



Project Structure

Proposal Program

Unsubmitted Proposal

- Project
- Proposal

Editors

Spectral Spatial Project

Principal Investigator

 Select PI...

Main Project Information

Project

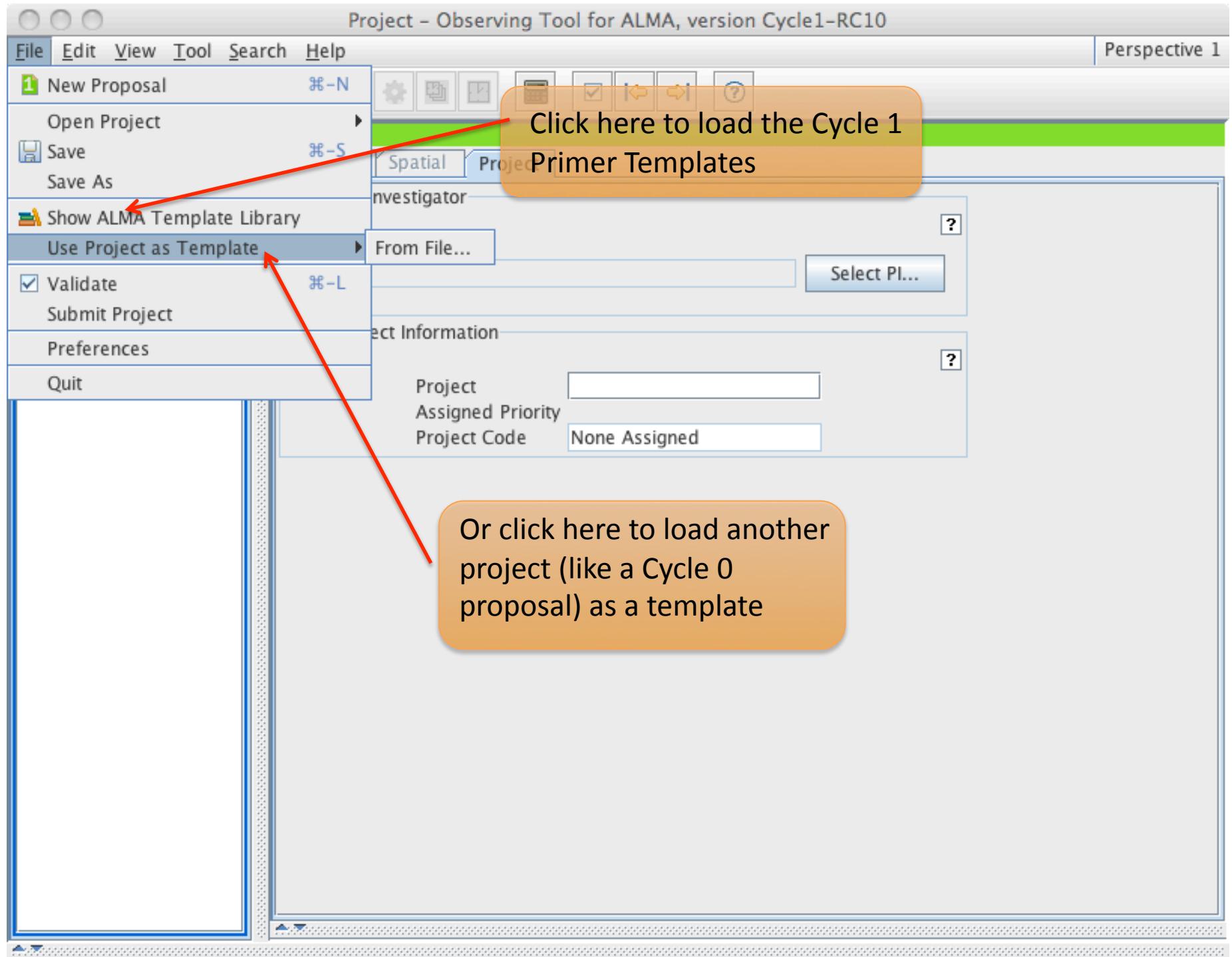
Assigned Priority



Project Code

None Assigned

A clean slate. Let's load templates.



The screenshot shows the ALMA Observing Tool interface. The top menu bar includes File, Edit, View, Tool, Search, Help, and Perspective 1. Below the menu is a toolbar with various icons. The main window is divided into two main sections: Project Structure and Editors.

