



Sunspot Index and Long-term Solar Observations

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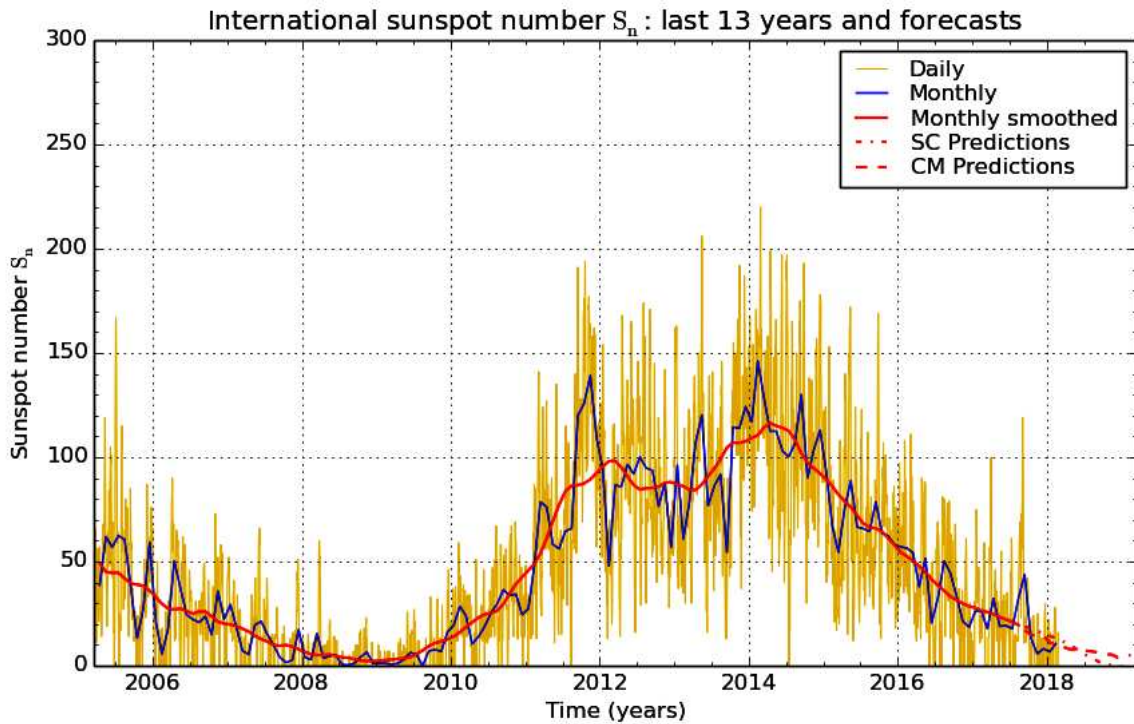
SUNSPOT BULLETIN

2018 n° 2

Provisional international and normalized hemispheric daily sunspot numbers for February 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	11	0	11
5	14	0	14
6	16	0	16
7	20	0	20
8	22	0	22
9	25	0	25
10	25	0	25
11	28	0	28
12	24	0	24
13	23	0	23
14	19	0	19
15	16	0	16
16	12	0	12
17	0	0	0
18	0	0	0
19	0	0	0
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	16	16	0
27	15	15	0
28	12	12	0
Monthly mean	10.6	1.5	9.1
Cooperating stations	72	57	57



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

Predictions of the monthly smoothed Sunspot Number
 using the last provisional value, calculated for August 2017: 19.5 ($\pm 5\%$)

	SM	CM		SM	CM		SM	CM
2017 Sep	19	17	2018 Mar	12	9	2018 Sep	2	6
Oct	18	15	Apr	10	8	Oct	1	6
Nov	17	15	May	9	8	Nov	0	5
Dec	16	15	Jun	7	7	Dec	0	4
2018 Jan	14	11	Jul	5	7	2019 Jan	0	4
Feb	13	10	Aug	3	7	Feb	0	5

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	12	2	-	69	////	0	0/0	7
1	0	0	-	69	////	///	///	8
2	0	0	-	69	////	0	0/0	3
3	0	0	-	69	////	0	0/0	4
4	11	1	-	73	////	13	0/0	4
5	14	3	-	74	////	9	0/0	10
6	16	12	-	77	////	5	0/0	5
7	20	24	-	77	////	8	0/0	2
8	22	34	-	78	////	16	0/0	4
9	25	38	-	78	////	4	0/0	6
10	25	42	-	78	////	1	0/0	8
11	28	36	-	78	////	0	0/0	2
12	24	43	-	79	////	0	0/0	4
13	23	23	-	76	////	0	0/0	3
14	19	13	-	75	////	0	0/0	3
15	16	5	-	73	////	0	0/0	20
16	12	1	-	72	////	0	0/0	8
17	0	0	-	69	////	0	0/0	14
18	0	0	-	70	////	0	0/0	15
19	0	0	-	69	////	0	0/0	21
20	0	0	-	68	////	0	0/0	5
21	0	0	-	68	////	0	0/0	3
22	0	0	-	68	////	0	0/0	16
23	0	0	-	68	////	0	0/0	19
24	0	0	-	68	////	0	0/0	9
25	0	1	-	67	////	0	0/0	6
26	16	5	-	70	////	1	0/0	11
27	15	4	-	68	////	0	0/0	21
28	12	3	-	69	////	1	0/0	8

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 FEBRUARY 2018

DATE	UT	NUMBER		RELATIVE SUNSPOT NUMBERS			PPSI	QUAL	OBS	
		OF GROUPS	OF SPOTS	TOTAL	NORTH	SOUTH				CENTRAL
1	1240	0	0	0	0	0	0.0	3	OL	
2	1300	0	0	0	0	0	0.0	2	SB	
4	945	0	0	0	0	0	0.0	3	OL	
5	1000	1	3	13	0	13	0	0.5	3	SB
6	1135	1	6	16	0	16	0	9.6	2	FC
7	1100	1	11	21	0	21	0	13.9	3	BB
8	1320	1	22	32	0	32	0	18.4	3	FC
10	950	1	23	33	0	33	33	23.2	3	FC
11	1310	1	18	28	0	28	28	23.4	2	FC
12	1350	1	19	29	0	29	29	21.4	2	SB
13	940	1	12	22	0	22	0	18.5	3	SB
14	920	1	8	18	0	18	0	3.9	2	SB
15	1450	1	5	15	0	15	0	2.0	2	SB
16	950	1	3	13	0	13	0	0.3	3	SB
17	1215	0	0	0	0	0	0	0.0	2	SB
18	1125	0	0	0	0	0	0	0.0	3	SB
20	1100	0	0	0	0	0	0	0.0	2	BB
21	900	0	0	0	0	0	0	0.0	3	OB
22	900	0	0	0	0	0	0	0.0	3	OB
23	950	0	0	0	0	0	0	0.0	3	OB
24	1010	0	0	0	0	0	0	0.0	3	OB
25	1400	1	1	11	11	0	11	0.4	3	OB
26	1408	1	7	17	17	0	17	1.5	2	SB
27	845	1	6	16	16	0	16	1.4	3	OL
28	835	1	2	12	12	0	0	1.2	3	BB

The relative mean sunspot number is 11.8.

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

$K'= 1.172 (*)$

1	0	7	25	13	26	19	***	25	13
2	0	8	38	14	21	20	0	26	20
3	***	9	***	15	18	21	0	27	19
4	0	10	39	16	15	22	0	28	14
5	15	11	33	17	0	23	0		
6	19	12	34	18	0	24	0		

The normalised relative monthly mean sunspot number is 14.

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

The Sun has been observed 25 days on 28 possible.