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太 陽 黑 子 觀 測 報 告  
中 華 民 國 112 年

**Report on Sunspot Observations**  
**2023**

臺北市立天文科學教育館

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TAIPEI ASTRONOMICAL MUSEUM  
TAIPEI, TAIWAN

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太陽黑子觀測報告  
臺北市立天文科學教育館  
中華民國112年

觀測報告說明

本館蒐集之太陽黑子觀測資料始於民國36年7月，本冊為民國112年1月至12月的觀測結果。需要參考原始黑子投影資料或攝影影像者，可與我們聯繫。來信請寄：

111013臺北市士林區基河路363號

臺北市立天文科學教育館

tam001@g.tam.gov.tw

**SUNSPOT OBSERVATIONS**  
**Taipei Astronomical Museum**  
**2023**

**Introduction**

Sunspot observations have been carrying on by Taipei Astronomical Museum since July, 1947. This volume contains the observational results of sunspots at Taipei from Jan. to Dec., 2023. Copies of the projected or photographic solar images may be obtained by writing to:

111013 No.363, Jihe Rd., Shilin Dist., Taipei, Taiwan

Taipei Astronomical Museum

tam001@g.tam.gov.tw

## 觀測站地理位置

臺北市立天文科學教育館目前使用第二觀測室進行太陽黑子觀測，地理座標為：

緯度：北緯  $25^{\circ} 5' 44''$

經度：東經  $121^{\circ} 31' 5''$

高度：海拔 40 公尺

## Location of Observatory

The geographic coordinates of the observatory in the Taipei Astronomical Museum are:

Geographic Latitude :  $25^{\circ} 5' 44''$

Geographic Longitude :  $121^{\circ} 31' 5''$

Elevation : 40 m

## 望遠鏡基本資料

觀測儀器使用日本五藤光學製造廠的20公分庫德式折射鏡，詳細資料如下表：

望遠鏡		五藤光學20公分庫德式折射鏡
物鏡	有效口徑	200 mm
	焦長	1800 mm
目鏡	焦長	K-28 mm
投影直徑		200 mm

由於庫德式望遠鏡在觀測時會有影像旋轉的效應，故測量到的黑子群日面經度及日面緯度會與真實的黑子位置有一點誤差。

## Telescope

The equatorially mounted Coude's telescope manufactured by Goto Optical Mfg. Co. was used to observe the projected solar disk in this year. Data of this instrument are as the table below:

Telescope		GOTO 20cm Coude's refractor
Objective lens	Effective Aperture	200 mm
	Focal Length	1800 mm
Eyepieces	Focal Length	K-28 mm
Image Diameter		200 mm

Because of the rotation effect of Coude's telescope, the heliographic longitude and latitude of the sunspot groups will have some error relative to the true locations.

## 報表符號說明

U. T.	觀測時的世界標準時間
g	太陽黑子群數
f	太陽黑子總數
R	相對太陽黑子數
A	經過球面差修正的太陽黑子總面積，單位：太陽半球面積的百萬分之一
Q	太陽影像視相度：5，極佳；4，良好；3，普通；2，不佳；1，惡劣
N	太陽可見半球面的北半球
S	太陽可見半球面的南半球
C	太陽可見半球面的中央區域
W	整個太陽可見半球面
Group No.	美國國家海洋暨大氣總署（NOAA）編號
Bs	被觀測的黑子群在日面座標系中的緯度
Ls	被觀測的黑子群在日面座標系中的經度
n	黑子個數
T	黑子群分類（蘇黎世天文臺分類法）

## Code Table

Symbols is explained as follows:

U.T.	Universal time of the observation.
g	Number of the observed groups of sunspots.
f	Total number of the sunspots.
R	Relative sunspot number.
A	The total areas of the sunspots corrected for the effect of surface foreshortening expressed in millionths of the solar hemisphere.
Q	Solar image quality in five grades: 5,excellent; 4,good; 3,fair; 2,poor; 1,very poor.
N	Northern half of the visible solar hemisphere.
S	Southern half of the visible solar hemisphere.
C	Central zone of the visible solar disk.
W	Full visible solar hemisphere.
Group No.	National Oceanic and Atmospheric Administration (NOAA) group number.
Bs	The heliographic latitude of the observed sunspot group.
Ls	The heliographic longitude of the observed sunspot group.
n	Number of the observed sunspots.
T	Group type in Zurich classification.

## 月平均值

由於太陽的自轉週期比一個月略短些，因此由太陽自轉和黑子在日面經度分佈上的不均勻所造成的變動和影響，可以經由許多個月的資料綜合而將之排除。使用平滑月平均相對值就可以達到確實消除的目的。對平均相對數為 $R_0$ 的任意一個月( $n=0$ )，其後各月的平均相對數依序為 $R_1, R_2, R_3, \dots, R_n, \dots$ ，則當月的平滑月平均相對值可由下式求得：

$$\overline{R_0} = \frac{R_{-6} + R_{+6} + 2 \sum_{-5}^{+5} R_n}{24}$$

## Monthly Mooth Date

As the synodic rotation period is only slightly shorter than one month, the fluctuations caused by the solar rotation and the unequal distribution of the spots in heliographic longitude are eliminated to a large extent by forming monthly means. In the aim of eliminating the real fluctuations too, further smoothing is achieved by the so-called smoothed monthly mean values. For a specific month ( $n=0$ ) the monthly mean is  $R_0$ , and the following months are  $R_1, R_2, R_3, \dots, R_n, \dots$ . The smoothed relative number for the month  $n=0$  is calculated according to the following definition:

$$\overline{R_0} = \frac{R_{-6} + R_{+6} + 2 \sum_{-5}^{+5} R_n}{24}$$

Location Lat. : 25.10° N  
 Long. : 121.52° E  
 Telescope : 20cm Refractor f=9.0  
 Magnification : 64 Projection

太陽黑子觀測月報  
 MONTHLY SUNSPOT DATA  
 Jan. 2023

Taipei Astronomical Museum  
 111013, Shilin Dist.  
 Taipei, Taiwan

日期 Date	觀測時間 Obs. Time (U.T.)	全日面 Whole		中心區 Central Circle		北半球 N.Hemisphere		南半球 S.Hemisphere		相對數 Relative Number (10g+f)				面積 Area ( in millionth hemisphere)		A. B. 型 Small Type Groups	視相 Seeing (1-5)	備考 Remark
		g	f	g	f	g	f	g	f	W	C	N	S	N	S			
1																		Rain
2																		Rain
3																		Cloud
4																		Cloud
5																		Rain
6																		Rain
7	03:04	6	44	2	22	2	2	4	42	104	42	22	82	211	1556	1	2	
8	07:52	6	83	1	37	2	3	4	80	143	47	23	120	219	2518	1	3	
9																		Rain
10	02:05	7	53	2	26	3	7	4	46	123	46	37	86	224	2314	1	4	
11																		Cloud
12	02:14	7	59	2	14	3	21	4	38	129	34	51	78	867	1404	1	4	
13																		None
14	01:26	9	47	1	12	5	20	4	27	137	22	70	67	2342	2098	1	4	
15																		Rain
16																		Cloud
17																		Cloud
18																		Rain
19	07:22	9	58	5	46	6	41	3	17	148	96	101	47	1189	1401	2	4	
20																		Cloud
21																		Rain
22																		None
23																		Cloud
24																		Rain
25	06:27	9	25	1	4	8	19	1	6	115	14	99	16	519	1518	0	2	
26																		Cloud
27																		Cloud
28																		Cloud
29	02:13	4	10	1	1	3	7	1	3	50	11	37	13	177	77	1	4	
30	02:24	4	11	1	1	2	5	2	6	51	11	25	26	144	192	0	3	
31	02:44	5	10	0	0	2	3	3	7	60	0	23	37	109	202	0	3	
Mean No.		6.60	40.00	1.60	16.30	3.60	12.80	3.00	27.20	106.00	32.30	48.80	57.20	600.15	1327.98	Obs. Days: 10		

Location Lat. : 25.10° N  
 Long. : 121.52° E  
 Telescope : 20cm Refractor f=9.0  
 Magnification : 64 Projection

太陽黑子觀測月報  
 MONTHLY SUNSPOT DATA  
 Feb. 2023

Taipei Astronomical Museum  
 111013, Shilin Dist.  
 Taipei, Taiwan

日期 Date	觀測時間 Obs. Time (U.T.)	全日面 Whole		中心區 Central Circle		北半球 N.Hemisphere		南半球 S.Hemisphere		相對數 Relative Number (10g+f)				面積 Area ( in millionth hemisphere)		A. B. 型 群數 Small Type Groups	視相 Seeing (1-5)	備考 Remark
		g	f	g	f	g	f	g	f	W	C	N	S	N	S			
1																		None
2																		Cloud
3																		Cloud
4																		Cloud
5																		Rain
6																		Rain
7																		Cloud
8	04:02	4	34	1	10	3	31	1	3	74	20	61	13	1150	10	1	3	
9	03:30	5	30	1	8	4	24	1	6	80	18	64	16	1759	1077	0	4	
10																		Rain
11	06:18	12	59	2	5	8	41	4	18	179	25	121	58	1892	664	2	3	
12																		None
13	03:43	11	50	5	14	6	32	5	18	160	64	92	68	1696	573	3	4	
14																		Rain
15																		None
16	07:55	6	27	4	23	2	19	4	8	87	63	39	48	929	517	2	3	
17																		None
18																		None
19																		Cloud
20																		Cloud
21																		Rain
22																		Rain
23																		Rain
24																		Cloud
25																		Cloud
26																		Cloud
27	02:16	6	44	1	10	4	32	2	12	104	20	72	32	1168	364	1	1	
28	07:12	5	42	1	3	2	24	3	18	92	13	44	48	1215	153	2	3	
Mean No.		7.00	40.86	2.14	10.43	4.14	29.00	2.86	11.86	110.86	31.86	70.43	40.43	1401.21	479.63	Obs. Days: 7		

Location Lat. : 25.10° N  
 Long. : 121.52° E  
 Telescope : 20cm Refractor f=9.0  
 Magnification : 64 Projection

太陽黑子觀測月報  
 MONTHLY SUNSPOT DATA  
 Mar. 2023

Taipei Astronomical Museum  
 111013, Shilin Dist.  
 Taipei, Taiwan

日期 Date	觀測時間 Obs. Time (U.T.)	全日面 Whole		中心區 Central Circle		北半球 N.Hemisphere		南半球 S.Hemisphere		相對數 Relative Number (10g+f)				面積 Area ( in millionth hemisphere)		A. B. 型 群數 Small Type Groups	視相 Seeing (1-5)	備考 Remark
		g	f	g	f	g	f	g	f	W	C	N	S	N	S			
1																		None
2																		None
3	02:38	8	16	3	4	6	13	2	3	96	34	73	23	1233	13	0	4	
4																		None
5																		None
6	03:39	10	43	3	19	6	27	4	16	143	49	87	56	1065	544	0	4	
7	06:26	10	48	2	20	6	30	4	18	148	40	90	58	696	600	1	4	
8	07:37	11	43	2	25	6	27	5	16	153	45	87	66	643	682	2	3	
9	07:02	9	40	2	29	5	19	4	21	130	49	69	61	568	560	2	4	
10	06:40	10	30	2	11	5	13	5	17	130	31	63	67	496	834	2	4	
11																		None
12	02:09	11	20	4	10	5	6	6	14	130	50	56	74	360	465	2	4	
13																		Rain
14	02:49	7	28	6	26	1	1	6	27	98	86	11	87	20	396	0	4	
15	03:25	8	17	4	7	1	1	7	16	97	47	11	86	16	439	4	3	
16	03:40	8	10	3	3	1	1	7	9	90	33	11	79	6	245	7	4	
17	03:21	2	2	1	1	0	0	2	2	22	11	0	22	0	166	1	5	
18																		None
19																		Cloud
20																		None
21																		None
22	07:52	8	20	2	2	1	1	7	19	100	22	11	89	255	1038	2	2	
23																		None
24																		Cloud
25																		Rain
26																		Cloud
27																		Rain
28																		Rain
29																		Cloud
30																		Cloud
31																		Rain
Mean No.		8.50	26.42	2.83	13.08	3.58	11.58	4.92	14.83	111.42	41.42	47.42	64.00	446.52	498.69	Obs. Days: 12		

Location Lat. : 25.10° N  
 Long. : 121.52° E  
 Telescope : 20cm Refractor f=9.0  
 Magnification : 64 Projection

太陽黑子觀測月報  
 MONTHLY SUNSPOT DATA  
 Apr. 2023

Taipei Astronomical Museum  
 111013, Shilin Dist.  
 Taipei, Taiwan

日期 Date	觀測時間 Obs. Time (U.T.)	全日面 Whole		中心區 Central Circle		北半球 N.Hemisphere		南半球 S.Hemisphere		相對數 Relative Number (10g+f)				面積 Area ( in millionth hemisphere)		A. B. 型 群數 Small Type Groups	視相 Seeing (1-5)	備考 Remark
		g	f	g	f	g	f	g	f	W	C	N	S	N	S			
1																		Rain
2																		Cloud
3																		Cloud
4																		Cloud
5																		Rain
6																		Cloud
7																		Rain
8																		Cloud
9																		Cloud
10	02:13	3	24	1	5	2	6	1	18	54	15	26	28	85	626	1	3	
11	06:59	4	57	2	51	2	13	2	44	97	71	33	64	253	376	0	2	
12																		Rain
13																		Cloud
14	03:19	8	47	3	22	3	6	5	41	127	52	36	91	489	1310	0	3	
15																		Rain
16	02:43	8	56	3	19	3	17	5	39	136	49	47	89	717	1012	1	4	
17	03:14	6	35	4	23	2	15	4	20	95	63	35	60	591	885	2	4	
18	02:14	7	46	4	38	1	13	6	33	116	78	23	93	727	282	3	4	
19																		Rain
20																		Rain
21																		Rain
22																		Cloud
23																		Cloud
24																		Rain
25																		Rain
26																		Cloud
27																		Cloud
28	03:18	5	27	3	23	3	7	2	20	77	53	37	40	421	767	1	4	
29	03:33	5	28	3	23	3	12	2	16	78	53	42	36	550	773	0	1	
30																		Cloud
Mean No.		5.75	40.00	2.88	25.50	2.38	11.13	3.38	28.88	97.50	54.25	34.88	62.63	479.06	753.74	Obs. Days: 8		

Location Lat. : 25.10° N  
 Long. : 121.52° E  
 Telescope : 20cm Refractor f=9.0  
 Magnification : 64 Projection

太陽黑子觀測月報  
 MONTHLY SUNSPOT DATA  
 May 2023

Taipei Astronomical Museum  
 111013, Shilin Dist.  
 Taipei, Taiwan

日期 Date	觀測時間 Obs. Time (U.T.)	全日面 Whole		中心區 Central Circle		北半球 N.Hemisphere		南半球 S.Hemisphere		相對數 Relative Number (10g+f)				面積 Area ( in millionth hemisphere)		A. B. 型 群數 Small Type Groups	視相 Seeing (1-5)	備考 Remark
		g	f	g	f	g	f	g	f	W	C	N	S	N	S			
1	02:12	5	33	1	11	3	17	2	16	83	21	47	36	714	698	0	4	
2																		None
3																		None
4	07:54	7	35	1	2	5	31	2	4	105	12	81	24	1751	195	3	2	
5																		Cloud
6																		Cloud
7																		Rain
8																		Rain
9																		Cloud
10																		None
11																		Cloud
12																		Rain
13																		Rain
14																		Cloud
15																		Cloud
16	03:22	4	23	3	21	3	21	1	2	63	51	51	12	368	6	1	4	
17	02:35	5	28	4	23	4	23	1	5	78	63	63	15	440	40	1	4	
18	07:54	9	41	2	8	5	31	4	10	131	28	81	50	391	751	4	3	
19																		Cloud
20																		Cloud
21																		Cloud
22																		Cloud
23																		Cloud
24																		Rain
25																		Rain
26	02:06	7	49	4	30	4	22	3	27	119	70	62	57	632	986	1	3	
27	03:03	8	47	3	19	5	23	3	24	127	49	73	54	624	1742	2	3	
28																		None
29	01:54	7	33	2	18	5	17	2	16	103	38	67	36	568	1652	1	4	
30																		Rain
31																		Rain
Mean No.		6.50	36.13	2.50	16.50	4.25	23.13	2.25	13.00	101.13	41.50	65.63	35.50	686.03	758.82	Obs. Days: 8		

Location Lat. : 25.10° N  
 Long. : 121.52° E  
 Telescope : 20cm Refractor f=9.0  
 Magnification : 64 Projection

