An Introduction to the Cycle 10 ALMA Observing Tool

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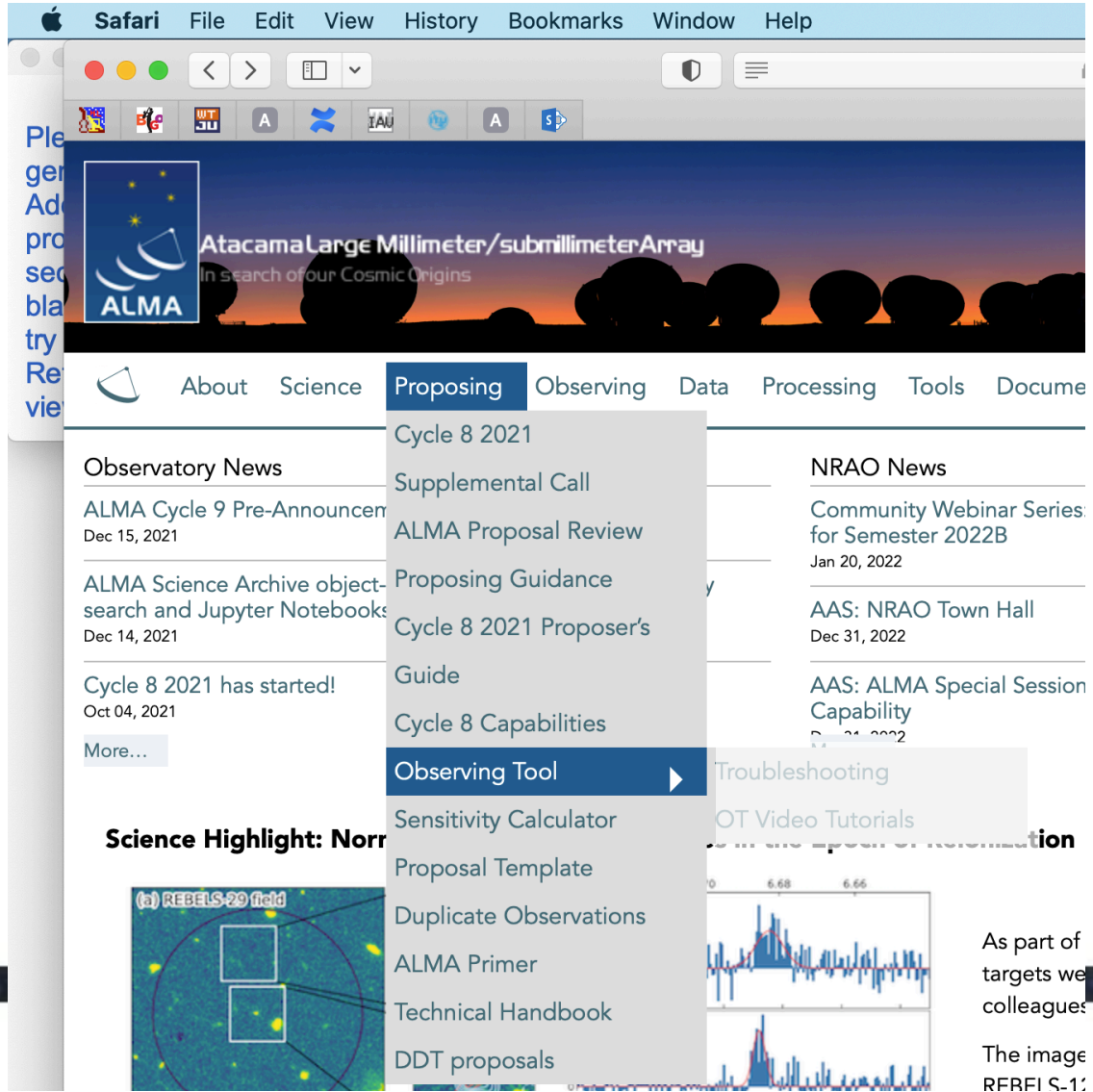
NSF AUI ALMA NAASC North American ALMA Science Center NRAO

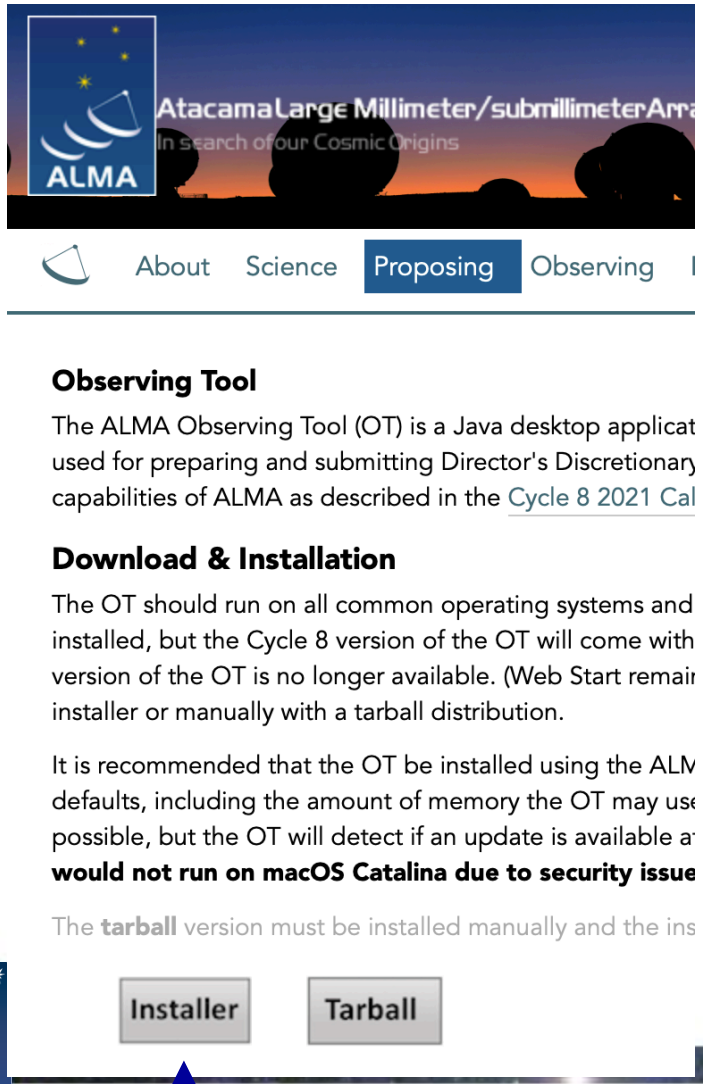
Where is the Observing Tool (OT)?

On the science portal under Proposing, click on Observing Tool



Installing the ALMA OT

You will land here to access the OT's installer



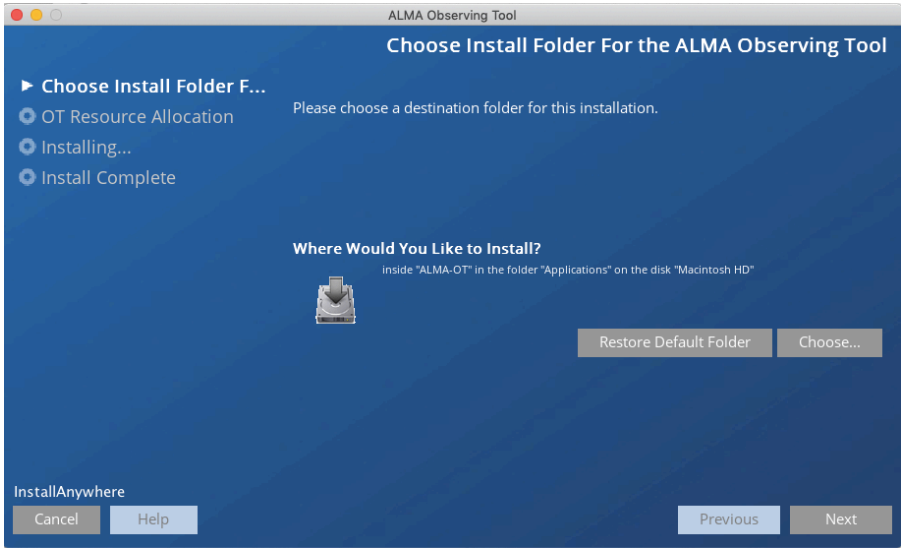
Installer Page

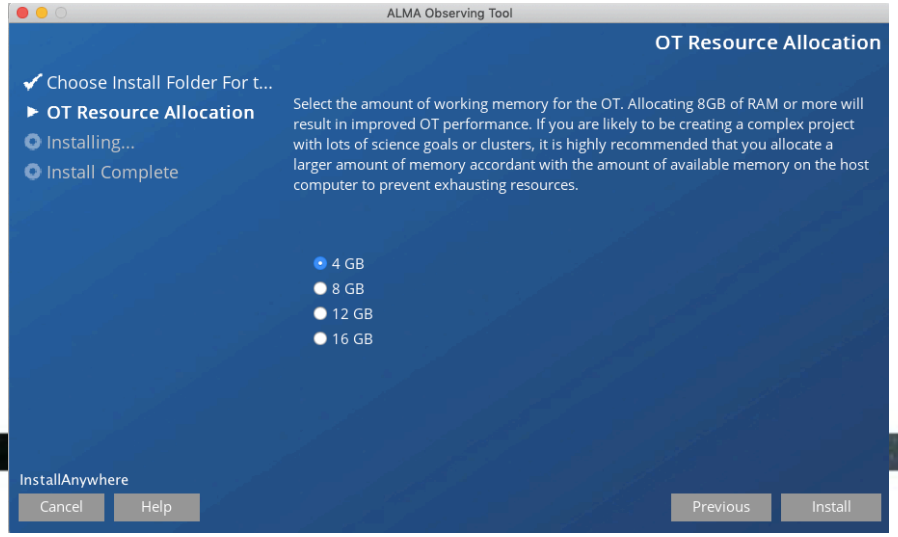
- Mac OS Installer
- Linux Installer
- Windows Installer

An installer .zip is downloaded that expands to the installer application

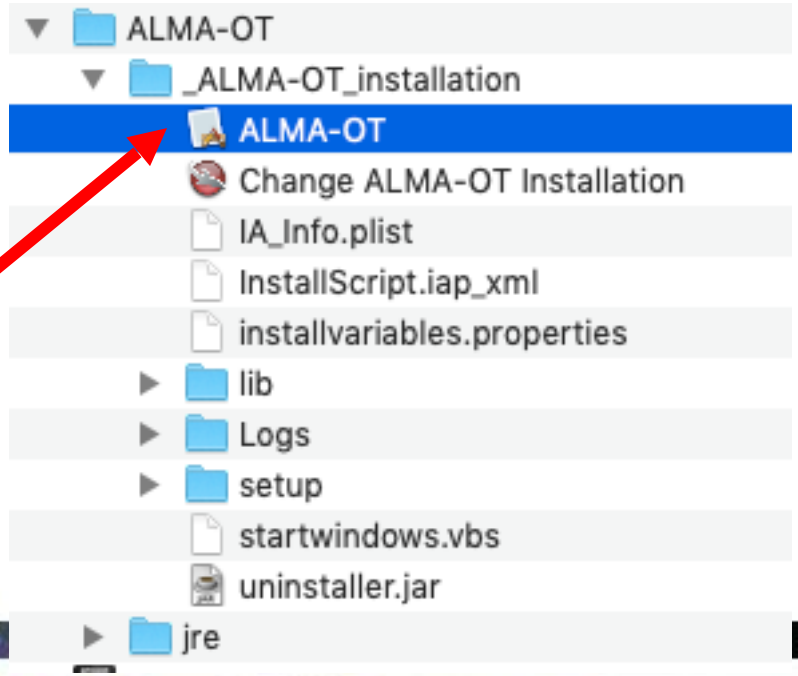
This takes you to the installer's own page

Installing the ALMA OT





After installation there will be an application in the destination directory and an icon on the desktop



If the installer doesn't work for you

There is a manual installation available for each OS

About Science Proposing Observing

Observing Tool

The ALMA Observing Tool (OT) is a Java desktop applicat
used for preparing and submitting Director's Discretionary
capabilities of ALMA as described in the Cycle 8 2021 Cal

Download & Installation

The OT should run on all common operating systems and
installed, but the Cycle 8 version of the OT will come with
version of the OT is no longer available. (Web Start remain
installer or manually with a tarball distribution.

It is recommended that the OT be installed using the ALM
defaults, including the amount of memory the OT may use
possible, but the OT will detect if an update is available a
would not run on macOS Catalina due to security issue

The **tarball** version must be installed manually and the ins

Installer Tarball

Take the JRE

If you experience problems with the new OT Installer, the tarball version re
to use a pre-installed version of Java 11, a fourth version of the tarball inst

The installation instructions for the tarball version are:

1. Download the tarball in your preferred format:

- OT tarball for MacOS with a x64-based JRE included
- OT tarball for Linux with a x64-based JRE included
- OT tarball for Windows with a x64-based JRE included
- OT tarball with no JRE included

2. Unpack the tarball (it will unpack into its own directory)

3. Run post-installation setup

- Linux or Mac OS:

  cd ALMAOT-C8-2021/setup
  ./Setup-Linux.sh
  cd ..

- MS Windows

  -> Go to the ALMAOT-C8-2021/setup directory

  -> Double click "Setup-Windows" (may read "Setup-Windows.cmd

4. Start up the OT

- Mac OS:

  ./ALMA-OT.app or double-click in a Finder window

- Linux:

  ./ALMA-OT.sh or double-click in a window manager if this is config

- MS Windows

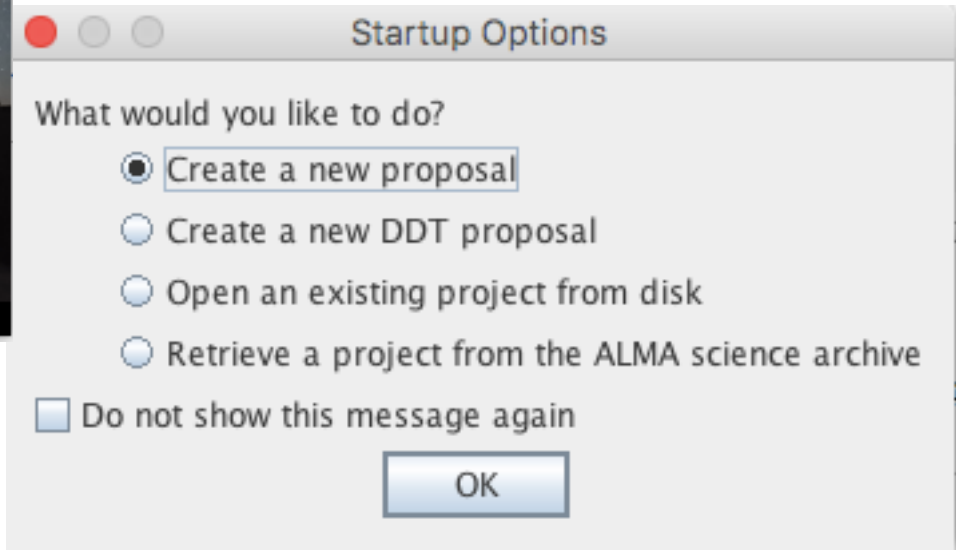
  Double-click "ALMA-OT" (might read "ALMA-OT.cmd")

To the OT tarball's page

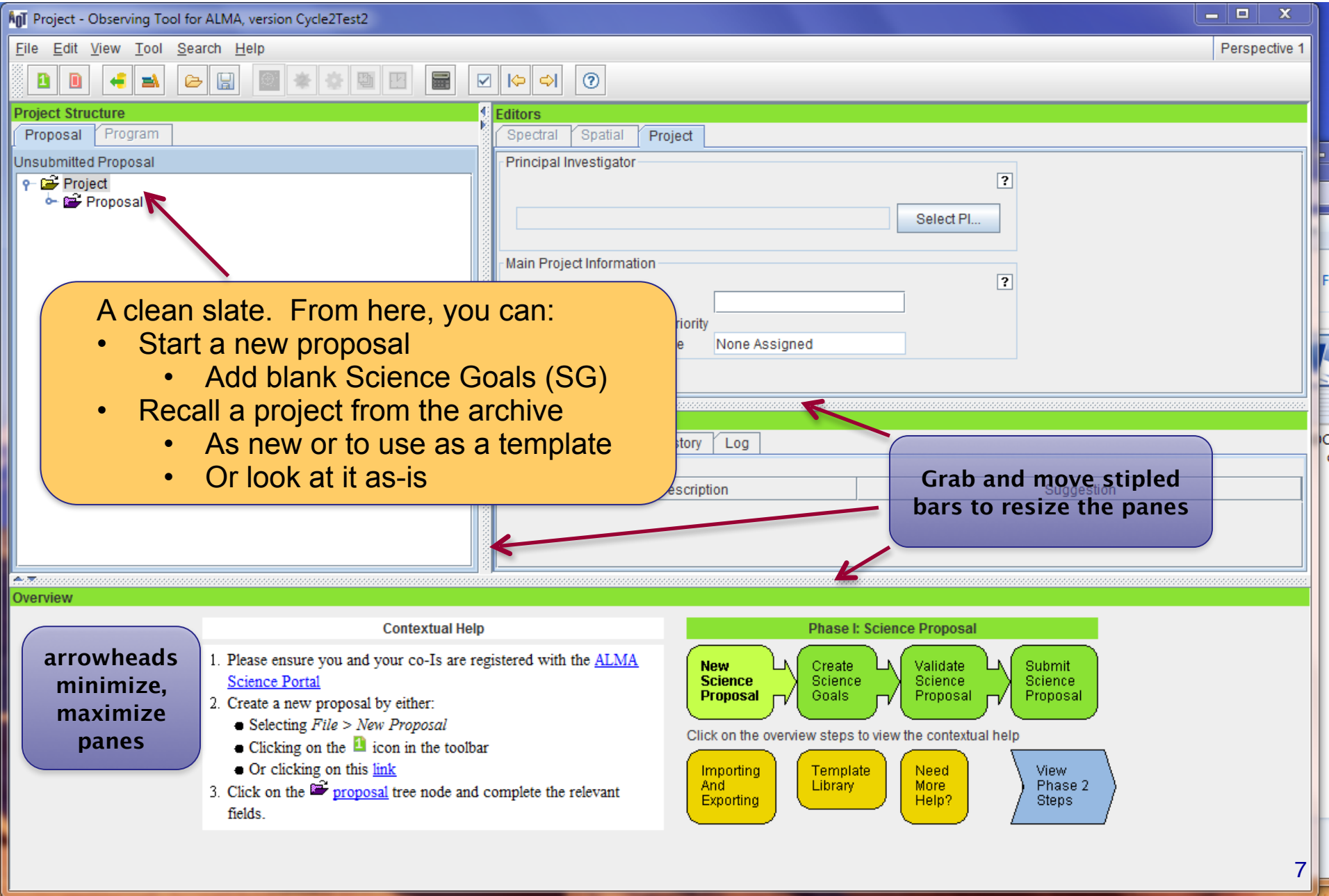
When the ALMA OT starts

PI: Make sure to use the Cycle 9/10 OT from the Science Portal

Then you see this



The Project node in the J-tree



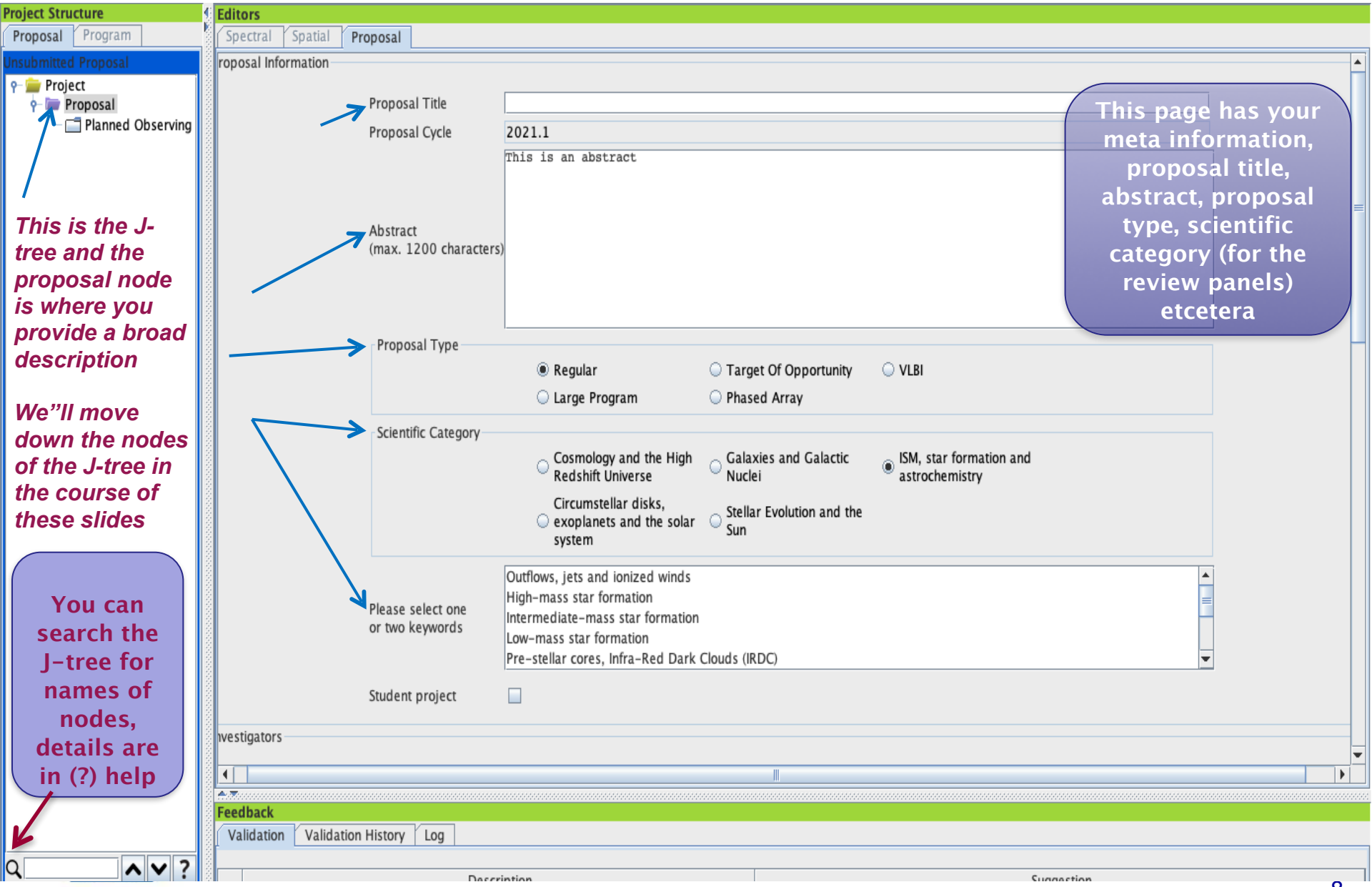
A clean slate. From here, you can:

- Start a new proposal
  - Add blank Science Goals (SG)
- Recall a project from the archive
  - As new or to use as a template
  - Or look at it as-is

Grab and move stipled bars to resize the panes

arrowheads minimize, maximize panes

The Project node in the J-tree



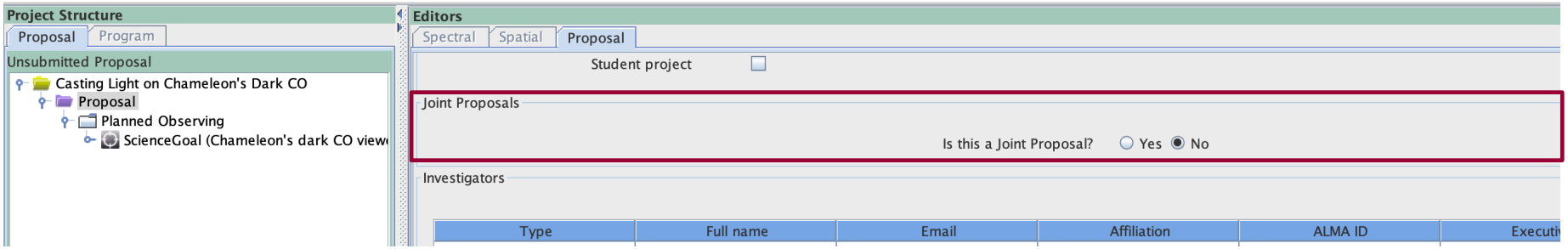
This is the J-tree and the proposal node is where you provide a broad description

We"ll move down the nodes of the J-tree in the course of these slides

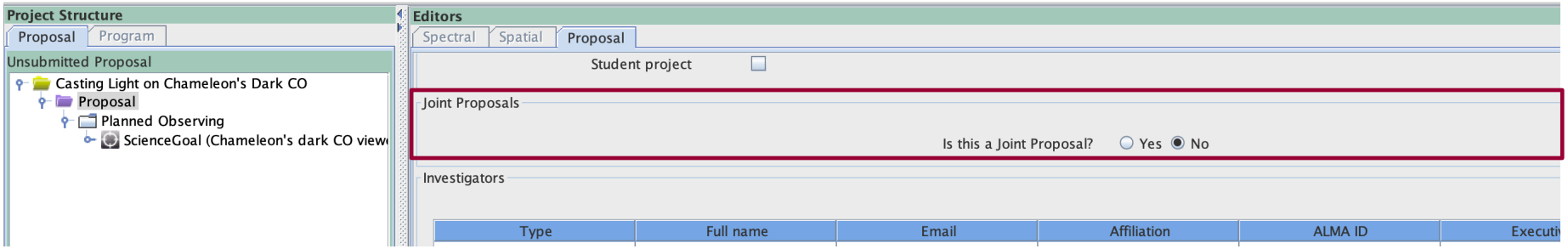
This page has your meta information, proposal title, abstract, proposal type, scientific category (for the review panels) etcetera

You can search the J-tree for names of nodes, details are in (?) help

New! Joint Proposals w/VLA, VLT, JWST- I



New! Joint Proposals w/VLA, VLT, JWST- I



Joint Proposals

Is this a Joint Proposal? Yes No

Type of Joint Proposal Main Partner

Is ALMA the Main partner?
- **During the ALMA call it must be**
- **Outside the ALMA call it can't be**

