Townhall meeting for ALMA Cycle 9 proposal preparation

Observing Tool

2022. 3. 30. Seokho Lee (KASI)

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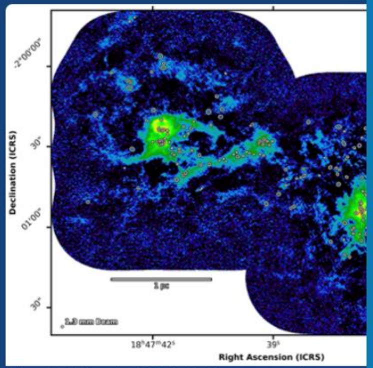

The W43-MM2&MM3 protocluster c
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outline the size of the 208 compact
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The ALMA-IMF Large Prog
answer the longstanding quest
the Initial Mass Function (IMF) i
from its core content, and mo
Core Mass Function (CMF). To
IMF has targeted and imaged 15 high-mass star

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ALMA Status

Configuration Schedule

Refereed publications: 2712
Last observed source: Sgr_A_star
Current configuration: C-2

More...

formation and tools aimed at the scientific community as a whole,
ff, journalists, and funding agencies.

ALMA Cycle 9 Call for Proposals
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Atacama Large Millimeter/submillimeter Array
In search of our Cosmic Origins

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Proposing Guidance

What is ALMA?

ALMA is an interferometer of 50 x 12 m antennas (the 12-m Array), 12 x 7 m antennas (the 7-m Array) and 4 x 12 m Total Power antennas (the TP Array) located at an altitude of 5000 m in northern Chile. It operates in the submillimeter/millimeter range, from 3.6 mm to 315 μm (84 - 950 GHz).

ALMA is operated by the Joint ALMA Observatory in Chile. The interface between the ALMA observatory and the astronomical community is provided by the three ALMA Regional Centers (ARCs).

An overview of the ALMA observatory, instrument and science goals can be found here.

Learn more

Beginners: check the principle of interferometry and ALMA basics in the ALMA Primer.

Advanced: check the technical aspects of ALMA operations in the Technical Handbook.

The ALMA Science Portal (this page!) is the entry to the ALMA web.

Read the ALMA Proposer's Guide (Online version, PDF Version) and use the Observing Tool (OT) to prepare your proposal.

Read the overview guides to the ARCs.

ALMA Science Capability

Learn more

ALMA excels at observing the cool Universe, including dust at temperatures from a few degrees

The available ALMA capabilities are summarized in Appendix A of the ALMA

ALMA Cycle 9 Call for Proposals
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09:59 3월 25일 금요일 88%

Cycle 8 2021 Document ✕ | ALMA Proposal Review ✕

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ALMA

Atacama Large Millimeter/submillimeter Array
In search of our Cosmic Origins

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ALMA Proposal Review

The ALMA proposal review process is organized by the Proposal Handling Team (PHT) at the Joint ALMA Observatory (JAO). ALMA proposals are selected through competitive peer review through either the distributed peer review process or the ALMA Proposal Review Committee (APRC).

Proposals that request less than 50 h on the 12-m Array or less than 150 h on the 7-m Array in standalone mode are reviewed using the distributed peer review system, in which the proposal team designates one member of the proposal team to participate in the review process. The outcomes of the distributed peer review process are:

- A scientifically ranked list of proposals
- Individual comments for each proposal written by the reviewers that are sent to the Principal Investigators (PIs).

Large Programs, i.e., proposals that request more than 50 h on the 12-m Array or more than 150 h on the 7-m Array in standalone mode, are reviewed by the APRC, which is a panel composed of experts selected from the international astronomical community. To gain further expert advice, external Science Assessors will provide reviews on Large Programs, which will be considered by the APRC. The outcomes of the APRC review process are:

- A list of recommended Large Programs
- A consensus report for each Large Program that summarizes the strength and weaknesses of the proposal.

All proposals are reviewed in a dual anonymous fashion in which the proposers do not know the identity of the reviewers and the reviewers do not know the identity of the proposers. All proposals need to be prepared in accordance with the dual-anonymous guidelines.

Table of Contents

Available documents for the proposal review process

Guidelines for Reviewers

Review criteria

Each proposal contains a cover sheet, a Scientific Justification, and a Technical Justification. Reviewers need to read each of these sections. Note in particular that the Technical Justification often contains a detailed justification of the requested sensitivity, angular resolution, and correlator setup that will be useful in evaluating the proposal.

Reviewers should assess the scientific merit of the proposals to the best of their ability using the following criteria:

The overall scientific merit of the proposed investigation and its potential contribution to the advancement of scientific knowledge.

- Does the proposal clearly indicate which important, outstanding questions will be addressed?
- Will the proposed observations have a high scientific impact on this particular field and address the specific science goals of the proposal? ALMA encourages reviewers to give full consideration to well-designed high-risk/high-impact proposals even if there is no guarantee of a positive outcome or definite detection.
- Does the proposal clearly describe how the data will be analyzed in order to achieve the science goals?

The suitability of the observations to achieve the scientific goals.

- Is the choice of target (or targets) clearly described and well justified?
- Are the requested signal-to-noise ratio, angular resolution, largest angular scale, and spectral setup sufficient to achieve the science goals and well justified?
- Does the proposal justify why new observations are needed to achieve the science goals?

In general, the scientific merit should be assessed solely on the content of the proposal, according to the above criteria. Proposals may contain references to published papers (including preprints) as per standard practice in the scientific literature. Consultation of those references should not, however, be required for a general understanding of the proposal.

Technical feasibility.

The ALMA Observing Tool (OT) validates most technical aspects of the proposal; e.g., the OT verifies that the angular resolution can be achieved, verifies the correlator setup is feasible, and provides an accurate estimate of the integration time needed to achieve the requested sensitivity. Reviewers should assume that the OT technical validation of the proposal is correct. Reviewers should not downgrade a proposal merely because of the amount of time requested by the proposal. However, the reviewers can and should consider if the requested signal-to-noise ratio, angular resolution, largest angular scale, and spectral setup as requested by the PI are sufficient to achieve the scientific goals of the proposal and are well justified.

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Observing Tool — ALMA

almascience.nao.ac.jp

Observing Tool

The ALMA Observing Tool (OT) is a Java desktop application used for the preparation and submission of ALMA Phase 1 proposals and, for those which are accepted, Phase 2 materials (Scheduling Blocks). It is also used for preparing and submitting Director's Discretionary Time (DDT) proposals and Supplemental Call (ACA stand-alone) proposals. The current *Cycle 9* release of the OT is configured for the present capabilities of ALMA as described in the Cycle 9 Call For Proposals. Note that in order to submit proposals you will have to register with the ALMA Science Portal beforehand.

Download & Installation

The OT should run on all common operating systems and depends on a version of Java being available. In previous releases of the OT it was the responsibility of the user to ensure that a suitable version of Java was installed, but the Cycle 9 version of the OT will come with its own version of Java 11 and thus the users need no longer worry about their local Java installation. Unfortunately, as Java 11 does not include Web Start, this version of the OT is no longer available. The Cycle 9 OT can be installed in two different ways, either with a modern installer or manually with a tarball distribution.

It is recommended that the OT be installed using the ALMA **OT Installer**. This uses a modern graphical interface to report the progress of the installation and allows the user to change various settings from their defaults, including the amount of memory the OT may use. The installation will produce an executable file that can be used to start the OT. With the loss of Web Start, automatic updates of the tool are no longer possible, but the OT will detect if an update is available at start-up and inform the user. If problems are encountered with the installer, then the tarball must be used.

The **tarball** version must be installed manually and the instructions for doing this have not changed.

Installer   Tarball

Documentation

Installer Page

ALMA Observing Tool

- Mac OS Installer
- Linux Installer
- Windows Installer

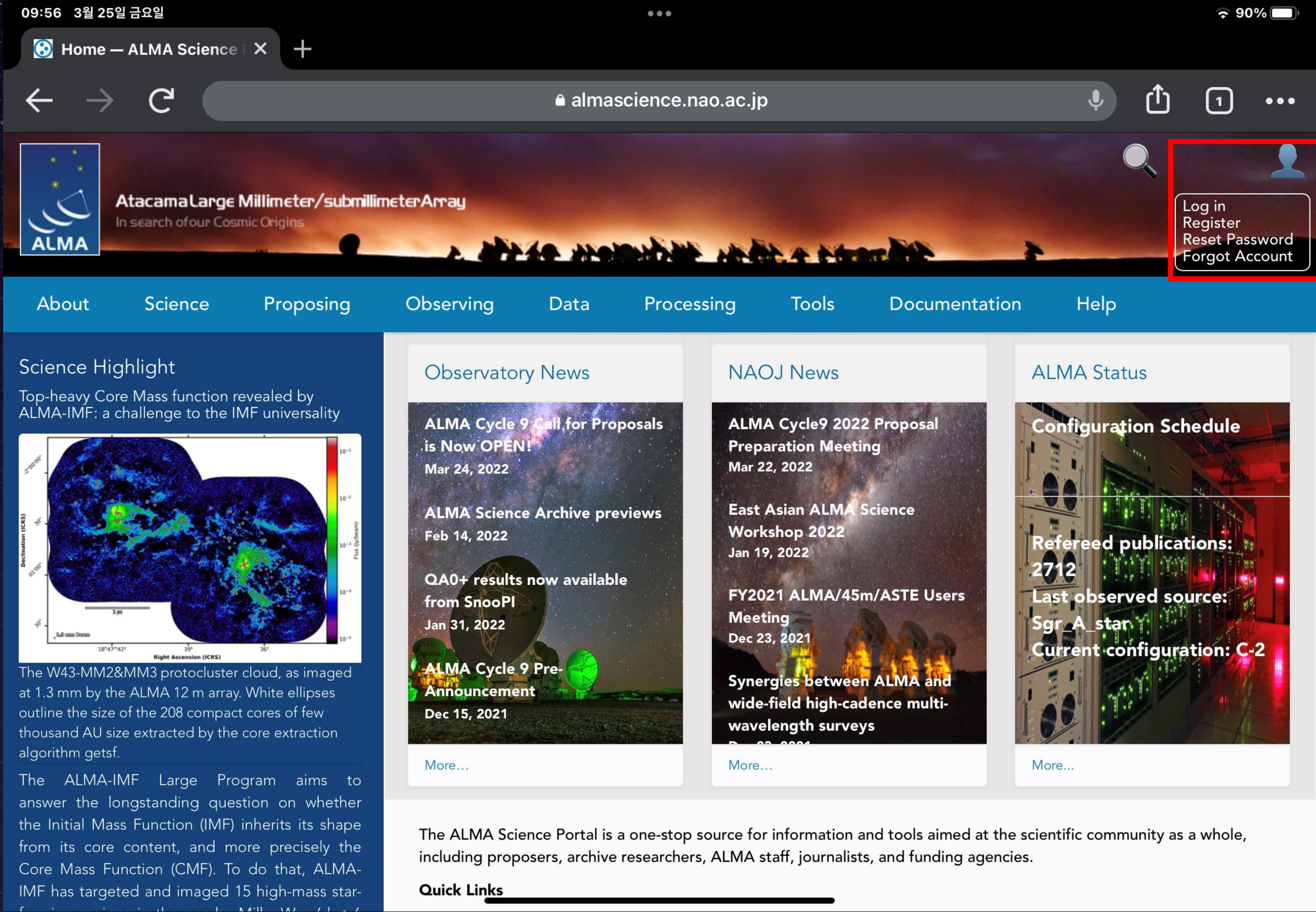
Click on one of the links next to the OT Logo to download the Cycle-9 OT Installer for your particular operating system. The Installer is an executable file which can be started by double-clicking in a file-manager window or started from a shell's command line. Once started, it will take you through a number of screens which, for example, allow you to change the default amount of memory available to the OT. In most cases you can just accept all the defaults using the 'Next' button and click 'Install' when you are happy.

After the Installer has finished, an executable file ('ALMA-OT.sh' on Linux and 'ALMA-OT.app' on Macs) should be found inside a directory named 'ALMAOT-C9-2022'. This can be run from the command line or by double-clicking in a file manager if this is configured in this way. We recommend that the name of this directory not be changed so that multiple versions of the OT (for use in different cycles) can be maintained on your computer. On Macs, a shortcut will be created on your Desktop with the name 'ALMAOT-C9-2022' - the OS will probably ask to control your Finder for this to happen.

Additional Information

- The Mac download is a zip archive which must first be opened in order to extract the installer. This will often be done automatically for you or a suitable program will be suggested ('Archive Utility').
- On Linux, typing 'sh almaot-C9-2022.bin' is the recommended way of starting the installer - it should not be necessary to make it executable.
- There may be various issues related to security when running the Installer. Mac users may need to give permission to run the tool by opening the 'Security & Privacy' menu of 'System Preferences' and this menu should also be set to allow the use of apps from 'identified developers'. Alternatively, running the installer by right-clicking and choosing 'Open' (maybe twice) might work. On Windows, we are aware of 'Defender SmartScreen' - this can be bypassed by clicking on 'More Info'.
- It also appears that the installer will not work on older versions of macOS. So far, we only know that this is the case for 10.10 Yosemite. Users of this OS will have to use the tarball.
- In contrast to the previous 'automated' OT installation (Web Start), the OT will no longer update itself automatically if an update is released. However, the OT will inform

YOU (and your Co-Is) shoud be registered in ALMA site.



Atacama Large Millimeter/submillimeter Array
In search of our Cosmic Origins

ESO NRAO NAOJ

Account info | Demographics | Expertise | Conflicts of interest | Confirm

New Account Registration

Next

(Fields marked with a red dot are mandatory)

First name
Middle initials
Surname
Gender
E-mail
Re-type E-mail
Receive optional emails
Account name
Password
Re-type password
Institution: Choose country... Choose Institution...

In case of problems with the registration, please use this Web form to contact us
You may find a solution to your problem in the Support Center/Knowledgebase

ALMA, a worldwide collaboration

Important Input Parameters

Important parameters I

- Scales
  - Angular Resolution (beam size) ~ depend on the longest baseline
  - Maximum Recoverable Scale (MRS)
    - depends on the shortest baseline (~ 10 x beam size)
    - When the scale is loger than MRS, the emission is resolve out
    - Largest Angular Structure (LAS) should be shorther than MRS.
    - LAS > MRS → multiple configuration or ACA and TP are added.
  - Field of View (FOV)
    - FWHM of the 12m telescope primary beam
    - Area of target is larger than 1/3 FOV, mosaic is needed.

Table 2: Planned 12-m Array Configuration Schedule for Cycle 9

Start date	Configuration	Longest baseline	LST for best observing conditions
2022 October 1	C-3	0.50 km	~ 22—10 h
2022 October 20	C-2	0.31 km	~ 23—11 h
2022 November 10	C-1	0.16 km	~ 1—13 h
2022 November 30	C-2	0.31 km	~ 2—14 h
2022 December 20	C-3	0.50 km	~ 4—15 h
2023 January 10	C-4	0.78 km	~ 5—17 h
2023 February 1	*No observations due to maintenance*		
2023 March 1	C-4	0.78 km	~ 8—21 h
2023 March 20	C-5	1.4 km	~ 9—23 h
2023 April 20	C-6	2.5 km	~ 11—1 h
2023 May 20	C-7	3.6 km	~ 13—3 h
2023 June 20	C-8	8.5 km	~ 15—5 h
2023 July 11	C-9	13.9 km	~16—6 h
2023 July 30	C-10	16.2 km	~17—7 h
2023 August 20	C-9	13.9 km	~19—8 h
2023 September 10	C-8	8.5 km	~20—9 h

Table A-1: Angular Resolutions (AR) and Maximum Recoverable Scales (MRS) for the Cycle 9 configurations

Config	Lmax		Band 3	Band 4	Band 5	Band 6	Band 7	Band 8	Band 9	Band 10
	Lmin		100 GHz	150 GHz	185 GHz	230 GHz	345 GHz	460 GHz	650 GHz	870 GHz
7-m	45 m	AR	12.5”	8.35”	6.77”	5.45”	3.63”	2.72”	1.93”	1.44”
	9 m	MRS	66.7”	44.5”	36.1”	29.0”	19.3”	14.5”	10.3”	7.67”
C-1	161 m	AR	3.38”	2.25”	1.83”	1.47”	0.98”	0.74”	0.52”	0.39”
	15 m	MRS	28.5”	19.0”	15.4”	12.4”	8.25”	6.19”	4.38”	3.27”
C-2	314 m	AR	2.30”	1.53”	1.24”	1.00”	0.67”	0.50”	0.35”	0.26”
	15 m	MRS	22.6”	15.0”	12.2”	9.81”	6.54”	4.90”	3.47”	2.59”
C-3	500 m	AR	1.42”	0.94”	0.77”	0.62”	0.41”	0.31”	0.22”	0.16”
	15 m	MRS	16.2”	10.8”	8.73”	7.02”	4.68”	3.51”	2.48”	1.86”
C-4	784 m	AR	0.92”	0.61”	0.50”	0.40”	0.27”	0.20”	0.14”	0.11”
	15 m	MRS	11.2”	7.50”	6.08”	4.89”	3.26”	2.44”	1.73”	1.29”
C-5	1.4 km	AR	0.55”	0.36”	0.30”	0.24”	0.16”	0.12”	0.084”	0.063”
	15 m	MRS	6.70”	4.47”	3.62”	2.91”	1.94”	1.46”	1.03”	0.77”
C-6	2.5 km	AR	0.31”	0.20”	0.17”	0.13”	0.089”	0.067”	0.047”	0.035”
	15 m	MRS	4.11”	2.74”	2.22”	1.78”	1.19”	0.89”	0.63”	0.47”
C-7	3.6 km	AR	0.21”	0.14”	0.11”	0.092”	0.061”	0.046”	0.033”	0.024”
	64 m	MRS	2.58”	1.72”	1.40”	1.12”	0.75”	0.56”	0.40”	0.30”
C-8	8.5 km	AR	0.096”	0.064”	0.052”	0.042”	0.028”	0.021”	0.015”	0.011”
	110 m	MRS	1.42”	0.95”	0.77”	0.62”	0.41”	0.31”	0.22”	0.16”
C-9	13.9 km	AR	0.057”	0.038”	0.031”	0.025”	0.017”	0.012”	0.0088”	N/A
	368 m	MRS	0.81”	0.54”	0.44”	0.35”	0.24”	0.18”	0.13”	
C-10	16.2 km	AR	0.042”	0.028”	0.023”	0.018”	0.012”	0.0091”	N/A	N/A
	244 m	MRS	0.50”	0.33”	0.27”	0.22”	0.14”	0.11”		

Table A-2: Allowed Array Combinations and Time Multipliers

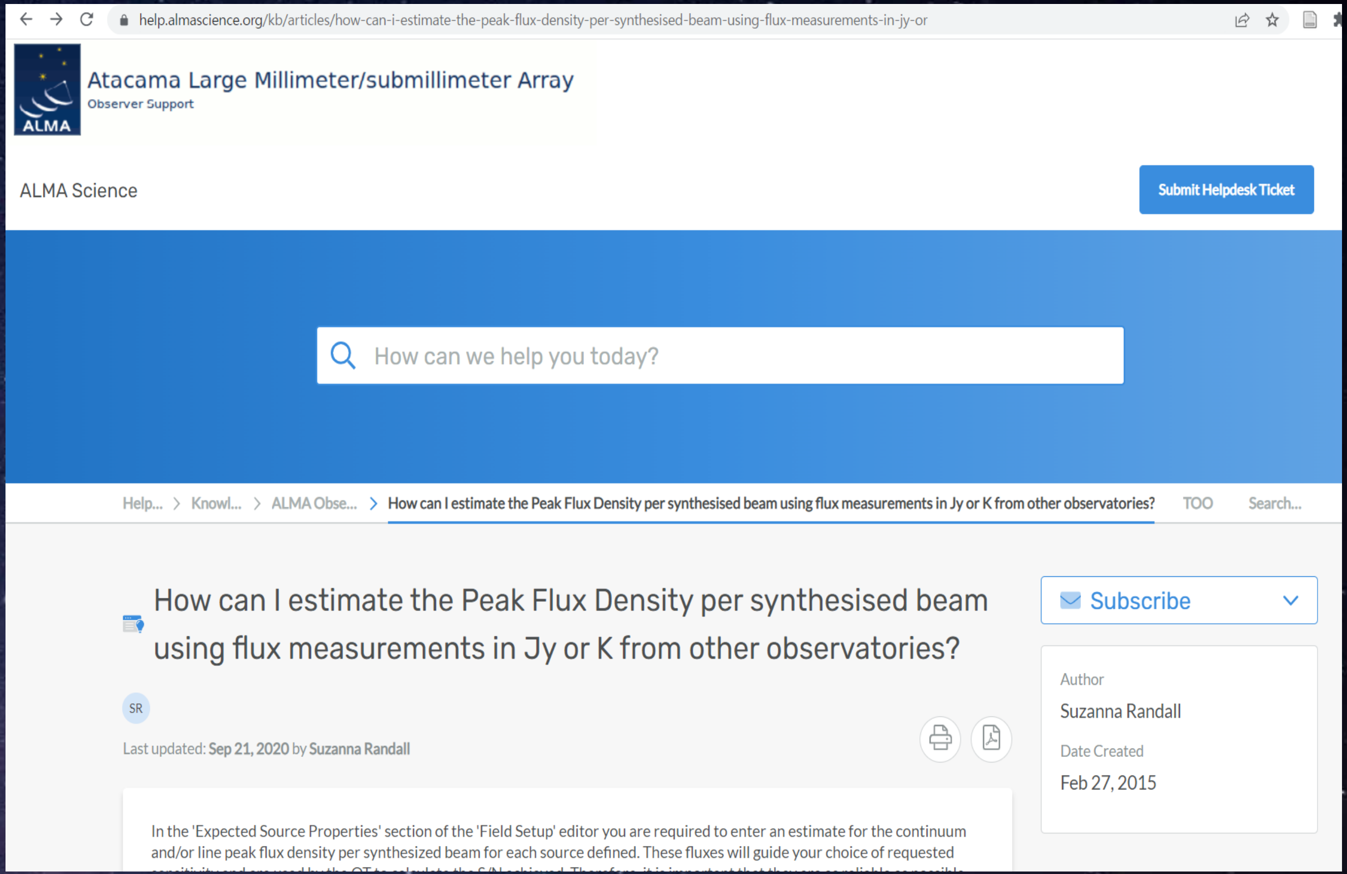
Most Extended configuration	Allowed Compact configuration pairings	Extended 12-m Array Multiplier	Multiplier if compact 12-m Array needed	Multiplier if 7-m Array needed	Multiplier if TP Array needed and allowed
7-m Array	**TP**			1	1.7
C-1	**7-m Array & TP**	1		7.0	11.9
C-2	**7-m Array & TP**	1		4.7	7.9
C-3	**7-m Array & TP**	1		2.4	4.1
C-4	**C-1 & 7-m Array & TP**	1	0.34	2.4	4.0
C-5	**C-2 & 7-m Array & TP**	1	0.26	1.2	2.1
C-6	**C-3 & 7-m Array & TP**	1	0.25	0.6	1.0
C-7	**C-4**	1	0.23		
C-8	**C-5**	1	0.22		
C-9	**C-6**	1	0.21		
C-10	**-**	1			

Notes for Table A-2:

1. See Chapter 7 of the Technical Handbook for relevant equations and detailed considerations.
2. If the array configuration that meets the AR request according to Table A-1 has a MRS that is smaller than the LAS request, the OT checks if adding more compact array configurations, following the restrictions of this Table, fulfills the LAS request. If so, the final setup consists of the selected combination of arrays. Otherwise, the OT returns a validation error.

Important parameters II

- Expected Source properties
  - Position, souce velocity
  - Peak Flux Density per beam
    - SNR > 3
  - Polarization
    - linear > 0.1% (< 0.3 FOV)
    - circular > 1.8 % (<0.1 FOV)
  - Line width
    - > 3 x spectral resolution



https://help.almascience.org/kb/articles/how-can-i-estimate-the-peak-flux-density-per-synthesised-beam-using-flux-measurements-in-jy-or

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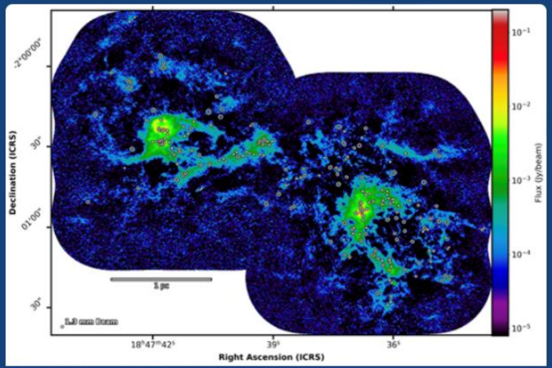
- Knowledgebase/FAQ
- Helpdesk
- EA ARC
- EU ARC
- NA ARC

Science Highlight

Top-heavy Core Mass function revealed by ALMA-IMF: a challenge to the IMF universality



The W43-MM2&MM3 protocluster cloud, as imaged at 1.3 mm by the ALMA 12 m array. White ellipses outline the size of the 208 compact cores of few thousand AU size extracted by the core extraction algorithm getsf.

The ALMA-IMF Large Program aims to answer the longstanding question on whether the Initial Mass Function (IMF) inherits its shape from its core content, and more precisely the Core Mass Function (CMF). To do that, ALMA-IMF has targeted and imaged 15 high-mass star-

Observatory News

ALMA Cycle 9 Call for Proposals is Now OPEN!
Mar 24, 2022

ALMA Science Archive previews
Feb 14, 2022

QA0+ results now available from SnooPI
Jan 31, 2022

ALMA Cycle 9 Pre-

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NAOJ News

ALMA Cycle9 2022 Proposal Preparation Meeting
Mar 22, 2022

East Asian ALMA Science Workshop 2022
Jan 19, 2022

FY2021 ALMA/45m/ASTE Users Meeting
Dec 23, 2021

More...

ALMA Status

Configuration Schedule

Refereed publications: 2750
Last observed source: SgrA
Current configuration:

More...

The ALMA Science Portal is a one-stop source for information and tools aimed at the scientific community as a whole, including proposers, archive researchers, ALMA staff, journalists, and funding agencies.

Quick Links

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Knowledgebase - ALMA

help.almascience.org

Atacama Large Millimeter/submillimeter Array
Observer Support

ALMA Science

Submit Helpdesk Ticket

Log in

How can we help you today?

Help Center > Knowledgebase TOO Search Sci Portal

Knowledgebase

General (1)

- What Cycle 9 proposal issues and clarifications should I ...

ALMA Observing Tool (OT) (44)

- What do the time estimates in the summary PDF page g...
- My project requires good uv-coverage. How should I set ...

Important parameters III

- Spectral Setup
  - LSB and/or USB
  - 4 basebands (with 2GHz max. width)
  - 2 or 4 basebands in the one sideband

LSB/USB (<4GHz, ≤4 basebands)
Baseband (<2GHz, ≤4spws)
Spectral window(spw)

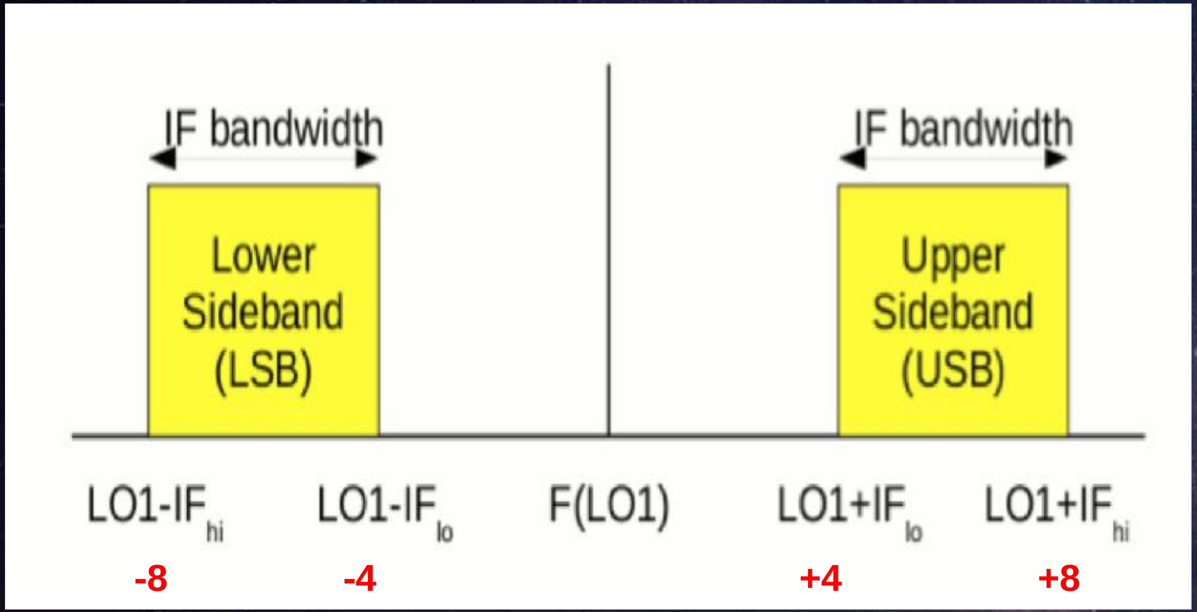


Table A-3: Properties of ALMA Cycle 9 Receiver Bands

Band	Frequency range[1] (GHz)	Wavelength range (mm)	IF range (GHz)	Type
3	84 – 116	3.6 – 2.6	4 – 8	2SB
4	125 – 163	2.4 – 1.8	4 – 8	2SB
5	158 – 211	1.9 – 1.4	4 – 8	2SB
6	211 – 275	1.4 – 1.1	4.5 – 10	2SB
7	275 – 373	1.1 – 0.8	4 – 8	2SB
8	385 – 500	0.78 – 0.60	4 – 8	2SB
9	602 – 720	0.50 – 0.42	4 – 12	DSB
10	787 – 950	0.38 – 0.32	4 – 12	DSB

Notes for Table A-3:

1. These are the nominal frequency ranges for continuum observations. Observations of spectral lines that are within about 0.2 GHz of a band edge are not possible (at present) in Frequency Division Mode (FDM, see Section A.6.1) because of the responses of the spectral edge filters implemented in the correlator. IF is the intermediate frequency.

Spws in a baseband
- one faction 1
- two fraction ½
- four fraction ¼
- one fraction ½ + two fraction ¼

Spectral windows (SPW) should have the same resolution.

