



Sunspot Index and Long-term Solar Observations

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SUNSPOT BULLETIN

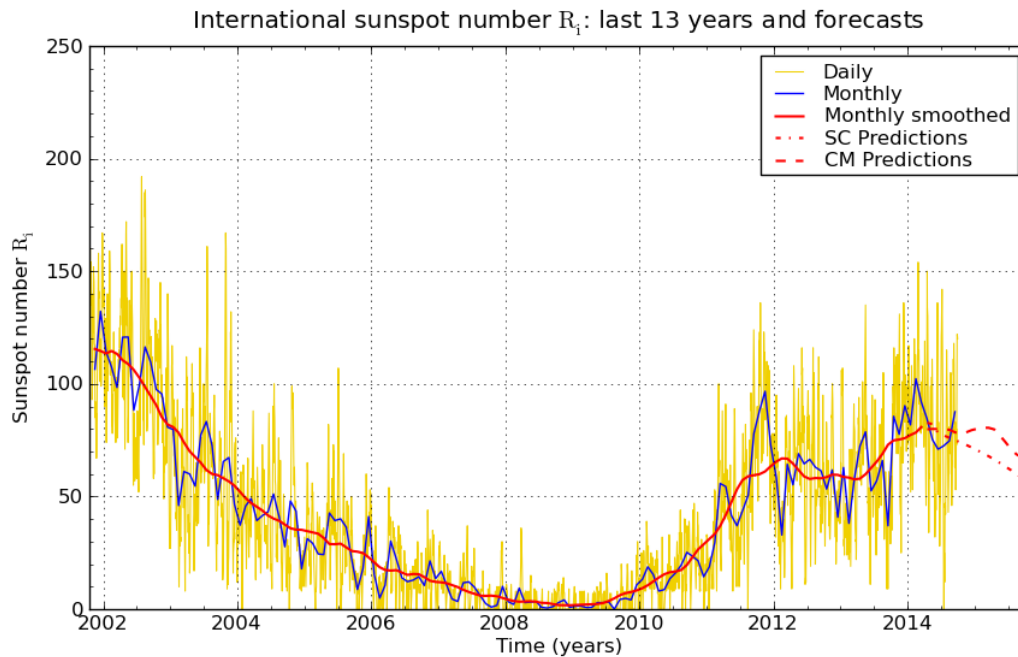
2014

n° 9

Provisional international and normalized hemispheric daily sunspot numbers for September 2014

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

Date	R' _I	R' _N	R' _S
1	65	12	53
2	74	9	65
3	69	0	69
4	81	8	73
5	78	9	69
6	96	18	78
7	111	22	89
8	104	25	79
9	118	42	76
10	114	37	77
11	108	29	79
12	85	25	60
13	84	25	59
14	70	30	40
15	63	28	35
16	77	23	54
17	83	34	49
18	55	29	26
19	53	24	29
20	54	22	32
21	64	24	40
22	68	24	44
23	80	33	47
24	73	23	50
25	97	42	55
26	111	45	66
27	122	39	83
28	130	42	88
29	121	49	72
30	120	50	70
Monthly mean	87.6	27.4	60.2
Cooperating stations	71	61	61



SILSO graphics (<http://sidc.be>) Royal Observatory of Belgium 01/10/2014

Predictions of the monthly smoothed Sunspot Number
 using the last provisional value, calculated for March 2014: 80.8 ($\pm 5\%$)

	SM	CM		SM	CM		SM	CM
2014 Apr	83	80	2014 Oct	74	78	2015 Apr	66	80
May	82	80	Nov	73	79	May	65	77
Jun	78	80	Dec	72	80	Jun	63	74
Jul	77	80	2015 Jan	71	80	Jul	62	71
Aug	76	80	Feb	69	81	Aug	60	69
Sep	75	79	Mar	68	81	Sep	58	67

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, due to 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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S.I.D.C. SUMMARY OF THE URSIGRAMS