Edit the list of partners Provide info about partners if ALMA is main

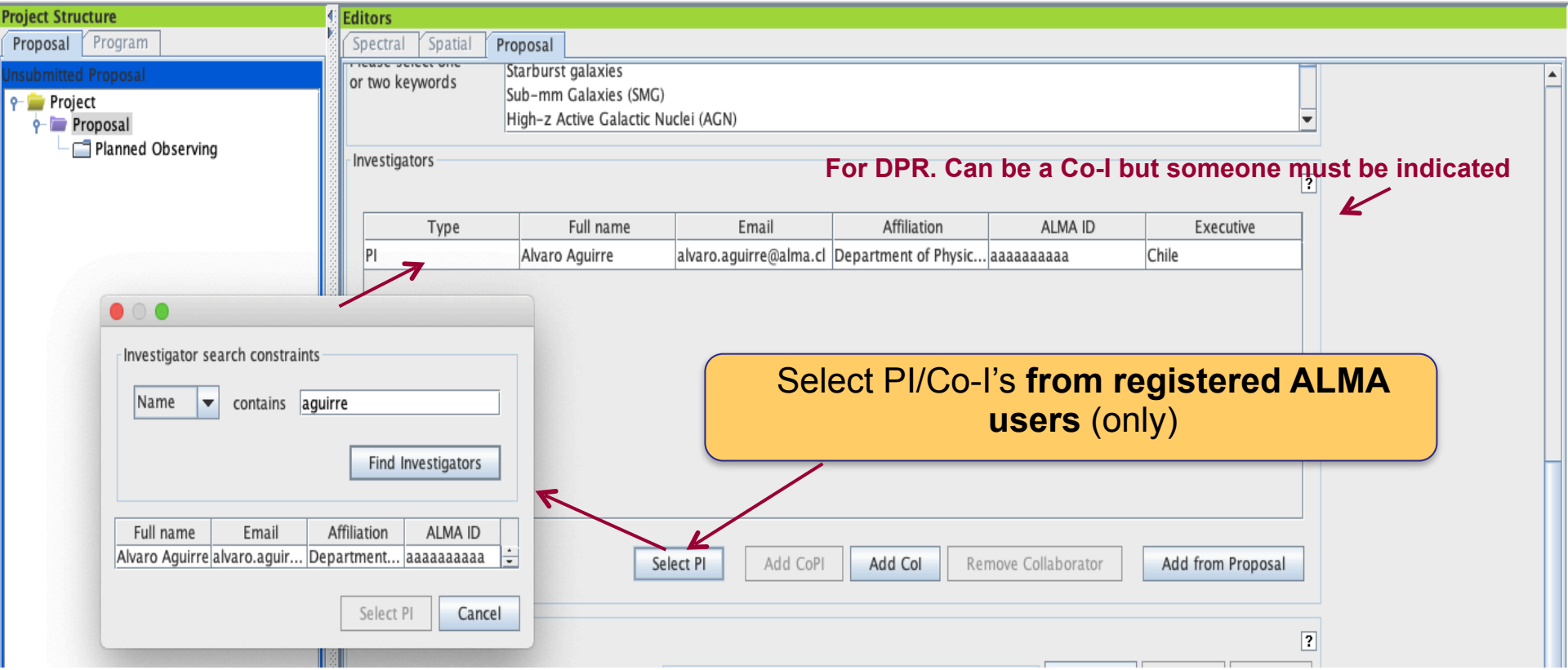
Observatory	Project Code	Requested Time
JWST	N/A	0.00 h
VLA	N/A	0.00 h
VLT	N/A	0.00 h

Add Partner Observatory | Remove Partner Observatory

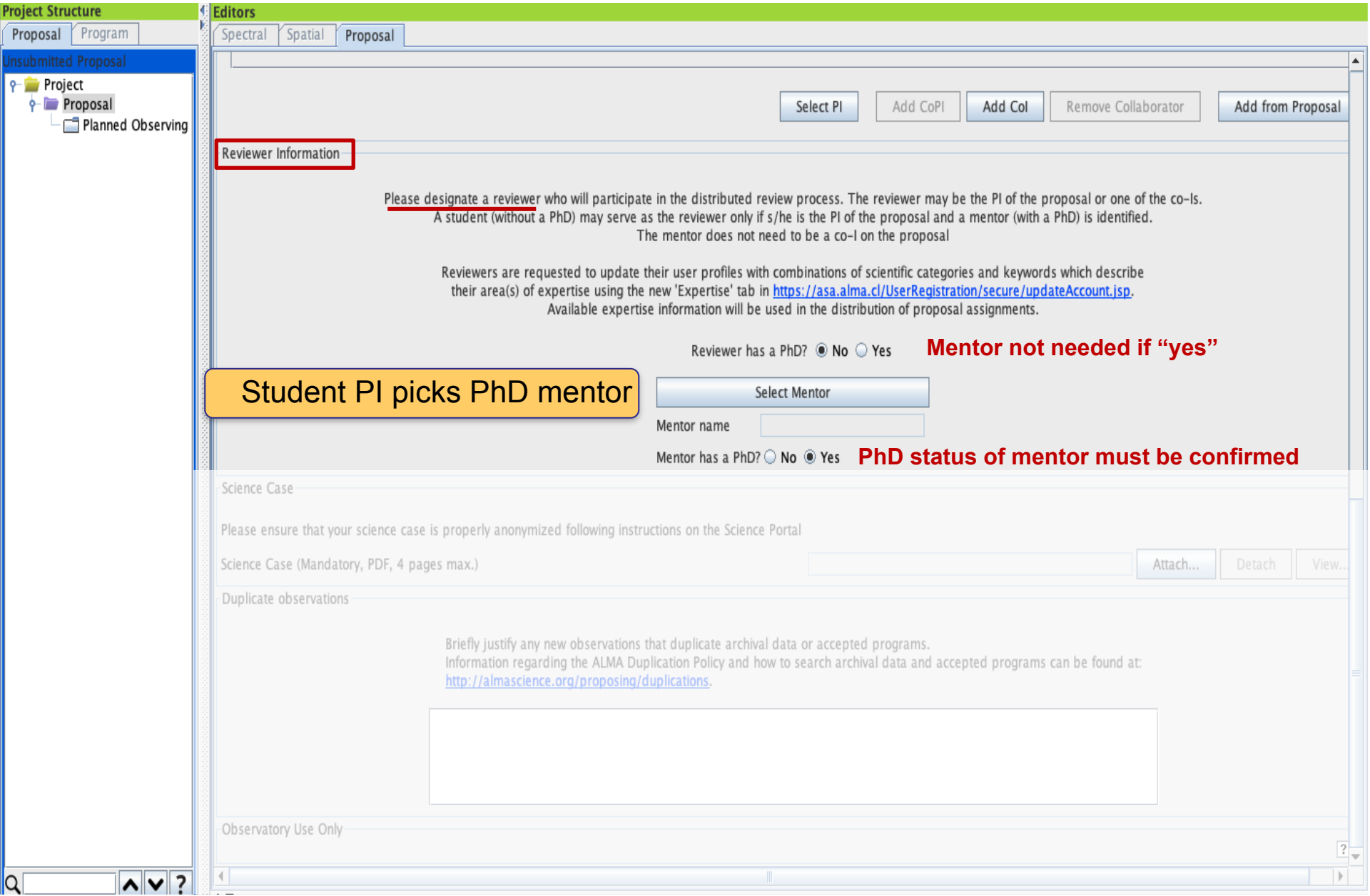
Please provide the technical justification for the time requested on JWST as a joint proposal

Please provide the technical justification for the time requested on VLA as a joint proposal

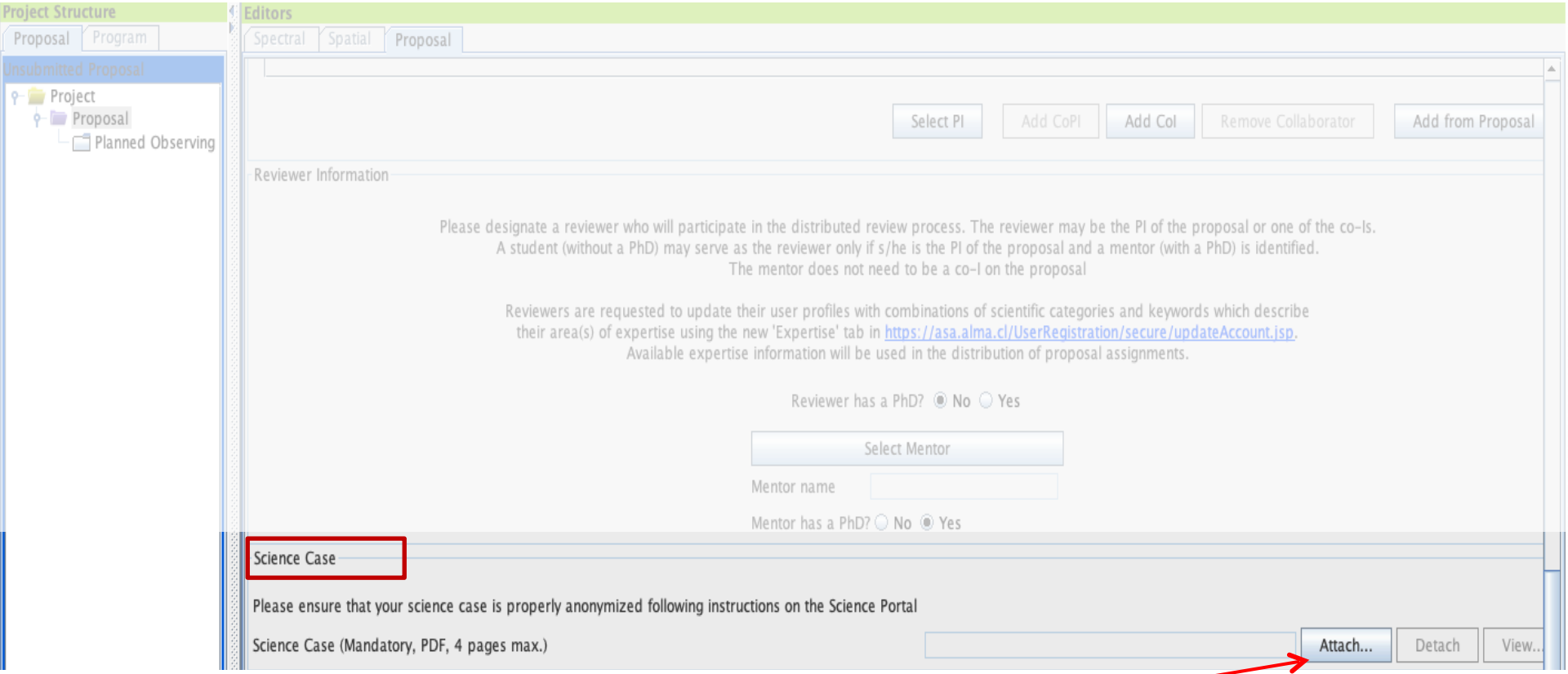
Proposal: pick PI, CoI & designate reviewer



Scroll down, pick reviewer/mentor



Attach the science case as a .pdf

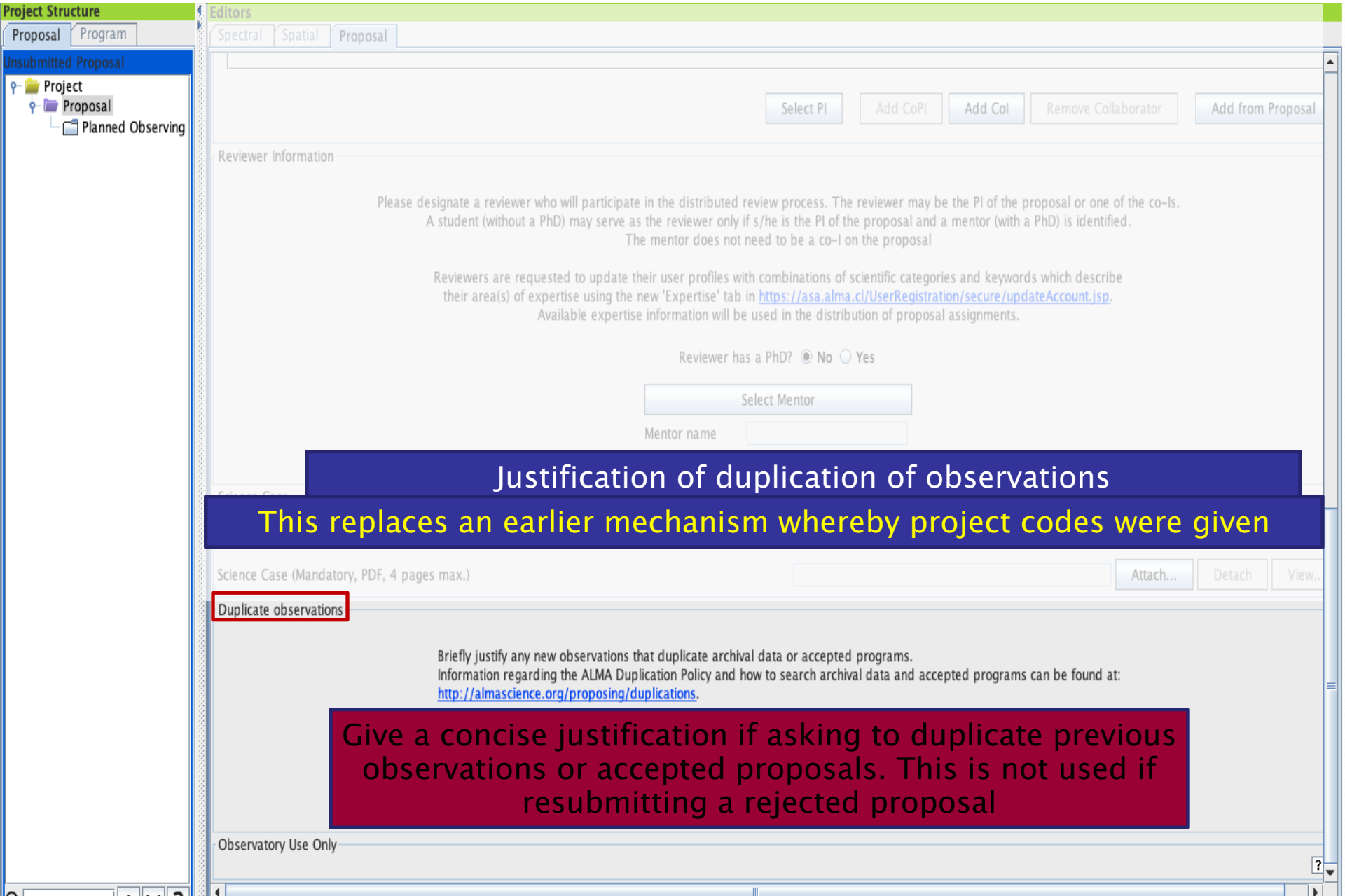


Attach a science case, max 4 page .pdf including figures

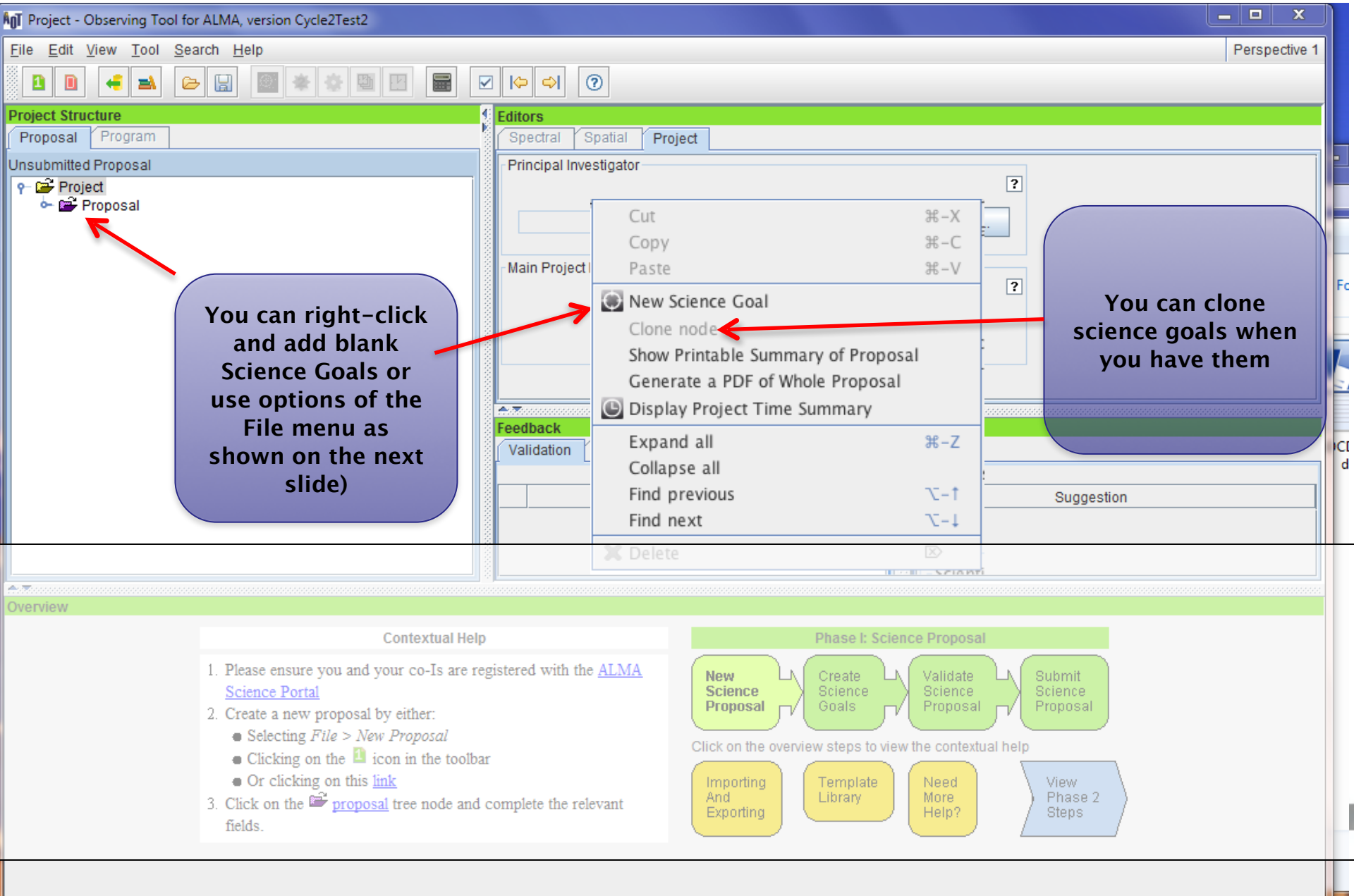
The .pdf may not contain more than 15% of its text in a font below 12pt
Some .pdf creation software pads files with hidden text in small fonts

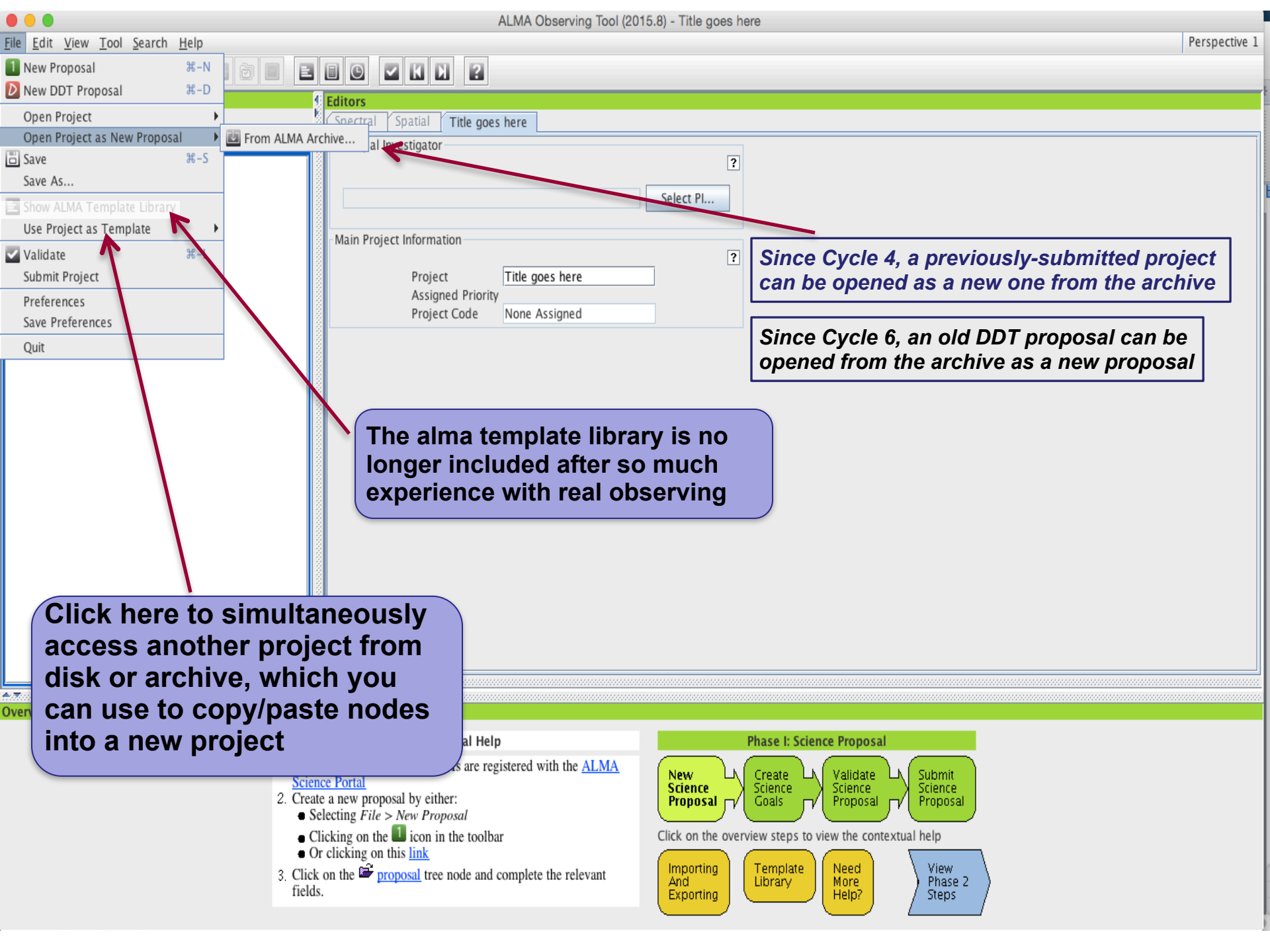
Large proposals are allowed 6 pages and require an additional one page management plan

