



Sunspot Index and Long-term Solar Observations

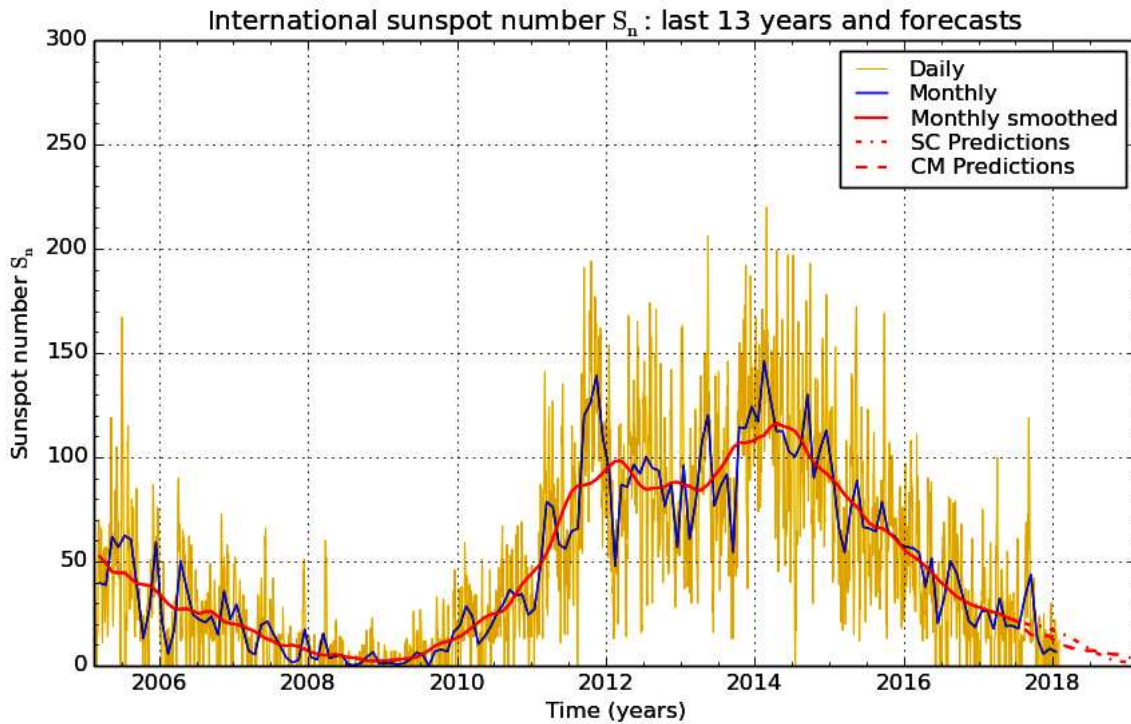
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SUNSPOT BULLETIN 2018 n° 1

Provisional international and normalized hemispheric daily sunspot numbers for January 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	12	12	0
5	11	11	0
6	11	11	0
7	11	11	0
8	13	0	13
9	16	0	16
10	22	0	22
11	12	0	12
12	0	0	0
13	0	0	0
14	11	0	11
15	12	0	12
16	16	0	16
17	15	0	15
18	12	0	12
19	11	0	11
20	0	0	0
21	0	0	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	11	0	11
31	12	0	12
Monthly mean	6.7	1.5	5.2
Cooperating stations	71	56	56



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

Predictions of the monthly smoothed Sunspot Number
using the last provisional value, calculated for July 2017: 21.0 ($\pm 5\%$)

	SM	CM		SM	CM		SM	CM
2017 Aug	20	18	2018 Feb	15	10	2018 Aug	6	7
Sep	19	15	Mar	14	9	Sep	4	6
Oct	19	15	Apr	12	8	Oct	3	6
Nov	19	15	May	11	8	Nov	2	5
Dec	18	14	Jun	9	7	Dec	2	4
2018 Jan	16	11	Jul	7	7	2019 Jan	1	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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Summary of the URSIGRAMs from S.I.D.C.

Date	S _n	PPSI	600	2800	COS	SFI	XI	Ak
31	13	0	-	71	////	0	0/0	4
1	0	0	-	69	////	0	0/0	10
2	0	0	-	70	////	0	0/0	6
3	0	0	-	71	////	0	0/0	2
4	12	6	-	70	////	0	0/0	3
5	11	3	-	69	////	0	0/0	6
6	11	1	-	69	////	0	0/0	2
7	11	1	-	70	////	0	0/0	2
8	13	2	-	70	////	0	0/0	9
9	16	2	-	71	////	0	0/0	10
10	22	1	-	70	////	0	0/0	3
11	12	2	-	71	////	0	0/0	3
12	0	1	-	71	////	0	0/0	4
13	0	0	-	71	////	0	0/0	5
14	11	0	-	71	////	0	0/0	15
15	12	4	-	70	////	0	0/0	12
16	16	9	-	71	////	0	0/0	4
17	15	6	-	71	////	0	0/0	1
18	12	3	-	71	////	2	0/0	2
19	11	1	-	71	////	0	0/0	10
20	0	0	-	70	////	0	0/0	8
21	0	0	-	68	////	0	0/0	11
22	0	0	-	70	////	0	0/0	13
23	0	1	-	71	////	0	0/0	4
24	0	0	-	70	////	///	///	11
25	0	0	-	70	////	0	0/0	10
26	0	0	-	70	////	0	0/0	10
27	0	0	-	69	////	0	0/0	8
28	0	0	-	69	////	0	0/0	5
29	0	0	-	68	////	0	0/0	4
30	11	1	-	69	////	0	0/0	3
31	12	2	-	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 : $1 \times S_n + 10 \times \text{"1"} + 100 \times \text{">1"}$).

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 JANUARY 2018

DATE	UT	NUMBER		RELATIVE SUNSPOT NUMBERS			PPSI	QUAL	OBS	
		OF GROUPS	OF SPOTS	TOTAL	NORTH	SOUTH				CENTRAL
2	1000	0	0	0	0	0	0.0	2	BB	
9	1430	0	0	0	0	0	0.0	2	SB	
13	1445	0	0	0	0	0	0.0	3	SB	
14	1020	1	2	12	0	12	0.2	3	SB	
16	1325	1	3	13	0	13	13	21.6	2	BB
17	1525	1	5	15	0	15	15	6.2	2	OL
18	1015	1	5	15	0	15	15	1.5	3	OL
19	1035	1	4	14	0	14	14	0.4	3	OL
21	1220	0	0	0	0	0	0	0.0	3	OL
22	1305	0	0	0	0	0	0	0.0	2	BB
23	1005	0	0	0	0	0	0	0.0	2	BB
24	1400	0	0	0	0	0	0	0.0	2	OB
30	940	1	3	13	0	13	0	0.2	3	OL

The relative mean sunspot number is 6.3.

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

$K' = 1.189 (*)$

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

The normalised relative monthly mean sunspot number is 7.

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

The Sun has been observed 13 days on 31 possible.