Bulletin Werkgroep Zon — januari 1993

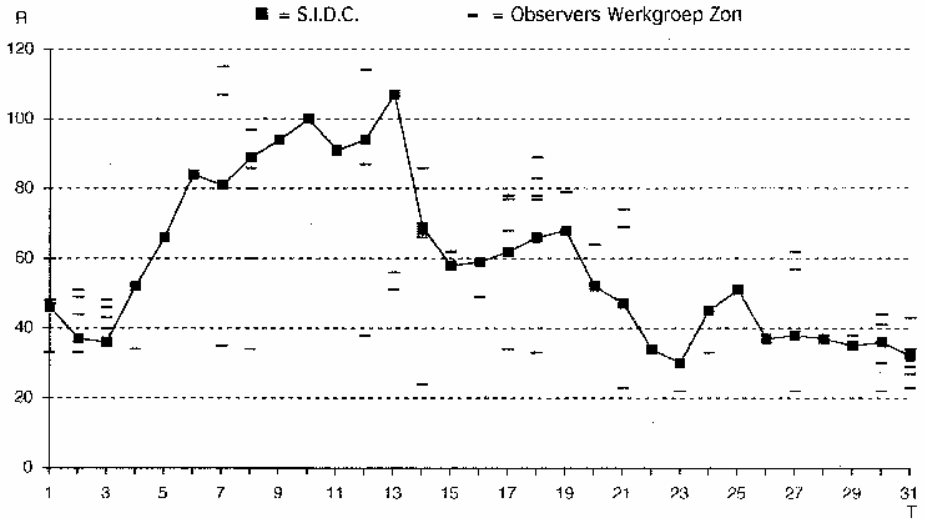
NVWS Werkgroep Zon. Sekretariaat: Veenenburg 36, 2804 WZ Gouda. tel: 01820-39082

Zonnevlekkengetallen

Day	Bals	Gr13	Groe	Iden	Jann	Piet	Scho	vSlo	Zijl 9
1					33	47	48	60	47
2			44		33	38	49	51	38
3		43	35		35		46	48	40
4			34		34				
5									
6									
7	115				35			107	
8	80		60		34			97	86
9									
10									
11									
12	114		87		38				
13				56				51	
14	86		67		24			66	
15			82						
16			49						
17			68		34			78	77

Day	Bals	Gr13	Groe	Iden	Jann	Piet	Scho	vSlo	Zijl 9
18	89		77	78	33			83	
19	79		68						
20	64								
21			69	74	23				
22									
23					22				
24								33	
25									
26									
27			57		22			82	
28									
29									38
30	44		35		22			41	30
31	43		23		23	27	29	34	
observ	9	1	15	3	15	3	4	13	7
k	0,82	0,84	1,04	1,13	1,82	1,05	0,90	0,98	0,98
st.dev.	0,11	–	0,25	0,56	0,54	0,10	0,14	0,37	0,12
st.d./k	0,14	–	0,24	0,49	0,29	0,09	0,16	0,39	0,12

Observers	[....] = Refractor, d = ... mm;	(Rf...) = Reflector, d = ... mm
Bals = H.A.M. Balster [70]	Iden = J.A. Idenburg [Rf 125]	Scho = A. Scholten [60]
Gr 13 = Mw G. Gravers [Rf 130]	Jann = D. Jannink [9]	vSlo = B. van Slooten [90]
Groe = A. Groenewegen [102]	Piet = F. Pieters [60]	Zijl 9 = W.A. Zijlema [90]



Sunspot Index — Data Center

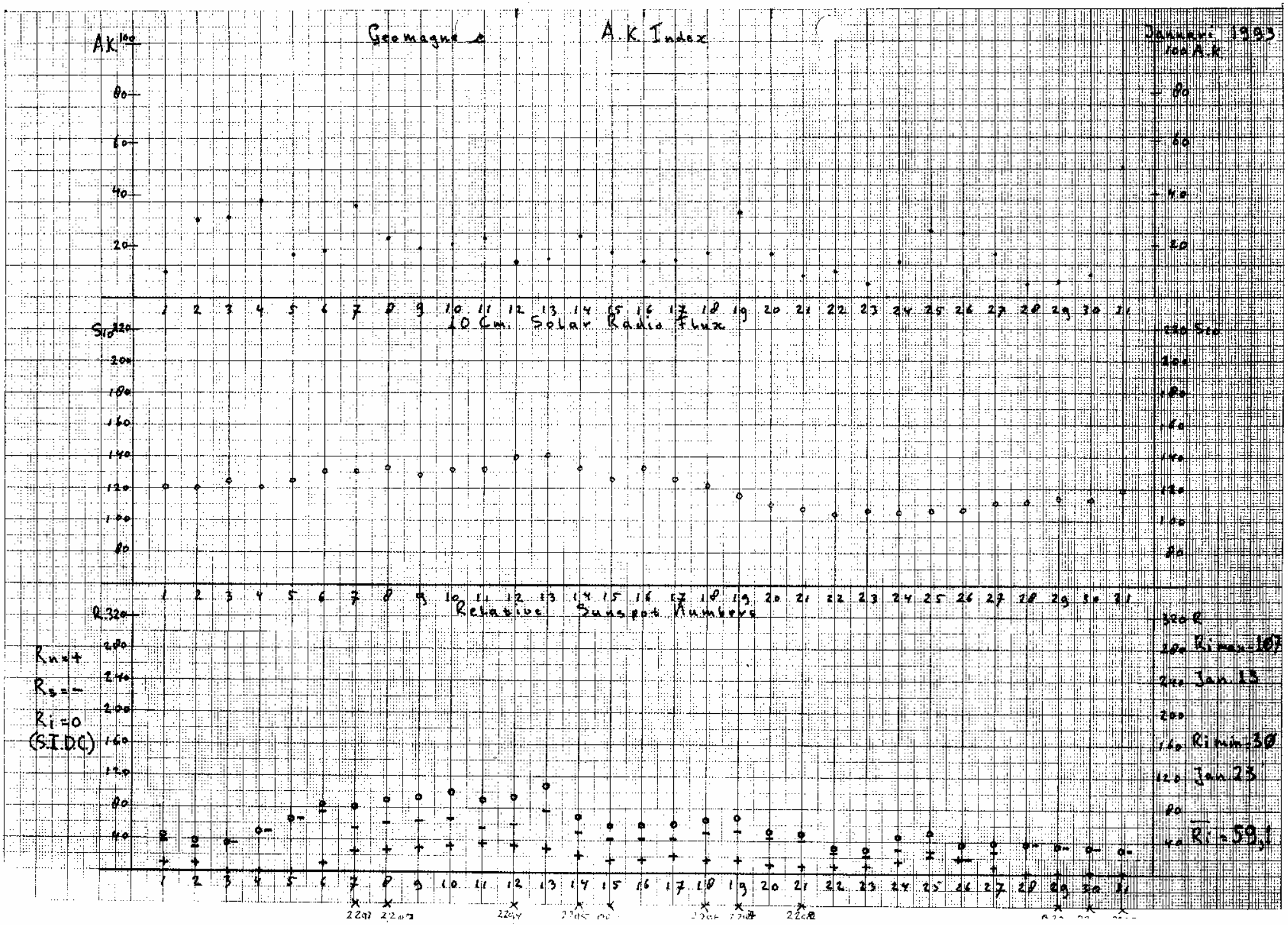
SUNSPOT BULLETIN

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

1993 JANUARY R'_{IM} = 59.1

Date	R'_I	PPSI	600	2800	COS	SFI	XI	Ak	SEA	MAG	
31	59	30	35	130	952	4	1/0	10			
1	46	22	33	122	949	1	0/0	10	1337		
2	37	27	31	121	946	1	1/0	32			
3	36	47	31	125	941	0	0/0	34			
4	52	78	31	121	844	0	0/0	38			
5	66	93	32	125	1052	5	0/0	17			
6	84	105	32	131	1051	2	0/0	18			
7	81	103	47	131	948	13	0/0	36		1108	ssc
8	89	87	35	133	1051	2	0/0	23			
9	94	104	34	129	944	1	0/0	19			
10	100	65	34	132	942	2	0/0	21	1327		
11	91	97	33	132	1055	6	0/0	23			
12	94	52	35	140	1051	8	0/0	14	1432		
13	107	56	36	141	1046	16	0/0	15			
14	69	47	35	133	1040	1	0/0	24			
15	58	114	35	126	1038	2	0/0	18			
16	59	57	34	133	1033	22	0/0	14	1430		
17	62	54	35	126	1030	8	0/0	15			
18	66	58	36	122	1028	3	0/0	16			
19	68	65	35	116	1027	1	0/0	33		1022	ssc(+1145)
20	52	59	35	110	964	1	0/0	16			
21	47	56	34	107	956	1	0/0	8			
22	34	44	33	104	1000	0	0/0	10			
23	30	43	33	106	1035	1	0/0	5			
24	45	43	34	105	1032	4	0/0	14			
25	51	36	33	106	964	3	0/0	28		1115	ssc(+1125)
26	37	24	33	107	963	0	0/0	25			
27	38	23	32	111	958	0	0/0	17			
28	37	27	30	112	955	1	0/0	5			
29	35	31	30	114	1040	1	0/0	6			
30	36	27	32	113	957	3	0/0	15			
31	32	21	31	119	952	0	1/0	51			

R'_I, R'_{IM} : 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 from the mean solar constant.
600 :600 Mhz solar flux from Humain station (Belgium).
2800:2800 Mhz solar flux from Ottawa (origin:Ursigrams:UGR01(group2).
COS :thousands of the cosmic ray counts (origin:Ursigrams:UC03B Hergueles).
SFI :Now (October 1992)Solar Flare Index from the S.I.D.C. (origin:Ursigrams:UGR0R group3).
XI :X-flares index from the Ursigrams (M-flares/X-flares)(origin:Ursigrams:UGR0R group2;UGR01 group5).
Ak :planetary geomagnetic index from Wingst (Germany from Ursigrams).
SEA :sudden enhancements of atmospherics from Uccle & Humain (Belgium).
MAG :magnetic events from Dourbes station(Royal Météo. Institute Belgium).
Remarks:sid(sudden ionospheric disturbance);sse(sudden storm commencement);sgst(magnetic storm);sfe(solar flare effect);
s-1-2-3-4(class of flares);RI-IV radio-burst;T(ten cm radio-burst);P(proton flare);p(proton event);gle(ground level event:
neutron event);si(sudden impulse);F(Forbush);SFI Evaluation(1 x 8x10 x "1"*100 x "))1").


Geomagnetic A.K. Index
January 1993
A.K.
10 Cm. Solar Radio Flux
Sec
Relative Sunspot Numbers
Rn = +
Rs = -
Ri = 0
(S.I.D.C)
Ri max. 107
Jan. 15
Ri min. 30
Jan. 23
Ri = 59.1

Zonnevlekkengetallen noordelijk- en zuidelijk halfrond.

Hemispheric sunspot numbers, Jan. '93.						
	S.I.D.C.		Balster		v. Slooten	
Day	Rn	Rs	Rn	Rs	Rn	Rs
1	9	37			11	49
2	8	29			11	40
3	0	36			0	48
4	0	52				
5	0	66				
6	8	76				
7	26	55	37	78	36	71
8	27	62	23	57	24	73
9	30	64				
10	34	66				
11	37	54				
12	34	60	36	78		
13	30	77			16	35
14	21	48	25	61	15	51
15	16	42				
16	17	42				
17	20	42			24	54
18	17	49	26	63	24	59
19	17	51	13	66		
20	8	44				
21	7	40	12	52		
22	8	26				
23	8	22				
24	15	30			11	22
25	27	24				
26	18	19				
27	7	31			11	51
28	0	37				
29	0	35				
30	0	36	0	44	0	41
31	0	32	0	43	0	34

Bulletin Werkgroep Zon — februari 1993

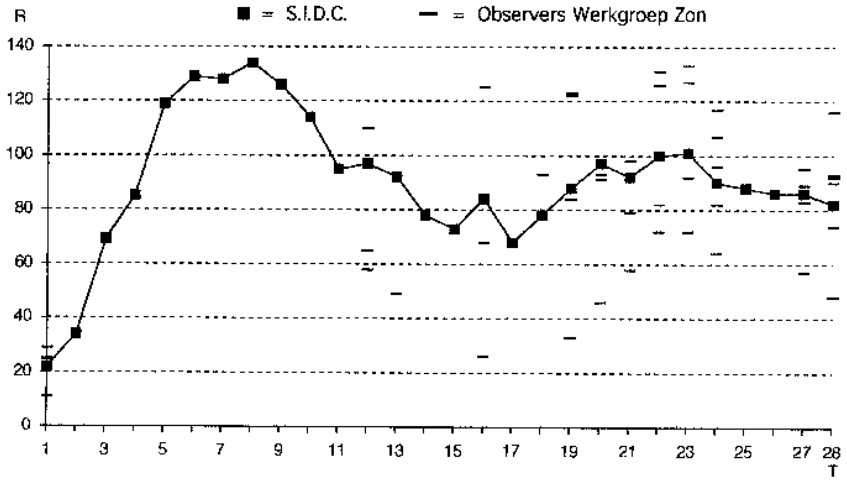
NVWS Werkgroep Zon. Sekretariaat: Veenenburg 36, 2804 WZ Gouda, tel: 01820 -39082

Zonnevlekkengetallen

Day	Bals	Gr 5	Groe	Iden	Jann	Piet	vSlo	Zijle
1	25				11		29	
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12			65		58		110	
13					49			
14								
15								
16			68		26		125	

Day	Bals	Gr 5	Groe	Iden	Jann	Piet	vSlo	Zijle
17								
18							93	
19	123		84		33		122	
20				93	46		91	
21					56	79	98	
22	126		82		72		131	
23	133		92		72		127	
24	107		82		64		117	96
25								
26								
27		89	83	85	57	89	95	
28		92	74		48	90	116	93
obsery	5	2	8	2	12	3	12	2
k	0,80	0,93	1,17	1,03	1,88	1,01	0,82	0,91
st.dev.	0,06	0,04	0,14	0,02	0,54	0,11	0,11	0,03
st.d./k	0,07	0,04	0,12	0,02	0,29	0,11	0,13	0,03

Observers	[....] = Refractor, d = ... mm;	[Rf..] = Reflector, d = ... mm
Bals = H.A.M. Balster [70]	Iden = J.A. Idenburg [Rf 125]	vSlo = B. van Slooten [90]
Gr 5 = Mw G. Gravers [50]	Jann = D. Jannink [9]	Zijle = W.A. Zijlema [90]
Groe = A. Groenewegen [102]	Piet = F. Pieters [60]	



Sunspot Index Data Center

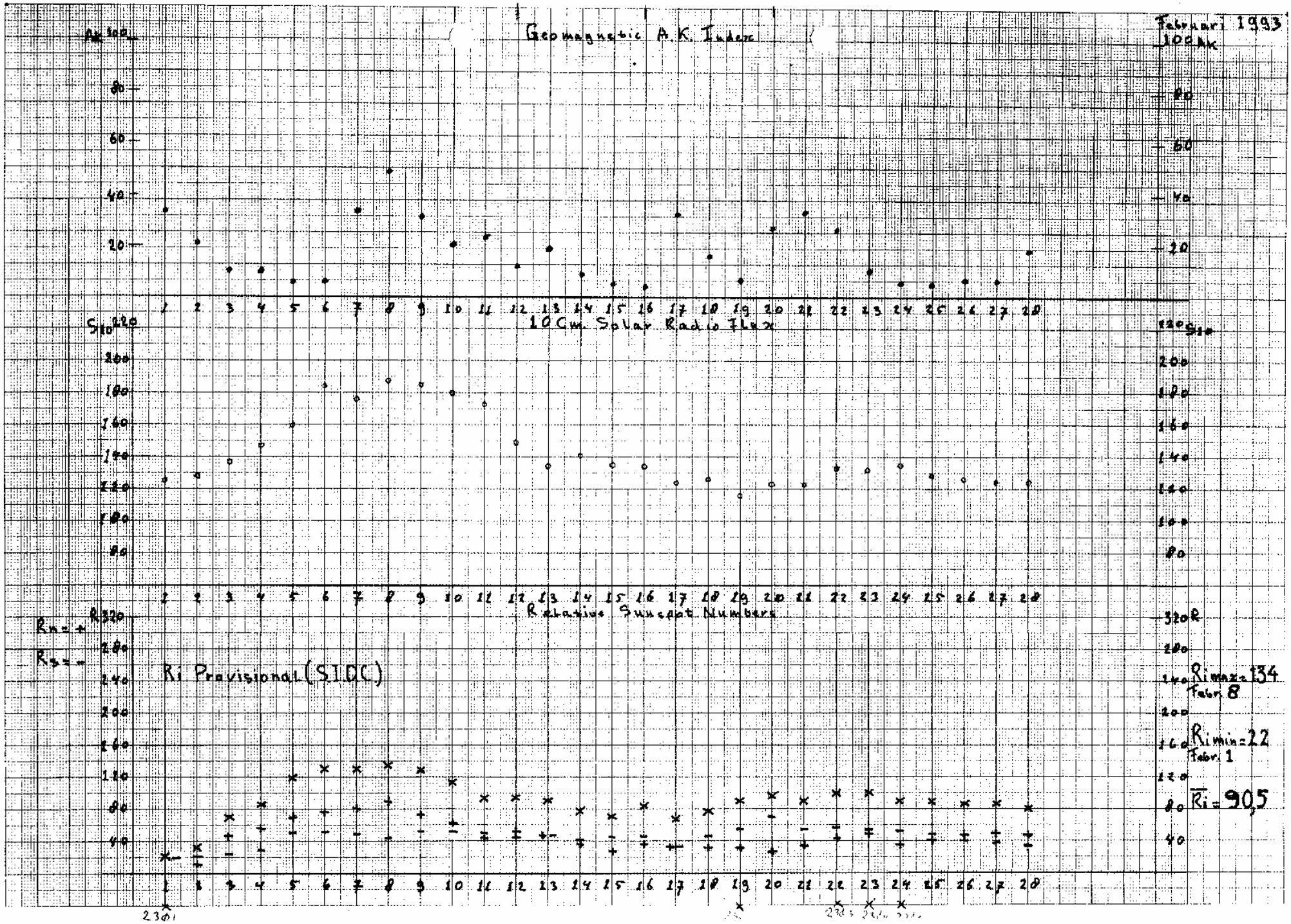
SUNSPOT BULLETIN

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

1993 FEBRUARY R'_{IM} = 90.5

Date	R'_I	PPSI	600	2800	COS	SFI	XI	Ak	SEA	MAG	
31	32	21	31	119	952	0	1/0	51			
1	22	13	33	125	1047	6	2/0	33	1344		
2	34	11	36	128	951	14	0/0	21			
3	69	49	34	137	1048	12	0/0	10			
4	85	73	35	147	1046	14	0/0	10			
5	119	153	38	160	1044	15	1/0	6	1438		
6	129	180	38	184	1037	222	2/0	6	1636		2b(1813)+T
7	128	201	39	176	961	17	0/0	33	1400	0345	mgst
8	134	229	41	188	961	17	0/0	49			
9	126	238	46	185	951	19	1/0	31			
10	114	219	48	180	946	222	3/0	20	2004	0852	?2b(0734);2b(2001)
11	95	197	40	173	1043	68	2/0	23			1M2.7(1829)
12	97	157	37	149	956	32	0/0	12	1259		
13	92	94	37	135	1038	15	0/0	19	1446		
14	78	67	37	141	1035	109	1/0	8	1251		2b(1241)+T
15	73	45	34	135	962	8	0/0	5			
16	84	38	35	134	?	40	1/0	4	1415		
17	68	39	34	124	956	25	1/0	32		0301	
18	78	45	34	126	1037	145	3/0	16	1401		2b(0258)+T;1(n)0927 IV(0940);1(b)1054
19	88	48	32	116	1032	11	0/0	7			
20	97	57	32	123	965	3	0/0	27		0030	ssc
21	92	68	33	123	946	22	1/0	32	1350		
22	100	104	34	133	934	2	0/0	27			
23	101	113	33	132	-	5	0/0	-			
24	90	114	34	135	-	3	0/0	6			
25	88	87	34	128	937	5	0/0	5			
26	86	71	33	126	1051	1	0/0	7			
27	86	79	34	124	1044	1	0/0	6		2220	ssc
28	82	69	35	124	951	2	0/0	19			

R'_I, R'_{IM} : 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 from the mean solar constant.
600 :600 Mhz solar flux from Humain station (Belgium).
2800:2800 Mhz solar flux from Ottawa (origin:Ursigrams:UGEOI group2).
COS :thousands of the cosmic ray counts (origin:Ursigrams:JCOSE Kerguelen).
SFI :Now (October 1992)Solar Flare Index from the S.I.D.C. (origin:Ursigrams:UGEOR group3).
XI :X-flares index from the Ursigrams (M-flares/X-flares)(origin:Ursigrams:UGEOR group2;UGEOI group5).
Ak :planetary geomagnetic index from Wingst (Germany from Ursigrams).
SEA :sudden enhancements of atmospherics from Uccle & Humain (Belgium).
MAG :magnetic events from Dourbes station(Royal Météo. Institute Belgium).
Remarks:sid(sudden ionospheric disturbance);ssc(sudden storm commencement);mgst(magnetic storm);sfe(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);gle(ground level event:
neutron event);si(sudden impulse);F(Forbush);SFI Evaluation(1 x Sn+10 x "1"+100 x ">1").


