



# The New Web-based Observing Tool (OT)

Sheng-Jun Lin (ASIAA)

Partial Material from the ALMA OT Working Group

# Steps to Prepare Your Proposal

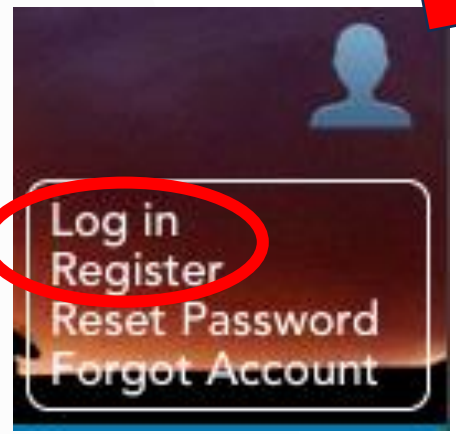
1. Project Feasibility
   - Cycle 13 Proposer's Guide (PG) – observational capability
   - ALMA Archive – duplication check

2. Proposal drafting and submission
   - Your ALMA user account and user profile – distributed peer-review
   - Observing Tool (OT) – differences between the new and old OTs
   - Knowledgebase & Helpdesk

# ALMA user account and profile

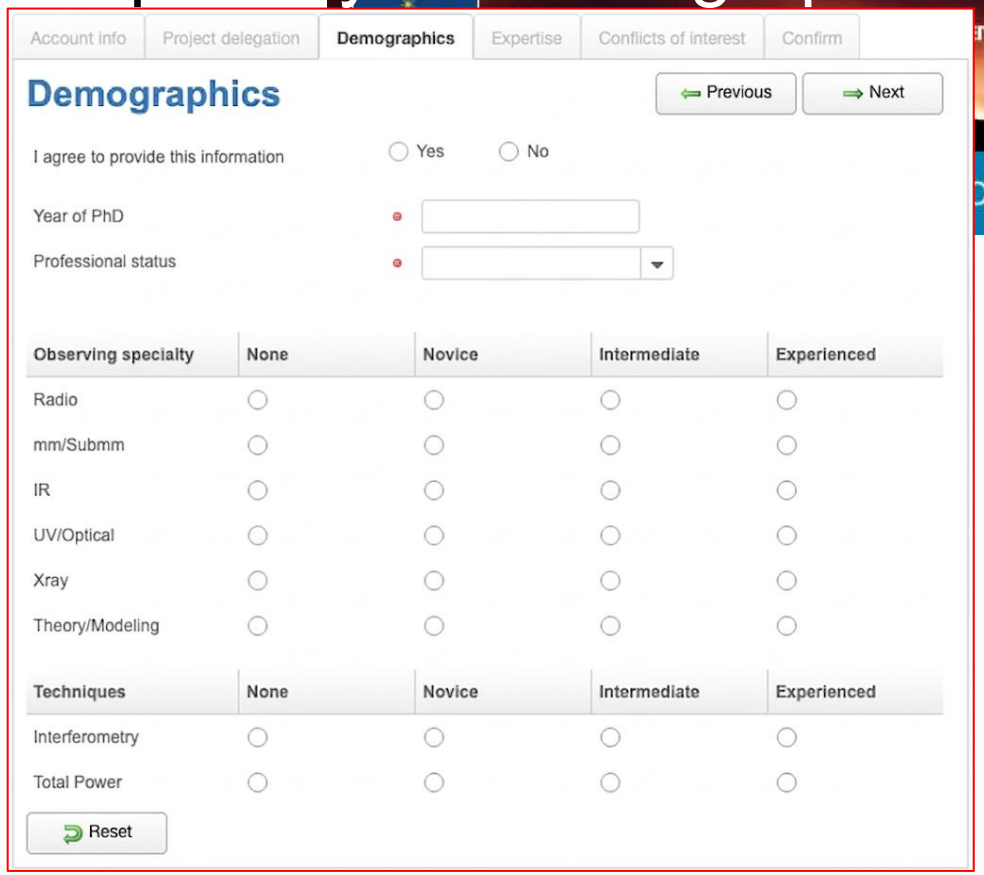
- ALMA Science Portal (ALMA SP): https://almascience.org

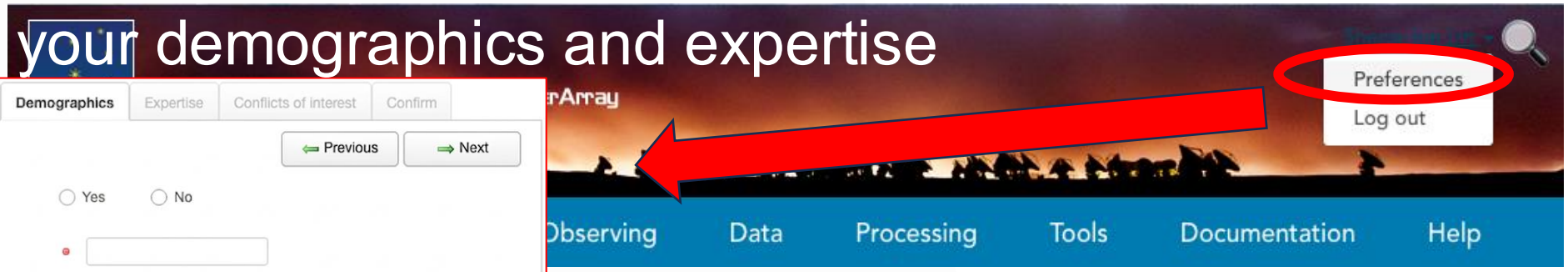

Log in or register your ALMA user account

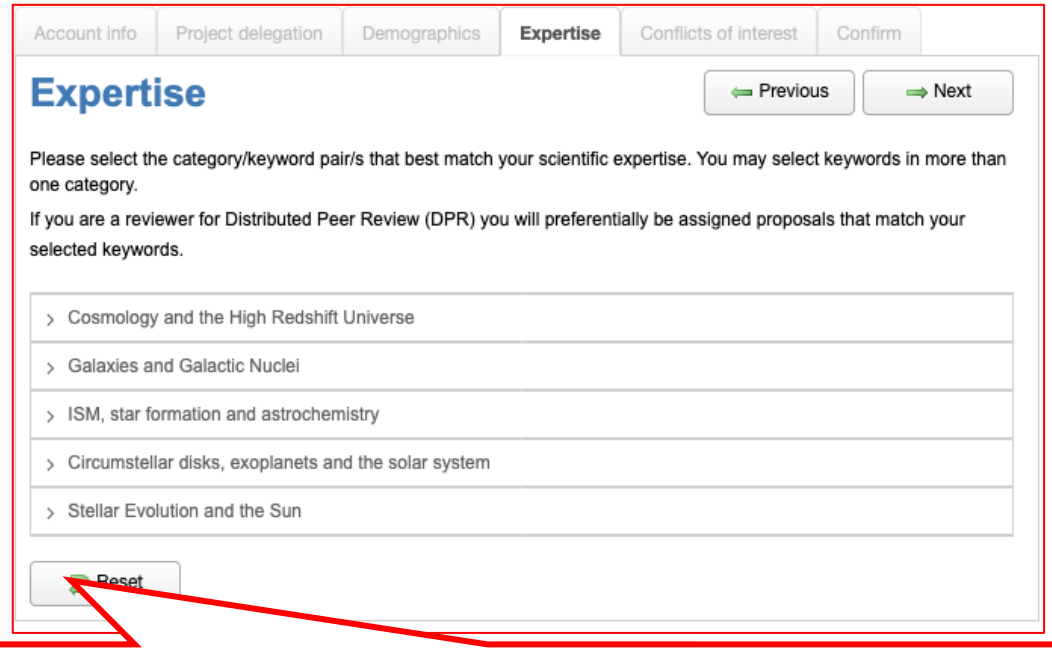


# ALMA user account and profile

- Update your demographics and expertise



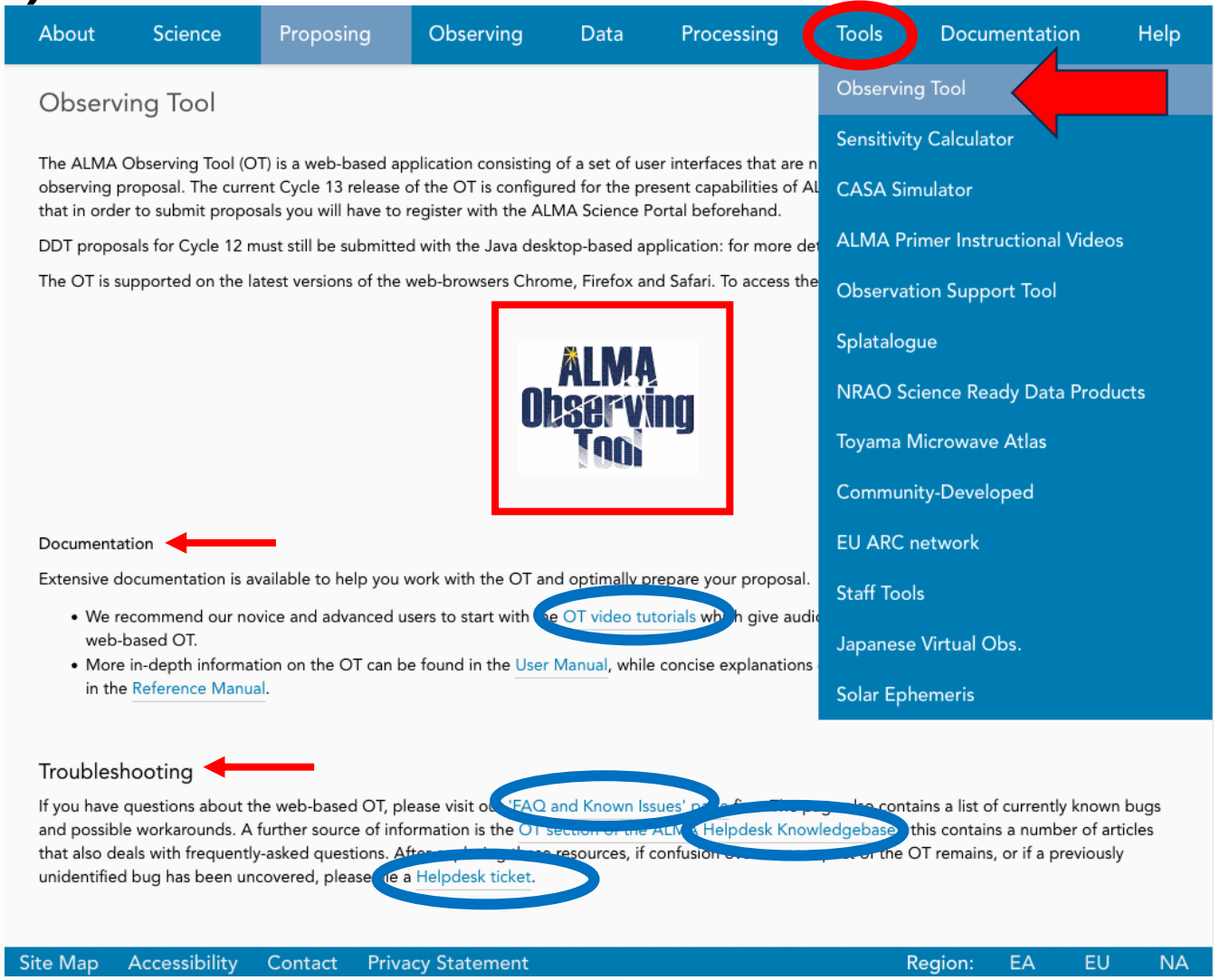

Important for your distributed peer review assignments!

# Observing Tool (OT)

https://almascience.org/proposing/observing-tool

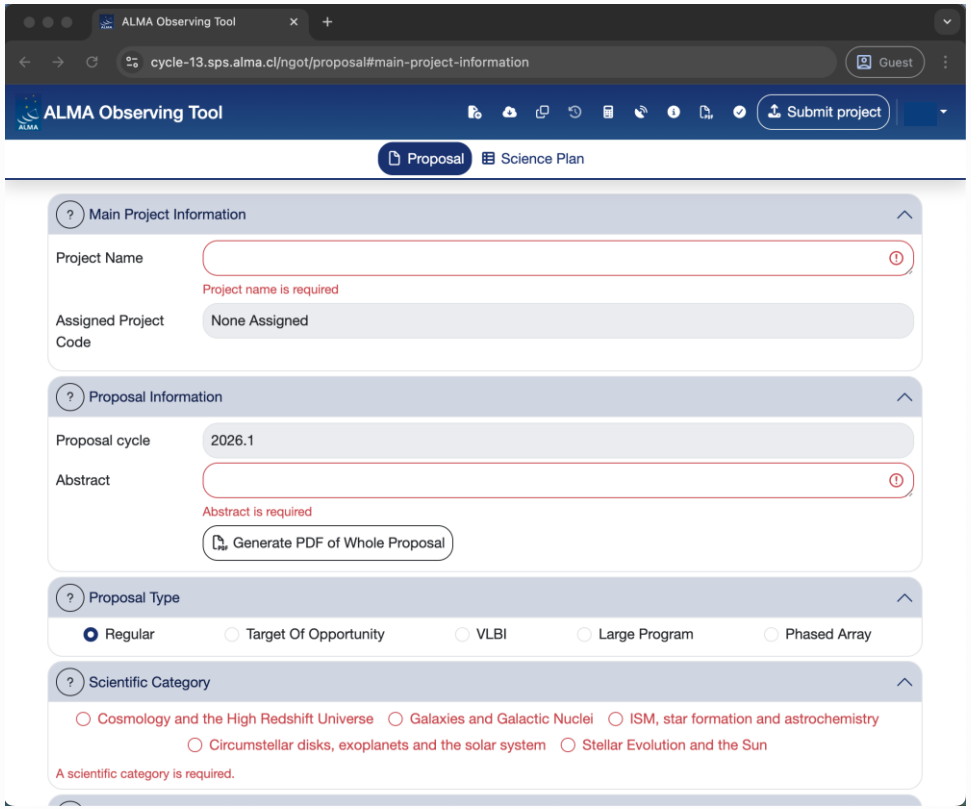
- Click 

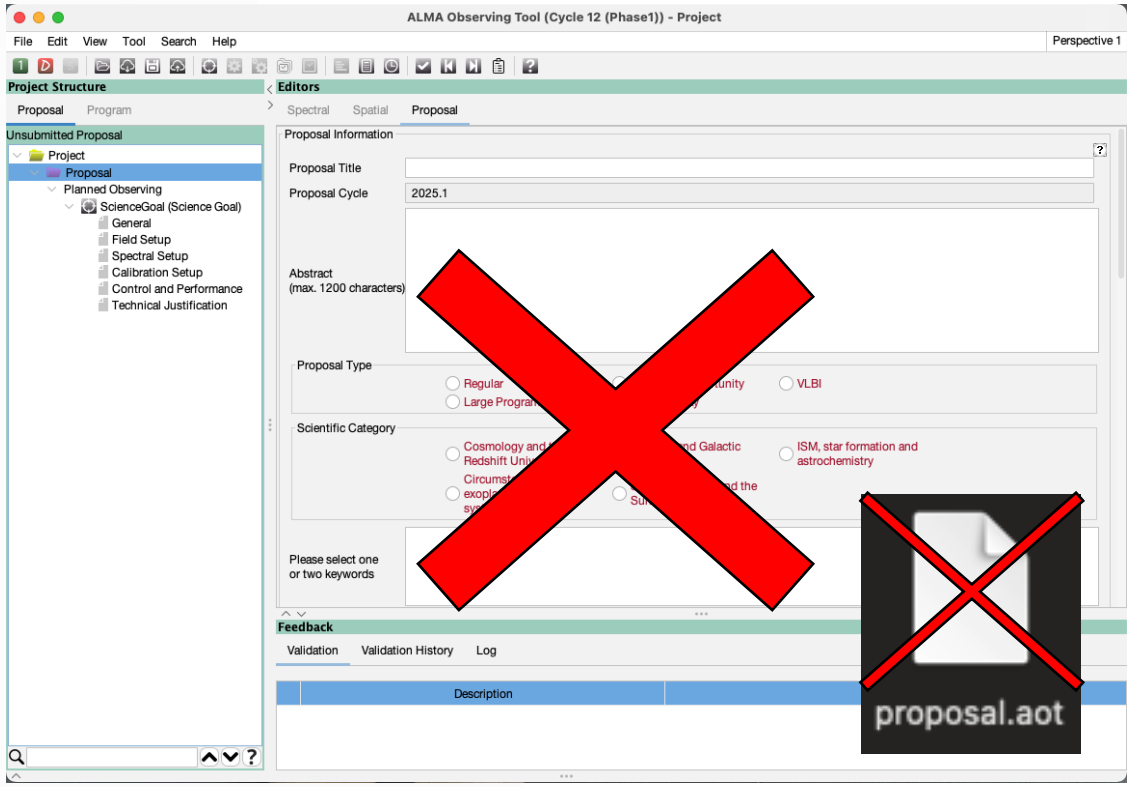
to enter **the web-based OT** or via https://cycle-13.sps.alma.cl
- Documentation
  - *OT video tutorials*
  - User & reference manuals
- Troubleshooting
  - FAQ and known issues
  - Knowledgebase
  - Helpdesk



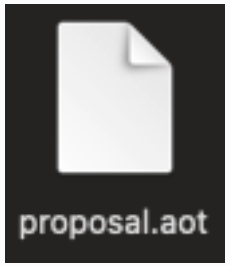
# Observing Tool (OT)

- The desktop-based OT is replaced by the new web-based OT in Cycle 13.
- Only the Cycle 12 DDT proposal submission uses the desktop-based OT.

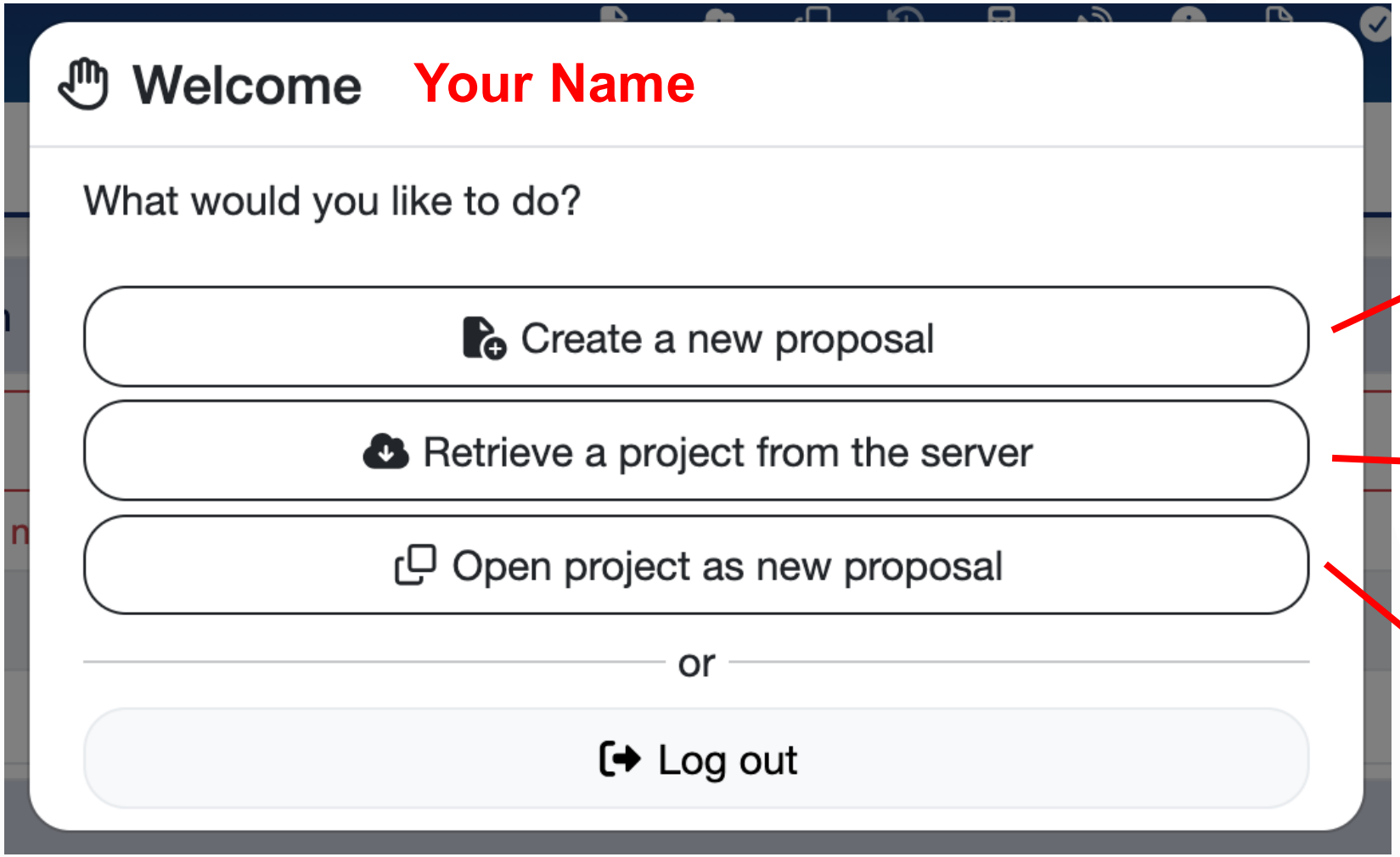


# Main Differences

| Feature | Old Desktop-based OT | New Web-based OT |
|---|---|---|
| Access | Java installation<br>& local updates. | Via Browser: Chrome, Firefox and Safari.<br>Login via the Science Portal. **Offline work is no longer supported.** |
| Input fields | Done by hitting 'Enter'<br>or clicking away. | 'Enter' doesn't always work in the browser.<br>Use 'Tab' or click away. |
| Saving | Local *.aot file.<br>  | Cloud autosave functionality overwrites the previous draft version when the user leaves a field or stops typing for 0.5 sec.<br>**No redo button! Saving to an *aot file is no longer supported!**<br>**Advice 1:** Make a copy of your proposal to test a different setup.<br>**Advice 2:** Submit your proposal when it is almost ready. Submitted proposals with **unsubmitted changes** can be reverted back to the last submitted version. |
| Collaboration | Writing access is highly controlled by the PI. | Writing access to draft proposals is open for the PI and all Co-(P)Is.<br>**Advice:** Clear communication between PI and Co-(P)Is regarding project editing is essential to prevent unwanted overwrites of the proposal.<br>The PI can always share the OT-generated PDF file of the whole proposal. |
| Spatial Visualizer (Aladin Interface) | Ability to manually draw and adjust a mosaic field. | Only for adding pointings, but currently lacks the functionality to move existing pointings.<br>**Advice:** Set up pointings in CARTA and then read them into the web-based OT via the import button. |

