ALMA Calibration Group

Teleconference 2004−07−15

Connection Details

- Call date: 2004−07−15 (Thursday)
- Call time: 15:00 UT
- Duration: 1.0 hr
- USA Toll Free Number: 1−877−919−7148
- International: +1−203−566−1039
- Passcode: 5 1 0 4 6 8
- Leader: Jeff Mangum

Attendance

Butler Holdaway Mangum Mundy Richer Stirling Saito Welch Wilson Woody Wright

Agenda and Minutes

NOTE: Items in blue are notes/comments from the telecon, while action items are in red.

1. **Group Communications**

   In order to get everyone "on the same page" regarding calibration issues, Mangum suggested that:

   - We hold this telecon at least monthly. Suggestions for a different frequency?
     - The consensus opinion was that once−per−month was an acceptable rate for this telecon. Irregular telecons can be scheduled as necessary. Given the need to make progress on the Calibration Plan, the next telecon will be one of these "irregularities" (in two weeks).
   - A calibration web page be developed which can serve as a starting point for those wishing to find information on ALMA calibration issues. See http://www.cv.nrao.edu/~jmangum/ALMA/Calibration/ for a first−cut at this page.
     - The consensus option was that a calibration web page was a good central point−of−contact for ALMA Calibration issues.
     - If the Wiki is found to be an efficient communications tool (see below), then the Wiki should incorporate the information on the calibration web page.
   - A calibration wiki, which is a more efficient way to hold "discussions" on calibration topics than email or web pages.
     - The consensus opinion was that it was worth giving the Wiki a try.

- ◊ ACTION: *Mangum* works with NRAO Computing to implement an externally−accessible Wiki. If this option will not develop within the next month or so, explore use of the existing ESO Wiki. Richer suggests building Calibration Wiki within an ALMA Science IPT Wiki.

2. **Calibration Plan**

The Calibration Plan needs to be finished. In order to accomplish this, it will be necessary to have small groups concentrate on specific sections of the plan. Mangum suggested the following breakdown for group concentration (I also list some possible "volunteers" for review and update of each section, with a suggested "lead volunteer" denoted in bold):

- ♦ Amplitude and Flux Calibration (**Welch**, Butler, Carter, Gibson, Holdaway, Mangum, Martin−Pintado, Kawabe)
- ♦ Phase Calibration (**Hills**, Holdaway, Mundy, Richer, Stirling, Wootten)
- ♦ Bandpass Calibration (**Guilloteau**, Bacmann)
- ♦ Polarization Calibration (**Myers**, Holdaway, Laing)
- ♦ Pointing Calibration (**Mangum**, Lucas, Holdaway)
- ♦ Antenna Location Calibration (**Conway**, Wright)
- ♦ Antenna and Electronic Delay Calibration (**Lucas**)
- ♦ Optics Calibration (**Butler**, Kawabe, Saito)
- ♦ Total Power Calibration (**Holdaway**, Mangum, Mundy, Kawabe)
- ♦ Archiving and Accessing Calibration Quantities (**Lucas**, Mangum)

Please be prepared to volunteer to work on one or more of these sections.

- ♦ A proposal by D'Addario suggested a different structure to the Calibration Plan and the organization of the group discussions as a whole which emphasized an operational approach to calibration. The group consensus was that, although this is a reasonable structure, it isn't necessarily a better structure. Wright commented that D'Addario's suggested structure is tied to an ALMA operational model which might change.
- ♦ The structure of the current Calibration Plan, listed above, was felt to be the correct structure for this Plan and for further group discussions.
- ♦ Further "volunteering" resulted in the additional names added to each calibration category in the list above.
- ♦ Via email Kawabe brought up the issue of how we incorporate ACA−specific calibration in the Calibration Plan and in our future discussions.
  - ◊ Wright and Richer suggested that the ACA−specific calibration issues be incorporated into the existing calibration category structure.
  - ◊ Mundy cautioned that our procedure for dealing with ACA calibration is dependent upon how the ACA will be operated within ALMA (separate array or integrated with ALMA).
  - ◊ ACTION: *Mangum* will seek guidance from ALMA Management on the question of ACA operation. In the meantime, group discussions should consider ACA−related issues within the context of specific calibration categories.
- ♦ The content of the Calibration Plan was discussed.
  - ◊ Richer and Butler pointed out that the current Plan is lacking recipes for how calibration is implemented within a given type of observation. For example, how long will a certain type of calibration measurement take, and how often will it need to be done.
  - ◊ Holdaway suggested that there should be an appendix which contains example calibration sequences and durations for typical kinds of observations.
- ♦ The need for Total Power and/or Primary Beam calibration sections?

