

ISSN 1727-0030

太 陽 黑 子 觀 測 報 告

中 華 民 國 113 年

Report on Sunspot Observations

2024

臺北市立天文科學教育館

PUBLISHED BY
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113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113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
2024

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., 2024. 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. 2024

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																		Cloud
2	03:55	3	25	1	7	2	18	1	7	55	17	38	17	512	39	1	2	
3																		Rain
4																		Cloud
5	03:05	7	49	3	37	4	39	3	10	119	67	79	40	212	181	1	2	
6	03:48	7	64	4	50	4	50	3	14	134	90	90	44	356	283	1	3	
7																		Cloud
8																		Cloud
9																		Cloud
10																		Cloud
11	03:10	10	68	3	32	5	23	5	45	168	62	73	95	293	688	0	3	
12	03:30	11	63	5	28	4	24	7	39	173	78	64	109	465	749	2	3	
13	02:37	12	62	8	51	5	14	7	48	182	131	64	118	403	697	2	3	
14																		None
15																		Rain
16																		Cloud
17																		Cloud
18	06:33	8	35	3	24	5	21	3	14	115	54	71	44	680	594	0	3	
19	03:37	7	35	4	28	4	18	3	17	105	68	58	47	376	560	0	2	
20																		Cloud
21																		Rain
22																		Rain
23																		Rain
24																		Cloud
25																		Rain
26																		Cloud
27																		Rain
28																		Cloud
29	03:44	4	10	0	0	2	7	2	3	50	0	27	23	184	43	0	2	
30																		Rain
31																		None
Mean No.		7.67	45.67	3.44	28.56	3.89	23.78	3.78	21.89	122.33	63.00	62.67	59.67	386.94	426.06	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
 Feb. 2024

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	04:04	5	23	2	9	2	18	3	5	73	29	38	35	500	211	1	3	
2																		Cloud
3																		Cloud
4																		Cloud
5																		Rain
6																		Cloud
7																		Rain
8																		Rain
9																		Rain
10																		Cloud
11																		None
12																		None
13																		None
14																		None
15	02:45	9	54	3	13	4	31	5	23	144	43	71	73	795	960	1	4	
16																		Cloud
17	06:07	5	16	2	4	2	10	3	6	66	24	30	36	537	56	2	4	
18																		None
19	03:18	5	12	0	0	3	9	2	3	62	0	39	23	730	20	1	3	
20	03:19	2	7	0	0	2	7	0	0	27	0	27	0	1091	0	0	3	
21																		Cloud
22																		Cloud
23																		Cloud
24																		Cloud
25																		Cloud
26																		Cloud
27																		Cloud
28																		Cloud
29	03:39	7	45	5	21	5	41	2	4	115	71	91	24	1899	98	2	2	
Mean No.		5.50	26.17	2.00	7.83	3.00	19.33	2.50	6.83	81.17	27.83	49.33	31.83	925.42	223.92	Obs. Days: 6		

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. 2024

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																		Rain
3																		Cloud
4	03:11	7	25	0	0	3	10	4	15	95	0	40	55	381	231	0	2	
5																		Cloud
6																		Rain
7																		Rain
8	06:04	6	42	5	39	3	8	3	34	102	89	38	64	105	239	0	3	
9																		Cloud
10																		Cloud
11																		Rain
12	03:34	5	16	0	0	2	4	3	12	66	0	24	42	22	383	2	3	
13																		None
14																		Cloud
15																		Rain
16																		Cloud
17																		Cloud
18																		Cloud
19																		Rain
20																		Cloud
21	03:37	7	53	0	0	2	9	5	44	123	0	29	94	289	679	0	3	
22	02:11	9	89	2	63	5	14	4	75	179	83	64	115	273	412	0	3	
23																		Rain
24																		Cloud
25																		Cloud
26																		Rain
27																		Cloud
28																		Cloud
29																		Cloud
30																		Rain
31																		Rain
Mean No.		6.80	45.00	1.40	20.40	3.00	9.00	3.80	36.00	113.00	34.40	39.00	74.00	213.86	388.94	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
 Apr. 2024

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																		Rain
3																		Cloud
4																		Rain
5																		Cloud
6																		Cloud
7																		Rain
8																		Rain
9																		Cloud
10																		Rain
11																		Cloud
12																		Cloud
13																		Cloud
14																		Cloud
15																		Cloud
16																		Cloud
17																		Cloud
18																		Rain
19																		Rain
20																		Rain
21																		Cloud
22																		Rain
23																		Rain
24																		Rain
25																		Rain
26																		Rain
27																		Rain
28																		Rain
29																		Cloud
30																		Rain
Mean No.		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Obs. Days: 0		

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 2024

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																		None
4																		Cloud
5																		Cloud
6	05:57	9	86	3	57	6	31	3	55	176	87	91	85	1140	946	0	3	
7	02:09	9	81	4	55	6	29	3	52	171	95	89	82	1001	926	2	3	
8																		Cloud
9	02:31	7	63	2	52	5	11	2	52	133	72	61	72	702	2850	0	1	
10	02:18	7	76	2	8	5	14	2	62	146	28	64	82	598	2451	0	3	
11																		Cloud
12	02:56	9	67	3	20	4	19	5	48	157	50	59	98	442	2858	0	2	
13																		Rain
14																		Rain
15	03:14	11	49	4	17	5	22	6	27	159	57	72	87	369	620	0	2	
16	02:23	12	43	4	17	6	13	6	30	163	57	73	90	204	653	1	2	
17																		Cloud
18																		Cloud
19	02:48	9	60	4	27	2	9	7	51	150	67	29	121	46	1037	2	3	
20																		Cloud
21																		Rain
22																		Rain
23																		Rain
24																		Rain
25																		Cloud
26																		Rain
27																		Rain
28																		Rain
29																		Cloud
30																		Cloud
31																		Cloud
Mean No.		9.13	65.63	3.25	31.63	4.88	18.50	4.25	47.13	156.88	64.13	67.25	89.63	562.76	1542.68	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. 2024

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																		Rain
3																		Rain
4																		Cloud
5																		Rain
6																		Rain
7																		Cloud
8																		Cloud
9																		Rain
10																		Cloud
11																		Cloud
12																		Cloud
13	04:01	8	54	4	38	2	3	6	51	134	78	23	111	111	755	1	3	
14																		Rain
15																		Cloud
16																		Rain
17																		Rain
18																		Cloud
19	02:31	4	90	3	65	2	28	2	62	130	95	48	82	339	1376	0	3	
20																		Cloud
21	03:11	5	75	0	0	1	19	4	56	125	0	29	96	754	3090	0	2	
22																		Rain
23																		Rain
24																		Rain
25																		Rain
26	03:45	8	49	5	30	1	2	7	47	129	80	12	117	124	1378	1	2	
27	07:36	9	50	5	26	1	7	8	43	140	76	17	123	202	1499	1	2	
28																		Rain
29																		Rain
30	03:28	13	47	7	39	4	10	9	37	177	109	50	127	262	1170	1	2	
Mean No.		7.83	60.83	4.00	33.00	1.83	11.50	6.00	49.33	139.17	73.00	29.83	109.33	298.81	1544.73	Obs. Days: 6		

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. 2024

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	02:36	12	62	3	29	4	15	8	47	182	59	55	127	146	816	2	3	
3																		Cloud
4	02:57	7	53	4	45	3	19	4	34	123	85	49	74	402	731	1	3	
5	02:44	8	46	2	5	3	18	5	28	126	25	48	78	457	538	1	4	
6																		Rain
7																		Rain
8	02:33	6	50	1	2	3	4	3	46	110	12	34	76	215	769	2	3	
9																		Rain
10																		Rain
11																		Cloud
12	02:40	6	71	1	46	1	4	5	67	131	56	14	117	183	1569	0	3	
13																		Cloud
14																		None
15	02:45	10	81	4	37	3	14	7	67	181	77	44	137	346	2270	0	3	
16																		Rain
17	02:37	15	107	2	11	8	36	7	71	257	31	116	141	452	1139	0	4	
18	02:27	18	81	5	41	8	31	10	50	261	91	111	150	391	1180	2	3	
19																		None
20	02:10	13	61	7	48	6	16	7	45	191	118	76	115	134	1133	2	2	
21	06:39	10	91	5	69	4	21	6	70	191	119	61	130	182	1216	1	3	
22	06:03	7	51	4	22	2	6	5	45	121	62	26	95	74	1188	1	2	
23																		Rain
24																		Rain
25																		Rain
26																		Rain
27																		Cloud
28																		Cloud
29	03:11	10	107	6	66	4	17	6	90	207	126	57	150	561	1723	1	3	
30																		Cloud
31	02:59	12	113	5	76	4	15	8	98	233	126	55	178	804	2867	0	2	
Mean No.		10.31	74.92	3.77	38.23	4.08	16.62	6.23	58.31	178.00	75.92	57.38	120.62	334.45	1318.36	Obs. Days: 13		