Geomagnetic A.K. Index
Ak
100
80
60
40
20
Febbruari 1993
10CAk
10Cm Solar Radio Flux
S10
220
200
180
160
140
120
100
80
Relative Sunspot Numbers
R320
280
240
200
160
120
80
40
Rn = +
Rs = -
Ri Provisional (SIDC)
Rimax = 134
Febr. 8
Rimin = 22
Febr. 1
Ri = 90,5
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28
2301
2303 2304 2305

Zonnevlekkengetallen noordelijk– en zuidelijk halfrond

(Hemispheric sunspot numbers)

februari 1993

	S.I.D.C.		Balster		v. Slooten	
Day	Rn	Rs	Rn	Rs	Rn	Rs
1	0	22	0	25	0	29
2	10	24				
3	45	24				
4	57	28				
5	69	50				
6	77	52				
7	81	47				
8	90	44				
9	74	52				
10	61	53				
11	46	49				
12	52	45			50	60
13	45	47				
14	37	41				
15	27	46				
16	37	47			52	73
17	34	34				
18	33	45			41	52
19	33	55	36	87	51	71
20	27	70			26	65
21	36	56			46	52
22	43	57	62	64	58	73
23	49	52	63	70	80	47
24	37	53	47	60	45	72
25	42	46				
26	45	41				
27	49	37				
28	48	34				

Bulletin Werkgroep Zon — maart 1993

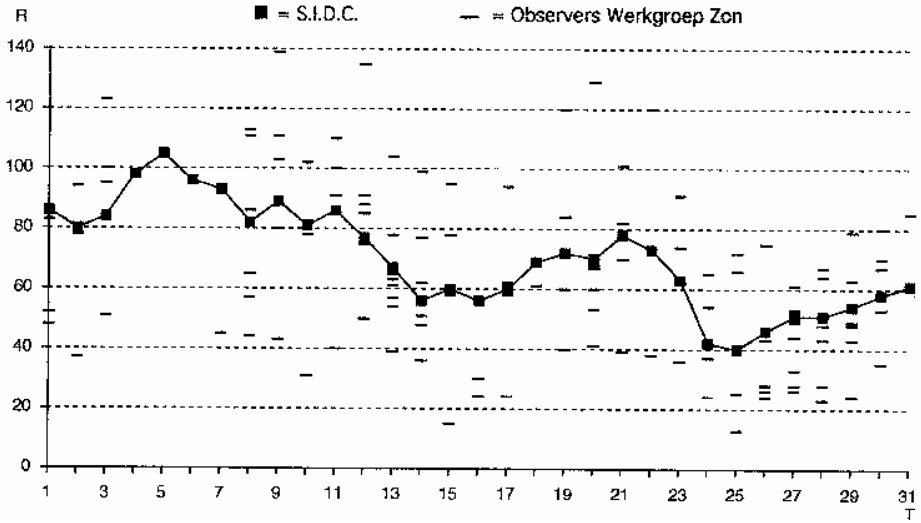
NVWS Werkgroep Zon. Sekretariaat: Veenenburg 36, 2804 WZ Gouda, tel: 01820 -39082

Zonnevlekkengetallen

Day	Bals	Gr 6	Gr13	Groe	Iden	Jann	Piet	Scho	vSlo	Zijle
1				52		48			83	
2	94				81	37			78	
3	123					51			95	100
4										
5										
6										
7						45				
8	113			57	111	44			65	86
9	139			80	111	43			88	109
10	102			82		31			76	
11	110			100		40			100	91
12	135			91	88	50			85	75
13	104			54	61	39	57	65	78	63
14	99	51		46		36	56	56	62	77
15	95			58	58	15			78	
16						24			30	
17	94			58		24			62	

Day	Bals	Gr 6	Gr13	Groe	Iden	Jann	Piet	Scho	vSlo	Zijle
18				61						
19	120			60		40			64	
20	129	70		60		41	67	53	68	
21		101		82		39			70	
22	120					38				
23	91			62		36			74	
24	65			37		24			54	
25	72			25		13			66	
26	75			26		24			43	28
27	61		58	28		26	33	44	49	
28	67		48	28		23	48	51	64	43
29	79			43		24	49		53	46
30	80			53		35			70	67
31	85									
observ	23	3	2	22	6	26	6	5	24	11
k	0,67	0,96	1,01	1,24	0,92	2,08	1,16	1,10	0,97	1,02
st.dev.	0,09	0,14	0,05	0,30	0,13	0,52	0,18	0,12	0,23	0,23
st.d./k	0,13	0,14	0,06	0,24	0,14	0,25	0,16	0,11	0,24	0,23

Observers	[....] = Refractor, d = ... mm;	[Rf..] = Reflector, d = ... mm
Bals = H.A.M. Balster [70]	Iden = J.A. Idenburg [Rf 125]	Scho = A. Scholten [60]
Gr 6 = Mw G. Gravers [60]	Jann = D. Jannink [9]	vSlo = B. van Slooten [90]
Gr 13 = Mw G. Gravers [Rf 130]	Piet = F. Pieters [60]	Zijle = W.A. Zijlema [90]
Groe = A. Groenewegen [102]		



Sunspot Index — Date Center

SUNSPOT BULLETIN

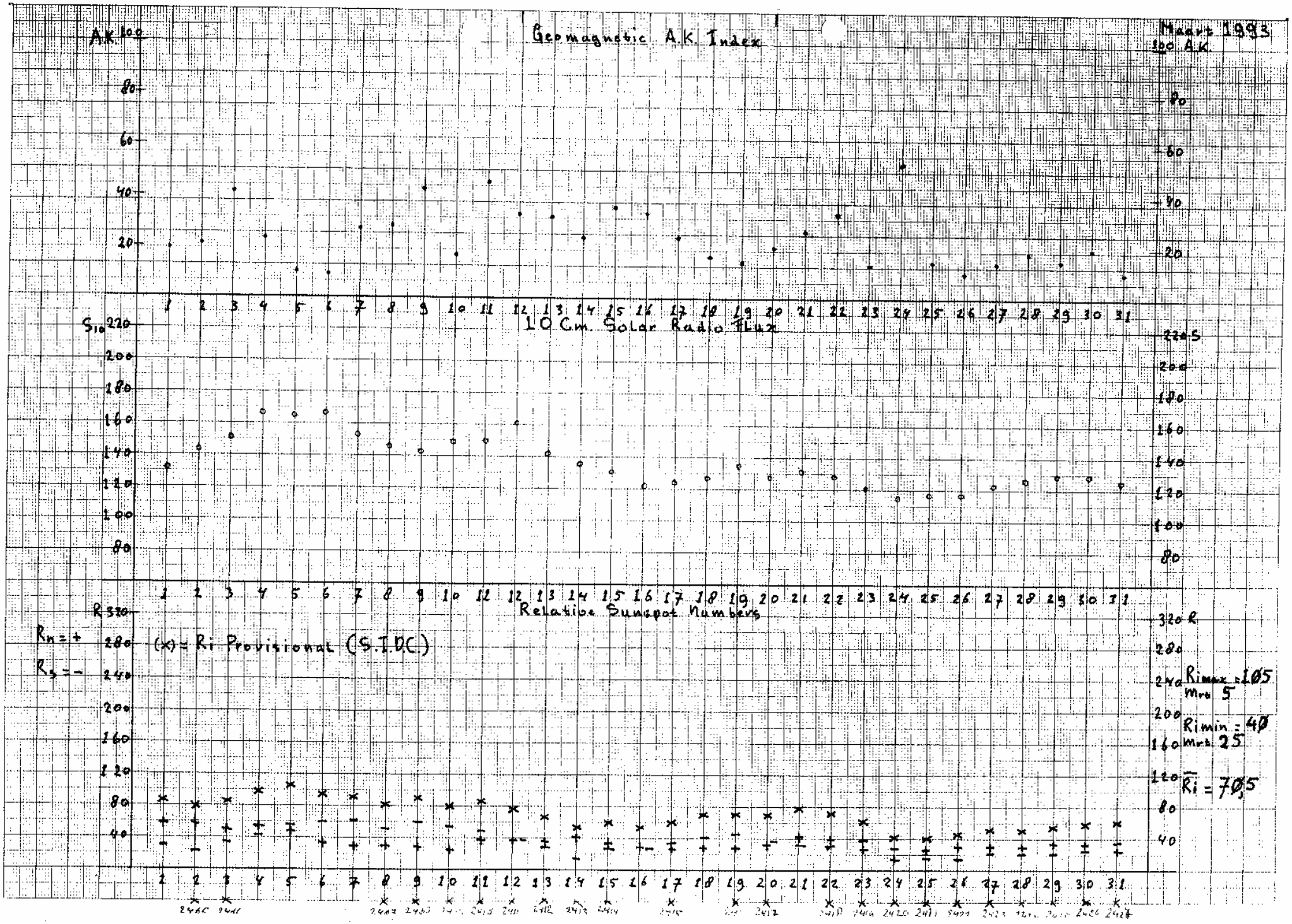
S.I.D.C. SUMMARY OF THE URSIGRAMS

1993 MARCH R'_{IM} = 70.5

Date	R'_I	PPSI	600	2800	COS	SFI	XI	Ak	SEA	MAG	
28	82	69	35	124	951	2	0/0	19			
1	86	68	34	132	941	24	0/0	19			
2	80	73	35	144	934	16	1/0	21	1502		sf(2038)
3	84	92	36	151	1061	6	0/0	41			
4	98	122	36	167	933	135	1/0	23			2n(1218)p(1505)
5	105	148	36	165	928	17	0/0	10			
6	96	141	37	167	1067	115	2/0	9	1036		P3b(2017)
7	93	170	37	153	931	9	0/0	27	1210		
8	82	179	37	146	?	3	0/0	28		2138	
9	89	171	36	143	913	2	0/0	43			
10	81	154	37	149	1084	26	0/0	17			
11	86	131	35	150	1073	124	2/0	46	1424	0640	2b(2152)sea(15151647
12	77	98	35	161	1060	108	1/0	33	1228		3b(1607)p(2010)
13	67	66	33	142	1057	9	0/0	32	1518	1852	(si)
14	56	48	32	136	936	4	0/0	24			
15	60	45	35	131	1054	106	1/0	36		0527	2f(1945)
16	56	42	33	122	942	6	0/0	-			
17	60	66	31	124	1050	8	0/0	24			
18	69	61	31	127	1043	8	0/0	16	1517		
19	72	76	34	135	1039	12	0/0	14			1n(0011)
20	70	77	35	128	1033	30	1/0	20			sf(1202)
21	78	59	34	131	1029	27	1/0	27			1n(0319)
22	73	53	35	128	966	10	0/0	32			
23	63	40	35	121	960	15	1/0	13		2155	sf(0117)
24	42	25	34	115	936	0	0/0	51			
25	40	29	34	117	1060	1	0/0	14			
26	46	22	33	117	1054	1	0/0	10			
27	51	29	34	123	945	5	0/0	14			
28	51	38	33	126	1053	6	0/0	18			
29	54	55	34	129	1046	13	1/0	15			1n(0829)+T
30	58	57	-	129	943	24	1/0	19		0719	1b(0058)
31	61	76	-	125	-	12	0/0	10			

Probable minimum of the solar activity from Nov.1995 to Sep.1996

R'_I, R'_{IM} : 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/m² : the quantity to subtract from the mean solar constant.
600 : 600 Mhz solar flux from Humain station (Belgium).
2800 : 2800 Mhz solar flux from Ottawa (origin : Ursigrams - UGEOI group 2).
COS : thousands of the cosmic ray counts (origin : Ursigrams - UCOSE Kerguelen).
SFI : From October 1992, Solar Flare Index from the S.I.D.C. (origin : Ursigrams - UGEOR group 3).
XI : X-flares index from the Ursigrams (M-flares/X-flares) (origin : Ursigrams - UGEOR group 2; UGEOI group 5).
Ak : planetary geomagnetic index from Wingst, Germany (origin : Ursigrams).
SEA : sudden enhancements of atmospherics from Uccle & Humain (Royal Observatory, Belgium).
MAG : magnetic events from Dourbes station (Royal Meteorological Institute, Belgium).
Remarks : sid (sudden ionospheric disturbance); ssc (sudden storm commencement); mgst (magnetic storm); sfe (solar flare effect); s-1-2-3-4 (class of flares); I-IV radio-burst; T (ten cm radio-burst); P (proton flare); p (proton event); gle (ground level event : neutron event); si (sudden impulse); F (Forbush); SFI Evaluation (1 x Sn+10 x "1"+100 x ">1").


Geomagnetic A.K. Index
Maart 1993
A.K.
100
80
60
40
20
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
10 Cm. Solar Radio Flux
S10
220
200
180
160
140
120
100
80
Relative Sunspot Numbers
R
320
280
240
200
160
120
80
40
(x) = Ri Provisional (S.I.D.C)
Rn = +
Rs = −
Rimax = 105
mrs 5
Rimin = 40
mrs 25
R̄i = 705

Zonnevlekkengetallen noordelijk– en zuidelijk halfrond

(Hemispheric sunspot numbers)

Maart 1993

	S.I.D.C.		Balster		v. Slooten	
Day	Rn	Rs	Rn	Rs	Rn	Rs
1	58	28			53	30
2	58	22	66	28	51	27
3	50	34	77	46	52	43
4	55	43				
5	49	56				
6	36	60				
7	31	62				
8	30	52	48	65	32	33
9	29	60	53	86	37	51
10	26	55	28	74	30	48
11	38	48	52	58	45	55
12	38	39	63	72	42	43
13	37	30	53	51	44	34
14	42	14	65	34	46	16
15	35	25	59	36	43	35
16	30	26			18	12
17	26	34	43	51	30	32
18	28	41				
19	27	45	51	69	35	49
20	33	37	62	57	33	35
21	43	35			38	32
22	39	34	73	47		
23	25	38	49	42	32	42
24	13	29	35	30	12	42
25	25	15	50	22	49	17
26	32	14	59	16	27	16
27	32	19	34	27	33	16
28	31	20	40	27	39	25
29	35	19	54	25	37	26
30	34	24	33	47	38	32
31	26	35	31	54		

Bulletin Werkgroep Zon april 1993

NVWS Werkgroep Zon. Sekretariaat: Veenenburg 36, 2804 WZ Gouda, tel: 01820 -39082

Zonnevlekkengetallen

Day	Bals	Gr 5	Groe	Iden	Jn.9	Jn 4	Mk 8	Mk15	Piet	Scho	vSlo	Span	Zijle
1	95		69		37								
2			72		47						70		
3		88	93		47	48					81	115	
4			93								76		
5					58						73		
6					31								
7													
8			52										
9	160			87	45	43				100	101	93	110
10		72	67		44	34			74	100	88	63	78
11			44		30		89	86					69
12			32		11								
13			0		0						13		
14		15	15		0						18		
15	17	25	13	17	0	0					18		16
16	14		15		0						14		
17							0	0					
18					13								
19													
20	134	87	96		16		84	73		136	121	112	120
21	145		104	119	31		104	65			133		
22	119				29						113		
23	143			100	28					104	84		
24	156				30	47					90		
25	122	74	61		26	52			64		99		
26	76		51		37		47	47		41	44		
27	99				24		58	54		81	67		53
28	72		71	73	12		63	58			59	62	62
29	64		54	55	24		46	44		26	42	63	26
30			50	39	24	24	30	28	26	28	52	29	27
observ	14	6	19	7	25	7	9	9	3	8	21	7	9
k	0,71	0,95	1,01	0,87	2,62	1,85	0,97	1,05	1,28	1,01	0,94	0,91	1,02
st.dev.	0,12	0,18	0,23	0,11	1,11	0,25	0,18	0,21	0,20	0,31	0,17	0,23	0,28
st.d./k	0,16	0,19	0,23	0,13	0,42	0,13	0,19	0,20	0,16	0,31	0,18	0,26	0,28

Observers	[...] = Refractor, d = ... mm;	[Rf...] = Reflector, d = ... mm
Bals = H.A.M. Balster [70]	Jn .9 = D. Jannink [9]	Piet = F. Pieters [60]
Gr 5 = Mw G. Gravers [50]	Jn 4 = D. Jannink [40]	Scho = A. Scholten [60]
Groe = A. Groenewegen [102]	Mk 8 = A. Mak [80, fluorit]	vSlo = B. van Slooten [90]
Iden = J.A. Idenburg [Rf 125]	Mk15 = A. Mak [150]	Span = T. Spaninks [75]
		Zijle = W.A. Zijlema [90]

Sunspot Index Data Center

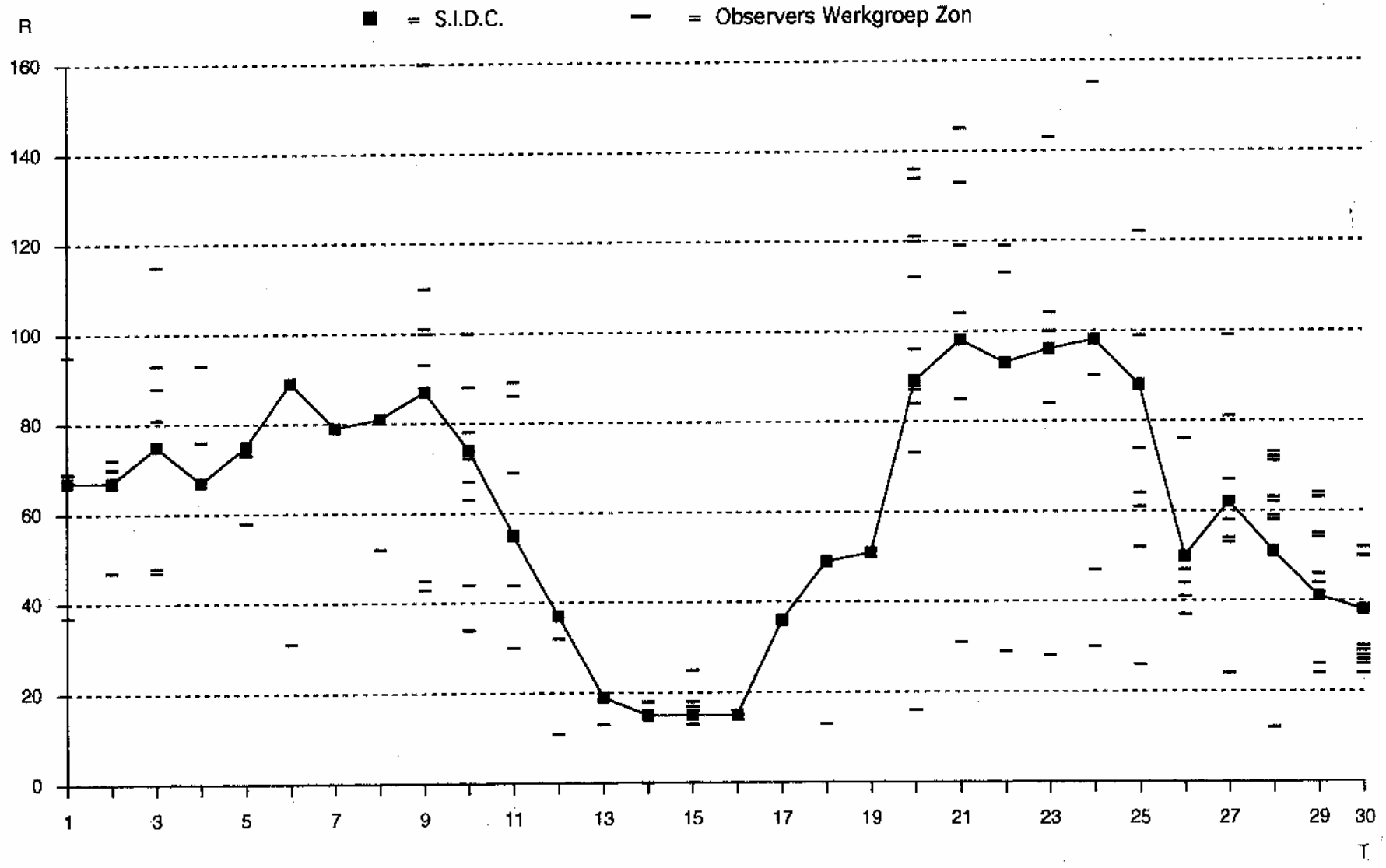
SUNSPOT BULLETIN

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

1993 APRIL R_{iM} = 61.9

Date	Ri	PPSI	600	2800	COS	SFI	XI	Ak	SEA	MAG
31	61	76	35	125	944	12	0/0	10		
1	67	120	36	124	947	15	0/0	-		
2	67	133	34	121	943	0	0/0	4		
3	75	120	33	117	?	1	0/0	6		
4	67	115	35	116	946	2	0/0	42		1434 ssc
5	75	139	36	119	933	2	0/0	51	1638	
6	89	179	37	133	941	17	1/0	16	1151	
7	79	171	36	130	946	10	0/0	11	1357	
8	81	142	35	143	952	23	0/0	23		1n(2033)
9	87	170	35	136	957	10	0/0	34		
10	74	114	35	126	948	21	0/0	17		1n(2331)
11	55	52	32	119	951	4	0/0	10		?(0612)
12	37	22	30	103	?	6	0/0	17		
13	19	8	29	097	953	1	0/0	27		
14	15	4	29	092	961	0	0/0	22		
15	15	7	28	088	958	1	0/0	24		
16	15	3	28	090	959	3	0/0	18		
17	36	12	29	096	971	12	0/0	12		
18	49	27	30	106	968	40	1/0	18	1902	1b(1902)
19	51	46	30	111	-	18	0/0	9		
20	89	118	32	119	962	22	0/0	21	1251	SEA(1746)
21	98	149	33	119	963	7	0/0	33		
22	93	139	33	117	962	8	1/0	(17)	1408	sb(1404)
23	96	137	33	122	966	4	0/0	16		
24	98	117	35	129	967	6	0/0	13		
25	88	79	35	125	963	12	0/0	12		
26	50	64	34	123	968	8	0/0	6		
27	62	54	35	118	971	5	0/0	6		
28	51	43	34	114	963	5	0/0	7		
29	41	39	34	107	961	0	0/0	13		1147 ssc
30	38	36	34	106	964	1	0/0	17		