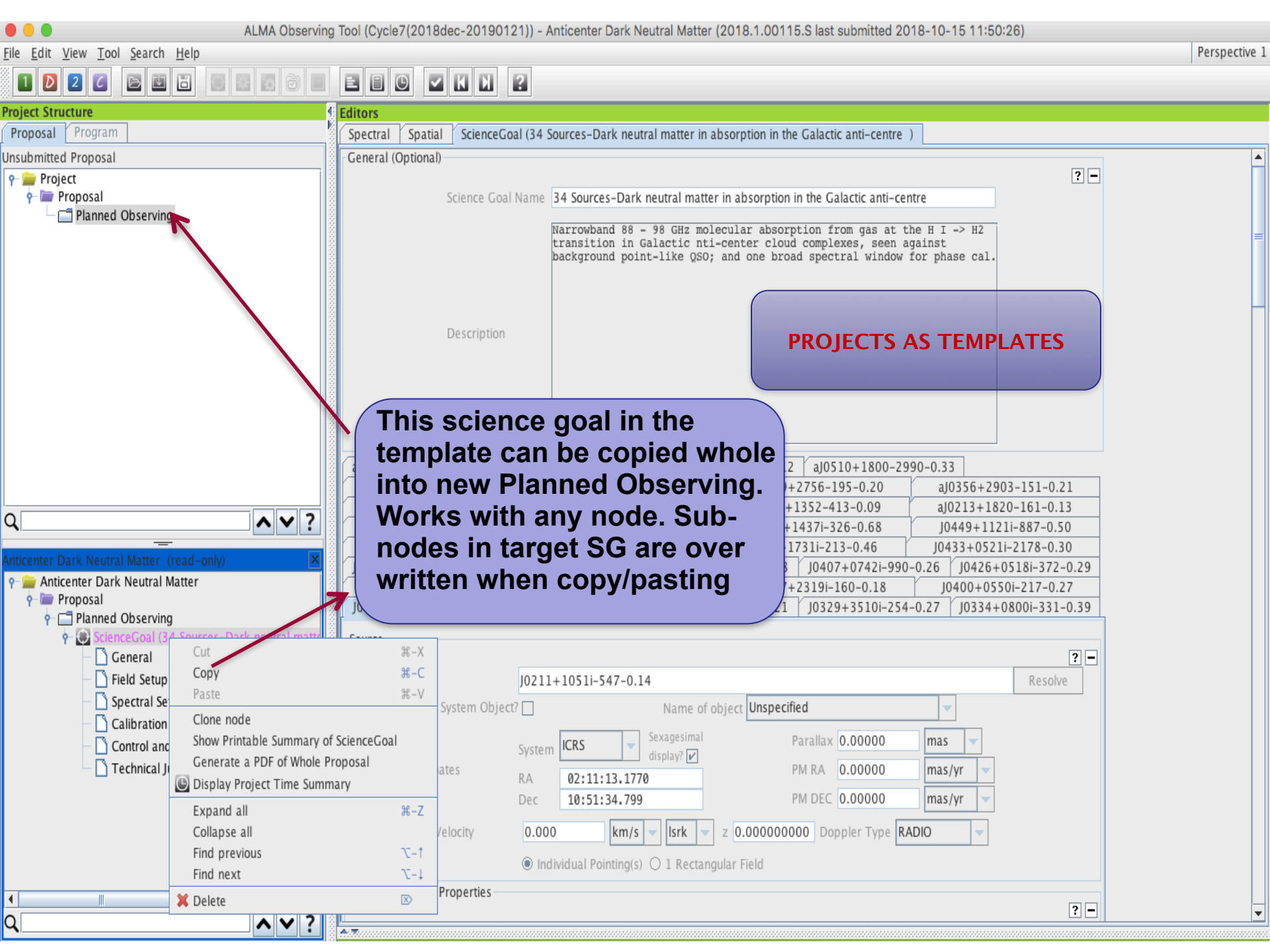
Justify duplicative observing

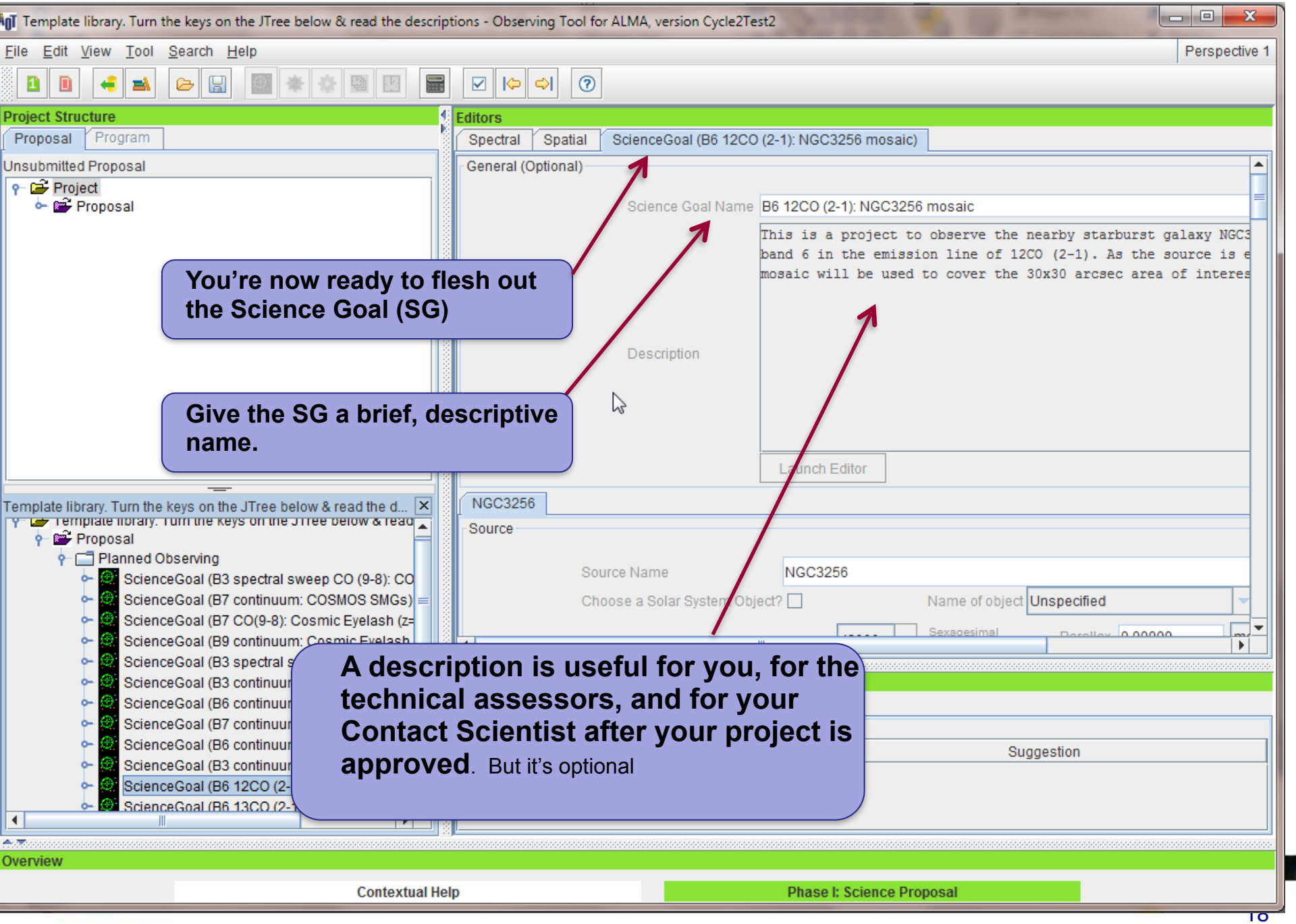


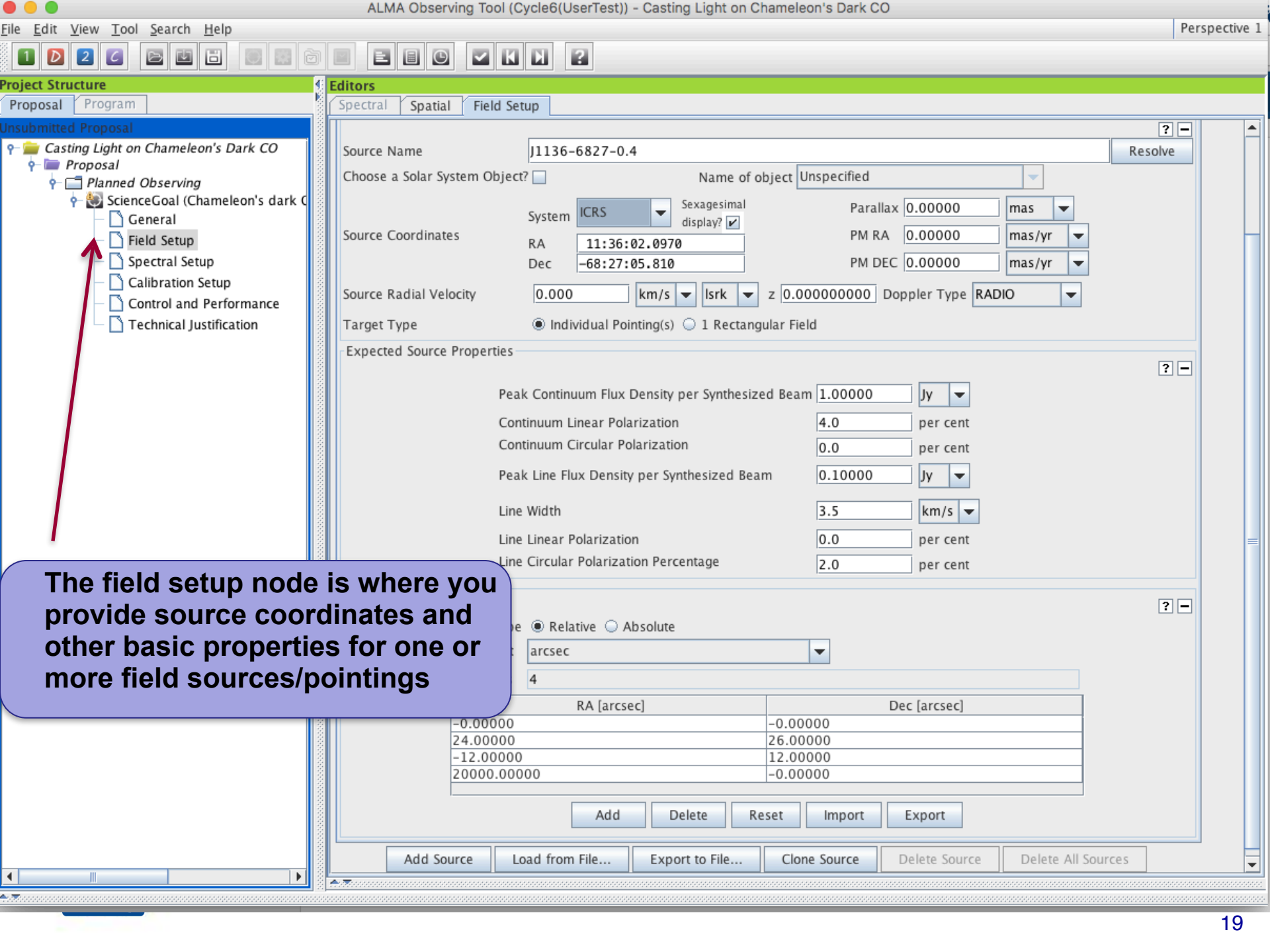
Do some science - add a Science Goal

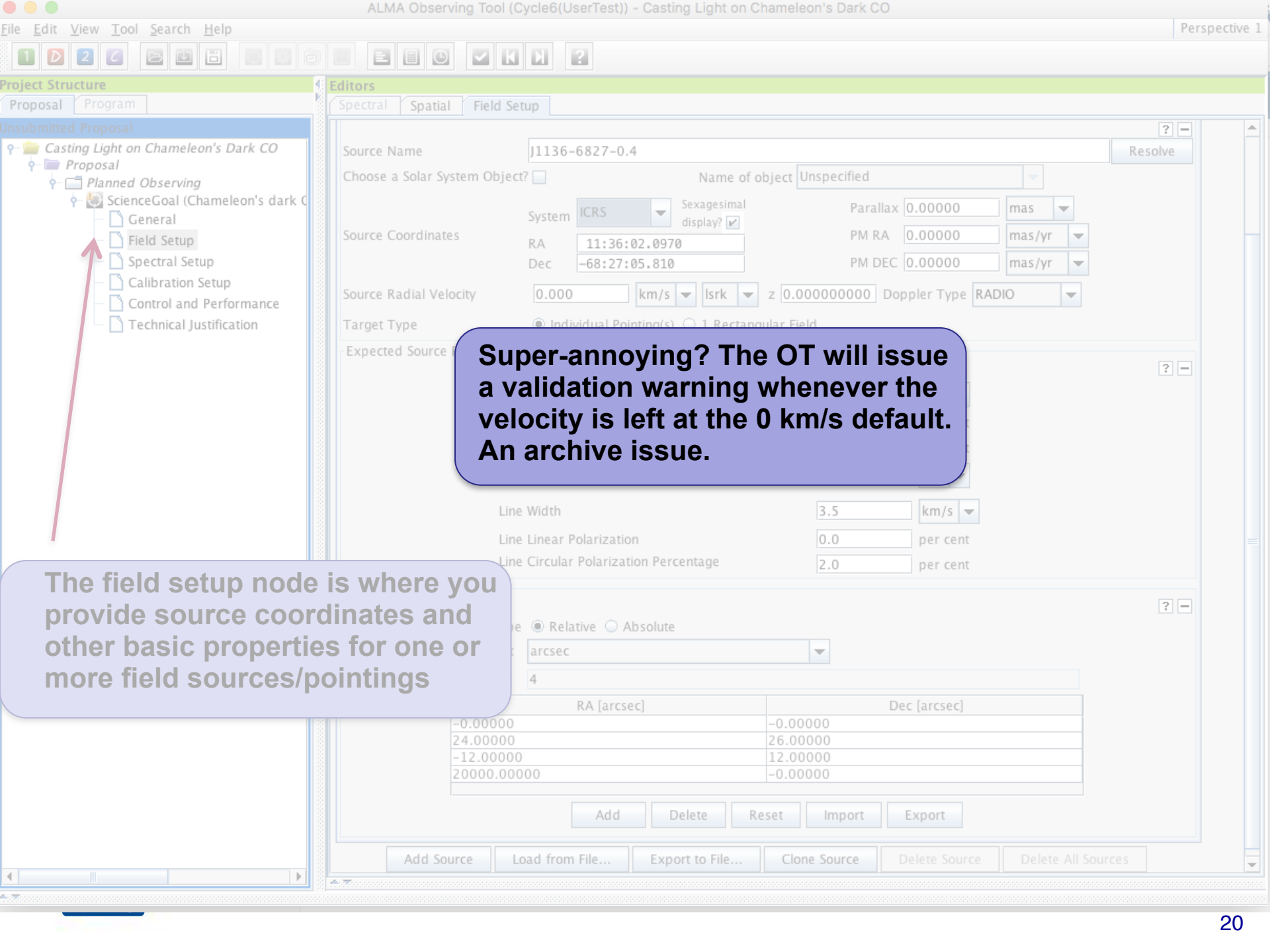


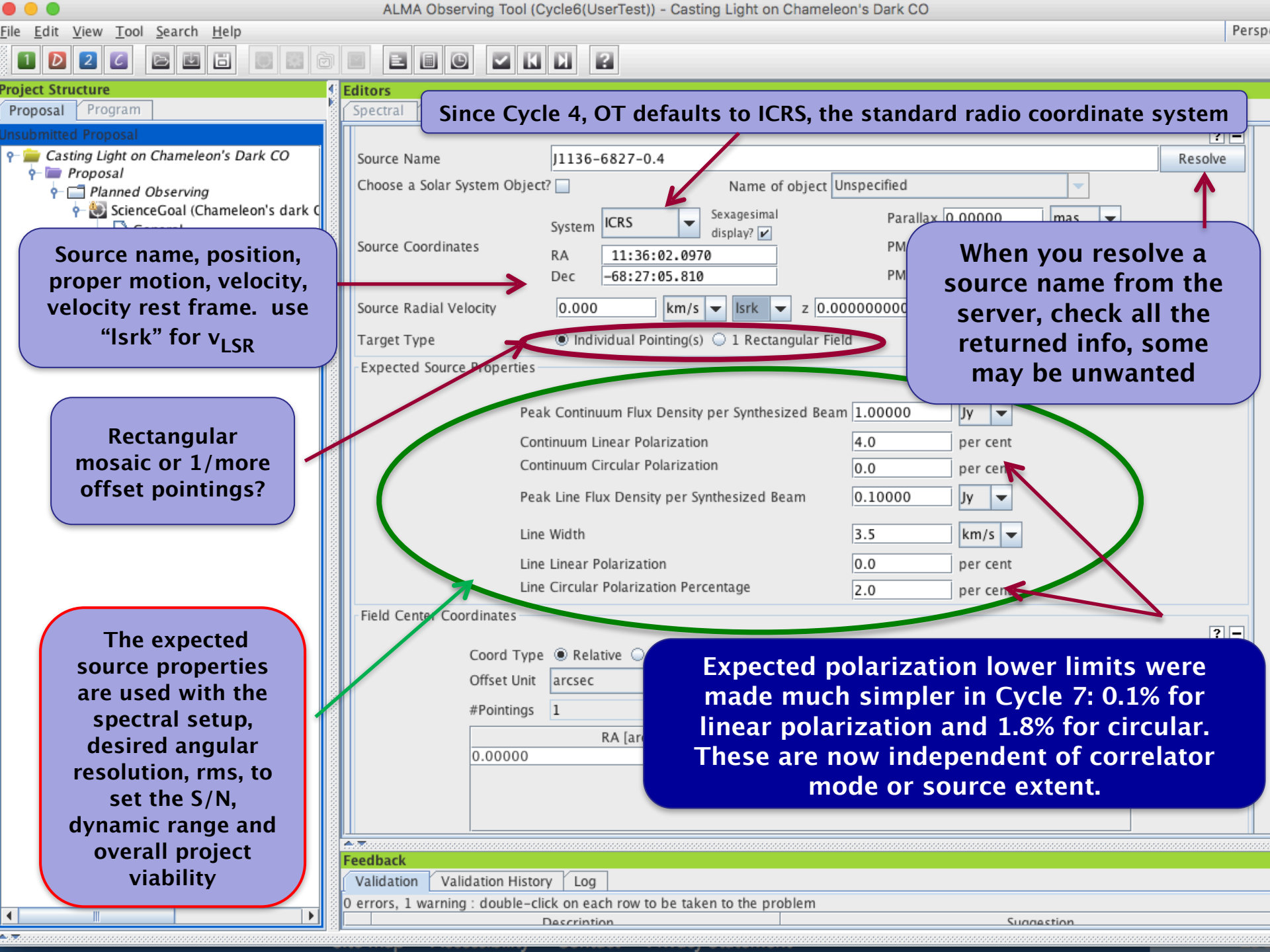

ALMA Observing Tool (2015.8) - Title goes here
File Edit View Tool Search Help
Perspective 1
New Proposal ⌘-N
New DDT Proposal ⌘-D
Open Project
Open Project as New Proposal
From ALMA Archive...
Save ⌘-S
Save As...
Show ALMA Template Library
Use Project as Template
Validate ⌘-
Submit Project
Preferences
Save Preferences
Quit
Editors
Spectral
Spatial
Title goes here
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 one from the archive
Since Cycle 6, an old DDT proposal can be opened from the archive as a new proposal
The alma template library is no longer included after so much experience with real observing
Click here to simultaneously access another project from disk or archive, which you can use to copy/paste nodes into a new project
Science Portal
2. Create a new proposal by either:
Selecting File > New Proposal
Clicking on the icon in the toolbar
Or clicking on this link
3. Click on the proposal tree node and complete the relevant fields.
Phase I: Science Proposal
New Science Proposal
Create Science Goals
Validate Science Proposal
Submit Science Proposal
Click on the overview steps to view the contextual help
Importing And Exporting
Template Library
Need More Help?
View Phase 2 Steps


ALMA Observing Tool (Cycle7(2018dec-20190121)) - Anticenter Dark Neutral Matter (2018.1.00115.S last submitted 2018-10-15 11:50:26)
File Edit View Tool Search Help
Perspective 1
Project Structure
Proposal Program
Unsubmitted Proposal
Project
Proposal
Planned Observing
Editors
Spectral Spatial ScienceGoal (34 Sources-Dark neutral matter in absorption in the Galactic anti-centre)
General (Optional)
Science Goal Name 34 Sources-Dark neutral matter in absorption in the Galactic anti-centre
Description
Narrowband 88 - 98 GHz molecular absorption from gas at the H I -> H2 transition in Galactic nti-center cloud complexes, seen against background point-like QSO; and one broad spectral window for phase cal.
PROJECTS AS TEMPLATES
This science goal in the template can be copied whole into new Planned Observing. Works with any node. Sub-nodes in target SG are over written when copy/pasting
aJ0510+1800-2990-0.33
aJ0356+2903-151-0.21
aJ0213+1820-161-0.13
J0449+1121i-887-0.50
J0433+0521i-2178-0.30
J0426+0518i-372-0.29
J0400+0550i-217-0.27
J0334+0800i-331-0.39
Anticenter Dark Neutral Matter (read-only)
Anticenter Dark Neutral Matter
Proposal
Planned Observing
General
Field Setup
Spectral Se
Calibration
Control and
Technical J
Cut ⌘-X
Copy ⌘-C
Paste ⌘-V
Clone node
Show Printable Summary of ScienceGoal
Generate a PDF of Whole Proposal
Display Project Time Summary
Expand all ⌘-Z
Collapse all
Find previous ⌥-↑
Find next ⌥-↓
Delete
J0211+1051i-547-0.14
Resolve
System Object?
Name of object Unspecified
System ICRS
Sexagesimal display?
RA 02:11:13.1770
Dec 10:51:34.799
Parallax 0.00000 mas
PM RA 0.00000 mas/yr
PM DEC 0.00000 mas/yr
Velocity 0.000 km/s lsrk z 0.000000000 Doppler Type RADIO
Individual Pointing(s) 1 Rectangular Field
Properties

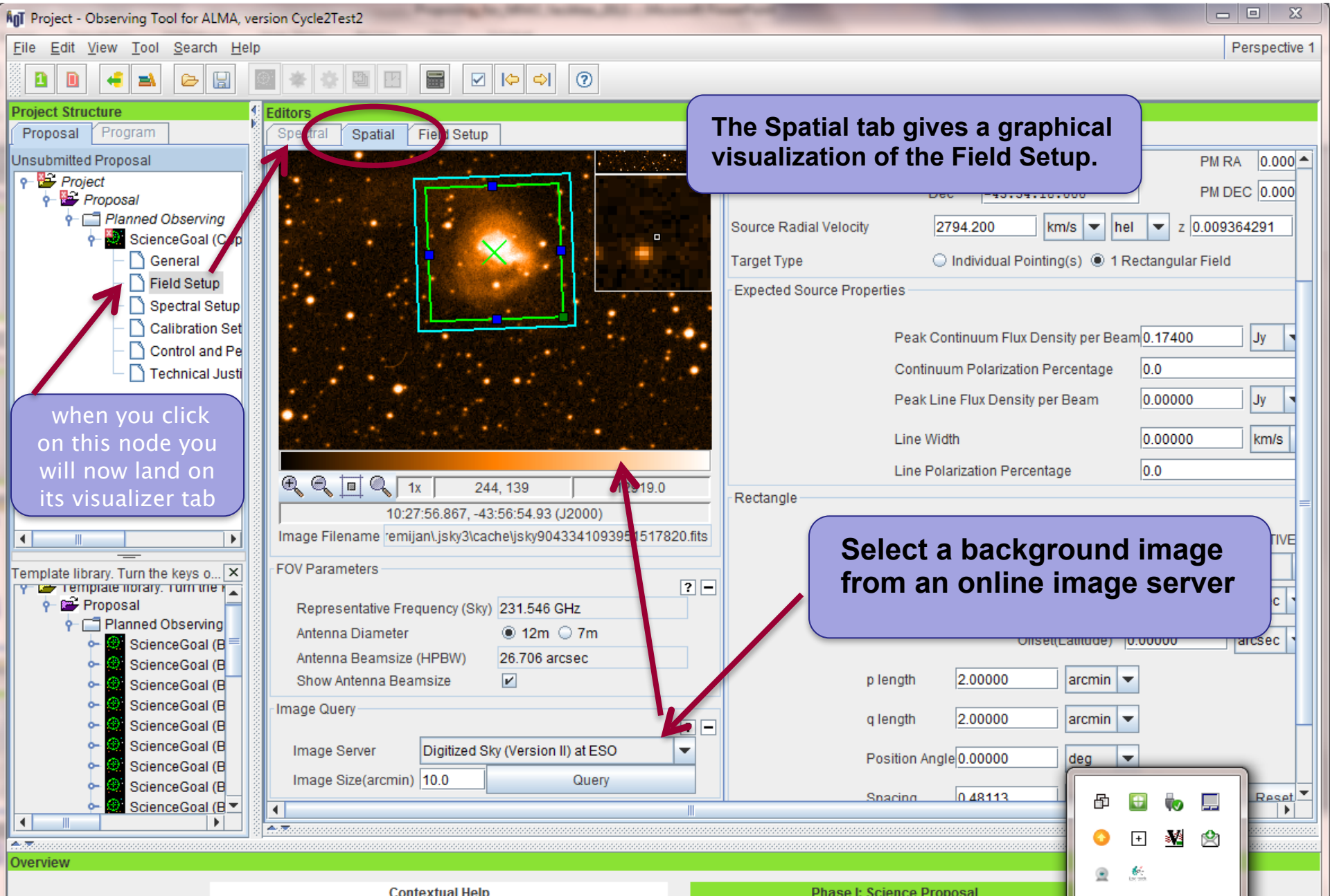

Template library. Turn the keys on the JTree below & read the descriptions - Observing Tool for ALMA, version Cycle2Test2
File Edit View Tool Search Help
Perspective 1
Project Structure
Proposal Program
Unsubmitted Proposal
Project
Proposal
Editors
Spectral Spatial ScienceGoal (B6 12CO (2-1): NGC3256 mosaic)
General (Optional)
Science Goal Name B6 12CO (2-1): NGC3256 mosaic
This is a project to observe the nearby starburst galaxy NGC3
band 6 in the emission line of 12CO (2-1). As the source is e
mosaic will be used to cover the 30x30 arcsec area of interes
Description
Launch Editor
You're now ready to flesh out the Science Goal (SG)
Give the SG a brief, descriptive name.
Template library. Turn the keys on the JTree below & read the d...
Proposal
Planned Observing
ScienceGoal (B3 spectral sweep CO (9-8): CO
ScienceGoal (B7 continuum: COSMOS SMGs)
ScienceGoal (B7 CO(9-8): Cosmic Eyelash (z=
ScienceGoal (B9 continuum: Cosmic Eyelash
ScienceGoal (B6 12CO (2-
NGC3256
Source
Source Name NGC3256
Choose a Solar System Object?
Name of object Unspecified
Sexagesimal
A description is useful for you, for the technical assessors, and for your Contact Scientist after your project is approved. But it's optional
Suggestion
Overview
Contextual Help
Phase I: Science Proposal


ALMA Observing Tool (Cycle6(UserTest)) - Casting Light on Chameleon's Dark CO
File Edit View Tool Search Help
Perspective 1
Project Structure
Proposal Program
Unsubmitted Proposal
Casting Light on Chameleon's Dark CO
Proposal
Planned Observing
ScienceGoal (Chameleon's dark C
General
Field Setup
Spectral Setup
Calibration Setup
Control and Performance
Technical Justification
Editors
Spectral Spatial Field Setup
Source Name
J1136-6827-0.4
Resolve
Choose a Solar System Object?
Name of object
Unspecified
Source Coordinates
System
ICRS
Sexagesimal display?
RA
11:36:02.0970
Dec
-68:27:05.810
Parallax
0.00000
mas
PM RA
0.00000
mas/yr
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
Relative
Absolute
arcsec
4
RA [arcsec]
Dec [arcsec]
-0.00000
-0.00000
24.00000
26.00000
-12.00000
12.00000
20000.00000
-0.00000
Add
Delete
Reset
Import
Export
Add Source
Load from File...
Export to File...
Clone Source
Delete Source
Delete All Sources
The field setup node is where you provide source coordinates and other basic properties for one or more field sources/pointings

