

The ANASAC Comments on the ALMA Ops Plan¹

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One of the topics the committee planned to discuss at the May 2004 ANASAC face-to-face meeting but did not have enough time for was the review of the ALMA Operations Plan. It is a broad document, and only a subset of the document is clearly relevant to this committee. It was decided that the committee would produce a document based on comments contributed by e-mail, and here are the comments collected.

Following the examples of similar documents produced by other groups, the committee's comments are organized by the order of the Ops Plan chapters:

1. Executive summary

2. Introduction

3. Narratives

4. ALMA Observatory Management Structure

5. Operations Development concepts and milestones

– Salary funding should be provided for sabbatical-type visits by astronomers for durations of 3-6 months for Commissioning and Science Verification. Otherwise, such a trip will not be feasible for many astronomers.

– There is not much detail in the Plan on how the ACA will be operated, except to say that ACA will operate independently of the main array and may be coordinated with the main array in time on an as-needed basis. The ACA has been added to the project only recently, and it is understandable that a lot of the operational details are yet to be worked out. Nevertheless, planning should start now on how it will be operated and integrated into the whole system. How will using the ACA stand-alone or in conjunction with the main array appear as far as the user is concerned? Will there be separate time allocation committees? How will one go about proposing to use the two arrays in a coordinated way?

6. General maintenance concepts

7. ALMA Science Operations Concepts & Deliverables

7.1 Overall Operations Concepts

7.2 Proposals, projects, ObsUnitSets, and Schedule Blocks

– Scheduling blocks (SBs) are suggested to be 30-60 minutes long, but this seems too short considering the expected calibration overheads. It is also not clear if the observing conditions would significantly change on such a short time scale.

– Taking advantage of its superb sensitivity and excellent calibration, flux monitoring programs may become an important aspect of ALMA science. Careful monitoring programs have specific demands on calibration and uv-coverage, and developing a special observing mode or scheduling blocks may prove useful.

7.3 ALMA Archive and operational data flow

– Pseudo real time analysis by scientists at ARC would make commissioning easier and more efficient. A greater emphasis should be given to a rapid data link, rather than shipping storage media.

7.4 Calibration Plan

7.5 Scheduling

– Someone at the Maryland ALMA workshop pointed out that Mauna Kea observatories have two meteorologists providing both short and long term forecasts on the observing conditions. This is an attractive idea ALMA project should consider, but the effectiveness of the Mauna Kea program has been questioned by some, and a study of the MK experience may be worthwhile.

7.6 ALMA User Support Homepage and Helpdesk

– “ALMA project shall establish an e-mail based single-point contact ‘helpdesk’ system.” A database of the questions and replies common to all of the ARCs might be a useful resource – perhaps allowing users to solve many of their own problems without contacting staff. For questions regarding the services specific

¹These comments are based on the Ops Plan version “G3”.

to a particular ARC, however, a centralized helpdesk is a needless extra step. There should be a separate helpdesk (“helpdesk@asc.nrao.edu”) for the NA ASC.

7.7 Phase 1: Observation Proposal Management

– How are proposals including both NA and ESO co-I’s handled for the time accounting? Some sort of a fractional time formula seems sensible, but in effect this means NA TAC is allocating the ESO time and vice versa. Should such joint proposals be submitted to both ARCs? Submission to both would be more transparent, but this would load up the TAC members with extra reading. An allocation bonus for joint projects could be used to encourage cooperation rather than duplication.

– “each Executive may decide to terminate one or more incomplete high-priority programs to make more time available to new programs based on the LTS status report.” This raises an uncomfortable possibility that NA executive can cancel ESO observing times and vice versa depending on how the joint NA/ESO proposals are handled. Joint programs would need agreement on termination by both sides.

– Integrating the proposal review process with the proposal tool, similar to the ApJ/AJ manuscript submission and review system, might be useful.

– “Programs without high-priority status shall be terminated automatically at the end of each scheduling cycle.” If this is done at the end of the schedule cycle, will the proposers be notified in time to re-propose, or will they miss a cycle because they’ll get notification too late? While it is useful to flush the queue every so often, a lot of thought should go into how this is done and what impacts this would have (data analysis funds may be tied to \$/hr, for example).

– The current ESO policy of restricted access to the data during the active semester *should not* propagate to ALMA. This ESO practice is driven in part to keep the load on their staff down. There are severe consequences to this ESO practice, however, because access to the data is not given until either (a) the run is fully executed or (b) the semester is over. Since (b) coincides with the deadline for the next usable semester, one cannot look at any partial data before new proposals are due. This means you have to wait 2 years to complete your project. This is a bad idea also because it keeps PIs from finding flaws in the data taking or the experiment design that might allow them to produce better science or cancel useless programs. Allowing a “break point” in the project execution has been suggested before, to address these types of concerns, and implementing this break point would be well worth any extra costs.

– Another unaddressed issue is the handling of two directly competing/duplicate NA/ESO proposals. It may be that no effort will be made to prevent two nearly identical projects being done by each partner. Two nearly identical, highly rated large survey projects can artificially increasing the proposal pressure at one particular LST range, and the Observatory Director has the power to favor one project over another as he/she “shall ensure that to the greatest extent possible, observing parameter space (i.e. required LST, ..) is covered uniformly and not unduly over-subscribed at any point.” This could be a serious problem, and a special procedure should be set up to guard against such a disaster for projects of this type. An uber-TAC could produce relative rankings to decide these difficult cases.

7.8 Phase 2: observation preparation

7.9 Phase 3: observation execution & problem resolution

7.10 post-execution data processing

7.11 quality assurance

7.12 science deliverables

– should include data reduction pipeline scripts

7.13 Data analysis support

– “Within the core ALMA operations budget, it is not foreseen to create data analysis centers which users can visit physically to receive data analysis support.” In other words, this user support function is part of the “beyond the core” function for the NA ASC. Clearly this should be a very high priority item for the NA ASC.

8. ALMA Director’s Office

9. Department of science operations

10. Department of technical services

11. Administration Department

12. ALMA Regional Centers (ARCs)

– Core and enhanced services are described here. A description of scientific support staffing is also found here (e.g. 5 staff astronomers, 4 scientists, 4 tech support, and 1 database administrator). This staffing level

seems generally too low. Also, the start of early science projects by 2007 means a substantial subset of these support staff need to be in place at NA ASC by that time.

– It is noted with some concern that “the initial ARC archive/pipeline system is currently not on ALMA Construction deliverable”. Does this mean this has to come from additional resources of NRAO later? (Al Wootten added that apparently it is in the operations budget although it is not stated in the current version of the Ops Plan.)

13. Santiago Central Office

14. Budget Overview

14.5 Long-term development

– descriptions of long-term development projects such as additional receiver bands, 2nd generation correlator, VLBI data recording system, and hardware upgrades are described here. At one point in the project, it was suggested that some of the additional receiver bands could be procured out of the contingency, but all contingency may have evaporated by the time of the early operation. A new minor partner (e.g. Australia) could contribute additional bands as a way of joining the project in the near future. Given that, stating “bands 1, 2, and 5, covering... *will not* be built during ALMA construction” seems too strong.