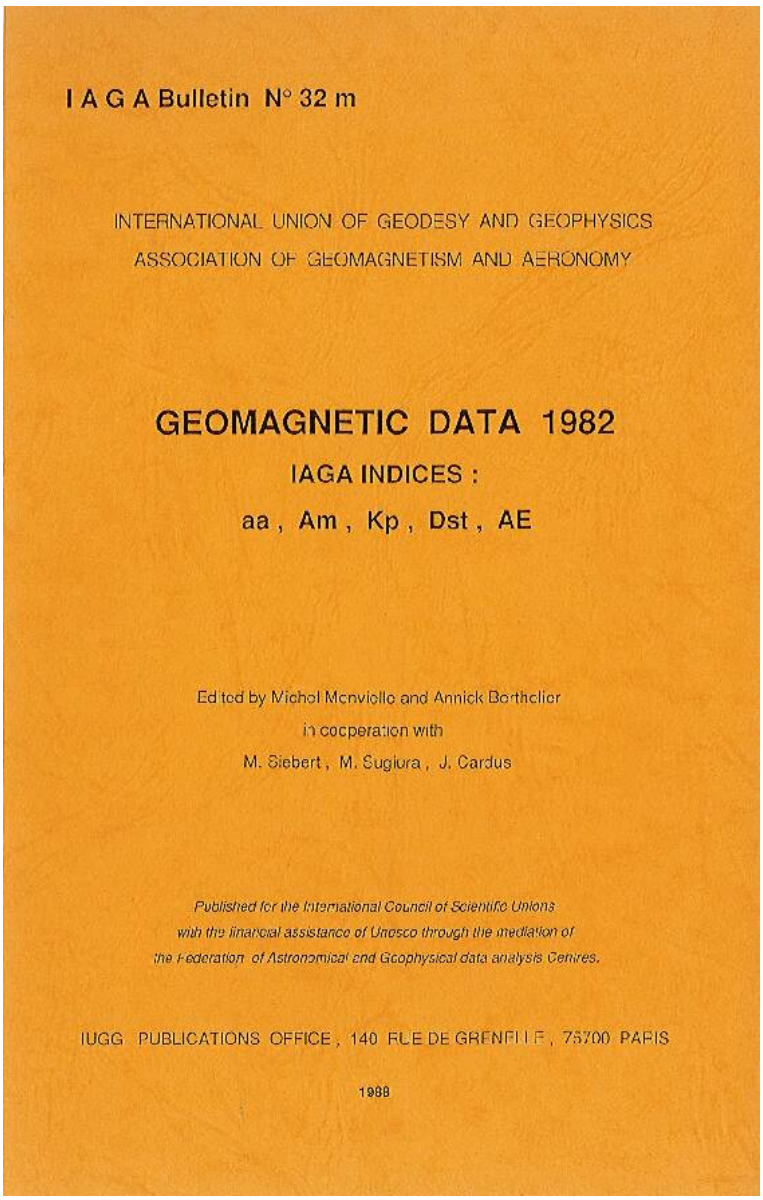

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I A G A Bulletin N° 32 m

INTERNATIONAL UNION OF GEODESY AND GEOPHYSICS
ASSOCIATION OF GEOMAGNETISM AND AERONOMY

GEOMAGNETIC DATA 1982

IAGA INDICES :

aa , Am , Kp , Dst , AE

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

Published for the International Council of Scientific Unions
with the financial assistance of Unesco through the mediation of
the Federation of Astronomical and Geophysical data analysis Centres.

IUGG PUBLICATIONS OFFICE , 140 RUE DE GRENELLE , 75700 PARIS

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AKNOWLEDGEMENTS

We wish to aknowledge 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, U.S.A.) to the WDC-C (Kyoto, Japan ; see Table 1) is wanting to specially aknowledge 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) and Christine GUERIN (CRPE) for their contribution to this Bulletin.

A. Berthelier, M. Menvielle

Saint-Maur, Paris, Août 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 report 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, F-75252 PARIS CEDEX 05, FRANCE.

As for 1982, the elaborated data were provided by the following Institutes, under the responsability of the adjoining collaborators :

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

- Institut de Physique du Globe de Paris, 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 the 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 12l. In addition to Kp, the corresponding range figures ap and related daily indices Ap and Cp have been regularly published in the IAGA-Bulletin 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 IAGA-Bulletin N°12 series and the beginning of the new IAGA-Bulletin N°32 series. 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 definition 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.49/3, 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. Geophys. 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 1969-1974, at the World Data Center A (WDC-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 des 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 the IAGA-Bulletin N°39 ; this index is regularly published in the IAGA-Bulletin N°32 since 1976. The whole serie is available on magnetic tape 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 the IAGA-Bulletin N°12i. Tables and diagrams of these planetary indices for the whole period 1932-1961 are printed in the 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 and 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 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 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, those 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 Kertz in a somewhat different way. The hourly values from 1957 onwards are available on magnetic tape at the World Data Center (Table 1).

- The *auroral electrojet index AE* was originally introduced by Davis and Sugiura in 1966 (J. Geophys. Res., *71*, 785). It was first derived at the Geophysical Instutute of the University of Alaska, and hourly values were published for the years 1957-1964 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 WDC-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 Institute. 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 variations* are collected and prepared for publication at the Observatorio del Ebro (Table 2), according to the decisions made at the IAGA-Assemblies in Madrid (1969) and 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 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 Service International des Indices Géomagnétiques Institut de Physique du Globe de Paris Tour 14, 4 Place Jussieu F-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, U.S.A. Telephone 1 303 497 6324 Telex 592 811 NOAA MASC BDR Telefax 1 303 497 6513
WDC-B	World Data Center-B Soviet Geophysical Committee, Academy of Sciences of the U.S.S.R. Molodezhnaya 3 MOSCOW 117296, U.S.S.R. Telephone 7 095 130 05 46 7 095 228 67 88 Telex 411 478 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 and Data Centers

M. MENVIELLE	Institut de Physique du Globe de Paris Tour 14, 4 Place Jussieu F-75252 PARIS CEDEX 05, France
M. SIEBERT	Geophysical Institute, Göttingen University Institut für Geophysik der Universitat Göttingen Postfach 2341, Herzberger Landstrasse 180 D-3400 GOTTINGEN, Federal Republik of Gremany
J. O. CARDUS	Observatorio del Ebro Roquetas, TARRAGONA, Espagne
M. SUGIURA	Working Group on World Data Centers National Committee on Solar-Terrestrial Physics Science Council of Japan Geophysical Institute, Faculty of Sciences, Kyoto University KYOTO 606, Japan

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

Christine GUERIN	CRPE-CNRS 4, Avenue de Neptune F-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 Geophysic Data Center
NOAA, NESDIS E/GC4
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 1982) ;
- 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 pp. 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 pp. 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. 1868-1982. 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	37.7°
	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 daily mean values of am, an and as. They are all expressed in nanoteslas. For the sake of tradition and convenience, Km, Kn, Ks equivalent values are also made available by means of conversion table; they are as usually expressed by values from 0o to 9o, and 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 (pp. 58 to 63) are displayed in a similar way :

- 3Km values for the 8 three-hour intervals ;
- daily sum ∑Km ;
- 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-	3	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 network 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 pages 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, A0 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 A0. 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 A0) 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).

Tables of hourly averages of AU, AL and AE are given pages 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

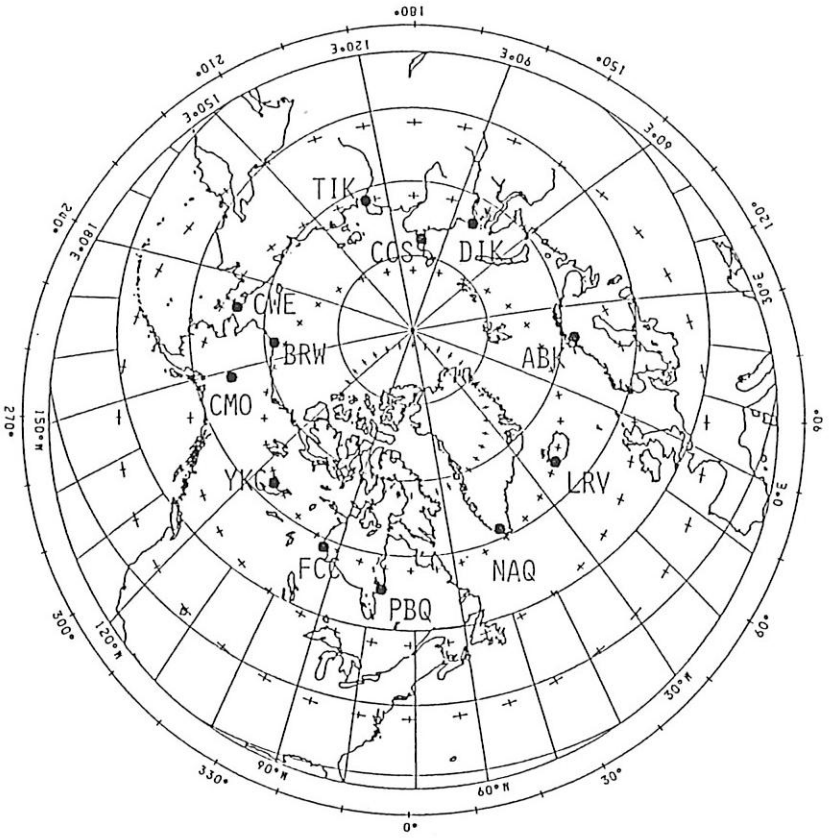

Figure 3

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 pages 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 $Ap \leq 6$, 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. Géophys. *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	$17 < aa \leq 21$	$21 < aa \leq 28$	$28 < aa \leq 32$	> 32

A day with a mean value of $aa \leq 13$nT 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, Geophys.Monograph 22, Am.Geophys.Union, 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 . The final identification of the storm sudden commencements (ssc) is 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, also listed in the heading of the list. 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 (example given page 133), 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 : pcl : 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. In the list (example given page 134), 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 classA, 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 also listed. 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.

Note : For technical reasons, the 1982 Rapid Variations Data were not available at the date of publication of the present Bulletin. They will be published in further regular issues of the IAGA-Bulletin N°32 :

- *list of ssc, with 1985 data, in IAGA-Bulletin N°32p ;*
- *list of sfe, with 1987 data, in IAGA-Bulletin N°32r.*

SECTION 2

LIST OF OBSERVATORIES

LIST OF OBSERVATORIES

IAGA Code	Name	Geographic		Geomagnetic		Alt. (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

IAGA Code	Name	Geographic		Geomagnetic		Alt. (m)	K=9 lower limit	Open -Closed
		Lat.	Long.	Lat.	Long.			
KGD	BEREZNIAKI	49.82	73.08	40.30	150.00			1965
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
BJE	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		197
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

IAGA Code	Name	Geographic		Geomagnetic		Alt. (m)	K=9 lower limit	Open -Closed
		Lat.	Long.	Lat.	Long.			
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
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

IAGA Code	Name	Geographic		Geomagnetic		Alt. (m)	K=9 lower limit	Open -Closed
		Lat.	Long.	Lat.	Long.			
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
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

IAGA Code	Name	Geographic		Geomagnetic		Alt. (m)	K=9 lower limit	Open -Closed
		Lat.	Long.	Lat.	Long.			
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
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

IAGA Code	Name	Geographic		Geomagnetic		Alt. (m)	K=9 lower limit	Open -Closed
		Lat.	Long.	Lat.	Long.			
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
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		1865-1921
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

IAGA Code	Name	Geographic		Geomagnetic		Alt. (m)	K=9 lower limit	Open -Closed
		Lat.	Long.	Lat.	Long.			
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
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

IAGA Code	Name	Geographic		Geomagnetic		Alt. (m)	K=9 lower limit	Open -Closed
		Lat.	Long.	Lat.	Long.			
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
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	1974-1982
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

IAGA Code	Name	Geographic		Geomagnetic		Alt. (m)	K=9 lower limit	Open -Closed
		Lat.	Long.	Lat.	Long.			
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
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	TIKHAYA BAY	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
TOO	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

IAGA Code	Name	Geographic		Geomagnetic		Alt. (m)	K=9 lower limit	Open -Closed
		Lat.	Long.	Lat.	Long.			
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
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	69.70			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	69.48	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	1938-1988
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	ZOSE	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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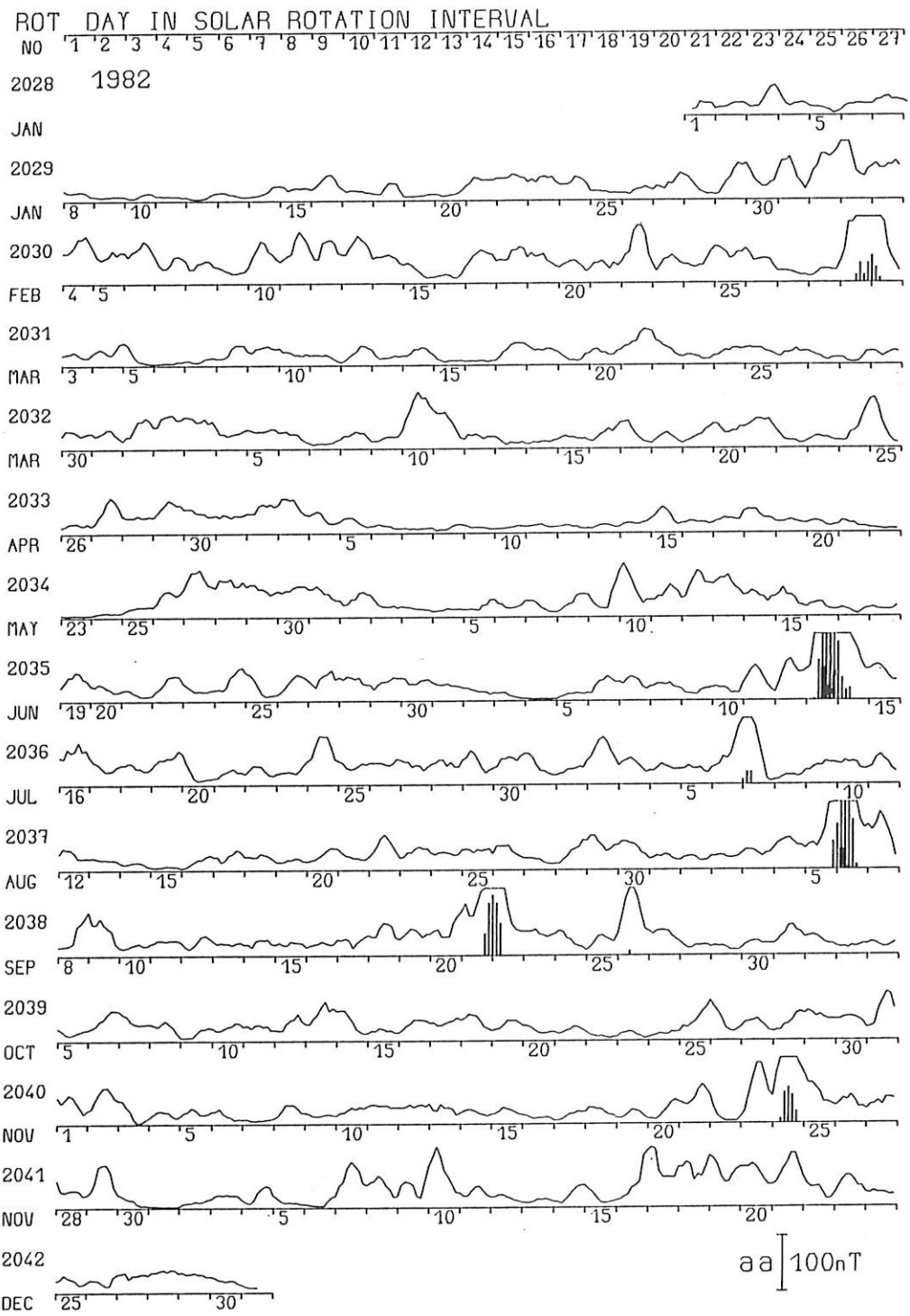

12-HOUR RUNNING AVERAGES OF THE THREE-HOUR-RANGE INDICES aa 1982

	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	16	18	12	23		59	60	33	86		77	99	40	137		41	25	15	51		34	28	33	29		36	29	31	33	
2	15	22	15	23		69	92	109	52		130	110	173	66		52	53	42	63		45	46	37	54		28	32	42	19	
3	38	30	16	52		48	80	63	65		22	20	20	22		59	51	60	51		66	49	52	63		21	14	20	15	Q
4	24	20	20	24		74	69	57	86		21	24	23	22		40	26	40	26		29	30	33	27		19	7	11	16	QC
5	8	12	15	4	C	54	64	65	53		26	26	44	8		36	32	37	32		20	27	22	25		16	11	14	13	QC
6	19	22	20	21		61	67	60	68		4	4	3	5	QCC	31	28	32	27		15	11	13	13	C	32	17	33	16	
7	21	39	30	30		44	43	51	36		6	11	9	8	QCC	11	8	11	9	QC	10	6	9	8	QCC	27	21	31	17	
8	22	14	19	17		27	56	44	40		29	16	13	33		24	25	18	32		11	6	10	8	QCC	24	10	9	25	
9	10	7	9	8	QCC	20	31	32	19	Q	32	30	27	35		20	16	14	22		17	8	15	10	CC	35	23	41	16	
10	11	8	8	11	CC	57	51	31	77		27	26	33	20		74	65	33	107		12	7	8	11	CC	73	66	88	51	
11	9	9	10	9	CC	69	56	42	84		21	18	19	20		71	58	72	58		18	10	12	16	C	52	28	32	49	
12	5	7	8	4	QCC	75	65	60	80		17	15	6	26		18	23	17	24		15	9	12	12	CC	81	38	34	86	
13	7	19	15	11	QCC	73	72	54	91		23	20	30	13		20	13	22	11		17	7	9	15	CC	76	62	61	77	
14	6	16	8	14	QC	52	49	47	54		26	22	18	30		10	11	9	13	QCX	20	8	12	16		45	33	40	38	
15	21	32	29	24		24	34	36	23	Q	18	10	20	9	Q	18	20	17	21		43	25	26	42		45	33	38	40	
16	35	34	21	48		12	15	12	15	Q	10	7	8	9	QCC	25	19	15	30		20	17	18	19		25	18	17	26	
17	18	22	22	18		50	44	32	63		26	22	9	39		27	48	49	27		23	21	18	26		11	10	13	8	QC
18	21	24	13	32		59	46	42	63		38	28	39	27		21	18	9	30		36	37	40	33		19	9	15	12	Q
19	6	11	8	9	QC	57	48	49	56		23	11	24	10		16	17	9	24	Q	26	18	20	24		52	29	27	54	
20	10	12	12	10	C	45	28	29	43		23	23	23	24		34	40	46	28		22	13	17	18		34	19	29	24	
21	28	39	28	39		35	28	28	35		36	40	30	46		52	43	40	54		18	15	15	18		21	10	19	12	
22	50	41	42	49		83	65	40	109		52	46	64	34		26	22	34	14		8	7	9	6	QCC	40	13	10	44	
23	40	41	35	46		41	42	37	47		15	15	15	15		17	15	13	19	Q	7	2	5	4	QCC	32	18	33	18	
24	44	30	30	44		36	32	35	33		22	21	17	26		27	18	14	32		7	6	4	9	QCC	34	32	21	45	
25	17	16	17	16		60	54	69	45		38	24	31	31		69	54	91	32		18	10	9	19		30	35	53	14	
26	16	17	13	20		68	42	64	46		25	16	17	24		16	15	12	19	Q	43	25	19	49		31	23	12	42	
27	26	25	19	32		24	17	22	19	Q	18	19	25	11		43	29	14	58		74	67	52	89		50	36	38	48	
28	25	39	47	17		21	15	11	25	Q	7	12	13	5	QC	31	35	33	34		71	55	54	72		48	35	43	40	
29	23	28	10	42							23	23	26	20		48	43	30	61		52	58	58	52		39	26	30	35	
30	44	49	69	25							27	28	25	30		42	41	46	37		54	49	49	54		40	34	42	31	
31	57	60	56	61							32	33	29	36							57	39	52	43						
N	22.4					49.9					28.9					34.0					29.2					37.2				
S		24.7					48.8					26.4					30.4					23.2					25.7			
M			23.5					49.3					27.6					32.2					26.2					31.4		

	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	36	30	35	31	25	20	17	28	21	19	17	23 Q	38	38	21	54	54	49	51	52	2	4	4	2 QCC
2	22	18	24	16 Q	91	41	45	87	24	23	25	22	33	29	33	30	52	42	26	68	7	8	4	11 QCC
3	11	13	15	10 QCC	42	37	36	43	32	28	31	30	20	12	16	16	27	28	45	10	19	23	17	25
4	5	3	4	4 QCC	32	27	26	34	54	44	40	58	11	23	20	14	15	21	13	23 Q	27	17	15	29
5	11	6	4	13 QCC	33	24	29	28	42	53	39	56	20	15	23	12	21	21	15	27	19	14	24	10
6	34	19	15	38	49	29	30	47	214	205	205	214	32	29	21	40	19	20	24	15	4	7	7	4 QCK
7	40	38	35	43	114	92	131	75	97	75	80	91	50	36	54	32	6	9	9	7 QCC	48	61	23	86
8	31	24	26	29	17	7	8	16 QC	21	18	16	23	41	26	31	37	25	22	11	36	42	55	42	54
9	20	12	21	11	36	23	26	33	76	60	81	56	15	6	7	14 QK	13	23	21	15 Q	34	31	22	43
10	25	20	24	21 Q	42	39	39	41	22	13	15	20 Q	29	19	23	25	22	25	15	32	66	81	79	69
11	53	35	32	56	41	34	30	46	26	21	21	26	29	27	27	29	31	37	34	35	38	27	27	38
12	55	37	15	77	31	32	32	32	28	20	24	24	32	25	20	37	31	31	31	32	23	17	20	20
13	228	133	58	303	24	17	22	19	27	21	26	22	50	44	31	63	38	30	38	30	13	12	10	15 QC
14	191	147	230	108	19	8	13	14 Q K	26	23	21	29	42	49	54	36	24	20	21	23	17	15	11	22
15	55	57	58	54	9	5	6	8 QCC	28	17	20	25	19	16	14	21 Q	26	21	18	29	21	31	43	10
16	68	46	51	63	16	6	4	18 QKK	22	18	15	25	24	30	15	39	15	13	17	12	28	21	13	37
17	41	35	51	25	28	23	25	27	18	24	29	13 Q	35	30	34	31	13	11	7	18 QK	97	64	105	56
18	38	29	37	30	33	21	25	29	54	43	37	60	45	39	39	45	24	28	23	29	55	70	75	50
19	50	29	30	49	20	13	15	18 Q	40	37	30	47	32	23	19	37	24	13	11	26	48	96	97	47
20	47	18	57	8	25	18	15	28	31	43	40	34	26	18	28	15	16	14	10	21 Q	69	81	76	75
21	27	10	12	26	31	28	38	21	88	87	80	94	19	18	16	21	47	43	42	48	69	55	42	82
22	28	25	20	33	46	42	24	64	171	144	233	82	19	7	17	9 QK	43	16	54	5	58	36	56	39
23	24	18	20	22	34	26	22	39	42	41	44	39	12	11	8	16 QCC	64	61	12	114	38	43	24	58
24	79	53	44	89	34	29	31	32	36	32	40	29	8	10	6	12 QCK	113	131	53	191	30	24	28	26
25	36	37	44	30	40	33	37	37	29	17	10	37	27	25	17	35	74	80	95	59	24	24	23	25
26	40	37	40	37	38	37	30	46	79	82	39	122	45	52	74	23	47	39	33	53	16	21	19	18
27	48	31	45	35	27	13	21	19	59	30	44	45	34	31	25	40	26	35	27	35	28	37	34	31
28	40	31	37	34	28	20	12	36	25	17	24	18	20	27	17	31	43	41	51	33	34	41	33	42
29	38	53	46	45	48	49	54	43	16	13	15	14 Q	45	51	49	48	56	49	25	80	31	43	37	37
30	45	36	31	51	48	44	46	47	19	20	13	26 Q	45	37	39	43	17	23	26	15	28	22	30	20
31	38	44	58	25	27	21	20	28					64	32	23	73					13	10	14	9 QC
N	48.5				36.4				48.9				31.1				34.3				33.8			
S		36.3				27.7				43.0				25.9				33.2				35.2		
M			42.4				32.0				45.9				28.9				33.7				34.5	

ANNUAL MEAN N 36.22 S 31.80 M 33.98

Unit : nT

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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

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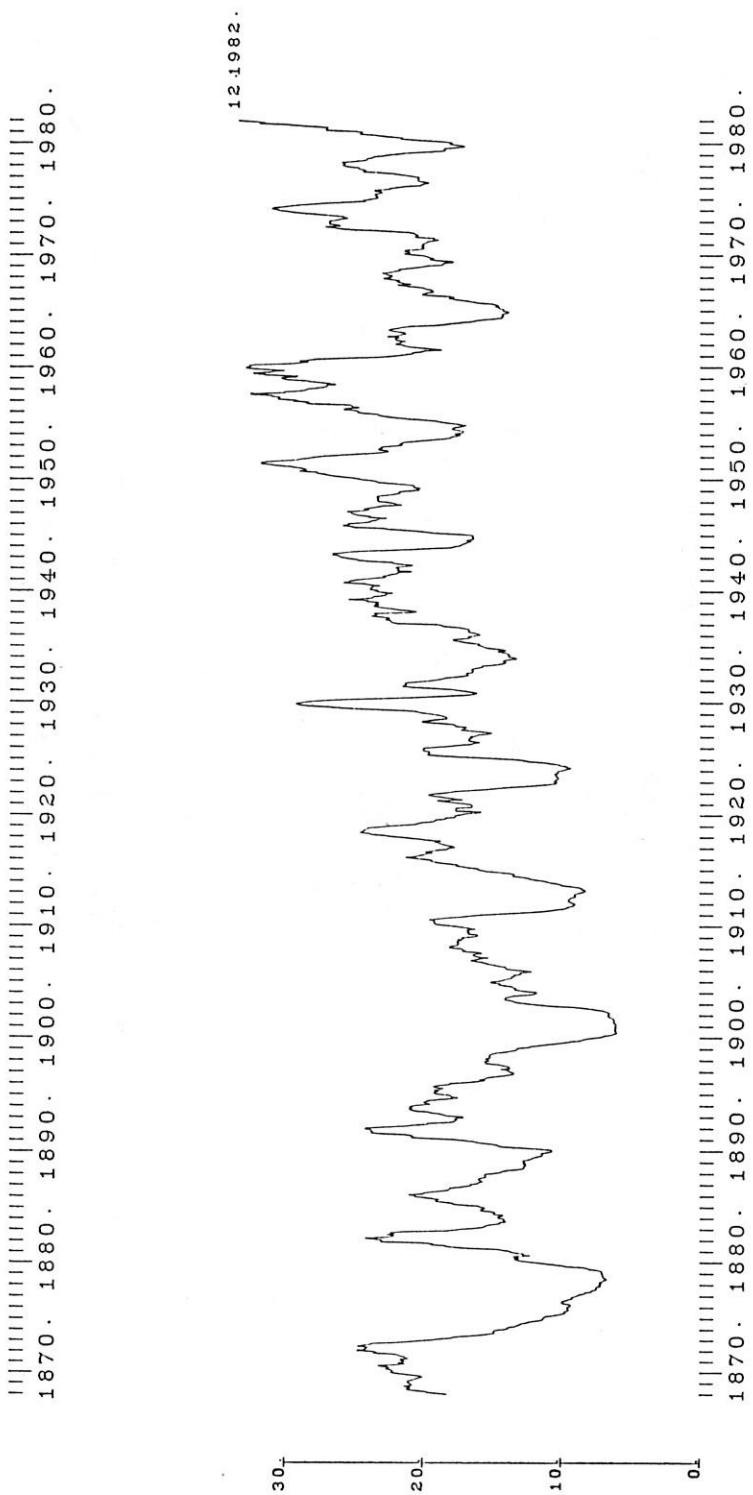
Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual mean
1933	15.9	18.4	19.2	21.1	17.5	13.6	12.3	14.2	18.4	16.8	16.0	13.0	16.4
1934	11.5	14.9	20.0	11.3	11.4	10.0	10.3	17.4	17.6	11.6	9.5	15.5	13.4
1935	15.6	16.5	17.8	13.6	11.6	16.4	12.5	9.9	20.7	20.2	15.6	17.7	15.7
1936	17.4	19.8	15.5	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	16.5	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
1982	23.5	49.3	27.6	32.2	26.2	31.4	42.4	32.0	45.9	28.9	33.7	34.5	34.0

Unit : nT

TWELVE-MONTH RUNNING MEAN VALUES OF aa 1868 - 1982



SECTION 3

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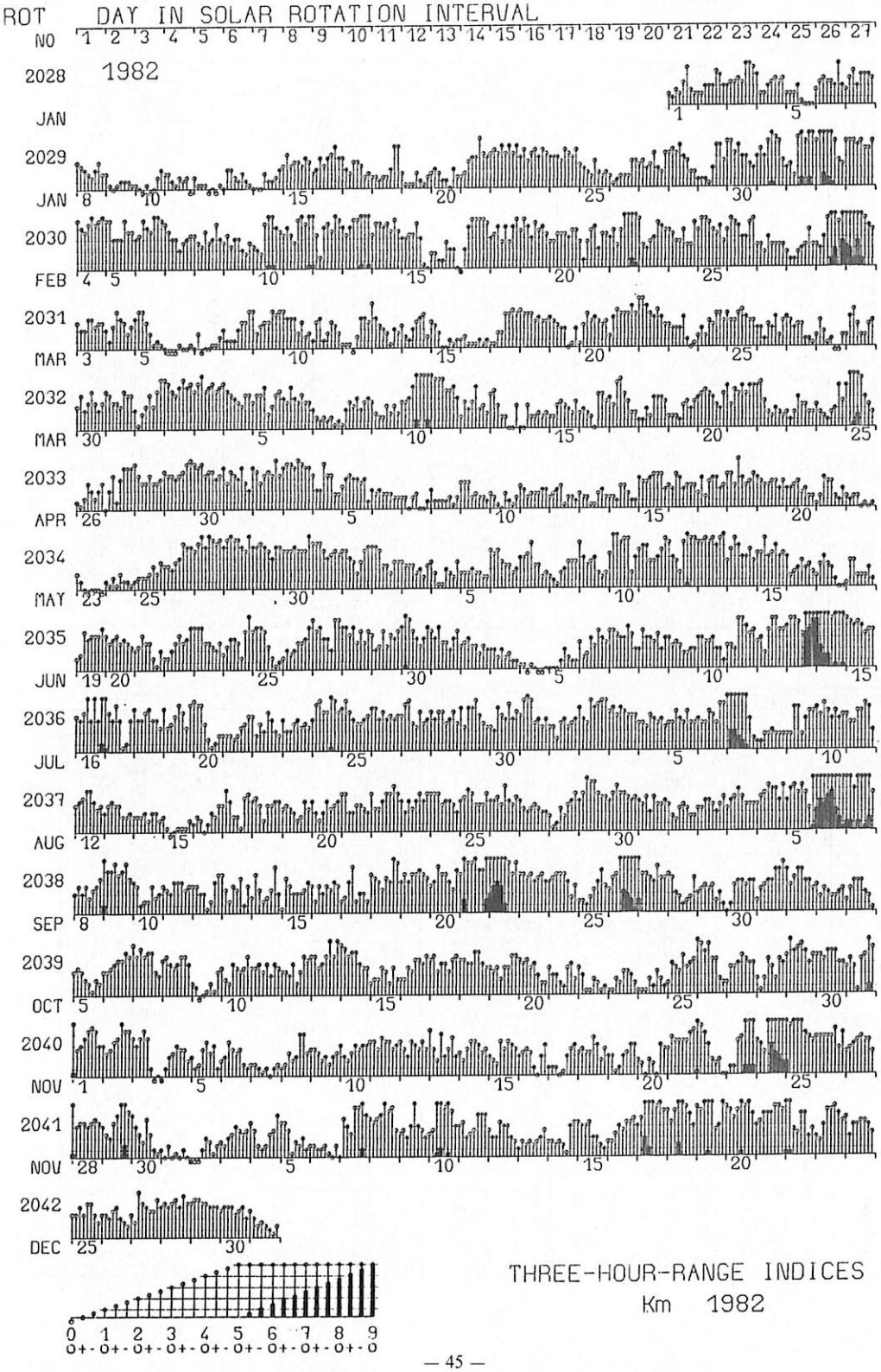
MUSICAL DIAGRAM OF Km 1982



THREE-HOUR-RANGE INDICES
Km 1982

JAN. 1982

	3Kn								σn		an						An
1	5	2	4	4	7	11	5	3	3323	3323	11	5	9	8	19	49	12	7	15
2	4	4	4	6	7	11	9	8	2323	3344	8	8	9	16	19	42	32	21	19
3	7	6	7	8	8	13	13	12	4233	4345	19	16	20	24	22	61	67	53	35
4	10	4	3	5	8	9	7	8	4223	3143	38	10	7	11	21	31	18	23	20
5	5	4	4	5	1	1	1	0	2212	2221	11	8	8	13	3	2	2	0	6
6	5	6	7	7	8	6	9	5	2232	3222	11	16	20	19	23	14	32	12	18
7	5	6	8	5	9	9	9	8	2241	2442	11	15	24	13	31	30	31	21	22
8	8	6	5	4	4	6	8	4	4331	3153	22	15	11	10	8	16	24	10	15
9	4	2	1	3	3	3	3	3	3432	2134	10	5	3	6	7	7	7	6	6
10	2	0	0	1	0	0	5	6	4112	1144	4	0	0	3	0	0	12	15	4
11	5	6	2	2	3	3	4	0	6512	1111	11	14	5	5	6	7	10	1	7
12	4	2	2	2	0	0	0	2	4222	1102	10	5	4	4	0	1	0	4	4
13	0	4	4	3	2	5	3	2	2221	2211	1	9	10	7	4	11	7	4	7
14	0	0	0	4	2	3	3	5	2001	1213	1	0	0	8	5	6	6	12	5
15	6	10	5	8	7	7	9	7	2223	2144	14	34	12	24	20	19	30	19	22
16	4	4	9	7	10	10	12	9	2123	5274	9	10	31	19	40	36	56	32	29
17	9	5	6	8	8	7	4	4	4243	3133	30	13	14	23	24	18	8	8	17
18	4	5	2	4	4	5	13	12	2432	2235	8	11	5	8	9	13	62	56	22
19	4	1	0	1	5	3	1	2	2112	3523	9	2	1	2	12	7	2	5	5
20	5	6	4	3	3	1	5	4	3421	1312	12	16	9	7	6	3	12	9	9
21	2	5	7	9	9	13	9	8	2220	2223	4	11	20	29	29	62	31	22	26
22	9	12	10	12	10	13	10	11	1334	2636	32	51	36	52	35	64	34	47	44
23	9	11	8	10	11	9	11	10	3323	2267	28	41	24	35	47	31	46	40	37
24	8	9	8	8	11	10	9	11	3312	2436	25	33	26	25	46	40	33	48	35
25	6	7	5	4	8	6	3	5	3412	4334	16	18	12	8	23	16	7	12	14
26	3	1	1	3	5	4	8	8	1221	2253	7	2	3	7	11	9	26	25	11
27	7	8	6	7	11	7	4	11	3323	5436	18	24	15	17	42	17	10	47	24
28	8	11	10	12	9	8	4	4	2223	2321	26	42	34	53	27	23	9	10	28
29	1	3	2	1	5	11	12	8	3521	2221	2	7	5	3	13	46	55	22	19
30	13	13	9	12	9	9	6	5	2314	1203	70	62	32	52	33	32	15	12	39
31	8	10	8	12	15	14	12	8	3321	3322	26	40	23	60	103	86	54	21	52
																			19.9

JAN. 1982

	3Ks								σs		as						As
1	2	3	6	4	7	9	5	5	3203	3324	5	7	15	10	18	33	13	11	14
2	4	5	7	5	5	8	8	5	3352	2133	10	12	20	12	13	25	26	12	16
3	5	8	7	7	7	11	11	11	3222	2331	13	22	20	19	18	43	46	45	28
4	9	5	5	7	7	8	7	7	1132	3353	27	11	12	17	19	21	18	20	18
5	4	5	5	7	3	1	2	2	2232	2232	10	12	13	18	6	2	4	4	9
6	5	7	8	6	6	6	14	7	3321	1264	13	19	22	16	16	16	83	17	25
7	5	9	12	6	10	9	10	9	1331	2332	12	27	55	16	34	27	36	30	30
8	9	7	7	5	3	6	8	5	1231	1533	28	19	20	13	7	14	23	13	17
9	6	3	2	2	3	2	3	2	1422	3333	14	6	4	5	7	5	6	4	6
10	2	2	1	3	1	1	4	6	3221	2322	5	5	2	6	2	3	8	14	6
11	5	4	3	3	4	3	4	0	6522	4331	13	10	7	6	9	7	8	1	8
12	3	3	2	1	0	1	0	2	3223	1213	7	6	4	3	1	2	1	4	4
13	2	8	8	5	3	6	4	3	3532	2244	5	21	21	12	7	14	8	6	12
14	2	1	1	5	4	3	5	8	2222	2343	5	3	3	13	9	7	11	21	9
15	8	10	8	9	8	8	9	8	2321	3413	26	35	25	28	23	22	31	24	27
16	6	7	8	8	8	10	12	9	3321	2263	14	20	24	21	26	38	54	31	29
17	8	6	5	8	7	8	4	6	3122	3354	26	16	12	26	17	21	10	15	18
18	5	4	4	4	4	6	11	11	2142	4212	11	10	8	9	10	14	47	50	20
19	7	4	3	3	4	2	2	5	3310	3433	17	8	7	7	10	5	5	12	9
20	5	6	6	3	2	2	6	5	1331	3323	13	16	16	7	5	4	16	12	11
21	5	6	9	9	10	14	11	10	4232	2742	11	14	32	31	37	84	42	34	36
22	10	11	10	12	9	12	10	12	2220	1334	38	46	36	54	33	56	35	58	45
23	10	11	8	10	11	9	10	9	2123	2423	38	48	25	35	47	33	38	31	37
24	9	9	10	9	11	9	9	11	1224	3233	28	29	34	28	41	30	30	45	33
25	7	6	5	4	7	5	4	5	1224	3334	20	15	12	10	19	11	9	11	13
26	5	4	5	4	4	4	8	8	2322	2432	11	8	12	10	10	10	21	23	13
27	8	8	6	7	9	6	5	9	3224	3436	21	25	14	18	31	15	12	33	21
28	11	11	10	12	9	8	5	7	2331	0742	43	44	40	60	30	25	13	17	34
29	4	3	4	3	6	13	13	8	2222	2554	9	7	8	7	15	66	64	25	25
30	13	13	10	12	9	8	7	7	2221	2322	68	66	37	52	31	26	20	18	40
31	9	11	10	13	16	14	14	8	2321	3262	32	46	34	63	112	82	71	22	58
																			21.6

FEB. 1982

	3Kn								σn								An
1	6	7	5	13	16	12	18	15	3332	1145	14	20	12	66	120	60	162	89	68
2	12	14	18	17	16	13	8	7	4344	3433	57	84	147	140	117	62	23	20	81
3	11	11	12	11	14	11	11	13	4232	4223	41	50	54	46	76	50	46	68	54
4	14	12	12	14	15	13	14	14	3443	2452	80	60	53	81	92	69	80	77	74
5	14	15	8	9	9	15	11	11	4430	3344	84	89	24	29	32	87	43	50	55
6	9	9	14	13	11	14	15	14	1153	4476	31	31	75	61	48	85	92	77	63
7	13	11	9	9	7	9	9	10	2432	4424	70	46	29	29	17	32	31	34	36
8	10	9	6	11	8	10	13	8	4524	2661	34	29	16	42	21	35	70	26	34
9	8	9	6	9	8	6	6	8	2424	3123	25	29	16	30	25	16	15	22	22
10	7	6	5	13	17	16	12	11	3422	4433	18	14	12	70	127	107	59	49	57
11	9	13	9	7	14	15	11	16	5312	4227	33	61	29	20	79	97	50	109	60
12	15	9	4	11	12	11	16	14	3344	4454	92	30	8	45	59	41	110	82	58
13	13	10	12	14	15	15	16	16	4534	5675	61	37	59	71	89	102	104	110	79
14	10	14	14	12	13	12	15	12	5534	4353	40	73	75	52	68	51	95	52	63
15	9	8	10	11	14	10	3	0	3322	6522	28	26	40	43	73	38	6	1	32
16	4	5	3	2	8	7	5	1	3224	3422	10	12	6	5	21	17	12	3	11
17	0	5	11	13	15	13	14	13	0333	6355	0	12	48	70	100	70	80	67	56
18	9	10	13	8	13	9	13	14	2322	5142	29	35	63	26	66	33	63	84	50
19	11	14	12	9	13	11	12	10	2121	3244	45	72	55	32	66	47	60	36	52
20	9	9	11	11	11	10	12	12	2252	4354	29	29	47	43	45	36	57	51	42
21	8	3	8	12	13	6	10	10	2133	2125	22	6	24	56	69	14	38	40	34
22	9	11	7	11	15	15	17	16	1233	2463	27	45	18	49	93	87	143	108	71
23	14	7	6	9	10	13	12	11	6433	3444	72	20	16	27	35	61	58	48	42
24	12	11	8	9	12	7	8	13	6513	3424	53	43	25	30	54	20	21	63	39
25	10	16	13	13	11	10	12	8	2641	2232	38	105	67	63	46	35	58	22	54
26	11	14	13	12	9	9	14	15	2431	1243	45	74	70	60	31	32	71	88	59
27	7	6	5	9	8	7	6	7	2222	2332	20	15	12	31	22	18	16	19	19
28	5	3	3	5	6	8	11	7	1232	2233	12	6	7	13	16	22	47	18	18
																			49.4

FEB. 1982

	3Ks								σs								As
1	6	6	4	14	17	14	17	15	2224	5234	14	15	8	79	143	75	130	89	69
2	13	15	18	17	15	12	9	7	2443	3433	66	97	158	142	92	60	28	20	83
3	14	14	14	13	12	11	11	12	5211	3432	83	75	80	63	60	44	48	58	64
4	14	11	11	12	14	12	14	15	6131	3455	76	49	47	55	86	53	73	100	67
5	15	14	10	9	9	14	11	11	7224	1323	87	73	34	32	32	74	42	46	53
6	10	11	14	11	10	15	14	14	2131	2655	35	47	80	49	37	93	84	75	63
7	13	11	8	9	5	7	9	10	2231	2333	61	44	26	31	13	20	29	35	32
8	10	8	8	11	8	9	13	10	5211	4423	39	21	23	45	25	28	64	38	35
9	8	10	8	9	10	6	5	8	3415	2322	24	38	25	33	35	16	12	23	26
10	6	6	6	13	14	16	12	11	1121	2336	16	15	15	64	84	110	51	50	51
11	10	12	11	8	14	15	14	16	4511	1333	38	54	45	26	73	95	72	117	65
12	16	10	4	12	13	11	14	14	5324	2333	119	39	10	59	63	48	76	78	62
13	11	11	11	14	14	16	15	16	4535	5965	41	43	45	85	72	108	87	110	74
14	10	12	12	12	12	11	12	11	2324	4353	34	57	59	54	59	48	57	49	52
15	10	10	10	9	11	7	2	1	3131	2333	38	34	36	32	50	19	4	3	27
16	5	6	3	3	8	5	6	1	3213	2242	13	14	6	6	23	11	15	2	11
17	0	7	13	14	13	14	13	13	1342	1234	1	20	61	75	63	71	66	61	52
18	10	10	11	8	11	7	11	14	2121	3133	38	40	47	23	41	20	45	78	42
19	11	14	13	8	12	11	11	9	3422	3344	45	82	62	26	60	43	46	33	50
20	8	8	9	9	10	9	9	10	1231	4234	23	22	29	31	36	30	33	37	30
21	8	4	8	11	11	7	10	9	2222	1245	23	8	21	44	43	17	35	31	28
22	9	11	8	11	14	15	17	16	3322	3165	31	44	23	47	80	89	129	107	69
23	15	7	6	8	8	13	12	11	3313	2456	91	19	14	25	23	61	56	42	41
24	10	9	8	7	10	6	6	12	5312	4327	39	32	23	19	38	16	15	59	30
25	11	13	15	13	11	10	12	7	2443	3332	44	67	87	70	46	37	59	20	54
26	12	13	12	12	9	8	13	14	2210	3434	55	69	58	54	27	22	61	78	53
27	7	7	6	9	7	7	7	7	2312	3443	18	19	14	31	17	18	17	19	19
28	5	3	4	4	6	5	11	6	3221	2332	12	7	8	10	16	13	41	15	15
																			47.0

MAR. 1982

	3Kn								σn				an				An
1	6	5	8	14	18	18	13	21	2213	4235	14	13	22	77	155	171	70	247	96
2	21	20	17	21	18	14	13	11	5835	5233	251	202	134	252	165	79	64	43	149
3	8	7	7	10	10	8	9	8	2433	4252	26	17	20	40	38	22	27	21	26
4	5	2	7	12	9	8	6	7	2123	0214	12	5	18	58	29	21	14	20	22
5	9	11	11	8	6	3	3	2	2231	2212	31	47	49	26	14	7	6	5	23
6	2	0	0	1	2	2	1	3	2112	2223	4	1	1	3	4	4	3	6	3
7	1	4	0	1	0	3	2	4	2721	2222	3	10	1	2	1	6	5	10	5
8	6	3	4	3	6	8	9	11	4211	4324	14	6	8	7	15	21	29	47	18
9	11	5	7	8	8	11	10	11	2232	2332	48	13	19	26	23	47	37	44	32
10	11	8	9	9	5	8	4	6	3341	2414	44	25	30	29	13	24	9	16	24
11	3	9	9	3	6	8	7	5	3661	2351	7	29	33	6	14	25	20	11	18
12	2	2	2	0	4	10	9	9	2221	1421	4	4	4	1	10	34	29	27	14
13	12	9	7	6	6	3	7	5	3324	1252	56	28	19	16	14	7	17	12	21
14	7	4	3	5	7	9	10	5	4233	3474	19	10	6	13	20	31	40	11	19
15	8	6	5	1	1	4	2	4	6332	2313	22	14	13	2	3	8	5	9	10
16	3	4	2	3	3	4	3	3	3422	0212	6	9	5	6	6	9	7	7	7
17	2	2	5	5	9	11	10	11	3123	1212	4	4	12	11	31	41	39	45	23
18	11	9	9	10	8	10	9	9	2212	3231	45	30	31	35	24	34	29	27	32
19	9	8	8	5	6	2	3	7	2333	3213	33	23	22	13	16	4	7	20	17
20	2	6	10	8	9	8	8	8	1423	2321	4	16	36	25	32	21	24	26	23
21	4	9	11	10	10	11	13	11	2252	5433	9	27	46	35	38	41	64	42	38
22	15	15	13	10	10	11	9	7	5733	2332	87	98	66	40	34	44	29	20	52
23	7	5	7	7	9	3	2	3	1232	1311	18	13	18	17	31	7	4	7	14
24	4	5	5	7	7	11	10	8	2312	2221	8	13	11	19	18	41	37	26	22
25	10	8	8	11	11	10	9	9	2222	3242	36	22	24	41	46	34	28	29	33
26	6	6	4	7	6	9	5	9	2122	3322	16	14	8	18	15	30	11	29	18
27	9	7	6	8	7	3	3	2	5213	2221	32	17	14	22	19	7	6	5	15
28	4	8	5	3	3	0	1	5	1212	1022	9	24	11	6	7	0	3	11	9
29	4	8	12	8	5	5	7	9	2355	2222	9	26	52	21	12	11	20	27	22
30	7	10	6	8	12	8	6	8	2334	3212	19	37	14	25	54	24	15	21	26
31	9	10	8	8	8	11	10	10	4322	1433	32	36	26	25	22	42	34	34	31
																			27.8

MAR. 1982

	3Ks								σs				as				As
1	8	6	10	15	16	20	13	21	2022	5347	21	15	35	88	117	218	61	269	103
2	20	19	18	20	16	14	11	11	7542	2234	223	178	157	238	106	74	45	47	134
3	8	6	5	8	8	6	6	8	4231	4445	23	14	13	26	23	16	15	23	19
4	6	3	7	11	9	9	4	7	2123	3424	15	7	20	42	31	27	10	17	21
5	9	11	10	9	4	1	2	1	2232	2232	27	46	39	27	8	3	5	3	20
6	1	0	0	0	1	1	0	1	1100	2212	2	1	0	0	3	2	1	3	2
7	1	5	0	0	1	1	1	4	2721	2222	2	12	1	1	3	2	3	9	4
8	5	3	3	2	5	8	8	10	1223	4252	13	7	6	5	13	21	22	36	15
9	12	6	8	9	8	10	9	11	4121	3213	51	14	21	27	26	38	31	45	32
10	10	9	9	10	4	7	4	5	3243	3235	39	30	30	35	10	19	9	11	23
11	3	8	8	3	5	8	7	5	2231	2224	7	22	23	6	11	21	17	11	15
12	2	1	2	0	4	9	9	6	3221	2031	4	3	4	1	8	30	30	16	12
13	14	10	8	5	5	2	5	5	2241	2133	74	36	21	13	13	4	12	12	23
14	7	4	3	7	8	9	11	4	2225	2154	17	9	7	17	22	28	41	9	19
15	8	7	5	1	1	3	1	3	6322	2234	26	19	12	2	3	6	3	6	10
16	4	3	1	2	2	2	2	3	4522	3423	8	7	3	5	4	5	4	6	5
17	1	3	5	6	10	9	11	9	2232	2253	3	7	13	14	38	29	42	32	22
18	10	11	10	10	8	8	8	8	3221	4322	39	41	38	34	24	25	23	21	31
19	9	7	7	6	5	0	1	5	3232	3133	28	18	17	16	11	1	3	11	13
20	3	7	9	8	8	8	7	8	2312	2312	6	18	33	21	25	22	17	23	21
21	4	9	11	9	10	9	12	10	2323	4142	9	27	45	33	36	33	52	38	34
22	14	14	11	10	9	11	9	7	3323	2243	71	73	49	37	30	43	30	20	44
23	8	6	5	6	8	2	0	1	4221	2212	22	15	13	16	23	5	1	3	12
24	4	7	4	8	6	10	10	8	1111	4242	8	17	10	24	15	38	40	21	22
25	10	9	8	9	11	9	8	8	4231	2224	34	27	24	33	42	28	22	22	29
26	6	6	3	7	5	8	4	8	2203	2222	15	14	7	17	12	26	9	21	15
27	9	9	5	7	7	2	3	1	4312	3322	30	27	13	17	19	5	7	3	15
28	4	8	5	2	2	0	0	3	3222	3203	10	22	12	4	5	1	0	7	8
29	4	9	11	7	4	4	7	8	2444	1222	8	29	48	18	8	8	17	23	20
30	7	9	6	8	11	8	5	9	1334	3315	17	33	14	26	45	22	13	29	25
31	12	10	8	7	7	12	11	10	6212	2243	51	37	26	18	19	52	41	34	35
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APR. 1982

	3Kn								σn		an						An
1	6	2	5	7	11	6	12	14	2143	2143	14	5	12	20	42	14	57	80	31
2	13	13	11	10	12	14	12	13	2634	5543	65	65	44	35	54	80	54	61	57
3	11	14	16	11	12	13	11	12	1672	2424	44	78	119	46	55	66	47	60	64
4	12	11	10	9	8	7	10	9	5523	2233	56	43	37	30	24	19	39	33	35
5	8	11	9	12	6	8	11	11	3434	3223	25	44	33	57	14	22	44	50	36
6	7	7	12	10	8	10	8	8	2453	1321	20	20	56	34	25	37	26	23	30
7	5	3	3	5	4	4	3	4	3523	1322	13	7	6	11	8	9	7	8	9
8	1	5	8	7	9	6	8	9	2223	3234	3	13	21	17	28	16	25	30	19
9	8	4	4	4	7	6	7	6	2232	3122	22	9	9	10	17	15	18	14	14
10	8	8	9	13	18	15	15	16	3243	6343	21	25	31	61	150	102	90	118	75
11	15	14	14	14	12	11	12	10	3354	4335	87	81	84	86	54	45	56	34	66
12	5	8	6	8	12	6	8	6	1213	3212	12	23	15	24	54	16	21	14	22
13	10	10	7	5	4	2	2	8	3221	2211	35	37	19	11	9	4	5	25	18
14	1	1	7	4	4	6	5	6	2132	2212	2	2	19	8	10	14	12	15	10
15	4	3	7	8	7	6	6	9	2023	1302	8	6	20	25	19	16	15	30	17
16	6	6	6	4	2	11	10	9	4123	2231	15	16	14	10	5	44	35	30	21
17	9	6	13	14	10	8	6	6	2567	4130	29	16	68	79	37	24	16	15	36
18	3	2	7	4	10	9	9	8	1142	2122	7	5	17	9	34	31	29	26	20
19	4	4	4	4	7	8	7	9	3112	2220	9	9	8	9	18	24	17	29	15
20	9	10	11	10	9	7	7	11	1232	1211	31	35	48	35	27	19	18	44	32
21	12	7	11	11	12	11	12	12	2342	3241	53	18	49	41	51	42	60	55	46
22	12	14	9	6	5	7	6	5	2422	2322	52	76	28	14	12	17	15	11	28
23	5	3	5	9	7	8	6	6	2112	2312	12	6	13	28	19	24	14	16	17
24	7	5	4	4	7	7	14	8	4422	2241	20	11	9	8	17	17	71	25	22
25	13	16	17	18	14	10	8	6	3235	2221	62	106	126	164	82	39	25	16	78
26	3	2	4	8	6	5	7	8	2132	2231	7	5	9	21	15	12	20	23	14
27	1	7	10	4	9	13	12	12	2232	1242	3	17	34	9	31	67	60	60	35
28	12	10	9	8	9	8	8	10	1223	1221	60	36	27	22	31	26	26	36	33
29	10	11	10	9	10	12	13	14	2322	4333	34	42	35	30	36	58	65	78	47
30	13	11	12	9	11	12	9	9	4322	3211	65	45	59	33	42	52	30	33	45
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APR. 1982

