

Center

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SUNSPOT BULLETIN

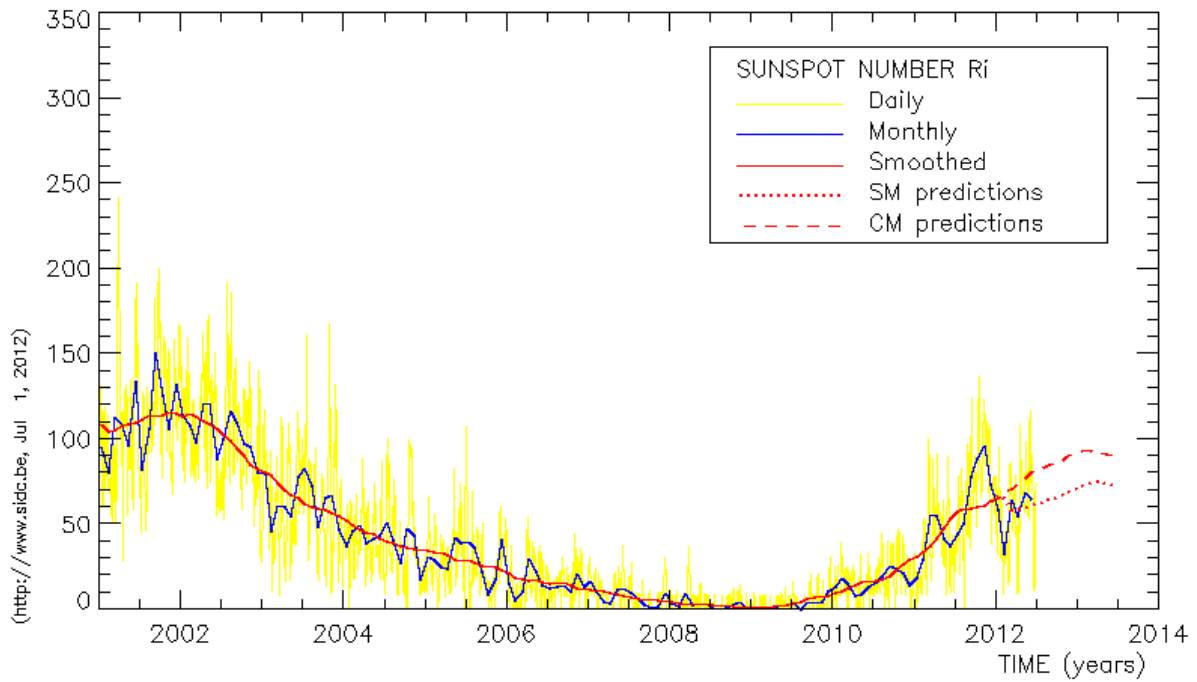
2012

n° 6

Provisional international and normalized hemispheric daily sunspot numbers for June 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	85	30	55
2	106	49	57
3	116	61	55
4	104	68	36
5	106	72	34
6	107	67	40
7	89	62	27
8	75	51	24
9	74	42	32
10	85	42	43
11	90	34	56
12	78	16	62
13	79	13	66
14	86	12	74
15	82	11	71
16	74	11	63
17	62	11	51
18	40	8	32
19	36	8	28
20	21	0	21
21	11	0	11
22	13	13	0
23	11	11	0
24	14	7	7
25	12	0	12
26	25	8	17
27	49	10	39
28	61	15	46
29	72	27	45
30	73	25	48
Monthly mean	64.5	26.1	38.4
Cooperating stations	70	64	64



Predictions of the monthly smoothed Sunspot Number
 using the last provisional value, calculated for December 2011: 63.4 ($\pm 5\%$)

