

ALMA Archive



Emily Moravec

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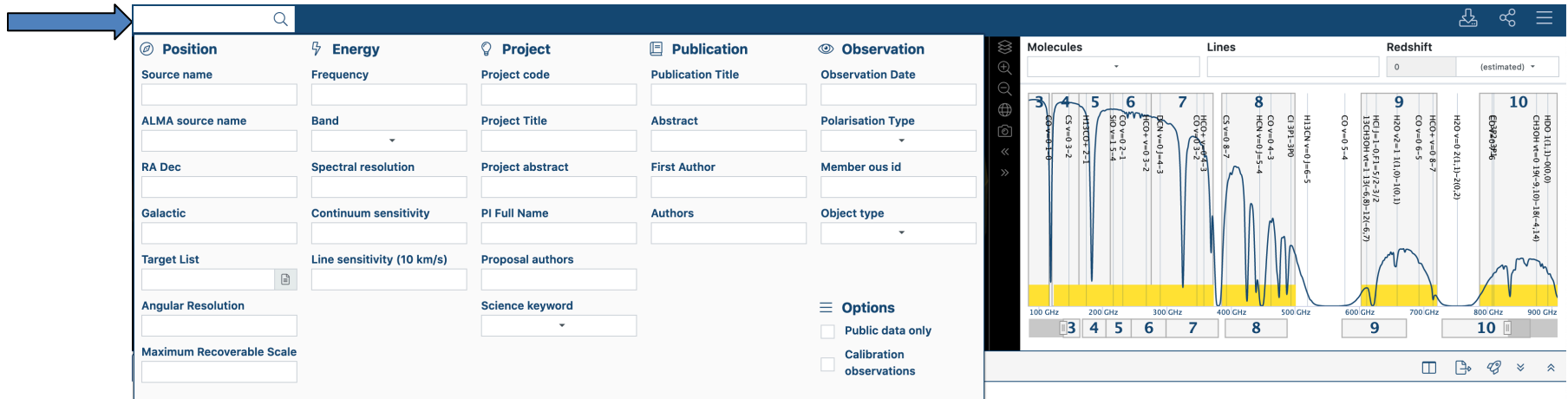


Exploring the ALMA Archive

- Check for duplications of your proposed observations
 - Same Target
 - Angular resolution is within a factor of 2
 - RMS is better by a factor of 2
 - See Appendix A of the Users' Policies for complete definition
- Use archival data! No need to apply!
- Archive interface
 - <https://almascience.nrao.edu/aq>

Searching the Archive

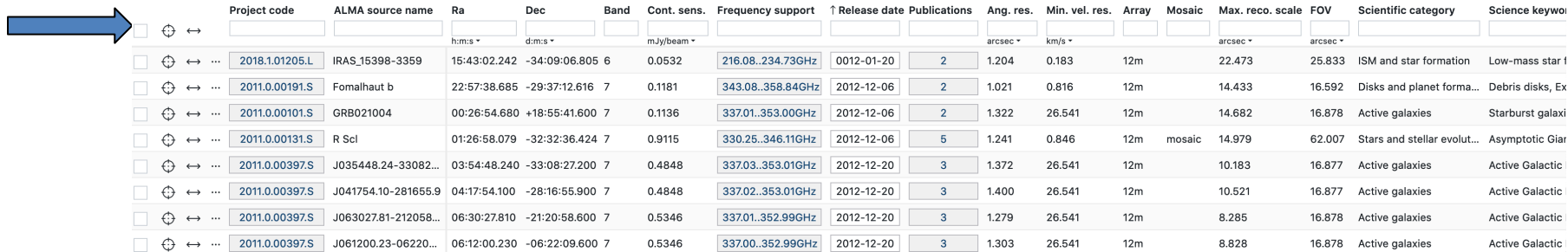
- Filter columns based on target, project, or publication
- Hover over the top left search bar for expanded search fields



The screenshot shows the ALMA archive search interface. A blue arrow points to the search bar at the top left. Below the search bar, a panel of search filters is displayed, organized into columns:

- Position:** Source name, ALMA source name, RA Dec, Galactic, Target List, Angular Resolution, Maximum Recoverable Scale.
- Energy:** Frequency, Band, Spectral resolution, Continuum sensitivity, Line sensitivity (10 km/s).
- Project:** Project code, Project Title, Project abstract, PI Full Name, Proposal authors, Science keyword.
- Publication:** Publication Title, Abstract, First Author, Authors.
- Observation:** Observation Date, Polarisation Type, Member oid, Object type.
- Options:** Public data only, Calibration observations.

