



SUNSPOT BULLETIN

Supported by UNESCO and ICSU through the FAGS

1987 , No.3

Provisional Sunspot - Numbers for MARCH 1987

Dependent on observations at Locarno Specola Solare,
 complemented by an international network and
 determined at the Observatoire Royal de Belgique.
 Forty cooperating stations on 1987 April 1st, 0930 UT

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

MEAN = 14 .8

Predictions of the smoothed
 monthly Sunspot - Numbers

Classical Method			S.I.D.C. Adjusted Values		
1987 Apr. 17	1987 Jul. 20		1987 Apr. 25	1987 Jul. 29	
May 18	Aug. 21		May 26	Aug. 30	
Jun. 19	Sep. 22		Jun. 27	Sep. 32	

Precision on the sixth predicted value : ± 8 Classical estimated smoothed value for 1987 Dec. 25 ± 8

Forecasted values are evaluated on the basis of the latest provisional
 monthly smoothed value (1986 September) : 12 .4 $\pm 5\%$

~~Presently, this value is the smoothed minimum. Monthly minimum 1.1 on June~~

Brussels, April 1st , 1987

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S.I.D.C. SUMMARY OF URSIGRAMS
1987 MARCH $R'_{im} = 14.8$

Date	R'_1	PPSI	600	2800	COS	XFI	XI	A_k	
1	14	2	56	74	1032	0	0/0	12	37N
2	23	4	55	75	32	2	0/0	3	31S
3	15	1	58	73	35	0	0/0	10	
4	18	3	58	75	39	0	0/0	12	6N
5	24	2	56	75	34	1	0/0	26	19S
6	23	6	58	77	32	0	0/0	14	grad. st.
7	24	5	58	77	37	0	0/0	20	
8	22	11	57	78	37	7	0/0	13	
9	14	22	58	75	41	0	0/0	10	
10	11	4	56	72	..	0	0/0	11	
11	8	0	58	71	33	0	0/0	12	
12	0	0	58	70	34	0	0/0	15	
13	0	0	56	70	30	0	0/0	10	
14	11	0	56	72	36	4	0/0	9	
15	11	0	..	71	42	1	0/0	11	30S
16	11	0	..	72	33	0	0/0	16	
17	22	0	56	72	35	0	0/0	10	19S
18	21	0	57	73	..	0	0/0	17	grad. st.
19	12	1	59	72	40	0	0/0	14	
20	11	0	58	74	42	0	0/0	4	
21	15	1	58	75	30	4	0/0	23	grad. st. 23N
22	17	6	58	74	33	2	0/0	18	
23	16	5	56	76	29	0	0/0	6	
24	23	1	54	76	24	0	0/0	6	
25	16	1	53	76	22	1	0/0	8	ssc 5N
26	12	66	54	76	26	0	0/0	16	
27	11	11	54	76	23	0	0/0	..	
28	12	14	56	75	26	0	0/0	11	Fil. Disap.
29	11	21	56	76	27	0	0/0	5	24S
30	15	25	57	75	..	0	0/0	5	
31	15	26	..	72	32	0	0/0	3	(On Apr. 1st , ssc.)

Six groups of high latitude; two of lat. 19 ; Two of low latitude . Smoothed minimum on 1986 September ; Mean monthly minimum on 1986 June .

- 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)
 600 : 600 Mhz solar flux from Humain Station of the Royal Observ. of Belgium .
 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 significative 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 or2 (bright) .

OBSERVATOIRE ROYAL DE BELGIQUE

DEPARTEMENT 4 RADIOASTRONOMIE ET PHYSIQUE SOLAIRE

NOMBRES RELATIFS DE WOLF JOURNALIERS

PROVISOIRES

PROVISIONAL

SUNSPOT RELATIVE NUMBERS

STATION UCCLE BELGIUM

MARS 1987

DATE	UT	NOMBRE DE GROUPES	NOMBRE DE TACHES	NOMBRE DE WOLF	NOMB REL ZONE CENTRALE	PPSI 10-6 WP-2	QUAL	OBS
3	0842	1	1	11	0	4.	3	VI
5	1301	2	10	30	18	20.	4	VI
6	0856	1	9	19	19	63.	2	VI
7	0820	1	8	18	0	53.	2	HB
8	1350	1	9	19	0	141.	3	HB
9	0955	1	6	16	0	403.	3	VI
10	0839	1	3	13	0	64.	2	VI
11	0848	0	0	0	0	0.	3	VI
12	1011	0	0	0	0	0.	2	VI
13	0859	0	0	0	0	0.	2	VI
14	1010	0	0	0	0	0.	4	AK
16	0734	1	1	11	0	1.	2	VI
18	0925	2	6	26	14	7.	2	HB
19	1352	0	0	0	0	0.	2	VI
20	0905	0	0	0	0	0.	2	HB
21	1020	0	0	0	0	0.	1	CG
22	1140	1	13	23	0	60.	3	AK
25	0918	1	6	16	0	6.	2	HB
26	0806	1	1	11	0	69.	3	HB
27	1600	1	1	11	0	161.	1	AK
28	1300	1	3	13	0	212.	2	PC
29	1206	1	1	11	0	270.	3	HB
30	0714	1	4	14	14	302.	3	HB
31	0940	2	12	32	32	331.	2	AK

LE SOLEIL A ETE OBSERVE 24 JOURS SUR 31 POSSIBLES
LE NOMBRE RELATIF DE WOLF MOYEN EST DE 12.3

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NORMALISED UCCLE OBSERVATIONAL SUNSPOT NUMBERS

U* = K*U FOR 1987					MARCH				
K* = .889 (*)									
1	***	7	15	13	0	19	0	25	14
2	***	8	16	14	0	20	0	26	9
3	9	9	14	15	***	21	0	27	9
4	***	10	11	16	9	22	20	28	11
5	26	11	0	17	***	23	***	29	9
6	16	12	0	18	23	24	***	30	12
								31	28

THE SUN WAS OBSERVED 24 DAYS ON 31 POSSIBLE
 THE NORMALISED RELATIVE MONTHLY MEAN WOLF NUMBER IS 10

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

UCCLE OBSERVATIONAL MAJOR SUNSPOTS FOR 1987 MARCH
 E AND F BRUNNER'S TYPE GROUPS

UCCLE EAST LIMB	DATE AND TYPE			WEST LIMB
NO	DATE	IST OBS	CMP	LAST OBS
3-1786	2 26.5	5 B	3 5.3	10 H 3 12.0

PROBABLE RETURN OF MAJOR GROUPS FOR 1987 APRIL

NO	NEW EAST LIMB	NEW CMP	NEW WEST LIMB
3	3 25.3	4 1.0	4 7.8