ECSV Discussion
21 August 2012, 10am in room 317

Attendees:

Claire Chandler, Barry Clark, Joanna Corby, Vivek Dhawan, Eric Greisen, Miller Goss, Josh Malone, Minnie Mao, Drew Medlin, Betsy Mills, Steve Myers, Kristina Nyland, Juergen Ott, Frazer Owen, Rick Perley, Tony Remijan Nirupam Roy, Bob Sault, Deb Shepherd, Ken Sowinski, Jennifer Wiseman, Joan Wrobel, Hsi-Wei Yen

Minutes:

News:
- New and soon-to-be-here RSROs:
  - Susan Neff started 26 August and she will be here until 20 December as RSRO – working with Frazer on low-band. ?
  - Dave Roberts will be here 26 August to 20 December.
  - Bob Mutel will be here 3 Sept, and staying through Oct & Nov working on phased array commissioning with Vivek, Jon, Amy and Walter. Bob will be working 2/3 RSRO and 1/3 visiting scientist.
  - Nissim Kanekar will likely be here in mid- to late-October to work with Frazer on low-band.   Still under discussion.
- RSROs leaving:
  - Betsy Mills will be leaving next Monday
  - Joanna Corby will be leaving this Friday
- Visitors:
  - Jennifer Wiseman, Goddard
  - Bob Sault

Correlator and general system health (Ken & Vivek)
- Correlator-related work:
  - Ken is working to figure out the fundamental limits on the data rates in the correlator.   He is also trying to figure out how to set up fast dumps automatically.
- Ken & Vivek are working on getting sub-arrays to work.   We can run a science project using up to 3 sub-arrays now but it is tricky.   The new version of the CBE (Correlator BackEnd) introduced a bug that prevented sub-arrays from being run.   For the science project last week, we used an old version of the CBE that worked with sub-arrays – the problem is being investigated but we need Martin (on vacation until next week) and Sonja (in Canada) to really dig into this.   In addition, the CM (Configuration Mapper) in the correlator needs to make changes if we are going to allow baseline board stacking or any other complicated configuration setup in the correlator when we run sub-arrays.
- Vivek has been doing some work on the Mark5C recording for VLBI to understand why we are loosing packets in the data stream.   This is likely

related to the delay between packet delivery so Vivek is exploring the space of how large the interpacket delay needs to be. Walter is writing a program to evaluate VLBI data quality.

- Vivek has been working to get the OPT to be able to set up for a phased array test automatically.
- 3-bit sampler testing:
  o The 3-bit system is working very well compared to last month. Hsi-Wei is working with Vivek to evaluate 3-bit science data. He is looking both at the 3-bit data quality, how to reduce the data and the switched power application.
  o CBE can now run 3-bit scripts in succession – blocker removed.
  o Reference pointing works, we can switch correlator configurations,
  o Vivek reports that an old problem seems to have been re-introduced in the past week: when running a 3-bit script, every 4 seconds an error is generated. Thus, it may be that 4s integrations (or integrations larger than 1s) may be corrupted. This is cause for concern and Vivek, Ken, Rick and Emmanuel will follow up immediately after this meeting to find the cause and stomp on it.
- Rick has been looking at the switched power issues again – the Pdiff compression that was a major problem a month ago is now mostly gone (although not entirely). This was when the power response of the system developed compression when looking at a bright source, making it impossible to properly calibrate observations with very bright sources. Some minor compression remains and Rick will follow up at lower priority.
- Tim Bastian has been looking at the solar data he got last month during the solar eclipse. He has seen an issue with re-quantizer gains and will follow up with Rick.
- Joan notes: there will be 3 RSRO/ECSO projects in A-config.

Software status:
- There will be an executor update in the next week or so.
- The Proposal Submission Tool (PST) was updated. Technical proposals are being evaluated and reviewers will have access to the PST for the evaluation. 250 proposals need to be reviewed (a record number).

CASA (Steve) -
- The next test version of CASA should be out later this week or next. Included in this version are:
  o Linear polarization calibration for low-band.
  o Per-plane restoring beam generated in CLEAN.
    ▪ This will need heavy user testing (this is to be coordinated by Juergen) in CLEAN and image analysis tasks that heavily depend on the shape of the restoring beam.
  o New models for flux calibrators:
    ▪ Amy has completed the Ka-band models and these are ready to go into CASA.

- - Deb talked to Amy about the need for larger images for the CASA for models of 4 calibrators at L band. If we don't get these, it would lead to a scale offset when running setjy.
    - Amy will talk to Steve, Kumar, Emmanuel and Juergen about exactly how large the field needs to be for the L-band models. She is planning on a moderate sized S-band image and will check with the above mentioned folks to see if this is adequate.
    - Amy will also talk to folks to see what we need to do for the next release and what we need to do for the following one (e.g., can she wait to get A-array data before completing the next installment of the S-band model or does she need to get something into CASA now?).
  - Nurur and Joanna have been working with James Robnet to test the cluster parallelization of CASA. Joanna reports:
    - For continuum, imaging is at least 5 times as fast on the cluster as on a dual core laptop. With a spectral line, the speed up is at least an order of magnitude faster.
    - Issues:
      - It is more difficult to set a mask in pclean – Kumar is working on this.
      - Pclean builds a model but it doesn't build the model data column so self-cal doesn't work properly. A work around was identified yesterday.
- Juergen has been working with Joanna, Nurur and Betsy to get the casaguides and examples in a good shape and coordinated with the information in the cookbook.
  - Betsy has been working with Juergen to make the casaguides be more organized. Kristina and Joanna have been providing input.

Joanna gave a review of her RSRO work (this is her last week):
- Testing spectral line mode:
  - Joanna has done a lot of testing on Nirupam's TUNE tool with Betsy and Cornelia.
  - She has also been figuring out the best way to set up for complex multiple lines in a single sub-band.
- Documentation development, she has:
  - Reviewed and provided comments to the OPT quick start guide.
  - Reviewed and provided comments to Juergen's spectral line guide.
  - Worked with Nirupam to write the TUNE documentation
  - And working with Betsy to develop the spectral line examples guide.
- Helpdesk support:
  - Joanna answered one helpdesk ticket relating to GOST. She got the problem identified and Dave Harland updated the tool. She said "that was cool".
- Science

- o Joanna has been doing a complex spectral line chemistry study on Sgr B2 N.   The science motivation was based on a lab experiment that predicted specific lines seen with the GBT.
  - o VLA data was taken in CnB and in the move to B. Most of the molecules that were predicted were detected.
  - o Note that all lines were simultaneously observed in a RSRO mode. This would have taken 10 times longer if an OSRO mode was used.
  - o Both SBs that were taken and both basebands have been calibrated (except for self-cal that is being done).   With the work-around figured out for the pclean self-cal, Joanna is doing this now. She is using the compact continuum emission to self-cal.
  - o Tomorrow Joanna will go into more detail on the science at Wednesday lunch.
- Future plans:
  - o Joanna is planning to do pipeline testing on this science data.