

ECSV Discussion

6 November 2012, 10am in room 317

**Attendees:**

Vivek Dhawan, Miller Goss, Huib Intema, Christene Lynch, Josh Marvil, Drew Medlin, Heidi Medlin, Amy Mioduszewski, Emmanuel Momjian, Robert Mutel, Steve Myers, Susan Neff, Frazer Owen, Laura Perez, Dave Roberts, Michael Rupen, Deb Shepherd, Ken Sowinski, Gustaaf Van Moorsel, Joan Wrobel, Hsi-Wei Yen

**Minutes:**

**News:**

- Laura Perez is starting her postdoc here this week. She was a RSRO in the past. Welcome Laura!
- Nirupam's last day will be Friday. Thank you so much for your work on TUNE and helping us to be ready for our first big call for proposals!
- Hsi-Wei's last day will be next week.
- Note that we will not have a meeting next week since Monday is a holiday and the Monday meetings will be moved to Tuesday.
- Next Tuesday the Low band dipoles will be put up. There will be 3 teams going out (one for each arm) with 4-5 people in each team. Chuck Kutz would like inexperienced people to go on a team to help with the installations. Last time Huib and Susan Neff went. We have 4 volunteers so far:

- Deb, Minni, Robert & Gustaaf.

There is room for 2 more volunteers if you are interested. If you would like to help, please contact Chuck Kutz who is coordinating this (although Chuck is out of town this week so coordinate with Paul Harden ([pharden@nrao.edu](mailto:pharden@nrao.edu)) and Brent Willoughby ([bwilloug@nrao.edu](mailto:bwilloug@nrao.edu)).

**Correlator and general system health (Vivek, Michael)**

- The current main issue is still that we are missing BDFs (binary data files): we are still losing about 1/4% of the data now. This is less than the 30% we were missing a month ago and this problem no longer affects 3-bit data! Only 8-bit data is affected. We are making progress!
  - This remaining problem with the missing BDFs might be due to the MPD (multi-processor in the correlator). Martin is working on replacing this with what some have called the hydra++ code.
- Complete freezes of the CBE (Correlator back end) when running programs using the 3-bit samplers are gone as of the last CBE update. YES!!!! Progress continues!
- We are getting ready for the new CBE nodes. We are currently running with 8 nodes but in the future we will operate with 32 nodes. The new nodes that were delivered had some hardware power supply issues and they need to be

sent back to Penticton to be fixed. But before they are shipped back, Martin has been working to see if there are any issues with the CBE with the new nodes.

- There have been many updates of the correlator Configuration Mapper (CM) made by Sonja – Ken and Michael are making a big push to get the bugs out.
- Sub-arrays are still not working, push on sub-arrays this week and next. This capability needs to be ready for general observing by Jan.
- 3-bit testing and observing:
  - We have been doing test runs. If you have 3-bit science programs get your SBs in.
  - Note, there are no hardware/software problems in 3-bit that are not seen in 8-bit – amazing progress.
  - Claire is finding that Q-band calibrators that are bright enough at 40 GHz ( $> .25$  Jy) are turning up to not be bright enough at 48 GHz because of the higher noise at 48 GHz. She is going to try a run with a bandwidth of 38-46 GHz to see if this is a better default. There are also calibration strategies that might be employed to compensate for the lower SNR at the higher frequency end.
- Reminder: For all 3-bit tests, please remember to use the WebTEST OPT. Michael or Vivek will take your SBs and run 'model2script' on it so the project can be scheduled manually by the operator.
- Phased array status: another phased array+VLBA test is planned for this Thursday.
  - Phased array testing has been mostly stalled as we wait for progress on the VLBA Digital Down Converter (DDC) issues.
    - Note: the DDC is needed for the wider bandwidth observations being proposed for in 85% of the phased-VLA+VLBA projects. So we need to get the DDC working on the VLBA before we can effectively test the phased-VLA in a manner that will be used.