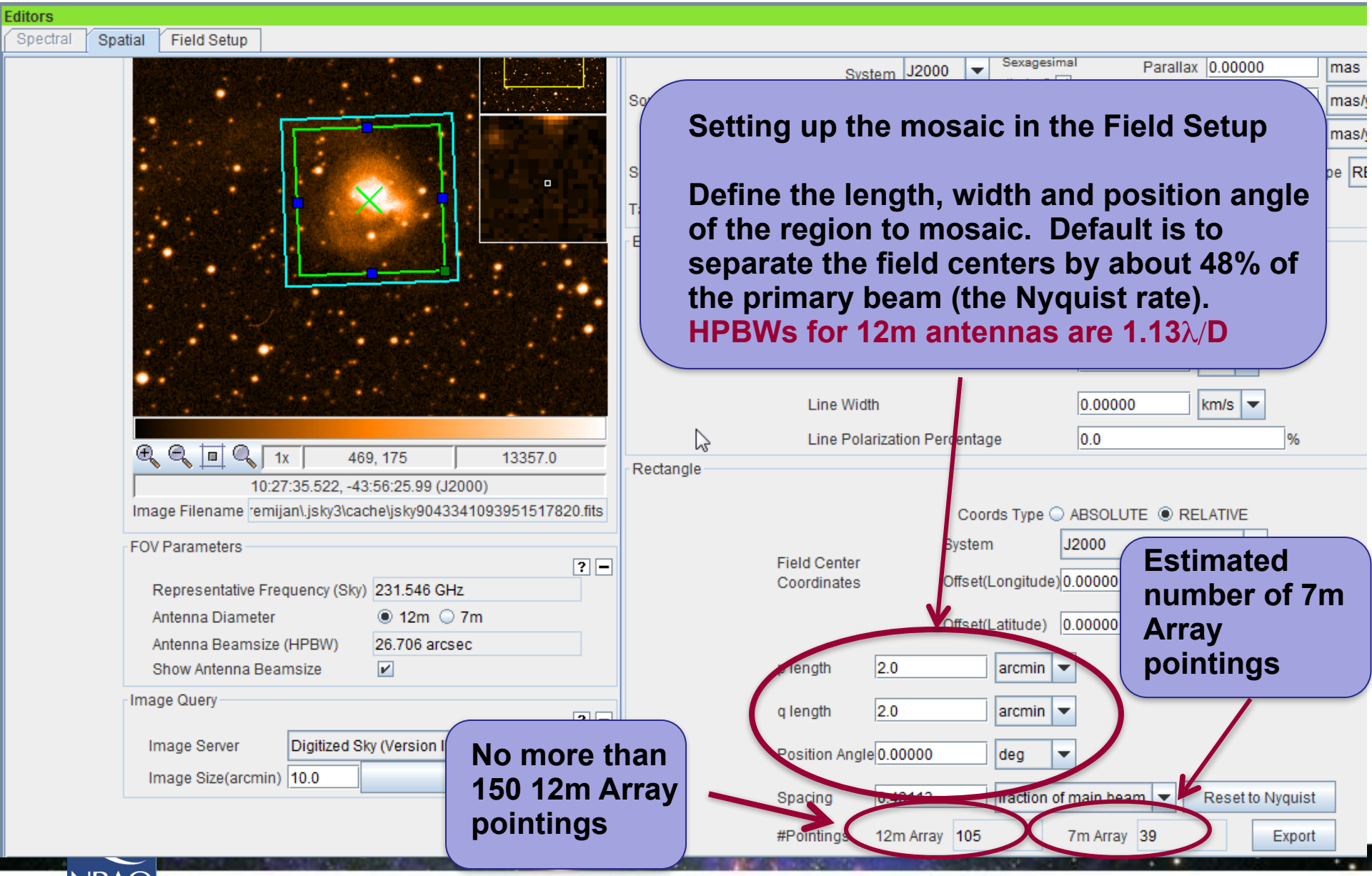

ALMA Observing Tool (Cycle6(UserTest)) - Casting Light on Chameleon's Dark CO
File Edit View Tool Search Help
Perspective 1
Project Structure
Proposal Program
Unsubmitted Proposal
Casting Light on Chameleon's Dark CO
Proposal
Planned Observing
ScienceGoal (Chameleon's dark C
General
Field Setup
Spectral Setup
Calibration Setup
Control and Performance
Technical Justification
Editors
Spectral Spatial Field Setup
Source Name
J1136-6827-0.4
Resolve
Choose a Solar System Object?
Name of object
Unspecified
Source Coordinates
System
ICRS
Sexagesimal display?
RA
11:36:02.0970
Dec
-68:27:05.810
Parallax
0.00000
mas
PM RA
0.00000
mas/yr
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
Super-annoying? The OT will issue a validation warning whenever the velocity is left at the 0 km/s default. An archive issue.
Line Width
3.5
km/s
Line Linear Polarization
0.0
per cent
Line Circular Polarization Percentage
2.0
per cent
Relative
Absolute
arcsec
4
RA [arcsec]
Dec [arcsec]
-0.00000
-0.00000
24.00000
26.00000
-12.00000
12.00000
20000.00000
-0.00000
Add
Delete
Reset
Import
Export
Add Source
Load from File...
Export to File...
Clone Source
Delete Source
Delete All Sources
The field setup node is where you provide source coordinates and other basic properties for one or more field sources/pointings


ALMA Observing Tool (Cycle6(UserTest)) - Casting Light on Chameleon's Dark CO
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 C
Editors
Spectral
Since Cycle 4, OT defaults to ICRS, the standard radio coordinate system
Source Name
J1136-6827-0.4
Resolve
Choose a Solar System Object?
Name of object
Unspecified
System
ICRS
Sexagesimal display?
Parallax
mas
Source Coordinates
RA
11:36:02.0970
Dec
-68:27:05.810
PM
Source Radial Velocity
0.000
km/s
lsrk
z
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
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
Field Center Coordinates
Coord Type
Relative
Offset Unit
arcsec
#Pointings
1
RA
0.00000
Source name, position, proper motion, velocity, velocity rest frame. use "lsrk" for v_{LSR}
When you resolve a source name from the server, check all the returned info, some may be unwanted
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
Expected polarization lower limits were made much simpler in Cycle 7: 0.1% for linear polarization and 1.8% for circular. These are now independent of correlator mode or source extent.
Feedback
Validation Validation History Log
0 errors, 1 warning : double-click on each row to be taken to the problem
Description
Suggestion

