

Internal JIVE BlackHoleCam meeting

Date: 6 June 2015, 13:30 in Arpad's office

Subject: pipeline WP

Present: Arpad Szomoru, Des Small, Mark Kettenis, Ilse van Bommel

Mark reports on the progress he has made in getting EVN data processed in CASA. So far all problems can be overcome by making small scripts, e.g. getting the Tsys data into CASA format, same for gain curves. CASA loses the scan information, but that is not critical and also easily fixed.

The bandpass calibration works, but gives poor results on long baselines where the signal is weak. This is potentially fixed by doing the BP calibration after a fringe fit.

CASA can store the delays in a K-Jones table, but not the rates. Adjusting the table is a fundamental CASA issue and needs to be coordinated with NRAO.

The imaging has not yet been addressed, there are potential issues with the CASA coordinate system, which in the past has been different from other imagers.

A pre-condition for CASA development is to have XML formatted help files. The deliverables to BlackHoleCam should consist of a set of tasks and documentation, which forms a rudimentary pipeline. The processing of the mm-VLBI data still requires an extensive amount of fine-tuning and human intervention. We consider the imaging issues not to be a JIVE deliverable. There is no expertise here to develop that further, therefore we will stick to classic CLEAN and self-cal.

Additional issues for mm-VLBI are dealing with WVR data, opacity correction, and handling of pulse-cal (aka phase-cal). The question is raised if the latter is needed and used in mm-VLBI.

Des is continuing the development of the CASA fringe finder, using CASA resources as much as possible. Extensive libraries are available for basic math operations. He notes that the stacking algorithm for the Schwab-Cotton method is not as effective as it is made to believe. This is due to the inhomogeneous array, and the method is optimized for VLBA type homogeneous instruments. It seems sufficiently effective to use one large (high-sensitivity) station as the reference. He will implement the stacking anyway, since that is what AIPS does and it is required for proper verification.

The single-band delay fit is implemented. Multi-band is still TBD. Same for incoherent fringe fitting and source model.

Next meeting: July 2 , 13:30, Arpad's office