842-1926
MUT	MUNTINLUPA	14.37	121.02	3.58	191.57	62		1951
MMK	MURMANSK	68.25	33.08	63.45	126.43	210		1958-1960
NCK	NAGYCENK	47.63	16.72	46.93	99.59	160		1961
NAI	NAIROBI	-1.28	36.83	-4.60	107.19	1673		1964
NTS	NANTES	47.25	358.44	50.10	81.70	35		1923-1958
NAQ	NARSSARSSUAQ	61.20	314.60	70.60	38.66	4		1973
NL	NEW ALESUND	78.92	11.93	75.43	130.70	12		1966
NEW	NEWPORT	48.27	242.88	55.14	302.78	780	700	1966

LIST OF OBSERVATORIES (continued)

IAGA CODE	OBSERVATORY	GEOGRAPHIC		GEOMAGNETIC		ELEV. (M)	K=9 lower limit	OPEN-CLOSED
		LAT.	LONG.	LAT.	LONG.			
NYI	NEW YEAR ISLAND	54.65	295.85	43.30	5.20			1902-1916
NCE	NICE	43.72	7.30	45.00	89.00			1889-1901
NGK	NIEMEGK	52.07	12.68	51.94	97.77	78	500	1931
NSM	NITSANIM	31.73	34.60	28.21	111.55	150		1963-1967
NOK	NORILSK	69.20	88.00	58.68	165.77			1969
NKK	NOVOKAZALINSK	45.77	62.12	37.76	139.83			1974
NVL	NOVOLAZAREVSKAYA	-70.77	11.82	-66.76	55.88	460		1961
NVS	NOVOSIBIRSK	55.03	82.90	44.92	159.07		480	1967
NUR	NURMIJARVI	60.52	24.65	57.71	113.51	105		1953
ODE	ODESSA	46.78	30.88	43.52	112.42	50		1896-1925
OGY	O'GYALIA	47.88	18.19	46.80	101.30	110		1906-1912
OKN	OKINAWA	24.75	125.33	14.14	195.18			1977
ORC	ORCADAS DEL SUR	-60.74	315.22	-50.30	20.00	4		1931-1962
OSL	OSLO	59.98	10.72	59.60	101.10			1843-1930
OTT	OTTAWA	45.40	284.45	56.37	354.11	75	790	1968
PAG	PANAGYURISHTE	42.52	24.18	40.61	104.75	556		1948
PPT	PAPEETE	-17.55	210.38	-15.09	284.44			1958
PAB	PARAMARIBO	5.82	304.78	16.41	16.28	2		1957
PET	PARATUNKA	53.10	158.63	44.80	220.00	110		1973
IRK	PATRONY	52.17	104.45	40.90	176.10	500		1959
PEB	PELLY BAY	68.50	270.20	78.39	323.86			1977
PEK	PEKING 1	39.95	116.47	28.70	186.30			1870-1883
PEK	PEKING 2	40.04	116.18	28.80	186.10			1957-1964
PEG	PENDELI	38.03	23.52	36.38	102.73	495		1958
PRF	PERPIGNAN	42.70	2.88	44.90	84.30	30		1890-1900
PIL	PILAR	-31.67	296.12	-20.73	6.39	336		1905
PLS	PLAISANCE	-20.43	57.67	-27.02	124.68	123		1966
PZ	PLESHCHENITZI	54.50	27.88	51.40	113.10	200		1961
POD	PODKAMENAYA TUNG	61.40	90.00	50.84	165.64		670	1968
POL	POLA	44.86	13.26	44.80	95.90	30		1883-1922
PAF	PORT AUX FRANCAIS	-49.35	70.22	-57.31	130.79	50		1957
PMG	PORT MORESBY	-9.40	147.15	-17.99	219.75	80		1957
PBQ	POSTE DE LA BALEINE	55.30	287.25	66.31	357.38			1984
POT	POSTDAM	52.38	13.06	52.16	98.28	80		1890-1907
PRU	PRUHONICE	49.98	14.55	49.59	98.55	329		1946
QUE	QUETTA	30.18	66.95	21.77	141.35	1737		1953
RIT	RANKIN INLET	62.80	267.90	72.64	326.36			1975

LIST OF OBSERVATORIES (continued)

IAGA CODE	OBSERVATORY	GEOGRAPHIC		GEOMAGNETIC		ELEV. (M)	K=9 lower limit	OPEN-CLOSED
		LAT.	LONG.	LAT.	LONG.			
REG	REGENSBERG	47.48	8.44	48.40	91.70	605		1957-1969
RES	RESOLUTE BAY	74.70	265.10	83.14	295.98	25		1954
RDJ	RIO DE JANEIRO	-22.91	316.83	-12.80	26.00	60		1899-1906
ROB	ROBURENT	44.30	7.88	45.41	89.74	815		1964
RSV	RUDE SKOV	55.85	12.45	55.56	99.61	48	600	1907-1978
SAB	SABHAWALA	30.33	77.80	20.78	151.34	498		1964
SFS	SAN FERNANDO	36.47	353.80	40.47	72.90	28		1891
SJG	SAN JUAN 1-2-3	18.38	293.88	29.36	5.21	100		1903
SNA	SANAE	-70.30	357.65	-64.23	46.20	52		1962
STJ	SAINT JOHNS	47.59	307.32	58.20	23.30			1968
PSM	SAINT MAUR	48.81	2.49	50.80	86.60			1883-1900
SMG	SAN MIGUEL	37.77	334.35	45.04	52.61	175		1911
SBA	SCOTT BASE	-77.85	166.78	-78.84	293.24	15		1957
SED	SEDDEN	52.28	13.01	52.10	98.50	40		1908-1931
STF	SDR STROMFJORD	67.02	309.28	76.83	36.25			1972
SSH	SHE-SHAN	31.10	121.19	20.30	191.03	100		1934
SHB	SHEPERD BAY	68.75	266.25	78.14	316.78			1966
SHL	SHILLONG	25.55	91.88	14.99	163.95			1975
SSO	SIMOSATO	33.57	135.93	23.62	204.24	59		1954-1978
SIT	SITKA	57.07	224.67	60.31	278.12	22	1020	1902
SOD	SODANKYLA	67.37	26.63	63.68	120.64	178		1914
SLU	SLUTSK	59.68	30.48	55.80	118.30			1878-1941
SGG	SOUTH GEORGIA	-54.28	323.52	-44.82	27.73		350	1883
SPA	SOUTH POLE	-90.00	0.00	-78.98	0.00	2820		1959
SRE	SREDNIKAN	62.43	152.32	53.67	212.35	61		1936-1966
MGD	STEKOLNI	60.12	151.02	51.00	211.80			1966
ODE	STEPANOVKA	46.78	30.88	43.40	112.50	140		1948
STO	STONYHURST	53.85	357.53	56.52	83.91	116		1865-1967
SUA	SURLARI	44.68	26.25	42.32	107.42	84		1949
SVD	SVERDLOVSK	56.73	61.07	48.64	141.89	290	530	1887-1931
SWI	SWIDER	52.12	21.25	50.38	105.79	100		1921
SYO	SYOWA BASE	-69.03	39.60	-70.10	79.70	15		1958-1970
TAM	TAMANRASSET	22.80	5.53	24.94	81.23	1395		1932
TAN	TANANARIVE	-18.92	47.55	-23.85	114.58	1375		1902
TNG	TANGERANG	-6.17	106.63	-17.18	177.43	14		1964
TKT	TASHKENT	41.33	69.62	32.51	145.52	500		1883
TTB	TATUOCA	-1.20	311.48	8.98	220.50	10		1957-1971

LIST OF OBSERVATORIES (continued)

IAGA CODE	OBSERVATORY	GEOGRAPHIC		GEOMAGNETIC		ELEV. (M)	K=9 lower limit	OPEN-CLOSED
		LAT.	LONG.	LAT.	LONG.			
TEH	TEHERAN	35.73	51.38	29.36	128.05	1367		1960-1973
SZT	TENERIFE	28.48	343.72	34.60	60.30	310		1959
TEO	TEOLOYUCAN	19.75	260.82	29.35	329.24	2280		1923
TAA	TERRE ADELIE	-66.67	140.02	-75.07	232.18	40		1957
TMP	THOMPSON	55.72	262.12	65.09	322.65			1969
THU	THULE/CAMP TUTO	76.55	291.17	87.53	11.26	480		1932-1952
THL	THULE/QANAQ	77.48	290.83	88.46	14.10	57		1956
TFS	TIFLIS	42.08	44.70	36.62	123.49	982		1879-1905
THY	TIHANY	46.90	17.90	46.01	100.41	187		1949
TKH	TIKHAYABAY	80.30	52.80	71.74	153.42	10		1934-1958
TIP	TIRUCHIRAPALLI	10.80	78.70	1.26	150.19			1975
TIK	TIXIE BAY	71.58	129.00	60.99	192.81	40		1944
KAK	TOKYO	35.75	139.72	26.10	207.41	20		1897-1912
TOL	TOLEDO	39.88	355.95	43.39	76.18	501		1947
TMK	TOMSK	56.47	84.93	46.21	160.93	200	510	1958-1969
TOO	TOOLANGI	-37.53	145.47	-46.05	222.66	457	510	1922
AGN	TORONTO	43.67	280.50	54.80	349.10			1872-1898
TLE	TOULOUSE	43.61	1.46	46.00	83.20	190		1894-1905
TGO	TOUNGOO	18.93	96.45	7.90	167.80	300		1905-1923
TOH	TOYOHARANEW	46.95	142.75	37.20	208.30	70		1932-1941
TRW	TRELEW	-43.25	294.68	-32.28	4.81		290	1957-1970
TRD	TRIVANDRUM	8.48	76.95	-0.88	148.24	300		1957
TRO	TROMSO	69.67	18.95	67.00	117.16	105		1930
TSN	TSINGTAO	36.07	120.32	25.00	189.90	80		1924-1936
TSU	TSUMEB	-19.22	17.70	-18.59	84.83	1300		1964
TUC	TUCSON	32.25	249.17	40.37	314.57	770	380	1910
TUL	TULSA	35.92	264.22	45.75	330.78	257		1961
UCC	UCCLE	50.80	4.36	52.30	89.40	100		1896-1919
UBA	ULAN BATOR	47.85	106.75	36.84	178.03			1966
WIT	UTRECHT	52.00	5.12	53.40	90.80			1891-1896
VLJ	VAL JOYEUX	48.82	2.02	50.87	85.83			1901-1935
VAL	VALENTIA	51.93	349.75	56.15	74.79	14		1899
VSS	VASSOURAS	-22.40	316.35	-12.53	25.70	457		1915
VIC	VICTORIA	48.52	236.58	54.33	295.66	185	660	1956
VQS	VIEQUES	18.15	294.55	29.11	5.93			1903-1924
VLA	VLADIVOSTOK	43.12	131.90	32.84	199.68			1932
LNN	VOEIKOVO	59.95	30.70	56.00	118.50	70		1947

LIST OF OBSERVATORIES (continued)

IAGA CODE	OBSERVATORY	GEOGRAPHIC		GEOMAGNETIC		ELEV. (M)	K=9 lower limit	OPEN-CLOSED
		LAT.	LONG.	LAT.	LONG.			
VOR	VOROSHILOV	43.78	132.03	33.20	199.60	30		1952-1957
VOS	VOSTOK	-78.45	106.87	-89.31	139.62	3500		1958
SVD	VYSOKAYA	56.73	61.07	48.40	141.90	290		1932
WAT	WATHEROO	-30.30	115.90	-41.23	187.82	240		1919-1958
WES	WESTON	42.38	288.68	53.40	359.49			1960
WHS	WHITE SHELL	49.80	264.80	59.56	328.39			1975
WIK	WIEN	48.25	16.36	47.60	99.70			1892-1898
WIA	WIEN-AUHOF	48.20	16.24	47.50	69.60	2050		1929-1950
WIK	WIEN-KOBENZL	48.27	16.32	47.62	99.48	400		1955
WLH	WILHELMSHAVEN	53.53	8.15	54.20	94.50	10		1884-1911
WIL	WILKES	-66.25	110.58	-77.26	182.71			1957-1966
WNG	WINGST	53.75	9.07	54.22	95.21	50	550	1939
WNP	WINNIPEG	49.63	262.87	59.19	326.02			1969-1975
WIT	WITTEVEEN	52.82	6.67	53.79	92.39	17	540	1938
YAK	YAKUTSK	62.02	129.72	51.53	195.40	100		1931
TKT	YANGI BAZAR	41.33	69.62	32.30	145.60	500		1964
YAU	YAUCA	-15.53	285.33	-4.54	356.36			1957-1960
YKC	YELLOWKNIFE	62.47	245.53	69.14	296.56	198		1958
YSS	YUZHNO SAKHALINSK	46.95	142.72	37.49	208.45			1948
KNK2	ZAIMISHCHE	55.83	48.85	49.20	131.60	80		1914-1972
ZAR	ZARIA	11.15	7.65	13.12	80.89			1964
ZKW	ZI KA WEI	31.22	121.43	20.20	191.20	10		1875-1907
ZIN	ZINZEN	37.48	126.63	26.60	195.30	50		1921-1941
ZSC	ZO SE	31.10	121.19	20.00	190.80	100		1933-1974
ZUY	ZUY	52.47	104.03	41.20	17.80	430		1915-1958

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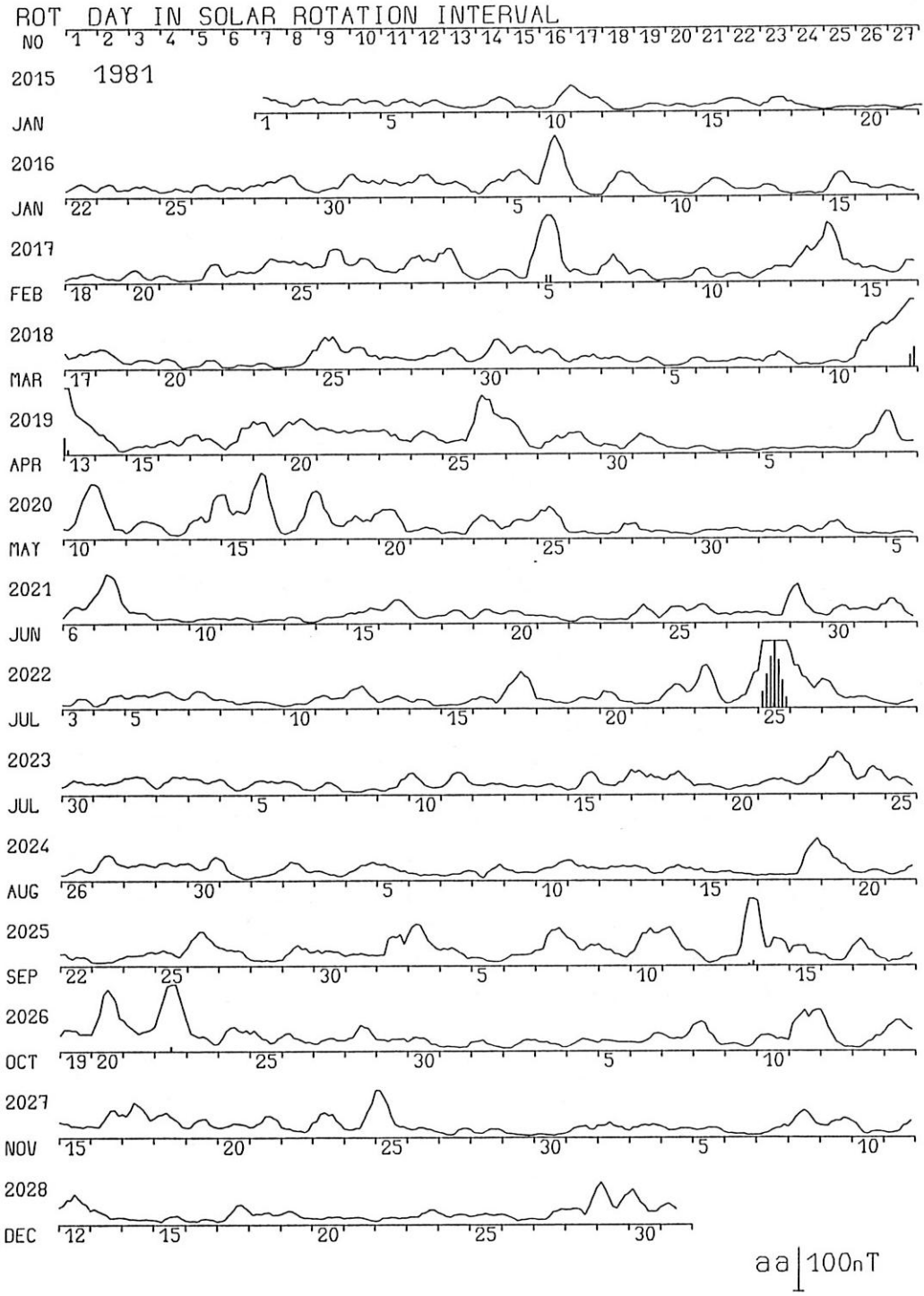
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TWELVE-HOUR RUNNING AVERAGES aa 1981



12-HOUR RUNNING AVERAGES OF THE THREE-HOUR-RANGE INDICES aa 1981

	JAN.					FEB.					MAR.					APR.					MAY					JUNE				
	DAY		HALF DAY			DAY		HALF DAY			DAY		HALF DAY			DAY		HALF DAY			DAY		HALF DAY			DAY		HALF DAY		
	N	S	am	pm		N	S	am	pm		N	S	am	pm		N	S	am	pm		N	S	am	pm		N	S	am	pm	
1	27	21	29	19		23	28	24	27		45	44	45	44		33	31	31	34		32	21	23	30		15	9	12	12	CC
2	19	18	12	24		38	30	26	42		38	49	55	33		15	20	11	23		14	9	15	8	C	16	14	15	15	
3	17	15	18	14		26	22	23	25		15	8	7	16	C	23	15	17	21		9	10	12	7	QCC	29	17	15	32	
4	26	20	25	21		23	13	10	26		16	15	23	8		17	14	11	20		8	3	4	7	QCC	11	5	9	6	C
5	20	16	12	24		40	41	37	44		101	104	92	114		6	4	4	6	QCK	8	6	4	9	QCC	14	4	7	11	CC
6	20	12	10	22		71	66	23	114		18	16	19	15		15	15	19	11	C	10	7	7	10	QCC	22	20	12	31	
7	10	9	10	9	CK	27	18	37	8		25	44	30	40		16	12	11	17	K	9	7	8	8	QCC	88	48	49	87	
8	20	20	12	28		24	24	4	44		15	15	18	13		25	11	14	22		27	14	9	33		31	19	30	20	
9	12	6	8	10	CK	27	21	37	11		6	4	5	5	QCK	17	7	16	8	QKK	50	49	77	22		12	5	8	9	QCK
10	20	21	7	34		4	9	6	8	QCC	13	21	22	13	K	12	6	7	11	QCK	41	30	19	52		9	5	5	9	QCC
11	33	31	38	26		22	17	8	31		12	11	13	11	QCK	44	35	18	61		69	69	102	37		15	6	10	12	CC
12	8	6	10	4	QCK	19	16	22	13		20	21	14	27		104	78	77	105		28	15	11	33		9	3	4	8	QCC
13	11	12	9	14	CC	15	15	15	15	K	48	40	24	64		130	92	154	68		22	12	26	8		11	6	7	10	CC
14	8	12	10	9	CC	5	5	4	6	QCC	62	87	81	68		44	22	43	23		28	32	29	31		10	5	4	11	QCC
15	14	16	13	17		22	27	5	44		29	26	29	26		13	9	8	14	QC	64	70	82	53		24	14	18	20	
16	17	20	23	13		20	17	23	13		25	16	17	24		23	17	19	21		71	93	89	75		41	26	25	42	
17	18	21	15	25		11	19	17	13	Q C	38	20	29	29		29	34	34	29		24	15	9	31		21	13	25	9	
18	8	7	10	4	QCK	10	11	6	14	QCC	28	34	34	28		22	16	13	25		57	63	89	30		22	16	14	24	
19	5	5	3	7	QCC	13	10	14	9	C	15	13	11	17		48	59	62	45		33	30	32	32		..	12	9	25	
20	9	5	7	8	QCC	11	20	18	13	K	15	12	12	15	KK	66	55	55	67		57	44	49	52		24	14	19	19	
21	6	5	4	7	QCC	9	12	14	7	QCC	15	6	5	16	KK	45	44	46	43		17	17	13	21		19	6	14	11	CK
22	17	22	13	26		18	10	5	23	K	8	4	4	8	QCK	43	43	40	46		13	7	9	11	C	11	4	4	11	CC
23	15	21	12	24		25	15	19	22		5	9	7	6	QCC	38	41	42	37		34	29	31	33		10	4	7	7	QCK
24	15	21	14	22		35	30	19	45		8	5	4	9	QCK	39	23	22	40		31	25	21	35		30	10	14	26	
25	14	13	10	17	C	40	35	40	34		52	43	35	60		29	19	24	24		60	36	42	53		25	20	15	30	
26	15	20	11	25		49	44	31	63		38	31	31	38		87	70	58	100		16	8	11	13	C	27	24	28	23	
27	14	18	13	19		35	19	32	23		16	24	18	22		60	41	65	36		11	8	9	10	C	22	12	17	17	
28	27	25	22	30		24	9	14	19		19	21	16	24		23	13	10	27		23	18	27	14		20	12	20	12	
29	26	33	39	20							28	31	32	28		31	36	38	29		14	8	13	9	CC	39	49	55	33	
30	14	13	9	18							32	20	14	38		15	12	13	14	Q	16	8	9	15	CC	28	14	15	27	
31	39	32	42	30							48	32	40	40							19	12	17	14						
N	17.0					24.5					27.6					37.1					29.6					22.5				
S		16.7					21.5					26.7					29.8					25.1					13.9			
M			16.8					22.9					27.1					33.4					27.3					18.1		

	JULY					AUG.					SEP.					OCT.					NOV.					DEC.				
	DAY		HALF DAY			DAY		HALF DAY			DAY		HALF DAY			DAY		HALF DAY			DAY		HALF DAY			DAY		HALF DAY		
	N	S	am	pm		N	S	am	pm		N	S	am	pm		N	S	am	pm		N	S	am	pm		N	S	am	pm	
1	31	18	24	25		38	26	32	32		8	7	5	10	QCK	17	24	18	23		13	17	16	14	K	12	16	8	20	K
2	36	29	34	32		28	16	12	33		25	28	22	31		41	31	18	54		10	10	6	14	QC	21	23	22	22	
3	18	8	8	19	K	30	23	30	23		17	10	17	10		50	69	58	61		17	17	21	13		16	19	12	23	
4	19	8	6	21		21	18	29	9		22	16	11	27		31	27	29	29		15	14	7	22		17	17	20	14	
5	29	16	20	24		25	18	19	23		30	23	30	23		14	10	15	9	QC	18	15	15	18		20	12	15	17	
6	30	24	27	27		25	18	25	17		14	10	13	11	C	16	15	11	20	Q	17	18	16	19		8	8	10	6	QCC
7	30	19	20	30		16	15	9	22	K	10	10	9	11	QCK	50	42	28	65		32	22	31	24		6	11	4	13	QCK
8	16	12	18	10		9	3	6	6	QCK	16	16	17	14		36	44	53	28		38	43	47	34		31	37	18	49	
9	15	9	13	11	QCC	17	5	10	13	QC	20	16	22	14		32	30	40	22		9	12	12	10	QC	19	34	22	31	
10	9	5	5	10	QCK	29	26	38	17		20	17	14	23		46	36	23	59		22	26	22	26		12	22	29	6	
11	23	15	20	18		30	24	14	40		32	32	37	28		54	60	65	49		46	48	19	75		10	10	10	11	C
12	34	33	25	42		22	16	19	19		16	30	21	25		16	17	28	5		50	41	75	16		36	53	33	56	
13	22	10	11	21		18	15	18	15		22	24	25	21		26	24	16	34		9	14	7	17	K	19	26	26	19	
14	18	11	13	16		22	11	14	19	Q	19	23	13	28		90	80	119	51		42	47	34	56		10	12	13	9	CK
15	9	3	6	6	QCK	27	13	8	32		17	16	19	14		26	33	22	37		24	25	28	21		12	12	9	15	KC
16	20	14	17	17		26	12	22	16	Q	16	11	15	12	C	13	15	19	9	Q	29	30	21	39		9	8	8	10	QCK
17	44	53	30	69		43	33	45	31		8	8	8	9	QCC	35	28	35	28		54	46	43	58		19	11	6	25	
18	20	11	17	14		36	34	27	42		30	28	10	48		13	9	11	11	QK	36	37	35	39		25	21	25	21	
19	20	9	9	20		17	16	15	18		50	49	63	37		38	30	31	38		26	25	18	33		21	18	19	20	
20	22	22	20	24		15	8	9	14	C	16	14	14	16		73	72	32	114		24	19	18	25		14	11	11	14	C
21	15	5	12	8	QC	23	22	17	28		16	11	13	14	C	45	44	58	32		30	27	19	39		10	14	11	13	QCC
22	40	26	23	43		26	18	22	22		23	16	22	17		95	81	46	131		16	14	19	11		6	13	6	13	QCC
23	51	58	40	69		66	57	45	77		8	7	8	8	QCK	36	46	55	28		28	39	27	40		16	16	12	20	
24	23	7	9	22		38	43	35	46		15	21	16	20		25	34	14	46		20	12	16	16		19	19	22	16	
25	193	127	69	252		29	30	32	27		22	27	24	25		23	31	33	22		42	81	86	37		17	17	14	20	
26	104	55	105	54		17	14	10	21	Q	48	48	34	63		19	32	28	23		19	14	16	17		9	16	19	7	C
27	39	38	52	24		39	24	16	47		36	26	35	27		21	17	14	24		6	10	9	6	QCK	12	12	10	14	C
28	16	19	18	17		29	30	28	31		14	8	12	10	QC	39	28	20	48		12	13	15	11	KK	25	29	27	27	
29	12	5	8	8	QCC	25	30	26	29		20	30	11	39		22	21	22	21		9	8	12	5	QCC	45	55	68	33	
30	21	19	15	25		29	25	33	22		24	30	26	28		21	20	17	24		4	5	4	4	QCC	38	55	58	35	
31	21	22	22	21		22	28	40	11							8	8	9	8	QC						28	32	32	29	
N	32.3					27.0					21.1					34.6					24.0					18.1				
S		23.0					21.8					20.5					34.3					25.1					21.3			
M			27.6					24.3					20.8					34.4					24.5					19.7		

ANNUAL MEAN N 26.28 S 23.29 M 24.73

Unit : nT

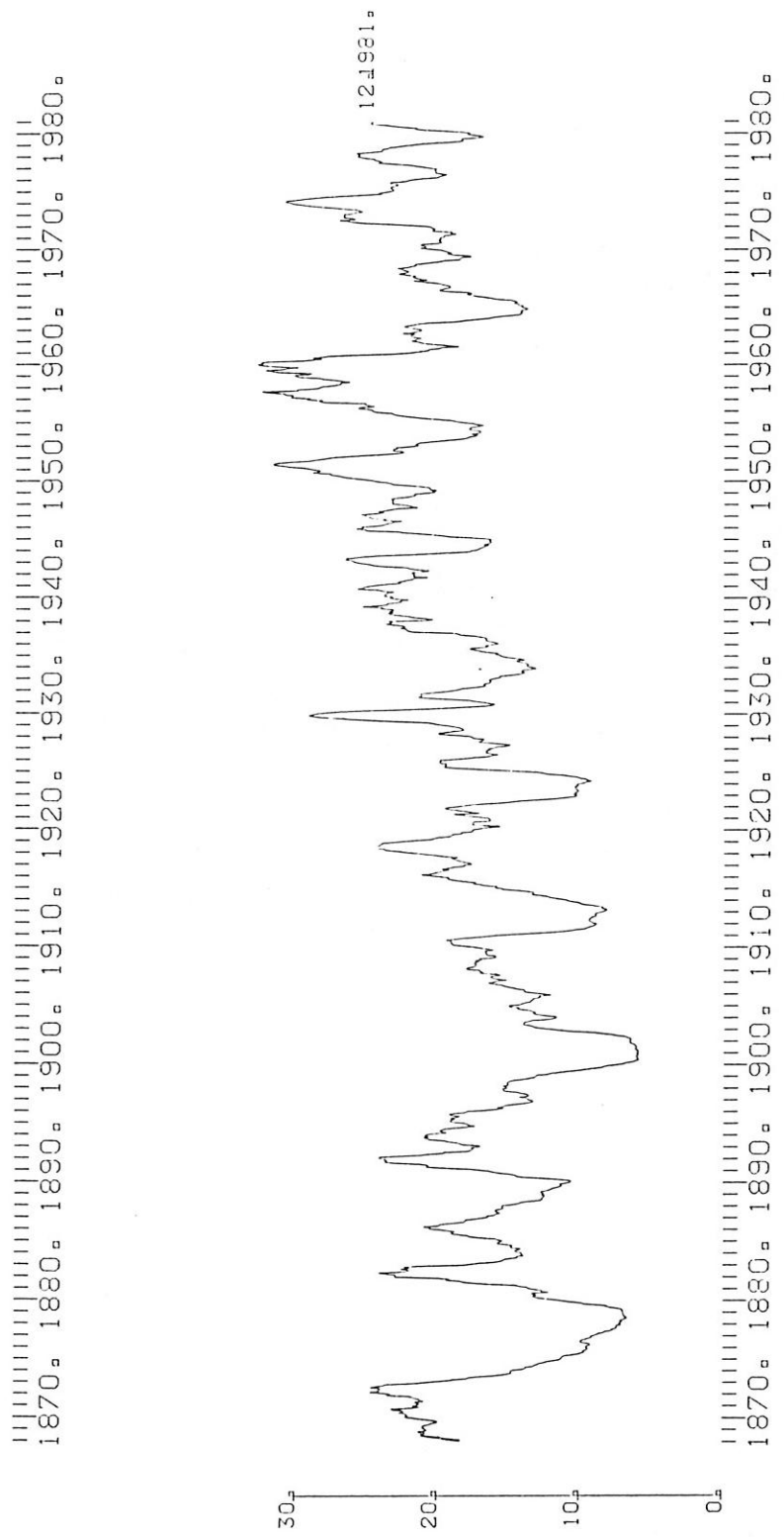
MONTHLY AND YEARLY aa 1868 - 1981

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual mean
1868	10.6	16.0	19.7	21.0	16.4	17.9	21.5	19.4	24.0	25.9	13.3	13.7	18.3
1869	19.2	23.6	22.3	29.5	23.1	19.2	17.4	19.9	29.8	17.9	14.7	14.6	20.9
1870	21.6	23.2	21.2	25.8	20.9	16.4	14.1	21.4	35.2	26.2	21.9	19.9	22.3
1871	19.3	24.8	21.4	31.2	17.2	17.1	21.5	23.5	17.7	20.0	28.1	15.7	21.5
1872	17.0	28.0	23.0	23.4	20.4	17.7	25.3	25.2	20.7	38.6	25.0	20.5	23.7
1873	29.4	20.6	24.1	20.8	20.8	25.8	20.6	18.7	19.3	16.6	14.6	12.1	20.3
1874	17.8	16.1	12.7	19.1	14.0	12.8	13.1	13.0	15.7	17.8	14.3	10.1	14.7
1875	10.0	13.5	12.7	12.7	13.0	10.1	11.8	8.7	13.1	11.9	9.8	8.5	11.3
1876	9.8	12.6	11.0	6.5	7.6	7.7	9.1	10.2	10.1	10.5	10.2	10.1	9.6
1877	9.3	9.6	10.4	8.9	13.0	8.9	7.8	7.6	7.4	6.9	11.6	6.8	9.0
1878	7.4	7.5	6.2	8.5	7.3	8.6	4.8	6.4	7.9	6.8	7.1	9.3	7.3
1879	6.2	5.8	8.6	5.5	6.2	5.9	5.8	8.0	8.9	7.0	7.1	9.3	7.0
1880	7.3	4.7	9.8	8.9	13.1	7.3	9.9	23.1	11.4	14.4	14.5	14.6	11.6
1881	15.1	12.8	13.2	11.4	8.5	10.7	12.2	7.8	17.9	14.0	20.2	20.3	13.7
1882	15.7	19.5	16.5	35.9	20.6	19.0	14.5	19.7	15.0	25.0	55.0	20.1	23.0
1883	15.4	26.7	23.3	17.8	13.9	18.5	21.5	12.4	19.5	13.7	17.6	12.0	17.7
1884	9.1	14.3	17.5	15.6	12.8	13.1	15.5	13.0	13.5	16.0	16.9	13.2	14.2
1885	13.2	15.5	13.3	14.0	21.2	14.2	13.0	17.7	22.1	15.9	13.7	12.1	15.5
1886	17.7	17.1	27.6	21.6	22.6	21.6	19.3	18.1	19.0	21.7	20.7	20.6	20.6
1887	16.9	22.9	15.2	20.6	17.3	12.6	12.5	17.2	18.9	14.1	14.5	15.2	16.5
1888	18.2	15.9	15.2	16.4	19.3	14.5	12.9	13.7	15.1	15.0	15.3	14.0	15.5
1889	9.8	11.0	13.9	11.6	10.2	9.8	13.5	12.6	14.6	13.6	18.5	11.8	12.6
1890	11.7	11.8	10.0	8.4	8.4	7.3	10.0	10.3	13.8	15.6	13.3	8.3	10.7
1891	10.4	14.2	20.6	22.5	23.7	11.7	11.2	15.0	22.3	20.7	16.5	16.2	17.1
1892	19.5	35.1	36.3	20.4	25.1	17.7	33.7	22.1	20.1	23.1	15.7	22.1	24.2
1893	18.2	19.1	18.4	14.0	12.0	17.1	14.5	18.5	19.5	20.9	18.5	13.9	17.0
1894	19.2	33.9	20.0	17.4	19.0	20.0	26.3	21.0	22.5	17.0	21.9	12.0	20.8
1895	15.4	20.8	23.0	20.7	16.6	17.6	17.9	10.5	15.9	22.7	22.5	14.5	18.2
1896	25.4	23.6	21.8	17.2	20.6	11.7	15.6	18.1	17.8	17.5	13.1	13.8	18.0
1897	12.0	14.0	14.2	22.2	14.6	12.0	9.3	10.7	11.0	13.8	12.6	17.2	13.6
1898	13.5	15.1	20.5	13.4	15.1	14.3	13.5	14.6	21.5	14.1	13.6	13.0	15.2
1899	14.3	17.8	15.6	14.2	15.9	13.5	11.6	11.4	13.5	9.4	8.7	12.1	13.2
1900	13.5	8.9	12.5	7.2	9.6	4.7	5.2	6.0	5.2	7.1	5.4	5.4	7.6
1901	7.3	7.0	6.5	5.2	6.2	6.0	5.6	6.1	6.0	5.4	5.6	6.4	6.1
1902	6.1	7.6	5.9	7.9	5.6	5.4	6.3	6.2	7.0	7.2	7.6	6.1	6.6
1903	6.5	5.9	6.7	10.3	7.8	11.3	10.8	14.1	14.0	26.3	16.3	13.5	12.0
1904	15.1	12.6	8.7	13.1	13.0	10.5	10.8	10.2	11.2	13.0	11.6	10.6	11.7
1905	16.0	20.3	16.6	16.6	10.6	13.8	11.8	16.8	16.3	11.2	20.1	10.7	15.1
1906	7.6	17.5	14.0	11.6	11.4	11.3	12.4	12.0	14.2	12.7	9.6	16.4	12.6
1907	16.5	25.3	14.3	12.1	16.8	14.8	16.9	15.5	16.8	18.5	14.6	11.5	16.1
1908	13.6	17.0	23.2	15.6	18.9	12.5	10.4	18.2	31.6	15.8	17.4	11.4	17.1
1909	24.8	17.0	19.8	12.1	18.3	11.5	12.6	17.6	27.6	19.4	11.6	13.8	17.2
1910	12.8	14.6	20.9	19.7	17.2	13.7	10.8	20.2	19.2	24.4	17.9	19.5	17.6
1911	21.3	23.7	21.5	21.1	16.6	13.6	15.3	11.9	12.2	12.5	10.6	11.0	15.9
1912	7.6	8.0	7.7	9.4	9.6	8.4	7.8	10.5	9.8	9.5	9.4	9.4	8.9
1913	10.3	9.5	9.9	9.8	9.0	7.0	7.0	6.7	10.0	10.7	7.6	6.6	8.7
1914	7.1	7.3	10.1	13.5	8.1	10.3	12.9	14.9	11.8	13.3	13.4	9.3	11.0
1915	10.9	13.5	15.0	15.3	13.9	17.9	11.2	14.7	17.0	21.3	24.9	12.4	15.7
1916	16.0	11.6	25.0	19.2	20.2	15.7	19.7	21.4	22.4	24.5	24.0	18.9	19.9
1917	25.1	19.1	16.2	16.7	15.9	12.7	14.6	28.1	16.1	20.2	14.8	19.8	18.3
1918	17.8	21.3	19.7	20.5	18.8	15.6	17.4	22.2	28.4	26.4	23.1	28.1	21.6
1919	27.8	26.5	30.7	21.3	27.5	13.9	14.9	22.7	25.3	26.9	14.3	18.4	22.5
1920	16.7	14.1	28.5	17.8	17.7	12.4	14.0	14.8	25.7	17.3	15.1	17.0	17.6
1921	11.7	10.6	15.6	17.2	40.5	12.4	13.3	14.6	12.4	16.2	16.2	17.8	16.5
1922	18.0	18.6	24.1	23.5	18.3	18.6	20.0	20.7	19.7	20.1	13.1	10.4	18.8
1923	10.2	13.7	12.1	10.0	10.1	11.1	8.4	7.3	10.7	12.6	7.8	9.6	10.3
1924	13.6	10.9	12.9	7.3	10.2	12.3	9.7	6.9	12.6	8.7	9.3	7.9	10.2
1925	9.4	8.6	8.6	10.8	11.0	17.7	11.8	13.6	18.0	21.7	13.2	12.9	13.1
1926	27.1	26.2	27.6	27.1	19.6	16.2	11.4	13.2	22.7	23.3	11.9	13.3	20.0
1927	15.5	15.2	20.7	15.6	16.8	11.2	16.5	18.5	20.9	24.7	8.0	15.8	16.6
1928	10.1	13.5	11.3	12.8	23.6	20.2	27.8	15.9	19.6	23.4	18.2	15.6	17.7
1929	13.0	24.0	26.2	13.9	16.3	14.7	18.6	15.9	21.5	25.5	22.7	21.0	19.4
1930	20.9	27.9	30.9	38.2	36.4	33.3	28.3	33.3	28.8	29.3	18.8	17.2	28.6
1931	13.0	15.4	12.9	9.9	12.0	14.7	13.1	17.7	21.2	27.3	23.7	21.1	16.8
1932	20.2	21.4	27.9	28.2	22.2	11.8	12.4	19.1	19.1	17.2	13.8	15.3	19.0

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual mean
1933	15.9	18.4	19.2	21.1	17.5	13.6	12.3	14.2	18.4	16.8	16.0	13.0	16.4
1934	11.5	14.9	20.0	11.3	11.4	10.0	10.3	17.4	17.6	11.6	9.5	15.5	13.4
1935	15.6	16.5	17.8	13.6	11.6	16.4	12.5	9.9	20.7	20.2	15.6	17.7	15.7
1936	17.4	19.8	15.5	22.1	17.5	19.8	18.0	10.2	9.8	15.4	18.0	12.0	16.3
1937	12.2	22.2	18.6	26.3	18.6	18.9	18.8	14.7	14.7	27.8	19.3	16.5	19.0
1938	46.6	26.0	20.4	26.1	23.7	14.8	19.7	19.9	24.7	24.0	17.8	19.5	23.6
1939	13.5	21.7	27.0	36.1	27.8	22.8	26.1	23.0	19.2	28.4	14.5	18.6	23.2
1940	24.8	20.1	43.9	22.4	20.0	23.6	18.4	18.4	20.1	21.9	25.1	23.7	23.5
1941	21.9	27.6	42.9	21.6	19.1	17.4	27.9	22.3	38.2	17.5	23.6	19.3	24.9
1942	14.6	18.8	32.4	24.4	14.2	14.6	23.0	21.9	25.8	30.3	22.8	18.4	21.8
1943	18.1	17.1	21.0	21.9	24.5	21.2	24.4	41.0	35.3	32.8	29.6	23.3	25.8
1944	21.2	17.9	26.6	21.6	16.1	14.9	11.1	16.5	17.5	17.2	11.2	21.8	17.8
1945	16.1	16.4	25.0	19.1	15.4	11.1	15.3	12.1	15.6	17.9	12.0	20.2	16.3
1946	19.2	30.2	43.5	25.0	24.1	22.3	28.6	16.7	41.7	19.6	19.3	14.3	25.4
1947	20.6	17.1	37.9	23.3	19.1	21.1	21.4	32.9	39.1	31.3	20.7	17.9	25.2
1948	20.8	21.0	24.2	17.7	23.7	15.0	16.2	28.3	22.0	36.1	23.1	23.0	22.6
1949	29.8	20.4	24.7	17.6	22.4	17.9	11.8	19.2	17.8	32.7	24.6	15.1	21.2
1950	19.5	23.2	20.6	23.8	21.7	19.0	19.5	30.2	29.3	34.5	28.0	24.0	24.4
1951	23.1	29.2	28.5	32.1	25.5	23.2	25.2	29.7	44.4	30.3	25.7	28.2	28.8
1952	28.5	34.3	40.1	38.0	33.1	23.8	20.7	19.0	28.5	26.4	18.9	23.4	27.9
1953	22.3	21.2	27.4	22.7	21.4	18.4	22.5	26.1	29.0	22.4	20.2	12.6	22.2
1954	13.9	24.5	25.5	20.6	12.0	9.7	13.1	16.3	25.4	21.1	14.5	10.9	17.3
1955	19.3	18.2	23.6	21.1	16.7	15.1	12.3	14.3	19.1	17.8	19.9	14.1	17.6
1956	28.7	23.3	27.6	31.7	29.3	23.5	19.8	20.7	22.4	19.3	32.3	18.2	24.7
1957	28.7	26.8	36.7	28.8	18.1	29.1	21.7	20.7	57.0	24.0	29.5	31.7	29.4
1958	25.5	43.2	36.1	27.6	25.2	29.7	36.0	25.1	26.5	24.7	15.0	27.2	28.5
1959	24.3	35.9	29.9	24.2	25.7	21.6	42.5	31.2	36.1	28.2	32.1	30.8	30.2
1960	25.2	23.5	27.6	51.5	31.6	27.6	28.1	27.2	26.4	45.6	45.9	34.5	32.9
1961	20.6	25.1	22.0	21.8	22.3	20.1	36.0	18.5	20.7	23.3	17.3	21.1	22.4
1962	13.2	19.2	15.5	22.6	13.4	18.1	21.0	26.2	29.8	33.3	22.5	23.5	21.5
1963	19.3	15.3	14.9	18.2	20.4	20.5	20.8	22.5	40.2	23.5	20.7	18.9	21.3
1964	20.1	20.1	21.0	21.7	17.5	15.1	16.9	14.8	18.2	16.9	13.8	10.3	17.2
1965	11.8	16.3	14.3	12.6	10.5	15.7	14.7	16.8	17.5	13.1	11.7	13.8	14.1
1966	14.2	14.8	18.6	12.0	14.8	12.5	17.1	20.0	29.4	17.5	16.8	20.5	17.3
1967	18.9	19.8	13.8	15.5	33.1	18.6	14.4	17.5	24.7	17.8	18.9	24.5	19.8
1968	21.1	26.5	23.3	22.2	21.4	24.9	18.0	20.1	22.0	24.8	26.2	20.3	22.6
1969	17.8	25.8	27.3	23.6	25.2	16.7	15.0	15.3	23.8	17.2	18.7	13.8	20.0
1970	14.4	12.7	26.4	23.1	16.6	18.3	28.4	21.0	19.7	20.6	21.6	16.5	19.9
1971	23.5	21.2	21.1	23.9	21.1	17.0	15.2	17.1	21.4	22.2	18.8	18.6	20.1
1972	21.9	18.3	21.5	18.1	16.6	21.5	14.0	34.2	20.4	20.4	21.8	18.9	20.6
1973	26.1	32.7	36.9	39.6	26.1	27.3	20.9	20.6	22.8	28.2	20.7	19.9	26.8
1974	25.8	26.4	33.7	32.9	29.2	29.2	32.0	30.2	33.7	37.3	26.8	27.5	30.4
1975	27.6	31.1	32.0	24.3	22.7	20.7	21.7	18.1	16.9	20.2	29.3	21.1	23.8
1976	23.3	28.5	33.4	25.4	23.7	17.5	18.4	17.7	23.7	20.4	16.9	18.6	22.3
1977	18.7	21.0	19.9	24.9	20.1	14.2	22.9	23.2	23.0	20.9	17.3	17.0	20.3
1978	25.0	26.2	25.9	31.3	31.2	28.3	19.9	25.6	27.0	20.8	24.6	22.0	25.6
1979	27.3	23.7	26.9	33.5	21.0	18.3	17.9	26.0	22.0	19.3	17.1	16.8	22.5
1980	19.0	17.3	12.7	18.4	15.6	20.0	17.0	15.9	14.2	21.9	23.3	21.7	18.1
1981	16.8	22.9	27.1	33.4	27.3	18.1	27.6	24.3	20.8	34.4	24.5	19.7	24.7

Unit : nT

TWELVE-MONTH RUNNING MEAN VALUES OF aa 1868 - 1981

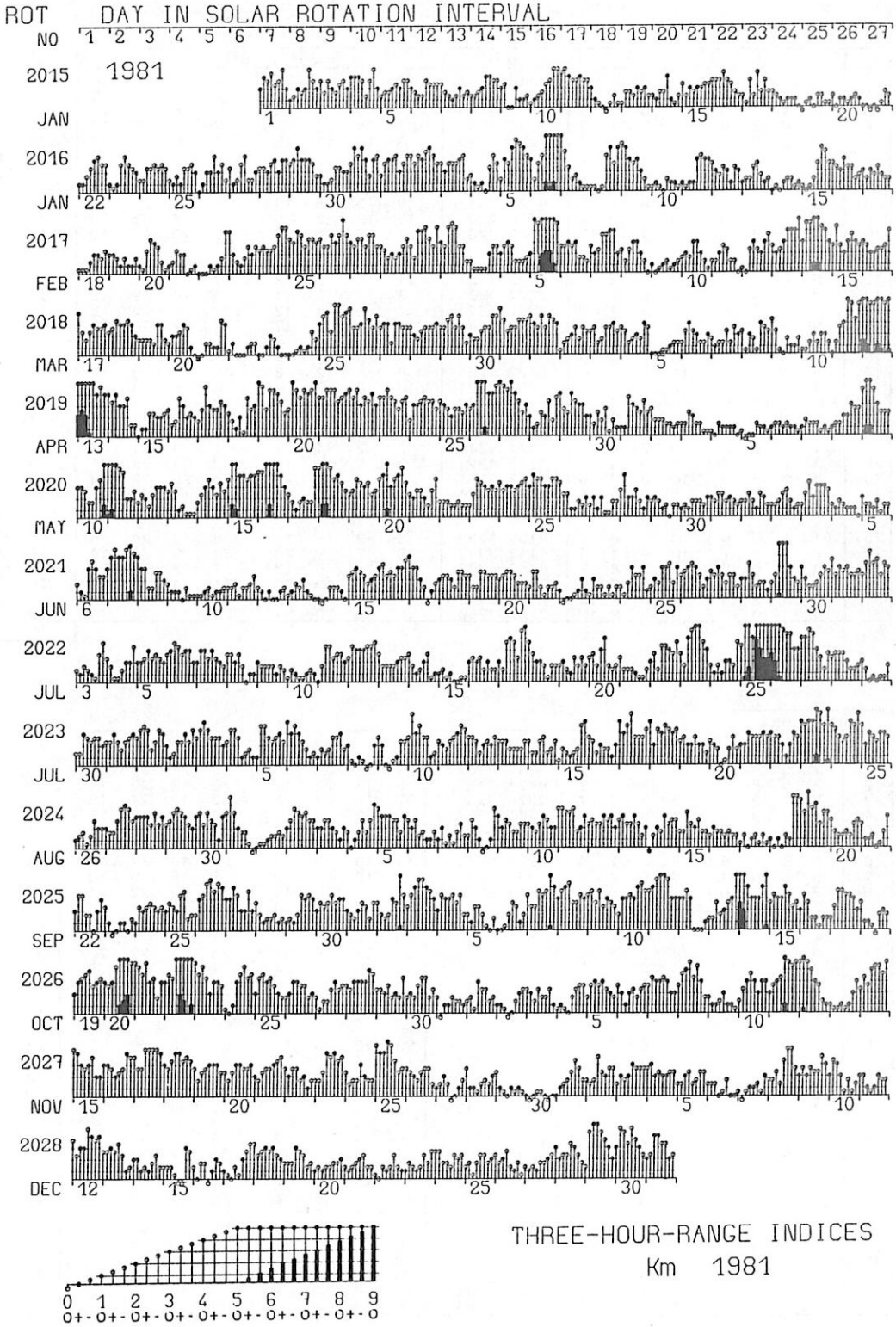


SECTION 3

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  1959 - 1981 64

MUSICAL DIAGRAM OF Km 1981



THREE-HOUR-RANGE INDICES
Km 1981

JAN. 1981

	3Kn								σn								An
1	4	10	5	10	7	8	11	6	2412	2241	10	36	12	35	17	24	45	14	24
2	3	2	4	5	5	11	8	6	3122	2433	6	5	10	12	12	50	25	15	17
3	8	4	7	6	4	6	8	5	2222	3243	24	9	19	15	10	14	21	11	15
4	10	8	8	8	3	7	11	6	2214	1252	37	24	22	22	7	20	49	16	25
5	4	5	5	6	8	6	8	7	2220	4112	8	11	11	15	21	16	24	19	16
6	6	4	3	3	8	8	7	7	4212	3442	14	9	7	7	25	22	18	20	15
7	6	5	4	3	4	5	3	5	3210	2223	15	12	8	6	8	12	7	13	10
8	4	4	4	6	8	9	8	7	4222	2422	9	9	8	15	25	30	24	20	18
9	5	7	1	0	5	3	2	4	3610	2235	13	19	2	0	13	7	5	10	9
10	0	1	3	4	6	7	11	10	2232	3235	1	3	6	9	15	20	43	40	17
11	10	11	9	8	9	9	9	8	2223	3543	35	48	28	22	33	31	31	26	32
12	5	4	1	1	0	2	3	2	4322	1322	11	8	3	3	1	4	7	5	5
13	3	5	4	5	6	6	7	4	2322	4333	6	11	9	11	16	14	19	9	12
14	3	2	5	5	9	3	1	3	3362	2324	7	5	11	12	32	6	2	6	10
15	6	2	7	5	6	7	7	7	2243	2343	15	5	17	12	16	17	20	20	15
16	9	8	7	9	8	7	6	3	3334	3540	29	26	20	33	23	18	15	6	21
17	4	2	5	4	11	5	9	6	3122	4264	8	4	12	8	46	13	28	14	17
18	4	4	3	1	2	2	2	0	3232	2221	10	8	7	3	4	5	5	1	5
19	0	1	2	0	4	3	2	2	1321	2122	1	3	4	1	10	7	4	4	4
20	4	1	2	3	3	3	5	3	3222	3345	10	2	5	6	6	6	11	7	7
21	1	1	0	0	0	2	5	3	2321	1241	2	2	1	1	1	4	11	7	4
22	3	2	4	6	9	10	8	8	3223	4321	7	5	9	14	32	34	22	21	18
23	4	0	2	8	10	8	8	6	3112	3531	8	1	5	25	37	25	22	14	17
24	4	4	7	7	8	7	8	8	1222	1334	8	8	18	17	22	18	21	21	17
25	4	2	3	2	6	7	8	6	3142	2231	8	5	7	4	15	19	23	15	12
26	1	1	6	6	10	6	8	4	2155	2222	3	3	14	15	38	16	24	8	15
27	7	3	4	7	10	4	4	6	4113	3342	18	7	9	20	38	9	9	14	16
28	8	7	6	8	9	5	8	9	4443	4333	22	19	15	23	27	13	24	31	22
29	8	8	10	9	9	8	9	5	2232	2431	22	24	40	28	31	24	28	13	26
30	5	3	2	3	7	6	5	5	2324	2132	11	6	4	7	18	16	12	13	11
31	6	12	10	12	8	5	9	10	2222	3256	15	59	36	51	25	12	33	35	33
																			15.6

JAN. 1981

	3Ks								σs								As
1	7	8	9	10	7	9	10	6	2242	4432	19	23	30	34	18	27	38	15	26
2	3	5	8	5	7	11	8	7	4421	3133	6	11	22	13	20	42	25	17	20
3	9	6	9	6	5	7	9	7	2224	3335	27	15	28	15	12	19	27	18	20
4	9	9	9	8	4	8	11	6	4211	2352	29	32	31	22	10	23	45	16	26
5	4	5	6	7	7	6	8	8	2223	3432	9	13	14	17	19	15	26	26	17
6	5	5	4	5	8	7	7	6	3222	2553	13	13	9	11	23	19	17	16	15
7	8	5	5	4	4	6	4	4	1333	4343	22	12	12	8	8	16	9	10	12
8	3	4	6	6	10	9	8	8	1133	3322	7	10	14	16	34	32	22	24	20
9	7	6	2	2	6	3	3	4	3224	4435	19	15	5	4	15	6	7	10	10
10	3	4	5	6	7	8	12	11	4433	3333	7	10	13	16	20	25	57	42	24
11	10	12	10	8	7	9	8	7	2231	2122	37	51	35	21	20	32	22	20	30
12	7	3	3	2	1	2	4	2	1222	2334	17	7	7	4	2	5	8	5	7
13	2	4	5	4	6	5	5	4	4211	2233	5	10	12	8	15	13	12	8	10
14	4	3	5	6	9	3	2	4	2014	1443	10	7	12	14	32	7	5	10	12
15	7	4	5	6	6	6	7	8	2321	2432	19	10	13	14	15	14	19	21	16
16	8	8	8	10	8	6	3	5	3111	1412	23	26	23	35	25	16	7	12	21
17	5	3	9	5	9	4	7	5	3222	4254	11	6	30	11	30	9	17	12	16
18	5	4	3	3	4	3	3	1	2312	1452	13	10	7	6	8	7	7	3	8
19	0	2	3	2	4	4	2	3	2221	3534	1	4	7	5	9	8	4	6	6
20	4	1	3	3	2	3	3	3	2122	4445	9	2	7	7	5	6	7	7	6
21	2	2	0	1	1	2	6	4	2313	2254	4	4	1	3	2	4	14	8	5
22	3	4	5	8	9	10	8	9	3122	0343	6	9	13	24	30	37	26	27	22
23	3	3	4	8	10	7	5	7	4212	2233	6	6	8	26	34	18	13	17	16
24	5	5	8	6	7	7	8	7	3232	2343	12	12	21	16	20	19	21	19	18
25	5	4	6	4	7	8	7	6	2232	2424	11	9	14	10	19	22	19	14	15
26	1	4	6	6	9	6	9	5	2332	3264	2	9	15	16	32	14	27	11	16
27	6	3	5	8	10	4	3	6	3221	4222	16	7	11	22	34	10	6	16	15
28	7	7	7	8	9	7	10	10	2132	1333	18	18	17	23	28	19	34	34	24
29	7	9	13	9	9	9	8	5	1222	2343	20	30	70	30	32	32	24	13	31
30	6	4	4	4	7	7	7	7	1122	3452	14	8	10	9	20	18	18	19	15
31	10	11	11	12	9	4	9	10	2223	2344	35	49	41	59	28	10	30	38	36
																			17.3

FEB. 1981

	3Kn								σn								An
1	4	8	9	9	10	6	7	9	2221	1024	10	23	27	27	34	15	20	33	24
2	10	7	10	9	11	13	11	8	3212	2222	36	19	34	29	48	69	45	25	38
3	8	4	8	9	9	9	9	4	3233	2442	21	10	25	27	29	29	32	10	23
4	6	2	2	3	2	8	10	9	3131	2355	14	5	5	6	4	22	39	29	16
5	4	9	8	14	14	13	11	10	2225	4343	10	33	24	76	74	62	46	37	45
6	8	4	7	10	17	16	17	17	2222	2237	26	9	19	34	133	114	146	124	76
7	15	11	7	4	6	4	2	2	4432	3445	100	45	17	10	16	8	4	4	26
8	3	2	2	1	10	13	8	13	5332	2526	6	4	4	3	39	61	26	61	26
9	13	12	9	7	9	6	4	2	5432	2434	62	55	30	20	27	15	9	5	28
10	3	3	2	1	4	3	2	2	5443	3233	6	6	4	2	9	7	5	4	5
11	2	0	3	3	9	10	9	9	2113	2525	5	1	6	6	29	36	29	30	18
12	9	5	5	7	7	4	7	6	3333	2241	30	11	13	20	19	8	17	15	17
13	3	4	4	7	8	6	3	4	3214	1133	7	8	8	18	23	14	7	9	12
14	1	1	1	3	2	5	2	3	2123	4142	2	2	3	6	5	13	4	6	5
15	2	0	1	4	8	13	11	8	1113	3441	4	1	3	8	22	64	47	25	22
16	8	7	5	9	6	7	4	4	1311	1331	22	18	12	27	16	20	10	9	17
17	5	3	4	4	7	6	4	4	3032	1513	11	6	9	10	18	14	8	9	11
18	2	2	1	3	6	6	5	8	2221	2322	4	4	3	7	15	15	12	24	11
19	7	5	5	3	4	3	3	5	3140	3203	17	13	11	6	9	7	6	13	10
20	3	2	5	9	9	8	5	3	2233	3122	7	4	13	33	32	21	11	6	16
21	3	3	7	6	6	1	2	3	1222	2211	6	7	18	15	14	3	4	6	9
22	0	0	0	3	2	4	5	12	2111	2145	1	0	1	6	4	8	13	53	11
23	11	6	4	2	5	9	6	8	3322	2101	50	14	9	5	13	27	15	23	20
24	6	7	5	7	8	11	13	12	3322	2174	16	19	13	19	25	48	68	54	33
25	9	10	12	11	9	10	11	10	3453	2452	33	35	51	48	27	40	47	36	40
26	9	8	8	11	8	11	15	11	3333	2251	29	24	24	44	25	49	101	48	43
27	8	9	10	9	9	12	11	9	2122	2232	26	28	34	31	28	51	50	28	35
28	8	6	5	6	6	7	9	11	2232	2125	22	16	12	16	15	17	29	43	21
																			23.5

FEB. 1981

	3Ks								σs								As
1	5	9	9	9	10	5	8	11	3322	3333	13	28	33	29	39	13	23	48	28
2	9	9	11	9	11	11	9	9	1232	3212	33	30	46	29	46	49	32	27	37
3	8	7	8	8	8	9	10	4	3231	1542	21	20	25	26	21	28	37	10	24
4	5	3	3	3	1	7	9	7	3222	2345	12	6	6	6	2	19	32	18	13
5	5	8	8	11	13	14	12	9	2223	2536	11	22	21	45	67	71	57	32	41
6	9	4	9	10	17	16	17	14	5212	3211	29	10	28	38	135	116	138	81	72
7	14	11	7	4	5	3	2	3	6412	2444	79	44	18	10	11	6	4	6	22
8	1	3	1	2	10	12	8	12	2223	4443	3	6	3	5	39	53	25	52	23
9	13	11	10	8	8	6	5	2	3331	3354	66	50	37	25	26	16	11	4	29
10	2	4	2	1	5	2	3	2	3432	3343	5	9	5	3	11	5	7	4	6
11	4	3	3	4	9	9	9	8	3202	0243	8	7	7	8	30	33	30	26	19
12	8	8	5	7	5	3	6	6	4432	2232	22	21	13	17	13	6	16	14	15
13	3	4	4	7	8	4	4	4	4222	3343	7	10	8	19	24	8	8	8	12
14	2	3	1	3	5	3	2	3	2222	8424	5	6	3	6	12	6	4	7	6
15	3	2	3	3	8	11	10	9	3331	2243	6	4	6	7	23	49	37	28	20
16	9	7	7	8	7	6	4	5	3442	2534	30	19	17	26	19	14	9	13	18
17	7	5	8	6	6	4	4	4	3321	1232	17	13	21	14	16	10	9	8	14
18	3	3	2	4	7	6	6	6	2022	2454	6	7	5	9	18	14	15	14	11
19	6	7	5	3	5	2	3	5	4132	3443	14	17	13	7	12	5	7	13	11
20	3	3	8	10	9	8	3	2	3132	2143	7	6	23	35	29	22	7	5	17
21	4	4	7	7	5	0	2	3	2412	4234	8	8	17	17	13	1	5	7	10
22	1	2	2	4	2	2	5	12	2321	3437	3	5	5	8	4	5	13	56	12
23	12	6	4	3	5	8	6	8	5232	3443	59	16	10	6	12	25	15	25	21
24	8	9	8	7	9	11	12	14	3221	2255	24	32	22	17	28	43	58	77	38
25	10	9	12	10	8	10	10	9	5152	1153	40	32	57	35	24	39	34	28	36
26	11	8	9	11	9	11	16	12	6242	1253	47	21	28	43	28	49	104	53	47
27	9	8	11	10	8	11	11	8	2364	2343	31	24	43	39	25	46	41	21	34
28	8	7	5	6	5	6	8	10	1222	2322	24	18	12	15	11	14	22	36	19
																			23.4

MAR. 1981

	3Kn								σn		an						An
1	9	6	12	13	13	10	8	12	4325	3214	28	15	54	65	66	39	21	60	44
2	9	8	13	15	14	8	8	5	3423	6223	30	26	63	87	73	24	22	11	42
3	4	2	3	2	4	7	8	8	2232	3334	9	5	6	5	8	17	24	23	12
4	7	8	9	9	5	4	5	6	5634	4353	18	25	30	27	13	10	11	14	19
5	5	14	13	19	20	20	17	14	3224	3335	11	78	68	194	213	227	126	71	124
6	8	8	9	8	9	6	5	4	2334	2122	25	23	27	21	30	14	13	8	20
7	8	7	7	11	12	12	12	7	2122	5542	24	17	20	44	58	57	59	18	37
8	6	4	7	9	10	6	3	2	2222	3322	15	9	20	33	37	15	7	4	18
9	3	1	1	3	4	3	4	5	1222	3323	7	2	3	7	9	7	8	11	7
10	4	5	5	9	9	6	4	1	2222	2232	10	12	11	27	29	15	10	3	15
11	3	4	7	8	7	5	5	1	1243	2232	7	10	17	22	18	11	13	3	13
12	2	1	7	9	7	5	9	11	2323	2121	5	2	20	27	20	13	31	41	20
13	9	6	8	9	12	12	13	15	3212	1433	28	14	21	30	58	60	63	90	46
14	9	13	13	17	18	13	12	8	1225	5331	32	67	69	144	153	68	55	26	77
15	8	12	8	6	9	11	10	9	4321	3332	23	60	21	15	31	48	39	29	33
16	9	8	7	5	7	7	8	12	2133	3335	28	25	19	13	18	18	21	51	24
17	13	7	5	7	9	9	8	10	4223	1233	63	20	13	18	33	28	26	34	29
18	7	8	11	9	9	11	10	7	4245	2353	17	23	41	32	31	42	40	17	30
19	5	5	5	6	4	8	9	5	3221	2132	13	11	12	15	9	26	32	13	16
20	5	6	7	7	9	8	3	1	2142	1422	11	14	17	20	31	22	7	2	16
21	0	1	4	4	4	4	10	10	1231	3437	0	3	8	9	9	9	40	35	14
22	3	4	2	1	1	5	5	4	2232	3533	6	9	4	3	3	12	11	10	7
23	1	1	3	7	6	4	2	2	2154	1242	2	2	7	17	14	8	4	4	7
24	2	1	2	4	3	4	7	5	3332	1412	4	3	5	8	7	9	18	13	8
25	8	11	12	7	15	14	12	13	4434	2422	26	45	54	20	88	84	56	65	55
26	13	8	8	9	13	11	8	11	4213	4124	68	25	26	29	70	43	26	44	41
27	8	9	9	4	9	9	8	8	2323	3432	21	30	27	10	32	28	25	26	25
28	7	6	5	8	8	8	8	9	4321	2321	19	14	13	22	21	24	22	31	21
29	7	7	9	10	9	11	9	5	3133	1322	19	18	33	39	27	47	28	12	28
30	6	5	6	7	8	8	12	12	1452	2434	15	11	14	18	25	23	52	52	26
31	13	9	8	9	9	11	11	10	2232	2224	65	28	23	29	31	42	45	38	38
																			29.4

