Sunspot Index and Long-term Solar Observations

World Data Center supported by the ICSU - WDS

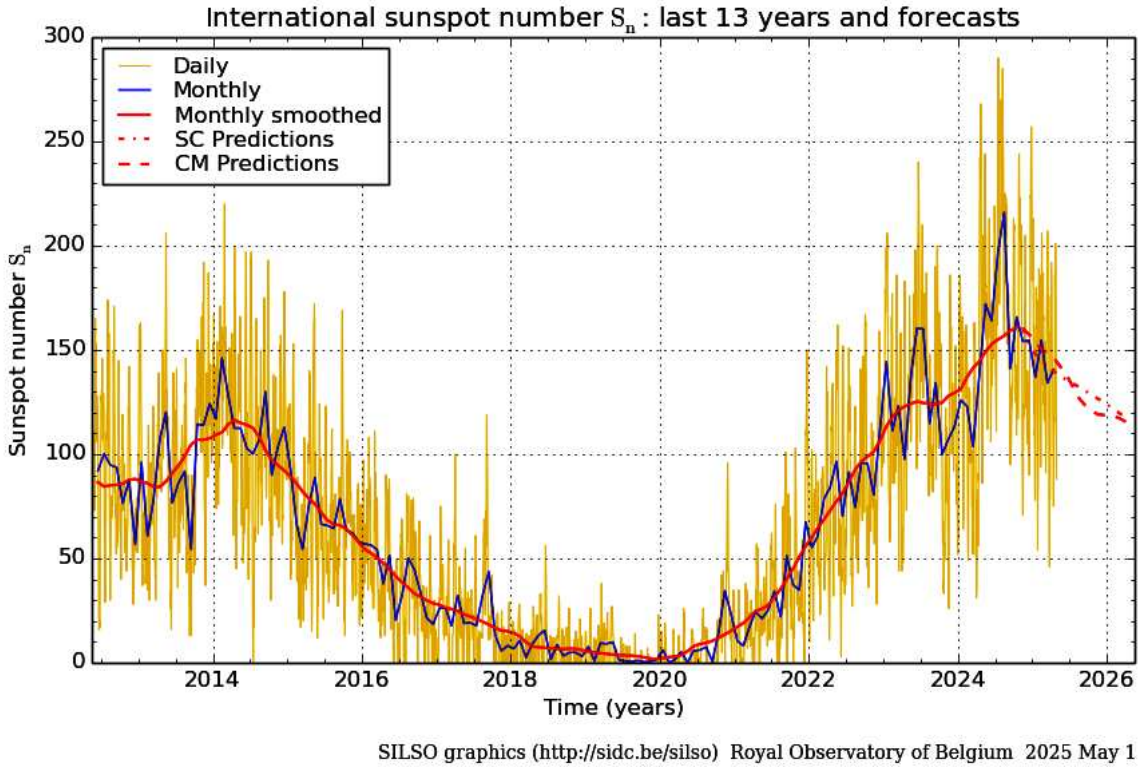
SUNSPOT BULLETIN

2025 n° 04

Provisional international and normalized hemispheric daily sunspot numbers for April 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	159	57	102
2	149	64	85
3	165	70	95
4	192	64	128
5	188	64	124
6	179	59	120
7	161	46	115
8	147	54	93
9	140	80	60
10	139	86	53
11	131	93	38
12	122	94	28
13	106	91	15
14	87	71	16
15	75	48	27
16	90	51	39
17	109	50	59
18	117	57	60
19	116	51	65
20	133	54	79
21	141	53	88
22	186	46	140
23	164	42	122
24	201	63	138
25	198	70	128
26	173	59	114
27	132	43	89
28	121	33	88
29	110	44	66
30	88	47	41
Monthly mean	140.6	60.1	80.5
Cooperating stations	63	57	57



Predictions of the monthly smoothed Sunspot Number

using the last provisional value, calculated for October 2024: 160.8 (± 5%)

	SM	CM		SM	CM		SM	CM
2024 Nov	161	160	2025 May	138	142	2025 Nov	127	119
Dec	153	157	Jun	136	138	Dec	125	119
2025 Jan	148	154	Jul	134	133	2026 Jan	123	119
Feb	145	150	Aug	132	127	Feb	121	118
Mar	142	149	Sep	131	124	Mar	119	117
Apr	140	146	Oct	129	121	Apr	116	115

