

50 MHz propagation reports during solar cycle 22

1988 -1992

By Henk J. Schanssema
PA2S

This document contains propagation reports
that were compiled during solar cycle 22

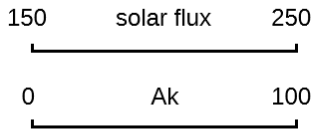
Created on a Macintosh computer and converted.
Partly re-edited with colour, but most graphs unchanged.
Patterns not converted properly.

The graphs provide insight in what to expect
during the seasons and times of the day.

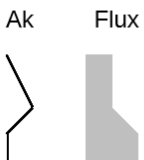
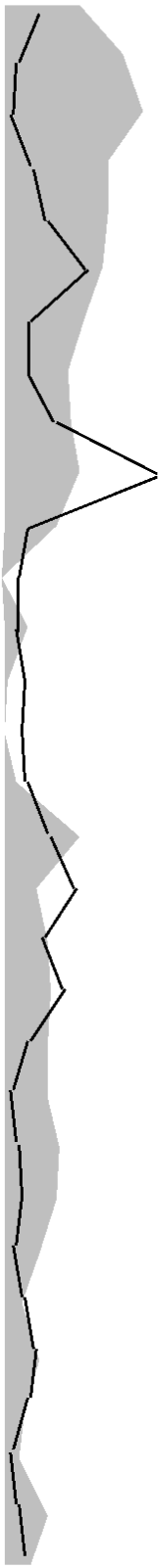
The position of the bars correspond to the legend
on the bottom of the page.

November 2024

50 MHz F2 propagation review of October 1988
by PA2HJS



HOUR (UTC)	X-RAY FLARES												REMARKS									
	0	0	0	0	1	1	1	1	1	1	1	1		2	2	2	2	2	X	M	Ak	
01																			1	14		
02																					5	
03																		2	2	3		
04																				1	12	
05																				1	18	
06																				1	33	
07																					10	
08																					10	
09																				1	21	
10																				1	62	1200 K=7
11																					10	
12																			1	1	5	PE 12
13																				1	5	
14																					8	
15																					7	
16																					10	
17																				3	19	
18																				1	29	
19																				2	15	
20																					24	
21																					10	
22																					3	
23																					6	
24																					7	
25																					4	
26																					8	
27																				1	13	
28																					10	
29																				1	3	
30																					6	
31																					10	



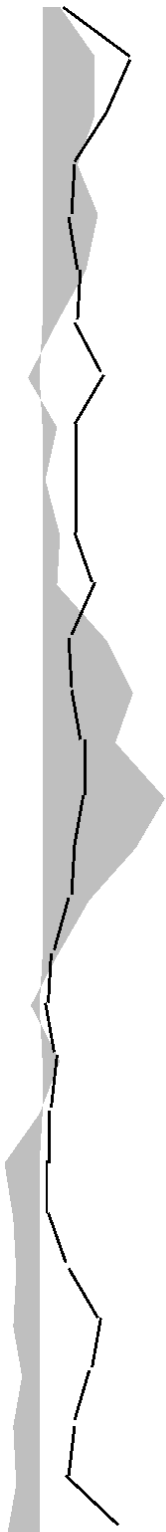
DATE

LEGEND

- N-America
- S-America
- C-America
- Africa
- Asia / Australia

PE xx: Proton Event particles

50 MHz F2 propagation review of November 1988
by PA2HJS



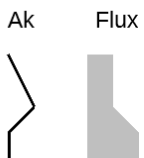
HOUR (UTC)	X-RAY FLARES														REMARKS				
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	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4
01																	2	8	
02																		34	
03																		25	
04																		12	
05																		10	
06																	1	15	
07																	1	13	
08																		23	PE 12
09																	2	12	PE 11
10																	1	12	
11																		12	
12																	1	20	
13																	5	10	
14																	7	11	PE 13
15																	1	16	
16																	8	16	
17																		12	
18																		10	
19																		4	
20																		2	
21																	1	6	
22																		3	
23																		2	
24																	1	3	
25																		10	
26																	1	22	
27																	2	18	
28																		12	
29																		9	
30																		30	

DATE

LEGEND

- ██████████ N-America
- ▤▤▤▤▤▤▤▤ S-America
- ▬▬▬▬▬▬▬▬ C-America
- ▬▬▬▬▬▬▬▬ Africa
- ▬▬▬▬▬▬▬▬ Asia / Australia

PE xx : Proton Event particles








50 MHz F2 propagation review of December 1988
by PA2HJS



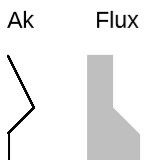
HOUR (UTC)	X-RAY FLARES														REMARKS					
	0	0	0	0	1	1	1	1	1	1	1	1	2	2		2	2	X	M	Ak
	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	
01																			5	
02																			14	
03																			21	
04																			11	
05																			4	
06																			3	
07																	1	3		
08																			5	
09																	3	4		
10																	3	8		
11																	1	16		
12																			14	
13																	1	24		
14																	3	18		
15																	1	2	9	
16																	1	29		
17																		4	33	PE 18
18																	1	2	26	PE 29
19																	2	23		
20																	3	6		
21																	1	9		
22																	3	14		
23																	2	4		
24																	3	5		
25																	1	19		
26																	1	21		
27																	2	18		
28																	6	14		
29																	1	22		
30																	1	13		
31																			15	

DATE

LEGEND

-  N-America
-  S-America
-  C-America
-  Africa
-  Asia / Australia

PE xx : Proton Event particles



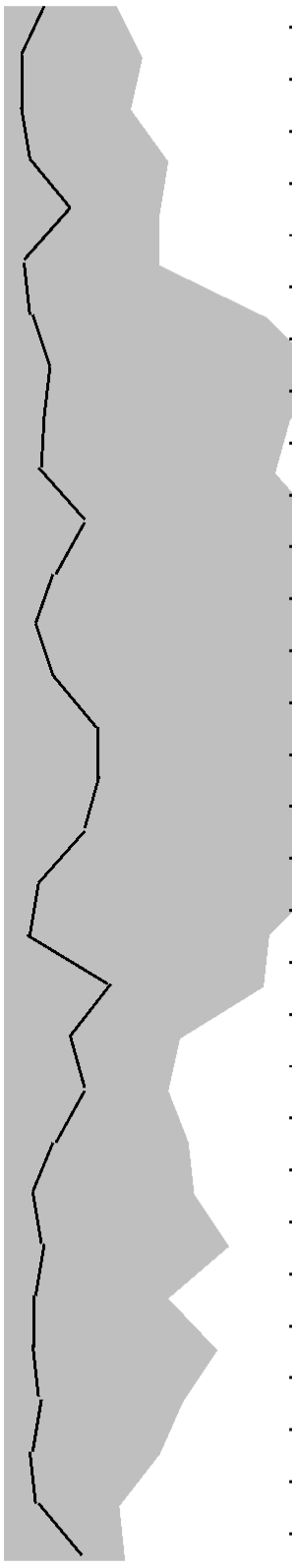
50 MHz F2 propagation review of January 1989
by PA2HJS



X-RAY
FLARES

HOUR (UTC)

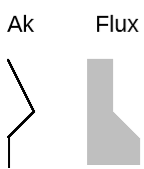
	0	0	0	0	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	X	M	Ak	REMARKS	
	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4					
01																						1	17	
02																						2	7	
03																						4	6	
04																						2	11	PE10
05																							27	PE28
06																						4	9	
07																						1	5	12
08																						8	19	
09																						6	16	
10																						1	6	14
11																						5	32	
12																						2	20	0600 K = 7
13																						1	9	13
14																						2	4	20
15																						3	37	
16																						6	38	
17																							32	
18																						1	2	14
19																							10	
20																						1	42	
21																						1	26	
22																						3	32	
23																						3	20	
24																						2	12	
25																						1	16	
26																						3	12	
27																						1	2	12
28																						2	15	
29																						1	11	
30																						3	14	
31																						5	31	



DATE

- LEGEND
- N-America
 - S-America
 - C-America
 - Africa
 - Asia / Australia

PExx: Proton Event Particles

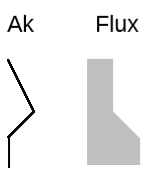


50 MHz F2 propagation review of February 1989
by PA2HJS



HOUR (UTC)	X-RAY FLARES														REMARKS									
	0	0	0	0	1	1	1	1	1	1	1	1	1	2		2	2	2	X	M	Ak			
	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4					
01																					2	23		
02																					1	22		
03																					2	44		
04																					1	27		
05																						21		
06																					4	24		
07																					2	22		
08																					4	14		
09																					1	1	22	
10																					1		11	
11																					1	10		
12																						17		
13																					1	24		
14																					1	14		
15																						19		
16																					3	13		
17																					1	6		
18																						8		
19																						10		
20																					1	21		
21																					5	12		
22																					3	12		
23																					1	5		
24																						9		
25																						6		
26																						3		
27																					1	8		
28																					1	14		

DATE



- LEGEND
- ▬ N-America
 - ▬ S-America
 - ▬ C-America
 - ▬ Africa
 - ▬ Asia / Australia

50 MHz F2 propagation review of March 1989
by PA2HJS



X-RAY
FLARES

HOUR (UTC)

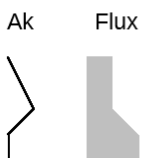
	0	0	0	0	1	1	1	1	1	1	1	1	1	2	2	2	2	2	X	M	Ak	REMARKS	
	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4				
01																					2	12	
02																					4	21	
03																					1	32	
04																						12	
05																					2	27	
06																				1	2	24	
07																				1	5	16	
08																					3	21	PE 51
09																				1	6	24	PE 220
10																				1	4	20	PE 270
11																				2	8	16	PE 270
12																					6	25	PE 600
13																				1	5	284	PE 3500 Very strong disturbance
14																				1	3	146	PE 3500 Very strong disturbance
15																					4	36	
16																				2	5	38	
17																				1	5	28	PE 370
18																				3	10		PE 2000
19																				7	40		PE 2000
20																				4	14		PE 100
21																				3		16	
22																				2		30	
23																				1		34	PE 55
24																				1	9		PE 53
25																						13	
26																				1		12	
27																				1		41	
28																				2		33	
29																						54	
30																					41		2400 K = 7
31																						36	

DATE

LEGEND

- N-America
- S-America
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- Africa
- Asia / Australia

