



# Bulletin Werkgroep Zon

Januari 1996

NVWS Werkgroep Zon. Secretariaat: Veenenburg 36, 2804 WZ Gouda. Tel. 0182-539082

Sunspot Index



Date Center

## SUNSPOT BULLETIN

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

1996 JANUARY  $R_{1M} = 12.0$

Date R<sub>i</sub> PPSI 600 2800 COS SFI XI AK SEA MAG

31	7	2	35	075	998	0	0/0	9				
1	13	0	35	075	999	0	0/0	8				
2	12	1	35	075	-	0	0/0	9				
3	19	13	35	081	995	3	0/0	10				
4	30	34	35	086	992	0	0/0	6				
5	48	66	35	085	988	4	0/0	10				
6	47	15	34	083	989	0	0/0	6				
7	41	36	35	083	987	0	0/0	6				
8	35	17	34	079	987	1	0/0	4				
9	24	7	34	076	994	0	0/0	4				
10	11	1	34	074	994	0	0/0	6				
11	0	-	34	071	999	0	0/0	6				
12	0	0	32	070	999	0	0/0	11				
13	0	-	32	069	992	0	0/0	25				
14	0	-	32	070	992	0	0/0	25				
15	0	-	32	070	989	0	0/0	17				
16	0	0	33	070	996	0	0/0	12				
17	0	-	32	070	999	0	0/0	16				
18	0	-	32	071	988	0	0/0	14				
19	0	-	32	071	994	0	0/0	14				
20	0	-	32	071	994	0	0/0	10				
21	9	0	32	072	1000	0	0/0	10				
22	0	-	33	072	997	0	0/0	8				
23	0	-	33	073	1000	0	0/0	6				
24	11	0	35	073	996	0	0/0	8				
25	9	1	34	074	994	0	0/0	8				
26	9	1	35	074	996	0	0/0	9				
27	9	1	35	074	992	0	0/0	11				
28	10	1	35	074	995	0	0/0	13				
29	9	0	35	074	998	0	0/0	24				
30	16	1	35	075	996	0	0/0	10				
31	11	2	35	077	990	1	0/0	12				

Low to very low solar activity - low to moderate geomagnetic activity. The minimum of the smoothed sunspot number is supposed to occur in the second half of the year.

R<sub>i</sub>, R<sub>M</sub>: provisional international sunspot numbers from the S.I.D.C.  
 ppsi: smoothed photometric sunspot index from the S.I.D.C. in 10.5 W/m<sup>2</sup>; the quantity to subtract from the mean solar constant.  
 600: 500 Mhz solar flux from Ottawa (origin: Ursigrams - UGE01 group 2); 2800: 2800 Mhz solar flux from Ottawa (origin: Ursigrams - UGE01 group 2); 10.7cm: Flux data are provided as a service of the National Research Council of Canada.  
 COS: thousands of the cosmic ray counts (origin: Ursigrams - UGE01 group 3).  
 SFI: From October 1992, Solar Flare Index from the S.I.D.C. (origin: Ursigrams - UGE01 group 3).  
 XI: X-flares index from the Ursigrams (M-flares/X-flares) (origin: Ursigrams - UGE01 group 3).  
 AK: planetary geomagnetic index from Mingat, Germany (origin: Ursigrams).  
 SEA: sudden enhancements of atmospheres from Uccle & Hunain (Royal Observatory, Belgium).  
 MAG: magnetic events from Bourbes station (Royal Meteorological Institute, Belgium).  
 Remarks: sid (sudden ionospheric disturbance); eac (sudden storm commencement); agst (magnetic storm); sfo (solar flare effect); s-1-2-3-4 (class of flares); 11-1V radio-burst; I (ten cm radio-burst); P (proton flare); P (proton event); g1e (ground level event); n (neutron event); st (sudden impulse); F (Forbush); SFI Evaluation (1 x Sm-B x 10<sup>4</sup> x 10<sup>11</sup>).

### Zonnevlekgetallen (Sunspot numbers)

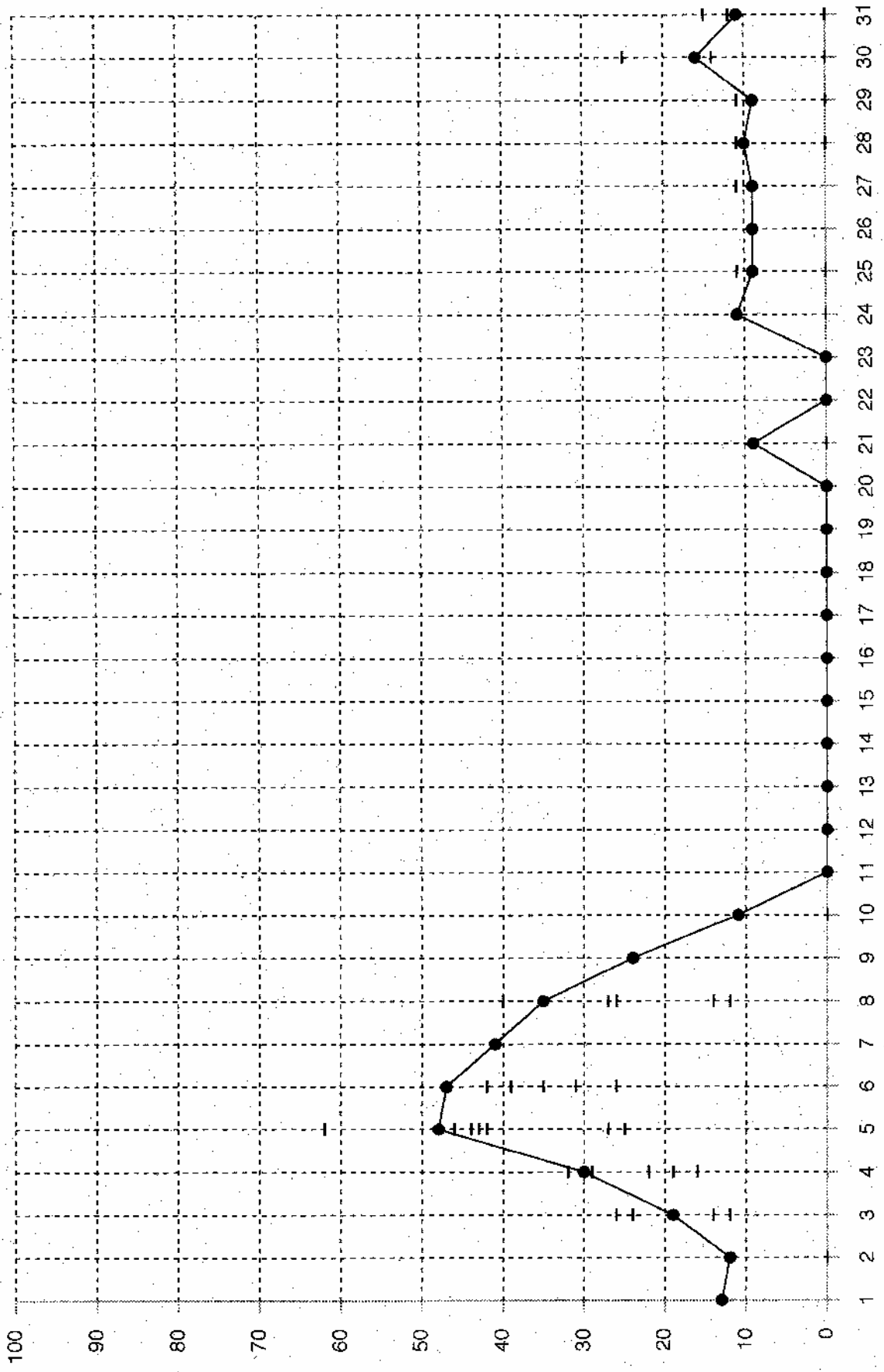
Day	Bals	Gr 6	Groo	Ida 7	Jn 9	Jn 4	Kroe	vSto	Sp 7	Vers	Zans	Zijle
1												
2	0				0							
3					14	12		26				24
4	29			19	16			32				22
5	48	44			27	25		62	43	42		42
6	39	35		42	26			47				31
7							14				14	
8	40		26	27	12							
9												
10	0											
11	0	0	0	0	0	0						
12	0	0	0	0	0	0						
13	0	0	0	0	0	0						0
14	0	0	0	0	0	0						0
15	0	0	0	0	0	0						0
16												
17												
18												
19												
20	0											0
21	0											0
22	0											0
23	0											0
24	0											0
25	11							11				0
26												11
27	11	0	11	0	0	0		11	11	0	11	
28												
29												
30												
31												
observ	17	3	13	8	19	2	1	18	4	9	13	5
k	0.98	1.34	0.95	1.33	1.95	1.75	2.50	0.84	1.06	1.82	1.01	1.17
st.dev.	0.14	-	0.24	0.23	0.68	0.24	-	0.12	0.13	0.96	0.24	0.49
std./k	0.14	-	0.25	0.17	0.30	0.14	-	0.15	0.12	0.53	0.24	0.42

[...] = Reflector, d = ... mm

Observers: Bals = H.A.M. Balster [70] Jn 9 = D. Jennink [9]  
 Gr 6 = M.W.G. Gravers [60] Jn 4 = D. Jennink [40]  
 Groo = A. Groenewegen [102] Kroe = K. Kroesen [102]  
 Ida = J.A. Idenburg [70] nieuw vSto = B. van Slooten [90]  
 Sp 7 = T. Spaninks [75]  
 Vers = D. Verschuuren [Rf 40]  
 Zans = W. Zanstra [Rf 156]  
 Zijle = W.A. Zijlma [90]

— = Observers Werkgroep Zon

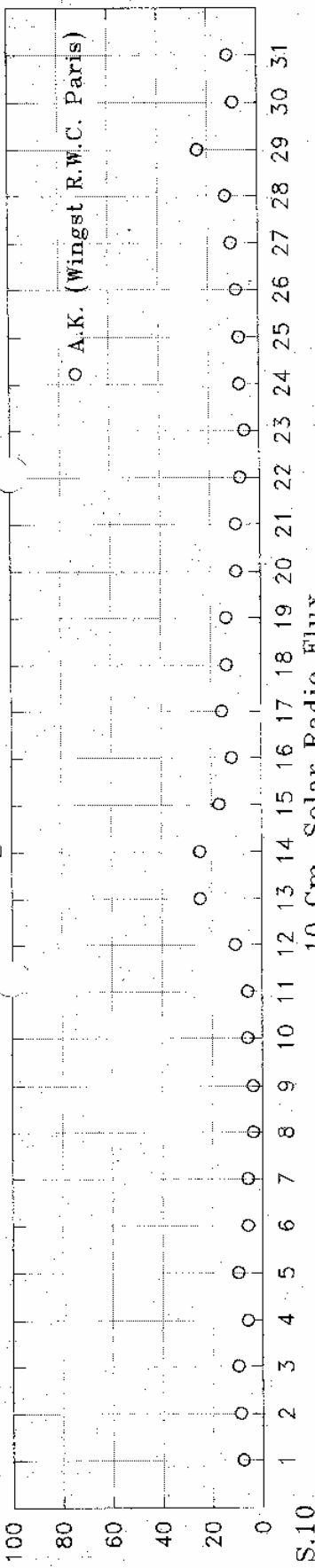
● = SIDC



T

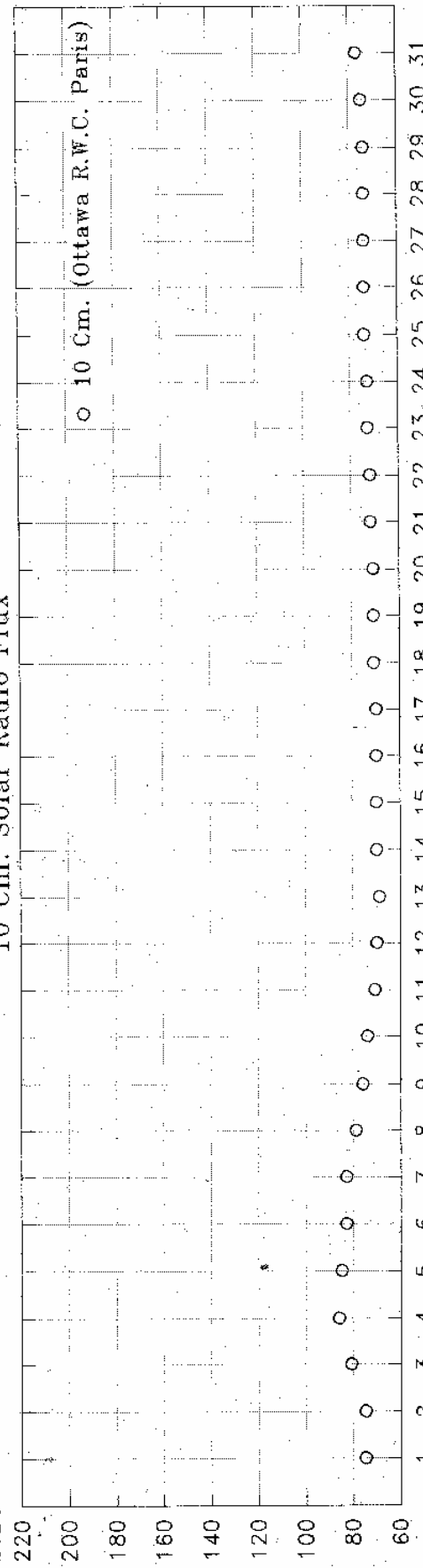
Geomagnetic A.K. Index

A.K.



o A.K. (Wingst R.W.C. Paris)

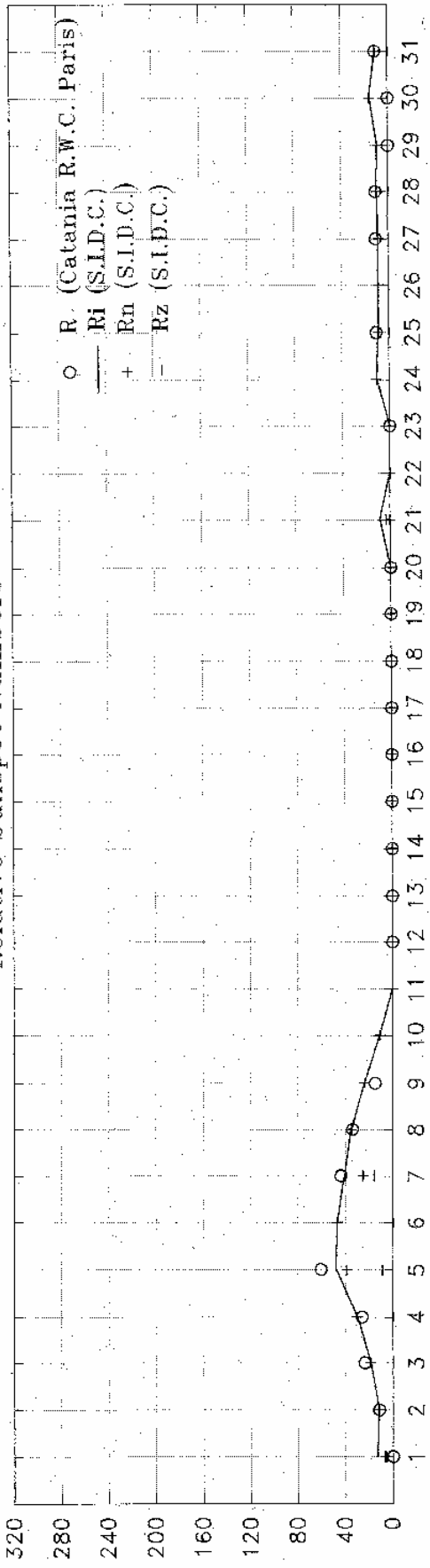
S.10



o 10 Cm. (Ottawa R.W.C. Paris)

Relative Sunspot Numbers

R.



o R. (Catania R.W.C. Paris)  
 — Ri (S.I.D.C.)  
 + Rn (S.I.D.C.)  
 - Rz (S.I.D.C.)

Rimax 48  
Jan. 5

Rimin 0  
Jan. 11  
t/m 20,  
22 en 23  
Rigem.  
12,0

# Zonnevlekkengetallen noordelijk- en zuidelijk halfrond

(Hemispheric sunspot numbers)

januari 1996

Day	S.I.D.C.		Balster		Groenew.		Idenburg		Jannink 4		v. Slooten		Spaninks	
	Rn	Rs	Rn	Rs	Rn	Rs	Rn	Rs	Rn	Rs	Rn	Rs	Rn	Rs
1	7	6												
2	12	0	0	0							0	0		
3	19	0							12	0	26	0		
4	30	0	29	0			19	0			32	0		
5	39	9	46	0	44	0			25	0	51	11	43	0
6	47	0	39	0			42	0			47	0		
7	25	16												
8	35	0	40	0	26	0	27	0						
9	24	0												
10	11	0	0	0										
11	0	0	0	0	0	0								
12	0	0	0	0	0	0					0	0		
13	0	0	0	0	0	0	0	0			0	0		
14	0	0	0	0	0	0					0	0	0	0
15	0	0	0	0	0	0	0	0			0	0		
16	0	0												
17	0	0			0	0								
18	0	0												
19	0	0												
20	0	0			0	0								
21	5	4	0	0							0	0		
22	0	0	0	0							0	0		
23	0	0	0	0			0	0			0	0		
24	11	0	0	0							11	0		
25	9	0	11	0							11	0		
26	9	0												
27	9	0												
28	10	0	11	0	11	0					11	0		
29	9	0			11	0					11	0		
30	16	0			25	0					25	0	14	0
31	11	0			12	0					15	0		



# Bulletin Werkgroep Zon

Februari 1996

NVWS Werkgroep Zon, Secretariaat: Veeneburg 36, 2804 WZ Gouda, Tel: 0182-539092

Sunspot Index



Data Center

## SUNSPOT BULLETIN

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

1996 FEBRUARY R<sub>M</sub> = 4.4

Date R<sub>i</sub> PPSI 600 2800 COS SFI XI AK SEA MAG

Date	R <sub>i</sub>	PPSI	600	2800	COS	SFI	XI	AK	SEA	MAG
31	11	2	35	077	990	1	0/0	12		
1	9	5	34	075	985	2	0/0	10		
2	9	1	34	076	983	0	0/0	14		
3	7	0	34	074	983	0	0/0	6		
4	0	0	34	074	981	0	0/0	8		
5	0	0	33	071	984	0	0/0	7		
6	0	0	33	071	984	0	0/0	3		
7	0	0	33	070	981	0	0/0	9		
8	0	0	33	068	981	0	0/0	10		
9	0	0	33	070	978	0	0/0	11		
10	0	0	32	070	981	0	0/0	15		
11	0	0	32	070	991	0	0/0	24		
12	0	0	32	069	988	0	0/0	14		
13	0	0	32	069	988	0	0/0	-		
14	0	0	32	069	985	0	0/0	14		
15	7	1	32	069	989	0	0/0	12		
16	0	0	32	070	991	0	0/0	12		
17	0	0	32	071	992	0	0/0	10		
18	0	0	32	070	991	0	0/0	16		
19	8	0	32	071	991	0	0/0	8		
20	8	2	32	072	990	0	0/0	10		
21	10	2	32	072	989	0	0/0	6		
22	8	1	32	072	992	0	0/0	10		
23	8	3	32	074	990	0	0/0	17		
24	17	9	32	076	996	0	0/0	23		
25	13	8	32	073	998	0	0/0	22		
26	8	3	32	072	991	0	0/0	19		
27	7	1	32	072	995	0	0/0	18		
28	0	-	32	072	987	0	0/0	10		
29	9	0	32	072	990	0	0/0	15		

Very low solar activity. Very low to moderate geomagnetic activity.

R<sub>i</sub>: Provisional international sunspot numbers from the S.I.D.C.  
 PPSI: prompt photometric sunspot index from the S.I.D.C. in 10<sup>-5</sup> W/m<sup>2</sup>; the quantity to subtract from the mean solar constant.  
 600: 600 Mhz solar flux from Kielm station (Belgium).  
 2800: 2800 Mhz solar flux from Ottawa (origin: Ursigrans - UGEOI group 2). The 10.7cm Flux data are provided as a service of the National Research Council of Canada.  
 COS: thousands of the cosmic ray counts (origin: Ursigrans - UGEOI group 3).  
 SFI: from October 1992, Solar Flare Index from the S.I.D.C. (origin: Ursigrans - UGEOI group 3).  
 XI: X-flare index from the Ursigrans (X-flares/X-flares) (origin: Ursigrans - UGEOI group 2; UGEOI group 5).  
 AK: planetary geomagnetic index from Kingst, Germany (origin: Ursigrans).  
 SEA: sudden enhancements of atmospheric ionization from Uccle & Hulin (Royal Observatory, Belgium).  
 MAG: magnetic events from Dourbes station (Royal Meteorological Institute, Belgium).  
 Remarks: std (sudden ionospheric disturbance); asc (sudden storm commencement); magst (magnetic storm); sfs (solar flare effect); s-1-2-3-4 (class of flares); III-IV radio-burst; T (ten or radio-burst); P (proton flare); p (proton event); sfs (ground level event); neutron event); si (sudden impulse); F (Forbush); SFI Evaluation (1 x 5m-10 x 10m-100 x 10m-10).