# Welcome Screen




Create a new draft proposal

Open a draft or a submitted proposal from the staging area

Make a copy of a draft or submitted proposal

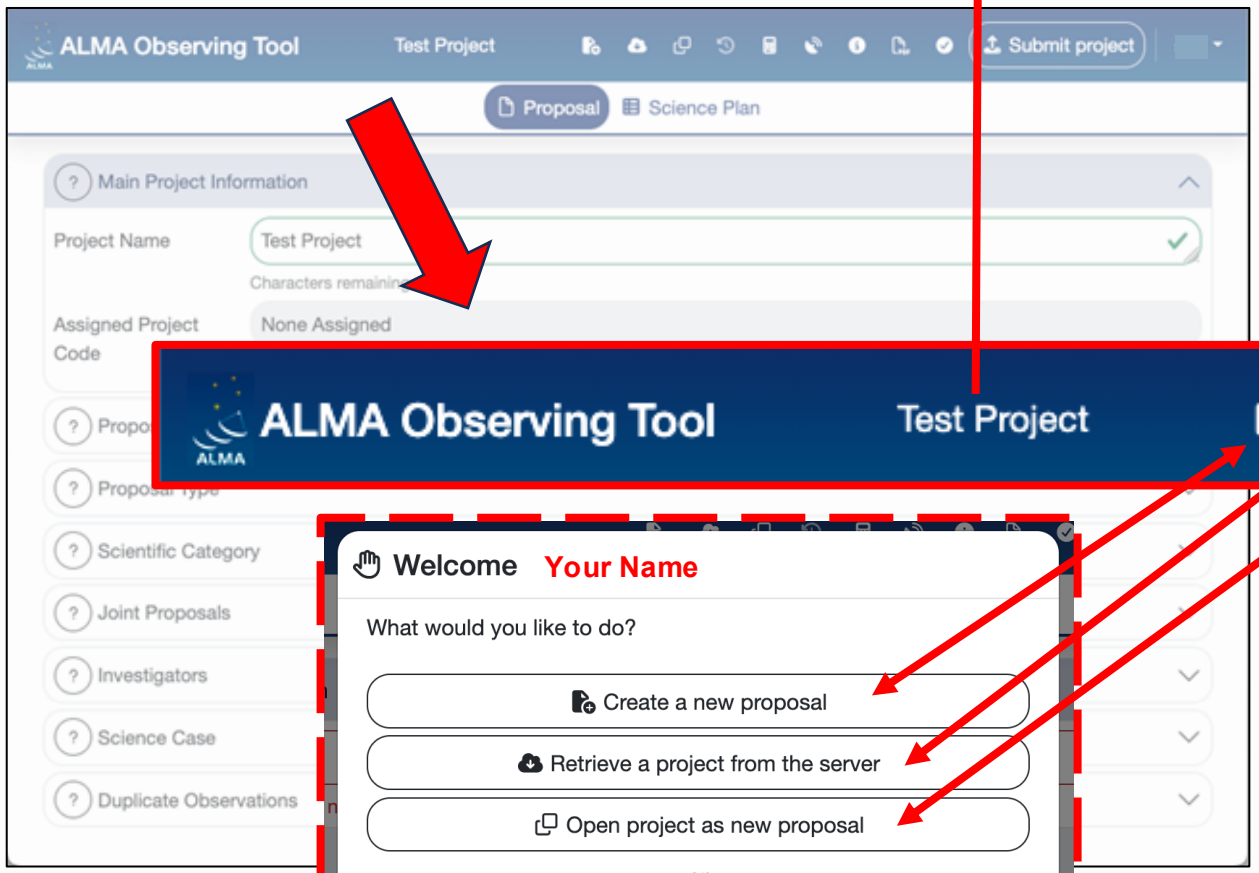
# Header Bar

Proposal title

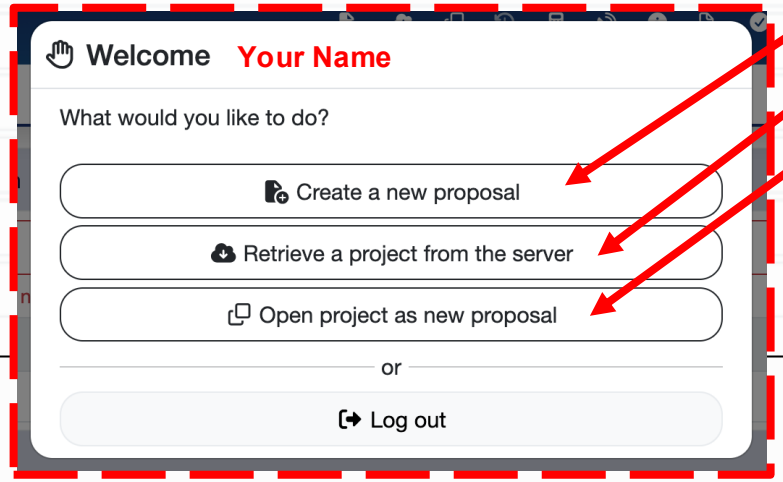
Revert a project with unsubmitted changes to the last submitted version

Generate the PDF file of the whole proposal (4-page Science Case & OT setup)

Validate







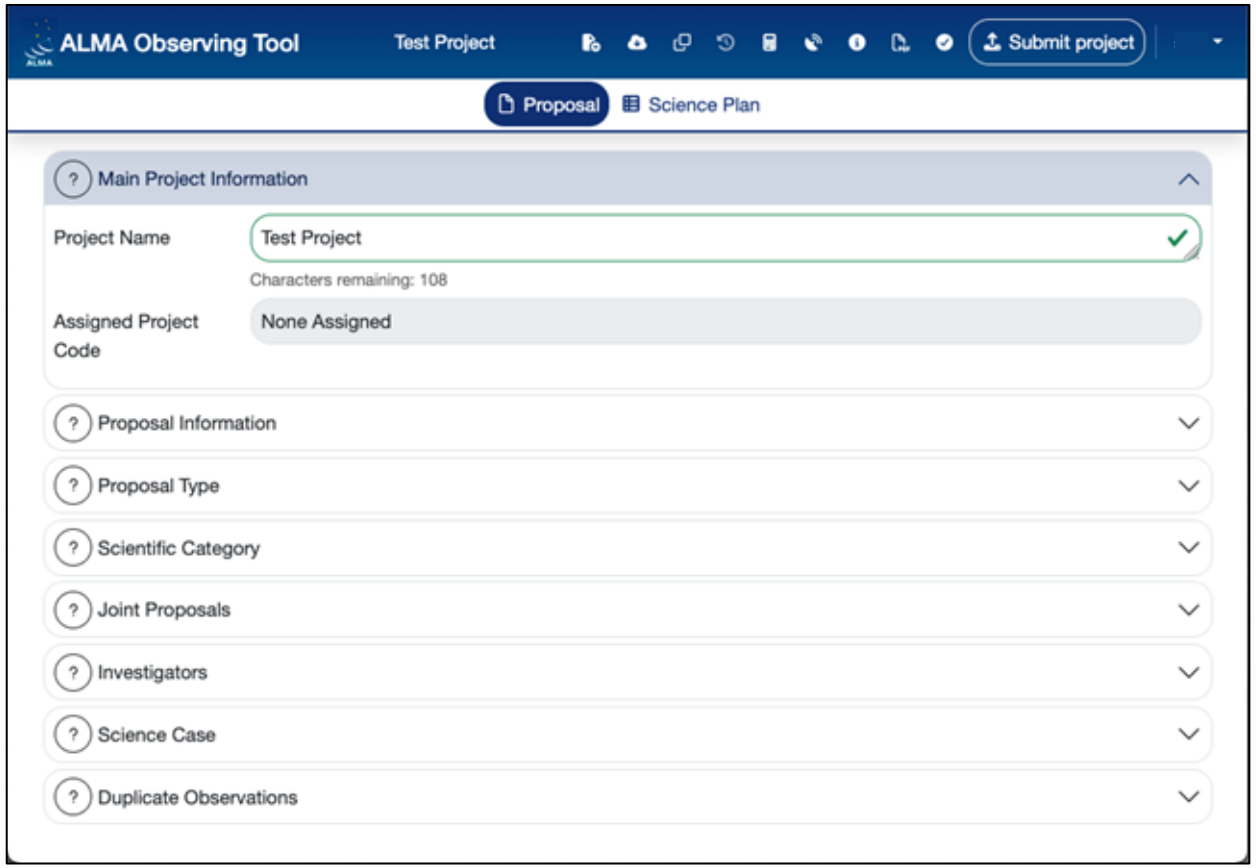

*Only PI can submit!*

Sensitivity calculator

OT documentation

Open array configuration tables

# General Proposal Information



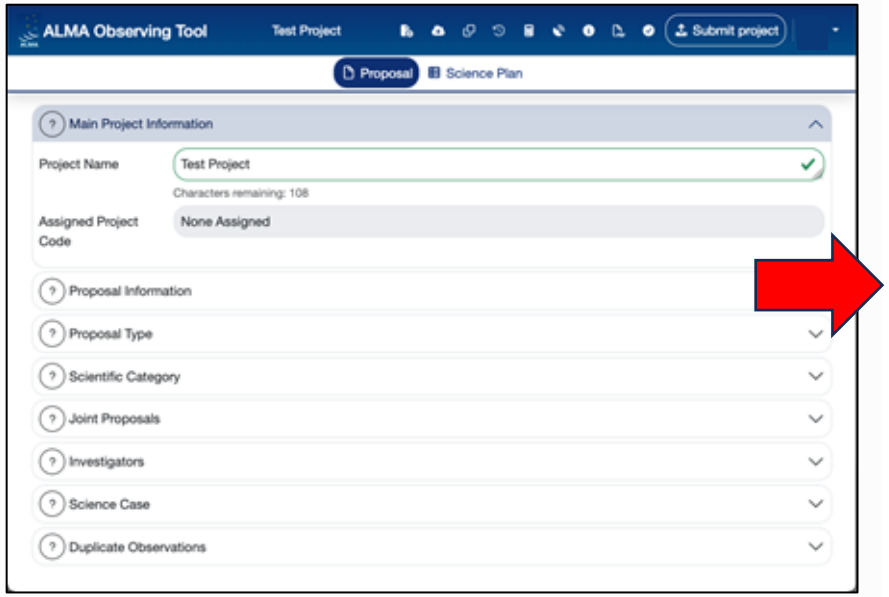

## Input fields

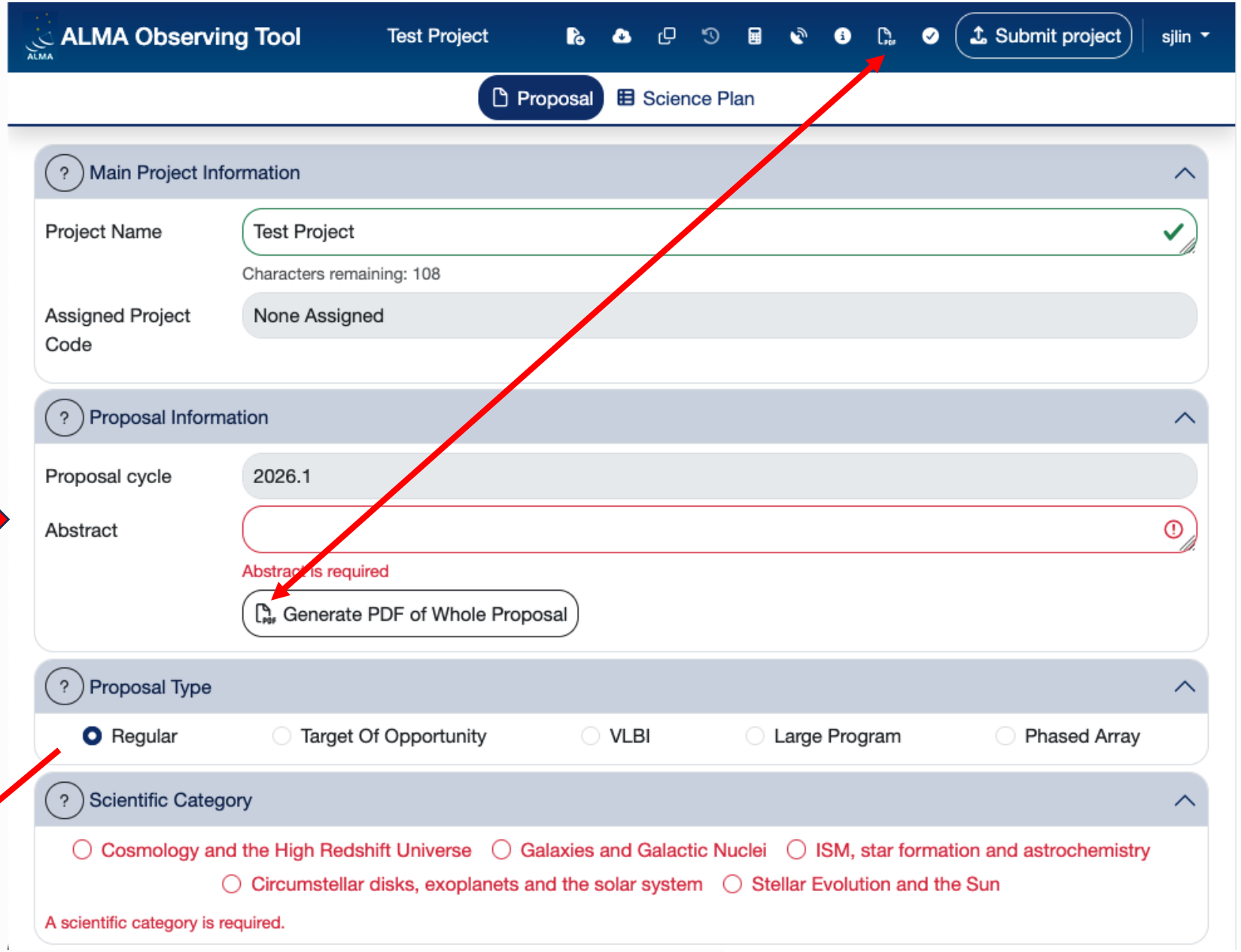
- It is recommended to use the tab button to leave a field. Enter will not always work.

## Autosaving

- The content of the proposal is automatically saved, either when the user leaves a field or when they stop typing for 0.5 sec.
- There is only one version of a proposal. Autosaving overwrites the previous version.

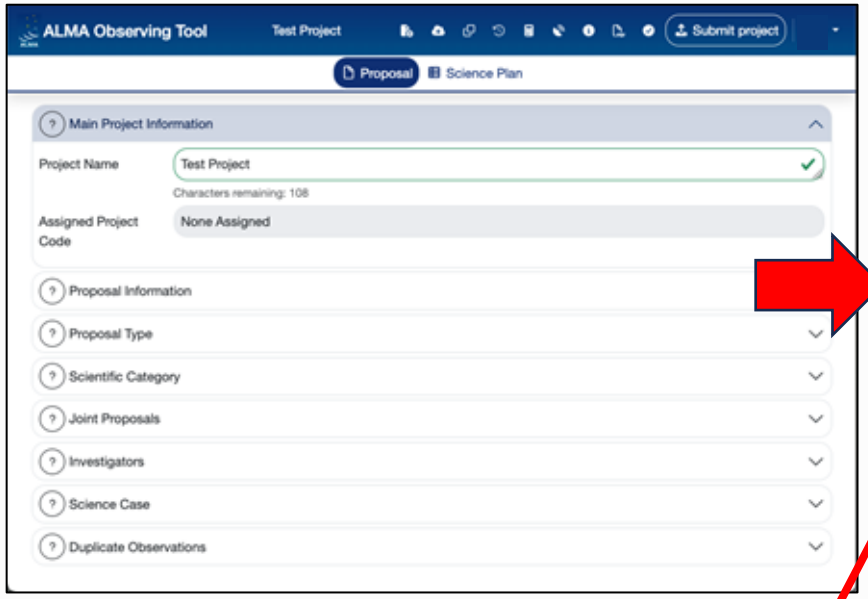
# General Proposal Information




By default, the Proposal Type is set to Regular

# General Proposal Information




By default, the creator of the proposal is set as PI. This can be changed with 'Select PI'. If the PI is changed, the previous PI is added as co-I to the proposal.

## Joint Proposals

Is this a Joint Proposal? Yes No

## Investigators

Select PI | Add CoPI | Add CoI | Add from project | Select all collaborator(s) | Unselect collaborator(s) | Remove collaborator(s)

| Reviewer | Type | Full Name | Affiliation | ALMA ID | Executive |
|---|---|---|---|---|---|
| ○ | PI | ---------Your information--------- | | | East Asia |

0 selected /1 collaborator(s) found

No reviewer has been defined.

## Science Case

Please ensure that your science case is properly anonymized following instructions on the Science Portal.

Science Case (Mandatory, PDF, 4 pages max.)

It is mandatory to attach a Science Case.

