

Internal JIVE BlackHoleCam meeting

Date: 14 September 2015, 11:30 in Arpad's office

Subject: pipeline WP, simulations WP

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

This meeting is intended to get an update on the CASA pipeline development for EHT.

The per-baseline fringe fit works fine, the results are fed into a globalization method. This uses a standard SciPy minimization algorithm, there are several options here, with different approaches as to when convergence is reached. Des has a preference for an LSQ which uses Newton's method when it is close to a local minimum. He will compare the different methods before deciding on which one to use for the final prototyping.

There is no Figure-of-Merit for the global fringe finding, but there is for the per-baseline fit. Getting a FoM for a global fringe fit is an unsolved problem, Ian Stewart is working on this. We can output the per-baseline numbers (HOPS compliant) and the numbers that AIPS produces, which can serve for comparing the methods.

Comparison with AIPS should be done on short timescales, to ensure that there is time to solve potential problems that occur.

Discussion on what PIMA does and how this is better (or not).

The code needs some brushing up, and documentation is non-existent. To tie this to Mark's efforts on the pipeline in CASA requires a new CASA table format. There is a simple work around to store the group delay, rate and delay in a table or file for Mark to read into CASA.

The prototyping of the pipeline and patching that is needed for this in CASA is practically done. Mark has written a document with requirements and suggestions for solutions. This will be discussed with Huib Jan as input for his visit to NRAO. Initially we will only deliver a list of issues to NRAO with the request to discuss potential solutions.

When importing the AIPS solution tables into CASA, the APCAL task flags the majority of the data. It is not clear why this happens.

Ilse reports on the MT telecon of last week and her visit to Nijmegen, and questions that were raised there.

The meta-data format that goes into CASA needs to be defined. AIPS uses the ANTAB format, specified by the EVN. This should be a good starting point for EHT, but requires the telescope managers to be able to deliver that format.

Inquire as to what the telescopes deliver now, and if that can be converted to the EVN standard.

Data format is discussed: the Haystack correlator produces an innate data format, which can be converted to MarkIV and/or FITS-IDI after correlation. For EHT it seems sensible to have FITS-IDI as standard format, and not MS. For political reasons there is a push towards MS. There are routines to convert from FITS-IDI to MS, but not back. HOPS ingests MarkIV data, which requires a lot of manual bookkeeping during the data processing.

For the 2015 observations we should ensure that FITS-IDI is delivered, and not just MarkIV.

Actions:

Des: compare minimization tasks and write up findings

Des: compare prototype to AIPS FRING and write up findings

Ilse: inform Remo about our views on meta data standardization

Ilse: inform Remo about data format and request FITS-IDI for 2015 run

Next meeting: October 12th, 11:00