ROYAL OBSERVATORY

BULLETINS

Number 144

Photoheliographic Results 1961

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ROYAL OBSERVATORY

BULLETINS

JOINT PUBLICATIONS OF THE
ROYAL GREENWICH OBSERVATORY, HERSTMONCEUX
ROYAL OBSERVATORY, CAPE OF GOOD HOPE

Number 144

Photoheliographic Results 1961

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Herstmonceux Castle
Hailsham, Sussex

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Astronomer Royal

PHOTOHELIOGRAPHIC RESULTS 1961

INTRODUCTION

The photographs from which these measures were made were taken at the Royal Greenwich Observatory, the Royal Observatory, Cape of Good Hope, and the Kodaikanal Observatory, Southern India. One missing day was kindly supplied by Mount Wilson Observatory, California.

The photographs of the Sun obtained at Herstmonceux were taken with the 4-inch photoheliograph, of which the original object-glass had been replaced in 1910 by a Grubb photographic objective. The equivalent focal length of the photoheliograph with its present enlarging system (supplied in 1926 by Ross, Ltd.) is 67½ feet, the diameter of the Sun's image at the secondary focus being approximately 7½ inches. On 1949 May 2 this photoheliograph was moved from Greenwich to Herstmonceux Castle, Sussex.

The photographs of the Sun obtained at the Cape Observatory were taken under the superintendence of Her Majesty's Astronomer at the Cape, Dr R. H. Stoy, and those at Kodaikanal under the superintendence of the Director, Dr M. K. Vainu Bappu. At the Cape Observatory the instrument employed was a 4-inch photoheliograph giving an image of the Sun about 7½ inches in diameter; at Kodaikanal a Cooke photo-visual objective of 6 inches aperture was used, the image of the Sun which was obtained being of about the same size.

Photographs of the Sun were available for measurement on 365 days in 1961, those finally selected for measurement being supplied by the different observatories as under:

Herstmonceux	251
Cape	108
Kodaikanal	5
Mount Wilson	1
Total	365

The names of the measurers of the photographs for the year 1961 were as follows:

P. S. Laurie	Miss D. M. Hobden
G. W. Rickett	Miss M. E. Winter

At the primary focus of the photoheliographs at Herstmonceux and the Cape two spider-wires are fixed by which the zero of position angles on the photographs can be determined. These wires are inclined at an angle of 45° to the celestial equator. In the Kodaikanal instrument there is one wire fixed parallel to the equator.

The precise zero of position angles for the photoheliographs has been determined by three different methods.

wires to this line were measured. A small correction for the inclination of the Sun's path has been applied. Two or three zero photographs were usually taken each month at Herstmonceux, the Cape, and Kodaikanal.

(ii) *Transits*. At Herstmonceux and the Cape, transits of the Sun were taken visually, the times of contact of the first and second limbs of the Sun with the two wires being noted by an eye-and-ear method. The ratio of the time taken by the Sun to pass over the NE - SW wire to the time taken to pass over the SE - NW wire was used in order to find the angle made by the Sun's path with the bisectors of the wires. From this, again incorporating a correction to allow for the inclination of the Sun's path, the orientation of the wires with respect to the N - S line could be inferred. Transits were usually taken at Herstmonceux and the Cape on four or more days during each month.

(iii) *Supplementary Zero Photographs*. At Herstmonceux supplementary partial images of the Sun were occasionally recorded on otherwise normal photographs, a second exposure being made after clamping the instrument firmly for 130 seconds. The small portion of the Sun's limb visible at the western edge of the plate could be used, together with the main image which it does not intersect, to deduce the orientation of the wires in a way similar to that used for the zero photographs. Six to ten supplementary zero photographs were taken at Herstmonceux each month. The values for the zero of position angles deduced from them were given half weight in the adoption of zero corrections to be used in the reduction of photographs.

The measures of the photographs were made with a large position-micrometer that can be used for photographs of the Sun up to 12 inches in diameter. In this micrometer the photograph is held with its film-side uppermost on three pillars fixed on a circular plate, which can be turned through a small angle about a pivot in its circumference by means of a screw and antagonistic spring acting at the opposite extremity of the diameter. The pivot of this plate is mounted on the circumference of another circular plate which can be turned by a similar screw-action about a pivot in its circumference. This pivot, 90° distant from that of the upper plate, is mounted on a third circular plate, with a position-circle graduated in divisions of 30 minutes of arc, which may be rotated about its centre. By this means small movements in two directions at right angles to each other can be readily given and the photograph can be accurately centred with respect to the centre of rotation of the position-circle. When this has been done, a Ramsden eyepiece, having at its anterior focus a glass diaphragm ruled with cross-lines into squares with sides of one hundredth of an inch (for measurement of areas), is moved along a slide adjusted so that the centre of the eyepiece moves diametrically across the photograph, the diaphragm being nearly in contact with the photographic film, so that parallax is negligible. The distance of a spot or facula from the centre of the disk is read from a scale and vernier to 1/250th of an inch, corresponding to 0.001 of the Sun's radius for images 8 inches in diameter. The position angle is read from the large position-circle which rotates with the photographic plate. The photograph is illuminated by diffused light reflected from white paper placed at an angle of 45° below the photograph.

In the case of large or complex groups of spots, the chief components were measured individually; so also in the case of groups near to the east or west limbs of the Sun where the effects of foreshortening are appreciable. In other cases the position of the centre of a group was estimated by the measurer at the micrometer or derived during the computation.

When required, corrections have been applied to the

1. *Positions and Areas of Sunspots for each Day in the Year 1961*, page C 199.

In this section the measured positions and areas of sunspots are given for each day. The positions of sunspots are referred firstly to a system of apparent polar co-ordinates on the Sun's disk and secondly to a system of heliographic co-ordinates.

The calculations of heliographic longitude and latitude are made from formulae given by W. de la Rue, B. Stewart and B. Loewy, *Phil. Trans.*, 1869. The system of heliographic co-ordinates may be defined as follows. The inclination of the Sun's axis to the ecliptic is assumed to be 82° 45′, the longitude of the ascending node of the Sun's equator on the ecliptic for 1961.0 to be 75° 13′.0, and the period of the Sun's sidereal rotation to be 25.38 days. The meridian which passed through the ascending node on 1854 January 1, Greenwich mean noon, is taken as the zero meridian and longitudes increase from east to west. The mean synodic rotation period is 27.2753 days; synodic rotation periods are counted from 1853 November 9, in continuation of Carrington's series.

Let r be the measured distance of a spot from the centre of the Sun's apparent disk and χ the position angle of the spot from the Sun's axis, R the measured radius of the Sun on the photograph, S the tabular semi-diameter of the Sun in arc, and ρ, ρ' the angular distances of a spot from the centre of the apparent disk, as viewed from the Sun's centre and from the Earth respectively. ρ - the heliocentric angle - is obtained from the following equations:

$$\rho' = \frac{r}{R} S \qquad \sin(\rho + \rho') = \frac{r}{R}$$

If B_0 and φ are the heliographic latitudes and L_0 and λ the heliographic longitudes of the Earth and the spot respectively,

$$\sin\varphi = \cos\rho \sin B_0 + \sin\rho \cos B_0 \cos\chi$$

$$\sin(L_0 - \lambda) = \sin\chi \sin\rho \sec\varphi$$

χ is found from the position angle measured eastwards from the north point of the Sun's disk by subtracting P, the position angle of the north end of the Sun's axis also measured eastwards from the north point. The three quantities P, B_0 and L_0 for the time of the exposure of each photograph are derived from the *Ephemeris for Physical Observations of the Sun*, given on page 304 of the *Astronomical Ephemeris* for 1961.

2. *General Catalogue of Groups of Sunspots for 1961*, page C 243.

This catalogue first contains particulars of every group of sunspots which lasted for two or more days during 1961. The group numbers are in continuation of those given in 1960 and previous years. The table includes an indication of those groups which may be considered to be members of 'recurrent series' of groups.

Spot groups seen on one day only are given in a separate table, where they receive a distinctive numeration.

Recurrent groups were selected upon the following plan, reference being made to the General Catalogue: If any spot when first seen was 60° or more to the east of the central

probable continuity between groups in consecutive rotations of the Sun, the character of the groups, their areas and their longitude and latitude have been carefully compared before accepting them as a recurrent group.

3. *Total areas, Mean Areas and Mean Heliographic Latitudes of Sunspots and Faculæ in the Year 1961*, page C 253.

This section contains total areas of sunspots and faculæ (the latter separated into west and east hemispheres) for each day in the year, together with mean areas and mean heliographic latitudes of sunspots and faculæ for each rotation of the Sun during 1961. Similar annual mean values are also given.

Observations made with the spectrohelioscopes of Solar Filaments and Solar Flares are no longer published in this *Bulletin*. The latter appear in the *Quarterly Bulletin on Solar Activity* published under the auspices of the International Astronomical Union.

POSITIONS AND AREAS OF SUNSPOTS

FOR EACH DAY

IN THE YEAR 1961

POSITIONS AND AREAS OF SUNSPOTS FOR EACH DAY IN THE YEAR 1961

The first line for each day gives the month numerically, the date and decimal of a day reckoned from midnight, the position angle of the Sun's axis from the north point and the heliographic longitude and latitude of the centre of the disk, all being computed for the time of the photograph.

Col. 1. Number of spot group in order of appearance and in continuation of the group numbers given in *Royal Observatory Bulletin* No. 132. Single figures (1 = leader, 2 = follower) beneath the number of a spot group indicate the principal and most stable components of that group. (The areas of such components are already included in the total area of the group.) Groups seen on one day only are distinguished by the number of the rotation during which they were observed and prefixed by a number in smaller type giving the order of their appearance.

Col. 2. Distance of spot group from Sun's centre in units of the Sun's radius.

Col. 3. Position angle of spot group measured from the north pole of the Sun's axis in the direction *N. E. S. W. N.*

Col. 4. Heliographic longitude of spot group derived from the measures.

Col. 5. Heliographic latitude of spot group similarly derived.

Col. 6. Area of umbrae corrected for foreshortening and expressed in millionths of the Sun's visible hemisphere.

Col. 7. Area of whole spots composing the group similarly expressed.

POSITIONS AND AREAS OF SUNSPOTS FOR EACH DAY IN THE YEAR

U.T. and Group No.	Measures Rad. Dist.	Measures Pos. Ang.	Position Long.	Position Lat.	Area Umb.	Area Whole Spots
1961		°	°	°		
01	1·408	+ 1·9	86·2	− 3·1		
20128	·874	282·6	145·8	+ 9·4	2	17
20131	·724	285·7	130·9	+ 9·0	49	283
20121	·458	255·5	112·8	− 9·4	2	11
20123	·387	324·1	99·8	+15·1	43	266
20125	·323	348·5	90·0	+15·3	143	1092
20124	·380	354·2	88·6	+19·0	62	243
20127	·077	153·1	84·2	− 7·1	2	34
20130	·596	112·7	51·6	−15·8	1	7
20132	·834	105·3	30·3	−14·4	15	67
01	2·286	+ 1·5	74·7	− 3·2		
20131	·845	282·5	131·1	+ 8·7	64	261
20121	·609	259·1	111·8	− 9·2	1	18
20123	·520	306·8	100·2	+15·2	57	230
20125	·419	319·3	91·1	+15·4	80	997
20124	·443	329·7	88·3	+19·2	78	280
20127	·209	251·1	86·1	− 7·0	1	22
20130	·454	117·1	50·1	−14·8	0	14
20132	·705	106·9	30·8	−14·1	11	23
20133	·879	63·5	17·2	+21·3	24	82
01	3·473	+ 0·9	59·0	− 3·4		
20131	·952	280·2	130·2	+ 8·6	63	255
20121	·804	260·8	112·4	− 9·4	0	14
20123	·717	295·2	101·1	+15·2	39	256
20125	·609	301·4	91·6	+15·6	85	879
20124	·598	309·4	88·2	+19·3	63	362
20127	·437	260·4	84·7	− 7·2	0	18
20132	·481	114·1	32·2	−14·3	9	24
20133	·723	55·1	19·6	+21·8	80	467
20134	·974	100·7	342·0	−11·2	4	37

U.T. and Group No.	Measures Rad. Dist.	Measures Pos. Ang.	Position Long.	Position Lat.	Area Umb.	Area Whole Spots
1961		°	°	°		
01	4·509	+ 0·4	45·4	− 3·5		
20121	·925	261·5	113·1	− 9·2	0	5
20123	·856	290·3	101·5	+15·3	44	235
20125	·778	293·8	93·0	+15·9	80	667
20124	·741	299·6	88·2	+18·9	50	295
20132	·286	131·2	32·6	−14·2	1	6
20133	·584	43·2	20·0	+22·0	113	551
20134	·895	101·0	342·0	−11·4	0	12
01	5·469	− 0·1	32·8	− 3·6		
20123	·946	287·9	101·7	+15·6	36	260
20125	·888	290·3	92·6	+16·1	53	548
20124	·856	294·7	87·9	+18·9	66	369
20132	·181	181·8	33·1	−14·0	0	11
20133	·477	24·7	20·4	+22·0	123	802
03 1435	·889	80·0	331·1	+ 7·2	0	26
01	6·472	− 0·5	19·5	− 3·7		
20123	·994	286·1	101·6	+15·6	73	271
20125	·971	288·1	93·6	+16·6	45	172
20124	·942	291·6	87·0	+18·9	63	216
20135	·426	301·5	41·0	+ 9·4	8	23
20132	·254	222·0	29·6	−14·5	1	14
20133	·432	357·1	20·9	+21·8	127	718
20136	·948	101·3	308·0	−11·9	9	23
01	7·420	− 1·0	7·1	− 3·8		
20124	·987	290·2	85·8	+19·2	46	234
20135	·594	290·2	41·2	+ 8·7	7	31
20133	·496	331·1	21·9	+21·9	102	583
04 1435	·626	62·9	332·2	+13·4	0	7
20136	·863	101·5	307·5	−11·8	7	41

Group 20133. Jan. 2 - 12. A few spots, rapidly developing into an elongated stream led by a composite spot; this becomes regular in outline by January 10 and is the sole survivor at the west limb.

Group 20134. Jan. 3 - 4. Return of Group 20106. Small spots.

Group 20135. Jan. 6 - 8. A cluster of tiny spots.

Group 20136. Jan. 6 - 18. A single spot developing into a small stream, of which the leader is the most stable component and alone remains on January 17.

POSITIONS AND AREAS OF SUNSPOTS FOR EACH DAY IN THE YEAR

U.T. and Group No.	Measures Rad. Dist.	Measures Pos. Ang.	Position Long.	Position Lat.	Area Umb.	Area Whole Spots
1961		°	°	°		
01	8·422	− 1·5	353·9	− 3·9		
20135	·745	285·7	40·2	+ 8·9	3	28
20133	·613	314·2	22·0	+21·7	84	473
20136	·724	102·2	307·9	−11·4	33	154
01	9·390	− 2·0	341·1	− 4·0		
20133	·742	304·5	22·1	+21·8	75	507
05 1435	·138	170·4	339·8	−11·8	0	17
06 1435	·264	40·7	331·2	+ 7·5	2	15
20136	·560	104·7	307·7	−11·4	23	118
01	10·429	− 2·5	327·4	− 4·1		
20133	·860	298·2	21·9	+21·6	76	522
20136	·368	111·4	307·1	−11·4	29	181
01	11·287	− 2·9	316·1	− 4·2		
20133	·939	294·9	22·2	+21·5	77	469
20136	·196	132·5	307·7	−11·6	16	143
01	12·498	− 3·4	300·2	− 4·3		
20133	·993	292·4	20·7	+21·6	44	320
20136	·192	225·8	308·2	−11·8	22	102
01	13·285	− 3·8	289·8	− 4·4		
20136	·336	246·5	308·1	−11·8	20	101
20137	·149	139·8	284·3	−10·9	0	9
01	14·466	− 4·4	274·3	− 4·5		
20136	·565	255·3	308·1	−11·9	21	56
20137	·198	239·0	284·2	−10·3	1	24
01	15·406	− 4·8	261·9	− 4·6		
20136	·724	257·5	308·0	−12·1	20	80
20137	·391	254·1	284·3	−10·4	2	31
01	16·484	− 5·3	247·7	− 4·7		
20136	·863	258·5	307·4	−12·2	24	85
20137	·615	260·0	285·4	− 9·8	15	90
20138	·593	90·9	211·4	− 4·4	1	29
01	17·285	− 5·7	237·2	− 4·8		
20136	·937	258·9	307·1	−12·1	9	92
20137	·737	261·1	284·6	− 9·7	34	207
20138	·402	88·4	213·5	− 3·7	7	35
20139	·954	93·4	164·6	− 4·7	0	10
01	18·452	− 6·2	221·8	− 4·9		
20136	·997	257·3	308·0	−13·0	0	66
20137	·887	260·7	284·5	−10·4	25	176
20138	·154	83·8	213·0	− 3·8	24	114
20139	·857	92·6	162·8	− 4·8	11	68

Group 20137. Jan. 13 - 19. A few small spots until January 17 when there is a rapid increase in area and the group assumes bi-polar formation. The following part becomes a regular spot on January 18 and is the sole survivor on January 19.

Group 20138. Jan. 16 - 23. A few small spots developing into a complicated stream with maximum area on January 17. After this the rear part begins to decline and the whole group dies out before reaching the limb.

Group 20139. Jan. 17 - 24. A small variable cluster.

Group 20140. Jan. 20 - 21. One or two tiny spots.

Group 20141. Jan. 21 - 28. Return of Group 20123. A single spot with occasional companions until January 26; after this a small variable cluster denotes the position.

POSITIONS AND AREAS OF SUNSPOTS FOR EACH DAY IN THE YEAR

U.T. and Group No.	Measures Rad. Dist.	Measures Pos. Ang.	Position Long.	Position Lat.	Area Umb.	Area Whole Spots
1961		°	°	°		
01	19·295	− 6·6	210·7	− 5·0		
20137	·954	260·0	283·6	−11·0	21	100
20138	·060	284·9	213·9	− 4·0	42	250
20139	·732	92·0	163·6	− 4·9	20	70
01	20·500	− 7·2	194·8	− 5·1		
20138	·341	271·4	214·7	− 4·2	44	194
20139	·517	92·2	163·7	− 5·5	8	30
20140	·559	100·2	161·0	− 9·9	1	14
01	21·281	− 7·5	184·5	− 5·2		
20138	·531	269·6	216·6	− 4·5	24	147
20139	·352	92·5	163·9	− 5·8	3	20
20140	·400	102·7	161·4	− 9·8	0	11
20141	·990	71·7	105·1	+17·2	27	143
01	22·593	− 8·1	167·3	− 5·3		
20138	·754	268·5	216·2	− 4·5	36	135
20139	·063	102·9	163·8	− 6·1	5	19
20141	·916	68·9	104·2	+16·9	27	150
01	23·285	− 8·4	158·2	− 5·4		
20138	·877	267·8	219·4	− 4·5	4	41
20139	·088	262·9	163·2	− 6·0	5	42
20141	·849	66·3	104·0	+16·8	24	110

U.T. and Group No.	Measures Rad. Dist.	Measures Pos. Ang.	Position Long.	Position Lat.	Area Umb.	Area Whole Spots
1961		°	°	°		
01	24·285	− 8·9	145·0	− 5·5		
20139	·328	265·2	164·1	− 6·7	0	12
20141	·724	61·0	103·9	+16·4	21	86
01	25·286	− 9·3	131·8	− 5·5		
20141	·583	51·3	103·6	+16·4	17	73
01 1436	·613	47·2	103·4	+19·7	0	4
20142	·981	79·7	54·5	+ 8·9	47	386
01	26·565	− 9·9	115·0	− 5·7		
20141	·433	27·9	102·8	+16·9	4	40
20142	·879	77·0	55·2	+ 8·6	79	361
20143	·960	112·5	40·5	−23·1	4	72
01	27·532	−10·3	102·2	− 5·7		
02 1436	·884	259·6	164·7	−11·9	0	8
20144	·310	301·7	117·5	+ 3·8	1	15
20141	·379	0·5	102·1	+16·5	1	15
20142	·766	73·5	54·4	+ 8·7	68	373
20143	·903	113·6	37·9	−23·7	12	60
01	28·104	−10·5	94·7	− 5·8		
20145	·574	267·3	129·8	− 6·3	4	19
20144	·441	293·3	118·6	+ 4·7	9	58
20141	·424	351·0	98·7	+18·9	2	12
03 1436	·389	35·1	81·5	+12·9	2	11
20142	·667	70·0	55·5	+ 8·7	73	383
20146	·774	73·1	46·3	+ 9·1	2	6
20143	·830	114·6	39·5	−23·4	7	38
20147	·985	66·1	18·3	+22·2	51	357

Group 20142. Jan. 25 - Feb. 5. A regular spot, with several northerly and following companions between January 29 and February 2.
Group 20143. Jan. 26 - 28. Small scattered spots.
Group 20144. Jan. 27 - Feb. 1. A few small spots, which appear past the central meridian and develop into a bi-polar stream led by a regular spot from January 31.
Group 20145. Jan. 28 - 30. One or two tiny spots.
Group 20146. Jan. 28 - 31. Two or three tiny spots.
Group 20147. Jan. 28 - Feb. 6. Return of Group 20133. A regular spot with companions on January 31, breaking up and dying out before reaching the limb.

POSITIONS AND AREAS OF SUNSPOTS FOR EACH DAY IN THE YEAR

U.T. and Group No.	Measures Rad. Dist.	Measures Pos. Ang.	Position Long.	Position Lat.	Area Umb.	Area Whole Spots
1961		°	°	°		
01	29·338	−11·1	78·5	− 5·9		
20145	·770	267·1	128·9	− 6·0	6	87
20144	·649	287·2	116·9	+ 6·5	72	388
04 1436	·396	359·8	78·6	+17·4	0	20
20142	·446	57·3	56·3	+ 8·5	74	427
20146	·581	63·1	46·8	+10·2	6	39
20147	·916	62·5	17·3	+22·3	44	339
01	30·293	−11·5	65·9	− 5·9		
20145	·890	267·5	128·9	− 5·0	2	21
20144	·807	282·7	118·1	+ 6·6	84	512
20142	·298	33·7	56·3	+ 8·5	77	376
20146	·423	49·3	47·0	+10·4	2	14
20147	·825	57·7	17·2	+22·3	32	224
01	31·391	−11·9	51·4	− 6·0		
20144	·940	279·3	120·2	+ 6·6	50	372
20142	·270	338·5	57·2	+ 8·5	66	340
20146	·266	8·4	49·2	+ 9·2	0	12
05 1436	·302	149·4	42·0	−20·9	0	12
20147	·702	49·2	16·5	+22·3	23	187
20148	·935	104·9	341·6	−16·1	3	18
02	1·500	−12·4	36·8	− 6·1		
20144	·983	278·8	115·1	+ 7·4	46	174
20142	·429	304·2	57·8	+ 8·2	40	272
20147	·569	34·5	16·6	+22·2	22	156
20148	·817	106·2	342·1	−16·7	13	54
20149	·910	96·1	331·0	− 8·0	8	42

U.T. and Group No.	Measures Rad. Dist.	Measures Pos. Ang.	Position Long.	Position Lat.	Area Umb.	Area Whole Spots
1961		°	°	°		
02	2·497	−12·8	23·7	− 6·2		
20142	·607	292·7	58·1	+ 8·4	35	243
20147	·491	14·6	16·1	+22·2	26	177
20148	·668	107·7	342·4	−16·3	5	40
20149	·788	95·8	331·5	− 8·3	21	158
02	3·390	−13·1	11·9	− 6·2		
20142	·745	286·7	57·8	+ 8·0	40	246
20147	·481	352·7	15·7	+22·2	21	160
20148	·519	111·1	341·8	−16·0	13	50
20149	·635	96·1	332·4	− 8·6	22	132
20150	·996	84·9	288·0	+ 4·4	89	385
02	4·425	−13·5	0·0	− 6·3		
20142	·885	282·7	58·8	+ 8·2	26	204
01 1437	·878	289·1	56·6	+13·4	2	18
20147	·544	329·3	15·7	+21·8	12	75
20148	·326	122·3	341·7	−16·0	6	29
20149	·428	97·1	333·0	− 8·7	15	114
20151	·924	98·8	290·4	−10·6	0	14
20150	·948	83·1	287·9	+ 4·4	40	401
02	5·309	−13·9	346·7	− 6·3		
20142	·958	280·5	58·5	+ 8·1	29	263
20147	·643	316·1	15·3	+21·9	7	40
20148	·172	162·0	343·5	−15·7	3	10
20149	·238	100·1	333·0	− 8·6	19	93
20151	·821	97·3	291·2	− 9·6	0	9
20150	·867	81·3	287·7	+ 4·3	40	348

Group 20148. Jan. 31 - Feb. 6. A single spot, except on February 3 and 4 when there is a following companion.

Group 20149. Feb. 1 - 11. A few small spots which develop into a regular spot; there are following companions on February 2 and 3.

Group 20150. Feb. 3 - 15. An extended stream led by a regular spot which begins to break up on February 9; by February 12 the group has become a complicated cluster.

POSITIONS AND AREAS OF SUNSPOTS FOR EACH DAY IN THE YEAR

U.T. and Group No.	Measures Rad. Dist.	Measures Pos. Ang.	Position Long.	Position Lat.	Area Umb.	Area Whole Spots
1961		°	°	°		
02	6·474	−14·3	331·3	− 6·4		
20147	·787	305·3	15·2	+22·4	6	19
20148	·261	230·4	343·4	−15·8	1	7
20149	·049	222·7	333·3	− 8·5	24	105
20150	·697	77·1	288·6	+ 4·2	59	373
02	7·404	−14·7	319·1	− 6·5		
20149	·244	261·3	333·2	− 8·4	17	91
20152	·441	101·5	293·1	−10·8	0	27
20150	·533	71·9	288·7	+ 3·9	45	307
20153	·791	96·3	266·6	− 8·9	2	20
02	8·294	−15·0	307·4	− 6·5		
20149	·431	264·6	333·0	− 8·2	15	86
20152	·247	105·4	293·5	−10·1	4	63
20150	·357	60·5	289·3	+ 3·9	50	296
20153	·663	95·8	265·7	− 8·7	3	23
02	9·523	−15·5	291·2	− 6·6		
α 1437	·943	283·6	359·8	+10·4	25	76
20149	·666	264·8	333·1	− 8·4	14	80
20152	·120	220·1	295·7	−11·8	0	11
20150	·187	15·4	288·4	+ 3·7	56	382
20154	·136	98·1	283·4	− 7·6	0	14
20153	·426	97·5	266·0	− 9·1	12	40
02	10·429	−15·8	279·3	− 6·6		
20149	·803	264·6	332·9	− 8·3	9	62
					continued	

U.T. and Group No.	Measures Rad. Dist.	Measures Pos. Ang.	Position Long.	Position Lat.	Area Umb.	Area Whole Spots
1961		°	°	°		
02	10·429	*continued*				
20152	·280	250·4	294·8	−11·8	0	17
20150	·251	315·8	289·3	+ 3·8	37	270
20154	·077	254·2	283·6	− 7·8	0	8
20153	·232	102·1	266·1	− 9·1	14	80
02	11·358	−16·1	267·0	− 6·7		
20149	·911	263·3	333·1	− 8·8	2	18
20152	·462	264·6	294·6	− 8·4	0	8
20150	·430	294·6	290·0	+ 4·1	38	264
20153	·053	165·3	266·3	− 9·4	6	52
02	12·300	−16·5	254·6	− 6·7		
20150	·615	286·1	290·8	+ 4·4	46	250
20153	·223	256·8	267·3	− 9·5	3	25
02	13·472	−16·9	239·2	− 6·8		
20150	·804	280·5	291·4	+ 4·3	53	324
20153	·474	262·4	267·6	− 9·6	1	6
02	14·388	−17·2	227·1	− 6·8		
20155	·941	260·4	298·1	−11·3	0	13
20150	·882	278·2	287·9	+ 3·9	27	249
02	15·292	−17·5	215·2	− 6·9		
20155	·995	259·5	300·4	−11·1	0	28
20150	·974	275·9	291·3	+ 4·1	13	194

Group 20151. Feb. 4 - 5. Tiny spots.
Group 20152. Feb. 7 - 11. A variable cluster of small spots of which only one remains on February 11.
Group 20153. Feb. 7 - 13. A scattered cluster of small spots, of which only one remains on February 11.
Group 20154. Feb. 9 - 10. Two or three tiny spots.
Group 20155. Feb. 14 - 15. One or two tiny spots.