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. 2024

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	02:11	13	116	3	31	5	18	8	98	246	61	68	178	641	3776	0	3	
2	02:06	13	92	1	1	5	18	8	74	222	11	68	154	685	1902	1	3	
3																		None
4																		None
5	03:08	8	83	3	43	3	15	5	68	163	73	45	118	697	2694	1	2	
6																		Cloud
7	02:27	9	115	4	58	3	11	6	104	205	98	41	164	381	4435	0	2	
8																		Cloud
9	03:27	9	185	4	131	5	34	4	151	275	171	84	191	811	3160	0	2	
10																		Rain
11	03:14	9	109	4	74	3	12	6	97	199	114	42	157	725	2233	0	2	
12	02:28	11	71	5	32	4	13	7	58	181	82	53	128	858	1986	0	3	
13																		Rain
14																		Rain
15																		Rain
16																		Cloud
17																		Cloud
18																		Cloud
19																		Rain
20																		Cloud
21	02:49	11	56	3	30	5	16	6	40	166	60	66	100	448	2333	0	2	
22																		None
23																		Rain
24																		Cloud
25																		None
26																		None
27																		None
28																		Cloud
29																		Rain
30																		None
31	03:54	8	63	2	19	2	9	6	54	143	39	29	114	98	572	0	3	
Mean No.		10.11	98.89	3.22	46.56	3.89	16.22	6.22	82.67	200.00	78.78	55.11	144.89	593.91	2565.83	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. 2024

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	03:06	9	349	3	44	4	6	5	343	439	74	46	393	34	1130	4	4	
3	03:45	8	69	4	30	3	5	5	64	149	70	35	114	33	1151	3	2	
4																		None
5																		None
6	02:30	10	124	2	29	2	3	8	121	224	49	23	201	143	939	2	4	
7																		Rain
8	07:37	9	56	4	23	2	12	7	44	146	63	32	114	298	592	0	2	
9																		None
10																		Rain
11																		None
12																		None
13	03:59	7	31	3	23	2	7	5	24	101	53	27	74	213	555	1	3	
14																		Rain
15	03:31	5	31	1	7	2	2	3	29	81	17	22	59	276	783	0	3	
16	02:58	7	48	1	5	3	8	4	40	118	15	38	80	290	713	2	2	
17																		Cloud
18	02:36	6	33	1	15	2	4	4	29	93	25	24	69	17	503	2	3	
19	04:01	4	32	1	17	0	0	4	32	72	27	0	72	0	594	0	3	
20																		Cloud
21																		Rain
22																		Rain
23																		Rain
24																		Rain
25																		Rain
26																		Cloud
27																		Rain
28																		Rain
29																		Rain
30																		Rain
Mean No.		7.22	85.89	2.22	21.44	2.22	5.22	5.00	80.67	158.11	43.67	27.44	130.67	144.84	773.27	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
 Oct. 2024

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																		Cloud
2																		Rain
3																		Rain
4																		Rain
5																		Rain
6																		Cloud
7																		Rain
8																		Rain
9																		Rain
10																		Cloud
11																		Cloud
12																		None
13	02:50	6	64	3	41	2	11	4	53	124	71	31	93	715	1193	0	3	
14	02:59	7	44	2	30	2	6	5	38	114	50	26	88	492	1022	0	2	
15	02:58	7	39	2	25	1	5	6	34	109	45	15	94	35	1312	0	4	
16																		Rain
17	02:23	8	55	2	22	2	18	6	37	135	42	38	97	294	1062	1	4	
18	02:20	7	47	5	37	1	8	6	39	117	87	18	99	119	641	0	3	
19																		Rain
20																		Cloud
21																		Cloud
22																		Rain
23																		Rain
24																		Rain
25																		Rain
26																		Cloud
27																		Cloud
28																		Cloud
29																		Cloud
30																		Rain
31																		Rain
Mean No.		7.00	49.80	2.80	31.00	1.60	9.60	5.40	40.20	119.80	59.00	25.60	94.20	331.22	1045.72	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
 Nov. 2024

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																		Cloud
6																		Cloud
7																		Cloud
8																		Cloud
9																		Cloud
10																		Cloud
11																		Rain
12																		Rain
13																		Rain
14																		Cloud
15																		Cloud
16																		Cloud
17																		Cloud
18																		Rain
19																		Rain
20																		Rain
21																		Rain
22																		Cloud
23																		Cloud
24																		Cloud
25																		Cloud
26																		Rain
27																		None
28																		None
29	03:18	8	52	3	41	2	5	6	47	132	71	25	107	298	1125	2	3	
30																		None
Mean No.		8.00	52.00	3.00	41.00	2.00	5.00	6.00	47.00	132.00	71.00	25.00	107.00	297.55	1125.23	Obs. Days: 1		

