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太 陽 黑 子 觀 測 報 告  
中 華 民 國 101 年

**Report on Sunspot Observations**  
**2012**

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101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101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**  
**2012**

**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., 2012. 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. 2012

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																		None
3																		Cloud
4																		Rain
5																		Rain
6																		Rain
7																		None
8																		Rain
9																		None
10	03:30	3	39	1	29	3	39	0	0	69	39	69	0	3566	0	0	3	
11																		Cloud
12																		Cloud
13																		Cloud
14	07:40	7	40	3	15	4	28	3	12	110	45	68	42	181	99	0	3	
15																		Cloud
16																		Rain
17	02:25	9	43	1	8	6	30	3	13	133	18	90	43	3694	166	1	4	
18	03:52	7	38	1	9	4	24	3	14	108	19	64	44	2546	546	1	3	
19	03:24	8	40	3	16	5	30	3	10	120	46	80	40	871	62	2	4	
20	07:31	6	46	4	31	4	43	2	3	106	71	83	23	725	8	2	3	
21																		Rain
22																		Rain
23																		Rain
24																		Rain
25																		Cloud
26																		Rain
27																		None
28	06:50	3	8	1	1	3	8	0	0	38	11	38	0	360	0	0	4	
29																		Cloud
30																		None
31																		Cloud
Mean No.		6.14	36.29	2.00	15.57	4.14	28.86	2.00	7.43	97.71	35.57	70.29	27.43	1706.21	125.93	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  
 Feb. 2012

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	03:42	3	23	2	18	2	18	1	5	53	38	38	15	126	24	1	3	
3																		Rain
4	05:48	2	17	0	0	2	17	0	0	37	0	37	0	448	0	0	4	
5																		None
6	01:30	3	11	0	0	2	7	1	4	41	0	27	14	1597	4	1	4	
7																		Rain
8																		Rain
9																		Rain
10																		Cloud
11	03:12	2	20	1	18	1	2	1	18	40	28	12	28	37	336	1	3	
12	02:27	2	10	1	7	1	3	1	7	30	17	13	17	35	468	0	4	
13	02:24	4	21	2	18	2	3	2	18	61	38	23	38	221	267	1	2	
14																		Cloud
15	07:32	3	12	0	0	2	3	1	9	42	0	23	19	154	321	0	3	
16																		Cloud
17																		Cloud
18																		Cloud
19																		Cloud
20	07:53	3	11	2	10	3	11	0	0	41	30	41	0	337	0	0	4	
21																		None
22	02:26	4	11	1	8	4	11	0	0	51	18	51	0	425	0	2	4	
23																		Rain
24																		Rain
25																		Rain
26																		Rain
27																		Rain
28																		Rain
29	06:14	1	1	1	1	1	1	0	0	11	11	11	0	88	0	0	4	
Mean No.		2.70	13.70	1.00	8.00	2.00	7.60	0.70	6.10	40.70	18.00	27.60	13.10	346.73	142.02	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  
 Mar. 2012

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	01:50	2	4	2	4	2	4	0	0	24	24	24	0	127	0	0	3	
2	03:08	2	10	1	9	2	10	0	0	30	19	30	0	189	0	0	2	
3	01:28	4	9	1	4	3	8	1	1	49	14	38	11	791	37	0	3	
4																		None
5	02:01	5	21	0	0	3	11	2	10	71	0	41	30	1087	241	2	3	
6	02:13	5	49	1	24	3	17	2	32	99	34	47	52	1209	354	1	3	
7																		Cloud
8																		Rain
9																		Cloud
10																		Rain
11																		Rain
12																		Rain
13																		Rain
14																		Rain
15	02:12	6	53	4	49	4	44	2	9	113	89	84	29	669	161	0	4	
16	02:47	4	51	4	51	2	38	2	13	91	91	58	33	244	90	0	3	
17	01:52	5	46	3	37	2	26	3	20	96	67	46	50	109	69	1	3	
18	01:44	4	25	1	4	1	4	3	21	65	14	14	51	57	196	1	2	
19																		Cloud
20																		Cloud
21																		None
22																		Cloud
23	01:22	5	14	0	0	2	5	3	9	64	0	25	39	110	80	3	3	
24																		Cloud
25																		None
26																		None
27	01:57	4	27	3	20	2	19	2	8	67	50	39	28	80	423	1	4	
28	02:19	4	28	3	21	2	15	2	13	68	51	35	33	76	417	1	3	
29	06:55	4	39	1	17	1	12	3	27	79	27	22	57	78	288	1	3	
30	01:35	7	45	2	19	2	18	5	27	115	39	38	77	97	213	1	4	
31																		Cloud
Mean No.		4.36	30.07	1.86	18.50	2.21	16.50	2.14	13.57	73.64	37.07	38.64	35.00	351.55	183.44	Obs. Days: 14		

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. 2012

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	07:30	3	7	0	0	1	4	2	3	37	0	14	23	30	127	0	2	
2	07:35	5	29	2	21	2	19	3	10	79	41	39	40	115	216	0	3	
3																		None
4																		Cloud
5																		Rain
6																		Cloud
7																		Cloud
8																		None
9																		Rain
10	02:10	2	5	1	3	1	3	1	2	25	13	13	12	15	28	0	3	
11																		None
12	01:53	3	21	2	19	1	18	2	3	51	39	28	23	55	26	1	4	
13	02:22	2	11	1	10	1	10	1	1	31	20	20	11	92	14	1	2	
14																		Cloud
15																		Rain
16																		Cloud
17																		Cloud
18																		Cloud
19																		None
20	03:20	6	73	3	48	3	18	3	55	133	78	48	85	377	617	1	3	
21																		Cloud
22																		Cloud
23	01:05	5	70	2	47	2	19	3	51	120	67	39	81	363	1505	0	3	
24																		Cloud
25																		Rain
26																		Rain
27																		Rain
28																		Cloud
29																		None
30	01:15	4	42	1	28	1	4	3	38	82	38	14	68	157	645	1	4	
Mean No.		3.75	32.25	1.50	22.00	1.50	11.88	2.25	20.38	69.75	37.00	26.88	42.88	150.48	397.21	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 2012

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																		Rain
4																		Cloud
5																		None
6	03:47	5	19	1	1	3	6	2	13	69	11	36	33	966	267	3	3	
7	03:48	5	38	2	4	3	25	2	13	88	24	55	33	1330	358	1	4	
8	02:59	2	14	0	0	1	12	1	2	34	0	22	12	1029	96	0	3	
9																		Rain
10																		Rain
11																		Cloud
12																		Cloud
13																		None
14																		None
15	03:55	8	35	3	6	4	26	4	9	115	36	66	49	756	199	2	2	
16																		Rain
17																		Cloud
18	01:40	6	71	3	66	4	68	2	3	131	96	108	23	746	126	1	4	
19																		Rain
20																		Rain
21																		None
22																		None
23	03:02	3	11	1	1	3	11	0	0	41	11	41	0	731	0	0	3	
24	02:20	4	14	1	6	2	11	2	3	54	16	31	23	326	84	1	3	
25	02:28	4	18	2	9	3	14	1	4	58	29	44	14	670	75	1	3	
26	03:33	4	17	1	6	2	10	2	7	57	16	30	27	231	246	0	4	
27																		Cloud
28																		Cloud
29	03:01	4	18	1	8	2	5	2	13	58	18	25	33	135	300	0	4	
30																		Cloud
31																		Cloud
Mean No.		4.50	25.50	1.50	10.70	2.70	18.80	1.80	6.70	70.50	25.70	45.80	24.70	691.85	175.11	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  
 Jun. 2012

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	07:55	6	21	2	10	2	6	4	15	81	30	26	55	1459	151	0	2	
2																		Cloud
3																		None
4																		Rain
5	02:15	10	72	7	66	7	51	3	21	172	136	121	51	348	279	4	4	
6	07:18	7	62	5	59	5	49	2	13	132	109	99	33	225	403	2	3	
7	02:40	5	37	4	33	3	28	2	9	87	73	58	29	385	370	0	3	
8																		None
9																		None
10																		None
11																		Rain
12																		Cloud
13	02:44	4	53	2	25	1	4	3	49	93	45	14	79	147	354	0	2	
14																		Cloud
15	01:30	5	70	4	36	1	7	4	63	120	76	17	103	79	925	0	3	
16																		Cloud
17																		None
18																		Rain
19																		Rain
20																		Rain
21																		Cloud
22																		Cloud
23	06:50	1	2	1	2	1	2	0	0	12	12	12	0	12	0	0	2	
24																		None
25																		Cloud
26	01:52	1	10	0	0	0	0	1	10	20	0	0	20	0	135	0	3	
27	01:54	3	23	1	20	1	1	2	22	53	30	11	42	94	332	0	4	
28	01:10	4	43	1	26	1	6	3	37	83	36	16	67	2230	2143	1	4	
29	02:36	4	60	1	24	1	13	3	47	100	34	23	77	112	829	1	3	
30																		Cloud
Mean No.		4.55	41.18	2.55	27.36	2.09	15.18	2.45	26.00	86.64	52.82	36.09	50.55	462.86	538.23	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  
 Jul. 2012

