

The ALMA Proposal Submission Process

How to get started, and what to expect



Sarah Wood

Mark Rawlings, Harvey Liszt, Tony Remijan

Atacama Large Millimeter/submillimeter Array

Expanded Very Large Array

Robert C. Byrd Green Bank Telescope

Very Long Baseline Array



This talk is for you if...

- You are new to ALMA and have not yet had experience with the relevant documentation...
- You have not downloaded the ALMA Observing Tool (OT) or even know where to get it.
- You have a fabulous science case that will be essential to follow-up with ALMA facilities...
- You would like examples of science use cases for ALMA
- You were familiar with Cycle 2 and wonder what Cycle 3 capabilities are now available and what changes will be made before the Call for Proposals.

This talk will be available online for reference after this workshop.

Proposal Checklist

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- Download the Observing Tool (OT) & related guides
- Prepare the Science Case (PDF file)
- Prepare Science Goals (sources, frequency & correlator setup, integration times) within the OT
- Prepare the Technical Justification
 - New Technical Justification inside each SG
- Make use of the Helpdesk & the Knowledgebase

Cycle 3 Documentation & Timeline

- Call for Proposals
- ALMA Primer
- OT Guide
- ALMA Tech Handbook

- Timeline for Cycle 3
 - Mar 24 – Call for Proposals
 - Apr 23 – Proposal Deadline
 - Oct 1 – Start of Cycle 3
 - Duration – 12 months



Observing with *ALMA*
A Primer for *Early Science*



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Call for Proposals for Cycle 3

The ALMA Director, on behalf of the Joint ALMA Observatory (JAO) and the partner organizations in East Asia, Europe, and North America, is pleased to announce the ALMA Early Science Cycle 3 Call for Proposals (CfP) for scientific observations that will be scheduled from October 2015 to September 2016.

The ALMA Observatory includes an array of fifty 12-m antennas for long baseline interferometric observations (the 12-m Array), and the Atacama Compact Array (ACA, also known as the Morita Array) composed of twelve 7-m antennas for short baseline interferometric observations (7-m Array) and four 12-m antennas for single-dish observations (Total Power or TP Array).

Cycle 3 observations provide an exciting opportunity for science from this unique world-class facility. They include standard and non-standard modes (see below). ALMA has entered into a phase where investigator-driven science observations dominate activities while continued improvements and developments are also explored.

Cycle 3 Capabilities

The Cycle 3 capabilities are:

- At least thirty-six 12-m antennas in the main array, and ten 7-m antennas and two 12-m antennas (for single-dish maps) in the ACA.
- Receiver bands 3, 4, 6, 7, 8, 9, & 10 (wavelengths of about 3.1, 2.1, 1.3, 0.87, 0.74, 0.44, and 0.35 mm, respectively).
- Baselines up to 2 km for Bands 8, 9 and 10.
- Baselines up to 5 km for Band 7.
- Baselines up to 10 km for Bands 3, 4, & 6.
- Both single field interferometry and mosaics.
- Spectral-line observations with all Arrays and continuum observations with the 12-m Array and the 7-m Array. TP Array use is limited to spectral line observations in Bands 3 to 8.
- Polarization (on-axis, continuum in Band 3, 6 and 7, no spectral line, no ACA, no mosaics, no circular polarization).

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User Services at ARCs

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Welcome to the Science Portal at NRAO



This is the website for **The ALMA Science Portal**, served from one of the **ALMA Regional Centers (ARCs)** of the ALMA partner organizations: ESO, NRAO or NAOJ. You may switch between the different instances of the portal through the links to the appropriate ALMA partner at the top banner. Through this portal you can find details about the technical capabilities of ALMA, how to propose for observing time, and how to access ALMA data. It includes links to all official ALMA documents and tools, including those for preparing and submitting proposals and processing ALMA data. In order to access some of the tools, users must register with the project and login to the portal via the links at the top banner.

Each of the three ARCs provides additional **User Services**, including a **Helpdesk** for all user queries. Each ARC maintains additional web pages with information on region-specific user services, such as visitor and student programs, schools, workshops, financial programs and public outreach activities. These are accessed via the links under the **User Services at the ARCs** area in the left menu.

