

JCMT Observing Tool

Harriet Parsons, Support Scientist, JAC/EOO

To implement the topics covered in this workshop you will need:

- To register for an OMP ID
- To have a proposal approved by the Time Allocation Committee
- To have a project code: i.e. M14BJ01
- Downloaded and installed the JCMT Observing Tool (OT)

Observing Tool (Software Installation)

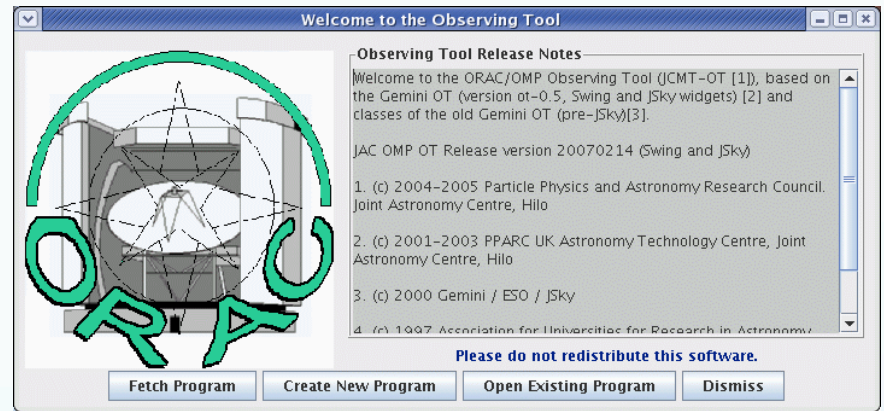
Observing Tool

The Observing Tool is a Java based application for creating Science Programs. This is the software used to create and upload the details (position, time, offsets etc.) of a science observation to our system.

Requirements

While Linux based operating systems are our lead platform, testing has been performed to varying degrees on Solaris, Windows and Mac OS X.

To acquire and run the Observing Tool requires having a version of the Java Runtime Environment greater or equal to 1.6. If you are unsure whether or not you have Java installed and in your path, or which version of Java you have, open a console and type the following:



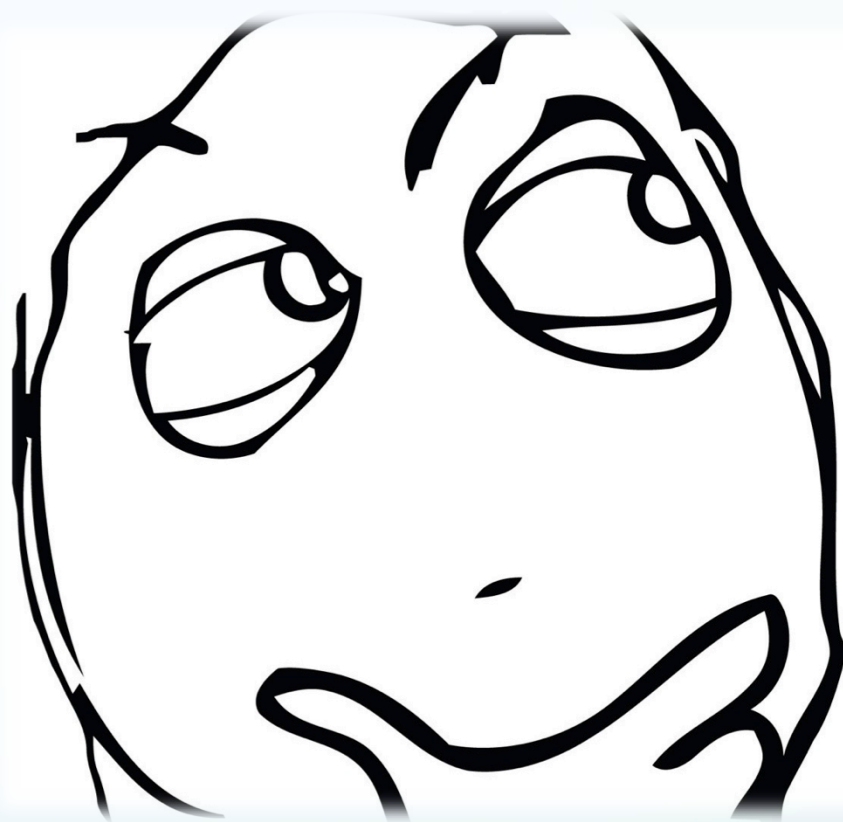
You may want to bookmark these links:

- www.eaobservatory.org/jcmt/observing/software-installation/#observing-tool
- www.eaobservatory.org/JCMT/observing-tool/

Example 1: SCUBA-2

I have an interesting fragmented star forming complex I wish to observe. I wish to obtain a depth of 5mJy at 850 microns. The region is located at an RA and Dec of: 19h and +09°.

The complex I am interested in is large and spreads out nearly a degree in extent, requiring a Pong 3600 to cover the entire region.



Example 1: SCUBA-2

I have an interesting fragmented star forming complex I wish to observe. I wish to obtain a depth of 5mJy at 850 microns. The region is located at an RA and Dec of: 19h and +09°.

The complex I am interested in is large and spreads out nearly a degree in extent, requiring a Pong 3600 to cover the entire region.

Feedback:

You have been successful in your request for time. The TAC felt you put forward a strong scientific case for observing this field. You have been approved 16 hours of Band 3 time.

Example 1: SCUBA-2

I have an interesting fragmented
star forming complex I wish to
observe. I wish to obtain a



You have been successful in
your request for time. The TAC
felt you put forward a strong
scientific case for observing this
field. You have been approved
16 hours of Band 3 time.

Example 1: SCUBA-2

I have an interesting fragmented star forming complex to observe. I wish to observe at a depth of 5mJy at 850 μ m. The region is located at RA of: 19h 48m 00s and Dec of: 19h 48m 00s.

The complex I am interested in is large and spread over a degree in extent. I want to Pong 3600 to cover the entire region.

Feedback:

You have been approved for your request for observing this scientific case for 16 hours of Band 3 time.

Create New Project:

The screenshot shows the SCUBA-2 software interface. The main window is titled 'Science Program'. On the left, there is a sidebar with various icons and labels: 'OR Folder', 'AND Folder', 'Survey Container', 'MSB Folder', 'Observation', 'Note', 'Library', 'Component', 'Iterator', and 'Observe'. The main area is divided into two panes. The left pane is titled 'Program' and contains the text 'General program information taken from the proposal.' The right pane contains a form with the following fields: 'Title', 'PI', 'Country', 'Project ID', 'Estimated Time (w/o optionals)', and 'Estimated Total Time'. The 'Estimated Time (w/o optionals)' and 'Estimated Total Time' fields are both set to '00:00:00.0'. At the bottom right of the window, there is an 'Undo' button.

Field	Value
Title	
PI	
Country	
Project ID	
Estimated Time (w/o optionals)	00:00:00.0
Estimated Total Time	00:00:00.0

Example 1: SCUBA-2

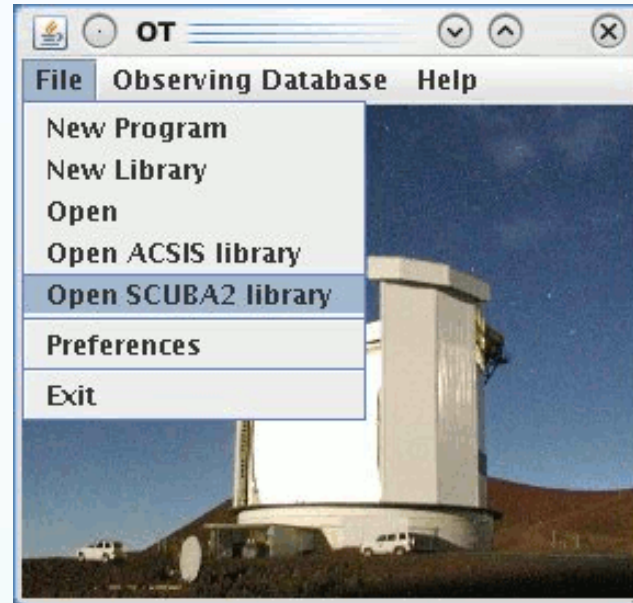
I have an interesting fragmented star forming complex I wish to observe. I wish to obtain a depth of 5mJy at 850 microns. The region is located at an RA and Dec of: 19h and +09°.

The complex I am interested in is large and spreads out nearly a degree in extent, requiring a Pong 3600 to cover the entire region.

Feedback:

You have been successful in your request for time. The TAC felt you put forward a strong scientific case for observing this field. You have been approved 16 hours of Band 3 time.

Open SCUBA-2 Library:



Example 1: SCUBA-2

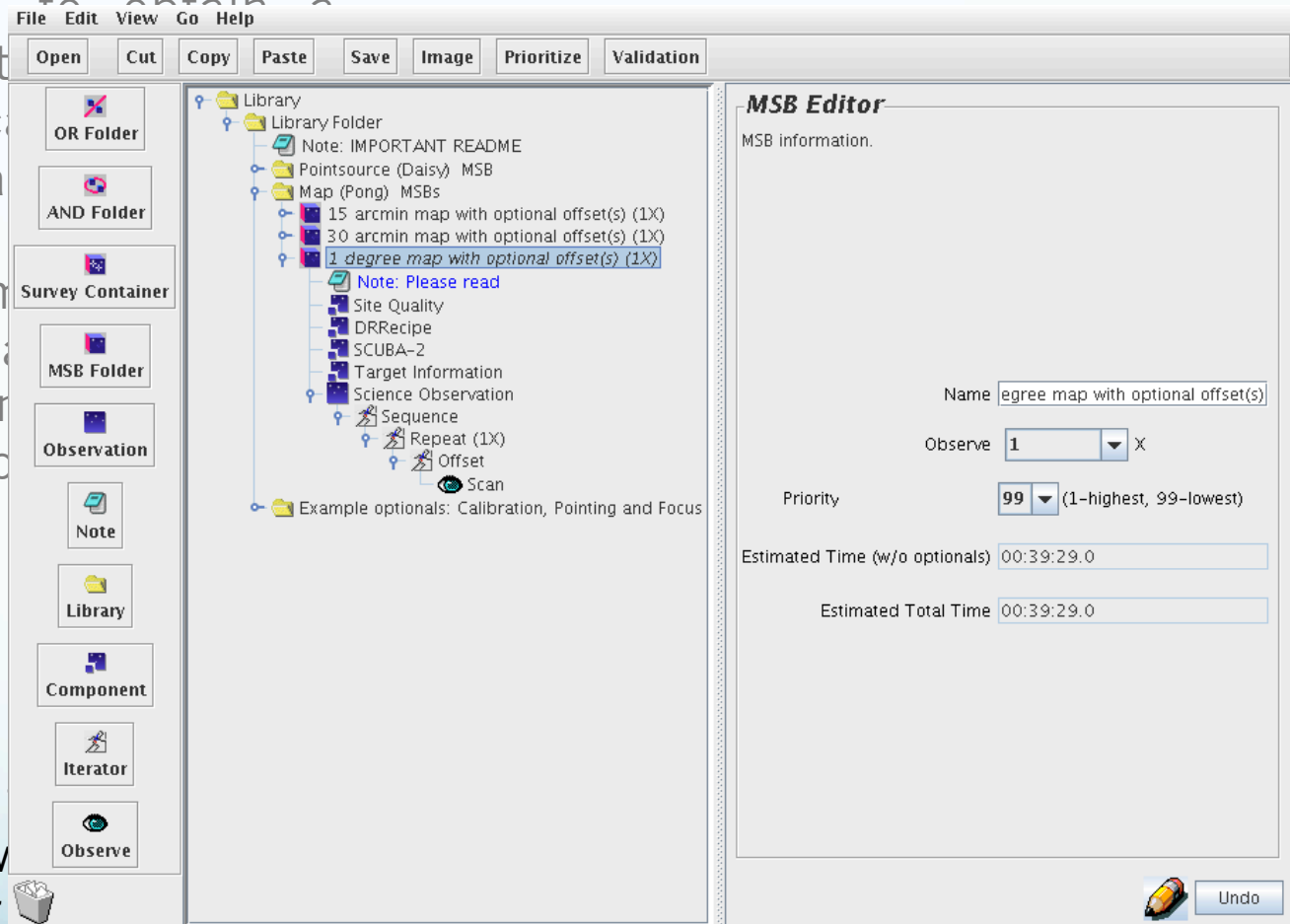
I have an interesting fragmented star forming complex I wish to observe. I wish to obtain a depth of 5mJy at 850um. The region is located at RA of: 19h 45m 10s and Dec of: 19h 45m 10s.

The complex I am interested in is large and spread over a degree in extent. I want to Pong 3600 to cover the region.

Feedback:

You have been approved for your request for observing this scientific case for 16 hours of Band 3 time.

Search for an appropriate msb you can use as a template:



Example 1: SCUBA-2

I have an interesting fragmented star forming complex I wish to observe. I wish to obtain a depth of 5mJy

The region is located at RA of: 19h

The complex I am interested in is large and spans about a degree in extent. I want to observe Pong 3600 to the south of the region.

Feedback:

You have been approved for your request for 16 hours of Band 3 time.

Copy template into your own project and fill in top level details:

The screenshot shows a software interface for project management. The top menu bar includes File, Edit, View, Go, Database, and Help. Below the menu is a toolbar with buttons for Open, Cut, Copy, Paste, Save, Image, Prioritize, and Validation. The left sidebar contains a tree view of project components: OR Folder, AND Folder, Survey Container, MSB Folder, Observation, Note, Library, Component, Iterator, and Observe. The main window is titled 'Program' and contains a section for 'General program information taken from the proposal.' The form fields are as follows:

Field	Value
Title	Interesting Complex
PI	Harriet Parsons
Country	EA0
Project ID	m14aj01
Estimated Time (w/o optionals)	00:39:29.0
Estimated Total Time	00:39:29.0

At the bottom right of the window is an 'Undo' button with a pencil icon.

Example 1: SCUBA-2

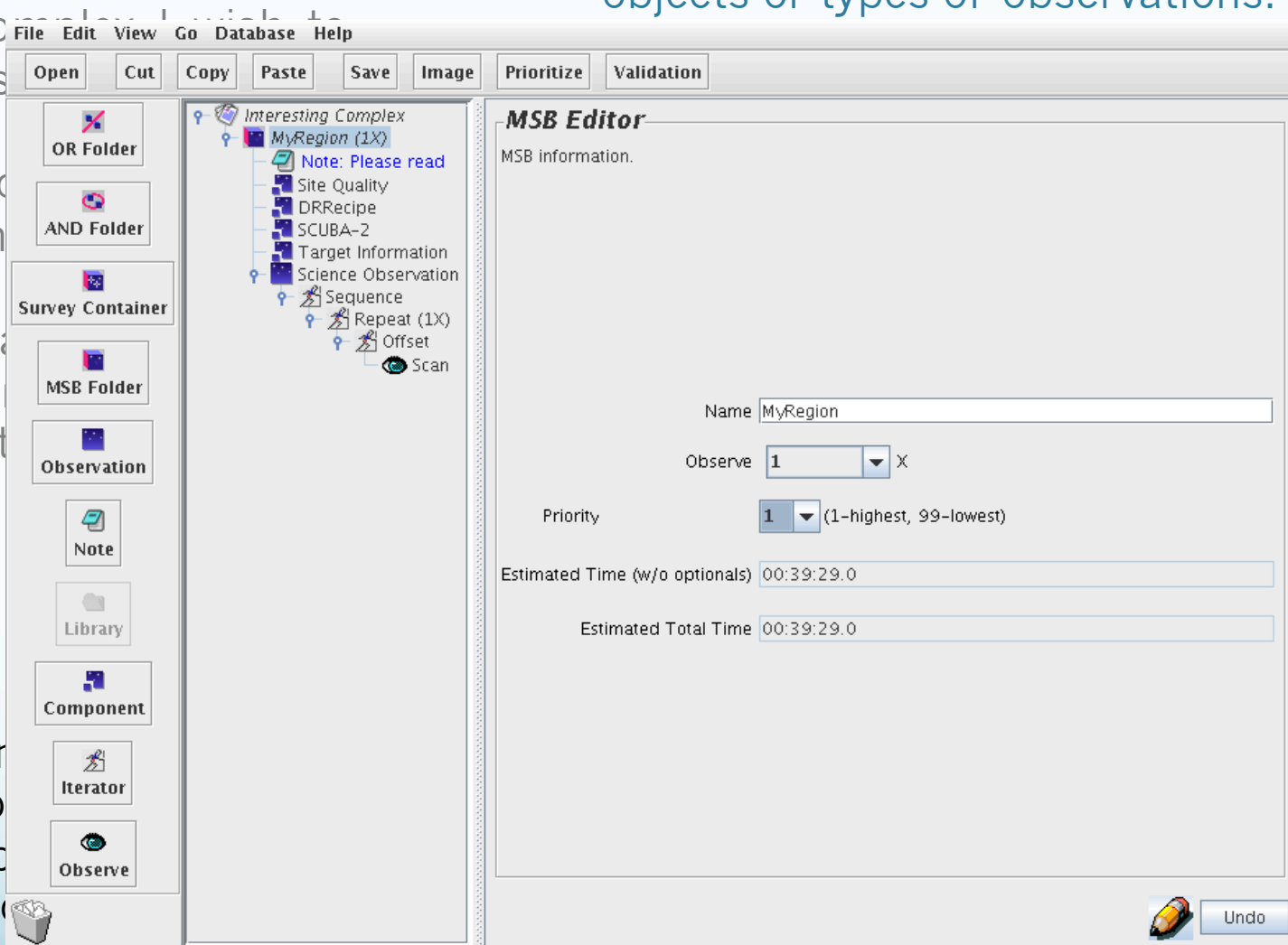
I have an interesting fragmented star forming complex I want to observe. I wish to observe at a depth of 5mJy. The region is located at RA of 19h 59m 50s and Dec of: 19h 59m 50s.

The complex I am interested in is large and spans about a degree in extent. I want to observe Pong 3600 to the south of the region.

Feedback:

You have been approved for your request for 16 hours of Band 3 time. You have been approved for 16 hours of Band 3 time.

Create name – useful if multiple objects or types of observations:



Example 1: SCUBA-2

I have an interesting fragmented star forming complex that I want to observe. I need a depth of 5mJy. The region is at RA 16h 16m 16s and Dec of: 16h 16m 16s

The complex is large and covers a degree in RA. I want to observe a Pong 3600 region.

Feedback:

You have been successful in your request. You have put a scientific case for observing this field. You have a total of 16 hours of Band 3 time.

