How to use ALMA

Gaelle Dumas
ALMA Organization

• ALMA Regional Centers (ARC)
  • North America, Europe, East Asia
  • Scientific operations & user support
  • Contact point between users and ALMA

- User formation
- Call for proposal Support phase I & II
- Service Observing Calibration & imaging pipeline
- Archive Helpdesk f2f user support

Astronomers

• ALMA Regional Centers (ARC)
  • North America, Europe, East Asia
  • Scientific operations & user support
  • Contact point between users and ALMA
ALMA Organization

• ALMA Regional Centers (ARC)
• North America, Europe, East Asia
European ARC

- ESO Garching
  - Call for proposals
  - Phase I & phase II
- Helpdesk
- Data and software delivery
- Data archive

- ARC nodes
  - Users formation
  - Face-to-face support
  - Specific projects
European ARC

- Seven ARC nodes
  - INAF Bologna
  - Univ. Bonn
  - IRAM
  - Leiden Obs.
  - Manchester Obs.
  - Onsala Obs.
  - Prague

- All nodes open to all European institutes
- Target own community

- IRAM: French, Spanish and German (MPI) communities
Face-to-face support

• Main goal of the ARC nodes
• @ IRAM: extend the PdBI f2f support to ALMA
  • Local contact assigned to each project
  • Phase II: preparation of the SBs
• Data reduction
  • Travels to Grenoble funded by IRAM (same rules as PdBI)
  • Use existing procedures and infrastructures
Tools for using ALMA

- ALMA science portal
- Helpdesk
- Sensitivity estimator
- Data simulation: CASA, Gildas, on-line
- Observing Tool (OT)
  - Phase I: proposal
  - Phase II: SB preparation
- CASA: see next talk
The ALMA science portal

http://almascience.org/

- Interaction between ALMA and science users
- 3 identical portals
The ALMA science portal

http://almascience.org/

Welcome to the ALMA 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 18 km, and an additional compact array of 7-m and 12-m antennas to greatly enhance ALMA's ability to image extended targets. ALMA is outfitted with state-of-the-art receivers that cover atmospheric windows from 84-890 GHz (3mm – 300 micron). Construction of ALMA started in 2003 and will be completed in 2013. Science observations will start in 2011 with 16 antennas and four receiver bands. 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 (ARC's) 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.
The Helpdesk

- Ask questions
- FAQ and knowledgebase
- Maintained by ARC staff
- Expect an answer within 2 working days
- Emergency tickets before the proposal submission deadline
The Helpdesk

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.

Popular Knowledgebase Articles

<table>
<thead>
<tr>
<th>Article</th>
<th>Views</th>
</tr>
</thead>
<tbody>
<tr>
<td>What do I do if I can’t get the OT to work?</td>
<td>620</td>
</tr>
<tr>
<td>How do I arrange a visit to one of the ARGs?</td>
<td>483</td>
</tr>
<tr>
<td>Can I reduce ALMA data in software packages other than CASA, and is there support for that?</td>
<td>425</td>
</tr>
<tr>
<td>Where can I find ALMA documentation and manuals?</td>
<td>362</td>
</tr>
<tr>
<td>Where can I find data reduction tutorials and recipes using CASA?</td>
<td>343</td>
</tr>
<tr>
<td>What translations will be available for user documentation from ALMA?</td>
<td>338</td>
</tr>
<tr>
<td>Can I submit a ticket in Japanese?</td>
<td>297</td>
</tr>
<tr>
<td>Why do I see a &quot;Login&quot; screen within the helpdesk when I already logged in via the ALMA User Portal?</td>
<td>258</td>
</tr>
<tr>
<td>What array configurations are available for ALMA Early Science in Cycle 0?</td>
<td>223</td>
</tr>
<tr>
<td>I want to observe 4 lines/bandpasses, 3 in one sideband and 1 in the other. Why can I not set this up in the OT?</td>
<td>221</td>
</tr>
</tbody>
</table>

