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THE AMERICAN ASSOCIATION OF VARIABLE STAR OBSERVERS

Solar Bulletin

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INTERNATIONAL GEOPHYSICAL YEAR (IGY) 1957 - 1958.

THE UNITED STATES PROGRAM IN SOLAR ACTIVITY.

The immense contribution of the United States Program for the International Geophysical Year in the field of Solar Activity cannot yet be evaluated. We can, however, get an insight into this unparalleled program by reviewing the main publications carrying data on solar and geophysical activity gathered in the United States as well as on all continents.

In the field of solar activity, the United States were assigned as "World Data Center A", besides the USSR, which had World Data Center "B" and Center "C", consisting of several countries. The primary collecting center in the USA was the National Bureau of Standards, specifically the Central Radio Propagation Laboratory (CRPL) at Boulder, Colorado, and at Fort Belvoir, Virginia, where special IGY-Alerts and World Intervals were issued when the CRPL Radio Warning Services warned of impending or already existing ionospheric and magnetic storms due to major solar activity outbursts.

During the IGY period 1, July 1957 to 31 December 1958 the CRPL Warning Service selected 22 Special World Intervals totalling 47 days. Mr. Alan H. Shapley was the Coordinator of the entire IGY Program of World Days and Communications. At Boulder, the chief assistant in this work was Miss J. Virginia Lincoln.

Next to the NBS-CRPL, the High Altitude Observatory at Boulder, Colorado, under its Director and Chairman of the Solar Activity Panel of the US - IGY Program, Dr. Walter Orr Roberts, acted as a major center collecting solar data.

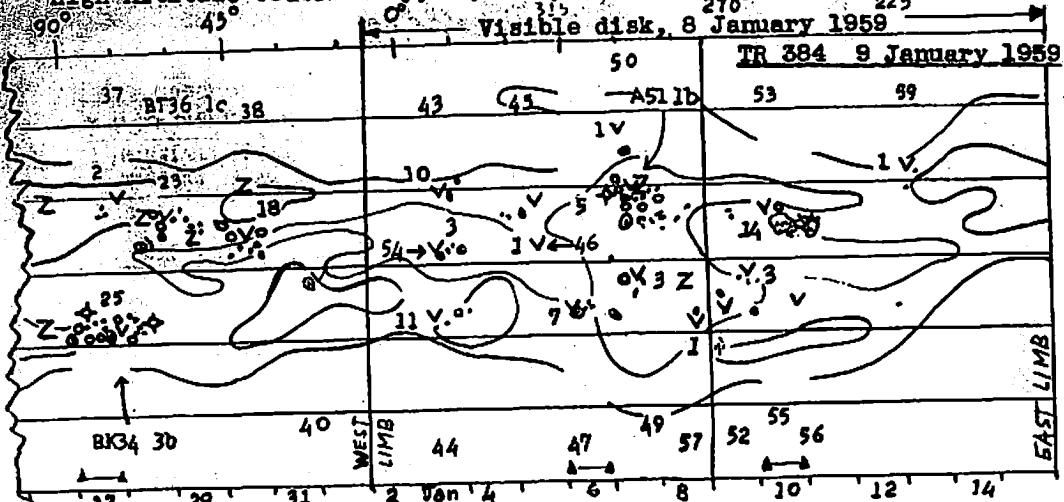
The major institutions contributing to the US-IGY Solar Activity Program were: McMath Hulbert Observatory (Mich); Mount Wilson Observatory (Cal.); Air Force Cambridge Research Center; Cornell University (NY); Harvard College Observatory; Naval Research Laboratory and US Naval Observatory; several universities as well as the AAVSO Solar Division.

PRELIMINARY REPORT OF SOLAR ACTIVITY (Copy)

High Altitude Observatory, Boulder, Colorado.

Visible disk, 8 January 1959

270° 225°



Notes on the PRELIMINARY REPORT OF SOLAR ACTIVITY - TR 384 and 385
as shown on page 2.

The copy on the adjoining page, shows the first pages of two consecutive "Preliminary Reports of Solar Activity" as prepared at the High Altitude Observatory. First we can see the rotation effect; next we can see that the strong green coronal region/North of the most active region A51-1b (which was recorded when it crossed the Eastern limb), died down before it crossed the Western limb; on the other hand centers 43 and 45 developed strong coronal activity, while opposite, in the Southern hemisphere, this activity diminished around plage 44 (actually 4944).

TR 384 - 9 Jan. 1959 report carried the following notation on page 2:
"Discussion of general level of activity: Overall solar activity is at a moderate level. Region A51 has been the source of several important flares, one of which may have triggered the minor sc (=sudden commencement) geomagnetic storm of 5 Jan. The spot group in Region 53 is very large, but not of the complexity usually associated with flares. The existence of radio noisy sources suggests a higher level of disturbance than has been observed optically." (Ed. note: at its western limb passage, this region 53, indeed showed intense green and even the yellow coronal line).

TR 385 - 16, Jah. 1959, discussion: "Overall solar activity declined to the level that has characterized this hemisphere since late in October. An sc geomagnetic storm associated with an aurora, began on 9, Jan. about 45 hours after a class 2 flare in A51."

* * * * *

The US - IGY Program in the field of Solar Activity (continued)

Publications: There are three types of publications giving solar data. The first is a weekly report called:

- 1) PRELIMINARY REPORT OF SOLAR ACTIVITY. This is prepared by the High Altitude Observatory, Boulder, Colorado, with the support of the National Bureau of Standards and the Air Force Cambridge Research Center. Though it is strictly a "preliminary" report, which is perhaps incomplete and subject to revision, it carries a wealth of data.

The first page carries a synoptic map showing the major centers of solar activity on the "visible" as well as "invisible" part of the sun. Thus one can rapidly scan this map and see not only where the various centers of activity are relative to the solar longitude, but also "read off" the magnitude of activity in various centers. One may follow from week to week the evolution, birth and death, recurrence and effectiveness of solar regions.

Specifically, the Preliminary Report of Solar Activity shows the following data on its synoptic map: a) plages (faculae) as they are recorded and numbered at the McMath Hulbert Observatory. The position is shown with a small check mark or letter V and with the McMath Plage Number; b) sunspots are shown in their approximate proper form, both umbrae and penumbrae.

c) the isophotes of the green coronal line (5303) are shown based on observations of the intensity of this emission at limb passages. For simplicity, the isophote outline of only "strong" and "very strong" regions are shown. d) a symbol-like the letter Z-shows the position (from limb observations) of the most intense coronal emission, namely the yellow coronal line (5694). Days with no coronal observations are indicated, as are the lines of longitude in accordance with Carrington's Rotations. The central meridian date-line is also given.

d) Flares are indicated in the vicinity where they occurred in the following manner: open circle (like an o) in maroon color shows H_a flares of importance 1 or 2; a filled-in circle /maroon/ shows flares of importance 3 or 3+ (the largest); flares associated with shortwave fadeouts have a + over the circle (e.g. +); the total number of H_a subflares (least) is given in a small square.

e) Active centers. The various phenomena such as plages (faculae), sunspots, flares, coronal regions, are all aspects of an underlying stormishness or "center of activity". The High Altitude Observatory assigns each "center" (or "region"), starting each year, an alphabetic letter (A to Z) and, when necessary, after Z comes AA, AB, AC,..and after AZ comes BA; BB; BC.. Following the letters are the last two digits of the particular region's McMath-plage-number. This then is followed by the number of passages across the solar disc this area has been active, and by a letter, a through e, indicating the level of activity, very intense to very weak. E.g. A51 1b is the first major region of 1959 in plage McMath-number 4951, on its first passage, and of intense activity (see opposite page).

f) other notations include: the Central Meridian (CM) Date in accordance with the Universal Time (UT); regions with "no coronal observations"; dates when IGY Alerts were called "A"; "S" Special World Intervals (called on 24-hour notice when there is a strong possibility that a significant geomagnetic disturbance will commence). * an aurora of strong intensity (usually visible in rather low geographic latitudes); days with Solar Radio Noise Bursts; days of magnetic storms and finally, the mean daily Magnetic A-index recorded at Belvoir.

Page 2 of the "Preliminary Report" carries a brief discussion of the overall level of solar activity for the week covered and, if necessary, additional subflares (1- imp.). Page 3 shows schematically the major centers of activity relative to the solar disc on particular days listing a) plage number; Zürich sunspot group type and flare importance category; b) limb features of prominences /active types such as loops, surges, sprays/; c) if the yellow coronal line was recorded (5694).

Page 4, lists all flares (as reported to HAO) in this manner: date; flare importance; beginning; maximum and ending in Universal Time; the associated plage region; next follow "short wave fade-out reports" SSWF = sudden shortwave fadeout; GSWF = gradual shortwave fadeout (formerly these were simply called SID, i.e. Sudden Ionospheric Disturbance); next follow times of major solar radio noise bursts on specific frequen-

cies giving the beginning and ending times; then follow SEA's, i.e. Sudden Enhancements of Atmospherics on 27 kc, beginning, ending and importance and the same for SCNA or Sudden Cosmic Noise Absorptions on 18 Mc. The latter two, with the SWF, are actually indirect flare indicators, always dependent on flares, but frequently the only evidence of flares when seeing (clouds e.g.) conditions prevent flare patrols.

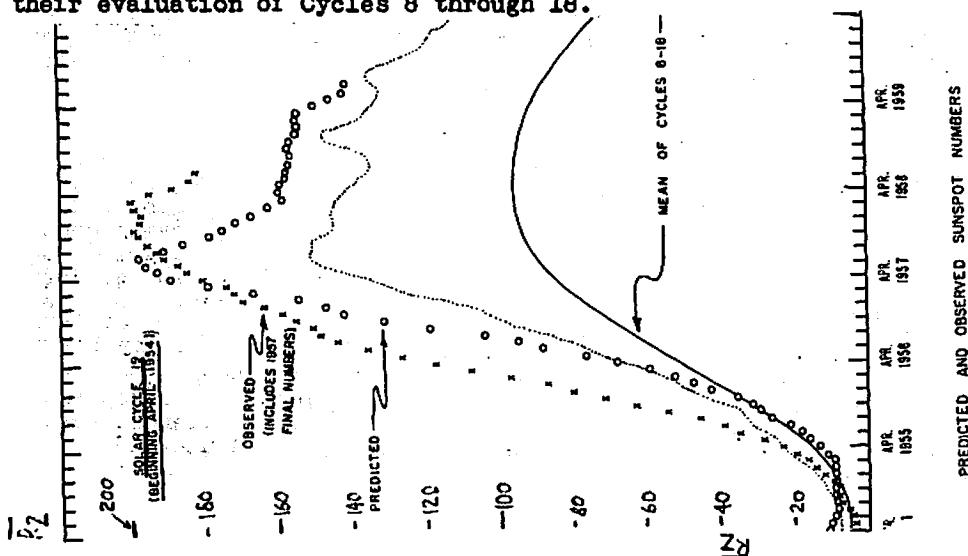
Thus the weekly "Preliminary Report of Solar Activity" covers a quite surprisingly large amount of data on solar activity which helps the interested parties considerably in their own evaluation.

