ECSV Discussion
26 June 2012, 10am in room 317

Attendees:

Bryan Butler, Claire Chandler, Mark Claussen, Barry Clark, Vivek Dhawan, Miller Goss, Jeff Kern, Cornelia Lang, Ann Mao, Heidi Medlin, Betsy Mills, Frazer Owen, Rick Perley, Nurur Rahman, Nirupam Roy, Deb Shepherd, Lorant Sjouwerman, Ken Sowinski, Ravi Subramanya, Kathryn Weil, Joan Wrobel,

Minutes:

Correlator and general system health (Ken)

- We have a new version of the Configuration Mapper (CM) for the correlator and we have been using it almost a week now. It helps us to test and debug the system. In combination with the new Executor, we can do better 3-bit sampler testing and control.
- We had a VLBI test last Thursday. We tested it in Y1 mode (a single antenna) and in a phased array mode (all antennas available). We used 4 streams (sub-bands) associated with standard, current VLBA capabilities. The data collection seemed to go well. It is being correlated with VLBA antennas as we speak.
- We have something called a 'rotation trick' that corrects the position of the sub-reflector for the sag of the VLA antennas as a function of elevation (e.g., so the focal point stays centered on the feed cone rather than drifting off and decreasing the antenna efficiency at lower elevation). The software that implemented the rotation trick was accidently turned off on 15 December 2011 and was not found/recognized/fixed until 5pm yesterday. Rick analyzed the magnitude of the error and finds:
    - At Ku band, and below, the effect is negligible. The maximum change in gain at low elevations is only 1 to 2 %.
    - At K-band, the effect is small. For a corrected 'tuned' antenna, the change of gain at 20 degrees, compared to the desired maximum at 55 degrees (which is what it is for most antennas) is 10% in amplitude (20% in power), or less. For a few antennas (notably ea15 and ea18, for which the optimum angle was too high to start with), the loss is a bit larger.
    - At Ka-band, the effect is larger, ,typically 10 to 15% in amplitude (or 20 to 30% in power) at an elevation of 20 degrees. At middling elevations, the effect is small by about a factor of four.
    - At Q-band, the difference is quite large, and also quite uniform across the antennas. For properly 'tuned' antennas, the loss of gain at 20 degrees (and at 80 degrees) w.r.t. the optimum at 55 degrees, is 20 to 30% in power. For data taken after Dec 15, the loss of gain at 20 degrees compared to 90 degrees (the new maximum) is typically 40%, and for some antennas, over a factor of 2! (To be more fair, this

extreme effect is only on the clearly discrepant antennas ea15 and ea18). The more typical maximum loss is about 70%, compared to 30% in the past. Put another way: The loss of power gain (hence sensitivity) for the typical Q-band antenna, after Dec 15, is about:
    - < 10% for elevations above 60 degrees
    - ~ 20% at an elevation of 30 to 40 degrees
    - > 40% at elevations less than 20 degrees.
- Claire is considering how to inform our users about the rotation trick karfuffle. We probably need to provide gain curves associated with the time when the rotation trick was turned off so users can correct their data.
- 3-bit development and testing:
    - We now have over 20 antennas outfitted with the Teledyne 30-bit samplers allowing a full 8 GHz bandwidth at higher frequency bands. Ant 4 was outfitted last week. Ant 24 will be outfitted tomorrow and will have the last of the 4 Hittite samplers installed for testing. (The Hittite samplers are being evaluated to compare with the current Teledyne samplers because the Teledyne samplers have many issues, some of which we can compensate for and other issues we will have to live with).
    - We are mostly trying to find out how to use the 3-bit samplers operationally. We have put aside testing noise behavior for now so we can understand the operational aspects of the 3-bit samplers. We will come back to this at a later point.
    - ***Barry has scheduled a discussion of the 3-bit samplers at Science Tea this afternoon. Please come if you are interested.***

Software status (Bryan)