POSITIONS AND AREAS OF SUNSPOTS FOR EACH DAY IN THE YEAR

U.T. and Group No.	Measures Rad. Dist.	Measures Pos. Ang.	Position Long.	Position Lat.	Area Umb.	Area Whole Spots
1961		°	°	°		
02	16·294	− 17·8	202·0	− 6·9		
20156	·908	254·6	268·0	−16·8	0	15
20157	·980	81·1	124·9	+ 7·2	5	74
02	17·472	− 18·2	186·5	− 6·9		
20156	·980	253·0	266·4	−18·0	0	22
20158	·866	284·2	244·4	+ 8·6	0	15
03 1437	·397	30·7	174·5	+13·1	1	13
20157	·888	78·2	125·6	+ 7·1	6	40
20159	·982	100·2	106·5	−11·3	5	52
02	18·293	− 18·5	175·7	− 7·0		
20158	·956	281·3	246·9	+ 8·6	0	7
20157	·765	74·7	127·9	+ 7·0	6	25
20159	·930	99·3	106·7	−11·2	8	40
02	19·436	− 18·9	160·7	− 7·0		
20157	·576	67·3	128·4	+ 6·9	0	9
20159	·832	99·1	103·9	−11·3	8	63
02	20·419	− 19·2	147·7	− 7·0		
20157	·403	52·8	129·0	+ 7·4	0	7
20159	·689	99·6	104·0	−11·6	6	63
02	21·513	− 19·5	133·3	− 7·1		
20157	·263	13·7	129·7	+ 7·7	0	4
				continued		

U.T. and Group No.	Measures Rad. Dist.	Measures Pos. Ang.	Position Long.	Position Lat.	Area Umb.	Area Whole Spots
1961		°	°	°		
02	21·513	*continued*				
20160	·316	112·9	115·9	−13·8	0	13
20159	·521	100·9	101·9	−11·6	4	92
20161	·961	80·3	60·8	+ 7·3	13	113
02	22·502	− 19·8	120·3	− 7·1		
04 1437	·857	297·3	173·8	+19·0	2	21
05 1437	·256	16·8	116·0	+ 7·0	1	9
20160	·143	148·0	115·8	−13·9	18	52
20159	·327	106·9	101·7	−12·1	14	91
20161	·874	77·4	61·2	+ 7·4	22	132
06 1437	·943	102·6	48·8	−14·2	0	6
02	23·590	− 20·1	106·0	− 7·1		
20160	·195	231·3	114·9	−14·0	5	27
20159	·105	148·8	102·8	−12·1	5	57
20162	·561	100·6	71·8	−11·7	12	69
20161	·733	73·6	61·0	+ 6·9	30	136
02	24·319	− 20·3	96·4	− 7·2		
20160	·338	247·7	115·1	−14·1	8	31
20159	·122	227·8	101·6	−11·7	2	56
20162	·418	103·0	71·9	−11·8	7	61
07 1437	·544	104·1	63·6	−13·6	0	5
20161	·615	69·0	61·2	+ 6·9	17	103
02	25·662	− 20·7	78·7	− 7·2		
20160	·587	255·2	114·4	−14·5	4	20
20159	·429	259·1	104·0	−11·0	1	14
20162	·150	122·8	71·3	−11·6	2	11
20161	·391	52·1	60·7	+ 7·0	26	111

Group 20156. Feb. 16 - 17. Two tiny spots on February 16; a single spot on February 17.
Group 20157. Feb. 16 - 21. A pair of small spots of which only one remains from February 18.
Group 20158. Feb. 17 - 18. A few tiny spots on February 17; a single spot on February 18.
Group 20159. Feb. 17 - Mar. 1. At first a single spot; on February 19 other spots appear to the rear and form a variable, elongated stream of which only a single component remains on March 1.
Group 20160. Feb. 21 - 27. A cluster of small spots which completes its entire life history on the disk.
Group 20161. Feb. 21 - Mar. 5. Return of Group 20142. A regular spot with a preceeding companion on February 23 and 24.

POSITIONS AND AREAS OF SUNSPOTS FOR EACH DAY IN THE YEAR

U.T. and Group No.	Measures Rad. Dist.	Measures Pos. Ang.	Position Long.	Position Lat.	Area Umb.	Area Whole Spots
1961		°	°	°		
02	26·449	− 20·9	68·3	− 7·2		
20160	·721	257·7	114·6	−13·8	3	17
20159	·575	260·7	103·5	−11·1	12	58
20162	·109	218·5	72·3	−12·1	1	9
20161	·279	28·5	60·6	+ 7·0	18	104
02	27·294	− 21·1	57·2	− 7·2		
20160	·841	258·1	114·9	−13·9	0	4
20159	·737	261·8	105·0	−10·8	9	71
20161	·256	347·1	60·5	+ 7·2	25	99
02	28·378	− 21·4	42·9	− 7·2		
20159	·875	260·9	104·5	−11·4	2	38
20161	·388	309·4	60·4	+ 7·3	24	105
08 1437	·946	83·3	332·7	+ 3·9	0	34
03	1·627	− 21·7	26·4	− 7·2		
20159	·967	259·3	102·7	−12·1	0	14
20161	·605	292·4	60·6	+ 7·3	14	99
20163	·983	98·9	306·2	−10·1	0	11
03	2·501	− 21·9	14·9	− 7·2		
20164	·801	277·5	67·3	+ 1·6	0	7
20161	·744	286·9	60·6	+ 7·5	18	116
09 1437	·601	258·0	51·9	−13·0	4	23
20165	·461	6·9	11·6	+19·9	1	10
20163	·925	97·3	306·6	− 9·5	0	14
03	3·373	− 22·1	3·4	− 7·2		
20164	·908	275·2	67·9	+ 1·6	0	11
20166	·881	262·0	65·8	−10·4	7	56
20161	·859	283·3	60·7	+ 7·5	13	102
20165	·473	341·9	12·3	+19·4	0	5
20163	·833	97·3	306·6	−10·1	2	26
20167	·991	104·5	279·9	−15·3	0	25
03	4·380	− 22·4	350·2	− 7·3		
20164	·978	273·2	67·6	+ 1·5	0	16
20166	·961	261·4	64·9	−10·1	3	31
20161	·952	280·4	60·7	+ 7·5	24	88
20165	·578	321·1	12·8	+19·9	1	19
20163	·679	96·4	307·2	− 9·6	0	7
20167	·937	104·2	279·7	−15·8	0	16
03	5·408	− 22·6	336·6	− 7·3		
20161	·996	278·2	60·1	+ 7·4	10	114
20168	·492	67·4	309·6	+ 4·4	0	7
20163	·516	97·2	305·4	− 9·9	8	34
20167	·839	104·2	279·1	−15·8	2	10
03	6·368	− 22·8	324·0	− 7·3		
20168	·299	50·3	310·7	+ 3·9	6	38
20163	·331	100·8	304·8	−10·3	2	31
20167	·706	105·2	279·1	−15·9	0	6
03	7·359	− 23·0	310·9	− 7·3		
20168	·189	1·1	310·7	+ 3·5	12	70
20163	·106	120·5	305·6	−10·2	4	30

Group 20162.	Feb. 23 - 26.	A short-lived stream of which only one component remains on February 26.
Group 20163.	Mar. 1 - 9.	A cluster of tiny spots only one of which is visible on March 1 and 9.
Group 20164.	Mar. 2 - 4.	A tiny spot.
Group 20165.	Mar. 2 - 4.	Two or three tiny spots.
Group 20166.	Mar. 3 - 4.	Two or three tiny spots.
Group 20167.	Mar. 3 - 6.	One or two tiny spots.
Group 20168.	Mar. 5 - 11.	A few tiny spots which develop into a bi-polar stream on March 6. The leading component along remains on March 10.

POSITIONS AND AREAS OF SUNSPOTS FOR EACH DAY IN THE YEAR

U.T. and Group No.	Measures Rad. Dist.	Measures Pos. Ang.	Position Long.	Position Lat.	Area Umb.	Area Whole Spots
1961		°	°	°		
03	8·468	− 23·3	296·3	− 7·3		
20168	·319	305·2	311·4	+ 3·5	15	101
20163	·195	252·5	307·1	−10·4	9	55
20169	·978	94·7	218·0	− 6·1	30	223
03	9·462	− 23·5	283·2	− 7·2		
20170	·736	256·1	330·8	−15·1	3	18
20168	·534	288·4	313·6	+ 3·4	1	26
20163	·381	254·5	305·2	−12·6	0	2
20169	·904	93·2	218·3	− 6·0	34	209
03	10·620	− 23·7	267·9	− 7·2		
20170	·876	256·7	329·7	−15·1	0	11
20168	·752	281·7	315·3	+ 3·9	5	28
20169	·757	91·7	218·6	− 6·0	43	255
03	11·473	− 23·9	256·7	− 7·2		
20170	·947	256·7	329·0	−14·9	0	6
20168	·863	278·9	315·2	+ 3·9	0	7
20169	·604	90·3	219·5	− 5·9	36	174
03	12·257	− 24·0	246·4	− 7·2		
20169	·462	89·4	218·9	− 6·1	26	159
03	13·110	− 24·2	235·1	− 7·2		
20169	·261	85·8	220·0	− 5·8	24	141

U.T. and Group No.	Measures Rad. Dist.	Measures Pos. Ang.	Position Long.	Position Lat.	Area Umb.	Area Whole Spots
1961		°	°	°		
03	14·420	− 24·4	217·9	− 7·2		
20171	·583	324·4	239·2	+21·5	8	45
20169	·042	304·7	219·8	− 5·8	28	156
20172	·084	113·3	213·4	− 9·1	0	11
20173	·783	58·1	173·3	+19·4	8	61
20174	·932	83·5	150·0	+ 3·4	14	79
03	15·461	− 24·6	204·2	− 7·2		
20171	·714	309·0	240·5	+20·9	5	28
20175	·700	312·6	237·9	+22·3	5	34
20169	·268	274·3	219·6	− 5·8	30	126
20172	·169	255·5	213·6	− 9·5	4	30
20173	·637	46·7	174·8	+19·6	4	31
20174	·809	80·2	151·3	+ 3·6	23	118
03	16·370	− 24·7	192·2	− 7·1		
20171	·822	300·5	240·9	+20·0	0	11
20175	·802	305·5	237·1	+22·7	2	11
20169	·464	271·1	219·8	− 5·8	21	116
20172	·350	262·9	212·7	− 9·2	0	8
20173	·525	30·2	175·9	+20·0	0	5
20176	·652	119·6	153·8	−24·3	12	49
20174	·668	76·3	151·8	+ 3·7	12	59
03	17·357	− 24·8	179·2	− 7·1		
20171	·918	295·4	240·8	+19·9	0	9
20175	·898	300·2	236·5	+23·1	8	33
20169	·653	269·7	220·0	− 5·6	25	131
20173	·463	6·2	176·1	+20·2	1	6
20177	·315	60·7	163·3	+ 2·0	1	6
01 1438	·341	82·5	159·4	− 4·2	2	10

continued

Group 20169. Mar. 8 - 20. A regular spot with variable, following companions. On March 13 a few tiny spots appear ahead for two days, from March 16 the regular spot alone remains.
Group 20170. Mar. 9 - 11. Two or three tiny spots.
Group 20171. Mar. 14 - 17. A small spot with companions.
Group 20172. Mar. 14 - 16. Tiny scattered spots.
Group 20173. Mar. 14 - 17. A short-lived stream of which only the leader remains after March 15.
Group 20174. Mar. 14 - 23. A small spot with variable companions until March 20.
Group 20175. Mar. 15 - 18. One or two tiny spots.
Group 20176. Mar. 16 - 18. A pair of spots.
Group 20177. Mar. 17 - 19. One or two tiny, variable spots.

POSITIONS AND AREAS OF SUNSPOTS FOR EACH DAY IN THE YEAR

U.T. and Group No.	Measures Rad. Dist.	Measures Pos. Ang.	Position Long.	Position Lat.	Area Umb.	Area Whole Spots
1961		°	°	°		
03	17·357	*continued*				
20176	·497	128·6	154·0	−24·3	8	28
20174	·493	68·4	151·9	+ 4·1	13	46
02 1438	·925	100·8	110·8	−12·7	3	12
03	18·409	− 25·0	165·3	− 7·1		
20175	·969	296·0	236·3	+23·0	0	18
20169	·816	268·2	220·1	− 5·6	23	131
20177	·169	16·2	162·6	+ 2·2	1	10
20176	·341	151·9	155·2	−24·3	0	6
20174	·302	52·2	151·5	+ 3·8	13	66
20178	·979	109·0	85·6	−20·0	0	26
03	19·406	− 25·1	152·1	− 7·1		
20169	·926	267·1	220·2	− 5·3	35	131
20177	·238	311·7	162·4	+ 2·1	0	22
20174	·197	1·4	151·9	+ 4·2	11	46
03 1438	·578	95·7	116·7	− 9·1	0	13
20178	·931	109·8	82·7	−20·8	0	33
03	20·385	− 25·3	139·2	− 7·0		
20169	·987	265·7	220·4	− 5·4	12	83
20174	·294	311·0	152·0	+ 4·2	11	32
20178	·836	110·5	82·5	−20·9	2	20
20179	·971	79·3	64·6	+ 8·6	87	433
03	21·370	− 25·4	126·3	− 7·0		
20174	·488	291·0	153·3	+ 3·8	7	19
20180	·265	13·2	122·8	+ 7·9	14	34
					continued	

U.T. and Group No.	Measures Rad. Dist.	Measures Pos. Ang.	Position Long.	Position Lat.	Area Umb.	Area Whole Spots
1961		°	°	°		
03	21·370	*continued*				
20179	·899	77·0	64·2	+ 8·4	88	474
20181	·983	80·8	48·2	+ 7·7	35	224
03	22·520	− 25·5	111·1	− 7·0		
20174	·696	283·1	153·7	+ 3·9	4	19
20180	·338	319·2	123·9	+ 8·0	36	148
20179	·762	72·7	63·9	+ 8·4	86	412
20181	·904	78·6	48·0	+ 7·2	55	177
03	23·351	− 25·6	100·1	− 6·9		
20174	·820	279·4	154·1	+ 3·6	0	6
20182	·455	293·1	124·9	+ 4·0	6	33
20180	·470	302·0	123·8	+ 8·0	36	160
20179	·632	67·9	64·1	+ 8·2	99	508
20181	·804	76·2	48·5	+ 6·8	27	134
03	24·359	− 25·7	86·8	− 6·9		
20182	·657	283·9	126·4	+ 3·8	17	85
20180	·640	291·5	123·7	+ 8·0	26	112
20179	·457	57·1	64·1	+ 8·0	86	495
20181	·640	71·6	49·4	+ 6·2	22	132
03	25·383	− 25·8	73·3	− 6·8		
20182	·809	279·9	126·1	+ 3·9	36	207
20180	·804	285·7	124·6	+ 8·3	17	116
20179	·302	31·4	64·2	+ 8·1	80	447
20181	·461	63·0	49·1	+ 5·8	19	110
20183	·986	103·8	351·7	−14·7	21	139

Group 20178. Mar. 18 - 20. A single spot on March 18, afterwards a pair of spots.
Group 20179. Mar. 20 - Apr. 1. A regular spot with variable companions until March 26.
Group 20180. Mar. 21 - 27. A bi-polar stream appearing near the central meridian and dying out as it passes round the limb.
Group 20181. Mar. 21 - Apr. 2. At first a pair of spots separated in latitude which coalesce to form a single spot on March 26. On March 28 other spots appear, the whole group assuming cluster formation as it passes round the limb.
Group 20182. Mar. 23 - 27. A stream, led by a composite spot, appearing near the west limb and growing as it passes from view.
Group 20183. Mar. 25 - Apr. 5. A number of spots forming a variable stream which dies out before reaching the limb.

POSITIONS AND AREAS OF SUNSPOTS FOR EACH DAY IN THE YEAR

U.T. and Group No.	Measures Rad. Dist.	Measures Pos. Ang.	Position Long.	Position Lat.	Area Umb.	Area Whole Spots
1961		°	°	°		
03	26·310	− 25·9	61·1	− 6·8		
20182	·929	276·9	128·4	+ 3·8	72	391
20180	·910	282·6	124·8	+ 8·5	18	116
20179	·262	347·3	64·5	+ 8·0	86	435
20181	·298	42·9	49·4	+ 5·9	13	53
20183	·945	103·3	349·5	−14·6	39	229
20184	·970	105·7	344·1	−16·8	18	157
03	27·324	− 26·0	47·7	− 6·8		
20182	·987	274·6	127·8	+ 3·5	13	163
20180	·980	280·5	124·7	+ 8·9	6	40
20179	·376	311·1	64·3	+ 7·8	85	372
04 1438	·174	249·3	57·2	−10·1	2	10
20181	·226	351·7	49·6	+ 6·1	5	24
20183	·850	103·1	349·1	−14·6	42	287
20184	·942	107·4	336·5	−18·5	22	105
03	28·329	− 26·0	34·5	− 6·7		
20179	·554	295·2	64·8	+ 7·8	48	378
20181	·397	309·6	52·4	+ 8·2	17	86
20185	·319	21·3	27·7	+10·5	1	5
20183	·710	103·2	349·3	−14·0	24	218
20184	·842	107·2	337·0	−18·0	38	248
20186	·932	75·8	327·9	+10·6	0	12
20187	·956	104·2	320·7	−15·5	7	75
20188	·979	97·4	315·7	− 8·6	0	10
20189	·992	106·4	310·5	−17·1	7	67
03	29·326	− 26·1	21·3	− 6·7		
20179	·719	287·3	64·9	+ 7·5	72	359
20190	·617	262·7	59·6	− 9·8	0	7

continued

U.T. and Group No.	Measures Rad. Dist.	Measures Pos. Ang.	Position Long.	Position Lat.	Area Umb.	Area Whole Spots
1961		°	°	°		
03	29·326	*continued*				
20181	·566	294·9	52·4	+ 8·0	18	133
20183	·524	106·3	350·3	−14·1	19	182
20184	·711	109·4	336·5	−18·3	27	234
20186	·823	72·0	328·7	+10·7	0	16
20187	·869	104·5	320·6	−15·9	13	109
20188	·895	95·8	317·5	− 8·1	2	30
20189	·949	105·9	308·8	−17·1	25	174
03	30·455	− 26·2	6·4	− 6·6		
20179	·871	282·8	65·2	+ 7·7	65	330
20190	·828	262·8	62·6	− 9·7	0	4
20181	·740	286·2	52·0	+ 7·3	19	121
20185	·477	307·6	28·9	+10·7	0	4
20183	·281	117·2	351·6	−13·6	36	149
20184	·521	115·5	336·8	−18·6	36	232
20187	·722	106·3	320·4	−16·3	13	84
20188	·736	95·4	318·9	− 8·4	0	1
20189	·840	106·4	309·0	−17·3	22	170
03	31·334	− 26·2	354·8	− 6·6		
20179	·951	280·6	65·4	+ 7·9	82	362
20190	·934	262·2	64·5	− 9·6	0	6
20181	·858	283·0	52·1	+ 7·6	25	140
20183	·127	157·2	352·0	−13·1	39	156
20184	·350	127·9	338·0	−18·5	37	177
20187	·583	108·4	319·9	−16·0	12	58
20188	·650	95·6	314·1	− 8·6	0	6
20189	·720	107·2	309·1	−16·9	30	194
04	1·315	− 26·3	341·9	− 6·5		
20179	·996	277·9	65·5	+ 7·1	47	339

continued

Group 20184. Mar. 26 - Apr. 7. A bi-polar stream, the leader of which becomes a regular spot by March 30 and the followers die out by April 2. The regular spot alone survives at the west limb.

Group 20185. Mar. 28 - 30. Intermittent. A single, tiny spot on March 28; a pair on March 30.

Group 20186. Mar. 28 - 29. A tiny spot.

Group 20187. Mar. 28 - Apr. 7. A small spot with variable companions until April 4. It then disintegrates to become a variable cluster, which dies out before reaching the limb.

Group 20188. Mar. 28 - 31. One or two tiny variable spots.

POSITIONS AND AREAS OF SUNSPOTS FOR EACH DAY IN THE YEAR

U.T. and Group No.	Measures Rad. Dist.	Measures Pos. Ang.	Position Long.	Position Lat.	Area Umb.	Area Whole Spots
1961		°	°	°		
04	1·315	*continued*				
20190	·985	261·1	62·8	− 9·9	0	26
20181	·955	279·9	53·3	+ 7·4	0	55
20183	·208	236·6	352·1	−12·8	33	272
20184	·219	163·4	338·1	−18·5	29	180
20187	·400	115·5	320·0	−15·9	16	93
20189	·556	110·5	309·1	−16·7	22	126
04	2·443	− 26·3	327·0	− 6·4		
20181	·989	278·4	47·5	+ 7·3	0	13
20183	·435	252·6	352·2	−13·2	18	107
20184	·284	219·9	338·1	−18·9	30	194
20191	·118	114·5	320·8	− 9·2	0	6
20187	·220	146·1	319·7	−16·7	15	50
20189	·360	121·1	308·3	−16·8	9	63
04	3·313	− 26·3	315·5	− 6·4		
20183	·607	256·6	352·7	−13·2	15	114
20184	·423	237·6	337·6	−19·0	30	193
20187	·194	201·3	319·7	−16·7	1	19
20189	·221	146·3	308·2	−16·9	11	54
20192	·978	92·5	237·5	− 3·8	14	127
04	4·308	− 26·3	302·4	− 6·3		
20183	·761	257·7	352·1	−13·4	7	37
20184	·594	246·4	337·4	−18·9	43	190
20191	·318	261·7	320·9	− 8·5	12	81
20187	·345	237·7	320·1	−16·6	0	9
20189	·215	211·2	309·1	−16·7	9	88
20193	·538	53·1	276·3	+13·1	0	38
20192	·895	91·3	238·9	− 4·0	31	122

U.T. and Group No.	Measures Rad. Dist.	Measures Pos. Ang.	Position Long.	Position Lat.	Area Umb.	Area Whole Spots
1961		°	°	°		
04	5·384	− 26·4	288·2	− 6·3		
20183	·892	258·8	351·8	−12·9	0	4
20184	·763	250·4	337·4	−19·0	35	198
20191	·557	263·9	322·1	− 8·5	20	145
20187	·550	246·0	320·0	−18·2	0	27
20189	·407	242·6	310·3	−16·5	18	83
20193	·385	29·0	277·2	+13·4	12	101
20192	·756	89·7	239·1	− 3·9	29	155
04	6·357	− 26·4	275·4	− 6·2		
20184	·879	251·8	337·1	−19·0	35	182
20191	·731	264·5	322·5	− 8·1	21	102
20187	·705	252·2	319·7	−16·8	14	77
20189	·582	250·3	310·0	−16·3	11	81
20193	·342	351·4	278·4	+13·5	43	258
20192	·592	87·8	239·2	− 3·7	21	134
04	7·315	− 26·4	262·7	− 6·1		
20184	·959	251·6	337·2	−19·4	16	120
20191	·854	264·4	321·7	− 7·9	2	42
20187	·834	253·6	319·3	−17·1	5	33
20189	·722	252·6	308·6	−16·6	6	61
20193	·417	323·9	277·3	+13·7	39	327
20192	·396	85·1	239·5	− 3·7	23	140
04	8·471	− 26·4	247·5	− 6·1		
20191	·956	263·2	320·7	− 8·3	30	321
20189	·843	254·6	305·1	−16·3	0	8
20193	·592	302·9	278·1	+13·5	55	359
20192	·140	75·9	239·7	− 4·1	27	123

Group 20189. Mar. 28 - Apr. 8. A single spot which breaks up to form a cluster by April 1. This, in turn, becomes a stream by April 5 and the rear component alone remains on April 8.

Group 20190. Mar. 29 - Apr. 1. One or two tiny variable spots.

Group 20191. Apr. 2 - 8. A few tiny spots on April 2. Nothing is seen on April 3 but on April 4 there is a stream which rapidly increases in area at the west limb.

Group 20192. Apr. 3 - 15. A diminishing regular spot.

Group 20193. Apr. 4 - 12. A few small spots rapidly developing into an elongated stream of which the rear portion dies out.

POSITIONS AND AREAS OF SUNSPOTS FOR EACH DAY IN THE YEAR

U.T. and Group No.	Measures Rad. Dist.	Measures Pos. Ang.	Position Long.	Position Lat.	Area Umb.	Area Whole Spots
1961		°	°	°		
04	9·590	− 26·3	232·7	− 6·0		
20193	·769	292·6	279·3	+13·1	50	315
20192	·126	282·9	239·8	− 4·3	22	114
20194	·856	79·6	175·2	+ 5·7	0	18
04	10·403	− 26·3	222·0	− 5·9		
20193	·880	288·5	280·8	+13·2	48	286
20192	·305	273·7	239·7	− 4·5	20	113
20194	·712	78·3	177·8	+ 4·0	1	17
04	11·496	− 26·3	207·5	− 5·9		
20193	·969	284·7	281·2	+12·6	30	248
20192	·532	270·3	239·7	− 4·8	21	102
20195	·963	72·6	135·7	+15·0	3	36
20196	·973	84·7	131·7	+ 3·8	36	244
04	12·362	− 26·3	196·1	− 5·8		
20193	·985	283·3	274·4	+11·9	0	57
20192	·692	269·0	239·9	− 4·9	19	104
20195	·884	70·3	137·1	+14·4	4	57
20196	·909	83·7	131·6	+ 3·3	37	274
04	13·362	− 26·2	182·9	− 5·7		
20192	·840	267·5	240·2	− 5·2	17	107
20197	·571	134·9	155·5	−28·8	0	9
20198	·721	64·4	141·0	+13·9	1	17
20195	·815	66·8	132·2	+15·1	0	6
20196	·799	81·2	130·8	+ 3·5	37	211

U.T. and Group No.	Measures Rad. Dist.	Measures Pos. Ang.	Position Long.	Position Lat.	Area Umb.	Area Whole Spots
1961		°	°	°		
04	14·331	− 26·2	170·1	− 5·6		
20192	·943	266·6	240·7	− 5·1	16	67
20197	·447	151·5	156·1	−28·4	0	16
20198	·578	55·6	140·8	+14·1	8	45
20195	·658	61·1	133·9	+14·0	0	13
20196	·641	77·8	131·4	+ 3·4	38	222
04	15·363	− 26·1	156·5	− 5·6		
20192	·994	265·0	240·3	− 5·6	0	64
α 1439	·506	283·5	185·9	+ 1·9	1	9
20197	·391	181·3	157·1	−28·3	6	32
20198	·423	38·2	140·9	+14·0	19	86
20195	·496	48·2	134·2	+14·1	0	7
20196	·448	71·2	131·5	+ 3·2	29	221
04	16·378	− 26·0	143·1	− 5·5		
20198	·335	4·0	141·7	+14·0	26	134
20195	·378	25·4	133·5	+14·5	0	7
20196	·257	53·2	131·2	+ 3·5	40	222
20199	·595	99·4	106·7	−10·0	1	11
20201	·970	100·0	66·7	−10·9	4	64
20200	·980	80·3	65·8	+ 8·3	49	306
04	17·638	− 25·9	126·4	− 5·4		
α 1439	·863	276·3	185·4	+ 2·6	2	26
20198	·424	319·6	142·8	+13·6	32	154
20196	·168	328·3	131·5	+ 2·8	33	168
20202	·152	18·9	123·6	+ 2·9	0	8
20199	·299	103·3	109·4	− 9·1	0	3
20200	·883	77·7	66·0	+ 8·2	45	219
20201	·888	100·3	63·6	−11·5	4	71
20203	·970	100·1	50·0	−11·1	4	36

Group 20194.	Apr. 9 - 10.	One or two tiny spots.
Group 20195.	Apr. 11 - 16.	A small bi-polar stream of which the leading component dies out by April 13.
Group 20196.	Apr. 11 - 23.	Return of Group 20182. A diminishing regular spot with variable companions.
Group 20197.	Apr. 13 - 15.	A tiny variable stream.
Group 20198.	Apr. 13 - 21.	A single spot which, after the first day, develops into a stream of small spots and dies out before reaching the limb.
Group 20199.	Apr. 16 - 17.	Two tiny spots.
Group 20200.	Apr. 16 - 28.	Return of Group 20179. A stable regular spot.

