

ALMA Archive & Data Products— what to expect after your observations are made



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Atacama Large Millimeter/submillimeter Array
Expanded Very Large Array



The Condensed Version

- Download data from *Archive Query* and *Request Handler* tools on the ALMA Science Portal
- Data delivered after passing Quality Assurance (QA)
- The Pipeline Weblog—Calibration and Imaging Information
- Delivered data include:
 - Calibration tables and diagnostics
 - Preliminary images (better products may be possible with more careful continuum & non-default cleaning parameters)
- Project tracking – SnooPI

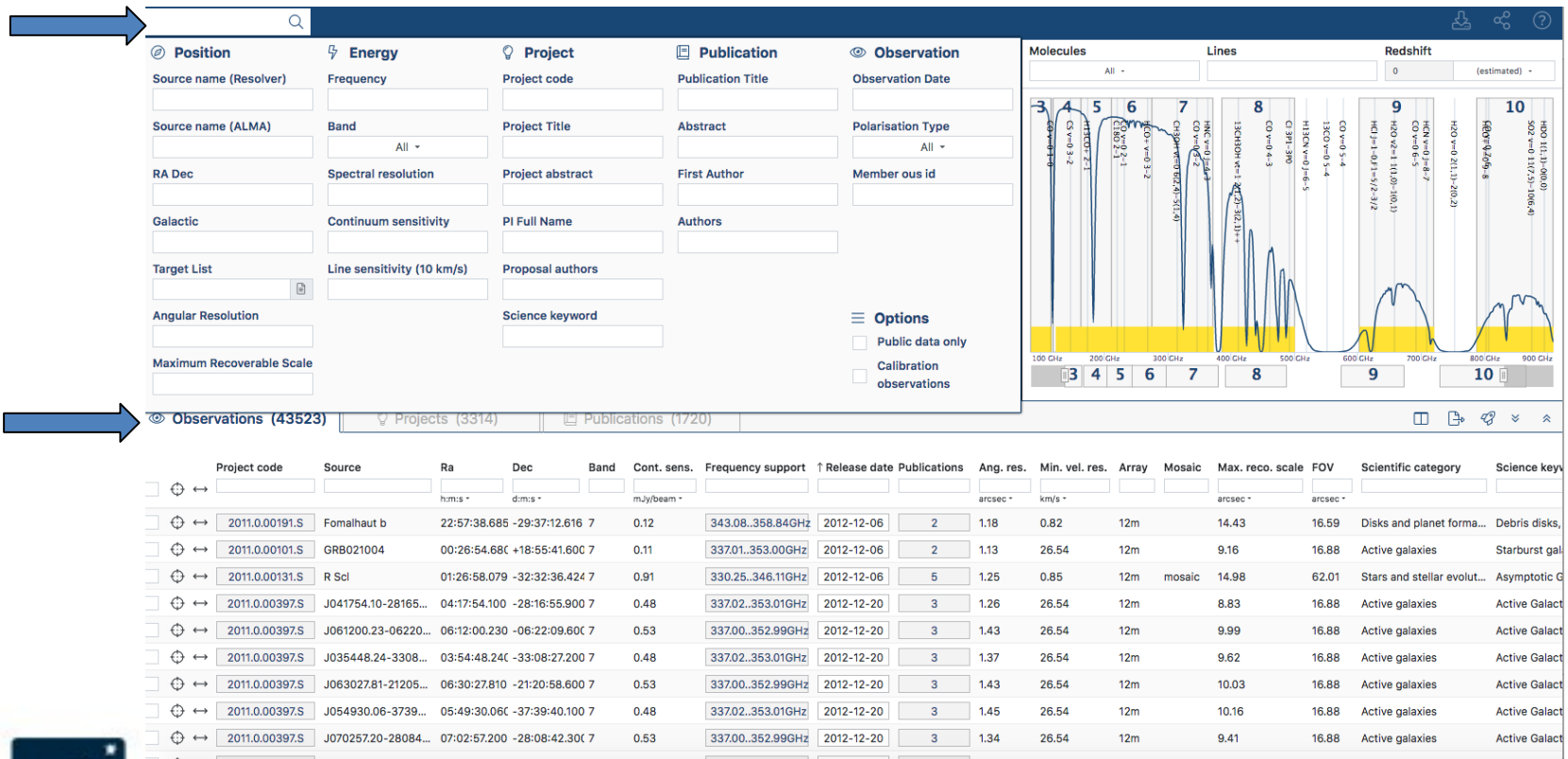
This talk will be available online for reference after this workshop.

Exploring the ALMA Archive

- All projects should start with the ALMA Archive
- Check for duplications. Considered duplication if:
 - Same Target
 - Angular resolution is within a factor of 2
 - RMS is within a factor of 2
 - See Appendix A of the Users' Policies for complete definition
- Use archival data! No need to apply!
- New archive interface
 - <http://almascience.nrao.edu/asax/>

Searching the Archive




- Filter columns based on target, project, or publication
- Hover over the top left search bar for expanded search fields



The screenshot displays the ALMA Archive search interface. At the top left, a search bar is highlighted with a blue arrow. Below it, a panel of search filters is organized into columns: Position, Energy, Project, Publication, and Observation. Each column contains various input fields for filtering results. To the right of the filters is a spectral plot showing intensity versus frequency (GHz) from 100 to 900 GHz. The plot features several labeled peaks corresponding to different molecules and lines, with a redshift of 0 (estimated). Below the plot, there are tabs for 'Observations (43523)', 'Projects (3314)', and 'Publications (1720)'. The bottom section of the interface is a table of search results, with columns for Project code, Source, Ra, Dec, Band, Cont. sens., Frequency support, Release date, Publications, Ang. res., Min. vel. res., Array, Mosaic, Max. reco. scale, FOV, Scientific category, and Science key.

