ANASAC f2f May 2014

ANASAC Charge 1: scientific outcomes and impact from cycles 0 and 1. Is NA doing well, what are the challenges?

Based on the statistics provided, **the productivity of NA in cycle 0 appears to be on target**, with almost half of the projects resulting in one or more publications, and a total of over 40 publications so far, and rapidly climbing. Additionally, several of the projects have published results in high visibility journals such as Nature, bearing witness to the impressive scientific capabilities of even a very partially commissioned 16-antenna version of ALMA. The overarching concern is the fraction of projects that have not yet yielded publications. **We encourage the NAASC to be proactive at contacting the PIs of these projects** to offer help and ultimately determine whether the cause behind this delay in publishing is the quality of the data, the need for a more elaborate data reduction, the need for stronger support for non-expert users, or perhaps the lack of adequate resources (computational or manpower).

We strongly suggest that, in order to promote and help keep track of the productivity of the instrument, **future versions of the OT should request information about the status of data previously obtained by the PI**. This could easily be done in an automated way that minimizes the effort of the applicant: we suggest the OT should be designed to automatically retrieve the projects awarded to the PI in the last 4 cycles and produce a small "fill in" window for the PI to explain the current status of the project.

We have anecdotal evidence that resources available to the PIs may be an important factor at limiting their productivity. In that respect, **we congratulate NRAO for deciding to maintain the SOS program active for ALMA** (although unfortunately it is suspended for the other facilities). Not only is it a very cost-effective manner of providing some financial resources to the community, but it also helps at training the future generation of users. In fact, **NRAO should expand it if at all possible**.

The ANASAC believes that that although favoring short proposals was a good way to introduce ALMA to the community and "spread the wealth" of what initially were very constrained availabilities of science time, the future productivity of the instrument rests on a combination of large and small programs. In particular, ALMA may now be at the point where several high-impact results are likely to arise from substantial proposals. Accordingly, **we recommend revising the definition of "large" programs and starting to allow "large" proposals in Cycle 3**.

ASAC anticipated Charge: Definition of "large" ALMA programs.

An ALMA "large" program is currently defined as a proposal requesting 100 or more hours, with the main practical effect of crossing that boundary being that the time

proposed will be distributed among the ALMA regions in proportion to the number of CoIs. Large programs have not been allowed in Cyles 0-2. Until now, no proposals larger than ~30 hours have been awarded, and the typical award for Cycle 2 was 5.5 hrs. However, proposals have already been received that try to circumvent the "large" program limitation, for example by spreading sources among proposals led by different CoIs in different regions with a common scientific justification. We suspect that one of the practical "barriers" to proposals requesting several tens of hours right now is the fact that it would be unrealistic to expect ~10% of the regional time availability to be awarded to one PI.

Consequently, **we recommend lowering the threshold for "large" programs to 50 hours, and start allowing them in Cycle 3.** We believe that changing the threshold by a factor of 2 would make a significant difference, while still being higher than any proposal that has been successful up to now. We think the instrument has matured enough to enable this type of science, and there is an unmet appetite for such projects. We believe that the future several of the "high impact" results from ALMA will originate from projects that require more than a handful of hours, and that such observations will allow several separate studies of the same data-set. Accordingly, we also endorse the plan to remove language discouraging programs of more than a few hours from future calls for proposals.

We agree with the current plan, in recommending that these "large" proposals be evaluated together with the "normal" proposals to maintain the proper tension between different size projects. However, **we recommend that at least one more page of scientific justification be allowed for "large proposals", and that a section be added requesting information about a "management and data products plan"** (detailing CoI roles, data analysis path, and plans to make available enhanced data products). The role of this section is to encourage making the results of the research available to the wider community, which we believe will improve the impact of ALMA science.

ANASAC Charge 2: Assess status of cycle 1 observations and program towards Cycle 2.

We wish to congratulate the NAASC for the quick turnaround time in getting data reduced and delivered to the PI, faster than the partner regions. These statistics, in combination with the implementation of the new PI contact scheme in place for Cycle 2 (i.e., emails when data are taken, etc.), would certainly help improve the view of the project among the user community. We were relieved to hear that the completion fraction at the end of Cycle 1 indicated that the number of hours carried over to Cycle 2 looked manageable (it was suggested to be ~300 hours during the f2f meeting). Unfortunately we were presented with the much larger figure of 466 hours to be transferred at the recent ASAC telecon. Little can be done now. Nonetheless, it remains a surprise that important numbers such as the carry over **are not uniformly known and tracked across the project**.