To the right of the filters is a spectral plot showing intensity versus frequency (GHz) from 100 to 900 GHz. The plot displays several emission lines, with labels for molecules and transitions such as HCO+, CS, SiO, HCN, and H₂O. A blue arrow points to the search bar area.



The screenshot shows the search results table. A blue arrow points to the search bar area. The table lists search results with columns for Project code, ALMA source name, 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 keywords.

Project code	ALMA source name	Ra	Dec	Band	Cont. sens.	Frequency support	Release date	Publications	Ang. res.	Min. vel. res.	Array	Mosaic	Max. reco. scale	FOV	Scientific category	Science keywords
2018.1.01205.L	IRAS_15398-3359	15:43:02.242	-34:09:06.805	6	0.0532	216.08...234.73GHz	0012-01-20	2	1.204	0.183	12m		22.473	25.833	ISM and star formation	Low-mass star f
2011.0.00191.S	Fomalhaut b	22:57:38.685	-29:37:12.616	7	0.1181	343.08...358.84GHz	2012-12-06	2	1.021	0.816	12m		14.433	16.592	Disks and planet forma...	Debris disks, Ex
2011.0.00101.S	GRB021004	00:26:54.680	+18:55:41.600	7	0.1136	337.01...353.00GHz	2012-12-06	2	1.322	26.541	12m		14.682	16.878	Active galaxies	Starburst galaxi
2011.0.00131.S	R Scl	01:26:58.079	-32:32:36.424	7	0.9115	330.25...346.11GHz	2012-12-06	5	1.241	0.846	12m	mosaic	14.979	62.007	Stars and stellar evol...	Asymptotic Giar
2011.0.00397.S	J035448.24-33082...	03:54:48.240	-33:08:27.200	7	0.4848	337.03...353.01GHz	2012-12-20	3	1.372	26.541	12m		10.183	16.877	Active galaxies	Active Galactic
2011.0.00397.S	J041754.10-281655.9	04:17:54.100	-28:16:55.900	7	0.4848	337.02...353.01GHz	2012-12-20	3	1.400	26.541	12m		10.521	16.877	Active galaxies	Active Galactic
2011.0.00397.S	J063027.81-212058...	06:30:27.810	-21:20:58.600	7	0.5346	337.01...352.99GHz	2012-12-20	3	1.279	26.541	12m		8.285	16.878	Active galaxies	Active Galactic
2011.0.00397.S	J061200.23-06220...	06:12:00.230	-06:22:09.600	7	0.5346	337.00...352.99GHz	2012-12-20	3	1.303	26.541	12m		8.828	16.878	Active galaxies	Active Galactic