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/m² : the quantity to subtract from the mean solar constant.
600 : 600 Mhz solar flux from Humain station (Belgium).
2800 : 2800 Mhz solar flux from Ottawa (origin : Ursigrams - UGEOI group 2).
COS : thousands of the cosmic ray counts (origin : Ursigrams - UCOSE Kerguelen).
SFI : From October 1992, Solar Flare Index from the S.I.D.C. (origin : Ursigrams - UGEOR group 3).
XI : X-flares index from the Ursigrams (M-flares/X-flares) (origin : Ursigrams - UGEOR group 2; UGEOI group 5).
Ak : planetary geomagnetic index from Wingst, Germany (origin : Ursigrams).
SEA : sudden enhancements of atmospherics from Uccle & Humain (Royal Observatory, Belgium).
MAG : magnetic events from Dourbes station (Royal Meteorological Institute, Belgium).
Remarks : sid (sudden ionospheric disturbance); ssc (sudden storm commencement); mgst (magnetic storm); sfe (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); gle (ground level event : neutron event); si (sudden impulse); F (Forbush); SFI Evaluation [illegible]


■ = S.I.D.C.
— = Observers Werkgroep Zon
R
160
140
120
100
80
60
40
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13
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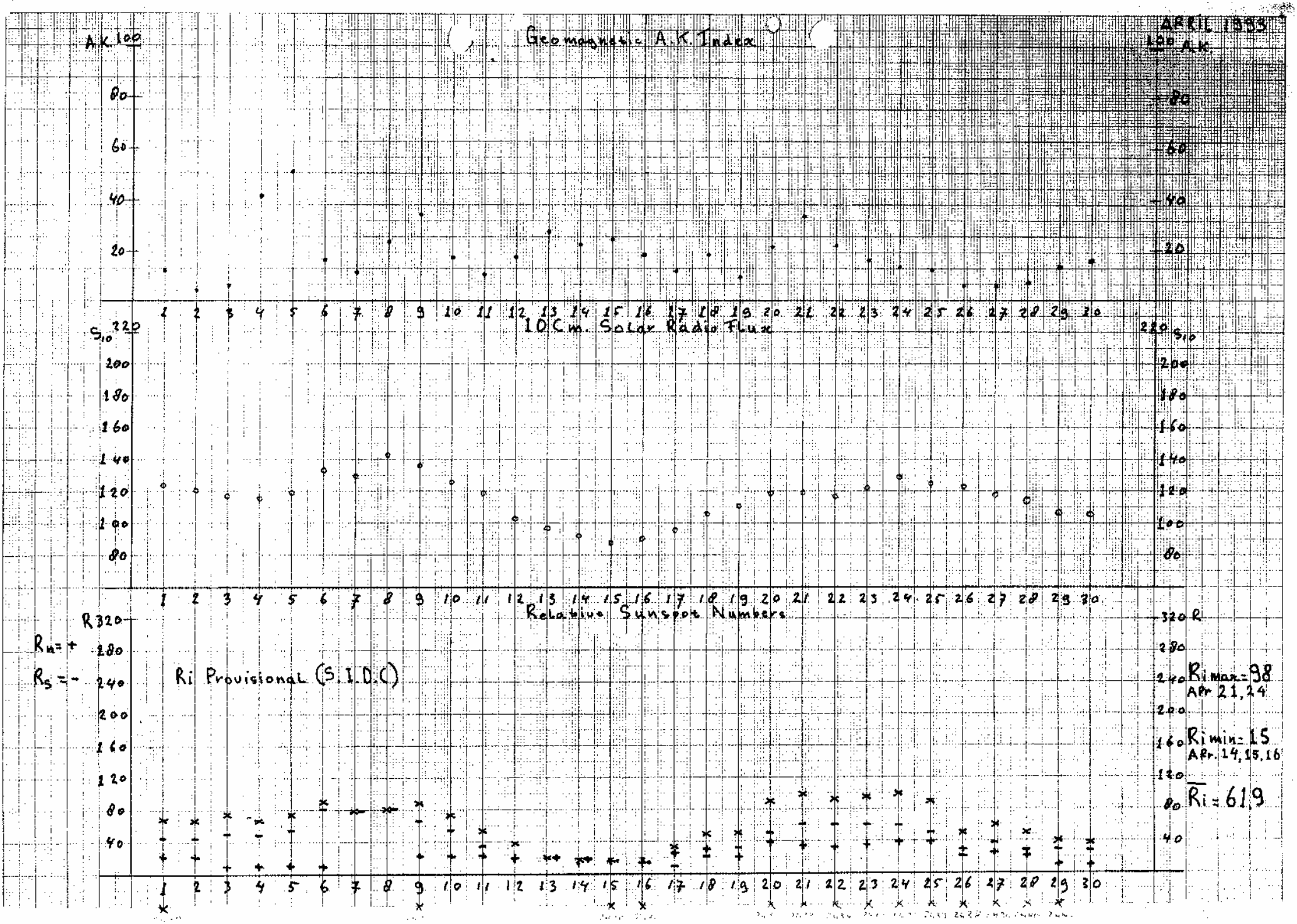
T


APRIL 1933
A.K. 100
Geomagnetic A.K. Index
120 A.K.
80
60
40
20
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
S_{10} 220
200
180
160
140
120
100
80
10 Cm. Solar Radio Flux
Relative Sunspot Numbers
R 320
280
240
200
160
120
80
40
R_n = +
R_S = -
Ri Provisional (S.I.D.C)
Ri max = 98
Apr 21, 24
Ri min = 15
Apr. 14, 15, 16
$\overline{Ri}$ = 61.9

Zonneviekkengetallen noordelijk– en zuidelijk halfrond

(Hemispheric sunspot numbers)

April 1993

	S.I.D.C.		Balster		Jannink 4		Mak 80F		Mak 150		v. Slooten		Spaninks	
Day	Rn	Rs	Rn	Rs	Rn	Rs	Rn	Rs	Rn	Rs	Rn	Rs	Rn	Rs
1	21	46	28	67										
2	22	45									17	53		
3	12	63			12	36					14	67		
4	9	58									12	64		
5	9	66									13	60		
6	8	81												
7	0	79												
8	0	81												
9	22	65	36	124	12	31					33	68	46	47
10	20	54			16	18					26	62	19	44
11	21	34												
12	19	18												
13	19	0									13	0		
14	15	0									18	0		
15	15	0	17	0	0	0					18	0		
16	15	0	14	0							14	0		
17	28	8												
18	29	20												
19	20	31												
20	39	50	57	77			39	45	33	40	46	75		
21	36	62	52	93			59	45	45	40	47	86		
22	33	60	46	73							43	70		
23	36	60	71	72							20	64		
24	38	60	64	91	15	32					21	69		
25	38	50	50	72	28	24					36	63		
26	28	22	48	28			31	16	31	16	30	14		
27	24	38	43	56			31	27	28	26	30	37		
28	23	28	39	33			29	34	27	31	26	33		
29	11	30	24	40			28	18	27	17	12	30		
30	10	28			12	12	14	16	13	15	14	38	14	15

Bulletin Werkgroep Zon — mei 1993

NVWS Werkgroep Zon. Sekretariaat: Veenenburg 36, 2804 WZ Gouda, tel: 01820 -39082

Zonneviekkengetallen

Day	Bals	Gr 5	Groe	Iden	Jn .9	Jn 4	Mk 8	Mk15	Piet	Scho	vSlo	Span	West	Zans	Zijle
1	43		38	39	11				28	28	31	30			29
2					11										
3	50		38	52	23		43	43		44	39				26
4	82		64	44	12						55				73
5			67		34	24	38	45		43	89	73			98
6	83		76	88	25						89	71			65
7					31					70					
8					44					88	74	70	32		76
9				110	46	53	83	65	78	80	76		60	82	102
10	145		103	127	59		106	100			112	122	61		142
11	149		116	124	69						102	135		109	128
12	134		112		58		85	77			118	110		101	104
13															
14					34						66				
15					11					37	50				
16	38				11	11			24	24	28	25		36	25
17	29		38	36	11		12	12			24			25	27
18	26				11						25				
19	14	12	12		11		12	12			24	15			
20	36	34		24	11				24	24	26				36
21			23		0										24
22	12	11	23	12	0				11		22			11	11
23	23	22	35	12	0		11	11	11	11	12	22			11
24	37		46	35	0		34	34	11		33	23			11
25	63	59		38	0						50	112			65
26					12						65	49			
27															
28											81				
29	106	69			44	53	77	64	79	83	84	115		114	147
30		71	107	78	41				86	106	101			88	116
31		80			54						106				
observ	17	8	15	14	28	4	10	10	9	12	26	14	3	8	20
k	0,95	1,21	0,98	1,16	2,68	2,50	1,52	1,55	1,60	1,26	1,07	1,05	1,98	1,16	1,21
st.dev.	0,20	0,27	0,16	0,36	1,15	0,85	0,55	0,49	0,59	0,34	0,24	0,25	0,44	0,28	0,55
st.d./k	0,22	0,23	0,16	0,31	0,43	0,34	0,36	0,31	0,37	0,27	0,22	0,24	0,22	0,24	0,45

Observers	[...] = Refractor, d = ... mm;	[Rf...] = Reflector, d = ... mm
Bals = H.A.M. Balster [70]	Jn 4 = D. Jannink [40]	vSlo = B. van Slooten [90]
Gr 5 = Mw G. Gravers [50]	Mk 8 = A. Mak [80, fluorit]	Span = T. Spaninks [75]
Groe = A. Groenewegen [102]	Mk15 = A. Mak [130]	West = R. Westerbeek [60]
Iden = J.A. Idenburg [Rf 125]	Piet = F. Pieters [60]	Zans = W. Zanstra [Rf 155]
Jn .9 = D. Jannink [9]	Scho = A. Scholten [60]	Zijle = W.A. Zijlema [90]

Sunspot Index Data Center

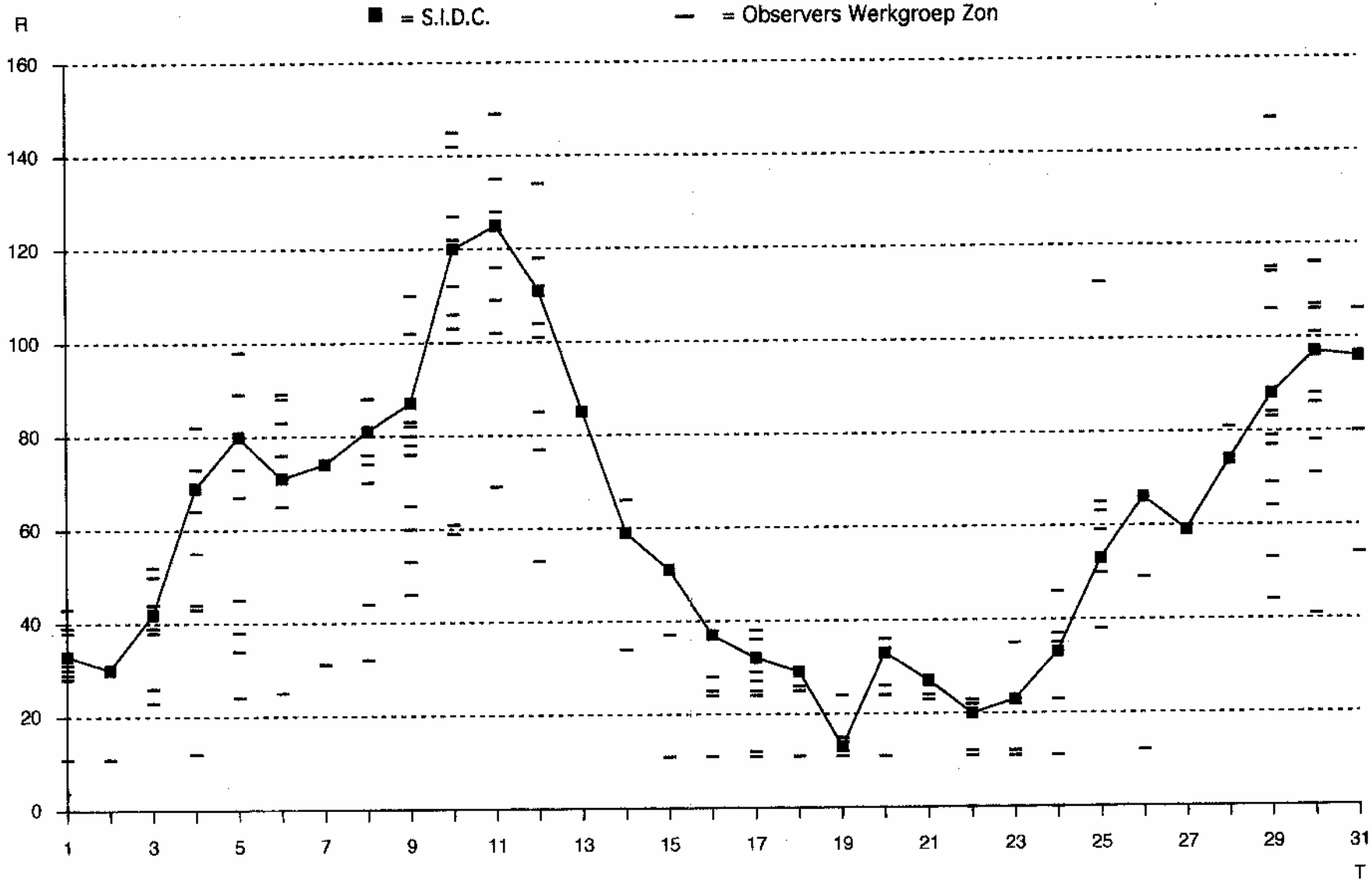
SUNSPOT BULLETIN

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

1993 MAY R_{IM} = 61.2

Date	R_I	PPSI	600	2800	COS	SFI	XI	Ak	SEA	MAG
30	38	36	34	106	964	1	0/0	17		
1	33	34	34	103	955	0	0/0	8		
2	30	17	33	103	959	2	0/0	8		
3	42	16	32	107	962	1	0/0	10		
4	69	29	31	111	-	4	0/0	6		
5	80	48	31	118	967	8	0/0	8		
6	71	78	30	120	960	4	0/0	12		
7	74	122	30	131	956	19	1/0	18		T(2138)
8	81	155	31	129	956	5	0/0	40		
9	87	202	31	129	955	4	0/0	44		
10	120	241	31	134	948	7	0/0	39		
11	125	230	32	132	950	10	0/0	6		
12	111	151	31	126	956	15	0/0	21		
13	85	104	30	120	967	12	0/0	16		
14	59	62	31	112	970	102	1/0	14		2b(2154)+T
15	51	35	32	104	972	0	0/0	18	1056	
16	37	30	32	099	974	0	0/0	14		
17	32	23	32	096	964	0	0/0	20	1022	
18	29	22	32	091	965	1	0/0	10		
19	13	13	31	091	960	2	0/0	15		
20	33	9	31	091	965	1	0/0	10		
21	27	3	30	091	965	1	0/0	4		
22	20	2	30	092	964	0	0/0	6		
23	23	3	31	095	961	0	0/0	2		
24	33	6	31	098	964	4	0/0	4		
25	53	9	32	100	971	5	0/0	2		
26	66	22	32	108	970	17	0/0	6		
27	59	40	32	120	966	124	1/0	24		2b(1745)
28	74	86	32	126	961	27	1/0	31		
29	88	105	33	129	962	16	0/0	14		
30	97	143	33	140	971	7	1/0	4		sf(0505)
31	96	178	34	138	964	2	0/0	6		

R_I, R_{IM} : 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/m² : the quantity to subtract from the mean solar constant.
600 : 600 Mhz solar flux from Humain station (Belgium).
2800 : 2800 Mhz solar flux from Ottawa (origin : Ursigrams - UGEOI group 2).
COS : thousands of the cosmic ray counts (origin : Ursigrams - UCOSE Kerguelen).
SFI : From October 1992, Solar Flare Index from the S.I.D.C. (origin : Ursigrams - UGEOR group 3).
XI : X-flares index from the Ursigrams (M-flares/X-flares) (origin : Ursigrams - UGEOR group 2; UGEOI group 5).
Ak : planetary geomagnetic index from Wingst, Germany (origin : Ursigrams).
SEA : sudden enhancements of atmospherics from Uccle & Humain (Royal Observatory, Belgium).
MAG : magnetic events from Dourbes station (Royal Meteorological Institute, Belgium).
Remarks : sid (sudden ionospheric disturbance); ssc (sudden storm commencement); mgst (magnetic storm); sfe (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); gle (ground level event : neutron event); si (sudden impulse); F (Forbush); SFI Evaluation (1 x Sn+10 x "1"+100 x ">1").


■ = S.I.D.C.
— = Observers Werkgroep Zon
R
160
140
120
100
80
60
40
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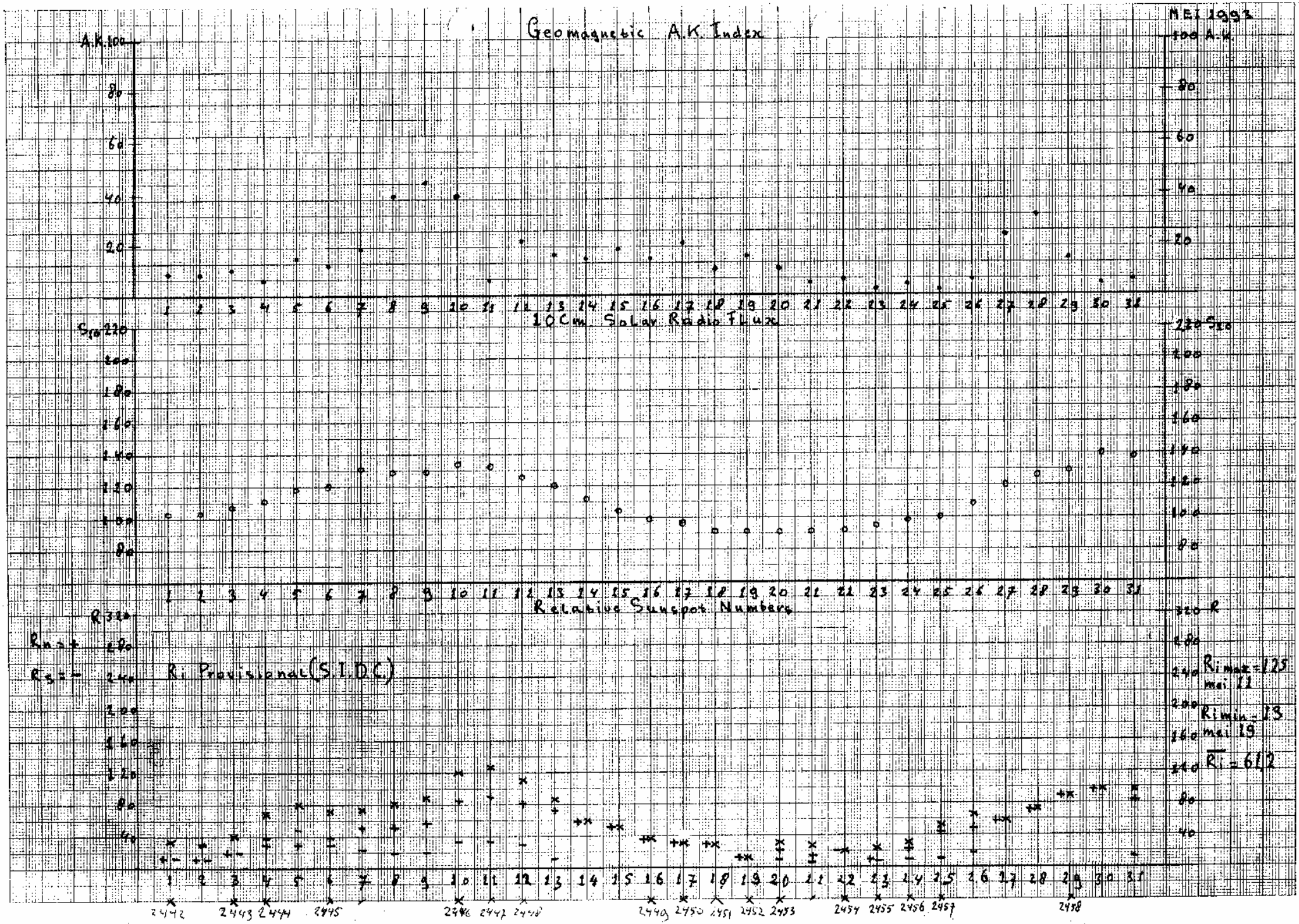

Geomagnetic A.K. Index
MEI 1993
A.K.
10Cm. Solar Radio Flux
Relative Sunspot Numbers
R_i Provisional (S.I.D.C.)
R_i max = 125 mai 11
R_i min = 13 mai 19
R_i = 61,2

