# 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 followup 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.





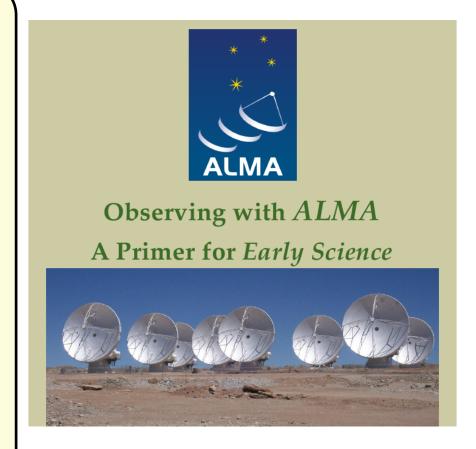
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  - New Technical Justification inside each SG
- Make use of the Helpdesk & the Knowledgebase





# **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









#### Atacama Large Millimeter/submillimeter Array

In search of our Cosmic Origins



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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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- ALMA Calendars
- **EU ARC**
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# Downloading the ALMA OT ALMA



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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 akes 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 cope is 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





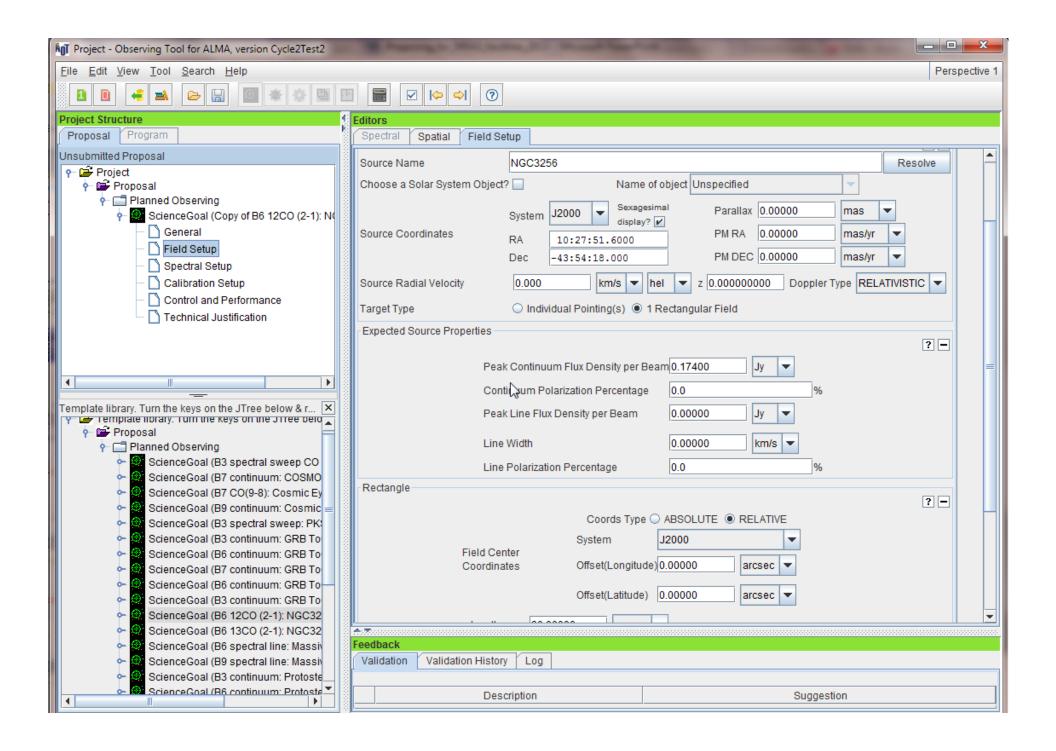
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Tech Justification New for Cycle 3 File Edit View Tool Search Help Perspective 1 Project Structure Proposal Program Spectral Spatial Technical Justification Enter a Technical Justification for this Science Goal, paying special attention to the parameters reproduced below. Observing Tool for ALMA Cycle3 Ground roposal 🚰 Sensitivity Planned Observing ? ScienceGoal (Science Goal) 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 General Field Setup 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 Spectral Setup 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 Calibration Setup Line width / bandwidth used for sensitivity 30.00 km/s / 731.92 m/s = 40.99 Technical Justification 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 Template library. Turn the keys on the JTr... 🔀 the sensitivity parameters • Template library. Turn the keys on th Proposal Planned Observing ScienceGoal (B3 spectral sv ScienceGoal (B7 continuum ScienceGoal (B7 CO(9-8): 0 ? ScienceGoal (B9 continuum ScienceGoal (B3 spectral sv There are separate sections for <u>Sensitivity</u>, Imaging and Correlator ScienceGoal (B3 continuum ScienceGoal (B6 continuum ScienceGoal (B7 continuum Each requires its own 50+ word justification ScienceGoal (B6 continuum ScienceGoal (B3 continuum) ScienceGoal (B6 12CO (2-) Each comes with a summary of input information and details of how ScienceGoal (B6 13CO (2-1 it is construed to specify the program ScienceGoal (B6 spectral lir ScienceGoal (B9 spectral lir ScienceGoal (B3 continuum ScienceGoal (B6 continuum





