



EUROPEAN ARC
ALMA Regional Centre || Italian



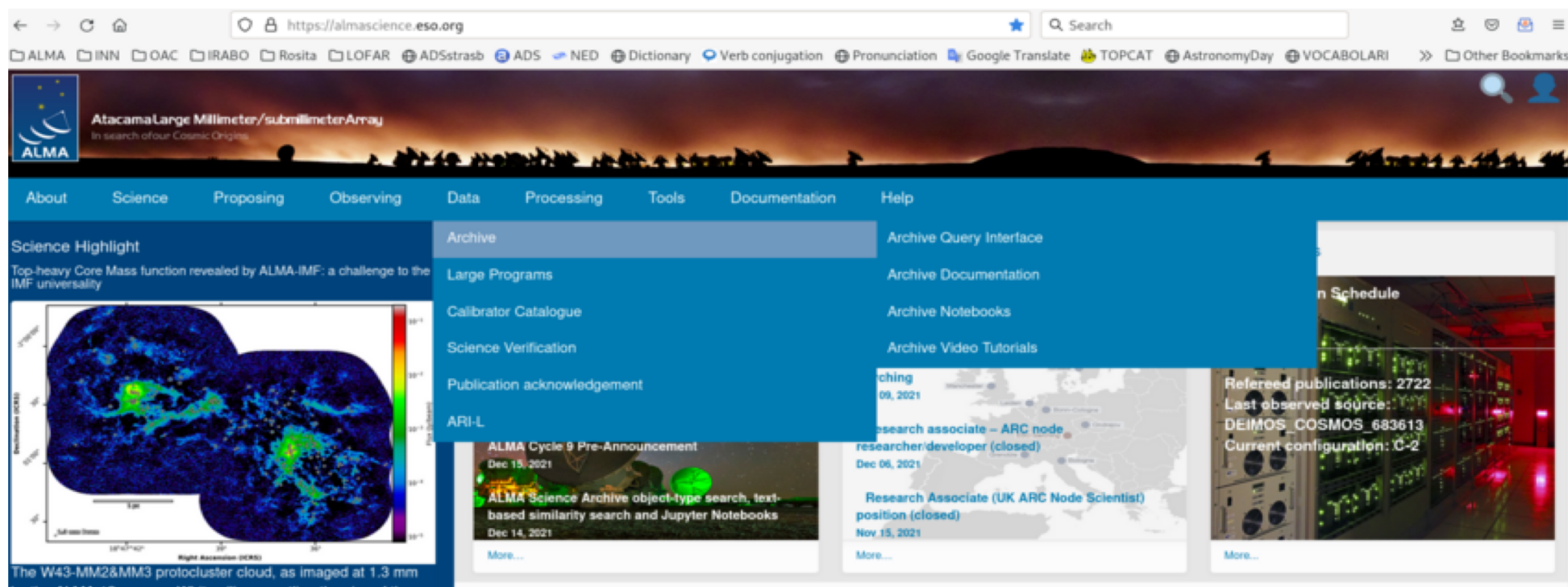
Part V

ALMA Science Archive



Photo credit C. Malin (ESO)

