


Sunspot Index Data Center
SUNSPOT BULLETIN

Data Analysis Service supported by the FAGS

1990 n° 10
 Provisional Sunspot numbers for October 1990

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

Day	R _i	Day	R _i
1	115	16	192
2	117	17	182
3	140	18	181
4	134	19	181
5	123	20	169
6	124	21	136
7	135	22	140
8	141	23	134
9	148	24	131
10	153	25	125
11	195	26	102
12	192	27	104
13	201	28	114
14	202	29	98
15	227	30	87
		31	77

Mean = 145.2

Predictions of the smoothed monthly Sunspot Numbers

Classical Method		SIDC Adjusted values	
1990 Nov. 134(± 32)	1991 May 122(± 39)	1990 Nov. 117(± 28)	
Dec. 132	Jun. 120	Dec. 115	
1991 Jan. 130	Jul. 118	1991 Jan. 113	
Feb. 128	Aug. 115	Feb. 112	
Mar. 126	Sep. 113	Mar. 110	
Apr. 124	Oct. 111	Apr. 108	

forecasted on the basis of the most recent provisional monthly smoothed Sunspot Number calculated for 1990 April : 149.0 (± 5%)

Provisional smoothed values :

1990 May 146(± 21)	1990 Jul. 142	1990 Sep. 138
Jun. 144	Aug. 140	Oct. 136

Brussels, 1990 November 01 A. KOECKELENBERGH and P. CUGNON
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S.I.D.C. SUMMARY OF THE URSIGRAMS

1990 OCTOBER R_{IM} = 145.2

Date	R _r	PPSI	600	2800	COS	XFI	XI	Ak	SEA
30	124	114	42	156	861	15	0/0	7	ten(0736)+sn+sid
1	115	99	43	158	876	9	0/0	2	
2	117	115	43	161	881	22	0/0	6	
3	140	111	44	177	871	22	0/0	12	
4	134	90	46	184	860	16	0/0	17	0953
5	123	94	44	169	866	10	0/0	10	
6	124	84	43	169	867	7	0/0	14	
7	135	73	43	168	866	10	0/0	10	
8	141	105	44	179	864	11	1/0	5	
9	148	126	45	182	865	26	1/0	13	
10	153	150	45	192	851	28	1/0	4	
11	195	194	47	202	847	23	1/0	43	0737
12	192	209	49	200	847	21	0/0	27	
13	201	209	47	207	859	22	0/0	21	
14	202	222	48	220	865	22	0/0	22	
15	227	241	50	232	867	46	1/0	21	
16	192	175	50	226	862	35	1/0	14	
17	182	165	49	193	864	26	0/0	6	1330
18	181	156	50	195	867	15	0/0	8	
19	181	131	49	221	870	24	0/0	12	
20	169	108	46	200	870	18	1/0	29	1n(1753)+ten+sid
21	136	93	46	187	873	24	3/0	12	
22	140	74	45	169	881	23	1/0	22	
23	134	78	44	164	876	13	0/0	13	
24	131	86	43	157	868	12	0/0	22	
25	125	84	43	163	872	20	0/0	13	
26	102	79	40	154	865	16	0/0	13	ssc(1134)
27	104	71	44	164	852	7	0/0	8	
28	114	76	40	152	857	9	0/0	3	
29	98	83	38	156	855	9	0/0	12	
30	87	79	40	154	---	10	0/0	16	
31	77	82	39	143	851	10	0/0	22	

R_r, 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; ten(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

OCTOBRE 1990

DATE	UT	NOMBRE DE GROUPES	NOMBRE DE TACHES	NOMBRE DE WOLF	NOMB REL ZONE CENTRALE	PSI 10-6 WM-2	QUAL	OBS
1	1455	7	71	141	56	1103.	2	AK
2	845	7	68	138	58	988.	2	VI
3	922	9	46	136	49	865.	2	VI
4	735	8	42	122	30	739.	2	VI
5	941	6	57	117	53	565.	2	VI
6	1355	9	83	173	99	847.	3	AK
7	1230	10	51	151	66	1162.	1	CG
8	925	10	85	185	73	935.	3	FC
9	759	10	44	144	41	939.	2	VI
10	1025	11	55	165	64	1238.	1	VI
11	753	13	96	226	100	1372.	2	VI
12	847	13	77	207	104	1467.	2	VI
13	909	15	117	267	131	1625.	3	VI
14	950	13	140	270	133	2529.	2	CG
16	1315	12	123	243	87	1557.	2	VI
18	1255	12	83	203	75	1610.	2	VI
19	855	13	87	217	75	1777.	2	VI
20	1040	11	49	159	39	1336.	1	CG
21	1255	10	54	154	41	1667.	2	AK
22	948	10	39	139	78	1439.	2	VI
23	1048	11	45	155	95	1457.	2	VI
24	935	10	63	163	88	1523.	3	VI
26	1530	4	23	63	21	998.	1	AK
29	1130	8	72	152	60	1003.	2	CG
30	1050	6	51	111	35	907.	3	AK
31	925	6	46	106	37	1032.	2	AK

LE SOLEIL A ETE OBSERVE 26 JOURS SUR 31 POSSIBLES
LE NOMBRE RELATIF DE WOLF MOYEN EST DE 165.7

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NORMALISED UCCLE OBSERVATIONAL SUNSPOT NUMBERS

U' = K'U FOR 1990 OCTOBER

K' = 0.747 (*)

1	105	7	112	13	199	19	162	25	***
2	103	8	138	14	201	20	118	26	47
3	101	9	107	15	***	21	115	27	***
4	91	10	123	16	181	22	103	28	***
5	87	11	168	17	***	23	115	29	113
6	129	12	154	18	151	24	121	30	82
								31	79

THE SUN WAS OBSERVED 26 DAYS ON 31 POSSIBLE
 THE NORMALISED RELATIVE MONTHLY MEAN WOLF NUMBER IS 123

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

UCCLE OBSERVATIONAL MAJOR SUNSPOTS FOR 1990 OCTOBER
 E AND F BRUNNER'S TYPE GROUPS

UCCLE NO	EAST LIMB		DATE AND TYPE			WEST LIMB	
	DATE		1ST OBS	CMP	LAST OBS	DATE	
7-1834	9	25.1	30 D	10 1.8	7 G	10	2.6
18-1834	10	6.7	7 H	10 13.5	20 H	10	20.2
29-1834	10	11.9	13 G	10 18.7	23 H	10	25.4

PROBABLE RETURN OF MAJOR GROUPS FOR 1990 NOVEMBER

NO	NEW EAST LIMB		NEW CMP	NEW WEST LIMB	
7	10	22.1	10 28.9	11	4.6
18	11	3.7	11 10.4	11	17.2
29	11	7.3	11 14.1	11	20.8