



Sunspot Index and Long-term Solar Observations

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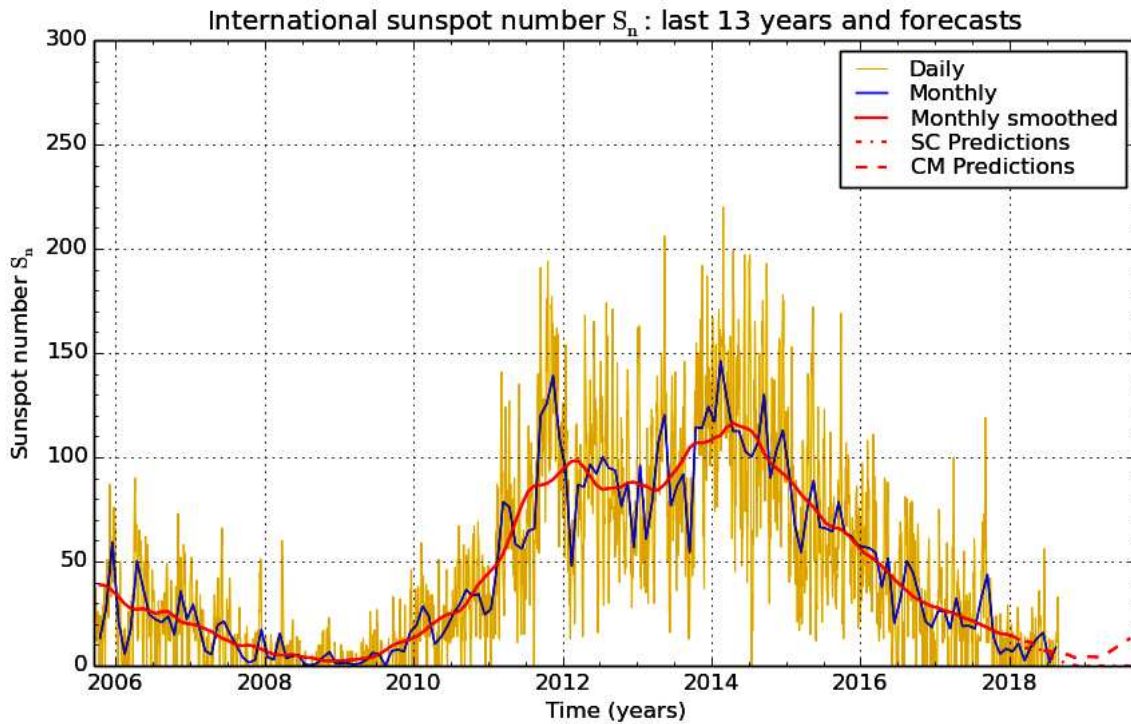
SUNSPOT BULLETIN

2018 n° 8

Provisional international and normalized hemispheric daily sunspot numbers for August 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	12	0	12
2	11	0	11
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	0	0	0
14	12	0	12
15	13	0	13
16	13	0	13
17	12	0	12
18	11	0	11
19	14	0	14
20	16	0	16
21	16	0	16
22	12	0	12
23	15	0	15
24	29	13	16
25	33	17	16
26	28	15	13
27	13	13	0
28	12	12	0
29	0	0	0
30	0	0	0
31	0	0	0
Monthly mean	8.8	2.3	6.5
Cooperating stations	67	52	52



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

Predictions of the monthly smoothed Sunspot Number
 using the last provisional value, calculated for February 2018: 12.6 ($\pm 5\%$)

	SM	CM		SM	CM		SM	CM
2018 Mar	8	12	2018 Sep	2	6	2019 Mar	0	4
Apr	9	11	Oct	1	5	Apr	0	5
May	9	8	Nov	0	4	May	0	7
Jun	7	7	Dec	0	4	Jun	0	9
Jul	5	7	2019 Jan	0	4	Jul	0	11
Aug	3	6	Feb	0	4	Aug	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.

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Summary of the URSIGRAMs from S.I.D.C.