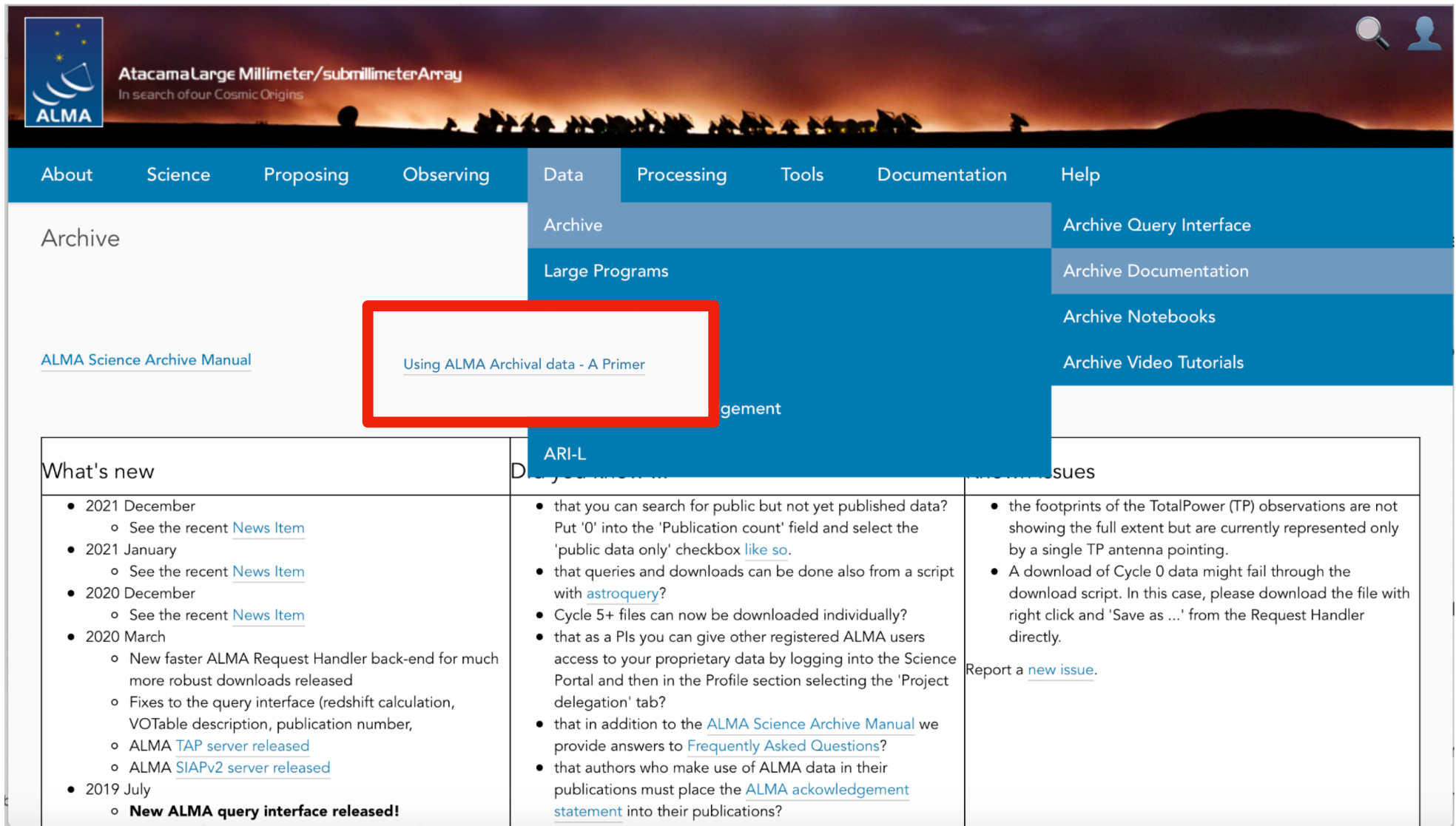
Why check the ALMA Science Archive (ASA) before proposing?



- **Do not duplicate observations** unless scientifically justified.
 - check projects in the Queue
 - <https://almascience.nrao.edu/proposing/duplications>
- get archival data for **better sensitivity and angular resolution justification**

A primer for the use of the ALMA Science Archive

<https://almascience.eso.org/documents-and-tools/cycle9/archive-primer>



The screenshot shows the ALMA Science Archive website. The header features the ALMA logo and the text "Atacama Large Millimeter/submillimeter Array" and "In search of our Cosmic Origins". The navigation bar includes links for About, Science, Proposing, Observing, Data, Processing, Tools, Documentation, and Help. The "Data" menu is open, showing options like Archive, Large Programs, and Archive Query Interface. A red box highlights the link "Using ALMA Archival data - A Primer" under the "Archive" section. Below the navigation bar, there is a section titled "What's new" with a list of updates from 2019 to 2021. The "Issues" section lists known problems and how to report them.