太陽黑子觀測月報  
 MONTHLY SUNSPOT DATA  
 Jun. 2023

Taipei Astronomical Museum  
 111013, Shilin Dist.  
 Taipei, Taiwan

日期 Date	觀測時間 Obs. Time (U.T.)	全日面 Whole		中心區 Central Circle		北半球 N.Hemisphere		南半球 S.Hemisphere		相對數 Relative Number (10g+f)				面積 Area ( in millionth hemisphere)		A. B. 型 群數 Small Type Groups	視相 Seeing (1-5)	備考 Remark
		g	f	g	f	g	f	g	f	W	C	N	S	N	S			
		1																
2																		None
3																		None
4																		Rain
5	02:31	7	37	3	30	3	4	4	33	107	60	34	73	195	1179	3	3	
6	07:38	9	62	3	39	5	12	4	50	152	69	62	90	265	657	2	2	
7																		None
8	03:00	8	56	4	30	4	9	4	47	136	70	49	87	563	1019	2	3	
9																		Rain
10																		Rain
11																		Rain
12																		Cloud
13																		Cloud
14																		Rain
15																		Rain
16																		Rain
17																		Rain
18																		Cloud
19																		Cloud
20	03:25	7	51	2	25	2	12	5	39	121	45	32	89	309	1011	0	4	
21																		None
22																		None
23																		Rain
24																		Rain
25																		None
26	06:43	7	42	2	5	4	35	3	7	112	25	75	37	438	220	1	4	
27																		None
28																		None
29																		Cloud
30																		Rain
Mean No.		7.60	49.60	2.80	25.80	3.60	14.40	4.00	35.20	125.60	53.80	50.40	75.20	353.93	817.38	Obs. Days: 5		

Location Lat. : 25.10° N  
 Long. : 121.52° E  
 Telescope : 20cm Refractor f=9.0  
 Magnification : 64 Projection

太陽黑子觀測月報  
 MONTHLY SUNSPOT DATA  
 Jul. 2023

Taipei Astronomical Museum  
 111013, Shilin Dist.  
 Taipei, Taiwan

日期 Date	觀測時間 Obs. Time (U.T.)	全日面 Whole		中心區 Central Circle		北半球 N.Hemisphere		南半球 S.Hemisphere		相對數 Relative Number (10g+f)				面積 Area ( in millionth hemisphere)		A. B. 型 群數 Small Type Groups	視相 Seeing (1-5)	備考 Remark
		g	f	g	f	g	f	g	f	W	C	N	S	N	S			
		1																
2	02:41	7	38	2	5	2	15	5	23	108	25	35	73	1357	454	2	2	
3																		None
4																		None
5	02:54	7	26	4	21	3	10	4	16	96	61	40	56	817	394	2	4	
6																		None
7	03:16	8	32	4	27	3	12	5	20	112	67	42	70	321	1204	3	3	
8																		None
9																		Cloud
10	07:19	9	58	3	19	4	34	5	24	148	49	74	74	660	1475	1	4	
11																		Rain
12	02:24	11	49	4	18	4	26	7	23	159	58	66	93	1027	1511	2	3	
13	03:51	7	33	1	8	3	18	4	15	103	18	48	55	1438	1011	0	3	
14	03:17	9	44	2	4	4	22	5	22	134	24	62	72	1887	1265	1	4	
15	03:49	6	32	1	2	3	20	3	12	92	12	50	42	1742	1379	0	3	
16	03:09	10	58	4	30	5	42	5	16	158	70	92	66	1140	1155	0	3	
17	06:25	7	51	2	23	4	43	3	8	121	43	83	38	2023	1325	0	4	
18																		Rain
19																		Rain
20																		Rain
21	02:58	6	63	2	31	4	50	2	13	123	51	90	33	2089	484	0	3	
22																		Rain
23																		Rain
24	03:54	8	43	2	14	4	28	4	15	123	34	68	55	911	764	1	4	
25																		Cloud
26																		Rain
27																		Rain
28																		Cloud
29																		None
30																		Rain
31																		Cloud
Mean No.		7.92	43.92	2.58	16.83	3.58	26.67	4.33	17.25	123.08	42.67	62.50	60.58	1284.42	1035.26	Obs. Days: 12		

Location Lat. : 25.10° N  
 Long. : 121.52° E  
 Telescope : 20cm Refractor f=9.0  
 Magnification : 64 Projection

太陽黑子觀測月報  
 MONTHLY SUNSPOT DATA  
 Aug. 2023

Taipei Astronomical Museum  
 111013, Shilin Dist.  
 Taipei, Taiwan

日期 Date	觀測時間 Obs. Time (U.T.)	全日面 Whole		中心區 Central Circle		北半球 N.Hemisphere		南半球 S.Hemisphere		相對數 Relative Number (10g+f)				面積 Area ( in millionth hemisphere)		A. B. 型 群數 Small Type Groups	視相 Seeing (1-5)	備考 Remark
		g	f	g	f	g	f	g	f	W	C	N	S	N	S			
		1																
2																		Rain
3																		Rain
4																		None
5																		None
6																		None
7																		None
8																		None
9	08:01	6	24	2	20	4	11	2	13	84	40	51	33	260	370	2	4	
10																		Rain
11																		Rain
12																		Rain
13	07:06	5	21	1	8	3	18	2	3	71	18	48	23	458	338	2	2	
14	06:52	6	26	2	3	4	24	2	2	86	23	64	22	491	276	2	3	
15	03:22	7	28	2	13	4	17	3	11	98	33	57	41	633	90	2	4	
16																		Rain
17	03:25	8	38	4	29	4	21	4	17	118	69	61	57	702	480	2	2	
18	03:40	6	25	3	14	4	19	2	6	85	44	59	26	499	315	1	2	
19	06:50	8	35	2	6	5	27	3	8	115	26	77	38	476	249	1	3	
20																		Rain
21	03:56	7	20	3	5	5	9	2	11	90	35	59	31	697	187	0	2	
22																		Rain
23																		Rain
24																		None
25																		None
26	02:37	6	18	2	8	4	10	2	8	78	28	50	28	819	457	0	4	
27																		Cloud
28																		Cloud
29																		Rain
30																		Cloud
31																		Rain
Mean No.		6.56	26.11	2.33	11.78	4.11	17.33	2.44	8.78	91.67	35.11	58.44	33.22	559.36	306.95	Obs. Days: 9		

Location Lat. : 25.10° N  
 Long. : 121.52° E  
 Telescope : 20cm Refractor f=9.0  
 Magnification : 64 Projection

太陽黑子觀測月報  
 MONTHLY SUNSPOT DATA  
 Sep. 2023

Taipei Astronomical Museum  
 111013, Shilin Dist.  
 Taipei, Taiwan

日期 Date	觀測時間 Obs. Time (U.T.)	全日面 Whole		中心區 Central Circle		北半球 N.Hemisphere		南半球 S.Hemisphere		相對數 Relative Number (10g+f)				面積 Area ( in millionth hemisphere)		A. B. 型 群數 Small Type Groups	視相 Seeing (1-5)	備考 Remark
		g	f	g	f	g	f	g	f	W	C	N	S	N	S			
		1																
2																		Rain
3																		Rain
4																		Rain
5	02:49	6	33	5	27	4	29	2	4	93	77	69	24	350	90	2	3	
6	03:57	6	44	2	23	5	41	1	3	104	43	91	13	665	20	1	3	
7																		Cloud
8																		Cloud
9																		None
10	03:40	6	49	2	26	5	46	1	3	109	46	96	13	1112	17	0	3	
11																		None
12	03:50	8	55	3	31	4	37	4	18	135	61	77	58	1145	220	2	3	
13	02:50	6	43	2	16	4	28	2	15	103	36	68	35	1347	82	0	2	
14																		None
15	03:17	7	45	3	24	4	41	3	4	115	54	81	34	637	103	1	3	
16	03:02	6	23	2	15	4	19	2	4	83	35	59	24	383	19	2	3	
17																		None
18																		Rain
19	02:17	9	54	2	14	6	42	3	12	144	34	102	42	1119	370	1	3	
20	03:22	10	56	1	5	7	34	3	22	156	15	104	52	1387	435	1	4	
21	02:42	11	56	4	38	7	33	4	23	166	78	103	63	1086	468	1	3	
22	02:03	11	90	3	39	7	54	4	36	200	69	124	76	1084	527	2	3	
23	03:20	9	74	4	31	6	53	3	21	164	71	113	51	1250	432	1	3	
24	03:58	10	95	5	60	6	38	4	57	195	110	98	97	1492	181	2	3	
25	02:51	9	99	4	72	5	51	4	48	189	112	101	88	1074	360	0	3	
26	03:34	7	60	4	35	4	18	3	42	130	75	58	72	1251	489	0	2	
27																		Rain
28	03:04	8	46	1	11	4	20	4	26	126	21	60	66	509	441	1	3	
29																		Rain
30																		None
Mean No.		8.06	57.63	2.94	29.19	5.13	36.50	2.94	21.13	138.25	58.56	87.75	50.50	993.13	265.88	Obs. Days: 16		

Location Lat. : 25.10° N  
 Long. : 121.52° E  
 Telescope : 20cm Refractor f=9.0  
 Magnification : 64 Projection

太陽黑子觀測月報  
 MONTHLY SUNSPOT DATA  
 Oct. 2023

Taipei Astronomical Museum  
 111013, Shilin Dist.  
 Taipei, Taiwan

日期 Date	觀測時間 Obs. Time (U.T.)	全日面 Whole		中心區 Central Circle		北半球 N.Hemisphere		南半球 S.Hemisphere		相對數 Relative Number (10g+f)				面積 Area ( in millionth hemisphere)		A. B. 型 群數 Small Type Groups	視相 Seeing (1-5)	備考 Remark
		g	f	g	f	g	f	g	f	W	C	N	S	N	S			
1	03:29	5	49	2	13	3	27	2	22	99	33	57	42	315	437	0	2	
2																		Rain
3																		Rain
4																		Rain
5																		Rain
6																		Rain
7																		Cloud
8																		Rain
9																		Rain
10																		Cloud
11																		Cloud
12																		Cloud
13	02:24	6	21	3	5	4	10	2	11	81	35	50	31	506	406	0	3	
14																		Cloud
15																		None
16	03:35	6	30	2	20	3	16	3	14	90	40	46	44	550	142	3	3	
17	03:01	3	20	2	19	1	13	2	7	50	39	23	27	300	39	0	3	
18	03:43	4	20	1	11	2	13	2	7	60	21	33	27	355	107	0	3	
19	02:48	3	14	1	10	2	11	1	3	44	20	31	13	364	161	0	4	
20																		Rain
21																		Cloud
22																		Cloud
23																		None
24																		None
25	03:25	2	6	1	5	0	0	2	6	26	15	0	26	0	183	0	4	
26																		None
27																		Cloud
28																		Rain
29																		Cloud
30																		None
31																		Cloud
Mean No.		4.14	22.86	1.71	11.86	2.14	12.86	2.00	10.00	64.29	29.00	34.29	30.00	341.43	210.52	Obs. Days: 7		

Location Lat. : 25.10° N  
 Long. : 121.52° E  
 Telescope : 20cm Refractor f=9.0  
 Magnification : 64 Projection

太陽黑子觀測月報  
 MONTHLY SUNSPOT DATA  
 Nov. 2023

Taipei Astronomical Museum  
 111013, Shilin Dist.  
 Taipei, Taiwan

日期 Date	觀測時間 Obs. Time (U.T.)	全日面 Whole		中心區 Central Circle		北半球 N.Hemisphere		南半球 S.Hemisphere		相對數 Relative Number (10g+f)				面積 Area ( in millionth hemisphere)		A. B. 型 群數 Small Type Groups	視相 Seeing (1-5)	備考 Remark
		g	f	g	f	g	f	g	f	W	C	N	S	N	S			
		1																
2																		None
3	02:11	6	35	1	5	3	9	3	26	95	15	39	56	60	881	3	3	
4	02:23	6	33	0	0	3	8	3	25	93	0	38	55	100	997	2	3	
5																		None
6	03:47	5	25	2	14	2	3	3	22	75	34	23	52	38	523	3	3	
7	03:06	4	23	3	22	1	2	3	21	63	52	12	51	31	400	2	3	
8																		None
9	03:44	7	49	5	34	3	29	4	20	119	84	59	60	316	344	3	2	
10																		Rain
11																		Rain
12																		Rain
13																		Rain
14																		Rain
15	07:04	1	6	0	0	0	0	1	6	16	0	0	16	0	295	0	3	
16																		Rain
17	06:26	2	6	0	0	0	0	2	6	26	0	0	26	0	387	0	2	
18																		None
19																		None
20	03:07	3	38	0	0	2	19	1	19	68	0	39	29	466	186	0	3	
21	03:08	9	56	1	3	5	31	4	25	146	13	81	65	1366	613	2	2	
22																		None
23	02:18	11	90	4	34	5	51	6	39	200	74	101	99	1066	1103	2	3	
24																		Cloud
25																		Cloud
26																		Rain
27																		Cloud
28	03:01	9	47	5	41	4	16	5	31	137	91	56	81	483	749	3	3	
29																		Cloud
30																		Rain
Mean No.		5.73	37.09	1.91	13.91	2.55	15.27	3.18	21.82	94.36	33.00	40.73	53.64	356.85	588.87	Obs. Days: 11		

Location Lat. : 25.10° N  
 Long. : 121.52° E  
 Telescope : 20cm Refractor f=9.0  
 Magnification : 64 Projection

太陽黑子觀測月報  
 MONTHLY SUNSPOT DATA  
 Dec. 2023

Taipei Astronomical Museum  
 111013, Shilin Dist.  
 Taipei, Taiwan

日期 Date	觀測時間 Obs. Time (U.T.)	全日面 Whole		中心區 Central Circle		北半球 N.Hemisphere		南半球 S.Hemisphere		相對數 Relative Number (10g+f)				面積 Area ( in millionth hemisphere)		A. B. 型 群數 Small Type Groups	視相 Seeing (1-5)	備考 Remark
		g	f	g	f	g	f	g	f	W	C	N	S	N	S			
1																		Rain
2																		Cloud
3																		Cloud
4																		Rain
5																		Cloud
6																		Rain
7	03:40	8	52	2	18	4	27	4	25	132	38	67	65	482	472	1	3	
8	03:14	6	53	0	0	3	28	3	25	113	0	58	55	500	410	0	3	
9																		None
10	02:35	8	43	2	27	3	28	5	15	123	47	58	65	454	518	1	3	
11																		Cloud
12																		Cloud
13																		Cloud
14	02:48	8	51	2	2	5	36	3	15	131	22	86	45	1279	322	3	3	
15	02:40	7	50	3	18	4	32	3	18	120	48	72	48	1119	229	3	3	
16																		None
17																		Cloud
18																		Cloud
19																		Rain
20																		Rain
21																		Rain
22																		Cloud
23																		Cloud
24																		Cloud
25																		Cloud
26	03:03	7	45	3	29	5	23	2	22	115	59	73	42	291	823	4	3	
27																		Cloud
28																		Rain
29																		Cloud
30																		Cloud
31																		None
Mean No.		7.33	49.00	2.00	15.67	4.00	29.00	3.33	20.00	122.33	35.67	69.00	53.33	687.26	462.53	Obs. Days: 6		

太陽黑子群發展表  
DEVELOPMENT TABLE OF SUNSPOT-GROUPS

Observatory : Taipei Astronomical Museum

Lat. : 25.10° N Long. : 121.52° E

Group No.	Date	Obs. Time (U.T.)	Bs (°)	Ls (°)	n	A (msh)	T	Q
3177	7-Jan	03:04	-17.8	331.1	4	21	A	2
	8-Jan	07:52	-17.1	330.6	1	12	A	3
3180	7-Jan	03:04	18.9	307.7	2	211	C	2
	8-Jan	07:52	19.5	309.9	3	219	C	3
	10-Jan	02:05	17.7	316.4	1	158	H	4
3181	7-Jan	03:04	-19.7	278.2	12	413	D	2
	8-Jan	07:52	-20.3	277.3	37	753	E	3
	10-Jan	02:05	-19.7	277.9	20	696	E	4
	12-Jan	02:14	-17.9	278.8	12	504	E	4
3182	7-Jan	03:04	-17.3	226.3	16	903	E	2
	8-Jan	07:52	-16.8	227.1	25	1431	E	3
	10-Jan	02:05	-15.5	226.2	21	997	F	4
	12-Jan	02:14	-15.2	227.0	13	359	E	4
	14-Jan	01:26	-16.4	229.0	8	375	D	4
3183	7-Jan	03:04	-17.7	308.2	10	219	D	2
	8-Jan	07:52	-15.7	308.9	17	323	D	3
	10-Jan	02:05	-14.9	315.8	2	87	H	4
3184	10-Jan	02:05	-13.3	184.1	3	533	E	4
	12-Jan	02:14	-14.1	179.0	6	541	C	4
	14-Jan	01:26	-13.6	177.9	12	260	E	4
	19-Jan	07:22	-12.5	180.5	4	255	C	4
3185	10-Jan	02:05	20.4	246.1	5	56	C	4
	12-Jan	02:14	19.5	246.6	7	84	D	4
	14-Jan	01:26	18.6	248.4	2	37	C	4
3186	12-Jan	02:14	24.2	168.5	13	776	E	4
	14-Jan	01:26	22.0	169.7	12	849	E	4
	19-Jan	07:22	23.1	172.7	5	458	E	4
3187	10-Jan	02:05	14.6	218.0	1	10	A	4