Home | View Tickets | Submit a Ticket | Knowledgebase | Downloads

Language: English

Helpdesk Software by Kayako SupportSuite v3.70.01
The Helpdesk

The knowledgebase

- General knowledge
- FAQ
- Different categories
The Helpdesk

The knowledgebase

- General knowledge
- FAQ
- Different categories
- Comment and rate articles
The Helpdesk

The knowledgebase

- General knowledge
- FAQ
- Different categories
- Comment and rate articles
- Search engine
The Helpdesk

Ask a question

- Login as an ALMA user
- Submit a ticket
The Helpdesk

Ask a question

- Login as an ALMA user
- Submit a ticket
- Different categories
- Written in English
- As much information as possible
- Email confirmation and email alerts
Submit a Ticket

If you can't find a solution to your problem in our knowledgebase, you can fill in the fields below with as much detailed information as possible and send it to our agents.

General Information
Priority: [Default]

General
Sub-Categories:
- Science Portal/Registration
- Documentation
- Webpages
- Proposal reviews and assessment (science and technical)
- Project tracking
- Other

Message Details
Subject: ALMA web page

Upload File(s)
[Choose file] no file selected
[Choose file] no file selected
[Choose file] no file selected

Max 6MB

Recipients
You can specify custom recipients in the field below, multiple e-mail addresses can be separated using empty space or , (comma). The added recipients will only receive updates sent by our agents.

CC:

Submit  Reset
The Helpdesk

Emergency tickets

• New category
• Visible 3 days before the proposal deadline
The Helpdesk

Viewing your tickets
Viewing your tickets

- Status = open, pending, resolved, closed
The Helpdesk

Viewing your tickets

- Status
- Reply & update
The Helpdesk

Closing your tickets

• when satisfied with the answer: close the ticket

• Status = closed
• Science portal
• Documents & Tools
• ALMA Sensitivity Calculator
### Common Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dec</td>
<td>00:00:00.000</td>
</tr>
<tr>
<td>Polarization</td>
<td>Dual</td>
</tr>
<tr>
<td>Observing Frequency</td>
<td>345.00000</td>
</tr>
<tr>
<td>Bandwidth per Polarization</td>
<td>1.0</td>
</tr>
<tr>
<td>Water Vapour Column Density</td>
<td>0.913mm (3rd Octile)</td>
</tr>
<tr>
<td>tau/Tsky</td>
<td>tau0=0.158, Tsky=39.538</td>
</tr>
<tr>
<td>Tsys</td>
<td>157.027 K</td>
</tr>
</tbody>
</table>

### Individual Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>12m Array</th>
<th>7m Array</th>
<th>Total Power Array</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Antennas</td>
<td>32</td>
<td>9</td>
<td>2</td>
</tr>
<tr>
<td>Resolution</td>
<td>1.0</td>
<td>5.974554 arcsec</td>
<td>17.923662 arcsec</td>
</tr>
<tr>
<td>Sensitivity(rms)</td>
<td>1 mJy</td>
<td>0.00000 Jy</td>
<td>0.00000 Jy</td>
</tr>
<tr>
<td>(equivalent to)</td>
<td>0.01027 K</td>
<td>0.00000 K</td>
<td>0.00000 K</td>
</tr>
<tr>
<td>Integration Time</td>
<td>25.98237 s</td>
<td>∞</td>
<td>∞</td>
</tr>
</tbody>
</table>