General News

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Nov 12, 2014
- Additional Scope for Long Baseline Science Verification Targets
Oct 30, 2014
- More...

NRAO Events

NRAO Community Day at

Login

NRAO User Support

Helpdesk

Call for Proposal



ALMA Science Portal @ NRAO

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Downloading the ALMA OT



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Observing Tool

The ALMA Observing Tool (OT) is a Java application used for the preparation and submission of ALMA Phase I (observing proposal) and Phase II (telescope runfiles for accepted proposals) materials. It is also used for preparing and submitting Director's Discretionary Time (DDT) proposals. The current *Cycle 1* release of the OT is configured for the Early Science Capabilities of ALMA as described in the [Cycle 1 Call For Proposals](#). Note that in order to submit proposals you will have to register with the ALMA Science Portal beforehand.

Download & Installation

The OT will run on most common operating systems, as long as you have Java 6 installed (see the [troubleshooting page](#) if you are experiencing Java problems). The ALMA OT is available in two flavours: Web Start and tarball.

The **Web Start** application is the recommended way of using the OT. It has the advantage that the OT is automatically downloaded and installed on your computer and it will also automatically detect and install updates. There are some issues with Web Start, particularly that it does not work with the Open JDK versions of Java such as the "Iced Tea" flavour common on many modern Linux installations. The Sun/Oracle variant of Java should therefore be installed instead. If this is not possible, then the tarball installation of the OT is available.

The **tarball** version must be installed manually and will not automatically update itself, however there should be no installation issues. For Linux users, we also provide a download complete with a recommended version of the Java run time environment. Please use this if you have any problems running the OT tarball install with your default Java.

WebStart

Tarball

Documentation

Extensive documentation is available to help you work with the OT and optimally prepare your proposal:

- If you are a novice OT user you should start with the [OT Quickstart Guide](#), which takes you through the basic steps of ALMA proposal preparation.
- Audio-visual illustrations of different aspects of the OT can be found in the [OT video tutorials](#). These are recommended for novices and advanced users alike.
- More in-depth information on the OT can be found in the [User Manual](#), while concise explanations of all fields and menu items in the OT are given in the [Reference Manual](#). These two documents are also available within the OT under the Help menu.



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OT Video Tutorials

The OT video tutorials provide an audio-visual demonstration of different aspects of proposal preparation in the OT. Novice users should start with the first video and work their way down, while more experienced users may want to jump straight to one of the specialised videos. Video tutorial 4 is of particular interest even for expert OT users, since the Technical Justification has changed significantly compared to Cycle 2.

OT Video Tutorial 1: Useful to Know

This video will give you a general overview of how the OT works, including the layout, various tools, and some useful tips and tricks. It will also introduce the concept of Science Goals, which contain all the technical details of the observations proposed.



OT Video Tutorial 2: The Spectral Setup

Here, we demonstrate how to set up continuum, spectral line and spectral scan observations and introduce the spectral visualisation tool as well as the

Proposal Checklist

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- Download the Observing Tool (OT) & related guides
- **Prepare the Science Case (free-form PDF file, 4 pages)**
- Prepare Science Goals (sources, frequency & correlator setup, integration times) within the OT
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Project Structure

Proposal Program

Unsubmitted Proposal

- Project
 - Proposal
 - Planned Observing
 - ScienceGoal (Copy of B6 12CO (2-1): NGC3256)
 - General
 - Field Setup
 - Spectral Setup
 - Calibration Setup
 - Control and Performance
 - Technical Justification

Template library. Turn the keys on the JTree below & r...

Template library. Turn the keys on the JTree below & r...

- Template library. Turn the keys on the JTree below & r...
- Proposal
 - Planned Observing
 - ScienceGoal (B3 spectral sweep CO)
 - ScienceGoal (B7 continuum: COSMO)
 - ScienceGoal (B7 CO(9-8): Cosmic Eye)
 - ScienceGoal (B9 continuum: Cosmic Eye)
 - ScienceGoal (B3 spectral sweep: PK)
 - ScienceGoal (B3 continuum: GRB To)
 - ScienceGoal (B6 continuum: GRB To)
 - ScienceGoal (B7 continuum: GRB To)
 - ScienceGoal (B6 continuum: GRB To)
 - ScienceGoal (B3 continuum: GRB To)
 - ScienceGoal (B6 12CO (2-1): NGC3256)
 - ScienceGoal (B6 13CO (2-1): NGC3256)
 - ScienceGoal (B6 spectral line: Massive Star)
 - ScienceGoal (B9 spectral line: Massive Star)
 - ScienceGoal (B3 continuum: Protostar)
 - ScienceGoal (B6 continuum: Protostar)

