

  
 Sunspot Index Data Center  
**SUNSPOT BULLETIN**

Data Analysis Service supported by the FAGS

1991 n° 5  
 Provisional Sunspot numbers for May 1991

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

Day	Rt	Day	Rt
1	93	16	113
2	86	17	113
3	99	18	125
4	95	19	116
5	89	20	121
6	96	21	97
7	95	22	117
8	125	23	120
9	140	24	117
10	134	25	121
11	145	26	132
12	133	27	163
13	116	28	158
14	134	29	150
15	119	30	141
		31	150

Mean = 121.1

Predictions of the smoothed monthly Sunspot Numbers

Classical Method		SIDC Adjusted values
1991 Jun. 127(± 30)	1991 Dec. 114(± 36)	1991 Jun. 122(± 30)
Jul. 125	1992 Jan. 111	Jul. 121
Aug. 123	Feb. 108	Aug. 119
Sep. 121	Mar. 106	Sep. 119
Oct. 118	Apr. 104	Oct. 118
Nov. 116	May 101	Nov. 116

forecasted on the basis of the most recent provisional monthly smoothed Sunspot Number calculated for 1990 November : 141.5 (± 5%)

Provisional smoothed values :

1990 Dec. 139(± 20)	1991 Feb. 135	1991 Apr. 131
1991 Jan. 137	Mar. 133	May 129

Brussels, 1991 June 01

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

1991 MAY R'IM = 121.1

Date	R'i	PPSI	600	2800	COS	XFI	XI	Ak	SEA	MAG
30	116	91	45	160	868	16	0/0	28		
1	93	79	46	162	861	7	0/0	28	0825+si(1202)	
2	86	60	47	157	859	4	0/0	39	si(0537)	
3	99	63	47	158	856	13	0/0	16	si(0604)	
4	95	78	47	163	857	9	0/0	12		
5	89	112	50	181	868	22	1/0	6		
6	96	173	54	203	863	16	0/0	7	1658	
7	95	228	55	213	862	36	2/0	8	1035	T(0023);SEA(1446)
8	125	283	58	226	858	35	1/0	12		
9	140	286	60	228	856	16	0/0	13	1200	SEA(1233)
10	134	277	68	234	858	23	1/0	12		T(0144)
11	145	256	59	231	867	58	4/0	4	1318	SEA(1508);Sn(1950)+T
12	133	282	63	244	861	26	2/0	5	1732	
13	116	277	56	212	850	6	3/0	24		0857 X(0103);T(0235)p(0300)
14	134	227	49	207	850	3	0/0	28		(0630)
15	119	193	50	191	853	18	0/0	8		
16	113	152	65	187	864	20	1/0	15	0646 2041	2b(0642)+T+II+IV;
17	113	102	51	171	874	34	1/0	30		
18	125	85	56	168	872	122	3/1	5		2b(0437)+II+IV+sid+T
19	116	72	50	164	854	21	1/0	6	1344	
20	121	74	48	148	855	3	0/0	5		
21	97	65	50	148	843	8	0/0	11		1223
22	117	78	47	147	853	11	0/0	21		0018
23	120	67	42	152	870	9	0/0	25		
24	117	67	44	159	868	8	0/0	26		
25	121	113	43	173	871	7	0/0	31	1410	(0608);(si(0731))?
26	132	185	46	184	858	10	0/0	28		
27	163	213	50	194	856	53	2/0	22		
28	158	265	53	210	833	87	9/0	32	1309	1b(1016);SEA(1512)
29	150	208	69	216	814	160	4/1	22	1214	sf(1206);X2b(2333)+T
30	141	200	52	231	821	41	3/0	16	1126	sf(0935)+T
31	150	181	--	219	813	56	4/0	40	1651 1039	p(1225);2b(1653)

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).  
 MAG :magnetic events from Dourbes station(Royal Météo. Institute 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

## DAILY PROVISIONAL

## RELATIVE SUNSPOT NUMBERS

STATION UCCLE BELGIUM

MAY 1991

DATE	UT	NUMBER OF GROUPS	NUMBER OF SPOTS	RELATIVE SUNSPOT NUMBER	REL NUMB CENTRAL ZONE	PPSI 10-5 WM-2	QUAL	OBS
1	830	9	39	129	63	126.0	2	AK
2	1530	10	30	130	59	96.3	1	AK
3	831	12	63	183	125	105.2	4	AK
5	1035	9	45	135	72	181.4	2	FC
8	653	9	68	158	0	186.5	2	VI
9	647	11	83	193	0	198.0	2	VI
10	900	10	91	191	32	243.3	2	CG
11	850	11	87	197	87	254.6	2	CG
12	733	11	79	189	139	300.7	2	PC
14	1340	8	43	123	73	216.2	1	VI
16	643	11	50	160	68	147.6	2	VI
18	558	12	39	159	49	79.2	3	VI
21	906	4	27	67	53	67.8	1	VI
22	701	9	50	140	76	119.4	2	VI
23	639	7	44	114	46	85.0	3	VI
24	639	9	44	134	22	76.8	2	VI
27	830	12	102	222	66	191.6	3	PC
29	1045	8	94	174	78	156.5	3	PC
30	726	7	76	146	45	135.5	3	VI
31	1255	9	76	166	93	139.6	1	AK

The Sun has been observed 20 days on 31 possible.  
The relative mean sunspot number is 155.5.

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NORMALISED UCCLE OBSERVATIONAL SUNSPOT NUMBERS U'-K'U FOR

1991 MAY

K' = 0.688 (\*)

1	88	7	***	13	***	19	***	25	***
2	89	8	108	14	84	20	***	26	***
3	125	9	132	15	***	21	46	27	152
4	***	10	131	16	110	22	96	28	***
5	92	11	135	17	***	23	78	29	119
6	***	12	129	18	109	24	92	30	100
								31	114

The Sun has been observed 20 days on 31 possible.  
The normalized relative monthly mean Wolf number is 106.

\* K' is the mean of the monthly K's for the last five years.

UCCLE OBSERVATIONAL MAJOR SUNSPOT GROUPS FOR 1991 MAY  
E AND F BRUNNER'S TYPE GROUPS

Uccle N°	East Limb Date	Date and type			West Limb Date
		1st obs	CMP	Last Obs	
60-1841	4 25.6	27 C	5 2.3	5 G	5 9.1
4-1842	4 28.6	2 A	5 5.4	11 F	5 12.1
7-1842	5 4.1	5 F	5 10.8	18 F	5 17.6
15-1842	5 7.3	9 A	5 14.1	18 H	5 20.8
28-1842	5 14.7	18 A	5 21.5	24 G	5 28.2
35-1842	5 21.1	22 G	5 27.9	31 G	6 3.6

PROBABLE RETURN OF MAJOR GROUPS FOR 1991 JUNE

N°	New East Limb	New CMP	New West Limb
60	5 22.5	5 29.3	6 5.0
4	5 26.0	6 1.8	6 8.5
7	6 1.8	6 8.6	6 15.3
28	6 10.6	6 17.3	6 24.1