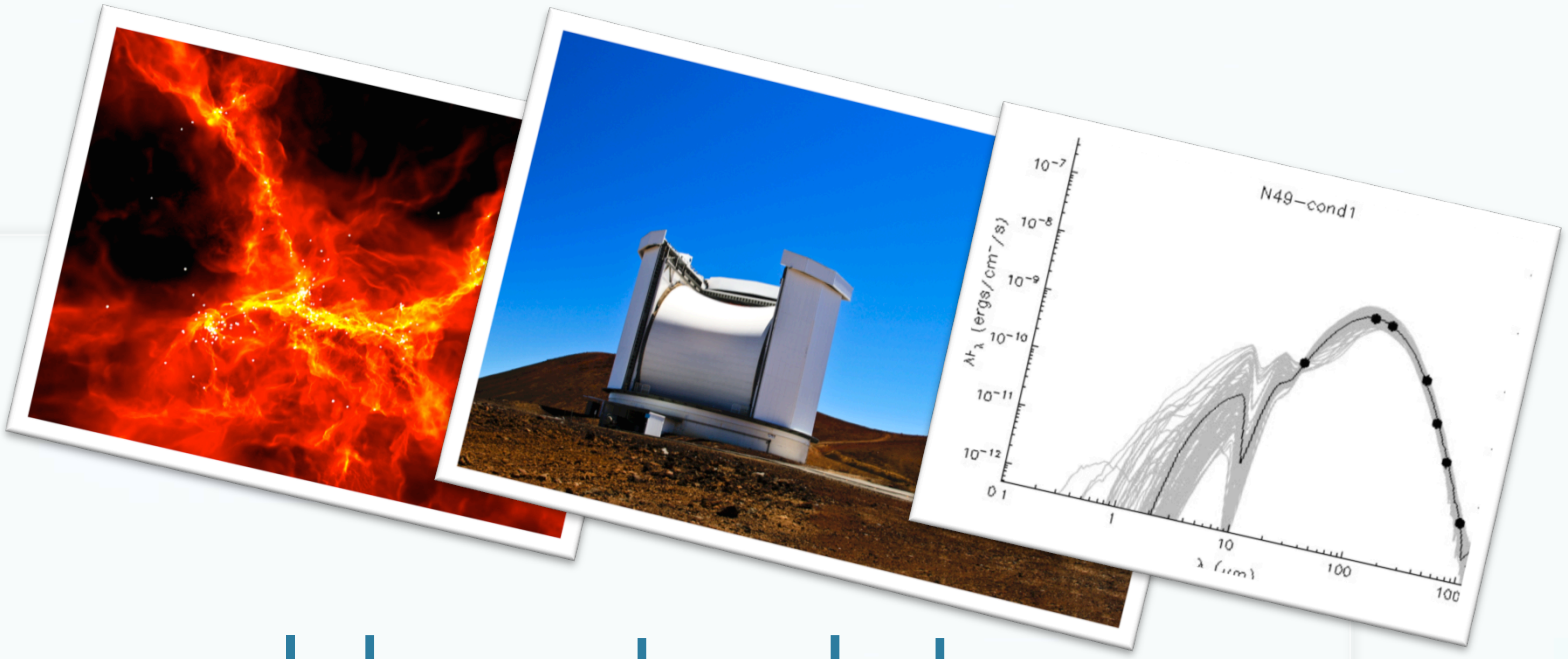


Ideas to data: Part II: Data Acquisition

Harriet Parsons, Support Scientist, JAC/EAO

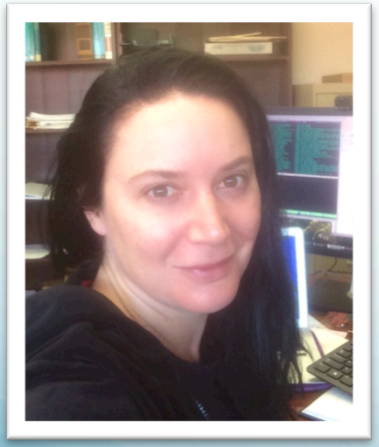
Part II: Data Acquisition

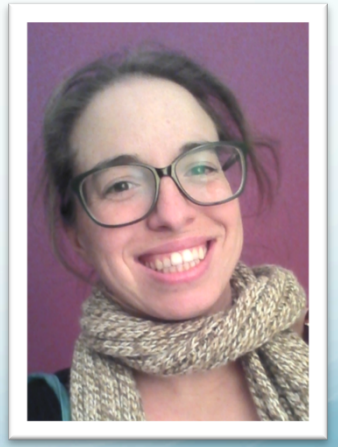
- Feedback and your Friend of Project
- Creating an msb using the Observing Tool
- The Query Tool (at the telescope – data acquisition!)
- Accessing your data – OMP and CADC
- The DR process (briefly!)

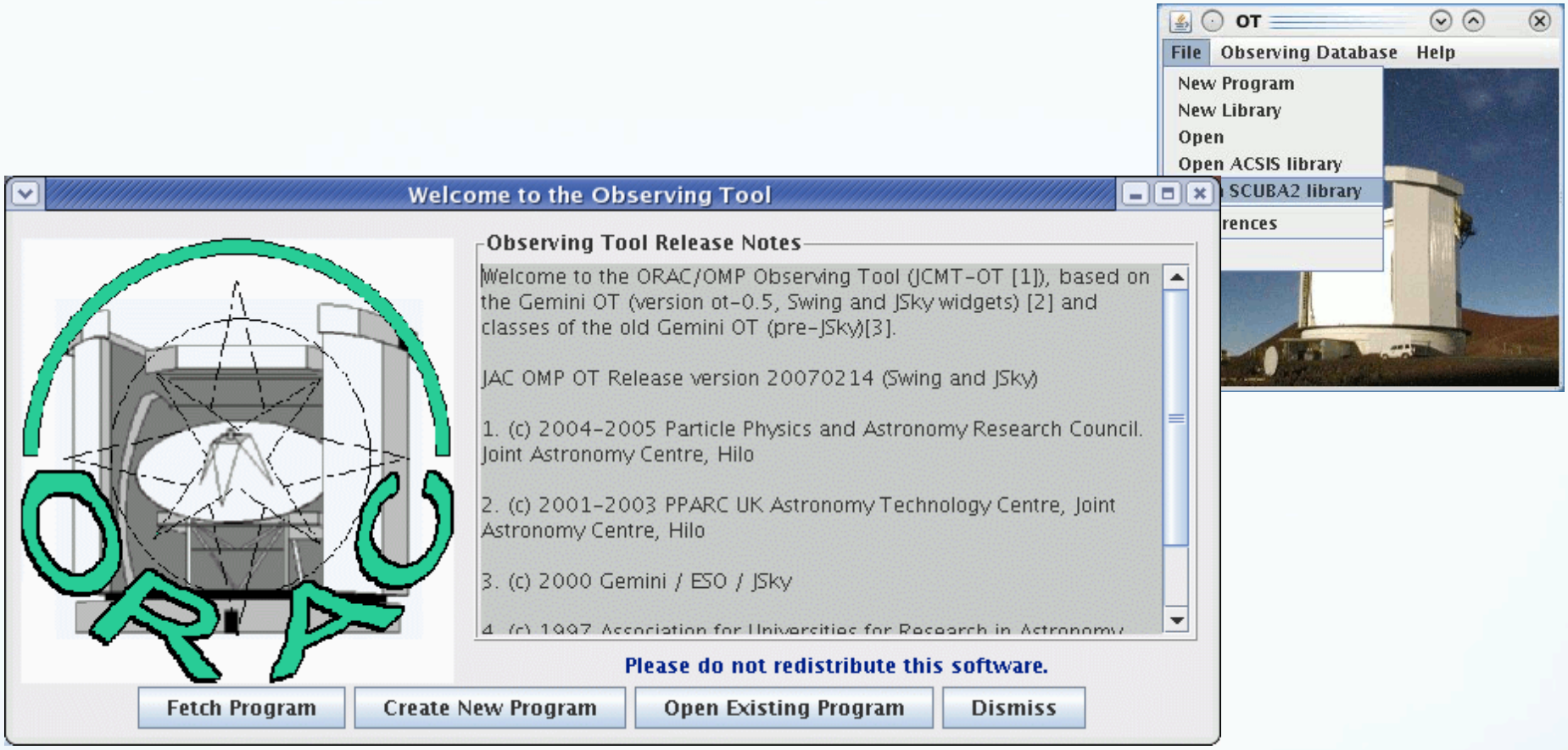
Feedback:

- ✓ Did you get time?
- ✓ Do you need to adjust your project?
  - ✓ allocated time
  - ✓ weather band
  - ✓ number of regions

It is at this point when you will be assigned a Friend Of Project:







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

www.eaobservatory.org/JCMT/observing-tool/

JCMT Observing Tool (OT)
Preparing MSBs for your project:

MSB: **Minimum Scheduling Block**

A recipe for observing

Typically around 1 hour in total length

A project might have a single MSB repeated multiple times

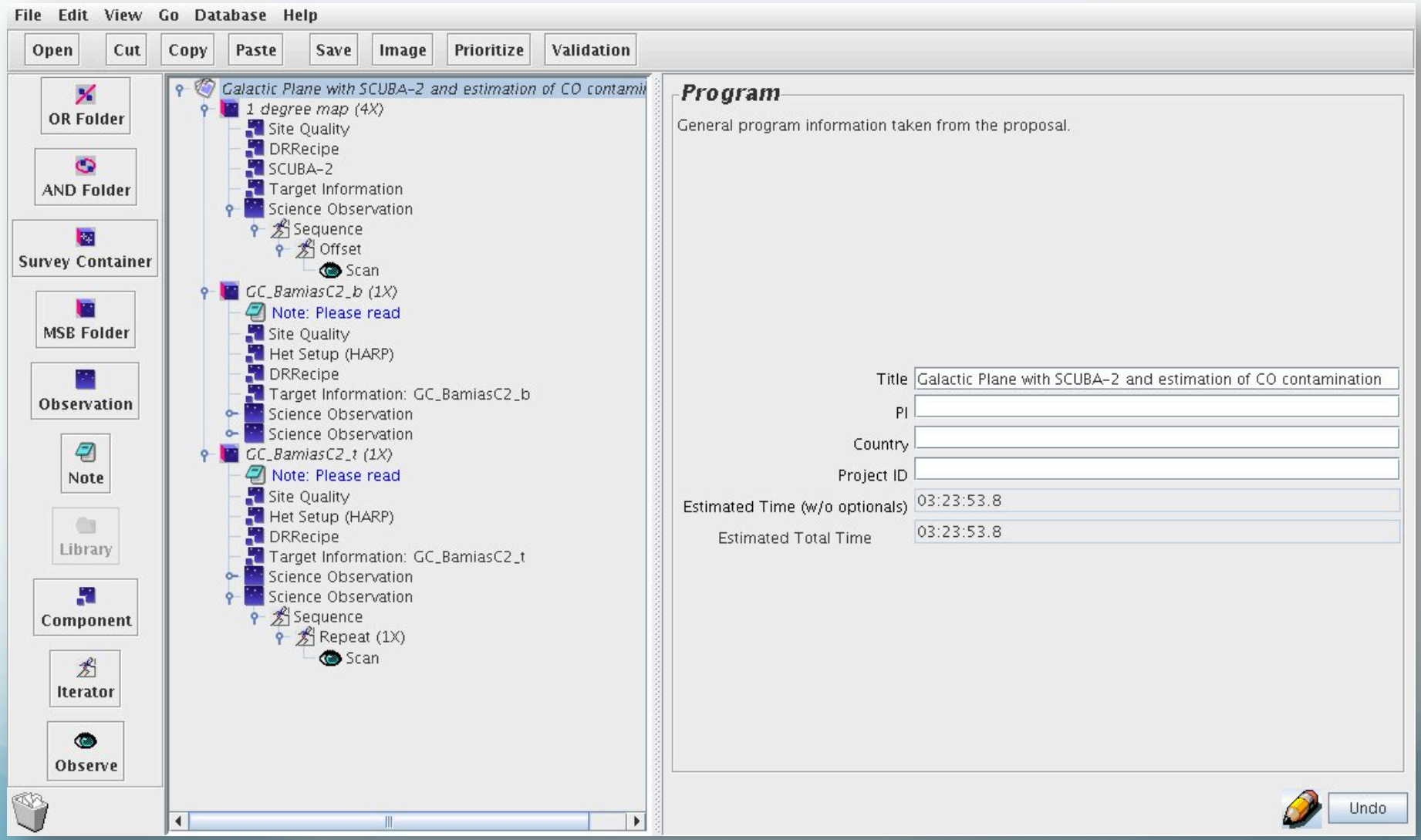
A project might have multiple MSBs

- for different instruments
- for different conditions

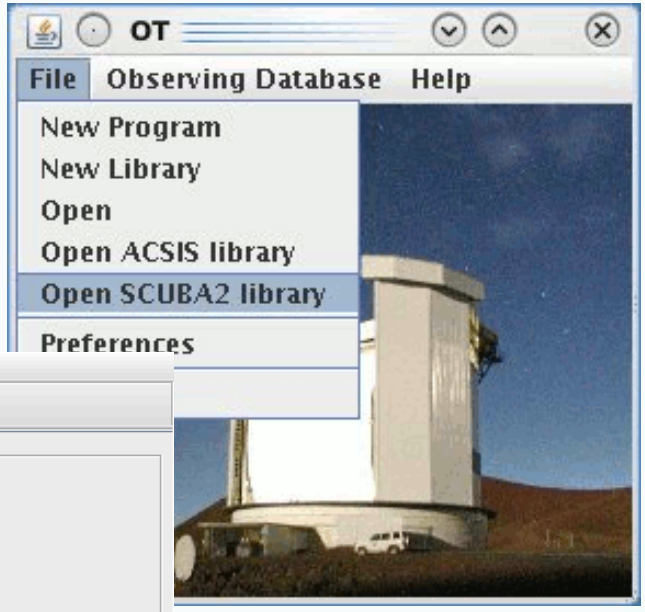
Considerations:

- Weather constraints
- Elevation constrains
- Prioritisation
- Completions requirements
    - signal-to-noise detection/binning/allocated time
- Please add project notes!

