

# The ALMA Proposal Preparation Process



Statia Cook

Credits: NRAO, M. MacGregor

Atacama Large Millimeter/submillimeter Array  
Expanded Very Large Array



## **This talk is for you if...**

- You have a fabulous science case that is essential to follow-up with ALMA!
- You are new to ALMA and/or you have not used the ALMA Observing Tool (OT) before.
- You were familiar with past cycles and wonder what Cycle 6 capabilities are now available, and/or want a refresher on how to use the OT.

## TIMELINE FOR CYCLE 6

March 20	Call for Proposals
Apr. 19@15UT*	Proposal Deadline
End of July	Results to PIs
August 2018	PIs submit SBs
Oct. 2018	Start of Cycle 6
Sept. 2019	End of Cycle 6

**\*15 UT is 11AM East Coast time (EDT)!**

# Proposal Checklist

- ✓ Read relevant documentation
- ✓ Create an ALMA account
- ✓ Download the Observing Tool (OT)
- ✓ Prepare the Science Case
- ✓ Prepare Science Goals within the OT
- ✓ Make use of Helpdesk & Knowledgebase
- ✓ Submit!



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## Cycle 6 Documentation

[Call for Proposals](#) (1 page)

[Proposer's Guide](#) (50 pages, vital facts)

[ALMA Primer](#) (40 pages, broad overview)

[ALMA Tech Handbook](#) (220 pages,  
detailed)

[OT Documentation](#) (many tutorials)

### **MASTER LINK:**

<https://almascience.nrao.edu/documents-and-tools>

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## Observatory News

### Additional Information for Cycle 6 Proposals

Feb 01, 2018

New Science Verification data are now available for download

Jan 22, 2018

Announcement of intent to release a new installment of Science Verification data

[More...](#)

## NRAO News

### Magnetic Fields or Turbulence

Feb 06, 2018

AAAS - The Chemistry & Physics of Nascent Planet Formation

Feb 17, 2018

NRAO/LBO Community Day at Caltech

Mar 27, 2018

[More...](#)

## Status

[ALMA Cycle 5 Config Schedule](#)

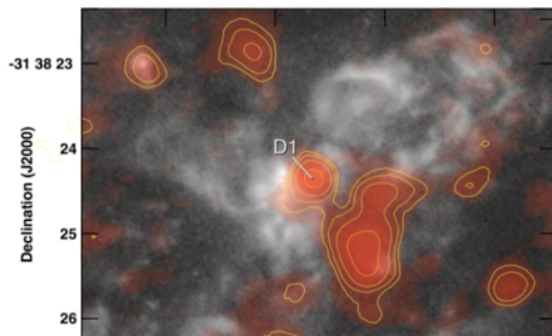
Refereed publications: 916

Last observed source: W43-MM1

Current configuration: C43-5

[More...](#)

## Science Highlights - Molecular Gas Within the Supernebula of the Dwarf Galaxy NGC 5253



One of the areas of extragalactic research which makes great use of ALMA's resolution and sensitivity is the study of the molecular gas properties of dwarf galaxies. In a [recent study](#) by Dr. Jean Turner and her collaborators, they make use of Band 7 ALMA observations to detect warm  $^{12}\text{CO}(3-2)$  and  $^{13}\text{CO}(3-2)$  emission (Cloud D1) from the core of a giant star-forming region, in the dwarf galaxy NGC 5253. This "supernebula" is the source of one-third of the galaxy's infrared luminosity and is in proximity to optical clusters with measured stellar ages of  $\sim 1$  Myr. From radio recombination line analysis, the region is estimated to have 1400-1800 O stars..

[Full Summary...](#)



[www.almascience.org](http://www.almascience.org)

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 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 require the user to have Java installed on their system. For Linux users, we also provide a download complete with a recommended version of the Java runtime.

Webstart

Tarball

**Using webstart is easier and has the advantage that it checks for and will download a newer version at startup**





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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.

### 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. **Note:** this video is from Cycle 4, some things have changed slightly in Cycle 5. In particular, time constraints can now also include simultaneous 12-m and 7-m observations, and re-submissions are no longer defined by the user. Also, the time estimate interface has changed a bit.



Video 1:  
Useful to Know

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- **Free-form PDF document**
  - 12+ font, English only
  - 20 MB file size
  - 4 pages (6 for Large Projects)
- **Must include:**
  - Astronomical importance
  - Estimated intensity, S/N
- **May include:**
  - Figures
  - Tables
  - References
- **Should include:**
  - Why ALMA?!

## Regular Projects

- Observations that can be fully specified by the regular proposal submission.
- Includes standard and non-standard modes.



## Large Projects

- 15% of available time
- Any 12-m project >50 hours, or standalone ACA > 150 hours
- Standard observing modes
- Automatic 'A' grade
- +2 pages for Science Case
  - Data/Project management plans
  - Enhanced Data Products

## ToO (Target of Opportunity)

- Transient events occurring at frequent and unpredictable intervals (e.g. gamma ray bursts).
- Regular proposal submission.
- Target list may be left unspecified, observing modes and sensitivity requests must be specified
- Triggers needed and maximum response time

## VLBI

- 5% of available time
- ALMA VLBI programs must have been submitted to the appropriate VLBI network by their independent deadline.

## DDT (Director's Discretionary Time)

- 5% of available time
- Submission at any time, for current cycle
  1. Immediate (<3 weeks) observation of a sudden and *unexpected* astronomical event.
  2. Observations of a highly competitive scientific topic, motivated by developments that have taken place after the regular proposal submission deadline.
  3. Follow-up observations of a program recently conducted with ALMA or any other observing facility, quick implementation is expected to provide breakthrough results.

## When Preparing Your Science Case, Don't Forget the Capabilities and Constraints of Cycle 6!

- LST range available for each configuration.
- Source declination, particularly for compact configurations: antenna shadowing.
- Capabilities, especially new capabilities: circular polarization (with restrictions), Band 8 ACA, larger Band 6 IF bandwidth.
- Data rate (70 MB/s limit).
- **Duplication checks.**

# Checking for Duplication: Proposal is a Duplication If ALL Conditions Met:

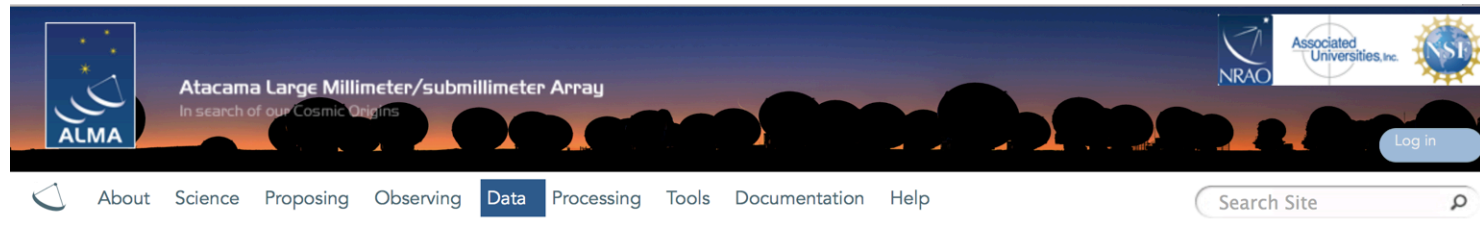
- Frequency:
  - Continuum: rms better by a factor of  $\leq 2$ , frequency is within a factor of 1.3 – or –
  - Spectral line: central freq. in any FDM window within prev. window, sensitivity per channel better by factor of  $\leq 2$
- Angular resolution:
  - Differs by a factor of  $\leq 2$
- Coverage:
  - Single-field: position coincides within the half-power beam width of the other observation – or –
  - Mosaic: more than 50% of the proposed pointings are within the half power beam width of other observation



- Duplications are not allowed, unless scientifically justified
- PIs are responsible for checking their proposed observations against the Archive and the list of Grade A programs:
  - <https://almascience.nrao.edu/proposing/call-for-proposals/duplications>.
- PIs will not be penalized for proposing duplications of previous cycle observations if they had no way to know about them.

# The ALMA Archive

Go to the science portal: <https://almascience.nrao.edu>  
- Click on “Data” and select “Archive”



## Archive

[Archive Query](#)

## Documentation

We provide a comprehensive [ALMA Science Archive Manual](#).

## Data delegation

PIs can grant access to one of their projects to a registered ALMA user by logging into the Science Portal, going to the user profile page in the top right corner and then adding delegates in the "Project delegation" tab.

## Cycle 0 content

Please [go here](#) to see the content of the Cycle 0 deliveries.

Use the archive to check for duplication, get your own data, or download publicly available data

# Find data in archive: Archive Query

Query Form Results Table

Search Reset

[Query Help](#)

## Position

Source name (Sesame)  
Source name (ALMA)  
RA Dec

## Energy

Frequency  
Bandwidth  
Spectral resolution  
Band

## Time

Observation date  
Integration time

## Polarisation

Polarisation type

## Observation

Water vapour

## Project

Project code  
  
Project title  
PI name

## Options

View:  raw data  project  
 public data only  
 science observations only

**Project code**  
Project code.

**Description**  
Project code, in the form  
YYYY.NNNNN.C.AAA, where:

Example  
2010.2.00010.N  
2010.\*  
2010.?\*.CSV  
\*.CSV  
!(\*.CSV | \*.SIM)

# Archive Query

Query Form **Results Table**

**Submit download request**

[Results Bookmark](#) [Export Table](#) [Results Help](#)

Showing 30 rows (30 before filtering).