PExx: Proton Event Particles

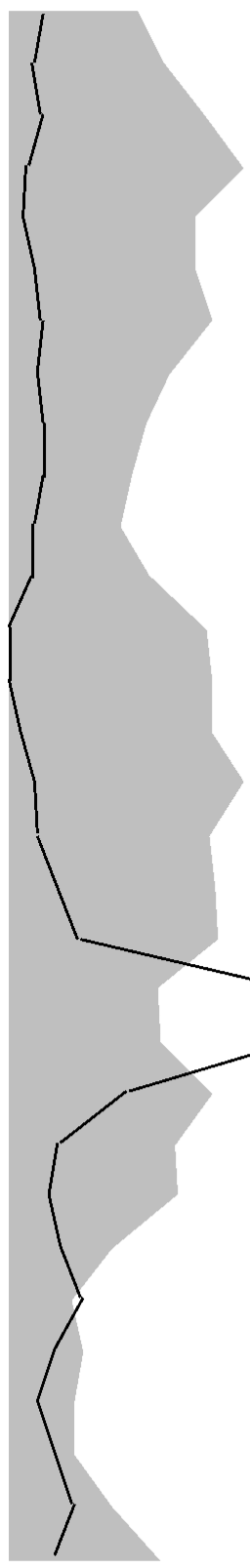


50 MHz F2 propagation review of October 1989
by PA2HJS



X-RAY
FLARES

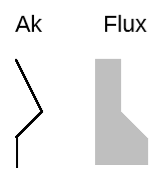
DATE	HOUR (UTC)														X-RAY FLARES			REMARKS					
	0	0	0	0	1	1	1	1	1	1	1	1	1	2	2	2	2		2	X	M	Ak	
	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4				
01																					14	PE 2600	
02																				1	10	PE 70	
03																					14	PE 12	
04																					8		
05																					6		
06																					11	PE 16	
07																					14		
08																					12		
09																					14		
10																					14		
11																					10		
12																				1	10		
13																				2	1		
14																				1	0		
15																				1	5		
16																					11		
17																				1	12		
18																				3	20		
19																				1	1	28	PE 3200
20																				3	113	PE 73000	Strong disturbance
21																				3	110	PE 1000	Strong disturbance
22																				1	3	46	PE 2800
23																				1	2	20	PE 8300
24																				1		16	PE 3000
25																				2	21	PE 4100	
26																				2	29	PE 1400	
27																				1	1	18	PE 250
28																				2	12	PE 45	
29																				2	18	PE 20	
30																					26	PE 15	
31																				3	18		



DATE

- LEGEND
- █ N-America
 - ▤ S-America
 - ▬ C-America
 - ▬ Africa
 - ▬ Asia / Australia

PExx: Proton Event Particles



50 MHz F2 propagation review of November 1989
by PA2HJS

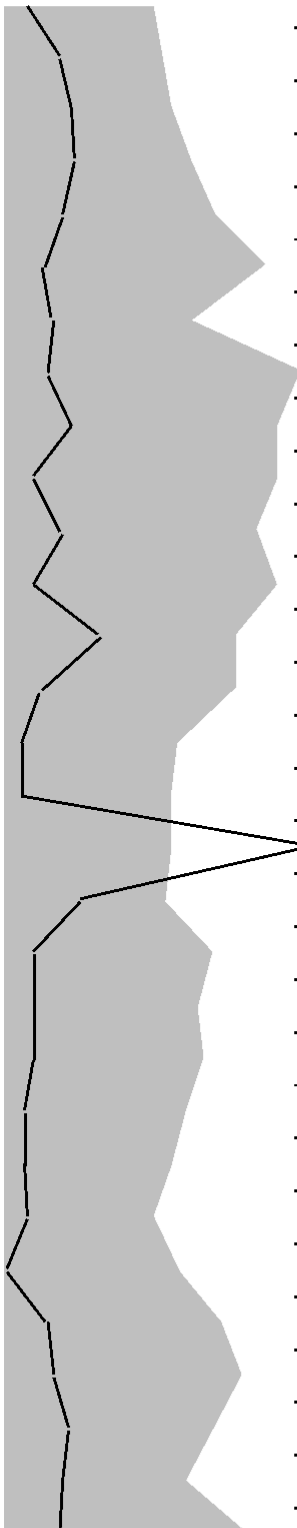
150 solar flux 250

0 Ak 100

HOUR (UTC)

X-RAY
FLARES

	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2				REMARKS	
	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	X	M	Ak			
01																							8		
02																						1	21		
03																						2	25		
04																							26		
05																						1	22		
06																						4	14		
07																						6	18		
08																						5	16		Backscatter signals
09																						9	25		PE 43
10																						6	10		
11																						3	22		Very good opening
12																						1	1	10	
13																						1	36		
14																						1	13		
15																						2	1	6	PE 71
16																						1	2	6	
17																						2	116		Strong disturbance
18																						1	28		
19																						1	2	10	Very good opening
20																						1	3	10	Very good opening
21																						1	1	11	
22																						2	7		
23																								7	
24																								8	
25																						1	1	1	
26																						1	16		
27																						1	18		PE 49
28																								24	PE 380
29																								22	PE 100
30																						1	1	21	PE 650

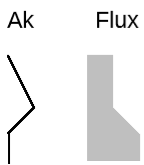


DATE

LEGEND

- N-America
- S-America
- C-America
- Africa
- Asia / Australia

PExx: Proton Event Particles



50 MHz F2 propagation review of December 1989
by PA2HJS



X-RAY
FLARES

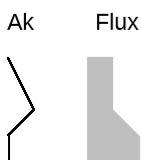
DATE	HOUR (UTC)														X-RAY FLARES			REMARKS					
	0	0	0	0	1	1	1	1	1	1	1	1	1	1	2	2	2		2	2	X	M	Ak
	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4				
01																						41	PE 7500
02																					1	20	PE 15
03																						25	PE 20
04																					3	34	
05																					1	13	
06																						5	
07																					3	10	
08																						6	
09																					1	4	
10																						2	
11																						6	
12																						10	
13																						9	
14																					1	13	
15																						11	
16																						18	
17																						11	
18																					2	10	
19																						5	
20																					1	7	
21																						10	
22																					1	22	
23																					3	12	
24																					1	27	
25																					3	16	No F2 since 29 Oct
26																					3	27	
27																					3	27	
28																					4	10	
29																					5	56	2100 K = 7 2400 K = 7
30																					1	1	26
31																					1	27	

DATE

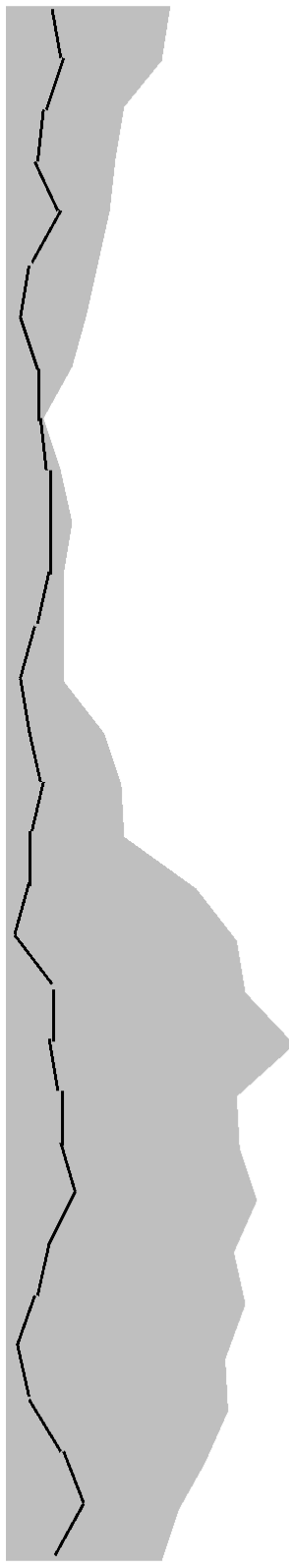
LEGEND

- N-America
- S-America
- C-America
- Africa
- Asia / Australia

PExx: Proton Event Particles

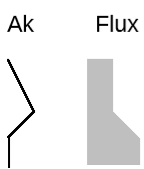


50 MHz F2 propagation review of January 1990
by PA2HJS



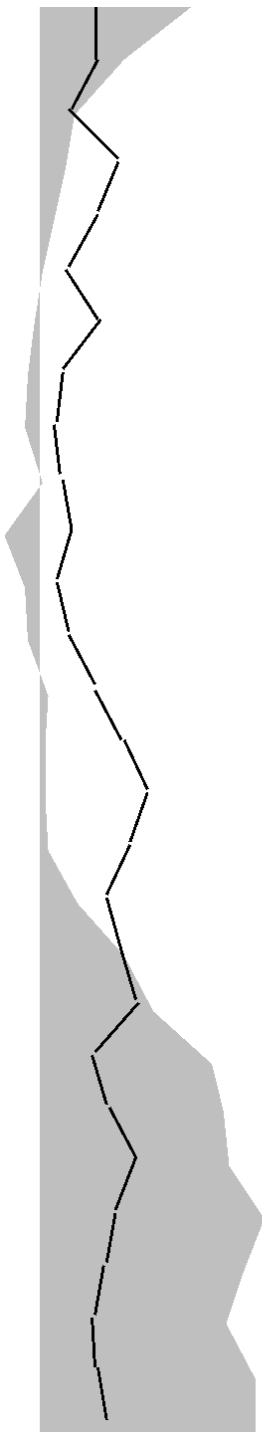
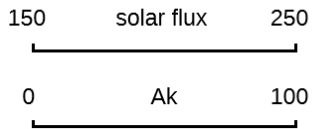
HOUR (UTC)	X-RAY FLARES														REMARKS				
	0	0	0	1	1	1	1	1	1	1	1	1	2	2		2	2	X	M
	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4
01																			1 19
02																			23
03																			1 16
04																			12
05																			1 22
06																			10
07																			6
08																			1 13
09																			2 14
10																			2 18
11																			18
12																			2 18
13																			12
14																			1 6
15																			10
16																			1 15
17																			1 10
18																			3 10
19																			2 4
20																			2 19
21																			1 18
22																			1 22
23																			22
24																			29
25																			18
26																			12
27																			1 5
28																			10
29																			1 23
30																			32
31																			20