Example project containing 3 msb's:



The OT provides a library of templates for your project:



File Edit View Go Help

Open | Cut | Copy | Paste | Save | Image | Prioritize | Validation

OR Folder
AND Folder
Survey Container
MSB Folder
Observation
Note
Library
Component
Iterator
Observe

- Library
  - Library Folder
    - Note: IMPORTANT README
    - Pointsource (Daisy) MSB
    - Map (Pong) MSBs
      - 15 arcmin map with optional offset(s) (1X)
      - 30 arcmin map with optional offset(s) (1X)
      - *1 degree map with optional offset(s) (1X)*
        - Note: Please read
        - Site Quality
        - DRRecipe
        - SCUBA-2
        - Target Information
        - Science Observation
          - Sequence
            - Repeat (1X)
              - Offset
                - Scan
    - Example optionals: Calibration, Pointing and Focus

MSB Editor

MSB information.

Name: egree map with optional offset(s)

Observe: 1 X

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

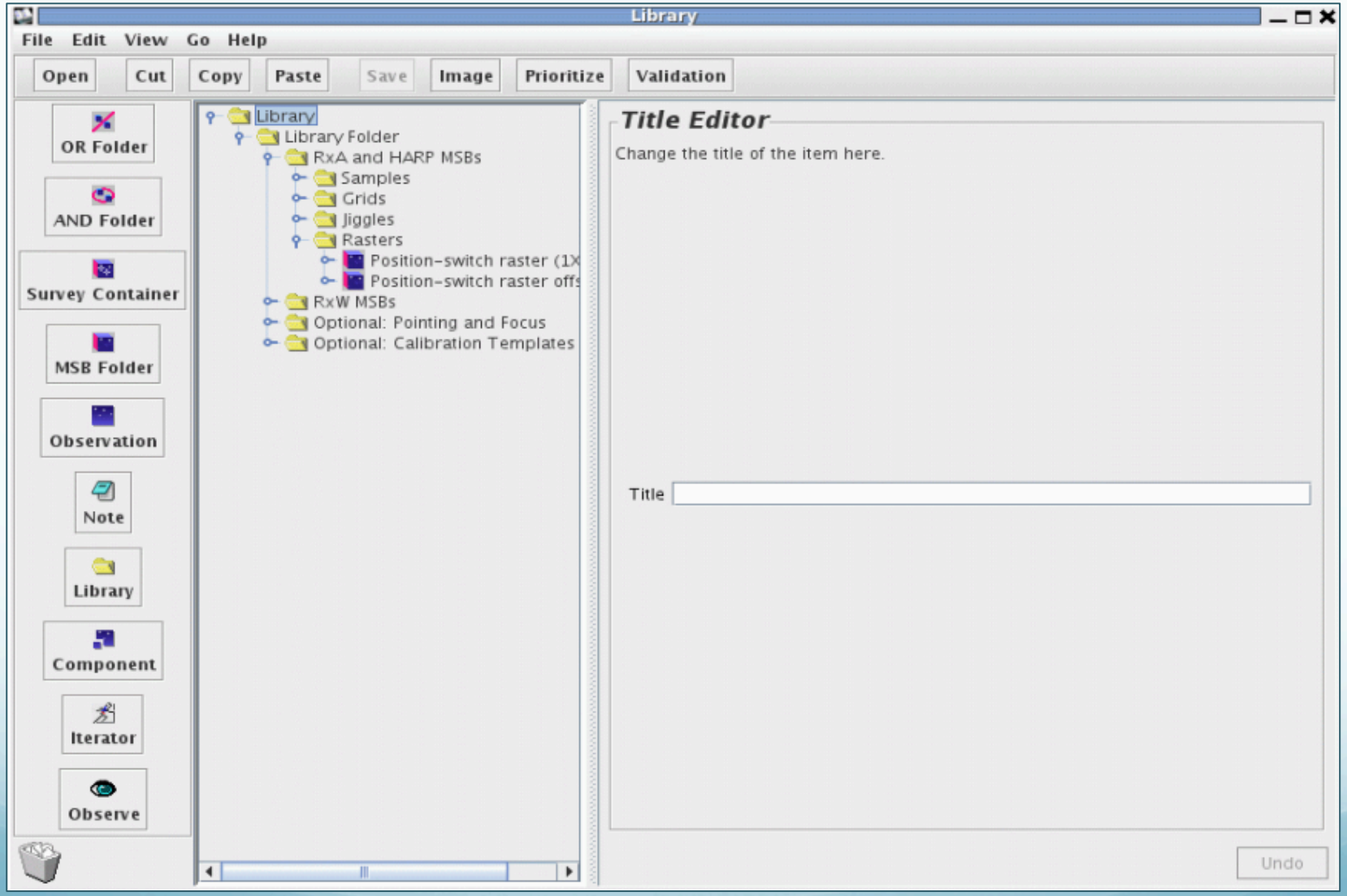
Estimated Time (w/o optionals): 00:39:29.0