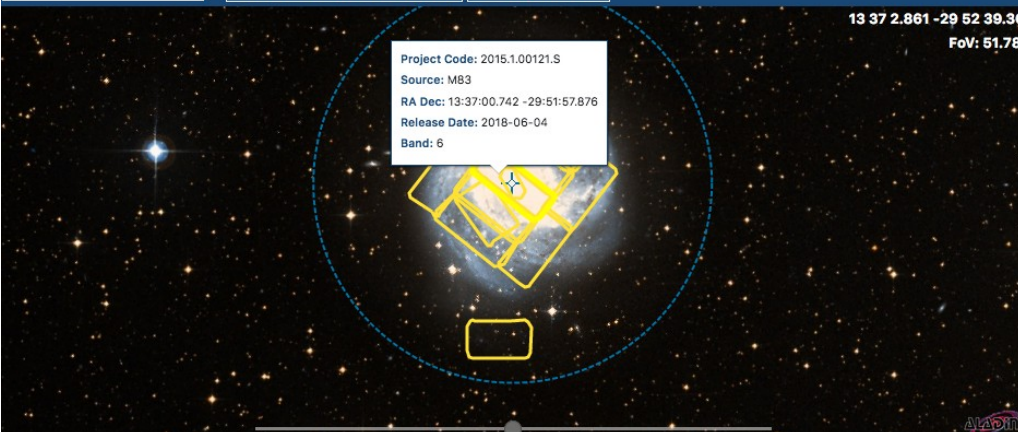
Project code	Source	Ra	Dec	Band	Cont. sens.	Frequency support	Release date	Publications	Ang. res.	Min. vel. res.	Array	Mosaic	Max. reco. scale	FOV	Scientific category	Science key
2011.0.00191.S	Fomalhaut b	22:57:38.685	-29:37:12.616	7	0.12	343.08..358.84GHz	2012-12-06	2	1.18	0.82	12m		14.43	16.59	Disks and planet forma...	Debris disks,
2011.0.00101.S	GRB021004	00:26:54.68	+18:55:41.600	7	0.11	337.01..353.00GHz	2012-12-06	2	1.13	26.54	12m		9.16	16.88	Active galaxies	Starburst gal
2011.0.00131.S	R Scl	01:26:58.079	-32:32:36.424	7	0.91	330.25..346.11GHz	2012-12-06	5	1.25	0.85	12m	mosaic	14.98	62.01	Stars and stellar evolut...	Asymptotic G
2011.0.00397.S	J041754.10-28165...	04:17:54.100	-28:16:55.900	7	0.48	337.02..353.01GHz	2012-12-20	3	1.26	26.54	12m		8.83	16.88	Active galaxies	Active Galact
2011.0.00397.S	J061200.23-06220...	06:12:00.230	-06:22:09.600	7	0.53	337.00..352.99GHz	2012-12-20	3	1.43	26.54	12m		9.99	16.88	Active galaxies	Active Galact
2011.0.00397.S	J035448.24-3308...	03:54:48.24	-33:08:27.200	7	0.48	337.02..353.01GHz	2012-12-20	3	1.37	26.54	12m		9.62	16.88	Active galaxies	Active Galact
2011.0.00397.S	J063027.81-21205...	06:30:27.810	-21:20:58.600	7	0.53	337.00..352.99GHz	2012-12-20	3	1.43	26.54	12m		10.03	16.88	Active galaxies	Active Galact
2011.0.00397.S	J054930.06-3739...	05:49:30.06	-37:39:40.100	7	0.48	337.02..353.01GHz	2012-12-20	3	1.45	26.54	12m		10.16	16.88	Active galaxies	Active Galact
2011.0.00397.S	J070257.20-28084...	07:02:57.200	-28:08:42.300	7	0.53	337.00..352.99GHz	2012-12-20	3	1.34	26.54	12m		9.41	16.88	Active galaxies	Active Galact

Search for your Favorite Source

Position	Energy	Project	Publication	Observation
Source name (Resolver) <input type="text" value="M83"/> ✕ <small>search radius = 10 arcmin</small> Source name (ALMA) <input type="text"/> RA Dec <input type="text"/> Galactic <input type="text"/> Target List <input type="text"/>  Angular Resolution <input type="text"/> Maximum Recoverable Scale <input type="text"/>	Frequency Source name (Resolver) Search for a source name using the Sesame name resolver (wildcards are not supported) Description Use the Sesame service (combining a search of NED, Simbad and VizieR) to parse names commonly found throughout literature and return the coordinates. A search radius in arcmin can be added to the end separated by a comma. The default search radius is 10 arcmin. All observations that have footprints overlapping with the search cone will be returned. Examples Cen A M83 HUDF, 30	Project code <div style="border: 1px solid black; padding: 5px;"> Source M 83 Coordinates (RA Dec) 13:37:00.91 -29:51:56.7 Object type SBG Morphology type SAB(s)c Resolver  Sc=Simbad (CDS, via client/server)  </div>	Publication Title <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	Observation Date <input type="text"/> Polarisation Type <input type="text" value="All"/> ▼ Member ous id <input type="text"/> <input type="text"/> <input type="text"/> Options <input type="checkbox"/> Public data only <input type="checkbox"/> Calibration observations

Apply Column Sub-Filters

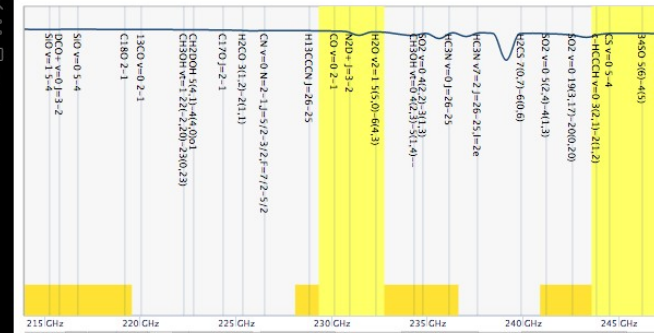
Source name (Resolver): M83
+ 2 tab-subfilters



13 37 2.861 -29 52 39.36
FoV: 51.78'

Molecules
Lines
Redshift

All - 0.001704 (estimated) -



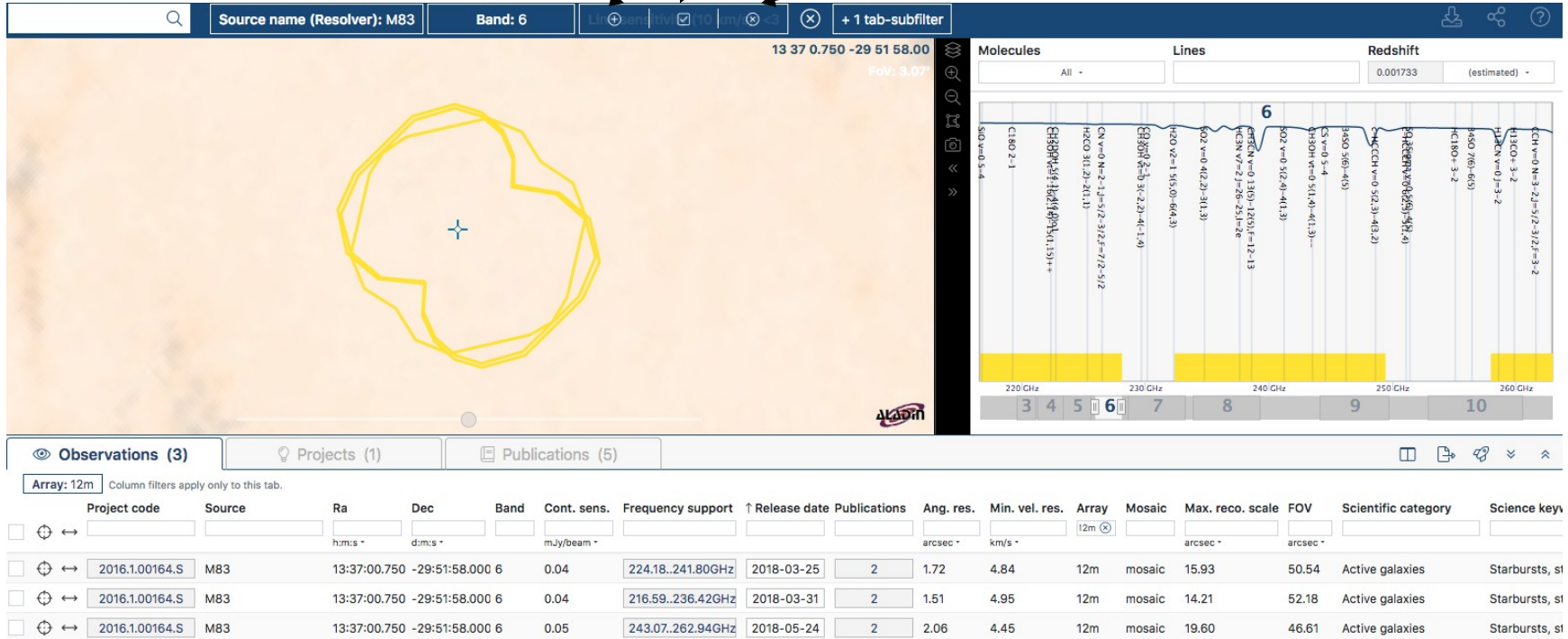
Observations (14)
Projects (17)
Publications (10)

Frequency support: 230 Array: 12m Column filters apply only to this tab.