MAR. 1981

	3Ks								σs		as						As
1	7	5	11	12	12	9	8	13	4523	1143	20	11	50	55	57	33	23	67	40
2	9	8	14	14	12	8	7	4	1232	2456	33	21	78	84	59	22	20	9	41
3	4	1	2	2	1	6	7	7	5211	2246	8	3	4	5	3	15	18	19	9
4	5	8	10	8	3	3	3	5	3543	4433	13	23	35	22	7	7	6	12	16
5	7	15	15	20	20	20	17	14	4332	3365	18	102	100	204	205	212	132	83	132
6	7	8	9	8	9	5	5	4	3222	3433	20	25	28	21	32	12	13	9	20
7	9	6	7	12	10	12	11	6	3134	4444	28	16	20	53	37	54	46	15	34
8	7	4	6	10	9	5	4	1	2223	1432	18	9	16	34	28	13	10	2	16
9	2	1	2	3	4	1	2	4	1212	1244	5	3	4	6	9	3	4	8	5
10	5	7	6	10	9	6	4	2	3223	0024	13	18	14	39	30	15	8	4	18
11	4	4	5	7	7	4	4	1	2323	2342	10	8	11	19	18	10	8	2	11
12	2	1	7	9	8	6	8	11	3211	3432	4	2	17	27	21	15	25	44	19
13	8	7	7	9	13	12	11	14	2211	5236	22	18	17	31	62	52	49	83	42
14	9	15	15	17	16	12	11	10	2223	2452	33	96	90	133	106	54	50	34	75
15	8	13	8	6	9	10	8	7	2264	2233	22	62	24	14	29	38	25	19	29
16	9	8	6	6	6	7	8	12	3314	4254	30	24	14	14	15	17	22	52	24
17	12	7	5	7	9	7	8	8	4212	2224	51	19	12	17	32	19	22	21	24
18	8	9	9	9	9	9	8	6	3324	0212	21	27	30	27	30	29	26	16	26
19	5	4	5	4	4	9	9	5	2221	3242	11	10	12	10	8	30	30	11	15
20	4	6	5	7	9	7	2	1	3011	1233	10	15	12	17	32	19	5	2	14
21	0	2	5	4	2	1	9	8	1212	3435	0	4	12	8	4	3	29	21	10
22	2	4	1	1	0	1	2	4	3322	2342	5	9	2	2	1	3	4	9	4
23	1	2	2	6	4	1	0	0	2235	4321	2	4	5	14	9	3	1	1	5
24	1	1	1	2	0	2	6	4	2233	1322	3	3	3	4	1	4	16	9	5
25	9	10	13	6	14	14	11	11	7332	1233	28	39	64	16	80	74	43	47	49
26	14	7	8	9	13	10	7	11	7221	3217	71	18	23	31	62	38	18	48	39
27	8	9	9	4	9	8	8	8	2332	2236	22	27	27	9	30	25	23	25	24
28	8	6	5	6	8	8	8	9	6322	2324	26	16	12	16	25	21	22	32	21
29	8	9	10	11	8	11	8	4	2221	1335	22	28	39	48	25	41	21	8	29
30	6	5	5	6	8	8	11	11	1422	3337	15	11	11	16	22	26	41	49	24
31	13	11	7	8	8	10	9	10	3223	3135	63	41	17	21	21	34	33	34	33
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	3Kn								σn		an						An
1	11	8	7	11	8	11	10	9	2112	4212	43	26	20	44	26	49	34	33	34
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3	7	7	4	5	9	9	10	7	1413	4012	17	20	9	12	28	29	34	19	21
4	7	7	4	5	7	6	9	9	3311	2213	18	20	9	11	17	15	33	30	19
5	1	1	2	3	4	3	5	5	1133	1121	2	2	5	7	9	7	12	12	7
6	4	7	9	7	7	4	5	7	2233	3333	8	17	33	17	19	10	11	19	17
7	5	4	5	5	8	5	9	7	2323	2123	12	8	12	13	21	13	29	20	16
8	7	2	7	5	3	10	9	7	2212	2124	17	5	17	11	6	36	28	17	17
9	9	6	2	2	6	4	4	6	4412	3323	29	14	5	5	14	10	10	16	13
10	2	3	4	7	5	7	7	5	3322	2533	4	7	9	20	13	20	17	13	13
11	1	4	8	9	16	15	11	15	2133	2112	2	10	24	27	115	88	47	93	51
12	17	16	14	14	17	17	14	17	4365	4213	140	112	86	72	129	121	81	126	108
13	21	21	20	16	15	13	15	13	4765	2243	262	282	229	113	98	61	87	67	150
14	12	9	13	10	10	11	4	4	6132	2222	52	32	65	34	35	50	10	10	36
15	2	3	4	7	8	7	7	8	3110	2224	4	7	8	19	23	19	17	21	15
16	9	4	5	11	10	7	8	7	2213	2132	27	10	11	42	34	18	23	18	23
17	5	8	14	9	9	8	11	10	1232	3133	11	24	72	28	30	26	45	34	34
18	7	4	3	6	3	12	9	10	2121	0332	20	10	6	14	6	51	32	38	22
19	16	13	8	13	13	12	10	7	5523	2114	105	69	22	61	68	51	35	19	54
20	9	16	14	11	13	12	12	15	5453	1223	28	116	76	49	65	54	60	91	67
21	11	11	13	14	14	10	11	11	2233	2234	41	43	70	71	71	37	46	43	53
22	12	12	12	9	11	9	12	9	3422	2121	56	51	58	28	42	32	54	33	44
23	11	12	13	11	11	9	11	11	1323	3233	46	54	61	49	43	27	43	46	46
24	5	9	9	10	11	10	10	8	2231	3222	12	30	28	37	49	39	38	21	32
25	11	9	8	6	8	8	8	9	2221	2312	43	29	22	15	26	25	21	31	27
26	8	8	15	15	18	12	12	14	2222	3334	25	24	101	94	163	59	60	76	75
27	15	15	13	15	12	11	7	9	7413	2323	97	92	68	102	59	45	20	28	64
28	5	4	5	6	7	11	6	11	3212	4213	13	8	11	15	18	44	15	46	21
29	12	8	8	12	9	9	8	7	4232	2323	55	24	21	59	33	28	25	17	33
30	6	5	7	5	8	3	6	4	4421	1212	14	11	19	12	26	7	15	8	14
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	3Ks								σs		as						As
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3	8	9	4	5	7	8	9	7	2122	2224	22	32	10	11	20	23	31	20	21
4	8	6	4	5	6	5	9	7	1321	2443	26	15	10	12	14	11	28	19	17
5	2	1	1	1	1	2	3	4	3222	2432	4	3	2	2	2	5	7	8	4
6	4	7	9	7	6	4	3	5	2212	2222	9	19	27	18	14	8	6	11	14
7	5	3	2	3	6	3	6	5	3214	4233	13	7	5	6	16	7	16	12	10
8	7	2	6	5	1	8	7	6	3222	2258	20	5	15	11	3	22	20	16	14
9	11	7	1	1	4	1	1	3	7522	4222	42	20	2	2	10	2	2	7	11
10	2	1	3	4	2	5	6	4	2223	3745	4	3	7	10	5	11	14	8	8
11	0	4	8	9	13	13	9	13	1321	2335	1	10	21	28	66	68	30	69	37
12	18	17	13	15	16	15	14	16	6332	2325	160	132	69	93	114	88	71	113	105
13	20	20	19	15	14	12	14	11	6343	2453	217	240	192	98	84	57	75	46	126
14	11	10	12	8	8	9	4	3	7232	2331	50	37	51	26	26	33	9	7	30
15	1	3	3	6	6	6	6	6	1000	4444	2	7	7	15	15	14	14	16	11
16	8	4	5	10	8	6	6	4	1223	2243	26	9	12	39	25	14	14	10	19
17	5	9	14	9	8	8	8	9	2321	2214	11	28	78	32	22	26	26	32	32
18	6	5	3	6	1	9	7	8	2222	1423	15	13	6	14	2	32	17	25	16
19	14	15	8	13	13	12	10	6	4833	2136	83	96	25	66	67	54	39	15	56
20	8	15	12	11	12	12	14	14	5322	1227	23	87	59	44	57	55	72	84	60
21	11	11	12	12	13	10	11	12	1432	2246	47	48	57	58	64	40	47	60	53
22	13	11	13	9	11	10	12	9	4222	3144	65	41	64	27	42	35	57	30	45
23	11	11	14	10	10	8	9	11	3231	3213	45	42	76	34	37	23	28	49	42
24	5	9	9	10	10	9	10	8	3441	3122	11	33	30	36	38	33	36	22	30
25	10	8	8	6	7	7	6	9	3221	2117	37	24	21	15	19	17	15	32	23
26	8	9	14	15	15	12	13	14	4432	2153	24	33	84	92	99	52	61	78	65
27	15	14	12	14	11	9	7	10	7521	2112	88	81	56	82	47	31	17	36	55
28	7	3	3	7	5	10	5	10	2222	4227	18	6	7	18	12	35	11	35	18
29	12	8	6	11	10	9	9	6	6324	3233	56	24	15	48	40	29	31	15	32
30	5	3	6	4	7	1	4	2	5332	2222	13	7	15	9	20	3	8	4	10
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3	4	4	7	7	5	4	3	3	2233	3332	10	10	20	17	11	10	6	6	11
4	3	2	5	5	4	4	4	1	2213	2222	6	4	11	11	9	8	10	3	8
5	2	0	1	2	5	3	4	3	2132	3231	4	1	3	4	11	7	10	6	6
6	3	4	4	4	5	5	5	2	2132	2331	7	8	9	10	11	11	11	5	9
7	4	5	4	5	5	3	4	3	2222	2221	8	11	10	13	13	6	9	6	10
8	4	5	5	7	7	10	10	9	2243	2320	8	12	11	19	19	35	36	29	21
9	13	18	17	12	10	8	8	8	2523	2112	68	151	146	59	37	24	24	21	66
10	9	10	9	7	7	10	12	19	3531	2463	33	36	27	17	18	37	54	183	51
11	16	17	16	14	14	7	7	9	2313	3225	119	129	104	86	76	18	19	27	72
12	5	6	6	4	8	9	9	9	3102	1333	11	14	15	10	26	33	32	31	22
13	9	10	8	4	6	3	3	4	3232	2221	31	38	24	10	14	6	6	8	17
14	6	8	9	11	10	8	11	9	2243	2212	14	23	31	47	35	21	41	31	30
15	10	19	19	13	12	12	11	12	2353	3442	38	188	188	61	58	53	47	51	86
16	14	14	16	18	16	15	13	8	7344	5532	82	75	114	149	105	97	63	25	89
17	7	6	4	5	6	6	6	14	3531	3313	18	15	9	12	14	15	15	81	22
18	14	19	20	14	12	12	11	8	3354	3433	79	176	204	84	57	56	44	24	91
19	7	9	12	9	9	9	7	9	4312	2222	18	27	51	30	32	32	20	29	30
20	11	11	17	9	11	12	14	9	4372	3442	41	49	143	30	48	57	85	32	61
21	7	6	7	9	7	6	9	11	4252	2435	19	14	18	27	19	15	31	43	23
22	5	6	6	4	5	6	5	4	3222	2322	12	15	14	10	13	15	13	10	13
23	4	8	11	10	10	8	9	8	3213	3342	10	23	46	39	40	25	27	21	29
24	10	7	8	8	9	10	9	11	4323	2231	35	20	25	26	28	40	32	46	32
25	9	12	10	11	10	9	12	12	2141	4223	32	51	40	49	39	30	57	52	44
26	10	6	6	4	3	5	6	6	5242	2331	35	15	14	9	6	13	14	16	15
27	4	6	4	7	3	4	7	6	3333	2343	9	16	8	18	7	8	18	16	13
28	8	11	7	7	9	7	5	8	2243	4134	25	46	18	18	33	18	11	21	24
29	6	7	6	4	5	2	5	5	1432	2432	14	19	15	8	11	4	13	11	12
30	4	5	4	7	7	7	5	7	4444	1330	9	11	9	17	17	18	13	19	14
31	7	6	8	8	6	7	5	6	1122	3213	17	14	23	24	16	19	13	15	18
																			31.6

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	3Ks								σs		as						As
1	2	3	11	8	8	6	10	7	2223	4034	5	7	42	23	23	15	34	17	21
2	8	5	4	4	3	4	1	3	5222	2221	23	11	10	10	7	8	2	7	10
3	4	4	7	5	4	3	1	1	3231	4322	9	10	17	13	9	6	2	3	9
4	1	1	2	1	1	2	1	1	2233	3222	3	2	5	3	3	5	2	2	3
5	2	1	0	1	4	2	2	1	1222	3321	4	2	1	2	8	5	5	3	4
6	2	4	4	1	3	1	1	1	2313	0222	5	8	8	3	7	3	2	2	5
7	3	4	3	3	3	1	1	0	3421	1221	6	10	7	6	6	2	2	1	5
8	3	3	2	5	5	8	7	7	2333	2332	6	7	5	11	11	24	17	17	12
9	12	17	16	13	9	6	5	5	4422	1233	60	121	112	63	28	15	12	12	53
10	9	8	8	4	4	8	9	17	3432	1343	29	22	22	8	8	26	29	138	35
11	16	17	15	13	11	5	5	8	5322	5128	117	130	102	69	47	12	12	21	64
12	5	7	5	2	6	9	9	8	2123	2254	13	20	13	5	14	27	27	24	18
13	7	9	8	2	1	1	1	1	3552	3223	20	31	24	5	3	2	2	3	11
14	4	7	9	12	9	7	9	7	2223	2233	10	17	30	51	29	18	27	19	25
15	11	17	15	11	12	11	12	12	3324	4344	46	146	99	46	54	46	57	57	69
16	12	12	14	19	15	14	11	9	5437	4444	57	51	84	182	90	78	47	30	77
17	8	5	2	5	7	4	5	13	7222	3325	21	12	5	11	17	10	11	66	19
18	14	18	17	13	10	11	9	7	2452	2445	74	159	130	70	40	48	32	19	72
19	6	7	11	10	9	10	7	7	3123	2324	16	18	45	37	31	37	18	18	28
20	11	12	15	8	11	11	14	10	5342	3435	42	55	102	25	45	48	81	40	55
21	8	6	8	8	5	3	7	10	4422	2135	22	16	23	24	11	6	18	39	20
22	6	5	5	4	3	4	4	3	4523	0353	14	12	12	8	7	8	8	6	9
23	2	6	12	11	8	7	9	7	2122	2345	5	14	54	41	22	19	29	20	26
24	11	8	9	9	8	8	11	10	7432	4334	44	22	30	33	23	26	44	40	33
25	9	12	11	10	9	9	11	11	4533	4237	27	54	41	37	27	27	44	47	38
26	9	8	8	2	3	4	1	5	8573	4313	33	23	21	5	6	9	2	12	14
27	3	5	3	4	0	1	3	4	4222	2236	7	13	6	10	1	2	7	9	7
28	8	12	4	5	6	3	1	5	7321	1022	25	56	10	12	14	7	3	11	17
29	4	5	5	1	4	1	1	2	2232	1223	9	13	12	3	8	2	3	4	7
30	2	2	2	4	4	3	1	5	5412	1123	5	4	5	9	8	7	3	13	7
31	6	5	6	6	4	4	4	2	4311	3243	15	12	16	15	10	9	10	4	11
																			25.3

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	3Kn								σn					an				An
1	6	5	8	6	5	8	7	5	1121	2224	15	12	23	16	11	25	17	13	17
2	5	4	5	8	8	7	4	5	2222	2222	12	8	12	22	24	17	10	13	15
3	5	7	11	8	10	10	10	8	1343	5221	13	20	41	21	39	40	39	26	30
4	5	4	6	5	5	4	4	2	2133	2342	11	8	16	12	11	10	10	5	10
5	6	4	5	5	6	3	5	5	3322	4312	16	9	11	13	16	7	12	12	12
6	5	3	2	9	13	9	9	7	3312	3234	13	7	5	30	63	27	28	19	24
7	9	13	15	13	14	16	17	13	1334	2231	32	68	90	64	73	113	143	68	81
8	12	10	9	5	5	9	9	7	2213	3433	56	38	32	12	11	30	31	20	29
9	6	3	4	4	2	5	4	4	2121	2332	14	7	9	10	5	13	8	9	9
10	3	3	4	5	4	5	5	5	1113	3121	7	6	8	13	9	12	11	12	10
11	4	4	6	4	6	6	7	6	2343	3221	10	9	15	9	15	15	19	14	13
12	5	3	2	4	2	2	5	6	3142	2242	12	7	4	9	4	4	11	14	8
13	3	4	5	6	7	4	3	2	0132	2314	6	8	13	14	19	10	7	5	10
14	2	0	3	6	4	6	5	2	2132	2443	5	1	6	14	10	15	11	5	8
15	7	8	8	8	8	7	8	7	2533	1223	19	21	25	25	23	19	21	20	22
16	9	10	7	9	8	9	10	11	3233	2333	32	38	19	31	24	33	40	49	33
17	12	9	9	6	5	1	4	6	2351	2232	58	28	33	16	11	3	10	15	22
18	6	7	7	7	5	8	8	8	2221	2224	15	19	19	17	13	26	22	24	19
19	7	4	5	8	8	8	8	8	3145	2522	20	10	12	26	22	25	24	22	20
20	6	7	9	9	8	7	7	6	3422	2123	16	18	27	30	22	17	17	16	20
21	5	9	8	6	4	6	6	7	2323	2543	11	31	22	14	9	15	16	17	17
22	4	0	1	3	4	5	8	5	1132	0223	9	0	3	6	9	11	23	11	9
23	2	6	4	6	3	5	4	5	2242	1321	5	16	10	14	7	12	8	11	10
24	4	3	6	10	8	8	11	4	1224	2432	9	7	15	38	26	25	42	9	21
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26	8	8	10	11	11	8	5	8	1233	3333	24	22	39	42	41	25	11	22	28
27	8	8	10	8	7	8	8	6	1252	2232	23	23	36	22	18	23	26	16	23
28	6	6	10	7	5	6	6	5	4232	4433	15	14	36	19	12	16	16	12	18
29	5	7	16	16	16	9	7	5	3224	4312	13	19	111	118	113	32	17	13	55
30	10	7	4	6	7	9	11	9	1332	3133	34	19	10	14	20	30	43	31	25
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	3Ks								σs					as				As
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3	4	5	10	4	6	7	8	7	2343	1235	8	13	36	9	16	19	25	20	18
4	3	3	4	2	1	0	1	1	1211	2211	6	6	8	4	2	1	2	2	4
5	6	3	2	1	3	1	1	3	6322	4226	15	6	4	2	6	2	3	7	6
6	4	3	2	8	9	9	5	7	5341	1334	10	6	4	26	28	30	12	18	17
7	9	11	13	11	11	12	17	13	5632	4456	31	47	66	44	46	51	130	65	60
8	11	8	8	4	2	5	8	4	5322	2343	50	26	24	8	5	13	22	9	20
9	5	2	2	2	0	1	0	0	3211	0311	11	5	5	4	0	3	1	1	4
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11	4	3	4	0	3	1	3	7	4341	1233	8	6	8	1	6	3	7	19	7
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13	0	2	5	2	5	2	0	0	1232	4320	1	4	12	5	11	5	1	0	5
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16	9	9	6	6	6	8	7	10	5532	3356	32	31	16	16	15	21	20	40	24
17	11	9	9	5	2	0	1	3	8443	2022	46	30	31	13	5	0	2	7	17
18	7	8	7	5	3	7	8	5	2432	2254	17	21	18	11	7	20	24	12	16
19	7	3	3	6	8	5	7	6	5411	2215	18	7	6	16	23	11	17	16	14
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21	4	7	9	2	0	0	1	3	6343	0224	9	19	28	5	0	1	3	6	9
22	2	0	0	0	1	1	4	1	2011	2343	5	0	1	1	2	3	10	3	3
23	1	5	2	3	1	2	0	3	3442	1422	3	13	5	6	3	5	1	6	5
24	3	1	3	7	5	5	7	1	3131	2233	6	2	7	17	11	11	19	3	10
25	3	5	5	8	9	8	4	8	1422	4222	6	13	11	25	27	23	10	23	17
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27	7	7	9	5	4	5	5	2	3451	2233	18	17	27	12	9	13	11	5	14
28	6	6	10	8	3	4	4	1	4423	0212	14	16	35	21	7	9	8	3	14
29	4	7	16	14	13	8	5	4	5323	3534	9	17	119	84	67	26	12	8	43
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JULY 1981

	3Kn								σn		an						An
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6	8	9	12	11	9	9	10	7	4133	1222	24	27	53	41	31	32	34	20	33
7	7	9	9	7	10	9	8	6	2322	4322	18	31	30	19	36	28	22	16	25
8	9	8	7	9	6	3	4	4	2322	2323	28	26	18	28	15	6	10	10	18
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11	2	6	11	11	8	9	8	8	2233	3232	5	14	50	41	25	29	26	23	27
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14	7	5	4	5	7	9	4	5	3133	3143	17	12	8	13	19	28	9	11	15
15	4	4	2	4	2	3	3	3	3322	2322	8	9	5	8	4	6	7	6	7
16	5	7	7	7	5	8	5	6	5242	3323	13	19	17	19	11	23	12	14	16
17	6	5	11	13	11	8	12	15	4144	4333	14	11	48	62	48	21	59	98	45
18	10	8	6	7	6	3	6	7	2223	3344	40	22	16	20	15	7	16	19	19
19	5	7	5	4	8	7	7	7	3312	3533	11	20	11	8	25	17	20	17	16
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21	8	5	6	5	5	4	3	6	7242	3232	21	11	14	13	12	9	7	14	13
22	7	8	5	11	11	11	9	13	2133	2313	18	26	11	44	46	41	33	63	35
23	9	5	12	15	15	15	11	9	1124	2444	28	13	58	88	94	88	47	33	56
24	6	4	6	4	8	8	7	11	1342	3132	14	10	15	9	22	23	19	50	20
25	11	15	18	13	24	23	21	20	1233	4245	44	93	158	63	393	332	252	243	197
26	22	19	17	15	14	14	10	10	7535	5222	317	180	134	100	85	74	38	39	121
27	12	13	15	14	10	7	5	10	2345	2332	54	63	92	74	36	19	11	35	48
28	7	9	9	8	7	5	5	6	3233	1231	20	28	27	25	19	11	11	16	20
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30	5	4	9	9	8	8	8	7	4272	3212	11	10	31	27	21	25	26	20	21
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4	7	5	1	1	2	4	6	8	6522	2233	17	12	3	2	4	8	14	26	11
5	5	6	6	8	5	5	6	4	5221	2323	13	15	14	23	13	13	14	10	14
6	7	9	10	9	6	9	8	4	3432	2332	19	27	35	28	15	28	25	10	23
7	6	8	9	7	7	5	4	4	4522	4221	14	23	29	17	20	11	10	8	17
8	7	7	5	8	4	0	2	1	6321	2122	18	20	11	22	10	1	4	2	11
9	6	4	4	4	4	1	4	3	5332	4264	15	10	10	10	9	3	10	7	9
10	1	3	2	1	1	1	3	2	3432	1213	3	7	5	2	2	2	6	4	4
11	0	4	9	9	6	7	7	4	1220	2222	1	8	28	30	15	20	20	9	16
12	7	9	9	8	8	10	9	11	2223	2437	17	33	31	24	26	34	32	50	31
13	8	4	5	4	4	4	7	5	6421	4253	26	10	12	8	9	9	17	13	13
14	8	5	3	2	5	6	0	1	4233	2312	25	11	7	4	12	16	1	3	10
15	2	3	1	1	0	0	0	1	1423	1112	4	7	3	3	1	1	1	3	3
16	6	7	5	8	2	4	2	3	5223	2234	14	18	11	22	5	9	4	6	11
17	6	3	12	12	11	6	14	15	5421	2233	16	7	51	52	46	15	83	96	46
18	11	8	6	5	3	0	3	3	7443	2224	47	22	15	11	7	1	6	7	15
19	4	4	2	2	4	4	6	2	3321	0433	10	8	4	4	9	8	14	4	8
20	7	8	4	8	11	4	2	4	4423	3232	17	22	10	21	45	9	5	8	17
21	7	4	3	3	0	0	0	2	6340	1113	20	9	7	7	1	1	1	5	6
22	5	8	4	9	8	8	6	10	3423	4203	13	25	8	32	23	22	15	37	22
23	8	4	12	13	15	15	11	9	3222	2426	23	10	53	61	90	93	42	33	51
24	4	2	4	2	3	4	4	11	3322	1226	9	5	10	5	7	9	8	41	12
25	9	16	18	11	23	21	20	20	4452	4457	33	117	147	48	386	244	204	242	178
26	20	19	15	12	12	12	8	9	7622	2327	239	179	96	51	54	60	26	27	92
27	12	11	12	12	9	6	3	6	7322	2211	58	41	60	56	27	15	6	16	35
28	6	7	8	7	6	3	4	4	2333	3424	14	20	22	18	14	6	9	8	14
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30	4	3	8	8	6	7	7	4	3152	2342	8	6	24	23	14	19	18	10	15
31	8	7	9	5	4	4	8	8	6531	3234	22	19	28	12	10	10	23	21	18
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3	8	10	12	10	9	9	8	6	1222	2341	24	39	59	35	29	28	26	16	32
4	8	11	11	8	5	5	6	4	3233	3232	21	41	42	24	11	13	16	10	22
5	4	11	11	8	8	9	9	8	3333	3423	9	48	50	26	24	31	32	24	31
6	11	9	11	10	8	5	4	5	5274	2334	50	29	48	34	23	13	8	11	27
7	4	4	4	5	7	8	9	7	2312	2322	9	10	10	12	20	23	30	17	16
8	5	2	2	4	4	0	2	6	3232	2122	13	5	4	9	9	0	4	16	8
9	8	6	2	1	4	5	8	8	2522	1222	26	16	4	2	8	12	24	22	14
10	8	13	10	12	10	9	4	6	2332	1234	23	67	35	53	34	30	9	14	33
11	7	6	7	8	9	11	11	11	2233	1322	19	15	17	25	32	41	43	43	29
12	8	8	7	5	6	7	7	8	1233	1113	24	22	18	12	16	20	20	21	19
13	8	8	7	6	7	5	6	8	2132	2123	21	23	17	14	18	13	16	24	18
14	7	4	5	8	9	4	6	8	3224	3232	17	8	11	21	28	10	14	22	16
15	3	5	5	4	6	6	11	13	2233	5232	6	11	11	9	15	15	48	64	22
16	9	8	4	6	7	6	4	6	3422	4341	30	22	10	16	18	14	10	15	17
17	12	9	12	14	9	9	10	11	2444	2222	55	31	51	81	27	33	36	48	45
18	12	6	11	10	11	11	10	10	6243	3415	51	15	41	34	50	44	34	37	38
19	7	7	6	6	10	7	7	6	3212	5322	18	19	16	15	35	17	19	14	19
20	6	6	6	2	3	6	9	5	1321	1322	15	14	16	5	6	14	28	13	14
21	6	7	10	8	9	10	9	8	2434	2244	15	17	40	26	28	34	29	21	26
22	9	8	8	7	3	7	10	9	3243	3132	27	23	26	17	7	20	34	29	23
23	13	11	13	12	16	15	12	16	1444	3132	61	47	66	59	116	96	53	111	76
24	11	10	8	8	8	12	11	12	1132	2412	49	35	26	24	21	56	41	57	39
25	10	7	9	9	8	9	9	9	2424	2323	39	17	31	29	21	32	29	27	28
26	2	4	6	4	5	9	7	7	2331	2222	5	9	16	8	12	27	17	20	14
27	6	6	5	9	13	14	12	9	3333	2321	14	16	13	28	66	72	52	32	37
28	9	9	9	10	7	12	7	10	2322	2225	29	31	28	34	19	51	18	35	31
29	7	7	11	12	11	9	7	7	4264	2232	18	19	42	56	48	29	19	17	31
30	10	10	7	11	9	7	4	10	4424	3231	34	38	20	44	27	20	10	36	29
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	3Ks								σs		as						As
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4	7	10	9	8	2	1	3	2	3223	2221	19	34	28	24	4	3	6	4	15
5	3	10	11	7	5	8	8	7	1341	3432	6	34	50	18	12	21	24	17	23
6	12	9	10	9	6	5	3	4	8523	2245	52	32	40	28	16	11	7	8	24
7	3	5	4	4	9	8	10	4	1522	1545	6	12	8	10	28	24	34	9	16
8	6	1	1	2	0	0	0	5	4232	2106	15	3	2	4	1	1	0	13	5
9	8	6	0	0	1	0	5	5	3611	2232	22	15	1	1	2	1	12	12	8
10	7	14	9	10	7	8	1	3	2312	4322	19	78	31	38	17	21	3	6	27
11	6	6	4	5	6	8	11	8	2222	1243	15	15	9	13	16	25	46	26	21
12	8	8	7	2	5	5	4	7	2242	1213	23	21	20	5	11	13	10	20	15
13	7	7	6	5	4	4	3	6	2311	3331	18	18	16	11	8	8	7	15	13
14	7	4	4	7	6	4	4	6	3623	3212	17	10	10	20	15	9	8	14	13
15	2	6	4	1	2	4	10	12	2423	1244	5	15	10	3	5	9	34	51	17
16	8	6	5	5	4	4	1	6	2431	3325	21	16	11	12	9	8	2	14	12
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18	12	6	9	9	10	9	9	9	6322	3254	54	16	28	29	39	32	31	31	33
19	7	8	6	5	6	5	5	3	2311	2322	19	23	15	13	14	13	11	7	14
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21	6	5	8	7	7	7	9	8	3123	2243	16	13	26	19	20	18	32	24	21
22	9	9	7	5	3	4	8	7	3522	2234	30	27	20	12	6	9	23	19	18
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24	11	11	8	6	8	11	11	15	3421	1245	47	46	21	16	22	47	46	87	42
25	11	6	9	8	6	8	8	7	2414	0322	50	14	27	23	15	23	24	18	24
26	3	4	4	0	3	8	5	5	3122	3222	7	8	10	1	6	21	11	13	10
27	6	5	4	8	10	11	9	7	4222	3312	14	11	10	25	34	45	33	20	24
28	10	8	9	9	7	9	6	9	2111	2135	34	25	28	28	17	29	16	30	26
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4	5	0	3	5	8	6	8	12	3252	3122	12	1	7	12	26	14	25	58	19
5	12	10	9	9	9	8	7	9	4323	2322	54	35	29	28	27	25	17	29	31
6	8	6	8	5	5	4	4	6	3033	2211	22	15	25	11	13	10	8	16	15
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9	9	6	9	8	6	6	8	8	3212	2233	28	15	27	21	14	16	24	22	21
10	7	5	5	8	9	9	7	6	2222	3210	19	13	11	22	32	27	18	15	20
11	11	11	11	11	11	4	7	9	2234	4223	41	41	43	43	48	10	17	32	34
12	7	9	7	7	9	9	10	6	2745	2322	20	27	19	19	32	27	36	15	24
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17	3	4	1	2	4	2	4	2	2322	4222	7	10	2	5	10	5	10	4	7
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19	13	10	16	11	13	7	11	10	1242	2222	63	36	104	50	70	19	42	38	53
20	7	5	5	4	5	5	8	7	2335	2222	19	13	11	10	12	11	21	20	15
21	6	2	3	5	1	3	6	9	2324	3044	16	5	7	11	3	7	14	27	11
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26	5	8	11	14	14	12	13	12	2215	5546	13	26	45	78	79	54	70	53	52
27	9	9	13	11	6	7	12	7	4254	2473	27	31	68	46	15	18	56	17	35
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29	4	5	4	6	10	10	10	10	2622	1322	8	12	8	14	34	36	37	35	23
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5	11	9	9	9	7	7	4	9	2421	2324	43	27	28	30	19	19	8	27	25
6	9	6	8	4	4	1	2	4	5222	1223	30	14	24	9	8	2	5	10	13
7	4	7	2	3	1	5	7	4	2122	2423	8	17	5	7	3	11	19	8	10
8	5	8	6	3	0	0	2	9	3231	1123	11	21	15	6	0	1	4	32	11
9	9	7	8	7	5	3	6	6	2421	4432	28	17	25	17	12	7	16	15	17
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11	11	11	9	10	10	5	5	9	3432	3136	48	43	31	35	39	12	12	27	31
12	7	7	6	6	8	7	9	6	5542	2334	17	17	15	16	26	20	29	14	19
13	8	9	8	7	9	7	3	5	3432	4312	23	31	21	20	27	19	7	11	20
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15	5	6	9	7	6	6	4	4	2221	4144	13	14	30	18	14	16	9	9	15
16	4	5	5	5	4	5	3	3	6342	2314	9	13	11	11	8	13	7	6	10
17	2	4	0	3	3	1	3	1	2314	3332	4	8	1	6	7	3	6	3	5
18	3	1	3	1	4	2	13	14	1332	5243	7	3	6	3	8	5	65	81	22
19	14	10	14	11	11	7	10	9	2212	4234	71	38	82	46	48	17	38	31	46
20	8	5	4	4	4	3	7	8	4323	4323	24	12	9	9	10	7	20	25	15
21	7	3	3	3	1	2	5	8	4211	1326	19	7	7	7	2	4	11	26	10
22	7	9	10	5	5	0	6	9	5732	2135	17	31	39	12	11	1	16	27	19
23	7	3	0	1	2	3	0	4	3312	4326	19	7	1	2	5	6	1	10	6
24	4	8	6	7	8	7	7	7	3322	2324	8	21	16	18	21	17	18	19	17
25	6	8	7	7	9	10	4	4	2212	0323	15	22	20	18	30	37	8	9	20
26	5	9	9	11	13	11	12	12	3233	3347	13	32	32	48	69	44	52	54	43
27	9	9	11	8	6	6	10	5	4523	2154	28	30	46	26	14	14	37	12	26
28	7	5	3	3	3	5	2	4	7121	3424	20	11	7	7	7	13	5	8	10
29	3	4	3	5	10	9	9	9	1232	4323	6	8	7	11	35	31	30	30	20
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3	6	8	11	14	15	12	11	9	1333	2123	16	23	50	84	87	58	49	33	50
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6	1	1	1	5	8	8	3	5	2223	2544	2	2	3	12	21	22	7	13	10
7	9	7	8	11	11	10	16	12	4432	3253	29	17	21	42	41	40	111	56	45
8	10	11	12	14	8	9	10	10	3125	3322	34	45	59	75	26	27	34	34	42
9	9	11	7	11	7	9	9	8	3411	2533	33	41	18	45	20	33	27	21	30
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11	11	13	15	15	15	14	9	9	6555	5230	45	62	94	93	102	77	28	29	66
12	9	9	10	8	1	1	1	3	4325	2221	31	29	40	26	3	3	3	7	18
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14	21	19	12	9	9	10	12	15	2343	2433	247	177	59	29	32	37	60	98	92
15	8	10	10	9	12	10	8	8	2242	3222	25	37	38	30	53	35	21	25	33
16	5	9	7	4	3	2	4	4	2321	1323	12	33	18	9	7	4	8	10	13
17	4	6	10	11	10	11	9	6	3123	2123	8	16	37	48	34	42	29	16	29
18	8	3	3	2	1	5	5	5	4312	2431	22	7	6	4	2	12	13	13	10
19	6	9	9	11	12	9	10	11	3113	2323	15	30	33	48	51	27	34	43	35
20	10	8	9	13	17	19	20	14	1223	2455	35	25	30	68	146	185	203	74	96
21	13	13	11	14	9	11	6	10	2324	3332	69	65	41	85	33	45	15	34	48
22	9	10	11	16	19	17	15	17	3215	3437	30	38	42	109	175	146	97	126	95
23	14	11	14	9	6	10	8	9	3142	2312	80	41	72	31	15	34	26	27	41
24	2	0	3	9	11	13	11	10	2131	4553	5	1	7	28	50	70	45	39	31
25	6	10	11	11	11	8	6	5	3436	6322	14	40	47	45	43	22	14	11	30
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28	7	6	9	9	8	9	12	12	2132	1354	17	15	32	28	25	27	59	57	33
29	6	5	6	9	5	6	5	11	2312	3123	15	13	16	27	11	16	11	43	19
30	5	5	4	7	11	11	5	7	2222	3322	11	12	9	20	48	41	12	18	21
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	3Ks								σs		as						As
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4	6	9	9	9	10	9	9	5	5321	3143	15	32	30	31	37	27	30	13	27
5	5	4	6	7	4	2	1	3	5211	3224	13	8	16	17	10	4	3	7	10
6	1	1	2	5	9	7	2	5	2221	2635	2	2	4	12	30	18	5	13	11
7	10	7	7	10	10	11	16	12	7312	2354	40	20	17	40	37	44	114	51	45
8	9	12	12	12	8	8	10	9	3110	1323	29	52	57	54	25	21	36	28	38
9	11	12	8	10	7	8	8	6	2422	2232	41	55	25	37	18	23	21	16	30
10	6	8	8	10	9	12	13	11	1231	2135	14	25	26	34	31	57	65	41	37
11	10	10	14	14	14	13	9	9	6332	1342	40	39	75	83	86	68	32	28	56
12	9	9	11	9	2	1	0	3	5232	3323	32	33	43	27	4	2	1	7	19
13	4	5	8	5	5	7	8	16	2113	3532	9	11	22	12	13	20	26	116	29
14	21	19	12	9	8	9	12	17	1344	2243	275	185	54	32	26	28	51	123	97
15	9	9	9	9	11	10	7	9	2113	3324	27	32	28	28	50	34	20	27	31
16	7	10	8	5	4	2	5	5	3222	2342	17	36	24	12	8	5	13	11	16
17	4	8	12	11	10	10	9	6	4313	2553	9	24	52	50	40	37	31	16	32
18	9	3	2	2	0	5	6	4	3221	2553	27	7	5	4	1	12	15	10	10
19	6	9	10	11	12	8	9	9	1322	4344	16	30	38	49	54	24	31	33	34
20	8	8	8	13	16	18	19	14	2212	2446	23	25	26	61	116	154	189	84	85
21	14	12	11	14	8	9	4	8	4432	3323	80	58	44	72	23	32	8	26	43
22	8	12	10	15	19	18	16	17	2421	4457	24	58	37	93	176	167	107	131	99
23	14	12	12	10	5	8	9	8	4213	2212	75	51	57	36	13	26	32	21	39
24	2	1	2	10	11	13	9	12	1233	3327	4	3	5	38	42	64	31	59	31
25	6	10	11	8	9	7	6	6	2322	2343	14	37	49	21	28	19	15	14	25
26	6	7	10	10	7	8	5	6	3221	3324	15	20	34	34	20	23	11	16	22
27	4	3	5	3	7	9	7	9	2122	3421	10	6	11	7	20	31	20	28	17
28	9	8	9	8	9	9	12	10	4312	2233	27	25	28	26	29	33	52	40	33
29	7	8	7	8	5	6	6	10	2222	2344	19	22	17	25	11	15	14	34	20
30	6	6	5	8	9	9	6	7	1322	1223	16	16	12	24	33	29	15	18	20
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	3Kn								σn		an								An
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3	6	5	3	7	5	5	7	3	3212	3252	16	11	7	17	12	12	20	7	13
4	0	2	1	1	5	7	8	7	1232	2412	1	4	3	2	11	17	21	20	10
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6	7	5	2	5	8	5	6	8	2313	3243	19	11	5	12	21	11	16	22	15
7	8	11	10	10	11	9	7	7	4234	5345	22	45	35	40	43	28	17	19	31
8	6	12	12	14	11	12	9	5	1622	3212	16	54	51	77	44	56	29	11	42
9	4	2	3	4	6	3	3	2	2223	3213	9	5	6	10	15	6	6	5	8
10	3	6	8	11	9	8	9	8	2122	3331	6	15	24	41	30	21	28	26	24
11	6	7	9	9	17	14	13	13	2243	3223	14	19	28	29	123	79	64	70	53
12	15	16	13	13	10	8	4	2	2621	3232	90	120	64	61	34	22	9	5	51
13	3	1	1	3	1	2	5	8	2323	1321	6	2	2	6	3	5	12	24	8
14	7	8	7	11	13	13	12	13	3232	3253	19	24	18	42	66	67	53	67	45
15	11	11	9	8	9	11	6	6	1313	2411	43	44	28	24	27	43	16	14	30
16	9	9	8	6	7	7	11	11	3122	2412	31	32	23	14	18	17	41	43	27
17	10	8	7	14	13	14	12	12	3242	2155	37	24	19	80	63	75	58	53	51
18	9	8	10	12	12	11	11	10	2121	4343	33	25	38	56	54	45	49	34	42
19	8	4	7	8	9	11	9	7	3133	4532	26	10	20	22	33	42	32	19	26
20	8	4	8	10	10	8	8	11	2155	6345	22	9	21	37	36	24	23	42	27
21	6	5	7	8	8	10	11	12	4132	4567	16	11	20	23	26	35	43	56	29
22	8	5	8	8	5	7	3	5	4335	2613	26	13	26	25	13	20	6	12	18
23	4	4	8	11	11	13	11	11	4334	4855	10	9	21	50	42	68	45	48	37
24	8	4	5	5	10	6	6	6	6222	4354	24	9	11	12	35	15	15	14	17
25	12	10	10	14	13	9	5	7	2212	3213	58	34	35	74	68	32	13	20	42
26	7	6	7	5	7	7	8	4	2443	2332	18	15	17	12	17	18	26	9	17
27	2	3	6	4	0	0	2	3	3443	1122	5	7	15	10	1	1	4	7	6
28	7	2	2	1	4	5	3	7	2231	3313	20	5	5	2	9	13	7	18	10
29	7	2	1	1	2	2	2	3	4222	3231	17	4	3	3	5	4	4	6	6
30	0	0	0	1	2	0	0	1	1013	3111	1	0	0	2	4	1	0	2	1
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	3Ks								σs		as								As
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3	8	7	5	6	5	6	7	4	2531	3431	21	20	13	16	12	14	19	8	15
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5	6	8	8	7	9	8	6	5	2332	2433	15	23	22	19	29	21	14	12	19
6	8	7	4	6	7	6	7	7	1132	2335	22	17	8	15	19	16	18	20	17
7	8	9	8	8	9	9	5	5	3231	2333	22	33	26	26	28	28	12	12	23
8	9	11	13	14	10	13	9	5	4322	2443	30	41	62	76	36	68	32	12	45
9	5	4	4	4	5	2	3	2	2221	3324	13	10	8	10	13	5	6	5	9
10	4	8	9	11	9	5	9	10	4131	4123	10	24	32	44	30	12	30	37	27
11	7	8	9	10	18	15	14	15	2224	2434	17	22	28	39	149	87	74	95	64
12	14	15	14	12	8	7	5	4	5121	2324	76	90	80	58	24	20	11	9	46
13	4	4	3	4	2	3	6	9	2232	1321	9	8	6	9	4	6	16	31	11
14	7	11	9	14	13	13	11	15	2213	1324	17	43	28	72	63	68	42	95	54
15	14	12	9	8	10	10	6	7	5313	2222	83	59	33	26	36	39	14	18	39
16	8	10	9	6	8	9	13	11	3341	2434	26	34	28	16	22	28	64	46	33
17	12	8	8	11	12	12	13	11	2221	1133	51	26	23	48	60	57	68	48	48
18	9	8	10	11	12	9	12	10	3111	2133	30	26	34	49	52	33	51	35	39
19	8	6	5	7	9	8	8	8	4312	2232	23	15	13	20	27	23	24	21	21
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21	5	5	7	8	8	8	9	10	1122	2133	11	13	17	24	23	24	30	38	23
22	8	7	7	7	5	5	3	5	1222	1326	26	17	18	19	11	12	7	13	15
23	5	5	7	13	10	12	9	10	4233	2255	12	13	19	62	40	52	31	40	34
24	5	4	4	5	9	5	3	4	5132	2333	13	9	10	12	29	13	6	10	13
25	16	14	13	17	15	10	8	8	5332	2443	112	75	70	125	102	39	22	21	71
26	8	7	5	5	7	8	8	5	2331	3324	23	19	12	13	19	25	22	11	18
27	4	4	6	3	0	1	3	6	2322	1242	8	10	14	7	1	3	7	16	8
28	9	4	4	3	4	5	4	6	1431	4324	31	9	9	6	9	12	10	14	13
29	7	4	2	2	3	3	4	2	2123	2323	18	10	4	4	7	6	9	5	8
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3	3	3	4	6	8	7	8	7	1112	1351	6	7	8	15	25	18	24	17	15
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5	5	4	6	7	4	6	7	8	5334	3244	13	9	16	18	9	14	19	21	15
6	4	4	4	0	1	6	1	1	3422	1622	9	10	10	1	3	14	2	2	6
7	1	0	2	2	3	4	2	4	2132	3223	2	0	5	4	6	8	5	10	5
8	4	5	6	3	9	12	12	8	2253	3242	10	11	16	7	29	56	52	24	26
9	6	7	5	8	7	7	9	7	4335	3312	14	18	12	24	19	18	27	20	19
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11	5	4	2	1	3	6	5	4	4221	2333	11	9	4	3	6	14	13	10	9
12	10	5	7	7	14	12	11	11	2122	3655	34	13	19	17	79	54	49	47	39
13	7	8	9	8	11	7	2	3	4243	6512	20	23	27	22	45	18	5	7	21
14	4	6	3	4	2	4	6	3	2414	1222	10	14	7	9	5	10	14	7	10
15	3	3	2	1	0	0	9	9	3233	1243	6	6	4	2	0	1	28	28	9
16	3	0	4	4	1	2	5	5	1223	2124	7	1	8	10	2	5	11	13	7
17	2	0	0	3	2	7	9	11	3202	2554	4	1	0	7	5	18	28	42	13
18	10	7	9	9	8	10	7	6	2143	3314	40	18	29	31	23	37	17	15	26
19	5	4	4	9	8	8	4	5	5223	2642	13	9	8	32	25	23	9	12	16
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21	4	2	3	5	6	7	5	4	2132	2545	8	4	6	11	16	20	12	9	11
22	2	0	2	2	3	7	3	2	2121	4512	4	1	5	4	7	19	7	4	6
23	2	5	4	3	4	6	4	7	3423	2122	4	11	8	6	9	14	10	18	10
24	8	7	5	5	4	7	6	7	4321	1214	26	18	12	11	9	17	14	17	16
25	5	4	1	4	7	8	5	6	5323	3333	11	10	3	10	18	21	13	16	13
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27	4	2	4	2	4	4	6	7	2333	3323	8	4	9	4	10	10	16	18	10
28	9	5	7	6	10	9	6	5	5443	2532	29	13	19	16	39	28	16	11	21
29	4	11	14	15	13	10	10	7	1124	3264	8	46	82	101	70	39	34	17	50
30	9	13	12	10	14	12	9	6	2223	3222	29	62	60	40	86	51	30	16	47
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	3Ks								σs		as						As
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6	4	4	3	2	2	4	2	2	2211	2242	8	9	6	4	5	10	5	4	6
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8	6	6	8	5	11	14	14	9	4132	3434	15	14	21	12	48	74	84	28	37
9	6	9	7	8	8	7	12	11	2232	2344	15	32	19	26	21	19	59	46	30
10	7	11	11	6	3	5	2	5	3131	5333	20	45	45	16	7	12	5	12	20
11	7	7	4	3	3	6	5	5	1323	2333	17	18	9	7	6	15	13	13	12
12	12	9	11	10	13	12	10	12	3233	3241	59	27	44	36	70	51	37	60	48
13	8	8	10	8	9	6	4	5	2221	4333	22	24	34	26	30	15	9	12	22
14	8	5	3	3	3	5	8	5	2352	1344	22	13	7	7	7	11	21	12	13
15	5	5	6	3	1	0	10	8	2331	2134	11	12	14	7	2	1	36	24	13
16	5	2	5	5	0	3	7	4	3112	1333	12	5	13	11	1	7	18	8	9
17	4	3	2	4	2	5	8	9	2332	2245	8	6	5	9	5	12	22	29	12
18	10	6	7	8	8	9	8	7	3131	2351	37	16	19	26	23	27	24	17	24
19	6	5	5	8	8	7	4	4	2332	2122	14	12	13	21	23	17	8	10	15
20	3	4	3	5	4	5	5	7	1212	2443	7	10	7	11	10	11	12	17	11
21	5	4	5	6	5	6	4	4	2330	4144	11	9	12	15	12	14	9	8	11
22	2	2	5	4	4	7	5	4	3133	3233	5	4	12	9	10	18	12	8	10
23	3	5	4	3	5	8	5	9	2521	2654	7	13	10	7	11	24	13	30	14
24	8	8	6	5	5	7	6	8	2123	2525	21	23	15	12	11	18	15	21	17
25	4	6	3	5	8	7	5	5	3022	2236	10	15	7	12	21	20	13	12	14
26	8	5	6	8	4	4	5	3	2323	2534	21	13	16	22	9	8	11	6	13
27	5	3	5	4	6	5	6	7	2322	4332	12	7	11	8	15	12	16	19	13
28	8	7	7	7	10	10	8	5	4223	3343	24	17	17	19	39	38	22	11	23
29	5	14	15	14	12	11	9	6	2312	1363	11	78	100	86	54	43	29	16	52
30	9	16	13	11	14	10	9	7	4132	3242	32	110	68	41	74	37	30	19	51
31	6	7	10	11	9	9	6	7	5222	1333	16	20	38	41	32	31	15	20	27
																			20.0

JAN. 1981

	3Km								ΣKm	am							Am	Am2
1	6	9	8	10	7	8	11	6	21.7	14	29	21	34	17	25	42	14	25	23
2	3	4	6	5	6	11	8	6	16.3	6	8	16	12	16	46	25	16	18	20
3	8	5	8	6	5	7	8	6	17.7	25	12	24	15	11	17	24	15	18	22
4	9	9	9	8	4	8	11	6	21.3	33	28	27	22	9	22	47	16	26	20
5	4	5	5	6	7	6	8	8	16.3	9	12	13	16	20	15	25	22	17	17
6	6	5	4	4	8	7	7	7	16.0	14	11	8	9	24	20	17	18	15	16
7	7	5	4	3	4	6	4	5	12.7	18	12	10	7	8	14	8	12	11	13
8	4	4	5	6	9	9	8	8	17.7	8	10	11	15	29	31	23	22	19	14
9	6	7	1	1	6	3	3	4	10.3	16	17	3	2	14	6	6	10	9	13
10	2	3	4	5	7	8	11	11	17.0	4	6	10	13	17	22	50	41	20	21
11	10	11	9	8	8	9	8	8	23.7	36	49	32	21	26	32	26	23	31	25
12	6	3	2	1	0	2	4	2	6.7	14	7	5	3	1	5	8	5	6	12
13	2	5	5	4	6	5	6	4	12.3	5	11	11	10	16	13	16	8	11	9
14	4	3	5	5	9	3	2	4	11.7	9	6	11	13	32	7	4	8	11	12
15	7	4	6	5	6	6	7	7	16.0	17	8	15	13	15	16	19	20	15	18
16	8	8	8	10	8	7	5	4	19.3	26	26	22	34	24	17	11	9	21	18
17	4	2	8	4	10	5	8	5	15.3	9	5	21	9	38	11	22	13	16	14
18	5	4	3	2	3	3	3	1	8.0	11	9	7	4	6	6	6	2	6	9
19	0	2	3	1	4	4	2	2	6.0	1	4	6	3	9	8	4	5	5	5
20	4	1	3	3	2	3	4	3	7.7	9	2	6	7	5	6	9	7	6	5
21	1	1	0	1	0	2	5	4	4.7	3	3	1	2	1	4	13	8	4	7
22	3	3	5	7	9	10	8	8	17.7	6	7	11	19	31	36	24	24	20	14
23	3	2	3	8	10	8	7	6	15.7	7	4	7	26	35	21	17	15	17	19
24	4	4	7	7	8	7	8	7	17.3	10	10	20	17	21	18	21	20	17	16
25	4	3	5	3	7	7	8	6	14.3	9	7	11	7	17	20	21	14	13	14
26	1	3	6	6	10	6	8	4	14.7	3	6	15	16	35	15	25	10	16	16
27	7	3	4	8	10	4	4	6	15.3	17	7	10	21	36	10	8	15	16	18
28	7	7	6	8	9	6	9	9	20.3	20	18	16	23	28	16	29	32	23	24
29	8	9	12	9	9	9	8	5	23.0	21	27	55	29	32	28	26	13	29	23
30	5	3	3	4	7	7	6	6	13.7	13	7	7	8	19	17	15	16	13	23
31	8	12	10	12	9	5	9	10	25.0	25	54	38	55	27	11	32	37	35	28
																		16.4	

FEB. 1981

	3Km								Km	am							Am	Am2
1	5	8	9	9	10	6	8	10	21.7	12	26	30	28	37	14	22	40	26	28
2	10	8	10	9	11	12	10	8	26.0	34	24	40	29	47	59	39	26	37	31
3	8	6	8	8	8	9	10	4	20.3	21	15	25	26	25	28	34	10	23	24
4	5	3	2	3	1	7	10	8	13.0	13	6	5	6	3	20	35	24	14	21
5	4	9	8	12	14	13	12	10	27.3	10	27	23	60	71	66	52	34	43	33
6	9	4	8	10	17	16	17	15	32.0	27	10	23	36	134	115	142	103	74	61
7	15	11	7	4	5	3	2	2	16.3	89	45	17	10	13	7	4	5	24	44
8	2	2	1	2	10	12	8	12	16.3	4	5	3	4	39	57	26	57	24	25
9	13	12	9	8	9	6	4	2	21.0	64	52	33	22	27	15	10	4	28	27
10	2	3	2	1	4	3	3	2	6.7	5	7	4	3	10	6	6	4	6	8
11	3	2	3	3	9	10	9	9	16.0	7	4	6	7	29	34	29	28	18	15
12	8	6	5	7	6	3	7	6	16.0	26	16	13	19	16	7	17	15	16	18
13	3	4	4	7	8	5	3	4	12.7	7	9	8	18	23	11	7	9	12	10
14	1	2	1	3	4	4	2	3	6.7	3	4	3	6	9	10	4	6	6	7
15	2	1	2	4	8	12	11	8	16.0	5	2	5	8	22	57	42	26	21	18
16	8	7	6	9	7	7	4	5	17.7	26	18	15	27	17	17	9	11	18	21
17	6	4	6	5	7	5	4	4	13.7	14	10	15	12	17	12	8	9	12	11
18	2	2	2	4	6	6	5	7	11.3	5	5	4	8	16	15	13	19	11	11
19	6	6	5	3	5	3	3	5	12.0	15	15	12	7	11	6	7	13	11	13
20	3	2	7	10	9	8	4	2	15.0	7	5	18	34	31	21	9	5	16	13
21	3	4	7	6	6	1	2	3	10.7	7	8	17	16	14	2	5	6	9	10
22	1	1	1	3	2	3	5	12	9.3	2	3	3	7	4	6	13	54	12	13
23	12	6	4	3	5	8	6	8	17.3	54	15	10	6	13	26	15	24	20	20
24	7	8	7	7	8	11	13	13	24.7	20	25	18	18	26	45	63	66	35	33
25	10	9	12	11	8	10	10	9	26.3	36	33	54	41	25	39	40	32	38	39
26	10	8	8	11	9	11	15	11	27.7	38	23	26	44	27	49	103	50	45	39
27	9	8	10	10	8	11	11	8	25.0	29	26	38	35	26	48	45	24	34	36
28	8	7	5	6	5	6	8	10	18.3	23	17	12	16	13	15	26	40	20	28
																		23.3	

MAR. 1981

	3Km								ΣKm	am							Am	Am2
1	8	5	12	12	13	10	8	13	27.0	24	13	52	60	62	36	22	64	42	40
2	9	8	13	14	13	8	8	4	25.7	31	23	70	86	66	23	21	10	41	34
3	4	2	2	2	2	6	8	8	11.3	9	4	5	5	5	16	21	21	11	19
4	6	8	9	8	4	4	4	5	16.0	16	24	32	24	10	8	9	13	17	37
5	6	15	14	19	20	20	17	14	41.7	14	90	84	199	209	219	129	77	128	72
6	8	8	9	8	9	5	5	4	18.7	23	24	27	21	31	13	13	8	20	57
7	8	6	7	11	11	12	12	6	24.3	26	16	20	49	48	56	53	16	36	27
8	7	4	7	9	9	6	4	1	15.7	17	9	18	33	33	14	8	3	17	20
9	3	1	2	3	4	2	3	4	7.3	6	2	4	6	9	5	6	9	6	11
10	5	6	5	9	9	6	4	2	15.3	11	15	12	33	29	15	9	4	16	13
11	4	4	6	8	7	4	4	1	12.7	9	9	14	21	18	10	10	2	12	13
12	2	1	7	9	7	6	9	11	17.3	5	2	19	27	20	14	28	42	20	18
13	8	6	7	9	12	12	12	15	27.0	25	16	19	31	60	56	56	87	44	49
14	9	14	14	17	17	13	12	9	35.0	33	81	80	138	130	61	52	30	76	62
15	8	13	8	6	9	11	9	8	24.0	23	61	22	14	30	43	32	24	31	38
16	9	8	6	6	7	7	8	12	21.0	29	24	16	14	17	18	22	51	24	27
17	12	7	5	7	9	8	8	9	21.7	57	20	12	18	32	23	24	28	27	27
18	7	8	10	9	9	10	9	6	22.7	19	25	36	29	30	36	33	16	28	24
19	5	5	5	5	4	9	9	5	15.7	12	11	12	13	8	28	31	12	16	19
20	4	6	6	7	9	8	3	1	14.7	10	14	15	18	31	21	6	2	15	14
21	0	1	4	4	3	3	10	9	11.3	0	3	10	9	7	6	34	28	12	11
22	2	4	1	1	1	3	4	4	6.7	5	9	3	2	2	7	8	10	6	9
23	1	1	3	6	5	3	1	1	7.0	2	3	6	15	11	6	3	2	6	6
24	1	1	2	3	2	3	7	5	8.0	3	3	4	6	4	6	17	11	7	14
25	9	11	12	7	14	14	11	12	30.0	27	42	59	18	84	79	50	56	52	38
26	13	8	8	9	13	10	8	11	26.7	70	22	25	30	66	40	22	46	40	42
27	8	9	9	4	9	9	8	8	21.3	21	28	27	9	31	27	24	26	24	27
28	8	6	5	7	8	8	8	9	19.7	22	15	12	10	23	22	22	31	21	25
29	8	8	10	11	8	11	8	4	22.7	21	23	36	43	26	44	25	10	29	24
30	6	5	5	7	8	8	11	11	20.3	15	11	13	17	24	24	46	50	25	28
31	13	10	7	8	8	10	10	10	25.3	64	34	20	25	26	38	39	36	35	35
																		28.5	

APR. 1981

	3Km								ΣKm	am							Am	Am2
1	11	9	8	11	8	11	10	9	25.7	44	28	22	42	26	46	36	29	34	28
2	2	4	5	6	8	5	8	7	15.0	5	9	12	15	25	13	24	17	15	20
3	7	8	4	5	8	8	9	7	18.7	20	26	9	12	24	26	33	20	21	19
4	8	7	4	5	6	5	9	8	17.3	22	18	10	12	16	13	30	25	18	16
5	1	1	1	2	2	3	4	4	6.0	3	2	3	5	5	6	9	10	5	13
6	4	7	9	7	6	4	4	6	15.7	9	18	30	18	16	9	8	15	15	12
7	5	3	4	4	7	4	8	6	13.7	12	7	8	10	19	10	22	16	13	13
8	7	2	6	5	2	9	8	7	15.3	19	5	16	11	5	29	24	17	16	16
9	10	7	2	1	5	3	3	5	12.0	35	17	4	3	12	6	6	11	12	13
10	2	2	4	6	4	6	6	4	11.3	4	5	8	15	9	16	16	10	10	11
11	1	4	8	9	15	14	10	14	25.0	2	10	23	27	90	78	38	81	44	52
12	18	17	14	14	17	16	14	16	42.0	150	122	77	83	122	105	76	120	107	123
13	20	21	20	16	15	12	14	12	43.3	240	261	211	106	91	59	81	57	138	106
14	12	10	12	9	9	11	4	4	23.7	51	35	58	30	30	42	9	8	33	37
15	1	3	3	7	7	6	6	7	13.3	3	7	7	17	19	16	15	18	13	18
16	8	4	5	11	9	6	7	6	18.7	26	10	12	41	29	16	19	14	21	24
17	5	8	14	9	8	8	10	9	23.7	11	26	75	30	26	26	35	33	33	24
18	7	5	3	6	2	11	8	9	17.0	18	11	6	14	4	42	25	32	19	34
19	15	14	8	13	13	12	10	7	30.7	94	82	24	64	67	53	37	17	55	49
20	8	15	13	11	13	12	13	15	33.3	25	102	67	46	61	54	66	88	64	56
21	11	11	13	13	13	10	11	12	31.3	44	46	63	64	68	38	47	52	53	55
22	13	11	13	9	11	10	12	9	29.3	61	46	61	28	42	34	56	31	45	48
23	11	11	13	11	10	8	10	11	28.3	45	48	68	41	40	25	35	47	44	39
24	5	9	9	10	11	10	10	8	24.0	11	31	29	37	44	36	37	21	31	31
25	10	9	8	6	8	8	7	9	21.7	40	27	21	15	22	21	18	32	25	36
26	8	9	15	15	17	12	12	14	34.0	24	28	92	93	131	56	60	77	70	62
27	15	14	13	15	12	10	7	9	31.7	93	86	62	92	53	38	19	32	59	53
28	6	3	4	7	6	10	5	11	17.3	16	7	9	17	15	39	13	41	20	28
29	12	8	7	12	10	9	9	6	24.3	55	24	18	54	36	29	28	16	33	26
30	6	4	7	5	8	2	5	3	13.3	14	9	17	11	23	5	12	6	12	19
																		35.9	