Create a note for the Telescope Operator – to assist with observing:

The screenshot shows a software window with a menu bar (File, Edit, View, Go, Database, Help) and a toolbar (Open, Cut, Copy, Paste, Save, Image, Prioritize, Validation). On the left is a sidebar with icons and labels: OR Folder, AND Folder, Survey Container, MSB Folder, Observation, Note, Library, Component, Iterator, and Observe. The main area displays a tree view of an observation plan:

- Interesting Complex
 - MyRegion (1X)
 - Note: Please read
 - Site Quality
 - DRRecipe
 - SCUBA-2
 - Target Information
 - Science Observation
 - Sequence
 - Repeat (1X)
 - Offset
 - Scan

On the right, the 'Note' section contains the following fields and text:

Note
Enter notes for the operator/astronomer here.

Title:

☒ Show to the Observer

Completion Parameter: (S/N = 5 / allocatedtime expires / mK / mJy)
Binning: (specify units of MHz or Km/s for Heterodyne)

Note:
The aim is to observe a star forming region using a pong 3600 down to a depth of 5mJy at 850 micron in the default pixel size. If you have any questions please contact me at: my@email.address

At the bottom right, there is an 'Undo' button with a pencil icon.

Example 1: SCUBA-2

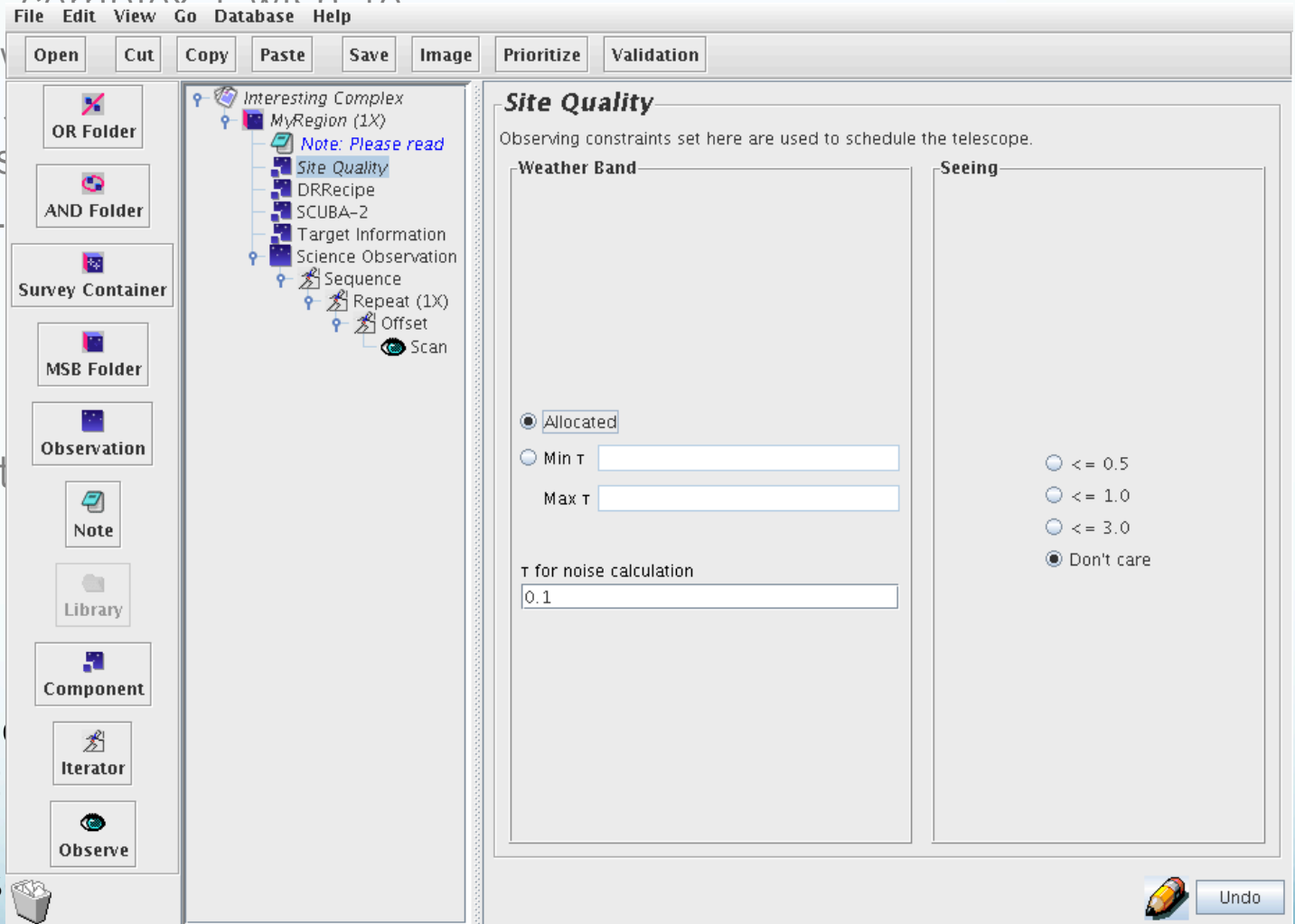
I have an interesting fragmented star forming complex I wish to observe. I want a depth of 5m. The region is RA of: 1h 45m and Dec of: 15° 15'.

The complex is large and covers a degree in RA. I want Pong 3600 to observe this region.

Feedback:

You have been approved for your request. You have put in a scientific case for this field. You have been approved for 16 hours of Band 3 time.

Adjust Tau levels and seeing constrains:



Example 1: SCUBA-2

I have an interesting fragmented star forming complex to observe. I wish to observe at a depth of 5mJy. The region is located at RA of 19h 59m 50s and Dec of: 19h 59m 50s.

The complex I am observing is large and spread over a degree in extent. I have Pong 3600 to observe the region.

Feedback:

You have been approved for your request for observing this scientific case for 16 hours of Band 3 time.

Select relevant DR recipe for your object:

File Edit View Go Database Help

Open Cut Copy Paste Save Image Prioritize Validation

OR Folder

AND Folder

Survey Container

MSB Folder

Observation

Note

Library

Component

Iterator

Observe

Interesting Complex

MyRegion (1X)

Note: Please read

Site Quality

DRRecipe

SCUBA-2

Target Information

Science Observation

Sequence

Repeat (1X)

Offset

Scan

DR Recipe

Enter the Data Reduction recipe to be used

Observation Type Recipe Name

Scan Set REDUCE_SCAN_EXTENDED_SOURCES

Jiggle Set

Stare Set

Pointing Set

Focus Set

Default

Recipe Name	Description
REDUCE_SCAN	Basic scan reduction for SCUBA-2
REDUCE_SCAN_EXTENDED_SOURCES	Scan map processing optimized for extended...
REDUCE_SCAN_FAINT_POINT_SOURCES	Scan map processing optimized for faint poin...
REDUCE_FTS_SCAN	Basic recipe for FTS-2 observations.
REDUCE_FTS_ZPD	Procedure for FTS-2 ZPD calibration.

Undo

Example 1: SCUBA-2

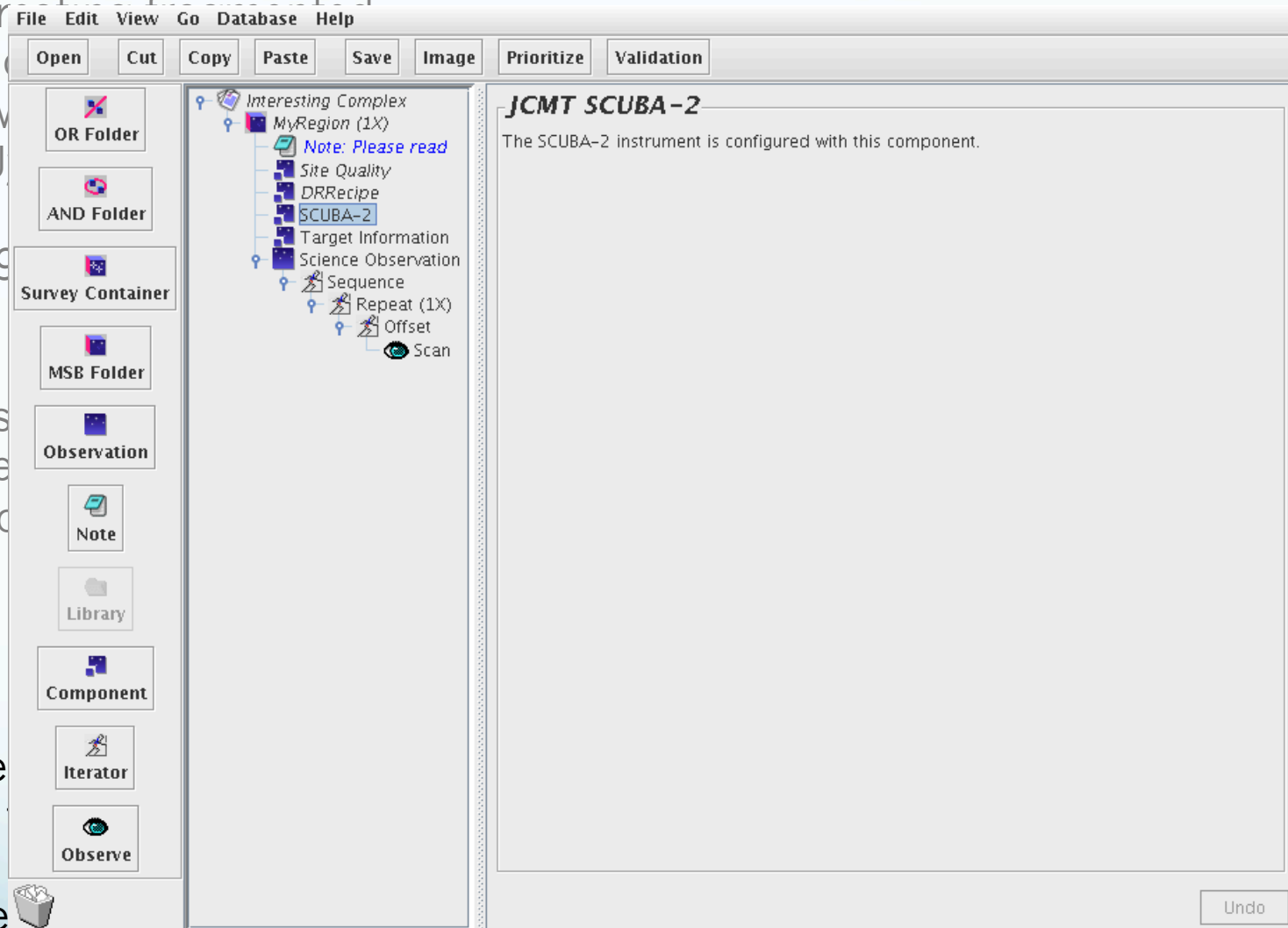
I have an interesting field forming a star forming complex. I want to observe. I want a depth of 5mJy. The region is at RA of 19h 59m 50s and Dec of: 19° 59' 50".

The complex is large and spans a degree in each direction. Pong 3600 to the region.

Feedback:

You have been approved your request. You felt you put a scientific case

field. You have been approved 16 hours of Band 3 time.



Example 1: SCUBA-2

I have an interesting fragmented star forming region. I want to observe. I want a depth of 5m. The region is at RA of: 19:10:19.587 and Dec of: +09:07:41.51

The complex is large and covers a degree in RA. I want to Pong 3600 to this region.

Feedback:

You have been given your request. I felt you put a scientific case for this field. You have 16 hours of Band 3 time.

Fill in object details (name can be resolved by SIMBAD):

The screenshot shows a software interface with a menu bar (File, Edit, View, Go, Database, Help) and a toolbar (Open, Cut, Copy, Paste, Save, Image, Prioritize, Validation). On the left is a sidebar with icons for OR Folder, AND Folder, Survey Container, MSB Folder, Observation, Note, Library, Component, Iterator, and Observe. The main area is divided into two panes. The left pane shows a tree view with the following structure:

- Interesting Complex
 - MyRegion (1X)
 - Note: Please read
 - Site Quality
 - DRRecipe
 - SCUBA-2
 - Target Information:
 - Science Observation
 - Sequence
 - Repeat (1X)
 - Offset
 - Scan

The right pane is titled "Target Information" and contains the following fields:

- Use this editor to enter the target information.
- Name: W49
- Tag: SCIENCE
- TargetType: RA/Dec
- RA/Dec: 19:10:19.587
- Orbital Elements: (disabled)
- Named Planets: (disabled)
- TLE: (disabled)
- Object: SIMBAD Names ESO
- Resolve Name: Resolved Name: W 49
- System: FK5 (J2000)
- Long: 19:10:19.587 (degrees)
- Lat: +09:07:41.51 (degrees)
- Radial Vel/Tracking: radio
- Proper Motion: 0.0
- Chop Settings: (disabled)
- Velocity (km/s or redshift): 0.0
- Frame: LSRK

At the bottom, there is a table with the following data:

Tag	Name	X Axis	Y Axis	System
SCIENCE	W49	19:10:19.587	+09:07:41.51	FK5 (J2000)

Below the table are buttons for Plot..., Set SCIENCE To..., Remove, Add, and a dropdown menu for REFEREN... (set to SCIENCE). At the bottom right is an Undo button.

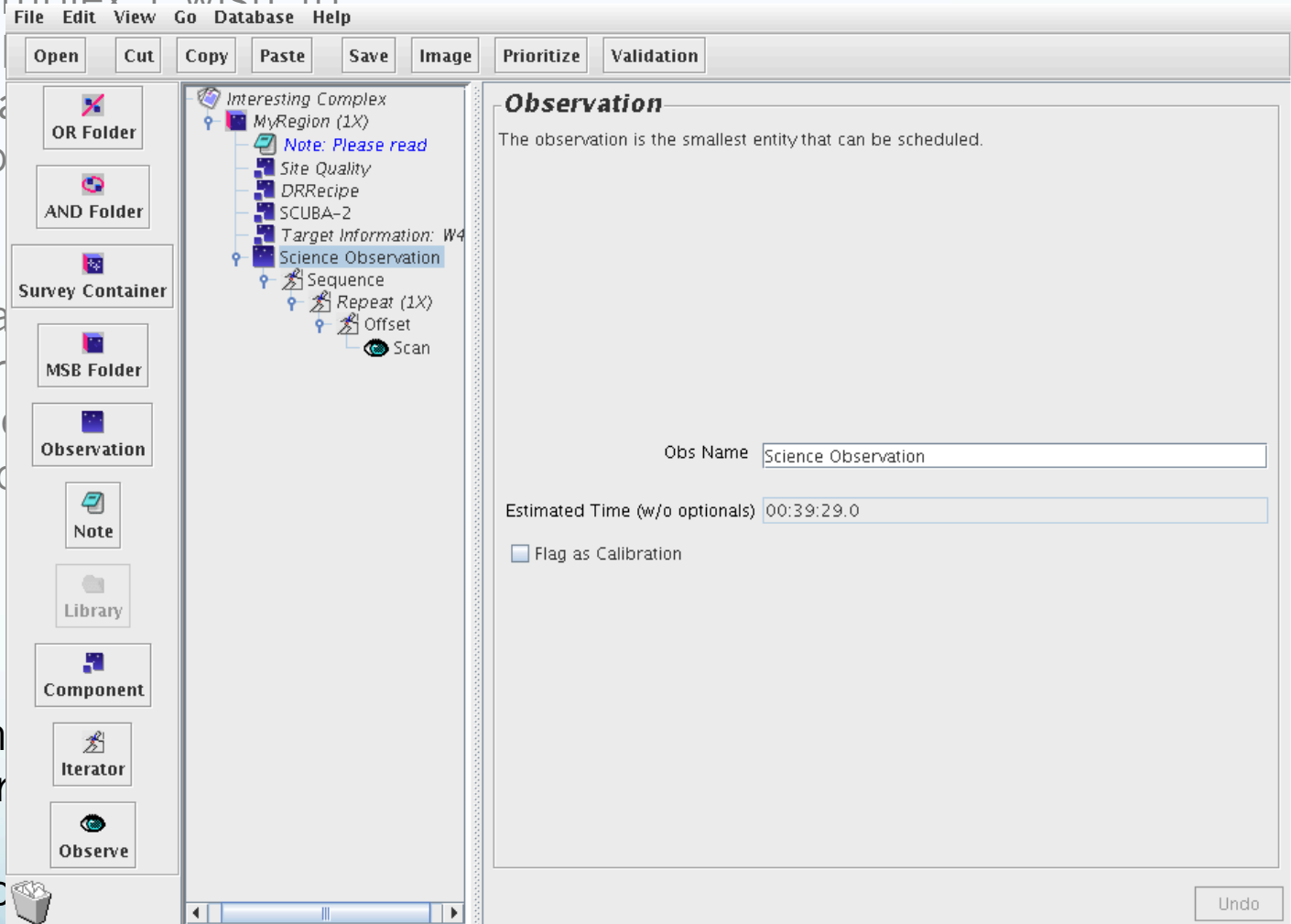
Example 1: SCUBA-2

I have an interesting fragmented star forming complex I wish to observe. I wish to observe at a depth of 5mJy and the region is located at RA of: 19h

The complex I am interested in is large and spans a degree in extent. I have Pong 3600 to observe the region.

Feedback:

You have been approved for your request for 16 hours of Band 3 time. You have been approved for 16 hours of Band 3 time.