### Zonnevlekkengedaten (Sunspot numbers)

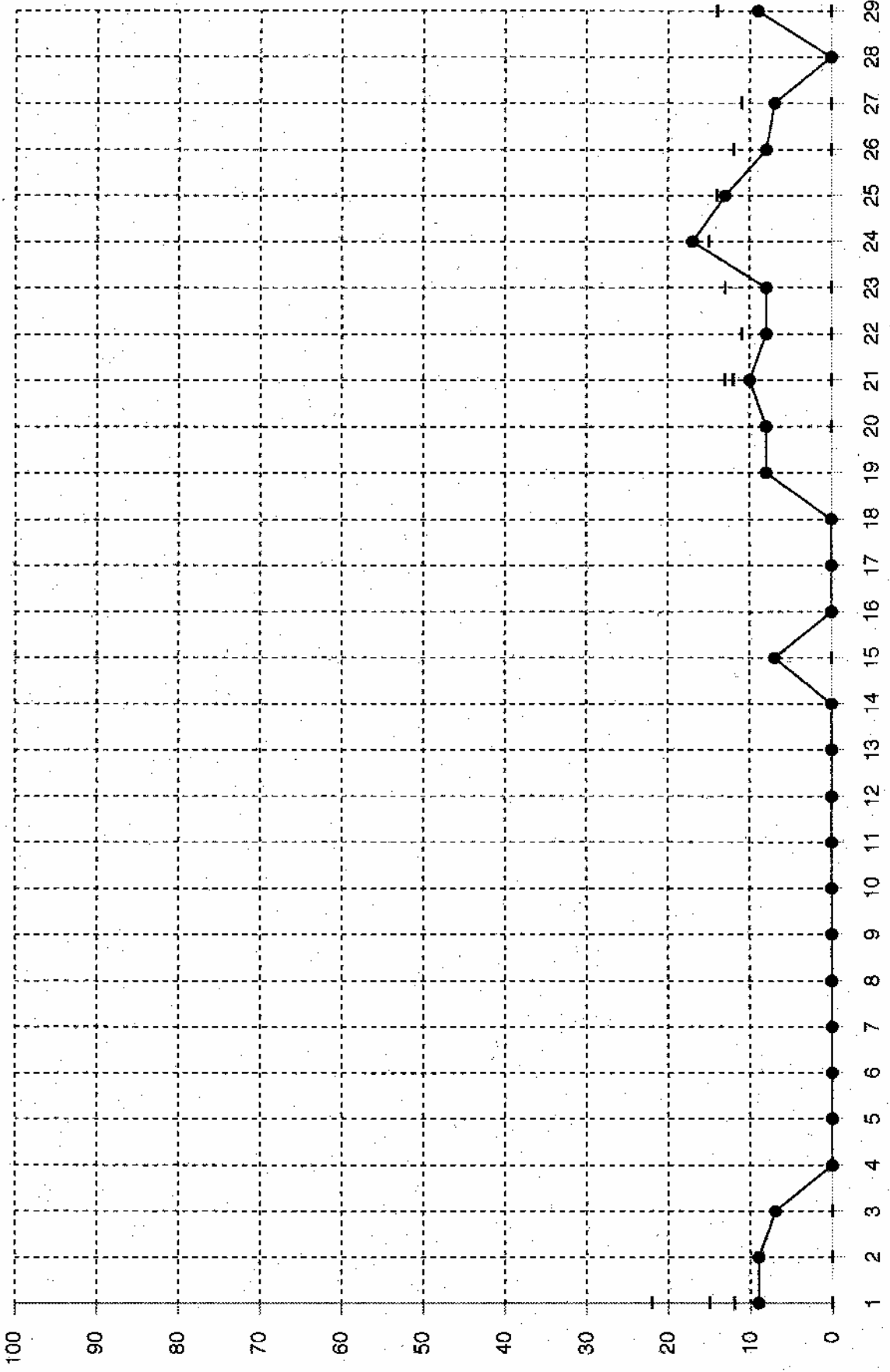
Day	Bals	Gr 6	Gr 6	Iden	In 9	Kroe	vSlo	Sp 7	Vers	Zans
1							15		0	22
2										
3							0		0	
4									0	
5							0		0	
6							0			0
7							0			0
8							0			0
9							0			0
10							0			0
11							0			0
12							0			0
13							0			0
14							0			0
15							0			0
16							0			0
17							0			0
18							0			0
19							0			0
20							0			0
21	13		12			0	13		0	0
22	11					0	11		0	0
23	0					0	13		0	0
24										15
25	14									
26							12			
27							11			
28							0			0
29	14		0				0			0
observ	12	3	13	3	18	3	18	1	9	10
k	0.77		0.79				0.88			0.77
sl.dav.	0.12		0.06				0.07			0.51
sl.d/k	0.16		0.07				0.11			0.66

Observers	[...]	[...] = Reflector, d = ... mm
Bals = H.A.M. Balster [70]	In 9 = D. Jäminnik [9]	Sp 7 = T. Spainiks [75]
Gr 6 = M.w.G. Gravers [60]	Kroe = K. Kroesen [102]	Vers = D. Verschuuren [R1 40]
Iden = A. Groenewegen [102]	vSlo = B. van Slooten [90]	Zans = W. Zanstra [R1 155]

● = SIDC

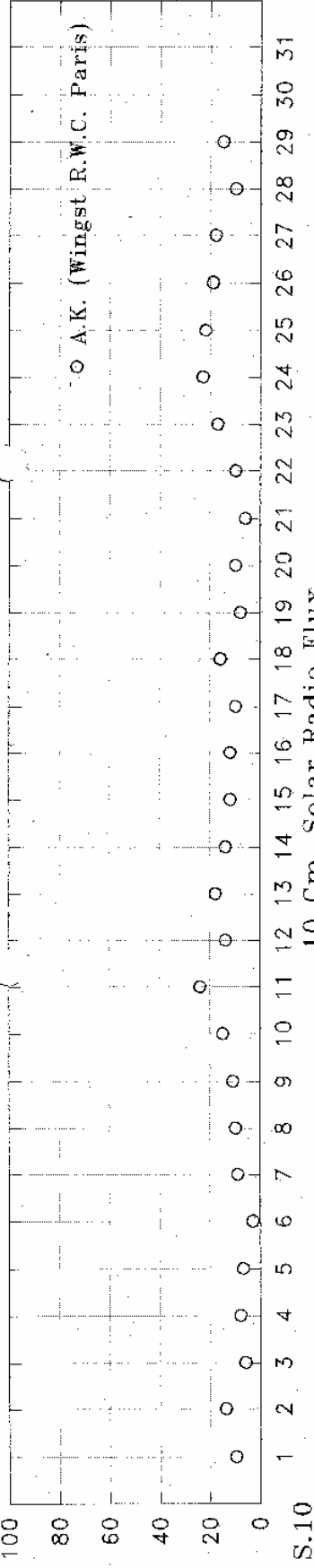
— = Observers Werkgroep Zon

R

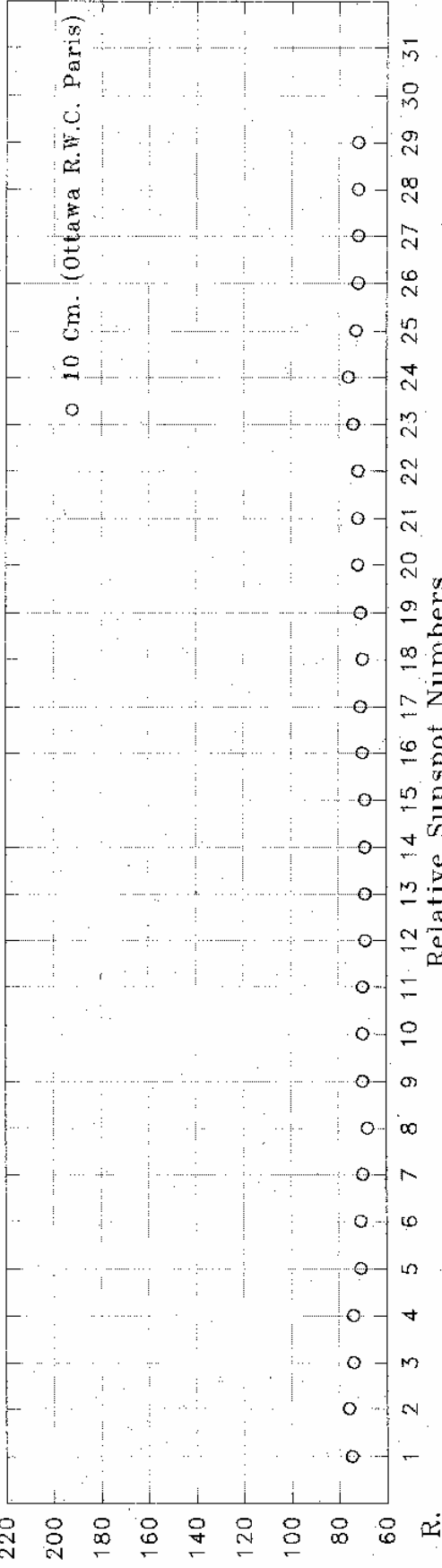


Geomagnetic A.K. Index

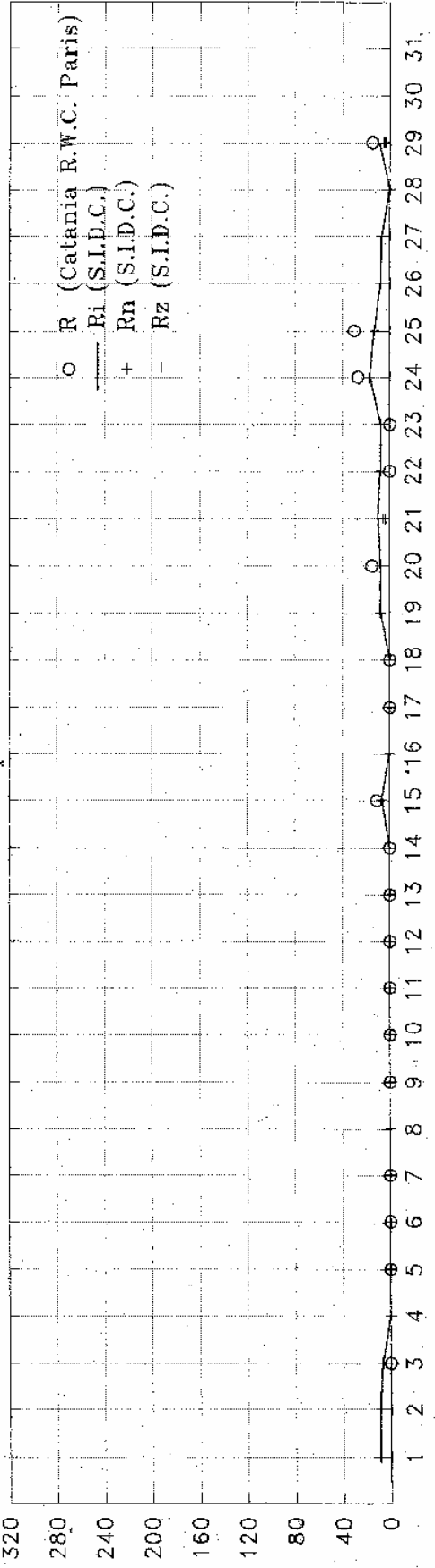
A.K.



10 Cm. Solar Radio Flux



Relative Sunspot Numbers



Rimax 17  
Febr. 24

Rimin. 0  
Feb. 4t/m  
14, 16t/m  
18, 28

Rigem.  
4,4

# Zonnevlekkengetallen noordelijk- en zuidelijk halfrond

(Hemispheric sunspot numbers)

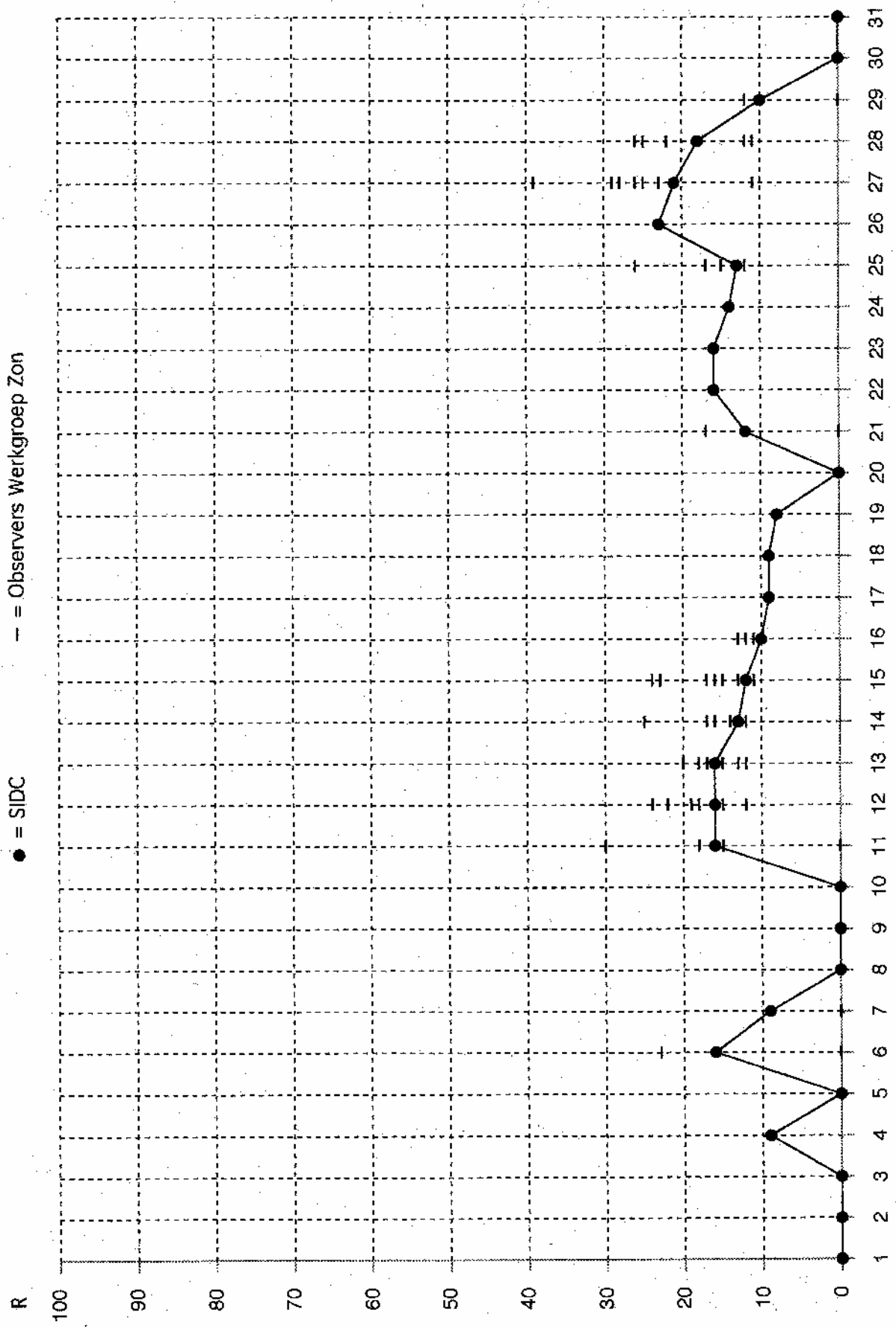
februari 1996

Day	S.I.D.C.		Baister		Groenew.		Idenburg		v. Sooten		Spaninks	
	Rn	Rs	Rn	Rs	Rn	Rs	Rn	Rs	Rn	Rs	Rn	Rs
1	9	0			12	0			15	0		
2	9	0										
3	7	0							0	0		
4	0	0			0	0			0	0		
5	0	0			0	0			0	0		
6	0	0	0	0	0	0	0	0	0	0		
7	0	0	0	0	0	0	0	0				
8	0	0	0	0					0	0		
9	0	0										
10	0	0			0	0			0	0	0	0
11	0	0										
12	0	0			0	0			0	0		
13	0	0										
14	0	0										
15	7	0	0	0								
16	0	0			0	0			0	0		
17	0	0	0	0	0	0			0	0		
18	0	0	0	0	0	0			0	0		
19	8	0										
20	8	0										
21	6	4	13	0	12	0			13	0		
22	8	0	11	0					11	0		
23	8	0	0	0			0	0	13	0		
24	17	0										
25	13	0	14	0								
26	8	0							12	0		
27	7	0			0	0			11	0		
28	0	0	0	0					0	0		
29	5	4	0	14	0	0			0	0		



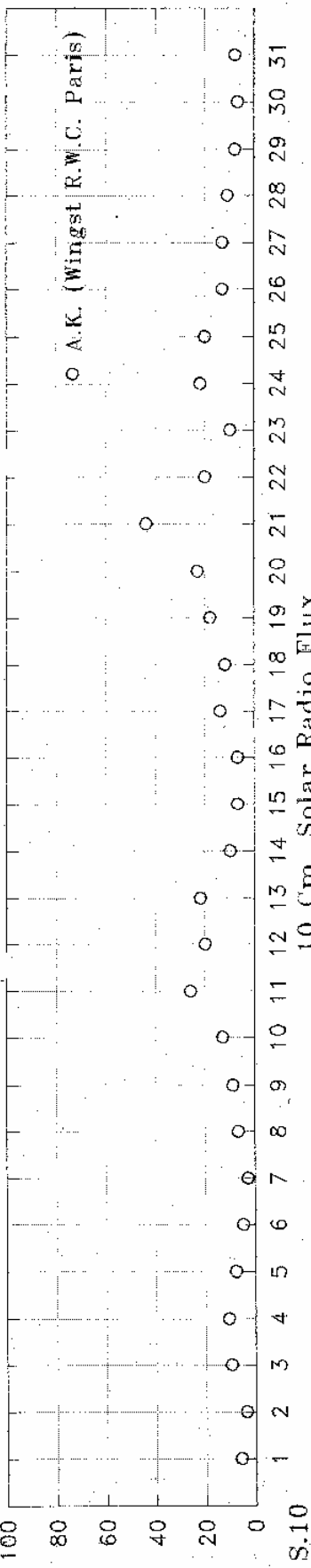


● = SIDC  
-- = Observers Werkgroep Zon



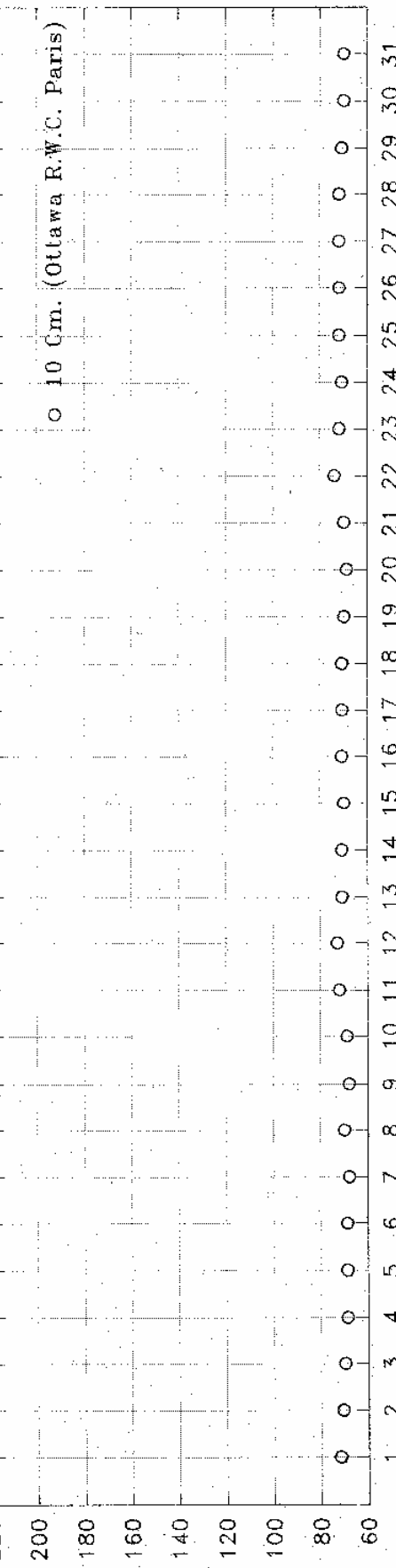
Geomagnetic A.K. Index

A.K.



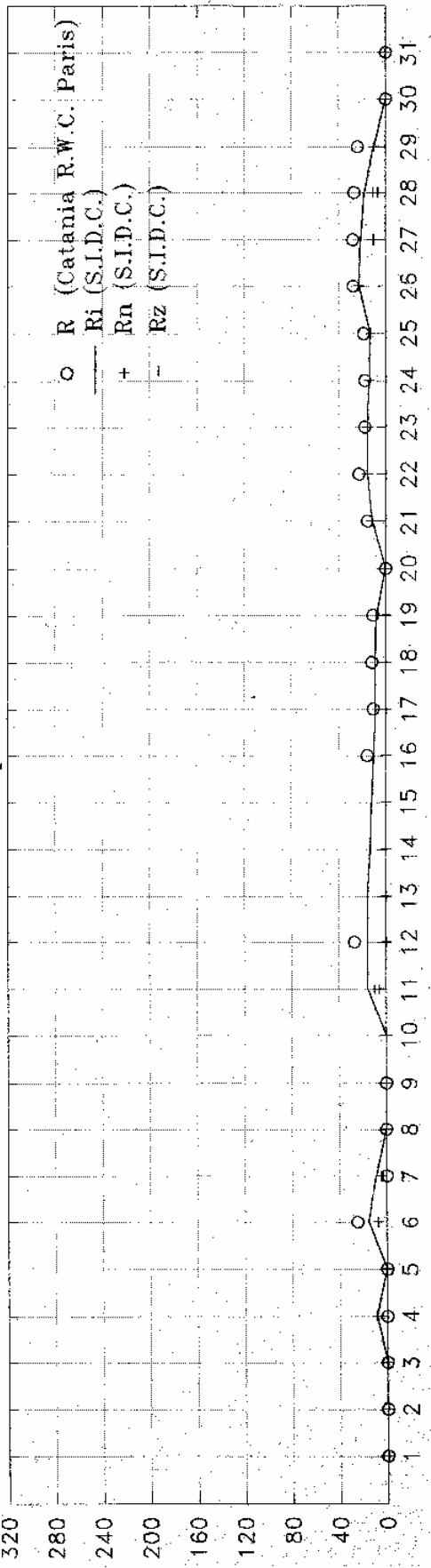
10 Cm. Solar Radio Flux

S.10



Relative Sunspot Numbers

R.