Estimated Total Time: 00:39:29.0

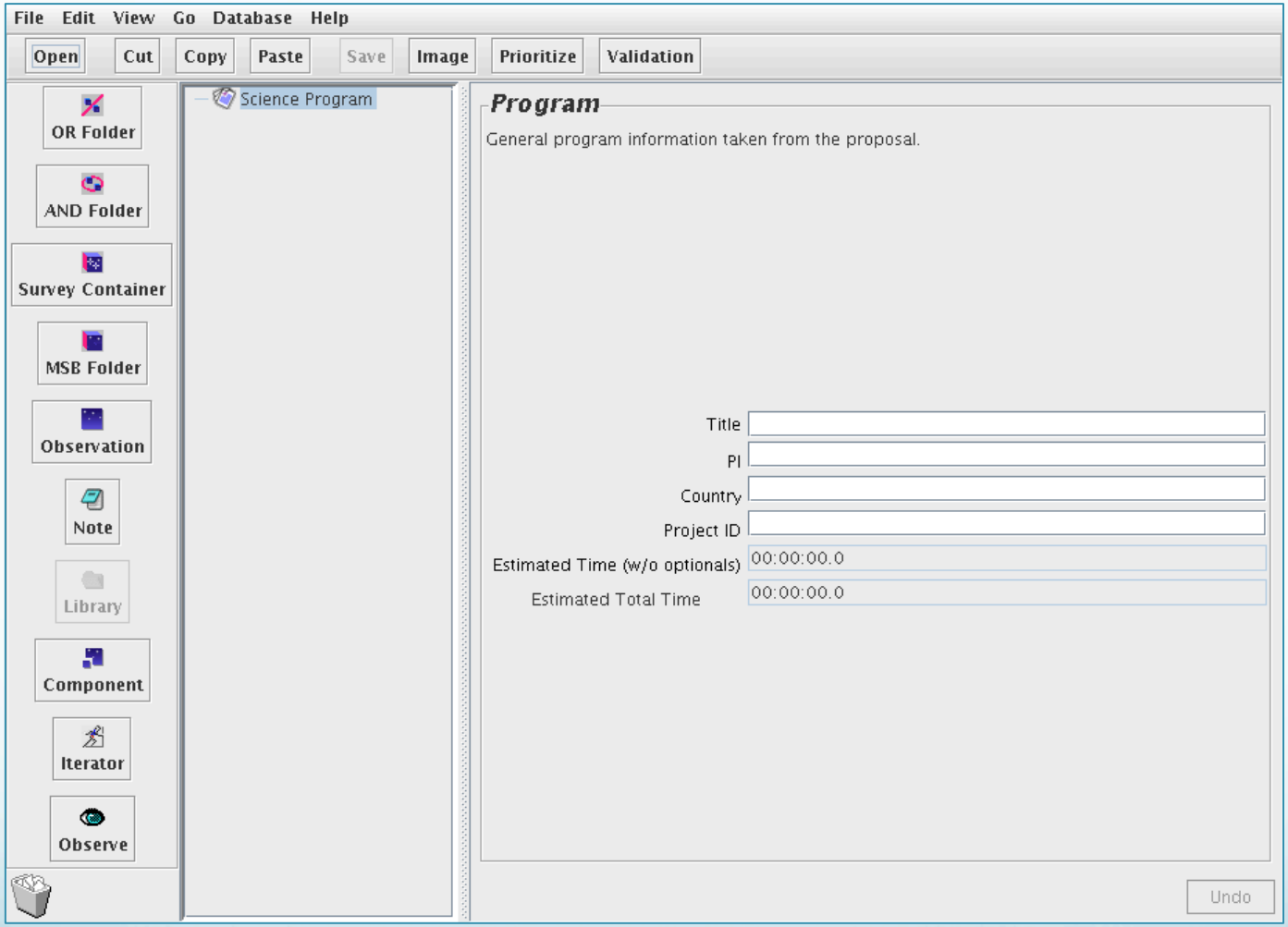
Undo

Library of SCUBA-2 msb's

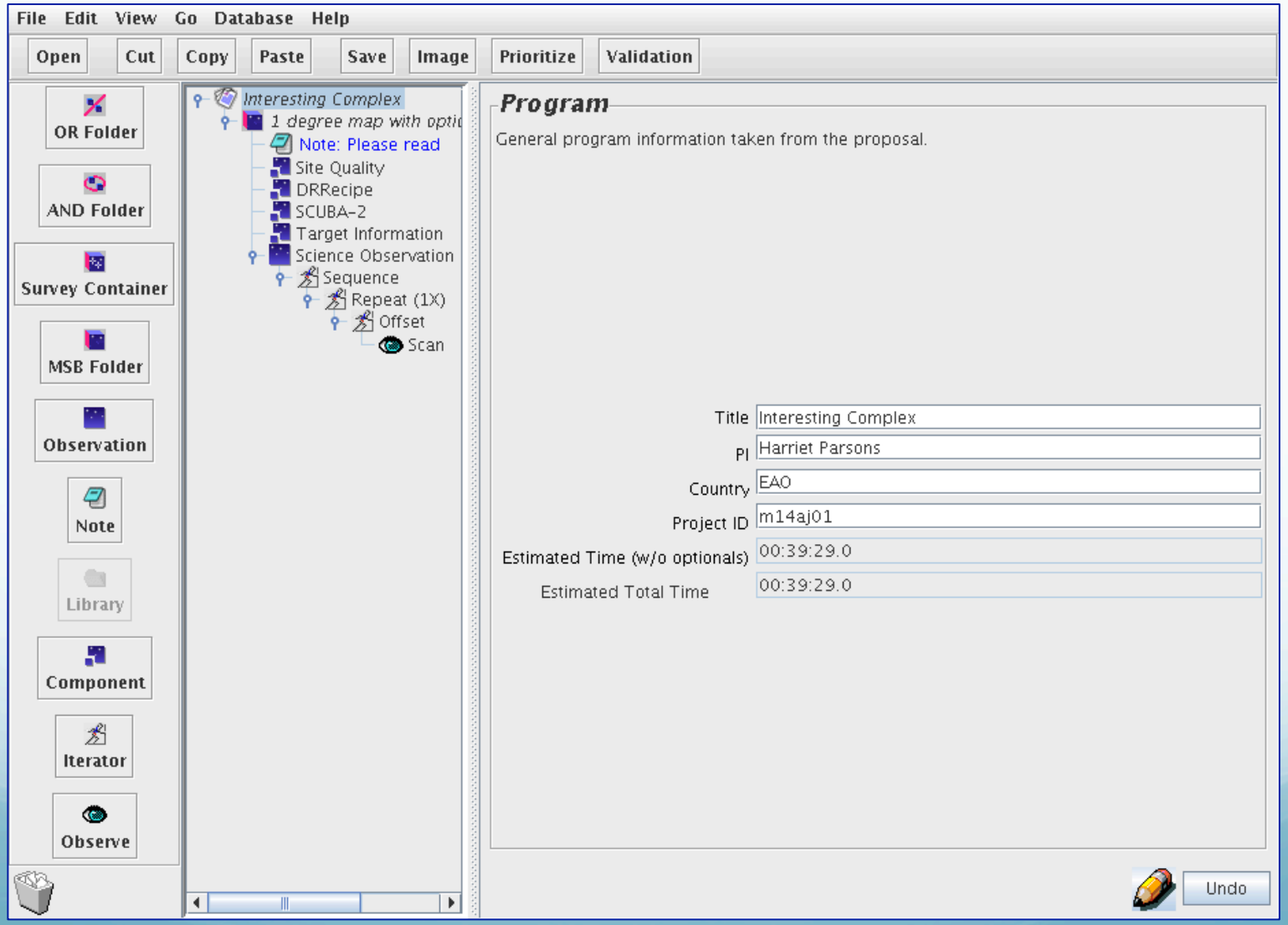
Library of Heterodyne msb's



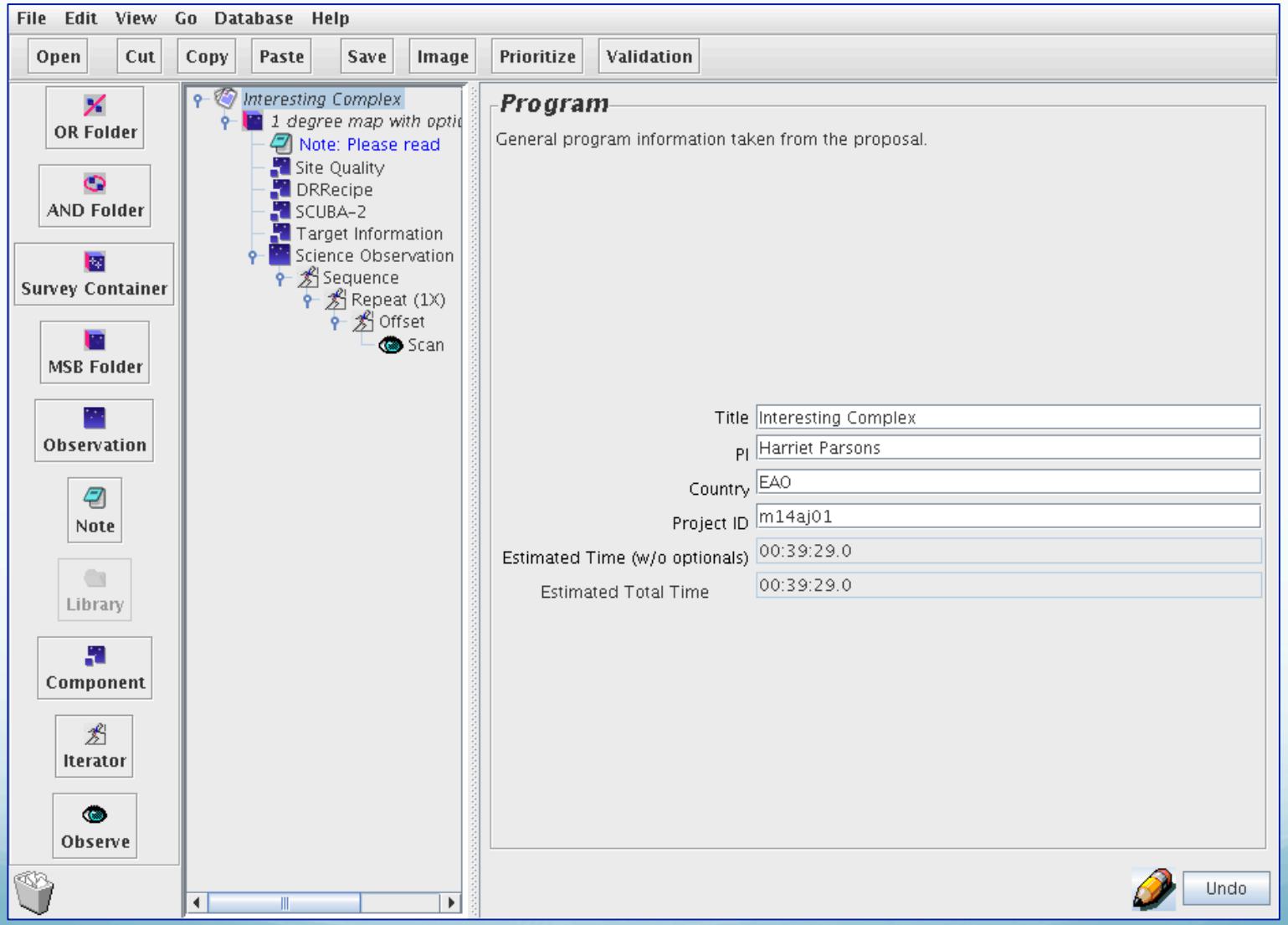
First step – create a project:



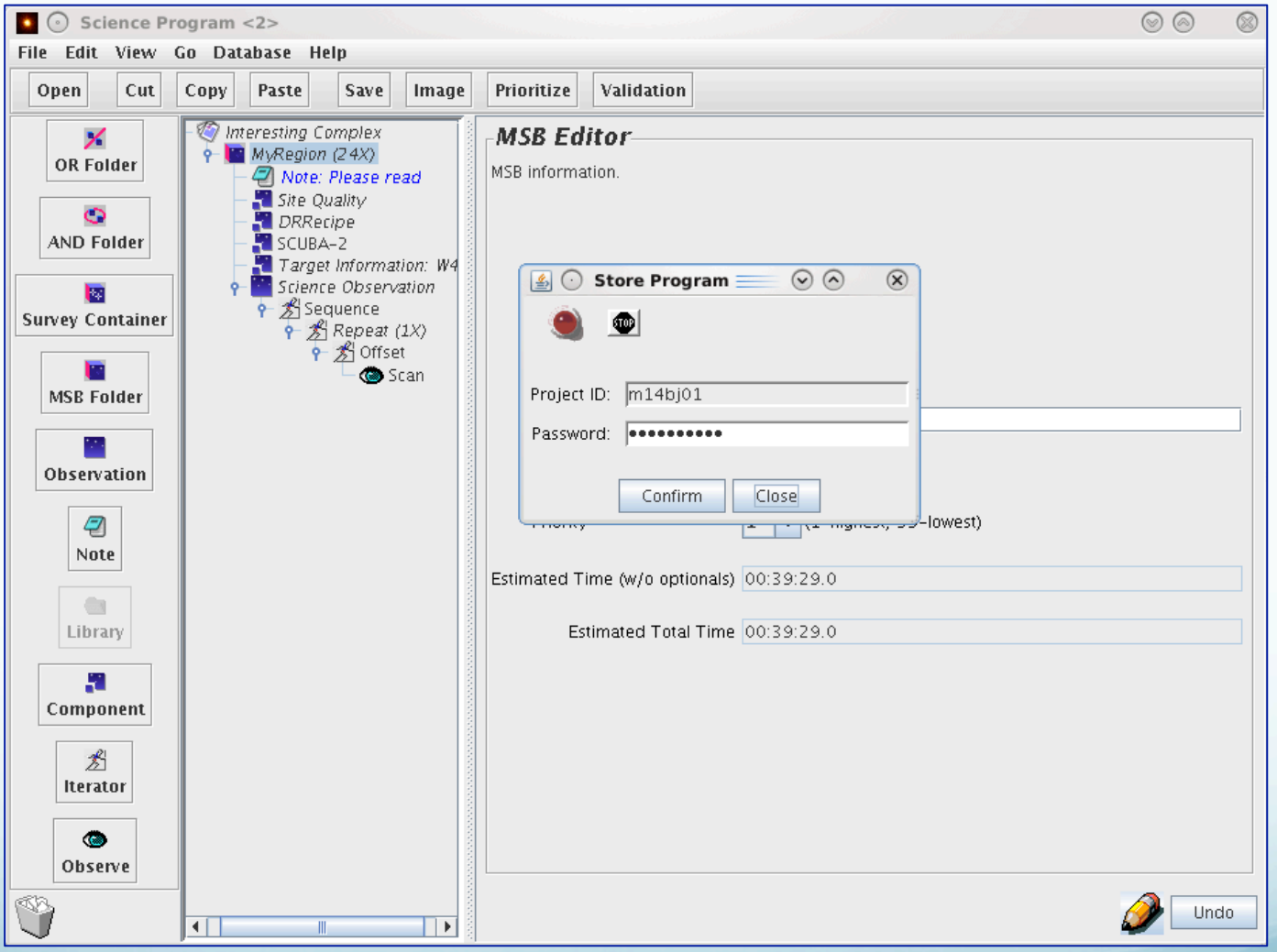
Second step – copy over template from SCUBA-2/ACSIS Library



Third step – edit program msb's to match proposal



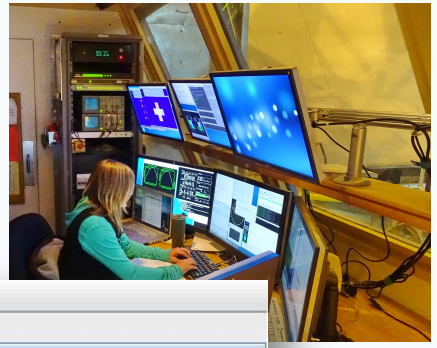
When ready submit your project to the database:



It is possible to fetch an uploaded project and make changes

COMPUTER ROOM
NOTICE
KEEP THIS
DOOR CLOSED
DELL

At the telescope – the Query Tool:



File View Edit Interop Help

QT

Search

Fetch MSB

Exit

Current Info

225 GHz Tau: 0.613

Seeing: -----

Airmass: -----

Set Default

goeswest.8km UTC

14.37.28 HST
24.37.28 UTC
21:44:17.78 LST

Query | No Observations | Calibrations

Project ID:

Hour Angle: Min: Max:

Airmass : Min: Max:

Elevation : Min: Max:

Observation Date: Date (yyyy-mm-dd): 2015-01-12 Time (hh:mm:ss): 14:37:28

Duration (minutes) : Min: Max:

INSTRUMENTS

- SCUBA-2
- HARP
- RxA3
- RxWB
- RxWD
- Any Instrument

Semesters

- current
- 14B
- 14A
- 13B
- 13A
- JLS

COUNTRY

- Any
- CA+INT+NL+UK
- UK
- CA
- NL
- UH
- Int
- EC
- DDT
- JLS

Atmosphere

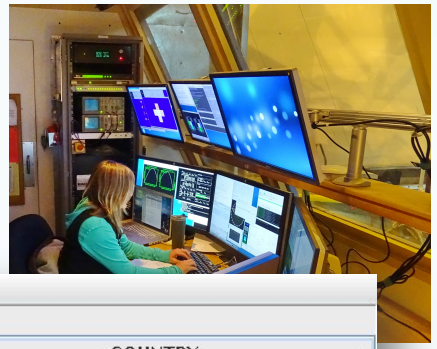
Tau: 0.613

Seeing:

projectid	priority	proje...	priority	sched...	compl...	instru...	wave...	title	target	ra	dec	coord...	ha	az	airmass	tau	pol	type	timeest	remai...	obsco...

The Query Tool is where your project's msbs will be accessed by the telescope operator and when appropriate observed.