Integration Time Unit Option: Automatic
ALMA data simulator

- CASA
- GILDAS
- On-line
ALMA data simulator

• CASA

• simobserve + simanalyzer

ALMA data simulator

- CASA

- simobserve

Create the visibilities that would be observed by ALMA

```plaintext
CASA -4> inp simobserve
--------> inp(simobserve)
# simobserve :: mosaic simulation task:
project = 'sim'  # root prefix for output file names
Skymodel = ''   # model to observe
Complain = ''   # componentlist to observe
Splitpoints = True
integration = '10s'  # integration (sampling) time
direction = ''    # "J2000 19h00m00s -40d00m00s" or "" to center on model
mappsize = ['']  # angular size of map or "" to cover model
mapptype = 'ALMA'  # hexagonal, square, etc
pointingspacing = ''  # spacing in between pointings or "0.25PB" or "" for 0.5 PB

Element = 'int'
antennalist = 'alma.out10.cfg'  # observation mode to simulate
refdate = '2014/05/21'  # [int(interferometer)lsd(singleshot)]["(none)]
hourangle = 'transit'  # interferometer antenna position file
totaltime = '7200s'    # date of observation - not critical unless concating simulations
caldirection = '1.0y'  # hour angle of observation center e.g. -3:00:00, or ""transit"
calflux = 0.0  # total time of observation or number of repetitions

Thermalnoise = ''  # pt source calibrator [experimental]
leakage = 0.0  # add thermal noise: [tsys-atm|tsys-manual]"
graphics = 'both'  # cross polarization (interferometer only)
verbose = False  # display graphics at each stage to [screen|file|both|none]
overwrite = True  # overwrite files starting with $project
async = False  # If true the taskname must be started using
# simobserve(...)```


ALMA data simulator

- CASA
- simobserved

![Elevation configuration](image1.png)

![uv coverage](image2.png)

![beam](image3.png)
ALMA data simulator

- CASA

- simanalyze

Imaging and analyze the data created by simobserve
How to use ALMA

- simanalyze
- uv coverage
- Clean beam
- Model image
- Simulation image
- Image difference
- Image fidelity

CASA
ALMA data simulator

- GILDAS
  
  GILDAS – Mapping

- MAPPING

- ALMA simulator
ALMA data simulator

- GILDAS
- Mapping
- ALMA simulator

GILDAS –

Smoothened Object
Flux = 4505. Jy (100%)

Simulated Observation
Flux = 1261. Jy (28%)

Difference RMS = 7.507 Jy
Flux = 3243. Jy (72%)

Fidelity Range = 26.70

m51ha
alma-only (7 fields)
Frequency: 230 GHz
Beam: 2.21 x 1.99 PA 36°
Level step: 50 Jy/beam
262.58 K

Cumulative Fidelity

10-0CT-2012 14:53:23

gquelle@LOCALHOST
ALMA data simulator

- On-line ALMA Observation Support Tool

http://almaost.jb.man.ac.uk/
- On-line ALMA Observation Support Tool

### ALMA data simulator

[http://almaost.jb.man.ac.uk/](http://almaost.jb.man.ac.uk/)

### ALMA Observation Support Tool

**Version 1.2 (ALMA Cycle 1)**

#### OST Downtime

<table>
<thead>
<tr>
<th>Array</th>
<th>Instrument</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ALMA</td>
</tr>
</tbody>
</table>

#### Sky Setup

- **Source model**: Choose a library source model or supply your own
- **Upload a FITS file**: You may upload your own model here (max 10MB)
- **Declination**: Ensure correct formatting of this string (+/-DDMMSS.xx)
- **Image peak / point flux in mJy**: Set to 0.0 for no rescaling of source model

#### Observation Setup

- **Central frequency in GHz**: The value entered must be within an ALMA band
- **Bandwidth in MHz**: Use broad for continuum, narrow for single channel
- **Required resolution in arcseconds**: OST will choose config if instrument is set to ALMA
- **Pointing strategy**: Selecting single will apply primary beam attenuation
- **Start hour angle**: Deviation of start of observation from transit
- **Phase Cycle in [seconds]**: The length of time between cutting to a phase calibrator (currently limited to either 0s or between 30s and 600s)
- **On Phase Calibrator in [seconds]**: The length of time spent observing phase calibrator (currently limited to either 0s or between 30s and 600s)
- **On source time in [hours]**: For pointing for Mosaics.
