The ALMA Proposal Preparation Process

How to get started and what to expect

Yann Boehler

Atacama Large Millimeter/submillimeter Array
Expanded Very Large 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 past Cycles and wonder what Cycle 5 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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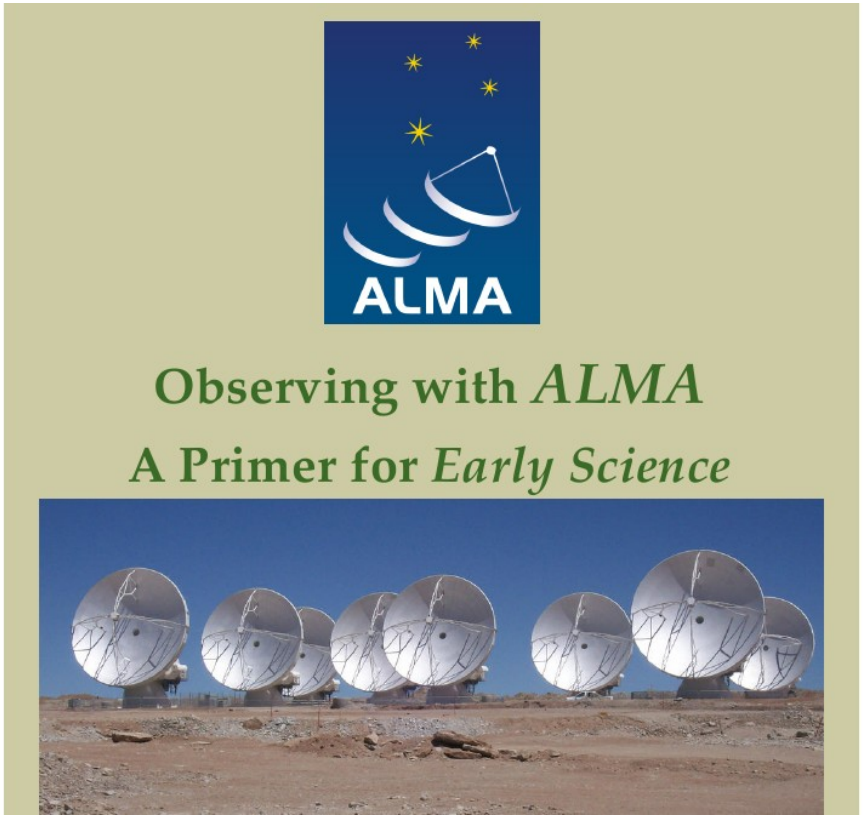
Cycle 5 Documentation & Timeline

- Call for Proposals
- Proposer's Guide
- ALMA Primer
- OT Guide
- ALMA Tech Handbook

- Timeline for Cycle 5
  - Mar. 21 – Call for Proposals
  - Apr. 20 – Proposal Deadline
  - Aug 2017 – Results to Pis
  - Sept 2017 – PIs submit SBs
  - Oct. 2017 – Start of Cycle 5
  - Duration – 11-12 months



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More...

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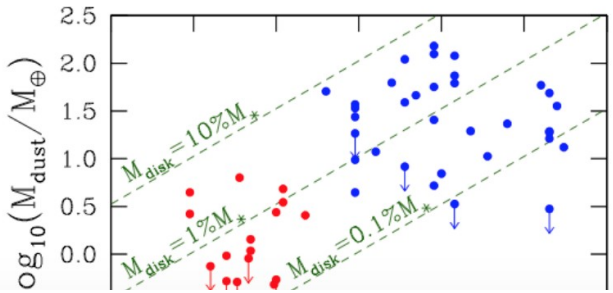

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Downloading the ALMA OT

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Observing Tool

The ALMA Observing Tool (OT) is a Java application used for the preparation and submission of ALMA Phase 1 (observing proposal) and Phase 2 (telescope runfiles for accepted proposals) materials. It is also used for preparing and submitting Director's Discretionary Time (DDT) proposals. The current *Cycle 4* release of the OT is configured for the present capabilities of ALMA as described in the Cycle 4 Call For Proposals. Note that in order to submit proposals you will have to register with the ALMA Science Portal beforehand.

Note that preparation of Cycle 3 Phase 1 and DDT proposals needs to be done using the Cycle 3 version of the Observing Tool. This version of the OT can be found in the DDT page, or the Phase 2 menu.

Download & Installation

The OT will run on most common operating systems, as long as you have **Java 8** 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 Runtime Environment. Please use this if you have any problems running the OT tarball install with your default Java.

Webstart Tarball

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OT Video Tutorials

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.

OT Video Tutorial 1: Useful to Know

This video will help you get started with the OT and introduce you to some handy tips and tricks. Topics covered include navigating the OT, using the help function, the template library, time estimation, validation, opening & submitting projects including re-submissions, and the concept of non-standard modes.