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	142	64	-	172	////	9	1/0	5
1	159	70	-	182	////	9	2/0	7
2	149	85	-	180	////	12	0/0	18
3	165	83	-	178	////	3	0/0	23
4	192	94	-	180	////	1	0/0	33
5	188	96	-	184	////	2	1/0	39
6	179	74	-	167	////	5	0/0	22
7	161	53	-	162	////	12	0/0	18
8	147	51	-	159	////	14	1/0	23
9	140	38	-	167	////	10	0/0	16
10	139	32	-	153	////	6	0/0	18
11	131	40	-	170	////	29	2/0	16
12	122	53	-	165	////	38	7/0	19
13	106	34	-	164	////	43	10/0	13
14	87	20	-	152	////	1	2/0	25
15	75	23	-	153	////	2	0/0	30
16	90	24	-	148	////	1	0/0	67
17	109	39	-	151	////	1	0/0	11
18	117	40	-	156	////	1	0/0	18
19	116	54	-	157	////	5	0/0	22
20	133	65	-	156	////	3	0/0	14
21	141	53	-	163	////	14	1/0	37
22	186	53	-	163	////	5	1/0	15
23	164	57	-	167	////	7	0/0	6
24	201	52	-	170	////	4	0/0	14
25	198	49	-	164	////	1	0/0	4
26	173	35	-	156	////	1	0/0	6
27	132	36	-	156	////	2	0/0	10
28	121	26	-	154	////	3	0/0	5
29	110	32	-	149	////	39	3/0	7
30	88	39	-	148	////	102	1/0	12

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 x Sn+10 x "1"+100 x ">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 APRIL 2025

DATE	UT	NUMBER OF GROUPS	NUMBER OF SPOTS	RELATIVE SUNSPOT NUMBERS TOTAL	NORTH	SOUTH	CENTRAL	PPSI 10-5 WM-2	QUAL	OBS
1	745	8	75	155	53	102	80	81.7	3	OL
2	735	8	77	157	69	88	46	95.8	3	OL
3	720	7	97	167	63	104	119	126.7	3	OL
4	705	10	128	228	66	162	149	165.4	4	OL
5	645	11	95	205	63	142	90	196.0	2	OL
6	735	10	92	192	55	137	85	153.8	3	OL
7	822	8	70	150	38	112	45	78.2	2	JV
8	720	8	74	154	56	98	59	110.9	4	JV
9	905	8	52	132	75	57	42	103.5	2	JV
10	1405	9	40	130	89	41	23	62.3	2	JV
11	843	8	53	133	91	42	27	48.8	3	JV
12	735	6	54	114	89	25	29	79.6	3	SB
13	1030	5	43	93	82	11	28	59.5	2	LL
14	800	5	36	86	74	12	48	32.2	3	SB
15	705	4	41	81	57	24	45	27.8	3	OL
18	815	6	47	107	34	73	0	63.3	3	SB
19	730	5	43	93	36	57	28	113.9	2	LL
20	920	8	60	140	54	86	34	144.3	3	SB
21	1250	10	69	169	56	113	102	97.1	3	OB
22	830	11	80	190	47	143	130	127.7	3	OB
25	1500	13	52	182	61	121	49	80.3	3	SB
26	915	12	47	167	63	104	52	60.2	3	OB
27	830	9	49	139	46	93	68	100.3	4	OB
28	725	8	30	110	24	86	55	61.0	4	SB
29	625	8	37	117	40	77	47	71.7	3	OL
30	800	5	75	125	79	46	41	34.8	4	OB

The relative mean sunspot number is 142.9.

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

K'= 0.941 (*)

1	146	7	141	13	88	19	88	25	171
2	148	8	145	14	81	20	132	26	157
3	157	9	124	15	76	21	159	27	131
4	215	10	122	16	***	22	179	28	104
5	193	11	125	17	***	23	***	29	110
6	181	12	107	18	101	24	***	30	118

The normalised relative monthly mean sunspot number is 134.

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

The Sun has been observed 26 days on 30 possible.