	3Ks								σs		as						As
1	7	3	4	7	9	8	9	13	1333	2825	17	6	10	17	32	22	32	66	25
2	14	13	11	10	12	15	11	14	4333	1538	76	61	48	36	52	90	48	73	61
3	11	12	14	12	12	13	11	12	3443	4544	42	60	79	54	59	66	47	58	58
4	13	10	9	9	9	7	10	11	6534	1126	68	39	31	32	28	18	37	44	37
5	8	9	10	12	5	7	9	11	3124	2442	23	29	39	53	11	19	30	41	31
6	10	9	11	9	8	9	7	8	6321	3325	35	29	47	28	21	32	20	25	30
7	6	4	3	4	3	4	2	2	1323	2322	15	9	6	9	7	8	4	5	8
8	2	6	9	8	9	5	8	9	2143	5124	4	15	27	21	29	13	22	32	20
9	9	6	3	4	7	5	8	5	4423	4124	27	15	7	9	17	11	21	13	15
10	8	8	8	12	17	15	15	17	2233	3448	21	22	26	56	142	97	87	124	72
11	15	13	14	14	11	11	11	9	8534	2536	95	70	73	83	41	47	46	29	61
12	4	8	6	9	11	6	6	4	1221	4041	8	26	16	28	48	15	16	8	21
13	9	11	7	4	3	1	0	5	5313	2203	33	45	18	10	6	2	0	13	16
14	1	1	7	4	3	5	2	4	2213	1223	3	3	17	9	6	12	5	9	8
15	3	4	7	8	8	6	5	8	1221	3323	7	10	20	26	21	15	12	22	17
16	5	6	5	3	0	10	10	7	2120	0541	11	16	11	7	0	35	36	19	17
17	9	7	13	14	11	8	4	4	2234	4212	28	18	66	71	42	25	9	10	34
18	3	3	6	3	7	8	9	8	2122	2332	7	7	14	7	20	24	27	23	16
19	3	4	3	2	6	8	6	8	2213	3223	7	8	7	5	16	22	14	21	13
20	9	11	11	11	9	7	5	9	5311	1212	31	41	42	42	27	20	12	30	31
21	12	7	11	10	11	9	11	12	2223	1334	58	20	49	36	50	32	44	53	43
22	12	13	8	4	3	5	4	2	3423	3312	56	64	21	10	6	12	8	4	23
23	4	3	5	8	7	6	4	5	2211	4232	10	7	13	26	19	15	9	11	14
24	7	4	4	2	3	6	11	8	3213	4121	17	10	8	4	7	14	45	22	16
25	12	15	16	17	14	8	6	4	5123	2221	57	97	111	142	81	26	15	9	67
26	3	2	4	7	5	4	4	8	0332	2335	7	5	9	20	13	8	10	25	12
27	0	5	10	2	8	11	11	12	1134	4444	1	12	38	5	25	50	45	56	29
28	13	11	8	8	10	8	7	9	3642	3235	70	44	25	22	38	21	17	28	33
29	11	10	10	9	10	10	13	13	5111	3528	50	34	35	29	38	38	64	69	45
30	13	13	14	11	10	11	8	10	5222	2426	62	64	72	41	39	44	25	36	48
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MAY 1982

	3Kn								σn		an						An
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3	12	14	13	12	14	13	12	13	5322	2323	57	75	68	54	73	69	56	61	64
4	10	7	6	12	10	10	5	6	2322	2222	38	18	16	56	40	38	13	15	29
5	7	9	10	9	9	8	9	4	2331	2233	17	32	36	29	31	23	27	8	25
6	5	5	5	5	5	6	5	5	3323	3331	13	11	13	13	13	15	11	12	13
7	4	3	2	4	5	1	2	4	3422	2132	8	7	4	10	12	3	5	8	7
8	6	3	4	3	3	4	3	5	4232	1512	14	7	10	6	6	9	6	12	9
9	7	8	9	5	7	5	5	5	4254	2312	20	26	27	12	17	11	12	11	17
10	6	4	2	2	6	4	4	5	1112	2221	14	9	5	5	14	10	9	13	10
11	8	6	5	6	7	7	7	8	2221	2321	23	16	11	15	18	17	20	21	18
12	5	6	7	7	4	6	5	4	1434	2212	12	14	20	20	9	14	13	9	14
13	5	4	5	4	4	6	7	6	2222	2431	12	10	12	8	8	16	19	14	12
14	5	5	4	8	9	7	4	5	1313	3221	11	13	8	23	28	18	9	11	15
15	10	8	8	9	11	11	11	6	2234	4432	40	22	23	32	41	46	45	15	33
16	7	6	10	9	7	8	8	8	2332	2132	19	16	40	32	20	25	22	25	25
17	6	8	5	8	10	9	7	7	2332	3221	15	26	12	25	37	29	20	20	23
18	10	10	7	15	9	8	8	10	2212	3312	39	35	17	89	31	23	24	40	37
19	10	9	8	7	8	8	6	9	3332	1322	36	28	23	19	25	25	16	27	25
20	6	6	7	8	6	6	5	5	3233	2231	16	15	19	26	16	16	13	12	17
21	4	5	9	9	9	5	4	6	2214	3323	8	11	29	27	28	12	9	16	18
22	3	3	4	5	2	3	1	3	2222	2122	7	7	9	12	5	7	3	6	7
23	5	3	1	0	2	2	2	0	2321	2311	13	6	3	1	4	4	4	1	5
24	4	3	5	3	6	4	4	3	3123	2121	9	6	11	7	14	9	9	7	9
25	3	5	5	4	6	8	6	9	2342	2322	7	11	12	10	16	25	16	31	16
26	8	7	6	9	11	15	13	13	3223	3124	24	18	15	27	44	92	64	63	43
27	10	13	15	12	16	14	13	13	3332	6422	39	61	93	56	104	78	68	69	71
28	12	14	16	14	15	12	12	15	3544	2322	56	86	108	78	87	53	55	100	78
29	12	12	14	13	11	10	13	12	2232	2323	60	53	73	61	44	34	66	58	56
30	11	10	11	12	12	11	11	14	2225	5313	42	37	50	58	56	50	44	84	53
31	13	13	14	12	10	11	11	11	2323	3421	61	64	73	53	40	50	43	41	53
																			28.5

MAY 1982

	3Ks								σs		as						As
1	12	8	11	10	10	12	9	6	5233	3221	55	24	44	39	36	51	28	16	37
2	13	12	7	9	12	9	15	10	5331	4213	61	51	20	32	51	30	89	36	46
3	12	13	13	12	14	13	11	11	5434	3123	53	65	70	57	71	64	49	45	59
4	10	6	6	13	10	9	5	4	4123	2131	37	14	14	66	36	32	13	8	28
5	7	8	10	9	9	9	9	2	1323	5232	17	25	34	29	29	30	27	5	25
6	6	6	7	4	4	5	3	4	3332	4311	15	14	18	8	10	11	6	8	11
7	4	4	0	3	4	0	1	2	4310	4113	9	9	1	7	10	0	2	5	5
8	7	3	2	3	2	3	1	2	6424	5223	17	7	5	6	5	7	2	4	7
9	8	8	7	4	3	2	3	1	7251	1222	23	22	19	8	7	5	6	3	12
10	5	3	1	0	4	0	1	2	2131	1112	12	7	3	1	8	1	2	5	5
11	6	6	4	5	3	3	4	4	2321	1122	16	15	8	11	7	6	10	10	10
12	3	3	5	7	1	3	3	1	0121	1001	7	7	13	17	2	7	7	2	8
13	4	4	2	1	0	3	5	3	4322	1140	10	10	5	2	1	6	13	7	7
14	2	2	3	5	5	3	1	2	3233	2111	5	5	6	13	12	7	2	4	7
15	8	7	7	9	9	9	10	5	1233	1232	23	20	19	28	28	27	34	13	24
16	6	5	9	8	5	6	5	4	2411	2122	16	13	29	24	12	14	11	9	16
17	4	9	3	8	8	9	5	7	2504	2432	10	32	7	21	25	27	13	17	19
18	10	10	7	13	9	6	7	9	4213	3322	34	34	18	63	30	15	17	30	30
19	9	7	6	7	7	7	6	8	1321	3332	28	19	16	17	19	20	14	22	19
20	6	5	7	6	4	5	2	4	2244	2332	14	12	20	16	9	12	5	8	12
21	1	4	9	6	8	3	2	6	2330	3314	3	9	27	15	23	7	4	14	13
22	4	3	3	4	0	0	0	1	1022	1102	8	7	7	9	1	1	0	3	5
23	5	3	0	0	0	0	0	0	4110	0010	11	6	0	0	0	0	1	0	2
24	2	1	3	1	4	2	2	2	2311	4123	5	3	7	2	10	5	4	4	5
25	2	4	4	3	3	5	4	7	2010	1235	4	10	8	7	6	11	9	18	9
26	6	8	5	7	8	11	12	11	3321	2335	15	21	13	18	23	46	53	45	29
27	11	13	15	13	14	13	13	14	5143	4323	43	61	92	64	76	63	66	85	69
28	12	13	14	14	14	12	10	14	5462	3234	57	62	75	81	72	56	39	79	65
29	11	13	13	11	11	9	11	12	2133	2342	47	66	62	50	44	30	47	53	50
30	12	11	11	12	11	11	10	15	2422	2345	55	47	49	59	44	44	40	92	54
31	13	13	13	11	8	9	11	9	4544	2265	62	65	67	46	26	31	42	33	47
																			23.7

JUNE 1982

	3Kn								σn				an								An
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2	12	11	11	8	7	6	9	7	2223	3232	59	43	46	23	20	14	27	20	32
3	8	7	8	8	6	7	5	7	2323	1245	24	20	22	24	14	17	12	20	19
4	7	6	3	4	8	5	5	9	2213	4222	20	15	7	8	22	12	11	28	15
5	6	5	6	7	6	6	5	6	3123	3211	15	13	15	20	14	16	11	14	15
6	11	9	11	8	8	9	7	8	2221	1322	49	33	44	25	23	27	18	22	30
7	9	9	11	12	8	8	6	7	4124	3253	31	32	41	58	25	24	15	17	30
8	5	4	3	6	7	10	9	10	2222	1231	11	10	7	15	18	34	28	34	20
9	14	10	7	8	10	6	6	6	3323	3022	81	37	19	25	35	15	15	16	30
10	11	15	16	14	14	14	7	9	4463	3322	42	96	106	77	85	77	17	33	67
11	11	13	12	9	9	11	12	14	1233	0422	43	61	55	27	29	46	52	71	48
12	14	11	8	6	15	17	15	15	3312	4333	77	42	23	14	88	122	88	88	68
13	12	12	14	14	15	13	15	16	4423	1534	58	60	81	80	92	63	90	109	79
14	9	12	14	12	9	11	12	8	1333	1543	30	52	74	52	30	46	51	26	45
15	10	10	14	10	11	14	10	10	3344	3642	34	36	80	39	41	73	38	37	47
16	9	4	6	7	9	7	7	6	2214	4221	29	10	16	20	28	19	17	16	19
17	4	8	9	8	7	4	2	2	3443	4222	10	21	31	23	17	9	4	4	15
18	3	8	8	4	5	5	7	5	2223	2221	7	25	21	10	13	12	19	13	15
19	5	5	11	10	11	11	11	14	2223	3443	11	11	41	35	47	48	41	72	38
20	11	9	10	11	8	10	9	8	4434	3323	44	31	35	43	26	40	27	23	34
21	6	7	10	10	9	5	3	6	1335	3221	16	20	37	34	27	13	7	16	21
22	5	4	7	8	12	9	11	12	2543	5234	11	9	17	24	57	31	42	57	31
23	12	13	13	8	9	6	7	8	1353	3143	54	61	61	22	31	15	19	23	36
24	5	7	9	9	7	5	11	15	2334	1242	13	19	29	33	18	12	48	98	34
25	10	11	11	10	6	5	3	5	2433	2223	39	46	49	40	16	11	6	11	27
26	4	6	5	7	9	8	10	12	2235	0422	9	16	12	19	29	25	36	60	26
27	13	11	11	9	9	7	12	14	3142	1344	67	44	44	28	31	17	59	79	46
28	11	11	10	12	8	11	9	12	3333	2413	49	49	39	60	26	49	31	51	44
29	10	7	8	10	8	11	9	11	2332	2312	39	19	21	38	23	42	32	48	33
30	11	17	14	12	8	7	9	12	3754	3235	50	136	85	56	26	18	31	55	57
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	3Ks								σs				as								As
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3	8	7	5	6	5	6	3	7	5322	4215	24	20	12	14	12	15	7	17	15
4	9	5	1	1	3	4	3	7	5432	3415	33	11	3	2	7	10	7	19	12
5	4	4	3	5	4	5	3	2	5311	3231	10	9	7	11	10	11	7	4	9
6	11	10	11	7	7	3	3	4	3423	4631	41	36	41	18	17	7	6	8	22
7	9	8	10	13	6	6	3	4	9223	2213	32	23	34	63	15	16	6	8	25
8	3	1	1	4	5	7	7	7	2222	2221	6	3	3	8	12	17	20	18	11
9	12	9	6	7	8	4	2	2	3112	3423	58	29	15	20	23	9	5	5	21
10	9	16	15	11	13	14	4	8	2233	3422	32	109	98	50	68	78	10	22	58
11	11	11	12	8	6	7	10	14	3442	0326	41	49	57	22	15	20	40	79	40
12	12	8	8	5	11	14	12	13	7334	2245	60	24	22	12	41	86	54	64	45
13	14	13	15	11	13	12	14	14	6352	2433	80	70	89	46	68	54	79	83	71
14	8	10	13	11	8	7	10	6	3142	3321	21	34	70	50	23	20	38	16	34
15	10	10	14	8	9	10	8	10	4454	4325	34	34	71	24	27	39	23	34	36
16	9	4	4	5	8	5	8	4	5222	3231	31	8	10	12	23	12	21	8	16
17	3	7	8	6	6	2	0	0	1450	1100	6	18	25	15	14	4	0	0	10
18	1	9	8	3	2	2	5	0	2341	1331	3	28	22	6	5	4	11	1	10
19	3	4	11	8	9	8	10	11	2322	2223	6	10	47	21	28	25	38	44	27
20	10	8	8	10	7	6	8	6	4324	2341	35	22	26	36	19	16	25	15	24
21	5	6	9	6	6	2	1	6	2120	1135	12	15	30	15	15	5	2	15	14
22	3	4	6	8	6	6	8	12	3433	1148	6	8	14	24	16	15	25	60	21
23	11	12	12	7	8	7	5	9	5664	2327	48	60	59	20	21	19	11	27	33
24	6	6	9	8	9	3	10	15	5102	5323	14	15	31	24	28	7	34	89	30
25	11	13	12	11	7	3	2	1	3212	5232	48	66	55	47	18	6	4	3	31
26	4	5	5	5	8	8	9	11	5311	3212	8	13	11	13	23	25	28	44	21
27	14	12	13	10	8	5	15	15	7653	2342	76	56	61	37	25	12	93	89	56
28	13	12	10	11	8	10	7	11	2412	3322	66	54	34	48	22	40	19	44	41
29	10	5	7	11	5	9	8	11	2332	1324	40	13	20	50	13	27	22	42	28
30	12	14	13	11	9	8	8	11	7342	5235	55	82	62	41	30	22	24	50	46
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JULY 1982

	3Kn								σn		an						An
1	11	9	12	10	9	7	9	9	4043	4351	45	29	54	34	28	17	31	31	34
2	7	8	9	8	7	7	8	6	2324	3212	18	26	32	21	19	17	24	14	21
3	7	6	5	6	6	5	3	3	2134	1212	17	15	11	15	14	13	7	6	12
4	2	3	1	2	0	0	0	1	3221	1222	4	6	3	5	1	1	1	3	3
5	1	1	2	3	7	4	4	4	3214	2342	3	3	4	7	20	10	9	10	8
6	9	4	5	10	8	12	10	9	3243	3512	28	10	12	34	23	56	36	33	29
7	12	12	11	11	10	11	10	8	3234	3332	58	53	48	44	35	47	38	21	43
8	8	11	9	9	8	11	8	10	2332	3222	21	45	33	33	23	43	22	34	32
9	11	8	9	8	6	7	7	8	2133	2222	41	22	30	21	15	17	19	22	23
10	10	9	8	8	9	8	8	5	2035	3433	34	29	25	21	28	22	24	11	24
11	8	8	8	15	15	14	12	11	4434	2321	25	24	21	98	102	79	52	45	56
12	9	10	6	13	16	15	11	12	2523	1430	27	37	16	61	104	91	49	53	55
13	13	15	14	14	11	24	25	26	5245	2211	65	101	86	76	43	429	459	590	231
14	26	20	18	19	14	17	16	15	2533	4332	544	206	171	176	79	130	109	95	189
15	13	14	12	14	11	10	11	11	3224	3333	70	75	54	78	50	40	49	47	58
16	10	10	12	16	10	15	11	18	3242	4351	38	36	55	112	35	100	44	169	74
17	16	12	10	14	10	4	4	10	2346	5423	117	53	37	81	38	9	9	40	48
18	13	9	9	11	13	10	10	9	6522	2412	63	32	31	43	70	37	37	29	43
19	12	9	9	12	13	11	8	14	4234	3323	60	27	33	55	70	42	22	71	48
20	14	13	13	9	6	3	5	7	3233	2213	83	66	65	32	14	6	13	19	37
21	6	7	7	5	7	9	10	11	4363	2312	16	19	18	11	19	27	36	41	23
22	11	5	9	7	11	11	8	7	2233	3233	45	13	28	20	46	43	21	17	29
23	10	7	6	8	10	8	8	9	2344	1222	36	18	16	24	36	24	23	28	26
24	9	14	13	11	12	16	15	11	1231	1332	33	72	69	49	54	112	100	43	67
25	11	14	11	10	9	8	9	10	4115	3241	47	77	49	36	28	23	32	39	41
26	12	11	9	12	9	10	10	11	2323	1211	53	41	30	53	33	39	36	42	41
27	10	13	14	9	8	11	9	10	2123	3322	34	61	77	27	23	41	27	39	41
28	11	10	11	11	9	10	11	9	1332	2233	44	34	49	45	30	36	45	27	39
29	12	8	12	11	14	11	9	7	2436	5521	53	21	54	50	83	49	27	18	44
30	7	6	13	11	9	14	10	11	2243	1321	19	16	61	48	33	75	36	49	42
31	10	14	15	14	9	9	8	9	2356	2432	36	84	92	82	31	33	23	31	52
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JULY 1982

	3Ks								σs		as						As
1	12	9	11	7	8	5	9	12	4231	3246	54	32	50	17	23	13	29	53	34
2	7	8	9	6	7	4	6	7	3334	3134	20	21	29	14	17	8	14	17	18
3	6	6	4	6	3	4	2	3	2234	2325	14	15	10	14	6	8	5	6	10
4	3	2	0	1	1	0	0	0	3202	2001	6	5	0	3	2	0	0	1	2
5	1	0	1	2	4	3	2	1	3131	3122	2	1	2	4	10	6	5	3	4
6	7	4	5	8	4	10	8	6	3122	2542	17	8	11	22	10	34	24	14	18
7	10	11	8	7	8	13	10	3	1431	4451	34	43	26	18	21	61	37	7	31
8	4	10	8	9	8	9	4	9	2324	3424	10	38	24	31	21	30	10	29	24
9	8	6	7	6	4	4	4	4	3311	4332	26	16	19	14	8	10	10	8	14
10	9	8	7	8	9	4	3	2	5412	5111	28	25	17	22	31	8	6	4	18
11	6	7	4	13	10	9	9	10	2242	2234	14	17	10	64	40	31	29	37	30
12	7	8	4	8	12	14	10	10	3622	2255	18	26	8	24	55	72	39	36	35
13	12	12	14	12	8	20	24	25	5134	2347	54	57	73	57	24	239	403	496	175
14	26	20	18	18	13	15	15	17	5556	2267	544	222	170	147	66	89	88	130	182
15	14	12	11	13	12	9	10	11	6425	5352	71	51	50	62	55	33	39	42	50
16	10	9	10	14	8	14	7	15	4412	2244	35	30	34	79	21	80	18	95	49
17	16	11	8	11	8	1	1	8	6432	5224	119	46	24	44	25	2	3	25	36
18	11	8	9	11	11	7	8	4	5212	2122	42	25	28	44	41	17	22	10	29
19	11	5	6	8	12	10	6	12	2133	3344	41	12	16	21	58	40	15	56	32
20	13	12	13	7	3	1	1	4	3543	2113	64	57	64	19	6	2	2	8	28
21	4	4	4	3	3	5	6	9	2122	3344	10	8	8	6	6	13	16	28	12
22	9	5	8	5	11	8	4	3	1222	1323	29	11	22	13	50	23	8	6	20
23	9	6	5	8	9	6	7	5	3322	4112	29	14	12	25	27	15	19	11	19
24	9	13	14	11	10	16	13	12	3343	1336	30	64	79	48	34	110	61	53	60
25	12	14	11	9	8	7	9	10	5323	4123	55	80	49	28	24	19	32	34	40
26	11	13	10	11	9	9	7	10	4533	5223	49	67	35	45	29	31	19	36	39
27	11	14	15	7	6	11	6	9	6142	1333	43	75	92	20	15	43	14	27	41
28	10	8	11	11	8	9	10	8	6333	2256	38	25	47	45	22	30	37	24	34
29	13	6	13	12	13	9	7	7	3125	3432	67	15	63	53	67	32	17	20	42
30	6	6	11	8	8	12	9	10	1453	2133	14	15	50	26	25	60	29	37	32
31	10	14	15	14	7	8	6	8	6566	0224	40	74	89	73	20	25	14	25	45
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	3Kn								σn								An
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3	11	13	11	12	12	10	11	10	2534	2321	49	62	43	55	52	40	44	35	48
4	8	8	7	10	10	9	9	8	2213	2232	25	22	18	34	37	31	33	25	28
5	8	8	12	9	9	11	9	8	2244	2343	25	26	56	27	31	44	29	26	33
6	9	8	8	11	11	9	14	13	3362	3131	33	21	25	46	45	29	85	68	44
7	16	20	20	19	18	18	10	4	1445	2213	105	218	202	183	153	151	38	10	133
8	4	3	6	6	8	7	7	6	1321	3233	8	6	14	16	21	17	18	16	15
9	6	5	12	14	7	11	12	12	1245	2333	15	12	58	71	17	45	53	57	41
10	12	11	13	12	9	11	9	11	1243	3132	53	42	63	51	32	45	29	46	45
11	10	8	8	11	11	13	12	7	3333	3552	36	23	24	47	50	70	56	18	41
12	8	10	11	12	13	9	8	8	3333	2242	24	39	43	57	65	28	21	26	38
13	7	8	9	8	8	6	6	7	3234	2332	18	24	30	25	26	14	14	18	21
14	6	6	6	7	5	7	7	5	4244	2331	16	14	14	18	12	18	20	11	15
15	5	2	1	1	3	2	3	5	3322	1312	11	5	2	3	6	5	7	12	6
16	3	5	3	2	4	7	6	8	2342	3213	6	11	7	5	10	20	15	26	13
17	8	11	9	5	6	3	10	11	2322	3233	24	47	30	13	15	7	40	49	28
18	10	10	8	6	8	9	9	10	2332	3025	34	38	24	14	25	29	33	37	29
19	6	8	7	7	5	7	9	9	4342	2233	16	22	19	18	13	17	33	28	21
20	9	6	4	7	10	8	9	10	2234	1222	27	16	8	17	34	21	28	40	24
21	10	10	7	7	8	9	7	6	2132	2112	37	34	17	17	25	33	19	16	25
22	10	7	8	10	11	11	12	11	2343	3243	35	18	22	36	48	49	58	47	39
23	9	7	10	7	9	11	9	10	2342	2232	32	20	34	20	31	49	32	40	32
24	11	11	11	8	10	9	9	6	2342	3141	42	45	50	26	36	31	30	16	35
25	9	10	12	10	9	9	8	12	1344	2335	30	35	53	39	27	27	25	57	37
26	8	9	10	9	14	9	9	10	2143	3312	25	27	38	28	72	29	28	39	36
27	9	7	6	8	8	7	6	6	3312	3233	28	19	16	22	22	20	16	15	20
28	5	3	3	7	5	9	10	12	2224	3323	11	6	7	17	12	30	36	56	22
29	9	12	15	13	14	11	10	10	3354	1233	29	52	98	69	79	49	37	39	57
30	9	11	14	11	11	10	10	11	2343	2242	31	49	75	47	44	39	37	42	46
31	10	9	11	6	10	9	8	9	2433	1422	34	28	41	15	39	28	24	31	30
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	3Ks								σs								As
1	6	7	4	8	9	6	8	8	5535	5346	16	19	8	21	29	14	23	26	20
2	13	9	8	14	11	12	13	13	9532	1255	62	29	24	81	44	53	66	63	53
3	11	12	10	11	11	9	10	11	2412	3253	45	51	34	46	43	31	36	41	41
4	8	7	7	10	8	7	8	6	3324	2333	24	20	17	39	25	20	25	14	23
5	7	8	11	9	7	11	6	8	3322	1204	20	21	43	32	17	43	15	23	27
6	9	8	7	11	9	8	11	12	4223	3224	32	23	17	43	27	21	42	54	32
7	15	17	19	18	16	15	8	3	4451	2122	93	141	190	162	116	89	26	6	103
8	3	3	4	4	4	3	3	3	2122	1223	7	7	10	10	8	7	7	7	8
9	4	5	11	11	3	8	11	10	2132	1223	8	13	47	43	7	22	43	40	28
10	12	10	13	10	8	11	9	8	3341	3212	58	37	62	38	25	43	28	23	39
11	10	7	8	11	10	13	12	5	3324	2352	38	20	21	42	36	67	51	13	36
12	8	8	10	12	11	9	6	8	4212	3353	21	24	34	59	50	27	15	21	31
13	6	7	8	7	7	5	5	5	3523	2234	15	19	26	20	19	12	12	13	17
14	4	4	4	4	1	6	4	4	1222	2441	9	10	10	10	3	15	10	8	9
15	5	2	0	1	2	1	0	3	2302	3121	13	4	0	2	4	2	1	6	4
16	3	6	4	0	1	4	4	8	1441	2323	6	14	8	1	3	9	10	21	9
17	8	13	10	4	4	1	10	12	4462	3224	23	63	36	10	10	2	37	51	29
18	9	10	8	3	7	7	8	8	5221	1233	33	36	24	7	17	20	26	26	24
19	7	9	6	6	3	3	8	5	2421	0353	18	27	14	15	7	7	23	12	15
20	9	6	5	4	9	7	8	8	4123	2224	30	16	11	10	30	18	21	23	20
21	12	11	6	5	8	7	7	5	3122	2134	58	49	16	12	21	19	17	13	26
22	11	6	7	9	11	11	13	11	5231	2243	49	16	19	27	41	44	68	48	39
23	9	5	9	6	8	10	9	12	4313	3224	28	13	30	16	23	40	30	51	29
24	11	12	11	8	9	9	7	5	5352	2533	46	54	48	22	28	29	19	11	32
25	9	10	13	11	8	8	7	11	3145	3284	33	34	62	43	23	23	17	44	35
26	9	10	10	7	13	8	8	10	3142	5325	33	34	34	20	65	25	25	35	34
27	9	6	7	6	7	6	5	5	5322	3133	30	15	17	15	19	15	13	13	17
28	4	2	2	8	6	8	8	11	2223	6314	10	4	5	21	14	22	26	41	18
29	9	10	15	14	13	10	9	9	2352	1221	30	38	87	73	64	35	32	31	49
30	9	11	12	11	11	10	9	10	6222	3335	30	44	59	43	43	38	30	35	40
31	9	8	10	6	9	8	7	8	5223	1224	33	23	38	16	33	25	20	24	27
																			29.5

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	3Kn								σn		an								An
1	7	6	4	8	8	8	5	6	2524	4441	20	14	10	22	26	24	13	16	18
2	8	6	9	9	8	7	8	9	2145	1221	21	15	30	30	21	17	26	31	24
3	7	9	11	12	11	8	8	8	2341	2323	19	32	49	53	44	26	23	24	34
4	8	11	11	13	13	12	10	14	2322	2354	25	41	47	69	66	54	36	71	51
5	10	12	13	11	14	10	7	17	1342	3422	36	53	69	46	75	39	20	127	58
6	20	22	22	24	24	20	18	17	4455	3443	243	299	327	394	433	205	162	123	273
7	17	16	13	18	15	16	19	9	3443	4433	138	115	66	151	90	114	174	32	110
8	6	8	6	9	5	8	8	11	2232	2322	14	25	16	28	13	22	26	44	24
9	18	12	13	14	12	12	14	10	2433	4371	152	58	64	82	56	57	77	36	73
10	9	8	3	4	5	9	6	6	2112	2222	30	24	7	10	11	28	16	15	18
11	7	7	6	9	9	10	8	8	3221	1533	17	17	16	27	30	38	22	22	24
12	8	8	6	6	4	6	10	12	4232	2232	24	23	15	15	8	14	34	53	23
13	12	7	5	8	8	10	4	9	2412	2411	52	17	11	26	21	36	9	27	25
14	5	10	7	4	6	8	11	7	2133	3355	12	40	18	10	16	21	50	19	23
15	2	10	8	6	7	7	8	9	2332	2222	5	34	24	15	17	17	24	32	21
16	8	5	7	7	8	8	10	9	2142	3240	24	11	20	17	22	21	34	29	22
17	5	5	9	12	4	7	5	4	2334	1322	12	12	30	55	10	17	13	10	20
18	11	10	9	7	11	10	14	13	2302	2355	46	34	29	19	43	34	82	63	44
19	9	10	9	10	11	12	12	10	2221	2023	30	38	30	34	48	53	51	40	41
20	8	9	13	11	11	10	7	13	4255	3221	21	29	66	49	45	35	20	61	41
21	12	18	15	15	15	13	14	18	3234	2152	59	165	99	91	95	61	72	155	100
22	20	21	22	21	18	15	12	13	4513	4255	208	268	327	276	153	92	54	68	181
23	10	11	10	11	9	9	11	9	3233	2442	40	49	39	42	29	31	45	32	38
24	8	10	12	11	12	10	6	8	3224	4524	26	38	51	44	53	40	14	21	36
25	5	4	3	6	8	10	13	9	2231	3351	12	9	6	14	21	34	62	31	24
26	6	8	11	15	19	19	19	16	2232	4555	15	26	46	93	177	181	184	120	105
27	18	11	10	11	10	14	11	10	7233	3751	168	46	40	43	40	81	41	40	62
28	11	10	7	6	3	5	6	10	5521	2212	47	39	18	14	7	11	14	39	24
29	5	6	8	7	8	4	7	4	3232	4232	13	15	24	20	21	10	20	8	16
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	3Ks								σs		as								As
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3	8	9	9	12	9	7	8	7	4503	3322	22	31	31	52	31	17	22	18	28
4	7	10	11	12	12	12	9	13	2242	2225	18	39	49	59	53	59	29	66	47
5	9	12	12	12	12	11	6	16	0322	3313	31	52	59	52	53	43	15	112	52
6	20	22	20	23	24	21	18	16	5531	4537	226	309	235	353	413	258	164	115	259
7	18	18	11	16	16	16	17	12	4533	6234	147	150	48	109	109	110	127	51	106
8	6	9	6	7	4	5	7	9	5212	3331	14	27	15	18	8	13	20	30	18
9	17	11	12	14	10	12	13	10	4202	4463	140	48	57	79	37	52	67	37	65
10	8	7	4	3	3	7	5	5	3312	4214	25	20	8	6	7	17	11	13	13
11	8	8	6	9	9	8	6	8	6303	3325	24	22	15	27	27	26	16	23	23
12	7	9	6	7	1	3	9	10	2112	2034	19	28	16	17	3	7	32	39	20
13	11	7	4	8	7	9	3	7	5323	2324	42	18	9	26	19	33	6	19	22
14	4	12	7	4	3	6	14	4	4222	3334	10	53	17	10	6	14	73	10	24
15	1	10	7	5	5	5	6	9	2211	4324	3	36	17	12	12	13	14	30	17
16	8	4	8	6	8	6	9	8	4012	3343	23	10	25	14	21	14	29	21	20
17	4	4	9	13	4	6	6	4	2304	1222	9	10	31	68	8	15	15	8	21
18	11	10	9	6	9	9	16	14	3201	2046	46	40	31	16	31	31	115	84	49
19	9	11	9	11	11	12	11	9	4443	2224	33	46	33	47	46	51	44	29	41
20	8	9	14	11	10	9	6	12	2042	3225	21	31	73	47	38	27	14	57	39
21	10	18	13	14	14	11	11	19	3311	3333	39	150	68	75	79	50	48	177	86
22	18	20	22	21	17	14	11	14	5332	4336	153	239	317	249	131	79	41	75	161
23	11	11	10	11	8	10	11	9	3136	2165	45	44	38	48	25	38	44	32	39
24	9	11	11	11	11	8	5	8	6225	3226	33	43	47	45	45	21	13	22	34
25	3	4	2	5	7	9	11	7	3222	4343	7	10	5	12	18	32	42	20	18
26	7	11	10	15	20	19	17	15	3220	3645	20	42	36	100	225	178	142	100	105
27	17	12	11	10	9	11	9	10	7131	2445	141	51	45	36	27	48	29	35	52
28	10	9	5	5	2	2	5	9	6413	1342	37	33	13	12	5	5	11	31	18
29	7	7	8	7	8	5	5	2	4322	5223	17	20	22	19	23	11	13	4	16
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OCT. 1982

	3Kn								σn		an								An
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3	8	5	7	6	5	5	7	8	4334	4436	24	13	18	15	12	12	17	24	17
4	3	6	9	9	10	7	6	2	3244	5643	7	14	28	31	36	17	16	5	19
5	7	9	6	5	4	3	5	5	3424	3335	19	27	15	12	8	6	11	11	14
6	8	8	8	8	10	9	13	12	5222	2556	23	22	22	23	34	32	62	53	34
7	14	11	14	12	12	12	7	6	2542	5353	77	49	72	55	57	54	20	14	50
8	10	12	9	8	10	11	11	10	2122	4447	36	51	31	22	35	41	44	38	37
9	3	3	1	1	3	5	2	8	4122	0214	7	7	2	3	6	12	5	21	8
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11	8	7	8	7	9	6	9	8	4232	0242	24	18	23	20	29	14	32	25	23
12	7	6	6	9	4	7	12	11	0122	2344	19	14	15	29	9	20	51	41	25
13	9	11	8	9	11	15	11	14	3134	5545	32	48	21	28	50	87	42	83	49
14	14	13	11	12	13	10	8	8	5546	6446	78	69	43	56	64	35	26	26	50
15	4	5	5	7	7	4	8	6	3333	3222	10	11	12	20	18	9	23	14	15
16	5	5	7	6	10	11	9	11	2322	2321	11	11	20	16	34	45	27	42	26
17	11	11	8	8	9	8	10	11	4232	3245	41	47	23	24	32	21	39	49	35
18	10	10	9	8	13	12	9	8	2221	5422	36	40	29	25	65	53	29	23	38
19	8	6	9	5	8	8	10	11	1033	2223	21	14	28	13	21	26	40	49	27
20	10	9	11	9	9	6	4	5	3632	2223	39	30	46	27	29	14	10	11	26
21	8	6	7	4	4	8	9	5	2231	3412	24	15	17	9	9	25	30	13	18
22	8	7	2	2	5	4	2	2	7532	2121	26	17	4	4	13	9	5	5	10
23	2	2	5	4	6	7	7	4	3342	1543	4	4	12	9	15	20	19	9	12.
24	3	2	2	4	4	7	6	3	4322	2322	7	5	4	10	8	19	15	6	9
25	4	9	8	7	11	8	10	9	1753	5462	9	32	22	17	50	23	36	32	28
26	15	12	11	13	10	10	6	5	2243	1225	89	53	49	70	34	35	15	11	45
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28	4	2	5	9	8	5	9	9	3133	2313	10	5	11	33	25	11	30	27	19
29	10	15	12	12	14	12	9	12	3324	5403	39	94	59	60	82	55	29	58	60
30	11	12	10	13	12	13	11	10	2434	3525	45	51	39	65	58	67	42	38	51
31	9	10	9	2	11	10	17	14	4212	3232	28	39	27	5	45	40	145	74	50
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OCT. 1982

	3Ks								σs		as								As
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3	7	5	6	6	5	6	5	6	3223	3214	18	13	16	14	13	14	13	15	15
4	4	8	9	9	8	6	5	3	0344	5423	10	21	31	33	24	16	11	6	19
5	7	8	7	4	3	2	6	4	1222	2432	19	23	18	10	7	4	14	9	13
6	6	7	9	10	10	10	12	11	3233	2255	14	18	28	36	36	38	58	43	34
7	13	10	12	11	11	11	6	7	4332	3351	69	39	54	44	45	48	14	17	41
8	10	10	9	8	8	11	11	8	2332	3336	37	40	28	22	23	41	41	26	32
9	4	3	0	2	1	4	2	7	4111	2522	9	6	1	4	3	9	4	18	7
10	8	5	5	9	7	6	8	10	4221	2223	23	11	13	32	20	15	22	35	21
11	7	9	10	7	8	5	10	8	2226	5133	20	33	36	17	26	13	34	24	25
12	7	8	6	9	3	7	11	10	2212	2322	18	21	16	33	7	20	49	40	26
13	11	11	7	8	10	15	11	15	5334	3666	49	46	20	26	34	88	45	91	50
14	14	12	12	13	12	8	7	8	8664	4136	81	56	53	64	54	26	19	21	47
15	3	6	4	8	7	4	8	5	3233	3322	7	14	10	23	17	10	22	11	14
16	6	6	8	7	11	10	10	11	1021	3222	14	15	23	18	41	36	34	44	28
17	10	11	6	9	9	6	10	11	2111	1223	38	42	16	30	33	16	38	49	33
18	9	9	9	9	11	12	9	8	1142	2421	32	28	30	28	41	54	30	26	34
19	8	7	8	4	8	8	11	11	3332	2235	25	19	22	10	26	23	42	50	27
20	9	9	10	8	9	5	3	4	3231	2332	28	31	35	26	28	13	7	9	22
21	8	7	6	4	3	9	9	5	3112	3223	25	17	15	8	6	27	31	13	18
22	7	6	3	2	4	4	2	3	6513	1332	18	14	6	4	9	8	4	6	9
23	2	3	4	4	7	7	5	3	3341	2334	4	6	9	8	18	17	11	7	10
24	2	2	2	5	3	6	5	3	4232	1223	4	5	5	13	6	14	11	7	8
25	4	9	8	8	11	8	9	10	2332	5244	10	29	24	22	47	25	29	36	28
26	15	15	13	14	10	10	5	4	3133	1523	100	89	62	83	37	35	11	10	53
27	4	9	8	9	11	10	9	9	1131	2234	9	30	21	29	43	38	31	30	29
28	5	2	4	10	7	5	11	9	3223	2234	13	5	10	34	17	11	42	31	20
29	12	15	12	14	14	12	9	11	4224	3102	53	90	60	79	76	59	31	42	61
30	12	9	10	11	12	11	8	9	2223	2233	52	31	39	45	55	44	24	27	40
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	3Kn								σn								An
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3	12	10	11	12	11	3	0	1	3233	4212	53	38	48	55	46	7	0	2	31
4	0	3	6	7	10	8	9	5	2125	7754	1	6	16	20	34	25	27	11	18
5	5	3	4	7	9	7	10	4	4323	4482	11	6	8	18	33	20	34	8	17
6	5	6	10	8	7	9	3	3	3431	1421	12	15	36	22	17	29	7	6	18
7	4	3	3	2	4	1	3	4	3331	2211	8	7	7	4	8	3	6	8	6
8	3	3	6	4	6	13	13	7	1233	2321	6	6	14	10	16	61	61	19	24
9	8	7	6	4	6	4	4	7	2221	0222	21	19	15	10	14	9	10	17	14
10	8	5	4	8	9	8	10	8	3131	2343	22	13	10	22	30	23	34	26	23
11	10	9	6	10	11	10	8	10	4213	4314	38	32	16	36	41	34	22	34	32
12	11	7	5	10	10	8	9	8	4323	2342	41	20	11	36	34	25	31	22	28
13	13	8	5	13	7	8	11	5	1323	1442	61	23	13	62	17	24	48	13	33
14	6	4	8	9	10	9	7	8	3331	2245	14	9	21	31	34	31	19	23	23
15	5	6	3	10	8	9	9	9	1223	2343	12	14	7	38	23	33	31	27	23
16	5	5	7	7	2	1	5	8	3232	1132	13	12	20	19	5	2	13	22	13
17	3	1	1	1	2	5	9	9	2112	2264	6	2	3	2	5	12	29	30	11
18	6	7	6	6	11	10	5	8	3224	5535	14	18	15	16	49	37	12	22	23
19	6	6	2	2	6	7	9	9	4421	0215	16	15	4	5	14	19	27	32	17
20	4	2	0	3	3	1	7	8	4314	2225	10	5	0	7	7	2	20	25	10
21	8	9	9	10	10	11	13	14	5442	4376	22	27	28	35	37	41	63	76	41
22	16	13	13	9	5	4	5	1	5464	2341	114	67	61	32	11	8	11	3	38
23	0	1	3	9	11	18	17	15	1110	4534	1	3	6	29	41	153	132	95	58
24	9	7	7	15	22	20	20	18	1335	7682	27	18	18	89	317	201	206	152	129
25	17	14	15	15	16	12	11	10	3563	7554	122	76	102	98	113	56	47	38	82
26	8	10	11	11	12	14	6	12	1213	5724	26	37	45	48	53	75	16	58	45
27	5	9	9	10	11	11	11	7	2532	5553	12	27	28	34	50	42	42	19	32
28	16	9	9	11	10	11	12	10	2223	4653	117	29	27	42	34	44	56	34	48
29	9	7	5	9	14	15	17	13	3534	5565	30	17	11	33	73	101	131	65	58
30	10	9	7	4	11	6	2	2	2334	4211	39	30	17	8	43	16	4	4	20
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NOV 1982

	3Ks								σs								As
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2	9	7	7	10	10	14	12	13	1222	2456	27	17	19	39	37	86	56	66	43
3	9	9	10	14	11	3	1	1	5133	2312	32	29	38	74	41	6	2	2	28
4	0	3	7	8	8	8	7	4	1124	4244	0	7	17	21	22	22	20	10	15
5	7	3	4	8	10	7	8	2	3222	4252	18	6	9	24	35	20	25	5	18
6	5	6	10	8	7	7	4	4	3232	2333	13	16	34	22	18	19	9	9	18
7	5	4	4	2	3	1	3	5	2322	2432	11	9	8	5	6	3	6	11	7
8	3	4	7	6	6	12	12	8	2212	2532	7	9	19	14	14	53	56	21	24
9	9	9	8	6	7	4	7	8	0220	1142	31	32	25	15	17	8	19	23	21
10	10	7	5	7	10	8	9	9	1113	3444	34	18	12	18	35	24	28	31	25
11	11	10	9	12	10	10	8	9	2301	3212	43	40	31	52	36	36	22	30	36
12	10	8	7	10	9	8	10	8	1133	3522	35	23	18	40	31	25	38	23	29
13	13	9	5	11	6	8	11	6	2133	5235	68	29	13	43	16	22	45	16	32
14	7	6	8	11	11	9	7	7	2233	2223	20	15	23	45	41	28	20	20	27
15	7	5	5	9	8	10	9	7	3121	2231	17	13	12	32	22	38	29	18	23
16	6	8	8	7	4	1	7	9	2213	2332	15	22	23	19	9	3	19	31	18
17	3	5	4	2	3	7	8	8	1331	3323	7	11	9	5	6	19	21	24	13
18	8	9	8	7	11	8	5	7	4122	4333	25	29	22	20	50	24	13	20	25
19	6	6	3	4	7	8	9	8	1512	1324	14	16	6	8	19	21	27	25	17
20	5	6	2	6	4	2	10	8	2230	1444	12	15	4	15	8	4	34	24	15
21	9	12	12	10	11	10	11	12	4423	2533	31	60	52	40	41	39	43	52	45
22	15	14	11	9	5	5	5	1	6531	3422	97	77	50	28	11	12	12	3	36
23	2	4	3	10	11	16	18	18	1312	3445	4	9	7	39	48	116	154	163	68
24	11	10	7	15	22	20	19	18	2213	3356	50	37	17	92	289	202	174	170	129
25	19	13	15	15	14	11	10	10	2131	4711	174	68	90	96	76	48	35	35	78
26	12	12	11	10	11	11	9	11	5322	2533	56	53	41	35	44	50	28	44	44
27	8	8	9	11	11	10	10	7	2232	2522	21	22	30	42	43	38	34	20	31
28	17	10	11	10	8	9	11	10	4222	1235	122	34	41	39	26	27	42	39	46
29	9	7	7	10	10	15	18	14	3142	3556	33	18	17	34	38	90	171	71	59
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DEC. 1982

	3Kn								σn		an						An
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3	4	3	5	5	10	8	5	8	2032	3114	10	6	12	13	35	25	12	25	17
4	10	8	4	2	2	5	8	13	3422	1323	34	21	8	4	5	12	24	61	21
5	11	10	8	2	4	3	5	2	2652	3032	46	34	23	4	9	6	12	4	17
6	3	2	2	2	3	1	1	2	2122	1211	6	5	5	5	6	3	2	4	5
7	0	9	8	6	14	12	16	12	1222	4444	1	28	22	16	77	59	114	55	47
8	10	8	9	13	15	13	14	8	2123	7543	38	25	33	61	98	69	78	24	53
9	5	8	6	8	16	10	8	7	1312	4324	11	21	16	22	115	35	21	17	32
10	5	6	15	17	14	15	13	9	2143	2352	13	15	98	128	75	103	67	30	66
11	9	11	4	6	7	13	13	11	4433	3564	28	42	10	15	17	68	61	47	36
12	7	6	6	11	10	10	6	5	2233	2404	20	14	16	45	39	34	14	12	24
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14	3	4	2	4	4	1	9	10	1322	2245	6	8	5	9	9	3	27	38	13
15	9	8	8	9	5	5	3	2	4222	2321	30	23	23	30	12	11	6	4	17
16	3	3	8	9	9	11	11	12	0134	3458	6	7	21	27	27	44	46	53	29
17	11	12	20	17	15	14	14	12	2434	3231	42	56	208	138	100	73	80	51	94
18	12	10	13	19	15	14	12	8	2236	2322	56	35	62	182	90	82	51	23	73
19	12	11	13	15	14	8	8	14	5322	4221	55	44	68	100	80	23	22	71	58
20	12	11	10	14	16	14	15	12	2222	2433	53	45	37	82	111	75	102	53	70
21	8	10	12	12	13	15	14	13	4442	4777	24	39	51	55	61	95	84	69	60
22	16	17	8	6	13	13	7	8	5541	3534	116	131	24	15	70	66	18	22	58
23	6	5	9	15	14	14	12	9	3153	4454	16	11	33	90	71	76	60	31	49
24	12	6	9	9	10	11	9	7	4233	3552	51	16	30	27	39	44	32	17	32
25	7	7	9	6	11	11	8	5	4311	5421	20	17	28	15	42	43	23	11	25
26	7	7	6	7	10	7	5	4	3523	4343	19	18	14	18	36	17	11	8	18
27	7	4	12	9	9	8	8	10	2412	1135	17	9	56	31	28	21	22	40	28
28	9	9	8	9	11	9	11	10	2143	3342	29	31	26	31	47	28	49	34	34
29	10	10	11	10	9	9	9	8	2343	3443	34	36	41	36	33	27	33	26	33
30	9	9	8	9	8	8	9	6	3222	5323	32	33	24	30	21	26	30	14	26
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	3Ks								σs		as						As
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3	6	5	6	9	9	9	8	8	4423	3442	14	12	16	27	27	27	21	26	21
4	10	8	5	4	5	8	9	11	4232	1532	35	23	12	10	11	22	27	47	23
5	9	11	9	3	5	4	7	4	3542	2143	30	43	29	6	12	9	20	9	20
6	6	5	4	4	5	4	2	5	2311	2432	14	13	9	8	12	8	4	12	10
7	3	12	10	8	14	15	17	13	1112	1325	6	55	37	24	82	91	142	61	62
8	12	11	12	12	14	13	13	9	1212	2223	59	42	52	55	84	64	63	28	56
9	8	8	7	10	14	8	7	6	1123	2320	23	23	17	34	72	24	20	15	29
10	7	9	16	18	15	16	13	9	0322	2444	20	32	120	157	94	107	62	33	78
11	10	10	8	8	9	11	12	13	4322	4152	35	37	22	23	32	46	57	68	40
12	8	6	6	9	8	8	6	5	2210	3321	26	14	16	31	22	24	14	13	20
13	4	6	5	6	4	5	6	8	3323	1442	8	15	11	14	9	12	15	24	14
14	6	6	6	7	4	3	10	10	3032	0542	16	15	15	17	10	6	34	40	19
15	11	9	10	11	6	7	5	4	2231	2435	45	33	38	44	15	17	12	10	27
16	6	6	7	9	8	9	9	9	2246	4224	15	15	18	29	21	31	27	33	24
17	8	10	17	17	14	14	16	14	2133	1353	23	35	140	139	81	71	115	75	85
18	13	11	13	18	15	14	11	10	2342	2233	70	45	66	150	90	77	50	36	73
19	15	14	17	17	15	9	9	16	7223	3227	100	86	130	123	102	30	32	104	88
20	15	14	12	12	15	15	15	12	3222	5234	98	80	57	55	97	90	95	57	79
21	9	10	13	12	11	14	14	12	3143	2335	31	34	61	59	47	78	82	55	56
22	15	15	8	8	11	12	5	7	3542	1233	103	101	26	24	50	53	11	20	49
23	6	6	8	11	13	14	12	10	1132	4312	15	15	24	47	64	79	51	38	42
24	10	6	9	8	10	10	9	7	3222	2242	37	14	33	26	34	34	28	18	28
25	7	7	9	8	9	10	6	6	2153	3423	19	18	30	24	30	37	14	14	23
26	6	7	7	9	9	6	5	5	0122	3223	15	17	17	28	30	16	11	12	18
27	8	5	14	11	9	8	8	11	2222	2422	24	13	78	44	30	24	24	42	35
28	9	11	9	10	11	10	12	10	2445	2142	28	42	28	40	47	34	53	34	38
29	10	12	11	9	10	10	9	9	2121	3112	35	53	50	32	38	34	31	27	38
30	7	9	9	9	5	7	9	6	0212	2133	20	28	30	31	13	19	33	15	24
31	8	7	4	6	3	4	1	4	1425	2323	24	17	10	16	7	8	3	8	12
																			36.8

am INDICES 1982

JAN. 1982

	3Km								ΣKm	am							Am	Am2
1	4	3	5	4	7	11	5	4	14.3	8	6	12	9	19	41	12	9	15	18
2	4	4	6	6	6	10	9	6	17.0	9	10	14	14	16	34	29	16	18	19
3	6	7	7	8	7	12	12	11	23.3	16	19	20	22	20	52	57	49	32	26
4	9	4	4	6	7	8	7	8	17.7	32	10	10	14	20	26	18	21	19	23
5	4	4	4	6	2	1	1	1	7.7	10	10	10	16	4	2	3	2	7	13
6	5	7	8	7	7	6	12	6	19.3	12	17	21	17	20	15	57	15	22	17
7	5	8	10	6	9	9	9	8	21.3	11	21	39	15	32	29	33	26	26	24
8	8	7	6	5	4	6	8	5	16.3	25	17	15	11	8	15	24	12	16	17
9	5	2	1	2	3	3	3	2	7.0	12	5	3	5	7	6	7	5	6	8
10	2	1	0	2	0	1	4	6	5.3	5	3	1	4	1	2	10	14	5	6
11	5	5	3	2	4	3	4	0	8.7	12	12	6	5	8	7	9	1	8	7
12	4	2	2	2	0	1	0	2	4.3	8	5	4	4	1	2	1	4	4	6
13	1	6	6	4	3	5	3	2	10.0	3	15	15	9	6	13	7	5	9	6
14	1	1	1	5	3	3	4	6	8.0	3	2	2	11	7	7	9	16	7	12
15	7	10	7	8	8	7	9	8	21.3	20	35	18	26	22	20	30	22	24	19
16	5	6	9	7	9	10	12	9	22.3	11	15	28	20	33	37	55	31	29	25
17	9	6	5	8	8	7	4	5	17.3	28	14	13	24	21	19	9	11	17	21
18	4	4	3	4	4	6	12	12	16.3	10	10	7	9	10	14	55	53	21	16
19	5	2	2	2	5	3	2	4	8.3	13	5	4	4	11	6	4	8	7	15
20	5	6	5	3	3	1	6	4	11.0	12	16	12	7	6	3	14	10	10	12
21	4	5	8	9	9	14	10	9	22.7	8	13	26	30	33	73	36	28	31	28
22	10	11	10	12	10	12	10	12	29.0	35	49	36	53	34	60	34	52	44	41
23	9	11	8	10	11	9	11	10	26.3	33	44	24	35	47	32	42	36	37	37
24	9	9	9	8	11	10	9	11	25.3	27	31	30	26	43	35	31	46	34	30
25	7	6	5	4	8	5	4	5	14.7	18	16	12	9	21	13	8	11	14	18
26	4	2	3	4	4	4	8	8	12.3	9	5	7	9	10	9	24	24	12	14
27	7	8	6	7	10	6	5	10	19.7	19	25	14	17	37	16	11	40	22	26
28	10	11	10	12	9	8	5	5	23.3	35	43	37	56	28	24	11	13	31	23
29	3	3	3	2	6	12	12	8	16.3	6	7	6	5	14	56	60	24	22	30
30	13	13	10	12	9	9	7	6	26.3	69	64	35	52	32	29	18	15	39	39
31	9	11	9	13	16	14	13	8	31.0	29	43	29	61	108	84	62	21	55	40
																		20.7	

