

CASA-VLBI monthly meeting

Date: 28 March 2017, Arpad's office & telecon

Present: Arpad Szomoru, Des Small, Tammo Jan Dijkema, Ilse van Bemmelen, Walter Alef (remote), Olaf Wucknitz (remote)

Collaboration on RINGS work

Within the RadioNet RINGS JRA there are two tasks dealing with fringe fitting: a non-dispersive (WP7.2) and a dispersive fringe fitter (WP7.3, lead: Anna Scaife from UMan). During the kick-off meeting the impression arose that the dispersive option is only required for low frequencies, and these could potentially be two different tasks. However, Walter points out that for very wide band receivers such as BRAND, a correction for the dispersive delay is also necessary.

Olaf has a code in place that handles a 3-dimensional fringe fit, with the third axis being a $1/\text{frequency}$ term for dispersive delay. He has used this successfully for LOFAR data, but it has not been used or tested by other people, or on other data.

We wish to explore how an additional dispersive delay correction can be implemented in the code we are currently developing in JIVE. This requires a closer collaboration between the two tasks in RINGS. WP7.3 has a kick-off telecon on April 20th. Arpad will ask if JIVE can join, the other participants in this meeting are already invited. We will also bring this up in the RINGS WP leader telecon on April 14th.

We will start with sharing the Bitbucket repository containing the CASA prototype with Olaf, and Olaf will write up a short document on how his code works. Jan Wagner will join the German team in May, he is a potential candidate to do some work on this.

Other issues

The NRAO CASA team has informed us that they now have a recent version of the Gnu Scientific Library (GSL) which contains a suitable Levenberg-Marquardt solver for the fringe fitter. Des is exploring this option as an alternative for the Ceres solver. It is still not clear how the FFT component can be checked in to the CASA repository, nor when they expect to release the next CASA version.

Mark and Ilse have been looking at the weights, and how AIPS and CASA handle these. A problem with importfitsidi is being addressed: it filled only the WEIGHT column, while it should fill the SIGMA column. The testing of how different tasks handle the WEIGHT and SIGMA values is ongoing.

Actions

6: is held up by the current plotms bug

18: this is a continuous process

31,32: JIRA tickets awaiting action from George

36-38: await porting to C++

46: broadened to include weights at all steps of the calibration

48: broadened to include check-in of current code

ID	Description	Owner	Ref.	Due
6	Write report on verification with AIPS (deliverable)	Ilse	151019	Ongoing
18	Process EVN data with CASA	Mark & Ilse	160115	Ongoing
31	Definition of gain curve in CASA	Mark	160620	
32	Implement apply Tsys for MS	Mark	160620	
37	Verification C++ fringeal against AIPS	Ilse/Des	160609	
38	Benchmark fringeal	TBD	160609	
46	Assess impact of weights	all	161219	Ongoing
48	Contact NRAO about CASA 5.0 code check	Des	170213	Ongoing
49	Verify data weights in simulated MS	Ilse	170213	Ongoing
52	Move components of fringeal to casacore	Des	170307	
53	Exchange information on fringe fit code	Olaf & Des	170328	
54	Contact Anna Scaife for invite to WP7.3 telecon	Arpad	170328	Done

Next meeting: May 2, 11AM, Arpad's office & telecon link to Bonn
(Walter will be on leave)