Search for your Favorite Source

Position

Source name
 ✕
search radius = 10 arcmin

ALMA source name

RA Dec

Galactic

Target List
 📄

Angular Resolution

Maximum Recoverable Scale

Energy

Frequency

Project

Project code

Publication

Publication Title

Observation

Observation Date

Polarisation Type

Member ous id

Object type

Options

Public data only

Calibration observations

Source name
 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

Source
M 83

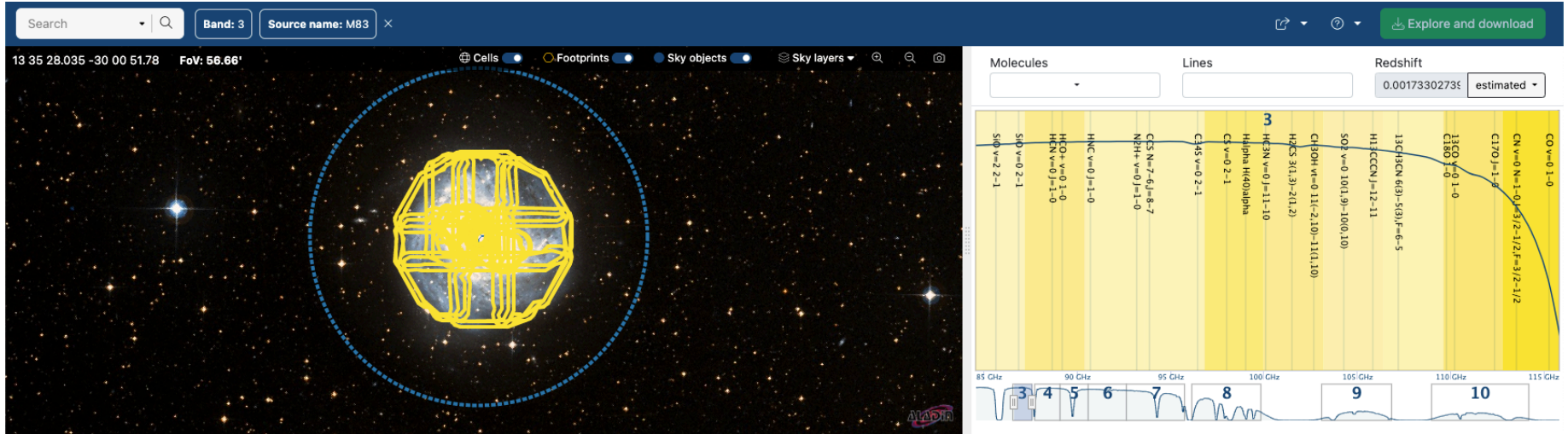
Coordinates (RA Dec)
13:37:00.91 -29:51:56.7

Object type
SBG

Morphology type
SAB(s)c

Resolver 
 Sc=Simbad (CDS, via client/server) [↗](#)

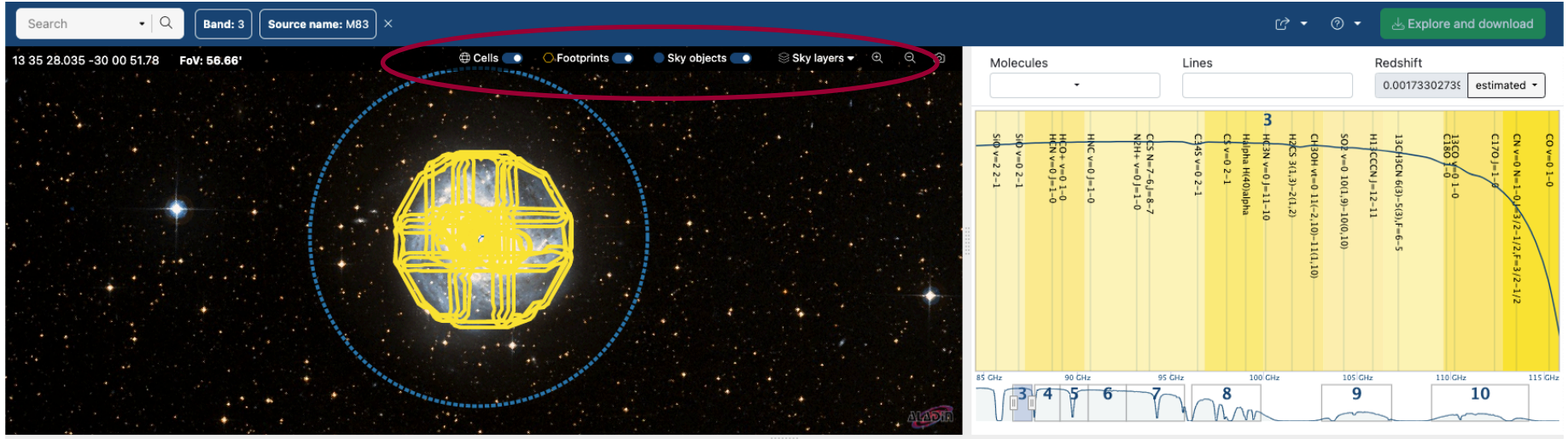
Apply Column Sub-Filters



Observations (55) Projects (11) Publications (11)