Date	R' _i	PPSI	600	2800	COS	SFI	XI	Ak	SEA
31	57	74	-	125	////	19	0/0	17	
1	65	65	-	127	////	7	0/0	11	
2	74	65	-	136	////	7	0/0	14	
3	69	63	-	138	////	0	1/0	10	
4	81	64	-	146	////	2	0/0	7	
5	78	64	-	144	////	13	0/0	9	
6	96	84	-	157	////	19	1/0	13	
7	111	103	-	151	////	9	0/0	6	
8	104	113	-	164	////	25	0/0	6	
9	118	158	-	159	////	13	0/0	10	
10	114	160	-	160	////	111	0/1	10	
11	108	109	-	151	////	5	0/0	11	
12	85	87	-	152	////	14	0/0	39	
13	84	63	-	145	////	12	0/0	14	
14	70	61	-	139	////	103	1/0	3	
15	63	33	-	133	////	9	0/0	3	
16	77	25	-	133	////	3	0/0	10	
17	83	22	-	125	////	5	0/0	7	
18	55	19	-	120	////	3	1/0	10	
19	53	15	-	122	////	1	0/0	21	
20	54	21	-	119	////	0	0/0	5	
21	64	48	-	124	////	0	0/0	6	
22	68	69	-	130	////	1	0/0	10	
23	80	100	-	138	////	104	1/0	14	
24	73	101	-	145	////	14	0/0	24	
25	97	121	-	158	////	19	0/0	14	
26	111	186	-	170	////	42	0/0	17	
27	122	177	-	181	////	12	0/0	16	
28	130	173	-	181	////	128	2/0	11	
29	121	170	-	175	////	15	0/0	13	
30	120	97	-	162	////	11	0/0	14	

- 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/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** : From October 1992, Solar Flare Index from the S.I.D.C. (origin : Ursigrams – UGEOR, evaluation : $1 \times \text{Sn} + 10 \times "1" + 100 \times ">1"$).
- XI** : X-flares index from the Ursigrams (M-flares/X-flares) (origin : Ursigrams – UGEOR, UGEOI).
- Ak** : geomagnetic index from Wingst, Germany (origin : Ursigrams).
- SEA** : sudden enhancements of atmospherics from Uccle & Humain (Royal Observatory, Belgium).

Note that due to problems of interferences saturating our receivers, no SEA could be detected this month.

SOLAR PHYSICS DEPARTMENT

UCCLE DAILY PROVISIONAL RELATIVE SUNSPOT NUMBERS FOR SEPTEMBER 2014

DATE	UT	NUMBER		RELATIVE SUNSPOT NUMBERS			PPSI 10-5 WM-2	QUAL	OBS	
		OF GROUPS	OF SPOTS	TOTAL	NORTH	SOUTH				CENTRAL
1	715	5	22	72	13	59	37	32.3	2	AE
2	1200	7	35	105	12	93	42	40.7	2	AE
3	945	6	34	94	0	94	30	79.1	2	AE
4	715	7	34	104	13	91	18	65.9	3	AE
5	1340	7	27	97	24	73	14	60.0	2	AE
7	810	9	52	142	32	110	24	82.4	2	AM
8	1000	5	18	68	14	54	31	63.9	2	OB
9	900	8	55	135	54	81	85	88.9	3	OB
10	1130	8	51	131	38	93	83	95.5	1	AM
12	720	5	41	91	30	61	53	35.8	2	AM
13	1010	6	45	105	36	69	35	35.8	1	AM
14	1135	6	28	88	41	47	20	57.4	2	AM
15	725	5	29	79	37	42	17	24.5	3	OL
16	720	6	41	101	41	60	47	19.8	3	OL
18	735	5	34	84	49	35	26	14.4	3	OL
19	715	6	22	82	40	42	17	9.0	3	OL
20	745	4	15	55	28	27	28	12.3	3	OL
21	1240	7	23	93	45	48	23	29.5	3	OL
22	930	6	26	86	36	50	24	86.7	2	AE
23	830	7	27	97	47	50	51	82.7	3	OB
25	745	7	40	110	51	59	77	125.8	2	AE
27	930	5	75	125	42	83	65	140.6	2	AE
28	915	7	63	133	53	80	31	124.3	2	AE
30	800	11	56	166	81	85	48	73.3	2	AE

The relative mean sunspot number is 101.8.

NORMALISED UCCLE OBSERVATIONAL SUNSPOT NUMBERS $U'=K'U$ FOR SEPTEMBER 2014

$K'= 0.844$ (*)

1	61	7	120	13	89	19	69	25	93
2	89	8	57	14	74	20	46	26	***
3	79	9	114	15	67	21	78	27	106
4	88	10	111	16	85	22	73	28	112
5	82	11	***	17	***	23	82	29	***
6	***	12	77	18	71	24	***	30	140

The normalised relative monthly mean sunspot number is 86.

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

The Sun has been observed 24 days on 30 possible.