MAY 1981

	3Km								ΣKm	am							Am	Am2
1	3	3	11	9	8	7	10	7	19.3	7	7	45	31	25	20	39	19	24	19
2	8	5	5	5	4	4	3	4	12.7	24	11	13	11	9	10	6	8	12	16
3	4	4	7	6	4	4	2	2	11.0	10	10	19	15	10	8	4	5	10	9
4	2	1	4	3	3	3	3	1	6.7	4	3	8	7	6	6	6	2	5	5
5	2	0	1	1	4	3	3	2	5.3	4	1	2	3	10	6	7	5	5	5
6	3	4	4	3	4	3	3	2	8.7	6	8	8	7	9	7	6	4	7	8
7	3	5	4	4	4	2	3	2	9.0	7	11	9	10	10	4	6	4	8	8
8	3	4	4	6	6	9	8	8	16.0	7	9	8	15	15	30	26	23	17	34
9	13	17	17	13	9	7	7	7	30.0	64	136	129	61	32	19	18	17	60	42
10	9	9	8	5	5	9	11	18	24.7	31	29	25	13	13	31	41	160	43	54
11	16	17	15	14	13	6	6	8	31.7	118	129	103	78	61	15	15	24	68	52
12	5	7	6	4	7	9	9	9	18.7	12	17	14	8	20	30	30	28	20	23
13	8	10	8	3	4	2	2	2	13.0	25	35	24	7	9	4	4	5	14	21
14	5	7	9	11	9	7	10	8	22.0	12	20	31	49	32	20	34	25	28	41
15	11	18	17	12	12	11	12	12	35.0	42	167	143	54	56	50	52	54	77	70
16	13	13	15	18	15	15	12	9	36.7	70	63	99	166	97	87	55	27	83	58
17	7	5	3	5	6	5	5	14	16.7	19	13	7	11	15	12	13	74	21	57
18	14	18	18	14	11	12	10	8	35.0	76	167	167	77	48	52	38	21	81	55
19	7	8	11	10	9	10	7	8	23.3	17	23	48	34	31	34	19	23	29	39
20	11	12	17	9	11	12	14	10	32.0	41	52	122	27	46	52	83	36	57	41
21	7	6	8	8	6	4	8	11	19.3	20	15	21	26	15	10	24	41	22	27
22	5	5	5	4	4	5	4	4	12.0	13	13	13	9	10	11	10	8	11	18
23	4	7	11	10	9	8	9	8	22.0	8	18	50	40	31	22	28	21	27	23
24	10	8	9	9	8	9	10	11	24.7	39	21	28	29	25	33	38	43	32	33
25	9	12	11	11	9	9	11	11	27.7	29	52	41	43	33	29	50	50	41	34
26	10	7	7	3	3	5	4	6	15.0	34	19	17	7	6	11	8	14	15	20
27	4	6	3	6	2	2	5	5	11.0	8	15	7	14	4	5	13	13	10	14
28	8	12	6	6	8	5	3	6	18.0	25	51	14	15	24	12	7	16	21	15
29	5	6	5	3	4	1	4	4	10.7	12	16	13	6	10	3	8	8	10	11
30	3	4	3	5	5	5	4	6	11.7	7	8	7	13	13	12	8	16	11	11
31	6	5	7	7	5	6	5	4	15.0	16	13	19	19	13	14	11	10	14	14
																		28.5	

JUNE 1981

	3Km								ΣKm	am							Am	Am2
1	5	5	7	5	3	7	6	4	14.0	12	12	18	13	7	20	14	10	13	13
2	4	4	5	7	8	5	3	4	13.3	10	8	11	18	21	13	6	9	12	14
3	4	7	10	6	9	9	9	8	20.7	10	17	39	15	28	30	32	23	24	17
4	4	3	5	4	3	3	3	1	8.7	9	7	12	8	6	6	6	3	7	13
5	6	4	4	3	5	2	4	4	10.7	16	8	8	7	11	5	8	9	9	9
6	5	3	2	9	11	9	7	7	17.7	11	7	5	28	45	28	20	18	20	26
7	9	12	14	12	12	14	17	13	34.3	31	58	78	54	59	82	137	66	71	50
8	12	9	9	4	4	8	8	6	20.0	53	32	28	10	8	21	26	14	24	36
9	5	3	3	3	1	4	2	2	7.7	12	6	7	7	3	8	4	5	7	9
10	2	2	3	4	2	3	3	4	7.7	4	5	6	10	5	7	7	8	7	7
11	4	4	5	2	4	4	5	7	11.7	9	8	12	5	10	9	13	17	10	8
12	4	3	1	3	1	1	3	4	6.7	10	6	2	6	2	2	6	10	6	8
13	2	3	5	4	6	3	2	1	8.7	4	6	13	10	15	7	4	3	8	6
14	1	0	1	4	4	4	3	1	6.0	2	1	3	10	9	10	7	2	6	10
15	7	8	9	8	7	5	6	7	19.0	18	23	27	22	20	12	16	18	20	18
16	9	10	7	8	7	9	9	11	23.3	32	34	18	24	19	27	30	45	29	26
17	12	9	9	6	4	0	3	5	16.0	52	29	32	14	8	1	6	11	19	21
18	6	7	7	6	4	8	8	7	17.7	16	20	18	14	10	23	23	18	18	14
19	7	4	4	8	8	7	7	7	17.3	19	8	9	21	23	18	20	19	17	18
20	6	7	8	8	7	5	5	5	17.0	15	17	24	25	18	13	11	12	17	18
21	4	8	8	4	2	4	4	5	13.0	10	25	25	9	4	8	9	12	13	11
22	3	0	1	1	2	3	6	3	6.3	7	0	2	3	5	7	16	7	6	7
23	2	6	4	4	2	4	2	4	9.3	4	14	8	10	5	9	5	8	8	9
24	4	2	5	9	7	7	9	3	15.3	8	4	11	28	18	18	31	6	16	14
25	4	6	5	9	9	10	5	9	19.0	10	15	13	31	30	35	13	28	22	23
26	7	8	9	10	9	7	4	6	20.0	19	21	32	40	32	18	9	16	23	24
27	8	7	9	7	5	7	7	4	18.0	21	20	31	17	13	18	18	10	19	19
28	6	6	10	7	4	5	5	3	15.3	14	15	36	20	9	12	12	7	16	27
29	5	7	16	15	15	9	6	5	26.0	11	18	115	101	90	29	15	11	49	31
30	9	6	4	4	5	7	9	8	17.3	33	16	8	9	13	17	32	24	19	26
																		17.8	

JULY 1981

	3Km								ΣKm	am							Am	Am2
1	11	7	9	8	9	7	7	8	22.0	43	18	28	24	31	19	17	23	25	28
2	7	10	13	10	11	7	10	9	25.7	17	35	63	40	42	19	35	28	35	25
3	4	3	5	4	3	2	8	11	13.3	8	7	11	10	6	4	24	42	14	17
4	7	5	2	2	4	6	6	10	14.0	18	12	5	4	8	14	14	39	14	17
5	6	6	7	9	7	8	7	6	18.7	16	16	19	28	17	22	20	16	19	22
6	8	9	11	10	8	9	9	6	23.3	21	27	44	35	23	30	29	15	28	24
7	6	9	9	7	9	7	6	5	19.3	16	27	29	18	28	19	16	12	21	22
8	8	8	6	8	5	1	3	3	14.0	23	23	15	25	12	3	7	6	14	15
9	6	5	5	5	5	3	5	4	12.7	14	12	13	11	12	7	12	9	11	9
10	2	4	3	2	2	3	4	3	7.7	5	8	6	4	4	6	9	7	6	11
11	1	5	10	10	7	8	8	6	18.3	3	11	39	35	20	25	23	16	22	19
12	7	10	9	9	9	10	10	11	25.0	18	35	30	27	30	38	36	47	33	25
13	8	5	5	5	5	6	7	7	16.0	25	12	13	12	11	14	20	17	16	20
14	8	5	3	4	6	8	2	3	13.0	21	11	7	9	15	22	5	7	12	11
15	3	4	2	3	1	1	2	2	6.0	6	8	4	6	3	3	4	4	5	10
16	6	7	6	7	4	6	4	4	14.7	14	19	14	20	8	16	8	10	14	16
17	6	4	11	12	11	7	14	15	26.7	15	9	50	57	47	18	71	97	46	31
18	11	8	6	6	5	2	5	5	16.0	44	22	15	15	11	4	11	13	17	25
19	5	6	4	3	7	5	7	5	14.0	11	14	8	6	17	12	17	11	12	14
20	7	8	5	9	12	5	4	5	18.3	20	26	11	32	53	13	10	11	22	18
21	7	4	4	4	3	2	2	4	10.0	20	10	10	10	6	5	4	10	9	16
22	6	8	4	10	10	9	8	11	22.0	15	25	9	38	34	31	24	50	28	26
23	8	5	12	14	15	15	11	9	29.7	25	11	56	74	92	90	44	33	53	38
24	5	3	5	3	6	6	5	11	14.7	12	7	13	7	14	16	13	45	16	46
25	10	16	18	12	24	22	20	20	47.3	39	105	152	56	390	288	228	242	188	140
26	21	19	16	14	13	13	9	9	38.0	278	179	115	76	69	67	32	33	106	140
27	12	12	14	13	9	7	4	8	26.3	56	52	76	65	32	17	8	25	41	39
28	7	8	8	8	6	4	4	5	16.7	17	24	24	21	16	9	10	12	17	16
29	6	4	1	2	1	2	2	5	7.7	16	10	3	4	3	5	4	12	7	11
30	4	4	9	8	7	8	8	6	18.0	10	8	27	25	18	22	22	15	18	16
31	7	7	9	7	5	7	8	9	19.7	20	17	30	18	11	17	24	29	21	24
																		28.7	

AUG. 1981

	3Km								ΣKm	am							Am	Am2
1	8	10	11	10	5	7	10	9	23.3	23	36	41	36	12	20	37	28	29	23
2	6	3	4	7	7	9	7	10	17.7	14	7	10	18	20	33	19	39	20	25
3	8	10	12	10	8	8	8	6	23.3	23	35	53	35	22	21	23	15	28	28
4	7	10	10	8	3	4	5	3	16.7	20	37	35	24	7	8	11	7	19	22
5	3	11	11	8	7	8	9	7	21.3	7	41	50	22	18	26	28	20	27	25
6	12	9	11	9	7	5	3	4	20.0	51	30	44	31	20	12	7	9	26	21
7	3	5	4	5	8	8	9	5	15.7	7	11	9	11	24	23	32	13	16	13
8	6	2	1	3	2	0	1	6	7.0	14	4	3	6	5	1	2	15	6	12
9	8	6	1	0	2	3	7	7	11.3	24	16	3	1	5	7	18	17	11	18
10	8	14	9	11	8	8	3	4	21.7	21	72	33	45	26	26	6	10	30	22
11	7	6	5	7	8	9	11	10	21.0	17	15	13	19	24	33	45	35	25	21
12	8	8	7	4	6	7	6	8	18.0	23	21	19	9	14	17	15	21	17	22
13	7	7	7	5	5	5	5	7	16.0	20	20	17	12	13	11	11	20	16	15
14	7	4	4	7	8	4	5	7	15.3	17	9	10	20	22	9	11	18	15	13
15	2	5	4	3	4	5	11	12	15.3	5	13	10	6	10	12	41	57	19	18
16	8	7	4	6	5	5	3	6	14.7	25	19	10	14	13	11	6	14	14	27
17	12	9	11	14	8	8	8	10	26.7	51	28	42	79	25	26	25	40	40	31
18	12	6	10	9	11	10	9	10	25.7	52	16	34	32	44	38	33	34	35	29
19	7	8	6	6	8	6	6	4	17.0	18	21	15	14	24	15	15	10	17	21
20	7	6	5	1	2	5	8	5	13.0	17	16	12	3	4	11	22	12	12	15
21	6	6	9	8	8	8	9	8	20.7	15	15	33	22	24	26	30	22	23	20
22	9	8	8	6	3	6	9	8	19.0	28	25	23	15	7	14	28	24	21	30
23	12	11	12	12	17	14	11	16	35.0	58	46	53	59	121	84	43	114	72	49
24	11	10	8	7	8	12	11	14	27.0	48	40	23	20	22	52	44	72	40	50
25	11	6	9	8	7	9	9	8	22.3	44	15	29	26	18	27	27	23	26	27
26	3	4	5	2	4	8	6	6	12.7	6	9	13	4	9	24	14	16	12	16
27	6	5	5	8	11	12	11	8	22.0	14	13	11	26	50	58	43	26	30	26
28	9	9	9	9	7	10	7	9	23.0	32	28	28	31	18	40	17	33	28	33
29	7	8	10	11	10	9	7	6	22.7	18	21	36	46	39	29	19	15	28	29
30	9	10	7	10	8	7	3	9	21.0	33	38	20	37	25	19	7	29	26	29
31	10	14	10	6	5	5	2	0	17.3	35	71	34	15	11	11	4	1	23	18
																		24.2	

SEP. 1981

	3Km								ΣKm	am							Am	Am2
1	1	2	2	3	4	4	5	4	8.3	2	5	5	7	9	9	11	10	7	13
2	6	8	11	10	9	10	8	8	23.3	15	26	44	39	33	37	24	22	30	22
3	6	6	8	8	6	5	3	6	16.0	16	15	21	22	14	11	6	14	15	17
4	5	1	3	5	8	5	8	12	15.7	12	2	7	11	24	11	21	55	18	20
5	11	9	9	9	8	8	5	9	22.7	48	31	29	29	23	22	13	28	28	26
6	8	6	8	4	5	3	3	5	14.0	26	14	24	10	11	6	6	13	14	14
7	3	6	2	4	2	5	7	4	11.0	7	15	5	8	4	13	19	9	10	11
8	4	8	6	3	0	1	3	11	12.0	10	23	15	7	1	3	6	43	14	15
9	9	6	8	7	5	5	7	7	18.0	28	16	26	19	13	11	20	18	19	17
10	7	6	5	7	9	8	6	6	18.0	20	15	12	18	28	22	16	16	18	23
11	11	11	10	10	11	5	6	9	24.3	44	42	37	39	43	11	15	29	33	26
12	7	8	7	7	9	8	9	6	20.3	18	22	17	18	29	24	32	14	22	23
13	8	9	7	7	9	7	4	6	19.0	22	27	20	19	31	20	8	15	20	19
14	0	4	6	5	9	7	8	8	15.7	1	9	16	11	29	18	21	25	16	18
15	5	5	10	7	6	8	5	5	17.0	13	13	34	19	14	21	12	12	17	17
16	4	6	5	5	4	5	4	4	12.3	9	15	11	12	9	12	9	9	11	10
17	2	4	1	3	4	2	4	2	7.3	5	9	2	6	8	4	8	4	6	6
18	3	1	3	1	4	3	14	14	14.3	6	2	6	3	8	6	73	82	23	28
19	13	10	15	11	12	7	10	10	29.3	67	37	93	48	59	18	40	34	50	39
20	8	5	4	4	5	4	7	8	15.0	22	13	10	9	11	9	20	22	15	19
21	7	3	3	4	1	2	5	9	11.3	17	6	7	9	2	5	12	27	11	16
22	6	10	10	5	5	1	6	9	17.3	14	36	39	13	12	2	16	29	20	15
23	7	3	0	1	3	3	1	4	7.3	18	6	1	3	6	7	2	10	7	11
24	3	7	6	7	8	7	6	7	17.0	7	17	15	17	21	18	16	20	16	14
25	6	8	7	6	10	11	4	5	19.0	16	23	20	16	36	41	9	11	22	24
26	5	9	10	13	14	11	13	12	29.0	13	29	39	63	74	49	61	53	48	39
27	9	9	12	10	6	6	11	6	23.0	28	31	57	36	14	16	46	14	30	33
28	8	5	3	4	4	5	3	4	12.0	23	11	7	8	8	13	6	10	11	13
29	3	4	3	5	10	9	10	9	17.7	7	10	7	12	35	33	34	32	21	18
30	6	8	7	8	10	8	9	9	21.7	15	25	19	26	34	24	28	29	25	24
																		19.9	

OCT. 1981

	3Km								ΣKm	am							Am	Am2
1	6	5	4	6	8	7	4	8	16.0	16	11	9	15	23	19	9	22	16	19
2	8	5	4	5	9	8	16	10	21.7	25	12	9	11	29	23	110	34	32	32
3	7	10	12	14	14	12	11	9	29.7	18	35	58	78	84	53	50	33	51	45
4	6	10	9	9	10	8	10	5	22.3	16	39	30	30	35	24	34	13	28	31
5	5	3	7	7	5	2	1	4	11.3	11	7	17	19	11	4	3	8	10	13
6	1	1	2	5	8	7	3	5	10.7	2	2	4	12	26	20	6	13	11	14
7	10	7	7	11	10	11	16	12	28.0	35	18	19	41	39	42	113	53	45	39
8	9	11	12	13	8	8	10	9	26.7	32	49	58	65	26	24	35	31	40	45
9	10	11	8	11	7	9	8	7	23.7	37	48	21	41	19	28	24	18	30	29
10	5	9	9	10	9	12	13	11	26.0	13	28	31	34	33	60	68	43	39	42
11	11	12	14	15	15	14	9	9	33.0	42	51	85	88	94	73	30	29	62	52
12	9	9	11	9	1	1	1	3	14.7	31	31	41	27	3	2	2	7	18	27
13	4	4	8	5	6	8	9	15	19.7	10	9	23	13	15	21	27	99	27	48
14	21	19	12	9	9	9	12	16	35.7	261	181	56	31	29	33	55	110	95	65
15	8	10	9	9	12	10	7	8	24.3	26	34	33	29	51	35	20	26	32	35
16	6	10	8	4	4	2	4	4	14.0	14	34	21	10	8	5	10	10	14	23
17	4	7	11	11	10	10	9	6	22.7	8	20	45	49	37	39	30	16	31	20
18	8	3	3	2	0	5	6	5	10.7	25	7	6	4	1	12	14	11	10	21
19	6	9	10	11	12	8	9	10	25.0	16	30	36	48	52	25	33	38	35	29
20	9	8	9	13	17	18	19	14	35.7	29	25	28	64	131	169	196	79	90	70
21	14	13	11	14	9	10	5	9	28.3	74	62	42	79	28	38	12	30	46	72
22	9	11	10	15	19	18	15	17	38.0	27	48	39	101	175	157	102	129	97	69
23	14	11	13	10	6	9	9	8	26.7	77	46	64	34	14	30	29	24	40	58
24	2	1	3	9	11	13	10	11	20.0	4	2	6	33	46	67	38	49	31	30
25	6	10	11	9	10	8	6	5	21.7	14	39	48	33	36	21	14	12	27	32
26	5	6	9	9	8	8	5	6	18.7	13	16	31	31	21	22	11	15	20	17
27	5	2	4	4	7	9	7	8	15.3	12	5	10	8	19	32	19	26	16	19
28	8	7	9	9	9	9	12	11	24.7	22	20	30	27	27	30	56	48	33	27
29	7	7	6	8	5	6	5	10	18.0	17	18	16	26	11	15	12	38	19	23
30	5	6	5	8	10	10	5	7	18.7	13	14	11	22	40	35	13	18	21	17
31	5	0	3	3	5	4	4	3	9.0	12	0	6	7	11	9	8	6	7	14
																		34.6	

NOV. 1981

	3Km								ΣKm	am								Am	Am2
1	4	5	2	9	7	7	4	5	14.3	9	11	5	29	18	19	9	12	14	10
2	3	3	2	0	1	4	6	7	8.7	7	7	4	1	3	10	16	17	8	12
3	7	6	4	7	5	5	7	3	14.7	19	16	10	17	12	13	20	7	14	11
4	2	3	2	1	5	7	8	8	12.0	4	6	4	3	12	18	22	23	12	14
5	5	8	9	8	9	7	6	5	19.0	13	22	27	22	30	20	15	12	20	18
6	8	6	3	6	7	5	7	8	16.7	21	14	6	14	20	13	17	21	16	20
7	8	10	9	9	10	9	6	6	22.3	22	39	30	33	35	28	15	16	27	31
8	8	11	12	14	10	13	9	5	27.3	23	48	56	76	40	62	31	12	44	30
9	5	3	3	4	6	3	3	2	9.7	11	7	7	10	14	6	6	5	8	19
10	4	7	9	11	9	6	9	9	21.3	8	19	28	43	30	16	29	31	26	21
11	6	8	9	10	17	14	13	14	30.3	16	21	28	34	136	83	69	82	59	56
12	14	16	14	12	9	8	4	3	26.7	83	105	72	59	29	21	10	7	48	49
13	3	2	2	3	2	3	6	9	10.0	7	5	4	7	4	6	14	28	9	17
14	7	10	8	12	13	13	11	14	29.3	18	34	23	57	64	68	47	81	49	38
15	13	12	9	8	9	11	6	6	24.7	63	51	31	25	31	41	15	16	34	40
16	9	9	8	6	7	8	12	11	23.3	29	33	26	15	20	23	52	45	30	31
17	11	8	8	13	13	13	13	12	30.3	44	25	21	64	62	66	63	51	50	43
18	9	8	10	12	12	10	11	10	27.3	31	26	36	53	53	39	50	34	40	40
19	8	5	7	8	9	9	9	7	20.7	24	13	17	21	30	32	28	20	23	28
20	7	5	7	9	9	8	8	9	20.7	20	11	18	32	30	24	23	33	24	23
21	6	5	7	8	8	9	10	11	21.3	14	12	19	23	25	29	37	47	26	25
22	8	6	8	8	5	6	3	5	16.3	26	15	22	22	12	16	6	13	17	23
23	5	5	7	12	11	12	10	11	24.3	11	11	20	56	41	60	38	44	35	24
24	7	4	5	5	9	6	5	5	15.3	18	9	11	12	32	14	11	12	15	37
25	14	12	12	15	14	10	7	8	30.7	85	54	53	99	85	35	17	21	56	37
26	8	7	6	5	7	8	8	4	17.7	21	17	15	13	18	21	24	10	17	21
27	3	4	6	4	0	1	3	5	8.7	7	8	14	8	1	2	6	12	7	11
28	8	3	3	2	4	5	4	6	11.7	25	7	7	4	9	12	9	16	11	9
29	7	3	2	1	3	2	3	2	7.7	17	7	4	3	6	5	6	5	7	7
30	1	0	1	2	2	1	0	1	2.7	2	1	2	4	4	3	1	3	3	4
																		25.0	

DEC. 1981

	3Km								ΣKm	am								Am	Am2
1	1	3	4	5	7	10	8	5	14.3	3	6	8	11	18	34	24	12	15	13
2	5	4	5	11	7	6	8	8	18.0	12	8	12	41	19	15	24	26	20	19
3	4	6	5	6	9	8	8	8	18.0	9	15	11	16	27	21	26	23	19	20
4	8	9	6	7	6	6	7	7	18.7	26	28	14	19	15	14	20	17	19	19
5	4	4	6	7	4	5	7	7	14.7	10	9	15	17	8	13	17	17	13	13
6	4	4	4	1	2	5	1	1	7.3	9	9	8	3	4	12	3	3	6	8
7	2	0	2	3	3	4	2	6	7.3	4	1	5	6	7	9	4	15	6	8
8	5	5	7	4	10	13	13	8	21.7	13	13	19	9	39	65	68	26	32	23
9	6	8	6	8	7	7	11	9	20.7	14	25	15	25	20	18	43	33	24	31
10	6	10	9	6	2	5	2	4	14.7	15	37	31	16	5	11	4	9	16	18
11	6	6	3	2	3	6	5	5	12.0	14	14	7	5	6	15	13	11	11	15
12	11	7	9	9	14	12	11	12	28.3	47	20	31	27	75	52	43	54	44	31
13	8	8	9	8	10	7	3	4	19.0	21	23	31	24	38	17	7	9	21	27
14	6	6	3	4	3	5	7	4	12.7	16	14	7	8	6	11	17	9	11	12
15	4	4	4	2	0	0	9	8	10.3	8	9	9	5	1	1	32	26	11	11
16	4	1	5	5	0	3	6	5	9.7	9	3	11	11	1	6	15	11	8	9
17	3	2	1	4	2	6	8	10	12.0	6	4	2	8	5	15	25	35	13	15
18	10	7	8	9	8	9	7	6	21.3	38	17	24	28	23	32	20	16	25	21
19	5	5	5	9	8	7	4	5	16.0	13	11	11	27	24	20	8	11	16	16
20	3	4	3	4	4	5	5	6	11.3	7	10	7	10	10	11	12	16	10	12
21	4	3	4	5	6	7	4	4	12.3	9	7	9	13	14	17	10	9	11	10
22	2	1	4	3	4	7	4	3	9.3	4	2	8	7	9	18	9	6	8	9
23	3	5	4	3	4	7	5	8	13.0	6	12	9	6	10	19	11	24	12	13
24	8	8	5	5	4	7	6	7	16.7	23	21	13	12	10	17	15	19	16	15
25	4	5	2	5	7	7	5	6	13.7	10	12	5	11	20	20	13	14	13	14
26	7	5	6	8	4	3	5	2	13.3	19	11	14	21	10	6	11	5	12	12
27	4	3	4	3	5	5	6	7	12.3	10	6	10	6	13	11	16	18	11	12
28	9	6	7	7	10	9	7	5	20.0	27	15	18	17	39	33	19	11	22	31
29	4	13	15	15	13	11	9	6	28.7	10	62	91	93	62	41	31	16	51	46
30	9	14	13	10	14	11	9	7	29.0	30	86	64	40	80	44	30	18	49	43
31	6	7	12	12	10	10	6	7	23.3	15	18	51	55	37	37	14	18	31	47
																		18.6	

MONTHLY AND YEARLY Am 1959-1981

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual mean
1959	25.5	35.7	30.1	24.1	25.5	22.7	42.1	31.5	36.9	28.2	33.0	31.6	30.6
1960	25.7	23.5	27.3	53.4	31.5	27.3	27.3	27.8	27.0	45.0	44.4	32.1	32.7
1961	19.4	24.0	21.3	20.6	21.1	20.3	34.4	17.8	19.4	21.9	15.7	19.6	21.3
1962	12.9	18.3	14.0	21.6	12.7	17.0	19.8	24.9	27.8	29.8	20.4	21.1	20.0
1963	17.2	13.9	13.2	15.4	17.8	17.9	19.4	21.2	38.0	22.2	19.0	16.8	19.3
1964	17.8	17.5	19.0	19.7	15.9	13.7	15.3	13.3	16.1	15.0	12.4	9.2	15.4
1965	10.8	14.6	13.2	11.5	9.7	14.8	13.6	14.8	16.1	11.8	10.8	12.2	12.8
1966	12.8	13.2	17.8	11.0	14.0	11.6	15.4	18.2	28.2	16.1	15.3	18.5	16.0
1967	17.6	18.4	11.9	14.0	32.7	17.7	12.8	15.3	23.9	16.7	17.4	23.2	18.5
1968	19.3	25.0	21.8	20.2	21.5	24.2	16.3	18.5	21.0	24.0	25.1	17.7	21.2
1969	15.2	23.5	26.0	22.4	23.5	15.6	12.3	13.4	21.6	14.4	16.8	11.9	18.0
1970	12.5	11.1	24.9	20.9	14.0	16.2	25.4	18.4	17.6	19.1	19.8	14.9	17.9
1971	20.9	19.0	18.3	23.2	20.3	15.7	13.7	15.9	20.0	19.4	16.9	18.1	18.4
1972	20.5	16.8	18.9	17.3	16.2	20.9	12.8	32.2	19.3	19.4	21.1	16.9	19.4
1973	24.9	29.8	34.8	39.4	25.9	26.5	20.4	20.0	21.8	27.3	20.0	19.1	25.8
1974	24.1	25.2	33.6	31.5	28.0	27.2	33.1	30.3	33.4	37.1	27.1	26.0	29.7
1975	25.8	29.5	30.7	24.7	23.2	19.8	21.3	17.8	15.9	18.4	28.8	20.2	23.0
1976	21.9	26.7	33.4	26.3	22.9	16.8	16.2	15.9	21.8	19.2	15.2	18.0	21.2
1977	18.4	19.9	18.7	25.0	18.8	13.8	22.9	22.5	23.8	20.7	16.8	16.8	19.8
1978	24.6	25.3	25.9	32.2	32.5	28.2	18.8	24.3	26.8	19.7	24.2	22.0	25.4
1979	26.5	24.2	27.6	35.3	21.7	17.5	18.0	25.8	21.2	18.7	17.0	16.3	22.5
1980	18.1	18.0	11.9	17.4	15.1	19.4	16.2	16.0	13.8	22.6	22.5	22.6	17.8
1981	16.4	23.3	28.5	35.9	28.5	17.8	28.7	24.2	19.9	34.6	25.0	18.6	25.1

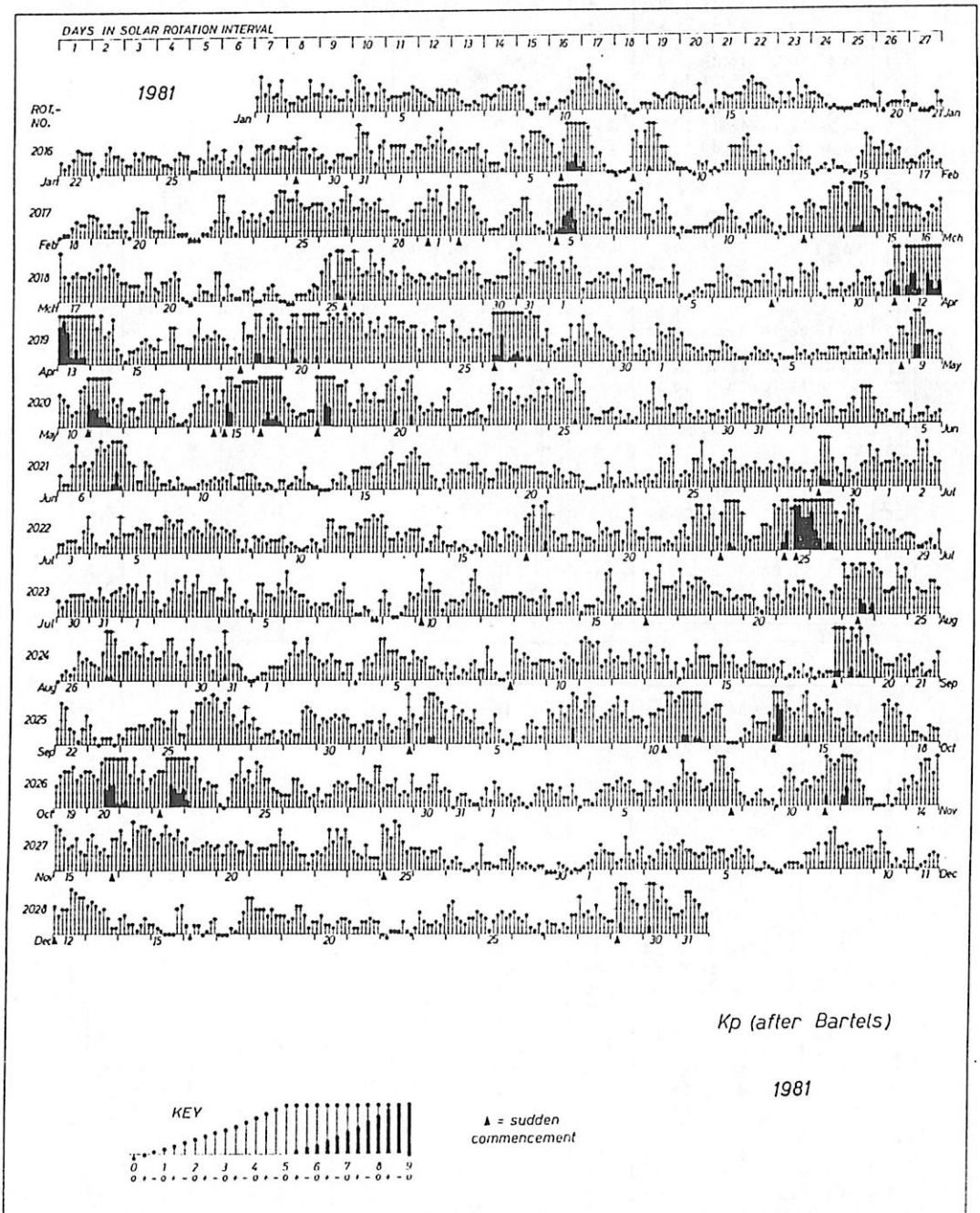
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SECTION 3

3.3. Kp INDICES

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MUSICAL DIAGRAM OF Kp 1981



Kp INDICES 1981

	Kp	Sum	Jan		1981		ap				Sum	Ap	Cp
1	2o 4o 2+ 3+ 2o 2+ 4- 2-	21+	7	27	9	18	7	9	22	6	105	13	0.8
2	1+ 1+ 2o 2- 2o 4- 2+ 2+	17-	5	5	7	6	7	22	9	9	70	9	0.5
3	3+ 2o 3- 2o 2- 2- 3- 2-	18-	18	7	12	7	6	6	12	6	74	9	0.5
4	4o 4- 3o 2+ 1o 2+ 3+ 3-	22+	27	22	15	9	4	9	18	12	116	14	0.8
5	2- 2o 2o 2o 2+ 2+ 3o 3-	18o	6	7	7	7	9	9	15	12	72	9	0.5
6	2+ 2o 2- 1+ 3- 3- 2+ 3-	18-	9	7	6	5	12	12	9	12	72	9	0.5
7	3- 2+ 1+ 1o 1o 1+ 1o 2o	13-	12	9	5	4	4	5	4	7	50	6	0.3
8	2o 2- 2o 3- 3o 3o 3- 3o	20o	7	6	7	12	15	15	12	15	89	11	0.6
9	2+ 3o 0+ 0o 2- 1o 1o 2-	11o	9	15	2	0	6	4	4	6	46	6	0.3
10	0+ 1- 1+ 1+ 2- 2+ 4- 4-	15o	2	3	5	5	6	9	22	22	74	9	0.5
11	4- 5- 4- 2+ 3+ 3o 3- 3o	26+	22	39	22	9	18	15	12	15	152	19	1.0
12	2+ 2- 1o 0+ 0o 0+ 1o 1o	8-	9	6	4	2	0	2	4	4	31	4	0.1
13	1o 2o 2- 1+ 2- 2o 2o 2-	13+	4	7	6	5	6	7	7	6	48	6	0.3
14	2- 2- 1+ 2- 3o 1- 0o 1-	11-	6	6	5	6	15	3	0	3	44	6	0.2
15	2+ 1o 2o 2- 2- 2o 2o 3-	15+	9	4	7	6	6	7	7	12	58	7	0.4
16	3+ 4- 3o 3o 3- 2- 1+ 1o	20-	18	22	15	15	12	6	5	4	97	12	0.7
17	2o 1o 2o 1+ 3+ 2- 3- 2o	16o	7	4	7	5	18	6	12	7	66	8	0.4
18	2o 2- 1+ 1- 0+ 1- 0+ 0+	7+	7	6	5	3	2	3	2	2	30	4	0.1
19	0+ 0+ 1- 1- 1o 1o 1- 1-	5+	2	2	3	3	4	4	3	3	24	3	0.1
20	2o 0o 1- 1o 1o 1o 2o 1o	9-	7	0	3	4	4	4	7	4	33	4	0.1
21	1- 1- 0o 0o 0o 0+ 2o 1o	5-	3	3	0	0	0	2	7	4	19	2	0.0
22	2- 1o 1+ 2o 3o 3- 3- 3-	17o	6	4	5	7	15	12	12	12	73	9	0.5
23	2- 0+ 1o 3- 3+ 2+ 2+ 2o	16-	6	2	4	12	18	9	9	7	67	8	0.5
24	1+ 1+ 3- 2o 3- 2+ 2+ 2+	17o	5	5	12	7	12	9	9	9	68	8	0.5
25	2o 1+ 1+ 1o 2o 3- 2+ 2+	15o	7	5	5	4	7	12	9	9	58	7	0.4
26	1- 1- 2o 2- 4- 2o 2+ 2-	15-	3	3	7	6	22	7	9	6	63	8	0.4
27	3o 1o 2- 2+ 3+ 1+ 1o 2o	16-	15	4	6	9	18	5	4	7	68	8	0.5
28	3+ 3+ 3- 3o 3+ 2o 3+ 3+	24+	18	18	12	15	18	7	18	18	124	16	0.9
29	3o 3+ 4o 3o 3o 2+ 3o 2o	24-	15	18	27	15	15	9	15	7	121	15	0.9
30	2+ 2- 1o 2- 2+ 2+ 2o 2o	15+	9	6	4	6	9	9	7	7	57	7	0.4
31	2+ 5o 4+ 4+ 3- 1+ 3+ 4-	27o	9	48	32	32	12	5	18	22	178	22	1.1

	Kp	Sum	Feb		1981		ap				Sum	Ap	Cp
1	2- 3+ 3+ 3+ 3+ 2o 3- 3+	23o	6	18	18	18	18	7	12	18	115	14	0.8
2	3+ 3o 4o 3+ 4- 5- 4- 3-	28+	18	15	27	18	22	39	22	12	173	22	1.1
3	3o 2+ 3o 3- 3o 3o 3+ 2-	22o	15	9	15	12	15	15	18	6	105	13	0.8
4	3- 1+ 1+ 1+ 1- 2+ 3+ 3-	16-	12	5	5	5	3	9	18	12	69	9	0.5
5	2o 4o 3+ 4+ 4+ 4+ 4o 4-	30o	7	27	18	32	32	32	27	22	197	25	1.2
6	3+ 2o 2+ 4- 6o 6o 7- 5+	35+	18	7	9	22	80	80	111	56	383	48	1.6
7	6o 5- 3o 2o 2+ 1o 0+ 0+	20-	80	39	15	7	9	4	2	2	158	20	1.0
8	0o 0+ 0+ 1- 4- 4+ 3o 4+	17-	0	2	2	3	22	32	15	32	108	14	0.8
9	5+ 5o 4o 3o 3o 2- 1+ 1-	24o	56	48	27	15	15	6	5	3	175	22	1.1
10	1- 1- 0+ 0o 1+ 1o 1+ 0+	6-	3	3	2	0	5	4	5	2	24	3	0.1
11	1- 0+ 1o 1+ 3o 3o 3o 4-	16o	3	2	4	5	15	15	15	22	81	10	0.6
12	4o 2+ 2+ 3o 2o 1o 2+ 2-	19-	27	9	9	15	7	4	9	6	86	11	0.6
13	1+ 2- 1+ 2o 3o 2- 1+ 2-	14o	5	6	5	7	15	6	5	6	55	7	0.3
14	0o 0+ 1- 1o 0+ 1+ 1- 1-	5o	0	2	3	4	2	5	3	3	22	3	0.0
15	0+ 0o 0+ 2- 2+ 4o 4- 3-	15o	2	0	2	6	9	27	22	12	80	10	0.6
16	3- 3+ 2o 3o 2+ 3- 1+ 1o	18+	12	18	7	15	9	12	5	4	82	10	0.6
17	1+ 1o 2- 2o 2+ 2- 1o 1+	12+	5	4	6	7	9	6	4	5	46	6	0.3
18	0+ 1- 1- 1+ 2o 2- 2- 3-	11o	2	3	3	5	7	6	6	12	44	6	0.2
19	3- 2+ 2- 1o 2- 1o 1o 2-	13o	12	9	6	4	6	4	4	6	51	6	0.3
20	1o 0+ 2o 3+ 3o 3o 1+ 1o	15o	4	2	7	18	15	15	5	4	70	9	0.5
21	1o 1o 3- 2o 2- 1- 1- 1-	10+	4	4	12	7	6	3	3	3	42	5	0.2
22	0o 0o 0o 1- 1- 1+ 2o 4+	9o	0	0	0	3	3	5	7	32	50	6	0.3
23	4+ 2+ 1+ 1- 2+ 3o 2o 3-	19-	32	9	5	3	9	15	7	12	92	12	0.7
24	2o 3- 2- 2+ 3o 4+ 5- 5-	25+	7	12	6	9	15	32	39	39	159	20	1.0
25	4o 4o 5- 4- 3+ 3+ 4- 4-	30+	27	27	39	22	18	18	22	22	195	24	1.2
26	4- 3+ 3- 4- 3+ 4o 6o 4+	31o	22	18	12	22	18	27	80	32	231	29	1.3
27	3+ 3+ 4o 4- 3+ 4- 4o 3o	28+	18	18	27	22	18	22	27	15	167	21	1.1
28	3o 2+ 2+ 2o 2- 2o 3o 4-	20o	15	9	9	7	6	7	15	22	90	11	0.6

	Kp	Sum	Mar			1981	ap				Sum	Ap	Cp
1	4- 3o 5- 4o 5- 4- 2+ 5o	31o	22	15	39	27	39	22	9	48	221	28	1.2
2	3+ 4- 5o 5o 4o 3+ 3- 2-	29-	18	22	48	48	27	18	12	6	199	25	1.2
3	2o 1o 1o 1o 1+ 2+ 3- 3o	14+	7	4	4	4	5	9	12	15	60	8	0.4
4	3o 4o 4o 3- 1+ 1o 1- 2-	18+	15	27	27	12	5	4	3	6	99	12	0.7
5	1+ 5+ 6- 7- 7o 7+ 6+ 4+	44o	5	56	67	111	132	154	94	32	651	81	1.8
6	3- 3+ 3o 2+ 3o 2o 2o 1o	19+	12	18	15	9	15	7	7	4	87	11	0.6
7	3- 2+ 3- 4o 4- 4+ 5- 2+	27-	12	9	12	27	22	32	39	9	162	20	1.0
8	2+ 2- 3- 4- 3+ 2o 1o 0+	17o	9	6	12	22	18	7	4	2	80	10	0.6
9	1o 1- 1- 1o 1o 1o 1o 1+	8-	4	3	3	4	4	4	4	5	31	4	0.1
10	2- 2o 2o 3+ 3- 2o 1o 1-	15+	6	7	7	18	12	7	4	3	64	8	0.4
11	1+ 2o 2+ 3- 2o 2- 1+ 0+	14-	5	7	9	12	7	6	5	2	53	7	0.3
12	1o 0+ 2+ 3o 2+ 2o 3+ 4-	18o	4	2	9	15	9	7	18	22	86	11	0.6
13	3+ 2+ 3o 3o 4+ 5- 5- 5+	31-	18	9	15	15	32	39	39	56	223	28	1.2
14	3+ 5- 6- 6- 6o 5- 4+ 3o	37+	18	39	67	67	80	39	32	15	357	45	1.5
15	3- 5- 3+ 2o 3o 4o 3+ 3+	26+	12	39	18	7	15	27	18	18	154	19	1.0
16	3o 3o 3- 2- 2+ 3o 3- 4-	22o	15	15	12	6	9	15	12	22	106	13	0.8
17	5o 3o 2+ 3o 3+ 3o 3o 3+	26o	48	15	9	15	18	15	15	18	153	19	1.0
18	3o 4- 4o 3o 4o 4- 3+ 2+	27o	15	22	27	15	27	22	18	9	155	19	1.0
19	2+ 2o 2o 2o 1+ 3+ 3+ 2-	18o	9	7	7	7	5	18	18	6	77	10	0.5
20	1+ 2+ 2+ 3- 3+ 3- 1- 0+	16-	5	9	9	12	18	12	3	2	70	9	0.5
21	0o 1- 2o 1+ 1+ 1o 3+ 3+	13o	0	3	7	5	5	4	18	18	60	8	0.4
22	1- 2o 1o 1- 1- 1+ 1+ 2-	9+	3	7	4	3	3	5	5	6	36	4	0.2
23	0+ 0+ 1o 2- 2o 1o 0+ 0+	7o	2	2	4	6	7	4	2	2	29	4	0.1
24	0o 0o 1o 1o 1o 1+ 2o 2-	8o	0	0	4	4	4	5	7	6	30	4	0.1
25	3+ 4+ 5- 2+ 6- 5+ 4+ 4+	34+	18	32	39	9	67	56	32	32	285	36	1.4
26	5+ 4- 3o 3+ 5o 4o 3+ 4+	32o	56	22	15	18	48	27	18	32	236	30	1.3
27	3- 3+ 3o 2- 4- 3o 3- 2+	22+	12	18	15	6	22	15	12	9	109	14	0.8
28	3o 3- 2o 3- 3o 3- 3- 3+	22o	15	12	7	12	15	12	12	18	103	13	0.7
29	3o 3o 4- 4o 3+ 4o 3o 2-	26-	15	15	22	27	18	27	15	6	145	18	1.0
30	2+ 2+ 2o 3- 3- 3- 5- 4+	24-	9	9	7	12	12	12	39	32	132	16	0.9
31	5+ 4o 3- 3+ 3+ 4o 4o 4-	30+	56	27	12	18	18	27	27	22	207	26	1.2

	Kp	Sum	Apr			1981	ap				Sum	Ap	Cp
1	4+ 4- 3o 4o 3+ 4+ 4- 3o	29+	32	22	15	27	18	32	22	15	183	23	1.1
2	1+ 2o 2o 2+ 3o 3- 3o 2+	19-	5	7	7	9	15	12	15	9	79	10	0.6
3	2+ 3+ 1+ 2+ 4- 3+ 3+ 3-	22+	9	18	5	9	22	18	18	12	111	14	0.8
4	3- 2+ 2- 2- 2+ 2o 4- 3o	19+	12	9	6	6	9	7	22	15	86	11	0.6
5	1- 0+ 1- 1o 1+ 1o 2- 2-	8+	3	2	3	4	5	4	6	6	33	4	0.1
6	2- 3o 4- 3- 2+ 1+ 1+ 2o	18o	6	15	22	12	9	5	5	7	81	10	0.6
7	2o 2- 2o 2o 3- 2o 3+ 2-	17+	7	6	7	7	12	7	18	6	70	9	0.5
8	3- 1o 2+ 2+ 1o 4- 3o 3-	19-	12	4	9	9	4	22	15	12	87	11	0.6
9	4- 3+ 1- 0+ 2- 1o 1o 2-	13+	22	18	3	2	6	4	4	6	65	8	0.4
10	1o 1+ 2- 3o 2- 2+ 2+ 2-	15o	4	5	6	15	6	9	9	6	60	8	0.4
11	1- 2- 3- 3o 6+ 6o 4- 6o	30o	3	6	12	15	94	80	22	80	312	39	1.4
12	7o 7o 6- 5o 7o 6+ 6- 6+	50o	132	132	67	48	132	94	67	94	766	96	1.9
13	8o 8+ 8- 6- 6+ 6- 6- 5o	52+	207	236	179	67	94	67	67	48	965	121	1.9
14	5o 4o 5o 3+ 4- 5- 2o 1+	29o	48	27	48	18	22	39	7	5	214	27	1.2
15	1- 2- 2- 2o 3- 3o 2+ 2o	16o	3	6	6	7	12	15	9	7	65	8	0.4
16	3o 2- 2- 4o 4o 2+ 2+ 2o	21o	15	6	6	27	27	9	9	7	106	13	0.8
17	2o 3+ 5- 3o 3+ 3o 4- 3+	26+	7	18	39	15	18	15	22	18	152	19	1.0
18	3o 2+ 1o 2o 1+ 4+ 3+ 3+	21-	15	9	4	7	5	32	18	18	108	14	0.8
19	6o 6o 3+ 5- 6- 5- 4o 2+	37-	80	80	18	39	67	39	27	9	359	45	1.5
20	4o 6+ 5+ 4o 5+ 5o 5o 6-	41-	27	94	56	27	56	48	48	67	423	53	1.6
21	4+ 4+ 5+ 5- 5o 4+ 5o 5-	38-	32	32	56	39	48	32	48	39	326	41	1.5
22	5o 5- 5o 3+ 4+ 4- 5- 3+	34o	48	39	48	18	32	22	39	18	264	33	1.3
23	4o 5- 5- 4+ 4+ 4- 4o 4o	34-	27	39	39	32	32	22	27	27	245	31	1.3
24	2- 4- 3+ 4- 5- 4o 4o 3-	28-	6	22	18	22	39	27	27	12	173	22	1.1
25	4+ 4- 3o 3- 3o 4- 3o 4-	27o	32	22	15	12	15	22	15	22	155	19	1.0
26	3+ 3+ 6- 6- 7+ 5o 5+ 6-	41+	18	18	67	67	154	48	56	67	495	62	1.7
27	6o 5+ 5- 5+ 5- 5- 3- 4-	37o	80	56	39	56	39	39	12	22	343	43	1.5
28	2o 1+ 2- 3- 3- 4o 2+ 4o	21-	7	5	6	12	12	27	9	27	105	13	0.8
29	5- 3+ 3- 4o 3+ 3o 3- 2+	26o	39	18	12	27	18	15	12	9	150	19	1.0
30	2o 1+ 2+ 2- 3o 1o 2o 1+	15-	7	5	9	6	15	4	7	5	58	7	0.4

Kp INDICES 1981 (continued)

	Kp	Sum	May		1981		ap				Sum	Ap	Cp
1	2- 1+ 4o 3+ 3o 4- 4- 3-	23+	6	5	27	18	15	22	22	12	127	16	0.9
2	3+ 2o 2o 2- 1+ 2- 1o 1+	14+	18	7	7	6	5	6	4	5	58	7	0.4
3	1+ 1+ 2+ 2o 2- 1o 1- 1-	11o	5	5	9	7	6	4	3	3	42	5	0.2
4	1- 1o 2- 1+ 1o 1+ 1o 0+	8+	3	4	6	5	4	5	4	2	33	4	0.1
5	1o 1- 1- 1- 2- 1o 1+ 1-	8-	4	3	3	3	6	4	5	3	31	4	0.1
6	1o 1+ 1o 1o 2- 2- 2- 1o	10+	4	5	4	4	6	6	6	4	39	5	0.2
7	1o 2- 1o 2- 2- 1o 1+ 1-	10o	4	6	4	6	6	4	5	3	38	5	0.2
8	1+ 2- 1o 2+ 2o 4- 4- 3o	19-	5	6	4	9	7	22	22	15	90	11	0.6
9	4+ 6+ 6+ 4+ 3+ 3+ 3- 3o	34-	32	94	94	32	18	18	12	15	315	39	1.4
10	4- 3+ 3- 2- 2o 4o 4+ 7o	29-	22	18	12	6	7	27	32	132	256	32	1.3
11	7- 7- 6o 6o 5+ 3+ 3- 3+	40o	111	111	80	80	56	18	12	18	486	61	1.7
12	2- 2+ 2+ 1+ 3o 4- 4- 3+	21+	6	9	9	5	15	22	22	18	106	13	0.8
13	3+ 4o 3o 1+ 2- 1- 1- 1o	16-	18	27	15	5	6	3	3	4	81	10	0.6
14	2- 3- 3o 4+ 4- 3- 4o 3o	25o	6	12	15	32	22	12	27	15	141	18	1.0
15	4o 7o 6+ 4+ 4+ 5- 5- 5-	40o	27	132	94	32	32	39	39	39	434	54	1.6
16	5- 5o 6- 6+ 6- 6o 5+ 3+	42o	39	48	67	94	67	80	56	18	469	59	1.7
17	3- 2o 1+ 2- 2- 2o 2o 5+	19-	12	7	5	6	6	7	7	56	106	13	0.8
18	5o 7o 7- 5o 4+ 4+ 5- 3-	40-	48	132	111	48	32	32	39	12	454	57	1.7
19	2o 3o 4+ 4- 3o 4- 3o 3o	26-	7	15	32	22	15	22	15	15	143	18	1.0
20	4+ 5- 6+ 3+ 4o 5- 6o 3+	37-	32	39	94	18	27	39	80	18	347	43	1.5
21	2+ 2- 2o 3- 2o 2o 3+ 4o	20o	9	6	7	12	7	7	18	27	93	12	0.7
22	2o 2o 2o 1+ 2- 2- 2o 1+	14o	7	7	7	5	6	6	7	5	50	6	0.3
23	1o 2+ 4+ 4- 4o 3+ 4o 3-	25+	4	9	32	22	27	18	27	12	151	19	1.0
24	3+ 2+ 3o 3+ 3o 4o 3+ 4o	26+	18	9	15	18	15	27	18	27	147	18	1.0
25	3+ 5- 4+ 5- 4- 4- 5+ 5-	34+	18	39	32	39	22	22	56	39	267	33	1.3
26	4- 2o 1+ 1o 1o 2- 2- 2o	14+	22	7	5	4	4	6	6	7	61	8	0.4
27	1o 2- 1- 1+ 1- 1o 3- 2+	11+	4	6	3	5	3	4	12	9	46	6	0.3
28	3- 4+ 2o 2o 3+ 2+ 1+ 2o	20o	12	32	7	7	18	9	5	7	97	12	0.7
29	2o 2+ 1+ 1o 2- 1o 2- 1+	12+	7	9	5	4	6	4	6	5	46	6	0.3
30	1+ 2- 1o 2- 2o 2+ 2- 2+	14o	5	6	4	6	7	9	6	9	52	6	0.3
31	2+ 2o 2o 3- 2o 2+ 2- 2-	17-	9	7	7	12	7	9	6	6	63	8	0.4

	Kp	Sum	Jun		1981		ap				Sum	Ap	Cp
1	2o 2- 2+ 2- 1o 3- 2+ 1+	15o	7	6	9	6	4	12	9	5	58	7	0.4
2	2o 1+ 2- 3- 3- 2o 1o 2-	15o	7	5	6	12	12	7	4	6	59	7	0.4
3	2- 2+ 3o 2- 4o 4o 4o 3o	24-	6	9	15	6	27	27	27	15	132	16	0.9
4	2- 1+ 2- 1- 1+ 1+ 2- 0+	10o	6	5	6	3	5	5	6	2	38	5	0.2
5	2+ 1o 1+ 1+ 2o 1o 1+ 2-	12o	9	4	5	5	7	4	5	6	45	6	0.3
6	2o 1o 1o 3o 5- 3o 3+ 3-	21-	7	4	4	15	39	15	18	12	114	14	0.8
7	3+ 4+ 5o 4+ 5- 6- 7- 5+	39+	18	32	48	32	39	67	111	56	403	50	1.6
8	5- 3+ 3o 1+ 1+ 3+ 3o 2+	22+	39	18	15	5	5	18	15	9	124	16	0.9
9	2- 1o 1o 1+ 1- 2- 1o 1-	9o	6	4	4	5	3	6	4	3	35	4	0.2
10	1- 1- 1o 1+ 1o 1+ 2- 1+	9o	3	3	4	5	4	5	6	5	35	4	0.2
11	2- 1+ 2o 1- 2- 2- 2o 2o	13o	6	5	7	3	6	6	7	7	47	6	0.3
12	2- 1o 0+ 1o 1- 0+ 1+ 1+	8-	6	4	2	4	3	2	5	5	31	4	0.1
13	1- 1o 2- 1+ 3- 1o 1- 1-	10-	3	4	6	5	12	4	3	3	40	5	0.2
14	0+ 0+ 0+ 1+ 1o 2o 2- 1-	8-	2	2	2	5	4	7	6	3	31	4	0.1
15	2+ 2+ 3- 3- 3- 2- 3- 3o	20o	9	9	12	12	12	6	12	15	87	11	0.6
16	4- 4o 2+ 3o 3o 4- 4o 4+	28o	22	27	9	15	15	22	27	32	169	21	1.1
17	4- 3o 3o 2- 1+ 0+ 1+ 2o	16+	22	15	15	6	5	2	5	7	77	10	0.5
18	2+ 2o 2+ 2+ 2o 3o 3o 2o	19o	9	7	9	9	7	15	15	7	78	10	0.5
19	2+ 1+ 1+ 2+ 3o 3o 3- 2+	18+	9	5	5	9	15	15	12	9	79	10	0.6
20	2+ 3- 3- 3- 3- 2o 2o 2o	19o	9	12	12	12	12	7	7	7	78	10	0.5
21	2- 3- 2+ 2- 1o 2o 2- 2-	15-	6	12	9	6	4	7	6	6	56	7	0.4
22	1o 0+ 0+ 0+ 1- 2- 3o 1+	9-	4	2	2	2	3	6	15	5	39	5	0.2
23	1- 2o 1o 1+ 1- 2- 1o 1+	10-	3	7	4	5	3	6	4	5	37	5	0.2
24	2- 1o 2- 3+ 3o 3+ 4+ 1o	19+	6	4	6	18	15	18	32	4	103	13	0.7
25	2- 2o 2- 3+ 3+ 5- 2o 3+	22o	6	7	6	18	18	39	7	18	119	15	0.8
26	3- 2+ 3o 3+ 4o 3o 2o 2+	23-	12	9	15	18	27	15	7	9	112	14	0.8
27	3- 2+ 3o 2+ 2o 2+ 3o 2o	20-	12	9	15	9	7	9	15	7	83	10	0.6
28	3- 2+ 3+ 2+ 2o 2+ 2o 1o	18o	12	9	18	9	7	9	7	4	75	9	0.5
29	2o 2+ 6o 6- 6- 3+ 2+ 2-	29o	7	9	80	67	67	18	9	6	263	33	1.3
30	3+ 2o 1+ 2- 3- 3o 4+ 3+	22-	18	7	5	6	12	15	32	18	113	14	0.8

Kp INDICES 1981 (continued)

	Kp	Sum	Jul		1981		ap				Sum	Ap	Cp
1	4o 3- 3o 3o 4- 3+ 3- 3o	25+	27	12	15	15	22	18	12	15	136	17	0.9
2	3- 3o 5- 4o 5- 3- 3+ 3o	28o	12	15	39	27	39	12	18	15	177	22	1.1
3	1+ 1+ 2- 2- 2- 1o 3- 4o	15+	5	5	6	6	6	4	12	27	71	9	0.5
4	2+ 1+ 1o 1o 2- 2+ 2o 4o	16-	9	5	4	4	6	9	7	27	71	9	0.5
5	2+ 2+ 2+ 3o 3- 3+ 3+ 2+	22-	9	9	9	15	12	18	18	9	99	12	0.7
6	3o 3o 4o 4- 3+ 4- 4- 2+	27-	15	15	27	22	18	22	22	9	150	19	1.0
7	3- 3o 3- 2+ 4- 3+ 3o 2+	23o	12	15	12	9	22	18	15	9	112	14	0.8
8	3o 3- 2+ 3- 2- 1- 2- 1-	15+	15	12	9	12	6	3	6	3	66	8	0.4
9	2o 2- 2o 1+ 2- 2- 2- 2o	14o	7	6	7	5	6	6	6	7	50	6	0.3
10	1o 1+ 1o 1- 1- 1o 2- 1+	9-	4	5	4	3	3	4	6	5	34	4	0.1
11	1- 2- 4- 4- 2+ 3o 3o 2+	20+	3	6	22	22	9	15	15	9	101	13	0.7
12	2+ 3+ 3o 4- 4- 4o 4- 4o	28-	9	18	15	22	22	27	22	27	162	20	1.0
13	3o 2- 2- 2+ 2- 2+ 3- 3-	18o	15	6	6	9	6	9	12	12	75	9	0.5
14	3- 2- 1- 1+ 2o 3o 1+ 1o	14-	12	6	3	5	7	15	5	4	57	7	0.4
15	1o 1+ 1- 1o 1- 0+ 1o 1-	7-	4	5	3	4	3	2	4	3	28	4	0.1
16	2+ 2o 2- 2+ 1o 3- 2o 2+	16+	9	7	6	9	4	12	7	9	63	8	0.4
17	2o 2- 4- 4o 5- 3- 5- 6o	29+	7	6	22	27	39	12	39	80	232	29	1.3
18	4o 2+ 2- 2o 2o 1o 2+ 2+	18-	27	9	6	7	7	4	9	9	78	10	0.5
19	2o 2- 2- 1+ 3+ 2+ 3- 2o	17o	7	6	6	5	18	9	12	7	70	9	0.5
20	2+ 2+ 1+ 3+ 4+ 2+ 2- 2-	19+	9	9	5	18	32	9	6	6	94	12	0.7
21	3- 2- 2- 2- 1o 1+ 1o 2-	13-	12	6	6	6	4	5	4	6	49	6	0.3
22	2+ 3o 2- 4- 5- 5- 4- 5-	28+	9	15	6	22	39	39	22	39	191	24	1.2
23	3o 2- 4o 5o 6- 5+ 5o 4o	34-	15	6	27	48	67	56	48	27	294	37	1.4
24	2- 1+ 2- 2- 3o 3o 3- 5-	20-	6	5	6	6	15	15	12	39	104	13	0.7
25	4+ 6- 7- 4+ 8+ 8+ 8- 8-	53o	32	67	111	32	236	236	179	179	1072	134	1.9
26	8o 7- 6o 5o 6- 6- 4o 3+	44+	207	111	80	48	67	67	27	18	625	78	1.8
27	4o 5- 5o 4+ 3+ 3- 1+ 3o	28+	27	39	48	32	18	12	5	15	196	24	1.2
28	2o 3- 2+ 2o 2+ 1+ 2- 2o	16+	7	12	9	7	9	5	6	7	62	8	0.4
29	2o 2- 1- 1- 1o 1+ 1- 2+	10+	7	6	3	3	4	5	3	9	40	5	0.2
30	2o 1+ 2o 3- 3- 3- 3- 2o	18o	7	5	7	12	12	12	12	7	74	9	0.5
31	2+ 2o 3+ 2+ 2o 3- 3o 3+	21o	9	7	18	9	7	12	15	18	95	12	0.7

	Kp	Sum	Aug		1981		ap				Sum	Ap	Cp
1	3- 4- 3+ 4- 2o 3o 4+ 3o	26-	12	22	18	22	7	15	32	15	143	18	1.0
2	2o 1o 2- 2+ 3+ 4o 3o 4+	22-	7	4	6	9	18	27	15	32	118	15	0.8
3	3- 4- 4+ 3o 3o 3+ 3+ 2+	26-	12	22	32	15	15	18	18	9	141	18	1.0
4	2+ 4o 3+ 3- 1o 1+ 2o 1o	18-	9	27	18	12	4	5	7	4	86	11	0.6
5	1- 4- 4- 3- 3- 2+ 4- 3o	22+	3	22	22	12	12	9	22	15	117	15	0.8
6	5- 3+ 3o 3- 3- 2o 1+ 2-	21+	39	18	15	12	12	7	5	6	114	14	0.8
7	1+ 2- 2- 1+ 3- 3o 4- 2o	17+	5	6	6	5	12	15	22	7	78	10	0.5
8	2o 1- 1- 1+ 1o 0o 0o 2o	8-	7	3	3	5	4	0	0	7	29	4	0.1
9	3o 2- 0+ 0+ 1- 1+ 3- 2+	12+	15	6	2	2	3	5	12	9	54	7	0.3
10	3- 5- 3o 4- 3o 3o 1o 2-	23-	12	39	15	22	15	15	4	6	128	16	0.9
11	2o 2o 2- 2o 3- 4o 5- 3+	22+	7	7	6	7	12	27	39	18	123	15	0.9
12	3o 3- 2- 1+ 2o 2+ 2+ 2+	18-	15	12	6	5	7	9	9	9	72	9	0.5
13	2+ 3- 2+ 2o 2o 2- 2+ 3o	18+	9	12	9	7	7	6	9	15	74	9	0.5
14	2+ 1o 2- 2- 3- 2- 2+ 3-	16o	9	4	6	6	12	6	9	12	64	8	0.4
15	1- 1+ 1+ 1+ 2o 2- 4+ 5-	17+	3	5	5	5	7	6	32	39	102	13	0.7
16	3+ 2+ 1+ 2- 2o 2- 1o 2o	15+	18	9	5	6	7	6	4	7	62	8	0.4
17	4+ 3o 4o 5o 3+ 3+ 3+ 4-	30o	32	15	27	48	18	18	18	22	198	25	1.2
18	5- 2+ 4- 3+ 4o 4o 4- 3+	29o	39	9	22	18	27	27	22	18	182	23	1.1
19	3- 3- 2+ 2o 3o 2o 2+ 2o	19o	12	12	9	7	15	7	9	7	78	10	0.5
20	2+ 2+ 2o 1o 1- 2+ 3o 2o	16-	9	9	7	4	3	9	15	7	63	8	0.4
21	2+ 2- 4- 2+ 3o 4- 4- 2+	23-	9	6	22	9	15	22	22	9	114	14	0.8
22	3+ 3o 3- 2o 1+ 3- 3+ 3o	21+	18	15	12	7	5	12	18	15	102	13	0.7
23	5o 4o 5o 5- 6+ 6o 4+ 6o	41+	48	27	48	39	94	80	32	80	448	56	1.6
24	5- 4+ 3- 3- 3o 5o 4o 5-	31o	39	32	12	12	15	48	27	39	224	28	1.2
25	4- 2o 3o 3- 3- 4- 4- 3o	24+	22	7	15	12	12	22	22	15	127	16	0.9
26	0+ 1o 1+ 1o 2- 3+ 2+ 3-	14-	2	4	5	4	6	18	9	12	60	8	0.4
27	2+ 2o 2- 3+ 5+ 5+ 4+ 3o	27+	9	7	6	18	56	56	32	15	199	25	1.2
28	3+ 3+ 4- 3+ 3o 4o 3- 3+	27-	18	18	22	18	15	27	12	18	148	18	1.0
29	3- 3- 3+ 4+ 4+ 3+ 2+ 2o	25o	12	12	18	32	32	18	9	7	140	18	1.0
30	4- 4+ 3- 3+ 3- 3o 1+ 4-	25-	22	32	12	18	12	15	5	22	138	17	0.9
31	3+ 5+ 3+ 2o 2o 2- 1- 0+	19-	18	56	18	7	7	6	3	2	117	15	0.8