- **Number of visits**: How many times the observation is repeated
- **Number of polarizations**: This affects the noise in the final map

#### Corr uption

- **Atmospheric conditions**: Determines level of noise due to water vapour

#### Imaging

- **Imaging weights**: This allows a resolution / sensitivity trade-off
- **Perform deconvolution?**: Apply the CLEAN algorithm to deconvolve the image
- **Output image format**: CASA format images are returned as a tar file

**Your email address is**: essential
On-line ALMA Observation Support Tool

ALMA data simulator

http://almaost.jb.man.ac.uk/

<table>
<thead>
<tr>
<th>Array</th>
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<tbody>
<tr>
<td></td>
<td>ALMA</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sky Setup</th>
<th>Source model</th>
<th>Choose a library source model or supply your own</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong><code>CST Library: Central point source</code></strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Upload a FITS file</td>
<td>You may upload your own model here (max 10MB)</td>
</tr>
<tr>
<td></td>
<td>Declination</td>
<td>Ensure correct formatting of this string (+/-0d0m0s.0s)</td>
</tr>
<tr>
<td></td>
<td>Image peak / point flux in my</td>
<td>Set to 0.0 for no rescaling of source model</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Observation Setup</th>
<th>Central frequency in GHz</th>
<th>The value entered must be within an ALMA band</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>90</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bandwidth in MHz</td>
<td>Use broad for continuum, narrow for single channel</td>
</tr>
<tr>
<td></td>
<td>12</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Required resolution in arcseconds</td>
<td>OST will choose config if instrument is set to ALMA</td>
</tr>
<tr>
<td></td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pointing strategy</td>
<td>Selecting single will apply primary beam attenuation</td>
</tr>
<tr>
<td></td>
<td>Mosaic</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Start hour angle</td>
<td>Deviation of start of observation from transit</td>
</tr>
<tr>
<td></td>
<td>0.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Phase Cycle in seconds</td>
<td>The length of time between cut to a phase calibrator (currently limited to either 30s or between 300s and 800s)</td>
</tr>
<tr>
<td></td>
<td>0.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>On Phase Calibrator in seconds</td>
<td>The length of time spent observing phase calibrator (currently limited to either 30s or between 300s and 800s)</td>
</tr>
<tr>
<td></td>
<td>0.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>On source time in hours</td>
<td>For pointing for Mosaics.</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Number of visits</td>
<td>How many times the observation is repeated</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Number of polarizations</td>
<td>This affects the noise in the final map</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Correlation</th>
<th>Atmospheric conditions</th>
<th>Determines level of noise due to water vapour</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PWV = 0.472 mm (1st Octile)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Imaging</th>
<th>Imaging weights</th>
<th>This allows a resolution / sensitivity trade-off</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Natural</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Image processing?</th>
<th>Perform deconvolution?</th>
<th>Apply the CLEAN algorithm to deconvolve the image</th>
</tr>
</thead>
<tbody>
<tr>
<td>No (Return dirty image)</td>
<td></td>
<td>CASA format images are returned as a tar file</td>
</tr>
</tbody>
</table>

| Your email address | essential |                                              |
Observing Tool (OT)

- Phase I: Proposal preparation & submission

If project accepted:
- Phase II: Scheduling Blocks preparation
