

VLA Commissioning & Science Verification Discussion
8 January 2013, 10am in room 317

Attendees:

Bryan Butler, Claire Chandler, Barry Clark, Mark Claussen, Vivek Dhawan, Kumar Golap, Miller Goss, Eric Greisen, Dave Harland, Minni Mao, Emmanuel Momjian, Kristina Nyland, Frazer Owen, Rick Perley, Michael Rupen, Deb Shepherd, Lorant Sjouwerman, Ken Sowinski, Ravi Subrahmanyam, Gustaaf Van Moorsel, Joan Wrobel

Minutes:

This is a 'transition meeting' – transitioning from the former ECSV discussion to a meeting focusing on VLA Operations and Enhancements. The first part of the meeting is a final wrap up on where we stand on commissioning at the end of the EVLA project. The last item introduces a new meeting that will take the place of this one that focuses on continuing operations planning and troubleshooting.

News:

- Steve Ellingson will be here working on the 4-band system with Ravi & Frazer. His schedule is:
 - Jan 14, 2013 - Feb 1, 2013 (3 weeks)
 - Mar 11, 2013 - Apr 5, 2013 (4 weeks)
 - Jun 24, 2013 - Aug 9, 2013 (7 weeks)
- There will be a science and engineering test meeting this Thursday, 10 Jan, 10am in DSOC room 317 coordinated by Rick.

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

- Good news:
 - We have successfully completed all challenging programs in the A-configuration: e.g., fast-dumps, sub-arrays, narrow bandwidths, asteroid radar programs.
- The new CBE node hardware and associated software are being installed. The new nodes are faster, stronger, wiser and connected with infini-band. We currently have 8 old nodes (actively using 6). We will be bringing in 8 new nodes in the next week and they will be run in parallel with the old nodes. Once we are confident the new nodes and associated control software are working well, then we will replace the old nodes with new ones (for a total of 16 new nodes). The next installation (in the next month or so) will add an additional 16 CBE nodes for a total of 32 CBE nodes – we will be flying high!
- Sonja is back from holiday next week and she will start working on the Configuration Mapper (CM) again.
- 3-bit sampler status:
 - The 3-bit continuum system is working well.

- A few Teledyne samplers are still not performing well, there are 8 samplers on each antenna so having a few non-functional samplers represents a very small percentage of the total. All Hittite samplers are working well now.
- The bottom line: The 3-bit system for K, Ka & Q band General observing is in very good shape for the start of General observing on 25 January.
- Phased array:
 - This is now working well. Recent tests show good fringes between the Phased VLA (Y27, e.g. 27 antennas all phased together) and the VLBA. A recent test with VLBA+GBT+phased VLA appears to have gone well – data is being evaluated.
- Sub-arrays:
 - Working well.
- A ringing problem was just reported by Eric & Frazer this morning. They see high-amplitude spikes and loss of fringes for a few integrations (a few seconds). This may be related to using a very high level of baseline board stacking (which would explain why no one else has seen this problem). Michael is on the case, trying to understand the fundamental origin of the problem since it seems to be in the correlator.
- We need to tell the engineers and operators in the 8:30 maintenance meeting what test days we are doing each week – Mark Claussen goes. Michael goes. Peggy goes.
- We have had some high frequency issues over the holidays: 4 or 5 antennas had their sub-reflector zero points changed due to ice and extreme cold temperatures causing the sub-reflector positions to slip (3-7 arcmin offsets). As a result, these antennas were useless at high frequencies for several weeks. The sub-reflectors were fixed Monday and Tuesday.

Low-band (Frazer/Deb):

- We will have to delay the start of the 4-band campaign. Originally scheduled 14-25 Jan, hardware and fabrication delays are causing this to slip. Current plan (hope) is to start on 22 Jan (Tue), assuming the hardware arrives and the new dipoles can be fabricated by then. The campaign will be shortened to allow only the highest priority test to be done so it can end on 25 Jan (Friday).

