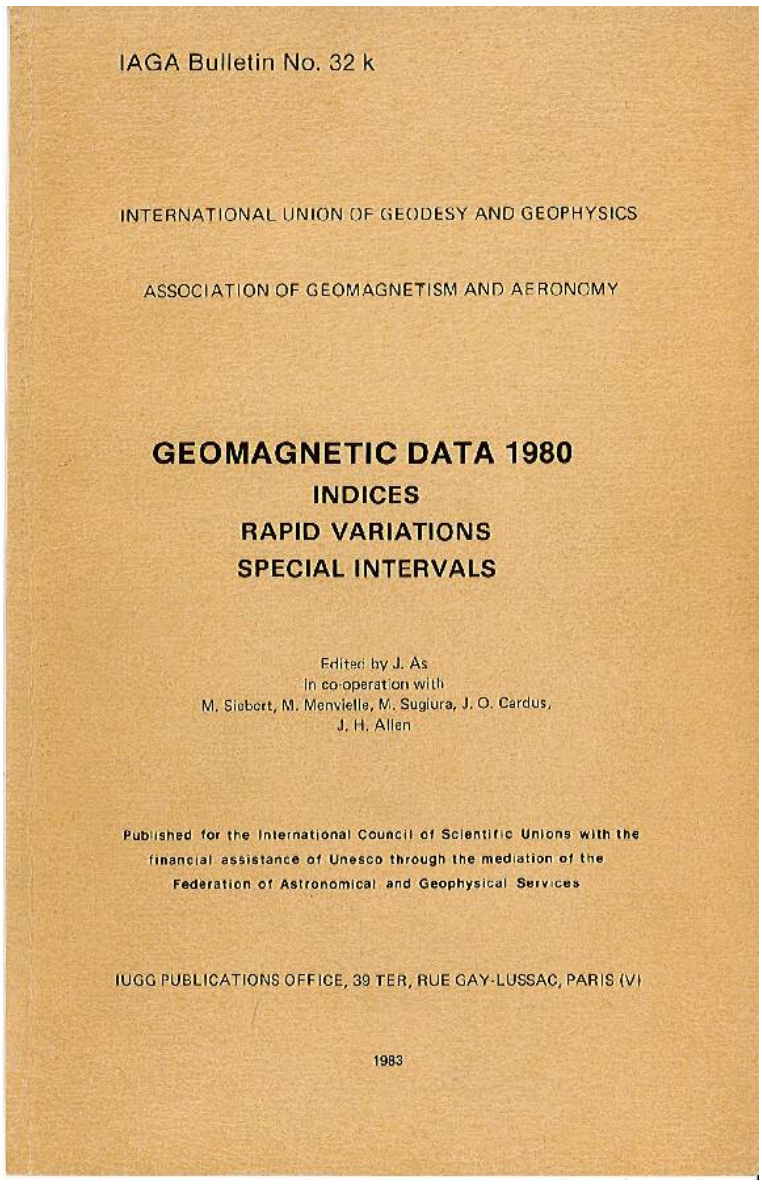

How to cite:

As, J., Siebert, M., Menvielle, M., Sugiura, M., Cardus, J. O., Allen, J. H., & IAGA (1983). *IAGA Bulletin No. 32k, Geomagnetic Data 1980, Indices, Rapid Variations, Special Intervals.* IUGG Publications Office. https://doi.org/10.25577/96q8-w794

IAGA Bulletin No. 32 k

INTERNATIONAL UNION OF GEODESY AND GEOPHYSICS

ASSOCIATION OF GEOMAGNETISM AND AERONOMY

GEOMAGNETIC DATA 1980

INDICES
RAPID VARIATIONS
SPECIAL INTERVALS

Edited by J. As
in co-operation with
M. Siebert, M. Menvielle, M. Sugiura, J. O. Cardus,
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Published for the International Council of Scientific Unions with the financial assistance of Unesco through the mediation of the Federation of Astronomical and Geophysical Services

IUGG PUBLICATIONS OFFICE, 39 TER, RUE GAY-LUSSAC, PARIS (V)

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DG/7.6.2/Sub. 13(sc)

C O N T E N T S

INTRODUCTION

The IAGA-Bulletin No. 32 series is a yearly compilation of magnetic indices and other geomagnetic data, based on the reports of a great number of magnetic observatories. The series is the continuation of the former IAGA-Bulletin No.12 and is prepared for publication by the International Service of Geomagnetic Indices (ISGI) at De Bilt. The elaborated data are at present provided by the following institutes, under the responsibility of the adjoining collaborators:

Institut für Geophysik, Göttingen (M. Siebert): Kp, ap, Ap, Cp, Q- and D-days.
Institut de Physique du Globe, Paris (M.Menvielle): aa, Kn, Ks, Km, An etc.
NASA-Goddard Space Flight Center, Greenbelt (M. Sugiura): Dst.
Observatorio del Ebro, Roquetas (J.O. Cardus): Rapid Variations.
Environmental Data Service, Boulder (J.H. Allen): Magnetic storm data, K-tables, magnetograms, AE-data.

The ISGI, formerly called Permanent Service or "C- and K-center", operates under the supervision of IAGA-Division V: Observatories, Instruments, Indices and Data. Since 1954 it forms part of the Federation of Astronomical and Geophysical Services. The work began in 1906 with the collection and publication of the daily character figure C (as reported by the observatories in a scale 0-2) and its daily mean value, the international character figure Ci, together with lists of selected quiet and disturbed days. In 1938, this work was extended backwards to 1890.

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.

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 as supplementary (table 1b) in Bulletins 12g and 12l. In addition to Kp, the corresponding range figures ap and related daily indices Ap and Cp have been published regularly in the IAGA-Bulletins 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 like Dst, Kn, Km and a survey of magnetic storms were included from 1970 onwards. This change marked the end of the series IAGA-Bulletin No. 12 and the beginning of the new series IAGA-Bulletin No. 32. The publication of the derived indices Ci, Kp etc. and the international quiet and disturbed days (Q- and D-days) continued in the new series (Ci up to 1976).

The K-indices of individual observatories have been put on magnetic tape for the years 1969 through 1974. These tapes are available through the World Digital Data Centers for Geomagnetism. Besides, tables of local K-indices can be found in the bulletins or yearbooks of many observatories.

The aa-indices form a series of indices beginning in the year 1868. A full description of these indices is given in the IAGA-Bulletin No. 33, which contains tables and graphs of aa for the years 1868-1967. Descriptions are also given in two short papers (Ann. Géophys., 27, 62-70, 1971 and J. Geophys. Res., 77, 6870-6874, 1972), in connection with comparisons with other indices am, ap or Ci. All data given in the tables are available on magnetic tape from the appropriate World Data Centers, using the format described in IAGA-Bulletin No. 33.

The meaning of C, Ci, K and Kp is explained in textbooks, e.g. Landolt-Börnstein, Zahlenwerte und Funktionen, Band 3. pp. 731-744 (Berlin 1952, Springer Verlag), and in Terrestrial Magnetism and Atmospheric Electricity 44, pp. 441-433 (1939) and 46, pp. 301-303 (1941). The results of an extensive study on the index K by P.N. Mayaud are given, together with practical rules for its determination, in the "Atlas of Indices K", IAGA-Bulletin No. 21 (1967). The exact definition of Kp is given in IATME-Bulletin No. 12b, reprinted at the end of the IAGA-Bulletin No. 12i, and in the Journal of Geophysical Research, Vol. 54, pp. 295-299, Sept. 1949. The indices have also been described, for use in correlation studies in other geophysical fields, in the Annals of the IGY, Vol. 4, pp. 227-236 (London, Pergamon Press 1957).

A collection of diagrams for Kp, 1932/33 and 1940 to 1950, together with diagrams for the daily characters 1884-1950, is given in: Abhandlungen Akad. Wiss. Göttingen, Math.-Phys. Klasse, Sonderheft 1 (1951). A second collection from 1937 up to 1958 has appeared in: Abhandlungen Akad. Wiss. Göttingen, Math.-Phys. Klasse, Beiträge zum Geophysikalischen Jahr, Heft 3 (1958). A discussion on time variations of geomagnetic activity, indices Kp and Ap, 1932-1961 has appeared in Annales de Géophysique, Tome 19, pp. 1-20, 1963. Tables and diagrams of these planetary indices for the whole period 1932-1961 are printed in IAGA-Bulletin No. 18.

Other planetary indices derived from the K-indices, are the three-hourly indices Kn and Ks for the Northern- and Southern hemisphere and the mondial index Km. These indices are published in the IAGA-Bulletin No. 32 from 1968 onwards. They are described in a publication of the Centre National de la Recherche Scientifique, Paris 1968: "Indices Kn, Ks et Km, 1964-1967", by P.N. Mayaud. The indices for the years 1959-1963 are published in the special IAGA-Bulletin No. 39. The complete series of these indices and the related quantities an, as etc. for the years from 1959 onwards is available on punched cards at WDC-A for Solar Terr. Physics, Boulder, in a format analogous to the one in the above publication.

The equatorial Dst-index for ring current intensity is also published in the IAGA-Bulletin 32 from 1970 onwards. A description of this index is given in the reports for earlier years. 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 No. X-645-71-278 of the Goddard Space Flight Center. This report supersedes earlier Dst-publications by Sugiura and co-workers. Recently, these Dst values have been recomputed, using the data of four stations. Hourly Dst-values for the IGY, based on the data of eight stations, are given in the Annals of the IGY, Vol. 35. The same volume contains three-hourly values of Dst for the IGY as determined by W. Kertz in a somewhat different way. The hourly values from 1957 onwards are available on magnetic tape at WDC-A for Solar. Terr. Physics, Boulder.

The auroral electrojet index AE cannot be included in IAGA-Bulletin No. 32, because this index is not available in time. However, data on preliminary AE-indices for selected intervals are included in part D of this Bulletin. References to AE are given at the end of part B, together with references to the indices Q and R from individual observatories and to indices Kp, Ap and Cp of earlier years.

A description of many indices mentioned in this introduction is given by M. Siebert in "Handbuch der Physik", Vol. 49/3, pp. 206-275 (Springer Verlag 1971).

For a complete review of all these indices see: P.N. Mayaud, Derivation, meaning and use of geomagnetic indices, Geophysical Monograph 22, Ann. Geoph. Union, Washington D.C., 1980.

Data on rapid variations are given less extensive than in the former IAGA-Bulletins. According to decisions made at the IAGA-Assemblies in Madrid, 1969, and in Grenoble, 1975, the lists of sudden impulses (si), bays and pulsations, minor disturbances and rejected solar-flare effects are omitted. Storm sudden commencements (ssc) are presented in a new way (see: Explanation, page X). Pulsations without bays have been published in the quarterly bulletins and their yearly supplement up to 1 January 1974.

The Bulletin 32 further contains a data survey for special intervals (mostly magnetic storms) consisting of a survey of indices over the selected time intervals, data on sc's, ranges etc. from individual observatories and magnetograms of selected stations, reduced to the same time scale and comparable intensity scales.

Most data appearing in the yearly IAGA-Bulletin 32 have been given earlier in monthly bulletins partly in a preliminary form.

The values of Kp, Ap and Cp for a calendar month are usually available, in a table and in graphical representation, before the end of the next month, and they are distributed, in time for 27-day recurrence forecasts, to about 400 institutions in many countries. This service is carried out by the Institut für Geophysik, Herzberger Landstrasse 180, D-3400 Göttingen, GFR. Requests may be directed to this address.

Monthly tables of Kn, Ks, Km and related quantities are distributed by the Institut de Physique du Globe de Paris, 4 Place Jussieu, Tour 14, 75230 Paris Cedex 05, France.

Monthly bulletins on aa, selected quiet and disturbed days and preliminary data on rapid geomagnetic variations are sent to about 190 observatories and institutions by the International Service of Geomagnetic Indices, c/o Royal Netherlands Meteorological Institute, P.O. Box 201, 3730 AE De Bilt, Netherlands.

The data on rapid variations are collected and prepared for publication at the Observatorio del Ebro, Roquetas, Spain.

Much of the data published in these bulletins can also be found in the monthly publication "Solar Geophysical Data" issued by the NOAA Environmental Data and Information Service, Boulder, Colorado 80303, USA.

IAGA-Division V: Observatories, Instruments, Indices and Data

C. Sucksdorff, Chairman

International Service of Geomagnetic Indices

J.A. As, Director

Koninklijk Nederlands Meteorologisch Instituut, De Bilt, Netherlands

EXPLANATION OF THE TABLES AND DIAGRAMS

Part A. List of Observatories

The observatories are arranged according to their geographic latitudes. Only those observatories are listed which have reported data on geomagnetic indices or rapid variations. For observatories which have moved over a small distance, the old name is sometimes maintained, but the coordinates correspond always with the new site.

The first column gives the three-letter code for the observatories, which replaces the former two-letter code. (A list of three-letter symbols for all observatories has been published in IAGA-Bulletin No. 32h, page 106-116. Additions and corrections to that list are given in the last pages of subsequent bulletins of this series). The last two columns contain the lower limit for K = 9 used by the observatory in scaling K-indices and the period of time for which the observatory reported K-indices. Of this period, the first and, if the reporting has ended, the last year are given. A letter indicates whether the reporting has been continuous or almost continuous (C) or with interruptions (I). Details of the reporting periods can be found in IAGA-Bulletin 12, page 12 (up to 1947) and corresponding places in later IAGA-Bulletins, up to No. 12x (1969).

Part B. Indices

B. 1, 2a: The aa-indices are derived from the K-indices of two antipodal observatories (invariant magnetic latitude 50°). They provide a quantative characterization of the magnetic activity, which is homogeneous through the whole series. Half-daily and daily values give an estimate of the activity level very close to that obtained with am-indices. Values are in nanotesla's (nT) and correspond to the activity level at an invariant magnetic latitude of 50°. In the table B1 the following values are listed

N = daily values for the Northern hemisphere
S = daily values for the Southern hemisphere
M = half-daily values of aa-indices for the Greenwich day.

Letters C and K in the tables refer to a classification of the quiet days of the month (C = really quiet, K = quiet, but with one or a few slightly disturbed three hourly intervals). The letters on the left refer to the 24 hours Greenwich day, on the right to a period of 48 hours centered on the Greenwich noon. The five international quiet days of each month are indicated by the letter Q.

Table B2a provides a survey of monthly and yearly mean values of aa for the years from 1868 onwards.

A graph of aa-indices for these years is given below table B2a. This graph is drawn from a series of points representing yearly averages of aa-indices. The ordinate of each point (one point per month) is a twelve months average such that the points plotted at the marked year intervals are in each case averages for January to December of that year. Ordinates are in nT's.

B. 2b: For explanation of the daily index Ap, see B4.

B. 3: The international quiet and disturbed days are explained below the table.

B. 4: The planetary three-hour-range index Kp is the mean standardized K-index from 13 observatories between 46° and 63° northern or southern geomagnetic latitude. The scale is 0 to 9, expressed in thirds of a unit, e.g. 5- is $4\frac{2}{3}$, 5o is 5, 5+

is $5\frac{1}{3}$. This planetary index is designed to measure solar particle radiation by its magnetic effects, especially to meet the need of research workers in the ionospheric field. Several other indices are derived from Kp, namely the 3 hour index ap (the equivalent range) and the daily indices Ap and Cp.

The Kp-stations are: Meanook (Canada), Sitka (Alaska), Lerwick (Shetlands), Eskdalemuir (Scotland), Lovö (Sweden), Rude Skov (Denmark), Wingst (Germany), Witteveen (Netherlands), Hartland (England), Ottawa (Canada), Fredericksburg (Virginia), Eyrewell (New Zealand), Canberra (Australia).

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

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

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

In order to use ap as an equivalent amplitude, it is considered in relation to the conditions at a standard station, which is a station having the lower limit of 500 nT for K = 9. At such a station the average range in nT of the most disturbed of the three force components in a three hour-interval can be taken as 2.ap (for instance, for Kp = 3+, as 36 nT). In other words ap is an equivalent amplitude in the unit 2 nT.

The column headed Ap gives the daily average for the eight valeus 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 standardization 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

B. 5-8: These tables give the frequencies of occurrence of Kp-values during the year,

the monthly average values of Ap and Cp and lists of magnetic storms and very quiet intervals, based on the successive occurrence of certain Kp-values.

The diagrams of Kp show the values of Kp from the table B4 in a "musical note script" as defined in the key. The arrangement in solar rotations is made in order to show the 27-day recurrence tendency.

B. 9: The three-hourly indices Kn and Ks for the Northern and Southern hemispheres are based on the amplitude-indices an and as, which are derived from the K-indices of observatories in the sub-auroral zones of the Northern and Southern hemispheres. These K-indices are standardized according to the distances of the stations to the auroral zones. The stations are arranged in groups, each group representing a longitude sector in one of the hemispheres. The mean standardized K for each sector is converted back into an equivalent amplitude and the weighted means an and as of these amplitudes are converted back into Kn and Ks. The mondial index am is the average of an and as, and Km is determined in the same way by conversion of am (this method is different from the method followed in the case of Kp, where ap is derived from Kp).

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As the tables are printed mechanically by computer, the values of Kn, Ks and Km, which vary by thirds of a unit, are tabulated in the form 3Kn, 3Ks and 3Km. An, As and Am are the daily mean values of the amplitudes an, as and am, Am2 is the mean of am over a 48-hour period centered in the middle of the day. σn and σs indicate the standard deviations of the sector values of K in the N.- and S. hemispheres. They are about equal to six times these standard deviations. Monthly mean values of An, As and Am are given at the bottom of the tables.

The diagram of magnetic activity displays the variation of (an-as)/2 (upper curve), of am = (an+as)/2 (mid curve), and Dst (bottom curve). It also shows the ssc's of the year, as listed in part C of this bulletin, in two ways: Vertical bars below the am curve refer to the quality of the ssc (the length of the bar is proportional to the sum of the five code numbers attributed to the event); those below the Dst curve refer to its amplitude. See IAGA-Bulletin 39 for other details.

B. 10: The really quiet 48-hour intervals for 1980 are based on the aa indices.

B. 11, 12: 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 number of low latitude stations. These stations are: Honolulu (Pacific), San Juan (USA), Hermanus (South Africa) and Kakioka (Japan). The exact definition of Dst is given in earlier data publications (see Introduction for references). Monthly tables of hourly Dst-values are given, followed by a table of daily mean values and a graph of hourly values for the whole year.

Part. C. Rapid Variations

C. 1: Sudden commencements followed by a magnetic storm or by an increase in activity lasting at least one hour (ssc). This list is based upon the data as reported monthly by the observatories mentioned in the heading of the table.

The final identification of the storm sudden commencements (ssc) is made from copies of records supplied to the central bureau by five low-latitude observatories (MBO, FUQ, HON, PMG, ABG) or five supplementary observatories (TAM, PAB, API, KNY, HYB). 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 No.39, pp. 103-111 for a full explanation of this method, and some statistical results concerning the years 1968-1975.

The times in the column at the left are mean values 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 central bureau, 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 rhythm, 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 low-latitude observatories. The next group indicate the number of observatories which have given either letter A or letter B etc. in their monthly report (The meaning of A, B, etc. is explained in Table C3. The qualification 3, 2 or 1, given by the central bureau, is independent of the qualification A. B. etc. given by the observer). The last group indicates the number of observatories which have classified the event other than ssc (si, b, pi, pg; see Table C3 for explanation of symbols).

C. 2a: Solar-flare effects (sfe) were reported by many observatories. A check of the reported case has been made by the observatories mentioned in the heading of the table. The times tabulated in the column at the left are mean values of the times given for the beginning of the phenomenon. In case where a clear simultaneous disturbance from an ionopheric or solar observatory or from a radio service, which gives support to the geomagnetic solar-flare effect, has been well stabilished, the reporting time has been underlined. The stations that reported the sfe are given behind the indicated time grouped in accordance with the quality-indications A, B, C, D, E or X 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 class A, B, or C, a number is attached that refers to the opinion of the collaborating observatory about the type of movement:

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

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. Stations in these two zones reporting D have been omitted from the list.

C. 2b: Doubtful solar-flare effects. In general the following cases were considered doubtful: those where most of the well located stations (with respect to the sub-solar point) did not report any movement and those where 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 any clear effect that could be associated with the sfe. Nevertheless it is probable that some of these cases are real solar-flare effects.

C. 3: Symbols used in lists of rapid variations. In this page the symbols used in lists C1 and C2 are explained.

Part D. Data on special intervals

The data for each interval are given on four successive pages. One page contains a selection of magnetograms. On the opposite page, the first lines give a survey of indices Kp, Kn and Ks for the selected interval. Dst is given in a graphical form as follows: A single horizontal line indicates that Dst is negative, a double line means Dst < -50, a triple line means Dst < -100 etc. In the list of data from individual observatories the sign of the amplitude of an ssc is to be taken algebraically for D and Z; D reckoned positive if towards the East and Z reckoned positive if downwards. sc* means that the sc-movement (for which the amplitudes are given) was preceded by a small reverse impuls.The ranges of D, H and Z are the differences between the highest and the lowest values of these components attained during the storm. The end of the storm is indicated by the cessation time of reasonably marked disturbance movements in the traces, more specifically when the K-index diminishes to 2 or less for a reasonable period.

The stations for which K-indices are given, are selected on the basis of a representative distribution over all parts of the world.

Magnetograms are given for three groups of stations, namely for stations inside the polar caps (upper diagram), for stations in the auroral zones (middle diagram) and for stations in lower latitudes (lower diagram). The selected stations may not always be the same, depending on the availability of the magnetograms. The magnetograms have been reduced to the same time scale and comparable intensity scales. Only the H-component is shown, except for some stations near by the geomagnetic pole, where both H and D or X and Y are given. The Sq-variation has not been subtracted from the records.

Graphs of preliminary AU, AL and AE (= AU-AL) values for the selected intervals are given at the bottom of the magnetogram-pages in the same time scale. These graphs are indicative of the definite AE (11) values to be published later.

Tables of provisional one-minute values of AE for each selected interval are given on two pages following the two pages mentioned above. These tables contain the values of AE (5) in nanoTesla's (nT) for each minute of the 2-days-interval. The print-out is clustered in 3-line groups with 20 values per line, each group covering one hour U.T.

LIST OF OBSERVATORIES

Symbol	Observatory	Geographic		Geomagnetic		K=9 lower limit	K rep.
		Lat.	Long.	Lat.	Long.		
ALE	Alert	+82° 30'	297° 30'	+86.1°	164.1°		
HIS	Heiss (B. Tikhaya)	+80 37	58 03	+71.4	156.5	2000	34I -
MUR	Murchison Bay	+80 30	18 15	+75.5	138.8		
CCS	Cape Chelyuskin	+77 43	104 17	+66.5	177.4	2500	55C -
THL	Thule	+77 29	290 50	+88.6	14.7	1000	55C70
MBC	Mould Bay	+76 12	240 36	+79.5	259.2		
RES	Resolute Bay	+74 41	265 10	+83.2	294.6	1500	52C55
BJN	Bjornoya (Bear Island)	+74 31	19 01	+71.0	124.9	2000	57C65
DIK	Dikson	+73 33	80 34	+63.2	162.5	1500	34I -
MSR	Matoshkin Shar	+73 16	56 24	+64.9	147.2	2500	55C56
TIK	Tiksy	+71 35	129 00	+60.8	192.6	1000	55I -
BRW	Point Barrow	+71 18	203 15	+69.0	243.1	2500	57C -
TRO	Tromsø	+69 40	18 57	+67.0	117.4	2000	47C -
NOK	Norilsk	+69 24	88 06	+58.7	165.9		
GDH	Godhavn	+69 14	306 29	+79.4	34.9	1800	43I -
CBB	Cambridge Bay	+69 06	255 00	+76.8	298.2		
ABK	Abisko	+68 21	18 49	+65.8	115.7	1500	
MMK	Loparskaya/Murmansk	+68 15	33 05	+63.4	126.6	2500	57C -
LOZ	Lovozero	+67 59	35 01	+62.8	127.8		
KIR	Kiruna	+67 50	20 25	+65.1	116.4	1500	52I -
SOD	Sodankylä	+67 22	26 38	+63.6	120.8	1500	14I -
CWE	Cape Wellen (Welen)	+66 10	190 10	+62.2	239.0	1250	52C -
COL	College	+64 52	212 10	+65.0	258.7	2500	41C -
BLC	Baker Lake	+64 20	263 58	+73.8	318.5	2500	52C55
LRV	Leirvogur (Reykj.)	+64 11	338 18	+69.8	72.3	1500	64C -
YKC	Yellowknife	+62 28	245 32	+69.2	296.0		
SRE	Srednikan	+62 26	152 19	+53.5	212.1	550	40I -
DOB	Dombås	+62 04	9 07	+62.0	101.1	750	25C -
YAK	Yakutsk	+62 01	129 40	+51.3	195.2	550	39I -
POD	Podk. Tungusta	+61 31	90 00	+50.8	165.6	650	72C -
NAQ	Narssarssuaq	+61 06	314 48	+70.6	39.0		
NUR	Nurmijärvi	+60 31	24 39	+57.7	113.6	750	53C -
LER	Lerwick	+60 08	358 49	+62.2	89.7	1000	32C -
MGD	Magadan	+60 07	151 01	+51.1	211.9	600	67C -
LNN	Leningrad	+59 57	30 42	+56.1	118.4	600	55C -
LOV	Lovö	+59 21	17 50	+57.8	106.9	600	30C -
FCC	Churchill	+58 48	265 54	+68.7	325.7		
BOX	Borok	+58 02	38 20	+53.0	123.8		
SIT	Sitka	+57 04	224 40	+60.3	277.6	1000	32C -
SVD	Sverdlovsk	+56 44	61 04	+48.5	141.9	550	39I -
TMK	Tomsk	+56 28	84 56	+46.0	160.9	350	58C70
ARS	Arti	+56 26	58 34	+48.5	139.8		
RSV	Rude Skov	+55 51	12 27	+55.6	99.7	600	40C -
KNS	Zaimishe/Kazan	+55 50	48 51	+49.3	131.6	550	41C -
BFE	Brorfelde	+55 37	11 40	+55.5	98.9		
MOS	Moskva	+55 29	37 19	+50.7	121.7	550	45I -
ESK	Eskdalemuir	+55 19	356 48	+58.1	84.2	750	32C -
GWC	Great Whale River	+55 16	282 13	+66.3	350.0		
NVS	Novosibirsk	+55 02	82 54	+44.8	159.0	500	72C -
KNG	Kaliningrad	+54 42	20 37	+52.9	106.6		
MEA	Meanook	+54 37	246 34	+61.9	303.4	500	32C -

LIST OF OBSERVATORIES - continued

Sym-bol	Observatory	Geographic		Geomagnetic		K=9 lower limit	K rep.
		Lat.	Long.	Lat.	Long.		
HLP	Helu	+54° 37'	18° 49'	+53.2	104.9	550	56C -
MNK	Minsk	+54 30	27 53	+51.4	113.0	550	62C -
STO	Stonyhurst	+53 51	357 32	+56.6	84.0	600	60C66
WNG	Wingst	+53 45	9 04	+54.2	95.3	500	40C -
PET	Petropavlovsk	+53 06	158 38	+45.1	220.2	450	
WIT	Witteveen	+52 49	6 40	+53.8	92.5	500	40C -
IRK	Irkutsk	+52 10	104 27	+41.9	176.1	350	41C -
SWI	Swider	+52 07	21 15	+50.4	195.9	500	37C -
NGK	Niemegk	+52 04	12 40	+51.9	97.8	500	37C -
VAL	Valentia	+51 56	349 45	+56.2	74.9	500	54C -
BEL	Belsk	+51 50	20 47	+50.2	105.3	500	60C -
GTT	Göttingen	+51 33	9 58	+52.0	95.0	500	
CLL	Collmberg	+51 19	13 00	+51.2	97.8	500	54I67
ABN	Abinger/Greenwich (c)	+51 11	359 36	+53.6	84.6		29C56
HAD	Hartland	+51 00	355 31	+54.2	80.4	500	57C -
KIV	Kiev	+50 48	30 16	+47.5	113.4	350	58C -
MAB	Manhay	+50 18	5 41	+51.6	90.2	500	40C -
DOU	Dourbes	+50 06	4 36	+51.6	89.1	500	55C -
PRU	Pruhonice	+49 59	14 32	+49.6	98.6	500	53C73
LVV	Lvov	+49 54	23 45	+47.8	107.2	550	55C -
KGD	Karaganda	+49 49	73 05	+40.4	150.0	350	66C -
BDV	Budkov	+49 04	14 01	+48.8	97.7	500	57I -
VIC	Victoria	+48 31	236 35	+54.4	295.3	650	57C -
NEW	Newport	+48 16	242 53	+55.2	302.4	700	68C -
WIK	Wien-Kobenzl	+48 16	16 19	+47.6	99.5		57-58
FUR	Fürstenfeldbruck	+48 10	11 17	+48.5	94.7	500	48C -
CLF	Chambon-la-Forêt	+48 01	2 16	+50.1	85.8	500	40I -
HRB	Hurbanovo	+47 54	18 12	+46.9	101.2	350	51C -
UBA	Ulaanbaatar	+47 52	107 03	+36.7	178.2	300	56C -
STJ	St. Johns	+47 36	307 19	+58.1	23.3	750	69C -
NTS	Nantes	+47 15	358 27	+50.1	81.6	500	50C59
YSS	Yushno-Sakhalinsk	+46 57	142 43	+37.3	208.3	350	54C -
TYH	Tihany/Nagycenk	+46 54	17 53	+46.0	100.4		55C -
ODE	Odessa	+46 47	30 53	+43.5	112.4	350	55C -
NKK	Novo Kazalinsk	+45 46	62 07	+37.6	139.8	350	66C -
OTT	Ottawa	+45 24	284 27	+56.6	353.9	750	68C -
SUR	Surlari	+44 41	26 15	+42.3	107.4	350	57C -
GCK	Grocka	+44 38	20 46	+43.3	102.3	350	58I -
ROB	Roburent/M.Capellino	+44 18	7 53	+45.4	89.4		56C -
MMB	Memambetsu	+43 55	144 12	+34.5	210.0	350	52C -
AGN	Agincourt (c)	+43 47	280 44	+54.8	349.3	600	40C69
VLA	Ussurisk/Vladivostok	+43 41	132 10	+33.2	199.7	300	52C -
AAA	Alma Ata	+43 15	76 55	+33.5	152.1		64C -
PAG	Panagjuriste	+42 31	24 11	+40.6	104.8	350	57C -
LGR	Logroño	+42 27	357 30	+45.7	78.7	350	57C -
AQU	Aquila	+42 23	13 19	+42.5	94.4	350	58C -
TFS	Tbilisi (Tiflis)	+42 05	44 42	+36.5	123.5	350	40I -
TKT	Tashkent	+41 20	69 37	+32.4	145.5	300	41I -
LMD	Maddalena	+41 13	9 24	+42.2	90.1	350	58C63
ISK	Istanbul-Kandilli	+41 04	29 04	+38.3	108.9	300	52C -

LIST OF OBSERVATORIES - continued

Symbol	Observatory	Geographic		Geomagnetic		K=9 lower limit	K rep.
		Lat.	Long.	Lat.	Long.		
EBR	Ebro	+40° 49'	0° 30'	+43.5°	81.1°	350	42C -
CPI	Capri	+40 33	14 13	+40.6	94.6		57-58
COI	Coimbra	+40 13	351 35	+44.6	71.8	350	51C -
BOU	Boulder	+40 08	254 46	+49.0	318.7	500	63C -
TOL	Toledo	+39 53	355 57	+43.5	76.2	350	48C -
ONW	Onagawa	+38 36	141 28	+28.9	208.4		57-59
FRD	Fredericksburg/Cheltenham	+38 12	282 38	+49.3	352.0	500	32C -
PEN	Pendeli	+38 03	23 52	+36.3	103.1	300	59C -
GIB	Gibilmanna (c)	+37 59	14 01	+38.1	93.6	350	54C57
ASH	Ashkhabad	+37 57	58 06	+30.5	134.6	300	58C -
SMG	San Miguel	+37 46	334 21	+45.2	52.6	350	51C -
ALM	Almeria	+36 51	357 32	+40.2	76.8	350	64C -
SFS	San Fernando	+36 28	353 48	+40.6	72.9	350	40C -
KAK	Kakioka	+36 14	140 11	+26.5	207.6	300	36C -
TEH	Teheran	+35 44	51 23	+29.3	128.0	300	57I -
GUL	Gulmarg	+34 05	74 24	+24.7	148.6		
KSA	Ksara	+33 50	35 54	+30.0	113.2	300	49C -
SSO	Simosato	+33 34	135 56	+23.4	204.1	300	54C -
AVE	Averoes	+33 18	352 35	+37.7	70.7	350	70C -
HTY	Hatizyo	+33 04	139 50	+23.3	207.7	300	
DAL	Dallas	+32 59	263 15	+42.9	329.9		66C -
ASO	Aso	+32 53	131 01	+22.4	199.7	300	57I57
TUC	Tucson	+32 15	249 10	+40.5	314.3	350	38C -
KNY	Kanoya	+31 25	130 53	+20.9	199.7	300	58C -
QUE	Quetta	+30 11	66 57	+21.7	141.3	300	55I -
MLT	Misallat/Helwan	+29 45	30 54	+26.9	107.5	300	56C -
TEN	Santa Cruz/Tenerife	+28 29	343 44	+34.5	60.3	300	61C -
JAI	Jaipur	+26 55	75 48	+17.4	149.0		
SHL	Shillong	+25 34	91 53	+14.8	163.8		
LNP	Lunping	+25 00	121 10	+14.0	191.1	300	65I -
UJJ	Ujjain	+23 11	75 47	+13.7	148.6		
HVN	Havana	+22 58	277 51	+33.9	347.3		64-68
TAM	Tamanrasset	+22 48	5 31	+25.0	81.2	300	52I -
HON	Honolulu	+21 19	202 00	+21.4	268.4	300	38C -
TEO	Teoloyucan	+19 45	260 49	+29.5	329.0	300	51I -
ABG	Alibag	+18 38	72 52	+9.5	145.3	300	40C -
SJG	San Juan	+18 07	293 51	+29.3	5.0	300	38C -
HYB	Hyderabad	+17 25	78 33	+7.7	150.6	300	69I -
MBO	M'Bour	+14 24	343 02	+20.8	56.7	350	52C -
MUT	Muntinlupa	+14 22	121 01	+3.4	191.4	300	64C -
GUA	Guam	+13 35	144 52	+4.4	214.6	300	58C -
ANN	Annamalainagar	+11 24	79 41	+1.6	151.1		57-59
AAE	Addis Ababa	+09 02	38 46	+5.2	110.8	300	58-61
TRD	Trivandrum	+08 29	76 57	-1.0	148.1		57C -
KOR	Koror (c)	+07 20	134 30	-2.8	205.1	300	57-58
PAB	Paramaribo	+05 49	304 47	+16.6	16.1		57C60
FUQ	Fuquene	+05 28	286 16	+16.7	357.9	300	57C60
BNG	Bangui	+04 26	18 34	+4.5	90.2	350	52I -
MFP	Moca-Fernando Poo (c)	+03 21	8 40	+5.3	80.3	300	64C -
TTB	Tatuoca	-01 12	311 29	+9.2	22.5		57C63
LWI	Lwiro	-02 15'	28 48	-4.1	98.9	350	58C60

LIST OF OBSERVATORIES - continued

Symbol	Observatory	Geographic		Geomagnetic		K=9 lower limit	K rep.
		Lat.	Long.	Lat.	Long.		
HNA	Hollandia (c)	-02° 34'	140° 31'	-12.1°	212.0°	300	57C58
BIN	Binza	-04 23	15 16	-3.5	85.2		57C69
TNG	Tangerang	-06 10	106 38	-17.4	177.3	300	40I -
LUA	Luanda	-08 55	13 10	-7.6	82.3	350	57C -
PMG	Port Moresby	-09 25	147 09	-18.2	219.6	300	58C -
KVA	Karavia	-11 39	27 28	-13.0	95.8		57-59
HUA	Huancayo	-12 02	284 41	-0.9	355.5	600	37C -
API	Apia	-13 48	188 13	-15.7	261.9	300	40I65
PPT	Pamatai/Papeete/Tahiti	-17 33	210 23	-15.1	284.3	350	68C -
TAN	Tananarive	-18 55	47 33	-23.9	114.4	300	50C -
MRI	Mauritius (c)	-20 06	57 33	-26.8	124.4	500	56C60
LQA	La Quiaca	-22 06	294 24	-10.9	4.9	350	64C -
VSS	Vassouras	-22 24	316 21	-12.4	25.5	600	52C64
MPO	Maputo/Lourenco Marques	-25 55	32 35	-28.0	97.9	300	64C68
BRS	Brisbane (c)	-27 32	152 55	-35.3	228.6	500	57C64
WAT	Watheroo (c)	-30 19	115 53	-41.4	187.7	350	37C59
PIL	Pilar	-31 40	296 07	-20.5	6.2	300	40I -
GNA	Gnangara	-31 47	115 57	-42.9	187.8	350	57C -
HER	Hermanus	-34 26	19 14	-33.7	82.4	450	40C -
ACS	Las Acacias	-35 00	302 19	-35.0	302.1	350	64C -
TOO	Toolangi	-37 32	145 28	-46.2	222.6	500	41C -
AML	Amberley (c)	-43 09	172 43	-47.2	254.0	500	37C77
TWA	Trelew	-43 15	294 41	-32.1	4.7	300	57C -
EYR	Eyrewell	-43 25	172 21	-47.6	253.8	500	77-
LAU	Lauder	-45 02	169 41	-49.6	251.6	500	79-
CZT	Crozet	-46 26	51 52	-51.5	111.1	500	72C -
KGL	Kerguelen	-49 21	70 12	-57.4	130.4	750	57I -
HII	Heard Isl. (c)	-53 02	73 22	-61.5	132.5		52-53
SGG	South Georgia	-54 17	323 31	-44.6	27.5	350	
MCQ	Macquarie Island	-54 30	158 57	-60.6	244.6	1500	52C -
ORC	Orcadas del Sur	-60 44	315 13	-50.4	19.6	400	69-70
AIA	Argentine Island	-65 15	295 44	-54.1	4.6	500	57C -
OAS	Oasis (c)	-66 06	92 09	-76.4	149.5	2000	57C58
WIL	Wilkes (c)	-66 15	110 35	-72.4	182.5	2500	57I67
MIR	Mirny	-66 33	93 01	-76.9	150.5	2000	57C -
DUM	Dumont d'Urville	-66 40	140 01	-75.2	232.5	1800	57C -
MOL	Molodezhnaya	-67 40	45 51	-70.1	87.8		
MAW	Mawson	-67 36	62 53	-73.3	105.9	1500	55C -
SYO	Syowa	-69 02	39 36	-70.1	80.0		67C72
CTX	Charcot (c)	-69 23	139 01	-77.8	236.0	1500	57C58
PIO	Pionerskaya (c)	-69 44	95 30	-80.3	150.9	2000	57C58
SNA	Sanae	-70 19	357 40	-64.1	45.8		64I70
RBD	Base Baudouin (c)	-70 26	24 19	-68.4	65.2		64C66
NVL	Novolazarevskaya/Lazarev	-70 46	11 49	-66.5	55.4	1500	60C -
HLL	Hallett (c)	-72 19	170 13	-74.4	278.7	2500	57C62
EGS	Eights (c)	-75 14	282 50	-64.1	356.3		63-65
HLY	Halley Bay	-75 30	333 09	-66.2	25.4	1500	57C64
SBA	Scott Base	-77 51	166 47	-78.8	294.0	2000	57C -
LAA	Little America (c)	-78 11	197 50	-74.0	312.1	2500	57C58
VOS	Vostok	-78 27	106 52	-89.4	125.6	2000	58I -
BYR	Byrd Island	-80 01	240 29	-70.7	336.7	2500	57C -
SPA	South Pole	-90		-78.8	180.0	2000	59C -

TABLE 1 INDICES aa 1980

Part B

	JAN.				FEB.				MAR.				APR.				MAY				JUNE			
	N	S	M		N	S	M		N	S	M		N	S	M		N	S	M		N	S	M	
1	46	37	22	62	19	19	14	25	5	7	7	6QCC	8	8	5	10QCK	16	14	12	18 K	38	36	38	36
2	18	21	23	17	15	14	19	10	3	6	5	4QCC	5	6	6	5QCC	8	6	7	8QCC	18	5	10	14 C
3	28	35	31	33	6	7	9	4QCK	8	9	6	11 CC	12	10	11	11 CC	6	4	4	6QCC	22	12	14	21
4	29	35	34	31	6	12	16	3 KK	9	8	8	10 CC	16	17	15	18 K	11	6	6	12 CC	10	5	7	9 CK
5	19	17	16	21	2	10	7	5QC	10	11	15	7 CK	11	8	6	14 C	14	7	5	17 C	8	3	5	6QCC
6	13	15	16	13 K	40	71	45	67	14	20	20	14 C	47	30	22	55	26	15	21	21	35	18	10	44
7	8	9	4	13 KK	20	21	16	25	11	11	12	10 CC	41	21	26	37	19	11	8	22	50	32	36	47
8	11	12	18	6 KK	26	22	22	26	11	7	11	8 CC	27	36	32	30	15	8	15	9 C	48	30	51	28
9	5	7	6	6QCC	19	18	15	23	12	12	13	12 CC	33	34	45	23	34	22	23	34	25	13	15	24
10	4	7	4	8QCK	3	7	6	4QCK	8	11	11	8 CC	34	28	46	16	19	9	14	14	54	32	36	50
11	17	23	18	22	5	7	9	4 CC	8	10	8	9 CC	48	44	37	55	54	42	37	59	73	69	53	89
12	5	10	9	7QC	4	4	4	4QCC	4	6	5	4QCC	48	43	36	55	34	20	35	21	40	39	36	43
13	34	47	30	51	3	6	4	5QCK	13	11	11	14 CC	27	21	31	17	23	13	14	23	43	34	41	36
14	15	15	17	14	26	41	40	28	8	10	10	8 CC	18	13	8	24	34	14	21	28	24	11	12	23
15	13	11	9	15 C	46	29	13	62	4	3	2	5QCC	42	26	33	35	11	6	11	7 CK	8	5	4	10 CK
16	13	8	17	4 K	50	43	67	26	9	10	10	9 CC	23	18	19	23	5	6	7	4QCC	18	10	6	23 K
17	25	25	29	22	9	15	10	15 C	8	7	9	6 CC	20	11	20	12	5	3	2	6QCC	4	3	3	4QCK
18	6	6	5	7QCK	20	7	11	16 K	6	4	4	5QCK	8	6	7	7QCC	10	5	5	10 CC	4	4	3	6QCC
19	8	8	7	9QCC	14	10	18	5 KK	19	17	21	16 K	9	4	4	9QCC	17	13	8	23 K	22	9	7	26 K
20	15	10	12	13 CC	12	9	12	10 CC	8	6	6	9 CK	13	8	12	10 CC	12	7	10	9 CK	11	4	6	9 CK
21	11	13	12	13 KK	7	10	9	9 CC	34	22	19	38	10	3	6	7QCC	10	5	5	11 CC	15	9	10	14 KC
22	10	11	8	13 CC	5	8	6	7 CC	29	24	25	28	16	13	15	14 K	16	7	11	12 CC	18	4	9	14 CC
23	7	11	12	7 CC	22	16	11	28	9	7	11	5 CK	15	6	10	12 CC	23	13	13	24	15	7	8	15 C
24	11	10	8	14 CC	13	13	13	13 K	8	11	9	11 CC	17	9	11	15 K	23	17	13	27	28	14	20	22
25	15	17	11	22	26	20	8	38	15	7	4	18 K	15	17	20	13	37	49	60	27	24	6	14	17
26	11	17	13	16	21	25	24	22	42	35	47	30	11	10	10	11 CC	16	8	11	13 C	30	23	18	37
27	57	40	21	77	25	21	23	24	17	9	13	13 C	11	9	8	13 CC	7	4	6	5QCC	5	3	4	4QCK
28	45	45	23	68	14	17	18	13	12	12	13	11 CC	11	6	7	11 CC	9	7	8	9 CC	9	2	5	6QCC
29	49	39	37	51	12	9	8	13 CC	16	13	16	13	11	5	8	9 CC	12	5	4	13 CK	13	6	8	11 CC
30	16	18	24	11					23	16	21	18	11	12	11	13 CC	23	14	21	17	19	12	15	16 C
31	12	9	10	11 CC					30	31	36	25					27	22	21	29				
	18.7				16.9				13.3				20.7				18.6				24.5			
		19.0				17.6				11.9				16.0				12.3				15.4		
			19.0				17.3				12.7				18.4				15.6				20.0	

TABLE 1 INDICES aa 1980 - continued

	JULY				AUG.				SEP.				OCT.				NOV.				DEC.			
	N	S	M		N	S	M		N	S	M		N	S	M		N	S	M		N	S	M	
1	10	3	6	7QCC	7	5	7	6QCC	14	12	20	7 KK	5	4	2	7QCC	25	24	27	22	30	25	42	13
2	5	3	3	5QCC	16	9	4	21 K	9	4	9	5QCC	8	9	10	7 CC	24	16	16	24	14	12	10	16 C
3	10	6	7	10QCC	32	25	36	21	23	16	8	31	13	7	4	16 K	8	9	9	10QC	32	42	34	41
4	17	13	10	20	17	11	13	16	23	12	18	18	38	47	36	50	23	18	25	17	17	13	19	12
5	34	18	23	30	10	6	7	9QC	16	17	12	22	32	30	37	25	9	7	10	7QCK	4	7	6	5QCC
6	30	12	13	30	45	20	26	40	20	21	17	24	26	16	27	16	10	20	14	17 K	6	8	6	8QCC
7	26	22	27	21	25	16	15	26	19	13	15	18	24	16	23	18	13	9	13	10QCC	12	14	16	11 C
8	29	20	20	30	11	3	5	9QCK	20	14	18	16	22	20	19	24	13	9	10	12QCK	16	20	21	16
9	15	13	18	11	17	9	7	20 K	23	24	18	30	28	24	31	21	15	19	17	18	20	16	14	23
10	10	5	5	11QCC	21	11	21	12	10	8	11	8QC	31	30	17	44	28	23	27	24	17	16	21	13
11	21	9	7	24 K	15	9	7	17 K	10	12	10	13 C	48	47	70	26	47	30	33	45	29	35	14	50
12	12	6	7	12 CK	18	8	19	8 KK	37	28	26	38	18	22	19	22	19	22	23	18	25	24	29	21
13	20	9	11	19 K	15	5	7	14 CC	23	21	22	22	9	7	10	7 CK	13	14	12	16Q	10	12	12	10 CK
14	20	8	12	17	12	8	7	13 CC	21	11	17	16	20	17	11	26	19	20	13	26	17	14	11	21
15	15	5	9	12 CC	12	10	11	11 CC	20	15	17	19	24	26	31	20	30	41	39	31	19	22	21	20
16	13	7	9	11 CC	34	35	9	62	12	12	9	16 K	6	4	5	6 CC	26	21	22	26	26	26	22	30
17	13	8	9	12 CC	18	12	10	21	18	29	25	22	10	10	8	13 C	18	20	17	22	12	7	8	12QC
18	42	30	17	56	29	21	34	16	9	7	8	9 CK	36	31	36	31	25	28	26	27	28	24	24	28
19	31	13	29	16	54	29	21	62	11	9	5	15 CC	22	15	13	25	31	28	24	36	118	87	49	156
20	15	7	4	18 KK	19	17	12	24	13	10	15	8 KC	6	9	7	9QCK	29	24	16	38	36	44	43	38
21	27	19	14	32	16	8	18	6 C	3	4	3	4QCC	14	14	11	17	21	26	29	18	40	48	51	36
22	9	7	6	11 C	24	12	12	24 K	13	19	12	20 K	39	41	27	53	16	13	17	13	16	19	22	13
23	9	9	10	10QCC	9	5	10	5 CK	10	9	11	8 CK	50	68	68	50	17	21	12	26	7	7	8	7 CC
24	17	7	5	18 KK	8	3	6	5QCC	8	4	4	8QCC	25	17	16	27	21	25	25	21	3	7	4	5QCC
25	75	32	12	95	13	5	3	16 KK	11	9	11	9 CC	45	37	35	47	29	32	27	35	15	15	16	15 K
26	43	20	33	31	27	12	23	16	8	5	7	7QCC	20	19	34	6	29	47	53	24	8	11	11	9 C
27	30	18	28	21	35	35	35	35	11	11	8	14 CC	4	4	4	4QCC	38	25	31	32	17	23	25	15
28	31	17	28	21	7	6	8	5QCK	10	14	9	16 CC	3	3	2	4QCC	34	42	51	25	7	11	11	7QCC
29	14	6	8	13 CK	8	4	2	10 CC	16	13	9	21	5	6	4	7QCC	29	27	31	25	15	19	13	22
30	17	8	8	17 CC	11	11	10	12 CC	17	8	11	14 KK	17	19	13	22	36	36	29	43	15	30	37	8
31	13	8	11	10 CC	13	9	13	10 CK					45	42	33	55					27	23	23	27
	21.8				19.4				15.3				22.4				23.2				21.3			
		11.9				12.2				13.0				21.3				23.2				21.9		
			17.0				15.9				14.2				21.9				23.3				21.7	

ANNUAL MEAN N 19.68 S 16.31 M 18.07

TABLE 2a MONTHLY AND YEARLY aa 1868-1980

	J	F	M	A	M	J	J	A	S	O	N	D	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
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

TABLE 2a - continued

	J	F	M	A	M	J	J	A	S	O	N	D	mean
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	24.6	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	16.5	23.1	26.6	32.8	26.9	18.0	27.2	24.0	20.4	33.7	24.1	19.3	24.4

TWELVE MONTH'S RUNNING MEAN VALUES OF aa-INDICES, 1868-1980

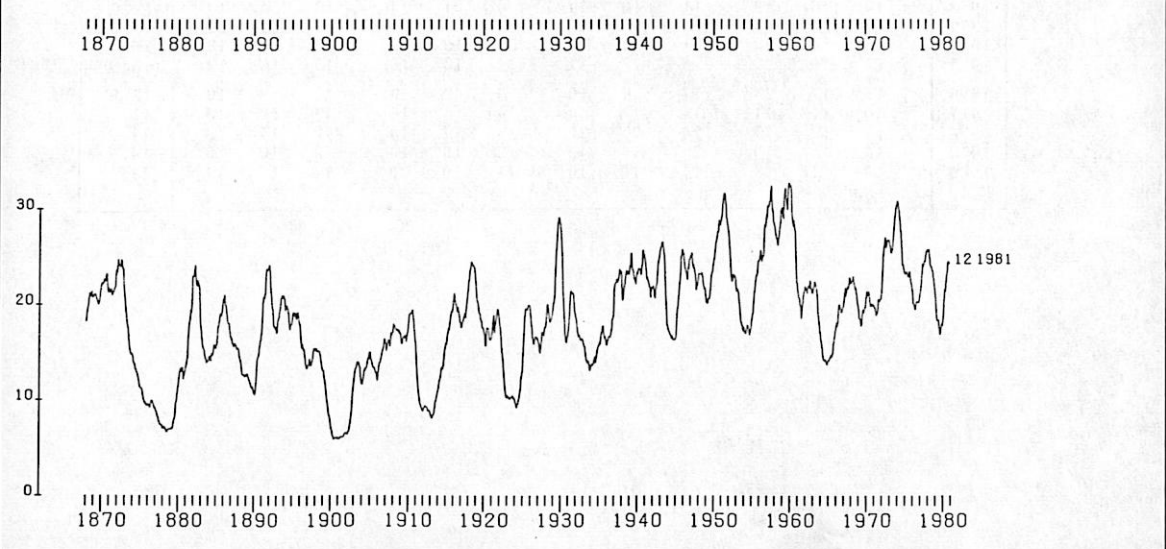


TABLE 2b MONTHLY Ap, 1932 - 1980

	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

TABLE 3 INTERNATIONAL QUIET AND DISTURBED DAYS 1980

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

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

Explanation: The selection of the quiet and 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.

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 even for different months of the same year, the selected quiet 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 marked by the letter A if for that day: $Ap > 6$, or marked by the letter K if $Ap \leq 6$, and one Kp $\geq 3o$ or two Kp values are $\geq 3-$.

A selected "disturbed day" is considered "not really disturbed" and marked by an asterisk if $Ap < 20$. (Ref.: P.N. Mayaud, Ann. Géophysique t. 26, 1969, pp. 901-921).

TABLE 4 PLANETARY THREE-HOUR-INDICES Kp, EQUIVALENT RANGES ap, DAILY AVERAGE RANGES Ap, AND PLANETARY DAILY CHARACTER FIGURES Cp.

	Kp	Sum	Jan			1980	ap				Sum	Ap	Cp
1	2+ 2+ 2+ 3+ 3+ 4+ 5o 5o	28o	9	9	9	18	18	32	48	48	191	24	1.2
2	4+ 3o 2o 2+ 3+ 2o 1o 2o	20o	32	15	7	9	18	7	4	7	99	12	0.7
3	3- 4+ 2- 3+ 4- 3- 3+ 4-	25+	12	32	6	18	22	12	18	22	142	18	1.0
4	3o 3+ 3o 3o 2+ 4o 3+ 3o	25o	15	18	15	15	9	27	18	15	132	16	0.9
5	3- 2o 2o 3- 3o 3- 3o 3o	21o	12	7	7	12	15	12	15	15	95	12	0.7
6	3- 3+ 2o 1+ 2o 2o 1+ 1+	16o	12	18	7	5	7	7	5	5	66	8	0.4
7	0+ 0o 1- 1o 1o 1+ 2+ 3-	9+	2	0	3	4	4	5	9	12	39	5	0.2
8	3- 2+ 2o 2+ 1- 0+ 1o 1-	12o	12	9	7	9	3	2	4	3	49	6	0.3
9	1+ 1- 1- 1- 1- 1- 0+ 0+	5+	5	3	3	3	3	3	2	2	24	3	0.1
10	0+ 0+ 0o 1- 1+ 1o 1- 1+	6-	2	2	0	3	5	4	3	5	24	3	0.1
11	1- 2- 3o 3- 3- 3- 3o 3-	19o	3	6	15	12	12	12	15	12	87	11	0.6
12	1- 1o 1+ 2- 1+ 1o 1o 1o	9o	3	4	5	6	5	4	4	4	35	4	0.2
13	0o 3- 3+ 4+ 4+ 4o 5- 4-	27o	0	12	18	32	32	27	39	22	182	23	1.1
14	4- 3o 2o 2o 2- 2o 1+ 2-	17+	22	15	7	7	6	7	5	6	75	9	0.5
15	1- 0+ 1o 2- 2o 2+ 2+ 1+	12-	3	2	4	6	7	9	9	5	45	6	0.3
16	4+ 3o 2+ 1o 1+ 0+ 0+ 0+	13o	32	15	9	4	5	2	2	2	71	9	0.5
17	1o 2o 4+ 3o 3+ 3o 2o 1+	20o	4	7	32	15	18	15	7	5	103	13	0.7
18	1+ 1- 1o 1- 1+ 0+ 1+ 2-	8+	5	3	4	3	5	2	5	6	33	4	0.1
19	2- 0o 0+ 1o 1- 2- 2- 1o	8o	6	0	2	4	3	6	6	4	31	4	0.1
20	3- 2+ 1- 1- 1o 1- 2o 2+	12+	12	9	3	3	4	3	7	9	50	6	0.3
21	3- 1o 1o 1o 2o 1o 1- 2-	11o	12	4	4	4	7	4	3	6	44	6	0.2
22	0+ 0o 1o 1+ 1o 2- 3o 2-	10o	2	0	4	5	4	6	15	6	42	5	0.2
23	2- 1o 2o 2- 1+ 1- 1o 0+	10-	6	4	7	6	5	3	4	2	37	5	0.2
24	0+ 0o 1- 2- 2- 2+ 2+ 1o	10o	2	0	3	6	6	9	9	4	39	5	0.2
25	0+ 0o 1- 2+ 2+ 2o 3- 3-	13o	2	0	3	9	9	7	12	12	54	7	0.3
26	1+ 2+ 1o 1o 2- 1- 2o 2+	12+	5	9	4	4	6	3	7	9	47	6	0.3
27	2+ 3o 3- 2+ 4+ 4+ 5- 5o	29-	9	15	12	9	32	32	39	48	196	24	1.2
28	3o 4- 2+ 2+ 4- 5o 5+ 4+	30-	15	22	9	9	22	48	56	32	213	27	1.2
29	5+ 4+ 2- 3- 4- 4+ 4- 4-	29+	56	32	6	12	22	32	22	22	204	26	1.2
30	3+ 2+ 2o 3+ 2o 2o 1+ 2-	18o	18	9	7	18	7	7	5	6	77	10	0.5
31	2- 0+ 1- 2- 1+ 1o 2- 2+	11-	6	2	3	6	5	4	6	9	41	5	0.2

	Kp	Sum	Feb			1980	ap				Sum	Ap	Cp
1	2o 1+ 2- 2+ 2- 2- 4- 3+	18-	7	5	6	9	6	6	22	18	79	10	0.6
2	2+ 3+ 3o 2+ 2+ 1+ 1- 1-	16o	9	18	15	9	9	5	3	3	71	9	0.5
3	1- 1o 1o 1- 0+ 1- 0+ 1o	6-	3	4	4	3	2	3	2	4	25	3	0.1
4	1- 1o 2+ 2o 1- 0+ 0+ 0+	8-	3	4	9	7	3	2	2	2	32	4	0.1
5	0o 0o 1- 1+ 1o 1o 1o 1-	6-	0	0	3	5	4	4	4	3	23	3	0.1
6	0o 4- 4+ 5- 5o 5o 5+ 2+	30+	0	22	32	39	48	48	56	9	254	32	1.3
7	2o 2o 3+ 2- 3+ 2o 3+ 3+	21o	7	7	18	6	18	7	18	18	99	12	0.7
8	3+ 4- 3+ 3o 4- 3+ 2- 3o	25o	18	22	18	15	22	18	6	15	134	17	0.9
9	2- 3o 3o 2+ 3- 3- 3o 2o	20+	6	15	15	9	12	12	15	7	91	11	0.7
10	1o 2- 1+ 1- 0+ 1- 1- 1-	7o	4	6	5	3	2	3	3	3	29	4	0.1
11	0+ 2+ 1+ 1o 1o 1o 1o 0+	8+	2	9	5	4	4	4	4	2	34	4	0.1
12	1- 0o 0+ 1o 1+ 0+ 0+ 1o	5o	3	0	2	4	5	2	2	4	22	3	0.0
13	0+ 0o 0o 1- 1- 1- 1o 1o	4+	2	0	0	3	3	3	4	4	19	2	0.0
14	1+ 3+ 3o 5- 3+ 4o 3- 2-	24o	5	18	15	39	18	27	12	6	140	18	1.0
15	2+ 3- 2o 2o 3- 3o 6- 7o	27+	9	12	7	7	12	15	67	132	261	33	1.3
16	6o 6- 6- 4+ 4+ 3- 3o 2+	34o	80	67	67	32	32	12	15	9	314	39	1.4
17	2o 2- 2- 1- 2o 1+ 1+ 1+	12o	7	6	6	3	7	5	5	5	44	6	0.2
18	3o 2- 3- 2o 2o 2o 3- 3o	19o	15	6	12	7	7	7	12	15	81	10	0.6
19	3+ 4+ 3- 1- 1o 0+ 0+ 1o	14-	18	32	12	3	4	2	2	4	77	10	0.5
20	2o 1o 2- 2o 1+ 2o 1o 1+	12+	7	4	6	7	5	7	4	5	45	6	0.3
21	2- 1- 1o 1o 1o 1o 1o 2-	9o	6	3	4	4	4	4	4	6	35	4	0.2
22	1o 1o 0+ 1+ 1- 2- 1- 2-	8+	4	4	2	5	3	6	3	6	33	4	0.1
23	1o 0+ 1+ 2o 3- 3+ 3+ 2+	16+	4	2	5	7	12	18	18	9	75	9	0.5
24	2+ 2+ 1+ 2o 2+ 2+ 0+ 0+	13+	9	9	5	7	9	9	2	2	52	6	0.3
25	1o 0+ 1+ 2+ 3- 3o 4o 4+	19o	4	2	5	9	12	15	27	32	106	13	0.8
26	4- 3o 1+ 3o 3+ 3o 3- 2o	22o	22	15	5	15	18	15	12	7	109	14	0.8
27	1+ 3o 3+ 3+ 3+ 3- 3o 3o	23o	5	15	18	18	18	12	15	15	116	14	0.8
28	3- 3- 3- 3- 2- 1o 2- 3o	18o	12	12	12	12	6	4	6	15	79	10	0.6
29	2+ 2o 1o 2o 2+ 2o 1+ 1+	14+	9	7	4	7	9	7	5	5	53	7	0.3

TABLE 4 PLANETARY THREE-HOUR-INDICES Kp, EQUIVALENT RANGES ap, DAILY AVERAGE RANGES Ap, AND PLANETARY DAILY CHARACTER FIGURES Cp.