Project Structure: This section shows a tree view of the project structure. The root node is 'Project', which contains a 'Proposal' folder. An orange arrow points from the 'Proposal' icon in the tree to the 'Proposal' tab in the Editors pane.

Editors: This section contains three tabs: Spectral, Spatial, and Proposal. The Proposal tab is selected, indicated by a blue border. The 'Proposal Information' panel displays fields for 'Proposal Title' (set to 'TEST.6') and 'Proposal Cycle'. Below these is a large text area for the 'Abstract (max. 4000 characters)'. A 'Launch Editor' button is located at the bottom of this panel.

Cycle 1 Primer Template Library: A separate window titled 'Cycle 1 Primer Template Library. Turn the keys on the JTree below and read the descriptions – Observing Tool for ALMA, versi...' is open. It lists several primer templates under the heading 'Planned Observing':

- B7 CO(9-8): Cosmic Eyelash
- B3 12CO mosaic: M100
- B3 spectral sweep: PKS1830-211 (z=0.03)
- B6 CO(2-1) Planetary Nebula
- B7 CO(3-2)/continuum: Pluto/Charon
- B9 continuum: Pluto/Charon
- B7 continuum: COSMOS SMGs

A red box highlights the 'Planned Observing' section of this window. A callout bubble with an orange border contains the text: 'The Cycle 1 Primer Templates. Drag the one you'd like to modify, from here up to the Proposal folder.'

Project - Observing Tool for ALMA, version Cycle1-RC11

Perspective 1

File Edit View Tool Search Help

Project Structure

Proposal Program

Unsubmitted Proposal

- Project
- Proposal
 - Planned Observing
 - B3 12CO mosaic: M100
 - General
 - Field Setup
 - Spectral Setup
 - Calibration Setup
 - Control and Performance

Editors

Spectral Spatial General

Enter a name and description for the purpose of this science goal.
This text is optional but you may find it useful to keep a note.

General (Optional)

Science Goal Name

This is a science goal to map the CO 1-0 emission from M100, a spiral galaxy in the Virgo Cluster.

This science goal is based on an example in "Observing with ALMA: A Primer for Early Science (Cycle 1)".

We plan a rectangular grid of hexagonally-packed pointings spaced by ~half of the ~54'' field of view. With 126 pointings, we cover almost all of the bright CO emission from M100. ACA observations (39 pointings) are recommended by the OT.

The correlator is set up with the first baseband in wide-bandwidth FDM mode (2.6 km/s resolution channels) centered on the CO J=1-0 line. The other three basebands are set to TDM mode for continuum, manually set to maximize the bandwidth coverage.

Launch Editor

You're now ready to modify 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 should your project
be approved.

Feedback

Project - Observing Tool for ALMA, version Cycle1-RC11

File Edit View Tool Search Help Perspective 1

Project Structure

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 - Calibration S
 - Control and

Editors

Spectral Spatial Field Setup

Source

Source Name: M100

Choose a Solar System Object? Name of object: Unspecified

System: J2000 Sexagesimal display?

RA: 12:22:54.8990 Parallax: 0.00000 mas

Dec: 15:49:20.572 PM RA: 0.00000 mas/yr

PM Dec: 0.00000 mas/yr

Source Velocity: 1570.000 km/s

Target Type: Multiple Pointings 1 Rectangular Field

Expected Source Properties

Peak Continuum Flux Density per Beam: 0.50000 mJy

Peak Line Flux Density per Beam: 3.00000 mJy

Polarisation Percentage: 0.0 %

Line Width: 10.00000 km/s

Rectangle

Coords Type: ABSOLUTE RELATIVE

System: J2000

Offset(Longitude): 0.00000 arcsec

Offset(Latitude): 0.00000 arcsec

p length: 260.00000 arcsec

q length: 260.00000 arcsec

Position Angle: 0.00000 deg

Source name, position, velocity, etc.

Let's make a mosaic!

Expected source properties (for tech assessors)

Set up the mosaic. But first...

Project - Observing Tool for ALMA, version Cycle1-RC9

Perspective 1

File Edit View Tool Search Help

Project Structure

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 - Gen...
 - Field...
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 - Calib...
 - Cont...

Editors

Spectral Spatial Spectral Setup

Spectral Type

Spectral Line
 Single Continuum
 Spectral Scan

Polarization Products desired XX DUAL

Spectral Line

Baseband-0

Fraction	Center Freq (Rest)	Center Freq (Sky)	Transition	Bandwidth, Resolution (Hanning smoothed)
1(Full)	115.27120 G...	114.66910 G...	CO v=0 1-0	1875.000 MHz(4902 km/s), 976.563 kHz(2.553 km/s)

Select Lines to Observe in Baseband-0...