[More columns](#)

<input type="checkbox"/>	Project code	Source name	RA	Dec	Band	Integration	Release date ▲	Velocity resolution	Frequency support
Filter:	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text" value="m/s"/> ↕	<input type="text"/>
<input checked="" type="checkbox"/>	2012.1.00090.S	S2CLS_UDS110	02:18:48.44	-05:18:05.0	7	9.326	2014-11-07T09:35:00.000	27236.96	<a href="#">336.00..351.99GHz</a>
<input checked="" type="checkbox"/>	2012.1.00090.S	S2CLS_UDS156	02:18:24.23	-05:22:53.4	7	8.836	2014-11-07T09:35:00.000	27236.96	<a href="#">336.00..351.99GHz</a>
<input checked="" type="checkbox"/>	2012.1.00090.S	S2CLS_UDS160	02:18:23.86	-05:11:36.2	7	8.842	2014-11-07T09:35:00.000	27236.96	<a href="#">336.00..351.99GHz</a>
<input type="checkbox"/>	2012.1.00090.S	S2CLS_UDS168	02:18:20.34	-05:31:41.6	7	8.843	2014-11-07T09:35:00.000	27236.96	<a href="#">336.00..351.99GHz</a>
<input checked="" type="checkbox"/>	2012.1.00090.S	S2CLS_UDS199	02:18:07.38	-04:44:11.7	7	8.812	2014-11-07T09:35:00.000	27236.96	<a href="#">336.00..351.99GHz</a>
<input type="checkbox"/>	2012.1.00090.S	S2CLS_UDS204	02:18:03.01	-05:28:39.8	7	8.873	2014-11-07T09:35:00.000	27236.96	<a href="#">336.00..351.99GHz</a>
<input type="checkbox"/>	2012.1.00090.S	S2CLS_UDS216	02:17:56.80	-04:52:39.6	7	8.82	2014-11-07T09:35:00.000	27236.96	<a href="#">336.00..351.99GHz</a>
<input type="checkbox"/>	2012.1.00090.S	S2CLS_UDS252	02:17:37.79	-05:20:10.2	7	8.827	2014-11-07T09:35:00.000	27236.96	<a href="#">336.00..351.99GHz</a>
<input type="checkbox"/>	2012.1.00090.S	S2CLS_UDS286	02:17:25.76	-05:25:36.5	7	9.657	2014-11-07T09:35:00.000	27236.96	<a href="#">336.00..351.99GHz</a>
<input type="checkbox"/>	2012.1.00090.S	S2CLS_UDS292	02:17:21.85	-05:19:03.3	7	8.815	2014-11-07T09:35:00.000	27236.96	<a href="#">336.00..351.99GHz</a>
<input type="checkbox"/>	2012.1.00090.S	S2CLS_UDS298	02:17:19.90	-05:09:36.4	7	9.55	2014-11-07T09:35:00.000	27236.96	<a href="#">336.00..351.99GHz</a>
<input type="checkbox"/>	2012.1.00090.S	S2CLS_UDS334	02:17:02.81	-04:57:24.9	7	8.856	2014-11-07T09:35:00.000	27236.96	<a href="#">336.00..351.99GHz</a>
<input type="checkbox"/>	2012.1.00090.S	S2CLS_UDS408	02:16:22.59	-05:11:06.0	7	8.819	2014-11-07T09:35:00.000	27236.96	<a href="#">336.00..351.99GHz</a>
<input type="checkbox"/>	2012.1.00090.S	S2CLS_UDS421	02:16:17.62	-05:09:02.0	7	8.803	2014-11-07T09:35:00.000	27236.96	<a href="#">336.00..351.99GHz</a>
<input type="checkbox"/>	2012.1.00090.S	S2CLS_UDS47	02:19:24.97	-05:09:19.9	7	8.785	2014-11-07T09:35:00.000	27236.96	<a href="#">336.00..351.99GHz</a>

## Downloading the data: *Request Handler*

- All data downloaded as tar files
- Large data sets may be broken into several pieces
  - Name is [project\_code]\_[OUS\_ID]\_m\_of\_n.tar
  - Raw data packaged as one tar file per execution block (EB)
    - name is [project\_code]\_[EB\_ID].asdm.sdm.tar
- For Cycle 0-5 projects, cannot directly download individual data products but potentially coming in Cycle 6...
  - FITS images
  - Diagnostic plots, etc.



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[More...](#)

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Mar 27, 2018

[More...](#)

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[ALMA Cycle 5 Config Schedule](#)

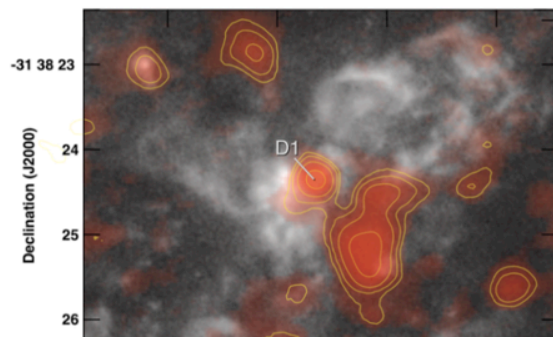
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[More...](#)

## Science Highlights - Molecular Gas Within the Supernebula of the Dwarf Galaxy NGC 5253



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[Full Summary...](#)

[www.almascience.org](http://www.almascience.org)  
**ALMA Science Portal @ NRAO**

# I could use a hand...

# ALM



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

<< Science Portal

Home

Knowledgebase

News

English (U.S.)

Login

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Lost password

Login

» Knowledgebase

General ALMA Queries (13)

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)

Live Chat Software by Kayako

Please type your search query here

SEARCH

## Knowledgebase

### General ALMA Queries (13)

- Can I submit a ticket in Japanese?
- How close can ALMA observe to the Sun?

### 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?

### 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?

### 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?

### Resources & Observer Support (12)

- How do I arrange a visit to one of the ARCs?
- Where can I find ALMA documentation and manuals?

### 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"?



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## Submission

- Can resubmit as often as needed, server is busy right before the deadline!
- Standard and ToO proposals reviewed by the ALMA Proposal Review Committee (APRC) and the ALMA Review Panels (ARP).
- Proposals assessed for overall scientific merit of proposed investigation and potential contribution to the advancement of scientific knowledge.
- All proposals subject to Technical Assessment by JAO and ARC experts.
- Outcome of the Proposal Review Process communicated to PIs end of July 2018.

## After submission

- A: Proposal was assigned the highest priority and will be carried over into Cycle 7 if it is not completed in Cycle 6.
- B: was assigned a high priority but will not be carried over into Cycle 7.
- C: Scientifically fruitful proposals, will be observed if a higher-grade proposal is not available for current conditions.

## After submission

### Phase II

- PIs review their scheduling blocks
  - Change requests go to the Helpdesk, and possibly a formal change request
  - 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>



## Goals of Quality Assurance (QA) Process

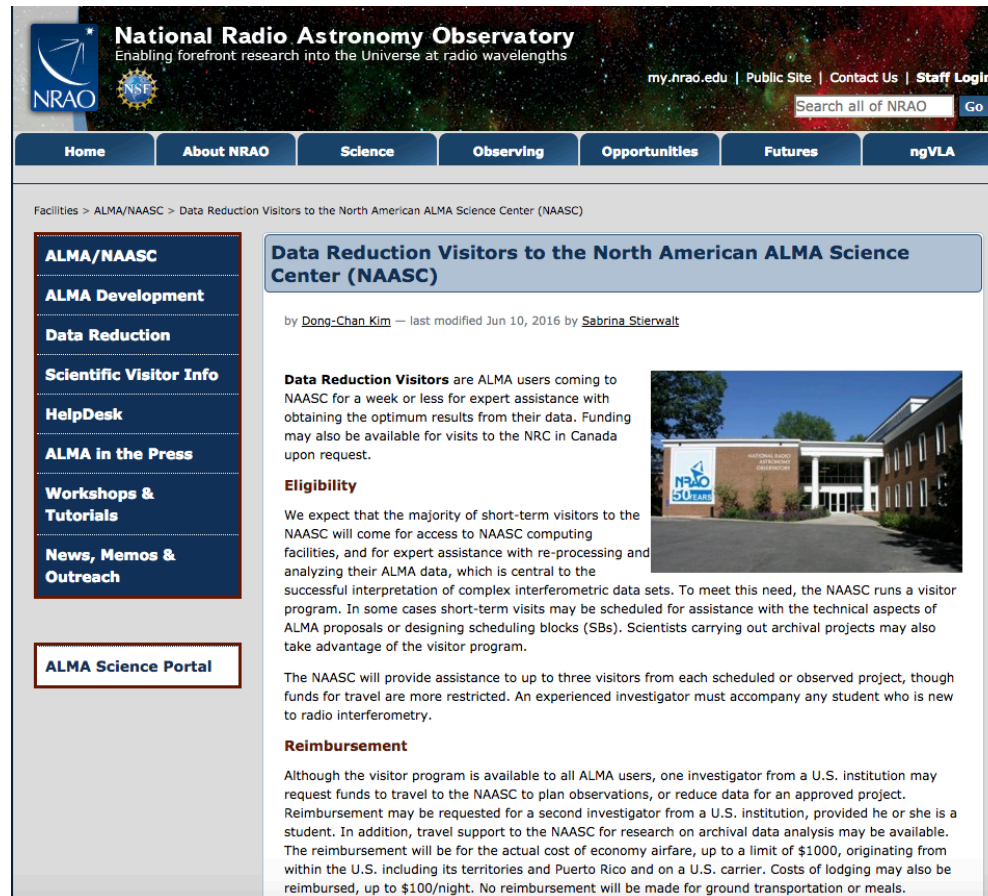
- Ensure reliable final data product
- Desired sensitivity, resolution (as specified by PI)
- Ensure calibration and QA imaging free from major artifacts
  