	Kp	Sum	Mar 1980				ap				Sum	Ap	Cp
1	1+ 1+ 1- 0+ 1o 1o 0+ 0+	6+	5	5	3	2	4	4	2	2	27	3	0.1
2	0+ 1- 0+ 0+ 1- 1- 1o 0+	4+	2	3	2	2	3	3	4	2	21	3	0.0
3	1- 0+ 0+ 1- 1o 3- 2- 1+	9-	3	2	2	3	4	12	6	5	37	5	0.2
4	1- 0+ 1+ 2+ 1+ 1o 1o 2o	10o	3	2	5	9	5	4	4	7	39	5	0.2
5	2+ 3- 2o 3- 1o 1- 1- 1-	13-	9	12	7	12	4	3	3	3	53	7	0.3
6	2o 2o 2+ 3o 2+ 2+ 2o 2-	18-	7	7	9	15	9	9	7	6	69	9	0.5
7	2+ 2+ 1o 2- 1+ 2- 2o 2o	14+	9	9	4	6	5	6	7	7	53	7	0.3
8	1+ 2+ 2+ 2o 1+ 2- 1+ 1+	14-	5	9	9	7	5	6	5	5	51	6	0.3
9	2o 2- 3o 1+ 2o 2+ 1o 1+	15-	7	6	15	5	7	9	4	5	58	7	0.4
10	0+ 1+ 1- 2o 2o 1o 1- 1-	9-	2	5	3	7	7	4	3	3	34	4	0.1
11	2o 0o 0+ 3- 2- 1o 0+ 1-	9-	7	0	2	12	6	4	2	3	36	4	0.2
12	0o 0o 0o 0o 0o 1- 1+ 0+	2+	0	0	0	0	0	3	5	2	10	1	0.0
13	1o 1+ 3o 1o 2- 1- 2o 2+	13o	4	5	15	4	6	3	7	9	53	7	0.3
14	2o 2+ 1o 1- 1+ 2- 1- 0+	10o	7	9	4	3	5	6	3	2	39	5	0.2
15	0o 0o 0+ 0+ 0+ 0+ 0o 1+	3-	0	0	2	2	2	2	0	5	13	2	0.0
16	2- 1o 1- 2- 1o 1o 1- 2-	9+	6	4	3	6	4	4	3	6	36	4	0.2
17	1+ 1+ 1+ 2+ 2- 1o 1o 1-	11-	5	5	5	9	6	4	4	3	41	5	0.2
18	1+ 1o 1- 1- 1o 1o 1- 1-	7o	5	4	3	3	4	4	3	3	29	4	0.1
19	0+ 1- 3+ 3o 3o 3o 2- 1o	16o	2	3	18	15	15	15	6	4	78	10	0.5
20	1o 1o 1o 1+ 1- 1+ 2- 1+	9+	4	4	4	5	3	5	6	5	36	4	0.2
21	2+ 3+ 4- 3- 3o 3- 4+ 4-	26-	9	18	22	12	15	12	32	22	142	18	1.0
22	3- 3+ 4- 3+ 4+ 3o 2- 2+	24+	12	18	22	18	32	15	6	9	132	16	0.9
23	2+ 3o 1o 1+ 1- 1o 1o 0o	10+	9	15	4	5	3	4	4	0	44	6	0.2
24	0+ 1- 2- 2- 1+ 2- 0+ 1o	9-	2	3	6	6	5	6	2	4	34	4	0.1
25	1- 0o 0+ 1o 1+ 2- 2o 4-	11-	3	0	2	4	5	6	7	22	49	6	0.3
26	5- 6- 4o 4o 4+ 2+ 3o 4-	32-	39	67	27	27	32	9	15	22	238	30	1.3
27	3o 1+ 2- 2- 2o 1+ 1o 2-	14-	15	5	6	6	7	5	4	6	54	7	0.3
28	2- 3- 2+ 1+ 2- 1o 1o 2+	14o	6	12	9	5	6	4	4	9	55	7	0.3
29	2+ 2+ 3- 1o 1o 2o 2o 2+	16-	9	9	12	4	4	7	7	9	61	8	0.4
30	3o 4- 3+ 2- 2o 1o 1- 3o	18+	15	22	18	6	7	4	3	15	90	11	0.6
31	4- 4o 4o 4o 4- 3o 2o 3+	28-	22	27	27	27	22	15	7	18	165	21	1.1

	Kp	Sum	Apr 1980				ap				Sum	Ap	Cp
1	2o 1- 1- 0+ 1+ 1+ 1o 0o	7+	7	3	3	2	5	5	4	0	29	4	0.1
2	1- 1- 0+ 1- 1- 1- 0+ 2-	6-	3	3	2	3	3	3	2	6	25	3	0.1
3	1+ 3- 2- 2+ 2- 2+ 2o 1-	15-	5	12	6	9	6	9	7	3	57	7	0.4
4	0+ 1+ 3o 3o 3- 3+ 3o 1o	18-	2	5	15	15	12	18	15	4	86	11	0.6
5	1o 2- 1o 1o 2+ 3+ 2o 1-	13o	4	6	4	4	9	18	7	3	55	7	0.3
6	0+ 2+ 1+ 5- 5o 5o 5+ 3+	27+	2	9	5	39	48	48	56	18	225	28	1.2
7	3+ 3- 3+ 2- 3- 3- 5- 4o	25o	18	12	18	6	12	12	39	27	144	18	1.0
8	3+ 4- 3- 4o 4o 3- 2- 3-	25-	18	22	12	27	27	12	6	12	136	17	0.9
9	3o 4+ 4- 5- 4o 3+ 2- 1+	26o	15	32	22	39	27	18	6	5	164	20	1.0
10	4o 5o 4o 5- 3- 2+ 2o 2+	27o	27	48	27	39	12	9	7	9	178	22	1.1
11	3o 3- 4+ 3o 3o 4+ 6- 5o	31o	15	12	32	15	15	32	67	48	236	30	1.3
12	5o 4- 3o 3+ 3+ 4+ 3+ 5+	31+	48	22	15	18	18	32	18	56	227	28	1.2
13	5- 3+ 4- 3o 3- 3+ 3- 2-	25o	39	18	22	15	12	18	12	6	142	18	1.0
14	1o 2o 2- 0+ 1+ 3- 3o 4o	16o	4	7	6	2	5	12	15	27	78	10	0.5
15	5- 4- 3+ 2+ 2+ 3+ 4- 4o	27+	39	22	18	9	9	18	22	27	164	20	1.0
16	3o 3o 3- 1+ 2+ 3o 2o 3o	20+	15	15	12	5	9	15	7	15	93	12	0.7
17	4- 4o 2o 1- 2o 2+ 2+ 2o	19o	22	27	7	3	7	9	9	7	91	11	0.7
18	1o 2o 1- 1o 1o 1- 1- 2-	9-	4	7	3	4	4	3	3	6	34	4	0.1
19	1o 0+ 1o 1o 1+ 2- 2- 2-	10-	4	2	4	4	5	6	6	6	37	5	0.2
20	2+ 2o 1- 1o 1+ 1o 2o 2-	12o	9	7	3	4	5	4	7	6	45	6	0.3
21	2- 2- 1o 1o 1- 1o 1+ 1+	10-	6	6	4	4	3	4	5	5	37	5	0.2
22	3+ 3- 1o 1+ 3- 2o 2- 2-	16+	18	12	4	5	12	7	6	6	70	9	0.5
23	3- 2+ 1- 1o 2- 2- 1- 2o	13-	12	9	3	4	6	6	3	7	50	6	0.3
24	3- 3- 1o 1o 1o 2o 1o 2o	13+	12	12	4	4	4	7	4	7	54	7	0.3
25	3- 2+ 2o 3- 3+ 2- 1- 1o	16+	12	9	7	12	18	6	3	4	71	9	0.5
26	1- 2o 1+ 0+ 2o 1+ 1o 1+	10o	3	7	5	2	7	5	4	5	38	5	0.2
27	0+ 1+ 0+ 1o 2- 1+ 1- 3-	9+	2	5	2	4	6	5	3	12	39	5	0.2
28	2- 1o 0+ 1+ 2- 2o 1- 1-	9+	6	4	2	5	6	7	3	3	36	4	0.2
29	1+ 2- 2- 1+ 2o 2- 1o 1+	12o	5	6	6	5	7	6	4	5	44	6	0.2
30	2- 2+ 1o 3- 3o 2+ 2- 2-	16+	6	9	4	12	15	9	6	6	67	8	0.5

TABLE 4 PLANETARY THREE-HOUR-INDICES Kp, EQUIVALENT RANGES ap, DAILY AVERAGE RANGES Ap, AND PLANETARY DAILY CHARACTER FIGURES Cp.

	Kp	Sum	May 1980	ap				Sum	Ap	Cp
1	3o 2o 1- 1+ 3- 3- 2+ 1o	16-	15 7 3 5	12	12	9	4	67	8	0.5
2	1+ 1o 1+ 1o 1o 1+ 1o 1-	9-	5 4 5 4	4	5	4	3	34	4	0.1
3	0+ 1- 1o 1o 1- 1- 0+ 1o	6-	2 3 4 4	3	3	2	4	25	3	0.1
4	0+ 2- 1- 1+ 2o 2- 1- 0+	9-	2 6 3 5	7	6	3	2	34	4	0.1
5	0+ 1- 2- 2- 2+ 2+ 2o 3-	14-	2 3 6 6	9	9	7	12	54	7	0.3
6	3- 3- 3- 3- 3o 2+ 3- 3-	21+	12 12 12 12	15	9	12	12	96	12	0.7
7	0+ 1- 2o 2- 2- 3- 4o 2o	15o	2 3 7 6	6	12	27	7	70	9	0.5
8	3o 3o 2- 1- 1+ 1- 1o 2-	13o	15 15 6 3	5	3	4	6	57	7	0.4
9	3o 3o 2+ 3+ 3o 2+ 5- 4o	26-	15 15 9 18	15	9	39	27	147	18	1.0
10	3+ 1+ 1+ 2- 1+ 1+ 2+ 2+	15o	18 5 5 6	5	5	9	9	62	8	0.4
11	4- 2o 4- 4o 4+ 4+ 6o 6o	34o	22 7 22 27	32	32	80	80	302	38	1.4
12	5- 5o 4- 3+ 3- 3- 3o 3o	28o	39 48 22 18	12	12	15	15	181	23	1.1
13	2+ 3- 3- 2- 1- 2o 3o 5o	20o	9 12 12 6	3	7	15	48	112	14	0.8
14	4+ 4- 2+ 2o 2+ 3o 4+ 2+	24+	32 22 9 7	9	15	32	9	135	17	0.9
15	1+ 2o 3- 1o 1+ 1- 1- 2-	11+	5 7 12 4	5	3	3	6	45	6	0.3
16	1o 1+ 1+ 1o 0+ 0+ 0+ 0o	6-	4 5 5 4	2	2	2	0	24	3	0.1
17	0o 0+ 0+ 1- 1- 1- 1o 2-	5+	0 2 2 3	3	3	4	6	23	3	0.1
18	0o 0+ 1- 2- 1o 2o 1+ 1-	8-	0 2 3 6	4	7	5	3	30	4	0.1
19	0+ 1- 2- 2o 3o 3- 2+ 2-	14+	2 3 6 7	15	12	9	6	60	8	0.4
20	2o 1+ 2- 1o 1+ 1o 1o 0+	10-	7 5 6 4	5	4	4	2	37	5	0.2
21	0+ 0o 1o 1o 1o 1o 1+ 2o	8-	2 0 4 4	4	4	5	7	30	4	0.1
22	1o 2- 2o 2- 2+ 2+ 1+ 1o	13+	4 6 7 6	9	9	5	4	50	6	0.3
23	2+ 2o 1o 2- 4+ 3o 2o 2-	18o	9 7 4 6	32	15	7	6	86	11	0.6
24	2o 1o 1o 2+ 3- 3o 4o 4-	20-	7 4 4 9	12	15	27	22	100	12	0.7
25	3o 3o 5o 6+ 6- 4- 1+ 2+	30+	15 15 48 94	67	22	5	9	275	34	1.4
26	3- 1o 2- 3- 1o 1- 1+ 3-	14-	12 4 6 12	4	3	5	12	58	7	0.4
27	1o 1+ 1- 1- 1- 1o 1- 0o	6o	4 5 3 3	3	4	3	0	25	3	0.1
28	1+ 1+ 1- 2- 1+ 1+ 1- 0+	9-	5 5 3 6	5	5	3	2	34	4	0.1
29	0+ 1- 1o 1- 1o 1+ 3+ 2-	10o	2 3 4 3	4	5	18	6	45	6	0.3
30	3- 2o 3o 2o 2+ 3- 3- 2-	19o	12 7 15 7	9	12	12	6	80	10	0.6
31	3- 3- 2+ 2+ 3- 4- 2+ 5-	23+	12 12 9 9	12	22	9	39	124	16	0.9

	Kp	Sum	Jun 1980	ap				Sum	Ap	Cp
1	3o 3+ 4- 5- 3+ 4- 3+ 4-	29-	15 18 22 39	18	22	18	22	174	22	1.1
2	3+ 1+ 1o 2o 1+ 1o 1o 2o	13o	18 5 4 7	5	4	4	7	54	7	0.3
3	3- 1o 2- 2+ 3+ 2o 3- 2o	18-	12 4 6 9	18	7	12	7	75	9	0.5
4	1o 1- 2o 2- 1+ 2o 1- 2-	11o	4 3 7 6	5	7	3	6	41	5	0.2
5	1- 0+ 1+ 2- 1- 1- 1- 1o	7o	3 2 5 6	3	3	3	4	29	4	0.1
6	1o 1o 1o 2+ 3+ 4+ 3+ 5-	21o	4 4 4 9	18	32	18	39	128	16	0.9
7	4- 3+ 3o 4- 4+ 4+ 5- 5-	32-	22 18 15 22	32	32	39	39	219	27	1.2
8	5+ 4o 4- 3+ 4+ 3- 3- 2-	28-	56 27 22 18	32	12	12	6	185	23	1.1
9	2o 1+ 1+ 3+ 3- 2+ 3o 5-	21-	7 5 5 18	12	9	15	39	110	14	0.8
10	4+ 4- 4o 4- 4+ 5o 5o 4+	34+	32 22 27 22	32	48	48	32	263	33	1.3
11	3+ 3+ 6- 5o 6+ 6- 6o 6o	41+	18 18 67 48	94	67	80	80	472	59	1.7
12	5- 4- 4- 4o 4- 4o 5- 5+	34-	39 22 22 27	22	27	39	56	254	32	1.3
13	4+ 4o 4o 3+ 3o 4o 5- 4+	32-	32 27 27 18	15	27	39	32	217	27	1.2
14	3+ 1+ 2- 1+ 3- 3- 2+ 3-	18o	18 5 6 5	12	12	9	12	79	10	0.6
15	1o 2- 1- 1- 1+ 2- 2- 1o	10-	4 6 3 3	5	6	6	4	37	5	0.2
16	1o 1+ 1+ 2- 3o 4- 2+ 2o	16+	4 5 5 6	15	22	9	7	73	9	0.5
17	1- 1+ 0+ 1- 0+ 0+ 0+ 1o	5o	3 5 2 3	2	2	2	4	23	3	0.1
18	0+ 1- 1- 1- 1- 1o 1- 1+	6o	2 3 3 3	3	4	3	5	26	3	0.1
19	0+ 2- 2- 1o 2- 3- 4- 2o	15-	2 6 6 4	6	12	22	7	65	8	0.4
20	1- 1+ 1+ 1+ 2o 2+ 2o 1o	12o	3 5 5 5	7	9	7	4	45	6	0.3
21	1+ 1+ 1o 2o 2- 3- 1+ 1+	13-	5 5 4 7	6	12	5	5	49	6	0.3
22	2o 1+ 1o 1o 2- 2o 2o 2+	13+	7 5 4 4	6	7	7	9	49	6	0.3
23	2o 1+ 1o 1o 2+ 2- 2- 1+	12+	7 5 4 4	9	6	6	5	46	6	0.3
24	4- 3- 3o 3- 3- 2o 2+ 3o	22o	22 12 15 12	12	7	9	15	104	13	0.7
25	3- 2+ 2o 1o 2- 1+ 3- 3-	16+	12 9 7 4	6	5	12	12	67	8	0.5
26	3+ 2- 2- 2o 4o 3+ 4+ 2+	23-	18 6 6 7	27	18	32	9	123	15	0.9
27	1+ 0+ 1- 0+ 1- 0+ 0+ 1-	5-	5 2 3 2	3	2	2	3	22	3	0.0
28	1+ 1- 1- 1- 1o 1- 0+ 1-	6o	5 3 3 3	4	3	2	3	26	3	0.1
29	1o 1o 1o 1+ 1o 1o 1o 2+	10-	4 4 4 5	4	4	4	9	38	5	0.2
30	3- 1+ 1+ 2o 3- 2+ 2- 2o	16o	12 5 5 7	12	9	6	7	63	8	0.4

TABLE 4 PLANETARY THREE-HOUR-INDICES Kp, EQUIVALENT RANGES ap, DAILY AVERAGE RANGES Ap, AND PLANETARY DAILY CHARACTER FIGURES Cp.

	Kp	Sum	Jul 1980				ap				Sum	Ap	Cp
1	2o 1+ 1+ 1o 1o 1o 1- 2-	10o	7	5	5	4	4	4	3	6	38	5	0.2
2	1- 0+ 0+ 1+ 0+ 1- 1+ 1o	6o	3	2	2	5	2	3	5	4	26	3	0.1
3	1- 1+ 1o 2- 1+ 1o 0+ 1o	8+	3	5	4	6	5	4	2	4	33	4	0.1
4	0o 1- 2- 2+ 3- 3o 1+ 2o	14-	0	3	6	9	12	15	5	7	57	7	0.4
5	3- 4o 3- 3- 3+ 3+ 3+ 2-	24-	12	27	12	12	18	18	18	6	123	15	0.9
6	2o 1+ 1o 3o 3o 3- 2+ 3o	18+	7	5	4	15	15	12	9	15	82	10	0.6
7	2+ 2o 3+ 4- 3- 3- 3- 2+	22-	9	7	18	22	12	12	12	9	101	13	0.7
8	4o 2+ 2- 2+ 2- 3o 4- 3o	22-	27	9	6	9	6	15	22	15	109	14	0.8
9	3- 3- 2+ 2+ 2- 1+ 2o 1-	16-	12	12	9	9	6	5	7	3	63	8	0.4
10	0+ 1o 0o 1o 1+ 1+ 2- 1o	8-	2	4	0	4	5	5	6	4	30	4	0.1
11	2o 2o 1o 2- 4o 2o 2+ 3-	18-	7	7	4	6	27	7	9	12	79	10	0.6
12	2o 1o 1o 1o 1- 2+ 1o 1+	10+	7	4	4	4	3	9	4	5	40	5	0.2
13	2+ 2+ 2+ 1o 2+ 4- 2- 1o	17-	9	9	9	4	9	22	6	4	72	9	0.5
14	2+ 2- 1+ 2+ 2+ 2o 3o 2+	17+	9	6	5	9	9	7	15	9	69	9	0.5
15	2+ 2+ 1o 2- 1o 2- 1o 2o	13o	9	9	4	6	4	6	4	7	49	6	0.3
16	2- 1o 1+ 2o 2- 2- 1+ 2o	13-	6	4	5	7	6	6	5	7	46	6	0.3
17	2o 2- 2- 1o 1o 1o 3- 2+	13+	7	6	6	4	4	4	12	9	52	6	0.3
18	3o 2o 1+ 2- 2o 3- 6o 7-	25+	15	7	5	6	7	12	80	111	243	30	1.3
19	5+ 4o 3- 1o 2+ 2+ 1+ 2-	21-	56	27	12	4	9	9	5	6	128	16	0.9
20	2- 1+ 1+ 1- 3+ 3+ 3- 2-	16o	6	5	5	3	18	18	12	6	73	9	0.5
21	3o 3- 2o 1o 4o 3+ 3- 3o	22-	15	12	7	4	27	18	12	15	110	14	0.8
22	1o 1- 1- 0+ 0+ 2- 1o 3o	9-	4	3	3	2	2	6	4	15	39	5	0.2
23	1+ 0+ 0+ 1o 1+ 2- 1o 2o	9o	5	2	2	4	5	6	4	7	35	4	0.2
24	1o 2o 1- 0+ 2+ 1+ 3o 2+	13o	4	7	3	2	9	5	15	9	54	7	0.3
25	1o 1+ 1o 4- 5- 6- 6+ 7o	31-	4	5	4	22	39	67	94	132	367	46	1.5
26	6o 4- 2+ 3+ 5- 3+ 3- 2o	28o	80	22	9	18	39	18	12	7	205	26	1.2
27	3+ 3+ 3o 3+ 2+ 2+ 3- 3+	24-	18	18	15	18	9	9	12	18	117	15	0.8
28	4- 4- 3- 3- 3+ 3+ 2o 1+	23-	22	22	12	12	18	18	7	5	116	14	0.8
29	1- 2- 1o 1o 2- 2+ 2+ 2-	12+	3	6	4	4	6	9	9	6	47	6	0.3
30	2o 1+ 2- 1+ 2o 2+ 2+ 3-	16-	7	5	6	5	7	9	9	12	60	8	0.4
31	2o 2- 2o 2- 1+ 1o 2- 1o	12+	7	6	7	6	5	4	6	4	45	6	0.3

	Kp	Sum	Aug 1980				ap				Sum	Ap	Cp
1	1o 2- 1+ 1o 1o 1- 1- 1o	8+	4	6	5	4	4	3	3	4	33	4	0.1
2	0+ 1- 1- 1o 2+ 2o 3- 3+	13o	2	3	3	4	9	7	12	18	58	7	0.4
3	4o 3+ 4o 4+ 4+ 2o 3- 1+	26o	27	18	27	32	32	7	12	5	160	20	1.0
4	2- 2o 2+ 2o 3+ 2+ 1o 0+	15o	6	7	9	7	18	9	4	2	62	8	0.4
5	1+ 1- 1o 1+ 1+ 1o 1o 1+	9o	5	3	4	5	5	4	4	5	35	4	0.2
6	4o 3o 2o 3- 5- 3+ 4+ 3o	27o	27	15	7	12	39	18	32	15	165	21	1.1
7	2+ 3- 2+ 3- 2o 2- 3- 3o	19+	9	12	9	12	7	6	12	15	82	10	0.6
8	2- 1o 0+ 1- 1o 1o 1- 2o	8+	6	4	2	3	4	4	3	7	33	4	0.1
9	1+ 1o 1o 2- 3- 3+ 3o 2+	16+	5	4	4	6	12	18	15	9	73	9	0.5
10	2+ 3o 3o 2o 2+ 2+ 2- 1o	18-	9	15	15	7	9	9	6	4	74	9	0.5
11	1+ 2- 2o 1+ 1o 2o 3o 3o	15+	5	6	7	5	4	7	15	15	64	8	0.4
12	4+ 2o 2o 1- 1+ 1o 1+ 1+	14o	32	7	7	3	5	4	5	5	68	8	0.5
13	2- 1o 1o 1o 2o 2o 1+ 2o	12o	6	4	4	4	7	7	5	7	44	6	0.2
14	1o 0+ 2o 2o 2o 2+ 2- 1o	12+	4	2	7	7	7	9	6	4	46	6	0.3
15	2- 2o 1o 2- 2o 1+ 1o 1-	11+	6	7	4	6	7	5	4	3	42	5	0.2
16	1o 1o 1+ 1+ 5+ 6+ 4o 3-	23o	4	4	5	5	56	94	27	12	207	26	1.2
17	1+ 1o 2- 2+ 3- 2o 4- 3+	18o	5	4	6	9	12	7	22	18	83	10	0.6
18	3o 3+ 4o 5o 2+ 2o 2- 3o	24+	15	18	27	48	9	7	6	15	145	18	1.0
19	4o 2+ 2o 3+ 5o 6- 4o 4-	30o	27	9	7	18	48	67	27	22	225	28	1.2
20	2+ 1+ 1- 3- 2+ 3- 4- 3-	18+	9	5	3	12	9	12	22	12	84	10	0.6
21	3o 3- 3- 2- 1+ 1o 1o 1o	14+	15	12	12	6	5	4	4	4	62	8	0.4
22	1+ 2+ 2+ 2+ 2+ 2+ 3o 3+	19+	5	9	9	9	9	9	15	18	83	10	0.6
23	2+ 1o 1o 2o 1+ 1- 1- 0+	9+	9	4	4	7	5	3	3	2	37	5	0.2
24	2o 2- 1o 1- 1+ 1o 1o 0+	9o	7	6	4	3	5	4	4	2	35	4	0.2
25	0+ 1- 0+ 1- 1+ 1+ 1o 3+	9o	2	3	2	3	5	5	4	18	42	5	0.2
26	4o 3+ 2o 2- 2+ 1+ 2o 3+	20o	27	18	7	6	9	5	7	18	97	12	0.7
27	3+ 3+ 4- 5o 5- 3o 3o 1+	27+	18	18	22	48	39	15	15	5	180	22	1.1
28	2o 2- 1+ 1o 1- 1+ 0+ 0+	9-	7	6	5	4	3	5	2	2	34	4	0.1
29	0+ 0+ 0o 0+ 0+ 1o 2+ 3o	8-	2	2	0	2	2	4	9	15	36	4	0.2
30	2o 2+ 2- 1+ 1+ 2+ 2- 1o	14-	7	9	6	5	5	9	6	4	51	6	0.3
31	3- 2+ 2+ 2- 2- 1- 1+ 2o	15-	12	9	9	6	6	3	5	7	57	7	0.4

TABLE 4 PLANETARY THREE-HOUR-INDICES Kp, EQUIVALENT RANGES ap, DAILY AVERAGE RANGES Ap, AND PLANETARY DAILY CHARACTER FIGURES Cp.

	Kp	Sum	Sep 1980				ap				Sum	Ap	Cp
1	3+ 2+ 3- 1o 1o 1+ 1- 1o	13+	18	9	12	4	4	5	3	4	59	7	0.4
2	2- 2- 1o 1o 1+ 1- 0+ 1+	9o	6	6	4	4	5	3	2	5	35	4	0.2
3	0+ 0o 1+ 2o 3o 4o 3+ 4-	18-	2	0	5	7	15	27	18	22	96	12	0.7
4	4+ 3o 2o 1+ 2o 2+ 3- 2o	20-	32	15	7	5	7	9	12	7	94	12	0.7
5	2+ 3- 2- 2- 2o 3o 3o 3-	19o	9	12	6	6	7	15	15	12	82	10	0.6
6	2o 2o 2o 2- 3- 3+ 1o 3-	17+	7	7	7	6	12	18	4	12	73	9	0.5
7	3o 3- 1o 2+ 1+ 2- 2o 3+	17+	15	12	4	9	5	6	7	18	76	10	0.5
8	3+ 2- 1+ 2+ 2+ 3- 1o 1+	16o	18	6	5	9	9	12	4	5	68	8	0.5
9	2- 2o 2+ 2+ 3+ 4o 2o 3-	20+	6	7	9	9	18	27	7	12	95	12	0.7
10	2+ 2- 1- 0+ 0+ 1o 1o 2-	9o	9	6	3	2	2	4	4	6	36	4	0.2
11	1+ 2- 1o 2- 2- 2+ 1+ 2-	13-	5	6	4	6	6	9	5	6	47	6	0.3
12	2- 2+ 4+ 2+ 4- 4o 3o 4o	25+	6	9	32	9	22	27	15	27	147	18	1.0
13	4- 4o 3o 3o 4o 3- 2o 1+	24-	22	27	15	15	27	12	7	5	130	16	0.9
14	2+ 3- 1o 2+ 1+ 1- 1o 4-	15o	9	12	4	9	5	3	4	22	68	8	0.5
15	3- 2o 2o 2- 2o 2o 2o 2+	17-	12	7	7	6	7	7	7	9	62	8	0.4
16	1- 2- 2o 2- 2- 1+ 3+ 2+	15-	3	6	7	6	6	5	18	9	60	8	0.4
17	3- 2+ 3- 4o 3+ 2+ 2- 3o	22o	12	9	12	27	18	9	6	15	108	14	0.8
18	1- 0+ 2+ 1+ 0+ 1- 2o 1+	9o	3	2	9	5	2	3	7	5	36	4	0.2
19	1- 0+ 0+ 2- 2o 2- 2- 3-	11o	3	2	2	6	7	6	6	12	44	6	0.2
20	3+ 3- 1+ 1+ 1+ 2- 1o 1-	13+	18	12	5	5	5	6	4	3	58	7	0.4
21	0+ 0o 0+ 0+ 1- 1- 0+ 0+	3o	2	0	2	2	3	3	2	2	16	2	0.0
22	0o 2- 2- 2+ 4- 3- 2o 1+	15+	0	6	6	9	22	12	7	5	67	8	0.5
23	1- 2- 1o 2o 1- 1o 2- 1+	10o	3	6	4	7	3	4	6	5	38	5	0.2
24	0+ 0+ 1+ 1o 1- 1+ 1+ 1+	8-	2	2	5	4	3	5	5	5	31	4	0.1
25	2- 3o 2- 2- 1+ 2- 2- 1o	14-	6	15	6	6	5	6	6	4	54	7	0.3
26	1- 2- 1+ 2- 2- 1o 1+ 0+	10-	3	6	5	6	6	4	5	2	37	5	0.2
27	1- 2o 1- 2- 2- 2o 3- 2o	13+	3	7	3	6	6	7	12	7	51	6	0.3
28	2o 1- 2- 1- 2+ 2+ 2- 2+	14-	7	3	6	3	9	9	6	9	52	6	0.3
29	1+ 1- 2o 1+ 2- 2+ 4o 2o	15+	5	3	7	5	6	9	27	7	69	9	0.5
30	2+ 2- 1o 1- 0+ 1o 2+ 0+	10-	9	6	4	3	2	4	9	2	39	5	0.2

	Kp	Sum	Oct 1980				ap				Sum	Ap	Cp
1	0o 0o 0o 1- 1+ 1o 1- 1o	5-	0	0	0	3	5	4	3	4	19	2	0.0
2	1o 1+ 2- 2- 2+ 1+ 0+ 0o	10-	4	5	6	6	9	5	2	0	37	5	0.2
3	0o 0o 1- 1o 1- 2o 2o 3o	9+	0	0	3	4	3	7	7	15	39	5	0.2
4	3o 4+ 3+ 3+ 4o 5o 4o 4-	31-	15	32	18	18	27	48	27	22	207	26	1.2
5	5- 4+ 4o 3+ 4- 3o 3- 3-	28+	39	32	27	18	22	15	12	12	177	22	1.1
6	3o 3+ 4- 4- 2o 3- 2+ 2o	23-	15	18	22	22	7	12	9	7	112	14	0.8
7	4- 3o 3- 2+ 3+ 2o 2+ 2-	21o	22	15	12	9	18	7	9	6	98	12	0.7
8	2- 3- 3o 2- 3- 3o 3+ 3o	21o	6	12	15	6	12	15	18	15	99	12	0.7
9	4- 3- 4- 3+ 2+ 3o 4- 2o	24+	22	12	22	18	9	15	22	7	127	16	0.9
10	3o 3- 2o 2+ 3- 4- 3+ 6o	26-	15	12	7	9	12	22	18	80	175	22	1.1
11	5- 6- 6o 5+ 5o 2+ 2+ 2+	34-	39	67	80	56	48	9	9	9	317	40	1.4
12	2- 3- 3+ 1+ 3+ 2+ 3- 2o	19+	6	12	18	5	18	9	12	7	87	11	0.6
13	1o 1o 2o 2- 2o 1+ 1+ 1+	12-	4	4	7	6	7	5	5	5	43	5	0.2
14	2- 2- 2o 2- 1+ 3o 4o 3o	18+	6	6	7	6	5	15	27	15	87	11	0.6
15	3+ 4- 4- 3+ 2+ 2o 2+ 3-	23+	18	22	22	18	9	7	9	12	117	15	0.8
16	2+ 1- 1- 0+ 0+ 0+ 1- 1-	6o	9	3	3	2	2	2	3	3	27	3	0.1
17	0o 1+ 2- 2- 2- 1o 2- 2o	11o	0	5	6	6	6	4	6	7	40	5	0.2
18	3+ 4+ 4+ 4- 2+ 3+ 4+ 2o	28-	18	32	32	22	9	18	32	7	170	21	1.1
19	2o 2- 2+ 3- 2+ 3- 3+ 3o	20o	7	6	9	12	9	12	18	15	88	11	0.6
20	1+ 2- 0+ 1o 1o 1o 0+ 1+	8o	5	6	2	4	4	4	2	5	32	4	0.1
21	1+ 2+ 2o 2o 2+ 2+ 2o 2-	16o	5	9	7	7	9	9	7	6	59	7	0.4
22	2- 3+ 3- 4- 3+ 3- 5- 5+	27+	6	18	12	22	18	12	39	56	183	23	1.1
23	3+ 4+ 6- 6- 6o 4+ 5- 3o	37o	18	32	67	67	80	32	39	15	350	44	1.5
24	3- 2+ 2o 3o 4- 2o 3+ 3+	22+	12	9	7	15	22	7	18	18	108	14	0.8
25	4o 2+ 4o 4- 3+ 4o 4o 4+	30-	27	9	27	22	18	27	27	32	189	24	1.1
26	4o 3o 4o 3o 2- 2- 1+ 0+	19o	27	15	27	15	6	6	5	2	103	13	0.7
27	0+ 1- 1o 1- 1- 1- 1+ 0+	6-	2	3	4	3	3	3	5	2	25	3	0.1
28	0o 0o 0+ 0+ 0+ 0+ 1- 1-	3-	0	0	2	2	2	2	3	3	14	2	0.0
29	1- 0o 1- 0+ 1- 1o 1+ 1-	5+	3	0	3	2	3	4	5	3	23	3	0.1
30	2o 3o 3- 1+ 0+ 3o 2o 3+	18-	7	15	12	5	2	15	7	18	81	10	0.6
31	3+ 3+ 4o 3+ 5+ 5o 4o 4o	32+	18	18	27	18	56	48	27	27	239	30	1.3

TABLE 4 PLANETARY THREE-HOUR-INDICES Kp, EQUIVALENT RANGES ap, DAILY AVERAGE RANGES Ap, AND PLANETARY DAILY CHARACTER FIGURES Cp.

	Kp								Sum	Nov	1980			ap				Sum	Ap	Cp
1	3o	3+	4-	4-	3+	4-	2-	2-	24o	15	18	22	22	18	22	6	6	129	16	0.9
2	2-	3o	2-	3-	3-	4-	3-	1+	19+	6	15	6	12	12	22	12	5	90	11	0.6
3	1-	1+	2-	2-	2o	1+	1+	1o	11o	3	5	6	6	7	5	5	4	41	5	0.2
4	1-	3o	3-	5-	2+	2o	2+	1o	19-	3	15	12	39	9	7	9	4	98	12	0.7
5	2o	1+	1+	1+	2-	1-	1+	1o	11-	7	5	5	5	6	3	5	4	40	5	0.2
6	0+	2-	1+	2-	2-	2o	2o	2+	13o	2	6	5	6	6	7	7	9	48	6	0.3
7	3-	2o	1o	1o	1+	1o	1o	2o	12o	12	7	4	4	5	4	4	7	47	6	0.3
8	2o	1+	1o	1+	2+	1+	2o	1+	13-	7	5	4	5	9	5	7	5	47	6	0.3
9	1+	2o	1o	3o	3-	3o	2-	1+	16o	5	7	4	15	12	15	6	5	69	9	0.5
10	2+	3+	3o	4-	4-	2-	1+	3-	22-	9	18	15	22	22	6	5	12	109	14	0.8
11	3+	3+	4o	4o	3o	3+	5-	4o	30-	18	18	27	27	15	18	39	27	189	24	1.1
12	4o	3-	3-	3o	2+	1+	2-	2o	20-	27	12	12	15	9	5	6	7	93	12	0.7
13	3-	1-	1+	1+	1o	1o	2+	2o	12+	12	3	5	5	4	4	9	7	49	6	0.3
14	2-	1+	1o	3o	3+	3o	3-	2-	18-	6	5	4	15	18	15	12	6	81	10	0.6
15	4-	4o	5-	4-	3+	3+	3-	4-	29o	22	27	39	22	18	18	12	22	180	22	1.1
16	3+	3+	3o	3+	3+	3o	2+	3o	25-	18	18	15	18	18	15	9	15	126	16	0.9
17	3-	1o	3-	2+	2+	2o	3o	3+	19+	12	4	12	9	9	7	15	18	86	11	0.6
18	3o	3-	3-	4-	3+	4-	3-	3+	25o	15	12	12	22	18	22	12	18	131	16	0.9
19	3+	3+	2+	3+	4-	4-	3o	3o	26-	18	18	9	18	22	22	15	15	137	17	0.9
20	2+	3o	4-	3-	3+	4o	4o	2+	25+	9	15	22	12	18	27	27	9	139	17	0.9
21	2o	4o	4-	3-	1+	2-	2o	3+	21-	7	27	22	12	5	6	7	18	104	13	0.7
22	3-	2+	2+	2o	2-	2-	1+	2o	16o	12	9	9	7	6	6	5	7	61	8	0.4
23	2+	3-	2-	1-	0+	3-	4-	3-	17-	9	12	6	3	2	12	22	12	78	10	0.5
24	3o	3+	3o	2o	2-	2o	2+	3+	21-	15	18	15	7	6	7	9	18	95	12	0.7
25	3o	3+	3+	2+	3+	3o	3+	3+	25o	15	18	18	9	18	15	18	18	129	16	0.9
26	4o	4+	4-	4o	4+	3-	3-	2o	28-	27	32	22	27	32	12	12	7	171	21	1.1
27	4o	3o	4-	3o	3o	4-	4-	3o	27o	27	15	22	15	15	22	22	15	153	19	1.0
28	5-	4-	4o	4+	4-	3-	2+	3+	29-	39	22	27	32	22	12	9	18	181	23	1.1
29	3o	3+	4o	3o	3o	2o	3o	3+	25-	15	18	27	15	15	7	15	18	130	16	0.9
30	5-	3+	3-	3-	2+	4o	4+	5-	29-	39	18	12	12	9	27	32	39	188	24	1.1

	Kp								Sum	Dec	1980			ap				Sum	Ap	Cp
1	5o	5o	3+	2o	3-	1+	2-	1+	22+	48	48	18	7	12	5	6	5	149	19	1.0
2	1+	1o	1-	2o	2+	2-	2+	3o	14+	5	4	3	7	9	6	9	15	58	7	0.4
3	3+	4-	4-	4-	3o	4o	4o	3+	29-	18	22	22	22	15	27	27	18	171	21	1.1
4	2+	4-	2+	2o	2o	1o	1-	2-	16-	9	22	9	7	7	4	3	6	67	8	0.5
5	2-	2-	0+	0+	0+	1o	0+	1o	7-	6	6	2	2	2	4	2	4	28	4	0.1
6	1-	1o	1-	1-	1-	1+	1+	0+	7-	3	4	3	3	3	5	5	2	28	4	0.1
7	2-	1+	2-	2o	1+	1-	2-	2o	12+	6	5	6	7	5	3	6	7	45	6	0.3
8	2+	3o	2+	1o	1-	2-	2+	3o	16+	9	15	9	4	3	6	9	15	70	9	0.5
9	2o	2o	3-	2o	2-	3o	2o	3+	19-	7	7	12	7	6	15	7	18	79	10	0.6
10	3+	4-	2+	2+	2o	1+	2o	2-	19-	18	22	9	9	7	5	7	6	83	10	0.6
11	2-	2-	1+	3+	3o	3+	4+	4+	23o	6	6	5	18	15	18	32	32	132	16	0.9
12	5-	4-	3-	2+	1+	1+	3+	3o	22+	39	22	12	9	5	5	18	15	125	16	0.9
13	1-	1+	1+	3-	2o	1+	1-	1+	11+	3	5	5	12	7	5	3	5	45	6	0.3
14	1o	0+	0+	3-	2+	3o	3-	2+	15-	4	2	2	12	9	15	12	9	65	8	0.4
15	3-	3+	2+	3-	2o	2+	2o	2+	20-	12	18	9	12	7	9	7	9	83	10	0.6
16	3o	3-	2+	3+	4-	4+	3+	1+	24o	15	12	9	18	22	32	18	5	131	16	0.9
17	1+	2-	1o	0+	1-	2o	2+	1-	10o	5	6	4	2	3	7	9	3	39	5	0.2
18	1+	2-	4o	3+	2+	4o	3o	3-	22+	5	6	27	18	9	27	15	12	119	15	0.8
19	3+	5o	5-	4-	7+	8-	7o	5-	43+	18	48	39	22	154	179	132	39	631	79	1.8
20	4o	4-	4o	3-	3o	3+	4+	3o	28o	27	22	27	12	15	18	32	15	168	21	1.1
21	4o	5-	5-	3+	3-	3o	4+	4o	31-	27	39	39	18	12	15	32	27	209	26	1.2
22	3o	3o	3+	3-	2o	2o	2o	2-	20-	15	15	18	12	7	7	7	6	87	11	0.6
23	1+	2-	1o	2+	1+	1o	2-	1o	11+	5	6	4	9	5	4	6	4	43	5	0.2
24	1-	0+	0+	1-	1-	1-	1-	0+	4+	3	2	2	3	3	3	3	2	21	3	0.0
25	1o	2+	2-	2-	2+	1+	1-	3+	14+	4	9	6	6	9	5	3	18	60	8	0.4
26	2o	2o	1+	2-	2+	2-	0+	1-	12o	7	7	5	6	9	6	2	3	45	6	0.3
27	1-	3-	3+	4-	3-	1+	2-	1+	17+	3	12	18	22	12	5	6	5	83	10	0.6
28	1-	1-	1+	1o	2o	1-	1o	0+	8-	3	3	5	4	7	3	4	2	31	4	0.1
29	1-	2o	1+	2-	3o	2+	2+	3o	16+	3	7	5	6	15	9	9	15	69	9	0.5
30	3o	3-	4o	4-	3-	1-	1o	2-	19+	15	12	27	22	12	3	4	6	101	13	0.7
31	4-	3+	3-	1+	2-	3+	4-	3+	23o	22	18	12	5	6	18	22	18	121	15	0.9

TABLE 5 FREQUENCIES OF Kp INDICES, 1980

Kp	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0o	7	6	11	1	5	0	2	1	3	10	0	0
0+	17	19	23	11	17	12	10	14	18	15	2	13
1-	25	22	31	22	29	24	12	17	21	18	5	25
1o	28	31	37	29	32	29	38	39	21	12	13	15
1+	21	20	30	22	27	29	27	31	29	16	23	27
2-	23	18	26	30	24	21	31	21	42	20	20	26
2o	23	22	21	21	19	21	25	30	28	22	21	23
2+	25	18	22	16	22	13	32	27	26	21	20	24
3-	19	17	9	23	26	18	22	15	18	18	28	18
3o	17	19	14	15	17	7	13	15	10	19	30	18
3+	12	18	6	16	4	16	15	14	9	25	32	21
4-	9	5	8	7	7	14	7	4	5	15	22	13
4o	2	2	5	9	4	8	5	8	8	13	14	9
4+	12	5	3	4	5	10	.	4	2	8	4	5
5-	2	2	1	6	3	8	2	2		4	6	5
5o	4	2	.	5	3	3	.	3		3		3
5+	2	1	.	2	.	2	1	1		3		.
6-		3	1	1	1	2	1	1		3		.
6o		1			2	2	2	.		3		.
6+		.			1	1	1	1				.
7-		.					1					.
7o		1					1					1
7+												1
8-												1
8o												
8+												
9-												
9o												
	248	232	248	240	248	240	248	248	240	248	240	248

TABLE 6 MONTHLY AVERAGES OF Ap AND Cp, 1980

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Ap	10	11	8	11	10	13	11	10	8	14	13	13	11.1
Cp	0.51	0.51	0.35	0.56	0.48	0.59	0.53	0.50	0.42	0.65	0.71	0.60	0.53

TABLE 7 LIST OF MAGNETIC STORMS, 1980

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
Dec 19 E5	19 04.56	4	. 1 1	1 . .	. .

TABLE 8 VERY QUIET INTERVALS, 1980

Kp not exceeding 1+ for at least 8 intervals (= one day) in succession

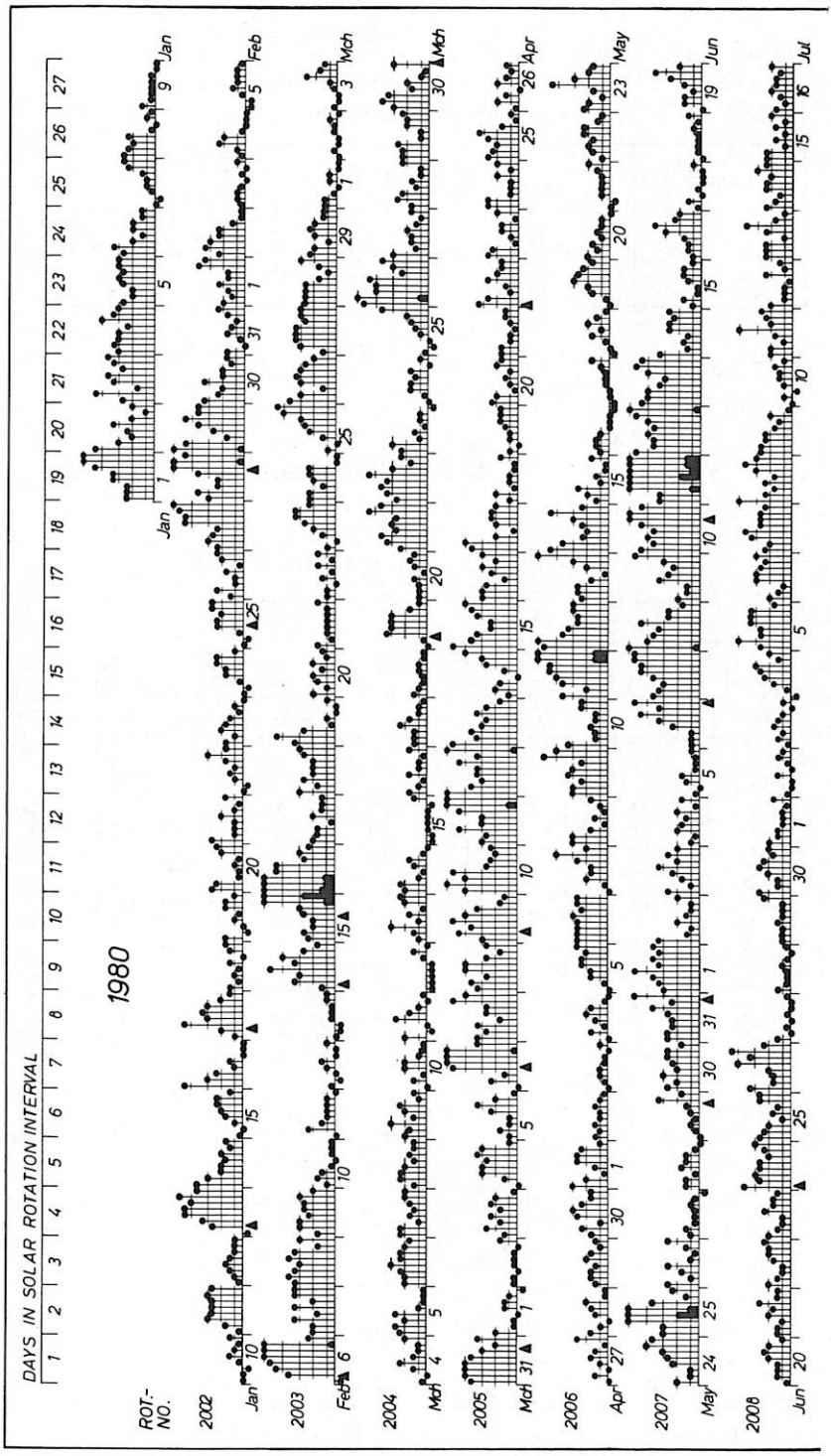
First. . . . . last Eighth				Duration Eighths
Jan	06 E7	07 E6		8
	08 E5	11 E1		21
	17 E8	18 E7		8
Feb	02 E6	04 E2		13
	04 E5	06 E1		13
	11 E3	14 E1		23
	29 E7	Mar 03 E5		23
Mar	11 E6	13 E2		13
	14 E7	15 E8		10
	17 E6	19 E2		13
	23 E3	24 E2		8
Apr	01 E2	02 E7		14
May	01 E8	04 E1		18
	16 E1	17 E7		15
	20 E4	21 E7		12
	27 E1	28 E3		11
	28 E5	29 E6		10

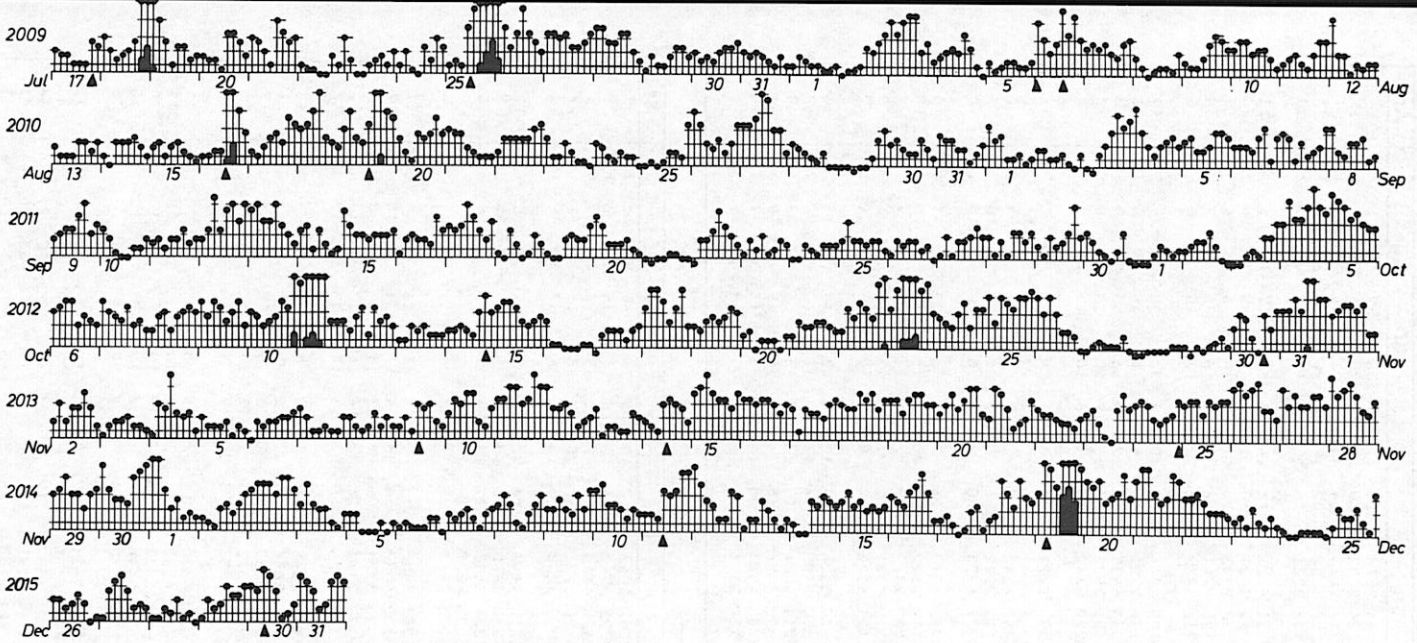
First. . . . . last Eighth				Duration Eighths
Jun	17 E1	19 E1		17
	27 E1	29 E7		23
Jul	02 E1	03 E3		11
Aug	01 E3	02 E4		10
	04 E7	05 E8		10
	24 E3	25 E7		13
	28 E3	29 E6		12
Sep	02 E3	03 E3		9
	20 E7	22 E1		11
	23 E8	24 E8		9
	30 E8	Oct 02 E2		11
Oct	02 E6	03 E5		8
	16 E2	17 E2		9
	26 E7	29 E8		26
Dec	05 E3	06 E8		14
	23 E8	25 E1		10

TABLE 8a LIST OF Kp', 1980

Reduction of Kp to Kp' due to solar flare effects

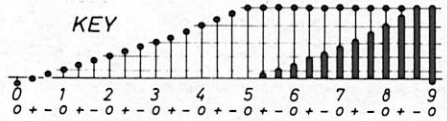
Month	Day	Eighth	Kp	Kp'
Jul	01	6	1o	1-
Nov	08	5	2+	2o


DAYS IN SOLAR ROTATION INTERVAL
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27
ROT.-NO.
1980
2002
2003
2004
2005
2006
2007
2008
Jan
Feb
Mch
Apr
May
Jun
Jul



Kp (after Bartels)

1980



▲ = sudden commencement

Table 9 Indices Kn, Ks, Km, etc.

(For explanation: see page IX)

JAN. 1980

	3 Kn								σn								An
1	5	5	7	10	10	13	15	14	2334	2575	12	11	19	36	37	69	91	79	44
2	10	7	4	7	8	7	3	6	2124	2222	38	17	10	20	26	17	7	15	19
3	6	11	4	8	10	7	11	11	2212	1133	14	45	9	23	34	20	44	43	29
4	8	7	7	8	8	13	10	7	3222	3632	22	19	20	25	21	64	37	18	28
5	6	5	4	7	9	8	8	8	2332	2223	16	11	9	19	31	22	25	23	20
6	6	8	4	3	7	6	4	3	2231	4222	16	24	10	7	17	14	9	7	13
7	0	0	2	2	4	4	6	8	0112	3421	0	1	4	4	8	9	16	22	8
8	7	5	4	7	3	2	2	2	2233	2233	20	11	10	18	6	5	4	4	10
9	4	2	1	3	3	2	1	0	2120	2211	8	5	2	6	6	5	2	1	4
10	1	1	0	1	4	3	3	3	2212	3332	2	2	0	3	10	7	6	7	5
11	1	4	7	8	8	8	9	8	2122	2244	2	8	18	24	22	26	29	26	19
12	2	2	4	4	4	2	4	2	3132	2221	5	4	8	8	8	5	8	5	6
13	1	7	9	11	12	12	13	10	2233	4435	2	19	30	46	58	57	68	38	40
14	8	5	4	5	4	8	4	5	3421	2523	23	12	9	12	10	21	8	11	13
15	2	1	3	4	6	8	8	3	2222	0342	4	2	6	10	15	21	25	7	11
16	10	5	5	4	4	1	1	1	4323	2221	37	13	11	10	9	3	2	2	11
17	3	5	11	9	10	9	6	4	2231	3331	6	12	42	27	38	33	16	8	23
18	4	2	3	2	4	2	3	4	3242	4242	9	5	7	5	8	5	6	10	7
19	3	0	0	4	2	5	4	3	4112	2221	6	0	0	8	5	13	10	6	6
20	7	4	1	2	4	2	6	6	3222	1223	20	9	3	5	8	5	15	14	10
21	6	2	4	2	8	4	2	4	3242	4212	14	4	9	5	22	8	5	10	10
22	2	0	3	4	5	5	8	4	2112	3122	4	0	6	10	11	11	25	10	10
23	3	3	6	6	4	3	3	1	4253	2322	7	7	14	15	9	7	7	2	9
24	1	0	1	5	4	7	8	3	2212	3231	2	1	3	13	10	18	21	7	9
25	0	0	1	7	7	5	8	7	1121	4123	0	0	3	17	18	13	24	17	12
26	3	5	2	3	7	3	6	7	2222	5324	7	13	4	6	19	6	15	20	11
27	6	6	7	7	13	13	15	14	2332	2485	14	16	19	18	62	69	98	78	47
28	7	8	5	5	12	14	14	11	3211	4251	19	22	13	13	54	80	72	47	40
29	13	10	5	7	11	13	11	10	2322	3554	63	36	11	18	49	63	48	37	41
30	8	6	6	10	5	6	4	5	3223	4333	23	14	14	39	13	16	9	12	18
31	4	1	1	4	3	3	5	7	3232	2126	10	2	3	9	7	6	13	19	9
																			17.5

JAN. 1980

	3 Ks								σs								As
1	5	4	6	8	10	12	14	14	2252	2043	12	10	15	26	38	54	71	76	38
2	11	7	5	6	10	7	4	7	2222	2542	44	17	13	16	34	17	9	17	21
3	9	11	5	10	9	8	11	11	1422	4633	27	42	11	35	27	23	48	46	32
4	9	9	9	8	7	10	9	7	3122	3221	30	28	30	23	19	39	31	18	27
5	6	6	5	8	9	7	8	7	2022	3232	15	15	11	26	32	17	21	19	20
6	6	8	5	4	5	5	4	3	1312	4443	16	22	12	9	11	12	10	7	12
7	0	1	2	2	3	3	6	9	1233	4435	0	3	5	4	6	7	15	30	9
8	9	6	6	9	3	3	4	3	4324	2433	27	14	15	33	6	6	8	7	15
9	5	4	1	3	3	2	1	1	3223	4222	13	10	2	6	6	4	2	2	6
10	1	2	1	2	5	3	2	4	4222	2443	2	5	2	4	11	7	4	8	5
11	0	3	9	8	8	8	9	7	1241	3432	1	7	32	23	21	23	28	19	19
12	4	5	6	5	5	4	7	4	3332	4533	9	11	14	11	11	8	18	10	12
13	2	10	12	11	11	11	12	10	2523	3323	4	36	52	45	46	48	58	38	41
14	8	5	6	6	5	6	5	6	2133	2333	25	13	14	14	13	16	13	14	15
15	4	3	5	6	6	6	7	4	2133	2334	8	6	13	14	14	14	19	10	12
16	9	8	5	4	4	2	1	4	4424	3445	33	22	13	8	8	5	3	10	13
17	6	8	12	8	10	8	7	6	3222	3444	15	23	52	25	39	25	17	15	26
18	4	4	2	2	3	2	2	5	2222	2323	9	8	5	5	6	4	4	11	7
19	2	1	1	6	3	5	5	2	2122	4523	5	2	3	14	7	13	11	5	8
20	5	5	3	4	2	2	5	8	1224	5333	13	12	7	8	5	4	12	21	10
21	6	2	4	2	7	5	3	6	3232	4635	16	5	9	5	17	11	7	16	11
22	3	1	5	6	4	5	7	6	4342	4522	6	3	11	14	10	11	20	16	11
23	3	4	5	7	4	3	4	3	1233	2533	6	9	13	19	9	6	10	7	10
24	3	2	3	5	4	6	6	4	2222	5444	6	5	6	12	10	16	15	8	10
25	2	1	4	9	8	6	8	7	2232	3533	4	3	9	27	23	16	25	20	16
26	4	9	5	6	5	3	7	7	2222	2434	9	28	11	15	13	6	19	17	15
27	7	7	8	8	12	13	14	13	2432	2155	19	17	21	23	60	63	78	65	43
28	7	7	8	6	12	15	15	12	1124	1333	17	20	23	16	52	90	99	52	46
29	13	11	7	7	11	12	10	11	3114	4245	66	45	17	19	47	53	40	44	41
30	8	8	7	11	5	6	2	3	7221	2133	26	23	19	45	11	16	5	6	19
31	4	1	1	5	2	2	5	7	4233	3314	8	2	3	13	5	5	13	20	9
																			18.7

Table 9 - continued

$\bar{am} = 5$ nT

JAN. 1980

	3 Km								Σ Km	am							Am	Am2
1	5	4	7	9	10	13	14	14	25.3	12	10	17	31	38	62	81	78	41	33
2	11	7	5	7	9	7	4	6	18.7	41	17	12	18	30	17	8	16	20	33
3	7	11	4	9	9	8	11	11	23.3	20	43	10	29	31	21	46	44	31	26
4	8	8	8	8	7	12	10	7	22.7	26	24	25	24	20	51	34	18	28	27
5	6	5	4	8	9	7	8	8	18.3	16	13	10	23	32	19	23	21	20	21
6	6	8	5	4	6	5	4	3	13.7	16	23	11	8	14	13	10	7	13	13
7	0	1	2	2	3	4	6	8	8.7	0	2	4	4	7	8	15	26	8	11
8	8	5	5	8	3	2	3	2	12.0	23	12	12	26	6	5	6	5	12	11
9	5	3	1	3	3	2	1	0	6.0	11	7	2	6	6	4	2	1	5	5
10	1	2	0	2	4	3	2	4	6.0	2	4	1	4	10	7	5	8	5	7
11	1	4	8	8	8	8	9	8	18.0	2	8	25	24	22	25	29	23	20	14
12	3	4	5	4	4	3	5	3	10.3	7	8	11	9	9	7	13	7	9	18
13	1	9	11	11	12	12	13	10	26.3	3	28	41	46	52	53	63	38	41	26
14	8	5	5	5	5	7	4	5	14.7	24	12	11	13	11	18	10	13	14	22
15	3	2	4	5	6	7	8	4	13.0	6	4	9	12	14	18	22	8	12	14
16	10	7	5	4	4	2	1	3	12.0	35	18	12	9	9	4	2	6	12	16
17	5	7	11	8	10	9	7	5	20.7	11	17	47	26	38	29	17	12	25	15
18	4	3	3	2	3	2	2	4	7.7	9	7	6	5	7	4	5	10	7	11
19	2	0	1	5	3	5	4	3	7.7	5	1	2	11	6	13	10	6	7	7
20	6	5	2	3	3	2	5	7	11.0	16	11	5	6	6	5	13	18	10	9
21	6	2	4	2	7	4	3	5	11.0	15	5	9	5	20	9	6	13	10	10
22	2	1	4	5	4	5	8	5	11.3	5	2	9	12	10	11	22	13	11	11
23	3	4	5	7	4	3	4	2	10.7	6	8	13	17	7	6	8	5	9	9
24	2	1	2	5	4	7	7	3	10.3	4	3	4	12	10	17	18	7	9	8
25	1	1	3	8	8	6	8	7	14.0	2	2	6	22	21	15	24	18	14	13
26	4	7	4	4	6	3	7	7	14.0	8	20	8	10	16	6	17	18	13	16
27	7	7	7	8	13	13	15	14	28.0	17	17	20	21	61	66	88	72	45	31
28	7	8	7	6	12	14	14	11	26.3	18	21	18	15	53	85	85	49	43	48
29	13	10	6	7	11	12	11	10	26.7	65	40	14	18	48	58	44	40	41	44
30	8	7	7	11	5	6	3	4	17.0	25	19	17	42	12	16	7	9	18	23
31	4	1	1	5	3	2	5	7	9.3	9	2	3	11	6	5	13	20	9	10
																		18.1	