FEB. 1982

	3Km								Km	am							Am	Am2
1	6	7	4	14	17	13	17	15	31.0	14	18	10	72	132	68	146	89	69	79
2	13	15	18	17	16	13	8	7	35.7	62	90	152	141	105	61	25	20	82	84
3	13	13	13	12	13	11	11	13	33.0	62	62	67	54	68	47	47	63	59	58
4	14	12	11	13	15	13	14	15	35.7	78	55	50	68	89	61	76	88	71	64
5	14	14	9	9	9	14	11	11	30.3	86	81	29	31	32	81	42	48	54	59
6	9	10	14	12	11	15	15	14	33.3	33	39	77	55	43	89	88	76	63	54
7	13	11	9	9	6	8	9	10	25.0	65	45	27	30	15	26	30	35	34	43
8	10	8	7	11	8	9	13	9	25.0	37	25	20	43	23	31	67	32	35	31
9	8	10	7	9	9	6	5	8	20.7	25	34	20	31	30	16	13	23	24	29
10	7	6	5	13	16	16	12	11	28.7	17	15	13	67	105	109	55	50	54	42
11	10	12	10	8	14	15	13	16	32.7	36	58	37	23	76	96	61	113	63	64
12	16	10	4	12	13	11	15	14	31.7	106	35	9	52	61	44	93	80	60	65
13	12	10	12	14	14	16	15	16	36.3	51	40	52	78	81	105	96	110	77	70
14	10	13	13	12	13	11	14	11	32.3	37	65	67	53	63	50	76	50	58	62
15	9	9	10	10	13	9	2	1	21.0	33	30	38	37	61	28	5	2	29	32
16	5	5	3	3	8	6	6	1	12.3	11	13	6	6	22	14	14	3	11	21
17	0	6	12	14	14	14	14	13	29.0	1	16	54	72	81	71	73	64	54	40
18	9	10	12	8	12	8	12	14	28.3	33	37	55	25	53	26	54	81	46	54
19	11	14	12	9	13	11	12	10	30.7	45	77	59	29	63	45	53	34	51	47
20	8	8	10	10	10	9	11	11	25.7	26	25	38	37	40	33	45	44	36	37
21	8	3	8	11	12	6	10	10	22.7	22	7	23	50	56	15	36	35	31	34
22	9	11	7	11	15	15	17	16	33.7	29	44	20	48	87	88	136	107	70	53
23	14	7	6	8	9	13	12	11	26.7	81	20	15	26	29	61	57	45	42	55
24	11	10	8	8	11	7	7	13	25.0	46	37	24	25	46	18	18	61	34	46
25	11	14	14	13	11	10	12	8	31.0	41	86	77	67	46	36	58	21	54	51
26	11	14	13	12	9	9	13	14	31.7	50	71	64	57	29	27	66	83	56	43
27	7	7	5	9	7	7	7	7	18.7	19	17	13	31	19	18	17	19	19	25
28	5	3	3	5	6	7	11	7	15.7	12	6	7	12	16	18	44	17	17	22
																		48.3	

MAR. 1982

	3Km								ΣKm	am							Am	Am2
1	7	6	9	14	17	19	13	21	35.3	18	14	28	83	136	195	65	258	100	107
2	20	19	17	21	17	14	12	11	43.7	237	190	146	245	136	76	55	45	141	117
3	8	6	6	9	9	7	8	8	20.3	24	16	16	33	30	19	21	22	23	36
4	6	3	7	11	9	8	5	7	18.7	14	6	19	50	30	24	12	18	22	26
5	9	11	11	8	5	2	3	2	17.0	29	47	44	26	11	5	6	4	22	16
6	1	0	0	0	2	1	1	2	2.3	3	1	0	1	4	3	2	4	2	4
7	1	5	0	1	1	2	2	4	5.3	2	11	1	2	2	4	4	9	4	5
8	6	3	3	3	6	8	8	11	16.0	14	7	7	6	14	21	26	41	17	17
9	11	5	7	8	8	11	10	11	23.7	50	13	20	26	25	42	34	44	32	31
10	11	9	9	9	5	8	4	5	20.0	42	28	30	32	11	22	9	13	23	25
11	3	8	9	3	5	8	7	5	16.0	7	25	28	6	13	23	19	11	17	13
12	2	2	2	0	4	9	9	8	12.0	4	4	4	1	9	32	29	22	13	19
13	13	9	7	6	5	2	6	5	17.7	65	32	20	14	13	5	15	12	22	20
14	7	4	3	6	8	9	10	4	17.0	18	10	6	15	21	29	40	10	19	16
15	8	7	5	1	1	3	2	3	10.0	24	17	12	2	3	7	4	7	10	13
16	3	4	2	2	2	3	2	3	7.0	7	8	4	5	5	7	5	7	6	6
17	2	2	5	5	10	10	11	10	18.3	4	5	12	13	35	35	41	39	23	22
18	11	10	10	10	8	9	8	8	24.7	42	35	34	34	24	29	26	24	31	30
19	9	8	7	6	6	1	2	6	15.0	31	21	20	14	14	2	5	15	15	19
20	2	7	10	8	9	8	7	8	19.7	5	17	35	23	28	21	20	25	22	20
21	4	9	11	10	10	10	12	10	25.3	9	27	46	34	37	37	58	40	36	40
22	14	14	12	10	9	11	9	7	28.7	79	86	58	38	32	44	30	20	48	39
23	7	6	6	6	9	3	1	2	13.3	20	14	16	16	27	6	3	5	13	18
24	4	6	4	8	7	10	10	8	19.0	8	15	10	21	17	40	38	23	22	21
25	10	8	8	10	11	9	8	8	24.0	35	25	24	37	44	31	25	25	31	26
26	6	6	3	7	6	9	4	8	16.3	16	14	7	17	14	28	10	25	16	21
27	9	8	6	7	7	3	3	2	15.0	31	22	14	19	19	6	6	4	15	15
28	4	8	5	2	3	0	0	4	8.7	10	23	11	5	6	1	1	9	8	13
29	4	9	11	7	4	4	7	8	18.0	8	28	50	19	10	9	19	25	21	17
30	7	10	6	8	11	8	6	8	21.3	18	35	14	26	50	23	14	25	26	25
31	11	10	8	8	7	11	10	10	25.0	41	37	26	21	20	47	37	34	33	27
																		26.9	

APR. 1982

	3Km								ΣKm	am							Am	Am2
1	6	2	5	7	10	7	11	14	20.7	16	5	11	18	37	18	44	73	28	36
2	14	13	11	10	12	14	12	13	33.0	71	63	46	35	53	85	51	67	59	57
3	11	13	15	11	12	13	11	12	32.7	43	69	99	50	57	66	47	59	61	57
4	13	11	10	9	8	7	10	10	26.0	62	41	34	31	26	18	38	39	36	42
5	8	10	10	12	5	7	10	11	24.3	24	37	36	55	13	20	37	45	33	33
6	9	8	12	9	8	10	8	8	24.0	27	25	52	31	23	35	23	24	30	25
7	6	4	3	4	3	4	2	3	9.7	14	8	6	10	7	8	5	6	8	14
8	2	6	8	7	9	6	8	9	18.3	4	14	24	19	28	15	23	31	20	15
9	8	5	4	4	7	5	7	5	15.0	24	12	8	10	17	13	19	13	15	22
10	8	8	9	12	17	15	15	17	33.7	21	23	29	58	146	100	89	121	73	61
11	15	14	14	14	11	11	12	9	33.3	91	76	78	84	47	46	51	32	63	65
12	4	8	6	8	12	6	7	5	18.7	10	24	16	26	51	16	19	11	22	28
13	10	11	7	4	4	1	1	7	15.0	34	41	18	10	8	3	3	19	17	17
14	1	1	7	4	4	5	4	5	10.3	2	3	18	9	8	13	8	12	9	10
15	4	4	7	8	7	6	5	8	16.3	8	8	20	25	20	16	13	26	17	14
16	5	6	5	4	1	10	10	8	16.3	13	16	12	8	3	40	35	24	19	26
17	9	7	13	14	10	8	5	5	23.7	28	17	67	75	39	25	13	12	35	26
18	3	3	6	4	9	9	9	8	17.0	7	6	15	8	27	27	28	25	18	17
19	4	4	4	3	7	8	6	8	14.7	8	9	8	7	17	23	15	25	14	23
20	9	10	11	10	9	7	6	10	24.0	31	38	45	38	27	19	15	37	31	31
21	12	7	11	10	12	10	12	12	28.7	55	19	49	38	51	37	52	54	44	38
22	12	13	8	5	4	6	5	4	19.0	54	70	25	12	9	14	11	8	25	28
23	5	3	5	9	7	7	5	5	15.3	11	7	13	27	19	19	12	13	15	13
24	7	5	4	3	5	6	12	8	16.7	18	11	9	6	12	16	58	23	19	41
25	12	15	16	18	14	9	7	5	32.0	60	101	119	153	81	33	20	13	73	46
26	3	2	4	8	6	4	6	8	13.7	7	5	9	21	14	10	15	24	13	19
27	1	6	10	3	9	12	12	12	21.7	2	14	36	7	28	59	53	58	32	30
28	13	10	8	8	10	8	8	9	24.7	65	40	26	22	34	23	21	32	33	38
29	11	10	10	9	10	11	13	14	29.3	42	38	35	29	37	48	64	73	46	44
30	13	12	13	10	11	11	9	10	29.7	64	54	65	37	41	48	27	35	46	47
																		31.8	

MAY 1982

	3Km								ΣKm	am							Am	Am2
1	12	8	11	10	9	12	8	6	25.3	56	23	45	38	33	54	26	16	36	38
2	12	11	8	10	11	10	14	10	28.7	56	49	25	36	50	35	78	39	46	47
3	12	13	13	12	14	13	12	12	33.7	55	70	69	56	72	66	53	53	62	52
4	10	6	6	13	10	10	5	5	21.7	38	16	15	61	38	35	13	11	28	36
5	7	9	10	9	9	8	9	3	21.3	17	28	35	29	30	26	27	7	25	22
6	6	5	6	5	5	5	4	4	13.3	14	13	15	11	11	13	8	10	12	13
7	4	4	1	4	5	1	1	3	7.7	9	8	2	8	11	2	3	6	6	8
8	6	3	3	3	3	4	2	4	9.3	15	7	7	6	6	8	4	8	8	10
9	8	8	8	4	5	4	4	3	14.7	21	24	23	10	12	8	9	7	14	11
10	5	4	2	1	5	3	2	4	8.7	13	8	4	3	11	6	5	9	7	10
11	7	6	4	5	5	5	6	6	14.7	20	15	10	13	13	11	15	15	14	12
12	4	5	6	7	2	4	4	3	11.7	9	11	16	18	5	10	10	6	11	11
13	5	4	4	2	2	5	6	4	10.7	11	10	8	5	4	11	16	10	9	9
14	4	4	3	7	7	5	3	3	12.0	8	9	7	18	20	13	6	7	11	15
15	9	8	8	9	10	10	10	6	23.3	31	21	21	30	35	36	39	14	28	23
16	7	6	10	9	6	7	7	7	19.7	18	15	35	28	16	19	17	17	21	23
17	5	9	4	8	9	9	6	7	19.0	12	29	10	23	31	28	16	19	21	25
18	10	10	7	14	9	7	8	10	25.0	36	34	17	76	30	19	21	35	34	28
19	9	8	7	7	8	8	6	8	20.3	32	24	19	18	22	23	15	24	22	22
20	6	6	7	8	5	6	4	4	15.3	15	14	19	21	13	14	9	10	14	16
21	2	4	9	8	8	4	3	6	14.7	5	10	28	21	25	9	6	15	15	12
22	4	3	4	4	1	2	1	2	7.0	8	7	8	10	3	4	2	4	6	8
23	5	3	1	0	1	1	1	0	4.0	12	6	2	0	2	2	3	1	4	4
24	3	2	4	2	5	3	3	2	8.0	7	5	9	4	12	7	6	5	7	6
25	3	4	4	4	5	7	5	8	13.3	6	10	10	8	11	18	12	24	12	13
26	7	7	6	8	9	13	12	12	24.7	19	19	14	22	33	69	58	54	36	38
27	11	13	15	12	15	14	13	14	35.7	41	61	92	60	90	71	67	77	70	67
28	12	14	15	14	14	12	11	15	35.7	57	74	92	79	80	54	47	89	72	70
29	12	12	13	12	11	9	12	12	31.0	54	59	67	56	44	32	56	55	53	56
30	11	11	11	12	11	11	11	15	31.0	49	42	49	59	50	47	42	88	53	54
31	13	13	13	11	9	10	11	10	30.0	62	65	70	49	33	40	43	37	50	48
																		26.0	

JUNE 1982

	3Km								ΣKm	am							Am	Am2
1	11	11	9	8	5	8	11	12	25.0	45	48	29	23	11	22	49	54	35	38
2	12	12	11	7	7	5	8	8	23.3	58	52	48	19	17	12	25	24	32	29
3	8	7	7	7	5	6	4	7	17.0	24	20	17	19	13	16	9	19	17	17
4	8	5	2	2	6	5	4	8	13.3	26	13	5	5	14	11	9	23	13	13
5	5	5	5	6	5	5	4	4	13.0	13	11	11	16	12	13	9	9	12	18
6	11	10	11	8	7	7	5	6	21.7	45	34	43	21	20	17	12	15	26	25
7	9	9	10	13	7	7	4	5	21.3	31	27	37	61	20	20	10	13	27	20
8	4	3	2	5	6	8	8	8	14.7	9	6	5	12	15	26	24	26	15	21
9	13	9	7	8	9	5	4	5	20.0	69	33	17	23	29	12	10	11	26	38
10	10	15	15	13	14	14	5	9	31.7	37	102	102	64	77	77	13	27	62	46
11	11	12	12	8	8	9	11	14	28.3	42	55	56	24	22	33	46	75	44	43
12	13	9	8	5	13	16	14	14	30.7	69	33	23	13	64	104	71	76	57	57
13	13	13	14	13	14	12	14	15	36.0	69	65	85	63	80	58	85	96	75	69
14	8	11	14	12	9	9	11	8	27.3	26	43	72	51	27	33	45	21	40	51
15	10	10	14	9	10	12	9	10	28.0	34	35	75	31	34	56	31	35	41	33
16	9	4	5	6	8	6	7	5	16.7	30	9	13	16	25	15	19	12	17	23
17	4	7	9	7	6	3	1	1	12.7	8	20	28	19	16	6	2	2	13	15
18	2	8	8	4	4	4	6	3	13.0	5	26	21	8	9	8	15	7	12	14
19	4	5	11	9	10	10	10	12	23.7	9	11	44	28	38	37	40	58	33	28
20	10	8	9	10	8	9	8	7	23.0	40	26	31	39	22	28	26	19	29	31
21	6	7	10	8	8	4	2	6	17.0	14	17	34	25	21	9	4	16	18	18
22	4	4	6	8	10	8	9	12	20.3	9	9	15	24	36	23	33	58	26	28
23	12	12	12	8	8	7	6	8	24.3	51	60	60	21	26	17	15	25	34	32
24	5	7	9	9	8	4	11	15	22.7	13	17	30	28	23	9	41	93	32	33
25	11	12	12	11	7	4	2	3	20.7	43	56	52	43	17	9	5	7	29	28
26	4	6	5	6	8	8	9	12	19.3	8	15	12	16	26	25	32	52	23	27
27	14	11	12	9	9	6	14	14	29.7	72	50	53	32	28	14	76	84	51	46
28	12	12	10	12	8	11	8	11	28.0	57	51	37	54	24	45	25	47	43	41
29	10	6	7	11	7	10	9	11	23.7	39	16	20	44	18	34	27	45	30	42
30	12	16	14	11	9	7	9	12	30.0	52	109	73	48	28	20	27	53	51	43
																		32.1	

JULY 1982

	3Km								ΣKm	am							Am	Am2
1	11	9	12	8	8	6	9	11	24.7	50	31	52	25	25	15	30	42	34	31
2	7	8	9	7	7	5	7	6	18.7	19	23	30	18	18	13	19	16	20	20
3	6	6	4	6	4	5	3	3	12.3	15	15	10	14	10	11	6	6	11	11
4	2	2	0	2	1	0	0	1	2.7	5	5	1	4	2	1	1	2	3	4
5	1	1	1	3	6	4	3	3	7.3	3	2	3	6	15	8	7	7	6	8
6	8	4	5	9	7	11	9	8	20.3	23	9	12	28	17	45	30	23	23	24
7	11	11	10	9	9	12	10	6	26.0	46	48	37	31	28	54	38	14	37	33
8	6	11	9	9	8	10	6	9	22.7	15	41	28	32	22	36	16	31	28	28
9	9	7	8	7	5	5	6	6	17.7	33	19	24	18	11	13	14	15	18	22
10	9	9	8	8	9	6	6	3	19.3	31	27	21	21	29	15	15	7	21	22
11	7	7	6	14	14	12	10	11	27.0	19	20	16	81	71	55	40	41	43	32
12	8	9	5	11	14	14	11	11	27.7	22	31	12	42	79	81	44	45	45	53
13	12	14	14	13	10	23	24	26	45.3	60	79	79	67	34	334	431	543	203	185
14	26	20	18	18	14	16	15	16	47.7	544	214	170	162	73	109	98	113	185	193
15	14	13	12	13	12	10	11	11	32.0	71	63	52	70	52	37	44	45	54	65
16	10	9	11	15	9	15	9	17	31.7	36	33	44	96	28	90	31	132	61	58
17	16	11	9	13	9	2	3	9	24.0	118	49	30	62	32	5	6	33	42	48
18	12	9	9	11	12	9	9	7	26.0	53	28	30	43	56	27	29	19	36	31
19	12	7	8	10	13	11	7	13	27.0	51	19	25	38	64	41	19	64	40	42
20	14	13	13	8	4	2	3	5	20.7	73	62	64	26	10	4	7	13	32	31
21	5	5	5	4	5	7	8	10	16.3	13	13	13	8	13	20	26	34	18	17
22	10	5	8	6	11	9	6	5	20.0	37	12	25	16	48	33	15	12	25	24
23	9	6	6	8	9	7	8	7	20.0	32	16	14	24	31	19	21	20	22	32
24	9	13	14	11	11	16	14	11	33.0	32	68	74	48	44	111	81	48	63	50
25	12	14	11	9	8	8	9	10	27.0	51	78	49	32	26	21	32	37	41	50
26	12	12	9	11	9	10	9	10	27.3	51	54	32	49	31	35	28	39	40	41
27	10	13	14	8	7	11	8	9	26.7	38	68	84	23	19	42	21	33	41	39
28	11	9	11	11	8	9	11	8	26.0	41	29	48	45	26	33	41	26	36	37
29	12	7	12	12	14	10	8	7	27.3	60	18	58	52	75	40	22	19	43	37
30	7	6	12	10	9	13	9	11	25.7	17	15	56	37	29	67	33	43	37	46
31	10	14	15	14	8	9	7	9	28.7	38	79	91	77	25	29	18	28	48	39
																		43.7	

AUG. 1982

	3Km								ΣKm	am							Am	Am2
1	7	7	4	8	9	7	8	9	19.7	17	20	10	21	28	17	26	27	21	29
2	12	9	8	14	12	13	14	14	32.0	53	32	23	84	60	66	76	83	60	48
3	11	12	10	12	11	10	10	10	28.7	47	57	39	51	48	36	40	38	45	46
4	8	8	7	10	9	8	9	7	22.0	24	21	18	36	31	26	29	20	26	31
5	8	8	11	9	8	11	8	8	23.7	22	23	49	30	24	44	22	25	30	29
6	9	8	8	11	10	8	13	13	26.7	32	22	21	44	36	25	63	61	38	67
7	15	19	19	18	17	16	9	4	39.0	99	179	196	172	135	120	32	8	118	73
8	3	3	5	5	6	5	5	5	12.3	7	7	12	13	14	12	12	11	11	32
9	5	5	12	12	5	9	11	11	23.3	11	13	52	57	12	33	48	48	34	33
10	12	10	13	11	9	11	9	10	28.3	55	39	62	45	28	44	28	34	42	38
11	10	8	8	11	11	13	12	6	26.3	37	21	23	45	43	69	54	15	38	37
12	8	9	10	12	12	9	7	8	25.0	23	32	38	58	57	28	18	23	35	34
13	6	8	9	8	8	5	5	6	18.3	16	21	28	23	23	13	13	16	19	21
14	5	5	5	6	4	6	6	4	13.7	13	12	12	14	8	16	15	9	12	12
15	5	2	0	1	2	2	2	4	6.0	12	4	1	3	5	4	4	9	5	8
16	3	5	4	1	3	6	5	8	11.7	6	13	8	3	6	14	12	23	11	14
17	8	12	9	5	5	2	10	11	20.7	23	55	33	11	12	5	39	50	29	24
18	9	10	8	4	8	8	9	9	21.7	33	37	24	10	21	25	29	31	26	24
19	7	8	7	6	4	5	9	7	17.7	17	25	17	16	10	12	28	20	18	20
20	9	6	4	6	9	7	8	9	19.3	28	16	9	14	32	19	25	31	22	23
21	11	11	6	6	8	8	7	6	21.0	48	41	16	15	23	26	18	15	25	26
22	11	7	7	9	11	11	13	11	26.7	42	17	20	31	44	46	63	47	39	31
23	9	6	9	7	9	11	9	11	23.7	30	16	32	18	27	44	31	46	31	38
24	11	11	11	8	9	9	8	6	24.3	44	49	49	24	32	30	25	14	33	36
25	9	10	12	11	8	8	8	11	25.7	32	34	57	41	25	25	21	50	36	32
26	9	9	10	8	13	9	8	10	25.3	29	31	36	24	69	27	26	37	35	30
27	9	7	6	7	8	7	6	6	18.7	29	17	16	19	21	17	14	14	18	22
28	5	2	3	7	5	8	9	11	16.7	11	5	6	19	13	26	31	49	20	29
29	9	11	15	14	14	11	10	10	31.3	30	45	93	71	71	42	34	35	53	46
30	9	11	13	11	11	10	9	10	28.0	30	46	67	45	44	38	33	38	43	40
31	9	8	10	6	10	8	8	9	22.7	33	25	39	15	36	26	22	28	28	27
																		32.3	

SEP. 1982

	3Km								ΣKm	am								Am	Am2
1	8	5	4	7	8	7	5	5	16.3	21	11	10	17	24	20	11	12	16	21
2	7	7	9	9	8	6	8	10	21.3	20	20	30	32	21	14	22	36	24	25
3	7	9	10	12	10	8	8	8	24.0	20	31	40	53	38	22	22	21	31	32
4	8	10	11	13	12	12	9	13	29.3	22	40	48	64	59	57	32	68	49	43
5	9	12	13	11	13	11	7	16	30.7	33	52	64	49	64	41	17	119	55	116
6	20	22	21	23	24	20	18	16	54.7	234	304	281	374	423	232	163	119	266	177
7	17	17	12	17	15	16	18	11	41.0	142	132	57	130	100	112	150	42	108	118
8	6	8	6	8	5	7	8	10	19.3	14	26	16	23	11	17	23	37	21	57
9	17	12	12	14	11	12	14	10	34.0	146	53	60	80	47	55	72	36	69	44
10	9	8	3	4	4	8	5	6	15.7	27	22	7	8	9	23	13	14	15	26
11	8	7	6	9	9	9	7	8	21.0	21	20	16	27	29	32	19	22	23	20
12	8	8	6	6	2	4	9	11	18.0	21	25	16	16	5	10	33	46	22	23
13	11	7	4	8	7	10	3	8	19.3	47	18	10	26	20	34	7	23	23	23
14	5	11	7	4	5	7	13	6	19.3	11	47	17	10	11	17	61	14	24	22
15	2	10	8	6	6	6	7	9	18.0	4	35	21	14	14	15	19	31	19	20
16	8	4	8	6	8	7	9	8	19.3	23	10	23	15	21	18	31	25	21	22
17	4	5	9	13	4	6	6	4	17.0	10	11	31	62	9	16	14	9	20	24
18	11	10	9	7	10	9	15	14	28.3	46	37	30	18	37	33	98	73	47	35
19	9	11	9	11	11	12	11	10	28.0	31	42	31	41	47	52	47	34	41	46
20	8	9	13	11	11	9	7	12	26.7	21	30	69	48	41	31	17	59	40	54
21	11	18	14	14	15	12	12	18	38.0	49	157	84	83	87	55	60	166	93	119
22	19	21	22	21	17	14	11	14	46.3	181	253	322	262	142	86	47	72	171	119
23	11	11	10	11	9	10	11	9	27.3	42	47	39	45	27	35	45	32	39	51
24	9	10	11	11	11	9	5	8	24.7	29	40	49	45	49	30	13	22	35	28
25	4	4	3	5	7	9	12	8	17.3	10	10	6	13	20	33	52	25	21	29
26	7	10	11	15	20	19	18	16	38.7	17	34	41	96	201	179	163	110	105	79
27	18	11	11	10	9	13	10	10	30.7	154	49	43	39	33	65	35	38	57	76
28	11	10	6	5	3	4	5	10	18.0	42	36	16	13	6	8	12	35	21	26
29	6	7	8	7	8	4	6	3	16.3	15	17	23	20	22	10	16	6	16	16
30	1	3	8	9	9	8	9	9	18.7	3	7	26	27	32	25	29	33	23	20
																		50.5	

OCT. 1982

	3Km								ΣKm	am								Am	Am2
1	4	7	8	9	9	12	12	14	25.0	10	20	23	29	28	59	59	82	39	37
2	12	8	10	12	12	9	9	7	26.3	51	24	37	54	55	31	27	17	37	37
3	8	5	7	6	5	5	6	7	16.3	21	13	17	14	12	13	15	20	16	21
4	4	7	9	9	9	6	5	2	17.0	9	17	29	32	30	16	13	5	19	18
5	7	8	7	5	4	2	5	4	14.0	19	25	17	11	8	5	13	10	14	17
6	7	7	8	9	10	10	12	11	24.7	19	20	25	30	35	35	60	48	34	34
7	14	11	13	11	12	12	7	6	28.7	73	44	63	49	51	51	17	16	46	42
8	10	11	9	8	9	11	11	9	26.0	36	45	30	22	29	41	42	32	35	27
9	4	3	0	1	2	4	2	7	7.7	8	7	1	3	5	10	5	20	7	18
10	8	5	4	9	8	7	8	11	20.0	24	11	10	33	21	19	22	41	23	20
11	8	8	9	7	9	6	9	8	21.3	22	26	29	18	27	14	33	25	24	24
12	7	7	6	9	4	7	11	10	20.3	18	17	16	31	8	20	50	40	25	27
13	11	11	8	9	11	15	11	15	30.3	41	47	21	27	42	87	43	87	49	48
14	14	13	11	12	12	9	8	8	29.0	79	62	48	60	59	31	23	23	48	44
15	4	5	5	8	7	4	8	5	15.3	8	12	11	21	17	9	23	12	14	20
16	5	5	8	7	10	10	9	11	21.7	12	13	21	17	37	40	30	43	27	25
17	10	11	7	9	9	7	10	11	24.7	39	44	19	27	32	18	38	49	33	34
18	10	10	9	9	12	12	9	8	26.3	34	34	29	27	53	54	30	24	36	31
19	8	7	8	5	8	8	11	11	22.0	23	17	25	11	23	24	41	50	27	32
20	10	9	10	8	9	6	4	4	20.0	34	31	40	26	29	14	8	10	24	25
21	8	6	6	4	3	8	9	5	16.3	24	16	16	9	7	26	31	13	18	16
22	8	6	2	2	5	4	2	3	10.7	22	15	5	4	11	8	5	6	10	11
23	2	2	5	4	7	7	6	4	12.3	4	5	11	8	17	18	15	8	11	9
24	2	2	2	5	3	7	5	3	9.7	5	5	4	11	7	17	13	7	9	13
25	4	9	8	7	11	8	9	10	22.0	9	30	23	19	49	24	33	34	28	35
26	15	14	12	14	10	10	5	4	28.0	95	71	55	77	36	35	13	10	49	39
27	4	8	8	9	11	10	9	9	22.7	9	23	21	31	43	34	32	28	28	24
28	5	2	5	10	8	5	10	9	18.0	11	5	11	34	21	11	36	29	20	35
29	11	15	12	13	14	12	9	11	32.3	46	92	60	70	79	57	30	50	61	48
30	11	11	10	12	12	12	9	9	28.7	48	41	39	55	56	55	33	33	45	42
31	8	10	8	2	10	11	17	13	26.3	25	40	25	5	39	47	132	69	48	48
																		29.2	

NOV. 1982

	3Km								ΣKm	am							Am	Am2
1	16	8	9	11	13	14	13	9	31.0	119	23	30	41	61	71	66	31	55	52
2	9	7	8	10	11	15	13	13	28.7	29	17	22	39	49	90	67	66	47	49
3	11	9	11	13	11	3	0	1	19.7	42	33	43	65	44	7	1	2	30	35
4	0	3	6	7	9	8	8	5	15.3	1	7	16	20	28	23	24	11	16	15
5	6	3	4	8	10	7	9	3	16.7	15	6	9	21	34	20	30	6	18	20
6	5	6	10	8	7	8	4	3	17.0	13	16	35	22	17	24	8	7	18	16
7	4	4	3	2	3	1	3	4	8.0	9	8	7	4	7	3	6	9	7	10
8	3	4	7	5	6	12	12	7	18.7	7	8	17	12	15	57	58	20	24	19
9	8	8	7	5	6	4	6	7	17.0	26	26	20	13	16	8	15	20	18	23
10	9	6	5	7	9	8	9	9	20.7	28	15	11	20	32	23	31	29	24	25
11	10	10	8	11	10	10	8	9	25.3	40	36	24	44	38	35	22	32	34	31
12	10	8	6	10	9	8	10	8	23.0	38	21	15	38	32	25	35	22	28	32
13	13	8	5	12	6	8	11	6	23.0	64	26	13	52	16	23	46	15	32	29
14	7	5	8	10	10	9	7	8	21.3	17	12	22	38	37	30	19	22	25	23
15	6	5	4	10	8	10	9	8	20.0	15	13	10	35	22	36	30	22	23	23
16	6	7	8	7	3	1	6	9	15.7	14	17	21	19	7	2	16	27	15	16
17	3	3	3	1	2	6	8	9	11.7	7	6	6	3	5	15	25	27	12	14
18	7	8	7	7	11	9	5	8	20.7	19	24	19	18	49	31	12	21	24	19
19	6	6	2	3	6	7	9	9	16.0	15	15	5	7	16	20	27	28	17	18
20	5	4	1	5	4	1	9	8	12.3	11	10	2	11	8	3	27	24	12	21
21	8	11	10	10	10	10	12	13	28.0	26	43	40	37	39	40	53	64	43	42
22	16	14	12	9	5	4	5	1	22.0	106	72	56	30	11	10	12	3	38	34
23	1	3	3	10	11	17	17	17	26.3	3	6	7	34	44	134	143	129	63	44
24	10	9	7	15	22	20	19	18	40.0	39	27	17	90	303	201	190	161	129	118
25	18	14	15	15	15	12	11	10	36.7	148	72	96	97	95	52	41	37	80	104
26	11	11	11	11	11	13	8	12	29.3	41	45	43	42	49	62	22	51	44	43
27	7	8	9	10	11	10	10	7	24.0	17	25	29	38	47	40	38	19	32	41
28	16	9	10	10	9	10	11	10	28.3	119	31	34	40	30	36	49	37	47	39
29	9	7	6	10	12	15	18	13	30.0	32	18	14	34	55	96	151	68	59	46
30	12	9	7	5	11	7	3	2	18.7	54	28	19	11	45	20	7	5	24	36
																		34.6	

DEC. 1982

	3Km								ΣKm	am							Am	Am2
1	3	1	4	1	2	1	3	1	5.3	7	2	9	2	4	2	6	2	4	7
2	0	0	0	3	6	5	2	4	6.7	0	1	0	6	16	13	4	9	6	7
3	5	4	6	7	9	8	7	8	18.0	12	9	14	20	31	26	17	26	19	17
4	10	8	4	3	4	7	8	12	18.7	35	22	10	7	8	17	26	54	22	24
5	10	10	8	2	5	4	6	3	16.0	38	38	26	5	11	8	16	7	19	18
6	4	4	3	3	4	2	1	4	8.3	10	9	7	6	9	5	3	8	7	12
7	1	11	9	7	14	14	17	12	28.3	3	41	29	20	79	75	128	58	54	40
8	11	10	11	12	15	13	14	8	31.3	48	34	43	58	91	67	71	26	55	54
9	7	8	6	9	15	9	8	6	22.7	17	22	16	28	93	30	21	16	30	49
10	7	8	16	17	14	16	13	9	33.3	17	23	109	142	84	105	64	32	72	53
11	9	10	6	7	8	12	12	12	25.3	31	39	16	19	25	57	59	57	38	42
12	8	6	6	10	9	9	6	5	19.7	23	14	16	38	31	29	14	13	22	26
13	3	5	4	5	4	5	6	8	13.3	7	11	9	12	8	12	16	25	13	15
14	5	5	4	5	4	2	9	10	14.7	11	12	10	13	10	5	31	39	16	20
15	10	9	9	10	6	6	4	3	19.0	38	28	30	37	14	14	9	7	22	21
16	5	5	7	9	8	10	10	11	21.7	11	11	20	28	24	38	36	43	26	40
17	9	11	19	17	15	14	15	13	37.7	32	45	174	139	91	72	97	63	89	74
18	13	10	13	18	15	14	12	9	34.7	63	40	64	166	90	80	51	30	73	79
19	14	13	15	16	15	8	9	15	35.0	77	65	99	112	91	26	27	87	73	68
20	14	13	11	13	16	14	15	12	36.0	75	62	47	68	104	83	99	55	74	63
21	9	10	12	12	12	14	14	13	32.0	27	37	56	57	54	86	83	62	58	67
22	16	16	8	7	12	12	6	8	28.3	109	116	25	20	60	59	15	21	53	52
23	6	5	9	13	13	14	12	10	27.3	15	13	29	68	68	78	55	35	45	40
24	11	6	9	9	10	10	9	7	23.7	44	15	31	27	37	39	30	18	30	35
25	7	7	9	7	10	10	7	5	20.7	19	18	29	19	36	40	19	13	24	24
26	7	7	6	8	9	6	5	4	17.3	17	17	16	23	33	16	11	10	18	24
27	7	5	13	10	9	8	8	11	23.7	20	11	67	38	29	22	23	41	31	28
28	9	10	9	10	11	9	12	10	26.7	29	37	27	36	47	31	51	34	37	35
29	10	11	11	10	10	9	9	9	26.3	34	45	46	34	35	30	32	27	35	35
30	8	9	9	9	7	8	9	6	21.7	26	30	27	31	17	22	32	14	25	24
31	8	6	4	5	4	3	2	4	12.0	25	14	8	13	8	7	4	9	11	15
																		35.5	

MONTHLY AND YEARLY **Am** 1959 - 1982

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
1982	20.7	48.3	26.9	31.8	26.0	32.1	43.7	32.3	50.5	29.2	34.6	35.5	34.3

SECTION 3

3.3. Kp INDICES

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- Monthly tables of three-hour indices :
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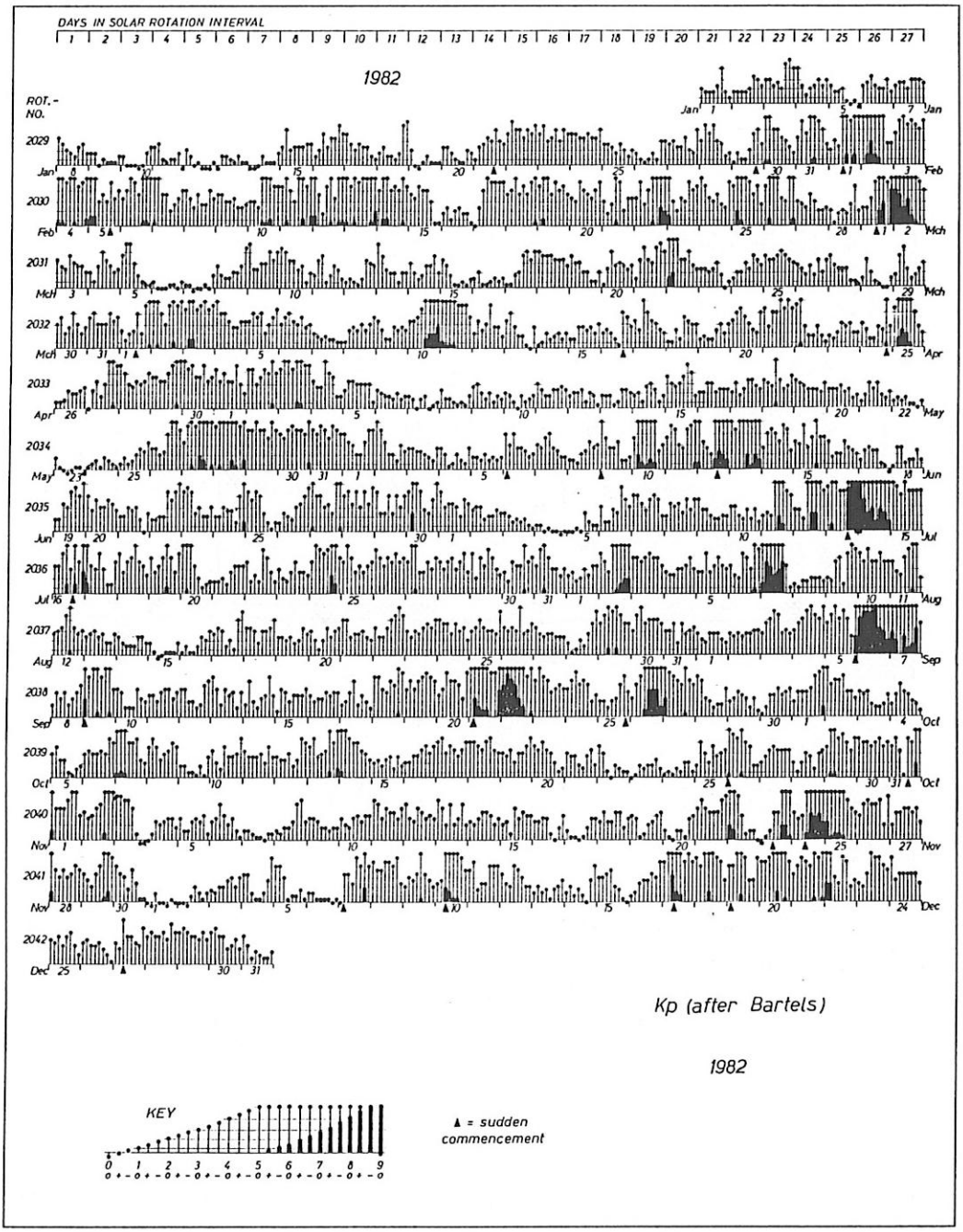
MUSICAL DIAGRAM OF **Kp** 1982



Kp (after Bartels)

1982

Kp INDICES 1982

	Kp	Sum	Jan 1982				ap				Sum	Ap	Cp
1	2o 2- 2- 2- 2+ 4o 2- 1o	16o	7	6	6	6	9	27	6	4	71	9	0.5
2	2- 2- 2- 2- 2o 3+ 3o 2+	17+	6	6	6	6	7	18	15	9	73	9	0.5
3	3o 3o 2+ 3- 2o 4+ 5- 4o	26o	15	15	9	12	7	32	39	27	156	20	1.0
4	4o 2+ 1+ 2o 2+ 3o 2+ 3o	20+	27	9	5	7	9	15	9	15	96	12	0.7
5	2+ 2- 2- 2o 1- 0+ 1- 0o	9+	9	6	6	7	3	2	3	0	36	4	0.2
6	2+ 3- 3+ 2+ 2o 2o 3o 2-	19+	9	12	18	9	7	7	15	6	83	10	0.6
7	2+ 3- 3- 2o 3o 3o 3o 3-	21+	9	12	12	7	15	15	15	12	97	12	0.7
8	3+ 3- 2o 2- 1+ 2+ 3- 2-	18-	18	12	7	6	5	9	12	6	75	9	0.5
9	2- 2- 0+ 1o 1- 1- 1- 1+	8o	6	6	2	4	3	3	3	5	32	4	0.1
10	1+ 0+ 0+ 0+ 0o 0+ 2- 2+	7-	5	2	2	2	0	2	6	9	28	4	0.1
11	2+ 3- 1o 1- 1o 1o 2- 0o	10+	9	12	4	3	4	4	6	0	42	5	0.2
12	2o 1+ 0+ 1- 0o 0o 0o 1-	5o	7	5	2	3	0	0	0	3	20	2	0.0
13	0o 1+ 1+ 1o 1- 1+ 1- 1-	7o	0	5	5	4	3	5	3	3	28	4	0.1
14	0o 0o 0+ 1+ 1- 1- 1- 2-	5+	0	0	2	5	3	3	3	6	22	3	0.0
15	2+ 4o 2o 2+ 2+ 2+ 3- 3-	21-	9	27	7	9	9	9	12	12	94	12	0.7
16	1+ 2o 4- 2+ 3+ 3+ 4+ 4-	24o	5	7	22	9	18	18	32	22	133	17	0.9
17	4- 3- 2o 3- 2+ 2+ 1+ 1o	18o	22	12	7	12	9	9	5	4	80	10	0.6
18	2- 2+ 1+ 1+ 1o 2- 4+ 5-	18+	6	9	5	5	4	6	32	39	106	13	0.8
19	2o 0+ 0o 1- 1+ 1- 1- 1-	6+	7	2	0	3	5	3	3	3	26	3	0.1
20	2+ 2+ 2- 1o 1- 1- 2o 2-	12+	9	9	6	4	3	3	7	6	47	6	0.3
21	1o 2+ 3- 3+ 3o 4o 3o 3-	22o	4	9	12	18	15	27	15	12	112	14	0.8
22	4- 5- 4o 4o 3+ 4o 4- 4+	32-	22	39	27	27	18	27	22	32	214	27	1.2
23	4- 4+ 3o 3+ 4o 3o 4o 4-	29o	22	32	15	18	27	15	27	22	178	22	1.1
24	4- 4- 3+ 3+ 4- 3+ 3+ 4o	28+	22	22	18	18	22	18	18	27	165	21	1.1
25	3- 3- 2+ 2- 3- 2o 1+ 2o	17+	12	12	9	6	12	7	5	7	70	9	0.5
26	2- 1o 1- 1o 2- 1o 3o 3o	13o	6	4	3	4	6	4	15	15	57	7	0.4
27	3- 3o 2+ 2+ 3+ 2o 2- 4o	21+	12	15	9	9	18	7	6	27	103	13	0.7
28	3o 4+ 4- 4+ 3o 3- 1+ 2-	24o	15	32	22	32	15	12	5	6	139	17	0.9
29	1- 2- 1o 1o 2o 4- 4o 3-	17-	3	6	4	4	7	22	27	12	85	11	0.6
30	5+ 5+ 4o 4o 3+ 3o 2+ 2-	29o	56	56	27	27	18	15	9	6	214	27	1.2
31	3+ 5- 4- 5o 6- 5- 4o 3-	34-	18	39	22	48	67	39	27	12	272	34	1.3

	Kp	Sum	Feb 1982				ap				Sum	Ap	Cp
1	2o 3o 2+ 5o 6o 5- 6o 5o	34o	7	15	9	48	80	39	80	48	326	41	1.5
2	5o 6o 7o 6o 6- 5o 3- 3-	40o	48	80	132	80	67	48	12	12	479	60	1.7
3	4- 5- 5o 4+ 5- 4+ 4o 5-	35+	22	39	48	32	39	32	27	39	278	35	1.4
4	5+ 5+ 5- 5o 5+ 4+ 5- 6-	40+	56	56	39	48	56	32	39	67	393	49	1.6
5	6o 6o 3o 4- 3o 5- 3+ 4o	34-	80	80	15	22	15	39	18	27	296	37	1.4
6	3+ 4o 5o 5- 4- 5+ 5+ 5o	36+	18	27	48	39	22	56	56	48	314	39	1.4
7	5+ 5o 4- 4- 2o 3- 3+ 4o	30-	56	48	22	22	7	12	18	27	212	26	1.2
8	4o 3+ 2+ 4- 3- 3- 4o 3+	26o	27	18	9	22	12	12	27	18	145	18	1.0
9	4- 4- 3o 3o 3+ 2+ 2+ 3-	24o	22	22	15	15	18	9	9	12	122	15	0.9
10	3o 3o 2+ 5+ 5+ 6- 4+ 4+	33+	15	15	9	56	56	67	32	32	282	35	1.4
11	4+ 5+ 4o 3o 5o 6- 4+ 6o	38-	32	56	27	15	48	67	32	80	357	45	1.5
12	6o 4- 2- 4+ 5+ 3+ 5+ 5+	35o	80	22	6	32	56	18	56	56	326	41	1.5
13	5+ 4+ 5+ 5- 5o 5o 5+ 6+	41+	56	32	56	39	48	48	56	94	429	54	1.6
14	4o 6- 6- 4o 4+ 4o 5+ 4+	37+	27	67	67	27	32	27	56	32	335	42	1.5
15	4- 3+ 4+ 4o 4o 3o 1- 1-	24-	22	18	32	27	27	15	3	3	147	18	1.0
16	2- 2+ 1o 2o 2+ 2- 2- 1-	13+	6	9	4	7	9	6	6	3	50	6	0.3
17	0+ 2+ 4o 5o 5- 5- 5- 5-	30+	2	9	27	48	39	39	39	39	242	30	1.3
18	4- 4o 5o 4- 4+ 4- 5- 5+	34+	22	27	48	22	32	22	39	56	268	34	1.3
19	4+ 6- 5o 4- 5- 4o 4+ 4-	35+	32	67	48	22	39	27	32	22	289	36	1.4
20	3+ 3o 5- 4o 4- 3+ 4o 5-	31-	18	15	39	27	22	18	27	39	205	26	1.2
21	3o 2- 3- 5+ 5- 2o 3+ 3+	26o	15	6	12	56	39	7	18	18	171	21	1.1
22	3+ 5- 3- 4o 5+ 5o 7- 6+	38o	18	39	12	27	56	48	111	94	405	51	1.6
23	6o 3o 2o 3+ 3o 5- 4o 4+	30+	80	15	7	18	15	39	27	32	233	29	1.3
24	5o 4+ 3+ 3o 4- 3- 2+ 5-	29o	48	32	18	15	22	12	9	39	195	24	1.2
25	4+ 6+ 5+ 5o 5- 4- 4+ 3-	36+	32	94	56	48	39	22	32	12	335	42	1.5
26	4+ 6- 5o 5o 3+ 3o 5o 6-	37o	32	67	48	48	18	15	48	67	343	43	1.5
27	3o 3- 2+ 4- 3o 2o 2o 2+	21o	15	12	9	22	15	7	7	9	96	12	0.7
28	2o 1- 2- 2o 2- 3- 4+ 2o	17o	7	3	6	7	6	12	32	7	80	10	0.6

	Kp	Sum	Mar		1982		ap				Sum	Ap	Cp
1	2+ 2+ 3+ 5- 6+ 7o 5- 8o	39-	9	9	18	39	94	132	39	207	547	68	1.7
2	8o 8- 7- 7+ 6o 5+ 5- 4o	50-	207	179	111	154	80	56	39	27	853	107	1.9
3	3+ 3- 2+ 4- 3o 3- 3- 2o	22+	18	12	9	22	15	12	12	7	107	13	0.8
4	2o 1o 3- 4o 3+ 3- 2o 2+	20o	7	4	12	27	18	12	7	9	96	12	0.7
5	4- 5- 5- 3o 2- 1o 1- 1-	20o	22	39	39	15	6	4	3	3	131	16	0.9
6	1o 0+ 0+ 0+ 1- 1- 0+ 1o	5-	4	2	2	2	3	3	2	4	22	3	0.0
7	1- 1- 0o 0+ 0+ 1- 0+ 2-	5-	3	3	0	2	2	3	2	6	21	3	0.0
8	3- 2- 1+ 1+ 2o 2o 3- 4+	18o	12	6	5	5	7	7	12	32	86	11	0.6
9	5- 2+ 2+ 3o 3o 4o 3+ 4o	27-	39	9	9	15	15	27	18	27	159	20	1.0
10	4+ 4o 3+ 3+ 2+ 3- 1o 2o	23o	32	27	18	18	9	12	4	7	127	16	0.9
11	2- 3+ 4- 1o 2- 3- 2+ 1+	18-	6	18	22	4	6	12	9	5	82	10	0.6
12	1o 1+ 1o 1- 1+ 3+ 3o 3-	14+	4	5	4	3	5	18	15	12	66	8	0.4
13	5- 4- 2+ 2o 2o 1o 2o 2o	20-	39	22	9	7	7	4	7	7	102	13	0.7
14	3o 2o 1+ 2- 3- 3- 4- 2o	19o	15	7	5	6	12	12	22	7	86	11	0.6
15	3+ 3- 2- 1- 1- 1o 1- 1+	12o	18	12	6	3	3	4	3	5	54	7	0.3
16	1+ 2o 1- 1- 1o 1+ 1o 1+	9+	5	7	3	3	4	5	4	5	36	4	0.2
17	1- 1- 2- 2o 4- 4o 3+ 4o	20o	3	3	6	7	22	27	18	27	113	14	0.8
18	4o 4- 4- 4- 3+ 3+ 3+ 3-	28-	27	22	22	22	18	18	18	12	159	20	1.0
19	4- 3o 3o 2o 2o 1o 1o 2o	18-	22	15	15	7	7	4	4	7	81	10	0.6
20	1- 2+ 4o 3- 3o 3- 2+ 3-	20+	3	9	27	12	15	12	9	12	99	12	0.7
21	1+ 3+ 4+ 3+ 3o 4+ 5- 4o	28+	5	18	32	18	15	32	39	27	186	23	1.1
22	6o 6+ 5o 3+ 3+ 4o 3- 2+	33o	80	94	48	18	18	27	12	9	306	38	1.4
23	2+ 2+ 2o 2+ 3o 2- 0+ 1o	15o	9	9	7	9	15	6	2	4	61	8	0.4
24	1+ 2o 2o 3o 2+ 4- 3+ 3-	20+	5	7	7	15	9	22	18	12	95	12	0.7
25	4- 3+ 3+ 4- 4o 4- 3+ 3o	28o	22	18	18	22	27	22	18	15	162	20	1.0
26	3- 2+ 2- 3- 2- 3+ 2o 3+	20-	12	9	6	12	6	18	7	18	88	11	0.6
27	4- 3- 2+ 2+ 2+ 1o 1o 1-	16o	22	12	9	9	9	4	4	3	72	9	0.5
28	1+ 3+ 2o 1o 1- 0+ 0+ 1+	10+	5	18	7	4	3	2	2	5	46	6	0.3
29	2- 4- 4+ 2+ 1+ 2- 2+ 3o	20+	6	22	32	9	5	6	9	15	104	13	0.7
30	3o 4- 2o 3- 4o 3o 2o 3-	23o	15	22	7	12	27	15	7	12	117	15	0.8
31	4- 4o 3o 3o 3o 4o 3+ 4-	28-	22	27	15	15	15	27	18	22	161	20	1.0

	Kp	Sum	Apr		1982		ap				Sum	Ap	Cp
1	2+ 1+ 2o 2+ 4o 2o 5- 5+	24o	9	5	7	9	27	7	39	56	159	20	1.0
2	5o 5+ 4o 3o 5- 6- 5- 5o	37+	48	56	27	15	39	67	39	48	339	42	1.5
3	4+ 6o 6o 4+ 5- 5o 4+ 5-	39+	32	80	80	32	39	48	32	39	382	48	1.6
4	5o 4o 4o 3+ 3- 3- 3+ 3+	28+	48	27	27	18	12	12	18	18	180	22	1.1
5	3+ 4o 4- 4o 2o 3o 4- 4+	28o	18	27	22	27	7	15	22	32	170	21	1.1
6	3o 4- 4o 3+ 3o 4- 3- 3o	26+	15	22	27	18	15	22	12	15	146	18	1.0
7	2o 2- 1+ 2- 1+ 1+ 1o 1o	11+	7	6	5	6	5	5	4	4	42	5	0.2
8	1o 2+ 3- 2+ 3o 2+ 3o 4-	20+	4	9	12	9	15	9	15	22	95	12	0.7
9	3+ 2+ 1+ 1+ 3- 2+ 3- 2+	18+	18	9	5	5	12	9	12	9	79	10	0.6
10	3+ 3+ 4- 4+ 6o 6+ 6+ 7o	40+	18	18	22	32	80	94	94	132	490	61	1.7
11	6- 5+ 5+ 5+ 5- 5- 5- 4-	39+	67	56	56	56	39	39	39	22	374	47	1.5
12	2o 3+ 2+ 3o 5- 3- 3- 2-	22+	7	18	9	15	39	12	12	6	118	15	0.8
13	3+ 4o 3- 2- 2- 1- 0+ 3-	17o	18	27	12	6	6	3	2	12	86	11	0.6
14	1- 1o 2o 1+ 2- 2o 1+ 2o	12o	3	4	7	5	6	7	5	7	44	6	0.2
15	1+ 1+ 3- 3- 2+ 3- 2o 3o	18o	5	5	12	12	9	12	7	15	77	10	0.5
16	2o 2+ 2o 1+ 1- 4o 4- 3-	19-	7	9	7	5	3	27	22	12	92	12	0.7
17	3+ 2+ 5o 4o 3+ 3o 2+ 2o	25+	18	9	48	27	18	15	9	7	151	19	1.0
18	1o 1o 2+ 1+ 4- 3+ 3o 3o	19-	4	4	9	5	22	18	15	15	92	12	0.7
19	1+ 2- 1+ 1+ 2+ 3o 2o 3o	16o	5	6	5	5	9	15	7	15	67	8	0.5
20	3+ 4o 4+ 4- 3o 2+ 2o 4o	27-	18	27	32	22	15	9	7	27	157	20	1.0
21	4+ 3- 4o 4o 5o 4+ 5o 4+	34-	32	12	27	27	48	32	48	32	258	32	1.3
22	5- 5+ 3- 2- 2- 3- 2- 1o	21+	39	56	12	6	6	12	6	4	141	18	1.0
23	2- 1+ 2o 3o 3- 3o 2o 2o	18-	6	5	7	15	12	15	7	7	74	9	0.5
24	3o 2+ 1+ 1+ 3- 2+ 5+ 3-	21o	15	9	5	5	12	9	56	12	123	15	0.9
25	4+ 6o 7- 6+ 5+ 4o 3- 2o	37+	32	80	111	94	56	27	12	7	419	52	1.6
26	1o 1o 1+ 2+ 2o 2o 2+ 3-	15-	4	4	5	9	7	7	9	12	57	7	0.4
27	0+ 2+ 3+ 2- 3o 5o 5+ 5-	26-	2	9	18	6	15	48	56	39	193	24	1.2
28	5- 4o 3o 3- 3+ 3o 3+ 4o	28o	39	27	15	12	18	15	18	27	171	21	1.1
29	4- 4- 3+ 3+ 4o 5- 5+ 5o	33o	22	22	18	18	27	39	56	48	250	31	1.3
30	5o 4+ 5- 4- 4- 5- 3+ 4-	33o	48	32	39	22	22	39	18	22	242	30	1.3