- Warning: Errors in PI-supplied parameters are outside scope of QA process, including:
  - Incorrect source coordinates
  - Inadequate frequency specification
  - Inadequate sensitivity limits

## Data delivery

- Data delivered after passing Quality Assurance (QA)
- Download data from *Archive Query* and *Request Handler* tools on the ALMA Science Portal
- Delivered data include:
  - Calibration tables and diagnostics
  - Preliminary images (better products may be possible with more careful continuum identification & interactive cleaning)
- *For more information, see Sections 11, 12, 14, and Appendix C of ALMA Technical Handbook*

# Resources After Data Delivery

- HelpDesk
- Face-to-face visits in Charlottesville: <https://science.nrao.edu/facilities/alma/visitors-shortterm>



The screenshot shows the NRAO website header with the logo and navigation menu. The main content area is titled "Data Reduction Visitors to the North American ALMA Science Center (NAASC)" and includes a sidebar with navigation links, a byline for the article, and several sections of text: "Data Reduction Visitors", "Eligibility", and "Reimbursement". A photograph of the NAASC building is also present.

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Facilities > ALMA/NAASC > Data Reduction Visitors to the North American ALMA Science Center (NAASC)

**ALMA/NAASC**  
ALMA Development  
Data Reduction  
Scientific Visitor Info  
HelpDesk  
ALMA in the Press  
Workshops & Tutorials  
News, Memos & Outreach

**ALMA Science Portal**

## Data Reduction Visitors to the North American ALMA Science Center (NAASC)

by [Dong-Chan Kim](#) — last modified Jun 10, 2016 by [Sabrina Stierwalt](#)

**Data Reduction Visitors** are ALMA users coming to NAASC for a week or less for expert assistance with obtaining the optimum results from their data. Funding may also be available for visits to the NRC in Canada upon request.


**Eligibility**

We expect that the majority of short-term visitors to the NAASC will come for access to NAASC computing facilities, and for expert assistance with re-processing and analyzing their ALMA data, which is central to the successful interpretation of complex interferometric data sets. To meet this need, the NAASC runs a visitor program. In some cases short-term visits may be scheduled for assistance with the technical aspects of ALMA proposals or designing scheduling blocks (SBs). Scientists carrying out archival projects may also take advantage of the visitor program.

The NAASC will provide assistance to up to three visitors from each scheduled or observed project, though funds for travel are more restricted. An experienced investigator must accompany any student who is new to radio interferometry.

**Reimbursement**

Although the visitor program is available to all ALMA users, one investigator from a U.S. institution may request funds to travel to the NAASC to plan observations, or reduce data for an approved project. Reimbursement may be requested for a second investigator from a U.S. institution, provided he or she is a student. In addition, travel support to the NAASC for research on archival data analysis may be available. The reimbursement will be for the actual cost of economy airfare, up to a limit of \$1000, originating from within the U.S. including its territories and Puerto Rico and on a U.S. carrier. Costs of lodging may also be reimbursed, up to \$100/night. No reimbursement will be made for ground transportation or meals.



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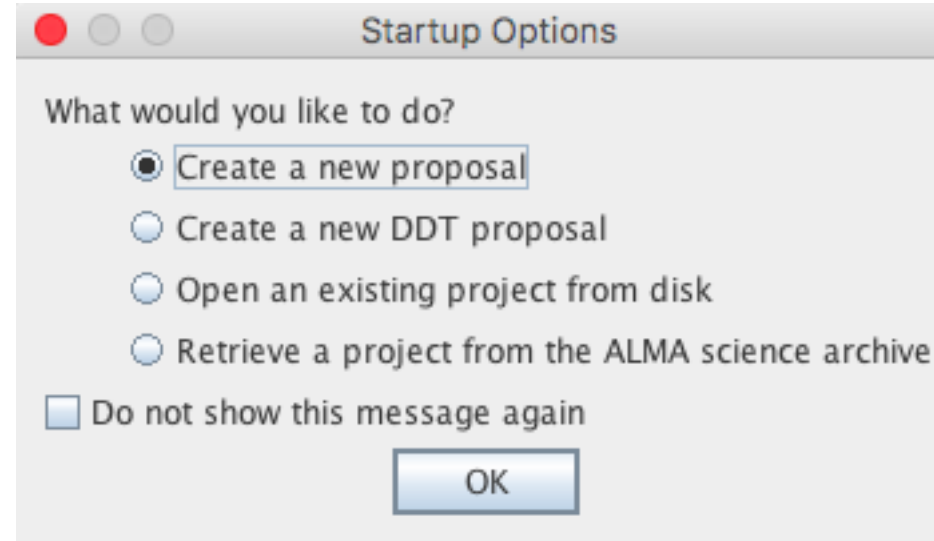
# When the ALMA OT starts



First you see this



Then you see this



- File
- Edit
- View
- Tool
- Search
- Help
- New Proposal ⌘-N
- New DDT Proposal ⌘-D
- Open Project
- Open Project as New Proposal
- Save ⌘-S
- Save As...
- Show ALMA Template Library
- Use Project as Template
- Validate ⌘-V
- Submit Project
- Preferences
- Save Preferences
- Quit

Editors

Spectral Spatial Title goes here

From ALMA Archive... al Investigator

Select PI...

Main Project Information

Project Title goes here

Assigned Priority



Project Code None Assigned

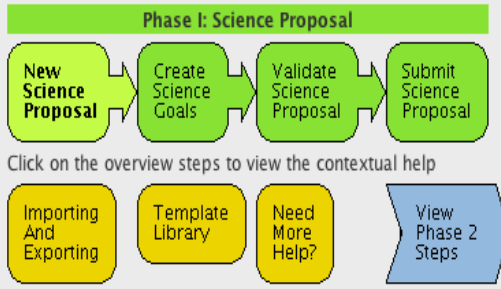
*Since Cycle 4, a previously-submitted project can be opened as a new proposal from the science archive*

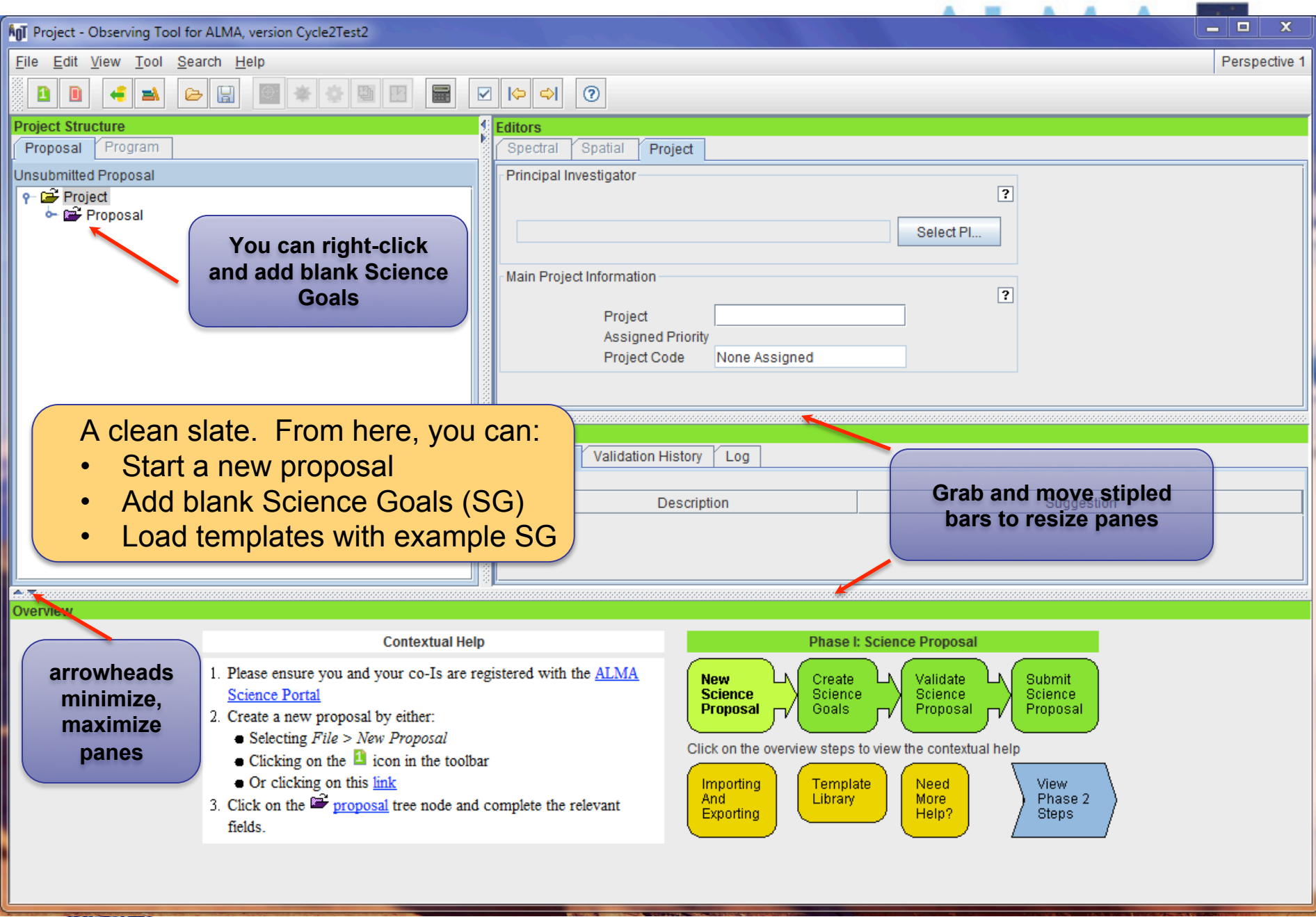
*New! for Cycle 6, an old DDT proposal can be opened from the archive as a new proposal*

Click here to load the standard templates that are distributed with the OT

Click here to load a project (perhaps an old one of yours) from disk as a template

- 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  icon in the toolbar
    - Or clicking on this [link](#)
  - Click on the  proposal tree node and complete the relevant fields.