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Science Case

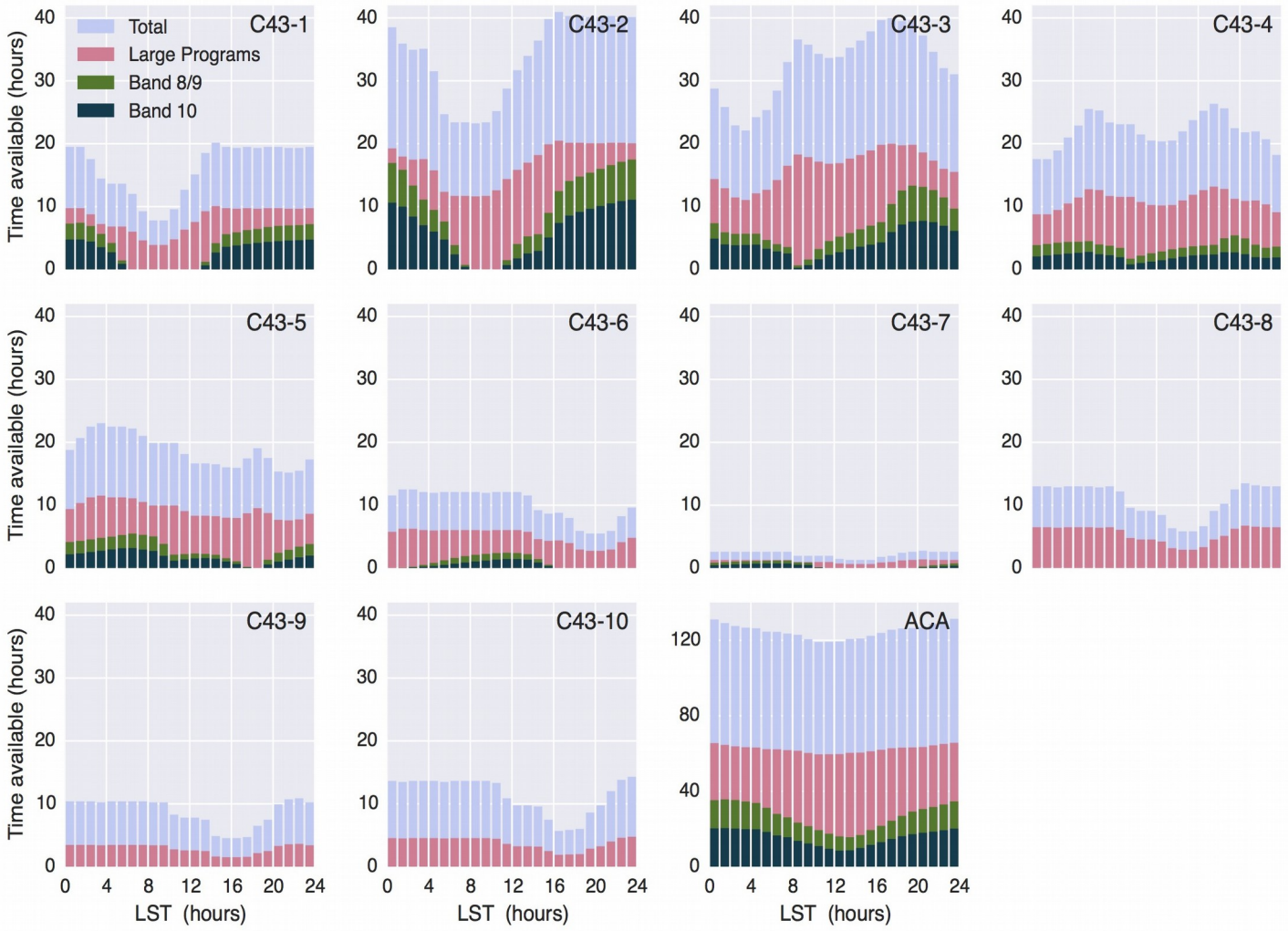
- Must include:
  - Astronomical Importance
  - Estimated intensity, S/N
- May include:
  - Figures
  - Tables
  - References

- Free-form PDF document
  - 12+ font, English only
  - 20 MB file size
  - 4 pages (6 for Large Projects)