POSITIONS AND AREAS OF SUNSPOTS FOR EACH DAY IN THE YEAR

U.T. and Group No.	Measures Rad. Dist.	Measures Pos. Ang.	Position Long.	Position Lat.	Area Umb.	Area Whole Spots
1961		°	°	°		
04	18·324	− 25·9	117·4	− 5·3		
03 1439	·817	273·7	171·8	− 0·1	0	14
20198	·526	307·5	142·7	+13·8	22	214
20196	·281	299·2	131·5	+ 2·7	18	136
20202	·186	317·7	124·6	+ 2·6	0	10
04 1439	·732	106·6	70·8	−15·7	0	10
20200	·802	75·5	65·9	+ 8·3	42	208
20201	·798	100·9	64·4	−11·8	8	47
20203	·905	99·1	52·3	−10·5	0	16
04	19·587	− 25·8	100·7	− 5·2		
20198	·719	295·7	142·5	+14·2	6	83
20196	·530	283·0	131·7	+ 2·4	31	137
20204	·466	301·7	124·3	+ 9·3	4	29
20200	·609	69·2	65·8	+ 8·2	47	223
20201	·599	103·3	64·3	−12·0	1	19
20203	·741	99·0	52·8	−10·1	4	22
04	20·333	− 25·7	90·9	− 5·1		
20198	·806	292·4	141·0	+14·6	16	99
20196	·665	279·3	131·7	+ 2·3	18	122
20204	·597	293·2	124·5	+ 9·3	4	24
20200	·477	62·0	65·8	+ 8·2	54	228
20201	·494	107·1	62·0	−12·8	1	8
20203	·609	99·1	53·4	− 9·6	6	28
04	21·477	− 25·6	75·7	− 5·0		
20198	·912	288·2	138·9	+14·3	3	22
20196	·835	276·0	131·7	+ 2·2	18	120
20204	·765	286·2	123·6	+ 8·9	5	43
20205	·542	259·4	108·3	−10·0	1	5

continued

U.T. and Group No.	Measures Rad. Dist.	Measures Pos. Ang.	Position Long.	Position Lat.	Area Umb.	Area Whole Spots
1961		°	°	°		
04	21·477	*continued*				
20200	·292	37·1	65·5	+ 8·4	53	218
20201	·285	125·0	61·8	−14·3	3	19
20203	·376	102·0	54·0	− 9·2	5	18
04	22·360	− 25·5	64·1	− 5·0		
20196	·929	274·3	131·8	+ 2·1	21	115
20204	·890	282·8	125·3	+ 9·0	0	11
20205	·748	261·7	112·5	− 9·5	1	7
20200	·234	352·9	65·7	+ 8·4	44	205
20203	·181	113·6	54·5	− 9·0	4	13
04	23·428	− 25·4	50·0	− 4·9		
20196	·989	272·8	131·1	+ 2·0	17	77
20205	·875	263·1	111·2	− 8·4	0	7
20200	·354	310·8	65·6	+ 8·6	37	212
20203	·096	222·0	53·6	− 8·8	6	13
04	24·294	− 25·3	38·5	− 4·8		
20200	·505	296·7	65·6	+ 8·8	38	228
20203	·288	255·8	54·8	− 8·6	0	10
20206	·989	97·1	316·7	− 7·6	56	581
04	25·357	− 25·1	24·5	− 4·7		
20200	·684	288·6	65·3	+ 9·0	46	217
20206	·937	97·5	314·7	− 8·6	123	790

Group 20201. Apr. 16 - 21. A small stream breaking up after April 19.
Group 20202. Apr. 17 - 18. One or two tiny spots.
Group 20203. Apr. 17 - 24. A small spot with occasional companions.
Group 20204. Apr. 19 - 22. A pair of spots, except on April 21 when a small cluster represents the positions.
Group 20205. Apr. 21 - 23. Tiny variable spots.
Group 20206. Apr. 24 - May 5. A complicated irregular stream with considerable spread in latitude. Only tiny scattered spots remain at the west limb.

POSITIONS AND AREAS OF SUNSPOTS FOR EACH DAY IN THE YEAR

U.T. and Group No.	Measures Rad. Dist.	Measures Pos. Ang.	Position Long.	Position Lat.	Area Umb.	Area Whole Spots
1961		°	°	°		
04	26·315	− 25·0	11·8	− 4·6		
20200	·821	284·2	65·3	+ 8·9	38	211
20207	·780	90·6	320·6	− 3·3	6	38
20206	·844	97·7	314·2	− 8·8	60	601
04	27·632	− 24·8	354·4	− 4·5		
20200	·951	281·2	65·1	+ 9·2	46	266
20207	·540	89·8	321·8	− 3·7	4	32
20208	·643	78·8	315·4	+ 3·7	1	40
20206	·656	98·8	313·5	− 9·1	59	634
20209	·948	75·4	284·8	+12·3	28	122
04	28·316	− 24·7	345·4	− 4·4		
20200	·987	280·2	65·1	+ 9·3	21	186
20207	·387	88·3	322·7	− 3·4	4	25
20208	·510	76·5	315·8	+ 3·0	6	72
20206	·526	101·1	313·9	− 9·4	54	523
20209	·889	73·9	284·7	+12·1	17	107
04	29·395	− 24·5	331·1	− 4·3		
01 1440	·953	259·9	43·7	−10·9	0	36
20207	·139	82·1	323·3	− 3·2	0	9
20208	·288	64·4	316·1	+ 3·0	43	202
20206	·302	105·6	314·1	− 8·7	47	451
20209	·758	69·8	284·6	+12·2	15	67
04	30·419	− 24·3	317·6	− 4·2		
20210	·716	281·9	2·2	+ 5·5	5	29
					continued	

U.T. and Group No.	Measures Rad. Dist.	Measures Pos. Ang.	Position Long.	Position Lat.	Area Umb.	Area Whole Spots
1961		°	°	°		
04	30·419	*continued*				
20208	·133	359·4	317·7	+ 3·3	47	306
20206	·090	155·6	315·5	− 8·7	46	284
02 1440	·313	169·1	314·0	−22·0	0	9
20209	·597	63·1	284·7	+12·1	18	62
05	1·328	− 24·2	305·6	− 4·1		
20210	·826	279·5	0·3	+ 5·4	0	10
20208	·261	300·0	318·6	+ 3·4	98	567
20206	·195	246·1	315·9	− 8·4	34	297
20209	·452	52·0	284·3	+12·3	11	46
05	2·337	− 24·0	292·2	− 4·0		
20210	·938	278·0	1·1	+ 6·1	0	7
20208	·481	284·7	319·9	+ 3·4	95	558
20206	·408	258·3	315·9	− 8·3	25	158
20209	·310	27·3	283·9	+12·0	6	18
05	3·317	− 23·8	279·3	− 3·9		
20208	·659	280·4	319·6	+ 3·8	111	808
20206	·614	260·8	317·0	− 8·6	16	71
20209	·293	345·8	283·5	+12·5	5	27
05	4·536	− 23·6	263·2	− 3·8		
20208	·856	276·4	321·4	+ 3·5	83	463
20206	·817	261·7	317·8	− 8·8	4	28
20209	·445	307·1	284·3	+12·0	1	13
20211	·970	80·0	188·3	+ 8·7	0	4

Group 20207. Apr. 26 - 29. A small spot immediately north and preceeding Group 20206.
Group 20208. Apr. 27 - May 6. A few small spots which develop into a complex stream led by a regular spot from May 2.
Group 20209. Apr. 27 - May 7. Return of Group 20193. A diminishing spot with occasional companions.
Group 20210. Apr. 30 - May 2. A pair of tiny spots on April 30; a single spot on the other days.
Group 20211. May 4 - 7. A single tiny spot on May 4; variable tiny spots on the following days.
Group 20212. May 6 - 10. A small spot.
Group 20213. May 6 - 12. A small spot with occasional companions which develops into a cluster by May 10; only the leading component remains on May 12.

POSITIONS AND AREAS OF SUNSPOTS FOR EACH DAY IN THE YEAR

U.T. and Group No.	Measures Rad. Dist.	Measures Pos. Ang.	Position Long.	Position Lat.	Area Umb.	Area Whole Spots
1961		°	°	°		
05	5·424	− 23·4	251·4	− 3·7		
20208	·945	275·1	321·8	+ 3·6	69	499
20206	·921	256·7	318·4	−13·6	7	66
20209	·593	296·3	284·3	+12·1	1	12
20211	·944	78·7	181·9	+ 9·4	0	15
05	6·320	− 23·2	239·6	− 3·6		
20208	·991	274·6	321·4	+ 4·1	56	261
⊠ 1440	·934	260·1	308·7	−10·5	0	10
20209	·731	291·0	283·8	+12·6	0	10
20211	·830	77·3	184·8	+ 8·4	0	12
20212	·979	76·9	162·8	+12·0	12	71
20213	·981	82·5	161·6	+ 6·6	28	175
20214	·996	86·2	155·4	+ 3·4	11	119
05	7·338	− 23·0	226·1	− 3·5		
20209	·867	286·4	284·2	+12·3	0	7
20211	·748	73·9	179·6	+ 9·6	0	13
20212	·901	74·5	163·7	+12·3	8	59
20213	·909	81·0	161·7	+ 6·7	21	143
20214	·942	85·2	156·2	+ 3·3	30	174
05	8·343	− 22·8	212·8	− 3·4		
20212	·784	71·5	163·5	+12·2	7	27
20213	·790	79·2	161·8	+ 6·4	15	136
20214	·841	83·5	156·2	+ 3·6	25	138
05	9·314	− 22·5	200·0	− 3·3		
20215	·432	55·3	178·9	+11·1	0	6
					continued	

U.T. and Group No.	Measures Rad. Dist.	Measures Pos. Ang.	Position Long.	Position Lat.	Area Umb.	Area Whole Spots
1961		°	°	°		
05	9·314	*continued*				
20212	·634	65·9	163·8	+12·3	3	16
20213	·637	75·9	161·7	+ 6·3	21	60
20214	·691	81·5	157·0	+ 3·4	16	176
05	10·316	− 22·3	186·8	− 3·2		
20215	·235	25·9	180·8	+ 9·0	0	6
20212	·468	56·3	163·4	+12·1	0	11
20213	·460	69·1	161·2	+ 6·6	15	65
20214	·509	77·4	157·0	+ 3·6	32	233
05	11·336	− 22·0	173·3	− 3·0		
20213	·268	49·8	161·4	+ 7·0	7	53
20214	·281	65·9	158·4	+ 3·6	56	284
20216	·398	51·2	154·9	+11·5	0	13
20217	·833	62·0	121·4	+21·1	2	21
05	12·317	− 21·8	160·3	− 2·9		
20213	·206	342·8	163·8	+ 8·3	0	7
20214	·130	10·5	158·9	+ 4·3	56	337
20216	·274	14·9	156·2	+12·3	0	25
20217	·705	55·3	122·0	+21·3	0	19
05	13·324	− 21·5	147·0	− 2·8		
20214	·247	298·5	159·5	+ 4·0	46	248
20216	·258	331·4	154·2	+10·2	1	29
20217	·566	42·6	122·6	+22·0	0	9
20218	·989	80·6	66·1	+ 8·8	13	177

Group 20214. May 6 - 18. A single spot developing, by May 10, into a variable cluster of which the most stable component is a regular spot, this alone survives on May 15.

Group 20215. May 9 - 10. A tiny spot.

Group 20216. May 11 - 16. A tiny scattered stream until May 14. Nothing is seen on May 15 but a single spot re-appears on May 16.

Group 20217. May 11 - 13. A single spot on May 11; tiny scattered spots on the other days.

Group 20218. May 13 - 25. Return of Group 20200. A regular spot with preceeding companions on May 15.

POSITIONS AND AREAS OF SUNSPOTS FOR EACH DAY IN THE YEAR

U.T. and Group No.	Measures Rad. Dist.	Measures Pos. Ang.	Position Long.	Position Lat.	Area Umb.	Area Whole Spots
1961		°	°	°		
05	14·388	− 21·3	132·9	− 2·7		
20214	·468	283·9	159·9	+ 4·0	40	225
20216	·427	301·3	154·6	+10·2	3	22
04 1440	·253	285·9	146·9	+ 1·3	1	7
05 1440	·882	104·2	71·5	−13·7	0	20
20218	·934	79·6	64·9	+ 8·7	29	150
05	15·628	− 20·9	116·5	− 2·6		
20214	·710	277·1	161·2	+ 3·2	25	150
06 1440	·712	68·1	73·9	+13·5	0	10
20219	·781	101·9	65·7	−10·9	0	9
20218	·789	77·0	65·6	+ 8·6	25	141
05	16·329	− 20·7	107·2	− 2·5		
20214	·817	275·3	161·5	+ 2·9	29	146
20216	·774	287·1	156·0	+11·5	0	6
20218	·695	74·5	64·8	+ 8·8	22	128
20219	·703	101·9	63·1	−10·1	0	5
05	17·334	− 20·4	93·9	− 2·4		
20214	·931	273·2	162·2	+ 2·1	31	145
20218	·514	68·8	65·1	+ 8·6	24	136
05	18·316	− 20·1	81·0	− 2·3		
20214	·989	272·1	162·2	+ 1·8	30	136
20220	·133	319·1	85·9	+ 3·5	0	11
20221	·270	142·5	71·2	−14·6	0	20
20222	·313	121·2	65·2	−11·5	7	34
20218	·335	55·0	64·9	+ 8·8	30	119
20223	·944	75·2	11·6	+13·1	3	34
05	19·348	− 19·8	67·3	− 2·1		
20220	·357	285·4	87·4	+ 3·4	16	89
20222	·171	170·1	65·6	−11·6	1	24
20218	·194	12·1	65·0	+ 8·8	19	141
07 1440	·239	122·7	55·6	− 9·4	0	14
20223	·838	73·0	12·3	+12·9	0	25
20224	·991	73·5	346·4	+16·0	0	77
05	20·322	− 19·6	54·4	− 2·0		
20220	·594	277·6	90·4	+ 2·9	42	183
20221	·382	238·0	73·8	−13·6	0	12
20222	·258	228·4	65·7	−11·8	1	31
20218	·266	316·0	65·2	+ 9·0	21	125
20223	·710	67·8	11·9	+14·1	0	21
20224	·941	71·8	346·0	+16·4	7	44
20225	·998	87·4	328·5	+ 2·5	36	228
05	21·534	− 19·2	38·4	− 1·9		
20220	·791	274·7	90·3	+ 2·6	72	370
20222	·483	248·4	65·6	−11·9	0	14
20218	·479	292·7	64·9	+ 8·9	17	120
20223	·526	57·8	11·2	+14·6	0	25
20224	·831	68·7	344·8	+16·5	2	32
20225	·928	87·0	330·6	+ 2·1	27	165
05	22·331	− 18·9	27·8	− 1·8		
20220	·895	274·1	91·0	+ 2·9	63	423
20218	·622	287·3	64·7	+ 9·2	19	121
20222	·611	253·1	64·3	−11·6	0	17
20223	·397	44·7	11·1	+14·6	6	34
20224	·728	65·2	344·5	+16·5	6	43
20225	·847	86·1	330·4	+ 2·3	21	141

Group 20219. May 15 - 16.	A single tiny spot.
Group 20220. May 18 - 23.	A few tiny spots appearing near the central meridian and developing into a stream of which the leader is the most stable component.
Group 20221. May 18 - 20.	A few scattered spots, not seen on May 19.
Group 20222. May 18 - 22.	A small cluster of tiny spots.
Group 20223. May 18 - 26.	Two or three tiny spots. Nothing is seen on May 25 but a single spot occupies the position on May 26.

POSITIONS AND AREAS OF SUNSPOTS FOR EACH DAY IN THE YEAR

U.T. and Group No.	Measures Rad. Dist.	Measures Pos. Ang.	Position Long.	Position Lat.	Area Umb.	Area Whole Spots
1961		°	°	°		
05	23·310	− 18·6	14·9	− 1·7		
20220	·978	273·3	92·4	+ 2·9	37	307
20218	·776	283·1	64·6	+ 9·0	25	114
20223	·284	12·9	11·2	+14·3	0	27
20224	·603	57·6	342·8	+17·4	33	162
20225	·704	85·2	330·5	+ 2·2	29	153
05	24·312	− 18·3	1·6	− 1·5		
20218	·895	281·0	64·2	+ 9·1	28	150
20223	·311	327·3	11·6	+13·6	0	27
20224	·441	43·1	343·3	+17·2	42	288
20225	·522	83·1	330·5	+ 2·3	24	128
20226	·925	71·5	295·8	+16·4	0	14
05	25·320	− 17·9	348·3	− 1·4		
20218	·972	279·6	64·1	+ 9·0	23	201
20224	·333	15·9	342·8	+17·2	19	128
01 1441	·170	45·9	341·3	+ 5·3	0	7
20225	·313	78·0	330·5	+ 2·4	32	137
02 1441	·354	113·8	329·2	− 9·5	0	11
20227	·430	73·9	323·9	+ 5·5	9	45
20226	·818	67·5	296·2	+17·3	0	8
05	26·358	− 17·6	334·6	− 1·3		
20223	·694	291·6	16·1	+13·8	1	10
20224	·349	338·9	342·1	+17·6	10	90
20225	·097	45·6	330·6	+ 2·6	21	122
20227	·157	48·4	327·9	+ 4·7	15	79
05	27·270	− 17·3	322·5	− 1·2		
20224	·462	312·9	343·1	+17·1	1	28
20225	·159	293·5	330·8	+ 2·4	21	103
20227	·165	307·7	330·0	+ 4·6	13	91
03 1441	·455	55·0	300·0	+14·0	1	12
05	28·327	− 16·9	308·5	− 1·1		
20224	·642	300·0	344·1	+17·8	0	19
20225	·385	279·2	330·7	+ 2·5	17	116
04 1441	·376	248·5	329·1	− 8·9	0	8
20227	·363	285·5	329·0	+ 4·5	17	70
05	29·307	− 16·5	295·5	− 1·0		
20225	·582	276·3	330·8	+ 2·9	20	141
20227	·538	280·9	327·4	+ 5·0	15	64
20228	·887	100·9	233·5	−10·1	0	10
05	30·308	− 16·2	282·3	− 0·8		
05 1441	·777	259·6	332·7	− 8·6	0	17
20225	·750	274·7	330·5	+ 2·9	21	104
20227	·733	277·9	328·9	+ 5·2	13	47
06 1441	·171	12·3	280·2	+ 8·7	0	6
20228	·734	103·0	235·9	− 9·9	15	64
05	31·329	− 15·8	268·8	− 0·7		
20225	·883	274·2	330·4	+ 3·4	15	90
20227	·873	276·3	329·2	+ 5·1	5	38
20228	·564	105·9	235·5	− 9·4	1	30

Group 20224. May 19 - 28. A few small spots developing into a cluster by May 24; after this the whole group becomes elongated and disintegrates.

Group 20225. May 20 - June 1. A regular spot in close association with Group 20227.

Group 20226. May 24 - 25. A single tiny spot on May 24; a pair of spots on May 25.

Group 20227. May 25 - 31. A small stream of which the leader becomes a regular spot by May 27 when it is immediately north of Group 20225. The leading spot moves forward in the course of the disk passage.

Group 20228. May 29 - June 2. A single spot developing, by May 30, into a short-lived variable stream.

POSITIONS AND AREAS OF SUNSPOTS FOR EACH DAY IN THE YEAR

U.T. and Group No.	Measures Rad. Dist.	Measures Pos. Ang.	Position Long.	Position Lat.	Area Umb.	Area Whole Spots
1961		°	°	°		
06	1·333	− 15·4	255·5	− 0·6		
20225	·971	274·0	331·4	+ 3·8	23	82
07 1441	·888	286·0	316·8	+13·9	0	12
20228	·426	111·6	231·9	− 9·5	1	12
20229	·940	95·4	185·8	− 5·3	0	10
20230	·968	96·3	180·3	− 6·3	4	26
06	2·316	− 15·1	242·5	− 0·5		
20231	·627	284·1	280·2	+ 8·4	1	20
20228	·228	140·1	234·0	−10·5	0	16
20229	·845	95·7	185·1	− 5·0	5	43
20230	·884	98·0	180·8	− 7·2	24	154
20232	·981	88·9	164·0	+ 1·0	0	30
06	3·301	− 14·7	229·4	− 0·3		
20231	·775	280·9	279·5	+ 8·2	21	100
20229	·686	95·7	186·4	− 4·1	14	60
20230	·756	98·4	180·8	− 6·5	28	184
20232	·912	88·9	163·9	+ 0·9	0	19
06	4·350	− 14·3	215·6	− 0·2		
20231	·897	279·7	278·8	+ 8·6	8	135
20233	·826	290·9	269·2	+17·0	4	37
20234	·439	248·7	239·9	− 9·3	0	1
08 1441	·342	236·9	232·5	−10·9	0	11
20229	·467	95·8	188·0	− 2·9	22	104
20235	·518	63·6	187·2	+13·1	1	15
20230	·582	101·1	180·6	− 6·5	37	188
20232	·776	87·8	164·9	+ 1·6	2	28
06	5·346	− 13·9	202·4	− 0·1		
20231	·973	278·7	278·6	+ 8·4	4	53
20233	·919	289·3	267·7	+17·6	0	20
20235	·260	34·5	193·7	+12·2	7	36
20229	·230	99·5	189·3	− 2·3	23	102
20230	·389	107·5	180·6	− 6·7	23	125
20232	·603	88·1	165·5	+ 1·1	18	86
06	6·348	− 13·5	189·1	+ 0·0		
20233	·984	287·7	268·1	+17·4	0	19
20234	·769	256·4	238·3	−10·4	0	9
20235	·198	338·7	193·3	+10·6	1	19
20229	·042	197·1	189·8	− 2·3	19	116
20230	·185	128·9	180·8	− 6·6	9	59
20232	·394	87·8	166·1	+ 0·9	16	93
06	7·352	− 13·1	175·8	+ 0·1		
20229	·252	257·6	190·0	− 3·0	31	175
20230	·157	218·3	181·4	− 6·9	1	29
20232	·160	90·9	166·7	− 0·0	15	35
06	8·649	− 12·6	158·7	+ 0·3		
20229	·541	264·0	191·1	− 3·0	27	145
20230	·415	254·2	182·2	− 6·2	0	8
20232	·156	275·2	167·6	+ 1·1	4	27
20236	·182	340·0	162·3	+10·1	1	14
06	9·333	− 12·3	149·6	+ 0·4		
20229	·677	266·0	191·9	− 2·4	30	108

continued

Group 20229. June 1 - 11. A single small spot developing, by June 7, into a complex stream led by a regular spot. Most of the following components have died out by the time the west limb is reached.

Group 20230. June 1 - 11. A single spot, developing into a double spot and companions by June 4, after which the group breaks up into numerous tiny spots.

Group 20231. June 2 - 5. A small stream of which the rear component alone remains at the west limb.

Group 20232. June 2 - 13. A single spot developing into a compact cluster by June 6. There is an increase in activity on June 9 followed by the break up of the whole group from June 12.

Group 20233. June 4 - 6. A short-lived stream.

Group 20234. June 4 - 6. A tiny spot, not seen on June 5.

Group 20235. June 4 - 6. A pair of tiny spots on June 4; scattered spots on the other days.

Group 20236. June 8 - 9. Two or three tiny spots.

POSITIONS AND AREAS OF SUNSPOTS FOR EACH DAY IN THE YEAR

U.T. and Group No.	Measures Rad. Dist.	Measures Pos. Ang.	Position Long.	Position Lat.	Area Umb.	Area Whole Spots
1961		°	°	°		
06	9·333	*continued*				
20230	·537	257·9	181·3	− 6·1	6	45
20232	·319	272·9	168·1	+ 1·3	15	176
20236	·265	310·3	161·4	+10·2	0	14
20237	·988	87·7	68·6	+ 2·3	57	606
1	·988	87·7	68·6	+ 2·3	57	606
06	10·505	− 11·8	134·1	+ 0·5		
20229	·856	267·1	192·7	− 2·2	22	139
20230	·744	261·0	181·6	− 6·3	0	19
20232	·561	271·2	168·1	+ 1·1	31	317
20237	·927	87·9	66·4	+ 2·1	113	1083
1	·911	87·5	68·7	+ 2·5	64	630
20238	·947	80·9	63·2	+ 8·8	0	28
06	11·386	− 11·5	122·4	+ 0·6		
20229	·948	267·7	193·7	− 2·0	22	140
20230	·873	262·7	182·8	− 6·1	0	7
20232	·731	270·9	169·2	+ 1·1	22	242
20237	·823	87·9	67·3	+ 2·1	98	933
1	·800	87·1	69·5	+ 2·7	70	469
20238	·865	80·2	63·1	+ 8·8	0	12
09 1441	·941	103·7	53·2	−12·6	0	17
20239	·981	108·6	44·8	−18·0	13	52
06	12·316	− 11·1	110·1	+ 0·7		
20232	·860	271·0	169·2	+ 1·2	18	101
20237	·674	87·0	68·0	+ 2·6	88	750
1	·654	86·1	69·5	+ 3·1	72	504
20239	·925	109·9	44·2	−18·0	3	39
20240	·977	100·7	33·1	−10·1	55	558
06	13·519	− 10·6	94·2	+ 0·9		
20232	·978	271·8	171·9	+ 1·9	0	26
20237	·435	85·4	68·6	+ 2·8	97	690
1	·419	84·5	69·6	+ 3·1	79	548
20239	·799	114·0	44·2	−18·3	3	33
20240	·881	101·8	33·3	− 9·8	81	687
06	14·341	− 10·2	83·3	+ 1·0		
20241	·838	286·3	139·1	+14·1	0	4
20237	·254	82·7	68·8	+ 2·8	104	709
1	·246	81·0	69·3	+ 3·1	80	579
20239	·691	118·2	43·6	−18·2	5	29
20240	·784	103·1	32·8	− 9·5	86	619
06	15·326	− 9·8	70·3	+ 1·1		
20241	·942	283·2	140·1	+12·8	10	34
20242	·656	262·1	110·7	− 4·2	1	30
10 1441	·483	286·1	98·2	+ 8·6	0	3
20237	·044	26·7	69·2	+ 3·2	65	584
1	·041	18·4	69·6	+ 3·3	61	531
20239	·541	127·8	43·6	−18·3	0	21
20240	·625	106·6	33·1	− 9·3	76	631
20243	·973	97·2	354·1	− 6·7	38	221
06	16·429	− 9·3	55·7	+ 1·2		
20241	·992	283·1	138·5	+13·2	0	47
20242	·820	265·4	110·4	− 3·1	2	18
20237	·253	278·5	70·1	+ 3·3	73	468
1	·256	278·5	70·3	+ 3·4	73	445
20244	·294	219·7	66·7	−11·8	3	24
20239	·390	150·3	44·0	−18·5	3	21
20240	·433	114·4	32·3	− 9·0	64	765

continued

Group 20237. June 9 - 21. A complex group the leading part of which is a composite spot with a double umbra. The rear components die out by June 17.
Group 20238. June 10 - 11. A small spot.
Group 20239. June 11 - 18. A single small spot.
Group 20240. June 12 - 24. At first a bi-polar stream of which the leader, a composite spot, breaks up to form a large cluster of spots by June 16. The following spot breaks up after June 17 into numerous small spots and dies out by June 21. The leading components coalesce to form a single composite spot by June 21.
Group 20241. June 14 - 16. A few tiny spots.
Group 20242. June 15 - 17. Tiny scattered spots.
Group 20243. June 15 - 26. A stable regular spot, with following companions on June 20.

