



## SUNSPOT BULLETIN

Supported by UNESCO and ICSU through the FASS

1988

N° 7

## Provisional Sunspot-Numbers for JULY 1988

=====

Dependent on observations at LOCARNO Specola Solare  
 complemented by an international network and  
 determined at the Observatoire Royal de Belgique.  
 Thirty eight coop. stations on AUGUST 1988, 1st, 0900 UT

Day	R' i	Day	R' i
1	139	16	111
2	145	17	116
3	142	18	136
4	129	19	105
5	119	20	106
6	103	21	103
7	103	22	106
8	106	23	109
9	82	24	81
10	78	25	76
11	95	26	76
12	100	27	111
13	103	28	122
14	114	29	157
15	111	30	161
		31	146
Mean =		112.6	

Predictions of the smoothed monthly Sunspot Numbers

Classical Method	S.I.D.C Adjusted values
1988 Aug. 98(±25)	1989 Feb. 139(±33)
Sep. 105	1989 Aug. 90(±22)
Oct. 112(±27)	Mar. 145
Nov. 119	Apr. 152(±51)
Dec. 126	May. 158
1989 Jan. 133(±31)	Jun. 165
	Jul. 171(±57)
	1990 Jan. 136(±34)

Forecasted values on the basis of the latest provisional  
 monthly smoothed Sunspot Number: 1988 January = 58.2 ± 5%

Provisional smoothed values:

1988 Feb. 62(±9)	1988 Apr. 72(±10)	1988 Jun. 85(±12)
Mar. 68	May. 79	Jul. 92

Brussels, 1988 August 1st,

A. Koeckelenbergh.

Reproduction permitted if the source is mentioned.

Ed. Resp. Dr. André Koeckelenbergh, avenue Circulaire, B-1180  
 BRUXELLES, BELGIUM

TELEX : 21565obsbel-fax 31-2-374 98 22-Tel. 02-375 24 84ext611-

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

1988 JULY R' = 112.6  
im

Date	R' i	PPSI	600	2800	COS	XFI	XI	Ak	SEA
1	139	289	58	193	945	11	0/0	13	
2	145	397	60	192	940	25	1/0	12	
3	142	244	59	187	949	17	0/0	8	
4	129	193	56	175	954	5	0/0	4	
5	119	152	56	166	955	13	0/0	8	ssc(1558)
6	103	72	54	152	948	14	0/0	12	
7	103	53	53	147	950	35	2/0	10	
8	106	54	53	138	952	29	2/0	13	1136 ten(0854)
9	82	78	49	133	959	25	1/0	3	
10	78	100	48	134	956	8	0/0	10	1024
11	95	109	48	132	949	18	1/0	25	ssc(0055)
12	100	96	47	133	948	11	0/0	20	
13	103	102	48	138	936	41	1/0	8	
14	114	111	49	145	947	10	0/0	10	ssc(2029)
15	111	135	49	146	956	5	0/0	14	
16	111	191	50	149	952	5	0/0	22	
17	116	164	50	157	949	4	10/0	12	
18	136	149	54	148	952	17	0/0	11	1f(1625)+ten+
19	105	137	50	138	957	10	0/0	10	ten(0751) //IV+sid!
20	106	107	48	137	959	9	0/0	4	
21	103	51	48	141	945	7	0/0	26	ssc(0317);1n(0707)!
22	106	42	49	137	933	11	0/0	17	1113 //ten+sid!
23	109	22	49	140	930	8	0/0	10	
24	81	18	49	134	934	17	1/0	8	2n(0637)+II+IV!
25	76	26	48	137	945	14	1/0	8	1n(0536)+II //ten!
26	76	43	49	145	945	2	0/0	21	
27	111	70	50	157	936	10	0/0	14	
28	122	95	51	170	931	11	0/0	17	
29	157	133	50	180	931	25	1/0	5	
30	161	190	-	-	-	-	-	-	
31	146	190	-	-	-	-	-	-	

Ri ,Rim: 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);s-1-2-3/n(class of flares);II-IV radio-burst; ten(ten cm radio-burst);...