Rimax 23  
Mrt. 26  
Rimin. 0  
Mrt. 1,2,3  
5,8,9,10,  
20,30,31.  
Rigem.  
9,2

# Zonnevlekkengetallen noordelijk- en zuidelijk halfrond

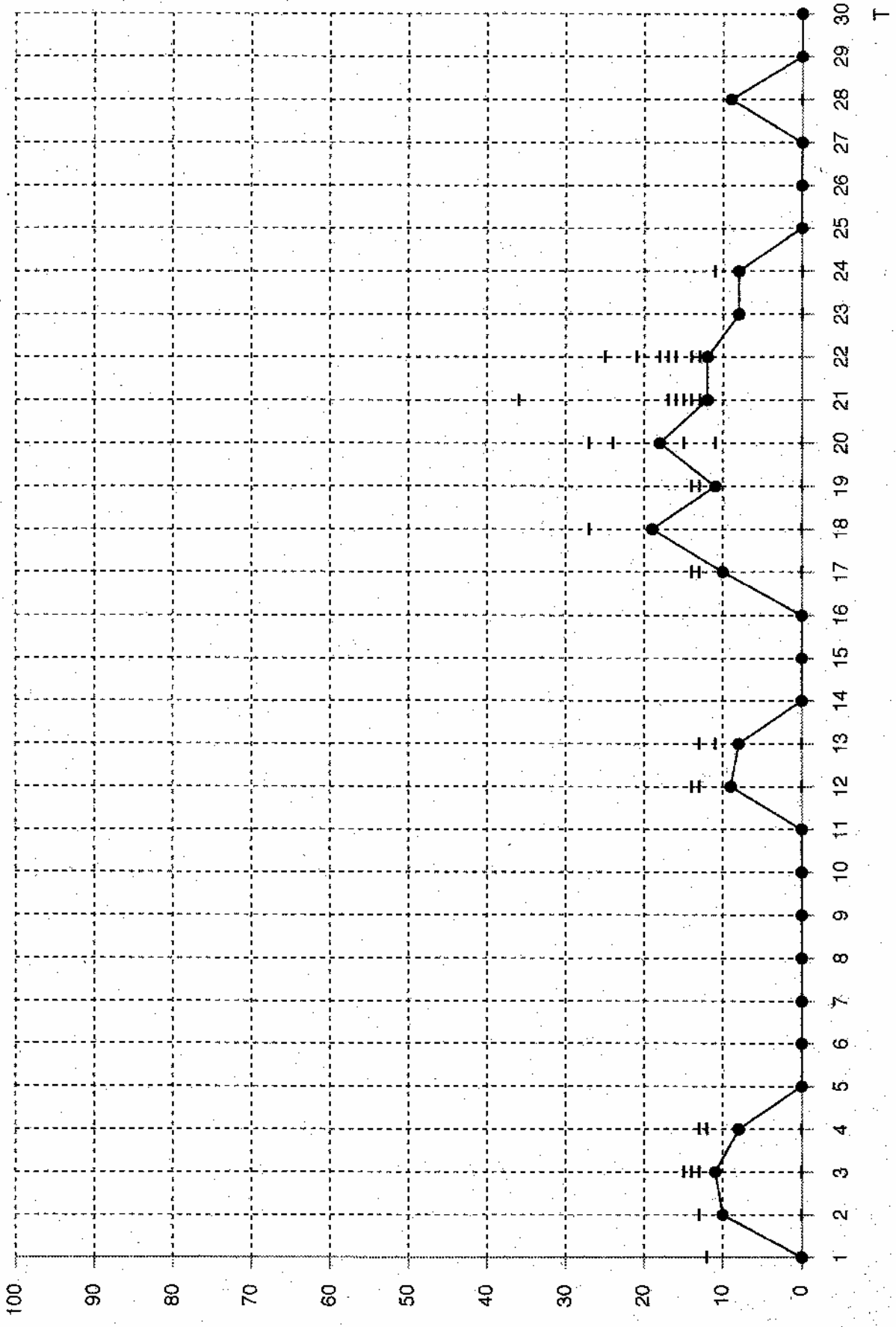
(Hemispheric sunspot numbers)

maart 1996

Day	S.I.D.C.		Balster		Groenew.		Idenburg		Jannink 4		Scholten		v. Slooten		Spaninks	
	Rn	Rs	Rn	Rs	Rn	Rs	Rn	Rs	Rn	Rs	Rn	Rs	Rn	Rs	Rn	Rs
1	0	0											0	0		
2	0	0	0	0			0	0					0	0	0	0
3	0	0	0	0							0	0	0	0	0	0
4	9	0														
5	0	0														
6	8	8	11	12									23	0		
7	5	4											0	0		
8	0	0	0	0	0	0	0	0					0	0	0	0
9	0	0									0	0	0	0	0	0
10	0	0	0	0	0	0	0	0			0	0	0	0	0	0
11	6	10	0	16	0	0							0	18	30	0
12	0	16	0	22									0	24	19	0
13	0	16	0	18	0	13			0	12			0	20	20	0
14	0	13	0	16	0	14							0	17	14	0
15	0	12	0	16	0	13	0	23					0	17		
16	0	10	0	12	0	11							0	13		
17	0	9														
18	0	9														
19	0	8														
20	0	0	0	0									0	0		
21	12	0			17	0	0	0					0	0		
22	16	0														
23	16	0														
24	14	0														
25	13	0	15	0									17	0		
26	23	0														
27	11	10	28	0	23	0	0	26	0	11			28	0	29	0
28	11	7	25	0	23	0							26	0		
29	10	0	12	0									12	0		
30	0	0	0	0	0	0					0	0	0	0		
31	0	0	0	0	0	0							0	0		

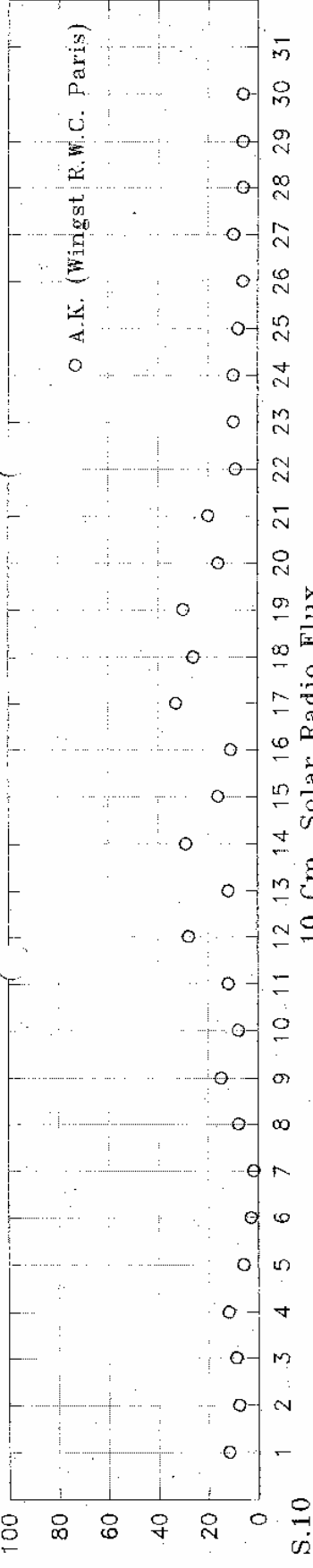


● = SIDC  
- = Observers Werkgroep Zon



Geomagnetic A.K. Index

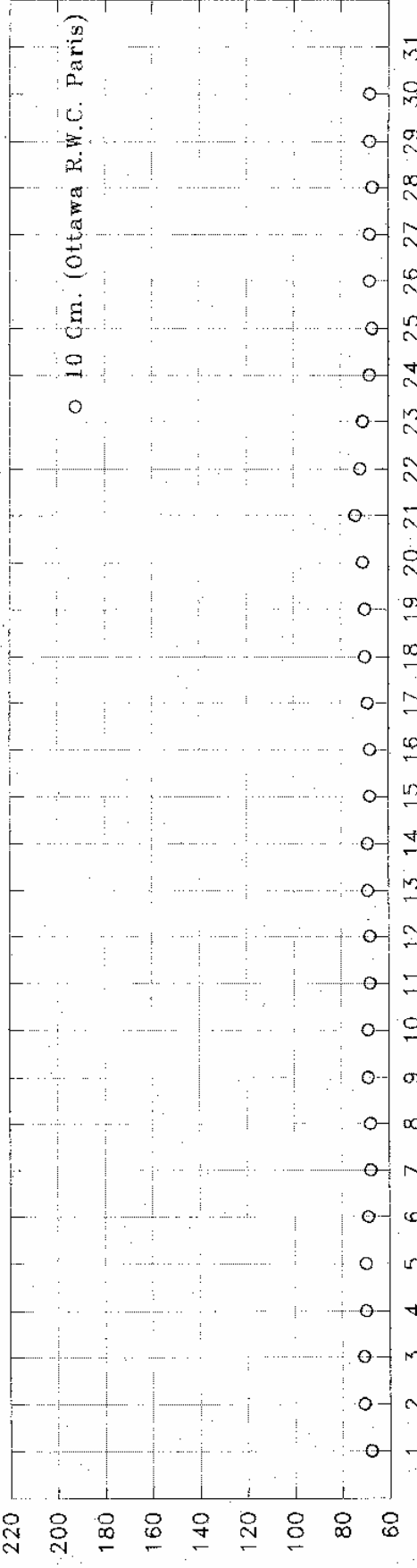
A.K.



○ A.K. (Wingst R.W.C. Paris)

10 Cm. Solar Radio Flux

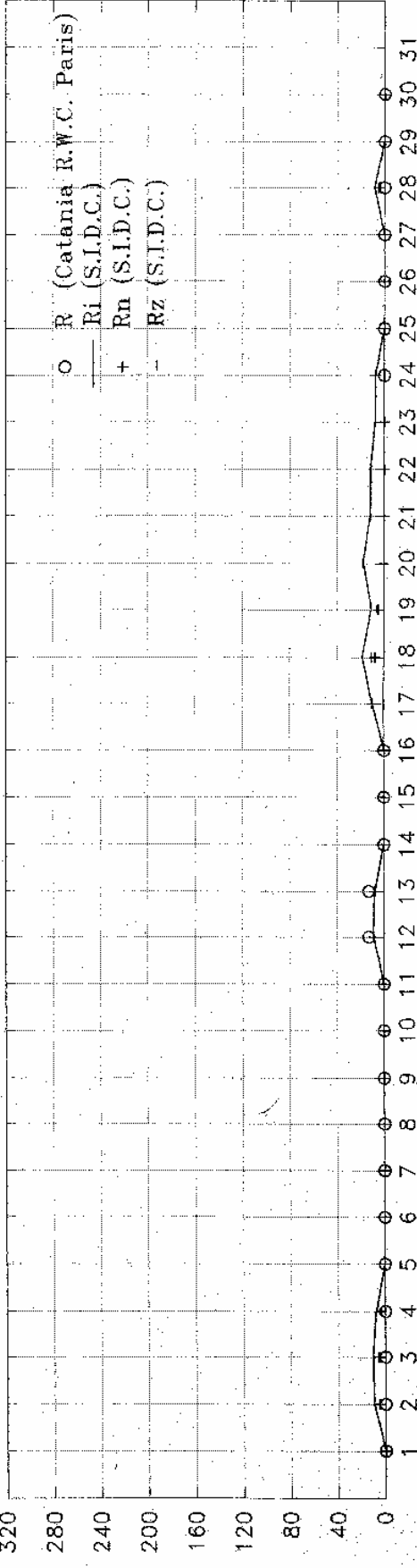
S.10



○ 10 Cm. (Ottawa R.W.C. Paris)

Relative Sunspot Numbers

R.



○ R (Catania R.W.C. Paris)  
 + Ri (S.I.D.C.)  
 - Rn (S.I.D.C.)  
 - Rz (S.I.D.C.)

Rimax 19  
 Apr. 18

Rimin 0  
 Apr. 1, 5  
 t/m 11,  
 14, 15, 16,  
 25, 26, 27,  
 29, 30.

Rigem.  
 5, 1

# Zonnevlekkengetallen noordelijk- en zuidelijk halfrond

(Hemispheric sunspot numbers)

april 1996

Day	S.I.D.C.		Balster		Groenew.		Jannink 4		v. Slooten		Spaninks	
	Rn	Rs	Rn	Rs	Rn	Rs	Rn	Rs	Rn	Rs	Rn	Rs
1	0	0	0	0	0	0			0	0	0	0
2	5	5							13	0		
3	5	6	15	0	0	13			14	0		
4	4	4	12	0	0	13			12	0		
5	0	0	0	0	0	0			0	0	0	0
6	0	0							0	0		
7	0	0	0	0					0	0	0	0
8	0	0							0	0		
9	0	0							0	0		
10	0	0							0	0		
11	0	0										
12	9	0	13	0					14	0	0	0
13	8	0	11	0	0	0			13	0	0	0
14	0	0	0	0	0	0			0	0	0	0
15	0	0	0	0	0	0			0	0	0	0
16	0	0	0	0	0	0			0	0	0	0
17	10	0	13	0					14	0		
18	8	11	13	14					13	14		
19	5	6	0	14					0	14		
20	0	18	0	24					0	11		
21	0	12	0	17			0	12	0	16		
22	0	12	0	16	0	17			0	18	0	21
23	0	8			0	0			0	0		
24	8	0	11	0					0	0		
25	0	0	0	0	0	0			0	0		
26	0	0	0	0	0	0			0	0		
27	0	0	0	0	0	0			0	0		
28	5	4	0	0	0	0			0	0	0	0
29	0	0	0	0	0	0			0	0		
30	0	0	0	0					0	0		

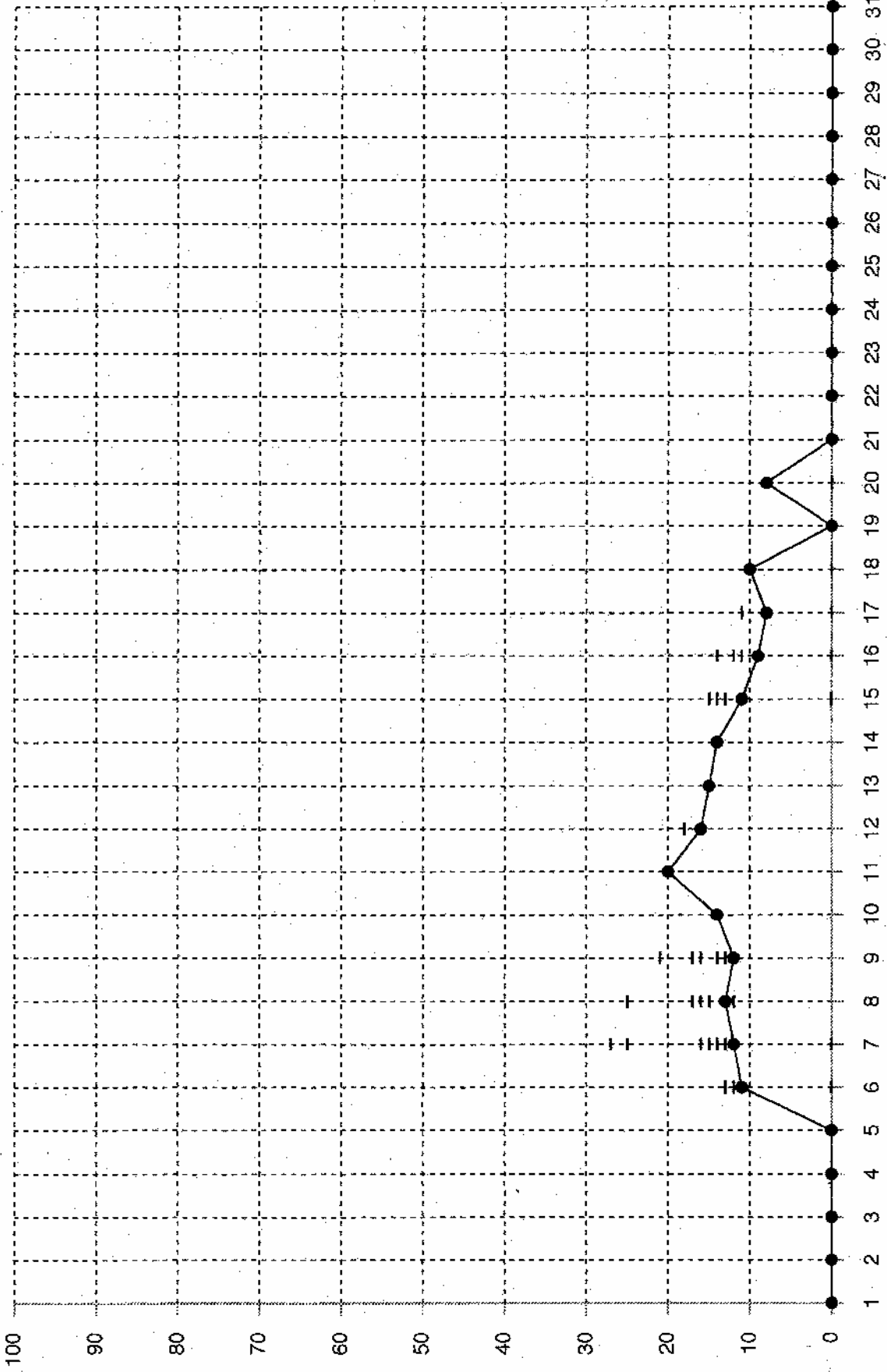




● = SIDC

— = Observers Werkgroep Zon

R

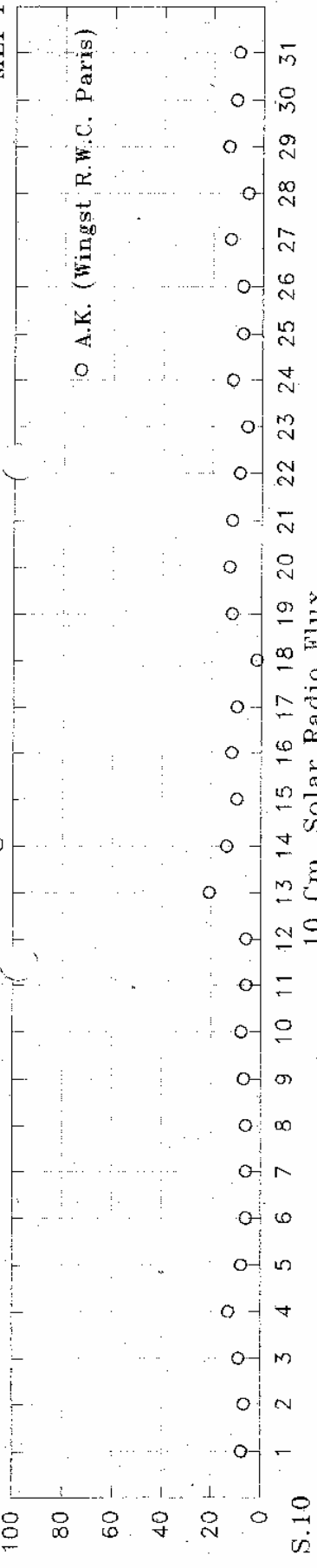


T

A.K.

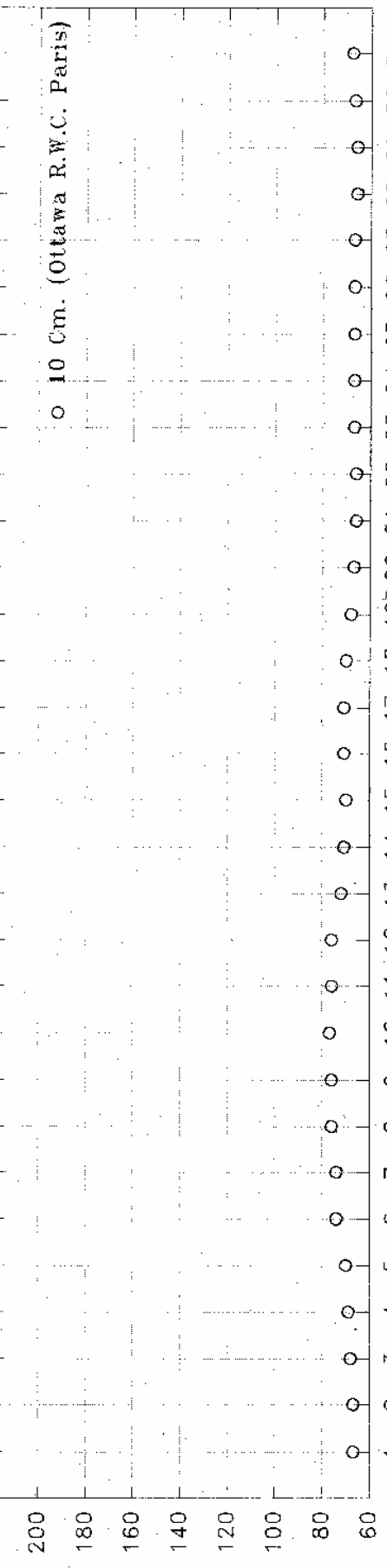
Geomagnetic A.K. Index

MEI 1996



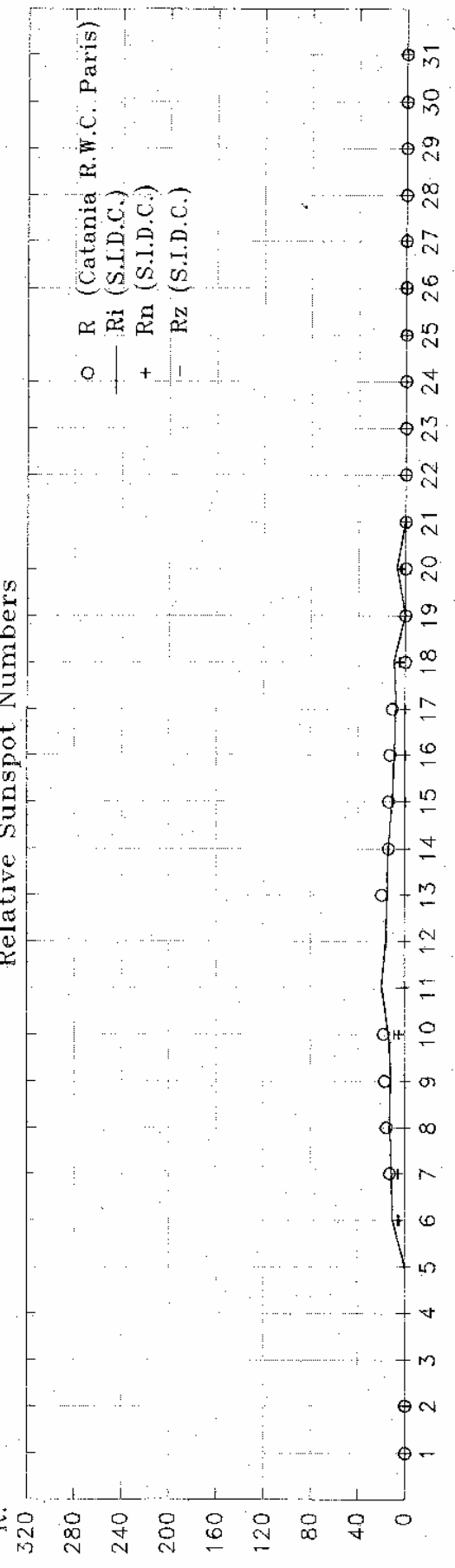
S.10

10 Cm. Solar Radio Flux



R.