	Kp	Sum	May		1982		ap				Sum	Ap	Cp
1	4+ 3+ 4o 3+ 3+ 5- 3o 2o	28o	32	18	27	18	18	39	15	7	174	22	1.1
2	4+ 4+ 3o 4- 4+ 4o 5+ 4o	33o	32	32	15	22	32	27	56	27	243	30	1.3
3	4+ 5o 5o 4+ 6- 5+ 5- 5-	39o	32	48	48	32	67	56	39	39	361	45	1.5
4	3+ 3- 3- 5o 4o 4- 2- 2-	25-	18	12	12	48	27	22	6	6	151	19	1.0
5	2+ 3+ 3+ 3o 3o 3o 3o 1o	22o	9	18	18	15	15	15	15	4	109	14	0.8
6	2+ 2o 2- 2- 1+ 2o 1+ 2-	14o	9	7	6	6	5	7	5	6	51	6	0.3
7	2- 1+ 0+ 1+ 2- 0+ 1- 1o	8+	6	5	2	5	6	2	3	4	33	4	0.1
8	2+ 1+ 1+ 1o 1- 1o 1- 2-	10o	9	5	5	4	3	4	3	6	39	5	0.2
9	3- 3o 2o 1+ 2o 1o 2- 1+	15o	12	15	7	5	7	4	6	5	61	8	0.4
10	2o 2- 1o 0+ 2- 1o 1+ 2-	11-	7	6	4	2	6	4	5	6	40	5	0.2
11	3o 2+ 2- 2- 2+ 2+ 3- 2+	18+	15	9	6	6	9	9	12	9	75	9	0.5
12	2- 2o 2o 2+ 1o 2o 2- 1-	13+	6	7	7	9	4	7	6	3	49	6	0.3
13	2- 2- 2- 1- 1o 2+ 2+ 2o	13+	6	6	6	3	4	9	9	7	50	6	0.3
14	2- 2o 1o 3- 3o 2+ 1o 2-	15+	6	7	4	12	15	9	4	6	63	8	0.4
15	4- 3o 3- 3o 4- 5- 4o 2-	26+	22	15	12	15	22	39	27	6	158	20	1.0
16	2o 2o 3o 3o 2o 2+ 2+ 2+	19o	7	7	15	15	7	9	9	9	78	10	0.5
17	2o 3o 2- 2+ 3+ 3+ 3- 2+	21-	7	15	6	9	18	18	12	9	94	12	0.7
18	3+ 3o 3- 5+ 3+ 2+ 3- 4-	26+	18	15	12	56	18	9	12	22	162	20	1.0
19	3+ 3o 3- 2+ 2+ 2+ 2o 3o	21o	18	15	12	9	9	9	7	15	94	12	0.7
20	2+ 2+ 2+ 3- 2o 2+ 1+ 2-	17o	9	9	9	12	7	9	5	6	66	8	0.4
21	1o 2- 3o 2+ 3o 2- 1+ 2o	16o	4	6	15	9	15	6	5	7	67	8	0.5
22	1o 1+ 1o 1+ 1- 1- 0+ 1o	7+	4	5	4	5	3	3	2	4	30	4	0.1
23	2- 1- 0+ 0o 0+ 1- 1- 0o	4+	6	3	2	0	2	3	3	0	19	2	0.0
24	1- 1o 1+ 1- 2- 1+ 1o 1-	8+	3	4	5	3	6	5	4	3	33	4	0.1
25	1o 2- 1o 1+ 2o 3- 2+ 3+	15+	4	6	4	5	7	12	9	18	65	8	0.4
26	3- 3- 2o 2+ 4o 5o 5o 4+	28o	12	12	7	9	27	48	48	32	195	24	1.2
27	3+ 5- 5+ 5- 6+ 6o 5o 5+	41-	18	39	56	39	94	80	48	56	430	54	1.6
28	5- 5+ 5o 5o 6o 5+ 5- 6o	42o	39	56	48	48	80	56	39	80	446	56	1.6
29	4+ 4+ 5o 4+ 4+ 4- 5o 4+	35+	32	32	48	32	32	22	48	32	278	35	1.4
30	4o 4- 4+ 5- 4+ 4+ 4o 6-	35o	27	22	32	39	32	32	27	67	278	35	1.4
31	4+ 4o 5- 4+ 4- 5- 4+ 4o	34o	32	27	39	32	22	39	32	27	250	31	1.3

	Kp	Sum	Jun		1982		ap				Sum	Ap	Cp
1	4o 3+ 3o 2o 2o 3+ 4+ 4+	26+	27	18	15	7	7	18	32	32	156	20	1.0
2	5o 4+ 3+ 2o 2o 1+ 3o 2+	23+	48	32	18	7	7	5	15	9	141	18	1.0
3	3- 3- 2+ 2+ 2o 2- 1+ 3-	18-	12	12	9	9	7	6	5	12	72	9	0.5
4	3- 2o 1- 1o 2o 1+ 1o 3-	13+	12	7	3	4	7	5	4	12	54	7	0.3
5	2- 2- 1+ 2o 1+ 2- 1+ 2-	13-	6	6	5	7	5	6	5	6	46	6	0.3
6	4o 3o 4o 3- 3- 2+ 2- 2o	22+	27	15	27	12	12	9	6	7	115	14	0.8
7	3o 3- 4- 4o 3- 2+ 2- 2-	22-	15	12	22	27	12	9	6	6	109	14	0.8
8	1+ 1+ 1o 2o 2+ 3+ 3- 3o	17o	5	5	4	7	9	18	12	15	75	9	0.5
9	5o 4- 3- 3- 3+ 1+ 1+ 2-	22-	48	22	12	12	18	5	5	6	128	16	0.9
10	4- 6+ 6- 5+ 6o 6- 2+ 3o	38o	22	94	67	56	80	67	9	15	410	51	1.6
11	4- 5- 4+ 3o 3- 4+ 5- 6-	33o	22	39	32	15	12	32	39	67	258	32	1.3
12	6- 3+ 3- 2o 6o 7- 6+ 6o	39-	67	18	12	7	80	111	94	80	469	59	1.7
13	5o 4+ 5o 5o 6+ 5+ 6+ 6o	43+	48	32	48	48	94	56	94	80	500	62	1.7
14	3- 4o 4+ 4o 3+ 5- 4+ 2+	30-	12	27	32	27	18	39	32	9	196	24	1.2
15	3+ 3o 5- 3- 4- 5+ 4- 4-	30o	18	15	39	12	22	56	22	22	206	26	1.2
16	3+ 2- 2o 2o 3+ 3- 2+ 2o	19+	18	6	7	7	18	12	9	7	84	10	0.6
17	1+ 2+ 3- 2+ 2+ 1o 1- 0o	13-	5	9	12	9	9	4	3	0	51	6	0.3
18	1- 3- 3- 1o 1+ 1+ 2+ 1+	13+	3	12	12	4	5	5	9	5	55	7	0.3
19	2- 2- 3+ 3o 4+ 5- 4o 5o	28-	6	6	18	15	32	39	27	48	191	24	1.2
20	4o 3- 4- 3o 3o 4- 3+ 3-	26o	27	12	22	15	15	22	18	12	143	18	1.0
21	2o 2o 3o 3- 3o 2- 0+ 2+	17o	7	7	15	12	15	6	2	9	73	9	0.5
22	2- 2- 2o 2o 4+ 4- 4+ 5o	25-	6	6	7	7	32	22	32	48	160	20	1.0
23	4+ 5- 4+ 2+ 3o 2o 2o 3o	26-	32	39	32	9	15	7	7	15	156	20	1.0
24	2o 2o 3o 3- 3- 1+ 4o 6o	24-	7	7	15	12	12	5	27	80	165	21	1.1
25	4+ 4- 4+ 4o 2+ 1+ 1- 1+	22o	32	22	32	27	9	5	3	5	135	17	0.9
26	1+ 2+ 2o 2- 3o 3+ 4o 5-	22+	5	9	7	6	15	18	27	39	126	16	0.9
27	5+ 4o 4o 3o 3+ 2+ 5o 5+	32+	56	27	27	15	18	9	48	56	256	32	1.3
28	4o 4+ 3+ 4+ 3o 4+ 3+ 5-	31+	27	32	18	32	15	32	18	39	213	27	1.2
29	4+ 2+ 2+ 4o 2+ 4o 3o 4o	26+	32	9	9	27	9	27	15	27	155	19	1.0
30	4+ 7- 5o 4+ 3- 2+ 4- 5o	34o	32	111	48	32	12	9	22	48	314	39	1.4

Kp INDICES 1982 (continued)

	Kp	Sum	Jul		1982		ap				Sum	Ap	Cp
1	4+ 3o 3+ 3+ 3o 2o 4- 3+	26o	32	15	18	18	15	7	22	18	145	18	1.0
2	3- 3o 3o 2- 2o 2o 3- 2+	19+	12	15	15	6	7	7	12	9	83	10	0.6
3	2+ 2o 1+ 2- 1+ 2- 1o 1-	12o	9	7	5	6	5	6	4	3	45	6	0.3
4	1o 1o 0+ 1- 0+ 0+ 0o 0+	4o	4	4	2	3	2	2	0	2	19	2	0.0
5	0+ 0+ 1- 0+ 2+ 1+ 1o 1o	7+	2	2	3	2	9	5	4	4	31	4	0.1
6	3o 1+ 1+ 3- 2+ 5- 4- 3o	22o	15	5	5	12	9	39	22	15	122	15	0.9
7	4o 4o 3+ 3- 4- 4o 4- 2o	27+	27	27	18	12	22	27	22	7	162	20	1.0
8	2o 3+ 3o 3+ 2+ 4- 3- 4-	24o	7	18	15	18	9	22	12	22	123	15	0.9
9	4- 3- 3- 2o 2- 2- 2o 2o	18+	22	12	12	7	6	6	7	7	79	10	0.6
10	3o 3o 2o 2- 3- 2- 3- 1+	18o	15	15	7	6	12	6	12	5	78	10	0.5
11	2o 2+ 2o 5o 6+ 6- 4+ 4o	32-	7	9	7	48	94	67	32	27	291	36	1.4
12	3- 3- 2- 5o 7- 7- 5o 4+	35-	12	12	6	48	111	111	48	32	380	48	1.6
13	5- 6- 5o 4+ 4+ 8+ 9- 9o	50o	39	67	48	32	32	236	300	400	1154	144	2.0
14	9o 8- 7- 7o 6o 7o 7- 6o	56o	400	179	111	132	80	132	111	80	1225	153	2.0
15	5o 5- 4o 5o 4+ 4+ 4+ 4+	36o	48	39	27	48	32	32	32	32	290	36	1.4
16	3+ 3+ 4+ 6o 3o 6o 4- 7o	37-	18	18	32	80	15	80	22	132	397	50	1.6
17	6o 3+ 3o 4+ 3o 1+ 1+ 4-	26o	80	18	15	32	15	5	5	22	192	24	1.2
18	4+ 3- 4- 4o 5o 4- 3+ 2+	29o	32	12	22	27	48	22	18	9	190	24	1.1
19	4o 3- 3+ 4o 6- 4o 3- 4+	31-	27	12	18	27	67	27	12	32	222	28	1.2
20	5o 5+ 5o 3+ 2o 1o 1+ 2-	25-	48	56	48	18	7	4	5	6	192	24	1.2
21	2- 2- 2o 1+ 3- 3+ 3+ 3+	19+	6	6	7	5	12	18	18	18	90	11	0.6
22	4- 2- 2+ 2- 5- 4o 3- 2-	22+	22	6	9	6	39	27	12	6	127	16	0.9
23	3o 2o 2- 3- 4- 3- 3- 2+	21-	15	7	6	12	22	12	12	9	95	12	0.7
24	4- 5o 5- 4+ 5- 7- 6o 4o	39o	22	48	39	32	39	111	80	27	398	50	1.6
25	4- 5o 4o 3- 3+ 3- 3+ 4-	28+	22	48	27	12	18	12	18	22	179	22	1.1
26	5- 4o 3+ 4o 4- 4+ 4- 4o	32-	39	27	18	27	22	32	22	27	214	27	1.2
27	4- 5o 5+ 3- 3- 4- 3o 4o	30o	22	48	56	12	12	22	15	27	214	27	1.2
28	4- 3o 4- 4o 3o 4- 4+ 3-	28o	22	15	22	27	15	22	32	12	167	21	1.1
29	4+ 2o 4o 3+ 5- 4o 3o 2+	28-	32	7	27	18	39	27	15	9	174	22	1.1
30	3- 2- 4- 3+ 3+ 5+ 4- 4o	28-	12	6	22	18	18	56	22	27	181	23	1.1
31	3+ 5- 5+ 4o 3o 3o 2+ 3o	29-	18	39	56	27	15	15	9	15	194	24	1.2

	Kp	Sum	Aug		1982		ap				Sum	Ap	Cp
1	2+ 3- 2- 2o 3o 2+ 3+ 3+	21-	9	12	6	7	15	9	18	18	94	12	0.7
2	4+ 4- 3- 5o 5+ 6o 6+ 6+	40-	32	22	12	48	56	80	94	94	438	55	1.6
3	4o 4o 4- 4o 4+ 4o 4o 3+	31+	27	27	22	27	32	27	27	18	207	26	1.2
4	3- 2+ 2+ 3o 3o 3+ 4o 3o	24-	12	9	9	15	15	18	27	15	120	15	0.8
5	3- 3- 4+ 3- 3+ 4o 3+ 3o	26o	12	12	32	12	18	27	18	15	146	18	1.0
6	3+ 2+ 2o 4+ 4o 3o 5+ 5-	29o	18	9	7	32	27	15	56	39	203	25	1.2
7	6o 8- 7+ 7- 7o 8- 3+ 1o	47-	80	179	154	111	132	179	18	4	857	107	1.9
8	1+ 1o 2- 2- 2o 2o 2o 2-	13+	5	4	6	6	7	7	7	6	48	6	0.3
9	2o 2- 4- 4o 1+ 4+ 5o 5-	27-	7	6	22	27	5	32	48	39	186	23	1.1
10	4+ 4- 5- 4- 4- 4+ 4- 4-	32-	32	22	39	22	22	32	22	22	213	27	1.2
11	4- 3- 2+ 4o 5- 5+ 5o 2o	30-	22	12	9	27	39	56	48	7	220	28	1.2
12	3- 3o 3+ 4+ 5+ 3+ 3- 3o	28-	12	15	18	32	56	18	12	15	178	22	1.1
13	2+ 3- 3o 2+ 3- 2- 2- 3-	19o	9	12	15	9	12	6	6	12	81	10	0.6
14	2+ 2- 1+ 1+ 1+ 2+ 2+ 2-	14+	9	6	5	5	5	9	9	6	54	7	0.3
15	2- 1- 0o 0+ 1- 1- 1- 2-	6+	6	3	0	2	3	3	3	6	26	3	0.1
16	1- 1+ 1- 1- 1+ 2+ 2o 3o	12o	3	5	3	3	5	9	7	15	50	6	0.3
17	3- 3+ 3o 1+ 2o 1o 4o 5-	22o	12	18	15	5	7	4	27	39	127	16	0.9
18	3+ 3+ 3o 2- 3o 3o 3+ 4o	25-	18	18	15	6	15	15	18	27	132	16	0.9
19	2+ 2+ 2o 2+ 2- 2o 3+ 3-	19-	9	9	7	9	6	7	18	12	77	10	0.5
20	3o 2o 1o 2o 3+ 2+ 3o 3+	20o	15	7	4	7	18	9	15	18	93	12	0.7
21	4o 4o 2+ 3- 3- 3o 2+ 2o	23o	27	27	9	12	12	15	9	7	118	15	0.8
22	3+ 2+ 2+ 3+ 4o 4+ 5o 4+	29o	18	9	9	18	27	32	48	32	193	24	1.2
23	3o 2+ 3o 3- 3+ 4- 3+ 4o	25+	15	9	15	12	18	22	18	27	136	17	0.9
24	4o 4- 4- 3- 4- 3o 3+ 2o	26o	27	22	22	12	22	15	18	7	145	18	1.0
25	3o 3+ 4o 3+ 3o 3o 3- 5-	27o	15	18	27	18	15	15	12	39	159	20	1.0
26	3+ 3o 3+ 3o 5o 3- 3o 4-	27o	18	15	18	15	48	12	15	22	163	20	1.0
27	3+ 3- 2+ 3- 3- 2+ 2+ 2+	21-	18	12	9	12	12	9	9	9	90	11	0.6
28	2- 1- 1o 2o 1+ 3- 4- 5-	18-	6	3	4	7	5	12	22	39	98	12	0.7
29	4- 4+ 6- 5- 6- 4+ 4- 4-	36-	22	32	67	39	67	32	22	22	303	38	1.4
30	3o 4+ 5o 4- 4o 4o 4o 4-	32-	15	32	48	22	27	27	27	22	220	28	1.2
31	3o 3o 4- 2- 4- 3- 3o 3+	24o	15	15	22	6	22	12	15	18	125	16	0.9

	Kp	Sum	Sep			1982	ap				Sum	Ap	Cp
1	3- 2o 2- 3-	3- 3- 2o 2-	18o	12	7	6	12	12	12	7	6	74	9	0.5
2	3- 2+ 3- 2+	3- 3- 3o 3o	21+	12	9	12	9	12	12	15	15	96	12	0.7
3	3- 4- 4o 5-	4+ 3- 3o 3-	28-	12	22	27	39	32	12	15	12	171	21	1.1
4	3o 4- 4o 5-	5o 4+ 4o 5o	34-	15	22	27	39	48	32	27	48	258	32	1.3
5	4- 4+ 5o 4o	5- 4o 2+ 7-	35-	22	32	48	27	39	27	9	111	315	39	1.4
6	8o 8+ 8+ 8+	9- 7+ 7o 6+	62+	207	236	236	236	300	154	132	94	1595	199	2.1
7	7o 6+ 5o 7-	6- 6o 7+ 4-	48-	132	94	48	111	67	80	154	22	708	88	1.8
8	2- 3o 2+ 3o	2- 2+ 3o 4-	21-	6	15	9	15	6	9	15	22	97	12	0.7
9	7- 4+ 5o 5+	4+ 5o 5+ 3+	39+	111	32	48	56	32	48	56	18	401	50	1.6
10	3+ 3o 1+ 1+	1+ 3+ 2+ 2o	18o	18	15	5	5	5	18	9	7	82	10	0.6
11	3- 3- 2o 3o	3+ 3+ 2+ 3o	22+	12	12	7	15	18	18	9	15	106	13	0.8
12	3+ 3+ 2o 2o	1+ 2- 4- 4o	21+	18	18	7	7	5	6	22	27	110	14	0.8
13	4+ 3+ 2- 3+	3- 3o 1+ 3o	23-	32	18	6	18	12	15	5	15	121	15	0.9
14	2- 4o 2o 1+	2+ 3- 4+ 3-	21o	6	27	7	5	9	12	32	12	110	14	0.8
15	1o 3+ 3o 2o	3- 3- 3- 3+	21-	4	18	15	7	12	12	12	18	98	12	0.7
16	3- 2o 2+ 2+	3o 3- 3o 3o	21o	12	7	9	9	15	12	15	15	94	12	0.7
17	2- 2o 3o 4o	2- 3- 2o 1+	18+	6	7	15	27	6	12	7	5	85	11	0.6
18	4+ 4+ 3+ 3o	4o 4- 5+ 5-	33-	32	32	18	15	27	22	56	39	241	30	1.3
19	3+ 4o 3+ 4o	4+ 5- 4+ 4o	32o	18	27	18	27	32	39	32	27	220	28	1.2
20	3- 3+ 5- 4o	4o 4- 2+ 5-	29+	12	18	39	27	27	22	9	39	193	24	1.2
21	5o 7- 6o 6-	6- 5- 5- 7+	46-	48	111	80	67	67	39	39	154	605	76	1.8
22	8- 8+ 8o 8-	7- 6o 4+ 5+	54o	179	236	207	179	111	80	32	56	1080	135	1.9
23	4o 5o 4+ 4o	3o 3+ 4- 3+	31-	27	48	32	27	15	18	22	18	207	26	1.2
24	3+ 4o 5- 4-	4o 4- 2o 3-	28o	18	27	39	22	27	22	7	12	174	22	1.1
25	2o 2o 1+ 2o	2+ 4- 4+ 3o	21-	7	7	5	7	9	22	32	15	104	13	0.7
26	2+ 4- 4+ 6-	7+ 7+ 7+ 6o	44o	9	22	32	67	154	154	154	80	672	84	1.8
27	7- 5- 4+ 4o	4- 5+ 4o 4-	36+	111	39	32	27	22	56	27	22	336	42	1.5
28	4+ 4o 2+ 2o	1+ 2- 2- 3+	21-	32	27	9	7	5	6	6	18	110	14	0.8
29	2o 2+ 3o 3-	2+ 1+ 2+ 1o	17o	7	9	15	12	9	5	9	4	70	9	0.5
30	1- 1+ 3- 3-	3+ 3- 3o 3+	20-	3	5	12	12	18	12	15	18	95	12	0.7

	Kp	Sum	Oct			1982	ap				Sum	Ap	Cp
1	2o 3o 3o 3o	3+ 4+ 5- 6o	29+	7	15	15	15	18	32	39	80	221	28	1.2
2	5o 4- 4o 4o	4+ 3o 3o 2+	29+	48	22	27	27	32	15	15	9	195	24	1.2
3	3o 3- 3o 2-	1+ 1+ 2- 3-	17+	15	12	15	6	5	5	6	12	76	10	0.5
4	2- 3- 4- 3o	3- 2o 2- 1o	18+	6	12	22	15	12	7	6	4	84	10	0.6
5	3o 4- 2+ 2+	1o 1- 1+ 2-	16o	15	22	9	9	4	3	5	6	73	9	0.5
6	3o 3+ 3o 3o	3+ 3o 4+ 4o	27o	15	18	15	15	18	15	32	27	155	19	1.0
7	5+ 6- 5+ 4o	4o 4+ 2+ 2o	33o	56	67	56	27	27	32	9	7	281	35	1.4
8	4- 4+ 4- 2+	3o 3+ 4o 4-	28o	22	32	22	9	15	18	27	22	167	21	1.1
9	2- 2- 1o 1o	1- 2- 1- 3-	11o	6	6	4	4	3	6	3	12	44	6	0.2
10	3+ 2o 1+ 4-	3- 3- 3o 4+	23o	18	7	5	22	12	12	15	32	123	15	0.9
11	3+ 3- 3- 3-	3o 2o 4- 3-	23-	18	12	12	12	15	7	22	12	110	14	0.8
12	3- 2+ 2+ 3o	2- 2+ 4+ 4o	23-	12	9	9	15	6	9	32	27	119	15	0.8
13	4- 4+ 3- 3o	3+ 6- 4o 6o	33-	22	32	12	15	18	67	27	80	273	34	1.3
14	6- 5o 4+ 4o	4o 3+ 3o 2+	32-	67	48	32	27	27	18	15	9	243	30	1.3
15	2o 2+ 2- 2+	3- 1+ 3- 2-	17-	7	9	6	9	12	5	12	6	66	8	0.4
16	2o 2o 3- 3-	3+ 4- 3o 4-	23o	7	7	12	12	18	22	15	22	115	14	0.8
17	4o 4+ 3o 4-	3+ 3- 3+ 4o	28+	27	32	15	22	18	12	18	27	171	21	1.1
18	4o 4o 4- 3+	4o 4+ 3+ 3o	30-	27	27	22	18	27	32	18	15	186	23	1.1
19	3o 3- 3+ 2o	3o 3o 4- 4+	25o	15	12	18	7	15	15	22	32	136	17	0.9
20	4- 3+ 4o 3+	3o 2o 1o 1+	22-	22	18	27	18	15	7	4	5	116	14	0.8
21	3o 3- 3- 2-	1+ 3- 3+ 2-	19o	15	12	12	6	5	12	18	6	86	11	0.6
22	4- 3o 1o 0+	2- 1+ 1o 1o	13o	22	15	4	2	6	5	4	4	62	8	0.4
23	0+ 1- 2- 1+	2- 2- 2+ 1+	11o	2	3	6	5	6	6	9	5	42	5	0.2
24	1- 1o 1- 1+	1o 2o 2o 1o	10-	3	4	3	5	4	7	7	4	37	5	0.2
25	2- 4o 3o 2o	4- 3- 3o 3+	23+	6	27	15	7	22	12	15	18	122	15	0.9
26	5+ 5- 4+ 5+	4o 4- 2- 2-	31-	56	39	32	56	27	22	6	6	244	30	1.3
27	2o 3- 3+ 4-	3+ 3+ 3+ 3+	25o	7	12	18	22	18	18	18	18	131	16	0.9
28	2o 1o 2o 3o	3- 1+ 3o 3+	18+	7	4	7	15	12	5	15	18	83	10	0.6
29	4- 5+ 5+ 4+	5- 4o 3+ 4+	35o	22	56	56	32	39	27	18	32	282	35	1.4
30	4+ 4o 4o 4-	4o 4+ 4- 4o	32o	32	27	27	22	27	32	22	27	216	27	1.2
31	4- 4+ 3+ 1-	4+ 4o 6+ 5o	32-	22	32	18	3	32	27	94	48	276	34	1.4

Kp INDICES 1982 (continued)

	Kp	Sum	Nov			1982	ap				Sum	Ap	Cp
1	6o 4- 4- 4- 4+ 5o 5o 3o	34+	80	22	22	22	32	48	48	15	289	36	1.4
2	3+ 3- 3o 4- 4o 6- 5o 5o	32+	18	12	15	22	27	67	48	48	257	32	1.3
3	5- 5- 4+ 4+ 4- 1o 0o 0o	23-	39	39	32	32	22	4	0	0	168	21	1.1
4	0+ 1o 2+ 2o 2+ 3- 3- 2-	15o	2	4	9	7	9	12	12	6	61	8	0.4
5	3- 1+ 1+ 2+ 3- 2+ 3o 1o	17-	12	5	5	9	12	9	15	4	71	9	0.5
6	2+ 3- 4o 3o 2o 3- 1+ 1-	19-	9	12	27	15	7	12	5	3	90	11	0.6
7	1+ 1+ 1o 1- 1- 0+ 1o 1o	7+	5	5	4	3	3	2	4	4	30	4	0.1
8	1+ 1o 2- 2- 2+ 4o 4+ 2+	19-	5	4	6	6	9	27	32	9	98	12	0.7
9	3- 3- 2+ 2- 2- 1+ 2- 2-	16-	12	12	9	6	6	5	6	6	62	8	0.4
10	3- 2o 2- 3- 3o 2+ 3o 3o	20+	12	7	6	12	15	9	15	15	91	11	0.7
11	4+ 4o 3- 4- 3+ 3+ 3- 4-	28-	32	27	12	22	18	18	12	22	163	20	1.0
12	4o 3- 2+ 4- 3+ 3- 3o 3-	24+	27	12	9	22	18	12	15	12	127	16	0.9
13	4+ 4- 2o 4o 2o 3- 4o 2o	25-	32	22	7	27	7	12	27	7	141	18	1.0
14	2+ 2o 3- 3+ 3+ 3o 2o 3-	21+	9	7	12	18	18	15	7	12	98	12	0.7
15	2o 2+ 1o 4- 3- 3+ 3o 3o	21o	7	9	4	22	12	18	15	15	102	13	0.7
16	2+ 2+ 3- 3- 1o 0+ 2- 3o	16o	9	9	12	12	4	2	6	15	69	9	0.5
17	1+ 1- 1- 0+ 1- 2- 3- 3-	11-	5	3	3	2	3	6	12	12	46	6	0.3
18	2+ 3+ 2+ 2+ 3+ 3+ 2- 3-	21+	9	18	9	9	18	18	6	12	99	12	0.7
19	3o 3- 1- 1o 2o 2+ 3o 3+	18o	15	12	3	4	7	9	15	18	83	10	0.6
20	1+ 1- 0+ 1+ 1+ 1- 3- 3o	11+	5	3	2	5	5	3	12	15	50	6	0.3
21	4- 4+ 4- 3+ 3+ 3+ 4+ 5-	31-	22	32	22	18	18	18	32	39	201	25	1.2
22	6+ 6o 5- 3o 1o 1+ 1+ 0+	24o	94	80	39	15	4	5	5	2	244	30	1.3
23	0o 1- 1+ 3+ 3+ 6+ 6+ 5+	27-	0	3	5	18	18	94	94	56	288	36	1.4
24	3+ 3- 3o 6- 7+ 7o 7+ 7-	43o	18	12	15	67	154	132	154	111	663	83	1.8
25	7- 5+ 6- 6- 5+ 4+ 4- 3+	40o	111	56	67	67	56	32	22	18	429	54	1.6
26	3o 4o 4+ 4o 4o 4+ 2o 5-	30+	15	27	32	27	27	32	7	39	206	26	1.2
27	2o 3+ 3+ 4- 4- 3+ 4- 2+	25+	7	18	18	22	22	18	22	9	136	17	0.9
28	6o 4- 3o 4- 3o 3+ 4o 4-	30+	80	22	15	22	15	18	27	22	221	28	1.2
29	3+ 3- 2o 3+ 4o 5+ 6o 5-	31+	18	12	7	18	27	56	80	39	257	32	1.3
30	4o 3+ 3o 2- 4- 2+ 1- 1-	19+	27	18	15	6	22	9	3	3	103	13	0.7

	Kp	Sum	Dec			1982	ap				Sum	Ap	Cp
1	0+ 0o 1+ 0+ 0+ 0o 1- 0+	3+	2	0	5	2	2	0	3	2	16	2	0.0
2	0+ 0+ 0o 1o 2o 1+ 1- 1+	7o	2	2	0	4	7	5	3	5	28	4	0.1
3	2- 1+ 2o 2o 3- 3o 2o 3o	18-	6	5	7	7	12	15	7	15	74	9	0.5
4	3+ 3+ 1+ 1- 1- 1+ 3- 5-	18o	18	18	5	3	3	5	12	39	103	13	0.7
5	4o 4o 3o 1- 1o 1o 2- 1-	16o	27	27	15	3	4	4	6	3	89	11	0.6
6	1+ 1+ 1- 1- 1- 1- 0+ 1-	6+	5	5	3	3	3	3	2	3	27	3	0.1
7	0+ 3+ 3+ 2+ 5- 4o 6+ 4o	28+	2	18	18	9	39	27	94	27	234	29	1.3
8	4+ 4- 4- 4+ 4+ 4o 5- 2+	31+	32	22	22	32	32	27	39	9	215	27	1.2
9	2o 3o 3- 3+ 5+ 3+ 3- 2o	24+	7	15	12	18	56	18	12	7	145	18	1.0
10	2+ 3- 6+ 6o 5+ 5+ 5- 4-	36+	9	12	94	80	56	56	39	22	368	46	1.5
11	4- 4+ 2- 2+ 2+ 4o 4o 4o	26+	22	32	6	9	9	27	27	27	159	20	1.0
12	3+ 2+ 2o 4o 4- 3o 2o 2o	22+	18	9	7	27	22	15	7	7	112	14	0.8
13	1+ 2o 1+ 2- 1- 2- 2o 3-	13+	5	7	5	6	3	6	7	12	51	6	0.3
14	1+ 2o 1o 2- 1o 0+ 3- 4o	14o	5	7	4	6	4	2	12	27	67	8	0.5
15	3o 3o 3+ 4- 2o 2- 1- 0+	18-	15	15	18	22	7	6	3	2	88	11	0.6
16	1o 1+ 2+ 3- 3- 3+ 3o 4+	21-	4	5	9	12	12	18	15	32	107	13	0.8
17	4+ 5o 7+ 6o 6- 4+ 5o 4+	42o	32	48	154	80	67	32	48	32	493	62	1.7
18	5- 4o 5o 6o 5o 5- 4+ 3-	36+	39	27	48	80	48	39	32	12	325	41	1.5
19	4o 4o 5o 6- 5- 3- 3- 5-	33+	27	27	48	67	39	12	12	39	271	34	1.3
20	4+ 4+ 5- 5o 6o 5o 5+ 4+	39o	32	32	39	48	80	48	56	32	367	46	1.5
21	3+ 4o 5- 4+ 4o 5+ 5- 5+	36-	18	27	39	32	27	56	39	56	294	37	1.4
22	7- 7- 3o 2+ 5- 4+ 2o 3-	32+	111	111	15	9	39	32	7	12	336	42	1.5
23	2+ 2o 3+ 5o 5- 5- 4o 4-	30-	9	7	18	48	39	39	27	22	209	26	1.2
24	5- 3- 3+ 3+ 3+ 3+ 3+ 2+	26+	39	12	18	18	18	18	18	9	150	19	1.0
25	3o 3- 3+ 2+ 3+ 4- 2+ 1+	22o	15	12	18	9	18	22	9	5	108	14	0.8
26	3- 3o 2+ 2+ 3- 2o 1+ 1-	17o	12	15	9	9	12	7	5	3	72	9	0.5
27	3- 2o 5- 3+ 3+ 3- 2+ 4o	25o	12	7	39	18	18	12	9	27	142	18	1.0
28	3+ 4- 3+ 3+ 4- 3o 4+ 4-	28+	18	22	18	18	22	15	32	22	167	21	1.1
29	4- 4o 4- 3+ 3+ 3o 4- 3o	28-	22	27	22	18	18	15	22	15	159	20	1.0
30	4- 4o 3+ 3+ 2o 2+ 3o 2o	24-	22	27	18	18	7	9	15	7	123	15	0.9
31	3+ 2+ 1o 2- 1+ 1o 1o 2-	13+	18	9	4	6	5	4	4	6	56	7	0.4

FREQUENCIES OF Kp INDICES 1982

Kp	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0-	10	.	1	.	2	1	1	1	.	.	3	3
0+	9	1	10	2	6	1	7	1	.	2	6	10
1-	22	4	18	3	13	4	3	8	1	7	12	14
1o	15	1	18	9	19	5	6	5	2	12	11	9
1+	16	.	15	19	16	18	10	9	11	12	14	15
2-	29	7	13	12	29	16	16	15	11	20	12	9
2o	19	10	24	20	20	23	16	16	17	16	13	19
2+	28	11	22	21	27	22	11	25	17	12	20	17
3-	21	12	24	23	14	26	25	25	28	25	29	19
3o	19	17	19	21	19	20	20	30	22	32	21	15
3+	15	16	25	20	13	16	22	28	21	26	25	28
4-	13	19	19	15	8	12	25	22	15	23	20	15
4o	16	19	15	18	10	17	21	21	21	24	13	19
4+	7	21	5	11	18	21	17	13	17	19	11	15
5-	5	22	8	15	11	8	9	8	11	3	6	16
5o	1	21	1	10	10	10	12	6	8	3	4	8
5+	2	20	1	10	7	5	4	4	5	6	4	6
6-	1	9	.	2	2	4	3	2	4	3	4	2
6o		9	2	4	3	5	6	2	4	2	4	4
6+		3	2	3	1	4	1	2	2	1	3	2
7-		1	1	1		2	5	1	6		2	2
7o		1	1	1			3	1	2		1	.
7+			1				.	1	6		2	1
8-			1				1	2	2			
8o			2				.		2			
8+							1		4			
9-							1		1			
9o							2					
	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'
Jan	09	4	1o	1-
May	07	4	1+	1o
	18	3	3-	2+
Jun	04	5	2o	2-
	06	6	2+	2o
	10	5	6o	6-
	13	5	6+	6o
	26	7	4o	4-
Jul	22	6	4o	4-

MONTHLY MEAN VALUES Ap Cp 1982

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Ap	12	33	18	22	17	22	30	21	36	18	21	21	22.4
Cp	0.59	1.27	0.74	0.95	0.72	0.95	1.05	0.91	1.09	0.87	0.88	0.90	0.91

MONTHLY AND YEARLY **Ap** 1932 - 1982

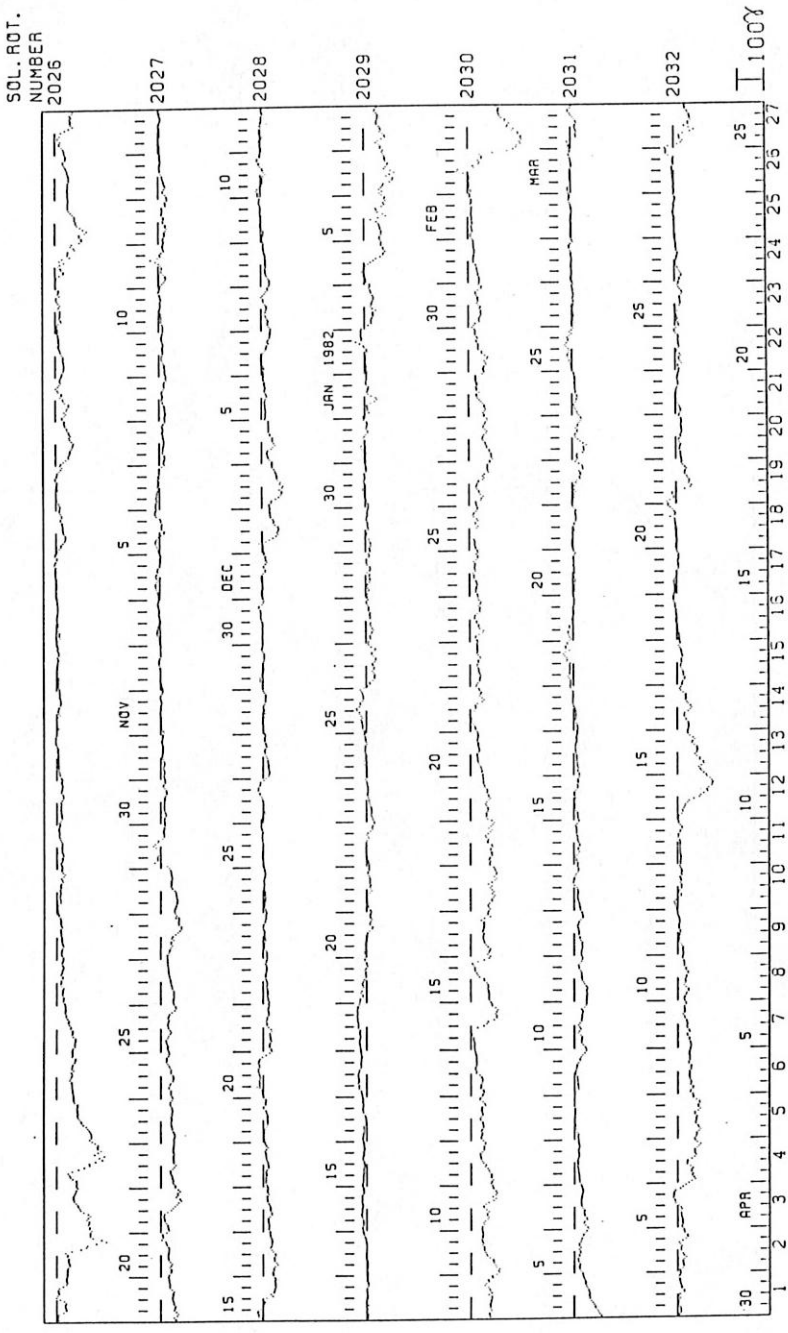
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
1932	11	12	18	17	15	7	7	12	12	10	8	9	11.5
1933	10	11	12	12	12	8	7	9	12	10	9	7	10.1
1934	6	8	11	6	7	5	6	9	10	6	5	8	7.2
1935	9	10	10	8	6	9	7	5	13	12	8	9	8.9
1936	9	11	9	15	10	12	11	5	5	9	10	5	9.1
1937	7	13	12	20	13	12	12	10	9	20	12	10	12.5
1938	28	16	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
1982	12	33	18	22	17	22	30	21	36	18	21	21	22.4

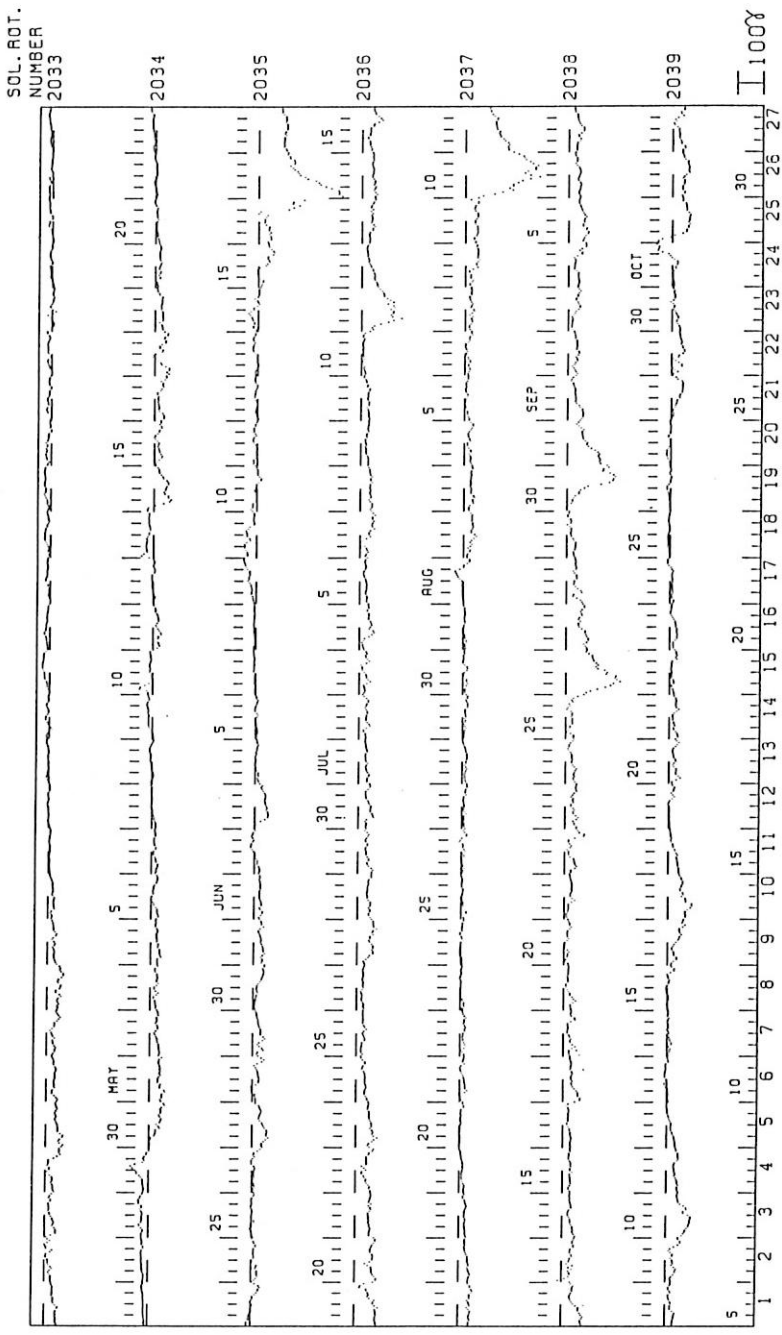
SECTION 3

3.4. Dst INDICES

- Hourly values of **Dst** 1982 (graph) 79
- Monthly tables of **Dst** hourly values 82
- Tables of daily means of **Dst** 94
- Monthly and yearly mean values
  1957-1982 95

HOURLY VALUES OF **Dst** 1982

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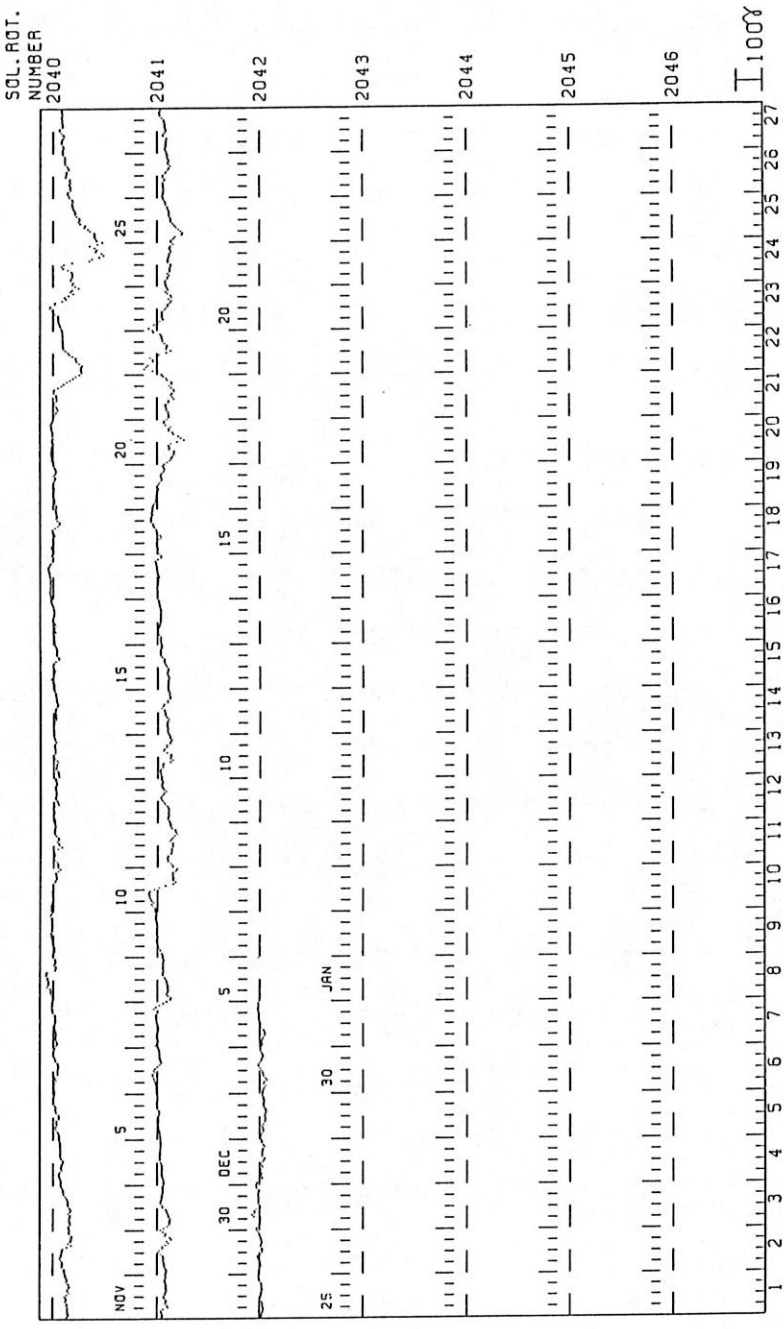
2035
2036
2037
2038
2039
MAY
JUN
JUL
AUG
SEP
OCT
100γ


SOL. ROT. NUMBER
2040
2041
2042
2043
2044
2045
2046
NOV
DEC
JAN
100γ

HOURLY EQUATORIAL DST VALUES

JANUARY 1982

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	-13	-15	-16	-16	-17	-16	-15	-14	-14	-12	-13	-16	-21	-20	-17	-13	-12	-16	-13	-11	-12	-8	-6	-8
2	-8	-9	-7	-10	-10	-6	-1	-1	1	2	-1	-5	-8	-14	-19	-20	-22	-23	-24	-27	-32	-34	-34	-35
3	-36	-36	-30	-26	-25	-28	-24	-20	-17	-12	-17	-20	-22	-21	-16	-10	-8	-7	0	-6	-14	-19	-26	-25
4	-31	-34	-34	-33	-28	-23	-20	-18	-17	-16	-19	-20	-18	-19	-19	-16	-18	-16	-13	-11	-10	-10	-9	-11
5	-7	-5	-5	-8	-9	-11	-11	-5	0	2	0	-1	0	-1	0	2	1	1	0	2	5	7	4	4
6	10	11	11	16	12	4	-5	-8	-8	-7	-7	-11	-19	-14	-9	-7	1	0	0	13	11	2	2	0
7	-3	-4	1	2	4	7	5	-5	-9	2	6	6	3	-3	1	-2	-3	-5	-3	-5	-9	-6	-3	-5
8	-6	-6	-7	-8	-3	-2	-6	-10	-7	-1	0	-4	-5	-4	-3	-3	-1	-3	-7	-9	-6	-2	-4	-3
9	-5	-6	-4	-3	-5	-5	-6	-5	-3	1	1	0	0	-1	-1	-1	-2	-1	1	2	3	7	10	12
10	13	15	16	12	11	12	13	16	19	20	17	17	16	14	14	17	18	16	14	16	11	10	12	12
11	16	16	13	12	12	12	11	10	11	11	8	7	8	10	14	14	12	10	11	9	7	9	10	11
12	13	15	14	12	12	9	8	10	11	6	1	2	3	3	6	11	13	15	14	12	12	15	14	14
13	17	18	19	21	29	29	29	33	29	30	31	33	32	29	27	22	20	22	21	20	19	18	21	22
14	23	24	26	27	28	27	24	23	26	26	25	32	31	31	33	35	34	37	34	35	37	33	33	28
15	26	25	24	14	14	22	18	8	11	14	16	12	8	2	1	3	2	0	1	-5	-2	-1	6	6
16	1	2	7	8	4	2	5	4	4	-2	-7	-5	-3	-5	-12	-22	-24	-14	-14	-17	-21	-16	-13	-16
17	-19	-15	-8	-8	-5	-3	-3	-1	0	-4	-13	-20	-16	-14	-17	-13	-14	-14	-12	-9	-5	-6	-11	-10
18	-11	-10	-6	-6	-2	0	1	1	4	6	3	1	1	0	-3	-10	-7	-2	-0	-16	-24	-22	-25	-31
19	-30	-26	-23	-20	-18	-20	-20	-20	-17	-13	-12	-11	-9	-7	-5	-4	-6	-6	-6	-5	-3	-2	0	3
20	-4	-2	-1	-1	-2	-1	5	8	12	8	5	3	1	3	5	5	3	3	-2	0	3	3	5	8
21	6	8	14	14	14	17	17	21	15	20	26	27	36	37	27	23	23	14	11	11	13	15	18	23
22	8	-6	-15	-14	-26	-33	-33	-33	-29	-24	-30	-32	-26	-24	-33	-37	-37	-29	-21	-23	-34	-36	-20	-10
23	-8	-11	-18	-17	-16	-22	-24	-29	-25	-20	-17	-19	-10	-17	-17	-15	-17	-12	-11	-12	-8	-3	-3	-9
24	-6	-5	-8	-11	-13	-9	-6	-8	-15	-18	-17	-14	-16	-7	-17	-19	-17	-7	-3	-4	-4	-14	-15	-12
25	-18	-17	-15	-20	-21	-19	-15	-13	-9	-6	-7	-11	-12	-10	-9	-9	-7	-4	-4	-7	-8	-8	-9	-11
26	-12	-13	-10	-6	-4	0	1	4	7	9	8	1	0	3	5	2	0	2	3	-4	-5	-4	-4	-1
27	-2	-4	0	0	-2	-7	2	11	16	13	6	2	0	5	2	-4	-12	-12	-6	-7	-9	-10	-7	3
28	5	6	-1	-17	-12	-11	-10	-9	-23	-39	-47	-43	-26	-14	-9	-12	-14	-16	-7	-5	-6	-8	-6	-7
29	-8	-9	-6	-5	-8	-5	-1	-3	-3	-4	-8	-12	-9	-8	0	4	18	33	12	11	14	14	13	14
30	11	-1	-15	-27	-26	-27	-30	-34	-33	-34	-44	-31	-25	-28	-29	-32	-35	-36	-32	-27	-25	-22	-18	-22
31	-21	-8	-6	-6	-3	2	8	7	2	-1	-6	-16	-25	-36	-46	-63	-73	-75	-81	-75	-72	-65	-66	-66

HOURLY EQUATORIAL DST VALUES

FEBRUARY 1982

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	G.M.T. 23	24
1	-62	-59	-60	-65	-67	-66	-62	-61	-58	-55	-48	-26	-55	-83	-73	-53	-43	-45	-66	-77	-74	-82	-78	-80
2	-68	-60	-69	-59	-66	-72	-76	-100	-109	-112	-87	-99	-117	-103	-78	-84	-90	-92	-83	-80	-81	-77	-74	-70
3	-74	-64	-64	-59	-47	-55	-68	-82	-79	-72	-62	-66	-63	-59	-50	-48	-51	-53	-55	-54	-48	-42	-44	-50
4	-63	-76	-73	-72	-81	-79	-76	-77	-75	-79	-80	-83	-82	-70	-81	-76	-73	-68	-55	-60	-70	-68	-85	-83
5	-100	-109	-107	-111	-99	-95	-90	-88	-87	-74	-65	-61	-57	-53	-52	-52	-45	-49	-45	-42	-46	-46	-48	-46
6	-44	-43	-46	-53	-49	-56	-66	-70	-63	-64	-71	-61	-51	-49	-58	-69	-88	-97	-85	-97	-101	-96	-88	-86
7	-83	-78	-82	-87	-80	-80	-80	-73	-70	-65	-56	-59	-49	-44	-40	-39	-37	-37	-45	-51	-52	-52	-57	-57
8	-48	-41	-40	-44	-45	-40	-44	-49	-50	-47	-46	-39	-36	-41	-47	-45	-42	-42	-45	-57	-54	-47	-35	-38
9	-45	-48	-52	-49	-39	-41	-40	-44	-47	-46	-42	-35	-22	-23	-18	-19	-23	-24	-23	-22	-23	-22	-19	-17
10	-15	-14	-15	-16	-13	-11	-11	-6	-3	2	-2	-27	-51	-62	-68	-90	-101	-101	-96	-101	-105	-96	-84	-82
11	-78	-73	-71	-72	-72	-70	-69	-66	-70	-67	-62	-54	-52	-35	-28	-24	-18	-17	-16	-11	-7	-29	-53	-72
12	-77	-66	-71	-75	-78	-68	-60	-55	-52	-50	-48	-50	-53	-46	-49	-52	-53	-53	-53	-42	-55	-77	-67	-68
13	-71	-76	-71	-68	-74	-83	-83	-89	-94	-85	-90	-83	-77	-83	-70	-83	-95	-101	-92	-100	-102	-97	-94	-90
14	-76	-75	-78	-73	-76	-84	-84	-83	-79	-79	-86	-83	-68	-68	-71	-61	-59	-69	-78	-84	-72	-80	-87	-92
15	-83	-67	-61	-64	-62	-67	-70	-68	-62	-59	-64	-72	-78	-72	-70	-65	-67	-64	-57	-55	-51	-51	-50	-50
16	-48	-49	-45	-46	-43	-41	-36	-32	-29	-29	-28	-26	-27	-34	-36	-34	-31	-31	-31	-27	-28	-31	-30	-30
17	-27	-22	-20	-18	-12	-7	-5	-8	5	3	-1	-16	-21	-22	-20	-29	-47	-54	-46	-37	-41	-44	-37	-34
18	-24	-26	-31	-38	-39	-40	-42	-38	-34	-35	-32	-28	-29	-33	-33	-41	-39	-32	-28	-30	-29	-29	-29	-28
19	-31	-28	-22	-24	-36	-51	-54	-39	-34	-35	-28	-27	-20	-18	-22	-30	-40	-39	-41	-35	-42	-45	-37	-33
20	-32	-30	-25	-25	-27	-28	-31	-28	-25	-18	-18	-17	-13	-23	-21	-19	-22	-23	-16	-27	-33	-33	-27	-33
21	-31	-25	-23	-21	-22	-21	-18	-9	-1	-1	-1	-8	-29	-34	-25	-24	-34	-30	-16	-15	-19	-27	-32	-33
22	-29	-27	-26	-46	-49	-56	-44	-40	-38	-31	-27	-30	-33	-39	-54	-59	-54	-60	-76	-73	-71	-72	-72	-81
23	-82	-92	-88	-87	-86	-81	-78	-70	-69	-65	-63	-56	-52	-55	-59	-66	-71	-63	-56	-58	-63	-66	-73	-70
24	-60	-60	-56	-62	-66	-62	-60	-55	-48	-42	-35	-31	-31	-42	-32	-31	-29	-33	-32	-28	-27	-28	-27	-54
25	-61	-58	-57	-61	-69	-66	-62	-72	-75	-64	-53	-51	-39	-37	-39	-38	-32	-30	-36	-32	-26	-25	-27	-23
26	-14	-21	-27	-43	-41	-43	-47	-50	-48	-49	-44	-47	-39	-34	-38	-37	-37	-31	-26	-28	-38	-50	-52	-41
27	-43	-44	-44	-42	-39	-38	-36	-34	-33	-31	-29	-21	-21	-21	-22	-23	-25	-25	-25	-22	-22	-22	-21	-20
28	-16	-11	-10	-13	-17	-16	-14	-13	-17	-17	-14	-15	-14	-12	-13	-14	-15	-15	-10	-13	-14	-13	-8	-9