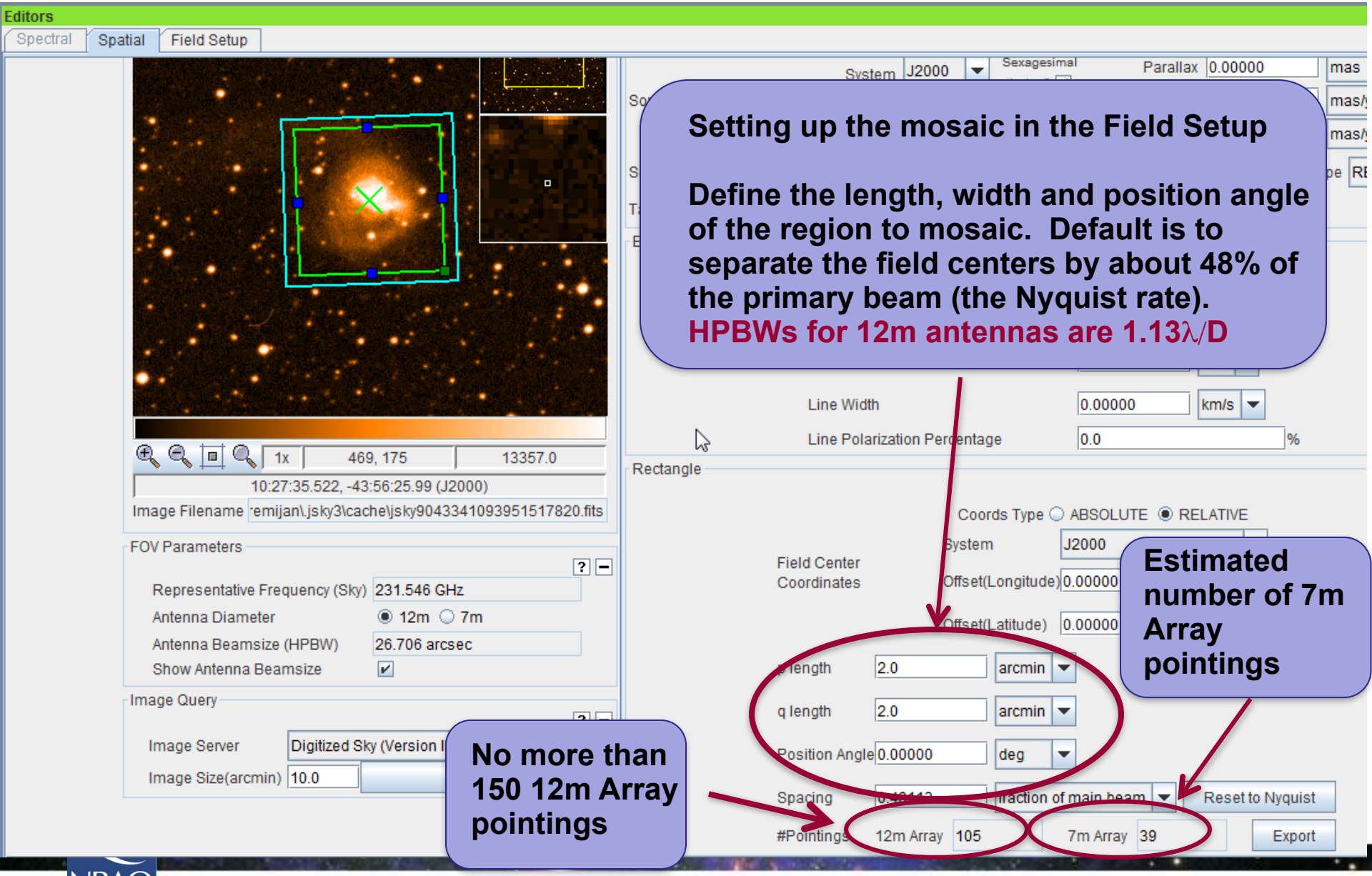
The Spatial Visualizer



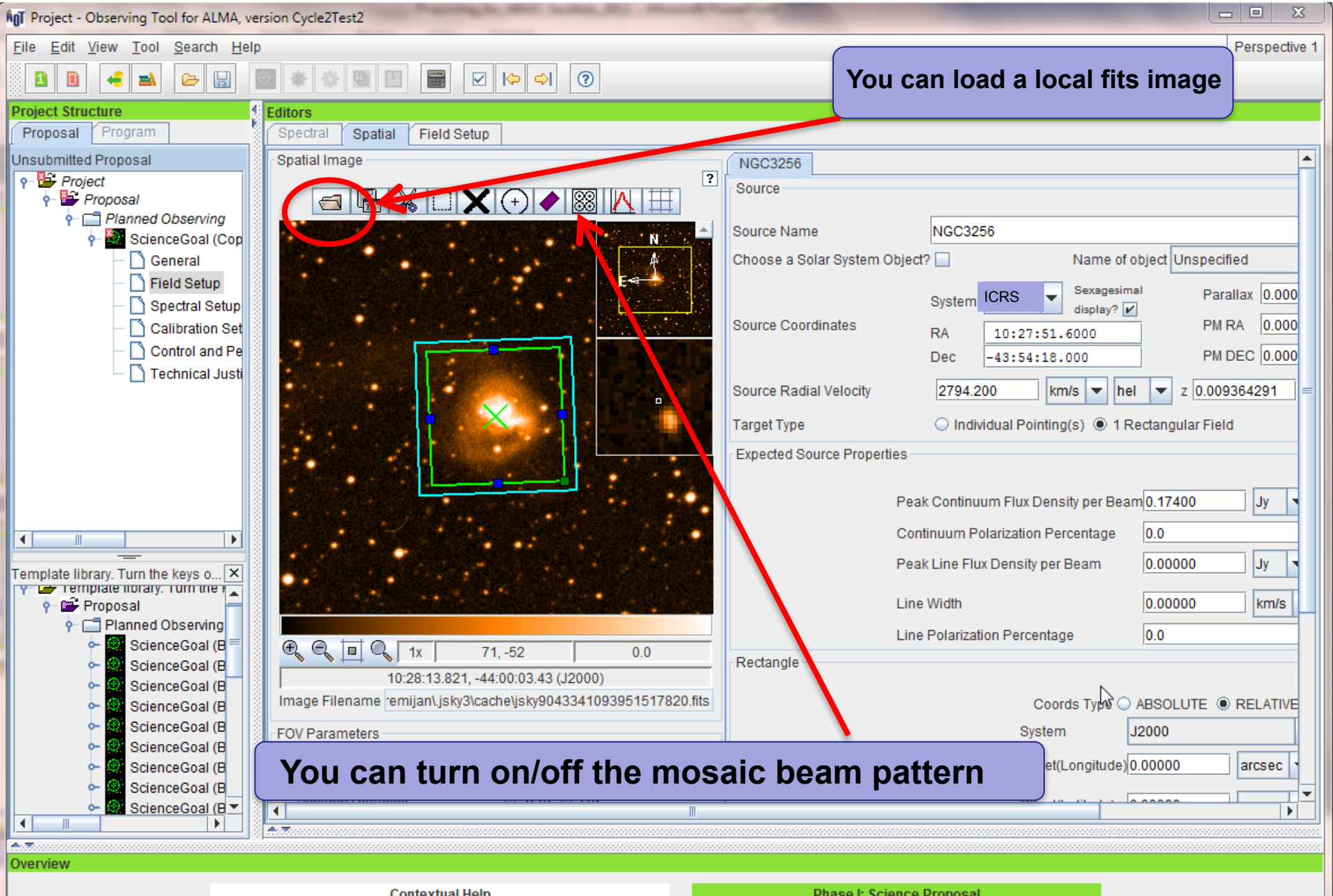
Crafting Mosaics



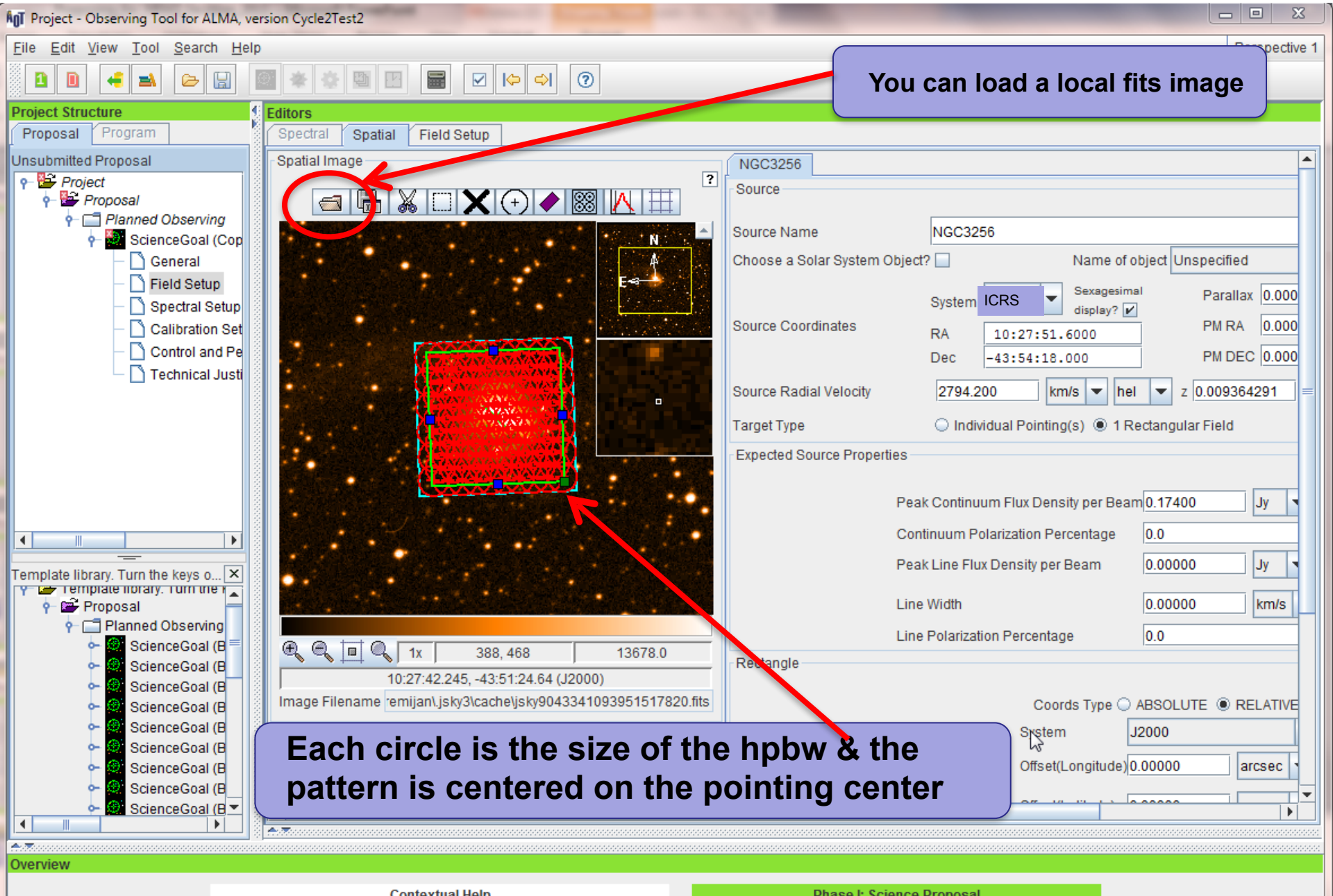
Crafting Mosaics



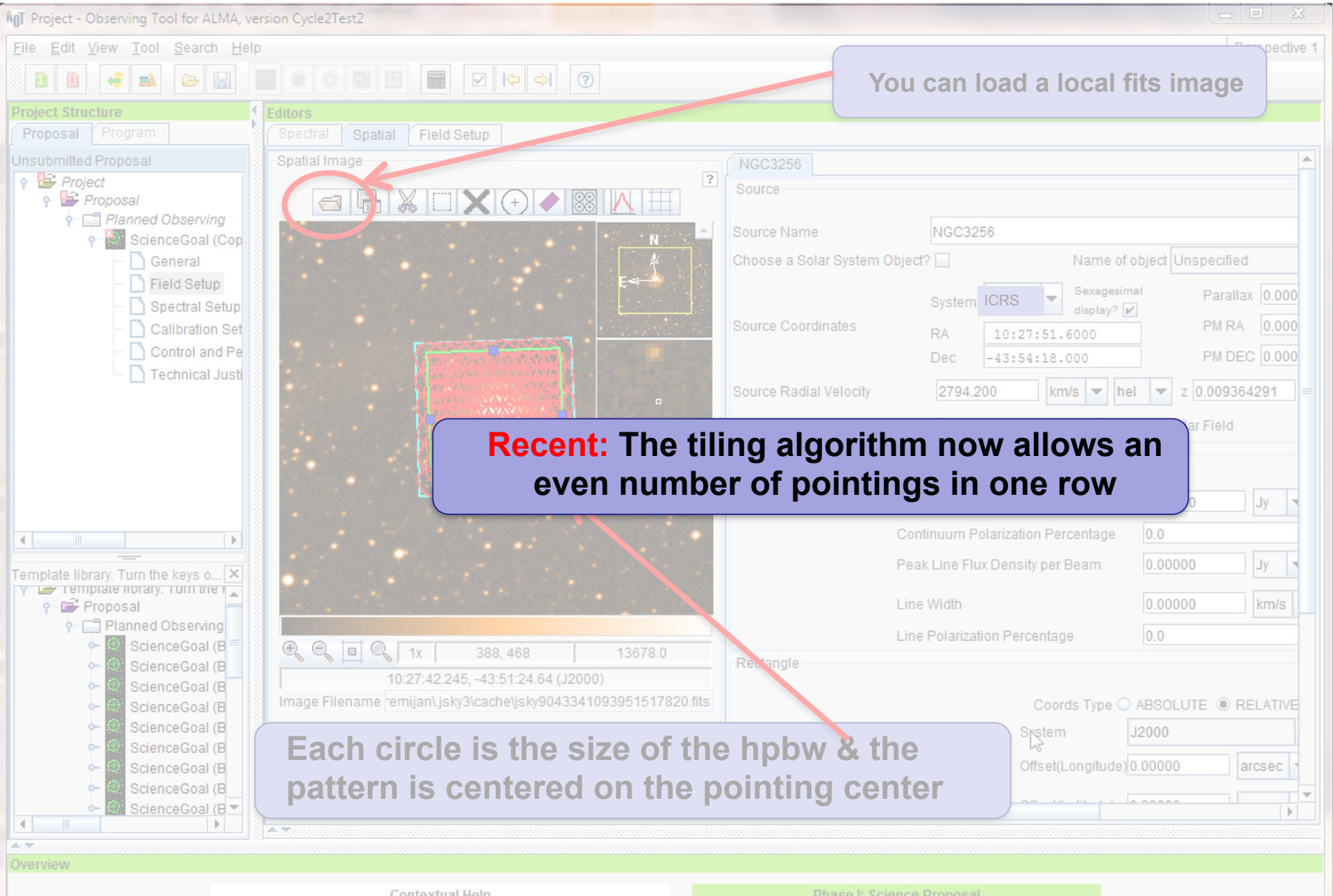
Crafting Mosaics



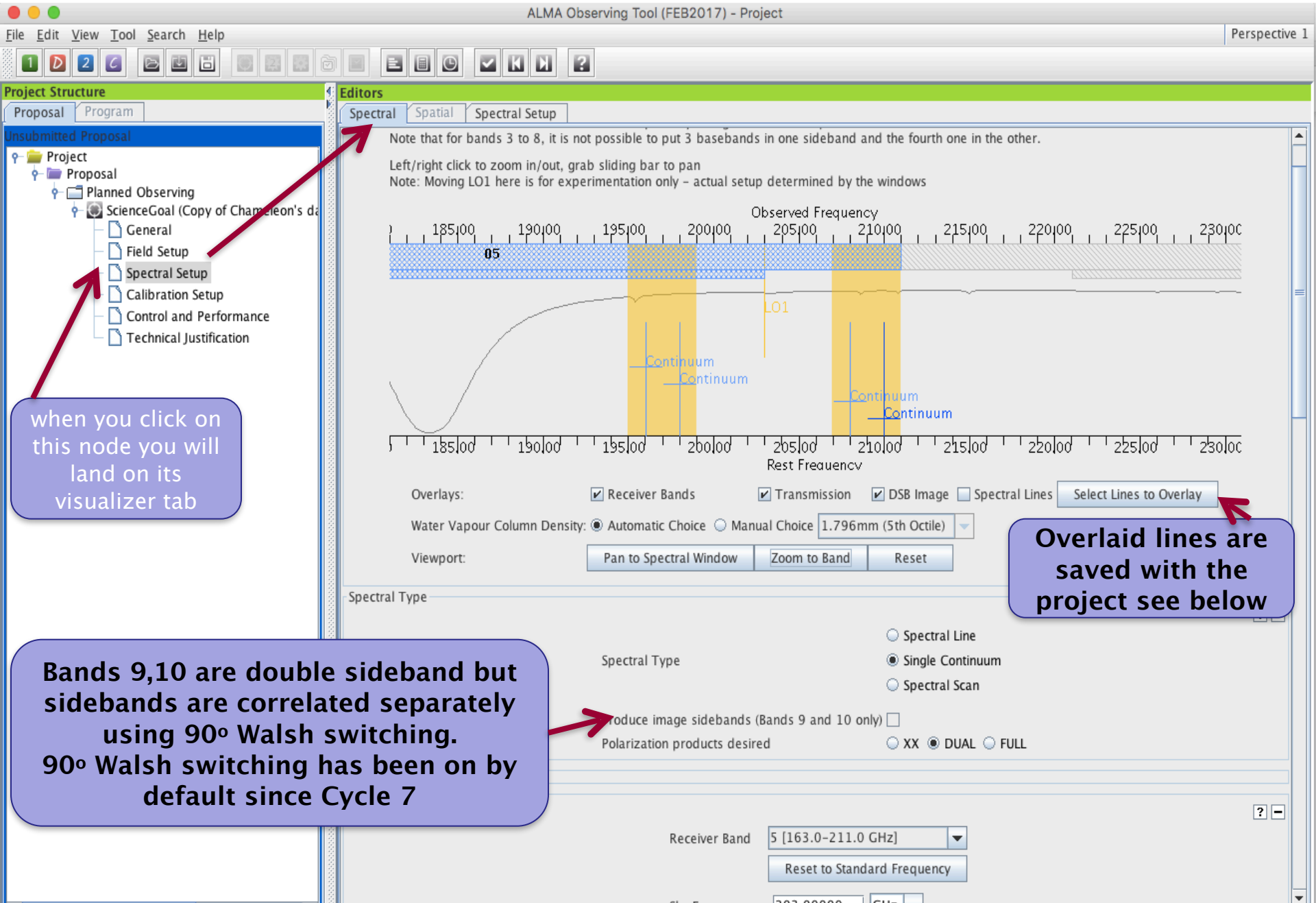
Crafting and displaying mosaics



Crafting and displaying mosaics



The Spectral Setup Tab

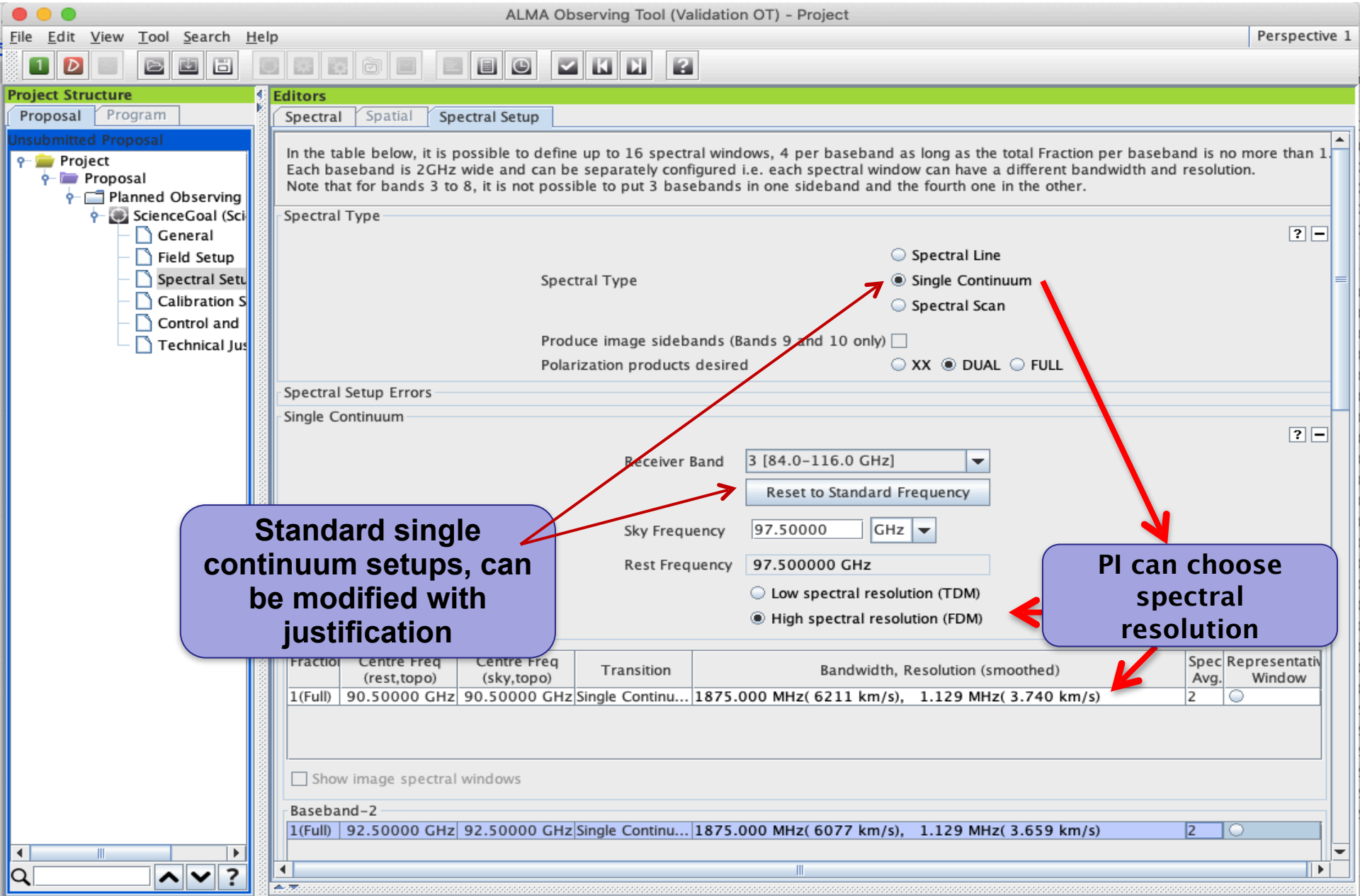


when you click on this node you will land on its visualizer tab

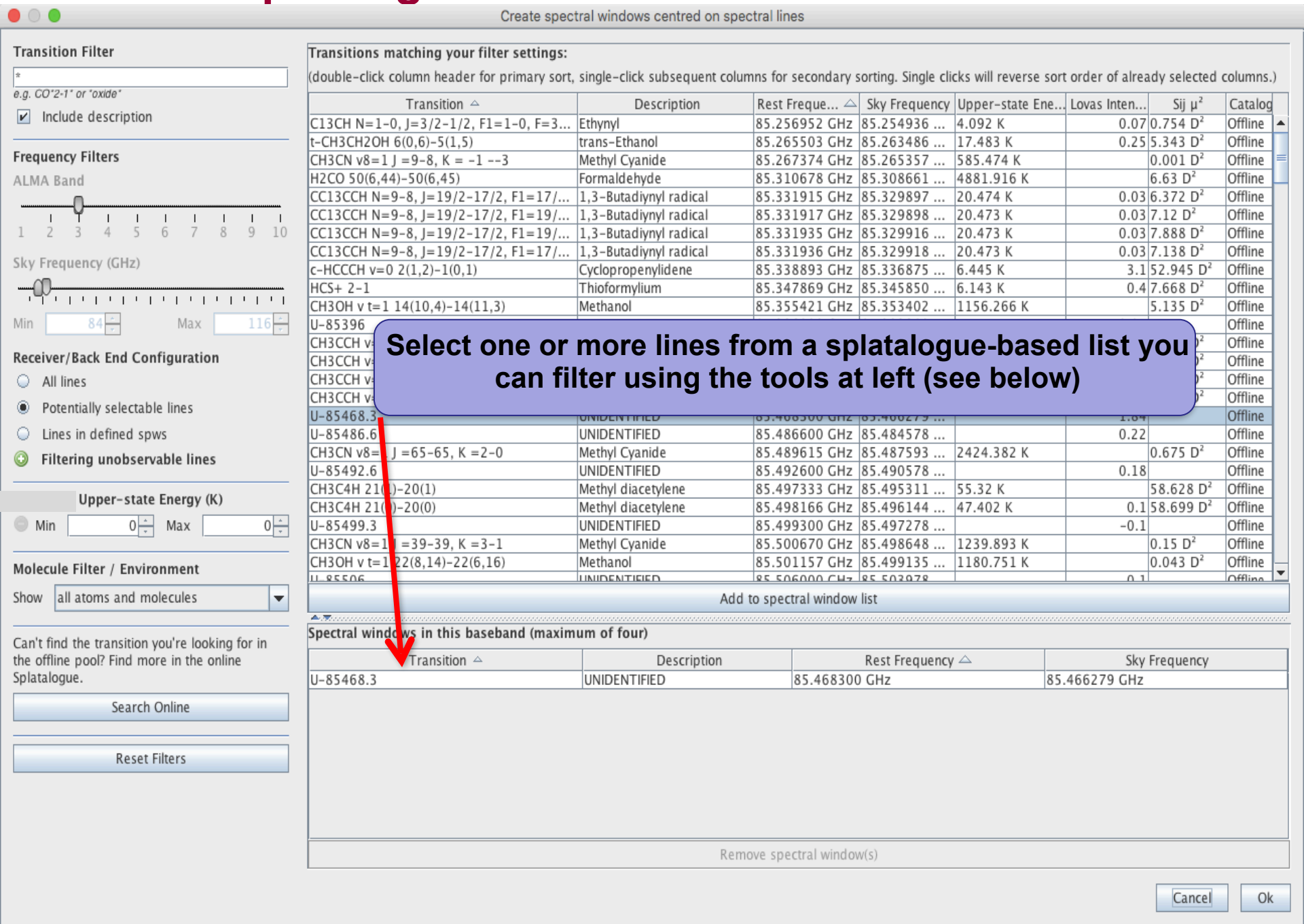
Overlaid lines are saved with the project see below

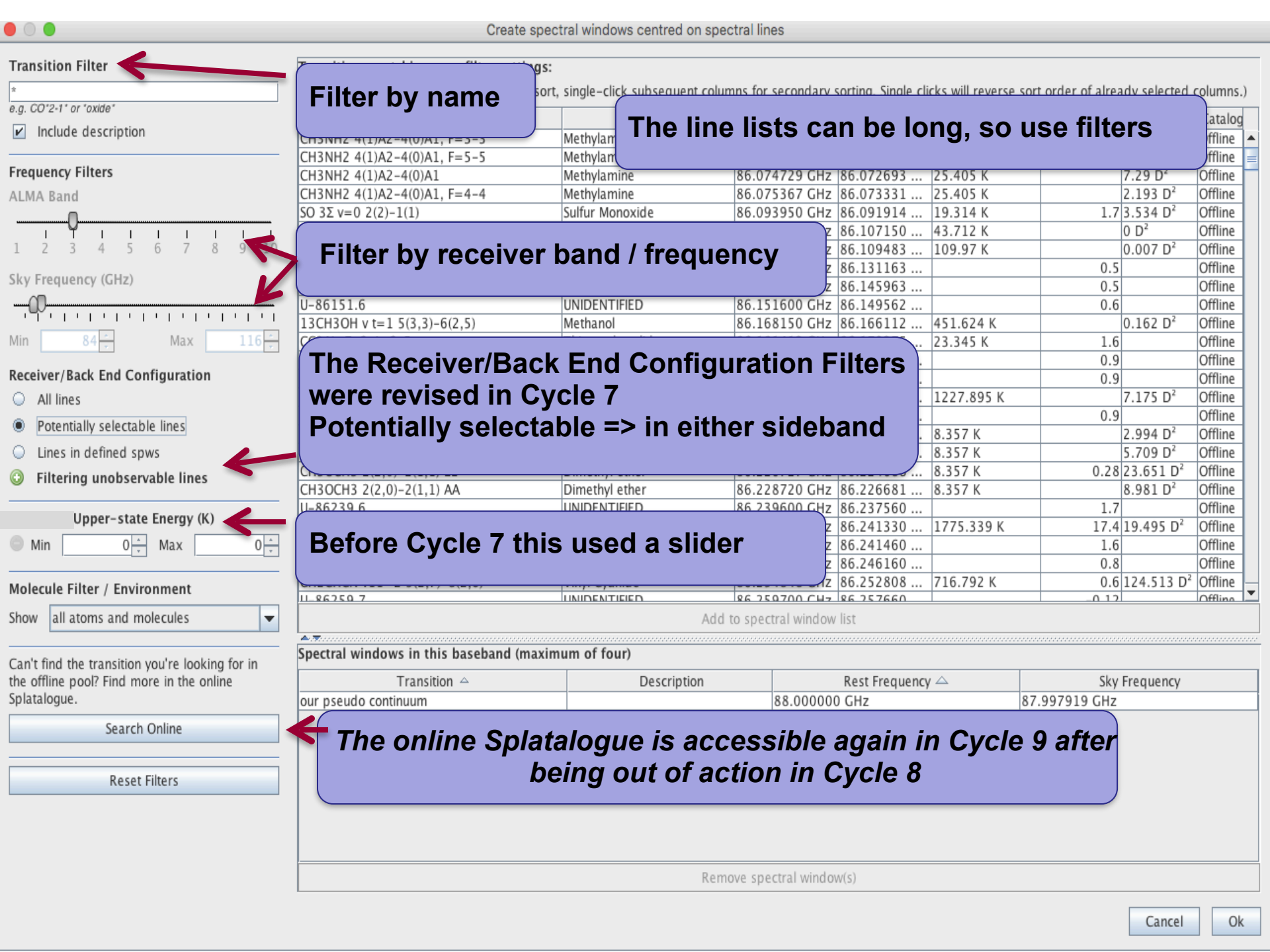
Bands 9,10 are double sideband but sidebands are correlated separately using 90º Walsh switching.
90º Walsh switching has been on by default since Cycle 7

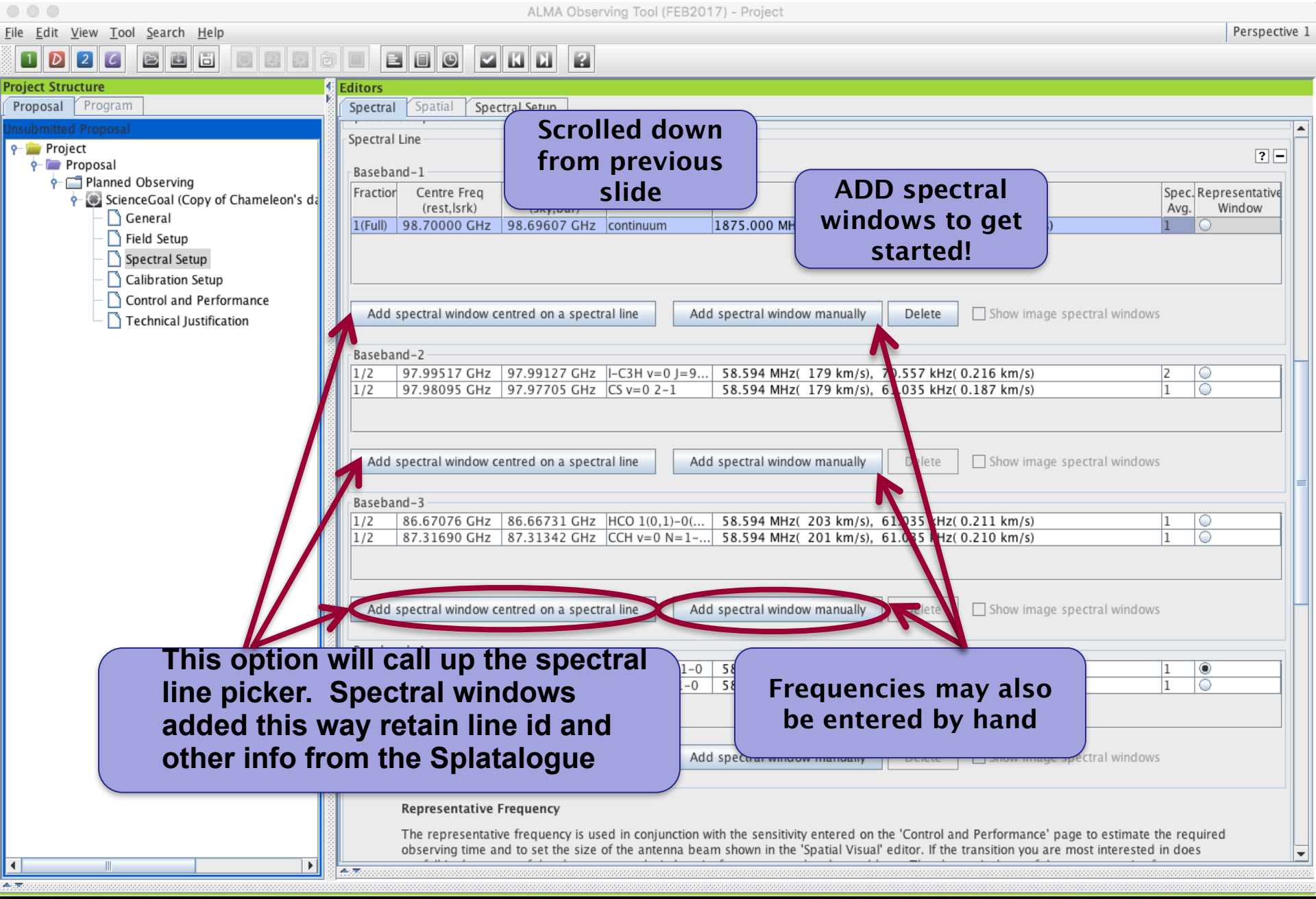
Continuum & choice of resolution

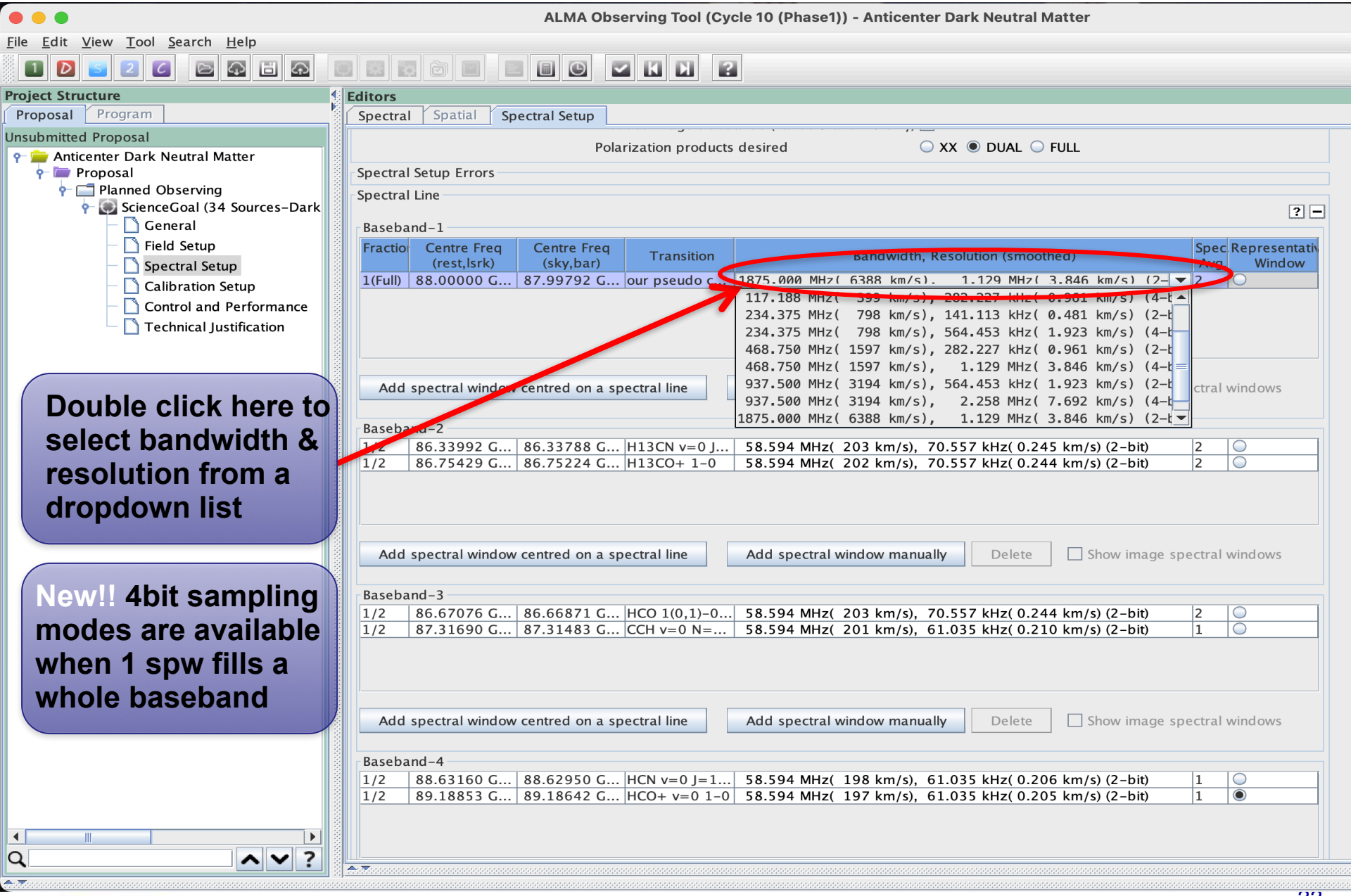


Online Spatalogue

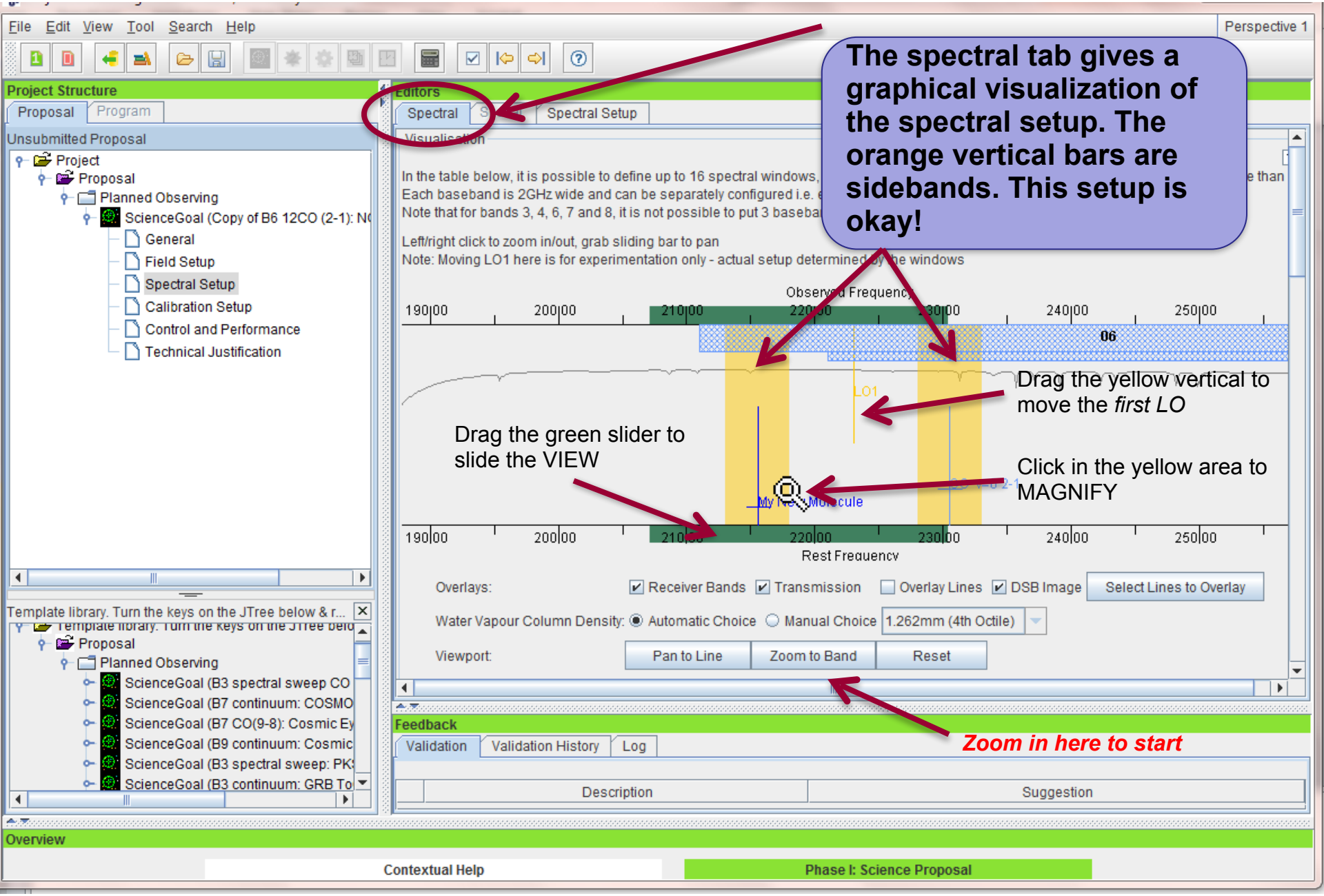



Create spectral windows centred on spectral lines
Transition Filter
e.g. CO*2-1* or *oxide*
Include description
Frequency Filters
ALMA Band
1 2 3 4 5 6 7 8 9 10
Sky Frequency (GHz)
Min 84 Max 116
Receiver/Back End Configuration
All lines
Potentially selectable lines
Lines in defined spws
Filtering unobservable lines
Upper-state Energy (K)
Min 0 Max 0
Molecule Filter / Environment
Show all atoms and molecules
Can't find the transition you're looking for in the offline pool? Find more in the online Splatalogue.
Search Online
Reset Filters
Filter by name
The line lists can be long, so use filters
Filter by receiver band / frequency
The Receiver/Back End Configuration Filters were revised in Cycle 7
Potentially selectable => in either sideband
Before Cycle 7 this used a slider
The online Splatalogue is accessible again in Cycle 9 after being out of action in Cycle 8
CH3NH2 4(1)A2-4(0)A1, F=5-5 Methylamine
CH3NH2 4(1)A2-4(0)A1 Methylamine 86.074729 GHz 86.072693 ... 25.405 K 7.29 D²
CH3NH2 4(1)A2-4(0)A1, F=4-4 Methylamine 86.075367 GHz 86.073331 ... 25.405 K 2.193 D²
SO 3Σ v=0 2(2)-1(1) Sulfur Monoxide 86.093950 GHz 86.091914 ... 19.314 K 1.7 3.534 D²
86.107150 ... 43.712 K 0 D²
86.109483 ... 109.97 K 0.007 D²
86.131163 ... 0.5
86.145963 ... 0.5
U-86151.6 UNIDENTIFIED 86.151600 GHz 86.149562 ... 0.6
13CH3OH v t=1 5(3,3)-6(2,5) Methanol 86.168150 GHz 86.166112 ... 451.624 K 0.162 D²
23.345 K 1.6
0.9
0.9
1227.895 K 7.175 D²
0.9
8.357 K 2.994 D²
8.357 K 5.709 D²
8.357 K 0.28 23.651 D²
CH3OCH3 2(2,0)-2(1,1) AA Dimethyl ether 86.228720 GHz 86.226681 ... 8.357 K 8.981 D²
86.237560 ... 1.7
86.241330 ... 1775.339 K 17.4 19.495 D²
86.241460 ... 1.6
86.246160 ... 0.8
86.252808 ... 716.792 K 0.6 124.513 D²
Add to spectral window list
Spectral windows in this baseband (maximum of four)
Transition
Description
Rest Frequency
Sky Frequency
our pseudo continuum 88.000000 GHz 87.997919 GHz
Remove spectral window(s)
Cancel
Ok

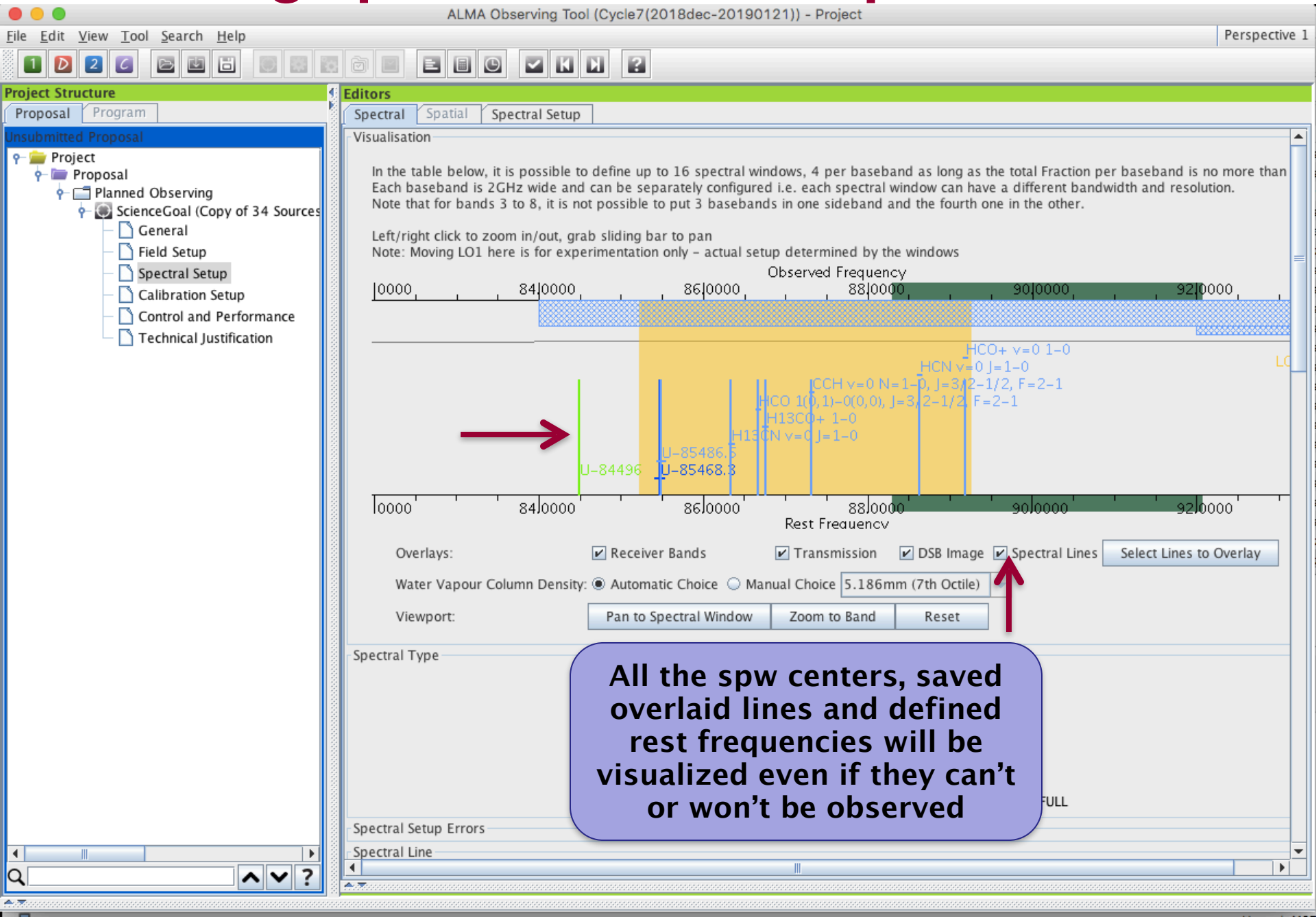

ALMA Observing Tool (FEB2017) - Project
File Edit View Tool Search Help
Perspective 1
Project Structure
Proposal Program
Unsubmitted Proposal
Project
Proposal
Planned Observing
ScienceGoal (Copy of Chameleon's da
General
Field Setup
Spectral Setup
Calibration Setup
Control and Performance
Technical Justification
Editors
Spectral Spatial Spectral Setup
Scrolled down from previous slide
ADD spectral windows to get started!
Spectral Line
Baseband-1
Fractior
Centre Freq (rest,lsrk)
Spec. Avg.
Representative Window
1(Full) 98.70000 GHz 98.69607 GHz continuum 1875.000 MH 1
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 l-C3H v=0 J=9... 58.594 MHz(179 km/s), 70.557 kHz(0.216 km/s) 2
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
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
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
Add spectral window centred on a spectral line
Add spectral window manually
Delete
Show image spectral windows
This option will call up the spectral line picker. Spectral 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