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. 2024

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																		Cloud
4																		Cloud
5																		Cloud
6	02:54	7	43	2	20	3	6	4	37	113	40	36	77	91	175	2	1	
7																		Cloud
8																		Cloud
9																		Cloud
10																		Cloud
11																		None
12																		Cloud
13																		Cloud
14																		Cloud
15																		Cloud
16																		None
17																		Cloud
18																		Cloud
19																		Rain
20																		Cloud
21																		Cloud
22																		Cloud
23																		Rain
24																		Rain
25																		Cloud
26																		Cloud
27																		Cloud
28																		Cloud
29																		None
30																		None
31																		Cloud
Mean No.		7.00	43.00	2.00	20.00	3.00	6.00	4.00	37.00	113.00	40.00	36.00	77.00	91.22	174.69	Obs. Days: 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
3534	2-Jan	03:55	-12.5	223.3	7	39	B	2
	5-Jan	03:05	-14.8	222.5	7	99	D	2
	6-Jan	03:48	-14.3	221.7	4	32	D	3
3536	2-Jan	03:55	6.0	148.5	15	401	E	2
	5-Jan	03:05	4.7	149.1	14	29	D	2
	6-Jan	03:48	4.4	148.5	21	183	D	3
	11-Jan	03:10	8.3	147.4	1	10	D	3
3537	2-Jan	03:55	16.9	154.4	3	112	C	2
	5-Jan	03:05	17.2	153.2	5	143	D	2
	6-Jan	03:48	17.0	151.5	8	121	J	3
3538	5-Jan	03:05	20.7	174.6	18	33	D	2
	6-Jan	03:48	20.5	174.0	14	36	D	3
	11-Jan	03:10	21.0	173.8	1	67	C	3
3539	5-Jan	03:05	9.5	134.8	2	7	A	2
	6-Jan	03:48	9.2	133.4	7	17	A	3
	11-Jan	03:10	9.4	137.6	18	195	D	3
	12-Jan	03:30	7.7	138.6	13	295	D	3
	13-Jan	02:37	10.6	135.7	2	170	D	3
3540	5-Jan	03:05	-18.6	89.1	2	39	D	2
	6-Jan	03:48	-19.4	91.1	9	145	D	3
	11-Jan	03:10	-19.7	91.8	16	131	C	3
	12-Jan	03:30	-18.3	91.2	5	76	C	3
	13-Jan	02:37	-18.2	90.0	7	80	C	3
3541	5-Jan	03:05	-23.1	93.0	1	43	J	2
	6-Jan	03:48	-23.8	96.9	1	106	J	3
	11-Jan	03:10	-22.3	84.4	15	157	E	3
	12-Jan	03:30	-23.8	93.2	9	32	E	3
	13-Jan	02:37	-22.2	92.6	17	44	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
3543	11-Jan	03:10	-7.1	161.7	1	36	C	3
3544	11-Jan	03:10	15.8	78.3	1	7	J	3
	12-Jan	03:30	15.1	79.1	1	16	A	3
	13-Jan	02:37	16.5	77.6	1	7	A	3
3545	11-Jan	03:10	-8.2	40.8	1	324	J	3
	12-Jan	03:30	-8.9	41.8	3	213	J	3
	13-Jan	02:37	-9.0	38.5	4	269	C	3
	18-Jan	06:33	-6.0	41.7	2	234	C	3
	19-Jan	03:37	-6.5	39.5	3	213	J	2
3546	11-Jan	03:10	-26.2	59.1	12	40	C	3
	12-Jan	03:30	-27.1	59.3	9	31	D	3
	13-Jan	02:37	-25.7	59.1	9	28	D	3
3547	11-Jan	03:10	16.5	62.7	2	13	D	3
	12-Jan	03:30	16.0	63.2	5	115	D	3
	13-Jan	02:37	17.0	62.6	6	20	C	3
3548	12-Jan	03:30	7.5	27.8	5	40	D	3
	13-Jan	02:37	8.4	27.6	4	92	D	3
3549	12-Jan	03:30	-23.5	3.6	2	329	D	3
	13-Jan	02:37	-21.9	4.7	4	235	D	3
	18-Jan	06:33	-21.0	5.4	7	175	C	3
	19-Jan	03:37	-22.4	2.4	3	185	C	2
3550	12-Jan	03:30	-19.4	47.5	3	14	B	3
	13-Jan	02:37	-18.3	44.6	2	10	B	3
3551	18-Jan	06:33	23.8	14.9	1	4	J	3
3552	12-Jan	03:30	-22.9	83.5	8	53	C	3
	13-Jan	02:37	-23.5	80.8	5	32	C	3
3553	13-Jan	02:37	2.3	347.4	1	115	J	3
	18-Jan	06:33	3.8	348.2	14	78	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
	19-Jan	03:37	3.0	345.6	12	86	C	2
3554	18-Jan	06:33	5.7	340.3	3	29	J	3
	19-Jan	03:37	4.5	338.3	2	10	J	2
3555	18-Jan	06:33	-12.2	321.0	5	185	D	3
	19-Jan	03:37	-14.1	321.6	11	163	D	2
3556	18-Jan	06:33	14.8	312.8	1	82	J	3
	19-Jan	03:37	13.4	311.6	1	92	J	2
3559	18-Jan	06:33	27.6	287.3	2	486	D	3
	19-Jan	03:37	25.0	291.3	3	188	D	2
	29-Jan	03:44	27.1	285.0	5	153	F	2
3560	29-Jan	03:44	-10.4	294.2	2	37	D	2
3565	29-Jan	03:44	4.9	155.3	2	31	J	2
	1-Feb	04:04	4.7	154.1	8	77	D	3
3566	29-Jan	03:44	-12.2	251.5	1	6	D	2
3567	1-Feb	04:04	17.8	130.7	10	423	D	3
3569	1-Feb	04:04	-13.1	190.9	1	4	A	3
3570	1-Feb	04:04	-5.7	116.7	3	32	D	3
3571	1-Feb	04:04	-18.9	101.6	1	175	J	3
3572	17-Jul	02:37	21.3	93.1	1	34	J	4
3576	15-Feb	02:45	-14.7	60.3	16	849	F	4
3581	15-Feb	02:45	-21.6	1.3	1	59	J	4
	17-Feb	06:07	-20.7	359.1	2	36	J	4
	19-Feb	03:18	-21.9	357.8	1	13	J	3
3582	15-Feb	02:45	7.1	31.9	17	274	E	4
3583	15-Feb	02:45	8.4	6.0	10	317	E	4
	17-Feb	06:07	10.1	7.1	9	335	F	4
	19-Feb	03:18	8.6	8.1	6	281	F	3
3584	15-Feb	02:45	-16.4	335.8	2	27	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-Feb	06:07	-14.2	335.1	2	13	A	4
	19-Feb	03:18	-14.1	335.9	2	7	B	3
3585	15-Feb	02:45	11.0	308.0	3	17	C	4
3586	15-Feb	02:45	24.3	285.4	1	187	J	4
	17-Feb	06:07	26.4	283.9	1	202	J	4
	19-Feb	03:18	25.3	281.9	1	148	J	3
	20-Feb	03:19	24.8	281.7	1	173	C	3
3587	15-Feb	02:45	-24.1	305.0	2	11	C	4
	17-Feb	06:07	-19.3	308.3	2	7	B	4
3588	15-Feb	02:45	-4.8	312.8	2	13	B	4
3590	19-Feb	03:18	18.0	226.6	2	302	H	3
	20-Feb	03:19	17.0	222.7	6	919	E	3
	29-Feb	03:39	19.8	219.0	15	1367	F	2
3591	29-Feb	03:39	-35.8	161.7	1	88	J	2
	4-Mar	03:11	-37.5	157.5	1	43	J	2
3592	29-Feb	03:39	-13.9	175.9	3	9	A	2
3594	29-Feb	03:39	4.0	169.7	1	20	J	2
3595	29-Feb	03:39	18.6	165.4	12	400	D	2
	4-Mar	03:11	19.0	165.3	3	353	E	2
3596	29-Feb	03:39	15.5	133.2	9	102	D	2
	4-Mar	03:11	17.3	135.4	1	7	J	2
3597	29-Feb	03:39	5.0	154.5	4	11	B	2
3598	4-Mar	03:11	-14.7	170.7	11	36	D	2
3599	4-Mar	03:11	-16.7	66.8	2	56	C	2
	8-Mar	06:04	-13.0	67.3	27	136	D	3
	12-Mar	03:34	-13.1	65.4	9	367	D	3
3600	4-Mar	03:11	-21.6	57.7	1	97	J	2
	8-Mar	06:04	-18.5	57.2	3	79	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
3602	4-Mar	03:11	17.0	75.5	6	21	D	2
	8-Mar	06:04	16.8	76.3	3	54	C	3
	12-Mar	03:34	16.0	76.1	1	12	A	3
3603	8-Mar	06:04	12.1	54.1	2	38	J	3
3604	8-Mar	06:04	7.2	24.1	3	14	J	3
3605	8-Mar	06:04	-16.0	39.6	4	24	D	3
	12-Mar	03:34	-15.1	41.8	1	5	B	3
3606	12-Mar	03:34	6.8	331.3	3	10	D	3
3607	12-Mar	03:34	-19.0	315.0	2	11	D	3
	21-Mar	03:37	-19.7	313.9	8	149	D	3
	22-Mar	02:11	-17.7	314.4	3	37	D	3
3608	22-Mar	02:11	11.4	306.2	2	11	C	3
3613	21-Mar	03:37	-24.3	321.5	3	85	D	3
3614	21-Mar	03:37	14.5	221.8	7	191	D	3
	22-Mar	02:11	16.5	218.7	6	193	D	3
3615	21-Mar	03:37	-13.8	215.7	22	301	E	3
	22-Mar	02:11	-11.9	214.4	62	293	E	3