HOURLY EQUATORIAL DST VALUES

MARCH 1982

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	G.M.T. 23	24
1	-8	-13	-11	-5	-7	-5	-5	-10	-6	-6	-2	16	42	37	-25	-21	-43	-46	-41	-55	-55	-47	-58	-155
2	-179	-189	-193	-207	-203	-211	-209	-208	-198	-197	-174	-180	-154	-157	-163	-146	-147	-132	-125	-122	-120	-120	-122	-112
3	-109	-106	-100	-95	-91	-84	-82	-78	-73	-67	-62	-61	-59	-61	-58	-56	-52	-48	-44	-46	-43	-39	-36	-35
4	-33	-27	-23	-21	-22	-24	-18	-16	-16	-22	-20	-25	-25	-20	-27	-21	-20	-26	-29	-31	-36	-38	-45	-49
5	-56	-52	-44	-37	-41	-51	-48	-42	-40	-38	-41	-34	-30	-28	-28	-27	-28	-30	-31	-33	-35	-35	-31	-29
6	-26	-22	-21	-20	-20	-19	-18	-16	-16	-14	-13	-15	-14	-14	-17	-20	-20	-18	-16	-18	-21	-21	-18	-17
7	-17	-15	-15	-17	-11	-8	-7	-5	-5	-3	-3	-2	-3	-3	-4	-4	-4	-4	0	0	-1	-1	0	-2
8	-2	-4	-9	-17	-17	-15	-15	-14	-13	-12	-12	-7	-5	-7	-9	-11	-12	-17	-23	-23	-27	-33	-41	-48
9	-47	-43	-35	-29	-29	-31	-31	-25	-16	-20	-26	-22	-17	-23	-29	-29	-32	-31	-34	-35	-29	-40	-46	-49
10	-48	-49	-50	-50	-52	-48	-50	-53	-47	-41	-37	-32	-30	-30	-30	-29	-25	-20	-19	-18	-24	-30	-33	-34
11	-29	-23	-29	-31	-33	-34	-32	-33	-26	-23	-23	-19	-20	-19	-17	-15	-14	-18	-21	-27	-35	-35	-33	-31
12	-25	-24	-23	-22	-20	-17	-15	-14	-16	-16	-17	-14	-11	-3	3	1	-1	-3	-6	-9	-16	-18	-13	-15
13	-15	-16	-11	-10	-7	-12	-19	-22	-17	-18	-24	-24	-19	-16	-15	-14	-12	-10	-11	-10	-10	-7	-13	-20
14	-21	-17	-16	-16	-15	-10	-7	-4	-4	-3	-4	-8	-7	-3	-3	-3	-9	-15	-17	-14	-16	-17	-17	-22
15	-23	-22	-17	-16	-19	-15	-14	-14	-12	-13	-12	-12	-9	-8	-7	-7	-6	-9	-12	-12	-11	-11	-14	-15
16	-15	-17	-16	-14	-11	-8	-8	-9	-10	-10	-9	-8	-6	-2	1	3	1	2	0	1	0	2	8	11
17	12	10	10	11	17	21	14	14	13	13	13	15	11	26	23	27	34	39	30	15	26	30	22	23
18	14	9	13	17	20	19	12	14	13	3	0	4	1	-1	-3	-2	-1	-1	-2	-5	-5	-6	-5	-2
19	-2	-3	-8	-7	-6	-7	-9	-9	-11	-6	-3	-8	-7	-5	-6	-4	-3	-4	-4	-3	-3	-8	-11	-5
20	-3	-1	2	4	2	0	-6	-8	-2	-10	-7	-5	-2	-7	-7	-13	-13	-14	-13	-11	-10	-13	-5	-1
21	2	3	1	0	-7	-9	-6	-13	-8	-2	-9	-16	-14	-19	-30	-28	-33	-32	-27	-42	-41	-38	-26	-13
22	-18	-21	-17	-20	-41	-46	-45	-44	-55	-42	-32	-23	-14	-10	-13	-20	-21	-14	-21	-23	-27	-33	-37	-34
23	-27	-22	-19	-14	-11	-9	-7	-14	-17	-19	-22	-19	-13	-15	-12	-11	-12	-11	-11	-12	-11	-10	-8	-7
24	-3	-1	2	3	6	10	10	14	17	16	12	9	13	22	27	21	14	14	18	9	1	9	1	-6
25	-2	-3	-10	-6	-5	-8	-9	-6	-4	-3	-5	-6	-6	-8	-6	-4	-6	-8	-6	-4	-5	-2	-1	-6
26	-3	4	4	2	-2	-3	-2	0	2	3	1	-2	-3	-1	1	2	0	4	8	8	8	3	-6	-3
27	1	3	4	1	1	3	-1	-1	2	3	3	0	-1	-1	-3	-2	-1	1	3	6	5	7	6	6
28	9	12	12	11	1	0	2	4	5	4	6	5	3	2	-3	-3	-2	-1	1	2	6	8	3	2
29	6	8	8	12	13	-2	-22	-22	-20	-24	-21	-18	-17	-19	-24	-21	-15	-9	-2	2	9	10	1	-3
30	-3	-7	-12	-14	-13	-11	-2	-4	-6	-9	-11	-4	-9	-26	-25	-16	-16	-13	-11	-9	-6	-3	-8	-13
31	-11	-9	-20	-24	-23	-21	-21	-26	-34	-25	-21	-14	-14	-14	-17	-10	-6	-20	-32	-40	-38	-28	-26	-24

HOURLY EQUATORIAL DST VALUES

APRIL 1982

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	G.M.T. 23	24
1	-18	-16	-21	-20	-20	-18	-15	-15	-14	-10	-17	-13	-7	7	9	11	16	14	14	12	7	-11	-21	-32
2	-44	-55	-68	-63	-57	-60	-53	-55	-60	-49	-37	-38	-39	-55	-66	-72	-67	-66	-67	-76	-83	-89	-76	-68
3	-65	-71	-74	-74	-82	-88	-82	-78	-70	-69	-73	-73	-75	-66	-67	-79	-88	-80	-80	-85	-84	-73	-61	-60
4	-59	-48	-51	-59	-60	-50	-53	-51	-47	-46	-45	-47	-46	-52	-52	-53	-43	-43	-47	-46	-47	-44	-46	-48
5	-50	-52	-51	-48	-45	-45	-38	-36	-47	-44	-37	-35	-38	-36	-33	-28	-25	-20	-27	-27	-26	-26	-32	-32
6	-27	-24	-27	-32	-35	-42	-41	-32	-24	-29	-31	-29	-33	-35	-40	-39	-32	-31	-25	-25	-25	-23	-19	-18
7	-21	-22	-20	-20	-21	-15	-11	-7	-6	-6	-5	-8	-11	-10	-5	-5	-5	-8	-8	-7	-4	-1	0	1
8	3	6	9	11	13	7	-3	-13	-14	-6	-9	-15	-16	-15	-10	-14	-12	-9	-17	-15	-18	-15	-11	-8
9	-12	-11	-13	-14	-13	-12	-10	-10	-10	-9	-10	-10	-10	-8	-3	-4	-4	-10	-12	-18	-17	-10	-5	-3
10	-1	-3	-7	-16	-21	-19	-25	-29	-32	-39	-45	-63	-84	-90	-101	-116	-113	-120	-132	-135	-137	-132	-125	-114
11	-110	-101	-92	-88	-83	-92	-102	-99	-86	-86	-75	-68	-75	-77	-77	-75	-65	-56	-59	-67	-61	-48	-41	-39
12	-41	-44	-45	-44	-42	-34	-33	-27	-27	-29	-42	-50	-56	-51	-42	-37	-33	-34	-32	-33	-23	-14	-10	-15
13	-19	-19	-22	-29	-30	-25	-24	-22	-19	-14	-12	-15	-18	-17	-17	-21	-20	-17	-17	-14	-10	-6	-13	-12
14	-9	-9	-10	-9	-7	-5	-1	-2	-1	3	4	2	0	1	2	2	3	6	6	7	10	13	12	12
15	9	7	7	7	8	9	10	10	7	0	-3	-1	-1	-7	-8	-7	-7	-4	-7	-9	-7	-9	-3	0
16	-1	2	0	-3	-4	-4	0	0	2	6	5	3	2	4	4	5	7	22	5	3	8	14	22	30
17	31	35	23	9	8	14	14	-3	-34	-55	-60	-49	-52	-52	-45	-41	-34	-33	-36	-40	-34	-26	-21	-23
18	-21	-19	-18	-19	-17	-14	-15	-17	-19	-13	-10	-13	-19	-18	-22	-24	-22	-21	-20	-20	-23	-21	-20	-12
19	-14	-17	-20	-19	-16	-12	-9	-2	-2	0	2	-1	-3	-2	-5	-7	-11	-11	-9	-7	-7	-9	-11	-13
20	-14	-15	-10	-11	-25	-19	-14	-14	-21	-17	-7	-6	-13	-16	-13	-13	-12	-11	-14	-11	-3	2	2	-5
21	-15	-14	-11	-7	-10	-7	-5	-1	-9	-2	-2	-18	-22	-21	-20	-19	-18	-26	-29	-26	-20	-15	-10	-15
22	-16	-19	-19	-25	-27	-22	-18	-13	-11	-5	-4	-5	-8	-9	-10	-13	-14	-8	-8	-6	-6	-7	-4	-3
23	-4	-5	-4	-2	-1	-2	-3	-2	-1	-2	-1	-1	3	3	3	2	0	-1	2	-2	-4	-5	-3	1
24	0	-1	2	5	1	0	3	4	4	6	8	6	7	7	6	1	2	3	2	0	20	30	29	30
25	33	21	-14	-29	-35	-24	-22	-20	-36	-65	-78	-59	-41	-57	-56	-66	-63	-62	-60	-55	-51	-44	-44	-42
26	-46	-47	-43	-44	-44	-43	-43	-42	-45	-50	-52	-43	-36	-33	-35	-34	-29	-31	-31	-31	-30	-33	-28	-26
27	-24	-23	-24	-25	-19	-15	-21	-29	-24	-15	-12	-13	-13	-6	-4	-7	-22	-29	-7	-4	0	-12	-21	-12
28	-7	-24	-41	-41	-41	-36	-28	-32	-35	-30	-27	-23	-18	-18	-13	-16	-15	-15	-13	-21	-23	-15	-19	-26
29	-34	-30	-29	-29	-27	-22	-26	-28	-25	-17	-12	-8	-15	-16	-8	-11	-13	-12	-32	-44	-56	-51	-52	-52
30	-60	-66	-52	-47	-53	-62	-65	-55	-45	-44	-45	-44	-42	-39	-35	-35	-40	-36	-33	-39	-44	-40	-37	-35

HOURLY EQUATORIAL DST VALUES

MAY 1982

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	G.M.T. 23	24
1	-41	-44	-38	-31	-22	-22	-25	-32	-30	-30	-28	-30	-33	-33	-33	-32	-37	-38	-33	-28	-27	-29	-26	-22
2	-20	-25	-31	-31	-35	-29	-25	-24	-22	-31	-24	-20	-17	-13	-21	-29	-30	-30	-39	-45	-51	-45	-40	-35
3	-39	-41	-39	-45	-40	-38	-43	-53	-47	-33	-34	-47	-51	-53	-43	-40	-44	-55	-61	-62	-53	-48	-50	-46
4	-36	-31	-28	-25	-24	-24	-27	-27	-23	-19	-27	-30	-24	-17	-22	-32	-35	-28	-23	-22	-22	-22	-19	-16
5	-12	-16	-14	-10	-14	-24	-23	-21	-22	-21	-24	-25	-18	-15	-20	-20	-19	-16	-17	-19	-15	-13	-10	-8
6	-7	-8	-6	-6	-5	-6	-8	-8	-6	-3	-6	-8	-7	-6	-8	-7	-4	-4	-5	-6	-7	-10	-8	-10
7	-7	-5	-3	0	1	0	-1	-2	-1	2	0	1	4	4	2	-1	-1	1	2	0	-5	-5	-4	-4
8	-2	1	6	10	7	6	5	2	1	4	4	3	3	4	3	3	1	1	2	3	4	8	10	9
9	7	10	11	6	0	-11	-7	0	6	9	13	15	13	7	3	2	4	8	12	9	3	2	3	3
10	1	-2	2	6	9	9	10	12	17	19	20	19	21	25	28	27	27	26	24	22	22	23	20	14
11	8	8	10	11	11	14	13	16	20	21	16	14	14	14	11	9	11	11	10	9	7	6	7	4
12	0	-2	-1	4	7	6	5	6	4	9	9	14	18	17	13	11	12	12	10	8	10	12	12	10
13	8	4	5	9	7	6	9	13	17	21	22	21	22	21	19	16	13	12	7	4	8	9	10	13
14	13	9	6	9	13	12	14	18	22	25	19	18	18	23	24	23	21	20	21	23	24	23	22	20
15	14	11	7	15	17	20	20	16	15	19	14	13	20	13	10	9	10	8	0	-2	4	2	4	5
16	5	1	-1	8	13	16	19	15	9	11	13	16	14	9	7	8	6	1	0	6	9	9	7	6
17	2	-3	-3	0	7	9	11	14	15	12	5	2	11	14	13	14	13	16	13	10	6	6	10	16
18	17	1	0	-7	-9	-7	-1	2	7	15	-4	-15	-4	4	6	1	-3	-6	-6	-10	-4	-3	-6	-8
19	-9	-6	-5	-2	0	5	7	5	4	6	7	7	7	1	-2	3	6	8	8	7	6	2	-1	1
20	-2	-5	-5	-3	1	3	3	4	5	12	15	11	10	2	-1	2	8	9	10	12	11	10	11	14
21	15	12	11	12	13	12	14	10	6	8	12	13	3	-1	2	6	6	4	3	3	3	1	0	1
22	2	-1	1	6	8	9	10	9	8	6	6	6	9	9	9	12	13	14	14	16	17	14	12	11
23	13	12	13	11	14	15	15	17	16	16	15	15	16	16	16	18	17	17	19	21	22	23	22	18
24	20	18	17	16	17	21	23	22	24	23	25	26	24	25	26	26	26	24	15	19	24	23	23	26
25	27	27	26	22	21	27	34	36	28	25	25	26	23	23	28	33	26	27	37	38	39	33	30	24
26	21	19	20	20	23	23	24	24	30	36	46	48	57	63	70	52	23	17	21	17	9	7	-1	-1
27	-1	-3	-4	-10	-6	-8	-20	-24	-25	-25	-40	-36	-29	-41	-45	-47	-40	-37	-44	-45	-43	-49	-55	-55
28	-45	-41	-48	-47	-49	-59	-56	-40	-40	-43	-31	-33	-33	-37	-42	-38	-42	-40	-41	-38	-35	-36	-38	-47
29	-34	-38	-38	-35	-36	-34	-34	-29	-28	-28	-24	-20	-17	-24	-31	-31	-27	-22	-27	-28	-25	-33	-31	-31
30	-26	-21	-22	-20	-19	-18	-12	-13	-24	-31	-21	-16	-16	-25	-31	-25	-26	-28	-26	-26	-20	-17	-19	-29
31	-26	-26	-25	-27	-40	-36	-34	-36	-33	-27	-29	-30	-23	-25	-23	-23	-22	-26	-28	-23	-18	-18	-22	-19

HOURLY EQUATORIAL DST VALUES

JUNE 1982

UNIT=GAMMAS

DAY	G.M.T. 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	-21	-28	-28	-24	-23	-24	-19	-12	-10	-7	-1	-1	-4	-9	-8	-8	-10	-11	-14	-21	-23	-25	-26	-22
2	-15	-19	-19	-22	-25	-25	-19	-17	-15	-12	-9	-8	-10	-17	-18	-13	-11	-10	-11	-12	-17	-15	-14	-12
3	-14	-17	-15	-15	-11	-9	-9	-6	-3	-4	-3	1	1	0	0	-2	-1	-1	1	0	0	-1	-1	3
4	3	8	-1	-6	-8	-7	-4	1	0	2	4	6	6	7	4	4	6	9	8	9	5	1	-3	-6
5	-6	-4	-3	-1	2	8	12	14	15	14	14	15	13	14	18	15	16	18	21	21	17	12	13	16
6	18	18	23	51	47	31	14	-1	0	5	3	3	11	10	8	12	12	9	6	5	8	7	10	10
7	-2	-17	-25	-22	-20	-12	-20	-21	-32	-29	-24	-19	-13	-11	-17	-22	-22	-20	-18	-14	-9	-11	-8	-3
8	-1	-1	-4	-8	-6	-1	2	3	5	5	5	4	5	5	5	4	-5	-7	-6	-2	0	-4	-5	-1
9	17	46	37	25	26	28	29	27	26	24	27	22	18	16	11	13	14	17	19	17	19	19	16	17
10	24	25	20	-7	-38	-60	-66	-56	-54	-42	-38	-45	-46	-50	-56	-54	-49	-37	-34	-28	-21	-20	-18	-14
11	-7	-5	-11	-19	-28	-31	-25	-21	-19	-17	-13	-16	-18	-11	-4	0	-5	-13	-19	-21	-29	-27	-21	-26
12	-25	-36	-38	-35	-31	-20	-16	-19	-16	-15	-12	-15	-14	-16	-11	-12	-23	-28	-35	-32	-34	-25	-40	-46
13	-45	-55	-47	-56	-56	-42	-27	-23	-12	-3	8	4	-5	-29	-32	-20	-19	-27	-42	-43	-37	-40	-50	-52
14	-38	-30	-29	-28	-25	-18	-30	-33	-30	-30	-31	-23	-23	-26	-23	-26	-28	-27	-26	-30	-19	-16	-11	-9
15	-8	-11	-8	-7	-14	-19	-19	-13	-19	-22	-15	-15	-19	-22	-26	-20	-17	-18	-17	-18	-18	-22	-22	-19
16	-16	-13	-12	-10	-8	-9	-8	-5	-4	-4	-5	-5	-8	-11	-7	-6	-6	-4	-7	-9	-2	1	4	2
17	-1	-5	-8	-5	-2	0	2	5	7	4	2	-3	-5	-5	-5	-3	-3	-4	-4	-1	2	4	4	2
18	5	8	9	9	7	4	2	6	9	6	8	9	10	12	11	12	12	13	11	9	9	16	13	15
19	16	16	15	9	9	8	7	4	-4	-1	-3	-7	-4	2	-3	-7	-6	-16	-22	-28	-30	-35	-30	-19
20	-4	-12	-19	-25	-22	-23	-23	-16	-19	-22	-12	-5	-3	-10	-11	-8	-9	-8	-10	-17	-18	-12	-8	-3
21	-7	-3	-1	2	6	6	2	1	-11	-9	-1	3	-2	-3	-3	-1	3	1	-2	0	1	-2	-8	-11
22	-9	-4	-6	-11	-9	-6	-2	-6	-10	-9	-7	-8	-11	-13	-8	1	2	1	-4	-11	-6	-9	-22	-33
23	-40	-36	-37	-45	-53	-64	-56	-55	-59	-56	-49	-44	-40	-37	-30	-25	-27	-30	-33	-36	-32	-28	-26	-14
24	-12	-13	-11	-9	-9	3	5	3	6	-14	-24	-24	-27	-23	-22	-21	-18	-16	-12	-7	-19	-37	-45	-34
25	-22	-16	-20	-41	-36	-26	-19	-26	-39	-48	-41	-31	-31	-32	-30	-26	-23	-21	-21	-20	-17	-15	-15	-13
26	-9	-7	-5	-8	-8	-10	-10	-13	-14	-18	-16	-13	-15	-16	-21	-27	-32	-35	-38	-40	-42	-41	-37	-44
27	-45	-32	-35	-34	-28	-36	-44	-39	-37	-37	-34	-31	-27	-30	-29	-26	-24	-20	-19	-26	-39	-31	-31	-26
28	-22	-19	-27	-33	-33	-25	-21	-30	-28	-28	-24	-21	-20	-22	-21	-22	-26	-24	-25	-23	-23	-19	-24	-22
29	-17	-20	-22	-19	-17	-11	-12	-13	-8	-2	-4	-2	5	9	14	13	11	6	2	7	11	7	4	-3
30	1	0	-5	-1	-23	-40	-51	-54	-52	-51	-45	-49	-45	-42	-40	-38	-41	-43	-42	-38	-33	-29	-25	-30

HOURLY EQUATORIAL DST VALUES

JULY 1982

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	-14	-12	-9	-14	-12	-13	-7	-3	-2	1	-2	-3	-3	0	-3	-6	-4	-6	-8	-10	-14	-8	-8
2	-6	-4	-7	-9	-9	-8	-7	-4	-3	-1	2	0	-7	-11	-6	1	1	0	-3	-6	-8	-11	-5	-3
3	1	5	8	3	-1	2	6	5	4	5	5	2	8	7	5	6	5	5	5	3	5	7	7	5
4	8	9	7	4	3	3	5	6	8	8	7	7	8	8	9	6	6	5	5	4	6	7	5	6
5	8	9	11	12	14	19	18	16	17	20	21	26	32	28	28	24	25	25	34	39	42	44	47	49
6	46	35	35	37	41	46	45	46	38	24	27	36	37	38	41	32	26	9	8	11	11	10	8	10
7	17	23	16	16	14	6	1	1	0	3	8	9	3	2	1	-6	-15	-13	-10	-4	-3	-4	-2	2
8	8	14	12	14	7	3	2	4	1	2	7	6	12	16	16	12	4	8	13	12	13	7	7	2
9	-2	-5	0	5	7	7	6	4	0	0	3	7	12	11	9	7	8	3	0	0	7	10	10	9
10	7	8	10	7	2	-3	-3	3	3	3	4	3	9	16	19	19	17	14	11	16	19	15	10	9
11	6	6	18	19	14	14	20	23	25	31	37	28	17	16	3	-5	-1	3	13	1	-4	-4	-4	-5
12	-9	-12	-15	-19	-20	-8	1	3	2	3	2	-7	-30	-36	-46	-42	-37	-39	-59	-64	-60	-52	-44	-41
13	-40	-37	-50	-50	-48	-42	-45	-41	-42	-44	-30	-23	-25	-25	-30	-36	0	-8	-116	-137	-160	-133	-136	-178
14	-273	-325	-311	-313	-309	-282	-260	-240	-233	-222	-191	-181	-162	-156	-151	-140	-132	-124	-139	-141	-137	-123	-121	-113
15	-115	-109	-106	-99	-100	-98	-100	-101	-101	-107	-102	-105	-111	-111	-111	-110	-105	-103	-107	-106	-98	-92	-93	-91
16	-87	-83	-82	-79	-79	-81	-84	-82	-81	-79	-91	-78	-71	-73	-78	-58	-51	-55	-51	-47	-45	-20	-24	-38
17	-71	-82	-83	-76	-69	-65	-64	-64	-62	-50	-40	-58	-67	-69	-70	-67	-60	-58	-60	-64	-67	-73	-78	-79
18	-73	-53	-55	-54	-57	-58	-54	-54	-50	-53	-50	-52	-49	-49	-56	-61	-58	-52	-62	-53	-56	-58	-60	-60
19	-58	-57	-52	-55	-49	-43	-39	-41	-34	-31	-24	-26	-41	-34	-25	-43	-43	-41	-43	-42	-50	-53	-65	-70
20	-53	-46	-51	-63	-71	-82	-69	-63	-67	-62	-55	-60	-61	-59	-55	-52	-51	-51	-53	-50	-45	-47	-49	-50
21	-47	-43	-41	-37	-32	-33	-34	-38	-40	-37	-34	-34	-35	-36	-34	-33	-29	-22	-25	-28	-35	-34	-25	-19
22	-19	-25	-19	-18	-19	-20	-22	-23	-32	-33	-30	-27	-24	-30	-39	-33	-29	-25	-26	-27	-25	-26	-25	-26
23	-26	-30	-25	-28	-24	-20	-18	-21	-22	-19	-16	-23	-27	-24	-26	-26	-22	-23	-27	-27	-25	-23	-25	-25
24	-31	-28	-25	-35	-43	-48	-62	-61	-57	-62	-62	-56	-49	-45	-50	-50	-62	-58	-62	-75	-65	-62	-62	-61
25	-55	-50	-44	-43	-48	-48	-43	-49	-51	-49	-42	-37	-39	-35	-37	-39	-39	-39	-42	-43	-41	-45	-53	-53
26	-53	-55	-59	-52	-42	-37	-35	-42	-43	-36	-32	-31	-33	-29	-31	-37	-38	-31	-29	-34	-39	-43	-36	-27
27	-32	-29	-31	-32	-26	-33	-59	-56	-53	-47	-46	-49	-49	-43	-40	-37	-31	-29	-29	-28	-30	-38	-45	-47
28	-43	-33	-33	-34	-40	-42	-35	-31	-29	-27	-31	-36	-29	-27	-28	-25	-28	-34	-32	-30	-28	-28	-26	-25
29	-26	-29	-26	-25	-19	-18	-30	-43	-39	-33	-28	-28	-29	-30	-34	-32	-28	-24	-28	-31	-37	-36	-29	-20
30	-15	-20	-24	-22	-20	-18	-30	-43	-35	-29	-28	-26	-20	-14	-12	-12	-7	-29	-39	-33	-27	-25	-31	-27
31	-19	-16	-13	-13	-10	-17	-21	-37	-48	-57	-53	-38	-43	-48	-45	-42	-35	-35	-38	-36	-30	-31	-37	-39

HOURLY EQUATORIAL DST VALUES

AUGUST 1982

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	G.M.T. 23	24
1	-34	-28	-27	-29	-28	-24	-23	-25	-28	-26	-29	-26	-24	-22	-18	-16	-14	-17	-22	-25	-24	-21	-20	-24
2	-30	-21	-25	-32	-28	-25	-18	-12	-7	-12	-25	-40	-35	-35	-41	-56	-48	-46	-50	-54	-46	-48	-59	-51
3	-43	-39	-45	-47	-46	-38	-33	-41	-41	-37	-37	-41	-37	-38	-39	-46	-41	-40	-46	-40	-37	-36	-36	-32
4	-28	-30	-29	-30	-29	-26	-22	-21	-21	-21	-18	-23	-20	-18	-19	-25	-22	-25	-31	-29	-28	-30	-32	-32
5	-31	-35	-31	-30	-30	-30	-27	-23	-31	-32	-32	-27	-26	-29	-23	-29	-34	-35	-25	-27	-22	-21	-18	-12
6	-13	-17	-15	-12	-10	-13	-8	-5	-7	-12	-9	-9	-7	-7	-7	-9	-6	-6	-7	-11	-14	-7	-9	-15
7	-33	-45	-41	-50	-75	-105	-125	-155	-120	-115	-123	-125	-114	-129	-124	-103	-124	-111	-100	-86	-68	-85	-80	-72
8	-65	-61	-61	-57	-52	-49	-51	-51	-48	-44	-43	-38	-35	-31	-27	-29	-26	-22	-24	-22	-22	-19	-21	-24
9	-29	-31	-31	-31	-28	-28	-32	-42	-43	-51	-45	-36	-39	-41	-40	-37	-43	-35	-44	-35	-38	-44	-47	-53
10	-52	-51	-59	-52	-46	-50	-54	-46	-50	-51	-45	-40	-41	-44	-44	-46	-44	-40	-39	-42	-46	-44	-44	-45
11	-42	-36	-37	-33	-30	-30	-29	-23	-22	-30	-30	-33	-32	-33	-44	-47	-64	-79	-72	-63	-53	-50	-46	-45
12	-41	-41	-42	-46	-43	-41	-44	-47	-48	-41	-35	-46	-43	-41	-36	-45	-44	-44	-54	-56	-52	-47	-46	-38
13	-37	-38	-40	-42	-46	-43	-39	-37	-34	-40	-39	-35	-36	-35	-35	-30	-27	-25	-25	-22	-26	-24	-24	-24
14	-29	-27	-24	-25	-24	-22	-22	-21	-22	-26	-24	-20	-21	-22	-22	-25	-26	-30	-26	-24	-22	-16	-16	-21
15	-19	-17	-18	-21	-20	-15	-12	-10	-10	-10	-10	-12	-13	-15	-13	-15	-13	-11	-6	-8	-6	-5	-4	-1
16	1	2	-1	-3	-3	-6	-2	1	0	-2	-3	-4	-6	-7	-5	-3	-5	-7	-4	-6	-8	-16	-17	-13
17	-12	-7	-3	-3	0	-21	-29	-22	-22	-21	-18	-17	-17	-14	-12	-8	-4	-2	-1	-6	-19	-12	-14	-17
18	-17	-16	-9	-5	-16	-24	-20	-15	-12	-12	-10	-12	-13	-19	-19	-22	-18	-14	-17	-17	-24	-18	-13	-10
19	-9	-10	-15	-13	-19	-10	-8	-1	0	-1	-1	-2	-2	-3	-2	-4	-1	2	-1	-4	-5	-2	-5	-8
20	-7	-6	-6	-8	-4	3	3	3	4	0	0	0	-2	-9	-6	-3	2	2	-6	-5	-6	-8	-7	-12
21	-12	-10	-18	-21	-21	-13	-8	-9	-8	-9	-6	-2	-3	-5	-7	-9	-8	-3	-2	-3	-5	-6	-3	0
22	0	-6	-9	-12	-7	-4	-2	-2	-2	-11	-11	-5	-15	-11	-6	-8	-5	7	3	-2	-20	-21	-13	-8
23	-14	-10	-9	-9	-7	-9	-8	-10	-18	-11	-7	-9	-10	-9	-7	-5	-7	-8	-17	-13	-14	-16	-21	-21
24	-19	-14	-12	-10	-11	-10	-13	-15	-19	-14	-10	-15	-16	-19	-20	-20	-19	-15	-14	-12	-10	-6	-4	-2
25	-4	-8	-8	-10	-8	-11	-15	-10	-7	-11	-13	-9	-14	-12	-10	-11	-11	-20	-22	-21	-17	-14	-20	-21
26	-15	-9	-10	-10	-14	-15	-20	-16	-15	-7	-3	-3	-8	-17	-20	-17	-8	-1	-2	-5	-4	-3	-8	-6
27	-9	-11	-8	-8	-14	-13	-9	-8	-7	-2	0	-1	-5	-5	-9	-8	-6	-6	-9	-9	-8	-6	-7	-2
28	-2	-2	-1	1	3	3	4	4	1	5	7	2	6	14	20	24	28	32	14	-1	-3	-16	-25	-25
29	-15	-13	-17	-25	-27	-19	-28	-34	-26	-32	-41	-51	-44	-30	-31	-36	-39	-36	-36	-32	-34	-33	-35	-28
30	-22	-19	-21	-25	-38	-35	-35	-42	-38	-28	-28	-30	-29	-25	-27	-28	-26	-29	-29	-30	-28	-30	-36	-34
31	-32	-27	-24	-25	-27	-24	-19	-27	-26	-19	-12	-13	-13	-24	-22	-18	-16	-16	-21	-27	-31	-36	-35	-26

HOURLY EQUATORIAL DST VALUES

SEPTEMBER 1982

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	G.M.T. 23	24
1	-20	-20	-15	-12	-12	-12	-9	-8	-5	-1	-4	-7	-10	-14	-13	-7	-4	-5	-9	-6	-7	-12	-15	-15
2	-14	-12	-17	-21	-20	-15	-15	-22	-22	-14	-12	-6	-7	-11	-7	-3	-2	-4	-14	-20	-18	-21	-30	-27
3	-26	-20	-16	-17	-23	-29	-27	-25	-31	-19	-28	-36	-33	-23	-26	-30	-25	-21	-18	-18	-26	-24	-27	-25
4	-24	-18	-19	-28	-32	-23	-22	-23	-16	-16	-30	-49	-45	-43	-50	-57	-49	-50	-51	-50	-52	-49	-45	-47
5	-40	-41	-34	-35	-44	-47	-50	-48	-48	-47	-41	-38	-39	-44	-50	-50	-49	-40	-36	-38	-41	-51	-52	-22
6	-52	-70	-114	-146	-186	-173	-187	-187	-206	-221	-252	-289	-253	-232	-242	-272	-273	-262	-262	-251	-235	-229	-225	-207
7	-188	-169	-167	-165	-171	-166	-154	-148	-137	-134	-131	-134	-123	-121	-120	-118	-118	-124	-126	-113	-105	-99	-99	-94
8	-84	-78	-75	-74	-80	-84	-77	-72	-67	-65	-67	-56	-47	-41	-36	-33	-31	-35	-39	-43	-42	-43	-47	-38
9	-33	13	-12	-27	-32	-30	-25	-39	-27	-43	-20	-27	-30	-32	-39	-37	-32	-32	-35	-46	-46	-41	-42	-47
10	-49	-52	-45	-40	-42	-40	-39	-35	-31	-31	-29	-26	-22	-21	-23	-27	-36	-34	-33	-31	-28	-30	-28	-29
11	-31	-29	-24	-23	-29	-33	-31	-30	-29	-28	-28	-38	-30	-30	-34	-32	-33	-28	-24	-24	-26	-25	-31	-29
12	-31	-30	-28	-30	-33	-34	-31	-29	-30	-26	-26	-21	-16	-17	-21	-21	-21	-22	-21	-24	-23	-20	-14	-21
13	-47	-65	-67	-58	-57	-56	-52	-44	-38	-34	-32	-37	-32	-31	-34	-38	-34	-28	-30	-32	-33	-32	-28	-27
14	-26	-23	-22	-23	-35	-47	-36	-29	-26	-31	-25	-22	-16	-15	-18	-20	-17	-17	-30	-46	-44	-32	-28	-31
15	-31	-29	-27	-27	-38	-48	-40	-34	-25	-25	-20	-15	-10	-9	-10	-18	-18	-17	-15	-19	-19	-19	-20	-21
16	-18	-16	-7	-8	-12	-14	-16	-21	-13	-3	-7	-6	-5	-13	-19	-14	-13	-13	-15	-23	-29	-23	-22	-18
17	-15	-10	-8	-9	-14	-16	-18	-16	-17	-29	-41	-32	-24	-23	-27	-31	-29	-31	-30	-30	-27	-25	-23	-22
18	-20	-26	-26	-41	-48	-42	-39	-38	-35	-22	-16	-16	-16	-10	-23	-27	-20	-15	-16	-40	-74	-77	-57	-51
19	-45	-45	-38	-36	-32	-45	-52	-42	-33	-32	-37	-32	-23	-24	-33	-30	-32	-24	-30	-36	-45	-42	-41	-44
20	-45	-38	-33	-31	-36	-32	-36	-40	-44	-36	-29	-24	-25	-28	-25	-26	-23	-20	-13	-10	-15	-16	-21	-29
21	-34	-31	-32	-20	-6	-11	-17	-18	-27	-27	-26	-27	-22	-27	-26	-21	-5	-10	-16	-14	-28	-24	-31	-48
22	-71	-80	-96	-122	-153	-173	-184	-210	-198	-190	-194	-156	-161	-151	-124	-116	-125	-118	-109	-106	-103	-102	-90	-79
23	-83	-80	-75	-69	-80	-87	-86	-81	-77	-74	-74	-62	-51	-48	-49	-56	-49	-53	-62	-60	-56	-63	-71	-71
24	-65	-61	-55	-41	-26	-30	-60	-55	-44	-36	-29	-31	-32	-40	-41	-39	-32	-27	-36	-40	-36	-36	-37	-35
25	-33	-29	-27	-26	-32	-35	-36	-36	-36	-28	-25	-19	-16	-17	-19	-18	-12	-3	-16	-19	-15	-5	-4	-10
26	-10	0	1	-5	-17	-22	-22	-27	-33	-46	-48	-53	-68	-82	-132	-164	-177	-181	-187	-180	-165	-139	-142	-161
27	-155	-129	-124	-128	-124	-120	-125	-118	-108	-94	-82	-77	-78	-70	-63	-60	-59	-58	-58	-64	-54	-45	-36	-43
28	-50	-55	-60	-61	-62	-58	-58	-49	-45	-35	-31	-33	-33	-31	-30	-29	-31	-29	-26	-23	-22	-14	-17	-22
29	-33	-38	-32	-28	-23	-18	-26	-31	-38	-36	-32	-40	-45	-42	-34	-35	-37	-36	-35	-35	-29	-30	-28	-26
30	-24	-18	-14	-14	-16	-16	-18	-18	-14	-23	-27	-31	-40	-46	-46	-40	-37	-31	-32	-38	-36	-43	-45	-42

HOURLY EQUATORIAL DST VALUES

OCTOBER 1982

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	-37	-39	-40	-43	-41	-39	-36	-39	-40	-31	-23	-25	-25	-26	-29	-28	-22	-35	-53	-54	-44	-52	-66	-70
2	-67	-56	-59	-62	-67	-75	-78	-69	-71	-57	-56	-62	-60	-64	-70	-63	-58	-53	-51	-48	-45	-41	-41	-42
3	-46	-45	-40	-39	-43	-46	-46	-50	-45	-38	-36	-40	-43	-46	-46	-44	-40	-33	-27	-33	-34	-33	-27	-25
4	-27	-32	-31	-33	-32	-35	-44	-46	-39	-38	-49	-58	-60	-58	-49	-43	-39	-36	-35	-35	-33	-26	-24	-23
5	-28	-27	-28	-29	-32	-33	-34	-37	-27	-18	-18	-18	-22	-19	-15	-13	-11	-11	-20	-17	-12	-12	-17	-20
6	-21	-19	-17	-23	-30	-35	-37	-40	-32	-23	-28	-27	-25	-19	-26	-27	-19	-12	-17	-32	-48	-56	-56	-48
7	-46	-60	-66	-71	-74	-79	-85	-87	-91	-89	-93	-92	-83	-65	-65	-77	-75	-67	-54	-47	-45	-43	-41	-42
8	-45	-42	-40	-40	-46	-41	-40	-38	-34	-30	-33	-31	-29	-28	-27	-28	-32	-41	-45	-44	-44	-44	-37	-36
9	-33	-31	-31	-31	-29	-28	-26	-22	-20	-16	-15	-15	-17	-16	-12	-9	-7	-5	-2	-2	-1	0	1	-1
10	-9	-5	-2	-2	-6	-2	-2	-2	5	10	10	1	2	7	8	7	6	4	3	6	3	-5	-5	-2
11	-2	-5	-9	-11	-13	-6	-16	-16	-11	-9	-8	-3	-7	-4	0	-5	-4	-4	-1	-4	-8	-2	-4	-5
12	-4	-2	-1	-1	-2	-5	-6	-4	-4	1	4	4	4	0	-5	-6	-9	-4	-2	0	-13	-26	-27	-16
13	-13	-16	-23	-35	-34	-25	-24	-22	-17	-16	-21	-26	-32	-40	-44	-47	-53	-47	-44	-45	-58	-66	-55	-58
14	-61	-67	-67	-64	-66	-74	-85	-91	-90	-68	-67	-65	-53	-59	-56	-47	-47	-51	-53	-57	-57	-52	-49	-45
15	-42	-40	-41	-40	-36	-37	-35	-34	-32	-31	-36	-31	-26	-24	-19	-18	-16	-11	-9	-13	-9	-9	-8	-6
16	-6	-5	-5	-5	-4	-2	-3	-4	-2	-5	-3	-3	-1	2	0	-5	-14	-22	-16	-10	-18	-20	-23	-15
17	-12	-12	-29	-44	-36	-27	-26	-29	-28	-19	-15	-20	-27	-24	-19	-17	-16	-14	-14	-18	-26	-32	-39	-30
18	-25	-34	-33	-30	-25	-18	-16	-22	-19	-17	-13	-15	-13	-14	-20	-29	-37	-28	-25	-26	-27	-28	-25	-19
19	-17	-17	-14	-12	-9	-8	-17	-17	-14	-8	-9	-9	-9	-7	-6	-8	-9	-9	-12	-29	-24	-30	-27	-25
20	-20	-14	-14	-13	-14	-21	-28	-28	-31	-27	-27	-28	-23	-24	-21	-21	-16	-12	-7	-3	-4	-7	-7	-8
21	-10	-14	-15	-9	-7	-9	-12	-10	-9	-9	-8	-10	-11	-10	-8	-7	-10	-14	-7	-3	4	9	8	8
22	2	1	2	3	5	8	9	8	7	8	9	8	6	4	1	1	2	4	5	6	5	4	2	1
23	0	1	3	4	3	4	6	4	7	7	10	13	13	13	6	0	0	-2	-4	1	4	-1	-2	1
24	3	4	6	10	12	15	16	14	14	9	6	1	1	0	1	9	8	2	1	0	0	-1	2	3
25	3	-2	-8	-9	-10	-6	-7	-14	-17	-20	-22	-24	-33	-31	-35	-41	-43	-43	-44	-44	-45	-40	-25	-18
26	-5	-9	-24	-12	-7	-40	-39	-28	-16	-9	-26	-30	-43	-49	-48	-43	-41	-36	-39	-37	-34	-32	-32	-30
27	-31	-32	-31	-27	-22	-17	-20	-25	-23	-18	-15	-11	-6	-9	-10	-4	4	-6	-12	-12	-11	-7	-10	-5
28	-5	-9	-8	-7	-4	-4	-4	-3	-3	-8	-15	-13	-19	-23	-20	-8	1	7	14	37	54	50	48	55
29	58	52	38	5	-10	-40	-53	-55	-61	-61	-66	-61	-65	-65	-66	-69	-62	-54	-55	-54	-52	-51	-40	-41
30	-39	-36	-46	-47	-40	-38	-40	-45	-46	-46	-39	-45	-52	-64	-61	-62	-64	-61	-58	-59	-49	-44	-43	-39
31	-39	-39	-48	-46	-35	-33	-30	-27	-26	-27	-25	-24	-25	-18	-8	-5	-15	-11	-21	-42	-34	-32	-45	-46

HOURLY EQUATORIAL DST VALUES

NOVEMBER 1982

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	G.M.T. 23	24
1	-47	-55	-60	-57	-56	-56	-58	-52	-55	-48	-51	-51	-45	-54	-63	-57	-57	-62	-63	-59	-51	-55	-52	-46
2	-48	-44	-44	-43	-35	-35	-37	-35	-30	-26	-31	-32	-35	-35	-39	-54	-70	-59	-67	-71	-71	-73	-63	-61
3	-63	-60	-59	-66	-65	-63	-61	-65	-67	-58	-65	-70	-63	-58	-57	-58	-55	-52	-47	-41	-40	-39	-36	-32
4	-29	-29	-30	-28	-25	-23	-22	-27	-34	-30	-32	-34	-39	-38	-31	-27	-28	-29	-27	-29	-27	-28	-27	-25
5	-23	-23	-24	-21	-17	-12	-9	-11	-15	-13	-13	-22	-23	-21	-12	-10	-8	-12	-6	0	-2	0	-1	-4
6	-7	-6	-6	-3	-4	-3	-7	-12	-9	-5	-17	-18	-16	-19	-21	-19	-16	-10	-7	-4	0	-1	-1	-4
7	-8	-12	-16	-14	-10	-9	-10	-12	-10	-8	-9	-4	-6	-8	-9	-8	-7	-6	1	3	3	6	4	3
8	4	1	1	4	8	11	9	12	23	19	17	18	21	22	27	27	24	-7	-11	-10	-3	-9	-9	-6
9	2	2	-1	-6	-6	-6	-2	2	3	5	7	9	6	9	3	5	3	3	3	5	4	6	12	8
10	3	7	6	8	5	3	0	-2	1	3	3	8	1	-2	1	0	-7	-9	-14	-12	-11	-9	-19	-27
11	-19	-17	-19	-13	-6	0	-7	-7	-2	1	-18	-33	-24	-20	-14	-20	-20	-11	-6	-3	-6	-5	-9	-7
12	-6	-7	-5	0	3	-2	-5	0	3	-5	-20	-17	-14	-9	-7	-11	-11	-11	-9	-8	-8	-14	-12	-9
13	-9	-22	-20	-19	-17	-10	-11	-13	-14	-19	-14	-6	1	-1	-7	-8	-8	-5	-4	-7	-12	-7	-4	-2
14	-3	-3	-3	-1	-1	-1	-2	-7	-11	-11	-9	-11	-7	-9	-11	-16	-19	-15	-13	-12	-11	-10	-10	-5
15	-5	-4	-6	-3	3	8	5	-3	-2	-6	-9	-4	0	0	-3	-11	-23	-22	-16	-13	-16	-15	-13	-10
16	-7	-6	-6	-3	-4	-4	-10	-9	-5	-6	-11	-8	0	1	-1	-4	-5	-5	-5	-2	0	3	6	7
17	7	8	10	12	11	10	10	8	10	10	8	10	12	14	14	17	19	17	12	8	1	1	-2	4
18	2	-2	2	6	7	-1	-4	0	0	-7	-9	-3	3	2	-8	-18	-25	-26	-17	-12	-15	-13	-12	-10
19	-10	-13	-12	-7	-7	-5	-4	-3	-1	-3	-4	-6	-1	0	-1	-5	-9	-9	-2	-9	-13	-11	-7	-3
20	-2	-1	5	3	5	7	7	8	6	6	2	0	4	3	0	1	2	1	4	6	7	9	6	2
21	-1	-1	-6	-10	-13	-20	-16	-12	-4	-8	-14	-15	-13	-13	-4	-2	-6	-20	-33	-42	-54	-66	-76	-69
22	-103	-112	-110	-108	-110	-114	-102	-93	-89	-88	-76	-64	-58	-48	-41	-39	-38	-38	-38	-38	-37	-38	-37	-36
23	-35	-32	-28	-27	-23	-20	-21	-21	-20	-8	0	3	12	9	-7	-9	-36	-51	-46	-64	-79	-69	-75	-101
24	-97	-76	-80	-70	-69	-75	-76	-76	-72	-59	-40	-33	-43	-75	-142	-152	-180	-197	-183	-166	-170	-161	-143	-173
25	-192	-170	-164	-161	-161	-160	-144	-136	-122	-126	-106	-99	-104	-102	-92	-86	-87	-83	-79	-76	-75	-72	-78	-74
26	-64	-61	-56	-59	-69	-65	-68	-62	-66	-65	-65	-49	-51	-52	-53	-61	-59	-54	-47	-46	-44	-48	-45	-39
27	-38	-37	-39	-42	-39	-33	-33	-35	-39	-44	-40	-32	-25	-26	-36	-38	-36	-34	-36	-32	-36	-36	-34	-33
28	-18	-21	-21	-17	-14	-24	-43	-39	-32	-36	-34	-27	-25	-31	-33	-37	-36	-34	-35	-33	-30	-29	-35	-33
29	-32	-36	-38	-34	-28	-27	-27	-24	-23	-26	-22	-13	-4	-9	-20	-21	-33	-44	-38	-56	-50	-31	-34	-23
30	-13	-26	-40	-47	-49	-50	-52	-45	-43	-40	-37	-33	-22	-19	-13	-13	-17	-18	-19	-21	-22	-23	-21	-21

HOURLY EQUATORIAL DST VALUES

DECEMBER 1982

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	G.M.I. 23	G.M.I. 24
1	-26	-26	-25	-23	-20	-18	-17	-18	-19	-19	-18	-16	-13	-10	-10	-10	-11	-12	-11	-13	-13	-14	-13	-13
2	-11	-11	-10	-10	-9	-7	-5	-4	-4	-6	-7	-4	-4	-8	-10	-7	-1	1	1	1	-1	-1	-2	0
3	1	5	3	5	5	6	9	11	13	17	18	9	13	8	-1	-10	-16	-13	-10	-8	-9	-9	-8	-5
4	-3	7	1	-4	-2	4	3	0	-3	-4	-4	-3	0	3	4	4	4	4	-2	-1	12	5	-8	-23
5	-37	-51	-55	-42	-36	-41	-43	-41	-42	-39	-38	-36	-32	-28	-22	-21	-24	-24	-22	-23	-22	-23	-26	-23
6	-21	-20	-17	-12	-10	-5	-1	0	4	2	0	-3	3	1	1	1	-1	1	3	4	6	6	4	4
7	8	8	10	18	22	14	22	26	30	31	34	28	11	-7	-32	-63	-72	-62	-63	-61	-60	-62	-72	-78
8	-62	-59	-53	-42	-40	-39	-43	-54	-56	-57	-57	-62	-61	-61	-49	-55	-62	-69	-78	-73	-70	-57	-52	-52
9	-49	-45	-40	-42	-45	-43	-44	-45	-43	-38	-30	-25	-19	-13	-14	-21	-26	-34	-25	-20	-16	-17	-22	-17
10	-15	-16	-12	-12	-9	-13	-23	-19	-23	-51	-60	-51	-52	-54	-37	-23	-27	-36	-37	-48	-52	-56	-50	-48
11	-44	-40	-39	-41	-39	-36	-39	-40	-45	-37	-32	-30	-29	-26	-16	-22	-26	-40	-40	-49	-52	-46	-49	-44
12	-41	-42	-42	-43	-43	-44	-47	-43	-39	-40	-42	-44	-37	-33	-29	-27	-28	-20	-14	-12	-13	-12	-17	-16
13	-16	-14	-13	-14	-14	-9	-4	-3	-3	-8	-11	-11	-14	-14	-14	-15	-14	-15	-15	-12	-10	-9	-7	-7
14	-2	-1	-1	-3	-2	0	1	-3	-4	-5	-7	-10	-7	-3	-1	0	1	2	4	4	8	-3	-15	-16
15	-9	-2	-4	-4	1	3	7	-2	-11	-16	-11	2	3	4	10	14	16	23	23	23	20	18	21	17
16	17	17	14	10	6	5	3	4	0	-3	-5	-6	1	-5	-10	-17	-19	-16	-13	-19	-26	-30	-27	-22
17	-29	-40	-50	-56	-60	-66	-68	-68	-48	-49	-45	-55	-80	-106	-94	-84	-66	-61	-47	-47	-54	-34	-27	-29
18	-39	-46	-47	-44	-44	-37	-37	-33	-35	-45	-46	-67	-60	-55	-60	-69	-66	-56	-49	-59	-57	-41	-36	-25
19	-18	-3	16	47	40	34	-5	15	15	25	-8	-10	-38	-55	-36	-40	-41	-30	-22	-22	-18	-18	-12	13
20	17	31	2	11	-6	-12	-25	-20	-20	-19	-20	-29	-35	-42	-44	-52	-57	-47	-58	-54	-41	-35	-44	-40
21	-36	-34	-31	-33	-41	-43	-49	-42	-51	-52	-51	-55	-55	-43	-44	-43	-46	-49	-50	-56	-52	-49	-54	-64
22	-56	-55	-65	-72	-98	-101	-93	-85	-76	-70	-62	-55	-53	-53	-48	-46	-49	-45	-41	-40	-34	-33	-30	-25
23	-22	-20	-24	-25	-25	-25	-24	-24	-21	-28	-30	-22	-23	-33	-36	-43	-47	-53	-45	-42	-47	-42	-39	-41
24	-37	-35	-30	-33	-35	-35	-36	-37	-39	-24	-24	-30	-35	-34	-30	-30	-30	-28	-26	-19	-12	-9	-8	-13
25	-10	-7	-9	-11	-14	-16	-12	-10	-11	-8	-2	-3	-6	-7	-8	-10	-9	-8	-9	-6	-1	2	3	4
26	2	2	1	-1	-4	-7	-3	-1	5	8	8	-2	-10	-11	-9	-4	-6	-9	-8	-6	-3	0	2	7
27	12	11	2	-1	-2	-4	-3	22	29	19	20	12	-4	0	5	4	4	4	5	6	3	1	11	14
28	12	9	-2	-11	-9	-6	-8	-3	-5	-12	-10	-6	-13	-18	-20	-10	-11	-10	-12	-15	-20	-15	-9	-9
29	-5	-2	-6	-10	-15	-15	-13	-9	-16	-21	-22	-24	-20	-21	-25	-26	-22	-17	-15	-16	-19	-16	-14	-10
30	-11	-13	-15	-19	-24	-15	-19	-29	-23	-16	-13	-11	-8	-3	4	6	-1	-6	-9	-13	-12	-8	-3	-3
31	-5	-9	-9	-8	-11	-14	-19	-22	-18	-14	-7	-2	-3	0	2	4	2	3	5	6	7	5	4	7