Testing coordination and best LST ranges for tests (Claire for Joan):

- We have a few projects that have dribbled over from A-configuration into the move time. The highest priority project (B priority) is a Q band program that is scheduled between 0-3 and 5-8 LST. High frequency tests should avoid these LST ranges, if possible.
- Very little science is scheduled during the move so the schedule is open to testing. Send test requests to Deb.

Software status (Dave Harland):

- Planning of the next PHT priorities will be done soon.
- OPT & RCT Spectral Line User Interface (needed for the OPT)
 - This is the highest priority issue that must be addressed as absolutely soon as possible. There has been trouble with the tuning of the basebands when Doppler tracking is added and this is going to delay the OPT release to our users that was scheduled for today. We will allow SBs to be made for NRAO default continuum projects (including 3-bit) but not spectral line now.
 - Daily meetings are now being held between Lorant, Michael, Daniel, Emmanuel and Dave to coordinate code issues and testing.
 - There are 1-2 tests (Michael & Lorant) that must be done to make sure the continuum projects will run OK. Then we will be able to release this aspect of the OPT to our users.
 - There will be a demo of the new Spectral line interface today, Tuesday 8 Jan at 3pm (in DSOC 317).
 - While Daniel is working on the Doppler tracking implementation, Dave will be adding code that will be able to selectively sacrifice baseline boards if they are not working. Given that 3-bit continuum projects use all 64 baseline boards, right now, if even one baseline board is missing, all 3-bit continuum programs are blocked. However, the edge basebands have lower sensitivity and it will not seriously impact a 3-bit program if one or two edge basebands are missing. So Dave's code will remove up to two edge basebands and allow 3-bit programs to continue to be run.
- Exposure Calculator
 - Released and looking good for all bands
- PST & GOST
 - Released, works with JAVA 7.0 but not JAVA 6.0
 - Dave needs to send out instructions about the use of JAVA 7.0. Later he will be able to recompile the software to use JAVA 6.0
- Pipeline
 - Some work was done so that when data hits the archive the pipeline will be triggered to run.
- VLA Phased array
 - Keith is working to support the Phased VLA in the OPT: he needs to make sure that the 3 output files that Vex2OPT produces are loaded into the OPT. This update is expected by the end of January (first observations are not expected until early February).
- Holography programs implemented in the OPT
 - We can now create holography programs in the OPT and have the resulting SBs observed without hand-editing of the resulting file. This is working well when doing a holography run in the standard ways. Rick has one (or maybe a few) more tests to run holography

programs in a non-standard way just to make sure that this works well.

- Performance of the OPT was dramatically improved with a Tomcat server reboot. The fact that this solved the problem indicates that there is a memory leak. For now Dave et al. will do a reboot each time the OPT slows down (let Dave know as soon as you notice slow-downs). He will reboot as necessary until the memory leak can be tracked down and solved.

CASA (Bryan):

- Bryan Butler is taking over as CASA project scientist from Steve while Steve is on sabbatical. He will be coordinating CASA testing and running the CASA tests meetings (every Tuesday at 9am).
- The release version of CASA = 4.0
- Test & Stable = CASA 4.1
- A new CASA 4.1 Stable will be built in the next week (some bugs will be fixed in the next version: e.g., antenna position corrections, in interactive clean, memory usage issues).
- There will be an external review of CASA and the ALMA & VLA Pipelines on March 5 & 6. The review panel members are currently being invited.

Next meeting (VLA Ops & Enhancements meeting)

- The next meeting will be on 15 January, 10am in room 317
- Michael Rupen will run the meetings from now on (Deb as backup as needed).
- Scope and Content TBD but some ideas are:
 - Start with a review of what we have promised in the Program Operating Plan (POP) and what our current status is.
 - Use this meeting as a forum for the scientific staff to obtain consensus and provide input for the next round of POP deliverables
 - Low-band commissioning should have a prominent place in the discussion.
 - Some technical discussions will be included. Michael and Rick need to discuss how this will be coordinated with the VLA test meetings.