



Sunspot Index and Long-term Solar Observations

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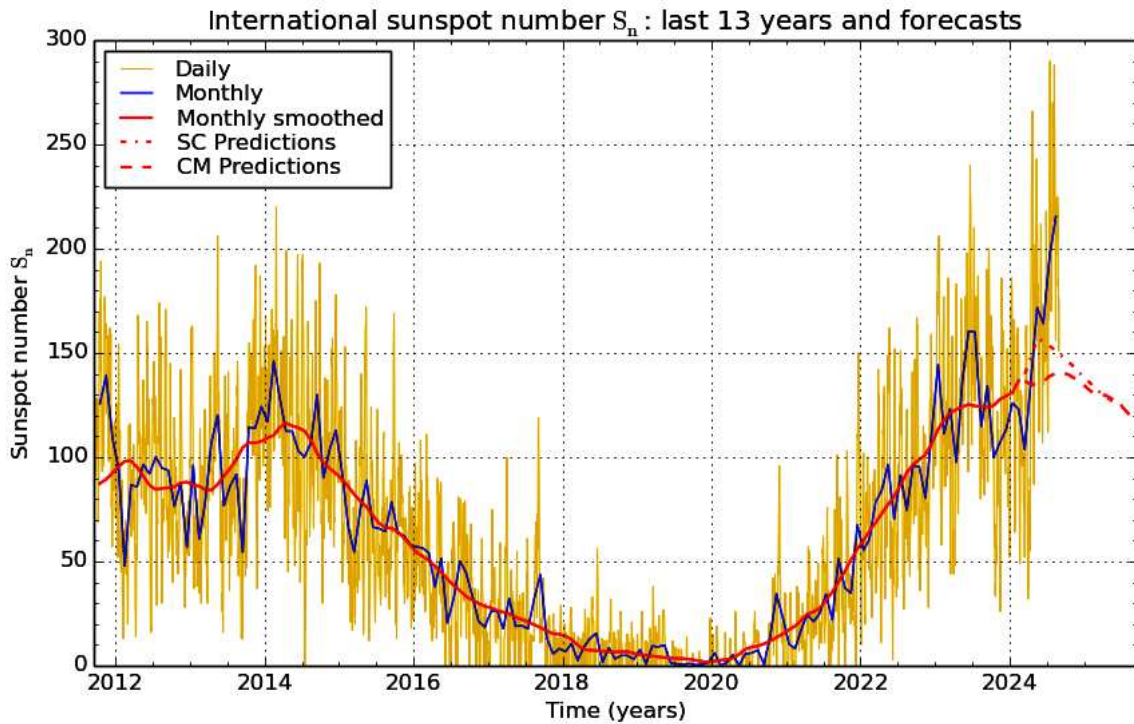
SUNSPOT BULLETIN

2024 n° 08

Provisional international and normalized hemispheric daily sunspot numbers for August 2024

Computed at the *Royal Observatory of Belgium* using observations from an international network with the *Specola Solare Ticinese Locarno* as reference station.

Date	S_n	$S_n(N)$	$S_n(S)$
1	260	83	177
2	239	81	158
3	232	86	146
4	232	81	151
5	213	61	152
6	239	60	179
7	278	77	201
8	288	95	193
9	264	84	180
10	249	82	167
11	243	83	160
12	229	84	145
13	209	80	129
14	182	81	101
15	156	68	88
16	199	83	116
17	197	85	112
18	202	90	112
19	224	102	122
20	215	87	128
21	209	75	134
22	214	73	141
23	213	76	137
24	225	77	148
25	205	71	134
26	219	79	140
27	182	60	122
28	186	67	119
29	151	61	90
30	151	43	108
31	176	35	141
Monthly mean	215.5	75.8	139.7
Cooperating stations	62	57	57



SILSO graphics (<http://sidc.be/silso>) Royal Observatory of Belgium 2024 September 1

Predictions of the monthly smoothed Sunspot Number
 using the last provisional value, calculated for February 2024: 136.8 ($\pm 5\%$)

	SM	CM		SM	CM		SM	CM
2024 Mar	140	137	2024 Sep	148	141	2025 Mar	131	130
Apr	148	135	Oct	146	140	Apr	129	130
May	157	135	Nov	143	138	May	127	128
Jun	156	136	Dec	140	136	Jun	126	126
Jul	153	139	2025 Jan	137	133	Jul	124	123
Aug	151	140	Feb	134	131	Aug	123	120

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, designed by 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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Summary of the URSIGRAMs from S.I.D.C.