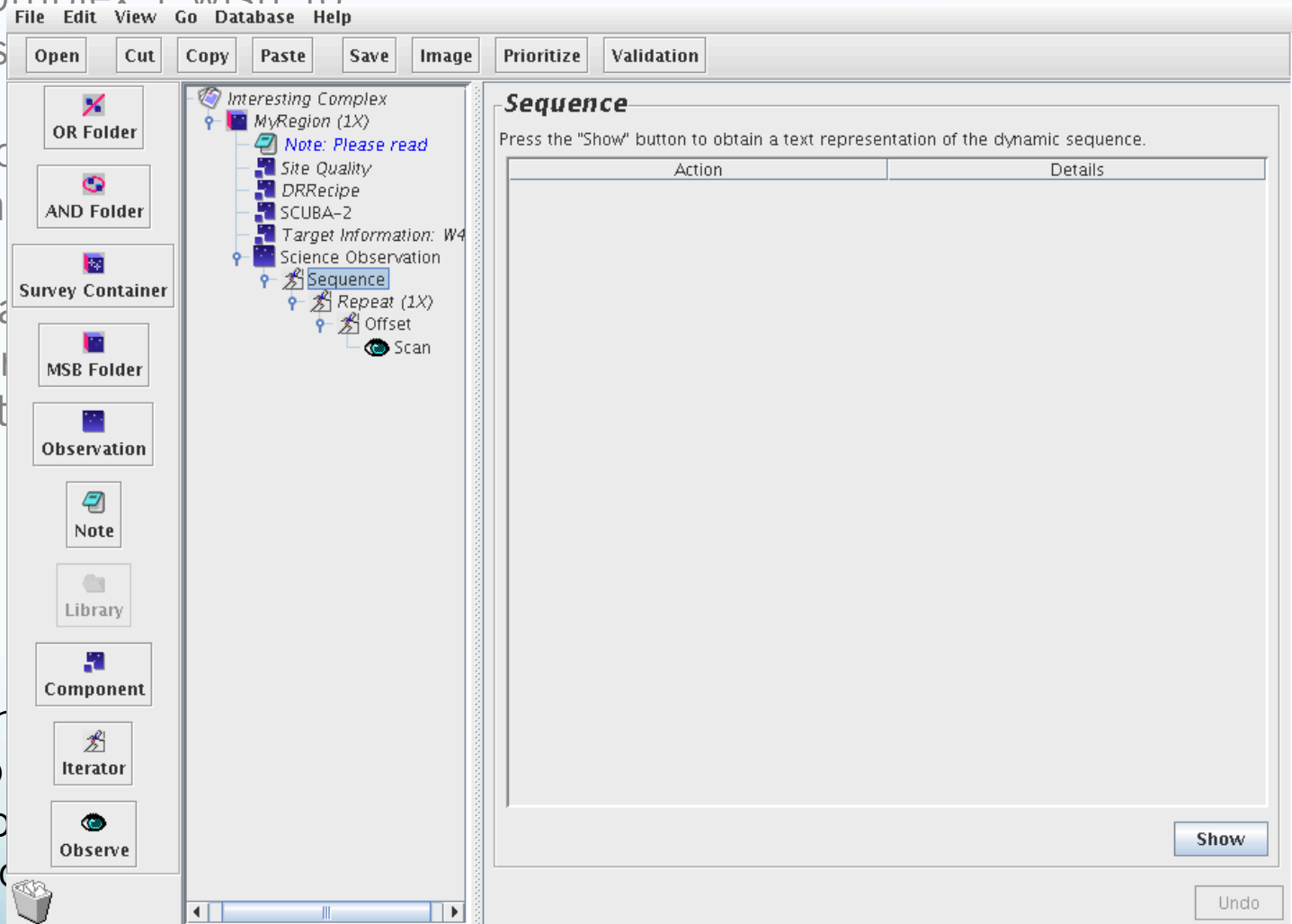
Example 1: SCUBA-2

I have an interesting fragmented star forming complex I wish to observe. I wish to observe to a depth of 5mJy. The region is located at RA of: 19h 59m 50s and Dec of: 19h 59m 50s.

The complex I am observing is large and spans a degree in extent. I have Pong 3600 to observe this region.

Feedback:

You have been approved for your request for 16 hours of Band 3 time.



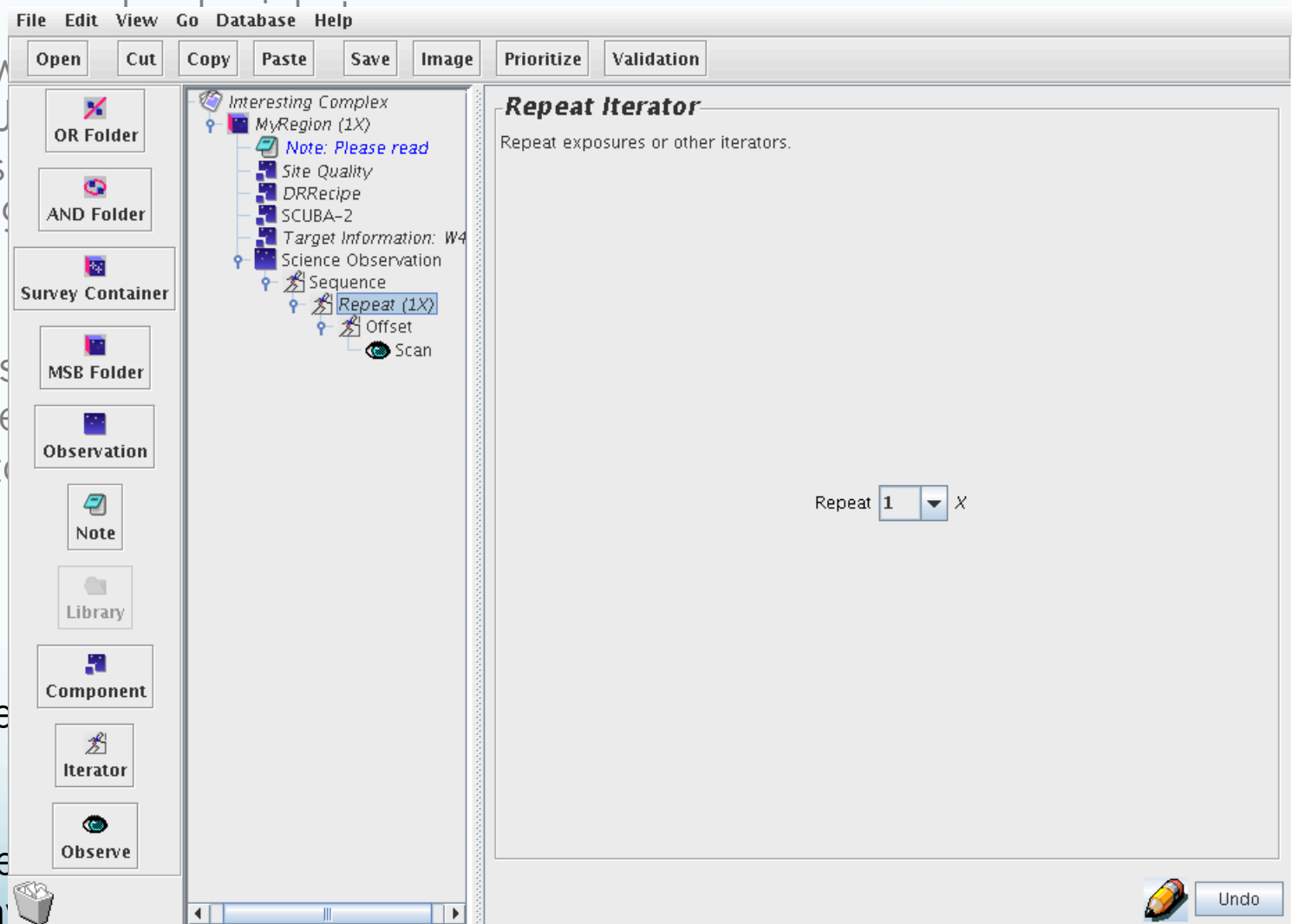
Example 1: SCUBA-2

I have an interesting fragmented star forming observe. I want to observe at a depth of 5mJy. The region is at RA of 19h 59m 10s and Dec of: 19° 59' 10".

The complex is large and spread over a degree in each direction. Pong 3600 to 3601 region.

Feedback:

You have been successful in your request. You have put a scientific case for a field. You have 16 hours of Band 3 time.



Example 1: SCUBA-2

I have an interesting fragmented star forming complex I wish to observe. I want a depth of 5m. The region is RA of: 19h 59m 50s and Dec of: 19° 59' 50".

The complex is large and spread over a degree in RA. I want to Pong 3600 to the region.

Feedback:

You have been given your request. I felt you put a scientific case for the field. You have 16 hours of Band 5 time.

The screenshot shows the SCUBA-2 software interface. The main window has a menu bar (File, Edit, View, Go, Database, Help) and a toolbar (Open, Cut, Copy, Paste, Save, Image, Prioritize, Validation). The left sidebar contains a tree view of the project structure and a list of tool buttons (OR Folder, AND Folder, Survey Container, MSB Folder, Observation, Note, Library, Component, Iterator, Observe). The main panel displays the 'Offset Iterator' dialog box.

Offset Iterator
Construct offset based patterns with this iterator.

Offset

Diagram showing a coordinate system with p and q axes.

Title:

Offset (arcsec)

#	p Offset	q Offset
0	0.0	0.0

Buttons: New, Rm. All, Remove

PA: 0.0

Display Derotated Offsets

Grid Pattern

☒ Overwrite ☐ Append

Initial Offset (arcsec)

p	q
0	0

Spacing (arcsec)

p	q
60	60

Dimensions

Rows: 2

Cols: 2

Buttons: Create/Centre On Base, Create, Set Spacing from Scan Area

Undo

Example 1: SCUBA-2

I have an interesting fragmented star forming region I want to observe. I want a depth of 5 mJy. The region is large and covers a degree in RA and Dec of:

The complex is large and covers a degree in RA and Dec of Pong 3600 arcsec region.

Feedback:

You have submitted your request and we have felt you put a high scientific case for this field. You have been allocated 16 hours of Band 3 time.

Check scan parameters:

The screenshot displays the SCUBA-2 software interface. The top menu bar includes File, Edit, View, Go, Database, and Help. Below the menu is a toolbar with buttons for Open, Cut, Copy, Paste, Save, Image, Prioritize, and Validation. The left sidebar contains a vertical stack of icons and labels: OR Folder, AND Folder, Survey Container, MSB Folder, Observation, Note, Library, Component, Iterator, and Observe. The main window is divided into two panes. The left pane shows a tree view of the project structure: Interesting Complex, MyRegion (1X), Note: Please read, Site Quality, DRRRecipe, SCUBA-2, Target Information: W4, Science Observation, Sequence, Repeat (1X), Offset, and Scan. The right pane is titled 'Scan' and contains the 'Scan Map' section. Under 'General Setup', the Noise is set to 864.395@450,24.237@850 mJy. Under 'Scan setup', the Area is defined by Width (3600.0 arcsecs), Height (3600.0 arcsecs), PA (0.0 degrees), and Sample Spacing (3.0 arcsecs). The 'SCUBA-2 Details' section shows Times round map (8), Scan Speed (600.0 ArcSec/Sec), and Scan Strategy (Pong). The 'Scan' section at the bottom shows PA (automatic) and System (FPLANE). An Undo button is located at the bottom right of the interface.

File Edit View Go Database Help

Open Cut Copy Paste Save Image Prioritize Validation

OR Folder

AND Folder

Survey Container

MSB Folder

Observation

Note

Library

Component

Iterator

Observe

Interesting Complex

MyRegion (1X)

Note: Please read

Site Quality

DRRRecipe

SCUBA-2

Target Information: W4

Science Observation

Sequence

Repeat (1X)

Offset

Scan

Scan

Scan Map

General Setup

Noise 864.395@450,24.237@850 mJy

Scan setup

Area

Width 3600.0 (arcsecs)

Height 3600.0 (arcsecs)

PA 0.0 (degrees)

Sample Spacing 3.0 (arcsecs)

SCUBA-2 Details

Times round map 8

Scan Speed 600.0 ArcSec/Sec

Scan Strategy Pong

Scan

PA automatic (degrees)

System FPLANE

Undo

Example 1: SCUBA-2

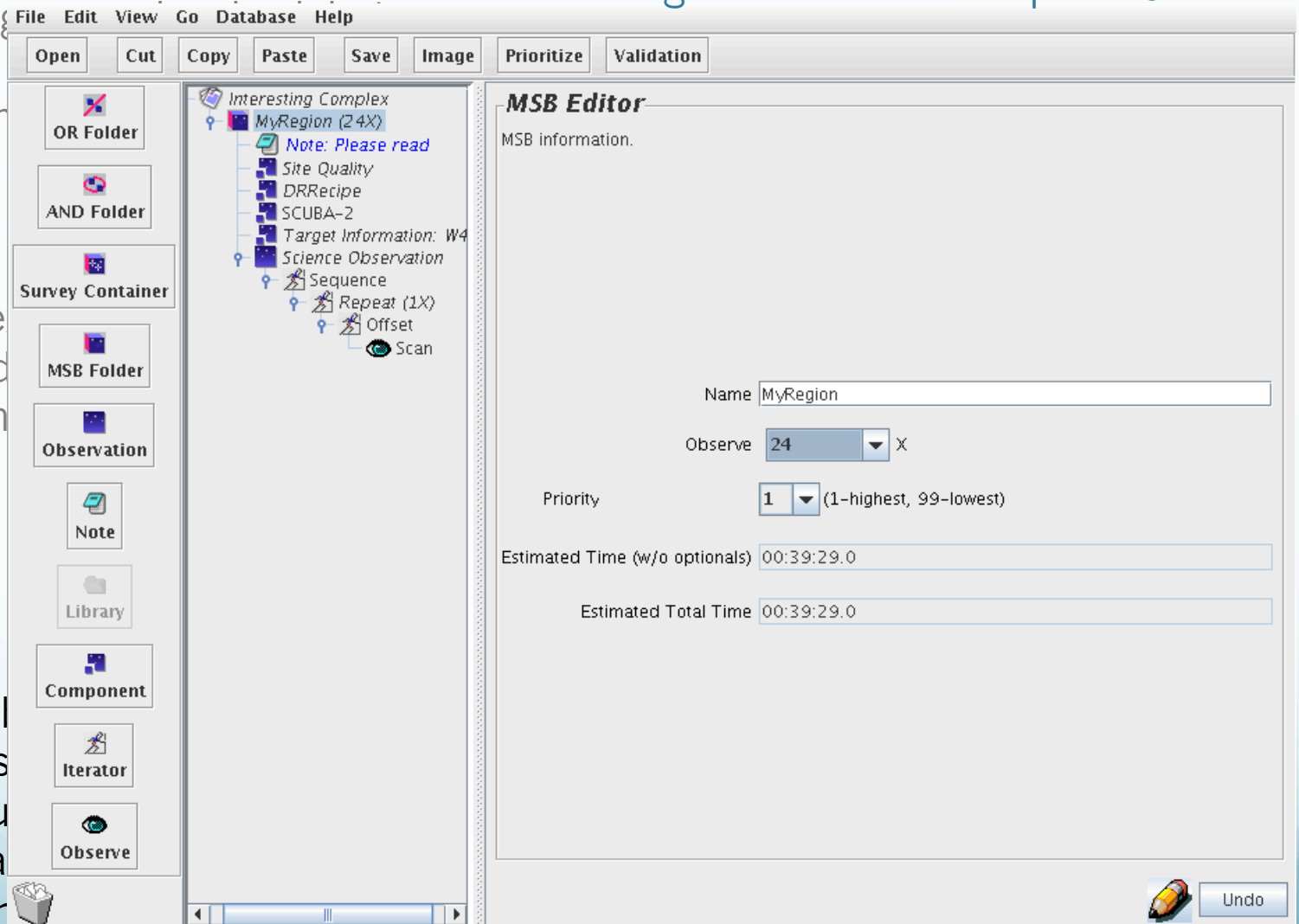
I have an interesting fragmented star forming region. I observe. I depth of 5m. The region and Dec of:

The complex is large and a degree in Pong 3600 region.

Feedback:

You have I your request felt you put scientific call field. You have 16 hours of Band 3 time.

Need to increase msb repeat counter to get total time to equal 16 hours:



Example 1: SCUBA-2

I have an interesting fragmented star forming complex I wish to observe. I wish to observe to a depth of 5mJy. The region is RA of: 19h 59m 50s and Dec of: 19° 59' 50".

The complex I wish to observe is large and spans a degree in extent. I want to observe Pong 3600 to the south of the region.

Feedback:

You have been given your request for a scientific case for a field. You have been given 16 hours of Band 3 time.

Need to increase msb repeat counter to get total time to equal 16 hours:

File Edit View Go Database Help

Open Cut Copy Paste Save Image Prioritize Validation

OR Folder

AND Folder

Survey Container

MSB Folder

Observation

Note

Library

Component

Iterator

Observe

Interesting Complex

MyRegion (24X)

Note: Please read

Site Quality

DRRecipe

SCUBA-2

Target Information: W4

Science Observation

Sequence

Repeat (1X)

Offset

Scan

Program

General program information taken from the proposal.

Title: Interesting Complex

PI: Harriet Parsons

Country: EAO

Project ID: m14bj01

Estimated Time (w/o optionals): 15:47:36.0

Estimated Total Time: 15:47:36.0

Undo

Example 1: SCUBA-2

I have an interesting fragmented star forming complex to observe. I wish to observe to a depth of 5mJy. The region is located at RA and Dec of: 19h

The complex I am interested in is large and spans about 1 degree in extent. I want to observe Pong 3600 to the edge of the region.

Feedback:

You have been approved for your request for 16 hours of Band 3 time.

Store to online database:

The screenshot shows the MSB Editor software interface. The top menu bar includes File, Edit, View, Go, Database, and Help. Below the menu bar are buttons for Open, Cut, Copy, Paste, Prioritize, and Validation. The main window is divided into three panes. The left pane contains a tree view of the project structure, which includes an 'Interesting Complex' folder containing 'MyRegion (24X)'. Under 'MyRegion (24X)', there are sub-items: 'Note: Please read', 'Site Quality', 'DRRecipe', 'SCUBA-2', 'Target Information: W4', 'Science Observation', 'Sequence', 'Repeat (1X)', 'Offset', and 'Scan'. The middle pane contains a list of buttons: OR Folder, AND Folder, Survey Container, MSB Folder, Observation, Note, Library, Component, Iterator, and Observe. The right pane is titled 'MSB Editor' and contains the following fields: Name (MyRegion), Observe (24 X), Priority (1 (1-highest, 99-lowest)), Estimated Time (w/o optionals) (00:39:29.0), and Estimated Total Time (00:39:29.0). At the bottom right of the right pane is an 'Undo' button.

File Edit View Go Database Help

Open Cut Copy Paste Prioritize Validation

Store to Online Database

Interesting Complex

- MyRegion (24X)
 - Note: Please read
 - Site Quality
 - DRRecipe
 - SCUBA-2
 - Target Information: W4
 - Science Observation
 - Sequence
 - Repeat (1X)
 - Offset
 - Scan

OR Folder

AND Folder

Survey Container

MSB Folder

Observation

Note

Library

Component

Iterator

Observe

MSB Editor

MSB information.