<input type="checkbox"/>	<input type="checkbox"/>	Project code	Source	Ra	Dec	Band	Cont. sens.	Frequency support	↑ Release date	Publications	Ang. res.	Min. vel. res.	Array	Mosaic	Max. reco. scale	FOV	Scientific category	Science key
<input type="checkbox"/>	<input type="checkbox"/>			h:m:s +	d:m:s -		m.Jy/beam +				arcsec -	km/s -			arcsec +	arcsec -		
<input type="checkbox"/>	<input type="checkbox"/>	2016.1.00386.S	M83	13:37:06.011	-29:48:46.207	6	0.20	229.68..247.13GHz	2018-05-22	0	0.83	1.27	12m	mosaic	12.62	242.55	Active galaxies	Starbursts, st
<input type="checkbox"/>	<input type="checkbox"/>	2015.1.00121.S	M83	13:37:04.981	-29:53:08.45f	6	0.18	229.31..247.13GHz	2018-06-04	0	1.07	2.37	12m	mosaic	10.99	250.96	ISM and star formation	Giant Molecu
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	2015.1.00121.S	M83	13:37:00.742	-29:51:57.876	6	0.22	229.31..247.13GHz	2018-06-04	0	1.44	2.37	12m	mosaic	15.77	250.96	ISM and star formation	Giant Molecu
<input type="checkbox"/>	<input type="checkbox"/>	2015.1.00121.S	M83	13:36:56.503	-29:50:47.296	6	0.19	229.31..247.13GHz	2018-06-04	0	1.16	2.37	12m	mosaic	11.28	250.96	ISM and star formation	Giant Molecu
<input type="checkbox"/>	<input type="checkbox"/>	2015.1.00624.S	M83	13:37:06.765	-29:53:23.39f	6	0.29	213.93..231.16GHz	2018-06-28	0	0.16	0.63	12m	mosaic	4.31	204.61	Local Universe	Spiral galaxie
<input type="checkbox"/>	<input type="checkbox"/>	2013.1.01161.S	M83	13:37:00.750	-29:51:58.000	6	0.12	229.31..247.13GHz	2018-10-06	0	0.22	2.37	12m	mosaic	5.09	91.62	Active galaxies	Starbursts, st
<input type="checkbox"/>	<input type="checkbox"/>	2016.1.00386.S	M83	13:36:52.290	-29:49:37.166	6	0.22	229.68..247.13GHz	2018-10-09	0	1.08	1.27	12m	mosaic	14.61	250.94	Active galaxies	Starbursts, st
<input type="checkbox"/>	<input type="checkbox"/>	2016.1.00386.S	M83	13:37:09.194	-29:54:18.586	6	0.24	229.68..247.13GHz	2018-10-09	0	1.08	1.27	12m	mosaic	13.25	250.94	Active galaxies	Starbursts, st
<input type="checkbox"/>	<input type="checkbox"/>	2016.1.00386.S	M83	13:36:55.489	-29:55:09.787	6	0.22	229.68..247.13GHz	2018-10-09	0	0.80	1.27	12m	mosaic	9.23	242.55	Active galaxies	Starbursts, st

Modify Searches

Invert Disable Remove



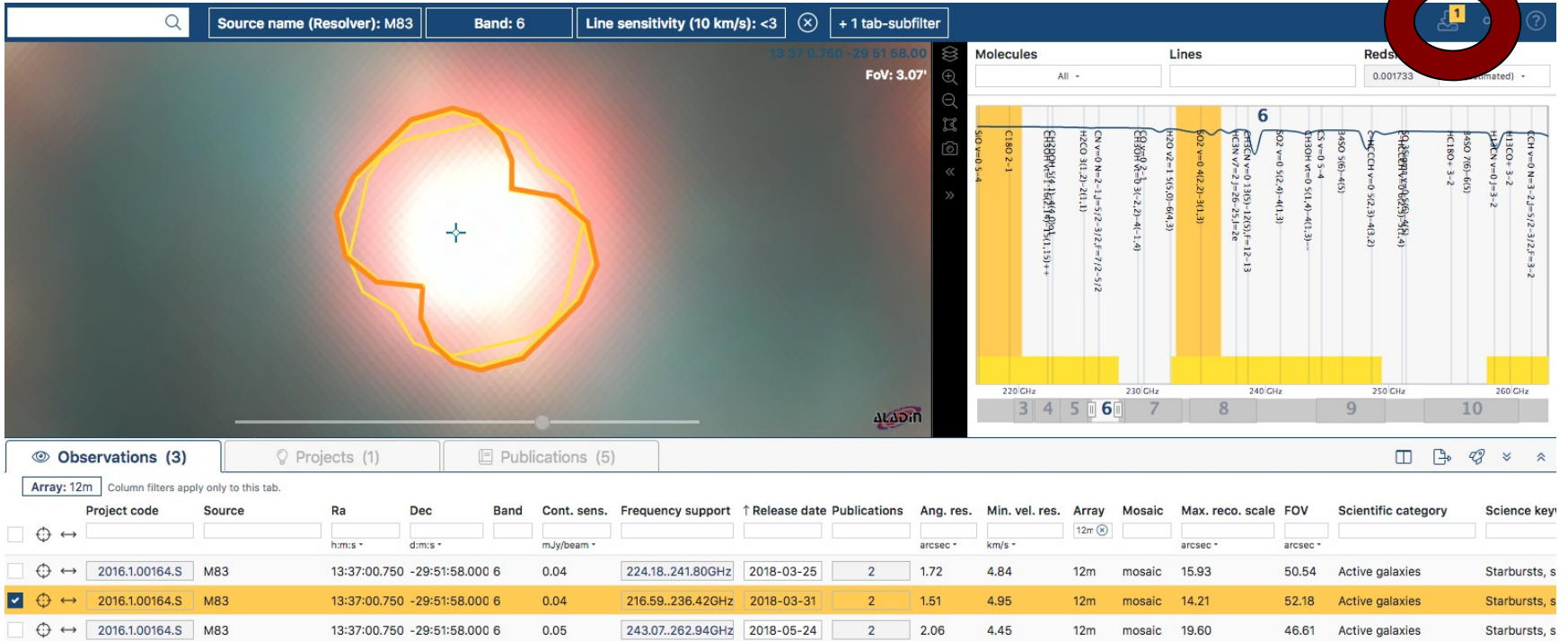
The screenshot displays the ALMA search interface. At the top, there are search filters for 'Source name (Resolver): M83', 'Band: 6', and '+ 1 tab-subfilter'. Below these are three buttons: 'Invert', 'Disable', and 'Remove', with arrows pointing to them. The main area is split into two panels: a spectral plot on the left and a table of molecules on the right. The spectral plot shows a continuum with several absorption lines, and the table lists various molecules with their corresponding lines and redshifts. Below the panels, there are tabs for 'Observations (3)', 'Projects (1)', and 'Publications (5)'. At the bottom, there is a table of observations with columns for Project code, Source, Ra, Dec, Band, Cont. sens., Frequency support, Release date, Publications, Ang. res., Min. vel. res., Array, Mosaic, Max. reco. scale, FOV, Scientific category, and Science key.