At the telescope – the Query Tool:



File View Edit Interop Help

QT

Search

Fetch MSB

Exit

Current Info

225 GHz Tau: 0.613

Seeing: -----

Airmass: -----

Set Default

goeswest.8km UTC

14.40.50 HST
24.40.50 UTC
21:47:40.34 LST

Query | MACSJ0717+37_pointing1 (4X) | Calibrations

Project ID:

Hour Angle: Min: Max:

Airmass : Min: Max:

Elevation : Min: Max:

Observation Date: Date (yyyy-mm-dd): 2015-01-12 Time (hh:mm:ss): 22:00:00

Duration (minutes) : Min: Max:

COUNTRY

- (•) Any
- ( ) UK
- ( ) NL
- ( ) Int
- ( ) DDT
- ( ) CA+INT+NL+UK
- ( ) CA
- ( ) UH
- ( ) EC
- ( ) JLS

Atmosphere

Tau: 0.07

Seeing:

INSTRUMENTS

- [x] SCUBA-2
- [x] RxA3
- [ ] RxWD
- [x] HARP
- [ ] RxWB
- [ ] Any Instrument

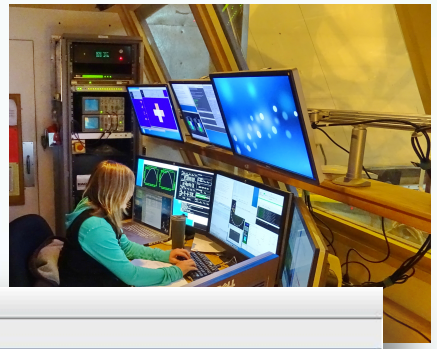
Semesters

- [ ] current
- [x] 14A
- [ ] 13A
- [x] 14B
- [ ] 13B
- [ ] JLS

projectid	priority
All	0
M14AU16	261
M13BU02	273
M14AU20	279

projectid	priority	schedpri	instrument	title	target	ra	dec	tau	type	timeest	remaining	obscount
M14AU16	261.02	0.229738...	SCUBA-2	MACSJ071...	MACSJ071...	7.3	37.7	< 0.08	i-daisy	00h40m00s	4	1
M14AU16	261.03	0.233316...	SCUBA-2	MACSJ071...	MACSJ071...	7.3	37.8	< 0.08	i-daisy	00h40m00s	15	1
M13BU02	273.02	8.138527...	SCUBA-2	W0804 Da...	W080431....	8.1	36.1	(0.05,0.08)	i-daisy	00h24m46s	1	1
M13BU02	273.02	7.149648...	SCUBA-2	W0631 Da...	W063130....	6.5	-20.6	(0.05,0.08)	i-daisy	00h24m46s	3	1
M13BU02	273.02	7.244901...	SCUBA-2	W0641 Da...	W064132....	6.7	52.1	(0.05,0.08)	i-daisy	00h24m46s	3	1
M13BU02	273.02	7.733377...	SCUBA-2	W0729 Da...	W072902....	7.5	65.7	(0.05,0.08)	i-daisy	00h24m46s	3	1
M14AU20	279.02	10.03754...	SCUBA-2	JCMTLSY J...	JCMTLSY J...	7.2	-10.7	(0.05,0.08)	i-pong	00h39m29s	2	1
M14AU20	279.99	10.99110...	SCUBA-2	Daisy follo...	JCMTLSYJ0...	7.6	-22.2	(0.05,0.08)	i-daisy	00h10m10s	1	1

At the telescope – the Query Tool:



File View Edit Interop Help

Query | W0804 Daisy LT14A (1X) | Calibrations

Search | Fetch MSB | Exit

Current Info
225 GHz Tau: 0.613
Seeing: -----
Airmass: -----
Set Default

goeswest.8km UTC

14.41.32 HST
24.41.32 UTC
21:48:22.45 LST

Retrieved MSBs

Daisy M12BU07 (1,486.0 seconds)

Time constraint edited, click "Set Default"

Expand Observation

Deferred MSBs

Observer Notes

completionParameter = Allocated time

Triple repeated daisy pattern scans to search for cold dust emission from WISE-detected radio-intermediate AGN and their immediate surroundings.

Try to avoid elevation exceeding 75 degrees during the scan.
Please execute observations at maximum elevation possible subject to this limit.

Please complete remaining scans required for already-started sources that are available before moving on to start new ones.
(Priority-1 should be automatically assigned to started sources), and seems to be working.

Thank you.

projectid	priority
All	0
M14AU16	261
M13BU02	273
M14AU20	279

projectid	priority	schedpri	instrument	title	target	ra	dec	tau	type	timeest	remaining	obscount
M14AU16	261.02	0.229738...	SCUBA-2	MACSJ071...	MACSJ071...	7.3	37.7	< 0.08	i-daisy	00h40m00s	4	1
M14AU16	261.03	0.233316...	SCUBA-2	MACSJ071...	MACSJ071...	7.3	37.8	< 0.08	i-daisy	00h40m00s	15	1
M13BU02	273.02	8.138527...	SCUBA-2	W0804 Da...	W080431....	8.1	36.1	(0.05,0.08)	i-daisy	00h24m46s	1	1
M13BU02	273.02	7.149648...	SCUBA-2	W0631 Da...	W063130....	6.5	-20.6	(0.05,0.08)	i-daisy	00h24m46s	3	1
M13BU02	273.02	7.244901...	SCUBA-2	W0641 Da...	W064132....	6.7	52.1	(0.05,0.08)	i-daisy	00h24m46s	3	1
M13BU02	273.02	7.733377...	SCUBA-2	W0729 Da...	W072902....	7.5	65.7	(0.05,0.08)	i-daisy	00h24m46s	3	1
M14AU20	279.02	10.03754...	SCUBA-2	JCMTLSY J...	JCMTLSY J...	7.2	-10.7	(0.05,0.08)	i-pong	00h39m29s	2	1
M14AU20	279.99	10.99110...	SCUBA-2	Daisy follo...	JCMTLSYJ0...	7.6	-22.2	(0.05,0.08)	i-daisy	00h10m10s	1	1

Once your project is approved you will have access and support to the OMP:

Observation Management Project

For users it provides:

- ✓ Access a project
- ✓ View PI and CO-Is
- ✓ Look at project allocation and completion
- ✓ Look at what observations have been requested
- ✓ **Look at what observations have already been observed**
- ✓ **Download data**
- ✓ View important comments
- ✓ View who is the support scientists for the project

To access your own project:

omp

This is the JAC Observation Management Project (OMP) web portal.

The OMP provides tools and defines processes to aid with flexibly-scheduled observing at JCMT and UKIRT.

It builds upon the JCMT Observation Management Project and the UKIRT Observatory Reduction and Acquisition Control project.

General Access

Project Feedback System	JCMT & UKIRT
Access a Project	■
Comment on a Project	■
Issue a New Project Password	■

Instructional Documentation	JCMT	UKIRT
Preparing and Submitting with the OT	■	■
Acquiring and Installing the OT	■	■

Useful Links	JCMT	UKIRT
Telescope Web Site and Information	■	■
Telescope Observer Schedule	■	■
Telescope Observing Process	■	■

Restricted Access

Observing Reports	JCMT	UKIRT
View an Observing Report	■	■
View Shift Log Comments	■	■
View an MSB Summary	■	■
View a Weekly Synopsis	■	■

Project Administration	JCMT & UKIRT
View and Sort Projects	■
View and Edit User Details	■
View and Edit Project Details	■
View and Edit Support Contacts	■

Target Tools	JCMT & UKIRT
View Target Observability	■
View Target Positioning	■

Useful Links	JCMT	UKIRT
Telescope Support Schedule	■	■
Telescope Queue Snapshot	■	■
Telescope Nightly Snapshot	■	■

Fault System	View	File
JCMT Faults	■	■
JCMT Events	■	■
UKIRT Faults	■	■
CSG Faults	■	■
OMP Faults	■	■
DR Faults	■	■
Facility Faults	■	■
Vehicle Incident Reporting	■	■
Safety Reporting	■	■
All Faults	■	

M13AD07: CO contamination in the Galactic Centre

This project is disabled

Principal Investigator: Harriet Parsons ✉
Co-investigators:
Support: Harriet Parsons
Country: DDT
Semester: 13A
Click here to view the science case for this project

Time allocated to project: 8h0m0s in tau range (0.05,0.32)
There is no time remaining on this project
Completion rate: 101%

Click here to remote eavesdrop

Observations were acquired on the following dates:

2013-07-25 (4.0 hours) click on date to retrieve data
2013-07-26 (4.2 hours) click on date to retrieve data

The following MSBs have been observed:

MSB	Target	Waveband	Instrument	N Repeats
1	GC_BamiasC2_b	3.457959899E11	HARP	1
2	GC_BamiasC2_t	3.457959899E11	HARP	1
3	GC_BottomLeft	3.457959899E11	HARP	1
4	GC_BottomRight	3.457959899E11	HARP	1
5	GC_FarRight	3.457959899E11	HARP	1
6	GC_Left	3.457959899E11	HARP	1
7	GC_Right	3.457959899E11	HARP	1
8	GC_l356_b0	3.457959899E11	HARP	1

Click here for more details on the observing history of each MSB.

MSBs remaining to be observed:

Project log for M13AD07 on 2013-07-25

Retrieve data with calibrations
Retrieve data excluding calibrations

View shift comments / Add shift comment

View WWW graph

View text-based observation log

MSB history for 2013-07-25

1. GC_BamiasC2_b

COMPLETE **Target:** GC_BamiasC2_b **Waveband:** 345.796 GHz **Instrument:** HARP

Add Comment

20130725 06:57:46 UT, *Callie Matulonis*
MSB marked as done

Remove Undo

2. GC_BamiasC2_t

COMPLETE **Target:** GC_BamiasC2_t **Waveband:** 345.796 GHz **Instrument:** HARP

Add Comment

20130725 08:03:48 UT, *Callie Matulonis*
MSB marked as done

Remove Undo

3. GC_FarRight

COMPLETE **Target:** GC_FarRight **Waveband:** 345.796 GHz **Instrument:** HARP

Add Comment

20130725 10:22:52 UT, *Callie Matulonis*
MSB marked as done

Remove Undo

4. GC_Right

COMPLETE **Target:** GC_Right **Waveband:** 345.796 GHz **Instrument:** HARP

Add Comment

20130725 09:16:51 UT, *Callie Matulonis*
MSB marked as done

Remove Undo

Determining data files associated with project m13ad07 and UT date 2013-07-25

[without calibrations]

```
Querying database for relevant data files...[tel:JCMT / ut:20130725 / project 'M13AD07']
SCIENCE: HARP/raster_pssw [GC_FarRight]
SCIENCE: HARP/raster_pssw [GC_BamiasC2_b]
SCIENCE: HARP/raster_pssw [GC_Right]
SCIENCE: HARP/raster_pssw [GC_BamiasC2_b]
SCIENCE: HARP/raster_pssw [GC_FarRight]
SCIENCE: HARP/raster_pssw [GC_BamiasC2_t]
SCIENCE: HARP/raster_pssw [GC_BamiasC2_t]
SCIENCE: HARP/raster_pssw [GC_Right]
Done [8 observations match]
```

Data retrieval is now handled by the Canadian Astronomical Data Centre (CADC). Pressing the button below will take you to the CADC data retrieval page with all your project files pre-selected. You will be required to authenticate yourself to CADC. Note that calibration observations are not password protected so you may be asked for your password midway through the transfer.

To [illegible] proprietary data, **you must have registered your CADC userid with the JAC.** Access permissions at the CADC are assigned to each file based on the CADC userid supplied with the data by the JAC. It is not sufficient to have a userid at both institutions, even if they are the same!

Retrieve from CADC

Choose one of the following download methods:

Java Webstart

DownloadManager is launched as a desktop application via Java Webstart. The software is automatically cached on your computer, so subsequent startups are faster.

URL list in a file

Download a text file containing a list of URLs. It can then be used with a script or directly with the *wget* command. Each line contains an URL or, when URL generation fails, an error message.

The *wget* command to download all the URLs contained the above text file:

```
% wget --http-user=CADC_USERNAME --http-password=CADC_PASSWORD
--content-disposition -i FILE_NAME
```

Be certain to fill in your own CADC_USERNAME, CADC_PASSWORD and the FILE_NAME to use (default: cadcUrlList.txt) in the appropriate places in that command or you will get an error from *wget*. See below for more *wget* options.

URL list on an HTML page

View the list of URLs (one per file) in a Web page and select individual files to download.

☐ Remem... ...of download method (cookies required)

Each download page has a "Choose one of the other download methods" button which, if selected, removes the remembered download choice and returns to this multiple choice page.