太陽黑子群發展表  
DEVELOPMENT TABLE OF SUNSPOT-GROUPS

Observatory : Taipei Astronomical Museum

Lat. : 25.10° N Long. : 121.52° E

Group No.	Date	Obs. Time (U.T.)	Bs (°)	Ls (°)	n	A (msh)	T	Q
	12-Jan	02:14	19.7	222.1	1	7	A	4
3188	14-Jan	01:26	-25.9	145.5	5	105	D	4
3189	14-Jan	01:26	19.5	221.2	1	8	A	4
3190	14-Jan	01:26	-15.7	120.9	2	1358	E	4
	19-Jan	07:22	-14.3	122.1	10	1135	E	4
	25-Jan	06:27	-13.0	124.2	4	1518	D	2
3191	14-Jan	01:26	9.2	125.6	3	838	D	4
	19-Jan	07:22	10.7	131.3	8	278	D	4
3192	14-Jan	01:26	16.2	119.4	2	610	D	4
	19-Jan	07:22	16.3	120.0	21	375	F	4
	25-Jan	06:27	18.3	125.8	3	127	C	2
3194	19-Jan	07:22	-25.5	136.6	5	12	B	4
3195	19-Jan	07:22	20.2	141.0	2	4	B	4
3196	19-Jan	07:22	11.5	87.0	3	12	D	4
	25-Jan	06:27	17.8	79.8	2	60	C	2
3197	19-Jan	07:22	26.2	60.1	2	61	J	4
	25-Jan	06:27	21.6	71.0	3	57	C	2
3198	25-Jan	06:27	25.5	58.9	1	67	J	2
	29-Jan	02:13	27.2	61.6	1	30	A	4
3199	25-Jan	06:27	16.9	43.5	4	38	C	2
3200	25-Jan	06:27	22.0	15.7	3	43	C	2
3201	25-Jan	06:27	23.9	352.1	1	100	J	2
	29-Jan	02:13	23.3	353.1	1	88	J	4
	30-Jan	02:24	22.8	352.1	1	97	J	3
	31-Jan	02:44	20.7	351.7	1	61	J	3
3202	25-Jan	06:27	12.3	84.3	4	26	C	2
3204	29-Jan	02:13	24.6	30.0	5	58	D	4
	30-Jan	02:24	23.5	29.2	4	47	D	3

太陽黑子群發展表  
DEVELOPMENT TABLE OF SUNSPOT-GROUPS

Observatory : Taipei Astronomical Museum

Lat. : 25.10° N Long. : 121.52° E

Group No.	Date	Obs. Time (U.T.)	Bs (°)	Ls (°)	n	A (msh)	T	Q
	31-Jan	02:44	19.1	33.1	2	49	D	3
3205	29-Jan	02:13	-22.6	33.0	3	77	C	4
	30-Jan	02:24	-23.2	33.2	3	136	C	3
	31-Jan	02:44	-29.2	33.7	1	92	C	3
3206	30-Jan	02:24	-23.4	281.4	3	56	C	3
	31-Jan	02:44	-18.9	282.0	3	23	C	3
3207	31-Jan	02:44	-8.4	254.6	3	87	C	3
3208	11-Feb	06:18	8.2	250.2	8	227	D	3
3210	8-Feb	04:02	-17.7	289.2	3	10	A	3
3213	8-Feb	04:02	27.3	222.5	16	442	E	3
	9-Feb	03:30	29.2	220.5	13	981	E	4
	11-Feb	06:18	29.5	220.1	13	619	F	3
	13-Feb	03:44	30.7	224.2	10	427	F	4
3214	8-Feb	04:02	9.2	204.7	10	458	D	3
	9-Feb	03:30	10.7	205.0	8	475	D	4
	11-Feb	06:18	11.6	204.9	7	597	D	3
	13-Feb	03:44	11.1	202.0	6	823	E	4
3215	8-Feb	04:02	19.6	181.2	3	9	C	3
	9-Feb	03:30	21.6	183.1	2	13	C	4
	11-Feb	06:18	22.1	182.3	1	3	A	3
3216	8-Feb	04:02	22.7	167.9	2	242	D	3
	9-Feb	03:30	24.5	167.4	2	290	D	4
	11-Feb	06:18	24.0	166.6	3	182	J	3
	13-Feb	03:44	22.9	164.7	2	199	J	4
	16-Feb	07:55	23.1	164.2	1	123	J	3
3217	11-Feb	06:18	-11.0	137.8	12	359	E	3
	13-Feb	03:44	-12.5	137.8	6	306	D	4
	16-Feb	07:55	-12.0	137.7	1	296	J	3

太陽黑子群發展表  
DEVELOPMENT TABLE OF SUNSPOT-GROUPS

Observatory : Taipei Astronomical Museum

Lat. : 25.10° N Long. : 121.52° E

Group No.	Date	Obs. Time (U.T.)	Bs (°)	Ls (°)	n	A (msh)	T	Q
3218	9-Feb	03:30	-10.5	137.6	6	1077	C	4
	11-Feb	06:18	10.6	151.6	2	5	A	3
	13-Feb	03:44	8.7	153.6	1	10	A	4
3219	11-Feb	06:18	-6.4	144.6	3	11	C	3
	13-Feb	03:44	-8.3	143.9	2	10	A	4
	16-Feb	07:55	-8.9	140.9	2	8	A	3
3220	11-Feb	06:18	-14.2	121.4	2	294	J	3
	13-Feb	03:44	-15.8	121.5	3	199	H	4
	16-Feb	07:55	-13.4	121.5	2	207	J	3
3221	11-Feb	06:18	15.7	124.0	4	209	J	3
	13-Feb	03:44	15.1	123.7	6	59	C	4
3222	11-Feb	06:18	29.7	249.8	3	52	D	3
3225	13-Feb	03:44	-21.2	152.6	4	34	C	4
	16-Feb	07:55	-20.2	153.0	3	7	B	3
3226	13-Feb	03:44	9.3	111.2	7	178	D	4
	16-Feb	07:55	10.3	112.5	18	806	D	3
3228	13-Feb	03:44	-26.0	131.3	3	25	B	4
3229	27-Feb	02:16	26.2	37.5	2	153	C	1
3230	27-Feb	02:16	-22.9	6.8	2	15	C	1
	28-Feb	07:12	-20.1	6.7	3	13	A	3
3234	27-Feb	02:16	23.6	340.8	27	853	F	1
	28-Feb	07:12	24.3	343.6	23	1116	F	3
	3-Mar	02:38	23.7	345.2	6	659	E	4
3235	27-Feb	02:16	18.3	4.0	2	10	B	1
3236	27-Feb	02:16	-26.8	353.6	10	349	C	1
	28-Feb	07:12	-25.3	349.9	12	125	C	3
3237	28-Feb	07:12	-6.8	334.3	3	14	A	3
3238	27-Feb	02:16	7.2	259.2	1	151	J	1

太陽黑子群發展表  
DEVELOPMENT TABLE OF SUNSPOT-GROUPS

Observatory : Taipei Astronomical Museum

Lat. : 25.10° N Long. : 121.52° E

Group No.	Date	Obs. Time (U.T.)	Bs (°)	Ls (°)	n	A (msh)	T	Q
	28-Feb	07:12	8.6	259.1	1	99	J	3
	3-Mar	02:38	7.8	258.3	1	134	J	4
	6-Mar	03:39	7.5	256.8	1	62	J	4
	7-Mar	06:26	8.2	257.2	1	51	J	4
	8-Mar	07:37	9.3	257.4	1	50	J	3
	9-Mar	07:02	16.2	268.4	1	29	A	4
3239	3-Mar	02:38	31.1	240.8	1	169	J	4
	6-Mar	03:39	32.0	237.7	1	120	J	4
	7-Mar	06:26	32.1	236.3	1	191	J	4
	8-Mar	07:37	32.9	235.9	1	199	J	3
	9-Mar	07:02	32.7	233.9	1	133	J	4
	10-Mar	06:39	33.0	233.7	1	143	J	4
	12-Mar	02:09	32.3	230.2	1	98	J	4
3240	6-Mar	03:39	-9.7	249.0	5	29	C	4
	7-Mar	06:26	-9.7	250.3	2	7	B	4
	8-Mar	07:37	-7.2	255.8	2	4	A	3
3241	3-Mar	02:38	27.3	227.2	1	44	J	4
	6-Mar	03:39	27.7	224.7	1	60	J	4
	7-Mar	06:26	27.1	223.2	1	43	J	4
	8-Mar	07:37	27.7	223.1	2	75	J	3
	9-Mar	07:02	27.9	221.5	1	99	J	4
	10-Mar	06:39	29.0	221.3	1	56	J	4
	12-Mar	02:09	28.3	218.4	1	10	A	4
3242	3-Mar	02:38	9.2	218.2	3	227	C	4
	6-Mar	03:39	8.8	220.8	13	364	E	4
	7-Mar	06:26	8.8	217.7	18	295	E	4
	8-Mar	07:37	9.8	218.1	15	266	E	3
	9-Mar	07:02	9.7	217.6	14	226	E	4

太陽黑子群發展表  
DEVELOPMENT TABLE OF SUNSPOT-GROUPS

Observatory : Taipei Astronomical Museum

Lat. : 25.10° N Long. : 121.52° E

Group No.	Date	Obs. Time (U.T.)	Bs (°)	Ls (°)	n	A (msh)	T	Q
	10-Mar	06:39	11.0	220.6	8	210	C	4
	12-Mar	02:09	11.2	222.1	1	148	J	4
3243	6-Mar	03:39	19.3	302.4	9	413	D	4
3244	3-Mar	02:38	-21.4	286.1	2	13	C	4
	6-Mar	03:39	-21.8	287.1	5	88	C	4
	7-Mar	06:26	-21.2	286.9	5	18	C	4
	8-Mar	07:37	-20.5	284.8	1	31	A	3
3245	6-Mar	03:39	-23.7	196.1	6	381	D	4
	7-Mar	06:26	-23.2	195.0	9	452	D	4
	8-Mar	07:37	-23.2	194.8	10	446	D	3
	9-Mar	07:02	-22.7	193.2	15	327	D	4
	10-Mar	06:39	-21.9	193.4	7	471	C	4
	12-Mar	02:09	-22.6	191.8	3	206	C	4
	14-Mar	02:49	-23.5	190.6	2	288	H	4
	15-Mar	03:25	-24.4	190.0	1	262	J	3
	16-Mar	03:40	-22.8	191.0	1	114	A	4
3246	6-Mar	03:39	23.0	177.2	2	46	C	4
	7-Mar	06:26	21.8	176.1	5	103	C	4
	8-Mar	07:37	22.5	176.5	4	10	J	3
	9-Mar	07:02	23.7	176.4	2	81	J	4
	10-Mar	06:39	23.4	175.0	2	73	C	4
	12-Mar	02:09	22.6	173.8	2	34	J	4
3247	6-Mar	03:39	-25.8	165.5	1	46	D	4
	7-Mar	06:26	-25.5	162.7	2	124	C	4
	8-Mar	07:37	-24.9	162.6	2	106	C	3
	9-Mar	07:02	-23.4	163.0	4	113	C	4
	10-Mar	06:39	-23.1	163.5	4	118	C	4
	12-Mar	02:09	-24.6	161.7	2	14	C	4

太陽黑子群發展表  
DEVELOPMENT TABLE OF SUNSPOT-GROUPS

Observatory : Taipei Astronomical Museum

Lat. : 25.10° N Long. : 121.52° E

Group No.	Date	Obs. Time (U.T.)	Bs (°)	Ls (°)	n	A (msh)	T	Q
	14-Mar	02:49	-24.3	160.0	1	31	J	4
	15-Mar	03:25	-24.7	159.5	1	5	J	3
	16-Mar	03:40	-25.5	149.7	1	9	A	4
3248	7-Mar	06:26	15.3	272.4	4	14	C	4
	8-Mar	07:37	15.7	273.9	4	44	C	3
3249	8-Mar	07:37	-13.4	141.4	1	95	J	3
	9-Mar	07:02	-12.2	141.8	1	80	J	4
	10-Mar	06:39	-12.2	141.8	1	61	J	4
	12-Mar	02:09	-13.0	140.5	1	47	J	4
	14-Mar	02:49	-12.3	139.8	2	28	C	4
	15-Mar	03:25	-12.7	139.1	1	7	A	3
	16-Mar	03:40	-10.9	139.3	1	7	A	4
3250	10-Mar	06:39	-19.1	145.2	4	110	B	4
	12-Mar	02:09	-19.5	143.3	5	131	C	4
	14-Mar	02:49	-19.9	142.6	8	15	D	4
	15-Mar	03:25	-20.2	142.2	4	11	B	3
	16-Mar	03:40	-17.7	142.9	1	8	A	4
3251	9-Mar	07:02	-14.4	120.9	1	41	A	4
	10-Mar	06:39	-14.8	120.9	1	74	J	4
	12-Mar	02:09	-15.7	120.1	1	58	J	4
	14-Mar	02:49	-15.1	119.0	1	9	J	4
	15-Mar	03:25	-15.5	118.4	1	56	J	3
	16-Mar	03:40	-13.7	118.2	1	81	J	4
	17-Mar	03:21	-13.7	118.5	1	70	J	5
3252	10-Mar	06:39	12.2	119.7	1	14	A	4
	12-Mar	02:09	10.8	117.5	1	71	J	4
	14-Mar	02:49	11.0	117.8	1	20	J	4
	15-Mar	03:25	10.7	117.1	1	16	A	3

太陽黑子群發展表  
DEVELOPMENT TABLE OF SUNSPOT-GROUPS

Observatory : Taipei Astronomical Museum

Lat. : 25.10° N Long. : 121.52° E

Group No.	Date	Obs. Time (U.T.)	Bs (°)	Ls (°)	n	A (msh)	T	Q
	16-Mar	03:40	11.7	117.1	1	6	A	4
3253	12-Mar	02:09	-30.6	149.5	2	9	B	4
	14-Mar	02:49	-25.3	151.0	13	26	C	4
	15-Mar	03:25	-26.1	150.6	6	89	C	3
3254	16-Mar	03:40	-22.7	155.7	3	21	B	4
3255	15-Mar	03:25	-6.6	81.9	2	9	B	3
	16-Mar	03:40	-17.6	80.9	1	5	A	4
	17-Mar	03:21	-23.0	15.2	1	96	A	5
3256	22-Mar	07:52	-21.6	10.7	1	381	J	2
3257	22-Mar	07:52	-27.6	350.2	2	306	C	2
3259	22-Mar	07:52	-18.6	354.9	13	99	B	2
3260	22-Mar	07:52	23.1	347.5	1	255	J	2
3261	22-Mar	07:52	-21.3	96.5	2	16	A	2
3262	22-Mar	07:52	-19.3	307.7	1	237	J	2
3272	10-Apr	02:13	-22.0	103.8	17	621	E	3
	11-Apr	06:59	-21.6	105.0	40	310	F	2
	14-Apr	03:19	-19.6	109.1	13	202	C	3
	16-Apr	02:43	-18.9	109.5	2	15	C	4
	17-Apr	03:14	-24.3	97.9	2	21	A	4
	18-Apr	02:14	-24.1	97.7	3	8	A	4
3273	10-Apr	02:13	8.6	116.4	5	85	D	3
	11-Apr	06:59	9.9	112.8	11	161	D	2
	14-Apr	03:19	8.3	118.8	1	90	J	3
	16-Apr	02:43	8.9	116.4	2	30	C	4
3274	10-Apr	02:13	-8.3	130.1	1	5	A	3
3275	11-Apr	06:59	19.6	64.8	2	92	J	2
	14-Apr	03:19	18.5	66.5	1	93	J	3
	16-Apr	02:43	19.2	65.9	1	35	J	4