How to use ALMA Observing Tool (OT)

If you need to prepare and submit proposals for the ALMA Call for Proposals, you will need to use the ALMA Observing Tool (OT). The OT is a Java application that helps you prepare and submit proposals for ALMA observations.

The OT is available for three regions: the European Regional Science Center (ERSC), the Asia-Pacific Regional Science Center (APRSC), and a joint North American/European Regional Science Center (NAERSC).

**Observing Tool (OT)**

The ALMA Observing Tool (OT) is a Java application used for the preparation and submission of ALMA proposals. The current release of the OT is configured for the Early Science period in order to submit proposals you will have to register with the ALMA Science Portal beforehand.

- **ALMA Observing Tool** (takes you to the OT page on the Science Portal)
- **OT Quickstart** (A Quick Start Guide for using the Observing Tool)
- **OT User Manual** (Describes how to use the Observing Tool for preparing ALMA proposals)
- **OT Reference Manual** (An in-depth description of the Observing Tool)
- **Video Tutorials** on how to use the Observing Tool
- **Known OT issues** (for those instances when OT problems are encountered)
Searching Tool (OT)

Proposal Information

Proposal Title: Search for origin of life in evolved stars with ALMA

Proposal Cycle: TEST 6

Abstract (max. 4000 characters)

The formation of organic molecules which lead to life in the universe, e.g., amino acids, are still to be understood. Chemistry reactions to create such complex molecules require stringent physical conditions, that can be reached in the atmosphere of evolved stars. Here we propose to detect with ALMA complex carbon and silicon-based molecules in the outer atmosphere and the circumstellar shell of three evolved stars. These molecules could be the elementary building blocks of organic molecules detected in dense molecular clouds and leading to the future development of life.

Scientific Category

- Cosmology and the high Redshift Universe
- Circumstellar disks, brown dwarfs and the solar system
- Galaxies and Galactic Nuclei
- Stellar Evolution and the ISM, star formation and astrophysics

Proposal Type

- Standard
- Target Of Opportunity

Feedback

17 errors, 1 warning

- No document found – you must add a Science Case to your proposal
- taiwan is not a registered ALMA user
- southafrica is not a registered ALMA user
- your spectral setup is not compatible with one or more of your targets in this ScienceGoal
- desired Angular resolution is outside the range of possible resolutions for the representative
- current ScienceCase is not associated with any project lead

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 1 Science Proposal

- New Science Proposal
- Create Science Goals
- Validate Science Proposal
- Submit Science Proposal

Click on the overview tabs to view the contextual help

Importing and Parsing Template Library Need More Help?
Observing Tool (OT)

Editor window

Proposal Information

Proposal Title: Search for origin of life in evolved stars with ALMA
Proposal Cycle: TEST 6

Abstract (max. 4000 characters):

The formation of organic molecules which lead to life in the universe, e.g., amino acids, are still to be understood. Chemistry reaction to create such complex molecules require stringent physical conditions, that can be reached in the atmosphere of evolved stars. Here we propose to detect with ALMA complex carbon and silicon-based molecules in the outer atmosphere and the circumstellar shell of three evolved stars. These molecules could be the elementary brick to the formation of organic molecules detected in dense molecular clouds and leading to the future development of life.

Proposal Type:
- Standard
- Target Of Opportunity

Scientific Category:
- Cosmology and the High Redshift Universe
- Circumstellar disks, planets and the solar system
- Galaxies and Galactic Nuclei
- ISM, star formation and astrochemistry
- Stellar Evolution and the

Feedback

Validation History

