



Center

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SUNSPOT BULLETIN

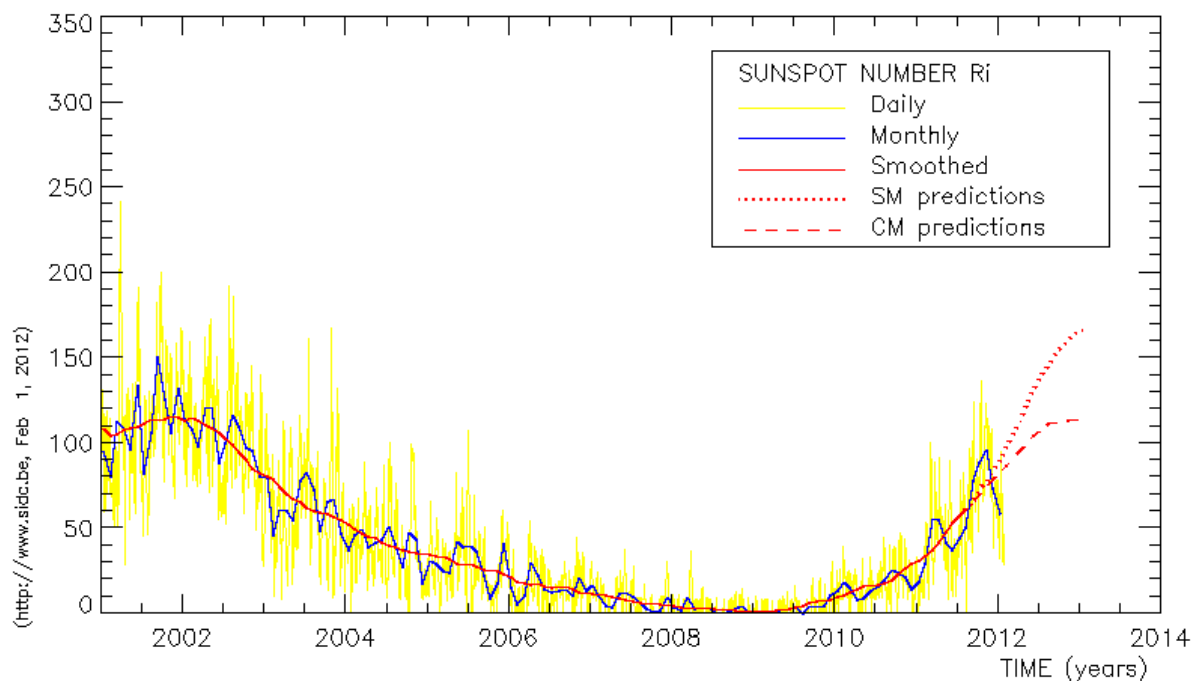
2012

n° 1

Provisional international and normalized hemispheric daily sunspot numbers for January 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	44	0	44
2	57	14	43
3	74	31	43
4	78	42	36
5	67	45	22
6	70	54	16
7	70	50	20
8	64	49	15
9	49	42	7
10	43	43	0
11	39	39	0
12	32	32	0
13	44	35	9
14	73	48	25
15	92	62	30
16	95	71	24
17	87	58	29
18	78	53	25
19	65	50	15
20	63	63	0
21	69	69	0
22	67	67	0
23	70	70	0
24	53	53	0
25	47	47	0
26	30	30	0
27	40	24	16
28	28	20	8
29	35	18	17
30	38	29	9
31	46	35	11
Monthly mean	58.3	43.3	15.0
Cooperating stations	68	64	64



Predictions of the monthly smoothed Sunspot Number
using the last provisional value, calculated for July 2011: 57.2 ($\pm 5\%$)

		SM	CM		SM	CM		SM	CM		
2011	Aug	62	61	2012	Feb	98	87	2012	Aug	146	111
	Sep	65	65		Mar	106	91		Sep	152	112
	Oct	73	70		Apr	115	96		Oct	157	113
	Nov	78	74		May	124	101		Nov	161	113
	Dec	84	79		Jun	132	104		Dec	165	114
2012	Jan	90	83		Jul	140	108	2013	Jan	167	115

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	62	90	-	133	////	13	2/0	7	
1	44	84	-	130	////	2	0/0	5	
2	57	89	-	135	////	2	0/0	4	
3	74	94	-	135	////	2	0/0	8	
4	78	99	-	136	////	1	0/0	3	
5	67	83	-	141	////	0	0/0	5	
6	70	98	-	136	////	5	0/0	9	
7	70	112	-	141	////	2	0/0	8	
8	64	82	-	136	////	4	0/0	6	
9	49	107	-	142	////	8	0/0	10	
10	43	97	-	129	////	2	0/0	5	
11	39	47	-	120	////	11	0/0	7	
12	32	29	-	117	////	1	0/0	8	
13	44	25	-	124	////	2	0/0	8	
14	73	44	-	132	////	1	1/0	3	
15	92	50	-	134	////	1	0/0	4	
16	95	50	-	140	////	3	0/0	10	
17	87	82	-	139	////	13	1/0	8	
18	78	123	-	148	////	11	1/0	5	
19	65	158	-	157	////	102	1/0	2	
20	63	147	-	141	////	0	0/0	5	
21	69	140	-	142	////	2	0/0	8	
22	67	119	-	141	////	16	0/0	25	
23	70	76	-	144	////	137	1/0	8	
24	53	59	-	136	////	5	0/0	22	
25	47	30	-	126	////	1	0/0	13	
26	30	29	-	128	////	1	0/0	8	
27	40	28	-	142	////	11	0/1	6	
28	28	32	-	115	////	0	0/0	8	
29	35	23	-	110	////	0	0/0	8	
30	38	46	-	114	////	0	0/0	10	
31	46	47	-	117	////	0	0/0	3	

- 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 JANUARY 2012

DATE	UT	NUMBER		RELATIVE SUNSPOT NUMBERS			PPSI 10-5	QUAL	OBS	
		OF GROUPS	OF SPOTS	TOTAL	NORTH	SOUTH				CENTRAL
4	940	8	34	114	57	57	60	49.0	1	AE
5	1200	7	21	91	58	33	27	43.4	2	AE
8	1000	6	26	86	64	22	18	53.4	2	AE
11	910	3	15	45	45	0	0	7.2	1	SV
13	1110	4	20	60	46	14	12	20.0	1	SV
14	1015	7	30	100	63	37	58	30.2	2	AE
15	1000	10	37	137	85	52	57	40.2	2	AE
16	930	9	44	134	110	24	12	21.4	2	OB
17	1400	9	41	131	80	51	14	30.7	2	OB
23	1100	7	46	116	105	11	27	39.4	2	OB
27	1135	5	15	65	40	25	25	37.2	3	FC
31	1135	4	25	65	48	17	54	33.7	2	OL

The relative mean sunspot number is 95.3.

NORMALISED UCCLE OBSERVATIONAL SUNSPOT NUMBERS $U'=K'U$ FOR JANUARY 2012

$K' = 0.882$ (*)

1	***	7	***	13	53	19	***	25	***
2	***	8	76	14	88	20	***	26	***
3	***	9	***	15	121	21	***	27	57
4	101	10	***	16	118	22	***	28	***
5	80	11	40	17	116	23	102	29	***
6	***	12	***	18	***	24	***	30	***
								31	57

The normalised relative monthly mean sunspot number is 84.

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

The Sun has been observed 12 days on 31 possible.

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

NONE

PROBABLE RETURN OF MAJOR GROUPS FOR FEBRUARY 2012
NONE