EVN Amplitude Calibration

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Calibration Accuracy

Session 3/2011

Station	18 cm	5 cm	6 cm
Jb1	0.08(6)		*0.12(8)**
Jb2		*0.25{5}**	
Ef	0.05(6)	0.03(5)	0.03(8)
Mc	0.10(6)	0.06(5)	0.05(8)
On	0.06(6)	0.07(4)	0.08(8)
Tr	0.06(6)	0.04(5)	0.04(7)
Wb	0.04(6)	0.08(5)	0.02(7)
Ys		0.04(5)	0.04(8)
Hh	0.09(1)		0.04(2)
Ur	0.10(5)		0.04(3)
Sh	0.07(4)	0.06(1)	0.33(8)*
Bd	0.05(5)		0.04(3)
Sv	0.08(4)		0.07(3)
Zc	0.04(5)		0.30(3)*

Session 2/2011

Station	18 cm	5 cm	6 cm
Jb1	0.06(7)		*
Ef	0.08(6)	0.04(5)	0.06(3)
Mc	0.13(6)	0.06(5)	0.03(1)
On	0.10(7)	0.07(4)	0.10(3)
Tr	0.08(7)	0.03(5)	0.21(4)*
Wb	0.03(7)	0.09(5)	0.04(4)
Ys		0.04(5)	0.04(8)
Hh	0.04(1)	0.05(2)	0.07(4)
Ur	0.06(6)		0.10(4)
Sh	0.13(2)*	0.07(2)	0.07(4)
Bd	0.07(4)		0.07(3)
Sv	0.09(6)		0.08(3)
Zc	0.06(6)		0.25(3)*

Numbers here are **the median absolute error** in the antenna gain amplitude. This number will be approx half the error in the SEFD and is the same that you see in AIPS gain plots. The number in brackets after each entry is the number of experiments that were used to determine the median error for that entry.

Medicina at 18 cm

-- Ok. Slightly large gain factor was related to the improper calibration of Zc as its relatively low sensitivity at 18cm.

Shanghai

-- The amplitude self-calibration with a point source was inapplicable on the long baselines to Shanghai.

Torun at 6cm in Session 2/2011

-- Problems with its receiver: Tsys > 100 K and poor stability

Jodrell Bank 1&2 at 6cm

-- Poor calibration as expected from report of significant sensitivity loss.

Jodrell Bank 2 at 1.3cm

-- No calibration data.

Badary, Svetloe, Zenlenchukskaya

Dummy antabfs files were used.

SEFD

18cm (Old) – Bd: 300 Jy, Sv: 300 Jy, Zc: 400 Jy

-- From the EVN pipeline results.

18cm (2011) – Bd: 330 Jy, Sv: 360 Jy, Zc: 300 Jy

-- From N11L3 via manually self-calibration in Difmap.

6cm (2011) – Bd: 200 Jy, Sv: 250 Jy, Zc: 400 Jy

-- From N11C1 via manually self-calibration in Difmap.