$\bar{am} = 4.9$ nT

FEB. 1980

	3 Km								Σ Km	am							Am	Am2
1	4	4	6	5	5	5	10	9	16.0	10	8	15	13	12	12	40	30	18	16
2	6	7	8	6	6	3	2	1	13.0	15	20	24	15	15	7	5	2	13	14
3	1	2	3	2	1	1	0	2	4.0	3	5	7	4	3	2	1	5	4	7
4	3	3	8	6	2	1	1	1	8.3	6	6	21	14	5	2	2	3	7	5
5	1	1	2	2	3	3	3	2	5.7	3	3	5	5	7	7	7	4	5	14
6	1	11	13	12	14	15	16	7	29.7	3	42	61	60	85	87	116	18	59	36
7	6	7	9	5	10	6	10	10	21.0	16	17	28	11	37	15	38	34	25	39
8	9	9	6	10	10	9	4	8	21.7	28	32	16	40	39	29	8	26	27	26
9	5	7	8	7	8	7	9	5	18.7	12	19	23	19	24	20	28	12	20	18
10	3	5	4	1	0	2	2	2	6.3	7	12	10	3	1	5	5	5	6	10
11	2	5	4	4	3	2	2	1	7.7	5	11	9	8	7	5	5	3	7	5
12	2	1	1	3	4	0	1	2	4.7	4	2	2	6	9	1	2	5	4	4
13	2	1	1	2	3	3	3	4	6.3	4	2	2	5	7	6	7	9	5	13
14	4	11	9	13	11	11	9	5	24.3	9	42	28	66	41	44	27	11	34	22
15	6	7	6	6	8	9	16	17	25.0	14	17	14	15	24	28	108	143	45	49
16	15	13	14	14	11	9	9	6	30.3	91	62	73	74	50	28	33	16	53	48
17	4	4	5	3	6	4	4	5	11.7	10	9	13	6	15	9	10	12	11	17
18	7	3	6	7	6	5	8	8	16.7	18	6	14	17	16	12	22	22	16	16
19	8	10	6	2	3	1	1	3	11.3	26	39	14	4	7	3	2	6	13	13
20	4	3	4	6	4	5	3	3	10.7	10	6	8	14	9	13	6	6	9	7
21	3	2	3	4	3	3	3	5	8.7	6	5	6	8	7	6	7	11	7	8
22	3	4	2	4	2	5	2	5	9.0	7	10	5	9	5	11	4	12	8	8
23	4	2	4	7	8	9	9	7	16.7	9	5	8	19	21	31	29	19	18	14
24	6	5	2	5	8	7	1	0	11.3	14	11	5	13	22	20	2	1	11	14
25	4	2	3	3	7	8	11	12	16.7	10	4	7	7	20	26	42	52	21	19
26	10	7	5	9	10	9	7	6	21.0	34	18	12	27	38	27	19	16	24	26
27	4	8	8	9	10	8	7	8	20.7	10	26	24	32	35	21	20	25	24	23
28	7	6	6	9	6	4	5	8	17.0	18	15	16	29	14	8	13	26	17	17
29	6	4	3	4	6	6	4	4	12.3	15	10	6	8	14	14	8	10	11	10
																		18.0	

Table 9 - continued

FEB. 1980

	3 Kn								σn		an						An
1	4	3	4	5	5	5	11	9	4124	1413	10	6	9	11	12	11	42	30	16
2	6	8	8	7	7	4	3	1	0221	3211	15	23	24	17	17	8	6	2	14
3	1	2	2	2	2	1	0	3	1413	2212	3	5	5	4	4	3	1	6	4
4	2	3	6	5	2	0	1	1	3214	1221	5	6	16	13	5	1	2	2	6
5	0	0	1	1	3	4	3	2	2122	3312	1	1	2	3	7	8	6	4	4
6	1	9	12	13	15	15	16	7	2224	3242	2	31	54	61	95	89	116	17	58
7	5	5	8	4	10	7	10	10	1211	1342	12	13	23	10	35	17	39	36	23
8	9	10	7	11	11	9	5	8	4235	4422	29	34	17	44	45	30	11	25	29
9	5	7	8	8	8	8	9	6	1133	4454	11	17	25	23	25	24	33	15	22
10	3	4	4	1	0	2	2	2	0352	2334	6	10	9	3	1	4	5	5	5
11	1	4	3	3	4	3	3	1	3202	2242	3	10	7	7	10	6	6	2	6
12	2	0	1	3	4	0	1	3	2122	2122	4	1	2	6	9	1	2	6	4
13	2	0	0	2	3	2	3	4	3002	2322	4	0	0	5	7	5	6	8	4
14	4	9	8	13	11	11	9	4	2323	2331	9	31	22	64	42	45	27	10	31
15	5	5	6	6	8	9	15	17	2244	2133	13	13	15	16	23	28	94	128	41
16	15	14	14	14	13	9	10	6	3565	4544	89	73	82	76	66	32	38	15	59
17	4	3	5	3	5	4	5	5	2113	2323	8	7	11	6	12	8	11	11	9
18	8	4	7	7	7	6	9	8	4343	3252	22	8	19	19	18	14	27	24	19
19	9	10	6	2	3	1	1	3	2121	2322	27	36	16	4	7	3	2	6	13
20	5	3	4	6	5	5	3	4	4122	3133	12	7	9	16	11	13	7	8	10
21	4	2	2	3	3	3	3	5	2221	2123	9	5	4	7	7	6	6	11	7
22	3	3	2	3	2	5	3	4	1213	2312	6	7	4	6	5	12	6	10	7
23	4	2	4	7	7	10	9	7	1214	2243	9	4	8	20	20	37	29	17	18
24	6	4	2	6	8	8	1	0	4352	2321	14	9	5	14	23	23	2	1	11
25	4	1	3	3	7	9	11	11	2233	2133	8	2	6	7	20	27	44	47	20
26	9	6	4	8	10	8	8	7	2111	4222	32	16	10	21	37	26	23	17	23
27	5	7	8	9	10	9	8	8	3121	4323	11	19	23	32	40	27	21	25	25
28	7	6	7	10	7	4	5	8	2226	2323	17	15	19	34	18	9	13	26	19
29	6	5	3	4	6	6	4	4	3212	2332	15	11	6	10	15	16	10	10	12
																			17.9

FEB. 1980

	3 Ks								σs		as						As
1	4	4	8	6	5	5	10	9	3221	3432	9	10	21	16	13	13	38	30	19
2	6	7	8	6	5	2	2	1	2542	3322	15	18	24	14	12	5	4	2	12
3	1	2	4	2	1	1	1	2	3333	2233	3	5	9	5	2	2	2	4	4
4	3	2	8	6	2	1	1	2	4222	3223	7	5	26	15	5	2	2	4	8
5	2	2	3	4	3	3	3	1	2222	5463	4	5	7	8	7	6	7	3	6
6	2	12	13	12	14	14	16	7	3222	2222	5	54	68	59	76	86	116	18	60
7	7	8	9	5	10	5	10	9	2222	2234	19	21	32	12	40	13	37	32	26
8	9	9	6	10	9	9	2	8	3422	1223	27	30	15	37	33	28	5	26	25
9	6	8	8	6	8	6	8	4	2222	2242	14	22	21	15	22	16	23	10	18
10	3	6	5	1	0	2	2	3	2212	2543	7	14	11	3	1	5	4	6	6
11	3	5	5	4	2	2	2	2	3132	3434	6	13	11	8	4	4	5	5	7
12	1	1	0	2	4	0	1	2	3211	3233	3	3	1	5	10	1	2	4	4
13	2	2	1	3	4	3	4	4	3332	4534	5	4	3	6	8	7	9	10	7
14	4	12	10	13	11	11	9	5	2222	3243	10	53	34	69	41	42	28	11	36
15	6	8	5	6	8	9	17	18	5232	4466	14	22	13	15	25	29	122	158	50
16	15	12	13	14	10	8	9	7	0433	2434	94	51	64	72	35	23	28	17	48
17	5	4	6	3	7	5	4	6	3121	4534	12	10	14	6	17	11	10	14	12
18	6	2	4	6	6	4	7	7	4212	1424	15	4	10	15	15	10	17	20	13
19	8	11	5	2	3	1	0	2	4432	2224	25	42	13	4	6	2	1	5	12
20	4	2	3	5	3	5	3	2	5214	3353	8	4	7	13	7	13	6	4	8
21	2	2	3	4	4	2	4	5	3233	4424	4	5	7	8	8	5	8	12	7
22	4	5	3	5	2	4	1	6	3214	2333	8	13	6	12	5	10	2	15	9
23	4	3	4	7	8	8	9	8	3332	2336	10	7	9	19	21	26	28	21	18
24	6	5	2	5	8	6	0	1	3433	3523	15	12	5	11	21	16	1	2	10
25	5	3	3	4	7	8	10	12	3343	3423	12	7	7	8	20	25	40	57	22
26	10	7	6	9	10	9	6	6	2434	3334	35	19	14	32	39	29	16	15	25
27	4	9	8	9	9	6	7	8	3331	0433	10	33	26	31	30	16	18	25	24
28	7	6	5	8	4	3	5	9	3124	2333	19	16	12	25	10	6	12	27	16
29	6	4	3	3	6	5	3	5	4322	3432	14	9	7	6	14	12	6	11	10
																			18.0

Table 9 - continued

MAR. 1980

	3 Kn								σn								An
1	3	3	1	1	3	3	1	0	2122	1221	7	7	2	3	7	6	2	0	4
2	0	1	1	1	1	3	4	2	1311	3322	1	3	2	2	2	6	9	4	4
3	2	0	1	1	4	8	5	4	2222	3233	4	1	3	3	10	25	13	9	9
4	2	1	4	7	5	3	4	6	2233	3233	5	2	8	18	12	7	8	14	9
5	6	6	4	5	4	2	3	3	3123	3332	16	15	10	12	10	4	6	6	10
6	5	6	5	8	6	7	6	4	1221	3122	12	15	13	23	16	19	14	10	15
7	6	5	4	5	4	5	6	6	4323	3211	14	11	9	12	8	12	14	14	12
8	3	4	6	6	4	4	4	5	1332	2202	7	10	14	15	9	10	9	12	11
9	5	4	7	4	6	8	3	5	4334	2233	13	9	17	8	14	21	7	11	13
10	2	3	3	6	5	2	2	3	1222	2332	5	7	7	14	13	4	4	6	8
11	5	0	1	7	6	4	1	2	4122	2221	12	0	2	20	14	8	2	4	8
12	0	0	0	0	0	3	4	1	1011	1132	1	0	0	0	1	6	10	3	3
13	3	3	8	3	6	2	6	6	1122	2333	7	7	24	7	14	5	16	14	12
14	4	5	2	3	4	5	3	1	2112	2322	10	13	5	6	9	13	6	2	8
15	0	0	0	0	1	0	0	4	1011	2114	1	0	1	1	2	1	1	9	2
16	4	2	2	6	3	4	2	6	4212	1322	9	5	5	14	6	8	4	14	8
17	4	3	4	6	5	3	3	3	2132	3122	9	7	8	16	12	7	6	6	9
18	3	3	2	2	3	3	2	4	1322	3221	7	7	5	4	7	7	4	8	6
19	2	2	10	9	9	8	5	3	2223	1132	4	5	36	29	33	26	13	7	19
20	3	3	2	4	2	4	4	4	2322	3212	6	6	4	9	5	10	10	10	8
21	6	8	10	8	9	7	11	11	2543	3466	16	21	37	23	31	20	47	45	30
22	7	8	9	9	11	9	4	7	3242	2725	18	21	31	30	49	32	9	19	26
23	6	6	2	5	3	3	4	0	1413	1131	14	15	5	12	7	7	9	0	9
24	1	2	4	5	4	6	1	4	2322	2232	3	5	10	13	10	14	3	10	9
25	2	0	1	1	5	5	6	10	1122	2123	5	1	2	2	11	11	15	37	11
26	13	14	11	11	12	6	9	9	2233	1123	62	80	43	44	51	15	27	28	44
27	8	3	4	4	4	4	4	5	3422	4233	21	6	9	10	9	8	8	13	11
28	5	5	6	4	6	3	4	6	2322	1122	11	13	16	9	16	7	8	16	12
29	6	6	6	3	4	7	7	7	2241	3323	14	16	15	7	9	17	17	18	14
30	8	8	9	6	5	3	3	10	4522	3424	24	24	27	14	13	6	6	38	19
31	9	10	10	11	10	8	6	10	3231	3241	30	39	35	49	34	23	16	38	33
																			12.6

MAR. 1980

	3 Ks								σs								As
1	4	3	2	1	1	2	0	1	4231	2412	8	7	5	2	2	5	1	2	4
2	1	0	2	0	1	1	2	1	2121	2222	3	1	4	1	3	2	4	3	3
3	1	1	1	1	3	7	3	3	4222	3244	3	3	3	2	7	18	6	6	6
4	2	1	3	7	4	2	2	4	3223	2444	5	2	7	20	8	5	4	8	7
5	5	7	4	5	4	1	2	3	4544	4234	13	17	9	12	8	3	4	7	9
6	7	9	8	8	7	7	5	5	4121	3343	17	27	21	22	18	18	12	11	18
7	6	5	4	4	2	3	6	6	3333	3443	16	13	10	10	5	7	14	15	11
8	3	5	5	6	3	3	3	3	3421	2333	7	13	13	14	6	6	7	7	9
9	5	4	6	1	6	7	2	4	1342	2234	13	10	16	3	14	17	5	8	11
10	3	5	4	5	5	2	1	2	4232	2224	6	12	9	13	13	4	2	4	8
11	5	1	1	7	6	4	1	2	2212	2422	11	2	2	17	15	8	2	4	8
12	1	0	1	0	0	2	4	1	2121	0352	2	1	2	1	0	4	8	2	3
13	5	4	9	2	4	1	4	5	2433	3234	11	10	31	4	10	3	10	12	11
14	5	5	4	2	2	4	2	0	5242	2220	11	12	8	4	5	9	4	0	7
15	0	0	0	0	0	0	0	4	0000	0015	0	0	0	0	0	0	1	8	1
16	3	2	2	6	3	2	3	5	3324	3434	7	4	4	14	6	4	6	11	7
17	4	4	3	6	4	2	3	2	4331	3343	9	10	7	14	9	4	6	5	8
18	3	3	1	0	1	1	1	1	2131	3443	7	7	3	1	2	3	3	3	4
19	1	3	11	9	8	7	4	2	2222	4223	2	6	44	28	22	17	10	4	17
20	2	3	1	2	1	3	4	4	2222	2335	4	6	3	4	2	6	9	9	5
21	6	7	9	8	8	8	10	10	3335	2265	15	17	33	21	24	21	39	36	26
22	7	8	8	8	11	8	2	6	3232	2346	19	24	23	25	46	22	5	16	23
23	5	5	2	4	2	1	1	0	1333	2321	13	11	4	10	4	3	2	1	6
24	1	3	5	5	5	5	1	3	2222	4324	2	6	12	12	11	11	2	7	8
25	2	2	0	0	1	2	6	9	4221	2448	5	4	1	1	3	5	14	33	8
26	14	13	9	11	11	5	7	9	6503	4237	72	69	30	44	44	12	17	33	40
27	7	3	4	4	1	3	1	4	5232	3335	20	6	9	10	3	7	3	8	8
28	4	6	6	2	4	2	3	6	2213	3334	10	14	16	5	9	4	7	15	10
29	6	6	6	2	1	5	5	6	2342	3233	14	15	15	5	3	11	11	14	11
30	8	8	8	5	5	1	1	10	7423	3333	23	24	24	11	12	3	3	35	17
31	8	11	10	11	8	8	4	9	2143	2443	22	42	37	41	26	22	10	30	29
																			11.1

Table 9 - continued

$\bar{am} = 3.8$

MAR. 1980

	3 Km								Σ Km	am							Am	Am2
1	3	3	1	1	2	2	0	0	4.0	7	7	3	2	5	5	1	1	4	5
2	1	1	1	0	1	2	3	1	3.3	2	2	3	1	2	4	6	3	3	3
3	1	1	1	1	4	8	4	3	7.7	3	2	3	2	9	22	9	7	7	7
4	2	1	3	7	4	3	3	5	9.3	5	2	7	19	10	6	6	11	8	10
5	6	6	4	5	4	1	2	3	10.3	14	16	9	12	9	3	5	6	9	11
6	6	8	7	8	7	7	5	4	17.3	15	21	17	23	17	19	13	10	17	13
7	6	5	4	5	3	4	6	6	13.0	15	12	10	11	7	9	14	14	12	12
8	3	5	5	6	3	4	4	4	11.3	7	11	13	14	7	8	8	9	10	10
9	5	4	7	3	6	7	3	4	13.0	13	9	17	6	14	19	6	9	12	10
10	3	4	4	6	5	2	1	2	9.0	6	9	8	14	13	4	3	5	8	9
11	5	0	1	7	6	4	1	2	8.7	11	1	2	19	14	8	2	4	8	6
12	0	0	0	0	0	2	4	1	2.3	1	0	1	1	1	5	9	2	3	6
13	4	4	9	2	5	2	5	5	12.0	9	9	27	5	12	4	13	13	12	9
14	4	5	3	2	3	5	2	0	8.0	10	13	7	5	7	11	5	1	7	6
15	0	0	0	0	0	0	0	4	1.3	0	0	0	0	1	1	1	9	2	4
16	4	2	2	6	3	3	2	5	9.0	8	4	5	14	6	6	5	13	8	7
17	4	4	3	6	5	3	3	3	10.3	9	9	7	15	11	6	6	6	9	7
18	3	3	2	1	2	2	2	2	5.7	7	7	4	2	5	5	4	5	5	9
19	1	2	10	9	9	8	5	2	15.3	3	5	40	29	27	21	12	5	18	11
20	2	3	1	3	1	4	4	4	7.3	5	6	3	6	3	8	9	9	6	13
21	6	7	10	8	9	8	11	10	23.0	16	19	35	22	28	21	43	40	28	22
22	7	8	9	9	11	9	3	7	21.0	18	22	27	28	47	27	7	17	24	23
23	5	5	2	5	3	2	3	0	8.3	13	13	5	11	6	5	6	1	8	12
24	1	3	5	5	4	5	1	4	9.3	3	6	11	13	10	12	2	8	8	6
25	2	1	0	1	3	4	6	10	9.0	5	2	1	2	7	8	14	35	9	21
26	13	14	10	11	11	5	8	9	27.0	67	75	36	44	48	13	22	30	42	28
27	8	3	4	4	3	4	3	4	11.0	21	6	9	10	6	8	6	10	10	15
28	5	6	6	3	5	2	3	6	12.0	11	14	16	7	13	5	7	15	11	11
29	6	6	6	3	3	6	6	6	14.0	14	15	15	6	6	14	14	16	13	14
30	8	8	8	5	5	2	2	10	16.0	24	24	25	13	13	4	4	37	18	21
31	8	10	10	11	9	8	5	10	23.7	26	40	36	45	30	22	13	34	31	20
																		11.9	

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	3 Km								Σ Km	am							Am	Am2
1	5	1	2	0	5	4	2	1	6.7	13	2	5	1	12	8	5	2	6	10
2	2	2	0	1	1	1	1	4	4.0	4	4	1	2	3	3	3	10	4	6
3	4	6	4	5	4	7	6	2	12.7	9	16	8	13	9	17	16	5	12	11
4	1	4	8	8	6	8	7	2	14.7	3	9	22	26	16	25	19	5	16	12
5	3	4	2	2	6	9	5	3	11.3	6	9	4	4	14	32	11	6	11	14
6	1	6	4	11	11	12	12	10	22.3	3	16	8	45	46	57	59	36	34	26
7	8	7	9	5	8	5	12	11	21.7	24	20	28	12	23	13	52	46	27	34
8	9	10	8	9	12	7	4	8	22.3	32	39	24	31	52	20	10	25	29	35
9	8	12	11	14	12	9	4	6	25.3	22	53	41	73	56	30	9	14	37	37
10	10	12	10	12	7	6	5	8	23.3	37	56	40	60	20	14	13	22	33	31
11	8	8	12	9	8	11	15	13	28.0	25	21	56	30	21	48	98	67	46	37
12	13	10	8	8	9	11	8	14	27.0	63	35	26	26	31	41	24	71	40	43
13	12	9	9	8	6	8	8	4	21.3	51	32	32	23	15	22	21	9	26	25
14	2	4	3	1	4	6	7	10	12.3	4	9	7	2	10	16	20	37	13	20
15	12	9	10	9	5	9	10	11	25.0	53	30	34	27	11	30	35	43	33	27
16	8	8	8	5	6	8	5	9	19.0	21	24	21	12	14	23	13	31	20	22
17	9	9	5	2	4	6	6	5	15.3	31	28	13	4	8	14	15	13	16	15
18	2	6	2	4	1	1	1	4	7.0	5	14	5	8	3	3	3	9	6	8
19	1	1	3	3	3	4	4	5	8.0	3	3	7	7	6	8	9	11	7	7
20	6	4	1	3	4	2	6	5	10.3	15	10	2	7	8	4	14	13	9	8
21	4	4	2	3	1	2	3	3	7.3	10	8	4	6	3	5	7	6	6	9
22	8	8	2	4	6	5	4	4	13.7	24	24	5	10	15	11	9	10	14	11
23	8	5	2	2	5	4	2	5	11.0	21	13	5	4	11	9	4	13	10	11
24	8	6	2	1	2	7	3	5	11.3	21	15	4	3	4	20	7	11	11	12
25	7	8	6	7	9	5	2	2	15.3	18	21	14	17	30	11	5	5	15	12
26	3	6	5	1	5	3	3	4	10.0	6	16	12	2	13	6	7	9	9	9
27	1	4	2	2	4	4	3	7	9.0	3	8	4	5	8	9	6	20	8	8
28	5	4	1	4	5	4	2	2	9.0	11	9	3	9	11	10	4	5	8	9
29	4	4	5	4	4	3	3	4	10.3	8	9	12	8	9	6	7	8	8	8
30	4	6	3	4	3	4	4	4	10.7	8	14	6	9	7	8	8	8	9	9
																		17.4	

Table 9 - continued

APR. 1980

	3 Kn								σn								An
1	5	1	2	1	5	4	2	0	1212 5321	12	3	4	3	13	10	5	1	6
2	2	2	0	1	1	2	2	5	2211 2122	5	4	0	3	3	4	5	12	5
3	4	7	4	7	5	7	7	4	3323 2331	10	17	10	18	11	19	18	8	14
4	1	4	8	9	7	8	7	3	3232 3122	3	8	24	27	19	26	20	7	17
5	3	5	2	2	7	9	5	3	2122 2133	7	11	4	4	17	33	13	7	12
6	2	6	4	12	12	13	14	11	3133 3133	4	16	10	53	59	68	71	42	40
7	9	8	9	6	9	6	12	11	2412 2233	27	22	31	14	28	16	59	47	31
8	9	10	8	9	12	8	5	9	1321 3133	33	38	23	33	53	22	12	29	30
9	8	12	11	14	13	9	5	6	2333 5222	22	55	41	79	64	31	11	16	40
10	11	12	11	14	8	7	6	8	3333 2323	43	59	42	72	24	18	15	26	37
11	8	8	12	9	7	12	15	13	2113 2353	26	22	56	29	19	57	95	66	46
12	13	10	8	9	10	12	9	14	3242 2333	68	35	26	27	36	51	27	79	44
13	13	9	10	8	8	8	8	5	2322 3223	65	29	36	24	21	25	24	11	29
14	2	5	4	2	4	7	8	10	1322 2222	4	12	9	4	10	20	22	39	15
15	12	10	10	10	6	9	10	11	3232 1133	55	35	39	34	15	31	35	41	36
16	7	8	7	5	6	8	7	9	4433 2333	20	22	20	13	15	24	17	27	20
17	9	9	6	3	5	7	7	6	3623 3123	28	28	14	6	11	17	18	16	17
18	3	6	3	4	2	2	2	5	3423 2233	6	15	6	8	5	5	5	11	8
19	2	2	4	4	3	4	5	5	2222 1232	5	4	8	10	7	10	12	12	9
20	6	5	2	4	4	3	6	7	3121 2122	14	12	4	8	9	6	16	17	11
21	4	4	3	4	2	3	4	3	2222 3233	10	9	7	8	4	7	9	7	8
22	9	7	3	6	7	6	5	5	2231 3122	27	19	6	14	20	16	11	12	16
23	7	5	3	3	6	6	4	6	3122 1223	19	12	6	7	15	14	8	15	12
24	7	5	2	2	3	8	5	6	5213 2432	18	12	4	5	6	22	11	14	12
25	8	8	6	6	9	6	3	4	3344 3212	21	21	15	15	33	15	6	9	17
26	4	6	5	2	6	4	4	6	3332 2121	9	16	12	4	15	9	9	14	11
27	2	3	2	3	5	5	4	9	3241 2211	4	7	5	7	12	13	9	28	11
28	5	4	2	4	5	5	3	4	2313 2311	12	10	5	10	12	13	7	8	10
29	4	5	6	5	5	4	5	5	2122 2221	8	11	14	12	12	9	11	12	11
30	4	6	4	5	4	5	5	4	1232 2211	9	15	9	12	9	11	12	9	11
																		19.5

APR. 1980

	3 Ks								σs								As
1	6	0	2	0	5	3	2	1	5120 7234	14	1	5	0	12	7	5	3	6
2	1	1	0	1	1	1	1	4	4312 2222	3	3	1	2	3	2	2	8	3
3	4	6	3	4	4	6	6	1	1122 2123	8	16	6	9	8	16	14	3	10
4	1	4	7	8	5	8	7	2	2333 1433	2	10	20	26	13	23	19	4	15
5	2	4	2	2	5	9	4	2	2111 3234	5	8	5	5	11	31	8	5	10
6	1	6	3	10	10	11	11	9	2312 3223	3	16	7	37	34	45	48	30	28
7	8	7	8	4	7	5	11	11	3222 2236	21	18	26	10	17	11	46	45	24
8	9	10	8	9	11	7	4	8	2222 4212	30	40	24	29	50	17	8	22	28
9	8	12	11	13	11	9	3	5	2524 4233	22	52	41	67	47	29	7	12	35
10	9	12	10	11	7	4	5	7	4533 2542	31	53	37	48	17	9	11	17	28
11	8	7	12	9	8	10	15	13	4224 3255	24	20	57	31	23	38	101	69	45
12	12	10	9	8	9	9	8	13	4231 4143	58	35	27	24	27	32	21	63	36
13	10	10	9	8	4	7	7	3	2322 3534	38	35	29	21	9	20	18	7	22
14	1	3	2	0	4	5	7	10	3321 4234	3	7	5	1	9	12	17	35	11
15	11	8	9	8	3	9	10	11	5322 6056	50	24	30	21	7	30	35	45	30
16	8	8	8	5	5	8	4	10	6442 2246	22	26	23	11	12	23	10	34	20
17	10	9	5	1	3	4	5	4	6412 2255	34	29	13	2	6	10	12	10	15
18	2	6	2	4	0	0	0	3	3433 1205	4	14	5	8	1	1	0	7	5
19	1	1	2	2	2	3	2	4	2323 2436	2	2	5	4	4	7	5	10	5
20	6	4	0	3	3	1	5	4	6201 5225	16	9	0	6	7	2	11	10	8
21	4	3	1	2	1	1	2	2	4222 2234	10	6	2	4	2	3	4	5	5
22	8	9	2	3	4	3	3	4	2332 2435	22	29	5	7	10	7	7	8	12
23	8	6	2	1	3	2	0	4	7231 3416	22	14	4	2	7	5	0	10	8
24	8	7	1	0	1	7	2	4	7421 3335	24	18	3	1	3	18	4	9	10
25	6	7	5	7	9	4	1	1	1244 3432	16	20	12	20	28	8	3	2	14
26	1	6	5	0	5	1	2	2	2451 2343	3	16	12	1	12	3	5	5	7
27	1	4	1	2	2	2	2	5	2321 3433	2	9	3	4	5	5	4	12	6
28	4	4	0	3	4	3	0	1	3312 2212	9	8	0	7	10	7	0	2	5
29	4	4	4	2	2	1	1	2	1133 3322	8	8	10	5	5	3	3	4	6
30	4	6	2	3	3	2	2	3	2431 3222	8	14	4	6	6	5	5	7	7
																		15.5

Table 9 - continued

MAY 1980

	3 Kn								σn								An
1	8	5	3	5	7	8	8	5	2222 3223	23	13	6	12	20	23	22	11	16
2	4	3	5	4	3	4	3	2	1322 4213	10	6	12	8	6	9	7	5	8
3	1	1	4	4	3	1	2	4	2232 2232	2	2	9	8	6	3	5	9	6
4	1	4	3	5	6	4	2	2	3123 1422	2	10	6	12	15	10	5	5	8
5	0	2	5	5	6	6	7	8	1211 2242	0	4	12	12	16	16	20	24	13
6	7	7	9	8	8	6	7	7	5342 2323	19	17	31	22	23	15	20	19	21
7	2	1	8	7	7	8	10	7	4231 1253	4	3	24	17	17	22	39	18	18
8	8	7	6	3	4	4	4	5	5453 3212	22	19	16	6	9	8	9	11	13
9	8	8	6	10	8	8	12	11	2122 1322	25	26	15	35	25	22	55	44	31
10	10	4	5	6	5	5	7	7	2222 2212	37	10	13	15	13	12	19	20	17
11	11	7	10	11	11	11	14	15	2533 3132	42	20	39	46	41	49	77	92	51
12	12	13	9	9	8	8	8	9	2323 2112	59	61	29	29	21	21	22	27	34
13	6	7	7	6	4	6	9	13	1212 4213	16	17	18	16	9	16	28	61	23
14	11	10	7	7	7	8	11	8	4124 2432	42	35	19	19	18	21	42	21	27
15	3	6	8	8	4	1	3	5	1233 2312	7	14	24	21	9	3	7	11	12
16	3	4	5	4	2	1	1	1	2421 2222	7	9	11	9	5	3	2	2	6
17	0	0	1	0	1	2	4	5	1121 2113	0	0	3	1	2	5	8	11	4
18	1	0	2	6	4	7	5	3	2021 2333	2	0	5	14	10	17	11	6	8
19	1	2	6	6	9	8	6	6	2232 1224	3	5	15	14	31	23	16	14	15
20	6	4	5	4	5	4	4	1	3323 2322	15	9	11	10	11	10	9	3	10
21	1	0	3	4	4	4	5	7	2222 2222	2	1	6	10	8	8	11	18	8
22	4	5	6	6	8	7	4	4	2132 4331	9	11	16	15	22	20	10	9	14
23	6	7	4	6	12	9	5	5	4232 3263	15	18	9	14	52	27	13	13	20
24	5	3	3	7	8	10	11	11	3212 2222	13	7	7	19	24	34	46	46	25
25	9	9	14	14	17	10	5	7	2233 5620	29	27	79	79	122	38	11	19	51
26	7	3	7	8	3	4	5	8	4342 3322	20	7	18	23	7	8	13	22	15
27	4	4	4	3	2	3	3	1	2223 3422	9	8	8	7	4	6	6	2	6
28	4	3	3	6	5	6	4	2	1222 2243	9	7	6	15	11	14	8	4	9
29	2	1	4	4	3	5	9	6	2212 2321	5	3	8	10	7	13	32	14	12
30	8	6	10	7	7	8	8	7	2233 4133	21	15	35	18	20	26	25	19	22
31	7	9	6	6	9	10	6	13	3312 3321	18	28	16	15	28	37	16	69	28
																		17.8

MAY 1980

	3 Ks								σs								As
1	8	6	2	4	5	6	5	2	2132 3023	22	14	5	9	12	15	13	5	12
2	2	2	5	2	1	1	1	0	3532 2320	5	5	12	4	2	3	2	0	4
3	0	1	2	1	0	0	0	1	1322 0113	1	3	4	3	0	1	1	3	2
4	0	4	1	2	5	1	0	0	1321 3211	1	10	2	5	11	3	1	1	4
5	0	1	4	4	3	2	7	8	0233 2255	0	2	9	10	7	4	19	26	10
6	7	7	9	6	8	2	5	7	4221 3235	19	20	33	15	21	5	13	19	18
7	1	0	7	4	4	7	8	4	2121 4144	2	1	17	8	8	20	21	9	11
8	7	8	5	0	1	1	2	3	5531 2242	17	23	11	1	2	2	5	6	8
9	8	7	7	9	8	8	10	9	1242 1427	22	20	17	32	26	22	37	28	26
10	9	4	4	4	1	2	4	5	4321 2343	29	9	9	8	3	5	10	12	11
11	9	5	11	12	10	9	12	14	3213 2145	33	11	45	52	37	33	52	77	43
12	14	13	8	7	7	6	8	8	6622 4224	72	62	22	20	18	14	21	21	31
13	7	6	6	4	1	3	6	11	3502 1543	18	16	15	9	2	6	16	47	16
14	11	10	6	4	5	5	8	7	6543 1234	47	36	14	9	12	11	22	20	21
15	3	4	7	4	2	0	1	3	2241 5114	6	10	19	10	5	1	2	6	7
16	4	3	5	2	1	0	0	0	4332 2001	10	7	11	4	2	0	0	1	4
17	0	0	0	0	0	1	0	2	0011 0214	0	0	0	1	0	2	1	5	1
18	0	0	1	3	2	1	0	0	1123 2221	1	0	3	7	4	3	1	1	3
19	0	1	4	4	7	8	6	2	2332 3243	1	3	9	9	20	21	14	5	10
20	5	4	3	3	2	1	0	0	4332 1221	11	8	6	7	4	3	1	1	5
21	1	0	1	3	0	1	0	3	2121 1223	3	1	2	6	1	2	1	7	3
22	1	4	4	3	3	4	1	1	2222 0223	3	8	10	6	7	10	2	3	6
23	5	6	3	2	9	8	2	4	5342 2525	11	14	6	4	29	21	4	8	12
24	4	2	2	5	5	7	9	9	6334 4325	9	4	5	13	13	18	33	31	16
25	9	8	14	15	15	8	3	5	5312 3333	33	25	77	92	95	25	7	12	46
26	6	2	4	5	1	1	1	5	5321 1223	15	4	10	13	2	2	3	13	8
27	3	3	0	0	0	0	0	0	5211 0121	6	7	1	1	0	1	1	1	2
28	2	2	1	3	1	2	1	1	3322 2222	5	4	2	6	3	4	2	2	4
29	0	0	1	1	2	0	7	3	1123 1144	1	1	3	3	4	1	17	6	5
30	6	5	9	5	2	4	4	4	3331 2222	16	13	27	11	4	10	10	9	13
31	7	9	7	5	7	9	3	13	4533 4546	19	32	19	12	17	30	7	67	25
																		12.5

Table 9 - continued

MAY 1980

	3 Km								Σ Km	am							Am	Am2
1	8	6	2	4	6	7	7	4	14.7	23	14	5	10	16	19	18	8	14	11
2	3	2	5	3	2	3	2	1	7.0	7	5	12	6	4	6	5	3	6	8
3	0	1	3	3	1	1	1	3	4.3	1	2	6	6	3	2	3	6	4	4
4	0	4	2	4	5	3	1	1	6.7	1	10	4	8	13	7	3	3	6	6
5	0	1	5	5	5	4	7	8	11.7	0	3	11	11	12	10	20	25	12	13
6	7	7	9	7	8	4	6	7	18.3	19	19	32	18	22	10	16	19	19	16
7	1	1	8	5	5	8	9	6	14.3	3	2	21	12	13	21	30	14	15	15
8	7	8	6	2	3	2	3	4	11.7	19	21	14	4	6	5	7	8	11	16
9	8	8	6	10	8	8	11	10	23.0	23	23	16	34	25	22	46	36	28	20
10	9	4	5	5	4	4	6	6	14.3	33	10	11	11	8	9	15	16	14	24
11	10	6	11	11	10	11	13	14	28.7	37	16	42	49	39	41	65	84	47	37
12	13	13	8	8	7	7	8	8	24.0	66	62	25	25	19	17	21	24	32	34
13	7	7	7	5	2	5	8	12	17.7	17	17	17	12	5	11	22	54	19	22
14	11	10	7	6	6	6	9	7	20.7	45	35	17	14	15	16	32	20	24	21
15	3	5	8	6	3	1	2	4	10.7	7	12	21	15	7	2	4	9	10	12
16	4	4	5	3	1	1	0	0	6.0	9	8	11	7	3	2	1	1	5	4
17	0	0	0	0	0	1	2	4	2.3	0	0	1	1	1	3	4	8	2	3
18	1	0	2	4	3	4	3	1	6.0	2	0	4	10	7	10	6	3	5	6
19	1	2	5	5	8	8	6	4	13.0	2	4	12	12	26	22	15	10	13	11
20	5	4	4	4	4	3	2	1	9.0	13	9	9	8	8	7	5	2	8	9
21	1	0	2	4	2	2	3	5	6.3	3	1	4	8	4	5	6	13	6	7
22	3	4	5	5	6	6	3	3	11.7	6	9	13	11	14	15	6	6	10	10
23	5	6	4	4	11	8	4	4	15.3	13	16	8	9	41	24	8	10	16	13
24	5	2	3	6	7	8	10	10	17.0	11	5	6	16	19	26	39	39	20	29
25	9	8	14	14	16	9	4	6	26.7	31	26	78	85	109	31	9	15	48	35
26	7	3	6	7	2	2	4	7	12.7	17	6	14	18	4	5	8	17	11	17
27	4	4	2	2	1	1	2	0	5.3	8	8	4	4	2	3	4	1	4	6
28	3	2	2	4	3	4	2	1	7.0	7	5	4	10	7	9	5	3	6	5
29	1	1	3	3	3	3	8	4	8.7	3	2	6	6	6	7	24	10	8	10
30	7	6	9	6	5	7	7	6	17.7	18	14	31	14	12	18	17	14	17	17
31	7	9	7	6	8	9	5	13	21.3	18	30	18	14	23	33	12	68	27	28
																		15.1	

JUNE 1980

	3 Km								Σ Km	am							Am	Am2
1	8	9	11	13	10	8	9	10	26.0	24	32	45	64	38	26	27	37	37	30
2	7	3	2	6	3	2	3	5	10.3	20	7	5	16	7	5	6	12	10	17
3	7	3	5	8	8	5	6	5	15.7	17	7	13	22	25	13	14	12	15	12
4	3	1	7	5	3	5	2	4	10.0	7	3	17	11	6	12	4	9	9	10
5	3	1	4	4	1	1	2	2	6.0	6	2	10	10	3	3	5	4	5	7
6	3	1	2	8	9	11	8	12	18.0	6	3	5	21	31	44	23	58	24	22
7	10	10	9	9	10	9	11	12	26.7	39	37	33	30	37	32	45	60	39	41
8	12	10	11	10	11	6	7	5	24.0	59	38	46	40	42	16	17	11	34	32
9	6	4	4	10	7	5	9	11	18.7	14	8	9	37	19	12	27	48	22	27
10	11	10	11	11	10	12	12	11	29.3	46	39	46	45	37	52	51	49	46	45
11	11	10	14	14	15	13	13	14	34.7	44	37	83	77	95	70	67	81	69	57
12	12	10	10	10	10	9	12	13	28.7	53	38	39	37	40	30	51	63	44	53
13	11	11	12	11	9	10	10	12	28.7	49	42	51	42	29	35	36	53	42	37
14	9	4	6	5	7	6	6	7	16.7	31	9	14	11	17	15	15	17	16	19
15	3	5	3	2	3	3	4	3	8.7	6	12	6	5	6	6	8	6	7	10
16	3	3	4	5	7	9	5	5	13.7	7	7	8	12	18	27	12	11	13	9
17	2	3	1	1	1	1	1	1	3.7	5	6	2	2	2	2	2	3	3	6
18	1	1	1	2	2	3	1	2	4.3	2	3	2	4	5	6	3	5	4	5
19	2	5	5	4	4	6	8	7	13.7	4	13	12	9	9	14	23	17	13	9
20	2	3	3	4	5	4	4	2	9.0	4	6	7	10	12	10	9	4	8	10
21	4	3	3	6	4	8	4	4	12.0	9	6	7	14	9	21	9	8	10	10
22	5	4	4	3	4	4	4	6	11.3	13	9	8	6	8	9	10	14	10	10
23	6	4	3	3	5	3	3	3	10.0	15	10	6	6	13	7	7	7	9	14
24	10	8	9	9	8	7	6	8	21.7	37	24	29	27	21	17	16	21	24	19
25	8	7	7	7	5	4	8	8	18.0	22	20	18	17	11	8	21	21	17	18
26	10	5	5	6	10	9	11	8	21.3	38	13	13	14	35	30	41	25	26	18
27	5	1	3	1	1	2	1	2	5.3	12	3	6	3	2	4	2	4	5	12
28	4	2	2	2	1	2	1	2	5.3	8	4	4	4	3	4	2	4	4	4
29	2	1	3	4	2	3	4	6	8.3	4	3	6	8	5	7	8	14	7	7
30	7	4	4	3	4	4	6	7	13.0	19	8	9	6	8	8	14	18	11	10
																		19.4	

Table 9 - continued

JUNE 1980

	3 Kn								σn		an						An
1	8	9	11	13	11	9	9	10	1324	5343	22	30	41	63	44	27	30	40	37
2	8	4	3	8	4	4	4	6	2233	4212	23	9	6	23	10	8	9	16	13
3	7	4	6	9	9	7	8	6	3223	3222	19	8	14	28	28	18	22	15	19
4	4	2	7	5	4	7	3	5	2131	2123	8	5	20	13	10	17	7	13	12
5	3	1	5	5	3	3	4	4	3233	3331	7	2	12	12	7	6	9	8	8
6	4	2	3	8	10	12	9	14	1123	3422	9	4	6	21	40	56	31	74	30
7	11	11	10	10	11	11	11	12	2231	4423	44	44	37	35	46	42	50	61	45
8	13	11	11	11	11	8	8	6	4215	2321	64	41	44	42	43	21	22	16	37
9	6	4	5	10	8	6	9	12	1232	3343	16	8	11	35	24	16	27	52	24
10	11	11	11	11	11	13	13	13	2443	1212	49	44	45	45	47	64	63	61	52
11	10	9	14	14	15	14	14	14	2113	1443	37	31	85	81	103	73	71	83	71
12	12	10	11	11	10	10	11	12	4333	5431	55	40	43	43	39	38	49	59	46
13	11	11	12	11	9	11	11	12	1343	4232	47	43	58	46	29	44	43	52	45
14	10	3	7	6	8	8	7	7	2153	3312	39	7	17	15	22	21	20	18	20
15	4	6	3	3	4	4	5	4	3343	2321	9	15	7	6	10	9	13	9	10
16	4	4	5	6	8	10	6	6	2223	3543	9	9	11	16	26	34	16	15	17
17	4	4	1	2	2	1	1	2	3321	2221	8	8	3	5	4	3	3	5	5
18	2	2	1	3	3	4	2	4	2213	3344	4	4	3	6	6	9	5	8	6
19	3	6	5	5	5	7	9	8	2221	3322	6	14	13	13	13	20	31	22	17
20	3	4	4	6	7	7	6	3	2222	2234	6	8	9	14	18	18	15	7	12
21	5	4	4	7	5	8	5	5	1222	3423	12	9	9	18	12	25	11	12	14
22	6	4	4	4	5	6	6	7	2222	3442	15	10	9	10	13	15	16	20	14
23	7	5	4	4	7	5	5	4	3222	2332	18	13	8	10	20	12	12	9	13
24	11	9	10	9	8	8	7	9	2333	3332	41	29	37	32	26	22	20	27	29
25	9	7	7	7	7	5	9	8	2233	2332	28	20	18	18	18	13	29	26	21
26	10	6	7	7	10	9	11	8	2332	3233	39	15	18	18	39	32	48	26	29
27	5	2	4	2	2	3	1	2	2032	1223	11	4	8	5	4	6	3	5	6
28	4	3	3	3	3	3	2	3	2213	2221	9	6	6	7	6	7	4	6	6
29	3	3	4	5	4	4	4	7	1322	2223	7	6	9	11	8	9	10	17	10
30	7	4	5	4	4	4	7	7	4322	2234	20	10	12	8	9	10	17	20	13
																			22.7

JUNE 1980

	3 Ks								σs		as						As
1	8	10	11	13	9	8	8	10	6444	2134	26	34	50	65	32	25	24	34	36
2	7	3	2	4	1	1	2	4	5312	2233	18	6	4	9	3	2	4	8	7
3	6	3	5	7	8	4	3	4	5441	3344	16	7	13	17	22	9	6	8	12
4	2	1	6	4	1	3	1	2	4121	2233	5	2	15	8	2	7	2	5	6
5	3	0	4	4	0	0	0	0	3111	0121	6	1	8	8	0	1	1	1	3
6	2	1	2	7	8	9	6	11	2223	3543	4	2	5	20	21	32	14	43	18
7	10	9	9	8	9	8	10	12	1301	1243	34	30	30	26	28	23	40	59	34
8	12	10	11	10	11	5	5	3	4422	1431	54	35	48	39	42	11	13	7	31
9	5	4	4	10	6	4	9	11	2343	1347	11	8	8	39	14	9	28	45	20
10	11	10	11	11	9	10	10	10	8242	2332	44	34	47	45	27	39	39	38	39
11	12	11	14	14	15	13	13	14	4325	5347	51	43	80	73	88	68	63	79	68
12	12	10	10	9	11	8	12	13	6322	1226	52	37	35	32	41	22	53	68	43
13	12	11	11	10	9	8	9	12	4344	3105	51	41	45	37	29	26	30	54	39
14	8	4	5	3	5	4	5	6	2310	1243	22	10	11	7	12	10	11	16	12
15	2	4	3	2	1	1	1	2	3344	2342	4	10	6	5	2	3	3	4	5
16	2	2	2	4	5	7	3	4	3331	2424	5	5	5	8	11	20	7	8	9
17	0	2	0	0	0	0	0	0	2510	1111	1	4	1	0	1	1	1	1	1
18	0	1	0	1	1	1	1	1	0212	1212	0	2	1	2	3	2	2	3	2
19	1	5	5	2	3	4	6	5	2242	1423	2	13	11	5	6	8	15	13	9
20	1	2	2	3	3	1	1	0	1312	2221	2	5	5	6	6	2	3	1	4
21	2	1	2	4	2	7	3	2	2222	1343	5	3	5	9	5	17	6	4	7
22	5	3	3	1	1	1	2	4	4222	2134	12	7	6	2	3	2	4	9	6
23	5	3	1	1	3	1	1	2	5423	2324	12	7	3	3	7	3	3	5	5
24	9	7	8	8	6	5	5	6	2222	2344	33	19	21	22	16	12	13	16	19
25	6	7	7	6	2	2	5	6	3435	2345	16	20	18	16	5	4	13	16	14
26	10	5	4	4	9	9	10	8	3411	4136	38	11	8	10	30	28	34	23	23
27	6	1	1	0	0	1	0	2	4221	0203	14	3	3	0	0	2	0	4	3
28	4	1	0	0	0	0	0	0	5211	0101	8	2	1	1	0	1	0	1	2
29	1	0	1	2	1	2	3	5	1122	2336	2	1	3	5	2	5	6	11	4
30	7	3	3	2	3	3	5	6	5335	2366	17	7	6	5	7	7	11	16	10
																			16.4

Table 9 - continued

JULY 1980

	3 Kn								σn	an							An
1	6	4	4	2	4	3	2	6	3311 2433	14	8	8	5	8	7	5	14	9
2	3	0	2	4	1	2	4	4	2133 3332	6	1	5	8	3	5	10	8	6
3	3	4	4	5	6	3	2	4	2132 1435	7	9	8	12	14	7	5	9	9
4	2	2	7	8	8	8	5	6	4142 2421	4	5	20	25	22	26	13	16	16
5	9	10	8	9	11	10	10	7	3332 2111	27	38	24	31	41	37	37	17	32
6	7	4	5	9	10	8	8	9	2142 3422	18	9	13	33	34	25	22	29	23
7	8	6	10	10	8	9	8	8	1133 2222	22	15	37	39	24	28	24	21	26
8	10	6	5	6	7	7	8	9	3121 2311	35	16	12	16	18	20	26	30	22
9	8	7	7	8	6	5	6	3	3223 2222	22	20	20	25	14	11	15	7	17
10	1	3	0	4	5	5	5	4	3221 3232	3	7	1	8	13	11	11	9	8
11	5	8	4	5	12	6	8	9	3332 3213	13	23	9	12	53	16	22	30	22
12	5	3	4	4	3	7	4	5	2422 2231	13	7	8	8	7	18	9	12	10
13	7	8	8	4	7	9	5	5	2311 3434	18	25	22	9	18	29	11	11	18
14	7	4	5	8	7	6	8	8	3432 1332	20	10	12	26	20	16	25	24	19
15	7	6	3	5	4	6	4	7	2323 2221	18	14	6	12	9	15	10	18	13
16	5	3	4	5	6	5	4	7	1323 2232	13	6	9	12	15	13	10	17	12
17	5	5	6	5	3	4	8	7	2443 1312	12	13	14	13	7	8	26	20	14
18	8	6	4	5	6	8	15	17	2132 2343	22	16	9	12	16	22	90	138	41
19	12	11	8	4	6	7	5	6	4432 3224	58	49	22	9	15	18	11	15	25
20	5	3	4	3	9	8	7	6	4222 2213	11	7	9	7	27	26	19	14	15
21	9	8	6	3	10	10	7	9	2233 4311	30	25	15	6	36	35	20	28	24
22	4	3	2	1	1	5	4	9	3332 3343	9	7	4	3	3	13	10	32	10
23	5	1	1	4	4	6	4	6	3231 2344	12	3	2	10	8	16	10	16	10
24	4	5	3	2	5	4	8	7	3222 6442	8	13	6	5	13	9	22	18	12
25	3	4	4	11	11	14	16	17	2243 3243	6	9	9	47	47	79	110	124	54
26	14	10	8	11	12	9	8	7	3343 3311	79	34	23	46	51	33	23	17	38
27	10	11	9	10	7	7	7	9	1222 2331	38	45	29	38	17	17	20	28	29
28	11	9	8	8	9	10	6	4	2233 3222	46	33	21	23	32	34	16	10	27
29	3	6	4	4	5	6	7	6	2321 3212	6	14	9	9	13	15	18	14	12
30	6	4	5	4	6	7	6	8	3231 1312	14	9	13	9	15	17	16	22	14
31	5	5	7	6	5	4	5	4	1142 1322	13	13	17	16	11	8	11	10	12
																		19.3

JULY 1980

	3 Ks								σs	as							As
1	4	3	1	0	0	1	0	2	3521 1314	10	7	3	1	1	2	1	5	4
2	0	0	1	0	0	0	2	2	2021 1022	1	0	2	1	1	0	4	5	2
3	3	3	1	4	3	0	0	1	5432 1112	6	6	3	9	6	1	1	2	4
4	0	0	5	6	6	5	1	5	0131 3323	0	1	12	16	14	13	3	12	9
5	7	9	7	8	8	10	9	3	6432 2341	18	28	18	21	23	38	29	7	23
6	5	4	3	7	6	3	4	7	2232 2423	11	9	7	18	14	7	9	17	12
7	8	7	10	10	5	5	5	7	6334 2133	21	19	40	36	13	13	13	17	22
8	12	7	4	6	7	7	10	9	4422 5225	52	18	10	15	17	18	39	32	25
9	7	8	6	8	4	2	5	1	3623 3332	19	22	15	21	9	5	11	3	13
10	0	1	0	0	1	1	2	1	1211 2332	0	3	1	1	2	3	5	3	2
11	5	8	3	3	8	4	5	7	4622 3335	13	22	6	6	25	8	12	18	14
12	6	1	2	0	0	4	1	3	4221 1224	15	3	4	1	1	9	2	7	5
13	7	8	6	1	4	6	2	2	2452 2021	17	22	15	3	10	15	4	4	11
14	7	3	3	5	4	1	3	5	7311 2312	20	7	7	13	9	3	7	11	10
15	5	5	2	2	0	1	1	4	3522 1222	12	13	4	5	1	2	3	8	6
16	4	2	2	4	2	1	0	4	3432 2214	10	4	4	8	4	3	1	9	5
17	3	5	4	2	0	1	6	4	3522 1233	7	13	9	4	1	2	14	10	8
18	7	5	3	3	4	3	13	17	3254 4216	20	12	6	6	8	6	70	137	33
19	13	10	7	0	2	3	2	4	5441 4544	63	40	17	1	4	6	4	9	18
20	3	2	2	1	7	5	4	1	4423 2122	6	5	4	3	17	13	8	3	7
21	9	8	6	4	10	9	7	7	6653 2333	29	24	14	9	38	30	18	17	22
22	4	4	1	1	0	2	1	5	2422 1423	8	8	2	2	1	4	3	13	5
23	4	0	0	1	1	2	0	2	2222 3212	8	1	1	2	3	5	1	4	3
24	1	4	1	1	3	0	6	6	2322 1245	3	10	2	2	6	1	16	15	7
25	2	2	2	9	8	10	14	16	2220 3237	4	5	4	30	25	40	85	113	38
26	15	9	5	8	9	5	5	7	7532 0335	93	30	13	23	30	13	12	17	29
27	9	10	7	8	5	4	6	7	4222 1324	33	34	20	26	11	9	15	17	21
28	10	9	7	7	8	7	4	2	2522 2242	36	30	17	17	23	17	10	4	19
29	2	4	4	2	3	2	4	3	2422 1324	4	9	8	5	6	5	8	7	7
30	6	3	4	4	4	3	3	6	6322 5434	14	7	8	10	9	6	6	14	9
31	5	5	8	5	3	2	1	2	3542 2233	12	12	22	13	7	4	3	4	10
																		13.0

Table 9 – continued

JULY 1980

	3 Km								Σ Km	am							Am	Am2
1	5	3	3	1	2	2	1	4	7.0	12	7	6	3	5	5	3	10	6	7
2	2	0	2	2	1	1	3	3	4.7	4	0	4	4	2	2	7	6	4	5
3	3	4	3	4	4	2	1	3	8.0	7	8	6	10	10	4	3	6	7	7
4	1	1	6	8	7	7	4	6	13.3	2	3	16	21	18	19	8	14	13	14
5	8	9	8	8	9	10	9	5	22.0	23	33	21	26	32	37	33	12	27	21
6	6	4	4	8	8	6	6	8	16.7	14	9	10	26	24	16	15	23	17	23
7	8	7	10	10	7	7	7	7	21.0	21	17	38	37	18	20	18	19	24	22
8	11	7	5	6	7	7	9	9	20.3	43	17	11	16	18	19	33	31	24	22
9	8	8	7	8	5	4	5	2	15.7	21	21	17	23	11	8	13	5	15	15
10	1	2	0	2	3	3	4	3	6.0	2	5	1	4	7	7	8	6	5	8
11	5	8	4	4	10	5	7	8	17.0	13	23	8	9	39	12	17	24	18	13
12	6	2	3	2	2	6	2	4	9.0	14	5	6	4	4	14	5	9	8	14
13	7	8	7	3	6	8	3	3	15.0	18	23	18	6	14	22	7	7	14	13
14	7	4	4	7	6	4	6	7	15.0	20	9	10	19	15	10	16	18	15	13
15	6	5	2	4	2	4	3	5	10.3	15	13	5	8	5	9	7	13	9	11
16	5	2	3	4	4	4	2	5	9.7	12	5	7	10	10	8	5	13	9	9
17	4	5	5	4	2	2	7	6	11.7	10	13	11	8	4	5	20	15	11	11
18	8	6	4	4	5	6	14	17	21.3	21	14	8	9	12	14	80	138	37	29
19	12	11	7	2	4	5	3	5	16.3	60	45	19	5	10	12	7	12	21	27
20	4	3	3	2	8	7	5	4	12.0	8	6	6	5	22	19	13	9	11	13
21	9	8	6	4	10	9	7	8	20.3	30	24	15	8	37	32	19	22	23	17
22	4	3	1	1	1	4	3	8	8.3	9	7	3	3	2	9	6	22	8	12
23	4	1	1	3	3	4	2	4	7.3	10	2	2	6	6	10	5	10	6	7
24	3	5	2	1	4	2	7	6	10.0	6	12	4	3	10	5	19	16	9	10
25	2	3	3	10	10	12	15	16	23.7	5	7	7	38	36	60	98	118	46	37
26	14	9	7	10	10	8	7	7	24.0	86	32	18	35	40	23	18	17	34	45
27	10	10	8	9	6	5	7	8	21.0	36	40	24	32	14	13	18	23	25	26
28	11	9	7	7	9	8	5	3	19.7	41	31	19	20	28	25	13	7	23	18
29	2	5	4	3	4	4	5	4	10.3	5	11	8	7	10	10	13	10	9	12
30	6	4	5	4	5	5	5	7	13.7	14	8	11	9	12	12	11	18	12	12
31	5	5	7	6	4	3	3	3	12.0	13	13	20	14	9	6	7	7	11	11
																		16.2	

AUG. 1980

	3 Km								Σ Km	am							Am	Am2
1	3	4	5	3	3	2	2	3	8.3	6	10	11	6	6	4	4	6	7	6
2	1	2	2	4	6	6	7	8	12.0	2	4	5	8	14	15	17	26	11	17
3	10	9	12	11	10	6	7	4	23.0	35	32	51	50	38	15	18	8	31	24
4	5	5	7	6	8	6	2	1	13.3	12	13	18	14	26	14	5	3	13	14
5	5	2	3	5	4	3	3	3	9.3	11	5	6	11	10	7	6	7	8	14
6	12	9	6	8	11	10	11	9	25.3	51	27	16	22	50	38	42	31	35	24
7	5	8	8	8	7	4	7	9	18.7	12	22	22	22	20	10	17	31	20	21
8	4	4	1	1	2	2	1	6	7.0	10	8	3	3	5	5	3	15	7	10
9	4	3	3	4	7	8	8	7	14.7	9	7	7	9	20	25	23	20	15	15
10	6	9	10	6	4	4	4	3	15.3	15	28	34	16	10	10	9	7	16	16
11	4	5	5	4	2	5	7	8	13.3	8	11	13	9	4	11	18	22	12	14
12	12	7	4	2	3	3	3	3	12.3	59	17	10	5	7	6	6	7	15	13
13	5	4	2	2	4	4	2	5	9.3	13	9	4	4	9	9	5	13	8	8
14	3	1	7	7	5	5	5	3	12.0	7	2	17	17	12	12	11	6	11	10
15	5	6	2	4	6	4	2	1	10.0	12	16	5	10	15	9	4	3	9	9
16	4	4	4	4	14	14	10	7	20.3	8	8	8	9	73	83	37	20	31	20
17	4	3	5	6	7	5	9	10	16.3	9	6	11	16	20	12	33	34	18	33
18	8	11	11	12	7	5	4	7	21.7	23	42	49	56	18	13	9	19	29	28
19	10	7	5	11	11	13	10	10	25.7	40	19	12	41	43	63	39	39	37	25
20	6	3	2	8	6	7	9	8	16.3	16	7	4	23	16	18	28	25	17	25
21	8	7	9	5	3	2	2	3	13.0	24	20	29	12	6	4	5	7	13	16
22	4	7	8	7	6	6	8	8	18.0	10	19	23	17	15	14	24	26	19	13
23	6	4	2	5	3	1	1	1	7.7	15	8	5	13	6	2	3	2	7	11
24	5	6	3	2	2	2	2	2	8.0	12	14	7	4	5	4	4	4	7	5
25	1	1	1	2	3	4	2	8	7.3	2	3	2	4	7	9	5	25	7	11
26	10	9	7	5	7	4	5	8	18.3	38	29	17	13	17	10	12	26	20	23
27	8	9	11	13	12	7	9	5	24.7	25	28	46	63	57	19	27	11	35	24
28	6	5	3	3	1	4	0	0	7.3	15	12	7	7	3	9	1	1	7	11
29	1	0	0	0	0	1	6	8	5.3	2	1	0	1	1	3	16	22	6	7
30	5	7	5	4	3	7	5	2	12.7	13	17	11	8	7	20	11	5	12	12
31	7	6	6	4	4	1	4	7	13.0	18	15	16	10	8	3	8	17	12	13
																		16.0	

