



Center

Data Analysis Service supported by the FAGS

SUNSPOT BULLETIN

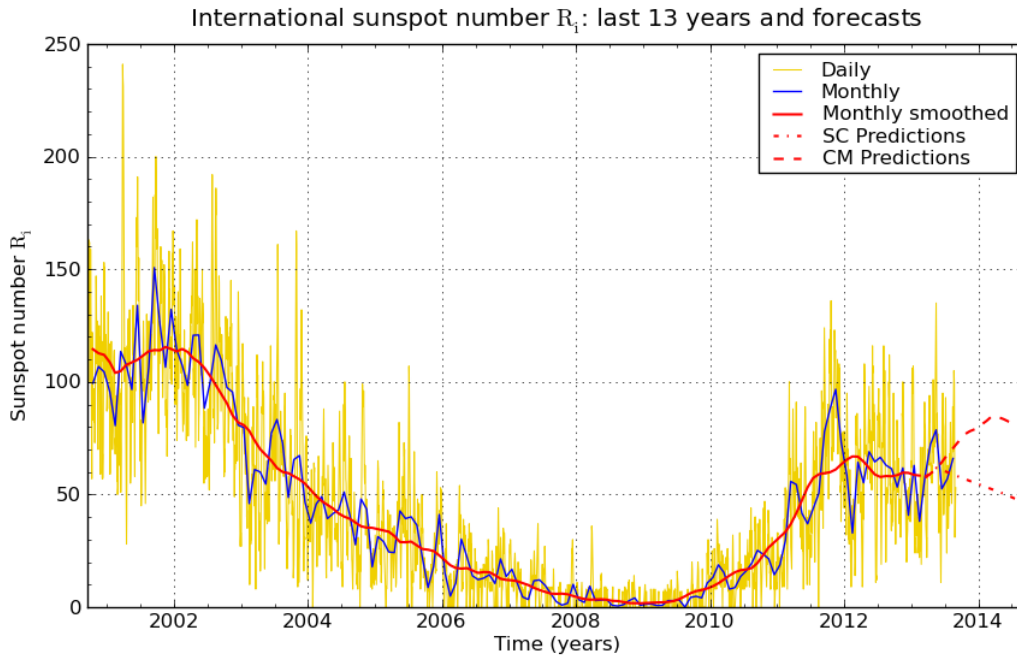
2013

n° 8

Provisional international and normalized hemispheric daily sunspot numbers for August 2013

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

Date	R' ₁	R' _N	R' _S
1	69	46	23
2	82	43	39
3	77	43	34
4	62	36	26
5	59	24	35
6	51	23	28
7	62	29	33
8	64	24	40
9	46	8	38
10	52	12	40
11	58	8	50
12	65	0	65
13	78	0	78
14	78	0	78
15	89	9	80
16	69	0	69
17	72	7	65
18	79	16	63
19	96	33	63
20	93	25	68
21	105	44	61
22	100	48	52
23	99	50	49
24	56	20	36
25	36	17	19
26	31	13	18
27	40	20	20
28	36	22	14
29	38	25	13
30	51	28	23
31	53	36	17
Monthly mean	66.0	22.9	43.1
Cooperating stations	65	58	58



SILSO graphics (<http://sidc.be>) Royal Observatory of Belgium 01/09/2013

Predictions of the monthly smoothed Sunspot Number
 using the last provisional value, calculated for February 2013: 58.4 ($\pm 5\%$)

		SM	CM		SM	CM		SM	CM		
2013	Mar	58	57	2013	Sep	58	74	2014	Mar	52	85
	Apr	59	59		Oct	57	77		Apr	51	84
	May	62	61		Nov	56	78		May	50	84
	Jun	61	64		Dec	55	79		Jun	49	82
	Jul	60	68	2014	Jan	54	81		Jul	48	81
	Aug	59	71		Feb	53	83		Aug	47	80

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

Brussels, September 1, 2013 09:46 UT
 Reproduction permitted if source mentioned.

Editor: Frédéric Clette
 3, avenue Circulaire, B-1180 Bruxelles, Belgium
 Fax: ..32/(0)2/374.98.22 Tel: ..32/(0)2/373.02.33 E-mail: arille@oma.be frederic.clette@oma.be

FTP anonymous : omaftp.oma.be, directory: dist/astro/sidcdata
 Web: <http://sidc.oma.be>, "Sunspots" section in sidebar.