Project code	Source	Ra	Dec	Band	Cont. sens.	Frequency support	Release date	Publications	Ang. res.	Min. vel. res.	Array	Mosaic	Max. reco. scale	FOV	Scientific category	Science key
<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	2016.1.00164.S	M83	13:37:00.750 -29:51:58.000	6	0.04	224.18...241.80GHz	2018-03-25	2	1.72	4.84	12m	mosaic	15.93	50.54	Active galaxies	Starbursts, st
<input type="checkbox"/>	2016.1.00164.S	M83	13:37:00.750 -29:51:58.000	6	0.04	216.59...236.42GHz	2018-03-31	2	1.51	4.95	12m	mosaic	14.21	52.18	Active galaxies	Starbursts, st
<input type="checkbox"/>	2016.1.00164.S	M83	13:37:00.750 -29:51:58.000	6	0.05	243.07...262.94GHz	2018-05-24	2	2.06	4.45	12m	mosaic	19.60	46.61	Active galaxies	Starbursts, st

Did you know?

- You can search for unpublished data by filtering on 0 Publications
- You can use astroquery¹ to programmatically search for and download data

Find Data to Download



The screenshot shows the ALMA data archive search results interface. At the top, search filters are set to 'Source name (Resolver): M83', 'Band: 6', and 'Line sensitivity (10 km/s): <3'. A red circle highlights a '1' in a square icon in the top right corner. The main view is split into a spectral plot on the left and a table of observations on the right.

Spectral Plot: Shows flux density versus frequency (GHz) for Band 6. The plot includes several labeled lines with their corresponding transitions and redshifts (z). The x-axis ranges from 220 GHz to 260 GHz. The y-axis represents flux density in mJy/beam.

Observations Table: A table with columns for Project code, Source, Ra, Dec, Band, Cont. sens., Frequency support, Release date, Publications, Ang. res., Min. vel. res., Array, Mosaic, Max. reco. scale, FOV, Scientific category, and Science key. The second row is highlighted in orange.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Project code	Source	Ra	Dec	Band	Cont. sens.	Frequency support	Release date	Publications	Ang. res.	Min. vel. res.	Array	Mosaic	Max. reco. scale	FOV	Scientific category	Science key		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	2016.1.00164.S	M83	13:37:00.750 -29:51:58.000	6	0.04	224.18..241.80GHz	2018-03-25	2	1.72	4.84	12m	mosaic	15.93	50.54	Active galaxies	Starbursts, s	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	2016.1.00164.S	M83	13:37:00.750 -29:51:58.000	6	0.04	216.59..236.42GHz	2018-03-31	2	1.51	4.95	12m	mosaic	14.21	52.18	Active galaxies	Starbursts, s	
<input type="checkbox"/>	<input type="checkbox"/>	2016.1.00164.S	M83	13:37:00.750 -29:51:58.000	6	0.05	243.07..262.94GHz	2018-05-24	2	2.06	4.45	12m	mosaic	19.60	46.61	Active galaxies	Starbursts, s	

Select Files to Download

- Newer (Cycle 5+) individual file download available
 - “auxiliary” and “raw” tar files necessary to restore calibrated data and work with visibilities
 - “product” contains pipeline-generated FITS files

Download Selected

readme
 product
 auxiliary
 raw
 raw (semipass)
 external

Project / OUSet / Executionblock	File	Size	Accessible
Request 1652471453732			
Project 2016.1.00164.S			
Science Goal OUS uid://A001/X87a/X9fa			
Group OUS uid://A001/X87a/X9fb			
Member OUS uid://A001/X87a/X9fc			
SB M83_a_06_TM1			
<input checked="" type="checkbox"/>	product	2016.1.00164.S_uid_A001_X87a_X9fc_001_of_001.tar	5.2GB ✓
<input type="checkbox"/>	raw	2016.1.00164.S_uid_A002_Xbdc3c_X13fb.asdm.sdm.tar	27.9GB ✓
Member OUS uid://A001/X87a/X9fe			
SB M83_a_06_7M			
<input checked="" type="checkbox"/>	readme	member.uid_A001_X87a_X9fe.README.txt	3.4KB ✓
<input checked="" type="checkbox"/>	product	2016.1.00164.S_uid_A001_X87a_X9fe_001_of_001.tar	309.7MB ✓
<input checked="" type="checkbox"/>	auxiliary	2016.1.00164.S_uid_A001_X87a_X9fe_auxiliary.tar	223.6MB ✓
<input type="checkbox"/>	raw	2016.1.00164.S_uid_A002_Xb8e961_X4eea.asdm.sdm.tar	1.2GB ✓
<input type="checkbox"/>	raw	2016.1.00164.S_uid_A002_Xbb44e1_X192b.asdm.sdm.tar	1.3GB ✓
<input type="checkbox"/>	raw	2016.1.00164.S_uid_A002_Xbc19b1_X35d9.asdm.sdm.tar	1.4GB ✓
<input type="checkbox"/>	raw	2016.1.00164.S_uid_A002_Xbc4a22_X1f16.asdm.sdm.tar	1.2GB ✓
			Total: 33.6GB

QA2 Data Products Package:

Cycles 1-4 Packages

readme
 product
 auxiliary
 raw
 raw (semipass)
 external

Project / OUSet / Executionblock	File
Request 1647190514457	
Project 2016.1.00484.L	
Science Goal OUS uid://A001/Xbd4641/X1e	
Group OUS uid://A001/Xbd4641/X1f	
Member OUS uid://A001/Xbd4641/X20	
SB GW_Lup_a_06_TM1	
<input checked="" type="checkbox"/> product	2016.1.00484.L_uid_A001_Xbd4641_X20_001_of_001
<input type="checkbox"/> raw	2016.1.00484.L_uid_A002_Xc04da7_Xea.asdm.sdm
<input type="checkbox"/> raw	2016.1.00484.L_uid_A002_Xc067f7_Xa6d.asdm.sdm

Raw data tar balls.

Tar ball with the processed data.