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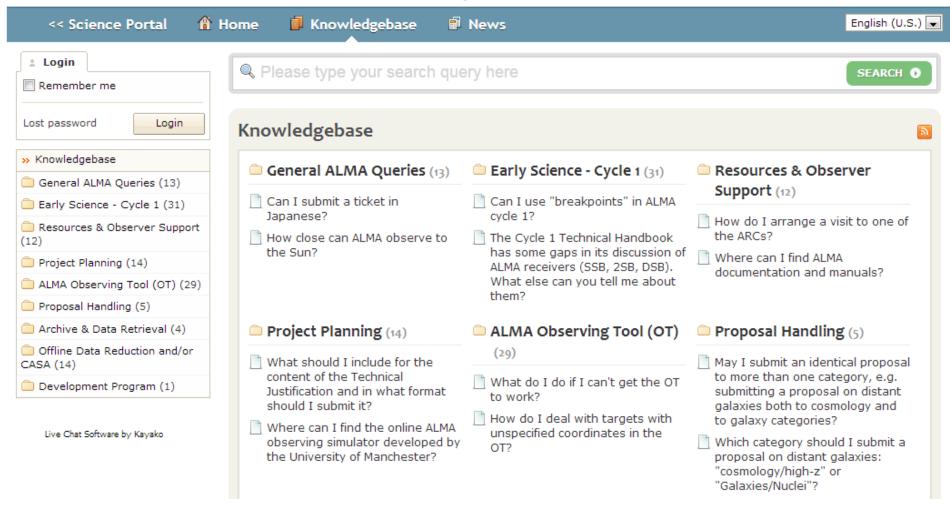


