

Center

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SUNSPOT BULLETIN

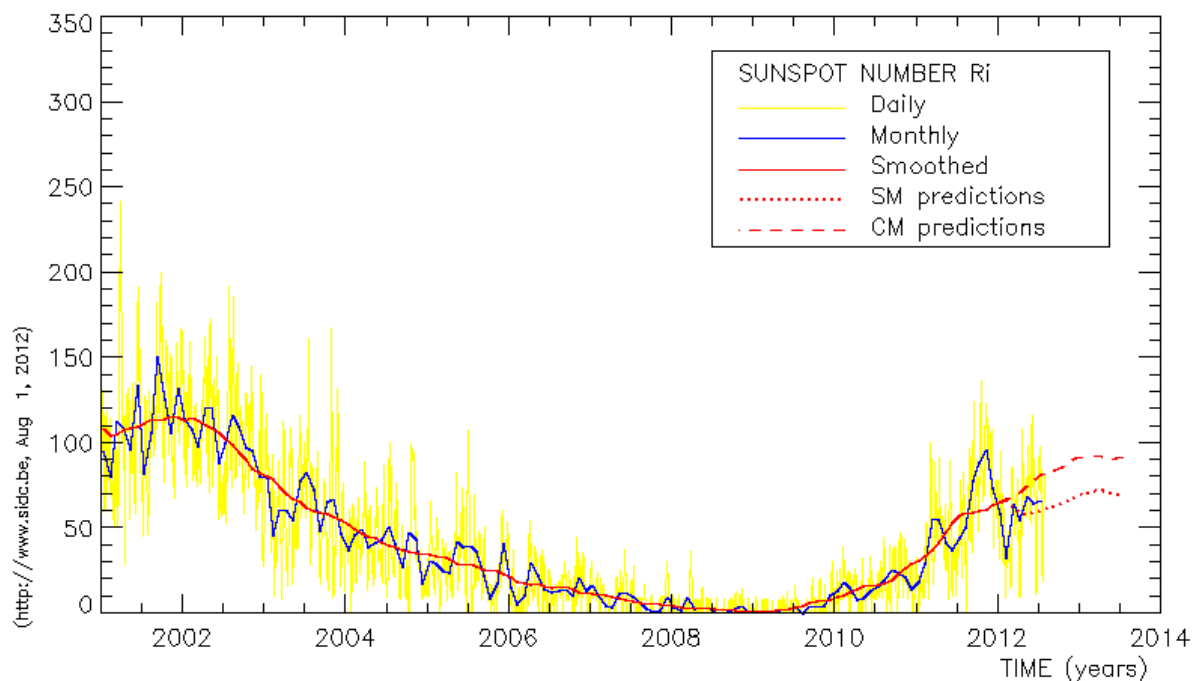
2012

n° 7

Provisional international and normalized hemispheric daily sunspot numbers for July 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	84	40	44
2	85	39	46
3	83	37	46
4	87	33	54
5	86	38	48
6	88	29	59
7	97	25	72
8	78	17	61
9	81	8	73
10	71	0	71
11	73	0	73
12	83	9	74
13	86	10	76
14	83	9	74
15	78	10	68
16	68	9	59
17	57	8	49
18	38	0	38
19	25	0	25
20	24	0	24
21	19	0	19
22	19	0	19
23	42	14	28
24	47	15	32
25	42	9	33
26	57	19	38
27	73	19	54
28	71	17	54
29	74	17	57
30	80	20	60
31	81	21	60
Monthly mean	66.5	15.2	51.3
Cooperating stations	69	63	63



Predictions of the monthly smoothed Sunspot Number
 using the last provisional value, calculated for January 2012: 65.5 ($\pm 5\%$)

		SM	CM		SM	CM		SM	CM		
2012	Feb	67	67	2012	Aug	62	83	2013	Feb	71	94
	Mar	62	70		Sep	63	84		Mar	72	93
	Apr	58	72		Oct	65	86		Apr	72	92
	May	59	75		Nov	67	88		May	71	91
	Jun	60	78		Dec	69	91		Jun	70	91
	Jul	61	81	2013	Jan	70	92		Jul	69	92