DATE



- LEGEND
- █ N-America
 - ▤ S-America
 - ▬ C-America
 - ▬ Africa
 - ▬ Asia / Australia

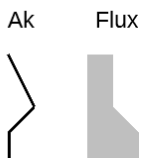
50 MHz F2 propagation review of February 1990
by PA2HJS



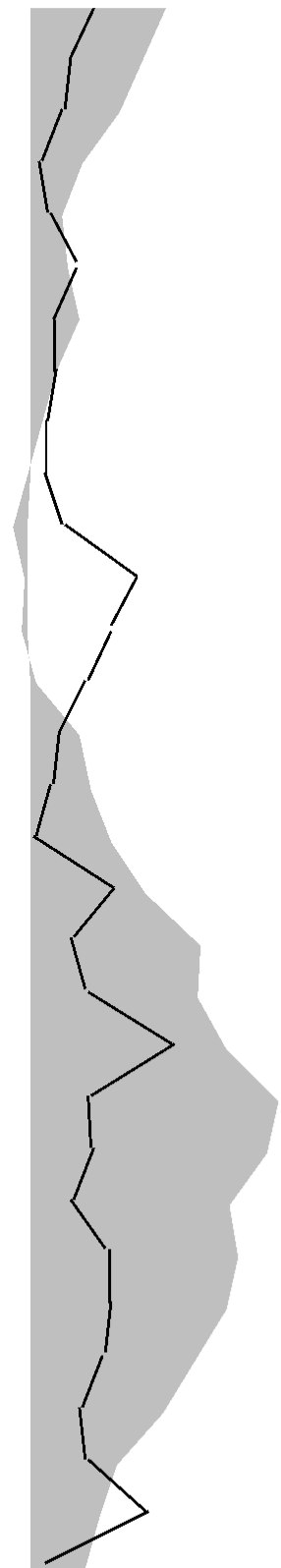
HOUR (UTC)	X-RAY FLARES				REMARKS
	X	M	Ak		
01			21		
02			22		
03			11		
04			30		
05			22		
06			10		
07			23		
08		1	8		
09			5		
10			8		
11			12		
12			6		
13			11		
14			21		
15			32		
16			41		
17			34		
18			25		
19			31		
20			37		
21			20		
22		1	26		
23		2	36		
24		1	28		
25			24		
26			20		
27		1	22		
28		3	26		

DATE

- LEGEND
- █ N-America
 - ▤ S-America
 - ▬ C-America
 - ▬ Africa
 - ▬ Asia / Australia



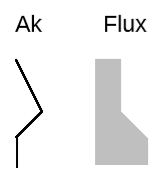
50 MHz F2 propagation review of March 1990
by PA2HJS



DATE	HOUR (UTC)														X-RAY FLARES			REMARKS			
	0	0	0	1	1	1	1	1	1	1	1	1	2	2	2	2	X		M	Ak	
	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4		
01				█	█													3	26		
02										█	█	█	█					1	17		
03				█	█	█		█	█									1	14		
04																			6		
05																			10		
06																			20		
07																			11		
08						█	█	█	█	█	█								12		
09										█									8		
10						█	█	█											8		
11						█	█	█	█	█	█								15		
12						█	█	█											42	2400 K=7	
13																		1	32		
14										█									23		
15										█									13		
16																			10		
17																			4		
18																		1	1	34	
19																			3	18	PE 950
20																			4	24	PE 950
21																				57	
22																			1	24	
23																			1	26	
24																			2	18	
25																			3	31	
26																			3	32	
27																			1	29	
28																			2	21	
29																				24	PE 16
30																			1	46	0600 K=7
31																				7	

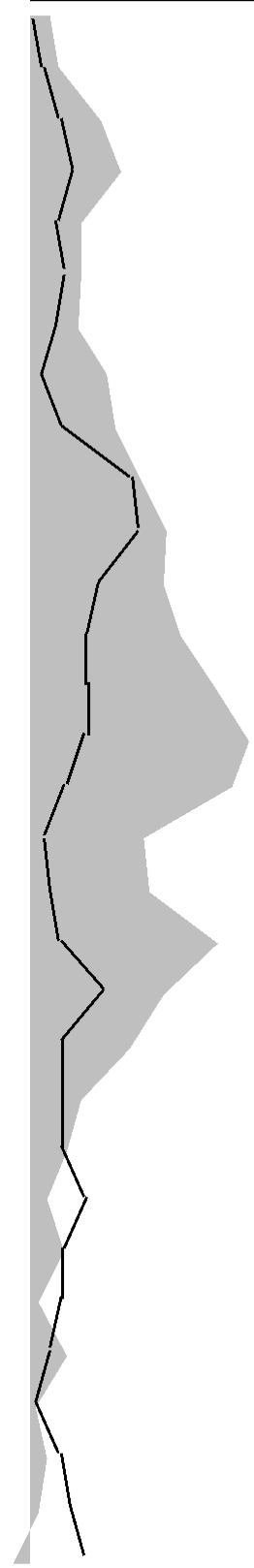
DATE

PE xx : Proton Event particles



- LEGEND
- █ N-America
 - ▤ S-America
 - ▥ C-America
 - ▧ Africa
 - ▨ Asia / Australia

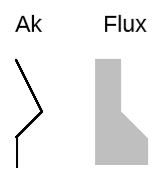
50 MHz F2 propagation review of October 1990
by PA2HJS



HOUR (UTC)	X-RAY FLARES													REMARKS							
	0	0	0	0	1	1	1	1	1	1	1	1	2		2	2	2	X	M	Ak	
	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4		
01																				2	
02																				6	
03																				12	
04																				17	
05																				10	
06																				14	
07																				10	
08																				1	5
09																				1	13
10																				1	40
11																				1	43
12																					27
13																					21
14																					22
15																				1	21
16																				1	14
17																					6
18																					8
19																					12
20																				1	29
21																				3	12
22																				1	12
23																					13
24																					22
25																					13
26																					13
27																					8
28																					3
29																					12
30																					16
31																					22

DATE

- LEGEND
- █ N-America
 - ▒ S-America
 - ▓ C-America
 - ▔ Africa
 - ▕ Asia / Australia



50 MHz F2 propagation review of November 1990
by PA2HJS

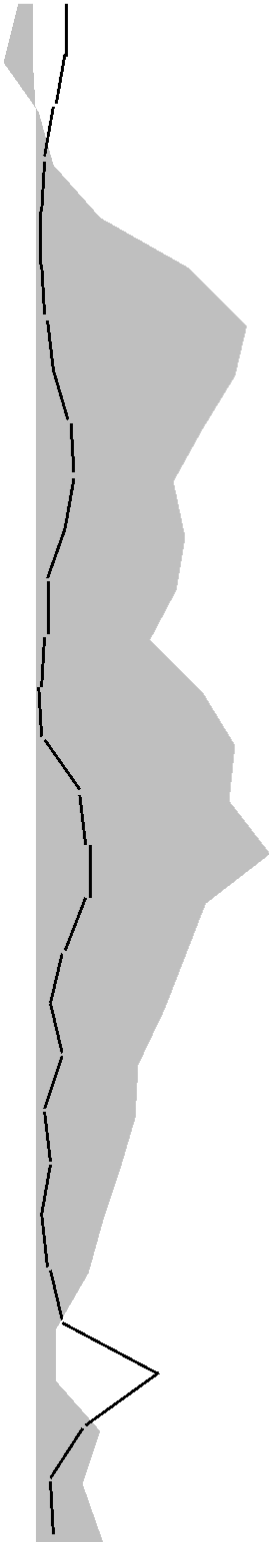
150 solar flux 250

0 Ak 100

HOUR (UTC)



X-RAY
FLARES

	0	0	0	0	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2								
	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	X	M	Ak	REMARKS				
01					█	█	█																12				
02					█			█	█															12			
03																								8			
04					█	█	█	█	█															1	4		
05					█	█	█	█	█															1	2		
06					█			█	█															1	3		
07																									5		
08								█	█	█														1	8		
09								█	█	█	█														14		
10								█	█																16		
11								█	█	█	█													1	12		
12								█	█	█	█	█													5		
13								█	█	█	█													1	4		
14								█																	2		
15																									4		
16								█	█	█	█	█												1	18		
17								█	█	█	█	█												3	21		
18								█	█	█	█	█												2	20		
19								█	█	█	█	█												3	11		
20																								1	6		
21																									11		
22																									4		
23																									7		
24																									2	3	
25																									3	6	
26																									2	11	
27																								1	47	1800 K=7	
28																										19	
29																									1	6	
30																										8	

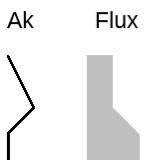


DATE

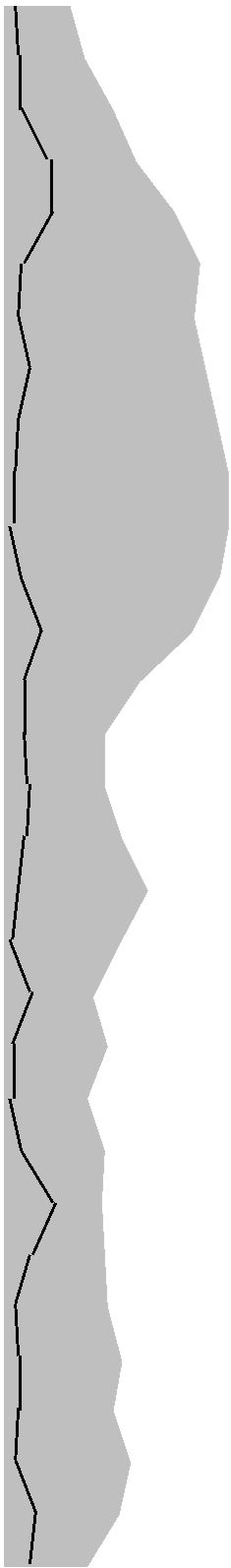
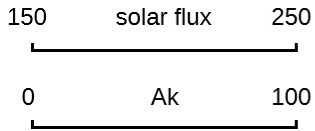
LEGEND

