

ECSV meeting, rm 317 (x7371/7370)
31 Jan 2012

Attendees: Bryan Butler, Claire Chandler, Barry Clark, Stuart Corder, Vivek Dhawan, Dale Frail, Miller Goss, Amanda Kepley, Jeff Kern, Leonia Kogan, Josh Marvil, Drew Medlin, Amy Mioduszewski, Emmanuel Momjian, Gustaaf van Moorsel, Steve Myers, Jurgen Ott, Frazer Owen, Jon Ronmey, Michael Rupen, Philip Schmidt, Deb Shepherd, Ken Sowinski, Theresa van Vliet Wiegert, Joan Wrobel.

1. RSRO plans (Deb) – see <https://safe.nrao.edu/wiki/bin/view/EVLA/RSROCalendar> for details:
 - 31jan start – Amanda Kepley
 - 31jan start – Philip Schmidt (working with Theresa)
 - 1feb start – Casey Law
 - Here until 30mar – Stu Corder
 - Here until 31may – Andreas Brunthaler
 - Here until 31aug – Theresa van Vliet Wiegert
 - Others in the plan to come this spring/summer:
 1. Joanna Corby & Tony Remijan
 2. Paul Demorest & Scott Ransom
 3. Cornelia Lang & Betsy Mills
 4. Nurur Rahman
 5. (Sui) Ann Mao (Jansky at U. Wisc to help with polarization)
 - Unconfirmed but possible:
 1. Stan Kurtz, Mexico
 2. Satoko Takahashi, Taiwan
 - Student: Jairo Armijo, doing a Ph.D. with Jesus Martín-Pintado in Madrid, is also planning to come in early April, staying for about 2.5 months to work with Juergen.
2. Short Overview/status
 - Correlator & general system health (Michael & Ken)
 1. We are running with a stable version of the correlator backend. There are outstanding questions, with, e.g., recirculation and how that works.
 2. We had a station board failure over the weekend. The power cycle today fixed the problem but the reason for the failure is still under investigation
 3. Only one missing scan over the weekend and that was a dummy scan, possibly caused by a problem with the executor.
 4. We have P-band systems on 2 antennas. At L and S-bands this may cause a change in instrumental polarization as a function of time (caused by a sagging of the dipoles as the antennas are moving). There should be no effect at C-band but Theresa is checking her data to determine if Q and U are ‘rock steady.’

1. Steve Myers notes that its time to schedule another polcal run and this would be a good evaluation of polarization impact at the different bands. We could run one next month when the dipoles are installed for testing. *Steve* to coordinate with Frazer on the P-band testing schedule and set up and evaluate the polcal run.
 2. Note: The proposed, nominal schedule for the 4band dipoles being up is given below.
 5. Engineers have done some fixes on antenna 5 to tweak the L-band bandpass ripple. This needs to be verified to determine if the problem continues.
 6. The first of the production 3-bit samplers will be installed. After that it will be once a week. This will start a major testing frenzy. All 3-bit samplers should be completed by the end of August.
- Software systems (Bryan)
 1. OST and OPT new versions have been deployed to production.
 1. You can specify multiple LST ranges now. Some internal updates have been done and some mosaic support (ability to import source catalogs into sets of scans) is included.
 2. Note: Planets (and probably the sun) will show up in the bulls-eye plots now so you can see where they are relative to your source.
 2. John is getting ready to deploy a new version of the archive tool. Now uses all 4 of the NGAS nodes simultaneously. This will probably happen next week. This will be coordinated with an update to MCAF, CASA and other software.
 - User issue: Note: Up to now, we have been charging \$75/disk plus \$25 for shipping to send users their EVLA data. Disks are now costing \$150, we will eat some of this cost for now but we must charge \$125/disk (disk+shipping).
 - CASA update (Steve)
 1. The CASA workshop will use the current release.
 2. There will be a CSSC (CASA Science Steering Committee) later this week. The CSSC consists of Crystal, Steve, Ed, Jurgen and Jeff.
 3. A new Test version of CASA is in the building (came out on 26 Jan). No new stable yet but it should come out soon.
 4. Changes to be aware of:
 1. Clean parameter “calready” is becoming “Use_scratch”
 2. There is a new filler asdm2ms_xl (extra large) – deals with bits of the BDF at a time. Much faster (factor of 4-6) – this is in the CASA test version now.
 3. Bug still: large binary data files causes CASA to “die” because it tries to fill all into memory – will be fixed soon before a new stable is cut.