Table 1: Cycle 5 Configuration Schedule

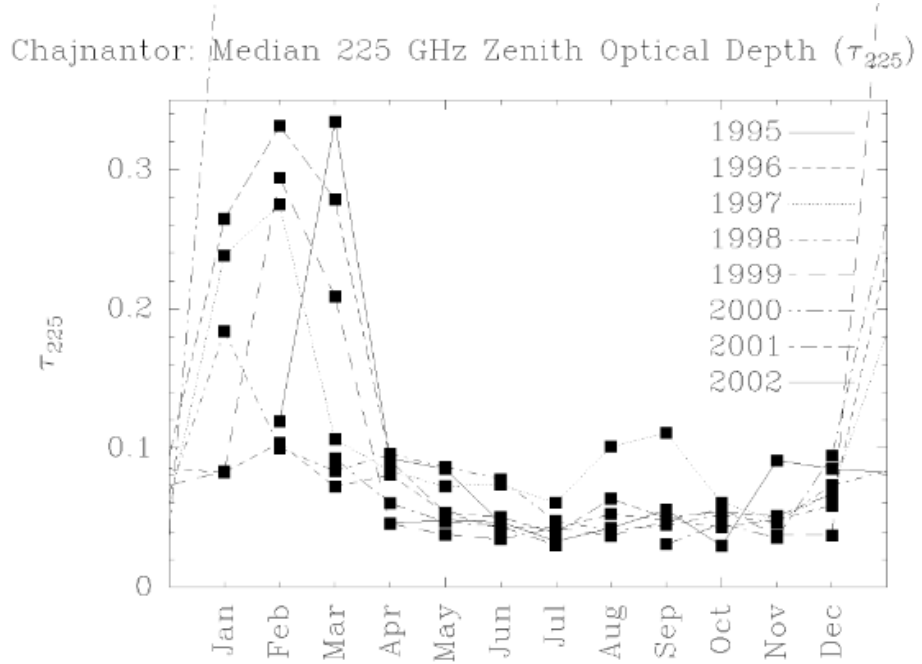
Start date	Configuration	Longest baseline	LST for best observing conditions
2017 October 1	C43-7	3.7 km	~ 21h - 10h
2017 October 5	C43-8	6.8 km	~ 22h - 11h
2017 October 25	C43-9	12.8 km	~ 23h - 12h
2017 November 10	C43-10	16.5 km	~ 1h - 13h
2017 December 1-18	No observations due to large antenna reconfiguration		
2017 December 19	C43-6	1.8 km	~ 4h - 15h
2018 January 10	C43-5	1.1 km	~ 5h - 17h
2018 February 1-28	No observations due to February shutdown		
2018 March 1	C43-4	0.7 km	~ 8h - 21h
2018 March 30	C43-3	0.46 km	~ 10h - 0h
2018 May 15	C43-2	0.27 km	~ 12h - 3h
2018 June 15	C43-1	0.15 km	~ 14h - 5h
2018 July 15	C43-2	0.27 km	~ 17h - 7h
2018 August 15	C43-3	0.46 km	~ 18h - 8h
2018 August 30	C43-4	0.7 km	~ 19h - 9h
2018 September 15	C43-5	1.1 km	~ 20h - 10h

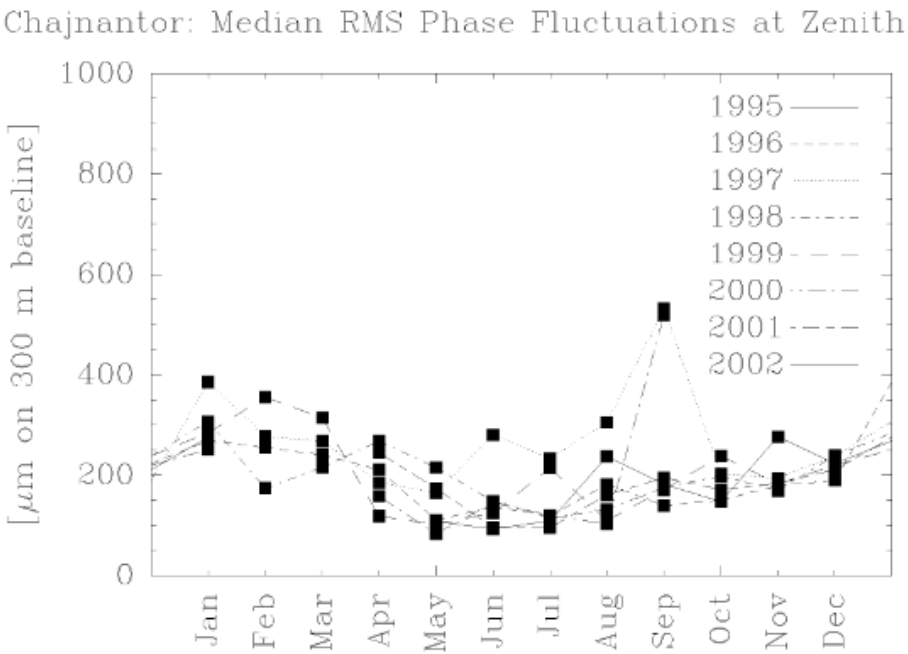
ALMA Observing Strategies (Cycle 5)



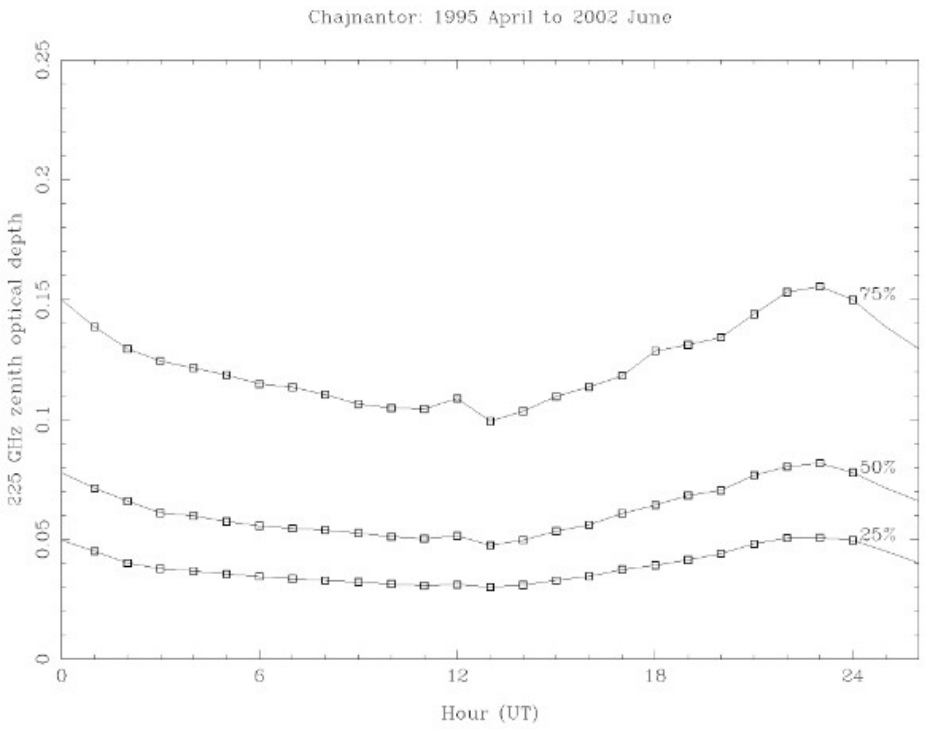
- Histograms of the anticipated amount of observing time available versus LST for the antenna configurations in Cycle 5.