Relative Sunspot Numbers



Rimax 20  
 Mei 11  
 Rimin 0  
 Mei  
 1 t/m 5,  
 19, 21 t/  
 m 31.  
 Rigem.  
 5,6

# Zonnevlekkengetallen noordelijk- en zuidelijk halfrond

(Hemispheric sunspot numbers)

mei 1996

Day	S.I.D.C.		Balster		Groenew.		Idenburg		Jannink 4		v. Slooten		Spaninks	
	Rn	Rs	Rn	Rs	Rn	Rs	Rn	Rs	Rn	Rs	Rn	Rs	Rn	Rs
1	0	0	0	0							0	0		
2	0	0									0	0		
3	0	0	0	0									0	0
4	0	0	0	0	0	0	0	0			0	0		
5	0	0	0	0							0	0	0	0
6	6	5	0	0			0	0			13	0		
7	6	6	0	25			0	12			13	12	0	15
8	0	13	0	25							0	17		
9	0	12	0	17			0	16	0	13	0	16	0	14
10	5	9												
11	0	20												
12	0	16			0	18								
13	0	15												
14	0	14												
15	0	11			0	14					0	15		
16	0	9	0	12			0	0			0	14		
17	0	8	0	11										
18	5	5			0	0					0	0		
19	0	0	0	0	0	0					0	0	0	0
20	4	4	0	0	0	0	0	0			0	0	0	0
21	0	0	0	0	0	0	0	0			0	0		
22	0	0	0	0							0	0		
23	0	0									0	0		
24	0	0	0	0										
25	0	0			0	0					0	0		
26	0	0									0	0	0	0
27	0	0									0	0		
28	0	0	0	0							0	0		
29	0	0	0	0							0	0		
30	0	0	0	0	0	0	0	0			0	0		
31	0	0	0	0	0	0					0	0	0	0



# Bulletin Werkgroep Zon

June 1996

NVWS Werkgroep Zon, Secretariaat: Veenenburg 36, 2804 WZ Gouda. Tel: 0182-539082

Sunspot Index



Date Center

## SUNSPOT BULLETIN

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

1996 JUNE R<sub>IM</sub> = 11.8

Date R<sub>I</sub> PPB<sub>I</sub> 600 2800 COS SFI XI AK SEA MAG

31	0	0	31	068	984	0	0/0	10
1	8	0	30	068	985	0	0/0	6
2	8	0	31	068	985	0	0/0	6
3	8	0	31	069	980	0	0/0	6
4	9	1	31	069	987	0	0/0	6
5	11	3	31	071	980	0	0/0	9
6	23	7	32	072	987	0	0/0	17
7	20	12	32	073	995	1	0/0	6
8	20	17	32	070	990	0	0/0	6
9	25	13	32	070	993	1	0/0	8
10	12	8	32	069	990	0	0/0	7
11	9	2	32	068	994	0	0/0	7
12	9	0	31	067	993	0	0/0	8
13	0	0	31	068	989	0	0/0	3
14	0	0	30	068	984	0	0/0	4
15	0	0	30	067	988	0	0/0	9
16	0	0	29	067	988	0	0/0	6
17	0	0	31	067	990	0	0/0	10
18	10	0	31	068	994	0	0/0	10
19	17	7	31	068	990	0	0/0	18
20	8	4	31	070	988	1	0/0	8
21	8	18	31	070	989	0	0/0	7
22	8	12	30	070	984	0	0/0	5
23	17	19	31	069	982	1	0/0	6
24	18	16	31	072	984	0	0/0	9
25	17	16	32	072	983	0	0/0	5
26	18	17	32	072	981	0	0/0	6
27	18	13	31	071	981	0	0/0	10
28	18	21	31	071	985	0	0/0	8
29	17	17	32	071	990	0	0/0	16
30	17	6	32	071	986	0	0/0	6

Low solar activity, two groups of the new cycle observed on June 1 and 18.

R<sub>I</sub>, R<sub>IM</sub>: provisional international sunspot numbers from the S.I.D.C.  
 PPB<sub>I</sub>: prompt photometric sunspot index from the S.I.D.C. in 10<sup>-5</sup> W/m<sup>2</sup>; the quantity to subtract from the mean solar constant.  
 600: 600 Mhz solar flux from Huairou station (Belgium).  
 2800: 2800 Mhz solar flux from Ottawa (origin: Ursigrama - URSIGRAM group 2), the 10.7cm flux data are provided as a service of the National Research Council of Canada.  
 COS: thousands of the cosmic ray counts (origin: Ursigrama - URSIGRAM group 3).  
 SFI: Solar Flare Index from the S.I.D.C. (origin: Ursigrama - URSIGRAM group 3).  
 XI: X-ray index from the Ursigrama (M-flares/X-flares) (origin: Ursigrama - URSIGRAM group 2; URSIGRAM group 5).  
 AK: planetary geomagnetic index from Wangst, Germany (origin: Ursigrama).  
 SEA: magnetic events from Dourbes station (Royal Meteorological Institute, Belgium).  
 MAG: magnetic events from Dourbes station (Royal Meteorological Institute, Belgium).  
 Remarks: sfd (sudden ionospheric disturbance); sac (sudden storm commencement); magnet (magnetic storm); sfo (solar flare effect); s-1-2-3-4 (class of flares); II-IV (radio-burst); I (ten cm radio-burst); P (proton flare); P (proton event); gte (ground level event); neutron event; st (sudden impulse); F (Forbush); SFI Evaluation (1 x Sm<sup>10</sup> x 10<sup>14</sup> x 10<sup>5</sup>);

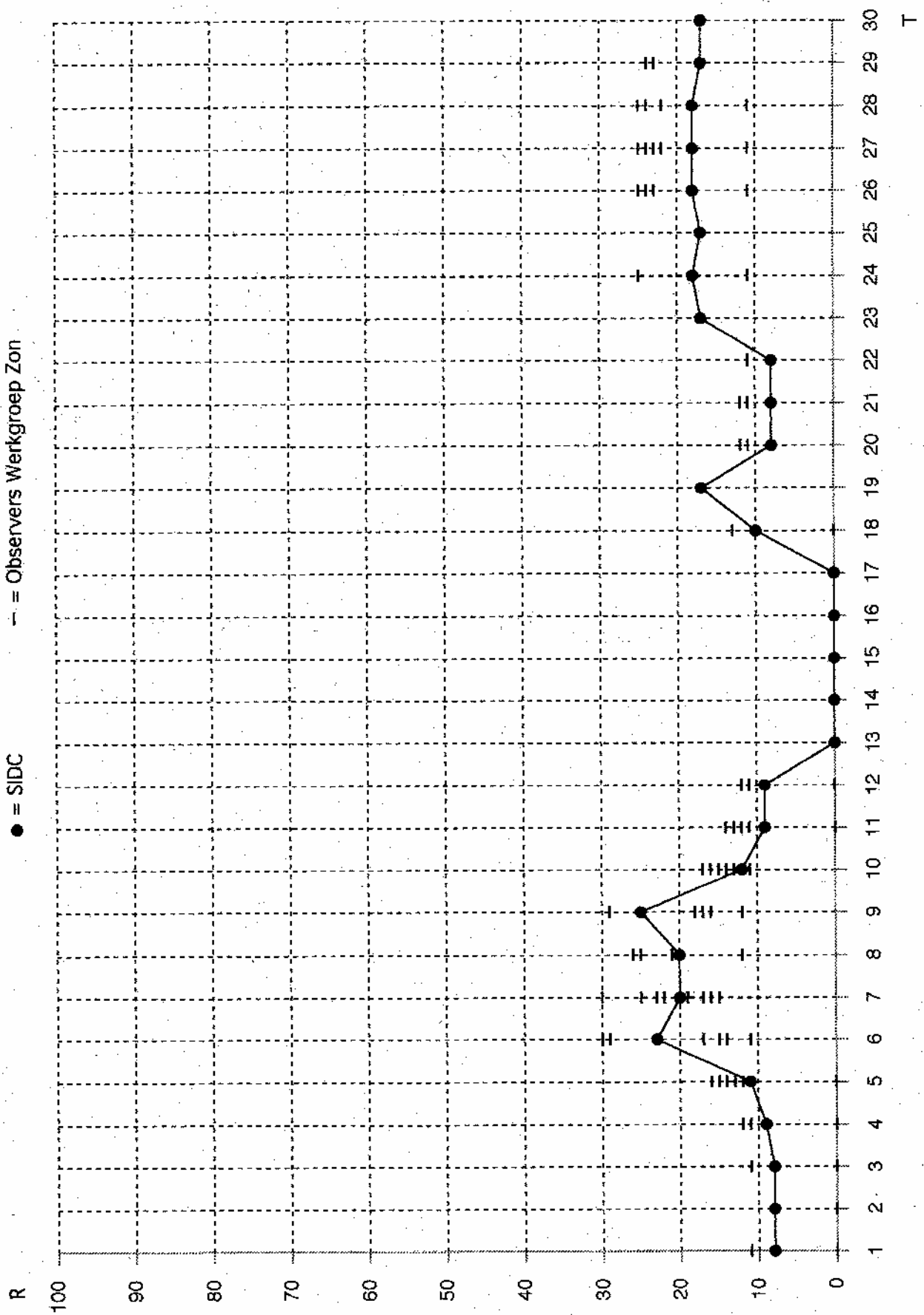
### Zonnevlekgetallen (Sunspot numbers)

Day	Bals	Gr 5	Groes	Iden	Jun 8	Jun 4	Kroe	Scho	vSlo	Sp 7	Vers	Zans	Zijle
1	11	0	0	0	0	0	0	0	0	0	0	0	11
2	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0
4	12	0	11	0	0	0	0	0	0	0	0	0	0
5	12	0	11	12	0	0	0	0	0	0	0	0	0
6	30	17	17	11	14	14	29	14	15	16	12	12	12
7	23	19	25	17	15	15	16	22	30	20	25	25	25
8	21	17	18	12	12	12	25	26	26	20	21	20	20
9	17	13	14	11	12	12	29	16	16	16	16	16	16
10	16	13	14	14	11	12	17	17	14	15	15	16	16
11	13	12	11	12	0	0	11	14	11	11	13	13	13
12	11	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	13	13	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0	0
20	11	11	11	12	11	11	11	11	11	11	11	11	11
21	12	11	11	11	11	11	11	11	11	11	11	11	11
22	12	11	11	11	11	11	11	11	11	11	11	11	11
23	12	11	11	11	11	11	11	11	11	11	11	11	11
24	12	11	11	11	11	11	11	11	11	11	11	11	11
25	12	11	11	11	11	11	11	11	11	11	11	11	11
26	23	24	25	25	11	11	23	24	23	23	23	23	25
27	25	25	25	25	11	11	23	24	24	22	22	22	24
28	25	25	25	25	11	11	22	24	24	22	22	22	24
29	23	23	23	23	11	11	24	24	24	24	24	24	24
30	16	17	16	9	24	2	17	12	26	15	18	18	13
observ.	0.79	0.93	0.78	1.07	1.47	1.48	0.96	0.99	0.75	0.77	0.97	0.88	0.91
st.dev.	0.08	0.30	0.06	0.27	0.48	0.21	0.30	0.31	0.06	0.05	0.33	0.24	0.31
std./k	0.10	0.32	0.07	0.25	0.32	0.14	0.31	0.35	0.08	0.06	0.33	0.28	0.34

Observers	[...]	Reflector, d = ... mm	[R1...]	Reflector, d = ... mm
Bals = H.A.M. Balster [70]	Jun 9 = D. Jannink [9]	Sp 7 = T. Spaninks [75]	Zans = W. Zansstra [155]	Zijle = W.A. Zijlstra [90]
Gr 5 = Mw G. Gravers [50]	Jun 4 = D. Jannink [40]	Vers* = D. Verschuuren [R1 80]	Zijle = W.A. Zijlstra [90]	'nieuw filter
Groes = A. Groenewegen [102]	Kroe = K. Kroes [102]	Zans = W. Zansstra [R1 155]		
Iden = J.A. Idenburg [70]	Scho = A. Scholten [80]	Zijle = W.A. Zijlstra [90]		
	vSlo = B. van Slooten [90]			

● = SIDC

— = Observers Werkgroep Zon

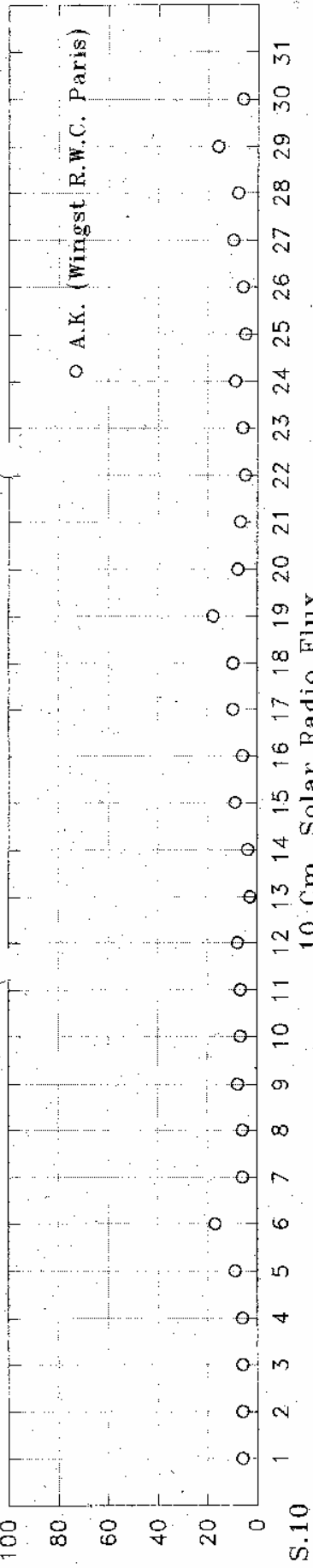


T

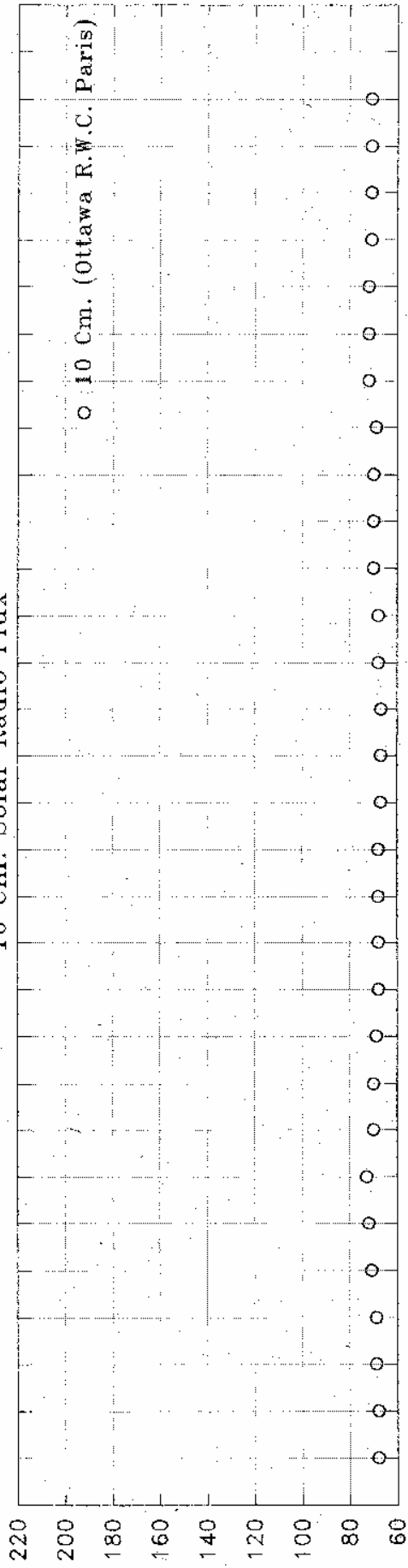
Geomagnetic A.K. Index

JUNI 1996

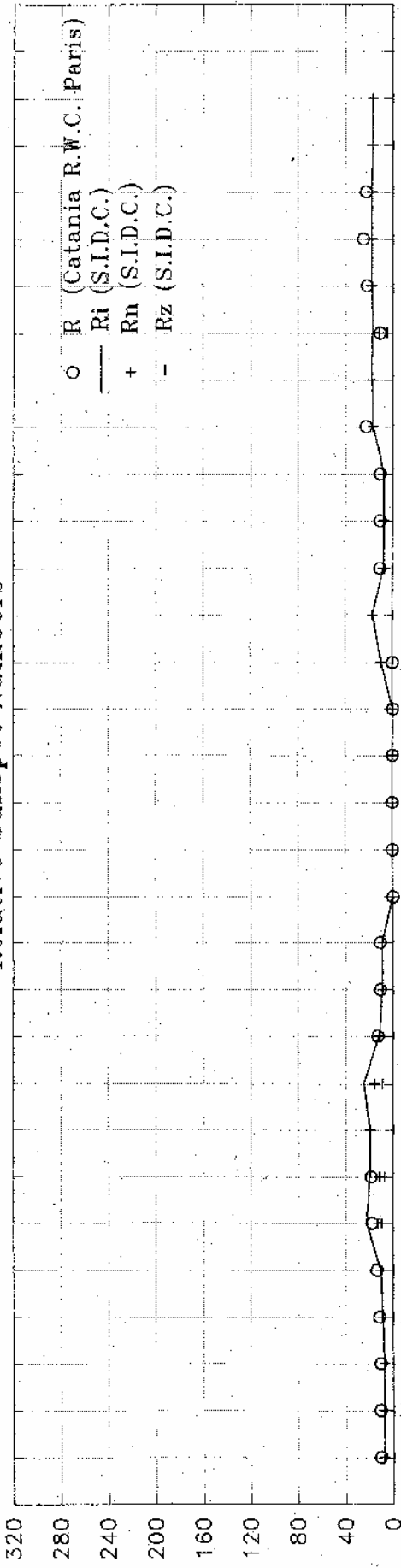
A.K.



S.10



R.



Rimax 25  
Jun. 9

Rimin 0  
Jun. 13,  
14,15,16,  
en 17.

