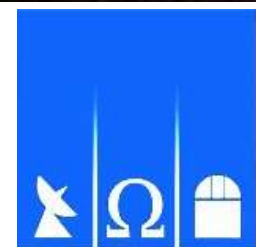


# ALMA Proposal Preparation Tutorials



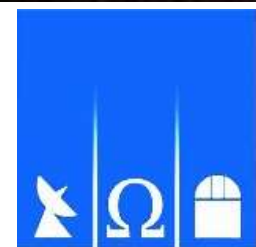
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# What is new in Cycle 9?



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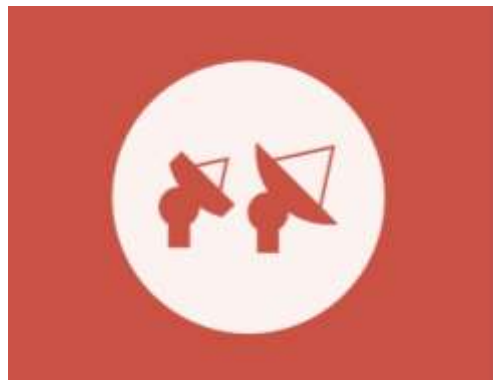
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# ALMA Cycle 9

## KEY DATES



- At least 43 antennas in 12-m array, at least 10 antennas in 7-m array, at least 3 antennas for single-dish
- Receiver bands 3 through 10 (3.6mm ... 0.32mm)
- Configuration of 12-m array C-1 through C-10
- Spectral line, continuum, mosaics, polarization, ...
- Regular proposals, ToO, Large Programs, DDT, mmVLBI, ...



# Key dates for Cycle 9



## Cycle 9 Call for Proposals

- 4300 hours 12-m Array
- 4300 hours Atacama Compact Array (ACA, Morita Array):  
4300 hours 7-m Array, 4300 hours Total Power Array
- **No Supplemental Call for Proposals** in fall 2022

Date	Milestone
24 March 2022	Release of Cycle 9 Call for Proposals, Observing Tool, and supporting documents, and opening of the Archive for proposal submission
21 April 2022 (15:00 UT)	Proposal submission deadline for Cycle 9 Call for Proposals
1 June 2022 (15:00 UT)	Deadline to submit reviews for the distributed peer review system
August 2022	Announcement of the outcome of the proposal review process
1 October 2022	Start of ALMA Cycle 9 Science Observations
30 September 2023	End of ALMA Cycle 9



# Planned 12-m Array configuration schedule in Cycle 9:

Projects with observations in the highest-frequency Bands 8, 9, and 10 are strongly encouraged.

The community is encouraged to submit ACA standalone projects, especially in the LST range of 20h to 10h.

Start date	Config	Longest baseline	LST: Best conditions
<b>1-Oct-22</b>	C-3	0.50	22-10
<b>20-Oct-22</b>	C-2	0.31	23-11
<b>10-Nov-22</b>	C-1	0.16	1-13
<b>30-Nov-22</b>	C-2	0.31	2-14
<b>20-Dec-22</b>	C-3	0.50	4-15
<b>10-Jan-23</b>	C-4	0.78	5-17
<b>1-Feb-23</b>	No observations due to maintenance		
<b>1-Mar-23</b>	C-4	0.78	8-21
<b>20-Mar-23</b>	C-5	1.4	9-23
<b>20-Apr-23</b>	C-6	2.5	11-1
<b>20-May-23</b>	C-7	3.6	13-3
<b>20-Jun-23</b>	C-8	8.5	14-5
<b>11-Jul-23</b>	C-9	13.9	16-6
<b>30-Jul-23</b>	C-10	16.2	17-7
<b>20-Aug-23</b>	C-9	13.9	19-8
<b>10-Sep-23</b>	C-8	8.5	20-9