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	02:40	6	72	5	71	3	29	3	43	132	121	59	73	317	1847	1	3	
4	06:40	5	66	3	62	2	22	3	44	116	92	42	74	351	895	1	3	
5	01:55	5	57	1	6	3	15	2	42	107	16	45	62	372	948	1	3	
6																		Cloud
7																		None
8	05:48	5	54	1	8	2	9	3	45	104	18	29	75	580	2415	0	4	
9																		None
10	01:50	4	47	2	7	1	1	3	46	87	27	11	76	32	1881	1	3	
11	02:48	4	64	4	64	1	3	3	61	104	104	13	91	12	1309	1	3	
12	02:20	3	41	3	41	0	0	3	41	71	71	0	71	0	1498	0	3	
13	02:10	5	33	2	18	1	3	4	30	83	38	13	70	59	1888	1	3	
14	03:30	5	50	1	28	1	4	4	46	100	38	14	86	28	1496	0	3	
15																		Cloud
16	01:21	4	26	0	0	1	4	3	22	66	0	14	52	131	1426	0	2	
17	07:10	5	21	0	0	1	3	4	18	71	0	13	58	150	766	0	4	
18																		None
19	02:21	3	6	0	0	0	0	3	6	36	0	0	36	0	203	0	2	
20	01:55	3	9	0	0	0	0	3	9	39	0	0	39	0	155	0	4	
21	02:00	2	9	2	9	0	0	2	9	29	29	0	29	0	99	1	4	
22	06:57	2	6	1	5	0	0	2	6	26	15	0	26	0	39	1	3	
23																		Cloud
24	01:50	6	16	0	0	2	2	4	14	76	0	22	54	116	580	2	3	
25	02:35	6	17	1	5	2	4	4	13	77	15	24	53	102	338	2	3	
26																		Cloud
27	01:43	6	30	2	12	2	13	4	17	90	32	33	57	119	406	0	5	
28																		None
29	02:20	5	31	3	8	1	2	4	29	81	38	12	69	48	749	1	4	
30																		Rain
31																		Rain
Mean No.		4.42	34.47	1.63	18.11	1.21	6.00	3.21	28.47	78.68	34.42	18.11	60.58	127.08	996.73	Obs. Days: 19		

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. 2012

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	01:50	11	39	1	14	3	16	8	23	149	24	46	103	133	1028	2	3	
5	07:25	7	32	2	11	2	11	5	21	102	31	31	71	139	481	1	4	
6																		Cloud
7																		None
8	02:28	6	21	1	1	3	4	3	17	81	11	34	47	267	585	0	3	
9																		Cloud
10																		Cloud
11																		Rain
12	01:40	7	28	2	18	2	6	5	22	98	38	26	72	229	170	3	3	
13																		Rain
14	02:00	3	13	2	10	1	7	2	6	43	30	17	26	308	43	0	4	
15	02:05	2	8	1	6	1	6	1	2	28	16	16	12	144	15	0	4	
16																		Rain
17																		None
18	07:23	3	9	1	5	3	9	0	0	39	15	39	0	453	0	0	3	
19																		None
20	06:10	3	5	1	1	2	3	1	2	35	11	23	12	95	5	1	3	
21	03:11	4	9	2	3	3	7	1	2	49	23	37	12	66	39	2	3	
22	03:05	3	10	1	1	2	9	1	1	40	11	29	11	60	20	0	3	
23																		Cloud
24																		None
25	02:21	4	10	2	6	2	6	2	4	50	26	26	24	157	112	1	3	
26	03:53	4	19	2	13	2	13	2	6	59	33	33	26	295	117	0	3	
27	05:44	4	23	2	8	2	15	2	8	63	28	35	28	213	152	0	3	
28																		Cloud
29																		Cloud
30																		Rain
31																		None
Mean No.		4.69	17.38	1.54	7.46	2.15	8.62	2.54	8.77	64.31	22.85	30.15	34.15	196.73	212.64	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  
 Sep. 2012

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	00:45	8	60	3	30	3	29	5	31	140	60	59	81			
2	01:35	8	74	4	39	3	36	5	38	154	79	66	88	175	344	1	3	
3	02:41	5	29	1	13	1	13	4	16	79	23	23	56	246	459	0	2	
4	01:55	9	79	3	18	5	31	4	48	169	48	81	88	329	227	2	3	
5	01:30	8	76	3	48	4	26	4	50	156	78	66	90	448	203	2	4	
6	07:35	5	44	2	29	3	11	2	33	94	49	41	53	263	193	0	2	
7																		None
8	02:10	4	34	1	1	2	4	2	30	74	11	24	50	161	576	1	3	
9	03:28	5	31	2	13	2	9	3	22	81	33	29	52	168	801	1	4	
10	03:48	3	9	1	1	2	8	1	1	39	11	28	11	165	83	1	3	
11																		None
12	03:25	2	6	1	1	1	1	1	5	26	11	11	15	74	247	0	4	
13																		Rain
14																		Rain
15																		Cloud
16																		Cloud
17	02:12	3	10	2	6	0	0	3	10	40	26	0	40	0	169	1	3	
18	06:16	3	14	1	10	1	1	2	13	44	20	11	33	8	111	1	3	
19																		Rain
20																		None
21	03:00	3	11	0	0	1	4	2	7	41	0	14	27	114	70	0	3	
22																		None
23																		None
24																		None
25	02:03	6	56	4	48	4	44	2	12	116	88	84	32	249	66	1	4	
26	02:10	6	39	4	28	4	29	2	10	99	68	69	30	218	258	1	3	
27																		Rain
28																		Rain
29																		Cloud
30	02:47	3	9	1	1	1	7	2	2	39	11	17	22	398	276	0	3	
Mean No.		5.06	36.31	2.06	17.88	2.31	15.81	2.75	20.50	86.94	38.50	38.94	48.00	213.46	281.06	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. 2012

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	02:58	4	11	2	2	1	5	3	6	51	22	15	36	31	579	0	4	
2	02:40	4	10	2	7	1	2	3	8	50	27	12	38	3846	239	0	3	
3	02:00	3	16	1	8	0	0	3	16	46	18	0	46	0	878	0	3	
4	02:05	3	13	0	0	0	0	3	13	43	0	0	43	0	3005	0	4	
5	02:22	3	13	0	0	0	0	3	13	43	0	0	43	0	3590	0	4	
6																		Cloud
7																		Cloud
8	01:41	3	12	1	10	0	0	3	12	42	20	0	42	0	237	0	4	
9																		Cloud
10																		Rain
11																		Cloud
12	02:33	3	10	1	1	1	8	2	2	40	11	18	22	266	121	1	3	
13	03:40	5	23	1	1	2	20	3	3	73	11	40	33	744	130	0	3	
14	02:40	5	39	2	29	3	36	2	3	89	49	66	23	319	123	0	3	
15	06:50	5	60	2	42	3	55	2	5	110	62	85	25	399	116	0	4	
16																		None
17																		Cloud
18	07:35	6	25	1	1	3	13	3	12	85	11	43	42	180	137	0	3	
19	02:40	7	43	1	1	4	23	3	20	113	11	63	50	961	229	2	3	
20																		None
21																		None
22																		None
23																		Rain
24																		None
25	06:17	3	30	1	11	1	11	2	19	60	21	21	39	423	778	0	3	
26																		None
27	07:22	3	22	1	10	1	11	2	11	52	20	21	31	260	567	0	3	
28																		Cloud
29																		Rain
30																		Rain
31																		Rain
Mean No.		4.07	23.36	1.14	8.79	1.43	13.14	2.64	10.21	64.07	20.21	27.43	36.64	530.63	766.44	Obs. Days: 14		

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. 2012

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																		Cloud
3																		Cloud
4	07:20	2	3	1	1	1	2	1	1	23	11	12	11	38	40	1	3	
5	02:40	4	8	1	2	2	6	2	2	48	12	26	22	43	62	2	2	
6	03:22	4	15	1	2	2	9	2	6	55	12	29	26	71	54	3	3	
7	01:36	4	11	1	1	2	7	2	4	51	11	27	24	32	63	1	4	
8																		Cloud
9	01:54	5	11	0	0	2	4	3	7	61	0	24	37	388	57	1	4	
10	07:32	6	12	2	2	2	4	4	8	72	22	24	48	257	197	0	2	
11																		Rain
12																		None
13																		None
14	02:10	7	60	2	19	5	37	2	23	130	39	87	43	797	473	0	3	
15	06:24	7	68	4	30	5	47	2	21	138	70	97	41	464	259	0	3	
16	06:58	7	46	4	32	5	32	2	14	116	72	82	34	399	232	0	3	
17																		Rain
18																		Rain
19																		None
20	06:27	5	63	2	58	3	60	2	3	113	78	90	23	309	247	0	3	
21																		Cloud
22																		Rain
23																		Rain
24																		Cloud
25																		Cloud
26																		Rain
27																		Rain
28																		Cloud
29																		Rain
30																		Rain
Mean No.		5.10	29.70	1.80	14.70	2.90	20.80	2.20	8.90	80.70	32.70	49.80	30.90	279.81	168.67		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  
 Dec. 2012

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	02:20	3	12	2	8	3	12	0	0	42	28	42	0	522	0	0	2	
5																		Rain
6																		Cloud
7	02:02	2	5	0	0	2	5	0	0	25	0	25	0	231	0	0	3	
8																		Rain
9																		Rain
10																		None
11																		Rain
12																		Cloud
13	01:44	4	38	3	30	4	38	0	0	78	60	78	0	209	0	0	3	
14	01:51	4	39	1	14	4	39	0	0	79	24	79	0	268	0	1	4	
15																		None
16																		None
17																		Cloud
18																		Rain
19																		Cloud
20	05:47	3	23	2	19	1	4	2	19	53	39	14	39	298	286	0	4	
21	02:23	3	33	2	26	1	7	2	26	63	46	17	46	262	259	0	4	
22																		Cloud
23																		Cloud
24																		None
25	06:36	2	29	1	26	1	26	1	3	49	36	36	13	151	111	0	3	
26																		None
27																		Cloud
28	07:45	5	17	0	0	4	12	1	5	67	0	52	15	138	61	2	3	
29																		Rain
30																		Rain
31																		Rain
Mean No.		3.25	24.50	1.38	15.38	2.50	17.88	0.75	6.63	57.00	29.13	42.88	14.13	259.68	89.67	Obs. Days: 8		