Date	S _n	PPSI	600	2800	COS	SFI	XI	Ak
31	270	137	-	235	////	69	7/0	20
1	260	119	-	234	////	62	13/	2
2	239	124	-	247	////	18	7/0	12
3	232	117	-	245	////	112	8/0	12
4	232	133	-	241	////	13	4/0	37
5	213	147	-	247	////	131	3/1	12
6	239	162	-	270	////	13	1/0	6
7	278	195	-	303	////	151	4/0	8
8	288	213	-	336	////	138	5/1	9
9	264	202	-	306	////	60	6/0	10
10	249	222	-	291	////	131	4/0	10
11	243	200	-	282	////	41	3/0	32
12	229	185	-	272	////	39	2/0	87
13	209	170	-	260	////	47	3/0	16
14	182	140	-	248	////	127	2/1	11
15	156	94	-	227	////	122	1/0	6
16	199	75	-	225	////	22	1/0	8
17	197	89	-	230	////	31	4/0	35
18	202	96	-	231	////	11	3/0	16
19	224	130	-	239	////	19	2/0	10
20	215	128	-	244	////	15	2/0	12
21	209	146	-	239	////	108	2/0	10
22	214	162	-	231	////	33	1/0	14
23	213	190	-	242	////	50	8/0	8
24	225	175	-	232	////	153	5/0	9
25	205	130	-	233	////	12	0/0	7
26	219	183	-	232	////	5	1/0	5
27	182	119	-	221	////	3	1/0	13
28	186	97	-	212	////	0	0/0	24
29	151	78	-	204	////	4	0/0	6
30	151	65	-	214	////	2	2/0	30
31	176	80	-	232	////	7	3/0	26

S_n : 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 : Solar Flare Index from the S.I.D.C. (origin: Ursigrams - UGEOR, evaluation : $1 \times S_n + 10 \times \text{"1"} + 100 \times \text{">1"}$).

XI : X-flares index from the Ursigrams (M-flares/X-flares) (origin: Ursigrams - UGEOR, UGEOI).

Ak : geomagnetic index from Wingst, Germany (origin: Ursigrams).

SOLAR PHYSICS DEPARTMENT

UCCLE DAILY PROVISIONAL RELATIVE SUNSPOT NUMBERS FOR AUGUST 2024

DATE	UT	NUMBER		RELATIVE SUNSPOT NUMBERS			PPSI 10-5	QUAL	OBS	
		OF GROUPS	OF SPOTS	TOTAL	NORTH	SOUTH				CENTRAL
1	1450	10	140	240	78	162	12	143.9	2	SB
2	905	11	131	241	76	165	25	140.9	3	SB
5	656	8	144	224	46	178	102	220.4	4	CB
6	719	9	204	294	58	236	171	228.4	3	CB
7	1250	13	246	376	112	264	207	244.4	2	CB
8	810	12	222	342	110	232	66	288.8	1	CB
9	1430	10	230	330	114	216	190	210.3	3	OL
10	815	12	147	267	107	160	129	255.8	3	CB
11	1300	12	93	213	81	132	136	201.0	3	CB
12	720	13	159	289	107	182	188	144.6	4	OB
13	730	12	119	239	102	137	91	140.9	3	OB
14	1300	10	112	212	104	108	86	104.1	4	OB
15	800	9	105	195	89	106	97	90.4	4	OB
17	1045	12	101	221	101	120	41	97.2	4	OB
18	945	10	111	211	106	105	67	75.6	4	OB
20	907	11	117	227	93	134	92	91.2	3	OL
21	910	12	93	213	69	144	106	103.1	2	SB
22	845	12	171	291	98	193	176	81.4	4	OL
24	1030	12	151	271	98	173	81	116.8	2	OL
25	740	11	150	260	82	178	111	92.5	3	OL
26	915	13	132	262	101	161	76	216.3	4	OB
27	825	10	96	196	62	134	62	109.9	4	OB
28	805	12	66	186	63	123	38	95.9	4	SB
29	900	10	49	149	68	81	26	66.1	2	SB
31	1050	9	92	182	28	154	63	90.5	2	SB

The relative mean sunspot number is 245.2.

NORMALISED UCCLE OBSERVATIONAL SUNSPOT NUMBERS $U'=K'U$ FOR AUGUST 2024

$K' = 0.894 (*)$

1	215	7	336	13	214	19	***	25	232
2	215	8	306	14	190	20	203	26	234
3	***	9	295	15	174	21	190	27	175
4	***	10	239	16	***	22	260	28	166
5	200	11	190	17	198	23	***	29	133
6	263	12	258	18	189	24	242	30	***
								31	163

The normalised relative monthly mean sunspot number is 219.

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

The Sun has been observed 25 days on 31 possible.