You can right-click and add blank Science Goals

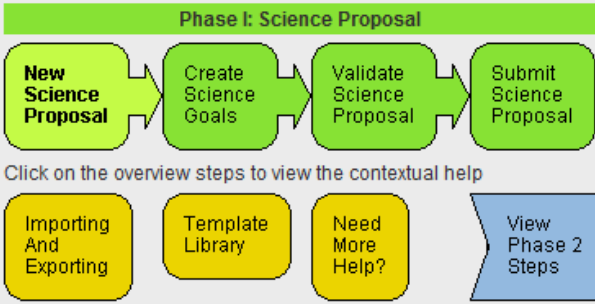
A clean slate. From here, you can:

- Start a new proposal
- Add blank Science Goals (SG)
- Load templates with example SG

Grab and move stiped bars to resize panes

arrowheads minimize, maximize panes

- 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.







## Project Structure

Proposal Program

Unsubmitted Proposal

Project  
 Proposal  
 Planned Observing  
 ScienceGoal (Cop...  
 General  
 Field Setup  
 Spectral Setu...  
 Calibration Se...  
 Control and F...  
 Technical Jus...

Cycle5 Template Library (re...)

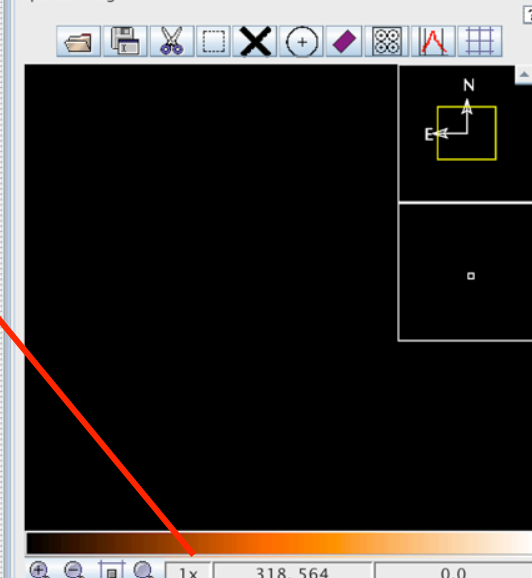
enceGoal (B7 Continuum: Pluto)  
 General  
 Field Setup  
 Spectral Setup  
 Calibration Setup  
 Control and Performance  
 Technical Justification

enceGoal (Multi-source mosaics)  
 enceGoal (GRB Target of oppor...  
 enceGoal (Full Polarization: 3C2...  
 enceGoal (Disk: TW Hya: Band...  
 enceGoal (Single-point spectral...  
 enceGoal (Solar observations; B...  
 enceGoal (Bright molecular gas...  
 enceGoal (Bright molecular gas...  
 enceGoal (ACA Standalone: 10'...  
 enceGoal (Widely scattered, hig...

## Editors

Spectral Spatial Field Setup

Spatial Image



1x 318.564 0.0

NGC1232

Source

Source Name NGC1232

Choose a Solar System Object?  Name of object Unspecified

System ICRS Sexagesimal display?  Parallax 0.00000 mas

Source Coordinates RA 03:09:45.5140 PM RA 0.00000 mas/yr

Dec -20:34:45.480 PM DEC 0.00000 mas/yr

Source Radial Velocity 1677.400 km/s lsrk z 0.005610945 Doppler Type RELATIVISTIC

Target Type  Individual Pointing(s)  1 Rectangular Field

Expected Source Properties

Peak Continuum Flux Density per Synthesized Beam 0.00000 Jy

Continuum Linear Polarization 0.0 per cent

Continuum Circular Polarization 0.0 per cent

Peak Line Flux Density per Synthesized Beam 35.00000 mJy

Line Width 15.00000 km/s

Line Linear Polarization 0.0 per cent

Line Circular Polarization 0.0 per cent

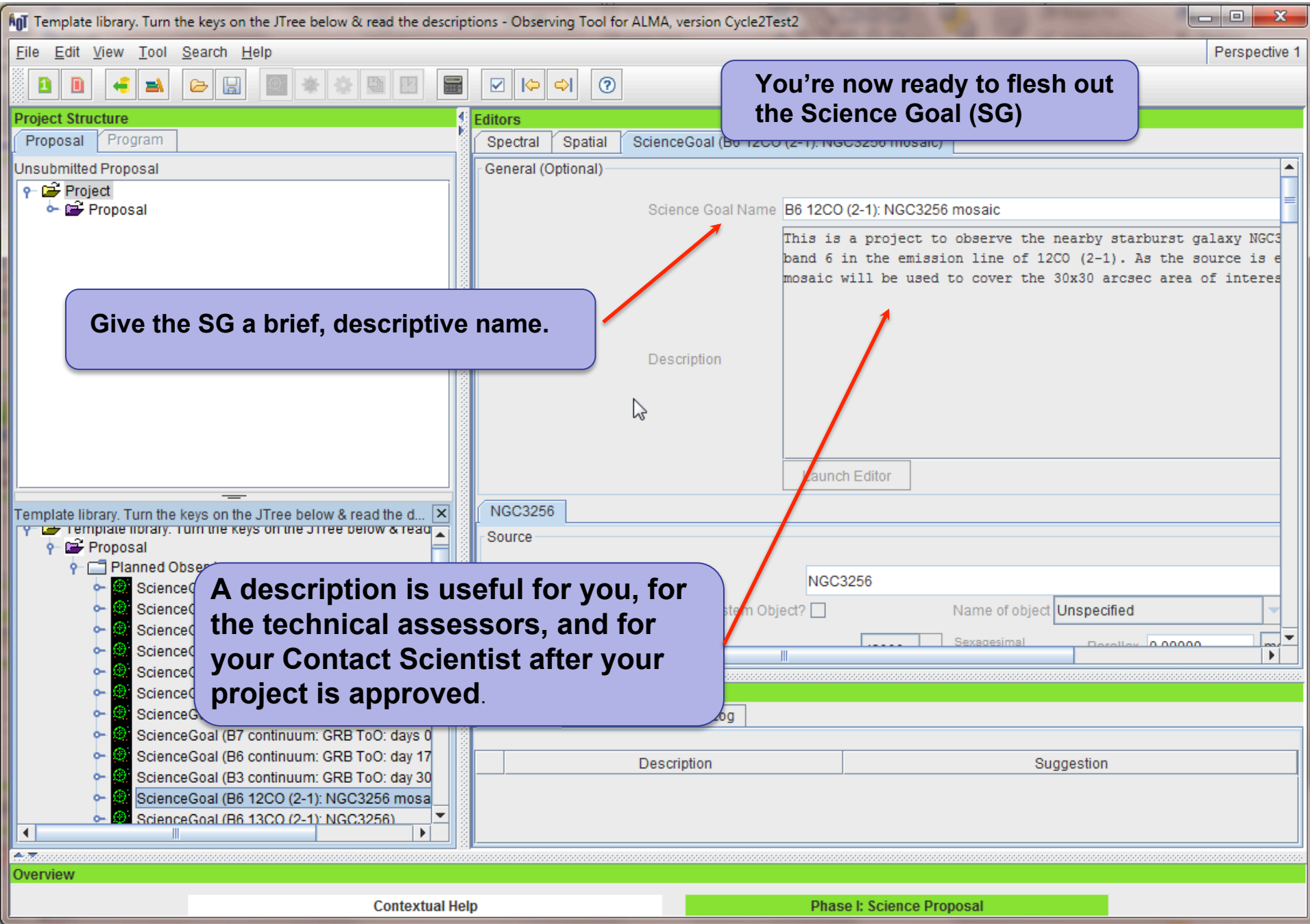
Coords Type  Relative  Absolute

World Center coordinates Offset(Longitude) 0.00000 arcsec

Offset(Latitude) 0.00000 arcsec

**Each Science Goal may contain one or more sources of the same target type (individual pointing(s) or 1 mosaic), and is limited to one correlator setup with up to five frequency tunings, one calibration strategy, and one set of Control and Performance parameters. Max 150 pointings.**





**You're now ready to flesh out the Science Goal (SG)**

**Give the SG a brief, descriptive name.**

**A description is useful for you, for the technical assessors, and for your Contact Scientist after your project is approved.**

Description	Suggestion

**Project Structure**

Proposal Program

Unsubmitted Proposal

Casting Light on Chameleon's Dark CO

**Source name, position, proper motion, velocity, velocity rest frame. LSR gone, use LSRK**

**Rectangular mosaic or 1/more offset pointings?**

**The expected source properties are used with the spectral setup, desired angular resolution, rms, to set the S/N, dynamic range and overall project viability**

**Editors**

Spectral

Source Name: J1136-6827-0.4 Resolve

Choose a Solar System Object?  Name of object: Unspecified

System: ICRS Sexagesimal display?