Rigem.  
11,9







# Bulletin Werkgroep Zon

Juli 1996

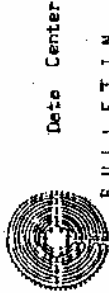
NVWS Werkgroep Zon. Secretariaat: Veenenburg 36, 2804 WZ Gouda. Tel: 0182-539082

## Zonnevlekgetallen (Sunspot numbers)

Day	Bals	Gr 5	Groe	Idan	Jun 9	Jun 4	Kroe	Scho	YSlo	Sp 7	Vers	Zans	Zant(J)	Zijle
1	0	0	0	0	0	0	0	11	0	0	0	0	0	0
2	13	0	12	0	0	13	12	12	0	12	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	16	0	20	0	0	17	15	17	0	15	0	0	17	0
8	17	0	17	0	15	16	23	32	0	23	0	0	0	0
9	23	0	23	0	15	30	20	30	0	20	0	0	39	0
10	34	0	26	0	15	36	0	36	0	0	0	0	21	0
11	18	0	18	0	13	13	21	27	0	18	0	0	26	16
12	17	0	15	0	13	14	16	16	0	16	0	0	16	13
13	12	0	0	0	0	0	11	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26	11	0	11	0	0	0	13	0	0	13	0	0	11	0
27	12	13	13	11	11	13	13	11	11	11	11	12	12	14
28	18	16	18	13	13	13	14	16	13	13	13	19	19	19
29	17	20	18	13	13	14	13	18	16	16	16	23	16	16
30	20	19	18	15	15	14	31	0	0	0	0	22	22	22
31	22	10	20	12	27	2	14	11	28	14	22	3	25	14
observ	0.79	0.75	0.92	0.97	1.94	1.23	1.15	0.66	0.77	0.73	0.97	—	0.74	1.00
k	0.09	0.00	0.24	0.27	0.35	0.44	0.34	0.19	0.08	0.11	0.19	—	0.08	0.21
std/k	0.11	0.00	0.26	0.27	0.26	0.35	0.30	0.20	0.11	0.14	0.20	—	0.11	0.21

Observers	[ ] = Reflector, d = ... mm	[R] = Reflector, d = ... mm
Bals = H.A.M. Baister [70]	Jun 9 = D. Jannink [9]	Sp 7 = T. Spaninks [75]
Gr 5 = M.w G. Gravers [50]	Jun 4 = D. Jannink [40]	Vers* = D. Verschuuren [Rf 80]
Groe = A. Groenewegen [102]	Kroe = K. Kroessen [102]	Zans = W. Zanstra [Rf 155]
Idan = J.A. Idenburg [70]	Scho = A. Scholten [60]	Zant(J) = W. Zanstra [100]
	YSlo = B. van Slooten [90]	Zijle = W.A. Zijlema [90]

(J) = Jura Sternwarte, Switzerland



Sunspot Index

Deto Center

# SUNSPOT BULLETIN

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

1996 JULY R<sub>M</sub> = 0.8

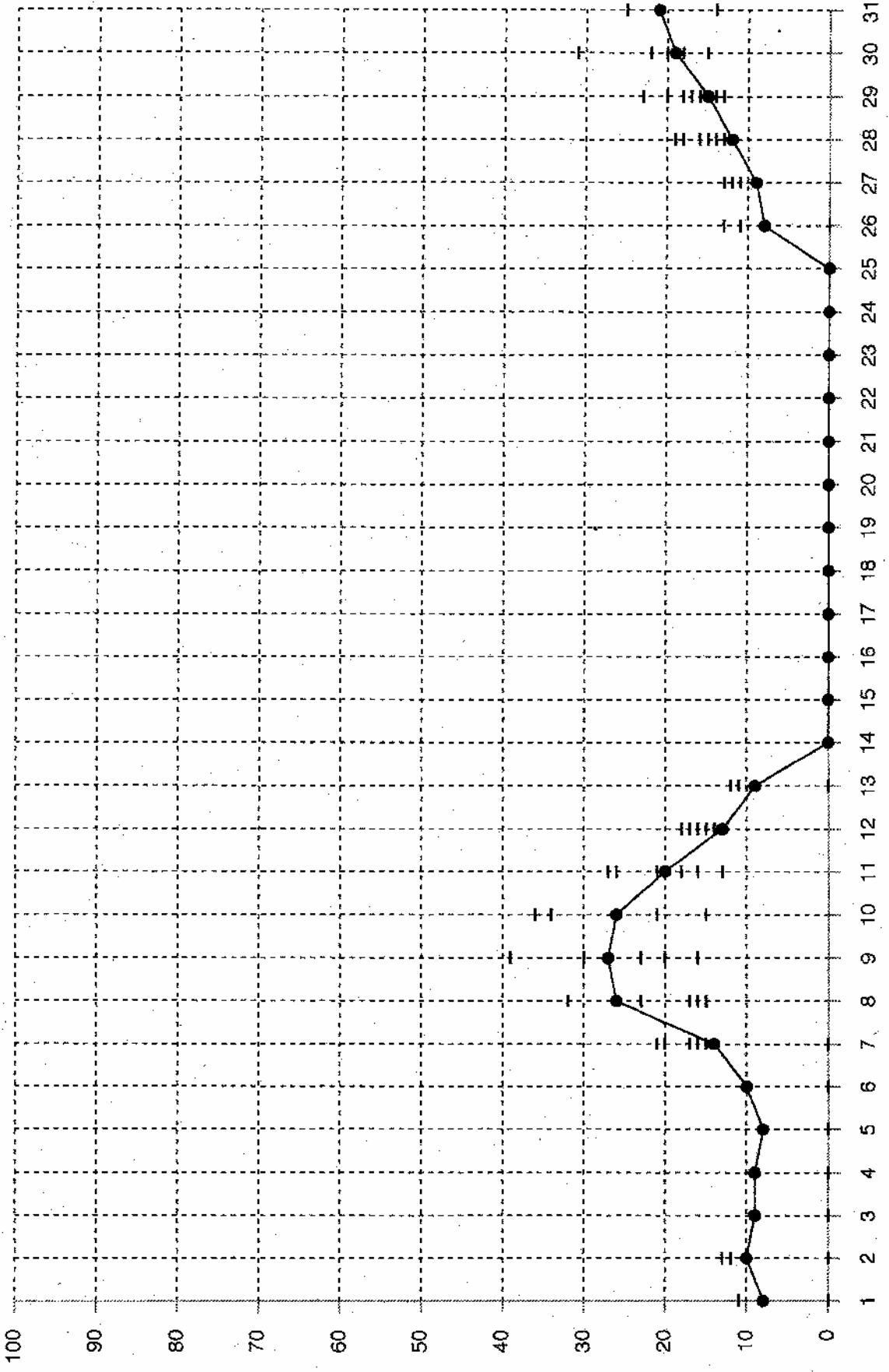
Date	R	RFSI	600	2800	COS	SFI	XI	AK	SEA	MAG
30	17	6	32	071	985	0	0/0	6		
1	8	1	34	070	985	0	0/0	8		
2	10	2	33	070	990	0	0/0	8		
3	9	2	33	069	994	0	0/0	14		
4	9	1	32	069	988	0	0/0	11		
5	8	2	32	069	985	0	0/0	12		
6	10	0	32	068	983	0	0/0	6		
7	14	5	32	072	983	12	0/0	12		
8	26	39	32	082	990	12	0/0	14		
9	27	57	34	084	987	14	1/1	(3) 0908		
10	26	43	34	080	985	12	1/0	2		1R(0905)
11	20	27	34	077	981	6	0/0	6		
12	13	11	32	074	986	11	0/0	11		
13	9	0	31	070	992	0	0/0	8		
14	0	—	31	068	993	0	0/0	10		
15	0	0	31	067	993	0	0/0	12		
16	0	0	30	067	993	0	0/0	8		
17	0	0	30	067	991	0	0/0	10		
18	0	2	30	065	987	0	0/0	8		
19	0	2	30	066	986	0	0/0	8		
20	0	0	31	065	980	0	0/0	10		1123
21	0	0	30	065	982	0	0/0	8		
22	0	0	30	066	983	0	0/0	10		
23	0	0	30	067	981	0	0/0	7		
24	0	0	30	066	978	0	0/0	6		
25	0	—	30	068	985	0	0/0	10		
26	8	0	31	070	987	0	0/0	8		
27	9	2	32	073	982	0	0/0	4		
28	12	12	32	076	982	0	0/0	15		
29	15	28	33	078	988	1	0/0	6		
30	19	44	35	080	996	2	0/0	10		
31	21	59	38	080	991	3	0/0	19		

R<sub>M</sub>: provisional international sunspot numbers from the S.I.D.C.  
 RFSI: prompt photometric sunspot index from the S.I.D.C. in 10<sup>-5</sup> W/m<sup>2</sup>; the quantity to subtract from the mean solar constant.  
 600: 600 MHz solar flux from Huairou station (Belgium).  
 2800: 2800 MHz solar flux from Ottawa (origin: Ursigrans).  
 COS: the National Research Council of Canada.  
 SFI: thousands of the cosmic ray counts (origin: Ursigrans - UOISE Kerguelen).  
 XI: From October 1992, Solar Flare Index from the S.I.D.C. (origin: Ursigrans - UGEGR group 3).  
 AK: X-flares Index from the Ursigrans (H-flares/M-flares) (origin: Ursigrans - UGEGR group 5).  
 SEA: planetary geomagnetic index from Wang, Germany (origin: Ursigrans).  
 MAG: sudden enhancements of atmospheric pressure from Uccle & Humin (Royal Observatory, Belgium).  
 Remarks: sid (sudden ionospheric disturbance); sac (sudden storm commencement); magnet (magnetic storm); sfc (solar flare effect);  
 s-1-2-3-4 (class of flares); II-IV radio-burst; T (ten on radio-burst); P (proton flare); p (proton event);  
 gle (ground level event); neutron event; sf (sudden impulse); F (forburst); SFI Evaluation (1 x 5m-10 x 10<sup>4</sup> x 10<sup>5</sup>);

● = SIDC  
— = Observers Werkgroep Zon

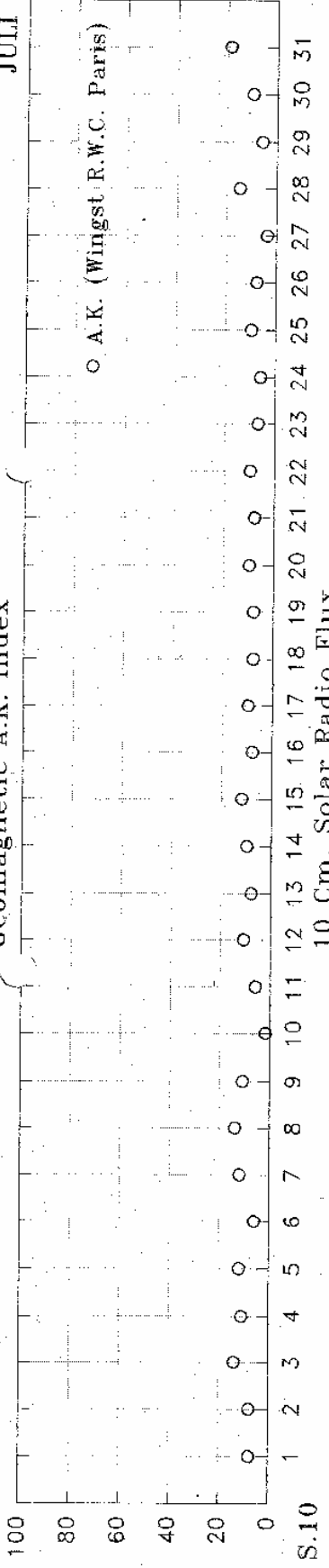
R

T

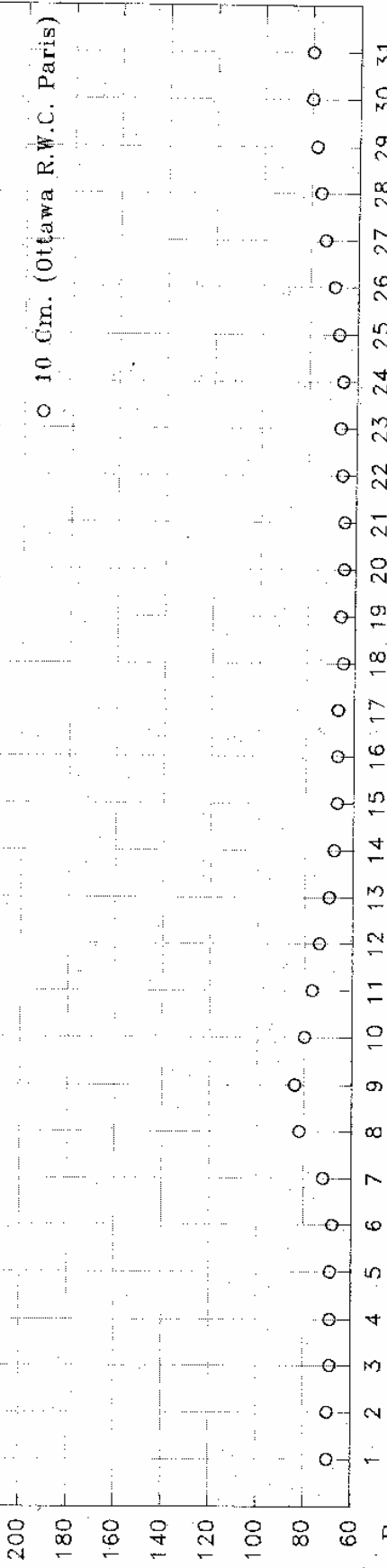


JULI 1996

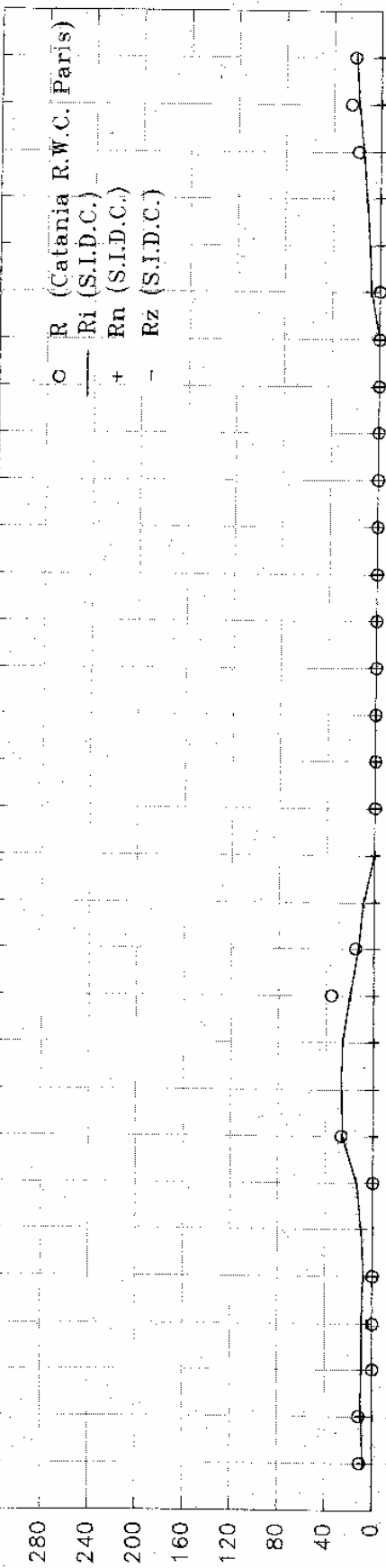
A.K. Geomagnetic A.K. Index



S.10 10 Cm. Solar Radio Flux



R. Relative Sunspot Numbers



Rimax 27 Jul. 9 Rimin 0 Jul. 14t/m25 Rigein. 8,8





# Bulletin Werkgroep Zon Augustus 1996

NVWS Werkgroep Zon, Secretariaat: Veenenburg 86, 2804 WZ Gouda. Tel: 0182-539082

## Zonnevlekgetallen (Sunspot numbers)

Day	Bals	Gr 5	Gros	Iden	Jun 9	Jun 4	Kroel	Scho	vSlo	Sp7	Vers	Zan(J)	Zans	Zille
1					14		26		25		15	22		
2			21	21	15		26		28		21	27	19	
3	24	23	22	18	15		29	29	29	21	28	17	17	
4	17	18	18	17	12		12	22	21	18	17	25	17	
5	13	14	12	13	12		12	15	15	14	16	14	13	
6					12		12	12	12		12		12	
7					11				24				11	
8	12	0		0	0		0	0	11	11	0	11	11	
9	14			0	0		0	0	16	15		19		
10	15			0	0		24		21			19		
11	21			0	0		27	22	31		18		18	18
12	19			0	0									
13			12		0			12	15		0			
14			25		0		24	29	29		25		28	
15	14	13	13		0		23	13	15		12			
16			11										15	
17			12	13			0	15	13					
18	0	0	0	0			0	0	0	0	0	0	0	
19	0	0	0	0			11	0	0	0	0	0	0	
20	11	12	12	0				11	14		0	0	12	
21			11		0									
22	0	12	12	0				12	0	0	0	0	0	
23	12	12	23	12	0		0	23	13		0	12	0	
24	23	11	11		0		11	11	22		11	11	11	
25	13	13	12		11		12	12	12		11	11	11	
26	12	13	14		11		13	13			12		11	
27	13		13		11	11		14			12		11	
28					11									
29					11									
30					11								11	
31	23	12	23		11			13		13			11	
observ	19	15	18	9	29	1	16	12	26	12	20	8	15	14
k	0.94	1.01	0.96	1.16	1.27	1.00	0.97	1.03	0.82	0.87	1.08	0.84	1.08	1.09
stddev	0.18	0.23	0.26	0.21	0.31	—	0.35	0.23	0.16	0.14	0.24	0.08	0.30	0.26
std/k	0.19	0.23	0.27	0.18	0.24	—	0.36	0.23	0.20	0.16	0.22	0.09	0.28	0.24

Observers	[...]	Reflector, d = ... mm	[Ri...]	Reflector, d = ... mm
Bals = H.A.M. Balster [70]	Jun 9 = D. Jannink [9]		Sp 7 = T. Spaninks [75]	
Gr 5 = Mw G. Gravers [50]	Jun 4 = D. Jannink [40]		Vers' = D. Verschuuren [R1 80]	
Gros = A. Groenewegen [102]	Kroel = K. Kroesen [102]		Zan(J) = W. Zanstra [100, Jura]	
Iden = J.A. Idenburg [70]	Scho = A. Scholten [60]		Zans = W. Zanstra [R1 155]	
	vSlo = B. van Slooten [90]		Zijle = W.A. Zijlema [90]	

\*Jura Sternwarte, Switzerland



Insport Index

Data Center

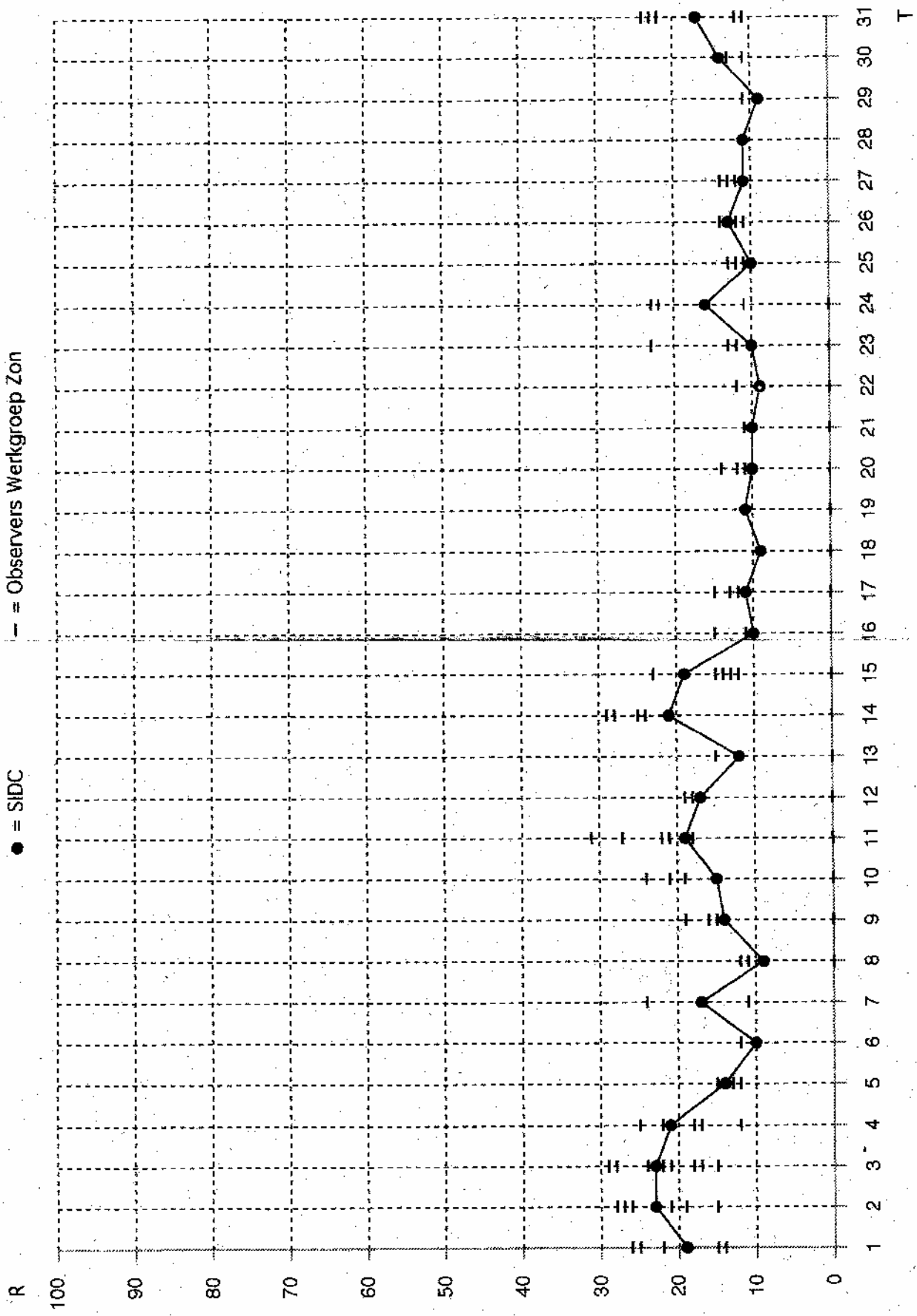
SUMSPOT BULLETIN  
S.I.D.C. SUMMARY OF THE URSIGRAMS  
1996 AUGUST R<sub>IM</sub> = 14.0

Date	R <sub>i</sub>	PPSI	600	2800	COS	SFI	XI	AX	SEA	MAG
31	21	59	38	080	991	3	0/0	19		
1	19	52	35	080	993	0	0/0	14		
2	23	56	35	080	987	2	0/0	8		
3	21	54	35	079	991	3	0/0	11		
4	21	39	34	078	986	1	0/0	8		
5	14	67	34	074	987	5	0/0	8		
6	10	13	32	073	982	0	0/0	12	1533	
7	17	7	32	072	985	0	0/0	9		
8	9	3	32	070	990	0	0/0	6		
9	14	3	32	070	993	1	0/0	11		
10	15	7	31	072	997	1	0/0	7		
11	19	16	32	073	998	0	0/0	6		
12	17	11	31	070	995	0	0/0	7		
13	12	8	30	070	988	0	0/0	9		
14	21	3	31	069	989	0	0/0	20		
15	19	4	31	068	997	0	0/0	10		
16	10	2	31	—	995	—	—	16		
17	11	2	31	—	987	—	—	14		
18	9	1	30	—	993	—	—	8	1708	
19	11	1	30	068	989	0	0/0	6		
20	10	2	30	069	985	0	0/0	10		
21	10	0	31	070	988	0	0/0	8		
22	9	1	32	073	984	0	0/0	7		
23	10	1	32	074	984	0	0/0	12		
24	16	4	—	075	984	0	0/0	11		
25	10	7	34	075	985	1	0/0	18		
26	13	26	34	074	988	6	0/0	13		
27	11	11	34	074	988	0	0/0	18		
28	11	7	35	073	987	0	0/0	16		
29	9	10	35	074	990	0	0/0	34	1445	
30	14	10	36	073	990	0	0/0	19		
31	17	7	35	076	983	2	0/0	12		

R<sub>i</sub>, R<sub>IM</sub>: provisional international sunspot numbers from the S.I.D.C.  
 PPSI: proton photoelectric sunspot index from the S.I.D.C. in 10<sup>-5</sup> W/m<sup>2</sup>; the quantity to subtract from the mean solar constant.  
 600: 600 MHz solar flux from Heald station (Belgium).  
 2800: 2800 MHz solar flux from Ottawa (origin: Ursigrans - URSIGR group 2). \*The 10.7cm Flux data are provided as a service of the National Research Council of Canada.  
 COS: thousands of the cosmic ray counts (origin: URSIGRans - URSIGR group 3).  
 SFI: From October 1992, Solar Flare Index from the S.I.D.C. (origin: Ursigrans - URSIGR group 3).  
 XI: X-flares index from the Ursigrans (M-flares/X-flares) (origin: Ursigrans - URSIGR group 2; URSIGR group 5).  
 AX: planetary geomagnetic index from Uccle & Namur (Royal Observatory, Belgium).  
 SEA: sudden enhancements of atmospheres from Uccle & Namur (Royal Observatory, Belgium).  
 MAG: magnetic events from Bourges station (Royal Meteorological Institute, Belgium).  
 Remarks: sid (sudden ionospheric disturbance); ssc (sudden storm commencement); msst (magnetic storm); sfs (solar flare effect); s-1-2-3-4 (class of flares); II-IV (radio-burst); T (stem on radio-flare); P (proton flare); P (proton event); gte (ground level event); neutron event); sf (sudden impulse); F (Forbush); SFI Evaluation (1 x Sst-10 x w<sup>1.4</sup> x 10<sup>-10</sup>).