Baseband-1

1(Full)	113.30000 G...	112.70820 G...	Manual window	2000.000 MHz(4987 km/s), 31.250 MHz(83.122 km/s)
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Select Lines to Observe in Baseband-1...

Baseband-2

1(Full)	101.20000 G...	100.67140 G...	Manual window	2000.000 MHz(5584 km/s), 31.250 MHz(93.060 km/s)
---------	----------------	----------------	---------------	---------------------------------------------------

Select Lines to Observe in Baseband-2...

Baseband-3

1(Full)	103.20000 G...	102.66095 G...	Manual window	2000.000 MHz(5475 km/s), 31.250 MHz(91.257 km/s)
---------	----------------	----------------	---------------	---------------------------------------------------

Select Lines to Observe in Baseband-3...

Representative Frequency

1

2

3

4

5

6

7

8

9

0

Back

Forward

Help

Project Structure

Editors

Spectral Spatial Spectral Setup

Spectral Type

Spectral Line
 Single Continuum
 Spectral Scan

Polarization Products desired XX DUAL

Spectral Line

Baseband-0

Fraction	Center Freq (Rest)	Center Freq (Sky)	Transition	Bandwidth, Resolution (Hanning smoothed)
1(Full)	115.27120 G...	114.66910 G...	CO v=0 1-0	1875.000 MHz(4902 km/s), 976.563 kHz(2.553 km/s)

Select Lines to Observe in Baseband-0...

Baseband-1

1(Full)	113.30000 G...	112.70820 G...	Manual window	2000.000 MHz(4987 km/s), 31.250 MHz(83.122 km/s)
---------	----------------	----------------	---------------	---------------------------------------------------

Select Lines to Observe in Baseband-1...

Baseband-2

1(Full)	101.20000 G...	100.67140 G...	Manual window	2000.000 MHz(5584 km/s), 31.250 MHz(93.060 km/s)
---------	----------------	----------------	---------------	---------------------------------------------------

Select Lines to Observe in Baseband-2...

Baseband-3

1(Full)	103.20000 G...	102.66095 G...	Manual window	2000.000 MHz(5475 km/s), 31.250 MHz(91.257 km/s)
---------	----------------	----------------	---------------	---------------------------------------------------

Select Lines to Observe in Baseband-3...

Representative Frequency

1

2

3

4

5

6

7

8

9

0

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Help

First need to define the spectral setup.

Click here to get a *splatatalogue* window to select a particular spectral line.

Select Spectral Lines

Species Filter

Include description

Frequency Filters

ALMA Band



Sky Frequency (GHz)



Min Max

Receiver/Back End Configuration

Hide unobservable lines

Filtering unobservable lines

Maximum Upper-state Energy (K)



0 20 40 60 80 100 ∞

Molecule Filter / Environment

Show

Can't find the transition you're looking for in the offline pool? Find more in the online Splatatalogue.

Transitions matching your filter settings

Transition ▲	Description	Rest Frequ...	Sky Frequency	Upper...	Lova...	Sij μ²	Ca...
CO v=0 1-0	Carbon Monoxide	115.271 GHz	114.669 GHz	5.53...	60	0....	Of...
CO v=0 2-1	Carbon Monoxide	230.538 GHz	229.334 GHz	16.5...	70	0....	Of...
CO+ J=2-1, F=3/2-1/2	Carbon Monoxi...	235.79 GHz	234.558 GHz		0.1	0....	Of...
CO+ J=2-1, F=5/2-3/2	Carbon Monoxi...	236.063 GHz	234.83 GHz		0.1	1....	Of...
CO v=0 3-2	Carbon Monoxide	345.796 GHz	343.99 GHz	33.1...	70	0....	Of...
CO+ J=3-2, F=5/2-3/2	Carbon Monoxi...	353.741 GHz	351.894 GHz		0.1	1....	Of...
CO+ J=3-2, F=7/2-5/2	Carbon Monoxi...	354.014 GHz	352.165 GHz		0.18	1....	Of...
CO v=0 4-3	Carbon Monoxide	461.041 GHz	458.633 GHz	55.3...	60	0....	Of...
CO v=0 5-4	Carbon Monoxide	576.268 GHz	573.258 GHz	82.9...		0....	Of...
CO v=0 6-5	Carbon Monoxide	691.473 GHz	687.861 GHz	116....	100	0....	Of...
CO v=0 7-6	Carbon Monoxide	806.652 GHz	802.438 GHz	154....	110	0....	Of...
CO v=0 8-7	Carbon Monoxide	921.8 GHz	916.985 GHz	199....		0....	Of...