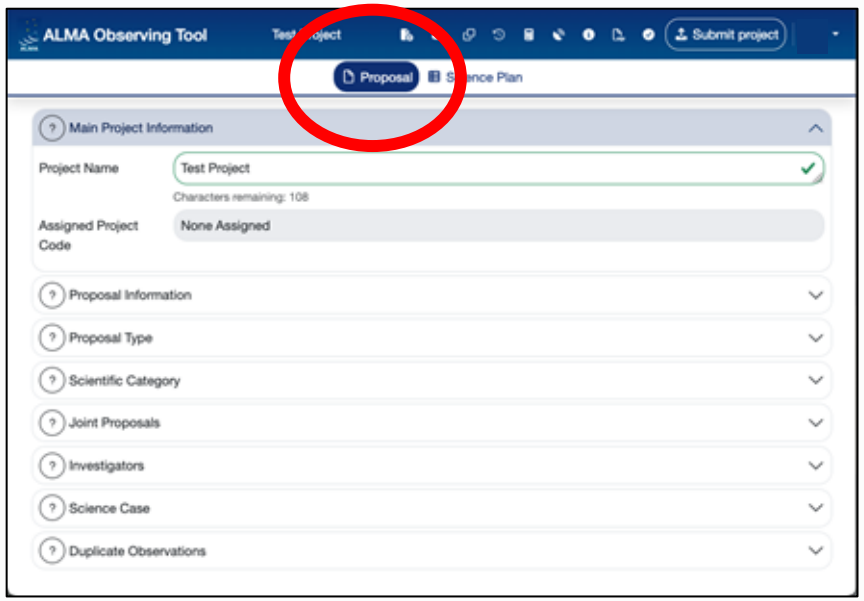
Attach | View | Remove

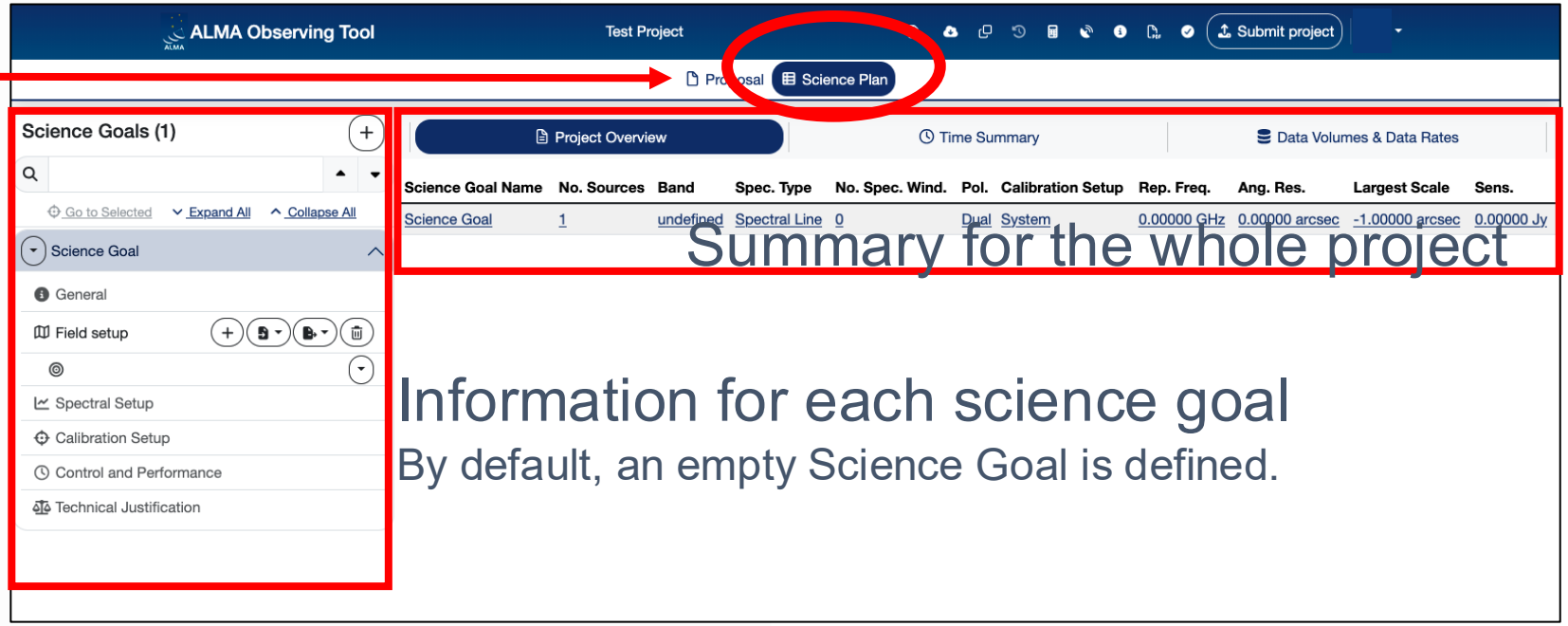
## Duplicate Observations

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

# Science Plan and Science Goals (SGs)

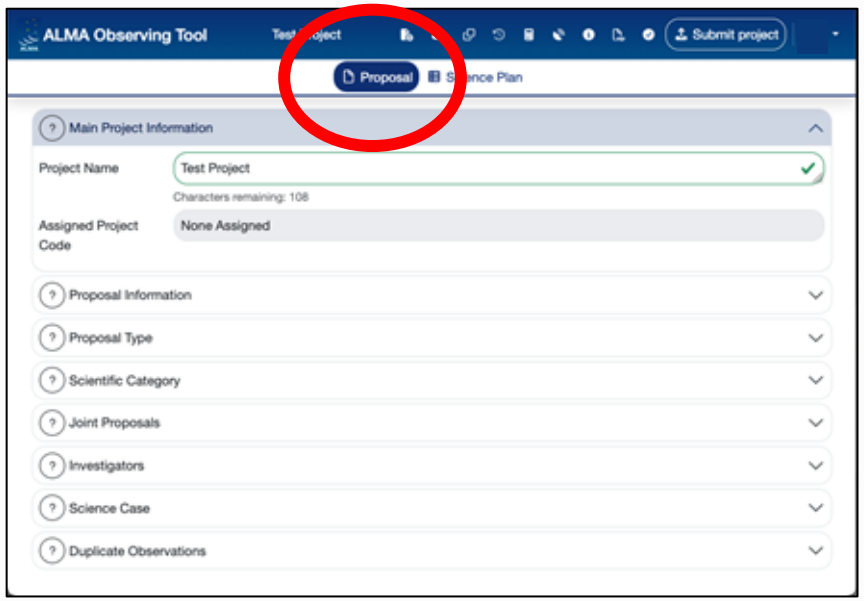



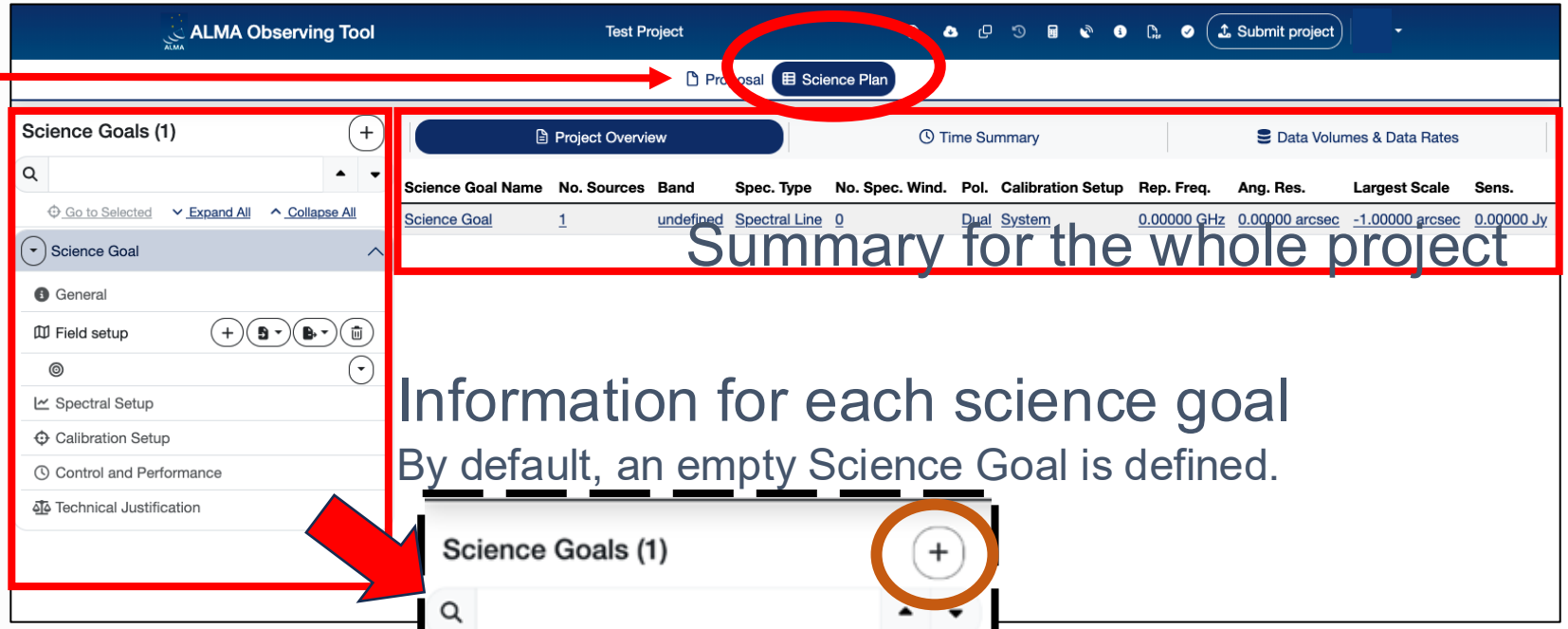

Summary for the whole project

## Information for each science goal

By default, an empty Science Goal is defined.

# Science Plan and Science Goals (SGs)


Summary for the whole project

## Information for each science goal

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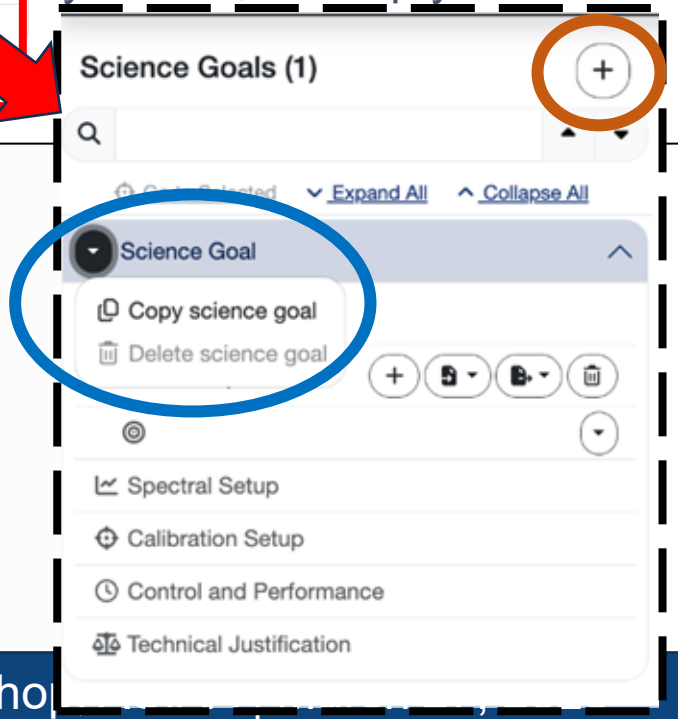
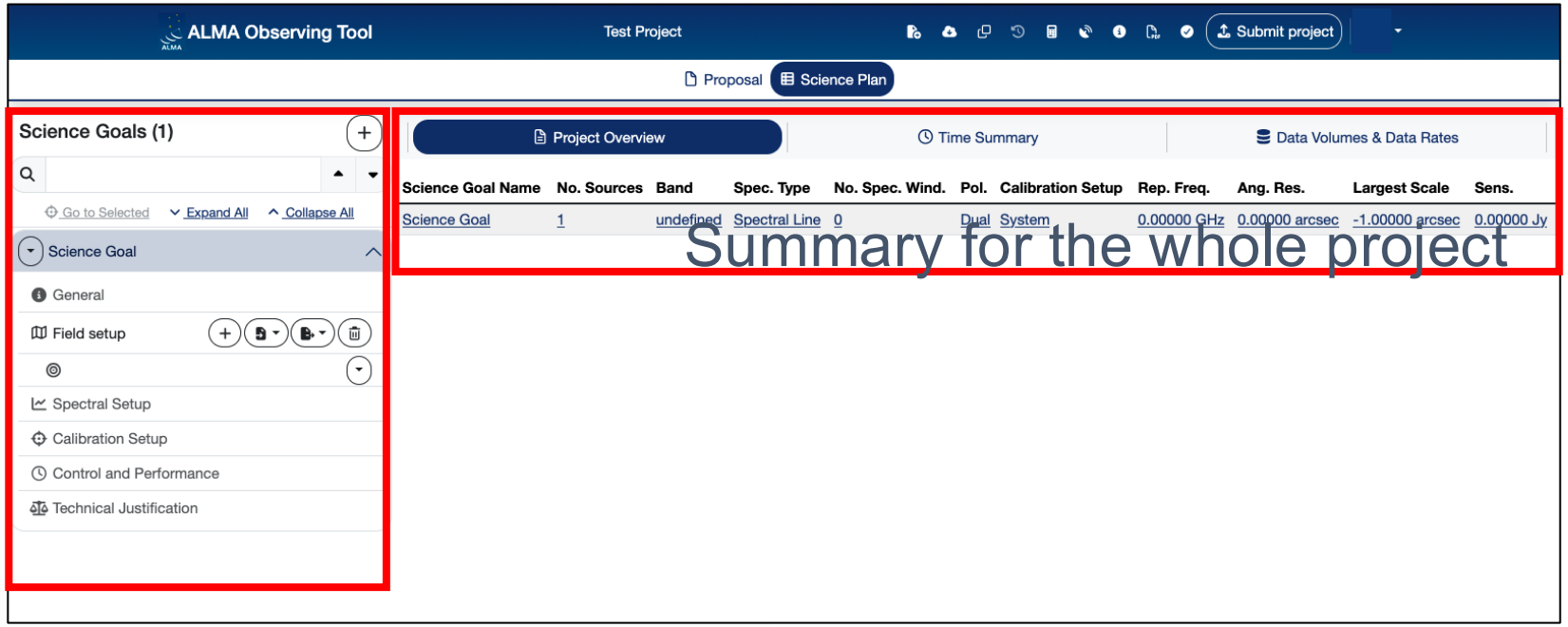


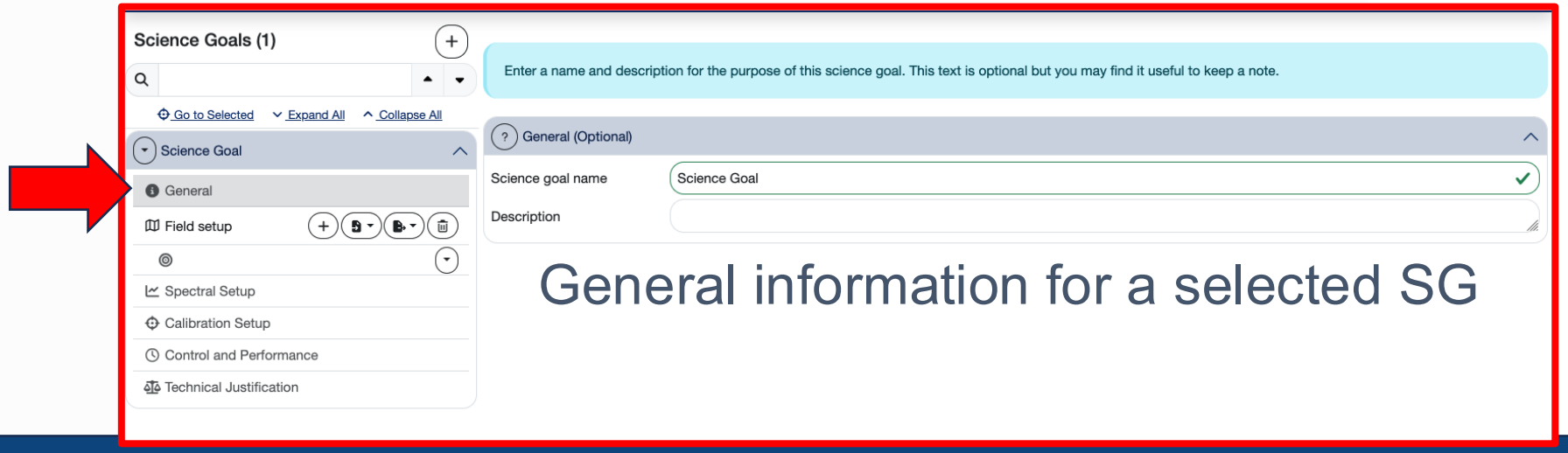

Science Goals can be added with **the plus button** or **copied/removed under the down arrow**.

Copy a SG to test your different setup!

# Science Goal (SG): General information




Summary for the whole project



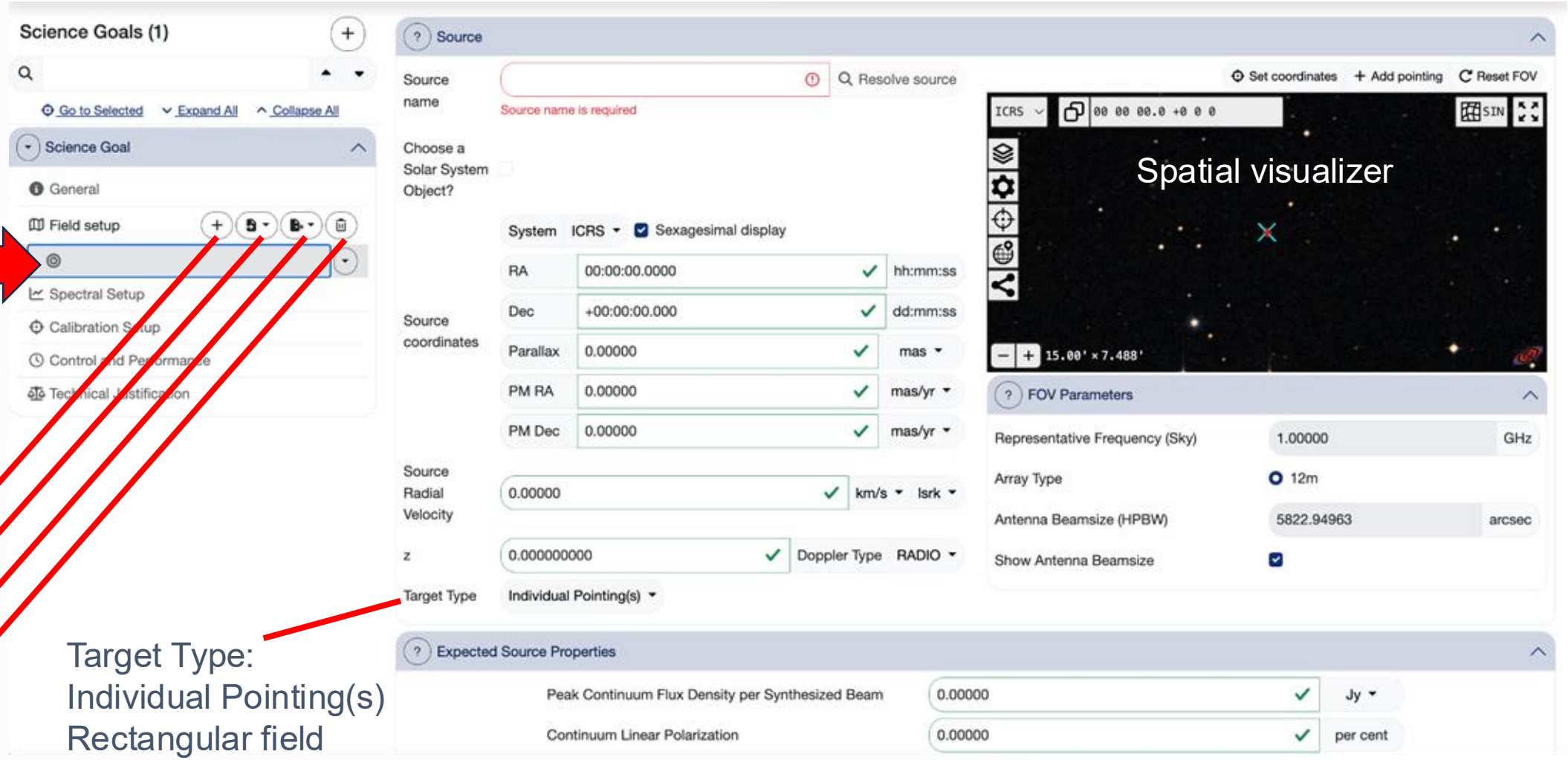

General information for a selected SG

# Science Goal (SG): Field setup

By default, an empty source field is defined in the Field setup.

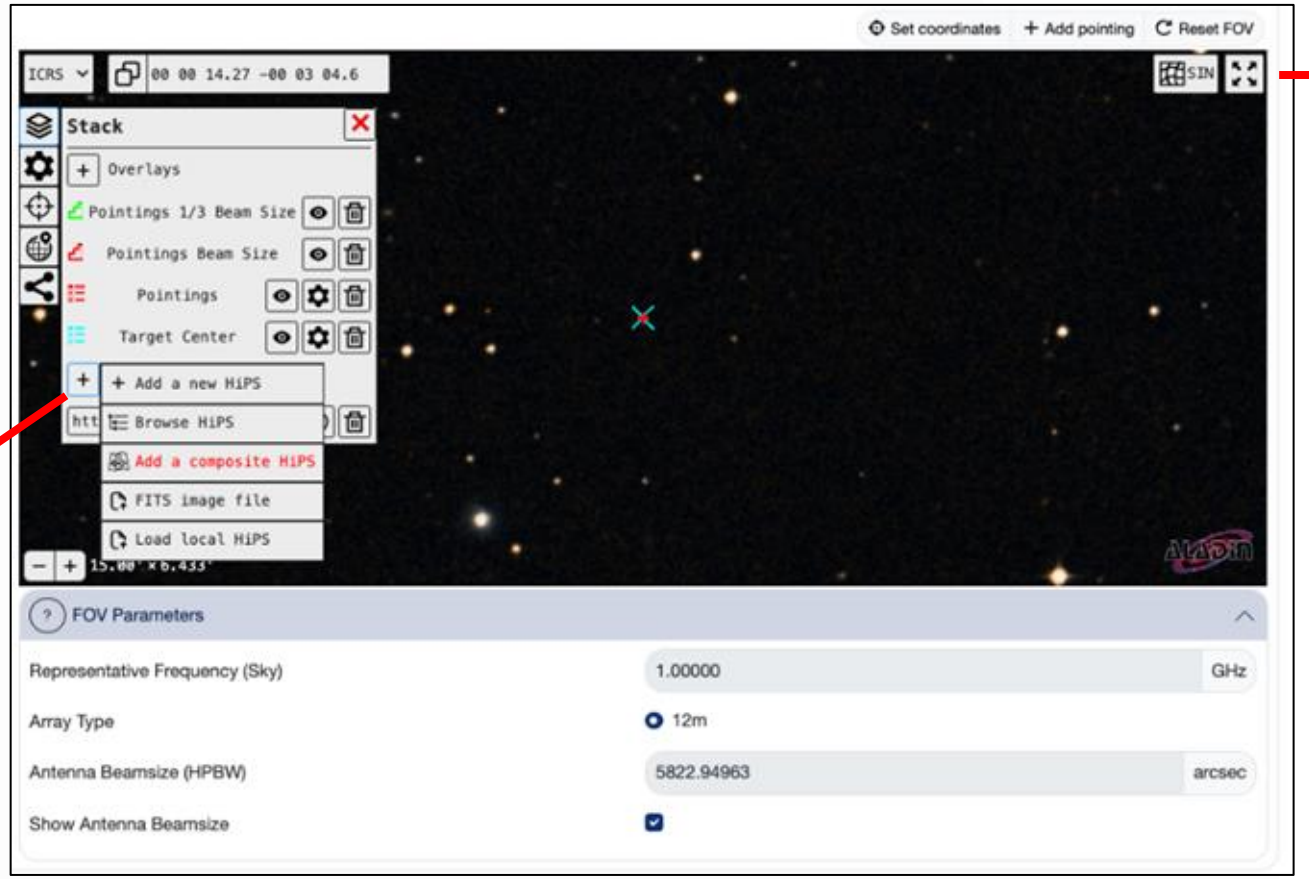
Sources can be **added**, **imported**, **exported** or **deleted**.

