



Sunspot Index Data Center  
SUNSPOT BULLETIN

Data Analysis Service supported by the FAGS

1991 n° 1  
Provisional Sunspot numbers for January 1991

From observations at the Locarno Specola Solare  
completed with data from an international network,  
computed at the Observatoire Royal de Belgique  
38 cooperating stations on February 1st, 10 UT

Day	Rt	Day	Rt
1	139	16	133
2	79	17	154
3	93	18	127
4	95	19	119
5	100	20	91
6	119	21	107
7	105	22	106
8	99	23	127
9	94	24	135
10	97	25	149
11	106	26	179
12	113	27	220
13	145	28	237
14	119	29	248
15	114	30	239
		31	256

Mean = 136.9

Predictions of the smoothed monthly Sunspot Numbers

Classical Method		SIDC Adjusted values
1991 Feb. 126(± 30)	1991 Aug. 113(± 36)	1991 Feb. 116(± 28)
Mar. 124	Sep. 111	Mar. 114
Apr. 122	Oct. 109	Apr. 112
May 120	Nov. 106	May 109
Jun. 118	Dec. 104	Jun. 107
Jul. 116	1992 Jan. 102	Jul. 104

forecasted on the basis of the most recent provisional monthly smoothed  
Sunspot Number calculated for 1990 July : 140.4 (± 5%)

Provisional smoothed values :

1990 Aug. 139(± 20)	1990 Oct. 135	1990 Dec. 130
Sep. 137	Nov. 132	1991 Jan. 128

Brussels, 1991 February 01

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S.I.D.C. SUMMARY OF THE URSIGRAMS

1991 JANUARY R'IM = 136.9

Date	R'1	PPSI	600	2800	COS	XFI	XI	Ak	SEA
31	96	75	50	184	886	11	0/0	9	
1	139	67	52	186	885	13	0/0	8	
2	79	59	52	181	884	9	0/0	9	
3	93	54	53	173	891	7	0/0	10	
4	95	71	53	173	892	11	0/0	7	
5	100	56	52	178	890	6	0/0	8	
6	119	47	52	184	894	9	0/0	4	
7	105	40	55	204	898	17	0/0	3	
8	99	63	60	214	901	57	3/0	10	
9	94	84	59	215	892	6	0/0	9	
10	97	124	58	220	894	26	1/0	12	Ten(0511)+sid
11	106	163	54	212	904	50	3/0	7	T(0649);1b(1524)+Ten
12	113	208	53	207	897	24	0/0	19	ssc(0151)
13	145	252	55	197	898	23	0/0	12	
14	119	235	50	192	899	9	0/0	4	
15	114	227	49	190	899	13	0/0	4	
16	133	236	50	192	903	7	0/0	8	
17	154	168	49	207	901	26	1/0	14	1b(1457)+Ten
18	127	160	50	202	896	91	2/0	15	sf(1403)+Ten
19	119	113	50	199	893	14	0/0	4	
20	91	77	50	204	897	9	0/0	7	
21	107	62	52	203	903	29	2/0	4	T(0004)+sn(0013)
22	106	91	53	221	901	59	4/0	4	
23	127	136	53	226	899	15	0/0	7	ssc(2030)
24	135	191	54	244	902	25	1/0	30	sn(0319)+T+T(0345)+II +IV+sid;ssc(2030)
25	149	234	57	267	892	131	4/1	21	sf(0631)+T+II+IV+swf
26	179	275	58	283	895	32	0/0	13	
27	220	348	58	303	906	138	0/1	22	1b(1439)+T+IV+sid
28	237	377	60	327	909	97	5/0	6	1n(0133)+T
29	248	408	60	353	913	48	1/0	4	
30	239	520	66	367	910	190	4/1	4	2b(0849)+T+sid
31	256	510	--	357	---	121	1/1	12	p(1130);pca(2200)

For 27 to 31 Jan.=highest daily mean of flux on 2800 Mhz for the cycle.