-  N-America
-  S-America
-  C-America
-  Africa
-  Asia / Australia

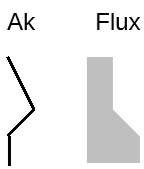
PE xx : Proton Event particles



50 MHz F2 propagation review of December 1999
by PA2HJS



DATE	HOUR (UTC)														X-RAY FLARES			REMARKS					
	0	0	0	1	1	1	1	1	1	1	1	1	2	2	2	2	2		X	M	Ak		
	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4				
01																				1	4		
02																						6	
03																				1	7		
04																				2	18		
05																				1	19		
06																						7	
07																				1	5		
08																						10	
09																				2	5		
10																				1	3		
11																				5	2		
12																				7	7		
13																				2	15		
14																				2	8		
15																				1	8		
16																						10	
17																				2	8		
18																				3	5		
19																				3	2		
20																				2	11		
21																				2	3		
22																				4	2		
23																				1		7	
24																				1	3	20	
25																						10	
26																				1	2	4	
27																						6	
28																						6	
29																						4	
30																				3	12		
31																						9	



LEGEND

- N-America
- S-America
- C-America
- Africa
- Asia / Australia

50 MHz F2 propagation review of December 1990
 by PA2HJS including info from PA3BFM and
 others. MNI TNX!

150	solar flux	250	6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4	HOUR (UTC)	REMARKS
				01	NIL
			...	02	9L1US/B, FY7THF weak, 5 mins
				03	PA2HJS, PA3BFM QRT. Others wkd 6W etc.
			04	9L, TR, HC, HC8, TI, VE1, W4
			—————	05	VO1MUN, VE1, W1
			—————	06	VE1, W1,2,3,4,5, variable signals
			—————	07	VE1
			—————	08	6W, 9L, VE1, W1,2, Backscatter from Europe
			—————	09	VE1, W1,2,3,HC, Backscatter from Europe
			—————	10	VE1YX in and out
				11	NIL
			—————	12	W2,3 weakly
			13	FY7THF, KP2
				14	NIL
				15	NIL
			16	6W, TU, VE1, W1, FY7THF 1200-1220 UTC
				17	QRT
				18	QRT
				19	QRT
				20	QRT
				21	QRT
				22	NIL
				23	NIL
				24	NIL
			—	25	TU
			—————	26	W1
				27	PZ1EL wkg G, hr NIL
			—————	28	VE1YX weak
				29	NIL
			—————	30	VO1MUN
				31	NIL

DATE

LEGEND

- N-America
- S-America
- C-America
- Africa
- Asia / Australia

Comment:

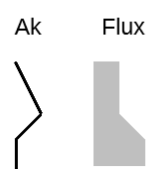
December 1990 was again very disappointing compared with the year before when we had almost daily openings to several areas. Remarkably, the solar flux values did not differ from the values of last year, but the openings were not to be compared. This illustrates, that the solar flux values are not the only ones to be considered in relationship with 50 MHz F2 openings.

All the very best for 1991! Henk, PA2HJS

50 MHz F2 propagation review of January 1991
by PA2HJS



DATE	HOUR (UTC)														X-RAY FLARES			REMARKS			
	0	0	0	0	1	1	1	1	1	1	1	1	1	2	2	2	2		2	X	M
01																					8
02					—																9
03							—														10
04					—																7
05						—	—	—													8
06						—															4
07																					3
08																			3		10
09																					9
10																			1		12
11																			3		7
12					—	—	—														19
13					—	—	—														12
14																					4
15																					12
16							—														8
17																			1		14
18							—												2		15
19																					4
20																					7
21																			2		4
22																			4		4
23																					7
24								—	—	—										1	30
25																			1	4	21
26																					13
27																			1		22
28								—	—	—	—									5	6
29								—	—	—	—									1	4
30								—	—	—	—	—							1	4	4 Flux 367: highest value since cycle 19.
31								—	—	—	—								1	1	12 PE: 240

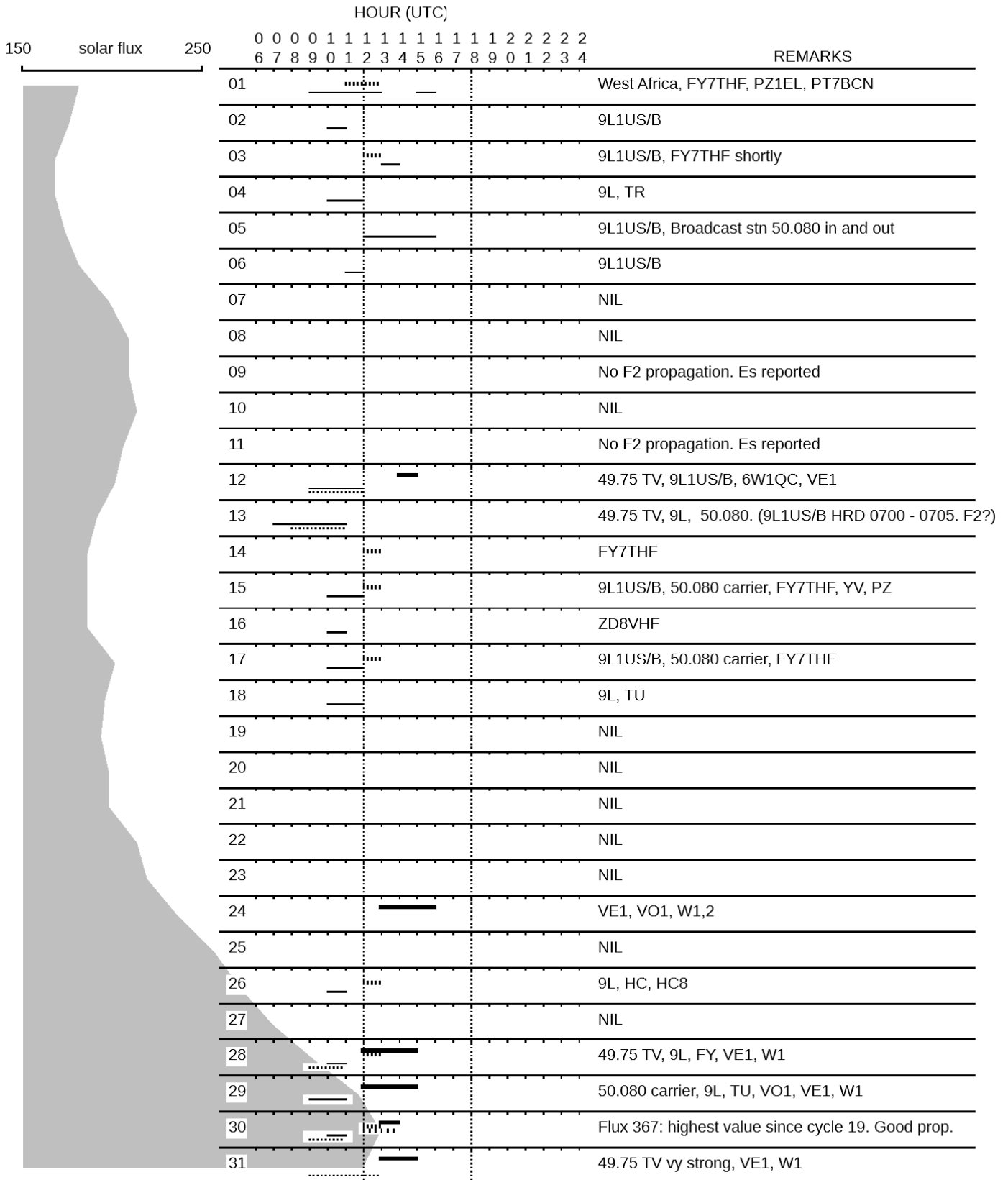


DATE

- LEGEND
- N-America
 - |||| S-America
 - C-America
 - Africa
 - Asia / Australia

PE xx: Proton event particles

50 MHz F2 propagation review of January 1991
 by PA2HJS including info from PA3EUI, PA3BFM
 and others. MNI TNX!



DATE

LEGEND

- N-America
- S-America
- C-America
- Africa
- Asia / Australia

Comment:

January 1991 was a remarkable month considering F2 propagation. Quite a number of openings to West Africa and the Northern part of South America. The very high solar activity produced unexpected openings. To my opinion, the upward trend in the solar activity during the last few months shows that the current solar cycle has not yet lost its 50 MHz F2 ionising capabilities and one can only speculate about the things to come. 73, gd dx! Henk, PA2HJS

50 MHz F2 propagation review of February 1991
by PA2HJS



X-RAY
FLARES

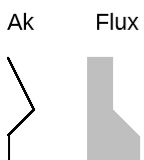
HOUR (UTC)

	0	0	0	0	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	X	M	Ak	REMARKS
	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4					
01																						3	30	
02																						7	11	
03																						4	5	
04																						6	6	
05																							10	
06																						8	7	
07																						5	12	
08																						3	14	
09																							28	
10																							8	
11																						1	21	
12																							14	
13																							13	
14																						1	10	
15																							14	
16																						1	6	
17																						1	4	
18																						4	4	
19																						3	12	
20																						1	9	
21																							8	
22																							18	
23																						2	27	
24																							8	
25																						1	12	
26																							9	
27																							9	
28																							18	