Kp INDICES 1981 (continued)

	Kp	Sum	Sep		1981		ap				Sum	Ap	Cp
1	0+ 1- 1o 1o 2- 2- 2- 2-	10-	2	3	4	4	6	6	6	6	37	5	0.2
2	2+ 3o 4o 3o 3+ 4+ 3o 3-	26-	9	15	27	15	18	32	15	12	143	18	1.0
3	2+ 2o 2+ 3o 2+ 2+ 1o 2o	17+	9	7	9	15	9	9	4	7	69	9	0.5
4	2o 0o 1o 2+ 3- 2o 3o 4+	17+	7	0	4	9	12	7	15	32	86	11	0.6
5	4+ 3+ 3+ 3+ 3- 3- 2o 3+	25o	32	18	18	18	12	12	7	18	135	17	0.9
6	3- 2+ 3- 2- 2- 1+ 1o 2o	15+	12	9	12	6	6	5	4	7	61	8	0.4
7	1o 2- 1- 1+ 1o 2o 2+ 1+	11+	4	6	3	5	4	7	9	5	43	5	0.2
8	1+ 4- 2+ 1o 0+ 0+ 1o 4+	14+	5	22	9	4	2	2	4	32	80	10	0.6
9	3+ 2+ 3o 3- 2o 2o 2+ 2+	20o	18	9	15	12	7	7	9	9	86	11	0.6
10	2+ 2o 1+ 2+ 3o 3- 2+ 2o	18o	9	7	5	9	15	12	9	7	73	9	0.5
11	4o 4+ 4o 4- 4o 2- 2+ 3+	27+	27	32	27	22	27	6	9	18	168	21	1.1
12	2+ 3- 2o 2o 3+ 2+ 3o 2-	19+	9	12	7	7	18	9	15	6	83	10	0.6
13	3o 4- 3- 2o 3+ 3- 1o 2o	20+	15	22	12	7	18	12	4	7	97	12	0.7
14	0+ 1+ 2+ 2- 4- 3- 3- 3-	17+	2	5	9	6	22	12	12	12	80	10	0.6
15	2- 2- 4- 3- 2o 3- 2- 1+	17+	6	6	22	12	7	12	6	5	76	10	0.5
16	2- 3o 2o 2- 2- 2- 1+ 2-	15-	6	15	7	6	6	6	5	6	57	7	0.4
17	1+ 2o 0+ 1- 1+ 1o 2- 1-	9o	5	7	2	3	5	4	6	3	35	4	0.2
18	1+ 0+ 1o 1- 1o 1o 5+ 6-	16+	5	2	4	3	4	4	56	67	145	18	1.0
19	5o 4o 6o 4+ 5+ 3o 4+ 3+	35+	48	27	80	32	56	15	32	18	308	38	1.4
20	3- 2+ 2- 2- 2- 2+ 3- 2+	17+	12	9	6	6	6	9	12	9	69	9	0.5
21	3- 1o 1+ 2- 1- 1o 2o 3o	13+	12	4	5	6	3	4	7	15	56	7	0.4
22	2o 4+ 4o 2o 2- 1- 2o 3+	20o	7	32	27	7	6	3	7	18	107	13	0.8
23	2+ 1o 0+ 1o 1o 1o 0+ 1+	8+	9	4	2	4	4	4	2	5	34	4	0.1
24	1o 2o 2o 2o 2+ 2+ 2o 2+	16o	4	7	7	7	9	9	7	9	59	7	0.4
25	3o 3o 3- 2o 4- 4- 1+ 1+	21-	15	15	12	7	22	22	5	5	103	13	0.7
26	2+ 4- 4+ 4+ 5- 4+ 5o 5-	33+	9	22	32	32	39	32	48	39	253	32	1.3
27	4- 4+ 5- 3+ 2+ 3- 4o 2+	27+	22	32	39	18	9	12	27	9	168	21	1.1
28	3o 2o 1o 1+ 1+ 2- 1- 2-	13-	15	7	4	5	5	6	3	6	51	6	0.3
29	1+ 2- 1+ 1+ 4- 4o 4- 3+	20+	5	6	5	5	22	27	22	18	110	14	0.8
30	2+ 3o 3- 3o 3+ 3o 3+ 3o	24-	9	15	12	15	18	15	18	15	117	15	0.8

	Kp	Sum	Oct		1981		ap				Sum	Ap	Cp
1	2+ 2+ 2- 2+ 3- 3- 1+ 3-	18o	9	9	6	9	12	12	5	12	74	9	0.5
2	3+ 2+ 2- 2o 3o 3- 6+ 3+	25-	18	9	6	7	15	12	94	18	179	22	1.1
3	2+ 3o 5- 6- 6- 5- 4+ 4-	34o	9	15	39	67	67	39	32	22	290	36	1.4
4	3- 4o 3+ 4- 3o 3- 4- 2o	25o	12	27	18	22	15	12	22	7	135	17	0.9
5	2o 1+ 2+ 3+ 2- 1- 0+ 1+	13o	7	5	9	18	6	3	2	5	55	7	0.3
6	0+ 0+ 1o 2+ 3- 2o 1o 2o	12-	2	2	4	9	12	7	4	7	47	6	0.3
7	4- 3+ 3- 4o 3+ 4o 6+ 5-	32o	22	18	12	27	18	27	94	39	257	32	1.3
8	4- 4+ 5o 4+ 3- 3o 3+ 4-	30o	22	32	48	32	12	15	18	22	201	25	1.2
9	4o 5- 3+ 4+ 3- 3o 3o 3-	28-	27	39	18	32	12	15	15	12	170	21	1.1
10	2o 3+ 3+ 4- 4- 5o 5o 4+	30+	7	18	18	22	22	48	48	32	215	27	1.2
11	5- 6- 6- 5o 5+ 5+ 3o 3+	38o	39	67	67	48	56	56	15	18	366	46	1.5
12	4- 4o 4o 3- 0+ 0+ 0+ 1-	16o	22	27	27	12	2	2	2	3	97	12	0.7
13	2- 1+ 3o 2+ 2+ 2+ 3+ 6-	22o	6	5	15	9	9	9	18	67	138	17	0.9
14	8o 8- 4+ 4- 3+ 4- 5- 6-	41o	207	179	32	22	18	22	39	67	586	73	1.8
15	3o 4o 4- 3+ 4+ 4- 3- 3-	27+	15	27	22	18	32	22	12	12	160	20	1.0
16	2- 3+ 3o 1+ 1o 1- 1o 1+	13+	6	18	15	5	4	3	4	5	60	8	0.4
17	1o 2+ 4o 4+ 4- 4o 3+ 2o	25-	4	9	27	32	22	27	18	7	146	18	1.0
18	3o 1+ 1+ 1o 1- 2o 2- 2-	13-	15	5	5	4	3	7	6	6	51	6	0.3
19	3- 4- 4o 4o 4+ 3+ 4- 4o	30-	12	22	27	27	32	18	22	27	187	23	1.1
20	4o 4- 3+ 5- 7- 7o 7o 5+	42-	27	22	18	39	111	132	132	56	537	67	1.7
21	5+ 6- 4- 5o 3+ 4o 2+ 3+	33-	56	67	22	48	18	27	9	18	265	33	1.3
22	4- 4o 4o 5o 7o 7- 6+ 7-	43+	22	27	27	48	132	111	94	111	572	72	1.8
23	6- 4+ 5o 3+ 2+ 3o 3- 3-	29o	67	32	48	18	9	15	12	12	213	27	1.2
24	1- 0+ 1+ 3+ 4- 5o 3+ 4o	22-	3	2	5	18	22	48	18	27	143	18	1.0
25	3- 5- 4+ 3+ 3+ 2+ 2o 2-	24+	12	39	32	18	18	9	7	6	141	18	1.0
26	2- 2- 3+ 3+ 3- 2o 1+ 2-	18-	6	6	18	18	12	7	5	6	78	10	0.5
27	2+ 1o 2- 2- 3- 3o 3- 3o	18o	9	4	6	6	12	15	12	15	79	10	0.6
28	2+ 2+ 4- 3+ 3o 3- 4+ 4+	26o	9	9	22	18	15	12	32	32	149	19	1.0
29	2+ 3- 3- 3+ 2- 2o 2- 4-	20o	9	12	12	18	6	7	6	22	92	12	0.7
30	2+ 2+ 2o 3- 4- 4- 2o 2+	21o	9	9	7	12	22	22	7	9	97	12	0.7
31	2o 0+ 1+ 2- 2- 1o 1- 1-	9+	7	2	5	6	6	4	3	3	36	4	0.2

Kp INDICES 1981 (continued)

	Kp	Sum	Nov	1981	ap				Sum	Ap	Cp
1	1+ 2+ 1o 3o 2+ 2- 1+ 2-	15-	5	9	4	15	9	6	5	6	59	7	0.4
2	1o 1+ 1- 0+ 1- 2- 2+ 2o	10o	4	5	3	2	3	6	9	7	39	5	0.2
3	3- 3- 2- 2+ 1+ 1+ 3- 1+	16o	12	12	6	9	5	5	12	5	66	8	0.4
4	0+ 1o 1o 1- 2- 2o 3- 3-	12o	2	4	4	3	6	7	12	12	50	6	0.3
5	2+ 3o 3+ 3- 3o 2o 2- 2-	20-	9	15	18	12	15	7	6	6	88	11	0.6
6	3o 3- 1o 2o 2+ 1+ 2o 3-	17o	15	12	4	7	9	5	7	12	71	9	0.5
7	3+ 5- 4- 3+ 4- 3o 2o 2+	26o	18	39	22	18	22	15	7	9	150	19	1.0
8	3- 5- 5o 5o 4- 4o 3o 2-	30-	12	39	48	48	22	27	15	6	217	27	1.2
9	1+ 1- 1o 2- 2o 1o 1- 1o	9+	5	3	4	6	7	4	3	4	36	4	0.2
10	0+ 2o 3+ 4o 3+ 2o 3- 3o	21-	2	7	18	27	18	7	12	15	106	13	0.8
11	2+ 3+ 3o 3+ 6o 5- 4+ 5-	32-	9	18	15	18	80	39	32	39	250	31	1.3
12	6o 7- 5o 5- 3o 2+ 1o 1o	30-	80	111	48	39	15	9	4	4	310	39	1.4
13	0+ 0+ 0+ 1+ 0+ 1o 2o 3o	9-	2	2	2	5	2	4	7	15	39	5	0.2
14	2+ 3+ 3- 4+ 5- 5- 4- 5o	31-	9	18	12	32	39	39	22	48	219	27	1.2
15	5- 4+ 4- 3- 3o 4- 2+ 2o	26+	39	32	22	12	15	22	9	7	158	20	1.0
16	4- 4o 3o 2+ 3- 2o 4- 4-	25o	22	27	15	9	12	7	22	22	136	17	0.9
17	4+ 3+ 3- 5o 4+ 5- 5- 4+	33+	32	18	12	48	32	39	39	32	252	32	1.3
18	4- 3+ 4o 5- 4o 4- 4+ 3+	31o	22	18	27	39	27	22	32	18	205	26	1.2
19	4- 2+ 3- 3- 3o 3+ 3o 3-	23+	22	9	12	12	15	18	15	12	115	14	0.8
20	3o 2o 3o 3+ 3o 2+ 2+ 3+	22+	15	7	15	18	15	9	9	18	106	13	0.8
21	3o 2o 3- 3- 3- 3o 3o 4+	23+	15	7	12	12	12	15	15	32	120	15	0.8
22	3+ 3o 3+ 3- 2o 2o 1o 2o	19+	18	15	18	12	7	7	4	7	88	11	0.6
23	2+ 2o 3- 4+ 3+ 4+ 4- 4+	27o	9	7	12	32	18	32	22	32	164	20	1.0
24	3+ 2+ 2o 2- 3o 2- 2- 2-	17+	18	9	7	6	15	6	6	6	73	9	0.5
25	5- 4+ 4- 5o 5- 3+ 2+ 3-	31-	39	32	22	48	39	18	9	12	219	27	1.2
26	3- 3- 2+ 2- 2+ 2+ 3- 1+	18o	12	12	9	6	9	9	12	5	74	9	0.5
27	1- 1+ 2- 1o 0+ 0+ 1- 1o	7o	3	5	6	4	2	2	3	4	29	4	0.1
28	3o 1o 1o 1- 1- 1+ 1+ 2+	11+	15	4	4	3	3	5	5	9	48	6	0.3
29	3- 1o 1- 1o 1- 0+ 1- 1-	8-	12	4	3	4	3	2	3	3	34	4	0.1
30	0o 0o 0o 1o 1- 0+ 0o 0+	2+	0	0	0	4	3	2	0	2	11	1	0.0

	Kp	Sum	Dec	1981	ap				Sum	Ap	Cp
1	0+ 1- 1o 1+ 2o 3o 2+ 2o	13-	2	3	4	5	7	15	9	7	52	6	0.3
2	2o 1o 1+ 4- 2o 1+ 2+ 3-	16+	7	4	5	22	7	5	9	12	71	9	0.5
3	1o 2- 1+ 2+ 3o 2o 3- 2+	16+	4	6	5	9	15	7	12	9	67	8	0.5
4	3o 3+ 2+ 2+ 2o 2- 2o 3-	19+	15	18	9	9	7	6	7	12	83	10	0.6
5	3- 2o 2+ 2+ 1+ 2- 2+ 3-	17+	12	7	9	9	5	6	9	12	69	9	0.5
6	2- 2+ 2- 0+ 0+ 1o 1- 0+	8+	6	9	6	2	2	4	3	2	34	4	0.1
7	0o 0o 1- 1o 1o 1o 1- 2o	6+	0	0	3	4	4	4	3	7	25	3	0.1
8	2o 2+ 3o 1o 3o 4o 4+ 3-	22+	7	9	15	4	15	27	32	12	121	15	0.9
9	3- 3o 2o 2+ 2o 2+ 3- 3-	20-	12	15	7	9	7	9	12	12	83	10	0.6
10	2o 4o 3o 2o 1- 1+ 1- 1o	15-	7	27	15	7	3	5	3	4	71	9	0.5
11	2+ 2+ 0+ 1- 1o 2- 2o 2-	12o	9	9	2	3	4	6	7	6	46	6	0.3
12	3+ 2+ 3o 3o 5- 4+ 4o 4o	29-	18	9	15	15	39	32	27	27	182	23	1.1
13	3+ 4- 3+ 3- 3o 2o 1o 1o	20o	18	22	18	12	15	7	4	4	100	12	0.7
14	2o 2+ 1+ 1+ 1- 1+ 2o 1+	12+	7	9	5	5	3	5	7	5	46	6	0.3
15	1+ 1o 1- 0+ 0+ 0+ 3o 3+	10+	5	4	3	2	2	2	15	18	51	6	0.3
16	1+ 0o 1+ 1+ 0+ 1- 2- 2o	9-	5	0	5	5	2	3	6	7	33	4	0.1
17	0+ 0+ 0+ 1o 1- 2- 3- 4o	11o	2	2	2	4	3	6	12	27	58	7	0.4
18	4o 3o 3o 3o 2+ 3o 2+ 2+	23o	27	15	15	15	9	15	9	9	114	14	0.8
19	2+ 2- 2o 3+ 3+ 2+ 1o 2-	18-	9	6	7	18	18	9	4	6	77	10	0.5
20	2- 2+ 1+ 1+ 1o 2- 2o 2o	13+	6	9	5	5	4	6	7	7	49	6	0.3
21	2- 1o 1o 2- 2- 2o 2- 2-	12+	6	4	4	6	6	7	6	6	45	6	0.3
22	0+ 0o 1- 1- 1- 2- 1- 0+	5o	2	0	3	3	3	6	3	2	22	3	0.0
23	1o 3- 2- 1+ 1+ 2- 1+ 2+	13+	4	12	6	5	5	6	5	9	52	6	0.3
24	3+ 4- 2o 2- 1+ 2o 2o 3-	19-	18	22	7	6	5	7	7	12	84	10	0.6
25	2+ 2o 1- 2- 2+ 3- 2o 2+	16o	9	7	3	6	9	12	7	9	62	8	0.4
26	3- 2o 2- 2+ 1o 1- 1+ 0+	12o	12	7	6	9	4	3	5	2	48	6	0.3
27	2- 1+ 1+ 1- 1+ 1o 2+ 2+	12o	6	5	5	3	5	4	9	9	46	6	0.3
28	4o 2+ 3- 2o 3+ 2+ 2o 2-	20+	27	9	12	7	18	9	7	6	95	12	0.7
29	2- 5- 6o 5o 4+ 4- 3+ 2o	31-	6	39	80	48	32	22	18	7	252	32	1.3
30	3+ 6- 5o 4- 5- 4- 3o 2+	31+	18	67	48	22	39	22	15	9	240	30	1.3
31	2+ 3- 4+ 4+ 4- 3+ 2o 2+	25o	9	12	32	32	22	18	7	9	141	18	1.0

FREQUENCIES OF Kp INDICES 1981

Kp	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0-	7	7	3	.	.	.	.	2	1	.	4	4
0o	11	13	8	2	1	10	1	4	8	8	12	15
0+	14	17	9	5	12	14	12	7	8	7	14	18
1-	26	15	20	9	24	23	15	10	22	8	19	21
1o	19	18	13	11	22	27	17	14	20	11	13	24
1+	30	18	12	20	32	33	34	19	27	17	15	27
2-	38	16	20	17	26	27	21	27	28	14	19	33
2o	30	16	20	19	14	26	31	26	30	21	22	35
2+	23	14	24	16	13	19	25	29	22	25	27	17
3-	18	22	27	19	13	22	22	26	19	15	23	16
3o	15	20	27	20	19	14	13	26	15	29	19	12
3+	10	15	13	18	14	3	13	20	11	24	14	7
4-	3	11	14	15	11	6	13	9	8	17	5	7
4o	2	9	9	10	13	5	4	11	12	13	12	5
4+	1	5	10	15	10	4	9	8	3	8	13	3
5-	1	1	5	11	3	1	4	4	2	8	6	2
5o		2	5	6	4	1	1	3	2	4	.	.
5+		.	4	10	2	3	4	.	1	8	.	1
6-		4	1	5	4	1	2	2	1	.	2	1
6o		.	1	5	5	.	.	1		3	.	
6+		1	1	.	3	1	2			3	1	
7-			1	3	3		.			3		
7o			1	1			.			.		
7+				1			2			1		
8-				1			1			1		
8o				1			2					
8+												
9-												
9o												
	248	224	248	240	248	240	248	248	240	248	240	248

Reduction of Kp to Kp' due to solar flare effects

Month	Day	Eighth	Kp	Kp'
Apr	10	4	3o	3-
May	04	3	2-	1+
	05	5	2-	1+
Jul	02	5	5-	4+
	16	6	3-	2+
	17	5	5-	4+
Aug	26	6	3+	3o
Sep	10	4	2+	2o

MONTHLY MEAN VALUES Ap Cp 1981

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Ap	9	14	18	28	20	12	19	15	12	23	15	10	16,3
Cp	0,48	0,69	0,79	0,99	0,79	0,56	0,73	0,77	0,64	0,96	0,69	0,51	0,72

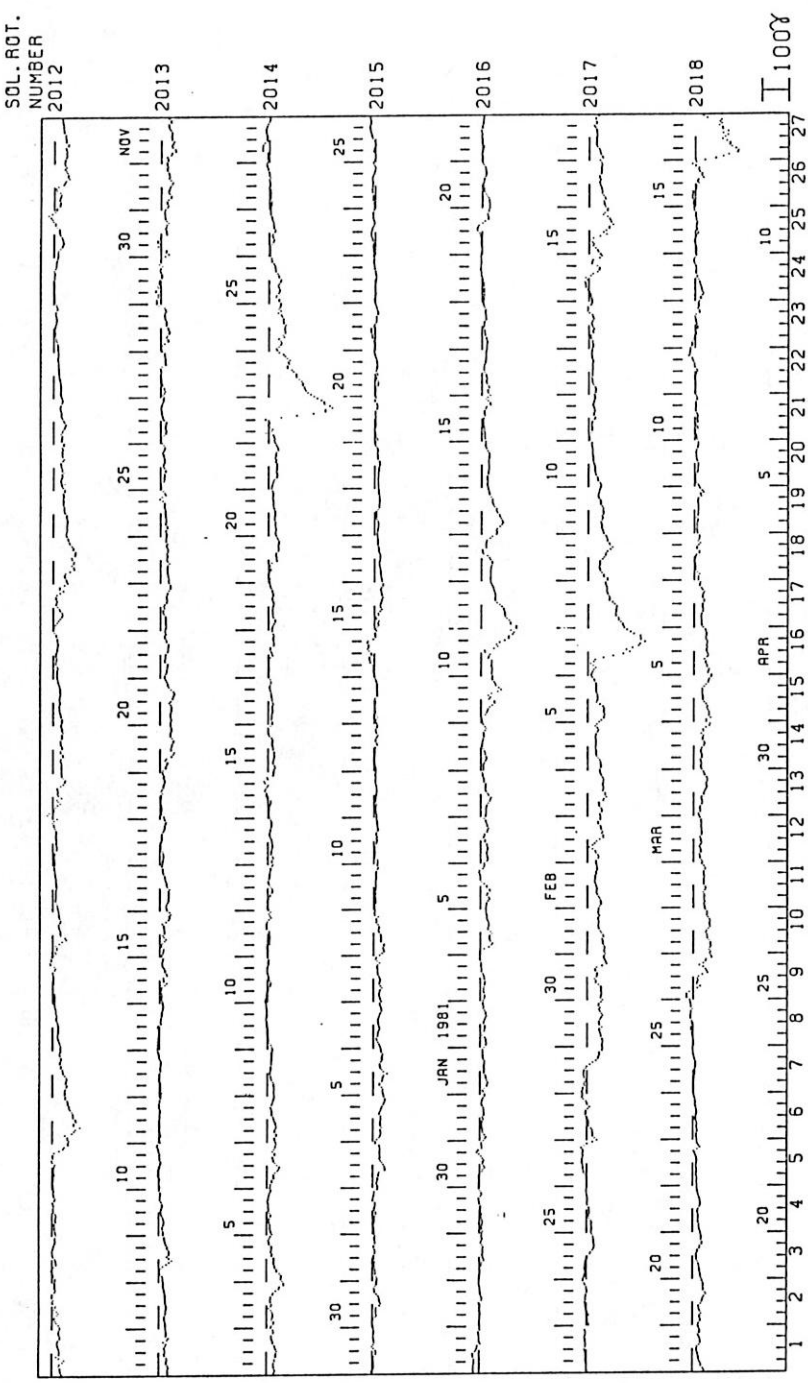
MONTHLY AND YEARLY Ap 1932 - 1981

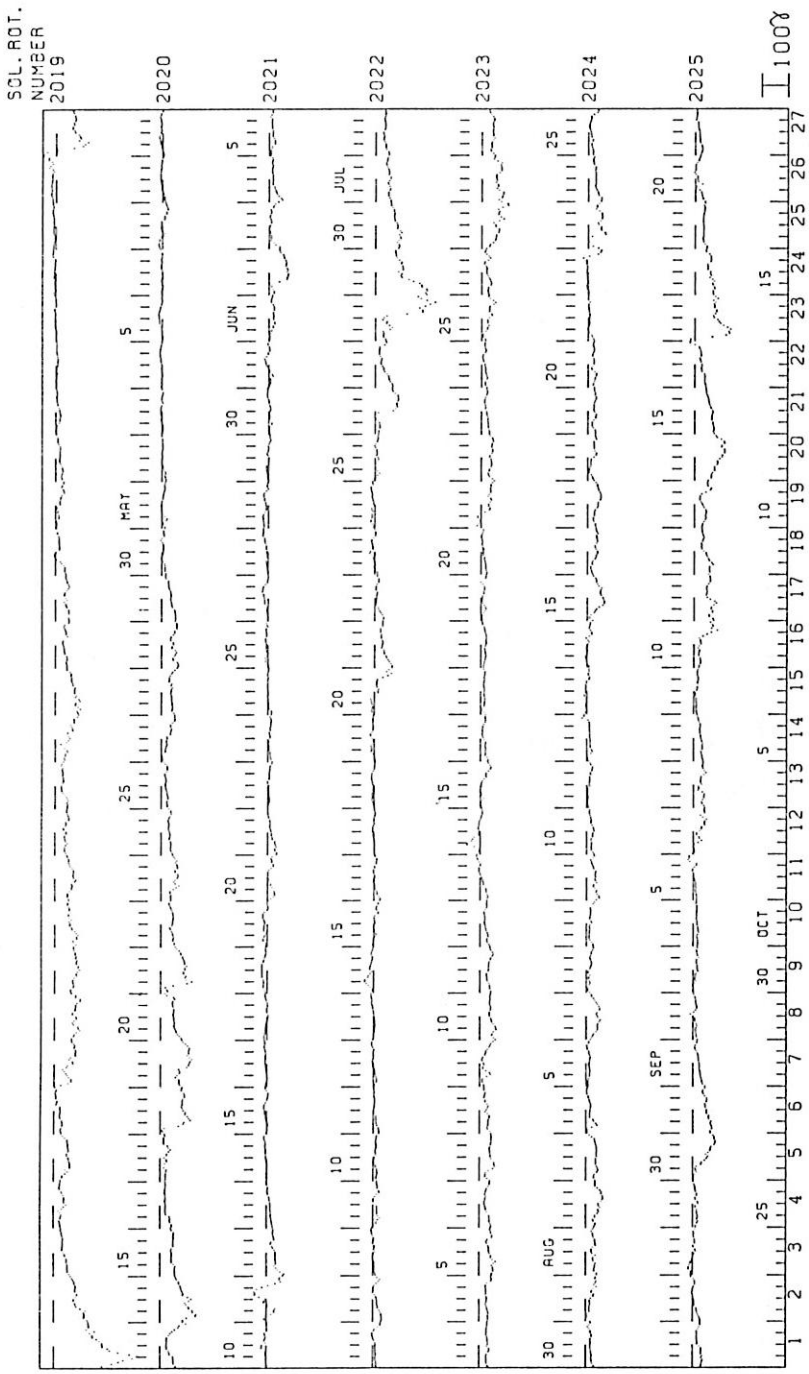
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
1932	11	12	18	17	15	7	7	12	12	10	8	9	11.5
1933	10	11	12	12	12	8	7	9	12	10	9	7	10.1
1934	6	8	11	6	7	5	6	9	10	6	5	8	7.2
1935	9	10	10	8	6	9	7	5	13	12	8	9	8.9
1936	9	11	9	15	10	12	11	5	5	9	10	5	9.1
1937	7	13	12	20	13	12	12	10	9	20	12	10	12.5
1938	28	16	13	18	18	9	13	12	17	16	10	11	15.3
1939	7	15	19	28	21	15	19	19	13	22	9	11	16.5
1940	15	12	36	18	13	16	12	11	14	14	16	15	16.1
1941	14	18	33	15	11	11	19	16	27	11	16	11	16.8
1942	9	12	22	17	8	8	13	13	17	22	15	11	13.8
1943	11	9	13	14	14	12	15	31	25	24	20	14	17.0
1944	13	12	17	15	9	8	6	9	10	11	6	14	10.8
1945	10	10	17	13	9	7	9	7	10	11	8	13	10.4
1946	12	22	33	20	18	16	22	11	34	13	12	9	18.6
1947	12	12	32	18	14	16	16	25	32	23	14	11	18.8
1948	12	13	17	13	19	10	10	20	15	27	16	13	15.4
1949	20	14	19	14	18	14	8	14	13	25	15	9	15.4
1950	12	18	14	18	16	14	14	25	22	28	20	16	18.1
1951	16	22	21	27	20	17	20	22	40	24	18	20	22.3
1952	19	26	33	34	27	18	15	13	23	20	12	15	21.2
1953	15	15	21	16	16	13	16	19	21	16	14	7	15.7
1954	9	16	16	14	7	6	8	10	17	15	9	6	11.0
1955	12	12	14	14	11	9	8	9	13	11	13	8	11.3
1956	18	15	20	27	26	17	13	15	18	14	24	10	18.0
1957	17	17	26	21	11	22	16	14	49	14	18	18	20.1
1958	15	27	26	20	17	24	25	18	20	16	8	15	19.2
1959	14	24	24	17	19	15	32	23	28	19	22	19	21.3
1960	15	14	18	42	24	20	20	20	20	36	32	21	23.6
1961	12	16	14	14	13	14	28	11	13	16	10	12	14.4
1962	7	11	8	14	7	9	12	15	19	20	13	13	12.3
1963	11	9	8	10	11	11	12	13	28	15	12	11	12.6
1964	12	12	13	13	10	9	9	8	11	10	7	5	9.9
1965	6	9	8	8	6	10	8	9	10	7	6	7	7.7
1966	7	8	13	7	9	6	9	11	21	11	9	11	10.2
1967	11	11	7	9	25	12	8	9	16	10	10	14	12.0
1968	11	16	13	13	13	17	10	12	14	16	17	10	13.5
1969	8	15	17	14	17	9	8	8	15	9	10	7	11.3
1970	7	7	18	15	9	10	19	13	11	12	12	9	11.9
1971	12	12	11	15	13	9	8	9	13	12	11	10	11.3
1972	13	10	12	11	10	14	8	24	13	12	14	10	12.6
1973	16	20	25	30	17	17	12	12	14	18	12	11	17.0
1974	15	16	23	21	18	17	24	19	23	26	18	15	19.6
1975	16	18	20	16	13	11	12	10	10	12	18	12	13.9
1976	13	17	23	17	14	10	9	9	13	12	9	10	12.9
1977	10	11	11	16	11	8	14	13	16	13	10	10	11.9
1978	15	16	17	24	25	20	13	17	18	12	15	13	17.0
1979	16	15	19	25	14	12	12	18	14	12	10	9	14.5
1980	10	11	8	11	10	13	11	10	8	14	13	13	11.1
1981	9	14	18	28	20	12	19	15	12	23	15	10	16.3

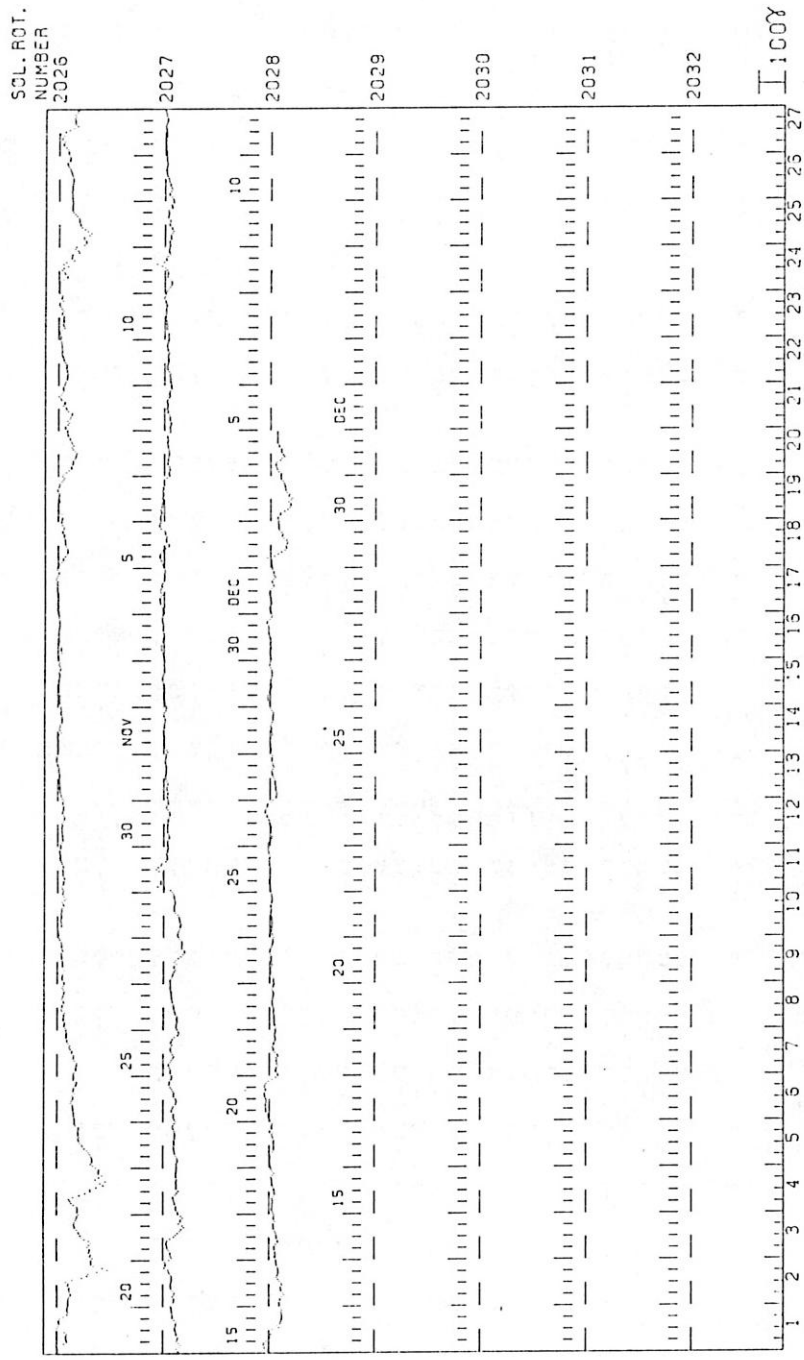
SECTION 3

3.4. Dst INDICES

- Hourly values of **Dst** (graph) 79
- Monthly tables of **Dst** hourly values 82
- Tables of daily means of **Dst** 94
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  1957-1981 95


SOL. ROT. NUMBER
2012
2013
2014
2015
2016
2017
2018
NOV
JAN 1981
FEB
MAR
APR
100γ


SOL. ROT.
NUMBER
2019
2020
2021
2022
2023
2024
2025
100γ
MAY
JUN
JUL
AUG
SEP
OCT


SOL.ROT.
NUMBER
2026
2027
2028
2029
2030
2031
2032
NOV
DEC
DEC
100γ

HOURLY EQUATORIAL DST VALUES

JANUARY 1981

UNIT=GAMMAS G.M.T.

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	-38	-36	-34	-36	-31	-23	-23	-32	-34	-35	-39	-51	-38	-32	-27	-24	-24	-29	-33	-31	-33	-35	-30	-28
2	-27	-25	-21	-17	-13	-10	-15	-17	-17	-20	-24	-22	-19	-18	-16	-18	-21	-23	-26	-31	-30	-28	-24	-23
3	-30	-26	-24	-20	-21	-23	-25	-32	-26	-21	-23	-26	-23	-20	-16	-15	-15	-15	-13	-16	-23	-14	-8	-11
4	-23	-32	-40	-37	-34	-39	-39	-28	-27	-29	-27	-26	-20	-17	-20	-21	-16	-10	-11	-10	-17	-5	-2	-5
5	-7	-4	-4	-8	-9	-8	-8	-6	-8	-6	-8	-8	-10	-8	-7	-8	-9	-10	-8	-9	-9	-14	-17	-13
6	-14	-16	-14	-2	-5	-4	-6	-4	-4	-6	-9	-11	-13	-10	-12	-8	-10	-15	-16	-14	-13	-12	-12	-10
7	-10	-10	-9	-8	-6	-7	-9	-10	-6	-6	-8	-8	-9	-11	-11	-10	-9	-8	-5	-5	-5	-6	-4	-6
8	-3	-8	-7	-5	-1	1	1	-1	-4	-2	-5	-2	-5	-13	-10	-4	-6	-10	-15	-9	-6	-6	-11	-13
9	-9	-5	-8	-13	-10	-5	-5	-4	-4	-5	-5	-5	-3	-3	-11	-11	-11	-11	-9	-10	-11	-9	-6	-4
10	-1	1	4	5	4	4	8	15	17	19	18	11	12	20	26	21	21	27	24	4	-4	-3	-2	-8
11	-5	-10	-16	-13	-17	-8	-6	-16	-14	-21	-28	-23	-21	-23	-26	-28	-32	-28	-27	-25	-22	-26	-32	-32
12	-28	-28	-26	-24	-24	-23	-23	-21	-19	-19	-18	-20	-21	-22	-22	-18	-16	-16	-15	-12	-13	-12	-13	-12
13	-10	-10	-12	-12	-14	-15	-15	-13	-9	-7	-8	-8	-7	-13	-18	-17	-18	-19	-19	-19	-19	-16	-15	-16
14	-15	-14	-14	-14	-13	-13	-14	-15	-14	-17	-15	-17	-20	-20	-18	-12	-11	-12	-10	-12	-13	-9	-4	-1
15	-3	-11	-9	-5	-3	-1	0	0	-4	-6	-5	-2	-3	-4	-2	-2	-2	-7	-10	-10	-7	0	0	-5
16	-3	1	-3	-3	-5	-10	-12	-14	-11	-6	-4	-11	-8	-3	-6	-8	-9	-8	-7	-6	-3	-1	1	3
17	4	2	2	1	4	5	10	10	11	14	15	14	5	1	-5	-6	-6	-5	-11	-12	-9	-6	-5	-2
18	1	0	5	-1	-3	-4	-1	-2	-1	-1	-3	-3	-4	-5	-4	-2	-2	2	2	2	5	5	3	5
19	0	6	7	7	9	9	6	9	10	12	15	15	14	12	10	6	2	2	6	8	8	9	8	5
20	4	2	5	6	9	9	9	8	11	12	12	10	10	9	10	11	11	8	4	2	0	-1	3	7
21	8	4	0	-1	2	7	8	6	0	-1	2	4	10	13	14	16	18	19	21	19	17	16	18	20
22	20	22	23	22	22	19	20	19	23	24	24	15	11	9	7	-4	0	1	0	2	2	4	-3	-1
23	-3	-1	1	-1	-2	-3	-5	-5	-2	-2	-4	-4	3	-7	-10	-8	-4	-3	-2	-2	-2	0	2	1
24	2	1	-1	-3	-4	-4	-2	-7	-8	-9	-17	-15	-12	-10	-13	-12	-12	-14	-9	-4	-7	-11	-8	-7
25	-9	-12	-8	-7	-9	-11	-11	-9	-8	-7	-8	-5	-3	-3	-4	0	1	3	3	-4	-8	-6	-2	2
26	4	4	3	2	3	4	3	-3	-9	-12	-19	-15	-10	-13	-15	-10	-5	2	11	5	-8	-7	-6	-6
27	-14	-20	-23	-17	-11	-10	-9	-8	-7	-7	-9	-13	-9	-14	-16	-14	-14	-12	-8	-5	-6	-8	-12	-17
28	-18	-13	-10	-17	-25	-27	-29	-25	-22	-21	-19	-13	-15	-16	-13	-15	-16	-17	-12	-9	-10	-9	-9	-9
29	-14	-21	-23	-21	-21	-17	-8	-2	-15	-16	-18	-18	-12	-13	-16	-19	-23	-20	-20	-16	-11	-13	-10	-9
30	-11	-15	-17	-17	-14	-12	-12	-13	-16	-17	-18	-16	-15	-13	-10	-5	-5	-5	-3	-4	-3	0	1	1
31	2	0	1	-14	-32	-41	-46	-38	-34	-33	-35	-43	-38	-29	-28	-32	-32	-30	-26	-23	-25	-23	-20	-21

HOURLY EQUATORIAL DST VALUES

FEBRUARY 1981

UNIT=GAMMAS

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	G.M.T. 24
1	-20	-21	-22	-23	-28	-34	-31	-23	-27	-36	-34	-24	-23	-14	-4	0	0	0	2	6	3	-9	-13	-15
2	-13	-24	-28	-26	-24	-22	-24	-26	-27	-24	-23	-17	-17	-10	-14	-15	-24	-26	-30	-25	-24	-20	-19	-13
3	-18	-19	-21	-20	-20	-21	-23	-28	-34	-36	-39	-30	-26	-20	-18	-17	-18	-19	-12	-13	-11	-7	-7	-5
4	-10	-11	-10	-10	-13	-18	-22	-20	-17	-16	-13	-9	-5	-4	-5	-7	-9	-12	-11	-9	-16	-20	-15	-9
5	-6	-4	-4	-8	-16	-21	-24	-27	-33	-42	-51	-50	-30	-35	-27	-39	-63	-74	-66	-56	-53	-49	-42	-41
6	-43	-39	-40	-41	-41	-38	-39	-40	-39	-26	-29	-33	-15	-13	-48	-62	-57	-68	-87	-102	-103	-117	-123	-110
7	-131	-131	-110	-110	-103	-95	-89	-88	-88	-85	-83	-77	-69	-59	-53	-51	-53	-53	-51	-48	-46	-44	-40	-36
8	-34	-34	-35	-35	-35	-35	-35	-36	-38	-42	-40	-34	-30	-22	-8	-5	-4	-18	-18	-17	-19	-21	-33	-41
9	-56	-59	-56	-59	-69	-76	-81	-77	-73	-69	-67	-60	-56	-57	-49	-45	-42	-42	-42	-36	-31	-30	-28	-26
10	-24	-22	-21	-23	-22	-21	-22	-25	-26	-27	-28	-28	-28	-27	-26	-28	-28	-30	-28	-23	-19	-16	-15	-16
11	-16	-13	-12	-12	-12	-11	-10	-10	-8	-7	-8	-6	-8	-13	-11	-9	-11	-15	-19	-34	-32	-24	-16	-22
12	-32	-25	-22	-23	-28	-26	-20	-17	-18	-20	-17	-16	-11	-8	-8	-8	-10	-13	-15	-15	-16	-16	-16	-15
13	-18	-19	-19	-20	-21	-18	-17	-13	-12	-10	-10	-6	-9	-8	-10	-16	-16	-15	-14	-13	-15	-11	-7	-5
14	-6	-8	-7	-8	-10	-8	-10	-9	-7	-8	-7	-3	-2	1	3	1	4	5	4	3	2	3	2	5
15	4	2	1	1	2	4	5	4	3	6	7	10	16	19	16	12	-2	-11	-23	-24	-21	-20	-25	-25
16	-29	-29	-29	-27	-27	-24	-19	-14	-10	-7	-9	-6	-3	-6	-8	-8	-13	-15	-15	-14	-13	-11	-5	-2
17	1	0	-2	2	3	-1	-4	-7	-6	0	2	1	2	2	0	3	4	0	0	-2	-4	-4	-5	-6
18	-6	-1	0	0	-1	1	4	5	2	3	5	7	8	3	3	3	4	5	8	4	3	4	7	3
19	-8	-9	-6	-4	-5	-8	-8	-3	2	4	5	6	7	4	3	4	2	-2	-2	0	1	5	8	13
20	13	10	8	7	5	7	8	8	7	7	3	-3	-3	-12	-15	-22	-26	-28	-28	-26	-26	-25	-24	-20
21	-17	-18	-18	-19	-17	-19	-16	-10	-6	-8	-11	-10	-9	-8	-3	-1	-2	-3	-2	-1	0	2	2	0
22	-1	0	-1	-1	0	2	7	11	12	15	14	15	18	18	18	16	14	17	13	15	21	10	-1	-21
23	-37	-28	-21	-21	-20	-20	-15	-8	-6	-7	-6	-2	3	6	5	4	-3	-9	-2	0	4	13	19	17
24	18	20	16	15	9	12	9	5	10	12	13	12	11	6	1	-10	-21	-33	-39	-42	-46	-44	-54	-57
25	-55	-53	-57	-57	-55	-50	-50	-48	-45	-45	-54	-45	-43	-43	-48	-52	-57	-52	-47	-43	-47	-41	-43	-51
26	-57	-49	-50	-53	-52	-50	-53	-50	-41	-32	-32	-27	-34	-37	-36	-31	-29	-35	-55	-72	-69	-65	-60	-62
27	-67	-64	-62	-65	-63	-59	-57	-57	-54	-60	-58	-52	-48	-43	-41	-40	-42	-43	-39	-40	-45	-40	-40	-41
28	-42	-46	-51	-50	-49	-45	-41	-37	-33	-34	-36	-34	-32	-29	-26	-28	-29	-29	-33	-32	-36	-36	-35	-33

HOURLY EQUATORIAL DST VALUES

MARCH 1981

UNIT=GAMMAS

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	G.M.T. 24
1	-31	-32	-39	-42	-38	-31	-28	-19	-7	-19	-27	-34	-45	-58	-58	-52	-56	-51	-49	-48	-40	-38	-47	-47
2	-48	-45	-52	-54	-50	-44	-42	-41	-57	-61	-70	-65	-65	-55	-58	-59	-55	-57	-58	-59	-55	-51	-46	-45
3	-45	-49	-50	-48	-48	-44	-38	-33	-31	-30	-31	-27	-30	-30	-31	-30	-28	-28	-31	-36	-40	-35	-26	-34
4	-42	-50	-59	-61	-63	-59	-60	-61	-55	-45	-32	-35	-37	-36	-35	-33	-30	-30	-31	-31	-30	-25	-23	-16
5	-11	-14	-18	-22	-29	-19	-10	-22	-27	-57	-94	-132	-157	-144	-167	-191	-197	-215	-200	-199	-198	-173	-160	-146
6	-136	-132	-129	-122	-115	-113	-104	-102	-105	-105	-106	-108	-99	-91	-79	-81	-78	-73	-70	-68	-70	-68	-65	-64
7	-72	-71	-58	-57	-50	-45	-42	-40	-44	-43	-43	-53	-59	-65	-66	-71	-83	-90	-81	-78	-71	-71	-68	-65
8	-57	-55	-53	-49	-51	-48	-46	-50	-54	-51	-56	-56	-54	-56	-51	-46	-46	-45	-39	-36	-37	-39	-40	-43
9	-46	-47	-43	-36	-35	-33	-28	-26	-24	-24	-24	-23	-20	-17	-17	-18	-16	-15	-15	-15	-14	-13	-11	-13
10	-4	-4	-2	-3	-9	-13	-13	-13	-11	-12	-14	-22	-25	-19	-19	-23	-22	-20	-17	-16	-19	-21	-23	-23
11	-21	-25	-26	-26	-23	-18	-14	-13	-13	-9	-14	-13	-14	-14	-15	-14	-14	-17	-16	-12	-11	-10	-11	-11
12	-13	-16	-17	-14	-14	-9	-7	-8	-17	-15	-20	-15	-11	-10	-14	-19	-16	-13	-2	5	3	4	-7	-11
13	-13	-11	-9	-7	-7	-2	6	11	12	12	15	7	12	-7	-15	-32	-38	-39	-30	-10	-12	-15	-39	-46
14	-42	-35	-31	-24	-15	-18	-12	-3	-16	-41	-65	-53	-63	-74	-76	-90	-83	-80	-76	-68	-52	-58	-66	-69
15	-61	-57	-56	-54	-62	-59	-53	-48	-49	-48	-46	-42	-40	-38	-43	-39	-38	-44	-46	-46	-45	-47	-46	-45
16	-40	-51	-49	-43	-41	-40	-36	-30	-26	-26	-28	-26	-28	-31	-28	-28	-27	-22	-18	-27	-27	-24	-24	-35
17	-43	-44	-39	-32	-33	-29	-25	-23	-22	-21	-19	-16	-16	-19	-26	-31	-29	-29	-25	-21	-26	-29	-26	-22
18	-21	-23	-29	-30	-26	-27	-33	-28	-25	-23	-23	-31	-35	-37	-39	-43	-51	-47	-40	-41	-40	-41	-39	-36
19	-34	-31	-30	-29	-26	-26	-25	-24	-22	-19	-15	-14	-14	-14	-18	-19	-26	-27	-35	-36	-32	-33	-32	-31
20	-29	-26	-24	-23	-24	-20	-20	-21	-21	-21	-18	-18	-21	-25	-29	-29	-27	-26	-24	-21	-20	-17	-17	-16
21	-16	-15	-13	-15	-16	-13	-12	-13	-14	-13	-11	-12	-13	-15	-14	-13	-9	-6	-3	-17	-26	-21	-16	-15
22	-14	-13	-12	-12	-16	-16	-13	-13	-15	-13	-10	-9	-10	-12	-14	-13	-11	-9	-7	-8	-8	-7	-4	-2
23	-2	-1	-2	-2	-3	-1	-1	-3	-5	-6	-8	-6	-6	-8	-9	-8	-9	-6	-4	-2	1	1	1	2
24	3	0	0	0	1	4	5	6	9	8	8	4	5	6	10	11	10	8	9	3	9	8	10	12
25	14	25	26	25	15	2	-16	-26	-13	-15	-19	-15	-21	-35	-54	-50	-46	-37	-23	-38	-46	-49	-70	-67
26	-62	-65	-59	-64	-67	-65	-65	-59	-53	-52	-51	-47	-50	-57	-63	-62	-59	-64	-60	-55	-51	-52	-51	-45
27	-43	-42	-39	-43	-41	-40	-42	-40	-36	-43	-47	-45	-40	-38	-40	-38	-42	-40	-38	-39	-45	-44	-39	-32
28	-34	-30	-25	-24	-22	-28	-28	-26	-22	-26	-31	-28	-27	-24	-30	-32	-30	-31	-29	-28	-30	-29	-28	-24
29	-21	-18	-25	-26	-23	-26	-32	-34	-32	-28	-31	-39	-39	-43	-47	-51	-48	-48	-52	-52	-49	-41	-39	-36
30	-30	-27	-28	-30	-27	-25	-31	-32	-29	-26	-28	-31	-38	-42	-39	-33	-34	-37	-28	-37	-35	-46	-56	-62
31	-47	-47	-64	-57	-58	-57	-53	-49	-52	-46	-39	-34	-34	-34	-32	-32	-33	-32	-39	-46	-54	-55	-58	-65

HOURLY EQUATORIAL DST VALUES

APRIL 1981

UNIT=GAMMAS

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	G.m.T. 24
1	-67	-53	-55	-57	-50	-49	-45	-45	-40	-50	-55	-52	-48	-47	-51	-48	-50	-51	-46	-44	-47	-48	-45	-42
2	-35	-29	-28	-28	-28	-27	-26	-29	-34	-34	-33	-31	-33	-38	-38	-32	-31	-34	-39	-32	-27	-21	-22	-24
3	-16	-15	-16	-20	-11	-7	-5	-6	-4	-3	-1	-2	-5	-8	-19	-20	-10	-10	-17	-23	-14	-18	-20	-19
4	-12	-11	-9	-11	-10	-10	-12	-14	-8	-12	-14	-13	-15	-15	-15	-14	-13	-13	-15	-25	-23	-34	-29	-21
5	-17	-13	-7	-3	-3	-2	-5	-10	-12	-12	-12	-14	-14	-10	-8	-6	-6	-5	-5	-7	-11	-13	-14	-14
6	-10	-8	-7	-6	2	-1	-12	-9	-6	-11	-11	-9	-11	-11	-7	-3	-2	-4	-4	-2	-4	-8	-9	-6
7	-3	-2	-2	-1	-4	-5	-3	-3	0	-1	-2	-5	-9	-6	0	2	2	6	9	11	24	20	20	17
8	18	12	11	12	9	5	1	-5	-6	-3	-9	-10	-7	-5	-3	-1	1	-4	-17	-17	-10	-14	-14	-13
9	-16	-22	-20	-28	-32	-27	-25	-23	-21	-19	-17	-12	-8	-8	-4	-3	-5	-4	-2	2	5	6	1	-5
10	-5	-6	-6	-6	-4	-1	3	2	-1	-5	-9	-12	-7	-4	-5	-6	-8	-4	-4	-1	-3	-2	4	5
11	6	7	8	7	10	12	10	10	9	-4	-4	-6	-14	-8	-12	-31	-25	-25	-17	-12	-14	-1	11	-4
12	-36	-78	-107	-127	-160	-163	-153	-139	-131	-131	-120	-104	-114	-124	-106	-125	-105	-103	-91	-101	-94	-100	-45	-31
13	-106	-180	-217	-242	-261	-295	-311	-284	-241	-209	-201	-182	-181	-180	-171	-160	-145	-144	-136	-153	-123	-132	-131	-131
14	-129	-126	-113	-115	-115	-113	-119	-100	-85	-81	-79	-74	-75	-83	-67	-88	-81	-80	-83	-82	-78	-77	-73	-69
15	-64	-58	-53	-52	-52	-52	-52	-48	-50	-48	-43	-41	-37	-31	-33	-33	-34	-34	-35	-36	-33	-31	-30	-27
16	-28	-25	-25	-23	-21	-26	-27	-29	-24	-19	-30	-38	-48	-40	-38	-40	-40	-36	-32	-29	-23	-21	-23	-24
17	-26	-26	-31	-33	-43	-52	-43	-61	-61	-61	-59	-56	-55	-49	-49	-55	-56	-54	-53	-54	-51	-51	-42	-34
18	-28	-27	-24	-27	-30	-32	-31	-29	-24	-21	-22	-24	-24	-23	-23	-8	-11	-13	-8	-8	-7	-4	-8	-10
19	-5	-26	-53	-64	-63	-55	-49	-44	-38	-32	-46	-51	-71	-69	-56	-62	-80	-79	-81	-80	-74	-77	-73	-67
20	-64	-65	-72	-75	-83	-96	-90	-87	-72	-67	-74	-83	-81	-68	-68	-77	-78	-80	-80	-85	-96	-97	-80	-60
21	-64	-60	-61	-70	-73	-70	-68	-69	-74	-83	-81	-86	-94	-88	-89	-81	-82	-85	-79	-81	-77	-77	-73	-71
22	-71	-80	-72	-69	-83	-82	-88	-81	-75	-66	-63	-57	-58	-54	-62	-56	-51	-52	-59	-55	-56	-53	-48	-49
23	-53	-52	-47	-48	-48	-56	-63	-64	-67	-63	-75	-80	-72	-69	-70	-71	-71	-65	-58	-56	-53	-53	-53	-46
24	-45	-41	-37	-36	-37	-41	-47	-40	-38	-36	-37	-43	-42	-34	-31	-40	-43	-41	-52	-54	-51	-48	-44	-44
25	-46	-47	-48	-45	-50	-47	-43	-37	-30	-26	-24	-24	-24	-29	-32	-32	-31	-29	-30	-29	-27	-29	-23	-26
26	-31	-37	-34	-38	-40	-43	-45	-36	-4	-22	-43	-51	-57	-52	-45	-49	-67	-66	-63	-59	-72	-72	-72	-85
27	-90	-86	-82	-95	-86	-76	-78	-94	-89	-76	-81	-73	-73	-73	-76	-68	-66	-63	-61	-63	-59	-60	-55	-45
28	-44	-45	-42	-41	-44	-46	-43	-37	-35	-34	-34	-31	-28	-27	-29	-35	-46	-42	-41	-39	-36	-31	-35	-50
29	-53	-51	-49	-54	-51	-51	-51	-44	-41	-40	-33	-44	-40	-34	-35	-37	-43	-49	-54	-50	-46	-44	-41	-39
30	-41	-39	-35	-36	-36	-32	-24	-19	-7	1	5	3	-4	-15	-15	-16	-15	-14	-14	-15	-13	-9	-8	-13

HOURLY EQUATORIAL DST VALUES

MAY 1981

UNIT=GAMMAS

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
																							G.M.T.	
1	-5	-5	-7	-6	-7	-12	-14	-12	-9	-11	-6	-8	-17	-17	-17	-19	-21	-25	-34	-32	-29	-23	-26	-31
2	-31	-25	-23	-22	-25	-29	-26	-26	-23	-19	-15	-15	-15	-17	-17	-17	-17	-19	-17	-12	-9	-9	-9	-9
3	-6	-4	-3	-4	-6	-7	-13	-16	-16	-18	-20	-17	-15	-15	-12	-9	-8	-6	-5	-4	-5	-7	-6	-5
4	-3	-4	-5	-4	-3	-4	-5	-7	-8	-5	-4	-8	-9	-7	-8	-9	-8	-7	-4	-4	-4	-4	-5	-5
5	-5	-4	-2	-3	-4	-4	-3	2	4	2	4	3	2	2	0	2	4	4	-1	-3	-1	-1	-1	1
6	5	8	7	4	4	3	6	5	3	7	8	6	5	5	3	3	2	3	0	2	9	12	10	9
7	10	8	9	6	7	3	4	7	8	8	9	8	7	7	7	6	7	9	10	11	11	8	8	11
8	11	11	12	15	18	17	14	14	17	18	15	14	13	13	14	12	7	12	25	20	11	15	27	26
9	47	45	33	-6	-66	-101	-108	-119	-86	-93	-89	-85	-72	-69	-62	-62	-68	-66	-72	-74	-72	-71	-66	-63
10	-59	-58	-52	-49	-50	-49	-48	-36	-34	-31	-25	-24	-23	-26	-26	-24	-26	-33	-39	-46	-56	-69	-74	-99
11	-86	-86	-101	-134	-137	-124	-122	-110	-107	-99	-94	-110	-119	-105	-85	-87	-83	-80	-78	-76	-71	-70	-63	-60
12	-57	-55	-55	-55	-55	-58	-50	-43	-42	-42	-43	-44	-43	-40	-43	-49	-49	-49	-49	-51	-49	-51	-51	-43
13	-39	-44	-43	-38	-35	-38	-34	-22	-19	-20	-19	-21	-21	-19	-18	-20	-20	-19	-17	-18	-18	-20	-21	-20
14	-18	-20	-20	-20	-21	-23	-23	-14	-7	-18	-25	-23	-15	-24	-25	-32	-39	-31	-27	-14	-12	-14	-15	-16
15	-16	-11	-8	-15	-69	-86	-90	-114	-108	-103	-94	-95	-87	-82	-79	-83	-82	-82	-85	-91	-92	-88	-79	-60
16	-82	-74	-70	-71	-69	-57	-63	-72	-74	-69	-101	-107	-110	-113	-119	-110	-102	-108	-106	-109	-110	-103	-95	-86
17	-81	-78	-72	-65	-60	-58	-54	-50	-51	-54	-50	-51	-49	-46	-49	-50	-50	-47	-45	-44	-46	-54	-49	-23
18	-16	-27	-24	-18	-47	-101	-118	-97	-92	-96	-87	-86	-92	-92	-99	-91	-90	-88	-84	-82	-77	-75	-70	-60
19	-55	-51	-51	-45	-46	-49	-45	-44	-41	-36	-33	-42	-44	-44	-46	-47	-47	-46	-44	-42	-38	-35	-31	-30
20	-36	-38	-36	-38	-34	-35	-47	-58	-69	-54	-48	-54	-62	-66	-64	-54	-54	-63	-63	-60	-55	-60	-54	-49
21	-44	-42	-38	-35	-36	-37	-38	-36	-30	-32	-35	-34	-31	-28	-27	-29	-30	-27	-27	-30	-33	-39	-37	-37
22	-29	-23	-23	-21	-22	-26	-26	-23	-22	-21	-19	-17	-15	-15	-19	-19	-17	-14	-14	-20	-24	-24	-22	-16
23	-11	-7	-4	-5	-9	-15	-15	-17	-19	-23	-19	-20	-23	-22	-34	-35	-38	-40	-35	-35	-43	-51	-53	-51
24	-51	-47	-39	-42	-43	-41	-41	-40	-39	-39	-38	-35	-37	-38	-42	-36	-40	-29	-31	-29	-33	-39	-43	-51
25	-59	-64	-64	-60	-45	-43	-49	-53	-58	-52	-39	-40	-46	-44	-35	-33	-37	-45	-50	-50	-59	-57	-59	-57
26	-51	-54	-53	-54	-52	-51	-49	-41	-39	-39	-37	-35	-34	-37	-36	-35	-32	-29	-26	-27	-26	-26	-17	-14
27	-16	-16	-12	-12	-13	-12	-10	-6	0	0	-3	-5	-6	-6	-7	-7	-6	-2	4	-1	-10	-9	-7	-6
28	-12	-11	-6	-5	-17	-21	-11	-3	0	1	2	0	1	1	-1	-5	-5	-6	-7	-10	-12	-12	-10	-12
29	-15	-17	-13	-11	-15	-13	-9	-6	-4	0	1	-1	-2	-3	0	-1	-2	-3	-3	-3	-2	-3	-2	1
30	1	-1	-4	-4	-6	-4	0	3	3	1	5	6	5	5	4	1	-4	-2	2	1	-1	-3	-5	-1
31	2	4	8	6	1	3	-1	-1	2	1	3	0	1	3	5	4	7	6	9	7	6	5	3	1

HOURLY EQUATORIAL DST VALUES

JUNE 1981

UNIT=GAMMAS G.M.T.

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1	-2	-2	0	-1	1	0	2	5	9	11	10	12	12	14	12	9	7	6	3	1	-1	2	1
2	1	4	4	2	-2	-3	0	4	5	-2	-1	-1	0	0	4	3	3	1	2	3	1	0	1	5
3	8	11	14	13	10	10	4	-4	-9	0	5	7	4	2	3	-7	-10	-9	-16	-16	-21	-21	-17	-14
4	-12	-10	-8	-9	-7	-4	0	3	2	4	6	7	7	6	7	7	5	5	4	4	3	2	2	-1
5	-6	-8	-5	0	2	3	7	8	9	11	12	10	7	3	4	5	3	3	5	6	10	6	4	-1
6	-3	-3	1	1	1	1	1	3	3	8	19	18	16	3	8	5	2	5	7	-1	-3	-2	-2	-2
7	-2	7	9	3	-18	-28	-29	-33	-6	-2	10	9	3	28	45	43	47	36	16	-6	-34	-54	-49	-50
8	-62	-67	-52	-43	-37	-29	-35	-36	-34	-33	-34	-34	-34	-30	-24	-21	-15	-18	-29	-28	-26	-24	-23	-27
9	-23	-23	-20	-19	-18	-17	-14	-16	-15	-14	-14	-14	-14	-14	-11	-10	-9	-5	-3	-3	-4	-5	-1	0
10	0	-1	-1	-1	-1	-2	-1	-1	-3	-1	0	3	4	4	4	4	4	5	5	4	6	9	11	9
11	2	0	-4	-9	-6	-4	-1	2	5	6	8	8	8	11	11	8	4	0	-2	-4	-5	-5	1	6
12	7	5	3	0	-2	-1	0	1	2	3	6	6	7	6	5	5	5	3	5	7	10	10	7	8
13	10	11	11	8	7	6	7	6	4	3	-2	-4	-5	-4	0	1	1	-2	-2	-2	2	4	7	7
14	7	9	12	15	14	13	13	15	19	19	20	19	20	20	20	19	15	13	10	8	6	3	6	7
15	5	4	7	16	17	12	9	5	12	15	12	12	9	10	13	17	17	16	11	1	-3	-3	0	2
16	-4	-13	-23	-28	-27	-25	-22	-17	-11	-12	-8	-5	0	-2	-2	-1	-5	-14	-22	-22	-15	-17	-13	-18
17	-34	-35	-28	-27	-33	-30	-27	-27	-18	-17	-14	-15	-13	-11	-9	-8	-10	-10	-9	-5	-3	-1	-2	0
18	-1	-1	-4	-7	-8	-8	-7	-6	-5	-4	-4	-5	-4	0	1	-5	-6	-6	-5	-7	-9	-8	-10	-15
19	-17	-12	-10	-10	-9	-10	-7	-4	-5	-7	-4	-4	-9	-10	-7	-5	-11	-8	-11	-13	-12	-14	-12	-8
20	-12	-15	-13	-7	-3	-1	-3	-1	-1	1	-2	0	-1	0	1	1	0	0	0	-2	1	1	-1	-3
21	-5	-1	2	10	8	11	4	1	6	6	8	8	6	8	10	10	6	5	6	8	7	1	4	7
22	3	2	0	3	5	6	5	6	9	12	13	13	14	16	17	23	20	20	17	10	3	2	0	-1
23	1	2	3	4	5	6	7	9	8	6	4	6	5	7	7	7	10	13	12	14	20	20	18	19
24	18	15	17	17	19	19	21	18	13	9	9	9	8	10	14	14	17	18	14	8	0	4	5	2
25	-2	2	4	3	6	7	8	9	8	0	-2	-1	-2	2	6	2	1	-1	2	-2	-5	-10	-6	-5
26	-7	-4	-3	-2	-6	-12	-13	-9	-4	-5	-4	-1	-6	-9	-6	-4	-1	-2	0	3	5	5	3	3
27	4	-2	-6	-9	-7	-8	-17	-13	-5	-3	1	7	10	10	13	16	8	2	2	-4	-4	-2	3	3
28	-2	-4	-5	-5	-7	-10	-11	-17	-16	-23	-22	-19	-17	-19	-17	-17	-21	-21	-20	-16	-9	-9	-11	-13
29	-14	-20	-19	-15	-10	-10	-3	-40	-68	-68	-72	-74	-68	-72	-68	-63	-65	-66	-63	-59	-57	-54	-45	-41
30	-41	-41	-26	-19	-7	-10	-10	-9	-6	-5	0	-3	-6	-10	-10	-7	-3	-4	-9	-11	-7	-16	-19	-25

HOURLY EQUATORIAL DST VALUES

JULY 1981

UNIT=GAMMAS G.M.T.