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
30	73	85	-	124	////	19	2/0	25	
1	84	121	-	133	////	33	1/0	22	
2	85	148	-	166	////	278	4/0	25	
3	83	164	-	146	////	42	0/0	12	
4	87	146	-	163	////	253	5/0	10	
5	86	136	-	165	////	354	9/0	19	
6	88	119	-	158	////	50	6/1	18	
7	97	97	-	158	////	11	3/0	8	
8	78	157	-	178	////	77	4/0	15	
9	81	174	-	174	////	19	1/0	41	
10	71	232	-	173	////	35	2/0	15	
11	73	212	-	162	////	31	0/0	13	
12	83	263	-	165	////	129	0/1	12	
13	86	199	-	147	////	19	0/0	3	
14	83	191	-	148	////	32	1/0	23	
15	78	150	-	141	////	9	0/0	61	
16	68	56	-	138	////	110	0/0	29	
17	57	35	-	128	////	25	1/0	20	
18	38	22	-	110	////	1	0/0	6	
19	25	13	-	100	////	3	1/0	7	
20	24	11	-	92	////	0	0/0	14	
21	19	8	-	90	////	0	0/0	11	
22	19	8	-	94	////	0	0/0	9	
23	42	11	-	97	////	10	0/0	12	
24	47	18	-	102	////	0	0/0	10	
25	42	17	-	105	////	1	0/0	6	
26	57	26	-	115	////	1	0/0	3	
27	73	37	-	123	////	11	1/0	5	
28	71	80	-	127	////	106	1/0	14	
29	74	98	-	131	////	36	1/0	8	
30	80	109	-	136	////	22	1/0	18	
31	81	115	-	140	////	27	0/0	7	

- 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 JULY 2012

DATE	UT	NUMBER		RELATIVE SUNSPOT NUMBERS			PPSI 10-5 WM-2	QUAL	OBS	
		OF GROUPS	OF SPOTS	TOTAL	NORTH	SOUTH				CENTRAL
1	734	6	53	113	58	55	80	37.1	2	OL
2	915	5	61	111	50	61	100	91.2	3	SV
3	620	4	71	111	43	68	100	93.3	2	SV
4	845	5	80	130	47	83	107	99.3	3	SV
5	920	5	49	99	41	58	13	75.1	1	SV
6	1030	6	45	105	36	69	0	63.1	1	SV
7	715	7	46	116	35	81	12	49.0	1	SV
9	1120	6	88	148	12	136	34	64.5	2	OB
11	845	4	88	128	11	117	128	113.5	3	OB
12	940	5	78	128	12	116	114	101.5	2	OB
13	1200	5	84	134	14	120	79	109.4	2	OB
16	730	6	24	84	12	72	0	34.8	2	AE
18	900	3	7	37	0	37	0	29.5	2	AE
19	815	2	9	29	0	29	0	12.6	2	AE
21	1145	2	5	25	0	25	14	5.6	2	AE
22	815	2	6	26	0	26	15	5.6	2	AE
23	600	4	7	47	11	36	0	5.9	3	SV
24	640	6	7	67	22	45	11	3.7	3	SV
25	635	4	5	45	11	34	0	3.1	3	SV
26	645	5	9	59	22	37	12	11.7	3	SV
27	645	6	13	73	24	49	34	7.4	3	SV
29	810	6	22	82	22	60	23	36.6	3	SV
30	943	7	38	108	27	81	35	71.3	3	OL

The relative mean sunspot number is 87.2.

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

K'= 0.755 (*)

1	85	7	88	13	101	19	22	25	34
2	84	8	***	14	***	20	***	26	45
3	84	9	112	15	***	21	19	27	55
4	98	10	***	16	63	22	20	28	***
5	75	11	97	17	***	23	35	29	62
6	79	12	97	18	28	24	51	30	82
								31	***

The normalised relative monthly mean sunspot number is 66.

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

The Sun has been observed 23 days on 31 possible.

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

Uccle Nø	East Limb		Date and type			West Limb	
	Date		1st obs	CMP	Last obs	Date	
7-2125	6	26.4	28 D	7 3.1	9 J	7	9.9
13-2125	7	5.3	6 D	7 12.0	18 H	7	18.8

PROBABLE RETURN OF MAJOR GROUPS FOR AUGUST 2012

Nø	New East Limb		New CMP		New West Limb	
7	7	24.1	7	30.9	8	6.6
13	8	2.1	8	8.9	8	15.6