Project code	ALMA source name	RA	Dec	Band	Cont. sens.	Frequency support	Release date	Publications	Ang. res.	Min. vel. res.	Array	Mosaic	Max. reco. s
		h:m:s	d:m:s		mJy/beam				arcsec	km/s			arcsec
2011.0.00772.S	M83	13:37:04.763	-29:51:45.340	3	0.2781	100.627..115.393 GHz	2013-09-28	4	1.146	1.269	12m	mosaic	17.187
2012.1.00762.S	m83	13:37:04.534	-29:50:23.433	3	0.2201	99.913..115.551 GHz	2015-05-16	4	0.554	1.267	12m	mosaic	25.218
2013.1.01312.S	M83	13:37:03.885	-29:51:36.973	3	0.0376	85.644..101.394 GHz	2016-05-09	1	2.490	3.274	12m	mosaic	25.525
2012.1.00762.S	m83	13:37:04.458	-29:50:23.465	3	1.2334	99.854..115.581 GHz	2016-05-12	4	9.434	1.266	7m	mosaic	80.615
2013.1.01312.S	M83	13:37:04.185	-29:51:40.023	3	0.2963	85.586..101.452 GHz	2016-06-04	1	11.153	3.273	7m	mosaic	92.854
2013.1.00889.S	M83	13:37:05.500	-29:51:23.550	3	0.0218	95.915..111.56 GHz	2016-08-05	0	1.280	3.034	12m	mosaic	13.070
2013.1.00889.S	M83	13:37:05.500	-29:51:23.550	3	0.0288	87.831..91.457 GHz	2016-08-05	0	1.382	3.701	12m	mosaic	14.605
2013.1.00889.S	M83	13:37:05.500	-29:51:23.550	3	0.0155	84.556..100.109 GHz	2016-08-05	0	1.338	3.381	12m	mosaic	15.636

Modify Data Viewed



Observations (55) Projects (11) Publications (11)

	Project code	ALMA source name	RA	Dec	Band	Cont. sens.	Frequency support	Release date	Publications	Ang. res.	Min. vel. res.	Array	Mosaic	Max. reco. s
			h:m:s	d:m:s		mJy/beam				arcsec	km/s			arcsec
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New: Quick Look Images and Spectra

Click on links for direct download of files



Observation

ALMA source name


☐  ↔

☐  ↙ ↘


☐  ↔ ... 

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☐  ↔ ... 

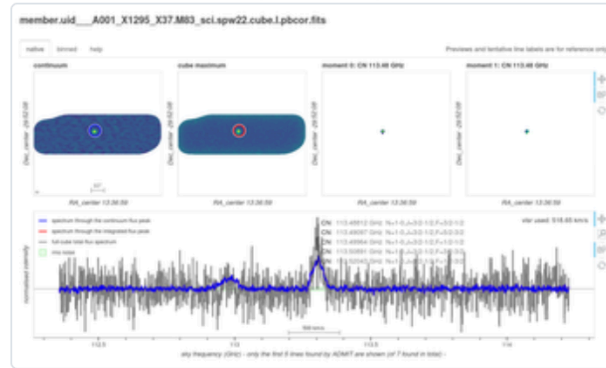
☐  ↔ ... 

M83

ALMA

[README](#) [QA2 report](#) [weblog](#)

SPW 0: 112.29..114.29 GHz, 1128.91kHz, XX YY



[member.uid__A001_X1295_X37.M83_sci.spw22.cube.l.pbcor.fits](#) 568 MB



line

Band: 3



Frequency range: 112.29..114.29 GHz

Frequency resolution: 1128.91 kHz

Continuum sensitivity (estimate): 2.71 mJy/beam@10km/s

Line sensitivity 10km/s (estimate): 82.99 mJy/beam@10km/s

Line sensitivity native (estimate): 3.61 uJy/beam@native

Polarizations: XX YY

Array: 7m

SPW 1: 113.81..115.79 GHz, 31250.00kHz, XX YY



[member.uid__A001_X1295_X37.M83_sci.spw20.cube.l.pbcor.fits](#) 35 MB



continuum

Band: 3

Hover over for quick look

New: Quick Look Images and Spectra

Search
Band: 3 Source name: M83

13 36 59.529 -29 52 9.00 FoV: 58.66'

Cells Footprints Sky objects Sky layers

Molecules Lines Redshift

0.0017330

13CH3CN (6/0-5/0), F=6-5
H13CCCN J=12-11
SO2 v=0 10(1,9)-10(0,10)
CH3OH v=0 11(-2,10)-11(1,10)
HC3S 3(1,3)-2(1,2)
H2CN v=0 J=11-10
H2alpha H(40)alpha
C iv v=0 2-1
C3H5 v=0 2-1
C5H N=7,6 J=8-7
NH3 v=0 J=1-0
HNC v=0 J=1-0
HCO+ v=0 1-0
HN v=0 J=1-0
SiO v=0 2-1
SiO v=2-2-1