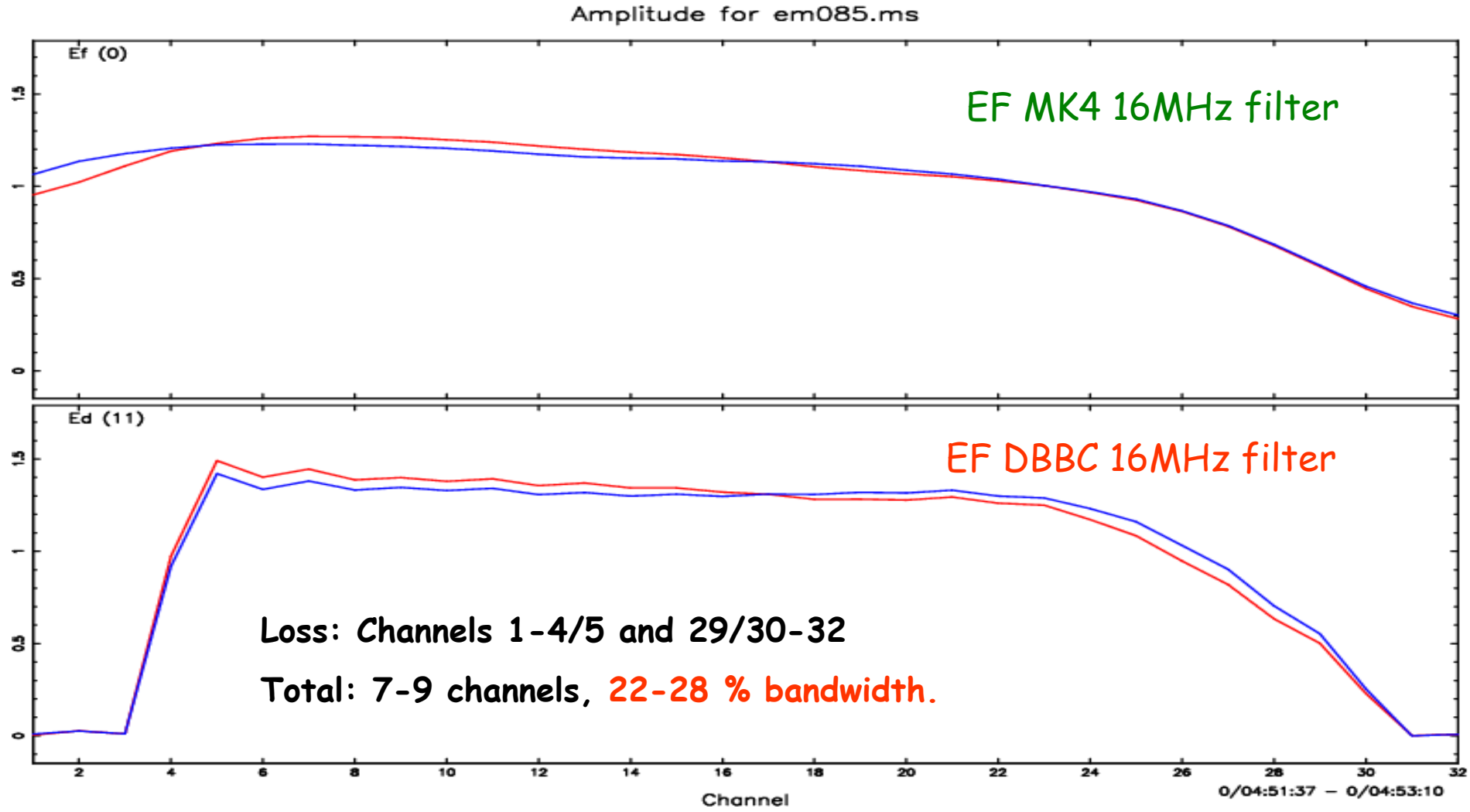
6cm (2012) – Bd: 200 Jy, Sv: 170 Jy, Zc: 170 Jy

-- From EY018A via manually self-calibration in Difmap.

-- Digital backend R1002 has been used since 2012.

-- They have been used to make antab files since Session 1/2012.

