

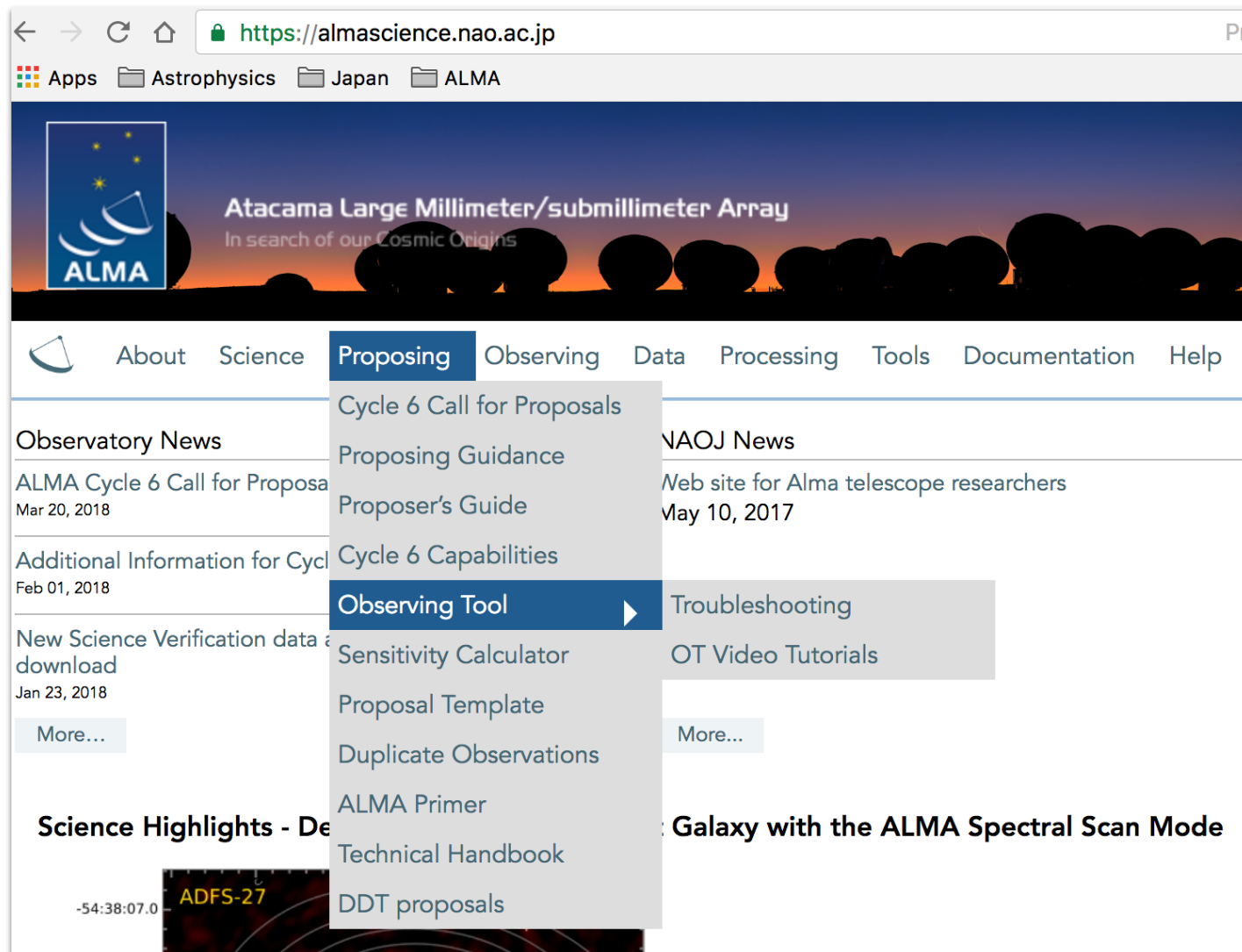


ALMA Observing Tool (OT)
for Cycle 6 Proposal Preparation:
Hands-on Session

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Specially Appointed Associate Professor

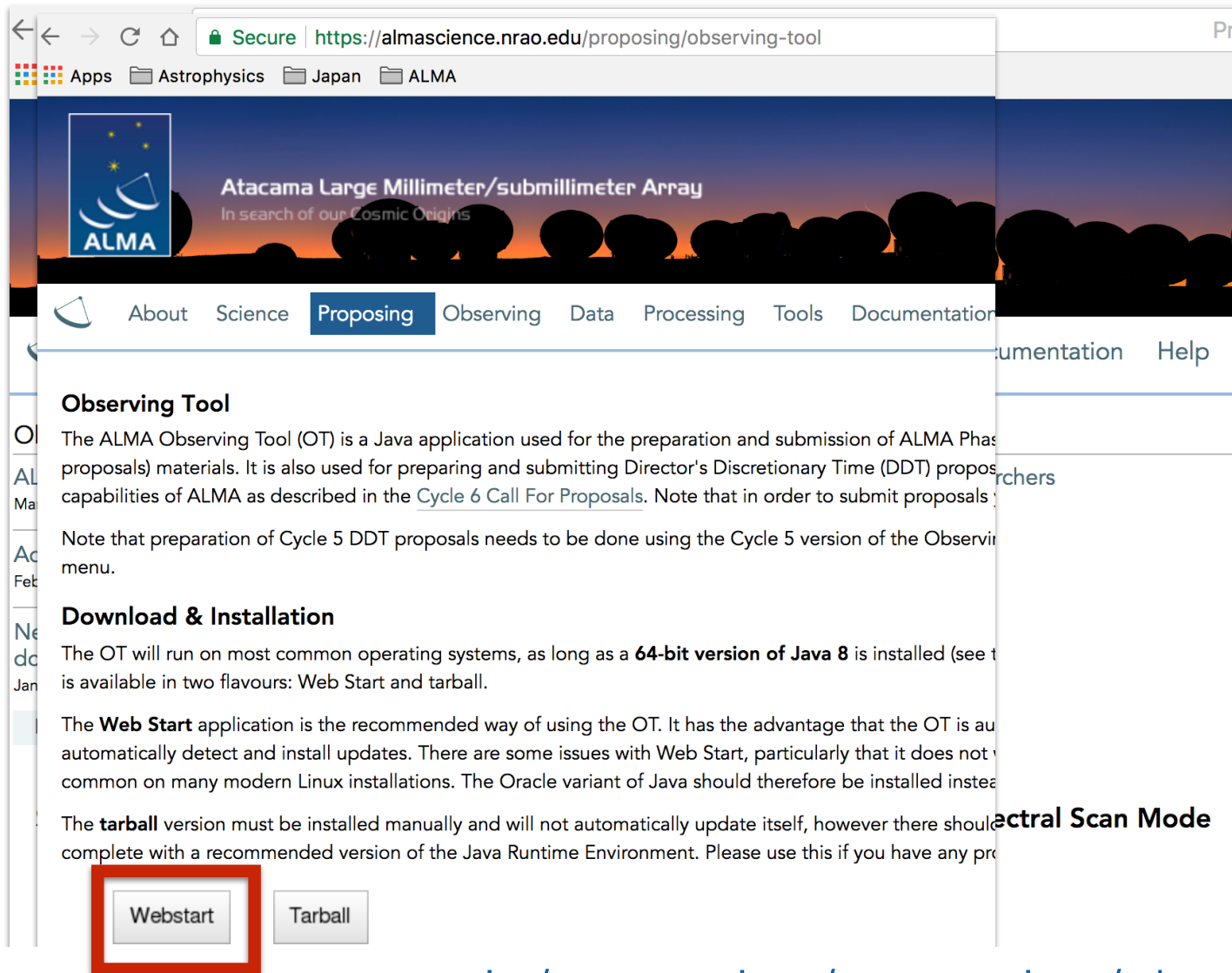
Download and start the OT



<https://almascience.nao.ac.jp/proposing/proposing/observing-tool>

Note that 64-bit version of Java 8 should be installed. Java 9 has recently been released, but this should not be used.