Table A-4: Properties of ALMA Cycle 9 Correlator Modes, dual-polarization operation [1,2]

Bandwidth (MHz)	Channel spacing[(3)] (MHz)	Spectral resolution (MHz)	Number of channels	Correlator mode[(4)]
1875	15.6	31.2	120	TDM
1875	0.488	0.976	3840	FDM
938	0.244	0.488	3840	FDM
469	0.122	0.244	3840	FDM
234	0.061	0.122	3840	FDM
117	0.0305	0.061	3840	FDM
58.6	0.0153	0.0305	3840	FDM

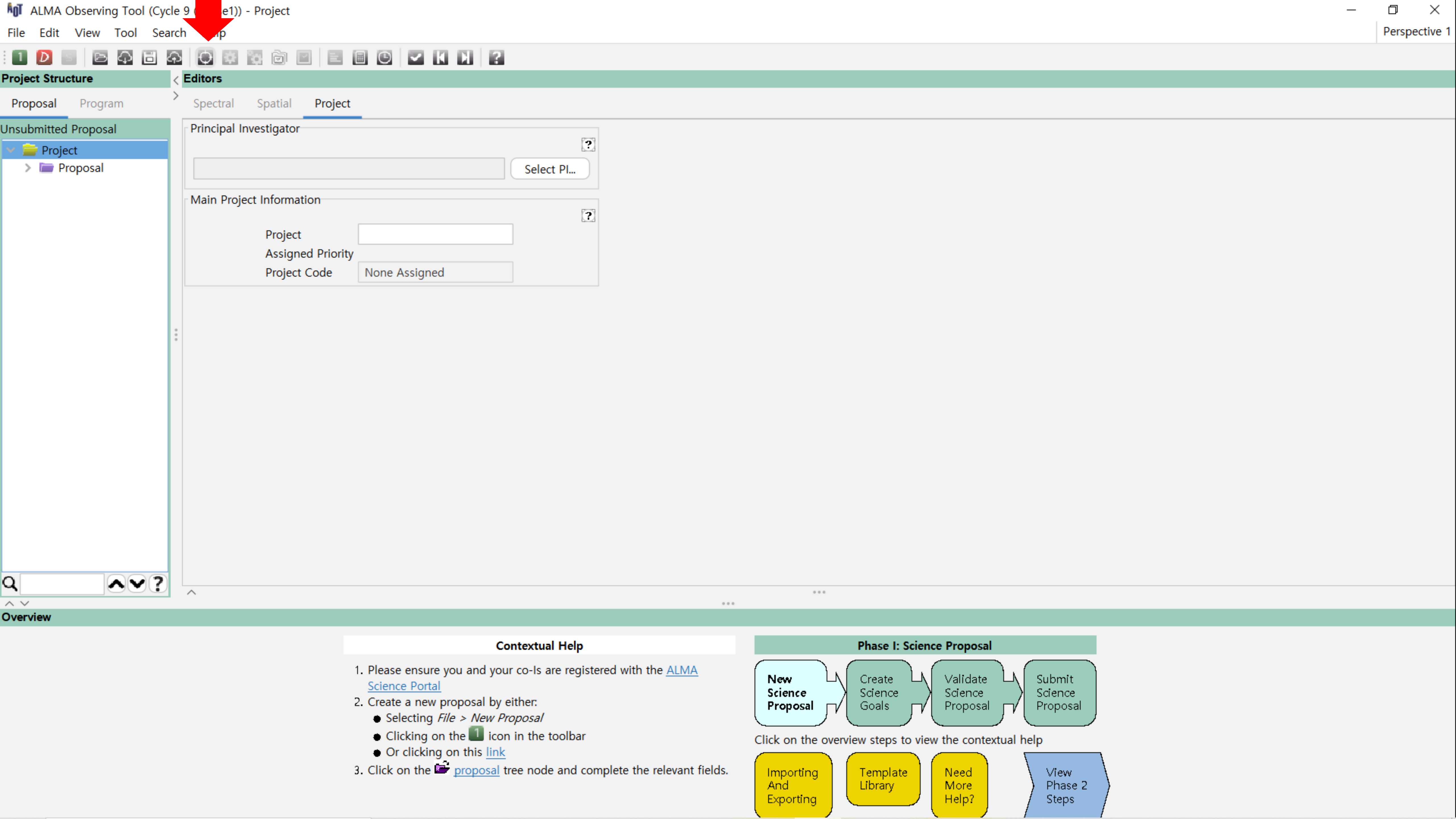
Notes for Table A-4:
1. These values are for each spectral window and for each polarization, using the full correlator resources and no on-line spectral binning.
2. Single-polarization modes are also available, giving twice the number of channels per spectral window, and half the channel spacing of the above table.
3. The "Channel spacing" is the frequency separation between data points in the output spectrum. The spectral resolution – i.e., the FWHM of the spectral response function – is larger by a factor that depends on the "window function" applied to the data to control the ringing in the spectrum. For the default function – the "Hanning" window – this factor is 2. See Chapter 5 of the Technical Handbook for details.
4. Only for the 64-input Correlator

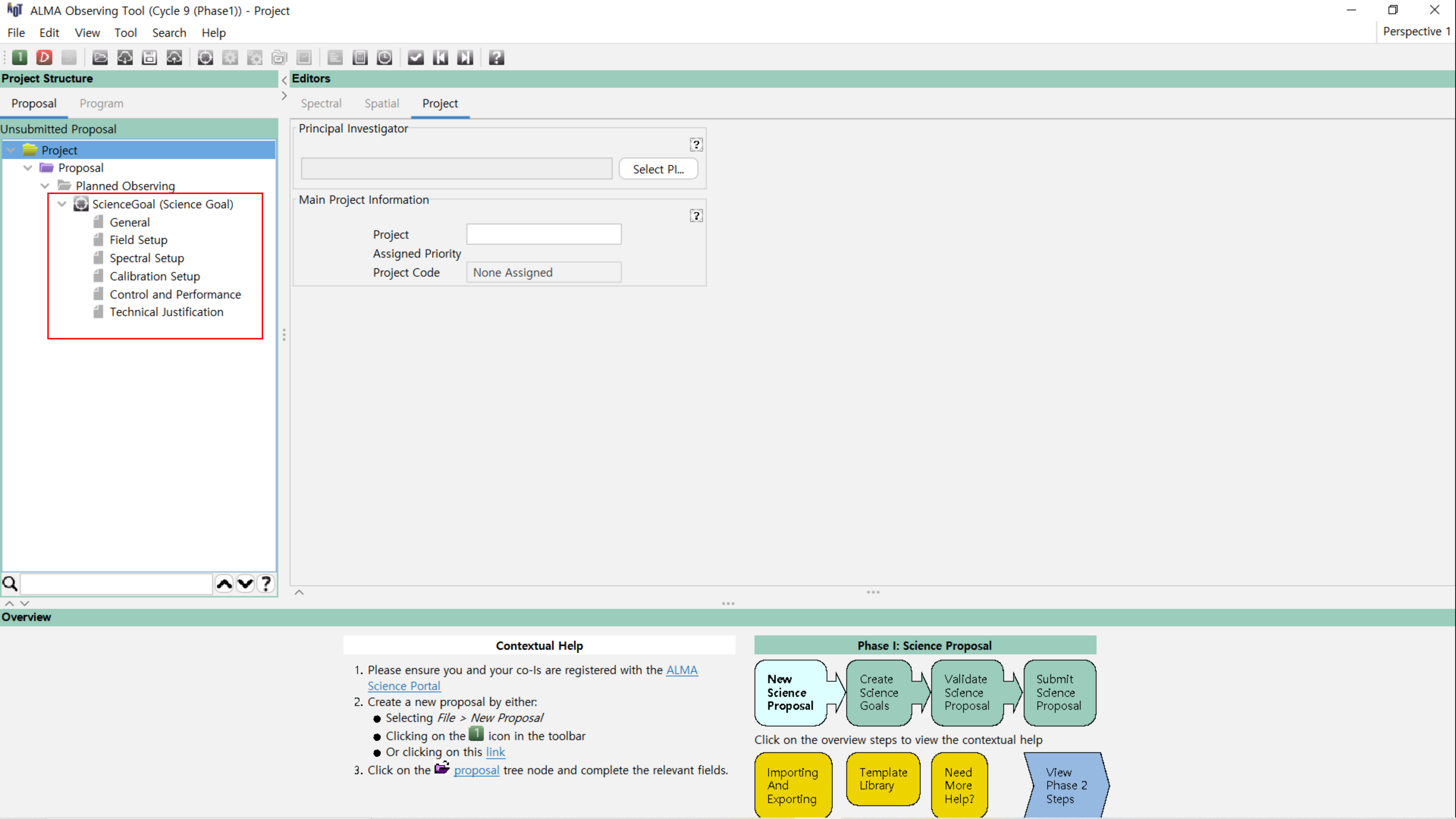
Table 5.1: Available spectral windows in multi-region mode (dual polarization). Each time the fraction is changed, the number of channels and bandwidth of a particular correlator mode is halved. Each row corresponds to a particular spectral resolution.

Spectral resolution ∝ 1/ fraction for a given bandwidth

Fraction = 1		Fraction = 1/2		Fraction = 1/4	
Bandwidth (MHz)	# channels	Bandwidth (MHz)	# channels	Bandwidth (MHz)	# channels
1875	4096	937.5	2048	468.75	1024
937.5	4096	468.75	2048	234.375	1024
468.75	4096	234.375	2048	117.118	1024
234.375	4096	117.118	2048	58.594	1024
117.118	4096	58.594	2048	not available	
58.594	4096	not available		not available	

Procedures In OT


ALMA Observing Tool (Cycle 9 (e1)) - Project
File Edit View Tool Search p
Perspective 1
Project Structure
Editors
Proposal Program
Spectral Spatial Project
Unsubmitted Proposal
Project
Proposal
Principal Investigator
Select PI...
Main Project Information
Project
Assigned Priority
Project Code
None Assigned
Overview
Contextual Help
1. Please ensure you and your co-Is are registered with the ALMA Science Portal
2. Create a new proposal by either:
Selecting File > New Proposal
Clicking on the 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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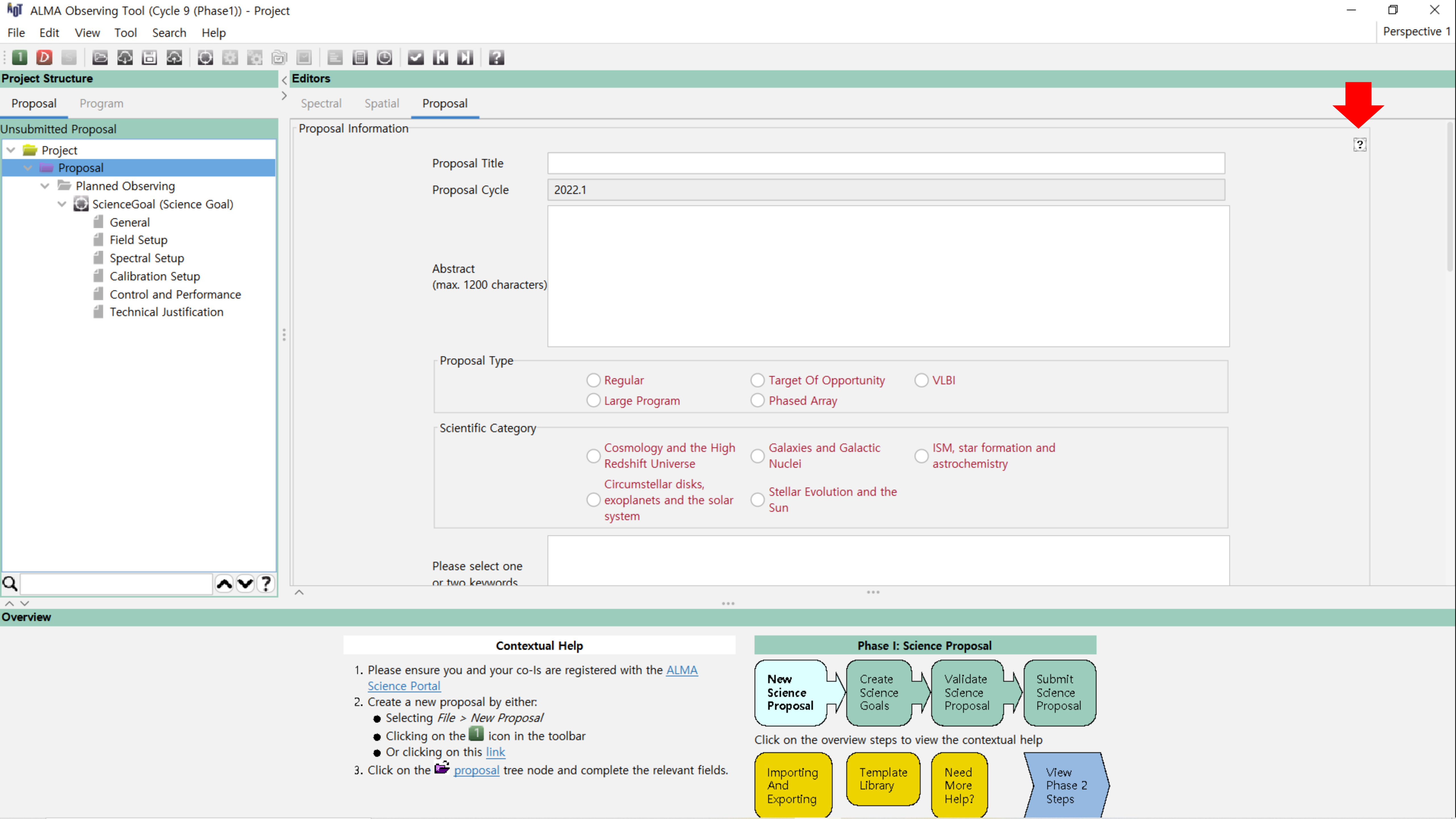
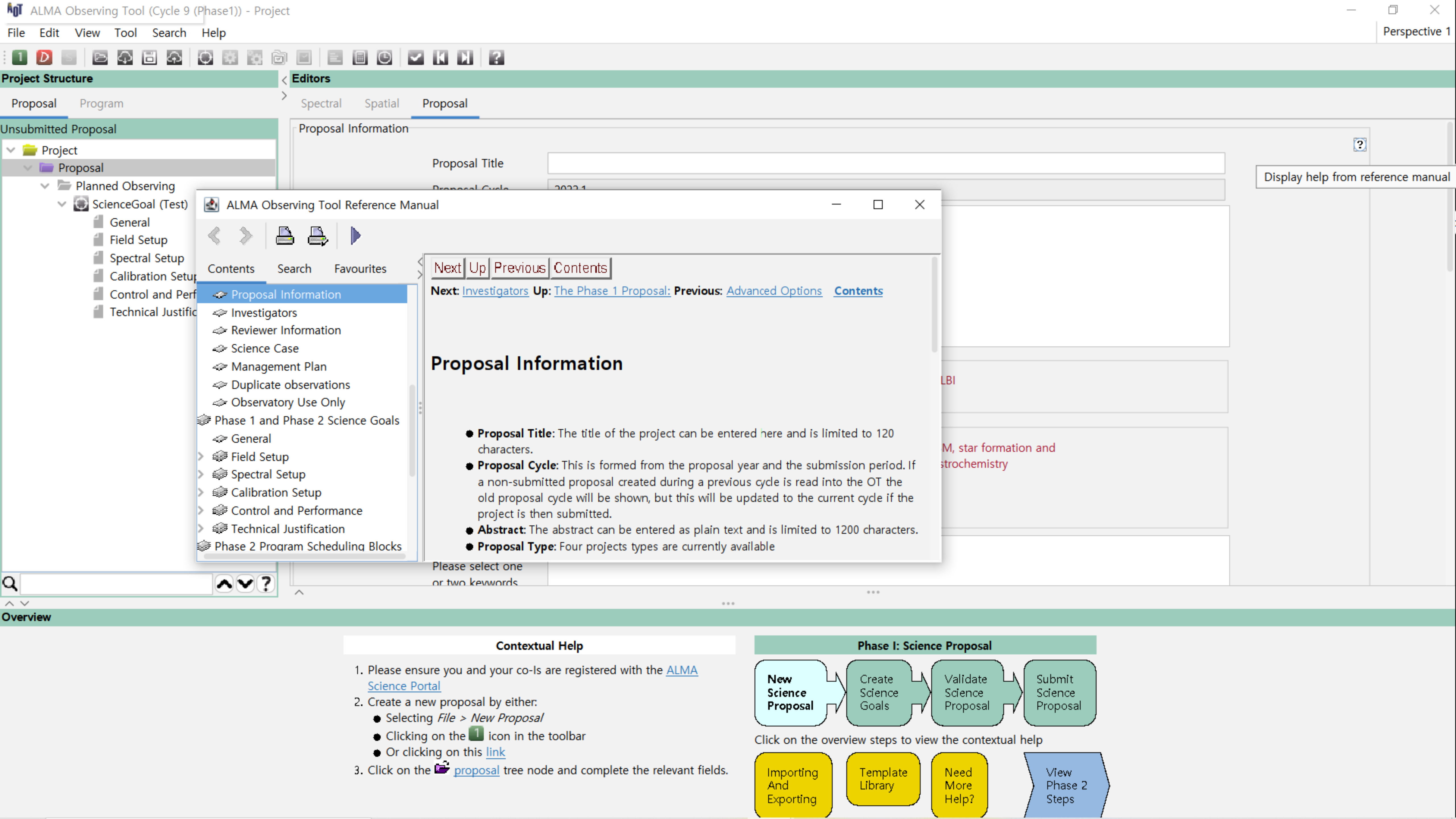
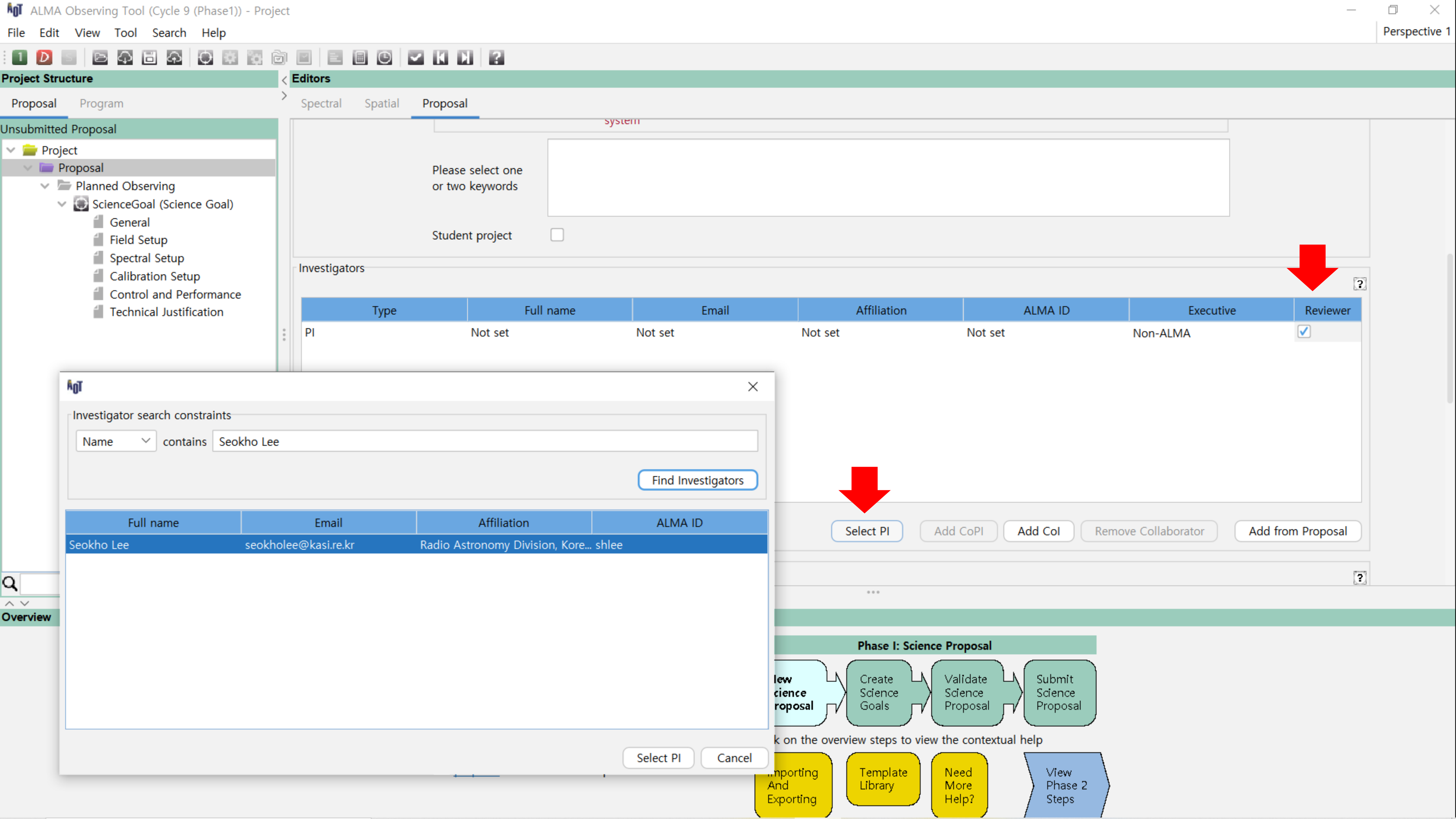
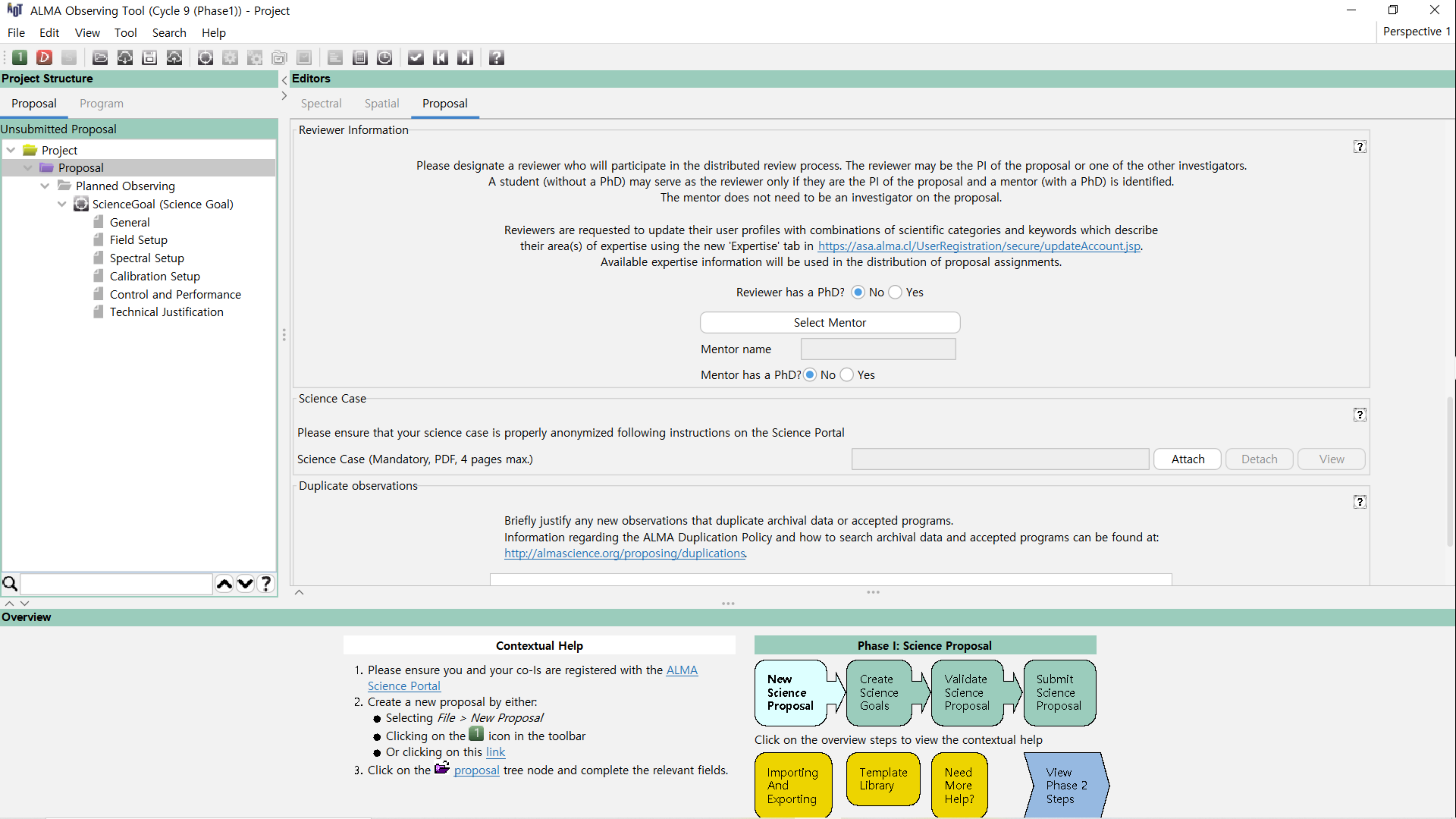
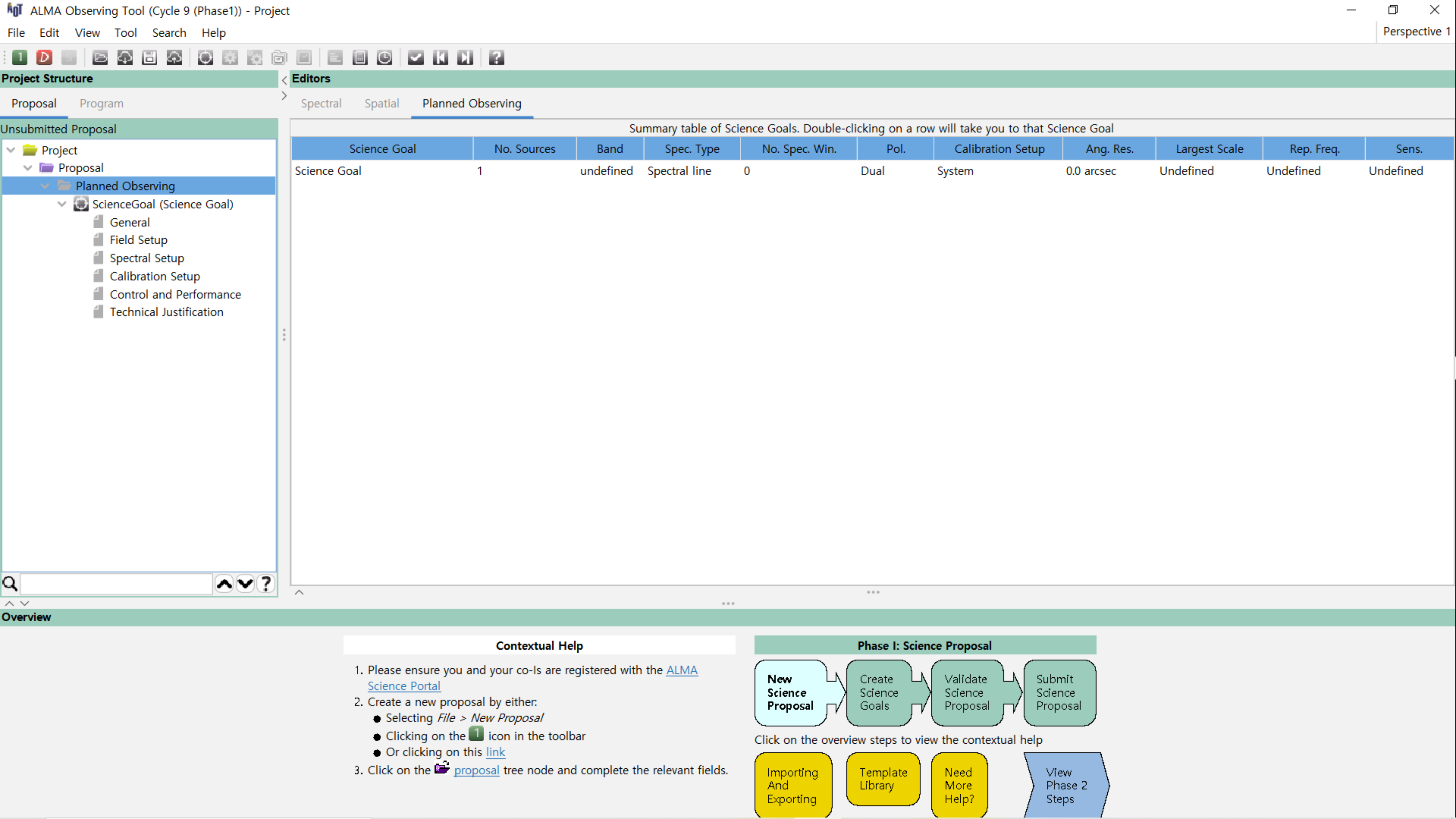
File Edit View Tool Search Help
Perspective 1
Project Structure
Proposal
Program
Unsubmitted Proposal
Project
Proposal
Planned Observing
ScienceGoal (Science Goal)
General
Field Setup
Spectral Setup
Calibration Setup
Control and Performance
Technical Justification
Editors
Spectral
Spatial
Project
Principal Investigator
Select PI...
Main Project Information
Project
Assigned Priority
Project Code
None Assigned
Overview
Contextual Help
1. Please ensure you and your co-Is are registered with the ALMA Science Portal
2. Create a new proposal by either:
Selecting File > New Proposal
Clicking on the 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 (Cycle 9 (Phase1)) - Project
File Edit View Tool Search Help
Perspective 1
Project Structure
Editors
Proposal Program
Spectral Spatial Proposal
Unsubmitted Proposal
Project
Proposal
Planned Observing
ScienceGoal (Science Goal)
General
Field Setup
Spectral Setup
Calibration Setup
Control and Performance
Technical Justification
Proposal Information
Proposal Title
Proposal Cycle
2022.1
Abstract
(max. 1200 characters)
Proposal Type
Regular
Target Of Opportunity
VLBI
Large Program
Phased Array
Scientific Category
Cosmology and the High Redshift Universe
Galaxies and Galactic Nuclei
ISM, star formation and astrochemistry
Circumstellar disks, exoplanets and the solar system
Stellar Evolution and the Sun
Please select one or two keywords
Overview
Contextual Help
1. Please ensure you and your co-Is are registered with the ALMA Science Portal
2. Create a new proposal by either:
Selecting File > New Proposal
Clicking on the 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

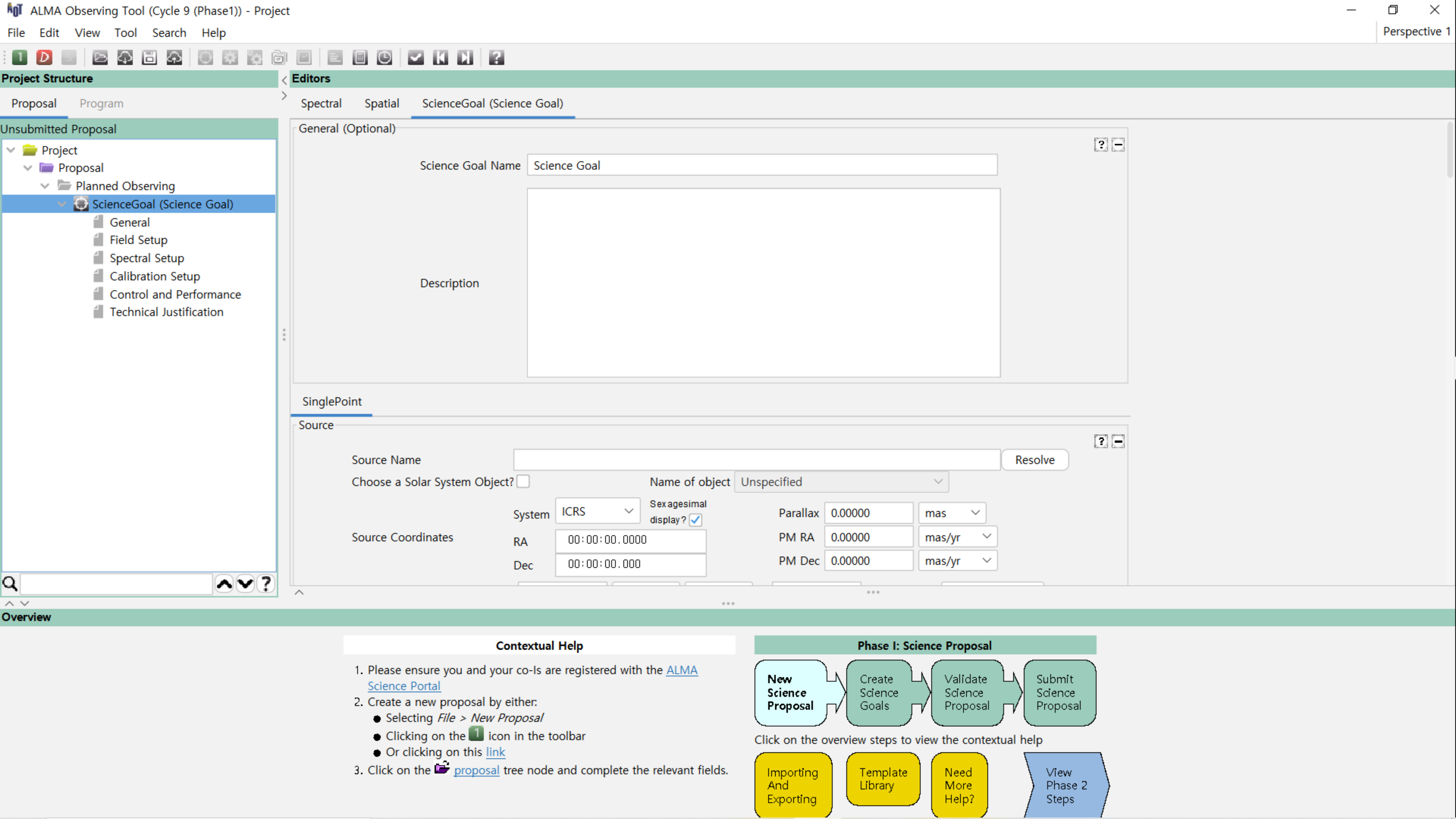

ALMA Observing Tool (Cycle 9 (Phase1)) - Project
File Edit View Tool Search Help
Perspective 1
Project Structure
Proposal Program
Unsubmitted Proposal
Project
Proposal
Planned Observing
ScienceGoal (Test)
General
Field Setup
Spectral Setup
Calibration Setup
Control and Perf
Technical Justific
Editors
Spectral Spatial Proposal
Proposal Information
Proposal Title
Display help from reference manual
ALMA Observing Tool Reference Manual
Contents Search Favourites
Proposal Information
Investigators
Reviewer Information
Science Case
Management Plan
Duplicate observations
Observatory Use Only
Phase 1 and Phase 2 Science Goals
General
Field Setup
Spectral Setup
Calibration Setup
Control and Performance
Technical Justification
Phase 2 Program Scheduling Blocks
Next Up Previous Contents
Next: Investigators Up: The Phase 1 Proposal: Previous: Advanced Options Contents
Proposal Information
Proposal Title: The title of the project can be entered here and is limited to 120 characters.
Proposal Cycle: This is formed from the proposal year and the submission period. If a non-submitted proposal created during a previous cycle is read into the OT the old proposal cycle will be shown, but this will be updated to the current cycle if the project is then submitted.
Abstract: The abstract can be entered as plain text and is limited to 1200 characters.
Proposal Type: Four projects types are currently available
Please select one or two keywords
Overview
Contextual Help
1. Please ensure you and your co-Is are registered with the ALMA Science Portal
2. Create a new proposal by either:
Selecting File > New Proposal
Clicking on the 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