Name: MyRegion

Observe: 24 X

Priority: 1 (1-highest, 99-lowest)

Estimated Time (w/o optionals): 00:39:29.0

Estimated Total Time: 00:39:29.0

Undo

Example 1: SCUBA-2

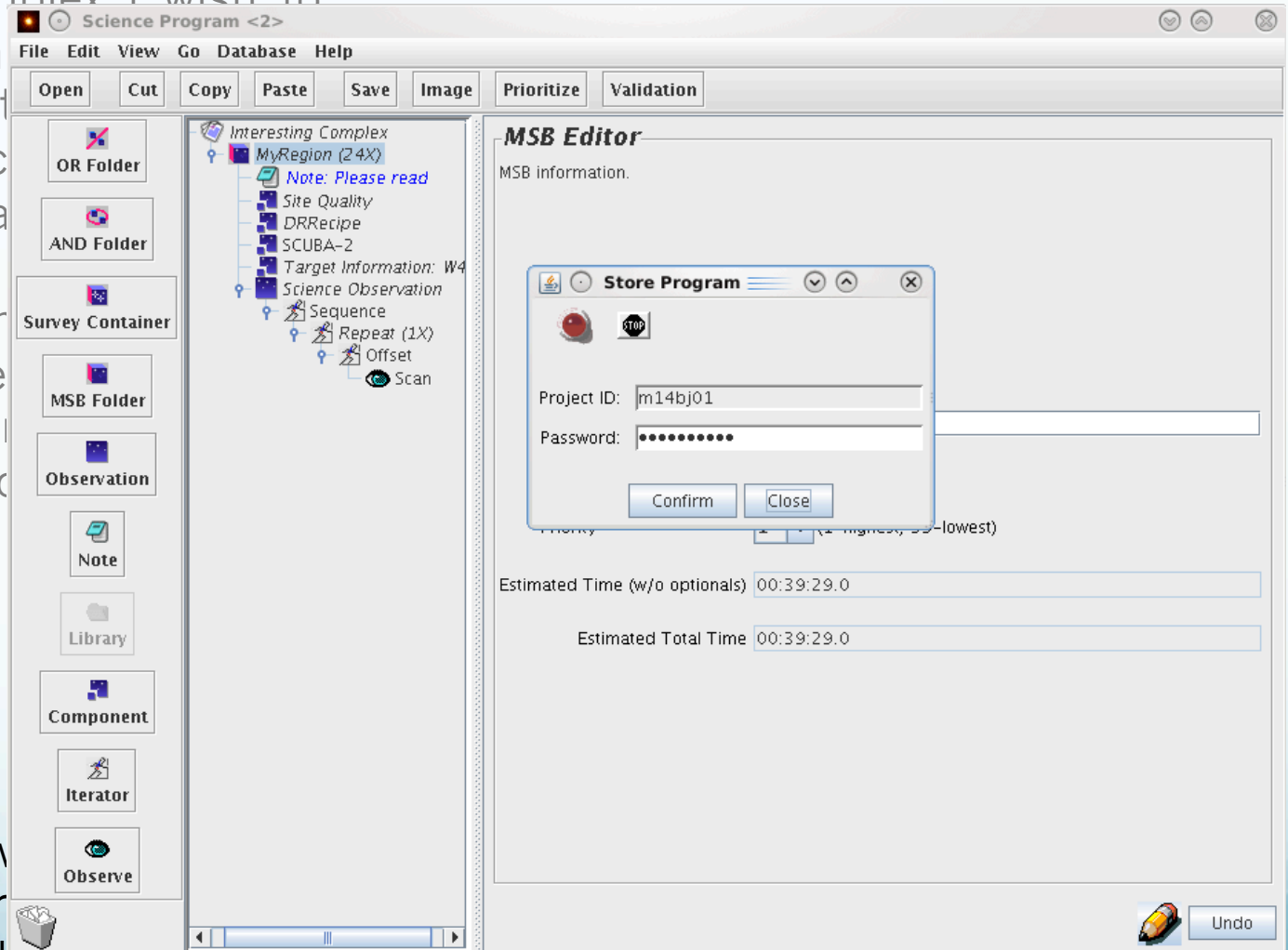
Store to online database:

I have an interesting fragmented star forming complex I wish to observe. I wish depth of 5mJy at The region is loc and Dec of: 19h a

The complex I ar is large and spre a degree in exte Pong 3600 to co region.

Feedback:

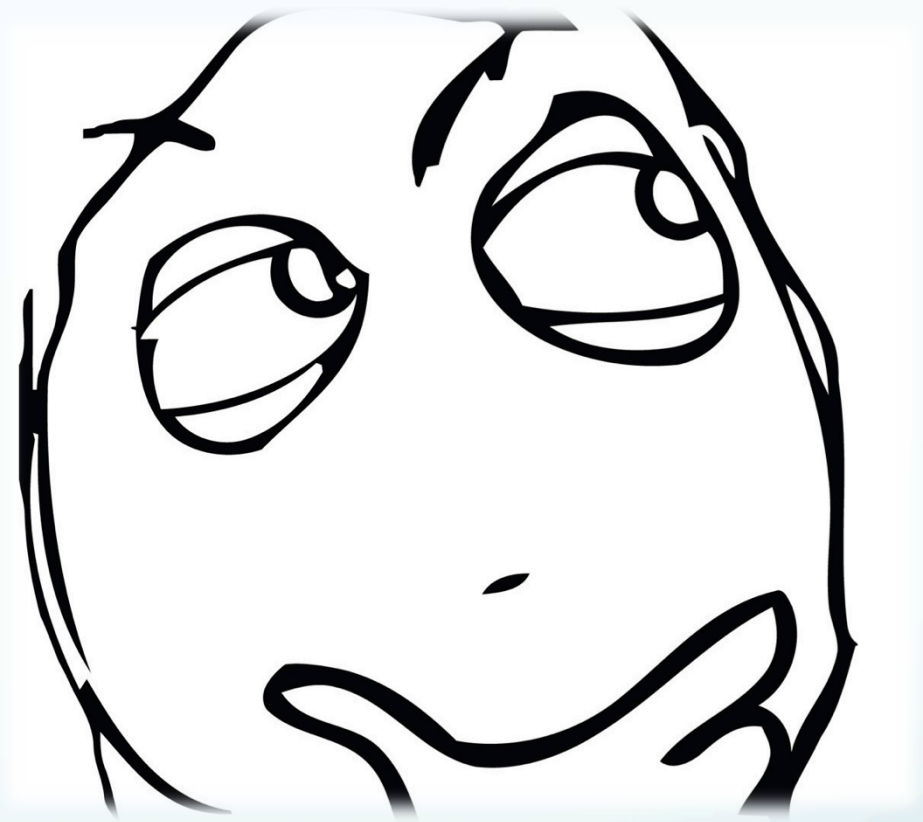
You have been your request for felt you put for scientific case for field. You have been approved 16 hours of Band 3 time.



Example 2 – SCUBA-2 – multi object

I have a collection of 50 SMG's at a redshift of $z=4$. I wish to observe them at both 450 and 850 microns. I need to achieve a depth of between 3.5 and 4.5 mJy/beam at 850 microns.

The SMG's either have Declinations around: -32° (in the SGP, 38 in total) or Declinations around $+30^\circ$ (in the NGP, 12 in total).



Example 2 – SCUBA-2 – multi object

I have a collection of 50 SMG's at a redshift of $z=4$. I wish to observe them at both 450 and 850 microns. I need to achieve a depth of between 3.5 and 4.5 mJy/beam at 850 microns.

The SMG's either have Declinations around: -32° (in the SGP, 38 in total) or Declinations around $+30^\circ$ (in the NGP, 12 in total).

Feedback:

You have been successful in your request for time. The TAC felt you put forward an interesting scientific case for observing these fields. You have been approved 16 hours of Band 2 time.

Example 2 – SCUBA-2 – multi object

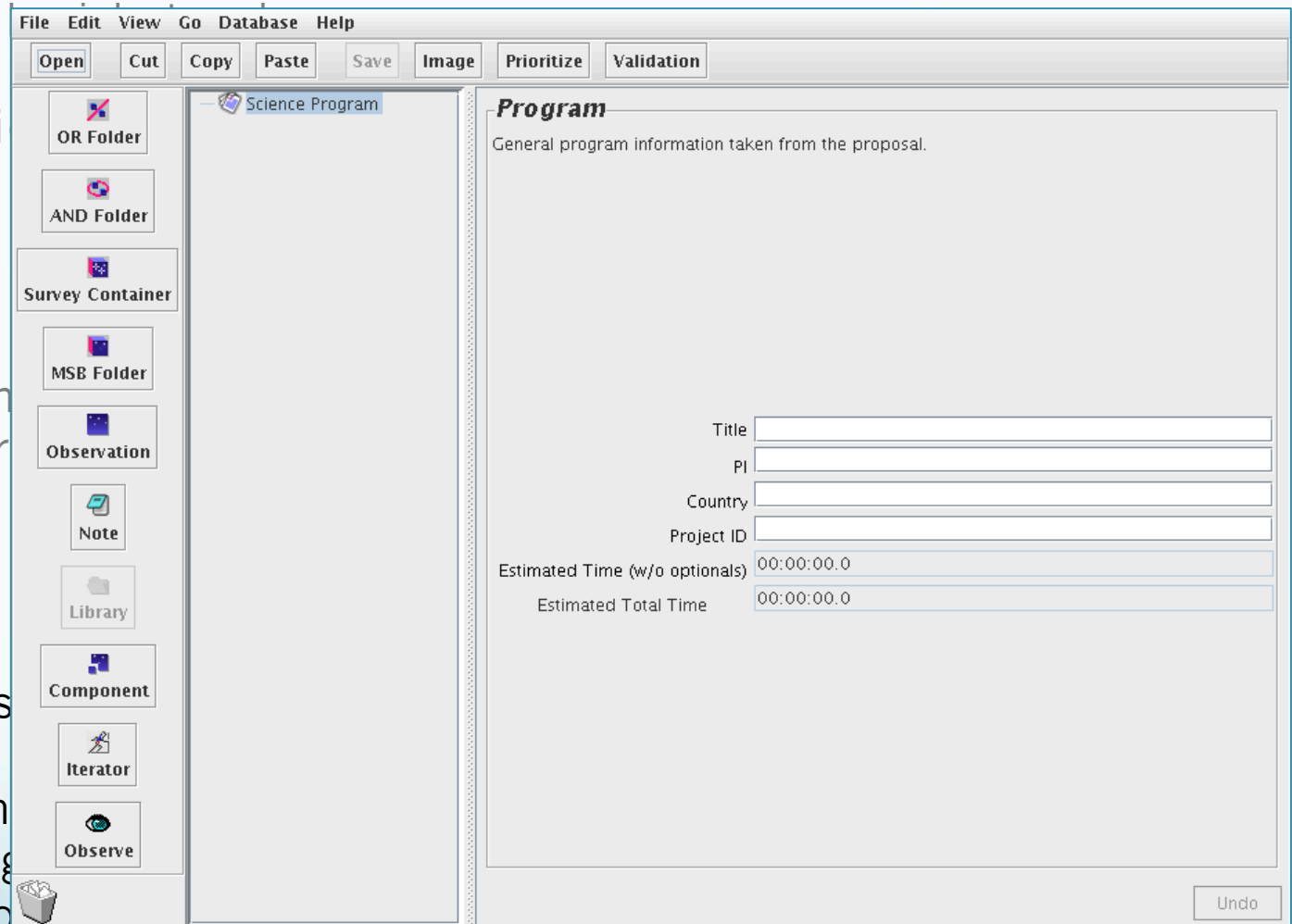
I have a collection of 50 SMG's at a redshift of $z=4$.
them at both 450
I need to achi
between 3.5 and
850 microns.

The SMG's either
around: -32° (in th
or Declinations ar
NGP, 12 in total).

Feedback:

You have been s
request for time.
put forward an in
case for observing
have been appro
Band 2 time.

Create New Project:



The screenshot shows the SCUBA-2 software interface. The main window is titled "Science Program" and contains a "Program" section with the text "General program information taken from the proposal." Below this, there are several input fields for project information:

- Title:
- PI:
- Country:
- Project ID:
- Estimated Time (w/o optionals):
- Estimated Total Time:

At the bottom right of the window is an "Undo" button. The left sidebar contains a list of icons and labels: OR Folder, AND Folder, Survey Container, MSB Folder, Observation, Note, Library, Component, Iterator, and Observe.

Example 2 – SCUBA-2 – multi object

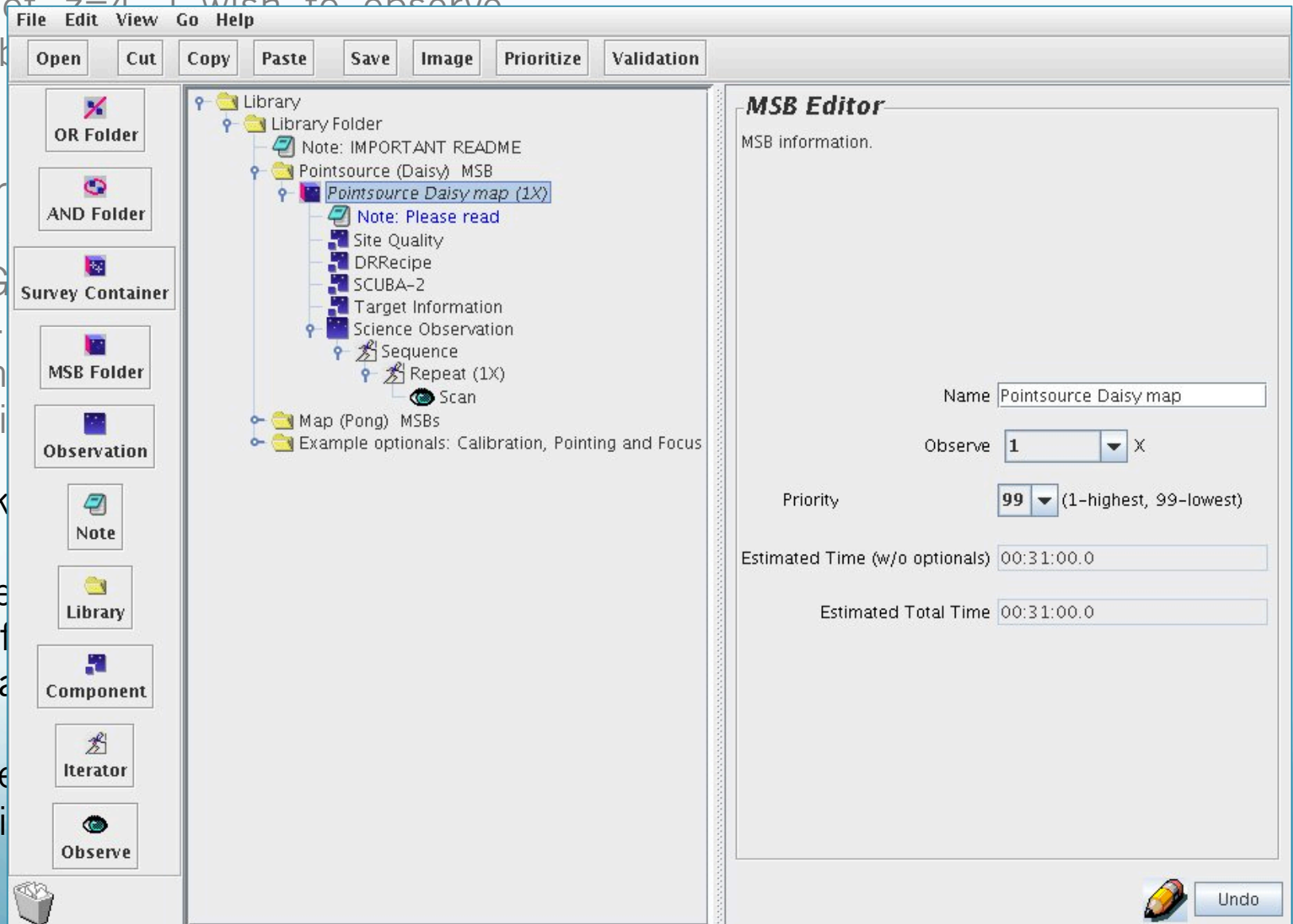
I have a collection of 50 SMG's at a redshift of $z=4$. I wish to observe them at 850 microns.

The SMG's are around: -
or Declination
NGP, 12 i

Feedback

You have
request to
put forward
case for
have been
Band 2 time

From the SCUBA-2 templates
copy over a Daisy msb :



Example 2 – SCUBA-2 – multi object

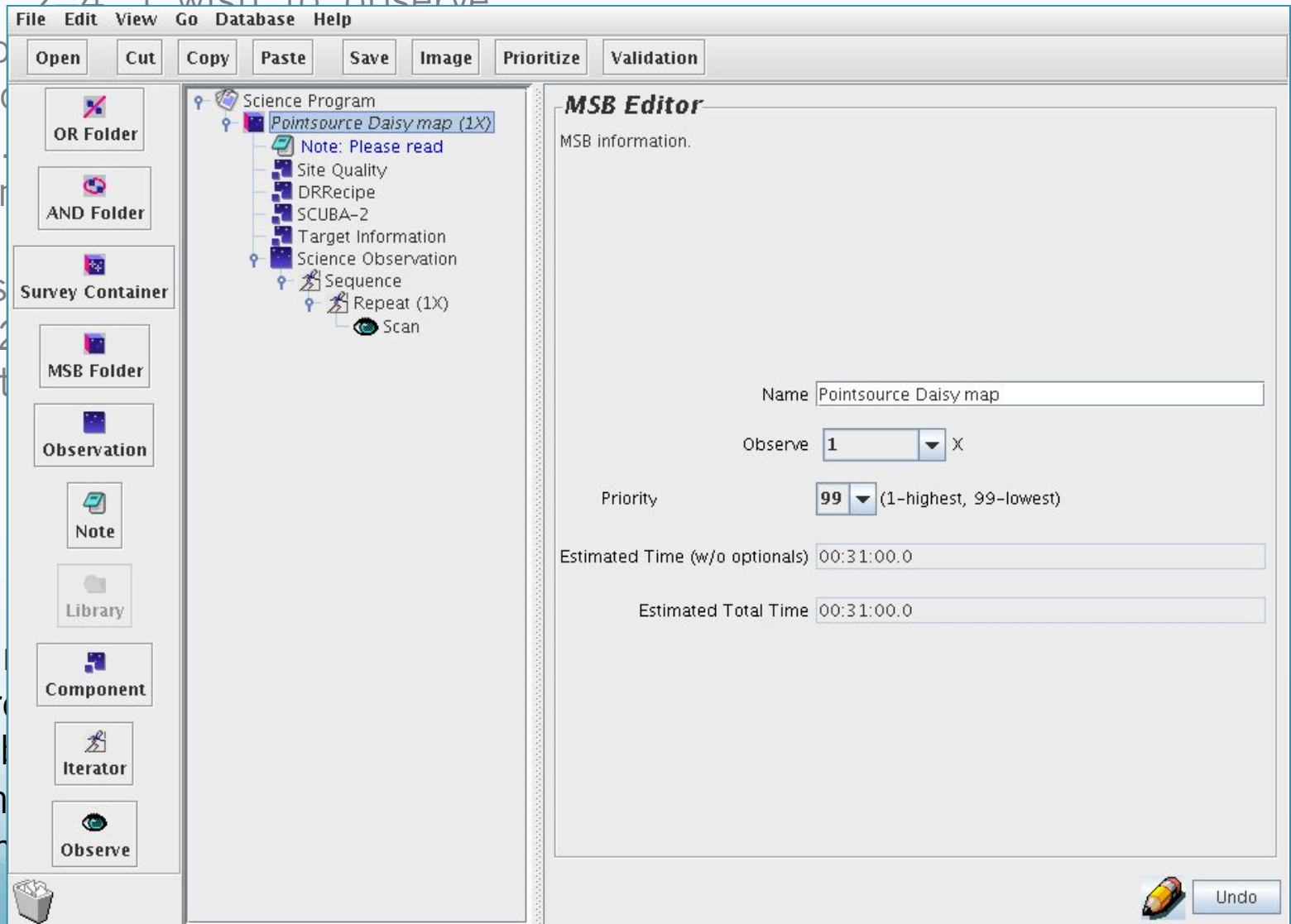
I have a collection of 50 SMG's at a redshift of $z=4$. I wish to observe them at both 850 and 450 microns.

