

Center

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SUNSPOT BULLETIN

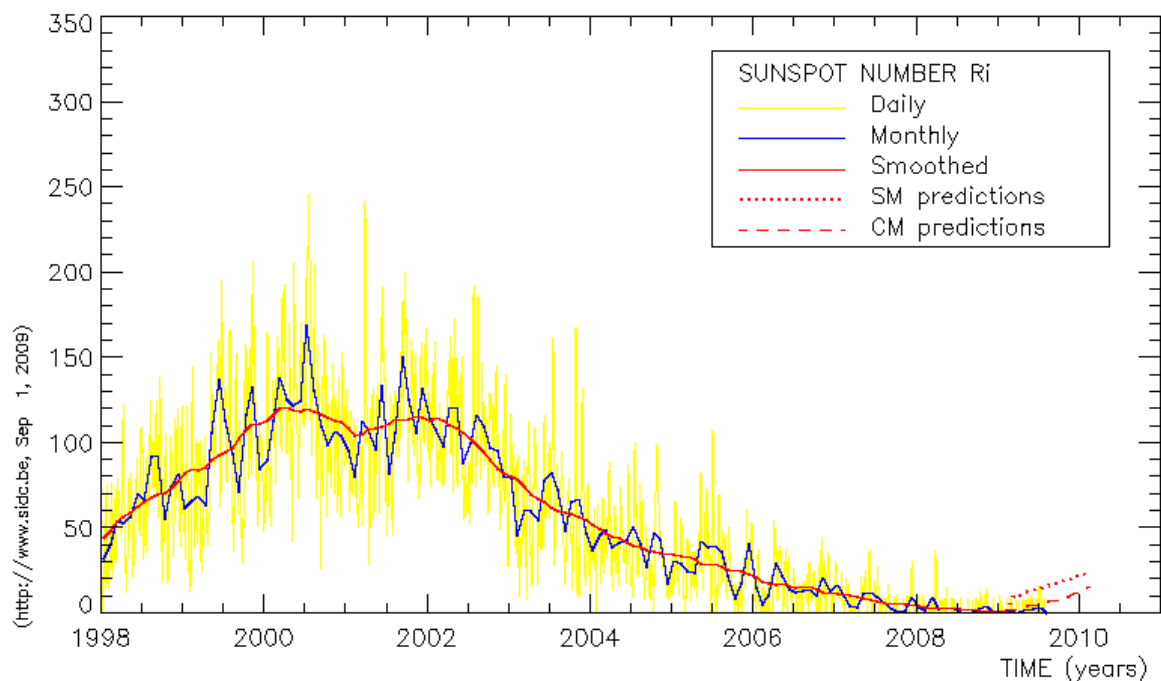
2009

n° 8

Provisional international and normalized hemispheric daily sunspot numbers for August 2009

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	0	0	0
2	0	0	0
3	0	0	0
4	0	0	0
5	0	0	0
6	0	0	0
7	0	0	0
8	0	0	0
9	0	0	0
10	0	0	0
11	0	0	0
12	0	0	0
13	0	0	0
14	0	0	0
15	0	0	0
16	0	0	0
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	0	0	0
27	0	0	0
28	0	0	0
29	0	0	0
30	0	0	0
31	0	0	0
Monthly mean	0.0	0.0	0.0
Cooperating stations	63	57	57



Predictions of the monthly smoothed Sunspot Number
 using the last provisional value, calculated for February 2009 : $1.9 (\pm 5\%)$

		SM	CM			SM	CM			SM	CM
2009	Mar	2	3	2009	Sep	14	8	2010	Mar	22	19
	Apr	2	3		Oct	15	9		Apr	23	21
	May	2	4		Nov	16	10		May	25	23
	Jun	11	5		Dec	18	12		Jun	27	26
	Jul	12	6	2010	Jan	19	14		Jul	28	28
	Aug	13	7		Feb	20	16		Aug	30	31