Zonnevlekkengetallen noordelijk- en zuidelijk halfrond

(Hemispheric sunspot numbers)

mei 1993

	S.I.D.C.		Balster		Jannink 4		Mak 80F		Mak 150		v. Slooten		Spaninks	
Day	Rn	Rs	Rn	Rs	Rn	Rs	Rn	Rs	Rn	Rs	Rn	Rs	Rn	Rs
1	16	17	25	18							14	17	15	15
2	15	15												
3	22	20	24	26							24	15		
4	30	39	34	48			13	30	13	30	23	32		
5	31	49			13	11	23	15	29	16	19	70	33	40
6	39	32	55	28							34	55		
7	51	23												
8	62	19									54	20	50	20
9	67	20			39	14	63	20	48	17	54	22		
10	86	34	109	36			77	29	71	29	63	49	83	39
11	90	35	103	46							56	46	89	46
12	82	29	95	39			72	13	63	14	79	39	85	25
13	74	11												
14	59	0									66	0		
15	51	0									50	0		
16	37	0	38	0	11	0					28	0	25	0
17	32	0	29	0			12	0	12	0	24	0		
18	29	0	26	0							14	11		
19	13	0	14	0			12	0	12	0	13	11	15	0
20	23	10	24	12							15	11		
21	16	11												
22	0	20	0	12							11	11		
23	13	10	11	12			0	11	0	11	0	12	11	11
24	23	10	25	12			23	11	23	11	22	11	12	11
25	44	9	51	12							39	11	68	44
26	47	19									42	23	38	11
27	59	0												
28	74	0									81	0		
29	88	0	106	0	53	0	77	0	64	0	84	0	115	0
30	97	0									101	0		
31	84	12									90	16		

Bulletin Werkgroep Zon — juni 1993

NVWS Werkgroep Zon. Sekretariaat: Veenenburg 36, 2804 WZ Gouda, tel: 01620 -39082

Zonnevlekkengetallen

Day	Bals	Gr 5	Groe	Iden	Jn .9	Jn 4	Mk 8	Mk13	Piet	Scho	vSlo	Span	Zans	Zijle
1	134				55						123			
2	124			130	54									
3			96		47									
4	106			81	48					93	79		69	107
5	84		75	88	49	47				78	86	96		
6	98	88		108	36	37	77	74		89	94	105	73	
7	87	53	77	77	38				62	67	82	131		98
8	72		60		39		51	48			58	53		71
9	58	46	50		38		49	47		54	48	64	54	60
10	70			55	38						53	73	52	63
11	43	24			11					23	40		39	48
12											11			
13					11						12			
14														
15	12		11	11	11				11	11	11	11	11	11
16														
17	12				11	11					11	11	11	11
18														
19			13		0						0			
20	24	16	30		0				18	18	20	19	30	39
21	33	15	38	19	12					17	33	16	15	17
22	32	27		17	11									
23					22									
24	72	52	51		24					59				
25					23									
26			64											
27		57	67		38				56	75	103	56	66	
28	88	51		59	41					77	85	99		100
29	76	56	72	68	42		51	44			100	104	67	93
30	64		63	69	29		62	56		66	78		67	82
observ	19	11	14	12	25	3	5	5	4	13	20	13	12	13
k	0,85	1,23	0,94	1,01	1,85	1,79	1,14	1,24	1,08	1,03	0,94	0,93	1,07	0,86
st.dev.	0,16	0,22	0,14	0,24	0,53	0,32	0,18	0,25	0,15	0,22	0,24	0,32	0,28	0,28
st.d./k	0,19	0,18	0,14	0,23	0,29	0,18	0,16	0,20	0,14	0,22	0,26	0,34	0,26	0,33

Observers	[...] = Refractor, d = ... mm;	[Rf...] = Reflector, d = ... mm
Bals = H.A.M. Balster [70]	Jn 4 = D. Jannink [40]	vSlo = B. van Slooten [90]
Gr 5 = Mw G. Gravers [50]	Mk 8 = A. Mak [80, fluorit]	Span = T. Spaninks [75]
Groe = A. Groenewegen [102]	Mk13 = A. Mak [130]	Zans = W. Zanstra [Rf 155]
Iden = J.A. Idenburg [Rf 125]	Piet = F. Pieters [60]	Zijle = W.A. Zijlema [90]
Jn .9 = D. Jannink [9]	Scho = A. Scholten [60]	

Sunspot Index Data Center

SUNSPOT BULLETIN

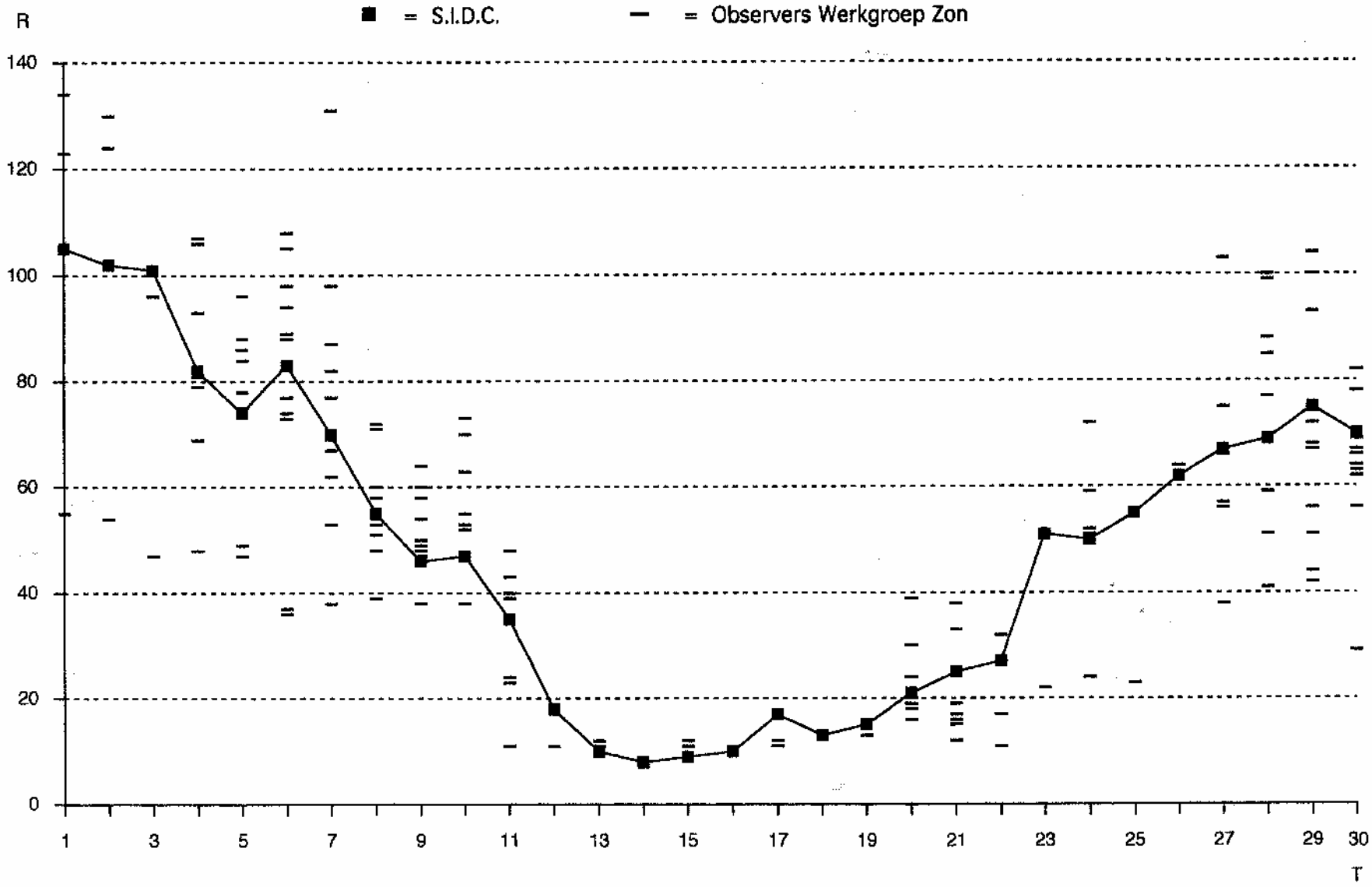
B.I.D.C. SUMMARY OF THE URSIGRAMS

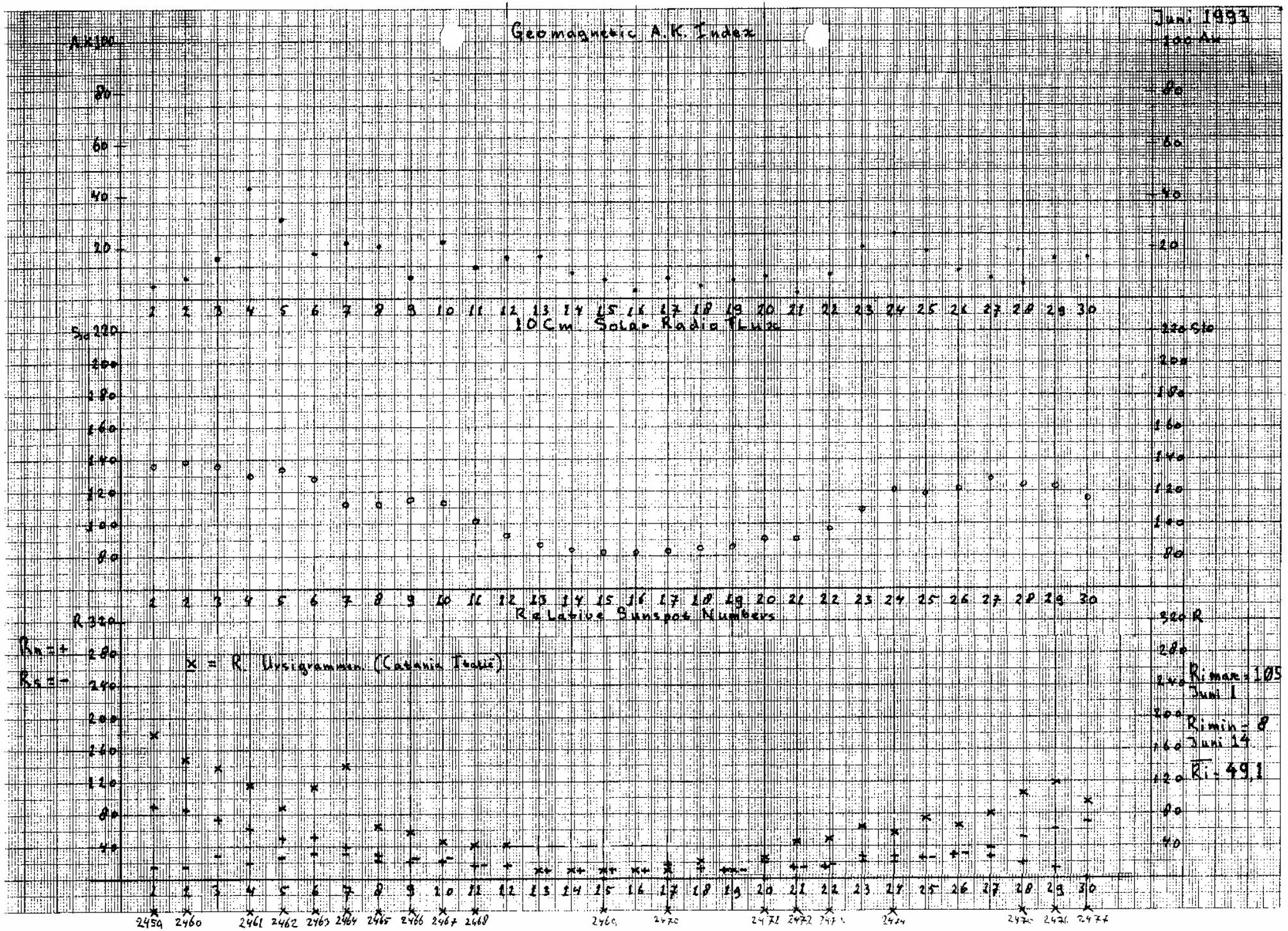
1993 JUNE R_{IM} = 49.1

Date	Rj	PPSI	600	2800	COS	SFI	XI	Ak	SEA	MAG	
31	96	178	34	138	964	2	0/0	6			
1	105	152	35	137	969	19	0/0	5			
2	102	168	34	139	965	8	0/0	8			
3	101	149	34	136	965	14	2/0	16	1550		
4	82	126	34	130	951	10	0/0	43			
5	74	105	33	134	952	19	0/0	31			
6	83	112	34	128	955	12	0/0	18			
7	70	109	33	112	959	118	1/0	22	1410		2b(1425)+p(1510)
8	55	85	31	112	965	12	1/0	20			X(0147)
9	46	66	30	115	970	31	1/0	8			
10	47	50	30	113	972	9	1/0	22		1727	(ssc)
11	35	28	30	102	965	5	0/0	12	1510		
12	18	21	29	093	967	2	0/0	16			
13	10	20	28	087	969	1	0/0	16			
14	8	17	27	084	964	1	0/0	10			
15	9	13	27	082	966	0	0/0	7			
16	10	9	27	082	966	0	0/0	3			
17	17	6	27	083	963	0	0/0	8		1225	(sc)
18	13	3	28	085	975	0	0/0	5			
19	15	3	28	086	976	13	0/0	7			
20	21	12	29	091	978	2	0/0	8			
21	25	18	31	091	977	1	0/0	2			
22	27	30	31	097	982	2	0/0	9			
23	51	22	32	109	985	1	0/0	20			
24	50	42	34	121	966	102	3/0	25	0728		2b(0716);1f(1716)
25	55	49	34	119	970	8	1/0	18			
26	62	59	34	122	970	29	2/0	11	1459		SEA(1531)
27	67	75	34	128	972	115	1/0	8	1116		2n(1106)
28	69	97	36	124	978	21	0/0	6	1255		
29	75	115	44	123	979	7	0/0	16			
30	70	105	35	116	-	1	0/0	16			

Wolf local number = zero on 18 (4/29 stations) and 19 (10/23 stations)
Probable minimum forecasted for the second part of 1995(see S-B apr192)

Rj, R_{IM} : 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/m² : the quantity to subtract from the mean solar constant.
600 : 600 Mhz solar flux from Humain station (Belgium).
2800 : 2800 Mhz solar flux from Ottawa (origin : Ursigrams - UGEOI group 2).
COS : thousands of the cosmic ray counts (origin : Ursigrams - UCOSE Kerguelen).
SFI : From October 1992, Solar Flare Index from the S.I.D.C. (origin : Ursigrams - UGEOR group 3).
XI : X-flares index from the Ursigrams (M-flares/X-flares) (origin : Ursigrams - UGEOR group 2; UGEOI group 5).
Ak : planetary geomagnetic index from Wingst, Germany (origin : Ursigrams).
SEA : sudden enhancements of atmospherics from Uccle & Humain (Royal Observatory, Belgium).
MAG : magnetic events from Dourbes station (Royal Meteorological Institute, Belgium).
Remarks : sid (sudden ionospheric disturbance); ssc (sudden storm commencement); mgst (magnetic storm); sfe (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); gle (ground level event : neutron event); sI (sudden impulse); F (Forbush); SFI Evaluation (1 x $\$=10$ x "1"+100 x ">1").


R
■ = S.I.D.C.
— = Observers Werkgroep Zon
140
120
100
80
60
40
20
0
1
3
5
7
9
11
13
15
17
19
21
23
25
27
29
30
T


Geomagnetic A.K. Index
Juni 1953
Ax100
10Cm Solar Radia TLux
Sfu
Relative Sunspot Numbers
R
x = R Uccigramman (Catania Italie)
Rm =
Rz =
Rimax = 105
Juni 1
Rimin = 8
Juni 14
Ri = 49,1

Zonneviekkengetallen noordelijk– en zuidelijk halfrond

(Hemispheric sunspot numbers)

Juni 1993

	S.I.D.C.		Balster		Jannink 40		Mak 80F		Mak 130		v. Slooten		Spaninks	
Day	Rn	Rs	Rn	Rs	Rn	Rs	Rn	Rs	Rn	Rs	Rn	Rs	Rn	Rs
1	90	15	113	21							102	21		
2	86	16	104	20										
3	74	27												
4	63	19	82	24							56	23		
5	49	25	47	27	33	14					51	35	56	40
6	52	31	58	40	22	15	43	34	43	31	56	38	58	47
7	39	31	43	44							53	29		
8	29	26	28	44			24	27	24	24	26	32	23	30
9	22	24	26	32			25	24	24	23	24	24	26	38
10	23	24	35	35							24	29		
11	18	17	24	19							23	17		
12	18	0									11	0		
13	10	0									12	0		
14	8	0												
15	9	0	12	0							11	0	11	0
16	10	0												
17	17	0	12	0	11	0					11	0	11	0
18	13	0												
19	8	7									0	0		
20	0	21	0	24							0	20	0	19
21	10	15	0	33							11	22	0	16
22	10	17	11	21										
23	29	22												
24	30	20	36	36										
25	28	27												
26	30	32												
27	28	39									50	53	0	56
28	20	49	18	70							27	58		
29	14	61	13	63			0	51	0	44	25	75		
30	0	70	0	64			0	62	0	56	0	78		

Bulletin Werkgroep Zon — juli 1993

NVWS Werkgroep Zon. Sekretariaat: Veenenburg 36, 2804 WZ Gouda, tel: 01820 -39082

Zonneviekkengetallen

Day	Bals	Gr 5	Gr 6	Groe	Iden	Jn .9	Jn 4	Mk 8	Mk13	Piet	Scho	vSloo	Span	Vers	Zans	Zijle
1	59		35	83		30	29	59	55	43	88	79		31	53	75
2	68		60	60		26				64	58	71		32	62	80
3			63	87		38						112		38		
4			99	87		35	38					93		53	75	71
5				82		35						66	42	47		
6	84	52		51		34					39	61		49		
7		34		24		22						56				
8	49			49		22						36				
9		11				11					26		43			
10	39	24	11	38		11	11	13	11		34	36	36	11	24	33
11		40	28	44		11			12		39	48	49	24		49
12		39				11								24		60
13					64	22								36		
14						23										
15					62											71
16						36						73		60		
17				77		45					75	60		62		
18			104			44	45	88	87		95	109		78	96	104
19	103			77	70									57		
20	62					22								60		
21		77				27				58		79	90	65	89	
22	67	72		62		25		59	56		70	70		53		
23				92		35						78		84		
24	87					34				65		81	67	83		
25						23				48	60	80	66	44		73
26	59				46	22		23	22			71		22		
27																
28				79	60	33						57		55		58
29						22						54		40		
30												39				
31				47	35	11	22			35	38			11		49
observ	10	8	7	16	6	27	5	5	6	6	11	22	7	24	6	11
k	0,82	1,32	1,33	0,94	1,07	2,34	2,16	1,52	1,66	1,16	1,02	0,85	0,96	1,53	1,02	0,85
st.dev.	0,06	0,63	0,67	0,27	0,16	0,63	0,35	0,71	0,69	0,17	0,25	0,13	0,29	0,71	0,15	0,15
st.d./k	0,10	0,63	0,50	0,29	0,15	0,27	0,16	0,47	0,48	0,14	0,25	0,15	0,30	0,47	0,15	0,18

Observers	[...] = Refractor, d = ... mm;	[Rf...] = Reflector, d = ... mm
Bals = H.A.M. Balster [70]	Jn .9 = D. Jannink [9]	Scho = A. Scholten [60]
Gr 5 = Mw G. Gravers [50]	Jn 4 = D. Jannink [40]	vSlo = B. van Slooten [90]
Gr 6 = Mw G. Gravers [60]	Mk 8 = A. Mak [80, fluorit]	Span = T. Spaninks [75]
Groe = A. Groenewegen [102]	Mk13 = A. Mak [130]	Vers = D. Verschuuren [Rf 40]
Iden = J.A. Idenburg [Rf 125]	Piet = F. Pieters [60]	Zans = W. Zanstra [Rf 155]
		Zijle = W.A. Zijlema [90]