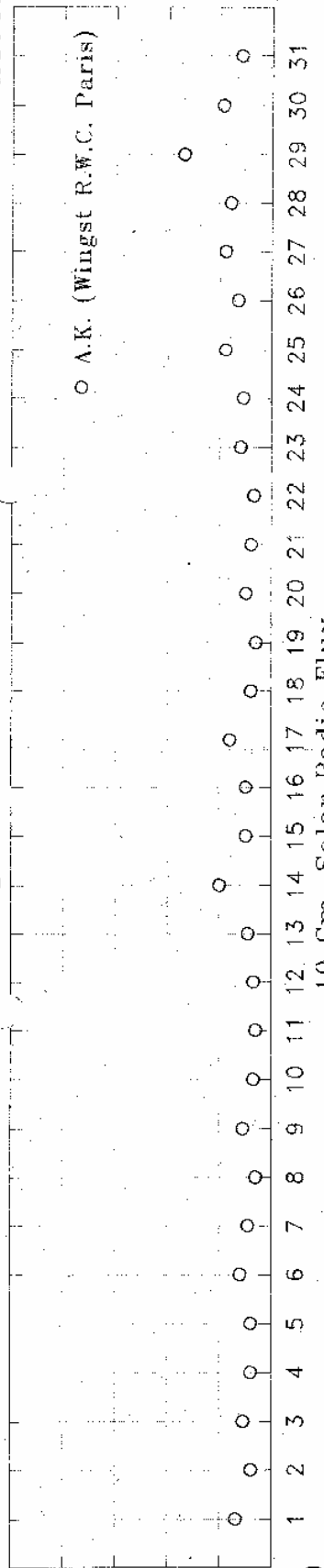
— = Observers Werkgroep Zon

● = SIDC

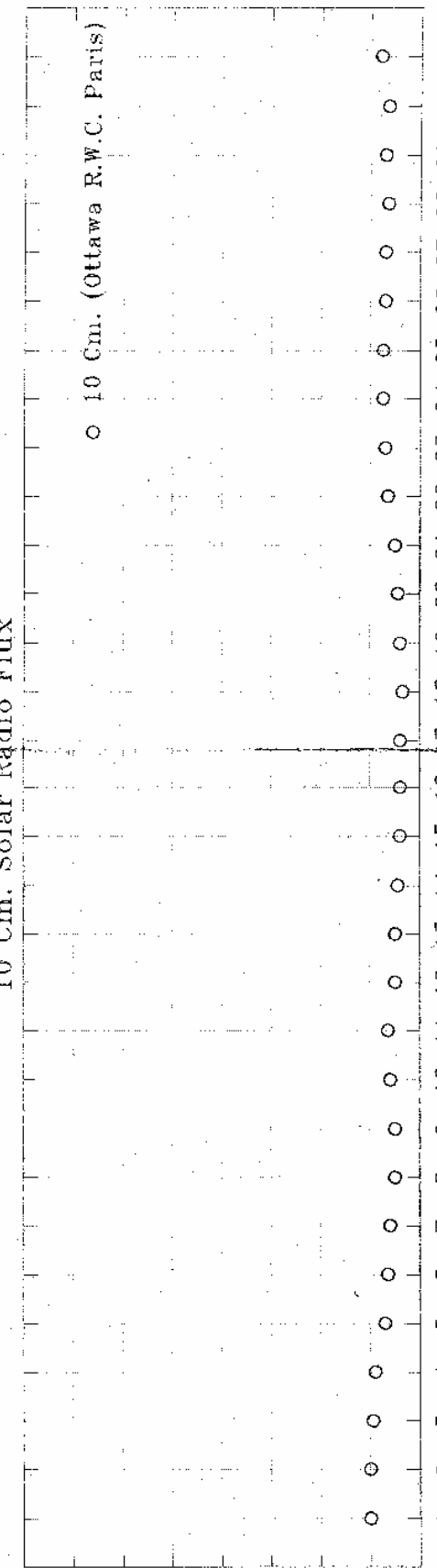


Geomagnetic A.K. Index

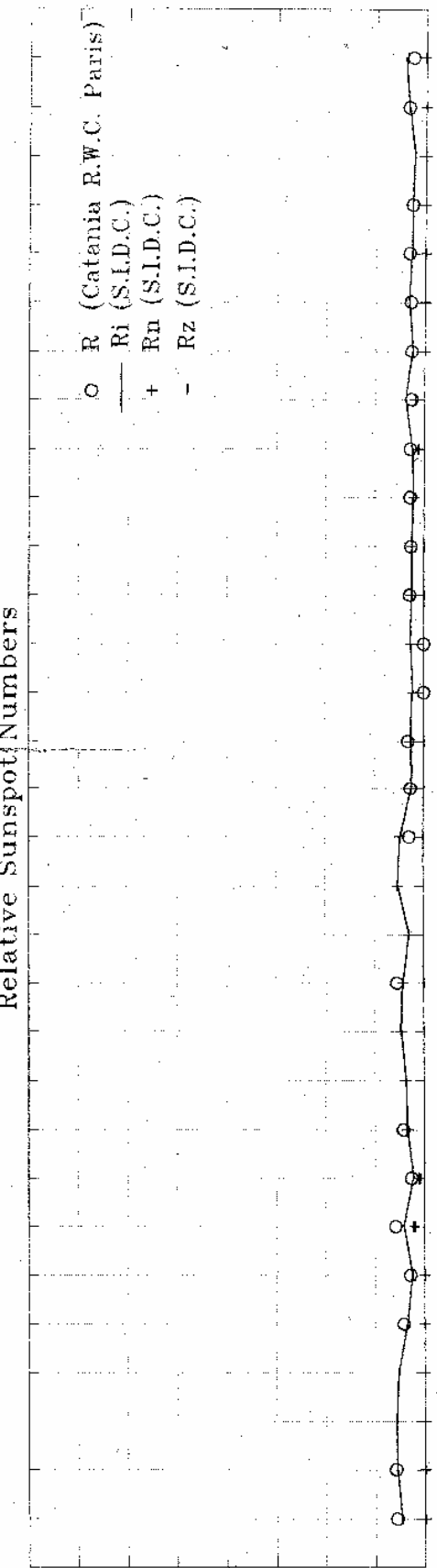
A.K.



S.10



R.



Rimax 23  
Aug. 2,3  
Rimin 9  
Aug. 8,18  
22 en 29

Rigem.  
14,0

# Zonnevlekkengetallen noordelijk- en zuidelijk halfrond

(Hemispheric sunspot numbers)

augustus 1996

Day	S.I.D.C.		Balster		Groenew.		Idenburg		Jannink 4		Scholten		v. Slooten		Spaninks	
	Rn	Rs	Rn	Rs	Rn	Rs	Rn	Rs	Rn	Rs	Rn	Rs	Rn	Rs	Rn	Rs
1	0	19											0	25		
2	0	23			0	21	0	21					0	28		
3	0	23	0	24	0	22	0	18					0	29	0	29
4	0	21	0	17	0	18	0	17			0	22	0	21	0	18
5	0	14	0	13	0	12	0	13			0	15	0	15	0	14
6	0	10									0	12	0	12		
7	9	8											13	11		
8	5	4	0	12									0	11	0	11
9	14	0	14	0							0	0	16	0	15	0
10	15	0	15	0									21	0		
11	19	0	21	0							22	0	31	0		
12	17	0	19	0												
13	12	0									12	0	15	0		
14	21	0											29	0		
15	19	0	14	0	13	0					13	0	15	0		
16	10	0			11	0										
17	11	0			13	0							15	0	13	0
18	9	0	0	0			0	0			0	0	0	0	0	0
19	11	0	0	0			0	0			11	0	0	0	0	0
20	10	0	11	0	12	0	0	0					11	0	14	0
21	10	0			11	0										
22	9	0	0	0	12	0							12	0	0	0
23	5	5	12	0	12	11	12	0					12	11	13	0
24	8	8	11	12	0	11	0	11			0	11	11	11		
25	0	10	0	13	0	12					0	12	0	12		
26	0	13	0	12	0	14					0	13	0	13		
27	0	11	0	13	0	13			0	11			0	14		
28	0	11														
29	0	9														
30	0	14											0	13		
31	1	16	11	12	12	11							13	11		





# Bulletin Werkgroep Zon September 1996

NVWS Werkgroep Zon, Secretariaat: Veenenburg 36, 2804 WZ Gouda, Tel: 0182-539082

## Zonnevlekgetallen (Sunspot numbers)

Day	Bals	Gr.5	Groe	Iden	Jn.9	Kroe	vSlo	Sp.7	Vers*	Zans	Zijle
1	12	12	11	11	11	11	22	11	11	11	11
2	11	12	11	0	0	14	11	11	11	11	11
3	11	11	11	0	0	11	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0
7	0	15	0	0	0	14	0	0	0	0	15
8	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0
12	0	0	12	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0	0	0	0
27	0	11	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0	0	0
29	0	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0	0	0
observ	17	9	18	9	26	5	11	10	8	24	9
k	0.79	0.78	0.77	0.82	1.00	-	0.76	0.73	-	0.82	0.88
std dev	0.14	0.20	0.14	-	-	-	0.21	0.20	-	0.18	0.18
std. dev. k	0.18	0.26	0.19	-	-	-	0.27	0.27	-	0.22	0.20

Observers	[...]	= Refractor, d = ... mm	[Rf...]	= Reflector, d = ... mm
Bals = H.A.M. Balster [70]	Jn. 9 = D. Jammink [9]		Vers* = D. Verschuuren [Rf 80]	
Gr 5 = M.W.G. Gravers [50]	Kroe = K. Kroesen [102]		Zans = W. Zansira [Rf 155]	
Groe = A. Groenewegen [102]	vSlo = B. van Slooten [90]		Zijle = W.A. Zijlstra [90]	
Iden = J.A. Idenburg [70]	Sp.7 = T. Sporninks [75]			



## SUNSPOT BULLETIN

S.I.D.C. SUMMARY OF THE URSIGRAMS  
1996 SEPTEMBER R<sub>IM</sub> = 1.8

Date	R <sub>i</sub>	PPSI	600	2800	COS SFI	XI	AK	SEA	MAG
31	17	7	35	076	983	2	0/0	12	
1	11	4	36	074	981	0	0/0	8	
2	9	2	35	072	976	0	0/0	6	
3	7	1	35	071	970	0	0/0	2	
4	7	0	34	071	974	0	0/0	15	
5	0	0	34	070	986	0	0/0	8	
6	0	0	34	070	994	0	0/0	8	
7	12	1	34	070	998	0	0/0	10	
8	0	0	33	068	995	0	0/0	7	
9	0	0	32	068	988	0	0/0	12	1302
10	0	0	31	068	981	0	0/0	33	
11	0	1	31	068	989	0	0/0	24	
12	8	0	31	068	996	0	0/0	30	
13	0	0	-	067	994	0	0/0	23	
14	0	0	30	067	1000	0	0/0	12	
15	0	0	29	066	994	0	0/0	22	
16	0	0	32	068	991	0	0/0	16	
17	0	0	31	069	990	0	0/0	12	
18	0	0	31	069	989	0	0/0	22	
19	0	0	31	069	988	0	0/0	21	
20	0	0	32	069	992	0	0/0	33	
21	0	0	31	070	989	0	0/0	32	
22	0	0	-	069	987	0	0/0	29	
23	0	0	31	070	986	0	0/0	31	
24	0	0	31	070	981	0	0/0	10	
25	0	0	31	071	981	0	0/0	11	
26	0	0	-	070	981	0	0/0	31	1643
27	0	0	32	070	992	0	0/0	16	
28	0	0	32	071	988	0	0/0	16	
29	0	0	34	070	981	0	0/0	9	
30	0	0	34	070	979	0	0/0	5	

We have reached in September the lowest value of the monthly sunspot number since the former minimum. Due to this low value, the minimum of the cycle, defined as the minimum of the smoothed sunspot number is not likely to occur in May of June, as suggested sometimes, but more probably during the last three months of the year.

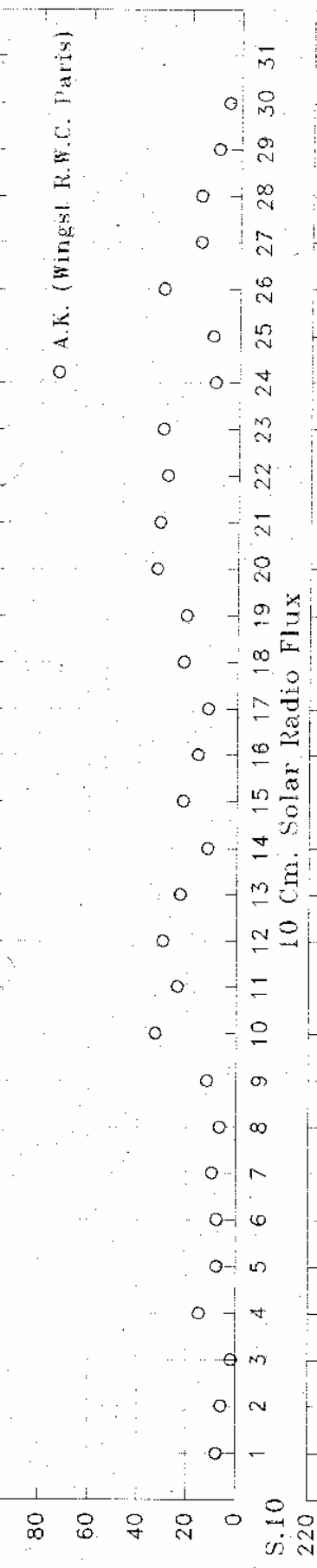
R<sub>i</sub>, R<sub>IM</sub>: provisional International sunspot numbers from the S.I.D.C.  
 PPSI: prompt photometric sunspot index from the S.I.D.C. in 10-5 w/m<sup>2</sup>; the quantity to subtract from the mean solar constant.  
 600: 600 Mhz solar flux from Huisin station (Belgium).  
 2800: 2800 Mhz solar flux from Ottawa (origin: Ursigrams - UGEOI group 2); UGEOI group 2; UGEOI group 5).  
 COS: of the National Research Council of Canada.  
 SFI: thousands of the cosmic ray counts (origin: Ursigrams - UGEOI group 3).  
 XI: X-flares index from the Ursigrams (H-flares/X-flares) (origin: Ursigrams - UGEOI group 3).  
 AK: planetary geomagnetic index from King's, Germany (origin: Ursigrams).  
 SEA: sudden enhancements of atmospheres from Uccle's & Hamain (Royal Observatory, Belgium).  
 MAG: magnetic events from Durban station (Royal Meteorological Institute, Belgium).  
 Remarks: sid (sudden ionospheric disturbance); ssc (sudden storm commencement); mst (magnetic storm); sfc (solar flare effect); s-1-2-3-4 (class of flares); 11-1V (radio-burst); f (ten cm radio-burst); p (proton flare); p (proton event); g1e (ground level event); n (neutron event); s1 (sudden impulse); F (forbush); SFI Evaluation (1 x S<sub>10</sub> x 10<sup>10</sup> x 10<sup>10</sup>).



A.A.

### Geomagnetic A.K. Index

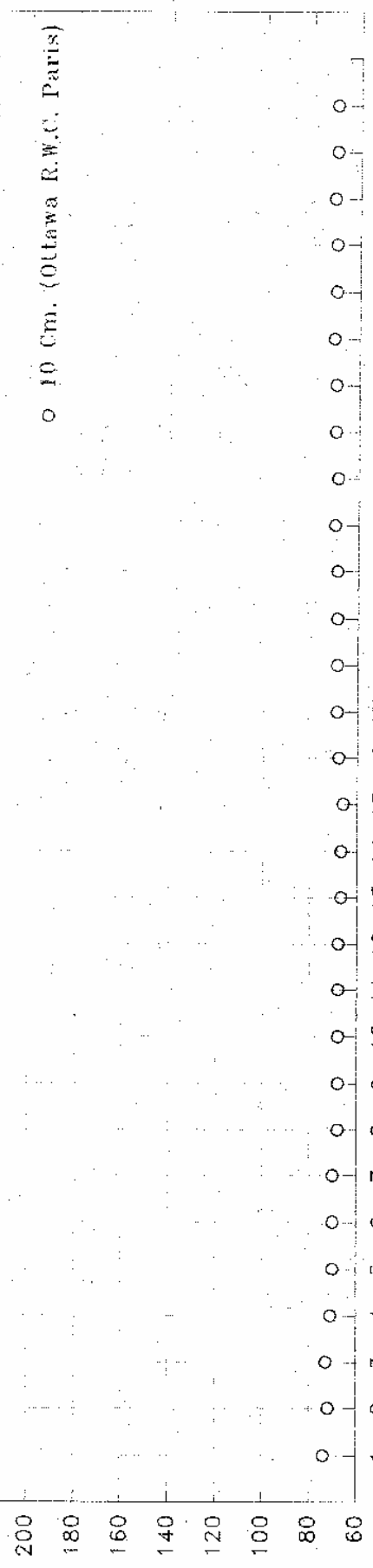
SEPTEMBER 1996



○ A.K. (Wingst R.W.C. Paris)

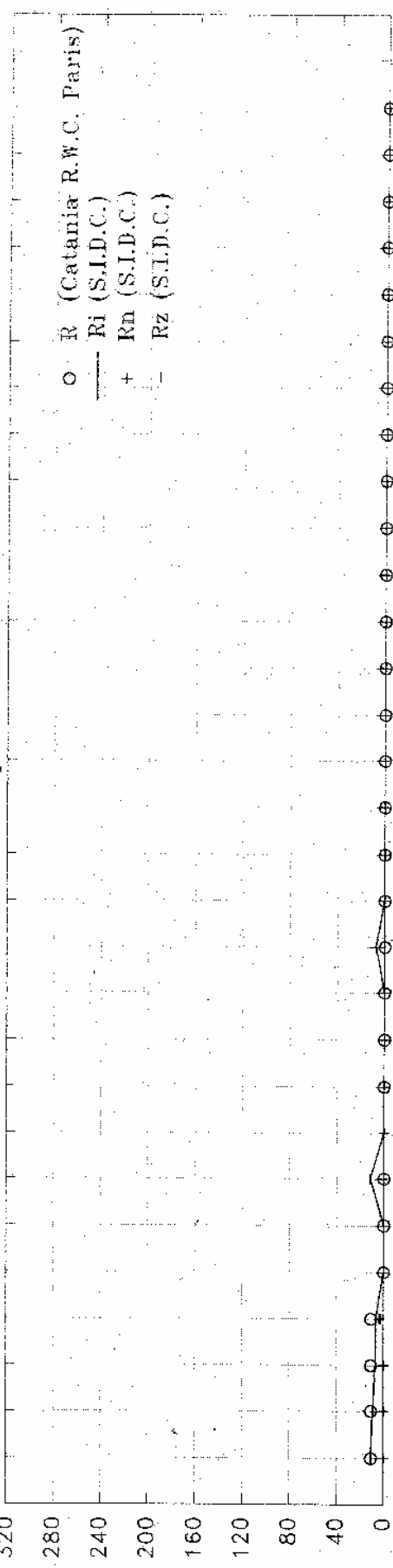
S.10

### 10 Cm. Solar Radio Flux



○ 10 Cm. (Ottawa R.W.C. Paris)

### Relative Sunspot Numbers



○ R (Catania R.W.C. Paris)

— Ri (S.I.D.C.)

+ Rn (S.I.D.C.)

— Rz (S.I.D.C.)

