



Center

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SUNSPOT BULLETIN

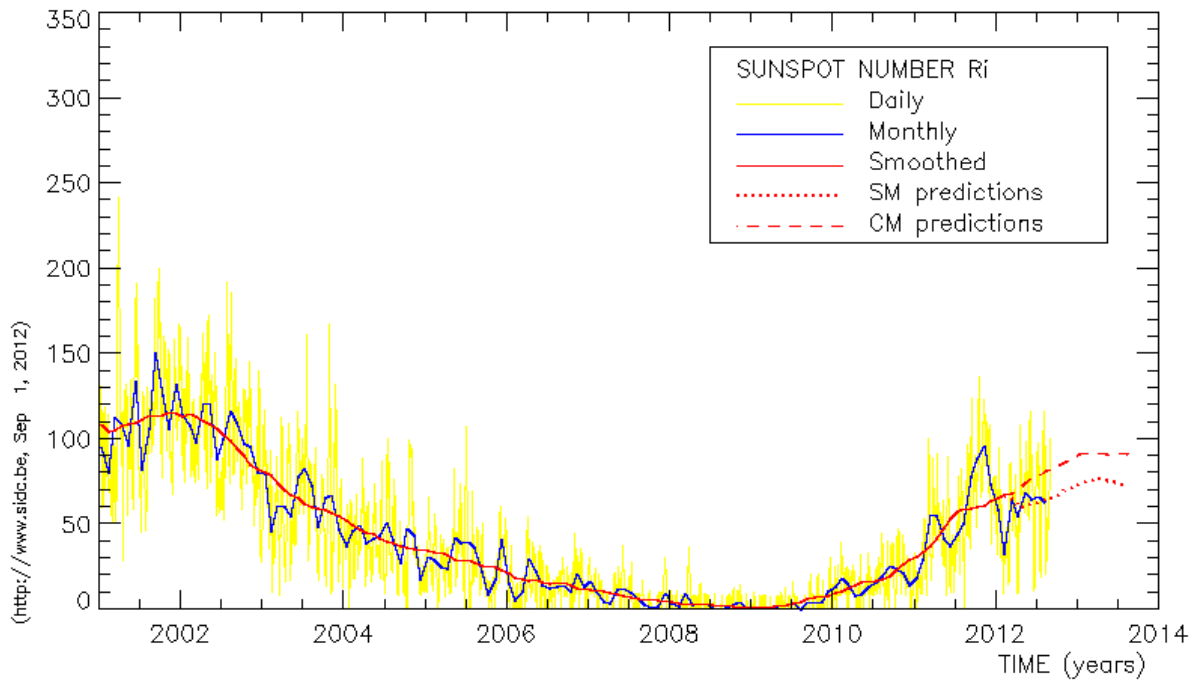
2012

n° 8

Provisional international and normalized hemispheric daily sunspot numbers for August 2012

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	88	32	56
2	95	33	62
3	116	41	75
4	101	24	77
5	82	26	56
6	65	19	46
7	81	29	52
8	82	31	51
9	105	38	67
10	87	29	58
11	72	21	51
12	65	22	43
13	49	15	34
14	22	13	9
15	20	12	8
16	23	23	0
17	33	33	0
18	36	36	0
19	48	38	10
20	53	37	16
21	47	32	15
22	46	37	9
23	47	31	16
24	47	31	16
25	51	32	19
26	52	27	25
27	50	26	24
28	53	43	10
29	55	44	11
30	84	50	34
31	100	48	52
Monthly mean	63.1	30.7	32.4
Cooperating stations	68	62	62



Predictions of the monthly smoothed Sunspot Number
 using the last provisional value, calculated for February 2012: 66.9 ($\pm 5\%$)

		SM	CM		SM	CM		SM	CM		
2012	Mar	65	68	2012	Sep	66	83	2013	Mar	76	93
	Apr	59	71		Oct	68	85		Apr	76	92
	May	61	74		Nov	70	87		May	76	91
	Jun	62	77		Dec	72	89		Jun	75	91
	Jul	63	79	2013	Jan	74	91		Jul	74	92
	Aug	65	81		Feb	75	92		Aug	72	91