POSITIONS AND AREAS OF SUNSPOTS FOR EACH DAY IN THE YEAR

U.T. and Group No.	Measures Rad. Dist.	Measures Pos. Ang.	Position Long.	Position Lat.	Area Umb.	Area Whole Spots
1961		°	°	°		
06	16·429	*continued*				
20243	·884	98·2	354·2	− 6·7	24	193
20245	·990	67·1	334·1	+22·8	0	122
06	17·345	− 8·9	43·6	+ 1·3		
20242	·906	265·9	108·2	− 3·1	11	38
20237	·451	274·7	70·2	+ 3·3	86	459
1	·451	274·7	70·2	+ 3·3	86	459
20244	·454	240·9	67·3	−11·4	14	65
20239	·344	181·7	44·2	−18·7	0	16
20240	·255	134·0	32·9	− 8·7	73	775
20243	·769	99·7	354·1	− 6·6	34	223
20245	·947	66·5	333·6	+22·6	22	128
06	18·490	− 8·4	28·4	+ 1·5		
20237	·673	273·4	70·5	+ 3·4	90	460
1	·673	273·4	70·5	+ 3·4	90	460
20244	·670	251·9	68·7	−10·8	40	154
20239	·439	216·6	44·4	−19·1	0	7
20240	·198	208·0	33·8	− 8·5	63	598
20243	·578	103·8	354·1	− 6·7	38	179
20245	·853	64·5	332·3	+22·3	17	143
20246	·901	80·6	324·5	+ 9·1	2	40
20247	·944	77·2	318·1	+12·5	18	66
06	19·313	− 8·1	17·5	+ 1·6		
20237	·805	273·1	71·0	+ 3·4	68	434
1	·805	273·1	71·0	+ 3·4	68	434
20244	·793	254·9	68·5	−10·8	22	162
20240	·327	238·7	33·8	− 8·1	63	454
20248	·241	29·5	10·5	+13·6	5	31
20243	·418	109·6	354·3	− 6·6	39	189
20245	·761	61·3	331·5	+22·5	14	127

continued

U.T. and Group No.	Measures Rad. Dist.	Measures Pos. Ang.	Position Long.	Position Lat.	Area Umb.	Area Whole Spots
1961		°	°	°		
06	19·313	*continued*				
11 1441	·787	89·1	325·8	+ 1·7	0	13
20246	·837	78·6	321·2	+10·4	8	21
20247	·873	75·1	317·5	+13·8	9	47
06	20·295	− 7·6	4·5	+ 1·7		
20237	·919	273·2	71·2	+ 3·6	96	446
1	·919	273·2	71·2	+ 3·6	96	446
20244	·917	257·8	70·0	−10·4	19	149
12 1441	·883	251·8	64·6	−15·1	0	10
20240	·523	251·3	34·4	− 8·1	42	361
20248	·234	327·3	11·9	+13·0	32	162
20243	·227	129·0	354·3	− 6·4	31	185
20245	·630	55·1	330·7	+22·4	9	38
20246	·699	76·2	321·0	+10·8	5	27
20247	·741	73·2	317·9	+13·5	9	67
06	21·327	− 7·2	350·9	+ 1·8		
20244	·988	259·8	71·3	− 9·8	6	72
20237	·986	273·7	71·1	+ 3·9	61	330
1	·986	273·7	71·1	+ 3·9	61	330
20240	·702	256·6	34·3	− 8·1	26	202
20248	·403	298·5	12·1	+12·7	65	357
20243	·161	206·0	354·9	− 6·5	29	167
20249	·238	127·3	340·0	− 6·4	0	10
20250	·475	144·3	333·7	−20·8	0	29
20245	·495	43·9	329·1	+22·5	3	33
20246	·520	71·8	320·8	+10·9	23	158
20247	·579	67·8	317·4	+14·1	21	117
01 1442	·756	106·7	303·5	−11·3	0	4
06	22·351	− 6·7	337·3	+ 1·9		
20240	·848	258·6	34·3	− 8·6	17	126

continued

Group 20244. June 16 - 21. A tiny cluster, appearing near the central meridian. By June 17 it has become a bi-polar group of which the leader, a small regular, alone remains by June 21.

Group 20245. June 16 - 22. A small stream, led by a single spot, which breaks up and dies out after June 21.

Group 20246. June 18 - 27. A few small spots developing into a complex cluster by June 21 after which the group begins to die out.

Group 20247. June 18 - 29. A small spot developing into a cluster by June 22.

POSITIONS AND AREAS OF SUNSPOTS FOR EACH DAY IN THE YEAR

U.T. and Group No.	Measures Rad. Dist.	Measures Pos. Ang.	Position Long.	Position Lat.	Area Umb.	Area Whole Spots
1961		°	°	°		
06	22·351	*continued*				
20248	·601	288·4	12·9	+12·5	71	684
20243	·347	244·7	355·6	− 6·7	19	166
20249	·155	192·8	339·3	− 6·7	0	7
20250	·411	168·5	332·3	−21·7	0	4
20245	·396	24·1	327·2	+23·0	0	7
20246	·319	62·1	320·7	+10·4	15	150
20247	·393	56·9	317·6	+14·1	15	138
06	23·322	− 6·3	324·4	+ 2·0		
20240	·945	260·5	34·6	− 8·3	8	70
20248	·765	284·7	13·5	+12·5	114	926
20243	·538	254·3	355·7	− 6·6	30	153
☌ 1442	·142	286·3	332·3	+ 4·3	0	1
20246	·143	19·7	321·7	+ 9·7	27	146
20247	·252	31·1	316·8	+14·4	24	151
06	24·426	− 5·8	309·8	+ 2·2		
20240	·995	261·0	33·2	− 8·7	0	32
20248	·899	283·1	13·5	+12·7	121	1006
20243	·733	258·8	356·0	− 6·7	29	169
20251	·549	254·5	341·9	− 6·6	0	14
20246	·246	303·7	321·8	+ 9·9	7	87
20247	·245	332·4	316·6	+14·7	18	127
06	25·394	− 5·3	297·0	+ 2·3		
20248	·979	282·8	15·3	+13·0	121	717
20243	·869	260·9	356·5	− 6·7	28	138
20251	·738	259·5	343·8	− 6·1	0	34
20246	·461	285·5	323·6	+ 9·1	3	47
20247	·388	303·2	316·5	+14·4	15	78
06	26·336	− 4·9	284·6	+ 2·4		
20248	·993	281·8	7·7	+12·0	28	202
20243	·952	262·3	356·1	− 6·6	21	111
20251	·876	261·7	345·0	− 6·1	7	67
20246	·634	281·9	323·4	+ 9·4	1	30
20247	·545	293·3	315·6	+14·5	15	74
20252	·976	104·7	208·5	−13·8	9	56
06	27·319	− 4·5	271·5	+ 2·5		
20251	·964	262·7	345·6	− 6·4	9	52
20246	·797	280·3	324·1	+ 9·7	0	15
20247	·703	286·9	315·1	+13·5	15	95
20253	·302	79·5	254·3	+ 5·5	4	19
20252	·913	106·9	207·5	−14·3	17	79
06	28·314	− 4·0	258·4	+ 2·6		
20247	·844	283·8	315·4	+13·0	5	56
20253	·084	44·6	255·0	+ 6·0	8	48
20252	·799	109·8	207·8	−14·0	13	76
06	29·316	− 3·6	245·1	+ 2·7		
20247	·944	282·7	315·7	+12·8	7	48
20253	·218	287·6	257·1	+ 6·4	24	194
20252	·653	115·4	207·8	−14·1	6	50
20254	·747	100·9	197·7	− 6·2	1	10
06	30·330	− 3·1	231·7	+ 2·8		
20253	·457	278·9	258·6	+ 6·6	63	395

continued

Group 20248. June 19 - 26. A few spots appearing near the central meridian and developing into a large complex stream by June 22. The leading components form a regular spot from June 24.
Group 20249. June 21 - 22. Two tiny spots.
Group 20250. June 21 - 22. Tiny spots.
Group 20251. June 24 - 27. A small stream.
Group 20252. June 26 - July 2. A small stream of which the rear spot is the most persistent component.
Group 20253. June 27 - July 4. Two small spots rapidly developing into a cluster by June 29. This becomes a large composite structure by July 3.
Group 20254. June 29 - 30. One or two tiny spots.

POSITIONS AND AREAS OF SUNSPOTS FOR EACH DAY IN THE YEAR

U.T. and Group No.	Measures Rad. Dist.	Measures Pos. Ang.	Position Long.	Position Lat.	Area Umb.	Area Whole Spots
1961		°	°	°		
06	30·330	*continued*				
20252	·489	125·9	207·7	−14·0	7	42
20254	·570	104·5	198·1	− 5·8	0	3
03 1442	·886	77·7	169·6	+12·2	0	2
20255	·988	77·5	150·4	+12·8	66	380
07	1·294	− 2·7	218·9	+ 2·9		
20253	·638	277·0	258·4	+ 6·7	81	809
20252	·347	147·3	207·8	−14·0	6	17
04 1442	·452	129·3	197·9	−13·8	0	3
20255	·930	77·4	150·6	+12·8	69	338
07	2·325	− 2·2	205·3	+ 3·1		
20253	·797	276·0	258·0	+ 6·6	140	998
20256	·719	294·0	249·1	+19·2	1	25
20252	·299	189·8	208·3	−14·0	3	12
05 1442	·388	97·1	182·8	+ 0·1	0	3
20255	·822	76·5	150·4	+12·8	80	329
07	3·342	− 1·7	191·8	+ 3·2		
20253	·909	275·9	257·2	+ 6·7	98	1164
20256	·845	291·1	248·3	+19·4	17	114
20257	·393	66·4	170·3	+12·0	30	113
20255	·673	74·5	150·3	+12·7	70	362
07	4·330	− 1·3	178·7	+ 3·3		
20253	·981	276·4	257·5	+ 6·9	117	995
20256	·929	289·7	246·6	+19·5	12	68
20257	·209	40·0	170·9	+12·4	17	107
20255	·500	69·8	150·1	+12·8	67	392
07	5·333	− 0·8	165·5	+ 3·4		
20256	·984	288·8	245·4	+19·1	0	14
20258	·654	295·7	203·9	+19·1	1	18
20257	·195	324·2	172·1	+12·4	16	107
20255	·313	57·9	149·7	+12·8	60	370
07	6·323	− 0·4	152·4	+ 3·5		
20258	·815	291·6	205·6	+19·5	28	115
20257	·373	295·2	172·5	+12·4	20	87
20255	·171	14·9	149·8	+12·9	75	353
20259	·982	87·9	73·5	+ 2·8	18	149
07	7·316	+ 0·1	139·2	+ 3·6		
20258	·930	289·8	207·3	+19·7	19	196
20257	·555	286·7	172·0	+12·2	8	54
20255	·245	311·0	150·1	+12·7	65	507
20259	·919	88·5	72·5	+ 2·8	18	119
07	8·351	+ 0·5	125·5	+ 3·7		
20258	·994	290·6	209·7	+20·8	17	85
20257	·725	283·0	171·5	+12·0	3	37
20255	·436	292·7	149·8	+13·0	77	473
20259	·807	89·4	71·9	+ 2·7	30	193
07	9·364	+ 1·0	112·1	+ 3·8		
20257	·872	281·7	172·7	+12·0	0	12
20255	·624	286·0	150·0	+12·9	61	365
20259	·644	90·2	72·2	+ 2·8	24	169
20261	·900	72·2	48·3	+17·6	6	63
20260	·915	100·2	47·0	− 7·7	22	325

Group 20255. June 30 - July 12. A regular spot with variable companions.
Group 20256. July 2 - 5. A stream of small spots of which only one remains on July 4.
Group 20257. July 3 - 10. A bi-polar group of which the leader alone remains from July 8.
Group 20258. July 5 - 8. A small regular spot with following companions.
Group 20259. July 6 - 18. Return of Group 20237. A regular spot with close following companions until July 11. On July 14 there is a distant following companion.
Group 20260. July 9 - 20. A large composite spot attaining maximum area by July 11. The leading part becomes detached to form a regular spot from July 12 and then moves forward in longitude during the rest of its disk passage. The remainder of the group begins to break up after July 14 thus forming an elongated stream as it passes round the west limb.

POSITIONS AND AREAS OF SUNSPOTS FOR EACH DAY IN THE YEAR

U.T. and Group No.	Measures Rad. Dist.	Measures Pos. Ang.	Position Long.	Position Lat.	Area Umb.	Area Whole Spots
1961		°	°	°		
07	10·364	+ 1·5	98·9	+ 3·9		
20257	·964	281·6	173·7	+12·2	0	7
20255	·781	284·0	149·9	+13·3	73	356
20259	·448	91·9	72·4	+ 2·7	21	121
20260	·792	101·8	47·8	− 6·8	143	1161
20261	·792	70·8	47·5	+17·5	7	46
20262	·987	78·1	17·7	+12·4	27	391
07	11·357	+ 1·9	85·7	+ 4·0		
20255	·896	282·6	149·3	+13·1	85	406
20259	·228	95·1	72·6	+ 2·7	18	115
20260	·625	106·1	48·7	− 6·6	174	1391
1	·551	106·7	53·8	− 5·7	35	206
20261	·658	67·9	46·2	+17·4	8	35
06 1442	·818	105·3	32·7	−10·1	0	4
20262	·928	78·0	17·5	+12·6	80	447
07	12·547	+ 2·4	70·0	+ 4·1		
20255	·982	282·8	149·4	+13·3	36	326
20259	·056	240·8	72·8	+ 2·6	18	109
20260	·401	118·2	49·3	− 6·9	182	1243
1	·304	125·3	55·6	− 6·1	30	186
20261	·450	59·1	46·3	+17·1	0	7
20262	·797	77·8	17·4	+12·2	52	322
07 1442	·975	98·2	353·7	− 7·0	0	4
07	13·626	+ 2·9	55·7	+ 4·2		
20259	·296	265·5	72·8	+ 2·7	23	128
20263	·357	221·2	69·5	−11·3	9	43
20260	·222	151·5	49·6	− 6·9	133	1203
1	·183	184·3	56·5	− 6·2	39	210
20262	·628	76·0	17·3	+12·1	55	387
07	14·337	+ 3·2	46·3	+ 4·3		
20259	·427	267·5	71·5	+ 2·8	18	114
20263	·464	234·7	68·9	−11·4	9	60
20260	·201	197·4	49·8	− 6·6	175	1197
1	·260	226·1	57·1	− 6·2	28	183
08 1442	·228	357·2	47·0	+17·4	0	6
20262	·498	73·1	17·3	+12·0	46	374
20264	·982	97·8	328·2	− 6·8	0	46
07	15·356	+ 3·7	32·8	+ 4·4		
20259	·647	269·3	73·0	+ 2·9	24	107
20263	·624	243·9	67·6	−12·3	1	20
20260	·353	236·1	49·9	− 7·0	133	1172
1	·456	247·5	57·8	− 6·0	33	189
20262	·304	63·9	16·7	+11·9	43	306
20264	·896	100·2	330·3	− 7·0	22	240
07	16·340	+ 4·1	19·8	+ 4·5		
20259	·805	271·0	73·3	+ 3·5	24	145
20260	·537	249·5	50·1	− 6·8	127	995
1	·640	255·5	58·2	− 5·7	35	191
20262	·142	20·3	16·9	+12·1	36	212
20264	·764	103·0	331·4	− 6·8	21	223
07	17·422	+ 4·6	5·5	+ 4·6		
20259	·925	272·0	73·1	+ 3·6	23	131
20260	·724	255·7	50·3	− 6·9	140	879
1	·812	259·3	58·6	− 5·9	29	170
20262	·235	303·0	17·1	+11·8	43	198
20264	·589	108·8	331·4	− 7·0	7	48
20265	·978	89·8	287·8	+ 1·2	0	16
20266	·985	106·6	287·4	−15·5	0	11

Group 20261. July 9 - 12. A small unstable spot with companions on July 11.

Group 20262. July 10 - 22. Return of Group 20248. A regular spot with southern preceeding companions on July 13 and 14 and a following companion on July 15.

Group 20263. July 13 - 15. A short-lived stream of which the rear component alone remains on July 15.

Group 20264. July 14 - 20. A small stream, of rapid growth and decay.

Group 20265. July 17 - 25. A stream of scattered spots.

Group 20266. July 17 - 23. One or two tiny spots until July 19 when other spots appear to form a small stream; not seen on July 22.

POSITIONS AND AREAS OF SUNSPOTS FOR EACH DAY IN THE YEAR

U.T. and Group No.	Measures Rad. Dist.	Measures Pos. Ang.	Position Long.	Position Lat.	Area Umb.	Area Whole Spots
1961		°	°	°		
07	18·320	+ 5·0	353·6	+ 4·7		
20259	·982	273·0	72·6	+ 3·8	31	100
20260	·854	258·9	51·0	− 6·8	116	748
1	·917	261·6	59·1	− 5·8	26	163
20262	·408	288·8	16·7	+11·8	28	169
20264	·443	116·7	330·2	− 7·1	0	26
20266	·934	108·0	286·9	−15·0	0	12
20265	·933	90·3	285·0	+ 1·4	10	98
07	19·325	+ 5·4	340·3	+ 4·8		
20260	·950	261·0	51·1	− 6·9	172	927
1	·984	263·0	59·1	− 6·0	32	152
20262	·596	283·6	16·5	+11·9	40	188
20264	·224	154·0	334·7	− 6·8	4	25
20267	·388	116·8	320·1	− 5·5	5	33
01 1443	·407	76·2	316·8	+ 9·9	3	16
02 1443	·551	63·3	309·2	+18·4	1	5
20266	·840	111·8	286·6	−15·3	2	19
20265	·812	92·1	286·2	+ 1·1	15	79
20268	·976	82·4	262·5	+ 8·5	72	512
07	20·334	+ 5·9	327·0	+ 4·9		
20260	·993	262·3	49·2	− 6·9	12	367
20262	·762	281·7	16·5	+12·1	30	193
20264	·245	212·6	334·6	− 7·1	0	3
20267	·218	151·4	321·0	− 6·1	11	50
20265	·638	94·3	287·6	+ 1·0	26	116
20266	·736	114·6	283·4	−14·2	0	21
20268	·902	82·8	262·4	+ 8·6	55	696
07	21·315	+ 6·3	314·0	+ 5·0		
20262	·885	280·9	16·4	+11·9	27	207

continued

U.T. and Group No.	Measures Rad. Dist.	Measures Pos. Ang.	Position Long.	Position Lat.	Area Umb.	Area Whole Spots
1961		°	°	°		
07	21·315	*continued*				
03 1443	·630	285·2	352·5	+13·3	1	25
20267	·244	215·9	322·2	− 6·3	18	64
20265	·441	97·2	288·1	+ 1·3	12	50
20266	·548	127·7	287·4	−15·1	0	11
20268	·790	82·9	261·7	+ 8·6	79	625
07	22·354	+ 6·8	300·2	+ 5·0		
20262	·971	280·9	16·8	+11·7	18	127
20267	·441	245·8	324·0	− 5·7	4	24
20269	·405	233·5	319·4	− 9·1	0	5
20265	·207	107·8	288·9	+ 1·3	1	29
20268	·621	83·1	261·9	+ 8·2	85	510
07	23·496	+ 7·2	285·1	+ 5·1		
20267	·671	256·1	325·8	− 5·4	5	27
20269	·677	250·6	325·2	− 9·1	0	9
20270	·538	279·8	317·5	+ 9·6	11	58
20265	·088	215·3	288·0	+ 1·1	9	69
20266	·331	173·1	282·8	−14·0	0	4
20268	·399	81·6	261·7	+ 8·0	75	567
07	24·469	+ 7·7	272·2	+ 5·2		
20267	·829	261·0	327·2	− 4·5	2	11
20269	·761	254·9	320·0	− 8·0	4	19
20270	·735	278·0	319·6	+ 9·4	25	120
20265	·297	256·8	288·9	+ 1·1	12	92
20268	·185	72·1	262·1	+ 8·4	101	502
20271	·970	91·0	196·6	+ 0·4	10	46

Group 20267. July 19 - 24. A few tiny spots assuming stream formation by July 21. The leader, a small spot, alone remains on July 23.

Group 20268. July 19 - 31. Return of Group 20253. A composite spot of which the leading part becomes detached to form a regular spot on July 24. The whole group begins to break up on July 27.

Group 20269. July 22 - 24. One or two tiny scattered spots.

Group 20270. July 23 - 27. A stream of small spots, growing as it passes round the limb.

POSITIONS AND AREAS OF SUNSPOTS FOR EACH DAY IN THE YEAR

U.T. and Group No.	Measures Rad. Dist.	Measures Pos. Ang.	Position Long.	Position Lat.	Area Umb.	Area Whole Spots
1961		°	°	°		
07	25·312	+ 8·0	261·1	+ 5·3		
20270	·841	277·6	318·5	+ 9·2	17	119
20265	·490	263·1	290·1	+ 1·3	0	18
20268	·063	335·7	262·5	+ 8·4	68	435
20271	·902	93·0	197·1	− 0·4	2	24
07	26·666	+ 8·6	243·2	+ 5·4		
20270	·957	278·0	316·7	+ 9·3	32	417
20268	·336	280·2	262·6	+ 8·5	64	418
20271	·719	96·6	197·8	− 1·0	0	15
04 1443	·773	107·6	195·0	− 9·9	0	5
07	27·340	+ 8·9	234·3	+ 5·5		
20270	·986	278·7	315·3	+ 9·5	44	441
05 1443	·818	288·2	288·8	+17·9	0	25
20268	·484	277·3	263·1	+ 8·3	52	350
07	28·422	+ 9·3	220·0	+ 5·5		
20268	·686	275·9	263·3	+ 8·1	51	356
06 1443	·224	343·1	223·9	+17·8	0	7
20272	·948	76·7	147·9	+14·3	8	47
07	29·254	+ 9·6	208·9	+ 5·6		
20268	·814	276·0	263·6	+ 8·1	53	401
20272	·872	77·4	148·0	+13·7	7	45
07	30·308	+10·1	195·0	+ 5·7		
20268	·933	276·3	264·2	+ 8·0	70	443
20272	·736	75·9	147·8	+14·2	5	34
07	31·323	+10·5	181·6	+ 5·8		
20268	·989	277·1	263·6	+ 7·9	23	123
20273	·471	310·6	204·4	+23·1	5	30
20274	·666	131·1	149·2	−21·0	1	19
20272	·570	74·5	147·4	+13·5	3	32
08	1·356	+10·9	167·9	+ 5·8		
20273	·638	299·5	204·8	+22·9	15	70
20272	·336	65·4	149·7	+13·5	2	30
20274	·582	147·1	147·8	−23·7	0	7
08	2·322	+11·3	155·1	+ 5·9		
20273	·778	295·1	205·0	+23·1	13	75
08	3·346	+11·7	141·6	+ 6·0		
20273	·903	292·7	206·2	+23·0	2	29
20275	·705	241·0	181·2	−15·4	1	25
08	4·337	+12·1	128·5	+ 6·0		
20273	·975	292·3	206·7	+23·1	0	24
20275	·841	248·1	182·1	−14·6	0	19
20276	·928	98·9	61·6	− 5·9	0	17

Group 20271. July 24 - 26. A single equatorial spot.
Group 20272. July 28 - Aug. 1. Return of Group 20255. A small regular spot with following companions on July 31 and August 1.
Group 20273. July 31 - Aug. 4. A small cluster of which only a single component remains on August 3.
Group 20274. July 31 - Aug. 1. One or two tiny spots.
Group 20275. Aug. 3 - 4. One or two tiny scattered spots.
Group 20276. Aug. 4 - 5. A tiny spot.

POSITIONS AND AREAS OF SUNSPOTS FOR EACH DAY IN THE YEAR

U.T. and Group No.	Measures Rad. Dist.	Measures Pos. Ang.	Position Long.	Position Lat.	Area Umb.	Area Whole Spots
1961		°	°	°		
08	5·322	+12·5	115·5	+ 6·1		
07 1443	·701	231·0	151·1	−21·2	1	22
20276	·827	102·1	61·2	− 6·4	0	8
08	6·326	+12·8	102·2	+ 6·2		
08 1443	·783	268·9	153·6	+ 3·0	0	7
08	7·334	+13·2	88·9	+ 6·2		
20277	·996	76·1	3·1	+14·4	0	82
08	8·464	+13·6	73·9	+ 6·3		
09 1443	·931	81·6	4·8	+10·1	0	9
20277	·960	76·1	359·4	+15·1	50	218
20278	·983	78·6	353·8	+12·4	42	182
20279	·991	95·6	352·3	− 4·6	0	33
08	9·340	+14·0	62·3	+ 6·4		
20280	·206	337·4	67·1	+17·3	4	34
20281	·253	156·6	56·5	− 7·1	0	4
20282	·899	100·9	359·8	− 6·8	0	6
20277	·885	76·3	359·6	+15·0	33	245
20278	·917	79·3	355·3	+12·4	35	216
20279	·943	97·3	352·8	− 4·6	0	21
08	10·330	+14·3	49·3	+ 6·4		
20280	·360	302·5	67·7	+17·2	10	80

continued

U.T. and Group No.	Measures Rad. Dist.	Measures Pos. Ang.	Position Long.	Position Lat.	Area Umb.	Area Whole Spots
1961		°	°	°		
08	10·330	*continued*				
20281	·191	190·1	51·2	− 4·4	0	9
20282	·782	105·4	359·9	− 7·8	0	4
20277	·772	75·0	358·8	+15·6	21	203
20278	·799	78·9	356·0	+12·7	46	251
20279	·838	99·9	353·6	− 4·7	0	23
20284	·976	93·5	332·3	− 2·0	0	32
20283	·975	84·3	331·7	+ 7·0	62	264
08	11·443	+14·7	34·5	+ 6·5		
20285	·782	251·7	83·3	−10·0	0	7
20280	·562	292·3	67·5	+17·7	13	185
20277	·581	72·5	359·6	+15·3	10	92
20278	·619	77·4	356·5	+12·9	39	198
20279	·668	105·2	354·4	− 5·1	0	19
20286	·722	75·5	348·4	+14·9	0	13
20283	·883	85·6	332·3	+ 6·9	49	352
20284	·898	95·7	331·4	− 2·2	16	145
10 1443	·945	82·7	323·1	+ 9·0	3	38
08	12·338	+15·0	22·7	+ 6·5		
20285	·888	255·5	83·2	− 9·6	0	21
20280	·713	288·0	67·8	+17·4	14	116
20277	·419	65·4	359·5	+16·0	5	40
20278	·451	73·9	356·4	+13·0	31	149
20279	·527	113·0	353·6	− 6·2	0	4
20286	·584	71·0	347·7	+16·3	0	10
20283	·764	86·4	332·8	+ 7·0	63	275
20284	·784	97·7	331·9	− 1·8	14	89
20287	·982	90·2	303·8	+ 1·1	0	57
08	13·340	+15·4	9·5	+ 6·6		
20285	·973	258·8	84·4	− 9·2	0	27

continued

Group 20277. Aug. 7 - 14. An extended stream of normal type which dies out near the central meridian.
Group 20278. Aug. 8 - 19. A regular spot which splits into two on August 11; the parts separate to form a bi-polar group which, in turn, begins to break up on August 17.
Group 20279. Aug. 8 - 12. A single spot, except on August 12, when there is a pair.
Group 20280. Aug. 9 - 15. A cluster of small variable spots.
Group 20281. Aug. 9 - 10. A tiny spot on August 9; several tiny scattered spots on August 10.
Group 20282. Aug. 9 - 10. A tiny spot.
Group 20283. Aug. 10 - 22. A regular spot until August 12. On August 13 the umbra becomes double and the spot divides into two parts by August 17. There are numerous companions from August 18 to the west limb.