Ef DBBC 16MHz Filter

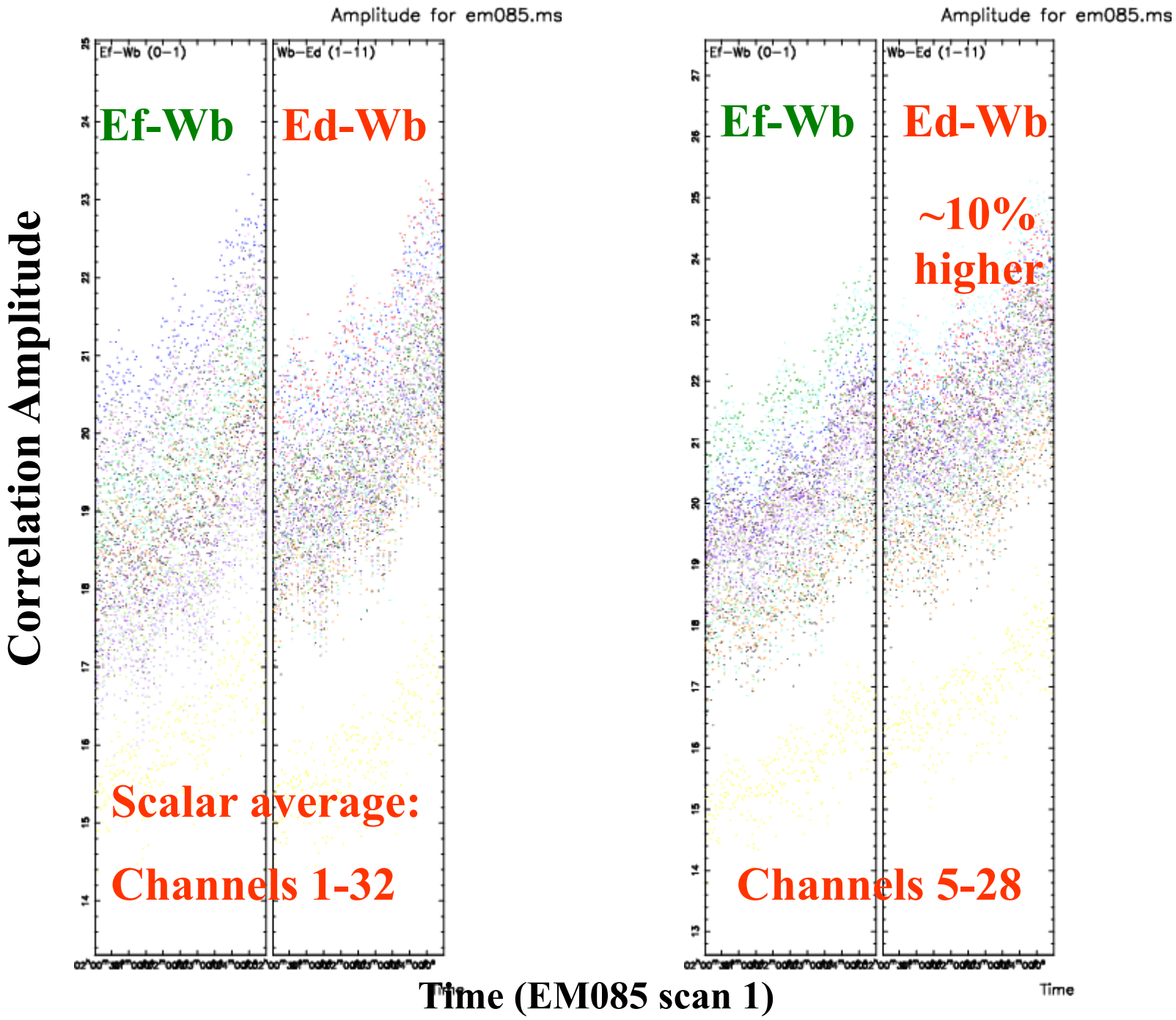


Equivalent to antenna area: **loss of a 30m telescope.**

Calibration issues associated with the problem

(1) Must flag out side channels, otherwise significant noise will be added into the data after applying bandpass calibration.

(2) EVN pipeline usually flags out 1/16 channels on each side and reports an amplitude scale factor ~0.9 for Ef, consisting with manually data reduction.


Amplitude for em085.ms
Ef−Wb (0−1)
Wb−Ed (1−11)
Ef-Wb
Ed-Wb
Scalar average:
Channels 1-32
Amplitude for em085.ms
Ef−Wb (0−1)
Wb−Ed (1−11)
Ef-Wb
Ed-Wb
~10%
higher
Channels 5-28
Correlation Amplitude
Time
Time
Time (EM085 scan 1)

EVN 22 GHz status

Stations	SEFD (Jy)	Frequency Range (MHz, R&L)	Gain Curve (Opacity-free)	DPFU (K/Jy)	Tsys (K)
Ef	90	21700 - 24300	Yes	0.94	130
Ro	83		Not yet?		
Ys	200	18000 – 26000	Yes	0.29	50
On	1380	19000 – 26000	Yes	0.06	150
Nt	800	21950 - 22325			
Hh	3000	21400 - 24100	No	0.07	300
Mh	2600	21980 - 22480	No	0.03	100
Ur	400?	22100 - 24000	Not yet?	0.085	45
Sh	1700	22100 - 22600	Yes	0.085	220
Sv	1143	22020 – 22520	No Tsys data		
Zc	700	22020 – 22520	No Tsys data		
Jb2		22180 – 22280	No Tsys data		
Mc		The old one moved to Sardinia			
Bd		Under upgrade			
Tr		Under construction			

(1) SEFD and frequency range are from the EVN status table.

(2) DPFU and Tsys are from N12K1

Timely delivery of data

- Timely delivery can significantly speed up the correlation, post review, and pipeline processes and make more disk packs be available in the upcoming session.

- Feedbacks, **rxg**, and **antab** files should be delivered within 2 weeks after the end of a session and **ASAP** in the case of **e-VLBI** experiments.

- Automatically uploading log files and gps data are very welcome.

Future: New antabfs program

- Upgrading antabfs program to deal with DBBC log file.
- Script for Ef DBBC is available, while may have some station-dependent codes.
- Are all the DBBC stations going to use 80Hz radiometry?
- No Tsys data available from Sv, Bd, Zc.