3616	21-Mar	03:37	1.9	316.6	2	98	C	3
	22-Mar	02:11	4.2	311.7	2	24	J	3
3617	21-Mar	03:37	-15.2	186.0	4	102	J	3
	22-Mar	02:11	-13.8	183.0	4	52	C	3
3618	21-Mar	03:37	-20.3	301.2	7	43	D	3
	22-Mar	02:11	-18.5	299.9	6	30	D	3
3619	22-Mar	02:11	18.6	180.8	3	41	C	3
3621	22-Mar	02:11	16.4	249.4	1	4	C	3
3661	6-May	05:57	24.5	21.0	1	4	J	3
	7-May	02:09	23.7	19.6	1	9	J	3
3662	6-May	05:57	31.6	62.7	1	16	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
	7-May	02:09	30.8	66.3	1	23	A	3
3663	6-May	05:57	28.0	34.1	24	842	F	3
	7-May	02:09	26.0	35.7	22	689	F	3
	9-May	02:31	25.6	35.6	6	303	F	1
3664	6-May	05:57	-17.8	352.0	37	878	E	3
	7-May	02:09	-18.4	347.5	43	897	E	3
	9-May	02:31	-19.0	346.6	42	2701	F	1
	10-May	02:18	-20.9	344.7	55	2367	F	3
	12-May	02:56	-19.3	344.7	33	2559	F	2
3666	6-May	05:57	9.1	19.8	3	94	C	3
	7-May	02:09	8.1	17.9	3	96	C	3
	9-May	02:31	7.0	17.8	1	113	J	1
	10-May	02:18	5.6	16.7	1	127	J	3
3667	6-May	05:57	27.8	308.7	1	163	J	3
	7-May	02:09	26.0	306.5	1	162	J	3
	9-May	02:31	26.0	306.1	1	189	J	1
	10-May	02:18	24.5	306.3	1	201	J	3
	12-May	02:56	24.7	304.1	2	174	J	2
	15-May	03:14	25.9	301.3	1	80	J	2
	16-May	02:23	26.4	300.7	1	29	J	2
3668	6-May	05:57	-16.3	341.3	17	63	C	3
	7-May	02:09	-15.7	338.4	8	22	D	3
	9-May	02:31	-15.8	337.3	10	148	C	1
	10-May	02:18	-19.0	336.0	7	84	C	3
3669	6-May	05:57	-7.7	324.9	1	5	J	3
	7-May	02:09	-8.7	323.1	1	8	A	3
3670	6-May	05:57	16.7	285.3	1	21	J	3
	7-May	02:09	15.6	282.7	1	22	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
	9-May	02:31	15.5	285.7	1	63	C	1
	10-May	02:18	13.7	285.1	3	67	J	3
	12-May	02:56	16.9	283.3	6	58	C	2
	15-May	03:14	17.3	278.3	8	195	D	2
	16-May	02:23	18.9	278.9	3	44	D	2
3671	10-May	02:18	17.8	283.6	2	37	J	3
	12-May	02:56	21.7	283.3	8	92	C	2
	15-May	03:14	20.8	280.9	7	23	C	2
	16-May	02:23	21.3	279.8	2	14	C	2
3672	9-May	02:31	17.7	257.9	2	32	C	1
	10-May	02:18	17.5	258.2	7	165	C	3
	12-May	02:56	16.5	257.8	3	118	D	2
	16-May	02:23	17.0	254.1	3	49	J	2
	19-May	02:48	19.5	249.1	2	18	J	3
3673	12-May	02:56	-10.5	234.3	2	59	J	2
	15-May	03:14	-11.3	231.9	1	23	J	2
	16-May	02:23	-10.2	231.8	1	6	J	2
3674	12-May	02:56	-15.1	224.1	3	133	C	2
	15-May	03:14	-15.4	220.5	8	123	C	2
	16-May	02:23	-14.6	220.4	8	132	C	2
	19-May	02:48	-11.8	219.5	7	148	C	3
3675	12-May	02:56	-15.4	315.4	4	76	C	2
	15-May	03:14	-14.7	314.5	2	21	D	2
3676	12-May	02:56	-22.3	264.1	6	31	D	2
	15-May	03:14	-20.8	265.9	4	108	C	2
	16-May	02:23	-21.3	262.5	5	110	C	2
	19-May	02:48	-20.1	260.5	1	20	J	3
3679	15-May	03:14	-10.9	200.1	8	264	D	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
	16-May	02:23	-10.3	200.0	9	229	D	2
	19-May	02:48	-7.5	199.2	10	231	E	3
3680	15-May	03:14	15.1	199.2	2	13	D	2
	16-May	02:23	15.9	198.6	1	6	A	2
3682	15-May	03:14	11.0	190.1	4	58	D	2
	16-May	02:23	10.8	189.8	3	62	C	2
	19-May	02:48	13.9	180.1	7	28	A	3
3683	15-May	03:14	-25.2	240.2	4	82	D	2
	16-May	02:23	-23.7	240.1	5	51	D	2
	19-May	02:48	-22.9	236.8	17	117	D	3
3684	19-May	02:48	-6.0	172.9	3	16	B	3
3685	16-May	02:23	-14.6	158.4	2	125	D	2
	19-May	02:48	-13.4	154.0	11	359	E	3
3686	19-May	02:48	-7.8	144.2	2	146	J	3
3702	13-Jun	04:01	17.0	284.2	1	70	C	3
3707	13-Jun	04:01	-16.6	240.8	9	44	C	3
3708	13-Jun	04:01	-20.1	227.7	4	73	J	3
3709	13-Jun	04:01	-11.2	219.3	21	242	C	3
3711	13-Jun	04:01	-10.3	210.0	4	14	B	3
3712	13-Jun	04:01	-26.0	170.1	9	204	D	3
	19-Jun	02:31	-23.8	167.0	25	931	E	3
	21-Jun	03:11	-24.6	164.8	19	1471	E	2
3713	13-Jun	04:01	-14.4	153.8	4	176	D	3
	19-Jun	02:31	-14.6	155.2	37	445	E	3
	21-Jun	03:11	-14.8	152.6	24	1404	E	2
3716	13-Jun	04:01	9.2	161.6	2	42	C	3
	19-Jun	02:31	9.0	161.8	23	302	D	3
	21-Jun	03:11	9.7	160.9	19	754	E	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
3718	19-Jun	02:31	13.0	115.8	5	37	C	3
3719	21-Jun	03:11	-15.3	61.5	7	148	D	2
	26-Jun	03:45	-14.1	63.5	5	294	D	2
	27-Jun	07:36	-13.5	67.0	4	324	C	2
	30-Jun	03:28	-15.9	65.7	1	252	C	2
3720	21-Jun	03:11	-6.8	54.7	6	67	D	2
	26-Jun	03:45	-5.2	53.3	20	197	D	2
	27-Jun	07:36	-3.7	54.4	7	156	D	2
3721	26-Jun	03:45	23.5	27.8	2	124	J	2
	27-Jun	07:36	27.3	22.2	7	202	J	2
	30-Jun	03:28	25.8	25.7	2	128	J	2
	2-Jul	02:36	24.9	21.5	4	21	J	3
3722	26-Jun	03:45	-11.3	30.1	1	131	J	2
	27-Jun	07:36	-9.7	30.0	1	80	J	2
	30-Jun	03:28	-10.5	27.2	1	97	J	2
	2-Jul	02:36	-11.4	27.3	1	55	J	3
3723	26-Jun	03:45	-19.4	12.9	10	253	F	2
	27-Jun	07:36	-17.8	13.3	10	151	F	2
	30-Jun	03:28	-19.3	7.3	2	11	B	2
3724	26-Jun	03:45	-14.3	29.6	2	104	J	2
	27-Jun	07:36	-13.2	29.6	1	90	J	2
	30-Jun	03:28	-14.4	27.3	1	71	J	2
	2-Jul	02:36	-15.8	27.8	1	51	J	3
3727	26-Jun	03:45	-19.0	358.7	7	385	J	2
	27-Jun	07:36	-17.9	358.0	10	281	C	2
	30-Jun	03:28	-18.7	350.3	7	253	C	2
	2-Jul	02:36	-18.9	352.5	5	205	C	3
	4-Jul	02:57	-18.3	348.9	2	154	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
	5-Jul	02:44	-17.4	348.3	2	115	J	4
3728	26-Jun	03:45	-21.7	353.1	2	14	B	2
	27-Jun	07:36	-25.7	356.1	3	19	B	2
	30-Jun	03:28	-27.0	355.9	6	91	D	2
	2-Jul	02:36	-26.8	357.5	4	33	C	3
3729	27-Jun	07:36	-3.0	331.4	7	398	D	2
	30-Jun	03:28	-4.1	331.7	14	343	E	2
	2-Jul	02:36	-5.0	331.6	25	336	F	3
	4-Jul	02:57	-4.3	329.7	26	316	F	3
	5-Jul	02:44	-3.1	331.1	17	144	F	4
3730	30-Jun	03:28	-16.6	19.6	1	16	C	2
	2-Jul	02:36	-16.2	12.8	7	43	D	3
	4-Jul	02:57	-14.1	7.5	3	98	B	3
	5-Jul	02:44	-13.0	4.1	2	43	B	4
3731	2-Jul	02:36	-15.9	326.0	1	7	A	3
3732	30-Jun	03:28	-18.7	359.3	4	37	J	2
	2-Jul	02:36	-20.6	0.6	3	86	B	3
3733	30-Jun	03:28	4.3	332.0	5	49	C	2
	2-Jul	02:36	2.9	333.7	3	21	D	3
	4-Jul	02:57	3.7	332.7	16	307	D	3
	5-Jul	02:44	4.1	333.8	13	388	D	4
	8-Jul	02:33	4.2	332.0	1	187	D	3
3734	30-Jun	03:28	6.6	295.0	2	40	C	2
	2-Jul	02:36	6.2	290.9	7	52	E	3
	4-Jul	02:57	7.3	295.9	2	49	C	3
	5-Jul	02:44	8.7	300.5	4	28	J	4
	8-Jul	02:33	7.2	295.6	2	15	A	3
3735	30-Jun	03:28	15.5	284.3	1	45	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
	2-Jul	02:36	15.1	285.9	1	53	J	3
	4-Jul	02:57	14.7	283.8	1	46	J	3
	5-Jul	02:44	16.0	284.3	1	40	J	4
3736	4-Jul	02:57	-19.9	238.7	3	163	C	3
	5-Jul	02:44	-19.0	239.6	3	184	D	4