太陽黑子群發展表  
DEVELOPMENT TABLE OF SUNSPOT-GROUPS

Observatory : Taipei Astronomical Museum

Lat. : 25.10° N Long. : 121.52° E

Group No.	Date	Obs. Time (U.T.)	Bs (°)	Ls (°)	n	A (msh)	T	Q
	17-Apr	03:14	18.8	65.1	1	22	A	4
	18-Apr	02:14	18.4	65.1	2	3	A	4
3276	11-Apr	06:59	-21.7	51.9	4	66	D	2
	14-Apr	03:19	-23.5	56.1	1	42	J	3
	16-Apr	02:43	-22.1	55.6	5	12	B	4
	18-Apr	02:14	-21.5	51.4	3	20	A	4
3279	14-Apr	03:19	-21.9	39.6	4	270	E	3
	16-Apr	02:43	-20.0	37.1	14	178	D	4
	17-Apr	03:14	-21.3	36.9	5	112	F	4
	18-Apr	02:14	-21.0	36.0	16	69	E	4
3280	14-Apr	03:19	-9.4	116.5	18	248	D	3
	16-Apr	02:43	-7.4	118.4	7	316	C	4
	17-Apr	03:14	-7.7	120.2	3	397	C	4
3281	14-Apr	03:19	-24.7	22.8	5	548	D	3
	16-Apr	02:43	-24.2	19.7	11	492	E	4
	17-Apr	03:14	-24.9	17.8	10	354	E	4
	18-Apr	02:14	-24.1	20.3	8	114	E	4
3282	14-Apr	03:19	10.4	20.3	4	306	D	3
	16-Apr	02:43	11.5	25.4	14	652	E	4
	17-Apr	03:14	10.4	24.3	14	569	E	4
	18-Apr	02:14	10.6	26.0	11	724	E	4
3283	18-Apr	02:14	-22.9	2.2	3	71	C	4
3285	28-Apr	03:18	-17.4	274.4	3	260	C	4
	29-Apr	03:33	-17.4	271.3	7	195	C	1
	1-May	02:12	-17.3	273.1	2	117	C	4
3288	28-Apr	03:18	-23.0	268.2	17	507	E	4
	29-Apr	03:33	-23.5	265.2	9	578	E	1
	1-May	02:12	-22.8	265.4	14	581	E	4

太陽黑子群發展表  
DEVELOPMENT TABLE OF SUNSPOT-GROUPS

Observatory : Taipei Astronomical Museum

Lat. : 25.10° N Long. : 121.52° E

Group No.	Date	Obs. Time (U.T.)	Bs (°)	Ls (°)	n	A (msh)	T	Q
3289	28-Apr	03:18	17.7	213.8	3	215	D	4
	29-Apr	03:33	18.8	211.4	4	356	D	1
	1-May	02:12	17.8	212.2	11	473	D	4
	4-May	07:54	19.6	210.4	4	15	B	2
3291	28-Apr	03:18	7.1	264.1	3	181	C	4
	29-Apr	03:33	7.0	262.8	7	155	C	1
	1-May	02:12	6.1	268.2	2	15	C	4
3292	28-Apr	03:18	13.4	207.6	1	25	A	4
	29-Apr	03:33	13.7	206.2	1	39	J	1
3293	1-May	02:12	10.8	145.9	4	226	D	4
	4-May	07:54	11.1	151.3	6	191	D	2
3294	4-May	07:54	-8.2	126.7	2	182	J	2
3295	4-May	07:54	15.4	216.4	2	7	B	2
3296	4-May	07:54	14.1	138.0	11	659	D	2
3297	4-May	07:54	7.3	119.4	8	880	E	2
3298	4-May	07:54	-16.2	139.1	2	12	B	2
3301	16-May	03:22	12.7	34.6	5	14	J	4
	17-May	02:35	15.4	34.8	2	27	A	4
	18-May	07:54	14.6	32.7	3	3	A	3
3302	16-May	03:22	16.4	29.7	2	96	J	4
	17-May	02:35	18.9	30.0	1	107	J	4
	18-May	07:54	18.3	28.2	1	84	J	3
3305	16-May	03:22	8.8	25.2	14	258	D	4
	17-May	02:35	12.0	25.9	16	290	D	4
	18-May	07:54	12.4	26.9	22	142	D	3
3306	17-May	02:35	-16.2	51.3	5	40	C	4
3307	16-May	03:22	-9.8	352.2	2	6	A	4
	18-May	07:54	-8.6	351.0	5	8	B	3

太陽黑子群發展表  
DEVELOPMENT TABLE OF SUNSPOT-GROUPS

Observatory : Taipei Astronomical Museum

Lat. : 25.10° N Long. : 121.52° E

Group No.	Date	Obs. Time (U.T.)	Bs (°)	Ls (°)	n	A (msh)	T	Q
3308	17-May	02:35	12.1	13.2	4	16	C	4
	18-May	07:54	12.0	11.0	3	80	C	3
3309	18-May	07:54	-17.7	46.9	1	2	A	3
3310	18-May	07:54	-20.9	283.7	1	741	D	3
	26-May	02:06	-19.5	283.0	10	608	C	3
	27-May	03:03	-20.4	282.8	4	533	H	3
	29-May	01:53	-20.9	285.2	1	783	J	4
3311	18-May	07:54	16.6	275.3	2	82	A	3
	26-May	02:06	18.2	270.0	12	406	E	3
	27-May	03:03	18.5	268.1	11	272	E	3
	29-May	01:53	19.7	267.0	7	183	C	4
3312	26-May	02:06	-23.3	265.5	3	17	B	3
	27-May	03:03	-25.5	258.8	5	115	B	3
3313	26-May	02:06	21.7	254.1	1	127	J	3
	27-May	03:03	21.9	254.8	2	92	J	3
	29-May	01:53	21.9	254.3	1	114	J	4
3314	26-May	02:06	15.7	282.4	4	91	C	3
	27-May	03:03	14.6	283.0	3	194	D	3
	29-May	01:53	13.9	286.0	1	225	J	4
3315	26-May	02:06	-17.0	233.8	14	362	D	3
	27-May	03:03	-17.3	233.9	15	1093	E	3
	29-May	01:53	-17.6	231.9	15	869	E	4
3316	26-May	02:06	8.5	205.6	5	9	C	3
	27-May	03:03	8.2	205.3	5	66	B	3
	29-May	01:53	7.7	206.1	4	20	B	4
3317	29-May	01:53	24.2	233.3	4	25	D	4
3319	5-Jun	02:30	-17.3	193.2	1	72	A	3
3320	5-Jun	02:30	10.7	127.6	2	51	C	3

太陽黑子群發展表  
DEVELOPMENT TABLE OF SUNSPOT-GROUPS

Observatory : Taipei Astronomical Museum

Lat. : 25.10° N Long. : 121.52° E

Group No.	Date	Obs. Time (U.T.)	Bs (°)	Ls (°)	n	A (msh)	T	Q
	6-Jun	07:38	10.0	129.9	2	33	J	2
	8-Jun	02:59	9.5	129.9	1	16	A	3
3321	5-Jun	02:30	-13.9	119.3	7	290	J	3
	6-Jun	07:38	-15.1	119.5	12	71	J	2
	8-Jun	02:59	-15.4	118.8	5	296	C	3
3323	5-Jun	02:30	-7.6	97.4	21	573	E	3
	6-Jun	07:38	-8.5	97.8	25	415	E	2
	8-Jun	02:59	-8.8	101.5	16	115	E	3
3325	5-Jun	02:30	10.4	152.1	1	16	A	3
	6-Jun	07:38	8.6	153.8	1	13	A	2
3326	5-Jun	02:30	25.2	71.0	1	128	J	3
	6-Jun	07:38	24.6	71.4	1	136	J	2
	8-Jun	02:59	23.3	71.1	1	133	J	3
3327	5-Jun	02:30	-13.9	54.6	4	243	B	3
	6-Jun	07:38	-15.4	51.3	12	171	D	2
	8-Jun	02:59	-17.3	54.7	25	281	E	3
3329	6-Jun	07:38	23.1	54.5	5	79	D	2
	8-Jun	02:59	21.4	54.1	6	404	D	3
3330	6-Jun	07:38	16.2	69.7	2	4	B	2
	8-Jun	02:59	14.9	71.8	1	10	A	3
3331	8-Jun	02:59	-25.0	19.0	2	327	D	3
3333	20-Jun	03:25	-11.2	312.5	8	105	E	4
3335	20-Jun	03:25	-15.7	287.6	19	309	E	4
3337	26-Jun	06:42	20.5	261.8	1	19	J	4
3338	20-Jun	03:25	9.5	267.8	6	109	D	4
3339	20-Jun	03:25	-21.2	240.3	1	280	J	4
	26-Jun	06:42	-18.2	241.5	1	95	J	4
3340	20-Jun	03:25	19.1	240.3	4	200	C	4

太陽黑子群發展表  
DEVELOPMENT TABLE OF SUNSPOT-GROUPS

Observatory : Taipei Astronomical Museum

Lat. : 25.10° N Long. : 121.52° E

Group No.	Date	Obs. Time (U.T.)	Bs (°)	Ls (°)	n	A (msh)	T	Q
	26-Jun	06:42	23.0	233.3	22	345	E	4
3341	20-Jun	03:25	-16.9	211.1	1	241	D	4
	26-Jun	06:42	-15.3	209.5	4	117	C	4
3342	20-Jun	03:25	-21.5	339.2	10	77	D	4
3345	26-Jun	06:42	8.2	213.2	1	12	J	4
3348	26-Jun	06:42	-31.5	181.9	2	8	B	4
3351	26-Jun	06:42	17.6	168.4	11	62	C	4
3354	2-Jul	02:42	16.0	165.4	14	1272	F	2
	5-Jul	02:54	14.4	161.1	1	605	F	4
3355	2-Jul	02:42	-15.6	113.2	2	7	A	2
3356	2-Jul	02:42	-6.3	100.8	3	45	B	2
3357	2-Jul	02:42	-6.4	90.5	4	96	D	2
	5-Jul	02:54	-6.9	90.3	8	41	B	4
3358	2-Jul	02:42	-12.7	66.8	8	195	D	2
	5-Jul	02:54	-13.4	71.0	3	15	B	4
	7-Jul	03:16	-12.4	64.3	6	22	B	3
3359	2-Jul	02:42	-22.4	69.5	6	111	D	2
	5-Jul	02:54	-22.2	70.3	7	311	D	4
	7-Jul	03:16	-21.3	68.8	10	142	D	3
3360	2-Jul	02:42	21.5	64.5	1	85	J	2
	5-Jul	02:54	21.8	64.9	3	60	C	4
	7-Jul	03:16	21.9	64.4	2	12	C	3
	10-Jul	07:19	24.2	61.1	6	46	D	4
3361	5-Jul	02:54	20.5	42.7	6	152	C	4
	7-Jul	03:16	23.0	43.8	9	301	E	3
	10-Jul	07:19	25.4	39.1	11	403	E	4
	12-Jul	02:24	23.1	40.2	7	246	D	3
	13-Jul	03:50	23.4	39.8	4	268	C	3

太陽黑子群發展表  
DEVELOPMENT TABLE OF SUNSPOT-GROUPS

Observatory : Taipei Astronomical Museum

Lat. : 25.10° N Long. : 121.52° E

Group No.	Date	Obs. Time (U.T.)	Bs (°)	Ls (°)	n	A (msh)	T	Q
	14-Jul	03:16	23.3	42.6	1	224	J	4
3362	5-Jul	02:54	-11.0	10.7	1	28	J	4
	7-Jul	03:16	-9.5	10.8	1	108	J	3
	10-Jul	07:19	-7.4	10.1	2	82	J	4
	12-Jul	02:24	-8.5	10.3	1	63	J	3
	13-Jul	03:50	-8.7	7.7	1	21	J	3
	14-Jul	03:16	-8.9	8.0	1	8	A	4
3363	7-Jul	03:16	-21.6	348.5	1	923	H	3
	10-Jul	07:19	-20.6	346.5	1	976	C	4
	12-Jul	02:24	-22.6	346.7	8	884	D	3
	13-Jul	03:50	-22.0	343.2	8	855	D	3
	14-Jul	03:16	-22.5	342.5	16	1122	D	4
	15-Jul	03:48	-21.5	341.3	8	1210	D	3
	16-Jul	03:09	-20.5	344.0	12	1083	D	3
	17-Jul	06:25	-20.1	340.6	6	1250	D	4
3364	7-Jul	03:16	21.6	1.8	1	9	A	3
	10-Jul	07:19	24.2	1.7	1	9	A	4
	12-Jul	02:24	21.8	3.4	3	13	B	3
3365	7-Jul	03:16	-35.5	64.4	2	9	B	3
3366	10-Jul	07:19	-7.9	55.8	6	173	D	4
	12-Jul	02:24	-10.4	64.0	1	252	J	3
3367	10-Jul	07:19	10.4	16.7	16	202	D	4
	12-Jul	02:24	9.1	19.3	11	245	D	3
	13-Jul	03:50	9.1	19.0	7	319	E	3
	14-Jul	03:16	8.6	20.3	7	256	D	4
	15-Jul	03:48	8.9	23.0	4	93	D	3
	16-Jul	03:09	13.4	19.8	1	45	D	3
3368	10-Jul	07:19	-16.5	50.8	11	154	D	4

太陽黑子群發展表  
DEVELOPMENT TABLE OF SUNSPOT-GROUPS

Observatory : Taipei Astronomical Museum

Lat. : 25.10° N Long. : 121.52° E

Group No.	Date	Obs. Time (U.T.)	Bs (°)	Ls (°)	n	A (msh)	T	Q
	12-Jul	02:24	-18.5	51.7	6	90	D	3
3369	10-Jul	07:19	-17.2	40.6	4	90	C	4
	12-Jul	02:24	-19.2	38.9	1	19	A	3
3370	12-Jul	02:24	-17.4	305.2	4	95	D	3
	13-Jul	03:50	-16.5	303.6	4	21	C	3
	14-Jul	03:16	-16.0	306.7	1	8	J	4
3371	12-Jul	02:24	-18.0	293.7	2	108	J	3
	13-Jul	03:50	-16.5	291.1	2	114	J	3
	14-Jul	03:16	-16.6	290.7	3	98	J	4
	15-Jul	03:48	-15.6	290.3	2	39	J	3
	16-Jul	03:09	-15.0	291.6	1	39	J	3
	17-Jul	06:25	-14.7	290.4	1	15	J	4
3372	12-Jul	02:24	19.3	279.6	5	523	E	3
	13-Jul	03:50	21.6	273.5	7	851	E	3
	14-Jul	03:16	21.1	271.2	11	1047	E	4
	15-Jul	03:48	22.2	270.6	10	1290	E	3
	16-Jul	03:09	22.1	270.5	23	827	F	3
	17-Jul	06:25	22.3	268.8	22	1322	F	4
	21-Jul	02:58	22.3	266.5	13	602	E	3
	24-Jul	03:54	23.3	276.2	2	108	J	4
3373	14-Jul	03:16	6.6	247.3	3	361	D	4
	15-Jul	03:48	7.3	244.9	6	359	D	3
	16-Jul	03:09	7.2	244.3	13	256	D	3
	17-Jul	06:25	7.2	244.0	16	690	E	4
	21-Jul	02:58	6.5	245.2	22	776	E	3
	24-Jul	03:54	8.4	242.5	13	331	E	4
3374	14-Jul	03:16	-9.5	244.7	1	29	J	4
	15-Jul	03:48	-9.0	242.5	2	131	J	3