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	-30	-51	-46	-37	-31	-28	-26	-22	-21	-15	-14	-15	-16	-14	-16	-13	-12	-12	-14	-15	-12	-13	-16	-13
2	-6	-6	-8	-8	-11	-12	-23	-23	-23	-19	-14	-14	-15	-16	-12	-13	-11	-11	-12	-12	-4	-10	-15	-14
3	-14	-13	-12	-13	-11	-10	-11	-12	-10	-10	-10	-10	-11	-9	-5	-2	0	2	2	-4	-7	-19	-28	-28
4	-31	-33	-33	-31	-32	-28	-24	-18	-18	-15	-15	-15	-14	-12	-7	0	-2	-2	-2	-6	-14	-22	-27	-16
5	-11	-9	-7	-4	-7	-8	-6	-5	0	0	1	-3	-9	-3	-6	-5	0	-1	-3	-3	1	3	5	7
6	5	-2	-11	-13	-18	-26	-19	-14	-15	-14	-15	-14	-10	-2	0	-2	-7	-14	-23	-22	-16	-17	-15	-14
7	-14	-11	-11	-14	-16	-14	-14	-10	-9	-4	-2	-4	-5	-11	-9	-7	-9	-12	-12	-10	-9	-11	-12	-14
8	-21	-22	-20	-19	-14	-11	-11	-11	-10	-11	-8	-1	-1	-3	-4	-4	-6	-5	-5	-3	-2	-4	-3	-2
9	-3	-6	-10	-13	-12	-10	-8	-7	-6	-5	2	1	3	4	1	0	0	1	0	-3	2	6	7	0
10	3	1	1	-1	-4	-3	-5	-7	-8	-6	-4	-3	-3	-1	0	1	3	3	6	8	5	6	9	10
11	10	5	5	12	20	28	34	33	23	20	13	8	14	15	13	10	8	6	4	6	10	9	5	3
12	1	5	2	3	1	-5	-10	-8	-1	0	0	1	-5	-3	-1	0	-3	-15	-17	-10	-8	-11	-16	-16
13	-22	-24	-18	-11	-12	-10	-7	-4	-2	-1	1	1	-3	-3	0	2	1	-3	-2	-9	-9	-11	-11	-4
14	-4	-1	-2	-2	-1	-2	-2	-2	0	4	5	4	6	5	5	2	-2	1	1	0	-3	-5	-4	-2
15	-1	0	3	7	10	8	7	8	8	6	5	2	5	7	8	10	10	10	8	4	0	-1	-1	-3
16	-4	-4	-2	0	6	12	10	10	13	9	2	3	9	14	14	9	5	4	4	5	5	5	5	3
17	3	9	11	9	7	9	10	11	14	0	-2	-14	-13	-16	-10	-8	-9	-9	-12	-31	-51	-64	-46	-55
18	-66	-67	-62	-56	-51	-46	-43	-37	-36	-34	-26	-29	-30	-32	-29	-25	-25	-26	-22	-22	-22	-30	-31	-30
19	-31	-34	-33	-29	-24	-19	-15	-12	-7	-6	-6	-7	-8	-7	-10	-10	-4	-5	-5	-9	-15	-16	-15	-10
20	-10	-10	-8	-1	4	-3	0	3	4	6	11	20	16	7	7	8	10	13	11	5	-2	-4	-3	1
21	6	6	10	16	14	11	10	11	8	10	13	9	5	4	7	9	11	9	11	13	15	14	7	9
22	9	2	-3	-10	-17	-9	-3	-1	0	-2	-9	-14	-11	-5	-8	-7	-6	-2	2	-3	-8	-10	-12	-10
23	-13	-13	-14	-18	-18	-16	-16	-11	-5	4	0	-12	-68	-77	-84	-82	-82	-86	-89	-87	-86	-76	-68	-64
24	-65	-67	-63	-57	-53	-52	-50	-44	-36	-32	-32	-27	-22	-21	-23	-25	-19	-15	-15	-15	-16	-17	-35	-43
25	-41	-38	-31	-30	-32	-29	-56	-64	-53	-42	-45	-28	-33	-44	-120	-179	-179	-168	-189	-207	-226	-195	-173	-162
26	-194	-189	-197	-193	-176	-175	-167	-144	-126	-101	-96	-101	-88	-105	-105	-103	-97	-101	-91	-83	-78	-78	-76	-76
27	-87	-92	-89	-82	-88	-96	-94	-90	-99	-94	-82	-84	-83	-80	-74	-72	-71	-71	-73	-70	-70	-65	-60	-59
28	-58	-58	-53	-49	-48	-49	-54	-57	-53	-49	-46	-52	-58	-57	-50	-52	-51	-49	-45	-42	-40	-44	-45	-46
29	-50	-51	-49	-41	-38	-39	-38	-34	-30	-31	-33	-30	-29	-34	-36	-38	-37	-36	-34	-34	-36	-38	-38	-37
30	-36	-32	-28	-27	-27	-27	-26	-29	-35	-38	-37	-29	-33	-33	-31	-32	-30	-26	-28	-27	-28	-29	-31	-30
31	-32	-34	-33	-32	-36	-34	-31	-29	-27	-24	-27	-28	-29	-28	-24	-27	-25	-26	-24	-24	-30	-45	-48	-44

HOURLY EQUATORIAL DST VALUES

AUGUST 1981

DAY	UNIT=GAMMAS 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	G.a.T. 24
1	-46	-48	-53	-52	-51	-47	-54	-62	-50	-44	-44	-39	-36	-36	-36	-34	-29	-26	-31	-47	-49	-45	-44	-40
2	-43	-45	-42	-38	-38	-38	-36	-32	-28	-24	-23	-20	-18	-18	-21	-22	-25	-20	-23	-25	-28	-34	-38	-36
3	-39	-29	-21	-21	-23	-34	-51	-59	-55	-55	-52	-44	-42	-41	-39	-39	-37	-39	-42	-43	-45	-45	-45	-44
4	-43	-38	-31	-28	-32	-33	-32	-34	-37	-37	-30	-21	-26	-31	-33	-28	-21	-21	-16	-18	-20	-22	-17	-17
5	-16	-16	-10	-10	-11	-27	-41	-37	-23	-12	-12	-17	-14	-9	-9	-12	-19	-22	-23	-30	-35	-39	-43	-51
6	-59	-52	-45	-47	-52	-62	-61	-58	-52	-46	-44	-42	-37	-36	-36	-40	-42	-41	-38	-37	-38	-40	-38	-39
7	-42	-42	-33	-37	-37	-34	-29	-27	-26	-25	-25	-31	-33	-31	-34	-33	-35	-39	-41	-47	-51	-47	-41	-38
8	-38	-34	-28	-26	-27	-31	-31	-27	-24	-22	-20	-19	-17	-16	-19	-19	-18	-15	-15	-19	-24	-27	-24	-26
9	-26	-29	-31	-27	-23	-23	-22	-18	-13	-12	-11	-9	-6	-2	0	4	5	4	-1	-2	4	9	11	14
10	13	4	4	3	23	50	41	34	29	23	7	7	4	7	8	5	5	3	0	-3	-5	-9	-8	-7
11	-6	-4	0	-2	-8	-12	-9	-6	-2	0	1	-5	-4	-4	-7	-15	-23	-21	-22	-31	-38	-41	-37	-31
12	-28	-30	-25	-18	-19	-19	-20	-19	-18	-19	-20	-14	-11	-8	-6	-8	-7	-8	-9	-13	-18	-20	-16	-16
13	-20	-14	-6	-5	-13	-15	-14	-16	-17	-15	-13	-12	-14	-15	-13	-11	-12	-14	-15	-13	-16	-16	-17	-12
14	-10	-11	-12	-14	-17	-18	-20	-18	-17	-16	-14	-17	-21	-20	-20	-21	-21	-21	-18	-16	-14	-13	-7	-6
15	-5	-5	-3	-6	-11	-16	-20	-18	-13	-9	-5	-6	-6	-7	-12	-11	-14	-15	-13	-8	0	-5	-16	-20
16	-21	-23	-20	-18	-19	-19	-17	-15	-13	-14	-9	-9	-9	-7	-7	-4	-5	-6	-4	-2	-2	-5	-8	-10
17	-1	15	9	4	4	12	12	1	-15	-32	-35	-29	-29	-34	-40	-36	-26	-31	-36	-37	-35	-38	-37	-43
18	-50	-42	-32	-28	-26	-30	-32	-36	-40	-40	-38	-37	-32	-33	-40	-44	-43	-39	-40	-41	-46	-45	-42	-34
19	-30	-31	-30	-26	-27	-26	-26	-25	-26	-24	-21	-21	-19	-15	-17	-15	-12	-12	-14	-17	-20	-22	-24	-21
20	-21	-16	-14	-15	-20	-23	-20	-18	-16	-16	-16	-13	-13	-9	-7	-5	-4	-7	-15	-18	-16	-14	-12	-13
21	-16	-14	-7	-6	-7	-16	-22	-23	-23	-24	-23	-23	-30	-40	-38	-29	-31	-30	-32	-46	-53	-44	-33	-27
22	-28	-25	-23	-25	-26	-35	-38	-35	-32	-29	-24	-20	-18	-20	-20	-17	-10	-13	-25	-34	-28	-19	-12	-15
23	-19	-30	-33	-44	-51	-53	-56	-55	-63	-66	-66	-53	-52	-45	-66	-83	-72	-63	-64	-67	-62	-78	-101	-97
24	-73	-64	-75	-78	-81	-82	-65	-57	-62	-61	-53	-56	-55	-55	-55	-67	-74	-75	-73	-71	-76	-59	-46	-49
25	-50	-43	-35	-33	-38	-37	-37	-38	-44	-49	-43	-44	-42	-42	-45	-44	-41	-43	-47	-47	-43	-36	-32	-29
26	-31	-29	-24	-21	-21	-20	-22	-21	-19	-19	-17	-17	-17	-18	-17	-18	-22	-22	-18	-18	-12	-7	-13	-19
27	-17	-10	-6	-4	-5	-14	-13	-13	-14	-17	-16	-14	-19	-28	-30	-21	-23	-29	-40	-31	-36	-40	-35	-37
28	-41	-41	-32	-30	-34	-33	-36	-29	-26	-27	-36	-24	-20	-21	-26	-37	-36	-34	-34	-29	-26	-26	-21	-26
29	-30	-33	-36	-28	-26	-34	-34	-43	-48	-45	-53	-48	-46	-57	-61	-63	-62	-57	-58	-52	-43	-35	-34	-35
30	-34	-29	-29	-32	-41	-46	-44	-40	-36	-37	-36	-36	-40	-38	-39	-40	-39	-39	-37	-35	-33	-31	-22	-12
31	-5	-5	-6	-22	-41	-36	-29	-26	-14	-14	-13	-15	-15	-17	-18	-17	-14	-12	-9	-8	-4	-2	-3	-5

HOURLY EQUATORIAL DST VALUES

SEPTEMBER 1981

UNIT=GAMMAS

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	G.M.T. 24
1	-8	-8	-8	-8	-10	-13	-13	-14	-15	-13	-11	-11	-11	-14	-14	-16	-13	-10	-10	-4	-3	-2	-8	-10
2	-16	-20	-24	-28	-37	-42	-43	-41	-43	-48	-52	-44	-41	-37	-42	-50	-51	-47	-42	-37	-32	-27	-21	-19
3	-12	-6	-6	-9	-12	-15	-12	-8	-10	-14	-7	-8	-13	-15	-18	-20	-19	-16	-13	-15	-18	-19	-23	-27
4	-26	-24	-19	-13	-10	-10	-11	-11	-12	-13	-10	-13	-20	-17	-12	-13	-14	-16	-16	-15	-14	-19	-25	-30
5	-37	-48	-46	-40	-35	-38	-31	-25	-27	-38	-34	-31	-35	-32	-34	-35	-28	-26	-23	-20	-18	-15	-23	-30
6	-27	-23	-18	-18	-17	-18	-19	-16	-17	-22	-22	-23	-28	-27	-24	-20	-16	-17	-17	-16	-13	-10	-11	-12
7	-8	-7	-4	-3	-6	-7	-6	-4	-5	-5	-5	-11	-9	-10	-11	-12	-11	-14	-14	-19	-20	-22	-16	-12
8	-8	-4	-2	-8	-15	-21	-18	-12	-12	-12	-12	-12	-11	-11	-11	-11	-10	-9	-9	-10	-8	-4	17	10
9	10	6	-1	2	5	4	2	1	4	9	10	5	5	5	3	5	2	1	-7	-10	-5	-4	-8	-7
10	-8	-7	0	2	4	7	6	0	0	1	4	1	-3	-7	-3	4	-8	-17	-17	-12	-7	-9	-11	-12
11	-20	-10	-8	-14	-26	-30	-35	-45	-57	-63	-64	-60	-58	-52	-49	-48	-51	-54	-43	-38	-34	-35	-31	-23
12	-20	-17	-15	-12	-12	-19	-17	-21	-29	-32	-34	-38	-38	-32	-28	-29	-34	-38	-36	-35	-33	-39	-35	-32
13	-32	-29	-29	-23	-21	-21	-25	-25	-25	-29	-36	-39	-38	-40	-47	-50	-50	-50	-46	-42	-40	-37	-37	-31
14	-24	-20	-17	-13	-6	-6	-8	-10	-12	-11	-12	-13	-23	-31	-33	-27	-23	-23	-23	-23	-22	-33	-30	-26
15	-28	-29	-27	-20	-16	-16	-16	-22	-29	-30	-32	-26	-22	-22	-23	-22	-24	-27	-31	-31	-27	-28	-25	-23
16	-23	-18	-20	-23	-26	-27	-31	-32	-25	-15	-13	-17	-22	-23	-22	-21	-16	-17	-21	-23	-24	-21	-19	-21
17	-23	-20	-16	-13	-4	-2	2	-2	-6	-7	-7	-6	-5	-7	-6	-4	-4	-3	-1	-3	-7	-1	0	-2
18	-3	-5	-3	3	6	7	2	1	3	3	5	6	5	3	2	2	5	6	5	17	-5	-37	-46	-50
19	-38	-18	2	-4	0	0	-15	-65	-62	-50	-47	-43	-39	-36	-46	-51	-53	-51	-51	-42	-29	-34	-34	-41
20	-47	-50	-50	-40	-37	-36	-32	-28	-25	-28	-28	-28	-28	-28	-28	-28	-25	-28	-29	-22	-20	-19	-19	-23
21	-19	-17	-19	-17	-14	-11	-12	-17	-18	-13	-11	-11	-9	-7	-4	-4	-5	-7	-10	-13	-11	-21	-34	-38
22	-33	-31	-34	-36	-38	-33	-37	-32	-31	-33	-32	-26	-17	-18	-17	-16	-16	-17	-16	-15	-21	-25	-30	-29
23	-29	-29	-26	-22	-19	-16	-15	-13	-8	-7	-8	-6	-3	-1	0	2	0	-1	-4	-8	-10	-8	-4	5
24	8	7	8	15	16	12	9	8	2	-1	-2	-7	-12	-9	-3	-2	-8	-8	-8	-4	-3	-5	-3	-8
25	-11	-11	-16	-20	-15	-18	-19	-15	-16	-14	-10	-10	-21	-19	-11	-9	-15	-16	-11	-10	-9	-7	-5	-2
26	-2	-4	-4	-8	-14	-11	-9	-14	-31	-34	-44	-52	-57	-49	-58	-65	-66	-69	-80	-84	-84	-80	-79	-75
27	-66	-65	-71	-71	-68	-65	-68	-61	-59	-60	-53	-51	-52	-48	-47	-45	-51	-53	-53	-45	-40	-36	-39	-46
28	-46	-37	-34	-34	-31	-28	-28	-27	-26	-23	-25	-24	-24	-21	-21	-21	-19	-17	-12	-8	-6	-9	-14	-16
29	-17	-13	-12	-11	-10	-9	-11	-15	-12	-9	-8	-7	1	10	-3	-10	-15	-14	-12	-10	-11	-9	-7	-3
30	-2	1	-1	0	2	-6	-11	-7	-8	-9	-11	-19	-16	-15	-16	-12	-12	-13	-22	-18	-15	-13	-13	-17

HOURLY EQUATORIAL DST VALUES

OCTOBER 1981

DAY	UNIT=GAMMAS 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	G.m.T. 23	24
1	-15	-17	-18	-17	-15	-13	-17	-21	-19	-18	-18	-14	-15	-14	-11	-13	-13	-13	-13	-14	-14	-14	-10	-12
2	-12	-12	-12	-11	-9	-8	-11	-9	-9	-9	-7	-4	-1	-1	-1	4	2	-4	-11	-13	13	20	15	15
3	4	-6	-4	-3	0	-4	-18	-31	-23	-21	-12	-12	-24	-30	-32	-43	-42	-43	-50	-36	-27	-43	-42	-40
4	-43	-39	-33	-30	-35	-39	-39	-41	-34	-17	-21	-19	-31	-27	-27	-28	-30	-39	-47	-41	-37	-34	-35	-37
5	-36	-34	-32	-31	-30	-28	-33	-34	-32	-35	-31	-30	-27	-27	-25	-24	-23	-24	-26	-25	-21	-19	-17	-15
6	-13	-11	-10	-10	-9	-11	-10	-9	-9	-8	-6	-6	-11	-13	-14	-19	-14	-16	-18	-17	-14	-14	-14	-16
7	-20	-21	-25	-27	-24	-24	-19	-18	-21	-22	-16	-20	-27	-26	-25	-21	-35	-50	-66	-87	-66	-72	-69	-62
8	-74	-70	-57	-56	-69	-70	-64	-65	-74	-84	-77	-61	-50	-45	-48	-50	-47	-47	-50	-55	-60	-62	-61	-60
9	-54	-59	-58	-57	-58	-71	-66	-57	-54	-50	-47	-45	-36	-30	-27	-29	-27	-32	-34	-38	-35	-32	-29	-30
10	-29	-29	-32	-36	-41	-44	-41	-44	-46	-43	-37	-34	-30	-25	-21	-21	-22	-28	-43	-59	-63	-51	-49	-49
11	-52	-62	-63	-63	-67	-75	-75	-75	-84	-87	-85	-94	-102	-104	-112	-113	-111	-101	-102	-112	-110	-100	-84	-80
12	-75	-69	-72	-73	-70	-68	-68	-63	-64	-64	-66	-69	-67	-62	-59	-56	-54	-53	-53	-50	-47	-44	-45	-43
13	-42	-41	-39	-37	-38	-39	-39	-36	-27	-26	-24	-27	-27	-23	-21	-19	-24	-24	-24	-22	-19	-16	0	16
14	17	15	-65	-116	-129	-126	-133	-121	-107	-96	-90	-84	-72	-68	-76	-81	-81	-73	-74	-72	-78	-69	-86	-77
15	-68	-67	-67	-74	-72	-67	-65	-72	-65	-55	-61	-58	-58	-48	-48	-47	-47	-59	-60	-61	-59	-54	-43	-41
16	-45	-45	-37	-32	-31	-29	-32	-33	-31	-33	-33	-33	-32	-31	-30	-31	-31	-32	-33	-36	-37	-37	-34	-39
17	-37	-30	-29	-26	-25	-23	-17	-4	-8	-27	-13	-10	-9	-9	-2	3	-2	-2	-1	-3	-8	-14	-15	-19
18	-21	-23	-26	-28	-27	-25	-21	-18	-19	-18	-18	-17	-17	-15	-13	-12	-12	-12	-3	-5	-7	-8	-7	-7
19	-11	-8	-5	-7	-10	-28	-39	-37	-34	-35	-38	-30	-14	0	-5	-10	-8	-7	-12	-26	-39	-43	-39	-39
20	-41	-43	-43	-43	-43	-46	-52	-52	-48	-46	-48	-42	-44	-35	-59	-95	-115	-120	-154	-192	-174	-140	-131	-130
21	-131	-136	-127	-129	-122	-125	-126	-117	-123	-131	-122	-105	-94	-90	-85	-82	-76	-69	-67	-65	-68	-72	-75	-78
22	-83	-78	-78	-79	-77	-64	-55	-51	-46	-62	-86	-108	-128	-127	-151	-177	-166	-185	-148	-161	-172	-160	-159	-161
23	-149	-138	-129	-135	-136	-134	-131	-126	-121	-115	-105	-98	-95	-89	-84	-81	-84	-81	-81	-80	-83	-82	-71	-67
24	-67	-67	-66	-64	-63	-63	-61	-61	-60	-59	-52	-56	-60	-62	-58	-67	-60	-62	-64	-71	-74	-75	-61	-63
25	-62	-62	-65	-72	-71	-73	-75	-75	-66	-61	-63	-63	-56	-57	-50	-46	-49	-43	-38	-38	-34	-35	-36	-35
26	-34	-31	-26	-28	-29	-24	-23	-25	-25	-29	-18	-15	-19	-19	-25	-24	-17	-21	-23	-26	-28	-24	-20	-24
27	-27	-27	-21	-19	-20	-21	-24	-28	-25	-21	-21	-20	-20	-17	-17	-16	-16	-22	-19	-16	-17	-16	-14	-9
28	-8	-6	-5	-4	-2	-7	-15	-17	-15	-12	-14	-16	-15	-14	-18	-16	-18	-25	-22	-18	-28	-33	-25	-20
29	-21	-23	-19	-16	-21	-24	-24	-28	-26	-22	-21	-22	-21	-24	-22	-18	-15	-12	-10	-12	-11	-9	-9	-13
30	-13	-12	-17	-22	-20	-20	-19	-18	-17	-18	-17	-20	-17	-22	-27	-28	-25	-19	-19	-22	-23	-24	-20	-20
31	-23	-19	-14	-13	-11	-10	-9	-10	-9	-8	-8	-8	-7	-7	-7	-5	-5	-6	-2	1	3	3	3	2

HOURLY EQUATORIAL DST VALUES

NOVEMBER 1981

UNIT=GAMMAS

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	G.M.T. 24
1	-1	-2	-4	-9	-8	-3	-2	-4	-1	0	-6	-14	-9	-6	-9	-11	-16	-18	-18	-17	-14	-13	-14	-13
2	-12	-10	-8	-7	-9	-7	-9	-9	-5	-4	-4	-3	-4	-4	-5	-6	-8	-8	-4	-10	-11	-8	-4	-7
3	-5	-3	-3	-8	-15	-12	-12	-13	-8	-3	-6	-8	-6	-3	-3	-3	-5	-5	-8	-7	-7	-7	-4	-5
4	-4	-4	1	2	-1	0	1	-1	-3	0	0	1	3	2	3	1	3	1	7	4	1	-4	-4	4
5	3	-2	-6	-13	-19	-21	-28	-34	-37	-38	-36	-31	-28	-28	-27	-27	-24	-24	-18	-18	-23	-23	-17	-13
6	-14	-16	-17	-12	-10	-5	-2	-1	-1	-1	-8	-7	-4	-3	-5	-5	1	2	-3	-5	-7	-14	-20	-25
7	-17	-21	-31	-41	-51	-50	-55	-57	-58	-63	-67	-69	-71	-63	-57	-53	-59	-54	-51	-46	-44	-38	-36	-34
8	-35	-27	-27	-36	-42	-35	-44	-47	-52	-53	-38	-32	-29	-19	-25	-25	-12	-9	-2	-11	-16	-21	-18	-19
9	-23	-26	-28	-32	-34	-35	-36	-33	-33	-30	-32	-31	-26	-22	-20	-17	-14	-13	-16	-14	-13	-14	-12	-11
10	-8	-10	-10	-7	-6	-13	-24	-21	-17	-20	-20	-20	-21	-12	-15	-19	-12	-7	-3	-5	-17	-11	-14	-14
11	-4	-3	-2	-3	-4	-4	-7	-18	-33	-34	-25	-22	-13	-20	-36	-18	-23	-59	-49	-51	-52	-78	-74	-62
12	-67	-97	-105	-104	-96	-95	-117	-124	-110	-99	-88	-83	-81	-77	-78	-76	-69	-62	-55	-51	-51	-51	-51	-54
13	-52	-50	-50	-51	-50	-48	-51	-51	-50	-53	-55	-55	-55	-52	-49	-48	-45	-42	-37	-33	-32	-41	-43	-43
14	-39	-37	-36	-33	-27	-18	-18	-22	-11	-12	-19	-5	-25	-40	-56	-71	-63	-61	-62	-59	-64	-60	-69	-72
15	-60	-59	-52	-64	-69	-61	-53	-56	-58	-52	-51	-48	-46	-46	-49	-49	-53	-44	-36	-36	-36	-33	-33	-32
16	-30	-34	-40	-42	-42	-36	-41	-45	-38	-32	-30	-29	-30	-32	-33	-34	-31	-25	-22	-19	-5	-10	-10	-7
17	-24	-33	-30	-28	-27	-22	-17	-15	-13	-12	-16	-27	-41	-48	-56	-64	-70	-80	-74	-60	-66	-67	-75	-68
18	-57	-56	-50	-47	-49	-45	-44	-41	-38	-38	-47	-53	-59	-50	-51	-50	-50	-50	-53	-49	-49	-49	-51	-51
19	-52	-52	-51	-55	-56	-53	-49	-45	-44	-42	-41	-40	-43	-42	-41	-45	-44	-46	-45	-43	-39	-36	-38	-43
20	-47	-43	-39	-40	-40	-32	-32	-36	-39	-47	-50	-50	-47	-40	-40	-41	-36	-32	-27	-22	-23	-24	-30	-34
21	-32	-28	-26	-28	-24	-21	-20	-27	-31	-37	-41	-38	-31	-28	-27	-30	-33	-28	-31	-35	-43	-55	-60	-58
22	-52	-49	-49	-50	-53	-51	-52	-52	-46	-44	-42	-40	-39	-38	-35	-34	-32	-31	-30	-30	-29	-27	-27	-27
23	-27	-26	-27	-32	-35	-37	-41	-46	-41	-41	-51	-43	-48	-58	-67	-75	-81	-80	-71	-70	-71	-72	-70	-62
24	-57	-54	-55	-58	-61	-64	-65	-66	-63	-62	-60	-59	-55	-46	-41	-41	-42	-42	-45	-45	-42	-41	-41	-38
25	-33	-26	-3	22	10	10	10	7	1	1	3	17	27	20	10	7	-8	-14	-14	-13	-11	-14	-15	-18
26	-16	-15	-14	-16	-21	-22	-19	-15	-14	-14	-14	-15	-15	-17	-17	-20	-24	-24	-22	-15	-10	-12	-18	-17
27	-17	-14	-12	-15	-16	-13	-11	-13	-16	-16	-12	-9	-6	-7	-9	-9	-10	-10	-9	-7	-5	-6	-8	-9
28	-10	-15	-11	-6	-3	-2	-2	-3	-3	-3	0	1	1	-2	-2	-2	-4	-6	-4	-1	1	-2	-7	-10
29	-9	-8	-6	-4	-1	1	0	-1	-1	-1	-1	0	1	4	5	5	3	1	-3	-2	-2	-2	0	-3
30	-3	0	1	3	6	9	11	10	10	7	6	3	0	-1	1	3	4	3	2	4	6	7	7	5

HOURLY EQUATORIAL DST VALUES

DECEMBER 1981

UNIT=GAMMAS

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	G.M.T. 24
1	4	5	6	7	8	13	15	16	16	11	7	12	15	12	7	9	6	0	-1	-2	-2	-1	-4	-3
2	1	5	6	9	11	15	17	14	10	6	-7	-17	-18	-9	-8	-8	-10	-5	-4	-1	12	17	18	15
3	12	14	14	13	10	10	13	10	9	8	6	3	7	4	3	3	6	2	3	-1	1	0	0	-10
4	-20	-17	-13	-21	-22	-19	-13	-12	-15	-14	-17	-18	-19	-18	-15	-15	-14	-11	-13	-15	-12	-11	-16	-22
5	-23	-21	-22	-25	-25	-22	-21	-22	-19	-14	-13	-10	-12	-14	-12	-9	-12	-17	-21	-19	-19	-22	-28	-26
6	-27	-24	-22	-23	-22	-20	-22	-17	-12	-11	-10	-12	-15	-15	-15	-13	-15	-18	-14	-12	-10	-10	-12	-14
7	-16	-16	-15	-16	-13	-9	-9	-10	-9	-8	-8	-5	-4	-6	-7	-6	-6	-9	-8	-5	-3	2	-1	-4
8	-6	-9	-14	-21	-26	-29	-26	-19	-11	-10	-13	-12	-8	-1	10	29	2	-7	-5	-11	-21	-18	-15	-17
9	-19	-21	-17	-19	-24	-24	-23	-28	-33	-28	-27	-19	-17	-21	-20	-12	-13	-15	-15	-13	-28	-27	-26	-34
10	-34	-31	-26	-18	-17	-23	-28	-25	-21	-21	-17	-15	-14	-10	-6	-7	-5	-5	-7	-9	-9	-7	-6	-7
11	-6	-6	-6	-8	-6	-4	-3	-3	-4	-7	-7	-7	-6	-4	-3	-2	-5	-8	-10	-10	-6	-5	-3	-1
12	-3	3	16	17	21	19	10	0	-5	-8	-8	1	-14	-38	-31	-42	-45	-47	-49	-48	-48	-45	-49	-46
13	-39	-39	-38	-42	-42	-47	-57	-52	-45	-44	-44	-49	-47	-39	-34	-28	-32	-35	-35	-35	-33	-29	-28	-27
14	-27	-22	-23	-24	-23	-21	-20	-20	-26	-34	-33	-29	-29	-28	-25	-22	-17	-17	-16	-16	-22	-18	-17	-19
15	-17	-14	-10	-11	-12	-11	-14	-13	-11	-15	-21	-21	-19	-18	-15	-12	-11	-11	-10	-7	-13	-19	-13	-8
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17	-4	0	4	4	6	12	13	13	14	15	11	11	14	17	19	18	13	15	19	16	12	3	-11	-25
18	-33	-31	-25	-24	-27	-32	-29	-28	-26	-26	-33	-30	-21	-16	-15	-12	-16	-17	-21	-23	-21	-19	-21	-24
19	-22	-24	-20	-19	-17	-19	-18	-18	-16	-14	-17	-16	-13	-11	-10	-10	-12	-14	-15	-15	-12	-9	-13	-15
20	-17	-15	-16	-14	-11	-6	-5	-4	-7	-10	-9	-7	-6	-5	-6	-3	0	-1	-3	-8	-10	-12	-12	-12
21	-15	-11	-9	-6	-7	-8	-9	-9	-10	-8	-8	-8	-5	-3	-5	-6	-3	-3	-6	-8	-9	-9	-7	-6
22	-4	-3	-3	-1	0	3	2	1	-1	-1	-2	-1	-2	-1	2	1	3	2	1	-1	4	5	8	6
23	7	8	6	-2	-8	-9	-7	-4	-3	-3	-5	-1	2	3	6	11	12	19	18	17	12	10	9	-4
24	-11	-22	-24	-26	-25	-22	-21	-22	-20	-19	-19	-16	-12	-9	-8	-6	-10	-15	-12	-10	-7	-7	-7	-10
25	-8	-4	-3	-2	-3	-1	1	0	-3	-7	-10	-8	-5	-5	-2	-4	-8	-11	-11	-11	-12	-12	-6	-2
26	1	1	3	8	10	10	9	6	4	-1	-6	-5	-2	-1	-2	-5	-7	-7	-7	-5	-1	3	2	0
27	-3	-1	-2	0	1	1	-3	-2	0	-1	-2	-1	3	5	7	6	6	6	8	14	12	2	-4	-7
28	-4	-1	4	3	1	-5	-5	-2	-2	1	6	5	2	-4	-12	-13	-7	-6	-13	-19	-15	-12	-13	-7
29	-8	-6	-5	-5	-4	11	-15	-29	-42	-54	-61	-58	-63	-65	-61	-50	-44	-46	-41	-34	-31	-32	-31	-29
30	-31	-28	-28	-36	-38	-53	-65	-73	-77	-77	-68	-78	-82	-69	-72	-62	-58	-58	-56	-54	-51	-47	-40	-39
31	-40	-40	-31	-26	-23	-21	-20	-24	-37	-43	-52	-47	-42	-41	-42	-33	-32	-26	-27	-27	-27	-27	-26	-26

DAILY MEANS OF EQUATORIAL DST FOR 1981

DAY	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
1	-32	-16	-39	-49	-16	5	-21	-43	-10	-15	-9	7
2	-21	-21	-54	-31	-19	1	-13	-30	-37	-3	-7	3
3	-20	-20	-36	-12	-9	-2	-10	-41	-14	-24	-7	6
4	-22	-12	-41	-15	-6	1	-17	-28	-16	-33	1	-16
5	-9	-36	-108	-9	0	4	-3	-22	-31	-27	-22	-19
6	-10	-56	-95	-7	5	4	-12	-45	-19	-12	-8	-16
7	-8	-75	-62	3	8	-2	-10	-36	-10	-36	-49	-8
8	-6	-28	-48	-3	15	-33	-8	-24	-8	-61	-28	-11
9	-7	-54	-24	-12	-60	-12	-2	-9	2	-44	-24	-22
10	10	-24	-15	-4	-44	3	0	10	-4	-38	-14	-15
11	-21	-14	-16	-4	-95	2	13	-14	-40	-88	-29	-5
12	-19	-17	-11	-108	-49	5	-5	-16	-28	-61	-81	-18
13	-14	-13	-11	-188	-25	3	-7	-14	-35	-26	-47	-39
14	-13	-3	-51	-92	-21	13	0	-16	-20	-81	-41	-23
15	-4	-2	-48	-42	-76	9	5	-10	-25	-59	-49	-14
16	-6	-14	-31	-30	-91	-14	6	-11	-22	-34	-29	-10
17	1	-1	-27	-48	-53	-16	-11	-20	-6	-14	-43	9
18	0	3	-34	-19	-75	-6	-37	-38	-3	-16	-49	-24
19	8	0	-26	-58	-43	-9	-14	-22	-36	-22	-45	-15
20	7	-7	-22	-79	-52	-3	4	-14	-30	-81	-37	-8
21	10	-8	-14	-77	-34	6	10	-27	-14	-101	-34	-7
22	12	9	-11	-64	-20	9	-6	-24	-26	-115	-40	1
23	-3	-6	-4	-61	-26	9	-45	-60	-10	-104	-53	4
24	-8	-7	6	-42	-39	12	-35	-65	0	-63	-52	-15
25	-5	-49	-22	-34	-50	1	-99	-41	-13	-55	-1	-6
26	-4	-47	-57	-50	-37	-3	-123	-19	-45	-24	-17	0
27	-12	-51	-41	-74	-7	0	-80	-21	-55	-20	-11	2
28	-16	-37	-28	-38	-7	-14	-50	-30	-23	-16	-4	-5
29	-16		-37	-45	-5	-47	-37	-44	-9	-18	-1	-33
30	-10		-35	-17	0	-13	-30	-35	-11	-20	4	-56
31	-27		-47		4		-31	-15		-7		-33
MEAN	-9	-22	-35	-44	-30	-3	-22	-27	-20	-43	-28	-12

ANNUAL MEAN -25

MONTHLY AND YEARLY **Dst** 1957 - 1981

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual mean
1957	-19.8	-24.1	-41.2	-27.8	-5.2	-10.0	-11.7	-3.5	-64.0	-14.4	-20.7	-18.5	-21.7
1958	-18.3	-28.1	-32.3	-19.6	-10.8	-22.8	-27.5	-13.8	-24.9	-17.7	-1.1	-18.9	-19.6
1959	-10.5	-31.5	-25.1	-22.6	-14.3	-6.5	-35.6	-32.0	-39.2	-25.3	-35.1	-30.1	-25.7
1960	-17.7	-11.7	-11.5	-58.3	-28.6	-18.2	-20.7	-21.9	-30.8	-53.9	-54.5	-42.3	-30.9
1961	-17.2	-21.5	-13.6	-11.7	-7.0	-6.5	-28.3	-7.2	-8.7	-28.3	-17.5	-10.9	-14.9
1962	-3.1	-5.4	0.5	-7.6	2.1	0.2	1.1	-7.4	-19.6	-17.9	-11.6	-12.3	-6.8
1963	-6.1	-2.2	1.8	2.0	1.1	0.0	1.9	-4.2	-29.5	-23.3	-15.4	-7.9	-6.8
1964	-8.8	-9.2	-9.8	-10.1	-4.0	-0.2	1.8	2.3	-0.3	-6.2	-0.2	6.1	-3.2
1965	5.7	-1.0	0.8	-3.4	5.7	0.3	1.4	2.5	-2.2	5.3	4.6	2.4	1.8
1966	4.2	0.1	-8.2	-1.6	-3.4	0.2	-3.2	-2.1	-25.2	-10.7	-8.1	-13.9	-6.0
1967	-18.6	-19.3	-2.7	-6.1	-32.6	-25.7	-9.7	-5.0	-20.6	-14.1	-11.8	-18.1	-15.4
1968	-20.4	-26.8	-20.8	-13.9	-12.6	-13.0	-5.4	-6.2	-11.8	-16.6	-32.5	-13.7	-16.1
1969	-7.2	-21.6	-29.1	-19.8	-16.3	-2.5	3.6	-0.3	-8.3	-10.8	-4.1	2.2	-9.5
1970	-3.0	0.0	-28.5	-25.8	-10.2	-12.1	-20.4	-21.4	-13.2	-20.1	-21.5	-17.3	-16.1
1971	-15.0	-17.9	-15.0	-26.6	-17.2	-8.7	-3.5	-9.4	-16.8	-15.6	-14.9	-24.2	-15.4
1972	-19.8	-17.9	-16.9	-15.1	-8.2	-16.4	-10.1	-36.4	-22.7	-22.2	-24.2	-9.9	-18.3
1973	-12.8	-20.4	-23.9	-46.3	-17.0	-10.1	-1.2	-2.9	-10.8	-13.7	-7.3	-0.2	-13.9
1974	-4.2	-5.6	-16.3	-13.7	-8.4	-5.7	-26.6	-13.3	-20.8	-23.0	-17.1	-12.0	-13.9
1975	-10.4	-13.4	-18.2	-10.4	-6.3	0.5	-7.0	-9.0	-4.2	-9.9	-21.4	-9.5	-9.9
1976	-12.2	-11.2	-24.1	-24.6	-13.2	-4.4	-5.7	-7.5	-12.2	-16.2	-14.9	-16.1	-13.5
1977	-13.6	-14.6	-10.9	-23.3	-13.7	-3.6	-13.7	-19.3	-23.5	-25.4	-19.4	-22.4	-17.0
1978	-19.4	-26.1	-28.1	-30.8	-34.5	-14.9	-9.2	-12.1	-27.1	-22.7	-27.4	-13.9	-22.2
1979	-28.7	-26.2	-30.4	-33.4	-12.7	-4.3	1.7	-10.8	-19.3	-18.9	-11.6	-2.5	-16.4
1980	-13.1	-18.5	-3.1	-9.4	-6.6	-11.7	-6.6	-4.3	-4.8	-22.2	-18.1	-19.9	-11.5
1981	-8.5	-21.6	-35.0	-43.6	-29.9	-2.9	-21.6	-26.6	-19.9	-42.5	-27.5	-12.5	-24.3

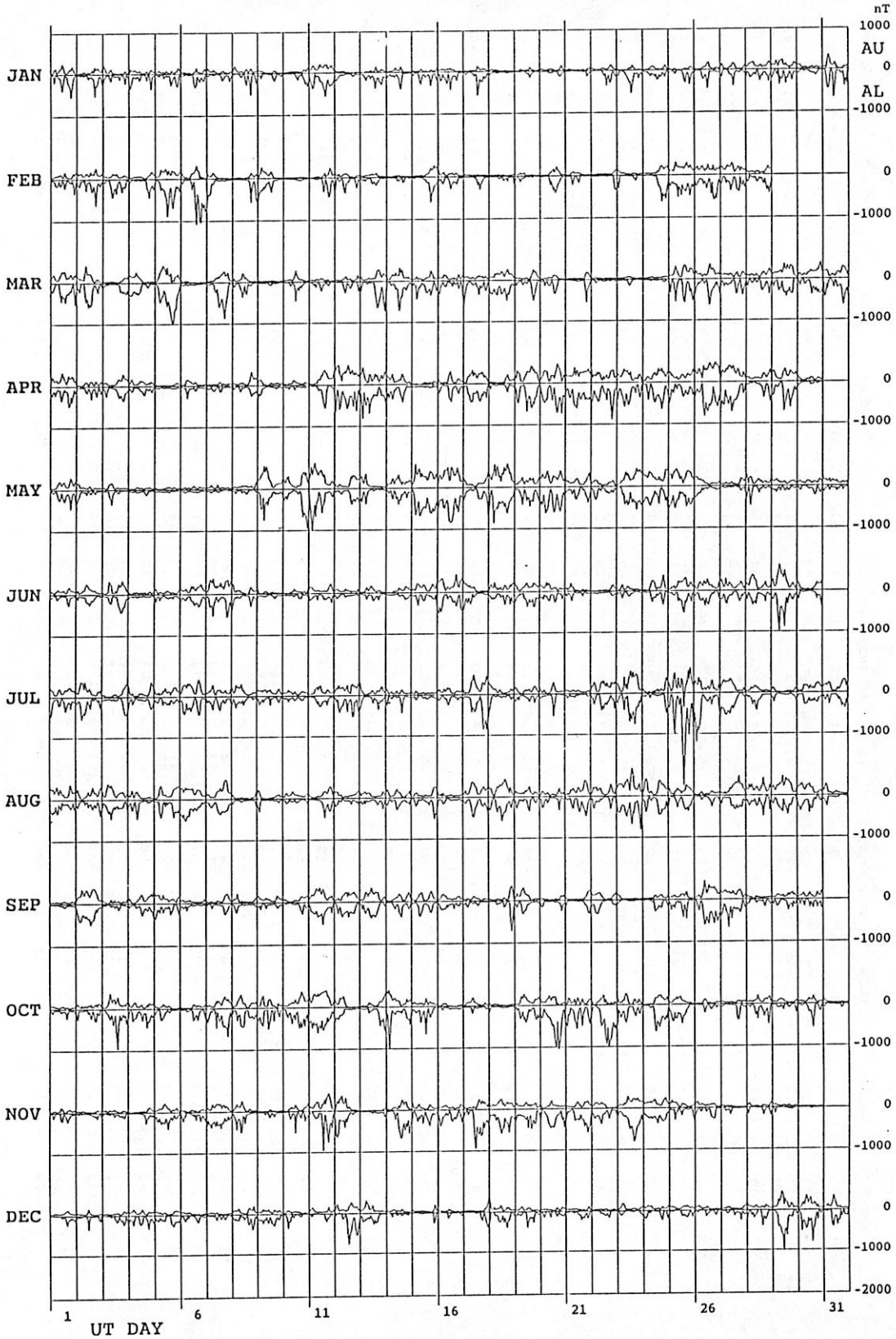
Unit : nT

SECTION 3

3.5. AU, AL, AE INDICES

- Hourly values of **AU** and **AL** 1981 (graph) 99
- Monthly tables of hourly values of **AU**, **AL** and **AE** indices 100
- Monthly and yearly mean values of **AE** 1957-1981 124

HOURLY VALUES OF AU AND AL 1981



HOURLY VALUES (nT) OF AU, AL AND AE INDICES JANUARY 1981

DAY\UT		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	MEAN
1	AU	29	13	48	112	139	32	57	86	127	131	248	185	48	30	34	51	85	129	100	194	136	59	36	18	89
	AL	-14	-17	-44	-199	-29	-10	-34	-87	-75	-239	-399	-208	-23	-32	-38	-199	-251	-290	-540	-382	-156	-49	-25	-21	-140
	AE	43	31	93	311	168	43	92	175	203	371	649	395	71	62	72	251	338	420	640	576	293	109	62	40	229
2		23	28	33	31	30	29	74	29	22	38	54	35	42	64	98	55	172	107	143	149	114	83	71	86	67
		-25	-19	-20	-32	-16	-17	-42	-19	-24	-28	-107	-67	-66	-62	-96	-112	-523	-256	-285	-177	-60	-30	-92	-230	-100
		49	48	54	64	47	47	117	49	47	68	162	104	109	127	194	168	695	365	429	326	175	114	164	317	168
3		194	166	104	40	45	42	79	116	56	26	33	21	19	18	17	25	32	37	14	33	86	29	24	50	54
		-225	-87	-65	-15	-20	-11	-113	-164	-10	-9	-56	-48	-35	-52	-27	-132	-53	-18	-28	-59	-215	-25	-25	-76	-65
		420	253	170	56	67	54	193	280	67	36	90	70	55	71	45	158	85	55	43	93	303	55	50	127	121
4		38	118	84	78	88	97	73	49	54	78	55	30	28	30	24	53	73	33	12	74	110	85	50	49	61
		-332	-338	-210	-75	-57	-83	-96	-54	-63	-154	-123	-14	-10	-19	-19	-58	-147	-18	-22	-131	-356	-67	-30	-38	-105
		371	456	295	154	146	181	170	104	118	233	180	45	38	50	43	112	220	52	34	206	468	153	80	87	167
5		28	37	54	81	67	47	43	45	37	37	73	56	32	16	33	84	45	25	29	68	61	153	123	49	55
		-13	-17	-13	-50	-32	-9	-7	-24	-94	-55	-23	-65	-30	-44	-269	-238	-133	-76	-48	-206	-302	-268	-37	-24	-86
		41	55	67	132	101	58	51	69	133	93	98	122	63	60	303	322	178	103	78	275	365	422	161	74	143
6		49	44	34	42	30	28	25	34	24	11	6	22	56	52	144	44	39	44	19	28	48	99	121	66	46
		-39	-54	-41	-20	-11	-11	-13	-34	-30	-14	-16	-42	-247	-315	-252	-66	-112	-186	-87	-84	-174	-145	-44	-22	-86
		88	98	76	63	43	40	40	69	55	26	23	66	304	368	397	110	153	232	108	113	223	245	165	89	133
7		103	127	77	44	68	54	90	51	53	22	14	24	24	32	61	73	35	34	34	16	18	41	41	62	50
		-47	-66	-27	-13	-17	-21	-38	-26	-8	-1	-9	-25	-29	-60	-160	-137	-75	-50	-30	-37	-56	-177	-91	-65	-53
		151	194	105	57	85	77	130	78	63	24	25	50	55	92	221	210	111	84	65	55	75	220	133	128	104
8		61	129	177	92	86	47	41	57	54	58	25	33	84	109	51	38	65	120	105	34	24	64	47	77	70
		-50	-25	-7	0	1	-13	-9	-54	-87	-40	-5	-23	-189	-268	-39	-41	-221	-498	-111	-13	-23	-39	-218	-225	-92
		112	154	184	91	85	61	51	113	143	99	30	58	275	379	91	80	286	619	218	48	49	104	267	302	162
9		68	73	67	66	55	32	22	17	16	14	10	12	7	25	47	71	54	28	13	14	10	16	14	17	32
		-30	-45	-49	-119	-37	-4	0	-1	-4	-12	-14	-23	-19	-28	-118	-183	-131	-31	-22	-19	-27	-65	-76	-15	-45
		98	118	117	187	94	36	22	19	22	28	25	37	27	54	165	254	186	61	36	35	38	82	91	33	78
10		18	21	20	28	19	36	31	39	37	41	37	47	40	31	32	34	22	38	55	92	76	45	117	122	45
		-17	-13	-8	-4	-6	-12	-6	-17	-2	-10	-26	-45	-103	-164	-71	-42	-53	-16	-106	-154	-255	-205	-318	-240	-79
		36	35	29	33	26	49	38	57	41	52	64	94	144	197	104	78	77	55	163	246	332	250	435	363	125
11		60	104	84	176	168	79	102	78	91	150	209	137	142	128	199	185	195	102	111	147	176	132	111	74	131
		-98	-204	-242	-373	-320	-27	-100	-65	-72	-97	-213	-197	-216	-337	-458	-551	-248	-163	-250	-307	-269	-276	-221	-158	-228
		159	309	327	551	488	107	203	144	165	248	423	335	359	466	658	737	444	266	362	455	446	409	332	232	359
12		44	43	21	33	28	30	30	41	38	22	10	8	14	8	0	4	7	3	5	12	9	10	13	11	19
		-182	-186	-131	-104	-71	-44	-56	-56	-39	-35	-23	-28	-24	-26	-20	-21	-72	-80	-50	-21	-31	-43	-45	-44	-60
		227	229	153	137	99	75	88	98	79	58	35	38	39	36	21	27	79	84	56	34	40	55	60	55	79
13		8	8	5	8	11	37	27	27	19	49	33	22	23	67	143	30	26	46	46	83	52	57	36	21	37
		-21	-55	-36	-82	-137	-187	-93	-60	-77	-153	-74	-81	-130	-375	-245	-127	-119	-215	-233	-292	-124	-99	-110	-118	-135
		30	65	42	90	148	225	121	88	97	202	108	104	155	442	388	158	146	263	280	375	177	158	148	140	173
14		23	19	31	31	36	38	52	61	116	69	58	51	47	129	73	28	17	17	15	10	10	14	17	16	41
		-135	-83	-63	-49	-90	-78	-66	-121	-72	-48	-90	-134	-318	-397	-160	-24	-33	-29	-21	-21	-16	-17	-12	-15	-87
		159	102	94	81	127	117	118	184	189	118	149	186	366	527	234	53	50	48	37	32	27	32	30	32	129
15		39	29	21	22	18	29	27	42	75	52	34	27	37	24	25	14	17	52	57	26	32	28	45	79	35
		-67	-83	-29	-20	-16	-18	-82	-225	-276	-100	-64	-55	-125	-102	-70	-50	-108	-319	-194	-49	-30	-31	-146	-197	-102
		107	113	51	42	35	48	110	268	353	153	99	83	163	126	95	65	126	373	252	76	64	60	193	277	139

16	54	42	45	77	71	64	47	61	76	63	69	94	50	55	59	47	20	18	16	24	28	24	18	26	48
	-59	-46	-212	-198	-51	-124	-117	-216	-280	-56	-99	-416	-226	-122	-87	-99	-97	-209	-124	-24	-16	-22	-14	-14	-122
	114	89	259	277	123	190	165	278	357	121	170	511	277	177	146	146	118	228	141	49	44	47	32	41	171
17	18	20	27	15	16	19	36	35	29	34	34	27	41	126	102	56	39	54	73	58	60	31	34	25	42
	-13	-32	-62	-40	-10	-5	-12	-15	-44	-45	-111	-48	-109	-557	-373	-185	-196	-245	-181	-98	-162	-132	-43	-57	-116
	32	53	90	56	27	24	49	51	74	80	146	76	150	684	475	241	236	300	255	157	223	165	78	83	159
18	29	36	65	42	34	29	39	38	34	17	14	14	11	14	11	22	15	14	10	11	12	9	11	17	23
	-92	-33	-41	-29	-21	-7	-26	-41	-28	-22	-18	-17	-11	-18	-17	-26	-33	-33	-26	-18	-19	-18	-17	-15	-26
	122	70	107	71	56	37	67	81	63	39	33	32	24	34	29	50	49	48	37	30	33	28	29	34	50
19	16	13	8	10	20	38	39	21	20	24	26	40	20	31	88	76	34	33	22	18	17	21	30	40	29
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	29	21	14	13	40	59	38	19	20	26	41	98	81	71	244	174	98	61	43	27	25	33	46	62	58
20	37	56	57	29	24	21	21	40	38	59	45	54	29	20	15	18	21	19	31	83	134	68	35	28	41
	-47	-37	-6	-3	-1	0	-1	-16	-37	-47	-37	-43	-27	-13	-12	-14	-18	-62	-124	-128	-74	-39	-25	-22	-35
	85	94	64	33	26	23	23	56	76	108	83	99	57	35	29	33	40	82	156	212	209	108	61	50	77
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	43	41	50	56	38	23	18	17	24	26	22	34	35	27	24	33	51	49	35	30	182	132	96	102	49
22	54	59	36	32	27	19	22	24	25	30	58	50	57	30	38	44	58	98	136	109	50	56	25	29	48
	-10	-2	0	1	2	0	0	2	1	2	-4	-84	-118	-75	-349	-185	-114	-286	-244	-74	-21	-70	-135	-118	-78
	65	61	36	30	24	18	21	21	23	27	63	135	175	106	388	230	173	385	381	183	72	126	162	148	127
23	18	25	16	16	12	11	10	12	12	12	23	62	53	46	122	84	39	33	19	26	38	25	27	19	32
	-124	-123	-16	-9	-16	-25	-31	-41	-101	-150	-185	-282	-265	-534	-352	-190	-64	-102	-57	-84	-192	-81	-51	-101	-132
	143	149	33	27	29	37	42	53	113	163	210	345	319	580	475	275	104	136	76	111	232	107	78	121	165
24	9	10	15	24	26	30	31	76	81	100	84	51	30	23	33	24	26	30	19	54	126	107	43	18	45
	-28	-16	-43	-31	-45	-74	-86	-141	-87	-90	-116	-155	-88	-219	-206	-117	-158	-129	-57	-80	-165	-82	-24	-23	-94
	38	27	60	56	72	105	118	219	169	192	202	208	119	242	240	142	186	161	77	136	292	191	68	42	140
25	40	24	12	12	16	29	29	7	6	10	5	4	7	24	27	46	22	29	27	60	80	66	57	35	28
	-65	-48	-38	-36	-28	-50	-92	-11	-15	-13	-10	-18	-28	-70	-258	-289	-126	-54	-112	-334	-208	-75	-47	-87	-68
	105	73	51	49	45	80	122	19	22	24	16	23	36	95	286	335	150	84	140	395	289	142	105	123	117
26	29	17	13	18	10	21	27	25	61	73	79	87	170	177	60	56	26	22	21	38	53	40	32	34	50
	-48	-18	-12	-11	-13	-17	-38	-147	-215	-168	-114	-163	-436	-180	-37	-40	-40	-42	-29	-30	-37	-60	-31	-50	-82
	78	36	27	30	24	40	66	173	277	242	195	251	606	358	98	98	68	65	52	70	92	101	64	84	133
27	75	140	115	32	23	36	18	32	52	81	65	146	156	131	48	24	14	20	24	18	21	35	85	103	62
	-143	-173	-47	-15	-10	-14	-14	-29	-107	-113	-109	-212	-375	-114	-43	-38	-42	-59	-66	-27	-25	-35	-64	-93	-82
	219	313	162	49	34	51	34	62	161	196	175	360	532	246	92	63	57	80	90	46	47	72	150	197	145
28	80	61	100	145	136	166	178	170	81	86	75	60	71	99	114	52	65	88	68	86	120	190	176	109	107
	-170	-50	-72	-125	-203	-153	-139	-91	-81	-138	-29	-22	-192	-254	-143	-160	-79	-60	-77	-130	-139	-277	-132	-114	-126
	251	112	172	270	340	320	317	261	162	225	105	84	253	354	257	213	145	150	147	216	260	467	310	224	234
29	114	117	100	101	208	137	72	186	200	216	237	105	102	138	86	80	61	38	75	81	91	167	150	124	124
	-203	-146	-46	-21	-73	-135	-22	-344	-174	-226	-206	-49	-86	-324	-187	-210	-112	-49	-124	-256	-144	-61	-53	-76	-139
	317	264	148	123	282	273	96	531	375	443	444	155	190	463	274	291	175	88	201	338	236	229	205	200	264
30	119	112	109	90	52	31	37	49	58	37	26	23	50	47	70	33	24	60	60	67	33	40	36	55	55
	-86	-94	-51	-38	-11	-7	-43	-42	-16	-19	-46	-31	-68	-68	-89	-83	-89	-140	-94	-78	-17	-28	-13	-20	-53
	206	207	161	130	64	38	81	92	75	58	73	55	120	115	160	117	114	202	155	145	51	69	50	76	109
31	52	50	74	34	181	348	289	144	92	96	86	162	96	45	22	16	6	26	20	33	77	41	85	74	90
	-29	-18	-24	-218	-436	-451	-308	-49	-28	-108	-660	-455	-96	-30	-37	-50	-54	-103	-105	-57	-381	-212	-332	-57	-179
	82	69	99	253	618	801	599	194	122	205	747	618	193	76	60	67	61	130	126	92	459	254	417	131	270

HOURLY VALUES (nT) OF AU, AL AND AE INDICES FEBRUARY 1981

DAY\UT		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	MEAN
1	AU	39	27	47	58	76	64	96	81	104	94	52	50	153	96	51	41	38	38	39	55	135	87	144	156	76
	AL	-25	-30	-36	-59	-154	-161	-135	-37	-168	-136	-25	-52	-217	-147	-27	-22	-46	-65	-91	-39	-92	-340	-219	-46	-99
	AE	64	59	84	119	231	226	233	118	273	231	78	103	372	244	78	64	85	105	131	96	229	429	364	204	176
2		132	89	125	131	106	68	63	97	136	119	79	75	164	110	128	94	200	253	120	86	96	80	127	112	116
		-104	-174	-179	-39	-40	-44	-8	-114	-269	-74	-81	-44	-131	-301	-287	-161	-346	-624	-207	-91	-99	-178	-68	-83	-156
		237	264	305	171	147	114	73	212	406	194	161	120	296	411	415	256	547	878	328	178	196	260	197	197	273
3		82	72	63	55	47	52	63	59	105	134	99	105	127	80	48	46	48	64	55	101	76	67	38	38	72
		-82	-85	-42	-8	-6	-24	-90	-217	-425	-408	-219	-209	-345	-127	-46	-41	-141	-306	-169	-201	-198	-32	-28	-36	-145
		166	159	106	64	54	76	154	276	530	542	319	315	472	207	95	88	190	371	225	303	276	100	67	75	218
4		48	26	37	37	63	58	51	56	70	60	66	52	40	32	21	20	36	65	95	86	163	154	98	102	64
		-86	-46	-19	-11	-15	-26	-29	-26	-4	-3	-42	-15	-28	-28	-25	-34	-206	-278	-438	-255	-207	-143	-252	-215	-101
		135	74	58	49	78	86	80	83	75	63	108	67	68	60	46	54	243	345	534	342	371	298	352	319	166
5		65	51	49	63	99	212	174	187	157	230	186	93	191	103	91	196	162	171	139	100	91	90	146	173	134
		-28	-18	-41	-43	-121	-264	-204	-257	-238	-381	-462	-887	-668	-231	-203	-509	-692	-452	-317	-169	-226	-176	-288	-162	-293
		94	71	91	107	220	476	378	445	396	612	649	981	860	334	295	705	855	624	457	270	317	267	435	337	428
6		150	89	54	40	33	36	20	23	33	83	132	127	143	204	298	192	188	20	46	37	16	24	-8	-28	81
		-81	-110	-55	-18	-6	-26	-26	-22	-29	-50	-249	-110	-69	-660	-1083	-356	-510	-1005	-1039	-563	-687	-598	-766	-739	-369
		233	200	111	59	40	63	47	45	63	133	381	238	213	865	1382	549	699	1025	1086	600	704	623	757	710	451
7		105	79	50	82	54	136	115	68	50	30	18	18	11	15	13	7	11	12	6	6	2	3	8	9	38
		-453	-365	-399	-311	-104	-148	-96	-43	-24	-36	-36	-44	-37	-37	-37	-41	-43	-40	-34	-26	-27	-27	-24	-22	-102
		560	446	450	394	159	285	211	111	74	66	55	63	48	53	52	48	55	52	41	33	30	30	33	32	141
8		8	8	9	13	16	16	15	15	5	4	4	11	16	23	26	31	60	129	95	63	41	65	105	52	35
		-21	-23	-22	-23	-22	-20	-20	-19	-19	-24	-23	-29	-26	-35	-43	-43	-122	-562	-252	-108	-64	-163	-499	-551	-114
		30	33	33	37	38	36	35	34	25	29	28	41	43	59	69	75	182	692	348	172	105	229	605	604	149
9		-28	102	104	251	177	162	132	145	91	76	60	116	155	78	30	13	5	14	11	8	10	10	10	6	72
		-530	-322	-321	-266	-284	-199	-246	-181	-119	-102	-75	-191	-320	-196	-56	-42	-40	-55	-33	-24	-23	-23	-22	-19	-154
		501	425	426	519	463	362	378	327	211	179	135	307	475	274	88	56	46	70	44	32	33	34	33	25	227
10		8	6	6	6	13	9	9	10	13	11	9	8	10	11	14	17	17	10	15	11	13	10	12	10	11
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		28	25	26	28	33	26	27	29	34	34	35	39	46	57	68	66	77	46	43	28	30	26	27	24	38
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		-14	-14	-13	-12	-15	-15	-35	-38	-33	-12	-15	-17	-78	-323	-167	-35	-140	-345	-451	-382	-86	-49	-108	-287	-112
		22	25	24	23	30	35	51	67	61	35	30	27	113	382	275	62	196	419	581	605	230	100	173	389	165
12		80	67	36	88	24	41	38	64	89	88	100	67	56	28	18	16	17	11	11	22	52	39	51	60	48
		-272	-41	-23	-72	-85	-36	-24	-88	-308	-353	-142	-119	-107	-60	-17	-15	-20	-17	-28	-108	-246	-116	-38	-73	-101
		353	109	60	160	110	78	63	153	397	452	243	187	164	90	36	31	37	28	39	131	300	157	91	134	150
13		39	32	24	35	41	54	53	53	67	62	85	57	69	75	94	50	32	24	24	24	24	24	20	21	45
		-34	-47	-75	-37	-89	-44	-28	-28	-22	-27	-144	-141	-98	-160	-187	-131	-80	-44	-13	-29	-27	-15	-18	-23	-64
		74	79	100	72	131	99	82	81	90	89	230	199	168	236	281	181	114	70	38	55	51	40	39	45	110
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		-15	-16	-12	-15	-12	-7	-6	-21	-13	-42	-88	-73	-56	-27	-16	-124	-107	-11	0	0	-18	-26	-10	-8	-30
		38	35	28	29	28	28	28	48	43	67	128	111	91	45	36	151	128	34	19	22	40	50	29	28	53
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		-16	-28	-26	-10	-8	-4	-5	-2	-15	-8	-39	-58	-57	-112	-136	-129	-340	-597	-364	-331	-226	-192	-163	-150	-126
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	-104	-55	-48	-127	-169	-130	-29	-17	-18	-36	-118	-283	-211	-159	-113	-116	-136	-177	-85	-29	-21	-35	-25	-5	-94
	229	118	85	197	258	241	67	48	53	95	193	340	289	249	162	154	220	242	130	62	47	62	55	27	151
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	-5	-22	-1	-10	-8	-9	-8	-11	-10	-11	-37	-30	-88	-205	-123	-300	-187	-115	-80	-33	-28	-22	-28	-15	-58
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	38	37	44	27	38	33	34	32	65	89	67	44	53	148	104	66	70	139	31	52	65	50	37	235	67
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	150	93	60	82	115	220	116	86	128	96	38	30	39	36	30	35	47	33	21	19	16	25	25	42	66
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	-26	-23	-16	-13	-13	-9	-11	-11	-34	-210	-123	-228	-344	-268	-401	-322	-229	-180	-135	-66	-31	-25	-27	-49	-116
	49	46	37	35	34	30	35	34	72	303	203	341	500	342	557	527	360	301	211	97	63	67	60	68	182
21	22	18	15	18	27	69	76	91	62	58	67	60	71	43	28	26	17	16	14	20	21	18	18	20	37
	-26	-17	-18	-20	-17	-38	-211	-111	-31	-20	-36	-114	-169	-23	-13	-13	-12	-13	-8	-5	-3	-5	-9	-15	-40
	49	36	35	39	45	108	288	203	94	79	104	175	241	67	42	40	30	30	22	26	26	25	29	36	78
22	21	22	20	21	22	24	26	27	28	31	33	32	34	31	28	25	27	32	33	30	65	85	129	121	39
	-16	-15	-17	-20	-18	-15	-9	-9	-7	-7	-7	-11	-14	-17	-20	-15	-9	-6	-6	-1	-26	-322	-339	-302	-51
	38	38	39	42	42	40	37	37	36	40	42	45	50	49	49	41	36	38	38	30	92	408	469	424	92
23	120	88	82	49	46	54	49	42	29	28	32	28	23	31	37	52	39	42	31	21	30	34	35	26	44
	-186	-311	-33	-11	-12	-10	-9	-11	-7	-14	-20	-22	-24	-22	-22	-65	-81	-129	-36	-6	-14	-10	-10	-15	-45
	308	401	117	60	59	65	59	54	37	44	54	51	47	54	59	117	122	173	68	28	45	45	46	42	90
24	35	39	42	40	37	35	34	33	34	36	53	39	39	93	71	107	200	210	174	124	177	169	200	152	90
	-10	-17	-8	-3	-3	-2	-6	-9	-7	-7	-34	-22	-22	-116	-258	-247	-343	-620	-416	-511	-434	-568	-295	-163	-172
	46	57	52	44	41	39	41	44	42	44	88	62	61	210	329	354	544	831	591	637	613	738	496	316	263
25	104	89	97	112	77	189	300	199	172	198	167	180	187	141	179	239	283	181	161	225	187	131	96	126	167
	-175	-268	-176	-169	-211	-195	-238	-225	-512	-282	-327	-480	-248	-329	-354	-390	-312	-204	-289	-489	-316	-220	-296	-226	-289
	281	358	274	282	290	386	539	426	684	481	494	661	435	471	534	629	596	386	451	715	504	351	393	354	457
26	124	145	193	106	111	125	198	204	145	82	138	107	235	136	94	133	100	213	93	83	142	140	115	181	139
	-172	-272	-228	-152	-128	-88	-117	-105	-236	-161	-218	-323	-218	-99	-129	-449	-188	-526	-594	-471	-553	-290	-120	-186	-251
	297	418	422	259	240	213	317	310	381	243	357	431	454	235	224	582	290	739	687	555	696	431	235	369	391
27	169	188	139	104	104	148	214	187	172	195	271	236	93	51	114	119	184	163	75	164	130	99	116	84	147
	-234	-151	-57	-51	-100	-204	-149	-169	-200	-367	-273	-187	-66	-65	-198	-352	-375	-385	-68	-235	-249	-147	-292	-248	-201
	405	341	197	156	204	353	364	357	373	563	545	424	160	116	313	472	560	549	144	399	380	247	409	334	349
28	95	71	36	57	61	70	55	44	33	77	61	82	33	38	40	58	33	52	115	127	193	122	137	134	76
	-94	-184	-131	-32	-50	-67	-78	-78	-58	-137	-175	-138	-64	-108	-79	-172	-210	-110	-246	-358	-270	-429	-293	-181	-156
	191	257	169	90	113	137	133	122	91	214	236	220	97	147	120	232	243	163	363	487	464	552	431	316	233