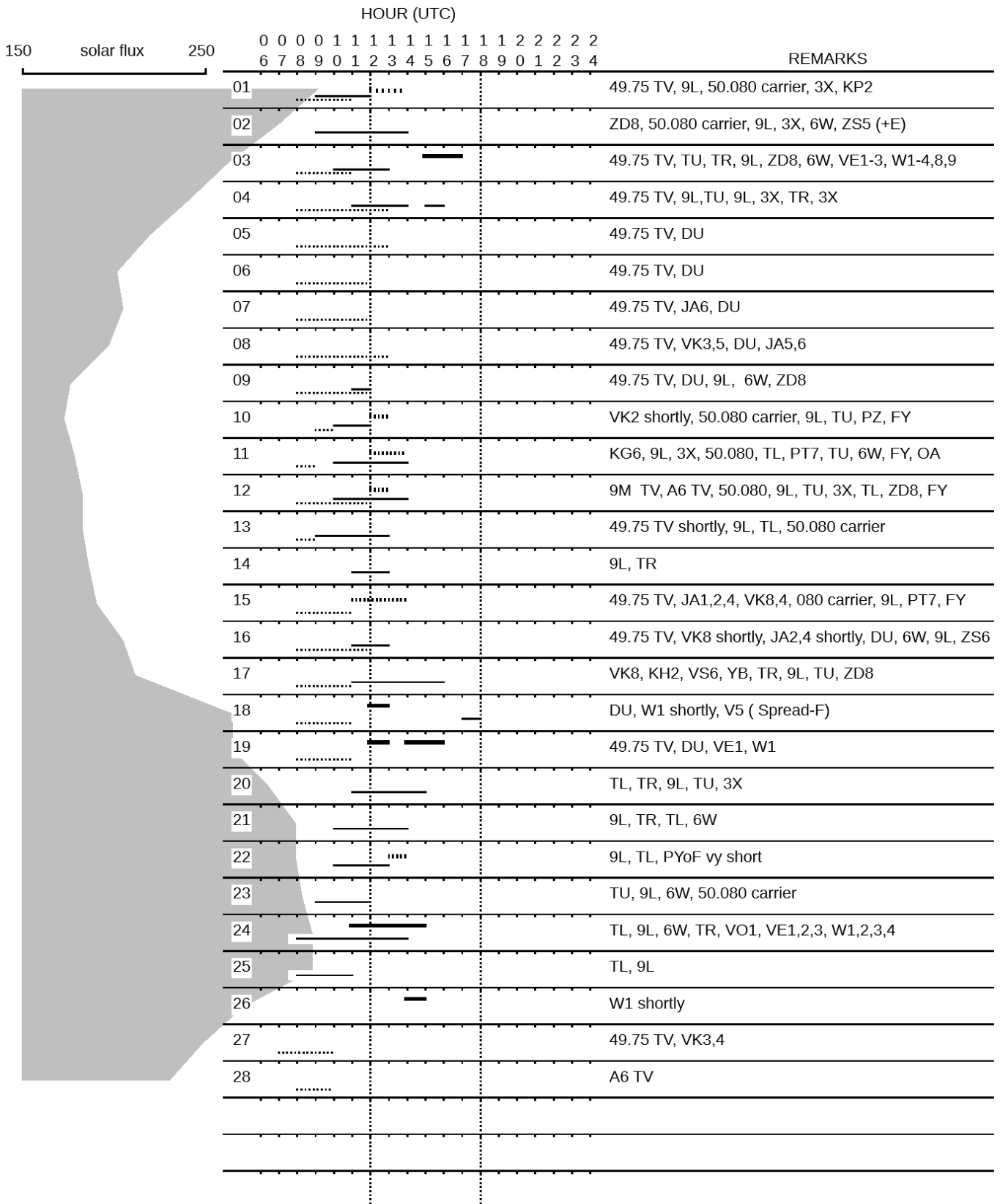
DATE

LEGEND

- N-America
- S-America
- C-America
- Africa
- Asia / Australia



50 MHz F2 propagation review of February 1991
 by PA2HJS including info from PA3EUI, PA3BFM
 and others. MNI TNX!



DATE

LEGEND

- N-America
- S-America
- C-America
- Africa
- Asia / Australia

Comment:

The peak in the solar activity in January initiated a period of very good propagation in February. This month did compensate much for the disappointing results during the last months of 1990!

73, gd dx!
 Henk, PA2HJS






50 MHz F2 propagation review of March 1991
by PA2HJS



DATE	HOUR (UTC)														X-RAY FLARES			REMARKS					
	0	0	0	0	1	1	1	1	1	1	1	1	1	1	2	2	2		2	2	X	M	Ak
	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4				
01																					1	14	
02																					2	11	
03																					3	10	
04																				1	6	12	
05																				3	5	18	
06																					4	29	
07																				2	9	26	
08																				1	3	18	
09																					4	21	
10																						17	
11																				1	5		
12																				1		19	
13																				2	2	23	
14																				1	1	7	
15																					4	6	
16																				1	4	7	
17																				1	7	15	
18																					6	8	
19																					5	12	
20																					6	10	
21																				1	7	23	
22																				1	5	18	
23																					9	12	
24																					5	144	
25																				2	1	70	
26																				1	1	71	
27																					1	24	
28																						16	
29																				1	1	5	
30																					1	24	
31																				1	3	11	

DATE

LEGEND

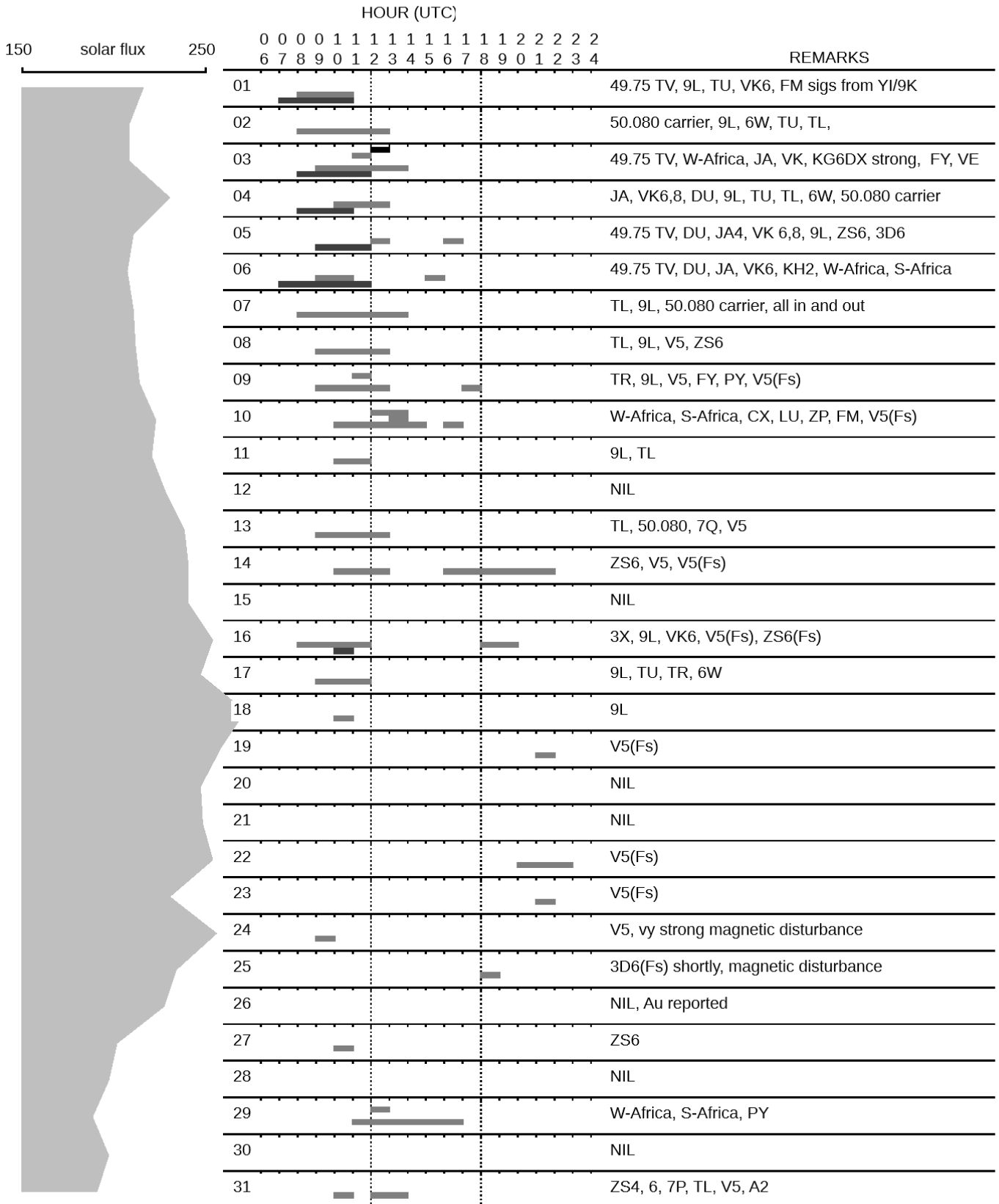
-  N-America
-  S-America
-  C-America
-  Africa
-  Asia / Australia

Ak

Flux



50 MHz F2 propagation review of March 1991 by
 PA2HJS including info from PA3EUI, PA3BFM
 and others. MNI TNX!



DATE

LEGEND

- ██████████ N-America
- ▤▤▤▤▤▤▤▤ S-America
- ▬▬▬▬▬▬▬▬ C-America
- ▬▬▬▬▬▬▬▬ Africa
- ▬▬▬▬▬▬▬▬ Asia / Australia

Comment:
 The first part of March showed a number of very remarkable openings to Asia. Later this month, South American signals started to steal the show. So far, 1991 has been very good regarding 50 MHz F2 propagation. It is hoped that this trend will continue throughout the year!