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
1391	10-Jan	03:30	9.3	11.3	29	279	D	3
	14-Jan	07:40	11.7	13.5	4	51	D	3
1393	10-Jan	03:30	16.9	55.8	7	3178	E	3
1395	10-Jan	03:30	18.0	312.4	3	108	J	3
	14-Jan	07:40	22.9	311.7	2	15	J	3
	17-Jan	02:25	9.0	293.0	3	17	J	4
1396	14-Jan	07:40	23.2	284.9	11	66	D	3
	17-Jan	02:25	22.8	285.5	12	46	D	4
	18-Jan	03:52	22.9	284.1	5	26	D	3
	19-Jan	03:24	22.7	285.1	1	10	B	4
1397	14-Jan	07:40	-19.4	274.8	8	25	D	3
	17-Jan	02:25	-22.8	310.1	4	115	C	4
	18-Jan	03:52	-23.4	307.1	3	495	C	3
1398	14-Jan	07:40	10.7	313.8	11	49	D	3
	17-Jan	02:25	11.4	320.0	1	13	C	4
1399	14-Jan	07:40	-22.6	220.4	2	58	C	3
	17-Jan	02:25	-23.6	224.3	1	17	J	4
	18-Jan	03:52	-23.9	223.7	2	15	J	3
	19-Jan	03:24	-22.8	224.5	2	10	J	4
	20-Jan	07:31	-24.7	227.7	2	3	A	3
1400	14-Jan	07:40	-13.6	294.1	2	15	C	3
1401	17-Jan	02:25	15.9	211.0	8	1753	E	4
	18-Jan	03:52	15.9	214.6	16	2113	E	3
	19-Jan	03:24	16.0	212.6	12	435	E	4
	20-Jan	07:31	19.0	211.1	17	314	E	3
1402	17-Jan	02:25	25.6	211.0	5	1814	C	4
	18-Jan	03:52	27.9	213.7	2	358	C	3
	19-Jan	03:24	27.7	214.3	9	376	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
	20-Jan	07:31	31.4	209.8	10	337	D	3
	28-Jan	06:50	32.2	190.9	6	205	D	4
1403	17-Jan	02:25	-22.3	251.0	8	35	B	4
	18-Jan	03:52	-19.8	250.0	9	37	B	3
	19-Jan	03:24	-18.8	251.5	7	21	C	4
	20-Jan	07:31	-19.5	248.9	1	5	C	3
1405	17-Jan	02:25	10.5	198.5	1	51	J	4
	18-Jan	03:52	11.4	199.2	1	49	J	3
	19-Jan	03:24	11.3	200.2	1	39	J	4
	20-Jan	07:31	11.0	197.3	5	31	J	3
1406	19-Jan	03:24	-22.7	311.6	1	31	C	4
1407	19-Jan	03:24	17.7	227.9	7	11	B	4
	20-Jan	07:31	19.0	225.4	11	43	B	3
1408	28-Jan	06:50	8.2	117.7	1	43	C	4
1410	28-Jan	06:50	16.7	45.8	1	112	J	4
	2-Feb	03:42	16.4	61.5	3	86	C	3
	4-Feb	05:48	17.0	59.6	10	357	C	4
	6-Feb	01:30	18.6	53.0	5	836	C	4
1411	2-Feb	03:42	-28.2	98.3	5	24	B	3
1413	2-Feb	03:42	8.4	62.9	15	40	C	3
	4-Feb	05:48	8.2	62.5	7	91	D	4
	6-Feb	01:30	6.2	66.8	2	760	C	4
1414	6-Feb	01:30	-21.3	42.6	4	4	B	4
1416	11-Feb	03:12	-18.5	288.4	18	336	D	3
	12-Feb	02:27	-18.2	286.4	7	468	D	4
	13-Feb	02:24	-18.7	287.0	13	248	E	2
	15-Feb	07:32	-18.0	289.7	9	321	G	3
1417	11-Feb	03:12	16.3	237.7	2	37	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
	12-Feb	02:27	15.8	237.1	3	35	C	4
1418	13-Feb	02:24	-23.4	259.6	5	19	B	2
1419	13-Feb	02:24	28.5	198.1	2	106	C	2
	15-Feb	07:32	28.5	198.1	2	26	D	3
	20-Feb	07:53	29.6	193.0	1	14	C	4
	22-Feb	02:26	28.2	181.2	1	29	A	4
1420	13-Feb	02:24	10.1	193.4	1	115	J	2
	15-Feb	07:32	10.1	195.1	1	129	J	3
	20-Feb	07:53	12.2	191.4	1	54	J	4
	22-Feb	02:26	10.4	181.7	1	65	J	4
1421	22-Feb	02:26	12.2	116.1	1	20	B	4
1422	20-Feb	07:53	16.3	173.3	9	269	D	4
	22-Feb	02:26	14.9	161.8	8	310	D	4
1423	29-Feb	06:14	17.0	55.7	1	88	J	4
	1-Mar	01:50	16.0	56.1	1	110	J	3
	2-Mar	03:08	15.0	54.5	1	149	J	2
	3-Mar	01:28	15.1	55.3	1	165	J	3
	6-Mar	02:13	14.6	51.3	1	74	J	3
1427	1-Mar	01:50	15.2	36.4	3	16	C	3
	2-Mar	03:08	12.6	34.4	9	40	C	2
	3-Mar	01:28	13.8	37.4	4	27	C	3
	5-Mar	02:01	15.8	53.5	1	108	B	3
1428	3-Mar	01:28	-18.2	314.7	1	37	C	3
	5-Mar	02:01	-18.6	317.6	7	152	D	3
	6-Mar	02:13	-17.3	319.8	24	286	D	3
1429	3-Mar	01:28	16.5	299.2	3	599	D	3
	5-Mar	02:01	16.2	299.0	7	896	D	3
	6-Mar	02:13	15.8	300.0	6	1032	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-Mar	02:12	16.5	298.8	2	256	E	4
1430	5-Mar	02:01	18.0	316.7	3	83	C	3
	6-Mar	02:13	18.4	315.7	10	102	D	3
	15-Mar	02:12	17.6	296.8	2	177	J	4
1431	5-Mar	02:01	-30.0	15.7	3	89	B	3
	6-Mar	02:13	-28.9	18.7	8	68	B	3
1432	15-Mar	02:12	10.2	220.4	28	101	D	4
	16-Mar	02:47	11.7	220.2	19	72	E	3
	17-Mar	01:52	14.6	222.5	6	25	E	3
1433	15-Mar	02:12	11.9	200.1	12	135	C	4
	16-Mar	02:47	12.9	199.5	19	171	C	3
	17-Mar	01:52	11.2	200.8	20	84	D	3
	18-Mar	01:44	8.5	198.1	4	57	D	2
1434	15-Mar	02:12	-23.1	212.0	1	24	J	4
	16-Mar	02:47	-16.7	208.8	5	59	C	3
	17-Mar	01:52	-25.5	200.6	9	6	E	3
	18-Mar	01:44	-20.8	211.1	9	25	E	2
1435	15-Mar	02:12	-26.3	221.7	8	136	C	4
	16-Mar	02:47	-24.6	219.7	8	30	C	3
	17-Mar	01:52	-25.3	219.4	8	43	D	3
	18-Mar	01:44	-25.9	218.7	11	155	D	2
1436	17-Mar	01:52	-34.0	169.8	3	20	A	3
	18-Mar	01:44	-13.4	136.5	1	16	A	2
1438	23-Mar	01:22	-14.7	73.8	3	40	J	3
	27-Mar	01:57	-15.0	74.4	1	35	J	4
	28-Mar	02:19	-15.2	73.4	6	42	C	3
	29-Mar	06:55	-14.0	74.9	8	34	D	3
	30-Mar	01:35	-14.5	76.8	2	16	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
1440	23-Mar	01:22	-25.6	156.1	5	26	D	3
1441	23-Mar	01:22	-28.2	176.4	1	14	A	3
1442	23-Mar	01:22	19.1	65.3	4	67	A	3
	29-Mar	06:55	12.9	66.1	12	78	D	3
	30-Mar	01:35	11.4	64.6	15	88	D	4
1443	23-Mar	01:22	15.2	50.7	1	43	A	3
	27-Mar	01:57	10.5	64.8	11	46	A	4
	28-Mar	02:19	11.1	52.7	3	16	A	3
	30-Mar	01:35	12.1	53.5	3	9	C	4
1444	27-Mar	01:57	13.4	52.7	8	34	C	4
	28-Mar	02:19	11.4	63.9	12	60	C	3
1445	27-Mar	01:57	-23.0	32.6	7	387	E	4
	28-Mar	02:19	-25.0	23.1	7	375	E	3
	29-Mar	06:55	-22.3	31.7	17	212	G	3
	30-Mar	01:35	-22.6	31.8	12	105	G	4
	1-Apr	07:30	-21.1	30.6	1	99	C	2
	2-Apr	07:35	-22.4	29.8	3	158	J	3
1447	30-Mar	01:35	-25.1	102.4	1	22	A	4
1448	29-Mar	06:55	-17.5	344.6	2	41	A	3
	30-Mar	01:35	-18.3	343.7	5	43	D	4
1449	30-Mar	01:35	-18.7	42.6	7	27	D	4
	1-Apr	07:30	-17.6	42.9	2	28	C	2
	2-Apr	07:35	-18.8	42.9	2	41	D	3
1450	1-Apr	07:30	16.3	323.9	4	30	C	2
	2-Apr	07:35	15.1	323.7	16	70	C	3
1452	2-Apr	07:35	17.5	286.2	3	44	D	3
1453	2-Apr	07:35	-17.4	330.2	5	16	C	3
1454	10-Apr	02:10	-13.1	172.6	2	28	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
	12-Apr	01:53	-13.5	161.0	2	16	C	4
	13-Apr	02:22	-13.4	161.4	1	14	A	2
1455	10-Apr	02:10	6.6	219.1	3	15	C	3
	12-Apr	01:53	4.0	206.5	18	55	C	4
	13-Apr	02:22	5.5	206.7	10	92	D	2
1456	12-Apr	01:53	-20.0	220.1	1	10	B	4
1459	20-Apr	03:20	-15.3	94.9	33	168	D	3
	23-Apr	01:05	-15.4	93.3	27	534	D	3
1460	20-Apr	03:20	14.3	109.6	13	341	D	3
	23-Apr	01:05	15.0	108.9	8	278	D	3
1461	20-Apr	03:20	11.8	71.4	3	25	C	3
1462	20-Apr	03:20	-24.3	141.1	12	352	D	3
	23-Apr	01:05	-24.4	136.7	4	628	D	3
1463	20-Apr	03:20	-25.7	161.1	10	97	C	3
	30-Apr	01:15	-22.1	335.2	28	112	D	4
1464	20-Apr	03:20	21.9	108.8	2	11	B	3
1465	23-Apr	01:05	-17.2	55.5	20	343	D	3
1466	23-Apr	01:05	12.2	42.5	11	85	C	3
	30-Apr	01:15	11.7	42.6	4	157	D	4
1470	6-May	03:47	-16.2	283.8	6	38	B	3
	7-May	03:48	-17.6	281.6	5	182	C	4
1471	30-Apr	01:15	-23.0	280.0	4	474	C	4
	6-May	03:47	-21.1	280.0	7	230	D	3
	7-May	03:48	-21.7	277.7	8	175	D	4
	8-May	02:59	-21.9	280.3	2	96	D	3
1472	30-Apr	01:15	-28.0	296.0	6	59	B	4
1474	6-May	03:47	12.8	231.2	1	16	A	3