HOURLY VALUES (nT) OF AU, AL AND AE INDICES — MARCH 1981

DAY\UT		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	MEAN
1	AU	108	163	206	157	92	66	64	81	159	223	280	250	286	203	107	139	109	193	211	135	102	204	149	205	162
	AL	-173	-229	-174	-114	-36	-9	-17	-25	-237	-450	-283	-350	-342	-469	-263	-248	-274	-186	-215	-104	-32	-194	-528	-236	-216
	AE	282	392	381	272	129	76	82	108	397	673	564	601	629	673	371	387	384	379	426	239	134	400	678	443	379
2		155	120	93	104	81	70	69	320	410	196	226	223	212	159	71	44	27	46	91	95	42	30	32	39	123
		-121	-141	-227	-66	-8	-17	-21	-301	-467	-388	-592	-514	-569	-509	-196	-76	-40	-91	-143	-239	-90	-25	-22	-99	-207
		277	262	321	170	90	88	92	621	878	584	819	738	782	669	267	120	68	138	236	335	134	57	56	139	331
3		41	20	27	26	26	26	27	30	35	29	23	25	16	16	14	26	49	53	70	115	130	118	108	163	51
		-122	-67	-58	-20	-41	-29	-17	-20	-26	-24	-27	-22	-28	-34	-45	-66	-217	-197	-242	-204	-243	-274	-188	-289	-104
		165	88	86	47	68	55	45	51	63	55	51	48	46	52	59	94	266	252	313	320	375	394	298	454	156
4		182	169	142	156	156	148	249	206	156	118	100	76	28	13	11	14	17	30	24	21	20	33	25	20	88
		-272	-305	-319	-255	-207	-207	-263	-229	-282	-239	-229	-81	-25	-24	-31	-31	-66	-121	-72	-34	-21	-32	-35	-19	-142
		455	475	462	413	364	356	513	436	439	358	330	158	54	37	43	46	83	152	98	57	42	67	62	40	231
5		24	34	60	118	226	265	330	416	368	341	193	364	186	161	233	5	62	32	130	158	151	197	98	86	177
		-20	-40	-67	-172	-476	-468	-344	-322	-184	-233	-479	-581	-454	-580	-757	-871	-1012	-884	-634	-664	-330	-293	-168	-61	-421
		46	75	128	292	703	735	675	739	552	575	672	947	642	742	991	877	1075	917	765	823	482	491	267	148	598
6		42	17	10	26	38	20	38	13	0	5	0	-12	3	6	-2	-6	-6	-4	0	4	1	1	3	17	9
		-51	-64	-59	-63	-36	-40	-67	-38	-40	-46	-49	-43	-54	-50	-43	-34	-33	-29	-30	-31	-24	-24	-28	-35	-42
		94	82	70	90	75	61	106	52	40	53	48	35	57	57	40	27	25	24	31	36	26	26	32	53	52
7		23	14	33	27	45	38	42	63	115	94	140	100	159	185	195	244	262	153	171	231	102	50	40	43	107
		-72	-52	-44	-52	-32	-36	-61	-179	-252	-165	-301	-602	-546	-412	-393	-629	-870	-648	-455	-255	-68	-23	-39	-31	-259
		96	67	78	80	78	75	104	243	367	260	442	703	706	598	589	874	1133	802	628	486	171	74	80	75	367
8		31	94	38	32	32	31	55	75	71	208	196	84	112	96	43	37	37	10	13	15	27	22	17	10	58
		-21	-121	-105	-23	-24	-21	-57	-151	-218	-366	-227	-93	-261	-283	-75	-43	-74	-78	-59	-20	-27	-11	-11	-13	-99
		54	216	144	55	57	52	114	226	290	575	423	178	375	380	118	80	112	89	74	37	56	35	30	25	158
9		25	22	13	15	15	20	19	14	21	17	20	26	23	33	25	24	15	11	6	9	19	22	23	20	19
		-26	-34	-28	-29	-26	-24	-28	-25	-19	-26	-63	-75	-75	-28	-34	-32	-35	-27	-25	-24	-1	-5	-10	-12	-30
		52	58	43	45	42	45	48	40	41	45	83	102	99	62	59	57	51	39	32	34	21	28	34	33	50
10		31	30	33	44	54	39	64	34	28	72	148	267	160	100	71	51	52	59	37	25	27	18	21	20	62
		-17	-20	-15	-18	-17	-34	-100	-51	-23	-48	-136	-458	-176	-143	-215	-106	-144	-95	-70	-32	-22	-15	-14	-18	-83
		49	52	49	63	72	74	165	86	52	121	285	725	337	244	288	158	196	155	108	58	51	35	36	39	146
11		31	33	46	34	34	27	55	59	32	40	63	87	69	53	24	32	30	51	24	10	18	20	15	22	38
		-19	-27	-35	-35	-97	-42	-142	-76	-18	-23	-140	-230	-150	-59	-67	-30	-37	-92	-93	-29	-7	-9	-9	-10	-61
		51	61	83	70	132	69	199	137	51	64	204	318	219	112	92	63	67	143	118	39	26	30	25	33	100
12		33	39	31	28	26	24	33	51	62	101	124	40	44	61	62	24	23	17	37	40	45	146	93	82	53
		-14	-21	-24	-20	-23	-23	-19	-62	-166	-277	-200	-45	-73	-99	-171	-119	-38	-24	-11	-16	-13	-69	-245	-148	-80
		48	61	57	50	51	49	52	114	229	379	326	86	119	161	234	144	61	41	49	57	59	217	339	232	134
13		109	53	31	25	31	39	52	82	61	51	66	57	83	60	135	261	280	266	151	94	175	194	156	137	110
		-240	-81	-16	-21	-24	-36	-70	-35	-32	-29	-38	-46	-47	-288	-425	-652	-588	-464	-339	-142	-257	-563	-720	-287	-227
		351	135	48	47	56	76	124	118	93	82	104	105	130	349	561	913	869	731	491	237	434	759	877	425	338
14		72	31	37	61	105	159	142	125	200	131	127	130	318	204	273	144	63	76	98	63	89	58	41	33	116
		-70	-39	-26	-38	-113	-86	-61	-96	-213	-174	-200	-702	-711	-388	-383	-209	-146	-170	-227	-143	-100	-44	-30	-107	-186
		143	71	63	100	220	245	204	221	414	305	328	832	1030	593	657	355	210	248	326	208	190	104	72	142	303
15		42	41	36	75	108	38	68	51	42	25	20	34	53	81	76	80	105	243	187	107	49	61	51	60	72
		-119	-52	-89	-108	-446	-312	-135	-172	-93	-51	-94	-90	-188	-282	-291	-230	-202	-355	-260	-110	-32	-80	-252	-163	-175
		162	94	126	184	555	351	204	223	135	76	116	125	241	363	368	312	308	599	448	218	82	143	305	225	248

16	93	54	77	79	51	139	129	109	63	45	24	41	45	69	33	71	31	25	66	146	67	30	102	118	71
	-301	-325	-152	-96	-44	-71	-150	-130	-32	-40	-21	-68	-53	-139	-35	-63	-103	-58	-35	-201	-134	-29	-93	-438	-117
	395	381	230	176	97	211	280	240	97	86	46	110	99	208	69	135	134	84	101	349	203	60	196	558	189
17	74	80	94	94	86	52	52	46	84	61	34	45	95	75	124	81	94	98	49	64	100	64	38	53	72
	-574	-358	-158	-96	-58	-28	-28	-59	-103	-122	-86	-56	-158	-163	-348	-125	-187	-183	-85	-47	-246	-234	-79	-65	-152
	649	439	253	191	144	80	81	106	188	184	120	101	254	239	473	206	282	283	136	112	348	300	118	119	225
18	70	90	87	72	73	162	128	174	158	129	155	205	202	126	75	166	223	269	155	146	158	146	77	85	139
	-302	-288	-349	-298	-206	-268	-327	-369	-207	-150	-194	-334	-325	-269	-197	-300	-493	-311	-355	-209	-132	-89	-112	-144	-259
	373	379	437	372	280	432	456	543	367	280	350	539	528	396	273	467	718	582	511	355	292	236	190	230	399
19	49	65	49	43	40	31	37	34	37	34	45	51	30	22	19	79	144	253	194	206	145	106	53	36	75
	-82	-140	-60	-56	-22	-36	-28	-121	-71	-43	-59	-91	-35	-30	-34	-93	-315	-506	-417	-276	-134	-49	-21	-20	-114
	132	206	109	99	63	67	67	156	108	77	105	143	66	53	55	174	460	759	612	483	281	156	75	57	190
20	27	28	21	34	39	38	37	54	58	63	49	49	114	113	103	82	55	26	23	18	20	19	17	14	46
	-14	-59	-36	-35	-148	-48	-29	-116	-136	-143	-38	-39	-190	-339	-327	-203	-140	-15	-17	-18	-6	-7	-13	-16	-89
	42	87	58	71	189	87	67	172	195	207	88	89	304	453	430	285	196	42	42	37	28	27	32	32	136
21	15	19	22	21	21	22	25	21	31	19	24	24	24	21	27	24	19	14	111	181	153	161	70	33	46
	-16	-16	-14	-17	-17	-23	-15	-34	-29	-35	-41	-42	-39	-33	-33	-33	-25	-19	-240	-548	-226	-195	-115	-30	-76
	32	37	38	39	39	46	41	57	61	55	67	67	63	55	60	57	45	33	353	730	380	358	186	63	123
22	32	18	21	49	46	24	26	21	20	19	16	18	23	25	27	25	24	25	22	26	28	29	23	21	25
	-36	-38	-29	-25	-94	-52	-48	-28	-16	-29	-33	-39	-44	-44	-33	-27	-20	-47	-28	-13	-12	-25	-49	-38	-35
	69	57	51	75	141	78	75	50	37	50	50	58	67	69	60	52	45	73	51	40	42	56	73	59	62
23	21	19	20	22	26	25	32	33	45	58	59	59	47	39	33	28	21	16	13	17	25	25	23	27	31
	-31	-29	-32	-33	-28	-27	-33	-20	-26	-43	-81	-160	-126	-72	-32	-24	-19	-11	-6	-10	-10	-19	-25	-34	-39
	52	49	53	57	55	53	66	54	71	102	141	220	173	112	65	52	41	28	19	28	37	45	50	62	70
24	28	27	27	28	29	34	31	44	54	44	28	28	32	30	32	34	30	34	51	49	67	64	53	49	39
	-36	-34	-27	-26	-27	-29	-27	-56	-20	-26	-31	-29	-34	-40	-19	-18	-19	-6	-43	-72	-62	-19	-51	-64	-34
	64	62	55	56	58	64	60	100	75	72	60	59	67	71	52	53	50	41	95	122	130	85	106	114	74
25	68	93	77	88	102	233	310	186	119	64	37	48	150	273	334	303	193	162	165	247	246	238	162	98	167
	-84	-336	-102	-28	-77	-305	-547	-199	-74	-33	-32	-22	-99	-490	-573	-299	-123	-57	-130	-313	-240	-464	-532	-306	-228
	153	430	180	116	180	538	858	385	193	98	70	71	249	764	909	603	316	221	297	560	487	703	695	405	395
26	118	194	132	101	106	130	77	45	90	115	67	83	136	294	356	201	248	242	165	79	111	139	84	169	145
	-368	-209	-171	-95	-128	-93	-49	-25	-71	-129	-47	-45	-265	-623	-598	-330	-279	-237	-195	-109	-80	-188	-194	-377	-204
	487	404	304	197	236	225	127	72	162	245	115	129	402	918	955	531	528	481	361	190	193	328	280	547	351
27	122	95	87	121	107	90	110	75	121	111	99	46	25	80	128	154	49	34	30	106	160	157	105	80	95
	-108	-63	-89	-185	-106	-119	-166	-143	-117	-129	-59	-47	-31	-117	-363	-359	-148	-82	-36	-244	-391	-264	-204	-90	-153
	231	159	178	307	214	211	276	219	239	241	159	94	57	198	492	515	198	116	67	351	552	422	311	171	249
28	103	71	83	50	105	89	82	55	59	115	71	44	19	50	89	154	160	117	75	111	168	236	177	112	100
	-96	-166	-41	-13	-58	-118	-93	-37	-32	-105	-101	-32	-28	-70	-292	-281	-214	-197	-87	-77	-180	-370	-191	-98	-125
	200	257	125	64	164	208	176	93	92	221	173	77	48	120	382	436	375	315	163	189	350	607	369	211	226
29	91	131	137	136	133	146	150	167	201	124	205	360	238	213	315	250	207	314	307	269	119	62	49	29	181
	-99	-211	-99	-66	-55	-149	-308	-231	-246	-81	-281	-353	-322	-428	-317	-329	-228	-326	-367	-362	-64	-3	-23	-23	-207
	191	343	237	203	189	296	459	399	448	206	488	713	560	642	632	580	436	642	674	631	184	66	74	53	389
30	36	124	110	75	52	90	108	83	70	138	119	163	203	159	172	157	166	163	229	191	308	390	260	133	154
	-30	-104	-170	-59	-37	-33	-141	-138	-70	-75	-46	-92	-192	-386	-213	-217	-320	-225	-351	-277	-351	-360	-351	-245	-187
	67	229	281	135	89	124	251	222	140	215	166	255	395	545	386	375	487	389	581	468	661	752	613	379	342
31	173	191	174	200	157	52	39	63	96	94	67	47	98	143	159	140	104	188	302	280	258	199	124	75	143
	-108	-439	-416	-143	-261	-57	-28	-25	-67	-125	-214	-51	-87	-216	-206	-183	-161	-220	-541	-641	-422	-296	-241	-396	-231
	283	631	590	344	419	110	68	89	163	220	281	99	185	359	366	323	266	409	843	921	681	496	366	473	374

HOURLY VALUES (nT) OF AU, AL AND AE INDICES APRIL 1981

DAY\UT		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	MEAN
1	AU	77	228	193	116	136	153	93	109	119	205	333	252	171	132	57	159	263	202	201	253	220	129	142	89	168
	AL	-180	-227	-121	-119	-225	-119	-64	-87	-86	-347	-316	-159	-70	-129	-101	-146	-472	-476	-241	-400	-253	-72	-159	-104	-195
	AE	258	456	315	236	362	273	157	197	206	553	650	412	242	262	159	305	736	679	444	655	474	203	302	193	364
2		33	35	29	22	25	44	36	91	105	95	32	40	119	126	102	36	41	124	108	52	31	75	117	95	67
		-38	-39	-35	-32	-21	-35	-28	-49	-130	-165	-42	-53	-137	-306	-114	-52	-52	-129	-242	-101	-27	-66	-179	-112	-91
		72	75	65	55	47	80	65	142	236	260	74	94	257	433	217	89	95	255	351	154	58	142	297	208	159
3		56	100	92	94	63	44	32	33	49	33	39	47	71	112	172	167	137	144	290	257	177	200	171	123	113
		-36	-62	-173	-241	-87	-16	-22	-30	-31	-38	-45	-47	-71	-123	-220	-286	-208	-268	-351	-348	-170	-144	-133	-98	-135
		93	164	266	337	151	62	55	64	82	71	84	95	142	236	394	454	347	413	642	607	348	344	304	221	249
4		82	77	180	108	58	43	46	43	79	82	134	124	122	121	90	57	54	62	84	57	111	94	68	42	84
		-65	-56	-135	-113	-17	-27	-27	-30	-39	-43	-87	-121	-115	-194	-223	-79	-48	-82	-98	-48	-88	-148	-36	-28	-81
		147	134	317	222	76	71	74	75	119	125	222	246	238	316	314	137	103	146	183	106	201	243	105	71	166
5		43	33	25	23	21	20	16	16	30	20	23	22	25	24	18	18	29	26	44	72	76	83	40	15	32
		-27	-39	-57	-42	-37	-33	-30	-25	-51	-38	-27	-36	-39	-29	-38	-44	-53	-47	-40	-52	-40	-29	-36	-34	-38
		71	73	83	66	60	54	48	41	83	59	51	58	64	54	57	63	83	75	85	126	118	114	78	50	71
6		28	32	34	31	40	146	161	138	104	122	77	59	63	101	76	41	34	29	28	23	28	27	48	53	63
		-36	-32	-53	-58	-34	-142	-295	-117	-60	-58	-55	-60	-26	-119	-105	-38	-28	-35	-37	-39	-40	-44	-55	-40	-67
		64	64	89	90	75	289	456	255	164	180	132	119	90	221	182	80	62	65	66	63	69	72	105	95	131
7		33	25	35	27	26	31	46	34	44	31	31	68	94	60	32	62	39	36	37	34	64	53	49	48	43
		-42	-88	-68	-48	-32	-98	-129	-119	-66	-37	-21	-25	-141	-135	-32	-54	-42	-32	-36	-17	-27	-26	-44	-40	-58
		76	114	104	76	60	131	176	153	111	68	53	94	237	195	65	117	81	69	74	53	92	80	95	90	103
8		47	70	45	37	34	32	44	70	52	77	60	39	26	29	32	41	100	258	336	219	148	194	170	181	97
		-28	-94	-56	-31	-23	-29	-22	-150	-106	-35	-45	-58	-24	-30	-36	-47	-82	-187	-247	-208	-164	-179	-132	-156	-90
		76	165	102	69	59	62	67	221	159	113	106	98	50	59	69	89	183	446	585	428	312	373	302	337	189
9		110	114	142	120	81	26	21	21	13	14	22	26	69	38	41	42	40	57	62	54	34	38	63	32	53
		-329	-193	-244	-203	-75	-71	-44	-35	-29	-19	-18	-24	-39	-28	-34	-42	-39	-77	-50	-23	-34	-40	-60	-45	-75
		440	308	387	324	157	98	67	57	43	34	40	51	109	67	75	84	79	135	113	78	69	79	125	79	129
10		26	28	24	24	31	51	41	36	56	114	107	82	70	64	51	42	28	27	43	44	80	55	45	39	50
		-39	-32	-58	-39	-42	-93	-35	-18	-7	-32	-103	-54	-29	-34	-36	-40	-36	-52	-38	-24	-56	-33	-36	-40	-42
		66	61	83	64	74	146	77	56	64	146	211	137	99	99	88	83	65	81	82	69	137	89	83	81	93
11		30	28	23	25	27	41	39	49	133	147	114	244	220	327	363	300	283	187	153	153	165	157	174	337	155
		-39	-37	-30	-26	-27	-19	-25	-23	-100	-135	-99	-115	-221	-394	-555	-550	-136	-43	0	-12	-37	-59	-65	-102	-119
		70	67	54	53	56	61	66	72	233	282	214	359	443	723	919	851	420	231	151	165	203	217	239	440	275
12		343	427	457	476	284	221	87	282	279	329	273	375	479	405	269	315	360	260	249	305	265	246	206	268	311
		-647	-444	-117	-251	-592	-508	-196	-151	-265	-315	-384	-574	-502	-355	-257	-282	-335	-522	-166	-309	-628	-268	-127	-301	-354
		991	871	575	728	876	729	283	434	544	644	658	949	982	761	528	598	696	783	416	616	893	515	335	570	666
13		244	320	420	249	118	119	48	70	254	231	71	120	131	264	195	234	98	72	142	230	141	197	304	314	191
		-201	-574	-815	-184	-418	-502	-302	-367	-693	-431	-326	-321	-231	-274	-245	-285	-89	-53	-130	-272	-249	-257	-331	-468	-334
		446	894	1235	434	537	621	350	439	948	662	398	442	363	540	441	521	189	127	273	504	391	454	636	783	526
14		193	182	164	114	160	258	149	52	71	74	86	91	126	103	250	248	125	81	53	35	43	67	23	13	115
		-368	-200	-333	-186	-164	-362	-308	-126	-140	-78	-67	-63	-156	-252	-358	-431	-226	-144	-80	-36	-61	-80	-49	-45	-180
		561	382	498	301	325	621	457	178	212	153	154	155	283	357	609	681	352	226	135	72	106	148	73	59	296
15		12	9	9	9	7	4	1	-2	0	5	23	38	38	27	29	23	48	25	37	33	67	58	31	49	24
		-53	-59	-58	-59	-58	-56	-50	-51	-54	-45	-55	-53	-78	-50	-55	-44	-88	-65	-82	-32	-66	-65	-34	-50	-57
		66	69	68	70	66	61	52	49	54	51	79	91	117	78	85	69	137	92	120	66	134	124	66	100	82

16	99	66	36	24	28	29	52	28	22	104	255	299	164	66	28	39	24	63	116	126	90	82	59	71	82
	-227	-190	-127	-63	-23	-27	-41	-43	-34	-45	-358	-371	-424	-140	-75	-71	-46	-94	-163	-233	-103	-78	-46	-113	-131
	326	258	163	87	53	57	94	71	57	149	614	671	590	208	105	111	71	158	280	361	195	160	105	185	214
17	40	32	21	85	181	178	240	242	335	189	270	235	131	153	242	247	234	282	231	142	192	142	82	46	174
	-121	-37	-54	-54	-247	-257	-401	-448	-432	-223	-220	-245	-175	-196	-357	-423	-399	-240	-303	-183	-201	-346	-111	-19	-237
	161	69	76	139	430	436	641	690	767	412	491	481	307	350	601	672	634	523	536	327	394	489	193	66	412
18	33	44	26	31	31	22	25	14	15	19	18	18	21	29	23	107	171	217	110	65	65	89	105	80	57
	-49	-139	-36	-28	-29	-34	-47	-42	-31	-25	-30	-27	-25	-30	-36	-67	-133	-204	-43	-24	-45	-48	-78	-68	-55
	83	185	63	61	61	58	73	58	47	45	48	46	46	59	60	175	305	422	154	90	110	137	183	149	113
19	177	115	313	251	254	92	41	38	72	159	196	285	294	268	285	413	397	294	332	237	266	251	68	40	214
	-119	-183	-442	-475	-235	-89	-60	-51	-38	-93	-296	-677	-442	-307	-343	-580	-579	-448	-508	-334	-326	-173	-52	-55	-288
	297	299	756	726	490	181	103	90	111	252	493	963	737	576	630	994	978	743	841	572	593	425	121	95	503
20	81	142	161	279	308	283	286	127	40	65	181	176	193	110	236	359	460	386	324	249	41	103	200	131	205
	-108	-237	-375	-455	-474	-390	-416	-155	-62	-53	-168	-420	-247	-113	-376	-696	-721	-476	-335	-427	-737	-297	-305	-346	-349
	190	380	537	734	783	673	703	283	103	119	349	597	442	225	613	1056	1182	862	660	677	779	401	506	478	555
21	201	158	156	179	179	151	170	235	367	175	315	244	143	263	230	252	242	278	275	271	283	329	259	192	231
	-208	-139	-143	-345	-357	-224	-155	-458	-544	-569	-612	-383	-231	-397	-405	-313	-256	-234	-418	-351	-394	-407	-336	-441	-347
	410	298	300	525	537	376	325	694	912	745	928	629	375	662	637	566	500	513	695	624	679	737	596	634	579
22	298	120	192	197	152	256	192	257	187	102	52	154	75	127	191	102	96	202	297	297	302	105	133	144	176
	-489	-415	-191	-223	-353	-359	-459	-450	-252	-123	-63	-175	-252	-258	-419	-148	-162	-245	-610	-882	-501	-193	-155	-136	-313
	788	536	384	422	505	615	652	707	441	226	116	330	329	386	611	250	259	448	908	1180	805	298	288	281	490
23	192	183	155	132	167	223	321	279	275	283	225	174	251	96	52	60	74	117	90	75	185	195	108	43	165
	-409	-255	-140	-169	-295	-371	-565	-581	-275	-383	-549	-521	-351	-204	-106	-108	-131	-256	-75	-57	-224	-373	-220	-71	-279
	602	438	295	302	463	595	887	861	551	667	775	696	603	301	159	170	206	375	167	134	410	569	329	116	445
24	40	47	27	103	133	128	88	65	68	165	214	234	152	178	332	274	276	335	238	257	149	127	205	270	171
	-49	-49	-60	-49	-270	-420	-198	-38	-84	-205	-452	-490	-379	-321	-303	-389	-394	-644	-532	-376	-120	-81	-182	-247	-264
	90	97	89	153	404	548	287	104	152	372	668	725	532	501	636	664	671	981	771	634	270	209	387	517	436
25	227	253	151	188	119	96	99	132	63	65	87	146	185	162	99	90	159	206	178	144	183	209	302	255	158
	-503	-427	-172	-189	-267	-87	-46	-176	-70	-56	-78	-137	-244	-362	-304	-202	-259	-310	-219	-118	-143	-186	-319	-252	-214
	731	680	324	379	387	183	146	308	133	122	165	285	430	525	404	294	419	517	399	263	328	396	621	508	373
26	286	212	186	281	318	234	155	92	386	273	327	269	322	431	461	383	336	309	432	475	413	414	371	175	314
	-344	-230	-177	-233	-261	-229	-69	-44	-619	-818	-508	-651	-707	-532	-593	-528	-415	-127	-281	-482	-492	-597	-423	-328	-404
	630	443	364	515	581	464	224	137	1005	1092	836	921	1031	965	1056	912	752	437	715	958	906	1012	795	503	719
27	104	273	277	219	240	324	278	378	390	372	302	382	336	234	182	257	310	201	127	114	108	234	172	77	245
	-615	-448	-529	-566	-200	-305	-436	-548	-393	-363	-707	-581	-469	-441	-434	-395	-316	-206	-86	-58	-59	-285	-227	-41	-363
	719	722	807	785	440	631	715	926	784	736	1009	964	807	676	617	653	626	408	215	173	168	520	399	119	609
28	87	117	108	83	65	69	56	73	94	78	89	102	70	74	70	178	204	175	103	106	164	236	295	152	119
	-62	-63	-71	-32	-23	-45	-8	-10	-38	-38	-63	-57	-57	-101	-108	-208	-383	-262	-72	-56	-106	-309	-479	-344	-125
	149	180	180	116	88	114	65	84	132	117	153	160	128	175	178	388	588	437	176	163	271	545	775	497	244
29	235	272	224	136	74	87	46	75	50	81	220	251	309	198	131	114	183	262	237	195	164	162	227	177	171
	-327	-322	-166	-86	-132	-142	-73	-40	-26	-26	-233	-697	-529	-412	-270	-192	-425	-611	-419	-352	-249	-124	-224	-163	-260
	563	595	391	223	206	231	120	116	77	107	454	950	839	612	401	307	610	874	657	549	415	288	452	340	432
30	131	85	59	40	20	21	18	22	63	62	58	51	93	103	82	31	30	35	70	84	78	50	43	51	58
	-135	-77	-66	-26	-33	-31	-30	-20	-20	-18	-20	-17	-79	-63	-54	-54	-8	-12	-53	-39	-30	-17	-11	-23	-39
	267	164	126	67	54	53	49	43	83	80	79	68	174	168	137	86	40	48	124	124	109	68	56	75	98

HOURLY VALUES (nT) OF AU, AL AND AE INDICES MAY 1981

DAY\UT		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	MEAN
1	AU	35	35	36	35	49	58	112	167	200	150	99	174	189	121	71	61	68	154	292	249	138	106	204	179	124
	AL	-33	-33	-78	-83	-36	-30	-132	-207	-269	-184	-71	-180	-289	-277	-127	-88	-102	-165	-464	-269	-79	-73	-119	-359	-156
	AE	69	70	115	119	86	89	245	375	470	334	171	354	478	398	200	150	171	319	757	519	218	181	324	539	281
2		143	162	129	55	69	78	65	65	49	49	38	71	92	39	20	21	53	67	48	42	56	49	45	61	65
		-314	-205	-184	-71	-36	-49	-39	-67	-39	-118	-23	-25	-91	-102	-29	-33	-56	-99	-45	-34	-35	-31	-35	-33	-75
		458	369	315	128	106	128	105	134	89	168	62	97	184	142	50	55	109	167	94	77	91	81	80	95	141
3		67	51	35	27	25	91	141	129	174	130	54	18	39	66	57	46	35	44	42	45	49	41	39	32	62
		-40	-47	-32	-44	-38	-43	-163	-221	-349	-148	-70	-36	-37	-41	-76	-73	-19	-19	-21	-14	-8	-23	-15	-22	-67
		109	99	69	72	64	135	306	351	523	278	124	55	77	109	135	119	54	64	64	60	58	65	55	55	129
4		19	19	21	24	20	24	38	68	67	41	31	42	47	26	27	45	45	56	39	68	45	25	22	35	37
		-33	-41	-38	-46	-50	-43	-35	-52	-71	-52	-49	-44	-33	-36	-44	-96	-133	-100	-19	-41	-36	-32	-35	-43	-50
		54	62	61	71	71	68	75	121	139	94	81	86	81	64	72	141	178	157	59	109	82	57	57	79	88
5		38	41	21	16	16	16	16	14	40	34	38	56	55	66	54	31	31	41	60	39	27	27	33	27	35
		-40	-47	-43	-42	-45	-40	-45	-50	-49	-53	-50	-44	-40	-76	-46	-18	-39	-17	-47	-20	-27	-28	-37	-36	-41
		79	90	65	59	62	57	62	65	90	88	89	101	96	142	101	50	71	60	107	59	55	56	72	64	77
6		27	26	32	31	51	30	21	52	27	23	41	48	93	63	33	20	26	63	66	41	35	56	34	30	40
		-36	-43	-44	-52	-78	-56	-48	-35	-43	-43	-44	-46	-64	-48	-50	-66	-52	-62	-28	-23	-31	-45	-43	-45	-47
		64	70	78	84	130	87	71	88	71	67	86	95	158	112	84	87	79	126	94	66	67	102	78	76	88
7		43	43	56	74	101	65	32	23	31	49	116	47	27	45	41	48	38	37	38	39	50	26	26	33	47
		-45	-39	-43	-48	-85	-56	-45	-45	-32	-44	-49	-74	-45	-30	-27	-23	-4	0	-5	-6	-29	-22	-35	-35	-36
		90	83	101	124	187	122	78	69	65	94	165	122	73	75	68	71	42	36	42	46	80	49	62	69	84
8		29	36	78	55	38	49	63	64	51	84	88	70	88	86	64	53	63	65	84	46	30	35	134	175	68
		-39	-38	-49	-103	-39	-21	-42	-33	-33	-90	-56	-52	-69	-120	-91	-42	-34	-18	-21	-9	-5	-15	-68	-64	-48
		69	75	128	159	78	71	107	98	85	175	145	122	158	207	155	96	98	84	105	56	36	51	203	240	117
9		216	233	255	306	365	404	551	406	540	418	270	214	158	77	39	47	98	118	124	132	139	125	135	238	234
		-74	-75	-153	-485	-489	-204	-745	-353	-293	-396	-255	-197	-200	-149	-67	-59	-116	-89	-106	-116	-86	-70	-95	-122	-208
		292	309	409	792	855	610	1298	760	834	816	526	412	359	227	107	107	215	207	231	249	226	196	232	361	443
10		229	144	152	268	296	178	128	101	75	67	59	36	33	80	78	78	97	310	377	407	308	396	174	156	176
		-280	-231	-165	-252	-149	-89	-100	-73	-60	-36	-41	-58	-48	-106	-125	-49	-90	-345	-675	-571	-608	-674	-946	-853	-276
		511	377	319	521	447	269	230	174	137	104	100	95	82	187	203	129	188	656	1052	979	917	1072	1120	1011	453
11		240	327	521	339	481	617	485	422	327	356	430	443	380	277	342	134	104	113	82	88	128	182	157	102	295
		-160	-428	-704	-984	-617	-393	-680	-311	-285	-79	-123	-343	-577	-403	-315	-87	-93	-113	-76	-66	-100	-191	-212	-51	-308
		402	757	1227	1324	1099	1011	1166	735	613	436	554	786	957	680	657	222	197	226	159	155	229	374	371	154	604
12		100	62	48	48	104	95	57	54	52	50	51	35	44	47	149	301	244	320	291	289	222	206	235	213	138
		-74	-86	-49	-62	-59	-115	-135	-86	-60	-48	-48	-48	-41	-68	-126	-365	-388	-272	-255	-327	-269	-222	-251	-353	-159
		176	149	99	111	164	211	194	142	113	100	100	84	87	116	275	666	632	593	548	617	492	429	487	568	298
13		270	284	149	112	295	349	84	88	52	43	44	56	33	45	44	41	38	38	43	24	32	39	33	34	95
		-242	-334	-188	-78	-178	-383	-179	-65	-54	-39	-27	-25	-67	-39	-27	-23	-19	-29	-44	-29	-30	-43	-49	-53	-93
		513	619	339	191	474	733	264	154	107	82	73	82	101	85	72	65	59	68	89	54	63	83	83	88	189
14		46	92	111	102	101	212	233	93	182	211	234	316	206	166	78	149	117	86	155	153	121	185	180	121	152
		-47	-60	-135	-80	-57	-246	-267	-60	-105	-262	-203	-392	-282	-291	-148	-165	-144	-83	-135	-233	-109	-89	-113	-108	-159
		95	153	247	183	159	459	502	154	287	473	438	709	490	458	227	314	262	169	291	387	231	274	294	230	312
15		77	137	182	567	324	317	452	444	264	345	281	277	262	279	176	214	353	392	369	328	210	209	335	274	294
		-38	-59	-210	-652	-589	-460	-330	-676	-660	-515	-511	-451	-484	-491	-251	-366	-494	-608	-621	-493	-569	-550	-390	-347	-451
		116	197	393	1221	915	779	783	1121	925	861	794	729	746	770	428	580	848	1001	991	822	779	760	726	622	746

16	110	296	294	199	250	282	424	429	417	481	170	185	486	472	367	293	302	370	477	347	261	147	156	169	308
	-518	-349	-281	-308	-265	-485	-503	-365	-305	-389	-781	-826	-844	-793	-635	-361	-260	-500	-410	-588	-335	-189	-207	-234	-447
	630	646	577	508	517	767	929	794	724	871	952	1011	1330	1265	1002	654	562	870	888	935	598	338	365	404	756
17	202	180	123	61	65	63	80	61	71	32	32	20	38	66	104	95	102	98	98	98	144	210	237	360	110
	-318	-223	-135	-100	-81	-58	-54	-46	-84	-78	-48	-37	-40	-113	-278	-276	-275	-280	-147	-86	-129	-195	-284	-661	-168
	521	405	260	163	147	122	135	109	157	111	81	58	79	179	383	372	378	379	246	184	274	406	523	1022	279
18	305	250	176	285	363	557	270	491	480	244	270	146	347	294	472	383	439	559	454	308	347	171	130	113	327
	-527	-206	-73	-231	-847	-588	-534	-479	-523	-342	-395	-406	-339	-356	-474	-387	-588	-627	-448	-328	-334	-245	-230	-169	-403
	833	457	250	517	1212	1146	805	971	1004	587	666	552	686	651	946	770	1027	1187	903	637	682	417	361	283	731
19	87	65	55	100	126	130	158	227	94	68	147	163	103	146	222	159	175	213	96	78	69	98	163	228	132
	-60	-45	-45	-62	-95	-151	-208	-425	-200	-58	-128	-329	-260	-256	-457	-328	-312	-360	-171	-74	-99	-138	-262	-329	-202
	148	111	101	164	223	283	367	652	295	127	276	494	364	403	680	488	487	573	267	153	169	238	426	558	335
20	222	212	306	226	199	215	333	372	213	102	73	122	262	253	233	218	158	212	285	383	299	164	130	203	225
	-459	-341	-446	-196	-371	-636	-579	-558	-325	-105	-63	-169	-502	-609	-570	-274	-176	-378	-542	-601	-430	-193	-138	-227	-370
	682	555	753	424	572	853	912	931	539	207	137	291	765	862	804	493	334	591	828	985	731	358	270	431	596
21	172	117	142	103	87	79	107	90	106	148	188	188	112	44	63	48	46	44	117	122	187	259	324	131	126
	-148	-101	-102	-62	-78	-73	-192	-99	-71	-296	-300	-229	-178	-53	-20	-26	-87	-62	-117	-240	-245	-378	-274	-144	-149
	321	220	245	166	167	153	301	190	178	445	489	419	291	98	84	75	134	106	234	363	432	638	600	276	276
22	71	86	116	143	154	134	106	41	69	47	21	27	30	49	33	30	81	91	91	114	139	81	25	24	75
	-50	-62	-108	-232	-324	-281	-131	-41	-72	-114	-30	-37	-38	-90	-147	-120	-167	-154	-115	-87	-154	-88	-56	-59	-115
	122	149	226	376	479	416	239	83	142	162	52	65	70	139	180	151	248	246	207	201	293	170	81	84	191
23	37	41	61	70	132	136	153	231	333	252	303	217	132	161	163	170	262	281	429	364	337	400	349	300	221
	-44	-46	-42	-36	-47	-217	-178	-432	-403	-333	-454	-421	-148	-256	-405	-315	-378	-368	-562	-375	-369	-347	-445	-445	-294
	83	88	105	107	180	354	332	663	737	586	758	638	280	417	568	486	641	649	992	740	707	748	795	746	517
24	307	274	241	256	191	216	349	315	299	239	201	203	148	142	153	225	126	165	101	126	247	391	379	407	238
	-394	-373	-316	-270	-280	-343	-434	-472	-378	-281	-238	-118	-203	-183	-301	-426	-91	-38	-89	-108	-248	-368	-257	-526	-281
	703	648	558	528	473	561	784	788	679	522	440	322	351	325	455	652	217	204	192	236	496	760	637	934	519
25	256	281	288	161	280	355	362	401	326	300	156	230	162	59	156	205	302	370	344	337	322	203	198	151	259
	-546	-461	-430	-359	-234	-502	-530	-378	-318	-333	-140	-198	-161	-182	-267	-215	-490	-419	-291	-424	-450	-412	-297	-306	-348
	802	743	719	522	515	859	894	780	644	633	297	429	324	241	423	420	792	789	636	763	773	616	495	458	607
26	208	209	216	156	134	170	123	136	122	81	50	51	50	15	21	47	65	50	57	57	55	56	88	84	96
	-267	-265	-234	-192	-164	-179	-127	-64	-107	-66	-49	-65	-84	-39	-29	-31	-48	-59	-61	-66	-88	-89	-85	-63	-105
	477	475	451	350	299	350	250	200	230	148	99	116	134	54	51	78	113	110	119	124	144	147	174	147	202
27	54	42	34	32	56	72	49	41	31	54	80	51	30	41	29	28	28	30	82	181	158	128	96	149	66
	-47	-39	-31	-39	-60	-43	-40	-34	-32	-45	-46	-46	-35	-20	-13	-28	-54	-20	-76	-131	-89	-46	-46	-116	-49
	102	83	67	73	118	116	91	77	65	101	128	99	67	62	43	56	82	51	158	312	248	175	142	266	116
28	274	176	41	200	215	164	48	34	39	92	90	156	140	85	109	48	63	91	89	63	56	57	87	148	107
	-304	-201	-42	-140	-473	-234	-40	-33	-30	-26	-30	-102	-175	-73	-86	-42	-30	-58	-82	-48	-46	-37	-59	-87	-103
	580	379	85	342	690	399	88	69	70	120	121	259	316	158	196	91	93	150	171	111	103	95	147	236	211
29	131	105	91	121	155	119	74	99	56	79	69	79	92	43	38	41	63	83	98	103	112	104	59	70	87
	-91	-99	-121	-96	-162	-115	-38	-58	-130	-39	-32	-47	-134	-111	-51	-105	-120	-83	-36	-27	-50	-67	-68	-45	-80
	224	206	213	219	318	236	114	158	187	119	103	127	226	155	90	147	183	167	135	132	163	171	129	117	168
30	57	86	112	86	74	60	66	47	84	114	102	118	69	72	47	87	89	81	54	54	129	166	114	81	85
	-35	-50	-107	-122	-24	-25	-25	-25	-30	-42	-74	-90	-61	-71	-80	-126	-231	-206	-46	-31	-95	-182	-153	-69	-83
	93	138	221	209	99	85	92	74	115	157	176	208	130	143	127	214	321	288	100	85	225	349	268	151	169
31	190	140	135	142	98	107	160	68	109	142	92	115	91	121	61	63	49	50	87	92	59	73	98	51	100
	-100	-154	-79	-59	-42	-35	-122	-80	-35	-61	-61	-73	-61	-129	-84	-86	-44	-39	-19	-106	-45	-40	-44	-26	-68
	291	295	216	202	142	143	283	149	144	203	154	188	153	251	146	149	93	89	105	198	105	114	144	78	168

HOURLY VALUES (nT) OF AU, AL AND AE INDICES JUNE 1981

DAY\UT		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	MEAN
1	AU	69	86	53	56	20	88	83	127	87	76	80	90	106	71	45	73	134	174	129	101	110	92	67	86	88
	AL	-61	-82	-60	-30	-24	-23	-120	-103	-64	-36	-29	-28	-28	-49	-28	-65	-223	-265	-64	-60	-57	-49	-28	-52	-68
	AE	130	169	114	88	45	112	205	231	152	113	111	119	135	121	74	139	358	439	193	162	167	142	96	139	156
2		68	107	32	48	63	72	109	95	187	253	226	177	136	126	117	91	108	108	61	59	57	33	51	64	102
		-48	-115	-32	-32	-44	-42	-68	-43	-63	-169	-204	-172	-252	-191	-132	-155	-115	-77	-42	-22	-15	-11	-52	-37	-89
		118	223	66	81	108	116	178	138	251	423	432	350	388	317	250	247	224	185	104	83	74	46	105	102	192
3		43	53	24	26	50	72	318	264	215	62	38	43	99	54	160	252	189	213	331	256	221	176	103	75	139
		-24	-34	-38	-47	-35	-61	-148	-211	-202	-43	-30	-35	-63	-40	-187	-267	-335	-432	-412	-300	-298	-158	-91	-97	-150
		68	88	64	74	86	135	467	476	418	107	69	80	162	95	348	521	525	646	744	557	520	335	195	172	290
4		62	30	17	16	41	48	30	63	47	30	40	43	54	33	55	46	18	29	32	66	70	34	42	60	42
		-90	-60	-40	-38	-63	-42	-32	-33	-76	-36	-45	-45	-43	-38	-41	-44	-57	-48	-48	-54	-40	-32	-31	-38	-46
		153	91	59	55	105	91	62	97	124	67	86	89	99	72	97	91	76	78	82	121	111	66	73	100	89
5		111	140	80	33	38	67	47	37	37	40	46	91	90	74	54	32	48	48	33	31	22	37	77	126	60
		-53	-184	-86	-50	-48	-141	-65	-48	-31	-38	-48	-71	-75	-90	-67	-63	-61	-98	-32	-35	-39	-37	-74	-102	-68
		165	325	167	83	88	208	113	85	68	79	96	163	166	164	122	95	110	147	66	66	62	74	152	229	129
6		140	122	80	101	97	140	93	54	46	72	200	145	196	129	89	138	188	178	227	241	154	116	93	87	130
		-185	-99	-71	-100	-132	-131	-88	-59	-45	-46	-139	-164	-169	-264	-216	-203	-219	-299	-237	-183	-86	-56	-58	-153	-142
		326	223	152	203	231	272	182	114	92	119	340	309	366	393	305	342	408	478	465	424	240	172	151	241	273
7		59	64	152	337	340	270	371	228	158	206	149	207	199	278	177	195	119	207	309	330	340	183	229	300	225
		-53	-44	-93	-322	-288	-258	-524	-273	-149	-52	-113	-183	-114	-107	-65	-63	-89	-96	-145	-551	-532	-321	-179	-266	-203
		112	109	246	661	630	530	896	502	308	259	263	391	313	386	243	259	209	303	455	882	873	506	410	567	430
8		255	234	85	59	57	99	76	102	52	50	40	18	20	10	6	5	17	140	171	111	84	57	76	103	80
		-375	-243	-127	-70	-92	-55	-86	-99	-67	-47	-28	-29	-35	-36	-38	-40	-53	-182	-302	-168	-60	-82	-105	-112	-105
		630	477	214	131	151	155	164	202	120	98	68	48	56	46	45	46	71	322	473	279	145	139	181	216	187
9		130	34	12	7	9	20	20	58	56	35	17	12	19	44	40	23	35	16	18	18	15	17	18	24	29
		-107	-52	-36	-43	-47	-60	-57	-63	-52	-33	-27	-15	-25	-29	-56	-63	-115	-71	-37	-37	-38	-40	-42	-39	-49
		238	88	49	51	58	82	78	121	110	70	44	27	45	75	97	87	150	87	55	55	55	58	61	64	79
10		20	14	8	11	5	10	20	42	39	53	122	70	65	46	47	39	51	32	28	48	59	25	24	94	40
		-32	-32	-40	-34	-32	-49	-34	-36	-41	-41	-74	-38	-25	-17	-65	-111	-104	-112	-21	-33	-49	-26	-34	-65	-48
		54	48	49	46	38	59	55	80	81	95	197	109	91	64	113	151	156	145	50	81	109	52	59	159	89
11		107	162	165	134	101	66	64	70	68	79	51	58	64	40	73	57	48	60	98	165	240	171	92	43	95
		-52	-177	-158	-116	-87	-68	-45	-38	-156	-39	-27	-33	-40	-53	-150	-112	-138	-115	-83	-84	-128	-220	-71	-45	-93
		160	340	324	252	190	135	111	110	225	118	79	93	105	93	223	169	188	177	181	249	368	393	163	90	189
12		64	87	108	87	59	58	40	51	47	62	105	72	84	62	57	41	41	46	55	42	37	31	99	38	61
		-55	-49	-130	-97	-80	-47	-34	-20	-21	-42	-95	-62	-61	-58	-54	-45	-63	-40	-46	-45	-30	-19	-70	-27	-54
		120	137	240	186	141	106	75	72	69	105	202	135	146	122	112	86	105	87	102	87	67	51	170	66	116
13		36	21	17	26	18	75	141	72	48	138	179	132	99	60	44	28	58	63	60	30	19	17	19	15	59
		-24	-26	-23	-36	-37	-49	-142	-77	-38	-43	-55	-78	-193	-149	-119	-73	-88	-163	-66	-33	-24	-25	-26	-32	-68
		61	43	41	63	57	125	285	150	87	182	235	211	293	210	163	102	147	227	126	64	45	44	47	48	128
14		15	14	12	9	7	14	25	40	42	53	40	57	119	100	67	57	63	81	155	150	122	107	82	61	62
		-36	-48	-51	-47	-50	-53	-48	-48	-41	-38	-32	-29	-86	-75	-65	-45	-67	-110	-161	-121	-133	-101	-63	-50	-67
		52	63	65	58	57	68	75	89	84	91	73	87	206	176	134	103	131	192	317	271	256	210	147	113	130
15		50	85	88	49	110	223	197	185	134	119	138	195	165	104	45	39	41	71	133	203	175	133	88	201	124
		-59	-68	-95	-60	-63	-193	-299	-106	-50	-62	-132	-193	-183	-81	-33	-62	-62	-93	-76	-146	-132	-168	-57	-216	-112
		110	155	185	110	175	418	498	293	185	182	271	388	349	186	79	102	103	165	209	351	308	302	146	418	237

16	279	268	279	323	332	267	139	39	96	143	96	81	117	136	122	159	267	431	285	140	123	286	291	344	210
	-465	-491	-349	-470	-361	-156	-72	-47	-42	-151	-118	-78	-97	-155	-236	-220	-197	-325	-301	-118	-52	-178	-417	-426	-230
	745	760	628	794	694	425	212	87	139	295	215	160	215	292	360	380	466	757	587	258	177	465	709	771	441
17	272	222	210	203	156	132	171	119	113	109	139	58	29	29	14	12	17	27	33	34	24	32	25	40	92
	-444	-337	-171	-142	-259	-136	-229	-277	-143	-51	-125	-84	-32	-37	-26	-26	-25	-21	-23	-33	-44	-56	-50	-52	-118
	716	559	382	347	417	270	402	397	256	161	266	143	62	67	41	38	42	49	57	67	69	89	77	93	211
18	54	119	188	114	95	231	104	107	50	99	65	118	54	46	110	165	117	59	74	115	174	138	218	204	117
	-63	-87	-137	-173	-121	-164	-136	-80	-38	-51	-43	-131	-96	-75	-174	-304	-166	-61	-90	-133	-298	-128	-240	-227	-134
	119	207	326	289	217	395	242	188	89	151	109	250	152	122	285	470	285	121	164	248	473	267	459	432	252
19	217	148	147	50	38	34	46	76	119	120	152	214	198	113	101	117	132	127	218	191	167	144	114	149	130
	-265	-197	-137	-108	-90	-42	-61	-44	-38	-158	-155	-220	-356	-258	-181	-265	-241	-185	-357	-359	-146	-150	-158	-142	-180
	482	346	285	159	130	77	108	121	158	280	308	434	555	372	283	383	375	313	576	551	314	296	273	292	311
20	170	160	123	90	84	136	225	143	207	171	75	52	84	87	103	93	42	34	66	89	56	81	64	68	104
	-124	-144	-127	-185	-78	-116	-101	-152	-199	-223	-85	-65	-80	-107	-247	-224	-79	-30	-51	-69	-55	-179	-72	-53	-119
	295	306	252	276	163	253	328	296	408	394	161	118	165	194	350	318	123	64	118	159	111	260	137	122	224
21	72	94	29	78	95	194	117	99	45	26	27	26	21	14	10	22	52	30	25	28	44	15	21	24	50
	-43	-125	-55	-46	-86	-116	-230	-76	-35	-30	-32	-45	-40	-29	-35	-39	-115	-51	-13	-22	-52	-46	-48	-47	-61
	116	221	85	126	182	312	348	176	81	56	61	72	61	44	45	62	168	83	39	51	97	62	70	73	112
22	16	14	12	11	3	4	10	12	17	23	15	21	23	30	28	23	18	36	49	100	154	119	84	69	37
	-36	-43	-45	-37	-45	-51	-53	-45	-33	-37	-43	-41	-40	-37	-28	-32	-28	-29	-41	-94	-117	-96	-66	-65	-49
	53	58	59	49	49	55	63	57	51	60	58	64	65	68	56	56	46	65	90	195	272	216	151	135	87
23	65	40	21	36	106	158	52	31	50	80	116	101	54	47	59	36	36	42	39	46	32	27	25	27	55
	-82	-36	-31	-33	-87	-173	-58	-35	-31	-29	-69	-121	-115	-62	-63	-47	-36	-17	-9	-20	-17	-40	-50	-43	-54
	149	78	54	71	194	332	111	67	81	109	185	222	170	110	123	84	73	60	48	66	51	69	76	72	111
24	23	22	36	18	14	10	25	99	174	254	233	200	84	33	85	75	48	104	227	378	171	62	48	59	103
	-39	-26	-26	-34	-41	-45	-37	-22	-156	-263	-154	-162	-167	-77	-113	-99	-33	-51	-219	-324	-151	-8	-16	-53	-97
	64	49	63	54	56	55	63	123	332	518	387	362	252	111	199	176	82	156	446	703	323	71	65	113	201
25	53	36	52	90	86	116	63	68	132	231	192	223	218	230	262	323	298	100	88	126	207	190	104	107	150
	-38	-47	-60	-43	-95	-117	-90	-40	-59	-252	-183	-239	-229	-443	-528	-243	-298	-193	-64	-116	-159	-267	-64	-66	-164
	93	84	113	134	182	233	154	109	192	484	376	463	447	674	792	567	597	295	153	242	366	457	169	173	315
26	119	55	45	61	151	215	178	151	108	231	163	157	279	186	116	139	142	69	88	67	42	53	88	210	130
	-136	-113	-53	-54	-89	-208	-241	-232	-181	-238	-355	-187	-278	-343	-248	-131	-92	-60	-86	-8	1	-23	-61	-170	-149
	256	170	99	116	241	425	421	385	291	470	518	344	558	529	364	271	236	130	175	76	41	77	151	382	280
27	226	267	165	76	98	291	131	96	201	166	140	70	56	56	50	85	122	141	151	216	168	105	39	100	134
	-208	-198	-206	-95	-140	-276	-321	-149	-147	-108	-127	-103	-33	-47	-26	-41	-89	-199	-256	-202	-95	-142	-65	-69	-139
	434	467	372	172	239	568	454	246	350	275	268	174	91	103	77	126	212	341	408	419	264	247	105	170	274
28	145	181	121	104	273	322	377	366	259	254	104	29	36	48	48	76	105	141	208	108	70	54	86	78	150
	-92	-218	-65	-80	-183	-202	-346	-299	-257	-330	-192	-70	-69	-92	-89	-107	-137	-123	-273	-91	-59	-79	-130	-100	-153
	238	400	187	186	458	525	724	667	518	585	297	99	106	141	138	184	242	265	482	199	130	134	218	179	304
29	252	266	112	79	147	300	442	614	526	380	384	308	488	290	227	171	66	58	82	160	173	112	60	41	239
	-185	-220	-177	-79	-97	-258	-734	-962	-415	-400	-492	-505	-887	-323	-187	-326	-158	-84	-120	-221	-230	-140	-96	-101	-308
	437	487	291	160	245	559	1177	1577	943	782	877	815	1377	615	416	498	225	143	203	381	403	253	157	143	549
30	217	174	84	43	36	28	18	15	14	21	29	13	13	17	36	38	83	109	201	153	172	155	170	218	86
	-127	-209	-73	-19	-37	-48	-39	-37	-28	-34	-30	-19	-30	-27	-29	-51	-59	-70	-203	-111	-123	-122	-250	-388	-90
	346	384	159	62	74	76	58	52	43	55	60	33	44	45	66	90	142	179	405	264	296	278	421	608	177

HOURLY VALUES (nT) OF AU, AL AND AE INDICES JULY 1981

DAY\UT		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	MEAN
1	AU	214	184	160	142	59	57	55	97	194	192	115	75	97	132	184	153	174	224	234	211	157	165	166	99	147
	AL	-494	-461	-212	-110	-65	-48	-50	-45	-202	-198	-53	-34	-80	-129	-347	-258	-178	-122	-137	-271	-93	-86	-118	-102	-162
	AE	710	646	373	253	125	107	107	143	398	391	169	111	177	262	532	411	353	346	372	483	250	252	285	201	311
2		135	85	97	213	353	358	338	195	360	221	141	134	210	155	85	65	77	54	47	53	139	111	161	94	162
		-155	-134	-92	-111	-274	-547	-447	-377	-435	-297	-92	-115	-199	-274	-51	-35	-78	-29	-30	-58	-115	-58	-264	-208	-186
		290	220	191	325	628	906	786	573	795	519	234	250	410	431	138	101	156	84	77	112	255	171	426	303	349
3		45	54	44	18	20	18	12	20	12	19	50	67	80	53	25	20	41	53	89	158	207	244	309	308	82
		-74	-68	-61	-55	-60	-49	-42	-53	-50	-76	-50	-62	-82	-70	-72	-34	-22	-25	-67	-170	-347	-436	-453	-416	-121
		120	124	106	74	81	68	55	75	63	97	101	131	163	125	98	54	64	79	157	328	554	681	763	725	204
4		260	129	65	58	98	20	7	41	15	37	88	81	89	79	61	46	59	34	33	86	155	347	290	267	102
		-252	-135	-49	-51	-176	-117	-32	-31	-40	-62	-72	-63	-65	-79	-80	-87	-93	-42	-41	-89	-194	-295	-255	-220	-109
		513	265	115	110	275	139	40	73	56	101	161	146	156	159	142	133	152	77	74	175	350	643	546	488	212
5		135	99	73	64	102	42	89	67	152	125	213	150	98	134	123	49	134	141	224	233	208	144	131	138	128
		-99	-86	-118	-150	-102	-31	-23	-51	-195	-120	-120	-153	-183	-150	-182	-89	-75	-136	-160	-121	-84	-51	-99	-139	-113
		235	186	193	215	206	75	114	120	348	246	335	304	282	284	306	139	209	278	386	356	293	195	231	278	242
6		71	94	218	268	280	279	211	316	283	310	268	229	170	84	69	93	287	406	331	201	106	60	69	75	199
		-99	-92	-136	-372	-434	-331	-161	-325	-280	-244	-349	-252	-216	-74	-27	-57	-257	-452	-432	-104	-49	-33	-52	-55	-204
		172	187	355	641	715	611	373	642	565	555	618	483	388	160	97	150	545	859	763	306	156	93	122	131	404
7		89	73	101	142	117	196	275	163	53	33	136	158	143	160	92	115	85	114	151	75	75	75	75	162	119
		-75	-150	-87	-140	-124	-209	-318	-167	-68	-24	-56	-167	-312	-335	-148	-131	-80	-160	-143	-59	-65	-40	-51	-119	-135
		164	224	190	284	242	406	594	331	122	58	194	326	456	496	241	246	165	275	295	134	141	116	126	282	255
8		203	143	72	110	275	212	232	194	232	285	145	150	87	61	44	39	39	48	56	58	91	92	87	101	127
		-212	-114	-64	-156	-275	-169	-168	-123	-152	-166	-95	-204	-138	-93	-73	-31	-32	-9	-18	-28	-85	-46	-42	-46	-106
		416	259	138	267	552	383	402	318	385	453	241	354	226	156	118	71	72	58	75	86	177	138	130	148	234
9		134	144	140	126	145	100	144	153	140	89	133	130	153	94	71	67	69	53	83	140	169	117	57	62	113
		-58	-79	-203	-166	-121	-78	-152	-84	-52	-36	-41	-34	-212	-63	-58	-42	-24	-22	-47	-111	-146	-75	-16	-42	-82
		193	224	345	294	268	180	297	238	193	127	176	166	366	158	130	110	94	75	130	252	316	193	75	105	196
10		77	74	76	89	94	144	108	108	87	40	76	108	68	28	24	38	70	95	100	106	83	86	74	44	79
		-44	-75	-46	-59	-68	-139	-71	-72	-54	-38	-79	-119	-91	-46	-31	-41	-59	-101	-109	-82	-41	-37	-27	-27	-65
		121	150	124	149	163	284	181	182	142	80	156	228	160	74	56	79	130	197	209	189	124	124	102	71	145
11		44	37	40	44	62	58	147	181	208	144	222	243	125	82	79	60	66	138	146	102	73	67	74	92	106
		-28	-24	-22	-29	-33	-30	-59	-112	-200	-132	-249	-255	-223	-144	-134	-114	-118	-226	-140	-59	-33	-39	-36	-48	-104
		72	62	63	74	95	89	207	295	409	277	472	498	348	226	213	174	184	365	286	162	107	107	110	140	210
12		83	131	173	163	237	170	173	196	201	120	125	174	239	94	66	51	240	271	225	220	208	174	219	276	176
		-43	-71	-148	-100	-314	-406	-292	-253	-239	-98	-78	-108	-392	-211	-129	-94	-148	-514	-496	-158	-162	-97	-281	-391	-218
		128	203	322	264	552	577	466	450	440	219	204	283	631	306	196	145	388	785	722	379	372	272	501	668	395
13		296	128	109	51	36	19	17	31	52	40	62	117	108	48	32	52	121	106	94	174	215	123	89	73	91
		-340	-235	-122	-81	-26	-31	-33	-29	-34	-40	-39	-72	-187	-59	-102	-107	-156	-339	-153	-123	-151	-110	-66	-45	-112
		637	364	232	134	62	50	51	60	87	80	103	190	296	108	135	160	277	445	248	298	367	234	156	119	204
14		143	130	41	28	64	83	51	40	44	60	100	46	33	33	115	136	65	67	34	48	33	34	49	63	64
		-185	-239	-32	-32	-38	-86	-70	-25	-20	-29	-65	-45	-35	-61	-216	-435	-146	-46	-20	-33	-42	-52	-43	-52	-85
		329	371	74	61	103	171	122	67	66	90	166	93	70	96	331	571	211	114	54	81	75	86	93	115	150
15		63	43	39	37	108	75	25	37	46	38	46	65	32	40	43	42	42	46	46	51	49	31	50	74	49
		-64	-56	-48	-38	-115	-104	-33	-13	-17	-26	-36	-76	-71	-50	-104	-88	-75	-45	-43	-42	-53	-63	-90	-92	-60
		128	100	88	75	224	180	59	51	63	64	84	142	105	92	148	131	117	91	90	94	103	95	141	166	110