Table 9 - continued

AUG. 1980

	3 Kn								σn								An
1	3	5	4	4	4	4	2	4	2331	3233	7	11	9	8	9	8	5	8	8
2	1	2	3	5	7	7	7	10	2233	3332	3	4	6	11	19	17	18	34	14
3	10	9	12	13	11	7	8	5	3353	3331	35	30	57	61	46	17	24	11	35
4	6	6	8	6	9	6	4	2	1121	3331	15	15	22	16	32	16	8	5	16
5	5	3	3	5	5	5	4	4	3113	2322	12	6	7	11	11	12	9	10	10
6	12	8	8	9	13	11	11	10	2142	4122	59	26	21	31	67	44	48	39	42
7	6	8	8	8	8	5	7	9	2532	3344	14	26	22	24	26	13	19	31	22
8	5	4	2	2	4	4	2	6	1232	3336	11	8	5	5	9	8	5	16	8
9	4	4	4	5	9	10	9	8	2432	1233	10	8	8	13	29	34	31	24	20
10	7	8	9	7	6	6	5	4	3322	3132	17	26	32	20	14	16	13	10	19
11	4	5	6	5	3	6	8	9	3655	4231	9	13	15	11	6	15	23	28	15
12	13	6	6	4	4	4	5	4	2312	3224	63	16	14	9	10	9	11	9	18
13	5	4	2	4	5	6	4	7	2322	3341	13	9	5	8	12	16	9	17	11
14	4	1	7	8	7	7	7	3	2236	4311	8	2	19	22	18	18	17	7	14
15	5	7	3	6	7	5	2	3	2323	2323	13	18	7	14	17	13	5	6	12
16	4	4	4	5	14	15	11	8	2223	1322	8	8	8	11	77	90	43	24	34
17	5	3	6	7	8	6	10	11	3331	1212	11	7	15	19	22	15	34	42	21
18	8	9	11	12	7	6	4	8	2231	2233	25	31	44	56	20	16	10	26	29
19	10	7	5	11	12	14	11	11	4113	4433	34	17	13	49	54	77	45	46	42
20	7	3	3	8	7	8	9	9	3332	2242	19	6	6	25	17	21	33	28	19
21	8	7	9	6	4	3	4	4	2123	4242	26	18	27	14	10	7	9	8	15
22	5	6	8	7	7	6	8	9	3522	2323	11	15	21	19	19	16	24	32	20
23	6	4	3	6	4	2	2	2	2332	2232	16	8	7	15	10	5	5	4	9
24	5	5	4	3	4	4	3	3	3332	3341	11	12	8	6	8	8	6	6	8
25	1	1	1	3	4	5	4	8	3222	2335	3	3	2	6	8	12	8	24	8
26	10	9	6	6	7	5	6	9	4242	2123	40	28	15	14	19	13	16	31	22
27	8	8	11	12	13	7	10	5	3232	3232	25	25	44	58	64	19	35	12	35
28	7	5	4	4	2	5	1	1	3232	3222	17	11	8	10	5	12	2	2	8
29	1	0	0	0	1	2	8	9	2111	2232	2	1	0	1	2	4	22	28	8
30	5	6	5	4	4	8	5	4	2233	1422	13	15	12	8	8	22	13	9	13
31	6	6	7	5	4	2	4	7	3533	5322	16	15	17	11	8	5	10	20	13
																			18.3

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	3 Ks								σs								As
1	2	4	5	2	1	0	1	2	2553	2123	5	9	12	4	2	1	2	4	5
2	0	2	2	3	4	5	7	7	1344	3152	0	4	5	6	10	13	17	18	9
3	10	10	11	10	9	6	5	2	2445	2143	34	34	46	39	30	14	13	5	27
4	4	4	6	5	8	5	1	1	2212	3322	9	10	14	11	21	11	2	2	10
5	4	1	2	4	4	1	1	2	3222	3222	10	3	4	10	10	3	3	4	6
6	11	9	5	6	9	9	10	8	5421	3553	44	28	11	14	32	32	35	23	27
7	5	7	8	7	6	4	6	9	4324	4345	11	18	21	20	15	8	16	32	18
8	4	3	1	1	0	0	0	6	4231	2225	9	7	2	2	1	1	1	14	5
9	4	3	3	2	5	6	6	6	5431	3345	9	6	6	5	11	16	15	16	11
10	5	9	10	5	2	2	2	2	3532	3231	13	29	35	12	5	5	5	5	14
11	3	4	5	4	1	3	5	7	3324	1334	6	8	11	8	2	7	13	17	9
12	12	7	3	0	1	1	1	2	2221	2333	56	17	7	1	3	2	2	5	12
13	5	4	1	0	3	1	0	4	3321	2222	13	9	2	1	6	2	1	9	5
14	3	1	6	5	2	3	2	2	4242	2433	6	2	16	12	5	6	5	4	7
15	5	6	2	3	5	3	1	0	2121	2321	11	14	4	6	13	6	3	1	7
16	3	4	4	3	13	14	9	6	3220	2323	7	8	8	7	69	76	31	16	28
17	4	2	4	6	7	4	9	9	2241	4313	8	5	8	14	17	10	33	27	15
18	8	12	12	12	7	4	4	5	4653	3223	22	53	54	57	17	10	8	13	29
19	11	7	5	9	9	11	9	9	7442	2244	47	20	12	32	33	49	32	32	32
20	5	3	1	8	6	6	8	8	1331	2145	13	7	3	21	15	15	23	21	15
21	8	8	9	5	1	1	0	3	4222	2212	22	21	31	11	2	2	1	6	12
22	4	8	8	6	4	5	8	7	3521	3235	9	23	24	15	10	13	25	20	17
23	6	3	2	5	1	0	0	0	3232	2011	15	7	4	11	3	0	1	1	5
24	5	6	3	1	1	0	1	1	6342	2112	13	16	7	2	3	1	2	2	6
25	0	1	1	1	2	2	1	8	1121	2426	0	3	2	2	5	5	2	25	6
26	10	9	7	5	6	4	4	8	6525	3422	37	30	18	12	15	8	9	22	19
27	8	9	11	13	11	7	7	5	4324	4422	24	30	48	68	50	19	19	11	34
28	5	5	3	2	0	3	0	0	3422	1301	13	13	6	4	1	6	0	0	5
29	0	0	0	0	0	1	5	7	2000	1243	1	0	0	0	0	2	11	17	4
30	5	7	4	4	3	7	4	0	2542	2331	13	19	10	8	6	18	8	1	10
31	7	6	6	4	3	1	3	6	3412	4222	19	15	14	10	7	2	6	14	11
																			13.5

Table 9 - continued

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	3 Kn								σn		an						An
1	9	6	8	4	4	5	3	4	2332	3311	32	15	26	8	9	11	7	8	15
2	4	4	3	4	5	1	1	4	2313	2232	10	9	7	8	12	3	3	9	8
3	2	1	5	7	9	11	10	10	1223	1332	5	2	11	20	32	46	35	40	24
4	11	7	5	5	7	7	7	6	2531	3233	41	17	13	11	17	19	20	16	19
5	5	6	6	6	5	9	8	8	2422	3331	12	15	14	16	13	31	21	25	18
6	6	6	7	6	8	10	5	8	3442	1331	14	16	20	15	26	35	11	22	20
7	8	7	3	7	5	6	7	10	2222	4125	25	19	6	18	12	14	18	37	19
8	8	4	4	8	7	7	5	5	3122	2223	24	9	9	21	18	20	11	12	16
9	4	5	7	7	9	10	5	7	4332	3232	10	11	19	18	32	37	13	19	20
10	7	4	2	1	2	4	4	5	2222	3222	19	10	4	3	5	9	8	12	9
11	3	5	3	4	5	7	4	7	2321	2323	6	12	6	10	12	19	10	17	12
12	4	5	13	8	10	11	8	12	3483	1456	8	12	62	24	37	50	22	51	33
13	9	10	8	10	13	8	6	5	2533	5221	28	37	26	34	63	24	15	11	30
14	5	6	3	6	4	3	3	10	1332	3122	13	14	7	15	9	6	7	38	14
15	7	7	6	5	6	6	8	7	2324	2233	18	19	15	13	15	16	22	17	17
16	1	4	6	5	5	4	9	7	2242	2122	3	9	15	13	13	8	31	19	14
17	7	5	7	12	10	9	4	9	2125	2323	18	12	20	58	35	27	10	28	26
18	1	1	7	4	1	3	6	4	2234	1133	3	3	20	10	2	6	15	8	8
19	2	1	0	5	6	5	5	8	2212	1214	5	3	1	11	15	11	13	22	10
20	9	7	3	3	4	4	3	2	1322	2222	27	18	7	7	9	10	6	4	11
21	1	1	1	1	2	1	1	1	1121	1323	3	3	2	3	5	3	2	3	3
22	1	4	5	8	11	7	5	4	2212	3221	3	9	12	21	46	17	12	8	16
23	2	3	2	6	3	3	5	4	1123	4523	5	6	4	15	7	7	12	10	8
24	1	1	5	4	2	4	4	4	2245	3112	3	3	11	10	4	8	9	10	7
25	4	8	5	5	4	5	6	3	1353	3352	10	22	13	11	10	13	14	6	12
26	1	4	4	5	4	4	4	1	2531	2142	3	9	10	11	10	8	9	2	8
27	2	5	2	4	4	6	8	8	2212	3243	4	13	5	10	10	16	21	22	13
28	5	2	4	2	7	6	5	7	2222	2221	13	5	10	5	19	14	12	18	12
29	4	2	5	4	4	6	10	6	4211	2333	10	5	13	9	10	16	37	16	15
30	6	4	3	4	6	10	6	6	2112	3332	14	9	6	10	16	37	16	14	15
																			15.1

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	3 Ks								σs		as						As
1	9	6	7	1	1	1	1	1	4332	2222	33	15	20	3	2	3	2	2	10
2	5	4	3	1	3	0	0	3	3333	2122	12	10	7	3	6	1	1	6	6
3	2	0	3	5	7	10	10	8	2312	2343	5	1	7	11	20	36	35	26	18
4	11	8	6	4	5	4	6	4	6521	2444	42	24	14	8	13	10	16	10	17
5	5	5	6	7	5	9	8	9	3343	2338	12	13	15	19	13	27	24	32	19
6	7	7	8	6	6	8	2	8	1120	4534	18	17	26	15	16	26	4	25	18
7	9	8	2	6	4	2	5	8	5421	2333	31	22	4	15	9	5	11	25	15
8	8	4	4	6	5	5	2	4	3240	2223	23	9	10	15	11	12	4	9	12
9	6	6	5	7	7	9	5	6	4223	1547	14	16	13	19	17	28	11	15	17
10	5	4	0	0	1	2	2	3	3121	2324	13	9	1	1	2	4	4	6	5
11	3	7	2	4	4	6	4	5	2332	2222	7	18	4	10	9	16	9	11	11
12	4	5	12	8	8	11	8	11	2344	1339	9	12	52	25	25	43	21	44	29
13	9	10	8	8	11	8	4	3	3331	3224	30	35	25	24	48	22	10	6	25
14	8	8	3	6	2	1	1	8	3242	1225	25	21	7	14	5	2	3	26	13
15	6	6	6	5	6	6	4	6	4015	1245	15	15	14	13	14	14	10	14	14
16	1	4	6	4	1	2	9	7	2332	3411	3	10	15	10	3	5	28	17	11
17	8	7	6	11	9	7	4	9	3322	2244	21	19	16	41	28	18	9	27	22
18	2	1	7	4	0	2	4	4	2343	3434	4	3	19	10	1	4	9	8	7
19	3	1	2	4	5	4	4	7	3223	1335	6	2	4	10	12	8	10	17	9
20	9	7	2	2	4	4	1	2	3332	2222	30	20	4	5	9	8	3	4	10
21	2	1	0	0	2	1	1	1	4211	2322	4	2	1	1	4	3	2	2	2
22	2	5	6	7	8	7	4	2	2322	2233	4	13	14	19	26	18	9	5	14
23	2	4	1	7	4	2	5	4	3123	2434	4	8	2	17	9	4	11	8	8
24	1	1	3	3	2	2	2	4	2232	2225	2	2	7	7	4	5	5	8	5
25	4	7	4	4	3	4	3	1	3351	1343	10	19	9	8	7	9	7	3	9
26	2	4	3	5	5	2	2	0	2431	1220	5	10	7	13	11	4	4	0	7
27	3	4	3	2	2	3	5	7	0312	2335	7	9	6	5	5	7	12	17	9
28	7	3	4	1	5	5	4	6	4322	2345	17	6	10	3	13	12	10	15	11
29	4	2	7	4	4	6	10	6	3322	4363	8	5	17	8	8	16	35	14	14
30	7	4	3	4	5	9	5	6	2333	4933	19	9	6	9	13	31	13	15	14
																			12.7

Table 9 - continued

SEP. 1980

	3 Km								Σ Km	am							Am	Am2
1	9	6	8	3	3	3	2	2	12.0	32	15	23	6	6	7	5	5	12	10
2	5	4	3	2	4	1	1	4	8.0	11	9	7	5	9	2	2	8	7	7
3	2	0	4	6	8	11	10	9	16.7	5	1	9	16	26	41	35	33	21	17
4	11	8	5	4	6	6	7	5	17.3	41	21	13	10	15	14	18	13	18	21
5	5	6	6	7	5	9	8	9	18.3	12	14	14	17	13	29	23	29	19	18
6	6	6	8	6	8	9	3	8	18.0	16	16	23	15	21	30	7	23	19	20
7	9	8	2	6	4	4	6	9	16.0	28	21	5	16	10	9	14	31	17	17
8	8	4	4	7	6	6	3	4	14.0	23	9	9	18	14	16	7	10	13	14
9	5	6	6	7	8	9	5	7	17.7	12	14	16	18	24	32	12	17	18	14
10	6	4	1	1	1	3	3	4	7.7	16	9	2	2	3	7	6	9	7	11
11	3	6	2	4	4	7	4	6	12.0	7	15	5	10	10	17	9	14	11	13
12	4	5	12	8	9	11	8	11	22.7	8	12	57	25	31	46	21	47	31	26
13	9	10	8	9	12	8	5	4	21.7	29	36	26	29	55	23	12	8	27	26
14	7	7	3	6	3	2	2	9	13.0	19	18	7	14	7	4	5	32	13	17
15	6	7	6	5	6	6	6	6	16.0	16	17	14	13	15	15	16	16	15	13
16	1	4	6	5	4	3	9	7	13.0	3	10	15	12	8	7	30	18	13	17
17	7	6	7	11	9	8	4	9	20.3	19	15	18	50	31	22	9	27	24	18
18	2	1	7	4	1	2	5	4	8.7	4	3	19	10	2	5	12	8	8	11
19	2	1	1	4	5	4	5	7	9.7	5	2	3	10	13	9	11	19	9	10
20	9	7	3	3	4	4	2	2	11.3	29	19	6	6	9	9	4	4	11	9
21	1	1	0	1	2	1	1	1	2.7	3	2	1	2	4	3	2	3	3	6
22	1	5	5	7	10	7	5	3	14.3	3	11	13	20	36	18	11	6	15	10
23	2	3	1	6	4	2	5	4	9.0	5	7	3	16	8	5	11	9	8	10
24	1	1	4	4	2	3	3	4	7.3	3	2	9	8	4	6	7	9	6	8
25	4	7	5	4	4	5	4	2	11.7	10	20	11	9	8	11	10	4	10	9
26	2	4	4	5	4	3	3	0	8.3	4	10	8	12	10	6	6	1	7	7
27	2	5	3	3	4	5	7	7	12.0	5	11	6	7	8	11	17	19	11	9
28	6	3	4	2	6	5	5	6	12.3	15	6	10	4	16	13	11	16	11	11
29	4	2	6	4	4	6	10	6	14.0	9	5	15	8	9	16	36	15	14	13
30	6	4	3	4	6	10	6	6	15.0	16	9	6	9	15	34	14	14	15	12
																		13.8	

OCT. 1980

	3 Km								Σ Km	am							Am	Am2
1	0	0	0	1	5	1	2	3	4.0	0	1	0	3	11	3	4	7	4	10
2	4	4	5	6	7	3	1	0	10.0	9	8	13	16	19	7	2	1	9	7
3	1	0	2	2	1	4	5	9	8.0	2	1	4	5	3	9	13	28	8	16
4	9	12	10	10	12	14	11	10	29.3	30	52	36	36	60	72	44	36	46	36
5	12	10	9	11	11	8	8	8	25.7	54	39	30	41	45	23	23	21	35	38
6	7	8	10	10	5	8	7	6	20.3	19	22	36	35	12	21	18	15	22	24
7	9	7	8	8	10	6	7	5	20.0	29	20	22	24	36	16	17	13	22	20
8	5	8	8	6	7	7	8	9	19.3	11	22	24	14	19	20	26	29	21	23
9	9	7	9	10	5	8	9	7	21.3	31	17	30	37	12	22	32	18	25	23
10	8	7	6	6	9	10	10	15	23.7	26	17	15	15	32	36	34	90	33	40
11	11	13	15	14	14	6	6	7	28.7	47	64	97	78	85	15	14	18	52	43
12	6	8	8	5	9	8	8	7	19.7	14	26	23	11	29	23	21	20	21	21
13	3	4	4	3	5	3	3	4	9.7	6	8	10	7	12	7	7	9	8	13
14	5	4	5	4	3	9	11	9	16.7	11	9	13	9	7	27	48	30	19	20
15	8	9	9	10	7	6	7	7	21.0	24	33	32	40	20	15	20	19	25	21
16	5	2	1	0	0	1	1	3	4.3	11	5	3	0	1	2	3	6	4	9
17	1	3	4	5	5	4	4	6	10.7	2	7	10	13	11	9	10	16	10	18
18	11	12	11	11	8	9	11	7	26.7	47	53	49	46	23	28	45	17	39	26
19	4	4	6	8	7	7	9	9	18.0	9	9	15	25	19	20	31	27	19	18
20	4	4	0	3	4	3	3	3	8.0	8	9	1	7	8	7	6	7	7	12
21	4	5	4	6	7	8	5	6	15.0	8	13	10	14	19	23	13	14	14	15
22	5	6	8	10	10	9	13	14	25.0	11	16	25	39	38	28	69	83	39	40
23	9	10	14	16	16	13	13	9	33.3	32	35	83	106	113	69	65	31	67	51
24	7	6	5	8	9	6	9	11	20.3	17	16	13	25	33	14	29	43	24	38
25	11	6	10	10	9	10	10	12	26.0	50	16	36	38	30	37	37	53	37	34
26	9	8	11	8	4	4	3	1	16.0	33	22	46	25	10	8	7	3	19	20
27	1	2	2	1	1	2	4	0	4.3	2	5	5	2	3	5	8	1	4	4
28	0	0	0	0	0	1	1	4	2.0	0	0	0	1	0	2	2	8	2	3
29	2	2	2	1	2	3	4	2	6.0	5	4	5	2	5	6	10	5	5	7
30	4	7	6	4	1	9	6	10	15.7	9	17	16	8	2	29	14	40	17	18
31	9	9	11	9	14	13	12	11	29.3	27	27	41	28	73	67	52	44	45	35
																		22.6	

Table 9 - continued

OCT. 1980

	3 Kn								σn								An
1	0	0	0	2	5	2	2	4	0002	2222	0	0	0	4	12	5	5	8	4
2	4	4	5	6	7	4	1	1	2222	1131	8	8	13	15	19	9	2	2	10
3	1	0	2	2	2	5	6	10	2213	2235	2	1	4	5	4	13	15	34	10
4	8	10	10	10	12	14	11	10	1134	4623	26	37	34	38	57	77	47	38	44
5	11	11	9	11	11	8	8	8	4244	3254	49	41	32	46	49	26	25	24	37
6	7	8	9	10	5	8	7	7	4243	2132	18	24	33	37	13	26	18	17	23
7	9	7	7	8	11	7	7	5	4323	3121	29	17	20	25	43	17	17	12	23
8	4	7	8	6	8	8	9	8	2122	2221	10	18	21	15	22	24	31	26	21
9	9	7	9	9	6	8	9	6	2423	3213	31	18	30	33	15	25	32	15	25
10	8	6	6	6	9	10	10	15	2340	3243	23	16	15	15	30	36	35	88	32
11	11	13	15	14	15	7	6	7	3553	4421	47	64	101	74	88	17	16	17	53
12	5	7	8	5	9	8	8	7	3321	3233	12	20	24	12	28	23	21	19	20
13	3	3	4	4	5	4	4	4	1123	3322	6	6	8	9	13	8	8	10	9
14	5	3	5	4	4	9	11	9	1152	2431	12	7	13	9	10	27	50	30	20
15	8	9	9	10	7	7	8	8	3224	2223	25	31	31	40	20	17	21	21	26
16	6	1	1	0	0	1	2	3	4221	2223	16	3	3	1	1	3	4	6	5
17	1	3	5	6	5	4	4	6	2143	2241	2	7	11	14	11	9	9	16	10
18	10	10	11	10	7	9	12	6	3222	3252	36	37	42	39	19	28	51	14	33
19	4	4	5	8	7	8	10	8	1221	2263	10	9	13	26	20	22	37	26	20
20	4	4	0	3	4	3	3	4	1411	3432	8	9	1	6	9	7	7	8	7
21	4	4	4	6	7	8	6	6	2343	4312	8	9	10	15	18	25	14	14	14
22	4	6	8	10	10	8	14	14	2224	1242	9	16	23	39	34	23	71	84	37
23	8	10	15	16	16	13	14	9	3436	3451	26	34	87	113	110	68	72	27	67
24	7	5	5	8	10	6	9	11	3142	3131	17	11	13	26	34	15	30	43	24
25	11	6	10	9	9	10	10	12	1431	2334	49	15	40	31	29	36	37	55	37
26	9	7	10	8	5	4	4	1	2433	2222	33	20	40	26	13	10	8	3	19
27	1	2	2	1	2	3	3	0	2312	1221	3	5	5	2	4	7	6	0	4
28	0	0	0	0	0	1	1	3	1011	1222	0	0	0	1	1	2	3	6	2
29	2	1	2	1	2	2	4	3	2211	2121	5	2	4	2	4	5	9	6	5
30	4	6	6	4	1	9	6	10	3544	2223	8	15	15	10	3	27	14	34	16
31	8	8	10	9	14	14	12	11	2342	2443	21	23	36	29	78	72	53	50	45
																			22.6

OCT. 1980

	3 Ks								σs								As
1	0	0	0	1	5	1	1	3	0102	2322	0	1	0	2	11	2	3	6	3
2	4	4	5	6	7	3	0	0	4533	2222	9	9	13	16	18	6	1	1	9
3	1	1	2	2	1	2	5	8	2221	2324	3	2	5	5	2	5	11	22	7
4	10	13	10	10	13	13	11	9	3622	3333	35	68	38	35	64	67	41	33	48
5	12	10	9	10	11	8	8	7	5323	3224	59	37	29	37	42	21	21	17	33
6	7	7	10	9	5	6	7	5	4321	3416	20	20	40	33	11	15	18	13	21
7	9	8	8	8	9	6	7	5	6213	2553	29	22	25	24	29	14	17	13	22
8	5	8	8	5	6	6	8	9	3222	4423	12	26	26	13	15	16	22	31	20
9	9	6	9	11	4	7	9	8	4202	5333	30	16	30	41	9	19	32	21	25
10	9	7	6	6	9	10	9	15	4321	3245	28	18	14	16	33	36	33	93	34
11	11	13	15	14	14	5	5	7	4221	2333	47	64	93	81	81	13	11	19	51
12	6	9	8	5	9	8	7	7	1232	4624	16	33	23	11	30	22	20	20	22
13	3	4	5	2	4	3	3	4	2124	4332	6	10	11	5	10	6	6	8	8
14	5	4	5	4	2	8	11	9	2252	4332	11	10	13	9	5	26	46	29	19
15	8	10	10	10	8	5	7	6	2112	2234	23	34	34	39	21	13	19	16	25
16	3	3	2	0	0	0	1	2	2020	0131	6	7	4	0	0	1	3	5	3
17	1	3	4	5	4	4	5	6	2121	4433	2	7	10	13	10	10	11	16	10
18	12	13	12	12	9	9	10	7	7332	5335	59	70	55	53	27	29	38	19	44
19	4	4	7	8	7	7	8	9	2323	2375	9	9	17	23	18	19	26	27	19
20	4	4	0	4	3	3	2	3	2312	2424	9	8	1	9	7	7	4	7	7
21	4	7	5	6	8	8	5	6	2231	3334	8	17	11	14	21	21	12	14	15
22	5	7	9	10	11	9	13	14	3242	2253	13	17	27	39	43	33	66	83	40
23	10	10	14	15	16	14	12	10	2232	2255	38	36	79	99	116	71	57	35	66
24	6	8	6	8	9	6	9	11	3221	2346	16	21	14	25	33	14	28	42	24
25	12	7	9	11	9	10	10	12	5121	2323	52	18	33	46	30	38	38	52	38
26	9	8	12	8	4	3	3	1	5111	1422	33	25	52	25	8	7	6	2	20
27	0	3	3	1	1	1	4	0	1122	2342	1	6	6	2	2	3	9	1	4
28	0	0	0	0	0	0	1	4	0001	0234	0	0	0	1	0	1	2	10	2
29	3	3	2	1	2	3	5	2	2122	1333	6	6	5	2	5	7	12	5	6
30	5	7	7	3	1	9	6	11	2325	2424	11	19	17	6	2	32	15	46	19
31	9	9	11	9	13	13	12	10	2213	2333	33	31	46	28	68	63	51	38	45
																			22.9

Table 9 - continued

NOV. 1980

	3 Kn								σn								An
1	8	8	9	10	11	10	4	5	3223 4313	21	21	29	34	42	36	10	12	26
2	3	7	4	6	8	10	8	3	2324 3323	7	20	9	14	21	37	23	7	17
3	2	4	5	5	8	4	4	2	4453 5331	5	8	12	11	21	9	10	4	10
4	2	7	6	13	8	8	8	2	2433 3333	4	18	16	64	26	22	26	5	23
5	5	3	3	4	4	2	4	4	4233 4132	12	7	6	8	10	5	9	8	8
6	2	5	4	5	5	6	5	6	3432 3133	4	12	10	12	12	16	12	14	12
7	6	5	3	2	4	4	4	6	1323 2332	15	12	6	4	8	10	10	15	10
8	4	3	2	4	6	5	7	4	3122 6231	8	6	5	8	15	13	17	8	10
9	3	5	3	7	8	9	6	4	2412 3221	7	11	6	18	22	31	15	9	15
10	6	7	7	9	11	5	4	7	2222 2124	15	20	17	32	44	12	9	20	21
11	8	8	10	10	8	9	14	11	3123 2123	25	26	40	34	21	30	72	49	37
12	10	6	8	9	8	5	4	6	3132 3314	36	16	26	29	22	11	9	16	21
13	6	2	3	3	4	4	7	6	4212 4233	14	5	6	6	8	8	20	16	10
14	3	2	2	8	9	9	7	5	1123 2132	7	5	5	23	31	31	17	11	16
15	9	9	11	12	10	11	8	10	3334 1543	28	29	45	56	34	41	22	34	36
16	8	9	8	10	10	9	6	7	2244 3213	24	27	23	40	39	31	16	20	28
17	6	3	7	5	7	7	9	9	2224 2233	14	7	20	12	18	17	29	28	18
18	6	5	8	9	10	10	7	9	4242 2113	14	13	21	29	35	36	18	30	25
19	8	6	7	10	10	11	10	8	2343 4451	22	16	18	36	38	42	35	24	29
20	5	8	10	8	10	11	12	6	2335 3542	13	16	35	21	34	46	56	16	30
21	5	10	9	6	4	5	6	9	3301 5213	12	36	29	16	8	13	15	27	20
22	6	5	6	5	5	4	4	5	2222 2224	15	11	14	12	13	10	9	13	12
23	5	5	4	1	1	8	10	7	2421 1242	13	13	8	3	2	26	39	20	16
24	7	8	8	4	5	7	6	9	2422 3331	18	22	21	10	11	17	16	32	18
25	7	7	8	7	10	9	11	9	3322 1362	18	20	23	18	34	32	46	30	28
26	10	12	9	12	12	8	7	4	2223 3122	39	55	30	51	57	25	17	9	35
27	11	5	9	8	9	10	11	9	2333 4464	43	13	28	25	31	40	46	27	32
28	11	8	9	11	11	9	6	10	3224 4513	46	26	33	47	50	27	16	34	35
29	8	8	10	9	10	8	8	10	4243 4434	22	23	38	32	35	22	21	34	28
30	11	8	5	10	8	8	10	11	2244 4342	45	23	12	35	22	21	34	45	30
																		21.9

NOV. 1980

	3 Ks								σs								As
1	8	9	10	10	10	10	6	5	1222 1343	24	29	36	34	34	34	14	11	27
2	5	6	5	8	8	10	8	3	2413 1433	12	14	12	23	24	34	21	6	18
3	3	2	4	4	5	4	3	2	2243 4122	6	4	8	10	11	8	7	5	7
4	0	4	6	12	9	7	6	2	1311 4443	0	10	14	57	29	17	14	5	18
5	4	5	4	3	4	1	5	5	2332 4242	9	11	8	6	9	3	12	11	9
6	4	8	4	6	5	6	5	8	2521 4435	8	24	9	15	12	14	13	21	15
7	8	7	5	2	4	4	4	5	2232 2554	22	17	11	5	8	8	8	13	12
8	4	4	3	2	5	4	7	3	1242 6542	8	8	6	5	13	9	17	7	9
9	5	4	5	8	9	9	4	4	2221 0043	11	10	12	23	30	30	8	9	17
10	8	9	8	9	11	7	4	8	2331 4323	26	29	25	33	47	17	10	25	27
11	9	9	11	10	8	12	13	9	2222 5633	28	29	44	34	24	54	66	28	38
12	9	7	7	8	7	4	5	8	1322 2232	33	17	19	21	20	8	12	21	19
13	7	3	3	4	3	4	7	6	1102 4223	17	6	7	10	7	10	18	14	11
14	5	5	4	9	11	10	7	5	4322 2443	12	11	8	33	41	34	17	12	21
15	9	10	11	10	8	10	7	9	1211 1224	28	39	45	39	26	36	20	32	33
16	8	7	6	9	8	9	6	7	3311 1115	26	17	16	28	25	28	16	19	22
17	8	4	8	7	7	7	8	9	3132 2622	22	8	25	20	18	17	26	30	21
18	7	6	7	11	9	8	6	9	2022 3313	20	15	20	43	32	23	16	28	25
19	8	7	7	8	9	9	8	9	2132 2333	21	18	20	25	29	31	25	30	25
20	6	8	8	7	9	10	14	9	2133 1345	16	21	21	20	28	39	80	27	32
21	7	11	10	8	4	6	7	9	4222 1344	20	47	37	21	10	16	20	33	26
22	7	6	7	5	6	3	4	5	2023 3324	18	15	17	12	16	7	10	12	13
23	7	6	5	2	3	9	11	7	1222 1425	17	14	11	5	6	30	41	19	18
24	8	10	8	5	5	7	8	11	1212 2254	24	40	26	13	11	20	21	49	26
25	10	10	10	7	9	10	11	10	2233 4345	36	38	39	19	32	37	46	38	36
26	12	15	11	11	12	9	8	4	1222 1744	57	99	41	44	52	30	23	8	44
27	9	8	9	8	9	10	8	8	1111 3233	32	21	32	22	30	38	25	25	28
28	9	11	12	12	10	8	7	9	2222 3232	31	43	57	53	36	21	19	31	36
29	7	7	10	9	8	8	8	8	2132 3534	19	18	37	30	21	24	24	25	25
30	12	10	6	8	9	9	9	12	3133 3214	60	34	16	21	28	29	33	55	35
																		23.1

Table 9 - continued

NOV. 1980

	3 Km								Σ Km	am							Am	Am2
1	8	8	9	10	10	10	5	5	21.7	23	25	33	34	38	35	12	11	26	31
2	4	7	4	7	8	10	8	3	17.0	10	17	10	18	23	36	22	6	18	17
3	2	3	4	4	6	4	4	2	9.7	5	6	10	10	16	9	9	4	9	16
4	1	6	6	13	9	7	7	2	17.0	2	14	15	61	28	20	20	5	21	15
5	4	4	3	3	4	2	5	4	9.7	10	9	7	7	9	4	11	9	8	12
6	3	7	4	5	5	6	5	7	14.0	6	18	10	13	12	15	12	18	13	12
7	7	6	4	2	4	4	4	6	12.3	19	15	9	4	8	9	9	14	11	11
8	4	3	2	3	6	5	7	4	11.3	8	7	5	7	14	11	17	8	10	10
9	4	5	4	8	8	9	5	4	15.7	9	11	9	21	26	30	11	9	16	17
10	8	8	8	9	11	6	4	8	20.7	21	24	21	33	45	15	10	22	24	25
11	9	9	11	10	8	11	13	10	27.0	27	27	42	34	23	42	69	39	38	31
12	10	6	8	8	8	4	5	7	18.7	35	16	22	25	21	10	11	18	20	23
13	6	2	3	4	3	4	7	6	11.7	15	5	6	8	7	9	19	15	11	12
14	4	4	3	9	10	9	7	5	17.0	10	8	6	28	36	32	17	12	19	22
15	9	10	11	11	9	10	8	9	25.7	28	34	45	48	30	38	21	33	35	30
16	8	8	7	10	9	9	6	7	21.3	25	22	19	34	32	30	16	20	25	24
17	7	3	8	6	7	7	9	9	18.7	18	7	23	16	18	17	27	29	19	21
18	7	6	7	10	9	9	7	9	21.3	17	14	20	36	33	29	17	29	24	23
19	8	7	7	9	9	10	9	9	22.7	21	17	19	30	33	37	30	27	27	25
20	6	7	9	7	9	11	13	8	23.3	15	19	28	20	31	43	68	22	31	30
21	6	11	9	7	4	6	7	9	19.7	16	41	33	18	9	14	17	30	22	25
22	6	5	6	5	6	4	4	5	13.7	16	13	15	12	15	8	9	13	13	13
23	6	6	4	2	2	9	10	7	15.3	15	14	10	4	4	28	40	19	17	17
24	8	9	8	5	5	7	7	11	20.0	21	31	24	12	11	18	18	41	22	23
25	9	9	9	7	9	10	11	10	24.7	27	29	31	19	33	35	46	34	32	34
26	11	14	10	11	12	9	7	4	26.0	48	77	36	48	54	28	20	8	40	36
27	10	7	9	8	9	10	10	8	23.7	38	17	30	24	31	39	36	26	30	32
28	10	10	11	11	11	8	7	9	25.7	38	35	45	50	43	24	18	32	36	33
29	7	7	10	9	9	8	8	9	22.3	20	20	38	31	28	23	23	30	27	28
30	12	9	6	9	8	8	9	11	24.0	53	29	14	28	25	25	33	50	32	33
																		22.5	

DEC. 1980

	3 Km								Σ Km	am							Am	Am2
1	12	12	9	7	8	5	6	6	21.7	59	58	31	19	24	12	16	14	29	25
2	5	4	4	5	6	5	7	8	14.7	11	9	9	11	15	12	19	23	14	19
3	8	9	10	10	11	11	11	8	26.0	25	33	35	37	41	45	43	25	36	27
4	7	9	6	5	5	4	3	3	14.0	19	29	16	13	12	8	6	7	14	18
5	4	4	1	0	2	3	1	2	5.7	8	10	3	1	4	6	2	4	5	6
6	2	3	2	3	3	5	4	2	8.0	4	6	5	6	7	11	9	4	7	7
7	4	4	6	6	3	2	5	6	12.0	10	9	16	14	7	5	11	14	11	11
8	7	7	6	4	3	5	8	9	16.3	20	20	16	8	7	13	25	28	17	14
9	5	5	7	5	5	9	7	9	17.3	13	12	20	12	11	27	19	27	18	19
10	8	9	6	6	6	5	7	6	17.7	25	30	14	14	15	11	20	15	18	18
11	5	4	3	9	10	11	13	14	23.0	12	8	6	33	36	50	70	74	36	30
12	12	8	8	7	6	5	10	9	21.7	60	24	24	20	14	12	40	28	28	31
13	4	4	5	7	5	5	3	4	12.3	9	10	11	20	12	11	6	10	11	14
14	3	3	2	8	7	8	7	6	14.7	6	6	5	21	19	23	19	14	14	14
15	6	8	6	8	7	8	8	8	19.7	14	21	15	21	17	23	23	23	20	20
16	7	7	7	10	12	12	10	4	23.0	18	18	18	37	60	57	36	10	32	23
17	3	4	3	1	1	5	6	1	8.0	6	8	6	3	3	13	16	3	7	19
18	3	4	10	9	9	11	8	7	20.3	6	10	38	32	28	46	23	17	25	28
19	8	14	13	10	21	20	18	13	39.0	24	81	67	39	255	236	154	68	116	74
20	9	10	11	8	9	12	14	11	28.0	32	38	50	24	32	56	71	41	43	79
21	11	13	14	9	8	9	13	11	29.3	41	69	72	29	25	31	62	47	47	42
22	7	9	9	8	7	6	5	5	18.7	20	28	27	24	19	14	13	11	20	23
23	4	4	4	7	4	3	4	3	11.0	10	10	8	17	8	7	10	6	10	9
24	1	1	1	2	3	3	2	1	4.7	3	3	2	5	7	6	5	3	4	8
25	3	8	6	6	7	5	3	8	15.3	6	21	14	14	17	11	6	26	14	11
26	7	3	4	5	8	5	1	2	11.7	17	7	8	13	22	12	2	4	11	15
27	4	7	8	11	9	5	6	5	18.3	8	17	23	42	30	12	14	13	20	15
28	2	3	5	5	7	3	4	1	10.0	4	7	11	12	18	7	8	2	9	11
29	4	5	5	5	9	8	8	8	17.3	10	11	11	13	31	22	26	24	19	19
30	7	7	11	11	8	2	3	6	18.3	20	18	44	44	23	4	6	14	22	23
31	9	7	9	4	5	9	11	9	21.0	31	19	29	8	11	29	41	29	25	22
																		22.6	

Table 9 - continued

DEC. 1980

	3 Kn								σn		an						An
1	13	12	8	5	8	5	5	4	3313	3211	61	57	24	13	23	11	13	9	26
2	4	3	3	4	6	5	6	8	3332	2204	8	6	7	9	15	12	15	22	12
3	8	8	9	10	11	11	11	8	3233	4352	22	25	31	37	43	48	45	25	35
4	6	9	5	5	5	3	2	4	1222	2223	14	28	13	12	13	7	4	9	13
5	4	4	1	1	2	3	1	2	3232	2213	8	8	3	2	4	7	2	5	5
6	1	2	2	2	3	4	3	0	2222	1221	2	4	4	5	6	9	7	1	5
7	4	3	5	5	3	2	5	5	2122	1322	8	6	11	13	7	5	12	12	9
8	6	6	5	3	3	4	7	8	1312	2321	16	15	13	6	6	10	19	21	13
9	4	4	7	5	4	9	6	9	1331	2324	9	10	19	12	10	28	15	27	16
10	7	9	6	5	6	4	7	6	4212	1322	20	28	14	13	16	10	18	14	17
11	3	3	3	9	10	11	12	11	1121	3411	7	6	6	31	35	46	56	48	29
12	13	9	7	7	5	5	9	8	2222	2231	61	27	19	18	11	11	32	23	25
13	3	3	3	7	5	3	2	4	1213	2242	6	7	7	18	11	7	4	8	9
14	2	1	1	7	7	8	8	6	2323	2234	4	3	2	20	18	25	22	15	14
15	6	8	5	8	6	8	8	6	4223	1221	15	22	12	26	15	23	21	16	19
16	7	6	5	10	13	13	10	3	4324	4452	17	16	12	37	62	66	36	7	32
17	2	3	2	1	1	6	7	1	1121	2342	5	7	4	2	3	15	19	3	7
18	2	4	9	9	9	12	8	7	1323	3412	5	8	30	32	28	51	23	19	25
19	8	12	13	9	20	20	18	14	4352	3455	22	53	63	31	237	232	165	73	110
20	9	9	10	8	8	10	12	9	3032	1321	33	29	40	23	26	40	59	31	35
21	10	11	12	9	8	9	13	11	1233	4541	39	48	59	28	23	33	63	41	42
22	7	7	8	8	7	6	5	4	3112	4223	19	18	23	21	17	15	13	10	17
23	4	5	4	6	4	4	5	3	3532	3342	9	12	8	16	9	8	13	6	10
24	1	0	1	2	3	3	1	1	2212	3431	2	1	2	4	6	6	3	3	3
25	2	5	5	5	7	5	3	9	2333	3324	4	13	11	11	17	12	7	30	13
26	6	4	3	6	8	5	1	1	0425	2341	15	8	7	14	23	11	3	2	10
27	2	7	8	11	9	5	5	3	2322	4333	5	17	23	44	33	11	11	6	19
28	1	2	2	3	5	3	3	0	2312	3421	3	5	5	7	13	7	7	1	6
29	3	4	4	5	8	8	9	8	2333	2342	6	8	9	11	25	22	31	22	17
30	7	5	10	11	9	2	3	5	3223	5422	19	12	35	47	28	5	6	12	21
31	9	7	8	3	4	9	11	9	2222	3444	27	18	21	7	10	32	45	28	24
																			20.6

DEC. 1980

	3 Ks								σs		as						As
1	12	12	10	8	8	5	7	7	3123	2333	57	59	37	24	25	12	18	19	31
2	6	5	5	6	6	5	8	8	3222	3332	15	12	11	14	16	12	24	23	16
3	9	10	10	10	10	11	11	8	1232	3543	28	40	39	37	39	42	42	25	37
4	8	9	7	5	4	4	3	2	1221	5314	24	29	18	13	10	8	7	5	14
5	4	5	1	0	2	2	1	2	2121	3322	9	12	2	0	4	5	3	4	5
6	2	4	2	3	4	5	5	3	2222	1324	5	8	5	7	8	13	11	6	8
7	5	5	7	6	3	3	5	6	3222	1343	13	12	20	14	7	6	11	16	12
8	8	8	7	4	4	6	9	10	2203	3343	24	26	19	10	8	15	31	35	21
9	7	5	8	5	5	9	8	9	2122	3342	17	13	22	12	11	27	22	27	19
10	9	9	6	6	6	5	8	7	2120	4242	31	32	15	15	14	13	22	17	20
11	7	4	3	10	10	12	14	15	1122	3644	17	10	7	34	37	54	84	99	43
12	12	8	9	8	6	5	11	9	3222	1444	58	21	30	23	16	13	47	33	30
13	5	5	6	8	5	6	4	5	2121	2424	12	13	15	22	13	15	9	12	14
14	4	4	4	8	7	7	7	5	3221	2223	8	10	8	21	19	20	17	13	15
15	6	7	7	7	7	8	8	9	2221	3535	14	20	18	17	19	23	24	29	21
16	7	7	8	10	12	11	10	5	2243	2434	19	19	23	36	59	47	36	13	32
17	3	4	4	2	2	5	5	2	2212	3233	7	10	8	4	4	11	13	4	8
18	3	5	11	9	9	10	8	6	1322	2234	6	12	47	33	28	40	24	15	26
19	8	16	14	11	21	20	17	13	2321	5535	25	108	71	47	274	240	144	63	122
20	9	11	13	8	10	14	14	12	1221	3645	32	47	61	26	37	73	83	52	51
21	11	15	14	9	9	9	12	12	3231	1464	44	90	85	31	28	29	60	52	52
22	8	10	9	9	8	5	6	5	3311	3323	21	38	31	28	21	13	14	13	22
23	5	4	4	7	3	3	3	3	4424	2445	11	8	9	18	7	6	6	6	9
24	1	2	1	2	4	2	4	1	3212	1343	3	4	2	5	8	5	8	3	5
25	4	9	7	6	6	4	2	8	4542	2342	9	29	17	16	16	10	5	23	16
26	7	3	4	5	8	5	1	3	3232	2423	18	6	10	13	21	13	2	7	11
27	5	7	8	11	8	5	7	7	2212	2322	11	18	24	41	26	13	17	20	21
28	2	4	6	6	8	4	4	1	2224	4442	4	9	16	16	24	8	8	3	11
29	5	6	5	6	10	8	8	8	2211	3445	13	14	13	16	37	22	22	25	20
30	8	8	12	11	7	2	3	7	2131	2344	21	24	52	42	19	4	7	17	23
31	10	8	10	4	5	8	10	9	3222	3325	36	21	38	8	13	25	37	29	26
																			24.5

TABLE OF REALLY QUIET 48-HOUR INTERVAIS - based on aa-indices - for 1980

(centered on the Greenwich noon)

JAN	9	19	20	22	23	24	31											
FEB	11	12	20	21	22	29												
MAR	1	2	3	4	6	7	8	9	10	11	12	13	14	15	16	17	24	28
APR	2	3	18	19	20	23	26	27	28	29	30							
MAY	2	3	4	16	17	18	21	22	27	28								
JUN	5	18	21	22	28	29	30											
JUL	1	2	3	10	15	16	17	23	30	31								
AUG	1	13	14	15	24	29	30											
SEP	2	19	20	21	24	25	26	27	28									
OCT	1	2	16	27	28	29												
NOV	7																	
DEC	5	6	23	24	28													

Explanation : The selection of really quiet 48-hour interval is made on the basis of two criteria : (a) an A-criterion applied to the sum of the sixteen values of aa ; (b) a p-criterion giving the activity for the most disturbed 3-hour intervals.

A really quiet interval is such that the mean activity during the 48-hour interval is smaller or equal to 13 nT ($Aa \leq 13$; A-criterion) and $\Sigma p \leq 6$ (p-criterion). p is a weight attributed to each 3-hour interval according to the table underneath :

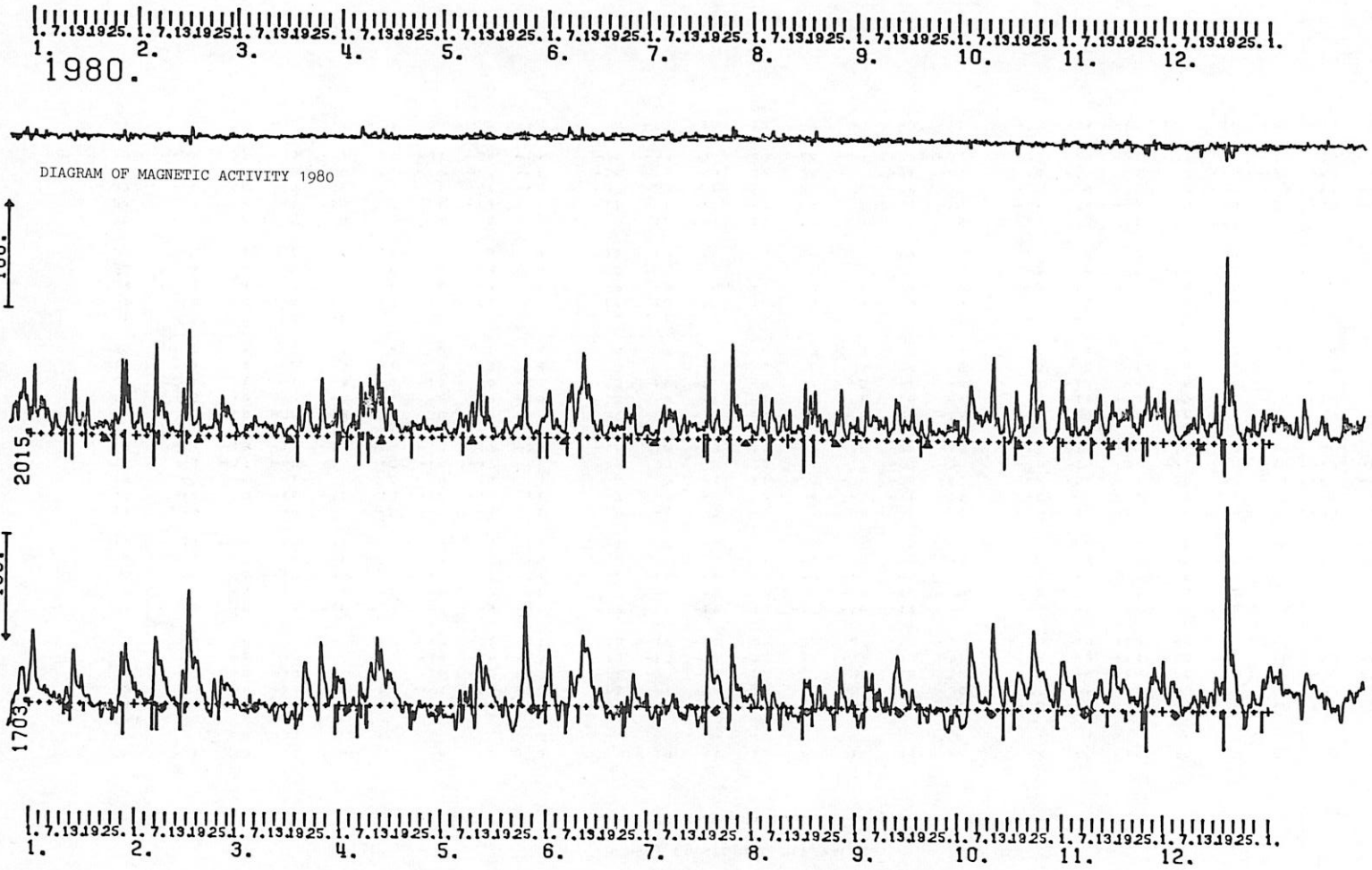
aa	≤ 17	$17 < aa \leq 21$	$21 < aa \leq 28$	$28 < aa < 32$	>32
p	0	1	2	4	6

values p of the weight attributed to a 3-hour interval according to the value of the aa-index.

The tabulated days are those quoted C in the right column of table 1. Those quoted K in this column are those for which $Aa \leq 13$ and $\Sigma p \geq 6$.

One has to note that these intervals are such that the local day (0h → 24h in local time) is really quiet at any longitude.

ref. : Derivation, Meaning and Use of Geomagnetic Index, by P.N. MAYAUD. Geophysical Monograph 22, AGU, Washington 1980.


1. 7.1919 25. 1. 7.1919 25. 1. 7.1919 25. 1. 7.1919 25. 1. 7.1919 25. 1. 7.1919 25. 1. 7.1919 25. 1. 7.1919 25. 1. 7.1919 25. 1. 7.1919 25. 1. 7.1919 25. 1.
1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12.
1980.
DIAGRAM OF MAGNETIC ACTIVITY 1980
100.
2015
100.
1703
1. 7.1919 25. 1. 7.1919 25. 1. 7.1919 25. 1. 7.1919 25. 1. 7.1919 25. 1. 7.1919 25. 1. 7.1919 25. 1. 7.1919 25. 1. 7.1919 25. 1. 7.1919 25. 1. 7.1919 25. 1.
1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12.

HOURLY EQUATORIAL DST VALUES

JANUARY 1980

(for explanation: see page IX)

UNITS: NANOTESLA

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	-27	-20	-23	-28	-32	-32	-32	-31	-33	-37	-42	-39	-40	-44	-46	-47	-48	-58	-60	-65	-71	-92	-100	-87
2	-75	-64	-58	-54	-51	-51	-54	-60	-61	-61	-58	-53	-53	-52	-44	-39	-37	-35	-33	-33	-30	-28	-23	-24
3	-12	-5	-10	-27	-24	-18	-15	-19	-22	-23	-26	-23	-23	-21	-15	-12	-8	-9	-14	-16	-15	-23	-20	-12
4	-5	-5	-5	-8	-11	-14	-16	-13	-10	-13	-20	-15	-12	-11	-10	-11	-2	-8	-11	-15	-18	-16	-13	-12
5	-9	-6	-7	-7	-7	-10	-11	-11	-13	-17	-21	-22	-22	-27	-18	-16	-13	-10	-10	-9	-9	-6	-6	-5
6	-5	-6	-8	-15	-14	-9	-9	-12	-12	-11	-14	-18	-17	-16	-12	-9	-8	-8	-9	-9	-6	-6	-6	-7
7	-7	-4	-4	-7	-8	-6	-7	-1	2	-2	-5	-9	-16	-17	-12	-9	-3	-3	-1	-1	1	5	0	-8
8	-8	-5	-10	-9	-9	-12	-11	-14	-12	-11	-11	-13	-9	-10	-8	-6	-5	-2	-1	0	-4	-4	-3	-1
9	3	5	4	1	0	-4	-7	-6	-3	1	0	-4	-5	-6	-5	-5	-6	-7	-8	-9	-10	-9	-11	-12
10	-10	-10	-8	-7	-5	-1	1	1	-1	-2	-4	-7	-8	-7	-6	-2	0	3	6	6	3	-1	-6	-10
11	-9	-8	-7	-6	-5	-2	-1	1	9	-1	-7	-3	-5	-5	-8	-10	-13	-13	-15	-16	-16	-20	-20	-14
12	-14	-18	-16	-11	-13	-14	-14	-11	-7	-6	-5	-2	-4	-8	-11	-11	-8	-5	-1	2	1	1	-1	-4
13	-5	-5	-1	1	0	9	14	8	-4	0	-3	-11	-26	-38	-38	-40	-42	-51	-57	-50	-53	-61	-65	-61
14	-54	-47	-43	-43	-45	-46	-47	-47	-42	-33	-28	-26	-24	-27	-27	-30	-28	-26	-24	-21	-18	-15	-17	-17
15	-14	-15	-16	-18	-19	-18	-17	-19	-18	-16	-13	-10	-12	-18	-20	-16	-14	-14	-15	-19	-13	-10	-8	-5
16	-8	-19	-20	-19	-25	-30	-39	-41	-31	-27	-26	-24	-24	-25	-21	-16	-19	-20	-19	-16	-13	-11	-9	-8
17	-3	-3	-3	-7	-11	-8	-9	-16	-12	-8	-7	-1	0	1	-6	-4	-4	-11	-10	-9	-12	-14	-13	-6
18	-1	-1	-1	-3	-10	-10	-10	-13	-13	-11	-11	-9	-7	-5	-4	-4	-7	-10	-8	-6	-4	0	1	0
19	0	-1	-2	-3	-1	0	2	2	3	4	-1	5	8	6	7	5	3	3	-1	-4	-4	-1	3	6
20	8	5	4	4	4	2	1	2	4	7	4	4	3	3	3	4	2	1	-2	-1	-2	3	4	3
21	2	2	0	-1	1	0	1	1	5	6	5	6	7	3	2	-1	-6	-5	-3	0	4	5	10	18
22	19	19	16	13	12	13	14	12	11	10	10	10	9	10	9	9	8	8	7	4	4	0	1	3
23	3	4	3	2	1	-4	-7	-4	-3	-3	-6	-2	3	6	4	9	12	13	5	6	3	1	2	2
24	3	4	5	7	8	9	8	9	9	7	2	6	7	8	4	-2	-3	-5	-7	-10	-7	-2	-2	-3
25	-5	-1	1	1	1	3	8	9	11	13	14	25	25	21	19	13	12	6	0	-3	0	5	3	3
26	2	6	6	5	2	7	6	7	9	12	11	11	11	8	6	8	9	8	10	11	12	11	6	2
27	2	2	-4	-13	-17	-14	-11	-11	-11	-11	-11	-7	4	6	-2	-15	-21	-34	-47	-53	-58	-53	-47	-45
28	-44	-46	-50	-55	-54	-51	-47	-42	-37	-33	-31	-28	-27	-30	-27	-20	-27	-39	-36	-42	-28	-23	-10	-21
29	-55	-67	-68	-59	-63	-69	-66	-61	-56	-49	-46	-39	-34	-32	-41	-40	-40	-39	-36	-47	-56	-55	-43	-41
30	-38	-32	-29	-30	-29	-31	-34	-34	-34	-33	-40	-33	-24	-24	-27	-32	-33	-29	-28	-29	-30	-27	-25	-26
31	-27	-25	-26	-26	-27	-28	-30	-28	-24	-23	-18	-12	-7	-8	-9	-11	-13	-14	-15	-16	-18	-20	-20	-17

HOURLY EQUATORIAL DST VALUES

FEBRUARY 1980

UNITS: NANOTESLA

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	-21	-24	-24	-23	-21	-20	-22	-22	-15	-10	-7	-9	-5	-4	-2	1	-1	-3	-1	-12	-14	-13	-9	-4
2	-11	-7	-5	-7	-14	-19	-18	-19	-18	-14	-13	-8	-2	-5	-7	-8	-8	-10	-14	-12	-11	-8	-8	-10
3	-14	-15	-14	-6	-3	-1	-3	-5	-6	-7	-9	-8	-6	-4	-1	0	-1	0	-2	-2	-3	-4	-8	-10
4	-10	-8	-5	-2	-1	0	2	-5	-7	-5	-7	-6	-2	-1	2	5	2	-3	-6	-6	-6	-6	-5	-7
5	-5	-3	-2	-1	-1	1	1	2	2	4	1	0	-1	-2	-5	3	-8	-7	-8	-7	-8	-10	-10	-10
6	-6	-9	-8	9	18	16	17	1	-25	-37	-28	-31	-31	-30	-34	-56	-64	-67	-64	-83	-77	-65	-63	-64
7	-61	-56	-58	-56	-59	-60	-63	-63	-70	-63	-62	-57	-44	-41	-36	-33	-38	-40	-39	-42	-42	-38	-32	-31
8	-32	-32	-43	-37	-39	-39	-41	-45	-49	-47	-49	-44	-35	-41	-42	-41	-36	-35	-34	-35	-35	-34	-35	-36
9	-31	-28	-28	-28	-22	-21	-27	-27	-24	-22	-22	-19	-17	-17	-20	-26	-27	-29	-34	-32	-28	-26	-25	-23
10	-20	-19	-22	-24	-24	-24	-18	-15	-13	-7	-6	-7	-6	-10	-14	-14	-10	-5	-6	-11	-10	-10	-9	-7
11	-3	-4	-6	-9	-11	-10	-16	-8	-3	-1	1	2	0	-2	-3	-3	-4	-5	-6	-5	-5	-2	-1	-2
12	-2	-1	-2	-7	-12	-13	-10	-10	-8	-7	-5	-3	-1	-3	-1	-3	0	0	0	0	1	2	-1	-2
13	0	3	1	-3	-6	-6	-5	-3	2	6	5	5	8	9	9	11	10	11	12	11	12	16	15	12
14	8	8	3	11	6	-1	-3	-1	4	-1	-22	-37	-35	-27	-25	-33	-38	-43	-37	-36	-38	-31	-27	-25
15	-19	-18	-23	-25	-31	-34	-37	-40	-38	-32	-24	-17	-8	4	9	0	-9	-4	-5	-3	-33	-58	-68	-60
16	-58	-65	-77	-98	-115	-122	-129	-132	-132	-120	-105	-93	-92	-83	-80	-78	-78	-74	-74	-67	-65	-64	-59	-59
17	-59	-56	-54	-51	-52	-53	-52	-52	-49	-45	-40	-32	-29	-31	-34	-34	-33	-33	-35	-38	-37	-34	-32	-33
18	-39	-42	-42	-41	-43	-44	-46	-49	-53	-54	-52	-45	-36	-34	-36	-34	-30	-34	-40	-46	-49	-48	-48	-40
19	-37	-36	-36	-38	-44	-44	-44	-46	-45	-38	-32	-28	-23	-18	-19	-21	-19	-19	-20	-23	-24	-21	-14	-14
20	-17	-18	-19	-20	-20	-19	-21	-23	-17	-13	-15	-14	-9	-4	0	-3	-11	-9	-7	-10	-12	-12	-10	-10
21	-9	-10	-12	-13	-11	-10	-12	-12	-12	-10	-7	-5	-1	6	8	6	6	5	0	0	0	0	5	7
22	11	14	16	11	6	6	4	1	4	5	9	9	4	8	10	7	5	2	3	4	4	8	13	20
23	26	24	14	13	8	4	3	7	8	8	-2	-5	2	-1	-1	-1	-10	-18	-22	-30	-31	-33	-28	-21
24	-18	-18	-19	-23	-28	-30	-27	-23	-18	-15	-11	-4	1	1	-4	-4	-5	-5	-6	-7	-6	-6	-2	2
25	3	4	2	0	0	0	-3	-7	-2	-3	0	5	8	7	14	12	6	5	-4	-12	-28	-37	-33	-21
26	-31	-31	-26	-28	-25	-23	-27	-29	-23	-17	-13	-10	-12	-22	-17	-20	-22	-23	-20	-27	-26	-23	-11	-8
27	-4	0	0	-3	-14	-27	-22	-22	-26	-22	-18	-18	-15	-24	-23	-19	-17	-20	-23	-26	-25	-22	-19	-18
28	-18	-19	-17	-14	-16	-16	-15	-19	-23	-25	-25	-18	-16	-13	-12	-15	-14	-15	-16	-17	-17	-16	-10	-7
29	-7	-11	-11	-13	-15	-16	-18	-17	-16	-18	-19	-16	-12	-11	-8	-7	-9	-14	-14	-14	-16	-14	-9	-6

