

ALMA CYCLE 8 2021

The Joint ALMA Observatory (JAO) will start the next cycle of observing (Cycle 8) in 2021. A Call for Proposals with detailed information on Cycle 8 will be issued in March, with a deadline for proposal submission in April. This announcement highlights aspects of the Cycle 8 proposal call that are needed to plan proposals. The proposal review process will use Distributed Peer Review for proposals of up to 25 hours and panel review for proposals of longer than 25 hours. It will also employ dual-anonymous review. For accepted projects, Phase 2 submission will no longer be needed.

ALMA Cycle 8 will start in early October and will span 12 months. It is anticipated that 4300 hours of 12-m Array time will be available for the observation of approved projects, and at least 3000 hours will be available on each of the 7-m and Total Power Arrays. The 7-m and Total Power Arrays together form the Atacama Compact Array (ACA), also known as the Morita Array. **There will also be a Supplemental Call for ACA Standalone Proposals in September using the Distributed Peer Review process.**



PROPOSAL TYPES

Cycle 8 will offer the same proposal types as in Cycle 7. However, in Cycle 8 a **dual-anonymous proposal review process** will be implemented at ALMA for the first time. Proposals will need to meet the astronomy requirements published in the Cycle 8 documentation.

Regular proposals may request up to 50 hours of 12-m Array time or up to 150 hours of ACA standalone time. Large Program proposals request more than 50 hours of 12-m Array time or more than 150 hours of ACA standalone time. A restricted set of observing modes is permitted for Large Programs and ACA Standalone proposals.

At the Cycle 8 Main Call at least 3000 hours will be scheduled on the Morita Array. ACA standalone proposals at the Main Call may be ranked A, B and C.

The Cycle 8 configuration schedule does not include configurations with baselines longer than 8.5 km.

Proposals will be accepted for Very Long Baseline Interferometry (VLBI) observations with ALMA in Bands 3 and 6 (wavelengths 3 mm & 1.3 mm) for continuum only. ALMA VLBI observations will be made in concert with an existing VLBI network: the Global mm-VLBI Array (GMVA) at 3 mm and the Event Horizon Telescope Consortium (EHTC) network at 1.3 mm. In addition to submitting an ALMA proposal, proposers of 3 mm VLBI observations must have also submitted a proposal to the GMVA by its 1 February 2020 deadline. **Pulsar phased-array observations at Band 3 are also offered.**

The Cycle 8 Supplemental Call is for ACA Standalone Proposals only, with the same restrictions for this proposal type as at the Main Call. All accepted proposals will be ranked C.

ANTICIPATED CAPABILITIES

Details on the Cycle 8 2021 capabilities will be published in the Call for Proposals. The anticipated capabilities include:

Number of antennas & receiver bands

- At least forty-three (43) antennas in the 12-m Array
- At least ten (10) 7-m antennas (for short baselines) and three (3) 12-m antennas (for making single-dish maps) in the ACA
- Receiver bands 3, 4, 5, 6, 7, 8, 9 and 10 (wavelengths of about 3.1, 2.1, 1.6, 1.3, 0.87, 0.74, 0.44 and 0.35 mm, respectively)

12-m Array Configurations

- Maximum baselines for the antenna configurations will vary from 0.16 km to 8.5 km for Bands 3 to 7
- Maximum baselines of 3.6 km for Bands 8, 9 and 10

Spectral line, continuum, and mosaic observations

- Spectral line and continuum observations with the 12-m Array and the 7-m Array in all bands

- Single field interferometry (all bands) and mosaics (Bands 3 to 9) with the 12-m and the 7-m array
- Single dish spectral line observations in Bands 3 to 8

Polarization - single-pointing

- Single pointing, on-axis, full linear and circular polarization for continuum and full spectral resolution observations in Bands 3, 4, 5, 6 & 7 on the 12-m Array
- Linear polarization imaging of an on-axis source in both continuum and full spectral resolution modes is feasible at the level of 0.1% (3 σ) fractional polarization for the very brightest calibrators, and 0.2% (3 σ) level for a typical observation
- The minimum detectable degree of circular polarization is 1.8% of the peak flux for continuum and full spectral resolution
- 7-m array standalone linear polarization observations for single-pointings (capped at 75 hours total time offered, Main Call only)

Polarization - mosaics

- Linear polarization mosaics for continuum projects only (Bands 3

to 7). High-spectral resolution can be selected only to optimise continuum subtraction

Restrictions for Large an ACA Standalone Proposals

- **Cycle 8 observing modes will no longer be classified as standard or non-standard**, i.e. for regular proposals there will no longer be a 20% limit on the time allocated to certain modes

• Large programs and ACA standalone proposals will have restricted modes and cannot propose for modes including:

- Most polarization observations
- Bandwidth switching projects (less than 1 GHz aggregate bandwidths over all spectral windows)
- Solar observations
- VLBI observations
- Pulsar observations
- User-specified calibrations
- Astrometric observations

NEW OPPORTUNITIES IN CYCLE 8

LINEAR POLARIZATION MOSAICS

HIGH - FREQUENCY ACA STANDALONE

PULSAR OBSERVATIONS

BAND 5 SOLAR OBSERVATIONS