Parallax: 0.00000 mas

Source Coordinates: RA: 11:36:02.0970 PM RA: 0.00000 mas/yr

Dec: -68:27:05.810 PM DEC: 0.00000 mas/yr

Source Radial Velocity: 0.000 km/s  lsrk z: 0.000000000 Doppler Type: RADIO

Target Type:  Individual Pointing(s)  1 Rectangular Field

Expected Source Properties

Peak Continuum Flux Density per Synthesized Beam: 1.00000 Jy

Continuum Linear Polarization: 4.0 per cent

Continuum Circular Polarization: 0.0 per cent

Peak Line Flux Density per Synthesized Beam: 0.10000 Jy

Line Width: 3.5 km/s

Line Linear Polarization: 0.0 per cent

Line Circular Polarization Percentage: 2.0 per cent

Field Center Coordinates

Coord Type:  Relative  Absolute

Offset Unit: arcsec

#Pointings: 1

RA [arcsec]	Dec [arcsec]
0.00000	0.00000

Since Cycle 4, OT defaults to ICRS, the standard radio coordinate system

When you resolve a name check all returned info

Rectangular mosaic or 1/more offset pointings?

Circular polarization is new! Smallest expected circular pol. fraction here is 1.8% for line or continuum

**Feedback**

Validation Validation History Log

0 errors, 1 warning : double-click on each row to be taken to the problem

Description	Suggestion
-------------	------------

File Edit View Tool Search Help



## Project Structure

Proposal Program

## Unsubmitted Proposal

- 📁 Casting Light on Chameleon's Dark CO
  - 📁 Proposal
    - 📁 Planned Observing
      - 📁 ScienceGoal (Chameleon's dark CO)
        - 📄 General
        - 📄 Field Setup
        - 📄 Spectral Setup
        - 📄 Calibration Setup
        - 📄 Control and Performance
        - 📄 Technical Justification

## Editors

Spectral Spatial Field Setup

Source Name  Resolve

Choose a Solar System Object?  Name of object

System  Sexagesimal display?  Parallax

Source Coordinates RA  PM RA

Dec  PM DEC

Source Radial Velocity    z  Doppler Type

Target Type  Individual Pointing(s)  1 Rectangular Field

Expected Source Properties

**Pointings must overlap another pointing at the edges of their HPBW and all must be within 5° of the source coordinate**

**Pointings can be given as offsets or absolute sky positions, the OT will convert between those if you check/uncheck Coord Type**

## Field Center Coordinates

Coord Type  Relative  AbsoluteOffset Unit #Pointings 

RA [arcsec]	Dec [arcsec]
-0.00000	-0.00000
24.00000	26.00000
-12.00000	12.00000
20000.00000	-0.00000

← Illegal!

Add

Delete

Reset

Import

Export

Add Source

Load from File...

Export to File...

Clone Source

Delete Source

Delete All Sources

**New! Reset leaves one pointing at 0,0**

**Clone a Field Source, add, load, export. Delete is greyed when only 1 source in SG**

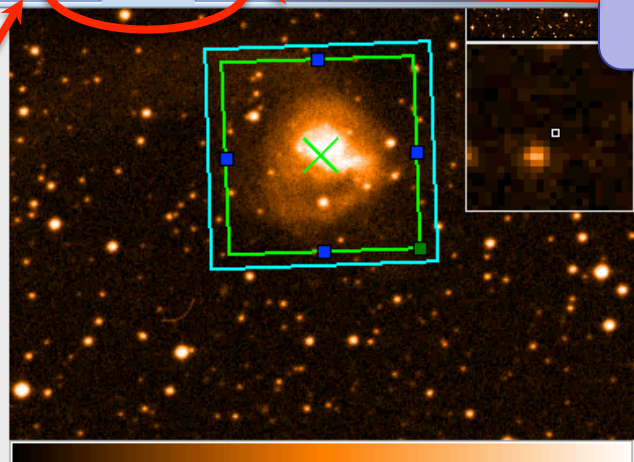
**Read/write the offset pointings from/to a text file.**

Project Structure

- Proposal
- Program
- Unsubmitted Proposal
  - Project
    - Proposal
      - Planned Observing
        - ScienceGoal (Crop)
          - General
          - Field Setup
          - Spectral Setup
          - Calibration Set
          - Control and Pe
          - Technical Just

Editors

- Spectral
- Spatial
- Field Setup



The Spatial tab gives a graphical visualization of the Field Setup.

Source Radial Velocity  km/s

Target Type  Individual Pointing(s)  1 Rectangular Field

Expected Source Properties

Peak Continuum Flux Density per Beam  Jy

Continuum Polarization Percentage

Peak Line Flux Density per Beam  Jy

Line Width  km/s

Line Polarization Percentage

Template library. Turn the keys o...

- Proposal
  - Planned Observing
    - ScienceGoal (B)
    - ScienceGoal (B)
    - ScienceGoal (B)
    - ScienceGoal (B)
    - ScienceGoal (B)
    - ScienceGoal (B)
    - ScienceGoal (B)
    - ScienceGoal (B)
    - ScienceGoal (B)

FOV Parameters

Representative Frequency (Sky)

Antenna Diameter  12m  7m

Antenna Beamsize (HPBW)

Show Antenna Beamsize

Image Query

Image Server

Image Size(arcmin)

Select a background image from an online image server

Rectangle

Rectangle (Latitude)  arcsec

p length  arcmin

q length  arcmin

Position Angle  deg

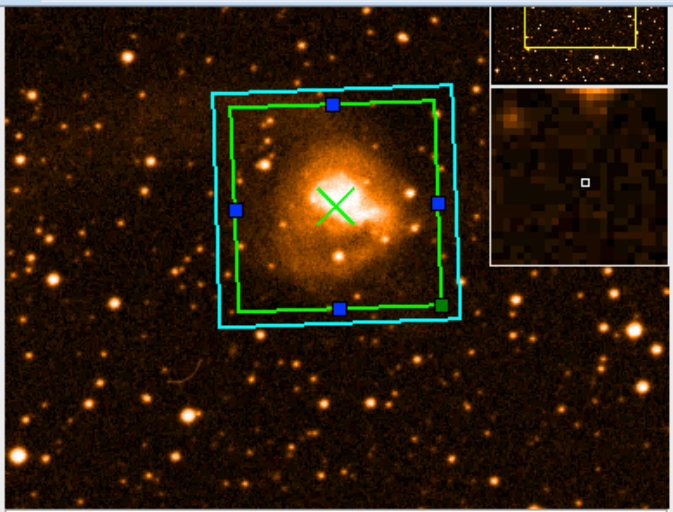
Spacing

Overview



Editors

Spectral Spatial Field Setup



1x 469, 175 13357.0  
 10:27:35.522, -43:56:25.99 (J2000)  
 Image Filename emijan\jsky3\cache\jsky9043341093951517820.fits

FOV Parameters

Representative Frequency (Sky) 231.546 GHz

Antenna Diameter  12m  7m

Antenna Beamsize (HPBW) 26.706 arcsec

Show Antenna Beamsize

Image Query

Image Server Digitized Sky (Version II)

Image Size(arcmin) 10.0

**Setting up the mosaic in the Field Setup**

Define the length, width and position angle of the region to mosaic. Default is to separate the field centers by about 48% of the primary beam (the Nyquist rate).