Select a line from the list

Filters can be used to narrow the search

Add to Selected Transitions

Selected transitions

Transition ▲	Description	Rest Frequency ▲	Sky Frequency
CO v=0 1-0		115.271 GHz	114.669 GHz

Project - Observing Tool for ALMA, version Cycle1-RC9

Perspective 1

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Editors

Spectral Spatial Spectral Setup

Spectral Type

Spectral Type

- Spectral Line
- Single Continuum
- Spectral Scan

Polarization Products desired XX DUAL

Spectral Line

Baseband-0

Fraction	Center Freq (Rest)	Center Freq (Sky)	Transition	Bandwidth, Resolution (Hanning smoothed)	Representativ Window
1(Full)	115.27120 G...	114.66910 G...	CO v=0 1-0	1875.000 MHz(4902 km/s), 976.563 kHz(2.553 km/s)	<input checked="" type="radio"/>

Select Lines to Observe in Baseband-0... Add Delete

Baseband-1

1(Full)	113.30000 G...	112.70820 G...	Manual window	2000.000 MHz(4987 km/s), 31.250 MHz(83.122 km/s)	<input type="radio"/>
---------	----------------	----------------	---------------	---------------------------------------------------	-----------------------

Select Lines to Observe in Baseband-1... Add Delete

Baseband-2

1(Full)	101.20000 G...	100.67140 G...	Manual window	2000.000 MHz(5584 km/s), 31.250 MHz(93.060 km/s)	<input type="radio"/>
---------	----------------	----------------	---------------	---------------------------------------------------	-----------------------