	7-May	03:48	12.9	229.7	3	14	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
1475	6-May	03:47	4.4	223.1	1	15	A	3
	7-May	03:48	4.5	221.7	1	5	A	4
1476	6-May	03:47	9.6	189.0	4	935	D	3
	7-May	03:48	11.3	184.2	21	1311	F	4
	8-May	02:59	10.2	186.4	12	1029	F	3
	15-May	03:55	9.8	187.1	14	442	G	2
1477	15-May	03:55	-23.0	144.1	2	12	J	2
	18-May	01:40	-23.8	133.1	2	120	J	4
1478	15-May	03:55	-23.9	135.3	1	94	J	2
1479	15-May	03:55	13.5	112.3	3	96	J	2
	18-May	01:40	13.1	111.0	4	94	J	4
1481	15-May	03:55	-10.6	92.4	1	47	J	2
1482	15-May	03:55	13.4	104.4	5	112	C	2
	18-May	01:40	13.5	102.8	36	253	D	4
	23-May	03:02	13.9	105.1	1	293	D	3
1483	15-May	03:55	-26.6	99.6	5	46	B	2
	24-May	02:20	-26.1	95.8	1	53	C	3
1484	15-May	03:55	10.0	73.7	4	106	B	2
	18-May	01:40	9.5	73.4	26	220	D	4
	23-May	03:02	9.1	72.3	9	244	E	3
	24-May	02:20	10.0	71.7	5	162	E	3
	25-May	02:28	9.9	72.2	5	414	D	3
1485	18-May	01:40	-24.5	70.8	1	7	B	4
1486	18-May	01:40	15.4	20.7	2	179	D	4
	23-May	03:02	14.7	19.6	1	194	J	3
	24-May	02:20	15.4	19.4	6	164	C	3
	25-May	02:28	16.3	19.9	5	219	D	3
	26-May	03:33	17.8	19.2	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
	29-May	03:01	17.0	19.8	1	105	J	4
1488	24-May	02:20	-13.1	305.5	2	31	B	3
	25-May	02:28	10.1	339.6	4	37	B	3
	26-May	03:33	10.4	336.5	6	32	D	4
	29-May	03:01	10.3	342.8	4	29	C	4
1490	25-May	02:28	-13.0	306.3	4	75	C	3
	26-May	03:33	-12.6	309.7	4	27	D	4
	29-May	03:01	-14.2	310.5	8	171	D	4
	1-Jun	07:55	-12.5	310.1	3	53	D	2
1492	26-May	03:33	-13.5	282.5	3	219	C	4
	29-May	03:01	-14.5	281.5	5	129	G	4
	1-Jun	07:55	-12.7	280.7	5	21	G	2
	5-Jun	02:15	8.9	252.7	3	24	A	4
	6-Jun	07:18	-13.3	270.9	1	304	A	3
1493	1-Jun	07:55	14.1	204.6	5	527	D	2
	5-Jun	02:15	14.0	215.7	6	125	E	4
	6-Jun	07:18	14.1	209.1	13	78	E	3
	7-Jun	02:40	12.6	211.1	10	268	E	3
1494	1-Jun	07:55	-22.3	223.5	2	53	C	2
	5-Jun	02:15	-16.9	201.6	9	119	C	4
	6-Jun	07:18	-17.8	196.7	12	99	C	3
	7-Jun	02:40	-16.9	199.5	5	165	C	3
1495	1-Jun	07:55	-13.6	253.3	5	24	C	2
	5-Jun	02:15	10.0	244.0	4	18	A	4
1496	5-Jun	02:15	14.9	200.8	8	42	C	4
	6-Jun	07:18	16.4	190.4	10	53	C	3
	7-Jun	02:40	14.2	182.3	3	33	J	3
1497	5-Jun	02:15	-21.9	225.4	11	152	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
	7-Jun	02:40	-21.3	223.8	4	206	D	3
1498	1-Jun	07:55	7.0	188.8	1	931	C	2
	5-Jun	02:15	7.1	191.8	10	35	J	4
	6-Jun	07:18	10.0	189.7	11	33	D	3
	7-Jun	02:40	8.7	189.1	15	84	C	3
1499	5-Jun	02:15	14.1	185.2	2	18	C	4
	6-Jun	07:18	14.5	180.4	13	43	E	3
1501	5-Jun	02:15	12.1	208.3	18	86	A	4
1502	5-Jun	02:15	-18.3	180.3	1	8	B	4
	6-Jun	07:18	8.3	248.3	2	19	A	3
1504	13-Jun	02:44	-17.6	86.8	24	211	E	2
	15-Jun	01:30	-17.0	85.2	21	469	E	3
1505	13-Jun	02:44	-10.5	88.7	10	59	D	2
	15-Jun	01:30	-10.1	88.2	7	144	D	3
1506	13-Jun	02:44	9.2	75.5	4	147	J	2
	15-Jun	01:30	9.5	78.3	7	79	C	3
1507	13-Jun	02:44	-26.9	112.1	15	84	E	2
	15-Jun	01:30	-15.7	103.3	1	5	D	3
1508	15-Jun	01:30	-27.1	108.7	34	307	D	3
1511	23-Jun	06:50	14.8	359.8	2	12	C	2
1512	26-Jun	01:52	-16.7	261.7	10	135	D	3
	27-Jun	01:54	-16.9	264.5	20	203	D	4
	28-Jun	01:10	-18.5	264.9	26	285	D	4
	29-Jun	02:36	-15.4	262.4	24	331	D	3
	3-Jul	02:40	-13.9	266.8	1	998	C	3
	4-Jul	06:40	-15.2	265.5	1	156	J	3
1513	27-Jun	01:54	14.4	217.3	1	94	C	4
	28-Jun	01:10	15.1	217.1	6	2230	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
	29-Jun	02:36	14.6	214.3	13	112	D	3
	3-Jul	02:40	13.5	219.4	10	174	D	3
	4-Jul	06:40	15.6	219.2	13	277	D	3
	5-Jul	01:55	15.2	220.5	7	239	C	3
1514	28-Jun	01:10	-19.2	211.1	7	42	B	4
	29-Jun	02:36	-15.9	221.2	13	80	B	3
	3-Jul	02:40	-18.2	206.5	2	6	A	3
	4-Jul	06:40	-15.3	219.0	3	12	A	3
1515	27-Jun	01:54	-16.7	219.3	2	128	C	4
	28-Jun	01:10	-18.1	205.9	4	1816	C	4
	29-Jun	02:36	-19.0	202.3	10	419	D	3
	3-Jul	02:40	-19.8	201.3	40	844	E	3
	4-Jul	06:40	-16.8	206.5	40	728	E	3
	5-Jul	01:55	-17.4	207.5	41	836	F	3
	8-Jul	05:48	-16.8	209.8	13	682	F	4
1516	3-Jul	02:40	11.3	204.6	4	16	C	3
1517	3-Jul	02:40	16.5	194.9	15	127	D	3
	4-Jul	06:40	18.4	195.6	9	74	D	3
	5-Jul	01:55	18.1	196.4	6	70	D	3
	8-Jul	05:48	16.0	225.3	1	543	C	4
1518	5-Jul	01:55	8.5	118.9	2	63	A	3
	8-Jul	05:48	9.5	115.6	8	37	C	4
	10-Jul	01:50	8.1	115.8	1	32	B	3
	11-Jul	02:48	8.7	115.8	3	12	B	3
1519	5-Jul	01:55	-16.6	108.3	1	112	J	3
	8-Jul	05:48	-15.4	104.7	5	122	J	4
	10-Jul	01:50	-15.9	108.4	6	78	C	3
	11-Jul	02:48	-15.5	108.4	2	69	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
	12-Jul	02:20	-15.5	107.7	1	70	J	3
	13-Jul	02:10	-15.9	108.3	1	37	J	3
	14-Jul	03:30	-16.1	107.2	1	66	J	3
1520	8-Jul	05:48	-17.7	81.2	27	1611	F	4
	10-Jul	01:50	-18.0	83.5	22	1607	F	3
	11-Jul	02:48	-16.7	85.5	37	979	F	3
	12-Jul	02:20	-16.9	83.2	28	1152	F	3
	13-Jul	02:10	-17.9	82.5	15	1444	F	3
	14-Jul	03:30	-16.7	81.4	28	941	F	3
	16-Jul	01:21	-16.0	81.4	13	957	F	2
	17-Jul	07:10	-17.3	81.3	8	572	F	4
1521	10-Jul	01:50	-21.1	97.2	18	196	D	3
	11-Jul	02:48	-21.4	99.3	22	261	D	3
	12-Jul	02:20	-21.1	97.0	12	276	G	3
	13-Jul	02:10	-20.3	97.5	10	376	C	3
	14-Jul	03:30	-21.5	98.6	12	453	E	3
	16-Jul	01:21	-19.6	99.0	7	446	E	2
1522	13-Jul	02:10	12.0	97.9	3	59	C	3
	14-Jul	03:30	10.8	100.1	4	28	D	3
	16-Jul	01:21	12.0	101.0	4	131	D	2
	17-Jul	07:10	12.5	100.9	3	150	D	4
1523	13-Jul	02:10	-28.8	47.3	4	31	B	3
	14-Jul	03:30	-27.8	47.9	5	35	D	3
	16-Jul	01:21	-27.4	49.4	2	22	D	2
	17-Jul	07:10	-26.8	46.5	5	84	D	4
	19-Jul	02:21	-29.5	50.4	3	121	D	2
	20-Jul	01:55	-29.1	51.1	3	66	C	4
1524	17-Jul	07:10	-15.6	318.8	4	66	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
	19-Jul	02:21	-17.6	321.4	2	31	C	2
	20-Jul	01:55	-17.7	320.4	2	9	C	4
	21-Jul	02:00	-19.3	319.9	6	25	B	4
1525	17-Jul	07:10	-19.9	317.1	1	43	C	4
	19-Jul	02:21	-22.1	321.3	1	50	J	2
	20-Jul	01:55	-21.9	322.2	4	80	D	4
	21-Jul	02:00	-21.6	322.5	3	74	D	4
	22-Jul	06:57	-20.3	321.8	5	30	C	3
	24-Jul	01:50	-21.5	322.3	2	50	C	3
	25-Jul	02:35	-21.2	322.1	4	23	J	3
1526	22-Jul	06:57	-19.7	262.8	1	9	B	3
	24-Jul	01:50	-17.5	267.6	10	31	B	3
	25-Jul	02:35	-19.5	264.2	5	10	A	3
	27-Jul	01:43	-17.6	263.0	7	18	C	5
1527	24-Jul	01:50	25.2	225.5	1	12	A	3
	25-Jul	02:35	25.3	225.8	1	8	A	3
1528	24-Jul	01:50	16.2	224.4	1	104	J	3
	25-Jul	02:35	16.0	225.7	3	94	J	3
	27-Jul	01:43	16.0	227.4	5	46	C	5
	29-Jul	02:20	16.2	228.6	2	48	J	4
1529	24-Jul	01:50	-12.1	220.8	1	95	J	3
	25-Jul	02:35	-12.3	221.8	2	91	J	3
	27-Jul	01:43	-12.1	221.3	2	105	J	5
	29-Jul	02:20	-11.6	222.2	2	69	J	4
	4-Aug	01:50	-11.1	222.4	1	42	J	3
1530	24-Jul	01:50	-19.7	209.1	1	404	J	3
	25-Jul	02:35	-20.3	211.6	2	215	J	3
	27-Jul	01:43	-20.0	211.6	2	107	C	5