- We are getting the new weather station sorted out. It should be done in the next day or so and ready for more science-oriented testing.
- The PST is being re-insourced (e.g., we are taking over the development and maintenance of this software from the "OpenSkies" company). Stephan released a new version yesterday but there are still a few bugs that need to be fixed so it is not ready for wider testing quite yet. Mark and Dana have to tell us when this is ready for wider testing within the SOC. We will need some 'load testing' next week with everyone putting proposals in.
- The OPT is being worked on by Dave Harland to get out a new release (1.13). Testing will happen next week, and then it will be pushed to production. There are many small changes but nothing major.
    - Note: We are looking to change the lengths of scheduling blocks so they can have 15min granularity rather than the current 30min increments we now have. This might not be in this next release (but it should be soon).
- The OST has some updates, Kieth is working on a bug that has caused gaps in the schedule when some scheduling blocks run over a few seconds and the next one can't start until the next 30 min increment approaches. The fix will allow the next schedule block to be run even if it is started a few seconds late.

- Archive tool – we had a problem between 15may and 15jun in which some data sets had incorrect on-line flags applied. This issue has been fixed and users will need to refill their data to get the flags applied correctly.
- The standalone RCT is now available on web-test.
- Dave's widget, GOST, is getting there. Not ready for testing yet.
- Nirupam's tool is being tested by internal users.
    - He has received good feedback from testers so far. Most fixes are being handled with small changes in the code or documentation.
    - A new version along with associated documentation should be ready for the next round of testing tomorrow.
    - Mark, Joanna, Gustaaf, Betsy & Deb will test the next version.
- Bryan will send Claire the links to where all the tool documentation will go so she can put them in the Call for Proposals announcement.
- Note:
    - Length of scans: Deb will run a test later this week with different scan lengths to make sure that varying scan lengths can be filled into CASA correctly (this was an issue but it should be OK now).

CASA status (Jeff)

- A new test version of CASA is coming out with an internal tool change (this is a substantial change but it should be mostly "under-the-hood" for users).
- The 32 bit version of CASA is still being de-bugged. This does not work in the release version of CASA.
- There is an issue with the export of UVFITS with CASA using ALMA data. Problems existed in the antenna table and, in some cases, with the frequency axis. This should now be fixed in patch and we expect that Eric will test it on Thursday to ensure that UVFITS can be filled into AIPS properly. Jeff will decide whether to put this fix into a release patch or just keep it in test/stable for now.

Documentation preparation for the call for proposals (Everyone - see below)

- Note acronyms: VLA and SOC – please be consistent.

3-bit testing from a science perspective (Cornelia)

- Cornelia is doing astronomical testing of the 3-bit system. She has been familiarizing herself with the 3-bit system. There are many K and Ku band 3-bit datasets and she has been going through several of them in CASA.
- Vivek had suggested that she focus on determining whether the flux calibration transfers to a blank field properly and comparing calibration solutions between the 3 and 8-bit systems. She is also looking into flagging.
- Then next step is to do imaging for the 3 and 8-bit streams.
- Cornelia has run the 3-bit data into the pipeline but the intents were not correct – this was probably just because the intents were not set up properly in the script but it might be an issue with the OPT.
- Cornelia will set up a script with the intents set up correctly to see if this data can be run through the pipeline correctly (simple Ku or X band – Claire will

work with Cornelia to set up an appropriately simple script). Vivek and Ken will look at the resulting script to see what needs to be changed. Barry will get involved in troubleshooting the changes.

CfP documentation status
Updated 26jun12 (today)

Documentation preparation for the call for proposals (Everyone)

- Call must go to CV on 29 June. Documentation due date will be 1 July. So it can be reviewed and made consistent by 9 July.
- Status of various sections of the OSS:
  - Rick ***– DONE***
    - 4.1 Resolution ***– DONE***
    - 4.2 Sensitivity ***– DONE***
    - 4.3 EVLA Frequency Bands and Tunability ***– DONE***
    - 4.6 RFI ***- DONE***
    - 4.10 Cal and Flux Density Scale ***– DONE***
    - 4.11 Complex Gain Calibration ***– DONE***
    - 4.15 Snapshots ***– DONE***
    - 4.16 Shadowing and Cross Talk ***– DONE***
  - Emmanuel ***– DONE***
    - 4.2 Sensitivity – ***Done by Rick***
  - Steve
    - 4.4 FoV ***– not started yet***
    - 4.12 Polarization ***– not started yet***
    - 4.17 Combining configs and mosaicing ***– not started yet***
  - Claire
    - Finishing the draft call
    - 4.7 Subarrays ***– not started yet***
    - 5.8 Data processing ***– needs a bit more thinking about what should be put in about the pipeline***
    - 5.9 Travel Support ***– DONE***
    - 5.10 Student assistance ***– removed***
    - 5.11 Student Observing Support Program ***– DONE***
  - Vivek
    - 4.8 Positional accuracy ***– in work, should be done tomorrow.***
  - Frazer
    - 4.9 Imaging ***– DONE***
  - George ***– DONE***
    - 4.11 Complex Gain Calibration ***- done by Rick***
  - Michael
    - 4.5 Time Resolution & data rates ***- ? (Deb will follow up)***
    - 4.13 Correlator Configs (with Deb) ***- ? (Deb will follow up)***
    - 4.18 Pulsar observing (with Deb) ***- ? (Deb will follow up)***

