



Sunspot Index Data Center

SUNSPOT BULLETIN

Data Analysis Service supported by the FAGS

1990 , No 2

Provisional Sunspot-Numbers for FEBRUARY 1990

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

Table with 4 columns: Day, Rr, Day, Rr. It lists sunspot numbers for days 1 through 15 of the month.

Mean = 128 . 4

Predictions of the smoothed monthly Sunspot Numbers
Classical Method S.I.D.C. Adjusted values
1990 MAR.144(+36) 1990 SEP.126(+42) 1990 MAR.153(+38)
APR.140 OCT.124 APR.148
MAY 137 NOV.121 MAY 144
JUN.134 DEC.119 JUN.138
JUL.131 1991 JAN.116 JUL.133
AUG.129(+32) FEB.114(+38) AUG.130(+32)

Forecasted values on the basis of the latest provisional monthly
smoothed Sunspot Number:1989 AUGUST = 157 . 8 +5%
Provisional smoothed values:
1989 SEP.161(+8) NOV.157 1990 JAN.150
OCT.159 DEC.154 FEB.147(+7)

Brussels, 1990 MARCH ,1st

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

1990 FEBUARY R_{IM} = 128. 4

Date	R _I	PPSI	600	2800	COS	XFI	XI	Ak	SEA
31	201	174	49	213	848	20	0/0	20	2b(0931)
1	171	134	49	206	852	10	0/0	21	
2	161	113	44	181	846	7	0/0	22	1321
3	124	87	--	163	849	25	1/0	11	flare m6.9/2f(0107)+ten (0108)+sid+ssc(1011)
4	119	72	42	160	847	9	0/0	30	
5	97	50	43	155	855	13	0/0	22	
6	80	34	42	151	853	8	0/0	18	
7	82	31	41	148	850	4	0/0	23	
8	95	28	41	146	849	4	1/0	8	low Solar activity
9	103	37	42	145	855	2	0/0	5	
10	79	52	43	151	856	5	0/0	8	
11	75	60	42	138	863	7	0/0	12	
12	80	65	38	145	862	8	0/0	6	
13	85	84	41	146	855	7	0/0	11	tens(0044 and 0134)+ ssc(1716)+mgst ten(0321) minor flares
14	75	78	42	153	850	5	0/0	21	
15	78	70	44	152	846	95	0/0	32	
16	64	50	43	152	849	1	0/0	41	
17	57	37	43	154	845	12	0/0	34	
18	77	30	45	164	840	16	0/0	25	
19	107	35	49	181	833	22	0/0	31	
20	134	68	51	191	836	14	0/0	37	minor flares
21	159	116	53	213	840	15	0/0	20	
22	191	198	55	217	846	32	1/0	26	minor flares
23	239	225	55	219	847	-	2/0	36	1253
24	249	244	56	232	849	43	1/0	24	
25	245	321	55	224	855	-	-	24	
26	213	233	54	218	846	13	0/0	-	
27	200	229	51	228	848	34	1/0	22	
28	156	210	--	-	-	-	-	-	1542

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 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 SCLAIRE

NOMBRES RELATIFS DE WOLF JOURNALIERS

PROVISOIRES

PROVISIONAL

SUNSPOT RELATIVE NUMBERS

STATION UCCLE BELGIUM

FEVRIER 1990

DATE	UT	NOMBRE DE GROUPES	NOMERE DE TACHES	NOMBRE DE WOLF	NOMB PEL ZONE CENTRALE	PSI 10-6 WM-2	QUAL	GRS
1	1243	12	108	228	57	1178.	2	VI
2	0936	12	85	205	80	1003.	2	VI
4	1010	9	51	141	68	898.	2	CG
5	1044	5	50	100	41	714.	2	VI
6	0916	5	32	82	17	537.	2	VI
20	1155	9	71	161	34	858.	3	AK
21	1430	11	103	213	106	1239.	3	AK
22	1040	14	88	228	100	1790.	3	ST
23	1100	14	171	311	176	2883.	4	ST
27	1210	14	104	244	126	2418.	2	VI

LE SOLEIL A ETE OBSERVE 10 JOURS SUR 28 POSSIBLES
LE NOMBRE RELATIF DE WOLF MOYEN EST DE 191.3

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NORMALISED UCCLE OBSERVATIONAL SUNSPOT NUMBERS

U* = K*U FOR 1990 FEBRUARY

K* = .929 (*)

1	211	7	***	13	***	19	***	25	***
2	190	8	***	14	***	20	149	26	***
3	***	9	***	15	***	21	197	27	236
4	130	10	***	16	***	22	211	28	***
5	92	11	***	17	***	23	288	29	***
6	76	12	***	18	***	24	***	30	***
								31	***

THE SUN WAS OBSERVED 10 DAYS ON 28 POSSIBLE
THE NORMALISED RELATIVE MONTHLY MEAN WOLF NUMBER IS 177

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

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

UCCLE NO	EAST LIMB DATE	DATE AND TYPE	WEST LIMB DATE
		IST OBS CMP LAST OBS	
1-1825	1 20.1	21 C 1 26.9	2 H 2 2.6
4-1826	2 18.9	20 D 2 25.6	27 E 3 4.4
5-1826	2 19.3	20 C 2 26.0	27 G 3 4.8

PROBABLE RETURN OF MAJOR GROUPS FOR 1990 MARCH

UCCLE NO	NEW EAST LIMB	NEW CMP	NEW WEST LIMB
1	2 16.6	2 23.3	3 2.1
4	3 18.2	3 25.0	3 31.7