	8-Jul	02:33	-23.2	237.2	7	116	C	3
	12-Jul	02:40	-18.4	239.8	1	49	J	3
3737	5-Jul	02:44	-9.0	350.0	4	51	D	4
3738	8-Jul	02:33	-11.2	208.9	37	634	E	3
	12-Jul	02:40	-8.0	212.1	46	1099	F	3
	15-Jul	02:45	-9.4	211.4	25	1209	F	3
3740	8-Jul	02:33	-18.8	270.1	2	19	C	3
3741	8-Jul	02:33	7.2	191.1	1	13	A	3
	17-Jul	02:37	14.9	196.8	1	22	X	4
3742	18-Jul	02:27	-15.4	171.8	2	49	D	3
3743	12-Jul	02:40	-8.3	164.5	15	202	D	3
	15-Jul	02:45	-10.2	162.1	20	226	D	3
	17-Jul	02:37	-9.5	160.8	28	217	E	4
	18-Jul	02:27	-10.1	161.9	5	29	D	3
3744	12-Jul	02:40	15.8	146.0	4	183	D	3
	15-Jul	02:45	13.7	146.3	7	130	D	3
	17-Jul	02:37	15.8	148.0	9	84	C	4
	18-Jul	02:27	15.4	149.3	7	79	C	3
	20-Jul	02:10	15.2	148.6	4	40	C	2
	21-Jul	06:39	16.5	152.2	3	55	C	3
3745	12-Jul	02:40	-17.3	157.2	3	33	D	3
	15-Jul	02:45	-19.7	156.1	4	47	D	3
	17-Jul	02:37	-18.8	155.6	11	68	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
	18-Jul	02:27	-20.6	156.1	5	126	D	3
	20-Jul	02:10	-22.3	152.5	2	17	C	2
3747	12-Jul	02:40	-24.3	156.0	2	186	J	3
	15-Jul	02:45	-25.8	152.9	1	144	J	3
	17-Jul	02:37	-24.1	152.7	3	150	J	4
	18-Jul	02:27	-24.8	152.2	2	99	J	3
	20-Jul	02:10	-26.0	149.1	1	64	J	2
	21-Jul	06:39	-23.5	151.8	1	47	J	3
3748	17-Jul	02:37	13.8	132.2	2	11	C	4
	18-Jul	02:27	15.3	131.1	3	14	A	3
3749	15-Jul	02:45	-35.7	101.9	1	78	C	3
	17-Jul	02:37	-33.4	104.3	2	40	J	4
	18-Jul	02:27	-33.2	103.9	1	27	J	3
3750	15-Jul	02:45	-21.7	108.0	8	144	C	3
	17-Jul	02:37	-20.0	109.0	9	73	D	4
	18-Jul	02:27	-19.9	113.0	2	39	C	3
	20-Jul	02:10	-21.1	112.6	2	15	A	2
3751	15-Jul	02:45	-10.2	89.4	8	422	E	3
	17-Jul	02:37	-8.4	93.1	17	406	E	4
	18-Jul	02:27	-9.1	94.2	24	514	E	3
	20-Jul	02:10	-9.1	92.5	23	401	E	2
	21-Jul	06:39	-6.5	94.2	35	378	E	3
	22-Jul	06:03	-7.3	92.6	16	323	E	2
3752	15-Jul	02:45	19.5	90.9	1	119	J	3
	18-Jul	02:27	21.4	92.5	1	18	J	3
	20-Jul	02:10	21.2	91.7	1	7	J	2
3753	15-Jul	02:45	10.0	168.1	6	97	D	3
	17-Jul	02:37	13.1	166.9	13	81	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
	18-Jul	02:27	13.8	164.2	3	28	C	3
3754	17-Jul	02:37	23.8	78.5	4	69	E	4
	18-Jul	02:27	23.9	77.0	3	31	C	3
	20-Jul	02:10	23.9	75.7	3	16	C	2
3755	17-Jul	02:37	1.5	71.4	4	134	D	4
	18-Jul	02:27	0.9	72.5	7	175	D	3
	20-Jul	02:10	2.1	74.7	2	23	C	2
	21-Jul	06:39	2.8	73.1	8	42	C	3
	22-Jul	06:03	3.4	73.3	3	34	C	2
3756	17-Jul	02:37	-18.5	65.7	1	184	J	4
	18-Jul	02:27	-18.6	67.1	1	136	J	3
	20-Jul	02:10	-18.0	67.8	1	111	C	2
	21-Jul	06:39	-16.2	68.0	1	126	J	3
	22-Jul	06:03	-16.6	66.9	1	99	J	2
3757	17-Jul	02:37	17.1	58.2	2	17	J	4
	18-Jul	02:27	17.3	59.0	1	29	J	3
	20-Jul	02:10	16.7	59.8	3	34	C	2
	21-Jul	06:39	18.7	59.0	7	70	C	3
	22-Jul	06:03	18.1	59.8	3	41	C	2
3758	18-Jul	02:27	-7.8	158.4	2	62	C	3
3759	18-Jul	02:27	-6.6	117.3	6	100	B	3
	20-Jul	02:10	-7.3	116.7	9	312	D	2
	21-Jul	06:39	-4.8	118.3	10	189	D	3
3760	18-Jul	02:27	18.7	111.6	6	17	C	3
	20-Jul	02:10	19.3	111.3	3	14	A	2
	21-Jul	06:39	21.0	112.3	3	15	B	3
	22-Jul	06:03	-4.0	122.7	4	164	A	2
3761	20-Jul	02:10	-10.4	80.9	7	213	D	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
	21-Jul	06:39	-9.3	81.5	18	303	D	3
	22-Jul	06:03	-9.0	82.0	15	359	D	2
3762	21-Jul	06:39	-12.9	16.5	5	174	C	3
	22-Jul	06:03	-12.6	15.9	9	243	D	2
	29-Jul	03:11	-12.2	21.1	21	367	F	3
3763	29-Jul	03:11	2.0	339.6	2	130	D	3
	31-Jul	02:59	4.4	343.1	1	144	J	2
	1-Aug	02:11	4.3	343.9	1	145	J	3
	2-Aug	02:06	4.2	345.2	1	156	J	3
3764	29-Jul	03:11	-4.2	338.9	1	73	C	3
	31-Jul	02:59	-3.3	338.3	4	142	D	2
	1-Aug	02:11	-3.1	338.7	1	137	C	3
	2-Aug	02:06	-3.3	339.2	1	34	C	3
3765	29-Jul	03:11	-12.7	327.2	15	628	D	3
	31-Jul	02:59	-12.3	327.1	18	591	D	2
	1-Aug	02:11	-11.1	325.4	18	550	E	3
	2-Aug	02:06	-12.4	327.9	15	425	E	3
3766	29-Jul	03:11	-8.2	333.1	22	193	D	3
	31-Jul	02:59	-7.6	333.8	30	296	E	2
	1-Aug	02:11	-7.7	333.0	21	420	E	3
	2-Aug	02:06	-8.2	335.5	9	251	E	3
3767	29-Jul	03:11	-9.8	320.3	13	206	D	3
	31-Jul	02:59	-8.7	319.2	16	303	C	2
	1-Aug	02:11	-8.5	317.9	19	169	D	3
	2-Aug	02:06	-9.2	318.5	6	94	D	3
3768	29-Jul	03:11	-16.2	2.7	18	257	D	3
	31-Jul	02:59	-16.0	2.6	13	881	E	2
	1-Aug	02:11	-16.6	2.2	10	1436	F	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
	2-Aug	02:06	-17.2	358.8	2	67	F	3
3769	29-Jul	03:11	19.9	285.3	1	189	J	3
	31-Jul	02:59	20.5	284.5	2	173	J	2
	1-Aug	02:11	20.6	283.9	1	109	J	3
	2-Aug	02:06	20.1	282.8	1	140	J	3
	5-Aug	03:08	21.1	281.6	2	140	J	2
	7-Aug	02:27	22.1	282.3	1	139	J	2
3770	29-Jul	03:11	6.2	323.1	13	232	D	3
	31-Jul	02:59	7.6	322.9	10	446	D	2
	1-Aug	02:11	7.3	322.9	11	345	D	3
	2-Aug	02:06	7.1	322.6	6	228	D	3
3771	29-Jul	03:11	0.4	4.7	1	10	A	3
3772	31-Jul	02:59	-25.9	250.5	12	343	D	2
	1-Aug	02:11	-25.3	250.6	15	345	E	3
	2-Aug	02:06	-25.8	249.0	23	533	E	3
	5-Aug	03:08	-26.5	247.5	13	542	E	2
	7-Aug	02:27	-26.9	246.9	11	380	E	2
	9-Aug	03:27	-24.8	252.0	1	476	C	2
3773	31-Jul	02:59	-6.3	350.8	4	53	C	2
	1-Aug	02:11	-7.2	353.1	3	43	C	3
3774	31-Jul	02:59	-8.6	230.8	1	259	E	2
	1-Aug	02:11	-8.8	226.3	11	675	E	3
	2-Aug	02:06	-9.2	224.2	17	487	E	3
	5-Aug	03:08	-11.3	225.3	32	433	B	2
	7-Aug	02:27	-8.3	223.6	31	1331	E	2
	9-Aug	03:27	-6.1	227.0	37	337	E	2
	11-Aug	03:14	-7.3	223.1	4	176	D	2
	12-Aug	02:28	-6.4	217.7	2	10	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
3775	31-Jul	02:59	14.4	235.5	2	42	C	2
	1-Aug	02:11	15.5	236.1	3	31	C	3
	2-Aug	02:06	15.7	233.7	6	141	C	3
	5-Aug	03:08	16.1	233.4	10	155	D	2
	7-Aug	02:27	17.5	231.2	6	53	C	2
	9-Aug	03:27	17.2	237.0	5	19	C	2
3776	1-Aug	02:11	7.6	247.7	2	12	E	3
	2-Aug	02:06	6.5	246.5	4	20	C	3
3777	5-Aug	03:08	-11.8	207.9	7	176	C	2
	7-Aug	02:27	-10.6	208.8	19	617	E	2
	9-Aug	03:27	-6.9	211.4	38	518	E	2
	11-Aug	03:14	-10.7	206.8	19	460	F	2
	12-Aug	02:28	-11.7	206.6	14	490	E	3
3778	2-Aug	02:06	-19.8	318.0	1	10	B	3
3779	5-Aug	03:08	-3.5	218.2	1	6	D	2
	7-Aug	02:27	-15.5	222.6	2	6	C	2
3780	5-Aug	03:08	-15.7	170.6	15	1537	D	2
	7-Aug	02:27	-13.6	170.7	39	1695	F	2
	9-Aug	03:27	-11.6	172.8	75	1829	F	2
	11-Aug	03:14	-12.6	170.6	57	1372	F	2
	12-Aug	02:28	-9.6	167.3	16	1236	F	3
3781	5-Aug	03:08	10.6	160.5	3	402	D	2