16	83	102	135	67	54	54	143	77	121	171	130	159	79	42	35	35	34	72	91	89	80	60	69	120	88
	-60	-134	-126	-72	-35	-32	-64	-112	-90	-195	-242	-138	-78	-37	-37	-27	-47	-66	-82	-132	-74	-56	-51	-103	-87
	143	237	262	140	90	87	209	190	212	367	373	298	159	81	73	63	82	138	174	222	154	117	121	224	176
17	137	57	30	55	38	40	70	166	327	328	471	311	219	162	140	77	69	117	280	290	224	300	436	356	196
	-105	-55	-37	-65	-48	-69	-71	-114	-429	-315	-347	-428	-334	-189	-180	-138	-39	-142	-467	-862	-766	-622	-856	-657	-306
	243	114	68	120	88	110	143	281	757	644	819	741	554	352	321	215	108	259	748	1152	991	923	1293	1013	502
18	255	250	206	173	120	113	133	92	42	37	115	82	59	14	17	27	33	35	47	63	89	133	77	129	98
	-443	-372	-147	-39	-45	-23	-63	-64	-22	-37	-51	-64	-79	-62	-45	-56	-72	-24	-32	-35	-65	-127	-66	-87	-88
	698	623	354	213	167	137	198	157	64	76	167	147	139	78	63	83	106	60	80	99	155	261	144	216	187
19	148	156	148	75	43	34	16	9	28	74	73	110	80	100	114	75	50	99	148	194	163	119	67	46	90
	-138	-171	-135	-74	-146	-65	-34	-44	-31	-50	-57	-84	-98	-101	-178	-161	-49	-43	-56	-202	-111	-82	-36	-50	-91
	288	328	284	150	190	100	51	54	60	125	131	196	179	201	293	236	99	143	205	397	275	201	104	97	183
20	126	84	36	47	91	53	17	9	15	16	44	97	220	272	161	70	54	50	48	58	58	64	60	53	75
	-82	-102	-70	-59	-42	-62	-42	-29	-34	-36	-32	-42	-154	-538	-293	-56	-11	-13	-13	-15	-18	-23	-37	-43	-77
	210	188	107	108	134	116	60	40	49	54	78	140	375	811	455	126	66	65	62	74	78	88	98	97	153
21	97	69	85	67	46	54	70	88	80	57	48	62	84	66	43	37	39	37	32	40	36	62	66	44	59
	-46	-41	-110	-76	-35	-58	-73	-69	-60	-91	-34	-46	-47	-24	-24	-26	-23	-33	-11	-25	-32	-72	-56	-34	-48
	143	110	196	144	82	114	144	158	141	149	84	109	133	92	68	64	64	71	44	65	68	134	123	79	108
22	87	178	170	270	230	55	48	32	87	205	288	251	299	201	175	251	163	152	132	263	240	224	283	219	188
	-61	-101	-124	-255	-191	-45	-34	-38	-26	-173	-409	-289	-385	-245	-223	-279	-186	-172	-59	-72	-137	-160	-374	-166	-175
	148	280	295	526	422	100	82	71	115	379	698	542	685	447	399	532	350	324	192	336	379	385	658	385	364
23	228	220	142	64	30	46	137	383	115	234	94	334	424	534	370	511	379	414	467	413	238	89	85	71	251
	-187	-235	-97	-48	-44	-35	-221	-403	-104	-123	-66	-410	-687	-481	-642	-448	-536	-753	-381	-317	-345	-177	-240	-66	-294
	417	457	240	113	75	81	359	788	220	358	161	746	1112	1016	1013	960	916	1167	849	731	585	268	327	138	546
24	107	72	33	22	6	5	36	15	15	5	45	28	56	69	97	36	55	102	71	55	61	193	369	306	78
	-76	-72	-71	-77	-37	-24	-34	-118	-55	-35	-41	-42	-52	-57	-74	-58	-43	-65	-29	-28	-40	-237	-489	-361	-92
	184	146	105	101	43	30	71	134	71	42	87	72	110	128	173	95	99	167	102	84	102	431	859	669	171
25	247	188	56	37	113	443	474	153	104	343	148	119	334	267	-343	99	180	251	546	308	598	345	247	139	225
	-311	-352	-60	-37	-132	-845	-989	-247	-77	-104	-301	-120	-347	-1388	-2255	-1384	-836	-363	-690	-1016	-552	-265	-258	-966	-579
	559	542	118	75	246	1289	1464	401	183	449	450	239	682	1656	1911	1483	1017	615	1236	1325	1151	611	507	1106	805
26	192	283	228	185	363	247	294	94	62	108	115	66	121	155	74	113	279	290	84	113	71	36	92	197	161
	-479	-622	-1196	-805	-917	-808	-540	-156	-46	-71	-125	-153	-202	-202	-145	-99	-284	-209	-73	-116	-65	-70	-107	-357	-327
	672	906	1425	992	1281	1056	836	251	109	181	241	220	324	358	221	213	564	500	157	229	137	107	200	555	489
27	66	200	215	303	282	238	267	271	269	326	310	240	202	173	109	46	31	40	57	42	32	36	113	38	163
	-581	-344	-384	-379	-457	-535	-543	-443	-469	-523	-368	-314	-405	-315	-233	-178	-119	-53	-24	-21	-35	-43	-86	-114	-290
	648	545	599	682	739	774	811	715	739	849	679	556	608	490	342	224	150	93	81	64	68	80	200	153	454
28	40	39	33	49	65	122	89	100	163	143	125	114	75	45	47	34	24	33	41	42	46	29	30	24	65
	-82	-61	-118	-77	-118	-150	-289	-202	-200	-370	-420	-221	-172	-165	-124	-60	-54	-66	-50	-52	-53	-56	-54	-56	-136
	123	100	152	127	185	273	379	303	364	514	547	336	248	212	173	94	79	100	91	94	99	86	84	80	202
29	61	124	104	42	14	9	5	4	5	3	0	0	12	21	19	33	17	27	27	19	19	45	99	99	34
	-105	-116	-221	-120	-37	-43	-39	-34	-38	-46	-51	-52	-63	-58	-55	-61	-49	-37	-27	-47	-66	-77	-120	-192	-73
	167	241	327	163	52	53	44	39	45	50	52	53	76	80	75	94	66	64	55	67	87	123	220	291	108
30	74	28	32	34	23	48	174	161	160	177	131	76	158	118	88	120	89	172	216	228	209	191	132	128	124
	-135	-53	-56	-59	-49	-40	-175	-296	-260	-273	-197	-139	-225	-211	-174	-215	-143	-204	-237	-224	-132	-126	-103	-95	-159
	209	82	89	94	72	89	350	459	421	451	329	216	384	330	263	335	232	376	453	453	342	318	236	224	284
31	127	160	182	194	166	209	233	200	63	12	32	22	25	40	111	70	90	152	219	281	312	303	142	227	149
	-97	-80	-182	-165	-73	-84	-279	-196	-61	-57	-57	-60	-60	-66	-103	-173	-131	-186	-333	-264	-303	-380	-165	-268	-159
	224	242	366	360	240	294	513	398	126	70	90	84	86	108	215	244	221	340	553	545	616	684	307	497	309

HOURLY VALUES (nT) OF AU, AL AND AE INDICES — AUGUST 1981

DAY\UT		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	MEAN
1	AU	260	272	228	263	160	223	313	215	126	255	221	136	137	89	68	94	92	131	366	315	192	164	195	191	196
	AL	-240	-285	-337	-271	-307	-156	-332	-326	-112	-176	-230	-53	-114	-92	-105	-81	-96	-133	-180	-206	-138	-64	-218	-170	-184
	AE	500	558	567	535	468	379	646	542	239	432	452	191	252	183	175	176	190	265	547	522	332	229	414	361	381
2		188	252	155	89	40	25	28	67	70	87	127	195	106	121	174	306	199	156	173	100	92	196	287	296	147
		-124	-193	-119	-43	-26	-25	-23	-20	-99	-51	-48	-167	-105	-95	-157	-224	-139	-106	-181	-97	-49	-137	-391	-333	-123
		313	445	275	133	68	51	52	88	170	139	176	363	213	217	332	532	339	264	356	198	143	334	679	630	271
3		195	97	75	95	254	385	357	294	352	285	235	138	88	63	135	144	165	191	165	195	142	60	91	144	181
		-162	-69	-91	-109	-185	-257	-331	-263	-461	-309	-197	-159	-217	-153	-146	-208	-183	-193	-183	-182	-90	-22	-52	-224	-185
		357	166	167	205	440	642	688	558	813	595	433	298	306	218	282	352	349	386	350	378	234	83	144	369	367
4		82	117	83	225	179	55	110	195	195	124	109	60	38	51	34	48	39	50	68	60	81	43	42	36	88
		-165	-93	-70	-251	-254	-102	-45	-205	-461	-260	-64	-42	-38	-39	-28	-20	-17	-22	-71	-46	-64	-29	-29	-28	-102
		248	211	153	477	434	157	156	401	658	385	174	102	77	90	62	68	57	73	141	107	146	73	73	65	191
5		43	31	37	69	112	267	335	215	109	121	132	93	77	85	87	84	123	207	251	265	272	301	329	296	164
		-41	-48	-37	-42	-53	-326	-435	-314	-99	-45	-158	-57	-115	-64	-52	-77	-77	-309	-427	-282	-292	-318	-247	-330	-177
		86	80	76	113	167	594	771	531	209	166	291	151	193	151	141	163	201	518	680	548	565	620	578	627	342
6		226	285	263	178	244	286	238	270	245	252	249	265	195	119	128	196	238	230	214	157	97	92	88	93	202
		-353	-368	-434	-354	-492	-513	-434	-379	-407	-225	-216	-233	-274	-203	-211	-259	-213	-160	-177	-128	-67	-103	-72	-50	-264
		580	655	698	534	738	800	673	650	653	478	465	499	471	323	339	456	452	392	392	287	165	197	161	143	467
7		101	130	115	73	51	73	48	56	57	138	186	210	206	263	199	207	317	445	466	441	234	162	164	150	187
		-67	-69	-87	-139	-170	-189	-137	-113	-62	-87	-187	-287	-337	-364	-322	-280	-299	-296	-289	-246	-271	-146	-101	-117	-194
		168	200	202	213	221	262	186	169	119	226	373	497	543	629	523	489	616	742	757	689	506	308	266	268	382
8		105	97	52	27	20	30	21	21	32	38	30	26	19	22	29	26	13	15	24	38	42	39	72	174	42
		-109	-99	-40	-38	-22	-28	-26	-33	-36	-73	-37	-47	-29	-37	-24	-21	-30	-25	-15	-21	-23	-28	-42	-185	-44
		215	197	93	66	44	59	47	54	69	113	68	75	48	59	53	48	44	42	40	61	66	68	115	360	88
9		120	219	174	85	31	21	14	8	7	11	12	21	21	30	28	42	51	60	93	91	108	57	68	66	60
		-127	-203	-311	-86	-21	-22	-34	-22	-25	-30	-26	-27	-33	-31	-19	-33	-44	-35	-45	-37	-91	-24	-25	-38	-58
		247	422	486	172	53	44	49	32	33	41	38	48	54	62	48	77	96	97	139	129	201	82	95	105	119
10		57	43	101	138	87	72	84	87	132	178	108	99	91	96	80	76	70	67	60	49	50	85	101	119	89
		-32	-35	-33	-110	-90	-76	-20	-57	-73	-60	-48	-29	-89	-91	-60	-51	-29	-23	-20	-11	-9	-50	-70	-108	-53
		90	80	135	249	177	148	105	144	206	238	157	129	181	189	141	129	101	91	81	62	60	137	173	229	143
11		101	67	62	30	20	27	32	37	46	64	51	53	73	91	167	172	164	106	146	245	282	232	145	49	103
		-62	-22	-19	-22	-25	-25	-23	-32	-34	-41	-39	-63	-75	-119	-276	-462	-228	-171	-134	-291	-307	-187	-79	-47	-116
		164	90	82	53	46	52	56	69	81	106	91	117	148	212	445	634	393	278	282	536	590	420	226	97	220
12		163	162	161	151	60	85	91	39	26	46	54	48	38	51	60	77	61	81	87	92	93	153	148	180	92
		-132	-199	-161	-135	-49	-70	-85	-23	-24	-45	-62	-55	-57	-60	-58	-95	-147	-50	-38	-64	-76	-99	-71	-146	-83
		296	362	323	287	109	155	178	62	51	91	116	104	95	112	119	172	208	132	127	157	171	253	220	327	176
13		127	52	118	114	153	154	89	130	118	117	65	37	39	42	31	40	54	63	51	62	84	161	113	82	87
		-103	-64	-144	-130	-58	-136	-50	-81	-76	-78	-49	-40	-38	-44	-52	-96	-159	-129	-63	-65	-101	-256	-157	-55	-93
		230	117	263	245	211	290	140	212	195	196	116	79	77	86	84	137	214	193	116	128	187	418	271	137	181
14		152	205	149	73	33	52	49	64	93	143	209	168	127	125	84	35	35	24	29	70	98	112	165	66	98
		-137	-179	-103	-37	-38	-94	-77	-44	-43	-95	-293	-237	-213	-153	-113	-86	-75	-52	-60	-92	-109	-99	-163	-52	-110
		289	386	252	111	72	148	127	109	136	238	503	406	341	279	199	122	111	78	91	163	209	212	328	119	210
15		50	28	40	102	116	120	55	49	74	45	52	44	43	68	57	46	60	43	42	107	200	257	260	253	92
		-11	-17	-26	-107	-203	-160	-58	-39	-73	-54	-29	-43	-62	-82	-100	-101	-168	-107	-60	-85	-225	-517	-376	-407	-130
		62	47	67	210	320	280	114	89	149	99	81	87	105	150	157	148	229	151	103	194	427	775	636	661	222

16	112	70	54	90	32	110	52	48	38	36	55	61	72	59	46	35	41	48	53	46	49	46	72	78	58
	-170	-57	-29	-69	-65	-154	-130	-81	-22	-14	-25	-44	-63	-66	-58	-52	-54	-54	-61	-46	-40	-41	-77	-88	-65
	283	128	84	159	98	265	183	130	62	51	81	105	135	126	104	87	97	103	116	93	90	88	151	167	124
17	84	97	170	86	68	88	151	230	362	367	346	254	246	128	70	84	80	170	202	256	212	160	200	235	181
	-69	-113	-142	-111	-63	-42	-45	-167	-308	-474	-473	-283	-208	-181	-63	-38	-55	-158	-215	-214	-131	-173	-241	-359	-180
	153	211	312	197	132	130	197	397	670	841	820	538	455	311	134	123	136	329	418	471	345	334	441	595	362
18	232	196	212	94	48	25	121	184	254	229	298	272	285	333	356	429	350	265	203	97	234	146	68	62	208
	-242	-320	-241	-61	-26	-34	-70	-292	-369	-233	-211	-277	-576	-444	-371	-373	-285	-176	-135	-100	-181	-258	-78	-47	-225
	475	517	454	155	75	60	192	477	623	462	510	550	862	778	727	802	636	442	340	199	417	404	148	110	434
19	69	144	101	97	90	78	85	90	110	70	161	125	163	186	248	125	90	64	59	119	112	111	59	43	108
	-74	-142	-276	-201	-96	-59	-104	-66	-113	-52	-54	-72	-128	-284	-333	-75	-51	-5	-22	-121	-141	-92	-32	-29	-109
	143	287	379	299	187	138	191	156	224	123	216	198	291	470	582	200	142	70	83	242	254	204	92	73	218
20	40	52	134	116	86	54	69	103	67	36	31	59	67	53	48	33	52	109	200	123	75	74	110	49	77
	-50	-66	-260	-254	-141	-71	-56	-155	-113	-19	-26	-33	-36	-30	-34	-38	-52	-66	-332	-120	-45	-29	-70	-43	-89
	91	119	395	370	227	125	126	258	182	56	57	93	104	83	82	73	105	177	533	244	121	103	180	93	167
21	48	40	80	48	94	159	150	201	165	99	85	147	216	168	107	128	151	213	378	374	317	203	69	44	153
	-29	-73	-73	-68	-36	-92	-227	-289	-135	-50	-42	-62	-274	-378	-312	-125	-191	-267	-321	-471	-430	-193	-87	-50	-178
	77	114	154	118	131	252	378	490	301	150	127	210	491	547	420	254	343	481	700	847	748	397	157	94	333
22	49	86	216	205	201	232	131	137	197	188	90	48	53	33	43	39	67	128	290	254	105	75	51	164	129
	-67	-59	-276	-290	-150	-113	-123	-128	-110	-69	-85	-41	-27	-18	-30	-16	-29	-82	-301	-223	-50	-12	-22	-68	-100
	117	146	493	495	351	345	255	266	308	258	176	90	82	52	74	57	98	211	593	479	157	88	74	233	229
23	218	251	293	296	298	277	196	232	340	349	410	281	129	416	665	572	269	171	176	143	229	293	96	120	280
	-291	-373	-400	-368	-268	-215	-219	-251	-414	-494	-364	-290	-155	-450	-668	-370	-427	-157	-156	-109	-229	-495	-805	-308	-345
	510	626	694	665	567	493	416	483	755	844	775	572	285	867	1334	943	697	330	333	254	459	790	902	429	626
24	87	122	293	415	365	142	67	78	117	62	37	19	31	56	145	355	370	308	267	285	226	201	145	185	182
	-76	-115	-116	-386	-322	-115	-30	-68	-123	-74	-39	-42	-55	-82	-238	-449	-449	-417	-319	-332	-321	-292	-127	-299	-204
	164	239	411	802	689	258	98	146	241	137	77	62	87	138	385	804	820	727	588	619	548	494	274	485	387
25	217	137	62	42	56	25	106	109	174	141	138	99	55	109	106	132	265	239	198	188	182	115	107	67	128
	-246	-58	-25	-30	-35	-20	-67	-122	-282	-168	-114	-39	-36	-134	-246	-325	-338	-266	-367	-235	-251	-165	-79	-43	-154
	464	196	89	73	93	46	174	232	456	310	253	138	92	244	353	458	604	506	567	425	434	280	188	110	283
26	40	29	21	22	22	46	83	89	43	26	30	44	43	28	46	71	110	87	74	60	61	71	71	90	54
	-39	-40	-40	-27	-18	-17	-64	-100	-52	-31	-31	-30	-45	-44	-103	-115	-258	-193	-100	-51	-35	-37	-47	-115	-68
	80	69	61	50	41	63	148	189	96	58	62	74	88	73	151	187	369	280	175	112	98	109	119	205	123
27	75	70	64	41	88	32	74	82	122	193	150	213	252	264	311	312	286	472	299	258	277	174	143	104	181
	-134	-199	-83	-45	-47	-60	-66	-55	-56	-77	-259	-244	-231	-332	-332	-231	-311	-282	-226	-279	-266	-103	-101	-153	-174
	209	270	147	87	136	93	141	137	179	270	410	459	484	597	644	545	598	754	527	539	544	277	244	257	356
28	175	142	145	261	172	266	168	114	133	193	207	148	101	108	200	234	420	203	174	82	103	130	256	165	179
	-99	-112	-202	-246	-194	-134	-154	-142	-92	-212	-256	-206	-68	-138	-202	-265	-493	-216	-128	-30	-26	-42	-349	-112	-172
	275	254	348	508	367	401	323	257	226	405	463	354	171	247	403	499	914	420	303	114	131	173	605	278	352
29	173	240	179	110	194	242	220	290	269	308	475	221	265	408	363	373	331	307	280	137	79	82	73	95	238
	-138	-214	-139	-67	-93	-198	-240	-301	-300	-356	-384	-106	-231	-267	-328	-456	-240	-216	-251	-165	-72	-53	-27	-25	-203
	313	454	318	177	288	441	460	592	569	665	859	327	496	676	692	830	572	525	532	304	152	136	100	120	442
30	207	198	245	239	286	217	150	124	198	247	244	276	196	177	190	103	46	57	46	45	93	113	128	73	162
	-180	-256	-291	-367	-268	-226	-184	-131	-109	-109	-120	-414	-233	-328	-317	-125	-74	-109	-27	-12	-43	-126	-146	-57	-177
	388	455	538	607	555	444	334	256	308	357	364	691	430	506	508	230	121	167	74	57	137	240	274	130	340
31	157	96	224	270	210	51	68	61	53	37	54	47	76	89	62	62	49	40	40	40	37	33	30	30	80
	-103	-70	-138	-193	-262	-45	-31	-40	-46	-44	-46	-46	-61	-52	-41	-59	-13	-8	-4	-1	-16	-28	-31	-31	-59
	261	167	363	464	473	97	100	102	100	81	100	94	137	142	103	122	63	50	45	42	54	62	62	61	139

HOURLY VALUES (nT) OF AU, AL AND AE INDICES SEPTEMBER 1981

DAY\UT	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	MEAN
1 AU	35	34	35	37	38	41	43	41	35	42	30	34	54	63	45	37	39	26	33	49	63	43	31	63	41
AL	-26	-22	-20	-23	-24	-25	-24	-18	-29	-38	-45	-44	-53	-92	-70	-43	-30	-38	-26	-27	-47	-43	-36	-60	-38
AE	62	57	55	61	63	67	67	60	65	81	77	79	108	156	116	81	71	66	60	77	110	87	68	123	80
2	89	143	176	173	198	331	259	193	252	333	277	225	167	225	287	353	354	338	272	216	123	87	81	110	219
	-124	-242	-352	-424	-405	-302	-250	-290	-321	-287	-340	-350	-353	-496	-430	-392	-375	-251	-130	-187	-106	-87	-67	-80	-277
	213	386	529	597	604	634	510	485	574	622	617	576	521	722	718	747	730	590	403	404	230	174	148	190	497
3	98	60	56	40	16	12	31	50	99	39	36	81	51	49	60	65	38	23	32	60	47	47	50	116	52
	-82	-14	-43	-43	-20	-20	-13	-28	-68	-43	-38	-81	-95	-40	-74	-144	-112	-24	-15	-32	-40	-31	-53	-63	-51
	181	74	100	84	36	32	46	80	169	84	74	163	148	90	135	210	151	48	48	93	88	79	103	180	104
4	82	129	62	20	13	24	25	45	68	106	115	170	212	161	75	55	73	110	143	169	172	235	156	270	112
	-51	-99	-38	-38	-31	-27	-26	-94	-77	-66	-53	-85	-275	-276	-170	-115	-110	-152	-169	-74	-98	-186	-168	-301	-116
	134	229	100	58	45	52	53	141	147	174	169	257	488	438	245	171	184	263	313	243	270	421	325	572	229
5	245	170	206	200	203	128	97	92	199	128	106	112	111	58	67	90	94	115	86	54	32	96	166	131	124
	-368	-350	-267	-144	-152	-220	-72	-89	-211	-153	-92	-86	-122	-73	-113	-263	-196	-113	-34	-22	-16	-61	-182	-270	-153
	615	521	473	345	356	349	171	182	412	283	200	199	234	132	181	355	291	228	121	76	49	157	349	402	278
6	98	58	88	74	39	50	68	42	76	71	42	39	43	30	23	28	26	24	30	39	35	50	94	64	51
	-104	-67	-76	-123	-102	-63	-167	-83	-56	-57	-30	-47	-49	-48	-41	-40	-30	-35	-38	-48	-50	-25	-42	-40	-61
	203	125	165	198	142	114	237	126	134	130	73	87	94	79	66	69	58	61	69	88	85	75	137	104	113
7	48	29	20	28	43	28	20	18	22	25	57	55	40	31	29	46	79	151	198	219	190	125	61	48	67
	-70	-25	-25	-22	-36	-131	-40	-40	-34	-35	-37	-44	-44	-49	-61	-61	-123	-264	-259	-174	-166	-76	-48	-31	-79
	118	54	45	50	80	161	61	60	57	61	95	101	85	81	91	108	203	416	457	393	357	201	110	79	147
8	45	47	107	83	97	214	66	16	25	45	26	28	29	24	22	23	20	23	26	29	41	56	92	140	55
	-44	-40	-58	-158	-232	-188	-55	-59	-50	-33	-41	-45	-42	-44	-43	-36	-34	-37	-36	-34	-39	-31	-75	-80	-64
	89	88	165	242	330	404	122	76	76	80	69	73	73	70	67	60	56	60	62	63	80	89	168	221	120
9	163	151	89	108	78	63	57	89	112	80	87	79	58	33	38	38	32	62	164	145	92	105	64	84	86
	-87	-106	-65	-155	-47	-21	-31	-39	-141	-63	-43	-45	-40	-45	-41	-22	-30	-61	-124	-126	-68	-66	-41	-66	-66
	251	257	155	264	126	85	90	129	254	145	131	124	99	80	80	61	63	124	289	272	160	171	106	151	153
10	60	76	64	44	27	22	21	20	20	32	48	46	54	42	47	61	105	148	137	108	119	130	150	154	72
	-60	-44	-29	-25	-24	-15	-15	-15	-21	-41	-40	-46	-44	-34	-32	-64	-158	-227	-272	-53	-39	-134	-110	-83	-68
	121	120	93	70	51	38	37	36	43	74	90	93	99	76	81	127	265	376	409	161	159	265	260	238	141
11	81	110	142	188	151	195	232	331	290	255	343	213	197	308	236	122	84	47	65	127	116	155	69	48	171
	-47	-93	-212	-214	-241	-280	-263	-204	-341	-337	-302	-311	-260	-522	-295	-234	-198	-148	-123	-119	-97	-256	-109	-22	-218
	129	204	354	403	392	476	497	537	633	593	647	526	459	830	532	357	283	197	188	247	214	412	179	71	390
12	38	48	70	90	78	39	58	131	163	180	224	232	124	236	168	172	194	213	246	180	160	98	82	69	137
	-21	-28	-84	-271	-166	-114	-293	-348	-281	-258	-243	-211	-217	-349	-247	-223	-262	-245	-275	-192	-94	-25	-22	-76	-189
	60	76	155	363	245	155	352	480	446	439	469	444	342	586	416	395	457	459	521	373	255	123	104	146	328
13	40	54	46	55	115	235	209	126	201	206	331	259	180	197	229	218	227	112	36	31	36	99	121	81	144
	-40	-58	-189	-73	-229	-270	-204	-135	-183	-323	-379	-313	-303	-354	-350	-284	-190	-131	-35	-10	-11	-34	-83	-96	-178
	81	113	236	129	345	506	414	262	385	531	712	573	483	552	581	503	419	244	73	42	48	134	204	177	323
14	36	22	15	13	20	40	36	70	79	98	93	131	181	157	113	30	33	32	53	115	179	223	138	89	83
	-12	-21	-21	-18	-15	-28	-49	-111	-177	-105	-63	-92	-256	-304	-362	-143	-82	-66	-40	-42	-110	-175	-126	-48	-103
	49	44	36	31	35	69	86	183	258	204	157	225	438	463	477	174	116	99	93	158	289	399	264	138	187
15	53	34	34	19	25	72	104	161	198	214	139	30	23	14	38	52	121	201	241	145	95	53	41	40	89
	-59	-28	-46	-17	-33	-83	-112	-339	-339	-246	-187	-71	-48	-49	-78	-87	-168	-254	-252	-126	-49	-43	-31	-40	-116
	112	62	80	37	60	156	217	501	539	461	327	103	73	65	117	140	290	457	493	272	144	97	72	81	206

16	34	37	57	98	156	173	136	124	89	43	64	66	42	40	43	69	58	57	98	113	112	61	63	77	80
	-36	-66	-128	-188	-206	-173	-189	-176	-86	-142	-76	-78	-68	-58	-56	-178	-66	-43	-106	-95	-122	-44	-46	-76	-104
	70	104	185	287	362	347	326	302	177	186	141	146	111	98	100	248	125	101	204	208	234	106	109	154	185
17	46	29	33	29	62	33	23	41	46	91	112	73	66	67	56	38	22	21	33	54	60	39	38	42	48
	-92	-67	-40	-110	-142	-64	-25	-22	-50	-69	-37	-43	-54	-96	-111	-31	-21	-24	-27	-21	-20	-30	-29	-25	-52
	139	96	74	140	206	99	50	65	98	161	151	118	122	164	167	69	44	46	61	76	80	69	67	67	101
18	40	33	38	20	22	16	23	37	50	41	30	28	28	50	78	45	28	22	43	209	308	354	241	48	76
	-22	-21	-19	-20	-25	-21	-34	-94	-70	-63	-57	-42	-35	-42	-144	-123	-37	-21	-28	-60	-504	-711	-407	-149	-115
	63	54	58	41	47	38	59	133	121	106	88	71	64	93	223	169	66	44	71	269	813	1065	648	198	192
19	72	78	169	106	103	97	192	281	295	199	139	150	117	121	52	20	12	34	21	52	44	18	58	22	102
	-94	-87	-167	-83	-28	-18	-106	-315	-304	-225	-246	-143	-88	-97	-56	-44	-40	-36	-34	-42	-31	-21	-64	-35	-100
	167	166	337	191	132	116	298	597	601	425	387	295	207	219	109	65	52	71	55	95	76	39	123	58	203
20	39	58	23	43	17	14	27	20	13	7	9	14	13	13	33	26	9	30	29	81	117	85	132	62	38
	-55	-153	-160	-51	-25	-24	-31	-41	-16	-25	-26	-23	-27	-32	-46	-26	-27	-64	-48	-87	-252	-104	-77	-78	-63
	94	213	183	95	43	39	59	63	30	33	36	37	41	46	80	53	37	95	78	168	370	190	210	141	101
21	66	30	19	16	14	16	22	21	12	29	17	22	21	22	23	20	24	27	66	83	149	208	218	230	57
	-142	-27	-21	-19	-18	-11	-7	-21	-21	-20	-21	-26	-30	-32	-27	-22	-38	-42	-115	-113	-160	-299	-314	-160	-71
	209	58	41	36	33	27	30	43	34	50	39	49	51	54	51	44	63	71	182	197	310	507	532	390	129
22	133	119	110	126	132	148	159	173	165	103	74	34	24	11	10	13	22	22	23	43	100	139	125	187	92
	-157	-120	-96	-177	-314	-311	-330	-230	-157	-95	-50	-32	-19	-29	-12	-15	-13	-18	-16	-31	-111	-120	-90	-154	-112
	291	240	207	304	447	460	491	405	323	200	125	67	44	41	23	30	36	41	41	75	211	259	215	342	205
23	138	115	108	47	25	16	14	16	19	21	22	21	15	14	19	31	32	26	23	19	20	19	23	29	35
	-112	-70	-42	-23	-13	-4	-4	-5	-4	-10	-27	-30	-30	-32	-28	-27	-36	-13	-10	-17	-15	-14	-19	-17	-25
	251	185	151	71	39	21	19	22	25	32	51	52	47	48	48	60	70	40	33	37	36	34	42	47	61
24	27	25	26	28	27	28	25	36	24	21	61	108	97	43	56	85	104	124	64	54	38	31	57	96	53
	-19	-19	-11	-3	-1	-2	-15	-17	-37	-56	-34	-271	-248	-234	-176	-133	-188	-186	-75	-18	-12	-14	-89	-157	-84
	47	44	37	32	28	31	41	55	62	78	96	381	346	278	233	219	293	312	139	72	51	46	146	253	133
25	42	52	75	58	89	102	64	62	57	71	73	125	131	139	70	140	184	59	39	31	25	25	33	31	74
	-64	-94	-248	-139	-138	-205	-96	-57	-40	-91	-50	-101	-253	-409	-123	-235	-452	-97	-13	-13	-29	-27	-18	-3	-125
	106	147	324	199	228	308	162	120	98	163	123	227	385	550	194	376	637	156	53	45	55	52	52	34	200
26	47	46	68	97	109	40	39	115	190	446	256	139	187	337	279	284	265	273	287	222	224	134	118	174	182
	-16	-13	-120	-193	-262	-75	-37	-112	-351	-591	-529	-412	-512	-572	-320	-294	-358	-440	-567	-297	-371	-514	-411	-319	-320
	64	59	189	291	373	116	77	229	543	1039	787	552	701	910	600	579	625	713	856	519	595	649	529	494	504
27	190	149	159	194	208	187	151	161	160	125	138	192	139	123	83	130	191	227	226	163	41	42	93	109	149
	-410	-348	-248	-120	-160	-285	-346	-657	-270	-187	-455	-213	-197	-227	-251	-214	-227	-268	-313	-218	-32	-50	-162	-220	-253
	601	498	408	314	369	473	498	818	431	314	594	406	338	352	335	344	419	497	540	382	74	92	256	330	403
28	70	77	59	40	45	28	13	10	28	69	40	47	37	29	26	24	39	38	40	41	40	46	53	40	41
	-142	-106	-110	-53	-20	-25	-14	-10	-26	-101	-67	-40	-42	-61	-52	-35	-105	-174	-64	-35	-26	-65	-115	-103	-66
	213	184	170	94	66	54	28	21	56	172	109	88	81	90	79	61	146	214	105	77	66	112	169	143	108
29	43	47	36	58	85	108	104	81	66	80	91	46	45	76	63	134	74	131	133	168	83	124	74	46	83
	-72	-129	-28	-47	-167	-165	-118	-52	-27	-26	-32	-38	-46	-48	-117	-268	-148	-132	-103	-206	-56	-129	-131	-32	-97
	115	177	65	107	254	275	223	135	95	108	124	85	92	125	181	403	222	264	237	375	140	254	205	78	181
30	40	63	88	73	95	141	106	50	48	51	104	155	76	85	52	41	42	66	166	124	74	83	198	149	90
	-26	-23	-138	-41	-25	-77	-171	-30	-20	-22	-68	-196	-73	-125	-203	-80	-50	-60	-198	-112	-111	-68	-214	-176	-96
	66	87	226	114	121	219	278	81	70	74	174	352	150	212	256	121	93	127	365	236	186	151	412	325	187

HOURLY VALUES (nT) OF AU, AL AND AE INDICES OCTOBER 1981

DAY\UT		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	MEAN
1	AU	83	81	83	86	71	43	62	41	34	52	62	71	73	39	46	63	38	33	29	37	58	45	55	86	57
	AL	-38	-49	-100	-42	-30	-10	-36	-24	-21	-31	-83	-53	-48	-41	-65	-216	-103	-29	-17	-37	-47	-16	-30	-76	-52
	AE	122	131	184	129	102	54	98	67	56	84	146	125	121	81	112	280	141	63	47	76	106	62	85	163	110
2		106	124	94	59	44	86	52	62	88	55	65	98	85	123	64	49	77	100	130	74	134	145	118	70	88
		-174	-255	-39	-33	-29	-41	-38	-24	-39	-13	-35	-101	-68	-209	-219	-40	-98	-270	-283	-73	-101	-140	-5	-17	-98
		281	380	134	93	74	128	91	87	128	70	101	200	153	332	284	90	175	372	415	148	235	286	124	88	186
3		68	34	44	44	75	118	201	372	239	163	247	248	129	212	282	164	98	106	74	105	120	82	145	165	147
		-14	-17	-22	-40	-96	-121	-186	-253	-130	-178	-388	-243	-144	-648	-947	-393	-141	-269	-184	-124	-198	-137	-343	-295	-230
		84	51	66	85	173	241	388	626	370	342	636	492	274	860	1229	558	240	376	259	230	319	221	489	461	378
4		151	88	52	75	115	156	155	107	53	67	52	101	106	56	29	41	43	115	64	139	143	100	116	148	95
		-124	-43	-21	-57	-290	-234	-217	-202	-94	-52	-49	-89	-191	-280	-105	-90	-102	-445	-281	-314	-231	-132	-200	-158	-167
		276	132	74	133	407	392	373	310	149	120	102	191	298	337	135	131	146	561	345	453	376	233	318	308	262
5		84	59	49	44	31	40	61	70	123	99	66	71	45	90	59	34	19	16	17	14	14	23	36	40	50
		-142	-94	-40	-24	-24	-26	-267	-258	-213	-157	-73	-66	-27	-63	-88	-25	-22	-20	-22	-29	-10	-11	-34	-31	-74
		227	154	90	68	56	67	329	329	337	257	140	138	73	154	148	60	42	38	40	44	25	35	72	72	125
6		43	34	23	26	26	28	24	24	25	24	24	50	107	97	61	48	90	72	69	52	39	53	86	104	51
		-21	-24	-27	-23	-19	-18	-61	-49	-30	-29	-20	-52	-278	-240	-153	-148	-271	-118	-45	-33	-25	-12	-125	-236	-86
		65	58	50	49	46	47	86	74	56	54	45	103	386	338	214	197	362	191	115	87	65	66	212	342	138
7		78	56	93	69	57	44	39	43	108	189	131	193	147	100	78	176	247	288	218	187	224	176	137	154	135
		-235	-335	-216	-103	-54	-85	-19	-13	-81	-460	-86	-187	-309	-223	-161	-389	-440	-407	-453	-450	-670	-272	-88	-180	-246
		314	392	310	173	112	130	60	56	190	650	218	381	457	323	239	566	688	696	673	638	895	449	226	335	382
8		58	30	55	62	87	158	195	270	321	244	113	133	120	40	24	25	43	88	122	143	116	134	148	101	118
		-163	-40	-44	-43	-123	-294	-162	-151	-425	-427	-453	-402	-92	-58	-48	-54	-222	-223	-213	-183	-251	-249	-160	-178	-194
		223	71	100	106	212	453	358	423	746	672	566	536	212	99	73	79	265	311	335	326	368	384	309	281	313
9		76	51	55	121	248	293	106	53	46	52	202	218	166	95	48	73	43	17	37	109	69	58	70	60	99
		-291	-288	-214	-323	-396	-426	-107	-40	-41	-47	-505	-375	-206	-59	-59	-304	-75	-38	-24	-113	-214	-64	-45	-28	-178
		369	340	270	446	645	720	214	94	88	100	707	594	372	155	109	377	119	56	62	223	285	123	116	89	278
10		65	61	52	39	57	92	99	114	138	110	137	203	121	97	135	234	277	397	313	243	157	158	146	190	151
		-54	-29	-44	-173	-232	-131	-110	-259	-375	-224	-157	-291	-118	-95	-357	-490	-317	-472	-381	-248	-440	-252	-160	-313	-238
		120	91	97	213	291	224	211	374	513	335	295	495	239	193	492	724	595	869	695	492	598	411	308	504	391
11		288	187	106	166	308	332	294	264	330	276	313	355	350	376	389	402	403	269	276	185	85	46	94	144	260
		-391	-315	-316	-489	-347	-430	-390	-378	-610	-481	-424	-518	-319	-550	-492	-406	-385	-238	-333	-282	-233	-106	-102	-173	-363
		681	504	423	657	656	764	685	643	940	757	738	873	669	927	882	810	788	508	609	468	319	153	197	319	624
12		165	121	82	77	139	239	205	219	267	124	72	23	19	0	0	-1	1	9	6	9	4	15	14	22	76
		-343	-247	-251	-291	-230	-185	-180	-167	-141	-36	-36	-39	-44	-34	-41	-51	-40	-37	-35	-34	-34	-33	-28	-29	-108
		509	368	333	369	369	425	386	388	409	161	108	63	64	33	41	49	42	46	41	44	38	49	42	51	185
13		26	28	40	29	26	29	30	59	112	89	65	60	42	25	16	55	31	96	151	124	168	202	275	328	88
		-35	-40	-44	-47	-50	-39	-32	-25	-143	-106	-85	-71	-36	-54	-31	-39	-98	-183	-454	-309	-346	-269	-537	-593	-153
		62	68	86	77	77	68	62	85	256	196	152	132	79	80	49	95	129	279	607	434	516	472	813	923	242
14		365	328	406	298	300	179	148	213	198	153	153	148	150	30	37	42	69	69	89	185	119	135	180	157	173
		-170	-169	-743	-998	-317	-82	-109	-154	-177	-118	-94	-105	-127	-98	-148	-104	-46	-64	-150	-270	-296	-288	-437	-170	-226
		536	499	1150	1297	619	262	259	368	375	271	248	254	277	129	185	147	116	134	240	456	416	425	618	329	400
15		77	61	117	80	83	60	72	94	77	88	59	47	85	198	118	47	117	119	73	96	93	49	48	41	83
		-88	-67	-85	-116	-149	-114	-79	-97	-371	-251	-175	-104	-303	-656	-164	-42	-205	-258	-168	-114	-31	-22	-31	-24	-155
		167	129	203	197	233	174	152	192	448	340	234	152	389	855	284	90	323	377	241	211	125	71	80	66	239

16	20	16	26	22	62	73	69	73	32	15	22	12	9	12	2	0	4	6	17	22	27	44	42	20	27
	-26	-27	-24	-22	-79	-37	-18	-22	-24	-39	-36	-69	-41	-40	-46	-50	-48	-44	-38	-59	-55	-57	-31	-28	-40
	47	43	51	46	142	112	89	97	57	55	59	82	51	53	49	48	53	50	56	82	82	102	74	49	68
17	15	32	43	79	99	89	94	113	202	202	94	86	70	62	33	47	32	28	37	46	84	42	33	50	71
	-28	-22	-23	-20	-15	-25	-38	-40	-169	-109	-14	-30	-33	-55	-24	-23	-34	-25	-19	-13	-27	-75	-41	-50	-40
	43	55	67	101	115	115	133	154	372	311	109	118	105	118	57	70	67	53	57	60	112	118	76	101	112
18	66	41	26	31	38	48	45	43	30	24	23	23	20	18	15	13	13	14	27	26	31	31	39	35	30
	-141	-53	-22	-19	-22	-15	-14	-16	-14	-18	-20	-34	-35	-34	-32	-32	-33	-31	-21	-19	-15	-11	-17	-21	-29
	208	96	49	51	61	65	61	61	45	43	44	58	57	53	48	46	47	45	49	46	47	43	58	57	60
19	43	41	45	41	42	108	225	172	278	219	213	135	119	99	83	83	60	66	87	169	139	146	195	184	125
	-57	-39	-117	-64	-173	-320	-281	-137	-340	-273	-406	-323	-210	-86	-144	-108	-72	-54	-77	-291	-341	-207	-320	-214	-194
	101	81	163	105	217	430	507	310	619	493	619	459	330	185	228	192	133	121	164	461	481	354	517	399	320
20	121	79	89	86	68	102	163	153	238	183	107	218	168	215	210	0	67	24	13	20	45	62	66	67	107
	-211	-316	-254	-78	-144	-192	-225	-286	-271	-337	-386	-499	-454	-653	-953	-981	-390	-1047	-885	-715	-349	-110	-102	-324	-423
	334	396	344	165	214	296	390	439	510	520	493	717	622	869	1164	981	458	1071	898	735	395	173	169	392	531
21	29	30	184	159	68	50	79	86	146	28	121	177	96	26	49	149	62	61	28	29	61	113	152	141	88
	-464	-514	-213	-240	-66	-94	-102	-167	-335	-437	-556	-280	-92	-67	-191	-490	-184	-153	-41	-50	-102	-289	-450	-321	-246
	495	545	398	400	135	144	182	253	481	466	678	458	189	94	241	640	247	214	69	80	165	403	604	464	335
22	94	33	18	13	16	84	81	91	135	174	182	238	50	138	36	52	35	6	62	37	13	83	40	60	74
	-182	-53	-36	-25	-20	-68	-77	-84	-229	-498	-478	-370	-340	-802	-931	-548	-970	-841	-798	-604	-422	-573	-478	-587	-417
	278	87	54	39	37	152	160	176	365	673	660	609	391	941	967	601	1005	848	860	643	435	657	519	648	492
23	148	69	56	61	76	116	110	230	273	199	85	29	10	3	11	87	144	94	44	56	128	95	48	16	91
	-396	-123	-183	-304	-273	-151	-174	-342	-426	-286	-93	-40	-41	-41	-43	-129	-200	-264	-109	-61	-189	-218	-48	-31	-173
	546	194	241	367	349	268	284	572	701	485	179	70	53	44	55	217	345	358	154	117	318	314	96	47	266
24	16	5	3	5	12	7	12	19	12	12	56	174	158	167	220	227	229	158	169	130	99	116	188	94	95
	-25	-21	-17	-21	-18	-19	-55	-86	-65	-28	-151	-595	-637	-400	-444	-542	-436	-318	-281	-324	-373	-256	-350	-97	-232
	41	26	20	26	32	28	67	106	79	41	207	770	795	567	664	770	666	478	451	455	473	373	539	193	328
25	50	45	51	57	109	117	118	177	130	172	201	111	95	87	76	64	46	45	47	46	32	27	18	14	81
	-97	-165	-261	-387	-406	-202	-337	-338	-194	-229	-208	-325	-450	-271	-260	-195	-127	-93	-34	-19	-3	-10	-10	-6	-193
	148	211	313	445	517	320	456	516	325	402	410	436	545	359	337	259	173	140	83	66	36	39	29	21	274
26	15	20	24	23	22	27	28	32	79	129	101	54	31	35	39	19	26	23	37	44	60	50	52	63	43
	-7	-12	-9	-13	-14	-13	-13	-21	-46	-204	-107	-37	-25	-27	-65	-125	-81	-34	-8	-59	-78	-39	-31	-49	-47
	22	33	34	36	37	42	43	54	126	334	210	92	57	63	105	146	108	57	46	104	139	91	85	113	91
27	58	59	59	57	36	43	45	28	39	56	46	37	32	36	34	82	74	84	76	38	80	85	53	105	56
	-49	-57	-45	-15	-4	-4	-11	-15	-16	-9	-15	-37	-39	-24	-55	-349	-370	-230	-52	-17	-43	-73	-54	-89	-70
	108	117	106	74	41	48	58	44	56	67	62	75	73	62	89	432	445	314	128	55	124	160	109	196	127
28	64	53	68	59	72	47	81	59	99	94	209	112	60	50	39	47	104	118	135	102	165	179	69	49	89
	-13	-9	-57	-88	-26	-15	-46	-107	-269	-184	-354	-86	-72	-41	-120	-187	-289	-202	-138	-114	-481	-279	-30	-12	-134
	78	64	126	147	98	63	128	167	369	279	563	199	134	92	159	234	393	322	274	217	647	459	100	63	224
29	46	72	46	40	66	77	102	120	107	112	86	64	40	43	37	24	20	29	32	27	32	51	87	64	59
	-14	-33	-6	-7	-80	-84	-83	-70	-36	-77	-140	-10	-16	-25	-29	-85	-75	-45	-21	-14	-16	-47	-197	-109	-55
	61	106	53	47	147	163	187	191	144	190	228	75	58	69	66	110	96	75	54	42	49	100	286	174	115
30	57	60	68	61	59	51	31	44	60	79	133	99	103	95	193	132	73	40	26	38	67	53	58	73	73
	-18	-14	-25	-57	-41	-21	-11	-13	-43	-87	-200	-166	-176	-347	-566	-317	-20	-22	-15	-51	-155	-170	-39	-49	-109
	76	75	93	119	101	72	43	58	103	167	334	267	280	443	759	451	94	63	43	90	224	224	98	123	183
31	108	89	55	44	36	31	34	33	27	26	25	23	21	20	25	26	20	29	29	24	22	24	26	27	34
	-74	-86	-20	-4	-3	-7	-12	-13	-12	-13	-16	-17	-24	-24	-21	-23	-16	-100	-72	-6	-5	-9	-10	-6	-25
	183	176	75	48	41	40	47	47	41	40	42	41	46	45	46	49	37	131	101	30	27	33	37	35	60

HOURLY VALUES (nT) OF AU, AL AND AE INDICES NOVEMBER 1981

DAY\UT		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	MEAN
1	AU	10	18	28	38	48	37	27	31	36	45	124	102	47	24	22	25	64	76	84	69	40	57	65	56	49
	AL	-16	-16	-30	-136	-65	-3	-8	-12	-12	-26	-185	-206	-39	-32	-65	-165	-225	-122	-86	-52	-34	-39	-26	-33	-68
	AE	26	36	59	175	114	40	35	44	49	72	310	309	87	57	89	190	290	199	170	122	74	96	92	89	118
2		31	35	50	30	32	45	47	40	27	21	23	25	18	15	16	14	17	25	43	70	67	38	42	57	34
		-23	-14	-49	-12	-15	-9	-10	-6	-8	-11	-19	-21	-26	-35	-39	-54	-73	-89	-77	-148	-70	-26	-24	-86	-39
		55	50	100	43	48	55	58	46	35	33	43	47	45	52	56	69	91	114	120	219	138	64	66	144	75
3		61	59	40	72	26	24	61	68	42	51	66	73	47	33	27	20	17	26	40	58	48	37	24	26	44
		-73	-13	-8	-7	-32	-31	-37	-46	-12	-15	-28	-93	-58	-35	-35	-45	-86	-84	-63	-105	-140	-40	-22	-20	-47
		136	73	50	81	59	56	99	115	55	68	94	167	107	69	63	66	103	111	104	163	189	78	47	48	92
4		15	11	13	13	12	21	16	22	19	19	26	27	25	28	39	22	26	52	110	124	103	84	51	43	38
		-16	-15	-9	-6	-5	-8	-8	-14	-11	-15	-21	-34	-32	-38	-34	-118	-259	-149	-123	-67	-60	-94	-54	-102	-54
		33	28	23	20	18	29	24	37	31	35	49	62	59	67	74	141	286	201	234	192	163	178	107	147	93
5		40	44	59	63	99	83	99	103	178	211	169	145	100	99	41	11	70	55	45	87	113	60	31	31	85
		-119	-93	-163	-223	-138	-200	-284	-221	-245	-263	-147	-171	-395	-215	-155	-117	-180	-104	-63	-145	-125	-97	-62	-21	-164
		160	138	223	287	239	284	384	325	423	474	316	317	497	315	197	129	251	159	108	233	239	159	94	52	250
6		46	48	40	46	41	22	19	19	32	41	55	49	43	34	31	21	19	27	59	58	75	58	56	46	41
		-46	-115	-226	-150	-94	-21	-12	-13	-18	-28	-55	-53	-101	-49	-182	-54	-49	-70	-218	-128	-81	-143	-157	-237	-96
		93	163	267	197	135	44	32	33	50	70	111	103	145	84	215	76	68	97	277	186	158	203	214	283	138
7		95	92	59	48	80	183	119	107	156	193	201	161	196	161	86	161	167	97	141	115	83	52	26	28	117
		-325	-204	-289	-294	-378	-272	-242	-223	-339	-209	-329	-300	-268	-394	-263	-276	-200	-145	-220	-195	-108	-195	-122	-145	-247
		421	297	350	344	459	456	362	331	495	402	530	461	464	556	350	438	369	243	361	311	191	248	150	175	365
8		15	52	83	95	180	134	123	103	196	253	143	96	41	27	15	21	71	60	29	23	35	20	34	18	78
		-61	-51	-140	-173	-443	-227	-167	-199	-507	-455	-103	-115	-283	-75	-62	-54	-53	-29	-32	-29	-22	-19	-46	-18	-140
		77	105	224	269	625	361	291	304	704	709	247	212	325	104	78	76	125	89	62	53	57	39	81	37	219
9		7	9	6	5	3	8	9	12	9	8	23	44	42	16	23	16	15	9	8	11	14	21	26	24	15
		-19	-19	-19	-20	-21	-19	-16	-74	-30	-22	-71	-142	-84	-39	-53	-123	-71	-42	-24	-25	-26	-24	-40	-23	-44
		28	28	26	25	25	28	26	87	41	31	96	187	128	56	77	140	87	52	33	37	41	46	67	48	60
10		23	13	9	13	26	61	67	111	83	81	83	154	111	42	28	23	29	25	27	74	99	110	134	185	67
		-17	-19	-17	-9	-5	-45	-190	-125	-59	-53	-91	-517	-68	-22	-49	-94	-162	-57	-23	-57	-239	-136	-137	-149	-97
		41	32	27	23	32	107	259	237	143	135	174	671	181	65	78	118	192	83	50	131	338	246	272	335	165
11		125	88	101	63	97	157	176	222	214	103	59	68	177	152	275	160	318	375	427	319	175	58	62	52	168
		-33	-64	-52	-19	-109	-139	-171	-165	-149	-50	-51	-63	-269	-954	-124	-85	-311	-627	-763	-344	-287	-420	-130	-73	-227
		159	154	154	84	207	298	349	389	364	154	112	132	447	1106	400	246	631	1003	1190	664	463	479	193	126	396
12		25	168	233	176	279	297	360	226	163	232	306	74	62	102	57	25	20	22	26	17	16	12	4	2	121
		-274	-605	-632	-529	-210	-223	-238	-254	-219	-401	-188	-270	-132	-106	-36	-49	-73	-83	-32	-37	-29	-22	-21	-23	-195
		300	774	866	705	491	522	599	481	383	633	495	345	195	210	94	74	93	105	59	54	46	35	26	25	317
13		2	-1	0	-1	-1	-3	-5	-3	0	-1	2	6	3	6	5	0	1	0	2	3	22	43	46	65	8
		-27	-21	-25	-22	-20	-19	-20	-20	-22	-27	-38	-68	-31	-38	-46	-53	-55	-53	-49	-38	-51	-39	-148	-152	-45
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		-39	-34	-32	-23	-19	-22	-27	-81	-226	-92	-61	-429	-485	-673	-668	-444	-308	-476	-311	-428	-243	-569	-351	-321	-265
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15		167	87	53	58	37	105	142	91	63	47	45	36	15	24	16	67	132	103	73	47	46	42	44	44	66
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		308	124	79	164	189	375	293	319	181	167	371	166	56	162	210	358	513	340	206	126	151	147	130	99	218

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	190	277	459	393	239	270	238	177	204	184	70	124	288	341	275	204	256	225	137	50	175	258	422	221	237
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	-190	-59	-57	-17	-127	-38	-19	-19	-38	-147	-714	-944	-418	-518	-611	-429	-638	-614	-306	-451	-343	-257	-271	-386	-317
	246	99	89	47	170	96	66	54	75	221	765	968	507	660	850	607	766	825	446	632	483	364	331	537	413
18	97	69	78	112	85	83	106	131	161	203	238	244	110	147	71	110	177	135	140	146	153	127	46	78	127
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	227	225	213	254	205	253	372	313	373	535	740	830	583	599	285	379	513	467	698	451	326	301	253	298	404
19	108	149	85	88	81	89	67	89	76	137	170	98	81	116	60	108	98	109	125	143	43	50	47	99	97
	-313	-186	-121	-169	-126	-155	-154	-162	-180	-215	-263	-172	-447	-213	-160	-475	-373	-253	-362	-345	-35	-51	-58	-226	-217
	422	336	207	258	208	246	222	253	256	352	434	271	528	331	221	584	471	363	488	488	79	102	107	326	315
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	-247	-20	-44	-68	-111	-150	-200	-327	-392	-456	-442	-418	-451	-376	-229	-165	-144	-137	-88	-60	-273	-202	-446	-305	-240
	335	49	69	89	142	199	279	390	466	621	637	504	532	472	309	226	230	195	139	124	345	251	524	372	312
21	60	62	51	45	44	40	47	42	50	103	155	147	81	79	26	49	88	158	149	171	162	113	76	86	87
	-185	-59	-92	-75	-27	-19	-39	-135	-293	-247	-259	-242	-282	-160	-229	-261	-278	-433	-353	-404	-576	-474	-409	-155	-237
	247	122	145	122	73	60	87	179	344	351	416	390	364	240	256	310	367	592	503	575	740	588	486	242	325
22	57	66	83	133	135	127	98	91	117	148	103	93	92	34	8	18	13	13	14	13	23	20	31	39	65
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	176	206	315	378	317	303	276	336	453	521	246	224	229	112	55	151	256	136	46	58	68	71	89	226	219
23	51	54	92	77	72	65	122	98	137	285	226	179	142	142	225	234	203	186	243	184	168	163	147	163	152
	-164	-92	-80	-104	-130	-184	-206	-176	-226	-243	-327	-504	-463	-437	-572	-811	-769	-575	-436	-417	-358	-281	-165	-300	-334
	216	147	174	181	204	251	329	275	365	528	554	684	605	579	798	1045	974	763	680	602	527	444	313	463	488
24	147	99	107	138	130	124	151	115	144	167	207	159	78	98	73	55	54	101	145	207	244	178	122	82	130
	-143	-139	-189	-196	-218	-244	-232	-215	-260	-221	-203	-256	-262	-367	-194	-186	-239	-312	-323	-289	-272	-175	-106	-117	-223
	292	239	296	335	350	370	385	332	404	388	410	416	340	465	268	242	294	414	468	497	516	353	229	201	354
25	89	106	183	123	140	131	127	83	38	33	32	82	103	77	81	47	33	13	26	14	38	56	64	94	76
	-71	-27	-70	-36	-41	-284	-129	-96	-21	-31	-85	-183	-87	-52	-33	-27	-37	-51	-35	-22	-33	-61	-203	-290	-84
	161	135	254	160	182	415	257	181	61	64	118	266	190	130	115	75	72	65	62	37	71	118	267	385	160
26	98	125	141	70	70	71	96	81	63	38	53	64	60	65	70	84	82	97	72	35	24	22	29	27	68
	-168	-115	-43	-13	-9	-99	-82	-5	-8	-14	-107	-55	-51	-29	-127	-235	-235	-264	-267	-32	-27	-36	-24	-6	-85
	267	241	185	85	80	172	179	86	72	53	161	120	112	96	198	321	318	361	340	68	52	58	54	35	155
27	34	48	35	24	22	36	41	29	33	33	17	20	20	11	12	10	10	7	4	6	9	13	17	16	21
	-7	-3	-8	-41	-88	-73	-55	-48	-169	-108	-11	-26	-13	-18	-16	-18	-17	-14	-13	-10	-10	-11	-7	-12	-33
	42	52	43	67	111	110	97	78	203	143	30	47	33	29	28	28	27	22	18	17	20	25	25	28	55
28	40	84	100	46	29	20	23	32	25	32	25	17	13	15	37	55	41	34	37	27	19	64	104	121	43
	-60	-156	-36	-2	2	-1	-3	-4	-4	-10	-6	-10	-10	-13	-48	-174	-101	-60	-20	-10	-17	-130	-198	-80	-48
	101	242	137	49	26	22	26	37	30	44	33	28	24	29	86	230	143	94	58	38	37	195	303	202	92
29	70	60	81	59	37	33	30	25	26	37	47	33	37	29	23	56	39	20	24	18	25	33	36	24	38
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	104	96	225	88	43	36	35	36	31	40	51	40	54	45	51	100	68	59	74	42	47	47	42	27	62
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	-15	-13	-10	-8	-1	-1	-2	-7	-5	-4	-6	-21	-35	-21	-10	-13	-9	-11	-11	-8	-5	-6	-9	-8	-10
	35	36	34	28	19	21	22	23	20	23	27	44	54	43	27	29	22	22	24	23	24	25	27	27	28

HOURLY VALUES (nT) OF AU, AL AND AE INDICES DECEMBER 1981

DAY\UT	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	MEAN
1 AU	30	33	38	46	52	49	52	48	45	44	52	58	63	78	111	113	136	81	61	67	50	56	46	58	61
AL	-1	-1	-2	1	4	3	0	2	0	-2	-19	-65	-13	-22	-77	-235	-157	-89	-99	-56	-62	-103	-97	-144	-51
AE	32	34	39	44	47	45	51	45	46	46	72	124	77	102	190	349	294	171	161	123	113	159	144	203	113
2	51	59	49	45	44	40	38	29	28	46	79	156	75	43	35	30	24	28	32	24	38	53	51	35	47
	-30	-13	-46	-31	-31	-8	-8	-1	-6	-12	-102	-341	-52	-28	-22	-20	-17	-19	-17	-12	-16	-116	-143	-18	-46
	83	73	97	77	76	48	46	32	35	58	183	498	128	73	58	51	41	48	50	37	55	169	195	54	94
3	33	35	39	40	39	39	32	34	35	41	39	56	49	59	59	38	24	40	35	100	116	48	88	95	51
	-5	-7	-2	0	0	0	1	-29	-43	-4	-8	-97	-102	-171	-118	-36	-89	-145	-116	-239	-203	-36	-72	-191	-71
	40	43	42	40	39	38	31	64	79	46	48	154	152	232	178	74	114	186	152	339	319	85	162	287	123
4	77	63	88	112	154	109	60	44	45	52	60	87	141	101	58	34	28	34	96	71	71	83	65	102	76
	-137	-92	-125	-137	-251	-81	-5	-16	-13	-93	-233	-229	-188	-64	-25	-27	-68	-137	-334	-196	-84	-90	-156	-200	-124
	215	156	215	250	406	192	66	60	59	146	294	318	330	166	84	62	97	172	431	268	156	173	223	303	202
5	97	84	90	67	60	60	48	36	56	77	38	31	25	24	30	27	32	66	99	99	111	92	91	87	64
	-141	-94	-118	-156	-80	-68	-133	-112	-139	-140	-21	-19	-19	-17	-56	-215	-231	-287	-220	-159	-166	-140	-191	-113	-126
	239	179	209	225	141	128	181	149	196	218	60	52	45	42	87	243	265	354	319	258	277	233	284	201	191
6	58	71	69	60	44	49	40	68	63	34	23	27	23	22	21	9	31	17	8	13	20	23	33	38	36
	-57	-23	-46	-102	-165	-87	-37	-82	-26	-4	-12	-22	-33	-52	-97	-158	-187	-75	-30	-28	-43	-66	-49	-41	-63
	116	96	116	164	211	138	77	151	89	39	36	50	57	75	118	168	219	94	39	41	64	89	82	79	100
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	58	60	76	97	76	61	82	67	94	202	94	44	62	149	88	43	89	156	80	59	30	49	59	83	82
8	50	88	97	100	83	109	145	54	40	29	30	28	27	28	37	116	161	125	107	91	201	96	42	50	81
	-64	-102	-149	-107	-151	-149	-147	-35	-49	-54	-56	-126	-110	-39	-38	-248	-260	-99	-172	-386	-284	-131	-43	-89	-129
	115	191	247	208	235	259	294	90	90	85	88	156	139	68	76	365	423	224	280	478	487	227	87	141	210
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	180	203	199	196	214	352	218	243	157	282	340	133	181	237	297	413	302	160	132	243	213	78	80	84	214
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	85	39	65	171	453	248	258	70	63	143	103	97	59	80	47	110	89	58	23	24	27	35	42	42	101
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	62	95	196	214	88	55	41	41	40	46	58	50	49	55	73	184	246	188	270	144	54	58	141	137	108
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	177	203	240	70	48	81	106	243	207	143	64	256	681	945	714	705	513	282	252	444	713	681	433	288	354
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	145	164	310	335	305	493	371	284	241	152	259	346	319	240	302	301	156	87	91	94	63	74	59	66	219
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	40	34	28	26	25	21	23	26	28	32	32	61	63	34	29	63	178	228	90	74	265	400	579	631	125
18	282	96	49	52	111	53	76	78	92	85	159	124	31	24	41	53	110	84	100	48	41	47	53	45	81
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	507	123	56	64	159	159	162	173	306	342	392	342	137	301	193	308	500	305	314	130	74	66	95	153	223
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	79	126	163	116	62	52	38	31	68	66	212	216	130	85	45	39	35	49	110	166	76	41	31	34	86
27	28	47	42	41	40	59	68	61	54	26	36	35	34	20	29	20	28	23	33	31	64	101	100	141	48
	-7	-20	-32	-11	-42	-75	-84	-48	1	-4	-20	-46	-139	-83	-50	-67	-70	-79	-250	-43	-60	-125	-89	-88	-64
	37	68	76	53	83	135	153	109	52	32	56	82	174	104	79	87	98	102	285	75	124	227	190	230	113
28	135	104	96	80	85	62	56	97	110	77	56	51	57	70	85	64	48	119	90	88	58	52	55	58	77
	-210	-84	-9	-38	-141	-77	-200	-140	-123	-57	-8	-7	-18	-96	-393	-173	-165	-250	-172	-80	-26	-33	-22	-29	-106
	347	190	106	119	228	140	258	237	234	136	66	59	76	168	479	238	215	369	262	169	84	85	78	89	185
29	61	64	81	71	117	255	198	301	444	415	129	278	186	188	89	43	74	166	145	52	62	77	75	49	151
	-15	-23	-49	-85	-143	-434	-378	-451	-570	-605	-1012	-513	-460	-631	-222	-140	-162	-161	-181	-43	-16	-10	-109	-76	-270
	77	88	132	157	262	690	578	754	1015	1021	1141	791	646	820	312	183	237	328	327	96	79	87	184	126	422
30	41	47	59	98	190	114	201	360	268	159	236	309	136	135	142	184	129	67	108	49	30	67	39	49	134
	-38	-47	-174	-521	-264	-277	-367	-468	-419	-212	-312	-232	-241	-790	-426	-444	-187	-68	-249	-21	-24	-111	-23	-32	-248
	80	95	234	620	456	392	570	829	689	373	549	542	378	927	568	629	317	136	358	72	56	179	63	82	383
31	67	73	103	80	123	73	60	91	169	341	272	167	75	52	62	73	42	45	30	30	39	47	38	39	91
	-36	-33	-38	-48	-28	-16	-16	-56	-383	-410	-214	-145	-175	-372	-249	-253	-38	-160	-65	-27	-142	-132	-152	-55	-135
	103	107	142	129	152	90	77	148	553	752	487	314	251	425	312	327	81	206	95	58	182	180	190	95	227

