


 Sunspot Index Data Center
SUNSPOT BULLETIN

Data Analysis Service supported by the FAGS

1991 n° 6
 Provisional Sunspot numbers for June 1991

From observations at the Locarno Specola Solare
 completed with data from an international network,
 computed at the Observatoire Royal de Belgique
 33 cooperating stations on July 1st, 14 UT

Day	Ri	Day	Ri
1	177	16	165
2	175	17	149
3	171	18	148
4	179	19	143
5	180	20	113
6	172	21	147
7	171	22	135
8	210	23	117
9	251	24	135
10	241	25	137
11	250	26	150
12	228	27	143
13	175	28	162
14	177	29	192
15	154	30	175

Mean = 170.7

Predictions of the smoothed monthly Sunspot Numbers

Classical Method		SIDC Adjusted values	
1991 Jul. 129(± 31)	1992 Jan. 115(± 37)	1991 Jul. 125(± 31)	
Aug. 127	Feb. 113	Aug. 124	
Sep. 125	Mar. 111	Sep. 123	
Oct. 122	Apr. 108	Oct. 122	
Nov. 120	May 106	Nov. 121	
Dec. 118	Jun. 104	Dec. 121	

forecasted on the basis of the most recent provisional monthly smoothed Sunspot Number calculated for 1990 December : 143.9 (± 5%)

Provisional smoothed values :

1991 Jan. 142(± 21)	1991 Mar. 138	1991 May 134
Feb. 140	Apr. 136	Jun. 132

Brussels, 1991 July 01

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

1991 JUNE R'IM = 170.7

Date	R'i	PPSI	600	2800	COS	XFI	XI	Ak	SEA	MAG	
31	150	181	--	219	813	56	4/0	40	1651	1039	p(1225);2b(1651)+T; p(1515)
1	177	144	58	220	785	154	3/1	63	1458		1b(0250);1f(1456) +II+IV+T;p(0445) 2n(1351)+IV
2	175	138	104	243	792	29	4/0	48	0741		
3	171	123	53	220	790	19	1/0	19			
4	179	156	56?	239	781	126	2/1	19		1535	P3b+sfe(0337)+IV;F
5	180	193	53?	251	740	51	3/1	145			
6	172	239	57	240	749	144	4/1	38	1731	2255	3b(0058)+T;p(2255) 3b(0025);mgst(2227)
7	171	242	57	230	748	41	3/0	27			
8	210	322	53	243	743	11?	0/1?	27	1322		
9	251	357	--	238	717	160	4/1	53	1300		3b(0134);mgst(0039)
10	241	294	51?	239	711	66	5/0	103	1350	1716	sea(1652)
11	250	298	--	236	713	142	5/1	65	1156		T(0128)+II+IV;3b(0156) pca(1420);p(0245)
12	228	254	54?	230	729	45	4/0	57	1125	1012	F(1900);p(2400)
13	175	192	50	218	643	54	6/0	112		0017	ssc(0110);T(2327)
14	177	135	51	207	634	74	6/0	9			p(0820);p(2340)
15	154	85	66	197	709	123	1/1	21	0813		P3b(0810)+II+IV; 2b(2015);pca(0409)
16	165	61	43	185	712	19	2/0	5			
17	149	57	44	177	736	34	4/0	55		1018	sfe(0346);pca(2300)
18	148	71	42	173	743	11	0/0	27			
19	143	82	42	175	766	15	0/0	26			p(0015)
20	113	85	41	166	789	14	2/0	26			
21	147	78	43	170	805	19	1/0	27			
22	135	71	43	170	818	13	0/0	20			
23	117	60	45	161	812	19	1/0	43			
24	135	54	44	168	804	31	0/0	29			
25	137	74	44	173	808	9	0/0	27			
26	150	81	43	185	803	2	0/0	24			T(2009)
27	143	102	47	200	819	12	1/0	12			
28	162	151	49	211	813	27	2/0	10			
29	192	173	--	227	813	15	1/0	8	1546		
30	175	154	--	236	808	39	2/0	22	1554	0116	1n(0241)+T+IV+sid

Very high activity during the first half of June(secondary maximum?)

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 atmospheric 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);si(sudden impulse);
 F(Forbush)

OBSERVATOIRE ROYAL DE BELGIQUE

DEPARTEMENT 4 RADIOASTRONOMIE ET PHYSIQUE SOLAIRE

DAILY PROVISIONAL

RELATIVE SUNSPOT NUMBERS

STATION UCCLE BELGIUM

JUNE 1991

DATE	UT	NUMBER OF GROUPS	NUMBER OF SPOTS	RELATIVE SUNSPOT NUMBER	REL NUMB CENTRAL ZONE	PPSI 10-5 WM-2	QUAL	OBS
1	749	11	79	189	122	182.4	2	VI
2	901	14	99	239	110	187.4	3	AK
4	704	15	92	242	25	217.5	4	AK
5	724	13	102	232	55	227.5	4	AK
8	1049	12	122	242	115	222.5	1	AK
10	1046	17	151	321	129	235.9	2	VI
11	757	17	137	307	151	229.2	2	VI
12	731	15	106	256	93	171.7	2	VI
13	1450	13	139	269	94	176.7	2	AK
14	640	14	75	215	58	101.4	2	VI
15	834	10	46	146	38	79.4	2	AK
17	742	11	63	173	79	32.3	2	VI
18	826	9	61	151	52	106.5	1	VI
21	927	7	58	128	42	125.8	2	VI
23	730	8	43	123	65	120.8	2	PC
25	1346	10	49	149	22	94.2	1	VI
26	837	11	59	169	62	86.5	2	VI
27	1215	10	71	171	103	107.4	1	VI
28	911	12	74	194	121	130.3	2	PC
29	730	13	149	279	217	198.5	3	AK

The Sun has been observed 20 days on 30 possible.
The relative mean sunspot number is 209.8.

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

1991 JUNE

K' = 0.663 (*)

1	125	7	***	13	178	19	***	25	98
2	158	8	160	14	142	20	***	26	112
3	***	9	***	15	96	21	84	27	113
4	160	10	212	16	***	22	***	28	128
5	153	11	203	17	114	23	81	29	185
6	***	12	169	18	100	24	***	30	***

The Sun has been observed 20 days on 30 possible.
The normalized relative monthly mean Wolf number is 138.

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

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

Uccle N°	East Limb		Date and type			West Limb	
	Date		1st obs	CMP	Last Obs	Date	
35-1842	5	21.2	22 G	5 27.9	2 G	6	3.7
12-1843	6	1.3	62 F	6 8.1	2 F	6	14.8
16-1843	6	2.4	4 F	6 9.2	15 F	6	15.9
22-1843	6	3.1	8 B	6 9.8	15 G	6	16.6
37-1843	6	11.3	15 A	6 18.0	23 G	6	24.8
2-1844	6	21.8	23 A	6 28.5	29 E	7	5.3
3-1844	6	21.8	25 D	6 28.6	29 E	7	5.3

PROBABLE RETURN OF MAJOR GROUPS FOR 1991 JULY

N°	New East Limb	New CMP	New West Limb
16	6 30.6	7 7.3	7 14.1
22	6 30.1	7 6.8	7 13.6
2	7 19.1	7 25.9	8 1.6
3	7 19.0	7 25.8	8 1.5