Rimax 12  
Sep. 7

Rimin 0  
Sep. 5,6,  
8,9,10,11,  
13t/m30

Rigem.  
1.8





# Bulletin Werkgroep Zon

Oktober 1996

NVWS Werkgroep Zon, Secretariaat, Veenenburg 36, 2804 WZ Gouda. Tel: 0182-539092

## Zonnevlekkengetallen (Sunspot numbers)

Day	Bals	Gr 6	Gr 6	iden	Gr 9	Kroe	Scho	vSlo	Sp 7	Vers	Zans	Zijle
1	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0	0	0	0	0
27	0	0	0	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0	0	0	0
29	0	0	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0	0	0	0	0
observ	22	4	19	7	27	9	2	23	16	12	16	4
st.dev.												
sl/d/k												

Observers	[...]	= Refractor, d = ... mm	[Ri...]	= Reflector, d = ... mm
Bals	= H.A.M. Baister [70]	Jn 9 = D. Jannink [9]	Sp 7 = T. Sparinks [75]	Vers' = D. Verschuren [Ri 80]
Gr 6	= M.W. G. Gravers [60]	Kroe = K. Kroesen [102]	Scho = A. Scholten [60]	Zans = W. Zansstra [Ri 155]
Gr 9	= A. Groenewegen [102]	vSlo = B. van Slooten [90]	Zijle = W.A. Zijlstra [90]	
iden	= J.A. Idenburg [70]			



Unspot Index

Data Center

## SUNSPOT BULLETIN

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

1996 OCTOBER R<sub>fM</sub> = 1.8

Date	R <sub>f</sub>	PPSI	600	2800	COS	SFI	XI	AK	SEA	MAG
30	0	0	34	070	979	0	0/0	5		
1	0	0	35	070	979	0	0/0	7		
2	0	0	34	070	986	-	(7)			
3	0	0	34	070	994	0	0/0	20		
4	0	0	34	069	996	0	0/0	8		
5	0	0	34	069	994	0	0/0	4		
6	0	0	34	069	999	0	0/0	3		
7	0	0	34	068	998	0	0/0	6	1034	
8	0	0	-	068	995	0	0/0	14		
9	0	0	-	068	999	0	0/0	25		
10	0	0	33	068	995	0	0/0	14		
11	0	0	31	067	995	0	0/0	10		
12	0	0	-	067	998	0	0/0	18		
13	0	0	-	068	998	0	0/0	20		
14	0	0	31	069	998	0	0/0	18		
15	0	0	33	069	992	0	0/0	6		
16	0	0	34	069	992	0	0/0	14		
17	0	0	35	069	988	0	0/0	8		
18	0	0	35	070	-	0	0/0	27		
19	0	0	34	071	-	0	0/0	45		
20	8	0	34	071	-	0	0/0	18		
21	10	0	34	070	-	0	0/0	10		
22	0	0	-	070	-	0	0/0	36		
23	0	0	35	068	-	0	0/0	35		
24	0	0	35	070	-	0	0/0	12		
25	9	0	36	070	938	0	0/0	7		
26	12	1	37	071	961	0	0/0	6		
27	9	0	35	072	967	0	0/0	7		
28	8	0	34	068	-	0	0/0	16		
29	0	0	34	070	-	0	0/0	18		
30	0	0	34	071	-	0	0/0	24		
31	0	0	34	070	-	0	0/0	8		

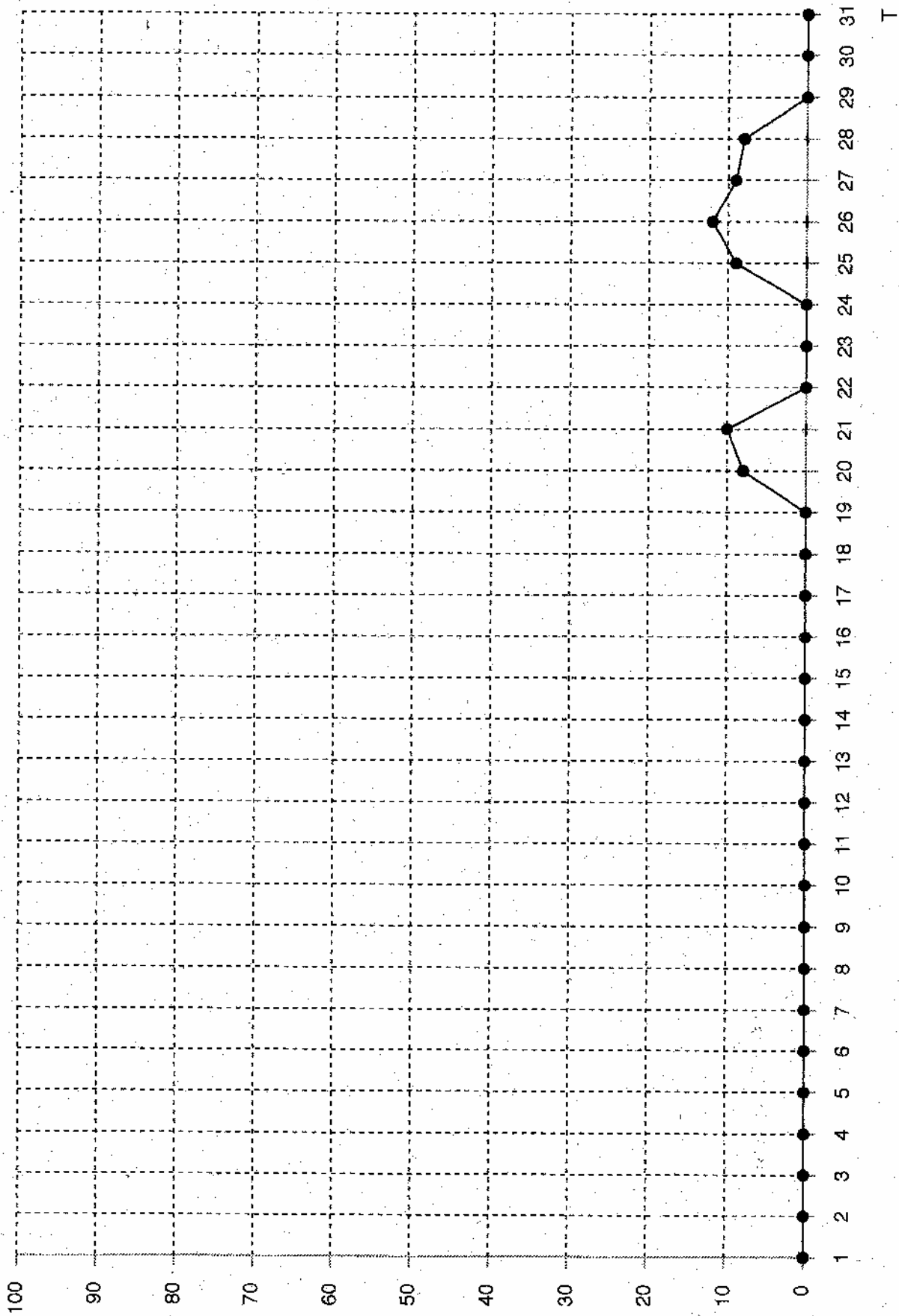
Very low solar activity, very low to moderate geomagnetic activity. The minimum of the monthly smoothed sunspot number is expected to occur in the last three months of 1996.

R<sub>f</sub>, R<sub>fM</sub>: 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<sup>2</sup>; the quantity to subtract from the mean solar constant.  
 600: 600 MHz solar flux from Kunitz station (Belgium).  
 2800: 2800 MHz solar flux from Ottawa (origin: Ursigrans - URSIGR group 2); URSIGR group 2; URSIGR group 5).  
 COS: the National Research Council of Canada.  
 SFI: thousands of the cosmic ray counts (origin: Ursigrans - URSIGR group 3).  
 XI: X-flares index from the Ursigrans (M-flares/X-flares) (origin: Ursigrans - URSIGR group 3).  
 AK: planetary geomagnetic index from Mingst, Germany (origin: Ursigrans).  
 SEA: sudden enhancements of atmospheric pressure from Uccle & Humain (Royal Observatory, Belgium).  
 MAG: magnetic events from Bourbes station (Royal Meteorological Institute, Belgium).  
 Remarks: sid (sudden ionospheric disturbance); sec (sudden storm commencement); magst (magnetic storm); sfa (solar flare effect); s1-2-3-4 (class of flares); II-IV radio-burst; I (ten cm radio-burst); T (ten cm radio-burst); P (proton event); gte (ground level event); neutron event; si (sudden impulse); F (Forbush); SFI Evaluation (I x Snt-10 x 10<sup>11</sup> x 10<sup>11</sup>).

— = Observers Werkgroep Zon

● = SIDC

R

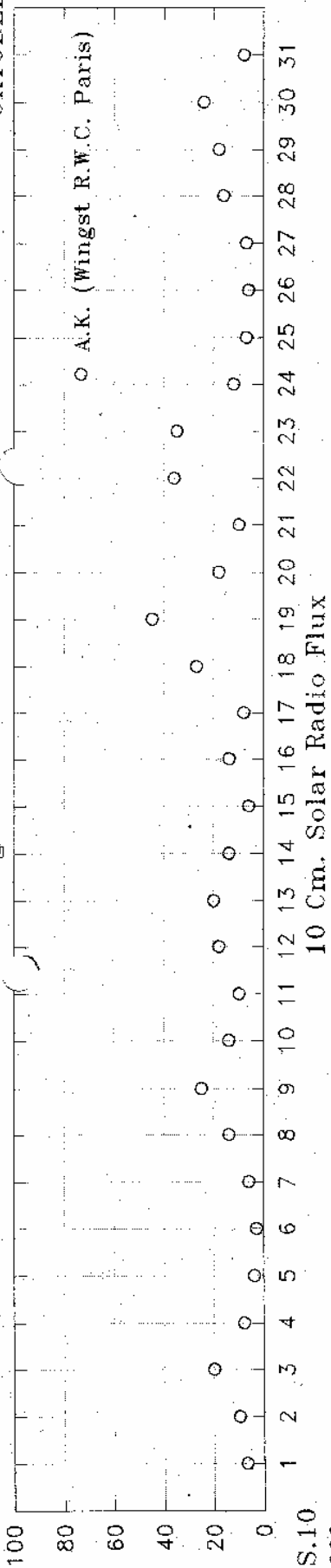


T

A.K.

Geomagnetic A.K. Index

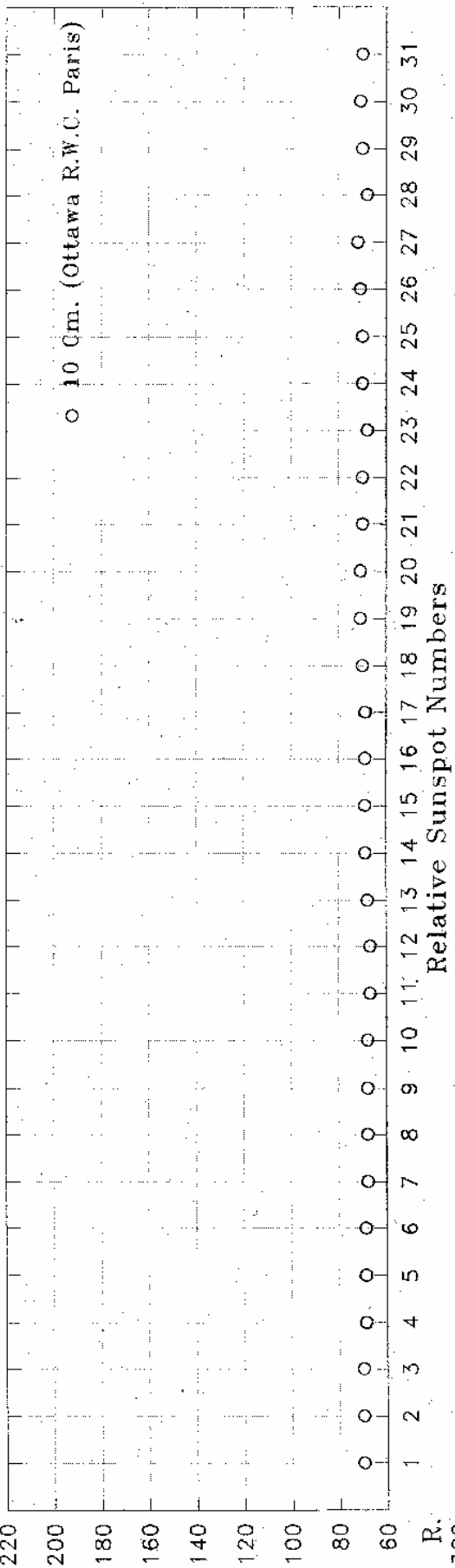
OKTOBER 1996



○ A.K. (Wingst R.W.C. Paris)

S.10.

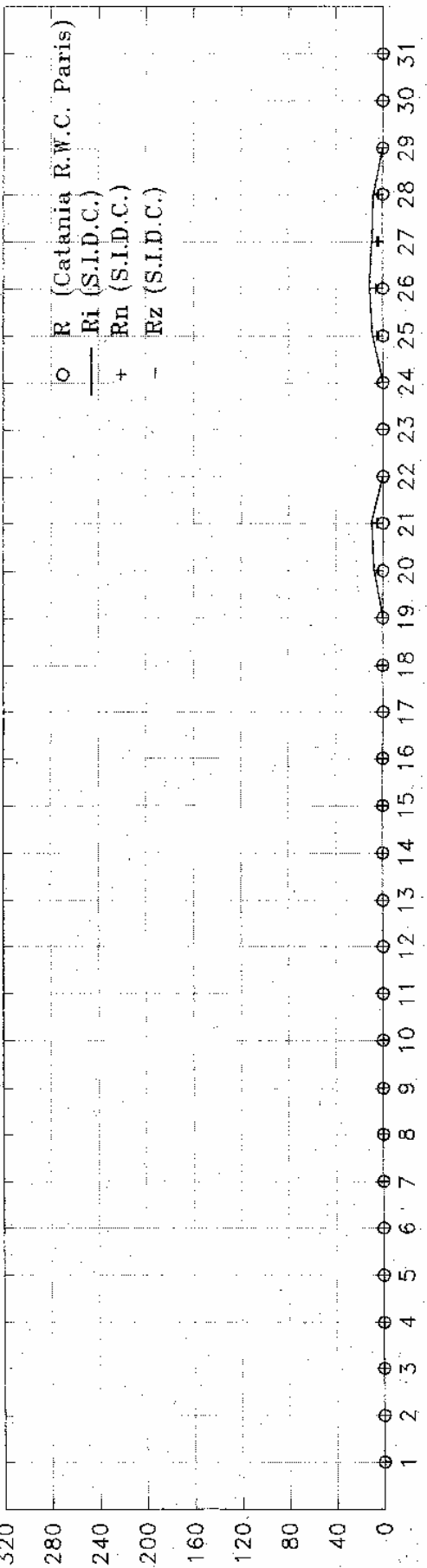
10 Cm. Solar Radio Flux



○ 10 Cm. (Ottawa R.W.C. Paris)

Relative Sunspot Numbers

R.



○ R (Catania R.W.C. Paris)  
 — Ri (S.I.D.C.)  
 + Rn (S.I.D.C.)  
 - Rz (S.I.D.C.)

Rimax 12  
 Okt. 26  
 Rimin 0  
 Okt. 1,2,  
 1/m19,22  
 23,24,29,  
 30,31  
 Rigem.  
 1,8

## Zonnevlekkengetallen noordelijk- en zuidelijk halfrond

(Hemispheric sunspot numbers)

oktober 1996

Day	S.I.D.C.		all observ.	
	Rn	Rs	Rn	Rs
1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0
9	0	0	0	0
10	0	0	0	0
11	0	0	0	0
12	0	0	0	0
13	0	0	0	0
14	0	0	0	0
15	0	0	0	0
16	0	0	0	0
17	0	0	0	0
18	0	0	0	0
19	0	0	0	0
20	4	4		
21	5	5	0	0
22	0	0	0	0
23	0	0	0	0
24	0	0	0	0
25	5	4	0	0
26	6	6	0	0
27	5	4		
28	4	4	0	0
29	0	0	0	0
30	0	0	0	0
31	0	0		

### Toelichting op de zonnevlekkengetallen van oktober.

In oktober werden zowel in Ukkel als Catania geen enkele vlek gezien. Ook bij onze werkgroep is niets gezien. De Duitse amateurs meldden op 25, 26 en 27 oktober een enkele waarneming: totale Wolfgetal resp. 1, 1, 3. (Uit de getallen blijkt dat twee waarnemers van het Duitse netwerk wat gezien hebben, de overigen dus niets.) Volgens Harry hebben waarschijnlijk enkele personen een verkeerde normstelling wat een vlek is en wat een porie.

Overigens lagen de "vlekken" precies op de evenaar. Om die reden is het Wolfgetal verdeeld over het noordelijk- én zuidelijk halfrond.

De vlekkenloze periode heeft volgens de voorlopige getallen vanaf 12 sept. 37 dagen geduurd. We moeten helemaal naar de periode 6 jan. - 14 febr. 1924 terug om een gelijke of langere periode te vinden: 39 dagen.

Ook het aantal vlekkenloze dagen per jaar loopt op: in 1986 waren het er 129. Dit jaar zijn het er al 136.





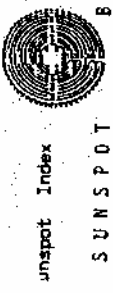
# Bulletin Werkgroep Zon November 1996

NVWS Werkgroep Zon. Secretariaat: Veeningenburg 36, 2804 WZ Gouda. Tel: 0182-539082

## Zonnevlekgetallen (Sunspot numbers)

SIDC	Day	Bals	Groe	Iden	Jun 9	Jun 4	Kroe	Scho	vSto	Sp 7	Vers	Zans	Zijle
0	1			0						11			
0	2												
0	3												
0	4												
0	5												
0	6			0			0					0	
0	7			0			0					0	
0	8			0			0					0	
0	9			0			0					0	
12	10												
14	11												
11	12												
11	13	24					14					0	
0	14	25	12				0	25			11	0	
20	15	27	25				11	26			11	0	
40	16									47			
27	17												
10	18												
9	19	12										12	
9	20												
18	21	23	0				0			22		0	
26	22	26	26				11				31	25	28
44	23	34	34				27				47		
45	24	33	33								48	52	33
57	25												
57	26												
48	27	18					27				49		29
34	28	26									40	24	25
34	29						35				30		22
25	30	27									30		
observ		10	13	3	18	1	8	1	15	2	6	13	2
k		0.78	1.41	-	2.55	2.36	1.55	-	0.89	0.85	1.42	1.28	1.36
ist.de.v.		0.19	0.66	-	0.98	-	0.39	-	0.11	0.02	0.39	0.37	-
ist.d./k		0.24	0.47	-	0.38	-	0.25	-	0.12	0.02	0.27	0.29	-

Observers	[...]	= Refractor, d = ... mm	[R1...]	= Reflector, d = ... mm
Bals	= H.A.M. Balster [70]	Jn 4 = D. Jannink [40]	Sp 7 = T. Spanninks [75]	
Groe	= A. Groenewegen [102]	Kroe = K. Kroesen [102]	Vers* = D. Verschuuren [R1 80]	
Iden	= J.A. Idenburg [70]	Scho = A. Scholten [60]	Zans = W. Zansira [R1 155]	
Jn 9	= D. Jannink [9]	vSto = B. van Slooten [90]	Zijle = W.A. Zijlstra [90]	



sunspot Index Date Center

## SUNSPOT BULLETIN

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

1996 NOVEMBER R<sub>IM</sub> = 18.6

Data R<sub>f</sub> PPSI 600 2800 COS SFI XI AK SEA MAG

31	0	0	34	070	-	0	0/0	3					
1	0	0	-	070	-	0	0/0	3					
2	0	0	-	069	-	0	0/0	3					
3	0	0	-	070	-	0	0/0	3					
4	0	0	-	069	-	0	0/0	12					
5	0	0	-	068	-	0	0/0	6					
6	0	0	-	069	-	0	0/0	13					
7	0	0	-	069	-	0	0/0	4					
8	0	0	-	069	-	0	0/0	4					
9	8	0	-	070	-	0	0/0	16					
10	12	1	-	071	-	0	0/0	10					
11	14	26	-	072	-	0	0/0	6					
12	11	30	-	072	-	0	0/0	10					
13	11	36	-	073	-	0	0/0	18					
14	0	1	-	074	-	0	0/0	29					
15	20	2	33	074	-	0	0/0	16					
16	40	2	34	074	-	0	0/0	6					
17	27	1	34	072	-	0	0/0	17					
18	9	0	-	074	-	0	0/0	18					
19	10	0	33	074	-	0	0/0	14					
20	9	0	33	075	-	0	0/0	12					
21	18	2	34	074	-	1	0/0	6					
22	26	16	33	083	-	2	0/0	6					
23	44	24	-	091	-	3	0/0	5					
24	45	39	-	100	-	4	0/0	14					
25	57	89	-	104	-	36	0/0	9	1314				
26	57	78	36	104	-	1	0/0	9					
27	48	74	36	103	-	2	0/0	12					
28	34	64	36	098	-	1	0/0	10					
29	34	36	36	091	-	13	1/0	8					
30	25	20	34	088	-	16	0/0	2					

mgst 1910

1F 2016  
1N 2032

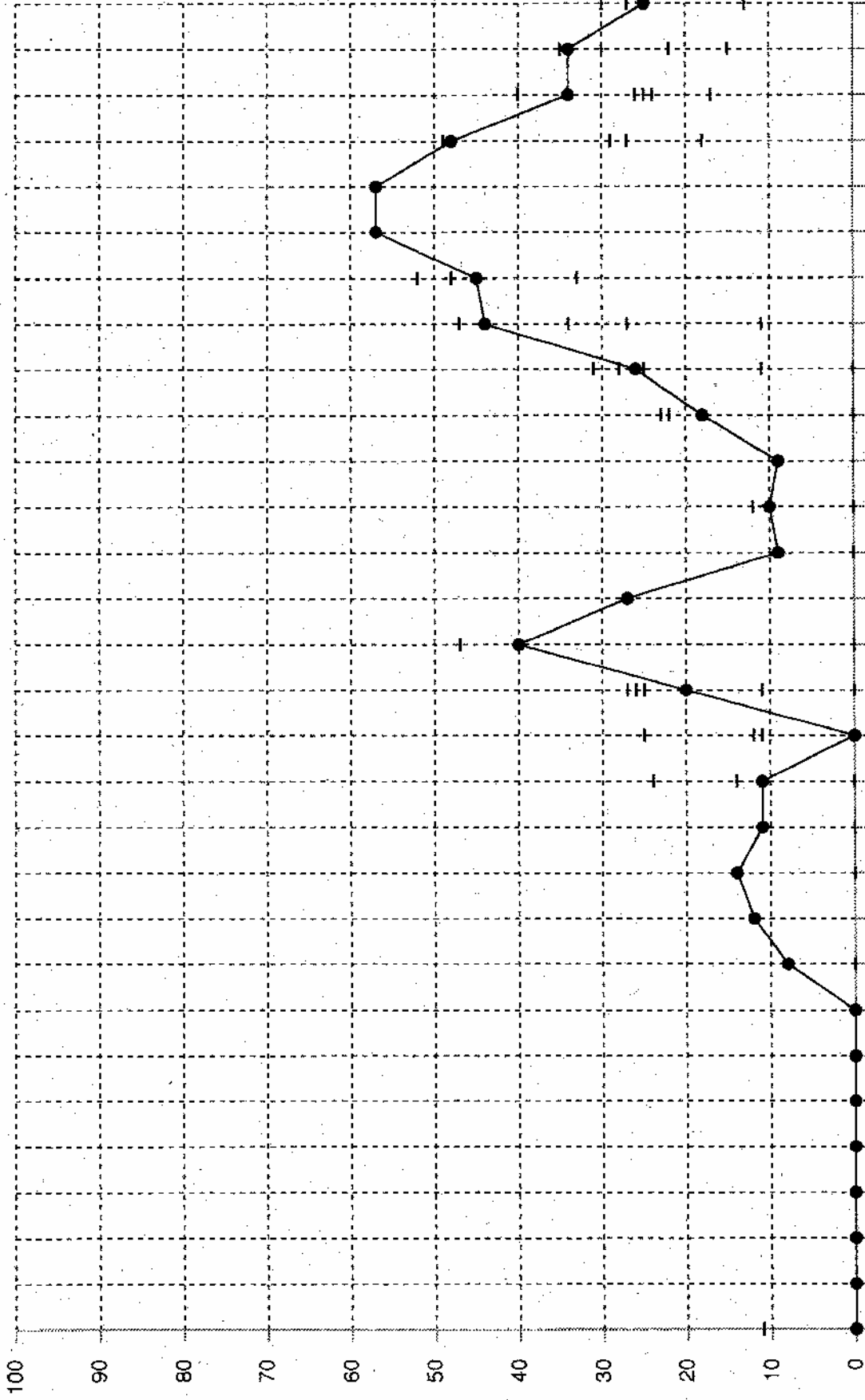
Very low to moderate solar activity. Important bipolar active region at the end of the month.  
Due to the absence of data from the cosmic rays monitor of the Kerguelen, we are unable to provide the COS index for this month.