Select Lines to Observe in Baseband-2... Add Delete

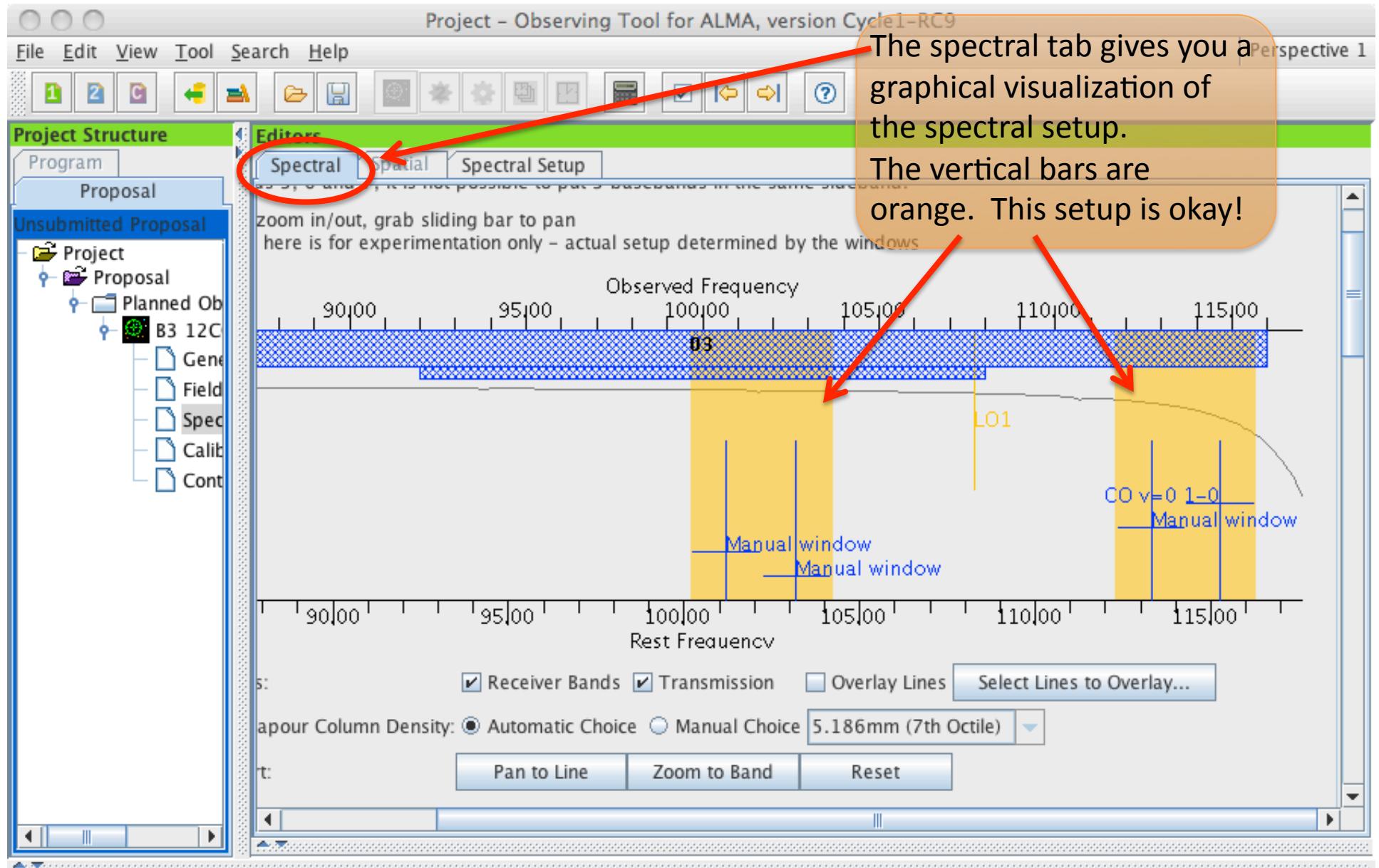
Baseband-3

1(Full)	103.20000 G...	102.66095 G...	Manual window	2000.000 MHz(5475 km/s), 31.250 MHz(91.257 km/s)	<input type="radio"/>