Download and start the OT



The screenshot shows a web browser window with the URL <https://almascience.nrao.edu/proposing/observing-tool>. The page features the ALMA logo and the text 'Atacama Large Millimeter/submillimeter Array In search of our Cosmic Origins'. The navigation menu includes 'About', 'Science', 'Proposing', 'Observing', 'Data', 'Processing', 'Tools', 'Documentation', and 'Help'. The main content area is titled 'Observing Tool' and contains the following text:

The ALMA Observing Tool (OT) is a Java application used for the preparation and submission of ALMA Phase 1 (ALMA Phase 1 proposals) materials. It is also used for preparing and submitting Director's Discretionary Time (DDT) proposals. Note that in order to submit proposals, you must be familiar with the capabilities of ALMA as described in the [Cycle 6 Call For Proposals](#). Note that in order to submit proposals, you must be familiar with the capabilities of ALMA as described in the [Cycle 6 Call For Proposals](#).

Note that preparation of Cycle 5 DDT proposals needs to be done using the Cycle 5 version of the Observing Tool menu.

Download & Installation

The OT will run on most common operating systems, as long as a **64-bit version of Java 8** is installed (see [ALMA Observing Tool](#) for more details). The OT is available in two flavours: Web Start and tarball.

The **Web Start** application is the recommended way of using the OT. It has the advantage that the OT is automatically installed and updates are automatically detected and installed. There are some issues with Web Start, particularly that it does not work on many modern Linux installations. The Oracle variant of Java should therefore be installed instead of the OpenJDK variant.

The **tarball** version must be installed manually and will not automatically update itself, however there should be a complete with a recommended version of the Java Runtime Environment. Please use this if you have any problems.

At the bottom of the page, there are two buttons: 'Webstart' and 'Tarball'. The 'Webstart' button is highlighted with a red rectangular box.

<https://almascience.nao.ac.jp/proposing/proposing/observing-tool>

Note that 64-bit version of Java 8 should be installed. Java 9 has recently been released, but this should not be used.

Download and start the OT

The image shows a browser window displaying the ALMA Observing Tool website. The URL is <https://almascience.nrao.edu/proposing/observing-tool>. The website header features the ALMA logo and the text "Atacama Large Millimeter/submillimeter Array In search of our Cosmic Origins". The navigation menu includes "About", "Science", "Proposing", "Observing", "Data", "Processing", "Tools", "Documentation", and "Help".

The main content area is titled "Observing Tool" and contains the following text:

The ALMA Observing Tool (OT) is a Java application used for preparing proposal materials. It is also used for preparing and submitting proposals. It is also used for preparing and submitting proposals. It is also used for preparing and submitting proposals.

Note that preparation of Cycle 5 DDT proposals needs to be prepared in the "DDT" menu.

Download & Installation

The OT will run on most common operating systems, as long as Java is available. It is available in two flavours: Web Start and tarball.

The **Web Start** application is the recommended way of using the OT. It will automatically detect and install updates. There are some issues with Java on many modern Linux installations. The Oracle website has more information.

The **tarball** version must be installed manually and will not automatically update. It must be complete with a recommended version of the Java Runtime Environment.

At the bottom of the page, there are two buttons: "Webstart" and "Tarball". The "Webstart" button is highlighted with a red box.

Overlaid on the bottom right of the browser window is a "Startup Options" dialog box. The dialog box has a title bar with "Startup Options" and three window control buttons (red, yellow, grey). The main text asks "What would you like to do?" and lists four options:

- Create a new proposal
- Create a new DDT proposal
- Open an existing project from disk
- Retrieve a project from the ALMA science archive

At the bottom of the dialog box, there is a checkbox labeled "Do not show this message again" which is currently unchecked, and an "OK" button.

<https://almascience.nao.ac.jp/proposing/proposing/observing-tool>

Note that 64-bit version of Java 8 should be installed. Java 9 has recently been released, but this should not be used.

Overview OT

The screenshot shows the Overview OT software interface with several key components highlighted by red and blue callouts:

- Menu:** Located at the top left, containing File, Edit, View, Tool, Search, and Help.
- Toolbar:** Located below the menu, containing various icons for file operations and editing.
- Project Structure Pane:** Located on the left side, showing a tree view of the project structure. It includes a callout for "Expand/collapse project tree" and "Navigate the project tree".
- Editor Pane:** Located in the top right, used for defining the setup. It includes a callout for "Define the Setup".
- Feedback Pane:** Located in the bottom right, used for validation feedback. It includes a callout for "Validation feedback".
- Overview Pane:** Located at the bottom, providing information only. It includes a callout for "Information only".

The interface also features a "Contextual Help" section with the following instructions:

- Please ensure you and your co-Is are registered with the [ALMA Science Portal](#)
- Create a new proposal by either:
 - Selecting *File > New Proposal*
 - Clicking on the icon in the toolbar
 - Or clicking on this [link](#)
- Click on the proposal tree node and complete the relevant fields.

The "Phase I: Science Proposal" workflow is shown as follows:

```
graph LR; A[New Science Proposal] --> B[Create Science Goals]; B --> C[Validate Science Proposal]; C --> D[Submit Science Proposal];
```

Additional options include: Importing And Exporting, Template Library, Need More Help?, and View Phase 2 Steps.

Getting started

In Proposal node:

Proposal title, abstract, proposal type (Regular, ToO, VLBI or large program), scientific category, keywords, related and previous proposals, co-Is, science case, justification if duplicate observations

The screenshot displays the ALMA proposal submission interface. The main window is titled 'Proposal' and shows various fields for proposal details. A callout box with the text 'Search the database for investigator details' points to a dialog box titled 'Investigator search constraints'. This dialog box contains a search field with a dropdown menu set to 'Name' and the text 'contains Suzanna Randall'. Below the search field is a 'Find Investigators' button. The dialog box also displays a table with the following columns: Full name, Email, Affiliation, and ALMA ID.