太陽黑子群發展表  
DEVELOPMENT TABLE OF SUNSPOT-GROUPS

Observatory : Taipei Astronomical Museum

Lat. : 25.10° N Long. : 121.52° E

Group No.	Date	Obs. Time (U.T.)	Bs (°)	Ls (°)	n	A (msh)	T	Q
	16-Jul	03:09	-8.5	242.4	2	34	J	3
	17-Jul	06:25	-7.5	243.4	1	60	J	4
3375	16-Jul	03:09	13.0	323.8	3	12	C	3
	17-Jul	06:25	13.9	323.3	4	11	C	4
3376	21-Jul	02:58	22.1	230.0	9	201	C	3
	24-Jul	03:54	22.2	229.6	5	132	D	4
3377	21-Jul	02:58	-11.8	199.2	5	442	D	3
	24-Jul	03:54	-9.8	198.8	6	369	D	4
3378	21-Jul	02:58	-27.6	233.1	8	42	C	3
	24-Jul	03:54	-27.1	235.3	1	53	J	4
3379	21-Jul	02:58	12.7	174.8	6	510	F	3
	24-Jul	03:54	12.6	174.0	8	340	D	4
3380	24-Jul	03:54	-14.5	121.1	3	308	C	4
3381	24-Jul	03:54	-18.2	234.5	5	33	B	4
3391	9-Aug	08:01	21.8	33.7	1	101	J	4
3392	9-Aug	08:01	8.5	44.8	1	29	J	4
3394	9-Aug	08:01	-22.2	342.8	12	368	D	4
	13-Aug	07:06	-22.3	341.9	1	329	J	2
	14-Aug	06:52	-20.9	339.0	1	241	J	3
3395	9-Aug	08:01	13.6	331.0	8	121	D	4
	13-Aug	07:06	12.9	330.7	6	259	D	2
	14-Aug	06:52	13.5	330.7	5	49	A	3
	15-Aug	03:22	13.0	332.8	2	31	A	4
3397	9-Aug	08:01	20.4	308.6	1	9	A	4
	13-Aug	07:06	19.1	304.7	8	192	D	2
	14-Aug	06:52	19.1	303.9	8	229	D	3
	15-Aug	03:22	19.6	304.8	2	134	D	4
3398	9-Aug	08:01	-20.9	39.0	1	3	A	4

太陽黑子群發展表  
DEVELOPMENT TABLE OF SUNSPOT-GROUPS

Observatory : Taipei Astronomical Museum

Lat. : 25.10° N Long. : 121.52° E

Group No.	Date	Obs. Time (U.T.)	Bs (°)	Ls (°)	n	A (msh)	T	Q
3402	13-Aug	07:06	-17.7	321.4	2	9	A	2
3403	13-Aug	07:06	25.9	242.7	4	8	B	2
	14-Aug	06:52	24.7	243.3	11	212	D	3
	15-Aug	03:22	25.5	243.1	11	271	D	4
	17-Aug	03:25	25.4	240.7	13	316	D	2
	18-Aug	03:39	25.4	242.6	11	180	D	2
	19-Aug	06:50	24.7	244.7	14	157	D	3
	21-Aug	03:55	24.9	247.8	4	182	C	2
3404	14-Aug	06:52	-9.7	200.4	1	36	A	3
	15-Aug	03:22	-7.8	202.0	5	87	C	4
	17-Aug	03:25	-9.5	200.6	2	64	C	2
	18-Aug	03:39	-9.6	200.3	1	36	J	2
	19-Aug	06:50	-9.3	201.3	1	27	J	3
	21-Aug	03:55	-12.2	202.4	2	8	C	2
3405	15-Aug	03:22	10.2	187.5	2	197	D	4
	17-Aug	03:25	8.4	183.8	3	252	E	2
	18-Aug	03:39	8.7	184.0	3	211	E	2
	19-Aug	06:50	9.7	189.9	5	172	C	3
	21-Aug	03:55	8.9	189.0	2	183	J	2
	26-Aug	02:37	10.0	192.2	1	198	J	4
3406	15-Aug	03:22	-18.9	265.8	2	3	B	4
	17-Aug	03:25	-16.0	267.2	3	11	B	2
3407	17-Aug	03:25	-18.0	225.4	9	394	D	2
	18-Aug	03:39	-18.3	224.8	5	278	D	2
	19-Aug	06:50	-18.3	225.8	6	216	D	3
	21-Aug	03:55	-18.7	224.3	9	180	D	2
3408	17-Aug	03:25	-17.7	239.0	3	11	B	2
3409	17-Aug	03:25	21.6	248.4	4	55	C	2

太陽黑子群發展表  
DEVELOPMENT TABLE OF SUNSPOT-GROUPS

Observatory : Taipei Astronomical Museum

Lat. : 25.10° N Long. : 121.52° E

Group No.	Date	Obs. Time (U.T.)	Bs (°)	Ls (°)	n	A (msh)	T	Q
	18-Aug	03:39	20.4	248.7	4	24	B	2
	19-Aug	06:50	20.3	249.7	5	13	C	3
3410	19-Aug	06:50	-15.5	272.1	1	6	A	3
3411	17-Aug	03:25	10.9	171.7	1	78	J	2
	18-Aug	03:39	11.3	171.9	1	84	J	2
	19-Aug	06:50	12.3	172.8	2	100	J	3
	21-Aug	03:55	12.0	171.5	1	76	J	2
	26-Aug	02:37	14.2	170.2	1	84	J	4
3412	19-Aug	06:50	30.1	136.5	1	33	J	3
	21-Aug	03:55	29.1	136.4	1	84	J	2
	26-Aug	02:37	30.6	132.4	1	65	J	4
3413	21-Aug	03:55	7.7	94.1	1	172	J	2
	26-Aug	02:37	9.5	98.8	7	472	D	4
3415	26-Aug	02:37	-10.4	78.7	7	359	D	4
3416	26-Aug	02:37	-20.6	45.3	1	98	J	4
3417	5-Sep	03:49	-7.1	7.7	2	73	C	3
	6-Sep	03:57	-7.4	8.2	3	20	J	3
3418	5-Sep	03:49	19.9	344.7	1	3	A	3
	6-Sep	03:57	19.5	357.6	2	7	A	3
3420	5-Sep	03:49	-20.0	339.2	3	17	A	3
3421	5-Sep	03:49	13.6	340.8	16	260	D	3
	6-Sep	03:57	13.9	340.8	20	302	D	3
	10-Sep	03:40	17.5	342.3	8	133	E	3
3422	5-Sep	03:49	13.8	319.8	5	30	D	3
	6-Sep	03:57	13.8	322.5	3	11	J	3
	23-Sep	03:20	-10.1	80.3	1	49	J	3
3423	5-Sep	03:49	14.2	279.2	7	56	D	3
	6-Sep	03:57	14.3	279.3	14	335	D	3

太陽黑子群發展表  
DEVELOPMENT TABLE OF SUNSPOT-GROUPS

Observatory : Taipei Astronomical Museum

Lat. : 25.10° N Long. : 121.52° E

Group No.	Date	Obs. Time (U.T.)	Bs (°)	Ls (°)	n	A (msh)	T	Q
	10-Sep	03:40	13.8	280.5	20	641	E	3
	12-Sep	03:50	13.6	279.9	17	639	E	3
	13-Sep	02:50	15.8	277.2	6	656	E	2
	15-Sep	03:17	16.0	280.3	7	352	E	3
	16-Sep	03:02	15.3	279.6	2	84	E	3
3424	6-Sep	03:57	15.6	254.0	2	11	C	3
3425	10-Sep	03:40	21.0	249.5	10	148	E	3
	12-Sep	03:50	20.4	249.8	15	255	E	3
	13-Sep	02:50	22.3	247.7	15	369	E	2
	15-Sep	03:17	23.7	244.4	10	49	C	3
	16-Sep	03:02	23.2	244.4	3	23	C	3
	19-Sep	02:17	23.3	240.3	2	117	J	3
3427	10-Sep	03:40	-29.1	248.3	3	17	C	3
	12-Sep	03:50	-28.7	252.0	1	5	A	3
3428	10-Sep	03:40	14.3	311.1	4	25	C	3
3429	12-Sep	03:50	7.9	205.0	4	40	C	3
	13-Sep	02:50	9.6	203.5	6	109	E	2
	15-Sep	03:17	10.4	206.0	21	99	D	3
	16-Sep	03:02	9.2	207.9	12	166	D	3
	19-Sep	02:17	11.0	211.3	6	110	C	3
	20-Sep	03:21	13.0	212.0	2	187	C	4
	21-Sep	02:42	11.1	212.8	1	57	A	3
3430	12-Sep	03:50	-18.6	256.9	8	41	D	3
	13-Sep	02:50	-18.0	255.1	11	29	D	2
	15-Sep	03:17	-17.0	258.6	3	101	C	3
	16-Sep	03:02	-17.5	262.5	1	19	A	3
3431	10-Sep	03:40	8.2	206.2	4	166	D	3
	12-Sep	03:50	-9.0	205.8	7	64	C	3

太陽黑子群發展表  
DEVELOPMENT TABLE OF SUNSPOT-GROUPS

Observatory : Taipei Astronomical Museum

Lat. : 25.10° N Long. : 121.52° E

Group No.	Date	Obs. Time (U.T.)	Bs (°)	Ls (°)	n	A (msh)	T	Q
	13-Sep	02:50	-7.8	203.5	4	53	J	2
	15-Sep	03:17	-7.7	207.6	1	2	A	3
3432	12-Sep	03:50	-22.8	327.7	2	110	B	3
	19-Sep	02:17	7.4	101.1	11	464	D	3
3433	12-Sep	03:50	25.8	176.3	1	212	J	3
	13-Sep	02:50	25.8	172.7	1	212	J	2
	15-Sep	03:17	26.4	173.9	1	113	J	3
	16-Sep	03:02	25.6	175.1	2	101	J	3
	19-Sep	02:17	27.2	171.9	3	111	J	3
	20-Sep	03:21	28.8	170.0	1	127	J	4
	21-Sep	02:42	27.0	171.5	2	110	J	3
	22-Sep	02:03	28.4	172.3	2	79	J	3
	23-Sep	03:20	26.9	170.9	2	107	J	3
	24-Sep	03:58	27.8	171.2	1	232	J	3
3434	15-Sep	03:17	7.5	198.1	2	25	J	3
	16-Sep	03:02	7.4	198.8	3	9	A	3
3435	20-Sep	03:21	7.6	101.1	16	480	D	4
	21-Sep	02:42	6.8	103.0	12	480	D	3
	22-Sep	02:03	8.1	103.8	9	341	D	3
	23-Sep	03:20	7.8	102.5	17	539	D	3
	24-Sep	03:58	9.4	99.9	14	504	D	3
	25-Sep	02:51	9.9	100.2	29	477	D	3
	26-Sep	03:34	8.7	101.3	13	386	D	2
	28-Sep	03:04	9.1	103.9	5	156	D	3
3436	19-Sep	02:17	18.7	194.9	17	122	D	3
	20-Sep	03:21	21.7	196.9	7	309	D	4
	21-Sep	02:42	19.7	197.3	3	141	D	3
	22-Sep	02:03	19.4	206.8	1	221	J	3

太陽黑子群發展表  
DEVELOPMENT TABLE OF SUNSPOT-GROUPS

Observatory : Taipei Astronomical Museum

Lat. : 25.10° N Long. : 121.52° E

Group No.	Date	Obs. Time (U.T.)	Bs (°)	Ls (°)	n	A (msh)	T	Q
3437	19-Sep	02:17	-17.8	172.9	11	252	D	3
	20-Sep	03:21	-16.4	175.5	8	327	D	4
	21-Sep	02:42	-18.1	175.8	7	266	D	3
	22-Sep	02:03	-17.9	173.7	11	251	D	3
	23-Sep	03:20	-18.2	182.9	1	166	C	3
3438	19-Sep	02:17	9.5	110.4	1	56	J	3
	20-Sep	03:21	10.6	111.3	12	62	C	4
	21-Sep	02:42	9.0	111.5	11	91	D	3
	22-Sep	02:03	10.6	111.6	17	57	B	3
	23-Sep	03:20	9.6	110.6	12	52	B	3
	24-Sep	03:58	11.5	109.4	7	31	B	3
	25-Sep	02:51	11.9	112.0	5	60	J	3
3439	19-Sep	02:17	-26.6	96.4	2	17	C	3
	20-Sep	03:21	-25.1	99.1	3	93	C	4
	21-Sep	02:42	-26.0	102.1	2	134	J	3
	22-Sep	02:03	-24.5	101.9	4	92	C	3
	23-Sep	03:20	-23.8	100.5	2	100	J	3
	24-Sep	03:58	-23.9	98.6	2	57	J	3
	25-Sep	02:51	-23.9	98.1	2	11	J	3
3440	19-Sep	02:17	16.5	81.1	2	139	C	3
	20-Sep	03:21	16.7	83.6	1	143	J	4
	21-Sep	02:42	15.3	85.7	1	107	J	3
	22-Sep	02:03	17.2	84.6	2	69	J	3
	23-Sep	03:20	16.5	84.8	1	103	J	3
	24-Sep	03:58	17.3	82.9	3	106	J	3
	25-Sep	02:51	16.6	82.3	3	112	J	3
	26-Sep	03:34	17.0	83.2	2	77	J	2
	28-Sep	03:04	17.5	83.4	2	39	J	3

太陽黑子群發展表  
DEVELOPMENT TABLE OF SUNSPOT-GROUPS

Observatory : Taipei Astronomical Museum

Lat. : 25.10° N Long. : 121.52° E

Group No.	Date	Obs. Time (U.T.)	Bs (°)	Ls (°)	n	A (msh)	T	Q
3441	20-Sep	03:21	7.9	133.4	5	80	C	4
	21-Sep	02:42	6.7	135.4	6	45	D	3
	22-Sep	02:03	6.7	136.7	13	63	C	3
	23-Sep	03:20	5.4	139.2	6	35	D	3
	24-Sep	03:58	5.4	139.6	17	67	C	3
	25-Sep	02:51	6.0	141.2	6	67	C	3
3442	19-Sep	02:17	-11.4	75.2	1	101	A	3
	20-Sep	03:21	-9.6	77.2	1	15	A	4
	21-Sep	02:42	-11.1	80.3	2	69	C	3
	22-Sep	02:03	-10.3	80.7	1	52	J	3
	24-Sep	03:58	-9.4	78.5	2	63	J	3
	25-Sep	02:51	-10.1	78.5	1	14	J	3
	26-Sep	03:34	-10.5	79.6	1	10	J	2
	28-Sep	03:04	-11.9	78.1	1	17	A	3
3443	21-Sep	02:42	27.0	144.8	9	55	D	3
	22-Sep	02:03	28.3	145.5	17	220	D	3
	23-Sep	03:20	27.5	146.1	15	415	D	3
	24-Sep	03:58	28.7	144.3	11	546	E	3
	25-Sep	02:51	28.7	146.2	8	359	E	3
	26-Sep	03:34	27.6	151.1	1	626	E	2
3445	22-Sep	02:03	-15.7	73.2	14	133	D	3
	23-Sep	03:20	-15.3	73.6	17	118	D	3
	24-Sep	03:58	-14.2	73.2	36	61	D	3
	25-Sep	02:51	-15.3	72.5	39	291	D	3
	26-Sep	03:34	-15.3	75.4	30	246	D	2
	28-Sep	03:04	-14.4	76.0	11	205	D	3
3446	22-Sep	02:03	20.1	44.6	2	33	B	3
	24-Sep	03:58	22.0	43.8	2	6	A	3

太陽黑子群發展表  
DEVELOPMENT TABLE OF SUNSPOT-GROUPS

Observatory : Taipei Astronomical Museum

Lat. : 25.10° N Long. : 121.52° E

Group No.	Date	Obs. Time (U.T.)	Bs (°)	Ls (°)	n	A (msh)	T	Q
3447	25-Sep	02:51	-23.8	56.9	6	45	D	3
	26-Sep	03:34	-23.1	57.0	11	233	D	2
	28-Sep	03:04	-22.9	58.2	10	138	D	3
	1-Oct	03:29	-24.7	62.0	2	170	J	2
3448	26-Sep	03:34	11.9	356.3	2	162	J	2
	28-Sep	03:04	11.5	353.1	2	131	J	3
	1-Oct	03:29	11.1	353.3	2	112	J	2
3449	28-Sep	03:04	13.9	10.5	11	183	C	3
	1-Oct	03:29	13.0	8.2	11	80	C	2
3450	28-Sep	03:04	-20.8	326.0	4	82	C	3
	1-Oct	03:29	-20.8	329.2	20	267	E	2
3451	1-Oct	03:29	9.7	298.7	14	123	D	2
3460	13-Oct	02:23	-10.8	233.3	4	212	D	3
	16-Oct	03:35	-11.3	238.4	1	63	J	3
3462	13-Oct	02:23	17.9	188.3	1	37	J	3
3463	13-Oct	02:23	-18.7	178.1	7	194	C	3
3464	13-Oct	02:23	3.5	169.2	6	148	C	3
	16-Oct	03:35	3.5	167.6	12	146	C	3
	17-Oct	03:01	3.2	169.4	6	95	C	3
	18-Oct	03:43	3.9	169.5	6	112	C	3
	19-Oct	02:48	2.6	170.8	1	132	J	4
3465	13-Oct	02:23	8.8	147.3	2	267	J	3
	16-Oct	03:35	9.6	145.7	8	343	J	3
	17-Oct	03:01	10.1	146.3	13	204	C	3
	18-Oct	03:43	11.3	144.4	11	244	C	3
	19-Oct	02:48	10.9	144.8	10	232	C	4
3466	13-Oct	02:23	7.2	213.2	1	54	J	3
	16-Oct	03:35	8.0	210.2	6	43	B	3