The CRPL-E series called "SOLAR GEOPHYSICAL DATA", published by the National Bureau of Standards monthly, is edited by Miss J. Virginia Lincoln and Mr. Dale B. Bucknam, both of the Radio Warning Services Section. This publication carries the most complete set of data on solar activity and their effects issued anywhere, with possibly the exception of the International Astronomical Union's (IAU) "Quarterly Bulletin" on solar Activity. Though it is usually only one month behind the actual events, in subsequent issues these Solar-Geophysical Data include all flare data, so that it can be considered as "definitive".

Content: The first table of data contains "RELATIVE SUNSPOT NUMBERS" listing the American Relative sunspot numbers, R_A , as compiled by the SOLAR DIVISION OF THE AMERICAN ASSOCIATION OF VARIABLE STAR OBSERVERS and reduced by Dr. Sarah J. Hill; and the "provisional daily Zürich sunspot numbers, R_Z ".

SOLAR FLUX VALUES, 2800 Mc recorded by the National Research Council at Ottawa, Canada. This index is in remarkable agreement with sunspot numbers or sunspot areas, and can be considered as most objective of all solar indices.

A GRAPH OF THE SUNSPOT CYCLE "illustrates the recent trend of Cycle 19 of the 11-year sunspot cycle and some predictions of the future level of activity". 12-month smoothed Zürich numbers are used and the predictions are based on A.G. McNish and J.V. Lincoln method which is based on their evaluation of Cycles 8 through 18.



(continued: Solar-Geophysical Data)

The first section is called "Daily Solar Indices". Next comes:

II "Solar Centers of Activity".

Calcium Plage and Sunspot Regions - The table gives particulars of the "centers of activity" visible on the solar disk during the preceding month. These are based on estimates made and reported on the day of observation and are therefore of limited reliability.

The table gives heliographic coordinates of each center (usually taken as the calcium plage - these are "chromospheric" faculae seen in the light of ionized calcium) in terms of "Central Meridian Passage" (CMP) in Universal Time (Greenwich date) and the latitude. The McMath Hulbert Observatory plague-number is given; if new or a return is noted; area, intensity, history and age are noted; area in millions of the solar hemisphere; intensity on an arbitrary scale of 1 to 5 (weak to maximum) these two data pertain to CMP time; "history" is given as follows: first seen: 1 = at limb; b = born on disk; / = increasing; -- = stable; \ = decreasing; last seen; l = passed over limb; d = died on disk. "Age" is given in number of solar rotations.

The associated Sunspot Group follows with its estimated area at CMP and spot count (number of umbrae); its history is shown in same manner as for plages.

Coronal Line Emission Indices - In the table are summarized solar coronal emission intensity indices for the green (Fe XIV at λ 5303) and Red (Fe X at λ 6374) coronal lines. These indices are based on High Altitude Observatory, Climax, and Harvard University, Sacramento Peak, reports. Actually means of "six highest line intensities" in each solar quadrant are listed, together with the highest value. The dates given correspond to the approximate time of CMP of the longitude zone represented by the indices. The actual observations were made, for the eastern quadrants, 7 days before, for western 7 days after CMP date given. This index is thus of necessity of limited reliability.

III Solar Flares. Optical Observations. These tables are quite concise and though they are not definitive when published only a month after reporting, they are frequently supplemented in later issues so that they eventually carry all available data.

The observatory reporting a flare is listed, next follows the date, the start and ending and maximum phase in Universal Time is given; location in latitude and longitude east or west of the Central Meridian and McMath Hulbert Plage Number; the duration in minutes and flare importance (class 1 to 3+ for maximal) follow; observing conditions 1 to 3 (poor to good). Measurements: time, area in degrees (square) corrected area (corrected for the foreshortening effect) in sq. degrees; maximum width in H_{α} and maximum intensity in % of the continuum spectrum. The provisional ionospheric effect, if any, such as Short Wave Fadeouts, is listed. All flare reports are listed, no matter by how many observatories they were observed. This is important, because one can be seldom completely certain about the various parameters given such as beginning, maximum, ending, central position of an extended area etc dependent on seeing, instrumental and photographic and unavoidable human judgement factors.

Following the flare data is a graphic table showing "Intervals of no flare patrol observations" dependent on reports of the observatories contributing to this report.

Ionospheric Effects of flares in the following forms are listed:
SWF = Short Wave Fadeouts, divided into: Sudden (S-SWF) which has a sudden drop-out in signal strength of distant high-frequency transmissions; Slow S-SWF with a drop-out taking 5 to 15 min. and G-SWF (=Gradual) gradual disturbance, fade irregular in either drop-out or recovery or both. Recovery is in all types gradual.

SEA = Sudden Enhancement of Atmospherics on 27 kc;

SCNA = Sudden Cosmic Noise Absorption on 18 Mc and solar radio burst on this frequency.

Under a coordinated program, a number of ionospheric sounding stations contribute reports of SWF which are screened and synthesized at CRPL-Boulder.

Reports of SEA and SCNA are received directly or through the IGY World Data Center for Solar Activity at the High Altitude Observatory. Here too are included reports contributed by the AAVSO Solar Division SEA Patrol using the Warshaw-type receiver and coordinated by H.L.Bondy. The AAVSO Stations were designated as follows:

A1 Brooklyn, N.Y. (Warshaw)	A5 Ramsey, N.J. (Hossfield)
A2 Pittsburgh, Pa. (Feibelman)	A6 Oshkosh, Wisc. (Buckstaff)
A3 Paterson, N.J. (Del Vecchio)	A7 China Lake, Cal. (Ruhge)
A4 Powell, Ohio (val Isham-Dennison)	A8 Manhattan, Kansas (Houston)

All ionospheric events are listed on a scale of 1- (least) to 3+ for maximal effects. The degree of confidence in identifying the event, a subjective estimate, is reported by the stations and this is summarized in an index of certainty that the event is widespread, ranging from 1 (possible) to 5 (definitive). The times are given and the reporting station listed.

IV Solar Radio Waves. Data on solar radio emission made at the Naval Research Laboratory (Washington, DC) on 9530 Mc (3.15 cm) and 3200 Mc (9.4 cm); at the National Research Council in Ottawa, Canada (A.E. Covington) on 2800 Mc (10.7 cm) /a most complete series going back to 1946/; at Gunbarrel Hill, Boulder (NBS) on 170 Mc. Daily values of the solar flux are given and a detailed table lists "outstanding events" i.e. various types of bursts.

Spectrum Observations on solar radio emission in the range 100-580 Mc recorded at the Harvard University Radio Astronomy Station, Fort Davis, Texas (A. Maxwell) and 169 Mc Interferometric Observations recorded around local noon at Nancay (Cher), France, the field station of the Meudon Observatory. The latter data are presented in a graphic synoptic map approximating the major regions emitting solar noise on 169 Mc (and therefore coming from the solar corona).

V Geomagnetic Activity Indices expressed on various indices (C, K_p, A_p) together with a chart of K_p by Solar Rotation prepared by Dr. J. Bartels, Geophysikalisches Institut, Höttingen, Germany, are listed.

AAVSO - SOLAR DIVISION
AMERICAN SUNSPOT NUMBER OBSERVATIONS
MONTHLY MEAN RA = 139.7 AUGUST 1957 MONTHLY MEAN RZ = 162.6

OBSERVER	K ₁	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	28	29	30	31	
Adams	.96	1.70																															
Aitken	6.32	5.53	5.15	5.00																													
Bandy	.89																																
Barker	6.11	6.10																															
Bethell	8.16																																
Birch	5.73	5.89	6.05	6.12	6.12	6.12	6.12	6.12	6.12	6.12	6.12	6.12	6.12	6.12	6.12	6.12	6.12	6.12	6.12	6.12	6.12	6.12	6.12	6.12	6.12	6.12	6.12	6.12	6.12				
Chapman	.82	6.18	7.80	8.43	8.43	8.43	8.43	8.43	8.43	8.43	8.43	8.43	8.43	8.43	8.43	8.43	8.43	8.43	8.43	8.43	8.43	8.43	8.43	8.43	8.43	8.43	8.43	8.43	8.43				
Craig	.92	6.12	7.87	8.27	8.27	8.27	8.27	8.27	8.27	8.27	8.27	8.27	8.27	8.27	8.27	8.27	8.27	8.27	8.27	8.27	8.27	8.27	8.27	8.27	8.27	8.27	8.27	8.27	8.27				
Costander	.90	5.22	4.23	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4			
De Vicenzo	8.99																																
Dill	11.68	7.73	9.11	9.62	9.62	9.62	9.62	9.62	9.62	9.62	9.62	9.62	9.62	9.62	9.62	9.62	9.62	9.62	9.62	9.62	9.62	9.62	9.62	9.62	9.62	9.62	9.62	9.62	9.62				
Eaton	7.48	8.85	8.32	8.32	8.32	8.32	8.32	8.32	8.32	8.32	8.32	8.32	8.32	8.32	8.32	8.32	8.32	8.32	8.32	8.32	8.32	8.32	8.32	8.32	8.32	8.32	8.32	8.32					
Farnold	6.02	7.97	8.57	8.62	8.62	8.62	8.62	8.62	8.62	8.62	8.62	8.62	8.62	8.62	8.62	8.62	8.62	8.62	8.62	8.62	8.62	8.62	8.62	8.62	8.62	8.62	8.62	8.62					
Fisher	5.18	7.39	8.45	7.23	9.26	7.17	7.17	6.13	5.12	6.13	6.13	6.13	6.13	6.13	6.13	6.13	6.13	6.13	6.13	6.13	6.13	6.13	6.13	6.13	6.13	6.13	6.13	6.13					
Hicks	5.97	6.39																															
Ishibashi	6.50	6.76	7.86	8.91	7.87	8.37																											
Loebel	1.01	6.58	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71				
Lund	7.73																																
Left	.98	9.01	7.60	7.60	7.60	7.60	7.60	7.60	7.60	7.60	7.60	7.60	7.60	7.60	7.60	7.60	7.60	7.60	7.60	7.60	7.60	7.60	7.60	7.60	7.60	7.60	7.60	7.60					
Nahm	.90	6.39	6.62	7.95	7.95	7.95	7.95	7.95	7.95	7.95	7.95	7.95	7.95	7.95	7.95	7.95	7.95	7.95	7.95	7.95	7.95	7.95	7.95	7.95	7.95	7.95	7.95	7.95					
Hoover	.78	6.31	8.53	7.95	7.95	7.95	7.95	7.95	7.95	7.95	7.95	7.95	7.95	7.95	7.95	7.95	7.95	7.95	7.95	7.95	7.95	7.95	7.95	7.95	7.95	7.95	7.95	7.95					
Hillman	6.38	7.74	6.57	6.61	7.65	8.23	8.23	8.23	8.23	8.23	8.23	8.23	8.23	8.23	8.23	8.23	8.23	8.23	8.23	8.23	8.23	8.23	8.23	8.23	8.23	8.23	8.23	8.23					
Pilbeam	.86	6.72	7.67	8.62	8.82	8.82	8.82	8.82	8.82	8.82	8.82	8.82	8.82	8.82	8.82	8.82	8.82	8.82	8.82	8.82	8.82	8.82	8.82	8.82	8.82	8.82	8.82	8.82					
Raine																																	
Roseborough	.68	6.39	7.65	7.79	7.79	7.93	7.93	7.93	7.93	7.93	7.93	7.93	7.93	7.93	7.93	7.93	7.93	7.93	7.93	7.93	7.93	7.93	7.93	7.93	7.93	7.93	7.93	7.93					
Thomas	.84	7.22	5.97	6.69	6.69	6.69	6.69	6.69	6.69	6.69	6.69	6.69	6.69	6.69	6.69	6.69	6.69	6.69	6.69	6.69	6.69	6.69	6.69	6.69	6.69	6.69	6.69	6.69					
Thompson	6.73	6.30	7.19	7.20	7.20	7.20	7.20	7.20	7.20	7.20	7.20	7.20	7.20	7.20	7.20	7.20	7.20	7.20	7.20	7.20	7.20	7.20	7.20	7.20	7.20	7.20	7.20	7.20					
Trotter	1.28	5.20	6.25	7.10	6.25	6.25	7.10	7.10	7.10	7.10	7.10	7.10	7.10	7.10	7.10	7.10	7.10	7.10	7.10	7.10	7.10	7.10	7.10	7.10	7.10	7.10	7.10	7.10					
Walsh	8.52																																
Wells	6.28																																
Wendell	1.35	12.61	12.58	12.58	12.58	12.58	12.58	12.58	12.58	12.58	12.58	12.58	12.58	12.58	12.58	12.58	12.58	12.58	12.58	12.58	12.58	12.58	12.58	12.58	12.58	12.58	12.58						
R.A.	102	126	132	116	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112				
R.Z.	110	148	128	166	142	142	142	142	142	142	142	142	142	142	142	142	142	142	142	142	142	142	142	142	142	142	142	142	142				