MONTHLY AND YEARLY AE 1957 - 1981

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual mean
1957							159.	145.	311.	156.	168.	217.	
1958	193.	255.	301.	263.	231.	273.	270.	201.	185.	175.	132.	183.	221.9
1959	184.	256.	205.	193.	208.	206.	274.	225.	270.	217.	246.	236.	226.8
1960	171.	162.	183.	317.	207.	235.	225.	211.	212.	324.	277.	254.	231.6
1961	156.	168.	141.	166.	154.	163.	252.	145.	149.	143.	129.	149.	159.7
1962	90.	95.	100.	160.	110.	131.	140.	172.	198.	221.	152.	155.	143.6
1963	132.	95.	94.	109.	124.	142.	137.	156.	229.	153.	130.	115.	134.6
1964	116.	122.	133.	149.	121.	95.	99.	88.	137.	142.	97.	71.	114.4
1965	83.	121.	113.	93.	94.	178.	132.	130.	143.	89.	87.	101.	113.6
1966	108.	130.	152.	145.	161.	146.	180.	176.	223.	152.	148.	157.	156.4
1967	135.	139.	121.	168.	278.	205.	177.	172.	204.	123.	161.	196.	173.3
1968	187.	227.	256.	231.	268.	302.	213.	203.	206.	184.	198.	163.	219.9
1969	132.	169.	227.	255.	268.	225.	172.	175.	198.	161.	152.	110.	187.1
1970	118.	104.	210.	233.	199.	243.	276.	222.	203.	194.	192.	135.	194.1
1971	188.	177.	194.	245.	241.	230.	189.	195.	213.	189.	155.	153.	197.4
1972	192.	156.	203.	203.	193.	238.	177.	259.	196.	202.	180.	133.	194.3
1973	221.	262.	315.	337.	241.	273.	232.	223.	225.	261.	192.	183.	247.1
1974	201.	226.	324.	309.	297.	278.	322.	307.	306.	326.	248.	245.	282.3
1975	198.	246.	283.	227.	238.	542.	240.	220.	188.	197.	243.	180.	250.3
1976													
1977													
1978	191.	237.	243.	284.	310.	307.	213.	239.	245.	192.	214.	176.	237.6
1979	212.	195.	247.	297.	252.	254.	223.	254.	216.	188.	152.	157.	220.6
1980	149.	164.	122.	181.	183.	261.	203.	180.	165.	195.	198.	150.	179.2
1981	147.	195.	238.	324.	319.	218.	279.	279.	206.	252.	217.	158.	236.0

Unit : nT

SECTION 4

CLASSIFICATION OF DAYS

CLASSIFICATION OF DAYS 1981

1981
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JANUARY

Five international quietest days (from Kp)		: 12 18 19 20 21
24-hours quiet intervals (from aa)	C - very quiet	: 7 9 12 13 14 18 19 20 21 25
	K - quiet	: NONE
48-hours quiet intervals (from aa)	C - very quiet	: 13 14 19 20 21
	K - quiet	: 7 9 12 18

FEBRUARY

Five international quietest days (from Kp)		: 10 14 17 18 21
24-hours quiet intervals (from aa)	C - very quiet	: 10 14 18 19 21
	K - quiet	: NONE
48-hours quiet intervals (from aa)	C - very quiet	: 10 14 17 18 21
	K - quiet	: 13 20 22

MARCH

Five international quietest days (from Kp)		: 9 11 22 23 24
24-hours quiet intervals (from aa)	C - very quiet	: 3 9 11 22 23 24
	K - quiet	: 20 21
48-hours quiet intervals (from aa)	C - very quiet	: 23
	K - quiet	: 9 10 11 20 21 22 24

APRIL

Five international quietest days (from Kp)		: 5 9 10 15 30
24-hours quiet intervals (from aa)	C - very quiet	: 5 10 15
	K - quiet	: 9
48-hours quiet intervals (from aa)	C - very quiet	: 6
	K - quiet	: 5 7 9 10

1981
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MAY

Five international quietest days (from Kp)		: 3 4 5 6 7
24-hours quiet intervals (from aa)	C - very quiet	: 2 3 4 5 6 7 22 26 27 29 30
	K - quiet	: NONE
48-hours quiet intervals (from aa)	C - very quiet	: 3 4 5 6 7 29 30
	K - quiet	: NONE

JUNE

Five international quietest days (from Kp)		: 9 10 12 14 23
24-hours quiet intervals (from aa)	C - very quiet	: 1 4 5 9 10 11 12 13 14 21 22 23
	K - quiet	: NONE
48-hours quiet intervals (from aa)	C - very quiet	: 1 5 10 11 12 13 14 22
	K - quiet	: 9 21 23

JULY

Five international quietest days (from Kp)		: 9 10 15 21 29
24-hours quiet intervals (from aa)	C - very quiet	: 9 10 15 21 29
	K - quiet	: 3
48-hours quiet intervals (from aa)	C - very quiet	: 9 29
	K - quiet	: 10 15

AUGUST

Five international quietest days (from Kp)		: 8 9 14 16 26
24-hours quiet intervals (from aa)	C - very quiet	: 8 9 20
	K - quiet	: NONE
48-hours quiet intervals (from aa)	C - very quiet	: NONE
	K - quiet	: 7 8

1981
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SEPTEMBER

Five international quietest days (from Kp)		: 1 7 17 23 28
24-hours quiet intervals (from aa)	C - very quiet	: 1 6 7 17 21 23 28
	K - quiet	: NONE
48-hours quiet intervals (from aa)	C - very quiet	: 16 17
	K - quiet	: 1 7 23

OCTOBER

Five international quietest days (from Kp)		: 5 6 16 18 31
24-hours quiet intervals (from aa)	C - very quiet	: 5 31
	K - quiet	: 18
48-hours quiet intervals (from aa)	C - very quiet	: NONE
	K - quiet	: NONE

NOVEMBER

Five international quietest days (from Kp)		: 2 9 27 29 30
24-hours quiet intervals (from aa)	C - very quiet	: 2 9 27 29 30
	K - quiet	: 13 28
48-hours quiet intervals (from aa)	C - very quiet	: 29 30
	K - quiet	: 1 27 28

DECEMBER

Five international quietest days (from Kp)		: 6 7 16 21 22
24-hours quiet intervals (from aa)	C - very quiet	: 6 7 11 14 16 20 21 22 26 27
	K - quiet	: 15
48-hours quiet intervals (from aa)	C - very quiet	: 6 15 21 22
	K - quiet	: 1 7 14 16

Month	Quietest Days 1-5					Quietest Days 6-10					Most Disturbed Days 1-5				
Jan	19	21	18	12	20	14K	13	9K	7	25A	31	11*	29*	28*	4*
Feb	14	10	21	18	17	19	22K	13A	4A	20A	6	26	25	5	2
Mar	9	23	24	22	11A	3A	21A	10A	20A	19A	5	14	25	26	1
Apr	5	30A	10A	9A	15A	7A	2A	6A	8A	4A	13	12	26	20	19
May	5	4	7	6	3	27	29	22	30	2A	16	11	18	15	20
Jun	12	14	10	9	23	4	13	22K	5	11	7	29	16	3*	8*
Jul	15	10	29	21	9	14A	28A	8A	16A	3A	25	26	23	17	27
Aug	8	9A	26A	16A	14A	20A	12A	7A	13A	19A	23	24	17	27	18
Sep	23	17	1	7	28K	21A	16A	6A	24A	20A	19	26	27	11	2*
Oct	31	6	18K	5A	16A	1A	26A	27A	12A	29A	22	14	20	11	3
Nov	30	27	29	9	2	13K	28K	4K	1A	3A	17	12	11	14	25
Dec	22	7	16	6	21	27	14	11	26	15K	29	30	12	31*	8*

These days are arranged according to their degree of quietness or disturbance, respectively.

Gives consecutive sequences of three-hour-intervals (Eighths E of the Greenwich day) in which at least one Kp reached or surpassed 7+, and no Kp was smaller than 5-.

Beginning			s.c. d.	GMT	Duration Eighths	Number of Eighths with Kp= 7- 7o 7+			8- 8o 8+			9- 9o	
Mar	05	E2	05	05.35	6	1	1	1	.	.	.	.	.
Apr	11	E8	11	13.39	18	.	3	.	1	1	1	.	.
	26	E3	26	08.13	12	.	.	1	.	.	.	.	.
Jul	25	E5	25	13.22	10	1	.	.	2	1	2	.	.
Oct	13	E8	13	22.40	3	.	.	.	1	1	.	.	.

SECTION 5

RAPID VARIATIONS

5.1. Storm sudden commencements 133

5.2. Solar flare effects 136

STORM SUDDEN COMMENCEMENTS (ssc) 1981

Sudden commencements followed by a storm or period of storminess as selected from reports of the following 47 Observatories identified by their IAGA three letter code (see list pp. 23-32 above).

SOD, DOB, NUR, MOS, ESK, HLP, WNG, WIT, IRK, NGK, VAL, BEL, HAD, KIV, DOU, BDV, VIC, FUR, CLF, HRB, OTT, SUR, MMB, AQU, TFS, EBR, COI, TOL, FRD, PEN, ALM, KAK, HAY, KNY, TEN, LNP, BNG, LUA, PMG, HUA, MPO, GNA, ACS, TWA, CZT, KGL, DUM, and the records from HON.

Copies of the magnetograms sent by five low-latitude observatories (MBO, FUQ, HON, PMG, ABG) or their supplementary observatories (TEN, SJG, KNY, HYB) have been used for qualifying the ssc's and for measuring their duration and amplitude.

			JANUARY				
17/01 - 06:02 (01-04)	11122	5.9	12	2A	2B		2si
29/01 - 06:56 (51-60)	23232	4.7	21	17A	7B	7C	3si
			FEBRUARY				
06/02 - 08:47 (44-50)	22222	3.6	11	19A	13B	11C	
08/02 - 13:45 (44-50)	33222	4.2	24	24A	10B	6C	1si
			MARCH				
01/03 - 07:37 (33-39)	33333	4.8	29	24A	16B	3C	
02/03 - 06:54 (50-60)	12223	2.6	15	9A	13B	9C	1si
07/03 - 01:53 (51-57)	22222	4.2	13	4A	6B	4C	
12/03 - 18:24 (21-27)	23222	4.5	20	18A	12B	7C	1si
25/03 - 17:48 (44-52)	22323	2.8	40	14A	5B	8C	6si
			APRIL				
07/04 - 19:54 (51-56)	12222	4.5	19	9A	12B	9C	2si
11/04 - 13:39 (36-42)	23323	3.7	46	16A	5B	5C	4si
15/04 - 10:16 (11-17)	12111	4.8	11	1A	6B	3C	1si
18/04 - 15:02 (58-06)	12111	6.5	17	11A	15B	12C	
26/04 - 08:13 (08-15)	33333	3.2	42	27A	9B	2C	

MAY

01/05 - 07:45 (44-47)	12222	7.2	20	5A	3B	4C	1si	1b
08/05 - 17:54 (51-56)	01101	4.3	16	5A	9B	7C		1b
10/05 - 22:08 (04-12)	33333	3.0	49	24A	12B	3C		2b
14/05 - 18:57 (50-58)	22212	3.8	21	12A	14B	4C		
16/05 - 05:32 (29-33)	12222	2.9	20	4A	12B	5C	2si	
17/05 - 23:02 (58-08)	33233	4.0	38	31A	6B	4C		
20/05 - 05:19 (18-21)	00111	2.3	8	1A	5B	4C		1b

JUNE

06/06- 09:46 (45-48)	12222	6.0	20	12A	8B	11C		
07/06 - 08:23 (22-26)	11001	4.7	26	6A	10B	4C	1si	1b
29/06 - 06:10 (07-15)	39223	4.2	29	15A	18B	4C	2si	

JULY

17/07 - 08:02 (00-04)	22222	3.0	19	9A	21B	5C		
23/07 - 06:46 (43-52)	22222	3.5	20	16A	14B	3C		
25/07 - 05:14 (11-16)	23223	3.1	26	8A	12B	5C		
25/07 - 13:22 (20-24)	33333	3.2	76	21A			1si	

AUGUST

03/08 - 01:24 (23-27)	11010	5.2	9		1B	1C	2si	
09/08 - 19:50 (48-51)	11111	3.5	7	1A	2B	1C		
10/08 - 04:34 (33-36)	33333	2.8	49	21A	10B	1C		
17/08 - 00:45 (44-48)	23332	3.8	36	21A	13B	4C		
23/08 - 12:56 (52-58)	32123	7.8	41	16A	9B	3C	1si	
30/08 - 22:22 (21-24)	21222	7.4	20	1A	8B	5C		2b

STORM SUDDEN COMMENCEMENTS (ssc) 1981 (continued)

			SEPTEMBER					
08/09 - 21:46 (42-51)	23233	4.7	36	23A	10B	2C	1si	
18/09 - 19:12 (08-14)	33333	5.0	33	28A	10B	3C		
19/09 - 01:37 (36-39)	22222	5.4	34	2A	4B	1C	1si	
			OCTOBER					
02/10 - 20:22 (17-23)	33333	4.2	63	35A	5B	2C		
10/10 - 14:34 (30-36)	12111	2.9	17	5A	9B	12C	2si	
13/10 - 22:40 (36-41)	32333	2.6	52	29A	6B	1C		
22/10 - 05:25 (22-27)	22232	3.5	28	16A	15B	4C		
			NOVEMBER					
08/11 - 16:18 (16-21)	22212	4.0	44	10A	10B		6si	
11/11 - 12:38 (36-41)	23223	3.7	49	24A	15B		2si	
12/11 - 16:50 (49-51)	20111	2.7	11		1B	5C	6si	2sfe
16/11 - 20:29 (23-33)	22222	3.1	26	23A	10B	7C		
25/11 - 02:29 (27-32)	33333	4.1	54	26A	13B		1si	
			DECEMBER					
12/12 - 01:44 (39-46)	12233	6.6	29	12A	11B	9C		1b
29/12 - 04:55 (46-57)	22333	4.7	32	16A	13B	6C		
31/12 - 02:06 (06-07)	11211	3.0	7	1A	5B	3C		

Times of commencements of solar-fare effects (sfe) are checked by the following 58 observatories, identified by their IAGA three letter code (list pp 23-32 above) :

ABK SOD COL DOB YAK NUR LOV SIT SVD KNS MNK WNG NGK VAL GTT KIV DOU KGD BDV VIC
NEW HRB UBA ODE NKK MMB VLA AAA AQU TKT ISK EBR COI SPT FRD PEN ASH KAK HTY TUC
LNP HON SJG HYB MBO MUT GUA HUA PPT MPO GNA HER ACS TOO TWA EYR MCQ MAW

JANUARY

26/01 - 12:34 A: WNG3 ODE3 NKK2 AQU2 EBR2 MBO2

B: NUR2 (SVD1) NGK3 VAL2 GTT2 BDV3 ISK0 SPT1 ASH2 [MUT 1]

C: SOD- [SIT1] KNS1 KIV- (KGD1) [NEW1] [MMB0] [VLA-] (AAA1) COI1 [KAK0] [HTY0] SJG2 MPO2 ACS0 MAW1

D: LOV FRD HER TWA

E: [COL] (DOB) DOU PEN [LNP] (MCQ) Y: MNK N: HUA

28/01 - 04:11 A: MMB3 AAA3 KAK3 LNP3 MUT1 EYR1

B: UBA3 (ODE2) VLA- HTY3 GUA2 MPO2

C: [SIT1] [VAL0] [GTT0] (KIV-) KGD0 NKK1 [AQU1] (ISK1) [EBR0] [SPT0] TOO1

D: YAK HON HYB GNA HER

E: [COL] MAW X: ASH MCQ Y: TKT Si: PPT

FEBRUARY

07/02 - 18:31 B: TUC3 SJG2

C: [SOD-] SIT1 [KGD0] NEW2 [VLA-] [ISK0] (SPT1) FRD2 HON0 [MUT0] PPT- ACS2 TWA1

D: COL EYR MCQ X: [AAA] Y: HUA N: VIC

08/02 - 01:38 A: LNP3 GNA2

B: VLA- MUT3 GUA1 EYR2

C: YAK3 [KIV-] UBA1 (NKK1) MMB1 KAK1 HTY0 HON1 TOO2

D: HYB PPT MCQ MAW

E: [SOD] X: [AAA] (MPO)

08/02 - 03:28 A: GUA1 GNA2

B: YAK? UBA3 VLA- LNP2 MUT3 EYR2

C: MMB2 KAK2 HTY1 HYB2 TOO2

D: SVD KGD NKK ASH HON PPT MCQ MAW

X: AAA MPO

17/02 - 21:46 A: TUC3 PPT- EYR2

B: SIT3

C: [WNG0] [GTT0] NEW2 MMB1 VLA? KAK1 HTY1 HON2 MUT0 GUA1 TOO2 TWA0

D: COL FRD LNP GNA ACS MAW

E: [SOD] Y: VIC N: HUA

19/02 - 03:30 A: [MBO1] MUT1

B: SVD2 KGD1 (ODE2) MMB2 AAA2 ASH2 KAK2 HTY3 LNP2 HYB3 GNA3 [TWA0]

C: YAK1 (SIT1) (KNS1) [WNG0] [VAL0] [GTT0] (KIV-) [BDV0] [NEW0] UBA0 NKK1 [AQU0] (ISK1) (PEN-) GUA1 [ACS0] EYR0 MCQ1

D: VLA HON PTT MPO

E: SOD TOO MAW Y: [VIC] TKT

20/02 - 05:48 A: ASH2 LNP3

B: ODE2 AAA2 MUT1

C: YAK1 KGD0 UBA1 NKK1 MMB1 VLA? KAK1 HTY1

D: NUR SVD KNS KIV BDV AQU ISK PEN HYB GUA GNA HER TOO EYR MCQ MAW

E: (SOD) X: MPO Y: TKT N: MNK

20/02 - 06:40 A: YAK- KNS1 UBA2 ODE2 ASH3 HYB3 (MBO1) MUT3 GNA1

B: SVD2 KIV- NKK2 MMB2 VLA2 AAA1 ISK2 KAK2 HTY3 TOO2

C: [SIT1] WNG1 GTT0 KGD1 BDV1 [NEW0] AQU0 [TUC1] [SJG1] GUA1 HER1 [ACS1] [TWA0]

D: ABK NUR LOV NGK DOU EBR EYR MCQ MAW

E: SOD PEN LNP X: MPO Y: MNK TKT

MARCH

21/03 - 13:00 A: ODE3

B: WNG3 KIV- HRB- AQU2 ISK2 ASH2 MBO1 MPO2

C: ABK- SOD- [YAK?] LOV- KN91 NGK2 VAL0 GTT2 DOU2 BDV2 (NEW1) [MMB1] [VLA-] AAA2 EBR1 COI1 SPT1 FRD2 PEN- [KAK1] (TUC1) SJG2 [MUT0] ACS2 TWA1

D: DOB NUR SVD KGD HYB HER MAW

Y: MNK HUA N: TKT

22/03 - 23:52 A: NEW3 EYR2

B: SIT3 MMB2 KAK2 HTY3 LNP2 HON2 MUT3

C: COL1 YAK? UBA1 VLA? TUC2 GUA1 TOO1

D: PPT GNA MCQ

N: VIC

23/03 - 07:00 A: YAK1 KIV- ASH3 LNP3
B: SVD3 KNS1 KGD1 NKK3 MMB2 VLA? AAA? KAK2 HYB3 MUT2 MPO1
C: WNG2 BDV1 UBA0 AQU1 ISK2 EBRO SPT0 HTY1 GNA1
D: ABK SOD DOB NUR LOV NGK VAL GTT DOU ODE COI PEN GUA HER TOO MCQ MAW
Y: MNK TKT

23/03 - 12:03 A: ASH3
B: LOV- WNG3 KIV- HRB? ODE2 AQU2 ISK2 EBR1
C: SOD- [SIT1] SVD2 KNS1 NGK2 VAL1 GTT1 BDV2 [VLA?] AAA2
FRD2 (TUC1) SJG2 MBO1 [MUT0] ACS1
D: ABK DOB NUR KGD DOU NKK CGI SPI HYD HER TWA
E: COL MCQ X: PEN MPO Y: MNK N: TKT HUA

23/03 - 17:36 B: NEW3 FRD2 [MUT0]
C: SIT2 (WNG0) (GTT1) (BDV0) [MMB0] [VLA?] TUC2 HON1 SJG2 ACS2 TWA2
D: COL VAL DOU AQU EBR COI SPT PPT
X: (MAW) Y: HUA N: VIC

24/03 - 01:55 B: MMB2 VLA? MUT3 EYR2
C: SIT1 NEW1 KAK2 HTY1 LNP2 HON2 GUA1 TOO1
D: COL SVD KGN UBA NKK HYB PTT GNA MCQ
X: (TUC) MAW Y: VIC N: TKT

24/03 - 06:23 A: LNP3
B: ASH2 MUT3
C: YAK1 SVD2 GTT0 KIV- UBA1 MMB2 VLA? AAA2 KAK2 HTY1 GUA1
D: ABK SOD DOB NUR LOV KNS WNG NGK VAL KGD BDV DOU ODE NKK AQU ISK EBR COI SPT PEN
HYB GNA EYR MCQ MAW
E: TOO X: MPO N: MNK TKT

28/03 - 04:10 A: LNP3 MUT1
B: MMB2 AAA2 KAK2 EYR1
C: (SIT1) SVD1 (WNG0) (GTT0) KIV- [NEW0] UBA1 ISK1 HTY1 GUA1
D: ABK COL YAK NUR KNS KGD ODE NKK VLA ASH HON HYB MPO GNA TOO MCQ
E: MAW N: MNK TKT pc: SOD

28/03 - 05:35 A: ASH3 LNP3
B: AAA3 MUT1
C: SOD- YAK1 [SIT1] SVD1 GTT0 KIV- KGD0 UBA2 NKK1 MMB2 ISK1 KAK2 HTY1 GUA1 MPO1
[ASC0] [TWA0] EYR1
D: ABK DOB NUR LOV KNS WNG NGK BDV DOU ODE VLA AQU PEN HYB GNA HER TOO MCQ
E: MAW Y: TKT N: MNK

APRIL

02/04 - 11:03
A: ODE2 AQU2 EBR2 PEN- ASH3
B: NUR1 SVD3 WNG3 VAL1 GTT2 KIV- KGD1 BDV2 HRB- ISK2 COI2 SPT1 (MUT1) MPO2 MAW1
C: (YAK?) LOV- [SIT2] NGK2 [NEW1] UBA1 NKKO [MMB1] (VLA?) [KAK1] [HTYO] [TUC1] SJG1 MBO1 (GNA1) ACS1 [TOO1] TWA0
D: SOD DOB DOU FRD HER
E: ABK HYD Y: TKT N: MNK

04/04 - 05:02
A: YAK1 UBA3 MMB3 PEN- KAK3 HTY3 LNP3 HYB3 GUA2 GNA2
B: SVD2 KGD2 ODE2 NKK1 VLA? AAA3 MUT1 TOO2
C: LOV- (SIT1) KNS1 WNG0 KIV- AQU0 ISK2 (HON1) EYR1
D: ABK COL DOB NUR NGK GTT DOU BDV PEN HER MCQ
E: SOD MAW X: ASH MPO Y: MNK (VIC) TKT

24/04 - 13:49
A: WNG3 AQU2 EBR2
B: VAL1 GTT1 KIV- BDV2 HRB- ISK0 [MUT1]
C: SOD- NGK2 KGD0 NEW1 VLA- [HTYO] TUC1 SJG1 MBO2
D: DOB KNS DOU VIC NKK ASH HER ACS TWA
E: ABK COL NUR LOV SIT SVD ODE [MMB] COI FRD PEN [KAK] [LNP] (HYB) MPO [TOO] [MCQ] MAW
Y: MNK N: TKT HUA bps : SPT

26/04 - 07:17
A: COI0 PEN- ASH3 LNP3 HYB2
B: YAK1 SVD2 KGD1 ODE2 NKK2 AAA3 ISK2 MUT1
C: [SIT1] KNS2 GTT1 KIV- MMB2 VLA- AQU2 SPT0 KAK2 HTY1 GUA1 MPO2 GNA1
D: SOD DOB NUR LOV WNG NGK VAL BDV DOU UBA EBR HER TOO
E: ABK (COL) (MCQ) MAW Y: TKT N: MNK

MAY

04/05 - 08:37
A: DOB LOV- SVD3 KNS2 WNG3 KIV- ODE3 AAA3 COI0 ASH3 LNP3 HYB3 MBO1 MPO3 HER3
B: ABK- YAK- NUR2 NGK3 VAL2 GTT2 KGD2 BDV3 HRB- MMB2 VLA- AQU3 KAK2 MUT3 GNA2
C: [COL1] [SIT1] UBA1 NKK1 EBR2 HTY3 [TUC1] GUA1 [ACS2]
D: SOD DOU MAW
Y: MNK TKT

05/05 - 14:08
A: DOB2 WNG3 KIV- DOU- NEW3 ODE2 ISK3 EBR3 COI0 FRD2 PEN- ASH3 TUC3 MOP3 HER3 TWA2
B: ABK- LOV- SIT2 NGK3 VAL2 GTT3 KGD1 BDV3 VIC- HUR- (AAA3) AQU3 SPT2 SJG3 MBO2
C: SOD- (YAK-) SVD2 KNS1 NKK1 [MMB1] [VLA-] [KAK1] [HTYO] MUT0 ACS2
D: COL NUR
Y: MNK TKT HUA

05/05 - 22:55 B: MMB2 LNP2 MUT1 PTT? EYR2

C: SIT1 NEW2 UBA1 VLA- KAK2 HTY1 TUC2 HON2 GUA1

D: COL VIC FRD SJG TOO MCQ

X: YAK N: HUA

22/05 - 06:21 A: MMB2 LNP3

B: KIV- AAA3 KAK2 HYD3 MUT1

C: YAK- (SIT1) SVD2 KNS2 WNG0 NGK2 VAL0 KGD0 NKK1 VLA- AQU1 ISK1 HTY3 GUA1

D: SOD COL DOB NUR LOV DOU BDV UBA ODE EBR COI SPT PEN GNA HER TOO

E: ABK (MAW) X: GTT ASH MPO N: MNK TKT

JUNE

25/06 - 00:58 A: [MBO1]

B: (ASH2) LNP2 MUT2

C: YAK- (KIV-) NEW1 UBA1 MMB2 VLA- [ISK0] KAK2 HTY1 GUA1 [MPO1]

D: COL SIT SVD KNS KGD VIC NKK AAA TUC HON HYB PPT GNA TOO EYR MCQ

Y: TKT

29/06 - 00:39 A: SIT3

B: (ASH2) LNP2 MUT3

C: KGD1 NEW1 MMB2 VLA- KAK2 HTY0 HON1 GUA1

D: ABK COL YAK SVD KNS VIC UBA NKK TUC HYB PPT GNA TOO EYR MCQ

E: SOD MAW N: TKT

JULY

19/07 - 04:18 A: LNP3

B: SVD2 WNG2 KIV- KGD1 MMB3 VLA- PEN- KAK3 HYB3 MUT1

C: SOD- YAK- LOV- KNS1 NGK2 GTT1 BDV0 ODE1 NKK1 AAA1 ISK2 HTY3 GUA1 (MPO1) GNA1

D: ABK COL DOB NUR SIT ASH HON TOO EYR MCQ

X: [ACS] (MAW) Y: MNK TKT

19/07 - 05:32 A: PEN- LNP3 HYB3

B: SVD3 KGD2 UBA2 ODE2 MMB3 ISK2 KAK3 MUT1 GUA2 GNA2

C: SOD- (SIT1) GTT1 KIV- NKK2 AQU1 HTY1 MPO2

D: ABK COL DOB NUR LOV KNS WNG NGK VAL BDV AAA EBR COI SPT HER MCQ

X: ASH [ACS] Y: YAK MNK TKT

27/07 - 17:24 A: TUC3 SJG3 MBO2

B: WNG2 KIV- VIC- NEW2 ODE2 AQU1 FRD3 PTT?

C: SIT1 KNS1 NGK2 VAL0 GTT1 (KGD0) BDV2 [UBA0] [MMB1] [VLA-] ISK1 [HTY0]
HON2 [MUT1] ACS2 TWA1

D: SOD NUR LOV COI SPT PEN

E: ABK COL DOB [ASH] [LNP] [MPO] [MAW] X: EBR Y: MNK HUA

AUGUST

11/08 - 01:44 A: LNP3 GUA3

B: KGD1 MMB3 AAA0 KAK3 MUT1

C: SVD1 [WNG0] [GTT0] (KIV-) NEW1 UBA1 (ISK1) HTY2 HON2 EYR1

D: ABK SOD COL YAK SIT KNS NKK VLA TUC GNA TOO MCQ

E: ASH HYB (MAW) Y: VIC N: TKT si: PPT

12/08 - 06:24 A: YAK- AAA2 ASH3 LNP3

B: SVD2 WNG1 KGD1 UBA2 MMB3 VLA- AQU1 KAK3 HTY3 HYB2 MUT1 MPO2

C: NGK2 ? VAL0 KIV- BDV2 NKK1 ISK1 EBRO PEN- [TUC1] GUA1 HER1

D: ABK DOB LOV KNS DOU ODE COI SPT GNA TOO

E: SOD NUR MAW X: GTT MNK Y: TKT

13/08 - 02:49 B: LNP2

C: YAK? (GTT0) KGD1 NEW1 UBA1 MMB2 VLA- AAA0 KAK2 HTY1 (TUC1) HON1 MUT0 GNA- TOO1

D: NUR SIT SVD KNS ODE NKK GUA

E: SOD COL KIV ASH HYB EYR MCQ (MAW) N: MNK TKT VIC

15/08 - 08:01 A: DOB2 ASH3

B: YAK- SVD2 WNG2 KIV- KGD1 AAA2 AQU1 ISK2 PEN2 MPO2

C: NUR2 LOV- KNS1 NGK- VAL0 GTT1 BDV1 UBA2 NKK1 MM1 COI0 SPT0 KAK1 HTY0 LNP2 MUT1 GNA1 [ACS2] [TWA2] [EYR1] MAW1

D: SOD VLA EBR GUA HER

E: DOU HYB X: ABK Y: MNK TKT

27/08 - 03:55 A: YAK- MMB3 KAK3

B: HTY2 LNP2

C: SOD- COL1 SIT2 KGD0 UBA1 VLA- AAA0 [SPT0] [TUC1] MUT0 EYR1

D: ABK DOB NUR LOV SVD KNS KIV ODE ISK ASH HYB GUA PPT GNA TOO MCQ

E: MAW X: MNK HON N: TKT

27/08 - 05:53 A: ASH3 LNP3 HYB3

B: DOB3 YAK- SVD3 WNG2 KGD1 NKK1 MMB2 VLA- AAA3 KAK3 MPO2 GNA2

C: (SIT1) GTT1 [NEW1] UBA2 AQU1 ISK2 HTY2 MUT0 GUA1

D: ABK SOD NUR LOV KNS NGK VAL KIV DOU ODE EBR SPT HER TOO EYR MCQ

E: PEN MAW X: BUD MNK (HON) Y: TKT

28/08 - 03:45 A: KGD2 ODE2 MMB3 LNP3 GUA3

B: YAK- AAA2 KAK3 HTY3 MUT2

C: (NGK1) VAL0 (GTT1) (NEW1) NKK2 VLA- SJG1

D: SOD KNS PPT EYR MAW

E: ABK COL (DOB) NUR (LOV) SIT SVD (WNG) KIV UBA (AQU) ISK (EBR) (PEN) ASH HYB (MPO) GNA TOO MCQ X: HON Y: TKT N: MNK

30/08 - 10:29 A: DOB2 WNG2 KIV- UBA1 ODE3 AAA2 AQU2 EBR0 ASH3 [EYR0]

B: ABK? YAK? NUR2 LOV? SVD2 GTT2 KGD2 BDV2 NKK1 (MMB1) (VLA-) ISK0 FRD1 (KAK1) HYB2 (HUT1) MPO1 (GNA1) HER2 MAW2

C: SOD- NGK2 VAL0 SPT1 (HTY1) [TUC1] SJG1 MBO1 ACS1 [TOO1] [TWA1]

D: KNS DOU PEN E: (COL) COI [MCQ] Y: MNK TKT (HUA)

SEPTEMBER

06/09 - 00:01 B: (ABK-) MMB2 MUT2 GUA2

C: YAK? SIT1 (SVD1) [VAL0] [GTT0] [KIV-] (KGD0) NEW1 (AAA0) (ASH2) KAK2 HTY3 TUC1 HON1 SJG1 [MPO2]

D: PPT GNA TOO MCQ

E: SOD COL [DOB] [WNG] [NGK] (HYB) (MAW)

X: UBA LNP EYR N: VIC

07/09 - 00:10 B: LNP2 EYR1

C: YAK- [GTT0] (KGD0) NEW1 MMB2 VLA- [ASH1] KAK2 HTY1 TUC2 MUT0

D: UBA HON PPT GNA TOO MCQ

E: (SOD) X: SIT [MPO] Y: VIC

07/09 - 00:54 A: SIT3

B: YAK- UBA2 AAA2 LNP2

C: (ABK-) COL1 [LOV-] (SVD2) [WNG0] [NGK2?] [VAL0] [GTT0] KGD0 NEW2 MMB2 [AQU0] [ISK0] (FRD1) (ASH1) KAK2 HTY1 TUC2 HON2 [SJG1] HYB2 MUT1 GUA1 PPT-

D: VLA GNA TOO EYR MCQ

E: (SOD) X: [MPO] Y: VIC (TKT)

07/09 - 05:11 A: AAA3 PEN2 ASH3 LNP3

B: YAK- KGD2 UBA1 MMB2 VLA- KAK2 HYB2 MUT1 GUA2

C: SVD2 KNS1 WNG0 NGK2? (VAL0) GTT0 KIV- [NEW1] NKK2 AQU0 ISK1 HTY3 [SJG1] GNA1 TOO2

D: ABK DOB NUR LOV BDV ODE HER EYR MCQ

E: SOD MAW X: MPO Y: TKT N: MNK

07/09 - 22:23 A: LNP2

B: TUC2

C: YAK? SIT1 [GTT0] [KIV-] NEW2 MMB2 [SPT1] [ASH1] KAK2 HTY1 HON1 SJG1 MUT1 GUA1 PPT?

D: COL VLA FRD GNA TOO TWA EYR MCQ

E: [ABK] [SOD] [MAW] Y: VIC HUA

09/09 - 11:48 A: ODE2

B: NUR2 WNG3 KIV- KGD1 ISK2 SJG2 [MUT1]

C: ABK- LOV- [SIT1] KNS1 NGK2 VAL0 GTT1 BDV2 [NEW1] UBA1 (VLA-) AQU1 AAA0 ASH2 [HTY0] [TUC1] MPO2

D: DOB SVD DOU NKK EBR COI SPT FRD HER ACS TWA MAW

E: SOD COL (LNP) HYB [MCQ] Y: MNK [VIC] N: TKT HUA

10/09 - 00:39 A: DOB3 SVD3 KNS1 WNG3 NGK3 KIV- ODE3 AAA2 AQU3 PEN3 ASH3 LNP3

B: YAK? LOV- VAL1 KGD2 BDV2 NKK2 (MMB0) ISK3 COI2 (KAK0) MUT1 MPO2

C: ABK- SOD- [COL1] GTT2 VLA- EBR2 (HTY1) (SJG2) HER1 (ACS1)

D: NUR DOU UBA SPT GNA MAW

E: HYB2 (TOO) Y: MNK N: TKT

11/09 - 03:18 A: LNP3 MUT1

B: YAK? KGD1 MMB3 KAK3 EYR1

C: (SOD-) (NUR2) SIT1 SVD1 [VAL0] [GTT0] (NEW1)UBA1 AAA0 (ISK0) [SPT1] HTY3 [TUC1] [SJG1] (MPO2) GNA1

D: KNS KIV NKK VLA HON PTT TOO MCQ

E: (ABK) COL HYB MAW X: ASH GUA N: TKT

12/09 - 11:30 A: [MMB0] MBO2

B: NUR2 SVD2 KNS2 WNG3 KIV- KGD1 BDV1 ODE2 AAA2 AQU1 ISK2 PEN2 [MUT1]

C: SOD- LOV? NGK2 GTT1 (VLA-) EBR0 [KAK0] [HTY0] (LNP2) HYB2 MP01 (GNA1)

D: ABK DOB VAL DOU UBA NKK COI SPT FRD SJG HER ACS TWA MAW

E: [COL] [MCQ] X: ASH Y: MNK TKT N: HUA

13/09 - 00:07 A: LNP3 EYR2

B: [NUR2] MMB3 VLA- KAK2 HTY3 TUC3 PPT?

C: SIT1 [WNG0] [GTT0] NEW2 (AAA1) [ISK1] HON2 MUT1 GUA2 GNA0 TOO2

D: COL MCQ

E: [SOD] X: YAK UBA N: VIC

20/09 - 09:12 A: ODE3 PEN3 ASK3

B: SVD2 WNG2 KIV- KGD2 BDV2 AAA2 AQU1 ISK2 MUT1

C: YAK? NUR2 KNS2 NGK3 VAL0 GTT1 DOU? [NEW1] NKK1 (MMB0) VLA- EBR0 (KAK1) (HTY1) [TUC1] (SJG1) (GUA1) MPO2 GNA1 HER1 [EYR1]

D: SOD DOB LOV UBA COI SPT

E: ABK LNP HYB MAW Y: MNK TKT

26/09 - 13:00 A: NUR3 KNS2 WNG2 KIV- KGD3 BDV1 [UBA1] ODE3 NKK1 AQU0 EBR0

B: [YAK?] SVD2 NGK2 GTT1 ISK0 MBO1 [MUT1] HER1

C: VAL0 [VLA-] SPT1 SJG1

D: DOU ACS TWA

E: ABK SOD (COL) DOB LOV (SIT) [MMB] (AAA) COI [KAK] [HTY] HUA [GNA] [TOO] [MCQ] MAW

X: PEN ASH MPO Y: MNK VIC N : TKT b: (HYB)

OCTOBER

06/10 - 09:57 A: ASH3 MBO3

B: (YAK-) SVD2 KIV- KGD1 UBA1 ODE2 (MMB1) AAA2 AQU1 ISK2 (KAK1)

C: KNS2 WNG2 VAL0 GTT1 BDV1 EBR0 (HTY0) (SJG1) HYB1 MPO2 GNA1 HER1 (TOO1) TWA1

D: ABK SOD DOB NUR NGK DOU NKK COI SPT PEN ACS MAW

X: [HON] Y: MNK TKT pg: LOV

12/10 - 06:23 A: YAK- ODE2 ASH3 LNP3 EYR1

B: SVD1 KIV- MMB2 VLA- AQU1 ISK2 KAK2 MUT1

C: KNS1 WNG0 GTT1 [NEW0] NKK1 HTY3 [SJG1] GUA1

D: SOD NUR LOV DOU BDV UBA EBR GNA HER

E: ABK [COL] (DOB) NGK KGD AAA (COI) PEN HYB3 TOO MCQ MAW

X: [VIC] MPO Y: MNK TKT

15/10 - 04:43 A: KGD3 LNP3

B: YAK? (LOV-) ASH2 MUT3

C: (SOD-) [VAL0] (GTT0) [NEW0] ODE2 MMB2 VLA- ISK0 KAK2 TUC1 (HON1) [SJG1] MPO2

D: KNS NKK GUA GNA HER

E: (ABK) (COL) (DOB) [SIT] SVD KIV UBA AAA [FRD] HTY HYB TOO EYR MCQ MAW

X: (BDV) [VIC] N: MNK TKT pc: (NGK)

NOVEMBER

07/11 - 03:54 A: LNP3

B: [WNG0] [GTT0] KGD1 UBA2 MMB2 VLA- ASH2 KAK2 HYB3 MUT1 EYR2

C: YAK- [SIT1] SVD1 [VAL0] (KIV-) (ISK0) [FRD1] HTY2 GUA1 TOO2

D: HON MPO GNA HER

E: [ABK] (COL) [DOB] [NGK] AAA MCQ MAW X: NKK Y: TKT pc: (SOD)

DECEMBER

none

JANUARY

14/01 - 13:15 A: DOB1 NUR3 (KNS1) WNG2 KIV- ODE2 (NKK2) [MMB0] (AAA2) [KAK0] (HYB2) MBO1

B: (SVD2) NGK3 VAL1 GTT1 (KGD1) BDV1 VLA? AQU1 ISK1 EBR1 COI2 PEN2

C: LOV- [NEW1] SPT1 (ASH1) [HTY0] (TUC) SJG1 MUT0 MPO1 HER1

D: FRD TWA

E: [COL] [SIT] DOU (MCQ) MAW X: ACS Y: MIK (TKT) N: HUA

18/01 - 07:29 A: (YAK-) ODE2

B: WNG2 KIV- BDV2 HRB- KAK1 MAW1

C: (ABK-) LOV- SVD2 NGK3 GTT1 KGD0 MMB1 VLA? ISK0 PEN- HTY0 MUT0 GNA1 HER1 (ACS1) (TWA1)

D: NUR KNS AAA AQU EBR SPT ASH LNP HYB GUA TOO EYR MCQ

X: DOU MPO Y: MNK N: TKT

18/01 - 11:04 A: YAK/ ODE3 ASH3 MBO1

B: ABK- LOV- SVD3 KNS2 WNG2 KIV- (UBA2) [MMB0] AAA2 AQU1 [KAK0] [MUT1] MPO1 ACS2 TWA2

C: SOD- DOB1 NUR? NGK1 VAL0 GTT1 DOU? KGD0 BDV2 [NEW1] NKK1 VLA? ISK2 EBR0 SPT1 PEN- [HTY0] HYB2 [GUA1] HER1

D: COI SJG GNA MAW

Y: MNK TKT HUA

25/01 - 07:46 A: AAA3 MBO2 GUA2 GNA2

B: UBA3 AQU1 EBR1 LNP0

C: SVD2 KNS1 GTT1 KGD1 BDV0 NKK1 (MMB0) VLA? ISK2 SPT1 PEN- KAK0 HTY1 HYB3 TOO1

D: NUR LOV WNG NGK KIV DOU ODE COI HER EYR MCQ MAW

X: ASH MUT Y: MNK N: TKT

27/01 - 05:34 B: MUT1

C: [SIT1] UBA2 MMB2 VLA? KAK2 HTY3 LNP1 HYB1 GUA2

D: YAK SVD KNS KIV KGD ODE AAA ISK PEN GNA HER TOO EYR MCQ MAW

X: MPO N: MNK TKT

28/01 - 00:12 A: MUT1

B: (SIT2) (KGD0)

C: [KIV-] UBA1 VLA? AAA0 KAK1 HTY1 EYR1

D: MMB HON HYB GUA PPT GNA TOO

E: MAW X: MCQ Y: (VIC)

FEBRUARY

12/02 - 04:33 A: LNP3

B: UBA2 MUT1

C: KNS1 [VAL0] (GTT0) (KIV-) DGD0 NKK2 MMB1 VLA? AAA1 ASH1 KAK1 HTY0 GUA1 MPO1 EYR0

D: YAK SVD HYB GNA HER TOO MCQ MAW

E: (SOD) N: TKT

24/02 - 00:06 A: LNP3

B: [ASH2] MUT2

C: SIT0 [SVD1] [WNG0] [VAL0] [GTT0] [KIV-] (KGD1) NEW1 [ODE1] VLA? [ISK0] HTY0 TUC1 [SJG1] GUA1 [ACS0] (TWA0)

D: COL HON PTT GNA TOO EYR

E: [SOD] MMB (AAA) [EBR] [PEN] KAK (HYB) X: YAK UBA MCQ MAW N: VIC

MARCH

20/03 - 11:06 A: MBO3

B: (YAK?) WNG3 GTT1 ODE2 AQU1 ASH2

C: SOD- [SIT1] SVD2 KIV- KGD0 NKK2 [MMB1] [VLA?] ISK0 EBR0 SPT0 AQU1 [KAK1] [HTY0] [MUT0] MAW1

D: ABK DOB NUR LOV NGK VAL BDV DOU AAA COI FRD PEN SJG HYD MPO HER AGS TWA

Y: MNK N: TKT HUA

23/03 - 06:48 B: YAK/ MUT1

C: SVD2 KGD0 MMB2 AAA1 ASH1 KAK2 HTY3 HYB3 GNA1

D: ABK SOD DOB NUR LOV KNS WNG NGK VAL GTT KIV BDV DOU UBA ODE NKK VLA AQU ISK EBR COI SPT PEN GUA MPO HER TOO MCQ MAW

X: LNP Y: TKT N: MNK

APRIL

04/04 - 07:57 B: LNP2 HYB2 MUT2

C: ABK- LOV- [SIT1] SVD2 WNG1 NGK2 VAL0 GTT1 KIV- KGD0 BDV0 [NEW1] UBA1 VLA? AQU1 ISK2 EBR0 HTY0 [TUC1] [SJG1]

D: DOB YAK NUR KNS ODE NKK AAA COI SPT PEN GUA MPO GNA HER TOO MAW

E: SOD MMB KAK X: ASH Y: MNK TKT

17/04 - 03:40 A: AAA2 [MBO1]

B: SVD2 WNG0 KGD2 (NKK2) (AQU0) ASH2 HYB3 (MPO2)

C: SOD- (GTT0) KIV- (BDV0) MMB2 VLA- ISK0 (EBR0) KAK2 HTY2 [ACS0] [TWA0]

D: COL YAK LOV SIT KNS UBA ODE HON GUA PPT GNA EYR MCQ

E: ABK LNP TOO MAW X: MUT Y: TKT N: MNK

MAY

11/04 - 05:45 A: YAK? KGD3 MMB1 ASH3

B: VAL0 KAK1 MUT2

C: SOD- ODE2 NKK2 VLA- [SJG1] GUA1

D: KNS DOU COI SPT HER

E: ABK COL DOB NUR LOV (SIT) SVD WNG NGK GTT KIV [NEW] UBA AAA AQU TKT ISK EBR [FRD] PEN HTY [TUC] LNP (HON) HYB MPO GNA [ACS] TOO (EYR) (MCQ) MAW

X: BDV Y: MNK

JUNE

05/06 - 12:09 A: DOB2 WNG2 KIV- AAA2 ASH3 MBO2

B: YAK- NUR2 SVD2 KGD2 BDK1 ODE3 NKK2 [MMB0] (VLA-) AQU1 [KAK1] HYB2 [MUT1] [GUA1] HER1 (MAW2)

C: ABK? SOD- LOV? (SIT1) NGK2 VAL0 GTT1 NEW1 UBA2 EBR0 SPT0 [HTY0] SJG1 MPO1 [GNA1] ACS2 [TOO0] TWA1

D: COL DOU VIC COI FRD

E: [LNP] [MCQ] X: KNS (TUC) Y: MNK TKT HUA

10/06 - 06:21 B: KIV- LNP3 HYB3

C: YAK- (SIT1) SVD2 KGD0 MM2 VLA- ISK1 KAK2 HTY2 MUT1

D: ABK COL DOB NUR LOV KNS WNG NGK VAL GTT DOU BDV UBA ODE NKK AAA AQU EBR COI SPT PEN ASH GUA MPO GNA HER TOO

E: SOD N: MNK TKT

17/06 - 00:04 A: MMB2 [EBR0] (ASH3) MUT1

B: (WNG0) (VAL0) (KIV-) KGD2 (BDV0) (ODE2) (NKK2) VLA- [ISK0] KAK2 HTY3 TUC2 [MBO1] GUA1

C: SIT1 (KNS1) (GTT0) NEW1 UBA1 HON2 (SJG1) [MPO1]

D: SOD SVD FRD PPT

E: ABK COL (LOV) (NGK) [AQU] [PEN] HYB TOO MCQ MAW

X: YAK AAA LNP GNA [ACS] EYR Y: TKT N: VIC

24/06 - 06:30 A: LNP3

B: KGD0 MMB2 KAK2

C: SOD- SVD2 KIV- VLA- HTY3 MUT0 MPO2

D: ABK COL DOB YAK NUR LOV KNS WNG NGK VAL GTT DOU BDV UBA ODE NKK AAA AQU ISK EBR COI SPT PEN ASH HYB GUA GNA HER TOO

X: MNK N: TKT

25/06 - 21:59 A: [MBO1]

B: [KGD1]

C: YAK? SIT1 (WNG0) (VAL0) (GTT0) NEW1 VLA- [ISK0] HTY1 TUC2 SJG1 MUT1 PPT- TOO1

D: ABK COL NIC UBA FRD LNP HON GUA EYR

E: SOD (SVD) (KIV) MMB [PEN] KAK [HYB] MCQ [MAW] Y: [TKT] N : HUA

27/06 - 12:56 A: ASH3 MBO3

B: YAK? WNG2 KIV- BDV2 [MMB1] COI1 SJG2 [MUT1] MPO2

C: NUR2 SIT1 SVD1 LOV- VAL0 GTT0 NEW1 (UBA1) (VLA-) AQU1 ISK2 EBR1 SPT0 FRD2 [KAK1] [HTY0] TUC1 HER1

D: ABK SOD COL DOB KNS NGK DOU ODE NKK AAA ACS TWA

E: PEN HYB (MAW) X: KGD Y: MNK VIC TKT HRB N: HUA

28/06 - 03:59 A: LNP3 [MBO1]

B: KIV- VLA- AQU1 ASH2 KAK2

C: YAK- NUR2 SIT1 SVD2 NGK2 (VAL0) GTT1 DOU ? KGD0 BDV0 (NEW0) UBA1 MMB2 ISK1 PEN- HTY3 HON2 HYB2 MUT1 GUA1 (MPO1) EYR1

D: ABK COL DOB LOV KNS WNG VIC ODE NKK AAA GNA TOO MCQ

E: SOD (MAW) Y: MNK N: TKT

29/06 - 04:19 B: LNP2 MUT3

C: YAK- SIT? SVD2 WNG0 GTT1 KGD0 UBA1 MMB2 VLA- KAK2 HTY2 GUA1

D: ABK COL DOB NUR LOV KNS NGK KIV BDV DOU ODE NKK AAA AQU ISK PEN ASH HYB GNA TOO EYR MCQ

E: SOD (MAW) N: MNK TKT

JULY

02/07 - 13:02 A: NUR3 WNG3 KIV- EBR0 [TOO0]

B: SVD1 GTT1 KGD1 ASH2 [HTY0] [MUT1]

C: SOD- (YAK-) KNS1 VAL1 NEW1 (UBA1) [VLA-] ISK1 TOL1 TUC1 [HON1] SJG2 GUA1 MPO2

D: DOB DOU BDV VIC ODE NKK AAA HER ACS TWA

E: ABK COL LOV SIT NGK [MMB] AQU COI FRD PEN [KAK] [LNP] HYB [MCQ] (MAW)

X: MNK [GNA] N: TKT HUA

15/07 - 03:55 B: MMB2 KAK3 LNP2
C: SVD2 GTT0 KIV- KGD0 UBA1 VLA- HTY3 HYB2 MUT1 GUA1
D: ABK COL DOB YAK NUR LOV SIT KNS WNG NGK VAL DOU BDV VIC ODE NKK AAA AQU ISK PEN ASH GNA TOO EYR MCQ
E: SOD X: [ACS] N: MNK TKT

15/07 - 08:12 A: HYB3
B: YAK- WNG3 KIV- KGD1 VLA- AAA1 MUT1
C: (SIT1) SVD2 NGK2 VAL0 GTT1 BDV1 UBA1 MMB2 AQU1 EBR2 ASH2 KAK2 HTY1 [TUC1] MPO1 GNA1 HER1 [EYR1]
D: ABK DOB NUR LOV KNS DOU ODE NKK ISK COI SPT PEN LNP GUA MAW
E: SOD X: [ACS] N: MNK TKT

16/07 - 04:42 A: DOB2 YAK- WNG3 [TUC2] MUT2 EYR2
B: ABK COL2 NUR2 LOV- SIT2 SVD2 (VAL1) GTT0 KIV- DOU- KGD2 ODE2 MMB2 AAA3 AQU0 ISK2 (EBR0) [FRD2] KAK2 HTY2 LNP2 HON2 [SJG1] HYB1 [MBO1] GUA2 MPO1 GNA2 TOO2
C: KNS1 NGK2 BDV1 (NEW1) UBA1 NKK1 MCQ2
D: PEN ASK
E: SOD (MAW) X: [ACS] Y: MNK TKT [HUA] ssc: (SPT) si: (PPT)

21/07 - 04:00 A: LNP2
B: KGD1 MMB3 VLA- KAK3
C: YAK2 NUR1 SVD2 WNG0 GTT1 KIV- AAA2 ISK0 ASH2 HTY3 [SJG1] MUT0 GUA1
D: ABK SOD COL DOB LOV SIT KNS NGK BDV ODE NKK AQU PEN HON GNA EYR MCQ
E: HYB TOO (MAW) X: UBA [ACS] N: MNK TKT

22/07 - 08:34 B: YAK- WNG2 KGD1 BDV1 MMB2 AQU1 PEN-
C: SOD- SVD2 NGK2 VAL0 GTT2 KIV- [NEW1] VLA- ISK1 SPT0 ASH2 KAK2 HTY1 LNP2 [SJG1] MUT1 (TOO0)
D: ABK DOB LOV KNS UBA ODE NKK AAA EBR COI GUA MPO GNA HER
E: NUR HYB MAW X: [ACS] Y: TKT N: MNK

26/07 - 13:51 A: ODE3 EBR0 COI2
B: (YAK-) KNS1 WNG2 VAL1 KIV- BDV2 ASH2 SJG2 MBO0 [MUT0] MPO2
C: NEW1 [VLA-].
D: SOD NUR NKK SPT
E: ABK COL DOB LOV SIT SVD NGK GTT KGD [UBA] [MMB] AAA AQU TKT ISK FRD PEN [KAK] [HTY] TUC [LNP] [HON] (HYB) HUA HER ACS [TOO] TWA [MCQ] (MAW)
X: GTT N: MNK TKT Y: MNK VIC

27/07 - 06:30 B: YAK? SVD1 KGD1 ODE2 MMB1 AAA2 KAK1 LNP2 MUT2
C: KNS1 VAL0 [NEW1] VLA- ASK2 SPT0 [SJG1] GUA1 MPO1

D: NUR BDV UBA NKK AQU EBR COI PEN HER

E: ABK SOD COL DOB LOV (SIT) WNG NGK KIV [FRD] ASH HTY HYB GNA TOO (EYR) (MCQ) MAW

X: GTT N: MNK TKT

AUGUST

08/08 - 20:25 B: TUC3

C: SIT1 [KIV-] [KGD0] NEW1 VLA- FRD2 SJG1 (MUT0)

D: COL YAK MMB KAK HTY HON GUA PPT ACS TWA EYR

Y: HUA

10/08 - 09:28 A: YAK? KGD3 ODE3 MMB0 EBR1 ASH3 KAK0 MUT2

B: SVD2 KNS2 NGK2 KIV- BDV1 NKK1 MBO3 (GUA2) MPO1 (ACS1)

C: VAL0 GTT1 VLA- SPT2 (SJG1) [TWA0]

D: COI

E: ABK SOD (COL) DOB NUR LOV (SIT) WNG [NEW] UBA AQU ISK (FRD) PEN HTY [TUC] LNP [HON] HYB GNA HER [TOO] [EYR] MCQ MAW Y: MNK AAA TKT HUA

11/08 - 07:43 B: KGD0

C: YAK/ SVD1 WNG0 NGK2 GTT1 KIV- MMB2 AAA2 ISK1 SPT0 KAK2 HTY2 MUT1 MPO1 [ACS1]

D: ABK SOD DOB NUR LOV KNS VAL DOU BDV UBA ODE NKK VLA AQU EBR COI PEN ASH GUA GNA HER MAW

E: HYD Y: TKT N: MNK

17/08 - 14:05 A: MBO2

B: YAK? KNS1 WNG3 VAL0 KIV- KGD1 BDV1 ODE2 [MMB0] ISK2 [KAK0] [MUT1]

C: NUR2 NGK? GTT1 NEW1 [VLA-] EBR0 SPT0 TUC1 [HON1] SJG2 [GUA1] ACS1 [TOO1]

D: SOD DOU NKK ASH MPO HER TWA

E: ABK COL DOB LOV SIT SVD (AAA) AQU COI FRD PEN [HTY] [LNP] (HYB) MCQ (MAW)

Y: MNK TKT N: VIC HUA

SEPTEMBER

03/09 - 22:56 A: YAK-

B: (KGD1) MMB2 VLA- KAK2 HTY3 MBO3

C: (AAA0) TUC1 HON2 MUT0 PTT-

D: COL SIT NEW UBA FRD LNP GUA GNA TOO EYR MCQ

E: [NGK] MAW N: VIC HUA

07/09 - 10:41 A: MBO2

B: SVD2 KNS1 WNG1 DOU- AAA2

C: GTT1 KIV- KGD0 NKK1 (MMB1) (VLA-) AQU1 ISK0 COI0 SPT1 (KAK1) (HTY0) (MUT1) MPO2

D: ABK DOB YAK NUR LOV NGK VAL BDV UBA ODE EBR PEN ASH SJG HYB HER ACS MAW

E: SOD Y: MNK [VIC] TKT

15/09 - 15:11 A: WNG2 ODE2 [AAA2] PEN3 MBO3

B: ABK? LOV? KNS NGK3 VAL0 GTT2 KIV- DOU- (KGD2) BDV2 [MMB0] AQU2 ISK2 EBR1 COI1 [KAK0] ACS1 TWA1

C: SIT1 (SVD1) NEW2 [UBA1] (NKK1) [VLA-] SPT2 (ASH2) [HTY0] TUC2 SJG2 [MUT0] MPO1

D: SOD DOB NUR FRD HER

Y: MNK (TKT) HUA N: VIC b: [HYB]

15/09 - 21:14 A: NEW3 FRD3 TUC3 PPT- EYR2

B: [NUR2] SIT2 [KGD1] [ODE1] MMB2 [AAA2] [ASH2] KAK2 HON2 SJG2

C: COL2 [SVD1] [KNS1] [WNG0] [VAL0] [GTT0] [KIV-] [NKK1] [AQU0] [ISK0] [EBR0] HTY3 LNP2 (MUT1) GUA2 [MPO2] ACS1 TWA1

D: VLA TOO MCQ E: (ABK) Y: [TKT] HUA N: VIC

OCTOBER

12/10 - 14:42 A: MBO1

B: SPT2

C: SOD- WNG2 GTT2 [VLA-] AQU1 EBR2 SJG1 [MUT0] MPO2 HER1

D: ABK DOB NUR LOV VAL KIV DOU BDV NEW ODE ISK COI FRD PEN TUC ACS TWA MAW

E: NGK X: VIC Y: HUA N: MNK

NOVEMBER

01/11 - 04:41 B: LNP2 MUT1

C: (SOD-) YAK? SVD1 GTT0 KGD0 NEW1 MMB2 AAA2 ASH2 KAK2 HTY1 [SJG1] GUA1

D: KNS UBA NKK VLA HYB MPO GNA HER TOO EYR MCQ

E: MAW X: [VIC] N: TKT

02/11 - 01:45 A: [MBO2]

B: (KGD1) LNP2 MUT3

C: YAK? UBA1 MMB2 [AQU0] KAK2 HTY1 (TUC1) GUA2 [MPO2]

D: VLA AAA HON HYB PPT GNA TOO EYR MCQ MAW

E: [SOD] X: VIC

03/11 - 09:08 B: (YAK-) SVD2 WNG1 KIV- KGD1 BDV0 ODE2 (MMB1) AAA2 ISK0 (KAK1) MUT1

C: GTT1 (VLA-) AQU0 EBR0 SPT1 ASH2 (HTY0) (GUA1)

D: ABK DOB NUR LOV KNS VAL DOU UBA NKK COI LNP MPO GNA HER ACS TWA

E: SOD NGK PEN HYB MAW Y: MNK TKT [VIC]

05/11 - 08:34 A: AAA2 ASH3

B: KGD1 (MMB1) (KAK1) LNP2

C: SVD2 KNS2 GTT0 KIV- ODE2 (VLA-) AQU1 ISK1 (HTY1) MUT1 MPO1

D: ABK SOD DOB NUR LOV WNG VAL DOU BDV UBA EBR COI SPT PEN HYB GNA HER TOO

E: COL NGK MCQ MAW X: NKK Y: MNK TKT

10/11 - 05:45 B: LNP2

C: SOD- YAK- (GTT1) KGD0 UBA0 MMB2 VLA- KAK2 HTY1 [SJG1] MUT1 GUA1 MPO2

D: SVD KNS KIV ODE NKK ISK PEN ASH GNA HER TOO EYR MCQ

E: (NGK) HYB MAW X: AAA N: MNK TKT

DECEMBER

01/12 - 01:02 B: LNP2

C: UBA1 MMB2 (AAA1) KAK2 HTY1 HON1 MUT1 PPT? GNA1 TOO2

D: YAK- VLA GUA EYR MCQ MAW

01/12 - 08:39 B: KIV- ODE2 AQU1 PEN2 ASH2 MPO2 (EYR1)

C: [SIT1] SVD2 WNG2 NGK2 VAL0 GTT1 BDV2 [NEW1] UBA0 (MBB1) AAA1 ISK1 (KAK1) (HTY0)
LNP1 [SJG1] MUT1 HER1 MCQ1

D: NUR LOV KNS DOU KGD NKK EBR SPT HYB GNA

E: COI TOO MAW Y: MNK N: TKT

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