

## Status of EVN Amplitude Calibration

-----

Session 2/2010  
-----

The following table shows the median absolute amplitude error for EVN stations in the second session of 2010 (May/June). These results were derived from the pipeline amplitude self-calibration results of all EVN experiments. The number in brackets after each entry is the number of experiments that were used to determine the median error for that entry.

```
=====
```

Station	18 cm	6 cm	5 cm
Cm	0.15(7)*		0.14(4)*
Jb	0.11(11)*	0.08(6)	0.06(4)
Ef	0.04(11)	0.04(6)	0.03(4)
Mc	0.09(11)	0.04(6)	0.06(3)
On	0.06(11)	0.08(6)	0.06(4)
Sh	0.11(9)*	0.05(6)	0.09(2)
Tr	0.07(11)	0.03(5)	0.03(4)
Ur	0.09(7)	0.18(5)*	
Wb	0.03(11)	0.02(5)	0.10(4)*
Bd*	0.07(3)	0.08(3)	
Zc*	0.14(3)*		

```
=====
```

The blank entries indicate insufficient data. The numbers above are the median absolute error in the antenna gain amplitude (as calculated from pipeline amplitude self-calibration). A value above 0.1 indicates a significant error which should be investigated. In addition to the absolute errors summarized here, the EVN pipeline provides details on every experiment processed at JIVE including the sign and time variability of the errors. In each experiment, the self-calibration results of a bright and compact source were used to get the reliable results.

\*Cm: It was reported that Cm had a stabilized calibration unit in the last TOG Meeting. Currently, Tsys monitoring data are still not available. Antab files were created to calibrate time-dependent amplitude error in the case of good radio files available.

\*Jb: As the ongoing e-MERLIN project, its VLBI system could not be stabilized. In some experiments (e.g. EP070 and EY010B), Jb had a dead noise source or improper IF attenuation level. In these cases, their total power/tpi monitoring data were extracted and scaled to provide more meaningful calibration data for the EVN user,

\*Wb: Wb used single dish at 5 cm. As the signal from other telescope was not properly attenuated and went in the adding box, its correlation amplitude was affected.

\*Ur: BBC 1 and 8 had low (<0.5x) correlation amplitude in 6cm experiments.

\*Sh: It provides the longest baselines. As the absence of compact calibrator sources on the long baselines to Shanghai, a median error slightly larger than 0.1 may not indicate poor amplitude calibration.

\*Bd and Zc: No Tsys data available as their log files have some local-defined messages so that the EVN program antabfs.pl could not parse their log files. Zc has

d poor fringes in EV018A as strong RFI, bad sampler statistics and improper IF attenuation levels.

Points of note:

There are some problems hidden behind the median error as it could not show the scattering of the amplitude calibration error. Ef had noisy Tsys curves in some BBCs in 6cm experiments as there was a broken amplifier in its IF chain that caused interference or drifts in the IF power. Tr had significantly low ( $< 0.1x$ ) correlation amplitude in EF022A and EP064M after a power shortage. Mc had unstable and noisy auto-correlation bandpass at 5 cm. Wb phased array had fewer or no calibration data points in the case of observing weak ( $< 5$  mJy) sources due to its limited sensitivity. Onsala reported that their Tsys measurements seemed to be sensitive to winds.

Jun YANG for the Science Operation and Support Group (JIVE)