POSITIONS AND AREAS OF SUNSPOTS FOR EACH DAY IN THE YEAR

U.T. and Group No.	Measures Rad. Dist.	Measures Pos. Ang.	Position Long.	Position Lat.	Area Umb.	Area Whole Spots
1961		°	°	°		
08	13·340	*continued*				
20280	·843	287·0	67·1	+17·8	8	127
20277	·261	46·9	358·1	+16·6	0	23
20278	·242	62·6	356·8	+12·8	18	112
20286	·405	61·4	347·7	+17·2	0	9
20283	·591	86·8	333·2	+ 7·2	45	302
20284	·629	101·8	331·6	− 2·1	3	66
20287	·909	92·1	304·4	+ 0·8	2	39
20288	·961	91·1	295·8	+ 0·8	7	71
08	14·345	+15·7	356·2	+ 6·6		
20280	·945	286·1	68·0	+17·3	3	119
01 1444	·067	228·7	359·1	+ 4·1	1	12
20278	·114	347·9	357·6	+13·0	19	109
20277	·175	9·6	354·5	+16·5	0	26
20289	·238	170·1	353·8	− 6·9	4	42
20283	·389	88·1	333·2	+ 6·8	40	296
20284	·435	109·1	332·0	− 2·1	3	43
20287	·786	94·1	304·7	+ 0·9	2	19
20288	·879	92·9	295·1	+ 0·7	7	67
20290	·990	106·9	276·7	−15·6	0	24
08	15·398	+16·1	342·3	+ 6·7		
20280	·998	287·9	70·2	+18·2	0	64
20278	·283	293·0	357·7	+12·7	10	76
20289	·311	221·2	354·1	− 6·8	12	50
20284	·208	142·3	335·0	− 2·8	0	13
20283	·154	88·5	333·4	+ 6·8	45	372
20291	·458	78·8	315·2	+11·1	0	11
20287	·600	98·0	306·0	+ 0·6	0	20
20288	·734	95·2	295·5	+ 0·8	5	34
20290	·932	109·9	276·8	−15·8	0	19
20292	·973	84·1	265·2	+ 7·3	30	156
08	16·333	+16·4	329·9	+ 6·7		
20278	·467	284·5	357·4	+12·7	12	82
20289	·472	239·4	354·0	− 7·7	5	52
20283	·066	271·0	333·6	+ 6·8	52	381
02 1444	·107	41·6	325·8	+11·3	0	20
20291	·234	70·9	317·0	+10·9	0	19
20288	·569	98·8	295·9	+ 0·6	5	27
20290	·841	114·0	277·0	−16·0	5	29
20292	·907	85·3	264·6	+ 7·1	29	150
08	17·339	+16·8	316·6	+ 6·8		
20278	·666	282·0	358·3	+13·0	7	52
20289	·649	249·5	354·3	− 7·8	0	14
20283	·288	271·5	333·3	+ 6·9	48	380
20293	·246	116·6	304·0	+ 0·3	1	34
20288	·377	108·0	295·7	− 0·3	0	11
20294	·489	111·1	289·5	− 4·0	1	25
20290	·707	120·1	277·3	−15·5	4	24
20292	·786	85·9	264·5	+ 7·4	17	179
08	18·462	+17·1	301·8	+ 6·8		
03 1444	·838	288·0	358·9	+18·7	0	6
20278	·812	281·2	356·4	+13·0	8	33
20283	·528	272·0	333·7	+ 6·8	48	341
04 1444	·248	261·7	315·9	+ 4·6	0	11
20293	·128	205·2	304·9	+ 0·2	1	12
05 1444	·197	73·9	290·7	+ 9·8	0	8
20294	·275	132·0	290·0	− 3·8	0	11
20290	·549	132·9	277·2	−15·7	0	5
20292	·602	86·7	264·6	+ 7·4	17	94

Group 20284.	Aug. 10 - 15.	A small stream dying out near the central meridian.
Group 20285.	Aug. 11 - 13.	A single tiny spot on August 11 and 13; a pair of spots on August 12.
Group 20286.	Aug. 11 - 13.	Tiny scattered spots.
Group 20287.	Aug. 12 - 15.	A pair of small spots until August 14; a tiny cluster on August 15.
Group 20288.	Aug. 13 - 17.	A small equatorial spot.
Group 20289.	Aug. 14 - 17.	A small scattered stream.
Group 20290.	Aug. 14 - 19.	A single spot until August 18; a tiny cluster on August 19.
Group 20291.	Aug. 15 - 19.	Tiny scattered spots, not seen on August 17 and 18.
Group 20292.	Aug. 15 - 22.	Return of Group 20268. A single spot which breaks up into a tiny cluster on August 19.
Group 20293.	Aug. 17 - 18.	A short-lived equatorial stream.
Group 20294.	Aug. 17 - 19.	A pair of tiny spots on August 17 and 18; a single spot on August 19.

POSITIONS AND AREAS OF SUNSPOTS FOR EACH DAY IN THE YEAR

U.T. and Group No.	Measures Rad. Dist.	Measures Pos. Ang.	Position Long.	Position Lat.	Area Umb.	Area Whole Spots
1961		°	°	°		
08	19·380	+17·4	289·6	+ 6·9		
20278	·940	282·6	0·5	+14·1	3	23
20283	·697	272·8	333·9	+ 6·9	49	234
20291	·470	279·6	317·6	+10·5	0	6
20294	·215	177·4	289·1	− 5·5	0	3
20290	·464	148·6	275·1	−16·6	0	8
20292	·427	89·0	264·3	+ 6·6	18	77
20295	·687	70·4	246·9	+18·4	0	8
08	20·351	+17·7	276·8	+ 6·9		
20283	·839	273·3	334·1	+ 6·5	31	247
20292	·225	89·9	263·8	+ 6·7	6	39
20295	·494	64·5	248·9	+18·3	0	6
20296	·996	106·3	194·6	−15·4	11	72
08	21·322	+18·0	264·0	+ 6·9		
20283	·943	274·7	334·9	+ 6·7	33	249
20292	·008	155·0	263·8	+ 6·5	0	16
20297	·852	74·6	205·1	+16·7	0	10
20296	·945	108·9	196·2	−15·3	3	27
08	22·311	+18·3	250·9	+ 7·0		
20283	·996	276·4	336·1	+ 7·0	27	190
20292	·219	267·9	263·6	+ 6·3	4	28
20297	·740	73·5	203·2	+16·9	0	10
20296	·861	112·7	195·6	−15·4	0	18

U.T. and Group No.	Measures Rad. Dist.	Measures Pos. Ang.	Position Long.	Position Lat.	Area Umb.	Area Whole Spots
1961		°	°	°		
08	23·524	+18·7	234·9	+ 7·0		
20298	·611	299·9	270·0	+23·4	1	19
20296	·707	120·6	195·8	−15·7	5	24
06 1444	·730	81·5	187·7	+11·0	4	17
08	24·634	+19·0	220·2	+ 7·0		
20298	·784	294·7	271·0	+23·6	4	18
20299	·307	55·5	205·0	+16·7	9	87
20296	·546	132·8	195·8	−15·3	0	26
20300	·981	71·2	140·0	+19·8	0	45
08	25·528	+19·3	208·4	+ 7·1		
20298	·884	293·2	270·8	+23·8	0	12
20299	·179	18·1	205·1	+16·8	16	236
20296	·443	149·5	195·0	−15·5	2	27
20300	·923	71·5	140·2	+19·7	0	9
08	26·382	+19·5	197·1	+ 7·1		
20299	·220	319·2	205·7	+16·5	34	269
20296	·388	174·7	195·0	−15·5	1	12
20301	·889	71·0	133·9	+20·1	0	12
08	27·317	+19·8	184·8	+ 7·1		
20299	·394	296·9	206·2	+16·9	43	422
20296	·420	196·8	192·0	−16·5	0	19
20301	·752	70·1	136·3	+19·6	0	19

Group 20295.	Aug. 19 - 20.	One or two tiny spots.
Group 20296.	Aug. 20 - 27.	A single spot developing into a tiny cluster by August 3.
Group 20297.	Aug. 21 - 22.	A tiny spot.
Group 20298.	Aug. 23 - 25.	A pair of tiny spots on August 23; a single spot on the other days.
Group 20299.	Aug. 24 - Sept. 1.	A rapidly developing cluster which becomes two, close composite spots by August 28.
Group 20300.	Aug. 24 - 25.	One or two tiny spots.
Group 20301.	Aug. 26 - 27.	Two or three tiny spots.

POSITIONS AND AREAS OF SUNSPOTS FOR EACH DAY IN THE YEAR

U.T. and Group No.	Measures Rad. Dist.	Measures Pos. Ang.	Position Long.	Position Lat.	Area Umb.	Area Whole Spots
1961		°	°	°		
08	28·319	+ 20·1	171·5	+ 7·1		
20302	·569	279·1	206·3	+11·0	0	13
20299	·579	289·4	206·2	+16·9	39	520
08	29·358	+ 20·4	157·8	+ 7·2		
20299	·751	286·7	206·4	+17·2	54	562
20302	·732	278·9	205·1	+11·4	0	6
20303	·991	76·5	74·0	+14·3	29	623
08	30·332	+ 20·6	144·9	+ 7·2		
20299	·874	285·7	206·4	+17·1	66	536
20302	·862	279·6	205·0	+11·9	0	7
07 1444	·364	152·2	135·0	−11·7	0	11
20303	·925	78·1	76·5	+13·7	55	646
08	31·316	+ 20·9	131·9	+ 7·2		
20299	·959	286·2	206·6	+17·6	73	531
20303	·805	78·6	77·9	+13·4	96	1045
09	1·324	+ 21·2	118·6	+ 7·2		
20299	·994	287·2	203·8	+17·8	17	210
20303	·648	77·7	78·2	+13·4	79	1304
09	2·495	+ 21·4	103·1	+ 7·2		
20303	·419	74·5	78·8	+13·0	185	1445
1	·358	73·4	82·7	+12·6	63	376
09	3·460	+ 21·7	90·4	+ 7·2		
20303	·217	61·4	79·2	+13·0	137	1336
1	·165	53·1	82·7	+12·8	60	494
09	4·091	+ 21·8	82·1	+ 7·2		
20303	·115	24·9	79·3	+13·1	147	1084
1	·097	351·1	82·9	+12·7	67	451
09	5·442	+ 22·2	64·2	+ 7·2		
20303	·298	291·2	80·7	+13·1	129	1007
1	·361	287·1	84·8	+12·8	56	320
09	6·491	+ 22·4	50·4	+ 7·3		
20303	·531	283·1	82·3	+13·1	103	866
1	·584	282·2	86·1	+13·0	54	379
08 1444	·107	281·4	56·4	+ 8·4	0	2
09	7·318	+ 22·6	39·4	+ 7·3		
20303	·684	281·4	82·7	+13·1	90	754
1	·731	281·0	86·7	+13·0	51	328
09 1444	·607	71·5	2·6	+16·9	0	20
10 1444	·888	86·3	336·6	+ 6·6	0	8
09	8·324	+ 22·8	26·2	+ 7·3		
20303	·834	280·6	83·1	+12·8	59	594
1	·868	280·6	86·9	+12·8	35	259

Group 20302. Aug. 28 - 30. A pair of tiny spots.

Group 20303. Aug. 29 - Sept. 10. A complex group which becomes two large composite spots with multiple umbrae by September 3 after which they break up. The leading spot becomes regular in outline by September 6 and the rear portion disintegrates rapidly after September 9.

POSITIONS AND AREAS OF SUNSPOTS FOR EACH DAY IN THE YEAR

U.T. and Group No.	Measures Rad. Dist.	Measures Pos. Ang.	Position Long.	Position Lat.	Area Umb.	Area Whole Spots
1961		°	°	°		
09	9·322	+ 23·0	13·0	+ 7·3		
20303	·943	281·3	84·3	+13·0	78	424
1	·957	281·4	87·1	+13·0	61	263
20304	·976	101·4	297·4	− 9·3	97	576
20305	·994	76·9	288·2	+13·8	98	451
1	·994	76·9	288·2	+13·8	98	451
09	10·291	+ 23·2	0·2	+ 7·3		
20303	·991	281·8	83·8	+12·6	0	52
11 1444	·322	177·1	359·2	−11·5	0	1
20304	·901	104·3	298·1	− 9·4	138	874
20305	·958	77·1	285·8	+14·4	118	760
1	·950	77·6	287·5	+14·0	93	544
09	11·349	+ 23·4	346·2	+ 7·2		
α 1445	·616	66·5	309·4	+20·0	0	15
20304	·776	108·8	298·3	− 9·5	76	723
20305	·866	78·1	285·7	+13·9	117	709
1	·857	78·4	286·7	+13·6	90	591
09	12·327	+ 23·6	333·3	+ 7·2		
20304	·621	115·6	298·9	− 9·5	68	665
20305	·735	77·4	285·8	+14·1	104	668
1	·728	77·6	286·4	+13·9	94	588
09	13·314	+ 23·8	320·3	+ 7·2		
20306	·225	7·3	318·5	+20·1	0	6
20307	·420	150·3	308·0	−14·3	0	5
					continued	

U.T. and Group No.	Measures Rad. Dist.	Measures Pos. Ang.	Position Long.	Position Lat.	Area Umb.	Area Whole Spots
1961		°	°	°		
09	13·314	*continued*				
20304	·464	127·5	298·4	− 9·6	86	642
20305	·580	75·5	285·0	+14·2	110	629
1	·574	75·6	285·4	+14·1	90	557
09	14·413	+ 24·0	305·8	+ 7·2		
20308	·467	279·4	333·6	+10·7	4	38
20306	·280	326·1	315·3	+20·5	13	132
20307	·361	187·1	308·4	−13·6	16	86
20304	·311	160·3	299·7	− 9·7	55	463
1	·298	175·3	304·4	−10·0	25	212
20305	·367	69·3	285·1	+14·2	97	622
1	·364	69·3	285·3	+14·1	92	586
09	15·154	+ 24·1	296·0	+ 7·2		
20308	·596	276·8	332·7	+ 9·8	5	57
20306	·401	306·3	316·0	+20·4	10	86
20307	·423	212·3	309·4	−13·8	17	78
20304	·298	191·2	299·3	− 9·6	57	343
1	·333	206·7	304·7	−10·1	29	145
20305	·227	54·8	285·0	+14·5	74	584
1	·225	54·8	285·1	+14·5	72	569
09	16·354	+ 24·3	280·1	+ 7·2		
α 1445	·961	280·7	354·8	+12·2	0	41
α 1445	·963	260·5	353·0	− 7·1	0	9
20308	·783	277·9	332·0	+10·7	2	34
20306	·590	295·5	314·7	+20·6	2	59
20307	·584	233·2	308·9	−14·0	17	82
20304	·442	229·2	299·9	− 9·9	79	420
1	·512	235·3	305·4	−10·4	45	188
20305	·157	325·1	285·4	+14·5	87	672
1	·157	325·1	285·4	+14·5	87	672
20309	·952	72·6	206·8	+18·7	26	168

Group 20304.	Sept. 9 - 20.	A number of spots in an extended stream of which the leading components become a regular spot by September 14 and this alone survives on September 20.
Group 20305.	Sept. 9 - 22.	A moderate-sized regular spot with variable following companions.
Group 20306.	Sept.13 - 17.	An extended stream of small spots of which only the leader survives on September 17.
Group 20307.	Sept.13 - 18.	At first a tiny spot which develops into a stream of which only the leading components survive on September 17.
Group 20308.	Sept.14 - 17.	A short-lived stream of tiny scattered spots.
Group 20309.	Sept.16 - 28.	Return of Group 20299. A stable regular spot.

POSITIONS AND AREAS OF SUNSPOTS FOR EACH DAY IN THE YEAR

U.T. and Group No.	Measures Rad. Dist.	Measures Pos. Ang.	Position Long.	Position Lat.	Area Umb.	Area Whole Spots
1961		°	°	°		
09	17·317	+ 24·5	267·4	+ 7·2		
20308	·900	278·8	332·2	+11·0	0	21
20306	·828	289·1	323·5	+19·8	0	13
20307	·766	245·6	313·1	−13·4	5	29
20304	·612	243·0	300·9	−10·0	40	386
1	·671	245·7	305·7	−10·4	19	221
20305	·328	294·8	285·3	+14·7	97	627
1	·330	294·5	285·4	+14·7	96	607
20309	·870	72·3	206·5	+18·9	26	174
09	18·324	+ 24·6	254·1	+ 7·1		
20307	·885	250·4	313·0	−13·7	0	15
20304	·763	250·1	300·8	−10·1	36	260
1	·813	251·9	305·7	−10·2	31	148
20305	·523	286·8	285·1	+14·8	78	509
1	·524	286·8	285·3	+14·8	78	494
20309	·750	71·2	205·8	+18·8	29	173
09	19·338	+ 24·8	240·7	+ 7·1		
20304	·911	255·6	304·1	− 9·8	25	100
1	·920	255·8	305·5	−10·0	25	88
20305	·698	284·3	285·0	+15·0	59	431
1	·703	284·2	285·4	+15·0	59	399
20310	·114	232·1	245·9	+ 3·1	1	33
20309	·588	67·2	205·9	+19·0	35	145
09	20·312	+ 24·9	227·9	+ 7·1		
20304	·984	258·3	305·9	−10·1	11	97
1	·984	258·3	305·9	−10·1	11	97
20305	·842	283·3	285·7	+15·0	54	355
1	·842	283·3	285·7	+15·0	54	355
20310	·326	259·9	246·5	+ 3·4	18	63
20309	·413	58·5	206·2	+19·0	32	156
09	21·531	+ 25·1	211·8	+ 7·1		
20305	·955	283·5	285·6	+15·0	30	345
1	·955	283·5	285·6	+15·0	30	345
20310	·595	267·1	248·2	+ 4·0	8	36
20309	·221	23·0	206·6	+18·7	30	125
20311	·421	87·4	186·8	+ 7·5	0	10
09	22·320	+ 25·2	201·4	+ 7·0		
20305	·993	284·0	285·7	+14·7	36	233
1	·993	284·0	285·7	+14·7	36	233
20310	·745	269·0	249·5	+ 4·0	5	10
04 1445	·760	257·8	249·3	− 4·5	0	5
20312	·330	265·8	220·6	+ 5·3	0	6
20309	·218	336·4	206·6	+18·5	24	133
20311	·251	89·2	186·8	+ 7·0	3	6
09	23·628	+ 25·3	184·1	+ 7·0		
20310	·913	270·5	250·1	+ 3·3	0	11
20309	·419	299·5	206·7	+18·3	29	138
20311	·027	267·4	185·3	+ 6·9	20	82
20313	·962	88·7	110·1	+ 3·1	20	94
09	24·516	+ 25·4	172·4	+ 7·0		
20312	·769	267·4	222·4	+ 2·5	0	28
05 1445	·646	286·6	212·3	+16·0	3	23
20309	·575	292·3	206·4	+18·4	34	143
20311	·224	270·7	185·3	+ 6·9	39	232
20313	·862	90·8	113·0	+ 2·9	8	71
20314	·994	79·3	87·9	+11·4	31	115

Group 20310. Sept. 19 - 23. A bi-polar stream of which the leader alone survives on September 22.

Group 20311. Sept. 21 - 29. A small spot developing into a compact stream by September 24. The leader becomes a regular spot by September 25 and alone survives on September 29.

Group 20312. Sept. 22 - 26. One or two tiny spots not seen on September 23.

Group 20313. Sept. 23 - Oct. 1. Several tiny spots which develop into an extended stream on September 25. On September 27 the group has become a cluster which dies out before reaching the west limb.

Group 20314. Sept. 24 - Oct. 4. Return of Group 20303. A double-umbraed spot with numerous companions until September 29 after which several scattered spots identify the position.

POSITIONS AND AREAS OF SUNSPOTS FOR EACH DAY IN THE YEAR

U.T. and Group No.	Measures Rad. Dist.	Measures Pos. Ang.	Position Long.	Position Lat.	Area Umb.	Area Whole Spots
1961		°	°	°		
09	25·531	+ 25·6	159·0	+ 6·9		
20312	·887	269·9	221·5	+ 3·1	0	10
20309	·737	289·0	206·1	+18·6	25	142
20311	·452	272·6	186·0	+ 7·3	45	259
06 1445	·080	213·9	161·5	+ 3·1	0	9
20313	·725	92·2	112·7	+ 3·2	4	71
20314	·947	79·7	87·0	+11·9	27	134
09	26·330	+ 25·6	148·5	+ 6·9		
20312	·956	270·9	221·5	+ 2·9	3	19
20309	·837	287·8	205·5	+18·6	26	154
20311	·614	273·0	186·5	+ 7·3	49	241
20313	·591	94·4	112·5	+ 3·0	9	84
20314	·871	80·8	87·4	+11·4	38	177
20315	·989	77·6	65·7	+13·3	30	193
09	27·463	+ 25·7	133·5	+ 6·9		
20309	·946	287·3	205·5	+18·5	33	154
20311	·817	274·1	188·5	+ 7·3	29	133
20313	·284	101·7	117·4	+ 3·3	6	33
20314	·727	80·3	86·6	+11·8	37	161
20315	·912	78·7	67·1	+13·1	37	168
09	28·331	+ 25·8	122·1	+ 6·8		
20309	·990	287·8	205·7	+18·5	38	158
20311	·900	274·5	186·4	+ 7·0	12	119
20313	·100	128·2	117·6	+ 3·3	10	102
20314	·573	79·2	87·1	+11·8	16	112
20315	·814	78·4	67·2	+13·4	26	190
09	29·340	+ 25·9	108·7	+ 6·8		
20311	·986	276·3	189·7	+ 7·3	0	26
20313	·185	246·9	118·5	+ 2·5	0	32
20314	·373	76·3	87·1	+11·4	17	121
20315	·677	77·6	66·1	+13·3	47	258
09	30·318	+ 26·0	95·8	+ 6·7		
20313	·382	259·3	117·8	+ 2·2	0	11
20314	·176	59·0	87·0	+11·8	15	94
20315	·504	74·4	66·0	+13·6	32	290
10	1·364	+ 26·1	82·0	+ 6·7		
20313	·594	266·8	118·4	+ 3·5	4	27
20314	·120	319·2	86·6	+11·8	18	97
20315	·282	64·3	66·9	+13·4	50	242
10	2·331	+ 26·1	69·3	+ 6·6		
20316	·388	269·7	92·2	+ 6·0	0	8
20314	·298	288·0	86·0	+11·6	0	33
20315	·125	5·7	68·6	+13·7	18	129
10	3·304	+ 26·2	56·4	+ 6·6		
20316	·561	272·2	90·6	+ 6·7	5	47
20314	·506	282·8	86·6	+12·1	2	20
20315	·233	304·4	67·8	+14·0	13	142
20317	·385	146·7	44·0	−12·3	7	42
20318	·860	74·8	356·8	+16·4	0	34

Group 20315. Sept. 26 - Oct. 8. At first a stream led by a regular spot. On October 5 there is a revival of activity and the group becomes a cluster of scattered spots.
Group 20316. Oct. 2 - 3. One or two small spots.
Group 20317. Oct. 3 - 8. A short-lived stream appearing near the central meridian.
Group 20318. Oct. 3 - 7. Tiny scattered spots.

POSITIONS AND AREAS OF SUNSPOTS FOR EACH DAY IN THE YEAR

U.T. and Group No.	Measures Rad. Dist.	Measures Pos. Ang.	Position Long.	Position Lat.	Area Umb.	Area Whole Spots
1961		°	°	°		
10	4·457	+ 26·2	41·2	+ 6·5		
20319	·716	280·7	87·0	+12·2	0	14
20314	·691	285·8	84·7	+15·6	0	3
20315	·488	286·6	69·9	+13·7	11	81
20317	·359	193·8	46·3	−13·8	10	44
07 1445	·318	56·6	25·2	+16·3	4	15
20318	·677	75·2	358·8	+14·8	0	9
10	5·331	+ 26·3	29·7	+ 6·5		
20319	·827	278·4	85·8	+10·5	0	10
20315	·628	282·3	68·5	+12·7	28	207
20317	·431	218·9	45·7	−13·2	7	57
20318	·549	70·9	357·2	+15·8	0	12
10	6·342	+ 26·3	16·3	+ 6·4		
20315	·784	280·6	68·2	+12·3	22	184
20317	·593	237·1	47·0	−13·1	8	83
20318	·386	60·7	355·9	+16·9	0	6
10	7·383	+ 26·3	2·6	+ 6·4		
20315	·919	281·1	70·0	+12·7	18	155
20317	·761	246·0	48·1	−13·5	10	80
20318	·177	24·1	358·4	+15·6	1	28
08 1445	·406	94·3	338·8	+ 4·1	2	25
10	8·398	+ 26·3	349·2	+ 6·3		
20315	·978	281·5	67·9	+12·5	37	177
20317	·888	251·0	48·8	−13·7	14	84
01 1446	·252	289·4	3·2	+10·9	6	32
20320	·872	81·1	288·2	+10·9	4	20

U.T. and Group No.	Measures Rad. Dist.	Measures Pos. Ang.	Position Long.	Position Lat.	Area Umb.	Area Whole Spots
1961		°	°	°		
10	9·547	+ 26·4	334·1	+ 6·2		
20321	·110	256·7	340·2	+ 4·8	15	87
20320	·714	81·4	288·4	+10·5	22	85
20322	·997	72·2	247·1	+18·2	107	332
10	10·388	+ 26·4	323·0	+ 6·2		
20321	·302	265·5	340·5	+ 4·5	21	103
20320	·539	80·7	290·4	+10·2	19	120
20322	·967	72·3	246·7	+18·7	103	530
10	11·338	+ 26·4	310·4	+ 6·1		
20321	·479	270·0	339·1	+ 5·4	12	77
20320	·367	77·4	289·2	+10·3	22	145
20322	·895	72·4	246·7	+18·4	89	514
10	12·351	+ 26·3	297·1	+ 6·0		
02 1446	·856	276·9	356·2	+ 9·0	0	12
20321	·629	271·1	336·1	+ 5·4	0	14
03 1446	·481	224·9	317·5	−14·2	0	15
20323	·272	210·0	304·9	− 7·5	28	129
20320	·173	61·0	288·3	+10·7	13	94
20322	·769	70·9	247·3	+18·4	74	399
10	13·351	+ 26·3	283·9	+ 6·0		
20323	·440	239·3	306·2	− 7·3	38	228
20320	·111	324·0	287·7	+11·1	18	101
20322	·614	68·0	247·3	+18·1	63	443

Group 20319. Oct. 4 - 5. A tiny spot.
Group 20320. Oct. 8 - 18. A small scattered stream of which only the leading spot remains on October 16.
Group 20321. Oct. 9 - 12. A short-lived stream of small spots.
Group 20322. Oct. 9 - 22. A regular spot, with one or two followers between October 11 and 15.
Group 20323. Oct. 12 - 17. A bi-polar group led by a regular spot which alone survives at the west limb.