73/DX
 Henk, PA2HJS

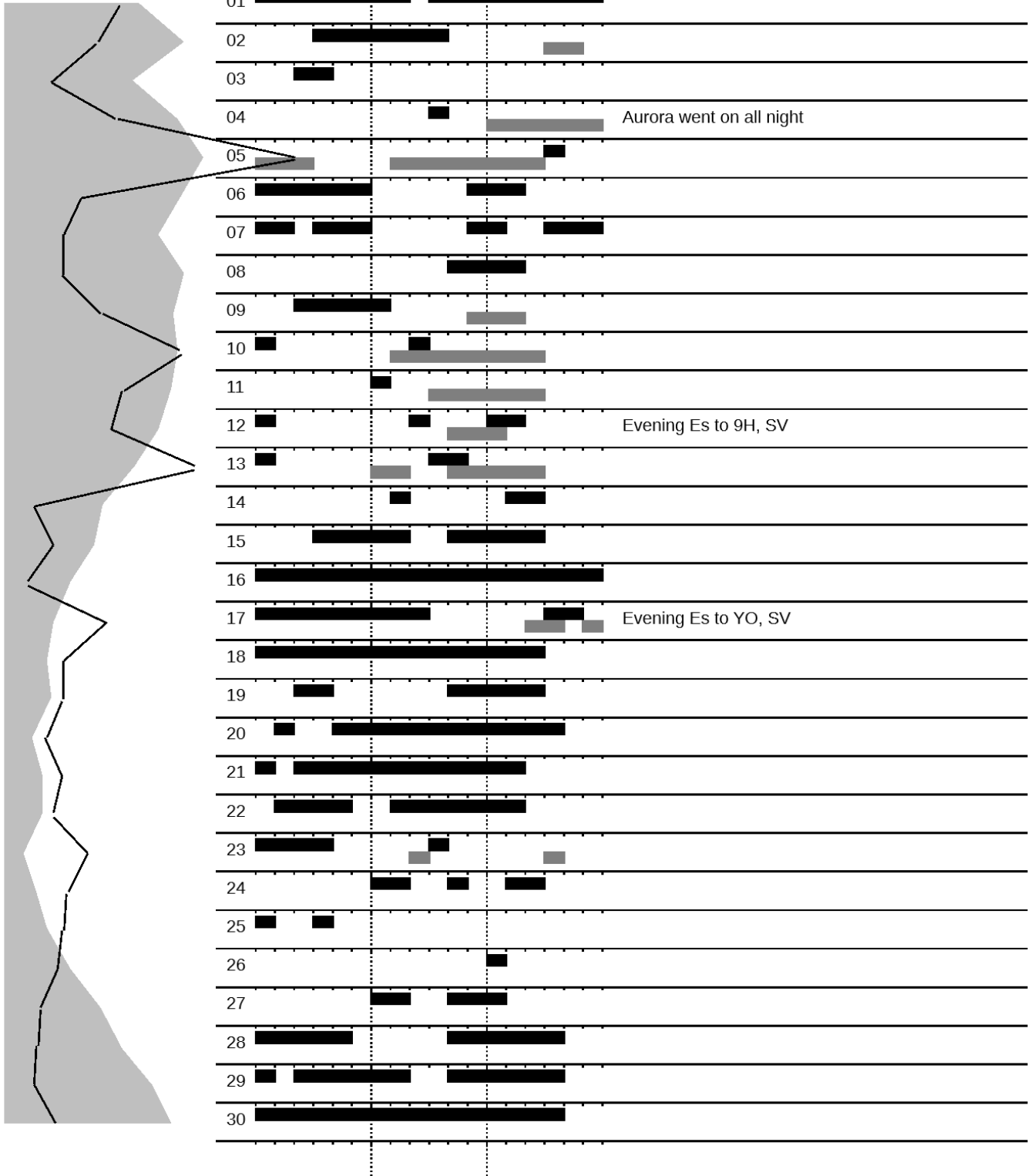
50 MHz Es propagation review of June 1991 by PA2HJS including info from PA3EUI and others. MNI TNX!



HOUR (UTC)

0 0 0 0 1 1 1 1 1 1 1 1 1 1 2 2 2 2 2
6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4

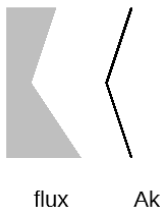
REMARKS



DATE

LEGEND

Es
Aurora

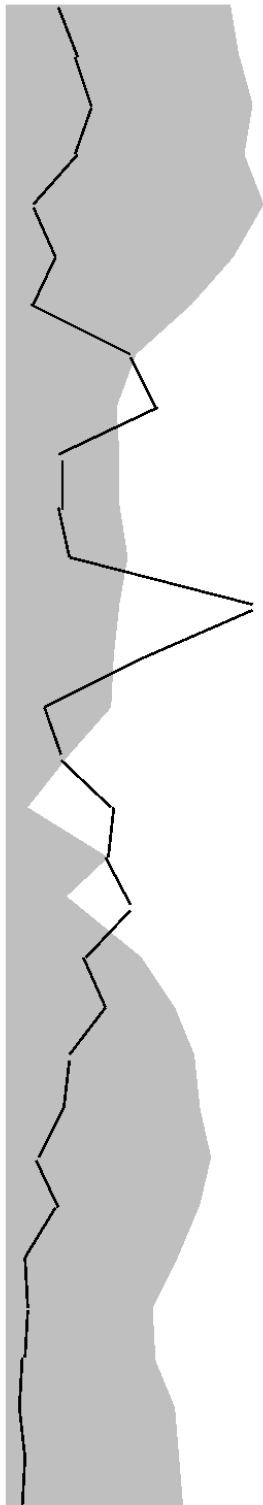
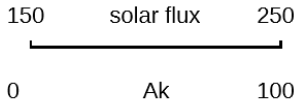


Comment:

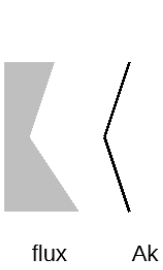
This chart shows the negative influence of magnetic disturbances on Es propagation. The period around 5 June illustrates this effect clearly. Normally, during the first week of June, Es propagation is very intense. This year, the Auroras seemed to have wiped out the Es. This effect supports the theories about an inverse relationship between solar activity and Es.

73, gd dx!
Henk, PA2HJS

50 MHz Es propagation review of July 1991 by PA2HJS including info from PA3EUI and others.
MNI TNX!



DATE	HOUR (UTC)																								REMARKS
	0	0	0	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2		
	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4						
01																									
02																									
03																									
04																									
05																							Es to CT, EA and ZB all night		
06																									
07																									
08																									
09																									
10																									
11																									
12																									
13																							Evening Es to CT, Aurora until 0100		
14																									
15																									
16																									
17																									
18																									
19																									
20																									
21																									
22																									
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25																									
26																									
27																									
28																									
29																									
30																									
31																									



LEGEND
 [Black bar] Es
 [Grey bar] Aurora

Comment:
 The July Es propagation chart again shows the inverse relationship between Es and magnetic activity. As in June, periods with high magnetic activity did not get along with Es very well. Although many hours with Es propagation on 50 MHz were recorded in July 1991, the ionisation seemed not to be as intense as in other years. For example, backscatter openings were sporadic and on the other hand, 144 MHz DX-ers did not report many openings.
 73, gd dx!
 Henk, PA2HJS

50 MHz Es propagation review of August 1991 by PA2HJS including info from PA3EUI and others.
MNI TNX!

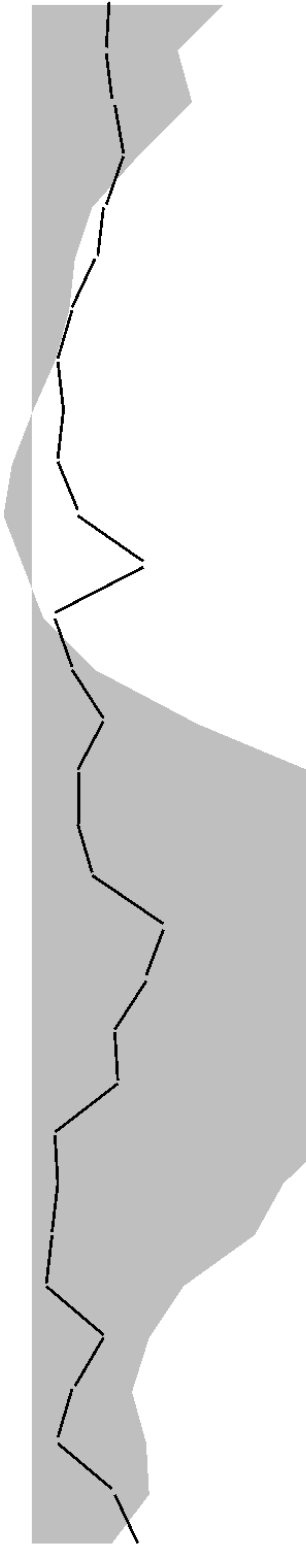
150 solar flux 250

0 Ak 100

HOUR (UTC)

0 0 0 0 1 1 1 1 1 1 1 1 1 2 2 2 2
6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4

REMARKS

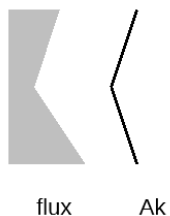


DATE	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	REMARKS
01																											
02																											
03																											
04																											
05																											
06																											0030-0330 Aurora
07																											
08																											
09																											
10																											
11																											
12																											2145-2215 Au-E (49.75 TV)
13																											
14																											
15																											
16																											
17																											
18																											
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26																											
27																											
28																											
29																											
30																											
31																											Afternoon Es to South-Europe

DATE

LEGEND

Es
Aurora



Comment:

August 1991 was a month with several propagation modes. As in June and July, most Auroras did not get along with Es very well.

The solar activity was very high and the monthly average solar flux value was 210.3. It will be interesting to see how the solar activity will develop and which DX potential it will generate!

73, gd dx!

Henk, PA2HJS

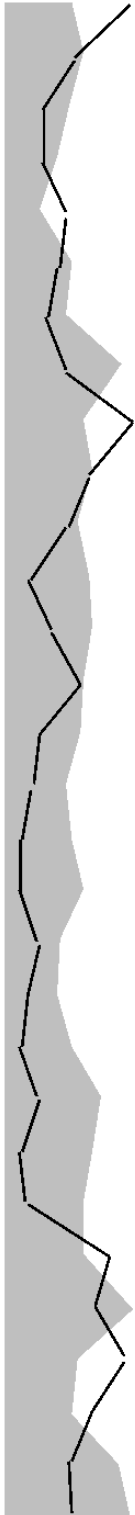
150 solar flux 250

0 Ak 100

HOUR (UTC)

0 0 0 0 1 1 1 1 1 1 1 1 1 1 2 2 2 2 2
 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4

REMARKS

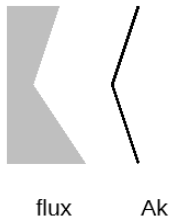


Hour (UTC)	Es Propagation	Aurora
01		
02	01:00-02:00	
03		
04	03:30-04:30, 04:45-05:00	
05		05:00-05:30
06		06:00-06:15
07	06:45-07:45	
08		08:00-08:15
09	08:45-09:45	
10		
11		11:00-11:15
12	12:00-12:15, 12:45-13:45	
13	13:00-14:00	
14	14:00-14:15, 14:30-14:45	
15		
16		
17		
18		18:00-18:15
19	19:00-19:15, 19:30-19:45	
20		
21		21:00-21:15
22		
23		
24		
25		25:00-26:00, 26:30-27:30
26		26:00-26:15
27		27:00-27:45
28		
29	29:00-29:45	
30	30:00-30:45, 31:00-31:45	

DATE

LEGEND

Es
 Aurora



Comment:

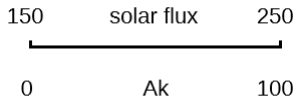
In september, the usual decline of Es took place. The magnetic activity was much less than the foregoing months and that seemed the reason for a reasonable amount of Es this month.

On the 28th, a remarkable F2 (Es linked?) opening was reported to VK4, 6 and 8. This was the first time that Australia could be contacted in September!

