



Sunspot Index and Long-term Solar Observations

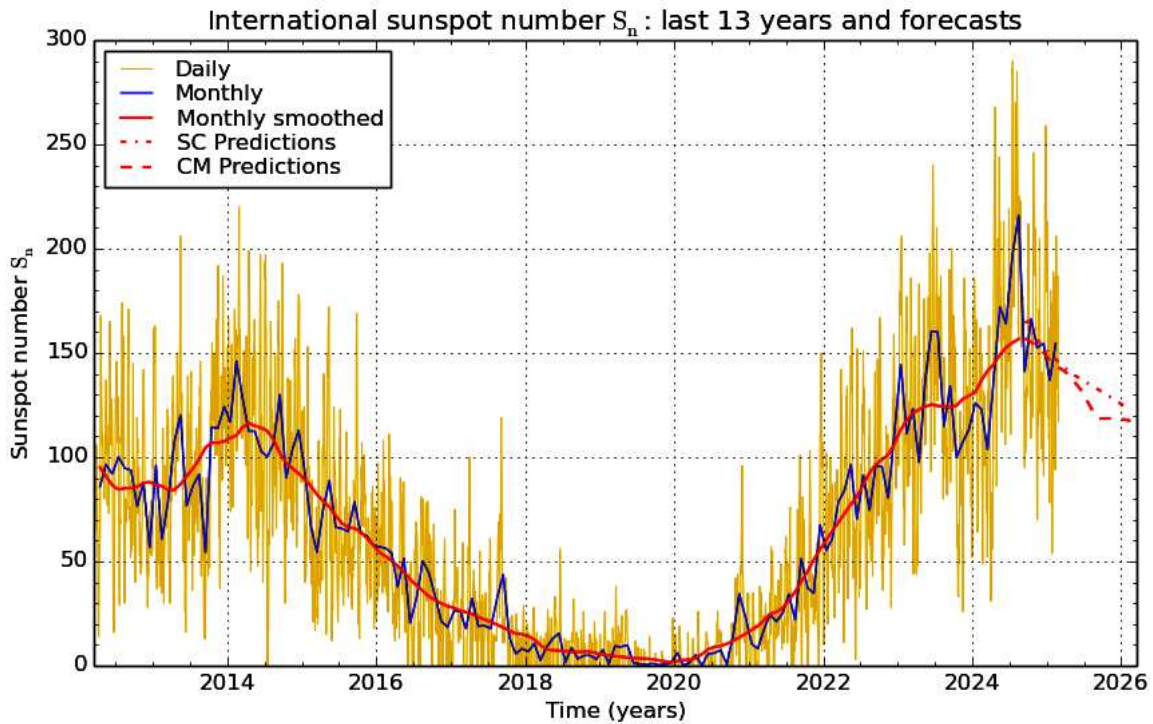
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SUNSPOT BULLETIN 2025 n° 02

Provisional international and normalized hemispheric daily sunspot numbers for February 2025

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	158	109	49
2	189	148	41
3	188	160	28
4	176	161	15
5	164	164	0
6	186	153	33
7	161	134	27
8	134	109	25
9	127	92	35
10	109	65	44
11	94	48	46
12	104	50	54
13	117	51	66
14	161	53	108
15	172	54	118
16	206	69	137
17	204	80	124
18	174	62	112
19	133	57	76
20	140	60	80
21	166	78	88
22	178	90	88
23	187	82	105
24	164	78	86
25	166	83	83
26	124	60	64
27	130	82	48
28	117	84	33
Monthly mean	154.7	89.9	64.8
Cooperating stations	63	57	57



SILSO graphics (<http://sidc.be/silso>) Royal Observatory of Belgium 2025 March 1

Predictions of the monthly smoothed Sunspot Number

using the last provisional value, calculated for August 2024: 156.7 ($\pm 5\%$)

	SM	CM		SM	CM		SM	CM
2024 Sep	165	157	2025 Mar	144	142	2025 Sep	132	119
Oct	166	155	Apr	142	140	Oct	130	119
Nov	156	153	May	139	136	Nov	129	119
Dec	153	150	Jun	138	132	Dec	127	118
2025 Jan	150	147	Jul	136	127	2026 Jan	125	118
Feb	147	144	Aug	134	122	Feb	123	117

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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Editor: Laure Lefevre

3, avenue Circulaire, B1180 Bruxelles, Belgium

Fax: .. /32/(0)2/374.98.22 Tel: .. /32/(0)2/790.39.23 Email: silso.info@oma.be

Web: <http://sidc.oma.be/silso>

FTP anonymous : omaftp.oma.be, directory: [dist/astro/sidcdata](http://omaftp.oma.be/dist/astro/sidcdata)

Summary of the URSIGRAMs from S.I.D.C.

