ECSV Discussion
16 October 2012, 10am in room 317

Attendees:

Sanjay Bhatnagar, Barry Clark, Mark Claussen, Vivek Dhawan, Feng Gao, Miller Goss, Eric Greisen, Huib Intema, Ken Kellerman, Jeff Kern, Christene Lynch, Ann Mao, Minni Mao, Amy Mioduszewski, Robert Mutel, Susan Neff, Kristina Nyland, Juergen Ott, Frazer Owen, Rick Perley, Urvashi Rau, Dave Roberts, Deb Shepherd, Lorant Sjouwerman, Ken Sowinski, Ravi Subrahmanyan, Gustaaf Van Moorsel, Joan Wrobel, Hsi-Wei Yen

Minutes:

News:

- Feng Gao is here from CV just starting his RSRO. Feng is a student of Jim Braatz and Fred Low. He is working on the maser cosmology program and he will be working on phased array commissioning to ensure that we are able to observe water masers at higher redshifts next year.

Correlator and general system health (Ken, Vivek)

- We have had issues with the power shutdowns that took a lot of time, minimizing actual commissioning tests.
- We lost a disk in one of the two servers in the correlator. It will get swapped out today.
- There will be a CMIBs software update soon. (Correlator MIB board software).
- 3-bit testing (use WebTEST OPT followed by M2Stest) status:
    - We are still missing some BDFs (binary data files) occasionally – Martin is trying to track down the issues. It appears the CBE is not always 'getting organized' properly for the missing scans (a process startup problem).
    - Lots of 3-bit test data has been obtained by:
        - Christene Lynch & Mark Claussen – no results yet.
        - Juergen and Miller have another test planned for bandpass tests. The last dataset they got showed a shifting ripple in the last 10 minutes of the data at the 1% level. This is still being pursued.
    - The largest 'blocker' in 3-bit development is still that the Correlator BackEnd (CBE) often fails when 3-bit scripts are run back to back. This continues to be worked on by Martin at high priority.
        - Note that 8-bit scripts using a large fraction of the correlator resources also causes failures, like in 3-bit.

Low-band – campaign summary (Huib, Frazer & Ravi):

- The last two weeks of October was the last low-band commissioning campaign. 16 antennas had dipoles installed, 10 of which were working. Some very bright sources (Cyg A and Cas A) were observed as well as 2 millisecond pulsars (designed to look at polarization at P-band), and some standard calibrators.
- Every dataset recorded both P and 4-band.
- Issues that are being addressed are:
    - What is the useable bandwidth? Initial indications suggest we can get 25-32 MHz BW centered at a central frequency of 75 MHz. This is an order of magnitude larger than what we have ever gotten before and is very promising.
    - These are linearly polarized feeds and we are finding issues with the polarization responses, and seeing that the dipoles are not ineracting with the dishes in a way that we expect (there is a lot of power in the cross-hand polarization). The goal is to calculate 2 orthogonal polarizations
    - We have also been evaluating how linear the response of the system is to be able to determine how well a flux scale derived from Cyg A can be transferred to fainter sources. First indications suggest that the response is 'fairly linear' – we used to have a 50% error in flux transfer. This is much better but not yet quantified.
    - Susan Neff has been working on data obtained in August. She is looking at:
        - Defining how much of the band is usable at 327 MHz. It looks like about 200 MHz (270-470 MHz) will be useable. The band is limited by RFI at the low end (250-270 MHz) while the upper end is limited by the receiver response.
        - Characterizing the calibrators and spectral index model for calibrators over a large field.
    - Tracy Clarke is also looking at a 4-band dataset to get the first 4-band image with this system.
- The next low-band data campaign will have dipoles put up on 13 Nov (Tuesday). The dipoles will remain up until the Monday after Thanksgiving.
    - We should have 17 receivers up byt then (although not all will likely be functional as issues are being resolved with the new receivers).
    - Contact Huib and Frazer if you want to help put up receivers.

Phased array test status

- Project TY018 (3c273) with the phased VLA and VLBA was recorded on 20sep12. Beautiful image resulted.
- Project TY020 is a demo/test to make a nice image with as much end-to-end software/hardware working as possible failed due to a DDC problem. The phased array worked perfectly but the VLBA did not fringe.

Software status

- Dave Harland reports that the SSS group is putting the finishing touches on their release 1.14. This includes:
  - Hardware
    - The PBT & OPT+ are on a new server (obs.vla.nrao.edu)
  - OPT
    - Created new model for holography scan based on M.Brentjens work
  - PHT
    - Some bug fixes
  - PST
    - Coded a fix for printing old proposal.
    - Now have correct display of Science Category
    - Next items:
      - GOST integration
      - GBT resource validation

Pipeline (Claire):

- Dana Balser and Amanda Kepley had data that they had reduced independent of the pipeline. This data was then run through the pipeline and the results were near identical. Very promising results!

CASA (Jeff, Juergen):

- The test period for the CASA 4.0 release is complete. We have reports from testers in CV, Socorro & ESO. There are no "show stopper" issues. Bugs are being worked on with the expectation that the software will be released near the end of the month.
- CASA 4.1 planning is also on-going – Jeff meets with the CSC later today for the final discussion on how priorities are being balanced between ALMA & EVLA.
  - If you are interested in the details, these will be discussed at the next CASA testers meeting Tuesday at 9am (room 317). You are all invited to attend.

Images presented to the AUI board yesterday (see accompanying pdf file of the images and descriptions):

- Note: The 3-bit image is 1/64th of the total data recorded: a single sub-band and only 75 minutes of integration. When we combine sub-bands, we can get spectral index maps but in the maps Rick makes the noise doesn't improve. This same data was given to Urvashi and she is processing it in CASA – she does get the appropriate decrease in noise that goes as the square root of the bandwidth. So there are still some details to be worked out to make sure we know what is the best way to reduce and image this very wide-band 3-bit data.

Quarterly reports:

- The end-of-the-year Quarterly reports were due to CV yesterday. Commissioning had 3 deliverables. The accompanying pdf file provides the FY Q4 status summary that Commissioning submitted. This has more technical details than what will be given to the NSF but the bottom line is basically the same. In summary:
    - Phase array observing commissioned (was due in Q3) – good progress but this will have to be completed in Q1 FY13.
    - 3-bit samplers commissioned for RSRO observing (was due in Q3) – complete and demonstrated.
    - First shared risk observations with the low-band system – complete and demonstrated.

We are also writing a description of how we commission observing modes.

- Stay tuned, first draft should be ready soon.