Config	Lmax		Band 3	Band 4	Band 5	Band 6	Band 7	Band 8	Band 9	Band 10
	Lmin		100 GHz	150 GHz	185 GHz	230 GHz	345 GHz	460 GHz	650 GHz	870 GHz
7-m	45 m	AR	12.5"	8.35"	6.77"	5.45"	3.63"	2.72"	1.93"	1.44"
	9 m	MRS	66.7"	44.5"	36.1"	29.0"	19.3"	14.5"	10.3"	7.67"
C-1	161 m	AR	3.38"	2.25"	1.83"	1.47"	0.98"	0.74"	0.52"	0.39"
	15 m	MRS	28.5"	19.0"	15.4"	12.4"	8.25"	6.19"	4.38"	3.27"
C-2	314 m	AR	2.30"	1.53"	1.24"	1.00"	0.67"	0.50"	0.35"	0.26"
	15 m	MRS	22.6"	15.0"	12.2"	9.81"	6.54"	4.90"	3.47"	2.59"
C-3	500 m	AR	1.42"	0.94"	0.77"	0.62"	0.41"	0.31"	0.22"	0.16"
	15 m	MRS	16.2"	10.8"	8.73"	7.02"	4.68"	3.51"	2.48"	1.86"
C-4	784 m	AR	0.92"	0.61"	0.50"	0.40"	0.27"	0.20"	0.14"	0.11"
	15 m	MRS	11.2"	7.50"	6.08"	4.89"	3.26"	2.44"	1.73"	1.29"
C-5	1.4 km	AR	0.55"	0.36"	0.30"	0.24"	0.16"	0.12"	0.084"	0.063"
	15 m	MRS	6.70"	4.47"	3.62"	2.91"	1.94"	1.46"	1.03"	0.77"
C-6	2.5 km	AR	0.31"	0.20"	0.17"	0.13"	0.089"	0.067"	0.047"	0.035"
	15 m	MRS	4.11"	2.74"	2.22"	1.78"	1.19"	0.89"	0.63"	0.47"
C-7	3.6 km	AR	0.21"	0.14"	0.11"	0.092"	0.061"	0.046"	0.033"	0.024"
	64 m	MRS	2.58"	1.72"	1.40"	1.12"	0.75"	0.56"	0.40"	0.30"
C-8	8.5 km	AR	0.096"	0.064"	0.052"	0.042"	0.028"	0.021"	0.015"	0.011"
	110 m	MRS	1.42"	0.95"	0.77"	0.62"	0.41"	0.31"	0.22"	0.16"
C-9	13.9 km	AR	0.057"	0.038"	0.031"	0.025"	0.017"	0.012"	0.0088"	N/A
	368 m	MRS	0.81"	0.54"	0.44"	0.35"	0.24"	0.18"	0.13"	
C-10	16.2 km	AR	0.042"	0.028"	0.023"	0.018"	0.012"	0.0091"	N/A	N/A
	244 m	MRS	0.50"	0.33"	0.27"	0.22"	0.14"	0.11"		



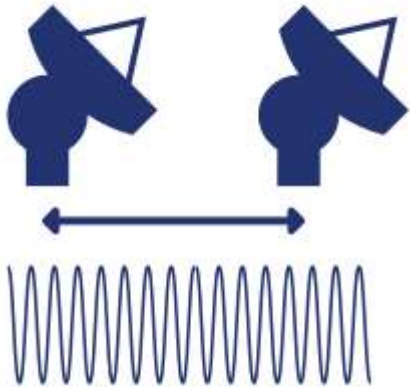
# Combination of arrays in Cycle 9

- Requested angular resolution sets the (extended) configuration
- If required largest angular scale (LAS) > maximum recoverable scale (MRS), more compact configuration(s) added automatically by OT

Most Extended configuration	Allowed Compact configuration pairings	Extended 12-m Array Multiplier	Multiplier if compact 12-m Array	Multiplier if 7-m Array needed	Multiplier if TP Array needed and allowed
7-m Array	TP			1	1.7
C-1	7-m Array & TP	1		7.0	11.9
C-2	7-m Array & TP	1		4.7	7.9
C-3	7-m Array & TP	1		2.4	4.1
C-4	C-1 & 7-m Array & TP	1	0.34	2.4	4.0
C-5	C-2 & 7-m Array & TP	1	0.26	1.2	2.1
C-6	C-3 & 7-m Array & TP	1	0.25	0.6	1.0
C-7	C-4	1	0.23		
C-8	C-5	1	0.22		
C-9	C-6	1	0.21		
C-10	-	1			



# New capabilities in Cycle 9



## Longer baselines for high-frequency observations:

- Band 8 up to C-10 (16.2 km, 0.0091")
- Band 9 up to C-9 (13.9 km, 0.0088")
- Band 10 up to C-8 (8.5 km, 0.011")
- Observations subject to availability of a suitable calibrator
- Band-to-band (B2B) calibration mode may be triggered by the OT in order to find a suitably close and strong phase calibrator.  
=> at most 45 hours allocated to projects requiring band-to-band calibration

**Table A-6: Maximum separation angle between phase calibrator and science target**

	C-8	C-9	C-10
Band 7	5 degrees	5 degrees	5 degrees
Band 8	5 degrees	5 degrees	4 degrees
Band 9	4 degrees	4 degrees	
Band 10	3 degrees		





