

**DRAFT** (Version 22 Jan):

## ALMA Board response to the ASAC report

The Board thanks the ASAC for the report delivered by John Richer at its November 2006 meeting in Madrid.

### **Charge 1: Commissioning and Science Verification (CSV)**

The Board was pleased to learn that the CSV plan is deemed “sound and to need no fundamental revision”. While the Board agrees with the caveat regarding the joint commissioning of the ACA and ALMA concerning the process of integrating the use of their distinct correlators, it is concerned that not too many correlator modes are adopted at this early stage. A list of both correlator modes and polarization and mosaicing modes should be made available by the project team for consideration by the Science IPT and ASAC.

The Board shares the ASAC’s concern about the work load and will consider proposals from the project for providing extra resources, short term, to carry out the CSV. At the November Board meeting we approved the Director’s recommendation for a Head of Science Operations, while at the subsequent December telecon we approved a choice for Project Scientist as well as for an Associate Project Scientist, all of whom will participate in future discussions of CSV planning, including the human resources required. In addition the Board supports the Director’s plan to develop a job description for an additional commissioning scientist, to be recruited asap. These are concrete steps towards addressing ASAC’s concerns regarding the CSV work load and CSV planning. The Board will also discuss possibilities of finding ways to attract more experienced millimeter astronomers to Chile to help at during the critical periods, to which end proposals from the project as well as the ASAC are welcome.

We are pleased that ASAC endorses the revised baseline with its extension of the CSV period to 20 months and the consequent delay in early science. We further note ASAC’s finding that the plan for execution of projects during CSV and early science, including dissemination of public images, is sound.

### **Charge 2: Calibration plan**

Again the Board is pleased to learn that the ASAC was generally happy with the planning for ALMA calibration and that the report on the progress of the WVR tests with the SMA is encouraging. The search for a fully satisfactory amplitude and flux density calibration scheme has, of course, engaged many experts over the years and ALMA must continue its efforts in this area. Although this problem has engaged the project from the early beginnings, the Board expects that the employment of extra personnel and, in particular, that of a full-time Project Scientist who will interact directly with the ASAC on these matters, will provide new momentum to solving these problems.

The Board is pressing the Project management and the Executives to issue contracts promptly for the WVR and the dual load device in order “avoid delays at the OSF during the CSV phase,” as concerned ASAC.

Finally, the Board would welcome the advice and support of ASAC in the complex task of finding sufficient calibrators with known parameters like flux density, spectrum, polarization, etc. Direct help by ASAC in proposing and conducting calibration-finder projects on existing instruments would be a welcome contribution.

### **Charge 3. Observing modes**

This task was defined at the Kyoto meeting when the discussion raised the spectre of rather a lot of possible observing modes involving the ACA and the main ALMA array. The Board is pleased to note that this discussion has crystallized to joint observations with the arrays for higher accuracy calibration of the ACA, a mode which will be formally proposed as a change by the project before the next Board meeting.

However, the Board is still of the view that prioritization of potential observing modes be considered by ASAC when the Project Scientist and the Science IPT have developed a more detailed list. ASAC prioritization of modes for early science would still be welcome asap. Finally, the Board feels that it would be appropriate for the rarer, more specialized observing modes to be developed once ALMA is in operation.

We note the specific example provided to highlight “the need for the new Project Scientist to maintain with vigilance the scientific specifications of ALMA, and defend them where possible against loss of scientific capabilities as systems are developed” reflects an aspect of the job that the Board fully supports.

### **4. Computing**

The Board notes that the ASAC was given a report by Gianni Raffi on the status of the science software. We are pleased to learn that the computing team is making good progress toward supporting the first fringes and first telescopes in a timely manner.

It is also gratifying to learn that the off-line system for post processing is progressing well, but the Board notes the ASAC’s worries about slippage in the timescale for CASA release and will continue to press for vigilance by the project management on these matters. The Board agrees with the recommendation that users external to NRAO be involved in ‘beta’ testing and believes that this may well continue to be an important role for some of the experts on the ASAC, as well as those involved with the ARCs. Starting in January, 2007 ESO has two postdoctoral fellows and an experienced ARC staff member ready to participate in tests and through their feedback assist the developers. The ASAC’s advice regarding re-testing of modes previously tested in AIPS++ with existing BIMA, OVRO and PdBI data is wise.

## **5. Operations planning and ARC Activities**

The Board notes the ASAC's comments on the ARCs and hopes that its members will, by working within their respective communities, help to make these Centres a success. It agrees that community discussion is important in the identification and prioritization of new capabilities for ALMA in the operations phase. We fully understand the rationale for ASAC's strong recommendation about "including funds in operations for upgrading software and incremental improvements of existing hardware." Creating an appropriate environment for development is a topic of intense current effort by the Board, Executives and Project as the next phase of operations planning advances.

## **6. Programme Review and Time Allocation**

The Board is grateful for the ASAC's updated observations regarding this topic and fully concurs with the importance of developing rules for the TAC scheme designed to ensure that partners be able "to focus on their scientific priorities, including the development of their communities". A Board subcommittee reported significant progress on this topic at the Madrid meeting, and is continuing its deliberations, which will be shared with ASAC and the ALMA communities when they have reached an appropriate level of maturity.