Atacama Large Millimeter/submillimeter Array
In search of our Cosmic Origins

ALMA

About Science Proposing Observing Data Processing Tools Documentation Help

Archive

Archive Query Interface

Archive Documentation

Archive Notebooks

Archive Video Tutorials

[ALMA Science Archive Manual](#)

[Using ALMA Archival data - A Primer](#)

What's new

- 2021 December
 - See the recent [News Item](#)
- 2021 January
 - See the recent [News Item](#)
- 2020 December
 - See the recent [News Item](#)
- 2020 March
 - New faster ALMA Request Handler back-end for much more robust downloads released
 - Fixes to the query interface (redshift calculation, VOTable description, publication number,
 - ALMA [TAP server released](#)
 - ALMA [SIAPv2 server released](#)
- 2019 July
 - **New ALMA query interface released!**

Issues

- the footprints of the TotalPower (TP) observations are not showing the full extent but are currently represented only by a single TP antenna pointing.
- A download of Cycle 0 data might fail through the download script. In this case, please download the file with right click and 'Save as ...' from the Request Handler directly.

Report a [new issue](#).

The ALMA Science Archive: the search interface

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

BibCode

Publication Title

Abstract

First Author

Authors

Observation

Observation Date

Polarisation Type

Member ous id

Object type

Options

☐ Public data only

☐ Calibration observations

Lines

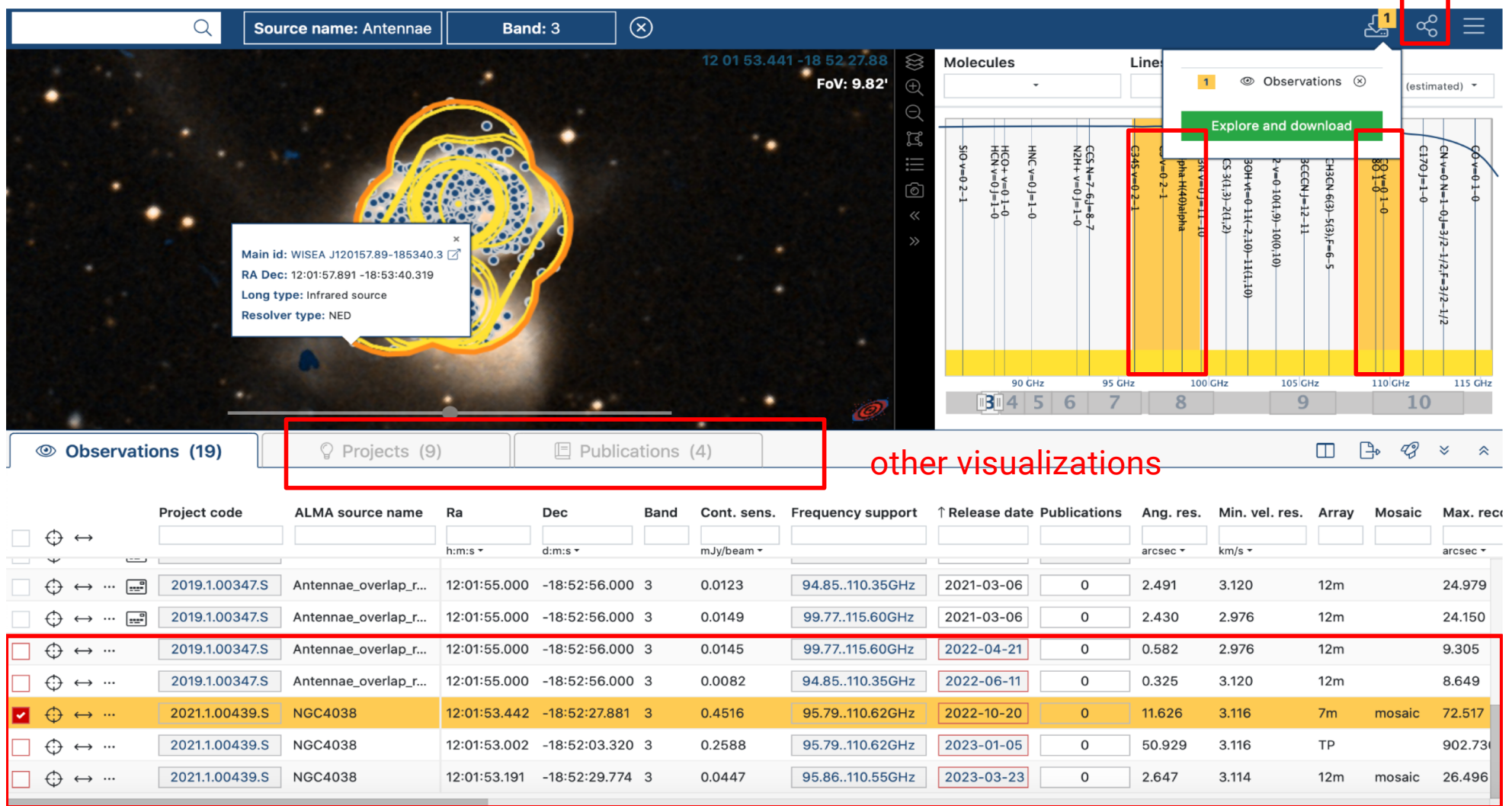
Redshift

	Project code	ALMA source name	Frequency support	Release date	Publications	Ang. res.	Min. vel. res.	Array	Mosaic	Max. rec.
<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="checkbox"/>	2011.0.00191.S	Fomalhaut b	133.358.84GHz	2012-12-06	2	1.047	0.816	12m		10.640
<input type="checkbox"/>	2011.0.00131.S	R Scl	133.346.11GHz	2012-12-06	5	1.043	0.846	12m	mosaic	11.517
<input type="checkbox"/>	2011.0.00101.S	GRB021004	133.353.00GHz	2012-12-06	2	1.107	26.541	12m		9.257