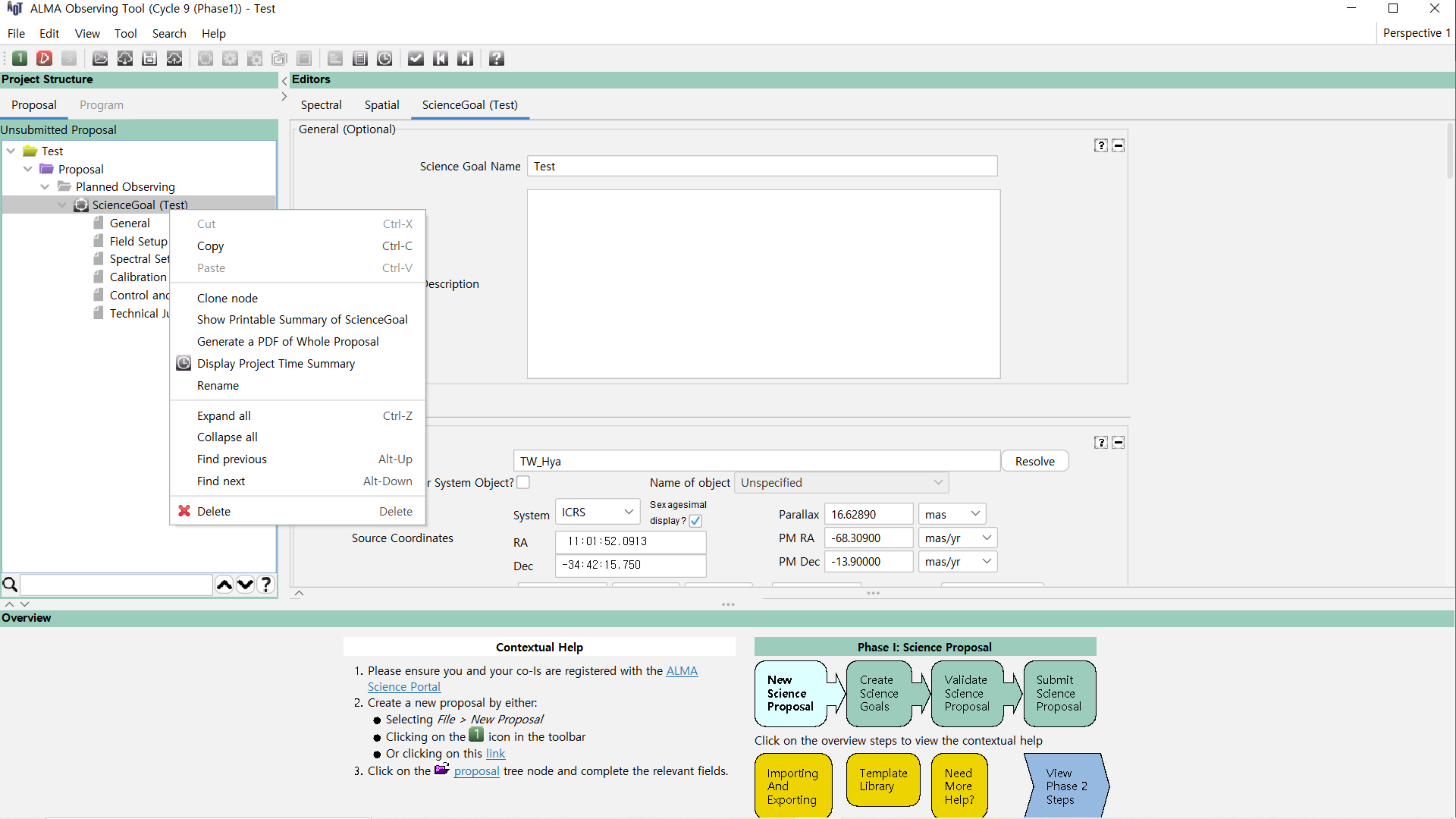

ALMA Observing Tool (Cycle 9 (Phase1)) - Project
File Edit View Tool Search Help
Perspective 1
Project Structure
Proposal Program
Unsubmitted Proposal
Project
Proposal
Planned Observing
ScienceGoal (Science Goal)
General
Field Setup
Spectral Setup
Calibration Setup
Control and Performance
Technical Justification
Overview
Editors
Spectral Spatial Proposal
system
Please select one or two keywords
Student project
Investigators
Type
Full name
Email
Affiliation
ALMA ID
Executive
Reviewer
PI
Not set
Not set
Not set
Not set
Non-ALMA
Select PI
Add CoPI
Add CoI
Remove Collaborator
Add from Proposal
Investigator search constraints
Name
contains
Seokho Lee
Find Investigators
Full name
Email
Affiliation
ALMA ID
Seokho Lee
seokholee@kasi.re.kr
Radio Astronomy Division, Kore...
shlee
Select PI
Cancel
Phase I: Science Proposal
Create Science Goals
Validate Science Proposal
Submit Science Proposal
k on the overview steps to view the contextual help
Template Library
Need More Help?
View Phase 2 Steps

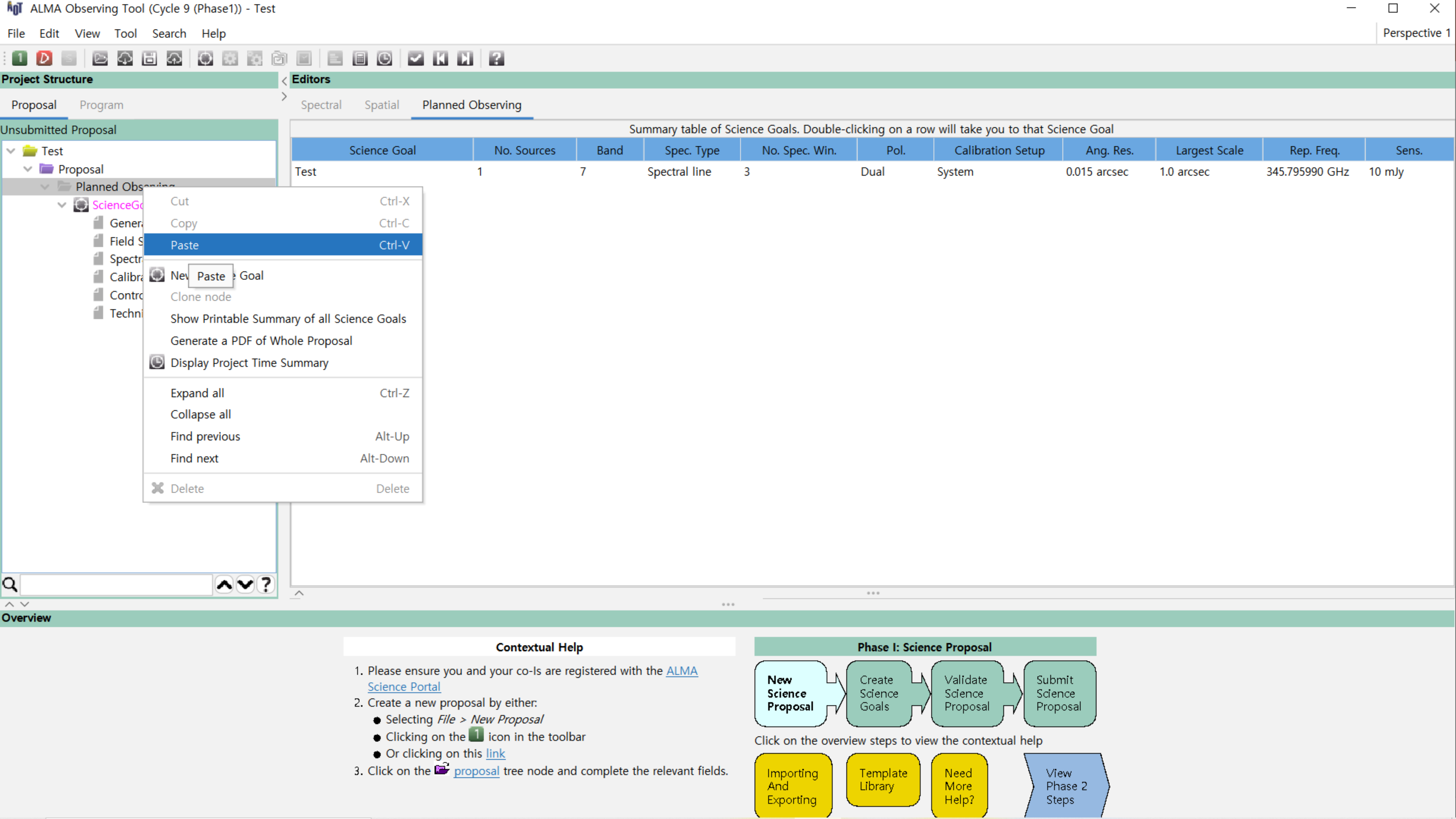

ALMA Observing Tool (Cycle 9 (Phase1)) - Project
File Edit View Tool Search Help
Perspective 1
Project Structure
Proposal Program
Unsubmitted Proposal
Project
Proposal
Planned Observing
ScienceGoal (Science Goal)
General
Field Setup
Spectral Setup
Calibration Setup
Control and Performance
Technical Justification
Editors
Spectral Spatial Proposal
Reviewer Information
Please designate a reviewer who will participate in the distributed review process. The reviewer may be the PI of the proposal or one of the other investigators.
A student (without a PhD) may serve as the reviewer only if they are the PI of the proposal and a mentor (with a PhD) is identified.
The mentor does not need to be an investigator on the proposal.
Reviewers are requested to update their user profiles with combinations of scientific categories and keywords which describe
their area(s) of expertise using the new 'Expertise' tab in https://asa.alma.cl/UserRegistration/secure/updateAccount.jsp.
Available expertise information will be used in the distribution of proposal assignments.
Reviewer has a PhD? No Yes
Select Mentor
Mentor name
Mentor has a PhD? No Yes
Science Case
Please ensure that your science case is properly anonymized following instructions on the Science Portal
Science Case (Mandatory, PDF, 4 pages max.)
Attach Detach View
Duplicate observations
Briefly justify any new observations that duplicate archival data or accepted programs.
Information regarding the ALMA Duplication Policy and how to search archival data and accepted programs can be found at:
http://almascience.org/proposing/duplications.
Overview
Contextual Help
1. Please ensure you and your co-Is are registered with the ALMA Science Portal
2. Create a new proposal by either:
Selecting File > New Proposal
Clicking on the 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