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 idea 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	0	999	-	69	////	0	0/0	5	
1	0	999	-	68	////	0	0/0	5	
2	0	999	-	68	////	0	0/0	5	
3	0	999	-	67	////	0	0/0	8	
4	0	999	-	66	////	0	0/0	4	
5	0	999	-	66	////	0	0/0	7	
6	0	999	-	67	////	0	0/0	12	
7	0	999	-	68	////	0	0/0	10	
8	0	999	-	67	////	0	0/0	4	
9	0	999	-	67	////	0	0/0	8	
10	0	999	-	67	////	0	0/0	6	
11	0	999	-	67	////	0	0/0	6	
12	0	999	-	67	////	0	0/0	6	
13	0	999	-	67	////	0	0/0	5	
14	0	999	-	68	////	0	0/0	3	
15	0	999	-	68	////	0	0/0	3	
16	0	999	-	69	////	0	0/0	3	
17	0	999	-	68	////	0	0/0	3	
18	0	999	-	67	////	0	0/0	4	
19	0	999	-	67	////	0	0/0	10	
20	0	999	-	68	////	0	0/0	10	
21	0	999	-	66	////	0	0/0	10	
22	0	999	-	67	////	0	0/0	6	
23	0	999	-	67	////	0	0/0	5	
24	0	999	-	68	////	0	0/0	2	
25	0	999	-	67	////	0	0/0	4	
26	0	999	-	67	////	0	0/0	4	
27	0	999	-	68	////	0	0/0	8	
28	0	999	-	68	////	0	0/0	3	
29	0	999	-	68	////	0	0/0	3	
30	0	999	-	67	////	0	0/0	25	
31	0	999	-	68	////	0	0/0	6	

- 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 2009

DATE	UT	NUMBER		RELATIVE SUNSPOT NUMBERS			PPSI 10-5 WM-2	QUAL	OBS
		OF GROUPS	OF SPOTS	TOTAL	NORTH	SOUTH			
1	810	0	0	0	0	0	0.0	2	OB
3	800	0	0	0	0	0	0.0	3	AE
4	800	0	0	0	0	0	0.0	3	AE
5	730	0	0	0	0	0	0.0	3	AE
6	745	0	0	0	0	0	0.0	3	AE
7	900	0	0	0	0	0	0.0	2	AE
8	930	0	0	0	0	0	0.0	2	SV
9	1000	0	0	0	0	0	0.0	2	SV
10	705	0	0	0	0	0	0.0	4	OL
12	955	0	0	0	0	0	0.0	1	OL
13	1425	0	0	0	0	0	0.0	3	OL
14	1220	0	0	0	0	0	0.0	3	OL
15	1200	0	0	0	0	0	0.0	4	OL
16	1215	0	0	0	0	0	0.0	3	OL
17	1120	0	0	0	0	0	0.0	2	SV
18	700	0	0	0	0	0	0.0	3	SV
19	700	0	0	0	0	0	0.0	3	OL
20	730	0	0	0	0	0	0.0	3	SV
21	1035	0	0	0	0	0	0.0	3	SV
22	835	0	0	0	0	0	0.0	3	SV
23	645	0	0	0	0	0	0.0	3	SV
24	735	0	0	0	0	0	0.0	3	OB
25	955	0	0	0	0	0	0.0	2	OB
26	730	0	0	0	0	0	0.0	2	OB
27	713	0	0	0	0	0	0.0	2	OB
28	830	0	0	0	0	0	0.0	3	OB
29	830	0	0	0	0	0	0.0	2	AE
30	805	0	0	0	0	0	0.0	2	OB
31	715	0	0	0	0	0	0.0	2	SV

The relative mean sunspot number is 0.0.

NORMALISED UCCLE OBSERVATIONAL SUNSPOT NUMBERS $U'=K'U$ FOR AUGUST 2009

$K' = 0.747$ (*)

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

The normalised relative monthly mean sunspot number is 0.

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

The Sun has been observed 29 days on 31 possible.

UCCLE OBSERVATIONAL MAJOR SUNSPOT GROUPS FOR AUGUST 2009
E AND F BRUNNER'S TYPE GROUPS

NONE

PROBABLE RETURN OF MAJOR GROUPS FOR SEPTEMBER 2009

NONE

MONTHLY SUMMARY OF SOLAR AND GEOMAGNETIC ACTIVITY

I. Solar Activity

Since we have no solar activity to discuss, we rather focus on the signs for the absence of it...