Proposal Type

Regular Target Of Opportunity
 VLBI Large Program

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

Keywords (max. 2 keywords)

Starbursts, star formation
Active Galactic Nuclei (AGN)/Quasars (QSO)
Spiral galaxies
Merging and interacting galaxies
Surveys of galaxies

Student project

Related Proposals

Previous Proposals

2016.1.09999.S, Cycle 4 Quickstart Guide,

Investigators

Type	Full name	Email
PI	Not set	Not set

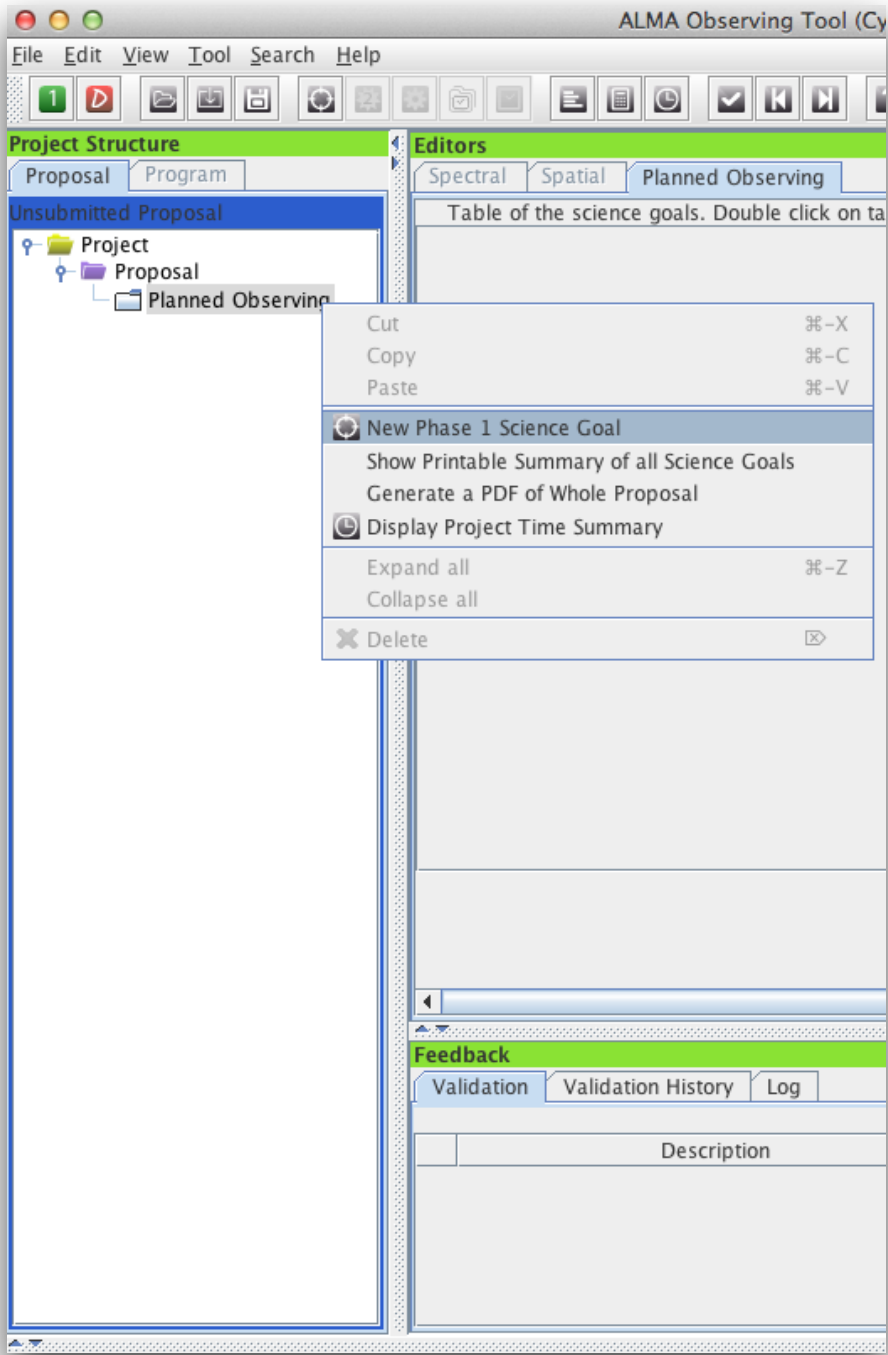
Investigator search constraints

Name contains Suzanna Randall

Find Investigators

Full name	Email	Affiliation	ALMA ID
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Create Science Goal



Each Science Goal may contain:

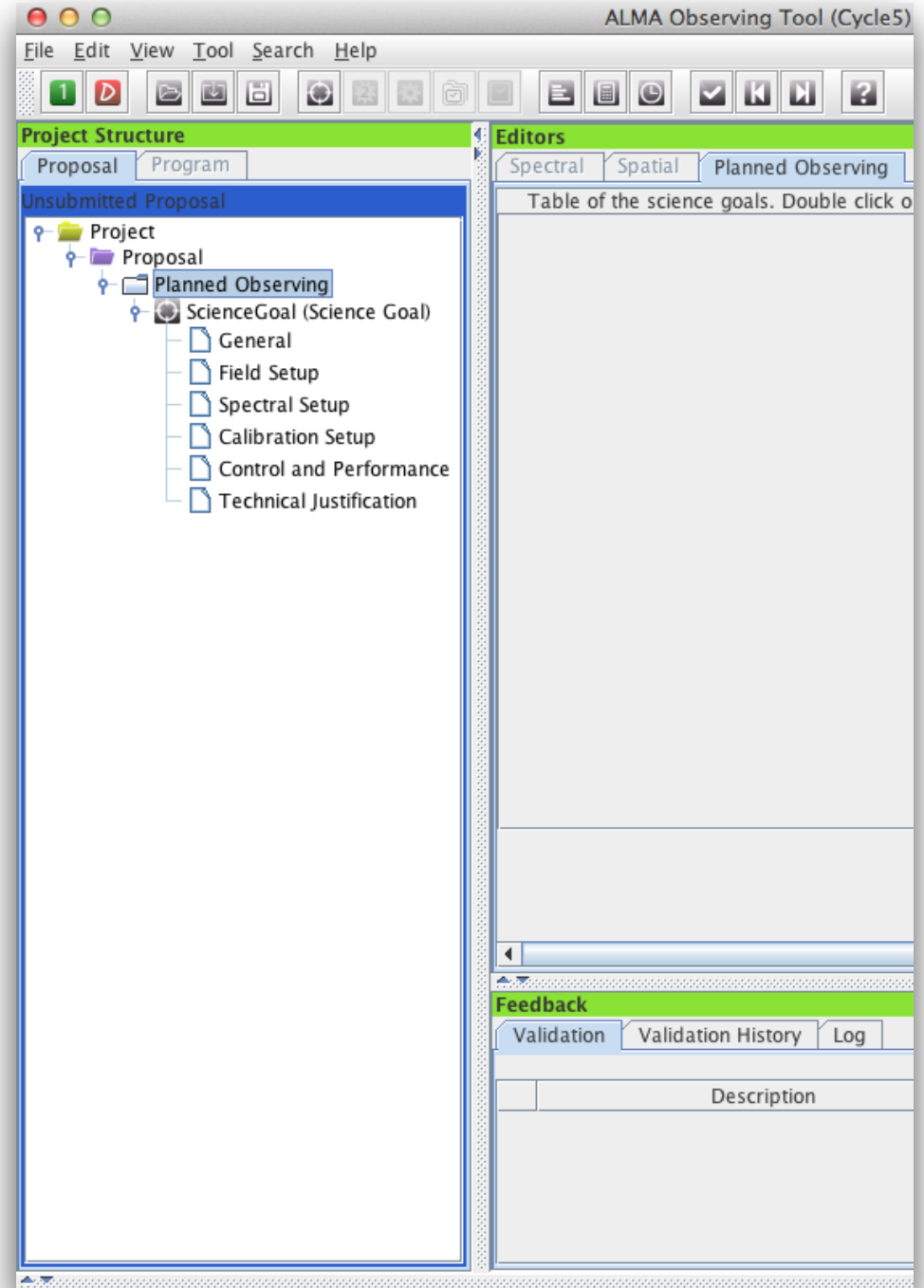
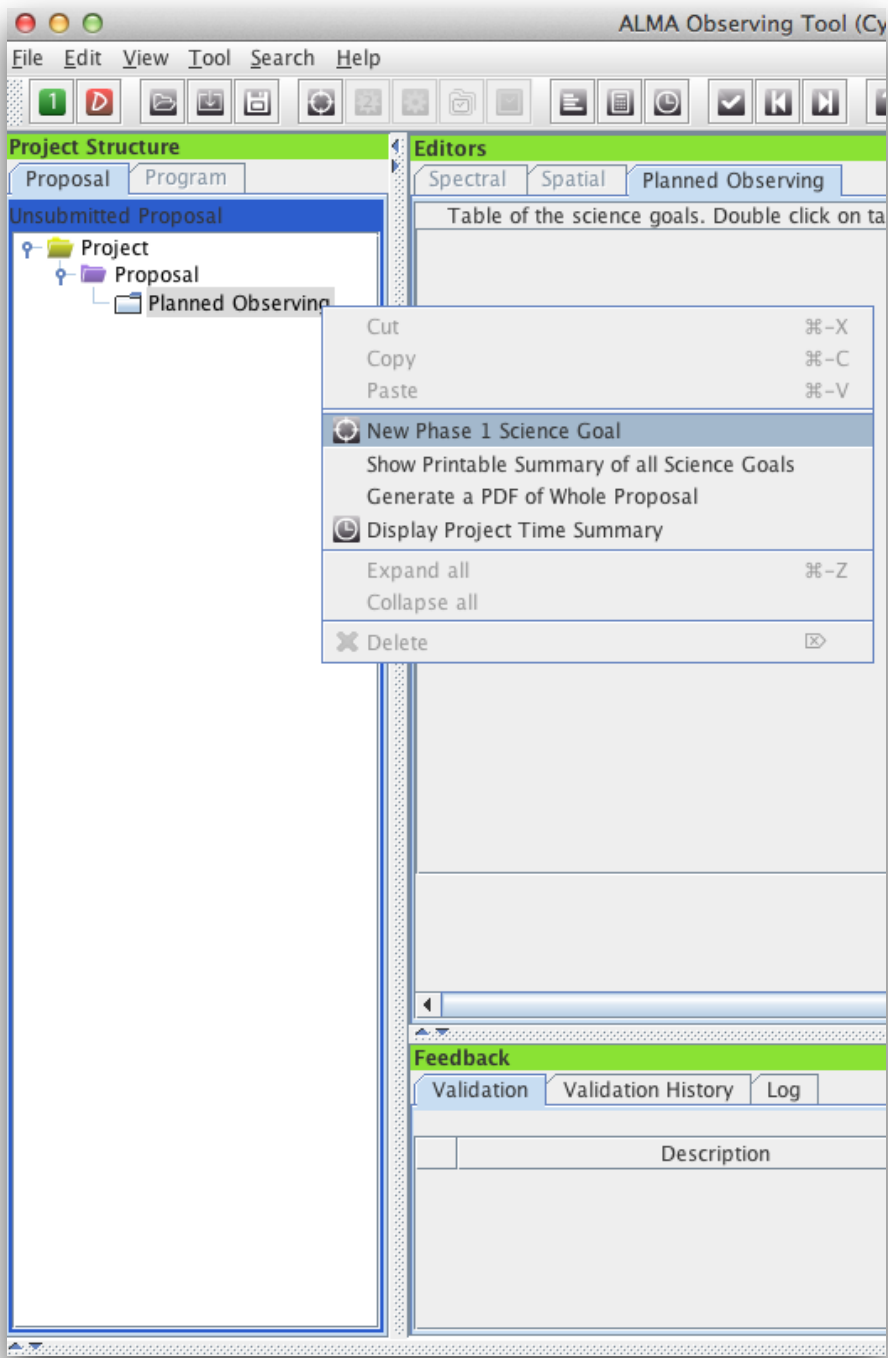
1) one or more sources of the same target type (individual pointing(s) or 1 rectangular field),

2) one spectral setup (up to five frequency tunings),

3) one calibration strategy, and

4) one set of control and performance parameters

Create Science Goal



Field Setup

The screenshot shows a software interface with a 'Field Setup' window. The 'Field Setup' window has a 'Resolve' button in the top right corner. A blue callout box points to this button with the text 'Resolve source properties from SIMBAD'. Below the 'Field Setup' window, a 'Name Resolver Results' dialog is open, showing a table of search results for 'Helix nebula'. A red callout box points to the 'Expected Source Properties' section of the 'Field Setup' window, which includes fields for 'Peak Continuum Flux Density per Synthesized Beam', 'Continuum Polarization Percentage', 'Peak Line Flux Density per Synthesized Beam', 'Line Width', and 'Line Polarization Percentage'. A red callout box also points to the 'Clone Source' button at the bottom of the 'Field Setup' window with the text 'Clone the current source'. The 'Field Setup' window also shows 'Source Name' as 'Helix nebula', 'System' as 'ICRS', and 'Target Type' as 'Individual Pointing(s)'. The 'Name Resolver Results' dialog shows the following table:

Name / Alias	Position		Proper Motion		Velocity
	RA	Dec	RA	Dec	
NGC 7293	22:29:38.5410	-20:50:13.640	32 mas/yr	-5 mas/yr	-15000 m/s

Maximum of 150 pointings per SG

Spectral Setup

The screenshot shows the ALMA Spectral Setup software interface. The interface includes a menu bar (File, Edit, View, Tool, Search, Help), a Project Structure tree on the left, a main plot area showing Observed Frequency and Rest Frequency, and a control panel at the bottom. Red callout boxes highlight the following components:

- ALMA band**: Points to the '9' band selection in the Receiver Band dropdown.
- LO1**: Points to the LO1 frequency marker on the plot.
- Sidebands**: Points to the yellow shaded regions on the plot.
- Atmospheric transmission curve**: Points to the blue shaded regions on the plot.
- Spectral windows**: Points to the 'Spectral Line' and 'Single Continuum' options in the Spectral Type section.
- Spectral window mirrors (B9&10)**: Points to the 'Produce image sidebands (Bands 9 and 10 only)' checkbox.
- Standard continuum setups**: Points to the 'DUAL' polarization product option.
- Spectral window table**: Points to the table at the bottom of the interface.