Sunspot Index Data Center

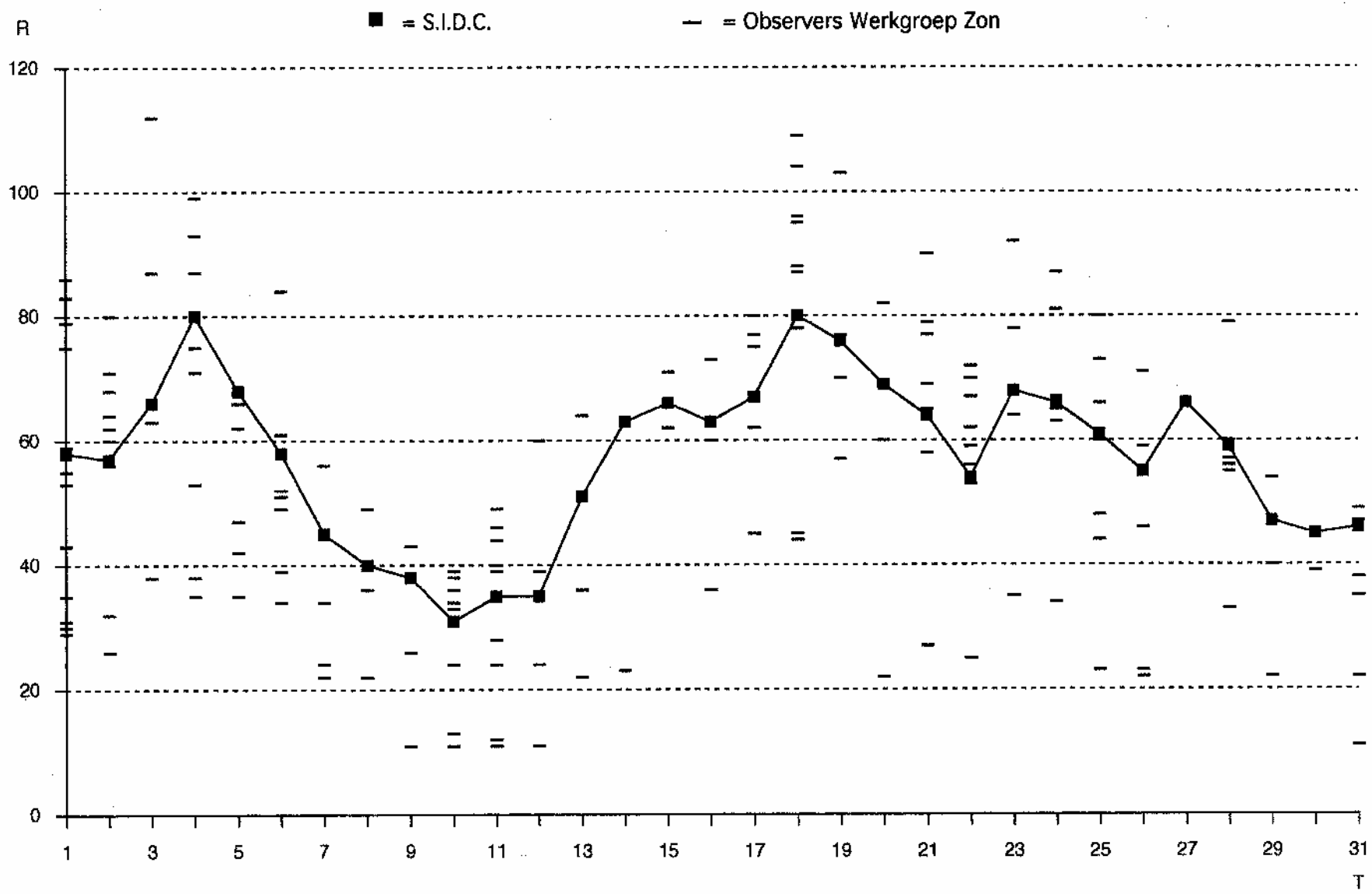
SUNSPOT BULLETIN

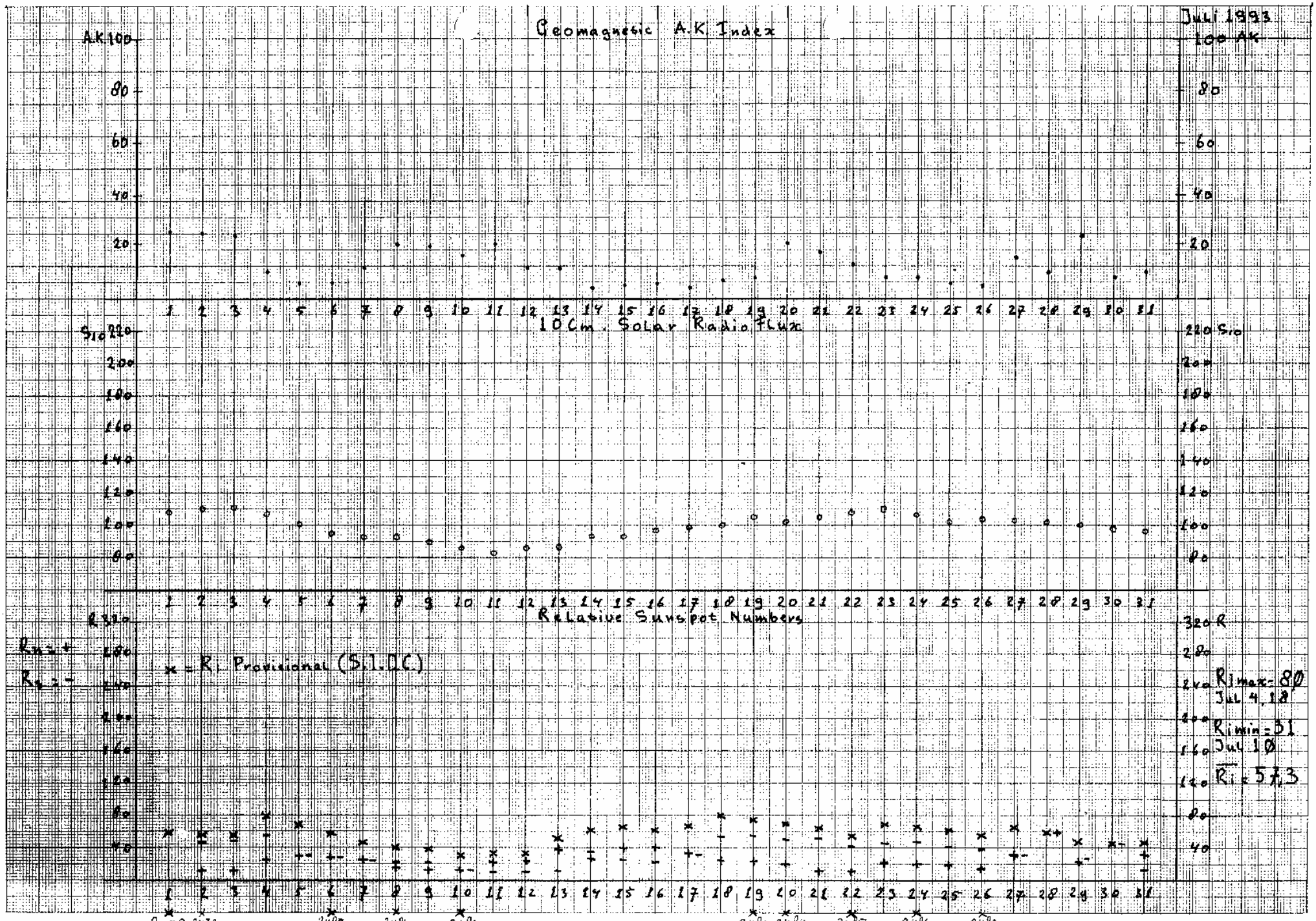
S.I.D.C. SUMMARY OF THE URSIGRAMS

1993 JULY Rf_M = 57.3

Date	Rf	PPSI	600	2800	COS	SFI	XI	Ak	SEA	MAG
30	70	105	35	116	978	1	0/0	16		
1	58	81	34	108	968	5	0/0	27	1401	SEA(1750)
2	57	61	34	110	948	103	1/0	26		2b(1311)+T
3	66	58	34	111	955	15	1/0	24	1041	SEA(1054)
4	80	62	34	107	959	117	2/0	10	0748	SEA(1124),2b(1102)
5	68	44	32	101	965	5	0/0	6		
6	58	34	29	095	968	6	0/0	6		
7	45	28	28	093	970	3	0/0	12		
8	40	33	28	093	974	1	0/0	21		
9	38	40	29	090	974	0	0/0	20		
10	31	32	29	086	964	0	0/0	17		
11	35	43	28	083	962	0	0/0	21		
12	35	34	28	086	962	1	0/0	12		
13	51	36	28	087	962	1	0/0	12		
14	63	55	28	093	962	8	0/0	4		
15	66	65	29	093	963	1	0/0	5		
16	63	69	30	097	972	0	0/0	6		
17	67	48	30	099	977	3	0/0	4		
18	80	55	31	100	971	2	0/0	7		
19	76	56	31	101	985	2	0/0	8		
20	69	68	31	102	987	3	0/0	21		
21	64	70	32	105	981	1	0/0	18		
22	54	76	32	108	-	1	0/0	13		
23	68	57	32	110	977	16	0/0	8		
24	66	57	34	106	980	4	0/0	8		
25	61	41	34	102	986	5	0/0	6		
26	55	35	34	104	992	2	0/0	5		
27	66	43	33	103	995	23	0/0	16		
28	59	47	34	102	981	0	0/0	10		
29	47	44	34	100	976	0	0/0	24		
30	45	30	-	098	-	1	0/0	-		
31	46	25	-	096	-	3	0/0	-		

Rf, Rf_M : 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/m² ; the quantity to subtract from the mean solar constant.
600 : 600 Mhz solar flux from Humain station (Belgium).
2800 : 2800 Mhz solar flux from Ottawa (origin : Ursigrams - UGEOI group 2).
COS : thousands of the cosmic ray counts (origin : Ursigrams - UCOSE Kerguelen).
SFI : From October 1992, Solar Flare Index from the S.I.D.C. (origin : Ursigrams - UGEOR group 3).
XI : X-flares index from the Ursigrams (N-flares/X-flares) (origin : Ursigrams - UGEOR group 2; UGEOI group 5).
Ak : planetary geomagnetic index from Wingst, Germany (origin : Ursigrams).
SEA : sudden enhancements of atmospherics from Uccle & Humain (Royal Observatory, Belgium).
MAG : magnetic events from Dourbes station (Royal Meteorological Institute, Belgium).
Remarks : sid (sudden ionospheric disturbance); ssc (sudden storm commencement); mgst (magnetic storm); sfe (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); gle (ground level event : neutron event); si (sudden impulse); F (Forbush); SFI Evaluation (1 x Sn+10 x "1"+100 x ">1").


■ = S.I.D.C.
— = Observers Werkgroep Zon
R
120
100
80
60
40
20
0
1
3
5
7
9
11
13
15
17
19
21
23
25
27
29
31
T


Geomagnesic A.K Index
Juli 1993
AK
10Cm. Solar Radio Flux
S10
Relative Sunspot Numbers
R
x = Ri Provisional (S.I.D.C.)
Rmax +
Rmin -
Rimax= 80
Jul 4, 18
Rimin=31
Jul 10
Ri = 57,3
2470 2479 2480 2481 2482 2483 2484 2485 2486 2487

Zonnevlekkengetallen noordelijk– en zuidelijk halfrond

(Hemispheric sunspot numbers)

juli 1993

	S.I.D.C.		Balster		Jannink 40		Mak 80F		Mak 130		v. Slooten		Spaninks	
Day	Rn	Rs	Rn	Rs	Rn	Rs	Rn	Rs	Rn	Rs	Rn	Rs	Rn	Rs
1	0	58	0	59	0	29	0	59	0	55	11	68		
2	11	46	11	57							13	58		
3	13	53									29	83		
4	26	54			0	38					24	69		
5	31	37									28	38	11	31
6	29	29	35	49							29	32		
7	24	21									22	34		
8	17	23	13	36							22	14		
9	15	23											18	25
10	16	15	14	25	11	0					12	24	25	11
11	24	11									32	14	34	15
12	24	11												
13	39	12												
14	28	35												
15	40	26												
16	40	23									46	27		
17	35	32									37	43		
18	26	54			11	34	31	57	30	57	35	74		
19	23	53	33	70										
20	20	49	26	56										
21	11	53									14	65		
22	12	42	15	52			13	46	13	43	17	53		
23	22	46									26	52		
24	20	46	28	59							24	57	27	40
25	19	42									25	55	12	54
26	16	39	24	35			12	11	11	11	11	60		
27	33	33												
28	59	0									23	34		
29	22	25									25	29		
30	0	45									24	15		
31	34	12			22	0								

Bulletin Werkgroep Zon augustus 1993

NVWS Werkgroep Zon. Sekretariaat: Veenenburg 36, 2804 WZ Gouda, tel: 01820 -39082

Zonnevlekkengetallen

Day	Bals	Gr 5	Gr 6	Groe	Iden	Jn .9	Jn 4	Mk 8	Mk13	Piet	Scho	vSlo	Span	Stra	Vers	Zans	Zijl 9	Zijl10
1		48	26	58	34	11				23	37	41					49	
2	47				45	22		36	36	33	35	35			33		34	
3	48		41	39		12		40	39		37	39			44		40	
4					52	12				37		33			48	49	39	
5		40				12						26			34	35	27	
6	65		64	58		12					44	45			29	84		
7	60	33	44			12						41				41	37	
8					73	12				27		32						
9	73															84		
10	85	81				11						71						
11	80					22										105		105
12	69			61		26						63				84		55
13	71		59	60		25		61	57	47	51	54						
14	55		47			22						60				86		88
15		29		30		22					28	31				39		68
16	27					22						25				25		25
17	35	34		35		11		22	22		35	37	36			37		40
18	38	35				22		24	24			23	35			24		39
19	37	36		34		22		25	24			25	35			36		49
20													38			29		31
21		42		37		22						38		35	33	42		
22												51		35		51	40	
23	62			37		22						52	37	36	48		84	
24	75					44						53		47	57			
25	64			63		33						61	61	46	45			
26	56	71				22	44					49		45			62	
27						22					59	56			48		71	
28		71	70	54		33	33	54	53	57		62	59	48	62			
29		61	59			11		55	54			63	57	51	54			
30												42						
31	39			47		11	11					38			33		38	
observ	19	12	8	13	4	27	3	8	8	6	8	28	8	8	13	16	11	9
k	0,78	0,82	0,93	0,87	0,83	2,47	1,67	1,05	1,07	1,28	1,01	0,94	0,83	1,07	0,98	0,77	0,87	0,69
st.dev.	0,06	0,17	0,22	0,13	0,19	1,16	0,65	0,15	0,14	0,33	0,13	0,17	0,14	0,12	0,25	0,16	0,20	0,18
st.d./k	0,07	0,21	0,24	0,15	0,23	0,47	0,39	0,14	0,13	0,26	0,13	0,18	0,17	0,11	0,26	0,21	0,24	0,27

Observers	[...] = Refractor, d = ... mm;	[Rf...] = Reflector, d = ... mm
Bals = H.A.M. Balster [70]*	Jn 4 = D. Jannink [40]	Span = T. Spaninks [75]
Gr 5 = Mw G. Gravers [50]	Mk 8 = A. Mak [80, fluorit]	Stra = J. Stradal [Rf 155]
Gr 6 = Mw G. Gravers [60]	Mk13 = A. Mak [130]	Vers = D. Verschuuren [Rf 40]
Groe = A. Groenewegen [102]	Piet = F. Pieters [60]	Zans = W. Zanstra [100, Jura]**
Iden = J.A. Idenburg [Rf 125]	Scho = A. Scholten [60]	Zijl 9 = W.A. Zijlema [90]
Jn .9 = D. Jannink [9]	vSlo = B. van Slooten [90]	Zijl10 = W.A. Zijlema [100, Jura]**

* 18 aug: observation nr. 2500 !

** Jura Sternwarte, Switzerland

Sunspot Index Date Center

SUNSPOT BULLETIN

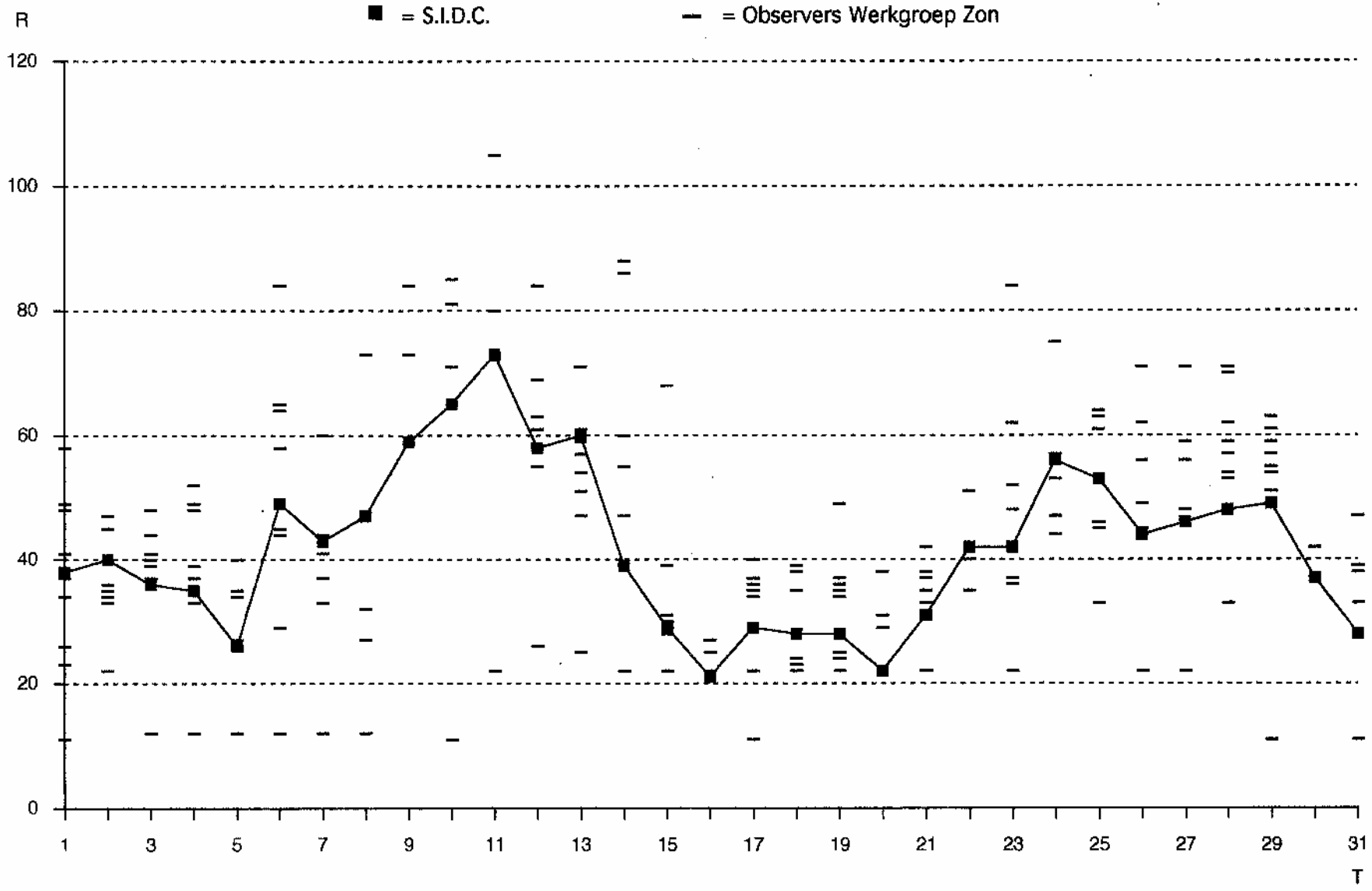
S.I.D.C. SUMMARY OF THE URSIGRAMS

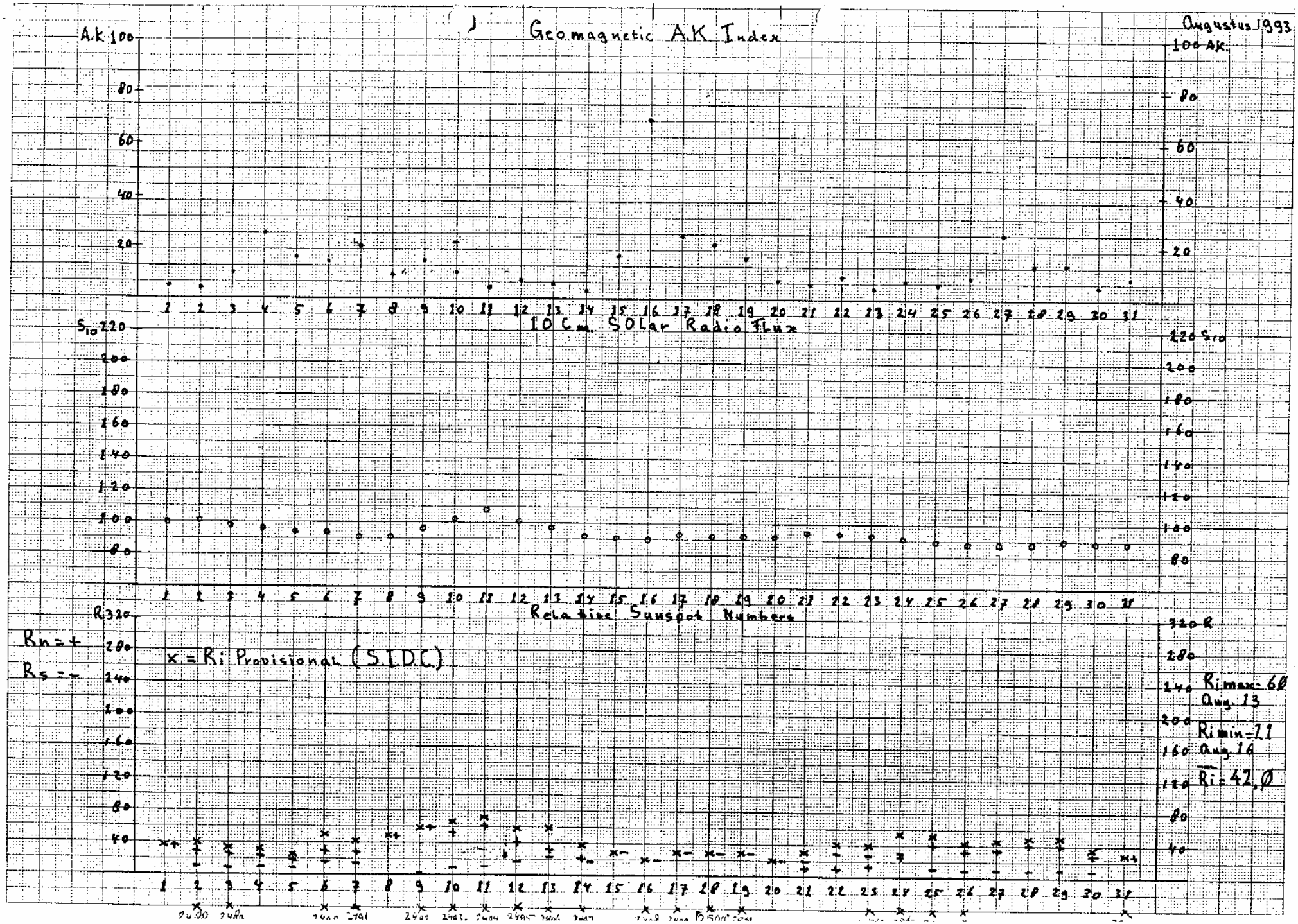
1993 AUGUST R_{IM} = 42.0

Date	R_I	PPSI	600	2800	COS	SFI	XI	Ak	SEA	MAG	
31	46	25	-	096	973	3	0/0	10			
1	38	19	31	100	977	0	0/0	5			
2	40	15	31	101	973	1	0/0	4			
3	36	23	30	098	972	1	0/0	10	1215		
4	35	28	29	096	968	0	0/0	28	1510	1340	ssc
5	26	37	29	094	970	3	0/0	16			
6	49	48	29	094	968	2	0/0	14			
7	43	47	29	091	972	1	0/0	20			
8	47	43	28	091	972	2	0/0	9			
9	59	54	29	096	972	5	0/0	14	1711		?
10	65	46	29	102	977	19	0/0	10			
11	73	45	29	108	975	13	1/0	4	1015		SEA(1630)
12	58	47	29	101	975	3	0/0	-	0401		SEA(1803)??
13	60	38	29	097	984	4	0/0	6			
14	39	33	29	092	979	2	0/0	3	1209		?
15	29	24	30	091	978	0	0/0	16		1514	ssc
16	21	28	30	090	977	0	0/0	69			
17	29	20	31	093	964	0	0/0	24			
18	28	24	31	092	962	0	0/0	21			
19	28	32	30	092	966	1	0/0	14	1117		?
20	22	37	31	092	970	0	0/0	8			
21	31	44	32	095	976	2	0/0	6			
22	42	44	31	094	983	0	0/0	9			
23	42	47	30	093	988	2	0/0	4			
24	56	44	30	091	978	0	0/0	7			
25	53	39	28	089	970	1	0/0	6			
26	44	41	28	088	969	1	0/0	8			
27	46	32	28	088	970	0	0/0	25			
28	48	47	28	088	972	0	0/0	13			
29	49	21	28	090	966	0	0/0	14			
30	37	18	26	089	973	0	0/0	5			
31	28	19	26	089	971	0	0/0	8			

Decreasing Solar activity.