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
	29-Jul	02:20	-19.7	212.9	4	104	C	4
	4-Aug	01:50	-19.2	211.8	1	265	J	3
1531	27-Jul	01:43	14.1	309.3	8	73	C	5
1532	27-Jul	01:43	-20.6	184.1	6	176	C	5
	29-Jul	02:20	-21.7	182.3	13	548	G	4
	4-Aug	01:50	-19.4	185.6	3	320	C	3
	5-Aug	07:25	-18.7	185.3	1	222	C	4
1533	29-Jul	02:20	-28.8	222.0	10	29	B	4
1534	4-Aug	01:50	4.7	202.3	1	7	A	3
1535	4-Aug	01:50	17.2	138.0	14	79	C	3
	5-Aug	07:25	18.6	136.5	10	81	C	4
	8-Aug	02:28	18.6	136.2	1	72	C	3
1536	4-Aug	01:50	-23.9	171.3	5	16	C	3
1537	4-Aug	01:50	11.1	110.4	1	48	J	3
	5-Aug	07:25	12.5	109.5	1	58	J	4
	8-Aug	02:28	11.6	108.6	1	23	J	3
	12-Aug	01:40	12.6	108.5	1	16	A	3
1538	4-Aug	01:50	-24.1	120.7	1	106	D	3
	5-Aug	07:25	-22.9	119.1	1	49	G	4
	8-Aug	02:28	-23.3	114.7	2	115	D	3
	12-Aug	01:40	-22.4	112.2	2	60	A	3
1539	4-Aug	01:50	-23.2	112.6	8	189	B	3
	5-Aug	07:25	-21.4	112.0	9	106	C	4
1540	4-Aug	01:50	-28.4	91.0	3	76	C	3
	5-Aug	07:25	-26.9	89.9	9	96	C	4
	8-Aug	02:28	-26.3	88.5	9	117	D	3
	12-Aug	01:40	-24.8	88.7	1	22	J	3
1541	4-Aug	01:50	-17.4	82.6	1	14	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
	5-Aug	07:25	-16.7	82.2	1	7	A	4
1542	8-Aug	02:28	-16.4	27.7	6	353	C	3
	12-Aug	01:40	-13.1	32.2	13	31	D	3
	14-Aug	02:00	-12.0	33.9	3	22	D	4
	15-Aug	02:05	-12.4	34.2	2	15	C	4
1543	8-Aug	02:28	18.8	20.1	2	172	C	3
	12-Aug	01:40	20.7	22.4	5	213	D	3
	14-Aug	02:00	21.2	21.2	7	308	D	4
	15-Aug	02:05	21.3	20.8	6	144	D	4
	18-Aug	07:23	23.4	21.4	3	329	C	3
1544	12-Aug	01:40	-30.4	68.4	4	49	C	3
1545	12-Aug	01:40	-13.6	62.0	2	7	B	3
	14-Aug	02:00	-13.6	62.0	3	21	C	4
1546	18-Aug	07:23	16.3	261.5	1	110	J	3
	20-Aug	06:10	15.4	262.1	1	62	J	3
	22-Aug	03:05	14.4	262.7	1	31	J	3
	25-Aug	02:21	14.8	261.4	1	13	A	3
1547	18-Aug	07:23	6.6	298.0	5	15	C	3
	20-Aug	06:10	-15.8	324.5	2	5	B	3
	21-Aug	03:11	3.2	296.7	2	5	B	3
1548	20-Aug	06:10	18.5	236.6	2	32	C	3
	21-Aug	03:11	14.3	263.0	1	31	J	3
	21-Aug	03:11	17.5	237.5	4	29	C	3
	22-Aug	03:05	19.9	229.4	8	29	C	3
1549	21-Aug	03:11	-13.3	352.3	2	39	B	3
1552	22-Aug	03:05	-19.0	211.0	1	20	J	3
	25-Aug	02:21	-18.5	211.2	1	12	J	3
	26-Aug	03:53	-16.5	209.1	2	9	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
	27-Aug	05:44	-16.0	207.8	2	11	J	3
1553	25-Aug	02:21	-22.2	182.0	3	99	J	3
	26-Aug	03:53	-20.6	180.5	4	107	C	3
	27-Aug	05:44	-20.0	179.8	6	141	C	3
	1-Sep	00:45	-21.0	178.5	9	137	D	4
	2-Sep	01:35	-21.3	177.9	10	122	D	3
	4-Sep	01:55	21.4	16.2	1	58	D	3
1554	25-Aug	02:21	14.3	217.7	5	144	D	3
	26-Aug	03:53	16.1	215.5	11	72	D	3
	27-Aug	05:44	16.3	216.2	6	67	D	3
	1-Sep	00:45	15.7	213.1	3	227	D	4
1555	26-Aug	03:53	8.4	144.6	2	223	D	3
	27-Aug	05:44	8.4	144.5	9	146	D	3
	1-Sep	00:45	7.0	149.7	2	14	C	4
	2-Sep	01:35	6.2	150.2	3	9	C	3
	3-Sep	02:41	-20.9	178.1	2	265	C	2
1558	2-Sep	01:35	13.9	118.9	7	23	A	3
	4-Sep	01:55	4.6	132.3	5	51	A	3
1559	4-Sep	01:55	15.5	118.1	3	15	D	3
	5-Sep	01:30	4.5	133.6	4	258	D	4
1560	1-Sep	00:45	2.2	126.3	24	160	D	4
	2-Sep	01:35	2.7	127.5	26	143	D	3
	3-Sep	02:41	3.4	126.2	13	246	D	2
	4-Sep	01:55	1.7	124.9	15	148	E	3
	5-Sep	01:30	0.5	125.2	14	137	E	4
	6-Sep	07:35	4.0	126.7	8	103	E	2
1561	1-Sep	00:45	-12.2	132.8	4	22	D	4
	2-Sep	01:35	-12.0	133.4	3	15	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
	3-Sep	02:41	-10.6	134.1	2	17	D	2
	4-Sep	01:55	-10.5	136.3	1	8	J	3
	5-Sep	01:30	-10.9	136.0	1	7	A	4
1562	1-Sep	00:45	-18.6	97.8	5	35	C	4
	2-Sep	01:35	-17.7	98.6	9	18	D	3
	2-Sep	01:35	-27.1	80.5	9	50	D	3
	4-Sep	01:55	-20.7	103.7	8	36	B	3
	5-Sep	01:30	-21.6	104.5	8	75	D	4
	6-Sep	07:35	-20.5	103.7	6	47	D	2
	8-Sep	02:10	-21.5	106.7	5	385	D	3
	9-Sep	03:28	-20.5	102.1	2	507	D	4
1563	1-Sep	00:45	-27.2	82.1	5	41	D	4
	3-Sep	02:41	-26.3	79.1	3	46	D	2
	4-Sep	01:55	-26.8	80.3	4	16	D	3
	5-Sep	01:30	-15.7	69.1	35	103	B	4
1564	1-Sep	00:45	-15.7	68.2	8	182	D	4
	2-Sep	01:35	-15.5	68.5	7	140	D	3
	3-Sep	02:41	-15.0	68.6	9	131	D	2
	4-Sep	01:55	-13.9	70.0	35	167	E	3
	5-Sep	01:30	-12.2	65.9	6	18	E	4
	6-Sep	07:35	-12.4	66.9	27	146	E	2
	8-Sep	02:10	-13.9	68.3	25	190	E	3
	9-Sep	03:28	-13.1	72.6	11	237	E	4
1565	4-Sep	01:55	9.7	76.5	7	57	D	3
	5-Sep	01:30	9.8	76.9	7	33	D	4
	6-Sep	07:35	10.5	74.3	2	8	D	2
1566	5-Sep	01:30	21.7	17.5	1	20	J	4
	6-Sep	07:35	22.8	17.0	1	152	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
	8-Sep	02:10	21.7	17.5	1	99	J	3
	9-Sep	03:28	21.5	16.6	4	121	C	4
	12-Sep	03:25	22.4	13.7	1	74	J	4
1567	8-Sep	02:10	15.1	349.9	3	61	B	3
	9-Sep	03:28	15.0	349.3	5	47	B	4
	10-Sep	03:48	22.2	344.1	5	43	B	3
1568	9-Sep	03:28	-10.7	44.5	9	57	D	4
	10-Sep	03:48	-9.3	14.1	1	83	D	3
1569	10-Sep	03:48	17.8	311.8	3	122	J	3
	12-Sep	03:25	-14.1	291.5	5	247	D	4
	17-Sep	02:12	-12.0	300.7	3	50	C	3
	18-Sep	06:16	-11.0	300.4	3	74	C	3
1571	17-Sep	02:12	-13.0	279.0	3	68	C	3
	18-Sep	06:16	-11.2	275.4	10	37	J	3
	21-Sep	03:00	-17.3	291.8	5	38	J	3
1573	18-Sep	06:16	17.5	216.3	1	8	A	3
	25-Sep	02:03	15.4	220.8	6	21	A	4
	26-Sep	02:10	14.9	220.9	9	33	C	3
1574	17-Sep	02:12	-25.7	303.0	4	52	B	3
1575	21-Sep	03:00	6.0	186.4	4	114	E	3
	25-Sep	02:03	7.1	180.0	17	186	E	4
	26-Sep	02:10	7.5	181.2	7	130	E	3
1576	21-Sep	03:00	-23.3	176.1	2	32	D	3
	25-Sep	02:03	-21.4	171.7	10	13	D	4
	26-Sep	02:10	-21.3	173.6	8	17	C	3
1577	25-Sep	02:03	7.6	161.4	12	21	D	4
	26-Sep	02:10	6.9	164.8	9	21	C	3
	30-Sep	02:47	9.1	182.9	7	398	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
