



Sunspot Index and Long-term Solar Observations

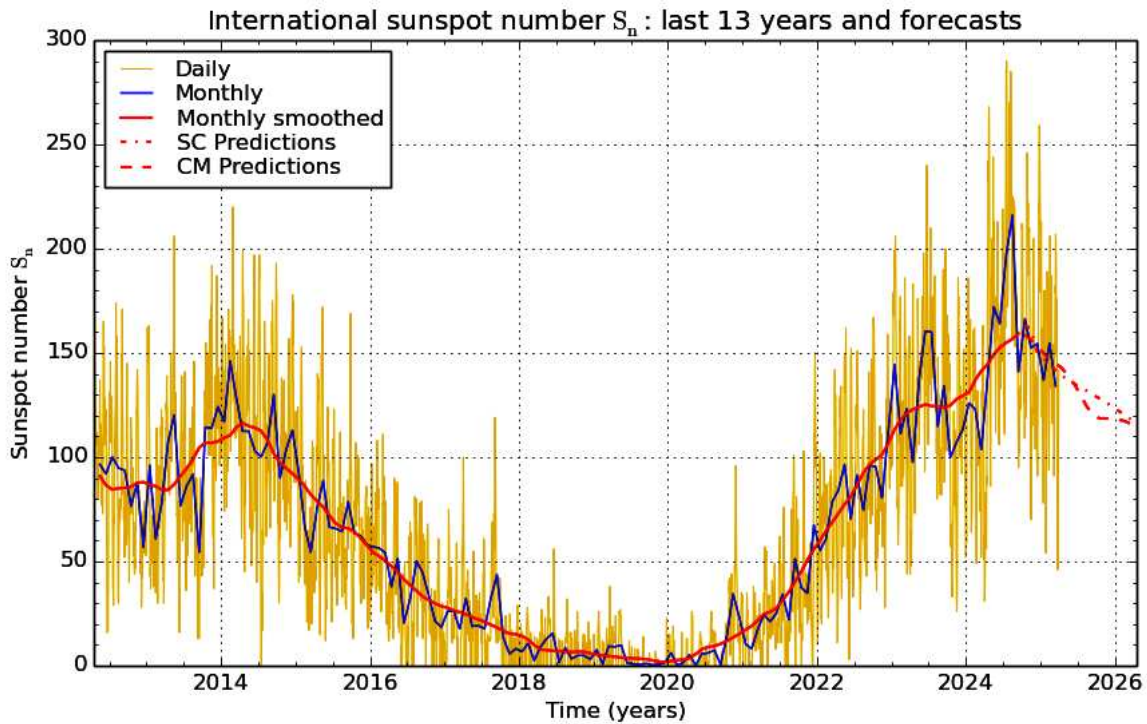
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SUNSPOT BULLETIN 2025 n° 03

Provisional international and normalized hemispheric daily sunspot numbers for March 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	116	92	24
2	147	89	58
3	123	59	64
4	154	75	79
5	143	47	96
6	129	24	105
7	106	21	85
8	91	18	73
9	101	40	61
10	108	51	57
11	144	90	54
12	157	98	59
13	172	109	63
14	182	112	70
15	179	112	67
16	207	124	83
17	204	122	82
18	194	117	77
19	165	79	86
20	162	71	91
21	149	75	74
22	176	96	80
23	129	76	53
24	79	51	28
25	77	58	19
26	46	39	7
27	84	74	10
28	78	62	16
29	91	59	32
30	124	70	54
31	142	65	77
Monthly mean	134.2	73.4	60.8
Cooperating stations	63	57	57



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

Predictions of the monthly smoothed Sunspot Number
 using the last provisional value, calculated for September 2024: 159.3 ($\pm 5\%$)

	SM	CM		SM	CM		SM	CM
2024 Oct	164	159	2025 Apr	139	143	2025 Oct	128	119
Nov	161	156	May	137	139	Nov	126	119
Dec	150	153	Jun	135	135	Dec	124	118
2025 Jan	147	150	Jul	133	130	2026 Jan	122	118
Feb	144	147	Aug	132	124	Feb	120	117
Mar	142	145	Sep	130	121	Mar	118	116