The SMG's are located around: -32° or Declination NGP, 12 in

Feedback:

You have request for put forward case for observation have been Band 2 time

From the SCUBA-2 templates copy over a Daisy msb :



Example 2 – SCUBA-2 – multi object

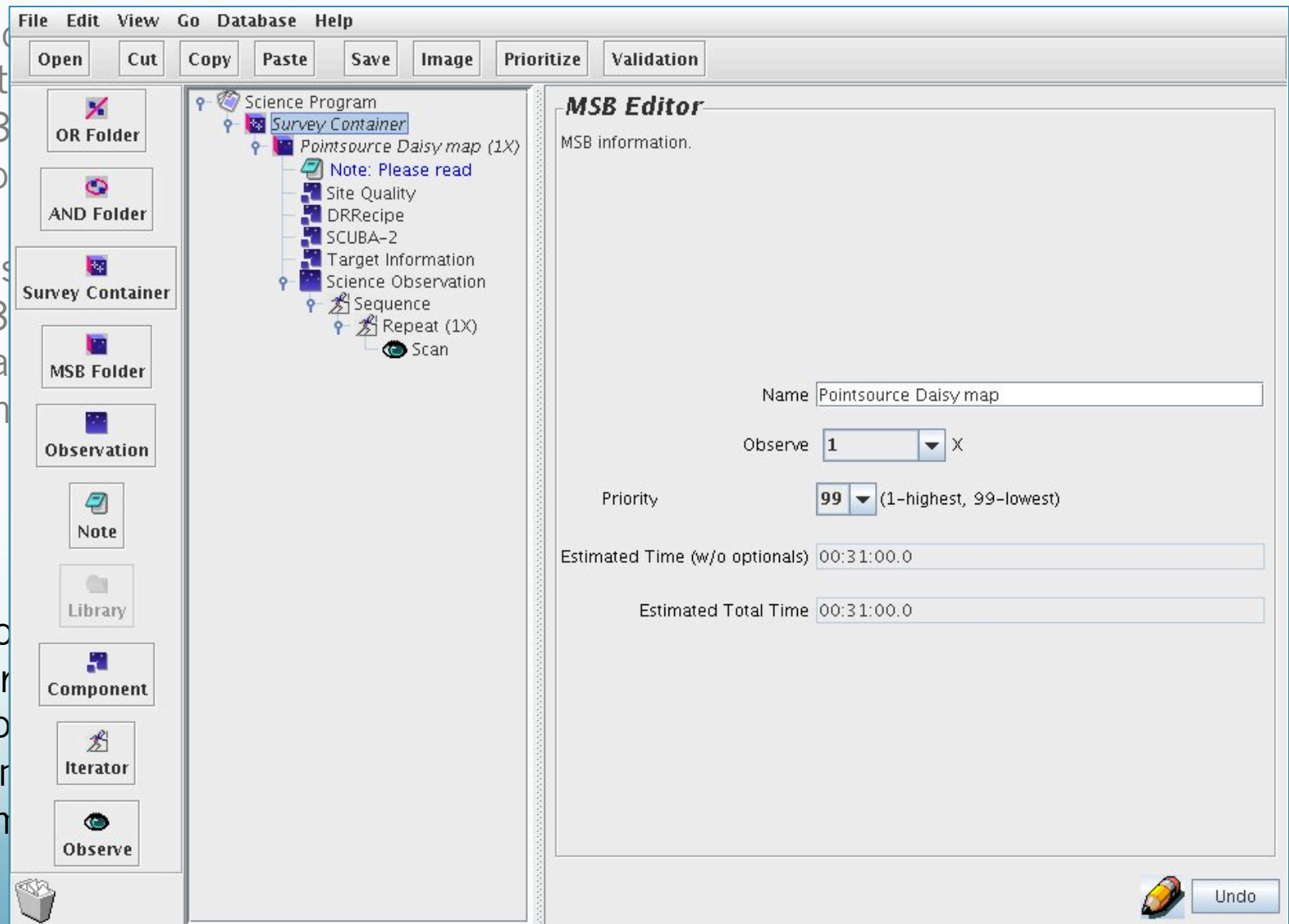
I have a collection of 50 SMG's at a redshift of $z=4$. I wish to observe them at band 2. I need to observe between 3 and 850 microns.

The SMG's are located around: -30 degrees RA or Declination. NGP, 12 in total.

Feedback:

You have requested to put forward a case for observation. We have been notified. Band 2 time is available.

Add survey container and move the program inside this:



I have a collection of 50 SMG's at a redshift of $z=4$. I wish to observe them at both 450 and 850 microns. I need to add a new folder between 3.5 and 850 microns.

Feedback:

You have been
request for time
put forward a
case for obser
have been ap
Band 2 time.

File

Edit

View

Go

Database

Help

Open

Cut

Copy

Paste

Save

Image

Prioritize

Validation

OR Folder

AND Folder

Survey Container

MSB Folder

Observation

Note

Library

Component

Iterator

Observe

Science Program

Survey Container

Pointsource Daisy map (1X)

Note: Please read

Site Quality

DRRecipe

SCUBA-2

Science Observation

Sequence

Repeat (1X)

Scan

Survey Information

Use this editor to enter the survey information.

Title:

Survey Targets

Target Information

Name	X Axis	Y Axis	Coord System	Remaining	Priority
	0:00:00	0:00:00	FK5 (J2000)	01	01
	0:00:00	0:00:00	FK5 (J2000)	01	01
	0:00:00	0:00:00	FK5 (J2000)	01	01
	0:00:00	0:00:00	FK5 (J2000)	01	01
	0:00:00	0:00:00	FK5 (J2000)	01	01
	0:00:00	0:00:00	FK5 (J2000)	01	01

Remaining

1

▼

Priority

1

▼

☐ Select

from 6

Add

Duplicate

Remove

Remove all

Load

Undo

Example 2 – SCUBA-2 – multi object

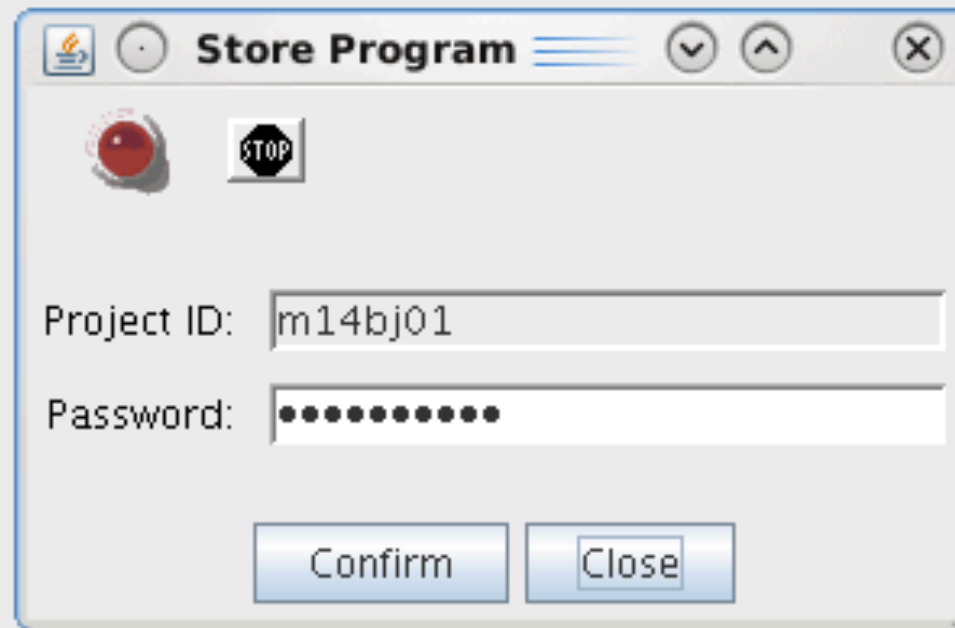
I have a collection of 50 SMG's at a redshift of $z=4$. I wish to observe them at both 450 and 850 microns. I need to achieve a depth of between 3.5 and 4.5 mJy/beam at 850 microns.

The SMG's are distributed around: -32° (Right Ascension) or Declination NGP, 12 in total.

Feedback:

You have been requested for time. I have put forward a case for observation. Your case has been approved for 16 hours of Band 2 time.

Complete the rest of the msb in a similar way to the previous example. Then store to database and submit:



Store Program

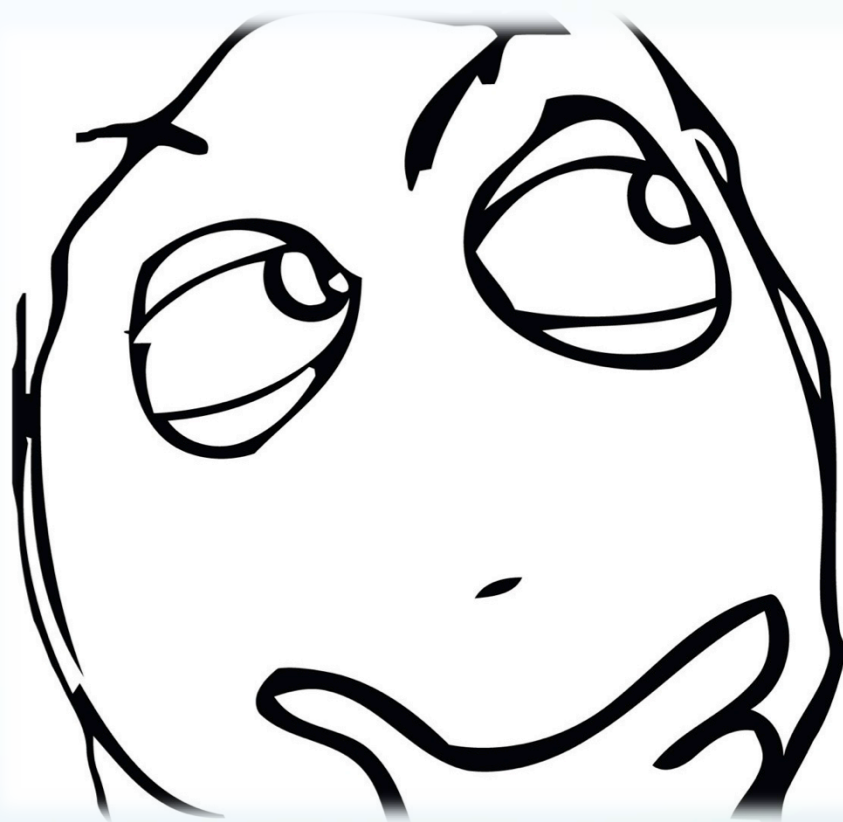
Project ID: m14bj01

Password: ●●●●●●●●

Confirm Close

Example 3: HARP

This project aims to map a molecular cloud at a declination of -34° in CO (3-2) using HARP. The area we wish to observe is $1900'' \times 1700''$. From existing data we expect the lines to be around 10K, with widths of $\sim 4\text{km/s}$. We therefore request a sensitivity of 0.6K in 1km/s bins.



Example 3: HARP

This project aims to map a molecular cloud at a declination of -34° in CO (3-2) using HARP. The area we wish to observe is $1900'' \times 1700''$. From existing data we expect the lines to be around 10K, with widths of $\sim 4\text{km/s}$. We therefore request a sensitivity of 0.6K in 1km/s bins in Band 3.

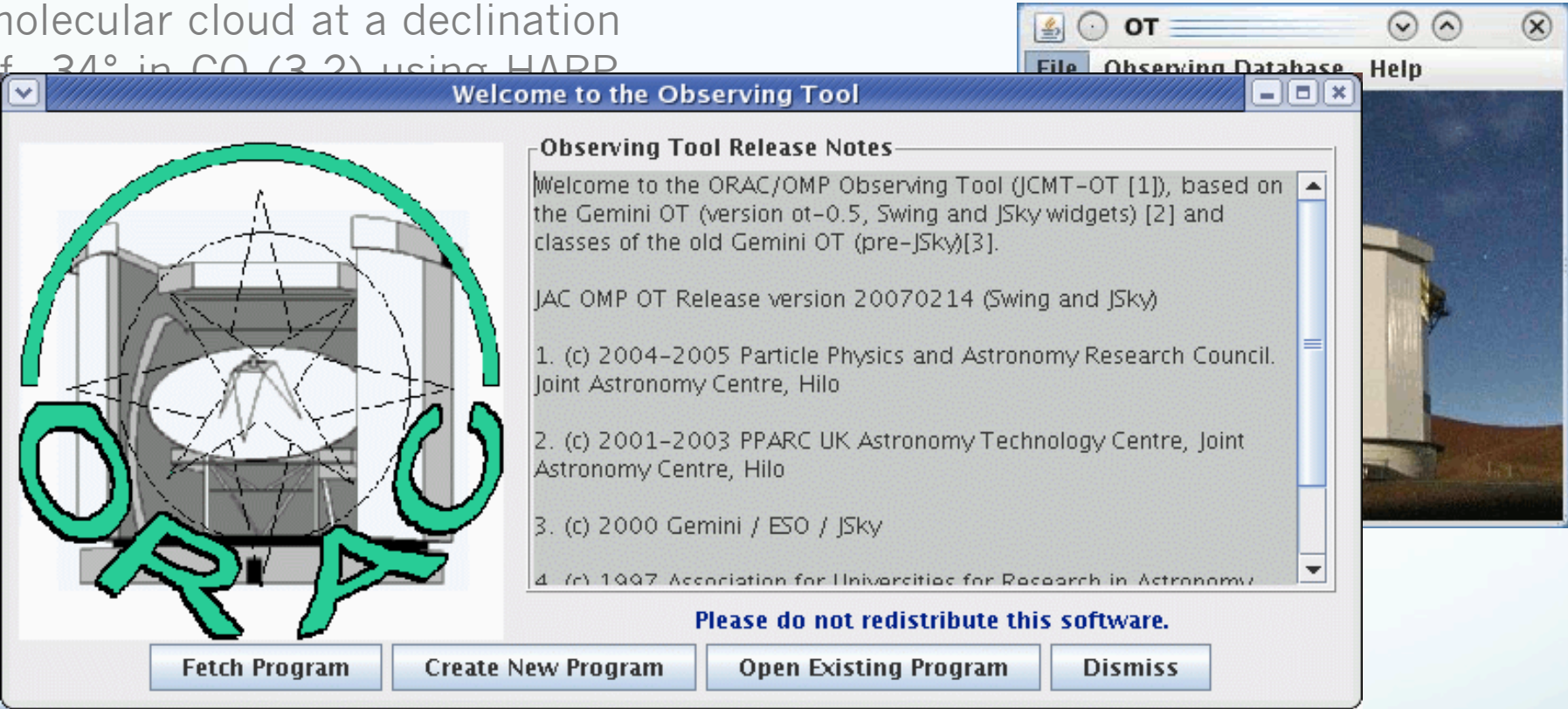
Feedback:

You have been successful in your request for time. The TAC felt you put forward an good science case for observing this molecular cloud.

Example 3: HARP

This project aims to map a molecular cloud at a declination of -24° in CO (3-2) using HARP

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Welcome to the Observing Tool

Observing Tool Release Notes

Welcome to the ORAC/OMP Observing Tool (JCMT-OT [1]), based on the Gemini OT (version ot-0.5, Swing and JSky widgets) [2] and classes of the old Gemini OT (pre-JSky)[3].

JAC OMP OT Release version 20070214 (Swing and JSky)

1. (c) 2004-2005 Particle Physics and Astronomy Research Council. Joint Astronomy Centre, Hilo
2. (c) 2001-2003 PPARC UK Astronomy Technology Centre, Joint Astronomy Centre, Hilo
3. (c) 2000 Gemini / ESO / JSky
4. (c) 1997 Association for Universities for Research in Astronomy

Please do not redistribute this software.

Fetch Program **Create New Program** **Open Existing Program** **Dismiss**

Observing Database **Help**

Example 3: HARP

This project aims to map a molecular cloud at a declination of -34° in CO (3-2) using HARP.

The area we wish to observe is $1900'' \times 1700''$. The data we expect to obtain is around 10K, with a resolution of $\sim 4\text{km/s}$. We therefore require a sensitivity of 0.1 mJy/bins in Band 3.

Feedback:

You have been successful in your request for time. We have put forward an good proposal for observing this molecular cloud.

Create your new program:

File Edit View Go Database Help

Open Cut Copy Paste Save Image Prioritize Validation

OR Folder

AND Folder

Survey Container

MSB Folder

Observation

Note

Library

Component

Iterator

Observe

Science Program

Program

General program information taken from the proposal.