	7-Aug	02:27	10.2	163.5	4	189	D	2
	9-Aug	03:27	15.1	165.0	9	253	D	2
	11-Aug	03:14	13.7	162.0	3	153	C	2
	12-Aug	02:28	12.9	163.9	2	118	C	3
3782	7-Aug	02:27	-0.8	140.9	2	407	E	2
	9-Aug	03:27	1.5	138.3	10	182	E	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
	11-Aug	03:14	-2.4	133.9	10	141	E	2
	12-Aug	02:28	-0.3	133.6	9	82	C	3
3783	9-Aug	03:27	9.9	174.2	9	119	D	2
	11-Aug	03:14	8.0	173.5	4	17	C	2
	12-Aug	02:28	10.8	174.5	1	8	C	3
3784	9-Aug	03:27	16.3	119.0	1	239	C	2
	11-Aug	03:14	11.2	114.3	5	555	C	2
	12-Aug	02:28	12.4	114.7	6	650	D	3
	21-Aug	02:49	13.2	103.9	1	170	D	2
3785	12-Aug	02:28	-13.7	99.9	2	10	C	3
3786	11-Aug	03:14	-24.6	148.1	2	30	C	2
	12-Aug	02:28	-24.0	148.8	11	118	C	3
3787	12-Aug	02:28	15.9	150.1	4	82	C	3
3788	11-Aug	03:14	-15.1	101.6	5	54	C	2
	12-Aug	02:28	-9.2	86.6	4	41	C	3
	21-Aug	02:49	-10.7	88.8	1	81	J	2
3789	21-Aug	02:49	25.1	80.1	3	33	C	2
3790	21-Aug	02:49	-13.1	23.8	19	789	D	2
3792	21-Aug	02:49	-20.1	8.3	1	451	C	2
3793	21-Aug	02:49	18.0	23.3	2	15	D	2
3794	21-Aug	02:49	14.4	40.3	9	135	D	2
3796	21-Aug	02:49	-5.5	350.5	16	808	D	2
3798	21-Aug	02:49	3.8	330.6	1	96	J	2
3799	21-Aug	02:49	-5.8	69.0	2	19	D	2
	21-Aug	02:49	-12.2	322.5	1	186	C	2
	31-Aug	03:54	-11.7	314.0	6	48	C	3
3800	31-Aug	03:54	-28.4	318.9	3	24	E	3
3801	31-Aug	03:54	7.8	297.7	4	72	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
	2-Sep	03:06	8.4	297.4	1	6	A	4
3803	31-Aug	03:54	12.7	242.2	5	26	C	3
	2-Sep	03:06	12.9	242.7	1	7	A	4
	3-Sep	03:45	14.5	240.0	1	8	A	2
	13-Sep	03:59	-23.5	151.1	1	8	J	3
3804	31-Aug	03:54	-25.3	247.9	2	18	J	3
3806	31-Aug	03:54	-12.1	213.4	27	237	E	3
	2-Sep	03:06	-11.2	219.2	41	225	E	4
	3-Sep	03:45	-11.7	216.9	26	206	E	2
	6-Sep	02:30	-11.1	214.7	29	214	D	4
3807	31-Aug	03:54	-17.2	262.6	14	198	E	3
	2-Sep	03:06	-16.4	264.6	290	1349	E	4
	3-Sep	03:45	-17.0	263.4	15	532	E	2
	6-Sep	02:30	-15.3	247.6	1	80	E	4
3808	31-Aug	03:54	-11.3	201.8	2	46	C	3
	2-Sep	03:06	-15.6	201.1	2	40	C	4
	3-Sep	03:45	-11.0	205.9	1	31	C	2
	6-Sep	02:30	-10.4	206.9	13	132	D	4
	8-Sep	07:37	-9.6	216.4	4	121	C	2
3810	2-Sep	03:06	14.3	212.8	2	11	B	4
	3-Sep	03:45	15.0	208.0	2	10	A	2
3811	2-Sep	03:06	-9.9	181.6	4	195	C	4
	3-Sep	03:45	-11.3	171.9	6	81	C	2
	6-Sep	02:30	-9.9	174.2	26	131	E	4
	8-Sep	07:37	-8.9	174.0	6	128	D	2
3812	2-Sep	03:06	12.2	191.9	2	10	B	4
	3-Sep	03:45	6.1	161.7	2	15	B	2
	6-Sep	02:30	23.6	229.1	2	13	B	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
3813	2-Sep	03:06	-21.1	162.1	6	249	E	4
	3-Sep	03:45	-21.8	159.3	16	300	E	2
	6-Sep	02:30	-21.2	155.6	31	190	F	4
	8-Sep	07:37	-19.6	158.4	9	84	E	2
3814	6-Sep	02:30	12.8	114.8	1	130	C	4
	8-Sep	07:37	15.3	115.3	8	269	D	2
	13-Sep	03:59	14.4	114.4	2	181	C	3
	15-Sep	03:31	15.5	115.6	1	268	C	3
	16-Sep	02:58	13.5	113.2	1	256	J	2
3815	6-Sep	02:30	-29.4	134.9	15	177	E	4
	8-Sep	07:37	-24.2	145.8	8	190	C	2
	13-Sep	03:59	-26.6	141.7	1	70	J	3
3816	6-Sep	02:30	-10.6	144.7	3	8	B	4
	8-Sep	07:37	-9.1	148.6	4	17	C	2
	13-Sep	03:59	-8.1	150.4	2	10	A	3
3818	6-Sep	02:30	-0.6	188.1	3	7	C	4
	8-Sep	07:37	-11.8	191.0	3	16	C	2
3819	8-Sep	07:37	-25.8	137.0	10	37	C	2
3821	8-Sep	07:37	14.5	176.2	4	29	C	2
3822	13-Sep	03:59	12.8	105.8	5	31	D	3
	15-Sep	03:31	14.7	105.0	1	8	C	3
	16-Sep	02:58	13.7	101.4	2	17	C	2
3824	13-Sep	03:59	-3.9	74.9	16	170	D	3
	15-Sep	03:31	-3.6	78.5	7	166	C	3
	16-Sep	02:58	-4.4	74.9	15	147	C	2
	18-Sep	02:36	-5.6	77.3	11	179	E	3
	19-Sep	04:01	-3.0	67.6	2	71	E	3
3825	13-Sep	03:59	-16.1	15.3	4	297	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
	15-Sep	03:31	-15.7	12.9	20	581	E	3
	16-Sep	02:58	-16.3	12.1	22	237	E	2
	18-Sep	02:36	-17.3	16.5	15	176	E	3
	19-Sep	04:01	-15.2	17.3	17	205	E	3
3826	15-Sep	03:31	-26.6	77.2	2	36	D	3
	16-Sep	02:58	-28.1	77.2	2	18	B	2
3827	16-Sep	02:58	-26.2	336.4	1	310	J	2
	18-Sep	02:36	-26.4	332.2	1	50	C	3
	19-Sep	04:01	-25.7	333.6	4	67	C	3
3828	18-Sep	02:36	-14.4	319.6	2	99	C	3
	19-Sep	04:01	-12.6	322.2	9	252	C	3
3829	16-Sep	02:58	14.5	68.6	5	16	B	2
	18-Sep	02:36	12.9	64.7	3	14	B	3
3830	18-Sep	02:36	15.6	73.9	1	3	A	3
3848	13-Oct	02:50	15.2	113.0	8	694	D	3
	14-Oct	02:59	14.6	113.4	2	471	C	2
3849	13-Oct	02:50	-3.5	90.7	13	271	D	3
	14-Oct	02:59	-4.6	89.8	4	119	J	2
	15-Oct	02:58	-4.0	92.4	4	144	J	4
3850	13-Oct	02:50	-8.3	94.8	2	70	J	3
	14-Oct	02:59	-9.0	94.9	2	64	J	2
	15-Oct	02:58	-8.2	96.5	1	56	J	4
3852	13-Oct	02:50	-10.9	47.4	14	428	D	3
	14-Oct	02:59	-12.3	46.9	17	423	D	2
	15-Oct	02:58	-10.0	46.1	12	515	E	4
	17-Oct	02:23	-11.2	47.6	6	489	C	4
	18-Oct	02:20	-12.5	50.2	5	194	J	3
3854	13-Oct	02:50	-4.4	41.6	24	423	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
	14-Oct	02:59	-3.8	42.1	13	374	D	2
	15-Oct	02:58	-4.1	41.8	13	366	E	4
	17-Oct	02:23	-3.7	41.6	16	363	E	4
	18-Oct	02:20	-6.1	44.0	5	168	E	3
3855	13-Oct	02:50	16.1	70.3	3	21	C	3
	14-Oct	02:59	16.7	69.9	4	21	C	2
	15-Oct	02:58	16.3	71.3	5	35	C	4
	17-Oct	02:23	17.6	69.8	3	32	C	4
3856	17-Oct	02:23	10.3	4.2	15	262	D	4
	18-Oct	02:20	9.2	5.5	8	119	D	3
3857	15-Oct	02:58	-6.7	317.3	2	201	C	4
	17-Oct	02:23	-7.5	315.1	4	115	D	4
	18-Oct	02:20	-6.2	319.4	7	51	D	3
3858	14-Oct	02:59	-17.0	326.1	2	41	C	2
	15-Oct	02:58	-14.7	323.4	2	30	C	4
	17-Oct	02:23	-14.6	324.6	2	6	B	4
	18-Oct	02:20	-15.3	324.1	1	5	J	3
3859	17-Oct	02:23	-11.0	344.9	7	78	D	4
	18-Oct	02:20	-12.0	344.8	13	173	D	3
3860	17-Oct	02:23	-4.9	328.4	2	10	D	4
	18-Oct	02:20	-7.3	330.9	8	50	J	3
3901	29-Nov	03:18	-6.6	224.6	1	36	J	3
3902	29-Nov	03:18	-15.5	180.8	2	91	J	3
3905	29-Nov	03:18	-8.4	162.0	12	222	E	3
3906	29-Nov	03:18	-14.2	155.2	27	617	E	3
3907	29-Nov	03:18	-21.7	203.7	2	30	B	3
3908	29-Nov	03:18	13.2	144.5	2	10	B	3
3910	29-Nov	03:18	16.3	107.9	3	288	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-Dec	02:54	13.8	101.9	1	65	J	1
3911	29-Nov	03:18	-14.8	215.3	3	130	C	3
3912	6-Dec	02:54	-9.2	75.5	17	46	C	1
3913	6-Dec	02:54	-10.6	91.2	3	4	B	1
3915	6-Dec	02:54	9.8	35.5	3	11	B	1
3916	6-Dec	02:54	-16.7	18.5	7	36	D	1
3917	6-Dec	02:54	-7.8	6.5	10	89	D	1
3918	6-Dec	02:54	9.7	104.7	2	15	J	1