QA2 Data Products Package:

Cycles 5-Present

▼	Group OUS uid://A001/X885/X19a	
▼	Member OUS uid://A001/X885/X19b	
▶	SB Pluto_a_06_TM1	
▶	<input checked="" type="checkbox"/> product	2016.1.01100.S uid A001 X885 X19b 001 of 001.tar
▼	<input checked="" type="checkbox"/> auxiliary	2016.1.01100.S uid A001 X885 X19b auxiliary.tar
	<input type="checkbox"/> auxiliary	member.uid A001 X885 X19b.PPR uid A001 X885 X19c.xml.tar
	<input type="checkbox"/> auxiliary	member.uid A001 X885 X19b.README.txt.tar
	<input type="checkbox"/> auxiliary	member.uid A001 X885 X19b.antennapos.csv.tar
	<input type="checkbox"/> auxiliary	member.uid A001 X885 X19b.calimage.pipeline_manifest.xml.tar
	<input type="checkbox"/> auxiliary	member.uid A001 X885 X19b.calimage.product_rename.txt.tar
	<input type="checkbox"/> auxiliary	member.uid A001 X885 X19b.casa_commands.log.tar
	<input type="checkbox"/> auxiliary	member.uid A001 X885 X19b.casa_piperestorescript.py.tar
	<input type="checkbox"/> auxiliary	member.uid A001 X885 X19b.casa_pipescript.py.tar
	<input type="checkbox"/> auxiliary	member.uid A001 X885 X19b.cont.dat.tar
	<input type="checkbox"/> auxiliary	member.uid A001 X885 X19b.flux.csv.tar
	<input type="checkbox"/> auxiliary	member.uid A001 X885 X19b.scriptForPI.py.tar
	<input type="checkbox"/> auxiliary	member.uid A001 X885 X19b.session_3.caltables.tgz.tar
	<input type="checkbox"/> auxiliary	member.uid A001 X885 X19b.weblog.tgz.tar
	<input type="checkbox"/> auxiliary	uid A002 Xc4d618 X5750.ms.calapply.txt.tar
	<input type="checkbox"/> auxiliary	uid A002 Xc4d618 X5750.ms.flagversions.tgz.tar
	<input type="checkbox"/> auxiliary	uid A002 Xc4d618 X5750_flagtargetstemplate.txt.tar
	<input type="checkbox"/> raw	2016.1.01100.S uid A002 Xc4d618 X5750.asdm.sdm.tar

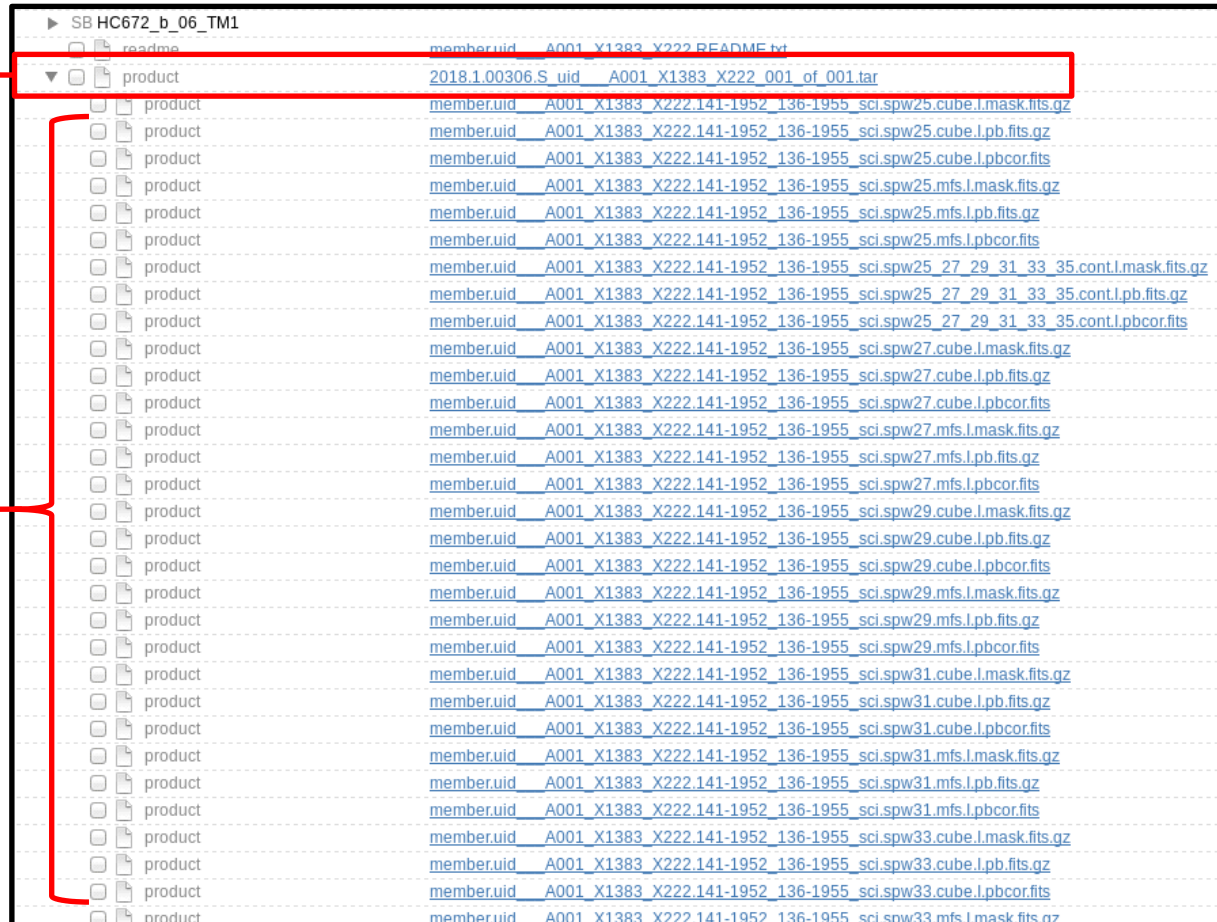
QA2 Data Products Package:

Cycles 5-Present: Product Tarball

Tar ball

OR

Individual
file
download



File Name	File Type
readme	member.uid_A001_X1383_X222_README.txt
product	2018.1.00306.S_uid_A001_X1383_X222_001_of_001.tar
product	member.uid_A001_X1383_X222.141-1952_136-1955_sci.spw25.cube.l.mask.fits.gz
product	member.uid_A001_X1383_X222.141-1952_136-1955_sci.spw25.cube.l.pb.fits.gz
product	member.uid_A001_X1383_X222.141-1952_136-1955_sci.spw25.cube.l.pbcor.fits
product	member.uid_A001_X1383_X222.141-1952_136-1955_sci.spw25.mfs.l.mask.fits.gz
product	member.uid_A001_X1383_X222.141-1952_136-1955_sci.spw25.mfs.l.pb.fits.gz
product	member.uid_A001_X1383_X222.141-1952_136-1955_sci.spw25.mfs.l.pbcor.fits
product	member.uid_A001_X1383_X222.141-1952_136-1955_sci.spw25_27_29_31_33_35.cont.l.mask.fits.gz
product	member.uid_A001_X1383_X222.141-1952_136-1955_sci.spw25_27_29_31_33_35.cont.l.pb.fits.gz
product	member.uid_A001_X1383_X222.141-1952_136-1955_sci.spw25_27_29_31_33_35.cont.l.pbcor.fits
product	member.uid_A001_X1383_X222.141-1952_136-1955_sci.spw27.cube.l.mask.fits.gz
product	member.uid_A001_X1383_X222.141-1952_136-1955_sci.spw27.cube.l.pb.fits.gz
product	member.uid_A001_X1383_X222.141-1952_136-1955_sci.spw27.cube.l.pbcor.fits
product	member.uid_A001_X1383_X222.141-1952_136-1955_sci.spw27.mfs.l.mask.fits.gz
product	member.uid_A001_X1383_X222.141-1952_136-1955_sci.spw27.mfs.l.pb.fits.gz
product	member.uid_A001_X1383_X222.141-1952_136-1955_sci.spw27.mfs.l.pbcor.fits
product	member.uid_A001_X1383_X222.141-1952_136-1955_sci.spw29.cube.l.mask.fits.gz
product	member.uid_A001_X1383_X222.141-1952_136-1955_sci.spw29.cube.l.pb.fits.gz
product	member.uid_A001_X1383_X222.141-1952_136-1955_sci.spw29.cube.l.pbcor.fits
product	member.uid_A001_X1383_X222.141-1952_136-1955_sci.spw29.mfs.l.mask.fits.gz
product	member.uid_A001_X1383_X222.141-1952_136-1955_sci.spw29.mfs.l.pb.fits.gz
product	member.uid_A001_X1383_X222.141-1952_136-1955_sci.spw29.mfs.l.pbcor.fits
product	member.uid_A001_X1383_X222.141-1952_136-1955_sci.spw31.cube.l.mask.fits.gz
product	member.uid_A001_X1383_X222.141-1952_136-1955_sci.spw31.cube.l.pb.fits.gz
product	member.uid_A001_X1383_X222.141-1952_136-1955_sci.spw31.cube.l.pbcor.fits
product	member.uid_A001_X1383_X222.141-1952_136-1955_sci.spw31.mfs.l.mask.fits.gz
product	member.uid_A001_X1383_X222.141-1952_136-1955_sci.spw31.mfs.l.pb.fits.gz
product	member.uid_A001_X1383_X222.141-1952_136-1955_sci.spw31.mfs.l.pbcor.fits
product	member.uid_A001_X1383_X222.141-1952_136-1955_sci.spw33.cube.l.mask.fits.gz
product	member.uid_A001_X1383_X222.141-1952_136-1955_sci.spw33.cube.l.pb.fits.gz
product	member.uid_A001_X1383_X222.141-1952_136-1955_sci.spw33.cube.l.pbcor.fits
product	member.uid_A001_X1383_X222.141-1952_136-1955_sci.spw33.mfs.l.mask.fits.gz

Select the Download Method

- If you have problems running the Java Download Manager
 - Try the download script
 - If you have errors, run the script again and it will resume
 - File a Helpdesk ticket!

Download Selected

readme product auxiliary raw raw (semipass) external

Project / OUSet / Executionblock	File	Size	Accessible
Request 1652471453732			
Project 2016.1.00164.S			
Science Goal OUS uid://A001/X87a/X9fa			
Group OUS uid://A001/X87a/X9fb			
Member OUS uid://A001/X87a/X9fc			
SB M83_a_06_TM1			
product	2016.1.00164.S uid AC	5.2GB	✓
raw	2016.1.00164.S uid AC	27.9GB	✓
Member OUS uid://A001/X87a/X9fe			
SB M83_a_06_7M			
readme	member.uid A001 X87	3.4KB	✓
product	2016.1.00164.S uid AC	309.7MB	✓
auxiliary	2016.1.00164.S uid AC	223.6MB	✓
raw	2016.1.00164.S uid AC	1.2GB	✓
raw	2016.1.00164.S uid AC	1.3GB	✓
raw	2016.1.00164.S uid AC	1.4GB	✓
raw	2016.1.00164.S uid AC	1.2GB	✓

Total: 33.8GB

Choose one of the following download methods:

- Download Script**
The downloads are scripted for you. You just need to execute the script from the command line, after making it executable by typing `chmod u+x download*.sh`
- Java Download Manager**
ALMA's download manager is launched as a desktop application via Java Web Start. It will not stop if you close your browser. You must have Java installed on your computer.
- File List**
View a text file containing a list of URLs. This is useful for using third-party download manager's such as *DownThemAll*.

Goals of Quality Assurance (QA) Process

- Ensure reliable final data product
 - Desired sensitivity (as specified by PI)
 - Desired resolution (as specified by PI)
- Ensure calibration and QA imaging free from major artifacts
- Warning: Errors in PI-supplied parameters are outside scope of QA process, including:
 - Incorrect source coordinates
 - Inadequate frequency specification
 - Inadequate sensitivity limits


See [ALMA Technical Handbook](#) for details.

During Observations – QA0

- Monitoring of on-the-fly calibration and system performance
- Rapidly-varying parameters (\sim SB/EB timescales)
 - Atmospheric effects
 - Antenna issues
 - Front-end issues
 - Connectivity issues
 - Back-end issues
- Tolerances for each are explicitly laid out
 - No fewer than 34 antennas in 12m array
 - Bandpass calibrator is strong enough
- Quick reduction may be run to check flux measurements and phase stability

QA0 Report

QA0 Report

Project Code	2016.1.00164.S
Session	uid://A001/X87a/X9fe
SchedBlock	uid://A001/X87a/X9e2 (M83_a_06_7M)
ExecBlock	uid://A002/Xb8e961/X4eea  Pass
Sources	Callisto, J12200203, J13512912, J14273305, J15172422, M83
# Antennas	10 (90.0 % for Cycle 4)
Array	7 [m]
Baselines	8m -- 48m
Band	ALMA_RB_06
Weather	null
Atmosphere	Tsys (Min/Avg/Max) : 78.6/84.9/96.9 Trec (Min/Avg/Max) : 29.4/41.6/56.6

Final QA0 comment

```

=== QA0 summary for id__A002_Xb8e961_X4eea ===
| Usable antennas: 9
| Phase rms (Antenna,phaseCal): 5.9 deg (=21.1um)
| Baseline limit with good phase: 5078m. Longest baselines (80%): 34m.
| No online WVR-corrected data available: assuming correction factor of 1.0 in above
| Bandpass cal: J1517-2422 flux: 3.25 Jy
| Phase cal: J1351-2912 flux: 0.201 +/- 0.004 Jy
| Number of cycles of science/phaseCal: 8
| Band observed: 6 Highest recommended: 10-10 based only on phase rms
| QA0 PASS
| no significant problems
== == == == == == == == == == == == == == == ==

```

Between Observations – QA1

- “Regular array maintenance” timescales
- Slowly Varying Parameters (~MOUS timescales)
- General array calibration
 - Baseline measurements
 - Delays
- Antenna Calibrations
 - All-sky pointing
 - Focus curves
 - Beam patterns, etc.
- Observatory Calibrator Surveys
 - Solar-system and quasar flux monitoring

After Observations – QA2

- Calibration by pipeline (~70%) or DA/staff.
- Final QA checks include
 - RMS of complex antenna-based gains
 - Absolute flux calibration scale
 - T_{sys} within acceptable range
 - Proper phase transfer cadence
 - Proper bandpass corrections
- Assessment of Imaging Products
 - Signal-to-noise and angular resolution
 - No strong artifacts
 - Performed on the reference source/spectra
- Information about QA review is aggregated for delivery in the QA2 Report

The QA2 Report:

ObsUnitSet information

Name	Member OUS (M83)
QA2 Status	<input type="checkbox"/> Pass
Member OUS Status ID	uid://A001/X87a/X9fe
SchedBlock name	M83_a_06_7M
SchedBlock UID	uid://A001/X87a/X9e2
Array	7M
Mode	Standard
Band	ALMA_RB_06
Repr.Freq. (sky)	217.12 [GHz]
Spectral setup	ACA
Sources	M83
Other SBs in this Group	
OUS (Member OUS Status ID in brackets):	M83_a_06_TM1 (uid://A001/X87a/X9fc)
Execution count	4.00 of 4 expected

Final QA2 comment

Comments from Reducer

CASA version: 5.4.0-70, Pipeline:42254M (Pipeline-CASA54-P1-B)

Reduction mode: PL calibration and imaging

Calibration issues: None.