- ◊ Via email, Holdaway suggested that Primary Beam calibration should be its own calibration category and section in the Calibration Plan. Mangum agrees. Please comment.
- ◊ Via email, Mangum pointed out that the current content of the "Total Power" section in the Calibration Plan is composed of calibration categories which exist on their own elsewhere (like pointing, amplitude, focus, etc.). Therefore, perhaps the issues pertinent to "Total Power" calibration should be incorporated into other calibration categories. Please comment.
- ◊ ACTION: *All* will consider:
  - · whether "Total Power" calibration can be incorporated within other calibration categories (use the current content of the Calibration Plan as a guide), and
  - · whether "Primary Beam" calibration should be added to the list of calibration categories and Calibration Plan sections.

♦ ACTION: *All* will review/update Calibration Plan sections. Updates will be discussed at next telecon (in two weeks). Changes should be distributed to the group no later than 2004−07−27.

3. **Calibration Category Issues**

The following is a suggested list of "calibration categories" which Mangum suggests we should discuss on a regular basis (note the similarity to the Calibration Plan sections). Please suggest additions/deletions to the following list. Also, if you have issues to discuss for the next telecon, please let me know and I can add them.

1. *Amplitude and Flux Calibration*
2. *Phase Calibration*
3. *Bandpass Calibration*
4. *Polarization Calibration*
5. *Pointing Calibration*
6. *Antenna Location Calibration*
7. *Antenna and Electronic Delay Calibration*
8. *Optics Calibration*
9. *Total Power Calibration* (may be subsumed into other calibration categories)
10. *Primary Beam Calibration*
11. *Archiving and Accessing Calibration Quantities*

Mangum's proposal is to discuss a few of these categories at each telecon. Once we all get our arms around how each of these categories function, we can then discuss how they interconnect. All agreed that this was a reasonable approach.

4. **Amplitude Calibration Subsystem Development Reports**

♦ Berkeley Absolute Flux Calibration System (Welch)

- ◊ Icarus paper on 28.5 GHz work (Gibson and Welch) weaving its way through the referee process.
- ◊ ACTION: *Welch* will send preprint of Icarus paper to the group.
- ◊ Currently installing equipment on BIMA for 3mm experiment.
- ◊ Measurements must be done by the end of July (BIMA moving to CARMA).
- ◊ This 3mm experiment will make measurements in a similar way to how the 28.5 GHz measurements were done, with a few exceptions:
  - · Standard horn will be used to make tipping curve measurements.

- Standard horn will be used as a separate interferometer element.
  - ◊ Implementation of this system for ALMA will require mounting a system of calibration horns on a separate antenna mount.
  - ◊ This system will allow for amplitude calibration and monitoring of phase calibration sources (secondary calibrators).
- ♦ Semi−Transparent Vane (STV) Calibration System (Martin−Pintado/Wilson): No report.

5. **Date of next phone meeting**
   The next ALMA Calibration Group telecon will be 2004, July 30th 15:00 UT **(NOTE UNUSUAL DATE)**.

$Id: calgroup−meeting.html,v 1.10 2004/07/19 14:41:48 jmangum Exp $