Observations (55)

Previews for M83_CTR

Click on links for direct download of files

Explore and download

ALMA

[README](#) [QA2 report](#) [Weblog](#)

SPW 0: 112.292..114.291GHz, 1,128.906 kHz, XX YY

[member.uid_A001_X1295_X23_M83_CTR_sci.spw22.cube.lpbcor.fits](#) 70 MB

Band: 3
Frequency type: line
Frequency range: 112.292..114.291
Frequency resolution: 1,128.906 kHz
Continuum sensitivity: 2.829
Line sensitivity 10km/s (estimate): 86.872 mJy/beam@10km/s
Line sensitivity native (estimate): 3.776 uJy/beam@native
Polarizations: XX YY
Array: 7m

SPW 1: 113.809..115.793GHz, 31,250 kHz, XX YY

[member.uid_A001_X1295_X23_M83_CTR_sci.spw20.cube.lpbcor.fits](#) 4 MB

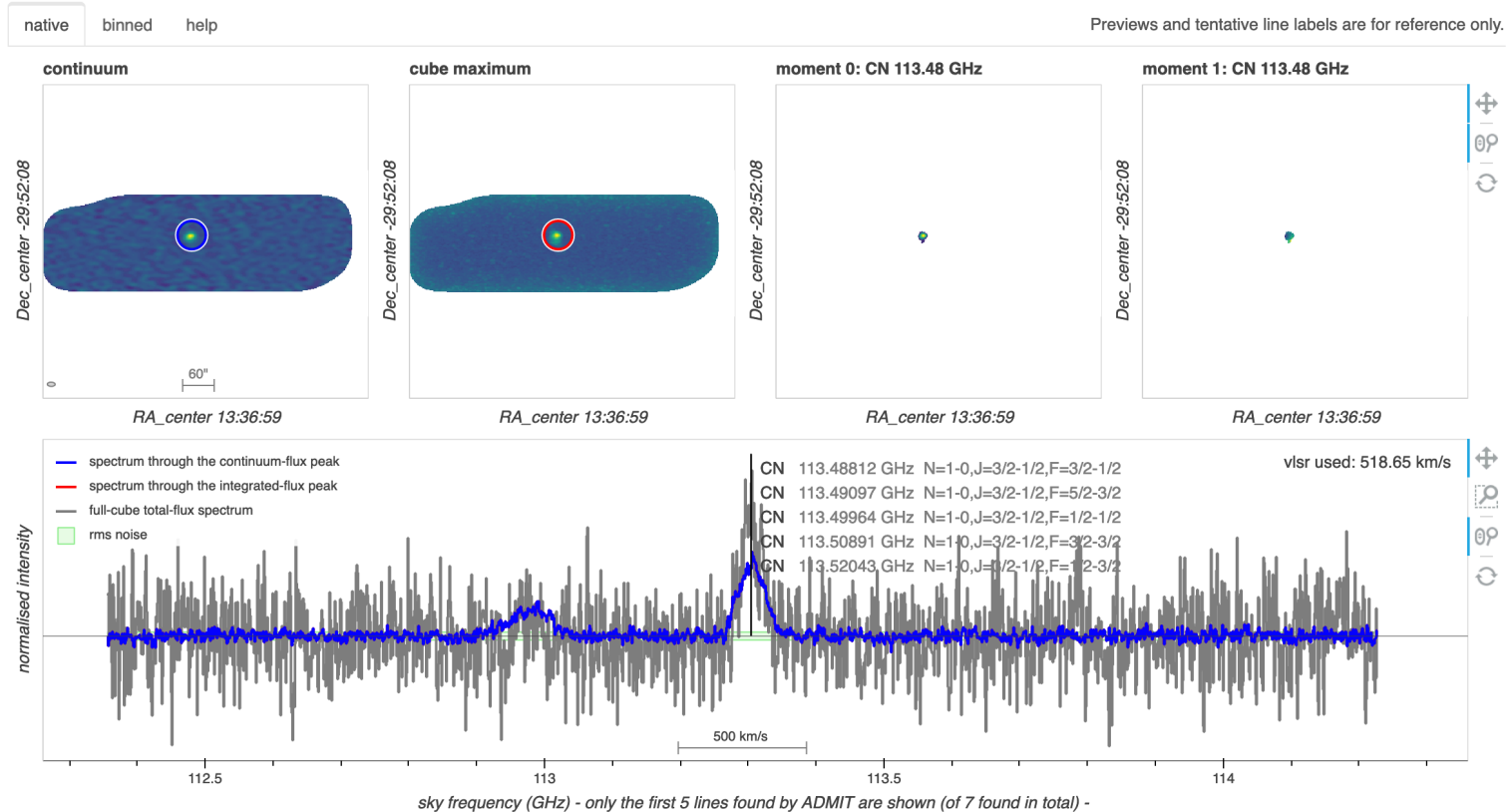
Band: 3
Frequency type: continuum
Frequency range: 113.809..115.793
Frequency resolution: 31,250 kHz
Continuum sensitivity: 2.829
Line sensitivity 10km/s (estimate): 112.919 mJy/beam@10km/s
Line sensitivity native (estimate): 4.941 uJy/beam@native
Polarizations: XX YY
Array: 7m