太陽黑子群發展表  
DEVELOPMENT TABLE OF SUNSPOT-GROUPS

Observatory : Taipei Astronomical Museum

Lat. : 25.10° N Long. : 121.52° E

Group No.	Date	Obs. Time (U.T.)	Bs (°)	Ls (°)	n	A (msh)	T	Q
3467	16-Oct	03:35	11.3	105.3	2	18	A	3
3468	16-Oct	03:35	-12.0	80.8	1	79	A	3
	17-Oct	03:01	-11.4	79.2	1	39	J	3
	18-Oct	03:43	-10.4	79.7	1	107	J	3
	19-Oct	02:48	-10.4	80.9	3	161	J	4
	25-Oct	03:25	-9.8	79.8	1	102	J	4
3471	25-Oct	03:25	-22.7	45.6	5	81	C	4
	3-Nov	02:11	19.1	338.6	3	24	C	3
	4-Nov	02:22	20.5	339.6	5	72	C	3
3473	3-Nov	02:11	16.6	303.0	5	26	A	3
3474	3-Nov	02:11	-19.3	324.0	16	488	D	3
	4-Nov	02:22	-19.1	329.5	8	344	D	3
3477	3-Nov	02:11	-16.1	231.9	8	345	C	3
	4-Nov	02:22	-15.4	231.8	9	422	C	3
	6-Nov	03:47	-15.0	232.1	13	423	C	3
	7-Nov	03:06	-13.9	233.2	9	301	C	3
	9-Nov	03:44	-14.9	234.2	10	300	D	2
3478	3-Nov	02:11	10.0	229.0	1	10	A	3
	4-Nov	02:22	10.9	229.0	2	14	A	3
	6-Nov	03:47	10.9	228.4	1	5	A	3
3479	6-Nov	03:47	20.3	274.5	2	12	A	3
	9-Nov	03:44	21.8	276.8	5	123	C	2
3480	3-Nov	02:11	-9.6	208.2	2	48	A	3
	4-Nov	02:22	-9.8	206.4	8	231	D	3
	6-Nov	03:47	-10.6	204.5	8	101	D	3
	7-Nov	03:06	-9.8	207.4	11	99	C	3
	9-Nov	03:44	-8.6	210.1	2	29	C	2
3481	9-Nov	03:44	23.6	215.7	5	31	A	2

太陽黑子群發展表  
DEVELOPMENT TABLE OF SUNSPOT-GROUPS

Observatory : Taipei Astronomical Museum

Lat. : 25.10° N Long. : 121.52° E

Group No.	Date	Obs. Time (U.T.)	Bs (°)	Ls (°)	n	A (msh)	T	Q
3482	4-Nov	02:22	18.8	210.6	1	14	A	3
	6-Nov	03:47	0.9	178.2	1	20	A	3
	7-Nov	03:06	2.1	177.7	1	15	A	3
	9-Nov	03:44	2.5	178.6	2	13	A	2
3483	7-Nov	03:06	9.1	216.4	2	16	A	3
	9-Nov	03:44	8.6	216.7	19	149	E	2
3484	9-Nov	03:44	-18.5	223.6	3	16	A	2
3486	15-Nov	07:04	-9.6	159.0	6	295	D	3
	17-Nov	06:26	-8.6	163.0	5	134	D	2
3489	17-Nov	06:26	-16.2	12.8	1	252	J	2
	20-Nov	03:07	-16.9	15.5	19	186	D	3
	21-Nov	03:08	-15.0	16.9	17	332	D	2
	23-Nov	02:18	-15.8	15.6	16	168	C	3
	28-Nov	03:01	-18.0	359.7	1	17	A	3
3490	20-Nov	03:07	17.6	347.6	17	430	J	3
	21-Nov	03:08	21.9	354.0	3	132	C	2
	23-Nov	02:18	20.5	356.0	12	238	D	3
	28-Nov	03:01	21.8	354.2	2	33	A	3
3491	20-Nov	03:07	8.6	349.0	2	36	J	3
	21-Nov	03:08	9.7	348.1	2	110	J	2
	23-Nov	02:18	8.7	349.3	2	95	J	3
3492	21-Nov	03:08	19.1	340.8	22	1079	D	2
	23-Nov	02:18	16.8	342.9	30	685	E	3
	28-Nov	03:01	19.6	347.8	2	192	D	3
3493	21-Nov	03:08	-13.6	332.8	3	158	J	2
	23-Nov	02:18	-14.2	335.1	1	109	J	3
	28-Nov	03:01	-13.7	335.3	4	97	J	3
3494	21-Nov	03:08	-18.8	325.8	2	105	J	2

太陽黑子群發展表  
DEVELOPMENT TABLE OF SUNSPOT-GROUPS

Observatory : Taipei Astronomical Museum

Lat. : 25.10° N Long. : 121.52° E

Group No.	Date	Obs. Time (U.T.)	Bs (°)	Ls (°)	n	A (msh)	T	Q
	23-Nov	02:18	-18.7	330.0	1	149	J	3
	28-Nov	03:01	-18.2	329.6	3	108	J	3
3495	21-Nov	03:08	26.3	345.7	2	25	A	2
	23-Nov	02:18	23.2	347.1	1	10	A	3
3496	23-Nov	02:18	6.2	14.1	6	38	A	3
3497	21-Nov	03:08	17.8	358.5	2	21	J	2
3498	21-Nov	03:08	-8.5	63.0	3	17	A	2
	23-Nov	02:18	-9.6	59.5	9	88	C	3
3499	23-Nov	02:18	-19.0	2.6	6	63	D	3
3500	23-Nov	02:18	-20.1	301.8	7	526	D	3
	28-Nov	03:01	-19.3	303.4	22	447	D	3
3501	28-Nov	03:01	-10.8	295.2	1	79	J	3
3502	28-Nov	03:01	15.5	339.9	11	242	C	3
3503	28-Nov	03:01	18.4	280.7	1	17	A	3
3505	7-Dec	03:40	-17.3	234.2	2	15	A	3
3507	7-Dec	03:40	6.1	223.2	6	250	C	3
	8-Dec	03:14	6.4	223.5	9	195	C	3
	10-Dec	02:35	8.0	227.3	1	169	J	3
3508	7-Dec	03:40	-16.3	224.7	2	99	J	3
	8-Dec	03:14	-16.4	224.7	1	100	J	3
	10-Dec	02:35	-16.0	226.2	1	67	J	3
3510	7-Dec	03:40	-16.4	216.4	12	196	D	3
	8-Dec	03:14	-15.5	219.0	10	106	E	3
	10-Dec	02:35	-14.6	222.4	1	9	A	3
3511	7-Dec	03:40	-23.7	214.1	9	162	D	3
	8-Dec	03:14	-23.1	215.7	14	204	E	3
	10-Dec	02:35	-21.9	218.2	11	281	G	3
3513	7-Dec	03:40	16.8	146.0	12	175	E	3

太陽黑子群發展表  
DEVELOPMENT TABLE OF SUNSPOT-GROUPS

Observatory : Taipei Astronomical Museum

Lat. : 25.10° N Long. : 121.52° E

Group No.	Date	Obs. Time (U.T.)	Bs (°)	Ls (°)	n	A (msh)	T	Q
	8-Dec	03:14	15.9	144.9	16	226	E	3
	10-Dec	02:35	17.7	144.9	23	255	E	3
	14-Dec	02:48	19.0	147.1	5	170	C	3
	15-Dec	02:40	18.7	147.0	1	146	J	3
3514	7-Dec	03:40	8.0	134.5	6	56	D	3
	8-Dec	03:14	7.9	133.5	3	78	D	3
	10-Dec	02:35	5.6	141.1	4	30	C	3
	14-Dec	02:48	5.5	144.1	25	992	E	3
	15-Dec	02:40	5.9	145.1	25	941	E	3
3515	10-Dec	02:35	-15.0	92.7	1	50	J	3
	14-Dec	02:48	-14.7	94.4	2	10	A	3
	15-Dec	02:40	-14.2	95.2	1	8	A	3
3516	10-Dec	02:35	-19.1	93.1	1	112	J	3
	14-Dec	02:48	-18.1	94.1	1	11	A	3
	15-Dec	02:40	-18.8	96.9	1	5	A	3
3517	14-Dec	02:48	15.5	130.4	1	11	A	3
3518	14-Dec	02:48	10.8	41.2	2	46	C	3
	15-Dec	02:40	11.3	44.4	2	16	A	3
3519	14-Dec	02:48	-11.3	66.7	12	301	D	3
	15-Dec	02:40	-11.4	67.3	16	216	C	3
3520	14-Dec	02:48	11.5	135.8	3	60	J	3
	15-Dec	02:40	12.4	135.0	4	16	C	3
3521	26-Dec	03:03	11.0	12.2	1	42	A	3
3526	26-Dec	03:03	12.8	340.4	2	7	B	3
3528	26-Dec	03:03	10.2	30.3	1	68	A	3
3529	26-Dec	03:03	-20.7	348.5	12	507	G	3
3530	26-Dec	03:03	6.5	326.0	7	120	D	3
3531	26-Dec	03:03	-21.0	302.4	10	316	C	3

太陽黑子群發展表  
DEVELOPMENT TABLE OF SUNSPOT-GROUPS

Observatory : Taipei Astronomical Museum

Lat. : 25.10° N Long. : 121.52° E

Group No.	Date	Obs. Time (U.T.)	Bs (°)	Ls (°)	n	A (msh)	T	Q
3533	26-Dec	03:03	13.6	300.7	12	54	B	3

**2023年太陽黑子每日相對數表**  
**Daily Relative Sunspot Numbers of 2023**

月 日	Jan. 一月	Feb. 二月	Mar. 三月	Apr. 四月	May 五月	Jun. 六月	Jul. 七月	Aug. 八月	Sep. 九月	Oct. 十月	Nov. 十一月	Dec. 十二月
1					83					99		
2							108					
3			96								95	
4					105						93	
5						107	96		93			
6			143			152			104		75	
7	104		148				112				63	132
8	143	74	153			136						113
9		80	130					84			119	
10	123		130	54			148		109			123
11		179		97								
12	129		130				159		135			
13		160					103	71	103	81		
14	137		98	127			134	86				131
15			97				92	98	115		16	120
16		87	90	136	63		158		83	90		
17			22	95	78		121	118		50	26	
18				116	131			85		60		
19	148							115	144	44		
20						121			156		68	
21							123	90	166		146	
22			100						200			
23									164		200	
24							123		195			
25	115								189	26		
26					119	112		78	130			115
27		104			127							
28		92		77					126		137	
29	50	—		78	103							
30	51	—										
31	60	—		—		—	—		—		—	

黑子總數：12126

觀測天數：111

年平均數：109.2

1948年至2023年之每月太陽黑子相對數及平均值  
 Monthly and Smooth Relative Sunspot Numbers since 1948 to 2023

Year 年		Jan. 一月	Feb. 二月	Mar. 三月	Apr. 四月	May 五月	Jun. 六月	Jul. 七月	Aug. 八月	Sep. 九月	Oct. 十月	Nov. 十一月	Dec. 十二月
1948	Wolf	107.5	66.3	92.1	159.8	128.0	146.3	107.4	138.8	120.1	98.6	86.2	113.0
	Smooth	130.1	127.4	123.4	118.8	114.6	113.2	114.0	118.3	125.6	128.2	126.3	124.0
1949	Wolf	116.4	160.0	172.6	141.3	101.5	118.2	122.2	130.7	150.9	132.6	152.1	121.8
	Smooth	123.5	123.7	124.7	127.4	131.5	134.7	134.6	130.7	124.7	120.5	119.5	118.5
1950	Wolf	105.2	79.4	109.4	102.4	116.2	80.0	75.3	82.0	53.3	72.2	57.7	65.7
	Smooth	115.0	111.0	104.9	98.3	91.8	85.6	80.6	76.9	73.5	70.6	68.7	66.6
1951	Wolf	41.7	55.5	50.3	92.7	79.5	65.9	60.4	51.6	79.7	61.1	67.1	44.8
	Smooth	65.4	63.5	63.3	63.9	63.9	63.4	62.4	60.5	57.6	53.7	48.4	45.0
1952	Wolf	39.4	12.5	23.9	24.0	20.8	44.0	35.5	61.6	25.5	24.7	25.4	37.2
	Smooth	43.1	42.5	40.6	36.8	33.6	31.5	31.1	30.8	29.9	30.5	31.6	30.7
1953	Wolf	37.7	5.7	8.8	53.8	17.3	27.2	8.0	28.1	25.1	14.6	2.4	4.1
	Smooth	28.9	26.3	24.9	24.5	23.1	20.8	17.8	16.1	15.9	13.7	10.8	9.0
1954	Wolf	0.0	0.9	10.2	0.0	0.7	0.0	5.6	11.0	1.1	8.4	6.7	19.0
	Smooth	7.7	6.9	5.2	4.0	3.9	4.7	6.8	9.4	10.5	11.1	13.2	16.0
1955	Wolf	35.6	27.6	10.9	13.7	37.5	30.1	40.2	52.4	48.1	61.2	98.3	90.9
	Smooth	18.7	21.9	25.6	29.7	35.7	42.5	47.0	51.0	58.8	68.5	77.5	85.4
1956	Wolf	70.2	89.9	134.5	123.4	144.3	112.7	127.4	167.9	165.4	157.6	215.8	185.8
	Smooth	92.5	100.9	110.6	119.5	128.4	137.3	145.2	151.0	153.9	157.6	160.9	164.7
1957	Wolf	166.0	132.7	160.0	188.5	156.8	191.8	187.6	177.2	228.8	283.4	241.2	250.1
	Smooth	170.5	173.4	176.4	184.3	190.6	194.3	201.4	207.8	212.5	217.5	222.5	226.5
1958	Wolf	272.3	178.9	227.2	240.7	224.2	221.8	257.6	276.6	243.9	226.1	197.6	244.5
	Smooth	230.7	237.8	242.5	240.8	236.6	234.5	232.0	228.1	225.8	223.4	221.6	221.3
1959	Wolf	217.6	140.3	211.3	197.2	224.1	215.9	202.6	257.6	191.9	156.4	151.0	189.3
	Smooth	218.8	215.7	212.7	207.7	202.8	198.6	194.6	193.2	189.4	183.5	178.9	171.5
1960	Wolf	177.1	148.4	111.4	156.0	153.9	108.1	160.8	165.6	138.8	98.4	108.9	114.3
	Smooth	165.2	159.7	153.6	149.0	144.8	139.9	132.1	123.8	119.0	114.9	107.9	104.0
1961	Wolf	64.0	62.5	81.4	88.5	52.6	115.5	91.8	60.0	66.8	48.4	45.7	27.8
	Smooth	101.4	94.1	86.7	81.6	76.9	70.7	66.6	65.7	64.0	61.5	60.5	58.3
1962	Wolf	52.3	51.7	52.2	57.5	59.5	56.0	22.9	24.4	58.7	48.1	31.3	34.6
	Smooth	52.9	48.6	46.8	46.4	45.8	45.5	44.4	42.0	39.5	36.6	34.6	33.0
1963	Wolf	18.8	28.1	15.1	25.3	43.9	33.1	23.7	41.1	38.5	42.5	26.1	8.3
	Smooth	32.1	32.8	32.6	31.6	31.1	29.8	28.7	27.9	27.2	26.5	24.4	21.9
1964	Wolf	18.8	8.8	16.7	7.3	11.2	6.9	4.4	13.4	5.4	7.1	6.3	23.5
	Smooth	20.0	18.1	15.5	12.7	10.4	10.2	10.8	11.4	12.1	12.4	12.9	13.5
1965	Wolf	18.5	23.2	19.9	10.9	19.0	13.5	17.2	7.0	19.2	23.9	12.5	10.7
	Smooth	14.3	14.6	14.9	16.1	17.1	16.8	16.4	16.6	16.8	18.8	22.0	25.6
1966	Wolf	19.9	27.1	20.4	59.6	48.1	70.1	60.9	60.8	55.2	53.1	31.9	56.0
	Smooth	29.8	33.9	37.6	40.3	42.3	45.0	50.6	57.7	66.1	72.3	74.4	75.6
1967	Wolf	107.5	110.4	139.2	89.0	69.3	78.2	112.0	118.9	115.6	106.3	90.4	128.4
	Smooth	78.1	82.6	87.6	92.3	97.0	102.4	104.7	102.3	98.1	95.1	97.8	101.9

