



Center

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SUNSPOT BULLETIN

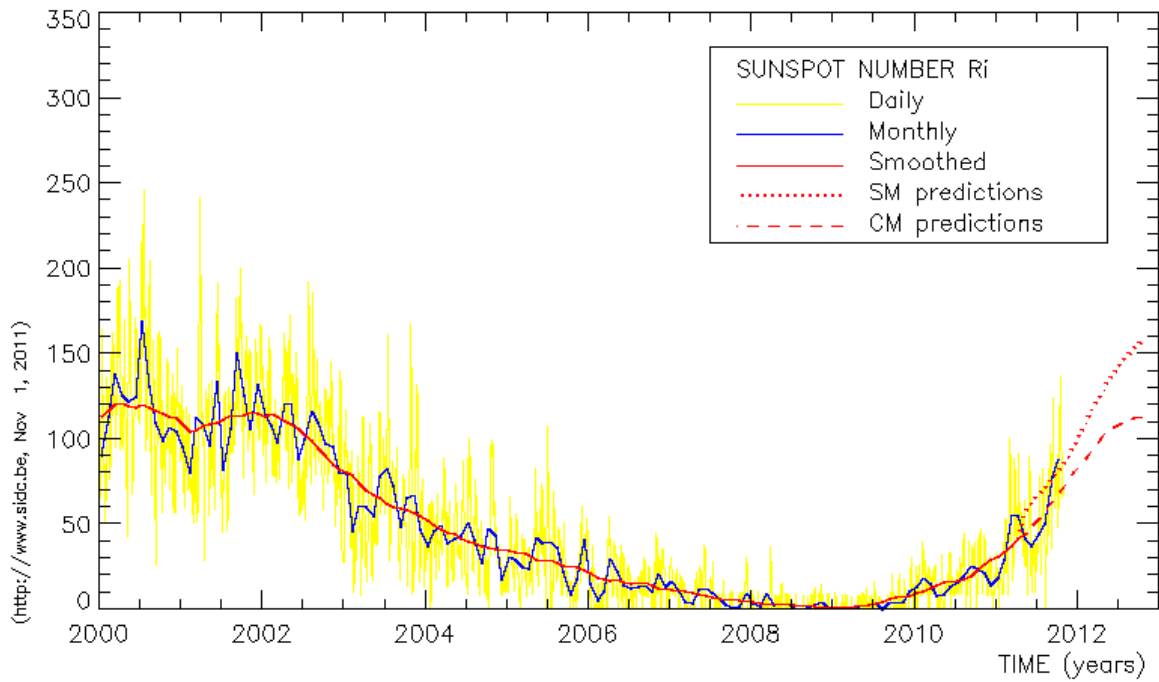
2011

n°10

Provisional international and normalized hemispheric daily sunspot numbers for October 2011

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	83	73	10
2	83	75	8
3	79	64	15
4	90	67	23
5	70	41	29
6	70	37	33
7	62	34	28
8	48	20	28
9	55	30	25
10	63	39	24
11	87	45	42
12	102	59	43
13	113	68	45
14	119	76	43
15	104	64	40
16	108	60	48
17	123	74	49
18	109	73	36
19	99	61	38
20	128	83	45
21	136	90	46
22	122	87	35
23	94	77	17
24	91	79	12
25	77	67	10
26	73	64	9
27	65	57	8
28	71	71	0
29	66	66	0
30	72	72	0
31	67	67	0
Monthly mean	88.0	62.6	25.4
Cooperating stations	73	66	66



Predictions of the monthly smoothed Sunspot Number
using the last provisional value, calculated for April 2011: 41.8 ($\pm 5\%$)

		SM	CM		SM	CM		SM	CM		
2011	May	46	44	2011	Nov	73	74	2012	May	112	105
	Jun	53	49		Dec	78	80		Jun	119	107
	Jul	54	53	2012	Jan	83	84		Jul	127	109
	Aug	58	58		Feb	89	89		Aug	133	111
	Sep	63	64		Mar	96	94		Sep	139	112
	Oct	68	69		Apr	103	100		Oct	145	113