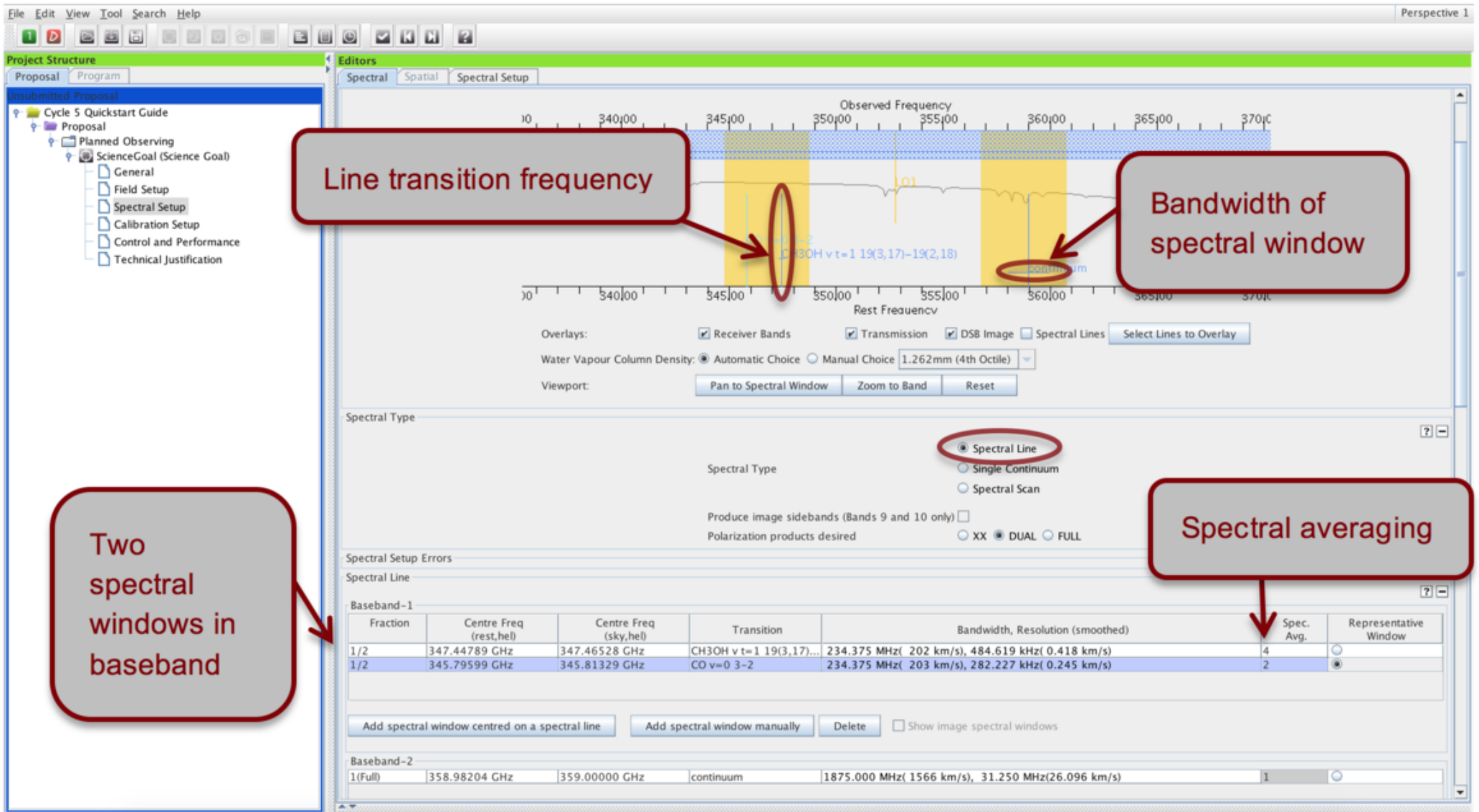
The main plot area shows Observed Frequency (GHz) on the top axis and Rest Frequency (GHz) on the bottom axis. The plot displays a spectral line with a continuum level, overlaid with atmospheric transmission curves and receiver bands. The Receiver Band is set to 9 [602.0–720.0 GHz]. The Sky Frequency is 679.00000 GHz, and the Rest Frequency is 678.966027 GHz.

The control panel includes options for Spectral Type (Spectral Line, Single Continuum, Spectral Scan), Produce image sidebands (Bands 9 and 10 only), and Polarization products desired (XX, DUAL, FULL). The DUAL option is selected.

The Spectral Setup Errors section shows 'Single Continuum'.

The Spectral window table at the bottom is as follows:

Fraction	Centre Freq (rest,topo)	Centre Freq (sky,topo)	Transition	Bandwidth, Resolution (smoothed)
1(Full)	675.96618 GHz	676.00000 GHz	Single Continuum	1875.000 MHz(832 km/s), 31.250 MHz(13.859 km/s)



Multi-region mode: Can have 4 spws in each of the 4 basebands, yielding a maximum of 16 spws in a single spectral setup. Within a baseband all spws must have the same spectral resolution (before spectral averaging)

Spectral averaging factor: default is 2 to lower data rates (degrades spectral resolution only by 15 %, but halves data rate). Can be modified in 'Spec Avg.'

Spectral Line Selector Tool

File Edit View Create spectral windows centred on spectral lines Perspective 1

Transition Filter
 CO+
 e.g. CO²⁻¹ 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
 Hide unobservable lines
 Filtering unobservable lines

Maximum Upper-state Energy (K)
 0 20 40 60 80 100 ∞

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.
 Find More...
 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 μ^2	Catalog
CO v=2 1-0	Carbon Monoxide	113.172380 GHz	113.178043 GHz	6134.675 K		0.012 D ²	Offline
CO v=1 1-0	Carbon Monoxide	114.221757 GHz	114.227472 GHz	3089.154 K		0.012 D ²	Offline
CO v=0 1-0	Carbon Monoxide	115.271202 GHz	115.276970 GHz	5.532 K	60	0.012 D ²	Offline
CO v=2 2-1	Carbon Monoxide	226.340357 GHz	226.351682 GHz	6145.538 K		0.024 D ²	Offline
CO v=1 2-1	Carbon Monoxide	228.439110 GHz	228.450540 GHz	3100.118 K	0.62	0.024 D ²	Offline
CO v=0 2-1	Carbon Monoxide	230.538000 GHz	230.549535 GHz	16.596 K	70	0.024 D ²	Offline
CO+ J=2-1, F=3/2-1/2	Carbon Monoxide Ion	235.789605 GHz	235.801403 GHz			0.10668 D ²	Offline
CO+ J=2-1, F=5/2-3/2	Carbon Monoxide Ion	236.062574 GHz	236.074386 GHz			0.112 D ²	Offline
CO v=2 3-2	Carbon Monoxide	339.499527 GHz	339.516514 GHz	6161.831 K		0.036 D ²	Offline
CO v=1 3-2	Carbon Monoxide	342.647656 GHz	342.664801 GHz	3116.561 K	0.71	0.036 D ²	Offline
CO v=0 3-2	Carbon Monoxide	345.795990 GHz	345.813292 GHz	33.192 K	70	0.036 D ²	Offline
CO+ J=3-2, F=5/2-3/2	Carbon Monoxide Ion	353.741285 GHz	353.758985 GHz			0.112 D ²	Offline
CO+ J=3-2, F=7/2-5/2	Carbon Monoxide Ion	354.014254 GHz	354.031967 GHz			0.181713 D ²	Offline
CO v=2 4-3	Carbon Monoxide	452.645486 GHz	452.668135 GHz	6183.555 K		0.048 D ²	Offline
CO v=1 4-3	Carbon Monoxide	456.842991 GHz	456.865850 GHz	3138.486 K		0.048 D ²	Offline
CO v=0 4-3	Carbon Monoxide	461.040768 GHz	461.063837 GHz	55.317 K	60	0.048 D ²	Offline
CO v=2 6-5	Carbon Monoxide	678.880163 GHz	678.914131 GHz	6243.288 K		0.073 D ²	Offline
CO v=1 6-5	Carbon Monoxide	685.176415 GHz	685.210698 GHz	3198.774 K		0.073 D ²	Offline
CO v=0 6-5	Carbon Monoxide	691.473076 GHz	691.507674 GHz	116.159 K	100	0.073 D ²	Offline
CO v=2 7-6	Carbon Monoxide	791.960077 GHz	791.999703 GHz	6281.296 K		0.085 D ²	Offline
CO v=1 7-6	Carbon Monoxide	799.305700 GHz	799.345694 GHz	3237.134 K		0.085 D ²	Offline
CO v=0 7-6	Carbon Monoxide	806.651801 GHz	806.692163 GHz	154.872 K	110	0.085 D ²	Offline
CO v=2 8-7	Carbon Monoxide	905.009173 GHz	905.054456 GHz	6324.729 K		0.097 D ²	Offline
CO v=1 8-7	Carbon Monoxide	913.404166 GHz	913.449869 GHz	3280.971 K		0.097 D ²	Offline
CO v=0 8-7	Carbon Monoxide	921.799704 GHz	921.845827 GHz	199.111 K		0.097 D ²	Offline