---------	----------------	----------------	---------------	---------------------------------------------------	-----------------------

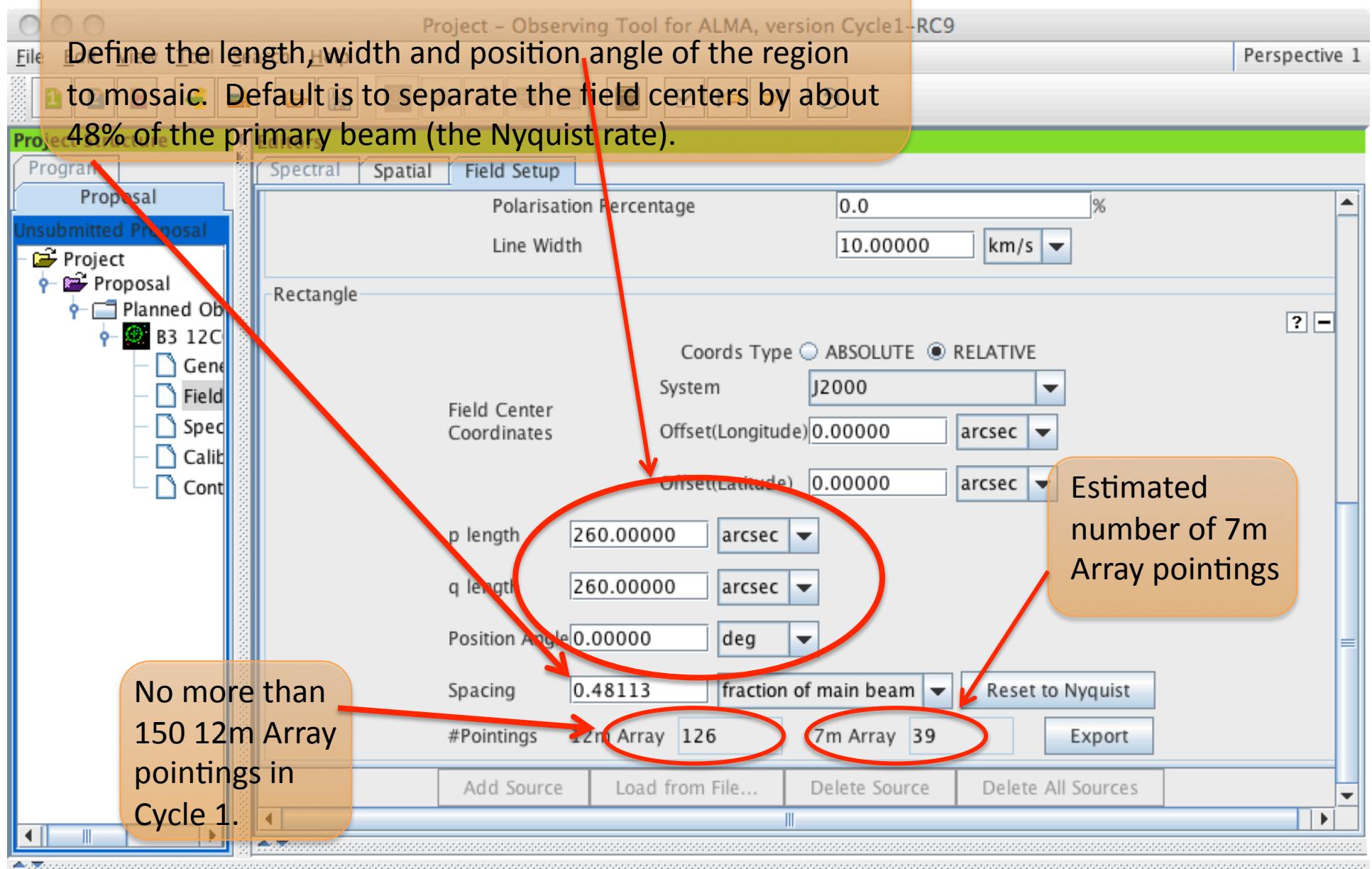
Select Lines to Observe in Baseband-3... Add Delete