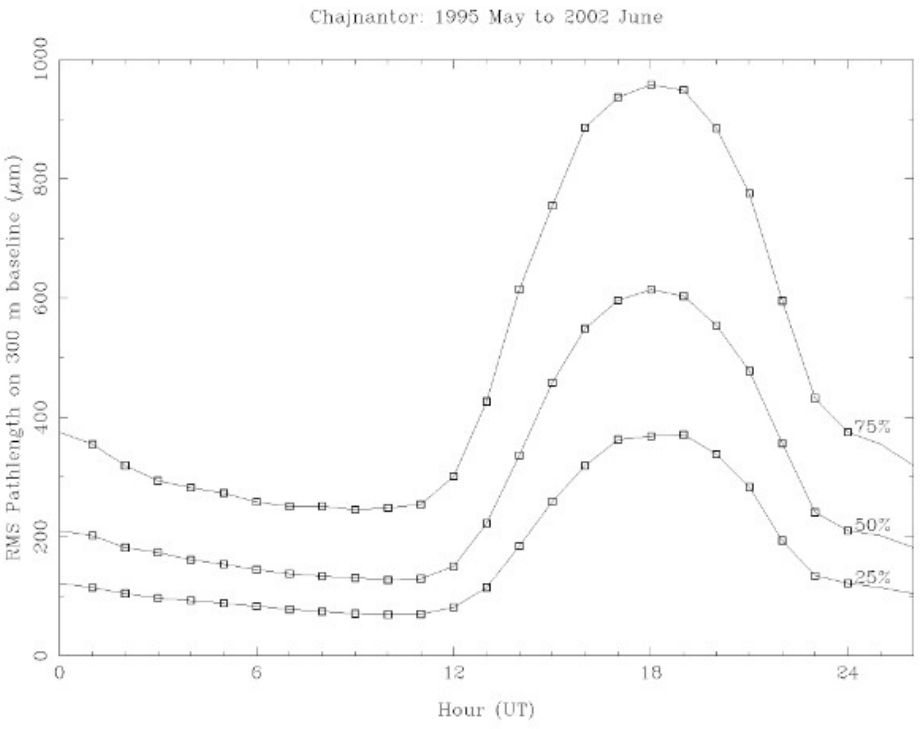
Seasonal variation
Of median optical depth and phase fluctuations





