Solar Influences Data analysis Center

Data Analysis Service supported by the FAGS

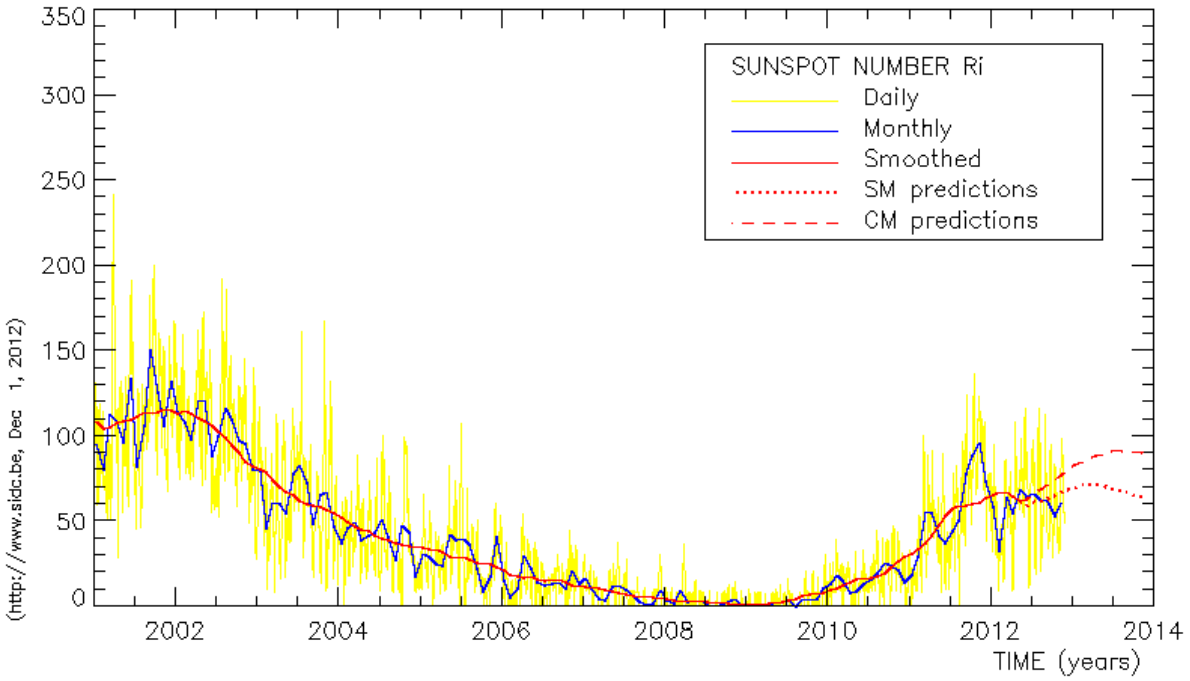
SUNSPOT BULLETIN

2012 n° 11

Provisional international and normalized hemispheric daily sunspot numbers for November 2012

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	33	8	25
2	32	0	32
3	31	14	17
4	32	10	22
5	36	21	15
6	33	17	16
7	43	14	29
8	46	21	25
9	46	19	27
10	52	18	34
11	76	35	41
12	86	50	36
13	85	52	33
14	94	64	30
15	97	64	33
16	94	65	29
17	98	80	18
18	93	84	9
19	85	70	15
20	74	58	16
21	75	55	20
22	67	50	17
23	55	46	9
24	58	44	14
25	59	27	32
26	51	22	29
27	54	26	28
28	54	28	26
29	55	33	22
30	49	34	15
Monthly mean	**61.4**	**37.6**	**23.8**
Cooperating stations	**66**	**60**	**60**



Predictions of the monthly smoothed Sunspot Number
using the last provisional value, calculated for May 2012: 61.7 (± 5%)

	SM	CM		SM	CM		SM	CM
2012 Jun	59	63	2012 Dec	69	81	2013 Jun	70	91
Jul	62	66	2013 Jan	70	83	Jul	69	92
Aug	62	69	Feb	71	85	Aug	68	91
Sep	64	72	Mar	72	87	Sep	67	91
Oct	65	74	Apr	72	88	Oct	66	91
Nov	67	77	May	71	89	Nov	65	90

