



Sunspot Index and Long-term Solar Observations

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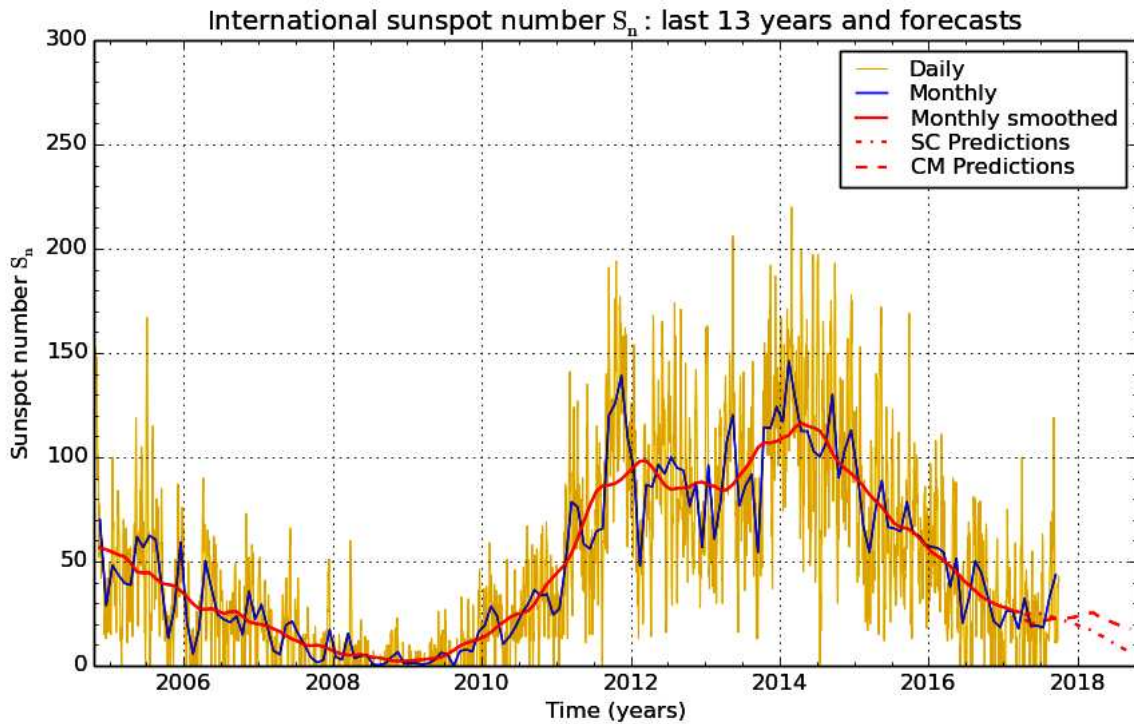
SUNSPOT BULLETIN

2017 n° 9

Provisional international and normalized hemispheric daily sunspot numbers for September 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	59	34	25
2	56	31	25
3	106	52	54
4	113	48	65
5	119	60	59
6	99	63	36
7	97	60	37
8	89	60	29
9	64	43	21
10	40	40	0
11	31	31	0
12	11	11	0
13	12	12	0
14	12	12	0
15	12	12	0
16	13	13	0
17	14	14	0
18	13	13	0
19	11	11	0
20	22	11	11
21	22	11	11
22	21	11	10
23	12	0	12
24	23	0	23
25	36	12	24
26	39	12	27
27	37	12	25
28	42	12	30
29	43	12	31
30	40	13	27
Monthly mean	43.6	24.2	19.4
Cooperating stations	78	66	66



SILSO graphics (<http://sidc.be/silso>) Royal Observatory of Belgium 2017 October 2

Predictions of the monthly smoothed Sunspot Number
 using the last provisional value, calculated for March 2017: 25.8 ($\pm 5\%$)

		SM	CM			SM	CM			SM	CM
2017	Apr	24	22	2017	Oct	22	23	2018	Apr	15	23
	May	25	20		Nov	21	23		May	13	22
	Jun	26	20		Dec	20	23		Jun	11	21
	Jul	25	21	2018	Jan	19	24		Jul	10	20
	Aug	24	22		Feb	18	25		Aug	8	19
	Sep	23	23		Mar	17	26		Sep	7	18