Editors

Spectral Spatial Field Setup

Source Name: NGC3256 [Resolve]

Choose a Solar System Object? Name of object: Unspecified

System: J2000 Sexagesimal display? Parallax: 0.00000 mas

Source Coordinates: RA: 10:27:51.6000 PM RA: 0.00000 mas/yr
Dec: -43:54:18.000 PM DEC: 0.00000 mas/yr

Source Radial Velocity: 0.000 km/s hel z: 0.000000000 Doppler Type: RELATIVISTIC

Target Type: Individual Pointing(s) 1 Rectangular Field

Expected Source Properties

Peak Continuum Flux Density per Beam: 0.17400 Jy

Continuum Polarization Percentage: 0.0 %

Peak Line Flux Density per Beam: 0.00000 Jy

Line Width: 0.00000 km/s

Line Polarization Percentage: 0.0 %

Rectangle

Coords Type: ABSOLUTE RELATIVE

Field Center Coordinates: System: J2000
Offset(Longitude): 0.00000 arcsec
Offset(Latitude): 0.00000 arcsec

Feedback

Validation Validation History Log

Description	Suggestion
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Tech Justification New for Cycle 3

ALMA Observing Tool (2014.6) - Observing Tool for ALMA Cycle3 Groundhog Day Test

File Edit View Tool Search Help

Perspective 1

Project Structure

Proposal Program

Unsubmitted Proposal

- Observing Tool for ALMA Cycle3 Groundhog Day Test
 - Proposal
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 - General
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 - Spectral Setup
 - Calibration Setup
 - Control and Performance
 - Technical Justification**

Editors

Spectral Spatial **Technical Justification**

Enter a Technical Justification for this Science Goal, paying special attention to the parameters reproduced below.

Sensitivity

Requested RMS over 2.4414062500000005E-4 GHz is 3.00 mJy For a peak flux density of 30.00 mJy, the achieved S/N is 10.0

Achieved RMS over the total 351.56 MHz bandwidth is 111.80 uJy For a continuum flux density of 100.00 mJy, the achieved S/N is 894.4

For a peak line flux of 30.00 mJy, the achieved S/N over 1/3 of the source line width (30.00 km/s / 3 = 10.00 km/s) is 26.1

Line width / bandwidth used for sensitivity 30.00 km/s / 731.92 m/s = 40.99

Dynamic Range: 33.33

Justify your requested RMS and resulting S/N for the spectral line and/or continuum observations.

For line observations also justify the bandwidth used for the sensitivity calculation.

Here would be the standard required justification of the sensitivity parameters

There are separate sections for Sensitivity, Imaging and Correlator

Each requires its own 50+ word justification

Each comes with a summary of input information and details of how it is construed to specify the program

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Atacama Large Millimeter/submillimeter Array
In search of our Cosmic Origins



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Oct 30, 2014

More...

NRAO Events

NRAO Community Day at



I could use a hand...

Have no fear, the ALMA Helpdesk is here...

ALMA



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 - Early Science - Cycle 1 (31)
 - Resources & Observer Support (12)
 - Project Planning (14)
 - ALMA Observing Tool (OT) (29)
 - Proposal Handling (5)
 - Archive & Data Retrieval (4)
 - Offline Data Reduction and/or CASA (14)
 - Development Program (1)