Help

wget is not working

The recommended usage above includes the `--content-disposition` option, which is available in *wget* versions 1.12 or later. This option improves the likelihood that saved files will have the correct filenames when downloaded.

Please note that there are many versions of *wget* with a variety of options and syntax. Please consult your local help pages. `wget --help` should print the options for your version of *wget*

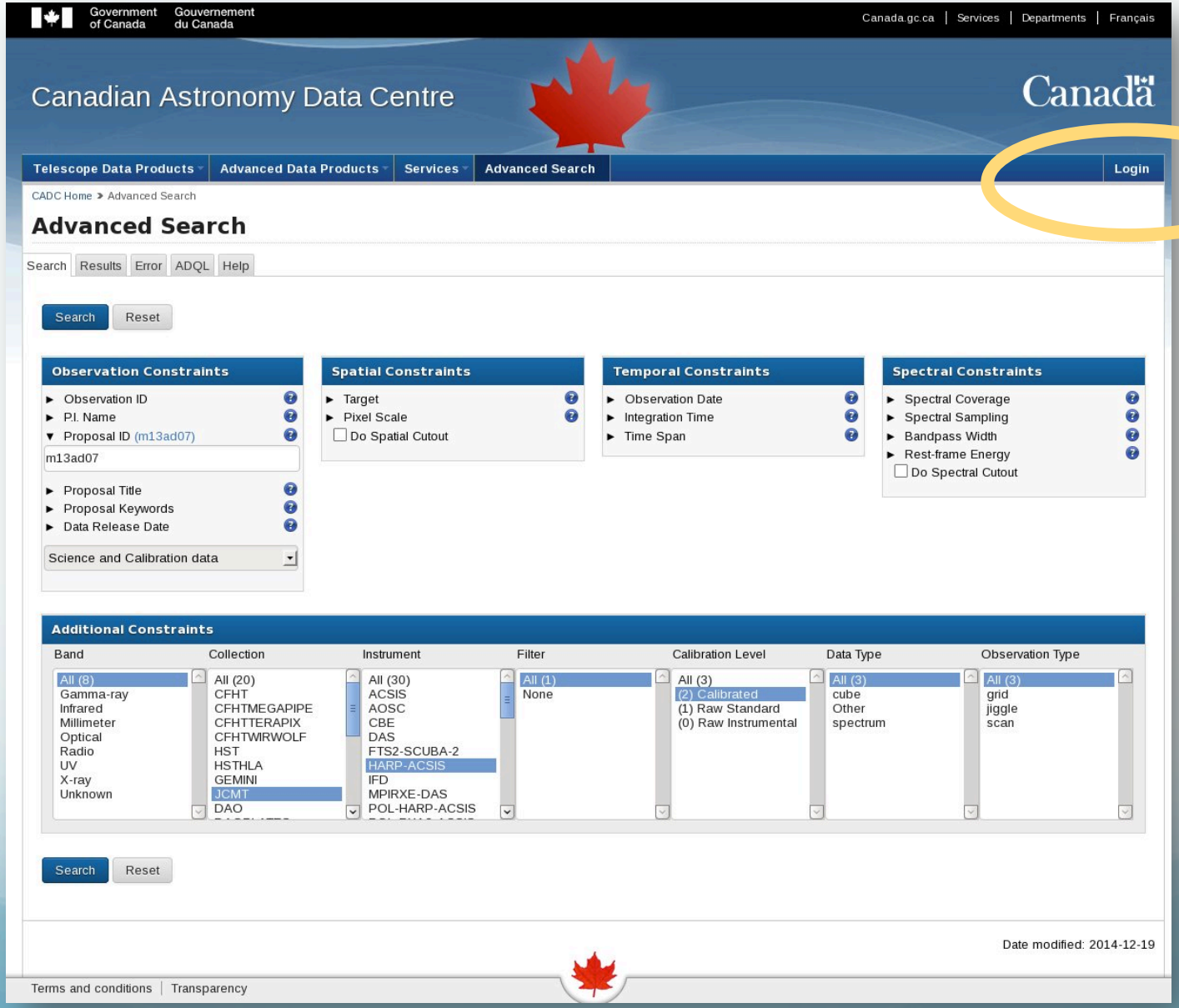
The *wget* command should be available on most systems. If not, *wget* can be downloaded from gnu.org. Alternately, you can try one of the several other download utilities such as: curl, HTTrack, leech (Mozilla Add-on), pavuk, lftp, etc.

the common options used with *wget*

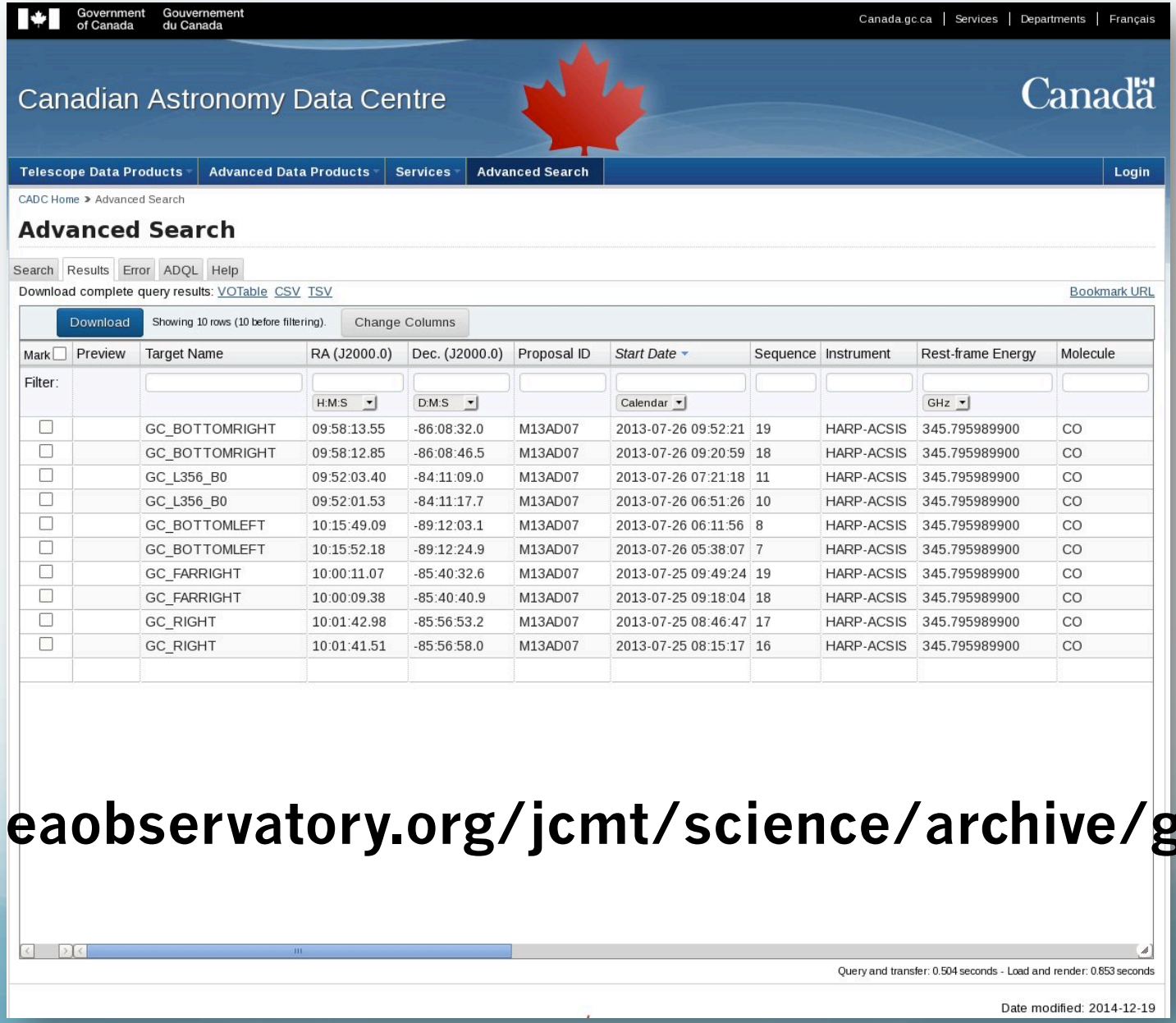
For downloading large number of files with *wget*, the following options might be useful:

- `-t, --tries=NUMBER` set number of retries to NUMBER (5 recommended).
- `--auth-no-challenge` send Basic HTTP authentication information without waiting for the server's challenge thus saving a roundtrip.
- `--waitretry=SECONDS` wait 1..SECONDS between retries of a retrieval. By default, wget will assume a value of 10 seconds.
- `-N, --timestamping` Turn on time-stamping and download only missing or updated files.

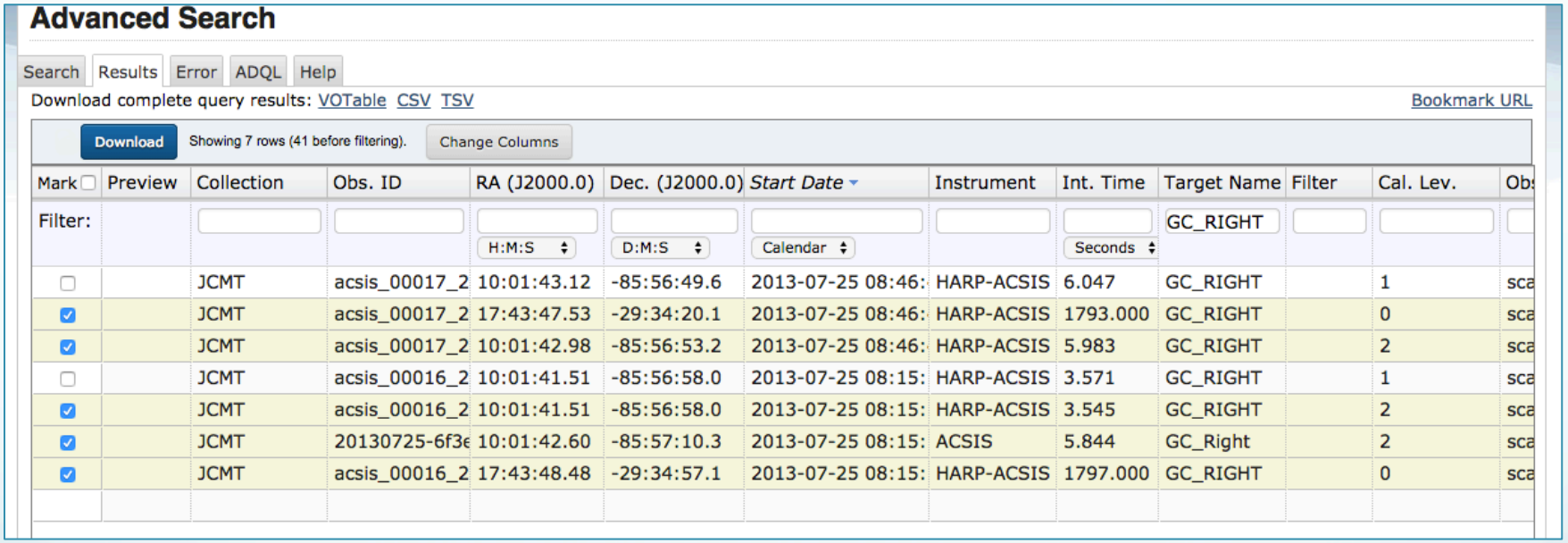
Accessing data – directly via the OMP/CADC



Accessing data – via the OMP/CADC



www.eaobservatory.org/jcmt/science/archive/guide/


Advanced Search
Search
Results
Error
ADQL
Help
Download complete query results: VOTable CSV TSV
Bookmark URL
Download
Showing 7 rows (41 before filtering).
Change Columns
Mark
Preview
Collection
Obs. ID
RA (J2000.0)
Dec. (J2000.0)
Start Date
Instrument
Int. Time
Target Name
Filter
Cal. Lev.
Filter:
GC_RIGHT
H:M:S
D:M:S
Calendar
Seconds
JCMT acsis_00017_2 10:01:43.12 -85:56:49.6 2013-07-25 08:46: HARP-ACSIS 6.047 GC_RIGHT 1
JCMT acsis_00017_2 17:43:47.53 -29:34:20.1 2013-07-25 08:46: HARP-ACSIS 1793.000 GC_RIGHT 0
JCMT acsis_00017_2 10:01:42.98 -85:56:53.2 2013-07-25 08:46: HARP-ACSIS 5.983 GC_RIGHT 2
JCMT acsis_00016_2 10:01:41.51 -85:56:58.0 2013-07-25 08:15: HARP-ACSIS 3.571 GC_RIGHT 1
JCMT acsis_00016_2 10:01:41.51 -85:56:58.0 2013-07-25 08:15: HARP-ACSIS 3.545 GC_RIGHT 2
JCMT 20130725-6f3e 10:01:42.60 -85:57:10.3 2013-07-25 08:15: ACSIS 5.844 GC_Right 2
JCMT acsis_00016_2 17:43:48.48 -29:34:57.1 2013-07-25 08:15: HARP-ACSIS 1797.000 GC_RIGHT 0

Choose one of the following download methods:

Java Webstart

DownloadManager is launched as a desktop application via Java Webstart. The software is automatically cached on your computer, so subsequent startups are faster.