Hover over for quick look

Publications	Ang. res.	Min. vel. res.	Array	Mosa
	arcsec	km/s		
1	1.377	0.318	12m	
1	1.448	0.318	12m	
1	1.388	0.318	12m	mos
1	1.358	0.318	12m	mos
1	1.359	0.318	12m	
1	9.338	0.318	7m	
1	9.338	0.318	7m	mos
1	8.965	0.318	7m	

New: Interactive Exploration

member.uid__A001_X1295_X37.M83_sci.spw22.cube.l.pbcor.fits



New: Generate List of Similar Projects

Displaying the 20 most similar projects. The similarity is computed by comparing the project titles and abstracts as well as the publication titles and abstracts with the project title and abstract of the current row.

Open projects in a new tab [↗](#)

Projects

↑ Project Code	Title	Abstract
2013.1.00021.S ↗	NGC 4650A: the prototype Polar Ring Galaxy	Polar-ring galaxies (PRG) are a unique class of objects, tracing special episodes in the galaxy mass assembly: they can be formed through galaxy interaction and merging, but also through accretion from cosmic filaments. In addition they are highly interesting to study the dependencies of the star formation laws on surface density and metallicity, and determine 3D-shape of dark matter haloes. We propose to map in the CO(3-2) line at high resolution the polar ring of NGC4650A, the prototype of the class. The polar disk is the most recently assembled sub-system, very rich in gas and where new stars are formed. We will determine the gas distribution and the star formation efficiency, with possible thresholds. The high resolution kinematics of the molecular gas, predominant in the central parts, will precise with more accuracy the determination of the 3D-potential, already tackled through optical, near-infrared, and HI-21cm data. Through comparison with numerical models this will help to deduce the dark matter content and the halo 3D-shape.
2013.1.00446.S ↗	Characterizing the Atmosphere and Surface of Pluto	We will use the unmatched sensitivity of ALMA to make significant advances in understanding of Pluto's atmosphere and surface. The atmosphere exhibits sublimation-condensation exchanges with surface ices and active photochemistry, but is poorly characterized. Our goals: * Atmospheric CO detection, vastly improving determination of its abundance, with implications for the nature of surface-atmosphere interaction and constraining atmospheric temperature * Sensitive search for photochemically produced nitriles like HCN which play
↔ ⋮ 2016.1.01100.S	Pluto	19:11:42.568 -21:47:15.761 6 0.0248 250.02..270.01GHz 2018-10-

Hover over for similar projects and publications

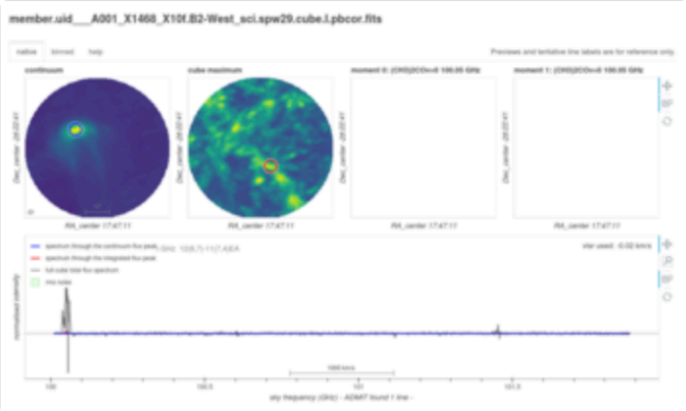
Aside: CARTA (Cube Analysis and Rendering Tool for Astronomy)