## OBSERVATOIRE ROYAL DE BELGIQUE

DEPARTEMENT 4 RADIOASTRONOMIE ET PHYSIQUE SOLAIRE

NOMBRES RELATIFS DE WOLF JOURNALIERS

PROVISOIRES

PROVISIONAL

SUNSPOT RELATIVE NUMBERS

STATION UCCLE BELGIUM

JUILLET 1988

DATE	UT	NOMBRE DE GROUPES	NOMBRE DE TACHES	NOMBRE DE WOLF	NOMR REL ZONE CENTRALE	PSPI 10-6 WM-2	QUAL	CBS
1	0808	4	105	145	133	2068.	2	VI
3	1150	5	152	202	179	1955.	2	AK
4	0816	4	98	138	14	1512.	1	VI
6	0935	6	61	121	0	844.	3	AK
7	0722	5	37	87	0	748.	2	VI
8	0830	7	31	101	24	577.	3	AK
9	0730	5	52	102	43	1017.	4	AK
10	0805	4	63	103	61	1072.	5	AK
11	1350	6	55	115	65	1359.	3	AK
12	0823	5	48	98	50	1184.	3	VI
13	1024	5	46	96	43	1142.	1	VI
14	1135	5	68	118	26	1370.	1	VI
18	1630	8	96	176	114	1479.	3	AK
19	1450	6	76	136	16	1266.	4	AK
20	0554	4	36	76	0	1118.	1	HB
22	1350	7	32	102	29	570.	1	PC
23	0842	10	43	143	38	276.	3	PC
24	1720	4	14	54	0	492.	3	HB
25	0730	5	22	72	0	363.	3	AK
27	1350	8	81	161	32	1189.	3	AK
28	0708	6	76	136	85	1362.	3	AK
29	0745	8	118	198	109	1728.	4	AK
30	0810	7	129	199	123	2244.	3	AK
31	0815	7	113	183	55	2349.	2	AK

LE SOLEIL A ETE OBSERVE 24 JOURS SUR 31 POSSIBLES  
LE NOMBRE RELATIF DE WOLF MOYEN EST DE 127.6

ED. RESP. DR. ANDRE KOECKELENBERGH  
3, AV. CIRCULAIRE, B 1160 BRUXELLES. BELGIUM.  
TELEX : 21565 OBSBEL - TEL. : (02) 3752484 EXT 611

NORMALISED UCCLE OBSERVATIONAL SUNSPOT NUMBERS

U* = K*U FOR 1988						JULY					
K* = .912 (*)											
1	132	7	79	13	87	19	123	25	65		
2	***	8	92	14	107	20	69	26	***		
3	184	9	92	15	***	21	***	27	146		
4	125	10	93	16	***	22	92	28	123		
5	***	11	104	17	***	23	130	29	180		
6	110	12	89	18	160	24	49	30	181		
								31	166		

THE SUN WAS OBSERVED 24 DAYS ON 31 POSSIBLE  
THE NORMALISED RELATIVE MONTHLY MEAN WOLF NUMBER IS 115

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

UCCLE OBSERVATIONAL MAJOR SUNSPOTS FOR 1988 JULY  
E AND F BRUNNER'S TYPE GROUPS

UCCLE NO	EAST LIMB		DATE AND TYPE			WEST LIMB	
	DATE	IST OBS	DATE	TYPE	LAST OBS	DATE	
23-1803	6 24.9	28 F	7 1.6	8 F	8 F	7 8.4	
4-1804	7 3.2	6 C	7 9.9	14 G	14 G	7 16.7	
13-1804	7 11.1	11 E	7 17.8	23 G	23 G	7 24.6	
20-1804	7 21.7	22 H	7 28.4	31 E	31 E	8 4.2	
3-1805	7 26.2	27 E	8 1.9	31 E	31 E	8 8.7	
4-1805	7 26.8	27 E	8 2.6	31 E	31 E	8 9.3	

PROBABLE RETURN OF MAJOR GROUPS FOR 1988 AUGUST

UCCLE NO	NEW EAST LIMB	NEW CMP	NEW WEST LIMB
23	7 23.0	7 29.8	8 5.5
4	7 30.4	8 6.1	8 12.9
13	8 7.7	8 14.5	8 21.2
20	8 19.0	8 25.7	9 1.5