HOURLY EQUATORIAL DST VALUES

MARCH 1980

UNITS: NANOTESLA

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	0	2	3	0	-4	-3	-3	-3	-2	1	-1	-2	-3	-4	-5	-8	-10	-10	-9	-6	-4	1	3	4
2	5	5	6	5	2	-1	-5	-6	-3	0	4	7	11	10	9	7	3	-1	0	2	8	9	7	4
3	6	9	11	10	5	4	3	4	5	5	3	4	6	10	12	11	2	-3	1	5	4	2	2	4
4	8	11	13	13	11	8	5	1	-3	-5	-6	-4	-4	1	6	6	5	6	7	8	9	8	6	14
5	18	15	4	1	-6	-7	-6	-6	-11	-16	-20	-21	-14	-9	-3	-3	-1	-3	-2	0	-2	0	0	3
6	4	9	11	14	10	2	2	2	3	4	-4	-12	-3	2	2	0	1	-1	4	5	4	0	-5	-5
7	-9	-7	-6	-5	-1	3	2	0	2	2	-2	-4	-2	3	7	6	6	4	6	4	0	-2	-4	-4
8	-5	-5	-5	-6	-6	-8	-4	-3	-4	-3	-1	-5	-3	0	2	3	3	1	1	2	2	3	0	-4
9	-5	-5	-4	-2	2	3	0	-3	-4	0	-1	-1	-2	-5	-6	-2	-2	-1	1	2	5	7	3	3
10	3	1	0	-1	4	5	3	6	6	7	1	1	1	-2	0	2	2	0	-1	1	4	7	8	11
11	10	6	5	5	6	6	7	9	12	13	5	8	8	9	7	7	5	5	4	1	1	1	-1	-1
12	1	2	2	2	0	0	2	3	5	6	6	10	8	6	7	9	10	13	15	13	13	13	15	16
13	17	19	18	18	17	17	17	15	11	10	9	6	5	7	8	9	10	8	5	5	3	5	5	-1
14	-5	-2	0	1	0	1	4	6	9	5	0	-4	-4	-3	-3	0	2	3	0	0	0	1	2	3
15	4	4	5	6	7	7	6	7	9	8	4	0	-1	1	5	7	8	7	7	6	4	5	7	11
16	15	17	17	20	23	24	25	25	22	18	10	4	8	11	12	12	13	13	16	20	23	17	12	13
17	18	22	20	19	18	15	12	13	14	13	9	9	13	15	13	10	10	11	9	8	3	0	2	4
18	6	3	6	8	8	8	11	13	10	9	11	14	15	16	17	17	16	16	16	15	15	14	12	14
19	14	13	12	15	17	18	29	32	22	26	24	11	8	16	22	26	20	18	15	12	14	13	15	14
20	10	6	7	9	11	11	12	13	12	9	6	5	8	11	15	18	19	19	21	22	21	17	8	6
21	5	1	-7	-6	-12	-21	-29	-29	-38	-44	-49	-52	-44	-37	-32	-34	-34	-37	-40	-46	-45	-39	-42	-37
22	-36	-36	-38	-38	-38	-41	-42	-32	-21	-10	-10	-20	-31	-37	-31	-26	-24	-26	-21	-23	-21	-23	-22	-22
23	-24	-26	-28	-27	-21	-17	-13	-11	-12	-12	-14	-14	-14	-12	-8	-7	-8	-6	-4	-3	-3	-5	-8	-9
24	-10	-9	-9	-8	-3	-3	-8	-7	-4	-2	-6	-9	-2	-1	-2	-2	0	3	4	5	6	5	3	7
25	6	7	5	6	8	9	10	11	10	9	4	3	4	10	16	22	22	22	25	25	22	10	-5	-18
26	-19	-23	-30	-52	-61	-50	-50	-57	-66	-70	-73	-67	-63	-63	-56	-49	-48	-46	-45	-49	-44	-38	-40	-34
27	-31	-36	-38	-39	-38	-37	-34	-29	-24	-24	-28	-32	-32	-31	-28	-24	-19	-16	-16	-18	-20	-22	-24	-27
28	-28	-24	-22	-22	-16	-11	-13	-7	-2	-4	-9	-13	-13	-6	1	5	3	2	4	4	7	5	2	-2
29	-3	-4	-6	-5	-5	-12	-17	-11	-5	-6	-10	-13	-14	-11	-8	-5	-2	0	-3	-4	-9	-10	-13	-15
30	-13	-18	-20	-26	-35	-41	-46	-47	-41	-38	-38	-38	-37	-32	-27	-24	-22	-20	-19	-18	-18	-14	-13	-10
31	7	8	1	-20	-17	-23	-23	-32	-38	-35	-26	-29	-39	-30	-27	-24	-21	-21	-18	-20	-21	-20	-28	-31

HOURLY EQUATORIAL DST VALUES

APRIL 1980

UNITS: NANOTESLA

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	-34	-31	-29	-26	-23	-22	-22	-20	-15	-15	-19	-22	-22	-23	-22	-23	-24	-25	-24	-24	-23	-25	-25	-25
2	-26	-30	-32	-31	-29	-25	-21	-18	-14	-13	-14	-15	-15	-13	-11	-8	-7	-5	-1	1	0	3	3	1
3	-2	-3	-1	2	0	-1	4	6	3	1	0	2	2	2	7	11	10	8	0	2	4	3	0	-3
4	-5	-2	-1	2	7	6	6	5	-7	-8	-3	-7	-3	1	5	8	9	5	5	0	-4	-7	-8	-11
5	-13	-12	-12	-11	-10	-7	-6	-6	-2	-1	-2	1	3	7	9	11	4	1	7	7	6	3	2	1
6	0	-2	-3	-2	0	3	5	4	4	5	7	30	29	23	23	9	-8	-27	-20	-19	-14	-21	-26	-22
7	-28	-32	-26	-23	-24	-22	-15	-17	-22	-15	-14	-14	-7	-5	-5	-4	-2	1	0	-14	-11	-11	-11	-15
8	-16	-15	-11	-19	-14	-5	-1	-5	2	3	3	-5	-6	-9	-4	-6	-4	-8	-8	-8	-10	-11	-10	-6
9	-12	-17	-14	-12	-15	3	-7	-1	7	-9	-35	-56	-46	-33	-30	-30	-31	-31	-30	-36	-39	-37	-34	-29
10	-31	-29	-40	-43	-47	-40	-41	-47	-50	-50	-42	-45	-38	-30	-27	-27	-29	-26	-18	-26	-27	-28	-27	-25
11	-28	-31	-28	-26	-27	-25	-23	-29	-22	-20	-21	-25	-29	-33	-22	-19	-19	-35	-49	-64	-77	-87	-72	-67
12	-66	-68	-68	-57	-60	-61	-53	-55	-49	-45	-45	-43	-46	-40	-37	-34	-33	-31	-33	-32	-27	-25	-23	-39
13	-59	-63	-62	-57	-57	-55	-61	-52	-48	-48	-50	-47	-44	-42	-41	-37	-40	-38	-41	-41	-36	-31	-30	-32
14	-31	-34	-33	-29	-27	-28	-28	-25	-23	-22	-22	-24	-23	-21	-20	-16	-13	-5	-10	-19	-13	-10	-21	-28
15	-35	-32	-42	-43	-45	-42	-42	-41	-30	-25	-23	-21	-20	-19	-18	-18	-24	-31	-35	-34	-33	-36	-41	-36
16	-31	-26	-25	-26	-33	-32	-30	-33	-28	-24	-25	-25	-22	-20	-22	-23	-23	-21	-22	-23	-22	-18	-19	-21
17	-18	-19	-21	-28	-32	-28	-23	-22	-21	-18	-15	-14	-14	-13	-11	-10	-10	-8	-8	-9	-11	-14	-14	-17
18	-16	-11	-9	-9	-5	-4	-6	-7	-9	-11	-10	-10	-9	-9	-8	-7	-6	-3	-3	-7	-7	-9	-4	-2
19	-4	-3	2	8	10	7	6	5	4	4	4	4	6	7	8	6	5	3	3	3	8	9	11	9
20	8	6	3	-3	-4	-3	-6	-6	-5	-3	-5	-6	-6	-4	-3	0	3	6	2	-2	-5	-6	-6	0
21	-2	-3	0	-3	-2	-2	0	0	-1	2	6	8	8	8	9	7	8	8	7	7	10	11	11	16
22	31	42	41	40	27	20	12	13	11	13	11	14	12	10	7	8	7	4	3	5	1	-3	-4	0
23	8	16	18	20	18	18	19	15	9	7	9	10	11	11	11	10	4	1	3	6	7	4	0	-1
24	1	2	4	3	-8	-2	-1	-2	-3	-1	-2	-3	-6	-9	-10	-10	-8	-6	-5	-3	-1	-1	-2	-2
25	-2	-4	2	1	1	-6	-1	2	6	7	1	-3	0	1	7	4	2	-2	-2	-1	-1	-1	-2	-1
26	2	4	5	3	-2	-9	-11	-6	-5	-5	-3	-4	1	3	1	0	1	2	0	2	3	3	-1	2
27	4	7	10	10	9	12	10	11	11	11	8	10	10	11	12	11	12	14	11	12	12	9	0	1
28	2	7	8	7	4	5	7	7	9	9	10	9	11	13	14	14	11	9	7	7	6	3	3	4
29	5	7	9	9	10	12	10	10	13	14	15	13	13	14	17	24	24	21	19	11	8	5	6	6
30	7	10	13	8	4	8	8	8	7	10	11	15	16	6	3	7	9	9	5	3	2	1	-1	-3

HOURLY EQUATORIAL DST VALUES

MAY 1980

UNITS: NANOTESLA

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	2	2	2	6	8	3	3	6	6	5	6	6	11	12	10	9	12	11	9	16	18	14	9	9
2	9	9	9	10	8	6	6	4	6	7	8	11	13	13	11	11	12	14	13	9	9	11	11	10
3	10	11	13	13	11	9	10	12	10	7	8	9	10	11	10	12	11	13	12	12	12	10	8	9
4	12	13	14	14	13	11	11	10	8	9	7	6	7	7	4	7	10	11	9	7	7	6	6	9
5	13	16	16	16	19	24	26	27	29	28	24	24	22	22	19	17	21	24	23	19	19	22	11	2
6	-4	-3	0	-4	-2	-1	-1	-11	-13	-11	-9	-12	-19	-15	-15	-16	-17	-18	-19	-20	-15	-7	-2	1
7	3	5	4	3	0	-3	-2	-1	14	14	13	13	25	24	22	20	15	9	1	-7	-8	-8	-8	0
8	-3	-12	-19	-22	-21	-25	-23	-17	-14	-9	-5	-4	-4	-6	-2	-4	-6	-6	-2	-2	-3	-1	3	5
9	10	7	8	3	-10	-17	-21	-19	-15	-8	-9	-11	-15	-17	-20	-24	-27	-31	-31	-19	-17	-25	-16	-12
10	-5	-1	5	6	5	2	1	5	14	19	18	16	12	11	8	3	-1	-3	6	13	17	23	21	33
11	31	34	27	18	19	18	13	3	-6	-29	-35	-32	-34	-39	-41	-35	-30	-37	-45	-44	-38	-41	-53	-50
12	-48	-45	-50	-53	-62	-62	-54	-49	-47	-42	-42	-43	-43	-42	-44	-43	-45	-47	-47	-43	-37	-36	-34	-32
13	-25	-23	-23	-24	-19	-21	-18	-16	-20	-18	-14	-15	-13	-12	-12	-13	-14	-15	-15	-15	-22	-26	-41	-46
14	-39	-36	-37	-46	-48	-42	-40	-38	-34	-30	-27	-28	-32	-34	-32	-31	-30	-32	-29	-30	-28	-30	-30	-27
15	-26	-25	-26	-26	-26	-23	-25	-20	-18	-18	-17	-15	-15	-17	-16	-17	-19	-20	-18	-15	-13	-14	-17	-21
16	-22	-22	-19	-18	-16	-13	-10	-11	-9	-8	-9	-6	-9	-7	-8	-9	-10	-10	-11	-10	-8	-10	-9	-6
17	-4	-5	-5	-5	-4	-4	-4	-4	-2	-2	-2	-2	-5	-6	-4	-5	-7	-7	-7	-1	0	0	0	3
18	7	8	7	6	5	5	5	5	4	2	1	0	3	4	3	3	2	-3	0	4	7	5	4	7
19	8	7	10	14	16	17	18	15	8	3	2	4	6	7	10	3	1	-8	-16	-15	-9	-9	-8	-6
20	-8	-13	-11	-9	-5	1	3	-1	-1	-1	2	4	4	3	2	-1	-3	-1	1	2	7	8	7	10
21	14	17	15	14	15	14	10	9	11	12	15	14	15	18	21	22	22	24	24	23	24	24	21	23
22	21	22	21	22	24	30	27	26	28	31	27	24	21	18	18	21	18	17	16	18	20	20	20	23
23	24	19	13	12	13	13	14	12	11	11	11	9	13	7	6	2	-6	-10	-13	-10	-7	-9	-10	-6
24	1	0	-3	-5	-4	-4	-2	2	3	1	-4	-5	0	1	-1	-3	-10	-18	-29	-28	-26	-28	-33	-34
25	-25	-11	-9	-4	-16	-31	-40	-38	-52	-68	-86	-84	-101	-126	-108	-99	-98	-94	-93	-90	-86	-83	-78	-71
26	-69	-72	-66	-65	-64	-61	-60	-53	-49	-49	-47	-45	-42	-39	-36	-34	-33	-32	-29	-26	-29	-31	-29	-23
27	-23	-25	-27	-31	-29	-27	-27	-26	-24	-22	-20	-22	-22	-21	-20	-17	-15	-13	-13	-12	-13	-14	-13	-8
28	-8	-7	-5	-2	-1	0	1	1	1	0	0	1	-2	-3	0	0	-2	-3	-2	1	2	2	5	7
29	7	8	6	5	5	3	0	-1	1	0	1	0	-2	-2	-1	0	-1	-2	0	8	12	14	16	18
30	17	13	0	-2	-1	2	3	3	3	3	7	4	5	6	4	5	5	6	3	3	8	9	9	1
31	8	5	-5	-9	-14	-12	-14	-11	-7	-6	-6	-9	-14	-18	-22	-18	-25	-24	-20	-18	-16	-10	-20	-23

TABLE 10 Dst - continued

Part B

HOURLY EQUATORIAL DST VALUES

JUNE 1980

UNITS: NANOTESLA

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	-20	-17	-17	-21	-23	-22	-25	-29	-37	-47	-57	-54	-51	-56	-57	-58	-56	-55	-53	-53	-54	-51	-49	-42
2	-38	-37	-41	-40	-38	-33	-29	-25	-21	-15	-10	-8	-8	-7	-7	-7	-6	-8	-9	-8	-8	-8	-7	-9
3	-10	-9	-11	-14	-13	-17	-18	-19	-18	-14	-17	-19	-17	-8	-6	-3	4	0	6	7	3	1	-2	-3
4	-3	1	-1	2	4	6	11	15	17	17	13	7	9	12	14	14	15	16	16	18	17	13	6	3
5	4	3	-1	-4	-4	-4	-3	-2	-2	-6	-7	-7	-7	-5	-4	-4	-2	-1	-2	-2	-3	-3	-3	-6
6	-3	-5	-6	-4	-3	0	2	1	3	2	-2	-3	1	9	17	23	14	18	10	13	21	21	29	39
7	19	18	24	11	-9	-10	-4	-9	-2	6	7	-2	0	4	-1	1	9	7	0	-12	-13	-17	-23	-33
8	-39	-39	-48	-46	-37	-30	-29	-31	-28	-24	-20	-25	-35	-27	-22	-21	-23	-23	-19	-20	-17	-22	-18	-15
9	-15	-17	-20	-22	-14	-9	-5	-2	1	-5	-13	-15	-13	-13	-12	-12	-9	-9	-10	-9	-14	-20	-28	-33
10	-33	-36	-29	-27	-26	-28	-29	-28	-25	-26	-32	-35	-31	-31	-27	-30	-30	-19	-29	-34	-32	-30	-34	-38
11	-31	-25	-22	-26	-25	-27	-25	-24	-28	-31	-41	-60	-59	-58	-68	-75	-75	-71	-73	-71	-65	-65	-69	-63
12	-67	-60	-63	-65	-60	-55	-46	-46	-41	-45	-50	-56	-57	-60	-56	-59	-60	-50	-47	-53	-51	-54	-58	-56
13	-64	-61	-58	-56	-57	-57	-51	-54	-49	-48	-59	-65	-60	-54	-55	-53	-48	-45	-48	-49	-47	-49	-55	-47
14	-42	-42	-43	-41	-38	-35	-28	-18	-15	-19	-19	-21	-21	-21	-20	-17	-15	-15	-16	-15	-15	-21	-18	-16
15	-18	-23	-23	-25	-24	-21	-21	-15	-10	-8	-7	-6	-5	-1	1	1	4	3	2	2	-1	-4	-9	-11
16	-12	-11	-9	-10	-11	-13	-12	-13	-12	-12	-11	-10	-12	-11	-13	-14	-13	-12	-15	-20	-21	-21	-21	-19
17	-19	-22	-21	-17	-15	-12	-12	-13	-13	-11	-8	-7	-7	-5	-6	-6	-4	-4	-6	-6	-4	-4	-2	-1
18	-1	-3	-5	-7	-6	-4	0	2	3	5	4	5	5	0	2	3	6	11	11	12	12	11	11	14
19	14	10	9	11	9	7	4	1	-1	2	3	6	6	7	10	11	9	3	1	-1	2	6	9	9
20	1	-1	-1	3	5	5	5	4	5	7	9	9	7	9	9	7	8	8	11	13	15	18	19	16
21	13	12	9	7	7	6	4	2	2	2	4	-1	-2	0	5	6	2	3	6	12	14	15	14	14
22	7	-1	-4	-5	-5	-4	-1	3	4	5	6	5	4	6	9	12	17	20	17	14	7	5	3	-2
23	-10	-15	-11	-6	-3	0	-2	-4	-3	-2	-1	-2	-4	-6	-7	-3	1	3	1	1	3	3	2	1
24	0	-2	6	29	29	29	30	35	29	18	12	11	7	5	5	4	2	-1	0	-1	2	-5	-9	-13
25	-18	-16	-11	-5	-10	-11	-13	-6	-4	-2	1	2	-1	-1	1	-1	-1	2	7	15	14	18	14	6
26	4	8	3	-4	-2	-2	-1	-3	-1	1	-3	-5	-4	-10	-10	-14	-19	-28	-37	-47	-52	-47	-38	-32
27	-31	-24	-21	-20	-20	-20	-19	-21	-20	-20	-20	-19	-19	-20	-18	-16	-12	-10	-8	-7	-7	-8	-9	-13
28	-13	-10	-5	-4	-5	-6	-10	-10	-10	-9	-8	-7	-8	-6	-7	-10	-11	-12	-13	-12	-9	-6	-5	-4
29	-4	-3	2	2	4	4	3	-1	-3	-2	-2	-3	-2	0	-1	-3	-5	-2	-1	0	1	4	1	-5
30	-15	-23	-17	-9	-6	-6	-1	1	2	4	4	0	-6	-9	-11	-16	-11	-14	-11	-8	-8	-8	-10	-15

TABLE 10 Dst - continued

Part B

HOURLY EQUATORIAL DST VALUES

JULY 1980

UNITS: NANOTESLA

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	-18	-20	-19	-15	-11	-8	-5	0	2	3	2	3	5	4	1	2	4	4	6	4	5	8	9	12
2	12	11	9	10	11	11	13	14	14	12	12	10	9	11	12	11	10	12	12	9	7	10	12	14
3	11	5	5	8	4	1	0	-1	-2	-3	-2	-3	-1	0	-2	1	2	3	3	4	10	9	8	4
4	3	3	4	5	7	9	8	13	22	24	21	21	22	17	14	16	19	19	17	14	11	4	0	0
5	-4	-12	-15	-11	-4	0	1	5	10	15	13	13	20	19	11	6	-6	-15	-27	-21	-11	-8	-6	-4
6	-1	-1	-3	-2	-2	-3	-2	2	2	-1	1	8	15	10	3	2	5	7	6	12	11	11	8	3
7	-2	-5	-1	6	4	5	5	7	0	-3	0	3	4	5	5	5	1	-4	-5	-7	-9	-6	-3	-1
8	2	1	-1	-6	-6	-10	-9	-7	-6	-3	-7	-10	-7	-3	-6	-10	-12	-16	-22	-23	-21	-18	-12	-8
9	-7	-3	0	1	0	2	5	7	3	-2	-1	4	6	2	-3	-6	-9	-12	-17	-15	-15	-13	-7	-4
10	-4	-4	-1	1	1	2	4	5	6	6	6	8	8	7	8	9	8	9	10	11	12	10	11	8
11	9	9	7	5	0	-3	0	4	5	9	10	9	12	22	12	14	14	14	13	8	6	9	10	5
12	8	7	4	5	7	9	12	13	13	12	14	13	10	13	14	16	12	8	7	8	8	7	4	7
13	8	6	5	2	-2	-5	-6	0	1	1	2	3	-1	2	2	0	-8	-10	-9	-10	-6	-5	-3	1
14	6	9	9	6	4	4	3	0	-3	-5	-2	-3	-4	-8	-8	-2	-2	-1	2	3	3	6	7	4
15	2	1	2	-3	-3	-1	3	4	3	4	6	14	15	12	7	3	4	6	11	15	23	28	20	18
16	17	19	21	21	19	17	16	12	13	15	14	14	10	10	10	10	10	10	11	10	8	6	5	6
17	10	11	9	9	8	10	11	11	7	2	4	6	4	3	2	5	6	5	6	13	18	12	12	13
18	13	8	8	6	6	5	6	8	6	6	7	7	2	-5	-5	-5	-6	-11	-15	-4	-12	-54	-80	-74
19	-73	-66	-66	-63	-65	-61	-69	-64	-58	-53	-49	-50	-53	-56	-59	-57	-53	-52	-51	-47	-43	-42	-43	-45
20	-45	-41	-37	-35	-35	-33	-30	-30	-29	-25	-25	-27	-28	-25	-24	-20	-21	-23	-26	-24	-21	-20	-21	-23
21	-29	-23	-20	-30	-30	-29	-28	-31	-32	-32	-31	-29	-27	-18	-23	-31	-32	-31	-29	-29	-29	-29	-31	-33
22	-35	-35	-32	-29	-28	-26	-26	-27	-25	-23	-22	-26	-30	-33	-32	-27	-24	-21	-20	-15	-12	-10	-15	-19
23	-13	-12	-13	-13	-12	-10	-10	-11	-10	-8	-5	-5	-4	-3	-1	-2	-3	-3	-1	-2	-3	-5	-10	-8
24	-4	0	0	-3	-5	-2	-3	-3	-1	-3	-4	-7	-7	-9	-6	-1	3	4	3	-1	-9	-12	-6	1
25	6	6	4	4	9	11	11	7	7	6	7	19	14	13	29	27	26	-1	-20	-18	-27	-59	-88	-85
26	-71	-73	-68	-63	-58	-48	-46	-41	-36	-39	-40	-33	-42	-45	-43	-42	-38	-36	-40	-41	-41	-40	-43	-48
27	-48	-37	-25	-17	-9	-3	-14	-17	-18	-9	-12	-16	-24	-27	-31	-33	-32	-29	-26	-19	-12	-12	-16	-14
28	-10	-7	-10	-20	-22	-25	-24	-19	-21	-16	-13	-16	-17	-19	-18	-20	-19	-21	-19	-20	-21	-21	-21	-19
29	-16	-14	-9	-8	-9	-8	-9	-10	-7	-4	-3	-3	-5	-9	-2	-1	-2	-8	-15	-18	-15	-15	-12	-12
30	-12	-10	-9	-9	-10	-9	-5	-6	-6	-4	-4	-4	-5	-3	-3	-4	-5	-9	-11	-9	-4	-3	-10	-16
31	-17	-12	-9	-10	-9	-11	-10	-9	-8	-9	-9	-10	-14	-16	-16	-13	-10	-9	-9	-9	-11	-14	-16	-14

HOURLY EQUATORIAL DST VALUES

AUGUST 1980

UNITS: NANOTESLA

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	-10	-7	-5	-2	-4	-6	-7	-8	-8	-9	-9	-13	-12	-11	-8	-5	-3	0	2	1	0	-2	-3	-3
2	-3	-4	-3	-1	2	2	-1	-1	1	0	-1	-2	-2	1	2	3	3	3	2	0	0	-5	-10	-13
3	-15	-11	-11	-14	-19	-29	-32	-38	-43	-33	-33	-33	-37	-40	-34	-27	-24	-20	-18	-21	-17	-16	-14	-13
4	-10	-7	-5	-3	-2	-2	-6	-11	-11	-10	-12	-14	-20	-23	-23	-20	-19	-24	-26	-26	-25	-24	-25	-22
5	-20	-13	-9	-6	-5	-5	-4	-6	-7	-5	-5	-5	-6	-9	-6	-3	-3	-2	-1	-1	3	5	7	7
6	17	11	4	-6	-3	2	2	0	1	1	-2	-5	-3	12	31	35	30	22	14	2	-7	-6	-14	-15
7	-16	-13	-11	-11	-10	-8	-13	-18	-19	-15	-12	-13	-16	-18	-15	-15	-16	-17	-13	-13	-14	-15	-7	-6
8	-6	-6	-6	-6	-6	-7	-6	-3	0	0	2	0	-1	1	1	2	0	-4	-7	-8	-8	-5	-1	1
9	2	5	9	9	12	16	18	15	16	22	21	26	31	28	27	21	19	15	11	11	5	3	2	-2
10	-1	4	6	6	1	-10	-15	-6	-5	-6	-6	-3	-6	-6	-3	-2	-4	-4	-4	-3	-3	1	1	-1
11	-1	1	-1	-2	-2	-2	-3	-3	-3	-2	-2	-4	-2	1	2	2	6	12	16	16	12	13	14	5
12	2	5	10	14	14	7	5	3	1	0	2	4	5	4	5	3	3	6	4	5	5	3	-4	-10
13	-8	4	12	18	17	13	8	5	4	6	7	7	5	5	9	11	11	5	6	9	14	12	6	3
14	5	4	8	9	9	9	8	6	0	4	8	8	5	8	10	11	11	9	5	9	15	17	14	7
15	5	10	15	19	18	18	18	15	12	10	8	7	4	2	1	-4	-2	1	5	8	10	8	4	4
16	6	7	5	2	0	-1	-1	3	3	2	1	5	12	20	-9	-30	-38	-37	-39	-30	-25	-27	-21	-24
17	-23	-23	-21	-19	-17	-16	-16	-20	-19	-23	-22	-20	-25	-25	-23	-21	-20	-26	-31	-30	-25	-20	-25	-20
18	-9	-12	-10	-8	-16	-25	-39	-44	-43	-36	-27	-24	-25	-21	-20	-19	-17	-12	-9	-7	-6	-2	-6	-14
19	-19	-17	-9	-13	-14	-12	-16	-19	-22	-21	-6	1	0	6	16	4	8	4	0	-2	-6	4	3	9
20	9	9	0	-5	-5	-3	2	5	4	8	12	5	-2	-3	-3	-5	-3	-7	-10	-12	-10	-8	-15	-20
21	-21	-26	-28	-25	-24	-24	-18	-19	-26	-19	-15	-22	-26	-25	-24	-22	-17	-14	-14	-13	-8	-1	2	4
22	1	-1	2	3	3	-2	-1	-3	-3	-2	-2	-3	-3	3	3	5	4	1	-6	-13	-11	-11	-16	-18
23	-21	-22	-16	-11	-6	0	0	0	1	2	2	-4	-4	-1	1	3	5	5	4	5	5	6	3	-1
24	-4	-7	-5	-4	-4	-3	0	3	3	2	5	7	9	7	5	3	6	7	5	4	11	7	6	3
25	3	4	4	5	6	8	9	9	9	9	11	14	13	16	19	26	29	33	31	28	24	20	11	-3
26	-18	-28	-28	-24	-20	-20	-14	-10	-8	-10	-9	-6	0	1	7	5	12	15	11	13	6	2	-5	-5
27	-7	-12	-18	-18	-9	-1	-10	-19	-33	-35	-43	-59	-57	-42	-36	-42	-39	-35	-30	-28	-27	-24	-22	-21
28	-22	-23	-19	-19	-19	-17	-17	-16	-15	-15	-12	-9	-8	-7	-9	-10	-12	-11	-11	-9	-11	-7	-10	-15
29	-19	-17	-12	-7	-5	-3	-3	-3	0	1	2	0	-1	-1	1	2	8	10	8	7	1	-4	-5	-4
30	-1	0	0	-3	-10	-9	-2	1	3	-2	-2	0	1	0	-1	-2	-2	-5	-8	-10	-7	-2	-2	-5
31	-6	-12	-18	-19	-14	-9	-5	-2	-3	-3	-2	1	3	2	4	6	6	6	7	6	9	9	9	11

HOURLY EQUATORIAL DST VALUES

SEPTEMBER 1980

TABLE 10 Dst - continued

Part B

UNITS: NANOTESLA

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	5	0	1	1	4	5	5	9	11	9	8	9	11	14	18	19	21	22	20	21	21	19	16	14
2	12	10	1	1	8	14	18	15	14	13	13	10	5	5	5	5	6	7	5	5	5	3	2	2
3	-1	-2	0	3	6	10	13	18	22	23	25	26	24	28	23	10	-7	-21	-35	-39	-35	-31	-32	-34
4	-42	-45	-38	-36	-38	-33	-30	-24	-19	-18	-16	-17	-17	-20	-20	-18	-14	-16	-16	-15	-16	-19	-21	-23
5	-19	-19	-20	-23	-25	-27	-24	-21	-19	-13	-13	-18	-19	-17	-16	-17	-17	-25	-35	-44	-49	-52	-48	-38
6	-31	-28	-27	-23	-17	-5	3	-3	1	0	-5	-5	-3	3	12	-1	8	4	-2	-6	-7	-4	-9	-26
7	-32	-29	-21	-18	-17	-16	-15	-14	-11	-9	-9	-7	-10	-6	-4	-1	-1	-5	-13	-18	-20	-17	-11	-14
8	-24	-27	-30	-24	-20	-18	-15	-10	-6	-1	-1	-2	-4	-6	-2	-7	-4	-1	0	-1	-1	-3	0	3
9	4	2	0	5	1	4	1	4	8	9	2	-3	-3	-7	-10	-9	-6	0	-5	-7	-9	-14	-20	-20
10	-16	-14	-11	-9	-7	-6	-6	-5	-4	-1	-2	-2	-1	-1	0	0	0	-3	-4	-3	-5	-6	-6	-2
11	0	2	5	5	8	11	10	12	11	9	3	-4	-7	-11	-14	-15	-8	-6	-5	-7	-8	-8	-10	-13
12	-16	-18	-20	-20	-21	-21	-28	-35	-36	-39	-35	-38	-40	-40	-37	-31	-33	-35	-33	-32	-39	-40	-37	-43
13	-52	-51	-52	-49	-43	-50	-54	-52	-49	-53	-58	-56	-48	-44	-46	-50	-44	-39	-36	-38	-38	-35	-30	-25
14	-23	-22	-23	-27	-33	-29	-23	-22	-21	-22	-23	-22	-19	-18	-16	-13	-9	-5	-3	-3	-3	-7	-13	-22
15	-26	-28	-24	-22	-20	-18	-19	-12	-10	-12	-14	-15	-14	-13	-17	-20	-20	-23	-25	-20	-12	-13	-15	-11
16	-12	-14	-13	-8	-8	-5	-7	-5	-2	-6	-5	-3	-2	-9	-4	-1	1	3	7	4	-4	0	3	6
17	3	-4	-7	-7	-5	-4	-2	2	-6	-12	-20	-15	-26	-24	-23	-25	-21	-19	-17	-17	-15	-13	-11	-8
18	-8	-9	-12	-10	-9	-8	-7	-7	-5	-2	-2	-3	-1	-2	-4	-3	-4	-7	-11	-12	-6	-1	1	1
19	-2	-7	-10	-6	-3	-1	-2	1	3	3	4	3	1	0	0	-2	-2	-4	-8	-12	-14	-12	-6	-5
20	-6	-1	6	3	-3	-3	0	2	2	3	0	-1	0	-3	-2	-1	-6	-5	-4	-3	0	3	7	
21	10	10	11	10	5	0	2	5	6	6	7	7	5	3	7	5	5	6	5	8	9	10	12	13
22	15	18	18	19	14	13	11	5	0	2	14	22	24	9	1	-4	-7	-7	-5	-7	-8	-7	-4	-2
23	-1	-3	0	0	1	2	0	0	-1	0	-1	3	7	6	7	4	3	3	2	-1	-5	-4	-4	0
24	3	5	7	6	5	3	4	5	5	5	4	3	4	4	3	0	3	5	6	7	6	6	4	2
25	-5	-7	-8	0	2	2	3	4	2	2	2	1	-1	-1	-3	-4	-4	-5	-5	-3	0	2	4	6
26	5	3	4	4	3	1	-3	-5	-6	-6	-4	-2	-1	0	1	3	3	3	2	3	6	9	9	7
27	3	0	3	7	8	8	14	19	21	21	20	19	21	19	23	24	19	16	15	19	17	16	20	16
28	21	22	16	21	23	25	26	20	22	25	22	23	27	22	14	14	16	15	12	7	4	8	5	6
29	0	-1	0	5	9	11	16	21	20	15	15	13	11	10	10	15	12	9	1	4	3	2	4	4
30	-1	-3	-6	-7	-2	4	8	6	5	5	2	1	-3	-5	-3	-1	0	5	12	13	5	8	7	6

HOURLY EQUATORIAL DST VALUES

OCTOBER 1980

UNITS: NANOTESLA

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	3	3	3	4	7	10	9	9	7	4	4	3	3	9	9	13	16	17	14	12	13	18	20	20
2	18	15	18	25	24	20	20	14	11	15	13	11	22	23	19	17	14	14	12	13	14	16	19	20
3	17	14	12	10	12	16	17	21	17	14	16	15	12	10	10	12	13	7	6	7	3	2	-1	-4
4	-2	6	12	-5	-25	-28	-31	-43	-39	-32	-27	-23	-25	-41	-56	-79	-77	-73	-67	-68	-65	-60	-53	-60
5	-60	-58	-56	-58	-63	-65	-58	-55	-58	-50	-44	-46	-40	-43	-42	-43	-46	-51	-49	-51	-53	-47	-45	-42
6	-41	-38	-34	-32	-32	-26	-30	-41	-47	-27	-17	-28	-30	-28	-26	-23	-21	-20	-24	-30	-31	-27	-25	-27
7	-31	-29	-25	-17	-13	-9	-10	-19	-24	-18	-9	-12	-14	-3	-1	-5	0	0	-1	-10	-14	-10	-11	-10
8	-10	-12	-13	-6	-5	-2	5	-2	-8	-16	-15	-14	-11	-5	-2	-2	0	-3	-5	-7	-11	-13	-11	-11
9	-16	-13	-12	-10	-10	-9	-9	-14	-12	-14	-16	-13	-7	-4	-4	-7	-5	-2	-9	-12	-8	-6	-4	-6
10	-6	-5	-4	-1	-2	-5	-4	-9	-9	-6	-5	-6	-8	-11	-1	2	-3	-3	-2	-8	-26	-41	-46	-60
11	-59	-63	-58	-57	-48	-74	-82	-88	-104	-81	-81	-90	-87	-78	-78	-78	-74	-68	-64	-63	-59	-58	-56	-49
12	-50	-46	-47	-46	-49	-54	-55	-50	-52	-55	-52	-47	-41	-40	-38	-32	-33	-28	-29	-33	-33	-29	-26	-30
13	-31	-30	-31	-28	-26	-23	-20	-19	-21	-22	-22	-22	-23	-21	-19	-15	-14	-17	-15	-13	-14	-12	-9	-8
14	-8	-10	-9	-10	-10	-9	-3	-3	-3	-2	-6	-4	-5	-4	-4	-1	-1	-8	-12	-7	7	9	4	5
15	2	-8	-13	-10	-17	-17	-12	-25	-36	-52	-47	-32	-29	-30	-28	-25	-23	-23	-29	-31	-27	-24	-24	-24
16	-22	-21	-19	-17	-14	-11	-11	-13	-13	-12	-13	-13	-15	-15	-14	-13	-13	-13	-11	-9	-10	-8	-6	-6
17	-8	-9	-8	-8	-8	-7	-8	-9	-15	-17	-15	-13	-14	-15	-13	-13	-13	-14	-13	-9	-6	-4	1	-6
18	-17	1	20	12	-5	-6	-11	-19	-28	-21	-16	-34	-22	-18	-21	-19	-17	-30	-40	-45	-48	-40	-34	-34
19	-33	-34	-33	-33	-34	-32	-28	-31	-39	-38	-30	-28	-36	-35	-30	-29	-29	-34	-35	-34	-39	-35	-35	-32
20	-30	-34	-35	-35	-31	-29	-27	-25	-25	-23	-24	-27	-26	-24	-25	-27	-29	-27	-27	-27	-25	-22	-19	-18
21	-16	-14	-14	-15	-15	-19	-16	-10	-10	-13	-14	-11	-10	-12	-16	-16	-17	-19	-18	-16	-16	-12	-11	-5
22	0	0	-5	-10	-15	-21	-27	-33	-37	-34	-27	-24	-17	-11	-13	-15	-11	-10	-15	-27	-39	-25	-26	-43
23	-55	-52	-49	-44	-43	-47	-64	-80	-78	-70	-77	-79	-72	-70	-83	-85	-85	-76	-76	-71	-64	-61	-57	-56
24	-51	-48	-50	-53	-53	-52	-53	-54	-55	-52	-51	-52	-45	-41	-42	-42	-39	-38	-35	-37	-40	-39	-38	-43
25	-44	-37	-32	-32	-29	-28	-31	-35	-33	-40	-33	-33	-30	-30	-28	-36	-41	-36	-33	-35	-33	-37	-33	-40
26	-41	-31	-31	-34	-33	-28	-34	-37	-42	-45	-48	-42	-39	-35	-31	-30	-31	-29	-26	-26	-28	-32	-35	-35
27	-32	-29	-28	-27	-29	-28	-29	-28	-27	-25	-24	-22	-22	-21	-20	-20	-20	-19	-20	-18	-16	-17	-19	-19
28	-18	-17	-17	-17	-16	-13	-11	-10	-7	-7	-7	-5	-6	-7	-10	-12	-13	-12	-10	-8	-9	-14	-15	-12
29	-11	-8	-5	-5	-5	-3	-2	-2	-3	-4	-3	-1	-1	-4	-3	-5	-5	-2	-7	-10	-11	-11	-12	-15
30	-16	-17	-15	-18	-25	-31	-35	-38	-35	-33	-30	-25	-22	-22	-21	-12	-6	-6	2	6	11	20	7	-5
31	-11	-12	-22	-24	-25	-21	-23	-26	-29	-24	-11	-8	-16	-36	-41	-45	-58	-53	-54	-50	-46	-41	-47	-42

HOURLY EQUATORIAL DST VALUES

NOVEMBER 1980

TABLE 10 Dst - continued

Part B

UNITS: NANOTESLA

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	-39	-41	-42	-46	-49	-46	-49	-46	-44	-54	-55	-46	-46	-44	-43	-44	-38	-37	-36	-36	-35	-34	-33	-31
2	-33	-32	-32	-32	-35	-32	-27	-27	-30	-28	-21	-20	-24	-22	-19	-24	-27	-17	-30	-35	-26	-27	-26	-26
3	-25	-24	-25	-24	-20	-20	-20	-23	-25	-25	-27	-28	-26	-24	-24	-23	-23	-23	-22	-20	-19	-17	-16	-17
4	-16	-14	-15	-12	-6	-2	-5	-9	-15	-28	-38	-47	-37	-30	-36	-39	-37	-32	-31	-27	-24	-22	-21	-20
5	-16	-16	-16	-13	-13	-17	-19	-19	-17	-14	-11	-9	-7	-9	-12	-13	-13	-9	-4	-4	-5	-6	-6	0
6	-2	-5	-2	1	-1	-5	1	5	3	4	3	-3	-3	-6	-7	-2	-3	-1	-3	1	2	3	8	5
7	-6	-3	0	-7	-8	-4	-1	0	-4	-3	-1	0	-1	-2	-1	-2	-3	-3	2	0	2	-2	-1	-5
8	-6	-7	-9	-6	-5	-5	-4	-5	1	2	-2	2	-1	-5	-3	-3	-5	-5	-6	-2	2	2	4	6
9	9	7	7	6	6	7	7	4	2	2	3	7	5	-6	-3	-5	-5	-9	-6	-8	-11	-13	-14	-13
10	-11	-10	-8	-9	-10	-8	-5	-7	-9	-19	-26	-15	-14	-14	-28	-25	-20	-20	-16	-11	-9	-9	-12	-14
11	-7	-9	-13	-15	-15	-8	-6	-10	-18	-23	-15	-11	-18	-17	-16	-16	-15	-9	-23	-32	-36	-35	-41	-35
12	-27	-25	-22	-24	-29	-32	-31	-34	-32	-34	-31	-36	-29	-25	-26	-23	-20	-20	-16	-14	-12	-11	-11	-7
13	-9	-11	-11	-13	-14	-14	-12	-10	-5	-5	-3	-4	-6	-8	-7	-7	-8	-12	-16	-17	-18	-21	-24	-19
14	-16	-14	-5	-6	-8	-8	-8	-5	-3	-5	-4	-6	-5	-10	-4	-8	-13	-13	-16	-19	-17	-13	-15	-11
15	-8	-12	-20	-22	-26	-28	-19	-24	-42	-48	-52	-41	-40	-43	-44	-49	-50	-44	-36	-37	-40	-43	-42	-40
16	-38	-39	-42	-41	-38	-37	-40	-42	-41	-43	-39	-33	-39	-46	-47	-51	-53	-48	-40	-32	-28	-28	-24	-20
17	-16	-16	-20	-23	-24	-26	-26	-28	-18	-16	-19	-18	-20	-27	-29	-28	-30	-30	-24	-22	-17	-15	-21	-17
18	-17	-20	-22	-20	-20	-20	-20	-19	-13	-10	-11	-16	-12	-16	-23	-25	-23	-22	-26	-26	-31	-37	-38	-36
19	-31	-30	-32	-29	-28	-26	-26	-25	-26	-27	-34	-27	-23	-26	-26	-24	-28	-28	-25	-22	-26	-21	-21	-21
20	-22	-23	-20	-20	-26	-25	-19	-20	-22	-20	-20	-19	-18	-19	-17	-14	-16	-16	-9	2	-6	-20	-16	-10
21	-1	-4	-3	0	-12	-15	-13	-16	-15	-21	-19	-14	-10	-12	-15	-16	-14	-13	-11	-8	-12	-16	-17	-12
22	-7	-1	-1	-4	-12	-19	-21	-20	-17	-19	-20	-22	-12	-9	-7	-4	-4	-3	-1	-3	-4	-8	-11	-11
23	-13	-8	-13	-18	-14	-12	-8	-7	-5	-4	-2	0	1	-2	-1	1	-5	-19	-17	-17	-18	-16	-15	-14
24	-6	-3	-1	-7	-14	-28	-26	-20	-24	-30	-33	-28	-26	-21	-22	-21	-17	-15	-14	-15	-20	-17	-13	9
25	16	16	16	10	10	10	19	18	9	12	6	6	4	-3	-5	-4	0	3	0	-6	6	-1	1	-1
26	-16	-29	-19	-20	1	10	2	11	12	4	-1	-22	-21	-20	-16	-19	-22	-28	-20	-16	-15	-14	-14	-13
27	-16	-24	-28	-23	-21	-27	-37	-38	-31	-27	-29	-32	-35	-41	-44	-36	-29	-32	-30	-28	-23	-22	-25	-22
28	-21	-26	-26	-22	-36	-40	-54	-52	-42	-39	-44	-48	-41	-39	-38	-41	-40	-35	-30	-28	-28	-37	-36	-29
29	-25	-27	-31	-29	-26	-25	-26	-30	-29	-34	-33	-35	-38	-34	-31	-29	-24	-22	-15	-18	-18	-25	-26	-23
30	-15	-18	-26	-26	-18	-21	-23	-23	-20	-16	-9	-16	-19	-15	-13	-14	-15	-22	-25	-34	-45	-48	-64	-63

HOURLY EQUATORIAL DST VALUES

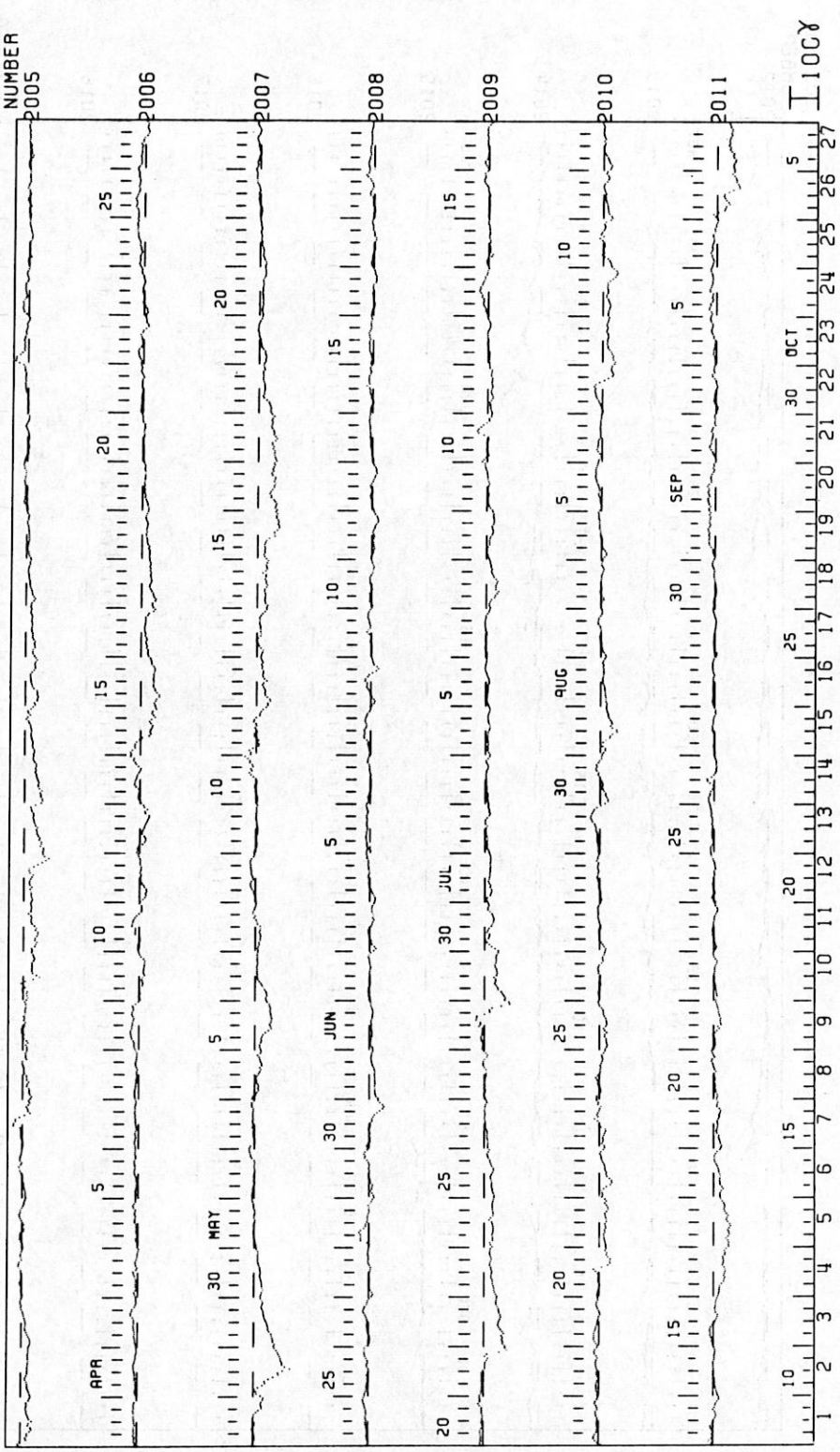
DECEMBER 1980

UNITS: NANOTESLA

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	-59	-52	-55	-54	-48	-38	-36	-31	-29	-26	-26	-28	-27	-19	-20	-16	-18	-19	-18	-10	-8	-6	-10	-14
2	-20	-16	-14	-11	-13	-12	-9	-7	-10	-14	-15	-11	-7	-7	-5	-6	-5	-2	-5	-5	-8	-9	-13	-15
3	-10	-13	-12	-18	-18	-25	-24	-24	-30	-38	-43	-46	-36	-29	-23	-22	-19	-28	-28	-19	-24	-29	-30	-33
4	-30	-27	-26	-33	-33	-27	-27	-31	-33	-30	-29	-25	-23	-21	-16	-16	-17	-14	-11	-15	-18	-20	-22	-25
5	-25	-23	-23	-25	-24	-23	-23	-20	-15	-13	-12	-9	-9	-11	-13	-12	-15	-14	-14	-15	-16	-15	-15	-18
6	-18	-16	-13	-9	-4	-2	-3	0	1	1	0	2	2	2	3	6	4	2	2	2	2	3	5	5
7	8	9	7	4	4	4	-2	-5	-9	-11	-12	-9	-5	-5	-2	1	1	1	1	-2	-4	-2	-5	0
8	-2	0	-2	-3	2	2	-9	-7	-9	-8	-8	-7	-6	-6	3	4	5	4	1	-5	-13	-8	-4	-11
9	-5	1	1	0	0	0	-4	-9	-10	-16	-18	-16	-11	-6	-2	-1	-5	-6	-7	-8	-8	-11	-11	-16
10	-19	-14	-15	-21	-18	-12	-12	-13	-15	-17	-17	-16	-15	-13	-9	-6	-6	-9	-9	-13	-14	-14	-13	-10
11	-6	-3	-4	-4	-6	-5	-8	-9	-11	-11	0	5	5	5	12	8	3	-1	10	14	0	3	-18	-21
12	-20	-22	-27	-24	-18	-18	-20	-22	-24	-22	-22	-18	-19	-16	-14	-16	-17	-13	-5	-1	1	-1	0	-9
13	-15	-15	-11	-13	-13	-14	-16	-17	-15	-14	-19	-17	-14	-14	-12	-11	-11	-8	-6	-4	-6	-10	-10	-7
14	-2	-2	0	-2	-4	-2	-2	-2	-1	-1	-8	-16	-13	-10	-6	-8	-19	-21	-19	-17	-18	-20	-17	-14
15	-13	-14	-17	-21	-26	-25	-19	-16	-17	-15	-15	-16	-18	-20	-19	-15	-14	-18	-18	-15	-14	-10	-7	-6
16	-4	-4	-6	-2	1	-4	-9	-9	-5	-4	-12	-31	-30	-30	-27	-29	-35	-38	-36	-36	-38	-39	-35	-32
17	-28	-25	-26	-29	-27	-25	-26	-26	-22	-23	-24	-25	-25	-24	-20	-17	-18	-19	-17	-16	-16	-17	-17	-15
18	-11	-12	-14	-16	-18	-22	-30	-33	-31	-28	-31	-30	-31	-31	-25	-29	-24	-27	-26	-29	-36	-35	-32	-28
19	-24	-20	-23	-20	-17	10	-10	-14	-5	3	-4	-1	12	-46	-106	-169	-214	-214	-240	-230	-211	-208	-198	-183
20	-171	-158	-148	-140	-136	-134	-128	-128	-124	-114	-105	-104	-103	-93	-86	-69	-69	-76	-73	-79	-69	-61	-54	-38
21	-31	-28	-37	-44	-47	-44	-36	-57	-53	-62	-60	-59	-60	-64	-55	-54	-55	-50	-46	-34	-44	-36	-41	-44
22	-44	-38	-37	-26	-29	-36	-39	-41	-36	-33	-38	-43	-46	-38	-36	-32	-25	-25	-23	-22	-18	-11	-10	-9
23	-6	-4	-5	-5	-5	-5	-10	-15	-19	-15	-12	-14	-21	-23	-18	-17	-17	-16	-13	-11	-10	-6	-5	-5
24	-6	-7	-8	-9	-9	-6	-6	-6	-8	-7	-6	-1	-4	-3	-2	0	-5	-1	-1	0	3	5	9	10
25	8	4	7	6	6	7	24	25	25	23	17	7	9	7	8	11	12	13	10	8	5	0	-3	-3
26	0	3	-2	-7	-7	-6	-7	-6	-5	-8	-13	-14	-13	-5	1	-4	-8	-6	-4	-3	-4	-5	-6	-4
27	-4	-1	1	2	-4	-11	-16	-12	-13	-13	-14	-26	-31	-27	-25	-25	-21	-15	-8	-7	-6	-10	-15	-16
28	-17	-18	-15	-10	-12	-11	-9	-8	-7	-7	-9	-5	-5	-5	-9	-10	-8	-4	-5	-10	-10	-7	-8	-10
29	-7	-7	-6	-6	-5	-4	-7	-9	-7	-9	-13	-12	-6	-6	-8	-10	-9	0	-1	-2	-4	-5	-6	-17
30	-18	-17	-13	-15	-19	-17	-21	-20	-24	-45	-45	-43	-38	-33	-28	-24	-27	-25	-25	-25	-27	-25	-23	-9
31	-9	-15	-23	-27	-30	-29	-26	-32	-28	-27	-27	-29	-29	-29	-22	-24	-28	-30	-33	-38	-41	-45	-44	-39

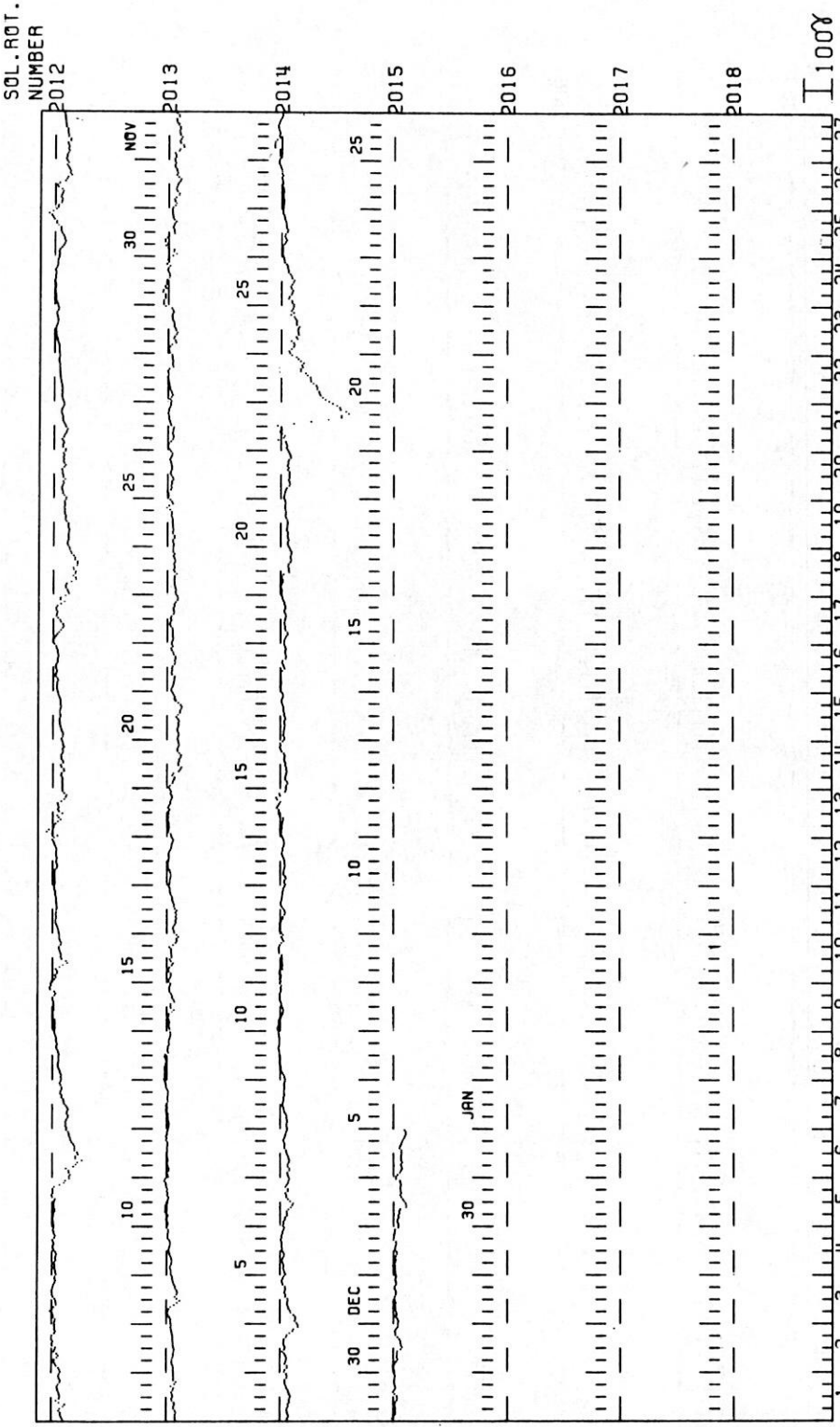
Graph of hourly equatorial Dst, 1979-1980

Graph of hourly equatorial Dst, 1980



Part B

Graph of hourly equatorial Dst, 1979-1980



DAILY MEANS OF EQUATORIAL DST FOR 1980

DAY	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
1	-47	-12	-3	-23	8	-42	-1	-6	12	10	-42	-28
2	-47	-11	4	-13	10	-18	11	-1	8	17	-27	-10
3	-17	-6	5	2	11	-8	3	-25	0	11	-23	-26
4	-11	-4	5	0	9	10	12	-15	-24	-40	-23	-24
5	-12	-3	-4	-1	20	-3	-1	-4	-26	-51	-11	-17
6	-10	-32	2	-1	-10	8	4	5	-7	-29	0	-1
7	-5	-49	0	-14	6	-1	0	-14	-13	-12	-2	-1
8	-7	-39	-2	-7	-8	-27	-9	-3	-9	-7	-3	-4
9	-4	-25	-1	-24	-14	-13	-3	14	-3	-9	-1	-7
10	-3	-13	3	-35	10	-30	6	-3	-5	-11	-14	-13
11	-8	-4	6	-37	-18	-49	8	3	-2	-71	-18	-2
12	-8	-4	7	-45	-45	-55	10	4	-32	-41	-24	-15
13	-24	6	10	-46	-20	-54	-1	8	-46	-20	-11	-12
14	-32	-18	1	-22	-34	-24	1	8	-18	-4	-10	-9
15	-15	-24	6	-32	-19	-9	8	8	-18	-24	-36	-16
16	-21	-88	16	-25	-11	-14	13	-9	-4	-13	-39	-21
17	-7	-42	12	-17	-3	-9	8	-22	-12	-10	-22	-22
18	-6	-43	12	-8	4	4	-8	-19	-5	-21	-22	-26
19	2	-29	18	5	3	6	-56	-5	-3	-33	-26	-89
20	3	-13	12	-2	0	8	-28	-2	0	-27	-17	-103
21	3	-3	-31	5	18	7	-29	-18	7	-14	-12	-48
22	10	8	-28	14	22	5	-25	-3	5	-20	-10	-31
23	2	-4	-13	10	5	-3	-7	-2	1	-66	-9	-12
24	2	-11	-2	-3	-10	9	-3	3	4	-46	-17	-3
25	8	-4	10	0	-66	-1	-4	14	-1	-34	6	10
26	8	-21	-50	-1	-45	-14	-46	-6	2	-34	-12	-6
27	-20	-18	-28	10	-20	-17	-21	-28	16	-23	-29	-13
28	-35	-16	-7	8	-1	-8	-18	-13	17	-11	-36	-9
29	-50	-13	-8	12	4	-1	-9	-2	9	-6	-27	-7
30	-30		-27	7	5	-8	-7	-3	2	-15	-25	-25
31	-19		-22		-13		-11	-1		-32		-29
MEAN	-13	-18	-3	-9	-7	-12	-7	-4	-5	-22	-18	-20

FSUM = -100924.000 YEARLY AVE.= -11

ANNUAL MEAN -12

TABLE 1: STORM SUDDEN COMMENCEMENTS (ssc) 1980

Sudden commencements followed by a storm or period of storminess, as selected from reports of the following 48 observatories*:
SOD DOB NUR MOS ESK HLP WNG WIT IRK NGK VAL BEL HAD KIV DOU BDV VIC FUR HRB UBA SUR MMB AQU TFS EBR COI TOL FRD PEN ALM KAK HTY KNY QUE TEN LNP BNG TNG LUA PMG HUA MPO GNA ACS TWA CZT KGL DUM,
the records from HON and from copies of the magnetograms sent by five low-latitude observatories (MBO, FVQ, HON, PMG, ABG) or their five supplementary observatories (TAM, PAB, API, KVA, HYB).

*For explanation of the three-letter symbol: see Part A, pages 0-3.

JANUARY								
11 0757 (56-59)	22223	3.3	10	6A	9B	5C	3si	
13 0510 (08-14)	22233	3.9	16	16A	15B	11C		
17 0512 (08-14)	11212	2.9	7	3A	9B	8C	1si	
25 1109 (08-13)	22222	6.1	15	13A	15B	7C	3si	
28 1543 (41-47)	33333	3.3	29	20A	15B	3C		
FEBRUARY								
06 0320 (18-23)	23333	4.8	24	26A	13B	2C		
07 1218 (15-49)	11111	11.2	24	1A	2B	5C	3si	3b
14 0309 (08-14)	2232-	3.6	24	22A	15B	3C	1si	
15 1235 (29-36)	11111	4.2	8	4A	9B	12C	2si	1b
25 1429 (26-32)	11110	7.6	14	4A	7B	6C	2si	1b
MARCH								
19 0617 (15-18)	22233	3.5	23	15A	15B	5C	1si	
30 2354 (51-54)	22332	5.3	27	23A	12B	2C		

TABLE 1: STORM SUDDEN COMMENCEMENTS (ssc) 1980 - continued

31 1749 (46-55)	12011	5.0	15	2A	9B	4C	6si	

APRIL

02 2112 (11-15)	12121	6.7	9	1A	5B	6C	2si	2b	
06 1059 (57-63)	33223	3.1	30	28A	13B	1C			
07 1212 (09-14)	01011	5.7	11	-	3B	5C	1si	1b	
08 2336 (31-39)	12121	4.0	18	-	5B	4C	5si	1b	1sfe
09 0508 (06-11)	23223	3.9	21	11A	21B	2C	2si	1pc	
22 0037 (34-39)	22222	6.2	21	5A	13B	3C	1si		

MAY

07 0802 (00-06)	12222	7.3	15	2A	6B	1C		1sfe
29 1833 (31-35)	22222	4.7	11	7A	18B	5C		
31 2137 (33-40)	22222	5.6	16	7A	16B	4C	1si	

JUNE

06 2236 (32-38)	12222	4.5	26	15A	11B	-	1si	
10 1627 (25-31)	22222	3.4	15	10A	15B	5C		
24 0248 (46-50)	33223	5.1	27	22A	10B	4C		
26 0129 (29-30)	11110	2.4	9	1A	6B	3C	3si	

JULY

17 1936 (33-39)	22212	6.1	13	6A	8B	3C	3si	1b	
18 1927 (24-31)	22223	7.7	25	11A	11B	3C	1si	1b	
25 1111 (08-13)	23222	4.7	20	23A	16B	2C			

TABLE 1: STORM SUDDEN COMMENCEMENTS (ssc) 1980 - continued

				AUGUST					
06 0010 (09-15)	22222	4.0	14	16A	15B	5C			
06 1332 (30-33)	22112	5.0	21	6A	6B	3C	4si		
11 1656 (53-59)	11111	8.7	7	-	8B	5C	1si		3sfe
16 1240 (36-42)	33333	5.4	30	28A	10B	2C			
19 1024 (22-26)	32222	3.2	17	14A	14B	9C			
				SEPTEMBER					
20 0139 (38-44)	22121	6.5	13	4A	11B	6C	8si	2b	
				OCTOBER					
14 1953 (50-57)	33322	3.5	28	20A	10B	6C	3si		
18 0114 (11-16)	22122	3.6	18	13A	11B	8C	1si		
30 1520 (17-24)	22122	6.1	17	19A	12B	6C	2si		
				NOVEMBER					
09 1122 (17-25)	22121	4.9	11	5A	13B	7C	4si		
14 1153 (51-56)	22121	4.9	15	9A	10B	7C	3si	1b	
19 2125 (14-15)	11111	4.7	9	1A	4B	1C	4si		1sfe
24 2258 (55-60)	22221	5.2	17	10A	13B	10C			
26 0421 (20-23)	11113	4.7	38	10A	7B	3C	3si	1pi	
				DECEMBER					
11 1009 (06-12)	22222	5.0	18	12A	14B	11C			
18 0611 (09-12)	11222	5.9	6	1A	6B	2C	2si		2sfe

TABLE 1: STORM SUDDEN COMMENCEMENTS (ssc) 1980 - continued

19 0456 (52-59)	33333	4.2	37	33A	9B			
25 0552 (48-53)	22222	7.9	16	5A	4B	6C	5si	1sfe
30 0738 (36-40)	22222	4.1	19	13A	15B	5C	3si	1sfe

TABLE 2a: SOLAR-FLARE EFFECTS (sfe) 1980

Times of commencement of solar-flare effects (sfe) checked by 76 observatories, namely:
NOK ABK SOD COL DOB YAK NUR LER MGD LNN LOV SIT SVD KNS MOS ESK WNG PET WIT IRK NGK VAL GTT HAD KIV DOU KGD BDV NEW CLF HRB UBA TYH ODE OTT MMB VLA AAA AQU TKT ISK EBR COI TOL FRD PEN ASH KAK TUC QUE LNP HON SJG HYD MBO MUT GUA PAB BNG BIN PMG HUA PPT VSS MPO GNA HER ACS TOO TWA EYR CZT KGL MCQ DUM MAW
See also page 22.