- FITS pb-corrected (*.pbcor) images available to open in CARTA (web hosted)
- For quick exploration
 - For science, we recommend downloading the cube and using CARTA on your own computer


ALMA

[README](#) [QA2 report](#) [Weblog](#)

SPW 0: 100.009..101.883GHz, 1,128.906 kHz, XX YY



 [member.uid__A001_X1468_X10f.B2-West_sci.spw29.cube.l.pbcor.fits](#) 896 MB

 **Band:** 3

Frequency type: line

Frequency range: 100.009..101.883

Frequency resolution: 1,128.906 kHz


Continuum sensitivity: 0.091


Line sensitivity 10km/s (estimate): 3.179 mJy/beam@10km/s

Line sensitivity native (estimate): 0.135 uJy/beam@native

Polarizations: XX YY

Array: 12m





 Click to open image in CARTA

Find Data to Download

Search [] Public data only: true Source name: SgrB2

17:47:17.546 -28:26:22.85 FoV: 1.39°

Download **Explore and download in legacy system**

Selected Sources (30) MOUS (900) GOUS (900)

File name Sort by Display only Quick select

File Name

Project: 2019.1.01240.S **Science Goal:** uid://A001/X1468/X10d **Group OUS:** uid://A001/X1468/X10e **Member OUS:** uid://A001/X1468/X10f

[member.uid__A001_X1468_X10f.B2-West_sci.spw31.cube.l.pbcor.fits](#) 896 MB

Band: 3

Frequency range: 101.779..103.653

Frequency resolution: 1,128.906 kHz

Continuum sensitivity: 5.905

Line sensitivity 10km/s (estimate): 3.153 mJy/beam@10km/s

Line sensitivity native (estimate): 0.135 uJy/beam@native

Polarizations: XX YY

Array: 12m

Project: 2019.1.01240.S **Science Goal:** uid://A001/X1468/X10d **Group OUS:** uid://A001/X1468/X10e **Member OUS:** uid://A001/X1468/X10f

[member.uid__A001_X1468_X10f.B2-West_sci.spw31.cube.l.pb.fits.gz](#)

Project: 2019.1.01240.S **Science Goal:** uid://A001/X1468/X10d **Group OUS:** uid://A001/X1468/X10e **Member OUS:** uid://A001/X1468/X10f

[member.uid__A001_X1468_X10f.B2-West_sci.spw31.cube.l.mask.fits.gz](#)

Observations (58) Projects (22)

Project code

<input type="checkbox"/>	2019.1.01240.S
<input checked="" type="checkbox"/>	2019.1.01240.S
<input type="checkbox"/>	2019.1.01240.S
<input type="checkbox"/>	2019.1.01240.S
<input type="checkbox"/>	2019.1.01240.S
<input type="checkbox"/>	2019.2.00112.S
<input type="checkbox"/>	2021.1.00172.L
<input type="checkbox"/>	2021.1.00172.L
<input type="checkbox"/>	2021.1.00172.L
<input type="checkbox"/>	2021.1.00172.L
<input type="checkbox"/>	2021.1.00172.L

Sgr_A_star 17:47:13.980 -28:20:25.344 3 1.3003 85.959..101.506 GHz 2023-01-25 0 12.322 0.205

Redshift 0.00008674171 estimated

8 13CO v=0-4-3 CO v=0-4-3 CI 3P1-3P0 H13CN v=0-1-6-5 13CO v=0-5-4 CO v=0-5-4 NH2 115/208-12/2,1105

9 HI J=1-0 F1=5/2-3/2

10

Array Mosaic Max. reco. sec

12m		arcsec
12m		22.001
12m		20.872
12m		20.979
12m		20.923
12m		20.889
7m		26.816
7m	mosaic	82.534
7m	mosaic	92.651
7m	mosaic	83.356
7m	mosaic	92.643



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.