



Sunspot Index and Long-term Solar Observations

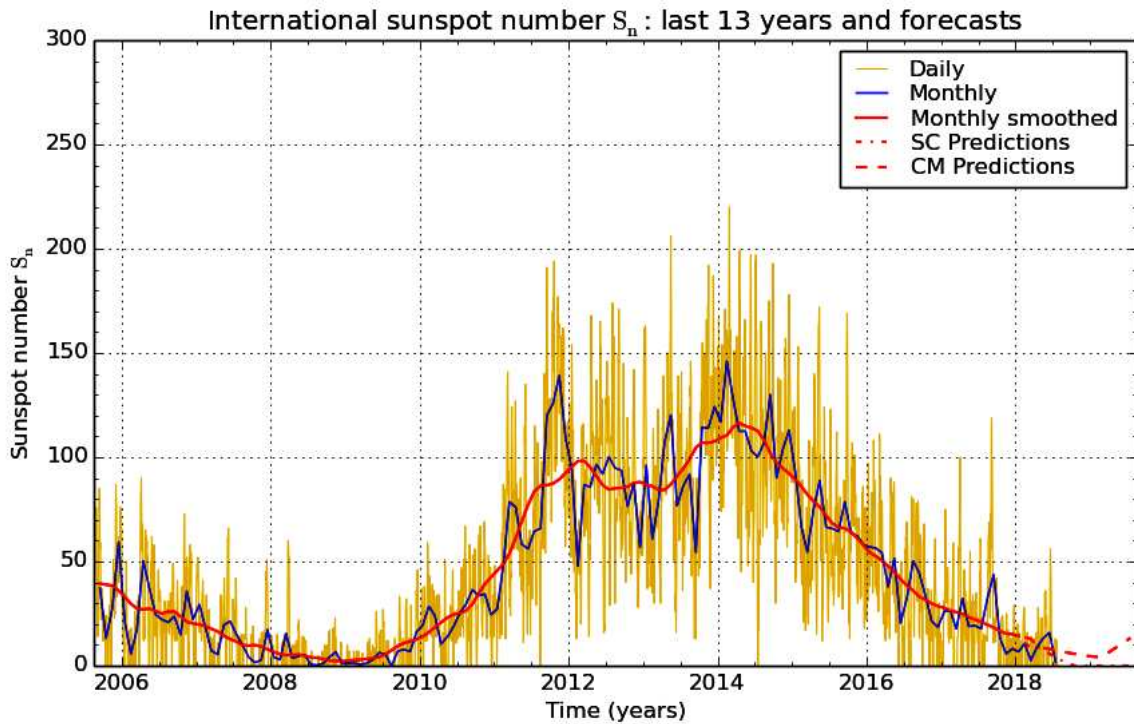
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SUNSPOT BULLETIN 2018 n° 7

Provisional international and normalized hemispheric daily sunspot numbers for July 2018

Computed at the *Royal Observatory of Belgium* using observations from an international network with the *Specola Solare Ticinese Locarno* as reference station.

Date	S_n	$S_n(N)$	$S_n(S)$
1	0	0	0
2	0	0	0
3	0	0	0
4	0	0	0
5	0	0	0
6	0	0	0
7	0	0	0
8	0	0	0
9	0	0	0
10	0	0	0
11	0	0	0
12	0	0	0
13	13	13	0
14	13	13	0
15	12	12	0
16	0	0	0
17	0	0	0
18	0	0	0
19	0	0	0
20	0	0	0
21	12	12	0
22	0	0	0
23	0	0	0
24	0	0	0
25	0	0	0
26	0	0	0
27	0	0	0
28	0	0	0
29	0	0	0
30	0	0	0
31	0	0	0
Monthly mean	1.6	1.6	0.0
Cooperating stations	77	60	60



SILSO graphics (<http://sidc.be/silso>) Royal Observatory of Belgium 2018 August 1

Predictions of the monthly smoothed Sunspot Number
 using the last provisional value, calculated for January 2018: 14.3 ($\pm 5\%$)

	SM	CM		SM	CM		SM	CM
2018 Feb	11	14	2018 Aug	2	7	2019 Feb	0	4
Mar	9	13	Sep	1	6	Mar	0	5
Apr	9	9	Oct	0	6	Apr	0	7
May	8	9	Nov	0	5	May	0	9
Jun	6	8	Dec	0	5	Jun	0	11
Jul	4	7	2019 Jan	0	4	Jul	0	13

SM : SIDC classical method : based on an interpolation of Waldmeier's standard curves. The estimated error ranges from 7% (first month) to 35% (last month)

CM : Combined method : the combined method is a regression technique coupling a dynamo-based estimator with Waldmeier's method of standard curves, designed by K. Denkmayr.

Ref.: K. Denkmayr, P. Cugnon, 1997 : "About Sunspot Number Medium-Term Predictions", in "Solar-Terrestrial Prediction Workshop V", eds. G.Heckman et al., Hiraiso Solar Terrestrial Research Center, Japan, 103.

Brussels, August 1, 2018 09:09 UT
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Summary of the URSIGRAMs from S.I.D.C.