JANUARY

08 10 04
B: SVD2 WNG3 WIT2 GTT2 DOU1 HRB3 ODE3 [MMB1] AQU2 ISK0 (LNP2) HYD2 BNG2 MPO1
C: (NOK1) SOD- LER1 MGD0 LNN1 LOV0 ESK1 [PET1] (IRK0) NGK2 VAL0 HAD1 BDV2 KIV2 KGD0 TYH1 TOL2 ASH1 [KAK0] QUE0 (MUT0) BIN0 ACS0 (TOO0) TWA0 DUM1
D: ABK DOB NUR KNS AAA TKT EBR MBO VSS GNA HER CZT KGL
E: MOS PEN MAW
X: [YAK] COI PAB

10 05 02
A: VLA3
B: MMB3 KAK3 LNP3 HYB2 MUT1 PMG1 TOO1 EYR1
C: KGD0 [NEW1] UBA1 AAA2 QUE0 GUA2 BIN0 MPO0
D: NOK YAK MGD SVD KNS PET IRK TKT ASH GNA HER CZT KGL MCQ DUM
E: (MOS) MAW
X: [COI] [MPO]

27 11 45
A: (NOK1) KIV3 ODE3 ASH3 MBO3 BNG0 ACS0 TWA0
B: NUR2 [MGD0] LOV2 MOS2 WNG3 ISK2 QUE3 SJG2 BIN2 [PMG1] MPO1 [EYR1] MAW1
C: SOD- LER1 LNN2 KNS1 ESK1 WIT1 [IRK1] NGK1 VAL0 GTT2 HAD1 (KGD0) BDV2 HRB3 [MMB1] AAA0 TKT2 EBR1 TOL1 (FRD1) [LNP1] [MUT1] VSS1 HER0 [TOO0] CZT0
D: ABK DOB TYH AQU COI PEN HUA KGL DUM
E: [COL] [YAK] [SIT] SVD DOU [KAK] HYB [PPT]
X: PAB

FEBRUARY

07 04 34
A: NOK1 QUE3
B: MGD1 IRK2 AAA2 TKT0 PMG1 MPO1 MAW1
C: (SOD-) (COL-) PET2 (GTT1) KGD0 MMB2 VLA2 [TOL1] KAK2 LNP2 HYD2 MUT0 BIN0 TOO0 EYR0
D: YAK SVD KNS GUA GNA HER CZT KGL MCQ
E: (MOS) UBA DUM
X: (PEN) ASH [MBO] [PAB]

08 09 04
A: GTT2 HRB3 TYH3 ODE3 AAA3 TKT2 EBR2 ASH3 QUE2 HYB3 BIN0 MPO2
B: NOK1 IRK3 LNN2 SVD2 MOS2 WNG2 [PET1] WIT2 KIV2 KGD1 BDV2 AQU2 ISK1 TOL2 LNP2 MUT1 BNG2 VSS2 HER1 (EYR1)

C: SOD- NUR2 [MGD1] LOV- KNS1 NGK2 DOU1 [NEW1] UBA0 OTT2
(MMB1) (KAK1) (ACS0) TOO0
D: ABK DOB LER ESK COI MBO GNA KGL DUM
E: [COL] [SIT] [PPT] (MCQ) MAW
X: VAL HAD PEN CZT

19 08 26 A: WNG3 HRB3 ODE3 COI3 ASH2
B: NOK1 ABK- NUR3 LER2 (MGD2) LNN2 LOV1 SVD1 KNS1 ESK2
(PET2) WIT3 VAL2 GTT3 HAD2 KIV2 KGD1 BDV1 CLF2 TYH2
AAA3 TKT0 ISK2 EBR2 TOL3 LNP2 MBO1 MUT1 PMG1 MPO1
C: SOD- COL- (YAK-) MOS1 IRK1 NGK2 [NEW1] [OTT1] (MMB1)
VLA2 AQU1 (KAK1) [TUC1] [SJG2] BNG1 BIN2 HER1 (ACS1)
TOO0 (TWA1)
D: DOB DOU UBA PEN GNA CZT KGL MCQ DUM
E: [SIT] HYB [PPT] MAW
X: QUE

28 12 04 A: (NOK2) [MGD0] [PET2] MPO2
B: LER2 WNG3 GTT2 HAD2 TYH2 [MMB0] AAA3 ISK2 [KAK0] QUE0
MBO1 [MUT0] HER1 [EYR0]
C: SOD1 KNS1 ESK1 WIT1 (IRK0) NGK2 VAL0 KIV1 DOU1 BDV2
HRB2 (UBA1) ODE1 AQU2 EBR0 TOL1 ASH1 HYB1 BNG1 HUA1
VSS1 ACS0 TWA0
D: ABK DOB NUR LNN LOV SVD KGD OTT TKT COI FRD PEN CZT KGL
E: [COL] [YAK] [SIT] MOS [VLA] [MCQ] MAW
X: SJG PAB BIN

MARCH

13 06 56 A: PET2 WNG2 IRK3 KGD2 MMB1 VLA3 TKT2 ASH3 KAK1 HYB2 MUT2
BNG3 PMG1 MPO1
B: ABK- LER0 MGD2 LNN1 LOV- SVD1 KNS1 MOS2 ESK0 WIT0 GTT2
HAD0 DOU1 TYH2 ODE3 AAA3 AQU0 EBR0 EYR1 MAW1
C: NOK2 SOD1 NUR1 VAL0 KIV1 BDV0 [NEW1] [OTT1] TOL1 [TUC2]
[PAB0] GNA1 [ACS0] [TWA0] DUM0
D: DOB ISK GUA HER TOO CZT KGL MCQ
E: YAK NGK HRB PEN
X: UBA QUE LNP MBO BIN
HYB = si?

27 18 38 B: NEW2 OTT2 FRD2 TUC2 HON2 SJG2 HUA3
C: SIT2 (PET1) (GTT1) [MMB1] [AAA1] [KAK1] [MUT0] PPT0 VSS2
ACS1 TWA1 [MAW1]
D: COL LER VAL COI PAB EYR
E: [MOS]
X: [NOK] MBO [BIN]

29 09 38 A: ASH3
B: SOD1 (MGD1) SVD2 WNG2 (PET2) KIV2 HRB3 ODE2 AAA1 AQU1
TKT0 ISK2 MUT1 MPO1
C: NOK1 YAK- LNN2 MOS1 IRK0 NGK2 VAL0 GTT2 BDV0 TYH1 (MMB1)
(VLA1) PEN0 (KAK1) HYB1 MBO0 BNG2 BIN0 (PMG1) MAW1
D: ABK DOB NUR LER KNS ESK WIT HAD DOU EBR COI TOL LNP VSS
GNA HER CZT KGL
X: UBA

APRIL

07 05 30
A: NOK1 MGA2 VLA3 AAA2
B: PET2 KGD0 TKT0 MMB2 ISK0 KAK2 MUT1 EYR1
C: ABK1 SOD- LNN2 LOV- KNS1 MOS1 (ESK0) WNG0 IRK1 GTT0 KIV0 (DOU0) BDV1 ODE1 OTT1 AQU0 BIN1 PMG1 TOO0
D: DOB NUR WIT UBA TYH PEN GUA HER CZT KGL MCQ DUM
E: (COL) YAK SVD NGK HRB ASH LNP HYB BNG (PPT) MPO GNA MAW
X: [MBO]

15 15 08
A: (MGD2) WNG2 DOU3 CLF3 OTT2 COI3 MBO2 HUA3 VSS2
B: (YAK2) LER1 [PET2] WIT2 [IRK2] VAL1 GTT2 HAD1 (KGD0) HRB3 TYH2 ODE2 (AAA2) AQU3 EBR3 TOL2 SJG2 [MUT1] PAB2 [PMG1] BIN0
C: (NOR2) ABK- NUR1 LNN2 LOV- KNS1 ESK1 NGK2 KIV1 BDV2 NEW1 ISK0 [GUA2] BNG0 MPO1 [GNA1] ACS0 TOO0 TWA0
D: SOD DOB SIT SVD FRD PEN TUC HER
E: COL MOS [MMB] [VLA] [KAK] [PPT] (MAW)
X: (ASH)

26 03 31
A: [OTT2] LNP3
B: MGD1 PET2 IRK2 KGD0 UBA1 AAA3 TKT0 MUT1
C: NOR2 MOS2 (ESK1) (WNG0) (GTT1) (NEW0) MMB2 VLA1 [TOL0] ASH2 KAK2 HYD2 GUA1 (BNG0) [BIN0] PMG1 [VSS2] MPO1 EYR1 MAW1
D: ABK SOD COL DOB LNN LOV SIT SVD KNS KIV ODE ISK HON PPT GNA TOO CZT KGL MCQ DUM
E: YAK
X: [MBO]

MAY

01 19 14
A: MGD2 PET3 NEW3 OTT2 COI3 FRD3 TUC3 HON3 SJG3
B: COL2 (YAK2) LER2 SIT2 ESK2 (WNG0) VAL2 (GTT2) HAD2 (MMB1) (TOL2) [MUT0] HUA2 TWA1
C: NOK1 (SOD1) SOB2 (NUR1) (LNN2) (LOV-) (KNS1) (NGK1) (KIV1) (DOU1) (BDV1) (HRB1) (TYH1) [AAA1] (AQU1) [ASH1] (KAK1) (GUA1) [BNG0] [BIN0] VSS1 ACS1
D: PAB
X: (MOS) MBO PPT

07 13 07
A: NOK1 (MGD2)
B: KNS2 (PET2) (IRK1) VAL1 KIV2 KGD2 ODE1 [MMB1] AAA1 AQU1 TKT0 MBO1 [MUT1] BIN0 VSS1 MPO2
C: SOD1 COL2 YAK1 NUR1 LER0 LNN1 LOV- SIT2 SVD2 MOS1 ESK0 WNG2 WIT1 NGK1 GTT2 HAD0 DOU0 BDV1 NEW1 HRB1 TYH1 ISK2 EBR1 TOL0 FRD1 ASH2 [KAK1] TUC1 SJG1 PAB1 BNG2 HUA2 [GNA1] HER0 ACS0 TWA0 EYR0
D: ABK DOB OTT COI
E: PEN HYB [PMG] [PPT] (MAW)

09 07 12
A: MGD2 LNN3 KNS2 WNG3 KIV2 HRB3 UBA3 TYH2 ODE3 VLA3 ISK3 ASH3 LNP3 HYD3 MUT3
B: NOK2 ABK- SOD2 DOB2 YAK2 NUR2 LER1 LOV2 SVD2 MOS2 ESK1 PET2 WIT2 IRK3 GTT2 HAD1 DOU1 AAA3 KGD1 MMB2 AQU3 TOL2 KAK2 MPO1 GNA2

C: NGK2 VAL0 BDV2 [OTT1] EBR1 [TUC1] MBO1 BNG2 BIN1 PMG1 [VSS2] HER0 [ACS0] [TWA0]
D: TKT COI PEN GUA TOO CZT KGL
E: (COL) MAW

17 07 33 A: MGD2 LNP3
B: PET2 WNG2 MMB2 VLA2 AAA3 ISK2 KAK2 HYB3 MUT1 MPO2
C: NOK1 (COL1) YAK- KNS1 WIT0 NGK1 GTT2 KIV1 DOU0 BDV2 [NEW1] UBA1 TYH2 AQU1 GUA2 BNG0
D: ABK SOD DOB NUR LER LNN LOV SVD ESK IRK VAL HAD KGD TKT EBR COI TOL PEN ASH PMG GNA HER CZT KGL
E: MOS MAW
X: ODE [SJG] MBO [PAB] BIN

26 11 36 A: NOK1 (MGD2) (PET2) IRK3 AAA3 (VLA2) ASH3 MPO2
B: SOD1 YAK2 SVD2 GTT2 KIV2 ODE2 (MMB1) AQU0 TKT0 ISK0 EBR0 [KAK1] HYD1 MBO1 BNG3 BIN1 [PMG1] HUA1 VSS2
C: LNN1 WNG1 WIT0 NGK2 BDV1 (NEW0) HRB2 TYH1 TOL1 FRD1 [HON1] SJG1 (MUT1) HER0 ACS1 TWA1
D: ABK DOB NUR LER LOV KNS ESK VAL HAD DOU KGD UBA COI PEN PAB CZT KGL
E: (COL) MOS (MAW)
X: OTT

28 19 46 A: PET2 TUC3
B: YAK2 MGD2 NEW2 MMB2 HON2 HUA1
C: (WNG0) (GTT1) VLA2 FRD2 KAK2 SJG1 [MUT1] [BIN0] PPT2
D: ABK SOD COL DOB LER SIT ESK VAL HAD COI PAB VSS
E: (MOS)
X: OTT (MBO) ACS TWA

JUNE

03 11 42 A: LER2 ESK2 WNG3 (PET2) MBO2
B: NOK0 WIT1 GTT2 HAD2 KIV2 BDV2 AAA3 AQU2 ASH2
C: (MGD1) KNS1 MOS1 NGK1 DOU1 KGD0 (NEW0) TYH0 OTT1 TOL1 (MUT0) BNG0 BIN0 MPO1 HER1 ACS0
D: ABK SOD DOB NUR LNN LOV VAL UBA ODE TKT ISK EBR COI FRD PEN SJG HUA VSS CZT KGL
E: (COL) YAK SVD HYD [PPT] [MCQ] (MAW)
X: IRK PAB

03 12 01 A: NOK1 LER2 (MGD1) ESK2 (PET2) KIV2 TYH2 ODE3
B: SOD2 NUR2 LNN2 MOS2 VAL0 GTT0 HAD0 KGD1 AAA2 AQU2 ASH2 [MUT0] MPO1 HER2
C: KNS1 NGK2 DOU1 (NEW0) OTT1 TKT1 ISK0 FRD2 BNG0 BIN1 [PMG1]
D: ABK DOB LOV WIT BDV HRB UBA EBR COI TOL PEN SJG HUA ACS CZT
E: COL YAK (SIT) SVD HYD [PPT] [MCQ] (MAW)
X: IRK MBO PAB VSS

03 21 29 A: YAK2 PET2
B: MGD2 NEW2 KAK2 TUC2 HON1 PMG1 PPT0
C: (SOD0) (LNN1) (GTT1) (KGD0) OTT2 MMB2 [AAA1] FRD2 SJG1 (MUT0)

D: NOR ABK COL SIT GUA PAB HUA EYR
E: (MOS) [MAW]
X: IRK [MBO]

04 06 54
A: YAK2 MGD2 PET2 IRK3 ODE3 ASH3 LNP2
B: NOK1 SVD2 KNS2 MOS2 GTT2 KIV2 HRB3 [OTT2] MMB3 VLA2 AAA3 ISK2 KAK2 HYB2 MUT1 PMG1 MPO1 TOO1 (EYR1)
C: ABK- SOD1 LNN2 LOV- WNG2 WIT0 NGK2 KGD0 BDV2 [NEW0] UBA0 TYH2 AQU2 TKT2 EBR0 TOL0 [FRD1] [TUC1] [SJG1] GUA1 [PAB0] BNG2 [VSS2] GNA1 [ACS0] [TWA0] CZT0 (MCQ1)
D: COL DOB NUR LER ESK VAL HAD COI HER KGL
E: PEN [PPT] MAW
X: DOU MBO BIN

04 22 59
A: YAK2 MGD3 PET2 LNP2
B: SIT2 IRK2 (KIV1) (KGD1) NEW2 MMB3 VLA2 (AAA1) KAK2 TUC2 HON2 GUA2 PMG2
C: NOK3 (GTT0) UBA0 FRD1 MUT1 PPT0
D: COL OTT SJG HUA TOO EYR MCQ
E: (MOS)

06 11 20
A: (MGD2) LNN1 (SIT1) KNS2 WNG2 (PET2) KIV2 ODE3 AAA2 MBO1
B: NOK1 SOD2 SVD2 MOS3 WIT1 KGD2 BDV0 (NEW1) HRB2 OTT2 AQU1 ISK0 (TUC2) (MUT0) BNG2 [PMG1] VSS2 [EYR0]
C: ABK- LER1 LOV- ESK1 NGK2 VAL0 GTT2 HAD1 TYH1 TOL1 FRD1 ASH2 [HON1] SJG2 [GUA0] PAB0 [PPT0] MPO1 BIN1 HER0 ACS0 [TOO0] (TWA0)
D: DOB YAK NUR DOU IRK UBA TKT EBR COI CZT KGL
E: (COL) PEN (KAK) HYD [MCQ] (MAW)
- NUR = ssc B?

21 01 18
A: MGD3 AAA3 LNP3 HON3 GUA3 PMG2 GNA3
B: NOK0 YAK2 SIT2 SVD2 KGD1 MMB2 VLA2 KAK2 HYD2 MUT1
C: ABK- SOD0 NUR1 LNN1 (WNG0) PET1 IRK1 (NGK1) (VAL1) (GTT0) KIV1 NEW2 UBA0 (TYH1) (OTT1) (AQU0) TKT2 (ISK1) EBR- ASH2 TUC1 [BNG2] [BIN1] PPT0 [MPO0] EYR1
D: KNS TOO MCQ
E: MOS
X: ASH [MBO]

27 16 16
B: WNG2 GTT2 TOL2 FRD2 TUC2 SJG2 PAB2
C: SOD1 LER0 LNN2 ESK0 NGK2 VAL0 KIV1 DOU2 BDV2 NEW0 HRB2 TYH2 AQU2 ISK1 EBR0 PEN0 HON2 MBO1 MUT0 BAN2 BIN1 HUA1 VSS2 ACS1 TWA1
D: NOK ABK COL DOB NUR LOV SVD KNS WIT HAD ODE OTT
E: MOS
X: SIT COI

29 02 33
A: MMB3 LNP2 GUA2
B: PET2 AAA0 KAK2
C: NOK0 YAK- MGD1 KNS1 SVD2 (HAD0) KIV1 NEW1 TKT1 MUT0 PPT0 [MPO0] EYR2
D: ABK SOD COL DOB NUR LNN LOV SIT IRK KGD UBA ODE VLA ASH HON HYB PMG GNA TOO MCQ
X: [MBO]

29 10 41 A: KNS1 AAA2 ASH3 BNG3
B: SVD3 KIV2 LNP2 HYD3
C: NOK0 SOD2 YAK- NUR2 MGD1 LNN2 LOV- ESK0 WNG0 WIT0 IRK1 NGK2 VAL1 GTT2 HAD0 BDV2 (NEW1) HRB2 TYH2 ODE1 (MMB1) AQU1 ISK1 EBR0 TOL0 PEN0 SJG2 MBO1 MUT0 BIN2 VSS2 MPO2 HER0 (ACS1)
D: ABK DOB LER DOU UBA OTT VLA TKT COI FRD PAB CZT KGL

JULY

01 16 27 A: LOV2 DOU3 NEW3 TUC3 SJG3 HUA2 VSS2
B: ABK- SOD3 COL2 DOB2 LER2 MGD2 LNN2 SIT2 SVD2 KNS2 ESK2 (PET2) WIT3 NGK2 VAL1 GTT3 HAD2 OTT2 ISK2 EBR2 TOL2 FRD2 HON2 PAB2 ACS2 TWA2
C: NOK2 YAK2 NUR2 WNG1 KIV1 BDV2 HRB3 TYH0 ODE1 (MMB1) (AAA1) AQU2 [KAK1] MBO1 [MUT0] [GUA1] BIN0 (PPT0) (MPO1)
D: COI PEN
E: BNG
X: MOS

12 15 42 B: WNG2 GTT2 KIV1 HRB3 COI2 SJG2 HUA2
C: NOK0 LNN2 (PET2) NGK2 DOU1 BDV2 TYH1 ODE1 AQU2 ISK2 EBR1 TOL1 FRD2 [KAK1] TUC1 MBO1 [MUT0] PAB2 BNG0 BIN0 MBO1 VSS2 MPO0 ACS0
D: ABK SOD COL DOB NUR LER LOV SIT SVD KNS ESK WIT VAL HAD NEW OTT HER TWA
E: MOS [MAW]
X: [TOO]

14 08 23 A: SVD3 WNG3 IRK3 CLF0 HRB3 UBA2 TYH2 AAA3 ISK3 COI3 ASH3 LNP3 HYB3 BNG3 MPO3
B: ABK- SOD2 YAK2 NUR2 LER3 MGD2 LNN3 LOV- (SIT1) KNS2 MOS2 ESK2 PET2 GTT2 HAD1 KGD1 VLA2 AQU3 EBR1 TOL2 KAK2 MUT2 GNA2
C: NOK3 DOB1 WIT2 NGK2 VLA0 DOU1 BDV2 MMB2 TKT1 MBO1 GUA1 HER1
D: ODE PEN BIN CZT KGL
E: MAW
X: (TOO)

21 02 54 A: MAG1 SVD2 PET2 IRK3 LNP2 HYB3 GUA3
B: LNN2 KNS1 MOS2 (WNG0) KGD0 MMB2 AAA1 KAK2 MUT0
C: NOK1 (NGK1) (GTT0) KIV1 NEW1 UBA0 ODE2 VLA0 (AQU-) (EBR0) HON1 [PAB0] [BNG0] [BIN1] PPT0 [MPO1] DUM1
D: DOB NUR LOV TKT ASH GNA TOO MCQ
E: ABK SOD COL YAK SIT [OTT] EYR MAW
X: [COI] [MBO]

23 00 50 A: MGD2 PET2 VLA2 LNP3
B: SIT2 SVD1 (WNG0) IRK2 (GTT0) KGD0 NEW2 (ODE1) MMB1 [AQU0] [ISK2] KAK2 MUT1 EYR1
C: NOK1 ABK- SOD0 (LNN1) (LOV0) KNS1 (MOS1) (WIT0) (VAL0) (KIV1) (HRB1) UBA0 [TYH1] [EBR0] [TOL0] [PEN0] ASH2 TUC2 HON2 GUA2 [BNG0] [BIN1] [HUA1] [VSS1] [MPO1] [ACS0] [TWA0] MCQ1
D: COL AAA GNA
E: YAK HYB PPT TOO [MAW]
X: [COI] [MBO]

AUGUST

none

SEPTEMBER

03 13 34
A: NOK1 WNG2 [PET2] (IRK2) GTT2 EBR2 MBO3 [MUT1]
B: LER1 MGD1 LNN2 KNS1 ESK1 HAD1 KIV2 DOU1 KGD2 BDV1 CLF2 TYH0 ODE2 OTT2 (AAA1) AQU1 ISK2 ASH2 SJG2 PAB2 BNG3 HUA0 VAS2 MPO1 HER0 ACS1 TWA2
C: SOD1 NUR2 MOS1 NGK2 VAL1 TKT2 TOL1 FRD2 HON1 [GUA1] BIN1
D: COI CZT
E: ABK DOB LOV SIT SVD WIT NEW URB [MMB] [VLA] PEN [KAK] TUC [LNP] (HYB) [PPT] [TOO] [EYR]

08 05 02
A: LNP3
B: NOK1 YAK2 MGD1 LNN1 SVD2 PET2 (WNG2) (GTT2) KIV2 KGD1 HRB3 ODE2 MMB2 AAA2 TKT0 ISK2 KAK3 MUT1 MPO1 GNA2
C: ABK- SOD1 NUR1 LOV- KNS1 (WIT0) IRK1 NGK2 (VAL0) UBA0 (AQU0) ASH2 (BNG2) [VSS1] EYR1
D: DOB BDV TYH HYB GUA CZT KGL MCQ DUM
E: VLA PEN [MBO] TOO MAW
X: MOS (COI) [PAB]

23 04 39
B: MGD0 PET2 GTT2 AAA2 KAK2 LNP2 MUT1
C: NOK2 NUR1 (LER1) LNN0 MOS1 (ESK1) (WNG0) KIV1 (NGK2) KIV1 DOU2 KGD0 UBA0 MMB2 (TOL0) HYB2 (BIN1) MPO1 TOO0
D: ABK SOD YAK SVD KNS IRK HRB TYH VLA TKT ISK PEN ASH GUA BNG GNA HER EYR CZT KGL MCQ DUM
E: MAW
X: ODE [COI] [MBO] [PAB]

27 01 20
B: PET2 MUT2
C: NOK0 MGD0 [GTT0] MMB1 KAK2 LNP3 GUA2 [MPO1] TOO0 EYR1
D: COL YAK SIT IRK KGD NEW UBA VLA AAA HON HYB PPT GNA KGL MCQ DUM MAW
E: (MOS)
X: [COI] [MBO] [PAB]

OCTOBER

01 10 00
A: TYH2
B: ABK- SOD2 (YAK2) NUR2 (MGD2) LOV- SVD2 WNG2 [PET2] GTT2 KIV2 KGD1 ODE2 AAA2 ASH2 (MUT1)
C: NOK2 LER1 LNN2 [SIT2] KNS1 ESK1 WIT1 IRK2 (VAL0) HAD1 DOU0 BDV2 [NEW1] HRB2 UBA0 (MMB1) VLA2 AQU1 ISK2 TOL0 PEN2 (KAK1) [HON1] (SJG1) MBO2 BNG0 BIN0 MPO2 ACS0 [TOO0] (TWA0)
D: DOB NGK TKT EBR HYB VSS GNA HER CZT KGL
E: MOS MAW
X: COI PAB

07 23 06
B: [LNN0] LNP2 MUT2 PPT0
C: (NOK0) MGD1 PET1 (IRK1) [GTT0] [KIV1] [KGD0] MMB2 [AAA0] KAK2 HON2 GUA2 [BIN0] [MPO1] EYR1

D: COL YAK SIT NEW OTT VLA FRD TUC HUA GNA TOO MCQ
E: [ABK] [MOS] DUM (MAW)
X: [COI] MBO

13 04 15 A: LNP3
B: PET2 IRK2 MMB2 AAA3 ASH2 MUT1
C: NOK1 MGD0 (LNN0) SVD2 [WNG0] [GTT1] KIV1 KGD0 [NEW0] (HRB1) (TYH1) VLA2 TKT2 ISK0 KAK2 GUA1 (BNG0) (BIN0) VSS2 MPO2 ACS0 TOO1 TWA0
D: KNS ODE HON HYB PPT GNA EYR CZT KGL MCQ
E: (PEN) DUM MAW
X: YAK MOS UBA [COI] [MBO]

14 06 04 A: IRK2 UBA3 MMB3 VLA3 TKT1 ASH3 KAK3 LNP3 HYB3
B: MGD2 SVD2 KNS2 PET2 KIV2 KGD2 ODE2 MUT2 BIN1 MPO2 GNA-TOO2
C: NOK2 YAK1 LNN2 WNG2 (WIT0) GTT0 [OTT1] AQU1 (EBR0) GUA2 CZT0
D: ABK SOD NUR LOV NGK BDV HRB TYH ISK PEN HER EYR KGL MCQ DUM
E: MOS AAA MAW
X: (MBO) BNG

14 08 05 A: ABK2 LOV- TYH2
B: NOK3 DOB2 NUR2 LNN3 SVD2 KNS2 MOS2 WNG3 (PET2) GTT2 ODE2 AAA2 AQU1 ISK2 ASH2 LNP2 MPO1
C: SOD2 LER2 (MGD1) ESK2 WIT2 IRK0 NGK2 VAL1 HAD1 DOU1 KGD0 BDV2 HRB1 UBA0 MMB1 COI2 KAK1 HYB2 MBO1 MUT1 BNG0 (ACS0) (TWA0) (EYR1) DUM1
D: VLA TKT EBR TOL GNA HER TOO CZT KGL MCQ
E: YAK PEN [PPT] MAW
X: KIV BIN

25 09 48 A: NOK2 KNS2 PET2 KIV2 TYH2 ODE3 AQU2 ASH3 MBO3 BNG3 BIN2 MPO1 HER2 ACS1 TWA1
B: LNN2 SVD1 MOS3 WNG2 WIT1 KGD1 ISK0 EBR0 (MUT1)
C: LER1 ESK1 IRK0 NGK2 VAL0 HAD1 BDV2 UBA0 TKT1 COI1 TOL1 PAB0 (HUA0) VSS2
D: CZT
E: ABK SOD COL DOB (YAK) NUR [MGD] LOV [SIT] GTT DOU HRB [OTT] [MMB] AAA PEN [KAK] (LNP) HYD PPT GNA (TOO) KGL (MCQ) DUM MAW

NOVEMBER

05 13 44 A: WNG3 MBO1 VSS2 MPO2 ACS1
B: GTT2 KIV2 BDV2 HRB3 TYH1 ODE1 AQU2 EBR2 PAB2 BNG3 BIN2 HUA2
C: LER2 ESK1 [PET1] WIT2 NGK2 VAL0 HAD1 DOU2 KGD0 OTT1 [MMB1] (AAA1) ISK0 TOL2 SJG2 [MUT0] HER0 TWA1
D: DOB NUR LNN LOV COI FRD CZT KGL MAW
E: MOS PEN

06 03 39
A: MGD2 PET3 UBA0 MMB3 VLA3 AAA3 TKT2 ASH3 KAK3 HYD3 EYR3 MCQ0
B: IRK2 KIV2 KGD0 MUT2 GUA2 MPO1 TOO2
C: NOK0 [GTT0] ODE1 [AQU1] LNP2 (BNG0) (BIN0)
D: YAK SVD HON PPT GNA CZT KGL DUM
E: (MOS) MAW
X: [COI] [MBO]

07 02 02
A: MAG2 PET3 GUA3 EYR3
B: YAK2 IRK2 MMB2 VLA2 AAA2 HON2 MUT2 GNA2 MCQ0
C: NOK0 KGD0 UBA1 KAK2 LNP2 [BNG0] [BIN1] (MPO1) TOO0
D: HYD PPT CZT KGL
E: [MOS] DUM MAW
X: [COI] [MBO]

07 09 58
A: TYH2 ASH2
B: ABK- LOV- WNG2 NGK3 GTT3 KIV2 HRB2 ODE2 ISK1 (MUT1)
C: NOK0 SOD1 DOB1 NUR2 LER1 LNN2 [SIT1] SVD1 KNS1 MOS2 ESK1 [PET1] WIT1 IRK0 VAL1 HAD1 DOU1 BDV2 UBA0 [OTT1] [MMB1] EBR0 TOL0 [KAK1] (SJG1) BNG0 BIN1 MPO1 ACS0 TWA0
D: KGD AQU TKT COI PAB VSS GNA HER CZT KGL
E: AAA PEN HYB MBO DUM MAW

08 13 35
A: LER2 LOV2 ESK2 WNG3 NGK3 GTT3 HAD2 DOU3 CLF3 HRB3 TYH2 ISK2 EBR3 FRD3 SJG3 MBO1 VSS2 MPO3 HER3 ACS1 TWA1
B: DOB3 WIT3 VAL2 BDV3 ODE2 OTT2 AQU3 TOL2 (TUC2) [MUT1] PAB2 BNG3 BIN1 HUA3
C: ABK- NUR2 LNN1 MOS1 KIV1 (NEW0) [MMB1] PEN2 HON1 [GUA1] CZT2
D: COI KGL
E: MAW

12 04 47
A: NOK0 ASH3 KAK3 LNP3
B: PET1 KGD1 MMB3 VLA2 ISK0 HYD3 MUT1 GUA2 TOO2 EYR2 MCQ0
C: MGD1 (WNG0) IRK1 (GTT0) KIV1 UBA1 BIN0 MPO1 HER0
D: KNS CZT KGL
E: (ABK) (SOD) YAK SVD (MOS) AAA (PEN) GNA DUM MAW
X: TKT [COI] [MBO] BNG

15 07 11
A: NOK2 IRK2 KIV2 ODE3 AAA2 ASH3 MPO1
B: LNN2 KNS1 MOS2 WNG3 (PET2) (WIT1) NGK2 GTT2 KGD0 BDV2 TYH1 AQU1 EBR0 KAK1 MUT2 GUA2 BNG3 BIN-
C: SOD1 NUR2 (VAL1) (DOU1) [NEW1] UBA0 MMB1 TKT1 (TOL1) [HON1] [SJG1] [PAB0] (VSS1) HER0 [ACS0] [TWA0]
D: ISK KGL
E: (ABK) (YAK) (MGD) LOV SVD HRB [OTT] VLA PEN LNP HYD (MBO) [PPT] GNG TOO EYR CZT MCQ DUM MAW

DECEMBER

17 12 07
A: HER3
B: WNG3 GTT3 KIV2 HRB3 TYH2 ISK2 SJG2 HUA0 MPO3
C: LOV- WIT0 NGK2 VAL0 HAD1 ODE1 AQU2 ASH2 [KAK1] MBO1 [MUT0] BNG2 VSS2 ACS1 TWA1
D: DOB NUR LNN KNS ESK DOU EBR COI TOL PEN HYD PAB CZT KGL DUM
E: MOS
X: NOK LER BDV BIN MAW

TABLE 2b: DOUBTFUL SOLAR-FLARE EFFECTS (sfe) 1980

JANUARY

15 11 02
A: ABK- LOV2 KNS2 WNG2 NGK3 GTT2 KIV2 ODE3 ASH3 MPO2 MAW2
B: NUR2 LER2 LNN2 SVD2 ESK2 WIT0 BDV2 TYH2 AAA2 AQU1 ISK2 QUE0 MBO2 BNG3 PMG1 VSS2 (TOO2)
C: NOK1 SOD- MOS1 HAD2 DOU1 KGD0 HRB1 [MMB1] [VLA2] EBR0 COI1 TOL1 [KAK1] HYB2 (MUT0) BIN2 HER1 TWA0
D: DOB VAL TKT PEN SJG PAB HUA GNA CZT KGL DUM
X: ACS

18 09 58
B: SOD1 LER2 ESK2 WNG2 GTT2 HAD2 KIV2 TYH2 ODE2 ISK2 MAW2
C: ABK- DOB1 NUR2 LNN1 LOV- SVD2 WIT1 NGK2 VAL0 DOU1 BDV1 HRB1 [OTT2] [MMB1] AAA1 AQU1 EBR0 [KAK1] BNG0 BIN0
D: KNS KGD TKT COI TOL PEN ASH QUE HYB VSS MPO GNA HER ACS TWA CZT KGL DUM
E: [COL] MOS
X: MBO

FEBRUARY

none

MARCH

31 00 46
A: NOK1 [DOU0] KGD2 (TKT3) LNP3 [MPO0]
B: [SOD0] MGD2 (SVD1) KNS1 PET2 [VAL0] TYH0 MUT2 PMG1
C: (MOS2) [WNG0] IRK1 [GTT0] [KIV1] [BDV0] NEW1 [ODE1] [OTT1] MMB1 VLA1 [TOL0] KAK1 [PAB0] [BIN0] [HER0] [ACS0] TOO0 [TWA0] (MAW1)
D: SIT UBA TUC HON GUA EYR MCQ
E: COL YAK [NGK] [HRB] AAA [PEN] HYB [BNG] PPT GNA DUM
X: [EBR] [MBO]

APRIL

06 04 06
A: PET2 MUT3
B: KGD0 MMB2 KAK2
C: NOK0 MGD0 IRK0 LNN0 (GTT0) (OTT2) LNP2 (BIN0) (MPO0)
D: ABK SOD COL YAK NUR SVD KNS KIV UBA ODE VLA AAA TKT ISK ASH HON HYB GUA PMG GNA TOO EYR CZT KGL MCQ DUM
E: MOS MAW
X: [MBO]

11 06 30
A: NOK2 LER1 ESK1 WNG3 HAD1 EBR1 LNP2
B: PET1 GTT2 BDV2 TKT0 TOL2 MUT1
C: IRK2 LNN0 SVD1 KNS1 WIT1 HYD0 NGK2 TYH0 KIV1 ODE1 AAA2 BIN1 PMG1 HER0
D: DOB NUR LOV VAL DOU UBA AQU ISK COI PEN BNG CZT KGL MCQ MAW
E: ABK SOD YAK MGD MOS HRB MMB VLA ASH KAK HYD [PPT] MPO GNA TOO (EYR) MAW
X: KGD (MBO)

11 06 42 A: NOK2 LER1 ESK1 WNG3 HAD1 KIV2 TYH2 ODE3 [OTT3] AQU1 EBR1 [TUC1] LNP2 [SJG1] MUT1
B: PET1 WIT2 NGK3 GTT1 AAA2 TKT0 TOL2
C: KNS1 SVD1 BNG2 PMG1 [TWA0]
D: DOB NUR LOV IRK VAL DOU UBA ISK COI PEN GUA BIN HER CZT KGL MCQ DUM
E: ABK SOD (COL) YAK MGD LNN MOS BDV HRB MMB VLA ASH KAK HYB [PPT] MPO GNA TOO EYR MAW
X: KGD MBO

15 13 02 A: NOK2 NUR3 (MGD2) LNN2 LOV2 KNS1 WNG3 [PET2] WIT2 NGK3 GTT3 KIV3 DOU2 KGD2 (UBA3) TYH3 ODE3 OTT3 AAA1 AQU0 TKT2 EBR1 ASH3 MBO3 BIN2 [PMG1] VSS2 MPO1 ACS1 TWA1 [EYR0]
B: ABK- SOD2 (COL3) (YAK2) LER1 MOS2 ESK1 (IRK2) VAL2 HAD1 BDV2 CLF2 HRB2 [MMB0] [VLA2] ISK0 PEN1 [KAK0] SJG2 PAB2 BNG3 HUA0 [PPT0] [TOO2] [MCQ1]
C: (SIT2) NEW1 TOL1 TUC2 [HON1] MUT1 HER0
D: FRD CZT
E: DOB SVD HYB (MAW)
X: COI

MAY

10 11 14 A: NOK3 (MGD2) LNN2 (PET2) IRK2 KIV2 HRB3 TYH2 ODE3 (VLA3) AAA3 TKT3 PEN2 ASH3 (LNP3) MBO2
B: ABK- SOD1 YAK2 LOV- (SIT2) SVD2 KNS2 MOS2 WNG2 GTT3 DOU2 KGD1 (NEW1) AQU2 ISK1 EBR0 [HON2] SJG2 BNG2 BIN0 (HUA1) VSS2 MPO2 [GNA2] HER0 [TOO2] [EYR0]
C: NUR2 LER0 ESK1 WIT1 NGK2 VAL0 HAD0 BDV2 OTT2 (MMB1) TOL0 FRD1 (KAK1) (TUC2) (MUT1) [GUA2] [PMG1] (ACS1) TWA1 CZT0
D: DOB COI
E: (COL) UBA HYD [PPT]
X: PAB KGL

30 11 29 A: (MGD2) WNG2 (PET2) IRK3 NGK3 GTT1 KIV3 TYH2 ODE3 AAA2 AQU1 TKT2 ISK2 PEN2 [EYR0]
B: ABK- YAK2 NUR2 LNN2 LOV- MOS2 WIT2 KGD1 BDV2 (NEW1) HRB2 EBR0 FRD2 ASH2 (KAK1) (TUC2) (MUT1) BNG2 BIN2 [PMG1] [TOO2]
C: NOK1 SOD1 (COL1) LER1 (SIT1) ESK1 VAL1 HAD1 DOU2 [HON1] SJG1 [GUA1] [PPT0] VSS2 HER0 ACS0 (TWA0)
D: KNS UBA COI TOL CZT KGL
E: DOB SVD (MMB) HYD MBO MPO
X: OTT PAB
[GTT = ssc; TOL = si]

JUNE

06 15 55 A: ABK- SOD2 (YAK2) LER1 (MGD2) LNN2 LOV- SVD1 MOS3 ESK1 WNG2 (PET2) (IRK3) GTT3 HAD0 KIV2 (KGD3) TYH3 ODE0 OTT2 [VLA3] AQU0 ISK2 EBR1 PEN1 (ASH3) SJG2 MBO3 [GUA2] PAB0 BNG3 [PMG1] (PPT1) VSS2 (MPO1) HER1 ACS1 TWA1
B: NUR2 NGK2 VAL1 BDV0 CLF2 FRD2 HON2 [MUT1] BIN- HUA1
C: NOK0 (TKT1) TOL0
D: COL COI

E: DOB SIT WIT DOU NEW HRB [MMB] [KAK] TUC [LNP] [HYD] (AAA) [TOO] [EYR] [MAW] [TOL = si, PEN = bs, PAB = b]

07 03 12
A: PET2 LNP2 GUA2
B: MGD1 IRK2 MMB2 KAK2 MUT1 PMG2
C: LNN2 MOS2 WIT0 NGK1 GTT0 KIV1 KGD1 TKT2 ISK0 (EBR0) (TOL0) (FRD1) HON1 (BNG0) BIN- (MPO0) KGL1
D: ABK SOD DOB NUR LER LOV ESK HAD DOU BDV TYH ODE VLA AQU PEN GNA CZT KGL MCQ DUM
E: COL YAK KNS SIT SVD WNG NEW HRB UBA (OTT) AAA TUC HYB PPT TOO EYR (MAW)
X: NOK ASH [MBO]

08 10 32
A: NOK1 MGD1 (PET1) IRK2 AAA1 BNG3 MPO2 HER1
B: LNN2 SVD2 GTT2 KGD1 ODE1 AQU1 EBR0 ASH2 SJG1 (MUT0) BIN2
C: LER0 ESK0 WIT0 NGK2 VAL0 HAD0 KIV1 BDV2 (NEW0) TYH0 OTT1 (MMB1) TKT1 ISK0 TOL1 (HON1) PAB0 [PMG1] VSS2 (ACS0) (TWA0) CZT1
D: DOM YAK DOU VLA COI FRD LNP KGL
E: ABK SOD (COL) NUR LOV (SIT) KNS MOS WNG HRB UBA PEN (KAK) HYD MBO [PPT] [TOO] [MCQ] [DUM] (MAW)

23 23 11
B: KAK2
C: NOK2 MGD1 PET1 (GTT0) UBA0 MMB2 (AAA1) TUC2 HON1 MUT0
D: COL SIT IRK NEW OTT VLA FRD LNP GUA PMG PPT GNA TOO MCQ
E: YAK (MOS)
X: [MBO]

25 15 50
A: HUA3
B: WNG2 MBO1 [MUT1]
C: NOK0 SOD1 (MGD1) LNN2 KNS1 (PET1) WIT0 (IRK0) NGK2 VAL0 GTT2 HAD0 KIV1 (KGD0) BDV2 NEW0 TYH0 ODE1 ISK0 EBR0 TOL0 FRD1 TUC2 PAB1 BNG2 BIN1 (MPO0) ACS0 TWA0
D: ABK COL DOB NUR LER LOV SIT SVD ESK DOU HRB OTT AQU PEN SJG VSS HER
E: MOS [HYB] (AAA) [MAW]

28 03 20
B: PET2 MMB2 KAK2 MUT2
C: NOK0 MGD1 SVD2 KNS1 AAA2
D: ABK SOD COL DOB YAK NUR LER LNN LOV SIT WNG IRK NGK GTT KIV KGD BDV NEW HRB UBA TYH ODE VLA TKT ISK PEN HON HYB GUA PMG PPT GNA TOO EYR KGL MCQ DUM
E: MOS (MAW)
X: ASH [MBO]

29 18 22
B: FRD2 HUA2
C: NOK0 SOD1 MGD0 LNN2 (KNS1) WNG1 PET1 GTT1 (KIV0) TUC2 HON2 [MUT0] PPT0
D: ABK COL DOB NUR LER LOV SIT ESK WIT NGK VAL HAD DOU BDV NEW HRB TYH AQU EBR COI TOL SJG PAB VSS ACS TWA
X: (MOS) OTT MBO

JULY

06 04 20
A: MUT1
B: IRK2 AAA2 KAK2

C: NOK3 SOD1 LNN2 SVD- KNS1 WNG2 PET1 NGK2 GTT2 KIV1 KGD0 (NEW1) TYH0 ODE1 MMB2 VLA1 AQU0 (EBR0) (TOL0) [FRD1] PEN0 ASH2 (BNG0) (BIN0) [VSS1] (MP01) [ACS0] [TWA0]
D: ABK COL DOB NUR LER MGD LOV SIT ESK WIT HAD DOU BDV HRB UBA TKT ISK HON HYD GUA GNA TOO EYR CZT KGL MCQ DUM
E: YAK MOS LNP [MAW]
X: (COI) [MBO] (PPT)

23 09 36 A: MGD3 SVD3 PET2 [EYR2]
B: ABK- SOD2 COL2 YAK2 LER1 LNN2 LOV3 (SIT2) KNS2 WNG2 GTT2 KIV2 (NEW2) HRB2 ODE2 OTT2 VLA2 AAA3 (FRD2) KAK2 [TUC2]
C: NOR3 DOB1 NUR2 MOS1 ESK1 WIT1 IRK0 NGK2 VAL0 HAD1 DOU0 KGD0 BDV2 TYH2 MMB2 AQU1 ISK2 PEN0 ASH2 [HON1] (SJG2) MUT0 (GUA1) BNG0 BIN0 [HUA1] MP02 [TOO0]
D: TKT EBR COI TOL LNP HYD MBO PAB VSS HER CZT KGL
X: [PPT]

AUGUST

05 06 21 A: MGD2 PET2 LNP3
B: KIV2 MMB2 VLA2 AAA2 ASH2 KAK2 TUC2 MUT0 GNA2 (EYR2)
C: NOK1 YAK2 LER1 LNN1 SVD2 KNS2 ESK1 WNG2 WIT1 IRK0 NGK2 VAL0 GTT1 HAD1 DOU0 KGD0 BDV1 HRB1 UBA0 TYH1 ODE1 AQU0 TKT2 ISK1 EBR0 TOL0 HYB1 BNG2 BIN1 PPT0 [VSS1] MP02 [ACS0] TOO0 [TWA0]
D: ABK SOD COL DOB NUR LOV COI PEN GUA HER CZT KGL
E: MOS [OTT] MAW
X: [MBO]

07 14 30 B: LER1 (IRK1) ASH2
C: NOK1 SOD2 YAK- [MGD1] ESK1 WNG2 [PET1] WIT0 VAL0 GTT2 HAD1 KIV2 NEW1 TYH2 ODE1 OTT1 [MMB1] (AAA1) AQU0 ISK1 EBR0 TOL1 PEN0 [KAK1] TUC2 [LNP0] SJG2 MBO1 [MUT0] BNG0 BIN1 VSS1 MP02 ACS1 TWA1 (CZT0)
D: ABK COL DOB NUR LNN LOV SIT SVD KNS NGK DOU KGD BDV HRB TKT COI FRD PAB HUA HER
E: MOS [MAW]

15 11 20 A: NOK3 (MGD3) WNG2 (PET2) AAA3 TKT2 PEN3 ASH2
B: ABK- SOD2 YAK2 LER0 LNN2 LOV- SVD2 KNS2 MOS2 ESK0 WIT2 GTT2 HAD0 IRK1 KIV2 CLF2 TYH2 ODE2 (MMB1) (VLA2) AQU0 ISK3 COI2 (KAK1) (LNP2) SJG1 MBO1 (HUA1)
C: NUR1 NGK2 VAL0 DOU2 KGD0 BDV2 (NEW1) UBA0 OTT1 EBR0 TOL1 FRD2 [TUC1] [HON1] (MUT0) [GUA1] BNG2 BIN1 VSS2 (GNA1) ACS0 [TOO0] (TWA0) [EYR2]
D: HRB PAB MPO HER CZT KGL
E: DOB HYD [PPT] (MAW)

27 13 21 A: NOK1 [PET2] KGD1
B: WNG3 WIT0 KIV1 AAA2 TKT0 ISK0 EBR0 MP01
C: LER0 KNS1 MOS1 ESK1 NGK2 VAL0 HAD0 TYH1 ODE1 TOL1 PEN0 BNG0 BIN1 VSS1 HER0 ACS0 TWA0
D: COI SJG PAB HUA
E: ABK SOD (COL) DOB (YAK) NUR [MGD] LNN LOV (SIT) SVD (IRK) GTT BDV (NEW) HRB OTT [MMB] [VLA] AQU FRD ASH [KAK] TUC [LNP] HYD MBO [GNA] [EYR] CZT (KGL) [DUM] [MCQ] MAW
X: [MUT]

SEPTEMBER

05 10 45 A: (PET2) MBO2 BNG3
B: NOK0 WNG2 KIV1 ODE2 AAA1 ISK0 (MUT1) MPO1
C: SOD1 (MGD0) LNN1 MOS1 WIT0 IRK1 GTT1 KGD0 [NEW1] TYH0 OTT1 (VLA2) AQU0 EBR0 TOL0 BIN2 VSS2 HER0 ACS0 TWA0
D: ABK DOB NUR LER LOV KNS ESK NGK VAL HAD DOU BDV HRB UBA TKT COI FRD PEN SJG PAB CZT KGL
E: (COL) SVD HYB [TOO] [MCQ] MAW
X: ASH

08 19 11 B: PET2
C: (MGD0) [IRK0] NEW1 (MMB1) HON2 SJG2 [MUT0] [BIN1] HUA2 PPT0 EYR1
D: COL SIT OTT TUC PAB ACS TWA
E: [MOS]
X: FRD (MBO)

OCTOBER

27 08 28 B: WNG2 GTT2 KIV1 ODE2 ASH2 MUT1
C: NOK1 (YAK1) NUR1 LER1 LNN1 SVD1 KNS1 [PET1] ESK1 WIT1 NGK2 VAL0 HAD1 DOU1 KGD0 BDV2 [NEW0] TYH1 (MMB1) AAA1 AQU1 ISK2 TOL0 [FRD1] PEN0 (KAK1) [TUC1] LNP2 [HON1] [SJG2] MBO1 MPO2 (EYR1)
D: ABK SOD DOB MGD LOV IRK HRB TKT EBR COI HYD BIN HER TOO CZT KGL MCQ DUM
E: MOS GNA MAW
X: UBA

NOVEMBER

none

DECEMBER

04 13 00 A: ASH3
B: (SOD1) NUR2 LNN2 (SVD1) WNG2 [PET2] KIV2 HRB2 TYH2 ODE2 [MMB1] AQU0 [KAK1] [MUT1]
C: [NOK0] ESK0 WIT0 NGK2 VAL0 GTT2 DOU1 BDV1 (KGD0) [VLA0] ISK0 EBR0 TOL1 BNG2 MPO1 ACS0 TWA0
D: DOB LER LOV HAD COI FRD PEN SJG MBO PAB HUA VSS HER CZT KGL DUM
E: MOS OTT (HYB)
X: BIN MAW

10 07 00 B: (MGD1) (WNG2) (PET2) IRK2 KIV2 KGD0 ODE1 MMB1 AQU0 KAK1 LNP2 MUT0
C: (YAK-) LNN1 KNS2 (ESK0) (WIT0) (NGK2) (VAL0) (GTT1) [NEW1] TYH1 AAA1 (TOL0) [TUC1] MPO1 [ACS0] TOO0 (TWA0) EYR1
D: BDV VLA TKT ISK PEN GUA BNG GNA HER CZT KGL MCQ
E: SVD HRB [OTT] ASH HYD DUM
X: MOS UBA BIN MAW

14 11 59 A: WNG2 GTT3 DOU3 HRB3 TYH0 ODE2 ASH3 MBO2
B: SOD2 LER1 ESK1 WIT2 [IRK2] VAL0 HAD1 KIV2 ISK0 PEN0 SJG2 [MUT1] HUA0
C: [NOK1] [MGD0] LNN0 KNS1 [PET1] NGK2 [NEW0] [UBA0] [MMB1] (AAA1) [VLA0] TKT1 [KAK1] [TUC1] [HON0] [GUA1] MPO1 ACS0 TWA0
D: DOB NUR LOV BDV AQU EBR COI TOL BNG HER CZT KGL DUM
E: [COL] (SVD) [SIT] MOS (OTT) HYB
X: PAB BIN VSS MAW

TABLE 3

List of symbols for rapid variations

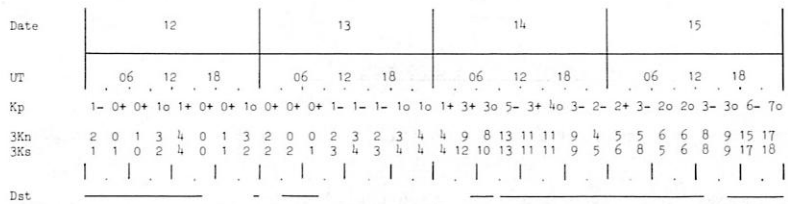
The meaning of the symbols in tables 1 and 2 is as follows:

ssc	sudden commencement, followed by a storm or a period of storminess
si	sudden magnetic change which could not be classified as ssc
pg	giant puslations, viz. 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 40-150 s, pi3 longer than 150 s
pc	pulsations of more continuous character, generally with long duration; period: pc1 0,2-5 s, pc2 5,1-10 s, pc3 10-45 s, pc4 45-150 s, pc5 150-600 s, pc6 longer than 600 s
b	bay-like disturbance in the magnetogram
ncl	no classification given in the report
cr	crochet-like disturbance

The observatories are arranged in groups with respect to the quality-indications W, A, B, etc. which have the following meaning:

W	-	extra-ordinary and very unusual
A	-	very remarkable
B	-	fair, ordinary, but unmistakable
C	-	very poor, doubtful
D	-	it was decidedly not recorded, although the records were satisfactory
E	-	the phenomenon could not be discerned because of heavy disturbance
X	-	record missing
wq	-	without quality indication

1980, FEBRUARY 12 - 15



Data from Individual Observatories — FEBRUARY 1980

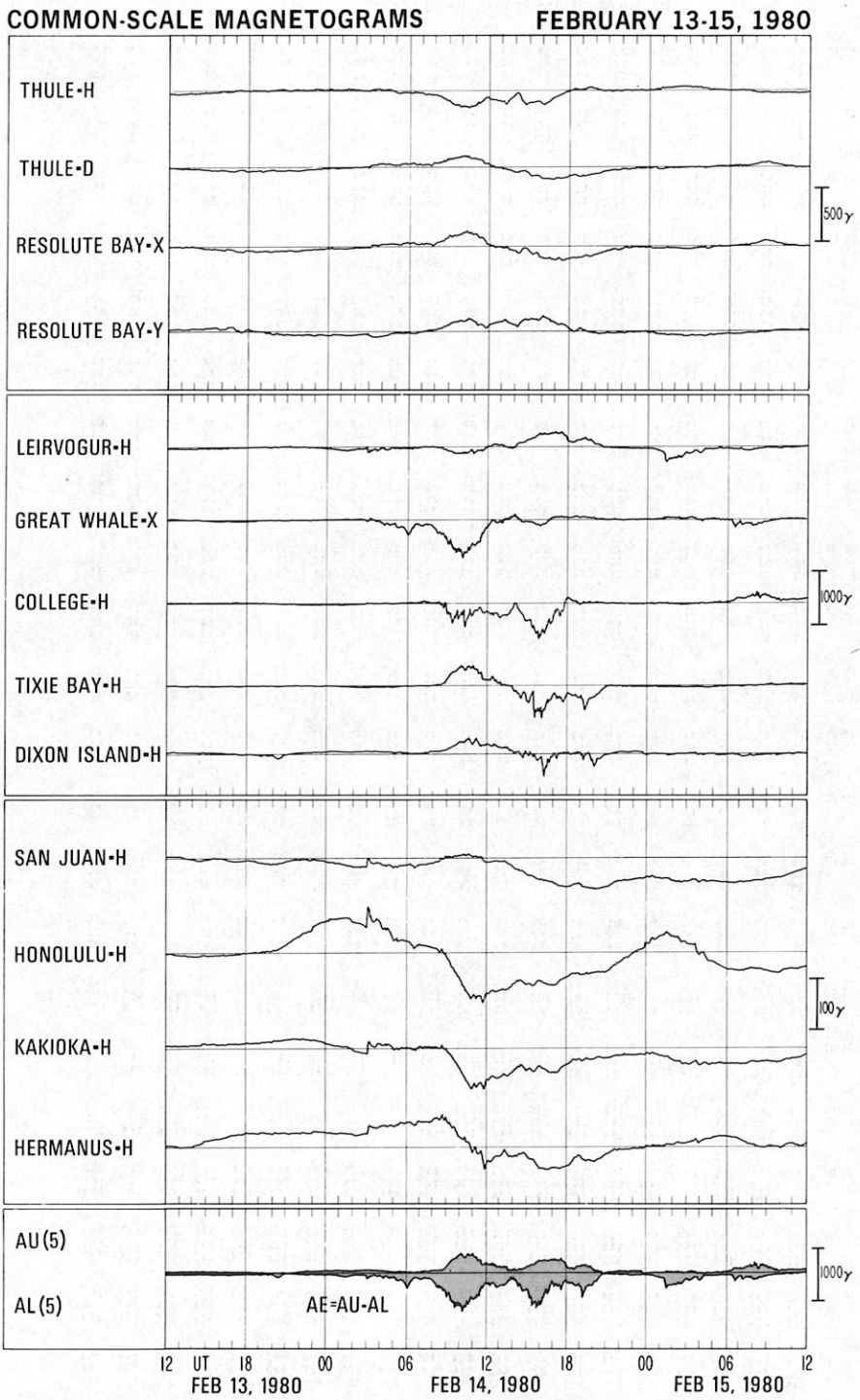
Values underlined are for X and Y. X, Y, H and Z are given in gammas, D in minutes.