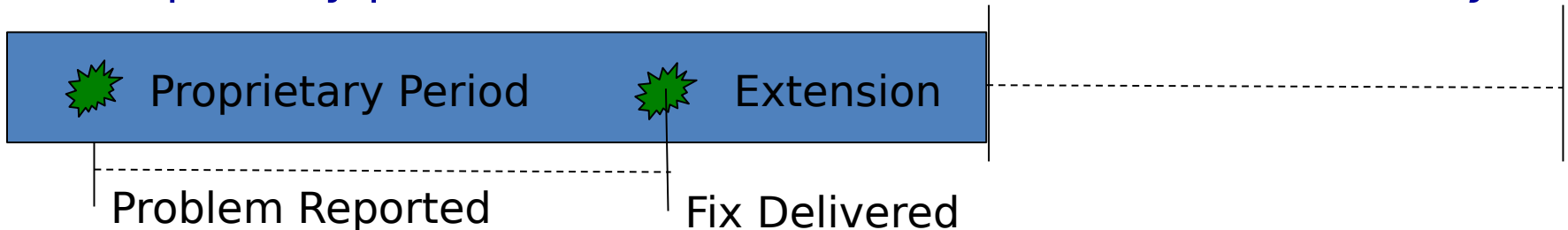
Imaging issues:

This SB has been reprocessed with CASA 5.4.0 due to the issues in previous versions of CASA described at the following links:

See the "Imaging" section at: <https://casa.nrao.edu/casadocs/casa-5.4.0> <<https://casa.nrao.edu/casadocs/casa-5.4.0>>

After Delivery – QA3

- Additional QA stage possibly triggered by PI reporting any issues underlying:
 - Data, observing procedure, calibration
- Re-evaluation of calibrated data products
 - Only occurs if QA0 -> QA2 miss something
- Likely results in fix being implemented and products re-ingested into ALMA archive
- Proprietary period extension (*within two months of delivery*)



- After two months, extension only until fix is delivered

Open the Weblog

- Run the command:

```
tar -xvzf
```

```
member.uid__A001_X87a_X9fe.hifa_calimage.weblog.tgz
```

- Open `pipeline-20190312T041124/html/index.html` in a browser
- Note: If using Firefox version ≥ 68.0 , open `about:config` and change "privacy.file_unique_origin" property to false

Pipeline Image Reprocessing

- Pipeline images are quality assessed but may not be science ready
 - All sources/spws may not be imaged
 - Change continuum selection
 - Change weighting, channel width, automasking, etc.
- See https://casaguides.nrao.edu/index.php/ALMA_Imaging_Pipeline_Reprocessing
- Automasking Guide https://casaguides.nrao.edu/index.php/Automasking_Guide
- Manual imaging template available at: https://casaguides.nrao.edu/index.php/ALMA_Imaging_Pipeline_Reprocessing_for_Manually_Calibrated_Data

OTHER CONSIDERATIONS FOR THE PI

Data Delivery Email

- Sent when an individual MOUS passes QA2
- Data are ingested into the archive and made available at all Regional Centers
- Triggers Start of Proprietary Period
 - Usually 12 months
- Only Sent to PI
- Includes information on:
 - Downloading data
 - Proprietary period
 - Available support
 - Publication requirements

Data Delivery Email -ADDED VALUE!

- NA PIs get two delivery emails
 1. From JAO with links:
 - Archive query for MOUS package
 2. From NAASC:
 - Fully-calibrated MS (North America Only)
 - Calibration and Imaging Report (Weblog)
 - ALMA Data Mining Toolkit (ADMIT) products¹
 - Knowledgebase Article: “Where can I get additional information for my NA added value data products?”
 - <https://help.almascience.org/index.php?/Knowledgebase/Article/View/412>

Monitor Project Status: *SnooPI*

QA Report:

- 2013.1.06789. 
 - Observing the centre of the galaxy with ALMA
 - ObsUnitSet
 - SC OUS (CH3CN 5-4 & isotopolog...
 - Group OUS
 - Member OUS (SgrB2)
 - SgrB2_a_03_TP
 - Member OUS (SgrB2)
 - SgrB2_a_03_TC
 - Member OUS (SgrB2)
 - SgrB2_a_03_7M**
 - Member OUS (query)
 - 3c454.3_SgrB2_a_03_TP
 - Member OUS (SgrB2)
 - SgrB2_a_03_TE

Scheduling Block Name	SgrB2_a_03_7M  History		
Scientific Goal Name	7m observations of my most favourite objects in the whole Universe		
Member ObsUnitSet	uid://A001/X121/X4bc History Archive query		
Array	7m Array		
Band	3		
RA	17 ^h 47 ^m 19.438 ^s		
Dec	-28° 23' 29.780"		
Representative Frequency, GHz	91.28		
Successful Executions	4 / 4		
End time	Duration [min]	Execution Block UID	QA0
2014-07-03 05:59:44	64.07	uid://A002/X85dcf7/Xefe	 Report
2014-07-03 04:39:10	64.49	uid://A002/X85dcf7/Xc7c	 Report
2014-07-02 06:49:28	70.38	uid://A002/X85c183/X1434	 Report
2014-07-01 07:02:06	70.18	uid://A002/X85b7b2/Xb3	 Report