THE FOLLOWING SUMMARY TABLES OF AMERICAN SUNSPOT NUMBERS ARE A CONTINUATION OF ELEVEN SUMMARIES PUBLISHED IN THE SOLAR BULLETIN (THE LAST EIGHT BEING NO. 1, 145; 146; 147; 148; 149; 150; 151).

THESE SUMMARY TABLES WERE AGAIN WHOLLY PREPARED BY MISS ROSEMARY WARREN,

SUMMARY ASSISTANT OF DR. SARAH J. RHTA, WELLESLEY COLLEGE, MASSACHUSETTS.

NOTE: K₁ = AMERICAN RELATIVE SUNSPOT NUMBER AND IS COMPUTED FROM OBSERVATIONS MADE BY MEMBERS OF THE SOLAR DIVISION OF THE AMERICAN ASTRONOMICAL SOCIETY OF STARS.

K₁ IS COMPUTED FOR THE NATIONAL RAYLEIGH STANDARDS.

K₂ = TURCH MEDITIONAL SUNSPOT NUMBER AND IS COMPUTED ON THE BASIS OF THE NUMBER OF SPOTS (NUMBER).

M₁ = K₁(G + F) WHEREIN K = OBSERVATION COEFFICIENT, G = TOTAL NUMBER OF GROUPS, AND F = TOTAL NUMBER OF SPOTS (NUMBER).

AAVSO - SOLAR DIVISION
AMERICAN SUNSPOT NUMBER OBSERVATIONS

MONTHLY MEAN	R ₁ = 227.9	DECEMBER 1957	MONTHLY MEAN	R ₂ = 233.9

DECEMBER 1957 MONTHLY MEAN BZ = 233.9

ADVERSE SEEING
RECEIVED LATE

NUMBER BEFORE COMMA = TOTAL GROUPS
NUMBER AFTER COMMA = TOTAL SPOTS

AAVSO - SOLAR DIVISION
AMERICAN SUNSPOT NUMBER OBSERVATIONS
MONTHLY MEAN RA' = 199.2 JANUARY 1958 **MONTHLY MEAN RZ = 202.6**

OBSERVER	K	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	28	29	30	31
Adams	96	18.86	15.92	25.71	45.72	27.83	20.57	20.92	21.06	20.43	21.19	21.46	20.76	20.47	18.46	17.90	15.82	15.92	15.71	15.57	12.51	11.73	11.76	11.57	11.51	11.56	11.56	11.56	11.56	11.56	11.56	
Ahern	97	29.88	—	71.98	21.96	71.90	24.02	21.16	20.42	21.19	21.46	20.76	20.47	18.46	17.90	15.82	15.92	15.71	15.57	12.51	11.73	11.76	11.57	11.51	11.56	11.56	11.56	11.56	11.56	11.56		
Bainbridge	106	15.43	29.11	15.83	17.57	20.13	18.45	21.35	19.76	19.76	19.76	19.76	19.76	19.76	19.76	19.76	19.76	19.76	19.76	19.76	19.76	19.76	19.76	19.76	19.76	19.76	19.76	19.76	19.76	19.76	19.76	
Baker	89	15.51	14.52	15.50	15.51	15.52	15.53	15.54	15.55	15.56	15.57	15.58	15.59	15.60	15.61	15.62	15.63	15.64	15.65	15.66	15.67	15.68	15.69	15.70	15.71	15.72	15.73	15.74	15.75	15.76	15.77	
Bentley	11	15.35	11.91	15.35	15.35	15.35	15.35	15.35	15.35	15.35	15.35	15.35	15.35	15.35	15.35	15.35	15.35	15.35	15.35	15.35	15.35	15.35	15.35	15.35	15.35	15.35	15.35	15.35	15.35	15.35	15.35	
Clegg	92	15.65	14.60	14.65	15.65	15.65	15.65	15.65	15.65	15.65	15.65	15.65	15.65	15.65	15.65	15.65	15.65	15.65	15.65	15.65	15.65	15.65	15.65	15.65	15.65	15.65	15.65	15.65	15.65	15.65	15.65	
Clark	20	15.97	15.97	15.97	15.97	15.97	15.97	15.97	15.97	15.97	15.97	15.97	15.97	15.97	15.97	15.97	15.97	15.97	15.97	15.97	15.97	15.97	15.97	15.97	15.97	15.97	15.97	15.97	15.97	15.97	15.97	
Elkins	73	17.97	15.24	15.25	15.25	15.25	15.25	15.25	15.25	15.25	15.25	15.25	15.25	15.25	15.25	15.25	15.25	15.25	15.25	15.25	15.25	15.25	15.25	15.25	15.25	15.25	15.25	15.25	15.25	15.25		
Etemadirov	180	16.84	15.72	65.35	15.72	65.35	15.72	65.35	15.72	65.35	15.72	65.35	15.72	65.35	15.72	65.35	15.72	65.35	15.72	65.35	15.72	65.35	15.72	65.35	15.72	65.35	15.72	65.35	15.72	65.35		
Ferris	102	15.89	14.54	15.84	15.84	15.84	15.84	15.84	15.84	15.84	15.84	15.84	15.84	15.84	15.84	15.84	15.84	15.84	15.84	15.84	15.84	15.84	15.84	15.84	15.84	15.84	15.84	15.84	15.84	15.84		
Fisher	15.99	16.55	8.64	16.55	8.64	16.55	8.64	16.55	8.64	16.55	8.64	16.55	8.64	16.55	8.64	16.55	8.64	16.55	8.64	16.55	8.64	16.55	8.64	16.55	8.64	16.55	8.64	16.55	8.64	16.55		
Geballe	102	15.99	11.68	8.64	15.99	11.68	8.64	15.99	11.68	8.64	15.99	11.68	8.64	15.99	11.68	8.64	15.99	11.68	8.64	15.99	11.68	8.64	15.99	11.68	8.64	15.99	11.68	8.64	15.99	11.68	8.64	
Lamb	15.52	16.16	16.16	16.16	16.16	16.16	16.16	16.16	16.16	16.16	16.16	16.16	16.16	16.16	16.16	16.16	16.16	16.16	16.16	16.16	16.16	16.16	16.16	16.16	16.16	16.16	16.16	16.16	16.16			
Leite	98	15.92	15.92	15.92	15.92	15.92	15.92	15.92	15.92	15.92	15.92	15.92	15.92	15.92	15.92	15.92	15.92	15.92	15.92	15.92	15.92	15.92	15.92	15.92	15.92	15.92	15.92	15.92	15.92	15.92		
Leiberman	90	15.71	15.71	15.71	15.71	15.71	15.71	15.71	15.71	15.71	15.71	15.71	15.71	15.71	15.71	15.71	15.71	15.71	15.71	15.71	15.71	15.71	15.71	15.71	15.71	15.71	15.71	15.71	15.71	15.71		
Moore	78	15.50	12.98	12.99	12.99	12.99	12.99	12.99	12.99	12.99	12.99	12.99	12.99	12.99	12.99	12.99	12.99	12.99	12.99	12.99	12.99	12.99	12.99	12.99	12.99	12.99	12.99	12.99	12.99	12.99		
Nicolai	15.17	13.20	15.23	15.23	15.23	15.23	15.23	15.23	15.23	15.23	15.23	15.23	15.23	15.23	15.23	15.23	15.23	15.23	15.23	15.23	15.23	15.23	15.23	15.23	15.23	15.23	15.23	15.23	15.23			
Pilsworth	86	16.37	15.27	15.27	15.27	15.27	15.27	15.27	15.27	15.27	15.27	15.27	15.27	15.27	15.27	15.27	15.27	15.27	15.27	15.27	15.27	15.27	15.27	15.27	15.27	15.27	15.27	15.27	15.27			
Ratner	14.87	12.50	11.71	11.71	11.71	11.71	11.71	11.71	11.71	11.71	11.71	11.71	11.71	11.71	11.71	11.71	11.71	11.71	11.71	11.71	11.71	11.71	11.71	11.71	11.71	11.71	11.71	11.71				
Schlesinger	68	15.84	8.13	15.84	8.13	15.84	8.13	15.84	8.13	15.84	8.13	15.84	8.13	15.84	8.13	15.84	8.13	15.84	8.13	15.84	8.13	15.84	8.13	15.84	8.13	15.84	8.13	15.84	8.13	15.84		
Thomson	814	14.59	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Throssell	147	14.59	14.59	14.59	14.59	14.59	14.59	14.59	14.59	14.59	14.59	14.59	14.59	14.59	14.59	14.59	14.59	14.59	14.59	14.59	14.59	14.59	14.59	14.59	14.59	14.59	14.59	14.59	14.59	14.59		
Trotter	1228	13.29	11.38	13.34	13.34	13.34	13.34	13.34	13.34	13.34	13.34	13.34	13.34	13.34	13.34	13.34	13.34	13.34	13.34	13.34	13.34	13.34	13.34	13.34	13.34	13.34	13.34	13.34	13.34	13.34		
Walker	128	14.53	14.65	15.52	14.53	14.53	14.53	14.53	14.53	14.53	14.53	14.53	14.53	14.53	14.53	14.53	14.53	14.53	14.53	14.53	14.53	14.53	14.53	14.53	14.53	14.53	14.53	14.53	14.53	14.53		
Walsh	1	12.51	11.94	11.94	11.94	11.94	11.94	11.94	11.94	11.94	11.94	11.94	11.94	11.94	11.94	11.94	11.94	11.94	11.94	11.94	11.94	11.94	11.94	11.94	11.94	11.94	11.94	11.94	11.94			
Winnipeg	121	11.94	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
RA'	212	222	193	218	120	225	222	187	243	239	235	279	223	300	240	25	198	178	203	229	143	223	189	198	142	229	118	155	164	118	152	132
R2	214	213	200	217	191	192	203	210	231	252	253	262	270	284	290	247	230	193	173	172	137	137	190	171	173	192	170	172	130	170	172	