Date	S _n	PPSI	600	2800	COS	SFI	XI	Ak
30	0	0	-	69	////	0	0/0	5
1	0	0	-	68	////	0	0/0	3
2	0	0	-	67	////	0	0/0	3
3	0	0	-	68	////	0	0/0	5
4	0	0	-	68	////	0	0/0	6
5	0	0	-	68	////	0	0/0	29
6	0	0	-	71	////	0	0/0	12
7	0	0	-	72	////	0	0/0	8
8	0	0	-	72	////	0	0/0	5
9	0	0	-	73	////	0	0/0	3
10	0	0	-	73	////	0	0/0	10
11	0	0	-	73	////	0	0/0	12
12	0	0	-	72	////	0	0/0	9
13	13	2	-	73	////	0	0/0	8
14	13	5	-	72	////	0	0/0	5
15	12	1	-	72	////	0	0/0	5
16	0	0	-	72	////	0	0/0	12
17	0	0	-	71	////	0	0/0	8
18	0	0	-	71	////	0	0/0	4
19	0	0	-	71	////	0	0/0	6
20	0	0	-	71	////	0	0/0	9
21	12	1	-	70	////	0	0/0	14
22	0	0	-	68	////	0	0/0	7
23	0	0	-	67	////	0	0/0	4
24	0	0	-	67	////	0	0/0	21
25	0	0	-	66	////	0	0/0	10
26	0	0	-	66	////	0	0/0	5
27	0	0	-	67	////	0	0/0	4
28	0	0	-	68	////	0	0/0	6
29	0	0	-	68	////	0	0/0	6
30	0	0	-	68	////	0	0/0	7
31	0	0	-	69	////	0	0/0	7

S_n : provisional international sunspot numbers from the S.I.D.C.

PPSI : prompt photometric sunspot index from the S.I.D.C. in 10^{-5} w/m^2 : the quantity to be subtracted from the mean solar constant to account for the sunspot contribution.

600 : 600 Mhz solar flux from the station at Humain (Belgium).

2800 : 2800 Mhz solar flux from Ottawa (origin : Ursigrams - UGEOI). The 10.7cm Flux data are a service of the National Research Council of Canada.

COS : thousands of the cosmic ray counts (origin : Ursigrams - UCOSE Terre Adélie).

SFI : Solar Flare Index from the S.I.D.C. (origin: Ursigrams - UGEOR, evaluation : $1 \times S_n + 10 \times ">1" + 100 \times ">1"$).

XI : X-flares index from the Ursigrams (M-flares/X-flares) (origin: Ursigrams - UGEOR, UGEOI).

Ak : geomagnetic index from Wingst, Germany (origin: Ursigrams).

SOLAR PHYSICS DEPARTMENT

UCCLE DAILY PROVISIONAL RELATIVE SUNSPOT NUMBERS FOR JULY 2018

DATE	UT	NUMBER		RELATIVE SUNSPOT NUMBERS			PPSI	QUAL	OBS
		OF GROUPS	OF SPOTS	TOTAL	NORTH	SOUTH			
1	625	0	0	0	0	0	0.0	3	FC
2	710	0	0	0	0	0	0.0	3	FC
3	700	0	0	0	0	0	0.0	3	BB
4	630	0	0	0	0	0	0.0	3	BB
5	700	0	0	0	0	0	0.0	3	SB
6	645	0	0	0	0	0	0.0	3	SB
7	725	0	0	0	0	0	0.0	4	OL
8	715	0	0	0	0	0	0.0	3	SB
9	620	0	0	0	0	0	0.0	3	BB
11	754	0	0	0	0	0	0.0	3	OL
12	815	0	0	0	0	0	0.0	4	OL
13	1000	1	4	14	14	0	1.5	3	SB
14	710	1	2	12	12	0	1.6	4	SB
15	808	1	3	13	13	0	0.4	4	OL
16	730	0	0	0	0	0	0.0	3	BB
17	640	0	0	0	0	0	0.0	3	BB
18	630	0	0	0	0	0	0.0	3	BB
19	730	0	0	0	0	0	0.0	4	SB
20	750	0	0	0	0	0	0.0	3	OB
21	1045	1	1	11	11	0	0.4	3	OB
22	815	0	0	0	0	0	0.0	3	OB
23	645	0	0	0	0	0	0.0	4	SB
24	646	0	0	0	0	0	0.0	4	SB
25	625	0	0	0	0	0	0.0	4	SB
26	630	0	0	0	0	0	0.0	4	SB
27	630	0	0	0	0	0	0.0	3	SB
28	930	0	0	0	0	0	0.0	3	SB
29	630	0	0	0	0	0	0.0	3	SB
30	630	0	0	0	0	0	0.0	3	SB
31	730	0	0	0	0	0	0.0	3	BB

The relative mean sunspot number is 1.7.

NORMALISED UCCLE OBSERVATIONAL SUNSPOT NUMBERS $U'=K'U$ FOR JULY 2018

$$K' = 1.173 (*)$$

1	0	7	0	13	16	19	0	25	0
2	0	8	0	14	14	20	0	26	0
3	0	9	0	15	15	21	13	27	0
4	0	10	***	16	0	22	0	28	0
5	0	11	0	17	0	23	0	29	0
6	0	12	0	18	0	24	0	30	0
								31	0

The normalised relative monthly mean sunspot number is 2.

(*) K' is the mean of the monthly K' for the last five years.

The Sun has been observed 30 days on 31 possible.