- Jon/Amy
  - 4.14 VLBI **– *DONE***
- Joan **– *DONE***
  - 5.1 Obtaining Observing Time on the EVLA – ***DONE***
  - 5.2 Director's Discretionary Time – ***DONE***
  - 5.5 Fixed date and dynamic scheduling – ***DONE***
- Gustaaf **– *DONE***
  - 5.3 Helpdesk – ***DONE***
  - 5.6 Observations and remote observing – ***DONE***
  - 5.13 Reservations for the EVLA site and/or DSOC – ***DONE***
  - 5.14 Staying in Socorro – ***DONE***
  - 5.15 Help for Visitors to the EVLA and DSOC – ***DONE***
- Lorant
  - 5.4 Observing Preparation ***- DONE***
  - 5.7 Data Access ***– DONE***
- James/Bryan **– *(almost) DONE***
  - 5.12 Computing at the DSOC ***- DONE (by James). Still need the change of DSOC to SOC.***
- Deb
  - 1 Introduction
    - Purpose of Document – ***first cut done, needs more***
    - What is the Expanded Very Large Array?
      - Naming conventions. ***– not started yet***
    - VLA to EVLA Transition ***– not started yet***
  - 2 Overview of the VLA ***– first cut done, needs more***
  - 3 EVLA early Science (change to a description of the VLA) ***– not started yet***
  - 4.13 & 4.18 – help Michael ***– not started yet***
  - 5.16 On-line information about the NRAO and the VLA ***– not started yet***
  - 6 Publication guidelines **– *DONE***
    - 6.1 Acknowledgement to NRAO ***- DONE***
    - 6.2 Dissertations ***- DONE***
    - 6.3 Preprints ***- DONE***
    - 6.4 Reprints ***- DONE***
    - 6.5 Page Charge Support ***- DONE***
  - 7 Documentation ***– draft completed, needs some links to high freq and sp. Line obs guides verified before it is done.***
  - 8 Key Personnel (refer to people to the helpdesk) ***– draft completed, left in some key personnel but mostly told people to go to the helpdesk.***
  - 9 Acknowledgements **– *DONE***

- Other documentation (outside of the OSS)
  - Joan
    - Config plans web page – ***DONE***

        - Including LST availability plots ***– not started yet***
    - Michael, Emmanuel, Juergen
        - General Observing Setup-Tool (GOST) – Includes in-line help (button taking people to the separate help file) - ***?***
    - Nirupam
        - Vis tool, includes in-line help – ***some work started, first draft for review should be done by tomorrow.***
    - Lorant, Emmanuel
        - Stand-alone RCT (SRCT) for shared risk ***- includes in-line help (button taking people to the separate help file) – Lorant is working on it. Emmanuel is back next week.***
    - Deb/Claire
        - Shared risk observing web page ***– not started yet***
        - RSRO web page update, include low-band ***– not started yet***
    - Gustaaf
        - FAQ update, add FUnaskedQs discussed at tech review meeting - ***working***
    - Jon, Amy
        - Phased VLA for VLBI ***– DONE***
    - Juergen
        - Spectral line observing guide ***- draft done, Becky and Joanna are reviewing it.***
    - Mark
        - Sensitivity calculator ***– discussed at the meeting today. Mark & Bryan have some ideas about what to do for this.***