OBS. 3 letter code	GEOMAG-NETIC LATI-TUDE	COMMENCEMENT DAY	hr min (UT)	TYPE	SC - AMPLITUDES D(')	H(γ)	Z(γ)	MAXIMUM 3 HOUR - INDEX K DAY(3 HOUR PERIOD)	K	RANGES D(')	H(γ)	Z(γ)	UT END DAY	HOUR
RES	83.1N	14	1308	SC	-12	16	6	14(4)	-	134	94	76	15	06
MBC	79.2N	14	0309	SC	-16	36	5	15(7,8)	-	237	461	172	16	24
BLC	73.9N	14	0309	SC	8	8	-	14(4,5)	-	175	95	420	16	24
FCC	68.8N	14	03--	..	..	..	..	14(4,5)	-	605	245	640	16	24
GWC	66.8N	14	03--	..	..	..	..	15(8) 16(3)	-	930	330	737	16	24
COL	64.6N	14	0308	SC*	- 8	+47	-12	14(6)	6	108	790	530	14	23
MEA	61.9N	14	0310	SC*	250	-45	* 50	16(3,4)	6	910	470	550	16	24
SIT	60.0N	14	0310	SC*	- 4 *	34	* 7	* 16(4)	7	--	--	690	16	20
OTT	56.8N	14	0310	SC	- 2.7	37.1	15.8	16(3)	7	45	222	264	16	22
VIC	54.3N	14	0309	SC*	- 5 *	- 3	- 1	16(2,3,4)	4	102	150	305	16	24
FRD	49.6N	14	0309	SC	1	23	- 3	15(7)	6	24	147	120	16	20
EBR	43.9N	14	0309	SC*	- .6*	15 *		14(4)	5	7	105	45	14	23
IRK	41.0N	14	0309	..	6	19	3	14(4,6)	5	21	163	55	16	22
MMB	34.0N	14	0309	SC*	1.6*	14	*- 4	* 14(4)	6	9	93	35		
KAK	26.0N	14	0309	SC*	1.3*	25	* 14	14(4)	6	6	91	58	14	22
HON	21.1N	14	0310	SC		6	2	14(2,4,6)	3	3	85	6	15	05
KNY	20.5N	14	0309	SC*	1.3*	29	* 14	14(4)	6	7	124	54	14	24
JAI	17.3N	14	0310	SC	- 1.1	23	- 4		-	4	134	23	15	03
SHL	14.6N	14	0310	SC	- .4	27	3		-	4	147	36	15	03
UJJ	13.5N	14	0310	SC	- .2	32	- 6		-	4	137	16	15	03
ABG	09.5N	14	0310	SC	..	..	..	14(4)	6	3	149	32	15	03
HYB	07.6N	14	0310	SC	- .2	24	- 3	14(4,5,6)	5	3	164	22	15	05
GUA	04.0N	14	0309	SC*	..	54	-15	15(8)	6	10	240	60	17	09
ANN	01.5N	14	0310	SC	- 1.5	46	16		-	5	205	50	15	03
HUA	00.6S	14	0308	SC	1	33	6	14(5,6)	6	14	259	38	14	23
TRD	01.1S	14	0310	SC	- .1	53	52		-	4	220	130	15	03
API	16.0S	14	0309	SC	1	23	- 8	16(2,3)	6	16	188	49	17	08
PMG	18.6S	14	0309	SC*	.4	34	* 31	14(4)	6	8	240	70	18	00
HER	33.7S	14	0309	SC*	5	14	13	14(3,4,5,6)	4	20	107	52	14	21
CZT	39.7S	14	0309	SC	- 2	9	10	14(4)	5	20	125	52	14	20
GNA	43.2S	14	0309	SC	6.2	8	13	15(8) 16(1)	5	22	170	130	16	22
TOO	46.7S	14	0309	SC*	3.1	40	* 10	15(8)	6	21	180	120	16	16
KGL	56.5S	14	0308	SC	7	20	5	15(8)	9	151	852	356	16	21
MCQ	60.7S	14	0307	SC	- 4.8	-54	38	14(6) 15(7,8) 16(1,3,4)	6	166	1110	690	16	22
DUM	75.6S	14	0309	SC	59	115	227	14(2) 15(1,2)	5	445	493	404	15	06

THREE-HOUR-RANGE INDICES, K

FEB	12				13				14				15			
HIS	1221	3123	2212	0221	2434	4332	3433	3277								
CCS	1011	3122	1001	0233	2334	4442	3323	2276								
DIK	1111	2123	1111	1343	2335	5653	3322	4387								
TIK	1122	1211	1122	1111	1133	6777	3211	2328								
MMK	0000	1001	0001	0021	0323	4442	2211	2167								
KIR	0001	0001	0001	1012	0322	4451	3301	2267								
CWE	1012	1011	0001	1011	1215	6731	1143	3266								
CMO	0001	1000	0001	0000	0235	4631	1243	3245								
LRV	0011	2001	0002	1112	3434	4552	5432	2267								
SOD	0000	0002	0000	0011	0213	4541	2211	2167								
YAK	2321	2003	2320	0113	3415	5543	3313	2246								
LER	0000	1001	0000	0000	1223	2432	2111	2258								
NUR	0011	1001	0011	0111	1323	3421	2222	2258								
LOV	0002	2002	0001	1022	1324	3432	2321	2259								
SIT	0012	1000	0001	0011	1225	3431	1132	2255								
RSV	0000	1001	0000	1111	1323	3431	2222	2357								
MNK	0000	0000	0001	1011	1223	3421	2211	2265								
WIT	0001	1002	0001	1111	1334	3331	2312	3366								
IRT	2222	2000	2222	1011	2435	4542	2222	3346								
VAL	0002	2111	0002	2111	0224	3332	1212	3256								
KIV	0102	2001	0122	2122	1335	3432	2223	3366								
DOU	0001	1001	0001	1011	1324	3332	1212	2356								
KGD	1222	2111	0222	1122	1335	4531	1322	3356								
VIC	1012	1001	1001	0111	1324	3311	1131	2334								
OTT	1001	2111	1001	2221	1334	4421	2222	3356								

	12				13				14				15			
MMB	1001	2000	0001	1111	2426	4432	2223	3346								
TKT	0212	2212	2121	1221	1336	4332	2322	4345								
PEN	1001	1011	1112	1111	1333	3432	3212	3356								
TOL	0010	1211	1011	1110	1323	2432	2222	3266								
FRD	1001	2011	1001	1112	2334	4322	3232	3365								
COI	1312	1111	001-	3122	2434	3543	3322	3488								
TUC	1001	1001	1001	1212	2445	4342	2223	3365								
KNY	1001	2000	1000	1010	1436	4432	2312	3345								
QUE	2343	2111	3--2	1121	2--5	3---	--33	4345								
HON	2000	0211	1101	0312	1323	2322	2211	2354								
HYB	1111	1011	1111	1111	1435	5543	2322	4356								
SJG	0000	0200	0000	1111	1333	3222	2210	4465								
GUA	3112	2100	2111	1101	2536	4322	2322	3346								
BNG	1112	2112	2112	2122	2334	3332	2222	4356								
PMG	1000	2000	1000	1012	2436	4322	2312	3345								
HUA	1112	3233	1112	3322	2324	6653	2222	3575								
GNA	1001	1000	1112	1111	1435	3322	2332	3245								
HER	0001	1000	0000	1011	0344	4431	1212	2356								
TOO	1000	1000	1010	1001	2445	3421	1223	3346								
EYR	0111	1000	1100	0011	1435	3321	1322	2255								
MCQ	0011	1000	0000	0001	1435	5631	1234	4166								
MIR	3454	3222	3332	1111	3443	3123	3333	3213								
MAW	1222	2103	3221	1022	34--	-442	4434	2267								
NVL	0121	2002	0121	1011	1434	3332	3322	2258								
SBA	1222	2233	1322	2233	2444	3342	3433	3355								
VOS	1322	3222	1323	3232	2354	4442	3434	3345								


COMMON-SCALE MAGNETOGRAMS
FEBRUARY 13-15, 1980
THULE-H
THULE-D
RESOLUTE BAY-X
RESOLUTE BAY-Y
500γ
LEIRVOGUR-H
GREAT WHALE-X
COLLEGE-H
TIXIE BAY-H
DIXON ISLAND-H
1000γ
SAN JUAN-H
HONOLULU-H
KAKIOKA-H
HERMANUS-H
100γ
AU(5)
AL(5)
AE=AU-AL
1000γ
12 UT 18 00 06 12 18 00 06 12
FEB 13, 1980
FEB 14, 1980
FEB 15, 1980

PRELIMINARY AE(5)-INDEX AT ONE MINUTE INTERVALS
1980 FEBRUARY 13, 1200 UT - FEBRUARY 14, 1159 UT

12 UT	60	56	56	56	56	59	59	59	59	59	59	56	56	56	56	54	54	54	54	54
	54	54	54	54	51	54	54	54	54	54	50	50	50	52	56	56	52	52	52	52
	56	56	56	59	59	52	52	52	52	52	55	55	55	55	55	55	55	51	51	51
13 UT	55	55	55	55	55	55	55	55	55	55	55	55	55	59	59	59	59	59	59	55	55
	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	51	51	
14 UT	51	47	47	47	50	50	51	51	51	51	53	53	51	51	48	48	46	46	46	46	
	46	48	48	48	48	48	51	51	47	47	47	47	44	44	44	44	44	44	44	44	
	42	42	42	42	42	41	42	44	47	50	56	55	55	53	53	46	44	41	37	39	
15 UT	41	44	41	44	46	46	46	43	41	43	43	43	43	48	48	46	46	46	46	48	
	46	46	48	45	45	48	48	48	48	51	51	51	53	53	53	53	53	53	53	53	
	53	53	53	53	53	50	53	53	53	53	55	55	57	57	57	57	57	57	57	57	
16 UT	53	55	53	53	55	55	57	57	57	55	55	52	52	55	55	55	55	52	52	52	
	55	55	55	57	55	53	55	55	55	52	52	52	55	55	57	57	57	55	55	55	
	55	55	57	52	52	51	49	49	49	49	49	49	49	49	49	49	49	49	49	49	
17 UT	49	49	49	49	49	60	60	49	46	46	46	44	44	44	44	44	44	44	44	44	
	46	46	57	57	44	44	44	42	44	44	44	44	44	44	42	42	42	42	44	44	
	44	44	44	44	44	42	42	42	44	46	46	46	46	46	46	44	44	44	44	44	
18 UT	42	42	44	44	44	44	42	40	40	40	40	40	40	40	40	40	40	40	40	40	
	40	40	40	40	37	35	35	33	33	35	37	37	40	40	37	37	35	35	33	33	
	33	35	35	35	37	37	37	35	33	33	33	33	35	37	40	40	40	40	40	37	
19 UT	35	35	35	35	35	35	33	37	39	28	28	28	28	31	31	36	38	46	54	52	
	49	47	42	37	34	31	30	29	26	26	26	28	17	17	20	20	20	20	20	17	
	17	21	23	26	28	33	36	38	41	39	38	38	41	38	36	33	26	23	21	21	
20 UT	18	18	18	18	18	18	21	26	26	26	28	31	31	34	37	39	39	41	43	48	
	48	53	58	57	59	61	64	71	76	76	71	77	75	80	82	91	91	89	86	81	
	73	71	68	70	65	65	67	67	77	70	70	67	65	61	56	39	34	26	29	32	
21 UT	32	29	24	21	23	26	22	23	21	21	19	19	22	22	16	16	16	16	16	16	
	16	12	12	12	12	12	12	12	16	16	16	14	12	15	15	14	14	14	12	15	
	15	17	17	17	17	17	20	17	22	22	22	17	17	20	20	20	17	20	20	25	
22 UT	25	27	30	33	36	36	32	32	32	36	36	32	27	27	33	33	33	33	25	27	
	30	38	38	41	41	41	38	41	41	43	46	46	46	46	57	46	43	43	43	43	
	43	43	46	46	43	43	43	43	43	43	57	57	57	59	48	48	48	48	43	41	
23 UT	41	41	41	41	43	41	41	41	43	43	41	41	41	41	38	41	52	43	43	43	
	54	54	54	54	54	54	57	46	46	46	46	46	46	48	48	48	48	48	48	51	
	62	62	64	64	62	62	62	62	48	48	48	48	48	48	48	48	48	51	52	62	
00 UT	77	77	67	67	65	66	66	66	70	70	74	76	79	81	85	85	83	78	78	78	
	78	82	78	80	80	80	79	75	71	67	74	74	77	77	80	80	80	80	80	81	
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01 UT	85	85	85	85	83	83	83	87	91	94	94	91	91	91	94	102	102	102	102	102	
	96	96	98	98	102	100	100	96	98	98	96	100	100	100	104	104	104	108	111	111	
	115	115	117	117	117	113	109	105	105	101	97	97	93	93	93	97	93	96	96	89	
02 UT	89	89	89	91	91	95	95	91	85	82	83	83	83	83	83	82	82	78	71	75	
	75	75	75	82	82	82	82	82	78	78	74	74	74	74	78	78	80	76	76	72	
	72	72	72	75	76	76	80	80	82	82	82	84	80	80	80	76	80	80	80	80	
03 UT	80	78	76	77	80	79	81	85	85	89	89	92	87	82	114	139	167	176	148	141	
	137	141	155	163	161	133	107	102	141	149	119	123	131	107	101	105	109	109	105	107	
	110	101	97	89	89	85	81	81	81	80	78	90	98	96	96	97	106	114	118	118	
04 UT	118	114	110	102	102	104	97	82	78	89	93	87	79	75	77	80	84	93	93	84	
	87	96	100	103	110	115	115	110	119	133	149	156	149	128	111	107	105	102	102	110	
	112	110	107	100	95	91	89	89	95	100	102	111	120	120	122	132	143	143	140	138	
05 UT	134	122	115	117	117	115	113	110	110	110	110	110	108	108	105	101	99	94	90	82	
	90	92	103	114	128	141	151	146	144	151	155	167	174	174	175	177	184	184	182	179	
	181	181	182	173	166	161	156	152	147	150	152	157	158	158	155	153	156	158	158	156	
06 UT	156	156	163	170	174	183	190	192	199	201	211	215	221	233	240	254	275	284	306	308	
	313	310	297	278	265	255	255	255	244	230	223	220	226	210	201	185	178	176	171	163	
	185	176	151	133	124	111	108	108	106	97	95	96	98	98	97	102	105	105	105	108	
07 UT	103	93	93	93	96	98	98	100	112	117	121	121	119	106	112	119	131	139	143	153	
	153	151	162	159	148	148	148	137	128	121	114	114	125	127	130	143	143	132	130	127	
	121	116	116	118	118	121	118	118	118	118	123	123	123	112	112	117	117	117	124	132	
08 UT	132	132	133	133	140	137	134	139	153	163	165	165	170	168	172	177	181	186	197	204	
	211	218	225	229	238	238	234	234	247	256	267	281	290	295	309	313	316	306	299	296	
	287	278	272	269	277	290	309	339	348	337	325	313	322	327	320	311	316	320	314	319	
09 UT	330	347	359	378	412	416	405	410	416	414	402	384	386	395	403	421	447	479	528	551	
	584	603	621	626	615	604	599	577	568	546	563	582	600	607	620	659	687	720	734	742	
	745	736	749	787	813	817	801	786	792	810	821	817	801	799	799	820	838	883	899	897	
10 UT	884	846	821	833	875	889	909	889	875	837	848	887	906	934	946	946	934	911	877	886	
	905	938	987	989	970	958	974	1002	1051	1079	1039	1012	966	919	903	910	910	891	905	915	
	913	889	887	880	882	901	941	949	923	893	894	883	860	869	871	869	884	914	950	945	
11 UT	926	910	891	861	832	821	824	794	764	748	765	781	810	824	840	854	851	820	810	824	
	809	795	781	786	800	805	784	768	754	745	742	753	767	740	722	689	679	679	676	658	
	653	646	635	630	647	660	672	620	570	579	574	562	508	480	433	404	391	405	417	424	

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PRELIMINARY AE(5)-INDEX AT ONE MINUTE INTERVALS

1980 FEBRUARY 14, 1200 UT - FEBRUARY 15, 1159 UT

12 UT	429	429	417	408	411	393	365	342	348	360	363	364	351	362	367	369	375	378	363	376
	387	393	393	382	363	350	336	331	329	335	349	381	407	411	398	364	348	320	319	316
	316	319	326	342	357	367	383	378	373	376	360	355	363	362	354	367	383	397	410	421
13 UT	421	416	386	386	381	395	386	391	375	380	380	364	361	345	340	353	358	368	360	358
	350	348	329	324	327	345	334	334	321	313	311	322	338	350	369	374	368	371	355	344
	323	318	308	313	318	315	320	334	339	330	325	286	244	217	189	181	176	184	180	185
14 UT	191	196	198	187	174	149	136	131	138	145	155	164	171	178	168	168	179	177	160	128
	153	165	198	212	218	204	203	196	186	189	191	191	201	215	227	236	248	261	265	278
	298	321	323	313	304	288	270	274	274	274	296	292	292	292	314	324	335	346	368	405
15 UT	405	405	409	398	398	402	402	402	402	402	413	413	416	420	413	416	423	415	412	422
	426	430	423	423	427	438	449	452	449	496	507	540	547	568	594	602	606	595	591	588
	566	614	639	629	629	672	772	737	687	720	731	723	719	719	705	698	691	695	699	717
16 UT	725	733	715	704	726	861	843	814	781	799	825	825	825	770	746	754	776	772	761	851
	856	819	767	742	742	768	782	774	770	789	771	756	749	703	700	715	718	708	679	668
	668	653	616	602	565	565	554	558	549	554	557	542	576	616	608	586	623	616	609	572
17 UT	587	595	599	595	558	558	558	532	474	463	467	460	446	443	436	414	403	405	415	428
	432	425	437	453	480	508	521	515	500	476	471	458	447	441	439	442	453	486	504	508
	497	467	470	472	471	472	461	444	435	433	456	483	497	522	540	570	592	592	575	551
18 UT	521	497	465	452	435	426	408	401	390	378	370	367	357	340	318	309	303	298	293	294
	291	288	285	277	269	254	247	255	269	281	284	285	280	274	274	271	269	267	260	263
	269	278	280	289	291	280	269	265	254	250	244	247	257	274	281	287	293	307	316	325
19 UT	323	319	329	328	327	346	357	355	359	361	368	354	349	327	325	314	325	341	354	360
	382	376	376	371	385	392	399	435	458	481	510	531	544	585	591	603	596	573	549	527
	518	513	512	507	495	473	457	434	400	390	371	367	367	376	372	362	348	349	354	356
20 UT	334	328	324	328	338	348	356	362	353	347	343	336	322	314	317	322	328	330	299	280
	266	259	259	257	248	242	229	218	213	203	199	195	202	202	206	209	207	205	206	196
	187	178	166	157	150	139	127	120	115	106	102	107	102	102	87	82	76	64	60	60
21 UT	53	51	44	38	32	21	19	17	14	17	17	18	9	9	12	12	12	12	14	14
	17	18	21	22	24	24	24	23	23	32	34	29	29	35	39	43	47	50	50	48
	41	37	33	37	34	34	38	38	38	38	41	43	43	46	48	48	48	51	52	55
22 UT	55	55	51	49	48	47	50	50	53	57	61	61	61	58	61	61	57	57	57	57
	57	57	61	61	67	71	71	75	75	75	71	71	71	65	65	65	58	58	58	58
	58	58	58	58	58	58	56	53	53	51	44	54	54	52	52	55	55	61	57	57
23 UT	60	62	69	69	69	73	73	70	74	71	68	68	70	70	70	73	73	75	79	79
	79	79	73	77	77	77	77	77	74	74	74	74	74	74	77	77	77	79	79	79
	77	77	74	74	71	71	71	71	71	71	71	71	71	70	70	66	66	69	73	73
00 UT	52	56	43	31	31	38	38	34	34	31	25	23	23	19	19	19	25	23	23	23
	23	23	23	23	23	36	36	32	32	32	36	40	40	36	32	32	32	28	28	28
	28	32	36	36	36	36	36	40	43	47	47	47	47	47	47	47	47	51	51	51
01 UT	55	55	55	59	57	57	57	57	65	65	65	69	69	69	69	69	69	69	69	73
	73	73	73	77	77	77	77	85	89	89	89	93	95	95	98	101	108	114	118	126
	130	138	154	165	181	199	219	250	278	297	305	300	314	322	314	306	284	270	254	243
02 UT	245	245	243	239	235	239	249	259	263	253	232	244	258	262	256	244	234	236	243	246
	249	243	236	230	216	216	220	220	222	222	229	226	214	200	212	235	244	236	225	214
	202	194	190	194	207	213	219	224	226	214	193	179	177	177	198	216	226	232	230	224
03 UT	217	213	200	188	180	178	177	173	170	166	168	170	162	155	147	135	125	125	119	111
	111	115	115	125	129	138	153	153	149	149	159	165	173	171	163	163	167	164	171	163
	181	179	173	167	152	142	142	152	150	145	135	128	128	128	128	124	108	102	100	96
04 UT	96	85	83	78	82	77	75	68	66	61	70	78	98	110	118	122	126	129	133	137
	137	136	139	139	136	136	136	128	128	128	113	113	113	105	101	101	93	82	82	78
	74	71	67	63	57	43	36	31	33	33	33	35	39	49	46	46	52	55	57	57
05 UT	55	56	54	53	64	53	49	46	46	46	48	44	53	53	60	64	64	68	72	68
	64	64	68	68	68	64	59	57	55	60	64	64	64	64	60	60	60	60	71	60
	60	71	71	71	60	56	53	53	49	45	34	41	41	30	30	32	32	33	33	30
06 UT	38	41	41	49	49	49	49	49	49	60	60	63	63	63	67	67	67	67	67	63
	60	60	63	63	63	67	67	67	60	60	60	60	63	70	63	67	70	70	74	74
	74	70	70	70	74	78	78	93	89	96	100	104	119	142	167	180	169	166	192	218
07 UT	232	255	262	250	244	209	209	207	200	193	193	189	187	182	184	182	180	177	173	171
	157	157	151	146	150	141	138	127	127	127	127	132	141	148	185	197	181	174	185	180
	180	180	191	184	184	187	193	188	199	199	195	195	188	186	190	192	203	195	192	181
08 UT	184	195	206	212	215	215	208	197	205	230	250	254	245	254	238	203	203	194	182	206
	229	240	247	243	249	260	275	288	297	299	316	311	302	257	240	288	303	292	299	277
	262	224	196	184	182	162	151	157	179	192	203	219	221	243	243	245	247	247	234	221
09 UT	221	232	230	241	241	249	247	231	227	220	205	191	194	183	185	185	185	187	185	180
	200	200	189	187	176	176	165	163	152	152	150	150	150	160	160	158	147	147	143	143
	127	116	125	136	125	123	123	120	120	120	112	112	109	107	105	105	105	107	99	83
10 UT	68	58	95	93	95	110	106	102	91	81	93	93	93	93	82	71	60	60	60	60
	56	56	52	63	63	74	74	84	84	84	81	70	70	70	70	70	69	69	66	55
	55	55	55	66	66	66	70	74	70	66	62	51	51	51	62	73	77	77	81	81
11 UT	84	74	74	74	81	81	70	81	81	81	81	81	81	93	93	104	104	104	104	93
	93	80	81	70	70	81	77	73	73	73	73	62	66	55	59	59	59	59	77	77
	77	77	77	77	73	62	62	77	81	81	66	51	51	51	51	47	69	69	69	69

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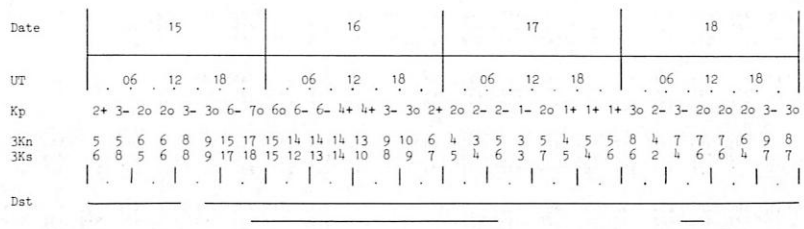
1980, FEBRUARY 15 - 18



Data from Individual Observatories — FEBRUARY 1980

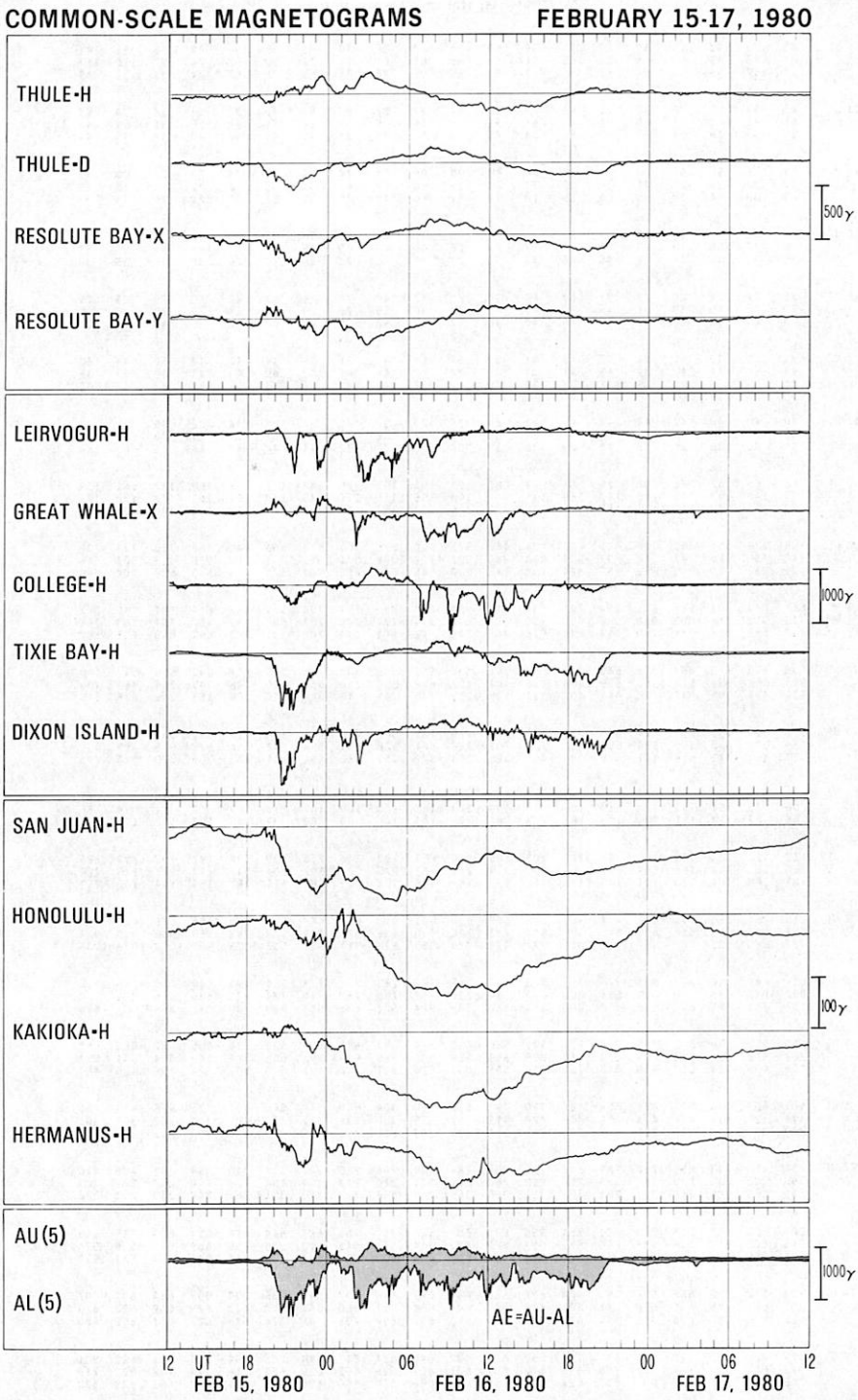
Values underlined are for X and Y. X, Y, H and Z are given in gammas, D in minutes.

OBS. 3 letter code	GEOMAG-NETIC LATI-TUDE	COMMENCEMENT DAY	hr min (UT)	TYPE	SC - AMPLITUDES D(')	H(γ)	Z(γ)	MAXIMUM 3 HOUR - INDEX K DAY(3 HOUR PERIOD)	K	RANGES D(')	H(γ)	Z(γ)	UT END DAY	HOUR
COL	64.6N	15	19--	..	..	..	..	16(3,4,5)	6	193	1430	820	16	22
NEW	55.1N	15	1234	SC	1	9	--	16(3,4)	6	39	247	400	17	01
WIT	54.2N	15	1234	SC*	- 3 *	14 *		15(7,8)	6	27	200	75	16	22
EBR	43.9N	15	1234	SC*	- 1.4*	7 *		15(7,8)	6	16	133	71	17	02
MMB	34.0N	15	1235	SC	.5	10	- 1	15(8)	6	9	171	45	17	09
SJG	29.9N	15	1235	..	..	..	..	15(7)	6	11	144	51	18	22
KAK	26.0N	15	1235	SC	.3	8	5	15(8) 16(1,5)	5	7	156	85	16	22
HON	21.1N	15	1235	SC		2	1	15(7) 16(1,4)	5	5	189	42	17	08
KNY	20.5N	15	1235	SC	.3	8	4	15(8) 16(1,5)	5	7	155	66	16	24
JAI	17.3N	15	1234	SC	- .1	6	- 2		-	6	138	41	17	22
SHL	14.6N	15	1234	SC		5	2		-	5	177	25	17	22
UJJ	13.5N	15	1234	SC	- .2	6	- 2		-	6	139	32	17	22
ABG	09.5N	15	1234	SC	- .2	5	- 2	15(7,8)	5	7	143	41	17	22
HYB	07.6N	15	1234	SC	- .1	6	- 1	15(8)	6	5	152	19	16	23
ANN	01.5N	15	1234	SC	- .4	7	4		-	5	182	49	17	22
HUA	00.6S	15	1236	SC	1	25	3	15(7)	7	14	376	61	16	22
TRD	01.1S	15	1234	SC		5	7		-	5	212	130	17	22
HER	33.7S	15	12--	..	..	..	..	15(8)	6	33	132	132	16	15
CZT	39.7S	15	1235	SC	- 1	5	3	15(8)	7	29	219	107	16	21
GNA	43.2S	15	12--	..	- .9*,	7	- 2	* 15(8) 16(1)	5	22	170	130	16	22
TOO	46.7S	15	18--	..	..	..	..	15(8)	6	21	180	120	16	16
KGL	56.5S	15	1233	SC	3	10	3	15(8)	9	151	852	355	16	21
MAW	73.2S	15	19..	..	..	..	..	15(8) 16(3)	7	85	730	1200	17	09
DUM	75.6S	15	1230	..	..	..	..	15(8) 16(1)	6	825	645	633	17	10

THREE-HOUR-RANGE INDICES, K

FEB	15				16				17				18			
HIS	3433	3277	5444	4442	3222	3122	5333	2343								
CCS	3323	2276	5335	5453	3221	3212	4233	4354								
DIK	3322	4387	7645	6665	3221	2222	5234	5556								
TIK	3211	2328	9645	6657	4111	1231	1314	5657								
MMK	2211	2167	7754	4554	1110	2113	5112	2355								
KIR	3301	2267	7754	3453	1111	2013	5111	2255								
CWE	1143	3266	4477	6642	1111	3312	2134	4232								
CMO	1243	3245	4566	6532	1110	2211	1034	4222								
LRV	5432	2267	7665	3354	3221	2112	5423	2456								
SOD	2211	2167	6753	3453	1010	1002	4212	2354								
YAK	3313	2246	5345	4442	2210	3312	3124	3253								
LER	2111	2258	6553	3232	1100	1101	3111	2133								
NUR	2222	2258	4434	3233	1011	1011	3112	3233								
LOV	2321	2259	6553	3344	1111	2011	3222	3233								
SIT	1132	2255	5677	7632	1110	2111	2032	2232								
RSV	2222	2357	5533	3233	1010	2111	3211	2233								
MNK	2211	2265	4433	2232	1111	1011	3111	2223								
WIT	2312	3366	5543	3243	2121	2121	4122	1243								
IRT	2222	3346	5344	4343	3232	2122	3223	3343								
VAL	1212	3256	5442	3233	1111	2111	3112	2233								
KIV	2223	3366	5533	3343	1221	2111	3232	3233								
DOU	1212	2356	5433	3232	1111	2111	3112	1223								
KGD	1322	3356	5543	4331	3322	1121	3323	3333								
VIC	1131	2334	4455	5331	1110	1122	1133	2122								
OTT	2222	3356	5676	5221	1110	2221	2232	2224								

FEB	15				16				17				18			
MMB	2223	3346	5344	5441	1122	2222	2123	3232								
TKT	2322	4345	4433	4342	2121	2122	2123	3232								
PEN	3212	3356	5332	2233	1121	1122	2122	2333								
TOL	2222	3266	4332	3223	1221	2211	2221	0123								
FRD	3232	3365	5455	5322	1221	2122	2232	2212								
COI	3322	3488	5354	3233	2232	3223	3232	2233								
TUC	2223	3365	5455	4331	1121	1022	2122	2212								
KNY	2312	3345	5444	5343	2231	2121	2122	3232								
QUE	--33	4345	3243	4342	3443	1122	3342	3232								
HON	2211	2354	5335	3232	2121	1223	3113	2122								
HYB	2322	4356	5443	4332	2232	2122	3121	1232								
SJG	2210	4465	5454	4322	2210	1112	2011	2212								
GUA	2322	3346	5534	5343	2231	3213	3133	2222								
BNG	2222	4356	4444	3322	2132	2223	3232	2234								
PMG	2312	3345	5445	4232	2232	2223	1133	2233								
HUA	2222	3575	4544	4533	2112	3232	2122	3343								
GNA	2332	3245	5434	4233	2121	3222	2122	2233								
HER	1212	2356	4435	3132	1122	2012	2022	2132								
TOO	1223	3346	5344	3331	1221	3311	1---	---3								
EYR	1322	2255	5344	3222	1121	2211	1112	2121								
MCQ	1234	4166	6566	5432	1111	3312	2144	4322								
MIR	3333	3213	3665	5543	2462	3333	3535	4323								
MAW	4434	2267	6676	5454	3231	21--	----	----								
NVL	3322	2258	6665	3243	2212	2121	3212	2233								
SBA	3433	3355	5433	3444	3232	3143	3333	3324								
VOS	3434	3345	5244	4333	3433	3333	3343	3333								


COMMON-SCALE MAGNETOGRAMS
FEBRUARY 15-17, 1980
THULE-H
THULE-D
RESOLUTE BAY-X
RESOLUTE BAY-Y
500γ
LEIRVOGUR-H
GREAT WHALE-X
COLLEGE-H
TIXIE BAY-H
DIXON ISLAND-H
1000γ
SAN JUAN-H
HONOLULU-H
KAKIOKA-H
HERMANUS-H
100γ
AU(5)
AL(5)
AE=AU-AL
1000γ
12 UT 18 00 06 12 18 00 06 12
FEB 15, 1980
FEB 16, 1980
FEB 17, 1980

PRELIMINARY AE(5)-INDEX AT ONE MINUTE INTERVALS
1980 FEBRUARY 15, 1200 UT - FEBRUARY 16, 1159 UT

12 UT	93	93	93	93	69	58	71	58	58	58	58	36	40	51	58	58	69	58	51	41
	41	43	47	47	49	52	52	54	57	59	61	64	72	77	79	77	77	97	110	113
	115	117	96	93	104	98	98	87	75	86	96	96	71	63	85	85	74	89	58	49
13 UT	95	95	85	76	63	63	65	76	76	87	87	87	98	98	98	87	87	74	74	63
	61	61	63	67	68	68	68	64	61	59	55	58	58	58	55	61	58	51	54	48
	52	51	46	51	50	55	58	54	48	56	48	45	41	41	41	40	40	44	44	44
14 UT	41	38	48	44	48	46	32	36	40	40	44	44	44	34	34	33	33	33	33	33
	33	37	38	37	37	37	37	37	38	38	48	52	41	41	32	23	23	14	16	29
	13	30	24	18	23	26	19	18	18	31	40	40	40	33	37	31	29	29	29	29
15 UT	31	31	31	31	31	37	23	30	21	18	40	40	40	36	31	38	38	38	38	30
	30	32	30	30	21	21	15	27	27	26	40	40	40	35	35	35	46	54	57	53
	35	32	35	35	48	46	46	34	34	29	36	36	32	30	29	29	32	35	35	38
16 UT	38	27	27	29	31	31	42	42	31	29	42	40	40	40	40	40	40	29	29	29
	29	29	40	40	40	40	40	40	40	40	40	29	29	29	29	29	29	29	40	40
	40	29	40	42	42	42	40	40	40	37	37	40	40	40	40	40	40	48	48	35
17 UT	35	35	37	51	51	47	42	41	39	57	54	48	31	29	44	47	47	50	44	42
	44	44	44	42	42	43	41	37	40	42	42	42	42	42	42	49	43	39	37	35
	32	35	39	40	39	37	37	37	40	42	44	42	42	44	44	42	42	42	42	42
18 UT	40	40	40	42	44	44	42	27	29	29	29	32	32	34	34	34	32	39	28	30
	32	32	35	35	35	35	35	35	35	35	32	32	30	30	35	37	26	33	37	37
	35	35	35	28	35	28	28	32	32	38	38	38	38	44	44	47	56	61	63	63
19 UT	66	66	61	68	68	72	82	77	85	99	103	101	98	108	126	138	160	177	161	154
	153	148	143	141	146	148	149	144	147	140	136	131	136	138	139	155	167	177	180	179
	168	151	146	143	136	155	171	192	225	276	323	353	412	450	489	493	448	408	381	333
20 UT	305	334	354	361	385	401	423	454	482	521	530	550	560	574	603	642	658	715	729	737
	742	730	726	747	770	797	804	860	964	1081	1102	1098	1071	1056	1071	1008	958	918	1001	966
	921	833	789	795	839	862	824	758	713	680	645	653	690	707	578	624	682	697	704	690
21 UT	661	644	593	554	621	684	741	834	913	966	856	829	797	763	631	583	614	671	742	842
	912	968	994	1003	988	986	990	991	973	870	814	777	745	728	688	639	652	707	763	798
	718	699	716	749	789	794	693	678	705	746	741	669	674	708	733	703	667	645	626	602
22 UT	598	623	640	664	674	665	655	720	766	834	895	905	832	784	745	707	646	569	547	540
	523	548	556	573	566	559	468	436	461	492	512	394	350	350	355	348	345	354	367	400
	437	456	452	447	439	444	407	327	308	333	343	348	348	348	360	360	353	345	345	345
23 UT	385	393	381	552	624	665	758	803	826	796	789	805	754	662	648	659	651	682	749	768
	719	666	623	599	570	606	651	721	702	618	581	560	561	528	542	556	547	516	492	456
	433	415	411	416	427	428	430	421	385	365	372	457	480	456	441	430	389	370	326	293
00 UT	265	240	232	227	227	229	232	221	213	197	187	188	182	178	183	165	133	96	76	63
	56	83	101	141	128	119	106	86	99	123	123	120	109	107	113	89	82	71	74	85
	95	87	160	186	201	193	182	103	66	72	105	100	88	82	99	105	103	100	133	129
01 UT	113	124	133	148	150	193	178	183	295	250	204	193	246	258	200	192	197	192	233	225
	198	205	223	199	199	240	250	289	274	242	219	225	209	197	204	242	243	241	243	224
	181	148	104	113	141	143	165	169	172	167	166	166	163	169	165	157	154	144	140	151
02 UT	218	261	289	351	422	457	488	543	563	638	681	692	681	688	676	699	685	670	630	574
	571	533	556	596	609	646	628	697	741	788	858	956	974	974	977	962	950	965	980	984
	987	980	983	987	987	1012	1018	972	972	975	959	938	914	929	933	1036	1063	1079	1078	1038
03 UT	1011	844	840	823	807	776	791	803	829	766	772	763	766	773	784	799	810	810	796	816
	832	836	836	840	820	816	809	797	774	766	762	766	767	774	724	675	656	676	702	706
	714	711	696	673	655	650	600	584	558	539	524	531	535	543	529	530	549	564	581	555
04 UT	550	553	549	542	565	574	578	571	580	566	574	597	601	609	639	676	645	652	655	667
	663	699	691	698	677	674	640	629	603	588	585	585	585	593	602	606	599	604	642	657
	669	606	684	832	958	893	768	558	589	597	586	491	456	491	506	381	374	409	428	467
05 UT	487	588	646	677	686	554	488	440	491	510	550	534	569	578	566	537	525	476	464	456
	449	425	412	415	415	418	419	422	419	391	378	360	337	321	313	305	304	302	307	301
	299	300	306	316	321	317	320	307	295	296	291	280	262	267	278	296	300	293	271	256
06 UT	237	236	243	258	266	283	298	295	284	284	286	286	286	301	316	340	369	392	409	410
	390	363	335	279	260	255	258	262	262	251	231	220	219	199	184	188	200	217	229	229
	246	263	248	240	247	264	300	322	356	366	364	358	312	310	301	261	248	239	251	322
07 UT	387	521	596	716	763	774	754	686	574	504	422	354	456	557	544	468	522	518	519	545
	515	600	619	614	635	640	629	597	605	623	644	651	643	640	636	655	659	641	596	574
	562	550	547	549	558	580	597	604	572	592	634	620	578	564	558	556	546	533	531	534
08 UT	532	532	542	568	582	591	604	625	635	647	642	640	647	649	635	639	638	654	684	707
	691	668	648	630	630	611	606	626	640	644	654	677	680	665	672	672	676	659	623	626
	631	628	625	618	586	574	580	602	594	648	656	694	791	785	776	674	622	667	658	500
09 UT	477	460	453	528	673	697	702	692	679	582	640	624	637	648	706	794	930	701	622	991
	1028	1001	749	697	706	685	636	612	601	601	609	620	601	619	660	716	745	709	692	719
	735	748	727	722	692	647	627	628	666	676	686	678	696	695	670	631	629	633	629	638
10 UT	622	597	573	551	543	548	579	599	607	599	559	535	538	556	569	588	587	588	608	613
	611	608	606	586	579	588	598	603	597	603	612	627	637	601	584	551	529	520	513	519
	514	499	501	509	514	517	506	503	505	505	501	486	473	451	444	436	448	453	444	430
11 UT	416	374	362	353	352	355	352	347	337	354	359	368	370	391	418	425	433	448	445	478
	487	503	493	480	479	522	494	472	450	458	411	386	394	318	276	291	271	267	256	264
	299	290	300	307	326	443	477	502	571	593	673	706	688	675	638	650	668	711	737	726

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PRELIMINARY AE(5)-INDEX AT ONE MINUTE INTERVALS

1980 FEBRUARY 16, 1200 UT - FEBRUARY 17, 1159 UT

12 UT	715	693	679	766	788	784	729	693	634	576	591	569	539	501	483	480	490	495	546	616
	657	598	565	535	455	394	424	455	465	473	478	516	531	537	518	483	448	437	429	414
	403	394	398	403	419	433	445	441	398	380	398	416	410	391	394	385	366	339	333	331
13 UT	326	314	288	289	308	308	315	319	334	345	399	432	461	451	433	444	495	525	539	551
	555	547	543	532	518	507	542	560	567	553	542	524	513	502	506	499	503	503	496	500
	493	471	438	453	453	453	468	468	457	464	456	452	437	405	328	296	270	148	143	138
14 UT	141	141	147	147	145	140	142	161	212	264	273	318	295	311	332	304	282	271	293	336
	332	328	335	343	347	347	347	449	499	509	492	482	487	479	472	468	458	454	458	460
	468	465	453	420	418	415	430	450	488	489	507	514	512	496	491	495	528	513	502	491
15 UT	510	503	496	489	460	498	466	462	457	454	451	451	451	459	466	486	496	489	467	452
	446	438	416	390	358	341	325	308	307	296	300	318	318	314	303	295	291	276	273	282
	294	319	331	335	333	334	335	340	345	348	350	355	349	348	352	361	362	360	350	344
16 UT	335	329	326	325	312	304	295	289	288	289	279	275	267	269	272	284	293	290	288	286
	283	277	269	267	273	278	279	278	278	276	276	283	285	290	292	295	295	300	305	315
	330	335	344	353	360	361	365	363	365	366	371	369	364	364	364	368	368	368	365	364
17 UT	356	348	346	349	355	359	363	371	378	384	380	385	391	391	385	383	380	379	377	383
	402	423	440	443	448	442	433	431	439	435	424	415	417	417	421	425	417	431	438	432
	432	439	435	432	415	415	419	419	415	422	428	440	445	466	491	465	450	452	455	472
18 UT	500	519	519	515	512	503	490	469	462	442	419	393	368	356	332	315	298	288	303	344
	385	417	437	454	473	495	527	584	600	598	564	549	549	569	576	584	527	500	476	451
	439	422	402	400	388	383	390	402	412	421	426	417	407	400	410	440	447	456	473	483
19 UT	485	488	495	517	531	536	536	553	572	577	582	569	564	545	518	464	457	454	464	467
	462	455	453	451	444	446	451	456	461	463	468	463	454	458	473	504	553	595	605	610
	609	609	609	621	648	653	646	626	626	626	607	598	588	573	569	566	554	555	562	564
20 UT	552	535	528	535	543	540	538	538	545	535	526	511	494	482	465	452	430	437	443	456
	428	430	471	486	476	438	420	410	405	413	405	392	362	331	313	314	319	329	339	350
	348	328	315	298	281	268	258	266	267	252	221	201	186	178	163	151	136	131	128	132
21 UT	129	127	118	101	92	84	86	85	92	91	87	74	45	38	31	27	35	39	35	24
	21	20	20	6	17	22	33	38	38	36	27	30	30	32	32	34	34	37	37	32
	30	34	38	40	42	51	56	54	53	46	53	49	49	49	46	46	50	50	47	47
22 UT	46	42	42	49	53	53	56	56	56	53	56	56	54	56	56	56	56	60	60	67
	69	72	81	86	88	95	97	94	96	92	92	92	90	83	85	91	95	92	88	91
	94	94	102	102	106	104	99	98	91	87	87	90	88	86	86	87	89	86	81	77
23 UT	82	90	95	102	113	118	125	122	120	117	113	111	111	116	120	124	125	125	120	117
	116	125	134	148	151	151	151	148	144	140	137	133	133	133	126	122	125	130	130	
	131	126	126	126	134	138	138	135	135	133	145	152	156	158	154	146	146	150	152	148
00 UT	155	151	137	129	133	134	142	152	152	151	149	146	135	129	124	116	111	103	111	121
	129	134	134	134	131	126	115	113	111	111	113	110	103	103	100	113	113	109	99	99
	99	109	124	127	100	80	80	79	88	93	98	94	89	89	89	91	91	94	94	91
01 UT	91	91	94	92	95	92	90	95	95	88	83	78	81	82	81	88	91	88	76	78
	81	83	88	92	90	91	88	91	100	100	100	97	97	95	91	88	88	88	86	86
	86	86	83	86	82	85	85	88	86	86	88	88	85	85	82	85	81	74	70	70
02 UT	70	70	66	66	66	70	70	66	66	66	62	62	60	62	62	62	62	62	66	66
	66	64	64	64	66	69	71	69	66	69	69	68	70	70	70	62	65	62	62	64
	64	64	64	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	69	69
03 UT	72	74	79	95	90	82	77	72	69	72	72	74	74	72	72	72	69	67	64	64
	64	64	64	67	67	69	72	72	74	74	74	74	72	72	72	73	70	72	72	72
	78	97	115	124	149	153	158	162	165	162	151	147	137	130	126	121	114	105	98	96
04 UT	85	80	75	73	68	66	64	67	67	67	67	67	67	67	67	67	69	69	67	67
	69	69	69	69	67	64	64	62	62	62	59	59	57	59	59	59	61	66	67	67
	59	52	49	47	52	54	59	62	62	59	59	59	59	59	59	59	57	57	57	57
05 UT	59	59	59	62	62	64	64	62	62	57	57	54	52	52	52	54	54	57	57	62
	59	61	59	57	57	57	57	57	57	57	57	57	54	54	54	54	52	52	52	52
	52	52	52	54	49	49	49	49	49	49	49	49	52	52	52	49	47	47	47	49
06 UT	49	47	44	44	44	41	41	41	39	41	49	49	49	49	49	47	47	49	51	52
	47	42	44	44	44	42	44	44	44	42	44	42	42	42	44	44	49	47	42	39
	37	37	35	37	35	37	37	45	44	47	44	49	54	54	52	52	52	52	49	49
07 UT	47	47	42	42	41	44	42	42	42	41	39	42	44	47	47	44	41	36	36	36
	39	41	41	39	39	37	37	37	39	39	41	41	41	44	47	42	42	39	34	32
	29	29	29	29	32	32	34	39	39	42	42	42	39	37	37	37	37	37	37	37
08 UT	39	42	39	39	39	39	39	37	37	37	37	39	39	42	42	39	39	37	37	37
	34	34	34	34	32	32	32	32	34	37	39	42	42	42	42	39	37	37	37	39
	39	39	39	39	39	39	39	39	39	42	42	42	42	39	39	39	39	39	39	39
09 UT	39	39	39	39	39	39	39	39	39	42	42	42	42	39	39	39	39	39	39	39
	39	39	39	39	39	39	37	37	37	37	37	37	37	39	39	39	39	39	37	37
	37	37	37	37	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41
10 UT	45	45	45	45	47	43	41	41	43	43	46	46	46	46	43	43	43	43	43	43
	47	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	46	50	47	47
	51	51	55	58	58	60	60	56	56	55	51	51	51	57	59	59	56	56	54	54
11 UT	54	50	46	46	52	52	56	56	56	52	56	59	59	61	64	62	62	62	66	66
	66	66	66	64	60	60	60	60	57	61	61	61	61	61	57	60	60	60	60	60
	62	62	62	62	62	62	62	66	66	66	66	64	61	57	59	63	63	59	59	59

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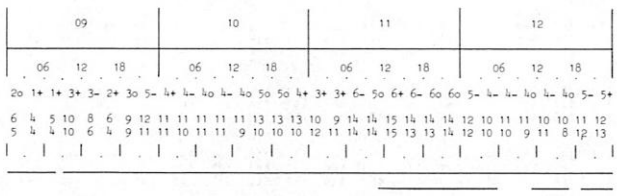
1980, JUNE 9 - 12



Data from Individual Observatories — JUNE 1980

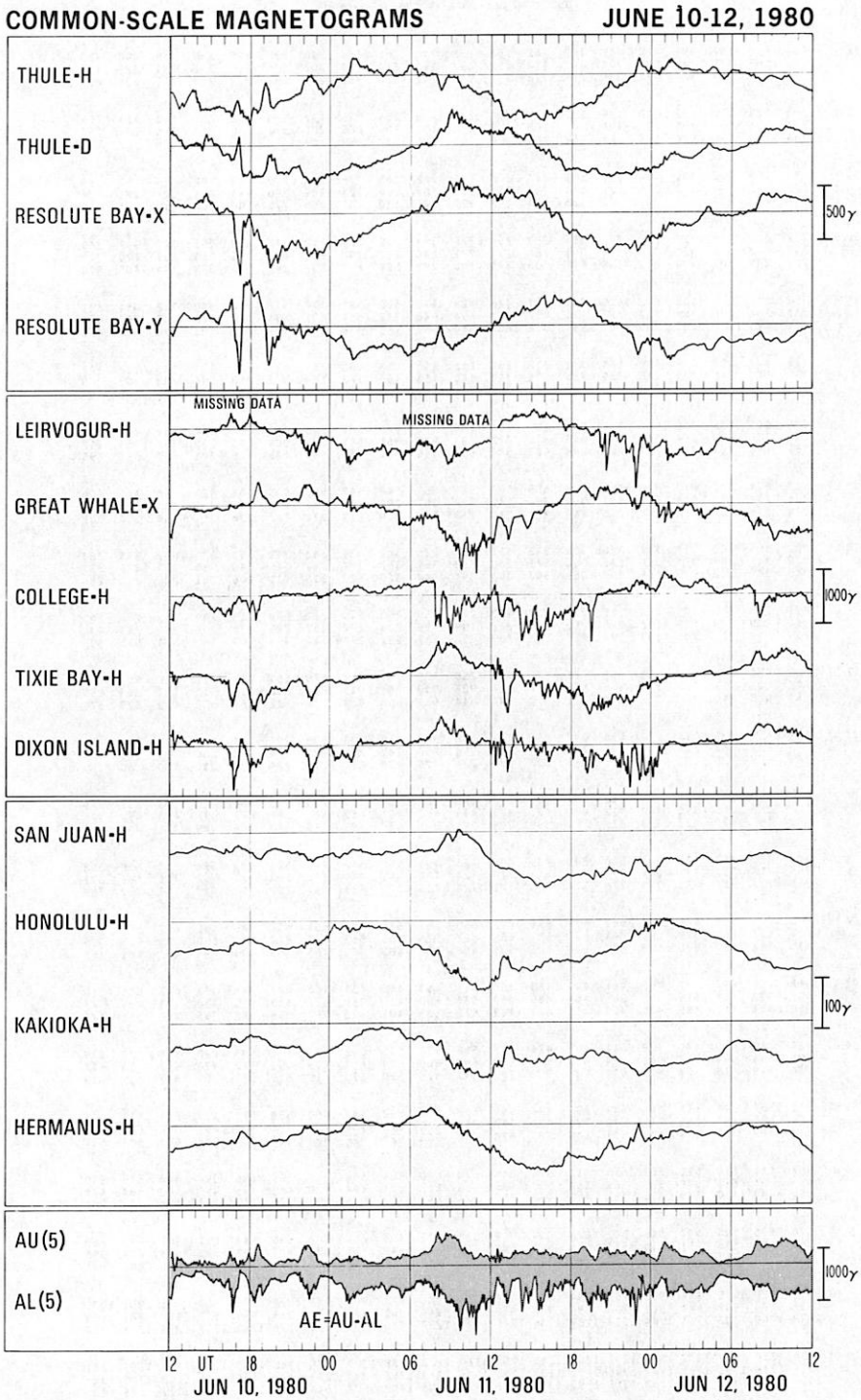
Values underlined are for X and Y. X, Y, M and Z are given in gammas, D in minutes.

OBS. 3 letter code	GEOMAG NETIC LATI-TUDE	COMMENCEMENT DAY	hr min (UT)	TYPE	SC - AMPLITUDES D(′)	H(γ)	Z(γ)	MAXIMUM 3 HOUR - INDEX K DAY(3 HOUR PERIOD)	K	RANGES D(′)	H(γ)	Z(γ)	UT END DAY	HOUR
FRD	49.6N	06	11--	..	..	..	..	06(8) 07(5,8) 08(1) 09(8) 10(6,8) 11(4,5,6,7,8) 12(1,6,8) 13(7,8)	5	18	239	107	14	
COL	64.6N	09	09--	..	..	..	..	11(5)	7	203	1330	820	14	02
SIT	60.0N	09	09--	..	..	..	..	11(3)	7	--	--	570	14	01
NEW	55.1N	09	08--	..	..	..	..	11(4)	6	34	254	273	14	03
GUA	04.0N	09	2331	..	..	..	..	11(5)	5	10	140	30	12	02
TOO	46.7S	09	05	..	..	..	..	11(5)	6	18	170	60	14	01
KGL	56.5S	09	1900	..	..	..	..	11(8)	7	57	482	234	12	06
MCQ	60.7S	09	09..	..	..	..	..	11(6)	8	249	1010	500	14	02
MAW	73.2S	09	20..	..	..	..	..	11(1)	7	160	790	1000	13	12
DUM	75.6S	09	0900	..	..	..	..	11(3)	5	369	444	420	12	05
RES	83.1N	10	----	..	..	..	..	10(6,7)	-	720	900	840	12	06
MBC	79.2N	10	1627	SC	146	33	2	10(6,7,8)	-	905	997	271	12	06
BLC	73.9N	10	----	..	..	..	..	10(6,7)	-	920	520	910	12	06
FCC	68.8N	10	----	..	..	..	..	11(3,4)	-	740	610	920	12	06
GWC	66.8N	10	----	..	..	..	..	11(4)	-	250	495	595	12	06
MEA	61.9N	10	1629	SC	-25	44	23	11(4,5)	6	900	520	970	12	06
OTT	56.8N	10	....	..	..	..	..	11(7)	6	22	183	168	14	24
VIC	54.3N	10	0927	SC	-30	21	8	11(3,4,5)	5	120	155	54	12	06
EBR	43.9N	10	1627	SC	0	28	16	11(8)	5	12	99	75	14	01
IRK	41.0N	10	0100	..	..	..	..	10(3,4,8) 11(3,4,5,6)	5	15	141	80	13	13
MMB	34.0N	10	1627	SC*	- 1 *	27	3	11(3,5)	5	16	118	58	14	02
CNH	33.0N	10	1627	SC	.4	35	2	11(3,4,5,8)	5	17	116	59	14	03
SJG	29.9N	10	1627	SC	--	12	2	11(4)	5	11	110	26	12	12
BJI	28.7N	10	1628	SC	.5	36	2	11(5)	5	15	116	55	14	03
KAK	26.0N	10	1628	SC	.3	19	13	11(3,5)	5	13	99	52	14	02
LZH	24.7N	10	1628	SC	.3	34	8	11(5)	5	14	117	44	14	03
HON	21.1N	10	1627	SC	2	11	5	10,11(6,4,5)	4	12	73	23	12	13
KNY	20.5N	10	1627	SC	.2	21	10	11(3,5)	5	13	110	59	14	02
ZSC	19.9N	10	1627	SC	.2	25	4	10(7) 11(3,5) 12(8)	5	13	123	61	14	16
WHN	19.2N	10	1627	SC	.4	30	4	11(3,4,5)	5	12	130	53	14	16
JAI	17.3N	10	1600	..	..	..	..		-	11	100	62	13	16
SHL	14.7N	10	1600	..	..	..	..		-	11	127	52	13	16
UJJ	13.5N	10	1600	..	..	..	..		-	10	111	59	13	16
GZH	11.7N	10	1627	SC	.2	21	3	11(3,5)	5	10	125	62	14	19
ABG	09.5N	10	1600	..	..	..	..	11(3)	5	10	135	65	13	16
HYB	07.6N	10	1628	SC	- .3	22	- 1	11(4,5)	5	8	155	46	12	02
ANN	01.5N	10	1600	..	..	..	..		-	9	191	87	13	16
TRD	01.1S	10	1600	..	..	..	..		-	--	213	109	13	16
PMG	18.6S	10	1627	SC	.4	12	12	11(5)	6	19	130	60	14	15
HER	33.7S	10	16--	..	..	..	..	11(8) 12(8)	5	21	121	83	13	16
CZT	39.7S	10	1626	SC	- 1	8	2	11(8)	5	23	115	81	12	05
GNA	43.2S	10	1625	SC	- .8	20	-12	11(5)	6	19	100	120	13	24
DUM	75.6S	10	1628	SC	16	10	10	11(3)	5	369	444	420	12	05
HER	33.7S	11	0600	..	..	..	..	11(8)	5	19	111	79	12	06
HYB	07.6N	12	0600	..	..	..	..	12(4,5,7)	4	10	123	40	14	01
HER	33.7S	12	2100	..	..	..	..	12(8)	5	15	60	52	13	09

THREE-HOUR-RANGE INDICES, K

JUN	09				10				11				12			
HIS	5545	4345	5565	5566	7666	6446	5554	5444								
CCS	----	----	----	----	----	----	----	----								
DIK	----	----	----	----	----	----	----	----								
TIK	2324	5446	5545	7577	6447	7878	6446	7666								
MMK	2223	3346	7445	5557	6355	5756	6455	6466								
KIR	2223	3337	7435	5556	6345	5756	7446	6466								
CWE	2234	3344	4537	6564	3476	8774	5555	5556								
CMO	3224	4334	4466	5553	3366	7664	5464	4455								
LRV	4433	3346	6663	4666	6566	5678	6644	4447								
SOD	2112	3337	7444	5556	6345	5766	6445	6466								
YAK	4233	3234	3344	4554	4345	7654	4254	4354								
LER	2112	3226	5332	3444	4354	6567	5424	3345								
NUR	1123	3223	4333	4443	3345	6556	4334	4345								
LOV	1223	3335	4443	4443	3345	6556	4335	5344								
SIT	2124	3224	5456	5443	3377	7645	5454	4236								
RSV	2113	2334	4443	4543	3444	5456	4323	4444								
MNK	1212	2223	4333	3444	3234	5435	3323	2333								
WIT	2113	3334	4433	4554	4354	6556	4333	4445								
IRT	3354	3234	4455	4445	3455	5544	4444	4334								
VAL	2123	2334	3332	3444	3253	4445	4243	2434								
KIV	2233	3323	4543	3444	3434	5555	5344	4444								
DOU	2112	2324	3333	3544	3354	5545	4332	2334								
KGD	2033	2123	3443	3444	3334	5534	4234	4344								
VIC	2223	3223	4554	3444	3355	5434	4443	3234								
OTT	2114	2245	4433	4455	3355	5564	5434	3454								

	09				10				11				12			
MMB	2113	2223	3334	4444	3354	5344	3333	3344								
TKT	2243	2222	2554	3443	2434	5434	3343	3343								
PEN	2123	2232	3223	3444	4233	4434	3233	2334								
TOL	1113	2223	3222	3433	3232	4445	3233	2234								
FRD	2214	3245	4444	4545	3345	5555	5434	3545								
COI	2224	2334	4333	4544	4444	4556	4333	3335								
TUC	2213	3133	4444	4454	3355	5344	4443	3333								
KNY	2123	2113	3334	3444	3354	5444	3333	3334								
QUE																
HON	2112	2022	3233	2433	2234	4323	2232	1333								
HYB	1112	2222	2324	4433	3345	5433	3234	4343								
SJG	2112	2124	3433	3333	3345	5444	4443	2333								
GUA	2213	1213	4434	3433	4445	5334	3233	3333								
BNG	2223	2233	3233	3433	4334	4445	3233	3235								
PMG	2333	2223	3444	3433	3455	6443	2243	3333								
HUA	2212	3343	3332	4653	3234	4544	3332	4433								
GNA	2123	2223	3334	3543	3443	6544	3334	4354								
HER	1122	2034	3323	2333	4444	4445	4423	3135								
TOO	2113	2222	2334	3333	3354	6454	3343	3344								
EYR	2104	2122	2344	4333	3354	5533	3343	4343								
MCQ	1105	4324	4466	6663	3376	7854	4466	5465								
MIR	2332	2234	3432	3765	4444	4334	3342	4233								
MAW	3224	3266	5564	4646	7664	3656	5544	4455								
NVL	2213	2227	6564	3344	5565	5576	6544	3347								
SBA	2115	3234	4343	3444	4344	3334	4333	4234								
VOS	2123	2233	3332	3334	3333	5334	3333	0323								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JUNE 10-12, 1980
THULE-H
THULE-D
RESOLUTE BAY-X
RESOLUTE BAY-Y
500γ
MISSING DATA
MISSING DATA
LEIRVOGUR-H
GREAT WHALE-X
COLLEGE-H
TIXIE BAY-H
DIXON ISLAND-H
1000γ
SAN JUAN-H
HONOLULU-H
KAKIOKA-H
HERMANUS-H
100γ
AU(5)
AL(5)
AE=AU-AL
1000γ
12 UT 18 00 06 12 18 00 06 12
JUN 10, 1980
JUN 11, 1980
JUN 12, 1980