Diurnal variation
Of median optical depth and phase fluctuations





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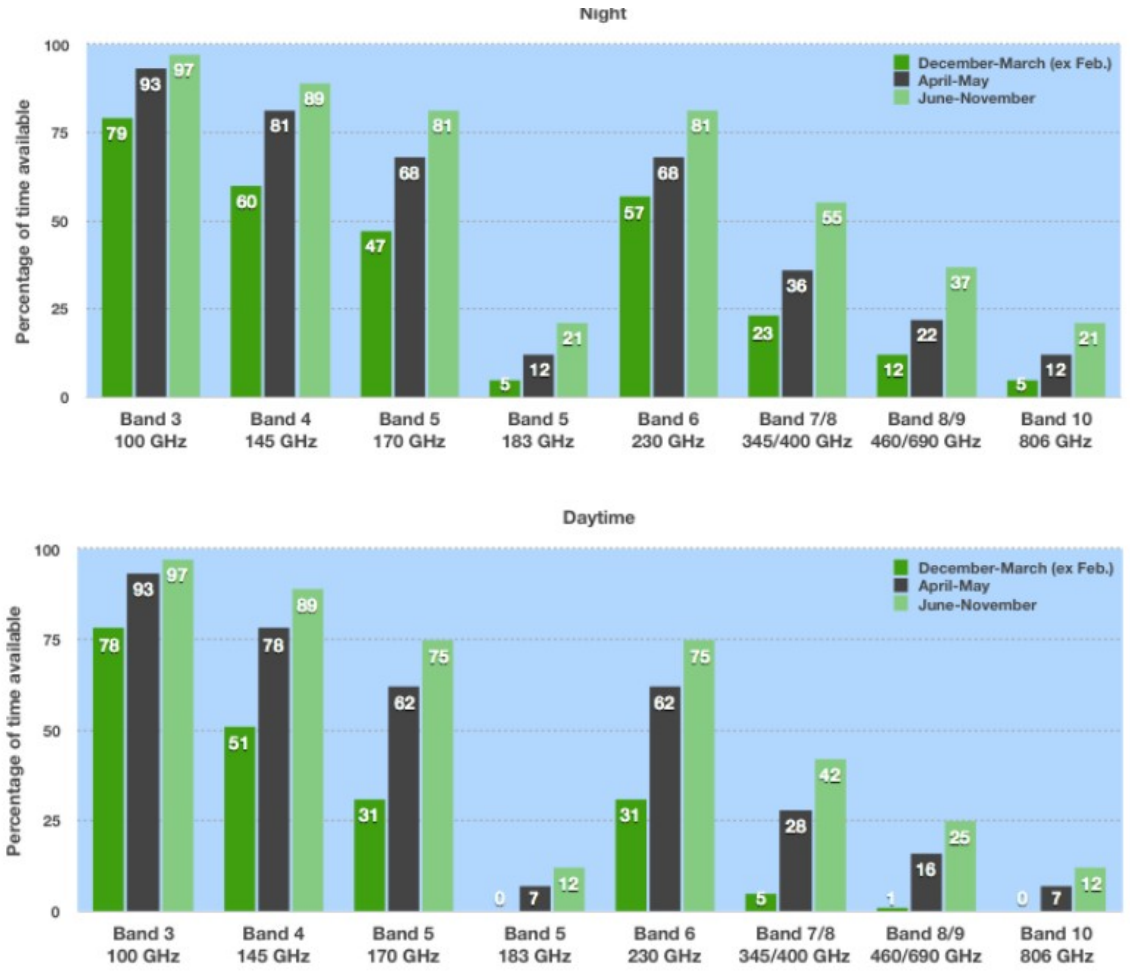
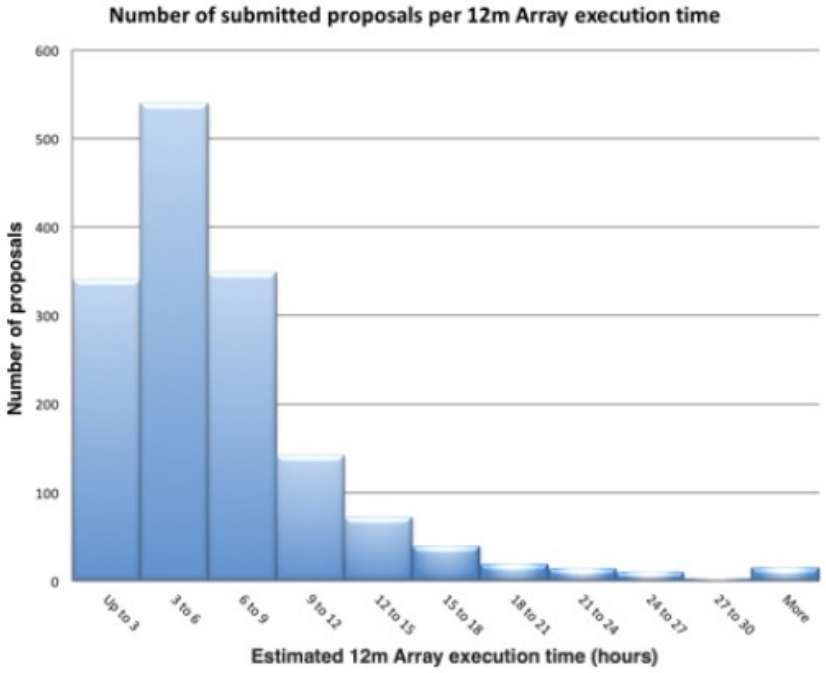


Figure 2. The percentage of time when the PWV is below the observing thresholds adopted for the various ALMA bands for an elevation of 60 degrees. The data were obtained with the APEX weather station between 2007 and 2016. Results are shown for nighttime (top) and daytime (bottom) observations.

ALMA Observing Strategies (Cycle 5)



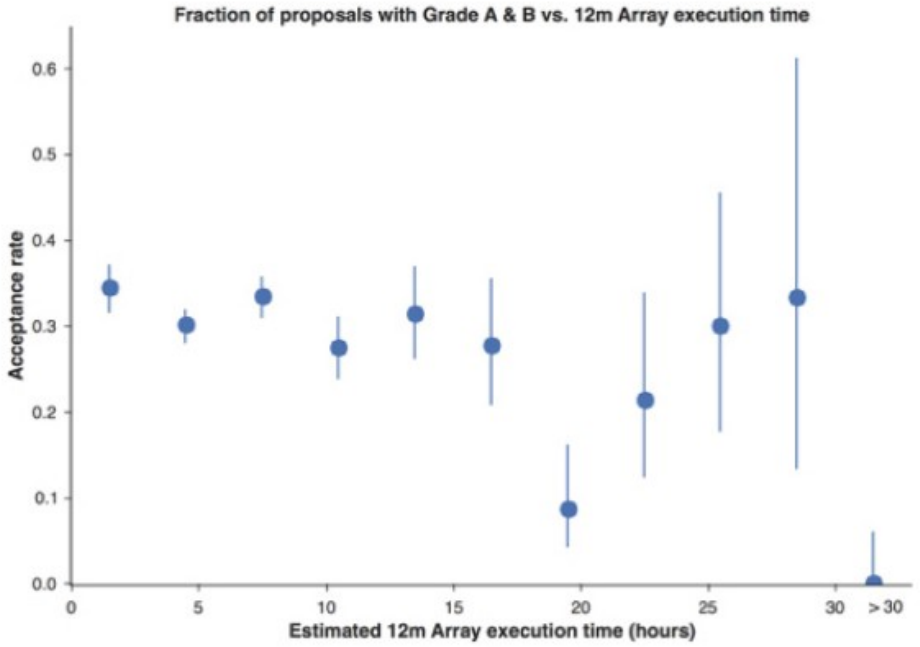


Figure 1: (Left) Number of proposals submitted as a function of the 12-m Array execution time in Cycle 4, excluding Large Programmes. The median requested 12-m Array time is 5.5 hours. (Right) The fraction of proposals assigned priority Grade A and B as a function of the estimated 12-m Array time.