URL list in a file

Download a text file containing a list of URLs. It can then be used with a script or directly with the *wget* command. Each line contains an URL or, when URL generation fails, an error message.

The *wget* command to download all the URLs contained the above text file:

```
% wget --http-user=CADC_USERNAME --http-password=CADC_PASSWORD --content-disposition -i FILE_NAME
```

Be certain to fill in your own CADC_USERNAME, CADC_PASSWORD and the FILE_NAME to use (default: cadcUrlList.txt) in the appropriate places in that command or you will get an error from *wget*. See below for more *wget* options.

URL list on an HTML page

View the list of URLs (one per file) in a Web page and select individual files to download.

☐ Remember my choice of download method (cookies required)

Each download page has a "Choose one of the other download methods" button which, if selected, removes the remembered download choice and returns to this multiple choice page.

Help

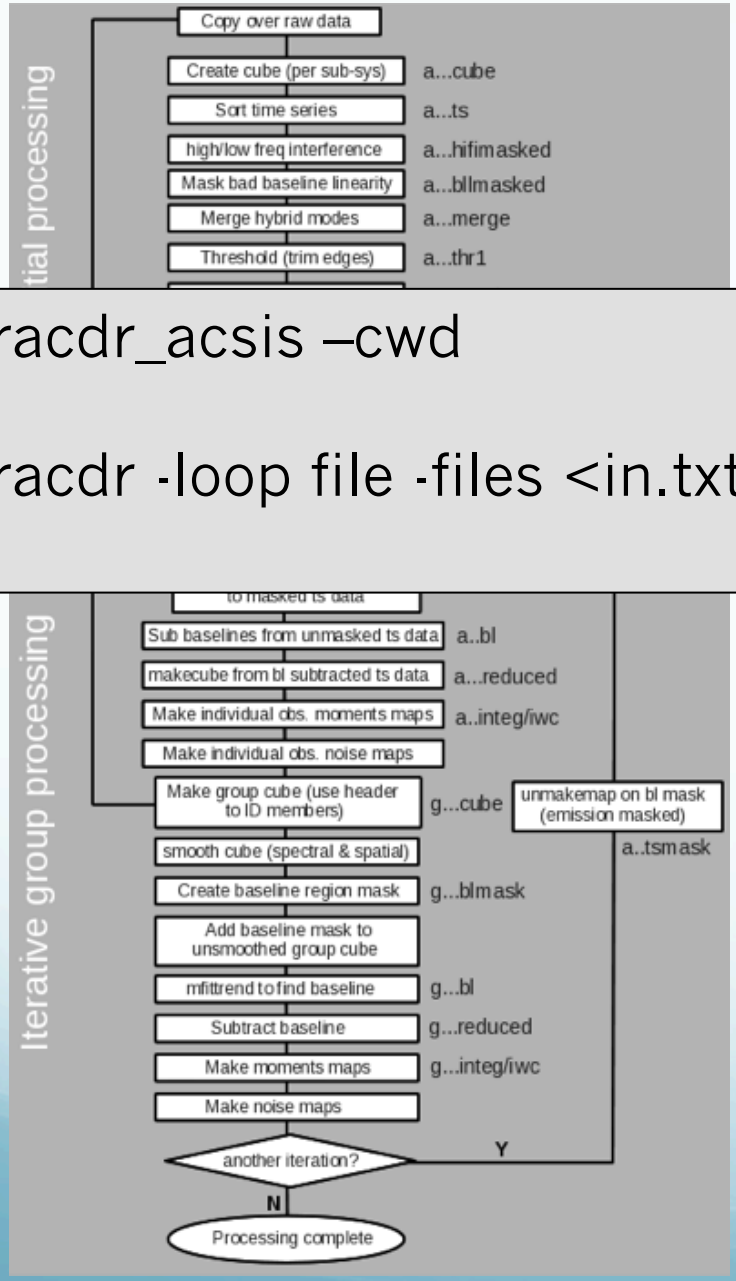
wget is not working

The recommended usage above includes the `--content-disposition` option, which is available in *wget* versions 1.12 or later. This option improves the likelihood that saved files will have the correct filenames when downloaded.

Please note that there are many versions of *wget* with a variety of options and syntax. Please consult your local help pages. `wget --help` should print the options for your version of *wget*

The *wget* command should be available on most systems. If not, *wget* can be downloaded from gnu.org. Alternately, you can try one of the several other download utilities such as: curl, HTTrack, leech (Mozilla Add-on), pavuk, lftp, etc.