AAVSO - SOLAR DIVISION
AMERICAN SUNSPOT NUMBER OBSERVATIONS

OBSERVER	K:	MONTHLY MEAN RA' = 141.9				FEBRUARY 1958				MONTHLY MEAN RZ = 151.6																							
		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	28	29	30	31	
Adams	96	15.52	15.52	15.52	15.52	15.52	15.52	15.52	15.52	15.52	15.52	15.52	15.52	15.52	15.52	15.52	15.52	15.52	15.52	15.52	15.52	15.52	15.52	15.52	15.52	15.52	15.52	15.52	15.52	15.52	15.52		
Adler	112	15.51	14.78	16.22	14.86	11.89	11.89	11.89	11.89	11.89	11.89	11.89	11.89	11.89	11.89	11.89	11.89	11.89	11.89	11.89	11.89	11.89	11.89	11.89	11.89	11.89	11.89	11.89	11.89	11.89	11.89	11.89	
Bernie	106	12.57	12.57	12.57	12.57	12.57	12.57	12.57	12.57	12.57	12.57	12.57	12.57	12.57	12.57	12.57	12.57	12.57	12.57	12.57	12.57	12.57	12.57	12.57	12.57	12.57	12.57	12.57	12.57	12.57	12.57		
Bucky	89	10.29	11.35	7.29	6.22	6.30	7.35	6.31	7.41	7.41	7.41	7.41	7.41	7.41	7.41	7.41	7.41	7.41	7.41	7.41	7.41	7.41	7.41	7.41	7.41	7.41	7.41	7.41	7.41	7.41	7.41	7.41	
Burkhardt	111	10.57	12.94	10.29	8.92	8.92	8.92	8.92	8.92	8.92	8.92	8.92	8.92	8.92	8.92	8.92	8.92	8.92	8.92	8.92	8.92	8.92	8.92	8.92	8.92	8.92	8.92	8.92	8.92	8.92	8.92	8.92	
Camp	92	12.51	11.63	11.63	11.63	11.63	11.63	11.63	11.63	11.63	11.63	11.63	11.63	11.63	11.63	11.63	11.63	11.63	11.63	11.63	11.63	11.63	11.63	11.63	11.63	11.63	11.63	11.63	11.63	11.63	11.63		
Dan	111	11.63	12.21	13.11	12.21	12.21	12.21	12.21	12.21	12.21	12.21	12.21	12.21	12.21	12.21	12.21	12.21	12.21	12.21	12.21	12.21	12.21	12.21	12.21	12.21	12.21	12.21	12.21	12.21	12.21	12.21		
Eastman	73	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	
Eastman, Jr.	80	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	
Fowler	102	12.38	13.53	13.53	13.53	13.53	13.53	13.53	13.53	13.53	13.53	13.53	13.53	13.53	13.53	13.53	13.53	13.53	13.53	13.53	13.53	13.53	13.53	13.53	13.53	13.53	13.53	13.53	13.53	13.53	13.53		
Fritsch	110	8.59	8.71	6.94	5.95	5.95	5.95	5.95	5.95	5.95	5.95	5.95	5.95	5.95	5.95	5.95	5.95	5.95	5.95	5.95	5.95	5.95	5.95	5.95	5.95	5.95	5.95	5.95	5.95	5.95	5.95	5.95	
Gebhardt	102	10.54	9.32	6.61	6.61	6.61	6.61	6.61	6.61	6.61	6.61	6.61	6.61	6.61	6.61	6.61	6.61	6.61	6.61	6.61	6.61	6.61	6.61	6.61	6.61	6.61	6.61	6.61	6.61	6.61	6.61	6.61	
Gebhardt	117	10.54	10.54	10.54	10.54	10.54	10.54	10.54	10.54	10.54	10.54	10.54	10.54	10.54	10.54	10.54	10.54	10.54	10.54	10.54	10.54	10.54	10.54	10.54	10.54	10.54	10.54	10.54	10.54	10.54	10.54		
Hobart	96	12.28	12.10	13.38	12.57	7.63	7.63	7.63	7.63	7.63	7.63	7.63	7.63	7.63	7.63	7.63	7.63	7.63	7.63	7.63	7.63	7.63	7.63	7.63	7.63	7.63	7.63	7.63	7.63	7.63	7.63	7.63	
Horn	79	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55		
Horn	713	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55		
Horn	86	10.52	10.52	8.86	5.82	5.82	5.82	5.82	5.82	5.82	5.82	5.82	5.82	5.82	5.82	5.82	5.82	5.82	5.82	5.82	5.82	5.82	5.82	5.82	5.82	5.82	5.82	5.82	5.82	5.82	5.82	5.82	
Horn	922	6.45	7.22	10.61	10.57	10.56	10.56	10.56	10.56	10.56	10.56	10.56	10.56	10.56	10.56	10.56	10.56	10.56	10.56	10.56	10.56	10.56	10.56	10.56	10.56	10.56	10.56	10.56	10.56	10.56	10.56		
Horn	105	6.57	10.56	10.56	10.56	10.56	10.56	10.56	10.56	10.56	10.56	10.56	10.56	10.56	10.56	10.56	10.56	10.56	10.56	10.56	10.56	10.56	10.56	10.56	10.56	10.56	10.56	10.56	10.56	10.56	10.56		
Horn	105	9.56	9.56	9.56	9.56	9.56	9.56	9.56	9.56	9.56	9.56	9.56	9.56	9.56	9.56	9.56	9.56	9.56	9.56	9.56	9.56	9.56	9.56	9.56	9.56	9.56	9.56	9.56	9.56	9.56	9.56	9.56	
Horn	105	10.39	10.52	10.52	10.52	10.52	10.52	10.52	10.52	10.52	10.52	10.52	10.52	10.52	10.52	10.52	10.52	10.52	10.52	10.52	10.52	10.52	10.52	10.52	10.52	10.52	10.52	10.52	10.52	10.52	10.52		
Horn	105	10.52	9.63	7.63	8.64	7.79	7.79	7.79	7.79	7.79	7.79	7.79	7.79	7.79	7.79	7.79	7.79	7.79	7.79	7.79	7.79	7.79	7.79	7.79	7.79	7.79	7.79	7.79	7.79	7.79	7.79	7.79	
Horn	105	10.52	6.39	6.39	6.39	6.39	6.39	6.39	6.39	6.39	6.39	6.39	6.39	6.39	6.39	6.39	6.39	6.39	6.39	6.39	6.39	6.39	6.39	6.39	6.39	6.39	6.39	6.39	6.39	6.39	6.39	6.39	
R.A.	154	15.8	15.8	17.6	17.6	17.6	17.6	17.6	17.6	17.6	17.6	17.6	17.6	17.6	17.6	17.6	17.6	17.6	17.6	17.6	17.6	17.6	17.6	17.6	17.6	17.6	17.6	17.6	17.6	17.6	17.6	17.6	17.6
R.Z.	138	14.8	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6

NUMBER BEFORE COMMA = TOTAL GROUPS
NUMBER AFTER COMMA = TOTAL SPOTS

ADVERSE SEEING
RECEIVED LATE

AAVSO - SOLAR DIVISION
AMERICAN SUNSPOT NUMBER OBSERVATIONS

ADVERSE SEEING RECEIVED LATE

NUMBER BEFORE COMMA = TOTAL GROUPS
NUMBER AFTER COMMA = TOTAL SPOTS

NOTE: ΔA = AMERICAN RELATIVE SUPPORT NUMBER AND IS COMPUTED FROM OBSERVATIONS MADE BY MEMBERS OF THE SOLAR DIVISION OF THE AMERICAN ASSOCIATION OF VARIABLE STAR OBSERVERS. $\Delta A'$ IS COMPUTED FOR THE NATIONAL BUREAU OF STANDARDS.

η_1 = TAKEN PROVISIONAL SUNSPOT NUMBER AND IN VARIOUS STATIONS IN
TIONS MADE AT THE FEDERAL OBSERVATORY IN ZURICH AND ITS STATIONS IN
LUGANO AND ARADA.

THE SELF RELATIVE SUNSPOT NUMBER η_1 IS BASED ON THE FORMULA:

$$\eta_1 = \frac{E}{(E + F)} \cdot M \quad \text{WHEREIN } E = \text{TOTAL SPOTTING COEFFICIENT, } C = \text{TOTAL
NUMBER OF GROUPS AND } F = \text{TOTAL NUMBER OF SPOTS (SPOT-COUNT).}$$

AAVSO - SOLAR DIVISION
AMERICAN SUNSPOT NUMBER OBSERVATIONS
MONTHLY MEAN RA = 179.7 APRIL 1958

OBSERVER	KI	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	28	29	30	31				
Adams	.76	11.38	13.24	22.88																																
Arthur																																				
Bartlett	4.66	11.63																																		
Berry	.39																																			
Ben. Bennett																																				
Buckstaff	1.11	13.63																																		
Craig	.92	15.132																																		
Dekinder	3.07	5.205	4.138	7.167	7.167	7.167	7.167	7.167	7.167	7.167	7.167	7.167	7.167	7.167	7.167	7.167	7.167	7.167	7.167	7.167	7.167	7.167	7.167	7.167	7.167	7.167	7.167	7.167	7.167	7.167	7.167	7.167				
Elliott	.73	16.204	7.778	16.204	16.204	16.204	16.204	16.204	16.204	16.204	16.204	16.204	16.204	16.204	16.204	16.204	16.204	16.204	16.204	16.204	16.204	16.204	16.204	16.204	16.204	16.204	16.204	16.204	16.204	16.204	16.204	16.204	16.204	16.204		
Fernandez	0.01																																			
Fernald	1.02	17.13	5.948	15.87	11.18	15.87	15.87	15.87	15.87	15.87	15.87	15.87	15.87	15.87	15.87	15.87	15.87	15.87	15.87	15.87	15.87	15.87	15.87	15.87	15.87	15.87	15.87	15.87	15.87	15.87	15.87	15.87	15.87	15.87	15.87	15.87
Fisher																																				
Ishibashi	3.89																																			
Locardiuk	1.02																																			
Lund																																				
Lurie	.89																																			
Mabrey	.99																																			
Macrae	.78																																			
Miccollini																																				
Pilsworth	.66																																			
Rosenberg	1.12	15.63																																		
Thomas	.51																																			
Throssell	1.97	14.73	13.73																																	
Tristan	1.28	13.68																																		
Walter	1.18	15.21	14.78																																	
Whitfield																																				
Wilson																																				
Woodford	1.18	15.69																																		