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
28	117	27	-	155	////	4	0/0	32
1	116	25	-	145	////	2	0/0	18
2	147	27	-	140	////	2	0/0	5
3	123	32	-	145	////	3	0/0	4
4	154	42	-	160	////	2	0/0	13
5	143	38	-	157	////	1	1/0	12
6	129	39	-	150	////	0	0/0	9
7	106	31	-	147	////	1	1/0	12
8	91	34	-	148	////	1	0/0	21
9	101	31	-	148	////	0	0/0	25
10	108	29	-	149	////	0	0/0	9
11	144	68	-	161	////	6	1/0	9
12	157	44	-	160	////	0	0/0	29
13	172	65	-	175	////	11	0/0	31
14	182	50	-	180	////	0	0/0	22
15	179	61	-	178	////	1	0/0	14
16	207	65	-	186	////	7	0/0	11
17	204	75	-	204	////	34	1/0	16
18	194	67	-	184	////	0	0/0	13
19	165	62	-	180	////	13	1/0	18
20	162	36	-	170	////	3	0/0	8
21	149	32	-	178	////	11	1/0	23
22	176	30	-	178	////	4	0/0	29
23	129	23	-	168	////	3	0/0	11
24	79	18	-	156	////	1	0/0	20
25	77	15	-	156	////	3	0/0	16
26	46	3	-	152	////	0	1/0	42
27	84	14	-	153	////	2	1/0	26
28	78	25	-	160	////	1	1/1	19
29	91	24	-	157	////	0	2/0	7
30	124	45	-	171	////	30	6/0	5
31	142	64	-	172	////	9	1/0	5

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 MARCH 2025

DATE	UT	NUMBER		RELATIVE SUNSPOT NUMBERS			PPSI	QUAL	OBS	
		OF GROUPS	OF SPOTS	TOTAL	NORTH	SOUTH				CENTRAL
2	845	11	68	178	111	67	87	36.4	3	OL
3	830	8	51	131	75	56	33	37.4	2	AE
4	900	10	46	146	78	68	23	35.2	1	AE
5	830	10	36	136	47	89	39	37.4	2	AE
6	910	8	31	111	22	89	40	31.7	1	AE
7	810	6	27	87	22	65	52	32.0	2	AE
8	900	6	24	84	23	61	48	37.3	2	AE
9	915	6	18	78	34	44	33	48.8	2	AE
10	1200	6	26	86	39	47	16	36.4	3	OB
12	1135	10	67	167	98	69	62	62.4	3	JV
13	1328	13	93	223	118	105	109	98.8	3	JV
14	812	13	73	203	122	81	114	82.4	3	JV
15	1224	14	51	191	116	75	97	71.8	2	JV
16	839	15	83	233	133	100	107	107.9	3	JV
17	1300	12	91	211	122	89	105	197.7	4	OB
18	800	12	50	170	99	71	65	91.2	2	AE
19	915	9	70	160	76	84	58	106.1	4	OB
20	915	13	77	207	84	123	104	49.7	3	OB
21	845	13	59	189	87	102	51	17.5	3	OB
22	1245	12	70	190	119	71	22	53.9	3	OB
23	930	7	43	113	65	48	20	17.2	3	OB
24	1555	5	23	73	49	24	15	10.1	3	OL
25	940	4	24	64	53	11	0	15.5	2	OL
27	730	4	32	72	72	0	13	27.4	4	SB
28	1200	5	31	81	68	13	41	61.8	3	OB
29	945	5	42	92	65	27	52	43.7	3	SB
30	1100	7	64	134	76	58	51	65.5	3	SB
31	845	7	91	161	71	90	62	101.3	3	OL

The relative mean sunspot number is 141.8.

NORMALISED UCCLE OBSERVATIONAL SUNSPOT NUMBERS $U'=K'U$ FOR MARCH 2025

$K' = 0.956 (*)$

1	***	7	83	13	213	19	153	25	61
2	170	8	80	14	194	20	198	26	***
3	125	9	75	15	183	21	181	27	69
4	140	10	82	16	223	22	182	28	77
5	130	11	***	17	202	23	108	29	88
6	106	12	160	18	163	24	70	30	128
								31	154

The normalised relative monthly mean sunspot number is 136.

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

The Sun has been observed 28 days on 31 possible.