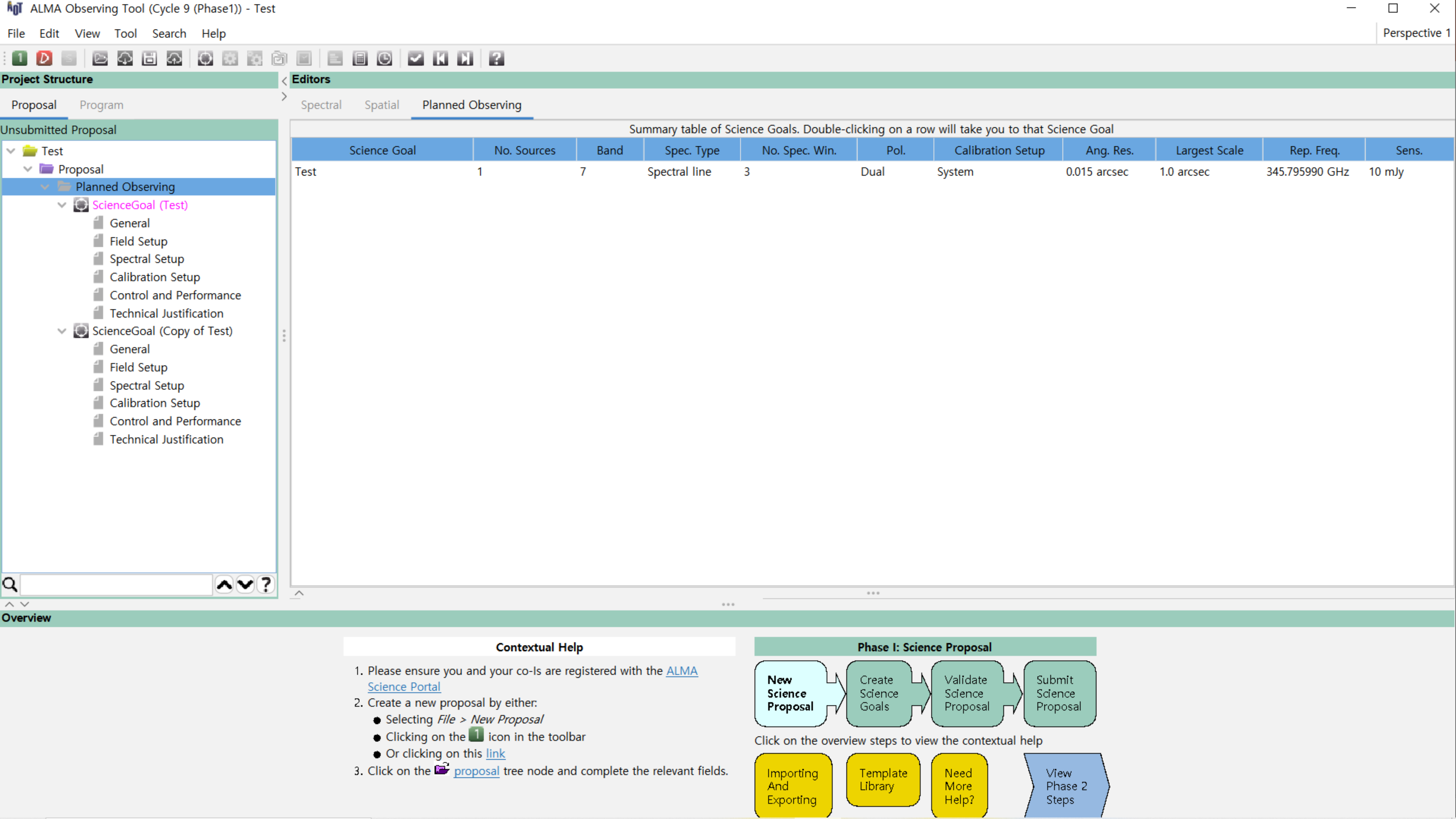


ALMA Observing Tool (Cycle 9 (Phase1)) - Project
File Edit View Tool Search Help
Perspective 1
Project Structure
Proposal
Program
Unsubmitted Proposal
Project
Proposal
Planned Observing
ScienceGoal (Science Goal)
General
Field Setup
Spectral Setup
Calibration Setup
Control and Performance
Technical Justification
Editors
Spectral
Spatial
Planned Observing
Summary table of Science Goals. Double-clicking on a row will take you to that Science Goal
Science Goal | No. Sources | Band | Spec. Type | No. Spec. Win. | Pol. | Calibration Setup | Ang. Res. | Largest Scale | Rep. Freq. | Sens.
Science Goal | 1 | undefined | Spectral line | 0 | Dual | System | 0.0 arcsec | Undefined | Undefined | Undefined
Overview
Contextual Help
1. Please ensure you and your co-Is are registered with the ALMA Science Portal
2. Create a new proposal by either:
Selecting File > New Proposal
Clicking on the 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 (Cycle 9 (Phase1)) - Project
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
ScienceGoal (Science Goal)
General (Optional)
Science Goal Name
Science Goal
Description
SinglePoint
Source
Source Name
Resolve
Choose a Solar System Object?
Name of object
Unspecified
System
ICRS
Sexagesimal display?
Parallax
0.00000
mas
Source Coordinates
RA
00:00:00.0000
PM RA
0.00000
mas/yr
Dec
00:00:00.000
PM Dec
0.00000
mas/yr
Overview
Contextual Help
1. Please ensure you and your co-Is are registered with the ALMA Science Portal
2. Create a new proposal by either:
Selecting File > New Proposal
Clicking on the 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 (Cycle 9 (Phase1)) - Test
File Edit View Tool Search Help
Perspective 1
Project Structure
Editors
Proposal
Program
Spectral
Spatial
ScienceGoal (Test)
Unsubmitted Proposal
Test
Proposal
Planned Observing
ScienceGoal (Test)
General
Field Setup
Spectral Set
Calibration
Control and
Technical Ju
Cut Ctrl-X
Copy Ctrl-C
Paste Ctrl-V
Clone node
Show Printable Summary of ScienceGoal
Generate a PDF of Whole Proposal
Display Project Time Summary
Rename
Expand all Ctrl-Z
Collapse all
Find previous Alt-Up
Find next Alt-Down
Delete Delete
General (Optional)
Science Goal Name
Test
Description
TW_Hya
Resolve
System Object?
Name of object
Unspecified
System
ICRS
Sexagesimal display?
Parallax
16.62890
mas
PM RA
-68.30900
mas/yr
PM Dec
-13.90000
mas/yr
Source Coordinates
RA
11:01:52.0913
Dec
-34:42:15.750
Overview
Contextual Help
1. Please ensure you and your co-Is are registered with the ALMA Science Portal
2. Create a new proposal by either:
Selecting File > New Proposal
Clicking on the 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 (Cycle 9 (Phase1)) - Test
File Edit View Tool Search Help
Perspective 1
Project Structure
Proposal Program
Unsubmitted Proposal
Test
Proposal
Planned Observing
ScienceGo
General
Field S
Spectr
Calibra
Contro
Techni
Editors
Spectral Spatial Planned Observing
Summary table of Science Goals. Double-clicking on a row will take you to that Science Goal
Science Goal | No. Sources | Band | Spec. Type | No. Spec. Win. | Pol. | Calibration Setup | Ang. Res. | Largest Scale | Rep. Freq. | Sens.
Test | 1 | 7 | Spectral line | 3 | Dual | System | 0.015 arcsec | 1.0 arcsec | 345.795990 GHz | 10 mJy
Cut Ctrl-X
Copy Ctrl-C
Paste Ctrl-V
New Science Goal
Paste
Clone node
Show Printable Summary of all Science Goals
Generate a PDF of Whole Proposal
Display Project Time Summary
Expand all Ctrl-Z
Collapse all
Find previous Alt-Up
Find next Alt-Down
Delete Delete
Overview
Contextual Help
1. Please ensure you and your co-Is are registered with the ALMA Science Portal
2. Create a new proposal by either:
Selecting File > New Proposal
Clicking on the 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 (Cycle 9 (Phase1)) - Test
File Edit View Tool Search Help
Perspective 1
Project Structure
Proposal Program
Unsubmitted Proposal
Test
Proposal
Planned Observing
ScienceGoal (Test)
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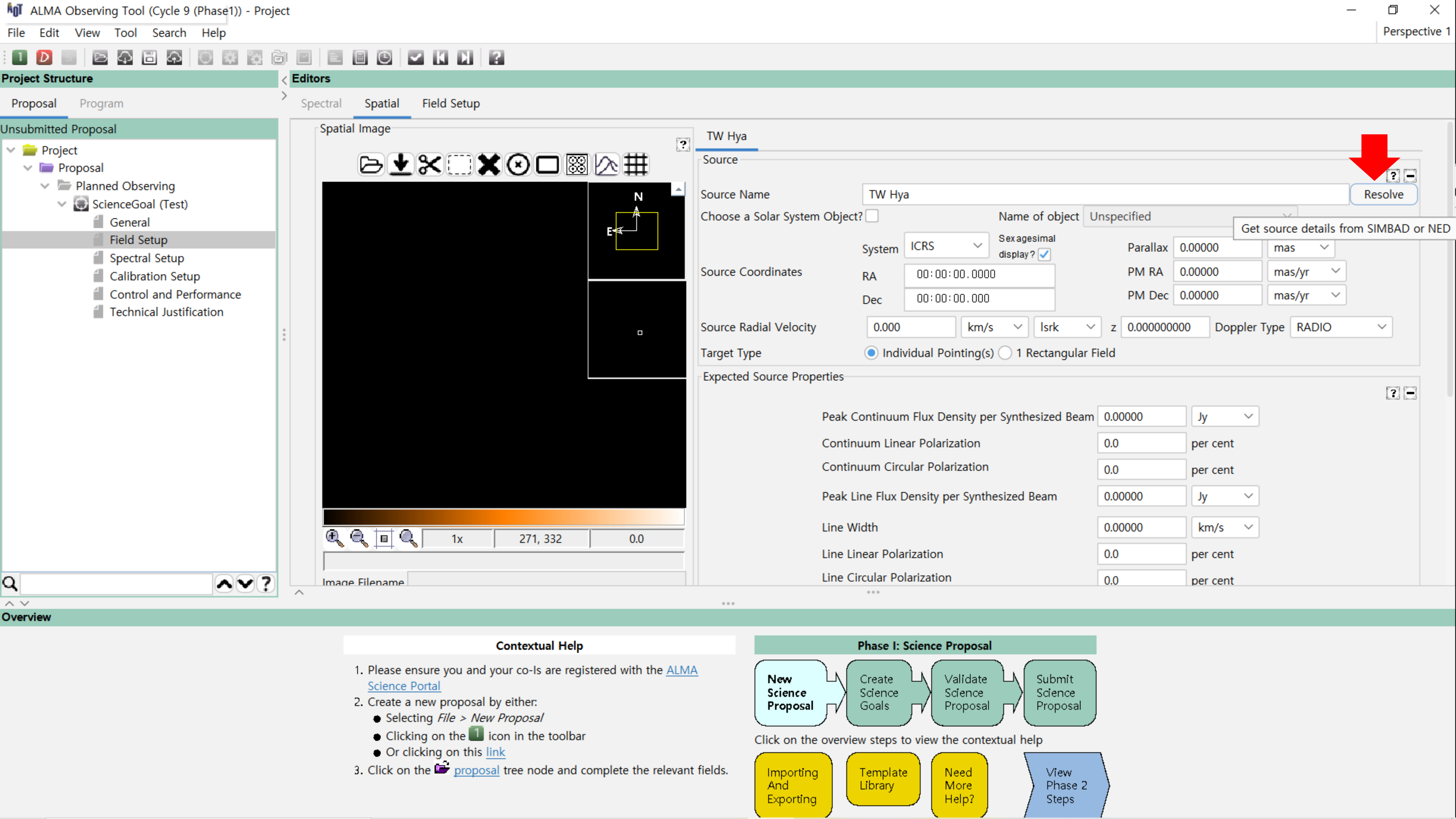
Field Setup
Spectral Setup
Calibration Setup
Control and Performance
Technical Justification
ScienceGoal (Copy of Test)
General
Field Setup
Spectral Setup
Calibration Setup
Control and Performance
Technical Justification
Editors
Spectral Spatial Planned Observing
Summary table of Science Goals. Double-clicking on a row will take you to that Science Goal
Science Goal | No. Sources | Band | Spec. Type | No. Spec. Win. | Pol. | Calibration Setup | Ang. Res. | Largest Scale | Rep. Freq. | Sens.
Test | 1 | 7 | Spectral line | 3 | Dual | System | 0.015 arcsec | 1.0 arcsec | 345.795990 GHz | 10 mJy
Overview
Contextual Help
1. Please ensure you and your co-Is are registered with the ALMA Science Portal
2. Create a new proposal by either:
Selecting File > New Proposal
Clicking on the 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 (Cycle 9 (Phase1)) - Project
File Edit View Tool Search Help
Perspective 1
Project Structure
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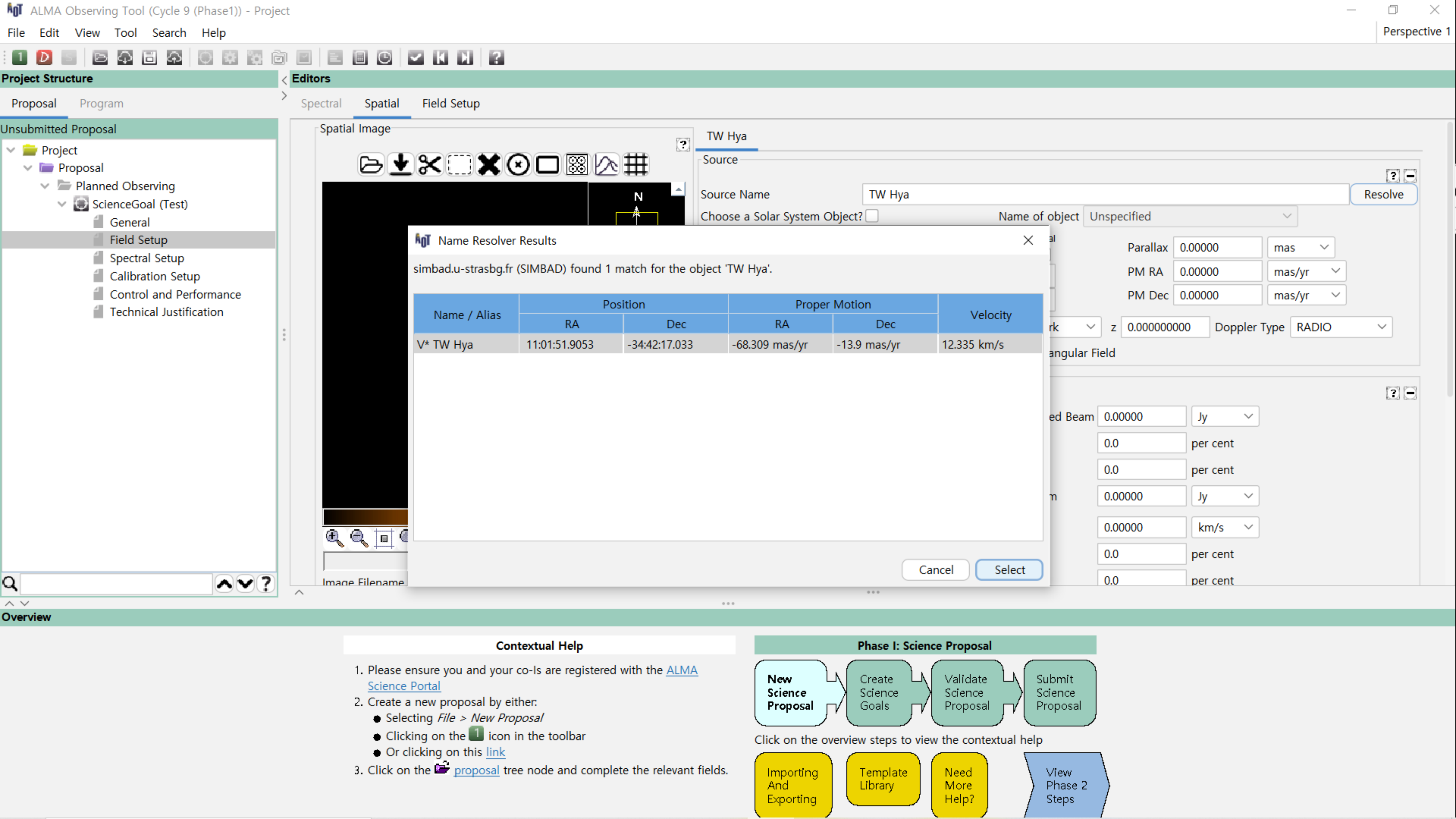
Proposal
Program
Spectral
Spatial
Field Setup
Unsubmitted Proposal
Project
Proposal
Planned Observing
ScienceGoal (Test)
General
Field Setup
Spectral Setup
Calibration Setup
Control and Performance
Technical Justification
Spatial Image
N
E
1x
271, 332
0.0
Image Filename
TW Hya
Source
Source Name
TW Hya
Resolve
Get source details from SIMBAD or NED
Choose a Solar System Object?
Name of object
Unspecified
System
ICRS
Sexagesimal display?
Parallax
0.00000
mas
Source Coordinates
RA
00:00:00.0000
PM RA
0.00000
mas/yr
Dec
00:00:00.000
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
0.00000
Jy
Continuum Linear Polarization
0.0
per cent
Continuum Circular Polarization
0.0
per cent
Peak Line Flux Density per Synthesized Beam
0.00000
Jy
Line Width
0.00000
km/s
Line Linear Polarization
0.0
per cent
Line Circular Polarization
0.0
per cent
Overview
Contextual Help
1. Please ensure you and your co-Is are registered with the ALMA Science Portal
2. Create a new proposal by either:
Selecting File > New Proposal
Clicking on the 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 (Cycle 9 (Phase1)) - Project
File Edit View Tool Search Help
Perspective 1
Project Structure
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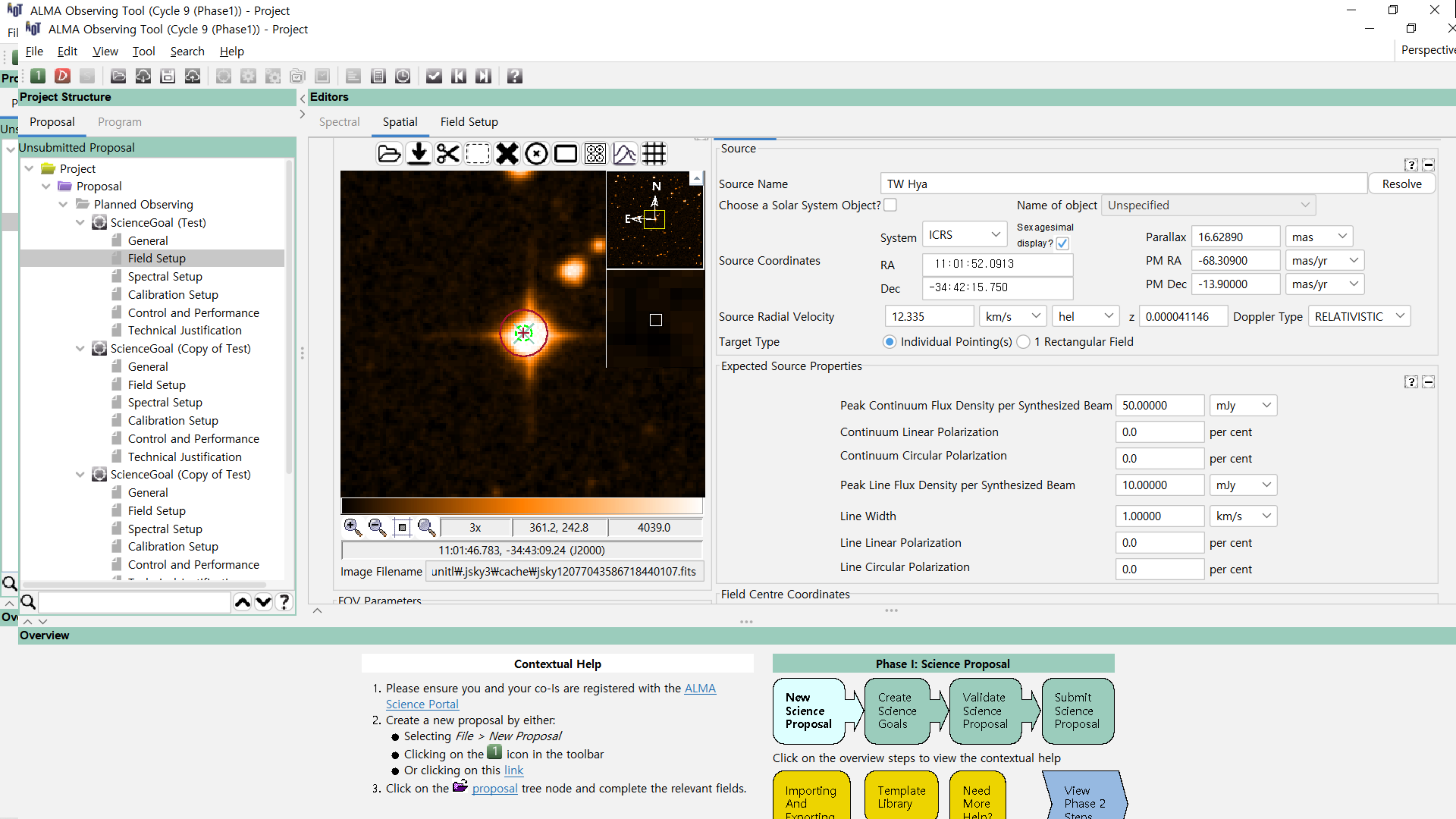
Program
Spectral
Spatial
Field Setup
Unsubmitted Proposal
Project
Proposal
Planned Observing
ScienceGoal (Test)
General
Field Setup
Spectral Setup
Calibration Setup
Control and Performance
Technical Justification
Spatial Image
N
Image Filename
TW Hya
Source
Source Name
TW Hya
Resolve
Choose a Solar System Object?
Name of object
Unspecified
Parallax
0.00000
mas
PM RA
0.00000
mas/yr
PM Dec
0.00000
mas/yr
z
0.000000000
Doppler Type
RADIO
angular Field
ed Beam
0.00000
Jy
0.0
per cent
0.0
per cent
0.00000
Jy
0.00000
km/s
0.0
per cent
0.0
per cent
Name Resolver Results
simbad.u-strasbg.fr (SIMBAD) found 1 match for the object 'TW Hya'.
Name / Alias
Position
RA
Dec
Proper Motion
RA
Dec
Velocity
V* TW Hya
11:01:51.9053
-34:42:17.033
-68.309 mas/yr
-13.9 mas/yr
12.335 km/s
Cancel
Select
Overview
Contextual Help
1. Please ensure you and your co-Is are registered with the ALMA Science Portal
2. Create a new proposal by either:
Selecting File > New Proposal
Clicking on the 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 (Cycle 9 (Phase1)) - Project
File Edit View Tool Search Help
Perspective
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Proposal
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Unsubmitted Proposal
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Proposal
Planned Observing
ScienceGoal (Test)
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Field Setup
Spectral Setup
Calibration Setup
Control and Performance
Technical Justification
ScienceGoal (Copy of Test)
General
Field Setup
Spectral Setup
Calibration Setup
Control and Performance
Technical Justification
ScienceGoal (Copy of Test)
General
Field Setup
Spectral Setup
Calibration Setup
Control and Performance
Editors
Spectral
Spatial
Field Setup
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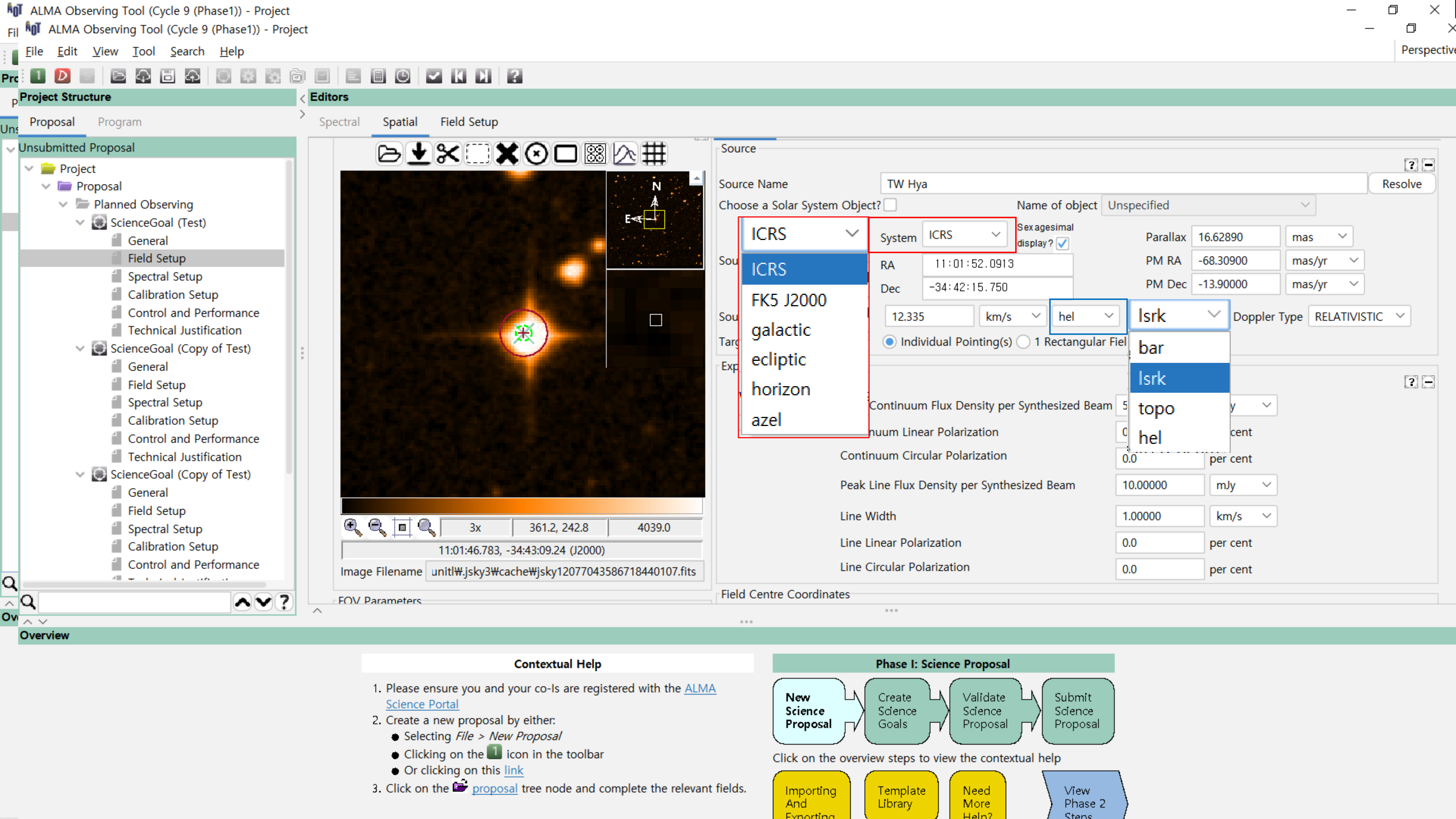
E
3x
361.2, 242.8
4039.0
11:01:46.783, -34:43:09.24 (J2000)
Image Filename
unitl₩.jsky3₩cache₩jsky12077043586718440107.fits
FOV Parameters
Source
Source Name
TW Hya
Resolve
Choose a Solar System Object?
Name of object
Unspecified
System
ICRS
Sexagesimal display?
Parallax
16.62890
mas
Source Coordinates
RA
11:01:52.0913
PM RA
-68.30900
mas/yr
Dec
-34:42:15.750
PM Dec
-13.90000
mas/yr
Source Radial Velocity
12.335
km/s
hel
z
0.000041146
Doppler Type
RELATIVISTIC
Target Type
Individual Pointing(s)
1 Rectangular Field
Expected Source Properties
Peak Continuum Flux Density per Synthesized Beam
50.00000
mJy
Continuum Linear Polarization
0.0
per cent
Continuum Circular Polarization
0.0
per cent
Peak Line Flux Density per Synthesized Beam
10.00000
mJy
Line Width
1.00000
km/s
Line Linear Polarization
0.0
per cent
Line Circular Polarization
0.0
per cent
Field Centre Coordinates
Overview
Contextual Help
1. Please ensure you and your co-Is are registered with the ALMA Science Portal
2. Create a new proposal by either:
Selecting File > New Proposal
Clicking on the 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 (Cycle 9 (Phase1)) - Project
File Edit View Tool Search Help
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Field Setup
Unsubmitted Proposal
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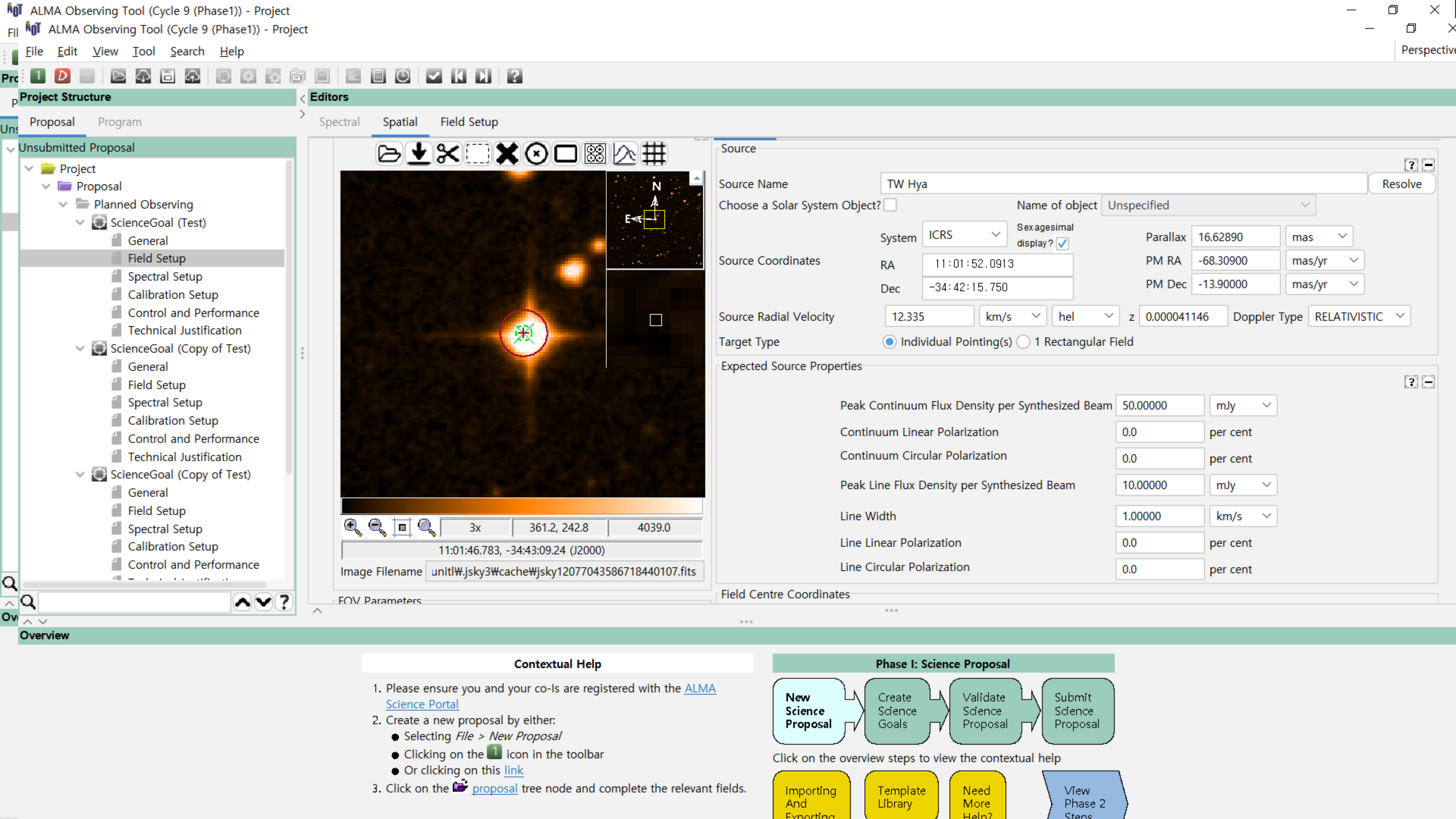
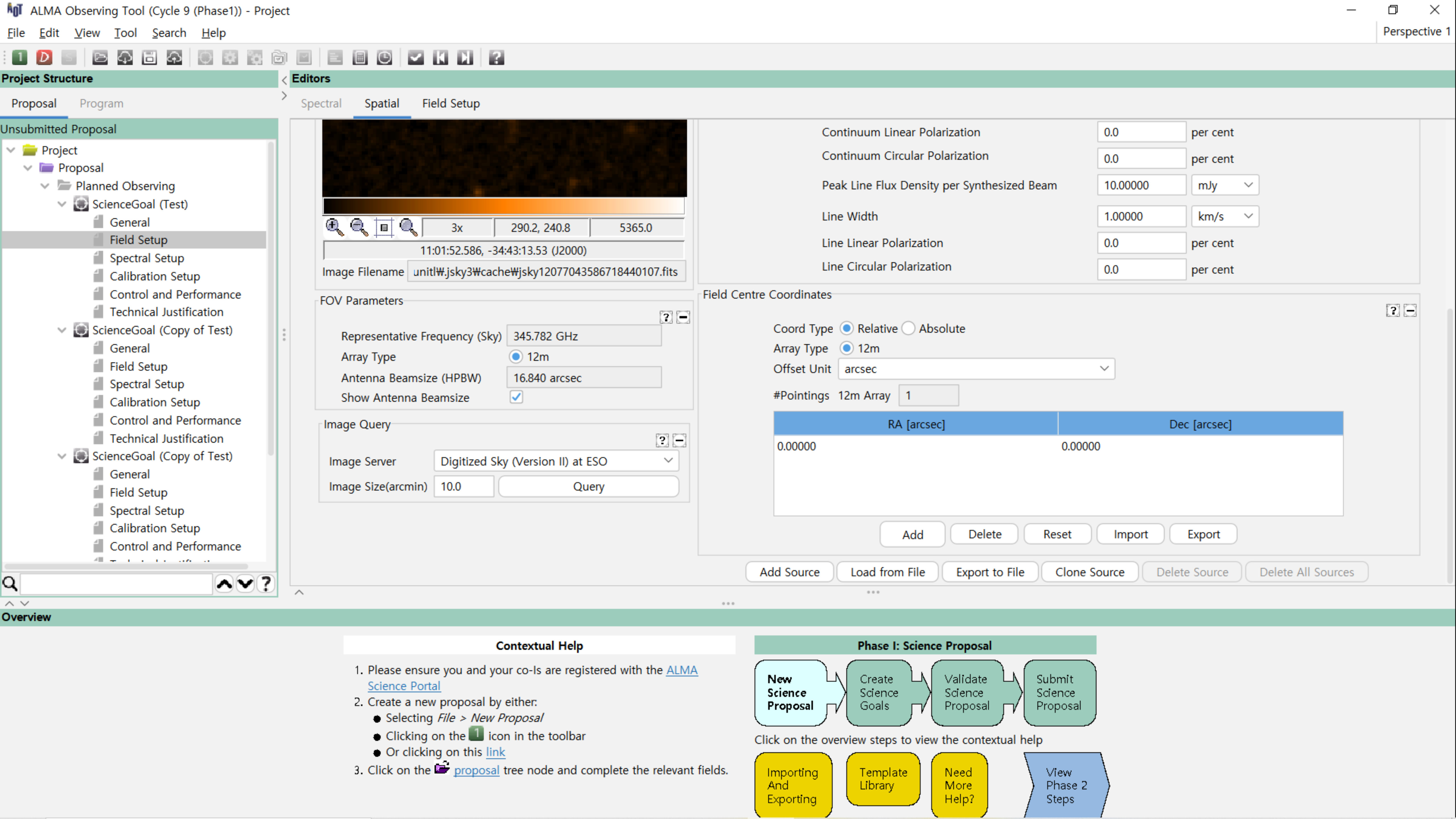
ScienceGoal (Test)
General
Field Setup
Spectral Setup
Calibration Setup
Control and Performance
Technical Justification
ScienceGoal (Copy of Test)
ScienceGoal (Copy of Test)
Source
Source Name
TW Hya
Resolve
Choose a Solar System Object?
Name of object
Unspecified
ICRS
FK5 J2000
galactic
ecliptic
horizon
azel
System
Sexagesimal display?
RA
11:01:52.0913
Dec
-34:42:15.750
Parallax
16.62890
mas
PM RA
-68.30900
mas/yr
PM Dec
-13.90000
12.335
km/s
hel
lsrk
bar
topo
Doppler Type
RELATIVISTIC
Individual Pointing(s)
1 Rectangular Field
Continuum Flux Density per Synthesized Beam
Continuum Linear Polarization
Continuum Circular Polarization
0.0
per cent
Peak Line Flux Density per Synthesized Beam
10.00000
mJy
Line Width
1.00000
km/s
Line Linear Polarization
0.0
per cent
Line Circular Polarization
0.0
per cent
Field Centre Coordinates
FOV Parameters
3x
361.2, 242.8
4039.0
11:01:46.783, -34:43:09.24 (J2000)
Image Filename
unitl₩.jsky3₩cache₩jsky1207704358671844O107.fits
Overview
Contextual Help
1. Please ensure you and your co-Is are registered with the ALMA Science Portal
2. Create a new proposal by either:
Selecting File > New Proposal
Clicking on the 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 (Cycle 9 (Phase1)) - Project
ALMA Observing Tool (Cycle 9 (Phase1)) - Project
File Edit View Tool Search Help
Perspective
Project Structure
Proposal Program
Unsubmitted Proposal
Project
Proposal
Planned Observing
ScienceGoal (Test)
General
Field Setup
Spectral Setup
Calibration Setup
Control and Performance
Technical Justification
ScienceGoal (Copy of Test)
General
Field Setup
Spectral Setup
Calibration Setup
Control and Performance
Technical Justification
ScienceGoal (Copy of Test)
General
Field Setup
Spectral Setup
Calibration Setup
Control and Performance
Editors
Spectral Spatial Field Setup
N
E
3x
361.2, 242.8
4039.0
11:01:46.783, -34:43:09.24 (J2000)
Image Filename
unitl₩.jsky3₩cache₩jsky1207704358671844O107.fits
FOV Parameters
Source
Source Name
TW Hya
Resolve
Choose a Solar System Object?
Name of object
Unspecified
System
ICRS
Sexagesimal display?
Parallax
16.62890
mas
Source Coordinates
RA
11:01:52.0913
PM RA
-68.30900
mas/yr
Dec
-34:42:15.750
PM Dec
-13.90000
mas/yr
Source Radial Velocity
12.335
km/s
hel
z
0.000041146
Doppler Type
RELATIVISTIC
Target Type
Individual Pointing(s)
1 Rectangular Field
Expected Source Properties
Peak Continuum Flux Density per Synthesized Beam
50.00000
mJy
Continuum Linear Polarization
0.0
per cent
Continuum Circular Polarization
0.0
per cent
Peak Line Flux Density per Synthesized Beam
10.00000
mJy
Line Width
1.00000
km/s
Line Linear Polarization
0.0
per cent
Line Circular Polarization
0.0
per cent
Field Centre Coordinates
Overview
Contextual Help
1. Please ensure you and your co-Is are registered with the ALMA Science Portal
2. Create a new proposal by either:
Selecting File > New Proposal
Clicking on the 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 (Cycle 9 (Phase1)) - Project
File Edit View Tool Search Help
Perspective 1
Project Structure
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Unsubmitted Proposal
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Proposal
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Technical Justification
ScienceGoal (Copy of Test)
General
Field Setup
Spectral Setup
Calibration Setup
Control and Performance
Editors
Spectral Spatial Field Setup
3x
290.2, 240.8
5365.0
11:01:52.586, -34:43:13.53 (J2000)
Image Filename
unitl₩.jsky3₩cache₩jsky1207704358671844 0107.fits
FOV Parameters
Representative Frequency (Sky) 345.782 GHz
Array Type 12m
Antenna Beamsize (HPBW) 16.840 arcsec
Show Antenna Beamsize
Image Query
Image Server Digitized Sky (Version II) at ESO
Image Size(arcmin) 10.0 Query
Continuum Linear Polarization 0.0 per cent
Continuum Circular Polarization 0.0 per cent
Peak Line Flux Density per Synthesized Beam 10.00000 mJy
Line Width 1.00000 km/s
Line Linear Polarization 0.0 per cent
Line Circular Polarization 0.0 per cent
Field Centre Coordinates
Coord Type Relative Absolute
Array Type 12m
Offset Unit arcsec
#Pointings 12m Array 1
RA [arcsec] Dec [arcsec]
0.00000 0.00000
Add Delete Reset Import Export
Add Source Load from File Export to File Clone Source Delete Source Delete All Sources
Overview
Contextual Help
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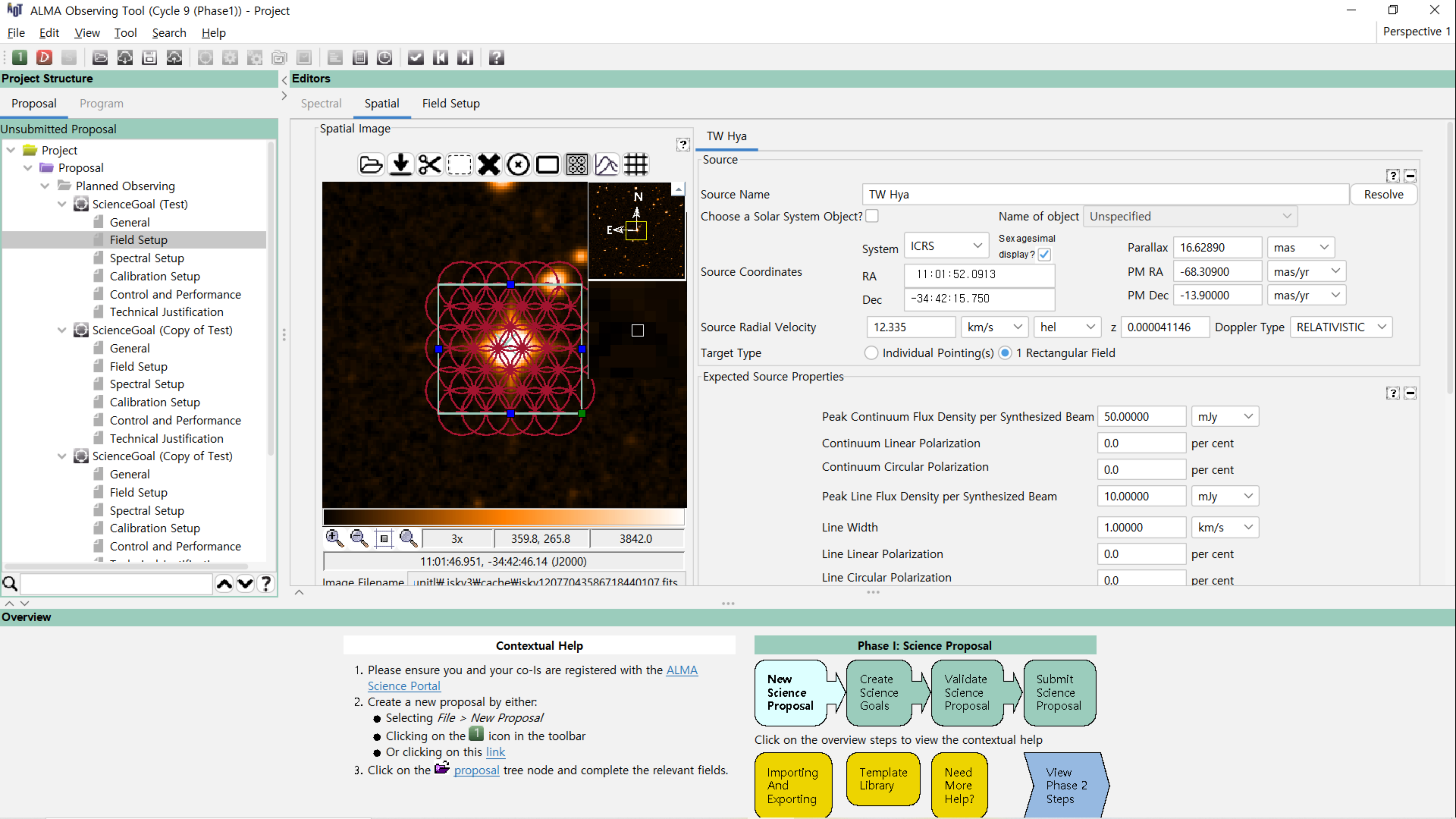
View Phase 2 Steps