Add to spectral window list

Spectral windows in this baseband (maximum of four)

Transition	Description	Rest Frequency	Sky Frequency
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Remove spectral window(s)

Cancel Ok

Walsh Switching - Bands 9/10

The screenshot shows a software interface for configuring spectral windows. The main plot displays Observed Frequency (900,000 to 940,000) and Rest Frequency (900,000 to 940,000). Two spectral lines are highlighted: CO v=0 8-7 at approximately 910,000 and Si180 v=0 23-22 at approximately 928,000. The interface includes a 'Spectral Setup' panel with options for 'Produce image sidebands (Bands 9 and 10 only)' (checked) and 'Polarization products desired' (DUAL selected). A table at the bottom lists spectral lines for Baseband-1 and Baseband-2. Annotations in red boxes point to specific settings: 'Mirror image NOT stored for this spectral window' points to the 'Store Image' checkbox for the CO line; 'Walsh switching activated' points to the 'Produce image sidebands' checkbox; 'Mirror image stored for this spectral window' points to the 'Store Image' checkbox for the Si180 line; and 'Image window shown in table' points to the 'Show image spectral windows' checkbox.

Fraction	Centre Freq (rest, hel)	Centre Freq (sky, hel)	Transition	Bandwidth, Resolution (smoothed)	Spec. Avg.	Store Image	Representative Window
1(Full)	910.61135 GHz	910.65692 GHz	CO v=0 8-7	1875.000 MHz(617 km/s), 1.129 MHz(0.372 km/s)	2	<input type="checkbox"/>	<input checked="" type="radio"/>
1(Full)	926.86054 GHz	926.90692 GHz	Si180 v=0 23-22	1875.000 MHz(606 km/s), 1.129 MHz(0.365 km/s)	2	<input checked="" type="checkbox"/>	<input type="radio"/>

- For Spectral Line observations, not turned on by default. It can be activated with the 'Produce image sidebands' option. Available when all spws in the setup use 1.875 GHz bw
- Storing (and delivery to the PI) of the "mirror" spw data can be switched on or off for each spw individually ('Store Image')

Spectral scan

The image shows a software interface for configuring a spectral scan. The interface is divided into several sections:

- Editors:** Contains tabs for Spectral, Spatial, and Spectral Setup. The Spectral Setup tab is active, showing a plot of Rest Frequency (GHz) on the x-axis (ranging from 175,000 to 220,000) and various spectral windows for different tunings (Receiver Bands, Transmission, DSB Image, Spectral Lines) overlaid on the plot.
- Overlays:** A list of checkboxes for Receiver Bands, Transmission, DSB Image, Spectral Lines, Requested Scan, Tuning 1, Tuning 2, Tuning 3, and Tuning 4. A "Select Lines to Overlay" button is also present.
- Water Vapour Column Density:** A dropdown menu set to "Automatic Choice" with a value of "1.796mm (5th Octile)".
- Viewport:** Buttons for "Pan to Spectral Window", "Zoom to Band", and "Reset".
- Spectral Type:** Radio buttons for Spectral Line, Single Continuum, and Spectral Scan (selected).
- Spectral Setup Errors:** A section for Spectral Scan parameters.

Annotations in red boxes highlight specific features:

- Spectral windows for the different tunings:** Points to the plot area showing various colored bars representing different tuning windows.
- Range and resolution of spectral scan:** Points to the "Requested start frequency (sky)" (190.0 GHz), "Requested end frequency (sky)" (210.0 GHz), and "Bandwidth, Resolution (Hanning smoothed)" (1875.000 MHz (2811 km/s), 31.250 MHz(46.843 km/s)) fields.
- Representative Frequency:** Points to the "Representative frequency (sky)" field (197.99200 GHz).

Additional parameters visible in the Spectral Setup Errors section include:

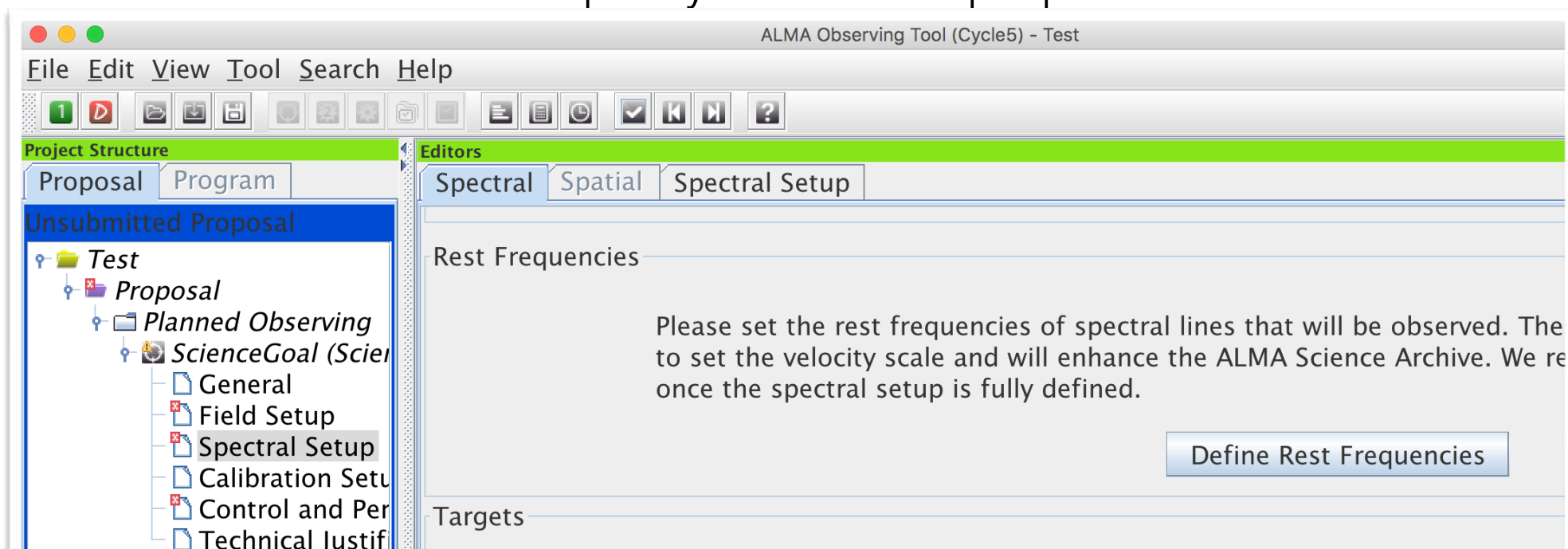
- Requested range (rest): 189.993 GHz - 209.9895 GHz
- Achieved scan range (sky): 185.093125 GHz - 210.89 GHz
- Spectral averaging: 1

Other spectral setup considerations

- **Define rest frequencies.** Enter the rest frequencies of any spectral lines observed with your spectral setup in the 'Rest Frequencies' section below the spectral line tables. These will be stored and used for data reduction and quality assurance purposes.
- The **spectral scan** may in certain cases (relatively long on-source times and many frequency tunings) yield a very inefficient observing strategy. It may be more efficient to set up such spectral scans using separate Science Goals for each frequency tuning.
- Choice of **representative frequency** can severely impact the time estimate, especially in Band 5 and the higher frequency bands 7, 8, 9 and 10. If it falls in a region of poor atmospheric transmission the time estimate will sky-rocket. It is important that the representative frequency is set to the line of interest that falls into the region of the poorest atmospheric transmission, otherwise the requested sensitivity will not be reached for this line.