**HPBW for the 12m antennas are  $1.13\lambda/D$**

Line Width 0.00000 km/s

Line Polarization Percentage 0.0 %

Rectangle

Coords Type  ABSOLUTE  RELATIVE

System J2000

Field Center Coordinates

Offset(Longitude) 0.00000

Offset(Latitude) 0.00000

p length 2.0 arcmin

q length 2.0 arcmin

Position Angle 0.00000 deg

Spacing 0.48113 fraction of main beam

#Pointings: 12m Array 105 7m Array 39

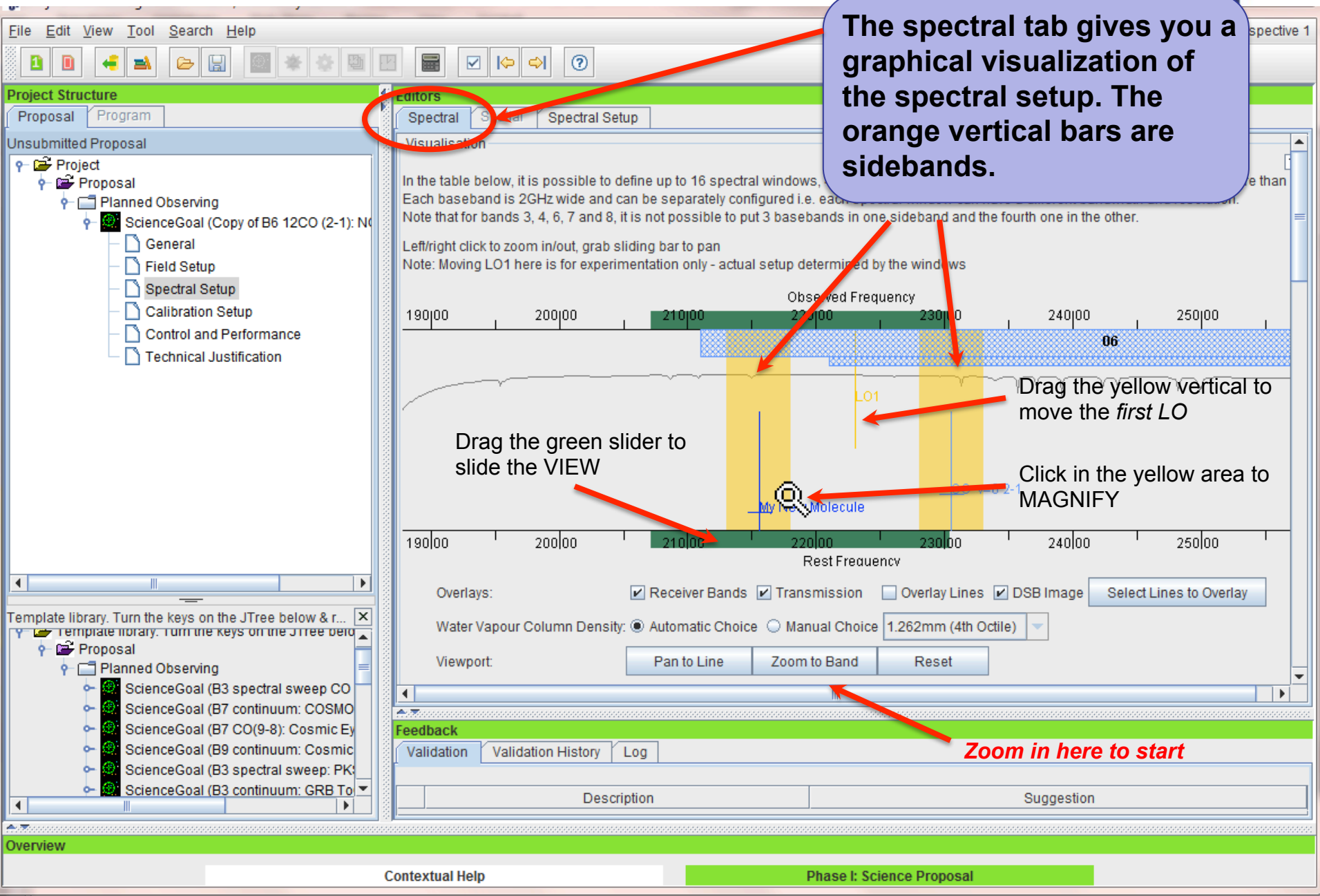
Reset to Nyquist

Export

**Estimated number of 7m Array pointings**

**No more than 150 12m Array pointings.**





The spectral tab gives you a graphical visualization of the spectral setup. The orange vertical bars are sidebands.

Drag the green slider to slide the VIEW

Drag the yellow vertical to move the first LO

Click in the yellow area to MAGNIFY

Zoom in here to start

File Edit View Tool Search Help

## Project Structure

Proposal Program

## Unsubmitted Proposal

- Project
  - Proposal
    - Planned Observing
      - ScienceGoal (Copy of Chameleon's data)
        - General
        - Field Setup
        - Spectral Setup
        - Calibration Setup
        - Control and Performance
        - Technical Justification

## Editors

Spectral Spatial Spectral Setup

## Spectral Line

## Baseband-1

Fraction	Centre Freq (rest,lsrk)	Centre Freq (sky,bar)	Transition	Bandwidth, Resolution
1(Full)	98.70000 GHz	98.69607 GHz	continuum	1875.000 MHz( 5695 km/s), 31.250 MHz

1) ADD spectral windows to get started!

Add spectral window centred on a spectral line

Add spectral window manually

Delete

 Show image spectral windows

## Baseband-2

1/2	97.99517 GHz	97.99127 GHz	I-C3H v=0 J=9...	58.594 MHz( 179 km/s), 70.557 kHz( 0.216 km/s)	2	<input type="radio"/>
1/2	97.98095 GHz	97.97705 GHz	CS v=0 2-1	58.594 MHz( 179 km/s), 61.035 kHz( 0.187 km/s)	1	<input type="radio"/>

Add spectral window centred on a spectral line

Add spectral window manually

Delete

 Show image spectral windows

## Baseband-3

1/2	86.67076 GHz	86.66731 GHz	HCO 1(0,1)-0(...	58.594 MHz( 203 km/s), 61.035 kHz( 0.211 km/s)	1	<input type="radio"/>
1/2	87.31690 GHz	87.31342 GHz	CCH v=0 N=1-...	58.594 MHz( 201 km/s), 61.035 kHz( 0.210 km/s)	1	<input type="radio"/>

Add spectral window centred on a spectral line

Add spectral window manually

Delete

 Show image spectral windows

## Baseband-4

1-0	58.594 GHz	58.594 GHz			1	<input checked="" type="radio"/>
-0	58.594 GHz	58.594 GHz			1	<input type="radio"/>

Add spe

spectral windows

This option will call up a version of the spectral line picker. Windows added this way retain line id and other info from the Splatalogue

Frequencies may also be entered by hand

## Representative Frequency

The representative frequency is used in conjunction with the sensitivity entered on the 'Control and Performance' page to estimate the required observing time and to set the size of the antenna beam shown in the 'Spatial Visual' editor. If the transition you are most interested in does



## Project Structure

Proposal Program

## Unsubmitted Proposal

- Project
  - Proposal
    - Planned Observing
      - ScienceGoal (Copy of Chameleon's data)
        - General
        - Field Setup
        - Spectral Setup
        - Calibration Setup
        - Control and Performance**
        - Technical Justification

## Editors

Spectral Spatial **Control and Performance**

These parameters are used to control various aspects of the observing program.

## Control and Performance

## Configuration Information

Antenna Beam size ( $1.13 * \lambda / D$ )	12m	<input type="text" value="38.309 arcsec"/>	7m	<input type="text" value="65.672 arcsec"/>	
Number of Antennas	12m	<input type="text" value="43"/>	7m	<input type="text" value="10"/>	TP <input type="text" value="3"/>
		ACA 7m configuration	Most compact 12m configuration	Most extended 12m configuration	
Longest baseline		<input type="text" value="0.049 km"/>	<input type="text" value="0.161 km"/>	<input type="text" value="16.197 km"/>	
Synthesized beam size		<input type="text" value="10.103 arcsec"/>	<input type="text" value="2.906 arcsec"/>	<input type="text" value="0.033 arcsec"/>	
Shortest baseline		<input type="text" value="0.009 km"/>	<input type="text" value="0.015 km"/>	<input type="text" value="0.256 km"/>	
Maximum recoverable scale		<input type="text" value="47.725 arcsec"/>	<input type="text" value="24.192 arcsec"/>	<input type="text" value="0.409 arcsec"/>	

## Desired Performance

Desired Angular Resolution

Largest Angular Structure in source  Desired sensitivity per pointing   equivalent to Bandwidth used for Sensitivity  Frequency Width Science goal integration time estimate Override OT's sensitivity-based time estimate (must be justified)  Yes  NoAre the observations time-constrained?  Yes  No

**Control and Performance defines the required angular resolution, sensitivity, largest angular scale, etc.**

**Array properties summarized**





**Project Structure**

Proposal Program

Unsubmitted Proposal

- Cycle 5 Kelvin Sensitivity Test
  - Proposal
    - Planned Observing
      - ScienceGoal (Range 1.05" .. 3" las=
        - General
        - Field Setup
        - Spectral Setup
        - Calibration Setup
        - Control and Performance**
        - Technical Justification
      - ScienceGoal (Single at 1.053" las=
        - General
        - Field Setup
        - Spectral Setup
        - Calibration Setup
        - Control and Performance
        - Technical Justification
      - ScienceGoal (Single at 2" las=29")
        - General
        - Field Setup
        - Spectral Setup
        - Calibration Setup
        - Control and Performance
        - Technical Justification
      - ScienceGoal (Single at 3" las=29")
        - General
        - Field Setup
        - Spectral Setup
        - Calibration Setup
        - Control and Performance
        - Technical Justification
      - ScienceGoal (Range 1.05" .. 2.63")
        - General
        - Field Setup
        - Spectral Setup
        - Calibration Setup
        - Control and Performance

**Editors**

Spectral Spatial **Control and Performance**

These parameters are used to control various aspects

Control and Performance

Configuration Information

Antenna Beamsize ( $1.13 * \lambda / D$ )	12m	65.288 arcsec	
Number of Antennas	12m	43	
ACA 7m configura			
Longest baseline	0.049 km		
Synthesized beamsize	14.158 arcsec	3.882 arcsec	0.048 arcsec
Shortest baseline	0.009 km	0.015 km	0.256 km
Maximum recoverable scale	75.610 arcsec	33.005 arcsec	0.568 arcsec

Desired Performance

Desired Angular Resolution (Synthesized Beam)  Single  Range  Any  Standalone ACA

arcsec to  arcsec

Largest Angular Structure in source  arcsec

Desired sensitivity per pointing  K equivalent to  @ 1.05 "

will provide  @ 3.00 "

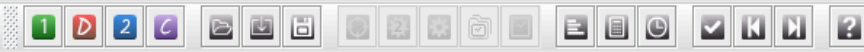
Resolution

Are the observations time-constrained?  Yes  No

**Control and Performance shows what resolution and angular scales are observable and defines required angular resolution, sensitivity, largest angular scale etc**

**Specify the desired rms Jy/beam noise level and the bandwidth over which that should be measured**

**For line work the bandwidth for sensitivity must not be less than the channel spacing in the representative spectral window**



Project Structure

- Unsubmitted Proposal
  - Project
    - Proposal
      - Planned Observing
        - ScienceGoal (Copy of Chameleon's d...
          - General
          - Field Setup
          - Spectral Setup
          - Calibration Setup
          - Control and Performance**
          - Technical Justification

Editors

- Spectral
- Spatial
- Control and Performance**

These parameters are used to control various aspects of the observations, including the required antenna configurations and integration times.

