



Sunspot Index and Long-term Solar Observations

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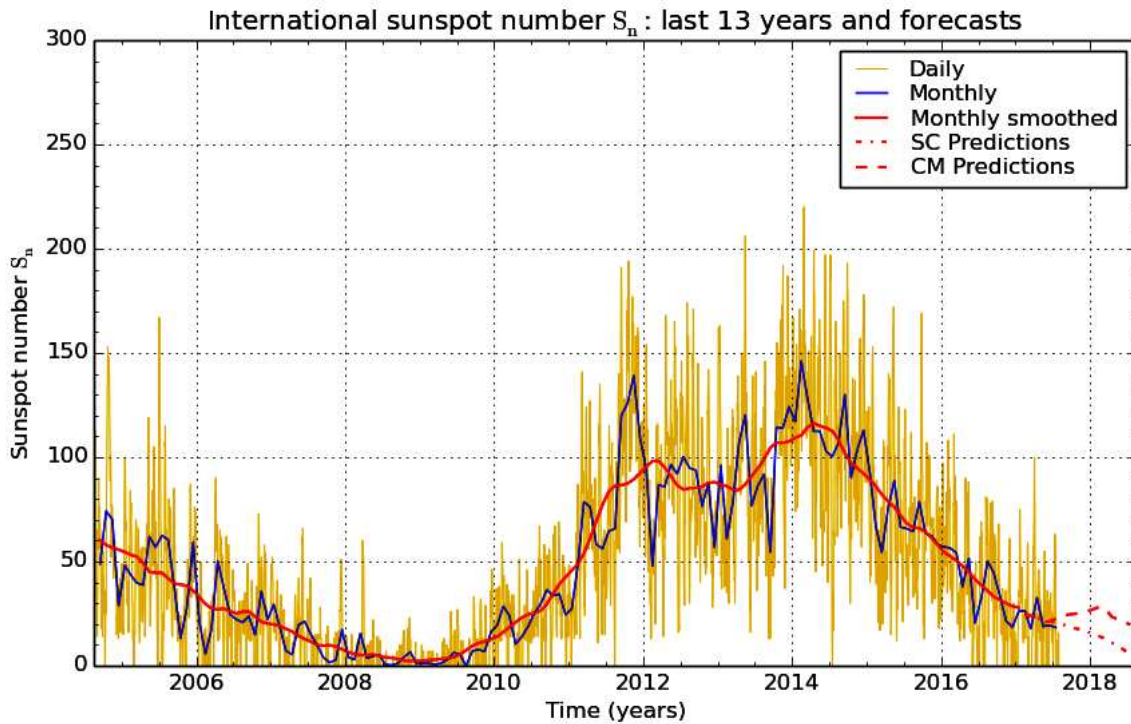
SUNSPOT BULLETIN

2017 n° 7

Provisional international and normalized hemispheric daily sunspot numbers for July 2017

Computed at the *Royal Observatory of Belgium* using observations from an international network with the *Specola Solare Ticinese Locarno* as reference station.

Date	R' _I	R' _N	R' _S
1	25	25	0
2	12	12	0
3	0	0	0
4	0	0	0
5	14	0	14
6	15	0	15
7	26	0	26
8	31	0	31
9	43	11	32
10	45	11	34
11	39	0	39
12	63	26	37
13	59	23	36
14	52	21	31
15	33	13	20
16	21	10	11
17	22	11	11
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	12	12	0
26	12	12	0
27	0	0	0
28	11	11	0
29	16	16	0
30	15	15	0
31	0	0	0
Monthly mean	18.3	7.4	10.9
Cooperating stations	77	61	61



SILSO graphics (<http://sidc.be/silso>) Royal Observatory of Belgium 2017 August 1

Predictions of the monthly smoothed Sunspot Number
 using the last provisional value, calculated for January 2017: 27.9 ($\pm 5\%$)

	SM	CM		SM	CM		SM	CM
2017 Feb	25	25	2017 Aug	20	24	2018 Feb	14	28
Mar	22	24	Sep	19	25	Mar	13	27
Apr	23	23	Oct	18	25	Apr	11	23
May	22	21	Nov	17	25	May	10	22
Jun	21	21	Dec	16	26	Jun	8	21
Jul	21	23	2018 Jan	15	27	Jul	6	20