- a. If you have a large switched power datasets and it is larger than the memory on the machine, then it will die.
 - b. Stuart is here working on Switched power data – he will be a first tester.
 4. The model data column is going away. The model will be calculated on-the-fly, as needed. With very complicated models where the calculation is more time-consuming than reading a model column, the models can be put into the scratch column. In general, it always is faster if the dataset is over 100 MB.
 5. There will be new CalTables (frequency interpolation will be possible and you will be able to derive a cal table with one ms and then apply it to a different ms). We will have to do a conversion of the old cal tables and a script will be provided to do the conversion.
 5. Next month the planning for the next version of CASA will be determined.
 1. Linear polarization calibration and processing will be needed for low-frequency EVLA P-band. This is also something that is needed for ALMA and MeerKAT.
 2. **Deb** will provide input to CASA on EVLA priorities.
3. Documentations status & open actions (see for details: <https://safe.nrao.edu/wiki/pub/EVLA/ECSVMeetings/01-ECSVmeeting-26jan12-actionsUpdate.pdf>)
 - EVLA Obs Status Summary final update
 1. **Deb** – still working.
 - Low & high frequency EVLA guides (Emmanuel & Mark)
 1. High frequency guide: Content updated and out for comment to **Mark, Lorant, Claire and Frazer**.
 2. Low frequency guide: content done, needs to be linked to user links in plone. **Deb** to get Gustaaf the link.
 - Sp line EVLA guide.
 1. **Jurgen** – expect draft done by 9 March.
 - OPT manual
 1. **Lorant** – delay until after we have defined the observing modes to be offered at OSRO at the beginning of 2013.
 - Proposal technical reviews template
 1. **Mark** – working, due 13 Feb (earlier date than before as requested by Joan – templates need to go to the reviewers on 15 Feb).
 - Data reduction workshop
 1. Support scheduled done, individuals asked to review the tutorials. If you have comments, expert will organize.

4. Low-band summary (Frazer)
 - 2 dipoles were installed on EVLA antennas located 100m apart.
 - Ken set up a script to do a scan at P-band during the day and fringes were nicely established between the antennas. We are seeing some funny modulation between 220-470 MHz and this has to be tracked down. Interference is benign for the most part. The lower frequency band, from 55-85 MHz, has a peak that looks to be constant that is not well understood. This doesn't look like interference but we need a longer baseline to check this is not RFI.
 - 4-band part will be put up about once a month for a week, the P-band part and receivers will remain on the antennas. The proposed, nominal schedule for the 4band dipoles being up is as follows:
 - 1) Jan 26(up)- Feb 1(down)
 - 2) Feb 27(up)-March 2(down)
 - 3) Apr 2(up)-Apr 6(down)
 - 4) Apr 30(up)-May 4(down)
 - 5) May 21(up)-May 25(down)

5. Main topic: Phased array discussion – Amy, Bryan, et al.
 - Amy presented results for a phased array test done last week. Some notes on the discussion follows.
 1. For a single base-band, when one sub-band is phased up, the application to the remaining sub-bands are not correct – phases are not zero. The problem is that the delays are not terribly well determined. The system currently solves for the delay and phases and then applies them. But this version of the system, although it can do multiple base-bands, it doesn't keep track of the relative phases between the sub-bands.
 2. The delays are likely to be non-linear across a wide-bandwidth so if we go to wide-bandwidths, this will not work. So we need to be able to adjust the delays on a sub-band basis.
 1. Barry warns: This is a large task to implement.
 3. Previously with the VLA, we determined the phases and delays but then applied the phase correction only to phase up the array. We did nothing with the delay. If we go back to this method, it might solve the problem.
 1. Barry warns: This would also be a large change to implement.
 4. Note: This phasing is done in the WIDAR correlator, before the CBE (Correlator back end), because the data rate is too high for the CBE to handle.
 5. Both the pulsar and fast transients want to sum across the entire bandwidth with all 4 sub-bands to detect very faint source with the phased array. VLBA constraints will not be as challenging but this is still a problem for them. We have several RSRO projects that need this capability.

- Note for us novices: Sub-sample delay rocking = residual delay errors. We are seeing this ‘rocking’ but we will not fix this before the end of the year. For interferometric observations, this residual delay can be calibrated out, but for the phased array observations, it must be done in the WIDAR correlator.
- The way forward: **Ken, Michael, Bryan, Barry,** and **Amy** need to get together to decide what method we will try to implement to fix the problem and then test again.

6. Discussion for next week:

- We will review what our RSRO’s are doing so everyone is aware of what they are working on, what their priorities are and discuss any issues we should be aware of. RSROs:
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 2. 31jan start – Philip Schmidt (working with Theresa)
 3. 1feb start – Casey Law
 4. Here until 30mar – Stu Corder
 5. Here until 31may – Andreas Brunthaler
 6. Here until 31aug – Theresa van Vliet Wiegert
- **Amanda, Casey, Stu, Andreas, Theresa** and **Philip** – please be prepared to give a brief overview of your expertise and what data you are working on next week. Thanks!