



Sunspot Index and Long-term Solar Observations

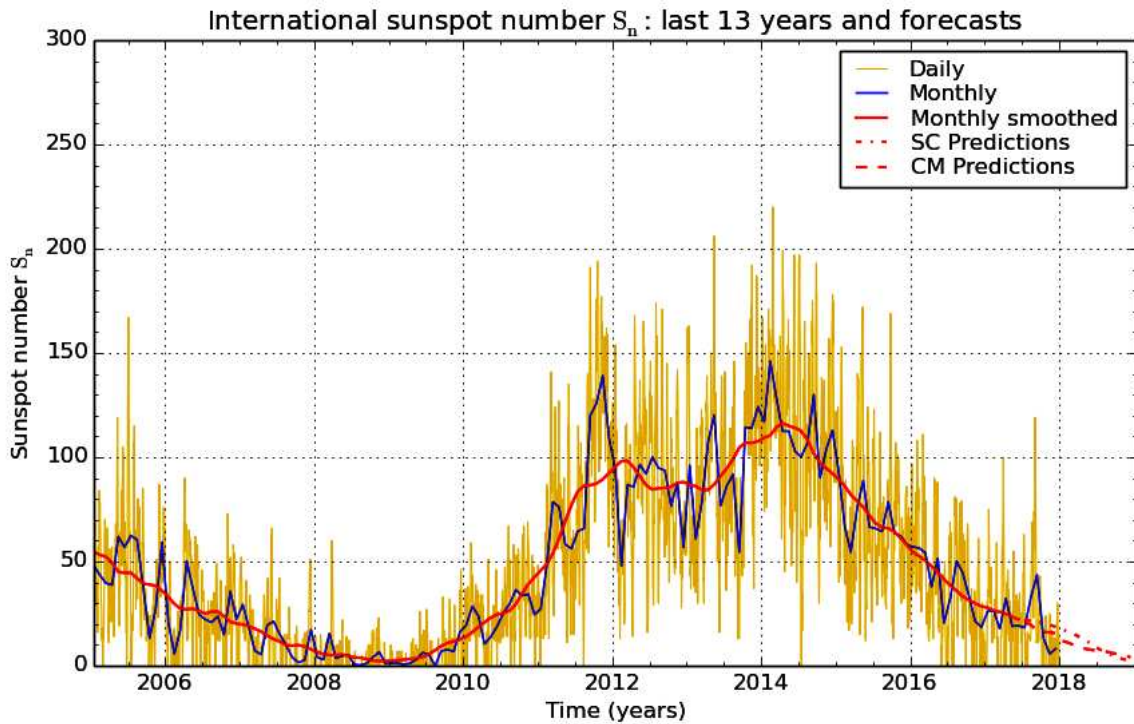
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SUNSPOT BULLETIN 2017 n° 12

Provisional international and normalized hemispheric daily sunspot numbers for December 2017

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	13	13	0
7	11	11	0
8	0	0	0
9	0	0	0
10	11	0	11
11	12	0	12
12	13	0	13
13	0	0	0
14	0	0	0
15	0	0	0
16	0	0	0
17	0	0	0
18	0	0	0
19	11	11	0
20	13	13	0
21	20	20	0
22	26	26	0
23	26	26	0
24	30	30	0
25	25	25	0
26	16	16	0
27	13	13	0
28	0	0	0
29	0	0	0
30	0	0	0
31	13	13	0
Monthly mean	8.2	7.0	1.2
Cooperating stations	71	57	57



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

Predictions of the monthly smoothed Sunspot Number
 using the last provisional value, calculated for June 2017: 22.3 ($\pm 5\%$)

		SM	CM			SM	CM			SM	CM
2017	Jul	22	21	2018	Jan	17	12	2018	Jul	8	7
	Aug	22	20		Feb	16	11		Aug	7	7
	Sep	21	17		Mar	15	10		Sep	5	6
	Oct	20	16		Apr	13	9		Oct	4	6
	Nov	20	16		May	12	8		Nov	3	5
	Dec	19	16		Jun	10	8		Dec	3	4

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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The SILSO team wishes you a happy and sunny year in 2018

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

Date	S _n	PPSI	600	2800	COS	SFI	XI	Ak
30	11	1	-	72	////	0	0/0	12
1	0	0	-	70	////	0	0/0	10
2	0	0	-	72	////	0	0/0	3
3	0	0	-	70	////	0	0/0	1
4	0	0	-	68	////	0	0/0	13
5	0	0	-	68	////	0	0/0	34
6	13	4	-	68	////	0	0/0	16
7	11	2	-	68	////	0	0/0	12
8	0	0	-	70	////	0	0/0	6
9	0	0	-	71	////	0	0/0	3
10	11	0	-	72	////	0	0/0	3
11	12	3	-	72	////	0	0/0	10
12	13	3	-	71	////	0	0/0	17
13	0	0	-	72	////	0	0/0	11
14	0	0	-	72	////	0	0/0	5
15	0	0	-	72	////	0	0/0	3
16	0	0	-	71	////	0	0/0	3
17	0	0	-	71	////	0	0/0	26
18	0	0	-	72	////	0	0/0	16
19	11	1	-	69	////	0	0/0	6
20	13	6	-	74	////	///	///	6
21	20	9	-	76	////	0	0/0	2
22	26	29	-	75	////	0	0/0	1
23	26	17	-	76	////	1	0/0	5
24	30	25	-	76	////	0	0/0	15
25	25	20	-	76	////	0	0/0	12
26	16	7	-	72	////	0	0/0	16
27	13	2	-	71	////	0	0/0	8
28	0	0	-	71	////	0	0/0	6
29	0	0	-	72	////	0	0/0	5
30	0	0	-	70	////	0	0/0	5
31	13	0	-	71	////	0	0/0	4

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 DECEMBER 2017

DATE	UT	NUMBER		RELATIVE SUNSPOT NUMBERS			PPSI	QUAL	OBS
		OF GROUPS	OF SPOTS	TOTAL	NORTH	SOUTH			
8	1126	0	0	0	0	0	0.0	2	OL
17	1215	0	0	0	0	0	0.0	3	OB
18	1015	0	0	0	0	0	0.0	2	BB
26	1040	1	8	18	18	0	1.2	3	SB
27	950	1	4	14	14	0	1.0	2	SB
28	1220	0	0	0	0	0	0.0	3	OB
31	1110	0	0	0	0	0	0.0	2	OL

The relative mean sunspot number is 4.6.

NORMALISED UCCLE OBSERVATIONAL SUNSPOT NUMBERS $U'=K'U$ FOR DECEMBER 2017

$K' = 1.205 (*)$

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

The normalised relative monthly mean sunspot number is 6.

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

The Sun has been observed 7 days on 31 possible.