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
31	74	78	-	92	////	5	0/0	27
1	59	99	-	93	////	7	0/0	20
2	56	124	-	100	////	9	0/0	22
3	106	176	-	120	////	18	0/0	10
4	113	309	-	183	////	157	7/0	19
5	119	269	-	121	////	36	5/0	15
6	99	255	-	133	////	218	2/2	12
7	97	194	-	129	////	141	4/1	30
8	89	187	-	117	////	232	5/0	89
9	64	66	-	107	////	24	3/0	3
10	40	21	-	100	////	0	0/0	8
11	31	6	-	80	////	0	0/0	14
12	11	11	-	76	////	5	0/0	19
13	12	13	-	75	////	1	0/0	14
14	12	16	-	74	////	0	0/0	29
15	12	14	-	73	////	0	0/0	34
16	13	20	-	72	////	0	0/0	25
17	14	15	-	72	////	0	0/0	16
18	13	11	-	72	////	0	0/0	21
19	11	6	-	71	////	0	0/0	12
20	22	5	-	74	////	0	0/0	12
21	22	6	-	73	////	0	0/0	6
22	21	7	-	78	////	0	0/0	8
23	12	11	-	81	////	0	0/0	7
24	23	16	-	87	////	0	0/0	6
25	36	24	-	90	////	1	0/0	5
26	39	40	-	91	////	1	0/0	5
27	37	54	-	91	////	10	0/0	34
28	42	71	-	91	////	0	0/0	40
29	43	84	-	90	////	1	0/0	14
30	40	77	-	89	////	1	0/0	18

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 SEPTEMBER 2017

DATE	UT	NUMBER		RELATIVE SUNSPOT NUMBERS			PPSI	QUAL	OBS	
		OF GROUPS	OF SPOTS	TOTAL	NORTH	SOUTH				CENTRAL
1	800	4	24	64	37	27	0	61.3	3	OB
2	930	3	37	67	41	26	12	57.9	3	OB
3	900	5	55	105	53	52	64	132.3	3	OB
5	1255	6	93	153	79	74	117	125.5	2	FC
6	730	5	127	177	88	89	59	128.8	3	FC
7	745	4	40	80	47	33	24	97.5	1	LL
9	1225	3	22	52	33	19	15	24.8	2	FC
10	955	3	9	39	39	0	12	11.4	2	FC
11	840	2	3	23	23	0	0	1.2	3	OL
12	810	1	2	12	12	0	0	1.3	2	SB
13	805	1	2	12	12	0	0	1.8	2	OL
14	910	1	4	14	14	0	14	2.1	3	OL
15	1030	1	2	12	12	0	12	2.3	3	OL
16	745	1	4	14	14	0	14	6.3	3	OL
17	745	1	5	15	15	0	15	2.2	3	OL
18	800	1	5	15	15	0	0	1.9	3	SB
19	1015	1	3	13	13	0	0	1.4	2	SB
20	1500	2	2	22	11	11	0	1.1	3	OB
21	800	2	2	22	11	11	0	1.1	2	OB
22	1320	1	1	11	0	11	0	1.1	1	OB
23	950	1	2	12	0	12	0	1.4	3	OB
24	940	2	3	23	0	23	0	2.0	3	OB
25	755	3	8	38	12	26	15	5.1	3	OL
26	1340	3	14	44	12	32	19	24.1	2	SB
27	1045	3	6	36	12	24	12	36.3	2	OL
28	940	3	13	43	12	31	0	26.8	2	OL
29	830	3	7	37	12	25	26	32.4	1	OL
30	1530	3	16	46	17	29	35	36.8	3	OL

The relative mean sunspot number is 42.9.

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

$K' = 1.222 (*)$

1	78	7	98	13	15	19	16	25	46
2	82	8	***	14	17	20	27	26	54
3	128	9	64	15	15	21	27	27	44
4	***	10	48	16	17	22	13	28	53
5	187	11	28	17	18	23	15	29	45
6	216	12	15	18	18	24	28	30	56

The normalised relative monthly mean sunspot number is 52.

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

The Sun has been observed 28 days on 30 possible.