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12 UT	704	679	687	697	728	745	767	782	765	762	742	760	766	772	727	596	536	465	440	398
	182	155	170	144	209	209	173	154	202	237	242	273	276	303	326	350	341	331	325	314
	291	278	297	322	322	318	299	279	277	244	242	273	267	274	268	242	239	237	238	235
13 UT	233	228	218	215	210	199	192	197	204	214	225	234	215	192	198	202	202	213	213	203
	202	198	198	198	198	198	202	202	202	202	196	203	206	206	213	218	238	254	262	252
	244	234	226	224	205	201	208	263	276	292	299	178	154	145	150	171	129	125	167	198
14 UT	185	159	162	181	196	181	155	124	103	98	122	155	178	190	220	215	192	126	92	99
	100	115	144	154	148	137	149	147	153	173	182	196	227	239	250	244	233	224	221	224
	224	218	224	218	209	187	195	203	198	227	222	230	241	263	278	300	304	312	278	294
15 UT	302	301	296	282	282	268	285	293	299	326	343	352	365	352	343	359	353	347	347	345
	343	343	326	321	324	324	301	288	274	271	246	254	262	260	257	245	234	251	273	273
	287	289	303	303	273	268	246	263	274	280	282	296	307	332	347	373	373	394	405	420
16 UT	398	391	402	402	402	416	441	441	426	426	430	416	394	372	372	354	340	322	351	381
	384	367	360	364	357	387	421	458	457	494	646	717	671	632	633	646	636	600	567	546
	711	621	624	693	780	877	964	1010	1006	964	887	798	736	645	671	645	503	470	465	466
17 UT	477	407	383	399	430	385	371	312	251	157	135	58	80	157	174	181	133	135	127	127
	138	188	216	236	248	259	256	236	147	148	153	166	182	194	202	210	224	238	257	260
	262	262	269	282	306	312	328	343	361	399	444	499	530	581	613	673	757	771	765	707
18 UT	646	651	636	606	564	552	598	631	686	700	700	656	684	745	737	656	654	699	777	783
	739	745	750	844	884	931	944	870	783	783	835	865	843	880	904	841	799	777	757	752
	761	764	757	726	719	707	694	629	584	601	586	581	538	545	645	725	701	693	698	695
19 UT	688	674	681	679	671	651	608	588	579	569	559	544	542	525	503	481	459	456	456	456
	456	438	436	416	403	383	359	351	341	329	301	294	284	248	237	240	232	232	235	234
	244	239	222	222	242	245	240	222	214	212	204	210	219	221	242	236	251	254	277	302
20 UT	302	305	305	317	317	320	330	332	332	332	335	341	338	341	341	353	380	392	395	385
	370	362	365	377	390	375	360	342	360	362	367	362	352	352	345	340	335	335	335	337
	340	345	362	359	365	367	368	363	366	354	344	325	323	318	311	306	281	281	273	280
21 UT	294	290	280	276	269	255	237	230	230	240	250	250	236	212	208	218	249	249	253	243
	250	260	249	232	242	246	252	244	212	199	199	206	227	232	223	224	236	257	243	236
	239	239	227	208	193	207	217	243	283	257	237	257	294	344	469	508	557	571	591	526
22 UT	532	554	579	613	662	695	728	757	767	755	738	707	684	675	693	742	778	812	807	744
	708	682	715	763	797	816	838	891	914	907	900	861	915	923	930	950	917	771	853	859
	854	826	799	768	755	705	671	650	644	644	631	618	594	548	542	567	608	649	678	678
23 UT	664	656	635	589	543	518	499	460	421	378	348	338	323	305	291	277	270	276	279	261
	243	239	253	264	267	265	262	245	259	256	256	242	242	228	214	210	206	202	199	209
	209	209	199	201	205	209	213	227	231	224	225	229	233	214	224	235	235	239	250	250
00 UT	250	265	258	268	283	269	284	287	287	298	280	264	267	270	273	290	305	323	331	349
	357	368	376	390	409	412	430	437	431	445	463	467	487	497	497	477	477	463	459	445
	441	437	427	417	413	413	399	399	399	385	385	389	383	386	380	396	389	389	392	392
01 UT	407	426	463	500	504	516	501	486	493	493	493	509	545	549	523	553	564	583	628	688
	748	764	757	731	614	617	639	658	710	724	756	791	844	840	790	777	762	705	689	697
	715	727	727	726	741	729	714	710	721	724	713	701	694	690	709	717	732	747	762	780
02 UT	765	735	694	675	678	667	671	685	682	660	652	630	626	634	634	646	642	657	669	661
	657	672	665	672	661	642	635	657	665	613	576	565	553	546	538	542	530	508	508	519
	516	512	520	520	520	516	516	501	501	498	498	483	475	465	465	454	465	461	461	465
03 UT	468	468	472	461	465	461	465	468	460	467	460	456	431	427	427	445	453	483	505	520
	524	532	524	516	505	505	487	465	439	434	420	416	416	405	409	413	420	431	439	443
	450	454	443	435	428	424	416	413	442	472	431	401	390	367	348	352	356	370	396	421
04 UT	429	440	459	470	489	511	500	474	493	508	534	545	549	553	575	594	620	646	672	679
	694	694	694	687	661	664	645	623	600	597	600	619	622	615	599	577	570	562	555	547
	536	529	518	507	511	514	504	500	500	507	515	519	519	519	515	511	507	511	515	519
05 UT	526	537	544	551	548	544	558	584	599	595	599	592	596	600	585	571	578	594	613	635
	654	680	699	718	736	747	773	777	777	798	813	813	756	737	726	723	697	670	641	622
	614	599	607	629	670	677	692	696	670	648	633	622	622	629	626	633	648	656	644	621
06 UT	607	611	618	611	608	615	612	548	548	570	600	604	585	562	555	555	544	544	548	584
	603	607	611	596	581	566	554	532	536	528	517	513	464	430	442	475	483	468	464	479
	456	440	450	479	523	492	461	462	486	527	541	552	545	533	526	511	511	499	540	586
07 UT	576	606	606	587	546	582	626	634	582	533	517	495	494	502	535	547	521	507	537	560
	560	494	515	593	518	511	518	540	544	559	546	542	555	578	603	593	592	626	693	595
	614	669	713	730	767	794	793	795	804	825	829	832	841	849	855	861	907	1005	884	876
08 UT	1010	1120	1015	894	903	951	964	962	1059	1085	1001	927	965	979	1078	1105	964	926	981	1001
	998	974	952	949	918	898	894	933	938	970	944	951	965	995	986	995	989	967	981	1029
	1038	1060	1107	1161	1184	1213	1287	1236	1246	1243	1230	1220	1193	1212	1215	1223	1237	1224	1233	1250
09 UT	1238	1239	1257	1311	1324	1296	1204	1185	1202	1180	1223	1232	1207	1178	1162	1150	1147	1155	1159	1251
	1315	1318	1291	1291	1266	1246	1201	1188	1223	1286	1329	1356	1347	1261	1199	1196	1176	1213	1223	1326
	1354	1354	1357	1372	1352	1368	1397	1512	1505	1499	1505	1499	1502	1545	1466	1317	1205	1177	1125	1125
10 UT	1160	1189	1103	1085	1087	1033	1018	1030	1038	1037	1052	1027	982	922	880	847	861	877	877	912
	925	965	1008	1079	1117	1099	1099	1148	1124	1086	1135	1178	1175	1137	1122	1137	1075	1052	991	962
	975	1067	1073	1168	1158	1156	1096	1041	977	884	843	958	984	945	930	939	1018	1102	1352	1408
11 UT	1436	1261	1105	990	954	1040	1043	911	929	1018	1022	1002	950	886	903	951	985	1010	987	979
	973	904	922	920	898	878	847	796	743	702	726	761	859	872	861	747	701	676	669	768
	793	831	874	929	998	1016	988	927	848	834	842	814	792	784	818	823	833	812	790	764

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12 UT	735	724	766	804	694	691	693	808	867	894	882	771	753	842	851	832	808	782	774	797
	797	777	714	608	525	482	388	534	524	558	564	581	602	556	524	504	497	470	449	439
	369	349	295	423	474	562	442	453	461	443	469	569	609	637	528	510	499	546	583	568
13 UT	499	484	517	554	584	695	667	726	750	749	765	708	678	690	721	735	799	807	844	834
	810	809	838	838	796	765	726	719	724	710	694	617	549	522	529	515	504	491	505	488
	475	482	466	503	488	476	483	486	471	475	495	549	566	575	570	537	498	478	447	439
14 UT	428	424	435	443	443	425	432	458	469	465	462	458	465	469	520	582	647	673	699	837
	881	982	1040	1076	1079	1091	1099	1117	1099	1015	905	909	912	857	836	810	803	803	737	660
	595	599	606	599	616	636	657	668	687	738	770	876	924	927	960	949	946	862	866	877
15 UT	762	758	792	777	792	850	871	864	856	810	811	807	782	760	742	658	618	534	519	497
	486	482	478	493	526	522	486	504	606	642	613	670	728	768	858	876	810	835	878	904
	980	1034	1034	1031	1006	978	934	887	866	829	788	817	907	976	1002	1003	978	967	957	927
16 UT	909	883	879	872	857	857	861	884	882	868	853	857	809	754	707	699	677	717	750	746
	743	739	590	488	517	531	636	657	646	751	791	765	740	740	736	737	741	759	789	811
	811	808	753	683	673	643	614	607	585	527	530	553	549	567	567	563	555	555	562	602
17 UT	588	584	595	599	621	621	606	598	561	586	590	572	531	491	476	476	447	497	486	463
	471	459	466	448	436	473	493	546	568	589	600	643	610	576	543	488	488	486	475	475
	530	551	573	584	572	561	561	529	518	496	508	550	541	552	552	562	551	540	531	511
18 UT	502	526	543	578	577	602	612	590	583	576	595	639	563	593	615	637	658	659	698	693
	678	661	610	576	554	549	527	510	515	518	522	502	495	473	453	448	453	456	456	461
	461	471	477	496	528	536	593	620	630	686	704	677	655	658	670	661	651	695	758	834
19 UT	871	886	891	896	883	873	884	854	851	846	885	909	880	865	875	877	901	898	887	890
	889	886	896	891	898	908	914	929	921	938	960	945	923	884	808	795	785	730	958	1012
	1045	970	893	719	668	680	697	729	719	711	689	662	632	600	634	680	697	692	679	690
20 UT	675	683	742	782	831	764	777	636	603	618	663	737	847	837	815	843	909	916	921	921
	913	928	942	955	964	974	810	787	726	709	834	893	902	876	909	933	963	962	930	894
	803	787	794	828	976	1026	1111	1136	1038	1008	1021	935	820	868	904	850	771	721	687	706
21 UT	711	745	749	749	732	730	737	715	716	707	689	658	609	590	592	600	612	600	595	592
	592	580	570	580	585	595	590	596	593	618	635	665	695	727	706	701	734	748	729	724
	731	706	686	686	607	580	597	619	631	626	633	643	663	670	668	677	692	699	738	760
22 UT	761	771	764	751	754	751	734	717	717	697	703	720	738	716	691	717	720	725	668	676
	666	630	661	749	757	661	663	674	681	701	747	798	813	904	913	913	846	579	577	575
	595	635	651	652	629	584	608	590	797	834	684	669	762	938	987	1063	1149	1337	1363	1407
23 UT	1320	1223	1208	1185	1159	1057	981	883	838	770	688	663	654	649	661	679	758	755	753	782
	846	879	864	812	811	781	823	454	469	465	424	447	459	499	582	650	738	741	785	806
	762	729	743	690	705	711	709	751	762	665	638	675	668	709	759	706	707	733	694	624
00 UT	513	581	582	582	580	587	587	580	576	586	586	568	551	548	568	653	682	711	722	733
	725	674	531	482	456	452	483	504	546	449	423	427	416	424	489	493	501	507	540	556
	525	518	480	495	506	502	542	556	549	516	523	522	522	507	532	557	516	512	523	546
01 UT	582	612	630	641	660	674	685	685	696	707	696	689	693	682	682	740	760	687	608	646
	827	755	770	771	842	933	959	970	947	914	838	798	795	829	847	817	825	822	822	825
	824	857	872	861	855	866	841	827	823	830	800	792	773	773	773	777	766	773	780	784
02 UT	784	785	781	766	759	763	744	711	703	696	696	685	682	670	651	629	599	588	581	585
	585	574	574	574	570	563	555	544	536	529	540	552	563	586	608	612	612	612	612	616
	623	642	631	631	624	624	635	643	650	669	665	673	677	673	646	635	646	643	639	628
03 UT	621	625	632	636	640	654	651	651	651	643	639	643	647	654	662	666	669	677	673	672
	672	679	683	690	712	712	723	722	726	726	726	718	699	695	688	692	692	692	688	685
	670	655	659	648	648	648	652	667	688	702	676	664	646	649	653	667	664	652	641	664
04 UT	657	665	673	721	746	765	758	728	740	759	796	800	770	756	741	748	734	715	704	693
	674	682	689	711	715	726	723	712	690	653	619	615	608	608	601	601	586	582	575	563
	556	541	559	567	571	556	556	545	534	527	531	520	505	498	460	438	438	430	408	393
05 UT	385	374	341	329	322	318	314	314	303	289	281	270	262	255	240	236	236	218	214	199
	197	199	198	213	219	231	244	253	261	264	265	249	241	250	254	263	263	266	284	280
	276	280	280	294	298	302	310	313	313	310	313	321	321	317	302	313	313	317	332	336
06 UT	324	324	324	328	328	328	321	318	316	321	333	336	329	317	309	317	316	326	335	334
	327	322	326	336	347	358	354	332	328	332	354	365	366	362	340	333	328	327	319	312
	313	328	339	343	343	354	354	354	358	369	377	373	387	391	387	384	373	388	410	407
07 UT	416	412	404	403	410	415	420	427	434	434	423	430	438	449	447	441	431	424	427	441
	448	458	457	456	464	471	480	483	484	485	474	481	492	499	496	504	510	510	530	519
	524	535	533	532	517	517	552	580	605	632	657	654	672	722	760	779	789	799	794	798
08 UT	792	787	781	771	765	762	785	800	802	795	778	766	754	749	758	769	775	776	809	845
	858	837	792	802	794	765	804	816	809	716	679	684	691	707	723	709	690	687	693	701
	723	734	750	756	758	756	753	747	773	787	782	765	765	735	722	725	740	751	758	749
09 UT	793	803	816	816	816	815	812	809	817	817	827	827	842	876	911	932	950	996	1006	1014
	1007	1030	1033	990	968	975	985	978	963	960	965	960	954	944	934	896	875	872	887	938
	950	915	900	891	868	868	885	887	890	900	905	925	949	966	983	995	993	984	959	960
10 UT	955	955	945	948	968	977	980	970	980	980	972	964	959	976	998	1004	1021	1036	1044	1029
	1019	1012	989	989	992	1002	1007	1018	1021	1005	993	1003	996	963	945	937	930	917	887	855
	870	897	923	923	936	936	944	916	906	916	911	934	941	959	968	988	993	977	950	920
11 UT	860	855	862	880	896	886	861	793	760	763	801	818	869	903	913	892	869	862	855	850
	848	853	848	832	825	841	826	821	793	769	766	771	776	789	796	791	761	753	753	751
	749	724	699	687	688	665	643	620	600	591	614	627	659	640	609	608	683	812	871	850

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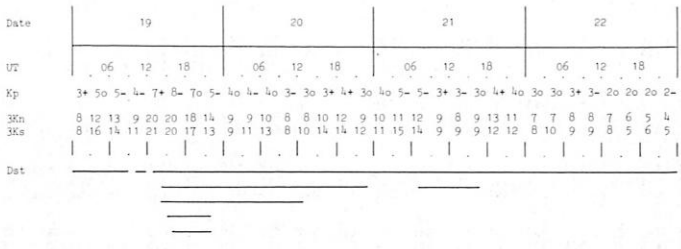
1980, DECEMBER 19 - 22



Data from Individua. Observatories

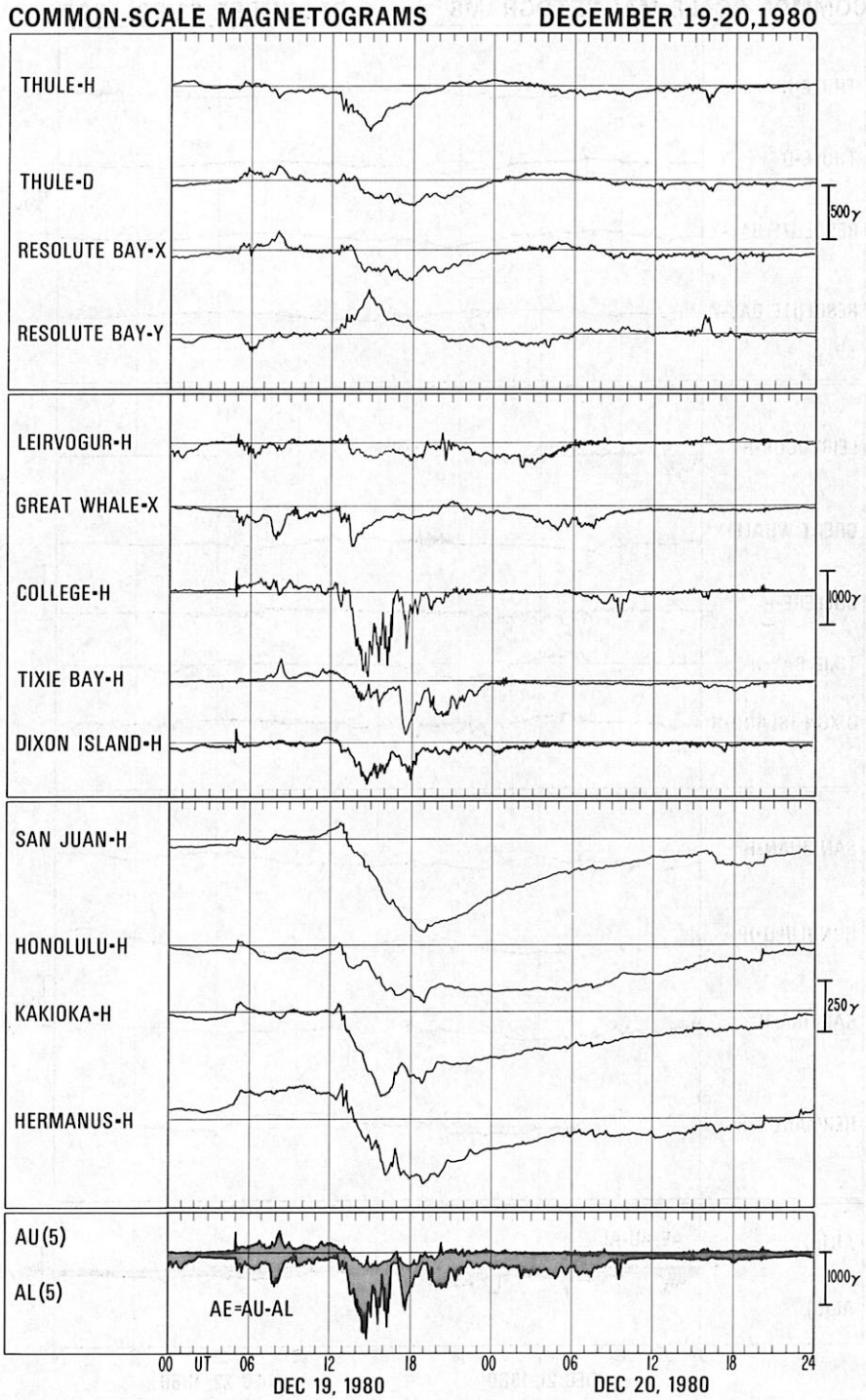
DECEMBER 1980

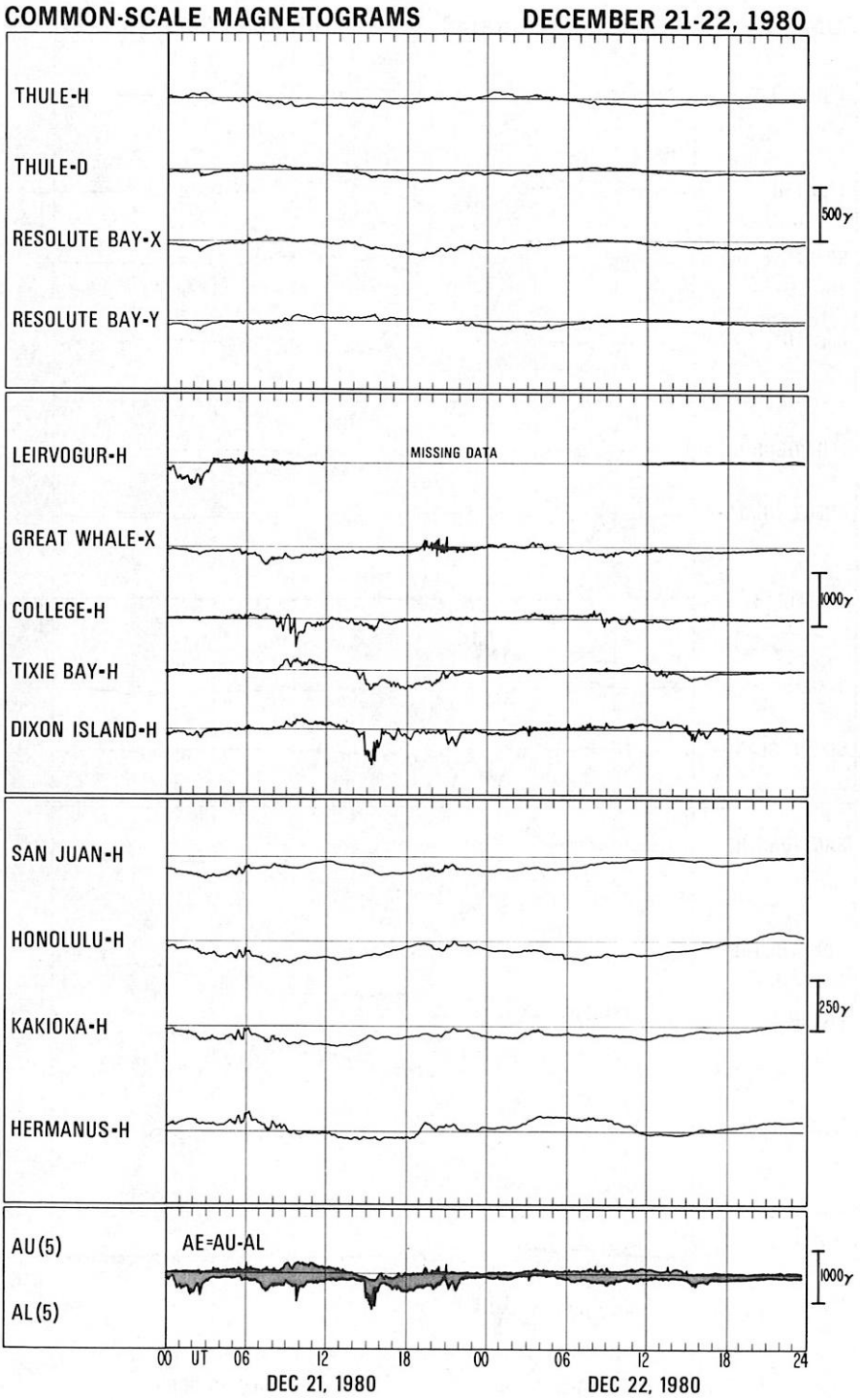
Values underlined are for X and Y. X, Y, H and Z are given in gammas, D in minutes.

OBS. 3 letter code	GEOMAG-NETIC LATI-TUDE	COMMENCEMENT DAY	hr min (UT)	TYPE	SC - AMPLITUDES D(′)	H(γ)	Z(γ)	MAXIMUM 3 HOUR - INDEX K DAY (3 HOUR PERIOD)	K	RANGES D(′)	H(γ)	Z(γ)	UT END DAY	HOUR
RES	83.1N	19	0457	SC	- 8	6	5	19(5)	-	281	1037	180	22	18
MBC	79.2N	19	0456	SC	-36	8	4	19(5,6)	-	360	559	422	22	06
BLC	73.9N	19	04--	..	..	..	..	19(2,3)	-	410	290	650	22	06
FCC	68.8N	19	0457	SC	18	-44	23	19(3)	-	660	370	570	22	06
GWC	66.8N	19	0458	SC*	180 *	130	123	19(5)	-	770	330	495	22	06
COL	64.6N	19	0456	SC*	-13	553	121	19(5,6)	8	451	2060	970	23	02
MEA	61.9N	19	0457	SC*	65	13	* 20	* 19(5,6)	9	1050	660	940	22	06
SIT	60.0N	19	0456	SC*	7 *	72	16	19(6)	8	--	--	--	20	20
OTT	56.8N	19	0455	SC	- 6.5	37	20.6	19(5)	7	52	339	186	22	18
NEW	55.1N	19	0456	SC	3	66	3	19(5,6)	7	57	429	506	23	03
VIC	54.3N	19	0456	SC*	48	- 9 *	5	19(5,6)	7	322	303	510	22	06
WIT	54.2N	19	0456	SC*	- 7 *	28		19(6,7)	7	80	335	305	20	04
FRD	49.6N	19	0455	SC	- 2	55	- 9	19(5)	7	32	318	101	23	--
EBR	43.9N	19	0456	SC*	- 2.9*	18 *		* 19(5)	7	28	346	136	22	06
IRK	41.0N	19	0455	SC*	1.6	25	6	19(6)	8	42	435	100	22	13
MMB	34.0N	19	0455	SC*	3.3	18	- 9	19(5)	8	18	303	54	22	22
SJG	29.9N	19	0455	SC	.5	28	10	19(5)	7	18	326	80	22	12
KAK	26.0N	19	0456	SC*	3.1	40	19	19(5)	8	10	294	98	22	22
HON	21.1N	19	0457	SC	--	31	13	19(5,6)	6	7	171	65	23	12
KNY	20.5N	19	0456	SC*	3.1*	52	25	19(5)	8	9	350	94	22	24
JAI	17.3N	19	0457	SC	- .6	19	- 5			11	439	49	22	00
SHL	14.7N	19	0457	SC	.6	32	4		-	7	--	46	22	00
UJJ	13.5N	19	0457	SC	- .2	24	- 6			7	467	41	22	00
ABG	09.5N	19	0457	SC	- .5	34	- 6	19(7)	7	11	479	42	22	00
HYB	07.6N	19	0456	SC	- .2	65	- 5	19(5,6)	8	8	542	29	22	18
GUA	04.0N	19	0456	SC*	1	69	-19	19(5)	8	10	360	50	22	14
ANN	01.5N	19	0457	SC	- 1.1	..	23			6	--	121	22	00
HUA	00.6S	19	0405	SC	1	61	9	19(6)	8	19	713	79	21	23
TRD	01.2S	19	0457	SC	.2	97	103			5	--	--	22	00
PMG	18.6S	19	----	SC*	1.5*	57	53	19(5)	7	13	360	160	22	14
HER	33.7S	19	0456	SC	2	18	13	19(5,6)	7	51	317	374	22	09
CZT	39.7S	19	0455	SC	9	28	-20	19(5,6)	9	146	676	367	22	00
GNA	43.2S	19	0456	SC*	- 3.2*	33	- 8	* 19(5,6)	7	40	330	260	22	00
TOO	46.7S	19	0456	SC*	- 3	100	* 10	19(2,5,6,7) 21(3)	6	38	340	180	22	15
KGL	56.5S	19	0455	SC	12	61	11	19(5)	9	213	1190	724	20	00
MCQ	60.7S	19	0456	SC	-14	-126	83	19(5,6,7)	8	187	1800	- 1080	22	17
DUM	75.6S	19	0455	SC	113	26	250	19(2,3,8) 20(1)	6	896	996	918	21	09
KGL	56.5S	21	0557	SC*	80	-30	-45	21(7)	6				22	15

THREE-HOUR-RANGE INDICES, K

DEC	19				20				21				22			
HIS	4654	5554	3543	4433	4544	3654	4533	2511	MMB	1543	8663	3333	3343	4553	3334	2232	3211
CCS	4544	5543	4432	2434	4443	2544	4544	3423	TKT	3533	9875	2333	3454	3454	3454	4343	3322
DIK	4645	7775	5442	4544	5555	5756	5554	4643	PEN	3533	8645	4332	3444	3443	2254	2322	2221
TIK	2257	5767	7543	3255	3435	6656	5343	4552	TOL	3543	7886	4332	3343	2333	1233	2222	1222
MMK	5433	6765	5331	3444	4432	4465	5322	2232	FRD	3443	7554	3343	3453	4543	2344	3233	3223
KIR	5433	6664	5432	3444	5432	4475	4423	2221	COI	3534	----	2443	3444	4454	3355	3333	3222
CWE	1465	8994	3243	3432	3346	4533	2333	4112	TUC	3553	7745	3343	3544	4443	2244	2333	1132
CMO	1544	8853	2245	3442	3356	3432	2344	3221	KNY	2543	8664	3343	4444	4553	3343	2333	3321
LRV	5663	6565	5652	3444	6543	4456	5532	3222	QUE								
SOD	5432	6666	5332	3465	4331	4475	5322	1232	HON	1543	6642	2233	3344	3453	2334	2332	2233
YAK	2454	7794	3333	2343	3344	4544	3222	3212	HYB	2653	9997	5554	3444	4564	2444	2332	3322
LER	2332	7776	4221	2332	3332	2244	3221	1120	SJG	2444	7755	4533	2554	3333	3344	2232	2211
NUR	3433	8987	4332	3333	3332	2354	3223	1221	GUA	3643	8655	4343	3344	5553	3334	3423	3212
LOV	3433	9977	5332	2343	4343	2364	3233	2221	BNG	3533	7664	2343	3453	3553	3244	2334	2222
SIT	1364	7873	2234	3342	3345	2333	2233	2222	PMG	2654	7665	2453	3453	4663	3334	3233	3112
RSV	3433	6875	4332	2343	3443	3354	3233	1221	HUA	1444	7876	5443	5763	4343	5454	2223	4333
MNK	2433	6774	3222	2343	2332	2353	2211	1111	GNA	3544	7764	3442	3454	4553	3444	2333	3322
WIT	4534	6775	4332	2343	4443	3354	3332	1221	HER	3443	7754	2333	3453	3443	2354	3332	2212
IRT	3443	7875	3233	2232	2322	3452	2232	3221	TOO	3654	6663	3453	3444	3653	3333	2443	3111
VAL	3433	6774	4321	3332	3333	3243	2213	2121	EYR	3654	6753	3453	3353	3563	3233	2433	3121
KIV	3433	7865	4333	3444	3443	2454	3334	2221	MCQ	1455	8884	2343	2342	3345	3332	2223	2111
DOU	2433	6774	3322	2343	3433	2354	3223	2221	MIR	4787	6543	7774	3433	4575	4344	4654	3322
KGD	3443	8766	3333	4443	3442	3454	3323	1211	MAW	5665	8664	5543	3533	4654	4465	5554	3343
VIC	1463	6753	2343	2442	3332	2233	1233	2222	NVL	3553	6666	4433	3553	----	----	----	----
OTT	2342	7654	3343	3343	3342	2344	2222	3221	SBA	4455	5544	4466	4663	4343	3355	3333	2333
									VOS	4566	6443	5666	6543	4444	3334	4443	3223


COMMON-SCALE MAGNETOGRAMS
DECEMBER 19-20,1980
THULE-H
THULE-D
RESOLUTE BAY-X
RESOLUTE BAY-Y
500γ
LEIRVOGUR-H
GREAT WHALE-X
COLLEGE-H
TIXIE BAY-H
DIXON ISLAND-H
1000γ
SAN JUAN-H
HONOLULU-H
KAKIOKA-H
HERMANUS-H
250γ
AU(5)
AL(5)
AE=AU-AL
1000γ
00 UT 06 12 18 00 06 12 18 24
DEC 19, 1980
DEC 20, 1980


COMMON-SCALE MAGNETOGRAMS
DECEMBER 21-22, 1980
THULE-H
THULE-D
RESOLUTE BAY-X
RESOLUTE BAY-Y
500γ
LEIRVOGUR-H
MISSING DATA
GREAT WHALE-X
COLLEGE-H
TIXIE BAY-H
DIXON ISLAND-H
1000γ
SAN JUAN-H
HONOLULU-H
KAKIOKA-H
HERMANUS-H
250γ
AU(5)
AL(5)
AE=AU-AL
1000γ
00 UT 06 12 18 00 06 12 18 24
DEC 21, 1980
DEC 22, 1980

PRELIMINARY AE (5)-INDEX AT ONE MINUTE INTERVALS
1980 DECEMBER 20, 0000-2359 UT

00 UT	280	276	272	275	271	265	281	285	273	261	265	272	253	261	261	277	285	300	300	304
	308	316	309	309	302	298	274	262	254	235	235	250	258	247	254	254	258	250	247	235
	231	239	259	279	275	271	267	263	260	246	237	235	239	235	238	234	230	228	254	265
01 UT	274	260	250	250	246	231	215	244	272	289	273	273	292	292	277	273	258	254	258	265
	285	293	290	298	302	306	302	298	294	294	290	278	274	270	266	270	259	259	251	258
	254	258	266	272	270	262	250	235	262	269	262	258	262	250	254	250	250	262	258	265
02 UT	281	288	296	289	281	281	274	267	255	231	223	235	255	263	282	306	381	370	347	347
	387	423	454	458	450	446	446	469	477	458	437	415	387	343	331	298	317	341	353	376
	380	388	388	381	365	354	354	310	287	315	343	362	366	362	339	327	331	331	323	347
03 UT	362	378	362	347	331	323	323	323	295	291	306	334	350	354	359	367	381	388	405	407
	415	434	404	385	377	373	373	370	358	382	413	413	359	311	290	287	307	315	319	315
	299	288	295	290	296	302	322	336	361	356	334	338	350	354	359	348	354	360	349	338
04 UT	320	318	320	313	308	308	310	315	315	306	313	318	315	319	298	303	281	281	281	294
	303	313	315	320	325	327	327	347	354	356	366	386	384	375	375	386	377	382	384	387
	393	404	397	384	386	402	413	432	436	441	439	439	436	416	416	425	444	460	465	474
05 UT	463	455	453	446	437	412	409	407	391	389	389	376	377	373	366	350	356	352	336	297
	262	249	256	253	262	257	255	244	244	249	256	272	294	319	328	351	365	369	379	383
	388	401	395	415	436	420	427	416	379	366	379	376	343	325	320	325	322	319	316	295
06 UT	257	223	216	233	237	225	214	212	221	222	235	251	266	285	280	278	280	275	269	252
	236	227	237	223	233	255	329	265	294	347	388	413	402	372	363	344	342	354	370	372
	373	389	389	380	410	435	439	407	404	398	372	362	389	396	394	370	338	320	325	317
07 UT	319	303	306	322	317	335	354	338	338	340	354	347	357	363	352	333	336	333	353	337
	338	344	343	364	396	400	387	377	384	402	354	370	373	388	384	354	354	384	394	465
	422	377	352	352	354	354	355	314	295	275	263	249	237	227	237	253	260	262	269	278
08 UT	285	285	268	255	267	265	285	294	294	262	223	207	209	209	251	274	289	284	270	250
	242	250	260	273	277	251	240	225	211	207	221	244	264	261	249	222	210	237	279	269
	279	222	210	214	241	255	233	210	175	186	197	195	198	172	179	172	161	150	155	159
09 UT	145	132	123	142	145	146	146	130	120	97	97	120	131	135	135	127	114	103	105	131
	153	168	176	180	176	161	164	161	172	175	179	187	187	179	152	130	122	122	152	197
	280	310	358	397	452	474	485	485	474	463	463	386	386	374	352	308	275	230	219	152
10 UT	141	141	131	141	152	150	161	161	161	150	150	150	172	183	183	161	128	117	105	105
	124	124	128	131	110	92	83	85	94	135	133	126	124	103	85	85	98	101	104	104
	99	90	95	102	102	89	87	90	85	83	78	83	87	83	76	80	90	101	92	82
11 UT	75	89	94	87	80	78	80	91	96	96	87	80	74	80	82	84	84	80	78	80
	78	75	71	71	75	78	78	78	75	78	86	88	85	85	83	78	68	66	67	69
	71	71	74	75	73	66	68	64	57	60	69	67	58	58	58	65	67	71	76	85
12 UT	86	86	86	88	93	91	99	96	94	94	96	99	94	90	82	78	71	71	78	89
	87	92	78	64	62	69	67	65	63	80	85	85	87	78	73	75	80	80	76	68
	64	65	66	74	74	77	73	67	76	73	80	92	87	80	78	73	83	85	103	101
13 UT	92	71	80	83	85	80	73	76	76	76	96	92	90	99	97	94	89	83	85	90
	103	114	103	103	94	94	90	112	105	114	101	103	94	83	94	94	108	110	114	105
	105	105	105	103	103	103	103	103	117	103	117	114	112	110	108	110	99	105	105	108
14 UT	108	92	89	97	99	106	112	121	117	121	110	106	104	96	105	103	105	108	101	101
	96	95	95	108	115	137	128	103	92	101	101	110	126	142	124	93	107	103	96	92
	101	106	110	102	107	105	122	119	120	115	110	110	115	127	117	135	126	114	125	141
15 UT	144	151	145	134	123	109	100	111	124	136	141	122	85	73	76	57	111	150	171	158
	135	137	134	125	120	125	123	132	126	117	125	131	131	128	120	109	112	122	131	103
	97	112	135	144	131	125	129	124	116	122	136	158	178	183	168	169	182	199	201	191
16 UT	191	195	198	200	209	206	206	201	199	199	191	174	146	145	140	171	206	213	210	203
	199	234	223	197	187	172	161	151	147	150	150	137	132	124	120	109	118	109	101	114
	127	116	119	108	104	104	105	105	101	95	89	87	96	98	116	121	128	132	119	128
17 UT	126	114	117	106	119	130	141	128	121	124	128	119	128	152	119	105	112	136	137	124
	124	120	129	149	160	160	163	176	176	176	149	122	106	108	108	126	126	113	106	99
	99	101	103	108	103	102	110	144	121	121	118	112	108	121	121	126	156	150	161	158
18 UT	156	156	154	154	151	151	163	171	176	195	195	204	206	213	226	224	219	222	222	226
	216	219	217	213	208	199	194	197	184	189	191	189	177	163	159	155	152	152	153	155
	149	142	137	133	125	133	145	158	162	164	169	163	163	169	173	171	165	176	176	173
19 UT	184	184	188	181	170	168	168	167	161	159	153	155	157	159	162	162	158	150	141	138
	149	151	155	158	157	149	149	143	146	149	162	153	155	155	158	160	162	151	133	122
	123	122	119	125	125	130	130	130	133	146	137	114	108	121	141	133	140	145	141	129
20 UT	120	118	113	116	122	128	150	155	128	128	124	121	121	121	118	114	117	117	113	113
	111	130	132	119	122	123	137	227	191	173	85	107	157	254	144	129	145	172	137	117
	116	120	102	90	117	130	145	140	128	135	138	137	136	132	122	126	126	126	119	105
21 UT	100	94	107	98	103	105	108	105	105	98	89	91	94	94	94	94	94	94	94	86
	83	88	90	90	88	85	87	101	101	101	101	101	101	98	98	98	94	97	97	
	97	93	90	98	85	83	87	90	92	95	94	90	86	83	94	96	96	83	83	83
22 UT	80	83	92	98	96	91	85	87	89	86	90	93	97	101	103	91	95	97	95	97
	97	97	93	89	83	91	95	101	101	105	109	113	117	115	112	112	108	111	111	107
	103	100	104	104	104	93	93	93	86	86	74	72	67	69	82	93	78	75	75	80
23 UT	76	96	107	100	50	71	70	61	36	49	122	81	59	73	71	81	68	68	92	81
	70	56	56	64	71	75	78	80	78	75	73	68	68	71	75	78	78	73	73	75
	75	75	86	86	86	78	78	78	78	78	78	89	80	80	78	78	91	83	78	80

COPY COMPLETE.

PRELIMINARY AE (5)-INDEX AT ONE MINUTE INTERVALS
1980 DECEMBER 19, 0000-2359 UT

00 UT	257	257	261	269	249	213	185	173	193	197	150	142	142	174	190	194	238	273	285	281
	269	265	234	222	202	210	246	214	210	179	159	175	179	199	179	159	147	167	171	187
	195	203	207	211	234	246	254	277	281	289	289	292	285	281	281	292	308	312	316	312
01 UT	293	285	288	281	273	262	258	269	261	253	233	229	217	205	205	201	201	193	189	185
	185	181	181	181	181	181	185	188	173	173	169	169	165	165	165	165	161	161	154	157
	169	177	185	193	189	181	177	177	166	162	165	157	157	142	142	146	150	150	142	138
02 UT	134	127	130	118	114	110	110	106	102	98	94	94	79	71	82	74	70	75	77	84
	84	84	73	75	75	78	78	75	78	78	89	91	91	80	91	91	93	93	93	93
	91	91	91	91	91	91	93	93	93	93	93	91	91	91	89	89	89	89	98	98
03 UT	86	86	86	86	98	98	98	98	98	98	100	100	100	102	104	107	107	109	109	111
	111	111	111	109	98	98	109	109	109	109	111	111	100	98	98	98	96	109	109	
	109	109	109	109	109	109	109	111	111	111	114	114	114	114	114	114	103	105	116	116
04 UT	118	109	109	109	109	109	109	109	121	118	118	107	105	116	118	118	118	129	129	129
	129	129	127	127	127	129	129	142	140	149	136	138	127	129	129	129	132	129	129	127
	125	122	118	129	129	131	136	138	129	123	123	123	114	187	160	112	96	98	460	514
05 UT	414	295	297	347	430	346	325	385	401	388	352	441	353	319	327	311	329	302	284	316
	343	364	384	427	419	417	432	483	483	449	410	336	336	340	313	299	283	297	297	279
	272	256	238	225	227	257	285	287	303	323	339	349	355	345	338	351	326	306	307	323
06 UT	332	327	327	357	381	399	401	406	402	420	411	402	420	436	422	414	431	413	413	430
	469	469	449	450	448	450	458	454	449	447	458	460	451	451	451	462	451	429	431	474
	491	489	491	483	476	489	473	479	471	464	427	418	397	386	381	365	347	345	343	329
07 UT	316	288	297	301	311	326	331	331	340	351	357	359	341	316	299	294	281	268	271	273
	283	283	287	285	296	294	294	293	311	307	302	301	340	360	376	417	410	409	430	462
	532	610	621	632	647	699	758	778	765	731	711	731	740	691	685	683	708	720	740	773
08 UT	777	758	721	656	676	762	788	822	861	843	850	855	868	868	873	896	875	859	854	855
	865	820	805	741	729	718	690	642	631	597	556	525	471	426	421	396	361	326	309	309
	276	250	231	227	238	245	260	274	289	293	296	311	314	314	298	302	317	344	367	379
09 UT	341	330	321	317	319	306	291	247	231	234	227	207	232	253	276	284	289	246	130	104
	108	107	183	249	272	281	270	169	153	126	122	140	189	271	303	352	354	331	289	283
	288	318	322	332	338	340	338	341	343	339	323	319	321	332	342	349	342	344	349	347
10 UT	345	340	340	350	348	341	332	332	316	308	306	306	308	309	311	314	311	309	329	338
	336	329	324	318	295	276	255	244	246	250	257	276	268	252	238	233	229	252	273	282
	282	270	255	257	279	291	316	314	295	272	258	267	278	284	247	217	235	225	211	199
11 UT	224	243	241	241	219	219	224	224	215	206	199	192	213	232	262	278	288	301	288	288
	301	316	318	323	344	374	359	347	313	306	288	281	276	284	289	286	279	255	259	268
	262	248	237	244	256	272	288	300	308	309	307	288	286	299	306	301	279	287	285	276
12 UT	294	284	269	257	245	252	243	241	258	270	274	281	277	260	231	230	230	216	211	214
	202	197	188	202	245	212	173	211	228	204	208	222	238	220	207	172	199	217	140	145
	203	199	197	228	255	252	291	314	351	353	380	368	334	362	332	307	327	334	337	279
13 UT	229	190	200	227	271	284	284	305	333	354	363	404	414	335	316	298	269	254	252	229
	225	231	235	296	276	322	354	415	413	460	468	490	506	532	540	576	638	667	690	671
	660	668	656	646	639	639	633	584	609	600	578	617	609	538	581	657	664	642	693	767
14 UT	867	841	818	856	885	881	859	844	718	696	718	841	914	948	910	876	820	804	859	951
	985	914	881	825	893	1011	1021	1109	1197	1211	1219	1207	1148	1155	1207	1221	1168	1139	1139	1129
	1100	1085	1112	945	874	1097	1280	1347	1326	1336	1456	1481	1502	1507	1436	1269	1039	987	897	766
15 UT	707	685	663	663	659	699	717	725	743	809	851	905	951	963	875	710	546	448	426	439
	446	372	368	392	476	538	578	468	481	675	749	823	801	669	724	746	772	787	806	874
	1019	1101	1116	1101	1035	968	735	606	661	672	735	775	760	773	724	706	549	467	423	356
16 UT	245	240	258	303	357	450	498	554	618	928	909	746	494	450	454	628	898	894	861	1050
	1170	1198	1239	1150	1173	1184	1036	807	690	815	950	976	918	768	608	360	286	415	690	732
	521	268	105	105	108	103	119	141	89	92	137	162	173	186	200	213	236	247	244	222
17 UT	222	233	247	258	280	253	242	206	197	164	123	106	99	69	106	169	214	242	291	378
	400	439	518	575	624	598	599	596	614	643	653	673	683	695	708	720	740	748	760	782
	773	771	717	703	688	768	834	799	741	638	625	611	591	586	547	542	532	518	511	503
18 UT	509	488	469	460	453	438	428	418	413	396	395	402	416	423	413	410	416	423	421	396
	407	416	366	365	329	269	255	205	193	198	198	206	211	214	240	263	284	262	275	296
	299	280	273	287	279	290	290	309	325	344	303	298	280	248	254	224	215	205	191	177
19 UT	138	123	106	104	104	104	131	126	126	139	158	184	218	225	225	203	172	162	143	143
	144	140	133	125	128	139	167	227	260	253	283	333	421	390	378	354	336	334	312	294
	297	261	219	210	197	276	434	440	434	447	463	461	442	464	468	485	467	467	466	489
20 UT	493	495	493	518	538	545	551	532	540	544	554	553	553	543	557	575	582	570	568	592
	629	673	730	787	792	810	814	798	703	644	631	631	620	590	588	566	595	599	612	623
	610	602	578	571	590	653	641	636	645	645	618	578	546	529	528	533	530	542	520	481
21 UT	447	415	393	359	349	349	344	350	365	369	371	363	363	390	381	383	406	423	428	431
	417	440	482	518	501	504	525	549	568	592	596	560	495	474	440	407	352	333	311	295
	285	280	282	294	311	333	381	354	353	350	340	330	290	290	295	292	317	317	339	374
22 UT	410	434	460	458	408	365	307	292	230	206	174	180	206	208	202	214	232	227	222	212
	207	202	191	178	178	206	217	221	221	226	219	226	215	197	192	195	197	217	225	215
	221	218	233	239	258	259	269	265	276	276	260	244	255	267	278	284	289	300	276	276
23 UT	268	260	256	256	241	237	242	262	250	258	261	261	246	239	258	265	269	285	285	273
	265	273	254	242	249	256	252	241	241	237	233	229	221	217	224	220	235	235	224	213
	209	209	220	220	227	238	242	257	261	273	277	254	247	225	229	233	244	272	291	295

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00 UT	94	84	97	111	111	131	134	99	103	111	119	138	107	91	108	158	155	147	142	123
	111	107	99	87	98	102	98	94	92	86	82	78	66	66	63	71	82	86	98	181
	185	197	198	225	225	228	232	236	252	292	308	312	316	297	297	297	292	281	285	273
01 UT	269	265	253	226	242	292	281	245	229	285	289	320	332	336	332	320	312	304	281	277
	281	331	339	300	300	292	285	281	308	312	285	265	253	277	300	272	268	265	261	272
	280	292	277	262	313	353	385	415	350	363	337	392	450	431	400	341	298	305	435	404
02 UT	365	353	365	377	395	367	360	345	388	392	389	381	321	321	290	305	324	281	254	238
	238	253	260	232	198	215	265	273	268	254	231	250	296	334	331	313	328	366	397	433
	339	316	305	281	285	282	279	258	234	203	199	206	206	187	183	190	186	186	175	179
03 UT	179	175	171	178	200	200	177	146	138	158	201	197	185	165	154	150	146	127	110	119
	130	116	116	116	116	127	116	104	96	105	114	112	96	93	120	153	179	181	181	132
	129	106	98	95	118	121	128	159	169	173	165	127	128	126	129	122	166	164	144	125
04 UT	123	123	125	129	133	125	127	131	131	126	126	122	131	139	145	145	139	132	132	136
	138	140	144	144	133	119	115	117	127	127	123	110	110	114	119	123	137	150	132	129
	125	123	131	127	119	113	126	138	138	136	132	136	136	153	167	165	165	163	160	150
05 UT	139	136	150	156	143	136	130	139	170	165	132	123	105	97	114	132	154	145	120	91
	71	71	80	88	92	108	123	175	168	122	118	117	167	165	146	119	106	112	117	120
	159	186	191	186	173	145	145	147	194	174	133	148	172	190	158	149	148	178	168	166
06 UT	200	189	182	301	294	151	112	149	149	188	209	227	214	194	194	210	204	218	212	206
	209	209	234	214	202	230	260	245	229	200	189	195	202	180	177	224	234	218	193	218
	213	211	206	186	170	181	179	170	175	193	204	216	223	241	232	225	203	203	214	217
07 UT	223	234	246	239	236	215	189	224	215	219	224	229	241	257	263	282	300	299	318	336
	336	336	352	354	354	359	363	352	350	350	395	388	395	389	394	409	422	419	399	354
	357	366	375	347	327	302	295	297	300	306	313	320	318	313	315	301	303	292	279	267
08 UT	267	278	277	245	244	246	280	289	309	317	359	338	270	251	269	244	277	282	283	250
	250	259	266	264	268	268	229	232	245	250	261	268	257	236	247	259	252	243	262	281
	290	291	291	291	303	307	316	321	314	315	308	298	296	296	311	342	369	377	355	342
09 UT	321	329	320	327	322	311	306	332	337	336	343	367	369	360	374	404	395	373	376	385
	358	322	324	329	324	323	325	315	312	303	298	266	286	329	307	324	356	366	375	395
	390	383	376	383	390	403	400	405	410	415	401	395	532	667	687	720	702	631	607	609
10 UT	579	535	519	508	472	429	413	411	413	393	404	415	393	407	407	421	421	434	423	423
	448	445	413	413	399	377	369	358	374	398	398	409	371	333	322	324	328	337	319	299
	299	290	299	304	291	289	287	301	316	342	340	343	353	362	365	338	331	341	342	339
11 UT	341	350	362	342	340	338	343	343	343	362	308	303	317	318	309	307	324	321	318	312
	291	307	321	300	307	316	307	310	308	295	300	301	292	282	269	258	272	269	276	267
	281	285	276	287	285	272	265	260	267	287	272	260	265	290	276	249	253	250	239	225
12 UT	230	237	237	237	238	228	221	205	226	230	217	203	198	189	189	216	230	253	246	235
	228	221	228	235	239	244	244	251	233	221	214	219	214	205	194	194	200	210	210	205
	212	226	223	212	194	185	189	187	194	197	200	202	195	188	172	175	170	185	212	219
13 UT	217	221	198	189	196	189	189	180	171	183	178	167	151	136	123	123	126	155	171	173
	189	208	208	192	189	171	169	151	151	155	164	158	151	141	132	144	149	153	144	137
	137	142	144	135	140	140	137	128	135	142	144	144	133	130	112	101	103	117	107	133
14 UT	137	119	101	98	100	100	96	105	110	98	98	114	114	121	114	117	119	121	121	124
	124	126	124	121	119	119	124	135	144	135	117	114	117	122	136	149	149	149	122	108
	126	143	163	161	161	161	163	143	134	119	109	112	110	96	89	98	105	124	133	133
15 UT	136	176	231	258	299	340	380	448	462	476	435	421	421	394	380	394	421	476	516	516
	448	408	448	476	571	584	584	557	530	544	598	625	625	680	680	652	625	598	571	462
	421	380	312	258	256	268	283	304	435	612	612	462	285	340	241	236	326	367	299	273
16 UT	258	270	299	353	340	312	299	258	244	234	234	222	217	209	200	195	192	189	194	203
	192	180	178	178	175	175	175	180	180	178	178	178	178	175	170	173	182	180	204	204
	197	190	185	187	195	202	212	224	229	234	241	246	243	239	234	234	231	229	231	239
17 UT	243	248	256	275	290	300	304	300	292	285	263	265	265	253	243	239	239	239	239	236
	243	258	273	278	312	312	309	300	280	278	263	248	257	247	268	276	256	261	283	292
	300	304	314	326	329	326	326	329	326	317	312	309	312	312	322	317	317	324	324	319
18 UT	317	314	314	322	341	372	361	339	339	336	339	348	356	353	351	341	331	319	309	297
	292	287	280	280	283	290	292	297	302	307	297	292	283	285	287	287	299	303	308	316
	340	335	319	319	312	302	302	300	295	287	280	278	278	270	261	256	243	250	250	250
19 UT	248	253	256	261	263	258	256	253	251	246	243	239	236	245	229	226	224	229	234	239
	261	256	248	248	243	256	270	265	260	292	285	268	236	228	247	269	363	360	275	229
	234	226	219	308	303	265	214	217	217	219	226	222	224	224	224	238	238	235	230	230
20 UT	225	218	208	220	233	264	314	224	236	258	280	292	302	302	283	294	317	323	304	264
	239	231	229	229	226	219	229	243	317	344	295	276	191	173	209	187	202	214	362	344
	228	172	189	201	195	197	208	183	174	159	134	134	146	140	129	179	170	75	54	122
21 UT	161	134	82	57	40	75	139	148	162	149	119	218	325	326	291	240	217	239	267	272
	285	285	280	255	244	244	244	255	264	228	215	223	210	196	182	193	191	180	180	180
	158	174	212	248	248	250	264	267	280	305	296	299	312	326	326	337	323	285	272	272
22 UT	272	258	269	255	228	215	190	176	176	176	176	187	171	169	131	93	73	81	81	92
	92	92	84	101	89	92	100	130	128	133	117	80	82	54	64	101	96	68	75	69
	86	100	107	89	90	90	98	113	111	100	73	59	64	65	65	65	65	48	60	72
23 UT	58	68	68	79	81	81	81	81	68	54	54	54	48	46	48	43	57	68	98	107
	103	89	79	72	73	70	84	91	98	93	88	73	78	92	83	60	65	63	60	58
	65	68	60	58	60	60	60	60	58	60	60	58	58	58	60	58	56	58	58	60

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00 UT	58	56	53	51	51	46	46	46	54	54	54	68	68	68	81	81	81	95	95	97
	95	111	116	116	113	93	86	79	79	92	92	95	113	120	127	131	131	131	129	122
	108	111	118	125	120	115	106	92	92	92	92	92	92	88	95	104	86	81	79	79
01 UT	90	76	76	87	87	112	126	114	117	131	131	119	106	106	92	92	92	92	92	106
	108	118	111	127	134	122	107	116	109	117	117	128	128	103	118	120	131	136	148	143
	134	136	122	131	142	142	131	131	131	131	131	117	117	106	106	119	131	117	114	128
02 UT	128	117	117	117	106	95	95	92	92	92	92	81	81	81	81	68	79	79	79	90
	90	87	87	87	87	76	65	65	65	76	76	76	63	63	63	63	63	63	63	49
	40	42	47	52	54	56	54	52	52	54	67	70	85	85	76	74	83	107	94	85
03 UT	83	70	78	87	98	101	103	103	103	92	89	89	85	83	80	73	93	96	96	82
	102	109	126	169	72	69	100	111	93	109	84	65	46	46	57	75	54	49	71	91
	102	99	93	88	91	102	88	66	69	55	55	57	66	133	149	138	104	79	70	73
04 UT	94	131	113	86	70	80	66	80	82	63	67	62	66	80	80	77	55	60	51	56
	67	76	89	78	69	58	61	72	112	114	97	77	61	72	101	130	119	88	71	84
	93	95	107	112	98	87	67	61	61	75	70	92	118	94	83	63	41	41	41	47
05 UT	76	104	98	87	72	67	92	98	96	96	84	78	67	56	55	61	59	59	61	61
	70	70	66	72	85	103	112	130	133	133	133	124	118	133	133	129	131	122	122	122
	120	129	126	122	122	113	113	124	135	137	118	120	109	111	122	135	151	151	153	156
06 UT	167	171	163	167	158	158	154	176	176	167	167	156	156	156	165	165	149	149	149	158
	171	196	196	173	149	152	154	147	141	148	163	181	195	202	193	184	184	195	198	206
	202	199	199	191	204	206	217	209	209	200	189	195	193	202	197	184	173	173	157	155
07 UT	170	176	185	185	179	157	157	168	179	179	179	168	168	154	159	155	157	170	175	176
	163	172	167	163	147	147	140	169	185	173	150	150	150	152	163	163	158	165	165	156
	161	163	174	185	176	165	168	210	214	228	230	201	159	176	174	185	217	237	264	276
08 UT	258	219	242	237	226	224	206	195	209	224	218	231	242	231	224	197	183	205	205	230
	244	260	309	300	258	196	209	234	236	240	238	225	198	196	196	193	193	204	216	224
	224	224	236	227	229	229	231	249	258	244	242	240	255	251	234	227	222	224	197	172
09 UT	153	158	165	181	187	190	190	222	265	327	340	329	310	306	318	322	318	290	260	249
	212	192	204	201	222	219	208	196	194	181	172	178	194	210	208	199	187	192	187	197
	201	201	192	187	181	206	213	229	237	235	230	204	173	159	152	150	150	146	148	160
10 UT	167	171	178	176	176	176	176	174	174	176	176	181	178	176	171	171	167	164	167	167
	169	164	158	153	146	146	146	148	148	148	148	162	155	150	146	146	154	154	167	159
	162	167	167	166	164	171	189	178	171	166	173	198	205	203	198	201	219	221	194	187
11 UT	175	179	179	210	214	210	206	198	205	251	272	258	240	224	219	226	230	240	233	201
	196	203	197	204	201	199	191	201	182	191	173	166	176	196	203	211	207	205	203	203
	210	205	203	192	173	183	192	198	193	184	184	193	205	216	191	196	198	193	187	184
12 UT	180	200	221	200	187	166	166	173	182	192	187	182	186	180	155	159	185	173	148	139
	139	150	187	180	157	161	166	187	210	182	161	154	180	189	189	139	139	139	150	214
	184	152	143	134	164	134	125	123	130	139	123	118	116	127	136	148	137	118	79	88
13 UT	123	150	150	130	117	134	134	139	144	144	147	144	133	131	132	135	137	121	112	123
	132	141	144	123	111	107	130	139	109	91	95	171	176	150	130	130	150	148	132	109
	125	137	139	144	159	157	148	143	141	166	182	202	236	252	256	234	209	191	170	143
14 UT	129	129	116	104	114	128	116	118	118	132	143	146	146	157	148	159	164	166	173	177
	177	173	171	171	172	171	171	168	171	184	184	189	191	187	168	166	166	171	171	173
	173	175	164	166	166	164	162	157	171	173	159	159	159	157	152	159	150	141	139	139
15 UT	137	130	132	121	121	105	110	107	121	125	114	100	89	91	101	150	172	197	184	155
	135	129	120	120	128	130	135	126	143	143	140	146	149	163	175	183	178	165	165	167
	215	219	215	177	185	204	197	192	176	172	158	161	157	176	231	231	217	215	201	199
16 UT	174	164	157	161	163	163	157	164	171	182	146	155	163	168	168	139	143	139	147	131
	128	121	125	125	121	124	129	134	135	150	163	128	114	117	122	131	153	151	129	129
	157	143	132	149	149	163	159	174	210	187	163	149	147	140	142	140	140	125	125	128
17 UT	120	120	145	128	120	124	123	123	109	109	119	107	110	121	114	130	147	128	128	128
	139	139	141	146	152	146	144	141	139	139	135	135	137	132	130	130	114	117	119	141
	154	123	130	128	121	126	132	132	121	132	134	130	139	139	119	117	123	126	126	123
18 UT	142	139	137	139	136	123	96	94	89	98	117	122	130	119	104	116	116	125	112	109
	110	112	117	116	134	114	116	121	139	127	112	96	105	110	123	127	112	123	121	104
	132	105	105	107	109	106	98	94	94	105	98	102	102	118	114	113	116	114	102	107
19 UT	109	109	102	105	109	109	106	113	105	105	109	120	103	108	114	119	114	94	98	99
	118	125	123	119	102	100	99	99	100	110	110	112	121	102	102	100	102	102	103	91
	93	95	104	113	111	107	107	91	87	87	87	96	101	97	94	75	78	78	89	89
20 UT	91	102	96	90	87	78	78	86	97	102	94	103	89	85	79	86	88	82	79	82
	84	88	92	88	84	82	73	75	75	87	95	104	107	99	97	82	75	72	74	80
	84	98	105	107	99	83	76	77	83	91	98	96	102	98	87	78	77	72	75	88
21 UT	101	108	115	96	84	71	72	81	90	89	91	89	84	77	71	71	75	80	84	87
	87	80	73	64	64	77	84	91	96	96	91	84	68	66	71	75	68	71	58	59
	56	66	66	86	96	96	77	66	64	61	73	75	75	75	75	80	82	80	77	80
22 UT	80	82	80	86	80	77	86	93	100	103	100	93	91	93	96	98	112	112	114	114
	114	114	114	114	114	114	114	100	100	100	100	100	87	87	87	73	60	57	48	41
	37	33	43	66	80	82	105	107	107	107	109	109	125	112	109	109	109	109	107	105
23 UT	105	105	105	105	105	103	103	103	103	105	105	105	105	103	103	101	98	98	100	100
	103	103	103	103	103	103	103	103	103	103	103	100	99	99	96	90	83	86	86	84
	81	77	87	102	111	102	94	91	89	89	91	94	96	89	87	84	87	91	96	96

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