Representative Frequency

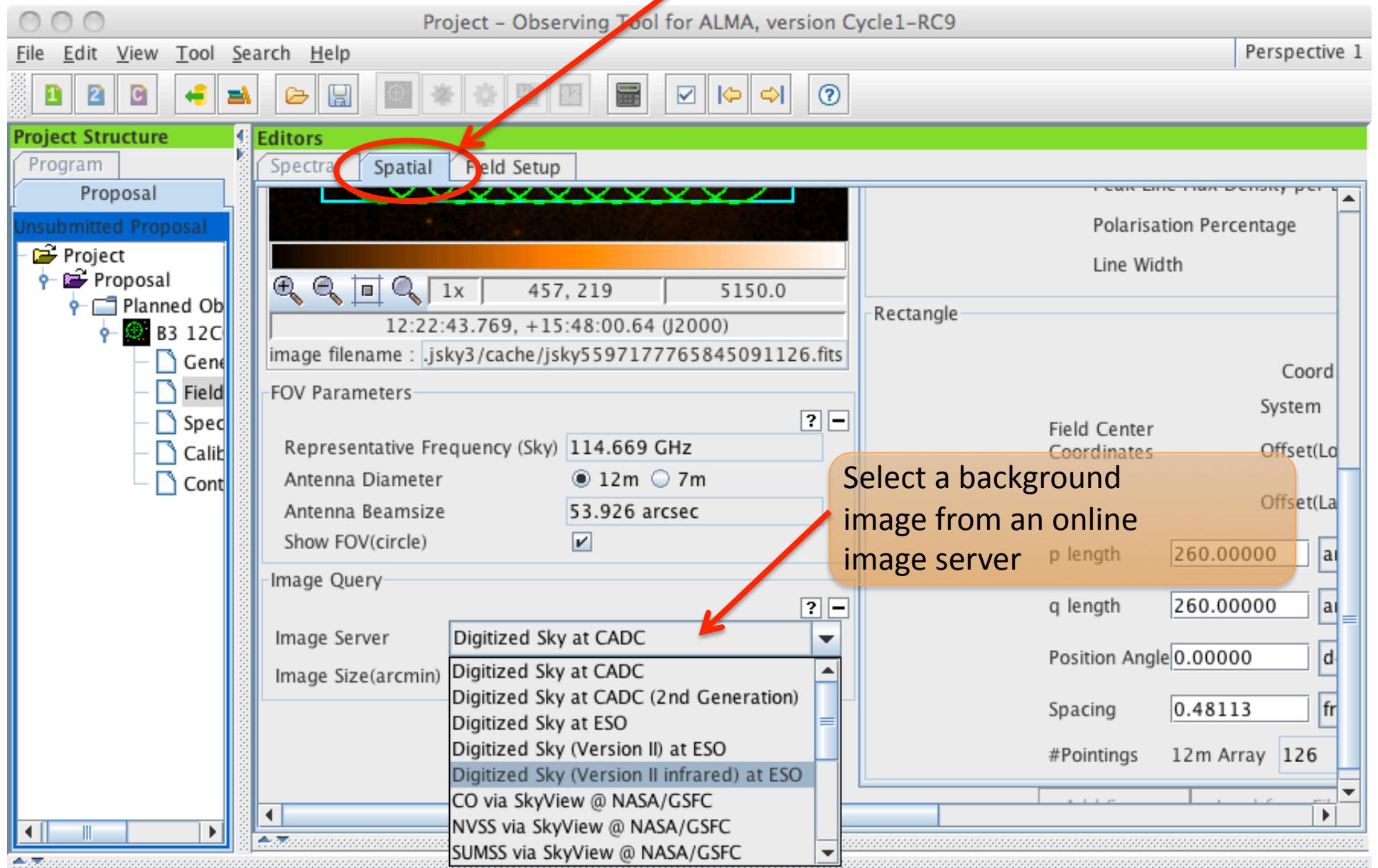
A rest frequency can be entered manually into this field.