Target Type:
Individual Pointing(s)
Rectangular field



# Field setup - Spatial visualizer

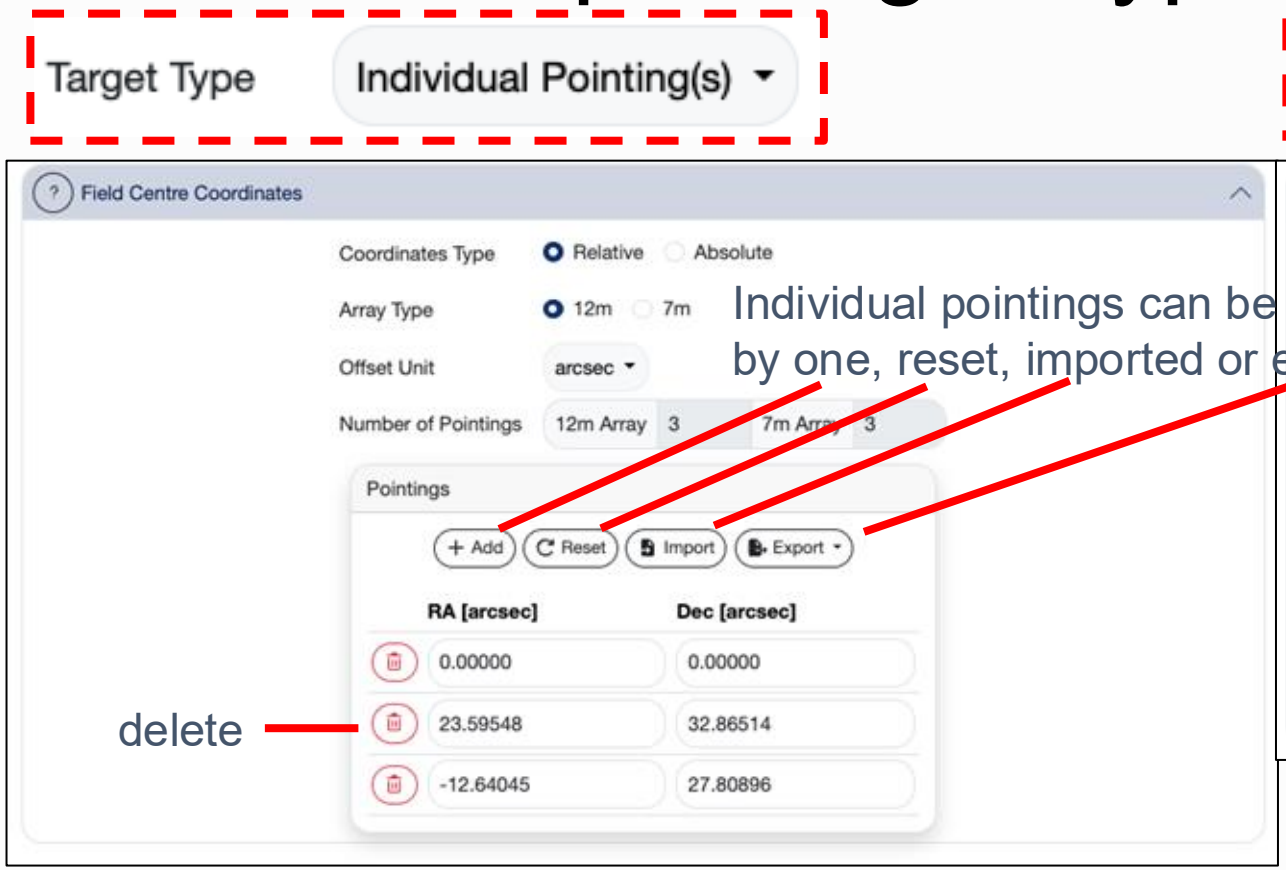
Spatial visualizer displays the browser version of the Aladin interactive Sky Atlas, functionality is basically the same.

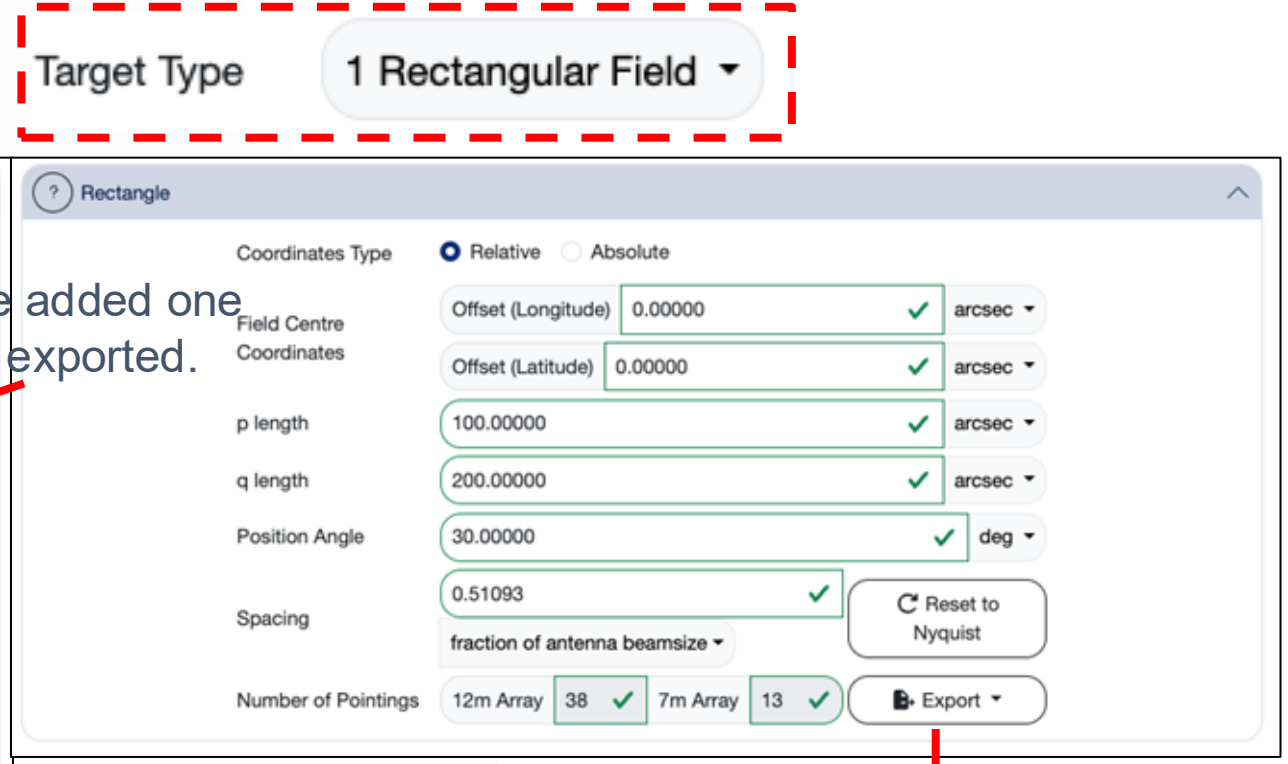



Click for full window view of visualizer

Loading user FITS file by clicking on the plus next to ‘Survey’ and ‘FITS image file’

# Field setup - Target Type

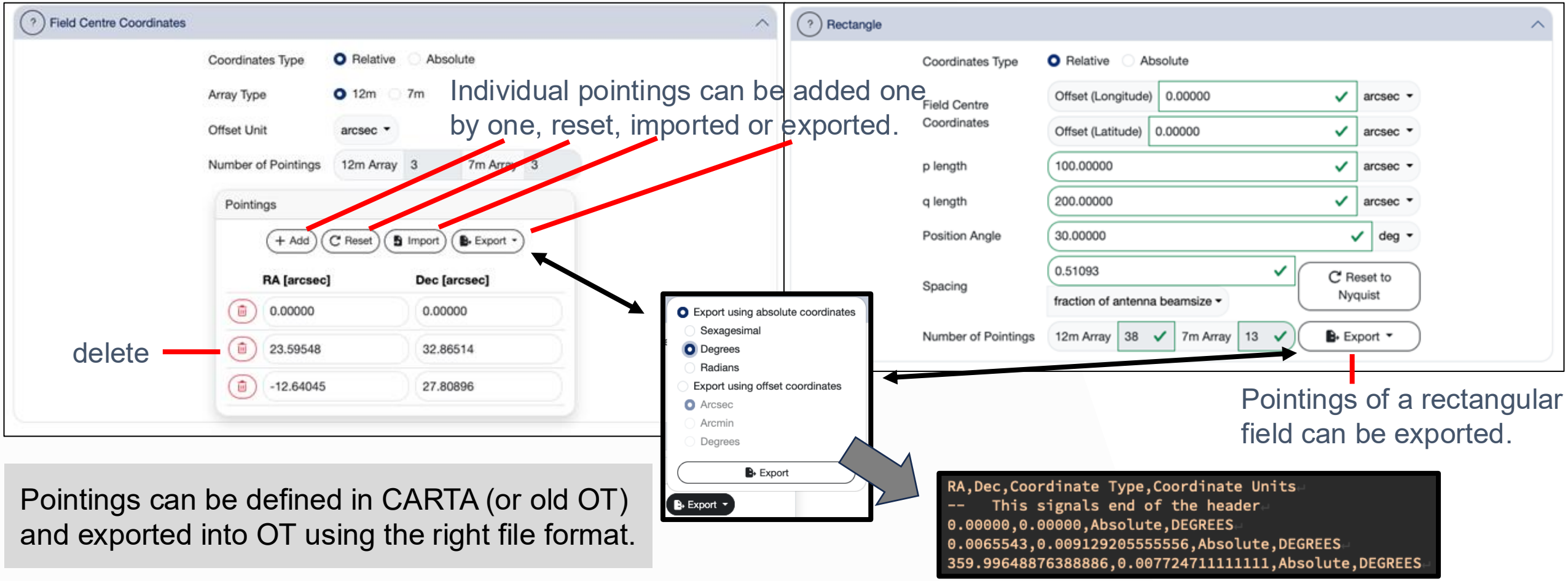


# Field setup - Target Type

Target Type: Individual Pointing(s)

Target Type: 1 Rectangular Field




```
RA,Dec,Coordinate Type,Coordinate Units
--   This signals end of the header
0.00000,0.00000,Absolute,DEGREES
0.0065543,0.009129205555556,Absolute,DEGREES
359.99648876388886,0.007724711111111,Absolute,DEGREES
```

Pointings can be defined in CARTA (or old OT) and exported into OT using the right file format.

Credit: Katharina Immer

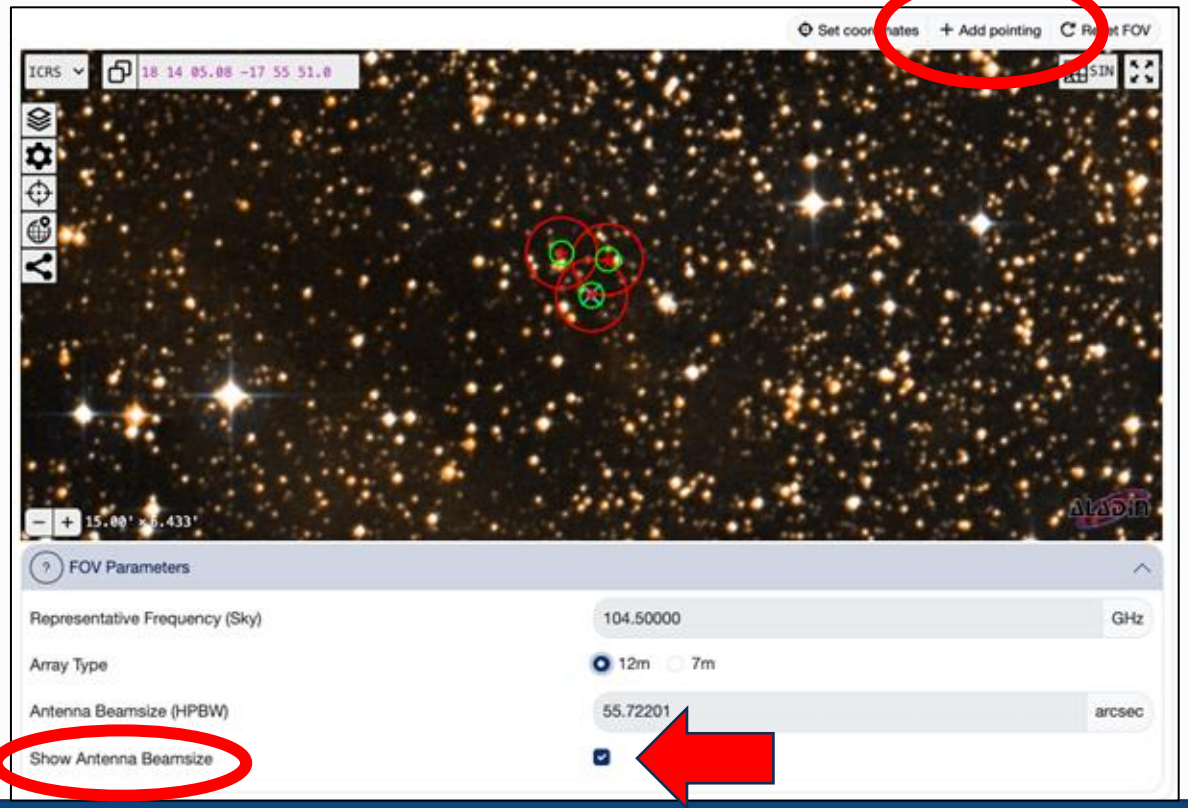
# Field setup - Target Type

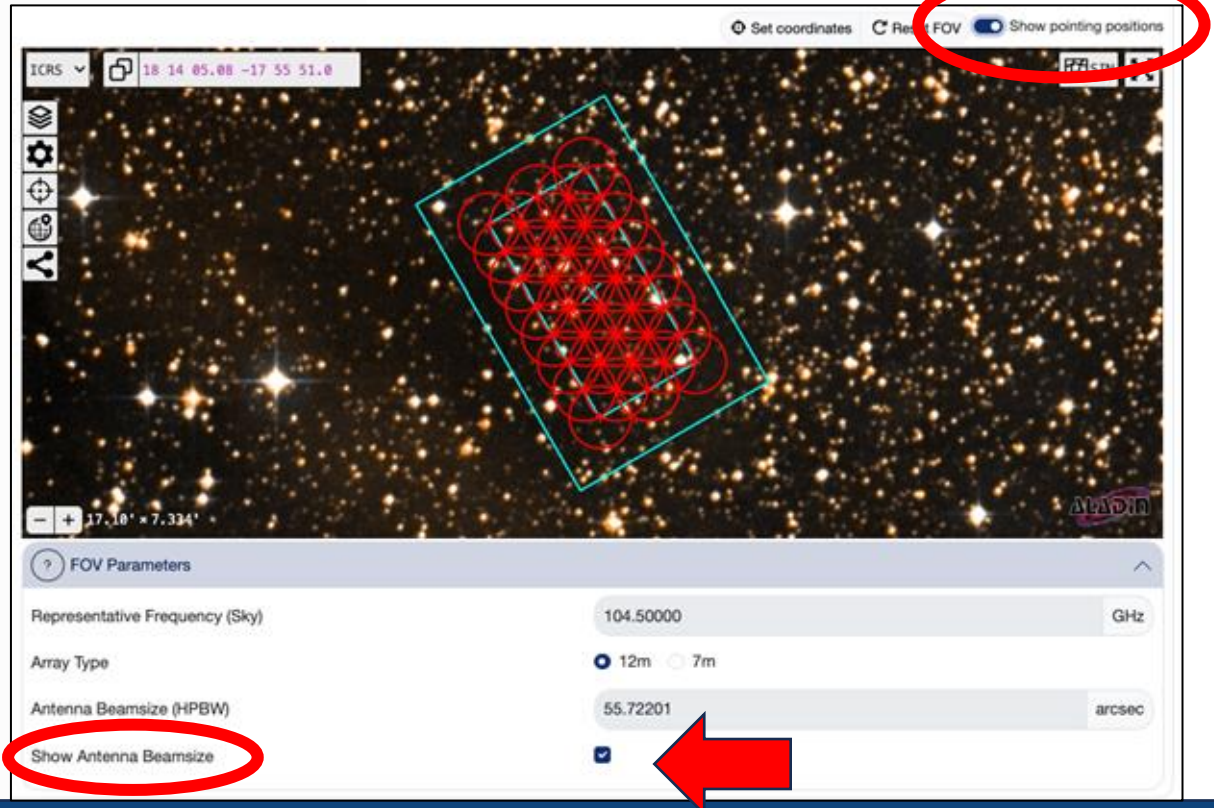
Target Type: Individual Pointing(s)

Target Type: 1 Rectangular Field

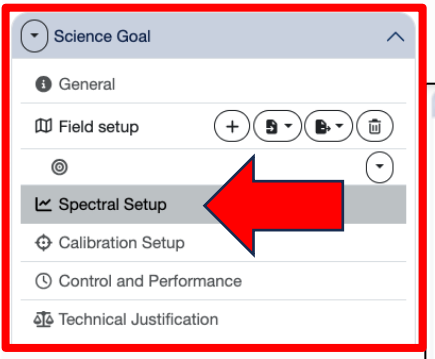
Individual pointings can be added in the visualizer but **not moved or removed**.

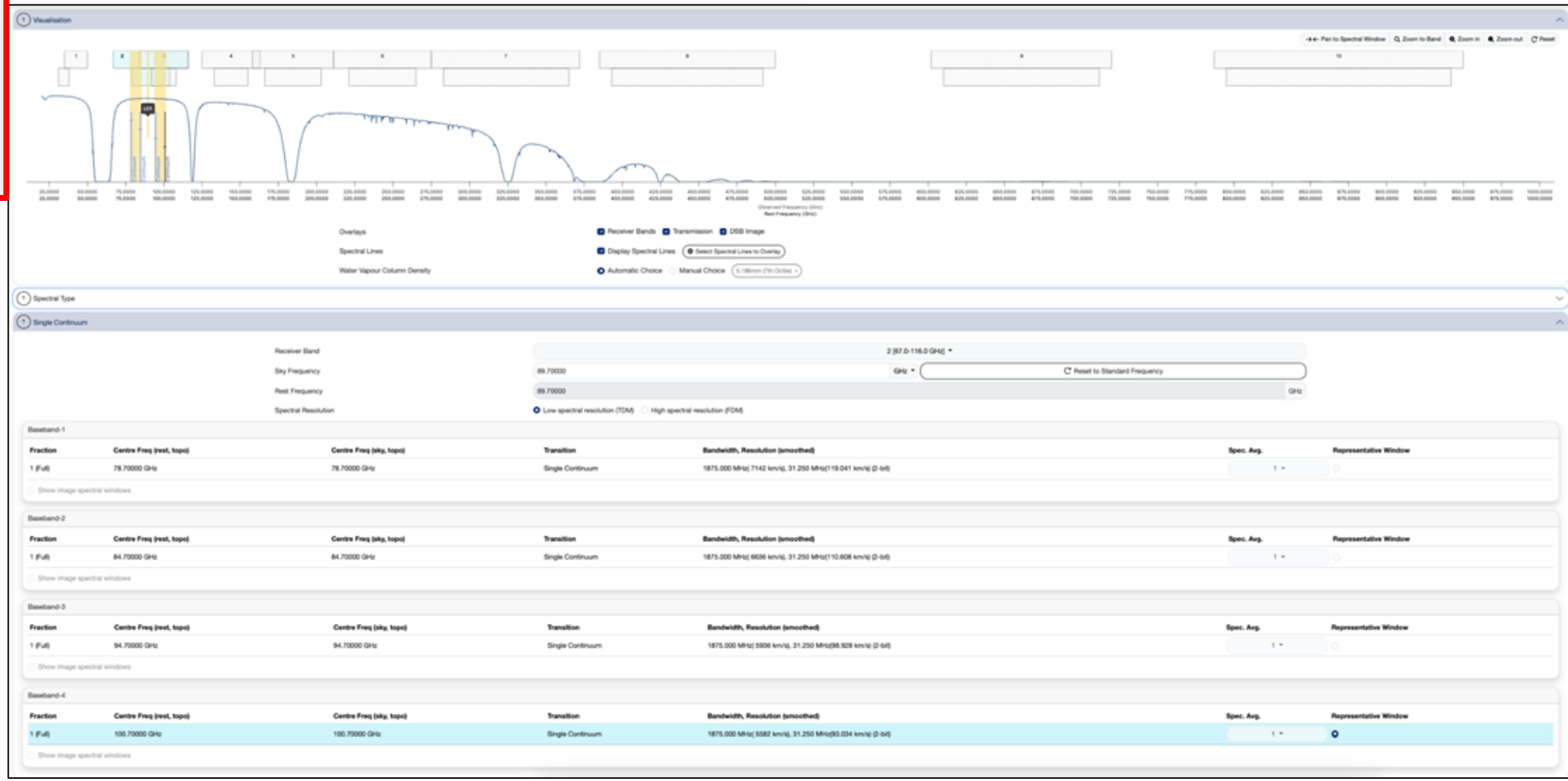
**NO** interactivity implemented for rectangles. Toggle activates pointing positions.