Other spectral setup considerations

- **Define rest frequencies.** Enter the rest frequencies of any spectral lines observed with your spectral setup in the 'Rest Frequencies' section below the spectral line tables. These will be stored and used for data reduction and quality assurance purposes.



frequency is set to the line of interest that falls into the region of the poorest atmospheric transmission, otherwise the requested sensitivity will not be reached for this line.

Individual pointings (overlapping)

The screenshot displays a software interface for astronomical observation planning. The main window shows a spatial image of a nebula with several overlaid pointings. A red circle indicates the primary beam, and a green circle indicates the imaged area. The interface includes a 'Project Structure' panel on the left, a 'Spatial Image' panel in the center, and a 'Source' configuration panel on the right. The 'Source' panel shows details for 'Helix nebula' and 'Copy of Helix nebula', including source coordinates, radial velocity, and target type. The 'Target Type' is set to 'Individual Pointing(s)'. The 'Expected Source Properties' section includes parameters like Peak Continuum Flux Density per Synthesized Beam, Continuum Polarization Percentage, Peak Line Flux Density per Synthesized Beam, Line Width, and Line Polarization Percentage. The 'Field Center Coordinates' section includes a table of coordinates and buttons for 'Add', 'Delete', 'Import', and 'Export'. The 'Image Query' section includes fields for 'Image Server' and 'Image Size(arcmin)'. The 'Project Structure' panel shows a tree view of the project, with 'Field Setup' highlighted. The 'Source' panel has a 'Source tab' and a 'Cloned source' label. The 'Add single pointing' label points to the 'Add' button. The 'Open image from .fits file' label points to the 'Image File' field. The 'Pointings: primary beam (red) and imaged area (green)' label points to the overlaid circles. The 'Query image server' label points to the 'Query' button. The 'Add, edit & delete offset pointings' label points to the 'Add', 'Delete', and 'Export' buttons.

Add single pointing

Source tab

Cloned source

Open image from .fits file

Pointings: primary beam (red) and imaged area (green)

Query image server

Add, edit & delete offset pointings

- Response is not uniform across field of view (primary HPBW, Red). Green = 1/3 HPBW
- Non-overlapping offset pointings are no longer allowed within one field source. Instead, all pointings within one field source must overlap and will be processed as one image

Mosaic

The screenshot displays the spatial editor interface for the M100 source. The central 'Spatial Image' panel shows a mosaic of red pointing positions overlaid on a grayscale image of the galaxy. A red callout box labeled 'Show pointing positions' points to a button in the toolbar above the image. To the left, a 'Project Structure' pane shows a tree view with 'Field Setup' selected. Below the image, a 'FOV Parameters' panel includes a 'Toggle to display 7-m pointings' callout pointing to the '7m' radio button. On the right, the 'M100 Source' configuration panel shows 'Target Type' set to '1 Rectangular Field' (circled in red). Below this, the 'Rectangle' panel shows 'Coords Type' set to 'Relative' and 'System' set to 'ICRS'. A blue callout box labeled 'Define rectangular field parameters' points to the 'p length' and 'q length' input fields. The 'p length' is 199.23965 arcsec and the 'q length' is 158.87674 arcsec. The 'Image Query' panel at the bottom shows 'Image Size(arcmin)' set to 10.0.

By default, the spatial editor shows only the rectangular area defined for the mosaic. To see the individual pointings set up by the OT, you need to press the Show pointing positions button in the toolbar above the spatial editor.

Calibration setup

- Should normally use the default **system defined calibration** option in Calibration Setup editor.
- In Cycle 5 there is an extra option for the system-defined calibration strategy: force separate amplitude calibration using solar system object.
- If need special calibration then set **user-defined calibration**.

The screenshot shows the ALMA configuration software interface. The main window is titled 'Editors' and has tabs for 'Spectral', 'Spatial', and 'Control and Performance'. The 'Control and Performance' tab is active, showing various configuration parameters for antennas and baselines. A red circle highlights the 'Any' radio button under 'Desired Angular Resolution (Synthesized Beam)'. A red arrow points from a callout box to this button. Another red arrow points from a second callout box to the 'Possible Configuration Combinations' table in the 'Time Estimate' dialog box.

Control and Performance Parameters:

- Antenna Beamsize ($1.13 \cdot \lambda / D$): 12m 64.486 arcsec, 7m 110.548 arcsec
- Number of Antennas: 12m 43, 7m 10, TP 3
- Longest baseline: 0.049 km, 0.161 km, 2.517 km
- Synthesized beamsize: 15.373 arcsec, 4.240 arcsec, 0.368 arcsec
- Shortest baseline: 0.009 km, 0.015 km, 0.015 km
- Maximum recoverable scale: 79.286 arcsec, 35.422 arcsec, 4.968 arcsec

Desired Performance:

- Desired Angular Resolution (Synthesized Beam): Single Range Any Standalone ACA
- Desired mosaic sensitivity: 10.00000 mJy equivalent to 83.396 mK and 11.093 K
- Bandwidth used for Sensitivity: RepresentativeWindowResolution, Frequency Width 1.128906 MHz
- Science goal integration time estimate: Time Estimate
- Override OT's sensitivity-based time estimate (must be justified): Yes No
- Are the observations time-constrained?: Yes No

Time Estimate Dialog:

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: 1.129 MHz
- Representative frequency (sky, first source): 90.30 GHz

Estimated Total time for Science Goal: 1.05 h

Possible Configuration Combinations:

	12-m (1)	12-m (2)	7-m	TP
C43-1	None	No	No	No
C43-2	None	No	No	No
C43-3	None	No	No	No
C43-4	None	No	No	No
C43-5	None	No	No	No
C43-6	None	No	No	No

Input Parameters:

- Precipitable water vapour (all sources): 5.186mm (7th Octile)

Time required for 12m (1) [C43-1]:

- Time on source per pointing (first source): 18.1 s [13.38 s]
- Total number of pointings (all sources): 39
- Number of tunings: 1

Estimated total time for cluster 1: 31.60 min

- Check scheduling feasibility using the assigned configuration
- Check you used the right bandwidth for sensitivity

Technical Justification

The screenshot shows a software interface with a 'Project Structure' tree on the left and an 'Editors' window on the right. The 'Editors' window is divided into sections: Sensitivity, Imaging, and Correlator configuration. Each section contains input fields for parameters and text boxes for justification. Red callout boxes with arrows point to specific parts of the interface:

- Parameters related to sensitivity:** Points to the 'Sensitivity' section, which includes fields for 'Requested RMS over 3.748 km/s is 10.00 mJy', 'Achieved RMS over the total 1.875 GHz bandwidth is 204.63 uJy, 1.92 mK-3.41 mK', and 'Line width / bandwidth used for sensitivity (20.00 km/s / 3.75 km/s) = 5.34'. It also includes an informative message: 'Note that one or more of the S/N estimates are < 3. Please double-check the RMS and/or line fluxes entered and/or address the issue below.'
- Parameters related to imaging:** Points to the 'Imaging' section, which includes fields for 'Requested angular resolution 4.00 arcsec - 3.00 arcsec' and 'Requested Largest Angular Scale 50.00 arcsec'. It also includes a text box for justification: 'Justify the chosen angular resolution and largest angular scale for the source(s) in this Science Goal. The structures in the source are on the -10" scale, therefore 3-4" resolution is sufficient to fully resolve them.'
- Parameters related to correlator setup:** Points to the 'Correlator configuration' section, which includes a field for 'line width / representative spectral window resolution: 20.00 km/s / 3.75 km/s = 5.34'.
- Free-format text boxes to be filled:** Points to the text boxes in the 'Sensitivity' and 'Imaging' sections.
- Informative message on parameters selected:** Points to the note about S/N estimates in the 'Sensitivity' section.

Validation

Validate

The parts of the proposal tree containing errors are marked by red crosses

Validation errors, warnings and suggested remedies are displayed here. Double-click to go to the problem.

Description	Suggestion
No Principal Investigator specified	Select the top level Project node in the tree and fill in the Principal Investigator field
Abstract appears to be empty	Select the proposal node in the Proposal tab and edit your abstract
No document found - you must add a Science Case to your proposal	Select the proposal node in the Proposal tab and add your document
The justification of time constraints must be at least 50 characters long	Select the Science Goal's Technical Justification node in the Proposal tab and edit the text

Validation

Validate

Project Structure

- Proposal
- Program
- Cycle 5 Quickstart Guide
- proposal
- Planned Observing
- ScienceGoal (Science Goal)
 - General
 - Field Setup
 - Spectral Setup
 - Calibration Setup
 - Control and Performance
 - Technical Justification

Editors

Spectral Spatial Proposal

Proposal Information

Proposal Title: Cycle 5 Quickstart Guide

Proposal Cycle: 2017.1

Abstract (max. 1200 characters)

Proposal Type: Regular Target Of Opportunity VLBI Large Program

Scientific Category: Cosmology and the High Redshift Universe Galaxies and Galactic Nuclei ISM, star formation and astrochemistry

Starbursts, star formation

Active Galactic Nuclei (AGN)/Quasars (QSO)

Spiral galaxies

Merging and interacting galaxies

Surveys of galaxies

Validation History | Log

Warnings	Description	Suggestion
⚠	No Principal Investigator specified	Select the top level Project node in the tree and fill in the Principal Investigator field
⚠	Abstract appears to be empty	Select the proposal node in the Proposal tab and edit your abstract
⚠	No document found - you must add a Science Case to your proposal	Select the proposal node in the Proposal tab and add your document
⚠	The justification of time constraints must be at least 50 characters long	Select the Science Goal's Technical Justification node in the Proposal tab and edit the text

Feedback

Validation | Validation History | Log

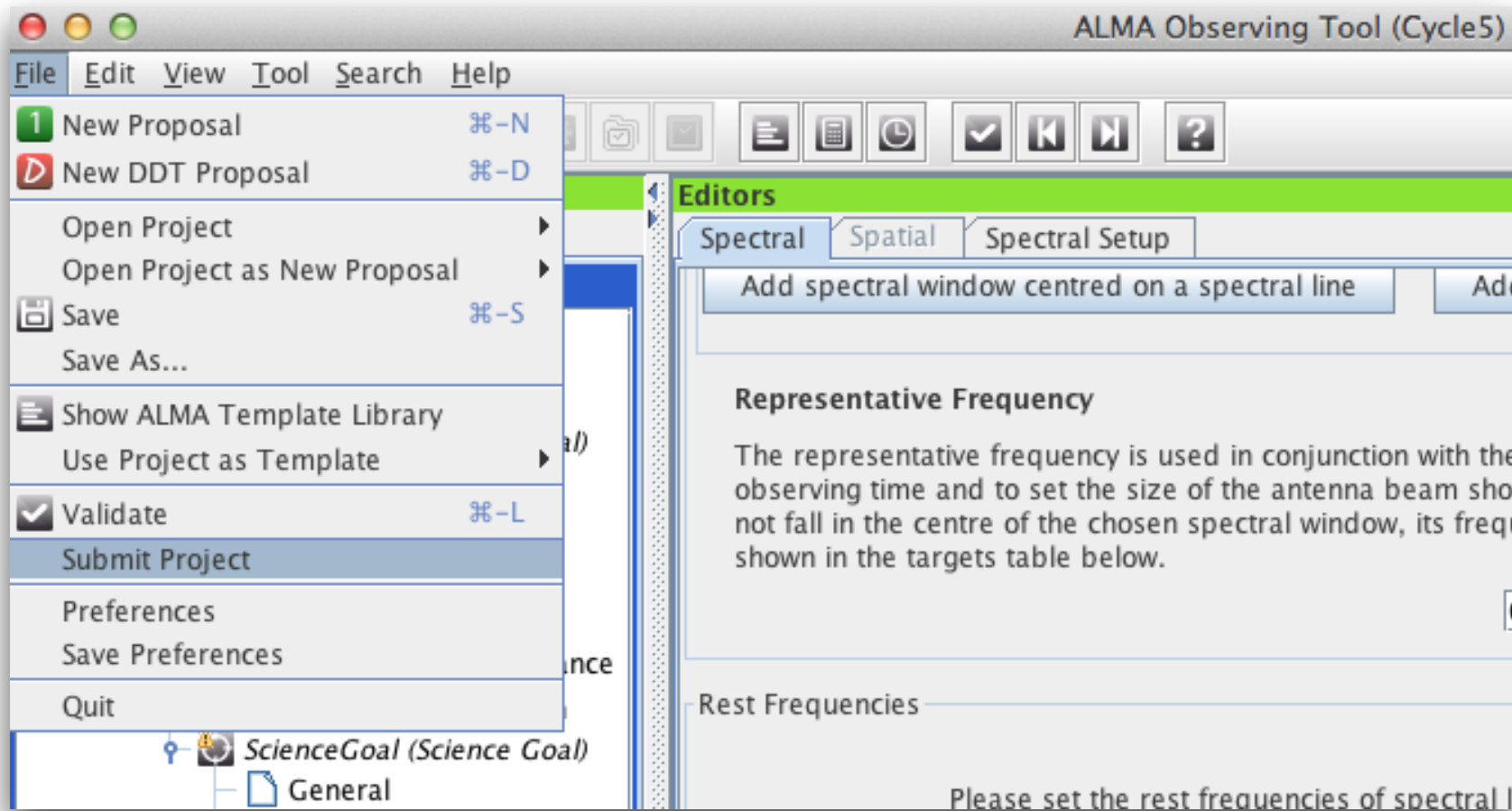
0 errors, 0 warnings

	Description	Suggestion
✓	No problems found	

The parts of the proposal tree containing errors are marked by red crosses

Validation errors, warnings and suggested remedies are displayed here. Double-click to go to the problem.

Submit!



- Can submit as many times as you like before the deadline