



SUNSPOT BULLETIN

Supported by UNESCO and ICSU through the FAGS

1986, No. 11

Provisional Sunspot - Numbers for NOVEMBER 1986

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

Day	R _I	Day	R _I
1	46	16	11
2	35	17	12
3	36	18	11
4	37	19	12
5	33	20	12
6	29	21	11
7	24	22	10
8	15	23	18
9	8	24	11
10	9	25	9
11	9	26	0
12	0	27	14
13	0	28	0
14	11	29	8
15	11	30	0

MEAN = 14.7

Predictions of the smoothed
 monthly Sunspot - Numbers

Classical Method				S.I.D.C. Adjusted Values			
1986 Dec. 13	1987 Mar. 16	1986 Dec. 13	1987 Mar. 16	1987 Jan. 13	1987 Apr. 17	1987 Feb. 14	1987 May 18
1987 Jan. 14	Apr. 17	1987 Jan. 13	Apr. 17	1987 Jan. 13	Apr. 17	1987 Feb. 14	May 18
1987 Feb. 15	May 18	1987 Feb. 14	May 18	1987 Feb. 14	May 18	1987 Feb. 14	May 18

Precision on the sixth predicted value : ± 4

Classical estimated smoothed value for 1987 August 21 ± 6

Forecasted values are evaluated on the basis of the latest provisional monthly smoothed value (1986 May) : 14.3 ± 5%

Brussels December 1st, 1986

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S.I.D.C. SUMMARY OF URSIGRAMS
 1986 NOVEMBER $R'_{im} = 14.7$

Date	R'_1	PPSI	600 000	2800 000	COS	XFI	XI	A_k	
1	46	55	60	91	1006	2	0/0	10	
2	35	47	58	86	5	0	0/0	7	
3	36	41	63	82	9	0	0/0	19	SSC
4	37	39	63	84	971	0	0/0	53	
5	33	32	62	83	974	5	0/0	20	
6	29	15	56	82	982	12	0/0	16	
7	24	12	..	70	990	2	0/0	6	
8	15	2	50	75	996	1	0/0	5	
9	8	1	50	73	989	0	0/0	3	
10	9	0	50	72	996	0	0/0	6	SSC
11	9	1	53	71	1004	0	0/0	12	
12	0	0	53	73	998	0	0/0	10	
13	0	0	54	80	1000	0	0/0	9	
14	11	1	55	76	6	0	0/0	4	
15	11	3	56	77	3	1	0/0	14	
16	11	1	58	77	7	0	0/0	12	
17	12	2	..	76	9	1	0/0	8	
18	11	3	63	75	12	0	0/0	5	
19	12	3	60	74	3	1	0/0	6	
20	12	3	60	74	9	1	0/0	6	
21	11	1	60	76	16	0	0/0	2	
22	10	1	60	76	13	0	0/0	2	
23	18	1	64	78	8	11	0/0	11	mgst
24	11	2	63	79	998	4	0/0	48	
25	9	1	60	78	999	0	0/0	48	
26	0	0	62	76	999	0	0/0	14	
27	14	2	62	76	994	0	0/0	8	
28	0	0	..	75	1000	0	0/0	5	
29	8	0	..	74	1	0	0/0	12	
30	0	0	..	73	6	0	0/0	19	

During november, decreasing activity. If the december R'_{im} value will be greater than 10 then we know presently the probable beginning of the ascending phase of the new cycle.

- R'_{im} : provisional International monthly Sunspot-Number from the S.I.D.C.
- R'_1 : provisional International daily 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}
Quantity to subtract at the mean solar constant, due to the presence of the sunspots.
- 2800 : 2800 Mhz solar flux from the Ursigrams (origin: Herzberg Institute Ottawa)
- COS : thousands of cosmic rays counts from the Ursigrams
- XFI : X-flare Index from the S.I.D.C. on the base of the Ursigrams. The sum of number of class C-flares + 10 x class M-flares of significant X-ray flux + 100 x X-flares with important X-ray flux.
- XI : X-flare Index from the Ursigrams (number of M-flares/number of X-flares)
- A_k : geomagnetic Index of Wingst station from the Ursigrams (Ampli. fluct. in $2nT$).
- sid : Sudden ionospheric disturbance ; ssc : sudden storm commencement
- sfe : solar flare effect ; // : two ribbons flare ; P : proton flare
- mst : magnetic storm ; II : radio-outburst ; pca : polar cap absorption
- aur : aurorae ; 1b, 2b .. : flare of class 1 or 2 (bright)
- 600 : 600 Mhz mean flux in $10^{-22} \text{ W.m}^{-2} \cdot \text{Hz}^{-1}$ from Huairou station (Belgium)