ALMA Observing Tool (Cycle 10 (Phase1)) - Anticenter Dark Neutral Matter
File Edit View Tool Search Help
Project Structure
Proposal Program
Unsubmitted Proposal
Anticenter Dark Neutral Matter
Proposal
Planned Observing
ScienceGoal (34 Sources-Dark
General
Field Setup
Spectral Setup
Calibration Setup
Control and Performance
Technical Justification
Editors
Spectral Spatial Spectral Setup
Polarization products desired
XX DUAL FULL
Spectral Setup Errors
Spectral Line
Baseband-1
Fractio
Centre Freq (rest,lsrk)
Centre Freq (sky,bar)
Transition
Bandwidth, Resolution (smoothed)
Spec Av
Representati Window
1(Full)
88.00000 G...
87.99792 G...
our pseudo c...
1875.000 MHz(6388 km/s), 1.129 MHz(3.846 km/s) (2-
117.188 MHz(399 km/s), 282.227 kHz(0.961 km/s) (4-b
234.375 MHz(798 km/s), 141.113 kHz(0.481 km/s) (2-b
234.375 MHz(798 km/s), 564.453 kHz(1.923 km/s) (4-b
468.750 MHz(1597 km/s), 282.227 kHz(0.961 km/s) (2-b
468.750 MHz(1597 km/s), 1.129 MHz(3.846 km/s) (4-b
937.500 MHz(3194 km/s), 564.453 kHz(1.923 km/s) (2-b
937.500 MHz(3194 km/s), 2.258 MHz(7.692 km/s) (4-b
1875.000 MHz(6388 km/s), 1.129 MHz(3.846 km/s) (2-b
Add spectral window centred on a spectral line
ctral windows
Baseband-2
1/2 86.33992 G... 86.33788 G... H13CN v=0 J... 58.594 MHz(203 km/s), 70.557 kHz(0.245 km/s) (2-bit) 2
1/2 86.75429 G... 86.75224 G... H13CO+ 1-0 58.594 MHz(202 km/s), 70.557 kHz(0.244 km/s) (2-bit) 2
Add spectral window centred on a spectral line
Add spectral window manually
Delete
Show image spectral windows
Baseband-3
1/2 86.67076 G... 86.66871 G... HCO 1(0,1)-0... 58.594 MHz(203 km/s), 70.557 kHz(0.244 km/s) (2-bit) 2
1/2 87.31690 G... 87.31483 G... CCH v=0 N=... 58.594 MHz(201 km/s), 61.035 kHz(0.210 km/s) (2-bit) 1
Add spectral window centred on a spectral line
Add spectral window manually
Delete
Show image spectral windows
Baseband-4
1/2 88.63160 G... 88.62950 G... HCN v=0 J=1... 58.594 MHz(198 km/s), 61.035 kHz(0.206 km/s) (2-bit) 1
1/2 89.18853 G... 89.18642 G... HCO+ v=0 1-0 58.594 MHz(197 km/s), 61.035 kHz(0.205 km/s) (2-bit) 1
Double click here to select bandwidth & resolution from a dropdown list
New!! 4bit sampling modes are available when 1 spw fills a whole baseband

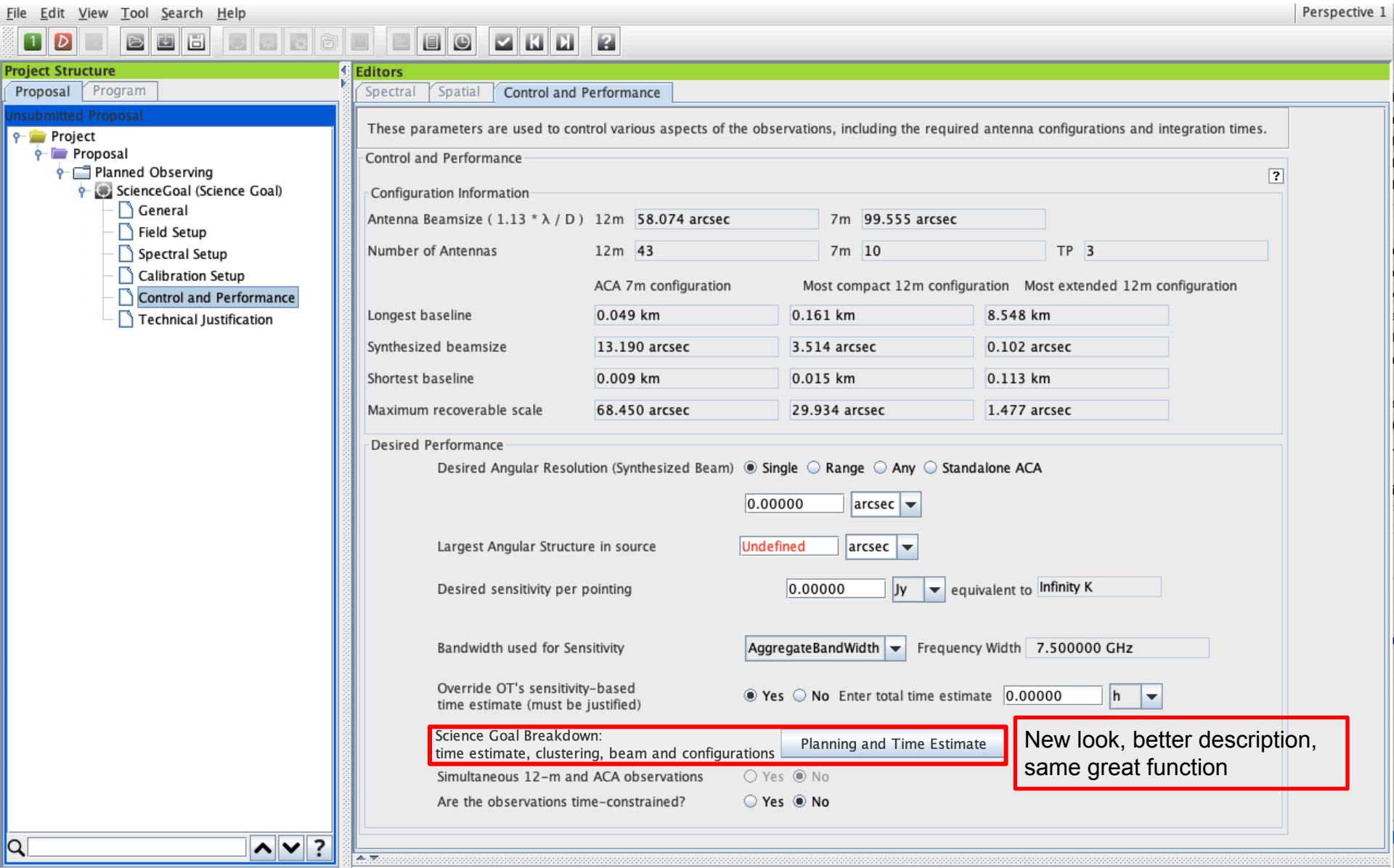
The spectral setup has a visualizer for spectral windows and spectral lines