17 errors, 1 warning

1. No document found – you must add a Science Case to your proposal
2. taima is not a registered ALMA user
3. southafrica is not a registered ALMA user
4. chile is not a registered ALMA user
5. Your spectral setup is not compatible with one or more of your targets in this ScienceGoal
6. Desired Angular resolution is outside the range of possible resolutions for the representative
7. Cannot observe these spectral elements in one ScienceGoal

Suggestion

- Select the proposal node in the Proposal tab and add your document
- Remove 'taima' from your proposal and search for this investigator again
- Remove 'southafrica' from your proposal and search for this investigator again
- Remove 'chile' from your proposal and search for this investigator again
- Revise the spectral setup or move some of the targets to a different Science Goal
- Select the Control Parameters in the Science Goal and enter a valid value
- Revise spectral elements so that all of them fit in sidebands

Phase I: Science Proposal

New Science Proposal
Create Science Goal
Validate Science Proposal
Submit Science Proposal

Click on the overview steps to view the contextual help
Observing Tool (OT)

Feedback panel
Observing Tool (OT)

Phase I: proposal

Science goal
Field setup

• Display an image of the source

• Single pointing or mosaic rectangular mapping region can be defined

• Information of the source: coordinates, redshift, velocity peak flux, polarization, line width,…
Field setup
Spatial visual editor

Source

Source Name: CW_Leonis

Choose a Solar System Object?:

Name of object: Unspecified

System: J2000
Parallax: 0.0000 mas

Source Coordinates

RA: 09h 47m 57.4061 s
PM RA: 0.0000 mas/yr
Dec: 13h 16m 43.561 s
PM Dec: 0.0000 mas/yr

Source Velocity:

Target Type:

Multiple Pointings

1 Rectangular Field

Expected Source Properties

Peak Continuum Flux Density per Beam: 0.00000 Jy

Peak Line Flux Density per Beam: 0.00000 Jy

Polarisation Percentage: 0.0%

Line Width: 0.00000 km/s

Field Center Coordinates

Pointing Pattern: Offset

Offset Unit: arcsec

#Pointings: 1

RA [arcsec]: 0.00000
Dec [arcsec]: 0.00000
Spectral setup

- Define spectral window
- Displays LSB & USB and spectral windows emission lines, atmospheric transmission
### Spectral Line Setup

#### Baseband-0

<table>
<thead>
<tr>
<th>Fraction</th>
<th>Center Freq (Rest)</th>
<th>Center Freq (Sky)</th>
<th>Transition</th>
<th>Bandwidth, Resolution (Hanning smoothed)</th>
<th>Representative Window</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (Full)</td>
<td>85.88612 GHz</td>
<td>85.88612 GHz</td>
<td>SIC4 28-27</td>
<td>58.594 MHz (205 km/s), 30.518 kHz (0.107 km/s)</td>
<td></td>
</tr>
</tbody>
</table>

#### Baseband-1

<table>
<thead>
<tr>
<th>Fraction</th>
<th>Center Freq (Rest)</th>
<th>Center Freq (Sky)</th>
<th>Transition</th>
<th>Bandwidth, Resolution (Hanning smoothed)</th>
<th>Representative Window</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (Full)</td>
<td>86.70838 GHz</td>
<td>86.70838 GHz</td>
<td>CCCS 15-14</td>
<td>58.594 MHz (203 km/s), 30.518 kHz (0.106 km/s)</td>
<td></td>
</tr>
</tbody>
</table>

#### Baseband-2

<table>
<thead>
<tr>
<th>Fraction</th>
<th>Center Freq (Rest)</th>
<th>Center Freq (Sky)</th>
<th>Transition</th>
<th>Bandwidth, Resolution (Hanning smoothed)</th>
<th>Representative Window</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (Full)</td>
<td>97.29526 GHz</td>
<td>97.29526 GHz</td>
<td>Si13CC 4(1,3)-3(1,2)</td>
<td>58.594 MHz (181 km/s), 30.518 kHz (0.094 km/s)</td>
<td></td>
</tr>
</tbody>
</table>
Spectral setup
spatalogue
### Spectral setup

#### Spatalogue

<table>
<thead>
<tr>
<th>Transition +</th>
<th>Description</th>
<th>Rest Frequency +</th>
<th>Sky Frequency</th>
<th>Upper-state Energy</th>
<th>Low Sat Intensity</th>
<th>Sj μ²</th>
<th>Catalog</th>
</tr>
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Calibration setup

- Normally should not be edited
- Calibrators picked automatically