DAILY MEANS OF EQUATORIAL DST FOR 1982

DAY	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
1	-14	-63	-24	-7	-31	-16	-8	-24	-10	-39	-55	-16
2	-15	-84	-165	-61	-30	-15	-5	-35	-15	-59	-47	-5
3	-19	-59	-66	-75	-46	-4	5	-40	-25	-39	-56	1
4	-19	-74	-26	-49	-25	2	6	-25	-37	-39	-23	0
5	-1	-69	-37	-37	-17	11	25	-28	-43	-22	-13	-33
6	0	-69	-18	-30	-7	13	29	-10	-210	-30	-9	-2
7	-1	-61	-6	-9	-1	-17	3	-97	-134	-68	-6	-15
8	-5	-44	-16	-7	4	0	8	-38	-56	-37	8	-57
9	0	-33	-31	-10	5	22	5	-38	-32	-15	3	-31
10	15	-49	-37	-71	17	-32	9	-46	-33	1	-3	-34
11	11	-49	-26	-76	11	-17	11	-42	-29	-7	-12	-38
12	10	-59	-13	-35	9	-25	-26	-44	-25	-5	-8	-32
13	25	-85	-15	-18	12	-31	-62	-33	-40	-36	-10	-11
14	30	-77	-11	1	18	-26	-199	-23	-27	-62	-8	-3
15	10	-64	-13	0	11	-17	-104	-12	-23	-25	-7	6
16	-6	-34	-5	6	9	-6	-67	-5	-15	-8	-4	-6
17	-10	-23	20	-21	9	-1	-67	-13	-23	-24	10	-57
18	-7	-33	4	-18	-2	10	-56	-16	-33	-23	-7	-48
19	-12	-34	-6	-9	3	-5	-44	-5	-36	-14	-6	-7
20	3	-25	-6	-12	6	-13	-57	-3	-28	-17	4	-27
21	19	-21	-17	-14	7	-2	-34	-8	-23	-7	-23	-47
22	-25	-49	-28	-12	9	-8	-26	-7	-134	5	-69	-58
23	-15	-70	-14	-1	17	-40	-24	-11	-67	4	-31	-33
24	-11	-43	10	7	22	-16	-53	-13	-40	6	-109	-28
25	-11	-47	-5	-40	29	-26	-44	-13	-22	-24	-115	-7
26	-1	-39	1	-38	28	-22	-39	-10	-86	-30	-56	-2
27	-1	-29	2	-16	-31	-32	-39	-7	-86	-15	-36	7
28	-14	-13	4	-24	-42	-24	-31	4	-38	5	-30	-9
29	2		-7	-27	-29	-3	-29	-31	-33	-39	-29	-16
30	-26		-11	-46	-22	-34	-24	-30	-30	-48	-29	-11
31	-33		-22		-27		-33	-23		-29		-4
MEAN	-4	-50	-19	-25	-3	-12	-31	-23	-48	-24	-26	-20

ANNUAL MEAN -24

MONTHLY AND YEARLY **Dst** 1957 - 1982

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual mean
1957	-19.8	-24.1	-41.3	-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	-11.8	-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	-11.8	-7.0	-6.5	-28.3	-7.2	-8.8	-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	2.3	-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	-1.3	-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	-12.3	-11.3	-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	-28.8	-26.2	-30.4	-33.4	-12.7	-4.3	1.8	-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
1982	-4.0	-50.0	-19.0	-25.0	-3.0	-12.0	-31.0	-23.0	-48.0	-24.0	-26.0	-20.0	-23.8

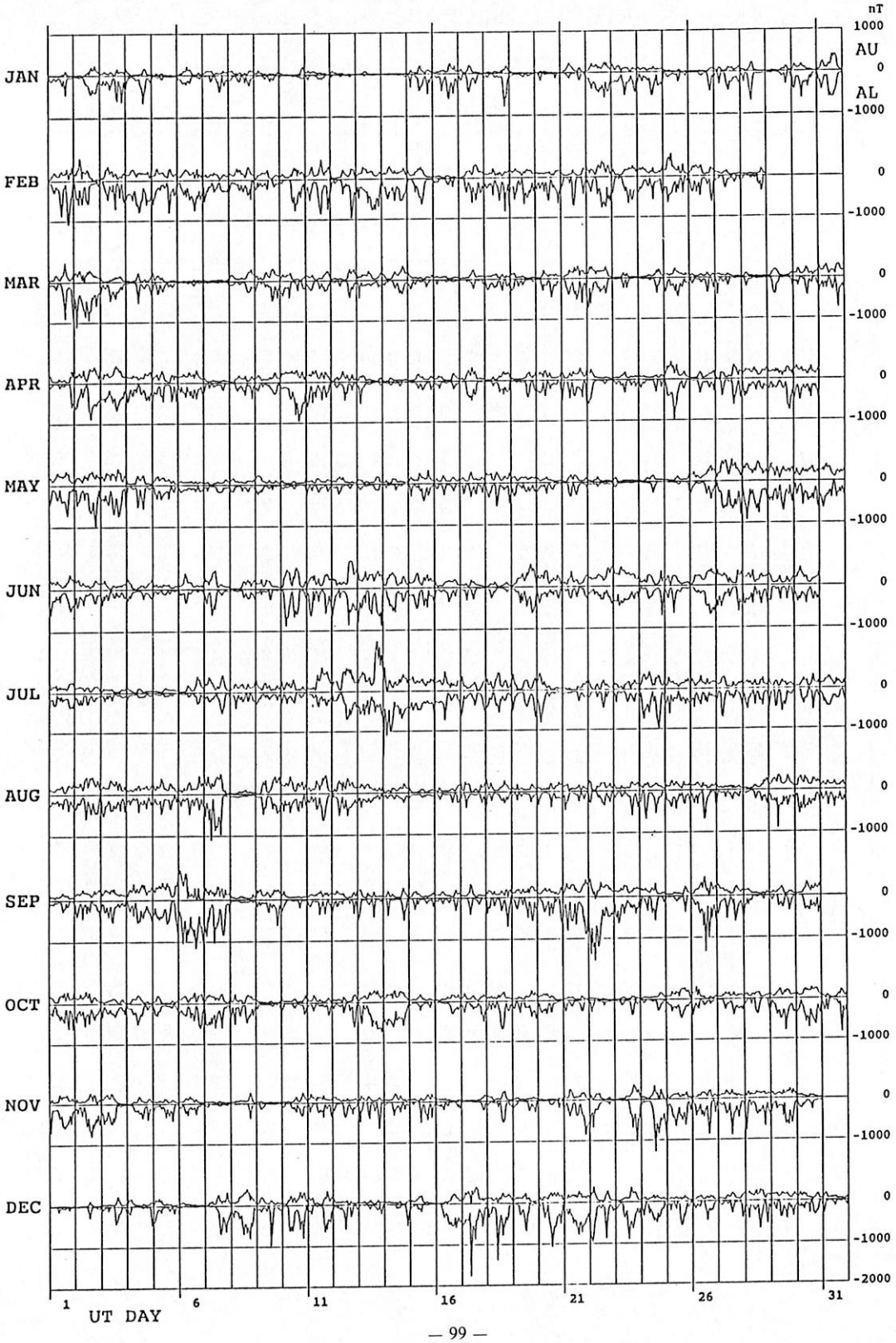
Unit : nT

SECTION 3

3.5. AU, AL, AE INDICES

- Hourly values of **AU** and **AL** 1982 (graph) 99
- Monthly tables of hourly values of **AU**, **AL** and **AE** indices 100
- Monthly and yearly mean values of **AE** 1957-1982 124

HOURLY VALUES OF **AU** AND **AL** 1982



HOURLY VALUES (nT) OF AU, AL AND AE INDICES JANUARY 1982

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	16	17	21	17	19	14	13	23	5	16	15	18	23	46	33	47	108	65	22	13	17	12	10	17	25
	AL	-31	-80	-133	-135	-86	-48	-68	-114	-84	-47	-48	-75	-168	-236	-101	-293	-456	-97	-44	-37	-44	-51	-43	-29	-106
	AE	48	98	154	153	105	63	82	139	90	64	64	95	192	282	134	341	564	163	67	51	62	64	54	47	132
2		18	16	15	9	17	14	19	12	8	13	22	43	67	88	42	139	197	123	144	237	141	125	94	94	71
		-26	-36	-24	-22	-28	-55	-32	-19	-30	-59	-162	-199	-209	-233	-308	-446	-437	-324	-385	-402	-416	-306	-150	-124	-185
		44	53	39	32	46	70	53	32	39	73	185	242	277	323	351	586	635	447	529	639	557	431	244	219	256
3		60	45	67	73	104	75	61	52	43	77	100	77	51	27	16	71	156	75	93	99	106	93	88	39	73
		-176	-179	-227	-112	-171	-218	-115	-156	-192	-326	-243	-157	-59	-47	-114	-511	-599	-122	-227	-240	-639	-361	-152	-312	-236
		237	225	294	186	276	295	178	209	237	405	345	235	112	75	131	583	756	199	321	340	746	455	240	351	309
4		156	120	75	61	35	28	16	33	23	32	22	29	30	32	56	38	116	167	148	68	30	31	36	20	58
		-295	-131	-94	-19	-53	-20	-18	-54	-41	-100	-108	-82	-85	-204	-253	-388	-656	-410	-259	-86	-40	-76	-139	-174	-158
		451	252	170	81	89	49	35	89	66	133	131	113	116	236	309	427	773	578	407	154	71	108	176	195	217
5		29	29	17	19	48	48	26	16	36	58	51	21	18	11	10	7	8	10	9	5	7	3	7	11	21
		-58	-21	-17	-11	-25	-47	-47	-18	-28	-93	-93	-24	-27	-21	-21	-21	-25	-29	-25	-19	-19	-23	-21	-20	-31
		88	51	35	30	75	96	75	35	65	152	146	46	45	32	32	30	35	40	35	26	27	27	28	31	53
6		13	24	42	49	38	68	110	102	114	210	123	116	148	83	32	24	21	16	22	45	75	34	34	37	66
		-16	-98	-79	-96	-143	-197	-175	-165	-221	-155	-121	-167	-183	-52	-13	-21	-29	-26	-25	-51	-37	-93	-29	-20	-92
		29	123	121	146	182	266	286	268	336	366	246	284	331	136	46	46	51	43	49	97	113	128	63	58	159
7		30	50	83	106	114	104	102	103	115	53	30	34	63	59	50	44	51	49	61	112	68	76	85	57	71
		-18	-17	-31	-9	-15	0	-28	-147	-123	-27	-19	-21	-73	-183	-140	-391	-365	-167	-36	-207	-244	-118	-93	-148	-109
		49	68	114	116	129	104	131	251	239	82	50	57	137	242	192	435	417	216	98	319	314	194	179	205	181
8		90	97	92	118	74	49	34	50	25	47	69	57	33	20	33	64	32	32	50	97	119	95	103	85	65
		-114	-123	-112	-77	-19	-26	-10	-34	-103	-142	-151	-40	-12	-21	-72	-178	-36	-144	-197	-245	-95	-92	-58	-28	-89
		204	221	205	196	93	76	45	85	130	190	222	98	45	42	105	242	69	177	248	342	215	188	162	115	155
9		65	45	43	54	111	76	54	53	35	31	44	28	18	24	24	45	41	25	43	21	19	25	63	73	44
		-30	-43	-20	-22	-16	-5	-4	-13	-23	-44	-95	-41	-15	-17	-88	-150	-59	-91	-121	-48	-18	-25	-40	-57	-45
		97	90	64	77	128	82	59	67	60	76	141	70	33	41	113	195	100	117	164	69	38	52	105	131	90
10		65	37	35	16	13	14	9	11	8	7	6	5	4	3	4	8	18	19	21	27	72	172	188	88	36
		-57	-12	-8	-10	-9	-5	-4	-3	-5	-6	-10	-12	-25	-22	-19	-20	-24	-40	-36	-42	-73	-78	-78	-44	-27
		124	50	43	27	23	20	14	15	13	14	16	17	30	25	23	28	43	59	57	69	146	252	268	133	63
11		65	66	55	105	75	42	63	80	81	74	55	54	38	47	56	39	41	22	34	36	26	17	12	20	50
		-24	-17	-88	-110	-10	-13	-14	-9	-12	-24	-29	-31	-60	-100	-69	-72	-113	-53	-68	-24	-12	-7	-12	-12	-41
		89	83	144	215	86	56	79	90	95	99	86	86	99	148	126	111	155	75	103	61	39	24	25	32	92
12		31	66	87	56	47	48	21	20	31	21	31	32	9	6	4	6	7	13	17	3	4	10	12	8	25
		-16	-74	-9	-4	0	-2	-5	-5	-11	-43	-32	-11	-8	-9	-11	-16	-17	-21	-49	-21	-10	-10	-9	-12	-17
		48	141	97	61	48	50	27	25	43	65	64	44	18	16	16	22	25	36	67	25	15	20	22	21	42
13		9	11	11	13	22	20	20	49	69	69	56	28	17	10	11	6	9	15	15	11	9	12	11	11	21
		-12	-8	-4	0	-2	0	-1	-3	-41	-3	0	0	-4	-9	-12	-15	-14	-12	-16	-7	-5	-7	-3	-4	-8
		22	20	17	14	25	21	21	53	112	73	56	28	22	20	23	22	25	28	32	19	15	20	15	16	30
14		10	10	11	11	14	14	14	14	11	8	9	14	14	11	11	11	10	14	10	12	12	12	26	24	13
		-7	-4	-2	0	-1	-1	-1	0	0	0	-2	-2	-6	-8	-9	-12	-15	-15	-14	-6	-9	-37	-63	-39	-10
		17	15	15	12	15	15	15	15	11	9	13	16	21	19	21	24	26	30	26	19	22	50	90	64	24
15		21	16	25	90	80	37	42	28	41	28	36	167	194	104	78	65	38	25	79	107	79	82	59	38	65
		-28	-9	-89	-317	-81	0	-23	-38	-47	-100	-87	-396	-369	-273	-275	-151	-72	-52	-182	-474	-132	-215	-75	-39	-147
		50	25	114	408	162	36	66	68	89	129	124	564	564	378	353	216	111	77	262	583	212	299	135	78	213

16	39	40	23	30	64	37	54	61	79	75	91	68	43	48	67	199	244	150	141	87	192	76	55	92	86
	-60	-61	-47	-64	-106	-62	-55	-102	-406	-300	-146	-100	-58	-273	-568	-585	-314	-206	-272	-468	-237	-107	-137	-349	-212
	100	101	70	96	171	101	110	164	486	376	239	170	102	322	636	785	560	357	414	556	429	184	193	441	298
17	59	50	110	90	34	32	20	30	59	101	202	177	99	63	30	26	46	30	22	28	20	12	6	16	57
	-136	-58	-175	-126	-21	-11	-20	-21	-153	-410	-434	-276	-176	-112	-106	-146	-240	-169	-49	-24	-18	-23	-25	-32	-123
	195	109	285	217	55	45	41	52	214	512	637	455	276	176	137	173	288	200	72	54	39	36	31	48	181
18	15	21	12	34	36	29	28	15	18	35	55	40	32	37	28	23	69	25	97	76	123	183	121	80	51
	-89	-76	-43	-94	-74	-13	-17	-15	-16	-47	-91	-80	-57	-84	-97	-85	-74	-92	-417	-781	-546	-584	-166	-131	-157
	105	97	55	128	110	43	46	32	35	84	148	121	90	122	126	109	144	117	515	857	670	767	288	212	209
19	35	48	22	12	9	10	7	9	10	13	15	9	12	8	7	8	2	10	8	2	10	8	7	11	12
	-69	-76	-57	-34	-22	-20	-21	-22	-21	-29	-39	-57	-70	-90	-21	-25	-29	-69	-48	-54	-28	-26	-21	-16	-40
	105	125	80	46	32	31	30	32	32	43	55	67	83	98	28	34	32	80	58	58	39	36	30	29	53
20	10	19	15	16	21	39	29	26	38	42	28	20	9	8	10	14	12	7	5	14	7	7	7	10	17
	-27	-54	-24	-17	-87	-178	-46	-6	-16	-44	-29	-26	-27	-20	-19	-20	-24	-23	-23	-135	-26	-32	-22	-20	-39
	38	74	39	34	109	218	77	33	56	87	58	47	37	28	30	35	38	32	29	150	33	40	31	32	58
21	11	18	23	48	43	94	116	197	232	174	138	125	87	48	46	32	31	101	122	46	40	24	16	41	77
	-17	-9	-4	-9	-15	-39	-50	-114	-136	-33	-40	-19	-16	-34	-44	-37	-29	-163	-179	-43	-30	-39	-21	-61	-49
	29	28	28	58	58	133	167	313	369	208	179	145	103	83	92	70	61	265	302	91	71	64	39	103	127
22	53	37	58	79	140	217	149	144	145	186	178	89	142	126	86	126	174	250	163	237	130	135	86	87	134
	-156	-155	-120	-201	-272	-387	-272	-220	-248	-343	-435	-410	-471	-357	-400	-311	-378	-603	-224	-345	-465	-411	-280	-183	-319
	210	192	178	280	413	606	421	364	394	531	615	501	613	485	487	438	553	854	388	583	596	547	366	271	454
23	171	199	104	57	71	137	158	159	84	32	95	106	92	119	103	114	74	38	27	100	110	76	82	57	99
	-256	-217	-228	-201	-199	-233	-200	-172	-114	-65	-192	-262	-543	-463	-242	-248	-230	-195	-91	-185	-196	-431	-487	-207	-244
	428	417	333	259	271	371	360	332	200	98	288	369	636	584	346	364	306	233	119	287	307	508	569	265	344
24	112	115	87	55	83	93	99	95	79	43	55	76	90	73	78	134	89	72	54	88	66	72	82	99	83
	-297	-184	-48	-90	-193	-223	-89	-124	-108	-158	-200	-153	-254	-531	-549	-396	-282	-163	-75	-325	-320	-273	-247	-337	-234
	410	300	136	147	277	317	189	220	188	203	257	230	345	605	628	531	372	235	131	414	387	346	330	436	318
25	76	43	31	28	22	29	32	25	13	11	12	12	4	14	35	56	34	8	3	3	8	23	9	6	22
	-120	-27	-30	-50	-124	-123	-85	-71	-67	-38	-46	-71	-64	-54	-231	-159	-29	-19	-24	-41	-56	-101	-29	-26	-70
	196	71	62	78	147	152	118	98	81	51	59	85	69	70	266	216	64	28	29	45	66	124	38	33	94
26	9	13	20	17	16	18	15	16	10	15	30	15	8	23	17	12	7	11	23	54	62	85	89	77	28
	-23	-22	-26	-11	-11	-11	-16	-17	-15	-22	-72	-80	-95	-53	-39	-30	-29	-27	-148	-402	-461	-263	-87	-116	-87
	33	36	47	30	28	30	32	35	26	38	103	96	103	77	57	42	37	39	172	457	525	348	177	193	115
27	69	40	38	26	62	99	86	37	20	19	26	31	43	110	81	72	100	52	37	57	71	61	122	97	61
	-161	-51	-24	-18	-154	-297	-94	-11	-15	-29	-73	-283	-342	-440	-239	-249	-234	-159	-149	-142	-135	-189	-267	-238	-166
	230	92	63	46	217	397	181	48	35	49	100	316	386	551	321	322	335	213	187	199	207	251	390	335	228
28	46	49	44	39	33	16	18	42	77	118	196	216	67	32	27	21	7	6	6	2	3	8	16	4	46
	-77	-54	-146	-247	-49	-37	-65	-146	-404	-566	-689	-342	-108	-57	-52	-41	-61	-52	-51	-66	-46	-37	-61	-41	-146
	124	104	191	288	83	54	84	189	482	685	886	559	176	91	80	63	68	58	58	70	50	46	78	47	192
29	2	-2	0	1	1	21	28	12	15	10	4	0	6	12	41	50	51	43	116	108	41	30	30	24	27
	-44	-43	-35	-26	-41	-38	-11	-13	-16	-26	-28	-38	-45	-56	-107	-121	-66	-64	-296	-164	-21	-30	-31	-138	-62
	46	40	36	28	43	60	40	26	32	38	33	38	53	70	149	171	119	108	412	273	63	61	62	162	90
30	28	64	168	136	93	86	90	102	145	173	116	81	96	64	38	46	36	37	25	21	4	4	11	5	70
	-112	-404	-419	-294	-132	-152	-127	-247	-405	-629	-305	-245	-306	-238	-251	-378	-209	-115	-186	-102	-47	-55	-86	-93	-231
	141	469	587	430	227	239	218	350	551	803	422	327	403	302	291	426	246	153	213	124	51	60	98	99	301
31	1	39	43	87	200	231	148	69	108	66	120	179	142	188	406	319	405	389	319	125	74	40	14	6	155
	-78	-213	-205	-333	-442	-321	-193	-107	-150	-112	-307	-612	-535	-595	-597	-590	-498	-458	-324	-194	-84	-62	-55	-50	-296
	79	253	248	421	643	553	342	176	259	179	428	792	678	784	1004	910	904	848	644	320	160	103	70	57	452

HOURLY VALUES (nT) OF AU, AL AND AE INDICES FEBRUARY 1982

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	34	37	62	120	139	202	184	129	118	117	115	201	229	164	152	191	142	291	125	51	220	157	336	131	152
	AL	-62	-53	-60	-113	-206	-304	-232	-150	-181	-204	-258	-616	-874	-636	-171	-161	-85	-423	-1085	-1084	-688	-450	-392	-60	-356
	AE	97	92	124	235	346	507	417	280	301	322	374	817	1104	800	324	353	228	714	1211	1136	909	608	729	192	509
2		117	198	137	273	271	536	404	65	246	228	175	205	268	196	104	90	76	32	18	18	26	46	43	36	159
		-52	-267	-472	-419	-590	-223	-372	-585	-483	-159	-150	-481	-541	-575	-132	-94	-71	-73	-70	-45	-35	-32	-136	-76	-256
		169	466	610	694	863	760	777	651	730	388	326	687	809	771	236	185	149	106	89	64	62	79	180	113	415
3		27	76	61	68	127	285	269	340	222	165	243	229	103	112	188	164	62	60	120	108	81	177	190	133	150
		-49	-60	-31	-84	-192	-305	-335	-481	-222	-128	-220	-282	-93	-383	-713	-125	-51	-131	-428	-195	-76	-398	-544	-474	-250
		77	138	93	154	321	591	606	823	446	294	463	512	197	496	901	290	115	191	549	303	157	575	735	608	401
4		130	158	136	143	184	258	273	263	192	126	102	195	177	208	155	200	180	162	186	159	225	117	61	217	175
		-475	-381	-332	-324	-343	-360	-501	-324	-255	-473	-647	-586	-795	-750	-500	-492	-180	-234	-358	-613	-474	-486	-522	-397	-450
		606	541	470	468	529	619	775	588	449	600	750	782	972	959	656	692	361	397	545	773	699	604	584	615	626
5		105	105	144	115	284	296	189	159	195	181	201	179	105	121	75	79	268	287	176	158	95	148	165	99	164
		-375	-618	-474	-402	-248	-220	-177	-186	-244	-106	-114	-102	-196	-156	-62	-144	-818	-587	-276	-262	-190	-389	-350	-158	-286
		482	724	620	519	533	518	368	347	440	289	317	282	302	277	137	223	1087	874	452	421	286	537	516	258	450
6		113	78	107	79	136	182	195	259	261	230	216	128	158	131	190	217	60	135	275	60	157	119	69	142	154
		-106	-59	-55	-155	-209	-305	-383	-234	-409	-195	-283	-484	-468	-380	-457	-554	-764	-504	-374	-468	-266	-488	-395	-312	-346
		219	138	163	236	346	489	580	494	671	427	501	613	627	512	648	771	824	640	650	529	424	607	464	455	501
7		107	99	143	67	96	88	125	153	137	108	186	161	145	132	90	38	53	71	111	148	128	105	88	125	113
		-171	-542	-404	-257	-295	-155	-163	-167	-59	-115	-292	-240	-208	-154	-80	-59	-227	-240	-289	-253	-283	-262	-305	-218	-227
		280	642	549	325	392	245	289	321	198	224	479	402	353	287	170	97	281	312	400	402	411	368	394	344	340
8		120	168	149	117	103	115	199	282	178	242	255	140	172	144	98	58	163	312	312	238	150	151	125	118	171
		-314	-178	-68	-42	-97	-60	-88	-126	-102	-234	-261	-130	-208	-305	-178	-129	-187	-392	-383	-225	-483	-32	-26	-79	-180
		435	347	217	160	200	177	289	409	281	477	517	270	381	449	276	187	351	705	695	463	633	183	152	198	352
9		57	24	61	118	121	135	128	178	180	154	157	195	243	111	59	50	31	42	79	89	129	124	102	77	110
		-200	-257	-201	-61	-175	-77	-89	-168	-132	-106	-77	-169	-234	-16	0	-2	-17	-32	-175	-157	-88	-110	-105	-68	-113
		259	282	263	181	296	213	218	348	313	262	236	365	479	128	59	53	48	75	254	247	217	235	208	146	224
10		84	88	142	113	66	76	58	69	72	92	133	77	218	291	211	272	90	248	165	126	197	185	120	30	134
		-44	-101	-74	-13	5	-8	1	9	6	-16	-81	-508	-598	-424	-777	-591	-608	-365	-277	-456	-315	-135	-110	-339	-242
		129	190	216	126	60	86	57	59	65	108	215	585	817	716	989	864	699	614	443	583	513	321	231	370	377
11		35	108	85	115	148	280	315	155	75	107	85	125	108	210	353	473	229	133	98	213	175	275	315	212	185
		-437	-240	-188	-383	-525	-289	-231	-78	-51	-97	-54	-206	-390	-640	-848	-869	-276	-237	-138	-158	-166	-755	-556	-349	-340
		473	349	274	500	674	571	548	234	127	206	140	332	499	850	1201	1342	505	370	237	372	342	1031	872	562	526
12		90	30	41	32	20	39	52	45	59	61	95	223	175	137	102	83	57	94	132	249	244	229	110	5	100
		-264	-76	-59	-31	-103	-71	-23	-22	-25	-27	-61	-358	-152	-220	-107	-185	-134	-157	-328	-964	-809	-515	-322	-383	-225
		355	107	101	64	124	112	77	68	85	90	157	582	328	358	210	269	192	251	460	1214	1054	745	432	389	326
13		71	114	125	146	149	138	288	244	251	246	134	157	173	177	203	181	95	94	78	81	100	129	178	104	152
		-368	-190	-491	-213	-182	-211	-249	-261	-289	-333	-312	-608	-430	-443	-674	-769	-758	-643	-765	-474	-495	-695	-325	-83	-428
		441	306	618	361	332	350	539	506	541	580	448	766	604	620	877	950	853	738	844	555	596	825	504	188	581
14		124	106	156	110	140	165	258	302	228	214	139	131	201	140	117	169	134	175	188	174	258	195	87	127	168
		-51	-189	-224	-196	-357	-499	-484	-320	-310	-292	-216	-372	-549	-306	-187	-249	-233	-545	-540	-536	-445	-359	-362	-192	-334
		177	297	381	308	499	665	744	624	539	508	356	503	750	447	305	418	368	720	728	711	704	555	449	319	503
15		208	138	84	64	90	102	90	168	177	188	249	211	281	194	227	107	75	72	54	47	47	41	40	36	125
		-48	-21	-32	2	-21	-75	-136	-342	-180	-237	-352	-489	-451	-638	-547	-325	-110	-55	-29	-30	-31	-29	-32	-32	-177
		257	161	118	61	112	179	228	511	358	427	602	701	732	833	774	433	185	129	84	78	79	71	73	69	302

16	44	49	46	40	57	72	61	41	29	25	20	22	68	64	70	48	32	32	27	35	34	24	23	22	41
	-50	-126	-65	-96	-94	-62	-16	-13	-18	-23	-22	-18	-57	-150	-163	-76	-27	-67	-212	-49	-6	-2	-2	-2	-59
	96	176	112	138	152	136	77	55	49	50	43	41	125	214	233	125	60	100	240	85	42	28	26	25	101
17	23	22	24	29	42	58	77	157	176	155	180	136	81	117	288	317	334	257	171	140	161	154	137	100	139
	-9	-14	-16	-14	0	-56	-258	-361	-195	-108	-172	-326	-612	-236	-352	-402	-552	-344	-114	-187	-379	-340	-192	-261	-229
	33	37	41	44	43	115	336	519	372	265	353	463	694	354	641	719	886	602	286	328	541	495	330	362	369
18	104	88	102	80	101	126	102	109	222	156	73	55	111	59	136	112	52	61	84	143	146	120	149	187	112
	-215	-156	-258	-236	-150	-178	-135	-231	-439	-75	-69	-169	-207	-373	-570	-361	-102	-108	-222	-836	-397	-343	-166	-695	-279
	319	245	361	317	251	305	238	342	663	232	143	225	319	432	707	473	156	170	307	981	545	464	316	882	391
19	189	165	109	158	169	225	163	154	126	144	90	51	103	147	105	161	201	167	155	182	142	92	106	90	141
	-290	-234	-226	-224	-559	-439	-330	-116	-76	-214	-139	-37	-228	-661	-388	-389	-514	-453	-322	-388	-236	-132	-363	-202	-298
	479	401	337	383	730	665	495	271	203	359	229	89	332	808	493	551	716	620	478	571	379	225	470	294	441
20	86	121	104	88	109	101	97	93	92	120	94	126	94	136	79	51	86	52	110	164	124	187	144	119	107
	-184	-316	-146	-131	-296	-220	-129	-124	-360	-130	-142	-487	-580	-337	-70	-98	-271	-196	-279	-304	-368	-662	-367	-300	-271
	271	439	251	220	406	322	228	219	453	251	236	614	674	475	150	150	358	248	390	469	493	850	513	420	379
21	111	81	51	48	44	37	51	67	79	75	81	179	95	86	55	53	40	39	62	57	138	223	175	170	87
	-264	-181	-66	-5	-9	-5	-36	-61	-170	-32	-133	-692	-714	-350	-85	-27	-14	-13	-30	-33	-205	-428	-150	-97	-158
	376	263	119	55	54	43	88	129	249	108	215	871	810	437	141	82	55	53	93	91	343	651	326	268	247
22	227	147	161	78	194	177	166	96	52	96	209	289	239	200	379	337	342	169	83	204	285	181	58	110	187
	-178	-78	-205	-264	-376	-191	-90	-41	-33	-56	-450	-319	-290	-454	-773	-677	-612	-706	-753	-268	-591	-461	-611	-399	-370
	405	226	367	344	571	370	257	139	86	154	660	609	529	654	1152	1014	955	876	837	473	876	643	670	509	557
23	129	189	88	60	39	65	52	27	40	55	65	128	176	158	161	166	214	184	197	258	183	213	108	176	131
	-433	-375	-104	-28	-25	-36	-71	-11	-12	-47	-151	-254	-375	-261	-376	-658	-495	-335	-583	-577	-384	-331	-343	-335	-275
	564	565	193	89	66	103	124	39	54	104	217	383	552	419	538	824	710	520	781	835	567	544	452	512	406
24	130	168	216	146	217	215	154	171	112	103	82	78	140	96	205	92	89	77	91	98	134	91	158	220	137
	-413	-376	-259	-317	-241	-196	-98	-85	-98	-230	-251	-59	-177	-261	-576	-206	-136	-154	-150	-118	-86	-58	-342	-458	-223
	544	546	477	465	459	412	253	257	211	333	334	138	317	357	781	298	225	232	241	217	221	150	501	680	360
25	146	168	132	228	441	466	346	550	237	247	213	152	166	115	236	84	64	83	291	123	64	76	60	40	197
	-438	-258	-277	-286	-649	-481	-444	-446	-376	-293	-168	-145	-419	-202	-344	-102	-37	-84	-417	-202	-16	-40	-144	-52	-263
	586	427	410	515	1092	949	791	997	614	541	382	298	585	317	580	187	102	168	709	326	81	117	205	93	461
26	56	116	118	214	248	193	263	246	191	180	246	266	107	55	39	35	64	69	61	80	206	186	137	166	148
	-53	-172	-331	-396	-356	-139	-227	-401	-260	-174	-488	-304	-72	-82	-39	-85	-99	-232	-154	-89	-450	-646	-393	-176	-243
	111	289	451	611	605	333	492	648	452	356	735	571	179	138	79	121	164	302	215	170	656	833	531	343	391
27	118	95	88	84	81	65	51	51	82	97	108	129	64	50	30	33	25	53	41	41	47	47	64	52	66
	-96	-122	-91	-67	-68	-21	-6	-11	-53	-223	-305	-165	-88	-97	-62	-32	-64	-98	-173	-84	-13	-18	-26	-145	-89
	215	218	180	152	151	88	58	64	136	320	414	295	153	148	93	66	90	152	215	126	60	66	92	197	156
28	51	46	53	43	39	34	39	47	45	62	45	38	35	45	37	38	47	67	59	171	134	62	55	43	56
	-102	-102	-21	-9	-7	-9	-11	-7	-18	-65	-35	-31	-21	-67	-17	-9	-192	-235	-145	-376	-295	-11	-20	-15	-76
	154	149	75	52	47	44	52	55	65	129	82	69	57	112	55	48	239	303	205	547	430	74	76	59	132

HOURLY VALUES (nT) OF AU, AL AND AE INDICES MARCH 1982

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	31	35	51	60	42	73	160	176	121	85	46	72	152	147	224	459	292	142	113	58	58	96	87	202	124
	AL	-42	-96	-58	-60	-81	-70	-139	-193	-78	-20	-19	-32	-124	-239	-469	-912	-559	-171	-148	-107	-140	-188	-614	-949	-230
	AE	74	132	110	120	124	144	300	369	200	107	66	105	277	388	694	1372	851	314	262	166	199	285	702	1153	355
2		148	240	213	127	259	277	155	48	183	-16	175	156	249	204	282	248	197	179	134	160	125	132	107	88	169
		-402	-516	-1114	-604	-325	-320	-409	-541	-628	-729	-866	-473	-646	-944	-720	-719	-370	-445	-322	-307	-595	-419	-263	-268	-539
		551	757	1327	731	584	597	564	590	812	713	1042	629	896	1149	1003	969	568	625	457	468	720	551	370	358	710
3		114	55	29	25	13	28	22	22	29	61	38	67	94	72	120	93	113	121	137	113	70	35	31	30	64
		-301	-144	-66	-99	-155	-144	-56	-72	-271	-475	-359	-223	-237	-358	-414	-238	-271	-218	-164	-114	-195	-69	-33	-39	-196
		416	199	95	125	168	174	78	95	301	537	398	291	331	431	535	331	385	340	302	228	267	105	65	70	261
4		21	32	22	14	14	15	24	35	31	46	126	212	74	32	16	23	35	59	15	20	27	37	89	106	47
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5		223	145	45	55	121	149	141	84	56	100	53	27	13	8	8	4	16	20	32	29	32	26	17	10	59
		-235	-87	-30	-25	-136	-306	-294	-78	-78	-204	-249	-156	-93	-41	-27	-125	-111	-61	-102	-138	-78	-43	-32	-32	-115
		459	234	75	81	258	455	436	163	135	305	303	184	107	49	36	130	128	83	135	169	112	71	50	43	175
6		5	8	6	7	9	11	11	8	9	6	10	10	6	10	24	40	15	12	21	27	22	20	18	26	14
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		-99	-83	-103	-81	-63	-38	-21	-20	-34	-68	-64	-31	-25	-32	-38	-96	-231	-275	-266	-250	-131	-178	-155	-140	-105
		171	228	265	220	163	115	82	83	86	133	129	121	92	99	110	161	361	476	496	463	422	365	317	305	228
9		91	131	124	40	53	93	76	38	69	115	208	213	126	105	87	204	279	297	230	162	159	127	138	143	138
		-259	-193	-69	-31	-18	-21	-68	-18	-29	-87	-147	-78	-91	-153	-119	-156	-495	-465	-262	-134	-187	-433	-186	-167	-161
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10		54	112	159	112	113	95	152	129	148	194	100	52	21	32	46	48	52	31	27	14	37	60	80	108	82
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		214	210	259	252	317	357	328	138	75	45	40	58	128	274	196	136	224	309	418	414	463	341	203	126	230
12		36	32	45	61	56	37	33	42	40	49	33	24	17	23	37	67	177	265	153	208	232	264	164	173	94
		-39	-37	-45	-44	-29	-16	-9	-71	-141	-35	-20	-19	-24	-22	-37	-80	-352	-424	-211	-158	-227	-96	-42	-86	-94
		77	70	91	105	85	54	42	114	182	84	54	43	42	47	75	148	530	690	365	368	460	362	207	259	190
13		92	48	104	78	87	143	109	145	135	99	127	217	175	144	107	45	36	38	36	54	74	89	154	195	106
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		131	132	551	204	144	295	236	253	266	205	218	310	267	273	233	119	105	111	59	98	247	202	284	336	220
14		150	143	90	67	27	30	35	27	30	50	100	174	204	129	118	101	169	188	258	334	278	159	154	179	133
		-112	-88	-135	-49	-45	-49	-8	-13	-9	-17	-54	-159	-208	-109	-76	-166	-322	-254	-352	-306	-174	-73	-66	-83	-122
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15		170	120	69	71	43	49	63	65	55	31	45	63	52	34	27	27	39	60	72	70	46	65	113	75	63
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		297	226	302	273	111	78	173	166	83	59	72	102	102	69	64	71	108	238	189	116	79	115	170	120	141

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	106	105	87	210	91	71	68	77	106	97	84	140	105	58	47	62	64	89	103	111	84	82	87	94	93
17	32	26	36	41	34	36	45	50	40	50	106	136	216	230	133	65	54	67	88	72	79	72	76	81	78
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	67	54	52	54	48	40	66	116	59	78	173	206	375	466	248	91	76	86	135	84	75	89	165	218	130
18	42	59	81	64	83	72	62	100	115	81	132	112	34	47	30	73	114	71	44	33	84	58	44	73	71
	-43	-142	-269	-249	-183	-124	-94	-118	-175	-219	-163	-189	-44	-44	-49	-194	-290	-97	-17	-20	-163	-189	-100	-191	-140
	86	202	350	314	267	197	157	220	291	302	296	301	78	92	79	268	406	169	62	55	248	248	144	265	212
19	95	130	103	145	91	38	39	57	42	45	57	71	56	35	24	15	17	18	18	22	39	46	33	22	52
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	327	421	371	344	107	65	82	248	161	107	106	229	178	76	57	43	48	43	43	44	73	134	76	48	143
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	-27	-28	-26	-20	-27	-183	-294	-141	-170	-157	-163	-50	-48	-147	-460	-348	-221	-141	-195	-164	-65	-95	-101	-140	-142
	51	50	47	39	50	240	387	338	307	268	253	100	113	255	544	445	317	199	307	256	120	168	166	209	218
21	30	38	24	69	85	96	92	204	157	156	147	136	260	157	176	302	188	65	183	180	185	124	84	162	137
	-23	-17	-26	-62	-255	-223	-401	-364	-241	-162	-102	-280	-402	-315	-524	-436	-286	-77	-199	-612	-262	-116	-133	-370	-245
	53	55	51	132	340	319	494	570	399	318	250	417	663	473	701	739	474	143	383	793	448	241	218	533	384
22	122	112	271	202	280	201	186	167	89	163	179	147	184	157	176	178	174	268	185	120	45	39	38	16	154
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	811	836	532	835	634	493	311	273	179	345	426	372	526	436	451	424	361	641	453	242	52	69	63	31	408
23	15	8	13	17	10	10	12	9	24	79	120	62	43	100	52	26	14	27	19	24	27	29	28	22	33
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24	15	18	15	25	25	26	26	32	36	57	74	51	38	48	58	77	106	183	110	201	126	76	65	36	64
	-16	-19	-30	-18	-38	-28	-28	-24	-23	-18	-41	-64	-29	-16	-31	-65	-198	-372	-181	-188	-42	-14	-25	-41	-65
	32	38	46	44	64	54	56	57	61	76	115	116	69	65	91	143	304	556	293	390	170	91	91	78	129
25	81	82	79	96	63	41	81	71	80	142	223	162	128	136	99	82	99	78	63	53	104	55	74	93	94
	-223	-355	-266	-153	-57	-55	-205	-202	-161	-218	-342	-179	-404	-464	-257	-150	-187	-245	-59	-47	-151	-111	-126	-172	-200
	305	438	346	249	121	96	287	274	241	362	565	342	533	601	357	233	287	324	124	101	256	167	201	267	295
26	45	51	79	61	42	26	33	31	34	62	77	74	37	40	35	63	113	86	46	27	36	70	88	44	54
	-43	-36	-164	-116	-50	-19	-52	-56	-54	-42	-118	-129	-60	-38	-51	-153	-354	-357	-20	-11	-29	-127	-278	-100	-102
	88	88	243	177	93	46	86	87	89	105	197	204	98	79	87	217	468	444	68	39	66	199	367	145	157
27	44	70	81	85	77	60	49	63	42	38	40	88	63	50	45	27	17	17	22	20	36	23	19	22	46
	-51	-96	-421	-179	-39	-25	-46	-122	-111	-49	-30	-197	-170	-33	-44	-43	-42	-34	-27	-27	-27	-21	-27	-26	-79
	96	166	502	264	117	86	96	186	153	88	71	285	235	84	90	71	60	52	51	48	65	45	47	49	125
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	-24	-26	-24	-111	-227	-128	-49	-57	-52	-51	-25	-26	-25	-29	-38	-33	-26	-37	-28	-38	-24	-23	-30	-31	-48
	45	52	47	193	327	208	78	100	76	81	53	45	43	54	59	52	42	53	47	58	45	50	50	52	80
29	22	26	27	41	122	130	167	189	172	123	88	31	31	23	14	15	17	25	38	33	42	71	103	87	68
	-26	-24	-42	-27	-149	-326	-403	-401	-215	-149	-131	-30	-25	-32	-30	-21	-14	-14	-16	-11	-20	-50	-75	-217	-102
	49	51	70	68	272	457	571	591	389	273	219	61	58	56	45	37	33	41	54	45	64	123	179	306	171
30	97	79	84	95	200	174	80	69	67	88	105	147	224	195	89	63	90	105	32	60	114	108	143	142	110
	-148	-92	-135	-88	-220	-102	-29	-23	-29	-82	-41	-207	-366	-442	-142	-80	-125	-164	-14	-29	-46	-64	-171	-192	-126
	246	171	220	183	421	277	109	93	97	171	147	355	591	637	232	143	215	270	47	90	161	173	315	336	237
31	255	202	135	151	156	223	258	289	172	61	77	146	152	156	132	59	203	291	296	302	194	139	153	164	182
	-351	-235	-208	-134	-283	-158	-136	-288	-135	-30	-55	-135	-293	-311	-213	-39	-118	-494	-740	-310	-276	-227	-192	-281	-235
	606	438	345	286	440	381	395	578	308	92	133	282	446	468	346	99	322	786	1038	613	471	367	346	446	418

HOURLY VALUES (nT) OF AU, AL AND AE INDICES — APRIL — 1982

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	154	185	80	62	59	60	42	57	46	113	92	66	55	76	99	68	44	41	36	51	189	178	191	186	93
	AL	-109	-109	-59	-58	-10	-8	-12	-19	-18	-45	-116	-58	-28	-51	-74	-11	-20	-22	-22	-7	-151	-590	-485	-498	-108
	AE	264	295	140	121	71	70	55	77	65	160	209	125	84	128	174	81	65	65	59	59	341	769	677	685	202
2		128	189	151	218	253	206	164	193	319	161	83	59	147	281	365	318	301	334	399	325	247	210	96	305	227
		-626	-622	-591	-410	-327	-277	-111	-334	-302	-121	-48	-31	-157	-649	-717	-896	-616	-565	-515	-509	-567	-474	-431	-441	-431
		755	812	743	630	582	484	276	528	621	283	131	90	304	931	1083	1214	918	900	916	834	814	685	528	747	659
3		154	150	110	237	207	216	253	176	143	180	197	203	261	363	433	379	374	270	318	256	160	189	134	180	231
		-343	-405	-389	-364	-455	-335	-359	-283	-178	-290	-316	-489	-394	-368	-589	-684	-574	-492	-382	-418	-315	-374	-196	-224	-384
		499	557	501	602	662	551	614	460	322	471	514	693	657	732	1023	1063	948	762	700	674	476	564	332	405	616
4		163	157	145	151	160	126	195	163	152	174	143	91	104	150	142	122	116	235	230	191	197	269	287	166	168
		-263	-484	-416	-191	-158	-301	-318	-145	-141	-235	-101	-31	-73	-253	-279	-194	-168	-248	-431	-416	-313	-442	-248	-235	-254
		427	642	562	343	319	428	514	310	294	410	246	123	178	403	423	317	285	483	662	608	510	711	536	402	422
5		87	130	162	179	214	128	83	156	216	307	219	131	63	65	35	23	24	125	197	192	81	182	173	95	136
		-446	-276	-208	-258	-269	-148	-67	-93	-329	-308	-468	-121	-51	-36	-57	-29	-50	-134	-457	-369	-73	-120	-455	-149	-207
		535	407	372	438	484	277	151	249	546	616	687	253	114	102	92	52	74	260	656	563	155	304	629	245	344
6		104	163	169	165	168	224	184	158	163	152	266	229	165	176	227	105	207	310	212	164	149	108	108	103	174
		-45	-141	-246	-94	-215	-229	-253	-363	-99	-186	-208	-325	-195	-336	-379	-160	-209	-393	-235	-148	-146	-95	-212	-297	-217
		149	305	417	260	385	455	438	522	263	339	476	554	361	513	607	266	417	704	448	313	296	204	321	400	392
7		139	97	49	52	30	43	44	35	70	66	50	51	47	41	34	39	44	57	68	57	50	50	44	36	54
		-242	-131	-17	-21	-25	-134	-36	-20	-23	-94	-78	-67	-41	-48	-37	-45	-60	-156	-182	-59	-12	-26	-14	-15	-66
		382	229	67	75	57	179	82	57	94	161	130	119	89	90	73	84	104	213	250	117	62	77	58	52	121
8		27	31	28	24	23	88	109	111	178	149	120	106	100	101	170	92	38	60	63	89	152	146	74	115	91
		-15	-16	-15	-18	-21	-25	-153	-203	-113	-140	-66	-113	-184	-194	-313	-128	-29	-87	-48	-96	-236	-403	-83	-106	-117
		42	48	43	44	46	114	264	316	292	290	187	220	285	296	484	221	68	147	112	186	390	550	158	222	209
9		119	108	172	185	159	99	58	75	99	82	83	86	80	97	138	92	122	140	249	245	132	118	98	117	123
		-190	-117	-211	-194	-67	-26	-8	-102	-49	-24	-36	-46	-75	-59	-129	-149	-180	-230	-295	-271	-221	-43	-26	-77	-118
		309	226	385	380	228	126	68	178	149	108	120	133	155	157	267	242	303	370	544	516	353	163	125	195	242
10		144	231	215	219	252	263	223	244	251	232	286	229	253	207	284	306	167	150	112	202	263	148	54	141	212
		-120	-159	-133	-118	-120	-123	-141	-144	-295	-416	-382	-229	-353	-499	-804	-501	-734	-952	-782	-776	-580	-491	-550	-267	-403
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11		206	152	155	201	148	197	282	192	252	295	181	110	96	98	228	240	132	79	252	222	143	143	64	41	171
		-395	-620	-544	-339	-96	-130	-502	-249	-229	-382	-143	-68	-117	-198	-246	-442	-145	-83	-205	-378	-241	-256	-55	-24	-254
		602	774	700	541	245	329	785	442	482	677	324	179	213	297	476	683	278	163	458	602	385	400	120	66	426
12		38	33	17	83	97	124	45	84	92	166	265	178	116	70	172	93	40	53	107	183	82	54	62	100	98
		-19	-37	-47	-40	-111	-136	-72	-38	-33	-57	-79	-157	-453	-255	-303	-93	-42	-50	-84	-207	-85	4	-22	-58	-103
		57	71	66	125	210	261	118	123	126	224	344	336	569	326	477	187	83	105	192	391	168	50	84	158	202
13		59	41	123	143	96	164	145	99	44	45	57	61	71	41	36	34	26	23	18	22	27	92	94	60	68
		-92	-111	-248	-546	-190	-143	-135	-75	-34	-35	-37	-55	-53	-41	-32	-26	-16	-18	-9	-7	-4	-36	-88	-61	-87
		152	153	372	691	287	309	282	176	79	82	96	117	126	83	69	61	44	42	28	29	32	128	183	121	156
14		35	20	13	13	17	23	46	103	86	69	40	37	39	34	45	46	40	37	42	43	44	71	43	37	43
		-23	-25	-25	-26	-39	-40	-19	-78	-90	-32	-28	-35	-33	-29	-29	-30	-114	-67	-14	-3	-1	-27	-13	-17	-35
		60	46	39	41	57	64	67	182	177	102	70	73	73	64	75	77	155	104	56	47	46	99	57	55	78
15		29	29	34	38	31	27	54	69	154	183	155	93	111	126	47	56	46	53	45	62	103	137	67	126	78
		-13	-15	-13	-37	-23	-22	-44	-33	-86	-182	-132	-53	-97	-210	-192	-119	-53	-27	-46	-11	-48	-227	-120	-108	-80
		43	44	48	76	55	51	100	104	240	366	289	147	210	337	240	175	100	81	92	74	151	366	189	235	159

16	64	47	76	56	132	103	120	105	43	42	36	22	24	28	24	33	27	185	200	134	122	92	73	58	77
	-58	-46	-80	-88	-84	-183	-82	-21	-20	-31	-32	-42	-39	-29	-21	-28	-26	-94	-207	-140	-62	-93	-48	-19	-66
	123	93	157	146	218	288	203	128	65	74	69	66	64	59	46	62	54	279	408	275	186	185	121	77	144
17	56	49	80	43	30	47	126	207	269	183	129	332	236	144	240	141	53	62	62	78	58	44	61	57	116
	-4	-1	-24	-19	-14	-10	-150	-339	-361	-421	-357	-482	-287	-202	-354	-293	-67	-18	-32	-9	-24	-40	-38	-69	-151
	60	51	106	63	45	58	278	547	631	604	487	815	524	348	595	436	121	81	95	89	83	85	100	127	268
18	25	21	27	22	22	37	39	101	54	32	30	41	74	130	90	111	198	228	133	196	151	212	160	68	92
	-36	-14	-17	-15	-15	-22	-35	-138	-64	-43	-34	-41	-96	-279	-222	-224	-205	-338	-167	-205	-284	-267	-233	-33	-126
	62	36	45	38	39	60	75	241	119	76	65	84	171	409	312	336	404	567	301	403	436	480	394	102	219
19	54	72	42	26	39	44	33	35	36	40	43	50	64	74	76	144	187	201	118	94	64	120	120	187	82
	-21	-41	-20	-12	-20	-44	-30	-16	-26	-34	-34	-37	-34	-29	-85	-367	-417	-287	-132	-28	-2	-93	-230	-267	-96
	76	114	63	39	60	89	65	52	63	76	78	88	99	104	162	512	605	489	251	124	66	214	351	454	179
20	122	125	145	202	156	167	74	206	245	158	67	99	182	114	60	67	57	69	72	77	77	95	86	204	122
	-203	-283	-267	-317	-294	-262	-54	-194	-388	-180	-28	-50	-149	-214	-98	-113	-66	-95	-96	-105	-15	-36	-38	-279	-159
	326	409	414	520	452	431	130	401	634	339	96	150	331	329	158	181	125	166	169	183	92	132	124	484	282
21	194	109	42	71	46	48	110	175	110	90	207	191	145	160	148	171	216	295	196	180	107	77	116	243	144
	-504	-148	-35	-35	-53	-50	-227	-452	-262	-58	-186	-384	-401	-273	-174	-171	-195	-251	-245	-429	-94	-18	-106	-652	-225
	699	258	77	108	100	100	339	629	373	150	395	575	546	435	323	343	412	547	442	610	202	96	223	897	370
22	231	177	151	261	200	131	94	62	81	63	52	64	49	45	46	41	62	66	55	45	47	32	33	39	89
	-507	-599	-473	-469	-303	-108	-45	-38	-27	-6	-17	-19	-23	-23	-24	-35	-101	-73	-14	-10	-16	-12	-18	-19	-124
	740	778	626	731	504	240	140	101	109	70	70	84	73	69	71	78	164	139	70	55	63	45	51	59	214
23	63	40	55	61	53	51	59	75	117	103	153	181	73	58	45	42	76	83	66	69	78	101	59	90	77
	-23	-29	-90	-115	-62	-35	-50	-134	-140	-93	-236	-315	-75	-33	-15	-16	-71	-153	-76	-65	-33	-179	-109	-66	-92
	87	71	146	178	116	88	111	210	258	197	390	497	149	92	61	59	147	237	143	136	113	281	169	158	171
24	73	99	72	65	93	90	62	66	53	60	48	53	67	48	81	79	106	57	49	52	101	113	89	76	73
	-42	-150	-222	-101	-70	-111	-71	-25	-22	-23	-24	-30	-22	-24	-76	-183	-309	-74	-5	-20	-45	-199	-84	-28	-82
	117	251	295	168	165	202	135	92	76	84	74	84	91	74	159	263	415	132	55	74	146	314	174	104	156
25	91	178	235	328	282	352	436	263	334	140	197	346	202	108	79	100	104	121	199	127	77	68	52	43	186
	-30	-115	-296	-420	-395	-388	-344	-340	-606	-982	-731	-613	-388	-275	-131	-78	-45	-214	-238	-156	-74	-8	-15	-29	-288
	121	294	533	749	678	741	781	604	940	1124	930	960	590	384	211	179	150	335	438	284	152	76	68	74	475
26	35	30	29	25	30	40	32	64	115	173	135	50	32	49	61	71	85	93	136	130	130	184	192	72	83
	-23	-32	-44	-36	-34	-36	-46	-51	-162	-344	-233	-126	-73	-66	-103	-56	-80	-170	-226	-119	-88	-154	-308	-44	-111
	60	63	74	63	66	78	79	117	279	517	369	176	105	116	164	128	167	263	362	251	220	339	500	117	195
27	41	23	11	13	25	169	159	145	62	40	37	49	88	61	48	174	353	296	259	159	78	200	197	178	119
	-18	-24	-25	-31	-25	-73	-412	-296	-94	-33	-34	-39	-95	-68	-34	-208	-644	-430	-377	-194	-55	-119	-479	-380	-174
	59	47	37	45	52	243	573	442	157	75	71	89	184	130	83	383	997	726	637	353	133	320	677	559	295
28	106	173	166	232	227	206	227	207	152	145	204	266	162	196	112	82	90	113	179	212	196	180	243	271	181
	-75	-296	-453	-315	-409	-269	-143	-215	-182	-105	-99	-143	-195	-288	-137	-78	-77	-235	-234	-296	-149	-169	-207	-183	-206
	182	471	621	549	637	476	372	424	335	251	304	411	358	485	250	161	168	349	414	508	346	350	450	455	389
29	198	149	176	157	207	200	150	230	159	220	101	165	166	59	137	172	142	275	288	254	157	189	112	213	178
	-235	-251	-116	-98	-253	-172	-214	-244	-215	-164	-68	-73	-128	-227	-251	-242	-103	-190	-637	-699	-773	-509	-355	-289	-271
	435	401	294	257	462	373	366	475	375	385	170	238	294	287	389	415	246	466	926	953	931	698	468	503	450
30	249	235	310	250	202	187	226	261	158	169	184	177	110	94	218	167	300	155	162	155	104	169	205	252	196
	-544	-371	-219	-177	-235	-523	-521	-264	-232	-179	-269	-255	-177	-169	-359	-255	-470	-172	-153	-226	-157	-277	-305	-509	-292
	794	608	530	429	439	712	748	525	391	349	454	433	287	264	578	423	771	329	316	383	262	447	511	762	489