Execution block uid://A002/X85dcf7/Xefe

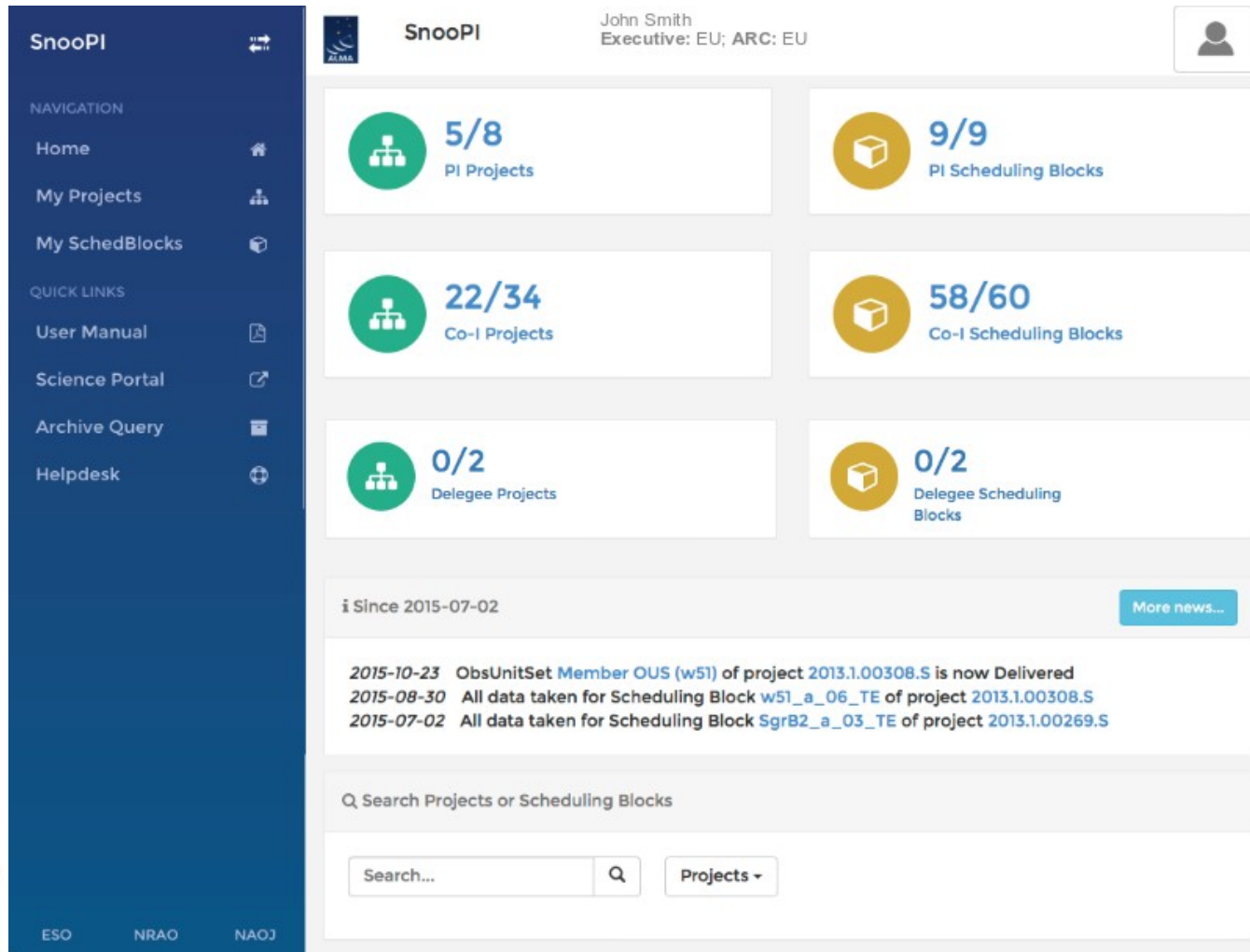
Temperatures [°K]	Array		
Average T _{sys}	41.79	Number of antennas	8
σ	21.35	Shortest baseline	8.903 m
T _{sys,min}	N/A	Longest baseline	47.986 m
T _{sys,max}	64.55	Angular resolution	13.65 arcsec
		Maximum Recoverable Scale	73.291 arcsec

Sources

Intent	Object	RA	Dec	Time [min]
Science Target	SgrB2	17 ^h 47 ^m 19.4 ^s	-28° 23' 29.8"	26.21
Amplitude Calibrator	J1733-130	17 ^h 33 ^m 2.7 ^s	-13° 4' 49.5"	5.04
Atmospheric Calibrator	J1733-130	17 ^h 33 ^m 2.7 ^s	-13° 4' 49.5"	0.29
Atmospheric Calibrator	J1700-2610	17 ^h 0 ^m 53.2 ^s	-26° 10' 51.7"	0.29
Atmospheric Calibrator	SgrB2	17 ^h 47 ^m 19.4 ^s	-28° 23' 29.8"	0.58
Bandpass Calibrator	J1700-2610	17 ^h 0 ^m 53.2 ^s	-26° 10' 51.7"	10.08
Flux Calibrator	J1733-130	17 ^h 33 ^m 2.7 ^s	-13° 4' 49.5"	5.04
Phase Calibrator	J1744-3116	17 ^h 44 ^m 23.6 ^s	-31° 16' 36.3"	5.04
Pointing Calibrator	J1700-2610	17 ^h 0 ^m 53.2 ^s	-26° 10' 51.7"	2.02

Monitor Project Status: SnooPI

<https://asa.alma.cl/snoopi>



The screenshot shows the SnooPI web interface. On the left is a dark blue navigation sidebar with the following items: SnooPI, NAVIGATION (Home, My Projects, My SchedBlocks), QUICK LINKS (User Manual, Science Portal, Archive Query, Helpdesk), and logos for ESO, NRAO, and NAOJ at the bottom. The main content area is titled 'SnooPI' and shows the user 'John Smith' with roles 'Executive: EU; ARC: EU'. It features six summary cards: PI Projects (5/8), PI Scheduling Blocks (9/9), Co-I Projects (22/34), Co-I Scheduling Blocks (58/60), Delegee Projects (0/2), and Delegee Scheduling Blocks (0/2). Below these is a news section with a 'More news...' button and three news items: '2015-10-23 ObsUnitSet Member OUS (w51) of project 2013.1.00308.S is now Delivered', '2015-08-30 All data taken for Scheduling Block w51_a_06_TE of project 2013.1.00308.S', and '2015-07-02 All data taken for Scheduling Block SgrB2_a_03_TE of project 2013.1.00269.S'. At the bottom is a search bar for 'Search Projects or Scheduling Blocks' with a search input field and a 'Projects' dropdown menu.

Resources After Delivery

- HelpDesk: help.almascience.org
- Face to Face visits (currently virtual-only):
<http://science.nrao.edu/facilities/alma/visitors-shortterm>



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ALMA/NAASC VLA GBT VLBA CDL

Facilities > ALMA/NAASC > Data Reduction Visitors to the North American ALMA Science Center (NAASC)

ALMA/NAASC

- Proposing
- Observing
- ALMA Development
- Data Reduction
- Data Archive
- Scientific Visitor Info
- HelpDesk
- ALMA in the Press
- Workshops & Tutorials
- News, Memos & Outreach

Data Reduction Visitors to the North American ALMA Science Center (NAASC)

by [Dong-Chan Kim](#) — last modified Jan 30, 2013

Data Reduction Visitors are ALMA users coming to NAASC for a week or less for expert assistance with obtaining the optimum results from their data.

Eligibility

We expect that the majority of short-term visitors to the NAASC will come for access to NAASC computing facilities, and for expert assistance with re-processing and analyzing their ALMA data, which is central to the successful interpretation of complex interferometric data sets. To meet this need, the NAASC runs a visitor program. In some cases short-term visits may be scheduled for assistance with the technical aspects of ALMA proposals or designing scheduling blocks (SBs). Scientists carrying out archival projects may also take advantage of the visitor program.



The NAASC will provide assistance to up to three visitors from each scheduled or observed project, though funds for travel are more restricted. An experienced investigator must accompany any student who is new to radio interferometry.



For more info:
<https://almascience.nrao.edu/>

ALMA is a partnership of ESO (representing its member states), NSF (USA) and NINS (Japan), together with NRC (Canada), MOST and ASIAA (Taiwan), and KASI (Republic of Korea), in cooperation with the Republic of Chile. ALMA construction and operations are led on behalf of Europe by ESO, on behalf of North America by the National Radio Astronomy Observatory (NRAO), which is managed by Associated Universities, Inc. (AUI), and on behalf of East Asia by the National Astronomical Observatory of Japan (NAOJ). The Joint ALMA Observatory (JAO) provides the unified leadership and management of the construction and operation of ALMA. The Joint ALMA Observatory is operated by ESO, AUI/NRAO and NAOJ.