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	35	32	-	104	////	0	0/0	5	
1	33	21	-	98	////	2	0/0	23	
2	32	15	-	97	////	0	0/0	8	
3	31	9	-	93	////	0	0/0	3	
4	32	7	-	95	////	0	0/0	2	
5	36	5	-	97	////	0	0/0	4	
6	33	9	-	99	////	0	0/0	5	
7	43	21	-	102	////	0	0/0	20	
8	46	12	-	104	////	10	1/0	3	
9	46	24	-	115	////	0	0/0	1	
10	52	37	-	122	////	0	0/0	3	
11	76	61	-	133	////	0	1/0	2	
12	86	137	-	144	////	2	1/0	9	
13	85	116	-	146	////	3	3/0	25	
14	94	112	-	142	////	12	1/0	32	
15	97	91	-	141	////	2	0/0	6	
16	94	72	-	138	////	2	0/0	10	
17	98	77	-	135	////	1	0/0	12	
18	93	73	-	141	////	10	0/0	6	
19	85	83	-	134	////	2	0/0	6	
20	74	63	-	141	////	10	2/0	17	
21	75	86	-	140	////	15	2/0	10	
22	67	99	-	128	////	2	0/0	3	
23	55	122	-	126	////	0	0/0	9	
24	58	53	-	118	////	10	0/0	15	
25	59	44	-	121	////	5	0/0	4	
26	51	52	-	122	////	12	0/0	6	
27	54	56	-	117	////	6	2/0	4	
28	54	67	-	114	////	13	1/0	2	
29	55	70	-	113	////	13	0/0	3	
30	49	68	-	111	////	7	0/0	1	

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 x Sn+10 x "1"+100 x ">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 NOVEMBER 2012

DATE	UT	NUMBER OF GROUPS	NUMBER OF SPOTS	RELATIVE SUNSPOT NUMBERS TOTAL	NORTH	SOUTH	CENTRAL	PPSI 10-5 WM-2	QUAL	OBS
1	1425	4	8	48	13	35	13	3.9	3	OL
2	900	4	10	50	13	37	12	3.4	2	OL
6	915	3	6	36	25	11	11	13.1	2	AE
7	1400	6	14	74	24	50	13	7.2	2	AE
9	1300	5	15	65	27	38	12	15.8	2	AE
11	915	7	35	105	43	62	51	45.4	2	AE
14	830	7	44	114	78	36	46	72.8	3	SV
16	1330	8	19	99	65	34	51	31.1	1	SV
20	950	4	36	76	53	23	53	30.6	2	OB
22	850	5	32	82	59	23	35	73.6	2	OB
25	1215	5	27	77	31	46	22	37.6	1	AE
26	930	3	29	59	30	29	29	30.5	2	OL
28	1220	4	23	63	38	25	0	42.9	2	OL
29	1045	4	32	72	45	27	11	38.8	3	OL

The relative mean sunspot number is 72.9.

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

K'= 0.876 (*)

1	42	7	65	13	***	19	***	25	67
2	44	8	***	14	100	20	67	26	52
3	***	9	57	15	***	21	***	27	***
4	***	10	***	16	87	22	72	28	55
5	***	11	92	17	***	23	***	29	63
6	32	12	***	18	***	24	***	30	***

The normalised relative monthly mean sunspot number is 64.

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

The Sun has been observed 14 days on 30 possible.

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

Uccle Nø	East Limb Date	Date and type 1st obs	CMP	Last obs	West Limb Date
18-2130	11 15.1	20 D	11 21.8	26 D	11 28.6
21-2130	11 18.1	25 D	11 24.9	29 E	12 1.6

PROBABLE RETURN OF MAJOR GROUPS FOR DECEMBER 2012

Nø	New East Limb	New CMP	New West Limb
18	12 12.4	12 19.2	12 25.9
21	12 15.2	12 21.9	12 28.7