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	R _i	PPSI	600	2800	COS	SFI	XI	Ak
30	11	4	-	72	////	0	0/0	5
1	25	1	-	71	////	0	0/0	15
2	12	0	-	71	////	0	0/0	24
3	0	0	-	72	////	0	0/0	8
4	0	0	-	72	////	0	0/0	6
5	14	0	-	73	////	2	0/0	3
6	15	4	-	76	////	3	0/0	10
7	26	14	-	80	////	29	0/0	6
8	31	40	-	87	////	222	0/0	4
9	43	79	-	91	////	126	1/0	25
10	45	86	-	95	////	2	0/0	8
11	39	90	-	91	////	5	0/0	10
12	63	91	-	90	////	0	0/0	4
13	59	66	-	92	////	2	0/0	4
14	52	62	-	94	////	31	1/0	3
15	33	34	-	92	////	6	0/0	5
16	21	14	-	87	////	3	0/0	43
17	22	6	-	86	////	0	0/0	24
18	0	0	-	78	////	0	0/0	8
19	0	0	-	73	////	0	0/0	4
20	0	0	-	70	////	0	0/0	8
21	0	0	-	69	////	0	0/0	16
22	0	2	-	70	////	0	0/0	16
23	0	0	-	71	////	0	0/0	16
24	0	0	-	70	////	0	0/0	14
25	12	1	-	70	////	0	0/0	13
26	12	1	-	69	////	0	0/0	13
27	0	0	-	68	////	0	0/0	8
28	11	1	-	70	////	0	0/0	10
29	16	1	-	70	////	0	0/0	6
30	15	1	-	70	////	0	0/0	5
31	0	0	-	72	////	0	0/0	4

R_i : 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/m² : 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 JULY 2017

DATE	UT	NUMBER		RELATIVE SUNSPOT NUMBERS			PPSI	QUAL	OBS	
		OF GROUPS	OF SPOTS	TOTAL	NORTH	SOUTH				CENTRAL
2	1230	1	1	11	11	0	0	0.1	2	OB
3	740	0	0	0	0	0	0	0.0	3	BB
4	1140	0	0	0	0	0	0	0.0	2	BB
5	610	0	0	0	0	0	0	0.0	3	BB
6	805	1	4	14	0	14	0	4.5	4	OL
7	1245	1	16	26	0	26	0	9.1	3	OL
8	1320	1	22	32	0	32	0	43.0	2	OP
9	810	2	30	50	12	38	12	54.2	3	OP
10	845	3	37	67	23	44	67	65.6	2	BB
11	840	1	20	30	0	30	30	69.0	2	FC
13	630	2	66	86	23	63	86	69.2	4	FC
14	640	3	44	74	33	41	22	58.8	3	FC
17	1335	1	4	14	0	14	0	3.1	2	BB
18	730	0	0	0	0	0	0	0.0	3	BB
19	805	0	0	0	0	0	0	0.0	2	BB
20	1000	0	0	0	0	0	0	0.0	2	OB
21	815	0	0	0	0	0	0	0.0	2	OB
22	800	1	1	11	11	0	11	0.3	3	OB
23	1030	0	0	0	0	0	0	0.0	2	OB
24	800	0	0	0	0	0	0	0.0	2	BB
25	815	0	0	0	0	0	0	0.0	3	OL
26	750	0	0	0	0	0	0	0.0	3	OL
27	820	0	0	0	0	0	0	0.0	3	OL
28	1120	1	1	11	11	0	11	0.4	3	OL
29	815	0	0	0	0	0	0	0.0	3	OL
30	705	1	3	13	13	0	0	1.2	2	OL
31	740	0	0	0	0	0	0	0.0	2	BB

The relative mean sunspot number is 16.3.

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

$K' = 1.194 (*)$

1	***	7	31	13	103	19	0	25	0
2	13	8	38	14	88	20	0	26	0
3	0	9	60	15	***	21	0	27	0
4	0	10	80	16	***	22	13	28	13
5	0	11	36	17	17	23	0	29	0
6	17	12	***	18	0	24	0	30	16
								31	0

The normalised relative monthly mean sunspot number is 19.

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

The Sun has been observed 27 days on 31 possible.