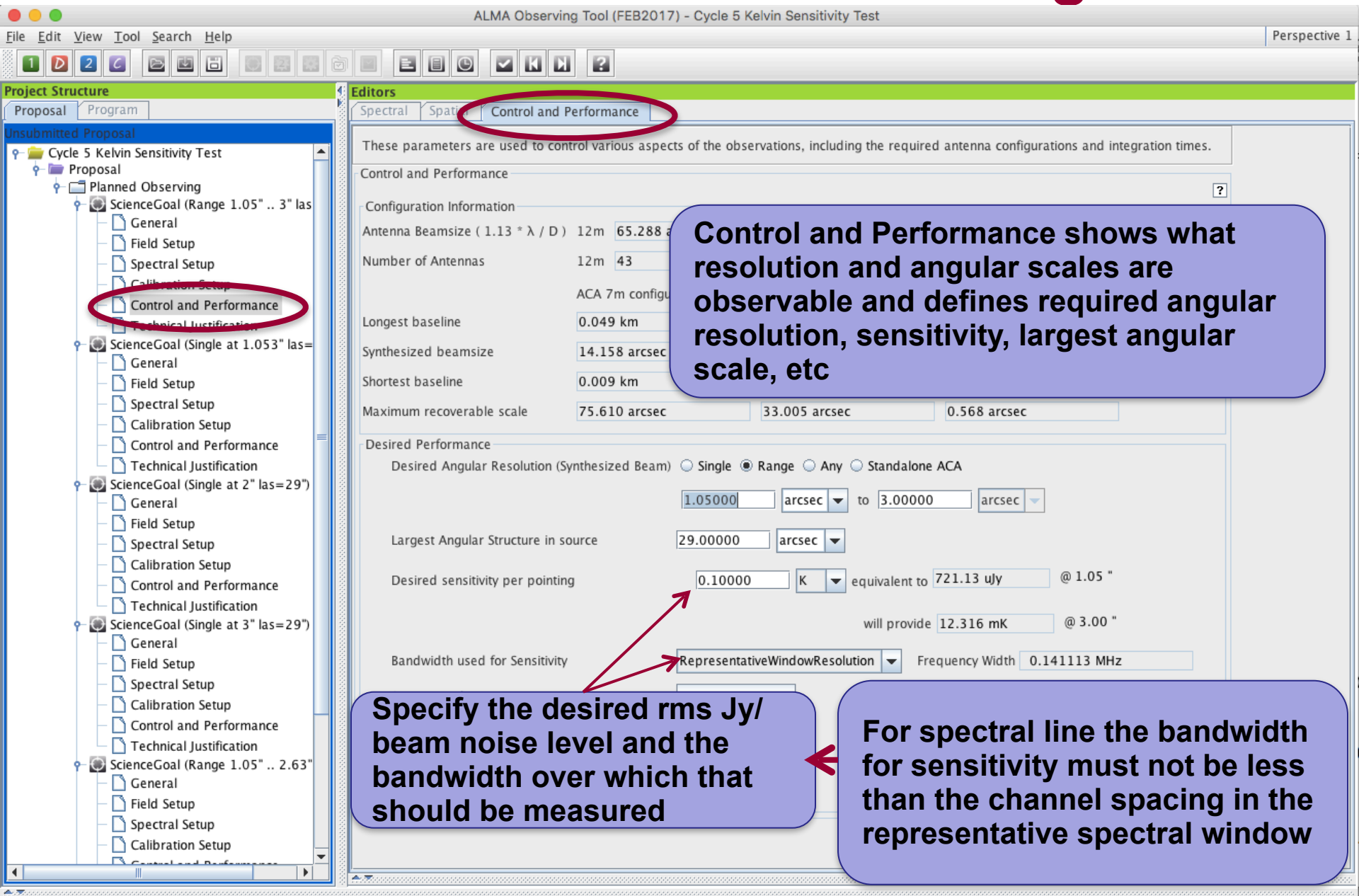
Viewing spw & line rest frequencies

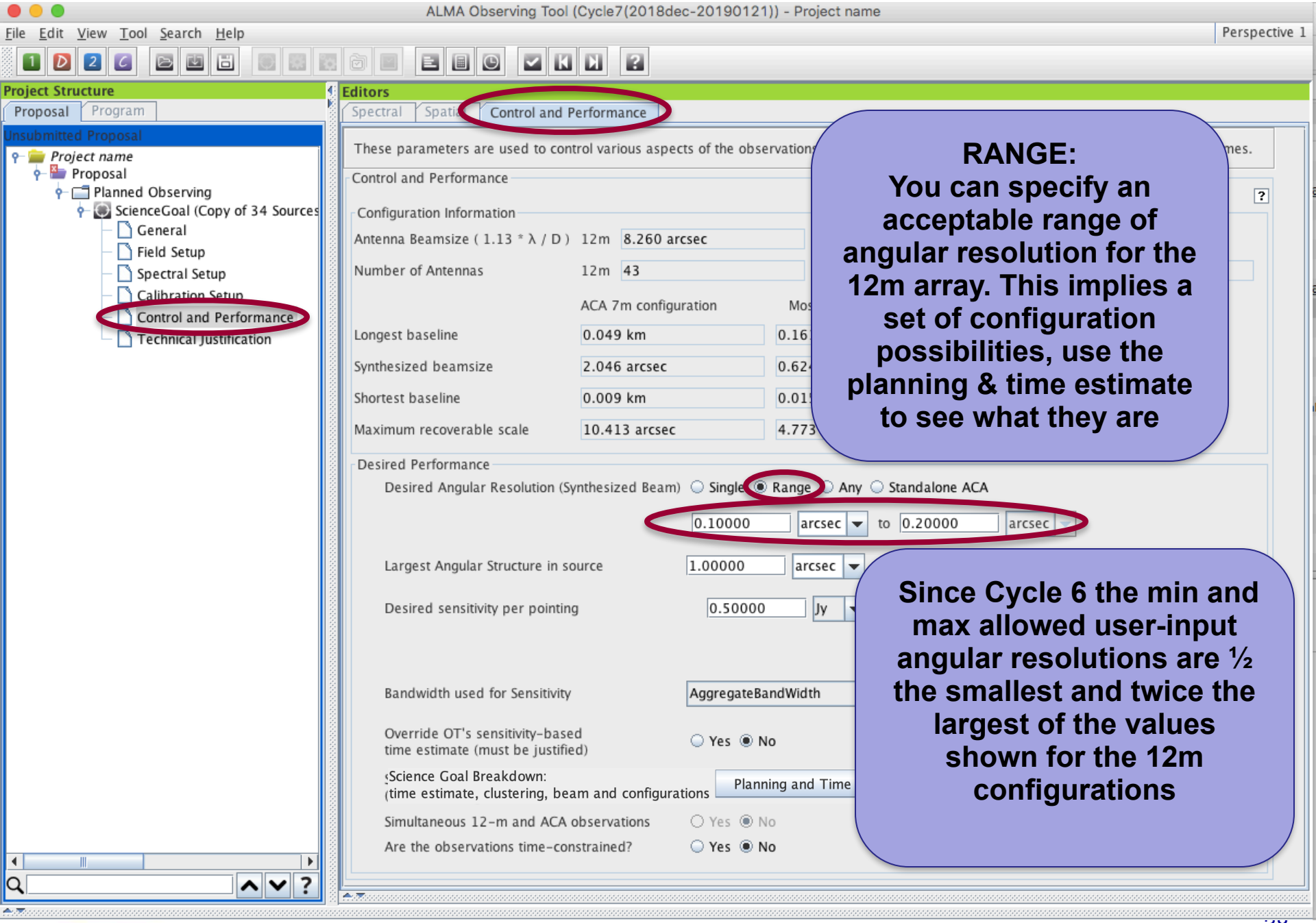


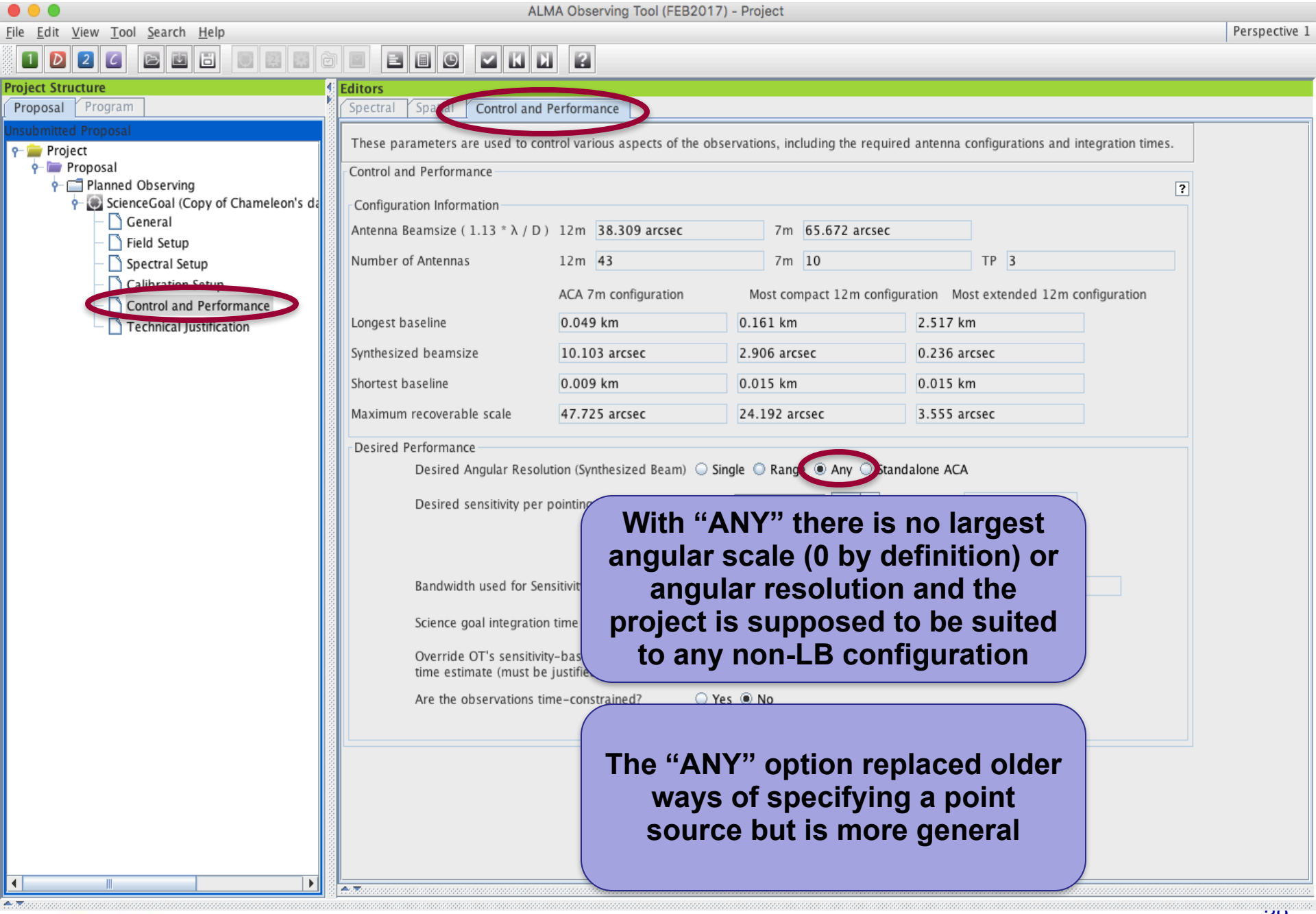
The Control and Performance Page

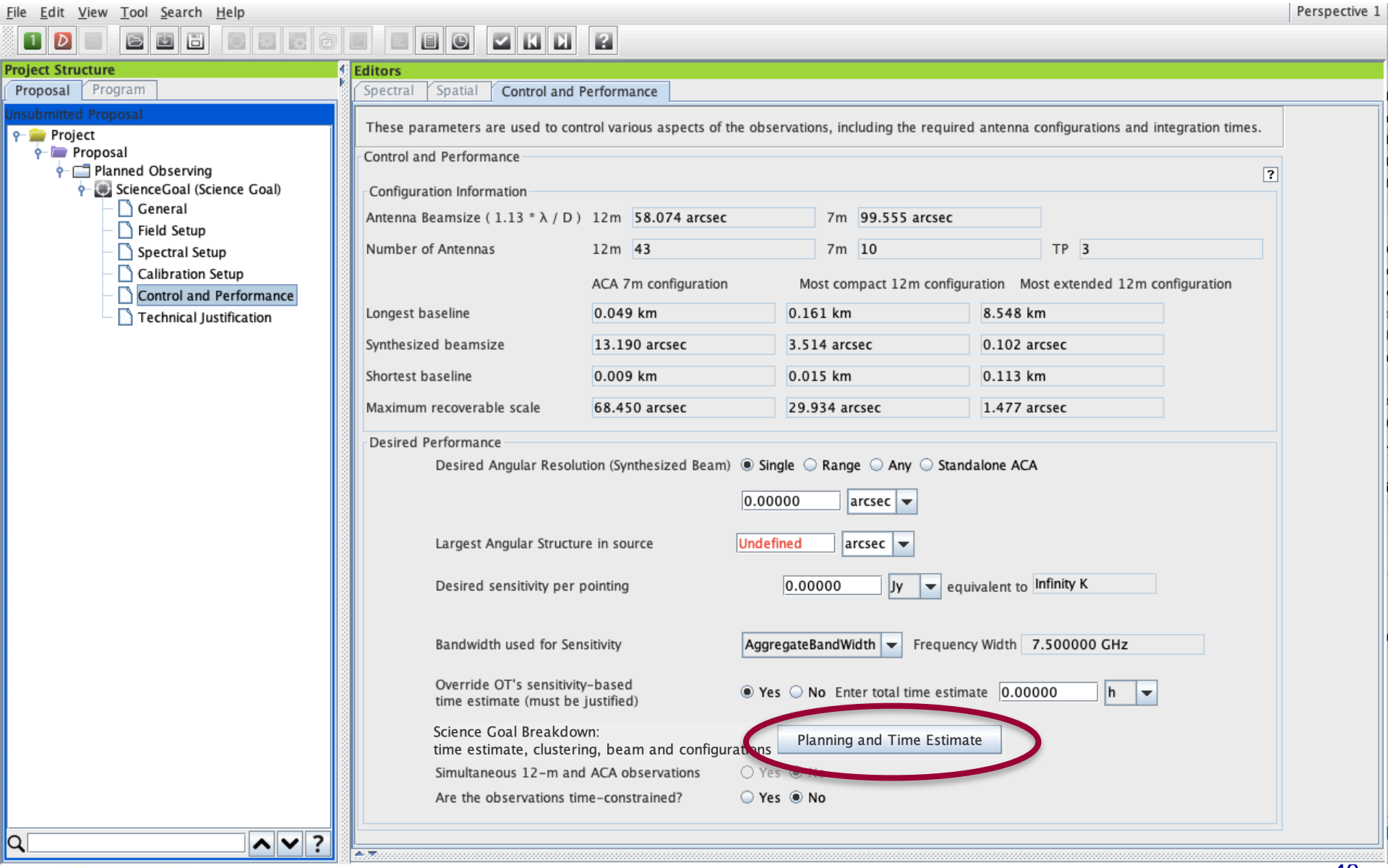


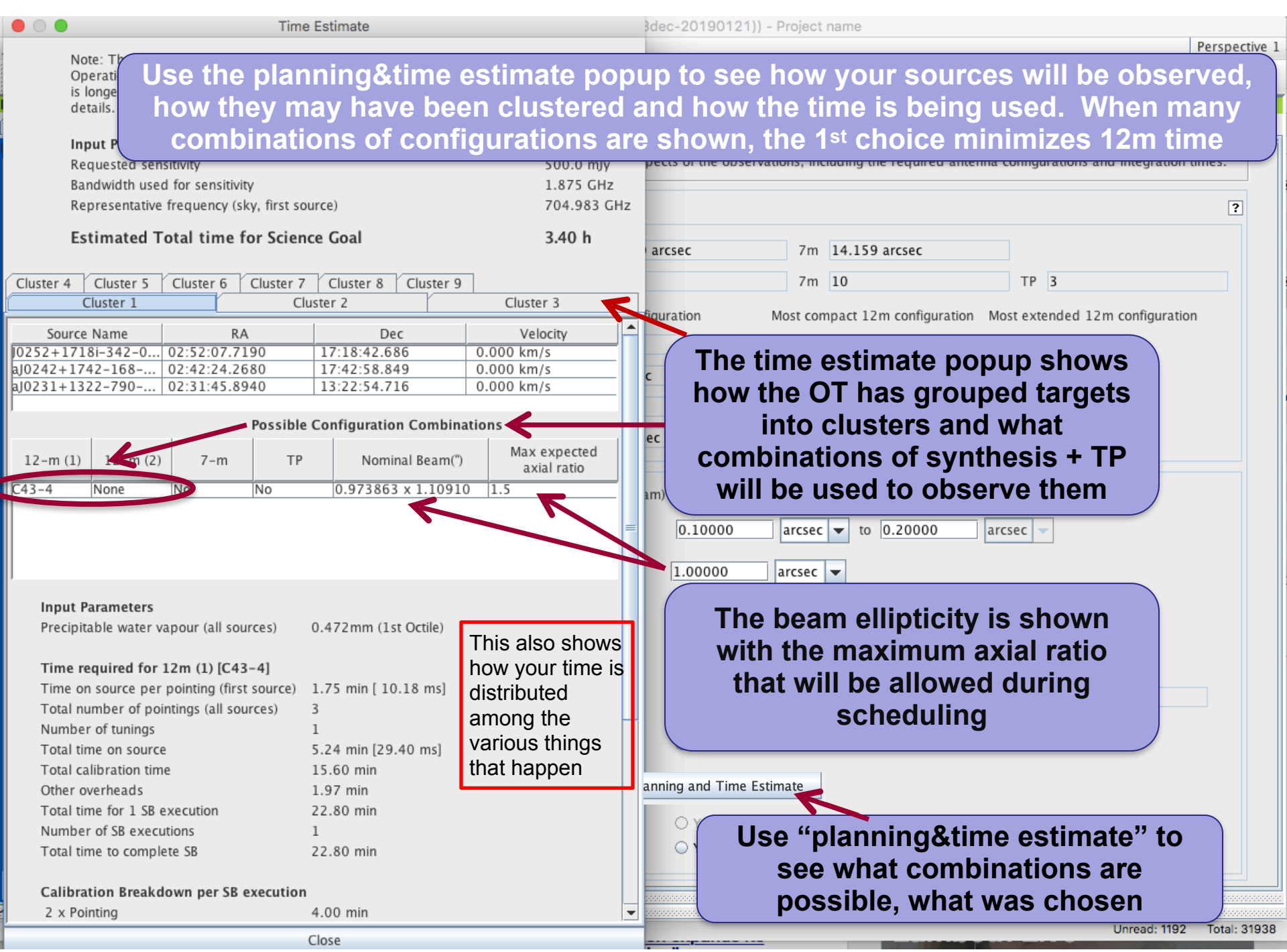
The Control and Performance Page



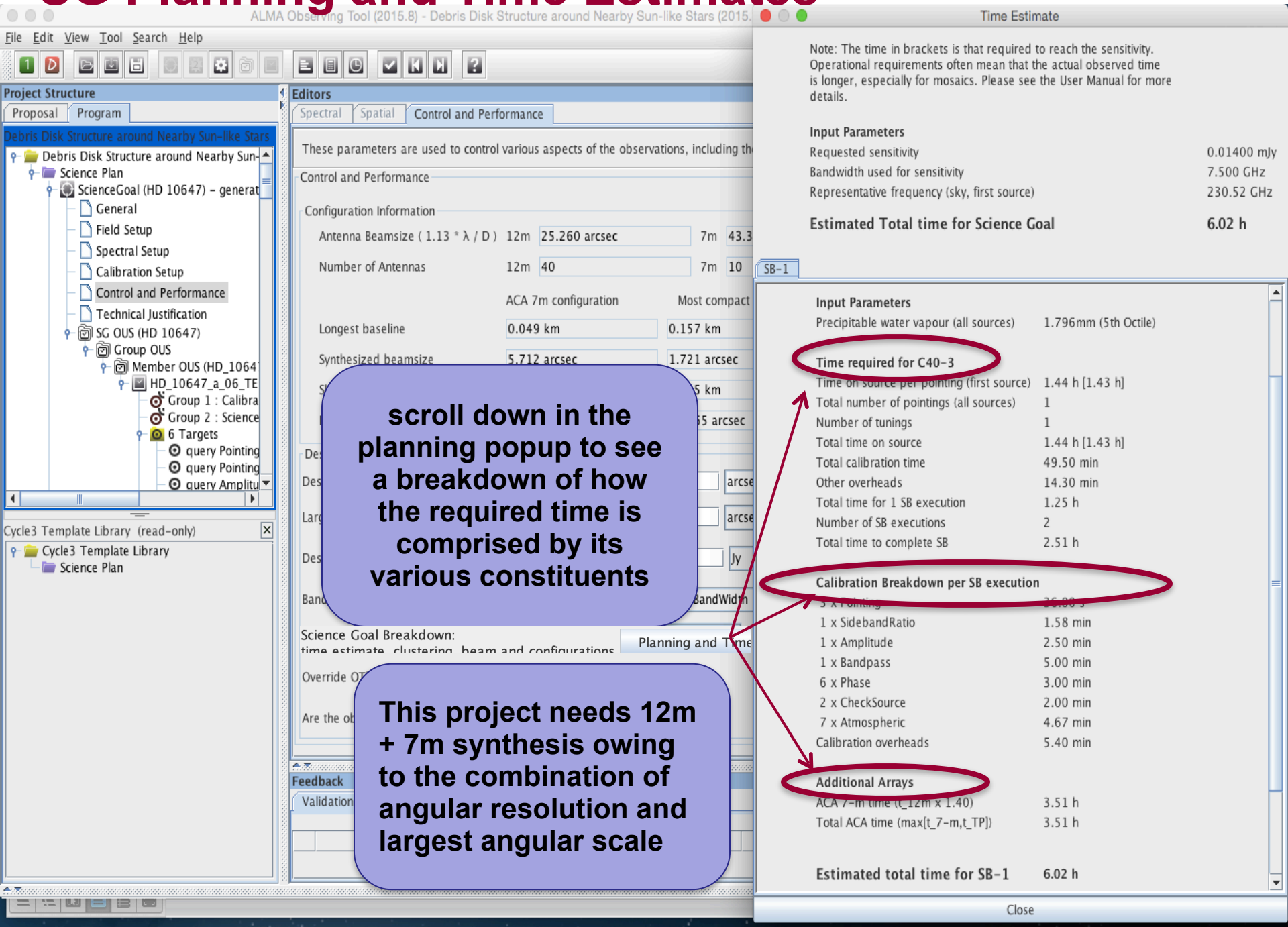

ALMA Observing Tool (Cycle7(2018dec-20190121)) - Project name
File Edit View Tool Search Help
Perspective 1
Project Structure
Proposal Program
Unsubmitted Proposal
Project name
Proposal
Planned Observing
ScienceGoal (Copy of 34 Sources
General
Field Setup
Spectral Setup
Calibration Setup
Control and Performance
Technical Justification
Editors
Spectral
Control and Performance
These parameters are used to control various aspects of the observation
Control and Performance
Configuration Information
Antenna Beamsize (1.13 * λ / D) 12m 8.260 arcsec
Number of Antennas 12m 43
ACA 7m configuration
Longest baseline 0.049 km
Synthesized beamsize 2.046 arcsec
Shortest baseline 0.009 km
Maximum recoverable scale 10.413 arcsec
Desired Performance
Desired Angular Resolution (Synthesized Beam) Single Range Any Standalone ACA
0.10000 arcsec to 0.20000 arcsec
Largest Angular Structure in source 1.00000 arcsec
Desired sensitivity per pointing 0.50000 Jy
Bandwidth used for Sensitivity AggregateBandWidth
Override OT's sensitivity-based time estimate (must be justified) Yes No
Science Goal Breakdown: (time estimate, clustering, beam and configurations Planning and Time
Simultaneous 12-m and ACA observations Yes No
Are the observations time-constrained? Yes No
RANGE:
You can specify an acceptable range of angular resolution for the 12m array. This implies a set of configuration possibilities, use the planning & time estimate to see what they are
Since Cycle 6 the min and max allowed user-input angular resolutions are ½ the smallest and twice the largest of the values shown for the 12m configurations

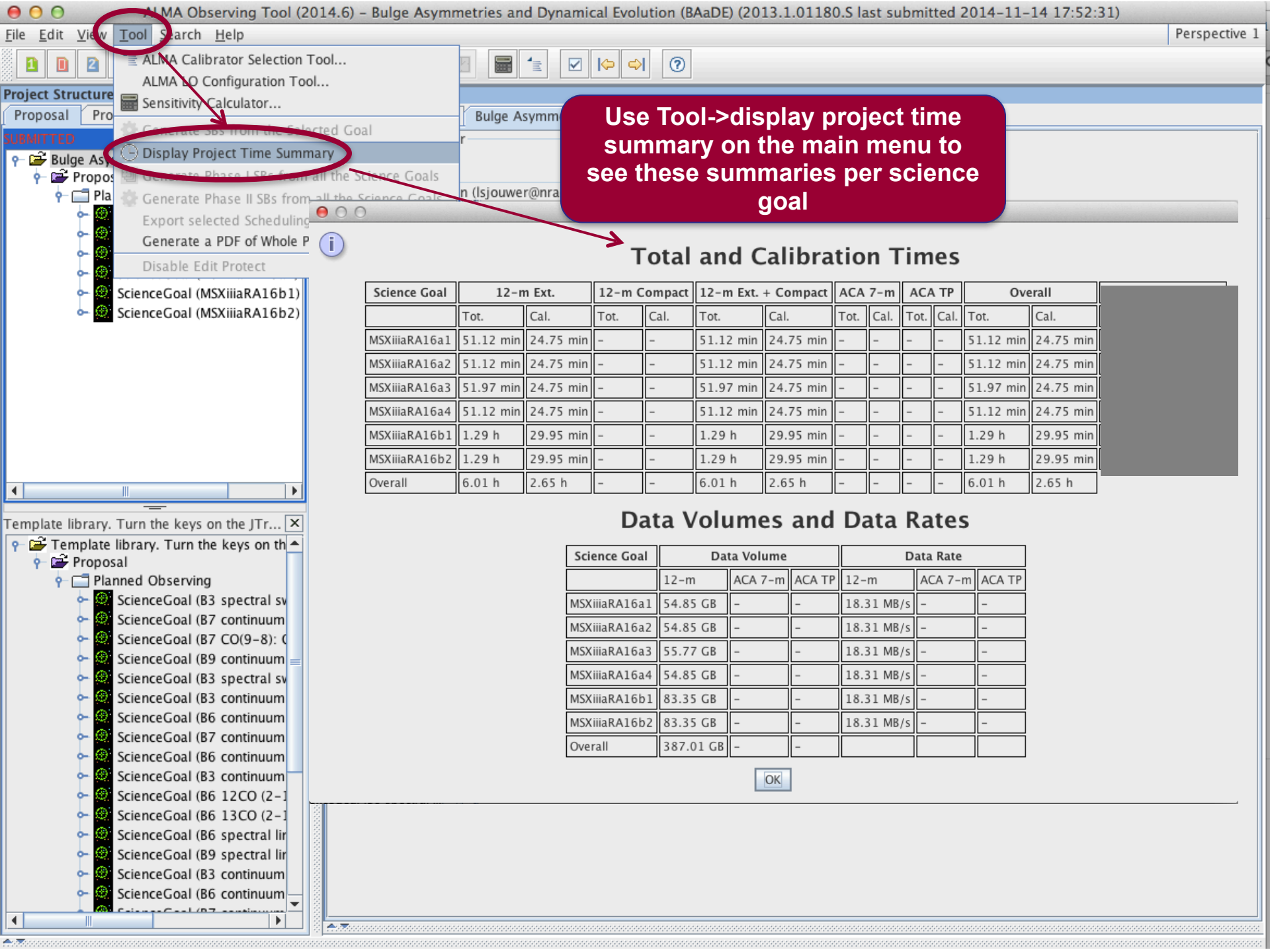

ALMA Observing Tool (FEB2017) - Project
File Edit View Tool Search Help
Perspective 1
Project Structure
Proposal Program
Unsubmitted Proposal
Project
Proposal
Planned Observing
ScienceGoal (Copy of Chameleon's da
General
Field Setup
Spectral Setup
Calibration Setup
Control and Performance
Technical Justification
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 * λ / 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 Rang Any Standalone ACA
Desired sensitivity per pointing
Bandwidth used for Sensitivit
Science goal integration time
Override OT's sensitivity-bas
time estimate (must be justifie
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 supposed to be suited to 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
Perspective 1
Project Structure
Proposal Program
Unsubmitted Proposal
Project
Proposal
Planned Observing
ScienceGoal (Science Goal)
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 * λ / D) 12m 58.074 arcsec 7m 99.555 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 8.548 km
Synthesized beamsize 13.190 arcsec 3.514 arcsec 0.102 arcsec
Shortest baseline 0.009 km 0.015 km 0.113 km
Maximum recoverable scale 68.450 arcsec 29.934 arcsec 1.477 arcsec
Desired Performance
Desired Angular Resolution (Synthesized Beam) Single Range Any Standalone ACA
0.00000 arcsec
Largest Angular Structure in source Undefined arcsec
Desired sensitivity per pointing 0.00000 Jy equivalent to Infinity K
Bandwidth used for Sensitivity AggregateBandWidth Frequency Width 7.500000 GHz
Override OT's sensitivity-based time estimate (must be justified) Yes No Enter total time estimate 0.00000 h
Science Goal Breakdown: time estimate, clustering, beam and configurations
Planning and Time Estimate
Simultaneous 12-m and ACA observations Yes
Are the observations time-constrained? Yes No

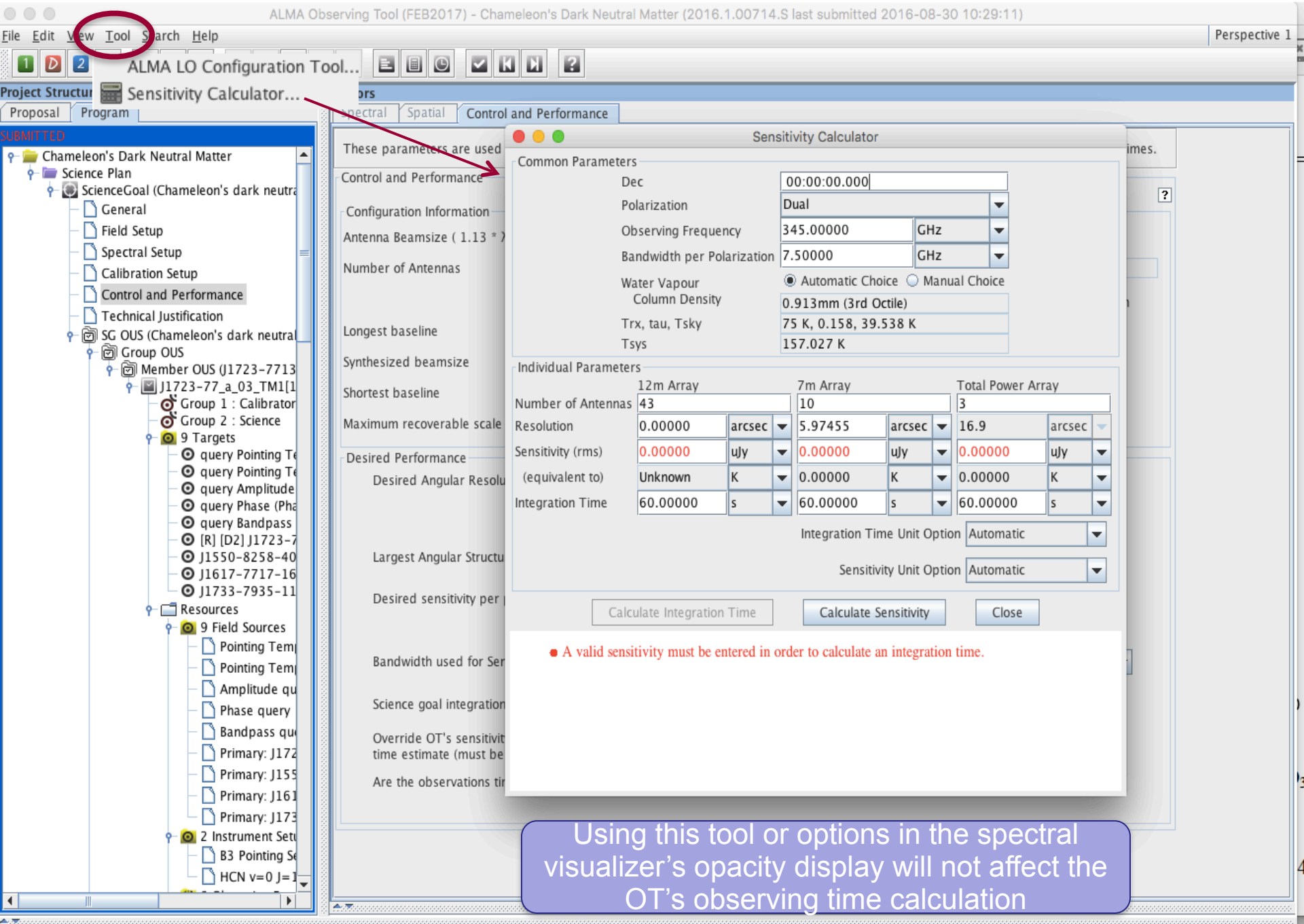

Use the planning&time estimate popup to see how your sources will be observed, how they may have been clustered and how the time is being used. When many combinations of configurations are shown, the 1st choice minimizes 12m time
Time Estimate
Requested sensitivity
Bandwidth used for sensitivity
1.875 GHz
Representative frequency (sky, first source)
704.983 GHz
Estimated Total time for Science Goal
3.40 h
Cluster 4
Cluster 5
Cluster 6
Cluster 7
Cluster 8
Cluster 9
Cluster 1
Cluster 2
Cluster 3
Source Name
RA
Dec
Velocity
02:52:07.7190
17:18:42.686
0.000 km/s
02:42:24.2680
17:42:58.849
0.000 km/s
02:31:45.8940
13:22:54.716
0.000 km/s
Possible Configuration Combinations
12-m (1)
12-m (2)
7-m
TP
Nominal Beam(")
Max expected axial ratio
C43-4
None
No
No
0.973863 x 1.10910
1.5
The time estimate popup shows how the OT has grouped targets into clusters and what combinations of synthesis + TP will be used to observe them
The beam ellipticity is shown with the maximum axial ratio that will be allowed during scheduling
Input Parameters
Precipitable water vapour (all sources)
0.472mm (1st Octile)
Time required for 12m (1) [C43-4]
Time on source per pointing (first source)
1.75 min [10.18 ms]
Total number of pointings (all sources)
3
Number of tunings
1
Total time on source
5.24 min [29.40 ms]
Total calibration time
15.60 min
Other overheads
1.97 min
Total time for 1 SB execution
22.80 min
Number of SB executions
1
Total time to complete SB
22.80 min
This also shows how your time is distributed among the various things that happen
Calibration Breakdown per SB execution
2 x Pointing
4.00 min
Close
Perspective 1
7m
14.159 arcsec
7m
10
TP
3
Most compact 12m configuration
Most extended 12m configuration
0.10000
arcsec
to
0.20000
arcsec
1.00000
arcsec
anning and Time Estimate
Use “planning&time estimate” to see what combinations are possible, what was chosen
Unread: 1192
Total: 31938

SG Planning and Time Estimates



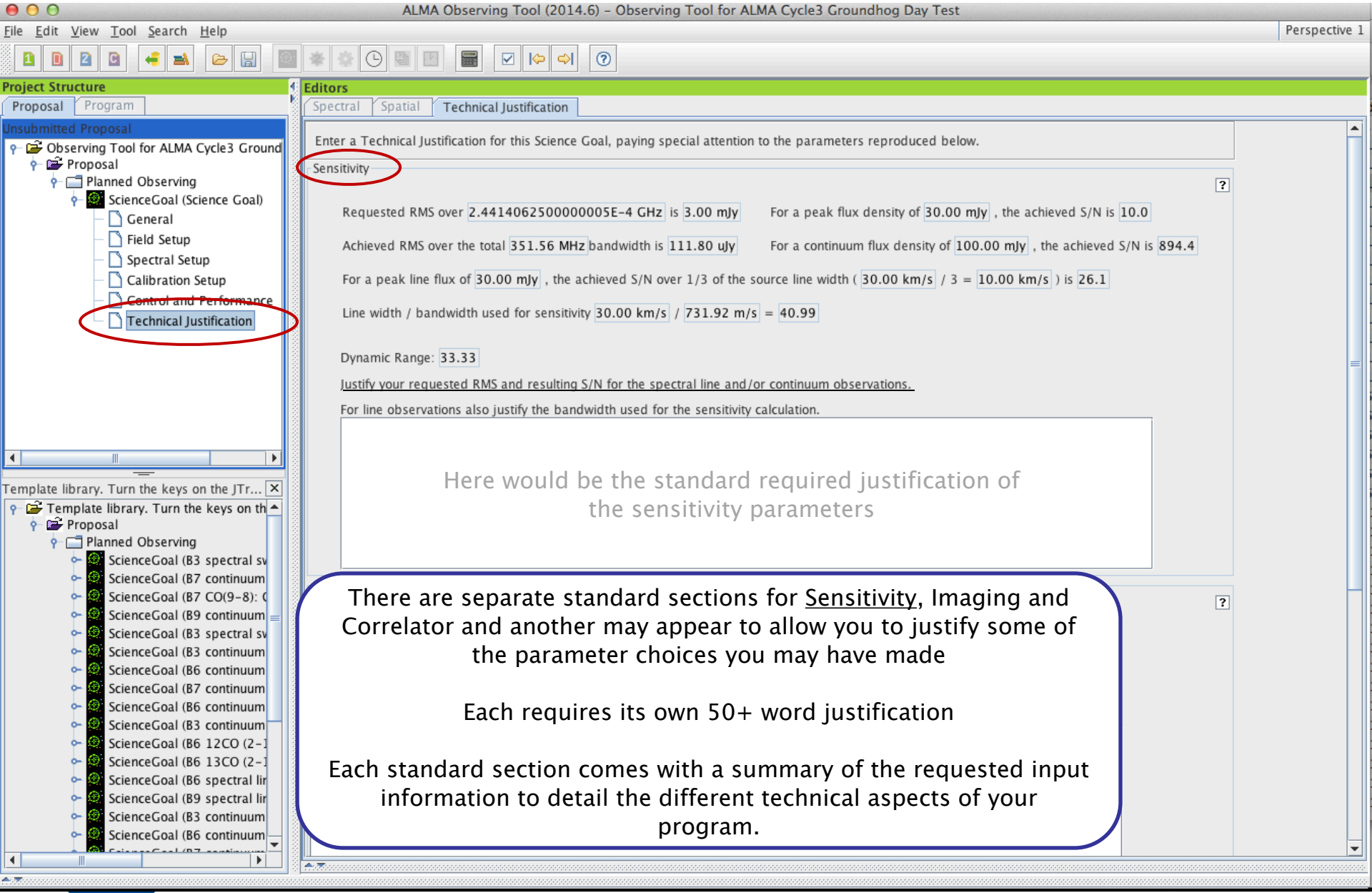

ALMA Observing Tool (2014.6) – Bulge Asymmetries and Dynamical Evolution (BAaDE) (2013.1.01180.S last submitted 2014-11-14 17:52:31)
File Edit View Tool Search Help
Perspective 1
ALMA Calibrator Selection Tool...
ALMA LO Configuration Tool...
Sensitivity Calculator...
Display Project Time Summary
Export selected Scheduling
Generate a PDF of Whole P
Disable Edit Protect
Use Tool->display project time summary on the main menu to see these summaries per science goal
Total and Calibration Times
Science Goal | 12-m Ext. | 12-m Compact | 12-m Ext. + Compact | ACA 7-m | ACA TP | Overall
Tot. | Cal. | Tot. | Cal. | Tot. | Cal. | Tot. | Cal. | Tot. | Cal. | Tot. | Cal.
MSXiiiaRA16a1 | 51.12 min | 24.75 min | - | - | 51.12 min | 24.75 min | - | - | - | - | 51.12 min | 24.75 min
MSXiiiaRA16a2 | 51.12 min | 24.75 min | - | - | 51.12 min | 24.75 min | - | - | - | - | 51.12 min | 24.75 min
MSXiiiaRA16a3 | 51.97 min | 24.75 min | - | - | 51.97 min | 24.75 min | - | - | - | - | 51.97 min | 24.75 min
MSXiiiaRA16a4 | 51.12 min | 24.75 min | - | - | 51.12 min | 24.75 min | - | - | - | - | 51.12 min | 24.75 min
MSXiiiaRA16b1 | 1.29 h | 29.95 min | - | - | 1.29 h | 29.95 min | - | - | - | - | 1.29 h | 29.95 min
MSXiiiaRA16b2 | 1.29 h | 29.95 min | - | - | 1.29 h | 29.95 min | - | - | - | - | 1.29 h | 29.95 min
Overall | 6.01 h | 2.65 h | - | - | 6.01 h | 2.65 h | - | - | - | - | 6.01 h | 2.65 h
Data Volumes and Data Rates
Science Goal | Data Volume | | | Data Rate | | |
12-m | ACA 7-m | ACA TP | 12-m | ACA 7-m | ACA TP
MSXiiiaRA16a1 | 54.85 GB | - | - | 18.31 MB/s | - | -
MSXiiiaRA16a2 | 54.85 GB | - | - | 18.31 MB/s | - | -
MSXiiiaRA16a3 | 55.77 GB | - | - | 18.31 MB/s | - | -
MSXiiiaRA16a4 | 54.85 GB | - | - | 18.31 MB/s | - | -
MSXiiiaRA16b1 | 83.35 GB | - | - | 18.31 MB/s | - | -
MSXiiiaRA16b2 | 83.35 GB | - | - | 18.31 MB/s | - | -
Overall | 387.01 GB | - | - | | | |
OK
Project Structure
Proposal
SUBMITTED
Bulge Asy
Propos
Pla
ScienceGoal (MSXiiiaRA16b1)
ScienceGoal (MSXiiiaRA16b2)
Template library. Turn the keys on the JTr...
Template library. Turn the keys on th
Proposal
Planned Observing
ScienceGoal (B3 spectral sv
ScienceGoal (B7 continuum
ScienceGoal (B7 CO(9-8): (
ScienceGoal (B9 continuum
ScienceGoal (B3 spectral sv
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 lir
ScienceGoal (B9 spectral lir
ScienceGoal (B3 continuum
ScienceGoal (B6 continuum

The sensitivity calculator is available separately in the OT (or on the web)



Using this tool or options in the spectral visualizer's opacity display will not affect the OT's observing time calculation

Technical Justification

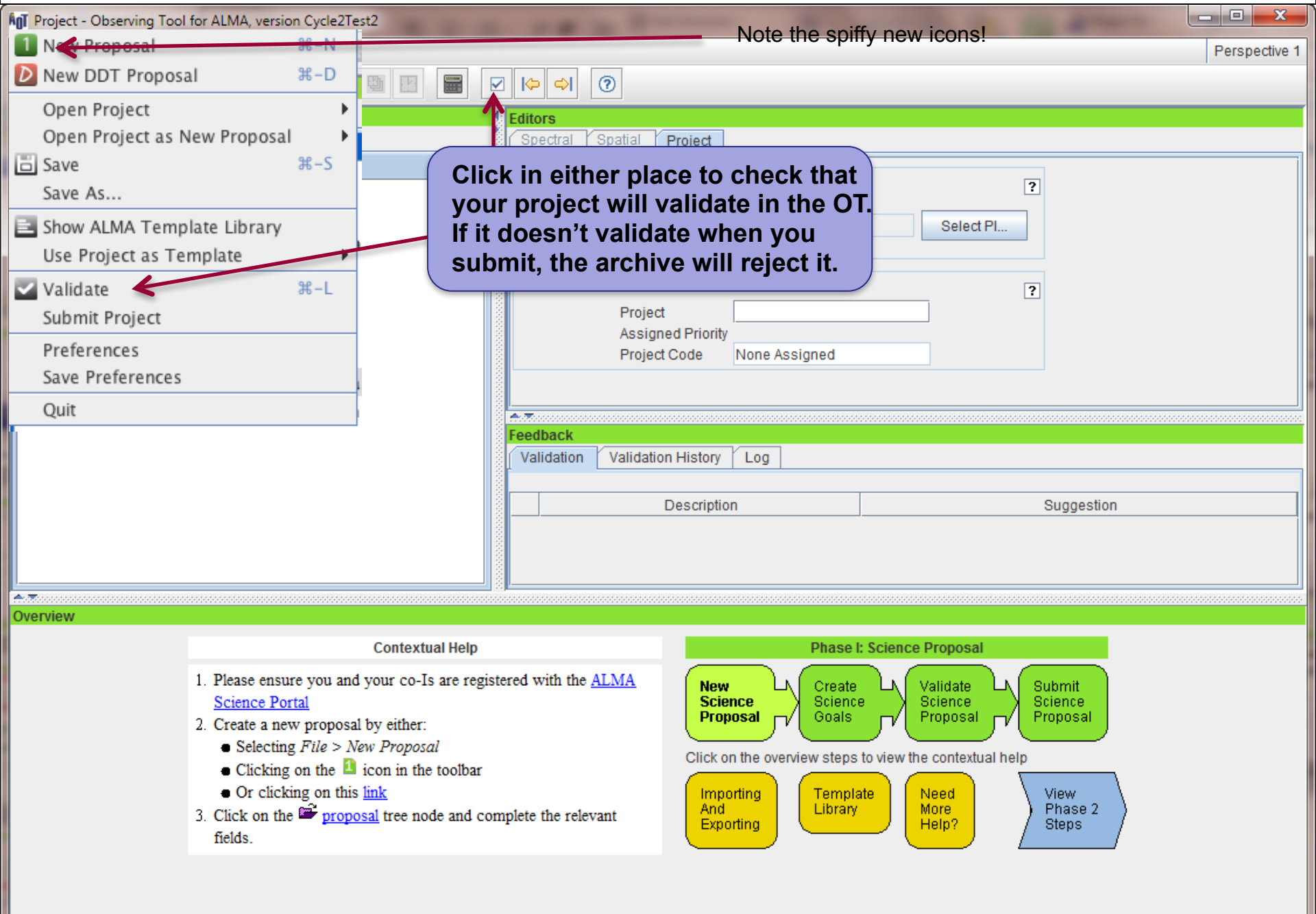


There are separate standard sections for Sensitivity, Imaging and Correlator and another may appear to allow you to justify some of the parameter choices you may have made