# Science Goal (SG): Spectral Setup



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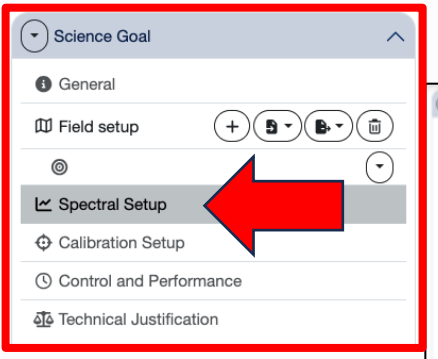
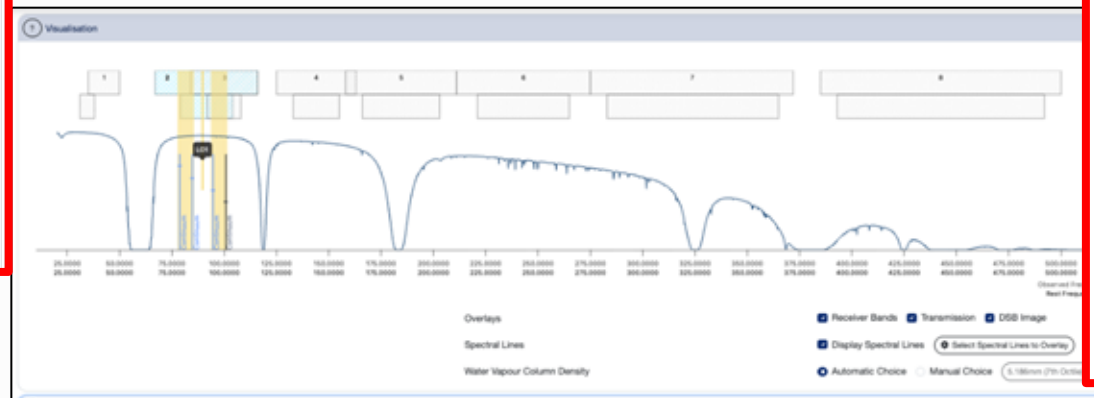
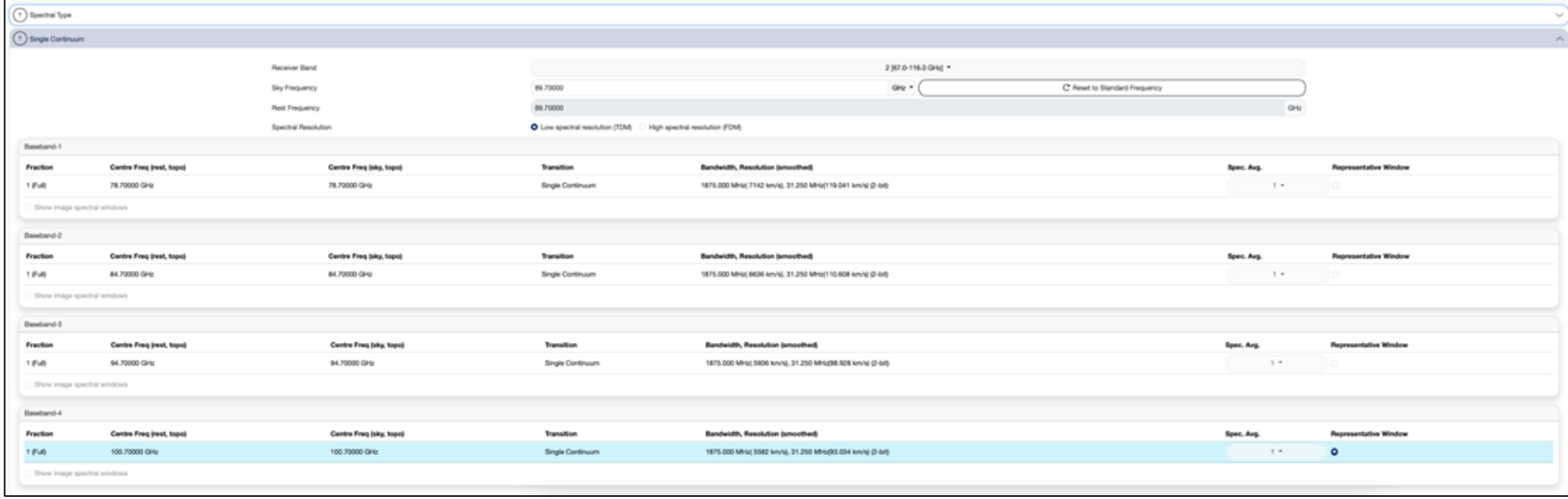


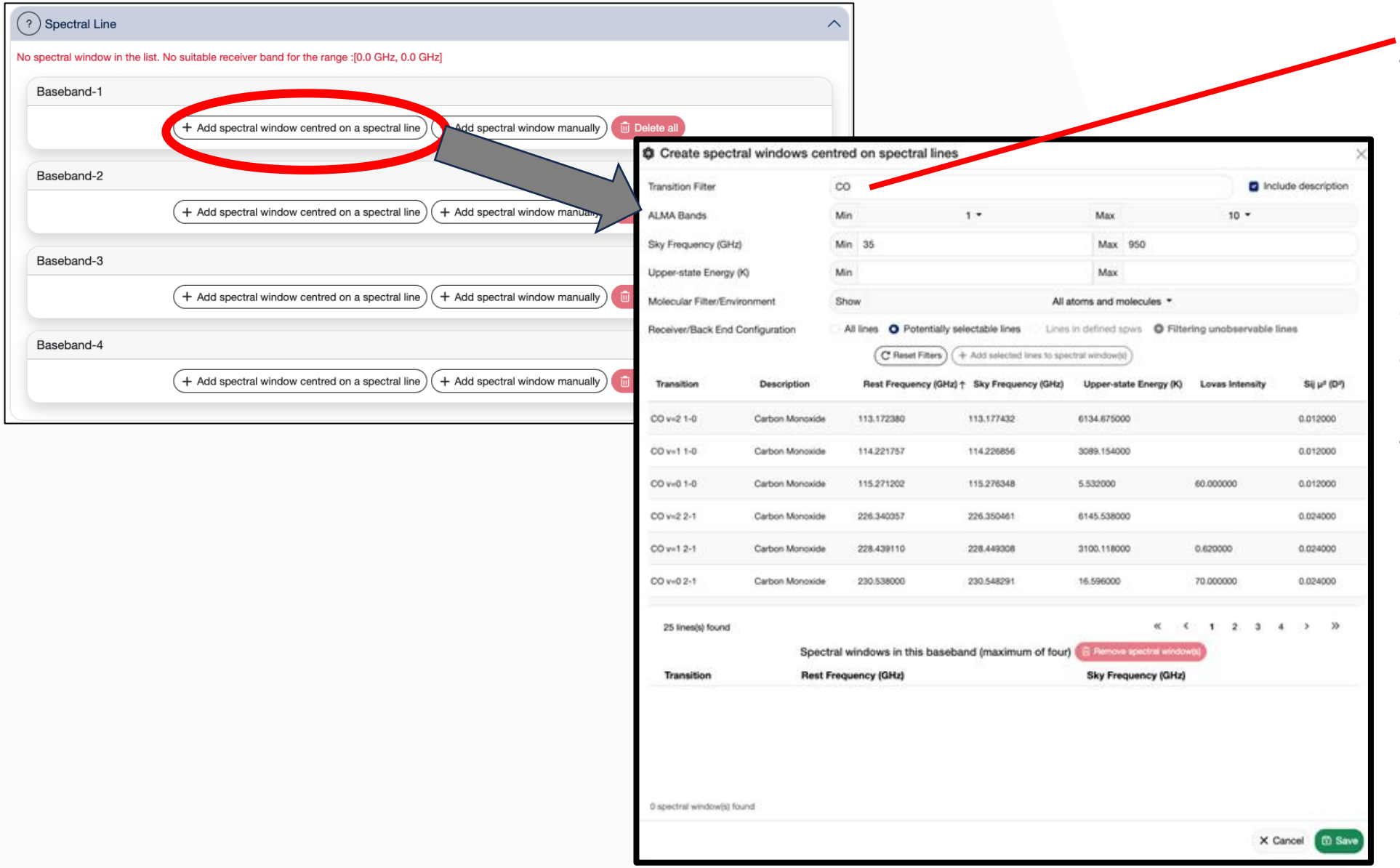





Known issue – Band 2 Single Continuum:
The broader IF range (4–12 GHz) is only available at the default sky frequency; otherwise, the Band 3 IF range (4–8 GHz) is used.

To set up a continuum observation with wider separation of the spectral windows the user shall choose the spectral line spectral type.

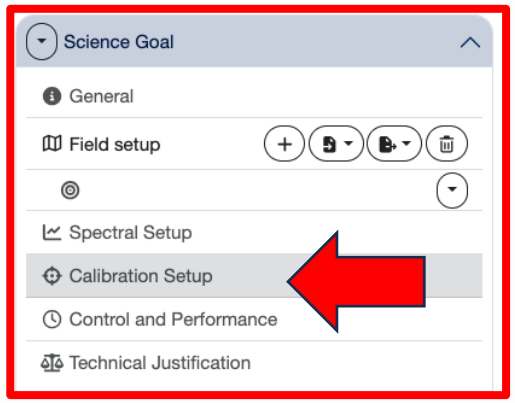
# Spectral Setup - Spectral line picker




If one uses the transition filter, one needs to click outside of the field for the search to commence.

The catalogue available in the spectral line picker is based on an offline catalogue from Splatalogue. Thus, not all transitions are available. Spectral windows for non-available transitions can be added manually in the spectral line setup.

# Science Goal (SG): Calibration setup




Select calibration strategy

**Goal Calibrators**

- (●) System-defined calibration (recommended)
- ( ) System-defined calibration (force separate amplitude calibration using solar-system object)
- ( ) User-defined calibration

**Astrometry**

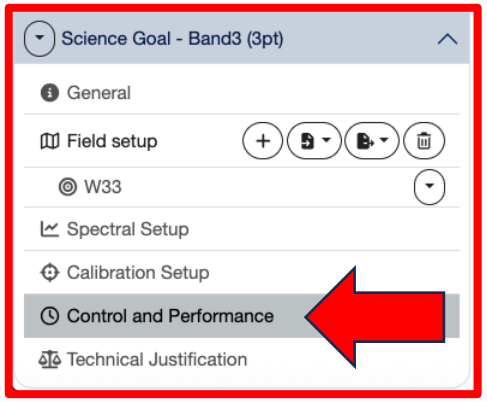
If you wish positional accuracy that is better than that provided by default (see the Proposer's Guide for more information) then select enhanced accuracy.

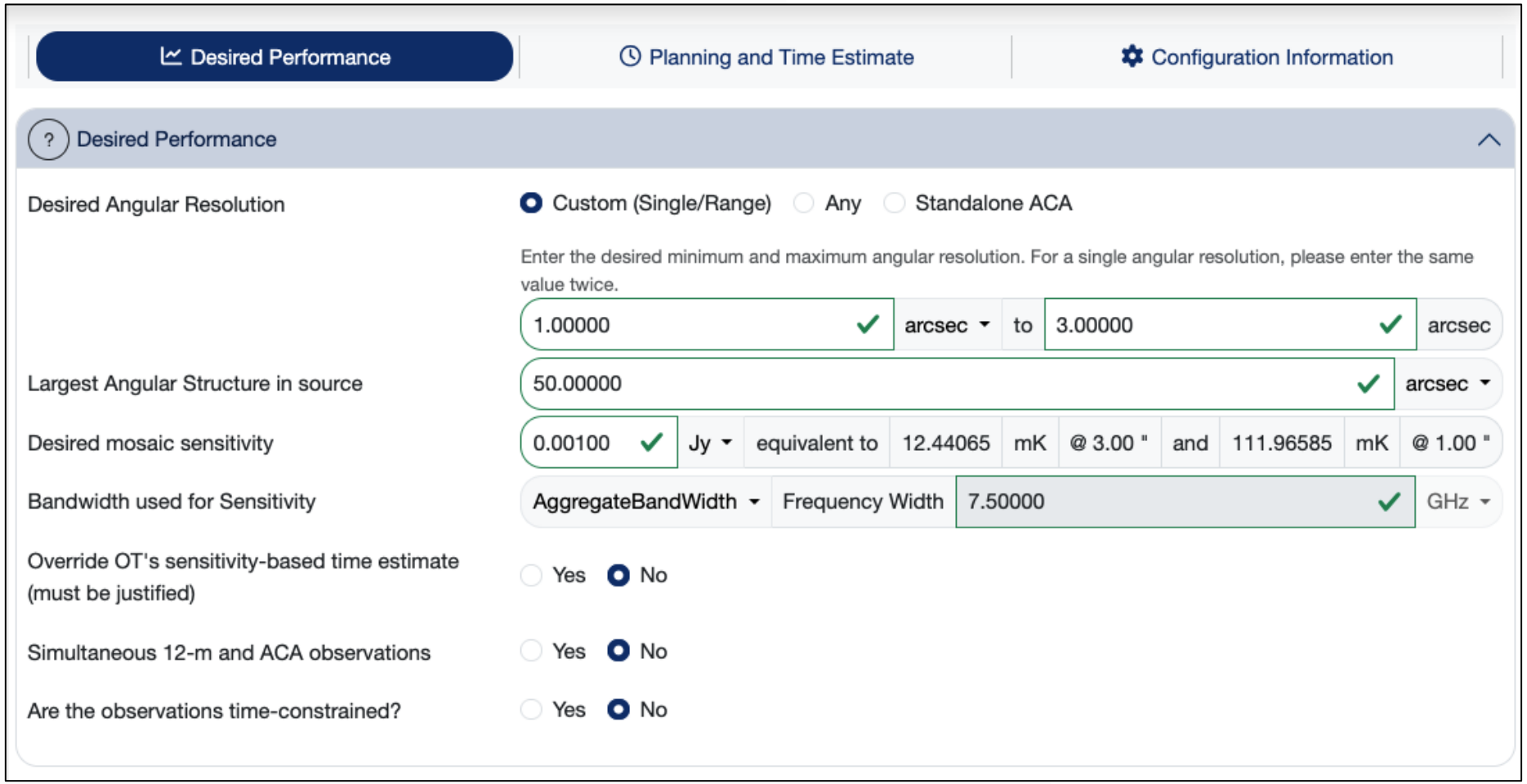
- (●) Standard positional accuracy (default)
- ( ) Enhanced positional accuracy

**DGC Override (observatory-use only)**

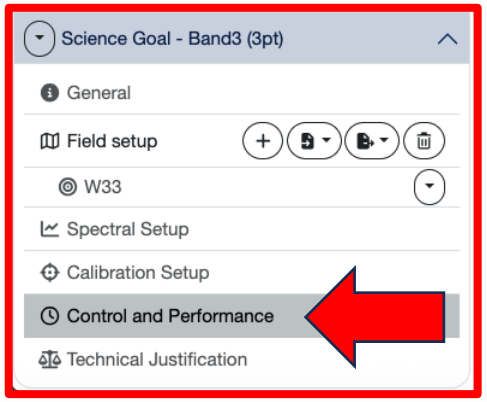
- [ ] DGC Override

# Science Goal (SG): Control and Performance - Desired Performance



# Science Goal (SG): Control and Performance - Planning and Time Estimate




Desired Performance | Planning and Time Estimate | Configuration Information

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 | 1.000 mJy |
| Bandwidth used for sensitivity | 7.500 GHz |
| Representative frequency (sky, first source) | 104.500 GHz |
| **Estimated Total time for Science Goal** | **56.15 min** |

Cluster 1

**Sources**

| Source Name | RA | Dec | Velocity |
|---|---|---|---|
| W33 | 18:14:05.0757 | -17:55:50.989 | 0 km/s |

**Possible Configuration Combinations**

| 12-m(1) | 12-m(2) | 7-m | TP |
|---|---|---|---|
| C-1 | None | Yes | No |
| C-2 | None | Yes | No |
| C-3 | None | Yes | No |

**Input Parameters**

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

**Time required for 12m (1) [C-3]**

| | |
|---|---|
| Time on source per pointing (first source) | 1.75 min [440.86 ms] |
| Total number of pointings (all sources) | 3 |
| Number of tunings | 1 |
| Total time on source | 5.24 min [1.32 s] |
| Total calibration time | 13.17 min |
| Other overheads | 1.97 min |
| Total time for 1 SB execution | 20.37 min |
| Number of SB executions | 1 |
| Total time to complete SB | 20.37 min |

**Calibration Breakdown per SB execution**

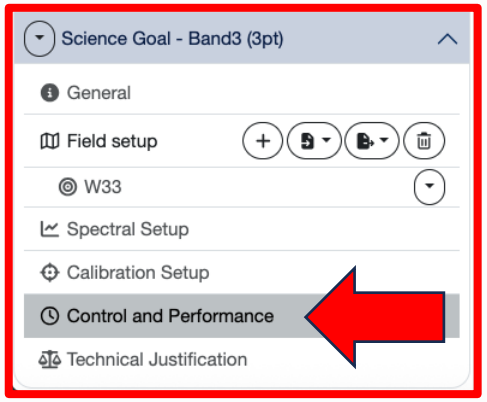
| | |
|---|---|
| 2 x Pointing | 4.00 min |
| 1 x Amplitude/bandpass | 5.00 min |
| 2 x Phase | 60.00 s |
| 2 x Atmospheric | 1.33 min |
| Calibration overheads | 1.83 min |

**Additional Arrays**

| | |
|---|---|
| ACA 7-m on-source time | 13.61 min |
| Total 7-m time | 35.78 min |
| Total ACA time (max[t_7-m,t_TP]) | 35.78 min |
| **Estimated total time for cluster 1** | 56.15 min |

# Science Goal (SG): Control and Performance - Configuration Information

## Open array configuration tables




Desired Performance | Planning and Time Estimate | Configuration Information

| | | | | | |
|---|---|---|---|---|---|
| Antenna Beamsize (1.13 * λ/D) | 12m | 55.72201 arcsec | 7m | 95.52344 arcsec | |
| Number of Antennas | 12m | 43 | 7m | 10 | TP 3 |

| | ACA 7m Configuration | Most compact 12m configuration | Most extended 12m configuration |
|---|---|---|---|
| **Longest baseline** | 49 m | 160.7 m | 16196.6 m |
| **Synthesized beamsize** | 12.07065 arcsec | 3.17525 arcsec | 0.04946 arcsec |
| **Shortest baseline** | 9 m | 15.1 m | 256.1 m |
| **Maximum recoverable scale** | 63.99939 arcsec | 27.32853 arcsec | 0.47464 arcsec |

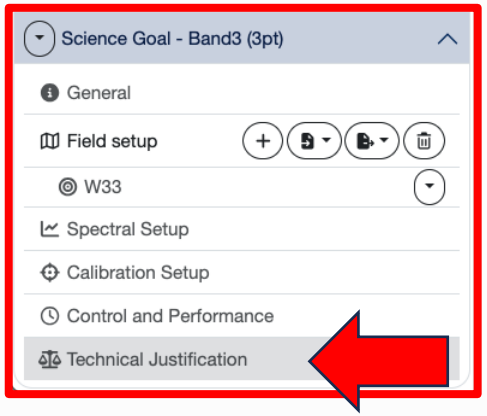
Open configuratio

Configurations are displayed for @100 GHz

ACA C-1 C-2 C-3 C-4 C-5 C-6 C-7 C-8 C-9 C-10

| Dec (deg) | min AR (") | max AR (") | MRS |
|---|---|---|---|
| -80 | 15.96 | 15.96 | 75.43 |
| -77 | 15.357 | 15.357 | 72.542 |
| -74 | 14.926 | 14.926 | 71.747 |
| -71 | 14.419 | 14.419 | 71.236 |
| -68 | 14.52 | 14.52 | 73.889 |
| -65 | 14.329 | 14.329 | 73.168 |
| -62 | 14.047 | 14.047 | 72.465 |
| -59 | 13.671 | 13.671 | 71.794 |
| -56 | 13.437 | 13.437 | 71.154 |
| -53 | 13.166 | 13.166 | 70.557 |
| -50 | 12.899 | 12.899 | 70.005 |
| -47 | 12.82 | 12.82 | 68.96 |
| -44 | 12.706 | 12.706 | 68.102 |
| -41 | 12.627 | 12.627 | 67.435 |
| -38 | 12.561 | 12.561 | 67.165 |

# Science Goal (SG): Technical Justification




Enter a technical justification for this science goal, paying special attention to the parameters reproduced below.