OBSERVATOIRE ROYAL DE BELGIQUE

DEPARTEMENT 4 RADIOASTRONOMIE ET PHYSIQUE SOLAIRE

NOMBRES RELATIFS DE WOLF JOURNALIERS

PROVISOIRES

PROVISIONAL

SUNSPOT RELATIVE NUMBERS

STATION UCCLE BELGIUM

NOVEMBRE 1986

DATE	UT	NOMBRE DE GROUPES	NOMBRE DE TACHES	NOMBRE DE WOLF	NOMB REL ZONE CENTRALE	PPSI 10-6 WM-2	QUAL	OBS
2	0828	2	23	48	48	569.	2	PC
3	1202	2	19	39	39	558.	2	HB
4	1040	2	17	37	37	505.	1	VI
6	0802	2	11	31	0	188.	1	HB
7	1136	2	5	25	0	97.	2	HB
9	0935	1	1	11	0	6.	2	AK
11	0943	0	0	0	0	0.	2	HB
12	1146	0	0	0	0	0.	2	HB
13	0354	0	0	0	0	0.	2	VI
14	0846	1	2	12	0	1.	3	VI
16	1150	1	2	12	0	11.	2	AK
17	1242	1	2	12	0	16.	2	VI
18	0846	1	2	12	0	20.	2	VI
20	0930	2	3	23	23	29.	3	HB
22	1125	1	1	11	0	3.	3	CG
23	1150	0	0	0	0	0.	1	HB
26	1355	0	0	0	0	0.	1	VI
27	0851	0	0	0	0	0.	2	VI
28	0941	0	0	0	0	0.	2	VI
29	1125	0	0	0	0	0.	4	CG
30	0900	0	0	0	0	0.	4	HB

LE SOLEIL A ETE OBSERVE 21 JOURS SUR 30 POSSIBLES
LE NOMBRE RELATIF DE WOLF MOYEN EST DE 13.0

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NORMALISED UCCLE OBSERVATIONAL SUNSPOT NUMBERS

U'=K*U FOR 1986 NOVEMBER

K* = .990 (*)

1	***	7	24	13	0	19	***	25	***
2	47	8	***	14	11	20	22	26	0
3	38	9	10	15	***	21	***	27	0
4	36	10	***	16	11	22	10	28	0
5	***	11	0	17	11	23	0	29	0
6	30	12	0	18	11	24	***	30	0
								31	***

THE SUN WAS OBSERVED 21 DAYS ON 30 POSSIBLE
THE NORMALISED RELATIVE MONTHLY MEAN WOLF NUMBER IS 12

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

UCCLE OBSERVATIONAL MAJOR SUNSPOTS FOR 1986 NOVEMBER
E AND F BRUNNER'S TYPE GROUPS

UCCLE NO	EAST LIMB DATE	DATE AND TYPE IST OBS CMP	WEST LIMB LAST OBS DATE
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NONE

PROBABLE RETURN OF MAJOR GROUPS FOR 1986 JANUARY

UCCLE NO	NEW EAST LIMB	NEW CMP	NEW WEST LIMB
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NONE

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7	1136	2	5	25	0	97.	2	HB
9.	0935	1	1	11	0	6.	2	AK
11	0943	0	0	0	0	0.	2	HB
12	1146	0	0	0	0	0.	2	HB
13	0854	0	0	0	0	0.	2	VI
14	0946	1	2	12	0	1.	3	VI
16	1150	1	2	12	0	11.	2	AK
17	1242	1	2	12	0	16.	2	VI
18	0846	1	2	12	0	20.	2	VI
20	0930	2	3	23	23	29.	3	HB
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