Knowledgebase

- General ALMA Queries (13)**
 - Can I submit a ticket in Japanese?
 - How close can ALMA observe to the Sun?
- Early Science - Cycle 1 (31)**
 - Can I use "breakpoints" in ALMA cycle 1?
 - The Cycle 1 Technical Handbook has some gaps in its discussion of ALMA receivers (SSB, 2SB, DSB). What else can you tell me about them?
- Resources & Observer Support (12)**
 - How do I arrange a visit to one of the ARCs?
 - Where can I find ALMA documentation and manuals?
- Project Planning (14)**
 - What should I include for the content of the Technical Justification and in what format should I submit it?
 - Where can I find the online ALMA observing simulator developed by the University of Manchester?
- ALMA Observing Tool (OT) (29)**
 - What do I do if I can't get the OT to work?
 - How do I deal with targets with unspecified coordinates in the OT?
- Proposal Handling (5)**
 - May I submit an identical proposal to more than one category, e.g. submitting a proposal on distant galaxies both to cosmology and to galaxy categories?
 - Which category should I submit a proposal on distant galaxies: "cosmology/high-z" or "Galaxies/Nudei"?

Live Chat Software by Kayako





Atacama Large Millimeter/submillimeter Array
In search of our Cosmic Origins

help.almascience.org

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Please type your question here

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Help Desk Software by Kayako Resolve

ALMA Helpdesk @ NRAO (logged in view)

Project - Observing Tool for ALMA, version Cycle2Test2

Perspective 1

File Edit View Tool Search Help

- New Proposal Ctrl-N
- New DDT Proposal Ctrl-D
- Open Project
- Save Ctrl-S
- Save As...
- Show ALMA Template Library
- Use Project as Template
- Validate Ctrl-L
- Submit Project
- Preferences
- Quit

Click here to make sure that your project can be validated by the OT. If it won't, you will not be able to submit it.

When you are satisfied that your proposal is complete, click here to submit your project to the ALMA Archive

Editors

Spectral Spatial Project

Principal Investigator

Select PI...

Project Code None Assigned

Feedback

Validation Validation History Log

Suggestion

Overview

Contextual Help

- Please ensure you and your co-Is are registered with the [ALMA Science Portal](#)
- Create a new proposal by either:
 - Selecting *File > New Proposal*
 - Clicking on the **1** icon in the toolbar
 - Or clicking on this [link](#)
- Click on the **proposal** tree node and complete the relevant fields.

New Science Proposal

Create Science Goals

Validate Science Proposal

Submit Science Proposal

Click on the overview steps to view the contextual help

Importing And Exporting

Template Library

Need More Help?

View Phase 2 Steps

Then what happens?

- Remember, you can resubmit as often as needed, but keep in mind that the server is quite busy right before the deadline
- Standard and ToO proposals will be reviewed by the ALMA Proposal Review Committee (APRC) and the ALMA Review Panels (ARP).
- All proposals will be subject to Technical Assessment by a selected group of JAO and ARC experts.
- Proposals will be assessed on the basis of the overall scientific merit of the proposed investigation and its potential contribution to the advancement of scientific knowledge.
- Following approval by the Directors Council, the outcome of the Proposal Review Process will be communicated to the PIs of all valid submitted proposals, expected on or around July 29, 2015.

Then what happens?

- If successful, you will be contacted about Phase II SBs – depending on project, you may be able to create your own SBs by clicking appropriate button (instructions will be provided) or someone from an ALMA Phase II Group may create them for you and contact you for approval. Respond to them promptly.
- Then wait – dynamic scheduling means your Contact Scientist doesn't know when your project will run. As observations are made, updates are shown in the Project Tracker at:

<https://almascience.nrao.edu/observing/project-tracker>



For more info:

<https://almascience.nrao.edu/>

The Atacama Large Millimeter/submillimeter Array (ALMA), an international astronomy facility, is a partnership of Europe, North America and East Asia in cooperation with the Republic of Chile. ALMA is funded in Europe by the European Organization for Astronomical Research in the Southern Hemisphere (ESO), in North America by the U.S. National Science Foundation (NSF) in cooperation with the National Research Council of Canada (NRC) and the National Science Council of Taiwan (NSC), and in East Asia by the National Institutes of Natural Sciences (NINS) of Japan in cooperation with the Academia Sinica (AS) in Taiwan. ALMA construction and operations are led on behalf of Europe by ESO, on behalf of North America by the National Radio Astronomy Observatory (NRAO), which is managed by Associated Universities, Inc. (AUI), and on behalf of East Asia by the National Astronomical Observatory of Japan (NAOJ). The Joint ALMA Observatory (JAO) provides the unified leadership and management of the construction and operation of ALMA.