NUMBER BEFORE COMMA = TOTAL GROUPS
 NUMBER AFTER COMMA = TOTAL SPOTS

ADVERSE SEEING
 * RECEIVED LATE

**AAVSO - SOLAR DIVISION
AMERICAN SUNSPOT NUMBER OBSERVATIONS**

MONTHLY MEAN RA' = 171.9 MAY 1958 MONTHLY MEAN R_Z = 175.2

OBSERVER	Ki:	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	28	29	30	31					
Abrams	96	25.09	21.27	19.92	18.67	17.33	16.75	16.08	15.53	15.07	14.62	14.27	13.92	13.57	13.22	12.87	12.52	12.17	11.82	11.47	11.12	10.77	10.42	10.07	9.72	9.37	8.92	8.57	8.22	7.87	7.52	7.17	6.81				
Adams	141	15.13	12.71	12.19	11.76	11.34	10.92	10.51	10.15	9.77	9.37	8.97	8.57	8.17	7.77	7.37	6.97	6.57	6.17	5.77	5.37	4.97	4.57	4.17	3.77	3.37	2.97	2.57	2.17	1.77	1.37	0.97	0.57				
Bentley	1078	19.53	18.26	17.63	17.03	16.43	15.83	15.23	14.63	14.03	13.43	12.83	12.23	11.63	11.03	10.43	9.83	9.23	8.63	8.03	7.43	6.83	6.23	5.63	5.03	4.43	3.83	3.23	2.63	2.03	1.43	0.83	0.23				
Brown	391	17.53	16.26	15.96	15.63	15.33	15.03	14.73	14.43	14.13	13.83	13.53	13.23	12.93	12.63	12.33	12.03	11.73	11.43	11.13	10.83	10.53	10.23	9.93	9.63	9.33	8.93	8.63	8.23	7.83	7.43	7.03	6.63				
van den Berg	1173	17.13	16.26	15.49	15.01	14.54	14.04	13.57	13.10	12.63	12.13	11.66	11.19	10.72	10.25	9.78	9.31	8.84	8.37	7.90	7.43	6.96	6.49	6.02	5.55	5.08	4.61	4.14	3.67	3.20	2.73	2.26	1.79	1.32			
Brueckner	611	13.29	12.53	11.94	11.51	11.18	10.78	10.41	9.98	9.51	9.04	8.57	8.10	7.63	7.16	6.69	6.22	5.75	5.28	4.81	4.34	3.87	3.40	2.93	2.46	1.99	1.52	1.05	0.58	0.11	0.65	0.18	0.75	0.32	0.89		
Craig	102	16.82	15.53	14.91	14.51	14.11	13.71	13.31	12.91	12.51	12.11	11.71	11.31	10.91	10.51	10.11	9.71	9.31	8.91	8.51	8.11	7.71	7.31	6.91	6.51	6.11	5.71	5.31	4.91	4.51	4.11	3.71	3.31	2.91			
Dickinson	80	10.75	10.46	10.79	10.38	10.08	9.78	9.48	9.18	8.88	8.58	8.28	7.98	7.68	7.38	7.08	6.78	6.48	6.18	5.88	5.58	5.28	4.98	4.68	4.38	4.08	3.78	3.48	3.18	2.88	2.58	2.28	1.98	1.68			
Elles	23	15.73	15.16	14.75	14.34	13.93	13.52	13.11	12.71	12.31	11.91	11.51	11.11	10.71	10.31	9.91	9.51	9.11	8.71	8.31	7.91	7.51	7.11	6.71	6.31	5.91	5.51	5.11	4.71	4.31	3.91	3.51	3.11	2.71			
Estrada	20	12.61	12.31	11.91	11.51	11.11	10.71	10.31	9.91	9.51	9.11	8.71	8.31	7.91	7.51	7.11	6.71	6.31	5.91	5.51	5.11	4.71	4.31	3.91	3.51	3.11	2.71	2.31	1.91	1.51	1.11	0.71					
Fernholz	1021	17.65	16.46	17.26	16.69	16.12	15.55	15.08	14.61	14.14	13.67	13.17	12.69	12.22	11.75	11.28	10.81	10.34	9.87	9.40	8.93	8.46	7.99	7.52	7.05	6.58	6.11	5.64	5.17	4.70	4.23	3.76	3.29	2.82			
Fisher	926	9.26	8.86	8.46	8.06	7.66	7.26	6.86	6.46	6.06	5.66	5.26	4.86	4.46	4.06	3.66	3.26	2.86	2.46	2.06	1.66	1.26	0.86	0.46	0.06	0.63	0.23	0.80	0.40	0.00	0.60	0.20	0.80	0.40			
Golds	1020	11.71	11.21	10.71	10.21	9.71	9.21	8.71	8.21	7.71	7.21	6.71	6.21	5.71	5.21	4.71	4.21	3.71	3.21	2.71	2.21	1.71	1.21	0.71	0.21	0.71	0.21	0.71	0.21	0.71	0.21	0.71	0.21	0.71			
Leindecker	13	9.87	9.36	8.96	8.56	8.16	7.76	7.36	6.96	6.56	6.16	5.76	5.36	4.96	4.56	4.16	3.76	3.36	2.96	2.56	2.16	1.76	1.36	0.96	0.56	0.16	0.76	0.36	0.96	0.56	0.16	0.76	0.36	0.96			
Lund	98	10.76	10.36	10.96	10.56	10.16	9.76	9.36	8.96	8.56	8.16	7.76	7.36	6.96	6.56	6.16	5.76	5.36	4.96	4.56	4.16	3.76	3.36	2.96	2.56	2.16	1.76	1.36	0.96	0.56	0.16	0.76	0.36	0.96			
Mehl	30	16.83	15.89	15.22	14.52	14.11	13.71	13.31	12.91	12.51	12.11	11.71	11.31	10.91	10.51	10.11	9.71	9.31	8.91	8.51	8.11	7.71	7.31	6.91	6.51	6.11	5.71	5.31	4.91	4.51	4.11	3.71	3.31	2.91			
Moore	18	14.92	14.52	14.12	13.72	13.32	12.92	12.52	12.12	11.72	11.32	10.92	10.52	10.12	9.72	9.32	8.92	8.52	8.12	7.72	7.32	6.92	6.52	6.12	5.72	5.32	4.92	4.52	4.12	3.72	3.32	2.92	2.52	2.12			
Wilmeth	1021	14.06	13.66	13.26	12.86	12.46	12.06	11.66	11.26	10.86	10.46	10.06	9.66	9.26	8.86	8.46	8.06	7.66	7.26	6.86	6.46	6.06	5.66	5.26	4.86	4.46	4.06	3.66	3.26	2.86	2.46	2.06	1.66				
Wilmeth	126	12.74	12.34	11.94	11.54	11.14	10.74	10.34	9.94	9.54	9.14	8.74	8.34	7.94	7.54	7.14	6.74	6.34	5.94	5.54	5.14	4.74	4.34	3.94	3.54	3.14	2.74	2.34	1.94	1.54	1.14	0.74					
Rowbotham	84	14.52	14.82	14.42	14.02	13.62	13.22	12.82	12.42	12.02	11.62	11.22	10.82	10.42	10.02	9.62	9.22	8.82	8.42	8.02	7.62	7.22	6.82	6.42	6.02	5.62	5.22	4.82	4.42	4.02	3.62	3.22	2.82	2.42			
Thomas	84	15.75	15.35	14.95	14.55	14.15	13.75	13.35	12.95	12.55	12.15	11.75	11.35	10.95	10.55	10.15	9.75	9.35	8.95	8.55	8.15	7.75	7.35	6.95	6.55	6.15	5.75	5.35	4.95	4.55	4.15	3.75	3.35	2.95	2.55		
Tremell	147	14.57	14.17	13.77	13.37	12.97	12.57	12.17	11.77	11.37	10.97	10.57	10.17	9.77	9.37	8.97	8.57	8.17	7.77	7.37	6.97	6.57	6.17	5.77	5.37	4.97	4.57	4.17	3.77	3.37	2.97	2.57	2.17				
Trotter	228	12.29	12.84	12.49	12.09	11.69	11.29	10.89	10.49	10.09	9.69	9.29	8.89	8.49	8.09	7.69	7.29	6.89	6.49	6.09	5.69	5.29	4.89	4.49	4.09	3.69	3.29	2.89	2.49	2.09	1.69	1.29	0.89				
Wester	249	10.21	9.81	9.41	9.01	8.61	8.21	7.81	7.41	7.01	6.61	6.21	5.81	5.41	5.01	4.61	4.21	3.81	3.41	3.01	2.61	2.21	1.81	1.41	1.01	0.61	0.21	0.81	0.41	0.01	0.61	0.21	0.81	0.41			
Weisbach	1366	11.37	11.96	11.43	10.93	10.53	10.13	9.73	9.33	8.93	8.53	8.13	7.73	7.33	6.93	6.53	6.13	5.73	5.33	4.93	4.53	4.13	3.73	3.33	2.93	2.53	2.13	1.73	1.33	0.93	0.53	1.13	0.73	1.33	0.93	1.53	
Weiss	1367	11.37	11.96	11.43	10.93	10.53	10.13	9.73	9.33	8.93	8.53	8.13	7.73	7.33	6.93	6.53	6.13	5.73	5.33	4.93	4.53	4.13	3.73	3.33	2.93	2.53	2.13	1.73	1.33	0.93	0.53	1.13	0.73	1.33	0.93	1.53	
Wiedenroff	R2	1550	216	269	217	223	198	177	150	187	160	114	103	106	110	116	123	130	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110

