



SUNSPOT BULLETIN

Supported by UNESCO and ICSU through the IAGS

1988

N° 11

Provisional Sunspot-Numbers for NOVEMBER 1988

Dependent on observations at LOCARNO Specola Solare
 complemented by an international network and
 determined at the Observatoire Royal de Belgique.
 Forty two coop. stations on DECEMBER 1988, 1st, 1100UT

Day	R' i	Day	R' i
1	126	16	181
2	114	17	196
3	121	18	175
4	104	19	147
5	129	20	112
6	124	21	145
7	114	22	124
8	95	23	117
9	110	24	116
10	131	25	96
11	155	26	80
12	159	27	69
13	147	28	86
14	139	29	92
15	156	30	107

Mean = 125 . 6

Predictions of the smoothed monthly Sunspot Numbers		S.I.D.C Adjusted values	
Classical Method			
1988 Dec.130(+31)	1989 Jun.168	1988 Dec.126(+29)	
1989 Jan.138	Jul.174	1989 Jan.135	
Feb.144	Aug.177	Feb.142	
Mar.150	Sep.178	Mar.149	
Apr.157	Oct.178	Apr.156	
May 161(+39)	Nov.178(+58)	May 160(+38)	
Forecasted values on the basis of the latest provisional			
monthly smoothed Sunspot Number:1988 May		= 83.7 ± 5%	
Provisional smoothed values:			
1988 Jun. 89	1988 Aug.102	1988 Oct.116	
Jul. 96	Sep.109	Nov.121(+18)	

Errata: please read 39.9 instead of 33.9 SIDC-NEWS n° 10 for November 1987.

Brussels, 1988 December, 1st

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

1988 NOVEMBER R' = 125 . 6
im

Date	R' I	PPSI	600	2800	COS	XFI	XI	Ak	SEA
31	111	56	56	161	940	4	0/0	10	
1	126	105	58	157	934	32	2/0	8	1056+1n+ten,IV+sid. mgst(0043)
2	114	103	61	167	944	18	0/0	34	Sn(2121)+II+III+ten!
3	121	103	61	167	946	15	0/0	25	
4	104	157	63	162	943	13	0/0	12	
5	129	149	63	169	942	9	0/0	10	
6	124	176	63	165	947	23	1/0	15	
7	114	128	63	155	936	20	1/0	20	1n(1103)
8	95	107	60	146	938	6	0/0	23	2f(1228)+II+IV+mgst; P(2225)!
9	110	109	57	156	934	39	2/0	12	1220;P(0725);1b(1219)+sid!
10	131	38	59	152	933	28	1/0	12	2b(0604)+II+IV+sid+ssc
11	155	116	56	157	936	11	0/0	12	2b(1603)+ten
12	159	91	54	156	937	28	1/0	20	1308;1n(0523);1n(2254)
13	147	120	55	171	934	67	5/0	10	P(0135);P(0235);2b+sid
14	139	54	56	179	925	62	7/0	11	
15	156	153	56	174	909	33	1/0	16	
16	181	128	54	189	905	105	8/0	16	1b(0625)+ten
17	196	102	58	180	923	23	0/0	12	
18	175	110	56	166	916	11	0/0	10	
19	147	71	57	156	-	13	0/0	4	
20	112	69	57	147	-	14	0/0	2	1416
21	145	68	58	157	-	28	1/0	6	
22	124	84	57	190	938	-	-	3	
23	117	34	56	139	941	4	0/0	2	
24	116	22	53	142	942	13	1/0	3	
25	96	37	54	143	940	3	0/0	10	
26	80	10	52	142	941	14	1/0	22	
27	69	26	56	147	938	21	2/0	18	1b(2209)+ten+sid
28	86	61	57	142	936	11	0/0	12	
29	92	61	55	143	-	10	0/0	9	
30	107	53	55	140	-	11	0/0	30	ssc(0801)

! Probable slight decrease of solar activity during the three following months.

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

NOVEMBRE 1988

DATE	UT	NOMBRE DE GROUPES	NOMBRE DE TACHES	NOMBRE DE WOLF	NOMB REL ZONE CENTRALE	PPSI 10-6 WM-2	QUAL	ORS
1	1145	10	53	153	24	906.	2	AK
2	1205	8	48	128	52	1044.	2	AK
3	0840	7	57	127	51	1101.	2	HB
4	1017	6	42	102	51	1232.	2	HB
5	0919	7	58	128	88	1321.	4	HB
6	1045	8	96	176	88	1322.	3	AK
7	1238	9	68	158	71	1171.	2	VI
8	0919	7	43	113	48	999.	2	VI
9	0932	8	31	111	40	777.	2	VI
13	1045	9	86	176	44	1521.	2	CG
15	1321	11	101	211	26	1878.	3	PC
16	0939	10	87	187	23	1697.	2	VI
18	1156	10	96	196	51	1469.	2	VI
21	0918	10	64	164	32	820.	3	VI
25	0930	8	25	105	13	584.	3	VI
27	1223	4	23	63	28	208.	4	HB

LE SOLEIL A ETE OBSERVE 16 JOURS SUR 30 POSSIBLES
LE NOMBRE RELATIF DE WOLF MOYEN EST DE 143.6

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NORMALISED UCCLE OBSERVATIONAL SUNSPOT NUMBERS

U [*] =K [*] U FOR 1988				NOVEMBER					
K [*] = .990 (*)									
1	151	7	156	13	174	19	***	25	103
2	126	8	111	14	***	20	***	26	***
3	125	9	109	15	208	21	162	27	62
4	100	10	***	16	185	22	***	28	***
5	126	11	***	17	***	23	***	29	***
6	174	12	***	18	193	24	***	30	***
								31	***

THE SUN WAS OBSERVED 16 DAYS ON 30 POSSIBLE
 THE NORMALISED RELATIVE MONTHLY MEAN WOLF NUMBER IS 141

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

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

UCCLE NO	EAST LIMB		DATE AND TYPE			WEST LIMB	
	DATE	IST OBS	DATE	AND TYPE	LAST OBS	DATE	
25-1808	11	5.5	8	A 11 12.3	16	G	11 19.0
1-1809	11	8.8	9	A 11 15.6	21	H	11 22.3

PROBAELE RETURN OF MAJOR GROUPS FOR 1988 JANUARY

UCCLE NO	NEW EAST LIMB		NEW CMP		NEW WEST LIMB	
25	12	2.4	12	9.1	12	15.9
1	12	6.7	12	13.4	12	20.2