The daily Estimated International Sunspot Number and Provisional International Sunspot Number were zero for all 31 days. The values for the 10cm flux ranged between 66 and 68 sfu (solar flux units), the background X-ray flux stayed below the measurement level of the GOES-satellite. EIT195 shows a quiet Sun.

From the viewpoint of the Earth, the Sun is tilted such that the northern polar hole is clearly visible. The northern polar hole has a negative/south pole polarity: the open magnetic field lines point into the Sun. Three extensions of this hole transited the solar disk in August.

II. Geomagnetic Activity

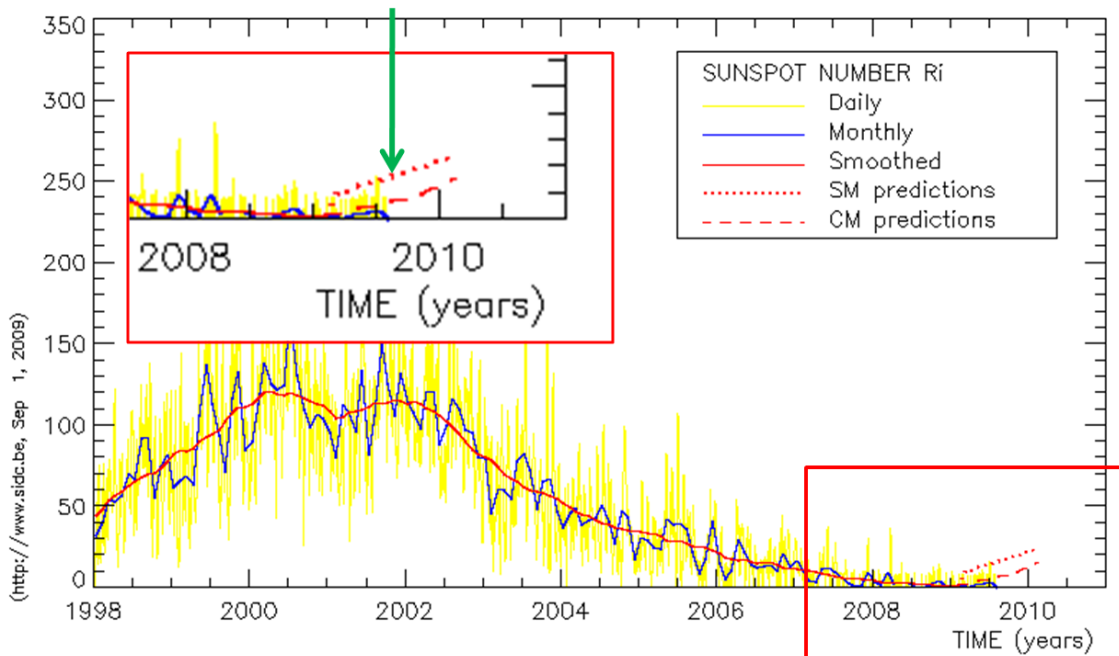
During three time periods in which the Earth encountered a fast solar wind stream, the geomagnetic conditions were disturbed.

On Aug 06, a fast solar wind stream arrived at the Earth. The region with a compressed magnetic field arrived one day before. The magnetic field strength rose up to 10 nT. The Bz-component was strong but predominantly positive resulting in two periods of active conditions on Aug 06.

A second interaction region between the slow and fast solar wind arrived early on Aug 19. From Aug 20 to 23, the solar wind had a velocity of 550 km/s. Again, the solar wind conditions resulted in two active periods on Aug 19-20.

On Aug 30, we reached unexpectedly storm conditions. Through ACE measurements of the direction of the interplanetary magnetic field, this disturbance could be associated with the extension of the northern polar coronal hole where the magnetic field points inwards.

III. News item: Absence of Sunspots



It has been since June 1913 that the monthly sunspot number is 0.0. It is the first time in the history of the SIDC that we encounter this situation: no sunspot was observed by none of the observers for a complete month. For August 2009, the yellow curve seems absent. In reality it is there, but coincides with zero and therefore is not visible.