NUMBER BEFORE COMMA = TOTAL GROUPS		
NUMBER AFTER COMMA = TOTAL SPOTS		
1	ADVERSE SEEING	*
2	RECEIVED LATE	

AAVSO - SOLAR DIVISION
AMERICAN SUNSPOT NUMBER OBSERVATIONS

MONTHLY MEAN $R_A^1 = 152.1$

JUNE 1958

MONTHLY MEAN $R_Z = 167.9$

OBSERVER	K ₁	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	28	29	30	31
Adams	96	17.96	18.60	15.02	17.99	17.89	14.56	17.99	17.89	14.56	17.99	17.89	14.56	17.99	17.89	14.56	17.99	17.89	14.56	17.99	17.89	14.56	17.99	17.89	14.56	17.99	17.89	14.56	17.99	17.89	14.56	17.99
Aitken	102	11.51	11.52	11.48	11.51	11.52	11.48	11.51	11.52	11.48	11.51	11.52	11.48	11.51	11.52	11.48	11.51	11.52	11.48	11.51	11.52	11.48	11.51	11.52	11.48	11.51	11.52	11.48	11.51	11.52	11.48	11.51
Bennie	89	14.52	16.16	16.81	16.81	16.81	16.81	16.81	16.81	16.81	16.81	16.81	16.81	16.81	16.81	16.81	16.81	16.81	16.81	16.81	16.81	16.81	16.81	16.81	16.81	16.81	16.81	16.81	16.81	16.81	16.81	
—	89	14.52	16.16	16.81	16.81	16.81	16.81	16.81	16.81	16.81	16.81	16.81	16.81	16.81	16.81	16.81	16.81	16.81	16.81	16.81	16.81	16.81	16.81	16.81	16.81	16.81	16.81	16.81	16.81	16.81		
von Brunnert	9.12	2.07	—	8.05	10.58	10.67	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Buck's Staff	1.11	8.17	10.33	10.76	13.62	12.55	12.76	8.10	10.10	10.83	10.10	9.82	7.55	8.37	8.19	10.46	2.47	5.15	3.24	5.16	2.16	10.39	10.39	10.39	10.39	10.39	10.39	10.39	10.39	10.39	10.39	
Camp	92	10.78	12.56	13.62	13.62	13.62	13.62	13.62	13.62	13.62	13.62	13.62	13.62	13.62	13.62	13.62	13.62	13.62	13.62	13.62	13.62	13.62	13.62	13.62	13.62	13.62	13.62	13.62	13.62	13.62	13.62	
Eastlander	30	12.32	12.33	12.34	12.35	12.36	12.37	12.38	12.39	12.40	12.41	12.42	12.43	12.44	12.45	12.46	12.47	12.48	12.49	12.50	12.51	12.52	12.53	12.54	12.55	12.56	12.57	12.58	12.59	12.60	12.61	
Elstee	73	16.96	17.94	17.94	17.94	17.94	17.94	17.94	17.94	17.94	17.94	17.94	17.94	17.94	17.94	17.94	17.94	17.94	17.94	17.94	17.94	17.94	17.94	17.94	17.94	17.94	17.94	17.94	17.94	17.94	17.94	
Estrada	32	13.94	14.54	14.61	14.64	14.64	14.64	14.64	14.64	14.64	14.64	14.64	14.64	14.64	14.64	14.64	14.64	14.64	14.64	14.64	14.64	14.64	14.64	14.64	14.64	14.64	14.64	14.64	14.64	14.64	14.64	
Ferraro	1.02	9.25	11.35	14.59	11.50	9.57	—	6.57	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Fisher	—	8.02	8.52	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Hicks	—	12.49	13.76	12.86	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Isabelli	—	11.57	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Law	—	14.57	12.57	12.57	12.58	12.58	12.58	12.58	12.58	12.58	12.58	12.58	12.58	12.58	12.58	12.58	12.58	12.58	12.58	12.58	12.58	12.58	12.58	12.58	12.58	12.58	12.58	12.58	12.58	12.58	12.58	
Lowe	38	17.85	19.49	19.51	19.51	19.51	19.51	19.51	19.51	19.51	19.51	19.51	19.51	19.51	19.51	19.51	19.51	19.51	19.51	19.51	19.51	19.51	19.51	19.51	19.51	19.51	19.51	19.51	19.51	19.51	19.51	
Mather	9.0	4.74	4.74	—	5.57	16.59	—	9.22	13.76	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Moore	7.8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
McCoy	6.51	7.46	8.69	12.85	12.81	12.80	8.23	9.03	8.93	9.03	8.93	9.03	8.93	9.03	8.93	9.03	8.93	9.03	8.93	9.03	8.93	9.03	8.93	9.03	8.93	9.03	8.93	9.03	8.93	9.03	8.93	9.03
Pittsburgh	86	16.92	14.07	13.77	12.22	12.36	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Raines	—	7.24	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Rosenblum	6.8	15.53	17.24	13.46	16.53	15.53	11.23	9.47	9.47	11.23	11.23	11.23	11.23	11.23	11.23	11.23	11.23	11.23	11.23	11.23	11.23	11.23	11.23	11.23	11.23	11.23	11.23	11.23	11.23	11.23	11.23	
Throssell	1.47	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13
Trotter	7.6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Vespa	7.8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Waltzlich	6.18	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Willis	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Wenzel	10.95	8.35	8.40	8.61	11.95	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	

R _A	1.9	11.5	14.9	2.02	2.16	18.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5	
R _Z	2.0	15.4	18.1	19.3	17.5	18.5	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0

NUMBER BEFORE COMMA = TOTAL GROUPS
 NUMBER AFTER COMMA = TOTAL SPOTS

**AAVSO - SOLAR DIVISION
AMERICAN SUNSPOT NUMBER OBSERVATIONS**

MONTHLY MEAN RA' = 178.2 JULY 1958

OBSERVER	KID	MONTHLY												MEAN	R _Z = 197.7	
		1	2	3	4	5	6	7	8	9	10	11	12			
Adams	76	16.79	17.00	17.21	17.42	17.63	17.84	18.05	18.25	18.46	18.67	18.88	19.10	18.93	18.90	
Arlin	570	14.68	14.81	15.02	15.23	15.43	15.64	15.85	16.06	16.27	16.48	16.69	16.90	16.71	16.52	16.32
Bandy	87	16.68	16.81	17.02	17.23	17.44	17.65	17.86	18.07	18.28	18.49	18.70	18.91	18.72	18.67	18.51
von Brunnert	8184	6.46	7.17	7.89	8.61	9.33	10.05	10.77	11.49	12.21	12.93	13.65	14.37	15.09	15.81	16.53
Buckham	11	8.27	11.44	11.93	12.41	12.89	13.37	13.85	14.33	14.81	15.29	15.76	16.24	16.72	17.19	17.60
Craig	92	11.92	12.49	13.06	13.64	14.12	14.69	15.25	15.82	16.39	16.96	17.53	18.10	18.67	19.23	19.80
Dent Index	1.0	10.68	9.57	8.52	7.51	6.51	5.51	4.51	3.51	2.51	1.51	0.51	-0.51	-1.51	-2.51	-3.51
Elliott	1.3	11.78	11.49	11.20	10.81	10.42	10.03	9.64	9.25	8.86	8.47	8.08	7.69	7.30	6.91	6.52
Entomologist	8	8.0	11.33	11.04	10.75	10.46	10.17	9.88	9.59	9.30	9.01	8.72	8.43	8.14	7.85	7.56
Female	102	11.69	12.19	12.54	11.97	11.40	10.82	10.25	9.69	9.10	8.51	7.92	7.33	6.74	6.15	5.57
Fisher																
Hicks																
Hobart																
Lamb																
Left	78	15.56	15.19	14.91	14.63	14.35	14.07	13.79	13.51	13.23	12.95	12.67	12.39	12.11	11.83	11.54
Mabie	9.0	10.51	10.66	10.75	10.87	10.98	11.10	11.22	11.34	11.46	11.58	11.70	11.82	11.94	12.06	12.18
Moore	78	10.82	10.63	10.44	10.25	10.06	9.87	9.68	9.49	9.30	9.11	8.92	8.73	8.54	8.35	8.16
Nicol (n)	16.92	8.63	12.45	12.82	13.19	13.56	13.93	14.29	14.66	15.03	15.39	15.75	16.11	16.47	16.83	17.19
O'Donnell	86	10.42	10.77	11.04	11.31	11.58	11.85	12.12	12.39	12.66	12.93	13.20	13.47	13.74	14.01	14.28
Palmer																
Regehr	68	11.50	11.72	11.94	12.16	12.38	12.60	12.82	13.04	13.26	13.48	13.70	13.92	14.14	14.36	14.57
Thomas	84	10.63	10.76	10.85	10.95	11.03	11.10	11.18	11.25	11.32	11.39	11.47	11.55	11.63	11.71	11.79
Throssell	447	12.19	12.51	12.83	13.14	13.46	13.75	14.05	14.34	14.63	14.92	15.21	15.50	15.79	16.08	16.37
Trotter	4.8	9.19	9.32	9.44	9.55	9.64	9.73	9.82	9.91	9.99	10.08	10.17	10.26	10.35	10.44	10.53
Venter	2.8	11.99	11.59	11.81	12.01	12.21	12.41	12.61	12.81	13.01	13.21	13.41	13.61	13.81	14.01	14.21
Wainright																
Wale																
Womble	11	9.55	9.32	10.66	8.81	8.33	10.77	6.18	9.32	10.57	10.84	11.12	11.39	11.67	11.95	12.23