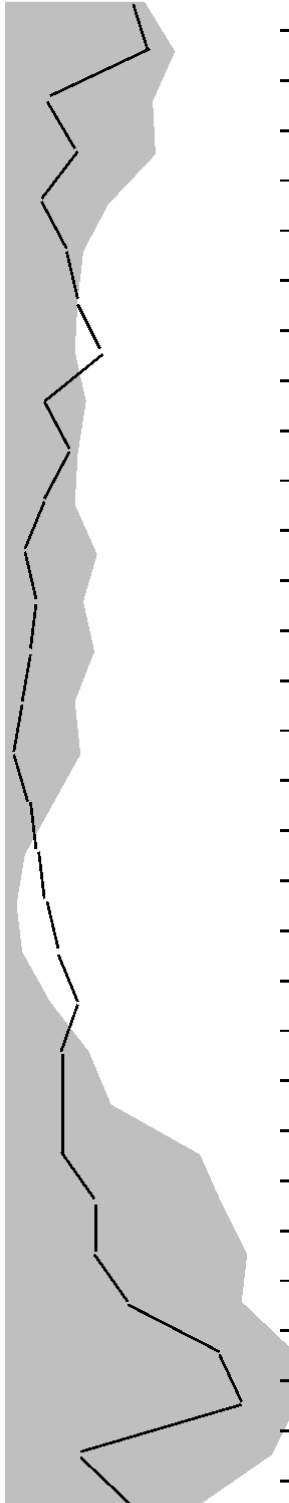
Next month, the overviews will switch to F2 reports. I hope to mark a lot of openings!

73, gd dx!
 Henk, PA2HJS

50 MHz F2 propagation review of October 1991
 by PA2HJS including info from PA3EUI, PE1LNX
 and others. MNI TNX!



HOUR (UTC)		REMARKS
0 0 0 0 1 1 1 1 1 1 1 1 1 1 2 2 2 2 2	6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4	
01		
02		V5
03		5V, 7Q, V5, ZS6
04		ZS4,6, V5, Z2
05		3DA0, 5V, 9L, A2, TR, TU, V5, ZS4,6, ZS9
06		3DA0, 9L, 9X, A2, TR, TU, V5, ZD8, ZS4,6
07		9L, TR, TU, ZS6
08		1600-1630 Au
09		9L, TR, FY
10		9L
11		9L, TR, V5
12		9L, TR, V5
13		9L, JR6, V5, VK6, ZS6
14		JR6, V5, VK3, 6
15		VK4, 6
16		DU1, JA2, 3, 7, VK4, 6, 8
17		JA1,2,3,4,9, VK6,8
18		49.75 TV, JA1,2,3,4,6, VK2,3,4,5,6,8, YBo
19		49.75 TV, JA1,2,3,4,6,9, VK4,6,8, VS6, XX9!, W-Af
20		49.75 TV, VK4 weak, 7Q, 9J, 9L, TR, TU, V5, ZS6
21		9L, TU, V5, ZS6, 1600-2000 Au
22		49.75 TV, DU1, VK6, FR, 9L, V5
23		9L, TR, TU, V5
24		9L, TR, TU, V5, ZS9
25		49.75TV, VK4,6, 9L, TU
26		VK6, V5
27		
28		V5, ZS6, 1230-1830, 2000- Au
29		-0800 Au, 1510-2330 strong Au
30		VE1, 1600-1900 Au
31		FR, 7Q, 2330- Au



Ak Flux



DATE

LEGEND

- N-America
- S-America
- C-America
- Africa
- Asia / Australia

Comment:

October 1991 produced several unexpected openings. The solar activity was not very high in the period with the good openings to Asia. This illustrates again, that not only solar activity has to be considered regarding 50 MHz F2 propagation.

73, gd dx!
 Henk, PA2HJS

50 MHz F2 propagation review of November 1991
 by PA2HJS including info from PA3EUI, PA2VST
 and others. MNI TNX!

150 solar flux 250

0 Ak 100

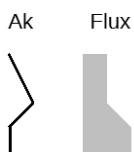
HOUR (UTC)

0 0 0 0 1 1 1 1 1 1 1 1 1 1 2 2 2 2 2
 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4

REMARKS

01																				West Africa, ZS6, Afternoon Au
02																				FB prop to Central and South America
03																				VK6, West Africa, ZS4,6, HC
04																				VK6, 9L, V5
05																				V5
06																				PJ7, 9L
07																				49.75 TV, VK6/8, JA2, 9L, HC
08																				49.75 TV, JA4/6, West Af, KP2, CO2, 1400- Au
09																				Au during morning, no F2
10																				TU, TR
11																				nil
12																				49.75 TV, VK6/8, JA1/2/3/4
13																				JA4, VK8, VO1, VE1
14																				VK6, ZD8, VO/VE1, HC, W1, 9L, V5
15																				VK2/6, VE1, W1, PJ7, KP2, TU, 9L, V5
16																				9M TV, VK8, 9L shortly, HC
17																				49.75 TV, W-Af, ZS6, VE1, HC8, [V5, 9J Fs]
18																				HC5, FY, VE1, W1/2/3, 6Y, KP2, PJ7, PT7/9
19																				no F2, Au 1615-2100
20																				VK6
21																				9L, V5, KP2, PJ7, 9Y, 1500-2200 Au
22																				no F2, faint Au 1600-1615
23																				TI, YN, W4/5, FY, PZ
24																				nil
25																				nil
26																				nil
27																				nil
28																				nil
29																				nil
30																				[ZS9, V5 Fs]

DATE



LEGEND

- N-America
- S-America
- C-America
- Africa
- Asia / Australia

Comment:

November 1991 had a good start with fairly high solar activity and good 50 MHz F2 propagation. Unfortunately, the October peak did not reappear this solar rotation. Instead, the flux and sunspot count declined to a rather low level, followed by a rather dull period for the 50 MHz DX-er. Are we on the downhill slope of cycle 22? I hope I am wrong!
 73, gd dx! - Henk, PA2HJS

50 MHz F2 propagation review of December 1991 by PA2HJS including info from PA3EUI, PA2VST and others. MNI TNX!

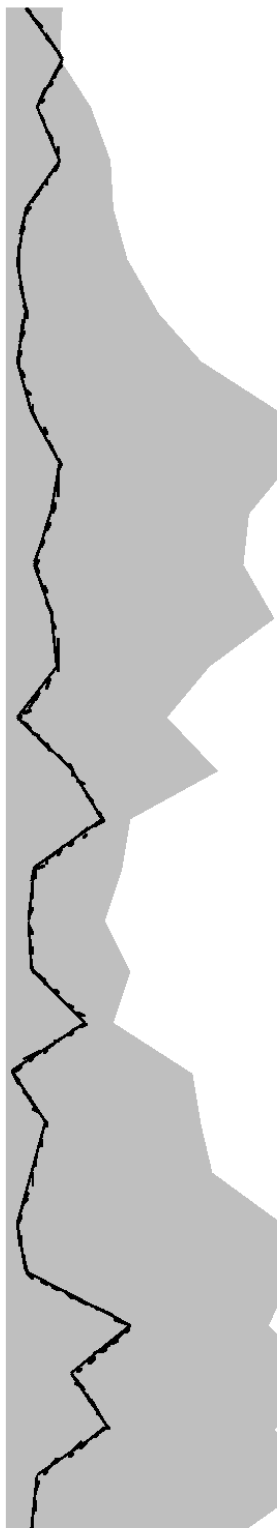
150 solar flux 250

0 Ak 100

HOUR (UTC)

0 0 0 0 1 1 1 1 1 1 1 1 1 1 2 2 2 2 2
6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4

REMARKS

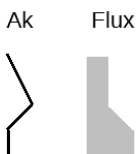


Hour (UTC)	Remarks
01	VK6, 9L, ZD8, TU
02	nil
03	nil
04	nil
05	nil
06	nil
07	nil
08	nil
09	9L
10	nil
11	nil
12	nil
13	VE1, W1
14	nil
15	VE1, W1, HC
16	VE1, W1/2/3/4
17	VO1
18	W1
19	nil
20	9L, FY, TU
21	4X, P4, KP2, 9L
22	9L, P4, W0/4
23	4X, 5B, EA8, FY, YV, KP4, PJ4, P4, W4, HC, VE1, C6
24	EA8
25	TU, ZD8, 9L
26	VS6
27	nil
28	nil
29	ZD8
30	FY, PZ
31	nil

DATE

LEGEND

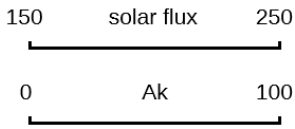
- N-America
- S-America
- C-America
- Africa
- Asia / Australia



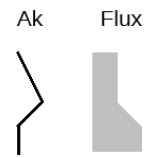
Comment:

December 1991 showed that predictions, based on short-lived peaks or dips in the solar activity are of very limited value. The low activity period was followed by a period with rather high activity. The high solar activity went along with several nice openings. It is just bad luck that this high activity period did not occur in the most favourable month for F2 propagation (November). Nevertheless, December 1991 made up a little for the missing openings in November! 73, gd dx! - Henk, PA2HJS

50 MHz F2 propagation review of January 1992
 by PA2HJS including info from PA3EUI and
 others. MNI TNX!



HOUR (UTC)	0 0 0 0 1 1 1 1 1 1 1 1 1 1 2 2 2 2 2												REMARKS							
	6	7	8	9	0	1	2	3	4	5	6	7		8	9	0	1	2	3	4
01																				49.75 TV, DU, JR6, W1/2
02																				FY, KP2, KP4, P4, TI, YV, 9Y, W4/8
03																				HH, KP2/4, PJ4, P4, TI, VE1/2, W1/2/3/4/5/9, C6
04																				HC, KP2, P4, C6, CO, W4/5/9, All Es linked
05																				KP2, C6, W2/3/4/5
06																				VE1, W1, later VE1/2/3, W1/2/3/4/5/8/9 (Es linked)
07																				P4, YV, W1
08																				VE1/2/3, W1/2/3/4
09																				VO1, W1/8
10																				DU1, VE1
11																				HC, C6, VE1, W1/2/3/4/5/8, CO
12																				49.75 TV, VS6, UL7, VK6, JA5
13																				49.75 TV, W4
14																				49.75 TV
15																				nil, (48.25 TV from EP around 1200)
16																				nil, (48.25 TV from EP 1000 - 1200)
17																				nil
18																				FY, PZ, P4
19																				nil
20																				nil
21																				nil
22																				nil
23																				nil
24																				49.75 TV
25																				49.75 TV, UL7GCC/P - PA2HJS (first)
26																				49.75 TV, UL7, VS6
27																				nil
28																				49.75 TV, VK6 (1120-1215), VE1
29																				49.75 TV, UL7 (1015-1230), VK6 (1105-1235), VO1
30																				49.75 TV
31																				FB prop: EA8, 4X, 5B, So, PT7, DU+VK6(1215-1320) 49.75 TV (0830-1025)



DATE

LEGEND	
	N-America
	S-America
	C-America
	Africa
	Asia / Australia

Comment:
 January 1992 started with a lot of Es, apparently triggered by the Quarantid meteor shower. It linked with F2, producing FB openings to Central America. During the second part of the month, the F2 critical frequencies rose to very high values, especially on the 31st, when 4X and 5B marked a skip distance of around 3000 km!
 This opening was one of the positive phase effects, which occur before a magnetic disturbance (taking place on 1 February).