	1-Oct	02:58	8.7	161.6	5	31	D	4
	2-Oct	02:40	5.8	154.9	2	3846	D	3
1578	25-Sep	02:03	21.9	163.2	9	20	D	4
	26-Sep	02:10	19.5	161.9	4	35	B	3
1579	25-Sep	02:03	-10.6	103.2	2	53	J	4
	26-Sep	02:10	-7.4	103.7	2	241	C	3
	30-Sep	02:47	-11.4	107.4	1	66	C	3
	1-Oct	02:58	-10.8	106.7	1	163	C	4
	2-Oct	02:40	-10.9	107.0	2	45	C	3
	3-Oct	02:00	-8.6	103.3	5	53	C	3
	4-Oct	02:05	-12.5	106.6	5	248	C	4
	5-Oct	02:22	-11.6	105.2	3	2182	C	4
1582	30-Sep	02:47	-14.2	84.2	1	210	H	3
	1-Oct	02:58	-12.2	83.2	1	392	H	4
	2-Oct	02:40	-12.9	84.7	5	189	D	3
	3-Oct	02:00	-12.3	85.8	8	280	D	3
	4-Oct	02:05	-12.4	83.2	4	400	D	4
	5-Oct	02:22	-12.5	83.4	1	107	D	4
	8-Oct	01:41	-12.7	84.6	1	122	D	4
1584	1-Oct	02:58	-24.3	73.1	4	25	C	4
	2-Oct	02:40	-8.7	56.8	1	5	J	3
1585	3-Oct	02:00	-17.0	10.6	3	545	D	3
	4-Oct	02:05	-19.2	4.0	4	2357	D	4
	5-Oct	02:22	-16.6	7.9	9	1301	D	4
	8-Oct	01:41	-21.7	8.4	10	87	D	4
	13-Oct	03:40	-17.6	6.8	1	30	C	3
1586	8-Oct	01:41	-14.9	303.2	1	29	J	4
	12-Oct	02:33	-13.0	301.4	1	72	H	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-Oct	03:40	-12.6	302.3	1	85	J	3
	14-Oct	02:40	-12.8	302.5	1	44	J	3
	15-Oct	06:50	-12.1	301.5	1	83	J	4
	18-Oct	07:35	-12.9	301.9	1	82	J	3
	19-Oct	02:40	-12.9	301.9	1	117	J	3
1588	12-Oct	02:33	-18.1	9.1	1	50	A	3
1589	12-Oct	02:33	11.8	265.0	8	266	D	3
	13-Oct	03:40	13.4	265.8	17	151	D	3
	14-Oct	02:40	11.6	267.6	28	99	E	3
	15-Oct	06:50	12.7	266.2	35	118	E	4
	18-Oct	07:35	12.8	267.0	11	39	D	3
	19-Oct	02:40	12.1	267.6	12	44	B	3
1590	13-Oct	03:40	-30.2	255.5	1	15	J	3
	14-Oct	02:40	-29.8	256.5	2	78	C	3
	15-Oct	06:50	-28.8	255.3	4	33	J	4
	18-Oct	07:35	-20.7	251.5	6	25	C	3
	19-Oct	02:40	-20.5	252.0	12	82	B	3
1591	13-Oct	03:40	5.8	227.2	3	593	D	3
	14-Oct	02:40	6.4	231.3	4	205	D	3
	15-Oct	06:50	7.6	227.7	13	254	D	4
	18-Oct	07:35	7.2	229.7	1	78	D	3
	19-Oct	02:40	6.9	229.9	1	207	J	3
1592	14-Oct	02:40	22.7	254.6	4	15	D	3
	15-Oct	06:50	23.5	254.7	7	27	D	4
1593	18-Oct	07:35	16.3	186.4	1	63	J	3
	19-Oct	02:40	15.8	186.9	6	29	J	3
1594	18-Oct	07:35	-27.2	200.5	5	30	D	3
	19-Oct	02:40	-28.6	198.2	7	30	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
1596	19-Oct	02:40	6.8	151.0	4	681	G	3
	25-Oct	06:17	8.0	154.0	11	423	G	3
	27-Oct	07:22	8.0	153.9	11	260	D	3
1598	25-Oct	06:17	-11.4	113.9	18	577	D	3
	27-Oct	07:22	-10.3	113.7	10	366	D	3
1599	25-Oct	06:17	-11.3	86.2	1	201	J	3
	27-Oct	07:22	-10.5	86.4	1	202	J	3
1602	4-Nov	07:20	-18.2	11.8	1	40	J	3
1604	4-Nov	07:20	17.3	334.7	2	38	B	3
1605	5-Nov	02:40	16.0	335.1	2	19	A	2
	6-Nov	03:22	15.6	336.2	2	14	A	3
	7-Nov	01:36	15.7	336.4	1	4	A	4
1606	5-Nov	02:40	-16.5	312.9	1	11	A	2
	6-Nov	03:22	-17.4	310.1	5	23	A	3
1607	5-Nov	02:40	11.6	30.6	4	24	C	2
	6-Nov	03:22	10.8	30.3	7	58	B	3
	7-Nov	01:36	10.7	31.2	6	28	C	4
1608	5-Nov	02:40	-22.3	278.6	1	52	J	2
	6-Nov	03:22	-21.6	283.1	1	31	J	3
	7-Nov	01:36	-21.9	282.9	1	12	J	4
	9-Nov	01:54	-20.7	282.6	2	18	J	4
	10-Nov	07:32	-18.3	283.6	1	9	J	2
1609	7-Nov	01:36	-15.8	259.7	3	51	J	4
	9-Nov	01:54	-15.6	264.0	3	28	C	4
	10-Nov	07:32	-14.9	264.8	1	9	C	2
1610	9-Nov	01:54	-23.9	261.5	2	12	A	4
	10-Nov	07:32	-22.9	266.1	5	36	D	2
	14-Nov	02:10	-24.0	264.2	13	286	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
	15-Nov	06:24	-22.8	263.7	10	138	E	3
	16-Nov	06:58	-22.4	266.6	3	148	E	3
1611	9-Nov	01:54	11.1	243.8	1	183	D	4
	10-Nov	07:32	12.0	241.9	3	188	G	2
	14-Nov	02:10	11.1	241.2	17	284	D	3
	15-Nov	06:24	12.0	239.9	9	133	D	3
	16-Nov	06:58	12.0	241.3	2	119	D	3
1612	9-Nov	01:54	11.8	235.3	3	205	J	4
	10-Nov	07:32	7.4	231.7	1	69	J	2
	14-Nov	02:10	6.3	230.8	2	115	J	3
	15-Nov	06:24	7.3	229.9	2	37	J	3
	16-Nov	06:58	7.6	229.4	2	52	J	3
1613	10-Nov	07:32	-23.5	208.0	1	143	J	2
	14-Nov	02:10	-24.2	208.3	10	187	D	3
	15-Nov	06:24	-21.8	210.5	11	121	D	3
	16-Nov	06:58	-22.9	206.2	11	85	D	3
	20-Nov	06:27	-23.4	204.0	1	108	C	3
1614	14-Nov	02:10	14.2	194.5	7	305	D	3
	15-Nov	06:24	14.7	194.2	22	203	D	3
	16-Nov	06:58	14.0	193.9	14	134	D	3
	20-Nov	06:27	14.4	194.4	2	10	D	3
1615	14-Nov	02:10	7.0	207.7	9	46	C	3
	15-Nov	06:24	8.9	205.6	8	33	D	3
	16-Nov	06:58	7.8	206.6	5	21	D	3
1616	14-Nov	02:10	18.6	165.5	2	47	D	3
	15-Nov	06:24	19.3	166.3	6	57	D	3
	16-Nov	06:58	18.9	163.0	9	73	D	3
1618	20-Nov	06:27	8.0	133.0	38	144	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
1619	20-Nov	06:27	10.1	171.4	20	155	D	3
1620	20-Nov	06:27	-12.0	87.1	2	139	C	3
1621	4-Dec	02:20	14.2	18.4	4	75	D	2
1623	4-Dec	02:20	6.8	342.8	7	379	C	2
	7-Dec	02:02	7.2	344.1	4	215	C	3
1625	4-Dec	02:20	11.6	344.8	1	67	D	2
	7-Dec	02:02	11.9	344.5	1	16	J	3
1629	13-Dec	01:44	8.8	243.0	14	85	D	3
	14-Dec	01:51	9.5	238.3	16	148	D	4
1630	13-Dec	01:44	17.6	254.3	8	40	D	3
	14-Dec	01:51	18.0	253.2	4	21	D	4
1631	13-Dec	01:44	18.0	224.0	9	52	D	3
	14-Dec	01:51	18.2	223.6	14	84	D	4
1632	13-Dec	01:44	15.3	231.5	7	31	C	3
	14-Dec	01:51	15.1	229.9	5	15	B	4
1633	20-Dec	05:47	-6.4	108.7	17	205	G	4
	21-Dec	02:23	-7.5	115.2	23	200	G	4
	25-Dec	06:36	-7.6	116.4	3	111	C	3
1634	20-Dec	05:47	-12.5	108.2	2	81	J	4
	21-Dec	02:23	-12.8	109.2	3	59	J	4
1635	20-Dec	05:47	10.6	62.3	4	298	C	4
	21-Dec	02:23	10.2	64.2	7	262	E	4
	25-Dec	06:36	11.9	61.6	26	151	D	3
	28-Dec	07:45	11.4	62.5	6	25	D	3
1636	28-Dec	07:45	10.5	347.5	4	19	A	3
1637	28-Dec	07:45	6.0	344.2	1	11	A	3
1638	28-Dec	07:45	12.3	308.2	1	83	J	3
1639	28-Dec	07:45	-16.2	308.7	5	61	D	3