Date	S _n	PPSI	600	2800	COS	SFI	XI	Ak
31	0	0	-	69	////	0	0/0	7
1	12	0	-	70	////	0	0/0	10
2	11	0	-	70	////	0	0/0	7
3	0	1	-	70	////	0	0/0	8
4	0	0	-	70	////	0	0/0	6
5	0	0	-	69	////	0	0/0	6
6	0	0	-	69	////	0	0/0	4
7	0	0	-	70	////	0	0/0	12
8	0	0	-	70	////	0	0/0	7
9	0	0	-	70	////	0	0/0	4
10	0	0	-	70	////	0	0/0	6
11	0	0	-	67	////	0	0/0	17
12	0	0	-	68	////	0	0/0	8
13	0	0	-	68	////	0	0/0	4
14	12	0	-	69	////	0	0/0	4
15	13	1	-	69	////	0	0/0	20
16	13	1	-	68	////	0	0/0	14
17	12	1	-	67	////	0	0/0	18
18	11	1	-	67	////	0	0/0	13
19	14	1	-	67	////	0	0/0	11
20	16	4	-	68	////	0	0/0	18
21	16	5	-	68	////	0	0/0	8
22	12	0	-	67	////	0	0/0	7
23	15	3	-	70	////	0	0/0	6
24	29	4	-	72	////	1	0/0	6
25	33	10	-	72	////	2	0/0	17
26	28	5	-	71	////	0	0/0	62
27	13	1	-	70	////	0	0/0	26
28	12	1	-	70	////	0	0/0	8
29	0	0	-	71	////	0	0/0	8
30	0	0	-	68	////	0	0/0	6
31	0	0	-	68	////	0	0/0	6

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 - UGEOOR, evaluation : $1 \times S_n + 10 \times ">1" + 100 \times ">>1"$).

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

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

SOLAR PHYSICS DEPARTMENT

UCCLE DAILY PROVISIONAL RELATIVE SUNSPOT NUMBERS FOR AUGUST 2018

DATE	UT	NUMBER		RELATIVE SUNSPOT NUMBERS			PPSI	QUAL	OBS	
		OF GROUPS	OF SPOTS	TOTAL	NORTH	SOUTH				CENTRAL
1	650	1	2	12	0	12	0	0.3	3	BB
2	705	1	1	11	0	11	11	0.3	4	OL
3	730	1	4	14	0	14	14	1.5	3	OL
4	800	0	0	0	0	0	0	0.0	3	OL
5	900	0	0	0	0	0	0	0.0	3	OL
6	715	0	0	0	0	0	0	0.0	3	OB
7	630	0	0	0	0	0	0	0.0	3	BB
8	805	0	0	0	0	0	0	0.0	3	BB
9	1410	0	0	0	0	0	0	0.0	3	OB
10	800	0	0	0	0	0	0	0.0	3	OB
11	800	0	0	0	0	0	0	0.0	3	OB
12	810	0	0	0	0	0	0	0.0	2	OB
13	1030	0	0	0	0	0	0	0.0	2	BB
16	1033	1	3	13	0	13	0	1.8	3	OL
17	845	1	1	11	0	11	11	2.1	3	OL
18	930	2	2	22	0	22	11	0.5	4	OL
19	800	2	5	25	0	25	12	2.2	3	OL
21	630	1	4	14	0	14	14	1.3	3	BB
22	620	0	0	0	0	0	0	0.0	3	BB
23	1445	2	8	28	12	16	28	1.9	2	SB
24	805	2	7	27	13	14	27	7.3	3	SB
25	700	2	16	36	21	15	15	20.8	3	SB
26	815	2	9	29	18	11	0	14.6	2	SB
27	1000	1	3	13	13	0	0	2.4	2	SB
28	1025	1	1	11	11	0	0	0.4	1	SB
29	1200	0	0	0	0	0	0	0.0	2	SB
30	1337	0	0	0	0	0	0	0.0	3	SB
31	920	0	0	0	0	0	0	0.0	1	SB

The relative mean sunspot number is 9.5.

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

$K' = 1.163 (*)$

1	14	7	0	13	0	19	29	25	42
2	13	8	0	14	***	20	***	26	34
3	16	9	0	15	***	21	16	27	15
4	0	10	0	16	15	22	0	28	13
5	0	11	0	17	13	23	33	29	0
6	0	12	0	18	26	24	31	30	0
								31	0

The normalised relative monthly mean sunspot number is 11.

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

The Sun has been observed 28 days on 31 possible.