### I could use a hand...

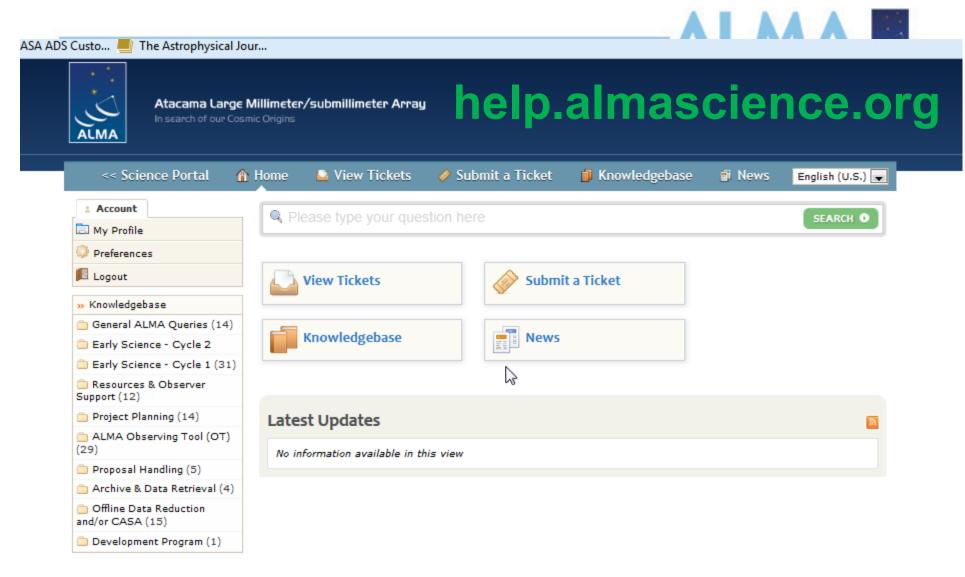




### Have no fear, the ALMA Helpdesk is here...



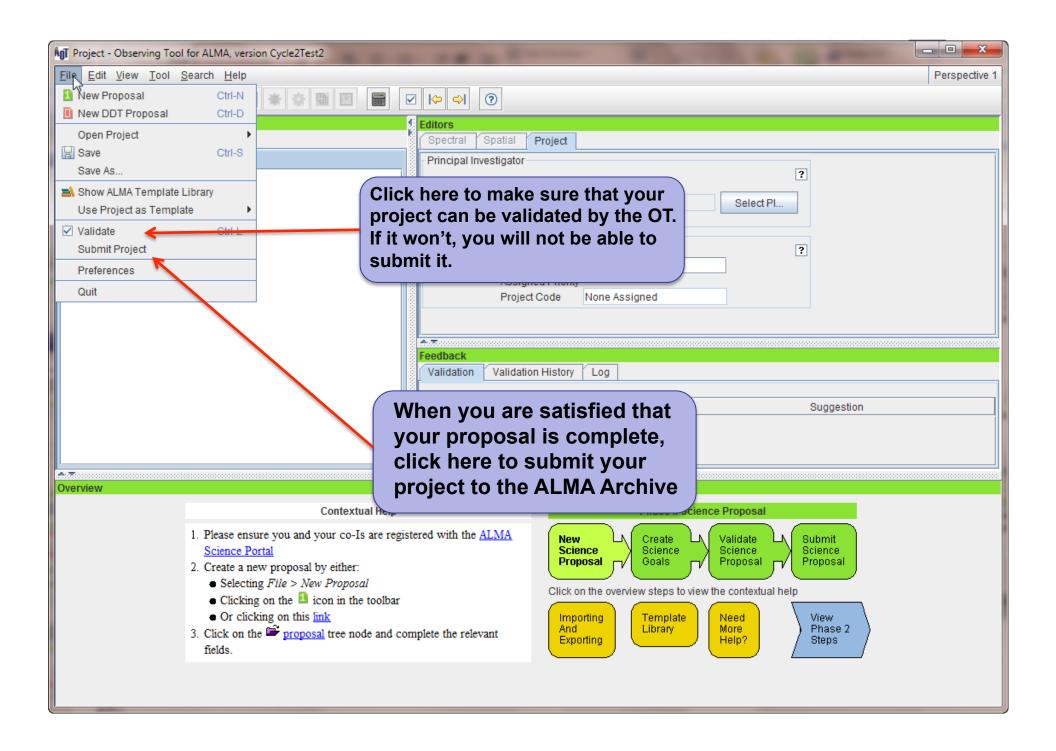




Help Desk Software by Kayako Resolve

\_ALMA Helpdesk @ NRAO (logged in view) \_\_\_\_







# 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.



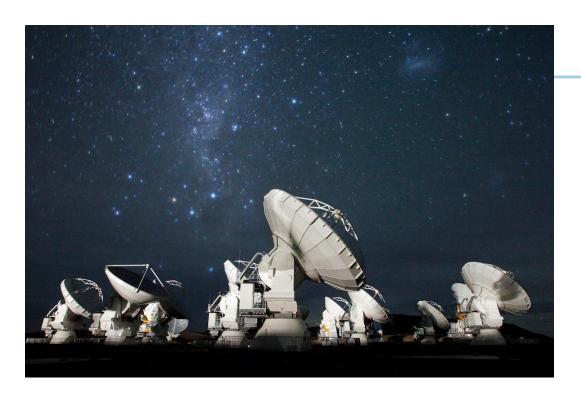


# Then what happens?

- 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.