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	81	115	-	140	////	27	0/0	7	
1	88	119	-	150	////	20	0/0	6	
2	95	106	-	135	////	1	0/0	23	
3	116	103	-	140	////	16	0/0	8	
4	101	94	-	139	////	19	0/0	8	
5	82	74	-	134	////	2	0/0	6	
6	65	70	-	134	////	1	1/0	17	
7	81	62	-	129	////	32	0/0	8	
8	82	68	-	133	////	12	0/0	14	
9	105	101	-	131	////	31	0/0	6	
10	87	88	-	125	////	9	0/0	4	
11	72	66	-	120	////	127	1/0	6	
12	65	56	-	112	////	5	0/0	11	
13	49	62	-	108	////	1	0/0	11	
14	22	55	-	106	////	14	0/0	8	
15	20	57	-	101	////	4	0/0	9	
16	23	48	-	98	////	2	0/0	14	
17	33	37	-	95	////	1	2/0	10	
18	36	24	-	97	////	33	5/0	12	
19	48	20	-	96	////	10	0/0	17	
20	53	19	-	96	////	1	0/0	15	
21	47	23	-	94	////	0	0/0	7	
22	46	16	-	95	////	1	0/0	10	
23	47	17	-	97	////	0	0/0	11	
24	47	28	-	104	////	1	0/0	10	
25	51	56	-	106	////	1	0/0	12	
26	52	75	-	113	////	1	0/0	14	
27	50	53	-	112	////	1	0/0	7	
28	53	49	-	111	////	2	0/0	4	
29	55	42	-	118	////	4	0/0	4	
30	84	60	-	128	////	13	1/0	4	
31	100	95	-	131	////	114	0/0	2	

- 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 2012

DATE	UT	NUMBER		RELATIVE SUNSPOT NUMBERS			PPSI 10-5 WM-2	QUAL	OBS	
		OF GROUPS	OF SPOTS	TOTAL	NORTH	SOUTH				CENTRAL
1	840	8	40	120	41	79	41	87.5	3	OL
2	840	9	38	128	41	87	37	49.9	3	OL
3	835	12	55	175	60	115	21	47.7	3	OL
4	900	9	23	113	22	91	22	40.4	2	OB
5	800	7	20	90	35	55	50	28.6	3	OB
6	800	6	12	72	23	49	46	46.4	2	OB
7	1200	7	26	96	34	62	22	34.7	2	OB
8	915	7	40	110	40	70	0	52.6	2	OB
9	915	7	50	120	40	80	0	82.7	2	OB
10	730	7	36	106	43	63	0	38.8	3	OB
11	800	7	22	92	25	67	43	45.4	3	SV
12	900	6	14	74	15	59	40	28.1	3	SV
13	845	4	20	60	21	39	33	8.4	3	AE
14	745	3	7	37	14	23	14	30.9	2	AE
15	600	2	7	27	15	12	0	25.8	3	SV
16	910	2	3	23	23	0	0	21.0	3	SV
17	845	3	10	40	40	0	15	17.7	2	AE
18	730	4	7	47	47	0	12	12.7	2	AE
19	845	5	14	64	50	14	13	9.7	3	AE
20	720	6	17	77	52	25	40	10.0	3	OL
21	940	5	14	64	42	22	29	9.7	3	OL
22	810	4	14	54	43	11	43	14.0	2	OL
23	745	5	5	55	33	22	22	6.6	3	OL
24	927	5	19	69	47	22	47	24.4	3	OL
25	850	5	24	74	48	26	34	31.3	2	OL
27	615	5	13	63	29	34	36	35.3	3	SV
28	1300	5	26	76	64	12	12	21.1	3	SV
29	835	4	19	59	45	14	36	8.3	1	SV
30	740	7	33	103	62	41	62	44.6	3	SV

The relative mean sunspot number is 78.9.

NORMALISED UCCLE OBSERVATIONAL SUNSPOT NUMBERS U'=K'U FOR AUGUST 2012

K'= 0.747 (*)

1	90	7	72	13	45	19	48	25	55
2	96	8	82	14	28	20	58	26	***
3	131	9	90	15	20	21	48	27	47
4	84	10	79	16	17	22	40	28	57
5	67	11	69	17	30	23	41	29	44
6	54	12	55	18	35	24	52	30	77
								31	***

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 29 days on 31 possible.

UCCLE OBSERVATIONAL MAJOR SUNSPOT GROUPS FOR AUGUST 2012
E AND F BRUNNER'S TYPE GROUPS

Uccle Nø	East Limb		Date and type			West Limb	
	Date		1st obs	CMP	Last obs	Date	
27-2126	8	6.3	7 H	8 13.0	13 C	8	19.8

PROBABLE RETURN OF MAJOR GROUPS FOR SEPTEMBER 2012
NONE