HOURLY VALUES (nT) OF AU, AL AND AE INDICES MAY 1982

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	173	179	135	86	106	175	185	235	295	218	243	220	218	187	240	229	337	272	287	135	126	77	83	95	189
	AL	-479	-410	-255	-103	-100	-144	-189	-331	-350	-219	-99	-350	-413	-370	-360	-422	-626	-732	-368	-131	-129	-135	-76	-130	-288
	AE	653	591	391	190	207	319	375	568	646	439	344	571	632	558	600	652	964	1006	657	267	256	214	161	226	479
2		59	151	192	187	195	152	136	74	152	241	167	212	137	259	295	295	339	262	190	166	267	212	225	139	196
		-98	-104	-488	-389	-386	-289	-155	-114	-151	-347	-168	-173	-176	-553	-633	-665	-573	-407	-759	-966	-605	-296	-118	-285	-371
		158	257	681	577	581	442	291	188	304	588	336	387	313	812	928	960	912	671	950	1133	873	510	344	425	568
3		164	234	167	109	200	311	268	277	241	137	294	250	287	218	115	228	397	291	314	152	87	162	240	217	223
		-367	-329	-311	-380	-232	-377	-409	-474	-248	-128	-254	-641	-695	-549	-302	-384	-743	-713	-507	-433	-106	-99	-73	-538	-387
		532	564	479	490	432	689	677	752	491	266	549	892	982	767	418	612	1141	1005	822	586	194	262	314	756	611
4		66	63	37	40	40	35	66	32	42	167	228	177	126	134	196	235	174	51	43	57	58	38	28	40	91
		-231	-44	-40	-28	-33	-70	-86	-62	-44	-123	-531	-452	-99	-196	-360	-573	-331	-71	-39	-33	-72	-98	-55	-46	-155
		298	107	78	70	74	105	153	95	88	291	759	630	226	331	557	809	506	124	84	91	132	137	84	87	246
5		63	96	113	167	206	219	113	131	166	179	180	165	104	118	117	152	108	53	65	109	71	32	35	39	117
		-37	-54	-194	-212	-338	-210	-128	-175	-339	-277	-239	-193	-183	-151	-148	-326	-140	-36	-47	-142	-178	-42	-38	-41	-161
		102	151	308	380	545	430	241	308	506	457	419	359	288	270	267	479	249	89	113	251	249	74	73	81	279
6		54	75	102	88	75	63	75	75	69	73	81	62	93	71	44	53	94	58	47	63	81	68	60	59	70
		-38	-109	-182	-144	-153	-108	-112	-106	-111	-73	-73	-72	-107	-79	-82	-86	-157	-105	-31	-85	-161	-152	-120	-115	-107
		93	185	285	233	228	171	188	183	182	147	155	135	201	152	127	140	252	165	79	148	243	220	180	174	178
7		67	34	51	74	50	19	13	13	15	48	45	48	70	72	55	58	57	65	69	101	134	122	87	73	60
		-73	-54	-50	-153	-76	-18	-26	-40	-30	-33	-48	-48	-136	-177	-166	-181	-157	-160	-73	-69	-69	-58	-63	-40	-83
		141	88	103	228	127	39	39	54	46	82	94	97	207	250	222	240	216	226	142	170	204	180	150	114	144
8		73	121	132	159	109	89	89	92	54	74	69	71	55	54	67	53	99	94	87	103	81	79	119	107	89
		-112	-154	-160	-169	-95	-39	-38	-34	-33	-29	-42	-150	-79	-52	-64	-80	-154	-158	-79	-48	-39	-42	-76	-86	-84
		187	276	292	329	205	129	127	126	88	104	113	222	136	107	132	135	254	253	168	151	120	121	195	194	174
9		151	203	232	218	212	176	104	83	82	78	43	58	73	111	70	53	56	48	65	100	77	53	38	42	101
		-102	-177	-237	-165	-185	-116	-183	-98	-31	-31	-31	-40	-69	-94	-47	-23	-116	-14	-19	-50	-20	-31	-27	-31	-81
		253	381	470	384	398	292	287	182	114	111	75	99	143	207	119	76	172	62	84	152	98	86	66	74	183
10		62	103	57	47	45	16	35	30	27	36	39	70	84	64	38	36	42	33	36	44	50	31	55	121	50
		-39	-97	-104	-53	-41	-71	-66	-41	-32	-38	-37	-37	-99	-91	-25	-30	-16	-8	-2	-11	-12	-8	-38	-94	-45
		101	201	162	100	87	88	101	72	61	76	77	109	184	157	63	67	59	42	38	55	63	40	94	216	96
11		99	71	64	80	84	98	58	46	40	80	140	145	119	91	79	54	74	56	56	90	124	102	84	95	85
		-274	-127	-55	-32	-78	-156	-47	-35	-19	-27	-91	-185	-179	-112	-75	-69	-74	-44	-25	-44	-180	-148	-62	-64	-92
		375	199	121	113	163	254	106	81	60	109	232	331	300	205	156	124	149	101	82	135	304	250	147	159	177
12		52	79	96	65	61	129	146	185	134	103	161	90	51	44	62	38	42	40	51	68	36	31	35	44	77
		-42	-51	-83	-86	-49	-68	-243	-203	-162	-40	-65	-37	-20	-16	-32	-38	-71	-112	-42	-21	-11	-3	-13	-22	-64
		95	131	180	152	110	197	390	389	297	145	227	129	73	62	95	78	113	153	94	90	47	35	48	67	141
13		95	118	116	91	95	41	26	33	62	66	46	28	32	47	41	33	67	84	174	169	164	59	42	45	74
		-59	-74	-125	-129	-71	-63	-41	-25	-63	-42	-34	-33	-35	-25	-22	-32	-96	-125	-148	-135	-144	-34	-19	-21	-66
		154	193	242	221	167	105	67	59	126	109	82	63	67	74	64	66	163	209	324	305	309	93	62	67	141
14		43	40	44	87	35	29	29	25	33	121	127	112	110	54	42	43	65	51	46	55	39	34	33	59	56
		-28	-26	-44	-104	-34	-28	-37	-25	-20	-31	-34	-34	-161	-87	-38	-26	-40	-50	-31	-5	6	0	-4	-33	-38
		71	66	89	192	70	58	67	51	53	154	162	147	273	143	82	70	105	102	78	60	32	34	38	93	95
15		50	107	163	95	112	63	98	106	64	111	254	207	137	151	145	95	135	112	320	147	132	96	70	70	127
		-40	-55	-306	-105	-51	-34	-40	-83	-97	-43	-138	-189	-123	-338	-425	-318	-154	-99	-291	-224	-113	-85	-71	-28	-144
		92	162	469	201	164	98	139	190	162	156	393	397	261	490	571	414	290	212	612	373	246	182	142	99	271

16	43	78	121	75	50	52	52	102	191	155	81	57	58	67	58	54	113	151	137	94	68	59	67	120	88
	-38	-55	-132	-129	-24	-27	-31	-54	-167	-290	-130	-32	-41	-35	-41	-46	-76	-145	-183	-86	-34	-32	-49	-104	-83
	81	134	255	205	75	79	84	156	359	446	212	89	100	103	99	102	190	297	322	182	104	92	117	224	171
17	93	90	139	122	71	69	56	58	80	185	272	167	98	80	103	115	76	95	70	86	140	124	97	86	107
	-69	-68	-62	-270	-226	-39	-38	-32	-43	-145	-337	-202	-106	-78	-241	-262	-83	-36	-65	-53	-146	-236	-52	-7	-121
	162	159	201	393	298	109	95	91	124	331	610	370	205	158	345	378	160	132	136	140	287	360	150	93	229
18	225	244	180	206	206	227	88	74	54	172	264	226	172	109	68	62	87	142	165	124	93	99	245	177	155
	-99	-153	-279	-354	-187	-232	-65	-40	-32	-65	-561	-499	-236	-49	-46	-101	-96	-178	-123	-127	-69	-71	-498	-333	-187
	325	398	459	560	394	460	154	115	86	238	826	725	410	159	115	164	183	321	289	252	163	171	744	511	343
19	120	110	137	149	114	62	44	84	99	131	136	120	113	140	120	85	75	125	90	142	111	126	98	148	112
	-229	-151	-272	-325	-242	-79	-32	-52	-89	-83	-146	-43	-104	-188	-230	-198	-98	-219	-169	-127	-64	-132	-225	-177	-153
	350	261	410	475	357	141	76	138	190	216	284	164	218	330	350	284	173	345	261	270	175	259	323	325	266
20	110	102	63	39	41	72	76	98	99	132	81	67	67	71	40	41	48	29	28	40	35	41	43	61	64
	-216	-198	-131	-108	-65	-93	-90	-52	-160	-271	-96	-36	-38	-114	-156	-170	-110	-52	-39	-37	-24	-39	-33	-44	-99
	327	301	195	147	106	166	167	151	260	405	179	105	107	187	197	213	159	82	68	77	60	81	76	106	163
21	36	23	17	15	25	63	122	144	177	89	63	174	175	139	124	64	40	33	34	35	48	50	105	90	79
	-26	-27	-26	-36	-37	-49	-260	-334	-346	-121	-30	-83	-233	-308	-236	-98	-49	-43	-20	-30	-45	-44	-74	-150	-113
	63	51	43	52	62	113	383	479	524	212	95	259	409	449	360	162	90	77	55	67	95	95	179	241	192
22	51	37	33	24	15	24	52	52	65	121	69	38	23	22	18	26	30	34	37	38	38	26	19	24	38
	-56	-44	-50	-48	-44	-31	-62	-40	-44	-119	-72	-35	-33	-22	-19	-42	-48	-39	-31	-47	-48	-43	-32	-28	-45
	107	81	84	73	59	56	114	93	109	241	142	75	56	45	38	70	79	74	69	86	87	69	52	52	84
23	67	72	110	58	13	8	8	17	19	33	25	33	31	31	33	28	38	35	31	24	21	25	30	28	34
	-55	-124	-131	-65	-31	-34	-38	-32	-31	-33	-30	-25	-26	-21	-25	-24	-41	-31	-31	-24	-25	-17	-24	-23	-39
	122	197	243	125	44	44	46	51	52	68	55	60	59	54	59	54	80	68	63	49	48	44	55	52	75
24	31	32	20	19	11	21	37	81	90	77	57	99	129	156	100	59	50	48	51	45	53	49	42	40	58
	-21	-23	-19	-25	-35	-30	-34	-33	-42	-44	-42	-50	-129	-262	-177	-102	-62	-18	-3	-9	-13	-13	-12	-14	-51
	52	56	40	45	47	52	71	115	134	123	101	151	259	420	278	162	114	67	55	54	67	63	55	55	110
25	43	36	40	31	29	26	24	26	20	25	61	90	125	88	41	48	30	45	53	46	41	50	93	180	54
	-9	-15	-17	-19	-32	-26	-28	-26	-30	-31	-24	-39	-53	-78	-47	-16	-15	-27	-26	-20	-19	-28	-54	-262	-39
	53	52	58	50	62	52	52	53	52	58	86	130	179	167	89	65	45	73	80	67	62	79	149	443	94
26	162	164	152	219	148	88	130	120	97	67	76	109	123	156	154	168	270	222	336	366	228	307	248	277	183
	-298	-230	-142	-115	-91	-31	-53	-45	-71	-47	-30	-46	-36	-69	-147	-311	-228	-134	-223	-430	-321	-237	-168	-105	-150
	461	394	294	335	240	120	183	166	168	116	107	157	161	226	302	480	499	358	560	797	550	545	417	384	334
27	155	80	187	195	204	399	480	388	493	501	320	150	150	338	527	336	374	434	282	307	231	227	112	191	294
	-173	-54	-156	-283	-233	-272	-619	-664	-591	-614	-603	-250	-239	-606	-580	-669	-595	-443	-586	-513	-270	-333	-805	-474	-443
	329	135	343	479	438	672	1100	1054	1085	1116	924	401	390	944	1108	1006	970	878	870	822	503	561	918	666	738
28	196	350	276	385	418	351	268	249	273	158	214	285	216	338	467	428	318	279	269	147	212	221	271	166	281
	-177	-345	-589	-570	-933	-631	-451	-217	-365	-237	-312	-482	-585	-682	-554	-773	-508	-384	-224	-203	-255	-197	-245	-477	-433
	373	697	866	957	1352	983	720	467	639	397	527	768	802	1021	1022	1203	827	664	494	352	468	419	517	643	716
29	161	265	393	301	292	255	97	199	322	231	58	88	207	270	328	230	230	201	272	268	191	288	316	281	239
	-359	-496	-399	-399	-490	-320	-215	-222	-472	-435	-164	-128	-470	-639	-718	-470	-297	-231	-282	-357	-134	-324	-518	-373	-371
	521	763	793	701	782	577	313	422	796	667	223	217	678	910	1047	701	528	433	556	626	325	613	834	655	612
30	157	137	284	196	144	105	141	219	278	220	197	248	195	209	270	246	302	333	237	176	197	214	260	176	214
	-192	-77	-342	-306	-156	-123	-91	-220	-580	-399	-269	-312	-297	-486	-446	-405	-449	-325	-459	-301	-171	-257	-606	-625	-329
	349	215	627	502	301	228	232	440	860	619	467	561	493	696	717	652	752	659	697	478	369	472	867	803	544
31	246	251	243	300	223	320	390	290	330	326	266	183	136	119	83	132	209	241	196	160	241	191	224	261	232
	-330	-357	-460	-660	-600	-393	-392	-323	-349	-250	-233	-399	-195	-18	-52	-277	-410	-276	-291	-200	-309	-158	-232	-338	-313
	576	609	704	961	823	713	783	614	681	578	500	584	331	138	135	410	620	518	488	361	551	350	457	599	545

HOURLY VALUES (nT) OF AU, AL AND AE INDICES JUNE 1982

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	191	227	142	194	195	158	139	219	169	135	138	92	68	69	127	89	176	180	256	357	282	247	278	158	179
	AL	-404	-610	-361	-252	-245	-260	-146	-221	-221	-132	-293	-94	-81	-56	-58	-75	-166	-215	-331	-435	-504	-419	-363	-377	-263
	AE	596	839	505	447	441	419	285	440	391	268	432	186	150	125	185	165	342	396	588	793	788	666	642	536	443
2		259	168	228	255	142	120	112	178	135	115	84	109	114	77	55	87	97	102	190	231	209	166	142	168	148
		-331	-172	-430	-383	-152	-161	-198	-272	-362	-164	-99	-147	-109	-112	-64	-73	-116	-180	-305	-318	-198	-117	-111	-110	-195
		592	342	660	640	296	282	311	450	498	280	183	257	224	190	120	161	214	284	497	549	408	284	254	279	344
3		183	146	165	224	139	109	80	52	33	26	61	107	101	77	58	96	94	100	110	79	123	143	124	146	107
		-171	-367	-142	-255	-120	-101	-241	-198	-32	-14	-72	-107	-185	-178	-57	-93	-151	-164	-99	-55	-94	-187	-198	-154	-143
		355	515	308	479	260	212	322	250	66	41	133	214	286	256	116	190	246	265	210	134	218	332	323	301	251
4		247	247	172	159	96	40	34	34	14	23	49	58	67	108	102	97	53	69	78	111	151	178	183	247	109
		-236	-261	-146	-206	-120	-52	-49	-42	-41	-28	-31	-29	-24	-48	-88	-216	-167	-73	-75	-88	-106	-154	-201	-198	-112
		484	510	319	366	218	93	84	76	56	52	81	87	91	156	192	315	221	144	155	200	258	333	386	447	222
5		138	82	101	123	75	62	93	97	60	83	126	108	99	114	95	118	56	51	49	45	76	91	92	59	87
		-169	-48	-37	-48	-91	-83	-50	-45	-17	-83	-104	-114	-111	-61	-22	-83	-92	-20	-21	-23	-37	-36	-19	-10	-59
		309	131	139	172	167	147	144	144	78	167	231	222	211	176	119	202	148	72	71	69	113	127	112	71	148
6		66	95	89	116	128	280	382	307	167	180	164	172	148	79	80	64	93	110	94	67	94	101	47	116	135
		-15	-140	-82	-141	-87	-91	-306	-318	-165	-53	-98	-91	-69	-26	-21	-5	-5	-48	-53	5	-17	-38	-18	-80	-82
		83	235	172	259	217	371	690	627	333	234	263	264	218	106	101	69	99	159	148	62	112	140	66	197	218
7		266	190	222	174	112	238	237	309	424	416	448	209	64	57	99	131	112	75	85	67	65	69	70	50	175
		-155	-245	-336	-164	-72	-72	-375	-613	-491	-371	-479	-167	-27	-20	-74	-89	-148	-104	-42	-24	-37	-39	-48	-48	-177
		422	437	559	339	185	311	613	923	917	788	928	376	92	78	174	221	260	181	128	92	103	109	119	99	352
8		35	24	23	22	20	20	16	14	20	27	38	118	187	188	100	182	225	153	199	73	134	165	211	218	101
		-46	-34	-36	-27	-39	-31	-43	-38	-31	-31	-25	-36	-190	-164	-90	-152	-217	-219	-202	-64	-135	-109	-204	-246	-100
		81	59	59	49	60	52	61	53	52	60	65	155	377	352	191	334	443	373	402	137	270	275	416	466	202
9		112	152	140	137	136	234	125	72	81	149	223	203	189	200	117	79	70	76	67	66	66	51	40	39	118
		-70	-78	-96	-70	-38	-126	-36	-46	-33	-64	-66	-31	-20	-209	-247	-67	-10	-24	-25	-7	-46	-21	-27	-21	-62
		184	232	238	208	176	362	162	120	115	214	289	234	210	410	365	147	81	101	93	73	113	73	68	61	180
10		61	48	249	305	380	464	419	399	260	110	80	308	236	455	512	445	365	108	80	52	55	60	189	152	241
		-30	-27	-149	-530	-884	-674	-682	-429	-334	-98	-70	-358	-671	-513	-605	-595	-384	-41	-37	-43	-22	-51	-161	-222	-317
		92	76	399	836	1265	1138	1101	829	594	209	151	667	907	968	1117	1041	750	149	118	95	77	113	352	375	559
11		91	132	197	248	289	303	183	328	152	89	146	242	130	71	85	97	177	331	299	351	300	201	247	196	203
		-118	-101	-277	-604	-649	-432	-68	-290	-88	-45	-102	-301	-183	-68	-35	-28	-88	-129	-591	-417	-368	-172	-268	-411	-243
		210	234	475	853	939	737	253	619	241	134	249	544	313	140	121	126	266	461	891	770	668	373	516	608	447
12		263	186	234	197	68	129	117	155	103	112	160	144	120	85	158	586	659	679	640	537	329	363	390	471	287
		-663	-500	-340	-166	-153	-99	-33	-225	-93	-67	-64	-70	-102	-148	-282	-877	-505	-560	-480	-363	-399	-524	-538	-398	-319
		927	687	576	364	222	228	152	380	196	179	224	214	222	234	441	1464	1165	1240	1120	900	729	888	929	869	606
13		341	187	217	190	166	244	244	397	275	182	238	331	310	346	342	166	218	305	373	408	283	331	311	254	277
		-812	-494	-336	-484	-418	-211	-167	-349	-73	-49	-79	-500	-537	-607	-303	-148	-112	-238	-549	-609	-670	-585	-895	-218	-393
		1154	682	554	675	585	456	412	747	349	233	317	832	848	954	645	315	331	544	923	1017	953	918	1207	474	672
14		93	91	64	105	257	234	336	307	371	364	306	272	146	74	77	107	136	113	275	282	194	120	89	93	188
		-41	-33	-41	-88	-276	-243	-432	-385	-434	-545	-466	-576	-174	-96	-72	-128	-149	-111	-332	-306	-232	-107	-63	-85	-226
		135	125	107	195	534	478	769	693	807	910	774	848	320	171	150	236	286	224	608	589	427	228	153	179	414
15		156	105	126	137	143	186	263	355	352	150	135	91	64	161	255	154	288	310	162	199	237	154	155	178	188
		-180	-178	-153	-188	-153	-277	-396	-493	-477	-216	-102	-53	-58	-238	-429	-239	-304	-468	-63	-159	-198	-178	-211	-329	-239
		337	284	281	327	298	464	660	849	830	366	238	145	123	399	685	393	593	779	226	359	436	334	368	508	428

16	164	80	64	36	47	57	48	45	78	120	142	155	142	179	143	155	136	154	192	188	130	69	75	64	111
	-296	-67	-68	-45	-43	-76	-102	-64	-58	-64	-107	-101	-140	-335	-258	-214	-109	-69	-132	-210	-49	-35	-43	-40	-114
	462	148	133	82	91	134	152	110	136	184	249	256	282	514	402	370	246	224	325	398	179	105	119	106	225
17	99	50	79	52	66	98	72	21	43	70	173	115	151	109	80	67	68	61	50	46	39	32	25	20	70
	-35	-45	-53	-83	-59	-206	-309	-77	-40	-29	-57	-170	-293	-187	-63	-39	-10	-17	-23	-17	-11	-15	-21	-27	-79
	135	97	134	136	127	305	382	99	84	100	231	285	444	296	143	107	79	80	75	64	51	48	47	48	150
18	19	20	27	55	89	78	74	69	132	89	38	22	23	24	40	37	49	71	85	120	92	62	41	35	58
	-30	-31	-44	-53	-141	-262	-206	-90	-132	-74	-25	-24	-15	-12	-23	-18	-23	-58	-45	-100	-111	-58	-38	-47	-69
	49	52	72	109	231	341	282	160	264	164	64	47	40	36	64	55	72	130	130	220	204	120	80	82	128
19	28	23	68	87	88	158	218	219	218	249	326	203	129	195	338	265	350	487	544	369	451	412	255	84	240
	-34	-35	-60	-52	-110	-111	-102	-227	-385	-157	-348	-189	-101	-243	-479	-385	-272	-229	-315	-621	-590	-520	-461	-188	-259
	62	59	129	140	200	271	322	447	604	407	676	393	230	439	817	651	622	717	859	990	1042	933	717	273	500
20	155	271	200	209	286	279	188	348	388	381	183	72	100	167	127	211	191	142	175	273	235	169	64	115	205
	-114	-229	-408	-294	-175	-193	-160	-136	-154	-254	-167	-122	-73	-158	-111	-202	-118	-85	-108	-243	-287	-158	-39	-121	-171
	270	501	609	504	462	473	349	485	543	637	352	195	174	326	239	414	310	228	284	516	523	327	104	237	378
21	107	69	115	55	54	163	186	224	358	178	95	117	151	165	124	64	62	65	91	98	148	213	263	276	143
	-89	-85	-68	-122	-57	-59	-226	-278	-283	-111	-52	-48	-106	-262	-195	-59	-7	-18	-61	-45	-106	-216	-260	-254	-128
	197	155	185	179	112	224	413	503	642	289	148	165	258	428	320	123	69	84	154	144	255	429	524	531	272
22	242	201	228	167	167	191	206	176	230	278	288	252	227	234	127	144	191	268	438	436	315	408	465	479	265
	-210	-152	-139	-129	-83	-80	-199	-133	-132	-180	-243	-205	-310	-309	-314	-140	-204	-102	-181	-282	-243	-356	-428	-354	-213
	453	355	369	297	252	273	406	311	362	459	533	457	537	543	442	284	395	370	620	719	559	765	893	833	479
23	339	311	295	302	290	261	440	458	365	378	374	308	270	316	309	274	254	282	294	278	188	166	145	219	296
	-348	-334	-364	-370	-209	-473	-413	-352	-413	-379	-302	-338	-331	-328	-310	-270	-192	-147	-271	-318	-196	-168	-132	-280	-302
	688	646	660	674	501	735	854	811	779	759	677	647	602	644	619	545	447	431	566	596	385	334	278	500	599
24	193	103	78	114	106	162	78	91	252	265	251	229	168	95	46	22	31	48	57	139	357	86	195	205	140
	-170	-35	-31	-81	-67	-53	-67	-119	-223	-323	-264	-248	-243	-139	-112	-96	-72	-59	-79	-119	-334	-706	-361	-100	-171
	364	139	110	197	175	216	147	211	476	589	516	478	412	234	159	119	104	108	137	258	691	793	557	307	312
25	138	123	234	238	83	27	107	223	245	239	222	154	92	107	54	49	44	56	71	70	83	87	59	24	118
	-91	-167	-249	-309	-103	-56	-72	-286	-662	-432	-200	-115	-105	-135	-158	-99	-59	-68	-65	-61	-56	-95	-58	-48	-156
	230	291	484	548	187	84	180	510	908	673	424	271	197	242	213	149	104	125	137	132	139	183	118	73	275
26	17	12	72	118	242	221	241	224	247	222	149	135	124	160	210	317	334	366	318	388	298	315	268	264	219
	-55	-59	-50	-72	-136	-148	-183	-123	-152	-199	-152	-146	-148	-187	-452	-500	-469	-452	-683	-684	-582	-535	-628	-487	-303
	73	72	123	192	379	370	425	347	400	422	302	281	273	348	662	818	803	818	1002	1073	881	850	897	752	524
27	206	372	257	273	257	212	217	286	232	236	127	55	175	108	59	50	60	43	60	350	242	227	326	258	195
	-567	-358	-500	-269	-389	-514	-385	-278	-174	-216	-189	-91	-281	-203	-104	-54	-54	-47	-64	-394	-620	-337	-439	-370	-288
	775	731	759	544	648	727	603	565	407	453	316	146	457	312	165	106	115	91	124	745	863	566	766	629	484
28	193	198	196	192	230	288	250	145	207	349	149	59	90	129	104	137	233	268	175	219	184	229	196	254	195
	-191	-432	-458	-333	-348	-369	-312	-312	-199	-445	-260	-45	-105	-247	-194	-154	-329	-457	-247	-203	-116	-129	-262	-447	-275
	385	632	655	525	580	658	563	458	407	795	410	105	195	377	299	291	562	726	424	422	300	359	459	702	470
29	270	235	175	85	60	52	72	90	61	123	203	123	47	46	56	64	89	190	117	50	81	112	164	206	115
	-367	-345	-389	-79	-47	-60	-69	-118	-87	-76	-260	-349	-76	-74	-46	-83	-111	-351	-195	-35	-58	-69	-215	-436	-166
	638	581	566	165	108	113	143	209	149	200	465	473	125	122	103	147	201	541	313	85	140	182	380	643	283
30	127	202	177	271	289	430	328	271	229	157	217	191	99	56	56	64	97	139	158	150	175	195	201	315	191
	-172	-200	-324	-411	-280	-357	-283	-183	-225	-232	-302	-445	-209	-168	-91	-64	-171	-346	-356	-185	-216	-351	-274	-327	-257
	300	403	503	683	571	788	612	456	455	390	520	637	309	225	147	128	269	486	514	335	392	547	476	644	450

HOURLY VALUES (nT) OF AU, AL AND AE INDICES JULY 1982

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	269	95	113	172	162	167	197	80	144	107	158	118	144	107	136	120	79	127	200	249	261	252	264	176	162
	AL	-352	-149	-176	-151	-305	-312	-268	-51	-137	-88	-186	-78	-206	-149	-159	-127	-127	-131	-275	-368	-351	-323	-383	-267	-213
	AE	621	245	290	325	468	480	467	131	282	197	346	198	351	256	295	248	207	258	475	618	613	575	648	444	377
2		123	128	147	139	161	164	137	145	61	63	145	157	142	69	33	53	90	119	167	166	171	142	110	52	120
		-122	-107	-144	-271	-294	-172	-293	-250	-58	-39	-69	-286	-283	-137	-98	-64	-144	-183	-209	-109	-127	-89	-80	-90	-155
		246	236	293	412	457	338	430	396	121	104	215	444	426	207	132	118	235	303	377	276	298	231	190	143	276
3		34	60	110	78	101	93	82	95	85	102	94	60	28	44	26	28	33	35	74	93	87	80	89	134	73
		-55	-58	-112	-202	-130	-58	-143	-65	-47	-91	-187	-62	-41	-24	-46	-49	-58	-45	-83	-95	-101	-98	-68	-103	-84
		90	118	224	281	232	152	227	161	133	195	283	123	71	70	72	77	91	80	157	188	188	179	157	238	158
4		143	105	88	71	52	35	20	13	14	29	100	110	104	75	43	17	23	34	41	47	45	49	54	46	57
		-162	-92	-52	-50	-48	-43	-36	-42	-35	-29	-68	-107	-99	-103	-95	-89	-95	-52	-30	-37	-54	-77	-69	-40	-67
		307	199	141	122	101	79	57	57	50	60	170	218	204	179	139	107	119	86	71	84	100	126	124	86	124
5		36	46	46	50	32	30	40	13	22	43	77	102	114	86	89	84	77	77	78	80	67	65	61	55	61
		-41	-39	-34	-44	-48	-44	-46	-46	-33	-30	-36	-88	-83	-81	-57	-79	-31	-54	-80	-18	-17	-20	-11	-24	-45
		78	86	81	95	81	75	87	61	56	74	115	191	199	168	147	164	109	132	160	98	86	87	73	79	107
6		45	30	27	25	29	31	32	60	180	175	125	83	51	53	60	110	172	396	320	324	214	151	126	125	123
		-23	-27	-26	-40	-45	-43	-37	-14	-51	-110	-90	-39	-42	-43	-31	-96	-68	-275	-264	-247	-59	-67	-120	-103	-82
		69	57	53	66	75	75	70	75	233	286	216	123	94	97	93	207	242	671	584	571	273	218	247	228	205
7		171	230	178	252	374	335	242	259	176	123	72	99	167	95	149	253	412	428	239	136	103	68	62	66	195
		-108	-154	-81	-144	-227	-230	-167	-142	-161	-77	-71	-32	-132	-158	-252	-417	-530	-464	-329	-76	-43	-15	-42	-96	-173
		280	384	259	397	603	566	410	402	339	201	144	132	301	255	402	672	942	893	568	213	147	84	104	163	369
8		66	95	93	107	209	215	140	107	135	170	200	208	120	113	84	92	212	154	111	110	142	143	145	283	144
		-37	-57	-68	-74	-191	-403	-183	-59	-138	-191	-103	-237	-208	-131	-23	-7	-225	-185	-20	-41	-87	-206	-203	-238	-138
		104	153	162	183	401	620	325	167	274	363	305	447	329	245	108	100	438	340	131	151	230	349	348	522	283
9		289	191	149	126	115	68	52	150	233	227	107	118	181	133	57	59	94	80	53	113	174	97	77	154	129
		-300	-269	-208	-147	-155	-73	-48	-41	-84	-123	-60	-85	-168	-175	-102	-95	-47	-59	-54	-77	-197	-90	-53	-102	-117
		589	461	358	275	271	143	101	192	319	352	168	204	350	309	161	155	142	139	107	190	372	188	131	256	247
10		262	119	54	93	220	250	153	219	116	118	218	306	214	67	64	51	82	57	61	116	145	73	55	45	132
		-276	-137	-46	-72	-195	-289	-135	-115	-86	-127	-201	-222	-278	-77	-33	-49	-50	-64	-141	-112	-94	-28	-19	-30	-120
		539	256	100	166	416	540	290	336	204	246	421	529	493	145	98	101	134	122	204	229	240	102	75	77	253
11		99	94	81	74	96	76	121	79	47	192	412	273	266	386	604	490	423	461	448	506	353	306	232	206	263
		-78	-59	-47	-64	-65	-80	-143	-141	-66	-102	-331	-384	-218	-137	-111	-233	-182	-170	-320	-339	-188	-254	-182	-140	-168
		178	153	129	138	162	157	266	221	115	296	745	658	486	524	717	724	606	631	769	846	541	560	415	347	433
12		156	253	229	254	275	156	53	42	44	339	492	501	394	587	509	567	449	548	301	384	242	213	227	263	312
		-103	-233	-225	-216	-215	-150	-62	-49	-33	-106	-190	-307	-313	-687	-680	-628	-431	-589	-458	-375	-277	-253	-402	-367	-306
		260	487	455	471	492	307	116	92	78	447	684	809	708	1275	1190	1195	881	1138	760	759	519	466	629	630	619
13		198	313	369	382	489	420	442	234	275	250	333	351	177	147	211	207	782	1066	1227	793	1084	638	907	669	498
		-366	-400	-575	-495	-489	-311	-582	-335	-427	-226	-580	-474	-174	-139	-274	-225	-516	-414	-324	-417	-330	-310	-611	-497	-395
		564	713	945	878	978	732	1026	570	703	477	914	827	353	287	487	434	1299	1481	1552	1211	1415	948	1519	1166	895
14		263	588	143	4	32	273	275	147	91	83	220	227	146	154	187	296	211	309	417	355	317	332	194	279	231
		-1613	-427	-653	-1112	-817	-466	-929	-1001	-819	-689	-275	-414	-387	-340	-425	-599	-427	-695	-600	-533	-461	-417	-432	-361	-621
		1877	1016	797	1116	850	740	1206	1149	911	774	496	643	534	494	613	896	639	1004	1017	888	779	750	626	640	852
15		283	273	308	360	246	195	194	263	245	205	224	268	297	204	203	120	153	243	213	209	298	257	282	198	239
		-430	-421	-281	-480	-470	-356	-291	-380	-480	-443	-480	-435	-315	-300	-264	-318	-265	-244	-304	-312	-320	-282	-352	-551	-366
		713	694	589	841	717	552	486	645	726	649	705	704	614	505	469	439	419	487	517	521	618	540	634	750	606

16	218	202	232	233	268	256	174	146	230	474	346	206	173	162	65	198	113	185	122	130	105	252	246	241	207
	-310	-251	-270	-291	-303	-258	-262	-308	-370	-733	-470	-180	-65	-91	-157	-253	-200	-149	-84	-96	-94	-215	-230	-317	-248
	529	454	503	525	573	516	437	455	601	1208	817	387	239	253	223	452	313	335	207	226	199	468	476	558	457
17	170	348	183	101	135	92	46	74	72	85	129	149	167	213	140	22	9	14	32	72	125	215	245	269	130
	-639	-581	-307	-126	-202	-194	-125	-105	-86	-62	-88	-186	-203	-385	-314	-102	-54	-71	-87	-96	-181	-365	-474	-514	-231
	810	929	491	228	338	288	173	181	159	149	218	336	371	599	456	125	63	86	120	169	307	581	719	783	362
18	220	295	133	146	230	111	44	54	148	284	318	432	423	112	138	76	134	218	249	171	55	64	111	107	178
	-432	-409	-357	-173	-232	-229	-47	-68	-191	-399	-333	-398	-546	-213	-288	-148	-186	-271	-243	-136	-79	-74	-124	-105	-237
	653	705	492	321	463	342	92	123	340	684	653	832	970	326	427	226	321	490	492	308	134	138	236	213	416
19	247	399	238	148	129	20	37	21	35	20	70	151	234	246	251	197	69	41	39	62	166	237	299	161	146
	-249	-509	-334	-155	-146	-86	-70	-74	-62	-66	-49	-92	-286	-363	-420	-377	-251	-143	-98	-107	-225	-358	-679	-644	-243
	498	909	573	304	276	107	107	95	97	87	121	244	521	609	672	574	322	185	138	170	391	596	979	805	391
20	195	279	415	328	192	118	213	153	83	47	80	100	27	14	20	17	25	41	55	54	37	31	37	56	109
	-239	-297	-495	-810	-661	-484	-316	-228	-113	-39	-89	-172	-106	-71	-63	-65	-105	-60	-55	-47	-62	-68	-94	-97	-201
	434	576	910	1138	855	603	531	382	196	87	170	274	134	86	83	82	130	101	111	101	100	101	132	153	311
21	56	48	41	24	8	13	34	4	-8	-4	-1	-4	-4	5	83	65	32	46	61	152	149	116	208	145	53
	-114	-86	-72	-72	-77	-84	-66	-75	-65	-55	-50	-40	-47	-51	-144	-296	-172	-93	-81	-153	-161	-201	-192	-137	-108
	171	134	113	96	85	97	101	80	56	50	48	35	42	56	228	362	204	140	143	306	311	317	401	283	161
22	235	154	41	45	18	4	5	90	147	74	6	4	61	179	232	155	81	133	88	61	45	50	63	56	84
	-190	-199	-94	-65	-70	-71	-66	-49	-195	-145	-49	-66	-102	-358	-460	-324	-56	-209	-97	-58	-60	-54	-82	-75	-133
	426	354	136	111	88	76	71	140	344	220	56	70	165	539	693	480	137	342	185	119	105	105	146	131	218
23	162	113	140	101	39	33	70	71	13	18	113	126	148	185	195	36	31	147	127	220	170	126	138	152	111
	-146	-103	-333	-95	-62	-60	-101	-99	-62	-44	-69	-129	-290	-319	-223	-110	-118	-181	-288	-324	-153	-98	-117	-167	-154
	309	217	475	198	101	94	172	172	76	62	183	256	439	505	419	147	150	328	415	544	323	224	255	320	266
24	117	82	187	299	371	316	223	288	273	427	322	186	76	133	85	284	243	333	325	179	102	83	94	201	218
	-202	-99	-291	-604	-753	-515	-518	-392	-401	-592	-346	-171	-77	-342	-186	-324	-712	-875	-982	-603	-202	-85	-114	-229	-401
	320	182	478	904	1125	832	743	681	676	1021	669	358	154	476	272	608	955	1209	1308	782	305	169	209	431	619
25	138	61	107	278	189	148	166	184	122	119	123	102	45	63	127	137	158	136	158	222	167	248	150	119	144
	-400	-332	-190	-322	-620	-163	-245	-341	-222	-223	-268	-247	-67	-132	-316	-323	-222	-250	-294	-396	-242	-273	-365	-351	-283
	539	395	298	602	811	313	411	526	345	343	393	349	114	196	443	460	381	386	453	618	410	522	516	471	429
26	145	246	182	119	55	83	140	156	161	313	155	144	153	97	95	226	121	93	148	153	175	182	142	184	153
	-345	-249	-238	-468	-190	-113	-170	-271	-312	-411	-179	-102	-115	-320	-182	-351	-192	-106	-196	-152	-177	-205	-182	-217	-227
	490	496	421	588	246	197	311	428	474	725	335	247	269	418	278	578	313	199	344	306	353	387	325	401	380
27	147	111	85	132	113	234	280	289	173	64	38	65	43	38	34	150	78	42	72	118	156	109	177	134	120
	-297	-229	-86	-83	-141	-645	-712	-365	-164	-78	-59	-92	-198	-165	-157	-259	-217	-64	-61	-101	-130	-160	-300	-454	-217
	445	341	172	216	255	881	994	655	339	142	99	158	243	205	192	409	295	106	133	219	286	269	478	588	338
28	107	136	139	163	195	108	172	142	78	80	144	191	51	75	82	69	199	183	260	106	109	94	59	132	128
	-205	-144	-359	-405	-518	-232	-249	-143	-155	-63	-155	-414	-150	-87	-112	-324	-254	-314	-430	-158	-93	-67	-98	-169	-221
	312	280	500	570	714	341	421	287	233	143	301	607	201	163	194	393	453	498	691	265	202	162	157	302	350
29	195	110	90	68	41	103	169	174	87	37	61	127	206	135	130	149	52	63	100	113	134	100	88	46	107
	-486	-233	-103	-86	-65	-67	-472	-449	-185	-53	-79	-295	-577	-392	-346	-435	-265	-94	-117	-131	-154	-168	-71	-61	-224
	683	345	194	155	106	171	642	624	272	91	142	423	784	528	478	585	318	157	218	245	289	268	160	107	333
30	35	38	63	42	45	80	129	164	237	178	158	201	75	37	61	66	142	328	162	139	120	112	183	80	120
	-46	-57	-65	-42	-49	-60	-227	-295	-403	-273	-246	-263	-139	-31	-39	-79	-113	-538	-304	-166	-82	-72	-222	-166	-166
	81	96	129	85	95	140	357	461	641	452	406	465	215	69	100	146	256	866	467	306	203	184	405	247	286
31	67	137	134	127	171	218	224	236	293	236	206	160	136	58	81	217	124	192	157	119	83	89	178	121	157
	-105	-117	-176	-362	-276	-367	-446	-422	-458	-445	-355	-293	-187	-218	-182	-276	-244	-271	-200	-89	-51	-43	-227	-295	-254
	173	255	311	490	449	586	672	659	753	683	562	454	324	278	264	493	369	464	357	209	135	133	406	417	412

HOURLY VALUES (nT) OF AU, AL AND AE INDICES — AUGUST 1982

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	136	117	122	100	87	89	129	163	163	156	152	201	219	142	63	51	86	159	234	227	204	155	204	274	151
	AL	-228	-274	-223	-151	-190	-195	-195	-144	-145	-257	-204	-178	-233	-326	-101	-71	-78	-145	-391	-276	-143	-222	-249	-293	-205
	AE	366	392	346	252	278	285	324	308	309	415	357	381	453	469	166	123	165	305	626	504	347	378	454	569	357
2		246	191	216	188	206	284	214	114	127	344	410	420	181	258	409	370	435	363	290	210	217	340	240	141	267
		-346	-347	-257	-179	-239	-222	-115	-54	-59	-174	-589	-529	-147	-221	-332	-475	-314	-191	-382	-464	-414	-469	-215	-52	-283
		594	539	475	369	445	506	330	168	187	518	1000	950	330	479	742	846	749	555	674	676	632	809	456	194	551
3		124	154	202	186	162	175	162	162	262	351	322	259	263	210	333	267	119	283	235	122	103	129	200	111	204
		-74	-407	-520	-472	-268	-257	-245	-146	-200	-391	-378	-375	-253	-316	-329	-226	-160	-218	-385	-151	-82	-137	-417	-274	-278
		199	562	724	660	431	432	408	308	463	743	701	636	516	528	662	494	279	502	621	275	186	268	619	386	483
4		123	94	102	125	126	87	97	129	168	110	191	226	105	151	157	181	142	185	212	156	122	135	189	223	147
		-155	-132	-121	-241	-158	-113	-78	-108	-128	-73	-124	-424	-216	-167	-233	-243	-132	-204	-332	-190	-60	-129	-263	-171	-175
		280	228	225	367	285	201	176	238	296	185	316	652	322	319	391	425	275	389	545	347	183	264	454	396	323
5		249	155	116	122	220	166	170	217	383	322	194	130	163	110	104	126	279	256	152	187	145	95	84	74	176
		-286	-158	-94	-188	-241	-234	-210	-149	-475	-393	-231	-117	-100	-134	-119	-124	-360	-347	-141	-131	-28	-43	-188	-52	-189
		536	315	211	311	462	401	380	367	859	716	426	248	265	245	224	251	640	603	294	319	174	139	273	126	366
6		149	85	122	53	92	156	94	114	162	240	297	231	108	129	149	131	129	139	194	442	276	184	280	230	174
		-112	-160	-290	-165	-92	-164	-146	-93	-81	-148	-484	-322	-154	-120	-281	-228	-95	-77	-188	-376	-270	-108	-226	-294	-195
		262	247	413	219	185	321	241	207	243	389	781	554	264	251	431	360	225	217	383	819	547	293	507	526	370
7		388	252	210	429	317	199	144	278	196	208	307	390	432	373	349	489	337	108	83	97	26	24	26	38	238
		-276	-547	-204	-347	-629	-348	-1094	-521	-110	-556	-870	-761	-804	-546	-565	-963	-367	-69	-31	-18	-34	-34	-37	-39	-407
		666	800	416	777	947	548	1238	800	307	764	1178	1152	1236	919	915	1453	705	178	116	116	61	60	65	78	646
8		39	24	24	18	10	27	31	32	68	56	46	71	58	93	102	56	46	58	59	63	41	36	42	42	48
		-57	-50	-55	-49	-54	-58	-61	-56	-68	-47	-41	-31	-35	-39	-39	-45	-38	-14	-16	-33	-15	-18	-31	-38	-41
		97	74	81	68	66	86	92	89	137	104	88	103	94	133	142	102	85	73	75	96	57	55	74	80	90
9		30	26	15	17	11	84	198	300	211	334	78	48	37	84	108	199	284	381	423	276	289	380	412	216	185
		-42	-61	-60	-68	-64	-55	-249	-496	-318	-338	-144	-47	-40	-57	-75	-218	-365	-219	-271	-269	-462	-428	-418	-284	-210
		73	88	76	85	76	139	448	797	530	672	223	96	79	142	185	418	649	600	694	546	751	809	831	502	396
10		237	210	204	191	269	265	198	278	421	327	289	139	82	64	99	257	256	168	200	294	195	95	222	163	214
		-207	-223	-419	-163	-294	-232	-268	-188	-444	-333	-207	-204	-142	-123	-119	-373	-416	-180	-169	-338	-157	-21	-196	-298	-238
		445	434	625	356	564	498	467	466	866	661	496	344	225	188	218	630	673	349	369	633	352	117	419	463	452
11		90	117	154	73	79	123	134	98	145	311	246	220	87	203	210	379	301	423	446	262	112	70	61	57	183
		-240	-133	-221	-185	-66	-102	-197	-123	-86	-375	-365	-236	-96	-256	-366	-652	-638	-508	-338	-196	-59	-25	-78	-58	-233
		331	252	376	259	146	226	332	222	231	687	613	457	185	460	577	1031	939	931	785	459	172	95	140	116	418
12		51	40	122	52	61	231	314	229	266	73	273	154	110	252	364	283	179	230	275	217	156	131	163	149	182
		-116	-31	-83	-85	-95	-162	-534	-462	-222	-87	-317	-378	-165	-301	-539	-360	-324	-337	-287	-250	-224	-150	-236	-211	-248
		168	72	207	138	157	394	849	692	489	161	591	532	276	554	904	643	503	567	563	467	381	283	400	361	431
13		157	146	130	226	183	199	104	164	204	226	202	122	145	120	96	74	117	82	49	75	140	86	49	149	135
		-198	-107	-159	-344	-185	-135	-151	-174	-223	-200	-125	-172	-235	-166	-168	-97	-112	-127	-49	-65	-157	-118	-17	-92	-149
		356	254	291	571	369	334	255	338	428	426	328	295	382	287	265	171	230	210	98	142	298	206	68	243	285
14		83	23	20	46	64	71	49	26	115	113	121	78	60	58	91	116	147	106	117	227	193	115	119	115	95
		-111	-56	-47	-118	-119	-60	-47	-42	-55	-88	-153	-107	-43	-57	-93	-96	-134	-119	-177	-242	-140	-65	-63	-122	-98
		195	81	67	166	184	132	97	68	170	201	275	186	104	115	185	212	281	226	295	470	334	181	183	239	194
15		120	74	35	17	16	16	16	16	29	38	40	94	83	92	48	24	12	21	50	52	51	75	71	53	48
		-136	-75	-51	-39	-35	-45	-43	-35	-36	-35	-37	-60	-99	-103	-59	-91	-50	-33	-51	-54	-58	-78	-98	-51	-60
		257	151	87	57	51	61	59	51	66	74	78	155	183	195	108	116	63	54	101	107	110	154	171	105	109

16	62	45	33	34	121	94	41	39	42	46	45	41	40	42	59	76	100	75	40	42	121	150	188	183	73
	-37	-37	-21	-61	-110	-169	-82	-29	-34	-43	-49	-47	-46	-40	-46	-95	-253	-146	-39	-20	-71	-257	-243	-137	-88
	100	83	54	96	232	263	123	69	76	90	95	88	86	83	106	171	354	222	80	63	193	408	431	320	162
17	219	70	52	33	253	191	188	217	188	59	25	21	28	62	90	54	29	27	61	185	124	128	163	228	112
	-161	-46	-24	-21	-99	-374	-201	-117	-94	-34	-35	-41	-50	-67	-66	-54	-33	-23	-53	-150	-261	-144	-98	-333	-107
	382	118	77	55	353	566	389	334	283	93	60	63	80	130	157	109	63	51	116	337	386	272	261	562	221
18	311	198	76	87	231	169	86	43	38	41	41	41	71	119	99	151	150	277	180	179	162	73	71	59	123
	-362	-119	-36	-35	-124	-208	-85	-27	-26	-39	-46	-45	-75	-132	-179	-216	-139	-273	-198	-111	-189	-137	-13	-31	-119
	675	319	113	123	357	378	172	70	65	81	87	86	147	252	279	367	289	551	379	292	352	212	86	92	243
19	99	103	66	71	52	186	43	59	94	105	66	51	59	49	55	68	55	58	150	184	119	112	75	66	85
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	190	183	100	97	140	385	80	82	175	215	118	88	104	87	113	138	105	160	398	339	216	222	128	109	165
20	90	107	91	78	42	56	85	57	52	102	47	60	200	193	85	63	60	137	148	130	223	147	189	168	109
	-130	-329	-160	-103	-43	-37	-36	-19	-24	-39	-47	-51	-164	-372	-135	-43	-48	-175	-151	-129	-149	-142	-170	-165	-119
	221	438	251	182	86	93	121	76	77	141	95	112	365	567	220	107	109	312	299	260	373	291	359	334	229
21	134	119	153	160	177	40	27	75	30	93	58	47	84	91	89	164	67	34	60	132	88	88	53	54	88
	-119	-97	-457	-285	-229	-162	-35	-43	-27	-35	-52	-40	-73	-97	-79	-250	-110	-16	-56	-112	-189	-83	-15	-33	-112
	255	218	611	446	407	203	63	119	58	129	110	89	158	189	169	414	178	52	118	246	277	173	70	88	202
22	151	257	218	39	32	26	36	28	127	106	98	148	211	187	191	205	81	84	124	124	191	92	69	121	123
	-79	-279	-278	-38	-16	-20	-12	-14	-61	-164	-98	-176	-173	-292	-284	-349	-109	-50	-174	-119	-268	-129	-15	-41	-135
	232	538	497	77	50	47	48	43	188	270	197	324	385	480	476	554	192	135	298	244	459	221	84	163	258
23	154	110	51	69	68	70	56	133	71	82	63	65	89	89	61	93	197	215	157	135	142	180	209	96	111
	-130	-180	-92	-50	-29	-42	-32	-148	-115	-77	-25	-57	-80	-110	-157	-124	-388	-588	-216	-103	-75	-205	-410	-278	-155
	286	292	144	120	97	113	88	282	187	160	89	122	170	200	219	217	585	804	373	239	218	387	620	375	266
24	178	104	109	64	138	169	121	200	177	75	88	82	119	124	153	178	164	106	120	116	94	70	66	43	119
	-262	-276	-98	-8	-67	-511	-675	-342	-156	-44	-63	-53	-113	-144	-277	-546	-365	-235	-153	-161	-130	-24	-72	-35	-200
	441	381	208	72	205	681	797	543	333	120	151	137	232	268	430	724	529	342	273	278	225	96	139	80	320
25	64	143	78	119	92	219	241	158	109	163	206	166	143	103	81	41	96	204	114	128	135	102	170	106	133
	-28	-231	-253	-238	-282	-398	-391	-169	-161	-196	-440	-235	-204	-80	-158	-62	-106	-311	-323	-120	-129	-80	-177	-289	-211
	93	375	332	359	375	617	632	327	271	359	646	402	348	183	241	103	202	515	439	249	265	183	348	397	344
26	97	140	114	142	110	166	190	146	119	67	56	178	96	110	121	45	66	63	77	125	128	83	122	153	113
	-116	-80	-248	-321	-170	-120	-324	-148	-88	-67	-27	-120	-688	-671	-341	-212	-135	-120	-31	-68	-17	-19	-64	-324	-188
	214	221	363	463	281	287	514	295	208	135	85	299	785	783	463	258	201	183	109	194	145	108	187	479	303
27	139	81	57	72	81	49	65	68	92	72	68	104	71	106	34	95	50	65	56	94	101	63	51	47	74
	-353	-99	-29	-43	-68	-74	-53	-42	-167	-63	-38	-109	-70	-158	-228	-122	-58	-97	-83	-151	-158	-39	-52	-45	-100
	493	182	88	116	150	123	118	111	260	135	107	214	142	265	263	218	109	163	140	246	260	103	104	94	175
28	44	48	54	41	30	26	30	45	38	66	102	106	70	62	50	58	81	133	113	226	178	261	268	145	95
	-39	-65	-92	-60	-55	-42	-27	-27	-21	-35	-62	-218	-174	-75	-51	-72	-176	-299	-151	-182	-136	-302	-345	-124	-118
	85	114	147	102	86	69	59	73	60	102	165	326	246	139	102	131	258	432	265	408	315	564	614	269	214
29	127	126	152	230	267	275	226	168	339	355	297	149	149	122	153	165	204	348	273	181	152	156	97	101	200
	-103	-135	-268	-258	-279	-212	-318	-210	-898	-397	-373	-342	-392	-171	-318	-214	-179	-393	-319	-160	-170	-193	-140	-213	-277
	231	252	422	490	547	488	545	378	1237	753	670	491	542	295	472	379	383	742	593	342	323	349	238	316	479
30	102	87	104	244	286	328	229	189	145	318	279	231	176	116	125	111	170	276	254	211	167	236	204	148	197
	-294	-99	-134	-401	-567	-317	-483	-403	-158	-466	-406	-361	-408	-238	-333	-380	-261	-251	-305	-231	-90	-96	-136	-336	-298
	397	188	239	647	854	647	713	593	304	786	687	593	585	355	459	491	431	528	560	443	257	333	341	485	496
31	104	99	178	128	109	87	185	192	132	105	136	107	152	206	129	85	100	106	91	148	157	199	98	106	131
	-168	-90	-268	-198	-188	-74	-173	-383	-230	-103	-93	-154	-269	-429	-191	-225	-246	-233	-78	-159	-275	-283	-166	-233	-205
	273	191	447	328	297	162	358	575	364	210	231	262	422	637	321	312	346	339	171	309	433	483	265	341	336