### **Testing coordination and best LST ranges for tests:**

- People with tests that run at night should focus on the low science pressure area of 0400-0700 LST.
  - Try to setup your tests in this LST range if at all possible
- Weekday tests are difficult to do given that we have such a high pressure from WIDAR, 3-bit, phased array, and sub-array testing.
  - Try not to set up your tests in the weekday but it is possible if necessary.
- Weekend daytimes are needed for science.
  - It will be very difficult to get test time during the weekend daytime. Its not impossible but do everything you can to avoid this time. If you absolutely cannot run your test any other way except during a weekend day, contact: Deb, Michael, Vivek, Joan.
- L & S-band observations will not be possible tonight (filming) and during the Nov 13-25 time when the 4-band dipoles will be deployed.

**Software status:**

- OPT
  - Dave's group plans to push the test OPT to production within the next two weeks, if possible. This will allow 3-bit to be done in the production OPT. But they won't push to production unless we get some testing.
  - We need EVERYONE who knows how to run the OPT/RCT/SCT to test it - this week if at all possible. If you cannot test, then please let me know why you can't. Once you have done your testing, send your test results to Dave Harland ([धारलंद@aoc.nrao.edu](mailto:धारलंद@aoc.nrao.edu)) and me. Even if everything is OK, send this result to Dave.
  - Testing: This time around there aren't really any specific features we need tested, beyond what has already been checked off in the Testing Tips. Instead we once again ask that people just cruise around the RCT, SCT, and OPT looking at old catalogs & projects, making new resources & sources, and creating some new sched blocks. The goal is to see if anything has been accidentally broken during the latest round of development.
  - We need testing on:
    - 3-bit, 8-bit, spectral line, continuum, using mosaic input from Andrea's script (Steve) and anything else you can think of.
    - To access the webtest version of the software go to:
    - <https://builder.aoc.nrao.edu/sssTestPgm.shtml>
    - Here you will see the blocks in yellow labeled OPT (test), RCT (test) and SCT (test). Double click on the box to start running the program.

**CASA (Steve, Juergen):**

- CASA 4.0 is still not released. A blocker was found last week. CASA hopes to get the release out near the end of the week.
- Steve is also working on final EVLA guides (especially SN2010, the advanced EVLA guide, required significant updating) and other documentation.
- Frazer gave Steve a Linear polarization P-band dataset so Steve will be able to calibrate the data in CASA and see if this works and then start to create a regression script and then a 'casa-guide' for our users on how to do this.
  - Steve will start on this after the EVLA guides are ready for the release.

**Note from Rick:**

- THIS Thursday, there will be a VLA technical issues meeting at 10am. Rick will send around an agenda in a couple of days. This is a meeting for the testers to communicate issues they see in the data with the engineers. All are invited.

### **Miller – bandpass stability update (not good news):**

- One month ago, there were 2 consecutive-day observations on 3c454.5. Stability was fantastic.
- Last week Miller got another 1.5 hr run and the stability was very poor. Large ripples are seen in some antennas. Individual telescopes range from good to variations of 4%. This is in complete contradiction to what was found last month. Individual samplers are doing different things on different days – is this a sampler or IF (all polarizations share the same problem) issue?
  - Vivek will look at the data and see if the problems can be traced to a sampler.
  - Vivek and Miller will work together to determine if the issues that Miller sees in the data correspond to the samplers that Vivek identifies as being bad.
  - For ‘bad’ samplers, there appears to be several types of problems:
    - We know samplers sometimes just flat out fail. These have to be brought back to the site and replaced.
    - Sometimes, amplitudes are lower than expected and the autocorrelations look too flat (there should be a roll-off on the edges and a few bumps and wiggles along the pass band in the autocorrelations). Resets (sometimes many) will fix the problem.
    - Sometimes, amplitudes are lower or have slightly odd values and this is all we see. Some times these can be fixed with resets and sometimes they cannot be reset to a good level.
  - At this time we don’t understand the sampler failure modes well enough to know why they are failing. Most samplers appear to be good (~90%) but there are samplers that fail in the modes described above. Mike Revnel is looking into this but he might not be able to get this problem solved by Jan. It appears that this will be a longer term problem we must deal with. In the mean time, we need to be able to diagnose the state of a poorly performing sampler so we can get it reset and in good working order in a timely fashion.
    - This type of diagnosis of the state of a sampler would be good to have in real time and Mike Revnell is working on this.