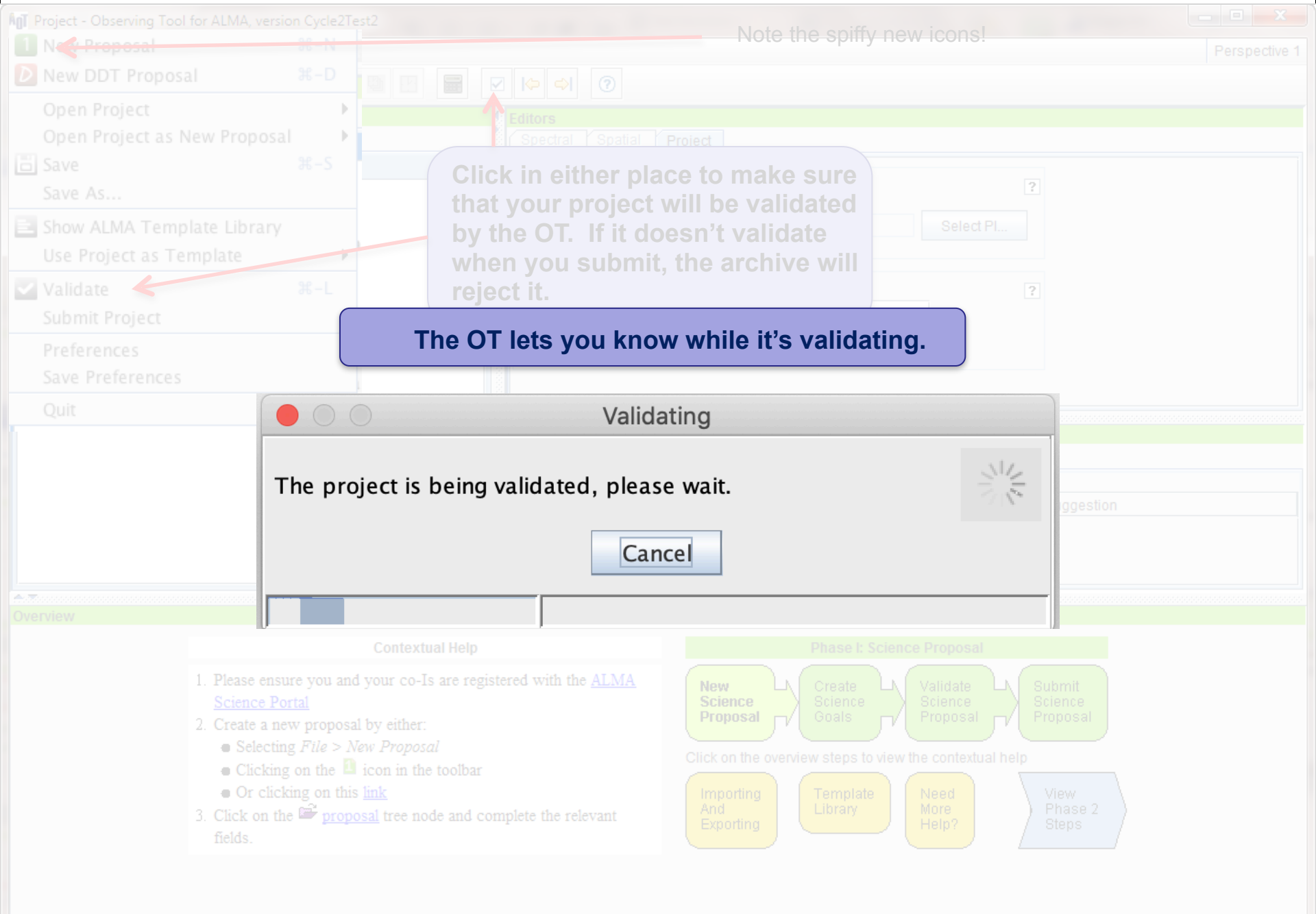
Each requires its own 50+ word justification

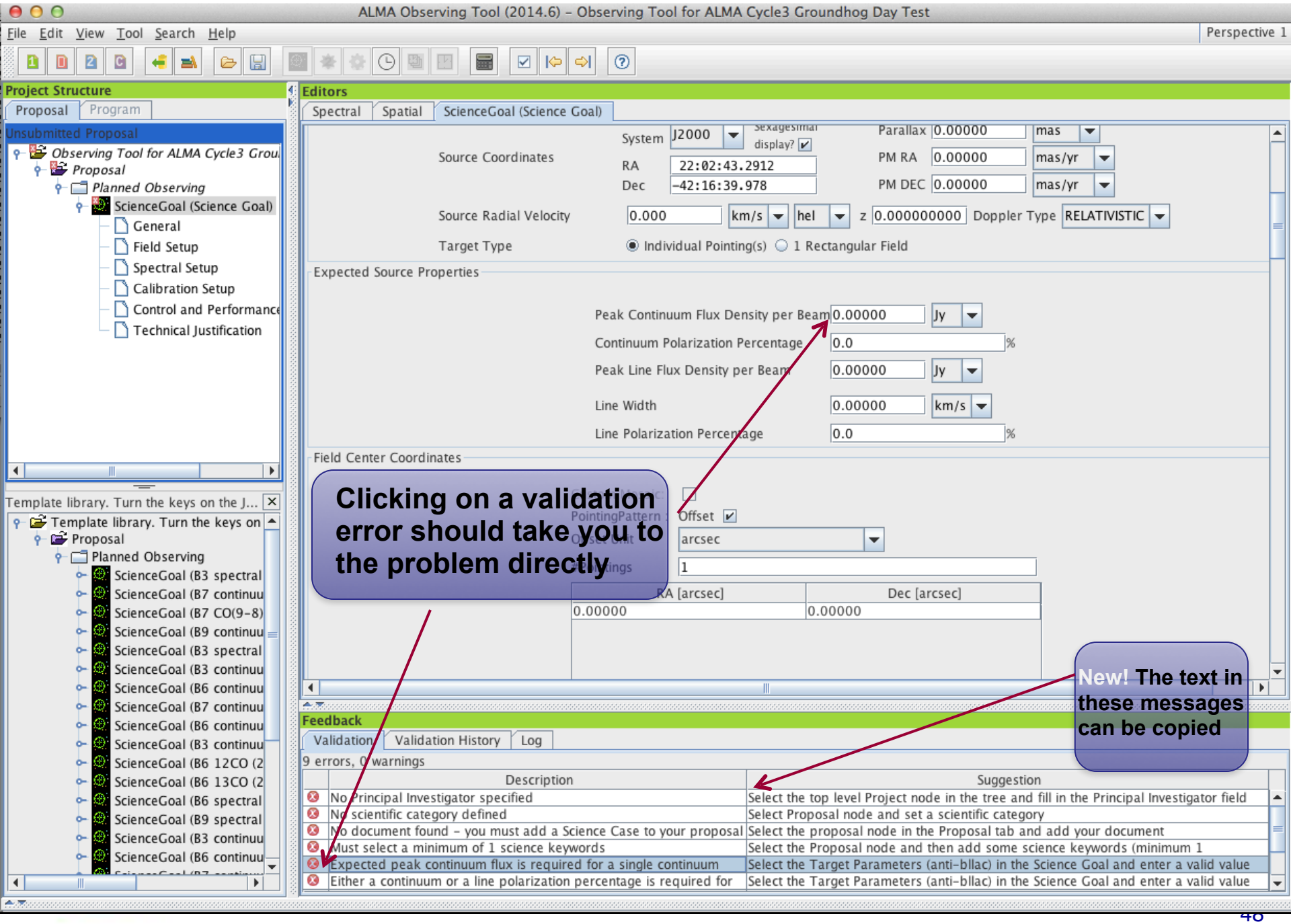
Each standard section comes with a summary of the requested input information to detail the different technical aspects of your program.

When the time is ripe … validate & submit

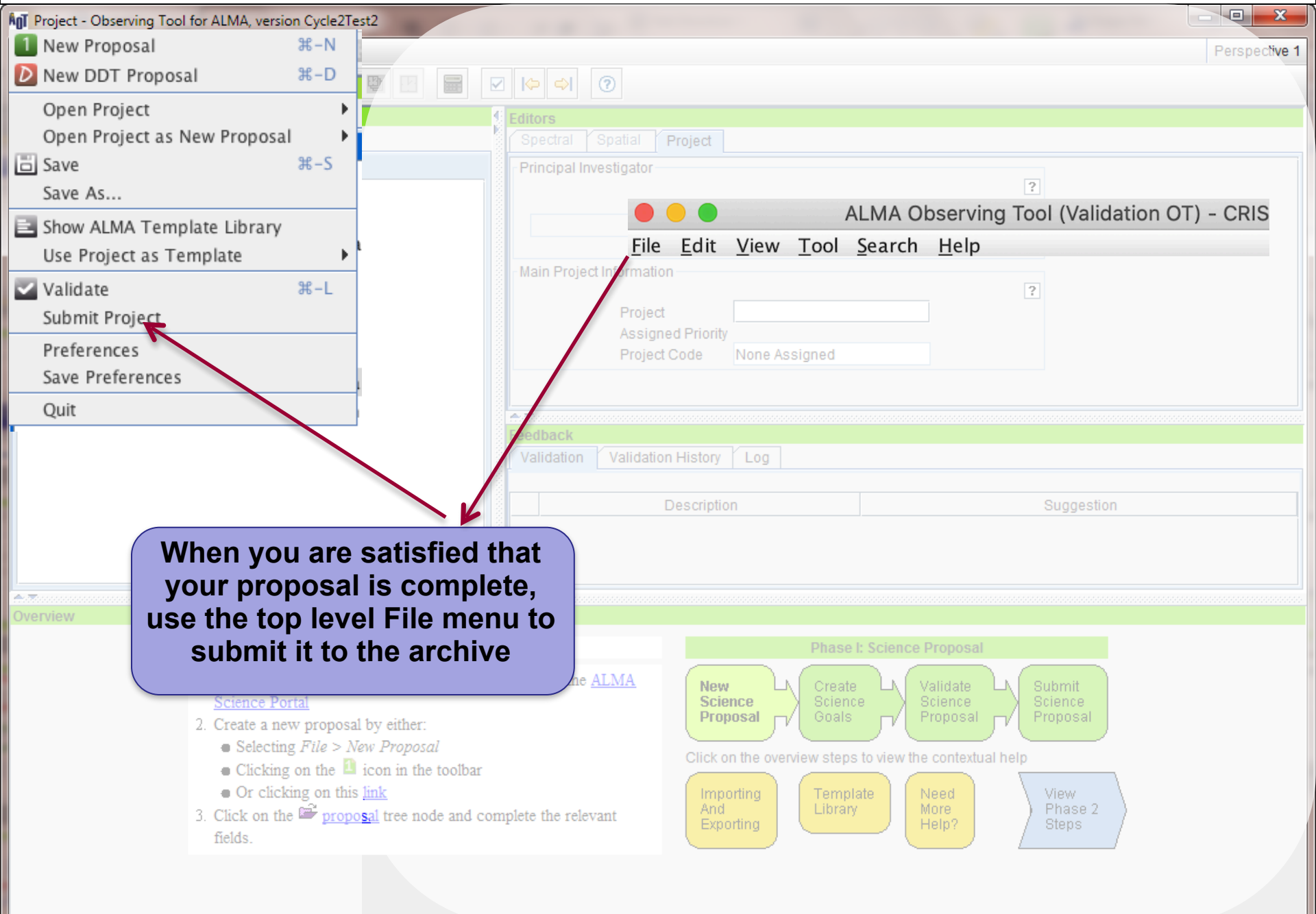


When the time is ripe … validate & submit




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 Grou
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
Proposal
Planned Observing
ScienceGoal (B3 spectral
ScienceGoal (B7 continuu
ScienceGoal (B7 CO(9-8)
ScienceGoal (B9 continuu
ScienceGoal (B3 spectral
ScienceGoal (B3 continuu
ScienceGoal (B6 continuu
ScienceGoal (B7 continuu
ScienceGoal (B6 continuu
ScienceGoal (B3 continuu
ScienceGoal (B6 12CO (2
ScienceGoal (B6 13CO (2
ScienceGoal (B6 spectral
ScienceGoal (B9 spectral
ScienceGoal (B3 continuu
ScienceGoal (B6 continuu
Editors
Spectral Spatial ScienceGoal (Science Goal)
Source Coordinates
System J2000
Sexagesimal display?
RA 22:02:43.2912
Dec -42:16:39.978
Parallax 0.00000 mas
PM RA 0.00000 mas/yr
PM DEC 0.00000 mas/yr
Source Radial Velocity 0.000 km/s hel
z 0.000000000 Doppler Type RELATIVISTIC
Target Type
Individual Pointing(s)
1 Rectangular Field
Expected Source Properties
Peak Continuum Flux Density per Beam 0.00000 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 should take you to the problem directly
Feedback
Validation Validation History Log
9 errors, 0 warnings
Description
Suggestion
No Principal Investigator specified
Select the top level Project node in the tree and fill in the Principal Investigator field
No scientific category defined
Select Proposal node and set a scientific category
No document found – you must add a Science Case to your proposal
Select the proposal node in the Proposal tab and add your document
Must select a minimum of 1 science keywords
Select the Proposal node and then add some science keywords (minimum 1
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
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
New! The text in these messages can be copied

When the time is ripe … validate & submit



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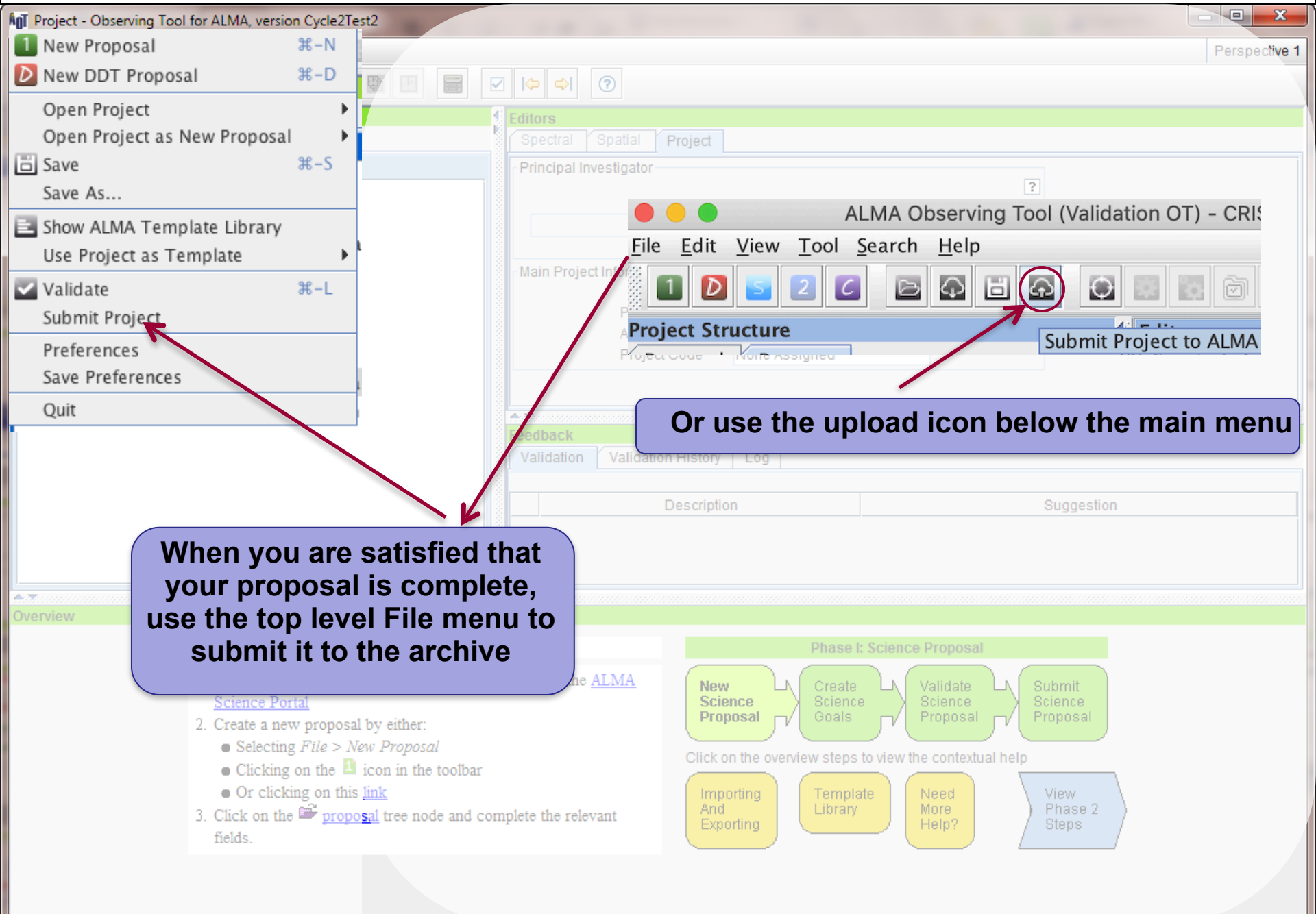
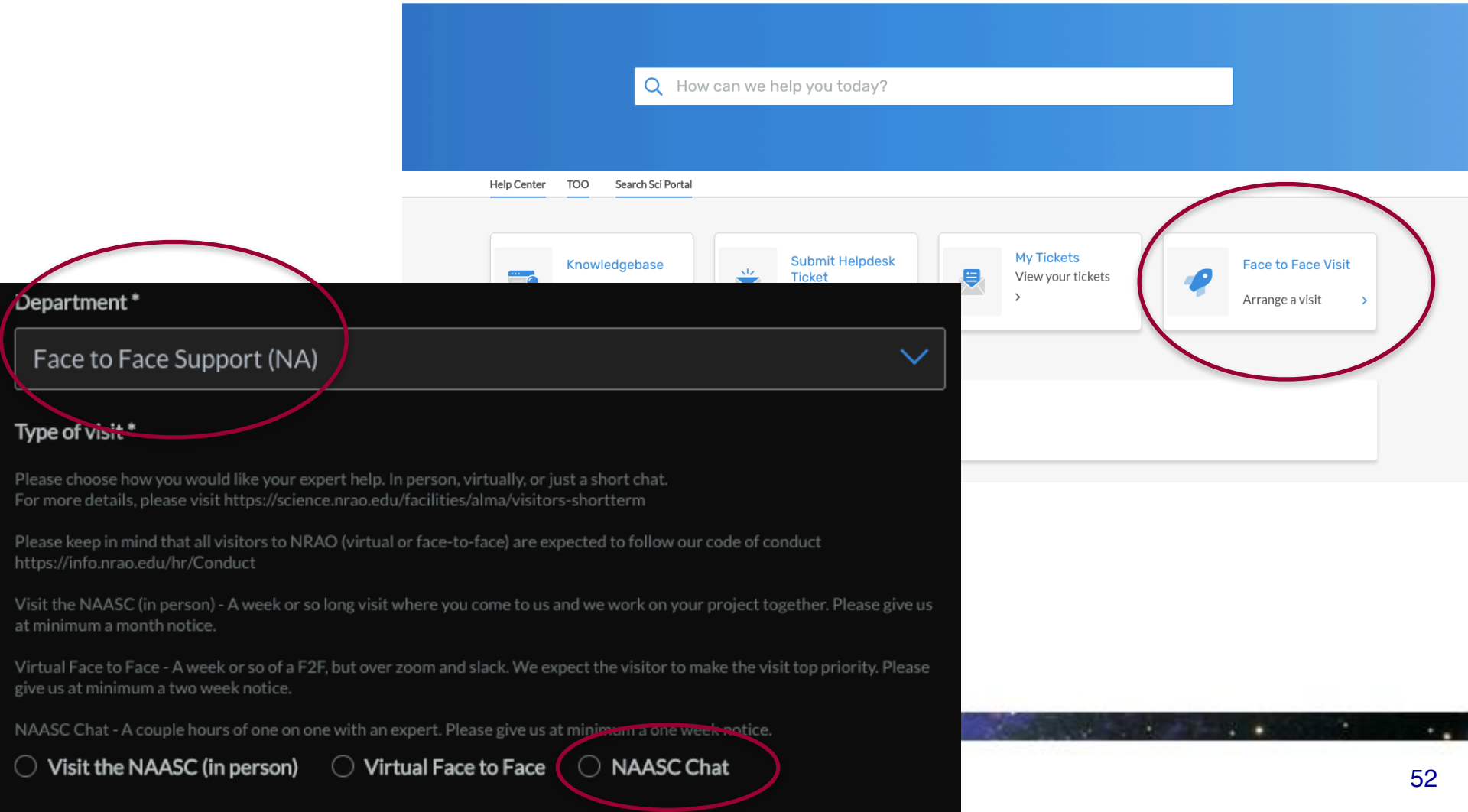


A Few OT Tips and Tricks

- Submit early and often!! You can submit early before adding colleagues.
- Ask colleagues for previous .aot files to start out with a template
- You can open multiple copies of the ALMA-OT.app to view multiple projects at once
- There was a bug in the C9 OT where if you were trying to do a mosaic of an extragalactic object you had to put in a z=0
- Put your figures in as a PDF, pngs can cause errors. You may get an error about too small of text when you clearly have everything in 12pt font. Sometimes there can be phantom text in figures - having figures as pdfs can help with this. You can try to highlight your figures in a document viewer to see phantom text.
- If you are writing a Large Program Proposal, the NAASC asks that you set-up a time to chat with a NAASC staff member just to go through your technical set-up

A Few OT Tips and Tricks

- You can ask for a zoom help session for any part of your proposal writing process (including the OT) at https://help.almascience.org/

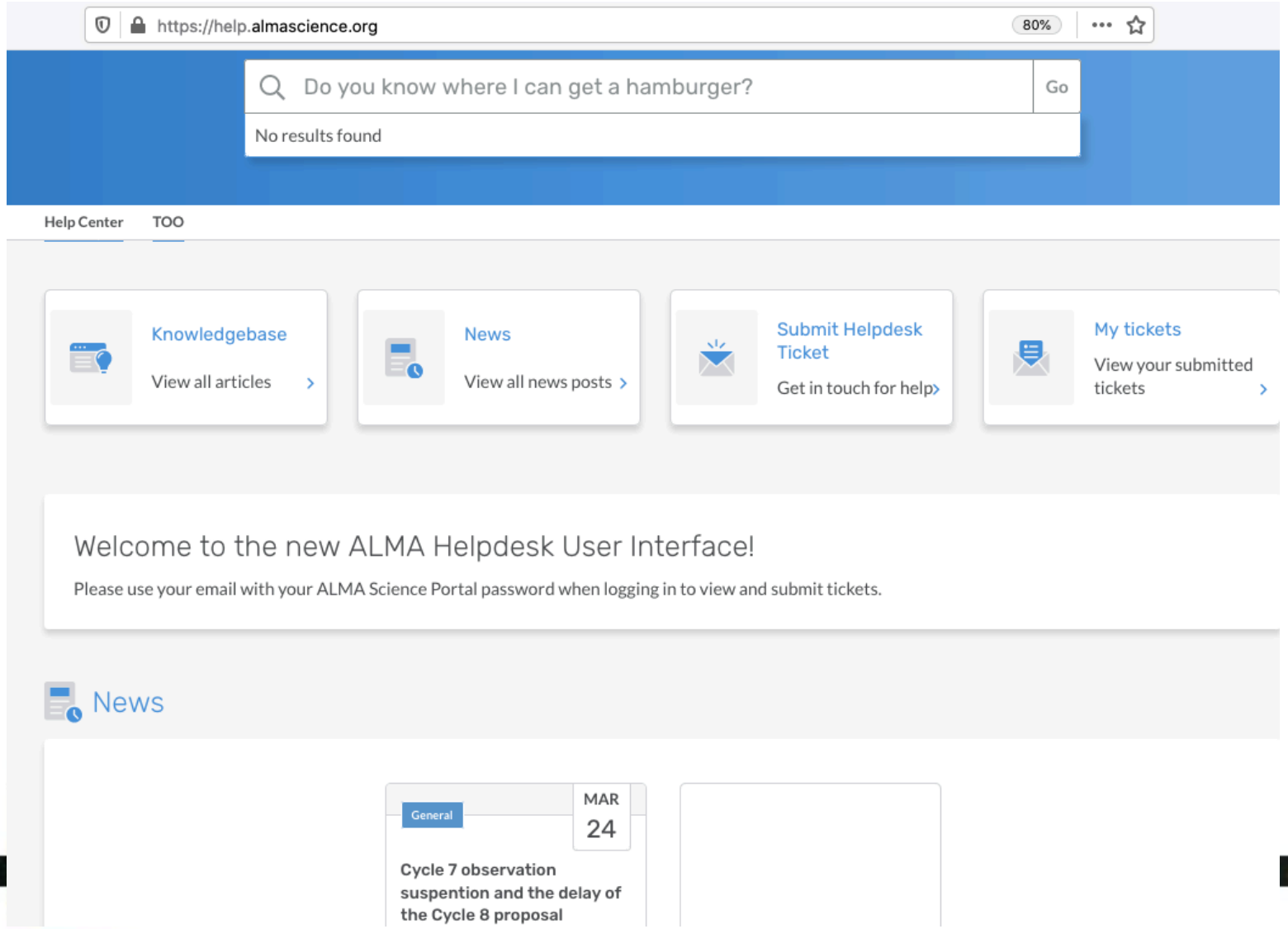


A Few OT Tips and Tricks

- The standard Ctrl-Z (undo) and Ctrl-Y (redo) functionality are now available in most text edit fields:

- Source coordinates in the field setup
- The frequency input fields of the spectral setup
- The LAS input field in the control and performance page
- Any of the text fields in the Technical Justification editor
- Description field of General node associated with an SG
- Fields in a science parameters editor
- Frequency input fields in the spectral spec editor
- Time-related input fields in correlator configuration

Have no fear, ALMA Helpdesk is here…




NRAO