1948年至2023年之每月太陽黑子相對數及平均值  
 Monthly and Smooth Relative Sunspot Numbers since 1948 to 2023

Year 年		Jan. 一月	Feb. 二月	Mar. 三月	Apr. 四月	May 五月	Jun. 六月	Jul. 七月	Aug. 八月	Sep. 九月	Oct. 十月	Nov. 十一月	Dec. 十二月
1968	Wolf	89.8	71.0	76.4	80.5	141.9	104.7	114.8	90.1	112.4	104.7	77.0	120.4
	Smooth	103.1	102.0	100.7	100.5	99.9	99.0	98.6	98.6	100.9	103.3	101.7	100.2
1969	Wolf	88.8	71.0	131.9	83.6	101.2	108.5	88.1	63.6	84.3	81.8	59.4	129.8
	Smooth	99.3	97.0	94.8	92.6	91.0	90.6	91.5	94.8	96.9	96.8	99.0	101.3
1970	Wolf	101.8	136.0	116.7	97.3	140.0	126.0	132.9	100.8	98.8	96.8	101.2	82.8
	Smooth	103.9	107.4	109.5	110.7	113.1	112.9	110.4	108.7	105.4	103.3	99.9	94.8
1971	Wolf	88.7	109.5	63.9	98.0	59.3	83.3	83.2	63.2	23.8	47.5	71.1	73.4
	Smooth	90.9	87.3	82.6	77.4	74.1	72.5	71.4	71.7	74.0	74.3	73.4	73.5
1972	Wolf	73.2	131.0	97.8	71.4	63.3	82.1	79.1	83.6	63.8	58.5	21.0	48.4
	Smooth	73.2	73.9	76.4	78.6	76.9	73.8	71.2	66.3	61.0	58.2	57.1	55.6
1973	Wolf	35.7	50.9	51.3	50.8	57.3	50.6	28.2	29.2	94.9	36.9	14.8	24.3
	Smooth	52.1	47.7	46.8	47.2	46.0	44.7	43.2	42.3	40.6	38.3	36.7	35.4
1974	Wolf	21.7	45.3	14.4	34.0	35.0	42.0	60.8	44.5	42.4	55.3	32.7	8.0
	Smooth	36.4	38.4	36.9	35.4	37.0	37.0	35.9	33.8	31.9	30.4	28.6	27.0
1975	Wolf	11.0	5.3	9.1	3.1	24.0	13.9	28.1	27.5	13.4	11.6	34.4	18.3
	Smooth	24.5	22.4	20.5	17.5	15.7	16.2	16.6	16.9	17.8	19.8	20.7	21.0
1976	Wolf	11.1	10.8	26.3	34.0	15.1	29.3	0.8	22.7	20.5	29.1	4.5	20.3
	Smooth	20.5	19.2	19.3	20.3	19.8	18.6	19.1	20.7	21.2	19.5	18.5	19.8
1977	Wolf	20.1	39.5	11.1	9.1	16.1	58.8	28.0	54.5	58.8	67.6	40.3	57.3
	Smooth	22.2	24.6	27.6	30.8	33.9	36.9	39.8	44.8	52.0	60.9	70.4	77.8
1978	Wolf	54.0	124.7	97.6	136.7	116.7	135.3	95.2	68.4	155.7	143.5	93.7	180.8
	Smooth	83.8	87.1	91.8	99.0	104.3	111.7	125.5	138.7	148.2	153.1	155.5	159.2
1979	Wolf	261.3	234.1	215.2	138.7	171.1	170.4	215.1	161.1	234.7	230.1	276.0	228.1
	Smooth	165.7	174.5	181.7	188.6	199.8	209.4	206.7	199.2	193.6	193.9	199.1	202.6
1980	Wolf	151.0	162.9	153.7	207.3	225.8	201.4	201.1	193.2	228.6	222.4	201.9	241.6
	Smooth	203.3	204.1	205.2	204.6	201.2	198.7	199.9	200.6	201.5	202.6	201.1	197.1
1981	Wolf	167.7	162.1	176.4	211.5	185.9	143.5	187.3	222.9	265.4	244.9	209.6	179.1
	Smooth	194.1	194.7	197.5	200.0	201.2	199.0	196.4	198.9	202.8	202.6	197.7	194.8
1982	Wolf	169.8	219.2	213.2	169.2	110.6	149.0	161.9	152.1	178.9	122.4	123.4	163.1
	Smooth	194.0	190.0	183.4	174.7	166.0	161.7	159.8	152.5	142.4	135.9	134.5	134.8
1983	Wolf	140.5	72.7	116.6	110.3	135.0	133.6	105.4	96.5	63.5	83.0	47.8	67.4
	Smooth	131.9	127.2	120.1	113.6	108.8	101.7	95.0	94.6	97.5	96.9	94.6	90.5
1984	Wolf	74.8	131.0	126.9	85.4	105.2	65.3	57.7	35.3	18.7	13.9	25.4	29.1
	Smooth	85.7	81.2	76.7	72.0	68.2	65.7	62.3	56.1	47.3	40.3	34.9	30.6
1985	Wolf	32.4	24.8	21.9	22.9	37.6	29.4	44.9	13.1	5.3	27.4	24.9	14.3
	Smooth	28.6	27.1	25.6	25.6	26.2	25.5	23.7	22.7	23.0	22.9	21.9	19.9
1986	Wolf	2.8	31.8	21.5	21.4	15.1	2.5	20.2	9.7	5.7	42.6	19.7	7.6
	Smooth	17.7	16.5	16.4	17.1	17.5	17.0	17.0	16.0	14.6	15.6	17.8	19.8
1987	Wolf	8.5	2.7	18.5	46.6	43.8	21.6	41.6	51.0	37.6	75.9	59.8	33.3
	Smooth	21.5	24.1	27.2	29.9	32.9	35.7	40.0	45.0	49.6	55.3	59.8	65.9

1948年至2023年之每月太陽黑子相對數及平均值  
 Monthly and Smooth Relative Sunspot Numbers since 1948 to 2023

Year 年		Jan. 一月	Feb. 二月	Mar. 三月	Apr. 四月	May 五月	Jun. 六月	Jul. 七月	Aug. 八月	Sep. 九月	Oct. 十月	Nov. 十一月	Dec. 十二月
1988	Wolf	86.4	46.2	83.7	118.7	80.9	129.6	119.0	128.1	136.7	153.1	150.8	247.8
	Smooth	73.6	80.1	87.4	94.7	101.8	114.5	128.9	141.4	152.2	158.1	165.4	177.0
1989	Wolf	217.5	216.1	171.3	174.2	201.0	287.1	177.5	247.2	237.2	208.0	290.0	300.0
	Smooth	186.0	193.4	202.5	209.0	217.1	225.1	230.5	232.2	234.4	239.7	243.0	241.5
1990	Wolf	295.2	179.9	260.3	212.5	241.8	210.4	275.6	281.3	201.8	284.1	254.1	281.6
	Smooth	242.4	247.9	247.9	249.6	251.2	249.0	245.9	249.6	255.0	255.2	253.5	251.8
1991	Wolf	239.9	322.8	247.0	230.5	184.3	227.5	324.8	338.8	252.8	317.5	271.9	352.1
	Smooth	254.6	259.0	263.6	267.1	269.2	272.9	278.6	286.1	293.1	296.2	297.8	296.3
1992	Wolf	305.7	436.9	302.9	247.8	204.4	171.7	180.7	163.7	168.2	210.1	202.9	176.7
	Smooth	287.9	274.6	263.8	255.8	248.5	238.3	223.5	205.9	190.2	180.4	173.1	166.1
1993	Wolf	126.2	193.4	169.8	145.6	131.6	75.8	117.8	96.4	62.2	101.5	76.7	122.3
	Smooth	159.4	154.0	146.8	137.8	128.1	120.5	117.3	111.5	102.8	94.3	85.5	80.5
1994	Wolf	103.4	75.4	80.7	30.9	34.7	53.4	54.1	47.3	52.5	63.1	25.9	32.0
	Smooth	77.0	72.3	69.8	67.8	64.1	58.2	51.1	45.9	42.6	40.9	39.6	37.1
1995	Wolf	22.9	31.5	45.9	23.1	11.3	18.6	16.9	11.2	9.7	26.3	11.6	14.2
	Smooth	34.1	31.1	27.8	24.5	22.3	21.0	20.0	18.6	15.9	13.6	12.6	12.0
1996	Wolf	17.4	2.4	10.1	4.3	4.7	11.8	8.4	15.9	3.6	0.9	27.7	12.3
	Smooth	11.4	11.2	11.1	9.8	8.3	7.2	9.6	9.3	9.5	10.5	11.8	12.5
1997	Wolf	8.4	3.9	15.1	21.3	19.6	15.2	18.1	44.9	92.7	36.8	67.3	61.9
	Smooth	13.1	14.7	17.6	19.3	19.7	22.3	26.9	30.7	47.2	54.4	58.2	65.0
1998	Wolf	40.1	60.7	102.9	104.7	85.7	112.2	114.9	164.2	169.7	117.9	132.9	152.5
	Smooth	73.0	82.0	90.2	96.8	102.9	109.4	115.4	118.1	120.3	122.3	127.0	145.0
1999	Wolf	92.3	73.1	144.1	110.3	195.1	433.0	285.9	179.9	146.1	231.8	264.6	136.3
	Smooth	165.5	173.2	172.9	176.7	186.9	191.7	194.6	206.2	222.8	236.9	244.6	240.7
2000	Wolf	178.7	264.0	352.7	239.3	251.6	281.1	383.9	291.5	283.5	204.9	219.5	232.0
	Smooth	238.4	247.2	257.5	262.1	259.1	261.2	267.0	264.6	255.7	250.0	246.5	243.1
2001	Wolf	220.8	164.0	240.1	215.7	189.3	263.9	156.5	217.1	361.8	--	--	--
	Smooth	233.0	220.4	220.5	224.6	225.8	225.8	226.6	224.4	212.9	--	--	--
2002	Wolf	240.4	105.0	92.7	133.4	180.3	103.6	181.0	188.3	166.1	160.0	177.7	176.5
	Smooth	178.1	177.9	165.4	154.8	156.2	158.0	158.0	154.9	150.4	152.2	148.7	146.2
2003	Wolf	148.8	88.8	124.2	129.2	100.7	123.6	153.3	150.6	105.8	169.3	39.3	91.4
	Smooth	145.9	143.2	139.1	137.0	131.6	122.3	115.6	112.3	109.5	104.6	101.8	98.4
2004	Wolf	73.9	84.9	60.1	75.5	86.3	56.4	97.4	72.3	51.9	67.6	95.4	32.2
	Smooth	93.2	87.6	82.1	75.7	73.8	73.6	71.6	71.7	71.0	69.5	67.3	67.2
2005	Wolf	84.8	77.0	49.3	51.2	57.0	83.1	74.6	62.4	36.2	14.0	24.9	65.5
	Smooth	67.3	66.0	64.9	62.0	56.8	55.3	54.0	48.4	44.5	43.4	42.4	38.9
2006	Wolf	20.6	6.6	27.1	46.4	37.2	19.1	27.5	24.9	13.2	13.4	30.6	26.5
	Smooth	34.3	30.7	28.2	27.2	27.4	26.1	25.0	26.5	26.5	24.2	21.8	20.5
2007	Wolf	35.5	26.1	8.6	9.1	17.6	7.1	17.1	10.4	4.1	1.6	4.8	21.4
	Smooth	19.6	18.5	17.6	16.7	15.1	13.8	12.4	10.1	9.5	9.6	8.8	8.4

1948年至2023年之每月太陽黑子相對數及平均值  
Monthly and Smooth Relative Sunspot Numbers since 1948 to 2023

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2008	Wolf	6.9	0.0	18.0	2.1	7.3	5.9	0.5	0.0	1.4	3.4	5.7	0.7
	Smooth	7.6	6.5	5.9	5.9	6.0	5.2	4.1	4.0	3.4	2.8	2.7	2.7
2009	Wolf	1.7	3.0	0.8	4.0	4.4	7.1	10.5	0.0	4.4	17.6	3.3	19.2
	Smooth	3.1	3.6	3.7	4.4	4.9	5.5	7.3	9.9	12.8	14.1	14.6	15.2
2010	Wolf	24.4	42.9	30.5	5.3	15.5	10.0	27.0	24.6	32.7	31.3	33.1	26.3
	Smooth	16.0	17.7	19.9	21.6	23.5	25.0	26.0	26.7	29.6	36.1	42.6	47.2
2011	Wolf	40.3	45.5	95.9	97.6	78.4	57.8	70.3	80.7	131.3	144.4	132.9	152.5
	Smooth	51.0	55.1	61.6	70.4	79.3	88.7	96.3	98.5	97.4	95.3	93.8	94.7
2012	Wolf	97.7	40.7	73.6	69.8	70.5	86.6	78.7	64.3	86.9	64.1	80.7	57.0
	Smooth	96.3	95.9	93.4	88.2	82.7	76.5	71.6	70.7	70.7	71.0	72.2	72.5
2013	Wolf	74.2	43.2	70.3	81.0	88.2	76.7	68.4	66.2	38.6	99.4	83.0	88.8
	Smooth	71.7	71.3	69.4	68.8	70.4	71.8	74.2	78.0	82.2	84.9	86.1	86.7
2014	Wolf	100.4	107.6	106.5	109.6	87.3	92.7	103.9	90.0	101.2	77.8	76.9	96.5
	Smooth	88.8	91.3	94.9	96.6	95.5	95.5	94.1	89.7	84.1	79.1	77.0	75.5
2015	Wolf	58.1	43.8	35.5	61.4	84.8	58.7	55.1	46.0	59.4	37.5	41.5	51.4
	Smooth	72.0	68.2	64.6	61.2	58.0	54.7	51.9	52.1	53.5	52.5	49.7	46.2
2016	Wolf	37.0	70.3	41.7	31.6	47.9	11.4	13.0	36.3	37.7	21.5	24.2	5.0
	Smooth	42.5	40.3	39.0	37.4	36.1	33.4	30.5	27.1	23.6	22.4	21.2	20.3
2017	Wolf	13.3	12.3	16.6	28.2	21.7	16.5	8.4	14.9	54.1	6.4	5.0	11.0
	Smooth	20.3	19.2	19.0	19.1	17.7	17.1	16.8	15.7	14.6	13.0	11.2	9.8
2018	Wolf	0.0	0.0	2.1	3.2	3.1	2.1	0.0	1.4	1.3	4.2	4.8	0.0
	Smooth	8.9	7.9	5.2	2.9	2.8	2.3	2.3	2.7	2.6	2.8	3.0	2.9
2019	Wolf	10.3	0.0	0.0	8.3	3.7	0.0	0.7	0.0	1.7	0.0	0.0	0.0
	Smooth	2.9	2.8	2.8	2.6	2.3	2.1	1.9	1.7	1.9	1.6	1.1	1.0
2020	Wolf	5.8	0.9	2.8	0.0	0.0	0.0	11.0	5.8	0.0	9.6	21.0	30.0
	Smooth	1.4	2.1	2.3	2.6	3.9	6.0	7.2	7.4	8.2	9.7	11.4	13.0
2021	Wolf	4.3	7.0	17.5	20.9	20.3	17.4	30.5	0.0	0.0	64.0	31.4	48.3
	Smooth	14.6	15.1	14.9	17.1	19.8	21.0	24.3	29.6	34.2	37.1	39.6	40.3
2022	Wolf	64.8	74.0	60.0	47.0	55.0	0.0	0.0	63.9	52.0	70.0	41.4	81.5
	Smooth	38.3	39.7	44.5	46.9	47.6	49.4	52.5	55.8	59.4	63.7	67.7	74.9
2023	Wolf	106.0	110.9	111.4	97.5	101.1	125.6	123.1	91.7	138.3	64.3	94.4	122.3
	Smooth	85.2	91.5	96.3	99.6	101.6	105.5						

