

ALMA Technical Support

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Overview

- ALMA organisation and services
- Websites
 - Web portal
 - Helpdesk
- Documentation
- Software
 - CASA
 - Observing Tool
 - Observing Support Tool (web-based simulator)
- Observing process



Organisation and Services



Global Organisation



ALMA is an international collaboration. The Joint ALMA Office is in Chile, and regional centres are located in North America, Europe, and East Asia.



North American ALMA Science Center

almascience.nrao.edu

The North American ALMA Science Center is located within the NRAO headquarters in Charlottesville, Virginia.

The NAASC is operated in collaboration with the NRC of Canada and ASIAA in Taiwan.

Support is provided to astronomers in the USA, Canada, and Taiwan.

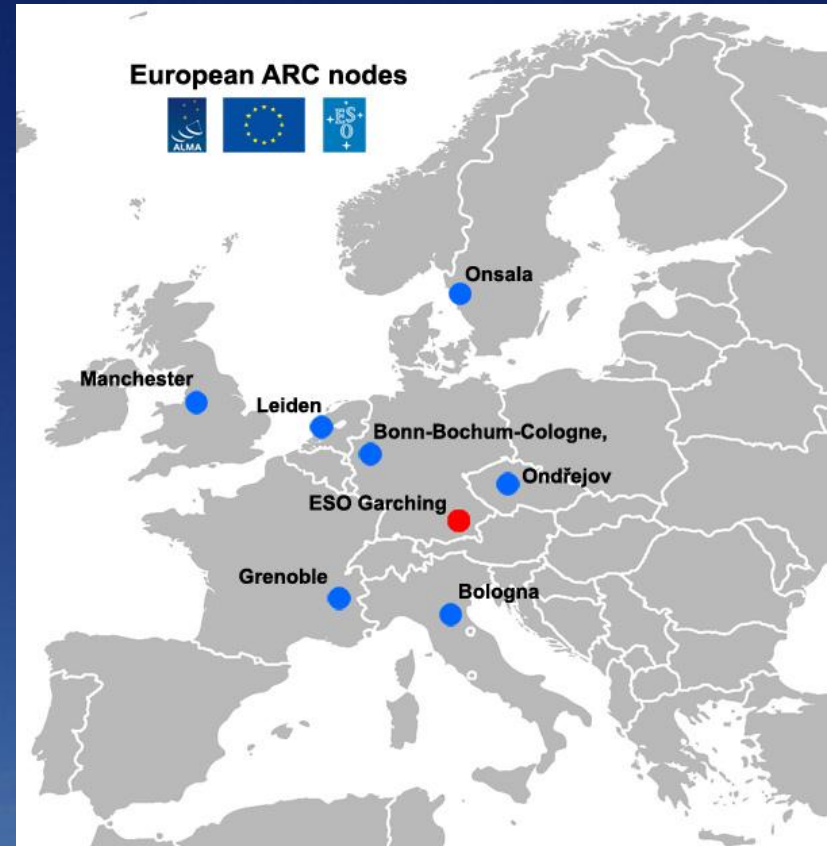


European ALMA Regional Centre

almascience.eso.org

In the European ARC, it was decided to locate the main ARC in Garching, Germany, and to place several nodes across Europe.

Users in ESO countries (including Brazil) will generally be supported by their local ARC nodes.



East Asian ALMA Regional Center

almascience.nao.ac.jp

The main East Asian ARC is located at the NAOJ in Mitaka, Japan.

Taiwan falls within the East Asian ARC area but has its own centre at ASIAA.

These organisations support astronomers in Japan and Taiwan.



Support for Astronomers outside the ARC Areas

People outside the executive areas (e.g. China, Mexico, Norway, Russia) may submit proposals as “Open Skies” program.

The rules for how Open Skies programs are allocating time are rather complicated. For reference, 2 of 196 highest-priority proposals for Cycle 1 were Open Skies proposals.

During the proposal submission process, PIs may select which ARC they want to support their program.



Services Provided to Users by the ARCs

- Training workshops , tutorials, and conferences
- Outreach
- Assistance with proposal submission
- Observations preparation
- Assistance with data reduction
- General software support



Websites



ALMA Portal

www.almascience.org

The ALMA Portal can be accessed from www.almascience.org. From the portal, it is possible to access the following information:

- News
- Call for proposals
- Documentation
- Web-based tools
- CASA home page
- Data archive
- Helpdesk

People need to register with the portal to do the following:


- Submit proposals (or be a Co-I on proposals)
- Submit Helpdesk tickets
- Download proprietary data





Atacama Large Millimeter/submillimeter Array

In search of our Cosmic Origins

Please select your preferred ALMA Regional Centre (ARC). Alternatively you will be redirected in 8 seconds to the closest ARC which in your case is at 



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Atacama Large Millimeter/submillimeter Array

