



## SUNSPOT BULLETIN

Supported by UNESCO and ICSU through the FAGS

1987 , No. 5

Provisional Sunspot -- Numbers for MAY 1987

Dependent on observations at Locarno Specola Solare,  
 complemented by an international network and  
 determined at the Observatoire Royal de Belgique.  
 Thirty cooperation stations on June 1st ,0945 UT .

Day	R <sub>I</sub>	Day	R <sub>I</sub>
1	35	16	47
2	40	17	64
3	22	18	46
4	23	19	62
5	22	20	46
6	27	21	41
7	29	22	35
8	25	23	36
9	23	24	35
10	25	25	37
11	23	26	34
12	19	27	31
13	22	28	19
14	13	29	12
15	35	30	12
		31	10

MEAN = 30 .6

Predictions of the smoothed  
 monthly Sunspot - Numbers

Classical Method				S.I.D.C. Adjusted Values			
1987 Jun. 22	1987 Sep. 25	1987 Jun. 25	1987 Sep. 30	1987 Jun. 25	1987 Sep. 30	1987 Jun. 27	1987 Oct. 31
Jul. 23	Oct. 26	Jul. 27	Oct. 31	Aug. 28	Nov. 32		
Aug. 24	Nov. 27						

Precision on the sixth predicted value : ± 7

Classical estimated smoothed value for 1988: Feb. 31 ± 8

Forecasted values are evaluated on the basis of the latest provisional monthly smoothed value ( 1986 November ) : 14.8 ± 5%

Brussels, June 1st , 1987

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S.I.D.C. SUMMARY OF URSIGRAMS  
 1987 MAY  $R'_{im} = 30.6$

Date	$R'_1$	PPSI	600	2800	COS	XFI	XI	$A_k$	
1	35	7	57	78	1023	5	0/0	11	
2	40	11	58	80	24	0	0/0	6	
S 3	22	5	61	83	26	0	0/0	8	
4	23	5	61	83	24	0	0/0	6	
5	22	22	62	85	20	2	0/0	4	
6	27	32	63	86	26	3	0/0	3	
7	29	31	65	87	28	2	0/0	8	
8	25	23	65	87	25	2	0/0	4	
9	23	27	65	86	26	0	0/0	6	
S 10	25	30	67	88	33	0	0/0	13	
11	23	34	68	85	28	2	0/0	9	
12	19	27	69	84	28	0	0/0	3	
13	22	23	70	86	31	0	0/0	11	SSC
14	13	11	70	89	26	0	0/0	14	
15	35	36	69	92	25	.	..	6	
16	47	40	70	96	26	17	0/0	6	
S 17	64	54	69	95	30	6	0/0	5	
18	46	63	68	96	29	2	0/0	2	
19	62	62	67	98	30	10	0/0	3	sB , II
20	46	89	67	98	30	2	0/0	5	1B , II + IV
21	41	93	67	98	34	5	0/0	4	
22	35	108	65	98	36	4	0/0	10	
23	36	98	65	93	41	3	0/0	12	
S 24	35	64	65	96	23	21	1/0	20	1B , SID , tencm
25	37	57	64	98	19	25	1/0	26	
26	34	34	63	90	14	7	0/0	14	
27	31	22	63	85	10	8	0/0	16	
28	19	13	63	83	11	1	0/0	12	
29	12	10	63	77	5	0	0/0	14	
30	12	8	59	76	4	0	0/0	10	
S 31	10	3	57	75	6	0	0/0	15	

- $R'_{im}$  : 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 the Humain station (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 or 2 (bright) .

## OBSERVATOIRE ROYAL DE BELGIQUE

## DEPARTEMENT 4 RADIOASTRONOMIE ET PHYSIQUE SOLAIRE

## NOMBRES RELATIFS DE WOLF JOURNALIERS

PROVISOIRES

PROVISIONAL

## SUNSPOT RELATIVE NUMBERS

STATION UCCLE BELGIUM

MAI 1987

DATE	UT	NOMBRE DE GROUPES	NOMBRE DE TACHES	NOMBRE DE WOLF	NOMB FEL ZONE CENTRALE	FPSI 10-6 WM-2	QUAL	OBS
1	0845	3	10	40	0	93.	2	AK
2	1120	3	9	39	0	153.	2	CG
5	0856	3	7	37	14	403.	2	VI
6	0830	3	8	38	13	546.	2	VI
7	0735	3	10	40	11	662.	1	VI
8	0711	3	7	37	11	251.	3	HB
9	0750	2	13	33	0	286.	3	AK
10	1146	2	11	31	17	337.	2	HB
11	1146	3	8	38	27	358.	3	VI
12	1240	2	5	25	11	346.	1	VI
13	0550	3	5	35	0	328.	2	HB
15	0846	3	4	34	0	357.	1	HB
16	0850	3	20	50	0	444.	3	AK
18	1400	3	25	55	0	544.	2	AK
19	1142	2	29	49	14	637.	3	HB
20	0614	2	20	40	15	707.	2	HB
21	0724	2	46	66	66	764.	2	VI
22	1415	2	34	54	11	1064.	3	AK
24	0915	1	50	60	0	813.	2	CG
25	0603	1	19	29	0	645.	4	HB
26	0600	2	13	33	0	423.	2	HB
28	0950	1	11	21	21	66.	2	AK
29	0750	1	8	18	18	64.	4	AK

LE SOLEIL A ETE OBSERVE 23 JOURS SUR 31 POSSIBLES  
LE NOMBRE RELATIF DE WOLF MOYEN EST DE 39.2

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NORMALISED UCCLE OBSERVATIONAL SUNSPOT NUMBERS

U' = K' U FOR 1987				MAY					
K' = .886 (*)									
1	35	7	35	13	31	19	43	25	25
2	34	8	32	14	***	20	35	26	29
3	***	9	29	15	30	21	58	27	***
4	***	10	27	16	44	22	47	28	18
5	32	11	33	17	***	23	***	29	15
6	33	12	22	18	48	24	53	30	***
								31	***

THE SUN WAS OBSERVED 23 DAYS ON 31 POSSIBLE  
 THE NORMALISED RELATIVE MONTHLY MEAN WOLF NUMBER IS 34

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

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

UCCLE	FAST	LIME	DATE AND TYPE			WEST	LIME
NO	DATE	IST	OBS	OMP	LAST	OBS	DATE
1-1789	5 14.2	15	E	5 21.0	26	F	5 27.7

PROBABLE RETURN OF MAJOR GROUPS FOR 1987 JUNE

NO	NEW	FAST	LIME	NEW	OMP	NEW	WEST	LIME
1	6	11.2		6	17.9		6	24.7