



Sunspot Index and Long-term Solar Observations

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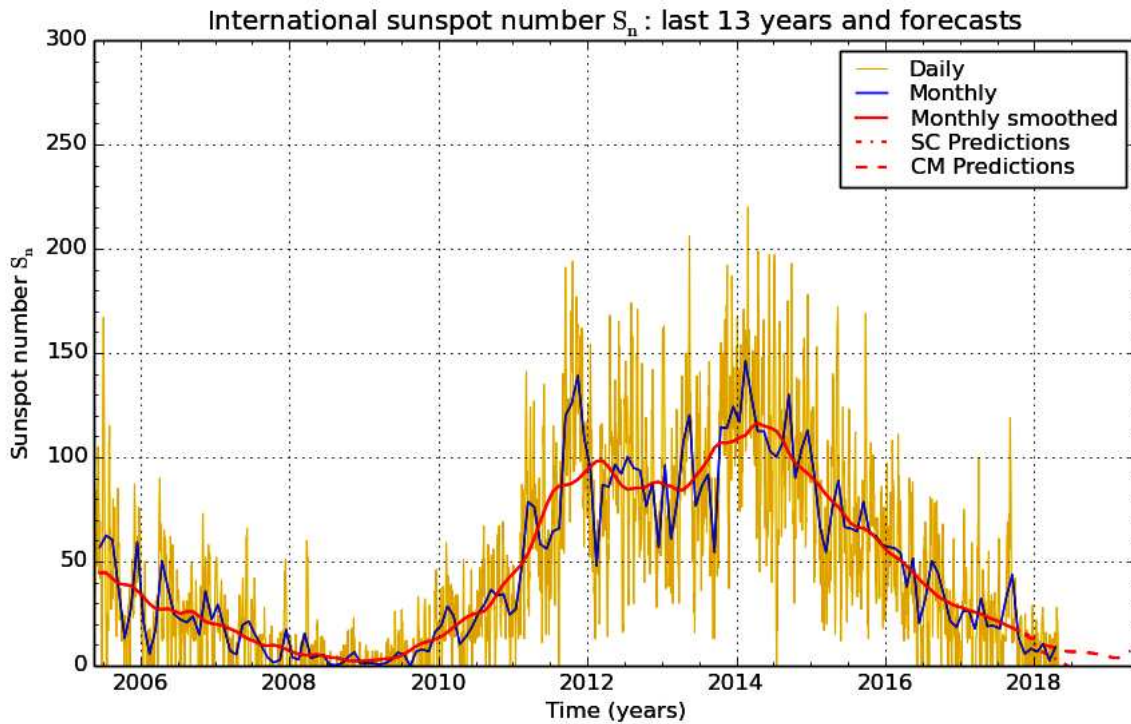
SUNSPOT BULLETIN

2018 n° 4

Provisional international and normalized hemispheric daily sunspot numbers for April 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	11	0	11
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	12	0	12
11	0	0	0
12	13	13	0
13	16	16	0
14	11	11	0
15	13	13	0
16	12	12	0
17	11	11	0
18	0	0	0
19	12	12	0
20	16	16	0
21	28	19	9
22	22	22	0
23	23	23	0
24	22	22	0
25	18	18	0
26	14	14	0
27	14	14	0
28	0	0	0
29	0	0	0
30	0	0	0
Monthly mean	8.9	7.9	1.0
Cooperating stations	71	56	56



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

Predictions of the monthly smoothed Sunspot Number

using the last provisional value, calculated for October 2017: 16.7 ($\pm 5\%$)

	SM	CM		SM	CM		SM	CM
2017 Nov	16	15	2018 May	2	7	2018 Nov	0	6
Dec	14	13	Jun	0	7	Dec	0	5
2018 Jan	8	13	Jul	0	7	2019 Jan	0	4
Feb	6	10	Aug	0	7	Feb	0	4
Mar	5	9	Sep	0	6	Mar	0	5
Apr	3	8	Oct	0	6	Apr	0	7

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	1	-	69	////	1	0/0	7
1	11	1	-	69	////	0	0/0	6
2	0	0	-	68	////	0	0/0	6
3	0	0	-	68	////	0	0/0	2
4	0	0	-	69	////	0	0/0	6
5	0	0	-	66	////	0	0/0	10
6	0	0	-	67	////	0	0/0	4
7	0	0	-	67	////	0	0/0	5
8	0	0	-	68	////	0	0/0	8
9	0	1	-	69	////	0	0/0	14
10	12	0	-	69	////	0	0/0	17
11	0	0	-	68	////	0	0/0	11
12	13	1	-	70	////	0	0/0	12
13	16	2	-	70	////	0	0/0	13
14	11	0	-	70	////	0	0/0	7
15	13	1	-	71	////	///	///	7
16	12	1	-	69	////	0	0/0	2
17	11	0	-	69	////	0	0/0	4
18	0	1	-	71	////	0	0/0	6
19	12	0	-	71	////	0	0/0	2
20	16	2	-	73	////	1	0/0	40
21	28	7	-	77	////	1	0/0	15
22	22	10	-	76	////	0	0/0	5
23	23	6	-	74	////	0	0/0	9
24	22	5	-	73	////	1	0/0	6
25	18	5	-	71	////	0	0/0	5
26	14	2	-	69	////	0	0/0	4
27	14	1	-	69	////	0	0/0	6
28	0	0	-	70	////	0	0/0	4
29	0	0	-	71	////	0	0/0	4
30	0	0	-	70	////	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 APRIL 2018

DATE	UT	NUMBER		RELATIVE SUNSPOT NUMBERS			PPSI	QUAL	OBS
		OF GROUPS	OF SPOTS	TOTAL	NORTH	SOUTH			
3	1130	0	0	0	0	0	0.0	3	BB
4	750	0	0	0	0	0	0.0	2	OB
5	1500	0	0	0	0	0	0.0	2	OB
6	714	0	0	0	0	0	0.0	3	SB
7	815	0	0	0	0	0	0.0	2	OB
8	930	0	0	0	0	0	0.0	3	OB
10	720	0	0	0	0	0	0.0	3	BB
11	1315	0	0	0	0	0	0.0	1	BB
14	720	1	2	12	12	0	0.3	3	SB
15	1010	1	3	13	13	0	0.3	3	SB
16	830	1	2	12	12	0	0.3	3	OL
17	715	1	1	11	11	0	0.3	3	BB
18	600	0	0	0	0	0	0.0	4	FC
19	730	0	0	0	0	0	0.0	3	OB
20	740	1	4	14	14	0	6.3	3	OP
21	1700	1	7	17	17	0	12.7	4	OP
22	900	1	9	19	19	0	15.8	3	OB
23	820	1	13	23	23	0	5.4	3	OL
25	1030	1	6	16	16	0	6.2	3	OB
26	750	1	4	14	14	0	2.2	3	OL
27	714	1	3	13	13	0	1.3	2	OL
30	1100	0	0	0	0	0	0.0	2	SB

The relative mean sunspot number is 7.5.

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

$$K' = 1.117 (*)$$

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

The normalised relative monthly mean sunspot number is 8.

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

The Sun has been observed 22 days on 30 possible.