In search of our Cosmic Origins



Search Site

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[About ALMA](#)

[ALMA Science](#)

[Call for Proposals](#)

[ALMA Data](#)

[Documents & Tools](#)

[Knowledgebase/FAQ](#)

User Services at ARCs

- [Helpdesk](#)
- [EU ARC](#)
- [NA ARC](#)
- [EA ARC](#)

You are here: [Home](#)

Welcome to the Science Portal at ESO



Overview

The Atacama Large Millimeter/submillimeter Array (ALMA) is a major new facility for world astronomy. When completed in 2013, ALMA will consist of a giant array of 12-m antennas, with baselines up to 16 km, and an additional compact array of 7-m and 12-m antennas to greatly enhance ALMA's ability to image extended targets. ALMA will be outfitted with state-of-the-art receivers that cover atmospheric windows from 84–950 GHz (3mm – 300 micron). Construction of ALMA started in 2003 and will be completed in 2013. The ALMA project is an international collaboration between Europe, East Asia and North America in cooperation with the Republic of Chile. More details can be found via the **About ALMA** link in the left menu.

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.

ALMA Newsletter

Newsletter No. 9

May 23, 2012

[More...](#)

General News

ALMA Early Science Cycle 1: Outcome of the Proposal Review Process

Nov 27, 2012

New release of ALMA Science Verification data

Oct 23, 2012

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

Oct 16, 2012

Update on ALMA Cycle 0 observations

Oct 08, 2012

[More...](#)

Local News

Cycle 1 preparation workshops throughout Europe

May 16, 2012

ALMA Community Days: Early Science in Cycle 1, 25-27 June 2012, ESO Garching

Mar 22, 2012

ALMA Helpdesk


The ALMA Helpdesk can be used to either search for user questions or ask questions.

General queries will be answered by one of the ARC staff. Simple or common questions will probably be answered rapidly. Queries about visiting or interacting with the ARC nodes will be answered by staff at the nodes.

Responses to helpdesk tickets should be received within 2 working days.



Support Center

 Logged in successfully



View Tickets

Submit new tickets, view existing tickets or create new replies.



Submit a Ticket

Submit a new ticket.



Knowledgebase

Search support articles and find answers to frequently asked questions.



Downloads

View our library of file downloads and links.

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Logged In: **Joe Black**

[Search](#)



Search

-- Entire Support Site --



Popular Knowledgebase Articles

Views

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[Home](#) | [View Tickets](#) | [Submit a Ticket](#) | [Knowledgebase](#) | [Downloads](#)

Language: [English](#)

Helpdesk Software by Kayako SupportSuite v3.70.01

Support Center » Submit a Ticket

» Submit a Ticket

If you can't find a solution to your problem in our [knowledgebase](#), you can submit a ticket by selecting the appropriate category below.

Select Category

- General Queries (NA) - Science Portal/Registration, Documentation, Webpages, Proposal reviews and assessment, Project tracking, other
- Project Planning (NA) - Available Capabilities, Call for Proposals, Sensitivity Calculator, Simulators, Splatologue, other
- Observing Tool (NA) - Proposal Preparation, Proposal Submission (general), Phase2 process
- Data Reduction (NA) - CASA, pipeline processing, etc...
- Archive and Data Retrieval (NA) - archive access and queries, obtaining your ALMA data
- Face to Face Support (NA) - Data reduction, sabbatical, science, short term, other

Next »

Reset

[← Back](#)



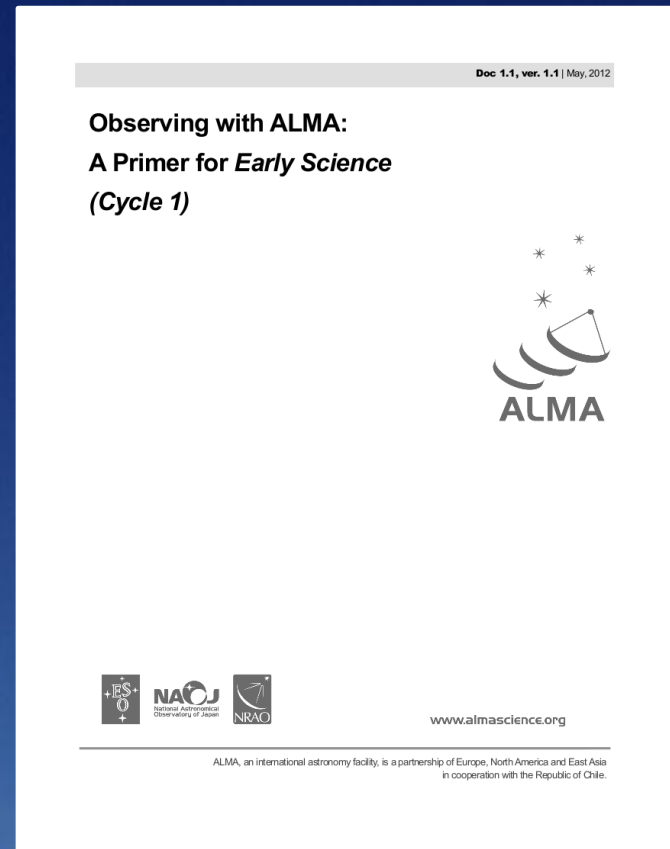
Documentation



Early Science Primer

This is a broad introduction to ALMA that is meant for novice ALMA users. This includes:

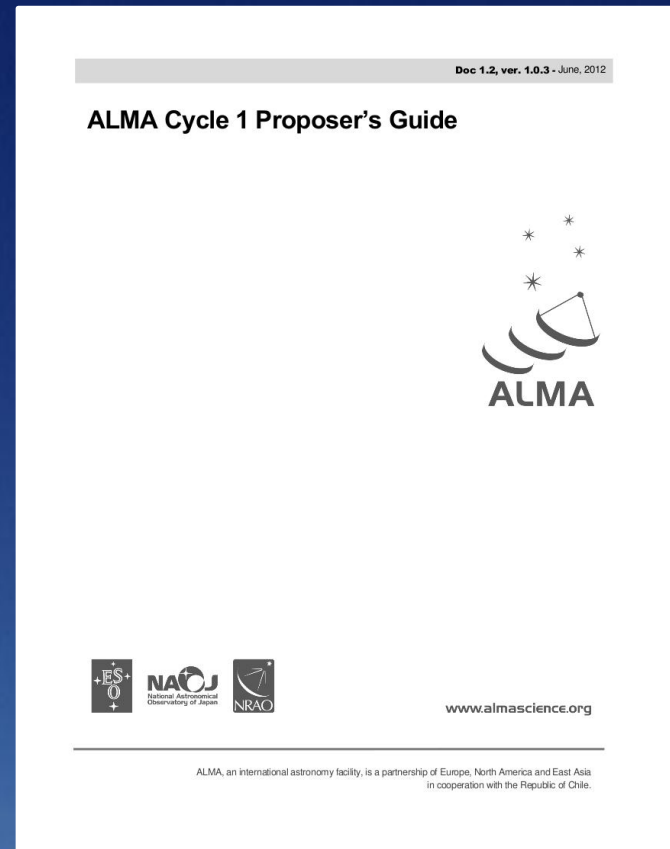
- General background information on ALMA and radio astronomy
- Technical details on ALMA performance
- Organisational information
- Examples of ALMA Early Science Proposals (probably no longer as important as real-life proposals)
- Overview of observations and data reduction



Proposers Guide

This is a general introduction to ALMA for people writing proposals. It includes:

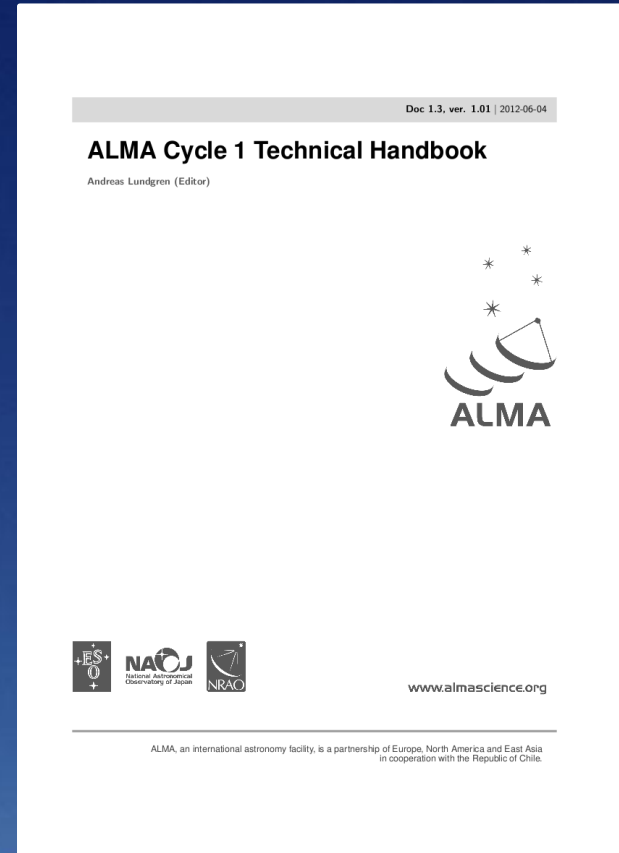
- Outline of the ALMA organisation structure
- Recursive list of the available documentation and tools
- Guidelines on proposal preparation
- Description of the time allocation process, observation preparation, and data delivery
- Summary of telescope capabilities



Technical Handbook

This is technical information that is really of importance to expert users. It includes:

- Technical information on receivers, correlators
- Information on setups for telescope
- Description of scheduling blocks (SB)
- Details on calibration strategies



Software



CASA

casa.nrao.edu

CASA is the main data reduction software used for ALMA. The software can also be used for processing data from other radio telescopes.