		SM	CM			SM	CM			SM	CM
2012	Jan	67	65	2012	Jul	62	82	2013	Jan	72	93
	Feb	65	69		Aug	64	84		Feb	74	94
	Mar	58	71		Sep	65	86		Mar	74	93
	Apr	59	74		Oct	67	87		Apr	75	92
	May	60	77		Nov	69	89		May	74	91
	Jun	61	80		Dec	71	92		Jun	73	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	64	42	-	117	////	9	0/0	13	
1	85	62	-	129	////	18	0/0	9	
2	106	50	-	129	////	3	0/0	15	
3	116	72	-	129	////	3	1/0	26	
4	104	85	-	128	////	12	0/0	18	
5	106	129	-	139	////	107	0/0	22	
6	107	119	-	140	////	17	1/0	21	
7	89	101	-	128	////	108	0/0	10	
8	75	64	-	124	////	2	0/0	8	
9	74	43	-	128	////	8	2/0	13	
10	85	64	-	128	////	3	1/0	8	
11	90	38	-	134	////	7	0/0	19	
12	78	91	-	141	////	8	0/0	14	
13	79	138	-	143	////	18	1/0	5	
14	86	147	-	149	////	27	1/0	4	
15	82	152	-	145	////	14	0/0	3	
16	74	170	-	135	////	18	0/0	31	
17	62	106	-	124	////	12	0/0	31	
18	40	84	-	118	////	2	0/0	14	
19	36	45	-	110	////	2	0/0	2	
20	21	17	-	104	////	2	0/0	3	
21	11	4	-	98	////	0	0/0	3	
22	13	6	-	88	////	0	0/0	6	
23	11	3	-	84	////	0	0/0	6	
24	14	3	-	85	////	0	0/0	6	
25	12	7	-	89	////	2	0/0	13	
26	25	15	-	99	////	6	0/0	10	
27	49	45	-	106	////	16	0/0	8	
28	61	69	-	120	////	21	1/0	8	
29	72	81	-	117	////	26	1/0	7	
30	73	85	-	124	////	19	2/0	25	

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 JUNE 2012

DATE	UT	NUMBER		RELATIVE SUNSPOT NUMBERS			PPSI 10-5	QUAL	OBS	
		OF GROUPS	OF SPOTS	TOTAL	NORTH	SOUTH				CENTRAL
1	945	8	30	110	28	82	33	40.8	3	SV
2	1345	9	39	129	50	79	24	20.2	3	OB
5	1515	7	31	101	58	43	63	140.6	1	AE
6	1200	7	47	117	67	50	94	124.4	2	AE
7	830	6	41	101	66	35	71	114.6	2	AE
8	740	6	32	92	60	32	60	69.9	3	OB
9	845	5	16	66	29	37	16	56.2	2	AE
10	900	7	19	89	40	49	0	83.5	2	AE
12	1145	5	59	109	17	92	30	42.9	3	OB
14	750	4	76	116	13	103	116	88.2	3	OB
15	1100	5	47	97	15	82	71	73.4	2	OB
17	740	3	20	50	0	50	0	29.5	3	SV
19	1410	3	11	41	0	41	14	16.8	2	FC
20	855	2	9	29	0	29	13	11.7	3	FC
21	600	1	3	13	0	13	0	5.3	3	FC
22	705	1	4	14	14	0	14	6.0	3	FC
23	655	1	4	14	14	0	14	1.4	3	FC
25	827	1	8	18	0	18	0	12.6	3	OL
26	725	2	14	34	11	23	0	16.9	4	OL
27	1400	4	34	74	12	62	36	7.2	2	OL
28	730	4	47	87	17	70	33	39.3	3	OL
29	1000	5	58	108	38	70	27	39.1	2	OL
30	740	5	53	103	33	70	61	31.5	3	OL

The relative mean sunspot number is 74.4.

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

$$K' = 0.741 (*)$$

1	82	7	75	13	***	19	30	25	13
2	96	8	68	14	86	20	21	26	25
3	***	9	49	15	72	21	10	27	55
4	***	10	66	16	***	22	10	28	64
5	75	11	***	17	37	23	10	29	80
6	87	12	81	18	***	24	***	30	76

The normalised relative monthly mean sunspot number is 55.

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

The Sun has been observed 23 days on 30 possible.

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

Uccle Nø	East Limb Date	Date and type			West Limb Date
		1st obs	CMP	Last obs	
11-2124	5 30.0	1 E	6 5.8	10 G	6 12.5
21-2124	6 7.9	9 C	6 14.7	21 G	6 21.4

PROBABLE RETURN OF MAJOR GROUPS FOR JULY 2012

Nø	New East Limb	New CMP	New West Limb
11	6 26.2	7 2.9	7 9.7
21	7 5.9	7 12.6	7 19.4