ALMA Observing Tool (Cycle 9 (Phase1)) - Project
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Technical Justification
ScienceGoal (Copy of Test)
General
Field Setup
Spectral Setup
Calibration Setup
Control and Performance
Editors
Spectral
Spatial
Field Setup
Spatial Image
N
E
3x
359.8, 265.8
3842.0
11:01:46.951, -34:42:46.14 (J2000)
Image Filename
TW Hya
Source
Source Name
TW Hya
Resolve
Choose a Solar System Object?
Name of object
Unspecified
System
ICRS
Sexagesimal display?
Parallax
16.62890
mas
Source Coordinates
RA
11:01:52.0913
PM RA
-68.30900
mas/yr
Dec
-34:42:15.750
PM Dec
-13.90000
mas/yr
Source Radial Velocity
12.335
km/s
hel
z
0.000041146
Doppler Type
RELATIVISTIC
Target Type
Individual Pointing(s)
1 Rectangular Field
Expected Source Properties
Peak Continuum Flux Density per Synthesized Beam
50.00000
mJy
Continuum Linear Polarization
0.0
per cent
Continuum Circular Polarization
0.0
per cent
Peak Line Flux Density per Synthesized Beam
10.00000
mJy
Line Width
1.00000
km/s
Line Linear Polarization
0.0
per cent
Line Circular Polarization
0.0
per cent
Overview
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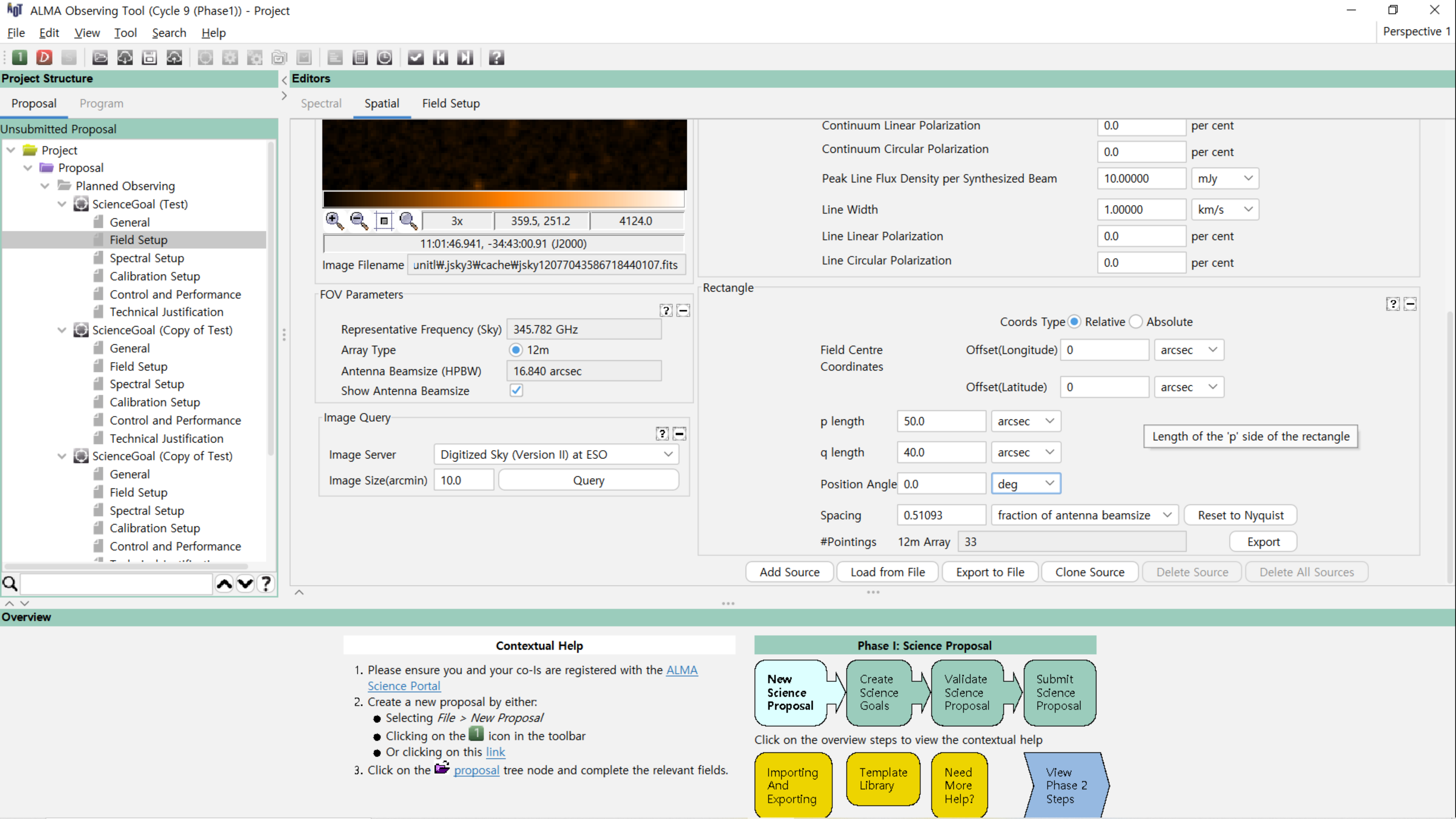
ALMA Observing Tool (Cycle 9 (Phase1)) - Project
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Technical Justification
ScienceGoal (Copy of Test)
General
Field Setup
Spectral Setup
Calibration Setup
Control and Performance
3x
359.5, 251.2
4124.0
11:01:46.941, -34:43:00.91 (J2000)
Image Filename unitl₩.jsky3₩cache₩jsky12077043586718440107.fits
FOV Parameters
Representative Frequency (Sky) 345.782 GHz
Array Type 12m
Antenna Beamsize (HPBW) 16.840 arcsec
Show Antenna Beamsize
Image Query
Image Server Digitized Sky (Version II) at ESO
Image Size(arcmin) 10.0
Query
Continuum Linear Polarization 0.0 per cent
Continuum Circular Polarization 0.0 per cent
Peak Line Flux Density per Synthesized Beam 10.00000 mJy
Line Width 1.00000 km/s
Line Linear Polarization 0.0 per cent
Line Circular Polarization 0.0 per cent
Rectangle
Coords Type Relative Absolute
Field Centre Coordinates
Offset(Longitude) 0 arcsec
Offset(Latitude) 0 arcsec
p length 50.0 arcsec
q length 40.0 arcsec
Length of the 'p' side of the rectangle
Position Angle 0.0 deg
Spacing 0.51093 fraction of antenna beamsize
Reset to Nyquist
#Pointings 12m Array 33
Export
Add Source
Load from File
Export to File
Clone Source
Delete Source
Delete All Sources
Overview
Contextual Help
1. Please ensure you and your co-Is are registered with the ALMA Science Portal
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New Science Proposal
Create Science Goals
Validate Science Proposal
Submit Science Proposal
Click on the overview steps to view the contextual help
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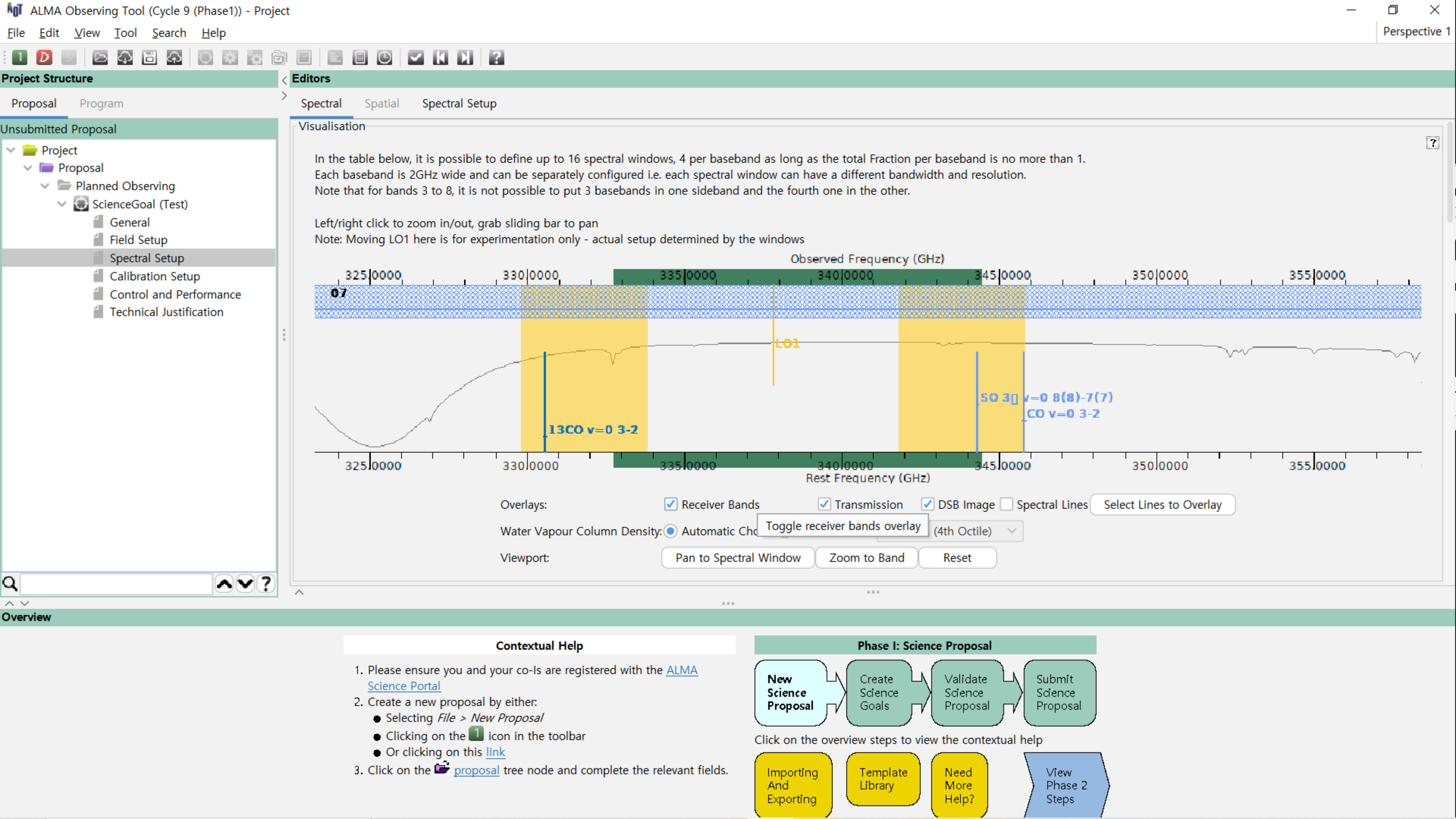
ALMA Observing Tool (Cycle 9 (Phase1)) - Project
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Visualisation
In the table below, it is possible to define up to 16 spectral windows, 4 per baseband as long as the total Fraction per baseband is no more than 1.
Each baseband is 2GHz wide and can be separately configured i.e. each spectral window can have a different bandwidth and resolution.
Note that for bands 3 to 8, it is not possible to put 3 basebands in one sideband and the fourth one in the other.
Left/right click to zoom in/out, grab sliding bar to pan
Note: Moving LO1 here is for experimentation only - actual setup determined by the windows
Observed Frequency (GHz)
325.0000 330.0000 335.0000 340.0000 345.0000 350.0000 355.0000
07
LO1
13CO v=0 3-2
CO v=0 3-2
Rest Frequency (GHz)
Overlays: Receiver Bands Transmission DSB Image Spectral Lines Select Lines to Overlay
Toggle receiver bands overlay
Water Vapour Column Density: Automatic Cho (4th Octile)
Viewport: Pan to Spectral Window Zoom to Band Reset
Overview
Contextual Help
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New Science Proposal
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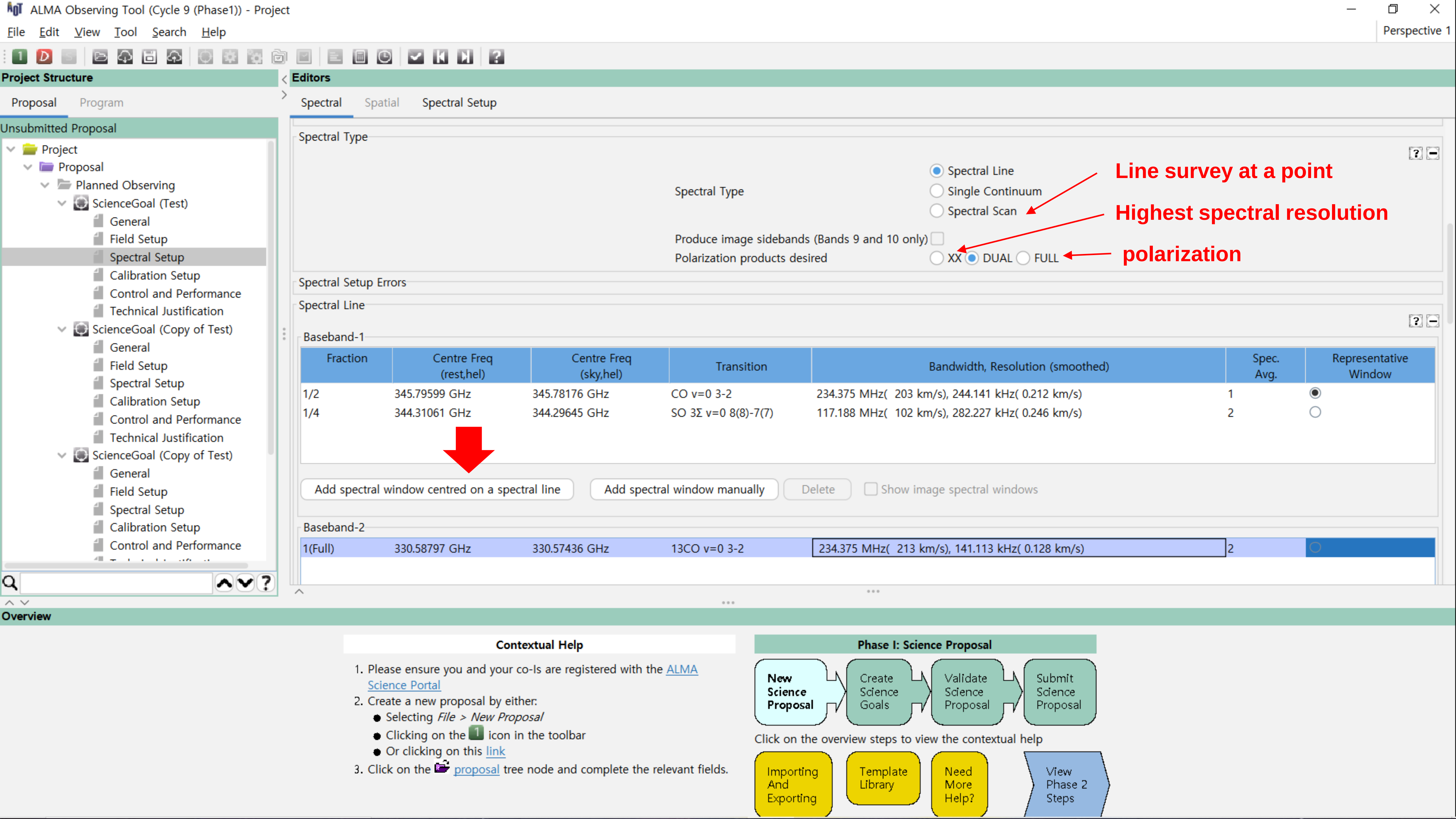
Validate Science Proposal
Submit Science Proposal
Click on the overview steps to view the contextual help
Importing And Exporting
Template Library
Need More Help?
View Phase 2 Steps



ALMA Observing Tool (Cycle 9 (Phase1)) - Project
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Spectral
Spatial
Spectral Setup
Spectral Type
Spectral Type
Spectral Line
Single Continuum
Spectral Scan
Line survey at a point
Highest spectral resolution
Produce image sidebands (Bands 9 and 10 only)
Polarization products desired
XX
DUAL
FULL
polarization
Spectral Setup Errors
Spectral Line
Baseband-1
Fraction
Centre Freq (rest,hel)
Centre Freq (sky,hel)
Transition
Bandwidth, Resolution (smoothed)
Spec. Avg.
Representative Window
1/2
345.79599 GHz
345.78176 GHz
CO v=0 3-2
234.375 MHz(203 km/s), 244.141 kHz(0.212 km/s)
1
1/4
344.31061 GHz
344.29645 GHz
SO 3Σ v=0 8(8)-7(7)
117.188 MHz(102 km/s), 282.227 kHz(0.246 km/s)
2
Add spectral window centred on a spectral line
Add spectral window manually
Delete
Show image spectral windows
Baseband-2
1(Full)
330.58797 GHz
330.57436 GHz
13CO v=0 3-2
234.375 MHz(213 km/s), 141.113 kHz(0.128 km/s)
2
Overview
Contextual Help
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Clicking on the icon in the toolbar
Or clicking on this link
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Validate Science Proposal
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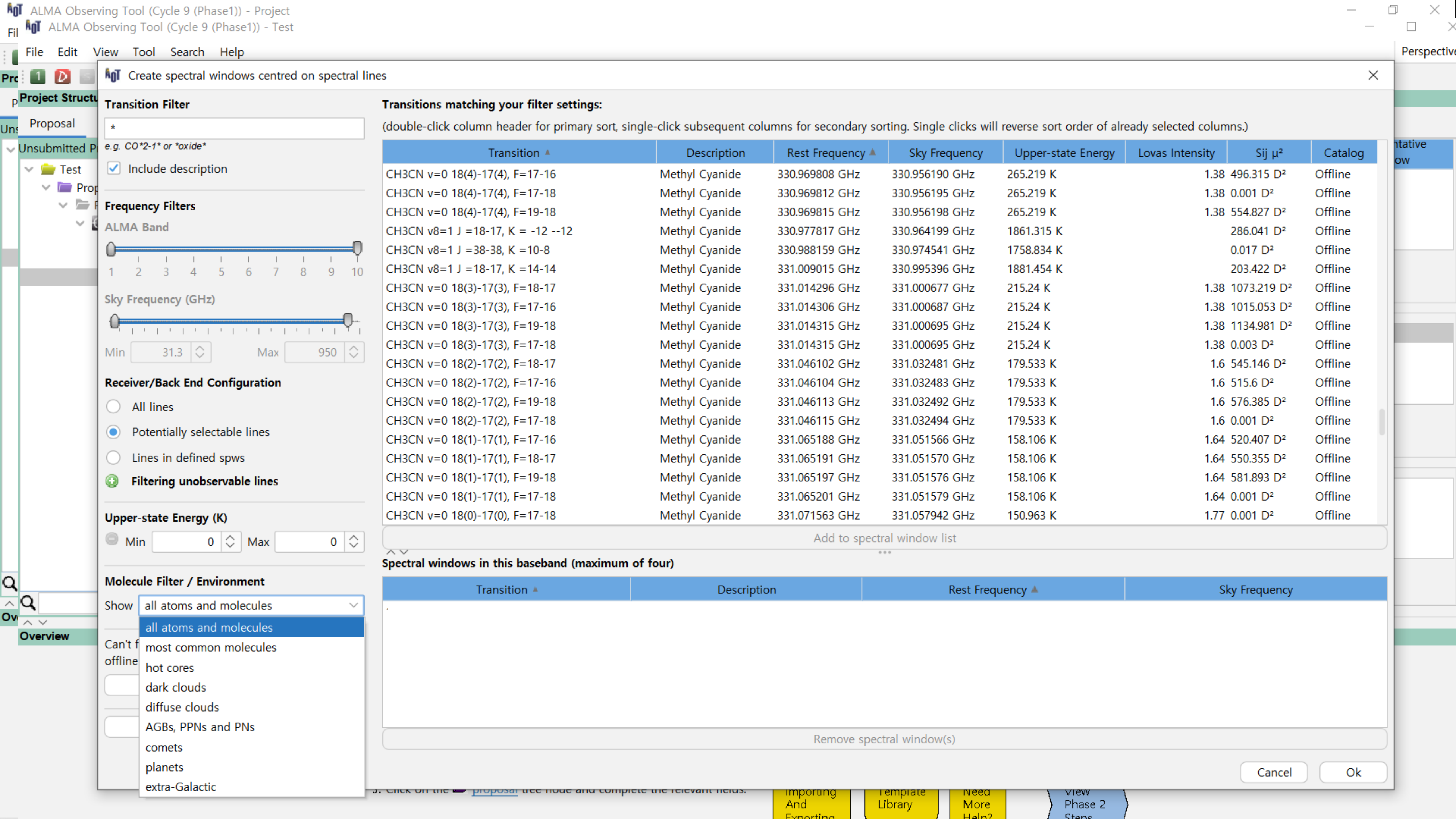
ALMA Observing Tool (Cycle 9 (Phase1)) - Project
ALMA Observing Tool (Cycle 9 (Phase1)) - Test
File Edit View Tool Search Help
Perspective
Create spectral windows centred on spectral lines
Transition Filter
*
e.g. CO*2-1* or *oxide*
Include description
Frequency Filters
ALMA Band
1 2 3 4 5 6 7 8 9 10
Sky Frequency (GHz)
Min 31.3 Max 950
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
all atoms and molecules
most common molecules
hot cores
dark clouds
diffuse clouds
AGBs, PPNs and PNs
comets
planets
extra-Galactic
Transitions matching your filter settings:
(double-click column header for primary sort, single-click subsequent columns for secondary sorting. Single clicks will reverse sort order of already selected columns.)
Transition | Description | Rest Frequency | Sky Frequency | Upper-state Energy | Lovas Intensity | Sij μ² | Catalog
CH3CN v=0 18(4)-17(4), F=17-16 | Methyl Cyanide | 330.969808 GHz | 330.956190 GHz | 265.219 K | 1.38 | 496.315 D² | Offline
CH3CN v=0 18(4)-17(4), F=17-18 | Methyl Cyanide | 330.969812 GHz | 330.956195 GHz | 265.219 K | 1.38 | 0.001 D² | Offline
CH3CN v=0 18(4)-17(4), F=19-18 | Methyl Cyanide | 330.969815 GHz | 330.956198 GHz | 265.219 K | 1.38 | 554.827 D² | Offline
CH3CN v8=1 J =18-17, K = -12 --12 | Methyl Cyanide | 330.977817 GHz | 330.964199 GHz | 1861.315 K | 286.041 D² | Offline
CH3CN v8=1 J =38-38, K =10-8 | Methyl Cyanide | 330.988159 GHz | 330.974541 GHz | 1758.834 K | 0.017 D² | Offline
CH3CN v8=1 J =18-17, K =14-14 | Methyl Cyanide | 331.009015 GHz | 330.995396 GHz | 1881.454 K | 203.422 D² | Offline
CH3CN v=0 18(3)-17(3), F=18-17 | Methyl Cyanide | 331.014296 GHz | 331.000677 GHz | 215.24 K | 1.38 | 1073.219 D² | Offline
CH3CN v=0 18(3)-17(3), F=17-16 | Methyl Cyanide | 331.014306 GHz | 331.000687 GHz | 215.24 K | 1.38 | 1015.053 D² | Offline
CH3CN v=0 18(3)-17(3), F=19-18 | Methyl Cyanide | 331.014315 GHz | 331.000695 GHz | 215.24 K | 1.38 | 1134.981 D² | Offline
CH3CN v=0 18(3)-17(3), F=17-18 | Methyl Cyanide | 331.014315 GHz | 331.000695 GHz | 215.24 K | 1.38 | 0.003 D² | Offline
CH3CN v=0 18(2)-17(2), F=18-17 | Methyl Cyanide | 331.046102 GHz | 331.032481 GHz | 179.533 K | 1.6 | 545.146 D² | Offline
CH3CN v=0 18(2)-17(2), F=17-16 | Methyl Cyanide | 331.046104 GHz | 331.032483 GHz | 179.533 K | 1.6 | 515.6 D² | Offline
CH3CN v=0 18(2)-17(2), F=19-18 | Methyl Cyanide | 331.046113 GHz | 331.032492 GHz | 179.533 K | 1.6 | 576.385 D² | Offline
CH3CN v=0 18(2)-17(2), F=17-18 | Methyl Cyanide | 331.046115 GHz | 331.032494 GHz | 179.533 K | 1.6 | 0.001 D² | Offline
CH3CN v=0 18(1)-17(1), F=17-16 | Methyl Cyanide | 331.065188 GHz | 331.051566 GHz | 158.106 K | 1.64 | 520.407 D² | Offline
CH3CN v=0 18(1)-17(1), F=18-17 | Methyl Cyanide | 331.065191 GHz | 331.051570 GHz | 158.106 K | 1.64 | 550.355 D² | Offline
CH3CN v=0 18(1)-17(1), F=19-18 | Methyl Cyanide | 331.065197 GHz | 331.051576 GHz | 158.106 K | 1.64 | 581.893 D² | Offline
CH3CN v=0 18(1)-17(1), F=17-18 | Methyl Cyanide | 331.065201 GHz | 331.051579 GHz | 158.106 K | 1.64 | 0.001 D² | Offline
CH3CN v=0 18(0)-17(0), F=17-18 | Methyl Cyanide | 331.071563 GHz | 331.057942 GHz | 150.963 K | 1.77 | 0.001 D² | Offline
Add to spectral window list
Spectral windows in this baseband (maximum of four)
Transition | Description | Rest Frequency | Sky Frequency
Remove spectral window(s)
Cancel
Ok
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08:38 3월 30일 수요일

Home — ALMA Science

almascience.nao.ac.jp

Atacama Large Millimeter/submillimeter Array

In search of our Cosmic Origins

ALMA

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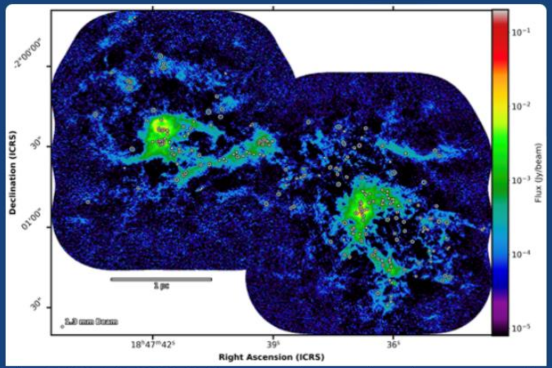
- Observing Tool
- Sensitivity Calculator
- CASA Simulator
- Observation Support Tool
- Splatalogue
- Science Ready Data Products
- Toyama Microwave Atlas
- Community-Developed
- EU ARC network
- Staff Tools
- Japanese Virtual Obs.
- Solar Ephemeris

Science Highlight

Top-heavy Core Mass function revealed by ALMA-IMF: a challenge to the IMF universality



The W43-MM2&MM3 protocluster cloud, as imaged at 1.3 mm by the ALMA 12 m array. White ellipses outline the size of the 208 compact cores of few thousand AU size extracted by the core extraction algorithm getsf.

The ALMA-IMF Large Program aims to answer the longstanding question on whether the Initial Mass Function (IMF) inherits its shape from its core content, and more precisely the Core Mass Function (CMF). To do that, ALMA-IMF has targeted and imaged 15 high-mass star-

Observatory News

ALMA Cycle 9 Call for Proposals is Now OPEN!
Mar 24, 2022

ALMA Science Archive previews
Feb 14, 2022

QA0+ results now available from SnooPI
Jan 31, 2022

ALMA Cycle 9 Pre-

More...

NAOJ News

ALMA Cycle9 2022 Proposal Preparation Meeting
Mar 22, 2022

East Asian ALMA Science Workshop 2022
Jan 19, 2022

FY2021 ALMA/45m/ASTE Users Meeting
Dec 23, 2021

More...

The ALMA Science Portal is a one-stop source for i
including proposers, archive researchers, ALMA sta

Quick Links

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Splatalogue

splatalogue.online

Basic | Advanced

Quick Picker

- CO v = 0
- ^{13}CO v = 0
- $C^{17}O$
- $C^{18}O$
- $^{13}C^{17}O$
- $^{13}C^{18}O$
- HCN v = 0
- HNC v = 0
- $H^{13}CN$ v = 0
- $HC^{15}N$ v = 0
- DCN v = 0
- HCO^+ v = 0
- CS
- CH_3OH $v_t = 0$
- NH_3
- C I
- C II
- O I
- O III
- N II
- H_2O v = 0
- xxxxHDO

splatalogue
database for astronomical spectroscopy

Search:

(ex: ammonia, carbon monoxide, ethynyl, hydroxyl, methanol, water, etc.)

Telescope Bands: Any

Frequency: Min Max MHz GHz

Search

Astronomical Filters

- Top 20 list
- Planetary Atmosphere
- Hot Cores
- Dark Clouds
- Diffuse Clouds
- Comets
- AGB/PPN/PN
- Extragalactic

Scan to Mobile Splat

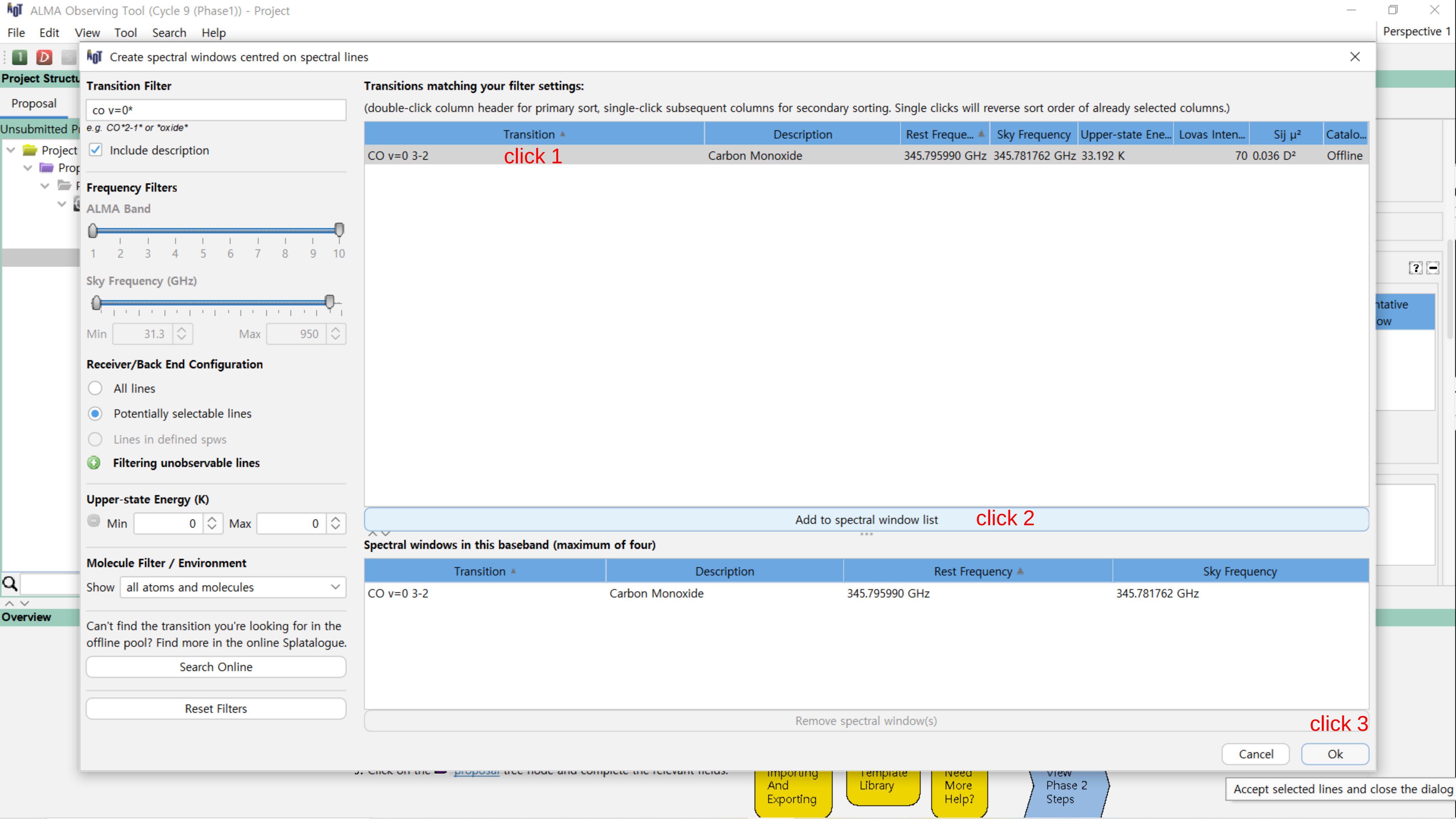
Welcome to the "New" Splatalogue!

Over the past several years, there has been an active effort to improve the overall functionality and usability of Splatalogue. We are now offering new options to navigate the nearly 6 million spectral lines available via Splatalogue. The user community has suggested a simpler, more efficient way of searching for and obtaining the more common spectral line features from the radio to submillimeter wavelength.

This new **Splatalogue Basic** search page is now available and has several new and quick search features including:

The Quick Picker: Located on the far left. Popular species are included. Click on your favorite, hit search and the results will pop up. You can also limit the frequency by entering in your preferred range in GHz or MHz.