Title

PI

Country

Project ID

Estimated Time (w/o optionals)

Estimated Total Time

00:00:00.0

00:00:00.0

Undo

Example 3: HARP

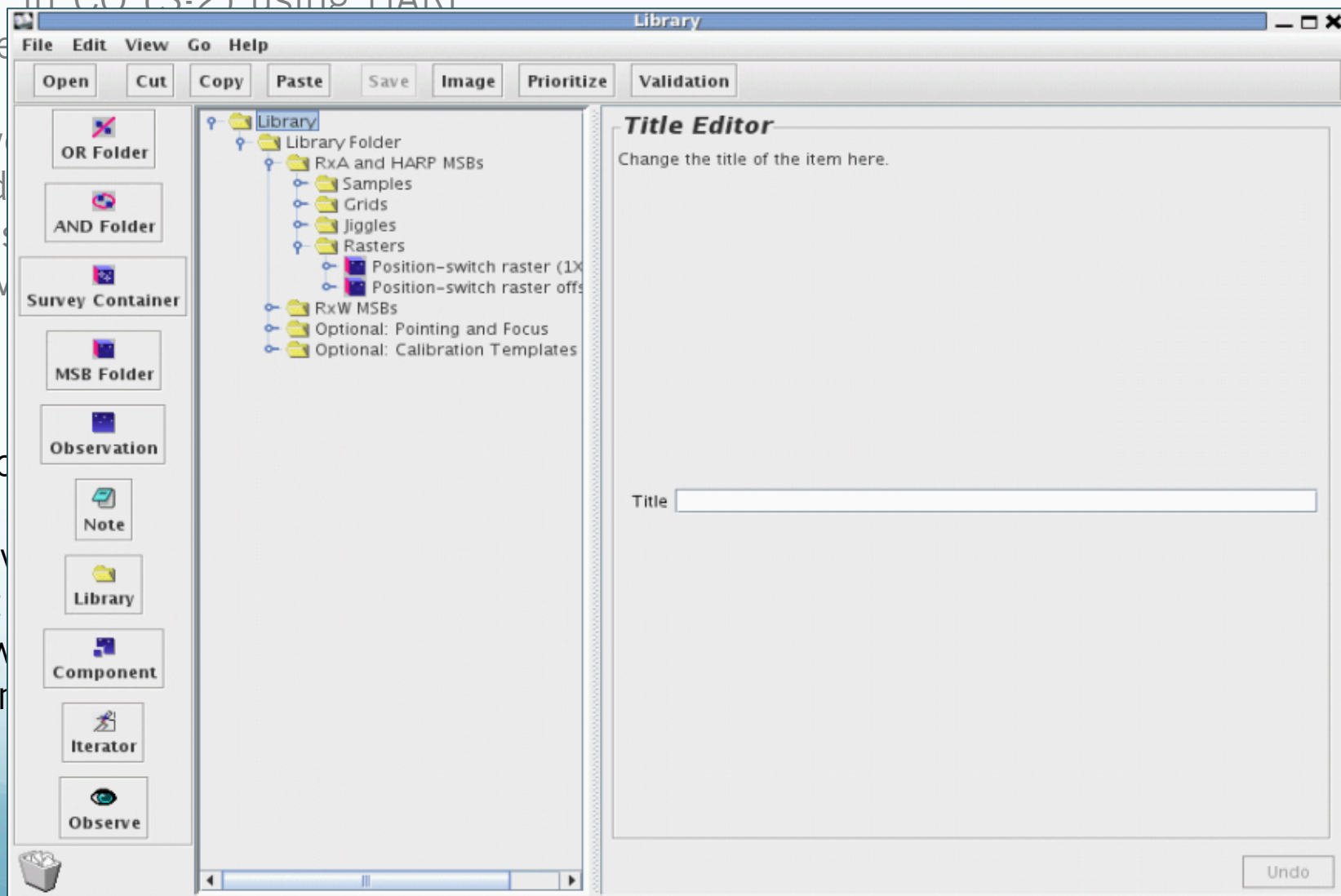
This project aims to map a molecular cloud at a declination of -34° in CO (3-2) using HARP

The area is $1900''$ data with a resolution of $\sim 4\text{km/s}$ sensitive to 10mJy bins in

Feedback

You have requested this observation

Search for an appropriate msb you can use as a template from the ACSIS Library:



Example 3: HARP

This project aims to map a molecular cloud at a declination of -24° in CO (3-2) using HARP.

The 190 data around $\sim 4\text{k}$ sens bins

Feed

You require put for obse

Copy over the template into your program and set up the heterodyne configuration:

JCMT Heterodyne

The Heterodyne instrument is configured with this component.

Front End Configuration

Front End: ☐ A3M ☐ A3 ☐ WB ☐ WD ☒ HARP

Sp. Regions: ☒ 1 ☐ 2 ☐ 3 ☐ 4 Special Configs: None

Mode: ☒ ssb ☐ dsb

Sideband: ☒ best ☐ usb ☐ lsb

Front End Summary

Low limit (GHz): 325
High limit (GHz): 375

Bandwidths

1000.0
250.0
250.0
250.0

Frequency Setup

☒ Default tuning velocity to target radial velocity

Velocity: -5.0 Definition: radio Frame: LSRK

CO 3 - 2 345.7959899 GHz Accept

Show Frequency Editor Hide Frequency Editor

Frequency Configuration

Region	Species	Trans.	Rest. Freq.	Centre Freq.	BW	res	overlap	channels
0	CO	3 - 2	345.7959...	5.0E9	1.0E9	488	0.0	2048

Example 3: HARP

This project aims to map a molecular cloud at a declination

Fill in the target and reference position information:

The screenshot displays the HARP software interface. On the left is a vertical toolbar with icons for 'OR Folder', 'AND Folder', 'Survey Container', 'MSB Folder', 'Observation', 'Note', 'Library', 'Component', 'Iterator', and 'Observe'. The main window is divided into a menu bar (File, Edit, View, Go, Database, Help), a toolbar (Open, Cut, Copy, Paste, Save, Image, Prioritize, Validation), and a central workspace. The workspace shows a tree view of a project titled 'CO(3-2) observations of the Galactic star-forming region'. The 'Target Information' panel is open on the right, showing fields for Name (NGCnnnn), Tag (SCIENCE), and TargetType (RA/Dec). Below this are tabs for 'Object', 'Radial Vel/Tracking', 'Proper Motion', and 'Chop Settings'. The 'Object' tab is active, showing fields for SIMBAD Names ESO, Resolve Name, Resolved Name, System (FK5 (J2000)), Ra (17:25:09.0), and Dec (-34:15:40). The 'Radial Vel/Tracking' tab is also visible, showing Velocity (km/s or redshift) set to radio and -5.0, and Frame set to LSRK. At the bottom, there is a table with two rows: 'SCIENCE' and 'REFERENCE'. The 'SCIENCE' row has values for Tag, Name, X Axis, Y Axis, and System. The 'REFERENCE' row has similar values. Buttons for 'Plot...', 'Set SCIENCE To...', 'Remove', 'Add', and 'Undo' are at the bottom right.

Target Information

Use this editor to enter the target information.

Name: NGCnnnn Tag: SCIENCE TargetType: RA/Dec

RA/Dec Orbital Elements Named Planets TLE

Object

SIMBAD Names ESO Resolve Name Resolved Name:

System FK5 (J2000) Ra: 17:25:09.0 Dec: -34:15:40

Radial Vel/Tracking Proper Motion Chop Settings

Velocity (km/s or redshift) radio -5.0

Frame LSRK

Tag	Name	X Axis	Y Axis	System
SCIENCE	NGCnnnn	17:25:09.0	-34:15:40	FK5 (J2000)
REFERENCE	Reference	17:25:36.21	-33:55:16.67	FK5 (J2000)

Plot... Set SCIENCE To... Remove Add REFERENCE...

Undo

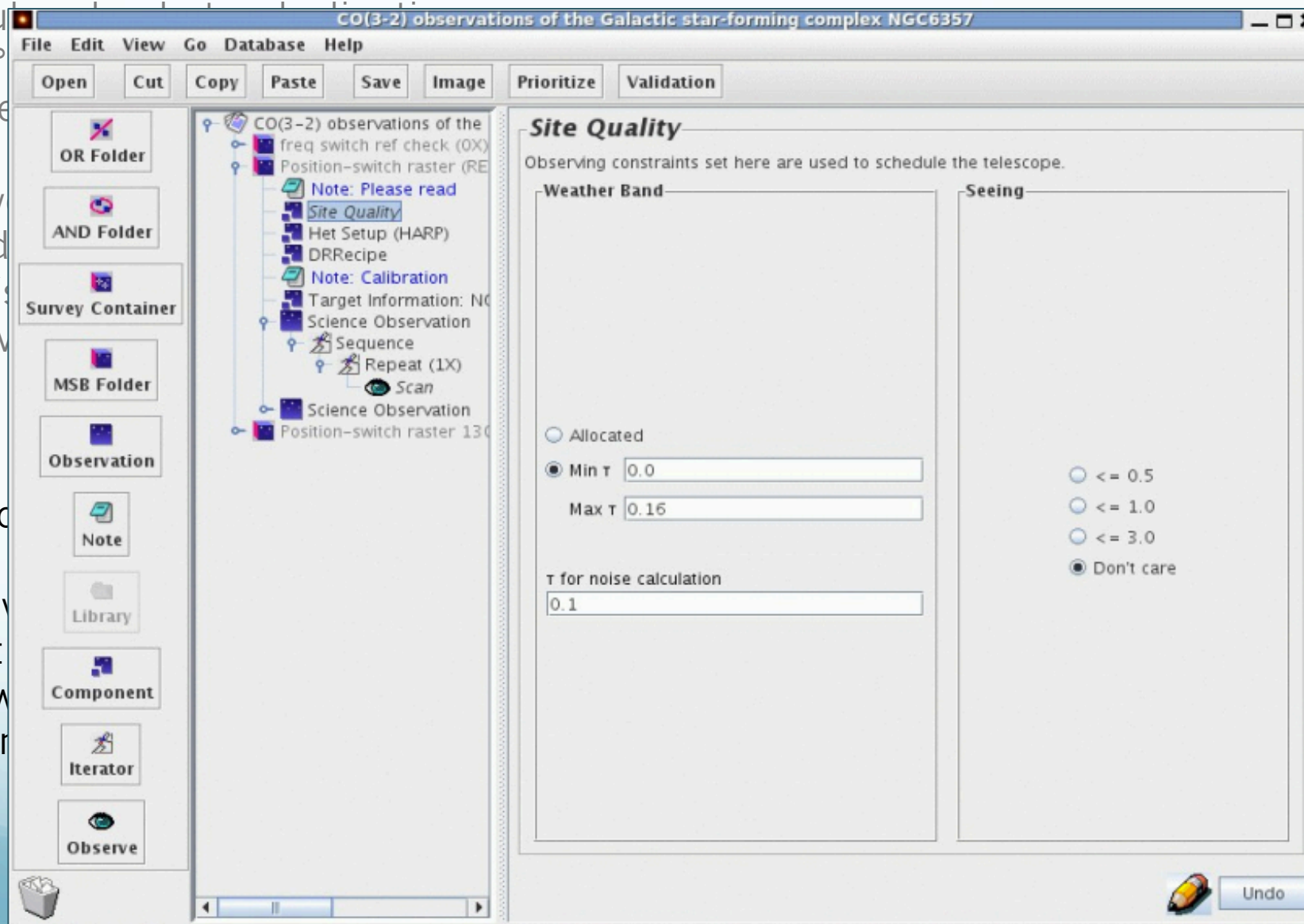
Example 3: HARP

This project aims to map a molecule of -34° . The area is $1900''$ data with a resolution of $\sim 4\text{km/s}$ sensitive bins in

Feedback

You have requested to put forward observations

Site quality:



Example 3: HARP

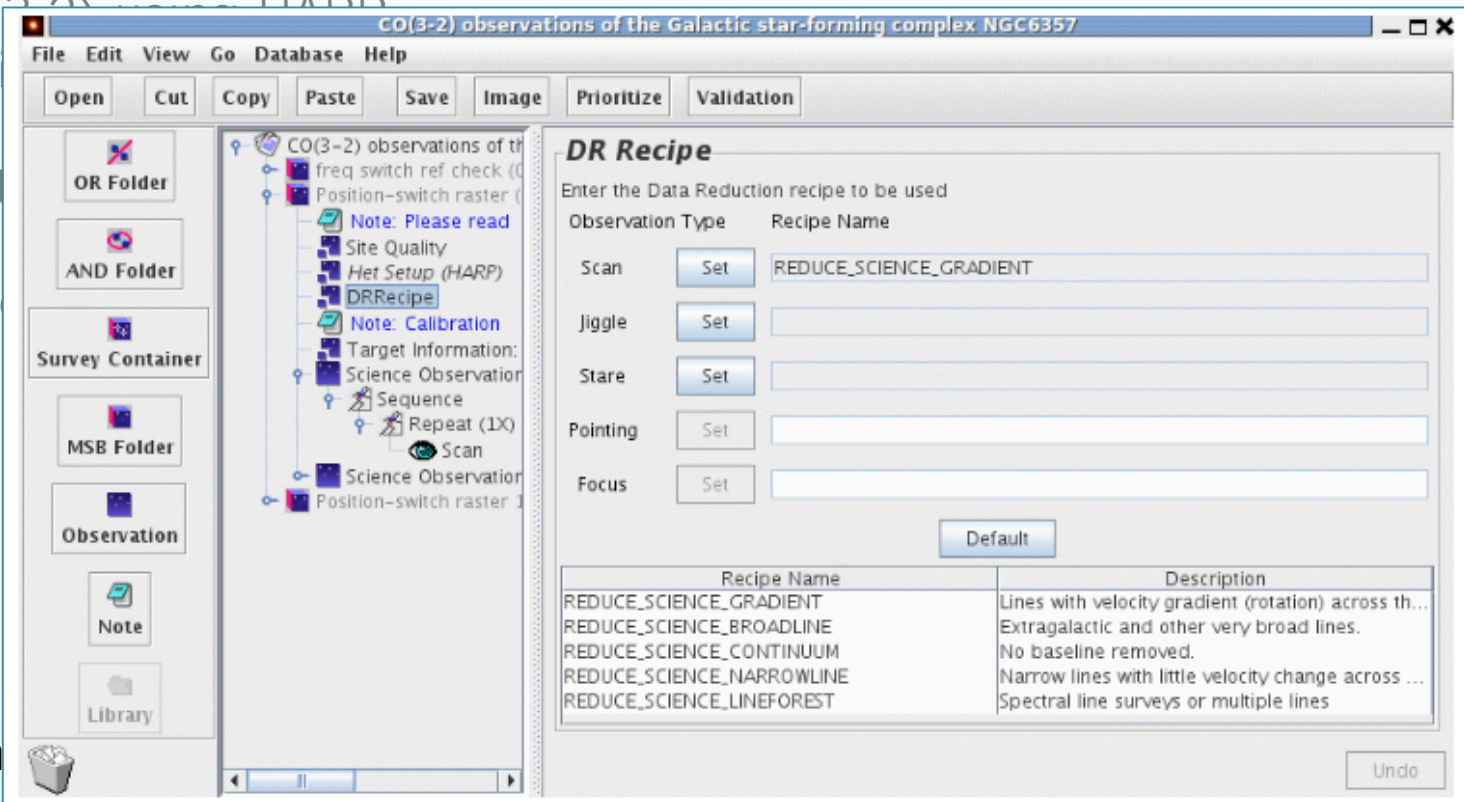
This project aims to map a molecular cloud at a declination of -34° in CO (2-2) using HARP.

The area we will observe is 1900" x 1700". The data we expect is around 10K, ~4km/s. We then have a sensitivity of 1 mJy/bins in Band 3.

Feedback:

You have been successful in your request for time. We have put forward an good science case for observing this molecular cloud.

Select a DR recipe:

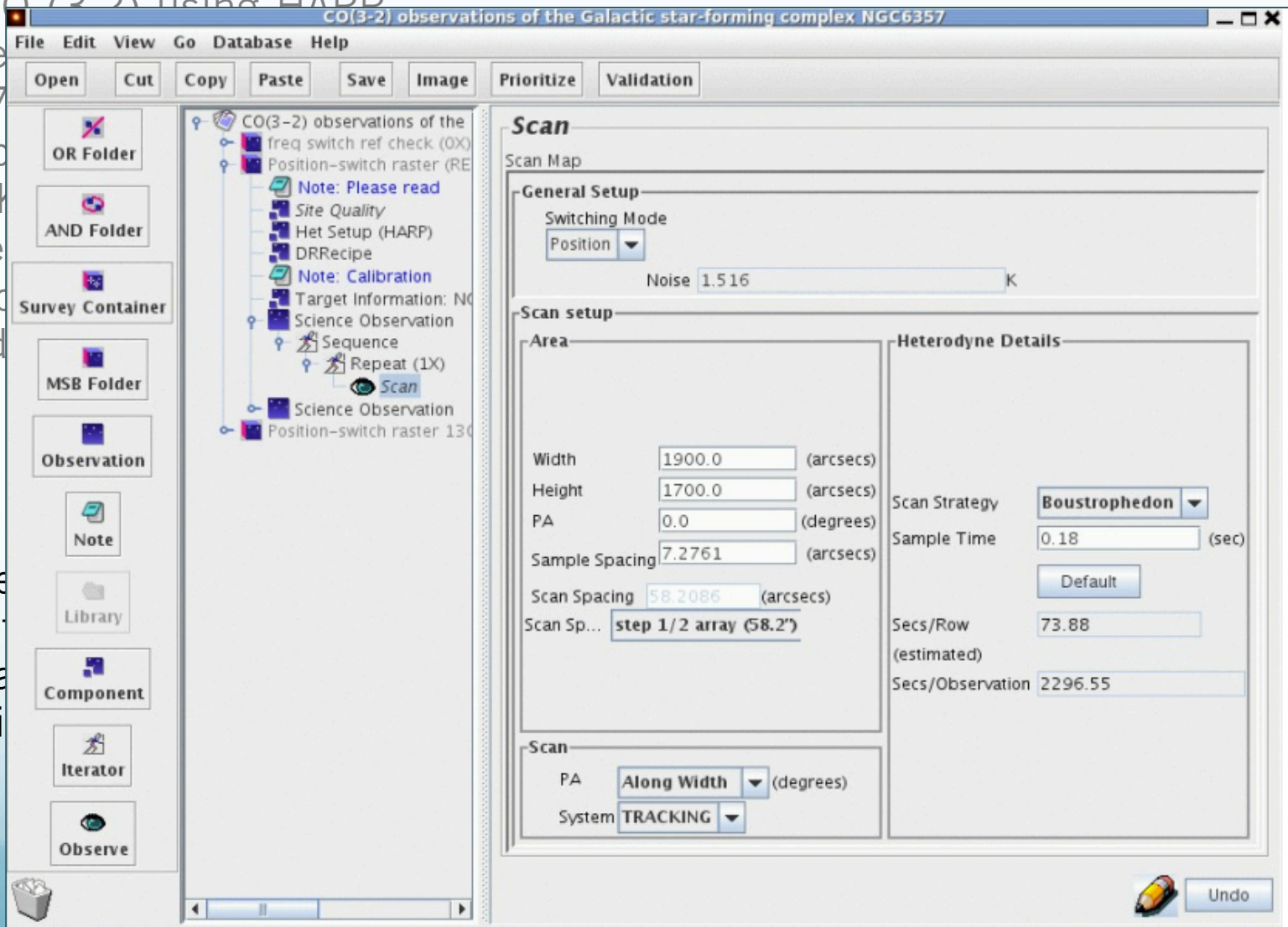


Example 3: HARP

This project aims to map a molecular cloud at a declination of -34° in CO (3-2) using HARP.

