ALMA BOARD MEETING
April 11-13, 2018

PUBLIC SUMMARY

The ALMA Board convened at SCO between the 11th and the 13th of April, in the following composition:

Chair	Toshikazu Onishi (EA)
Vice-Chair	Linda Tacconi (EU)
Board Members	Phil Puxley (NA)
	Xavier Barcons (EU)
	Saku Tsuneta (EA)
	Willy Benz (EU)
	James Di Francesco (NA)
	Rafael Bachiller (EU)
	Tony Beasley (NA)
	Karin Öberg (NA)
	You-Hua Chu (EA)
	Luis Chavarría (CL)
Board Assessors	Richard Green (NA)
	Andreas Kaufer (EU)
	Satoru Iguchi (EA)
Observers	Daniel Weselka (EU)
JAO	Sean Dougherty (ALMA Director)
	Stuartt Corder (ALMA Deputy Director)
	John Carpenter (Observatory Scientist)
	Frank Ruseler (Head of Administration)
	Norikazu Mizuno (Head of Engineering)
	Jorge Ibsen (Head of Computing)
	Elizabeth Humphreys (Interim Head of Science Operations)
	Ivan Lopez (Safety Manager)
	Rafael Mena (Human Resources Manager)
	Valeria Foncea (EPO Officer)
Executives	Paulina Bocaz (AUI Legal representative in Chile)
	Seiichi Sakamoto (NAOJ Legal Representative in Chile)
	Leonardo Testi (ESO ALMA Programme Manager)
	Phil Jewell (NRAO ALMA Operations Manager)
	Nikolaj Gube (ESO Legal Service)
ASAC	Eva Schinnerer (ASAC Chair) **on video*

Board's Secretary Alejandra Voigt (JAO Executive Officer)
Assistant Secretary Patrick Donahoe (AUI Senior Advisor)

PUBLIC SUMMARY

The ALMA Board held its April 2018 meeting, at the Santiago Central Office (SCO), Chile. The Board's Chair welcomed the new Board Members appointed by ESO, NSF and NAOJ:

- Willy Benz, ESO Council President
- Saku Tsuneta, NAOJ Director General
- Karin Öberg, Harvard-Smithsonian Center for Astrophysics
- You-Hua Chu, Director of ASIAA, Taiwan

The Chair also welcomed the three new assessors appointed by the Parties:

- Dr. Richard Green, Director of the Division of Astronomical Sciences, NSF, who was attending as the North American assessor for this meeting only.
- Dr. Andreas Kaufer, ESO Director of Operations
- Dr. Satoru Iguchi, NAOJ Deputy Director

Finally, Dr. Onishi also welcomed Dr. Sean Dougherty, who attended his first Board meeting as the new ALMA Director; and Daniel Weselka, who attended the meeting as an ESO observer.

ALMA Overview

The Board noted the presentations given by the ALMA Director and Deputy Director, regarding the latest activities, achievements and challenges for ALMA since November, 2017, including:

- Very stable and safe operations.
- The improvements in life at the site with the fully operative Residencia delivered by ESO and the new indoors sports facility that will be built over the next year, enabled by NSF and NRAO.
- The results of the very successful January 2018 ALMA-wide general Management (AMT/IXTs) meeting and a very constructive March 2018 Director's Council meeting in Mitaka.
- The results of the February 2018 maintenance period.
- A stable data processing situation since January 2018.
- The summary of the EPO activities including cooperative efforts in Chile sponsored by NAOJ, AUI/NRAO and ESO.
- A brief status review of the Cycle 5 data activities, covering the number of observing hours, execution and observing efficiency, and availability of antennas.
- Integrated Operations challenges such as the new, more automated data reduction workflow.
- Science Operations successes such as the policy on ISOpT decision-making, continued interaction between system specialists at the JAO and in the regions, NA CASA and pipeline efforts, European ARC nodes all-hands retreat and ARC network strategic plan review.