Search Bar: Located in the center of the page. Type in the name (or in some cases, the formula) of your favorite molecule and all species with that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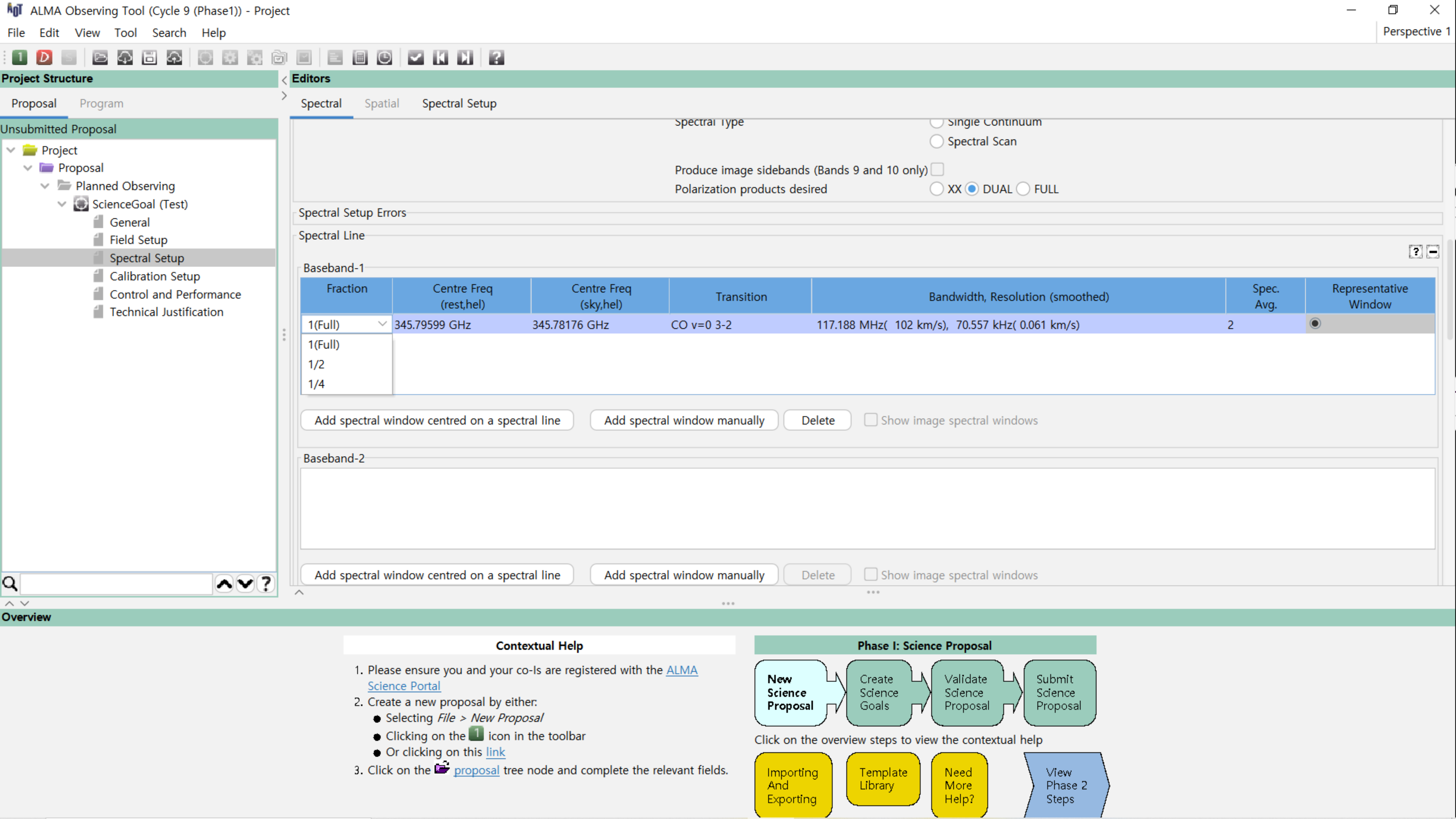
File Edit View Tool Search Help
Perspective 1
Create spectral windows centred on spectral lines
Transition Filter
co v=0*
e.g. CO*2-1* or *oxide*
Include description
Frequency Filters
ALMA Band
1 2 3 4 5 6 7 8 9 10
Sky Frequency (GHz)
Min 31.3 Max 950
Receiver/Back End Configuration
All lines
Potentially 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
Transitions matching your filter settings:
(double-click column header for primary sort, single-click subsequent columns for secondary sorting. Single clicks will reverse sort order of already selected columns.)
Transition Description Rest Freque... Sky Frequency Upper-state Ene... Lovas Inten... Sij μ² Catalo...
CO v=0 3-2 Carbon Monoxide 345.795990 GHz 345.781762 GHz 33.192 K 70 0.036 D² Offline
click 1
Add to spectral window list
click 2
Spectral windows in this baseband (maximum of four)
Transition Description Rest Frequency Sky Frequency
CO v=0 3-2 Carbon Monoxide 345.795990 GHz 345.781762 GHz
Remove spectral window(s)
click 3
Cancel
Ok
Accept selected lines and close the dialog
Project Structu
Proposal
Unsubmitted P
Project
Prop
Overview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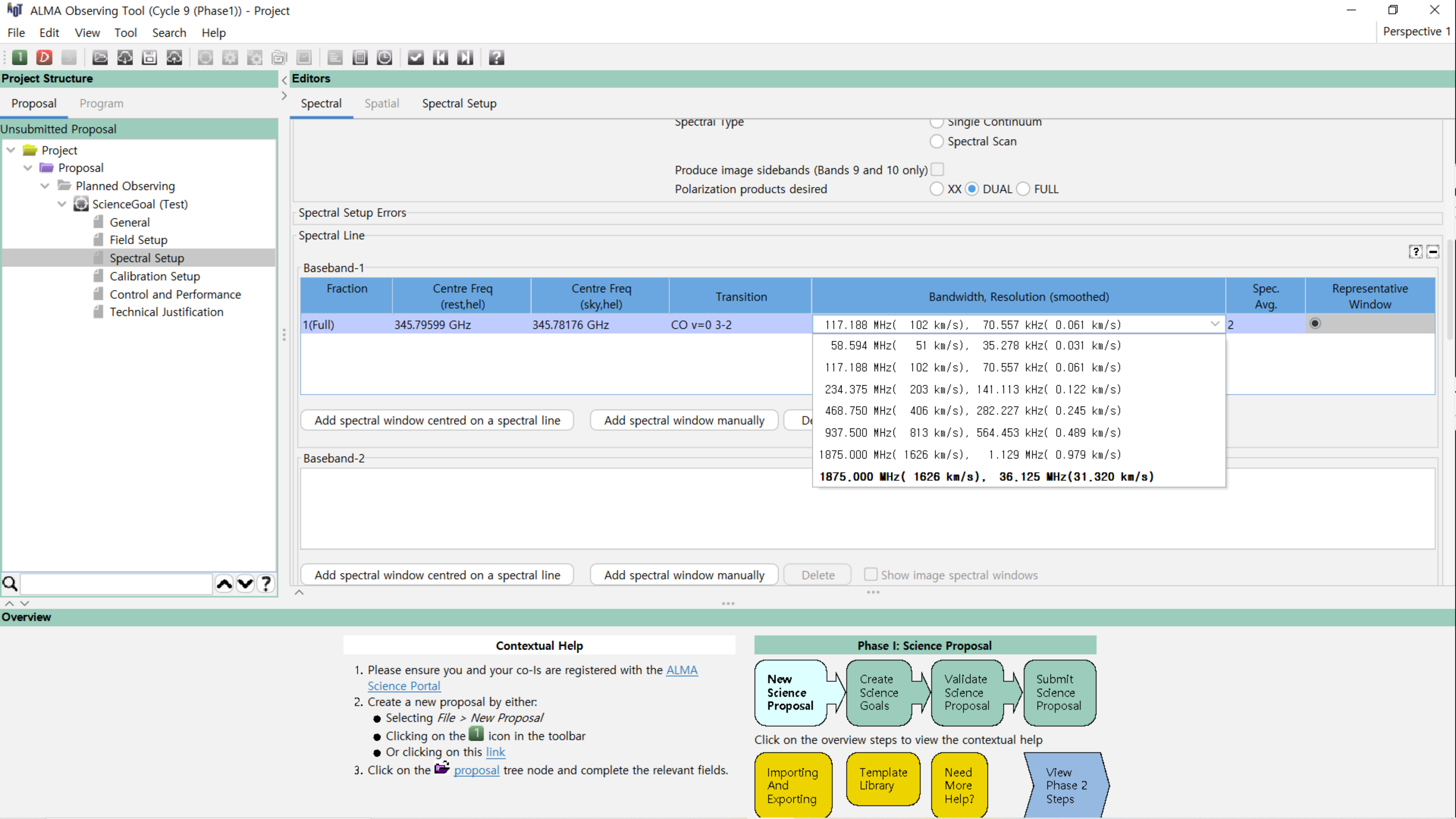
Editors
Spectral Spatial Spectral Setup
Spectral Type
Single Continuum
Spectral Scan
Produce image sidebands (Bands 9 and 10 only)
Polarization products desired
XX DUAL FULL
Spectral Setup Errors
Spectral Line
Baseband-1
Fraction
Centre Freq (rest,hel)
Centre Freq (sky,hel)
Transition
Bandwidth, Resolution (smoothed)
Spec. Avg.
Representative Window
1(Full)
345.79599 GHz
345.78176 GHz
CO v=0 3-2
117.188 MHz(102 km/s), 70.557 kHz(0.061 km/s)
2
1(Full)
1/2
1/4
Add spectral window centred on a spectral line
Add spectral window manually
Delete
Show image spectral windows
Baseband-2
Add spectral window centred on a spectral line
Add spectral window manually
Delete
Show image spectral windows
Overview
Contextual Help
1. Please ensure you and your co-Is are registered with the ALMA Science Portal
2. Create a new proposal by either:
Selecting File > New Proposal
Clicking on the 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 (Cycle 9 (Phase1)) - Project
File Edit View Tool Search Help
Perspective 1
Project Structure
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Unsubmitted Proposal
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Proposal
Planned Observing
ScienceGoal (Test)
General
Field Setup
Spectral Setup
Calibration Setup
Control and Performance
Technical Justification
Editors
Spectral Spatial Spectral Setup
Spectral Type
Single Continuum
Spectral Scan
Produce image sidebands (Bands 9 and 10 only)
Polarization products desired
XX DUAL FULL
Spectral Setup Errors
Spectral Line
Baseband-1
Fraction
Centre Freq (rest,hel)
Centre Freq (sky,hel)
Transition
Bandwidth, Resolution (smoothed)
Spec. Avg.
Representative Window
1(Full) 345.79599 GHz 345.78176 GHz CO v=0 3-2 117.188 MHz(102 km/s), 70.557 kHz(0.061 km/s) 2
58.594 MHz(51 km/s), 35.278 kHz(0.031 km/s)
117.188 MHz(102 km/s), 70.557 kHz(0.061 km/s)
234.375 MHz(203 km/s), 141.113 kHz(0.122 km/s)
468.750 MHz(406 km/s), 282.227 kHz(0.245 km/s)
937.500 MHz(813 km/s), 564.453 kHz(0.489 km/s)
1875.000 MHz(1626 km/s), 1.129 MHz(0.979 km/s)
1875.000 MHz(1626 km/s), 36.125 MHz(31.320 km/s)
Add spectral window centred on a spectral line
Add spectral window manually
Baseband-2
Add spectral window centred on a spectral line
Add spectral window manually
Delete
Show image spectral windows
Overview
Contextual Help
1. Please ensure you and your co-Is are registered with the ALMA Science Portal
2. Create a new proposal by either:
Selecting File > New Proposal
Clicking on the 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
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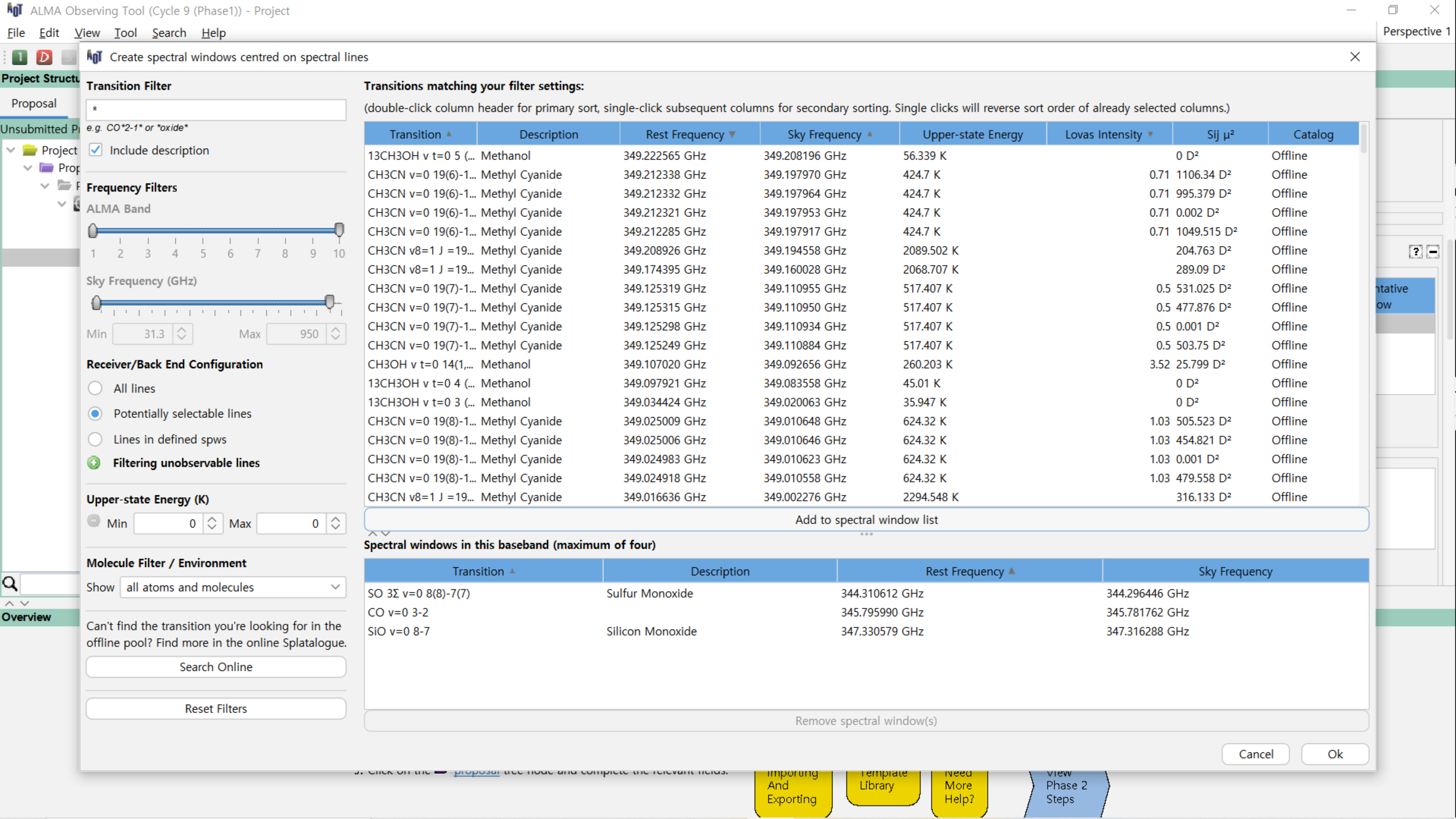
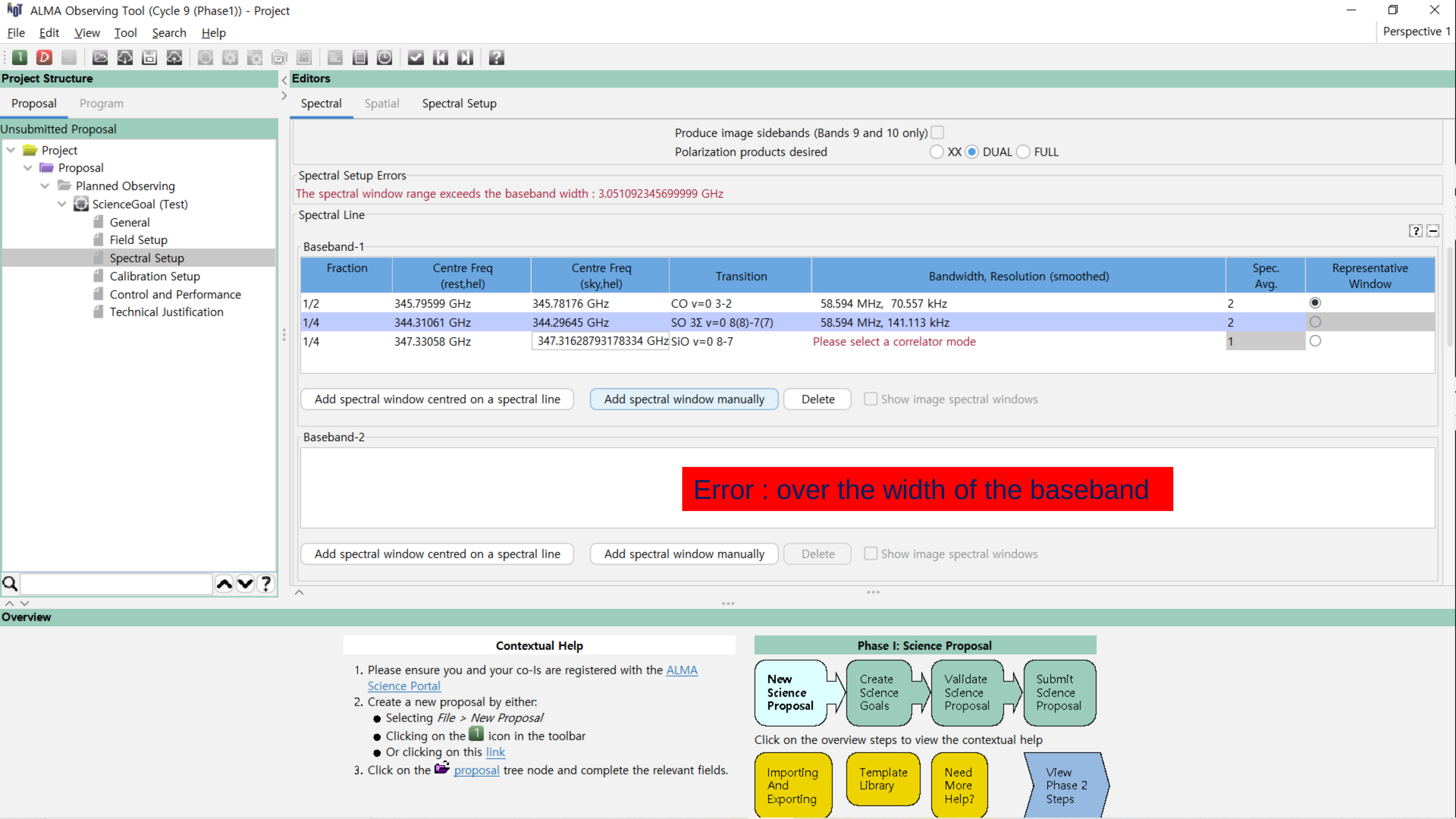
Need More Help?
View Phase 2 Steps


ALMA Observing Tool (Cycle 9 (Phase1)) - Project
File Edit View Tool Search Help
Perspective 1
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 31.3 Max 950
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
Transitions matching your filter settings:
(double-click column header for primary sort, single-click subsequent columns for secondary sorting. Single clicks will reverse sort order of already selected columns.)
Transition | Description | Rest Frequency | Sky Frequency | Upper-state Energy | Lovas Intensity | Sij μ² | Catalog
13CH3OH v t=0 5 (... | Methanol | 349.222565 GHz | 349.208196 GHz | 56.339 K | | 0 D² | Offline
CH3CN v=0 19(6)-1... | Methyl Cyanide | 349.212338 GHz | 349.197970 GHz | 424.7 K | 0.71 | 1106.34 D² | Offline
CH3CN v=0 19(6)-1... | Methyl Cyanide | 349.212332 GHz | 349.197964 GHz | 424.7 K | 0.71 | 995.379 D² | Offline
CH3CN v=0 19(6)-1... | Methyl Cyanide | 349.212321 GHz | 349.197953 GHz | 424.7 K | 0.71 | 0.002 D² | Offline
CH3CN v=0 19(6)-1... | Methyl Cyanide | 349.212285 GHz | 349.197917 GHz | 424.7 K | 0.71 | 1049.515 D² | Offline
CH3CN v8=1 J =19... | Methyl Cyanide | 349.208926 GHz | 349.194558 GHz | 2089.502 K | | 204.763 D² | Offline
CH3CN v8=1 J =19... | Methyl Cyanide | 349.174395 GHz | 349.160028 GHz | 2068.707 K | | 289.09 D² | Offline
CH3CN v=0 19(7)-1... | Methyl Cyanide | 349.125319 GHz | 349.110955 GHz | 517.407 K | 0.5 | 531.025 D² | Offline
CH3CN v=0 19(7)-1... | Methyl Cyanide | 349.125315 GHz | 349.110950 GHz | 517.407 K | 0.5 | 477.876 D² | Offline
CH3CN v=0 19(7)-1... | Methyl Cyanide | 349.125298 GHz | 349.110934 GHz | 517.407 K | 0.5 | 0.001 D² | Offline
CH3CN v=0 19(7)-1... | Methyl Cyanide | 349.125249 GHz | 349.110884 GHz | 517.407 K | 0.5 | 503.75 D² | Offline
CH3OH v t=0 14(1,... | Methanol | 349.107020 GHz | 349.092656 GHz | 260.203 K | 3.52 | 25.799 D² | Offline
13CH3OH v t=0 4 (... | Methanol | 349.097921 GHz | 349.083558 GHz | 45.01 K | | 0 D² | Offline
13CH3OH v t=0 3 (... | Methanol | 349.034424 GHz | 349.020063 GHz | 35.947 K | | 0 D² | Offline
CH3CN v=0 19(8)-1... | Methyl Cyanide | 349.025009 GHz | 349.010648 GHz | 624.32 K | 1.03 | 505.523 D² | Offline
CH3CN v=0 19(8)-1... | Methyl Cyanide | 349.025006 GHz | 349.010646 GHz | 624.32 K | 1.03 | 454.821 D² | Offline
CH3CN v=0 19(8)-1... | Methyl Cyanide | 349.024983 GHz | 349.010623 GHz | 624.32 K | 1.03 | 0.001 D² | Offline
CH3CN v=0 19(8)-1... | Methyl Cyanide | 349.024918 GHz | 349.010558 GHz | 624.32 K | 1.03 | 479.558 D² | Offline
CH3CN v8=1 J =19... | Methyl Cyanide | 349.016636 GHz | 349.002276 GHz | 2294.548 K | | 316.133 D² | Offline
Add to spectral window list
Spectral windows in this baseband (maximum of four)
Transition | Description | Rest Frequency | Sky Frequency
SO 3Σ v=0 8(8)-7(7) | Sulfur Monoxide | 344.310612 GHz | 344.296446 GHz
CO v=0 3-2 | | 345.795990 GHz | 345.781762 GHz
SiO v=0 8-7 | Silicon Monoxide | 347.330579 GHz | 347.316288 GHz
Remove spectral window(s)
Cancel
Ok
Project Structu
Proposal
Overview
Importing And Exporting
Template Library
Need More Help?
View Phase 2 Steps


ALMA Observing Tool (Cycle 9 (Phase1)) - Project
File Edit View Tool Search Help
Perspective 1
Project Structure
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Proposal
Planned Observing
ScienceGoal (Test)
General
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Spectral Setup
Calibration Setup
Control and Performance
Technical Justification
Editors
Spectral
Spatial
Spectral Setup
Produce image sidebands (Bands 9 and 10 only)
Polarization products desired
XX
DUAL
FULL
Spectral Setup Errors
The spectral window range exceeds the baseband width : 3.051092345699999 GHz
Spectral Line
Baseband-1
Fraction
Centre Freq (rest,hel)
Centre Freq (sky,hel)
Transition
Bandwidth, Resolution (smoothed)
Spec. Avg.
Representative Window
1/2
345.79599 GHz
345.78176 GHz
CO v=0 3-2
58.594 MHz, 70.557 kHz
2
1/4
344.31061 GHz
344.29645 GHz
SO 3Σ v=0 8(8)-7(7)
58.594 MHz, 141.113 kHz
2
1/4
347.33058 GHz
347.31628793178334 GHz
SiO v=0 8-7
Please select a correlator mode
1
Add spectral window centred on a spectral line
Add spectral window manually
Delete
Show image spectral windows
Baseband-2
Error : over the width of the baseband
Add spectral window centred on a spectral line
Add spectral window manually
Delete
Show image spectral windows
Overview
Contextual Help
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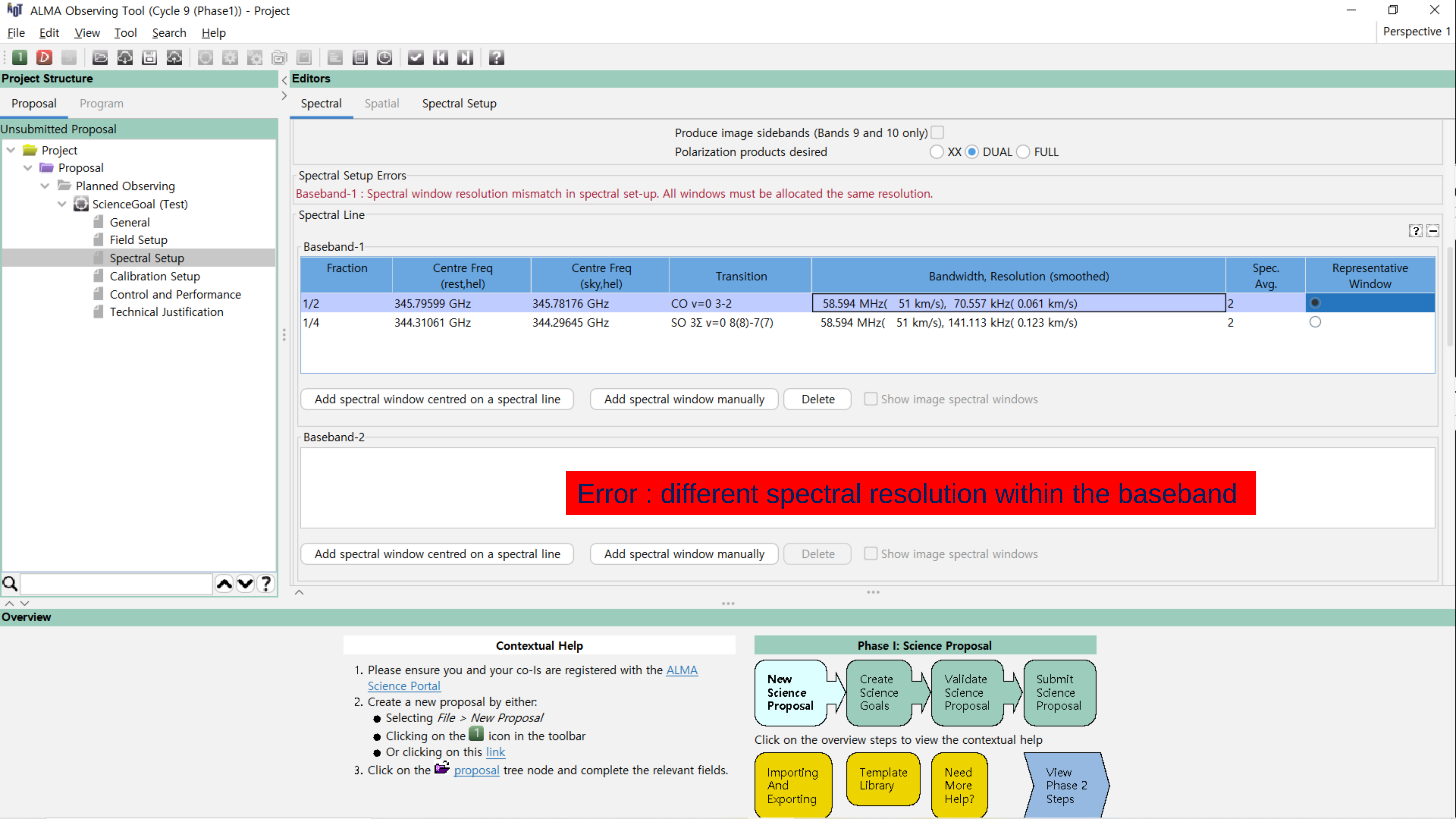
Clicking on the icon in the toolbar
Or clicking on this link
3. Click on the proposal tree node and complete the relevant fields.
Phase I: Science Proposal
New Science Proposal
Create Science Goals
Validate Science Proposal
Submit Science Proposal
Click on the overview steps to view the contextual help
Importing And Exporting
Template Library
Need More Help?
View Phase 2 Steps


ALMA Observing Tool (Cycle 9 (Phase1)) - Project
File Edit View Tool Search Help
Perspective 1
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Unsubmitted Proposal
Project
Proposal
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ScienceGoal (Test)
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Field Setup
Spectral Setup
Calibration Setup
Control and Performance
Technical Justification
Editors
Spectral Spatial Spectral Setup
Produce image sidebands (Bands 9 and 10 only)
Polarization products desired XX DUAL FULL
Spectral Setup Errors
Baseband-1 : Spectral window resolution mismatch in spectral set-up. All windows must be allocated the same resolution.
Spectral Line
Baseband-1
Fraction
Centre Freq (rest,hel)
Centre Freq (sky,hel)
Transition
Bandwidth, Resolution (smoothed)
Spec. Avg.
Representative Window
1/2 345.79599 GHz 345.78176 GHz CO v=0 3-2 58.594 MHz(51 km/s), 70.557 kHz(0.061 km/s) 2
1/4 344.31061 GHz 344.29645 GHz SO 3Σ v=0 8(8)-7(7) 58.594 MHz(51 km/s), 141.113 kHz(0.123 km/s) 2
Add spectral window centred on a spectral line
Add spectral window manually
Delete
Show image spectral windows
Baseband-2
Error : different spectral resolution within the baseband
Add spectral window centred on a spectral line
Add spectral window manually
Delete
Show image spectral windows
Overview
Contextual Help
1. Please ensure you and your co-Is are registered with the ALMA Science Portal
2. Create a new proposal by either:
Selecting File > New Proposal
Clicking on the 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
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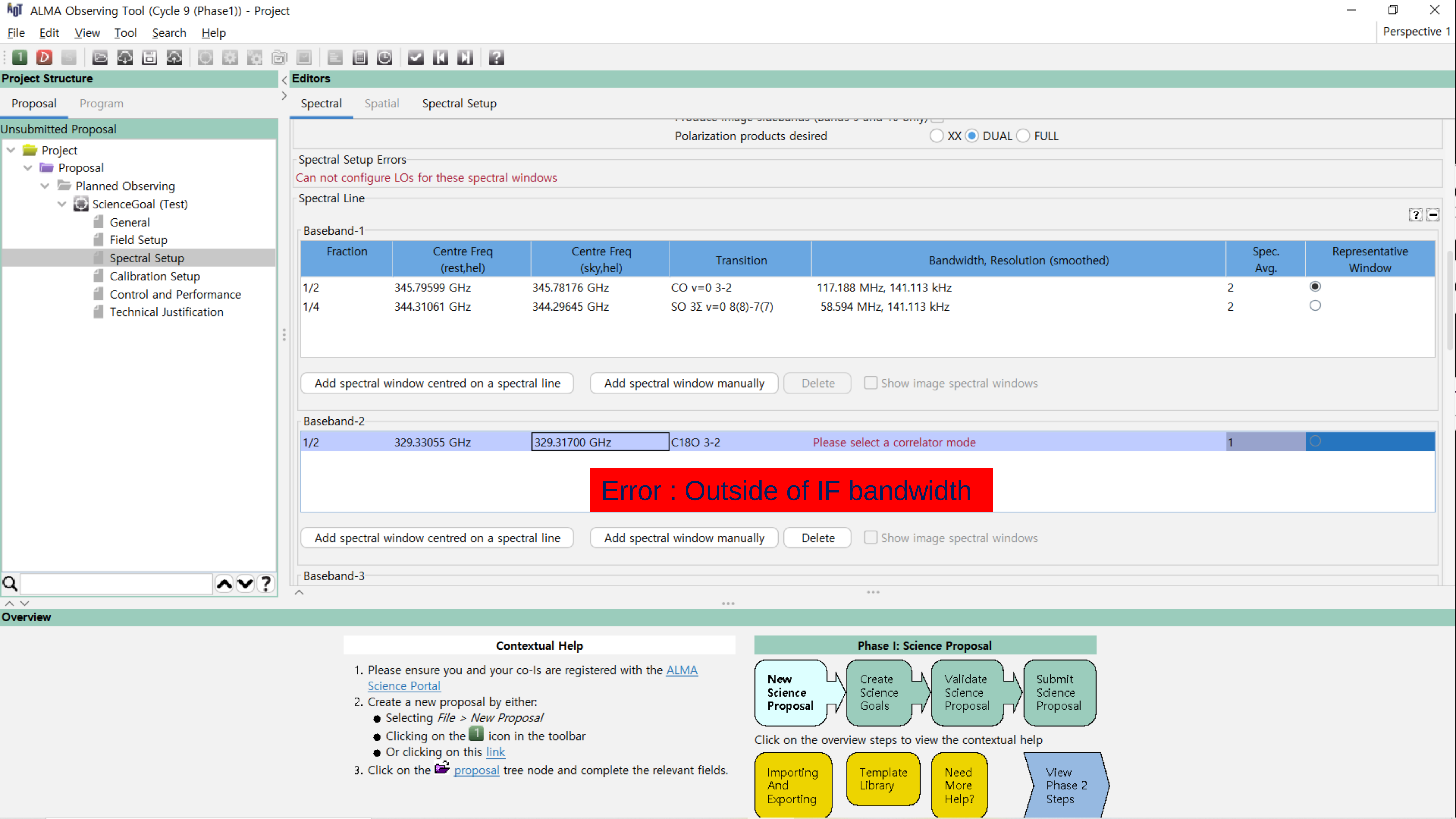
Need More Help?
View Phase 2 Steps