Control and Performance

Configuration Information

Antenna Beamsize ( $1.13 * \lambda / D$ )	12m	<input type="text" value="38.309 arcsec"/>	7m	<input type="text" value="65.672 arcsec"/>		
Number of Antennas	12m	<input type="text" value="43"/>	7m	<input type="text" value="10"/>	TP	<input type="text" value="3"/>
ACA 7m configuration		Most compact 12m configuration		Most extended 12m configuration		
Longest baseline	<input type="text" value="0.0"/>					
Synthesized beamsize	<input type="text" value="10.0"/>					
Shortest baseline	<input type="text" value="0.0"/>					
Maximum recoverable scale	<input type="text" value="47.0"/>					

**Angular resolution options control which configurations and combinations of arrays are considered**

Desired Performance

Desired Angular Resolution (Synthesized Beamsize)  Single  Range  Any  Standalone ACA

Largest Angular Structure in source

Desired sensitivity per pointing

Bandwidth used for Sensitivity

Science goal integration time estimate

Override OT's sensitivity-based time estimate (must be justified)  Yes  No

Are the observations time-constrained?  Yes  No

**Flux - Temperature conversion at the desired resolution**

File Edit View Tool Search Help



## Project Structure

Proposal Program

Unsubmitted Proposal

- Project
  - Proposal
    - Planned Observing
      - ScienceGoal (Copy of Chameleon's d
        - General
        - Field Setup
        - Spectral Setup
        - Calibration Setup
        - Control and Performance**
        - Technical Justification

## Editors

Spectral Spatial **Control and Performance**

These parameters are used to control various aspects of the observations, including the required antenna configurations and integration times.

## Control and Performance

## Configuration Information

Antenna Beamsize ( $1.13 * \lambda / D$ )	12m	38.309 arcsec	7m	65.672 arcsec		
Number of Antennas	12m	43	7m	10	TP	3
		ACA 7m configuration	Most compact 12m configuration	Most extended 12m configuration		
Longest baseline		0.049 km	0.161 km	2.517 km		
Synthesized beamsize		10.103 arcsec	2.906 arcsec	0.236 arcsec		
Shortest baseline		0.009 km	0.015 km	0.015 km		
Maximum recoverable scale		47.725 arcsec	24.192 arcsec	3.555 arcsec		

## Desired Performance

Desired Angular Resolution (Synthesized Beam)  Single  Range  Any  Standalone ACA

Desired sensitivity per pointing

Bandwidth used for Sensitivity

Science goal integration time

Override OT's sensitivity-based time estimate (must be justified)

Are the observations time-constrained?  Yes  No

**With "ANY" there is no largest angular scale (0 by definition) or angular resolution and the project is supposedly suitable for any non-LB configuration**

**The "ANY" option replaced older ways of specifying a point source but is more general**

File Edit View Tool Search Help



## Project Structure

Proposal Program

## Unsubmitted Proposal

- Project
  - Proposal
    - Planned Observing
      - ScienceGoal (Copy of Chameleon's d
        - General
        - Field Setup
        - Spectral Setup
        - Calibration Setup
        - Control and Performance**
        - Technical Justification

## Editors

Spectral Spatial **Control and Performance**

These parameters are used to control various aspects of the observations, including the required antenna configurations and integration times.

## Control and Performance

## Configuration Information

Antenna Beamsize ( $1.13 * \lambda / D$ )	12m	38.309 arcsec	7m	65.672 arcsec
Number of Antennas	12m	43	7m	10
		ACA 7m configuration	Most compact 12m configuration	Most compact 7m configuration
Longest baseline		0.049 km	0.161 km	16.197 km
Synthesized beamsize		10.103 arcsec	2.906 arcsec	0.033 arcsec
Shortest baseline		0.009 km	0.015 km	0.256 km
Maximum recoverable scale		47.725 arcsec	24.192 arcsec	0.409 arcsec

## Desired Performance

Desired Angular Resolution (Synthesized Beam)  Single  Range  Any  Standalone ACA

Largest Angular Structure in source  arcsec

Desired sensitivity per point

Bandwidth used for Sens

Science goal integration t

Override OT's sensitivity-  
time estimate (must be ju

Are the observations time

**New!** Band 8 is no longer a non-standard observing mode, so can be used with Standalone ACA

With Standalone ACA there is a largest angular scale but the angular resolution is fixed by the observing frequency in the representative spectral window

## Time Estimate

Note: The time in brackets is that required to reach the sensitivity. Operational requirements often mean that the actual observed time is longer, especially for mosaics. Please see the User Manual for more details.

### Input Parameters

Requested sensitivity 3.500 mJy  
Bandwidth used for sensitivity 7.500 GHz  
Representative frequency (sky, first source) 152.00 GHz

**Estimated Total time for Science Goal 24.00 h**

Cluster 1 Cluster 2 Cluster 3 Cluster 4

Source Name	RA	Dec	Velocity
1723-7713-350	17:23:50.8450	-77:13:50.540	0.000 km/s
1617-7717-1600	16:17:49.2760	-77:17:18.460	0.000 km/s
1550-8258-405	15:50:59.1420	-82:58:06.840	0.000 km/s
1733-7935-1130	17:33:40.7000	-79:35:55.710	0.000 km/s

### Possible Configuration Combinations

12-m (1)	12-m (2)	7-m	TP
C43-1	None	No	No
C43-2	None	No	No
C43-3	None	No	No

### Input Parameters

Precipitable water vapour (all sources) 2.748mm (6th Octile)

### Time required for 12m (1)

Time on source per pointing (first source) 18.14 min [ 70.69 ms]  
Total number of pointings (all sources) 4  
Number of tunings 1  
Total time on source 1.21 h [295.66 ms]  
Total calibration time 33.15 min  
Other overheads 13.60 min  
Total time for 1 SB execution 1.50 h  
Number of SB executions 2  
Total time to complete SB 3.00 h

### Calibration Breakdown per SB execution\*

2 x Pointing 4.00 min  
1 x Amplitude/bandpass 5.00 min  
2 x Polarization 4.00 min

Close

ng Tool (FEB2017) - Project

Perspective 1

aspects of the observations, including the required antenna configurations and integration times.

The time estimate is where you can see how the OT has grouped your targets into clusters, each of which will be in a different schedule block

.309 arcsec

configurati

arcsec

0.015 km 0.256 km

arcsec 24.192 arcsec 0.409 arcsec

d Beam)  Single  Range  Any  Standalone ACA

1.0 arcsec to 3.0 arcsec

3.0 arcsec

0.00350 Jy equivalent to 20.581 mK @ 3.00 "

and 0.18522 K @ 1.00 "

AggregateBandWidth Frequency Width 7.500000 GHz

Time Estimate

Yes  No

Yes  No

# SG Time Estimates

ALMA Observing Tool (2015.8) - Debris Disk Structure around Nearby Sun-like Stars (2015)

File Edit View Tool Search Help



Project Structure

Proposal Program

Debris Disk Structure around Nearby Sun-like Stars

- Debris Disk Structure around Nearby Sun-like Stars
  - Science Plan
    - ScienceGoal (HD 10647) - generate
      - General
      - Field Setup
      - Spectral Setup
      - Calibration Setup
      - Control and Performance
      - Technical Justification
      - SG OUS (HD 10647)
        - Group OUS
          - Member OUS (HD\_10647)
            - HD\_10647\_a\_06\_TP
              - Group 1 : Calibration
              - Group 2 : Science
                - 6 Targets
                  - query Point
                  - query Point
                  - query Amplitude

Cycle3 Template Library (read-only)

- Cycle3 Template Library
  - Science Plan

Editors

Spectral Spatial Control and Performance

These parameters are used to control various aspects of the observations, including the

Control and Performance

Configuration Information

|   |              |               |    |      |
|---|--------------|---------------|----|------|
| Antenna Beamsize ( $1.13 * \lambda / D$ ) | 12m          | 25.260 arcsec | 7m | 43.3 |
| Number of Antennas                        | 12m          | 40            | 7m | 10   |
| ACA 7-m configuration                     | Most compact |               |    |      |
| Longest baseline                          | 0.049 km     | 0.157 km      |    |      |
| Synthesized beamsize                      | 5.712 arcsec | 1.721 arcsec  |    |      |
|   |              | 0.015 km      |    |      |
|   |              | 12.765 arcsec |    |      |

0.60000 arcsec

9.0 arcsec

0.00001 Jy

AggregateBandwidth

Time Estimate

Click the time estimate to see how much time you need and get a breakdown by array and on-source vs. overhead for the 12m synthesis

This project needs 12m + 7m synthesis owing to the combination of angular resolution and largest angular scale

Time Estimate

Note: The time in brackets is that required to reach the sensitivity. Operational requirements often mean that the actual observed time is longer, especially for mosaics. Please see the User Manual for more details.