Date	S _n	PPSI	600	2800	COS	SFI	XI	Ak
31	146	50	-	207	////	23	3/0	8
1	158	71	-	188	////	0	1/0	29
2	189	105	-	216	////	11	6/0	20
3	188	103	-	220	////	207	9/0	3
4	176	123	-	212	////	10	4/0	4
5	164	109	-	191	////	21	2/0	8
6	186	73	-	188	////	44	2/0	8
7	161	73	-	182	////	1	3/0	3
8	134	43	-	173	////	7	1/0	9
9	127	29	-	163	////	1	0/0	17
10	109	27	-	159	////	2	1/0	32
11	94	38	-	153	////	0	0/0	17
12	104	999	-	166	////	0	0/0	18
13	117	76	-	173	////	10	1/0	22
14	161	88	-	184	////	///	///	25
15	172	73	-	184	////	1	0/0	24
16	206	89	-	185	////	1	0/0	22
17	204	75	-	185	////	9	1/0	17
18	174	39	-	178	////	0	0/0	16
19	133	86	-	178	////	1	0/0	25
20	140	999	-	184	////	0	0/0	8
21	166	74	-	197	////	21	2/0	5
22	178	83	-	199	////	11	0/0	8
23	187	93	-	210	////	6	4/1	8
24	164	73	-	203	////	11	2/0	16
25	166	62	-	190	////	15	2/0	8
26	124	43	-	180	////	1	0/0	14
27	130	27	-	170	////	0	0/0	29
28	117	27	-	155	////	4	0/0	32

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 : $1 \times S_n + 10 \times "1" + 100 \times ">1"$).

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

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

SOLAR PHYSICS DEPARTMENT

UCCLE DAILY PROVISIONAL RELATIVE SUNSPOT NUMBERS FOR FEBRUARY 2025

DATE	UT	NUMBER		RELATIVE SUNSPOT NUMBERS			PPSI	QUAL	OBS	
		OF GROUPS	OF SPOTS	TOTAL	NORTH	SOUTH				CENTRAL
1	940	9	93	183	120	63	74	72.2	3	OL
2	915	8	132	212	167	45	157	109.1	3	OL
3	1045	10	151	251	208	43	227	125.2	3	JV
4	1040	9	117	207	194	13	134	111.4	3	JV
8	1123	9	41	131	107	24	25	45.3	2	JV
14	920	8	86	166	38	128	92	102.4	4	OB
15	1330	11	61	171	51	120	85	87.5	2	OB
16	1230	14	101	241	74	167	67	89.6	3	OB
17	1010	13	55	185	67	118	48	60.1	2	SB
18	950	10	41	141	50	91	63	39.5	3	SB
19	1030	9	39	129	46	83	77	115.1	3	OB
21	950	9	61	151	70	81	106	59.2	3	SB
23	1015	11	98	208	77	131	123	83.8	4	SB
25	1220	9	54	144	70	74	0	57.7	2	OL
26	850	6	46	106	51	55	14	34.4	2	OL
27	1255	10	50	150	101	49	52	32.5	3	OL
28	850	7	43	113	87	26	43	32.4	3	OL

The relative mean sunspot number is 169.9.

NORMALISED UCCLE OBSERVATIONAL SUNSPOT NUMBERS U'=K'U FOR FEBRUARY 2025

K' = 0.885 (*)

1	162	7	***	13	***	19	114	25	127
2	188	8	116	14	147	20	***	26	94
3	222	9	***	15	151	21	134	27	133
4	183	10	***	16	213	22	***	28	100
5	***	11	***	17	164	23	184		
6	***	12	***	18	125	24	***		

The normalised relative monthly mean sunspot number is 150.

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

The Sun has been observed 17 days on 28 possible.