The area we want to map is $1900'' \times 1700''$. The data we expect is around 10K with a $\sim 4\text{km/s}$. We need a sensitivity of 0.1mJy/beam in Band 3.

Set up the scanning information.
Note the two components for the science observation:



Feedback:

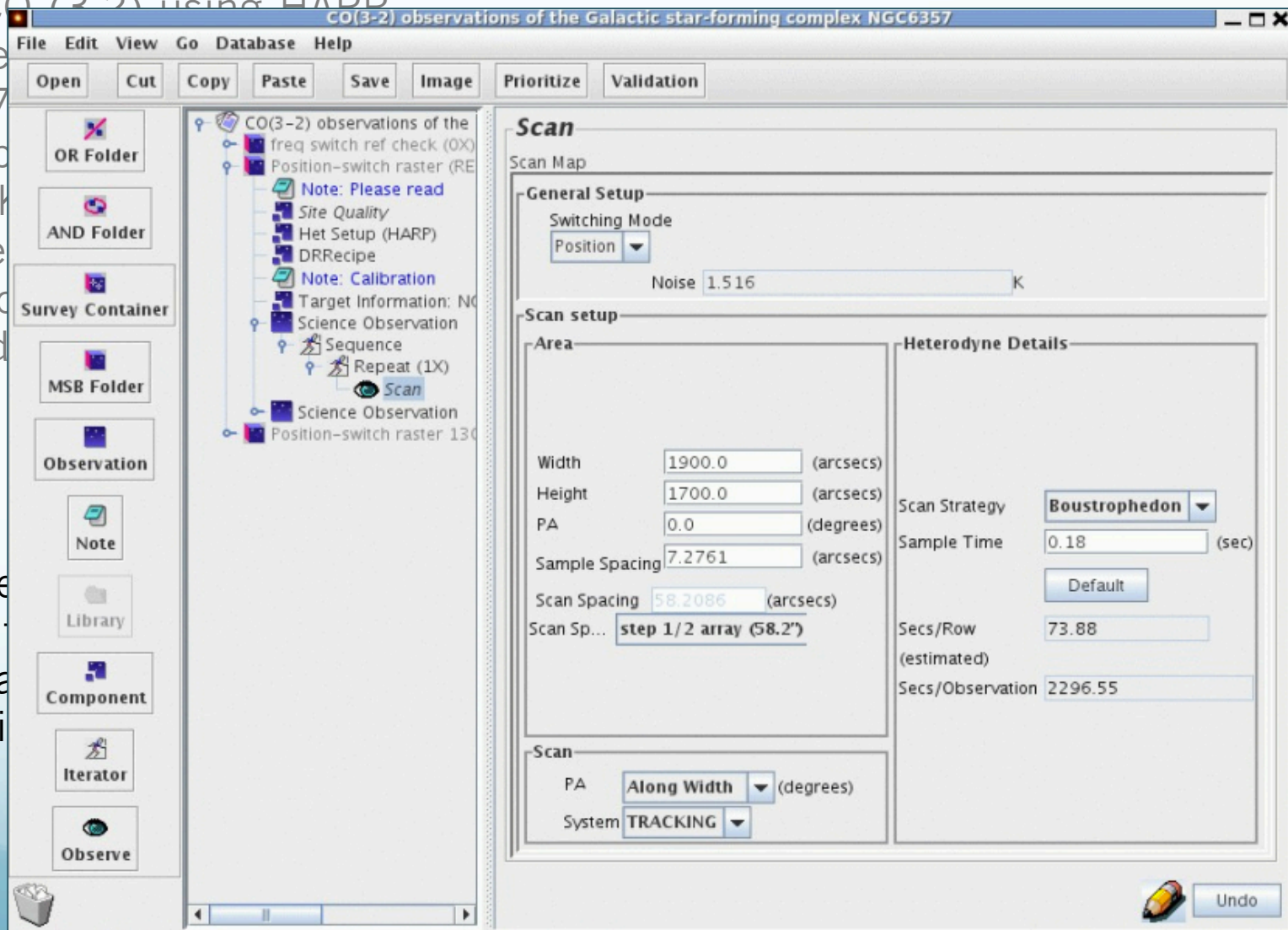
You have been requested for a request for a put forward a observing this

Example 3: HARP

This project aims to map a molecular cloud at a declination of -34° in CO (3-2) using HARP.

The area we want to map is 1900" x 1700". The data we expect is around 10K ~4km/s. We need a sensitivity of 0.1mJy/bins in Band 3.

One has "Along Width" selected. The Other will have "Along Height" selected:



Feedback:

You have been requested for a request for a put forward a observing this

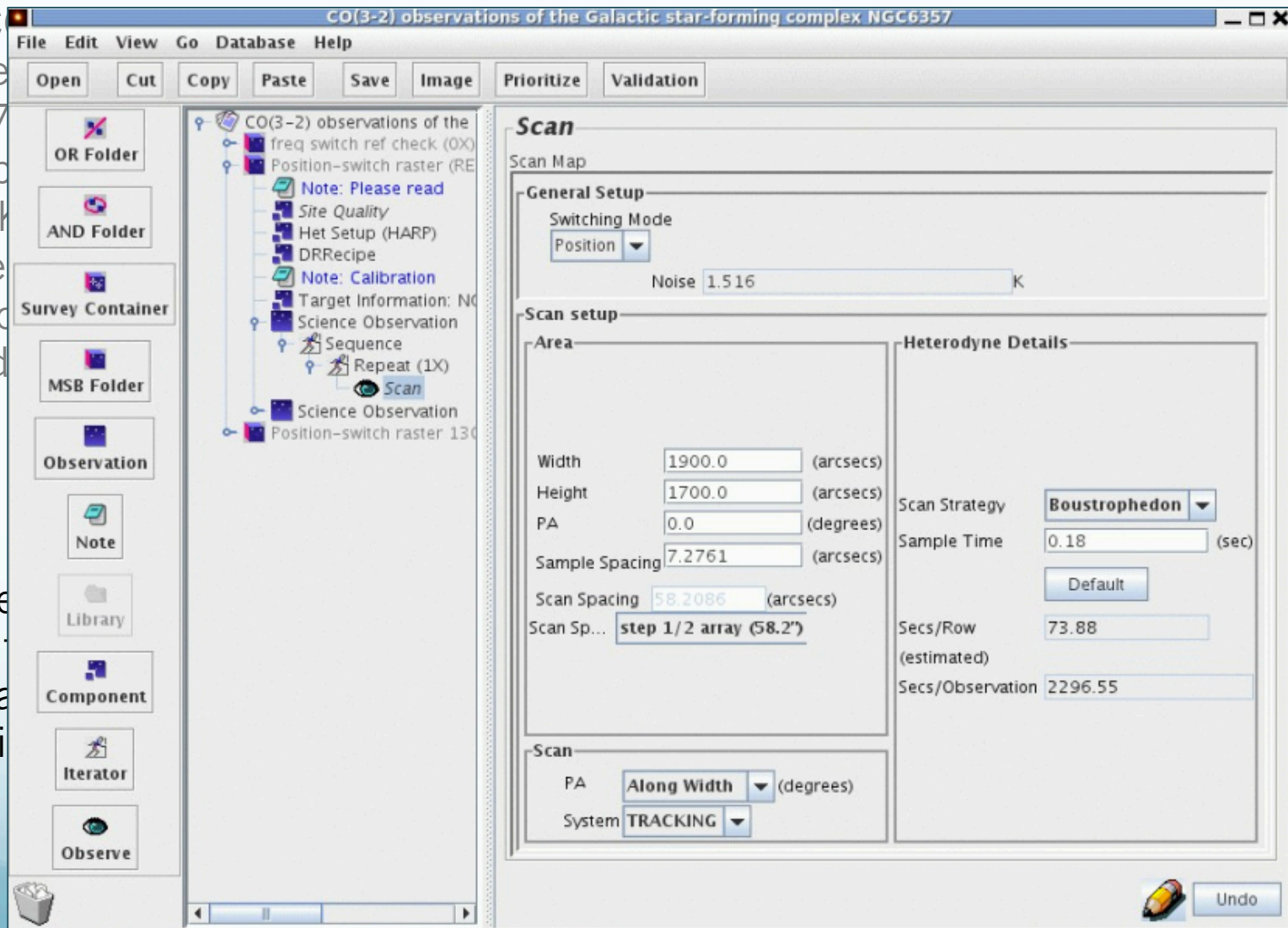
Example 3: HARP

This project aims to map a molecular cloud at a declination of -34° in CO. The area we observe is $1900'' \times 1700''$ data we expect around 10K $\sim 4\text{km/s}$. We have a sensitivity of 0.1 mJy/bins in Band 3.

Each basket weave takes 38mins.
We observe both in one msb::

Feedback:

You have been requested for a request for a put forward a observing this



Example 3: HARP

This project aims to map a molecular cloud at a declination

of -34° in CO

The area we

1900" x 170

data we expect

around 10K

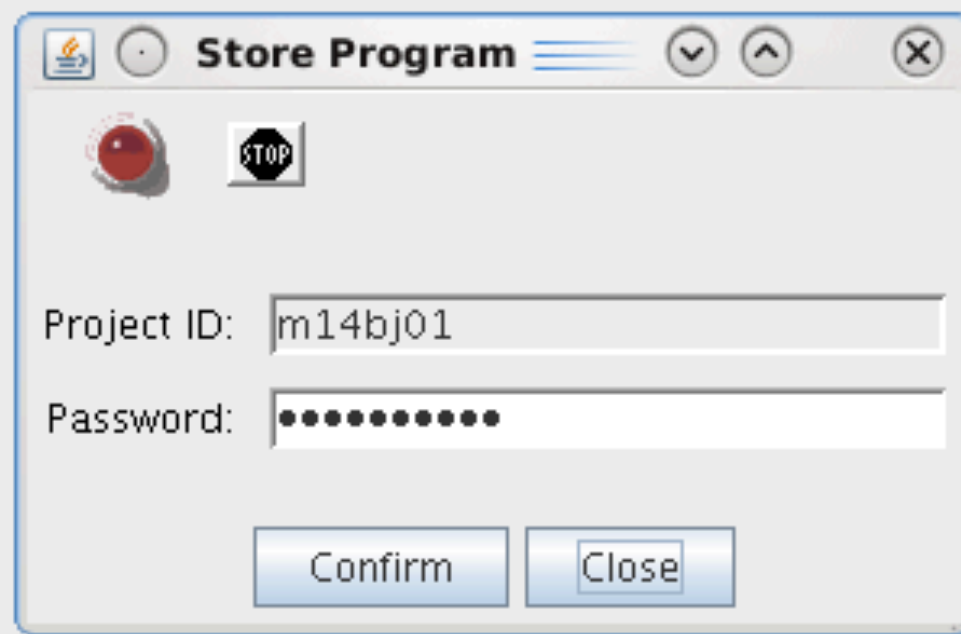
~4km/s. We

sensitivity of

bins in Band

Feedback:

You have been
request for time. The time has been put forward an good science case for observing this molecular cloud.



Store Program

Project ID: m14bj01


Password: ●●●●●●●●

Confirm Close

Example 4: HARP

I wish to investigate the HCN level in a comet. I will need a rms of 0.05K with a resolution of 0.25km/s. I will base my proposal on poor weather – Band 4.

IF TIME ALLOWS

A black and white line drawing of a person's head, tilted slightly to the right. The person has short, dark hair and is looking downwards. A large, semi-transparent grey rectangle is overlaid diagonally across the face, containing the text 'IF TIME ALLOWS' in bold, red, sans-serif capital letters.

Example 4: HARP

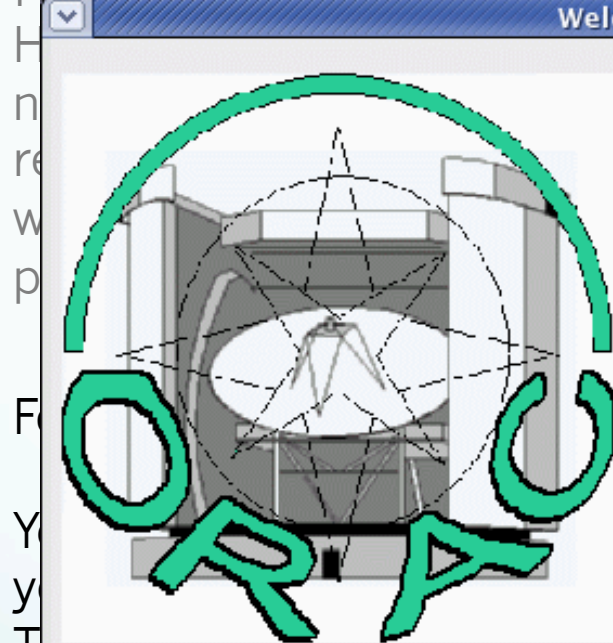
I wish to investigate the HCN level in a comet. I will need a rms of 0.05K with a resolution of 0.25km/s. I will base my proposal on poor weather – Band 4.

Feedback:

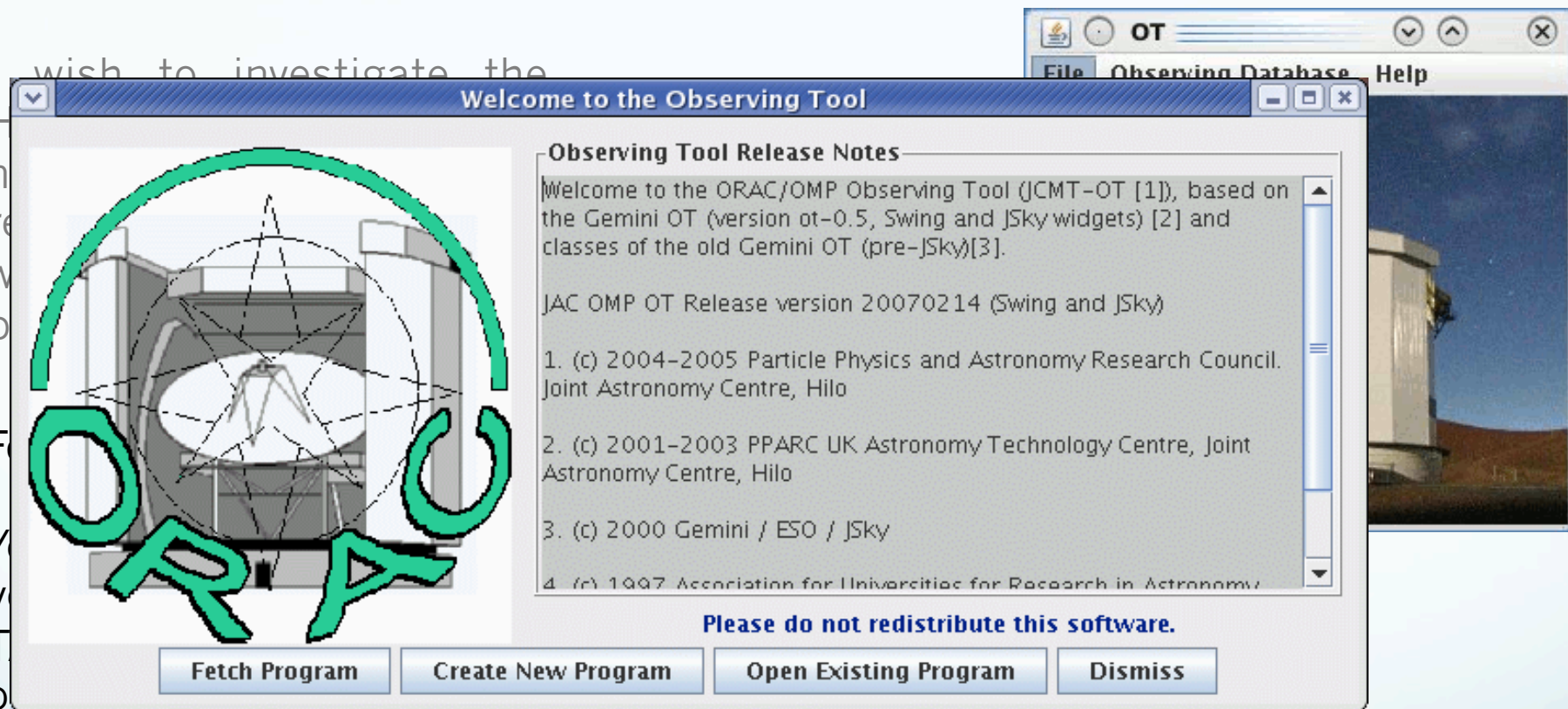
You have been successful in your request for time. The TAC felt this is a unique opportunity to learn more about this particular comet.

Example 4: HARP

I wish to investigate the



about this particular comet.



Example 4: HARP

Create your new program:

I wish to investigate the
HCN level in a core
need a rms of 0.0
resolution of 0.2
will base my pr
poor weather – Ba

Feedback:

You have been su
your request for
TAC felt this is
opportunity to
about this particu

The screenshot displays the HARP software interface. The main window is titled 'Program' and contains a form for entering general program information. The form includes fields for Title, PI, Country, Project ID, Estimated Time (w/o optionals), and Estimated Total Time. The 'Estimated Time (w/o optionals)' and 'Estimated Total Time' fields are currently set to '00:00:00.0'. The interface also features a menu bar with options: File, Edit, View, Go, Database, and Help. Below the menu bar is a toolbar with buttons for Open, Cut, Copy, Paste, Save, Image, Prioritize, and Validation. On the left side, there is a vertical toolbar with icons and labels for OR Folder, AND Folder, Survey Container, MSB Folder, Observation, Note, Library, Component, Iterator, and Observe. The main content area is divided into two panes: the left pane shows a tree view with 'Science Program' selected, and the right pane displays the 'Program' form.

File Edit View Go Database Help

Open Cut Copy Paste Save Image Prioritize Validation

OR Folder

AND Folder

Survey Container

MSB Folder

Observation

Note

Library

Component

Iterator

Observe

Science Program

Program

General program information taken from the proposal.