**2012年太陽黑子每日相對數表**  
**Daily Relative Sunspot Numbers of 2012**

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			24	37		81			140	51		
2		53	30	79					154	50		
3			49				132		79	46		
4		37					116	149	169	43	23	42
5			71			172	107	102	156	43	48	
6		41	99		69	132			94		55	
7					88	87					51	25
8					34		104	81	74	42		
9									81		61	
10	69			25			87		39		72	
11		40					104					
12		30		51			71	98	26	40		
13		61		31		93	83			73		78
14	110						100	43		89	130	79
15		42	113		115	120		28		110	138	
16			91				66				116	
17	133		96				71		40			
18	108		65		131			39	44	85		
19	120						36			113		
20	106	41		133			39	35			113	53
21							29	49	41			63
22		51					26	40				
23			64	120	41	12						
24					54		76					
25					58		77	50	116	60		49
26					57	20		59	99			
27			67			53	90	63		52		
28	38		68			83						67
29		11	79		58	100	81					
30		—	115	82					39			
31		—		—		—			—		—	

黑子總數：10220

觀測天數：140

年平均數：73.0

1948年至2012年之每月太陽黑子相對數及平均值  
 Monthly and Smooth Relative Sunspot Numbers since 1948 to 2012

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2012年之每月太陽黑子相對數及平均值  
 Monthly and Smooth Relative Sunspot Numbers since 1948 to 2012

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2012年之每月太陽黑子相對數及平均值  
 Monthly and Smooth Relative Sunspot Numbers since 1948 to 2012

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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2012年之每月太陽黑子相對數及平均值  
Monthly and Smooth Relative Sunspot Numbers since 1948 to 2012

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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						