2024年太陽黑子每日相對數表
Daily Relative Sunspot Numbers of 2024

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		73						246				
2	55						182	222	439			
3									149			
4			95				123					
5	119						126	163				
6	134				176				224			113
7					171			205				
8			102				110		146			
9					133			275				
10					146							
11	168							199				
12	173		66		157		131	181				
13	182					134			101	124		
14										114		
15		144			159		181		81	109		
16					163				118			
17		66					257			135		
18	115						261		93	117		
19	105	62			150	130			72			
20		27					191					
21			123			125	191	166				
22			179				121					
23												
24												
25												
26						129						
27						140						
28												
29	50	115					207				132	
30		—				177						
31		—		—		—	233	143	—		—	

黑子總數：10624

觀測天數：72

年平均數：147.6

1948年至2024年之每月太陽黑子相對數及平均值
 Monthly and Smooth Relative Sunspot Numbers since 1948 to 2024

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2024年之每月太陽黑子相對數及平均值
 Monthly and Smooth Relative Sunspot Numbers since 1948 to 2024

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2024年之每月太陽黑子相對數及平均值
 Monthly and Smooth Relative Sunspot Numbers since 1948 to 2024

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2024年之每月太陽黑子相對數及平均值
Monthly and Smooth Relative Sunspot Numbers since 1948 to 2024

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
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	107.9	107.3	106.2	102.2	100.4	103.3
2024	Wolf	122.3	81.2	113.0	0.0	156.9	139.2	178.0	200.0	158.1	119.8	132.0	113.0
	Smooth	106.2	113.0	118.3	121.4	125.3	126.5						

註：

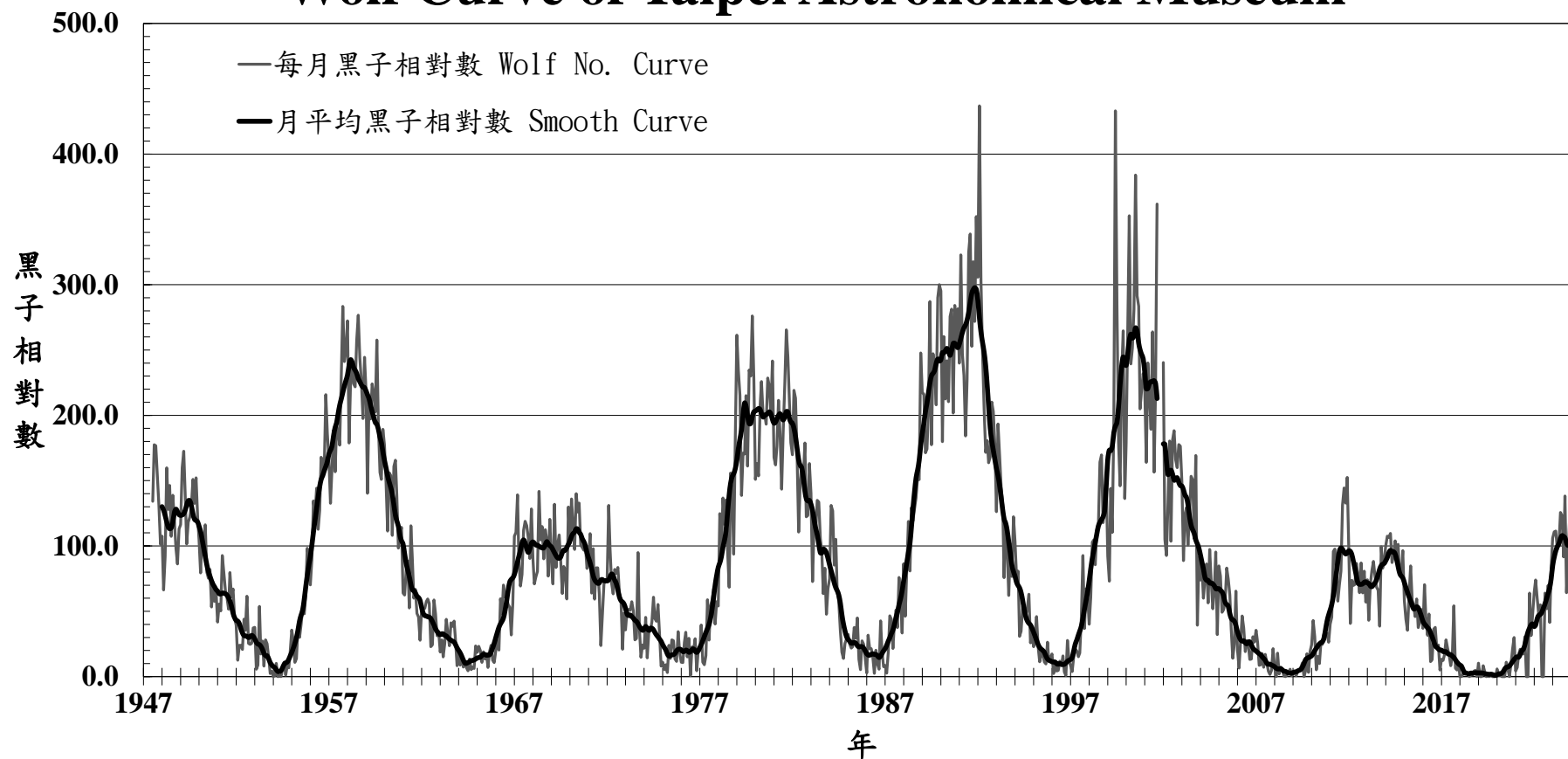
* 2001年9月中旬至12月底，因望遠鏡故障，無法觀測。故暫時設定2001年9月之相對數月平均值資料以現有的觀測資料計算，逢2001年10月~12月者則跳過不計這三個月份。總計有2001年4月~2002年6月的月平滑值會受到影響。

* 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。

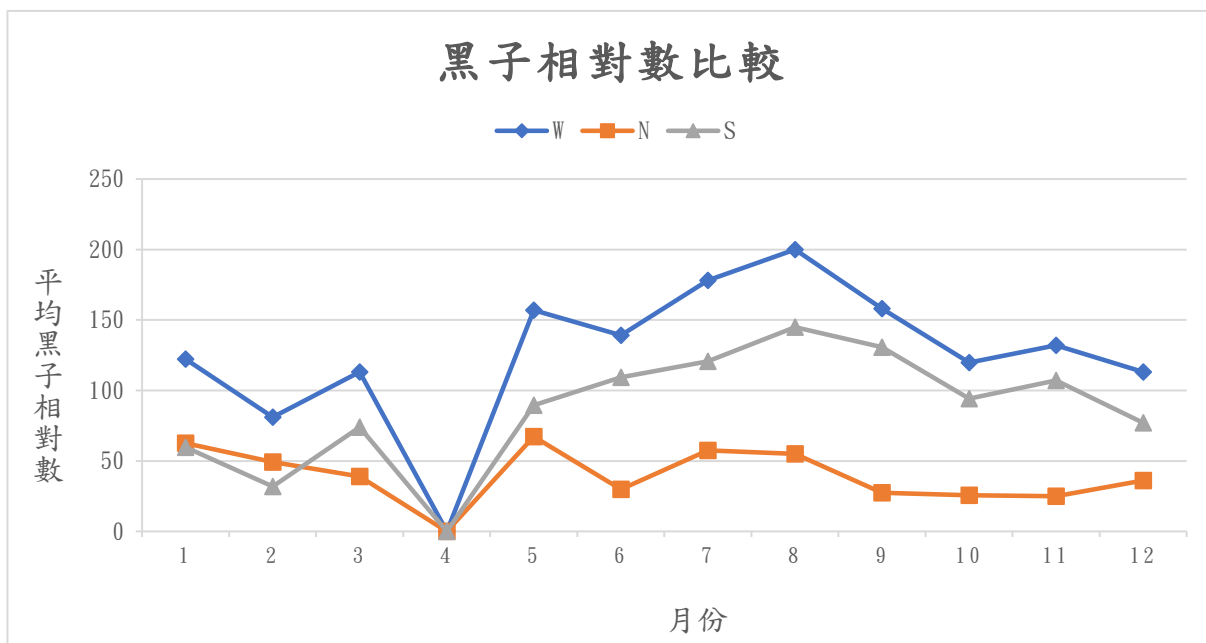
* 2022年9月8~25日，樓頂平臺施工；11月19日~12月14日圓頂無法轉動；12月17~19日第二觀測室斷電，以上因素皆導致無法觀測，影響觀測天數及黑子觀測值。