註：

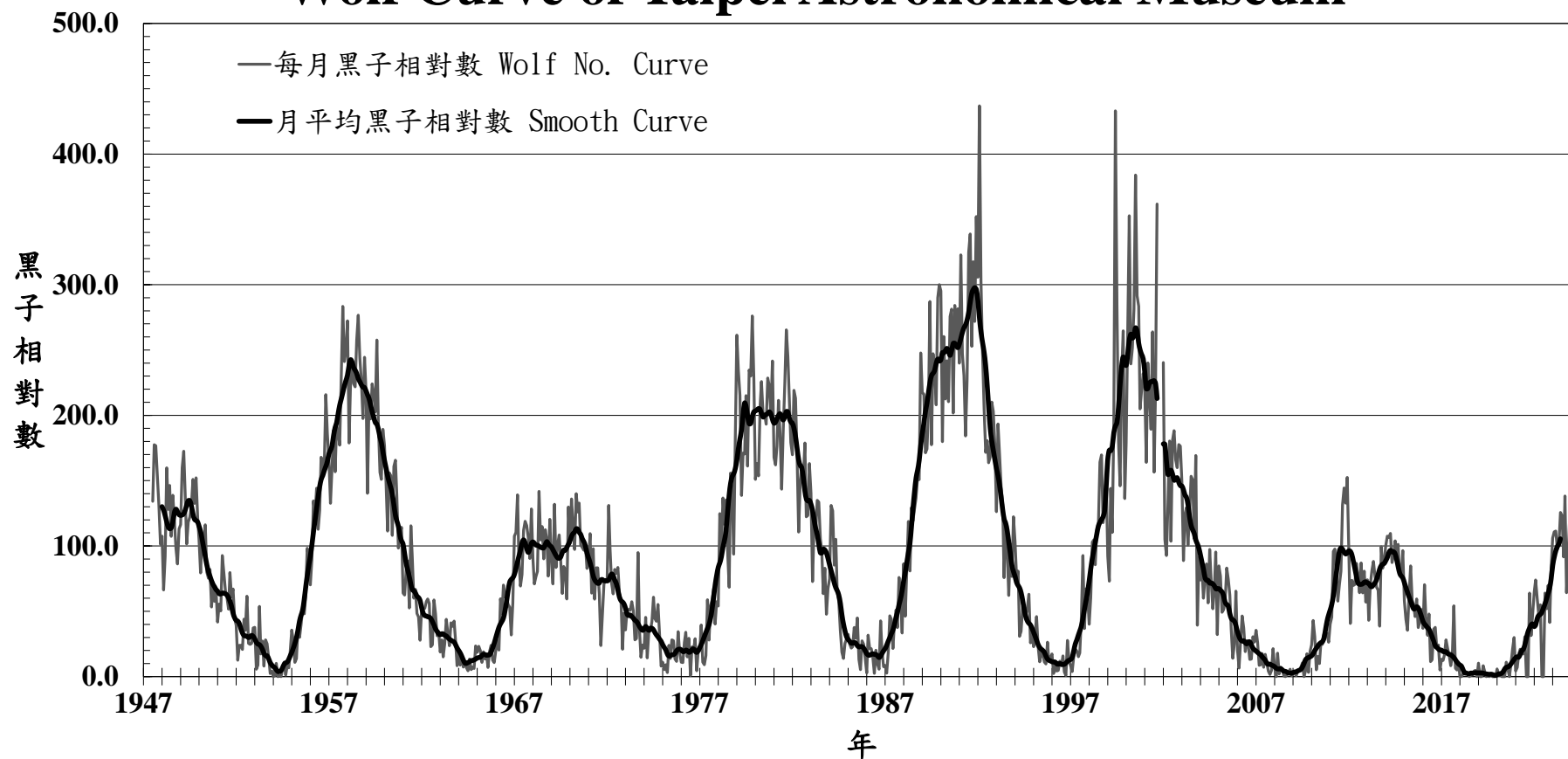
\* 2001年9月中旬至12月底，因望遠鏡故障，無法觀測。故暫時設定2001年9月之相對數月平均值資料以現有的觀測資料計算，逢2001年10月~12月者則跳過不計這三個月份。總計有2001年4月~2002年6月的月平滑值會受到影響。

\* 2005年6月10~25日，因觀測室進行圓頂工程無法觀測，影響觀測天數及黑子觀測值。

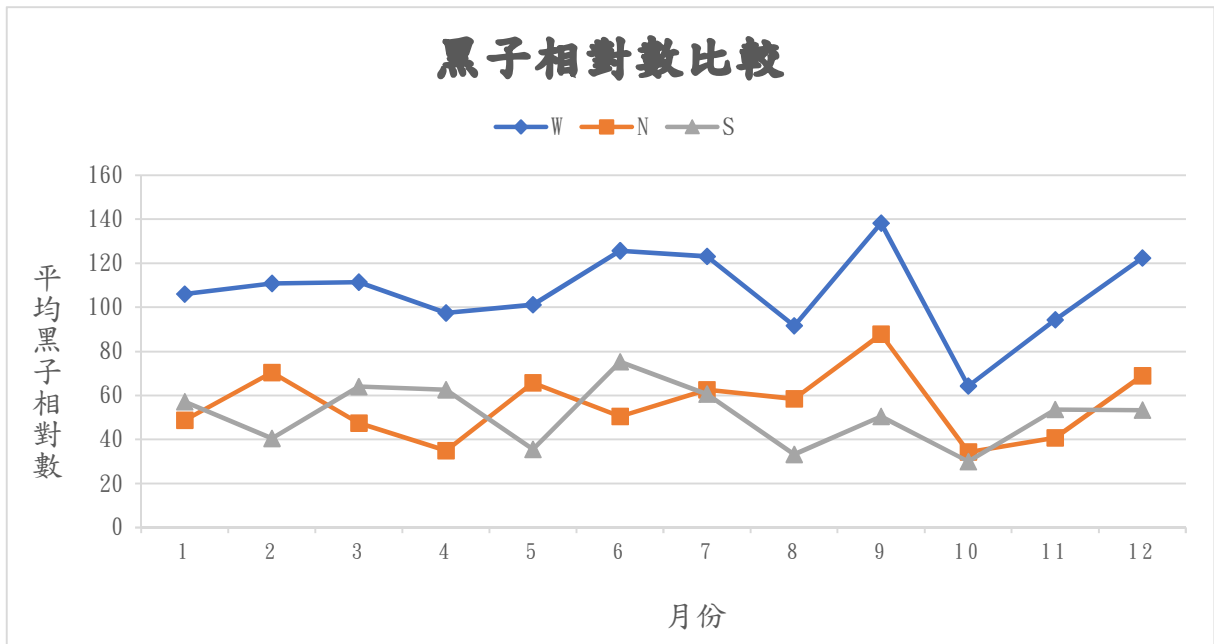
\* 2022年9月8~25日，樓頂平臺施工；11月19日~12月14日圓頂無法轉動；12月17~19日第二觀測室斷電，以上因素皆導致無法觀測，影響觀測天數及黑子觀測值。

# 臺北市立天文科學教育館太陽黑子相對數變化圖

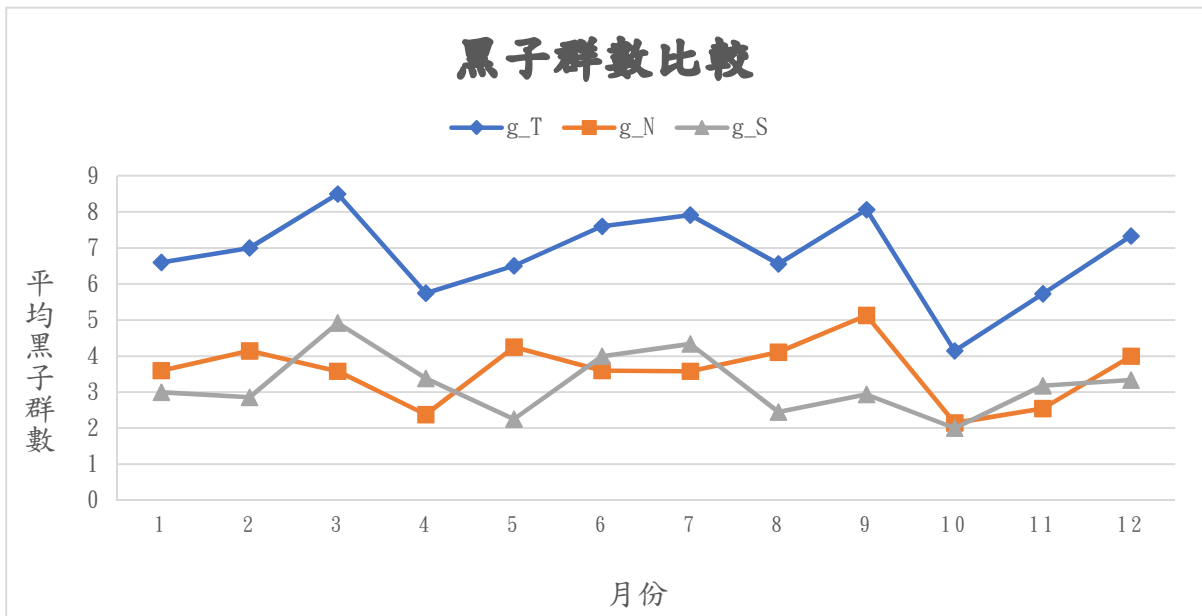
## Wolf Curve of Taipei Astronomical Museum



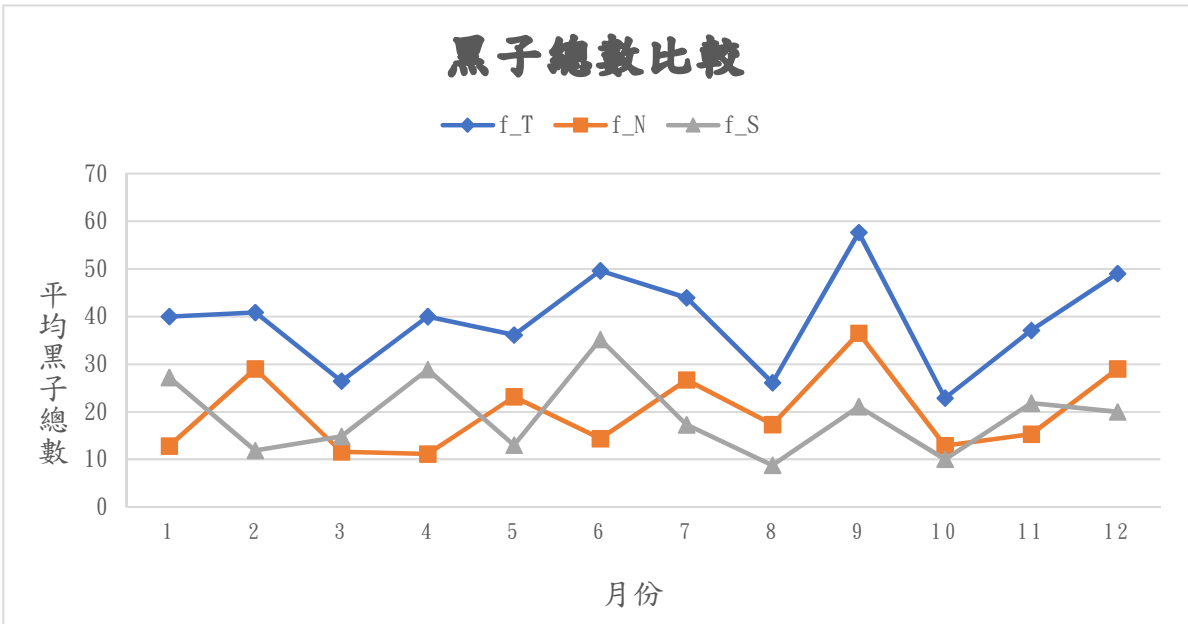
本圖為臺北天文館自1947年7月至2023年12月的每月黑子相對數（灰色細線）與月平均黑子相對數（黑色粗線）曲線圖。兩曲線均尚未做K值的修正。



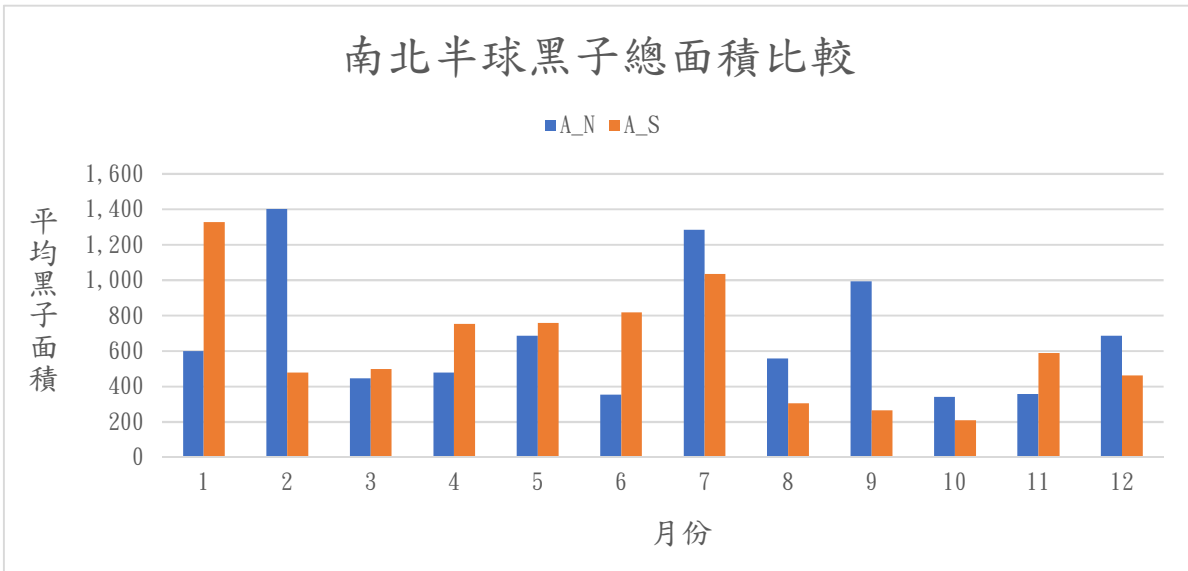
本圖為2023年各月的平均黑子相對數變化圖，其中W代表整個太陽可見半球面的黑子相對數，N與S則分別代表可見半球面中之北半球與南半球的黑子相對數。



本圖為2023年各月的平均黑子群數變化圖，其中g\_T代表整個太陽可見半球面的黑子群數，g\_N與g\_S則分別代表可見半球面中之北半球與南半球的黑子群數。



本圖為2023年各月的平均黑子總數變化圖，其中f\_T代表整個太陽可見半球面的黑子總數，f\_N與f\_S則分別代表可見半球面中之北半球與南半球的黑子總數。



本圖為2023年各月的南北半球黑子總面積變化圖，其中A\_N與A\_S分別代表可見半球面中之北半球與南半球的黑子總面積。面積以「太陽半球面總面積的百萬分之一」為單位，此為太陽投影觀測的慣用單位。

# 太陽黑子觀測設備沿革

## The Historical Telescopes Using For Sunspot Observations

臺北天文館蒐集的太陽黑子觀測記錄資料始於民國 36 年 7 月，各時段所使用的觀測設備如下表所示。其中民國 36 年到民國 64 年所使用的儀器仍待考證。

The Taipei Astronomical Museum has been collecting sunspot observation records since July, 1947. The telescopes used during different periods is shown in the table below. The instruments used from 1947 to 1975 are still under investigation.

日期 DATE	儀器廠牌與型式 Telescope	有效口徑 Effective Aperture	目鏡焦距 Eyepieces Focal Length	焦比 Focal Ratio	倍率 Mag.	投影直徑 Projective diameter
1947.07~1975.	10.0cm refractor	10.0cm				
1975. ~1989.11	GOTO 12.5cm refractor	12.5cm	25mm	15.0	72	10cm
1989.12~1991.02	GOTO 25.0cm refractor	25.0cm	60mm	15.0	63	20cm
1991.03~1991.06	GOTO 12.5cm refractor	12.5cm	25mm	15.0	72	10cm
1991.07~1994.12	GOTO 25.0cm refractor	25.0cm	60mm	15.0	63	20cm
1995.01~1996.11	Showa 15.0cm refractor	12.5cm	25mm	14.4	72	10cm
1996.12~1997.01	Showa 15.0cm refractor GOTO 20.0cm refractor	mixing	mixing	mixing	mixing	mixing
1997.02~now	GOTO 20.0cm refractor	20.0cm	28mm	9.0	64	20cm

## 太陽黑子觀測報告—中華民國 112 年

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發行人：陳岸立

出版者：臺北市立天文科學教育館

地址：111013 臺北市士林區基河路 363 號

電話：(02) 2831-4551

傳真：(02) 2831-4405

網址：<https://tam.gov.taipei/>

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