R_I, R_{IM} : 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/m² : the quantity to subtract from the mean solar constant.
600 : 600 Mhz solar flux from Humain station (Belgium).
2800 : 2800 Mhz solar flux from Ottawa (origin : Ursigrams - UGEOI group 2).
COS : thousands of the cosmic ray counts (origin : Ursigrams - UCOSE Kerguelen).
SFI : From October 1992, Solar Flare Index from the S.I.D.C. (origin : Ursigrams - UGEOR group 3).
XI : X-flares index from the Ursigrams (M-flares/X-flares) (origin : Ursigrams - UGEOR group 2; UGEOI group 5).
Ak : planetary geomagnetic index from Wingst, Germany (origin : Ursigrams).
SEA : sudden enhancements of atmospherics from Uccle & Humain (Royal Observatory, Belgium).
MAG : magnetic events from Dourbes station (Royal Meteorological Institute, Belgium).
Remarks : sid (sudden ionospheric disturbance); ssc (sudden storm commencement); mgst (magnetic storm); sfe (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); gle (ground level event : neutron event); sf (sudden impulse); F (Forbush); SFI Evaluation (1 x Sn+10 x M1+100 x X1).


R
■ = S.I.D.C.
— = Observers Werkgroep Zon
120
100
80
60
40
20
0
1
3
5
7
9
11
13
15
17
19
21
23
25
27
29
31
T


Geomagnetic A.K. Index
Augustus 1993
A.k
100
80
60
40
20
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
S_{10} 220
200
180
160
140
120
100
80
10 Cm. Solar Radio Flux
R 320
280
240
200
160
120
80
40
Relative Sunspot Numbers
Rn = +
Rs = −
x = Ri Provisional (S.I.D.C.)
Rimax= 60
Aug. 13
Rimin= 21
Aug. 16
Ri= 42,0

Zonnevlekkengetallen noordelijk– en zuidelijk halfrond

(Hemispheric sunspot numbers)

Augustus 1993

	S.I.D.C.		Balster		Jannink 40		Mak 80F		Mak 130		v. Slooten		Spaninks	
Day	Rn	Rs	Rn	Rs	Rn	Rs	Rn	Rs	Rn	Rs	Rn	Rs	Rn	Rs
1	38	0									30	11		
2	30	10	36	11			24	12	24	12	24	11		
3	28	8	36	12			28	12	28	11	28	11		
4	27	8									22	11		
5	18	8									14	12		
6	32	17	40	25							22	23		
7	29	14	49	11							19	22		
8	47	0									32	0		
9	59	0	73	0										
10	57	8	74	11							60	11		
11	61	12	66	14										
12	41	17	45	24							40	23		
13	36	24	38	33			28	33	28	29	43	11		
14	21	18	23	32							25	35		
15	0	29									0	31		
16	0	21	0	27							0	25		
17	0	29	0	35			0	22	0	22	0	37	0	36
18	0	28	0	38			0	24	0	24	0	23	0	35
19	0	28	0	37			0	25	0	24	0	25	0	35
20	0	22											13	25
21	11	20									13	25		
22	12	30									13	38		
23	15	27	25	37							14	38	12	25
24	26	30	37	38							26	27		
25	41	12	50	14							36	25	49	12
26	35	9	42	14	33	11					38	11		
27	37	9									45	11		
28	40	8			22	11	39	15	38	15	51	11	48	11
29	41	8					43	12	42	12	52	11	35	22
30	29	8									42	0		
31	28	0	39	0	11	0					38	0		

Bulletin Werkgroep Zon september 1993

NVWS Werkgroep Zon. Sekretariaat: Veenenburg 36, 2804 WZ Gouda, tel: 01820 -39082

Zonnevlekkengetallen

Day	Bals	Gr 5	Groe	Jn.9	Jn 4	Piet	Scho	vSlo	Span	Vers	West	Zans	Zijle
1				22				24					38
2													
3	25		23	11						12			
4				11				32		14			16
5	14	32		0		13	29	29	17	12			34
6	25		0	0				18		0			
7	0		0	0		0	0			0			0
8			0	0									
9	11		0	0									
10	0			0									
11		0	0	0	0	0	0						
12	0	0	0	0	0	0	0		0	0		0	
13			0							0			
14													
15	12			0						12			13
16													
17	25			0						24			30
18	18	29	15	0	13	17	31		17	14		16	36
19	17	17	15	0					17	15		15	23
20	14		16	0						14			32
21	0									0			
22													
23			13	0									
24			24	14									
25													
26										34			
27													
28	72			30						41			36
29	76		59	29	29			52		36	54	52	
30	54		47	28				44		31			
observ	16	5	15	21	4	5	5	6	4	17	1	4	10
k	0,89	0,71	0,97	1,64	1,56	1,37	0,67	0,85	1,06	1,24	0,89	1,01	0,78
st.dev.	0,29	0,08	0,17	0,25	0,10	0,25	0,06	0,14	0,17	0,32	—	0,12	0,35
st.d./k	0,32	0,11	0,18	0,15	0,06	0,18	0,06	0,16	0,16	0,26	—	0,12	0,45

Observers	[...] = Refractor, d = ... mm;	[Rf...] = Reflector, d = ... mm
Bals = H.A.M. Balster [70]	Piet = F. Pieters [60]	Vers = D. Verschuuren [Rf 40]
Gr 5 = Mw G. Gravers [50]	Scho = A. Scholten [60]	West = R. Westerbeek [60]
Groe = A. Groenewegen [102]	vSlo = B. van Slooten [90]	Zans = W. Zanstra [Rf 155]
Jn .9 = D. Jannink [9]	Span = T. Spaninks [75]	Zijle = W.A. Zijlema [90]
Jn 4 = D. Jannink [40]		

Sunspot Index Data Center

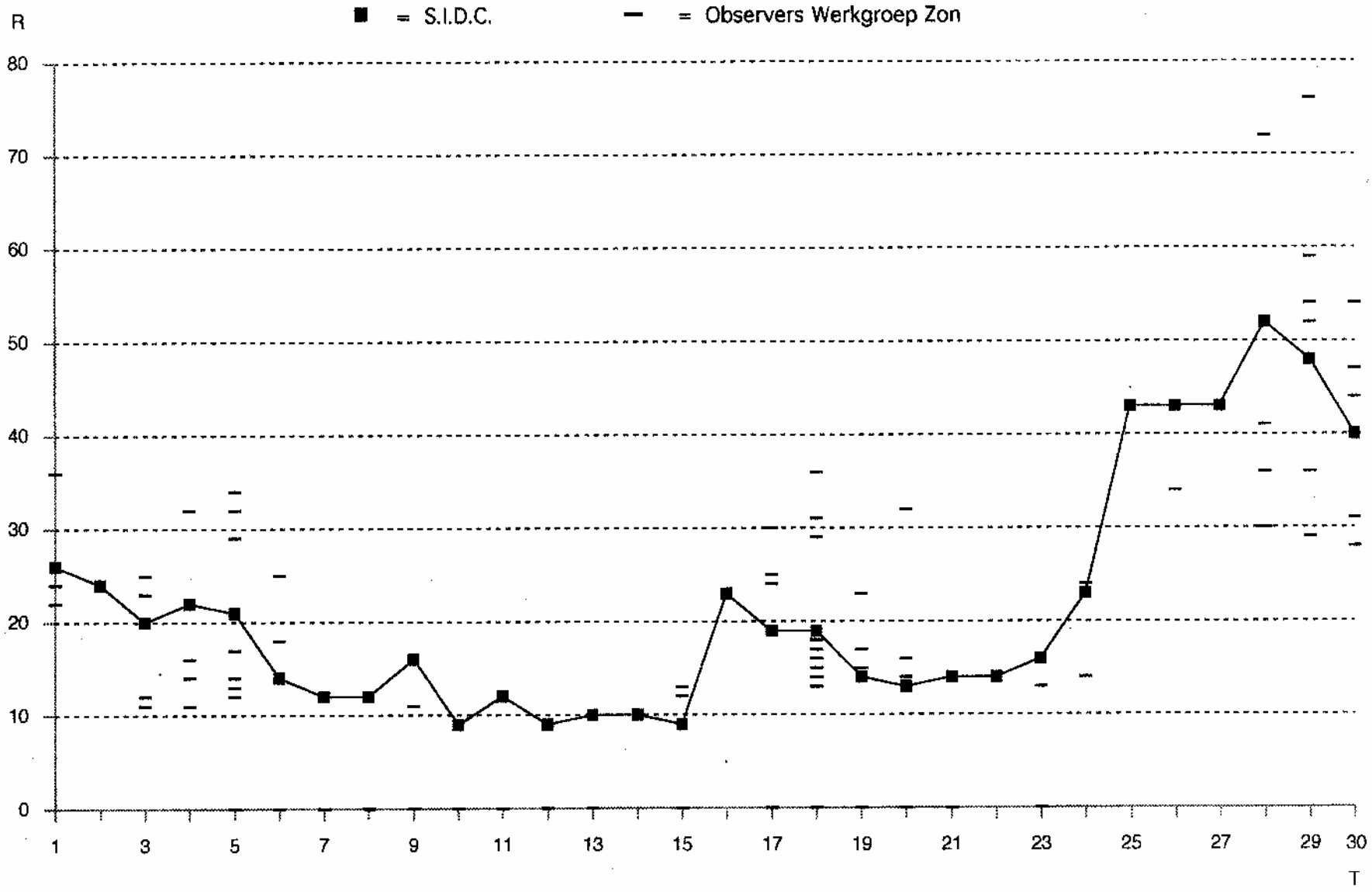
SUNSPOT BULLETIN

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

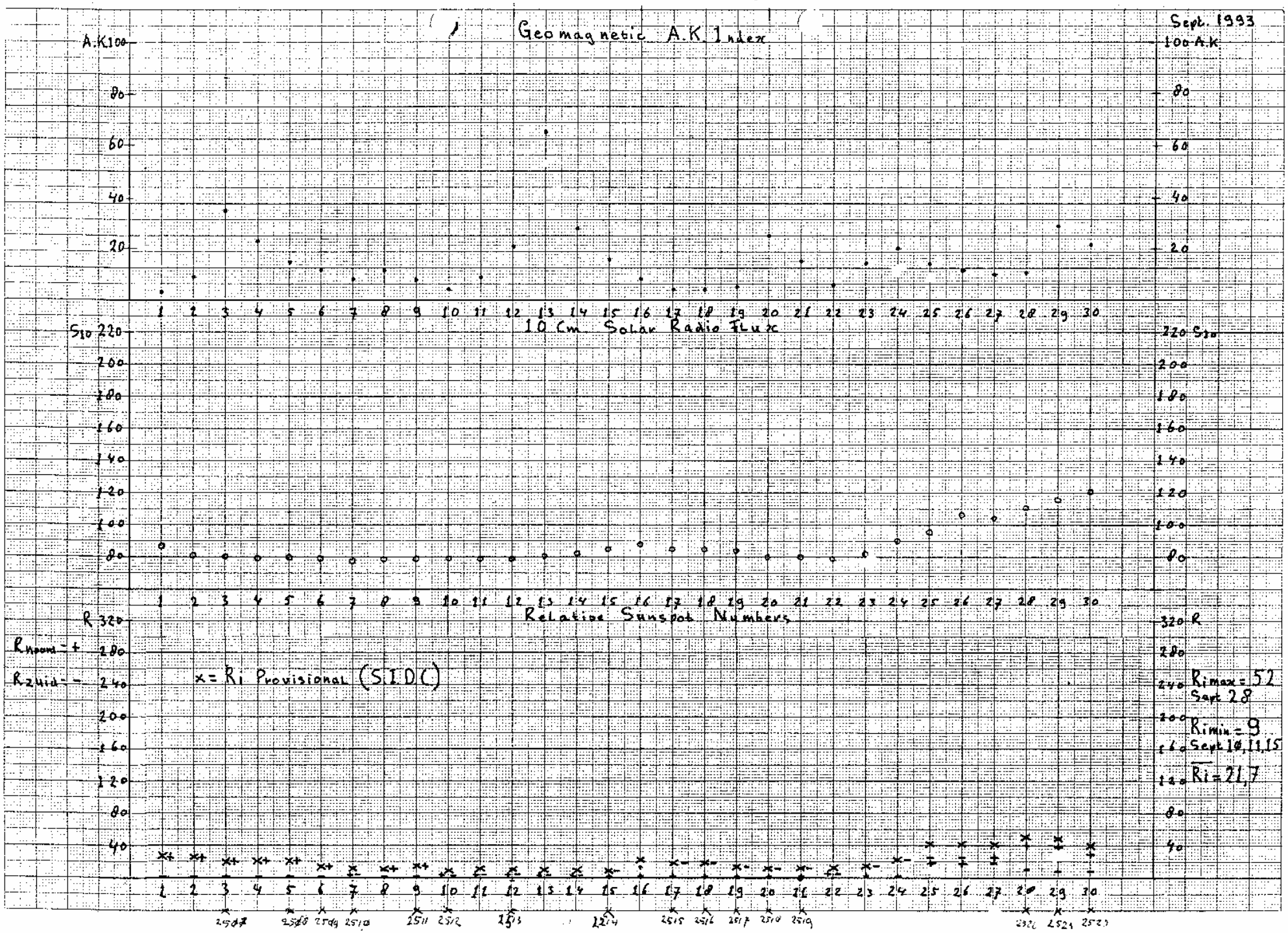
1993 SEPTEMBER R_{IM} = 21.7

Date	R_I	PPSI	600	2800	COS	SFI	XI	Ak	SEA	MAG	
31	28	19	26	89	971	0	0/0	8			
1	26	7	28	86	975	0	0/0	3			
2	24	9	26	81	973	0	0/0	9			
3	20	10	25	80	978	0	0/0	35			
4	22	10	25	79	972	5	0/0	23			
5	21	8	25	80	967	2	0/0	15			
6	14	3	26	79	971	2	0/0	12			
7	12	2	25	78	978	1	0/0	8			
8	12	1	24	79	975	1	0/0	12			
9	16	2	26	79	974	0	0/0	7			
10	9	0	25	79	978	0	0/0	4			
11	12	0	24	79	976	0	0/0	9			
12	9	1	26	79	973	0	0/0	21			mgst(1428)
13	10	1	26	80	982	0	0/0	65			
14	10	0	26	82	980	0	0/0	28			
15	9	2	26	85	985	0	0/0	16			
16	23	4	29	88	980	101	0/0	8			
17	19	4	28	85	986	1	0/0	4			
18	19	7	28	85	996	2	0/0	4			
19	14	6	28	84	996	0	0/0	5			
20	13	5	28	80	994	0	0/0	25			
21	14	1	28	80	995	1	0/0	15			
22	14	1	26	79	998	0	0/0	6			
23	16	4	26	78	997	8	0/0	13			
24	23	37	26	70	970	6	0/0	20			
25	43	53	26	96	959	2	0/0	13			
26	43	57	26	106	954	3	0/0	11			X-flare(0054)II+IV
27	43	52	28	104	962	10	2/0	10	1319	1233	ssc X-flare(1204)
28	52	63	29	111	961	3	0/0	11			
29	48	81	29	116	-	6	0/0	29			
30	40	80	29	-	-	-	-	-			

R_I, R_M : 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/m² : the quantity to subtract from the mean solar constant.
600 : 600 Mhz solar flux from Humain station (Belgium).
2800 : 2800 Mhz solar flux from Ottawa (origin : Ursigrams - UGEOI group 2).
COS : thousands of the cosmic ray counts (origin : Ursigrams - UCOSE Kerguelen).
SFI : From October 1992, Solar Flare Index from the S.I.D.C. (origin : Ursigrams - UGEOR group 3).
XI : X-flares index from the Ursigrams (N-flares/X-flares) (origin : Ursigrams - UGEOR group 2; UGEOI group 5).
Ak : planetary geomagnetic index from Wingst, Germany (origin : Ursigrams).
SEA : sudden enhancements of atmospherics from Uccle & Humain (Royal Observatory, Belgium).
MAG : magnetic events from Dourbes station (Royal Meteorological Institute, Belgium).
Remarks : sid (sudden ionospheric disturbance); ssc (sudden storm commencement); mgst (magnetic storm); sfe (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); gle (ground level event : neutron event); si (sudden impulse); F (Forbush); SFI Evaluation (1 x SA+10 x $^{a}1^{m}$+100 x $^{a}>1^{m}$).