POSITIONS AND AREAS OF SUNSPOTS FOR EACH DAY IN THE YEAR

U.T. and Group No.	Measures Rad. Dist.	Measures Pos. Ang.	Position Long.	Position Lat.	Area Umb.	Area Whole Spots
1961		°	°	°		
10	14·362	+ 26·3	270·5	+ 5·9		
20323	·650	250·1	308·5	− 8·0	33	161
20320	·323	288·7	288·6	+11·5	6	29
20322	·435	59·9	247·4	+18·0	58	400
20324	·947	78·9	198·7	+12·4	0	14
10	15·410	+ 26·3	256·7	+ 5·8		
20323	·824	255·4	310·3	− 8·5	29	174
20320	·535	283·1	288·7	+11·9	2	23
20322	·260	37·3	247·3	+17·6	66	358
20324	·868	78·5	196·2	+12·9	2	29
10	16·356	+ 26·2	244·2	+ 5·8		
20323	·931	258·3	311·3	− 8·5	25	195
20320	·720	281·4	290·3	+12·2	1	19
20325	·454	295·2	269·5	+16·3	0	9
20322	·210	345·2	247·5	+17·4	86	418
04 1446	·477	77·3	216·1	+11·1	0	2
10	17·569	+ 26·2	228·2	+ 5·7		
20323	·996	260·9	311·8	− 8·4	0	104
20320	·886	280·9	290·9	+12·3	0	7
20325	·662	287·4	269·1	+15·7	0	15
20322	·376	303·4	247·3	+17·2	59	323
20326	·981	73·8	148·5	+16·9	0	33
10	18·367	+ 26·1	217·7	+ 5·6		
20320	·949	281·5	289·9	+12·6	0	14

continued

U.T. and Group No.	Measures Rad. Dist.	Measures Pos. Ang.	Position Long.	Position Lat.	Area Umb.	Area Whole Spots
1961		°	°	°		
10	18·367	*continued*				
20322	·520	294·6	247·3	+17·3	57	322
20327	·276	75·7	202·0	+ 9·3	0	2
20326	·922	73·6	150·1	+17·3	3	23
20328	·948	109·9	149·3	−16·8	0	6
10	19·339	+ 26·1	204·9	+ 5·5		
20322	·687	289·5	247·5	+17·3	60	321
20327	·093	45·1	201·1	+ 9·2	0	36
20326	·816	72·5	150·4	+17·5	0	9
20328	·858	112·8	149·6	−16·3	0	6
20329	·927	100·9	138·4	− 7·8	20	47
05 1446	·932	74·1	135·7	+16·8	0	38
10	20·344	+ 26·0	191·6	+ 5·4		
20330	·920	282·8	259·0	+13·9	13	64
20322	·829	287·4	247·4	+17·4	61	305
20327	·216	288·3	203·6	+ 9·2	2	15
20329	·823	103·9	138·1	− 8·1	4	35
10	21·533	+ 25·9	176·0	+ 5·3		
20330	·983	282·9	256·1	+13·6	0	53
20322	·947	287·1	247·7	+17·9	62	379
20327	·485	277·5	204·9	+ 8·3	0	17
06 1446	·118	185·2	176·6	− 1·4	0	4
20328	·581	132·0	149·1	−18·1	0	2
10	22·325	+ 25·8	165·5	+ 5·3		
20322	·989	285·5	247·7	+16·1	61	364

continued

Group 20324. Oct. 14 - 15. A tiny spot on October 14 becoming a tiny cluster.
Group 20325. Oct. 16 - 17. One or two tiny spots.
Group 20326. Oct. 17 - 19. A small spot.
Group 20327. Oct. 18 - 23. A variable cluster of tiny scattered spots.
Group 20328. Oct. 18 - 23. A tiny spot on October 18 and 19; nothing is seen on October 20. Tiny scattered spots identify the position from October 21.
Group 20329. Oct. 19 - 20. A stream of small spots.

POSITIONS AND AREAS OF SUNSPOTS FOR EACH DAY IN THE YEAR

U.T. and Group No.	Measures Rad. Dist.	Measures Pos. Ang.	Position Long.	Position Lat.	Area Umb.	Area Whole Spots
1961		°	°	°		
10	22·325	*continued*				
20327	·633	274·4	204·8	+ 6·8	0	10
20328	·449	145·4	150·1	−16·5	0	7
07 1446	·635	104·8	127·6	− 5·2	0	4
10	23·398	+ 25·7	151·4	+ 5·2		
20327	·818	276·7	206·4	+ 8·4	0	8
20328	·371	175·6	149·7	−16·5	0	3
10	24·449	+ 25·6	137·5	+ 5·1		
20331	·261	321·2	147·3	+16·7	0	8
20332	·212	189·4	139·5	− 6·8	2	25
10	25·337	+ 25·5	125·8	+ 5·0		
20331	·429	303·9	147·7	+18·4	1	11
20332	·297	226·3	138·2	− 6·9	1	13
20333	·278	331·5	133·8	+19·0	0	7
10	26·376	+ 25·4	112·1	+ 4·9		
20331	·599	294·6	147·0	+18·4	0	17
20333	·428	303·8	134·0	+18·3	0	24
10	27·368	+ 25·3	99·0	+ 4·8		
20334	·209	297·1	109·8	+10·2	0	16
10	28·356	+ 25·1	86·0	+ 4·7		
20334	·405	283·8	109·4	+ 9·9	1	32
10	29·466	+ 25·0	71·3	+ 4·6		
20334	·651	277·8	111·8	+ 8·6	0	17
10	30·372	+ 24·9	59·4	+ 4·5		
20334	·800	276·6	112·5	+ 7·9	0	24
10	31·302	+ 24·7	47·1	+ 4·4		
20334	·915	276·3	113·5	+ 7·5	0	23
11	4·432	+ 24·0	352·7	+ 4·0		
20335	·191	300·4	2·3	+ 9·5	0	16
11	5·308	+ 23·8	341·1	+ 3·9		
20335	·383	284·8	3·1	+ 9·2	10	58
11	6·292	+ 23·6	328·2	+ 3·8		
20335	·573	280·1	2·8	+ 8·8	12	162

Group 20330. Oct. 20 - 21. A small bi-polar stream.
Group 20331. Oct. 24 - 26. One or two tiny spots.
Group 20332. Oct. 24 - 25. Two or three tiny spots in stream formation.
Group 20333. Oct. 25 - 26. A tiny cluster on October 25; a single spot on October 26.
Group 20334. Oct. 27 - 31. A tiny stream of which the leader alone survives after October 28.
Group 20335. Nov. 4 - 9. A few tiny spots, appearing near the central meridian and developing into a bi-polar group. The leader becomes regular in outline on November 9.

POSITIONS AND AREAS OF SUNSPOTS FOR EACH DAY IN THE YEAR

U.T. and Group No.	Measures Rad. Dist.	Measures Pos. Ang.	Position Long.	Position Lat.	Area Umb.	Area Whole Spots
1961		°	°	°		
11	7·292	+ 23·4	315·0	+ 3·7		
20335	·754	278·7	3·7	+ 8·9	28	332
20336	·566	272·9	349·3	+ 4·7	2	54
20337	·180	161·4	311·7	− 6·0	13	79
11	8·537	+ 23·1	298·6	+ 3·5		
20335	·908	278·2	3·8	+ 9·0	70	372
20336	·785	273·1	350·2	+ 4·7	38	261
20338	·512	307·6	324·3	+21·3	4	18
20337	·278	234·5	311·6	− 5·7	24	146
01 1447	·870	61·4	240·2	+26·5	0	7
20339	·997	84·1	213·0	+ 6·2	12	107
11	9·400	+ 22·9	287·2	+ 3·5		
20335	·977	278·5	5·1	+ 9·0	56	481
20336	·894	273·6	350·4	+ 4·8	6	147
20338	·640	300·5	323·4	+21·7	5	31
20337	·444	250·2	311·9	− 5·4	18	124
20340	·315	33·5	276·7	+18·5	4	35
20341	·697	64·7	245·3	+19·9	0	15
20339	·960	84·1	213·4	+ 6·6	19	262
11	10·301	+ 22·7	275·3	+ 3·4		
20338	·758	296·1	322·3	+21·7	0	21
20337	·617	256·6	312·2	− 5·5	10	104
20340	·263	354·6	276·8	+18·4	18	160
20341	·564	58·3	244·7	+20·1	0	9
20339	·886	84·1	212·9	+ 6·8	16	202

U.T. and Group No.	Measures Rad. Dist.	Measures Pos. Ang.	Position Long.	Position Lat.	Area Umb.	Area Whole Spots
1961		°	°	°		
11	11·293	+ 22·5	262·2	+ 3·2		
20337	·777	259·7	312·2	− 5·9	6	77
20340	·365	316·2	277·6	+18·3	79	444
20341	·392	42·7	245·9	+19·8	0	9
20339	·736	83·9	215·0	+ 6·7	40	204
11	12·308	+ 22·2	248·8	+ 3·1		
20337	·901	262·2	312·3	− 5·6	7	56
20340	·530	300·2	277·5	+18·2	60	338
20342	·338	320·8	261·8	+18·1	0	4
20339	·560	82·5	215·0	+ 6·8	31	124
20343	·899	80·8	184·9	+ 9·6	0	17
11	13·384	+ 21·9	234·6	+ 3·0		
20337	·976	263·7	311·5	− 5·5	0	18
20340	·725	292·9	279·2	+18·5	44	274
20342	·508	301·1	261·7	+17·8	5	35
20339	·336	77·3	215·4	+ 7·1	22	133
20343	·755	80·3	185·9	+ 9·3	3	33
11	14·296	+ 21·7	222·6	+ 2·9		
20340	·845	290·1	279·1	+18·5	33	268
20342	·683	293·3	263·6	+17·8	4	39
20339	·138	57·7	215·9	+ 7·1	32	176
20343	·585	79·5	187·3	+ 8·5	0	13
11	15·337	+ 21·4	208·9	+ 2·8		
20340	·945	288·5	279·5	+18·4	10	129
20342	·838	289·6	264·7	+17·8	5	45
20339	·146	300·3	216·2	+ 7·0	34	167

Group 20336.	Nov. 7 - 9.	A short-lived stream of scattered spots.
Group 20337.	Nov. 7 - 13.	A small spot which appears near the central meridian and has following companions until November 9.
Group 20338.	Nov. 8 - 10.	A short-lived cluster of tiny spots.
Group 20339.	Nov. 8 - 20.	A stable regular spot until November 18 when it begins to break up and die out.
Group 20340.	Nov. 9 - 16.	A few tiny spots which develop rapidly into a complex stream led by a regular spot on November 11 after which the whole group begins to die out.
Group 20341.	Nov. 9 - 11.	Two or three tiny spots.

POSITIONS AND AREAS OF SUNSPOTS FOR EACH DAY IN THE YEAR

U.T. and Group No.	Measures Rad. Dist.	Measures Pos. Ang.	Position Long.	Position Lat.	Area Umb.	Area Whole Spots
1961		°	°	°		
11	16·341	+ 21·1	195·7	+ 2·7		
20340	·987	287·3	276·4	+17·5	0	18
20342	·935	288·2	264·5	+17·9	0	11
20339	·360	283·1	216·3	+ 7·1	35	175
11	17·291	+ 20·9	183·1	+ 2·5		
20339	·548	278·9	216·1	+ 7·0	13	151
11	18·554	+ 20·5	166·5	+ 2·4		
20339	·768	277·2	216·5	+ 7·0	16	130
11	19·507	+ 20·2	153·9	+ 2·3		
20339	·891	276·8	216·7	+ 7·1	16	124
11	20·416	+ 19·9	142·0	+ 2·2		
20339	·965	276·4	216·6	+ 6·7	8	60
20344	·684	281·6	184·6	+ 9·5	1	8
11	21·431	+ 19·6	128·6	+ 2·0		
20344	·839	279·4	185·3	+ 9·0	40	199
20345	·869	78·3	68·6	+11·1	2	15
11	22·419	+ 19·3	115·5	+ 1·9		
20344	·947	278·9	186·6	+ 9·0	52	509
20345	·722	76·6	70·1	+10·9	0	5
11	23·468	+ 18·9	101·7	+ 1·8		
20344	·991	280·2	183·8	+10·4	0	64
11	24·482	+ 18·6	88·4	+ 1·7		
20346	·456	80·8	61·6	+ 5·6	2	13
20347	·981	82·5	9·6	+ 7·7	10	116
11	25·517	+ 18·2	74·7	+ 1·5		
20346	·247	71·6	61·2	+ 5·9	0	10
20347	·909	82·2	9·6	+ 7·7	11	67
20348	·963	84·0	0·4	+ 6·2	51	195
11	26·283	+ 18·0	64·6	+ 1·4		
20346	·094	40·9	61·1	+ 5·5	0	4
20347	·816	81·5	10·3	+ 7·8	11	67
20348	·900	83·3	0·7	+ 6·7	31	225
11	27·367	+ 17·6	50·3	+ 1·3		
20346	·200	290·1	61·1	+ 5·2	0	14
20347	·648	79·1	10·5	+ 8·0	12	75
20348	·767	82·4	0·6	+ 6·6	37	208
20349	·956	99·8	338·0	− 8·9	3	88

Group 20342. Nov. 12 - 16. A pair of spots of which the leader alone survives on November 15.
Group 20343. Nov. 12 - 14. A pair of small spots.
Group 20344. Nov. 20 - 23. A tiny spot developing, by November 21, into a bi-polar group.
Group 20345. Nov. 21 - 22. One or two tiny spots.
Group 20346. Nov. 24 - 28. One or two tiny variable spots.
Group 20347. Nov. 24 - Dec. 1. A single spot.
Group 20348. Nov. 25 - Dec. 6. A regular spot which breaks up after November 30.
Group 20349. Nov. 27 - Dec. 4. A small stream of which the leader alone survives on November 30; it then breaks up to form a cluster of tiny spots.

POSITIONS AND AREAS OF SUNSPOTS FOR EACH DAY IN THE YEAR

U.T. and Group No.	Measures Rad. Dist.	Measures Pos. Ang.	Position Long.	Position Lat.	Area Umb.	Area Whole Spots
1961		°	°	°		
11	28·461	+ 17·2	35·9	+ 1·2		
20346	·414	278·7	60·1	+ 4·7	0	6
20347	·438	74·8	10·8	+ 7·6	8	56
20348	·586	80·5	0·5	+ 6·4	32	193
20349	·859	100·9	337·6	− 8·6	8	55
11	29·293	+ 16·9	24·9	+ 1·1		
20350	·698	240·8	64·9	−19·1	0	16
20351	·228	73·6	12·4	+ 4·7	0	21
20347	·262	63·8	11·3	+ 7·7	10	49
20348	·422	76·6	0·7	+ 6·6	29	172
20349	·745	102·1	337·8	− 8·2	14	122
11	30·292	+ 16·5	11·8	+ 0·9		
20350	·844	246·4	66·6	−19·2	0	2
20347	·114	0·9	11·7	+ 7·5	3	22
20351	·051	5·3	11·5	+ 3·9	1	13
20352	·192	33·1	5·7	+10·1	10	94
20348	·212	62·3	0·9	+ 6·5	27	172
20349	·568	106·4	338·5	− 8·5	9	49
20353	·659	70·7	332·3	+13·3	3	28
02 1447	·847	80·0	314·5	+ 8·9	0	10
20354	·886	72·8	310·6	+15·6	0	6
12	1·279	+ 16·1	0·0	+ 0·8		
20350	·934	248·5	65·9	−19·7	0	6
20347	·259	296·6	12·2	+ 7·4	2	17
20351	·239	282·6	12·2	+ 3·7	0	10
20352	·191	328·3	5·8	+10·1	9	87
20348	·113	332·9	1·7	+ 6·6	16	107
20349	·383	114·9	338·3	− 8·5	0	11
20353	·504	64·7	332·2	+13·1	1	29
20354	·791	70·4	309·4	+15·8	8	60
12	2·531	+ 15·6	342·3	+ 0·7		
20352	·442	294·3	6·4	+11·0	9	74
20348	·356	286·6	2·2	+ 6·4	18	98
20349	·169	153·7	337·9	− 8·1	5	17
20353	·276	40·6	331·7	+12·6	5	31
20354	·567	63·2	310·8	+15·3	28	123
12	3·280	+ 15·3	332·4	+ 0·6		
20352	·586	288·9	6·7	+11·4	16	77
20348	·512	281·5	2·6	+ 6·3	15	98
20349	·185	199·9	336·1	− 9·4	0	11
20353	·208	2·3	331·9	+12·5	0	13
20354	·412	53·1	312·6	+14·8	35	349
12	4·286	+ 14·9	319·2	+ 0·4		
01 1448	·802	298·9	8·7	+23·0	0	3
20352	·761	285·0	7·6	+11·6	13	76
20348	·700	278·6	3·1	+ 6·3	16	60
20349	·373	239·9	338·2	−10·4	0	3
20353	·309	313·8	332·3	+12·7	0	7
20354	·270	17·7	314·3	+15·2	55	394
12	5·282	+ 14·5	306·0	+ 0·3		
20352	·887	282·8	7·7	+11·4	6	31
20348	·846	277·5	3·4	+ 6·5	7	37
20353	·473	295·7	331·8	+12·1	0	9
20354	·304	328·9	315·3	+15·3	44	360

Group 20350. Nov. 29 - Dec. 1. A tiny spot.
Group 20351. Nov. 29 - Dec. 1. One or two tiny spots.
Group 20352. Nov. 30 - Dec. 5. A scattered stream of tiny spots appearing near the central meridian. From December 2 the stream is led by a regular spot which alone survives on December 4.
Group 20353. Nov. 30 - Dec. 5. A cluster of tiny spots.
Group 20354. Nov. 30 - Dec. 10. A few tiny spots which develop into an unstable stream by December 3. The leading components coalesce to form a regular spot by December 6; the rear components die out after December 7.

POSITIONS AND AREAS OF SUNSPOTS FOR EACH DAY IN THE YEAR

U.T. and Group No.	Measures Rad. Dist.	Measures Pos. Ang.	Position Long.	Position Lat.	Area Umb.	Area Whole Spots
1961		°	°	°		
12	6·456	+14·0	290·6	+ 0·1		
20348	·958	277·3	3·6	+ 7·0	0	29
03 1448	·938	273·4	0·1	+ 3·2	0	16
02 1448	·512	284·4	320·4	+ 7·4	0	9
20354	·504	301·4	316·9	+15·3	44	297
12	7·460	+13·6	277·3	+ 0·0		
04 1448	·905	257·6	341·4	−11·2	0	5
20355	·742	279·8	324·6	+ 7·3	3	44
20354	·675	292·9	317·2	+15·2	65	332
05 1448	·061	83·9	273·9	+ 0·4	0	9
12	8·284	+13·3	266·5	− 0·1		
20355	·848	279·7	323·8	+ 8·2	12	102
06 1448	·809	251·5	318·8	−14·9	0	5
20354	·798	289·1	317·6	+15·1	41	294
12	9·482	+12·7	250·7	− 0·2		
07 1448	·974	260·1	327·2	− 9·6	0	37
20355	·963	278·9	324·7	+ 8·5	26	163
20354	·924	286·3	317·0	+14·9	39	322
12	10·286	+12·4	240·1	− 0·4		
20355	·989	277·5	321·1	+ 7·4	0	13
20354	·977	285·2	317·1	+14·8	44	267
12	14·490	+10·5	184·7	− 0·9		
20356	·779	100·5	134·1	− 8·6	2	19
12	15·508	+10·1	171·3	− 1·0		
20356	·611	105·5	134·7	−10·1	0	6
12	17·441	+ 9·2	145·8	− 1·3		
20357	·986	76·6	66·1	+13·0	0	33
12	18·498	+ 8·7	131·9	− 1·4		
20357	·923	75·1	65·8	+13·1	0	19
12	19·497	+ 8·2	118·7	− 1·5		
20357	·810	72·2	66·5	+13·4	2	11
12	20·561	+ 7·7	104·7	− 1·7		
20358	·988	94·7	23·9	− 4·9	25	292
12	21·334	+ 7·4	94·5	− 1·8		
20358	·942	94·4	24·4	− 4·8	76	475
20359	·986	93·2	14·4	− 3·5	12	288

Group 20355. Dec. 7 - 10. A pair of growing spots.
Group 20356. Dec. 14 - 15. One or two tiny spots.
Group 20357. Dec. 17 - 19. A tiny spot.
Group 20358. Dec. 20 - Jan. 1. A regular spot, with a double umbra from December 25; it divides into two on December 31.
Group 20359. Dec. 21 - 28. A stream, declining in area as it crosses the disk.

POSITIONS AND AREAS OF SUNSPOTS FOR EACH DAY IN THE YEAR

U.T. and Group No.	Measures Rad. Dist.	Measures Pos. Ang.	Position Long.	Position Lat.	Area Umb.	Area Whole Spots
1961		°	°	°		
12	22·281	+ 6·9	82·1	− 1·9		
20360	·293	30·9	73·2	+12·6	1	20
20358	·836	94·7	25·5	− 4·9	57	390
20359	·922	92·6	15·1	− 3·0	22	223
12	23·298	+ 6·4	68·7	− 2·0		
20360	·274	341·9	73·7	+13·0	16	98
1	·291	333·2	76·4	+13·0	8	41
20358	·675	95·0	26·4	− 4·8	44	305
20359	·809	92·7	14·8	− 3·3	29	209
20361	·947	65·5	0·2	+22·4	0	6
12	24·431	+ 5·9	53·7	− 2·1		
20362	·655	270·7	94·5	− 1·1	11	64
20360	·440	306·4	75·0	+13·1	49	358
1	·463	304·1	76·8	+13·0	29	225
20358	·460	95·7	26·5	− 4·5	53	326
20359	·624	93·5	15·3	− 3·7	26	110
08 1448	·743	72·1	7·7	+11·7	0	3
20361	·840	63·1	0·6	+21·0	8	59
20363	·856	60·7	359·5	+23·5	2	19

U.T. and Group No.	Measures Rad. Dist.	Measures Pos. Ang.	Position Long.	Position Lat.	Area Umb.	Area Whole Spots
1961		°	°	°		
12	25·273	+ 5·5	42·6	− 2·2		
20362	·788	269·0	94·5	− 2·1	0	29
20360	·594	295·9	75·8	+13·1	43	330
1	·615	294·8	77·5	+13·1	28	241
20358	·276	98·3	26·8	− 4·4	42	261
20359	·450	94·2	16·1	− 3·8	11	88
20361	·726	58·1	1·6	+20·8	9	55
20363	·759	55·9	359·6	+23·5	5	32
09 1448	·922	98·6	335·6	− 8·8	0	5
12	26·318	+ 5·0	28·9	− 2·4		
20360	·763	289·1	76·4	+12·9	52	295
1	·777	288·6	77·7	+12·8	41	236
20358	·043	133·0	27·1	− 4·0	70	274
20359	·209	99·0	17·0	− 4·1	4	60
20361	·556	45·7	3·9	+20·6	32	141
20364	·529	68·8	359·1	+ 8·9	2	21
20363	·632	47·1	358·7	+23·4	12	90
20365	·590	67·7	355·2	+10·9	9	62

Group 20360. Dec. 22 - 28. A stream of scattered spots. The leading components become regular in outline by December 24 and alone survive at the west limb.

Group 20361. Dec. 23 - Jan. 3. A small stream which becomes a close pair of spots by December 26. These, in turn, coalesce to form a regular spot on December 31.

Group 20362. Dec. 24 - 25. Scattered spots in stream formation.

POSITIONS AND AREAS OF SUNSPOTS FOR EACH DAY IN THE YEAR

U.T. and Group No.	Measures		Position		Area	
	Rad. Dist.	Pos. Ang.	Long.	Lat.	Umb.	Whole Spots
1961		°	°	°		
12	27·438	+ 4·5	14·1	− 2·5		
20360	·904	285·4	77·3	+12·7	35	316
1	·906	285·4	77·5	+12·7	35	304
20358	·229	263·6	27·2	− 3·9	37	259
20359	·064	236·3	17·1	− 4·4	1	45
20361	·426	23·0	3·9	+20·5	26	181
20364	·319	53·6	359·2	+ 8·5	2	25
20363	·503	30·0	358·3	+23·3	10	80
20365	·409	54·8	354·3	+11·3	13	100
12	28·279	+ 4·0	3·1	− 2·6		
20360	·965	283·6	76·7	+12·3	32	271
1	·965	283·6	76·7	+12·3	32	271
20358	·412	266·5	27·3	− 3·8	53	237
20359	·253	261·1	17·5	− 4·7	0	24
20361	·386	356·6	4·5	+20·0	30	125
20364	·207	11·0	0·8	+ 9·1	1	15
20363	·436	9·2	358·7	+22·8	7	44
20365	·286	31·5	354·3	+11·5	12	61

U.T. and Group No.	Measures		Position		Area	
	Rad. Dist.	Pos. Ang.	Long.	Lat.	Umb.	Whole Spots
1961		°	°	°		
12	29·279	+ 3·6	349·9	− 2·7		
20358	·612	266·6	27·5	− 4·2	44	272
20361	·449	329·1	4·0	+19·9	30	184
20364	·277	315·4	1·2	+ 8·7	3	11
20363	·450	340·5	359·2	+22·3	7	46
20365	·266	341·6	354·8	+11·8	9	47
12	30·289	+ 3·1	336·6	− 2·8		
20358	·776	267·6	27·4	− 3·6	38	240
20361	·580	311·3	4·1	+19·9	21	196
20364	·459	295·3	1·3	+ 8·7	3	17
20363	·555	319·4	359·5	+22·2	0	13
20365	·400	308·5	355·2	+11·7	2	20
12	31·335	+ 2·6	322·8	− 3·0		
20358	·905	267·2	27·4	− 3·8	20	164
20361	·729	300·9	4·3	+19·7	26	122
20364	·649	286·9	1·5	+ 8·6	0	7
20363	·696	306·6	359·7	+22·1	1	16

Group 20363. Dec. 24 - 31. A cluster of small spots, closely to the north of and following Group 20361.

Group 20364. Dec. 26 - Jan. 1. A small cluster of variable spots; only a single component is seen between December 29 - 31.

Group 20365. Dec. 26 - 30. A regular spot which breaks up, by December 28, into a short-lived cluster.

GENERAL CATALOGUE

OF SUNSPOTS

FOR THE YEAR 1961

GENERAL CATALOGUE OF GROUPS OF SUNSPOTS FOR THE YEAR 1961

Groups of sunspots, lasting for two or more days, are numbered in the *first* column in continuation of the group numbers given in *R. Obs. Bulletin* No. 132. Groups seen on one day only are not included in this catalogue but are given with a distinctive numeration in a following table on page C 251.

The *second* column gives the U.T. of the central meridian passage of each group as deduced from its mean longitude (given in the *tenth* column). For those groups which are in existence at the time of the central meridian passage of their longitude, the time is given to $0^{d}.01$, corresponding to $0^{\circ}.13$ of solar longitude. In other cases, in which groups disappear before or appear after the central meridian, the deduced time is given to $0^{d}.1$.

The *third* column gives the duration of each group in days. Intermittent groups, i.e. groups which are not seen upon the photographs of every day between their first and last appearances, are indicated by a fraction, the numerator of which represents the number of days on which they are actually observed, the denominator being the number of days covering the extreme limits of observation.

The *fifth* and *seventh* columns, headed longitude from central meridian, give, for the days on which each group was first and last seen respectively, the heliographic longitude from the meridian passing through the centre of the Sun's disk at the time of observation, longitudes west of the centre being reckoned as positive.

The mean areas for umbræ and whole spots entered in the *eighth* and *ninth* columns are corrected for the effect of foreshortening and are expressed in millionths of the Sun's visible hemisphere.

The *tenth* and *eleventh* columns give the mean heliographic position of the group in longitude and latitude respectively.

When a group is 80° or more from the Sun's central meridian, or in cases of close proximity to the Sun's limb when only part of the group is visible, the measures for that day are not included in deriving the mean area or the mean longitude and latitude of the group.

With reference to the identification of recurrent groups, it should be noted that longitudes are based on the ephemeris given in the *Astronomical Ephemeris*, assuming a solar rotation period constant at all latitudes. After an interval of one rotation, recurring groups will, therefore, show in general - apart from any proper motion they may have of their own - apparent drifts in longitude varying in amount according to their respective latitudes. The following table, derived from the formula $\xi = 14^\circ.37 - 2^\circ.60 \sin^2 \varphi$, gives the apparent drift in longitude appropriate to different latitudes after an interval of 27 days, a drift forwards corresponding to an increase in heliographic longitude.