HOURLY VALUES (nT) OF AU, AL AND AE INDICES SEPTEMBER 1982

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	95	79	81	72	90	39	82	92	72	74	109	96	164	167	93	134	94	125	71	53	68	74	58	87	90
	AL	-124	-80	-87	-81	-112	-54	-47	-73	-36	-23	-43	-40	-184	-263	-197	-175	-65	-160	-115	-33	-7	-13	-10	-51	-86
	AE	220	160	168	154	202	94	129	165	108	97	153	137	350	431	291	309	160	285	187	87	75	88	69	139	177
2		125	127	165	167	126	154	169	237	173	184	167	187	159	153	147	90	94	135	220	143	172	214	249	211	165
		-126	-316	-387	-272	-118	-68	-118	-436	-175	-85	-101	-297	-128	-223	-257	-2	-32	-65	-97	-84	-142	-242	-227	-410	-184
		252	444	553	439	244	222	288	674	349	270	269	485	287	376	406	92	126	200	318	228	316	456	477	622	350
3		188	113	161	194	255	234	195	199	154	233	250	192	256	154	170	135	141	108	149	132	117	138	104	88	169
		-214	-76	-94	-276	-282	-160	-256	-404	-188	-148	-483	-518	-287	-147	-144	-116	-78	-156	-113	-69	-58	-125	-134	-13	-189
		404	190	256	471	538	395	453	603	343	382	734	711	545	302	315	252	219	265	263	202	176	264	239	103	359
4		82	109	222	254	193	209	376	226	159	274	202	178	254	296	364	258	355	217	127	187	234	201	240	298	230
		-23	-87	-203	-268	-142	-119	-363	-165	-61	-325	-525	-497	-490	-241	-386	-423	-259	-270	-133	-162	-280	-287	-397	-487	-275
		106	197	426	522	336	329	740	392	231	600	729	676	744	538	750	681	624	487	251	351	515	489	639	786	506
5		276	211	172	296	288	274	340	273	281	395	300	303	246	401	313	333	198	81	97	86	151	345	325	437	268
		-293	-362	-190	-331	-419	-385	-452	-381	-413	-398	-336	-220	-214	-552	-541	-464	-307	-65	-14	-27	-75	-358	-575	-784	-340
		570	575	363	628	709	660	803	655	696	794	638	524	461	954	855	798	505	147	113	115	227	704	901	1222	609
6		633	698	557	461	329	426	617	607	51	204	83	91	153	94	53	271	61	20	273	50	23	15	27	46	243
		-380	-274	-444	-711	-1041	-532	-487	-982	-675	-830	-709	-398	-693	-667	-852	-694	-1163	-945	-573	-392	-623	-620	-838	-1050	-691
		1014	972	1001	1174	1371	959	1105	1590	727	1036	793	490	847	762	915	966	1224	965	847	443	647	636	867	1097	935
7		240	279	173	194	115	231	214	132	187	90	177	133	314	278	85	215	265	73	48	244	124	135	139	159	177
		-609	-727	-873	-414	-517	-197	-162	-103	-200	-1034	-646	-673	-545	-492	-218	-254	-663	-829	-838	-384	-119	-86	-89	-304	-457
		851	1007	1047	610	634	428	378	237	388	1125	824	807	861	771	304	470	928	903	886	629	243	222	230	464	635
8		98	77	39	66	36	37	34	45	45	90	67	85	46	57	38	36	38	23	36	49	49	128	65	82	57
		-60	-21	-32	-34	-19	-21	-23	-30	-32	-52	-62	-51	-52	-55	-52	-41	-58	-36	-33	-33	-21	-76	-25	-42	-40
		159	99	71	100	56	59	57	76	78	142	130	137	99	113	91	79	97	60	70	82	71	205	91	124	98
9		67	221	148	219	245	141	106	84	122	101	174	163	125	60	74	153	107	228	220	175	229	223	157	164	154
		-51	-176	-88	-45	-143	-71	-65	-80	-87	-63	-78	-252	-291	-88	-141	-196	-111	-124	-198	-218	-610	-399	-135	-176	-162
		120	398	237	265	389	212	172	165	211	165	253	416	416	149	215	349	219	353	420	394	840	623	294	341	317
10		113	103	194	89	84	65	54	48	55	50	53	56	55	58	58	64	70	57	50	48	68	64	67	62	70
		-294	-183	-154	-94	-43	-26	-10	-10	-13	-20	-25	-32	-29	-25	-19	-34	-76	-192	-83	-16	-17	-35	-29	-26	-62
		408	287	348	184	128	92	65	60	69	71	80	89	86	84	78	99	147	251	134	64	86	100	97	89	133
11		70	62	81	118	120	106	98	78	117	86	138	163	128	189	115	60	93	152	110	150	70	117	134	136	112
		-37	-101	-159	-173	-101	-35	-41	-39	-74	-41	-54	-76	-361	-219	-144	-47	-155	-342	-191	-46	-17	-127	-104	-304	-124
		109	164	241	292	221	142	140	118	191	128	193	240	489	409	259	108	249	494	302	196	88	245	240	442	238
12		137	124	111	123	196	150	124	125	103	120	129	59	47	27	20	47	58	37	61	129	158	66	90	189	101
		-284	-172	-65	-41	-174	-156	-53	-60	-46	-115	-25	-18	-17	-11	-7	-49	-104	-8	-19	-99	-346	-53	-46	-244	-92
		422	297	176	165	371	307	178	185	150	237	156	78	65	39	28	97	163	46	80	229	505	120	137	434	194
13		189	200	225	133	58	46	40	35	32	134	69	93	59	28	70	156	52	68	51	57	74	59	50	84	86
		-487	-406	-245	-30	-37	-22	-28	-24	-26	-88	-135	-131	-36	-30	-141	-428	-70	-31	-23	-23	-27	-83	-16	-145	-113
		676	607	471	164	96	68	68	60	58	223	206	225	97	60	212	585	123	100	75	81	102	144	67	232	200
14		54	35	42	94	170	82	48	51	110	87	51	34	28	28	40	19	24	101	238	187	124	108	51	29	76
		-28	-10	-19	-44	-399	-218	-21	-18	-48	-36	-28	-21	-26	-14	-33	-32	-24	-141	-347	-523	-262	-238	-39	-12	-108
		83	46	62	138	569	302	70	70	159	125	80	57	55	43	74	53	49	243	587	711	387	348	91	42	185
15		26	29	59	92	136	153	168	89	111	100	63	42	35	31	49	56	42	33	65	60	89	80	133	88	76
		-11	-12	-16	-27	-99	-263	-163	-28	-144	-51	-25	-32	-29	-21	-29	-69	-127	-76	-45	-37	-37	-31	-208	-128	-71
		38	42	76	120	236	418	332	117	256	152	89	75	65	54	79	126	170	110	111	98	127	112	342	217	148

16	90	71	78	84	75	65	138	150	118	79	76	60	64	63	39	40	33	40	104	186	95	88	127	109	86
	-68	-55	-80	-62	-6	-2	-66	-139	-53	-27	-30	-39	-61	-119	-33	-53	-59	-33	-157	-298	-146	-27	-62	-113	-74
	159	127	159	146	82	67	204	290	172	107	107	100	126	184	74	95	93	73	262	484	242	116	191	223	162
17	79	53	60	52	43	43	75	108	137	313	273	89	87	36	27	18	61	81	69	61	58	56	47	56	83
	-46	-3	-11	-8	-11	-11	-27	-77	-261	-395	-193	-35	-24	-31	-50	-45	-89	-156	-99	-28	-26	-36	-27	-29	-72
	126	57	71	61	55	54	103	185	399	709	468	125	112	68	78	63	151	238	169	90	84	93	75	85	155
18	112	82	171	151	141	98	64	147	84	77	65	81	73	105	152	129	75	52	181	177	22	154	187	116	112
	-82	-374	-204	-256	-53	-7	-20	-196	-171	-42	-31	-40	-29	-161	-316	-223	-67	-56	-217	-436	-694	-307	-131	-25	-172
	196	456	375	408	194	105	85	344	257	120	97	122	103	267	469	352	142	109	399	614	716	461	318	141	286
19	111	92	129	102	182	158	191	139	77	122	189	112	91	159	109	201	88	225	256	247	227	135	169	147	152
	-29	-49	-60	-144	-260	-271	-123	-3	-5	-91	-173	-30	-36	-199	-330	-474	-107	-168	-367	-559	-424	-116	-262	-279	-190
	141	142	190	246	443	431	315	143	82	214	363	143	128	359	440	676	196	394	624	808	651	251	432	427	343
20	100	99	64	105	110	160	168	208	130	149	149	189	130	97	132	115	70	117	67	61	90	173	236	105	126
	-127	-52	-20	-84	-91	-192	-348	-336	-214	-159	-111	-450	-201	-144	-391	-193	-30	-123	-25	-26	-41	-304	-574	-602	-202
	228	152	85	190	201	352	518	545	346	309	261	640	331	242	525	309	101	240	93	87	131	478	811	708	329
21	76	148	203	308	194	216	172	275	286	292	262	137	190	111	104	104	114	154	229	296	267	402	285	324	215
	-354	-252	-175	-522	-810	-413	-128	-504	-567	-564	-350	-170	-651	-326	-154	-117	-152	-219	-232	-601	-470	-889	-874	-518	-417
	431	401	378	831	1005	630	301	781	854	857	613	308	841	438	258	222	266	374	462	899	738	1292	1160	843	633
22	330	415	223	180	52	112	-62	2	148	129	142	333	231	227	206	230	268	256	242	161	201	144	118	110	183
	-610	-867	-1373	-750	-1240	-1087	-1530	-692	-808	-1208	-1135	-709	-573	-310	-472	-458	-254	-327	-475	-456	-468	-382	-442	-363	-708
	941	1283	1597	932	1293	1200	1468	695	957	1338	1279	1043	804	538	679	688	523	584	718	618	670	527	561	475	892
23	119	136	122	98	137	111	191	146	149	266	227	251	147	86	80	114	112	125	189	170	173	210	164	191	155
	-196	-407	-514	-344	-636	-545	-290	-189	-202	-405	-298	-188	-96	-147	-152	-277	-196	-288	-200	-249	-415	-264	-289	-139	-289
	316	543	636	442	774	657	483	336	352	673	526	440	244	234	232	392	310	414	390	420	589	474	454	331	444
24	154	181	121	167	138	186	135	124	99	75	133	197	151	110	287	137	59	63	57	44	76	82	82	62	122
	-305	-137	-16	-48	-63	-129	-220	-341	-41	-11	-65	-397	-311	-294	-571	-357	-102	-16	-13	-16	-38	-30	-135	-137	-158
	460	319	137	215	202	315	356	466	141	87	198	595	462	405	858	495	163	80	70	61	115	113	218	201	280
25	42	44	40	44	37	37	38	66	78	72	70	44	75	49	54	36	29	135	225	182	82	98	61	59	71
	-44	-42	-34	-28	-30	-18	-15	-12	-71	-83	-130	-98	-42	-78	-23	-32	-18	-166	-378	-182	-14	4	-5	-10	-64
	86	86	75	73	67	55	54	79	150	156	201	144	118	128	77	69	48	302	604	365	96	92	67	70	136
26	47	51	56	126	148	159	144	185	230	309	177	296	437	170	104	167	-18	63	314	235	123	189	232	138	170
	-18	-75	-127	-214	-227	-146	-166	-350	-425	-311	-362	-728	-386	-1339	-710	-250	-998	-842	-283	-542	-350	-224	-385	-589	-419
	66	127	183	341	376	306	311	536	655	621	539	1024	824	1510	815	417	979	906	597	778	474	414	617	729	589
27	257	265	222	151	157	173	153	93	121	129	61	88	41	48	63	89	183	221	166	137	99	77	137	138	136
	-268	-444	-369	-176	-126	-141	-92	-77	-247	-532	-246	-141	-44	-75	-217	-101	-601	-510	-337	-224	-168	-129	-249	-481	-250
	527	711	592	328	284	315	246	171	369	662	308	230	86	124	280	190	784	732	505	362	267	207	388	621	387
28	133	119	124	137	146	92	85	55	49	57	45	59	51	33	33	27	19	53	53	31	42	99	73	59	70
	-490	-205	-226	-91	-224	-93	-103	-140	-13	-17	-17	-32	-39	-29	-18	-12	-20	-37	-97	-22	-8	-23	-40	-43	-85
	624	325	351	228	370	186	189	195	62	74	62	92	91	63	52	40	41	90	150	53	50	122	114	104	155
29	51	51	68	95	68	58	66	103	116	139	174	204	145	46	30	38	38	61	100	75	92	56	41	36	81
	-42	-39	-117	-71	-12	-5	-15	-63	-253	-218	-162	-231	-281	-145	-43	-24	-68	-115	-358	-223	-123	-72	-22	-9	-113
	94	91	186	167	81	63	82	166	369	358	337	437	428	192	74	62	106	177	459	299	215	128	64	47	195
30	34	34	39	45	49	47	57	101	152	165	307	264	185	143	88	199	140	144	244	205	153	207	256	180	143
	-16	-11	-5	-6	-8	-10	-27	-111	-278	-346	-288	-287	-338	-350	-150	-271	-252	-192	-307	-247	-88	-439	-319	-172	-188
	51	45	45	52	58	58	84	213	430	512	596	553	524	494	238	471	393	337	552	453	242	646	576	354	332

HOURLY VALUES (nT) OF AU, AL AND AE INDICES — OCTOBER 1982

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	167	190	152	157	95	60	65	76	55	160	204	194	239	164	272	94	159	297	171	125	133	158	128	269	158
	AL	-220	-229	-212	-276	-104	-31	-85	-251	-237	-311	-389	-274	-341	-386	-450	-128	-135	-453	-612	-140	-165	-248	-626	-324	-276
	AE	387	420	364	435	201	92	151	328	293	471	593	468	581	551	723	223	295	751	784	266	298	407	755	594	435
2		162	158	118	145	154	234	149	139	182	199	304	207	152	263	174	43	64	147	179	154	108	87	68	44	151
		-293	-452	-240	-194	-155	-272	-246	-174	-315	-542	-286	-249	-232	-487	-299	-118	-194	-296	-389	-278	-230	-240	-148	-93	-268
		456	611	358	340	311	507	396	314	497	742	591	456	384	751	474	162	260	444	569	433	339	328	217	139	420
3		84	51	43	42	61	71	75	96	115	87	111	142	126	123	81	63	31	18	63	100	117	56	41	30	76
		-164	-327	-89	-61	-118	-196	-232	-214	-143	-198	-237	-228	-245	-321	-240	-167	-137	-72	-63	-75	-155	-141	-244	-45	-171
		248	378	132	104	180	269	308	312	258	285	348	371	371	445	322	231	168	90	127	176	274	198	285	76	248
4		36	23	31	34	59	134	135	116	109	153	212	201	156	113	96	39	35	40	44	70	38	27	20	37	82
		-52	-101	-111	-98	-99	-189	-260	-211	-211	-377	-513	-415	-303	-252	-289	-124	-37	-29	-49	-147	-103	-30	-34	-38	-170
		88	124	143	132	159	325	397	328	321	530	725	616	459	366	385	164	73	70	94	218	143	58	55	75	252
5		54	51	62	87	186	198	163	88	30	34	16	20	22	27	22	20	24	51	78	53	28	50	58	74	62
		-63	-121	-269	-256	-298	-186	-187	-142	-62	-32	-42	-39	-35	-40	-52	-56	-57	-90	-90	-27	-38	-46	-112	-166	-104
		117	173	333	345	486	385	352	231	94	67	59	60	58	68	74	77	83	142	169	81	66	97	170	240	168
6		154	112	101	140	170	187	186	139	57	49	102	145	163	135	239	264	52	75	203	192	222	238	108	60	145
		-281	-198	-149	-196	-236	-259	-285	-288	-85	-63	-117	-343	-218	-233	-415	-346	-58	-78	-367	-536	-605	-486	-225	-136	-258
		435	310	251	337	407	447	472	428	142	113	219	488	382	369	655	611	111	154	571	729	829	725	333	197	405
7		83	71	194	161	221	202	181	171	180	159	94	144	154	81	128	215	239	163	60	51	46	28	26	81	131
		-151	-515	-517	-510	-439	-521	-337	-509	-334	-277	-604	-433	-261	-168	-173	-354	-598	-290	-89	-79	-114	-31	-37	-87	-310
		234	587	712	673	662	724	519	681	515	436	698	578	415	249	303	570	838	454	151	131	161	60	65	168	441
8		104	42	41	102	225	95	79	48	91	89	80	19	12	33	117	183	205	180	151	182	122	92	107	87	104
		-336	-252	-94	-264	-513	-107	-91	-85	-277	-320	-144	-42	-30	-35	-352	-487	-386	-284	-329	-228	-132	-295	-175	-83	-223
		441	295	136	367	739	204	171	134	369	410	225	63	43	68	470	670	592	465	481	412	256	388	282	170	327
9		89	85	46	45	36	43	37	34	31	26	26	25	39	50	62	32	14	24	21	27	20	34	35	69	40
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		174	227	86	78	66	68	64	73	57	51	62	55	72	79	96	97	69	45	38	52	51	67	68	212	84
10		91	67	45	58	50	54	54	51	40	42	78	90	110	85	40	25	42	47	55	34	76	107	185	98	68
		-183	-113	-27	-18	-13	-11	-11	-11	-6	-13	-32	-90	-123	-45	-42	-24	-33	-32	-52	-41	-74	-276	-209	-120	-67
		275	181	73	77	64	66	67	63	47	56	111	181	234	131	83	51	76	80	108	76	151	385	395	219	135
11		112	60	38	62	60	89	194	162	78	52	39	57	96	50	52	20	29	46	39	82	117	91	53	28	71
		-108	-52	-40	-32	-40	-140	-202	-90	-43	-18	-27	-59	-87	-37	-85	-35	-82	-99	-56	-62	-303	-267	-127	-67	-90
		221	112	79	95	101	230	397	253	122	70	67	116	184	87	138	55	111	145	96	144	420	359	181	95	162
12		58	78	67	70	54	94	80	81	36	44	138	110	50	32	29	34	41	47	49	146	188	190	118	69	79
		-72	-150	-52	-29	-27	-51	-70	-106	-50	-48	-250	-160	-21	-18	-34	-62	-206	-122	-98	-449	-608	-456	-116	-21	-136
		130	229	120	100	81	147	151	188	87	92	388	271	72	51	63	97	248	171	147	597	798	648	236	90	217
13		51	63	118	97	127	145	168	107	84	107	200	249	172	226	222	284	246	189	282	165	163	95	168	144	161
		-48	-79	-392	-521	-155	-65	-185	-129	-73	-160	-295	-256	-377	-586	-437	-488	-541	-453	-659	-642	-616	-628	-741	-450	-374
		100	143	511	619	284	211	354	237	158	267	496	505	550	813	660	772	787	643	942	809	780	723	911	595	536
14		133	87	120	189	179	194	168	219	84	223	290	118	121	139	159	252	267	218	233	165	131	117	75	59	164
		-403	-476	-510	-571	-404	-430	-444	-493	-569	-606	-448	-223	-456	-401	-356	-393	-394	-381	-577	-461	-282	-209	-119	-46	-402
		538	565	632	761	584	626	613	712	653	830	739	342	578	541	516	646	662	599	811	627	414	327	195	107	567
15		48	48	62	72	77	53	63	95	112	144	177	132	67	94	69	48	49	50	79	79	59	57	43	36	75
		-74	-70	-37	-28	-23	-28	-29	-29	-63	-107	-213	-77	-75	-45	-22	-23	-24	-28	-83	-146	-19	-42	-19	-36	-56
		123	120	100	101	101	82	93	125	177	251	391	210	143	139	91	72	75	79	162	226	79	100	64	73	132

16	33	60	57	33	29	39	82	58	68	62	85	122	89	95	91	166	156	158	112	112	120	171	87	72	90
	-26	-33	-29	-12	-7	-16	-33	-16	-40	-32	-36	-28	-45	-71	-157	-293	-296	-215	-182	-173	-122	-205	-150	-75	-96
	60	94	87	46	36	57	117	75	109	95	121	151	135	166	248	460	453	373	294	287	243	377	239	148	186
17	76	107	126	201	141	81	50	78	73	69	122	154	114	65	67	33	25	65	104	134	115	165	131	135	101
	-94	-94	-206	-263	-106	-15	-12	-53	-33	-125	-80	-193	-130	-136	-144	-98	-43	-90	-108	-306	-337	-503	-300	-218	-154
	171	202	333	466	248	96	63	133	107	195	202	347	245	202	212	132	69	155	213	441	453	670	432	354	256
18	96	77	116	68	134	99	70	112	81	73	106	163	85	156	161	212	220	121	85	93	102	85	68	63	110
	-204	-198	-36	-97	-205	-44	-48	-166	-148	-13	-42	-153	-252	-590	-674	-689	-483	-182	-54	-174	-236	-221	-77	-91	-212
	301	276	153	166	340	144	120	280	230	87	149	316	338	747	836	903	704	305	140	267	339	306	145	154	323
19	70	57	58	71	48	72	107	71	94	64	53	52	97	128	91	124	110	172	243	157	135	211	161	129	107
	-92	-176	-193	-36	-22	-45	-156	-283	-45	-36	-39	-49	-167	-137	-149	-168	-101	-257	-385	-276	-234	-241	-446	-364	-171
	163	234	253	108	72	119	265	355	140	102	93	102	265	265	241	293	212	431	628	434	371	453	608	494	279
20	108	105	137	122	130	169	170	128	183	137	94	73	121	121	102	48	46	33	26	25	33	34	24	29	92
	-172	-61	-210	-286	-287	-212	-244	-179	-323	-179	-66	-69	-292	-269	-63	-86	-55	-43	-48	-6	-22	-28	-40	-35	-136
	280	168	348	408	419	382	415	309	507	317	162	142	414	390	166	135	103	77	75	33	55	63	64	64	229
21	43	53	47	65	89	81	71	78	94	69	44	30	27	39	31	25	40	111	88	45	44	48	33	36	55
	-45	-249	-265	-79	-57	-29	-52	-128	-141	-65	-20	-23	-21	-26	-36	-69	-147	-258	-255	-78	-46	-25	-30	-52	-91
	89	303	314	145	147	111	125	208	236	136	65	54	50	65	68	95	188	369	345	124	91	74	63	89	148
22	59	53	57	56	48	43	51	48	33	30	27	26	30	38	19	35	20	14	12	12	14	16	18	25	33
	-53	-47	-296	-191	-97	-17	0	0	-3	-31	-22	-36	-33	-34	-131	-43	-35	-39	-23	-26	-32	-29	-20	-17	-52
	112	100	354	248	147	61	53	49	36	62	50	63	63	72	151	79	56	55	36	39	46	46	39	43	86
23	24	17	25	26	26	35	44	67	79	58	37	29	31	31	39	46	88	95	81	36	57	61	43	40	46
	-16	-12	-30	-35	-32	-29	-122	-118	-84	-29	-18	-22	-24	-35	-47	-203	-369	-351	-119	-21	-41	-108	-75	-41	-82
	40	30	57	61	58	65	167	187	164	88	57	53	57	67	87	250	458	447	201	58	98	170	118	81	130
24	33	32	50	64	69	69	58	66	55	49	68	63	67	82	66	76	81	106	173	173	129	118	72	75	79
	-15	-9	-24	-79	-50	-2	0	0	-7	-18	-25	-48	-31	-24	-22	-80	-268	-249	-194	-103	-97	-53	-18	-42	-61
	49	42	76	144	120	71	57	66	64	69	94	112	100	108	89	157	350	355	367	277	227	173	90	117	141
25	87	84	88	92	84	187	154	144	111	189	168	170	74	219	257	265	242	273	189	180	229	166	55	41	156
	-69	-75	-142	-135	-128	-293	-209	-177	-178	-235	-163	-143	-222	-406	-467	-369	-303	-242	-162	-144	-180	-120	-75	-52	-195
	157	160	231	228	213	482	365	323	290	425	332	314	296	625	726	636	545	516	352	325	410	287	132	94	353
26	164	160	149	175	309	90	237	131	67	83	61	69	24	8	15	21	23	63	42	27	24	60	87	63	89
	-236	-394	-216	-102	-135	-200	-232	-72	-14	-45	-64	-144	-137	-82	-52	-47	-36	-123	-72	-53	-39	-45	-44	-36	-109
	401	555	366	278	445	290	470	204	81	129	126	214	161	91	67	68	60	186	114	81	64	106	132	100	199
27	67	76	62	66	66	112	87	157	131	115	163	72	88	80	157	104	70	72	114	95	113	119	78	67	97
	-27	-25	-27	-21	-15	-32	-127	-253	-136	-97	-127	-62	-51	-193	-399	-312	-187	-181	-220	-240	-200	-192	-275	-160	-148
	96	103	90	88	82	145	216	412	268	213	291	135	140	273	557	417	257	254	335	336	315	312	354	229	247
28	80	122	144	89	72	69	62	123	117	77	138	151	152	164	96	48	45	50	50	70	87	79	103	134	97
	-131	-105	-49	-14	-15	-12	-143	-36	-11	-32	-266	-356	-364	-236	-99	-20	-14	0	0	-6	-8	-6	-166	-326	-101
	212	229	194	104	88	82	206	161	129	109	405	508	518	400	196	68	60	51	51	77	96	86	270	461	198
29	102	86	73	52	89	100	147	168	215	242	109	75	125	187	127	215	202	202	103	88	91	107	116	90	130
	-225	-57	-77	-132	-143	-258	-405	-306	-293	-489	-492	-426	-275	-388	-789	-475	-342	-250	-176	-142	-150	-335	-288	-342	-302
	328	144	151	186	233	360	553	474	509	732	602	502	401	577	917	691	546	452	280	230	242	443	405	433	433
30	93	128	50	87	81	87	92	208	233	176	214	175	194	177	270	222	205	233	250	247	175	110	106	70	162
	-386	-298	-275	-204	-65	-170	-192	-357	-434	-594	-447	-482	-716	-292	-391	-467	-520	-594	-636	-348	-172	-309	-380	-133	-369
	480	427	327	292	147	258	284	565	667	771	661	658	910	470	662	690	725	828	887	597	348	419	487	204	532
31	61	83	47	19	54	95	53	37	21	14	14	18	21	36	45	98	126	78	220	206	149	81	65	113	73
	-111	-118	-306	-218	-45	-311	-155	-22	-27	-34	-41	-46	-51	-59	-58	-157	-133	-103	-648	-834	-220	-357	-318	-199	-190
	172	201	354	238	100	407	209	61	49	48	55	64	72	96	103	256	260	182	868	1040	370	439	384	313	264

HOURLY VALUES (nT) OF AU, AL AND AE INDICES NOVEMBER 1982

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	62	63	124	69	50	66	74	66	81	231	210	135	204	191	194	201	230	155	92	92	112	154	96	79	126
	AL	-298	-714	-190	-128	-150	-125	-132	-117	-182	-342	-336	-280	-536	-530	-588	-531	-499	-465	-374	-264	-482	-233	-156	-165	-326
	AE	361	777	316	198	201	191	206	184	264	573	546	417	742	723	783	734	731	621	467	357	595	388	252	245	453
2		42	132	72	72	55	61	88	77	72	84	100	140	128	225	271	196	73	237	234	73	32	80	130	93	115
		-106	-94	-228	-105	-44	-99	-287	-158	-58	-154	-528	-543	-344	-631	-681	-796	-487	-596	-460	-347	-461	-262	-516	-406	-350
		148	227	300	177	101	160	375	236	130	238	630	684	474	858	954	993	562	835	695	421	494	343	647	500	466
3		159	104	155	180	210	239	184	144	144	258	250	153	144	98	79	41	42	26	23	19	14	20	17	20	113
		-207	-219	-488	-390	-411	-319	-180	-270	-398	-491	-487	-335	-437	-334	-35	-27	-30	-37	-57	-21	-32	-26	-23	-19	-220
		367	323	643	571	622	559	365	415	542	750	738	489	582	434	115	68	73	63	80	40	47	47	40	40	334
4		10	6	8	13	22	34	64	60	51	56	106	183	158	78	95	61	47	53	44	88	133	127	63	57	67
		-17	-18	-18	-22	-29	-43	-117	-158	-178	-167	-143	-235	-227	-194	-357	-258	-104	-40	-65	-399	-254	-108	-117	-120	-141
		28	25	26	35	52	78	182	220	230	224	249	419	386	273	453	320	152	94	111	487	388	236	180	178	209
5		65	62	58	46	47	71	82	70	64	43	79	130	112	77	36	46	50	80	109	73	68	44	35	29	66
		-204	-104	-71	-62	-37	-56	-28	-80	-131	-60	-107	-162	-337	-122	-241	-298	-169	-184	-430	-173	-7	-9	-15	-15	-129
		270	166	130	109	84	128	110	150	196	103	187	293	450	200	278	345	220	266	541	247	75	54	51	45	196
6		49	57	58	57	64	94	138	142	92	115	183	121	144	99	46	97	120	54	46	40	33	33	30	30	81
		-60	-111	-77	-27	-32	-164	-245	-160	-280	-127	-93	-79	-134	-125	-85	-140	-263	-80	-49	-54	-36	-8	-17	-20	-103
		110	168	136	84	96	259	383	303	373	243	276	201	279	224	132	238	385	136	96	95	69	42	48	51	184
7		44	58	48	45	50	45	47	53	45	35	31	28	34	66	54	39	37	37	33	23	32	34	33	36	41
		-43	-48	-74	-63	-1	0	-6	-19	-9	-21	-17	-22	-28	-48	-48	-44	-21	-14	-25	-18	-39	-34	-2	-2	-27
		88	106	122	109	52	45	53	73	55	58	48	50	62	115	103	84	60	51	59	42	72	69	35	38	69
8		35	41	34	46	53	64	58	58	72	84	64	56	78	60	65	56	84	188	259	152	55	25	25	33	73
		-1	0	1	-2	-23	-20	-4	-8	-7	1	-3	-8	-15	-13	-11	-3	-53	-208	-368	-121	-43	-25	-18	-19	-40
		37	41	33	49	76	85	62	67	80	82	67	64	94	74	77	60	138	397	628	274	99	52	44	52	114
9		44	38	36	35	54	40	25	24	21	25	20	28	29	34	32	30	22	27	28	27	27	21	28	34	30
		-25	-20	-33	-41	-149	-115	-83	-66	-19	-9	-11	-20	-22	-19	-19	-14	-21	-28	-11	-6	-6	-1	3	-18	-31
		70	59	69	77	204	155	109	91	41	35	32	48	51	54	52	45	44	55	40	33	33	23	24	53	62
10		24	52	43	32	27	46	40	27	29	42	40	71	104	154	84	53	33	87	131	251	191	147	89	75	78
		-93	-90	-78	-3	-5	-16	-7	-1	-56	-118	-136	-91	-178	-223	-49	-95	-139	-229	-313	-308	-100	-70	-104	-103	-109
		117	143	122	36	32	63	47	28	86	160	178	163	283	379	134	150	173	318	445	560	292	217	194	178	187
11		108	95	106	224	134	142	111	101	60	151	101	146	145	123	74	184	96	87	99	76	90	69	86	94	113
		-28	-46	-230	-136	-58	-22	-40	-10	3	-125	-236	-228	-169	-228	-172	-357	-44	-57	-154	-117	-40	-57	-291	-358	-133
		137	142	337	360	193	164	152	112	56	277	338	375	314	352	248	542	141	145	255	194	131	128	377	452	247
12		135	134	141	99	80	94	60	41	41	78	67	47	63	105	64	45	65	66	67	90	88	103	56	48	78
		-151	-206	-94	-16	-29	-40	-22	-11	-17	-70	-284	-362	-306	-185	-53	-37	-147	-149	-284	-115	-155	-86	-99	-7	-122
		287	341	235	116	109	134	83	53	58	149	353	410	370	291	117	84	213	216	352	205	244	190	155	56	201
13		94	33	162	115	103	79	46	47	72	159	128	90	58	41	50	44	51	54	78	126	87	60	46	44	78
		-168	-488	-198	-186	-28	7	2	-4	-36	-310	-400	-88	-24	-49	-39	-224	-149	-29	-183	-642	-366	-28	-33	-32	-154
		263	522	361	302	131	71	43	51	108	469	529	179	82	91	91	269	202	84	262	769	455	89	81	77	233
14		51	67	65	47	54	52	66	59	96	147	212	176	108	53	97	169	103	60	42	75	21	47	69	58	83
		-39	-81	-37	-2	-13	-2	-12	-34	-191	-327	-177	-153	-98	-88	-158	-251	-94	-15	-55	-189	-54	-48	-77	-65	-94
		92	148	103	50	67	54	78	94	288	475	390	329	207	142	257	422	198	75	98	264	76	95	148	123	178
15		56	72	68	67	83	53	34	30	31	64	94	69	40	56	74	123	181	157	76	76	196	128	120	85	85
		-34	-27	-28	-68	-1	8	2	-3	-13	-178	-502	-175	-56	-77	-284	-298	-449	-234	-47	-73	-394	-157	-101	-52	-135
		91	100	98	135	85	44	30	33	45	243	597	245	97	134	360	422	631	392	124	151	591	285	223	138	221

16	89	76	67	71	61	67	66	51	82	68	40	35	57	26	26	27	20	25	13	17	42	47	41	32	48
	-7	-81	-110	-79	-129	-62	-113	-206	-38	-28	-79	-105	-20	-19	-17	-14	-12	-11	-17	-56	-146	-65	-180	-61	-69
	96	158	177	151	191	129	180	258	121	96	120	141	77	45	44	42	34	37	32	74	189	112	221	94	118
17	36	22	22	29	24	29	28	27	33	40	25	28	30	20	24	49	38	34	62	98	84	157	158	130	51
	-20	-5	0	2	3	1	0	0	-2	-3	-7	-11	-17	-19	-19	-13	-5	-37	-42	-110	-213	-201	-54	-50	-34
	57	28	22	26	20	27	27	26	36	43	32	40	47	40	44	64	44	72	105	210	298	360	213	181	86
18	134	125	120	96	106	49	26	38	59	63	69	46	53	89	172	236	242	138	61	35	33	32	29	36	87
	-111	-62	-51	-6	-9	-42	-27	-45	-44	-32	-153	-42	-43	-338	-495	-524	-425	-146	-45	-34	-25	-102	-116	-143	-127
	246	188	173	103	115	92	53	84	103	95	223	89	96	428	668	761	668	286	108	70	58	135	146	179	215
19	52	48	60	79	81	78	33	38	49	43	37	27	31	56	44	37	74	45	70	100	72	57	57	49	55
	-183	-132	-100	-101	-58	7	-7	-10	-12	-19	-24	-28	-33	-24	-91	-253	-210	-87	-82	-156	-171	-293	-52	-13	-89
	235	181	161	181	140	70	41	49	62	62	62	56	65	81	137	291	285	133	154	257	244	350	111	63	145
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	-9	-13	-14	-14	-10	-8	-6	-4	-3	-9	-52	-108	-90	-102	-35	-39	-41	-38	-30	-186	-71	-38	-25	-206	-48
	41	41	49	49	31	29	30	27	24	46	84	141	128	142	63	67	66	61	57	248	116	70	53	264	80
21	102	78	60	64	85	267	247	188	113	51	79	94	59	100	115	81	189	148	190	155	87	46	21	24	110
	-189	-87	-64	-178	-308	-398	-286	-204	-90	-63	-110	-348	-393	-339	-135	-98	-296	-357	-394	-560	-861	-666	-599	-553	-316
	292	166	125	242	394	666	533	393	204	115	189	443	453	440	251	180	487	507	585	716	949	714	621	578	427
22	34	120	31	5	45	105	155	156	135	162	51	40	25	19	8	11	16	35	66	33	11	11	9	7	54
	-646	-362	-315	-679	-318	-225	-220	-249	-156	-98	-83	-50	-31	-31	-35	-45	-44	-47	-116	-47	-28	-31	-29	-23	-163
	679	482	346	684	363	330	375	406	292	260	135	91	56	52	44	56	62	84	184	81	40	44	39	31	217
23	12	13	21	19	30	32	32	28	33	51	91	84	89	67	129	166	225	371	322	231	165	248	142	60	111
	-23	-17	-14	-13	-17	-13	-39	-16	-13	-26	-32	-18	-46	-205	-366	-369	-702	-450	-362	-779	-1033	-480	-453	-143	-235
	36	32	35	33	47	46	72	44	46	78	123	103	136	274	496	536	928	823	685	1011	1199	729	597	204	346
24	52	73	61	56	43	31	22	30	29	84	100	173	337	182	112	152	-15	44	239	155	61	20	10	-62	83
	-101	-119	-44	-74	-47	-54	-51	-45	-51	-98	-202	-407	-699	-1287	-604	-644	-862	-606	-463	-539	-481	-360	-580	-912	-389
	154	192	106	131	91	86	73	75	82	183	303	582	1037	1469	715	798	847	650	703	695	543	380	590	848	472
25	94	34	-4	56	83	93	120	122	112	123	148	81	45	71	113	63	110	110	170	59	37	72	26	43	82
	-483	-143	-119	-155	-230	-458	-396	-500	-668	-525	-354	-214	-432	-386	-522	-390	-332	-644	-450	-103	-65	-171	-288	-89	-338
	578	178	114	212	314	552	516	623	781	649	504	296	479	459	636	455	444	756	621	162	103	243	315	132	422
26	69	43	62	50	41	101	84	83	144	160	158	145	120	57	115	206	218	97	40	61	103	106	48	78	100
	-66	-105	-150	-418	-306	-315	-207	-148	-406	-289	-452	-355	-224	-181	-512	-870	-580	-128	-64	-29	-71	-353	-160	-80	-270
	136	149	213	469	348	417	292	232	551	450	611	501	345	240	628	1077	800	226	106	90	175	460	209	158	370
27	70	73	76	113	106	99	117	201	162	124	84	135	209	118	90	126	56	104	109	79	70	66	74	57	105
	-120	-107	-126	-166	-155	-106	-197	-375	-349	-292	-126	-526	-892	-478	-335	-351	-195	-324	-464	-254	-108	-67	-91	-154	-265
	191	180	203	279	262	206	314	577	512	417	211	662	1103	597	427	478	253	429	574	334	179	134	165	212	371
28	134	38	166	159	62	128	91	100	93	107	170	143	134	137	111	143	140	161	101	90	109	138	109	107	120
	-424	-775	-285	-72	-50	-198	-107	-89	-125	-194	-355	-401	-295	-361	-301	-250	-193	-348	-680	-269	-122	-322	-313	-417	-289
	558	813	452	231	112	326	199	190	219	303	525	545	430	500	413	394	334	510	782	360	232	461	422	524	410
29	140	154	100	69	86	102	118	139	140	91	74	184	102	122	150	189	150	235	179	89	216	128	143	71	132
	-320	-160	-150	-116	-94	-270	-221	-173	-200	-173	-187	-451	-147	-622	-617	-553	-648	-309	-448	-612	-490	-251	-99	-92	-308
	460	315	250	185	181	373	339	313	340	264	261	636	250	745	769	744	799	544	629	702	707	379	243	164	441
30	74	84	61	89	85	49	56	46	29	34	17	23	75	55	66	63	46	24	38	24	20	20	23	22	47
	-102	-158	-232	-216	-250	-144	-197	-123	-118	-66	-70	-77	-116	-148	-282	-112	-73	-77	-65	-62	-59	-55	-53	-51	-121
	177	242	293	306	335	193	254	170	149	101	88	101	193	204	349	177	120	102	104	86	80	76	78	74	169

HOURLY VALUES (nT) OF AU, AL AND AE INDICES DECEMBER 1982

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	8	12	11	9	13	13	12	13	18	16	19	13	9	13	15	16	11	11	6	4	9	18	15	16	12
	AL	-11	-13	-15	-15	-13	-13	-12	-35	-133	-44	-53	-30	-47	-41	-55	-24	-17	-18	-88	-38	-13	-13	-11	-11	-32
	AE	19	26	27	24	26	26	25	49	152	61	73	43	57	55	72	41	29	31	95	42	23	31	26	27	45
2		8	9	8	9	10	10	11	14	12	19	18	31	47	126	82	35	33	18	14	13	11	18	30	16	25
		-9	-7	-7	-9	-9	-3	-6	-7	-6	-8	-13	-27	-152	-275	-155	-20	-7	-13	-7	-20	-52	-45	-73	-17	-39
		17	17	17	19	20	15	18	22	19	27	32	59	200	402	237	56	41	33	22	33	63	64	104	34	66
3		29	46	43	41	29	32	56	45	49	36	40	24	40	60	145	225	148	81	44	30	30	48	54	62	60
		-45	-99	-48	-37	-31	-12	-120	-50	-14	-13	-7	-13	-52	-425	-380	-317	-168	-176	-78	-24	-13	-31	-51	-166	-99
		75	147	93	80	61	45	177	97	64	50	48	37	94	486	526	543	316	258	123	55	44	80	106	230	160
4		66	155	154	174	99	70	61	48	34	37	34	28	22	28	56	54	30	26	34	38	54	87	91	96	66
		-85	-158	-199	-78	-4	0	5	6	1	-8	-10	-10	-15	-14	-49	-24	-29	-23	-39	-12	-26	-53	-476	-322	-67
		152	314	354	253	104	71	55	42	32	46	45	40	38	44	106	79	60	50	74	51	81	141	568	419	134
5		46	78	148	116	116	182	90	140	77	43	33	39	60	43	42	39	47	13	16	21	23	36	35	30	63
		-414	-374	-270	-163	-81	-76	-105	-158	-55	-39	-34	-26	-29	-30	-68	-124	-51	-34	-56	-186	-53	-39	-23	-27	-105
		462	453	419	280	198	260	197	299	133	84	68	66	90	74	112	165	99	47	73	207	77	75	58	57	169
6		46	64	85	92	68	41	43	42	44	39	39	24	33	21	31	26	18	19	18	19	20	21	22	19	37
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		84	105	107	100	75	39	48	53	53	49	57	43	49	40	52	52	41	33	36	38	30	33	36	34	54
7		16	17	21	39	83	82	110	50	46	50	77	197	260	118	134	67	117	132	79	176	313	131	59	56	101
		-5	0	1	1	-17	-24	16	8	-14	-11	-48	-87	-151	-490	-685	-592	-272	-310	-466	-628	-385	-350	-242	-151	-204
		23	16	19	38	101	108	93	41	60	61	126	286	413	609	820	660	390	442	546	804	699	481	303	208	306
8		74	87	83	58	101	85	105	207	202	243	237	276	316	306	394	331	302	122	238	176	155	126	85	44	181
		-135	-194	-283	-107	-129	-159	-160	-314	-274	-243	-526	-695	-454	-445	-664	-523	-617	-802	-413	-511	-334	-55	-102	-132	-345
		210	282	368	166	231	245	266	522	477	487	764	971	771	752	1058	855	920	925	651	689	490	182	188	178	527
9		36	59	83	155	202	176	137	86	64	58	52	44	69	126	103	67	51	32	35	69	60	56	52	43	80
		-118	-96	-83	-101	-154	-69	-47	-52	-79	-152	-29	-29	-201	-959	-627	-190	-46	-63	-41	-51	-48	-114	-100	-124	-149
		155	156	168	257	358	246	185	139	144	211	82	74	271	1086	730	258	98	96	76	121	109	171	153	167	229
10		47	35	34	20	62	128	90	220	208	64	176	175	66	106	154	163	318	238	160	281	310	157	86	114	142
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		110	59	55	39	91	198	705	842	710	687	611	357	203	205	293	430	901	637	527	1086	692	293	108	272	421
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		366	284	229	379	226	59	39	48	112	71	43	58	40	41	140	566	836	573	914	572	446	542	362	316	303
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		203	111	83	143	91	166	168	134	192	229	289	671	335	88	68	96	377	273	76	61	37	87	192	141	180
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		72	61	44	55	79	43	62	65	44	43	78	135	101	126	140	60	50	39	31	31	243	605	413	212	118
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		106	184	113	108	93	92	195	262	289	317	385	87	58	46	49	73	47	41	35	20	19	21	21	23	112

16	13	16	17	18	17	17	15	21	56	29	22	67	62	86	177	181	235	206	152	145	108	69	49	113	79
	-9	-5	-5	-9	-16	-86	-207	-335	-261	-227	-295	-495	-488	-446	-532	-534	-534	-331	-583	-443	-339	-393	-450	-382	-309
	22	21	24	29	34	105	224	356	318	257	318	562	551	533	709	715	770	537	736	589	448	462	499	495	388
17	92	99	185	263	202	299	264	179	-18	308	203	269	349	394	353	167	93	114	81	133	53	125	121	110	185
	-515	-488	-471	-386	-374	-377	-422	-229	-1768	-991	-541	-609	-884	-395	-410	-228	-139	-202	-261	-550	-363	-123	-89	-119	-456
	609	588	658	650	577	677	688	410	1750	1300	745	878	1233	790	763	396	232	317	343	684	416	249	211	230	641
18	116	144	110	140	86	63	80	108	132	5	95	137	85	195	238	149	155	149	167	212	186	158	103	60	128
	-130	-351	-260	-237	-84	-112	-89	-148	-359	-1380	-662	-514	-288	-402	-781	-559	-459	-322	-428	-310	-72	-48	-22	-13	-335
	247	497	372	379	170	175	171	256	491	1386	758	653	373	598	1019	709	614	472	595	523	258	206	126	74	463
19	61	86	116	131	105	130	116	111	106	168	159	232	86	92	135	76	31	33	35	22	30	32	57	86	93
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	-23	-94	-31	-35	-162	-365	-231	-241	-59	-391	-522	-654	-1069	-846	-558	-612	-478	-321	-307	-271	-507	-224	-51	-313	-349
	89	215	99	87	290	504	349	357	128	563	701	899	1208	1050	793	761	622	561	481	414	673	393	110	396	489
21	89	82	80	184	121	118	156	169	184	135	180	103	129	264	204	210	105	124	146	131	89	150	163	99	142
	-258	-164	-179	-308	-160	-253	-309	-347	-507	-422	-436	-557	-632	-785	-503	-476	-725	-589	-531	-506	-435	-375	-277	-396	-422
	348	248	260	494	282	373	466	517	692	558	617	661	762	1050	707	687	831	713	677	638	526	526	441	496	565
22	110	227	201	366	201	140	79	44	39	25	41	21	36	39	152	188	262	140	59	49	29	44	35	39	107
	-783	-858	-951	-794	-465	-348	-132	-100	-84	-134	-164	-73	-82	-146	-585	-875	-377	-152	-68	-78	-110	-243	-156	-189	-331
	895	1086	1154	1161	668	489	211	145	123	159	206	95	120	186	737	1063	640	292	127	127	140	288	191	229	439
23	44	40	28	23	22	58	51	71	101	71	104	81	84	144	343	240	200	234	214	140	87	46	45	58	105
	-178	-152	-80	-73	-20	-43	-63	-289	-389	-276	-217	-658	-900	-591	-475	-570	-648	-443	-300	-225	-164	-293	-156	-399	-317
	224	193	109	98	44	103	115	361	491	349	322	740	985	735	818	811	849	678	514	365	252	340	203	459	423
24	55	76	88	104	58	43	39	82	68	100	95	152	60	111	145	98	94	69	66	74	94	75	49	45	81
	-162	-184	-350	-132	-27	-39	-77	-289	-181	-228	-327	-457	-384	-443	-489	-291	-391	-338	-230	-165	-182	-36	-100	-145	-235
	218	262	439	238	86	83	117	371	249	328	423	610	445	555	634	390	485	407	296	239	276	111	150	191	317
25	30	54	63	81	73	70	54	79	99	81	54	61	91	28	81	58	135	91	71	41	32	33	28	35	64
	-132	-63	-60	-215	-63	-53	-35	-112	-191	-22	-51	-84	-407	-571	-558	-305	-388	-196	-55	-145	-117	-58	-28	-39	-165
	164	118	124	298	138	125	90	192	291	104	105	146	499	600	641	363	524	288	126	187	150	92	56	76	229
26	35	43	42	77	103	82	123	128	94	36	56	58	88	111	62	76	118	102	103	65	43	34	30	34	73
	-48	-96	-192	-119	-86	-115	-154	-78	-5	-8	-33	-112	-250	-458	-259	-178	-256	-192	-229	-103	-55	-30	-18	-27	-129
	83	139	236	197	190	198	278	207	100	45	89	171	340	570	322	255	374	294	333	169	99	65	49	63	203
27	38	73	63	55	56	47	38	108	131	79	93	162	190	156	90	64	67	63	33	53	125	133	167	188	95
	-21	-76	-85	-114	-64	-19	-13	-39	-94	-34	-28	-231	-287	-135	-21	-48	-31	-63	-34	-31	-116	-413	-302	-136	-101
	60	151	150	170	122	68	52	149	225	114	122	394	478	292	113	113	99	126	67	85	242	546	469	324	197
28	153	165	165	205	139	155	110	101	166	234	118	136	171	258	218	236	143	63	51	135	151	148	109	150	153
	-91	-156	-204	-418	-120	-135	-133	-162	-246	-197	-142	-123	-527	-663	-385	-260	-142	-21	-67	-379	-551	-103	-124	-203	-231
	245	322	370	625	261	292	244	264	412	432	262	260	699	921	603	497	286	85	119	515	703	251	234	354	386
29	137	161	127	158	172	144	84	105	102	168	175	152	140	141	172	112	81	76	52	99	132	177	125	100	129
	-154	-124	-52	-180	-229	-47	0	-58	-387	-392	-234	-144	-197	-277	-437	-91	-87	-206	-126	-268	-375	-152	-129	-86	-185
	292	287	179	340	402	193	83	164	490	561	410	298	338	419	610	204	169	283	179	368	508	329	255	187	314
30	90	98	193	134	79	168	131	152	105	59	67	61	51	42	24	40	50	100	149	160	64	42	44	52	90
	-76	-152	-175	-96	-175	-121	-222	-75	-70	-112	-84	-309	-53	-25	-124	-273	-350	-302	-240	-262	-71	-7	-50	-105	-147
	168	251	369	231	256	291	354	228	175	171	152	371	104	68	150	314	401	403	389	422	136	50	95	158	238
31	83	108	169	120	58	64	66	41	81	57	68	81	74	41	32	42	45	35	43	14	24	39	70	74	64
	-237	-311	-80	-16	-54	-10	-21	-25	-29	-53	-64	-139	-56	-18	-28	-35	-35	-43	-28	-24	-26	-55	-128	-50	-65
	321	421	250	137	114	75	88	67	110	110	133	220	131	60	60	77	81	79	72	40	52	95	199	125	130

MONTHLY AND YEARLY AE 1957 - 1982

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.	302.	263.	231.	273.	270.	201.	186.	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.	255.	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.	124.	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.	162.	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.	244.	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.	179.3
1981	147.	195.	238.	324.	319.	218.	279.	279.	206.	252.	217.	158.	236.0
1982	178.	386.	220.	304.	290.	367.	372.	318.	346.	275.	254.	277.	298.9

Unit : nT

SECTION 4

CLASSIFICATION OF DAYS

CLASSIFICATION OF DAYS 1982

1982
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JANUARY

Five international quietest days (from Kp) : 9 12 13 14 19

24-hours quiet intervals (from aa) C - very quiet : 5 9 10 11 12 13 14 19 20
K - quiet : NONE

48-hours quiet intervals (from aa) C - very quiet : 9 10 11 12 13
K - quiet : NONE

FEBRUARY

Five international quietest days (from Kp) : 9 15 16 27 28

24-hours quiet intervals (from aa) C - very quiet : NONE
K - quiet : NONE

48-hours quiet intervals (from aa) C - very quiet : NONE
K - quiet : NONE

MARCH

Five international quietest days (from Kp) : 6 7 15 16 28

24-hours quiet intervals (from aa) C - very quiet : 6 7 16 28
K - quiet : NONE

48-hours quiet intervals (from aa) C - very quiet : 6 7 16
K - quiet : NONE

APRIL

Five international quietest days (from Kp) : 7 14 19 23 26

24-hours quiet intervals (from aa) C - very quiet : 7 14
K - quiet : NONE

48-hours quiet intervals (from aa) C - very quiet : NONE
K - quiet : 14

1982
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MAY

Five international quietest days (from Kp) : 7 8 22 23 24

24-hours quiet intervals (from aa) C - very quiet : 6 7 8 9 10 12 13 22 23 24
K - quiet : NONE

48-hours quiet intervals (from aa) C - very quiet : 7 8 9 10 11 12 13 22 23 24
K - quiet : NONE

JUNE

Five international quietest days (from Kp) : 3 4 5 17 18

24-hours quiet intervals (from aa) C - very quiet : 4 5 17
K - quiet : NONE

48-hours quiet intervals (from aa) C - very quiet : NONE
K - quiet : NONE

JULY

Five international quietest days (from Kp) : 2 3 4 5 10

24-hours quiet intervals (from aa) C - very quiet : 3 4 5
K - quiet : NONE

48-hours quiet intervals (from aa) C - very quiet : 3 4 5
K - quiet : NONE

AUGUST

Five international quietest days (from Kp) : 8 14 15 16 19

24-hours quiet intervals (from aa) C - very quiet : 8 15
K - quiet : 16

48-hours quiet intervals (from aa) C - very quiet : 15
K - quiet : 14 16

1982
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SEPTEMBER

Five international quietest days (from Kp) : 1 10 17 29 30

24-hours quiet intervals (from aa) C - very quiet : NONE
K - quiet : NONE

48-hours quiet intervals (from aa) C - very quiet : NONE
K - quiet : NONE

OCTOBER

Five international quietest days (from Kp) : 9 15 22 23 24

24-hours quiet intervals (from aa) C - very quiet : 23 24
K - quiet : 9 22

48-hours quiet intervals (from aa) C - very quiet : 23
K - quiet : 24

NOVEMBER

Five international quietest days (from Kp) : 4 7 9 17 20

24-hours quiet intervals (from aa) C - very quiet : 7
K - quiet : 17

48-hours quiet intervals (from aa) C - very quiet : 7
K - quiet : NONE

DECEMBER

Five international quietest days (from Kp) : 1 2 6 13 31

24-hours quiet intervals (from aa) C - very quiet : 1 2 6 13 31
K - quiet : NONE

48-hours quiet intervals (from aa) C - very quiet : 1 2
K - quiet : 6

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

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	01	E4	01	11.38	12	1	1	1	1	2	.	.	.
Jul	13	E6	13	16.17	13	2	2	.	1	.	1	1	2
Aug	06	E7		—	8	1	1	1	2	.	.	.	.
Sep	05	E8	05	22.50	16	2	2	2	.	1	3	1	.
	20	E8	21	03.39	15	2	.	1	2	1	1	.	.
	26	E4	25	20.30	7	1	.	3	.	.	.	.	.
Nov	24	E4	24	09.21	10	2	1	2	.	.	.	.	.
Dec	17	E2	17	08.05	4	.	.	1	.	.	.	.	.

SECTION 5

RAPID VARIATIONS

For technical reasons, the 1982 rapid variations data were not available at the date of publication of the present Bulletin (see page 20). As example of the presentation of these data, we give hereafter the beginning of the 1981 list .

LIST OF 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

etc...

For technical reasons, the 1982 rapid variations data were not available at the date of publication of the present Bulletin (see page 20). As example of the presentation of these data, we give hereafter the beginning of the 1981 list.

LIST OF SFE 1981 :

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

etc...

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IAGA Symposium No. 6, Symposium on Aurora and Magnetic Storms, Birkeland, 1967
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