■ = S.I.D.C.
— = Observers Werkgroep Zon
R
80
70
60
50
40
30
20
10
0
1
3
5
7
9
11
13
15
17
19
21
23
25
27
29
30
T

Sept. 1993


Geomagnetic A.K. Index
A.K
100
80
60
40
20
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
10 Cm. Solar Radio Flux
S10
220
200
180
160
140
120
100
80
Relative Sunspot Numbers
R
320
280
240
200
160
120
80
40
Rnorm = +
Rmid = −
x = Ri Provisional (SIDC)
Rimax = 52
Sept 28
Rimin = 9
Sept 10, 11, 15
Ri = 71,7
2504
2508
2509
2510
2511
2512
2513
2514
2515
2516
2517
2518
2519
2521
2522
2523

Zonnevlekkengetallen noordelijk– en zuidelijk halfrond

(Hemispheric sunspot numbers)

september 1993

	S.I.D.C.		Balster		Jannink 40		v. Slooten		Spaninks	
Day	Rn	Rs	Rn	Rs	Rn	Rs	Rn	Rs	Rn	Rs
1	26	0					24	0		
2	24	0								
3	20	0	25	0						
4	22	0					32	0		
5	21	0	14	0			17	12		
6	14	0	25	0			18	0		
7	6	6	0	0						
8	12	0								
9	16	0	11	0						
10	5	4	0	0						
11	6	6			0	0				
12	5	4	0	0	0	0				
13	5	5								
14	5	5								
15	0	9	0							
16	6	17								
17	0	19	0	25						
18	0	19	0	18	0	13			0	17
19	0	14	0	17					0	17
20	0	13	0	14						
21	0	14	0	0						
22	7	7								
23	0	16								
24	0	23								
25	19	24								
26	19	24								
27	24	19								
28	41	11	47	25						
29	39	9	53	23	18	11	41	11		
30	31	9	41	13			33	11		

Bulletin Werkgroep Zon — oktober 1993

NVWS Werkgroep Zon. Sekretariaat: Veenenburg 36, 2804 WZ Gouda, tel: 01820 -39082

Zonnevlekkengetallen

Day	Bals	Gr 5	Groe	Iden	Jn .9	Jn 4	Scho	vSlo	Span	Vers	Zans	Zijle
1					20			37				44
2					33	37		80				
3												
4	96				44					92		92
5	106			105	36			59		81		
6	80				35			66	83	91		
7					32			64		79		
8	68				30			50				
9			65		41			85		50		93
10			61		28			57	50			
11	71		65		26	27		74				55
12	50									39		
13	35		40		13			27				
14												
15	67	66		57	12			51	56	51	52	60
16	55		46	53	35				51	37	50	55
17	42	41	38		35		46	44	44	38	41	60
18	38	39	36	43	22			40	38	36	37	56
19	51	53	46	51	22			50	49	22	47	
20												
21	73				13	15		85		54		
22		52	56	63	14			80	70			
23					26	28		55			45	59
24	51	50	43		24	31		57	51	56	51	
25												
26					0							
27												
28	35		0		0			35		0		
29	16		14		0			18	17	0	15	16
30	29		24		23	24		28		24		
31												
observ	17	6	13	6	24	8	1	21	10	16	8	10
k	0,95	0,95	1,08	0,92	2,48	2,37	0,83	1,05	0,99	1,17	1,09	1,01
st.dev.	0,13	0,13	0,16	0,07	1,01	1,05	—	0,24	0,13	0,32	0,17	0,25
st.d./k	0,13	0,14	0,15	0,08	0,41	0,44	—	0,23	0,13	0,28	0,16	0,25

Observers	[...] = Refractor, d = ... mm;	[Rf...] = Reflector, d = ... mm
Bals = H.A.M. Balster [70]	Jn .9 = D. Jannink [9]	Span = T. Spaninks [75]
Gr 5 = Mw G. Gravers [50]	Jn 4 = D. Jannink [40]	Vers = D. Verschuuren [Rf 40]
Groe = A. Groenewegen [102]	Scho = A. Scholten [60]	Zans = W. Zanstra [Rf 155]
Iden = J.A. Idenburg [Rf 125]	vSlo = B. van Slooten [90]	Zijle = W.A. Zijlema [90]

Sunspot Index Date Center

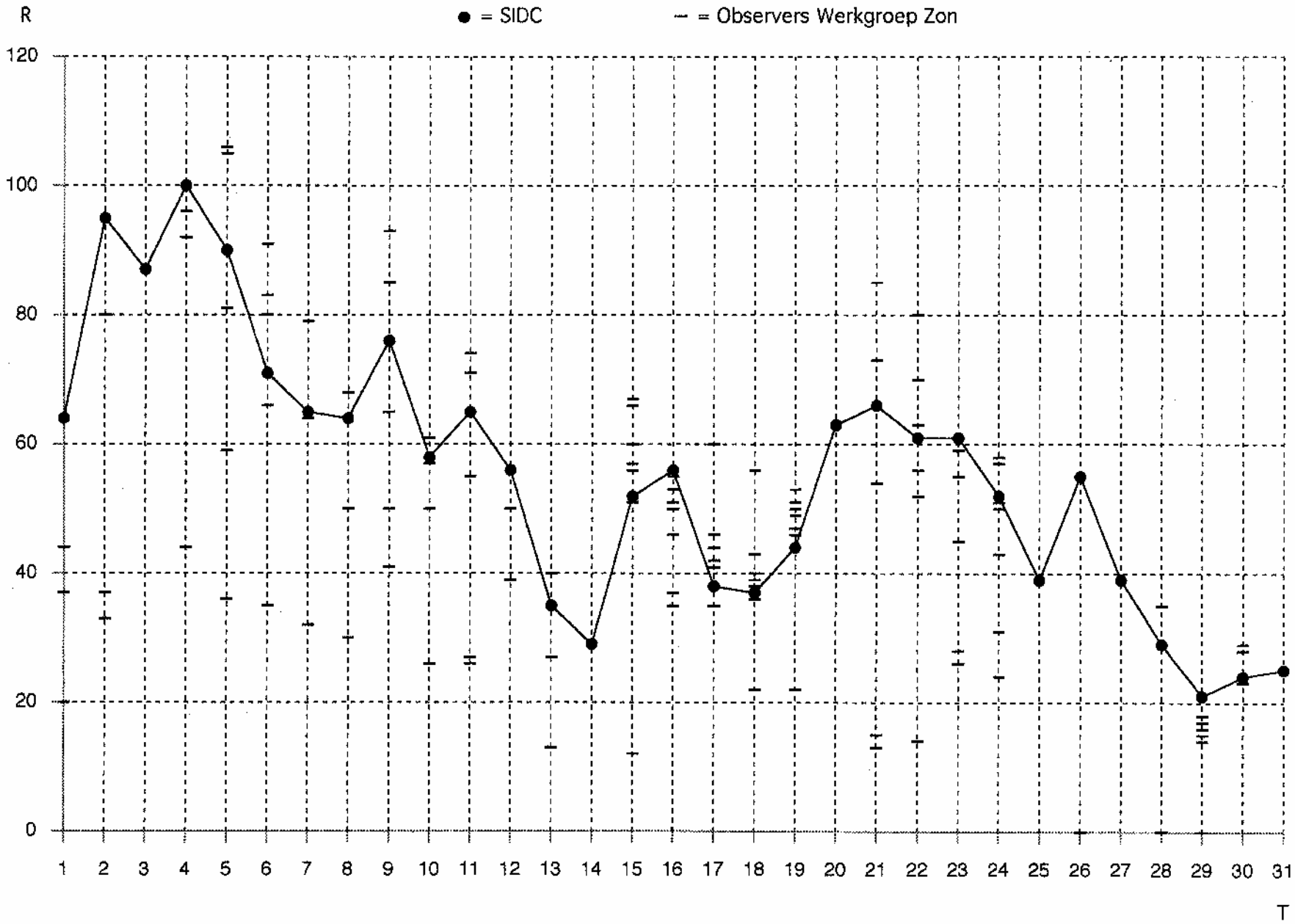
SUNSPOT BULLETIN

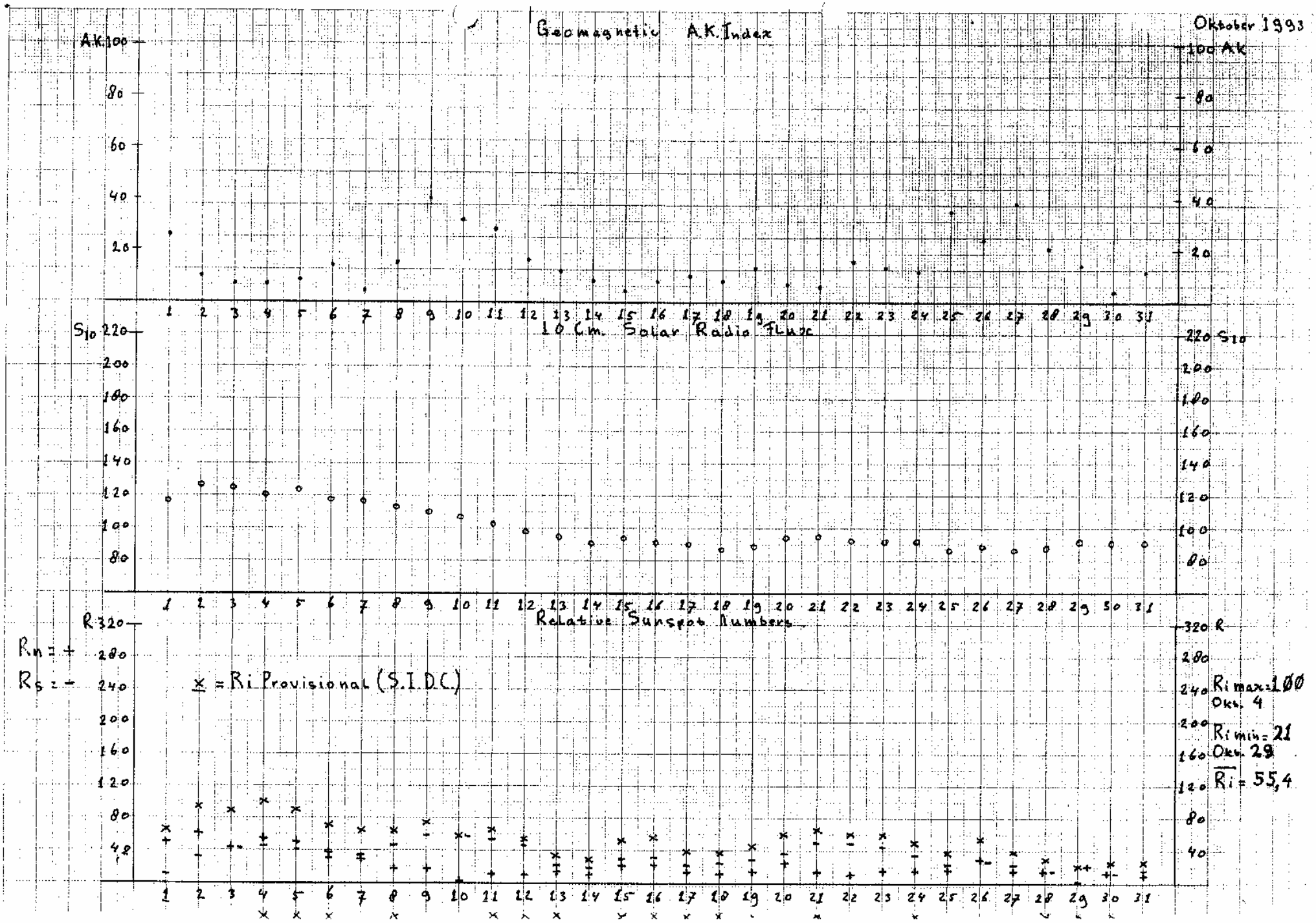
S.I.D.C. SUMMARY OF THE URSIGRAMS

1993 OCTOBER R_{IM} = 55.4

Date	R_I	PPSI	600	2800	COS	SFI	XI	Ak	SEA	MAG	
30	40	80	29	121	961	7	0/0	22		2143	ssc
1	64	124	29	117	969	23	0/0	27			
2	95	164	29	127	973	25	1/0	10	1211		T(0628)
3	87	191	29	125	975	38	0/0	7	1240		T(0930) SEA(0926)
4	100	234	30	121	973	16	0/0	7			
5	90	215	30	124	974	6	0/0	8			
6	71	161	29	118	972	4	0/0	14	1326	1312	ssc
7	65	136	29	117	964	16	0/0	4			T(1359)
8	64	99	29	113	969	11	0/0	15	1412		
9	76	58	29	110	962	105	2/0	40	0809		1543;3b(1905)
10	58	53	30	107	956	2	0/0	32			
11	65	52	29	103	967	2	0/0	29			
12	56	47	28	98	975	1	0/0	17			
13	35	39	27	95	985	1	0/0	12			
14	29	35	28	91	988	0	0/0	8			
15	52	37	28	94	991	0	0/0	4			
16	56	37	28	91	996	3	0/0	8			
17	38	27	28	90	1000	1	0/0	10			
18	37	18	28	87	995	1	0/0	8			
19	44	15	29	89	999	5	0/0	13			
20	63	23	29	94	999	5	0/0	7			
21	66	46	29	95	995	1	0/0	6			
22	61	39	29	92	990	0	0/0	16	1244	1224	ssc;mgst(0040)
23	61	35	28	92	983	1	0/0	13	1551		?
24	52	23	28	92	974	1	0/0	12			
25	39	18	26	87	966	11	0/0	35			
26	55	6	26	89	-	13	0/0	-			
27	39	7	26	87	970	2	0/0	38			
28	29	1	26	-	967	-	-	21	0809		?
29	21	5	27	92	969	1	0/0	14			
30	24	12	26	91	969	1	0/0	4			
31	25	41	26	91	974	2	0/0	12			

R_I, R_{IM} : 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/m² ; the quantity to subtract from the mean solar constant.
600 : 600 Mhz solar flux from Humain station (Belgium).
2800 : 2800 Mhz solar flux from Ottawa (origin : Ursigrams - UGEOI group 2).
COS : thousands of the cosmic ray counts (origin : Ursigrams - UCOSE Kerguelen).
SFI : From October 1992, Solar Flare Index from the S.I.D.C. (origin : Ursigrams - UGEOR group 3).
XI : X-flares index from the Ursigrams (M-flares/X-flares) (origin : Ursigrams - UGEOR group 2; UGEOI group 5).
Ak : planetary geomagnetic index from Wingst, Germany (origin : Ursigrams).
SEA : sudden enhancements of atmospherics from Uccle & Humain (Royal Observatory, Belgium).
MAG : magnetic events from Dourbes station (Royal Meteorological Institute, Belgium).
Remarks : **sid** (sudden ionospheric disturbance); **ssc** (sudden storm commencement); **mgst** (magnetic storm); **sfe** (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); **gle** (ground level event ; neutron event); **si** (sudden impulse); **F** (forbush); **SFI Evaluation** (1 x Sn+10 x "1"+100 x ">1").


R
● = SIDC
– = Observers Werkgroep Zon
120
100
80
60
40
20
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
T


Oktober 1993
Geomagnetic A.K. Index
Ak
100
80
60
40
20
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
S_{10}
220
200
180
160
140
120
100
80
10 Cm. Solar Radio Flux
Relative Sunspot Numbers
R
320
280
240
200
160
120
80
40
R_n = +
R_s = -
× = Ri Provisional (S.I.D.C.)
Ri max = 100
Okt. 4
Ri min = 21
Okt. 29
$\overline{Ri}$ = 55,4

Zonnevlekkengetallen noordelijk– en zuidelijk halfrond

(Hemispheric sunspot numbers)

oktober 1993

	S.I.D.C.		Balster		Jannink 40		v. Slooten		Spaninks	
Day	Rn	Rs	Rn	Rs	Rn	Rs	Rn	Rs	Rn	Rs
1	53	11					25	12		
2	62	33			22	15	43	37		
3	44	43								
4	56	44	53	43						
5	48	42	55	51			33	26		
6	37	34	33	47			32	34		
7	31	34					24	40		
8	18	46	22	46			22	28		
9	18	58					16	69		
10	0	58					0	57		
11	10	55	11	60	0	27	11	63		
12	10	46	15	35						
13	14	21	13	22			15	12		
14	10	19								
15	23	29	28	39			33	18	12	44
16	23	33	16	39					16	35
17	15	23	17	25			18	26	17	27
18	12	25	13	25			16	24	13	25
19	15	29	12	39			12	38	12	37
20	26	37								
21	15	51	26	47	0	15	27	58		
22	11	50					17	63	18	52
23	15	46			13	15	19	36		
24	17	35	19	32	13	18	19	38	20	31
25	17	22								
26	29	26								
27	16	23								
28	15	14	24	11			24	11		
29	21	0	16	0			18	0	17	0
30	13	11	16	13	13	11	16	12		
31	10	15								

Bulletin Werkgroep Zon — november 1993

NVWS Werkgroep Zon. Sekretariaat: Veenenburg 36, 2804 WZ Gouda, tel: 01820-39082

Zonnevlekkengetallen

Day	Bals	Groe	Iden	Jn .9	Jn 4	vSlo	Span	Vers	Zans	Zijle
1										
2										
3	30		24	14		16				
4	30	17	26	15	15	18		29	28	
5	40	15	25	15		28	26			
6										
7										
8										
9		28		13						
10										
11	0	0		0		0	14	0		
12	16	13	0	0		16			13	23
13										
14										
15	41	18		15				33	27	40
16	37		41	17		33		46		
17	45	18	37	19	21	34		34	38	
18	48	22	28			30		31	39	
19	50	22	29	20		43	30	32	43	45
20				19						
21										
22	62			27		67		56		52
23										
24	70			27	30	66		64	46	51
25	46	29		28		39		51		
26	51						50	42		
27										
28							38	38		
29	51			24	25	55		39		
30	52									
observ	16	10	8	15	4	13	5	13	7	5
k	0,83	1,52	1,03	1,64	1,77	1,01	1,14	1,01	0,99	0,86
st.dev.	0,17	0,37	0,25	0,28	0,29	0,13	0,22	0,24	0,14	0,16
st.d./k	0,20	0,25	0,24	0,15	0,16	0,13	0,19	0,24	0,14	0,18

Observers	[...] = Refractor, d = ... mm;	[Rf...] = Reflector, d = ... mm
Bals = H.A.M. Balster [70]	Jn .9 = D. Jannink [9]	Vers = D. Verschuuren [Rf 40]
Groe = A. Groenewegen [102]	Jn 4 = D. Jannink [40]	Zans = W. Zanstra [Rf 155]
Iden = J.A. Idenburg [Rf 125]	vSlo = B. van Slooten [90]	Zijle = W.A. Zijlema [90]
	Span = T. Spaninks [75]	