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New Capabilities

- Band 5
- Improved spectral scan mode
- 90 Degree Walsh switching at Band 9 (16 GHz available!)
- Solar Observations (Bands 3 + 6)
- VLBI (Bands 3, 6)

Large Projects (started in Cycle 4)

- Any project >50 hours
- Standard observing modes
- Automatic ‘A’ grade
- +2 pages for Science Case
  - Data/Project Mgmt. Plans
  - Enhanced Data Products

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File Edit View Tool Search Help

Project Structure

Proposal | Program

Unsubmitted Proposal

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

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 Ey
    - ScienceGoal (B9 continuum: Cosmic
    - 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): NGC32
    - ScienceGoal (B6 13CO (2-1): NGC32
    - ScienceGoal (B6 spectral line: Massi
    - ScienceGoal (B9 spectral line: Massi
    - ScienceGoal (B3 continuum: Protoste
    - ScienceGoal (B6 continuum: Protoste

Editors

Spectral | Spatial | Field Setup

Source Name: NGC3256 — Resol

Choose a Solar System Object? — Name of object: Unspecified

Source Coordinates — System: J2000 — Sexagesimal display? ✔

RA: 10:27:51.6000

Dec: -43:54:18.000

Parallax: 0.00000 mas

PM RA: 0.00000 mas/yr

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

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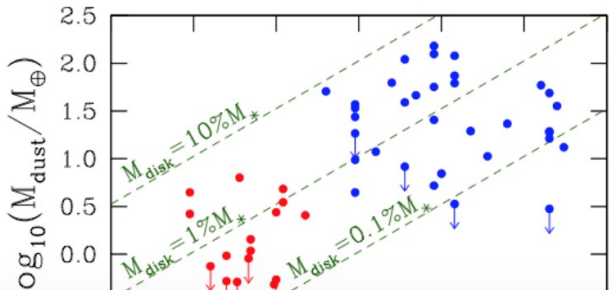

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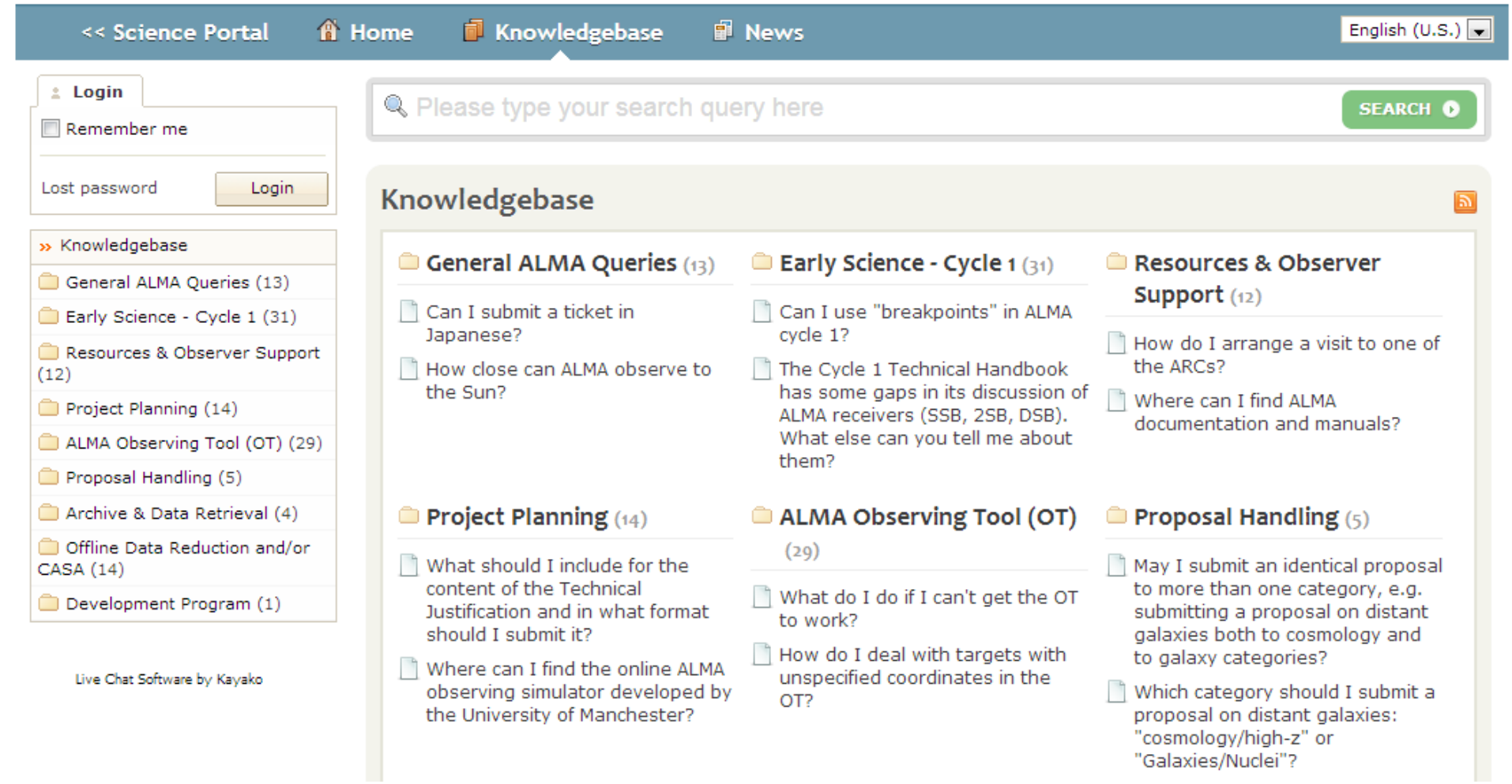
I could use a hand…