**Sensitivity**

Requested RMS over 7.500 GHz is 1.00 mJy

Achieved RMS over the total 7.500 GHz bandwidth is 64.86 uJy, 0.81 mK-7.26 mK

For a continuum flux density of 0.00 Jy, 0.00 mK-0.00 mK , the achieved S/N is 0.0

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.

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.

Technical Justification cannot be blank.

**Imaging**

Requested angular resolution 3.00 arcsec - 1.00 arcsec

Requested Largest Angular Scale 50.00 arcsec

Justify the chosen angular resolution and largest angular scale for the source(s) in this Science Goal

Technical Justification cannot be blank.

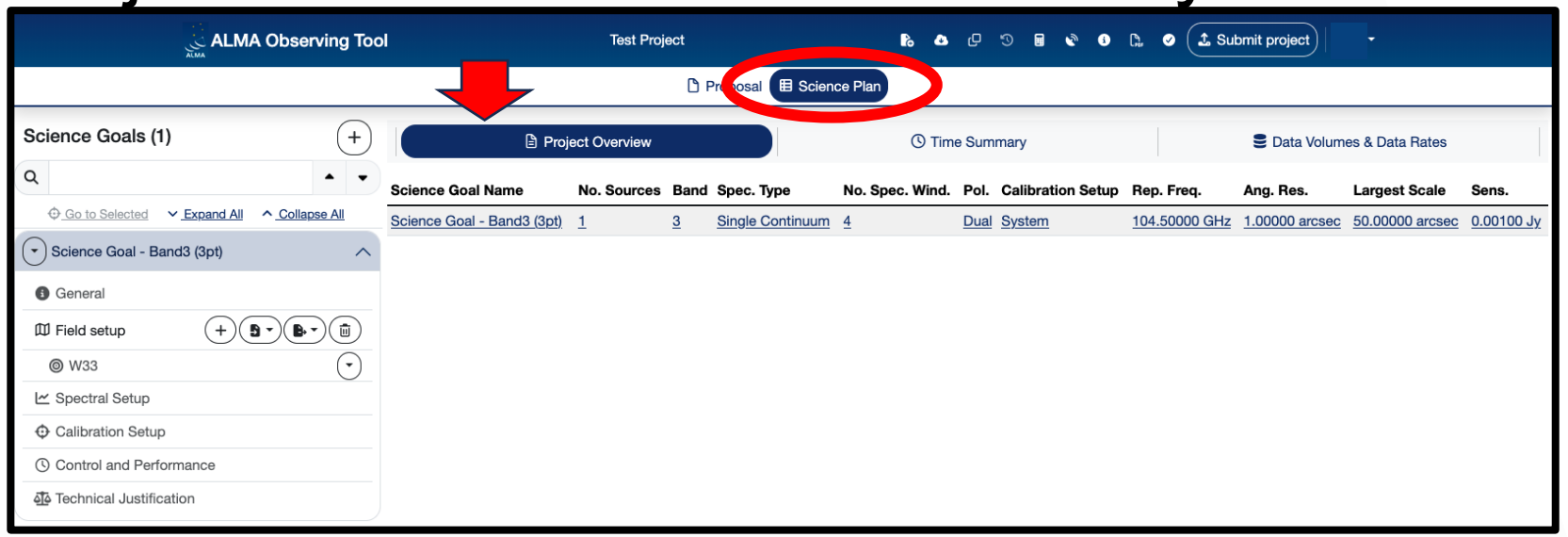
**Correlator configuration**

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

Technical Justification cannot be blank.

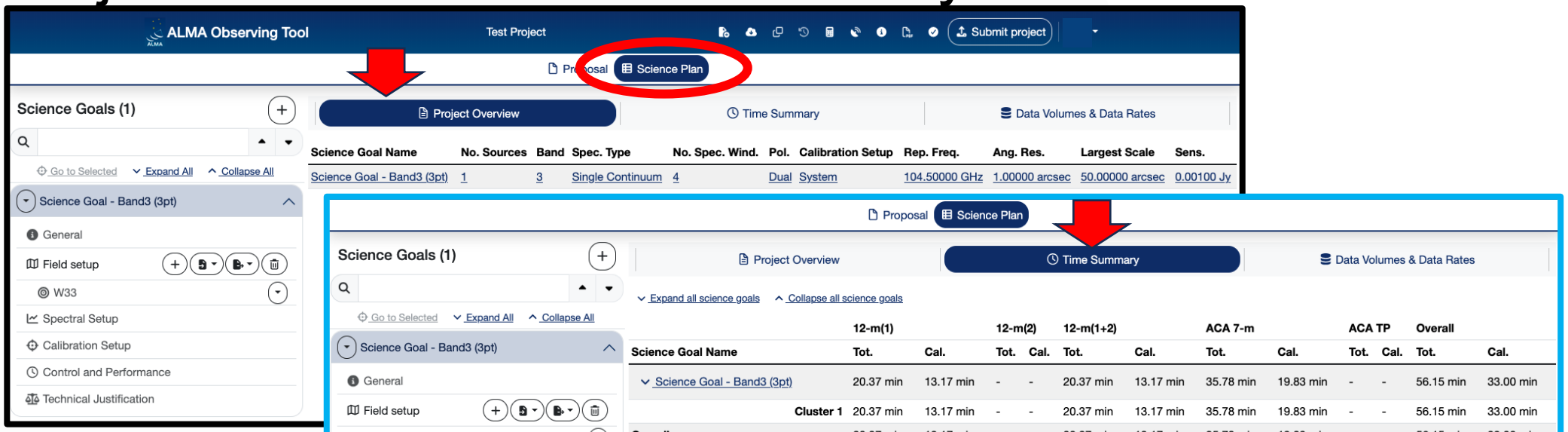
# Science Plan:

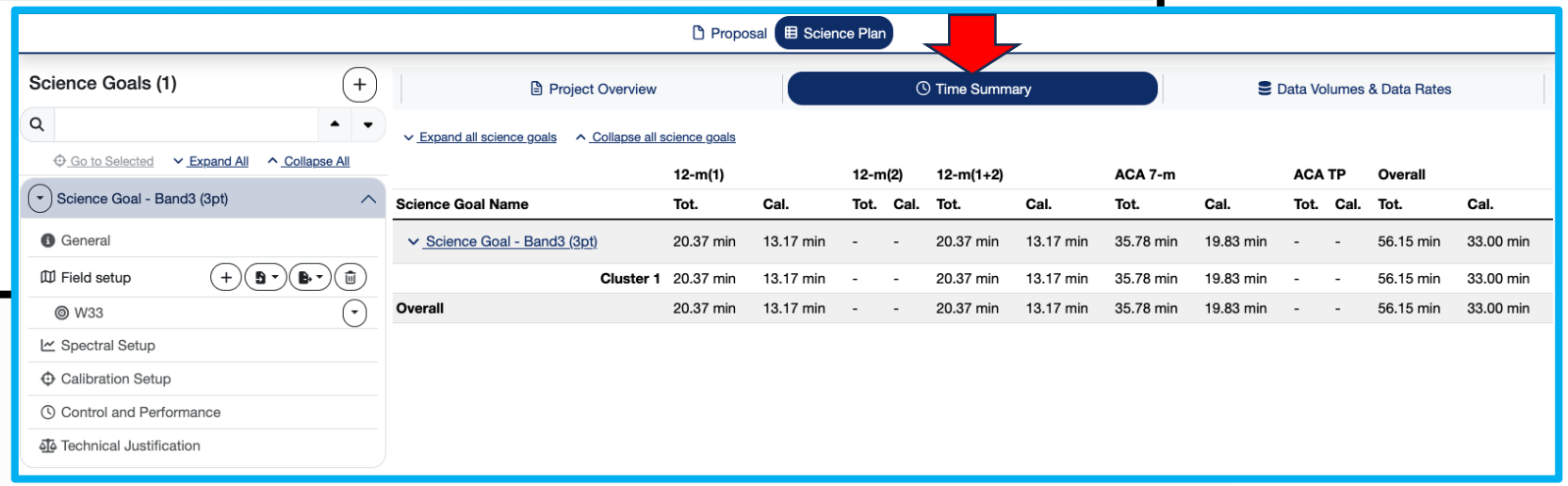
## Project Overview / Time Summary / Data Volumes & Data Rates



# Science Plan:

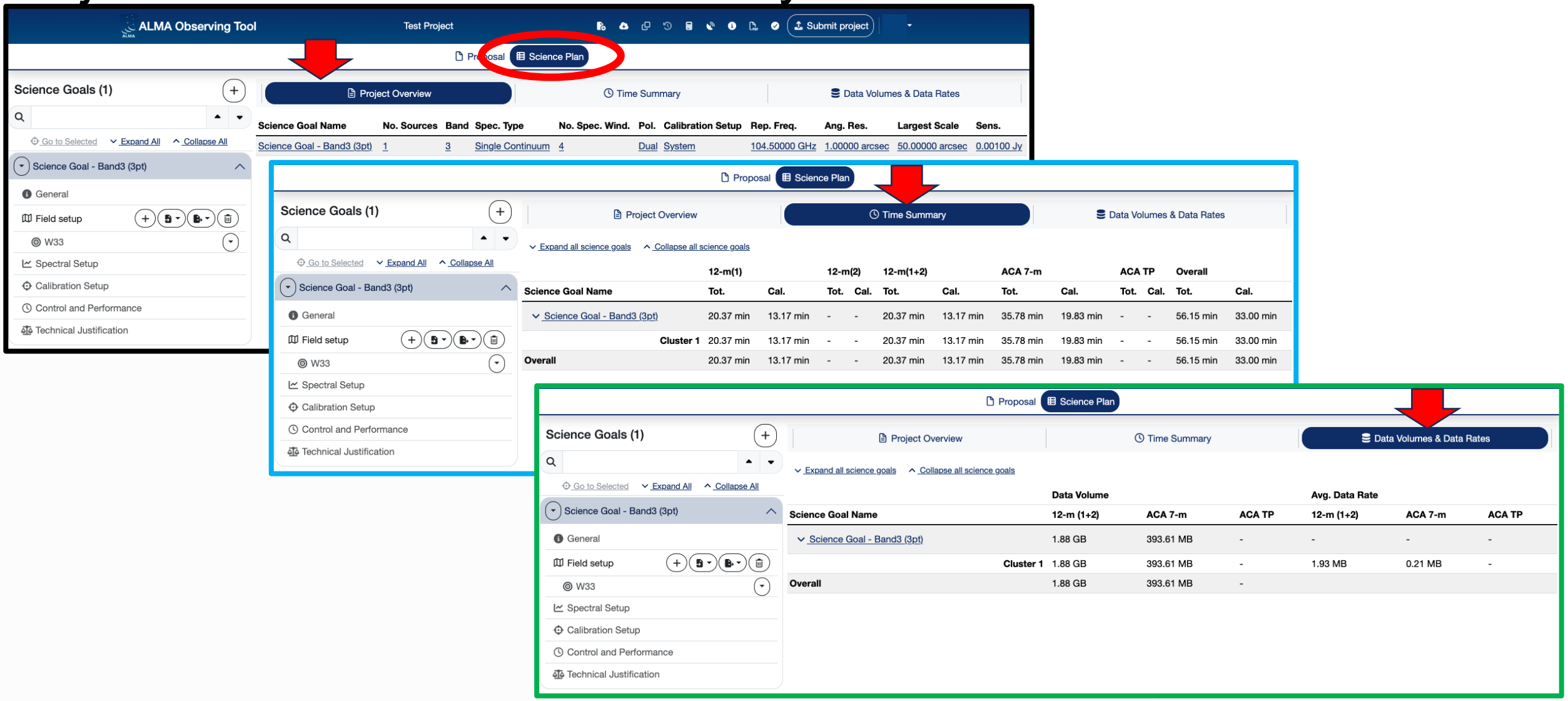
## Project Overview / Time Summary / Data Volumes & Data Rates



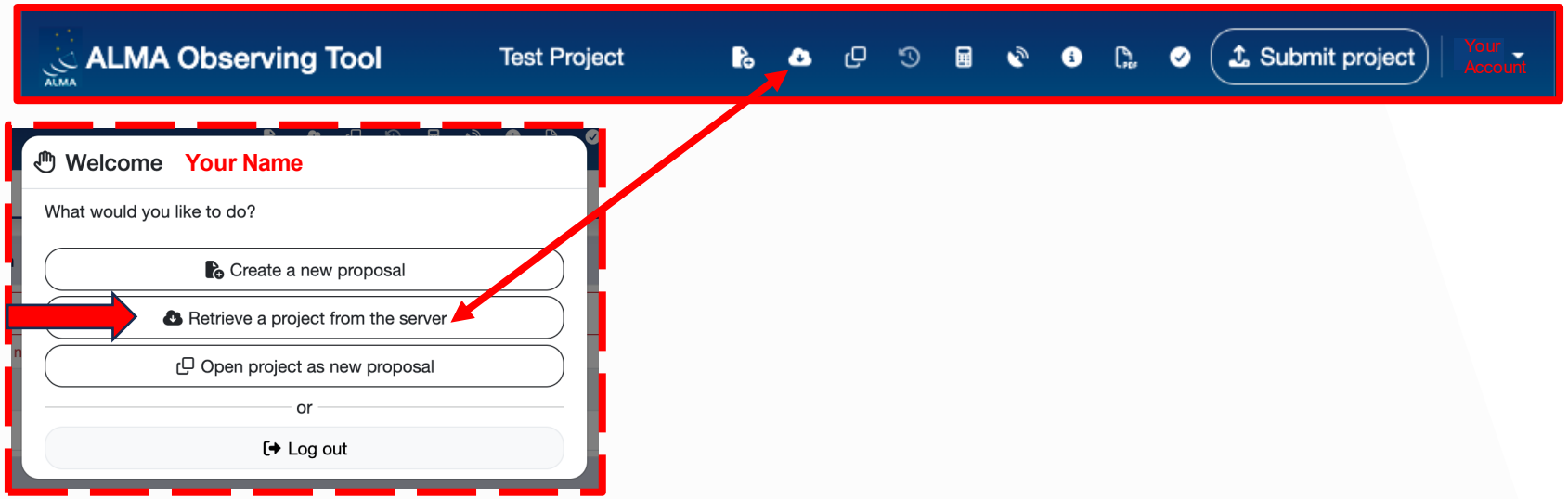



# Science Plan:

## Project Overview / Time Summary / Data Volumes & Data Rates

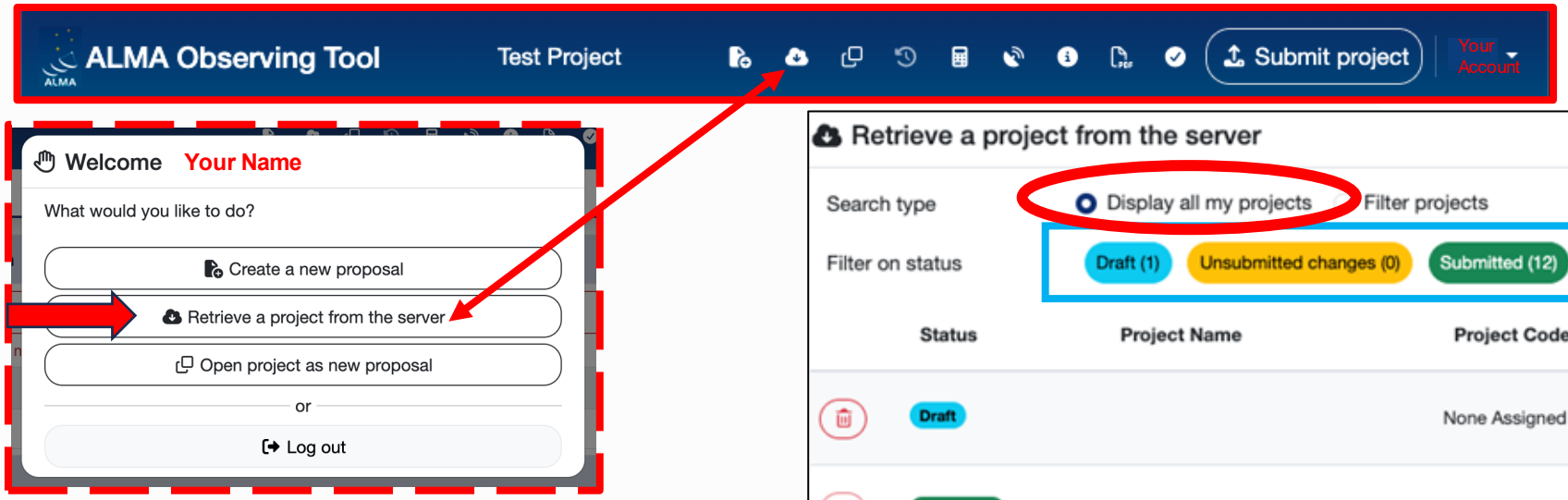


# Retrieve a project from the server



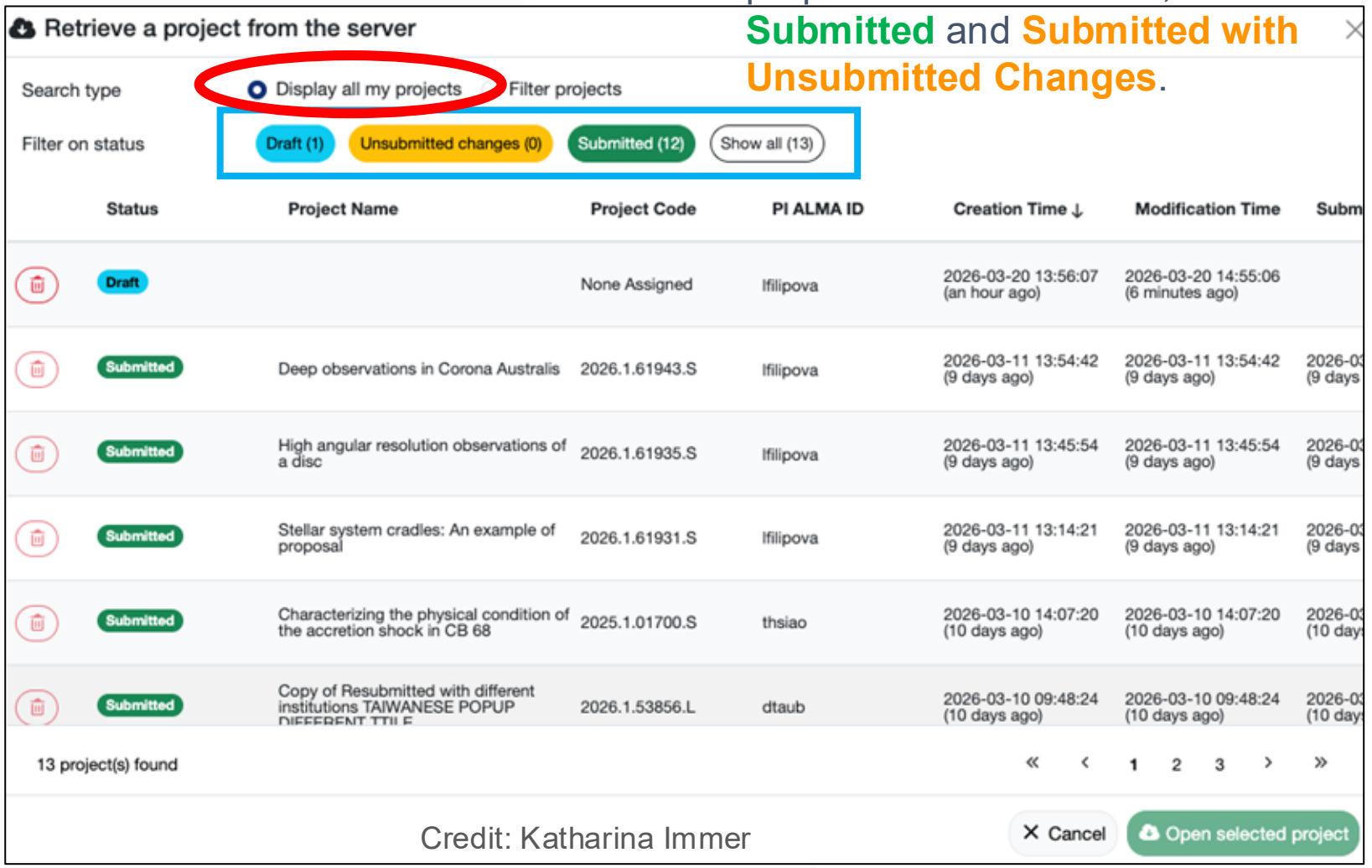

‘**Retrieve a project from the server**’ gives access to staging area.
Here, all proposals to which a user has access to are listed.

# Retrieve a project from the server: All projects




‘**Retrieve a project from the server**’ gives access to **staging area**.
Here, all proposals to which a user has access to are listed.