Sunspot Index Data Center

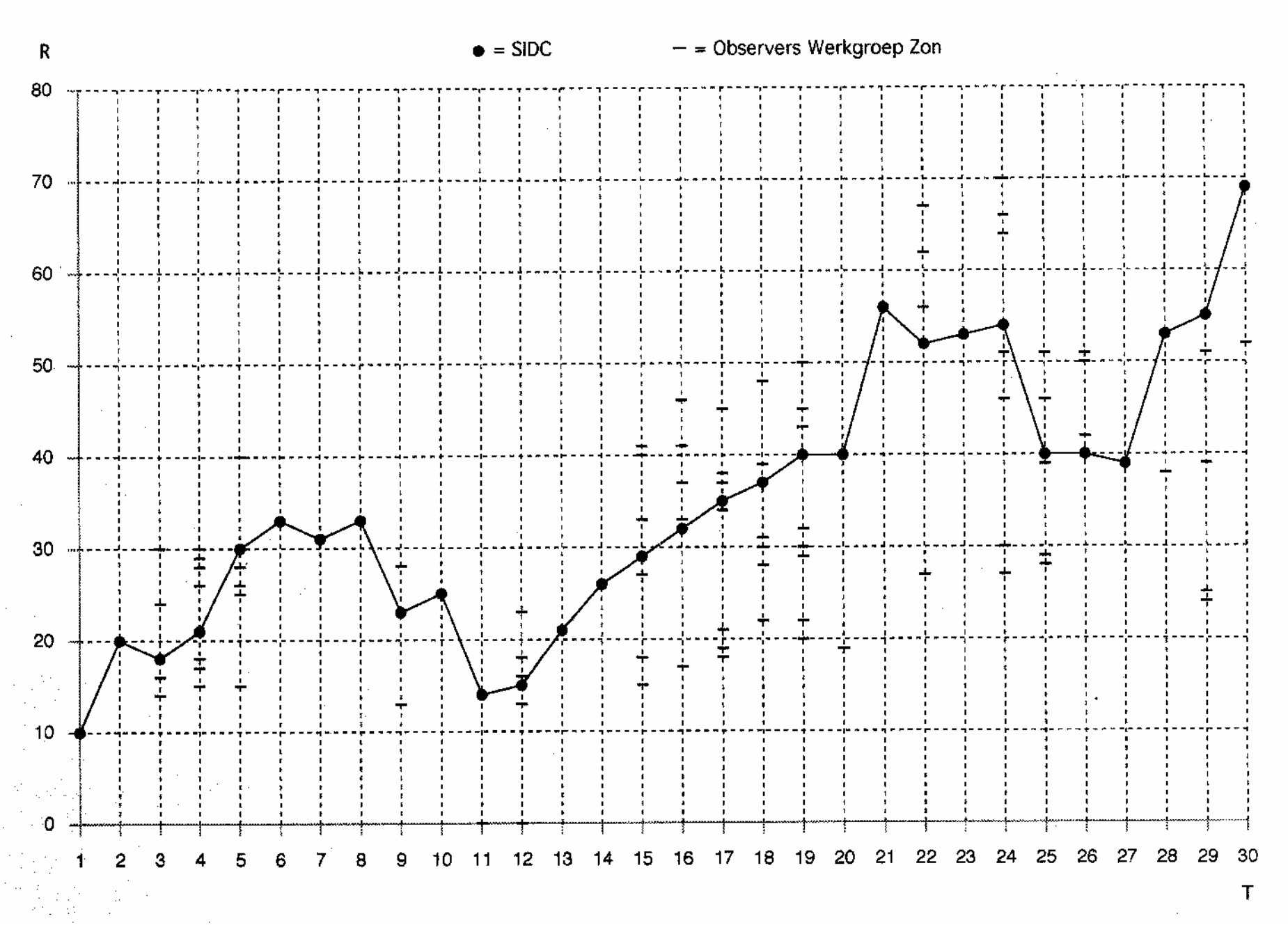
SUNSPOT BULLETIN

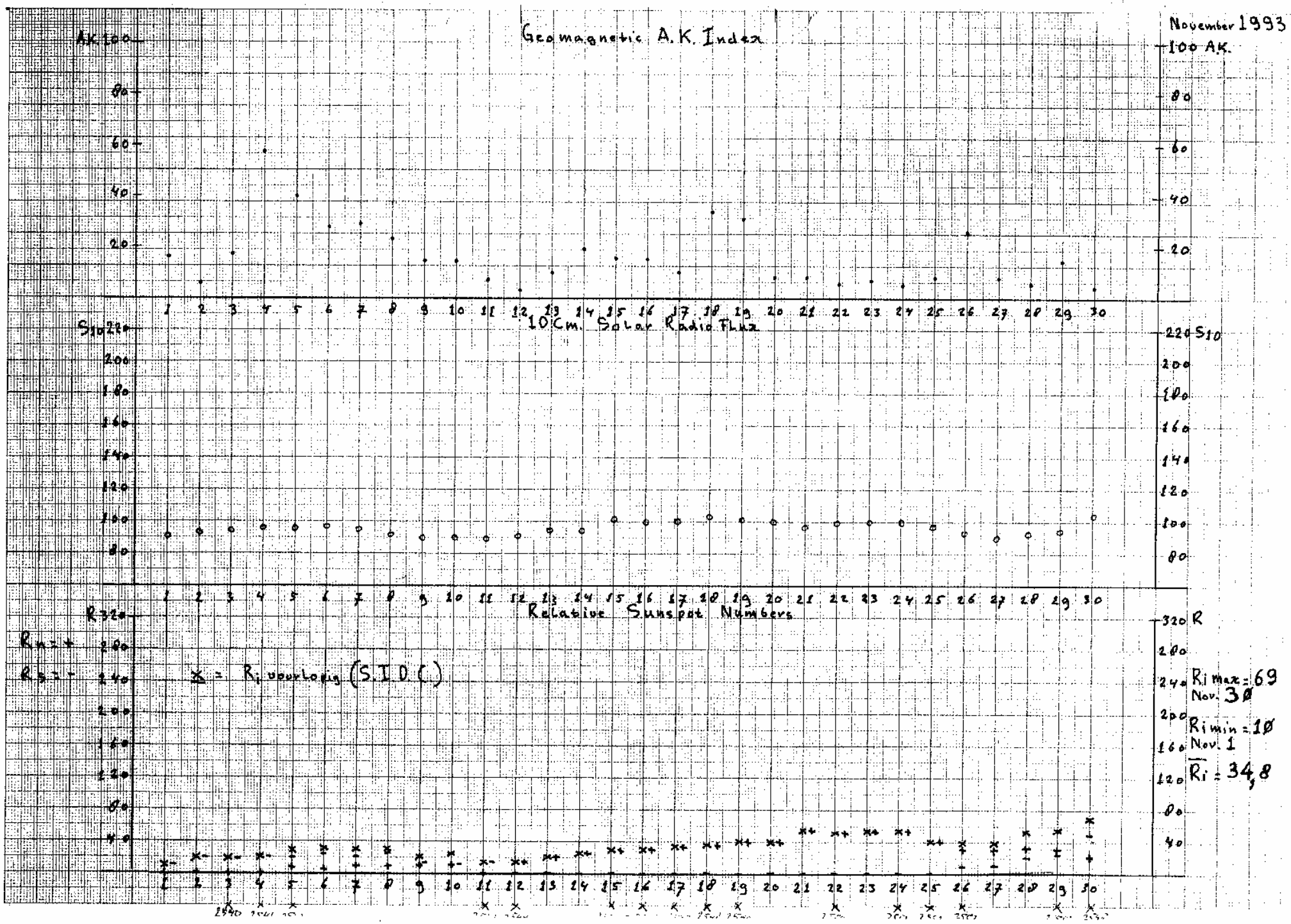
S.I.D.C. SUMMARY OF THE URSIGRAMS

1993 NOVEMBER R_{IM} = **34.8**

Date	R_I	PPSI	600	2800	COS	SFI	XI	Ak	SEA	MAG	
31	25	41	26	091	974	2	0/0	12			
1	10	47	31	091	972	4	0/0	16	1341		SEA(1439)
2	20	70	30	093	977	2	0/0	6			
3	18	73	30	094	984	0	0/0	17		1755	ssc
4	21	103	29	096	970	2	0/0	57			
5	30	87	29	096	-	0	0/0	40			
6	33	97	28	097	963	0	0/0	28			
7	31	79	28	095	-	0	0/0	29			
8	33	61	28	092	967	1	0/0	23			
9	23	27	28	090	972	1	0/0	14			
10	25	15	28	090	974	0	0/0	14			
11	14	2	28	089	976	0	0/0	7			SID(1114)
12	15	4	27	091	986	8	1/0	3		MAG	very quiet day on
13	21	16	28	094	986	14	2/0	10	12 and 13		small active events
14	26	35	27	094	988	6	0/0	19			
15	29	67	27	102	987	3	0/0	16			
16	32	78	27	100	982	1	0/0	15			
17	35	93	27	100	988	1	0/0	10			
18	37	147	27	103	993	4	0/0	34		1212	ssc MAG minor
19	40	146	28	101	979	2	0/0	31			storm level
20	40	103	28	100	983	1	0/0	8			
21	56	70	25	097	983	1	0/0	8			
22	52	56	26	099	-	1	0/0	6			
23	53	44	26	100	978	4	0/0	7			
24	54	59	26	100	973	8	0/0	5			FEW subflares(c)
25	40	50	27	097	975	18	0/0	8			
26	40	47	28	093	979	4	0/0	27			
27	39	26	26	090	984	0	0/0	8			
28	53	22	26	093	979	1	0/0	6			
29	55	22	26	094	985	2	0/0	16			
30	69	36	26	104	987	1	0/0	4			X(0600)

R_I, R_{IM} : 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/m² : the quantity to subtract from the mean solar constant.
600 : 600 Mhz solar flux from Humain station (Belgium).
2800 : 2800 Mhz solar flux from Ottawa (origin : Ursigrams - UGEOI group 2).
COS : thousands of the cosmic ray counts (origin : Ursigrams - UCDSE Kerguelen).
SFI : From October 1992, Solar Flare Index from the S.I.D.C. (origin : Ursigrams - UGEOR group 3).
XI : X-flares index from the Ursigrams (M-flares/X-flares) (origin : Ursigrams - UGEOR group 2; UGEOI group 5).
Ak : planetary geomagnetic index from Wingst, Germany (origin : Ursigrams).
SEA : sudden enhancements of atmospherics from Uccle & Humain (Royal Observatory, Belgium).
MAG : magnetic events from Dourbes station (Royal Meteorological Institute, Belgium).
Remarks : **sid** (sudden ionospheric disturbance); **ssc** (sudden storm commencement); **mgst** (magnetic storm); **sfe** (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); gle (ground level event : neutron event); si (sudden impulse); F (Forbush); SFI Evaluation (1 x Sn+10 x M1+100 x X1).


R
● = SIDC
— = Observers Werkgroep Zon
80
70
60
50
40
30
20
10
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
T


Geomagnetic A.K. Index
November 1993
AK
100
80
60
40
20
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
10Cm. Solar Radio Flux
S10
220
200
180
160
140
120
100
80
Relative Sunspot Numbers
R
320
280
240
200
160
120
80
40
Rn = +
Rs = -
X = Ri overlay (SIDC)
Ri max = 69
Nov. 30
Ri min = 10
Nov. 1
Ri = 34,8

Zonnevlekkengetallen noordelijk– en zuidelijk halfrond

(Hemispheric sunspot numbers)

November 1993

	S.I.D.C.		Balster		Jannink 40		v. Slooten		Spaninks	
Day	Rn	Rs	Rn	Rs	Rn	Rs	Rn	Rs	Rn	Rs
1	0	10								
2	0	20								
3	0	18	0	30			0	16		
4	0	21	0	30	0	15	0	18		
5	8	22	11	29			11	17	0	26
6	7	26								
7	9	22								
8	8	25								
9	10	13								
10	12	13								
11	0	14	0	0			0	0	14	0
12	15	0	18	0			16	0		
13	21	0								
14	26	0								
15	29	0	41	0						
16	32	0	37	0			33	0		
17	35	0	45	0	21	0	34	0		
18	37	0	48	0			30	0		
19	40	0	50	0			43	0	30	0
20	40	0								
21	56	0								
22	52	0	62	0			67	0		
23	53	0								
24	54	0	70	0	30	0	66	0		
25	40	0	46	0			39	0		
26	32	8	40	11					13	37
27	30	9								
28	33	20							27	11
29	29	26	23	28	11	14	26	29		
30	21	48	14	38						

Bulletin Werkgroep Zon december 1993

NVWS Werkgroep Zon. Sekretariaat: Veenenburg 36, 2804 WZ Gouda, tel: 01820 -39082

Zonnevlekkengetallen

Day	Bals	Gr 6	Groe	Iden	Jn .9	Jn 4	Scho	vSlo	Span	Vers	Zans	Zijle
1												
2					25							
3												
4												
5	69	61	54					61	64	44		
6												
7												
8												
9			44									
10												
11						0				25		34
12								26			23	26
13												
14	12		0		0	0		11				
15												
16	25				22							
17	26	28			22	22		28				
18												
19												
20												
21			39		25						30	
22												
23				58	13	16				44		
24												
25	106	50		56	23		128	57			40	85
26												
27												
28								26		15		
29												
30												
31		77			48	52		73				
observ	5	4	4	2	8	5	1	7	1	4	3	3
k	1,04	1,18	1,11	1,20	2,20	2,08	0,64	1,43	0,98	2,10	1,40	0,93
st.dev.	0,44	0,33	0,11	0,27	1,16	1,00	—	0,61	—	1,29	0,48	0,09
st.d./k	0,42	0,28	0,10	0,22	0,53	0,48	—	0,43	—	0,62	0,34	0,10

Observers		[...] = Refractor, d = ... mm;		[Rf...] = Reflector, d = ... mm	
Bals	= H.A.M. Balster [70]	Jn .9	= D. Jannink [9]	Span	= T. Spaninks [75]
Gr 6	= Mw G. Gravers [60]	Jn 4	= D. Jannink [40]	Vers	= D. Verschuuren [Rf 40]
Groe	= A. Groenewegen [102]	Scho	= A. Scholten [60]	Zans	= W. Zanstra [Rf 155]
Iden	= J.A. Idenburg [Rf 125]	vSlo	= B. van Slooten [90]	Zijle	= W.A. Zijlema [90]

Sunspot Index Data Center

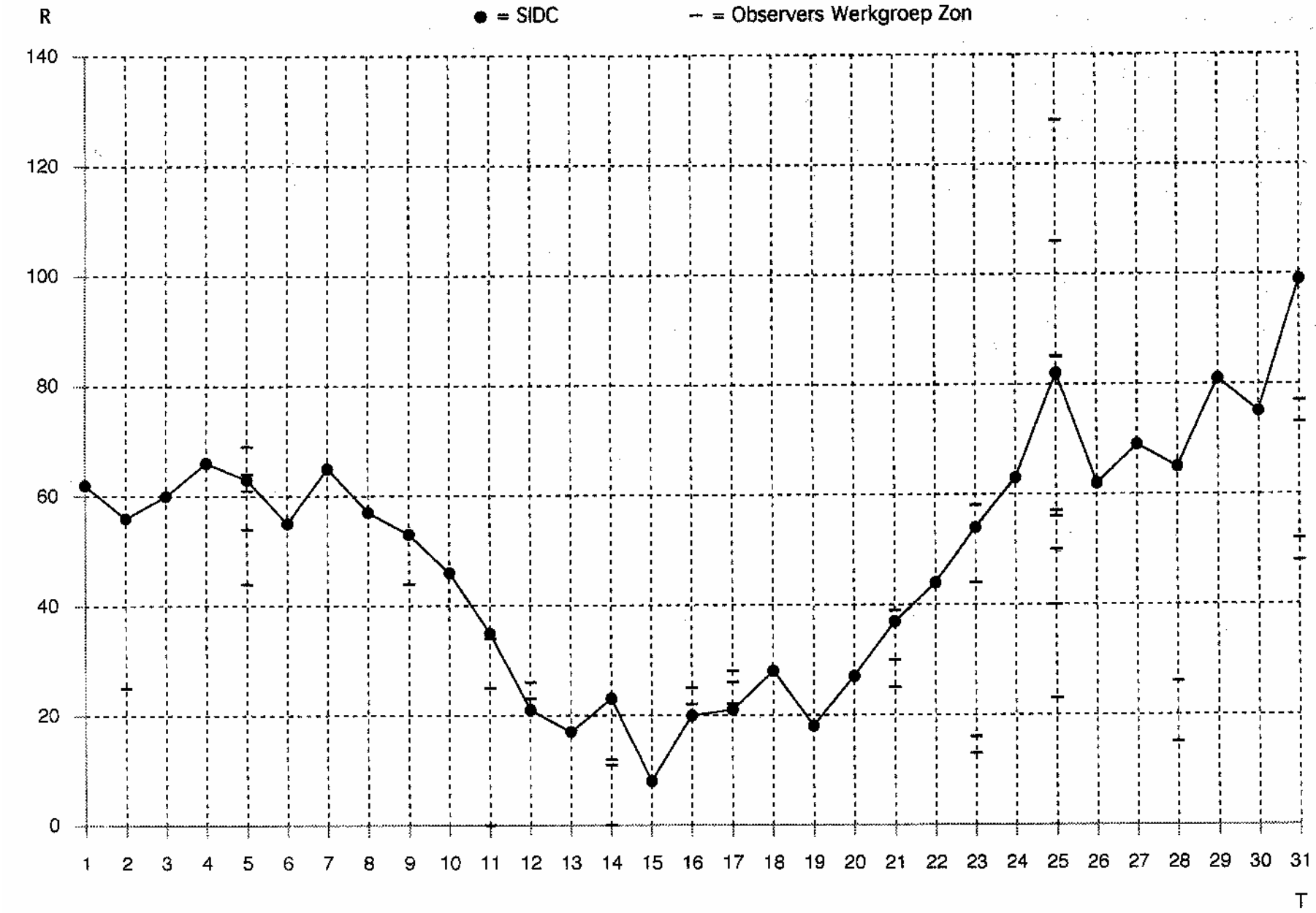
SUNSPOT BULLETIN

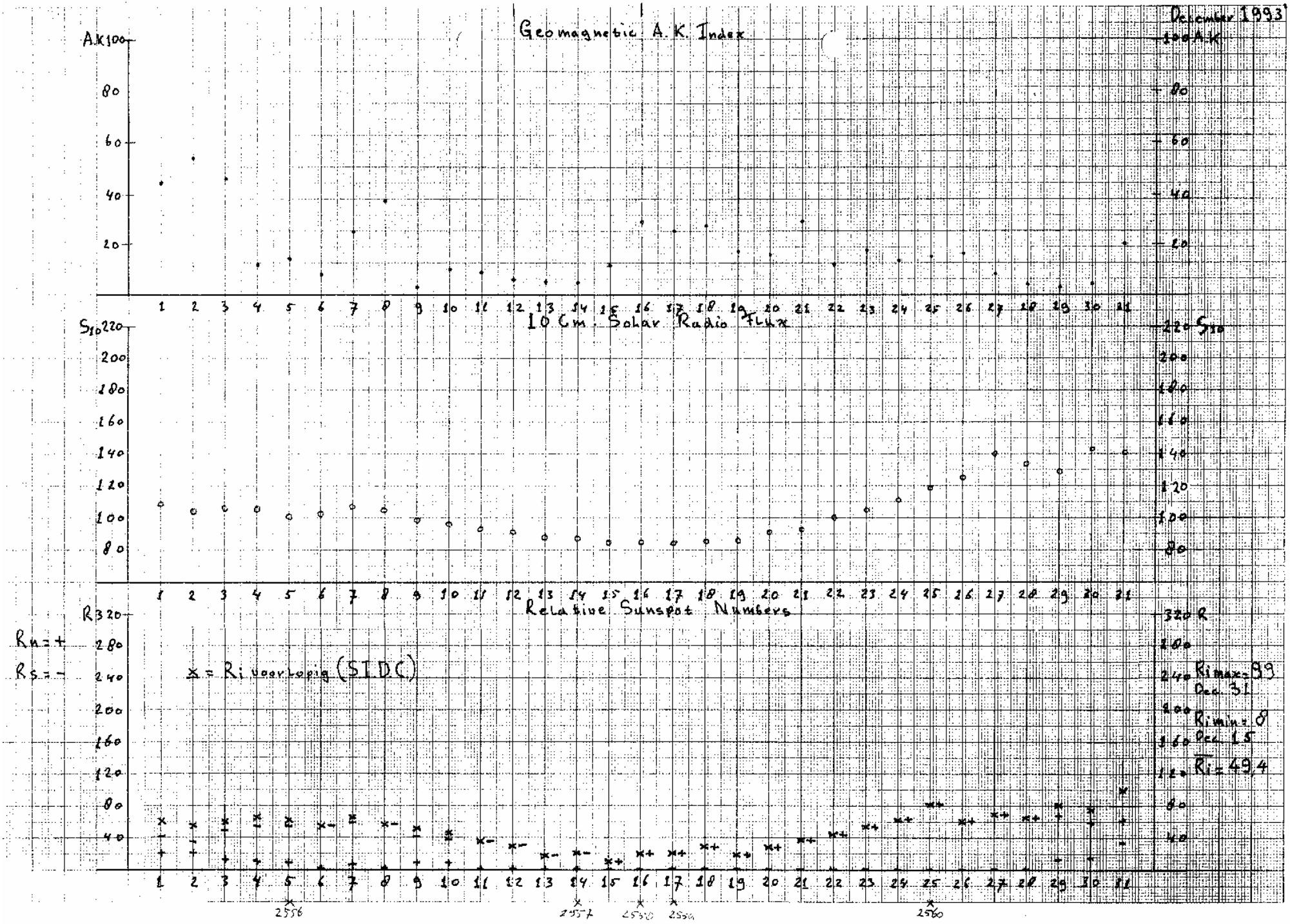
S.I.D.C. SUMMARY OF THE URSIGRAMS

1993 DECEMBER R_{IM} = 49.4

Date	Rf	PPSI	600	2800	COS	SFI	XI	Ak	SEA	MAG	
30	69	36	26	104	987	1	0/0	4			
1	62	70	28	109	989	22	0/0	44		1156	mgst
2	56	62	29	104	978	3	0/0	53			
3	60	55	29	106	968	4	0/0	33			
4	66	43	29	105	971	11	0/0	12			
5	63	46	29	101	970	1	0/0	14			
6	55	58	28	103	977	20	0/0	8			
7	65	53	28	107	978	6	0/0	26		1201	ssc
8	57	53	28	105	—	7	0/0	38			
9	53	26	28	098	964	1	0/0	3			
10	46	20	27	096	972	0	0/0	10			
11	35	12	27	093	972	0	0/0	9			
12	21	2	27	091	979	3	0/0	6			
13	17	1	27	088	985	0	0/0	5			
14	23	3	26	088	990	0	0/0	5			
15	8	3	26	085	991	0	0/0	12			
16	20	10	26	085	981	0	0/0	29			
17	21	15	26	084	975	1	0/0	25			
18	28	12	25	085	977	1	0/0	27			
19	18	12	25	087	970	1	0/0	17			
20	27	13	25	091	974	5	0/0	16			
21	37	24	26	093	969	0	0/0	29			
22	44	44	26	100	970	20	1/0	12			1B(1721)+T
23	54	64	28	105	970	13	0/0	18			
24	63	90	28	111	976	32	2/0	13			
25	82	112	30	119	975	18	1/0	15			
26	62	155	29	125	976	64	1/0	16			
27	69	145	29	140	978	8	1/0	8			
28	65	111	30	134	981	23	1/0	4			X(1205)+T
29	81	131	30	129	981	13	0/0	3			
30	75	131	30	143	982	37	1/0	4			
31	99	135	30	141	985	28	0/0	20			

R_f, R_{IM} : 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/m² : the quantity to subtract from the mean solar constant.
600 : 600 Mhz solar flux from Humain station (Belgium).
2800 : 2800 Mhz solar flux from Ottawa (origin : Ursigrams - 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 : Ursigrams - UCOSE Kerguelen).
SFI : from October 1992, Solar Flare Index from the S.I.D.C. (origin : Ursigrams - UGEOR group 3).
XI : X-flares index from the Ursigrams (M-flares/X-flares) (origin : Ursigrams - UGEOR group 2; UGEOI group 5).
Ak : planetary geomagnetic index from Wingst, Germany (origin : Ursigrams).
SEA : sudden enhancements of atmospherics from Uccle & Humain (Royal Observatory, Belgium).
MAG : magnetic events from Dourbes station (Royal Meteorological Institute, Belgium).
Remarks : **sid** (sudden ionospheric disturbance); **ssc** (sudden storm commencement); **mgst** (magnetic storm); sfe (solar flare effect); **x-1-2-3-4** (class of flares); II-IV radio-burst; T (ten cm radio-burst); P (proton flare); p (proton event); **gle** (ground level event : neutron event); **si** (sudden impulse); F (Forbush); **SFI Evaluation** (1 x Sn+10 x H1"+100 x "X1").


R
● = SIDC
– = Observers Werkgroep Zon
140
120
100
80
60
40
20
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
T


December 1993
Geomagnetic A.K. Index
A.K
10 Cm. Solar Radio Flux
S_{10}
Relative Sunspot Numbers
R
Rn = +
Rs = -
x = Ri overlapig (SIDC)
Rimax = 99
Obs. 31
Rimin = 8
Obs. 15
$\overline{Ri}$ = 49,4
2556
2557
2559
2560

Zonnevlekkengetallen noordelijk– en zuidelijk halfrond

(Hemispheric sunspot numbers)

december 1993

	S.I.D.C.		Balster		Jannink 40		v. Slooten		Spaninks	
Day	Rn	Rs	Rn	Rs	Rn	Rs	Rn	Rs	Rn	Rs
1	22	40								
2	21	35								
3	13	47								
4	11	55								
5	8	55	11	58			11	50	11	53
6	0	55								
7	7	58								
8	0	57								
9	10	43								
10	8	38								
11	0	35			0	0				
12	0	21					0	26		
13	0	17								
14	0	23	0	12	0	0	0	11		
15	8	0								
16	20	0	25	0						
17	21	0	26	0	22	0	28	0		
18	28	0								
19	18	0								
20	27	0								
21	37	0								
22	44	0								
23	54	0			16	0				
24	63	0								
25	82	0	106	0			57	0		
26	62	0								
27	69	0								
28	65	0					26	0		
29	68	13								
30	59	16								
31	63	36			37	15	50	23		