ADVERSE SEEING
* RECEIVED LATE

NUMBER BEFORE COMMA = TOTAL GROUPS
NUMBER AFTER COMMA = TOTAL SPOTS

AAVSO - SOLAR DIVISION
AMERICAN SUNSPOT NUMBER OBSERVATIONS

MONTHLY MEAN RA = 192.0 AUGUST 1958 MONTHLY MEAN RZ = 203.9

OBSERVER	KI	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	28	29	30	31	
Adams	76	2427	16.05	9.86	34.03	20.43	24.45	10.61																									
Afshar	14.19	16.05	9.76	11.57	14.75	15.11	10.55	10.72	10.82																								
Bessie	10.6																																
Bowey	38	17.44	19.07	8.36	8.59	8.35	9.57																										
von Brunnert	10.10	8.36	8.59	8.35	9.57																												
Buchsbaum	1.11	14.52	11.21	9.19	14.26	11.31	13.36																										
Clegg	32	16.97	15.15	12.22	16.81	16.96	15.02																										
Dobson	8.0	14.24	11.32	11.21	12.21	16.93	16.93																										
Elliott	17.3	11.17	11.17	11.17	11.17	11.17	11.17																										
Extreme	0.60																																
Farnold	1.02	17.81	17.81	17.81	17.81	17.81	17.81	17.81	17.81	17.81	17.81	17.81	17.81	17.81	17.81	17.81	17.81	17.81	17.81	17.81	17.81	17.81	17.81	17.81	17.81	17.81	17.81	17.81	17.81	17.81			
Fisher	5.02	10.12																															
Hicks	13.16	15.68																															
Iacobini	1.57																																
Lorena	16.78	3.46	14.72	16.00	17.69	13.02	17.13	17.03	17.03	17.03	17.03	17.03	17.03	17.03	17.03	17.03	17.03	17.03	17.03	17.03	17.03	17.03	17.03	17.03	17.03	17.03	17.03	17.03	17.03	17.03			
Luft	.98	14.32	14.32	14.32	14.32	14.32	14.32	14.32	14.32	14.32	14.32	14.32	14.32	14.32	14.32	14.32	14.32	14.32	14.32	14.32	14.32	14.32	14.32	14.32	14.32	14.32	14.32	14.32	14.32	14.32			
Neher	.70	16.07	16.02	16.33	16.33	16.33	16.33	16.33	16.33	16.33	16.33	16.33	16.33	16.33	16.33	16.33	16.33	16.33	16.33	16.33	16.33	16.33	16.33	16.33	16.33	16.33	16.33	16.33	16.33	16.33			
Neugebauer	.78																																
Pitcairn	.16	17.73	17.73	17.73	17.73	17.73	17.73	17.73	17.73	17.73	17.73	17.73	17.73	17.73	17.73	17.73	17.73	17.73	17.73	17.73	17.73	17.73	17.73	17.73	17.73	17.73	17.73	17.73	17.73				
Nicolaia	10.11	16.71	3.76	3.69	19.71	15.75	16.99	16.99	16.99	16.99	16.99	16.99	16.99	16.99	16.99	16.99	16.99	16.99	16.99	16.99	16.99	16.99	16.99	16.99	16.99	16.99	16.99	16.99	16.99	16.99			
Rehm																																	
Roseborough	.58	16.05	17.03	17.03	15.58	18.28	16.55	17.85	17.85	17.85	17.85	17.85	17.85	17.85	17.85	17.85	17.85	17.85	17.85	17.85	17.85	17.85	17.85	17.85	17.85	17.85	17.85	17.85	17.85	17.85	17.85		
Thomann	1.47	11.68	11.68	11.68	11.68	11.68	11.68	11.68	11.68	11.68	11.68	11.68	11.68	11.68	11.68	11.68	11.68	11.68	11.68	11.68	11.68	11.68	11.68	11.68	11.68	11.68	11.68	11.68	11.68	11.68			
Trotter	1.48	11.46	10.51	11.13	11.20	11.31	10.47	13.66	8.16	10.23	9.35	12.36	12.36	12.36	12.36	12.36	12.36	12.36	12.36	12.36	12.36	12.36	12.36	12.36	12.36	12.36	12.36	12.36	12.36	12.36			
Wester	1.49	12.71	12.33	11.62	9.16	12.27	10.23	10.18	11.63	10.52	9.38	11.63	11.63	11.63	11.63	11.63	11.63	11.63	11.63	11.63	11.63	11.63	11.63	11.63	11.63	11.63	11.63	11.63	11.63				
Wentz	11.79	10.61	10.61	10.61	10.61	10.61	10.61	10.61	10.61	10.61	10.61	10.61	10.61	10.61	10.61	10.61	10.61	10.61	10.61	10.61	10.61	10.61	10.61	10.61	10.61	10.61	10.61	10.61	10.61				
Wills	15.41																																
Womble	8.80	10.38																															
R.A.	210.210	216.216	218.218	219.219	235.235	240.240	192.192	189.189	180.180	155.155	191.191	198.198	177.177	149.149	136.136	112.112	161.161	175.175	184.184	190.190	185.185	195.195	161.161	177.177	189.189	171.171	187.187	173.173	185.185	179.179			
R.Z.	17.79	22.0	21.0	17.7	20.7	22.3	13.0	26.5	21.1	22.8	22.0	20.2	17.7	17.7	17.7	17.7	17.7	17.7	17.7	17.7	17.7	17.7	17.7	17.7	17.7	17.7	17.7	17.7	17.7	17.7			

NUMBER BEFORE COMMA = TOTAL GROUPS
 NUMBER AFTER COMMA = TOTAL SPOTS

ADVERSE SEEING
 RECEIVED LATE

(continued from page 7)

The data in the table are: (1) preliminary international character figures C (this is an estimate characterizing the overall magnetic behavior during each day on a scale: 0 very quiet / steady level; 1 indicates a "normal day"; 2 most disturbed. (Ed. note: The best account on various solar-geophysical phenomena and indices can be found in M.A. ELLISON's "THE SUN AND ITS INFLUENCE" 1955). Next (2) geomagnetic planetary three-hour range indices, K_p. In this index are estimates of magnetic activity for each three hour period daily on a scale 0 very quiet to 9 greatest magnetic storm. Furthermore while the C scale is listed in tenths of a unit, the K_p index is subdivided into thirds, e.g. 5- = 4 2/3; 5o = 5 0/3; and 5+ = 5 1/3. This planetary index is designed to measure solar particle-radiation by its magnetic effects. K_p is the mean standardized K-index from 12 observatories between latitudes 47° and 63° (where magnetic activity is more pronounced). (3) daily "equivalent amplitude", Ap-index is similar to the K_p-index except that it is on a linear scale compared with the quasi-logarithmic scale of K-indices. Ap's range of scale is 0 to 400. (4) magnetically selected quiet and disturbed days for each month. - i.e. five and ten Quiet days, and five Disturbed. Finally a Chart of K_p by Solar Rotation using "musical-like" figures to reveal at 27-day effects of solar rotation. Sudden Commencement magnetic storms sc (due to flares) are indicated on this chart.

VI Radio Propagation Quality Indices. "One can take as the definition of a radio propagation quality index: the measure of the efficiency of a medium-powered radio circuit operated under ideal conditions in all respects, except for the variable effect of the ionosphere on the transmittal signal. The indices given ... are derived from monitoring and circuit performance reports..." (CRPL-F).

Radio Propagation indices are expressed on a nine-step scale: 1 = useless; 2 = very poor; 3 = poor; 4 = poor-to-fair; 5 = fair; 6 = fair-to-good; 7 = good; 8 = very good; 9 = excellent. CRPL forecasts are expressed on the same scale. The tables summarizing the outcome of forecasts include categories: P-Perfect; S-Satisfactory; U-Unsatisfactory; F-Failure.

The CRPL quality figures, Qa, are compiled by the North Atlantic Radio Warning Service (NARWS), Ft. Belvoir, concerning the North Atlantic Radio Path. Similarly, for the North Pacific Radio Path, the quality figures, Qp, are compiled at CRPL Anchorage, Alaska.

In our next issue, we will describe the contents of the third publication concerned with solar activity, namely "SOLAR ACTIVITY SUMMARY", published quarterly by the High Altitude Observatory.

These publications (which were issued even before the IGY), contain an immense wealth of data which will be reviewed and analyzed by the CRPL in a final publication of U.S. solar data for the IGY. Even with prospective satellite-patrol of solar activity, the data gathered during the IGY and the International Geophysical Year-1959 (IGC-59) will supply enough material for research for decades.

* * * * *

AAVSO-Solar Division sunspot-number observers in 1958.

The following members participated actively in our sunspot-number program so that the American Relative Sunspot-Numbers - R_A could be computed for the National Bureau of Standards. The actual reduction work was done by Dr. Sarah J. Hill, Whitin Observatory, Wellesley College, Mass.

Names with an asterix denote "standard" observers; the numbers give the total of monthly reports received; the letter G denotes observers who participated in Prof. Gleissberg's and Dr. Hotinli's study of the "assymmetric distribution of sunspots".

ADAMS* 12
ARBER (Philippines) 11
BEEGLE* 9 G
BIEDA 4
BONDY* 12

von BRONSART (Germany) 7
BUCKSTAFF* 12
CRAGG* 12 G
DE KINDER* (Canada) 12
ESTREMADOYRO* (Peru) 12 G

ESTREMADOYRO G. (Peru) 1
ELIAS* (Greece) 9 G
FERNALD* 12 G
FISHER (Canada) 9
HICKS 3

ITABASHI* (Japan) 12
LOEBBICK* 4
LOEHDE (Canada) 7
LUFT* 12
MAHER* 9

MOORE* 12
NICOLINI* (Brasil) 12
PARKER 1
PILSWORTH* 12 G
RAINE 6

LORENZ 5
ROSEBRUGH* 12 G
THOMAS* 10 G
THRUSSELL* (England) 12
VENTER* (South Africa) 12

WALLBILICH 10
WELLS 11 G
WOMELSDORFF* 12
SOUTH HADLEY OBS. G7

New "Standard" Observers:
ITABASHI (Japan)
NICOLINI (Brasil)
WOMELSDORFF

The cooperation of the above named observers is greatly appreciated. Our sincerest thanks to all.

Harry L. Bondy, Chairman

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EDITORIAL NOTES: I regret the great delay in the publication of this bulletin. While most of the material in this issue was in preparation much earlier, the chronic lack of time and pressure of other obligations brought the "finalizing" of this issue into spring 1960. This fact is also responsible for the following corrections to this issue. After 1958 the following former AAVSO SEA Stations did not participate in our SEA Program: In order to maintain minimum standards of objective reporting we had to drop Station A3. Station A4 (Val Isham-Dennison) and A8 (Houston) had to discontinue for reasons of instrumental failure. A detailed report on our successful SEA Program for the IGY and IGC-59 will be forthcoming. We have also received a NATIONAL SCIENCE FOUNDATION grant - NSF GS747 - to continue our SEA Program.

HLB

OUT OF OTHER PUBLICATIONS:

The following is a copy of the HARVARD COLLEGE OBSERVATORY ANNOUNCEMENT CARD 1423:

"Atmospheric Fluctuations of Solar Origin Revealed by Satellites.
The following communication has been received from Dr. L. G. Jacchia,
Smithsonian Institution Astrophysical Observatory:

"The irregular or semi-periodic fluctuations observed in the orbital accelerations of satellites are definitely due to variation of the atmospheric structure caused by variable solar radiation, as previously suggested by L.G. Jacchia and R.E. Briggs (Smith. Obs. Spec. Report No. 18, Oct. 4, 1958). The accelerations of Satellites 1958 α 2 and 1958 δ 1 varied in unison and there is good evidence that 1958 α , and 1958 γ and 1958 ε did the same.

"The relative amplitudes were larger for greater perigee heights ranging from some 20% for the Soviet Satellites to some 100% for 1958 α 2. Following a communication dated 1958 December 18, from W. Priester of Bonn, Germany, in which he finds a remarkable similarity between my acceleration curve for 1957 β 1 and the 20cm solar radiation curve in the interval November 11, 1957-February 10, 1958, I have compared the satellite data with the 10.7-cm solar radiation data published by the National Research Council, Ottawa, during the period November 1957-December 1958. The correspondence is little short of perfect; there is a bare suggestion of a 2-day lag in the atmospheric (satellite) curve."

"January 16, 1959.

Fred L. Whipple.

(end of Harvard card No. 1423.)

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MOUNT WILSON MAGNETIC OBSERVATIONS OF SUNSPOTS.

The April issue of the PUBLICATIONS OF THE ASTRONOMICAL SOCIETY OF THE PACIFIC (PASP), after listing the "SUMMARY OF MT. WILSON MAGNETIC OBSERVATIONS OF SUNSPOTS for November and December 1958, carries the following paragraph:

"In order to free the time of instruments and personnel for new research programs, largely centered about studies of weak solar magnetic fields, it will be necessary to curtail some of the routine observations that have been part of the program in recent years. Because of this reorganization, this bimonthly summary, which has been published since May 1920, will now be discontinued."

Mr. Thomas A. Cragg, Mt. Wilson Observatory, wrote us (Jan. 6th, 59) "...we are now taking regular direct photographs and spectroheliograms on every other day. On the alternate days we operate the Babcock magnetograph. Also on the "magnetograph" days a drawing is made at the 150-foot tower. The sunspot magnetic fields are being measured (primarily) for direction only and not strength." The AAVSO SOLAR BULLETIN will publish all Mt. Wilson Magnetic Observations of Sunspots available from now on.

