



ALMA BOARD

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Subject: ALMA Board Response and Charges to the ASAC
for the second 2019 ASAC Meeting

AUTHOR(S): ALMA BOARD

Purpose of Document: To provide the ASAC with its Charges for its 2019Q3 face-to-face meeting

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I. Board’s response to the ASAC Report

The Board addressed the ASAC Report and thanked the Committee and its Chair, Stephen White, for a comprehensive and well-written report. The ASAC recommendations are very valuable for ALMA to strive continuously to improve itself for the benefit of the world-wide community.

The Board welcomed the JAO’s clarifications (through the Observatory Scientist) that were provided in response to the ASAC questions, which were also discussed and noted by the Board.

The Board addressed the following specific issues:

1. Charge 1: Assessment of the performance of ALMA scientific capabilities

- Regarding the total power continuum observations and the initial sensitivity, the Board has requested that the JAO provides the ASAC with explicit sensitivity estimates.
- The Board noted that offering high frequency observations as standard mode is a priority for the ASAC. The JAO highlighted that high frequency observations have been available on the 12-m Array and for the 12-m/7-m array. The current effort focuses on standardizing this capability so that less manual data processing is required. From the user perspective, the main change by making high frequency observations a standard mode is that it would be available standalone on the ACA. Offering high frequency observations as a standard mode in Cycle 8 remains a high priority for ALMA.
- As previously discussed with the ASAC, the JAO commented that we need to make polarization a standard mode before offering polarization on the ACA, or offer higher frequency observations as a standard mode, and have the data delivery rates be within our goals. This approach is intended to avoid overburdening the data processing queue and increasing the time needed to deliver PI data overall. Unfortunately, neither condition has been met yet.
- The JAO aims to be able to run ALMA phased array observations with internal JAO staff. As the ASAC notes, this capability would permit more flexible VLBI scheduling, but only if other participating VLBI stations make similar commitments, which is out of JAO’s control. Dedicating staff to operate VLBI will require a not

insignificant level of effort every year, and will necessarily take away from other commissioning or operational tasks. On this issue, the Board considers it important that any potential conflicts of interest be disclosed. The Board requests that ASAC members refrain from intervening in science policy discussions when such conflicts exist.

2. Charge 2: Assessment of the technical aspects of the ALMA system performance

Regarding the T_{sys} calibration error/issue that was not presented initially to ASAC, the Board agreed that there must a balance made between immediate warnings vs accurate information. The Board, however, requested that the Observatory explores ways to provide greater and earlier transparency.

The Board also noted the concerns of the ASAC regarding the scientific aspects in the Archive Review. The Observatory is working on a long-term vision of the ALMA Science Archive, in line with the ALMA Development Roadmap. Accordingly, steps in this process include establishing the Archive Roadmap Working Group (ARWG) in early 2020 under the leadership of the Integrated Science Team.

3. Charge 3: Assessment of the science outcomes from ALMA

The Board requests that the ASAC provide a list of basic publication statistics they would like to see from ALMA, for its next face-to-face meeting (ad-hoc charge). With this list in hand, the Observatory Scientist and the Integrated Science Team will consult with the Archive Subsystem Scientist to determine which relevant plots can be feasibly produced.

4. Charge 4: Recommendations of ways to maximize ALMA's scientific impact

The Board noted the ASAC support of the implementation of dual-anonymous review (anonymous proposals) for Cycle 8. The Board's Science Committee had a concern regarding large programs, for which the teams need to demonstrate that they are capable of providing the science. In addition, there may be other potential difficulties for large program PIs that this new system could raise. The JAO will need to implement this new system very carefully.

Regarding the concerns of the ASAC on the quality and number of large programs, the Board notes that it is currently working on a revision of the ALMA Proposal Review Principles and is seriously considering the following recommendation from the 2019 ALMA International Visiting Committee: “...the [e]xperience of other major facilities has provided ample evidence of the importance and success of large, coherent programs, for both direct and archival research. Future calls should raise the maximum size of a large program, allow for multi-year (i.e., at least one full configuration cycle) large programs, and commit to a 10% floor (rather than a 15% ceiling) on large program allocations in order to encourage proposers who have been discouraged by previous rejections.”

The Board shall request comments from the ASAC, especially on the concept and the extension of medium and large programs (ad-hoc charge).

5. Charge 6: Assessment of the scientific impacts of the ALMA Development Program, and in particular of new projects that are proposed.

The Board noted the concerns of the ASAC about the cancellation of the Correlator Upgrade Project (Phase I). They would like to reassure the ASAC that this upgrade remains a high priority for the ALMA Board and will be a critical component of the Development Roadmap implementation. In the meantime, the current Correlator will be re-tooled through an sustainability process, so ALMA can keep delivering high quality datasets that enable transformational science.

II. New ad-hoc charge recommended by the Science Committee

The Board would like the ASAC to provide the following inputs:

1. In the context of the feedback received from the 2019 ALMA International Visiting Committee, stating that *is important for the Observatory not to lose sight of the importance of delivering datasets that facilitate transformational scientific discoveries*, ASAC should consider means by which ALMA could both solicit and identify high risk/high reward proposals as part of future calls for proposals and the ensuing proposal evaluation process.
2. ASAC should list the science questions they would like to see addressed by publication statistics.
3. ASAC should comment on the draft revised Principles of the ALMA Proposal Review Process, especially on the concept and the extension of medium and large programs.
4. ASAC should summarize the feasible science observations with the Total Power Array given its expected sensitivities in this mode.

III. Other ASAC matters

The Board would like to inform the ASAC the following decisions:

1. The Board unanimously agreed that raw data will be made available for download by the PI for any observing program, provided they express acceptance of the conditions set by the JAO following discussion with the ISOpT, along the following general principles:
 - a. The proprietary period for the Member Observing Unit Set (MOUS) containing the downloaded Execution Blocks (EBs) will start as soon as any of EBs from that MOUS are downloaded for the first time from the Archive.
 - b. Data will only be made available after successfully passing QA0 (Step 0 of the Quality Assurance process: i.e., QA0_PASS and QA0_SEMIPASS).
 - c. The delivery of the final QA2 data products per MOUS will continue even for those MOUS containing raw data downloaded by the PI.
 - d. No extension of the proprietary period will be considered for any raw data downloads.
 - e. Responses to helpdesk requests about raw data downloaded from the Archive will be given in the course of the relevant QA2 processing performed by the ALMA staff.
2. The Board agreed with the JAO proposal to allow the APP2 to use M87 as one of several test sources for the validation of Band 7 (~350 GHz) mm-VLBI performance of EHT given this validation would potentially hasten a larger Band 7 VLBI network

and generate considerable community interest. Such observations would be limited to those necessary to validate the technical performance of the array and the resulting correlated data products, and all the necessary calibration data, and they would follow the approved ALMA Test Data Policy.

3. The Board decided to rotate its April Board meetings amongst the Northern Hemisphere regions, starting with the April 2020 Meeting to be held in Washington D.C. Please note this decision in order to arrange the presence of the ASAC Chair at this next Board meeting.
4. Finally, the Board, considering the expertise required, appointed the following three members of the ASAC effective January 1, 2020:

For the period between January 1st 2020 and December 31st 2020:

- Stephen White, from the Air Force Research Laboratory, US.

For the period between January 1st 2020 and December 31st 2022:

- Kengo Tachihara, from Nagoya University, Japan.
- Maryvonne Gerin, from Laboratoire d'Etudes du Rayonnement et de la matiere en Astrophysique (LERMA), France.