ALMA Observing Tool (Cycle 9 (Phase1)) - Project
File Edit View Tool Search Help
Perspective 1
Project Structure
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Proposal
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ScienceGoal (Test)
General
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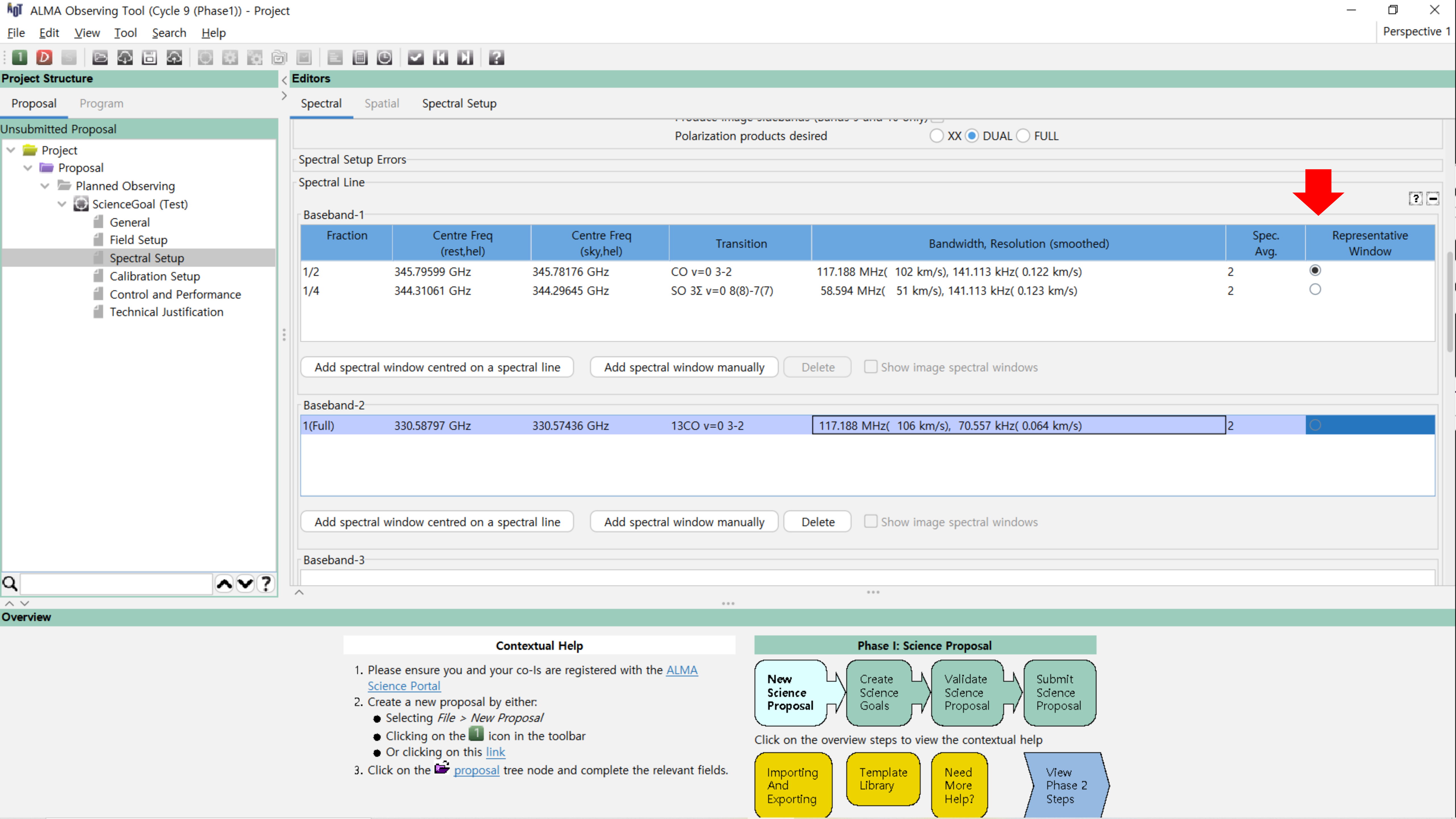
Technical Justification
Editors
Spectral Spatial Spectral Setup
Polarization products desired
XX DUAL FULL
Spectral Setup Errors
Can not configure LOs for these spectral windows
Spectral Line
Baseband-1
Fraction | Centre Freq (rest,hel) | Centre Freq (sky,hel) | Transition | Bandwidth, Resolution (smoothed) | Spec. Avg. | Representative Window
1/2 345.79599 GHz 345.78176 GHz CO v=0 3-2 117.188 MHz, 141.113 kHz 2
1/4 344.31061 GHz 344.29645 GHz SO 3Σ v=0 8(8)-7(7) 58.594 MHz, 141.113 kHz 2
Add spectral window centred on a spectral line
Add spectral window manually
Delete
Show image spectral windows
Baseband-2
1/2 329.33055 GHz 329.31700 GHz C18O 3-2 Please select a correlator mode 1
Error : Outside of IF bandwidth
Add spectral window centred on a spectral line
Add spectral window manually
Delete
Show image spectral windows
Baseband-3
Overview
Contextual Help
1. Please ensure you and your co-Is are registered with the ALMA Science Portal
2. Create a new proposal by either:
Selecting File > New Proposal
Clicking on the 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 (Cycle 9 (Phase1)) - Project
File Edit View Tool Search Help
Perspective 1
Project Structure
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Proposal
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General
Field Setup
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Control and Performance
Technical Justification
Editors
Spectral Spatial Spectral Setup
Polarization products desired
XX DUAL FULL
Spectral Setup Errors
Spectral Line
Baseband-1
Fraction | Centre Freq (rest,hel) | Centre Freq (sky,hel) | Transition | Bandwidth, Resolution (smoothed) | Spec. Avg. | Representative Window
1/2 345.79599 GHz 345.78176 GHz CO v=0 3-2 117.188 MHz(102 km/s), 141.113 kHz(0.122 km/s) 2
1/4 344.31061 GHz 344.29645 GHz SO 3Σ v=0 8(8)-7(7) 58.594 MHz(51 km/s), 141.113 kHz(0.123 km/s) 2
Add spectral window centred on a spectral line
Add spectral window manually
Delete
Show image spectral windows
Baseband-2
1(Full) 330.58797 GHz 330.57436 GHz 13CO v=0 3-2 117.188 MHz(106 km/s), 70.557 kHz(0.064 km/s) 2
Add spectral window centred on a spectral line
Add spectral window manually
Delete
Show image spectral windows
Baseband-3
Overview
Contextual Help
1. Please ensure you and your co-Is are registered with the ALMA Science Portal
2. Create a new proposal by either:
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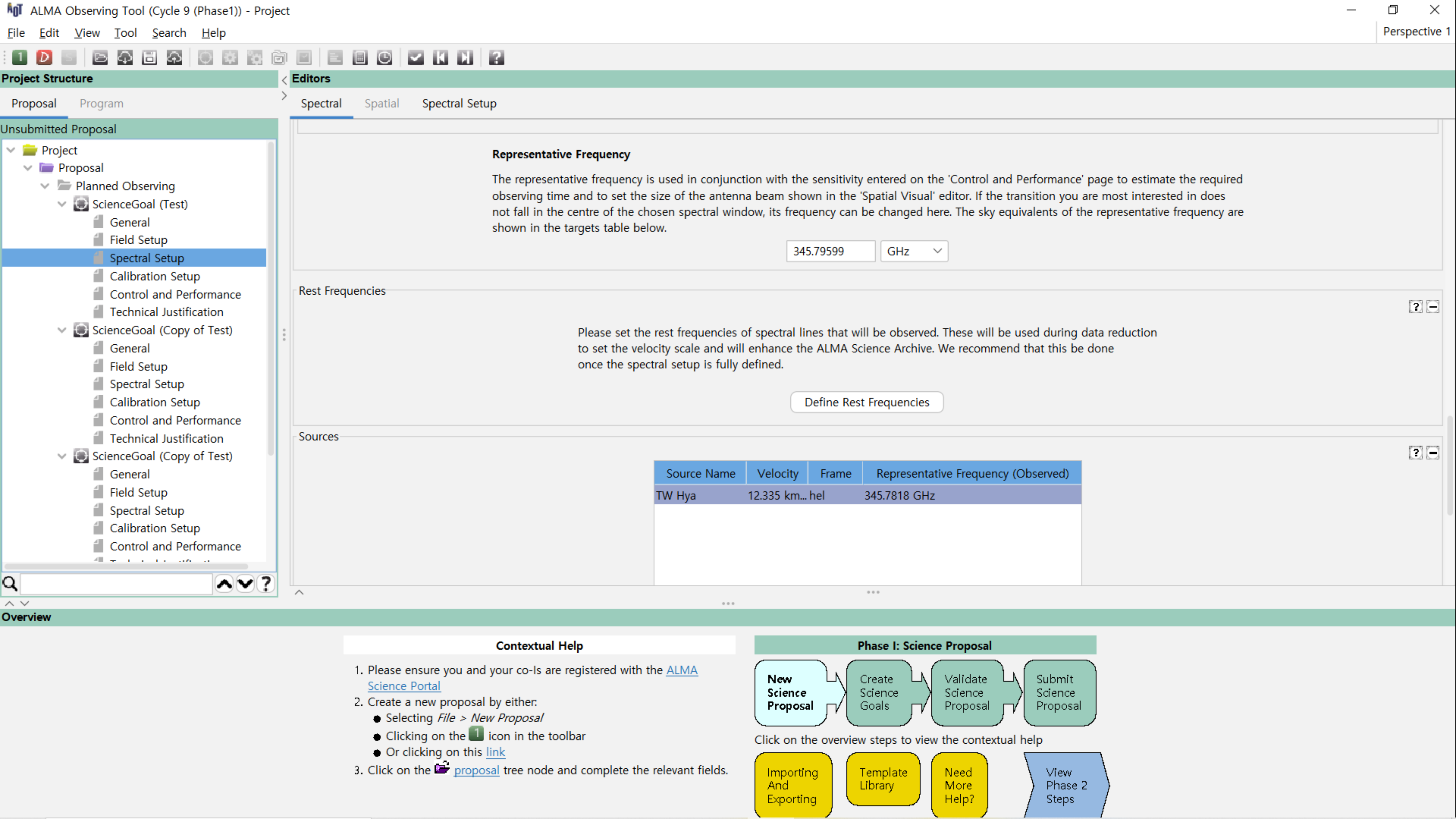
Clicking on the icon in the toolbar
Or clicking on this link
3. Click on the proposal tree node and complete the relevant fields.
Phase I: Science Proposal
New Science Proposal
Create Science Goals
Validate Science Proposal
Submit Science Proposal
Click on the overview steps to view the contextual help
Importing And Exporting
Template Library
Need More Help?
View Phase 2 Steps


ALMA Observing Tool (Cycle 9 (Phase1)) - Project
File Edit View Tool Search Help
Perspective 1
Project Structure
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ScienceGoal (Test)
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ScienceGoal (Copy of Test)
General
Field Setup
Spectral Setup
Calibration Setup
Control and Performance
Technical Justification
ScienceGoal (Copy of Test)
General
Field Setup
Spectral Setup
Calibration Setup
Control and Performance
Editors
Spectral Spatial Spectral Setup
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 not fall in the centre of the chosen spectral window, its frequency can be changed here. The sky equivalents of the representative frequency are shown in the targets table below.
345.79599
GHz
Rest Frequencies
Please set the rest frequencies of spectral lines that will be observed. These will be used during data reduction to set the velocity scale and will enhance the ALMA Science Archive. We recommend that this be done once the spectral setup is fully defined.
Define Rest Frequencies
Sources
Source Name
Velocity
Frame
Representative Frequency (Observed)
TW Hya
12.335 km...
hel
345.7818 GHz
Overview
Contextual Help
1. Please ensure you and your co-Is are registered with the ALMA Science Portal
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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
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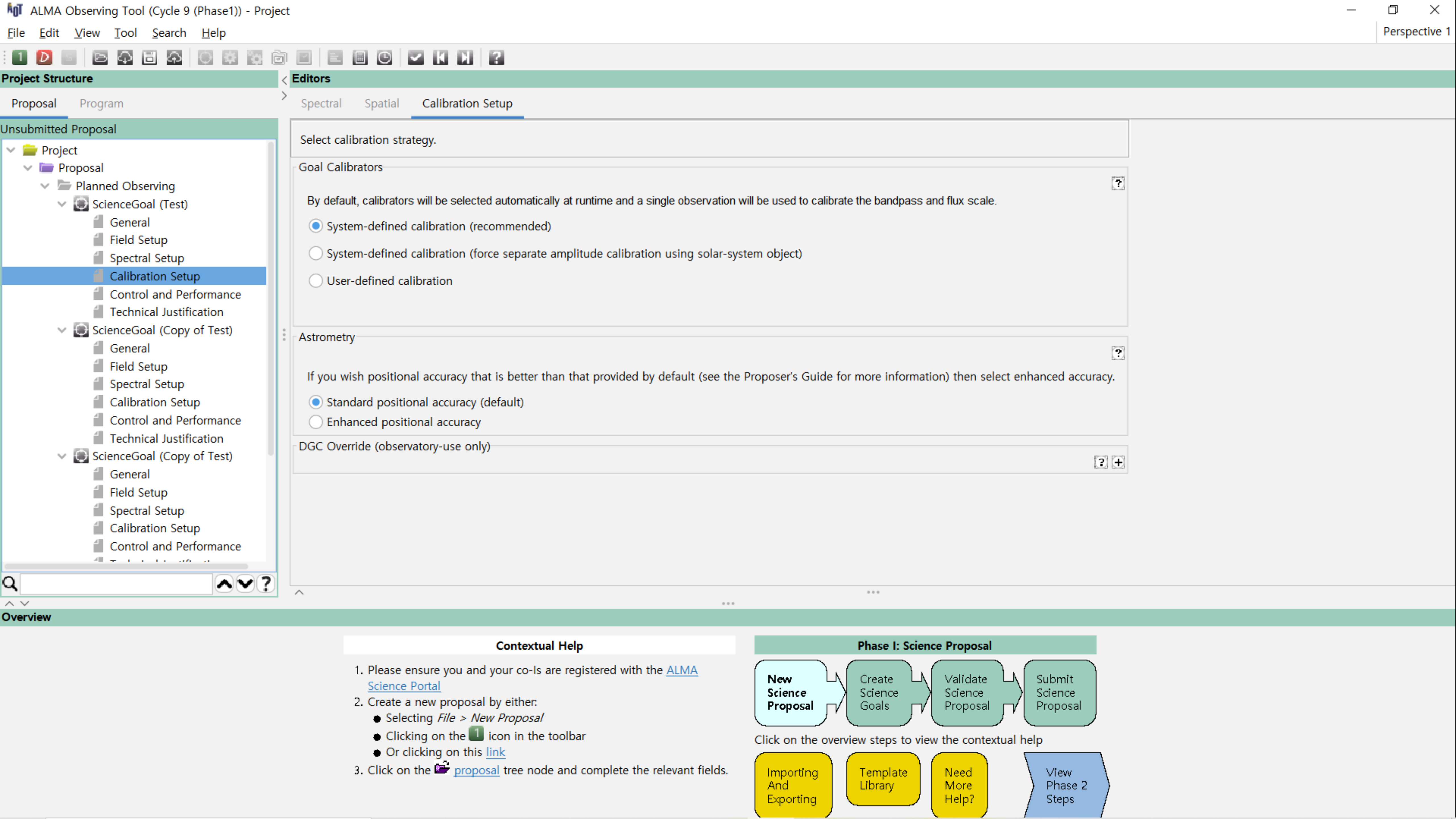
Need More Help?
View Phase 2 Steps


ALMA Observing Tool (Cycle 9 (Phase1)) - Project
File Edit View Tool Search Help
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Proposal
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Control and Performance
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ScienceGoal (Copy of Test)
General
Field Setup
Spectral Setup
Calibration Setup
Control and Performance
Technical Justification
ScienceGoal (Copy of Test)
General
Field Setup
Spectral Setup
Calibration Setup
Control and Performance
Editors
Spectral Spatial Calibration Setup
Select calibration strategy.
Goal Calibrators
By default, calibrators will be selected automatically at runtime and a single observation will be used to calibrate the bandpass and flux scale.
System-defined calibration (recommended)
System-defined calibration (force separate amplitude calibration using solar-system object)
User-defined calibration
Astrometry
If you wish positional accuracy that is better than that provided by default (see the Proposer's Guide for more information) then select enhanced accuracy.
Standard positional accuracy (default)
Enhanced positional accuracy
DGC Override (observatory-use only)
Overview
Contextual Help
1. Please ensure you and your co-Is are registered with the ALMA Science Portal
2. Create a new proposal by either:
Selecting File > New Proposal
Clicking on the 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
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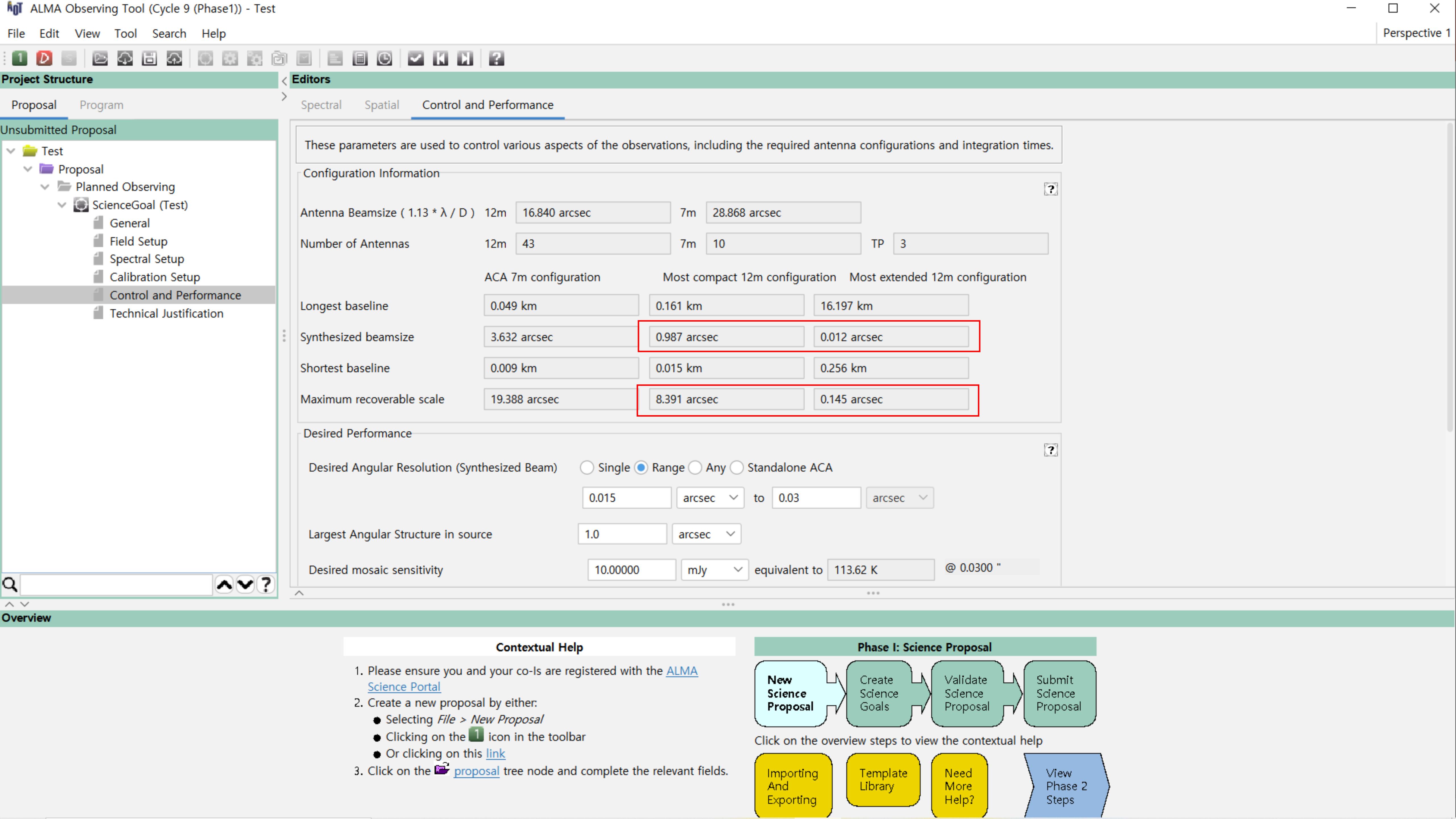
Need More Help?
View Phase 2 Steps


ALMA Observing Tool (Cycle 9 (Phase1)) - Test
File Edit View Tool Search Help
Perspective 1
Project Structure
Proposal
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Proposal
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Calibration Setup
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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.
Configuration Information
Antenna Beamsize (1.13 * λ / D) 12m 16.840 arcsec 7m 28.868 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 16.197 km
Synthesized beamsize 3.632 arcsec 0.987 arcsec 0.012 arcsec
Shortest baseline 0.009 km 0.015 km 0.256 km
Maximum recoverable scale 19.388 arcsec 8.391 arcsec 0.145 arcsec
Desired Performance
Desired Angular Resolution (Synthesized Beam) Single Range Any Standalone ACA
0.015 arcsec to 0.03 arcsec
Largest Angular Structure in source 1.0 arcsec
Desired mosaic sensitivity 10.00000 mJy equivalent to 113.62 K @ 0.0300 "
Overview
Contextual Help
1. Please ensure you and your co-Is are registered with the ALMA Science Portal
2. Create a new proposal by either:
Selecting File > New Proposal
Clicking on the 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
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Click on the overview steps to view the contextual help
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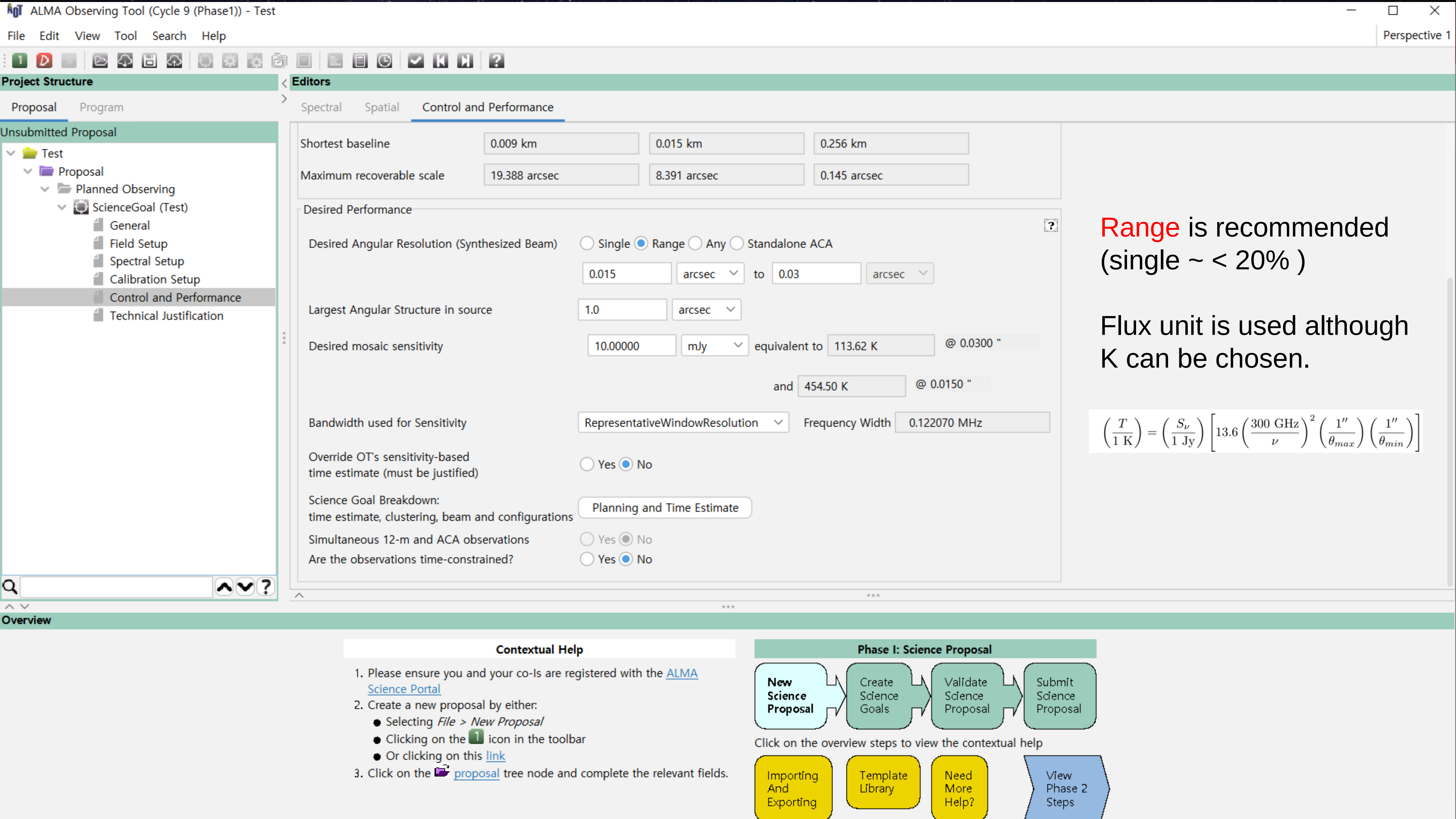
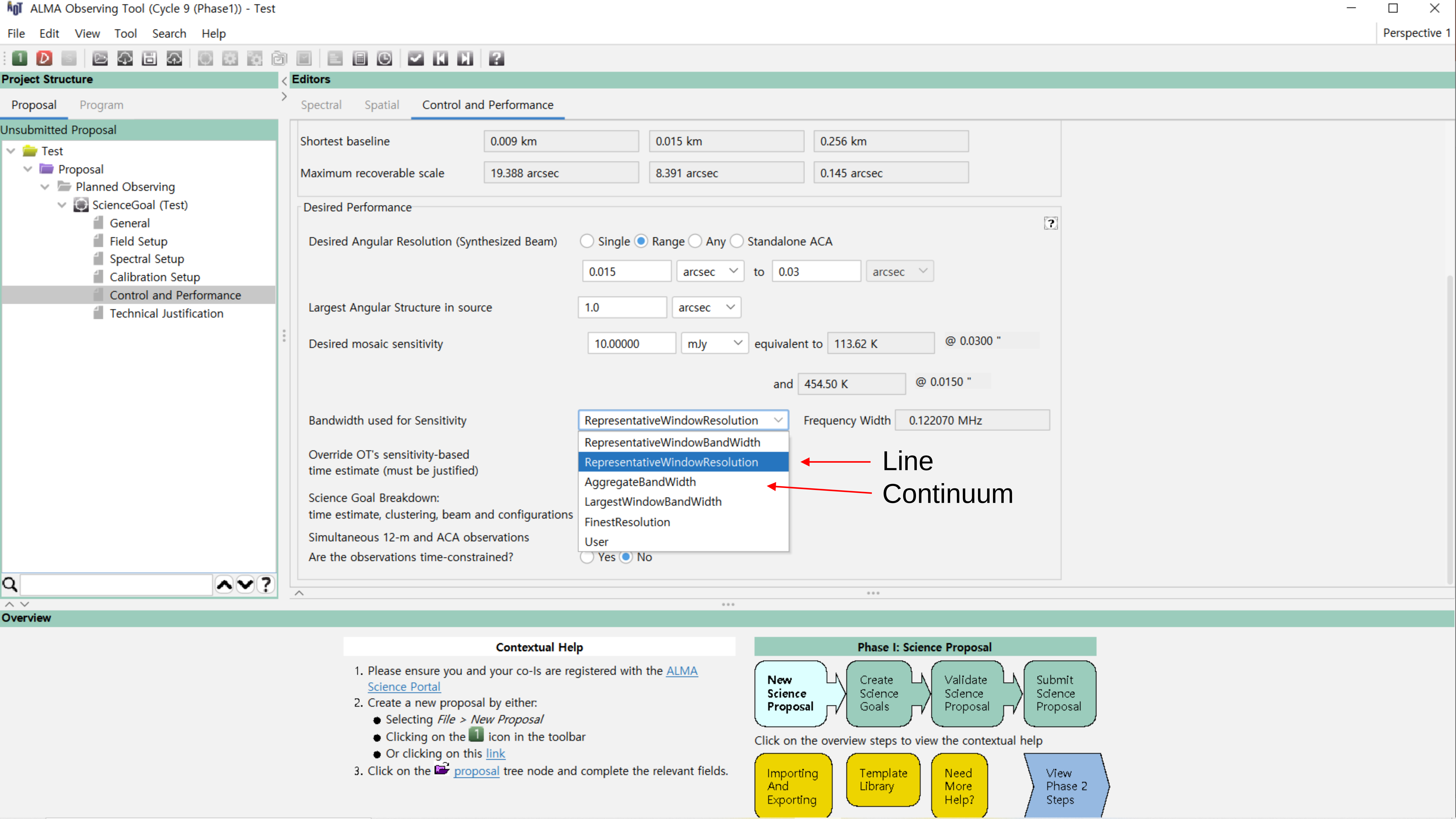


Range is recommended (single ~ < 20%)

Flux unit is used although K can be chosen.

$$\left(\frac{T}{1\ \mathrm{K}}\right) = \left(\frac{S_\nu}{1\ \mathrm{Jy}}\right)\left[13.6\left(\frac{300\ \mathrm{GHz}}{\nu}\right)^2\left(\frac{1''}{\theta_{max}}\right)\left(\frac{1''}{\theta_{min}}\right)\right]$$


ALMA Observing Tool (Cycle 9 (Phase1)) - Test
File Edit View Tool Search Help
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Calibration Setup
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Technical Justification
Editors
Spectral Spatial Control and Performance
Shortest baseline 0.009 km 0.015 km 0.256 km
Maximum recoverable scale 19.388 arcsec 8.391 arcsec 0.145 arcsec
Desired Performance
Desired Angular Resolution (Synthesized Beam) Single Range Any Standalone ACA
0.015 arcsec to 0.03 arcsec
Largest Angular Structure in source 1.0 arcsec
Desired mosaic sensitivity 10.00000 mJy equivalent to 113.62 K @ 0.0300 "
and 454.50 K @ 0.0150 "
Bandwidth used for Sensitivity RepresentativeWindowResolution Frequency Width 0.122070 MHz
RepresentativeWindowBandWidth
RepresentativeWindowResolution
AggregateBandWidth
LargestWindowBandWidth
FinestResolution
User
Line
Continuum
Override OT's sensitivity-based time estimate (must be justified)
Science Goal Breakdown: time estimate, clustering, beam and configurations
Simultaneous 12-m and ACA observations
Are the observations time-constrained? Yes No
Overview
Contextual Help
1. Please ensure you and your co-Is are registered with the ALMA Science Portal
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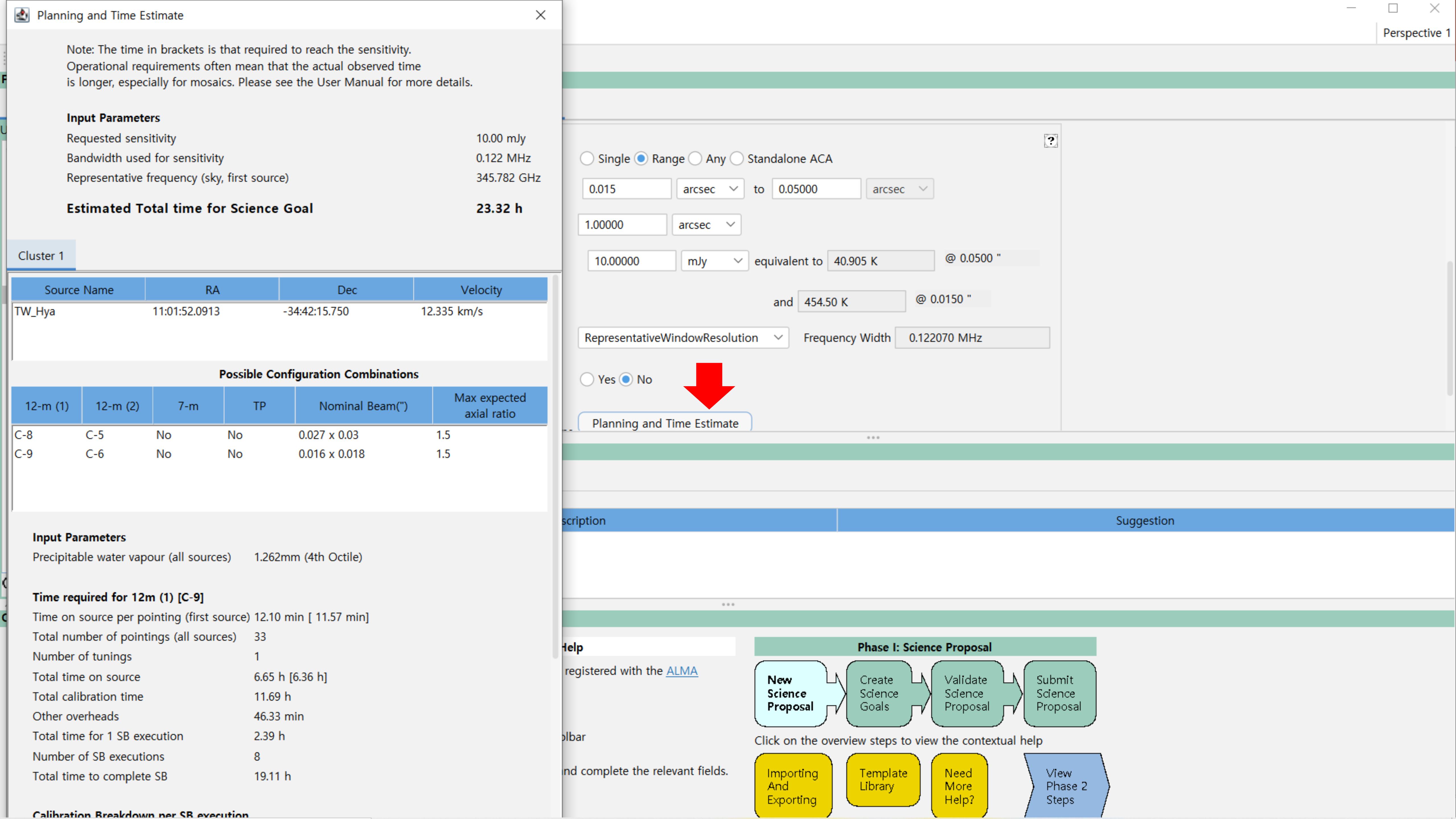
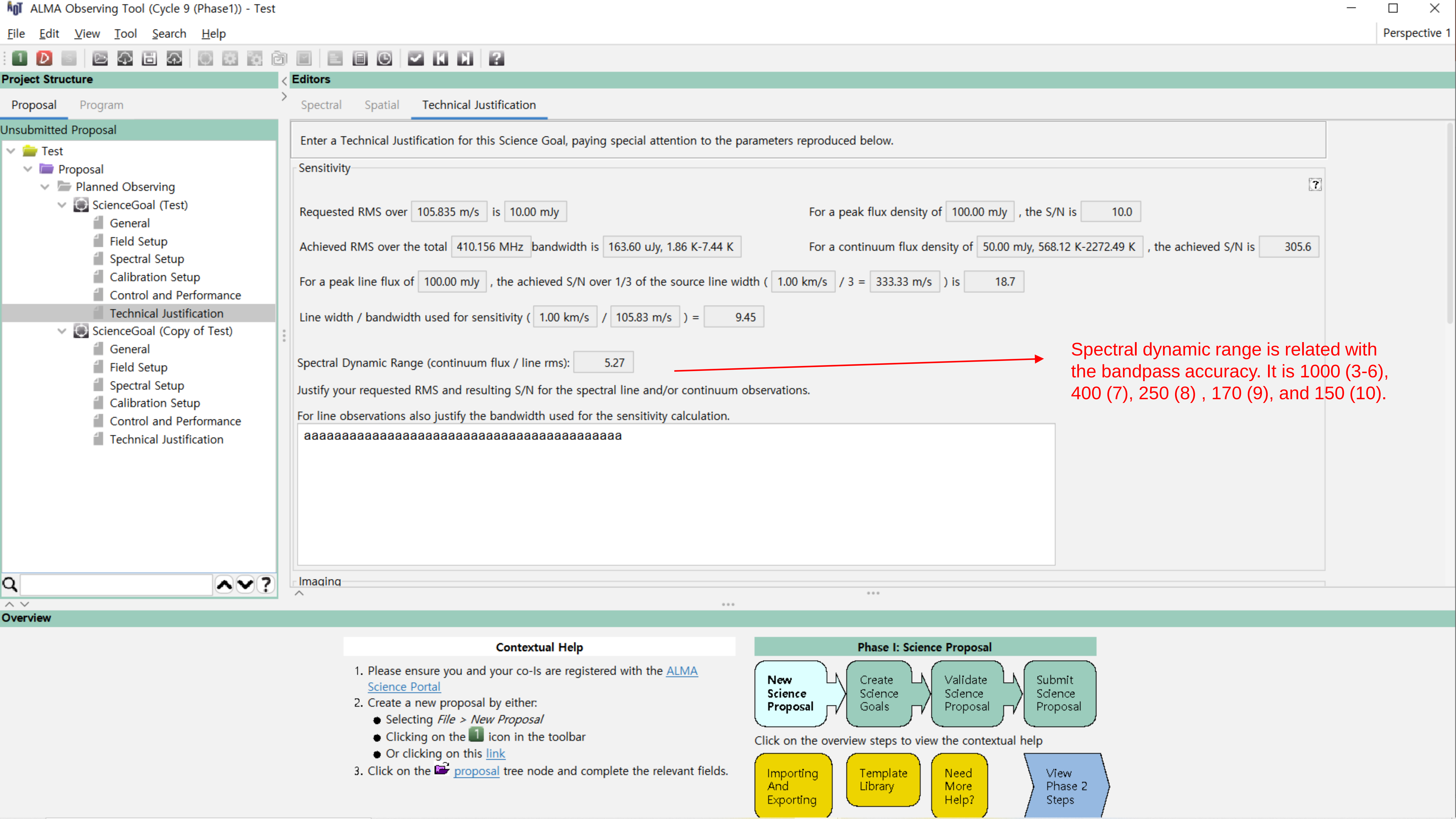
3. Click on the proposal tree node and complete the relevant fields.
Phase I: Science Proposal
New Science Proposal
Create Science Goals
Validate Science Proposal
Submit Science Proposal
Click on the overview steps to view the contextual help
Importing And Exporting
Template Library
Need More Help?
View Phase 2 Steps