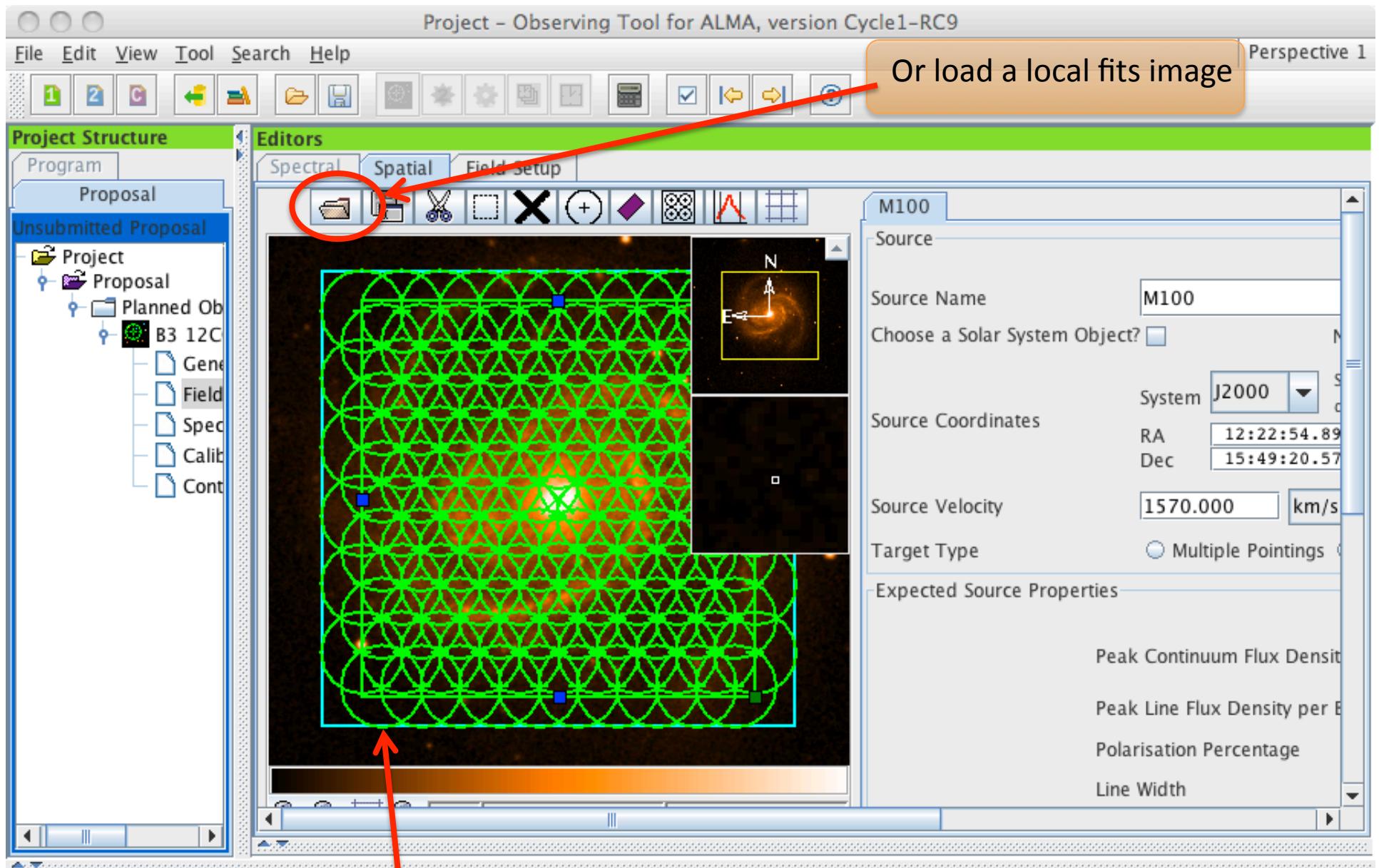


Setting up the mosaic in the Field Setup

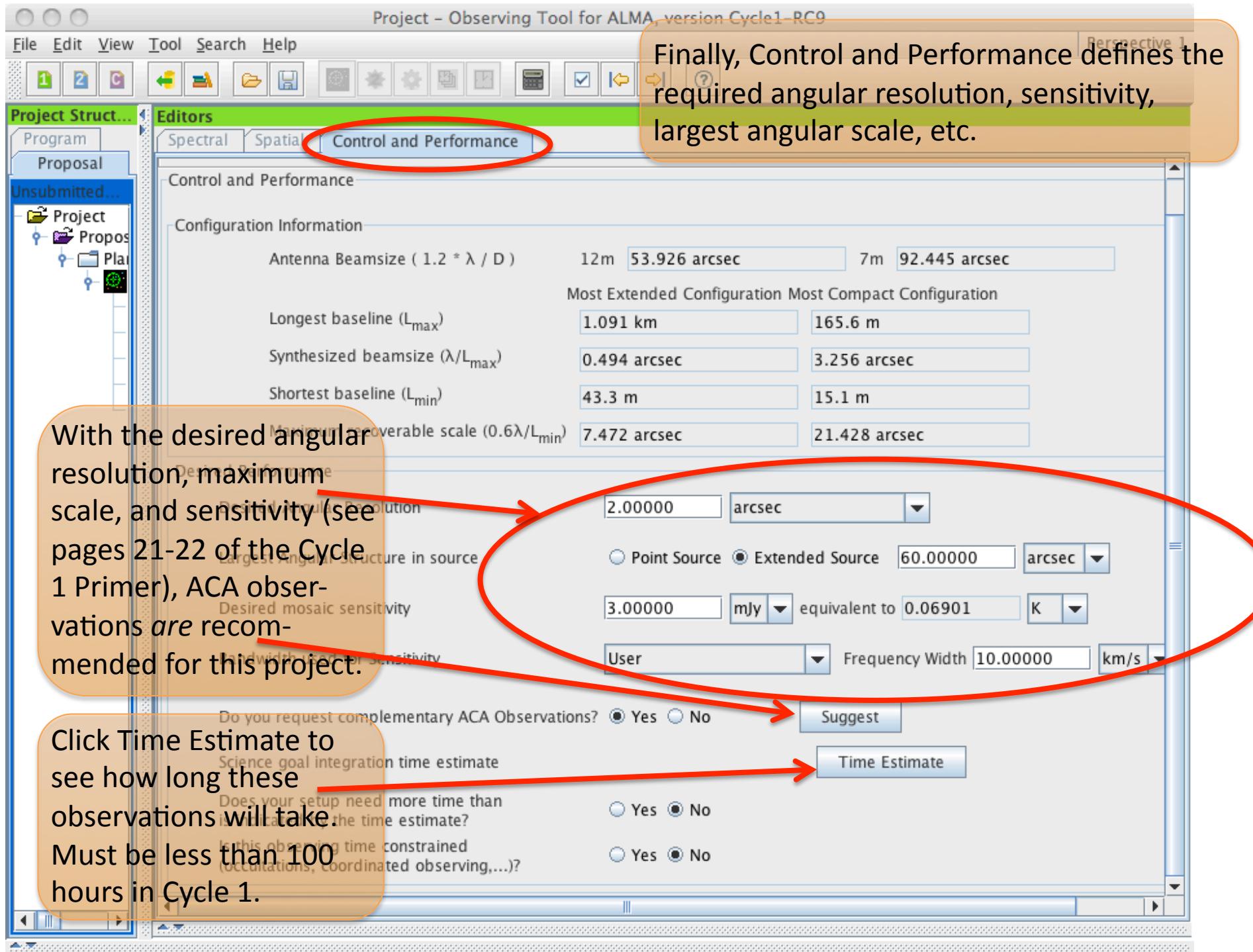


The Spatial tab gives a graphical visualization of the Field Setup.





Each circle is the size of the primary beam, centered on the field center



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

With the desired angular resolution, maximum scale, and sensitivity (see pages 21-22 of the Cycle 1 Primer), ACA observations are recommended for this project.

Click Time Estimate to see how long these observations will take. Must be less than 100 hours in Cycle 1.