S.I.D.C. SUMMARY OF THE URSIGRAMS

Date	R' _i	PPSI	600	2800	COS	SFI	XI	Ak	SEA
31	68	32	-	109	////	0	0/0	7	
1	69	29	-	112	////	3	0/0	6	
2	82	46	-	113	////	5	0/0	3	
3	77	41	-	107	////	1	0/0	6	
4	62	30	-	105	////	0	0/0	24	
5	59	27	-	104	////	0	0/0	19	
6	51	23	-	104	////	1	0/0	8	
7	62	21	-	106	////	1	0/0	4	
8	64	17	-	104	////	1	0/0	5	
9	46	15	-	104	////	0	0/0	8	
10	52	9	-	103	////	0	0/0	8	
11	58	22	-	110	////	11	0/0	6	
12	65	32	-	114	////	8	1/0	6	
13	78	71	-	122	////	3	0/0	14	
14	78	77	-	125	////	16	0/0	14	
15	89	77	-	123	////	3	0/0	20	
16	69	60	-	120	////	6	0/0	28	
17	72	52	-	125	////	103	2/0	8	
18	79	63	-	126	////	3	0/0	8	
19	96	61	-	128	////	5	0/0	6	
20	93	62	-	132	////	1	0/0	4	
21	105	56	-	130	////	7	0/0	24	
22	100	48	-	132	////	3	0/0	18	
23	99	35	-	124	////	8	0/0	18	
24	56	20	-	117	////	1	0/0	10	
25	36	12	-	113	////	0	0/0	8	
26	31	14	-	111	////	0	0/0	6	
27	40	21	-	110	////	0	0/0	18	
28	36	29	-	108	////	0	0/0	8	
29	38	33	-	109	////	1	0/0	2	
30	51	48	-	108	////	13	0/0	12	
31	53	51	-	///	////	///	///	///	

- 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 AUGUST 2013

DATE	UT	NUMBER		RELATIVE SUNSPOT NUMBERS			PPSI 10-5 WM-2	QUAL	OBS	
		OF GROUPS	OF SPOTS	TOTAL	NORTH	SOUTH				CENTRAL
1	700	7	13	83	59	24	24	12.6	3	SV
2	745	7	25	95	51	44	46	35.5	3	AE
3	815	6	26	86	54	32	26	32.1	2	OB
4	800	5	15	65	40	25	29	28.3	2	OB
5	740	4	10	50	27	23	13	29.9	3	AE
8	900	6	17	77	33	44	19	12.6	2	AE
9	715	4	14	54	11	43	0	9.9	2	AE
10	900	5	7	57	11	46	0	7.9	1	AE
11	830	6	15	75	11	64	0	29.2	2	AE
13	630	5	46	96	0	96	73	79.1	3	SV
14	750	6	45	105	12	93	81	87.3	3	SV
16	645	5	30	80	0	80	23	31.9	2	SV
17	930	7	23	93	0	93	57	10.3	3	SV
19	745	8	36	116	44	72	48	53.2	2	AE
20	800	7	34	104	30	74	15	76.4	2	AE
21	745	8	38	118	41	77	12	51.8	3	AE
22	730	9	28	118	62	56	11	57.5	2	AE
23	815	9	32	122	68	54	43	28.0	3	AE
25	1045	4	6	46	24	22	13	14.0	2	AE
26	715	3	3	33	11	22	11	12.9	3	OL
27	925	4	16	56	27	29	0	17.2	3	OL
28	750	3	16	46	29	17	17	18.5	3	OL
29	830	3	14	44	28	16	31	8.0	2	OB
30	715	3	37	67	41	26	54	45.8	3	OL
31	1035	4	37	77	49	28	77	48.8	3	OL

The relative mean sunspot number is 78.5.

NORMALISED UCCLE OBSERVATIONAL SUNSPOT NUMBERS $U'=K'U$ FOR AUGUST 2013

$$K' = 0.747 (*)$$

1	62	7	***	13	72	19	87	25	34
2	71	8	58	14	78	20	78	26	25
3	64	9	40	15	***	21	88	27	42
4	49	10	43	16	60	22	88	28	34
5	37	11	56	17	69	23	91	29	33
6	***	12	***	18	***	24	***	30	50
								31	58

The normalised relative monthly mean sunspot number is 59.

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

The Sun has been observed 25 days on 31 possible.