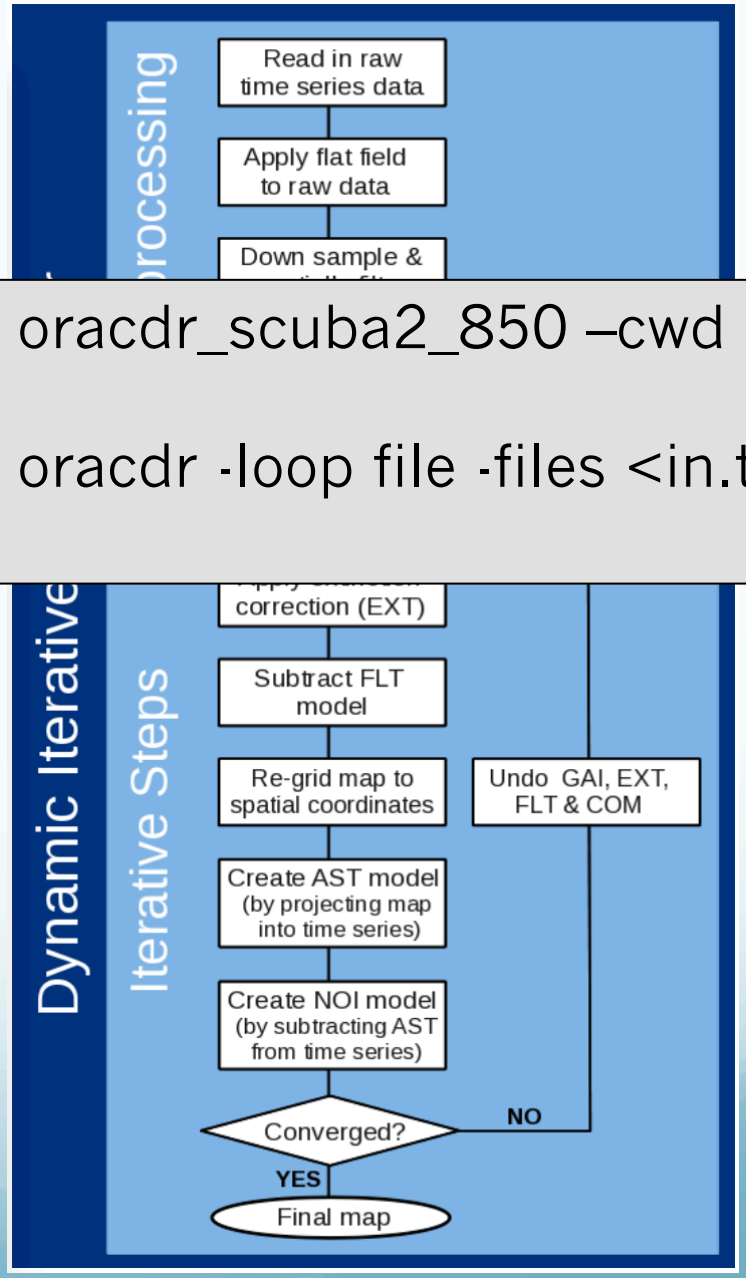
ACSIS Data Reduction Pipeline



> oracdr_acsis –cwd

> oracdr -loop file -files <in.txt>

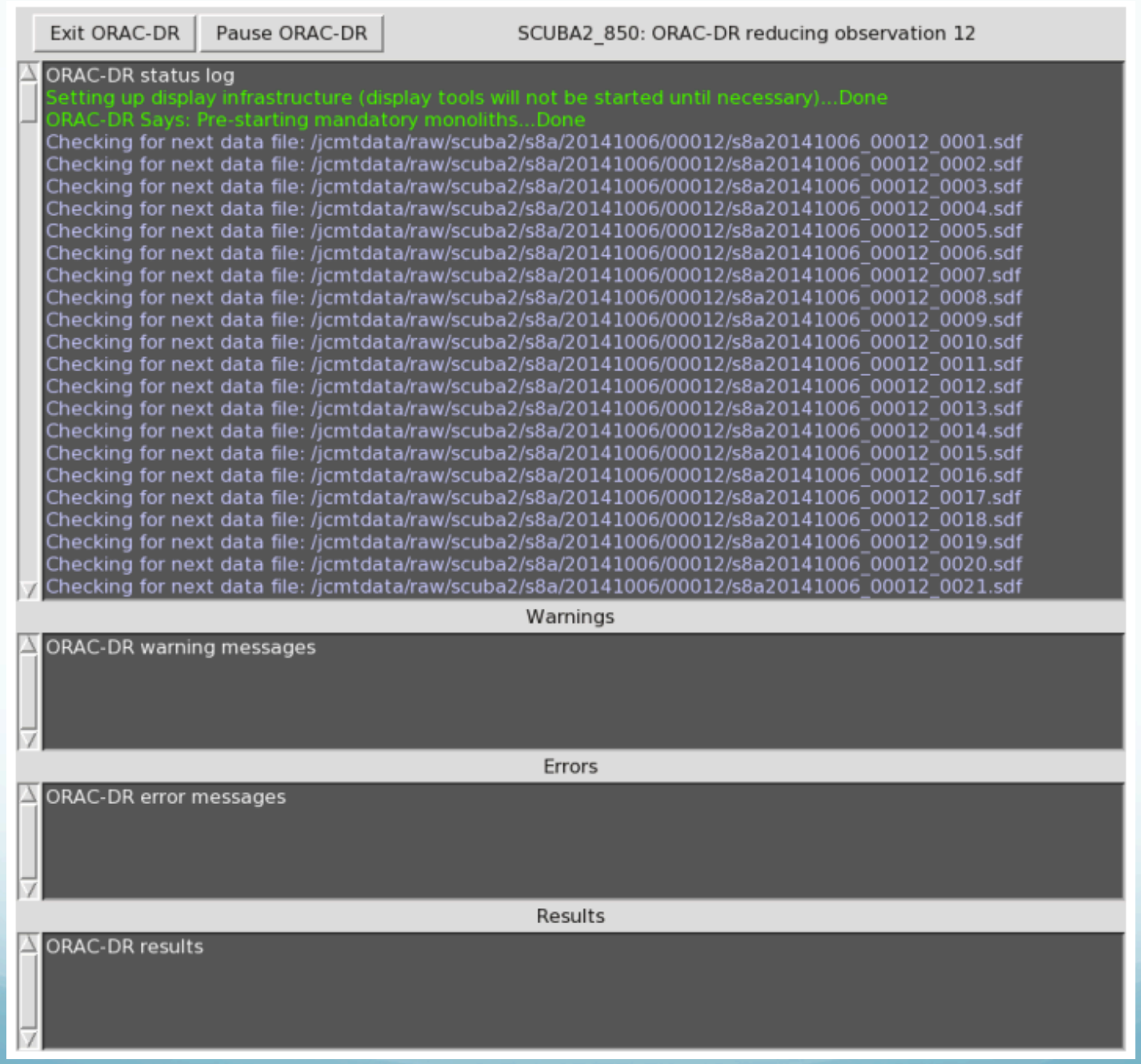
SCUBA-2 Data Reduction Pipeline



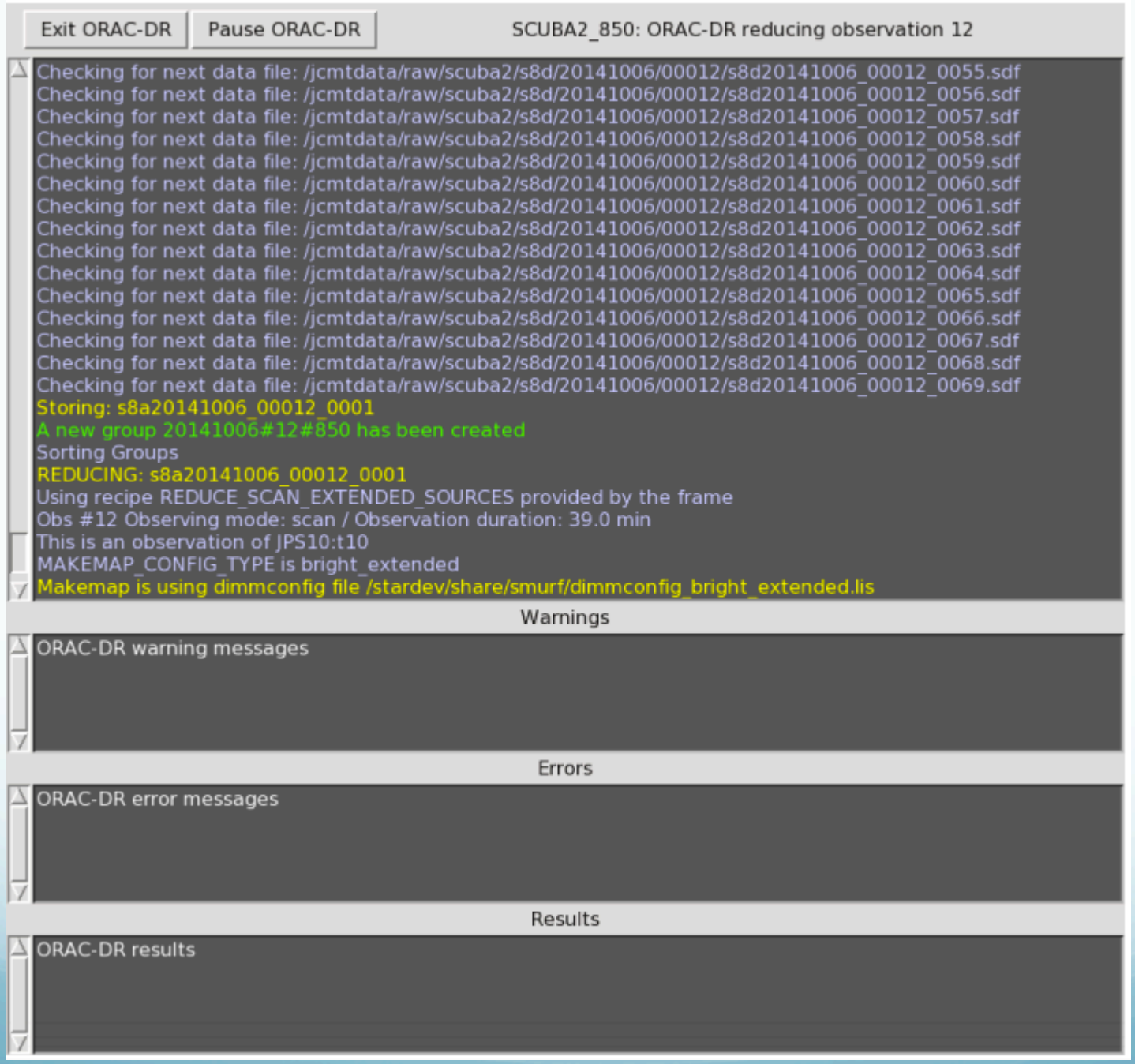
> oracdr_scuba2_850 –cwd

> oracdr -loop file -files <in.txt>

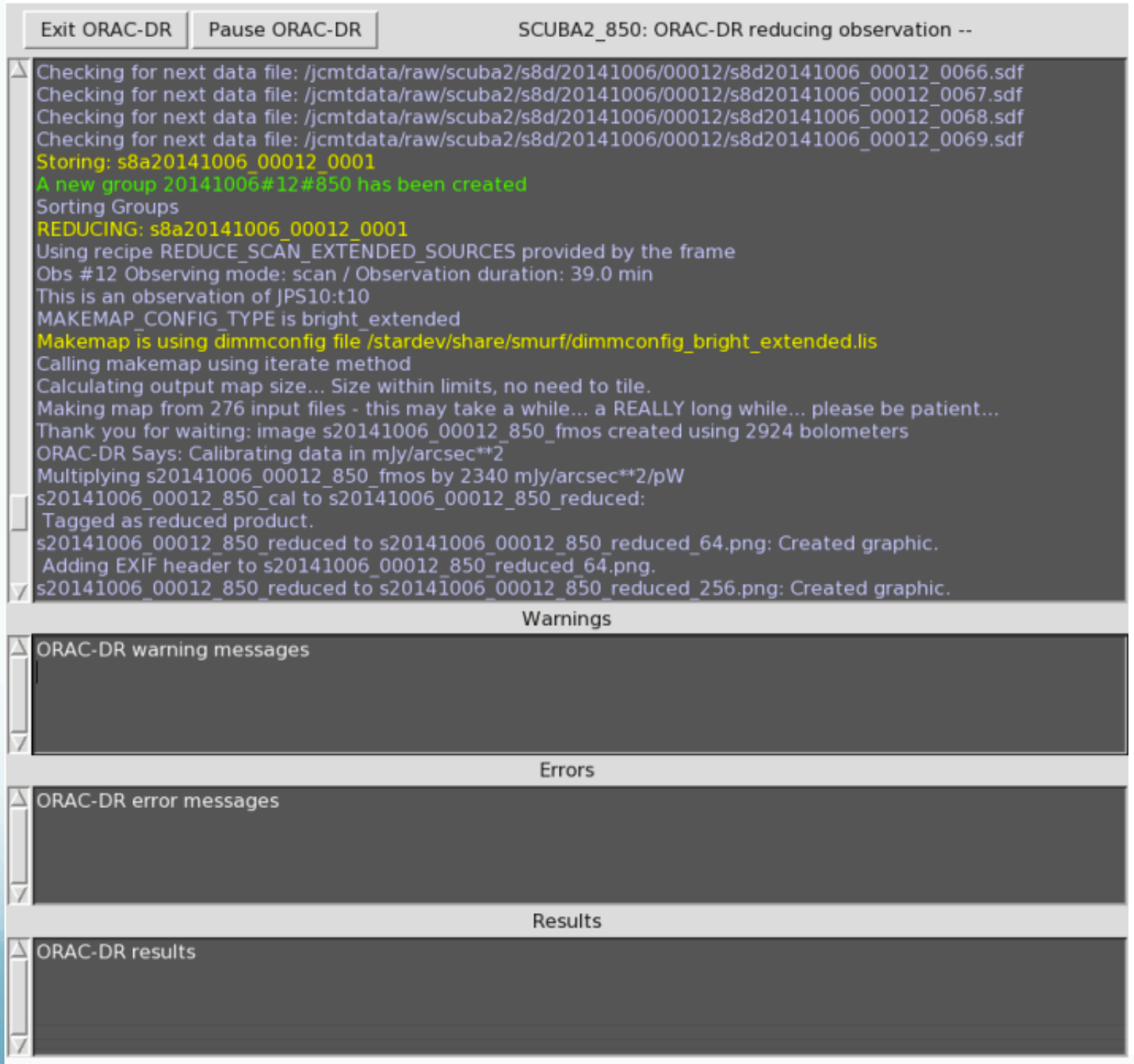
Running the pipeline



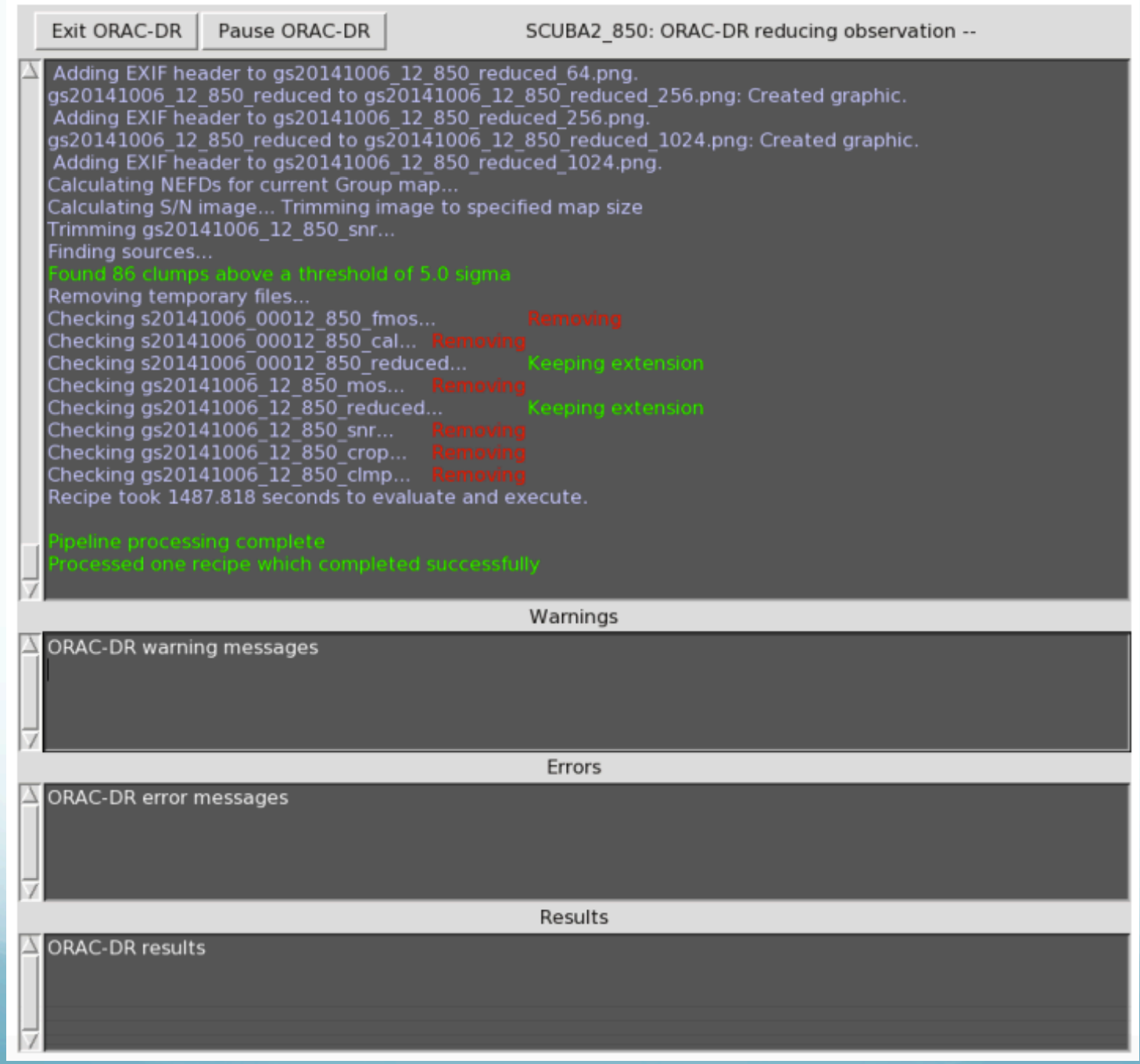
Running the pipeline



Running the pipeline

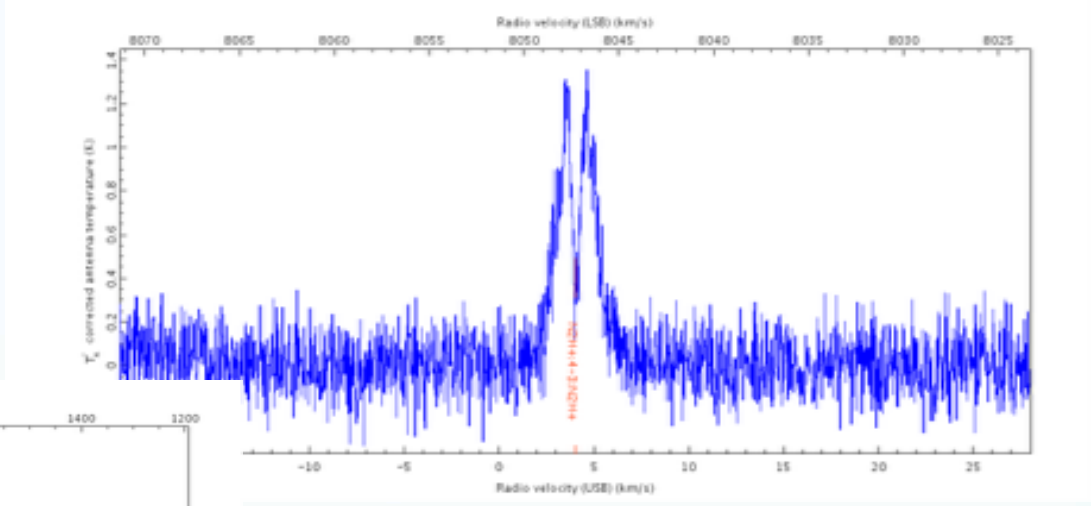


