



SUNSPOT BULLETIN

Supported by UNESCO and ICSU through the FAGS

1988 , N° 10

Provisional Sunspot-Numbers for OCTOBER 1988

Dependent on observations at Locarno Specola Solare
 complemented by an international network and
 determined at the Observatoire Royal de Belgique.
 Thirty six coop. stations on November 1988, 1st, 1000 UT.

Day	R' i	Day	R' i
1	109	16	120
2	117	17	125
3	129	18	134
4	128	19	133
5	130	20	119
6	131	21	117
7	128	22	109
8	138	23	104
9	112	24	121
10	146	25	124
11	148	26	110
12	156	27	120
13	150	28	119
14	131	29	122
15	109	30	115
		31	111
MEAN = 124.4			

Predictions of the smoothed monthly Sunspot Numbers
 Classical Method S.I.D.C. Adjusted values
 1988 Nov. 123(±30) 1989 May 162(±40) 1988 Nov. 121(±30)
 Dec. 130 Jun. 169 Dec. 129
 1989 Jan. 138 Jul. 174 1989 Jan. 138
 Feb. 144 Aug. 178 Feb. 145
 Mar. 150 Sep. 178 Mar. 152
 Apr. 157(±37) Oct. 178(±58) Apr. 159(±38)
 Forecasted values on the basis of the latest provisional
 monthly smoothed Sunspot Number: April 1988 = 77.4 ± 5%
 Provisional smoothed values:
 1988 May: 83 (±12) 1988 Jul.: 96 1988 Sep.: 109
 Jun: 89 Aug.: 102 Oct.: 116(±17)

Brussels, 1988 November 1st.

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

1988 OCTOBER R = 124. 4
im

Date	Ri	PPSI	600	2800	COS	XFI	XI	Ak	SEA
1	109	76	58	179	941	28	1/0	14	
2	117	96	60	195	941	20	0/0	5	
3	129	103	60	202	950	47	2/0	10	2b(1504)+ten+IV+SID+SFE!
4	128	91	60	189	950	26	1/0	12	SSC(1429+2016)
5	130	107	69	189	939	20	1/0	18	1b(0613)+ten+SID
6	131	125	69	188	926	24	1/0	40	SSC(0038)
7	128	109	66	181	931	14	0/0	50	
8	130	126	69	174	940	1	0/0	100	
9	112	152	57	176	943	2	1/0	40	
10	146	114	60	179	...	14	1/0	28	SSC(0232)+mgst;Sn(1804)! +ten
11	148	73	57	170	928	5	0/0	101	
12	156	76	57	149	934	5	1/0	90	2nP(0458)+ten+II+SIOP
13	150	60	55	159	939	20	1/0	7	Sn(2026)+ten+IV (0920)!
14	131	45	55	151	949	4	0/0	4	
15	109	24	53	150	959	6	0/0	7	
16	120	44	54	155	942	8	0/0	10	1153+1257
17	125	47	53	178	940	44	3/0	19	1408+1543;1n(0016)+ten
18	134	46	..	162	925	36	1/0	29	1913+2000+2047
19	133	44	55	166	923	33	2/0	15	
20	119	171	55	168	925	6	0/0	24	
21	117	126	53	166	933	2	0/0	7	
22	109	147	52	166	938	13	0/0	3	
23	104	222	57	171	945	15	0/0	6	
24	121	165	57	170	939	9	0/0	7	
25	124	153	57	164	936	4	0/0	4	
26	110	115	53	157	937	3	0/0	8	
27	120	95	57	163	932	1	1/0	13	
28	119	37	58	158	943	12	0/0	10	1955
29	122	53	60	156	942	26	1/0	3	
30	115	51	55	167	942	7	0/0	6	SSC(2000)
31	111	56	..	161	940	4	0/0	10	On 3,add:2b(2325)+ten+IV!

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-b(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

OCTOBRE 1968

DATE	UT	NOMBR DE GROUPES	NOMBR DE TACHES	NOMBR DE WOLF	NOMBR REL ZONE CENTRALE	PSI 10-6 W-2	QUAL	CPS
1	1005	6	68	128	48	744.	3	AK
2	1003	7	75	145	0	809.	3	PC
3	1252	7	87	157	0	900.	1	VI
4	0829	7	94	164	0	919.	2	VI
5	1132	9	68	158	0	898.	1	VI
7	0750	8	75	153	84	796.	2	VI
8	1045	9	90	180	78	1071.	0	CG
10	0908	11	100	210	78	1145.	0	VI
12	0847	14	86	196	38	804.	1	VI
13	1017	10	91	181	48	820.	0	VI
14	0818	11	80	160	68	879.	0	VI
17	1415	8	87	167	80	888.	1	VI
18	1048	8	87	167	80	888.	1	VI
19	1007	11	81	171	74	700.	0	VI
21	1031	7	80	160	0	1169.	0	VI
22	1027	8	78	163	81	1060.	0	AV
24	1023	8	100	180	108	1077.	1	VI
25	1030	4	104	184	108	1884.	1	VI
26	0810	4	88	168	0	1021.	1	AV
27	0837	6	48	108	0	1048.	1	VI
29	0830	7	91	121	81	788.	0	HB
30	0940	8	89	119	19	687.	0	CG
31	0818	7	86	168	0	700.	0	HB

LE SOLEIL A ETE OBSERVE 20 JOURS SUR 31 POSSIBLES
LE NOMBRE RELATIF DE WOLF MOYEN EST DE 146.0

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NORMALISED UCCLE OBSERVATIONAL SUNSPOT NUMBERS

U' = K'U FOR 1988				OCTOBER					
K' = .916 (*)									
1	117	7	141	13	165	19	156	25	131
2	132	8	164	14	137	20	***	26	114
3	143	9	***	15	***	21	146	27	98
4	150	10	194	16	***	22	94	28	***
5	144	11	***	17	98	23	***	29	110
6	***	12	179	18	107	24	139	30	109
								31	97

THE SUN WAS OBSERVED 23 DAYS ON 31 POSSIBLE
 THE NORMALISED RELATIVE MONTHLY MEAN WOLF NUMBER IS 133

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

UCCLE OBSERVATIONAL MAJOR SUNSPOTS FOR 1988 OCTOBER
 E AND F SPUNNER'S TYPE GROUPS

UCCLE EAST LIMB	DATE AND TYPE			WEST LIMB
NO	DATE	IST OBS	OMP	LAST OBS
4-1808	10 16.8	17 E	10 23.6	30 F
				10 30.3

PROBABLE RETURN OF MAJOR GROUPS FOR 1988 NOVEMBER

NO	NEW EAST LIMB	NEW OMP	NEW WEST LIMB
4	11 13.6	11 20.4	11 27.1