Latitude	.. Drift *forwards*	Latitude	.. Drift *backwards*
0°	5°	20°	3°
5°	4.5	25°	7.5
10°	3	30°	12.5
15°	0.5	35°	18

GENERAL CATALOGUE OF SUNSPOTS

No. of Group	U.T. of C.M.P.	Duration	First Seen Date	First Seen Long. from C.M.	Last Seen Date	Last Seen Long. from C.M.	Corrected Mean Area Umbræ	Corrected Mean Area Whole Spots	Mean Position Long.	Mean Position Lat.	Reference
	1961	d	1961	°	1961	°			°	°	
20133	Jan. 6·37	11	Jan. 2	−57	Jan. 12	+81	88	517	20·9	+21·8	1921 (1)
4	9·3	2	3	−77	4	−63	2	25	342·1	−11·3	1919 (2)
20135	4·9	3	6	+22	8	+46	6	27	40·9	+ 9·0	
6	11·92	13	6	−72	18	+86	19	98	307·8	−11·8	
7	13·69	7	13	− 6	19	+73	14	91	284·5	−10·4	
8	18·98	8	16	−36	23	+61	23	118	214·9	− 4·3	
9	22·86	8	17	−73	24	+19	7	34	163·8	− 5·6	
20140	23·1	2	20	−34	21	−23	1	13	161·3	− 9·9	
1	27·47	8	21	−79	28	+ 4	15	79	103·1	+17·0	1920 (2)
2	30·99	12	25	−77	Feb. 5	+72	55	323	56·8	+ 8·5	1922 (1)
3	Feb. 1·3	3	26	−75	Jan. 28	−55	8	57	39·3	−23·5	
4	Jan. 26·3	6	27	+15	Feb. 1	+78	43	269	118·3	+ 5·7	
20145	25·5	3	28	+35	Jan. 30	+63	4	42	129·2	− 5·8	
6	31·7	4	28	−48	31	− 2	3	18	47·4	+ 9·8	
7	Feb. 3·05	10	28	−76	Feb. 6	+44	24	173	16·4	+22·2	1921 (2)
8	5·63	7	31	−70	6	+12	6	30	342·4	−16·1	
9	6·37	11	Feb. 1	−66	11	+66	15	89	332·7	− 8·5	
20150	9·67	13	3	−84	15	+76	42	305	289·3	+ 4·1	
1	9·5	2	4	−68	5	−56	0	12	290·8	−10·1	
2	9·28	5	7	−26	11	+28	1	25	294·4	−10·6	
3	11·39	7	7	−53	13	+28	6	35	266·6	− 9·2	
4	10·10	2	9	− 8	10	+ 4	0	11	283·6	− 7·8	
20155	9·0	2	14	+71	15	+85	0	13	298·1	−11·4	
6	11·3	2	16	+66	17	+80	0	19	267·3	−17·4	
7	21·9	6	16	−77	21	− 4	3	27	127·6	+ 7·3	
8	13·0	2	17	+58	18	+71	0	11	245·7	+ 8·7	
9	23·77	13	17	−80	Mar. 1	+76	6	55	103·6	−11·6	
20160	22·89	7	21	−17	Feb. 27	+58	5	23	115·2	−14·1	
1	27·02	13	21	−73	Mar. 5	+83	20	109	60·8	+ 7·3	1922 (2)
2	26·18	4	23	−34	Feb. 26	+ 4	6	38	71·9	−11·9	
3	Mar. 7·72	9	Mar. 1	−80	Mar. 9	+22	3	25	306·1	−10·4	
4	Feb. 26·5	3	2	+52	4	+77	0	11	67·6	+ 1·6	
20165	Mar. 2·70	3	2	− 3	4	+23	1	11	12·3	+19·8	
6	Feb. 26·7	2	3	+62	4	+75	5	44	65·4	−10·3	
7	Mar. 9·8	4	3	−84	6	−45	1	11	279·4	−15·9	
8	7·25	7	5	−27	11	+59	6	40	312·4	+ 3·8	
9	14·30	13	8	−78	20	+81	30	163	219·4	− 5·9	
20170	5·9	3	9	+48	11	+72	1	12	329·9	−15·1	
1	12·7	4	14	+21	17	+62	3	23	240·4	+20·6	
2	14·77	3	14	− 5	16	+21	1	16	213·3	− 9·3	
3	17·7	4	14	−45	17	− 3	3	26	175·1	+19·8	
4	19·40	10	14	−68	23	+54	11	49	152·2	+ 3·9	
20175	13·0	4	15	+34	18	+71	4	24	237·0	+22·8	
6	19·2	3	16	−38	18	−10	7	28	154·4	−24·4	
7	18·60	3	17	−16	19	+10	1	13	162·8	+ 2·2	
8	24·6	3	18	−80	20	−57	1	26	83·6	−20·6	
9	26·05	13	20	−75	Apr. 1	+84	80	417	64·6	+ 8·1	1923 (1)

GENERAL CATALOGUE OF SUNSPOTS

No. of Group	U.T. of C.M.P.	Duration	First Seen Date	First Seen Long. from C.M.	Last Seen Date	Last Seen Long. from C.M.	Corrected Mean Area Umbræ	Corrected Mean Area Whole Spots	Mean Position Long.	Mean Position Lat.	Reference
	1961	d	1961	°	1961	°			°	°	
20180	Mar. 21·54	7	Mar. 21	− 4	Mar. 27	+77	22	104	124·1	+ 8·3	
1	27·12	13	21	−78	Apr. 2	+80	21	116	50·4	+ 7·1	
2	21·4	5	23	+25	Mar. 27	+80	33	179	126·5	+ 3·9	1924 (1)
3	31·61	12	25	−82	Apr. 5	+64	25	160	351·2	−13·6	
4	Apr. 1·66	13	26	−77	7	+75	32	188	337·4	−18·8	
20185	Mar. 28·79	2 / 3	28	− 7	Mar. 30	+23	1	5	28·4	+10·7	
6	Apr. 2·3	2	28	−67	29	−53	0	14	328·3	+10·7	
7	2·97	11	28	−74	Apr. 7	+57	9	58	320·1	−16·6	
8	3·2	4	28	−79	Mar. 31	−41	1	12	316·6	− 8·5	
9	3·83	12	28	−84	Apr. 8	+58	15	100	308·7	−16·8	
20190	Mar. 26·2	4	29	+38	1	+81	0	6	62·3	− 9·7	
1	Apr. 2·86	6 / 7	Apr. 2	− 6	8	+73	14	116	321·5	− 8·5	
2	9·07	13	3	−78	15	+84	22	117	239·5	− 4·4	
3	6·11	9	4	−26	12	+78	35	242	278·6	+13·3	1925 (1)
4	13·8	2	9	−58	10	−44	1	18	176·5	+ 4·9	
20195	17·0	6	11	−72	16	−10	1	21	134·5	+14·5	
6	17·25	13	11	−76	23	+81	30	183	131·6	+ 3·0	1924 (2)
7	15·38	3	13	−27	15	+ 1	2	19	156·3	−28·6	
8	16·50	9	13	−42	21	+63	15	95	141·4	+14·1	
9	19·0	2	16	−36	17	−17	1	7	108·1	− 9·6	
20200	22·24	13	16	−77	28	+80	43	225	65·6	+ 8·7	1923 (2)
1	22·4	6	16	−76	21	−14	4	38	63·9	−12·3	
2	17·81	2	17	− 3	18	+ 7	0	9	124·2	+ 2·8	
3	23·18	8	17	−77	24	+16	4	20	53·2	− 9·7	
4	17·8	4	19	+24	22	+61	3	27	124·5	+ 9·2	
20205	18·8	3	21	+33	23	+61	1	6	110·7	− 9·3	
6	30·57	12	24	−82	May 5	+67	43	355	315·6	− 9·3	
7	30·1	4	26	−51	Apr. 29	− 8	4	26	322·2	− 3·5	
8	30·35	10	27	−39	May 6	+82	61	391	318·5	+ 3·5	
9	May 2·94	11	27	−70	7	+58	9	45	284·3	+12·3	1925 (2)
20210	Apr. 27·1	3	30	+45	2	+69	2	15	1·2	+ 5·7	
1	May 10·5	4	May 4	−75	7	−47	0	11	183·7	+ 9·1	
2	12·1	5	6	−77	10	−23	6	37	163·5	+12·2	
3	12·19	7	6	−78	12	+ 4	15	91	161·9	+ 6·9	
4	12·42	13	6	−84	18	+81	35	205	159·0	+ 3·5	
20215	10·8	2	9	−21	10	− 6	0	6	179·9	+10·1	
6	12·70	5 / 6	11	−18	16	+49	1	19	155·2	+11·2	
7	15·2	3	11	−52	13	−24	1	16	122·1	+21·5	
8	19·52	13	13	−81	25	+76	23	140	65·0	+ 8·9	1923 (3)
9	19·6	2	15	−51	16	−44	0	7	64·4	−10·5	
20220	17·7	6	18	+ 5	23	+78	38	231	89·6	+ 3·1	
1	18·95	2 / 3	18	−10	20	+19	0	16	72·6	−14·1	
2	19·50	5	18	−16	22	+37	2	24	65·3	−11·7	
3	23·52	8 / 9	18	−69	26	+42	1	25	12·2	+13·9	
4	25·66	10	19	−81	28	+36	13	93	343·8	+17·1	
20225	26·65	13	20	−86	June 1	+76	23	124	330·7	+ 2·7	
6	29·3	2	24	−66	May 25	−52	0	11	296·0	+16·9	
7	26·85	7	25	−24	31	+60	12	62	328·1	+ 5·0	
8	June 2·9	5	29	−62	June 2	− 9	3	26	234·2	− 9·9	
9	6·32	11	June 1	−70	11	+71	20	104	189·5	− 3·2	

GENERAL CATALOGUE OF SUNSPOTS

No. of Group	U.T. of C.M.P.	Duration	First Seen Date	First Seen Long. from C.M.	Last Seen Date	Last Seen Long. from C.M.	Corrected Mean Area Umbræ	Corrected Mean Area Whole Spots	Mean Position Long.	Mean Position Lat.	Reference
	1961	d	1961	°	1961	°			°	°	
20230	June 6·94	11	June 1	−75	June 11	+60	12	77	181·3	− 6·6	
1	May 30·5	4	2	+38	5	+76	9	77	279·4	+ 8·4	
2	June 8·01	12	2	−78	13	+78	12	98	167·2	+ 1·1	
3	May 31·4	3	4	+54	6	+79	1	25	268·4	+17·4	
4	June 2·6	2 / 3	4	+24	6	+49	0	5	239·2	− 9·9	
20235	6·17	3	4	−28	6	+ 4	3	23	191·5	+12·0	
6	8·4	2	8	+ 4	9	+12	1	14	161·9	+10·2	
7	15·40	13	9	−81	21	+80	89	638	69·3	+ 3·0	1926 (1)
8	15·9	2	10	−71	11	−59	0	20	63·2	+ 8·8	
9	17·30	8	11	−78	18	+16	3	27	44·2	−18·5	
20240	18·10	13	12	−77	24	+83	55	487	33·6	− 8·9	
1	10·1	3	14	+56	16	+83	5	19	139·7	+13·5	
2	12·3	3	15	+41	17	+65	5	29	109·8	− 3·5	
3	21·01	12	15	−76	26	+72	30	175	355·1	− 6·7	
4	15·5	6	16	+11	21	+81	20	111	68·3	−11·1	
20245	22·8	7	16	−82	22	−10	11	79	330·8	+22·6	
6	23·48	10	18	−64	27	+53	9	72	322·3	+10·0	
7	23·91	12	18	−70	29	+71	14	89	316·7	+13·8	
8	19·66	8	19	− 7	26	+83	76	555	12·9	+12·9	1927 (1)
9	22·17	2	21	−11	22	+ 2	0	9	339·7	− 6·6	
20250	22·7	2	21	−17	22	− 5	0	17	333·0	−21·3	
1	21·8	4	24	+32	27	+74	4	42	344·1	− 6·3	
2	July 2·12	7	26	−76	July 2	+ 3	9	47	208·0	−14·1	
3	June 28·41	8	27	−17	4	+79	67	578	257·1	+ 6·5	1928 (1)
4	July 2·9	2	29	−47	June 30	−34	1	7	198·0	− 6·1	
20255	6·50	13	30	−81	July 12	+79	68	381	150·0	+13·0	1929 (1)
6	June 29·1	4	July 2	+44	5	+80	10	69	248·0	+19·4	
7	July 4·84	8	3	−22	10	+75	12	66	172·0	+12·2	
8	2·3	4	5	+38	8	+84	16	110	205·7	+19·5	
9	12·34	13	6	−79	18	+79	22	131	72·7	+ 3·0	1926 (2)
20260	14·09	12	9	−65	20	+82	138	1022	49·5	− 7·0	
1	14·3	4	9	−64	12	−24	5	38	47·1	+17·5	
2	16·55	13	10	−81	22	+77	42	261	17·0	+12·1	1927 (2)
3	12·6	3	13	+14	15	+35	6	41	68·8	−11·7	
4	19·98	7	14	−78	20	+ 8	8	87	331·6	− 7·0	
20265	23·29	9	17	−78	25	+29	9	63	287·9	+ 1·3	
6	23·4	6 / 7	17	−78	23	− 2	0	13	285·8	−14·9	
7	20·60	6	19	−20	24	+55	8	35	323·4	− 5·6	
8	25·19	13	19	−78	31	+82	69	485	262·7	+ 8·4	1928 (2)
9	20·7	3	22	+19	24	+48	1	11	321·6	− 8·8	
20270	21·0	5	23	+32	27	+81	21	179	318·1	+ 9·4	
1	30·1	3	24	−76	26	−45	4	28	197·2	− 0·4	
2	Aug. 2·8	5	28	−72	Aug. 1	−18	5	38	148·2	+13·9	1929 (2)
3	July 29·5	5	31	+23	4	+78	7	46	205·5	+23·1	
4	Aug. 2·8	2	31	−32	1	−20	1	13	148·6	−22·4	
20275	July 31·3	2	Aug. 3	+40	4	+54	1	22	181·7	−15·0	
6	Aug. 9·4	2	4	−67	5	−54	0	13	61·4	− 6·2	
7	14·2	8	7	−86	14	+ 2	17	121	358·6	+15·8	
8	14·25	12	8	−80	19	+71	21	118	357·4	+13·0	
9	14·5	5	8	−82	12	−29	0	17	353·6	− 5·2	

GENERAL CATALOGUE OF SUNSPOTS

No. of Group	U.T. of C.M.P.	Duration	First Seen Date	First Seen Long. from C.M.	Last Seen Date	Last Seen Long. from C.M.	Corrected Mean Area Umbræ	Corrected Mean Area Whole Spots	Mean Position Long.	Mean Position Lat.	Reference
	1961	d	1961	°	1961	°			°	°	
20280	Aug. 8·9	7	Aug. 9	+ 5	Aug. 15	+88	9	110	67·6	+17·6	
1	9·98	2	9	− 6	10	+ 2	0	7	53·9	− 5·8	
2	14·1	2	9	−63	10	−49	0	5	359·9	− 7·4	
3	16·07	13	10	−78	22	+85	47	308	333·4	+ 6·9	
4	16·1	6	10	−77	15	− 7	6	65	332·4	− 2·2	
20285	7·7	3	11	+49	13	+75	0	18	83·7	− 9·6	
6	15·0	3	11	−46	13	−22	0	11	348·0	+16·2	
7	18·2	4	12	−79	15	−36	1	34	304·8	+ 0·9	
8	18·9	5	13	−74	17	−21	5	42	295·6	+ 0·5	
9	14·51	4	14	− 2	17	+38	5	40	354·1	− 7·3	
20290	20·4	6	14	−80	19	−15	2	18	276·7	−15·9	
1	17·34	3 / 5	15	−27	19	+28	0	12	316·6	+10·9	
2	21·29	8	15	−77	22	+13	15	92	264·3	+ 7·0	1928 (3)
3	18·26	2	17	−13	18	+ 3	1	23	304·5	+ 0·3	
4	19·4	3	17	−27	19	− 1	0	13	289·6	− 4·5	
20295	22·5	2	19	−43	20	−28	0	7	248·0	+18·4	
6	26·53	8	20	−82	27	+ 7	2	22	195·1	−15·7	
7	25·8	2	21	−59	22	−48	0	10	204·2	+16·9	
8	20·8	3	23	+35	25	+62	2	16	270·6	+23·6	
9	25·71	9	24	−15	Sept. 1	+85	42	395	206·0	+17·0	1930 (1)
20300	30·7	2	24	−80	Aug. 25	−68	0	9	140·3	+19·8	
1	31·1	2	26	−63	27	−48	0	16	135·2	+19·9	
2	25·7	3	28	+35	30	+60	0	9	205·5	+11·5	
3	Sept. 4·22	13	29	−84	Sept. 10	+84	105	955	80·3	+13·2	1931 (1)
4	14·84	12	Sept. 9	−76	20	+78	64	462	300·2	− 9·8	
20305	15·95	14	9	−85	22	+84	85	576	285·4	+14·6	
6	13·51	5	13	− 2	17	+56	5	59	317·7	+20·3	
7	14·08	6	13	−12	18	+59	9	49	310·2	−13·8	
8	12·4	4	14	+28	17	+65	3	38	332·7	+10·6	
9	21·95	13	16	−73	28	+84	29	150	206·3	+18·7	1930 (2)
20310	18·8	5	19	+ 5	23	+66	6	31	248·1	+ 3·6	
1	23·45	9	21	−25	29	+81	25	135	186·5	+ 7·2	
2	20·8	4 / 5	22	+19	26	+73	1	16	221·5	+ 3·5	
3	28·84	9	23	−74	Oct. 1	+36	7	58	115·4	+ 3·1	
4	Oct. 1·01	11	24	−85	4	+44	17	95	86·7	+12·2	1931 (2)
20315	2·44	13	26	−83	8	+79	28	185	67·9	+13·3	
6	Sept. 30·7	2	Oct. 2	+23	3	+34	3	28	91·4	+ 6·4	
7	Oct. 4·04	6	3	−12	8	+60	9	65	46·7	−13·3	
8	7·8	5	3	−60	7	− 4	0	18	357·5	+15·9	
9	1·0	2	4	+46	5	+56	0	12	86·5	+11·4	
20320	12·94	11	8	−61	18	+72	10	64	289·3	+11·4	
1	9·2	4	9	+ 6	12	+39	12	70	339·0	+ 5·1	
2	16·12	14	9	−87	22	+82	70	393	247·3	+17·9	
3	11·5	6	12	+ 8	17	+84	31	177	308·3	− 8·0	
4	19·9	2	14	−72	15	−61	1	22	197·5	+12·7	
20325	14·5	2	16	+25	17	+41	0	12	269·4	+16·1	
6	23·5	3	17	−80	19	−54	1	22	149·8	+17·3	
7	19·42	6	18	−16	23	+55	0	15	203·9	+ 8·6	
8	23·5	5 / 6	18	−69	23	− 2	0	5	149·6	−16·9	
9	24·4	2	19	−67	20	−54	12	41	138·3	− 8·0	

GENERAL CATALOGUE OF SUNSPOTS

No. of Group	U.T. of C.M.P.	Duration	First Seen Date	First Seen Long. from C.M.	Last Seen Date	Last Seen Long. from C.M.	Corrected Mean Area Umbræ	Corrected Mean Area Whole Spots	Mean Position Long.	Mean Position Lat.	Reference
	1961	d	1961	°	1961/62	°			°	°	
20330	Oct. 15·2	2	Oct. 20	+67	Oct. 21	+80	13	64	259·0	+14·0	
1	23·7	3	24	+10	26	+35	0	12	147·4	+17·9	
2	24·3	2	24	+ 2	25	+12	2	19	138·9	− 6·9	
3	24·7	2	25	+ 8	26	+22	0	16	134·0	+18·7	
4	26·4	5	27	+11	31	+66	0	22	111·5	+ 8·9	
20335	Nov. 3·6	6	Nov. 4	+10	Nov. 9	+78	29	237	3·5	+ 9·1	
6	4·6	3	7	+34	9	+63	15	154	350·0	+ 4·8	
7	7·52	7	7	− 3	13	+77	11	86	312·0	− 5·7	
8	6·7	3	8	+26	10	+47	3	23	323·4	+21·6	
9	14·83	13	8	−86	20	+75	24	159	215·6	+ 7·0	
20340	10·09	8	9	−11	16	+81	35	235	278·1	+18·4	
1	12·6	3	9	−42	11	−16	0	11	245·4	+19·9	
2	11·2	5	12	+13	16	+69	3	27	263·3	+18·0	
3	17·1	3	12	−64	14	−35	1	21	186·1	+ 9·2	
4	17·1	4	20	+43	23	+82	31	239	185·6	+ 9·2	
20345	25·9	2	21	−60	22	−46	1	10	69·4	+11·1	
6	26·55	5	24	−27	28	+24	0	9	61·1	+ 5·4	
7	30·37	8	24	−79	Dec. 1	+14	8	59	10·8	+ 7·7	
8	Dec. 1·05	12	25	−74	6	+73	23	133	1·8	+ 6·6	
9	2·87	8	27	−72	4	+19	5	45	337·9	− 8·9	
20350	Nov. 26·2	3	29	+40	1	+67	0	8	65·9	−19·4	
1	30·27	3	29	−13	1	+13	0	15	12·1	+ 4·1	
2	30·68	6	30	− 6	5	+62	11	73	6·7	+11·0	
3	Dec. 3·30	6	30	−40	5	+26	2	20	332·1	+12·8	
4	4·64	11	30	−61	10	+77	37	255	314·5	+15·2	
20355	3·9	4	Dec. 7	+47	10	+81	14	103	324·4	+ 8·0	
6	18·3	2	14	−51	15	−37	1	13	134·4	− 9·4	
7	23·5	3	17	−80	19	−52	1	21	66·2	+13·2	
8	26·56	13	20	−81	Jan. 1	+78	47	281	26·8	− 4·3	
9	27·28	8	21	−80	Dec. 28	+14	13	108	16·2	− 3·9	
20360	22·78	7	22	− 9	28	+74	33	241	75·5	+12·9	1932 (1)
1	28·54	12	23	−68	Jan. 3	+82	22	126	3·2	+20·4	
2	21·3	2	24	+41	Dec. 25	+52	6	47	94·5	− 1·6	
3	28·57	8	24	−54	31	+37	6	43	359·2	+22·9	
4	28·79	8	26	−30	Jan. 2	+70	2	20	1·2	+ 9·2	
20365	28·90	5	26	−34	Dec. 30	+19	9	58	354·8	+11·5	

GENERAL CATALOGUE OF SUNSPOTS

SUNSPOTS SEEN ON ONE DAY ONLY

The groups of sunspots tabulated below were seen on one day only and appear in the *Daily Results* with a distinctive numeration, comprising the number of the rotation during which each was observed prefixed by a number, in smaller type, given in order of appearance. These short-lived groups are usually composed of one or two very small spots. The deduced time of central meridian passage of each spot is given in the fourth column of the table.

Number of Group	Date	Longitude from Central Meridian	U.T. of Central Meridian Passage	Area Corrected for Fore-shortening		Position of Group	
				Umbræ	Whole Spots	Longi-tude	Lati-tude
	1961	°	1961			°	°
1435 01	Jan. 5	−61·6	Jan. 10·1	0	26	331·1	+ 7·2
02	7	−34·8	10·1	0	7	332·2	+13·4
1436 01	9	− 1·3	9·5	0	17	339·8	−11·8
02	9	− 9·9	10·1	2	15	331·2	+ 7·5
03	25	−28·4	27·4	0	4	103·4	+19·7
04	27	+62·5	22·8	0	8	164·7	−11·9
05	28	−13·2	29·1	2	11	81·5	+12·9
06	29	+ 0·1	29·3	0	20	78·6	+17·4
07	31	− 9·4	Feb. 1·1	0	12	42·0	−20·9
1437 01	Feb. 4	+58·3	Jan. 31·0	2	18	56·6	+13·4
02	9	+68·6	Feb. 4·3	25	76	359·8	+10·4
03	17	−12·0	18·4	1	13	174·5	+13·1
04	22	+53·5	18·4	2	21	173·8	+19·0
05	22	− 4·2	22·8	1	9	116·0	+ 7·0
06	22	−71·5	27·9	0	6	48·8	−14·2
07	24	−32·7	26·8	0	5	63·6	−13·6
08	28	−70·2	Mar. 5·7	0	34	332·7	+ 3·9
09	Mar. 2	+37·0	Feb. 27·7	4	23	51·9	−13·0
1438 01	17	−19·7	Mar. 18·9	2	10	159·4	− 4·2
02	17	−68·4	22·5	3	12	110·8	−12·7
03	19	−35·5	22·1	0	13	116·7	− 9·1
04	27	+ 9·4	26·6	2	10	57·2	−10·1
1439 01	Apr. 15	+29·4	Apr. 13·1	1	9	185·9	+ 1·9
02	17	+58·9	13·2	2	26	185·4	+ 2·6
03	18	+54·4	14·2	0	14	171·8	− 0·1
04	18	−46·6	21·8	0	10	70·8	−15·7
1440 01	29	+72·6	23·9	0	36	43·7	−10·9
02	30	− 3·6	30·7	0	9	314·0	−22·0
03	May 6	+69·1	May 1·1	0	10	308·7	−10·5
04	14	+14·0	13·3	1	7	146·9	+ 1·3
05	14	−61·4	19·0	0	20	71·5	−13·7
06	15	−42·6	18·8	0	10	73·9	+13·5
07	19	−11·7	20·2	0	14	55·6	− 9·4
1441 01	25	− 7·0	25·8	0	7	341·3	+ 5·3
02	25	−19·1	26·8	0	11	329·2	− 9·5
03	27	−22·5	29·0	1	12	300·0	+14·0
04	28	+20·6	26·8	0	8	329·1	− 8·9
05	30	+50·4	26·5	0	17	332·7	− 8·6
06	30	− 2·1	30·5	0	6	280·2	+ 8·7
07	June 1	+61·3	27·7	0	12	316·8	+13·9
08	4	+16·9	June 3·1	0	11	232·5	−10·9
09	11	−69·3	16·6	0	17	53·2	−12·6
10	15	+27·9	13·2	0	3	98·2	+ 8·6
11	19	−51·7	23·2	0	13	325·8	+ 1·7
12	20	+60·1	15·8	0	10	64·6	−15·1
1442 01	21	−47·4	24·9	0	4	303·5	−11·3
		[illegible]	[illegible]	0	1	332·3	+ 4·3

GENERAL CATALOGUE OF SUNSPOTS

SUNSPOTS SEEN ON ONE DAY ONLY

Number of Group	Date	Longitude from Central Meridian	U.T. of Central Meridian Passage	Area Corrected for Fore-shortening: Umbræ	Area Corrected for Fore-shortening: Whole Spots	Position of Group: Longi-tude	Position of Group: Lati-tude
	1961	°	1961			°	°
1442 06	July 11	−53·0	July 15·4	0	4	32·7	−10·1
07	12	−76·3	18·3	0	4	353·7	− 7·0
08	14	+ 0·7	14·3	0	6	47·0	+17·4
1443 01	19	−23·5	21·1	3	16	316·8	+ 9·9
02	19	−31·1	21·7	1	5	309·2	+18·4
03	21	+38·5	18·4	1	25	352·5	+13·3
04	26	−48·2	30·3	0	5	195·0	− 9·9
05	27	+54·6	23·2	0	25	288·8	+17·9
06	28	+ 3·9	28·1	0	7	223·9	+17·8
07	Aug. 5	+35·6	Aug. 2·6	1	22	151·1	−21·2
08	6	+51·4	2·4	0	7	153·6	+ 3·0
09	8	−69·1	13·7	0	9	4·8	+10·1
10	11	−71·4	16·8	3	38	323·1	+ 9·0
1444 01	14	+ 2·9	14·1	1	12	359·1	+ 4·1
02	16	− 4·1	16·6	0	20	325·8	+11·3
03	18	+57·1	14·1	0	6	358·9	+18·7
04	18	+14·2	17·4	0	11	315·9	+ 4·6
05	18	−11·0	19·3	0	8	290·7	+ 9·8
06	23	−47·1	27·1	4	17	187·7	+11·0
07	30	− 9·9	31·1	0	11	135·0	−11·7
08	Sept. 6	+ 6·1	Sept. 6·0	0	2	56·4	+ 8·4
09	7	−36·8	10·1	0	20	2·6	+16·9
10	7	−62·9	12·1	0	8	336·6	+ 6·6
11	10	− 0·9	10·4	0	1	359·2	−11·5
1445 01	11	−36·8	14·1	0	15	309·4	+20·0
02	16	+74·7	10·7	0	41	354·8	+12·2
03	16	+72·9	10·8	0	9	353·0	− 7·1
04	22	+48·0	18·7	0	5	249·3	− 4·5
05	24	+39·9	21·5	3	23	212·3	+16·0
06	25	+ 2·5	25·3	0	9	161·5	+ 3·1
07	Oct. 4	−16·0	Oct. 5·7	4	15	25·2	+16·3
08	7	−23·9	9·2	2	25	338·8	+ 4·1
1446 01	8	+13·9	7·3	6	32	3·2	+10·9
02	12	+59·1	7·9	0	12	356·2	+ 9·0
03	12	+20·4	10·8	0	15	317·5	−14·2
04	16	−28·2	18·5	0	2	216·1	+11·1
05	19	−69·2	24·6	0	38	135·7	+16·8
06	21	+ 0·6	21·5	0	4	176·6	− 1·4
07	22	−37·9	25·2	0	4	127·6	− 5·2
1447 01	Nov. 8	−58·3	Nov. 13·0	0	7	240·2	+26·5
02	30	−57·3	Dec. 4·6	0	10	314·5	+ 8·9
1448 01	Dec. 4	+49·6	Nov. 30·5	0	3	8·7	+23·0
02	6	+29·9	Dec. 4·2	0	9	320·4	+ 7·4
03	6	+69·5	1·2	0	16	0·1	+ 3·2
04	7	+64·1	2·6	0	5	341·4	−11·2
05	7	− 3·4	7·7	0	9	273·9	+ 0·4
06	8	+52·3	4·3	0	5	318·8	−14·9
07	9	+76·5	3·7	0	37	327·2	− 9·6
08	24	−46·0	27·9	0	3	7·7	+11·7
09	25	−67·0	30·4	0	5	335·6	− 8·8

TOTAL AREAS OF SUNSPOTS AND FACULÆ

Projected and Corrected for Foreshortening for each day

The place where the photograph was taken is indicated in the second column. A photograph taken at Herstmonceux is indicated by the letter H, and those taken at the Cape, Kodaikanal and Mt. Wilson by the letters C, K and W respectively.