## Control and Performance

### Configuration Information

<table>
<thead>
<tr>
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<th>Most Extended Configuration</th>
<th>Most Compact Configuration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antenna Beamsize (1.2 * λ / D)</td>
<td>12m 71.259 arcsec</td>
<td>7m 122.158 arcsec</td>
</tr>
<tr>
<td>Most Longest baseline (L_max)</td>
<td>1.091 km</td>
<td>165.6 m</td>
</tr>
<tr>
<td>Synthesized beamsize (λ / L_max)</td>
<td>0.653 arcsec</td>
<td>4.303 arcsec</td>
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<tr>
<td>Shortest baseline (L_min)</td>
<td>43.3 m</td>
<td>15.1 m</td>
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<tr>
<td>Maximum recoverable scale (0.6λ / L_min)</td>
<td>9.874 arcsec</td>
<td>28.315 arcsec</td>
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### Desired Performance

- **Desired Angular Resolution**: 0.60000 arcsec
- **Largest Angular Structure in source**: Point Source
- **Desired sensitivity per pointing**: 10.00000 mJy, equivalent to 4.51023 K
- **Bandwidth used for Sensitivity**: FinestResolution, Frequency Width: 0.030518 MHz
- **Do you request complementary ACA Observations?**: No
- **Science goal integration time estimate**: Time Estimate
- **Does your setup need more time than is indicated by the time estimate?**: No
- **Is this observing time constrained (occultations, coordinated observing...?)**: No
# Control and Performance

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## Control and Performance

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<th>Most Compact Configuration</th>
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<tbody>
<tr>
<td><strong>Antenna Beamsize</strong> (2°/λ/D)</td>
<td>12m 71.259 arcsec</td>
<td>7m 122.158 arcsec</td>
</tr>
<tr>
<td><strong>Longest baseline</strong> (l_max)</td>
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### Desired Performance

**Desired Angular Resolution**

0.60000 arcsec

**Largest Angular Structure in source**

- Point Source
- Extended Source

**Desired sensitivity per pointing**

10.00000 mJy equivalent to 4.51023 K

**Bandwidth used for Sensitivity**

- FinestResolution
- Frequency Width 0.030518 MHz

**Do you request complementary ACA Observations?**

- Yes
- No

**Science goal integration time estimate**

**Does your setup need more time than is indicated by the time estimate?**

- Yes
- No

**Is this observing time constrained (occultations, coordinated observing...)?**

- Yes
- No
Proposal preparation

• Fill the proposal editor window
  • Title and abstract, science category, PI and co-I

• Attach science & technical justification

• Fill the science goals
Proposal submission

• Validate your proposal
  • Check by the OT
  • Potential errors and/or warning shown in the feedback panel

• Fix the errors then re-validate

• When submission is successful:
  • Email of confirmation
  • Summary of the proposal

• Re-submission is always possible until the deadline
  • Previous submission is overwritten
Observing Tool (OT)  
Phase II: SBs  

• Congratulation! Your proposal has been accepted!

• Now it’s time to work on the phase II: preparation of the scheduling block that will be observed

• P2G create the SBs
Observing Tool (OT)

Phase II: SBs

- SB contains:
  - Observing groups
  - Targets
  - Resources
Observing Tool (OT)

Phase II: SBs

- Observing groups
- Calibration
- Science

The order matters!

Group n before n+1

Group 1: Calibrators
Group 2: Science
Observing Tool (OT) – Phase II: SBs

- Targets
  - Amplitude
  - Atm
  - Pointing
  - BP
  - Phase
  - Science

- Maneuvering Targets
  - Uranus Amplitude (Amplitude)
  - query Pointing for Amplitude (Pointing)
  - JO0538-4402; B0537-4412 Bandpass (Science) (Pointing)
  - JO054047-541822 Phase (Pointing)
  - JO0538-4402; B0537-4412 Bandpass (Science) (Bandpass)
  - JO054047-541822 Phase (Phase)
  - Uranus Amplitude (Atmospheric)
  - JO0538-4402; B0537-4412 Bandpass (Science) (Atmospheric)
  - JO054047-541822 Phase (Atmospheric)