MAGNETIC OBSERVATIONS OF SUNSPOTS OBSERVED AT MT. WILSON
DURING JANUARY AND FEBRUARY, 1959

13830	Dec.	29.6	+11°	(7)	Jan.	1	Jan.	4	apl
13831		31.4	-30	(15)		1		6	dpl
13832	Jan.	3.0	-18	(3)		1		1	dxd
13833		5.5	+12	(10)		1		5	dpl
13834		6.7	-16	(25)		1		13	dpl
13835		7.8	- 7	13		1		13	lcpd
13836	Dec.	31.3	+22	(15)		2		6	dpl
13837	Jan.	7.8	-10	13		3		13	dpl
13838		9.6	-14	14		3		14	1ppd
13839		5.9	+ 7	(2)		4		4	dad
13840		6.3	+ 5	(2)		4		4	dad
13841		7.2	+24	25		4		12	dpl
13842		11.0	+13	37		4		16	1ppl
13843		3.7	+ 5	(10)		6		9	dpl
13844		6.0	+13	(10)		6		9	dppd
13845		9.5	-24	(10)		6		11	dpl
13846		9.9	- 4	(12)		6		13	dppd
13847		11.3	-16	(7)		6		6	dcpd
13848		4.0	+13	(8)		8		8	dard
13849		6.4	+20	(18)		8		13	dpl
13850		9.0	- 5	(4)		8		13	dxd
13851		9.7	+15	(5)		8		9	dard
13852		13.8	+23	(2)		8		10	dpl
13853		8.0	+36	(8)		9		9	dxd
13854		13.2	-11	(3)		9		10	dxd
13855		12.7	+25	(2)		9		13	dxd
13856		13.7	+26	(15)		9		16	dpl
13857		10.9	+ 5	2		10		13	dpl
13858		13.3	+16	5		10		14	dfrd
13859		15.8	+23	(18)		10		20	dppd
13860		16.0	+18	15		11		19	dpl
13861		10.8	+23	(2)		12		12	dad
13862		14.0	-22	(2)		12		12	dxd
13863		18.2	+11	(2)		12		13	lcpd
13864		18.6	+23	(5)		12		12	lx4
13865		18.8	- 6	(7)		12		17	lcpd
13866		11.3	+31	(1)		13		16	dxd
13867		14.6	+19	(2)		14		14	dxd
13868		16.0	- 4	(10)		14		21	dpl
13869		20.2	+20	(5)		14		15	lcpd
13870		20.9	+12	(15)		14		27	1pl
13871		21.0	+17	(10)		14		21	1ppd
13872		12.9	- 6	(10)		15		16	dpl
13873		15.6	+30	(5)		15		16	dcl
13874		21.4	+20	(2)		16		16	dad
13875		23.0	+17	(20)		16		28	1pl
13876		22.5	-10	(15)		16		22	1ppd
13877		23.0	+ 8	(25)		16		29	1pl
13878		21.8	+18	(25)		17		27	dpl
13879		23.5	-12	(10)		17		26	1ppd
13880		21.3	+ 9	(15)		18		26	dpl
13881		23.8	-13	(3)		18		18	dpl

SOLAR BULLETIN

- 22 - January-April 1959

MAGNETIC OBSERVATIONS OF SUNSPOTS OBSERVED AT MT. WILSON
DURING JANUARY AND FEBRUARY, 1959 (cont'd.)

13882	Jan.	18.5	+11°	(2)	Jan.	19	Jan.	19	dad
13883		25.4	+11	(30)		19		31	lapl
13884		25.4	+14	(15)		19		31	1βpl
13885		26.1	+35	(15)		19		25	1βpd
13886		26.4	- 6	5		19		28	1βpd
13887		26.5	+22	11		20		29	1cpd
13888		22.0	+11	(3)		21		24	dpd
13889		23.9	+19	(2)		21		23	dβd
13890		25.0	+28	(3)		21		26	dad
13891		27.7	+ 3	(7)		21		30	lcpd
13892		21.6	+ 6	(2)		22		22	dβd
13893		27.7	+23	(10)		22	Feb.	1	1βd
13894		24.4	+11	(2)		23	Jan.	27	dxd
13895		26.0	+ 9	(10)		24		31	dβpl
13896		30.4	+ 4	(10)		24	Feb.	4	1βpd
13897		30.9	+19	(10)		24	Jan.	31	dβpl
13898		26.7	+12	(5)		26		27	dpd
13899		26.4	+ 7	(5)		26		26	dβpd
13900		26.0	-10	(15)		26	Feb.	1	dβpd
13901		31.7	+14	(10)		26		4	1βpd
13902	Feb.	1.3	-11	(10)		26		3	lapd
13903	Jan.	26.6	+17	(10)		27	Jan.	30	dpd
13904		31.9	+23	(7)		27		29	dcpd
13905	Feb.	1.4	+ 3	(5)		27		27	dβpd
13906		2.5	-12	(10)		27	Feb.	6	lap
13907	Jan.	28.4	+18	(2)		28	Jan.	28	dad
13908	Feb.	3.4	+15	(20)		28	Feb.	6	lapl
13909		4.3	+23	(15)		28		8	1βl
13910	Jan.	26.4	+36	(2)		29	Jan.	29	dadf
13911	Feb.	3.6	- 2	(5)		29	Feb.	2	dcpd
13912		5.9	-25	(10)		30		4	lapd
13913		6.7	+13	(10)		31		6	1pd
13914		6.8	-11	(15)	Feb.	1		6	dcpd
13915		3.4	-10	(10)		2		5	dad
13916		8.2	+11	(15)		2		9	lapd
13917		1.5	+14	(5)		4		4	dβpd
13918		2.8	+25	(3)		4		4	dβpd
13919		3.9	+23	(3)		4		6	dβd
13920		4.7	+27	(1)		4		4	dad
13921		9.6	+26	(15)		4		14	lapl
13922		10.3	+21	(15)		4		14	1βpl
13923		10.7	-31	(16)		4		13	lapa
13924		4.7	+10	(3)		5		5	dad
13925		4.9	-34	(2)		6		6	dad
13926		4.5	+12	(3)		9		9	url
13927		13.3	+27	(10)		9		14	ccp
13928		8.4	+14	(2)		9		9	dad
13929		15.9	+ 9	22		9		20	1βpl
13930		18.5	+14	(5)		13		20	lapa
13931		17.2	+11	22		13		23	1βpl
13932		11.1	+33	(3)		14		14	dad
13933		14.1	+15	(2)		14		14	dad

MAGNETIC OBSERVATIONS OF SUNSPOTS OBSERVED AT MT. WILSON
DURING JANUARY AND FEBRUARY, 1959 (cont'd.)

13934	Feb.	16.4	-36°	4	19	20	dβp
13935		19.9	+25	3	19	19	dβpd
13936		21.2	+18	29	19	26	βJ1
13937		21.6	-18	9	19	23	βd
13938		21.9	+11	30	19	27	lapl
13939		22.2	+29	(1)	19	19	xd
13940		24.3	+22	16	19	Mar. 2	lapl
13941		19.3	+28	14	20	Feb. 24	dβp1
13942		21.7	+29	18	23	28	dβ1
13943		26.1	-34	13	23	Mar. 4	dβp1
13944		28.4	+ 9	11	23	Feb. 27	1βd
13945		24.6	-18	14	23	Mar. 2	dβp1
13946		26.7	+23	13	23	4	dβ1
13947		25.9	- 5	(2)	25	Feb. 25	dαd
13948		28.1	-18	(10)	25	27	dβd
13949		28.4	+20	(7)	25	25	dxd
13950	Mar.	1.6	-15	11	25	Mar. 5	dβpd
13951		2.0	-10	10	26	3	dβpd
13952		4.3	- 3	5	26	6	lapd
13953		4.4	+17	(?)	26	2	lapd
13954		4.6	+13	(5)	26	2	lapd
13955	Feb.	26.8	+17	(5)	27	4	dβ1
13956	Mar.	3.8	+10	(2)	27	Feb. 28	dαd
13957		5.2	+14	(15)	27	Mar. 11	1βp1
13958		3.5	+19	(1)	28	Feb. 28	dαpd
13959		6.4	+26	5	28	Mar. 6	lapd

NOTES

- 13835 A return of 13763.
 13850 Not seen on January 10 and 11.
 13856 Not seen on January 11 and 12.
 13857 Not seen on January 11 and 12.
 13858 Not seen on January 13.
 13863 A return of 13801.
 13866 Not seen on January 14 and 15.
 13871 Not seen on January 20.
 13875 Probably a return of 13817 with some mixing of polarities.
 13886 Probably a new group after January 26.
 13893 Probably a return and rejuvenation of 13836. Not seen on January 31.
 13894 Not seen on January 24 and 25.
 13896 Possibly a return of 13843. Not seen on February 2 and 3.
 13897 Possibly several groups on January 28 and 29.
 13908 A return of 13829.
 13910 Same position as 13885.
 13937 Not seen on February 20.
 13938 A return of 13883.
 13951 Not seen on March 2.
 13957 A sudden development among the leading members on March 9 may have been a new group.
 13959 Not seen on March 4.

AMERICAN SUNSPOT NUMBERS - RA¹ -

ZURICH PROVISIONAL SUNSPOT NUMBER		Jan.	Feb.	Mar.	Apr.
Year	Month	1959	1959	1959	1959
1	201	110	158	249	249
2	201	139	144	242	242
3	207	129	137	174	174
4	217	130	145	159	159
5	243	126	133	124	124
6	228	103	138	108	108
7	233	124	139	101	101
8	241	90	140	132	132
9	245	87	149	144	144
10	224	100	151	177	177
11	218	100	135	197	197
12	203	101	126	189	189
13	192	106	159	128	128
14	120	129	173	193	193
15	120	133	216	170	170
16	143	144	225	142	142
17	168	170	228	109	109
18	177	159	230	119	119
19	202	175	242	108	108
20	240	150	236	132	132
21	248	163	215	128	128
22	268	158	200	138	138
23	255	186	194	186	186
24	254	190	178	186	186
25	250	181	199	203	203
26	240	176	195	184	184
27	253	163	178	165	165
28	232	186	171	165	165
29	157	186	217	160	160
30	136	136	227	115	115
31			244		
	210.3	139.6	181.4	159.2	

AMERICAN SUNSPOT NUMBERS - RA'		Jan.	Feb.	Mar.	Apr.
1	234	107	143	200	
2	224	118	106	177	
3	238	133	143	143	
4	213	155	150	110	
5	195	109	104	107	
6	208	103	120	104	
7	233	63	127	107	
8	270	66	142	139	
9	209	83	150	163	
10	181	96	134	191	
11	170	114	114	195	
12	168	78	140	189	
13	133	102	158	176	
14	116	77	150	169	
15	109	120	176	163	
16	146	104	175	134	
17	143	169	177	128	
18	166	115	194	118	
19	165	112	171	118	
20	240	111	195	135	
21	275	135	182	128	
22	234	142	170	151	
23	234	172	144	153	
24	223	151	140	138	
25	256	142	158	160	
26	213	172	164	183	
27	258	152	169	178	
28	242	129	175	185	
29	205	233	233	131	
30	155	207	207	129	
31	114	195	195	195	
Mean:		199.3	118.9	158.3	150.4