The projected area is the area as it is measured on the photograph, uncorrected for foreshortening and expressed in millionths of the Sun's apparent disk.

The area corrected for foreshortening is expressed in millionths of the Sun's visible hemisphere.

The areas of faculæ are given separately for the Sun's western and eastern hemispheres.

TOTAL AREAS OF SUNSPOTS AND FACULÆ FOR EACH DAY IN THE YEAR 1961

Date and Place	Projected Area				Corrected Area			
	Umb.	Whole Spots	Faculæ West	Faculæ East	Umb.	Whole Spots	Faculæ West	Faculæ East
JANUARY								
1 H	565	3587	598	882	319	2020	737	1025
2 C	495	3195	388	1032	316	1927	487	1105
3 H	458	3248	1026	907	343	2312	1119	1023
4 H	401	2402	1204	899	288	1771	1318	1045
5 H	358	2517	1014	853	278	2016	1149	1004
6 H	334	1672	1145	1425	326	1437	1532	1563
7 H	211	1191	651	933	162	896	911	1008
8 H	182	998	659	703	120	655	735	808
9 H	142	940	458	730	100	657	506	745
10 H	131	874	618	651	105	703	718	707
11 C	85	608	878	679	93	612	998	854
12 H	54	281	627	454	66	422	783	462
13 C	38	207	596	470	20	110	695	572
14 H	37	139	638	616	22	80	787	756
15 H	32	168	992	500	22	111	1119	638
16 H	50	276	748	499	40	204	901	575
17 C	66	417	535	850	50	344	631	1039
18 H	81	470	769	757	60	424	893	904
19 C	123	655	860	975	83	420	1142	1130
20 H	97	442	368	552	53	238	515	604
21 C	56	350	439	753	54	321	569	947
22 H	79	336	498	758	68	304	583	945
23 C	39	241	451	1193	33	193	496	1279
24 C	29	142	963	1434	21	98	1104	1517
25 C	46	280	545	1121	64	463	640	1227
26 H	85	460	617	660	87	473	644	909
27 C	102	597	1048	943	82	471	1239	976
28 K	167	928	527	961	150	884	649	1142
29 C	297	1844	797	870	202	1300	938	1097
30 C	289	1623	1398	998	197	1147	1526	1222
31 H	197	1239	1353	917	142	941	1521	1113
FEBRUARY								
1 H	148	912	992	927	129	698	1284	1109
2 H	135	951	1098	913	87	618	1334	963
3 H	165	974	752	893	185	973	873	1150
4 H	111	864	740	935	101	855	870	1235
5 C	109	773	691	1089	98	763	863	1181
6 H	142	783	856	923	90	504	1008	972
7 H	111	768	975	877	64	445	1064	1052
8 C	132	866	727	631	72	468	878	727
9 C	169	1040	841	494	107	603	913	699
10 H	110	800	1055	686	60	437	1280	830
11 H	81	609	800	725	46	342	1055	796
12 C	80	443	621	475	49	275	773	570
13 H	65	398	826	587	54	330	938	693
14 H	26	245	1166	567	27	262	1366	672
15 C	6	95	1014	613	13	222	1285	648
16 C	2	43	719	623	5	89	843	719
17 H	10	105	728	675	12	142	936	823
18 C	14	66	994	1046	14	72	1214	1227
19 H	9	85	533	1230	8	72	647	1322
20 H	9	105	425	1137	6	70	599	1250
21 H	14	251	425	992	17	222	593	1262
22 H	87	445	577	1091	57	311	639	1166
23 H	79	465	447	840	52	289	534	967
24 C	60	454	539	698	34	256	701	792
25 H	61	282	550	638	33	156	607	823
26 H	61	337	844	603	34	188	913	780
27 C	61	292	934	1021	34	174	998	1143
28 H	46	254	1107	855	26	177	1243	1052

Date and Place	Projected Area				Corrected Area			
	Umb.	Whole Spots	Faculæ West	Faculæ East	Umb.	Whole Spots	Faculæ West	Faculæ East
MARCH								
1 H	22	169	913	759	14	124	1194	938
2 H	33	231	1000	713	23	170	1112	890
3 H	22	212	968	836	22	225	1059	1012
4 H	19	132	825	1034	28	177	1029	1088
5 H	17	105	671	836	20	165	867	917
6 H	15	142	484	594	8	75	537	616
7 H	29	195	451	649	16	100	515	727
8 H	57	394	616	649	54	379	670	817
9 H	35	252	1045	649	38	255	1146	743
10 H	64	383	671	683	48	294	720	703
11 H	57	289	891	451	36	187	1129	490
12 K	46	283	462	315	26	159	466	431
13 K	46	271	438	281	24	141	468	367
14 H	88	542	797	984	58	352	936	1212
15 H	111	579	696	883	71	367	764	922
16 H	76	419	941	1259	47	259	1145	1413
17 H	91	413	752	950	61	281	907	1053
18 H	53	329	606	1183	37	257	854	1387
19 H	49	280	566	809	46	245	692	962
20 H	68	318	567	943	112	568	732	1068
21 H	131	602	478	942	144	751	533	1170
22 C	232	995	804	890	181	756	871	931
23 H	260	1297	932	566	168	841	1019	543
24 H	252	1385	510	366	151	824	563	369
25 H	256	1476	455	466	173	1019	586	667
26 C	294	1561	993	648	246	1381	1095	843
27 H	236	1198	1145	967	175	1001	1394	1069
28 H	196	1451	1015	772	142	1099	1204	992
29 H	233	1635	993	745	176	1244	1221	900
30 H	264	1486	1144	856	191	1095	1323	954
31 H	284	1387	926	804	225	1099	1097	851
APRIL								
1 C	197	1370	475	690	147	1091	681	781
2 H	135	798	413	570	72	433	563	724
3 C	108	728	260	389	71	507	261	502
4 C	145	872	520	335	102	565	603	393
5 H	171	1090	803	614	114	713	873	672
6 H	215	1257	1029	750	145	834	1305	830
7 C	140	1084	855	628	91	723	1025	768
8 H	160	1022	925	557	112	811	1186	840
9 H	107	647	974	807	72	447	1268	963
10 C	87	512	532	715	69	416	671	835
11 C	67	432	434	552	90	630	608	776
12 H	62	455	573	561	60	492	785	671
13 H	65	416	731	1002	55	350	992	1224
14 H	82	510	427	696	62	363	569	833
15 C	100	654	555	817	55	419	760	1077
16 C	150	868	315	817	120	744	441	1147
17 H	173	949	483	1149	120	685	594	1354
18 H	132	996	596	1204	90	655	647	1320
19 H	149	813	519	620	93	513	654	581
20 H	159	800	779	541	99	509	934	636
21 H	147	704	1039	564	88	445	1317	762
22 H	111	529	859	847	70	351	1170	1031
23 H	86	452	1004	937	60	309	1519	1083
24 H	83	591	746	711	94	819	873	876
25 H	158	875	870	903	169	1007	1066	1117
26 C	117	940	978	1187	104	850	1059	1325
27 H	148	1327	711	666	138	1094	919	820
28 H	132	1220	553	508	102	913	797	613

TOTAL AREAS OF SUNSPOTS AND FACULÆ FOR EACH DAY IN THE YEAR 1961

Date and Place	Projected Area				Corrected Area			
	Umb.	Whole Spots	Faculæ West	Faculæ East	Umb.	Whole Spots	Faculæ West	Faculæ East
MAY								
1 C	273	1769	473	506	143	920	542	551
2 H	224	1305	677	655	126	741	895	795
3 H	199	1381	943	342	132	906	1134	429
4 H	90	538	1255	543	88	508	1512	828
5 H	55	411	1065	715	77	592	1311	901
6 H	32	230	853	716	107	658	1261	979
7 H	45	315	748	827	59	396	970	1019
8 H	54	352	590	682	47	301	816	795
9 H	60	384	227	876	40	258	355	1026
10 H	82	548	352	650	47	315	402	809
11 H	123	694	296	990	65	371	379	1105
12 H	111	758	365	661	56	388	439	749
13 C	95	603	699	886	60	463	835	1177
14 H	99	580	947	1277	73	424	993	1484
15 H	66	410	514	946	50	310	583	1076
16 H	66	368	1052	913	51	285	1217	1057
17 H	64	340	891	695	55	281	1000	787
18 H	82	413	962	642	70	354	1178	744
19 C	69	564	788	644	36	370	902	867
20 H	120	710	884	1044	107	644	1082	1333
21 C	139	891	731	686	118	726	851	789
22 H	130	869	734	905	115	779	878	1062
23 H	139	805	1101	895	124	763	1329	983
24 H	141	931	782	678	94	607	915	754
25 H	124	723	767	869	83	537	954	1004
26 H	91	582	573	595	47	301	731	674
27 H	70	454	677	618	36	234	789	768
28 H	64	389	632	367	34	213	720	441
29 H	57	347	803	609	35	215	960	691
30 H	66	321	746	459	49	238	859	495
31 H	21	171	862	608	21	158	1046	698
JUNE								
1 C	15	93	892	491	28	142	982	637
2 H	30	267	748	691	30	263	942	843
3 H	85	472	773	795	63	363	930	850
4 H	114	735	680	761	74	519	762	891
5 H	130	675	622	865	75	422	743	1041
6 H	87	572	956	910	45	315	1130	1022
7 H	92	465	507	599	47	239	704	805
8 H	55	339	127	392	32	194	204	515
9 C	103	785	437	639	108	949	566	936
10 H	159	1535	668	553	166	1586	879	717
11 H	164	1538	450	1096	155	1403	566	1371
12 H	176	1487	564	1002	164	1448	713	1264
13 C	254	1949	547	424	181	1436	648	423
14 C	313	2187	680	435	195	1361	888	415
15 H	272	2365	853	599	190	1524	1112	908
16 H	293	2620	484	679	169	1658	681	883
17 H	387	2865	794	1257	240	1704	952	1545
18 H	411	2618	587	1233	268	1647	708	1477
19 H	345	2228	818	1003	228	1478	915	1129
20 H	318	1965	783	737	243	1445	945	811
21 H	314	2001	887	748	234	1479	1331	853
22 H	222	2109	807	587	137	1282	929	705
23 H	302	2084	1003	819	203	1447	1298	1015
24 H	190	1559	887	853	175	1435	1133	955
25 H	107	705	784	426	167	1014	992	483
26 C	58	382	839	571	81	540	1034	712
27 H	47	284	1166	589	45	260	1471	784
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	180	1000	1066

Date and Place	Projected Area				Corrected Area			
	Umb.	Whole Spots	Faculæ West	Faculæ East	Umb.	Whole Spots	Faculæ West	Faculæ East
JULY								
1 H	187	1536	680	865	156	1167	837	1133
2 H	270	1650	680	658	224	1367	830	840
3 H	255	1844	795	876	215	1753	942	965
4 H	203	1334	670	729	213	1562	1060	815
5 H	147	945	439	726	77	509	594	823
6 H	225	1050	669	611	141	704	770	855
7 H	167	1316	634	772	110	876	763	935
8 C	183	1152	493	919	127	788	665	1097
9 H	155	1164	702	702	113	934	910	816
10 C	323	2274	572	997	271	2082	734	1142
11 H	455	3158	1431	1049	365	2398	1601	1221
12 H	446	3026	634	796	288	2011	837	1079
13 H	404	3270	564	980	220	1761	744	1136
14 H	470	3331	645	875	248	1797	859	1188
15 C	387	3182	393	784	223	1845	552	922
16 C	340	2556	885	953	208	1575	957	1043
17 C	305	1788	694	650	213	1283	806	865
18 H	190	1256	865	784	185	1153	973	888
19 H	247	1378	1026	1142	314	1804	1181	1364
20 H	151	1257	1025	864	134	1446	1335	1035
21 H	180	1236	1256	1268	137	982	1309	1354
22 H	152	971	738	612	108	695	875	641
23 C	179	1337	813	524	100	734	895	595
24 H	267	1386	749	484	154	790	789	630
25 H	157	1049	898	529	87	596	1010	604
26 H	141	1058	691	610	96	855	858	666
27 C	109	792	860	346	96	816	1036	430
28 H	79	564	403	484	59	410	506	662
29 H	69	512	623	599	60	446	742	660
30 H	58	369	553	645	75	477	646	688
31 H	23	171	426	472	32	204	638	517
AUGUST								
1 H	27	177	495	750	17	107	599	819
2 H	16	94	680	702	13	75	762	826
3 H	4	60	933	611	3	54	1077	727
4 C	0	44	635	870	0	60	741	968
5 C	2	40	547	647	1	30	636	759
6 H	0	9	758	654	0	7	898	750
7 H	0	16	714	795	0	82	856	1028
8 H	45	209	990	1198	92	442	1163	1571
9 H	67	496	677	1056	72	526	805	1325
10 H	128	893	597	1078	139	866	748	1321
11 H	163	1310	505	1114	130	1049	579	1340
12 C	184	1032	377	953	127	761	444	1083
13 C	126	1092	864	821	83	776	998	891
14 H	135	1167	678	827	79	757	870	960
15 H	151	1194	769	767	102	815	1276	1002
16 H	172	1276	482	790	108	760	579	906
17 H	134	1215	962	734	78	719	1150	792
18 H	120	867	1336	685	74	521	1577	793
19 H	105	533	974	516	70	359	1252	623
20 H	47	371	756	516	48	364	976	662
21 C	24	228	742	831	36	302	855	996
22 H	12	124	859	779	31	246	1088	867
23 H	14	87	675	708	10	60	825	765
24 H	23	251	753	456	13	176	866	526
25 C	34	531	1027	663	18	284	1137	813
26 H	69	559	523	411	35	293	635	441
27 H	80	835	376	535	43	460	461	568
28 C	64	871	399	486	39	533	441	608

TOTAL AREAS OF SUNSPOTS AND FACULÆ FOR EACH DAY IN THE YEAR 1961

Date and Place	Projected Area				Corrected Area			
	Umb.	Whole Spots	Faculæ West	Faculæ East	Umb.	Whole Spots	Faculæ West	Faculæ East
SEPTEMBER								
1 C	123	2040	585	1083	96	1514	813	1195
2 H	338	2624	341	376	185	1445	438	476
3 H	268	2605	659	512	137	1336	750	640
4 K	291	2166	531	604	147	1084	615	875
5 H	245	1922	488	794	129	1007	592	906
6 C	174	1473	407	847	103	868	489	963
7 H	129	1141	762	1636	90	782	890	1942
8 C	64	659	450	769	59	594	428	907
9 H	116	647	1120	872	273	1451	1235	1140
10 H	192	1219	623	885	256	1687	912	1045
11 H	213	1652	351	768	193	1447	528	829
12 C	249	1953	286	681	172	1333	331	768
13 C	331	2183	472	407	196	1282	461	465
14 H	347	2514	723	372	185	1341	955	509
15 K	312	2181	31	104	163	1148	39	120
16 H	361	2482	881	655	213	1485	1004	966
17 C	279	2035	558	373	168	1250	633	441
18 H	214	1448	822	429	143	957	955	473
19 H	162	1004	970	395	120	709	1084	430
20 C	155	825	698	65	115	671	927	95
21 H	89	526	504	224	68	516	666	268
22 H	68	361	799	360	68	393	991	418
23 W	104	474	503	374	69	325	596	520
24 H	152	857	471	639	115	612	633	725
25 H	135	867	741	930	101	625	779	1071
26 H	171	927	1472	1201	155	868	1529	1340
27 H	149	679	1354	1253	142	649	1480	1286
28 H	98	758	956	1125	102	681	1056	1136
29 H	101	677	572	528	64	437	761	596
30 C	86	705	687	1156	47	395	735	1220
OCTOBER								
1 H	140	700	639	1111	72	366	752	1298
2 C	35	334	196	1031	18	170	218	1119
3 C	52	503	348	1019	27	285	358	1102
4 H	45	290	325	448	25	166	382	477
5 H	56	456	626	906	35	286	661	1019
6 H	41	375	813	871	30	273	912	1007
7 H	34	327	723	690	31	288	789	793
8 H	44	237	312	545	61	313	423	574
9 H	78	350	212	456	144	504	254	505
10 H	125	675	267	524	143	753	280	659
11 H	144	868	716	359	123	736	761	428
12 H	175	1009	491	457	115	663	593	509
13 H	201	1311	691	378	119	772	768	454
14 H	167	1032	312	333	97	604	399	451
15 H	166	959	612	601	99	584	691	665
16 H	189	1008	567	357	112	643	609	364
17 H	109	662	699	278	59	482	862	353
18 H	99	586	466	776	60	367	580	1135
19 C	103	620	172	666	80	457	192	741
20 C	88	464	333	802	80	419	346	801
21 H	40	306	466	444	62	455	546	492
22 C	19	147	448	513	61	385	602	563
23 C	0	15	524	824	0	11	525	929
24 C	4	64	319	584	2	33	351	639
25 H	4	57	589	499	2	31	691	511
26 H	0	71	488	588	0	41	577	613
27 H	0	31	363	385	0	16	374	367
28 H	2	58	704	352	1	32	721	407
29 H	0	26	595	572	0	17	705	645
NOVEMBER								
1 C	0	0	255	572	0	0	263	627
2 H	0	0	594	616	0	0	640	748
3 H	0	0	451	484	0	0	491	511
4 H	0	31	484	704	0	16	486	763
5 C	19	108	382	394	10	58	461	559
6 C	19	266	245	255	12	162	325	300
7 C	65	682	425	414	43	465	475	468
8 H	162	974	591	712	148	911	683	787
9 H	85	848	855	624	108	1095	1035	728
10 C	64	704	350	308	44	496	362	403
11 C	210	1219	404	509	125	734	461	556
12 C	159	851	520	636	98	539	609	697
13 C	115	741	553	329	74	493	649	350
14 C	104	715	348	487	69	496	497	598
15 C	80	464	222	402	49	341	288	455
16 C	65	341	284	348	35	204	423	438
17 C	21	252	337	316	13	151	336	344
18 H	20	167	429	616	16	130	573	658
19 H	15	114	765	590	16	124	854	707
20 H	6	43	525	721	9	68	615	830
21 H	46	233	491	360	42	214	547	437
22 H	33	338	327	446	52	514	406	503
23 H	0	18	654	1143	0	64	730	1194
24 H	8	70	479	620	12	129	572	943
25 H	37	182	326	576	62	272	351	765
26 C	40	284	485	898	42	296	572	952
27 C	69	461	63	546	52	385	61	652
28 H	76	482	272	577	48	310	301	624
29 C	91	634	252	527	53	380	297	692
30 C	99	730	484	792	53	396	460	926
DECEMBER								
1 C	65	585	421	600	36	327	497	644
2 H	114	612	489	588	65	343	661	774
3 C	113	974	189	714	66	548	259	838
4 C	145	968	782	768	84	543	819	994
5 C	98	769	726	695	57	437	771	995
6 H	76	556	739	771	44	351	885	1055
7 H	100	571	672	521	68	390	831	553
8 C	63	472	516	631	53	401	589	675
9 H	45	355	725	390	65	522	957	496
10 C	19	119	608	440	44	280	812	499
11 H	0	0	379	348	0	0	514	471
12 H	0	0	357	553	0	0	447	743
13 C	0	0	272	513	0	0	332	600
14 H	2	24	359	521	2	19	414	624
15 H	0	10	357	205	0	6	421	324
16 C	0	0	451	660	0	0	567	743
17 H	0	11	498	575	0	33	583	612
18 H	0	15	553	509	0	19	613	587
19 H	2	13	478	521	2	11	569	569
20 C	8	94	491	387	25	292	648	520
21 C	56	424	388	681	88	763	455	971
22 C	82	644	304	630	80	633	371	725
23 C	129	890	230	606	89	618	297	707
24 H	250	1580	520	747	149	939	661	923
25 C	187	1350	598	965	110	800	712	1058
26 C	306	1559	658	751	181	943	757	944
27 H	196	1564	477	607	124	1006	554	735
28 C	208	1077	470	583	135	777	632	657
29 C	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

MEAN AREAS AND MEAN HELIOGRAPHIC LATITUDE OF SUNSPOTS AND FACULÆ

for each rotation of the Sun and for the year

MEAN AREAS OF SUNSPOTS AND FACULÆ FOR EACH ROTATION OF THE SUN, FROM 1961 JANUARY 8 TO 1961 DECEMBER 28

The mean areas have been formed by taking the means of the areas for each day of observation throughout each rotation of the Sun, the projected areas being the areas as measured on the photographs and expressed in millionths of the Sun's apparent disk, and the areas corrected for foreshortening being expressed in millionths of the Sun's visible hemisphere.

The rotations adopted in the following table (which is in continuation of those for the years 1873-1960; see *R. Obs. Bulletin* No. 132, page C 190, 1967) correspond to the synodic rotation of the Sun, and the commencement of each is defined by the coincidence of the assumed prime meridian with the central meridian, the assumed prime meridian being that meridian which passed through the ascending node of the Sun's equator on the ecliptic at mean noon on January 1, 1854, and the assumed period of the Sun's sidereal rotation being 25.38 days. The numeration of the rotations is in continuation of Carrington's series (*Observations of Solar Spots made at Redhill* by R. C. Carrington, F.R.S.), No. 1 being the rotation commencing 1853 November 9. The dates of commencement of the rotations are given in U.T.

No. of Rotation	Rotation Commenced			Days Photo-graphed	Mean Projected Daily Area			Mean Corrected Daily Area		
					Umbræ	Whole Spots	Faculæ	Umbræ	Whole Spots	Faculæ
1436	1961	January	7.96	27	109	643	1556	86	513	1823
1437		February	4.30	28	62	410	1585	42	294	1870
1438		March	3.63	27	121	682	1493	92	529	1731
1439		March	30.94	27	133	806	1429	98	621	1759
1440		April	27.21	28	116	765	1457	86	565	1775
1441		May	24.44	27	159	1139	1382	112	815	1677
1442		June	20.64	27	238	1680	1515	172	1229	1862
1443		July	17.84	27	102	697	1493	86	602	1750
1444		August	14.06	28	124	1076	1391	94	799	1668
1445		September	10.31	27	155	1040	1320	105	702	1508
1446		October	7.58	27	65	393	970	53	310	1102
1447		November	3.88	27	63	443	978	48	350	1139
1448		December	1.19	28	81	544	1078	56	393	1309

MEAN AREAS OF SUNSPOTS AND FACULÆ FOR THE YEAR

The mean projected areas are expressed in millionths of the Sun's apparent disk.

The mean areas corrected for foreshortening are expressed in millionths of the Sun's visible hemisphere.

Days	Mean Projected Daily Area	Mean Corrected Daily Area

MEAN HELIOGRAPHIC LATITUDE OF SUNSPOTS FOR EACH ROTATION OF THE SUN, FROM 1961 JANUARY 8 TO 1961 DECEMBER 28

The numbers given in the accompanying table have been formed as follows:

The heliographic latitude of each spot for each day has been multiplied by its area (corrected for foreshortening), and the sum of the products, for spots north of the equator, has been divided by the sum of the corresponding areas to form the mean heliographic latitude of spotted area north of the equator; similarly for spots south of the equator. In forming the mean heliographic latitude of entire spotted area, the algebraic sum of the products for spots north and south of the equator has been divided by the sum of the areas; and for the mean distance from the equator of all spots the numerical sum of the products, without regard to the sign of latitude, has been similarly divided.

The mean areas have been formed by dividing the sum of the daily areas (corrected for foreshortening) by the number of days of observation for each rotation of the Sun and are expressed in millionths of the Sun's visible hemisphere.

No. of Rotation	Rotation Commenced		Days Photo-graphed	Northern Spots Mean Daily Area	Northern Spots Mean Hel. Lat.	Southern Spots Mean Daily Area	Southern Spots Mean Hel. Lat.	All Spots Mean Hel. Lat.	All Spots Mean Dist. from Equator
1436	1961 January	7.96	27	370	13°.89	144	9°.50	+ 7°.34	12°.66
1437	February	4.30	28	209	5.84	85	10.75	+ 1.05	7.26
1438	March	3.63	27	326	7.59	202	12.13	+ 0.05	9.33
1439	March	30.94	27	327	8.68	295	11.38	- 0.84	9.96
1440	April	27.21	28	464	5.89	101	9.26	+ 3.18	6.49
1441	May	24.44	27	455	4.28	360	8.12	- 1.20	5.98
1442	June	20.64	27	776	10.62	453	7.11	+ 4.08	9.33
1443	July	17.84	27	488	9.74	114	6.68	+ 6.63	9.16
1444	August	14.06	28	725	12.89	74	9.92	+10.78	12.61
1445	September	10.31	27	527	13.84	175	10.22	+ 7.84	12.94
1446	October	7.58	27	264	16.13	46	8.61	+12.45	15.01
1447	November	3.88	27	315	10.03	35	6.91	+ 8.35	9.72
1448	December	1.19	28	247	13.78	146	4.40	+ 7.03	10.30

MEAN HELIOGRAPHIC LATITUDE OF SUNSPOTS FOR THE YEAR

Year	Days Photo-	Northern Spots Mean	Northern Spots Mean	Southern Spots Mean	Southern Spots Mean	All Spots Mean	All Spots Mean

SUMMARY OF SOLAR ACTIVITY FOR THE YEAR 1961

Chief features of the record for 1961 are as follows:

(1) Activity decreased rapidly during the year; the mean daily area of sunspots was 614, this being approximately 37 per cent of the value for 1960.

(2) The largest spot group crossed the Sun's central meridian on July 14.1 in latitude 7° South; its mean area was 1022 millionths.

In addition there were six other groups with mean areas exceeding 500 millionths.

(3) On seven days the Sun was free of spots.

(4) The ratio of mean corrected areas of faculæ/sunspots was 2.64 and that of mean corrected areas of umbræ/whole spots 0.148.

(5) The number and distribution, northern and southern hemispheres, of spot groups of

(a) two days' duration or longer
(b) one day's duration

were as follows:

	(a)	(b)
Northern spots	141	60
Southern spots	92	40
Total	233	100

(6) The following table gives the mean daily areas of sunspots (projected and corrected values) and faculæ (corrected only) for each calendar month.

Month	Spots		Faculæ
	Projected	Corrected	Corrected
January	1010	749	1798
February	489	358	1888
March	658	513	1771
April	854	638	1712
May	618	460	1765
June	1284	962	1780
July	1546	1156	1770
August	616	498	1715
September	1387	963	1569
October	438	329	1205
November	398	315	1135
December	557	398	1290

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