- Resources
  - Tuning2_S-6HA - generated
    - General
    - Field Setup
Observing Tool (OT)  
Phase II: SBs

- Resources  
  - Field sources  
  Similar to science goal
Observing Tool (OT)
Phase II: SBs

- Resources
  - Field sources
    Similar to science goal
  - Instrument setup
    More information, correlator setup
Observing Tool (OT)

Phase II: SBs

• Resources
• Field sources
  Similar to science goal
• Instrument setup
  More information, correlator setup
• Observing parameters

Baseband Name: BB_4
Desired Center Freq: 98.87500 GHz
Actual Center Freq: 98.88043 GHz
Actual Center Freq(Sky): 98.88043 GHz
Products: CROSS_AND_AUTO

Spectral Windows

<table>
<thead>
<tr>
<th>Offset (MHz)</th>
<th>LSB(Rest)</th>
<th>use LSB</th>
<th>USB(Rest)</th>
<th>use USB</th>
<th>Bandwidth</th>
<th>Chs</th>
<th>Resolution</th>
<th>Polarization</th>
<th>Data Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>3000.0</td>
<td>---</td>
<td></td>
<td>98.880 GHz</td>
<td></td>
<td>2000.0 MHz</td>
<td>4096</td>
<td>488.281 kHz</td>
<td>XX,YY</td>
<td>2.403 MB/s</td>
</tr>
</tbody>
</table>

SpectralWindow Name: SW-1
Center Offset Frequency: 3.0000000000000 GHz
Center Freq(Rest) LSB / USB: --- | 98.88043 GHz
Center Freq(Sky) LSB / USB: --- | 98.88043 GHz
Nominal BW / # Channels: 2000.000 MHz | 4096
Effective BW / # Channels: 1875.0 MHz | 3840

Spectral Average Region
Start Channel: 0
Num. Channels: 3840
Observing Tool (OT)  
Phase II: SBs

- Resources
- Field sources
  Similar to science goal
- Instrument setup
  More information, correlator setup
- Observing parameters
Observing Tool (OT)

Phase II: SBs

- Resources
  - Field sources
    - Similar to science goal
  - Instrument setup
    - More information, correlator setup
  - Observing parameters

---

This ScienceParameters is used by 7 targets.

Science Parameters

- Science Parameters Name: SPT_0459-58 Params
- Representative Bandwidth: 0.02835 GHz
- Representative Frequency: 85.00000 GHz
- Sensitivity Goal: 2.00000 mJy
- Integration Time on Source: 149.45025 s
- Sub Scan Duration: 30.24000 s

Adjust subscanduration to a correct value: ADJUST Subscan
Observing Tool (OT)  
Phase II: SBs

• Congratulations! Your proposal has been accepted!

• Now it’s time to work on the phase II: preparation of the scheduling block that will be observed

• P2G create the SBs
• CS check the SBs with the PI and report to P2G for any change
• P2G change the SBs status to “ready” once the PI is happy with them
Tips on OT

• The OT show a lot of information
  • Full screen mode to see most of them
  • Panels can be hidden
    Scroll down and to the right to see everything

• Extensive build-in help
  • Help menu
  • Question mark buttons
  • Tutorial links via the science portal
How to use ALMA

• Science portal
  • Find information, documents and tools
  • Helpdesk
  • Sensitivity calculator
  • Data archive

• ALMA simulation data
  • On-line
  • CASA or Gildas

• OT
  • Phase I & phase II
How to use ALMA

• Data reduction : CASA
  • Eric Villard’s talk
  • Tutorial this afternoon
The Helpdesk

The knowledgebase

- General knowledge
- FAQ
- Different categories
How use ALMA

ALMA data simulator

GILDAS –

• MAPPING
• ALMA simulator

m51ha
alma-only (7 fields)
Frequency: 250 GHz
Beam: (no clean beam)
Level step: 1000

gaelle@LOCALHOST
10–OCT–2012 14:52:06
How use ALMA

ALMA data simulator

- Online
Guidelines

• Science user portal: http://almascience.eso.org/

• Need to register to submit proposal, use the helpdesk etc..

• Helpdesk: tickets in English, answer within 2 working days, close the ticket when satisfied, emergency department open 3 days before proposal submission deadline
The ALMA science portal

http://almascience.org/

- Information about ALMA
- Call for proposals
- Data archive
- Documents and softwares
- Helpdesk
- Link to the ARC}s
The ALMA science portal

User Registration

- Submit proposal
- Access data
- File a helpdesk ticket

- Not needed to:
  find information, download softwares, access public data...