We foresee a problem looming in the near future for ALMA: the data volume will become very large, and the local computing facilities available to PIs may not be appropriate to handling it. **Consequently, we see the proposed PI access to "on-demand processing" as a very good idea, and encourage NRAO to implement it as rapidly as possible and advertise its existence widely.**

We are surprised, as is the NAASC, at the low rate of requests for data reduction visits. Why aren't more PIs taking advantage of this opportunity? We strongly encourage the NAASC to be considerably more proactive at advertising this possibility, raising it to the attention of users on the website and through emails from the contact scientists. We think that a non-expert user community should have a very strong demand for the visits.

ANASAC Charges 3 and 4: Evaluation of Outreach efforts and the widening of the ALMA user base.

We are very pleased with the number of proposals received by ALMA in Cycle 2, and the raw number of CoIs involved in them. However, **we repeat our request that the NAASC work on statistics relevant to the question of the success of the mission in widening the user base.** A simple metric is: what is the fraction of successful PIs that are "mm" or "radio" experts? Measures such as these are crucial to establishing progress toward the long-term health and viability of the facility, and will be useful in any NSF proposals. Another interesting statistic is the level of student engagement: how many students are applying to ALMA?

Although we understand that resources are short, we note it took one of us (D. Calzetti) a couple of hours to roughly classify by hand the successful Cycle 0 PIs as "experts" or "non experts," based on their ADS records (the result is that ~30% of the world-wide PIs in that cycle were non-experts). We appreciate, however, the advantages of a more systematic approach, and we encourage the NAASC to undertake it. We suggest that an easy way to encourage users to self-classify their level of expertise is **to have this as a question in the ALMA online user profile**, and force them to refresh their profile (and answer it) the next time they log to the NA website as a user.

We applaud the NAASC initiatives on outreach, and particularly on diversity (presented by K. Sheth), and encourage NRAO to continue pursuing them**. We think that it would be good for NRAO to advertise this successful model for bringing minorities into contact with science. Concerning outreach in general, **it is important to emphasize the formation of the younger contingent of users**. In that regard we think that ALMA AAS sessions can play a very important role. Furthermore, we strongly endorse the idea of having the interferometry school at C'ville on alternate years, with a focus on ALMA basics and on generating new users.

ASAC Anticipated Charge: Conditions for Release of Data to Users in Advance of QA2

Following the discussions in the 2013 ANASAC f2f, the NA members of the ASAC presented the NA position on early data access for PIs, a position also presented by the NA ARC manager (J. Hibbard) to the managers of the other regional centers. As ANASAC we wish to acknowledge the efforts of the NAASC to represent the position of the NA community to other ARCs. As a result of these efforts, uniform agreement was reached among the ASAC members at its February 2014 f2f, enabling the following recommendation to the Board: "there are conditions (to be determined) that warrant release of data to PIs in advance of QA2." **The ANASAC is unanimous in supporting early data release to the PI in the "stale data" case**, when it is anticipated that no more data will be obtained for a science goal for a period of several months due, for example, due to a change in the array configuration. We recognize that this may constitute an extra load on the data reducers, and so it is probably not worth expanding to other cases until the automatic pipeline is fully working.

ASAC Standing Charge: Evaluation of Proposal Process

Two particular aspects of the Review Process were discussed at the ANASAC meeting: the quality of the feedback to the PIs, and the plans to manage duplications. Concerning the former, we note that the quality of the technical and scientific assessments is key to the process. The feedback to the PIs is the outward face of this process to the users of the instrument. It deserves special attention, not only because of the importance of maintaining this outward face, but also because the panel comments are used at the APRC stage to determine priorities across panels.

Several members of the ANASAC expressed concerns about the quality of feedback in Cycle 2. The plans discussed by the NA ARC manager, **in particular the idea of enforcing more structure and detailed constructive feedback to the PIs**, go in the right direction. A recurrent **problem that needs to be corrected is that too short a time is devoted to writing PI feedback** (frequently the last 1-2 hours of the meeting). Strong guidance to the panel chairs on proven organizational and time management "best practices" may be helpful and desirable. We also suggest that, independent of the JAO plans, **somebody be responsible in NA for looking over the feedback to the NA PIs** before its release.

We briefly discussed the plans to manage duplications, detection of which should be implemented as soon as possible into the OT. There were questions about what to do with observations that are not yet in the archive, but which may be acquired in the time between the call for proposals and the evaluation of proposals. The opinion of the ANASAC is that the overarching key principle is: **a proposal cannot be rejected because of the identification of a duplication based on information not available to the PI at the time of submission**. The project should plan

accordingly, and be prepared to accept a small risk of this process resulting in duplicate observations, depending on how it is implemented.