

第 1 回 ALMA 科学諮問委員会 議事概要

Date and time : October 7, 2022 14:00 - 17:00 (JSAC starts at 16:00)

Attendees:

JSAC: Yuri Aikawa, Fumi Egusa, Kotaro Kohno, Munetake Momose, Toshikazu Onishi, Hideo Sagawa, Nami Sakai, Yoshito Shimajiri, John Silverman, Kengo Tachihara, Shigehisa Takakuwa, Yoichi Tamura

EASAC: Aeree Chung, Jongsoo Kim, Patrick Koch, Li-Hwai Lin, Sasha Trippe, Wei-Hao Wang

Ex officio: Alvaro Gonzalez, Daisuke Iono, Ken Tatematsu

Agenda:

EASAC 14:00-16:00

1. Introduction of members
2. ALMA report
3. ASAC charges
4. EA ALMA Science Workshop

JSAC 16:00-17:00

1. JSAC charges for this term
2. Domestic ALMA report
3. NRO report
4. ASTE report
5. ngVLA report

EASAC meeting:

1. Alvaro Gonzalez provided the ALMA project report.
 - Final statistics for Cycle 8
 - Cycle 8 started in Oct 2021.
 - A total of 4300 hours were offered initially, and observed around 3600 hours in the end.
 - A total of 3500 hours were offered for the 7m array and 2700 hours were observed. A total of 1500 hours were observed using the TP array.
 - For the 12m array, ~80% of grade A SBs, ~70% of grade B SBs, and < 50% of grade C SBs were completed
 - About 90% of pipelined MOUS were delivered in 33 days. The goal is to deliver 90% in 30 days.
 - Cycle 9 news
 - Distributed Peer Review (DPR) was used for proposals requesting < 50h, or < 150h on 7m array.
 - The oversubscription rate was the highest in the history of ALMA.
 - Large programs were reviewed by the Panel and external science assessors. Four new large programs were accepted (2 with EA co-PIs).
 - Publication statistics
 - 2925 papers published as of Oct 1, 2022
 - The statistics in 2022 looks to be on track to be similar to last years.
 - 562 (19.2%) papers were written by EA PI.
 - Currently, it takes 2-3 years from observations to publication.
 - EA Future Development
 - Projects
 - ◇ Band 1: Production of 73 RX complete. On-site integration is ongoing. There are ~30 RX on antennas at the moment.
 - ◇ Band 2: Pre-production fabrication of optical components and tests are ongoing.
 - ◇ ACA spectrometer: Commissioning is ongoing towards Cycle 10. Acceptance review will be held in early Nov.
 - Studies
 - ◇ Data Transmission System: Project proposal prepared after initial studies together with NRAO
 - ◇ Microwave-Photonics Technology: Freq/Time transfer system - demonstrated 250 km transfer.
 - ◇ Wide IF: Band-8 2SB Receiver Cartridge with 4-18 GHz IF is newly upgraded and installed on ASTE. Band 6+7 wide IF (4-20 GHz) mixer has been demonstrated.
 - ◇ Band 10: 2SB mixer preliminary demonstration. Novel vacuum window dev. ongoing.

- ◇ Multi-beam receiver: Demonstration of 2 x 2 beam dual-pol balanced receiver with integrated superconducting mixers, and noise performance of an SIS-based amplifier got improved.
 - Observatory started the detailed planning towards the implementation of the ALMA2030 Wideband Sensitivity Upgrade (WSU), and the System Requirement Review will be held on Oct. 11-12 at ESO, Garching (Germany).
 - EA is proposing a new DTS system for WSU.
 - Joint proposals between ALMA and other facilities have been signed with JWST, VLT and VLA. Discussion about the possible interest in joint proposals with Subaru is ongoing with the Optical/IR and Radio Communities.
2. The EASAC discussed the ASAC charges. The NAOJ ALMA project is proposing the Digital Transmission System Project for the WSU and the Band 1 Science Verification program. EASAC is supportive of these proposals. There is an increasing concern that the DPR system adopted by the observatory may tend to preferentially favor proposals submitted in major scientific categories, possibly disfavoring proposals submitted by researchers working in relatively minor fields. This was explicitly indicated in a letter submitted from the Solar Community to all regional SACs, including the EASAC. The EASAC discussed several ways to mitigate this issue, such as to invite external assessors for minor fields, or to increase/redefine the number of categories so that appropriate number of expert reviewers are assigned in each category.

JSAC Meeting:

1. Masao Saito described the JSAC charges for this term.
2. Alvaro Gonzalez provided the domestic ALMA report.
 - In cycle 9, 42 proposals were accepted from 15 different universities
 - Proposals from early career researchers were very successful
 - A total of eight successful proposals from ALMA grant program
 - Out of four new large programs, EA co-PIs participates in two of them.
 - A total of 440 papers are written by a Japanese PI.
3. Ken Tatematsu gave the NRO report
 - The observatory offered 3000 hours for charged telescope time. So far, NRO has accepted 2937 hours (34 proposals) including 158 hours (1 proposal) from international community.
 - Total income was sufficient to cover half of the operational cost.
 - Schedule for 2022-2023
 - May 1: Call for hands-on tutorials
 - July 1: Call for observations (Nov 1 to Apr 29)
 - Nov 1: Call for observations (Feb 1 to Apr 29)
 - Overall, the new system appears to be working well.
 - Three proposals were submitted to the Free-of-Charge program. Five JSAC members reviewed the proposals and approved two proposals.
4. Daisuke Iono gave the ASTE report
 - T. Minamidani is the new ASTE Project Manager, succeeding T. Kamazaki.
 - Sub-reflector repair will be carried out in Nov. Test observations will be carried out in Dec., and the Annual telescope maintenance will be carried out in Jan-Mar, 2023.
5. Alvaro Gonzalez gave the ngVLA report
 - The study group was recommended to continue its science/technical studies in 2022-2023. The group lead has changed from D. Iono to A. Gonzalez as interim. The preparation for the SCJ grand vision is ongoing.
 - The Science Working Group has expanded its membership with four additional members. The working group is currently discussing with ELSI for a series of joint seminars. A community meeting will be held on Oct 19. A synergy workshop between ngVLA and SKA will be held on May 1-5, 2023 in Toronto.
 - There has been good progress in the time reference distribution studies, with an IEEE paper published recently. The 18m antenna studies and optimization of 6m antenna optics design are ongoing.