



Sunspot Index Data Center

SUNSPOT BULLETIN

Data Analysis Service supported by the FAGS

1990 , No 1

Provisional Sunspot-Numbers for JANUARY 1990

Dependent on observations at LOCARNO Specola Solare complemented by an international network and determined at the Observatoire Royal de BELGIQUE. Thirty-seven coop. stations on FEBRUARY 1990, 1st. 1200UT

Day	R _r	Day	R _r
1	186	16	152
2	166	17	174
3	166	18	177
4	174	19	199
5	164	20	236
6	144	21	217
7	129	22	208
8	138	23	219
9	125	24	191
10	134	25	228
11	164	26	227
12	172	27	211
13	179	28	193
14	147	29	185
15	157	30	198
		31	201
Mean -		179 . 4	

Predictions of the smoothed monthly Sunspot Numbers

Classical Method		S.I.D.C. Adjusted values
1990 FEB.149(±38)	1990 AUG.130(±43)	1990 FEB.160(±40)
MAR.146	SEP.128	MAR.156
APR.143	OCT.125	APR.151
MAY.140	NOV.122	MAY.146
JUN.136	DEC.120	JUN.140
JUL.133(±33)	1991 JAN.118(±40)	JUL.137(±34)

Forecasted values on the basis of the latest provisional monthly smoothed Sunspot Number: 1989 JULY = 158 . 4 ±5%

Provisional smoothed values:

1989 AUG.164(±8)	OCT.163	DEC.158
SEP.166	NOV.161	1990 JAN.154(±8)

Brussels, 1990 FEBRUARY .1st

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

1990 JANUARY R_{IM} = 179.4

Date	R _I	PPSI	600	2800	COS	XFI	XI	Ak	SEA
31	186	273	--	246	809	120	0/1	27	0931 ten(1600)
1	186	220	65	216	815	30	1/0	15	
2	166	183	51	212	824	14	0/0	23	
3	166	130	50	207	833	20	1/0	16	
4	174	114	51	194	836	2	0/0	12	
5	164	115	48	191	929	7	1/0	22	1150
6	144	116	46	187	835	16	0/0	10	
7	129	83	45	183	837	9	0/0	6	
8	138	87	46	177	829	19	1/0	13	ssc(1432)
9	125	86	44	165	834	31	2/0	14	1451
10	134	112	44	172	836	37	2/0	18	ten(0240)ssc(0835)
11	164	112	44	177	845	5	0/0	18	
12	172	91	44	173	850	26	2/0	18	2107(?)
13	179	63	43	173	848	10	0/0	12	
14	147	54	43	173	853	15	0/0	6	ten(1004)+flare m2.8/1f
15	157	80	44	189	849	6	0/0	10	
16	152	75	46	192	848	6	1/0	15	
17	174	114	47	198	---	13	0/0	17	
18	177	122	49	226	850	22	1/0	10	
19	199	137	50	242	849	20	1/0	40	low geo. mag. act.
20	236	132	52	245	845	42	3/0	19	1141+1237+1324
21	217	111	53	265	846	50	2/0	18	
22	208	104	55	242	845	55	2/0	22	1150
23	219	125	55	243	847	28	1/0	22	
24	191	168	55	250	847	23	1/0	29	
25	228	241	53	241	848	14	0/0	18	
26	227	229	54	245	849	14	0/0	12	
27	211	213	50	237	854	15	1/0	5	
28	193	219	51	239	841	12	0/0	10	2b(0257)+sid
29	185	259	50	229	848	23	1/0	23	ssc(0055)
30	198	195	--	219	851	21	0/0	32	1n(0407)
31	201	174	--	213	848	20	0/0	20	2b(0931)

R_I, 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 at 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

JANVIER 1990

DATE	UT	NOMBRE DE GROUPES	NOMBRE DE TACHES	NOMBRE DE WOLF	NOMB REL ZONE CENTRALE	PSI 10-6 WM-2	QUAL	CBS
3	1305	12	45	165	72	1977.	2	ST
6	1219	9	57	147	17	1925.	1	VI
11	1124	13	84	214	72	1610.	2	VI
12	1250	13	50	180	40	1598.	3	VI
17	1310	9	75	165	79	1205.	2	VI
18	0946	10	87	187	80	1419.	3	VI
19	1030	10	80	180	36	1557.	1	VI
21	1010	12	79	199	50	1258.	1	AK
24	1405	15	183	333	159	941.	3	AK
27	1215	15	128	278	121	1664.	2	AK
28	1210	13	78	208	89	1552.	2	ST
29	1000	11	83	193	103	1306.	2	AK
30	1250	14	120	260	113	1251.	2	AK

LE SOLEIL A ETE OBSERVE 13 JOURS SUR 31 POSSIBLES
LE NOMBRE RELATIF DE WOLF MOYEN EST DE 202.4

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NORMALISED UCCLE OBSERVATIONAL SUNSPOT NUMBERS

U* = K*U FOR 1990 JANUARY

K* = .938 (*)

1	***	7	***	13	***	19	168	25	***
2	***	8	***	14	***	20	***	26	***
3	154	9	***	15	***	21	186	27	260
4	***	10	***	16	***	22	***	28	195
5	***	11	200	17	154	23	***	29	181
6	137	12	168	18	175	24	312	30	243
								31	***

THE SUN WAS OBSERVED 13 DAYS ON 31 POSSIBLE
THE NORMALISED RELATIVE MONTHLY MEAN WOLF NUMBER IS 194

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

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

UCCLE NO	EAST LIMB		DATE AND TYPE			WEST LIMB	
	DATE	IST OBS	DATE	TYPE	LAST OBS	DATE	
37-1823	12 22.4	23 E	12 29.1		3 E	1 4.9	
8-1824	12 28.5	3 D	1 4.2		6 E	1 11.0	
23-1824	1 11.3	12 C	1 18.0		21 D	1 24.8	
28-1824	1 15.5	17 G	1 22.2		27 G	1 29.0	
1-1825	1 20.2	21 C	1 26.9		30 D	2 2.7	

PROBABLE RETURN OF MAJOR GROUPS FOR 1990 FEBRUARY

UCCLE NO	NEW EAST LIMB	NEW CMP	NEW WEST LIMB
37	1 18.2	1 24.9	1 31.7
8	1 24.7	1 31.5	2 7.2
23	2 7.4	2 14.1	2 20.9
1	2 16.5	2 23.3	3 2.0