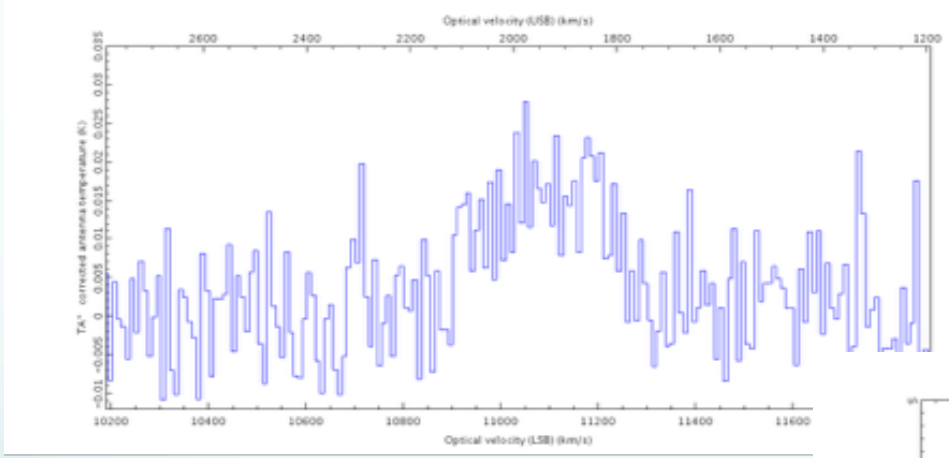
Running the pipeline



Heteroyne: Output from the pipeline.

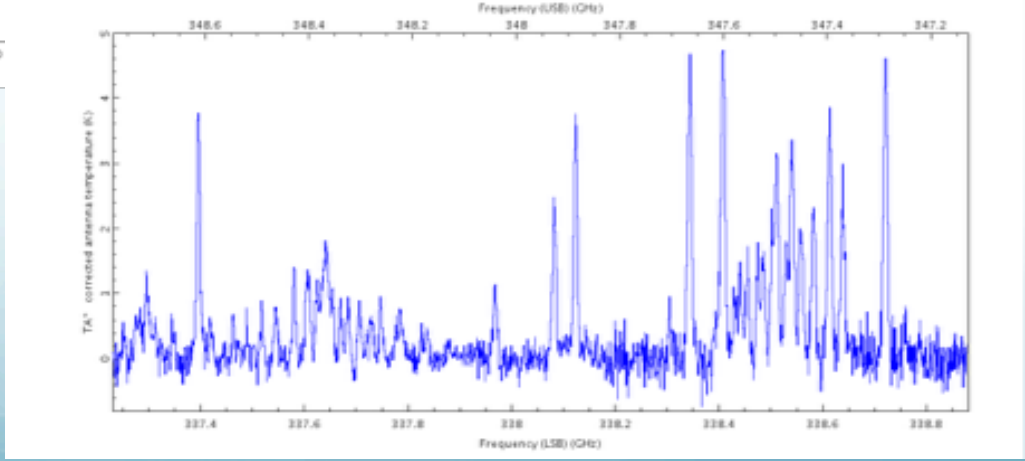
Narrowline Recipe :



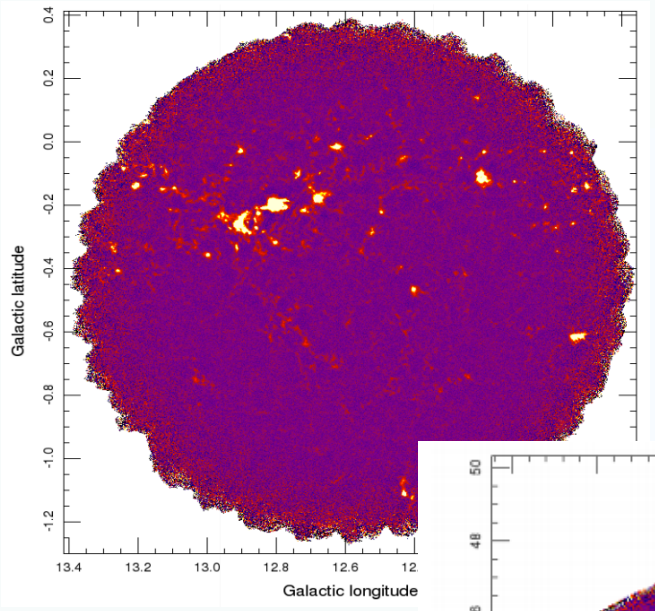


: Broadline Recipe

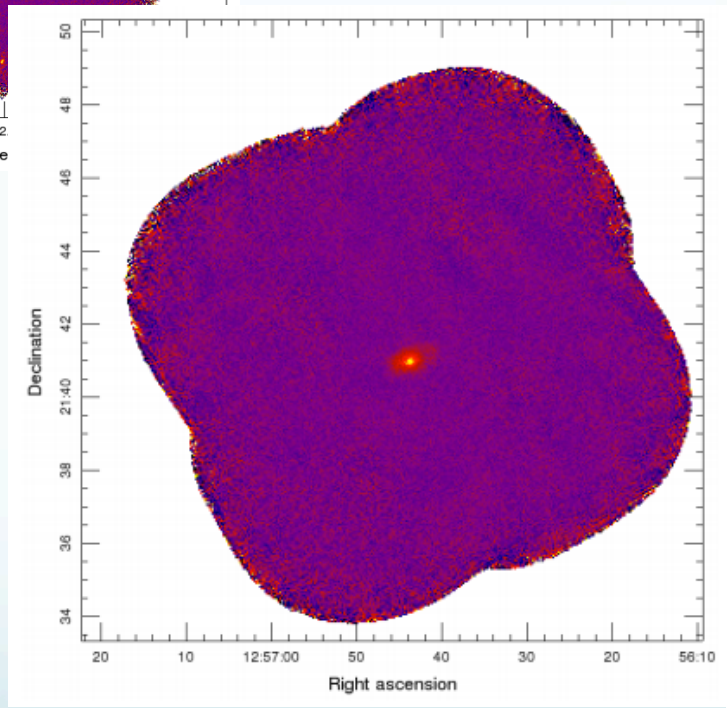
Line forest Recipe :



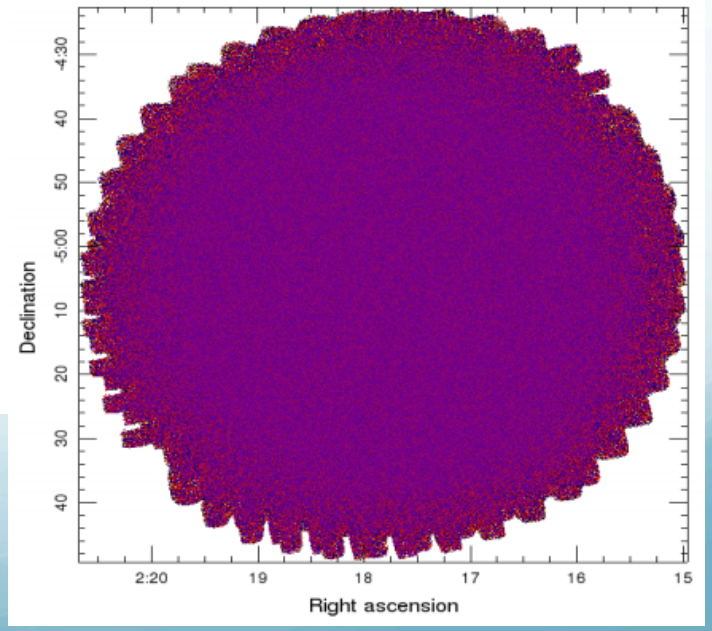
SCUBA-2: Output from the pipeline.

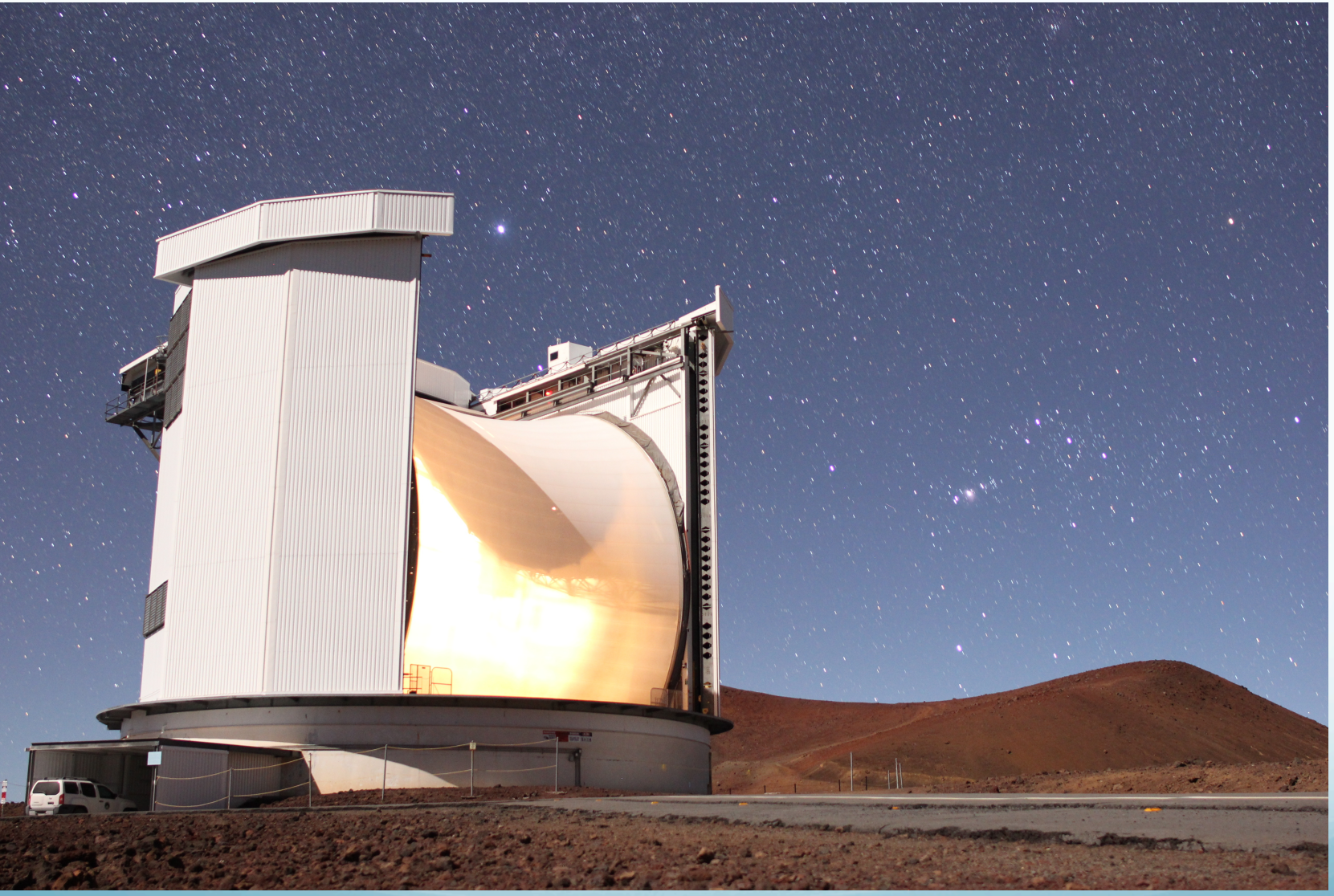


: Bright extended recipe



: Bright compact recipe



Blank field recipe:

helpdesk@eaobservatory.org