Have no fear, the ALMA Helpdesk is here…



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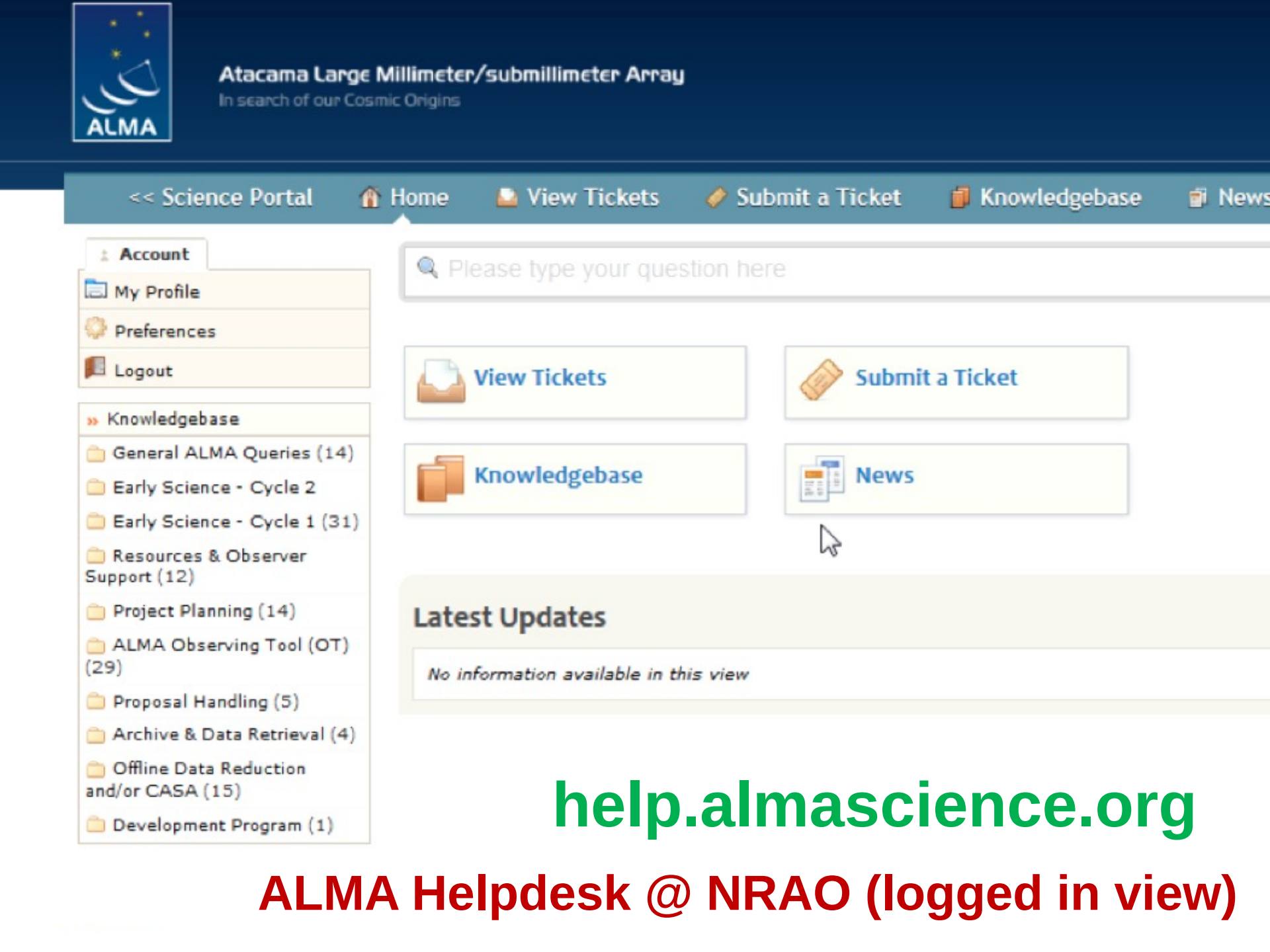
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Early Science - Cycle 2
Early Science - Cycle 1 (31)
Resources & Observer Support (12)
Project Planning (14)
ALMA Observing Tool (OT) (29)
Proposal Handling (5)
Archive & Data Retrieval (4)
Offline Data Reduction and/or CASA (15)
Development Program (1)
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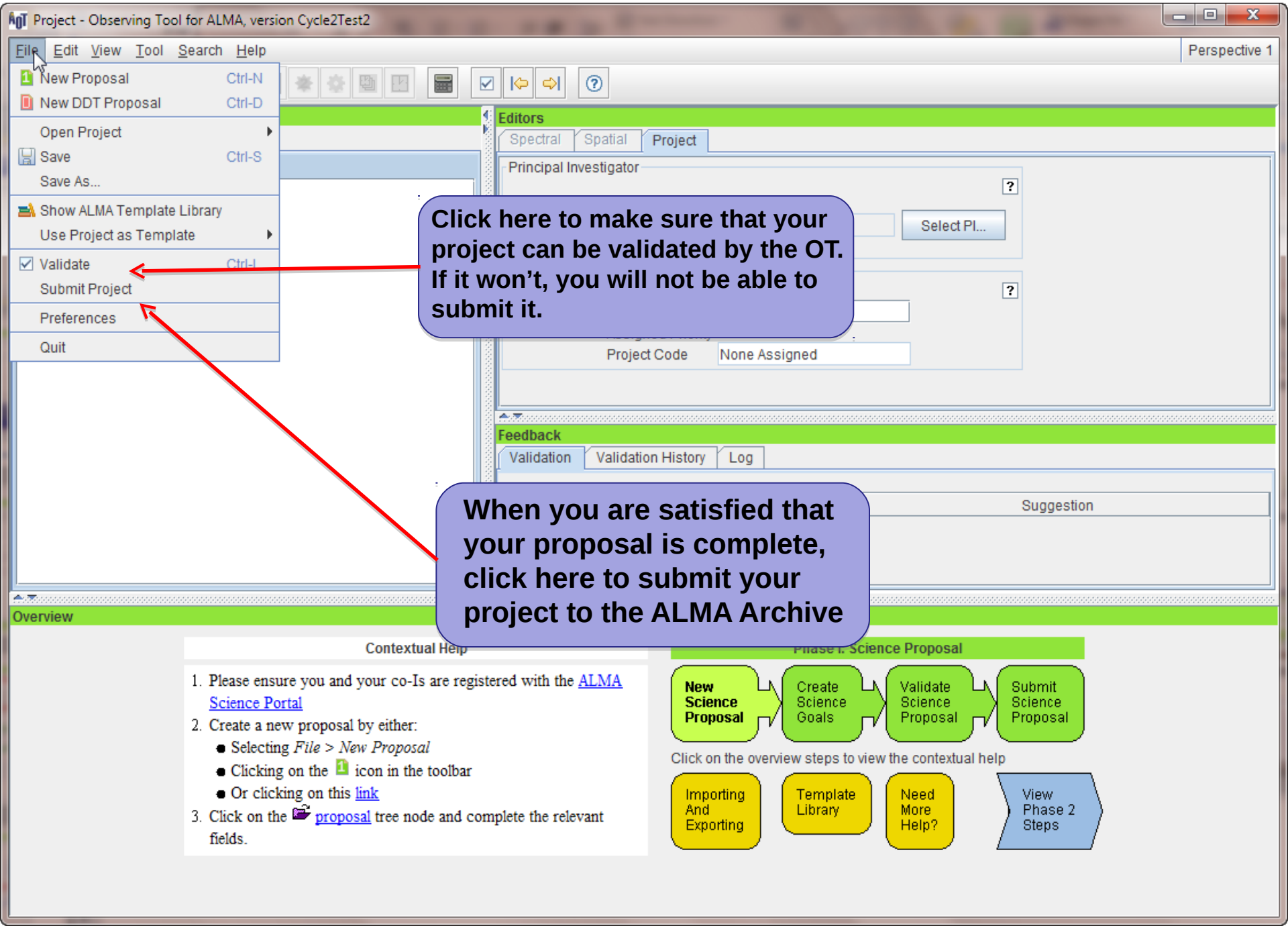
Project - Observing Tool for ALMA, version Cycle2Test2
File Edit View Tool Search Help
Perspective 1
New Proposal Ctrl-N
New DDT Proposal Ctrl-D
Open Project
Save Ctrl-S
Save As...
Show ALMA Template Library
Use Project as Template
Validate Ctrl-I
Submit Project
Preferences
Quit
Editors
Spectral Spatial Project
Principal Investigator
Select PI...
Project Code None Assigned
Feedback
Validation Validation History Log
Suggestion
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
Overview
Contextual Help
1. Please ensure you and your co-Is are registered with the ALMA Science Portal
2. Create a new proposal by either:
Selecting File > New Proposal
Clicking on the icon in the toolbar
Or clicking on this link
3. Click on the proposal tree node and complete the relevant fields.
Phase I: Science Proposal
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

After submission

- 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 in August 2017.

After submission

- Phase II (Creating and Queuing Scheduling Blocks)
  - PIs create their own scheduling blocks (with guidance from NAASC staff)
  - Being prompt helps ensure your project can be observed!

- 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 SnooPI tool on the Science Portal:

  https://almascience.nrao.edu/observing/snoopi