R<sub>f</sub>, R<sub>IM</sub>: provisional international sunspot numbers from the S.I.D.C.  
PPSI: proton photometric sunspot index from the S.I.D.C. in 10<sup>-5</sup> w/m<sup>2</sup>; the quantity to subtract from the mean solar constant.  
600: 600 MHz solar flux from Luain station (Belgium).  
2800: 2800 MHz solar flux from Ottawa (origin: Ursigrams - UESIG group 2); UESIG group 5).  
COS: thousands of the cosmic ray counts (origin: Ursigrams - UOSE Kerguelen).  
SFI: From October 1992, Solar Flare Index from the S.I.D.C. (origin: Ursigrams - UESIG group 3).  
AK: X-flares index from the Ursigrams (M-flares/X-flares) (origin: Ursigrams - UESIG group 5).  
SEA: planetary geomagnetic index from Kingst, Germany (origin: Ursigrams).  
MAG: sudden enhancements of ionospheric stations from Uccle & IJmuiden (Royal Observatory, Belgium).  
Remarks: sfd (sudden ionospheric disturbance); ssc (sudden storm commencement); magt (magnetic storm); sfo (solar flare effect); s-1-2-3-4 (class of flares); II-IV (radio-burst); T (ten cm radio-burst); P (proton flare); P (proton event); gte (ground level event); neutron event); ai (sudden impulse); F (Forbush); SFI Evaluation (1 x SFI-10 x 10<sup>10</sup> x 10<sup>10</sup>).

● = SIDC

— = Observers Werkgroep Zon

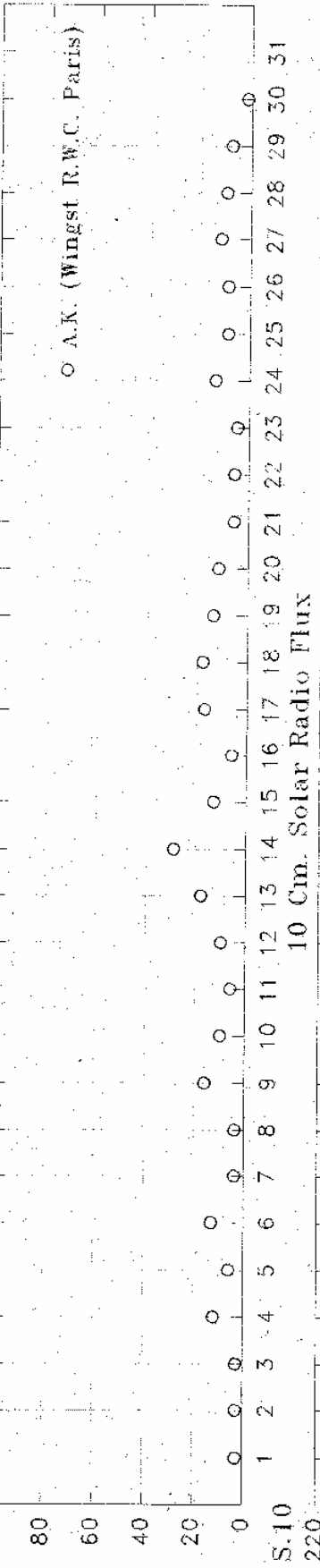
R



T

Geomagnetic A.K. Index

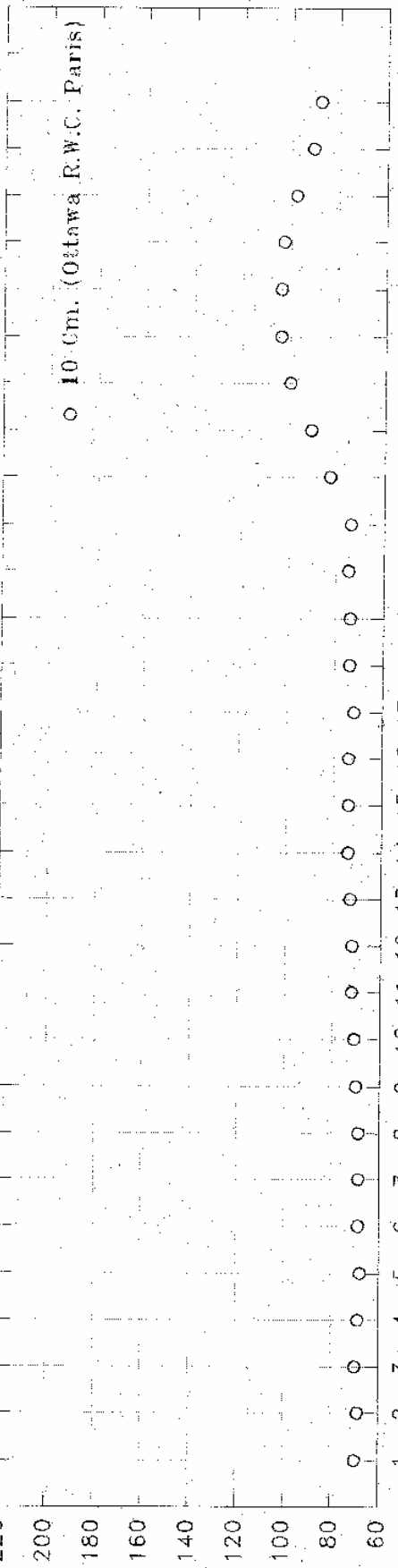
A.K.



○ A.K. (Wingst R.W.C. Paris)

10 Cm. Solar Radio Flux

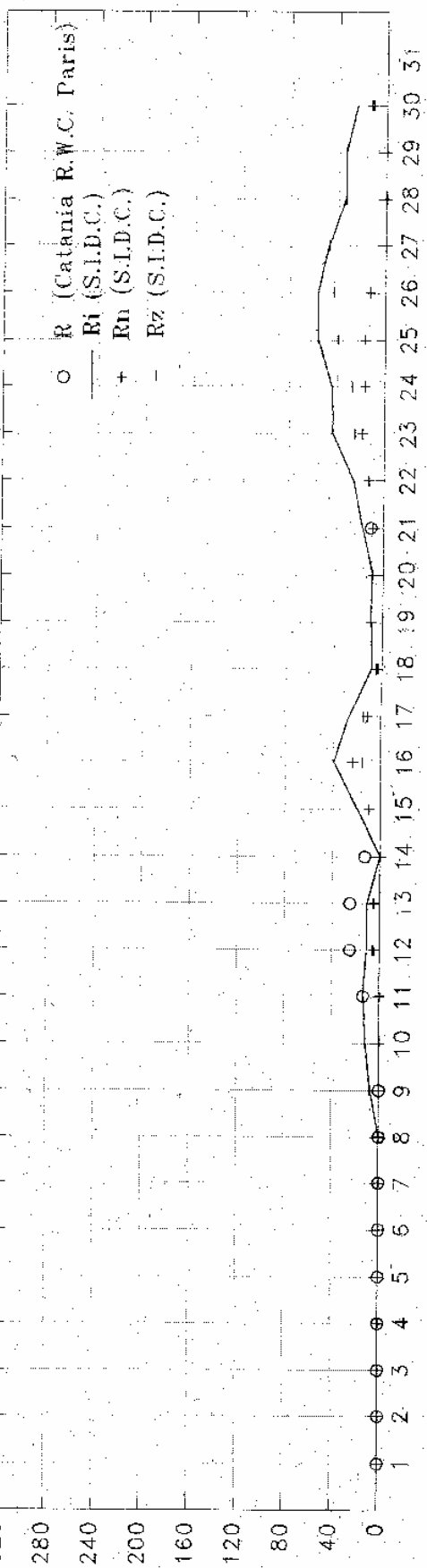
S.10



○ 10 Cm. (Ottawa R.W.C. Paris)

Relative Sunspot Numbers

R.



○ R (Catania R.W.C. Paris)

— Ri (S.I.D.C.)

+ Rn (S.I.D.C.)

- Rz (S.I.D.C.)

Rimax 57  
Nov. 25,  
26.  
Rimin 0  
Nov. 1  
L/m 8.14

Rigem.  
18.6.

# Zonnevlekkengetallen noordelijk- en zuidelijk halfrond

(Hemispheric sunspot numbers)

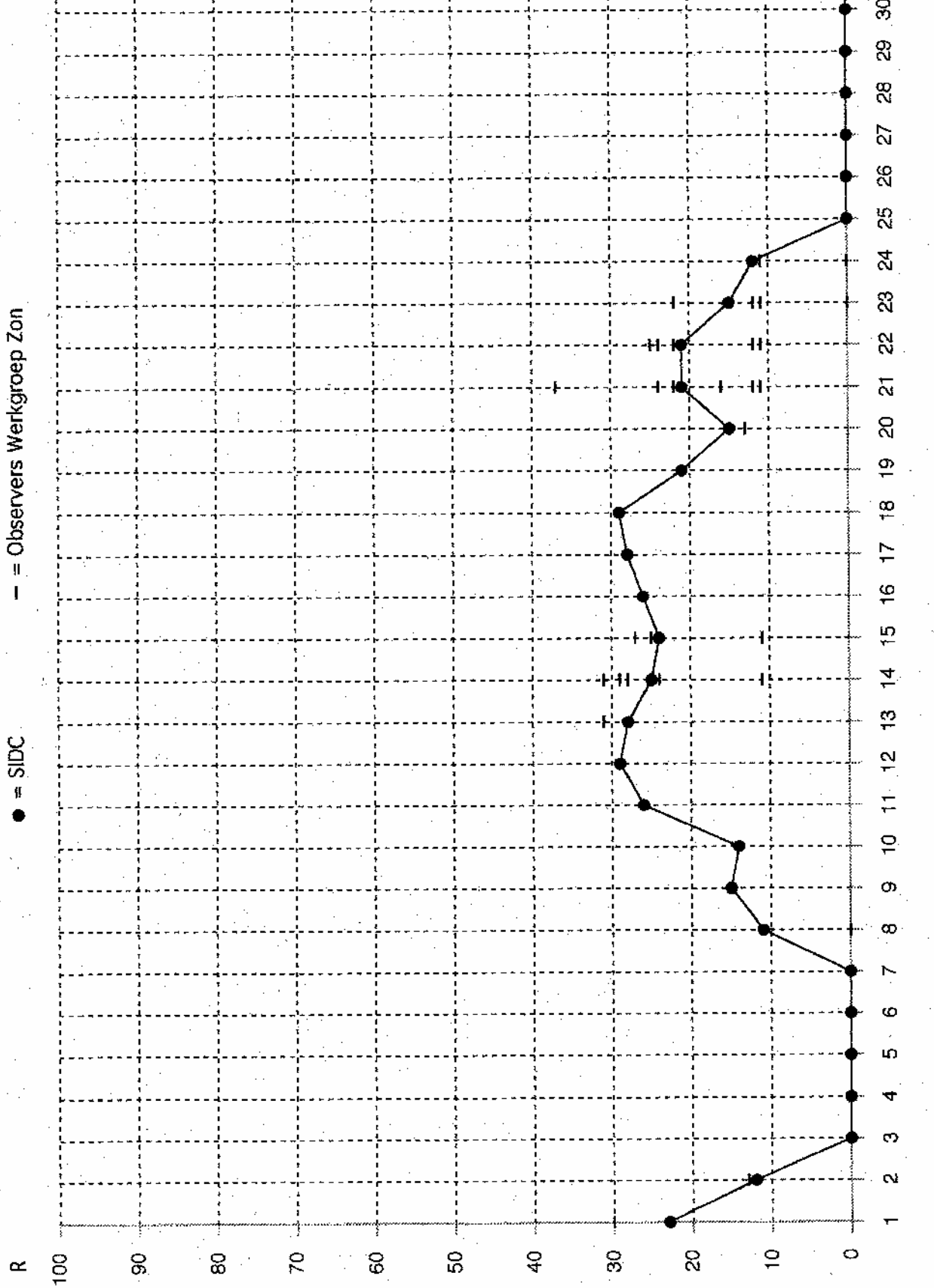
november 1996

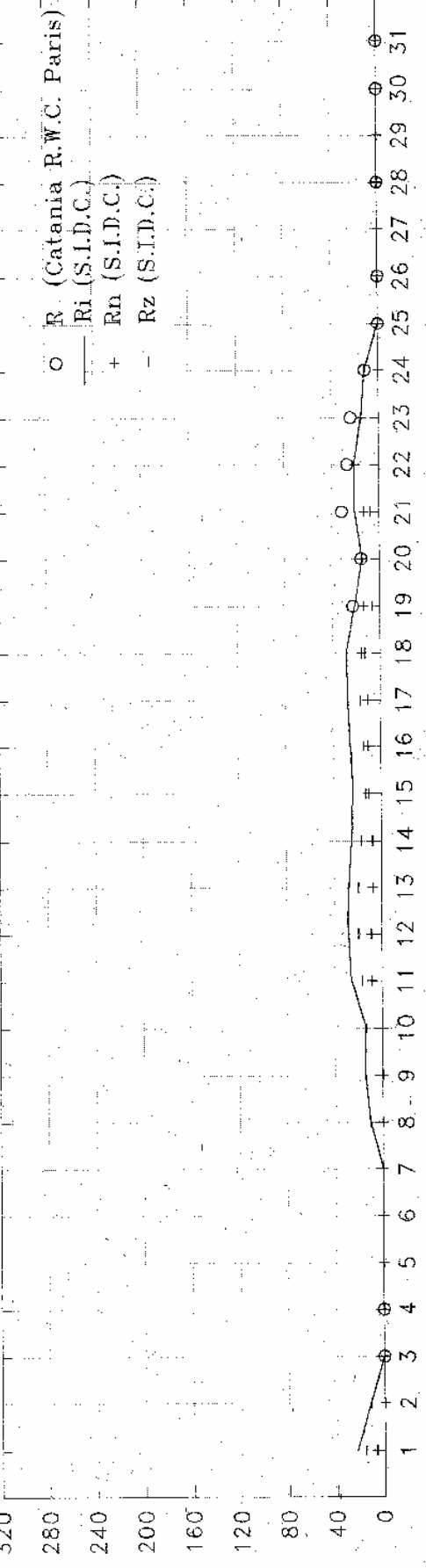
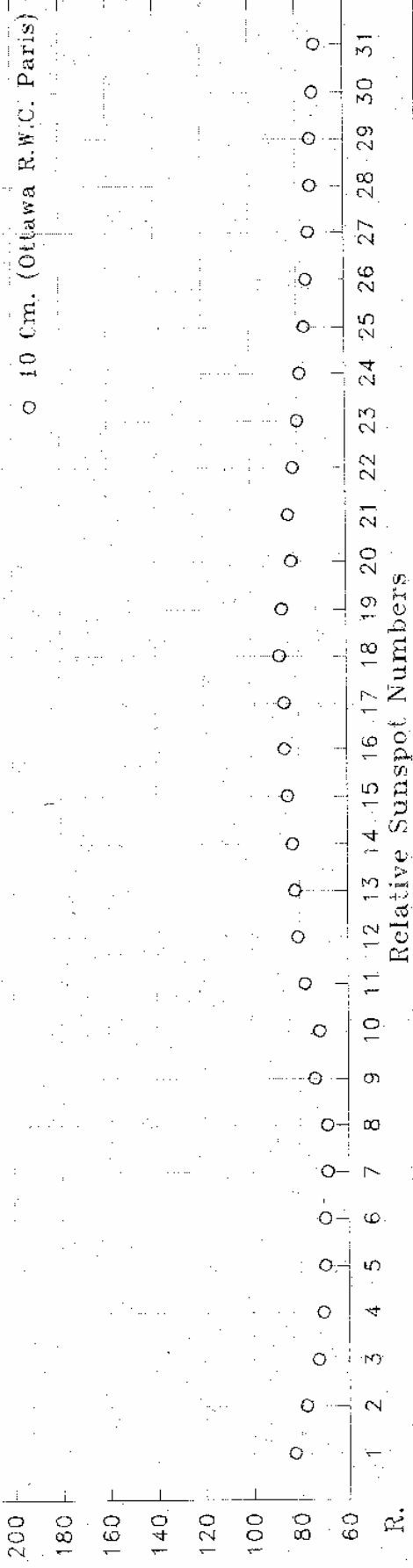
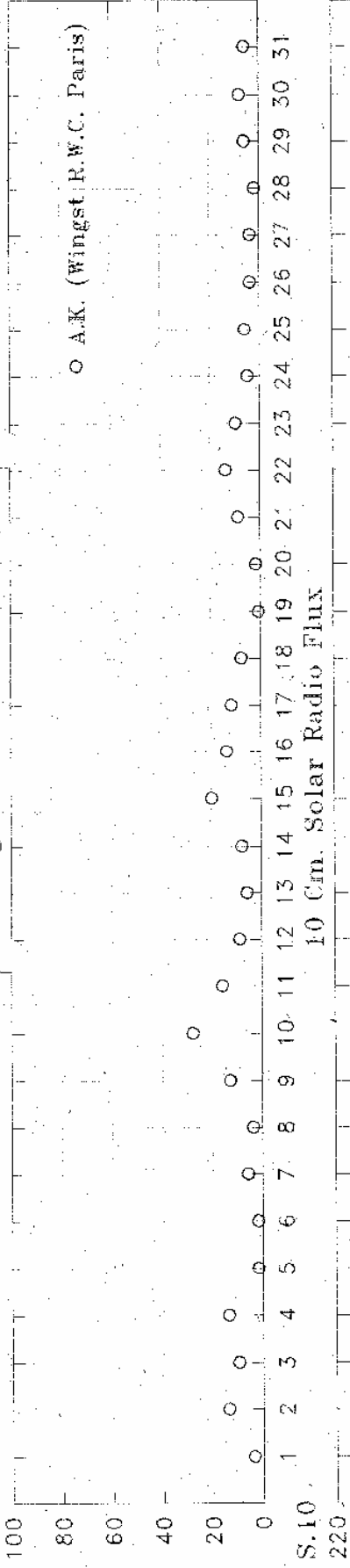
Day	S.I.D.C.		Balster		Groenew.		Idenburg		Jammink 4		Scholten		v. Slooten		Sparinks	
	Rn	Rs	Rn	Rs	Rn	Rs	Rn	Rs	Rn	Rs	Rn	Rs	Rn	Rs	Rn	Rs
1	0	0			0	0							0	11		
2	0	0														
3	0	0														
4	0	0														
5	0	0														
6	0	0	0	0	0	0							0	0		
7	0	0			0	0										
8	0	0	0	0	0	0	0	0					0	0		
9	0	8	0	0	0	0						0	0	0	0	
10	0	12														
11	0	14														
12	5	6														
13	5	6	0	24			0	0					0	14		
14	0	0	12	13	0	12	0	0					25	0		
15	10	10	15	12	14	11							14	12		
16	24	16											24	23		
17	12	15														
18	4	5														
19	10	0	12	0												
20	9	0														
21	9	9	11	12	0	0							11	11		
22	13	13	12	14	13	13			11	0					17	14
23	19	25			17	17							21	26		
24	17	28			16	17							18	30	21	31
25	17	40														
26	13	44														
27	0	48			0	18							0	49		
28	0	34			0	26							0	40		
29	0	34											0	30		
30	13	12	0	27									0	30		



● = SIDC

— = Observers Werkgroep Zon





Rimax 29  
Dec. 12,  
28.  
Rimin 0  
Dec. 3,4,  
t/m 7,25  
l/m 31.

Rigem.  
12,7

# Zonnevlekkengetallen noordelijk- en zuidelijk halfrond

(Hemispheric sunspot numbers)

december 1996

Day	S.I.D.C.		Balster		Groenew.		Idenburg		Jannink 4		v. Slooten		Spaninks	
	Rn	Rs	Rn	Rs	Rn	Rs	Rn	Rs	Rn	Rs	Rn	Rs	Rn	Rs
1	7	16	0	30										
2	0	12												
3	0	0												
4	0	0	0	0	0	0					0	0	0	0
5	0	0												
6	0	0												
7	0	0												
8	0	11												
9	0	15												
10	0	14												
11	9	17												
12	9	20												
13	8	20												
14	8	17	11	18	11	14			0	11	11	18		
15	11	13												
16	11	15												
17	11	17												
18	16	13												
19	14	7												
20	15	0												
21	13	8	26	11	12	0	0	24			16	0		
22	21	0	25	0	12	0					12	0		
23	15	0	11	0	11	0	0	0			11	0	11	0
24	0	12	0	0	0	0					0	0		
25	0	0												
26	0	0	0	0	0	0					0	0	0	0
27	0	0	0	0										
28	0	0	0	0							0	0	0	0
29	0	0												
30	0	0												
31	0	0	0	0	0	0					0	0	0	0