臺北市立天文科學教育館太陽黑子相對數變化圖

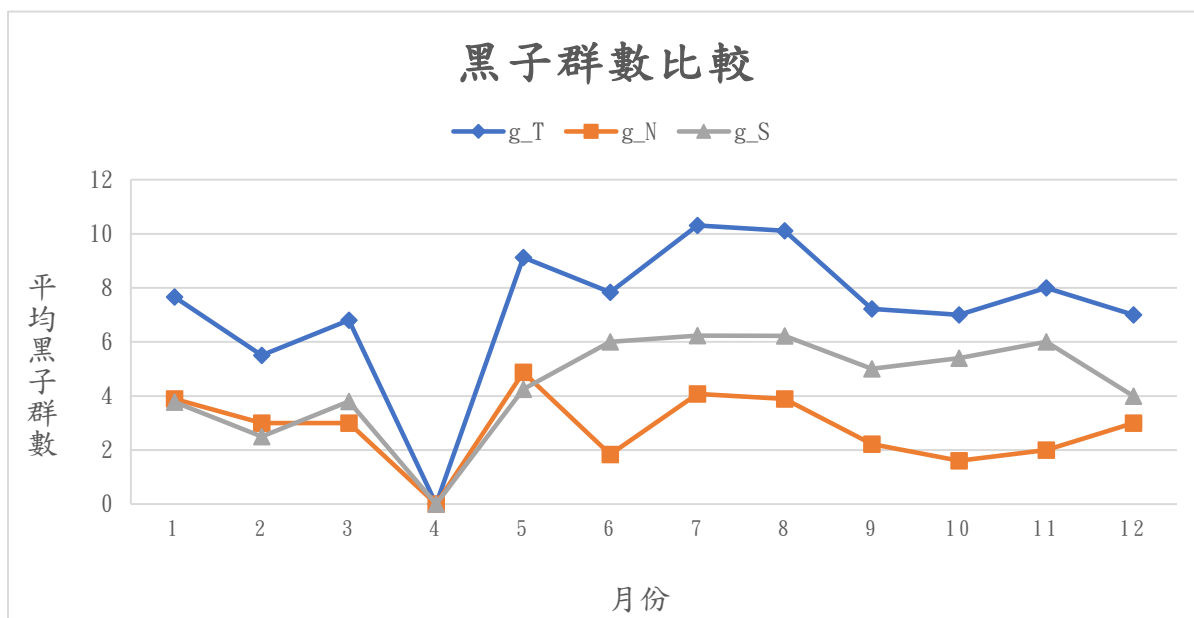
Wolf Curve of Taipei Astronomical Museum



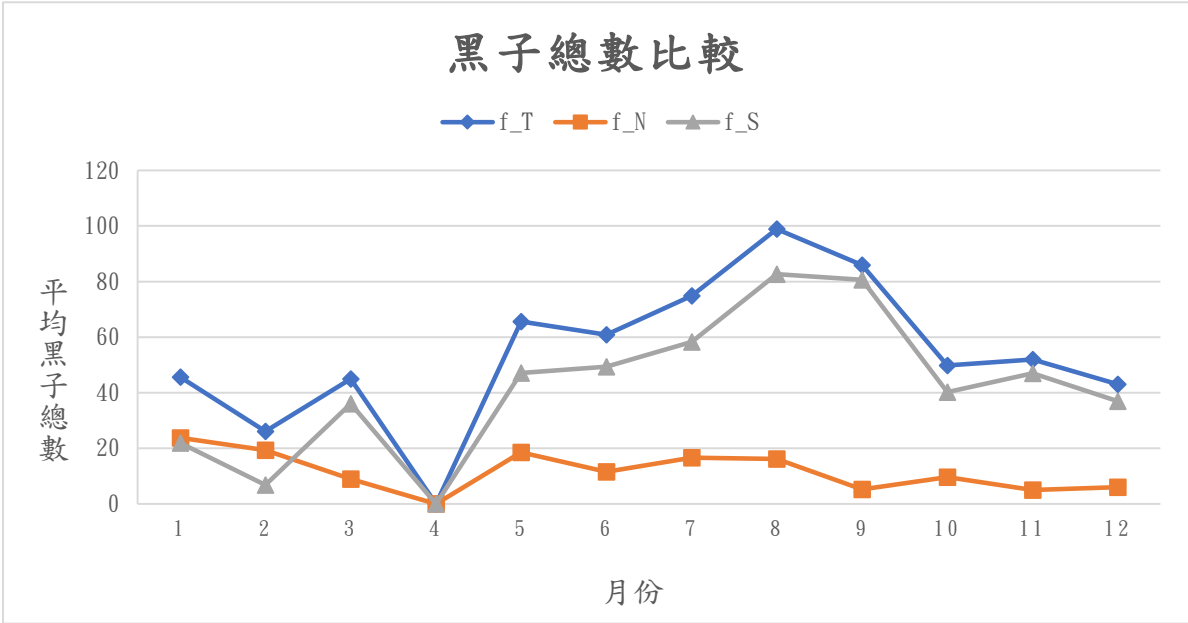
本圖為臺北天文館自1947年7月至2024年12月的每月黑子相對數（灰色細線）與月平均黑子相對數（黑色粗線）曲線圖。兩曲線均尚未做K值的修正。



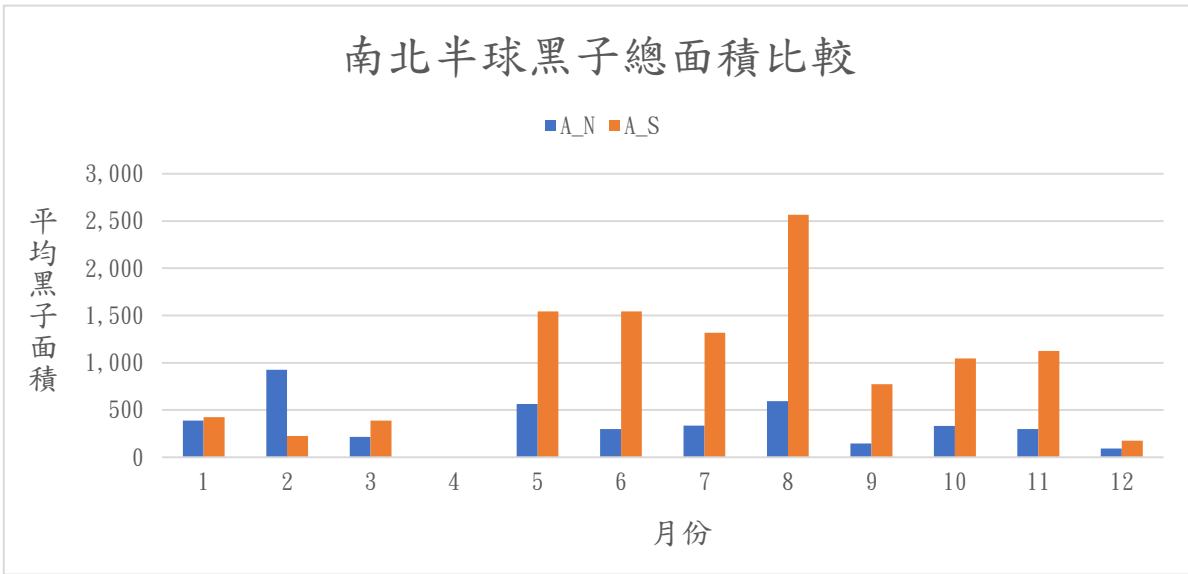
本圖為2024年各月的平均黑子相對數變化圖，其中W代表整個太陽可見半球面的黑子相對數，N與S則分別代表可見半球面中之北半球與南半球的黑子相對數。



本圖為2024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2024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2024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 113 年

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編輯：臺北市立天文科學教育館研究組

創刊日期：中華民國 78 年

出版日期：中華民國 114 年

刊期頻率：年報

電子全文：臺北市立天文科學教育館網站 <https://tam.gov.taipei/>

著作財產權人：臺北市立天文科學教育館

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GPN: 4711400030

ISSN: 1727-0030