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	75	143	-	138	////	16	1/0	7	
1	83	137	-	137	////	16	1/0	19	
2	83	101	-	131	////	41	2/0	15	
3	79	77	-	129	////	102	0/0	5	
4	90	82	-	130	////	1	0/0	6	
5	70	76	-	127	////	4	0/0	16	
6	70	75	-	124	////	5	0/0	7	
7	62	68	-	122	////	13	0/0	5	
8	48	60	-	118	////	0	0/0	12	
9	55	74	-	121	////	0	0/0	11	
10	63	85	-	126	////	2	0/0	4	
11	87	114	-	130	////	3	0/0	4	
12	102	144	-	134	////	5	0/0	6	
13	113	162	-	138	////	17	0/0	4	
14	119	164	-	136	////	7	0/0	2	
15	104	167	-	138	////	5	0/0	10	
16	108	160	-	151	////	10	0/0	8	
17	123	160	-	153	////	2	0/0	6	
18	109	136	-	147	////	0	0/0	4	
19	99	100	-	147	////	9	0/0	6	
20	128	98	-	159	////	2	1/0	6	
21	136	121	-	168	////	1	1/0	4	
22	122	95	-	164	////	7	1/0	2	
23	94	117	-	156	////	2	0/0	3	
24	91	91	-	145	////	0	0/0	24	
25	77	122	-	139	////	1	0/0	33	
26	73	95	-	132	////	0	0/0	4	
27	65	94	-	132	////	0	0/0	5	
28	71	83	-	134	////	2	0/0	1	
29	66	87	-	123	////	1	0/0	0	
30	72	51	-	127	////	2	0/0	8	
31	67	76	-	138	////	0	2/0	16	

- 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 technical problems, the 600MHz and SEA observations have been suspended.

SOLAR PHYSICS DEPARTMENT

UCCLE DAILY PROVISIONAL RELATIVE SUNSPOT NUMBERS FOR OCTOBER 2011

DATE	UT	NUMBER		RELATIVE SUNSPOT NUMBERS			PPSI 10-5 WM-2	QUAL	OBS	
		OF GROUPS	OF SPOTS	TOTAL	NORTH	SOUTH				CENTRAL
1	720	5	55	105	94	11	43	38.7	3	OL
2	720	6	51	111	111	0	55	60.8	4	OL
3	730	5	20	70	70	0	22	41.4	2	OB
7	825	6	12	72	36	36	25	17.3	1	SV
10	1300	6	18	78	47	31	45	55.4	2	OB
13	830	10	64	164	96	68	29	76.3	3	OB
14	820	11	35	145	89	56	68	69.7	3	OB
15	815	10	62	162	107	55	89	89.0	3	OB
16	930	7	60	130	72	58	83	76.0	3	OB
17	1315	10	52	152	87	65	70	74.8	3	AE
19	800	7	35	105	50	55	17	61.7	2	AE
20	900	11	48	158	97	61	37	62.1	2	AE
21	830	11	63	173	105	68	35	84.3	2	AE
22	900	9	38	128	88	40	57	89.7	1	AE
23	1100	5	47	97	79	18	33	117.7	2	AE
24	825	5	34	84	69	15	43	34.6	1	SV
26	940	6	30	90	77	13	54	45.2	3	SV
27	910	4	17	57	46	11	35	39.6	3	SV
28	815	5	29	79	79	0	41	48.0	3	SV
29	1145	4	23	63	63	0	41	46.0	3	SV
30	900	5	34	84	84	0	56	8.3	3	SV
31	830	5	31	81	81	0	45	40.3	3	OL

The relative mean sunspot number is 108.5.

NORMALISED UCCLE OBSERVATIONAL SUNSPOT NUMBERS $U'=K'U$ FOR OCTOBER 2011

$K' = 0.831$ (*)

1	87	7	60	13	136	19	87	25	***
2	92	8	***	14	120	20	131	26	75
3	58	9	***	15	135	21	144	27	47
4	***	10	65	16	108	22	106	28	66
5	***	11	***	17	126	23	81	29	52
6	***	12	***	18	***	24	70	30	70
								31	67

The normalised relative monthly mean sunspot number is 90.

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

The Sun has been observed 22 days on 31 possible.

UCCLE OBSERVATIONAL MAJOR SUNSPOT GROUPS FOR OCTOBER 2011
E AND F BRUNNER'S TYPE GROUPS

Uccle Nø	East Limb Date	Date and type			West Limb Date
		1st obs	CMP	Last obs	
4-2115	9 21.9	23 E	9 28.6	2 G	10 5.4
2-2116	10 16.7	17 D	10 23.5	26 B	10 30.2

PROBABLE RETURN OF MAJOR GROUPS FOR NOVEMBER 2011
NONE

Notice: Starting with this issue of the Sunspot Bulletin, the "Monthly Summary of Solar and Geophysical Activity" section contributed by the Regional Warning Center – Brussels will be discontinued. Equivalent information can be obtained electronically in the form of Weekly Bulletins at URL: <http://www.sidc.be/products/bul/index.php>. You can also have this Weekly Bulletin sent to you automatically by e-mail, by registering on <http://www.sidc.be>, in section "be involved"/"receive product" (top right of Web page; Product code is "bul").