CASA is based on python. Most commands are called from a command line interface, but GUIs are used for many interactive steps (e.g. data display and cleaning).

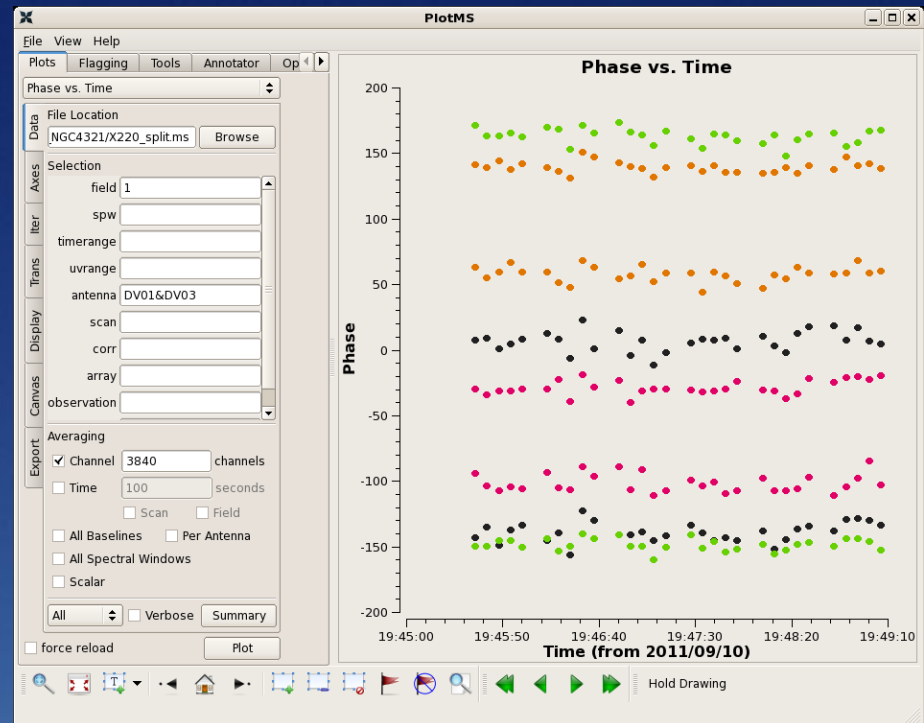


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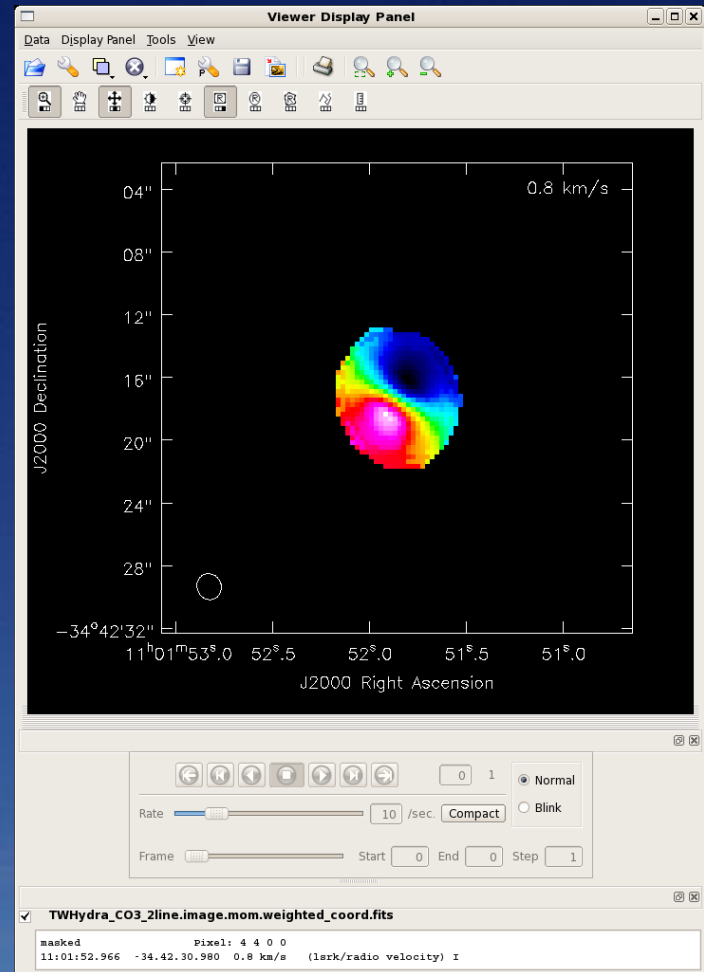