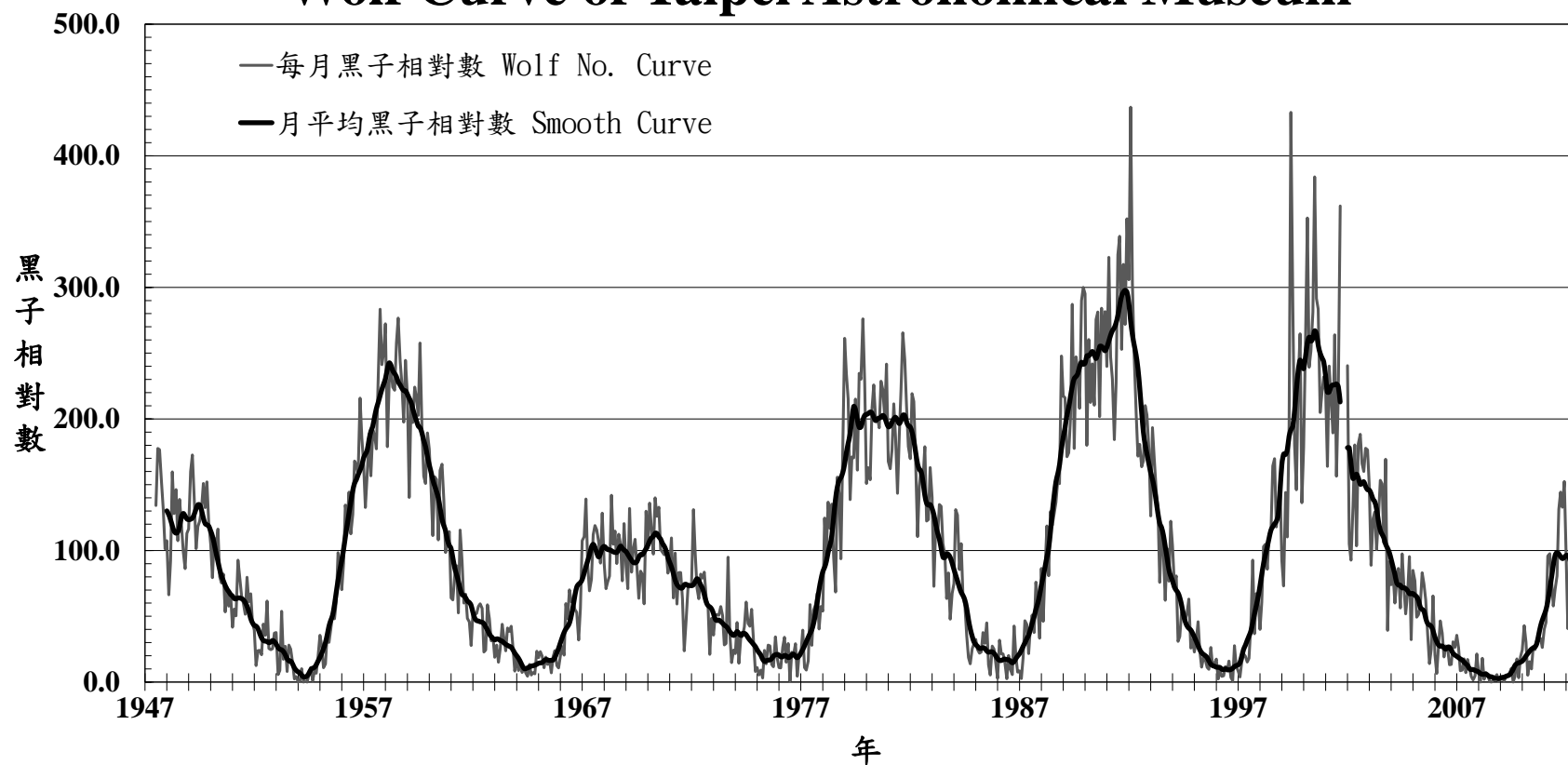
註：

\* 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。

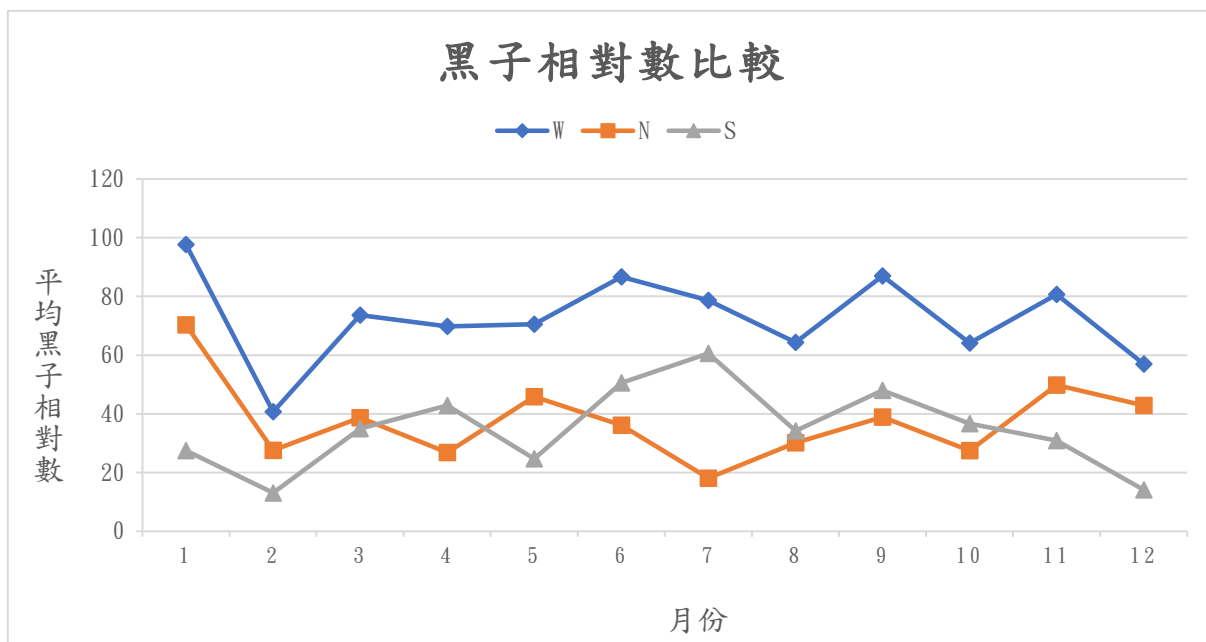
\* 2005年6月10~25日，因觀測室進行圓頂工程無法觀測，影響觀測天數及黑子觀測值。

# 臺北市立天文科學教育館太陽黑子相對數變化圖

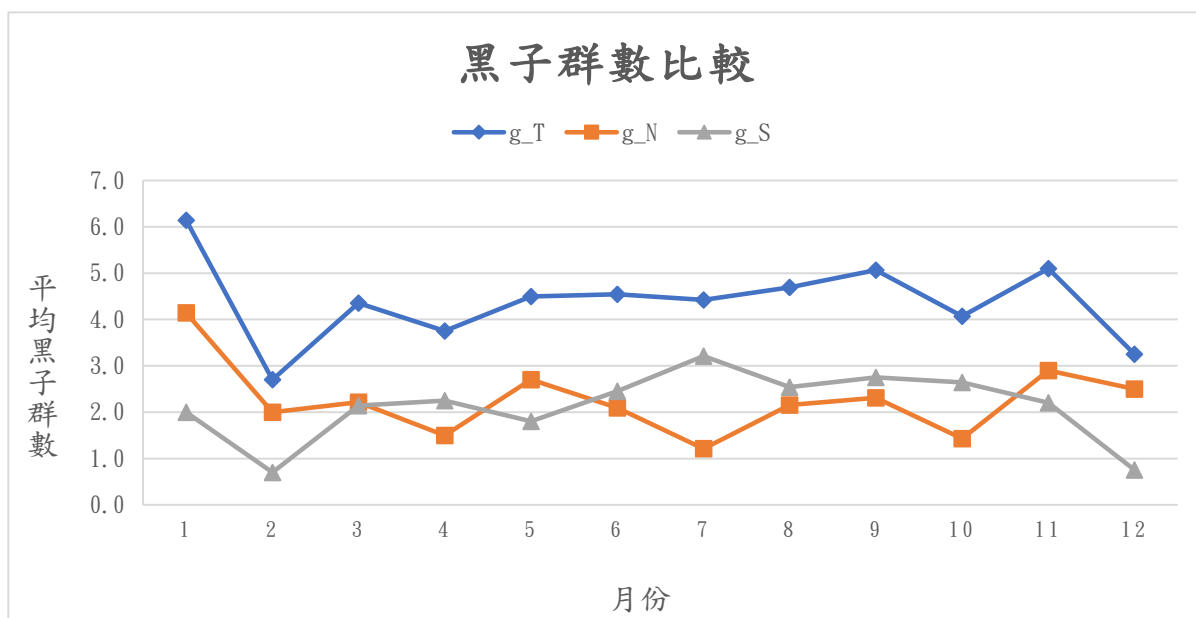
## Wolf Curve of Taipei Astronomical Museum



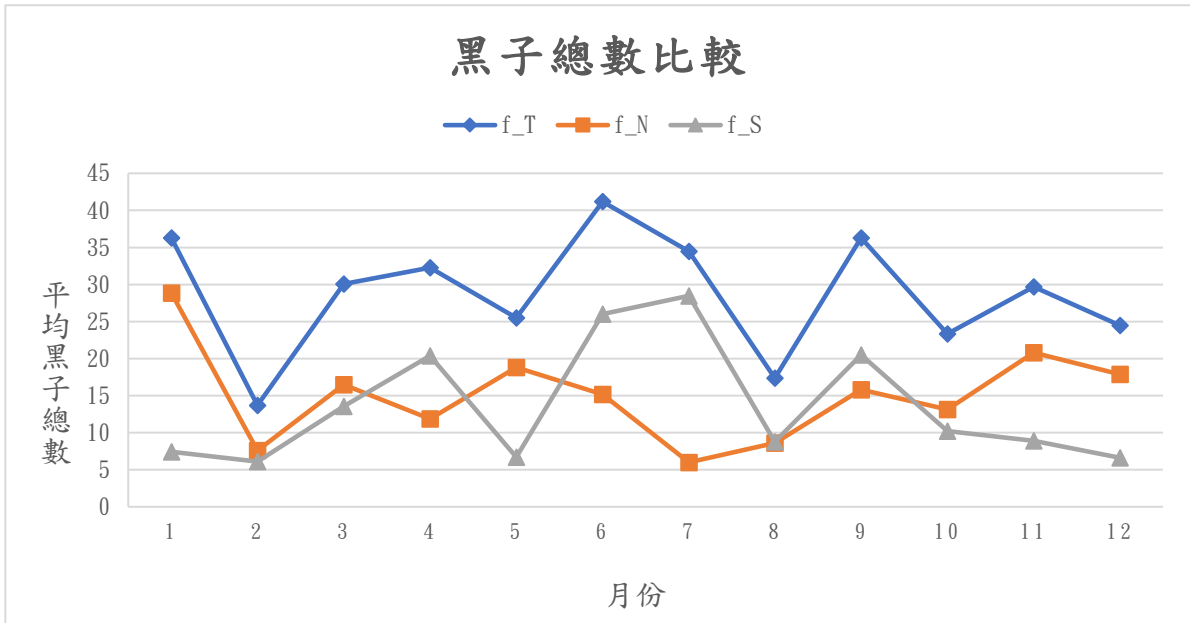
本圖為臺北天文館自1947年7月至2012年12月的每月黑子相對數（灰色細線）與月平均黑子相對數（黑色粗線）曲線圖。兩曲線均尚未做K值的修正。



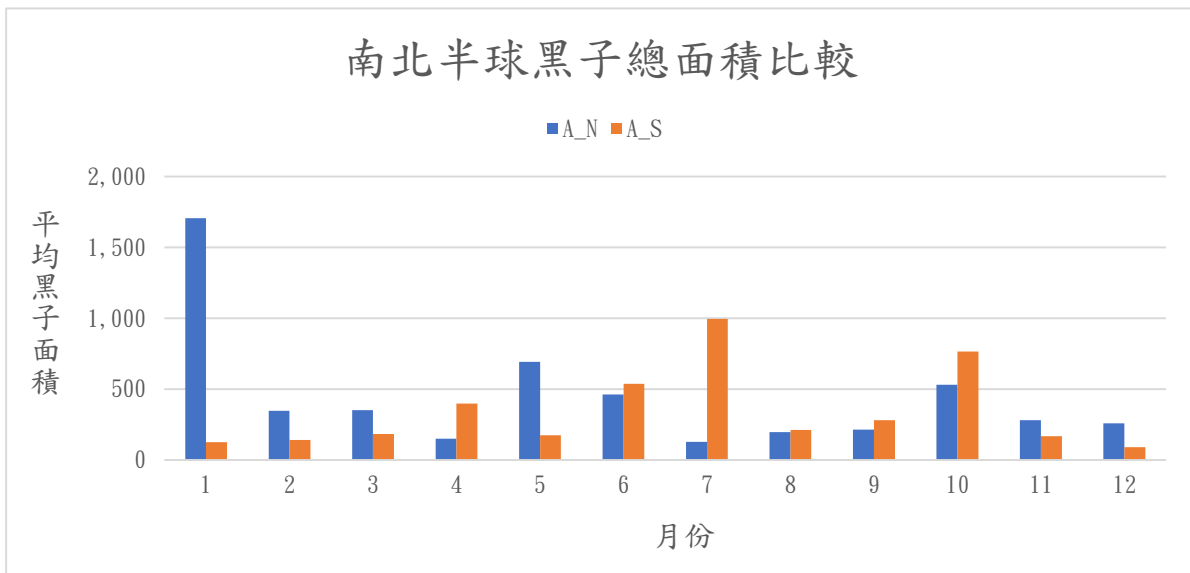
本圖為2012年各月的平均黑子相對數變化圖，其中W代表整個太陽可見半球面的黑子相對數，N與S則分別代表可見半球面中之北半球與南半球的黑子相對數。



本圖為2012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2012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2012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 101 年

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