- Science successes such as the acceptance of the Band 2 performance metric, the evolving public version of the ALMA Development Roadmap, the review of an alternate proposal review model, and science community workshops/conferences.
- Science challenges such as the Cycle 5 long baseline proposal density and high frequency observing optimization, and Cycle 6 efforts to realize full operational capabilities without overburdening data processing.
- Engineering successes such as the strong support for corrective maintenance activities, meeting high array availability goals, Band 5 integration, and repair of the power feeder cable.
- Computing successes such as careful monitoring of processes and infrastructure after the successful Cycle 6 call for proposal launch, and the integration of dynamic scheduling interface improvements into regular workflow.

Scientific Matters

The Board noted the presentations given by the Observatory Scientist, the Chair of the Board's Science Committee and the Chair of the ASAC on the following topics:

- A raw data release pilot program to be implemented in May 2018, as approved by the Board.
- Publication of ALMA results in each region as follows:
    - Europe - 41%
    - North America - 28%
    - East Asia - 18%
    - Chile – 6 %
    - Open Skies 7%
- Director's Discretionary Time statistics
- Science Results including:
    - A thermal map of Europa
    - A warm dust belt in 100Myr star
    - Millimeter flare in Proxima Centauri
    - Filaments in Orion
    - Environment around a z=5 galaxy
    - Lensed Herschel galaxies
- The main data processing goals to process 90% of standard observing modes at the JAO and to process and deliver 90% standard mode observations to PIs within 30 days after observations are completed.
- The trend of time elapsed between the completion of observations to delivered data has steadily improved for both pipeline and manually processed data since October 2017.
- Progress toward long-term solutions.
- Cycle 6 and 7 Preparations.
- Alternative Proposal Review Models for ALMA.

The Board received feedback from the ASAC Chair to the general and ad hoc ASAC charges. Items included the following:

- impressive images of proto stellar disks from the first completed large program.
- A review of the six standing general charges to the ASAC
- A review of the following ad hoc charges:

- Ad hoc #1 - An assessment of whether ALMA's level one science goals have been met and whether the proposed new fundamental science drivers as stated in the ALMA Development Roadmap are appropriate
- Ad hoc #2 - Deeper assessment of the scientific motivation for the 2-year versus 3-year configuration schedule.

With respect to the ad hoc charges, the ASAC stated that it finds the statement that the three original science goals have *essentially* been achieved is defensible, and that the ASAC strongly prefers the 2-year configuration schedule.

The Board approved the exception to the Proposal Review Principles to implement a distributed review model for a supplemental call for ACA in late 2019 as a pilot program.

The Board also discussed the analysis of a two *vs*. three-year configuration schedule, noting that due to the need to consider extant operational constraints, the final decision lies with the JAO.

Financial Matters

The ALMA Board noted the reports of the ALMA Budget Committee regarding the financial results of 2017, the 2018 budget execution and projections and the long-term planning preparations. The Board was also updated on some infrastructure activities.

Safety

The Board noted the JAO Safety Manager's presentation regarding safety events since November 2017, along with the encouraging statistics for 2017. The Board expressed its appreciation to the JAO for the substantial progress that has resulted from its efforts over the past years, and noted the resilience of the OSF and the response of the staff in the face of very poor weather in 2017.

ALMA Development Program & Roadmap

The ALMA Board noted the presentations by the ALMA Deputy Director, on behalf of the AMT, regarding the status of the ALMA Development Program, which covered the on-going projects and studies, the projects that will be submitted for approval in the near future and a summary of the scope of upcoming calls for proposals within the three regions.

The Board approved a NA Development project for building a new Correlator (phase 1), which will provide higher spectral resolution for all receiver bands.

The Board also noted the Observatory Scientist's presentation on behalf of the Working Group regarding the Development Roadmap for the long-term future of ALMA, which will be made public in mid-2018. The Board endorsed the identification of the highest priority directions for the program proposed in the report, and discussed the next steps for its completion and implementation.