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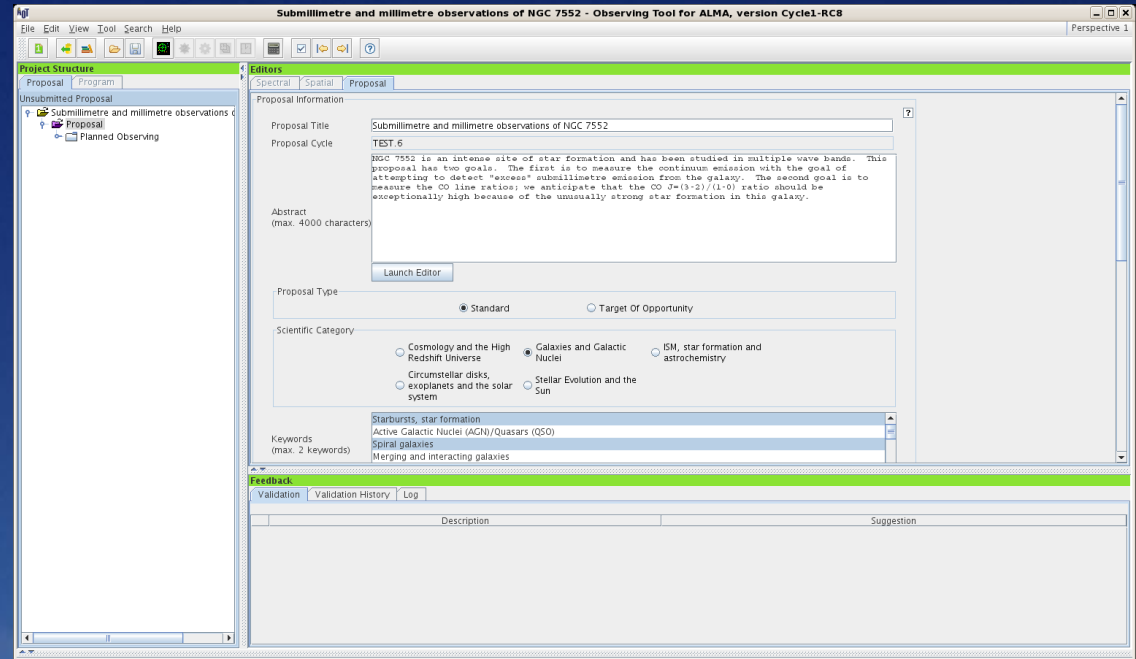
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Observing Tool

The Observing Tool (OT) is used to prepare and submit telescope proposals.

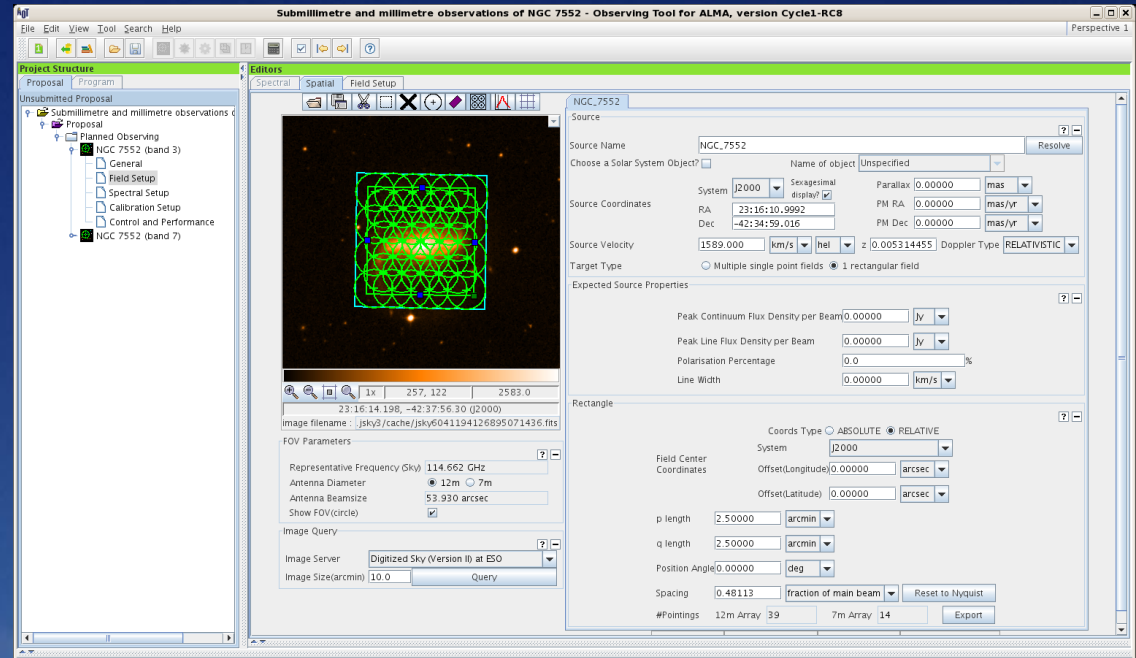
The GUI also includes a sensitivity calculator and a spectral line catalogue.