73, gd dx!
 Henk, PA2HJS

50 MHz F2 propagation review of February 1992
 by PA2HJS including info from PA3EUI and
 others. MNI TNX!

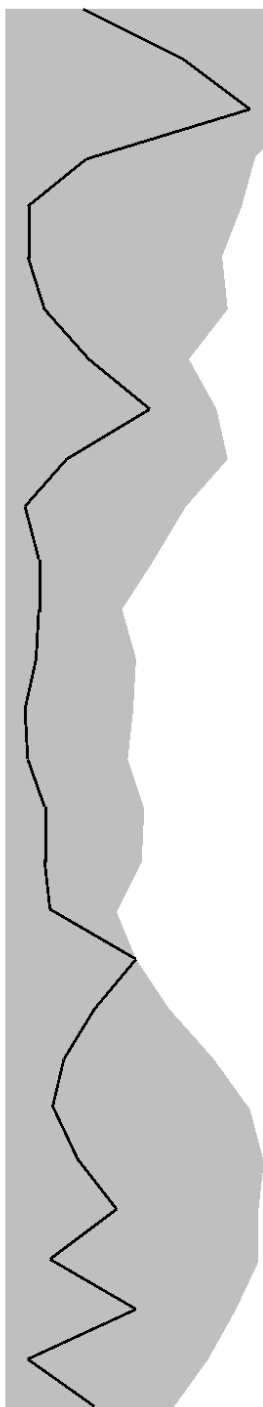
150 solar flux 250

0 Ak 100

HOUR (UTC)

0 0 0 0 1 1 1 1 1 1 1 1 1 1 2 2 2 2 2
 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4

REMARKS



Hour	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	REMARKS
01																49.75 TV, UL7, 4X, KP2/4, W1/2/3/4/8, VE2/3
02																TU, KP2/4, HI
03																nil
04																ZS6, VE1
05																49.75 TV, JA1, DU, VK2/6, VE1, P4
06																49.75 TV, UL7, VK6, VE1, W1/2
07																49.75 TV, VE1, W1/2/4, OX3VHF 1345 - 1615 !
08																49.75 TV, VK 2/3/5/6/8, UL7, KG6DX, KP4, P4, HC, HI, VE1, W1
09																nil
10																nil
11																49.75 TV, VK3/4/6, DU, JA1/2/3/4/5/6/7/9/0, JR6, VE1/3, W1/2/3/4/8
12																49.75 TV, DU, VK6/8, JA4, VE1/3, W1/2/3/4
13																49.75 TV, UL7, JR6, JA1, TR, DU, KP2, VE1
14																49.75 TV, JA1/2/3/4/5/6, VK6, VS6, VE1, W1/2/4
15																49.75 TV, UL7, DU, VK3/6/ 7 /8, VS6, KG6DX, TU, VE1, W1
16																49.75 TV, JA1/2/3/4/5/6/JR6, DU, VK6, VE1/2, W1
17																49.75 TV, JA1/2/3/4/5/6/9/0/JR6, VK6/8, P4, VE1, W1/3/4
18																49.75 TV, Arab FM sigs (in band), VK3/6, UL7, DU, JA1/2/3/4/5/6/9/0/JR6
19																49.75 TV, VK6, JA4, ZD8, P4, VE1, W1/2/3, OX
20																49.75 TV, VK6, JA1/2/3/4/5/6, PT7, ZD8
21																49.75 TV, PY5, 7Q, V5, ZS6, Z2
22																FR5, 49.75 TV, 7Q, UL7, ZS6, JA1-7/9, PT7, ZD8, PYoF, VK6, FY, TR, TU, 5V, HI, KP2/4, P4, YV, VE1, HC, A2
23																49.75 TV, JA1/2/3/4/5/7/9/0, DU, VK6/8, Z2, 5V
24																49.75 TV, VK6, ZD8, PT7
25																TU, PT7, PY5, ZD8, V5
26																TR
27																V5, ZS6
28																TU, ZS6
29																VK6

DATE

LEGEND

- N-America
- S-America
- C-America
- Africa
- Asia / Australia

Comment:

February 1992 was one of the best months of this cycle.
 The F2 critical frequencies were at the same level as in
 November 1989!

73, gd dx!
 Henk, PA2HJS

Ak

Flux



50 MHz F2 propagation review of March 1992 by
 PA2HJS including info from PA3EUI and others.
 MNI TNX!

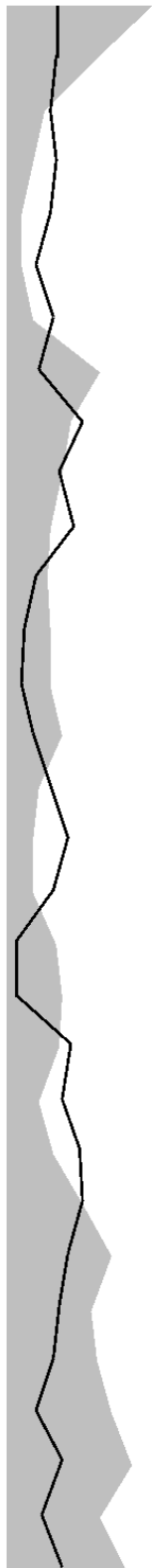
150 solar flux 250

0 Ak 100

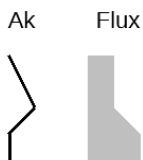
HOUR (UTC)

0 0 0 0 1 1 1 1 1 1 1 1 1 1 1 1 2 2 2 2 2
 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4

REMARKS



DATE	REMARKS
01	TR, TU, 5U, VK6
02	
03	VE1, W1
04	W1
05	nil
06	nil
07	nil
08	A2, V5, ZS4/6, TU
09	ZS2/4/5/6, V5, VE1, W1
10	nil
11	nil
12	nil
13	nil
14	V5, ZS6, Z2
15	ZS6, V5, A2(Fs), 7Q(Fs)
16	ZS9, TU, V5, ZS4/6, 7Q, V5(Fs), 7Q(Fs)
17	nil
18	V5
19	ZS6, TR, V5
20	V5
21	A2, V5, ZS6/9
22	ZS6, V5, ZS9
23	ZS6
24	ZS6/9
25	nil
26	nil
27	nil
28	TU, ZS6/9
29	ZS4/6, 7Q
30	ZS6
31	nil



DATE

LEGEND

- ██████████ N-America
- ▤▤▤▤▤▤ S-America
- ▬▬▬▬▬▬ C-America
- ▬▬▬▬▬▬ Africa
- ▬▬▬▬▬▬ Asia / Australia

Comment:

March 1992 appeared to be in sharp contrast to the month before. Not only was the solar activity much lower, but the F2 conditions fell to a much quieter level. Nevertheless, I feel that we should be glad for any F2 opening that cycle 22 will bring as the solar activity is declining. Let us wait and see...

73, gd dx!
 Henk, PA2HJS

PLEASE NOTE THE DIFFERENT FLUX SCALE

50 solar flux 250

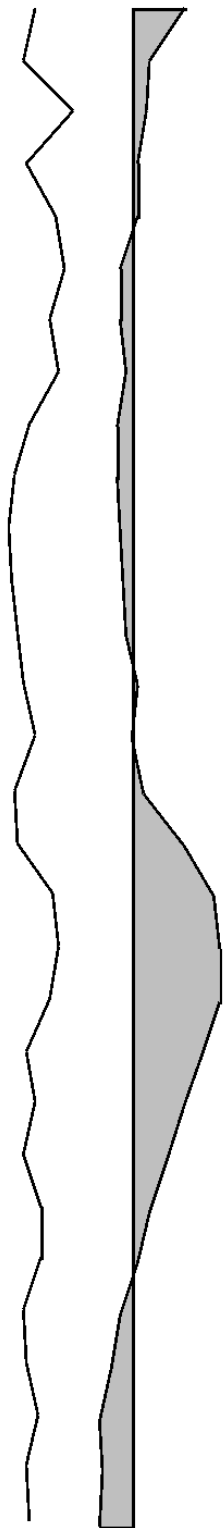
0 Ak 100

50 MHz propagation review of April 1992 by PA2HJS including info from PA3EUI and others. MNI TNX!

HOUR (UTC)

0 0 0 0 1 1 1 1 1 1 1 1 1 1 2 2 2 2 2
6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4

REMARKS



Hour	Remarks
01	nil
02	nil
03	V5, ZS6, ZS9
04	A2
05	V5, ZS4/6, TU
06	nil
07	nil
08	ZS6
09	A2, V5, ZS6, 9H
10	nil
11	V5, 7Q
12	V5, ZS6, Z2, 7P
13	nil
14	nil
15	nil
16	nil
17	I5, ZS6, 9H
18	ZS6
19	nil
20	nil
21	nil
22	nil
23	nil
24	49.75 TV, OH, YO, F, CX, LU, PY5, ZP, 7Q(Fs)
25	49.75 TV
26	nil
27	49.75 TV
28	49.75 TV
29	nil
30	nil

Ak Flux

DATE

LEGEND

- Es Europe
- Multi hop Es
- Es + F2
- Es + Fs
- F2 only
- Aurora

Comment:

The decline of the solar cycle is now clearly present. I had to adjust the solar flux scale at the left. The scale "centers" at a flux value of 150 to enable a better distinction between "high" and "low" solar emission. In contrast to last years graphs (with only Es and/or Aurora), the ones for 1992 will show the propagation mode more in detail.

73, gd dx!
Henk, PA2HJS

