

ECSV Discussion

17 April 2012, at 10am in room 317.

Attendees:

Andreas Brunthaler, Claire Chandler, Barry Clark, Vivek Dhawan, Dale Frail, Dave Harland, Kepley, Leonia Kogan, Stan Kurtz, Casey Law, Josh Marvil, Drew Medlin, Heidi Medlin, Emmanuel Momjian, Steve Myers, Juergen Ott, Frazer Owen, Tony Remijan, Nirupam Roy, Michael Rupen, Bob Sault, Lorant Sjouwerman, Philip Schmidt, Deb Shepherd, Gustaaf van Moorsel, Joan Wrobel,

Minutes:

Correlator and general system health (Michael)

- We did a successful sub-array test but the sub-array with the referenced pointing had data issues that are being pursued (some tables in the MS appear to be corrupted, could be just a filler problem).
- Some issues with antenna collimation offsets on, e.g., ea27, ea10, are being investigated.
- We had a mysterious baseline board failure – rebooting fixed it but we don't understand why it failed.
- Testing is on-going for 3-bit samplers (needed to get 8 GHZ bandwidth) and phased array (for VLBI).
 - For 8 GHZ bandwidth testing: 11 antennas are now fully outfitted with 3-bit samplers. Another 5 antennas have samplers on the AC side only (e.g., none on BD). 10% of the 3-bit samplers have various problems that are being tracked down by Vivek, Ken and Michael.
 - For phased array: Two streams to the Mk5C have been successfully written but it appears that we lost 50% of the data. This is being investigated. More tests planned for this week.
- Last week Casey and Ken did a 10ms dump observations of a pulsar and they saw the pulsar – The hope is that we will try a RRAT (Rotating Radio Transient) observation later this week.
- Dipoles for low-frequency observations are up. We will try to get data at 11am today.

CASA status (Steve)

- Stable (3.4.xxx) last week made for testing. A number of staff are testing.
- CASA 3.5 development just started.

Documentation status:

- Spectral line guide (Juergen)
 - Waiting still to see what the new modes will be.
- High Frequency Observing Guide (Mark)
 - Last time: Will work on it this week hopefully.
 - Mark is observing, status unknown.

- OPT quick Start guide (Amanda)
 - Completed next version of the OPT quick start guide – this new version is available on ELVA guides (<http://evlaguides.nrao.edu/index.php?title=Category:OPT-QuickStart>) and being linked from the official OPT page so people from outside can access it.
 - Gustaaf and Juergen will discuss the best way to link this in with the existing links.
 - Amanda has accepted an NRAO postdoc at Greenbank and she will continue to maintain this guide.
- Mosaicing help doc (Steve, coordinated with Andreas & Juergen)
 - Haven't started. Expected to start soonish – maybe in a week.
- OSS porting to Plone (Gustaaf)
 - OSS for JVLA and VLBA is being ported to plone with help from Stephan. Not available on the main page yet, still some work to do. Expected to be completed this week or next. Once complete, the mediawiki and latex-based OSS will be gone.
 - Note: We will need 2 versions of the OSS, one for the call for proposals, and one for DDT proposals.

JVLA General Capabilities - delivery plan status (Deb & Michael)

- Michael updated the proposal for the General Capabilities we would like to offer our users in the next call for proposals based on the discussion we had.
- Deb is developing a “plan-to-completion” that lays out what we need to do to finish development and provide robust capabilities. This is due Wednesday. Proposed leads are:
 - Phased Array VLBI – Amy
 - 8 GHz bandwidth capability – Michael with Deb's help
 - Spectral line with 2 GHz BW – Emmanuel & Juergen with Nirupam's help
 - Sub-array – Deb with Claire's help
 - Coordinated PST input – Gustaaf, Claire & Mark giving input to Open Sky this week. Deb, Michael and Emmanuel (and others) to provide comment. Bryan, Dave Harland. et al to provide a reality/feasibility check.
 - If anyone has ideas about how to present things to users in the PST, then get those ideas to Gustaaf.
 - Calculator for data flow max needed in the PST/exposure calculator.
 - Gustaaf will have a PST look-and-feel meeting later this week (possibly Thurs).

Spectral line visualization summary/demo (Nirupam)

- Nirupam is developing a shell script to help users figure out where their lines are located relative to the 128 MHz boundaries in the basebands. This started with a visualization script developed by Amanda.

- See also the spreadsheets by Todd and Emmanuel at: https://safe.nrao.edu/wiki/bin/view/EVLA/RSROObservingPreparationGuidelines?sortcol=table;up=#Spectral_line_Setups to help set up your lines.
- Nirupam's shell script (called tune) is being developed as an intermediate solution, before we can get something like this implemented in the OPT. Nirupam is also talking to the OPT folks. It will be used for this call for proposals to help people figure out what they can observe.
- Nirupam demonstrated 'tune' and this was well-received by those in the meeting. Notes based on a lively discussion about tune and possible enhancements are given below:
 - Can specify 3 or 8-bit samplers
 - The script produces a very nice display of where the lines are located relative to the full baseband and 128 MHz boundaries.
 - The output display is saved as a ps file on disk.
 - It would be good to have red-shift input and Vlsr input to calculate rest frequencies rather than just seeing the line sky frequencies. This can be added relatively easily
 - Michael Rupen suggested the addition of a velocity axis for the bottom panel.
 - For the 3-bit samplers: there is no flexible tuning – limited implementation so far (but this may be all we need for this call for proposals).
 - 8-bit samplers can have non-flexible or flexible tuning,
 - Tune finds an optimal algorithm to decide how to move the sub-band edges away from the 128 MHz boundaries.
 - Nirupam is developing this into a web-based tool – he showed an idea of how the output plot would look and then showed some input options (although inputs and output plots have not yet been integrated together. Very good ideas.
 - It would be a good idea to interface the web-based tool with the dopset tool.
 - Doppler setting per baseband is going to be possible for our users this next call for proposals so this will be a valuable addition.
 - Visualization of other lines from Splatalog and RFI:
 - There is no interface with the splatalog yet but splatalog has a python-VO compatible interface – Tony will send the specs to Nirupam to see if he can incorporate splatalog lines.
 - A Splatalog interface to the web-based interface would be especially useful to identify lines.
 - It would be nice to have a list of RFI lines and then figure out how to avoid them (e.g., have a NOT condition in 'tune')
 - Splatalog is setting up an RFI database. This database must be site-specific and updated at each site. Splatalog will query that database to get estimated RFI locations. If this way integrated into 'tune' (or the OPT) we could use the Splatalog output to

plot the RFI bands relative to the desired science bands to see if there is a conflict. Note: this RFI database is being reviewed by Bryan Butler.

- What about with 2 overlapping basebands? Not considered right now.
- It would be interesting to see the baseband shape relative to the line placement – this may be better relegated to a long-term enhancement.
- Right now, line selections are input to the command when ‘tune’ is first run. It would be very good to have the option to provide line inputs in a text file, type in the lines to the command startup (as now) or input lines via a splatalog query as discussed today.
- Dave Harland notes that the OPT development of a similar capability will not be available for at least 6 months, possibly as long as a year. So this tool will be our user interface until then. We need to make sure that this tool development will be good and valid input to the OPT development.
- It would be very useful to have a user option where the user can override the decisions the tool makes. One possibility would be to allow the user to set priorities for their lines (so if one is not possible, the lower priority line would be dropped).
- It would be useful to allow users to shift the baseband center, possibly in an iterative loop, and let users select by eye the best option to choose from.
- It would be useful to write out a list of the relevant lines and setup needed to define a resource so that this could be input into the OPT.