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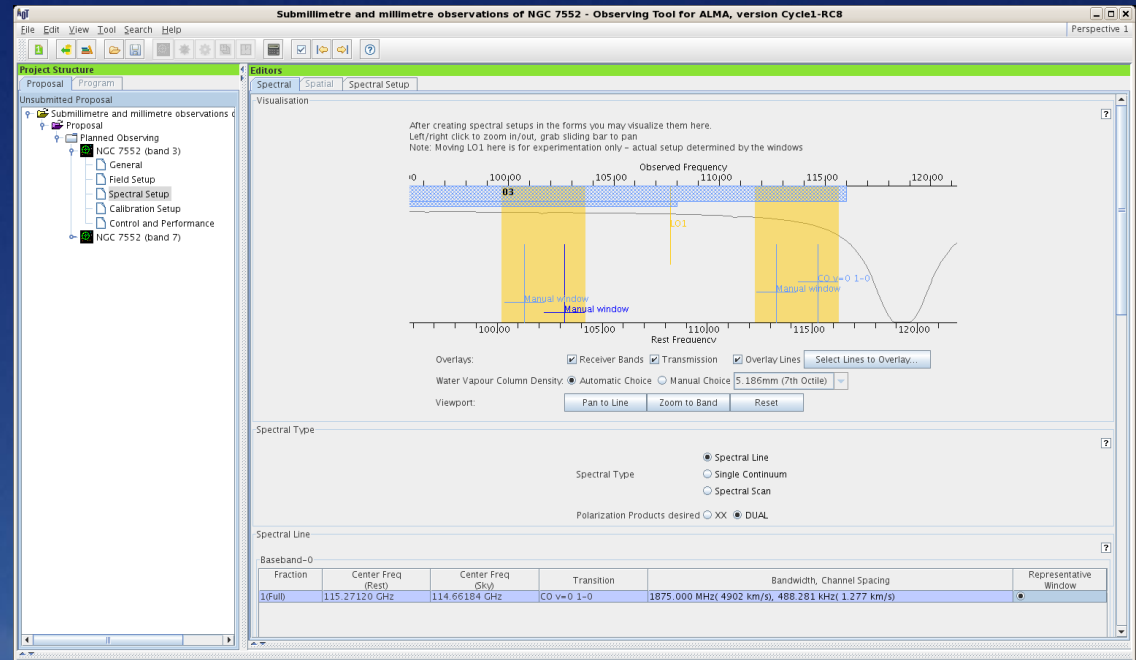
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Sensitivity Calculator

Common Parameters

Dec	-30:00:00.000	
Polarization	Dual	
Observing Frequency	345.00000	GHz
Bandwidth per Polarization	7.5	GHz
Water Vapour Column Density	<input checked="" type="radio"/> Automatic Choice <input type="radio"/> Manual Choice	
tau/Tsky	0.913mm (3rd Octile)	
Tsys	tau=0.158, Tsky=44.400 K	

Individual Parameters

	12m Array	7m Array	Total Power Array
Number of Antennas	32	9	2
Resolution	1.0 arcsec	5.974554 arcsec	17.923662 arcsec
Sensitivity(rms)	1.00000 mJy	1.00000 mJy	1.00000 mJy
(equivalent to)	0.01027 K	0.00029 K	0.00004 K
Integration Time	2.97859 s	5.37651 min	24.62299 min

Integration Time Unit Option: Automatic

Buttons: Calculate Integration Time, Calculate Sensitivity, Close



Observing Tool

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The GUI also includes a sensitivity calculator and a spectral line catalogue.

The screenshot shows the 'Select Spectral Lines' window with the following data:

Transition	Description	Rest Frequency	Sky Frequency	Upper-state Energy	Lovas Intensity	Sij Jij	Catalog
HC3Nf6-2 J=11-10, L	Cyanoacetylene	100 241 GHz	99 711 GHz	746.09 K	0.02	151.47 D ²	Offline
CH3OCHO v=0 8(3,5)...	Methyl Formate	100 295 GHz	99 764 GHz	27.41 K	0.05	18.42 D ²	Offline
CH3OCHO v=0 8(3,5)...	Methyl Formate	100 308 GHz	99 778 GHz	27.4 K	0.08	18.45 D ²	Offline
HC3Nf7-2 J=11-10, L	Cyanoacetylene	100 322 GHz	99 792 GHz	348.87 K	0.07	151.69 D ²	Offline
U-100337	UNIDENTIFIED	100 332 GHz	99 802 GHz		0.06		Offline
U-100365	UNIDENTIFIED	100 365 GHz	99 834 GHz		0.18		Offline
U-100373	UNIDENTIFIED	100 373 GHz	99 842 GHz		0.1		Offline
U-100421	UNIDENTIFIED	100 421 GHz	99 89 GHz		0.05		Offline
U-100436	UNIDENTIFIED	100 436 GHz	99 905 GHz		0.05		Offline
g-CH3CH2OH 2(4,2), 2(3)	gauche-Ethanol	100 452 GHz	99 921 GHz	311.73 K	0.08	14.8 D ²	Offline
CH3OCH3 6(2,5)-6(1,6)	Dimethyl ether	100 466 GHz	99 939 GHz	24.71 K		19.22 D ²	Offline
CH3OCH3 6(2,5)-6(1,6)	Dimethyl ether	100 46 GHz	99 939 GHz	24.71 K		28.84 D ²	Offline
CH3OCH3 6(2,5)-6(1,6)	Dimethyl ether	100 463 GHz	99 932 GHz	24.71 K	0.12	76.89 D ²	Offline
CH3OCH3 6(2,5)-6(1,6)	Dimethyl ether	100 466 GHz	99 935 GHz	24.71 K		48.05 D ²	Offline
CH3OCHO v=0 8(1,7)...	Methyl Formate	100 482 GHz	99 951 GHz	22.78 K	0.08	20.81 D ²	Offline
CH3OCHO v=0 8(1,7)...	Methyl Formate	100 491 GHz	99 959 GHz	22.76 K	0.08	20.81 D ²	Offline
N2O v=0 4-3	Nitrous Oxide	100 492 GHz	99 961 GHz	12.06 K	0.04	0.1 D ²	Offline
U-100498.5	UNIDENTIFIED	100 498 GHz	99 967 GHz		0.05		Offline
U-100509	UNIDENTIFIED	100 509 GHz	99 978 GHz		0.03		Offline
CH3NC 5(0)-(4)0	Methyl isocyanide	100 527 GHz	99 995 GHz	14.47 K	1.875	66 D ²	Offline
Hi(2)	Hydrogen Recombina.	100 54 GHz	100 008 GHz				Offline
CH3CN 5(2,3)-4(2,2), J	Cyanomethyl	100 545 GHz	100 012 GHz	67.28 K	0.12	412.15 D ²	Offline
He(2)S	Helium Recombinatio.	100 581 GHz	100 049 GHz				Offline
CH3CN 5(0,5)-4(0,4), J	Cyanomethyl	100 598 GHz	100 066 GHz	14.48 K	0.55	601.37 D ²	Offline
CH3CNC(1)v=0 11(1)	Ethyl Cyanide	100 614 GHz	100 082 GHz	30.15 K	0.1161	158 D ²	Offline
NH2CN 5(1,4)-4(1,3)	Cyanamide	100 63 GHz	100 098 GHz	28.99 K	0.17269	55 D ²	Offline
CH3OHv1=0 13(2,11)...	Methanol	100 639 GHz	100 107 GHz	233.61 K	0.35	3.84 D ²	Offline
CH3OCHO v=0 3(1,1)...	Methyl Formate	100 681 GHz	100 148 GHz	412.74 K	0.07	0.15 D ²	Offline
CH3OCHO v=0 9(0,9)...	Methyl Formate	100 681 GHz	100 149 GHz	24.91 K	0.07	3.68 D ²	Offline
CH3OCHO v=0 9(0,9)...	Methyl Formate	100 683 GHz	100 151 GHz	24.89 K		23.68 D ²	Offline
HC3Nf7-2 J=11-10, L	Cyanoacetylene	100 709 GHz	100 176 GHz	666.9 K	0.05	151.73 D ²	Offline
HC3Nf7-2 J=11-10, L	Cyanoacetylene	100 711 GHz	100 179 GHz	669.52 K		146.71 D ²	Offline
HC3Nf7-2 J=11-10, L	Cyanoacetylene	100 714 GHz	100 182 GHz	669.52 K		146.71 D ²	Offline
U-100841.3	UNIDENTIFIED	100 841 GHz	100 308 GHz		0.5		Offline
CH3COOH v=0 9(0,9)...	Acetic Acid	100 855 GHz	100 322 GHz	25.67 K		48.98 D ²	Offline
U-100856.6	UNIDENTIFIED	100 857 GHz	100 323 GHz		0.2		Offline
U-100864.8	UNIDENTIFIED	100 865 GHz	100 332 GHz		0.7		Offline
U-100866.3	UNIDENTIFIED	100 866 GHz	100 333 GHz		0.8		Offline



Observing Support Tool

almaost.jb.man.ac.uk

The Observation Support Tool can be used to simulate ALMA observations given any input image.

