



Sunspot Index Data Center

SUNSPOT BULLETIN

Data Analysis Service supported by the FAGS

1990 , No 5

Provisional Sunspot-Numbers for MAY 1990

Dependent on observations at LOCARNO Specola Solare
complemented by an international network and
determined at the Observatoire Royal de BELGIQUE.
Forty three coop. stations on June 1990,1st,1000UT

Table with 4 columns: Day, R'x, Day, R'x. It lists sunspot numbers for each day of the month, with a mean value of 132.0 at the bottom.

Table titled 'Predictions of the smoothed monthly Sunspot Numbers' comparing Classical Method and S.I.D.C. Adjusted values for 1990 and 1991.

Forecasted values on the basis of the latest provisional monthly smoothed Sunspot Number: 1989 NOVEMBER = 157.5 ±5%
Provisional smoothed values:
1989 Dec.156(±23) 1990 Feb.152 1990 Apr.148
1990 Jan.154 Mar.150 May 146

Brussels, 1990 JUNE ,1st
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S.I.D.C. SUMMARY OF THE URSIGRAMS

1990 MAY R_{IM} = 132.0

Date	R _I	PPSI	600	2800	COS	XFI	XI	Ak	SEA
30	126	103	45	133	806	3	0/0	21	
1	70	79	41	127	819	3	0/0	10	
2	59	43	39	126	821	0	0/0	11	
3	61	54	39	122	820	5	0/0	14	
4	86	45	39	121	821	9	0/0	14	
5	80	55	39	128	827	5	0/0	10	
6	106	99	42	146	825	14	0/0	6	
7	132	88	41	151	831	22	0/0	10	
8	138	94	43	164	824	46	2/0	14	
9	133	77	41	169	818	21	1/0	17	ten(1338)
10	116	94	45	188	---	9	2/1	13	1920 ten(1921)+II+2n(1930)
11	126	49	45	199	804	118	0/2	23	ten(1300)+IV;2b(2055)
12	146	56	48	210	815	121	1/1	6	1126 2b+ten+sid
13	144	88	50	216	818	33	2/0	18	0947+1236
14	141	106	50	220	813	29	1/0	4	1407+1452
15	144	186	56	239	810	135	1/1	6	1303 2b(0028)+ten;3b(1258)
16	157	213	55	243	---	41	1/0	4	
17	167	297	57	232	819	39	2/0	6	ten(0328)+(0922)
18	170	341	56	256	822	17	1/0	32	ssc(0741)
19	187	375	65	268	809	39	1/0	20	1238
20	187	347	56	260	797	46	2/0	23	ten(1638)+(1906);2n(2336)
21	193	250	55	249	802	145	2/1	24	1b(0121);ssc(1021);P3b(2210)
22	187	226	56	236	804	26	1/0	28	p(0745)+pca+ten+IV,swf; p(2355)+pca;ssc(1733)
23	160	185	53	228	797	40	3/0	14	1n(0411)+ten+sid;p(1640)
24	158	154	47	220	803	133	2/1	8	P1b(2044)+ten+sfe;p(2125) ;pca(2318)
25	146	100	44	183	817	19	0/0	18	
26	134	81	46	180	803	18	1/1	37	1718 ssc(1136)+(2038);P(2045) +ten+IV+p(2100)
27	139	77	40	157	807	10	1/0	32	1550 ten(0309)
28	116	55	38	154	812	15	1/0	9	1457 P(0428)+IV;p(0715)
29	118	49	41	138	794	11	0/0	13	p)2400)
30	90	41	--	140	789	7	0/0	24	ssc(0837)
31	101	43	--	140	788	10	0/0	13	

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 CLAIRES

NOMBRES RELATIFS DE WOLF JOURNALIERS

PROVISOIRES

PROVISIONAL

SUNSPOT RELATIVE NUMBERS

STATION UCCLL BELGIUM

MAI 1990

DATE	UT	NOMBRE DE GROUPES	NOMBRE DE TACHES	NOMBRE DE WOLF	NOMB REL CENTRALE	PSOI 10-6 WP-2	QUAL	OBS
1	0759	6	10	70	0	879.	2	VI
2	0959	4	5	45	11	635.	3	VI
3	0746	5	7	57	13	974.	3	VI
4	0747	7	19	89	11	713.	3	VI
5	0857	7	27	97	25	880.	2	PC
6	0940	9	59	149	48	1268.	4	AK
7	0713	9	56	146	91	1003.	2	VI
8	0802	9	64	154	90	1623.	2	VI
9	1130	6	49	119	60	1142.	1	VI
10	1140	7	43	113	41	1193.	4	VI
11	0949	6	47	127	56	771.	1	VI
15	1320	7	75	145	21	1920.	2	VI
16	0654	8	104	184	23	2122.	2	VI
17	0738	7	94	164	69	2372.	2	VI
18	0717	8	119	199	83	2536.	3	VI
19	0850	12	120	240	105	2795.	2	CG
20	1320	9	193	283	151	2625.	3	AK
21	1620	9	134	224	36	2067.	2	AK
22	0732	9	119	199	77	1056.	2	VI
23	0706	7	100	170	97	1461.	2	VI
24	0850	8	111	191	71	2059.	2	CG
25	1055	10	80	160	90	1081.	2	AK
26	1005	9	60	150	27	615.	3	AK
27	0807	9	81	171	17	1843.	4	AK
28	0804	9	45	135	70	316.	1	VI
29	0704	8	38	118	69	324.	2	VI
30	0640	6	37	97	63	260.	2	VI
31	0732	7	34	104	71	597.	1	VI

LE SOLEIL A ETE OBSERVE 26 JOURS SUR 31 POSSIBLES
LE NOMBRE RELATIF DE WOLF MOYEN EST DE 147.5

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NORMALISED UCCLE OBSERVATIONAL SUNSPOT NUMBERS

U=K*U FOR 1990				MAY					
K* = .086 (*)									
1	62	7	129	13	***	19	212	25	159
2	39	8	136	14	***	20	250	26	132
3	56	9	114	15	128	21	198	27	151
4	78	10	180	16	162	22	170	28	119
5	85	11	112	17	145	23	150	29	104
6	131	12	***	18	176	24	169	30	85
								31	92

THE SUN WAS OBSERVED 28 DAYS ON 31 POSSIBLE
 THE NORMALISED RELATIVE MONTHLY MEAN WOLF NUMBER IS 130

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

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

UCCLE NO	EAST LIME DATE	DATE	AND TYPE	WEST LIME DATE
		IST OBS	OMP	LAST OBS
36-1828	5 1.9	3 F	5 8.7	15 J
40-1828	5 1.4	5 A	5 8.2	11 H
5-1829	5 11.3	15 F	5 16.1	24 C
6-1829	5 12.2	15 F	5 19.0	25 C
14-1829	5 17.9	19 C	5 24.7	27 C
23-1829	5 24.3	25 C	5 31.0	31 E

PROBABLE RETURN OF MAJOR GROUPS FOR 1990
 JUNE

NO	NEW EAST LIME	NEW OMP	NEW WEST LIME
5	6 8.2	6 14.9	6 21.7
6	6 8.9	6 15.6	6 22.4