# New capabilities in Cycle 9



## Fast Regional Mapping (FRM) for Solar Total Power observations:

- Fast mapping of a region of interest
- Circular field of view, diameter specified by PI
- center coordinate of the field of view fixed by the ephemeris used for the interferometric observation
- Field of view needs to include a quiet region for accurate flux calibration

**Table A-7: Time cadence of images obtained with FRM**

FOV Diameter	Band 3	Band 5 and Band 6	Band 7
100 arcsec	n/a <sup>1</sup>	11 sec	14 sec
200 arcsec	13 sec	21 sec	27 sec
300 arcsec	19 sec	32 sec	40 sec



# New capabilities in Cycle 9



## VLBI observations:

- **Spectral line capabilities** for GMVA+ALMA observations:
  - fixed central frequency of 86.268 GHz
  - frequency range: 85.34 to 87.20 GHz (ALMA spw1, other stations may have different bandwidths)
  - passive phasing not allowed in Cycle 9
- **Continuum observations in Band 7** for EHT+ALMA observations:
  - FDM mode, full polarization, no passive phasing
- More information on VLBI with ALMA at <https://astro.uni-bonn.de/ARC/development/mmvlbi/guidelines.shtml> and at the webpages of the mmVLBI network operators



# New policies and procedures

## Dual-anonymous proposal review

- **Proposal team does not know the identity of the reviewers**
- **Reviewers do not know the identity of the proposal team**
  - Do not identify the PI or any of the Co-PIs/Co-Is in any part of the proposal except on the top-level form in the OT
  - Use third person or neutral wording when referencing own work, own ALMA projects or own datasets/software
  - Do not include papers not yet on public archives, acknowledgements, sources of funding
  - In case of resubmissions, do not include the project code
  - Large Programs split into two separate parts: 1) main proposal (up to six pages, anonymous style), 2) management plan (one page, with names, affiliations, roles, etc.)
- ***Non-compliance may result in rejection of the proposal***



# New policies and procedures

## Distributed peer review

- For proposals requesting <50 hours on the 12-m Array or <150 hours on the 7-m Array for ACA stand-alone projects
  - One reviewer designated in the ALMA-OT from the list of investigators
  - For each submitted proposal, 10 proposals to review and rank
  - Review assignments based on expertise and conflicts of interests as specified in ALMA user profile
- ***All ALMA users strongly advised to update the expertise and conflicts of interests in their user profile before 26 April!***
- Stage 1 review deadline at **15:00 UT on 01 June 2022**
- ***Failure to submit the assigned reviews and ranks by the deadline will result in the rejection of the proposal!***
- *See the video tutorial on “Writing & reviewing ALMA proposals” for more details and advice*





# Reminder of new procedures as of Cycle 8 2021

## Observing Tool

- **Installer** (replaces Web Start)
- **Tarball**

## Phase 2:

- Upon approval (grade A, B, C), proposals pass into Phase 2
- **PI responsible for accuracy of submitted information prior to the first execution** of a Scheduling Block
  - Triple-check Science Goals in Phase 1!
- Minor changes can be requested on the Helpdesk ticket
- Major change requests require a dedicated Helpdesk ticket
  - In case of doubt, ask your Contact Scientist
- Status of approved projects can be followed via SnooPI  
<https://almascience.eso.org/observing/snoopi>



# ALMA in Cycle 9

## Useful documents:

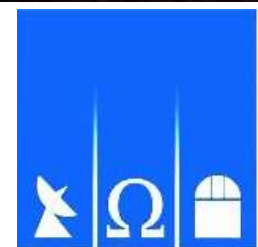
- **ALMA Proposer's Guide:**  
<https://almascience.eso.org/documents-and-tools/cycle9/alma-proposers-guide>
- **Guidelines for Proposal Review (various guides):**  
<https://almascience.eso.org/proposing/alma-proposal-review>
- video tutorial “Writing and Reviewing ALMA proposals”
- **Guidelines for mmVLBI with ALMA in Cycle 9:**  
<https://astro.uni-bonn.de/ARC/development/mmvlbi/guidelines.shtml>
- **Latest updates:**  
<https://help.almascience.org/kb/articles/what-cycle-9-proposal-issues-and-clarifications-should-i-be-aware-of-before-submitting-my-prop>



# Questions?

Join our online Community Meeting or  
contact us at [arc@astro.uni-bonn.de](mailto:arc@astro.uni-bonn.de)

<https://astro.uni-bonn.de/ARC/events/proposalprep2022/>



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