The OST is currently maintained by the UK ARC Node.

Section	Field	Value	Help/Notes
Array	Instrument	ALMA	
	Queue Status	Help	ALMA Helpdesk OST Latest News
Sky Setup	Source model	Uploaded FITS image	Choose a library source model or supply your own
	Upload a FITS file	/home/gbendo/ALMA/Meeting Browse...	You may upload your own model here (max 10MB)
	Declination	-35d00m00.0s OK	Ensure correct formatting of this string (+/-DDmmSS.ss)
	Image peak / point flux in mJy	100	Set to 0.0 for no rescaling of source model
Observation Setup	Central frequency in GHz	330	The value entered must be within an ALMA band
	Bandwidth in GHz	7.5	Use broad for continuum, narrow for single channel
	Required resolution in arcseconds	1.0	OST will choose config if instrument is set to ALMA
	Pointing strategy	Mosaic	Selecting single will apply primary beam attenuation
	Start hour angle	-1.5	Deviation of start of observation from transit
	On-source time in hours	3	Per pointing for Mosaics
	Number of visits	1	How many times the observation is repeated
Corruption	Atmospheric conditions	Good (PWV = 0.5 mm)	This affects the noise in the final map
	Determines level of noise due to water vapour		
Imaging	Imaging weights	Natural	This allows a resolution / sensitivity trade-off
	Perform deconvolution?	Yes	Apply the CLEAN algorithm to deconvolve the image
	Output image format	FITS	CASA format images are returned as a tar file
Your email address is		george.bendo@manchester.ac.uk	Submit

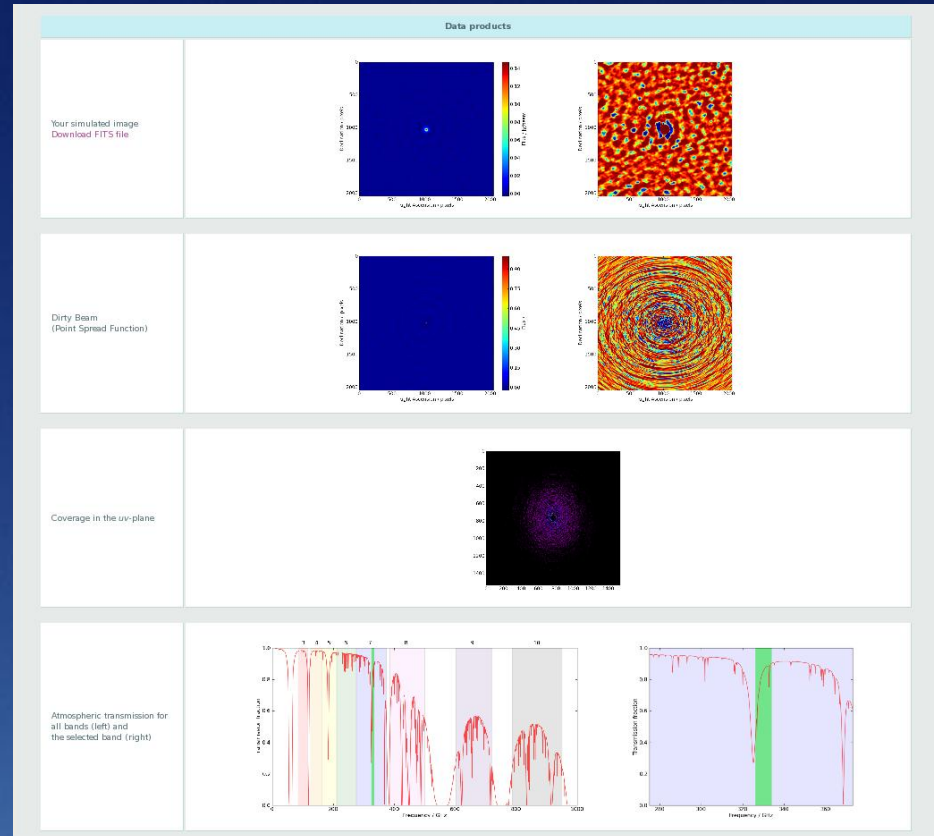


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Observing Process



Observing Process

1. A user creates a proposal and submits it using the Observing Tool.
2. The proposal is reviewed and ranked by the Proposal Review Committee.
3. If the proposal is going to be scheduled for observation, the ARC works with the PI to create Scheduling Blocks for the program.



Observing Process

4. The observations are performed.
5. The data are pipeline-processed and undergo quality assurance.
6. The data are delivered to the PI.
7. The PI can then work with people in the ARCs to reprocess his/her data.



After the meeting, if you have any questions on anything regarding ALMA, please use the Helpdesk.