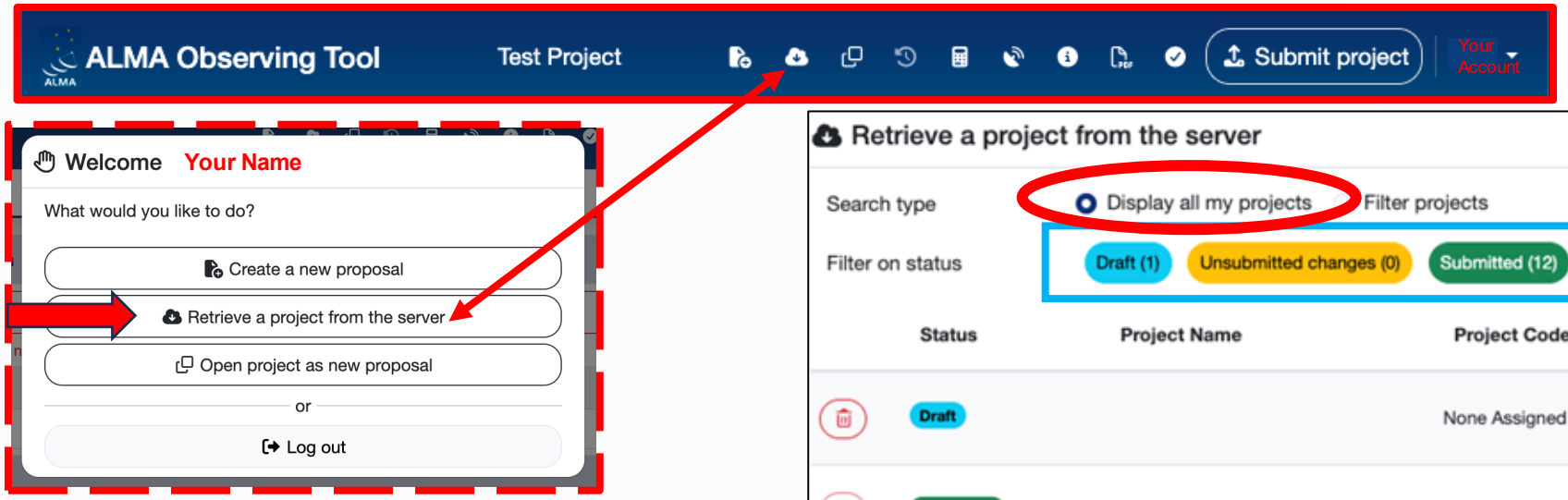
There are three different proposal statuses: **Draft**, **Submitted** and **Submitted with Unsubmitted Changes**.




**Staging Area**

Credit: Katharina Immer

# Retrieve a project from the server: All projects

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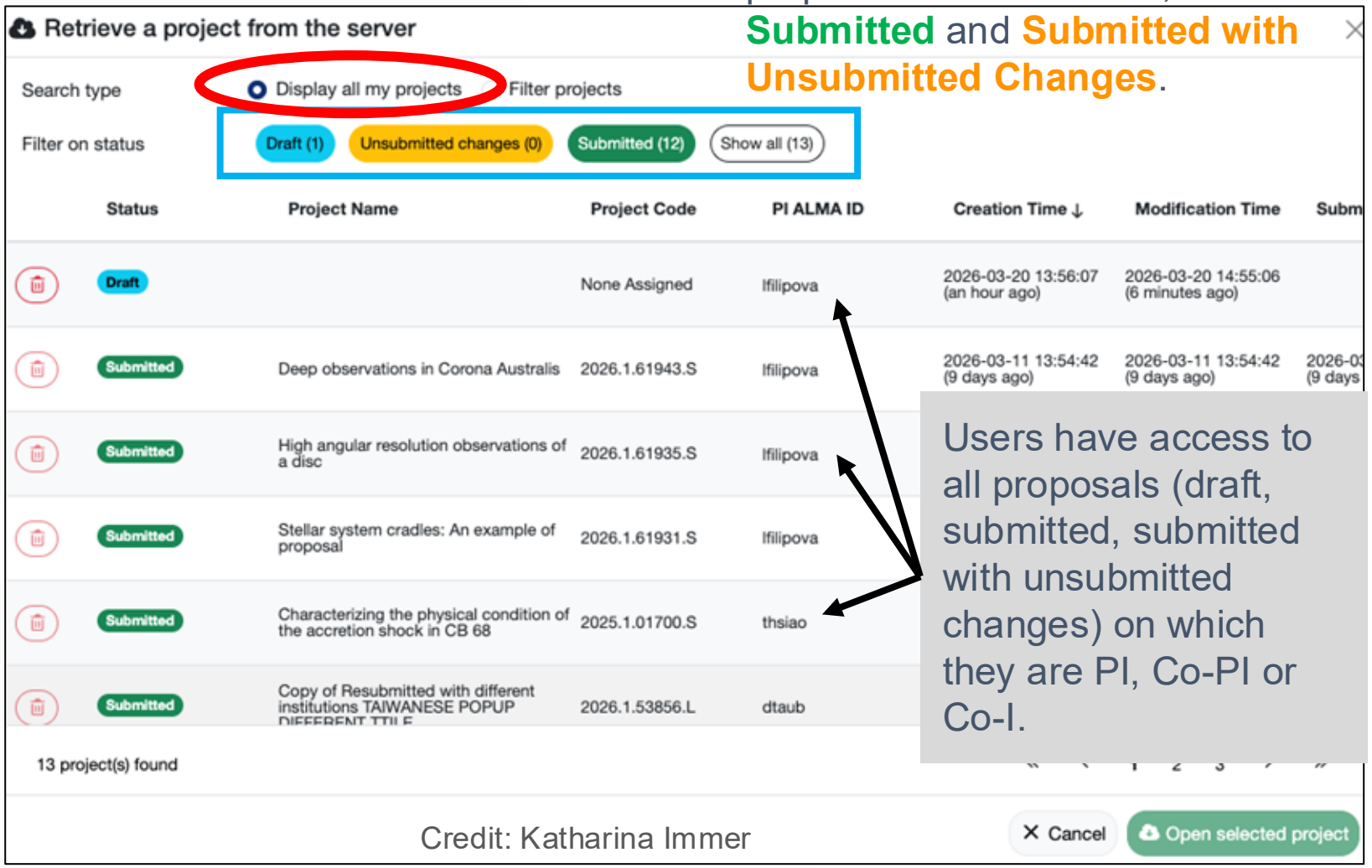


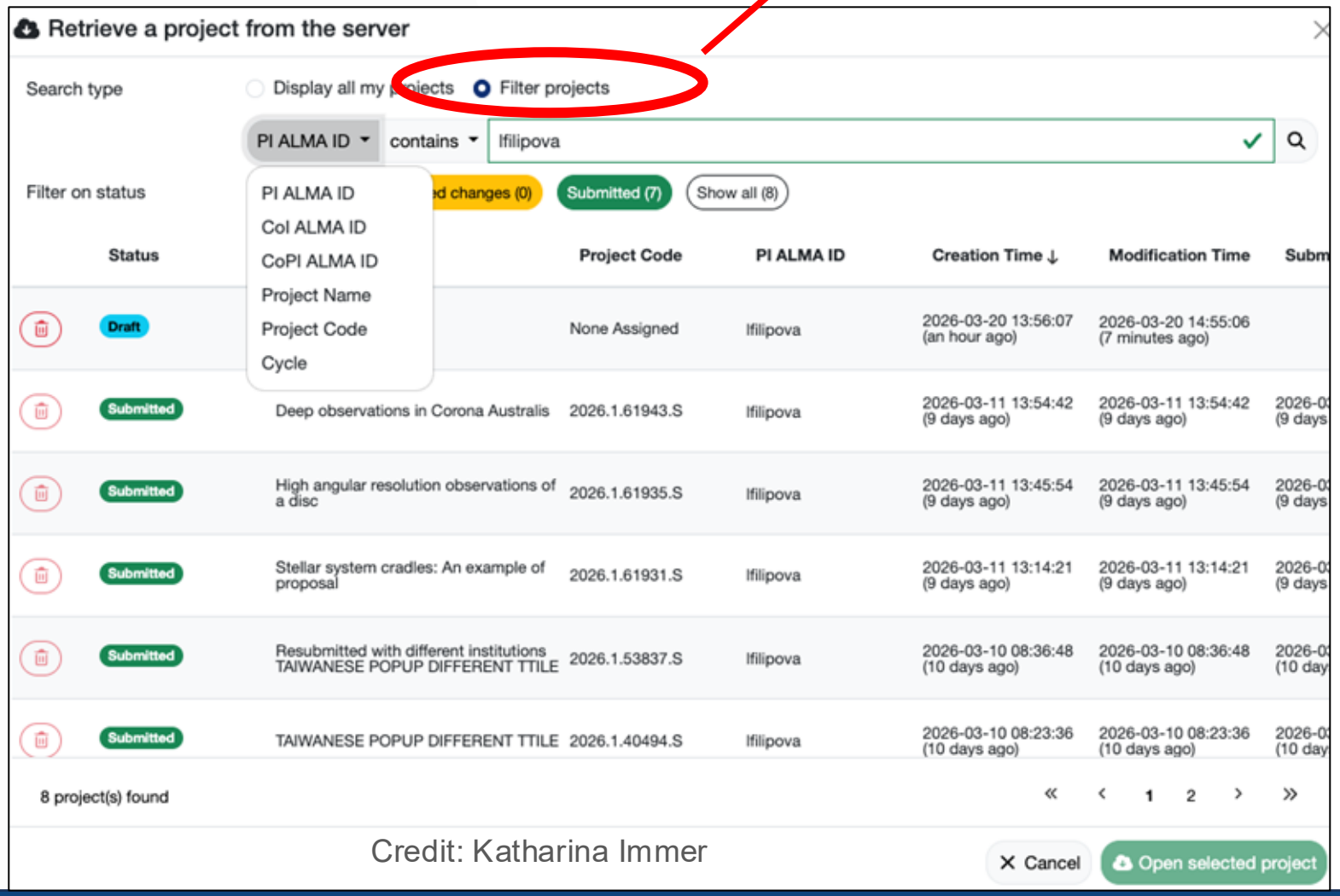

Users have access to all proposals (draft, submitted, submitted with unsubmitted changes) on which they are PI, Co-PI or Co-I.

**Staging Area**

Credit: Katharina Immer

# Retrieve a project from the server: Filter projects

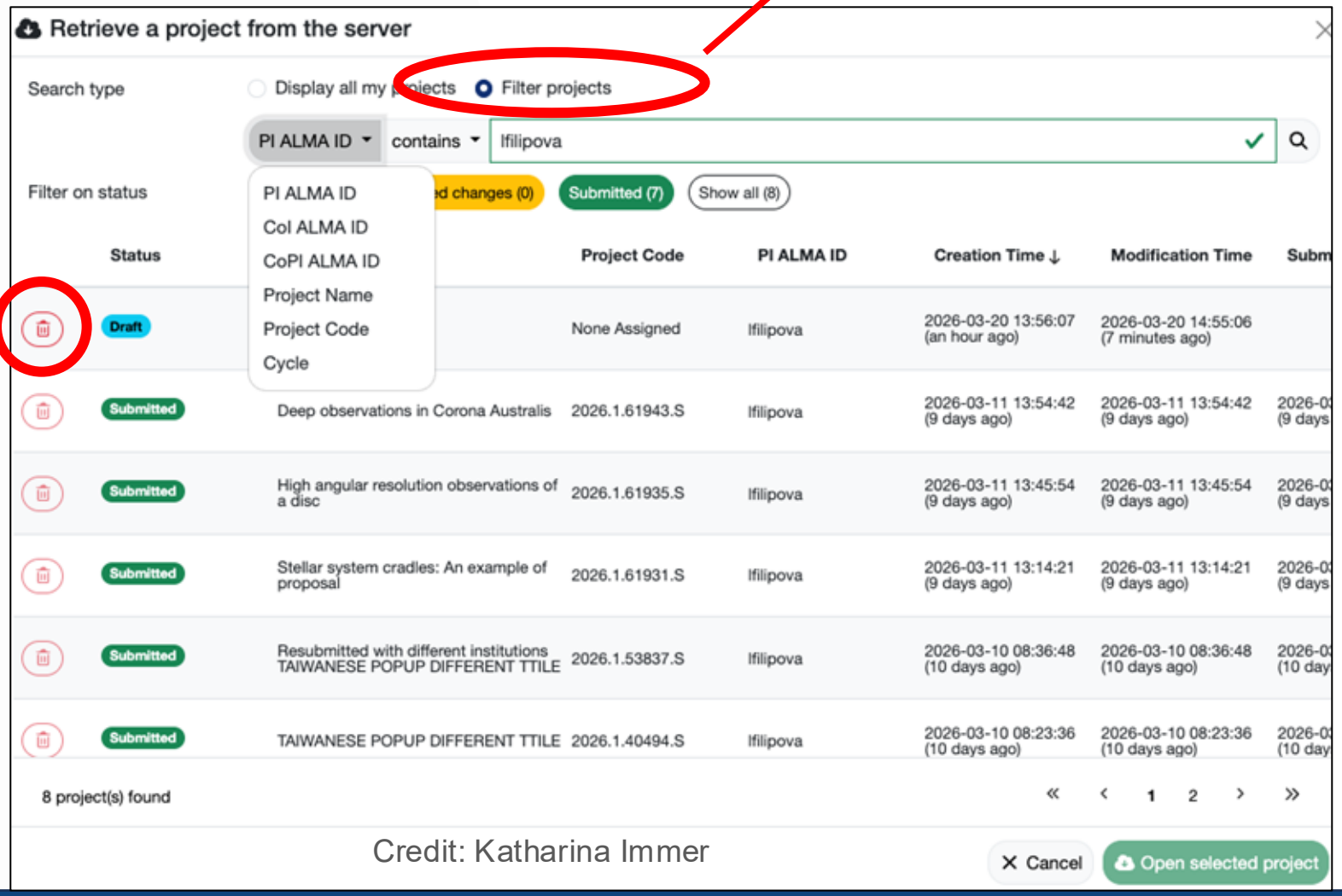

Proposals can be filtered with different filter options.




Credit: Katharina Immer

# Retrieve a project from the server: Filter projects


Proposals can be filtered with different filter options.




Credit: Katharina Immer

Draft proposals can be deleted from the staging area.
We recommend to clean up proposal drafts that are not needed anymore.

Submitted proposals can only be retracted via a helpdesk ticket.

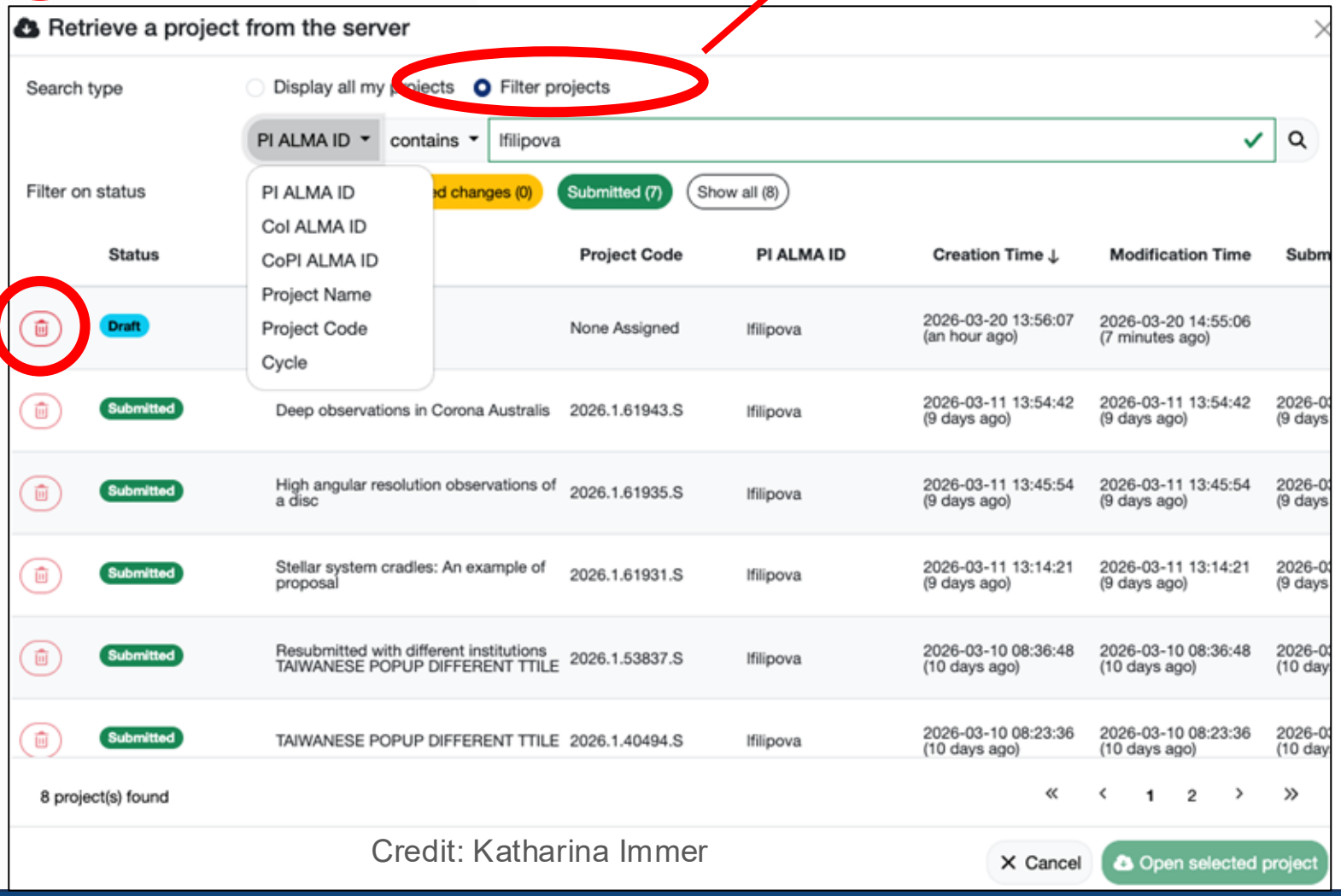
# Retrieve a project from the server: Filter projects


If a submitted project has unsubmitted changes, the user can revert it back to the archive version (the last submission) by clicking '**Revert project to last submitted version**'. After this, the unsubmitted changes will be lost.

Draft proposals can be deleted from the staging area.
We recommend to clean up proposal drafts that are not needed anymore.

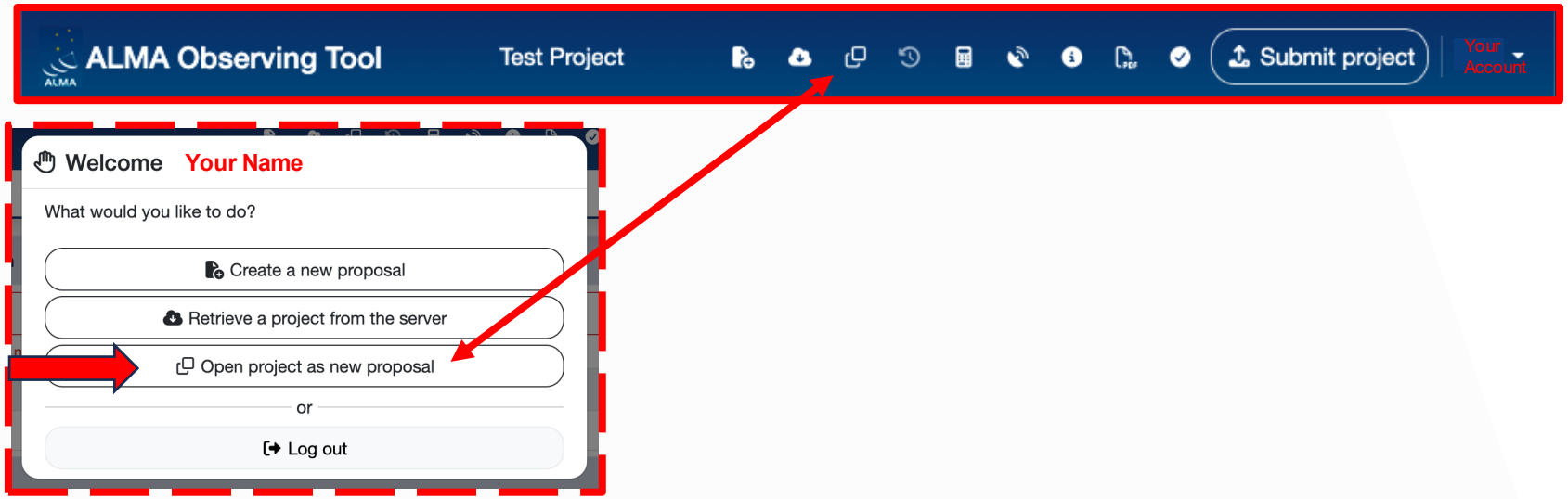
Submitted proposals can only be retracted via a helpdesk ticket.

Proposals can be filtered with different filter options.