R'1,R'IM: 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 subtract from the mean solar constant.  
 600 :600 Mhz solar flux from Humain station (Belgium).  
 2800:2800 Mhz solar flux from Ottawa (origin:Ursigrams).  
 COS :thousands of the cosmic ray counts (origin:Ursigrams).  
 XFI :X-flares index from the S.I.D.C. (origin:Ursigrams).  
 XI :X-flares index from the Ursigrams (M-flares/X-flares).  
 Ak :planetary geomagnetic index from Wingst (Germany from Ursigrams).  
 SEA :sudden enhancements of atmospherics from Uccle & Humain (Belgium).  
 Remarks:sid(sudden ionospheric disturbance);ssc(sudden storm commencement)  
 mgst(magnetic storm);sfe(solar flare effect);s-1-2-3-4(class of flares);  
 II-IV radio-burst;T(ten cm radio-burst);P(proton flare);p(proton event);gle(ground level event:neutron event)

## OBSERVATOIRE ROYAL DE BELGIQUE

## DEPARTEMENT 4 RADIOASTRONOMIE ET PHYSIQUE SOLAIRE

## NOMBRES RELATIFS DE WOLF JOURNALIERS

PROVISOIRES

PROVISIONAL

## SUNSPOT RELATIVE NUMBERS

STATION UCCLE BELGIUM

JANVIER 1991

DATE	UT	NOMBRE DE GROUPES	NOMBRE DE TACHES	NOMBRE DE WOLF	NOMB REL ZONE CENTRALE	PPSI 10-6 WM-2	QUAL	OBS
1	950	12	69	189	104	959.	2	AK
4	940	8	55	135	52	1404.	2	FC
6	1100	14	45	185	62	955.	1	CG
7	1020	9	35	125	25	437.	2	VI
8	947	9	39	129	24	727.	3	VI
9	1024	7	44	114	11	818.	3	VI
11	1420	9	86	176	37	1418.	2	AK
12	1410	9	85	175	51	1926.	1	CG
13	1218	11	136	246	155	2133.	3	AK
14	1008	7	51	121	84	2383.	2	VI
15	958	5	37	87	74	2574.	2	VI
16	948	8	64	144	77	2498.	3	GE
17	951	11	106	216	112	2673.	2	VI
18	1012	8	72	152	69	1350.	3	VI
20	917	7	57	127	11	847.	2	AK
21	1132	9	55	145	38	770.	2	AK
25	948	10	105	205	84	1784.	2	AK
28	1027	12	169	289	178	3957.	2	VI
29	949	12	229	349	185	3472.	3	VI
30	943	11	230	340	162	3269.	3	VI

LE SOLEIL A ETE OBSERVE 20 JOURS SUR 31 POSSIBLES  
LE NOMBRE RELATIF DE WOLF MOYEN EST DE 182.4

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NORMALISED UCCLE OBSERVATIONAL SUNSPOT NUMBERS

U'=K'U FOR 1991 JANUARY

K' = 0.774 (\*)

1	146	7	96	13	190	19	***	25	158
2	***	8	99	14	93	20	98	26	***
3	***	9	88	15	67	21	112	27	***
4	104	10	***	16	111	22	***	28	223
5	***	11	136	17	167	23	***	29	270
6	143	12	135	18	117	24	***	30	263
								31	***

THE SUN WAS OBSERVED 20 DAYS ON 31 POSSIBLE  
THE NORMALISED RELATIVE MONTHLY MEAN WOLF NUMBER IS 140

\* K' IS THE MEAN OF THE MONTHLY K'S FOR THE LAST FIVE YEARS

UCCLE OBSERVATIONAL MAJOR SUNSPOTS FOR 1991 JANUARY  
E AND F BRUNNER'S TYPE GROUPS

UCCLE NO	EAST LIMB DATE	DATE AND TYPE	WEST LIMB DATE
		1ST OBS CMP LAST OBS	
7-1837	12 21.6	24 D 12 28.4	1 H 1 4.1
12-1837	12 27.0	30 J 1 2.7	6 G 1 9.5
24-1837	12 29.0	6 A 1 4.8	9 F 1 11.5
32-1837	1 7.8	8 F 1 14.5	20 G 1 21.3
1-1838	1 9.4	11 D 1 16.2	21 H 1 22.9
16-1838	1 20.3	21 E 1 27.0	30 G 2 2.8
20-1838	1 21.2	25 E 1 27.9	30 G 2 3.7
21-1838	1 22.3	25 C 1 29.0	30 E 2 4.8
23-1838	1 24.6	25 E 1 31.4	30 F 2 7.1

PROBABLE RETURN OF MAJOR GROUPS FOR 1991 FEBRUARY  
NEW EAST LIMB NEW CMP NEW WEST LIMB

24	1 24.9	1 31.7	2 7.4
32	2 4.1	2 10.8	2 17.6
1	2 5.3	2 12.0	2 18.8
16	2 17.0	2 23.8	3 2.5
20	2 17.3	2 24.1	3 2.8
21	2 18.4	2 25.2	3 3.9