Title

PI

Country

Project ID

Estimated Time (w/o optionals)

Estimated Total Time

Undo

Example 4: HARP

Copy over the star set up into your program:

I wish to investigate the

H

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w

po

Fe

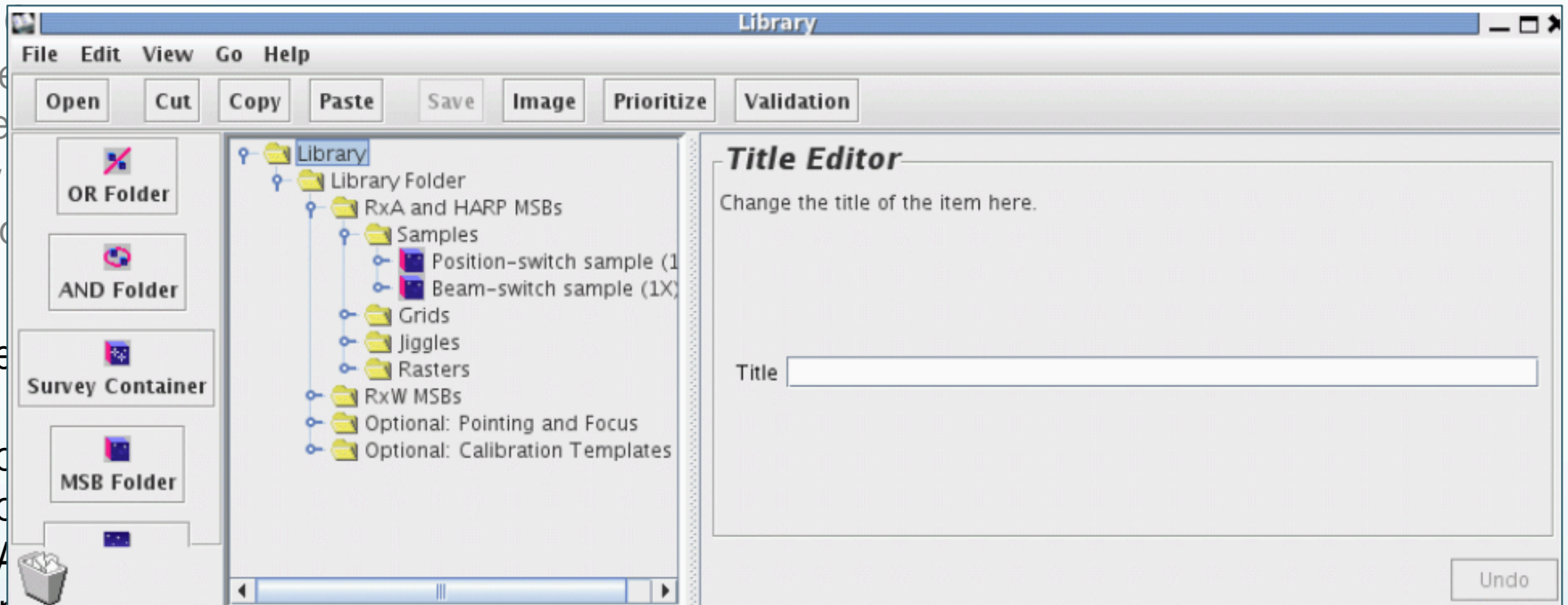
Yo

yo

TA

opportunity to learn more

about this particular comet.



set up the heterodyne configuration:

Example 4: HARP

JCMT Heterodyne

The Heterodyne instrument is configured with this component.

Front End Configuration

Fr... ☐ A3M ☐ A3 ☐ W8 ☐ WD ☒ HARP

Sp. ... ☒ 1 ☐ 2 ☐ 3 ☐ 4 Special... None

Mo... ☒ ssb ☐ dsb

Sid... ☒ best ☐ usb ☐ lsb

Front End Su

Low ... 325

High... 375

Bandwidths

250.0

250.0

250.0

250.0

Frequency Setup

☒ Default tuning velocity to target radial velocity

Velocity 0 Definition radio Frame TOPOCENTRIC

HCN 4 - 3 354.5054759 GHz Accept

Show Frequency Editor Hide Frequency Editor

Frequency Configuration

Region	Species	Trans.	Rest. F...	Centre ...	BW	res	overlap	channels
0	HCN	4 - 3	354.5...	5.0E9	2.5E8	31	0.0	8192

Example 4: HARP

I wish to investigate the
HCN level in a comet. I will

Fill in the target and reference
position information:

The screenshot shows the HARP software interface. The title bar reads "A chemical study of the CO-rich Oort-cloud comet Garradd (C/2009 P1)". The menu bar includes File, Edit, View, Go, Database, and Help. Below the menu bar is a toolbar with buttons for Open, Cut, Copy, Paste, Save, Image, Prioritize, and Validation. On the left is a vertical toolbar with icons for OR Folder, AND Folder, Survey Container, MSB Folder, Observation, Note, Library, and Component. The main panel on the left displays a hierarchical tree structure of the project, with "Target Information: Garradd C2009 P1" selected. The right panel, titled "Target Information", contains several tabs: RA/Dec, Orbital Elements, Named Planets, and TLE. The "Orbital Elements" tab is active, showing fields for Comet (set to "Comet"), to (2012 Oct 20.0 (TT)), i (106.172422705721 (deg)), Ω (325.9988780005446 (deg)), ω (90.7422466659238 (deg)), q (1.550538523934078 (AU)), and e (1.00086523306325). There is also a field for TP (2011 Dec 23.659104 (TT)) and a "Resolve Name" button. Below these are tabs for Radial Vel/Tracking, Proper Motion, and Chop Settings. The "Radial Vel/Tracking" tab is active, showing a "Velocity (km/s or redshift)" field set to "radio" and "0", and a "Frame" dropdown set to "TOPOCENTRIC". At the bottom right is an "Undo" button with a pencil icon. A table at the bottom of the "Target Information" panel shows the following data:

Tag	Name	X Axis	Y Axis	System
SCIENCE	Garradd C2009 P1	---	---	Orb. Elem.
REFERENCE		300.0 (Δ)	0.0 (Δ)	Az/El

Buttons at the bottom of the table include "Plot...", "Set SCIENCE To I...", "Remove", "Add", and a dropdown menu currently showing "REFERENCE".

Example

I wish

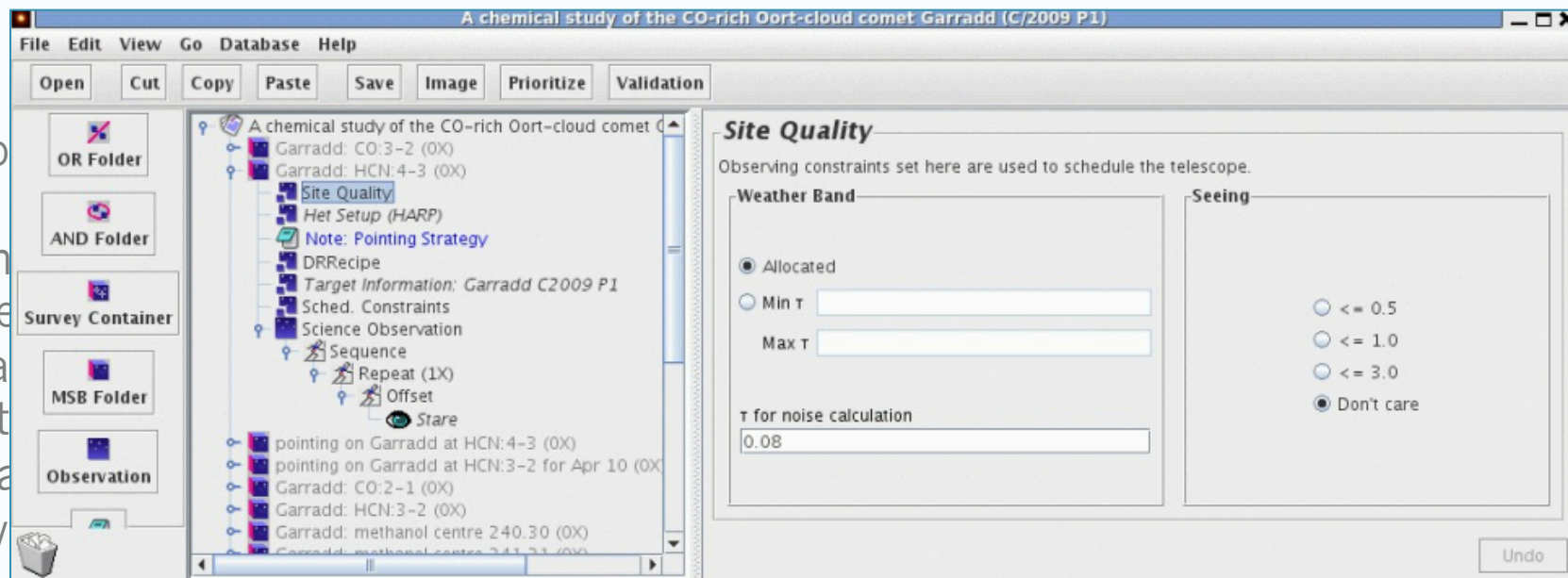
HCN le

need a

resolut

will ba

poor w



Feedback

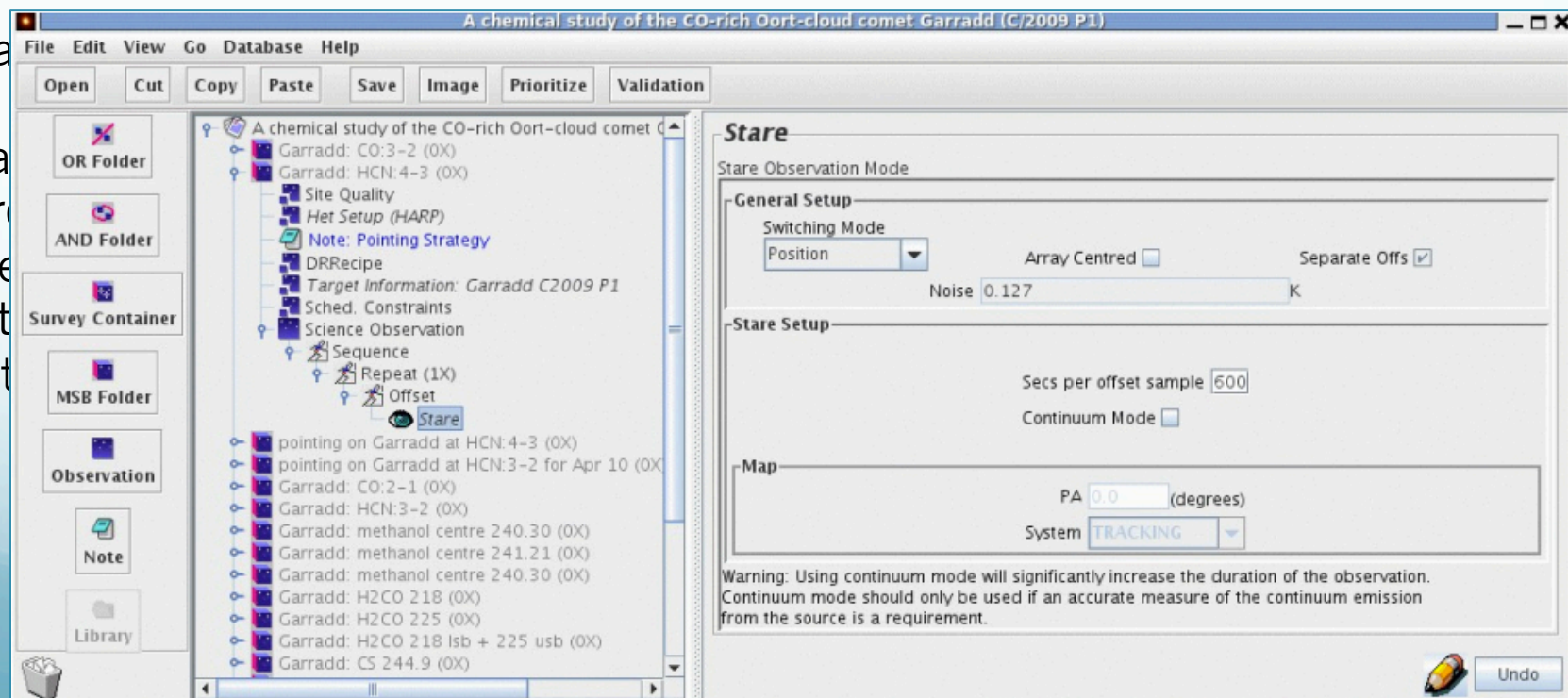
You ha

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TAC fe

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about t



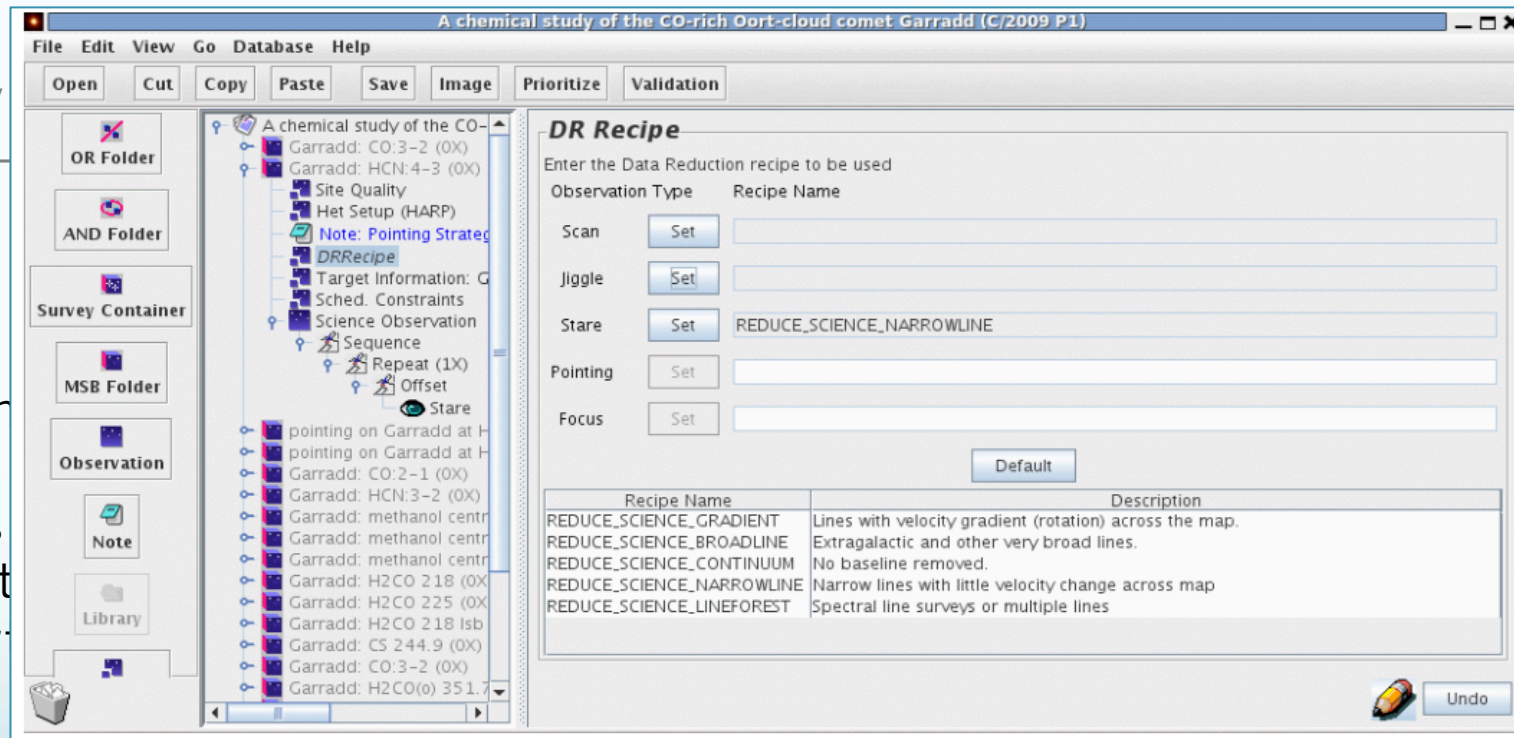
Example 4: HARP

I wish to investigate the HCN level in a comet. I will need a rms of 0.05K with a resolution of will base my poor weather -

Feedback:

You have been your request TAC felt this opportunity to about this par

Select a DR recipe:

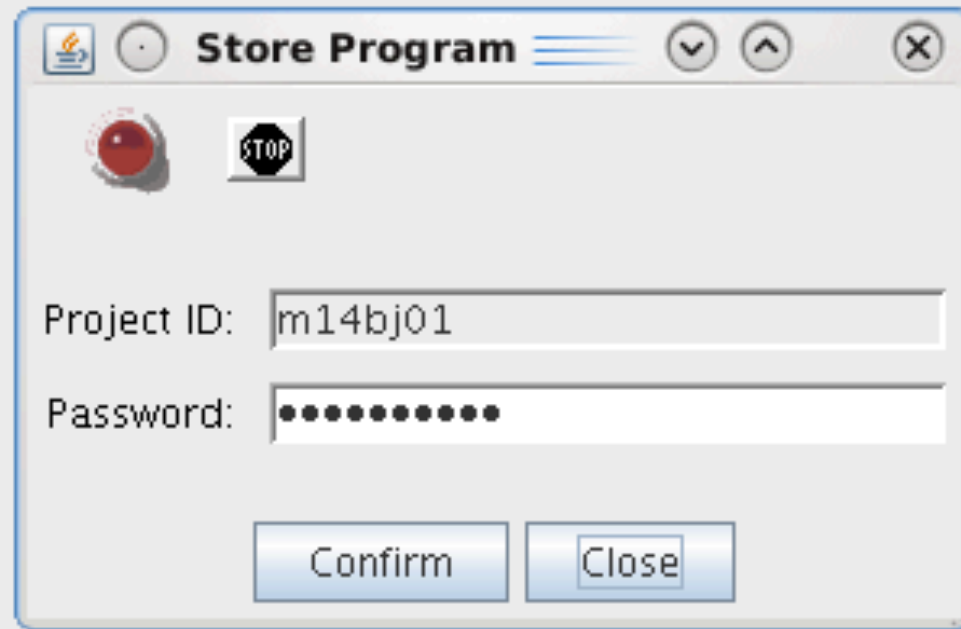


Example 4: HARP

I wish to increase the HCN level in '4
need a rms of
resolution of
will base my
poor weather

Feedback:

You have been
your request
TAC felt this
opportunity
about this particular comet.



Store Program

Project ID: m14bj01

Password: ●●●●●●●●●●

Confirm Close