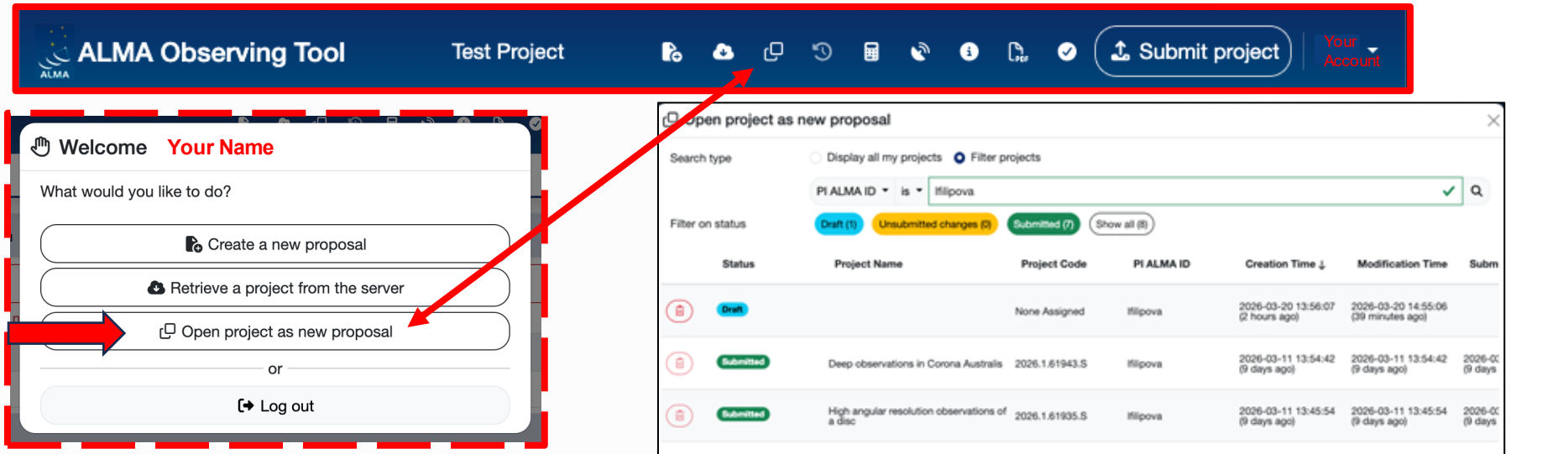

Credit: Katharina Immer

# Open project as new proposal




'**Open project as new proposal**' also gives access to staging area, allowing to make a copy of a proposal.
This function allows for testing different observing strategies.

# Open project as new proposal

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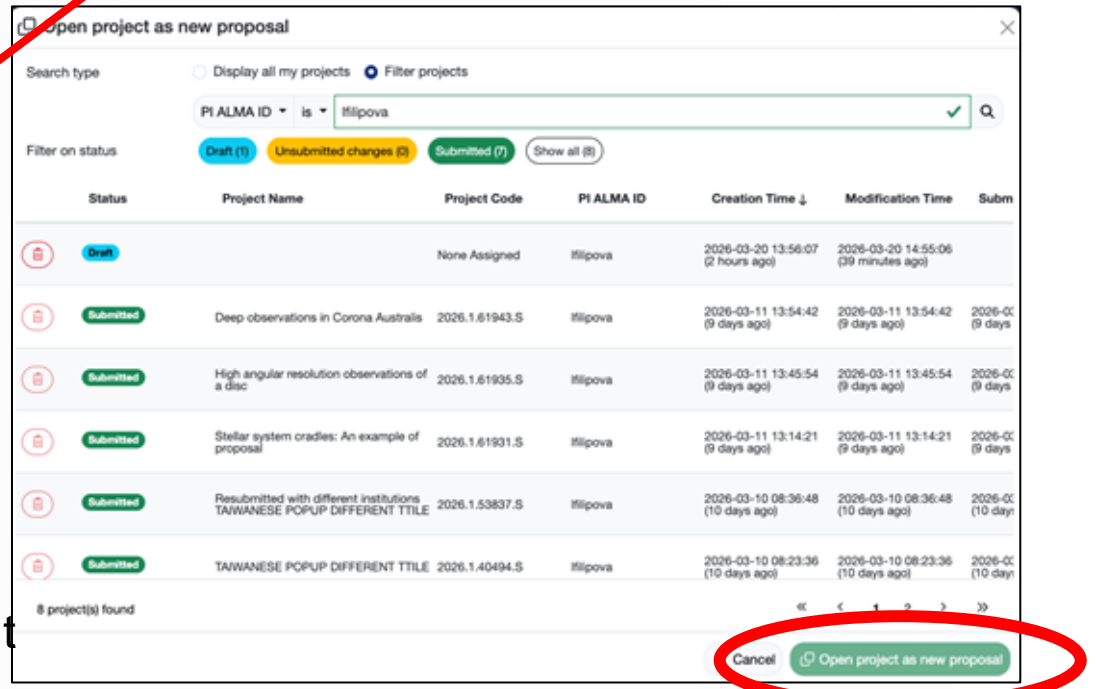
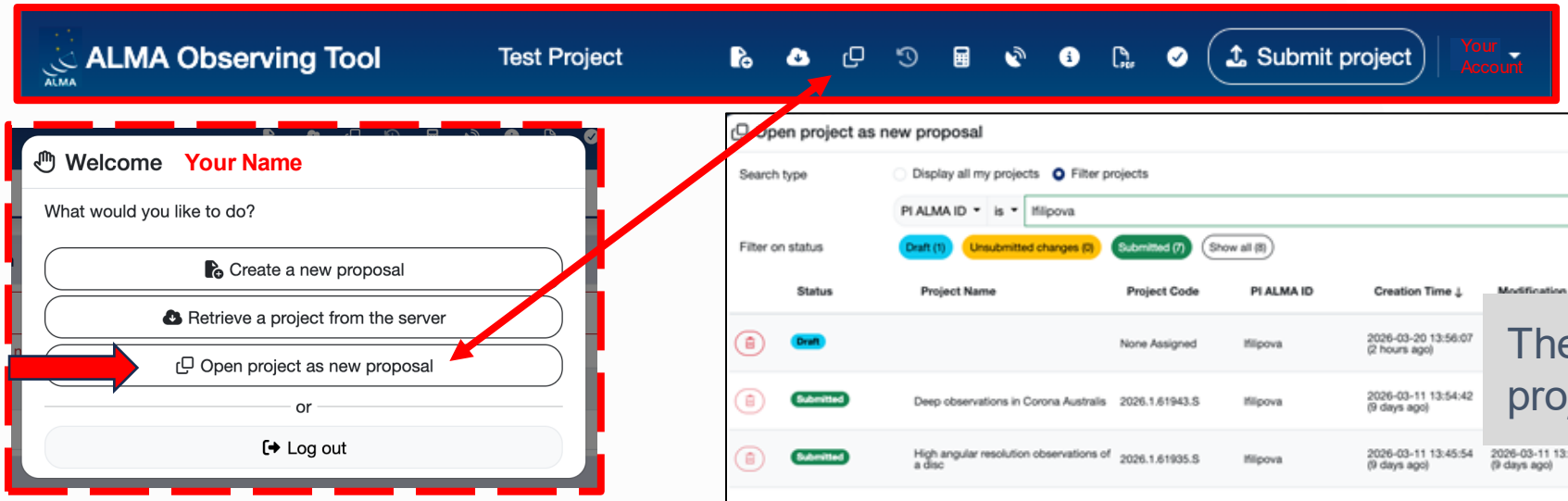



**If you are a co-I and make a copy, your role will switch to PI in the new copy. The original PI and other co-Is will be included as co-Is on that copy.**

# Open project as new proposal

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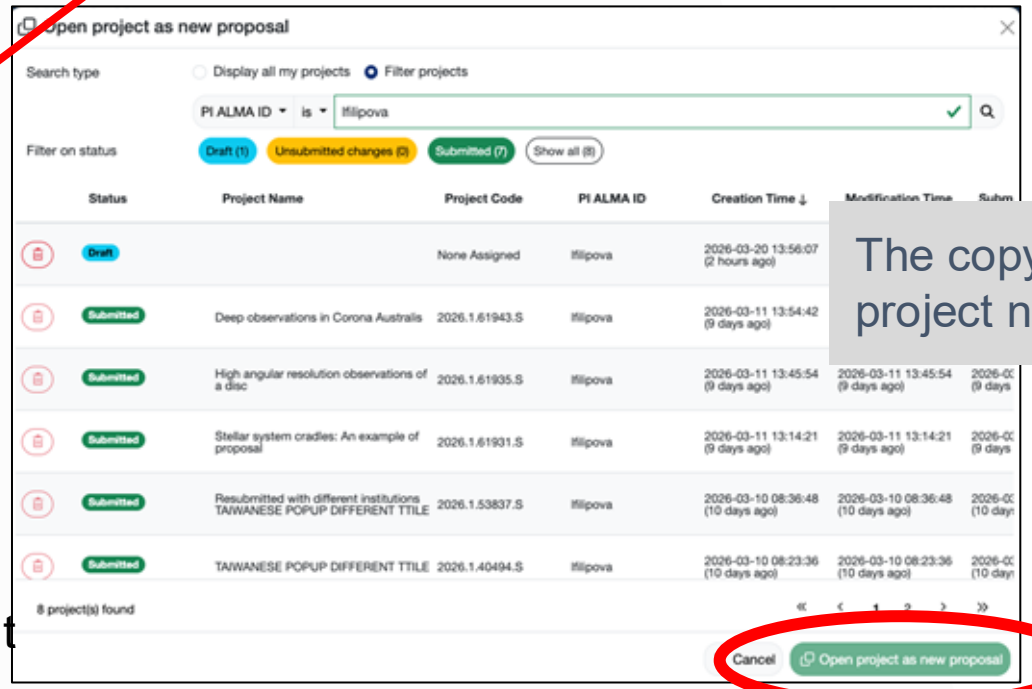
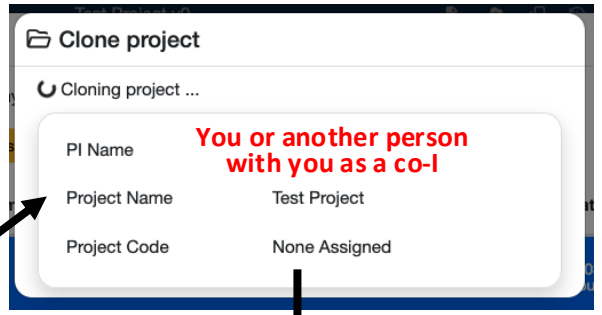
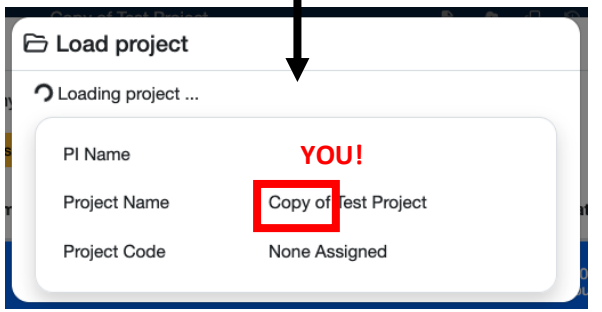



The copy will be in draft status. The new project name starts with ‘**Copy of …**’

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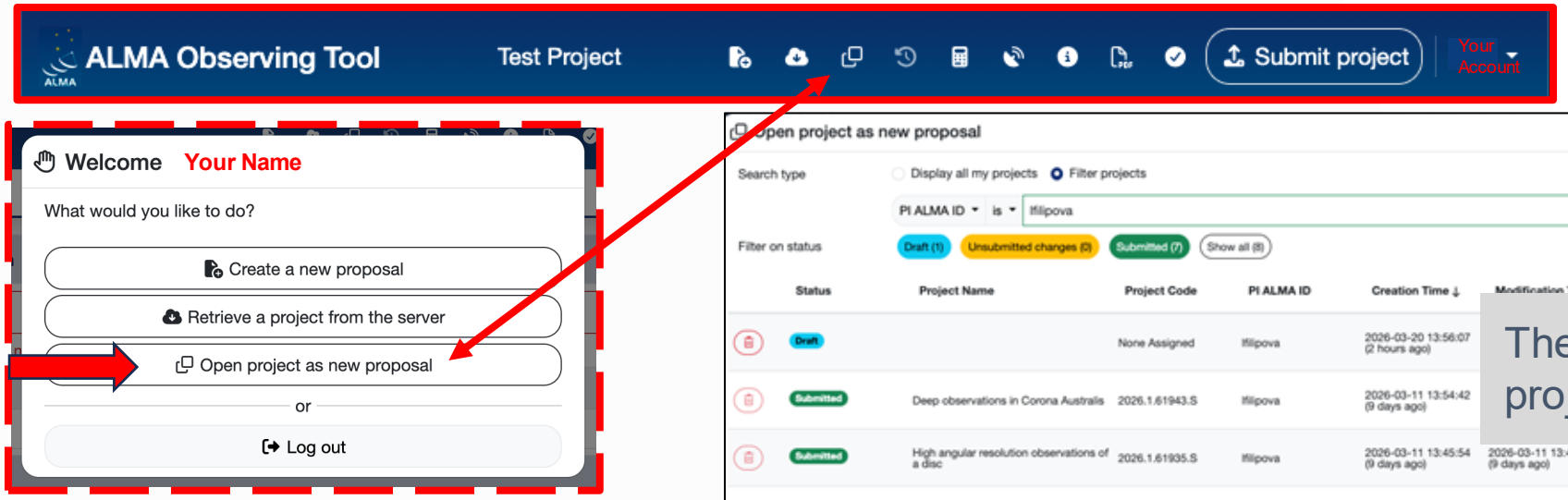
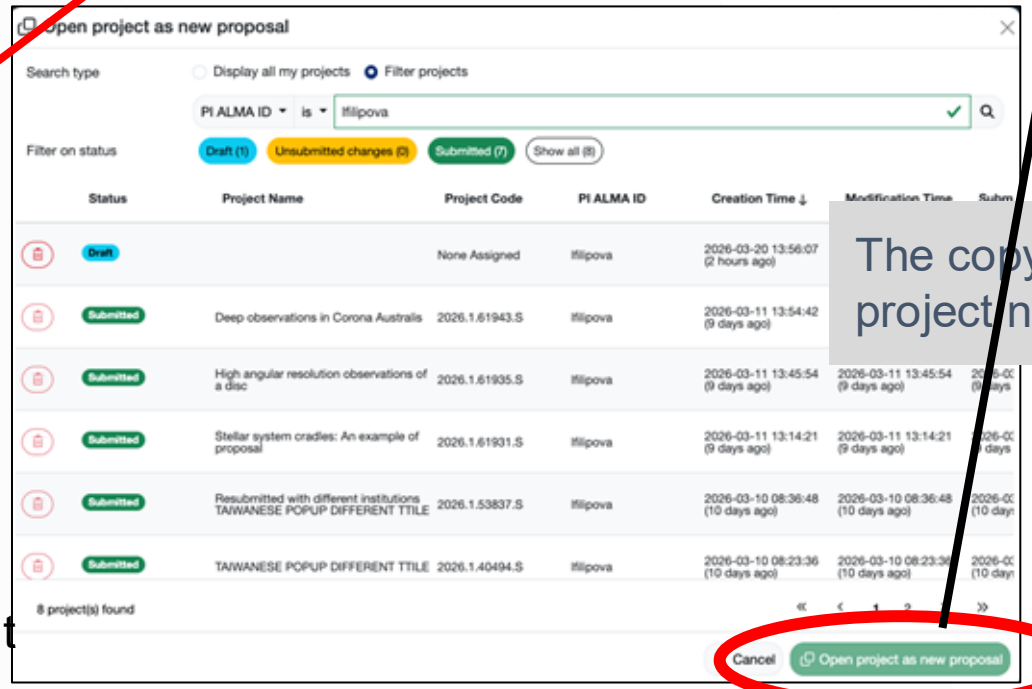
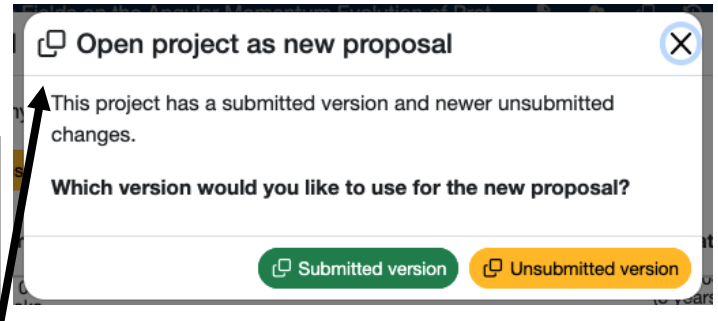
# Open project as new proposal

If a submitted project has unsubmitted changes, the user gets the choice which version to copy.




'**Open project as new proposal**' also gives access to staging area, allowing to make a copy of a proposal.
This function allows for testing different observing strategies.

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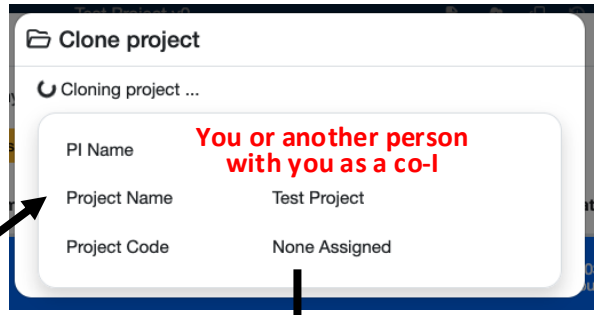


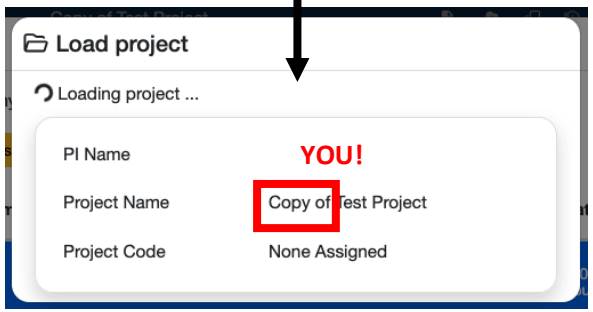


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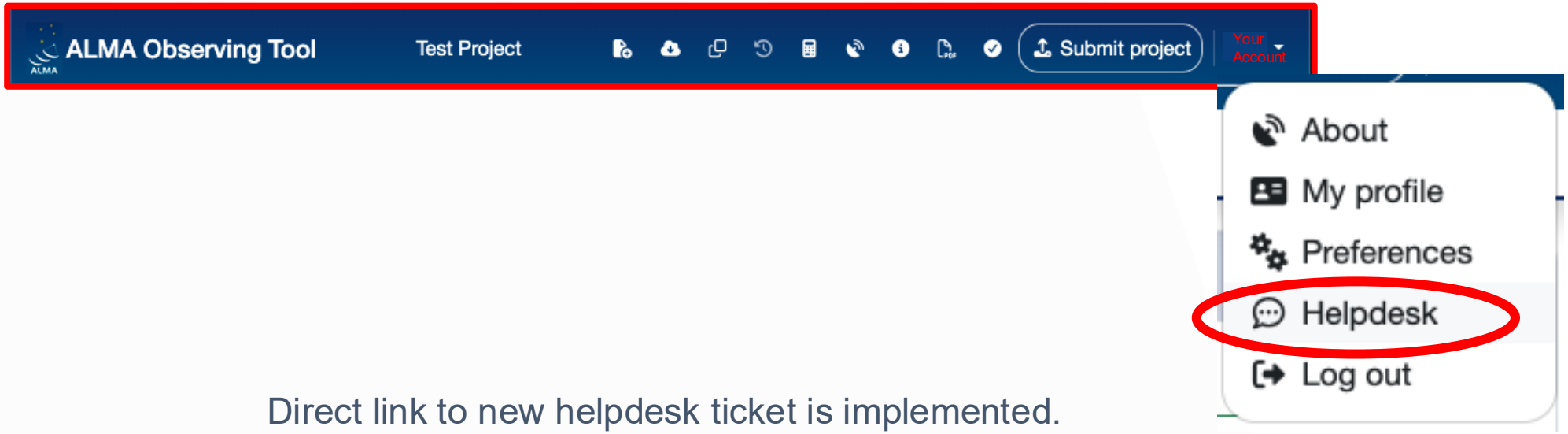
# To report a bug




Direct link to new helpdesk ticket is implemented.

Check FAQ and Known issue page on OT Science Portal pages.

# Recommendations

- For testing, users should make a copy of the SG to be tested or a copy of the whole proposal.
- No concurrent editing. Simultaneous live editing is not supported. If the staging area detects a newer version saved by a collaborator, it will force frequent page reloads, disrupting your workflow. Communicate clearly with your team before editing.
- Log out after editing. Do not leave the browser tab open.

# Observing Tool (OT)

- Web-based OT
  https://cycle-13.sps.alma.cl
- OT video tutorials
  https://almascience.org/proposing/observing-tool/video-tutorials
- User manual
  https://almascience.org/documents-and-tools/cycle13/alma-ot-usermanual
- Reference manual
  https://almascience.org/documents-and-tools/cycle13/alma-ot-refmanual
- FAQ and known issues
  https://almascience.org/proposing/observing-tool/faq-and-known-issues
- Knowledgebase
  https://help.almascience.org/kb/alma-observing-tool-ot
- Helpdesk
  https://help.almascience.org/