Planning and Time Estimate
Note: The time in brackets is that required to reach the sensitivity.
Operational requirements often mean that the actual observed time
is longer, especially for mosaics. Please see the User Manual for more details.
Input Parameters
Requested sensitivity 10.00 mJy
Bandwidth used for sensitivity 0.122 MHz
Representative frequency (sky, first source) 345.782 GHz
Estimated Total time for Science Goal 23.32 h
Cluster 1
Source Name RA Dec Velocity
TW_Hya 11:01:52.0913 -34:42:15.750 12.335 km/s
Possible Configuration Combinations
12-m (1) 12-m (2) 7-m TP Nominal Beam(") Max expected axial ratio
C-8 C-5 No No 0.027 x 0.03 1.5
C-9 C-6 No No 0.016 x 0.018 1.5
Input Parameters
Precipitable water vapour (all sources) 1.262mm (4th Octile)
Time required for 12m (1) [C-9]
Time on source per pointing (first source) 12.10 min [11.57 min]
Total number of pointings (all sources) 33
Number of tunings 1
Total time on source 6.65 h [6.36 h]
Total calibration time 11.69 h
Other overheads 46.33 min
Total time for 1 SB execution 2.39 h
Number of SB executions 8
Total time to complete SB 19.11 h
Calibration Breakdown per SB execution
Perspective 1
Single Range Any Standalone ACA
0.015 arcsec to 0.05000 arcsec
1.00000 arcsec
10.00000 mJy equivalent to 40.905 K @ 0.0500 "
and 454.50 K @ 0.0150 "
RepresentativeWindowResolution Frequency Width 0.122070 MHz
Yes No
Planning and Time Estimate
scription Suggestion
Help
registered with the ALMA
olbar
nd 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 (Cycle 9 (Phase1)) - Test
File Edit View Tool Search Help
Perspective 1
Project Structure
Proposal Program
Unsubmitted Proposal
Test
Proposal
Planned Observing
ScienceGoal (Test)
General
Field Setup
Spectral Setup
Calibration Setup
Control and Performance
Technical Justification
ScienceGoal (Copy of Test)
General
Field Setup
Spectral Setup
Calibration Setup
Control and Performance
Technical Justification
Editors
Spectral Spatial Technical Justification
Enter a Technical Justification for this Science Goal, paying special attention to the parameters reproduced below.
Sensitivity
Requested RMS over 105.835 m/s is 10.00 mJy
For a peak flux density of 100.00 mJy , the S/N is 10.0
Achieved RMS over the total 410.156 MHz bandwidth is 163.60 uJy, 1.86 K-7.44 K
For a continuum flux density of 50.00 mJy, 568.12 K-2272.49 K , the achieved S/N is 305.6
For a peak line flux of 100.00 mJy , the achieved S/N over 1/3 of the source line width (1.00 km/s / 3 = 333.33 m/s) is 18.7
Line width / bandwidth used for sensitivity (1.00 km/s / 105.83 m/s) = 9.45
Spectral Dynamic Range (continuum flux / line rms): 5.27
Spectral dynamic range is related with the bandpass accuracy. It is 1000 (3-6), 400 (7), 250 (8) , 170 (9), and 150 (10).
Justify your requested RMS and resulting S/N for the spectral line and/or continuum observations.
For line observations also justify the bandwidth used for the sensitivity calculation.
aaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaa
Imaging
Overview
Contextual Help
1. Please ensure you and your co-Is are registered with the ALMA Science Portal
2. Create a new proposal by either:
Selecting File > New Proposal
Clicking on the icon in the toolbar
Or clicking on this link
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Phase I: Science Proposal
New Science Proposal
Create Science Goals
Validate Science Proposal
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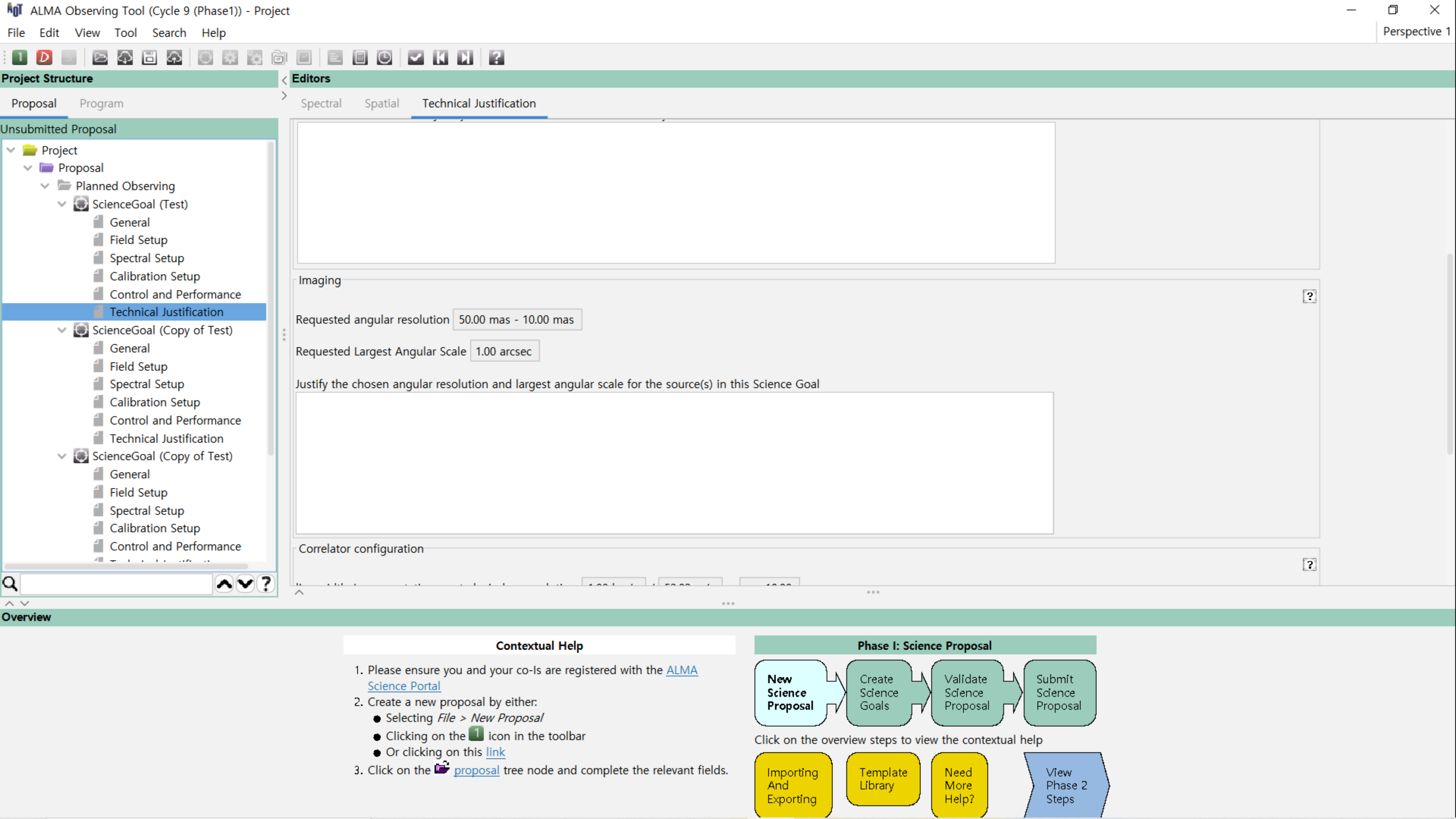

ALMA Observing Tool (Cycle 9 (Phase1)) - Project
File Edit View Tool Search Help
Perspective 1
Project Structure
Proposal Program
Unsubmitted Proposal
Project
Proposal
Planned Observing
ScienceGoal (Test)
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Field Setup
Spectral Setup
Calibration Setup
Control and Performance
Technical Justification
ScienceGoal (Copy of Test)
General
Field Setup
Spectral Setup
Calibration Setup
Control and Performance
Technical Justification
ScienceGoal (Copy of Test)
General
Field Setup
Spectral Setup
Calibration Setup
Control and Performance
Editors
Spectral Spatial Technical Justification
Imaging
Requested angular resolution 50.00 mas - 10.00 mas
Requested Largest Angular Scale 1.00 arcsec
Justify the chosen angular resolution and largest angular scale for the source(s) in this Science Goal
Correlator configuration
Overview
Contextual Help
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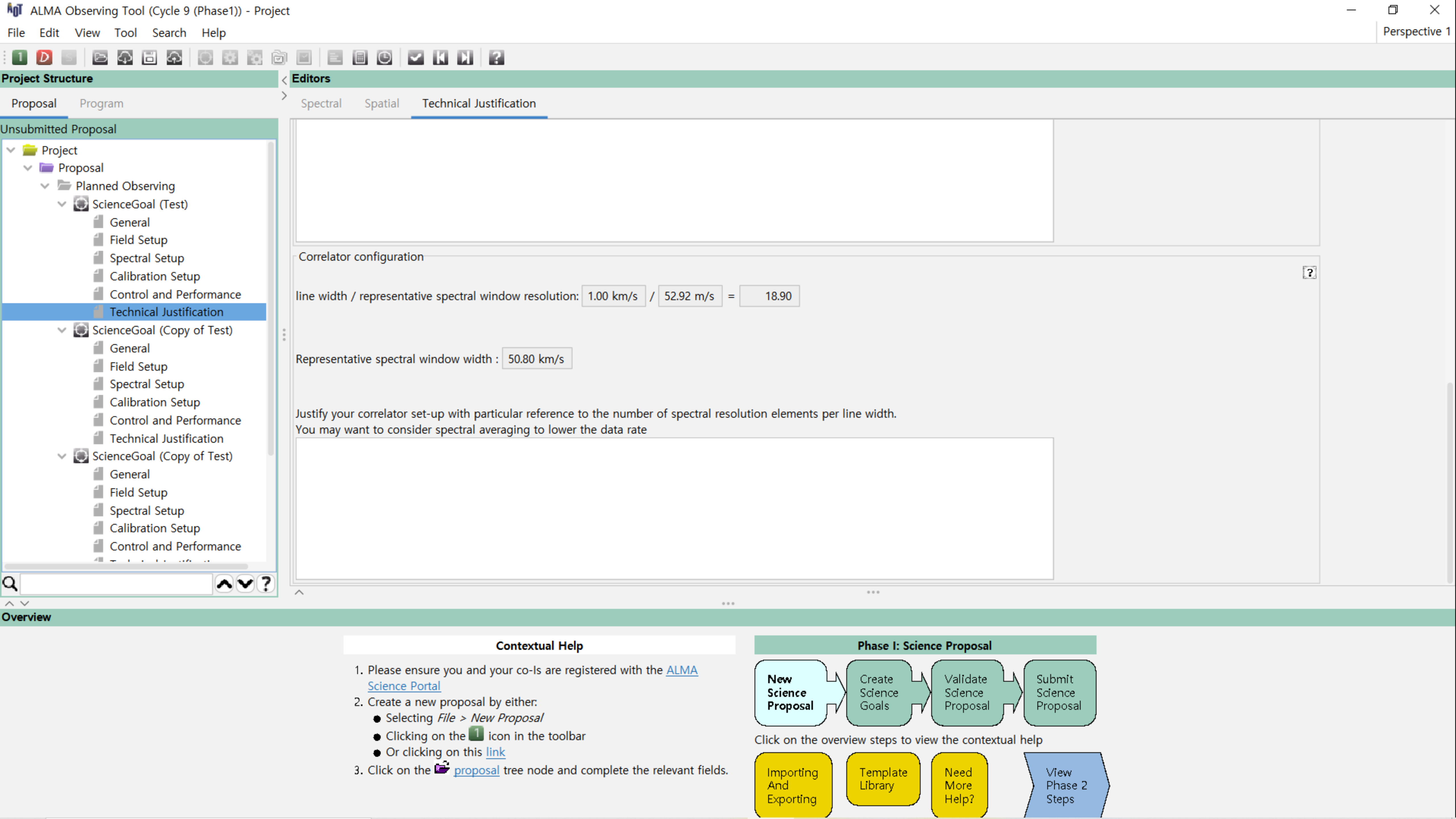
Phase I: Science Proposal
New Science Proposal
Create Science Goals
Validate Science Proposal
Submit Science Proposal
Click on the overview steps to view the contextual help
Importing And Exporting
Template Library
Need More Help?
View Phase 2 Steps


ALMA Observing Tool (Cycle 9 (Phase1)) - Project
File Edit View Tool Search Help
Perspective 1
Project Structure
Editors
Proposal
Program
Spectral
Spatial
Technical Justification
Unsubmitted Proposal
Project
Proposal
Planned Observing
ScienceGoal (Test)
General
Field Setup
Spectral Setup
Calibration Setup
Control and Performance
Technical Justification
ScienceGoal (Copy of Test)
General
Field Setup
Spectral Setup
Calibration Setup
Control and Performance
Technical Justification
ScienceGoal (Copy of Test)
General
Field Setup
Spectral Setup
Calibration Setup
Control and Performance
Correlator configuration
line width / representative spectral window resolution: 1.00 km/s / 52.92 m/s = 18.90
Representative spectral window width : 50.80 km/s
Justify your correlator set-up with particular reference to the number of spectral resolution elements per line width.
You may want to consider spectral averaging to lower the data rate
Overview
Contextual Help
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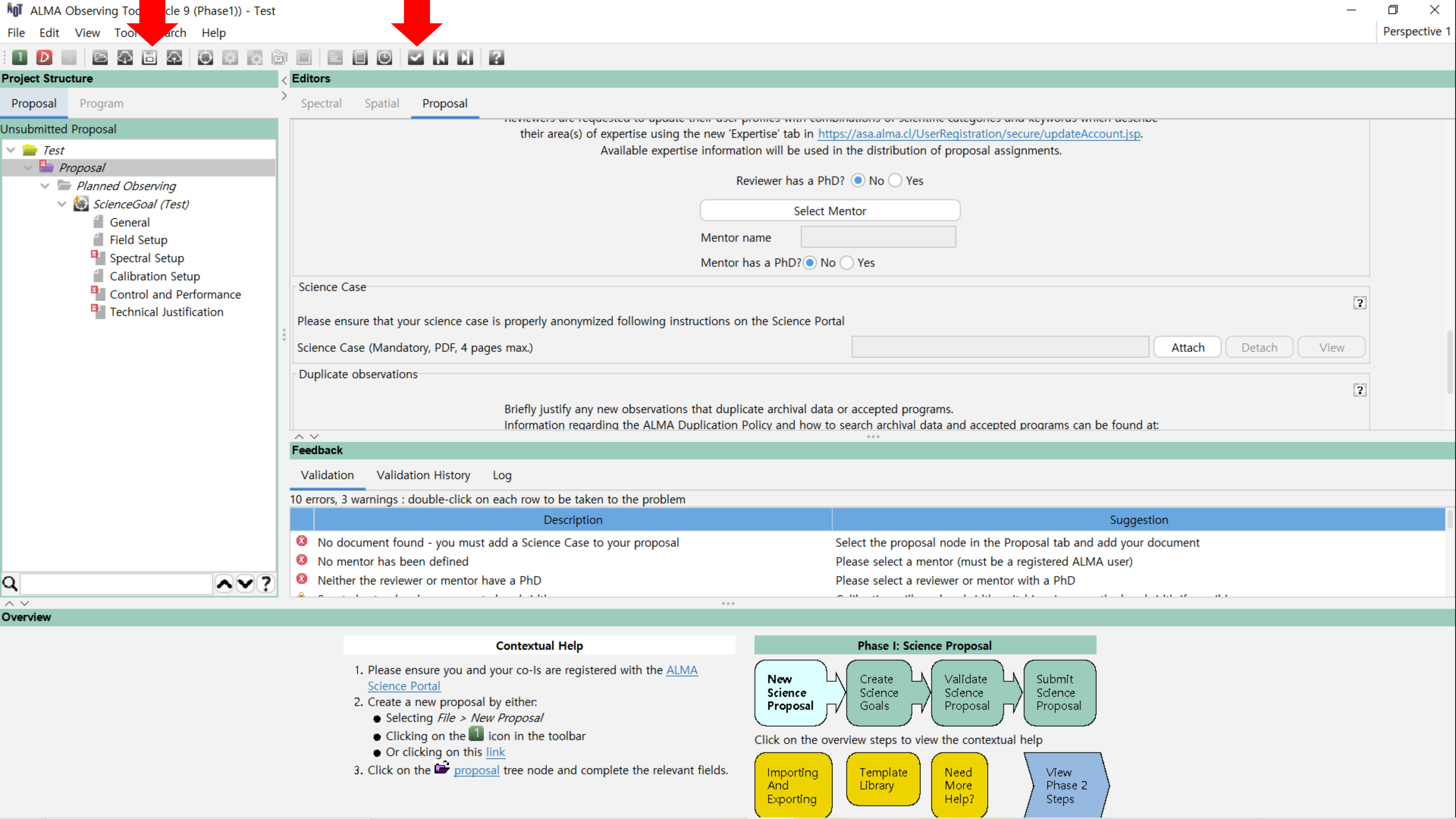
ALMA Observing Too cle 9 (Phase1)) - Test
File Edit View Tool arch Help
Perspective 1
Project Structure
Proposal Program
Unsubmitted Proposal
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ScienceGoal (Test)
General
Field Setup
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Calibration Setup
Control and Performance
Technical Justification
Editors
Spectral Spatial Proposal
their area(s) of expertise using the new 'Expertise' tab in https://asa.alma.cl/UserRegistration/secure/updateAccount.jsp.
Available expertise information will be used in the distribution of proposal assignments.
Reviewer has a PhD? No Yes
Select Mentor
Mentor name
Mentor has a PhD? No Yes
Science Case
Please ensure that your science case is properly anonymized following instructions on the Science Portal
Science Case (Mandatory, PDF, 4 pages max.)
Attach Detach View
Duplicate observations
Briefly justify any new observations that duplicate archival data or accepted programs.
Information regarding the ALMA Duplication Policy and how to search archival data and accepted programs can be found at:
Feedback
Validation Validation History Log
10 errors, 3 warnings : double-click on each row to be taken to the problem
Description
Suggestion
No document found - you must add a Science Case to your proposal
Select the proposal node in the Proposal tab and add your document
No mentor has been defined
Please select a mentor (must be a registered ALMA user)
Neither the reviewer or mentor have a PhD
Please select a reviewer or mentor with a PhD
Overview
Contextual Help
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Validate Science Proposal
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Need More Help?
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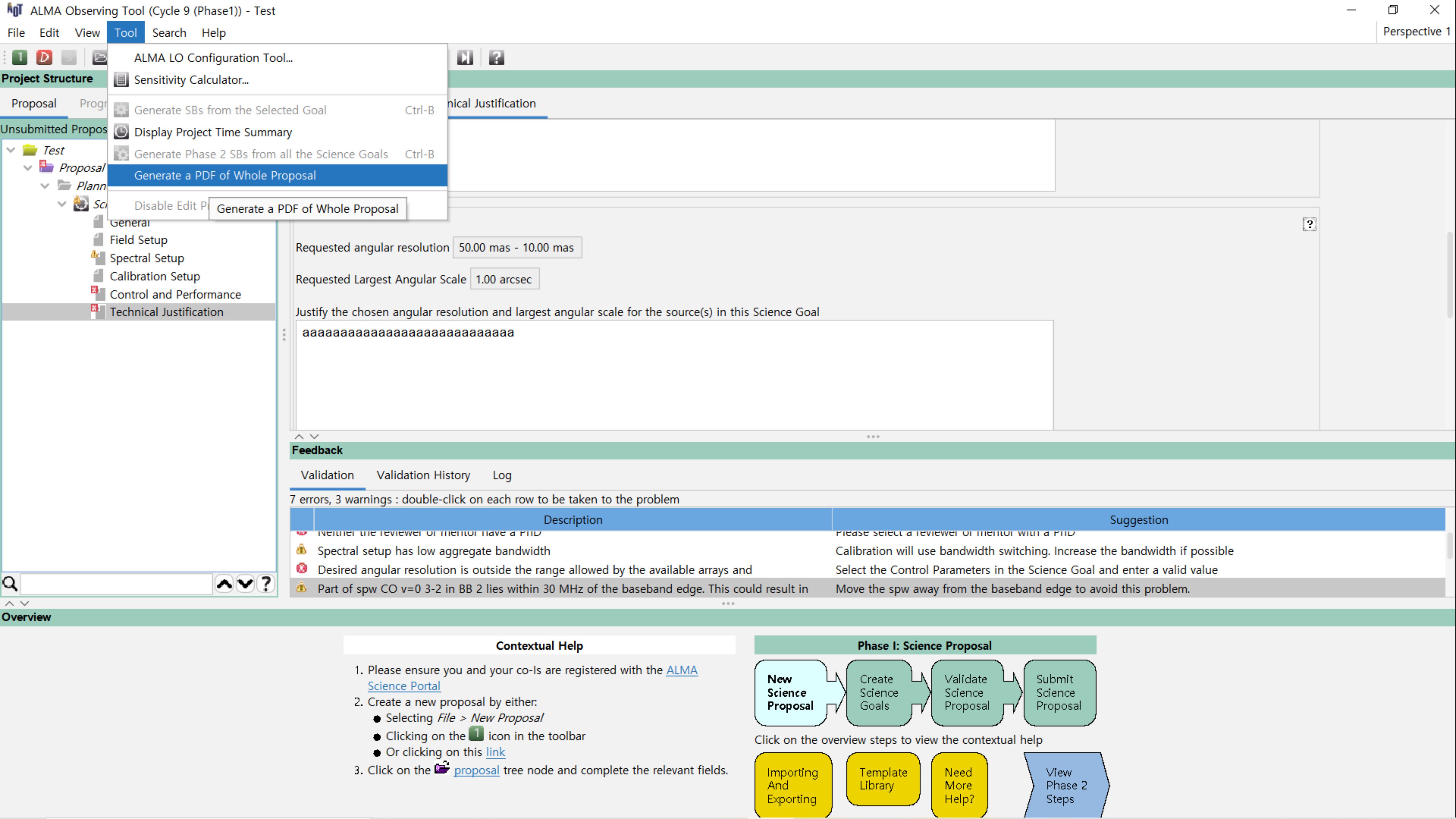
ALMA Observing Tool (Cycle 9 (Phase1)) - Test
File
Edit
View
Tool
Search
Help
Perspective 1
Project Structure
Proposal
ALMA LO Configuration Tool...
Sensitivity Calculator...
Generate SBs from the Selected Goal Ctrl-B
Display Project Time Summary
Generate Phase 2 SBs from all the Science Goals Ctrl-B
Generate a PDF of Whole Proposal
Disable Edit P
Generate a PDF of Whole Proposal
Unsubmitted Propos
Test
Proposal
Plann
General
Field Setup
Spectral Setup
Calibration Setup
Control and Performance
Technical Justification
nical Justification
Requested angular resolution
50.00 mas - 10.00 mas
Requested Largest Angular Scale
1.00 arcsec
Justify the chosen angular resolution and largest angular scale for the source(s) in this Science Goal
aaaaaaaaaaaaaaaaaaaaaaaaaaaa
Feedback
Validation
Validation History
Log
7 errors, 3 warnings : double-click on each row to be taken to the problem
Description
Suggestion
Spectral setup has low aggregate bandwidth
Calibration will use bandwidth switching. Increase the bandwidth if possible
Desired angular resolution is outside the range allowed by the available arrays and
Select the Control Parameters in the Science Goal and enter a valid value
Part of spw CO v=0 3-2 in BB 2 lies within 30 MHz of the baseband edge. This could result in
Move the spw away from the baseband edge to avoid this problem.
Overview
Contextual Help
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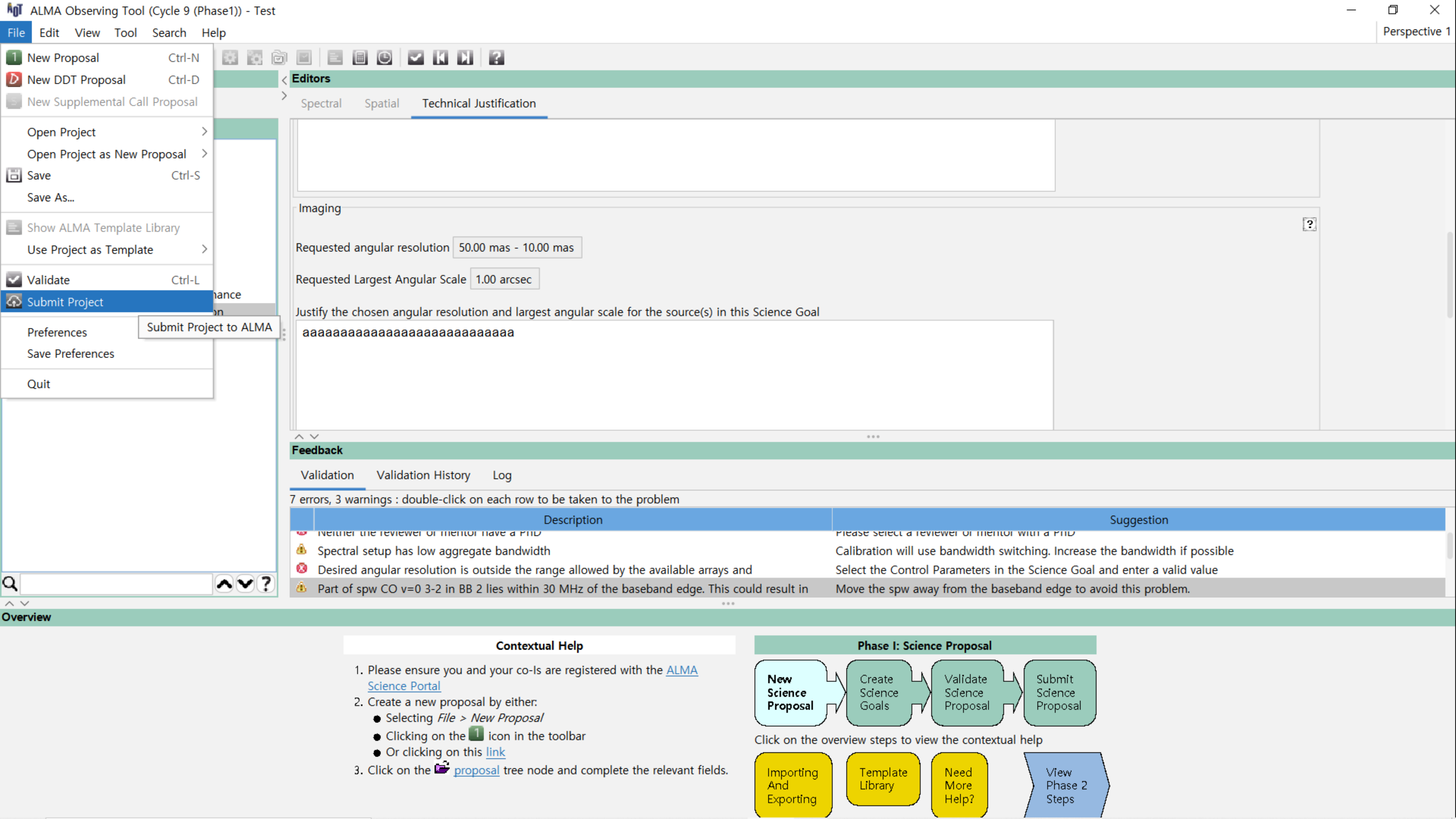
ALMA Observing Tool (Cycle 9 (Phase1)) - Test
File
Edit
View
Tool
Search
Help
Perspective 1
New Proposal Ctrl-N
New DDT Proposal Ctrl-D
New Supplemental Call Proposal
Open Project
Open Project as New Proposal
Save Ctrl-S
Save As...
Show ALMA Template Library
Use Project as Template
Validate Ctrl-L
Submit Project
Submit Project to ALMA
Preferences
Save Preferences
Quit
Editors
Spectral
Spatial
Technical Justification
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Q&A