### Input Parameters

|  |             |
|--|-------------|
| Requested sensitivity                        | 0.01400 mJy |
| Bandwidth used for sensitivity               | 7.500 GHz   |
| Representative frequency (sky, first source) | 230.52 GHz  |

### Estimated Total time for Science Goal

6.02 h

SB-1

### Input Parameters

Precipitable water vapour (all sources) 1.796mm (5th Octile)

### Time required for C40-3

|  |                 |
|--|-----------------|
| Time on source per pointing (first source) | 1.44 h [1.43 h] |
| Total number of pointings (all sources)    | 1               |
| Number of tunings                          | 1               |
| Total time on source                       | 1.44 h [1.43 h] |
| Total calibration time                     | 49.50 min       |
| Other overheads                            | 14.30 min       |
| Total time for 1 SB execution              | 1.25 h          |
| Number of SB executions                    | 2               |
| Total time to complete SB                  | 2.51 h          |

### Calibration Breakdown per SB execution

|                       |           |
|-----------------------|-----------|
| 3 x Pointing          | 35.00 min |
| 1 x SidebandRatio     | 1.58 min  |
| 1 x Amplitude         | 2.50 min  |
| 1 x Bandpass          | 5.00 min  |
| 6 x Phase             | 3.00 min  |
| 2 x CheckSource       | 2.00 min  |
| 7 x Atmospheric       | 4.67 min  |
| Calibration overheads | 5.40 min  |

### Additional Arrays

|                                   |        |
|-----------------------------------|--------|
| ACA 7-m time (t_12m x 1.40)       | 3.51 h |
| Total ACA time (max[t_7-m, t_TP]) | 3.51 h |

Estimated total time for SB-1 6.02 h

Close



# Single source time estimates

ALMA Observing Tool (2015.8) - Debris Disk Structure around Nearby Sun-like Stars (2015.

Time Estimate

File Edit View Tool Search Help



Project Structure

Proposal Program

- Debris Disk Structure around Nearby Sun-like Stars
  - Science Plan
    - ScienceGoal (HD 10647) - generat
      - General
      - Field Setup
      - Spectral Setup
      - Calibration Setup
      - Control and Performan
      - Technical Justification
      - SG OUS (HD 10647)
        - Group OUS
          - Member OUS (H
            - HD\_10647\_
              - Group 1
              - Group 2
              - 6 Target
                - query
                - query
                - query

Editors

Spectral Spatial Control and Performance

These parameters are used to control various aspects of the observations, including the

Control and Performance

Configuration Information

Antenna Beamsize (  $1.13 * \lambda / D$  ) 12m 25.260 arcsec 7m 43.3

Note that the OT calculates the number of executions based on an estimate of the maximum duration of an SB. This means that adding a little bit of on-source time can sometimes make for a significantly larger total time if another execution is implied

Note: The time in brackets is that required to reach the sensitivity. Operational requirements often mean that the actual observed time is longer, especially for mosaics. Please see the User Manual for more details.

**Input Parameters**

|  |             |
|--|-------------|
| Requested sensitivity                        | 0.01400 mJy |
| Bandwidth used for sensitivity               | 7.500 GHz   |
| Representative frequency (sky, first source) | 230.52 GHz  |

**Estimated Total time for Science Goal 6.02 h**

Cycle3 Template Library (read-only)

- Cycle3 Template Library
  - Science Plan

Desired sensitivity per pointing 0.00001 Jy

Bandwidth used for Sensitivity AggregateBandWidth

Science goal integration time estimate Time Estimate

Override OT's sensitivity-based time estimate (must be justified)  Yes  No

Are the observations time-constrained?  Yes  No

**Feedback**

Validation Validation History Log

| Description |
|-------------|
|-------------|

**Input Parameters**

|   |                      |
|---|----------------------|
| Precipitable water vapour (all sources) | 1.796mm (5th Octile) |
|---|----------------------|

**Time required for C40-3**

|  |                 |
|--|-----------------|
| Time on source per pointing (first source) | 1.44 h [1.43 h] |
| Total number of pointings (all sources)    | 1               |
| Number of tunings                          | 1               |
| Total time on source                       | 1.44 h [1.43 h] |
| Total calibration time                     | 49.50 min       |
| Other overheads                            | 14.30 min       |
| Total time for 1 SB execution              | 1.25 h          |
| Number of SB executions                    | 2               |
| Total time to complete SB                  | 2.51 h          |

**Calibration Breakdown per SB execution**

|                       |          |
|-----------------------|----------|
| 3 x Pointing          | 36.00 s  |
| 1 x SidebandRatio     | 1.58 min |
| 1 x Amplitude         | 2.50 min |
| 1 x Bandpass          | 5.00 min |
| 6 x Phase             | 3.00 min |
| 2 x CheckSource       | 2.00 min |
| 7 x Atmospheric       | 4.67 min |
| Calibration overheads | 5.40 min |

**Additional Arrays**

|                                  |        |
|----------------------------------|--------|
| ACA 7-m time (t_12m x 1.40)      | 3.51 h |
| Total ACA time (max(t_7-m,t_TP)) | 3.51 h |

**Estimated total time for SB-1 6.02 h**

Close



# Technical Justification

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
    - Planned Observing
      - ScienceGoal (Science Goal)
        - General
        - Field Setup
        - 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 standard sections for Sensitivity, Imaging and Correlator and another may appear to allow you to justify some of the parameter choices you may have made

Each requires its own 50+ word justification

Each standard section comes with a summary of the requested input information to detail the different technical aspects of your program.

# When the time is ripe ... validate & submit

Project - Observing Tool for ALMA, version Cycle2Test2

Note the spiffy new icons!

Editors  
Spectral Spatial Project

Click here to make sure that your project can be validated by the OT. If it doesn't validate the archive will reject it.

Project Assigned Priority  
Project Code None Assigned

Feedback

Suggestion

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 **1** 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

File Edit View Tool Search Help



## Project Structure

Proposal Program

Unsubmitted Proposal

- Observing Tool for ALMA Cycle3 Groundhog Day Test
  - Proposal
    - Planned Observing
      - ScienceGoal (Science Goal)
        - General
        - Field Setup
        - Spectral Setup
        - Calibration Setup
        - Control and Performance
        - Technical Justification

Template library. Turn the keys on the J...

Template library. Turn the keys on the J...

- Proposal
  - Planned Observing
    - ScienceGoal (B3 spectral)
    - ScienceGoal (B7 continuum)
    - ScienceGoal (B7 CO(9-8))
    - ScienceGoal (B9 continuum)
    - ScienceGoal (B3 spectral)
    - ScienceGoal (B3 continuum)
    - ScienceGoal (B6 continuum)
    - ScienceGoal (B7 continuum)
    - ScienceGoal (B6 continuum)
    - ScienceGoal (B3 continuum)
    - ScienceGoal (B6 12CO (2-1))
    - ScienceGoal (B6 13CO (2-1))
    - ScienceGoal (B6 spectral)
    - ScienceGoal (B9 spectral)
    - ScienceGoal (B3 continuum)
    - ScienceGoal (B6 continuum)

## Editors

Spectral Spatial ScienceGoal (Science Goal)

System J2000  Sexagesimal display?

Parallax 0.00000 mas

Source Coordinates RA 22:02:43.2912 PM RA 0.00000 mas/yr

Dec -42:16:39.978 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 0.00000 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 %

Field Center Coordinates

Offset  arcsec

1

| RA [arcsec] | Dec [arcsec] |
|-------------|--------------|
| 0.00000     | 0.00000      |

Clicking on a validation error usually takes you to the problem directly

## Feedback

Validation Validation History Log

9 errors, 0 warnings

| Description  | Suggestion   |
|--|--|
| <input checked="" type="checkbox"/> No Principal Investigator specified                                  | Select the top level Project node in the tree and fill in the Principal Investigator field |
| <input checked="" type="checkbox"/> No scientific category defined                                       | Select Proposal node and set a scientific category   |
| <input checked="" type="checkbox"/> No document found - you must add a Science Case to your proposal     | Select the proposal node in the Proposal tab and add your document                         |
| <input checked="" type="checkbox"/> Must select a minimum of 1 science keywords                          | Select the Proposal node and then add some science keywords (minimum 1                     |
| <input checked="" type="checkbox"/> Expected peak continuum flux is required for a single continuum      | Select the Target Parameters (anti-bllac) in the Science Goal and enter a valid value      |
| <input checked="" type="checkbox"/> Either a continuum or a line polarization percentage is required for | Select the Target Parameters (anti-bllac) in the Science Goal and enter a valid value      |

# ALMA OT Hands-On Session!

**Case Study: Gas and dust in local minor merger remnants**