<input type="checkbox"/>	2011.0.00397.S	J061200.23-0	337.00..352.99GHz	2012-12-20	3	1.183	26.541	12m		7.819
<input type="checkbox"/>	2011.0.00397.S	J063027.81-212058...	337.01..352.99GHz	2012-12-20	3	1.183	26.541	12m		8.015
<input type="checkbox"/>	2011.0.00397.S	J041754.10-281655.9	337.02..353.01GHz	2012-12-20	3	1.118	26.541	12m		7.842
<input type="checkbox"/>	2011.0.00397.S	J035448.24-33082...	337.03..353.01GHz	2012-12-20	3	1.128	26.541	12m		7.950
<input type="checkbox"/>	2011.0.00397.S	J070257.20-28084...	337.01..353.00GHz	2012-12-20	3	1.154	26.541	12m		8.053

The ALMA Science Archive: search results

NB: one click on the interested footprint that could be downloaded

share results



The ALMA Science Archive: search results

Source name: Antennae

Band: 3

12 01 53.441 -18 52 27.88

FoV: 9.82'

Antennae_overlap_region

ALMA

README QA2 report weblog

SPW 0: 99.77..101.65 GHz, 1128.91kHz, XX YY

member.uid__A001_X1465_X326b.Antennae_overlap_region_sci.spw31.cube.l.pbcor.fits 421 MB

line

Band: 3

Frequency range: 99.77..101.65 GHz

Frequency resolution: 1128.91 kHz

Continuum sensitivity (estimate): 0.01 mJy/beam@10km/s

Line sensitivity 10km/s (estimate): 0.89 mJy/beam@10km/s

Line sensitivity native (estimate): 0.04 uJy/beam@native

Polarizations: XX YY

Array: 12m

SPW 1: 101.46..103.34 GHz, 1128.91kHz, XX YY

member.uid__A001_X1465_X326b.Antennae_overlap_region_sci.spw29.cube.l.pbcor.fits 421 MB

line

Band: 3

Frequency range: 101.46..103.34 GHz

zoom of the interactive preview

link to CARTA

Molecules

Lines

Redshift

0.005284 (estimated)

CO v=0-1-0

CN v=0-N=1-0, J=3/2-1/2, F=3/2-1/2

C17O J=1-0

13CO v=0-1-0

138G v=0-1-0

13CH3CN 6(3)-5(3), F=6-5

H13CCCN J=12-11

502 v=0-10(1,9)-10(0,10)

CH3OH v=0-11(-2,10)-11(1,10)

H2CS 3(1,3)-2(1,2)

HC3N v=0-11-10

Halpna H(40)alpha

C5 v=0-2-1

C34S v=0-2-1

CCS N=7-6, J=8-7

N2H+ v=0-1-0

HNC v=0-1-0

HCO+ v=0-1-0

HCN v=0-1-0

SiO v=0-2-1

el. res.

Array

Mosaic

Max. rec.

12m

24.979

12m

24.150

12m

9.305

12m

8.649

7m

mosaic

72.517

TP

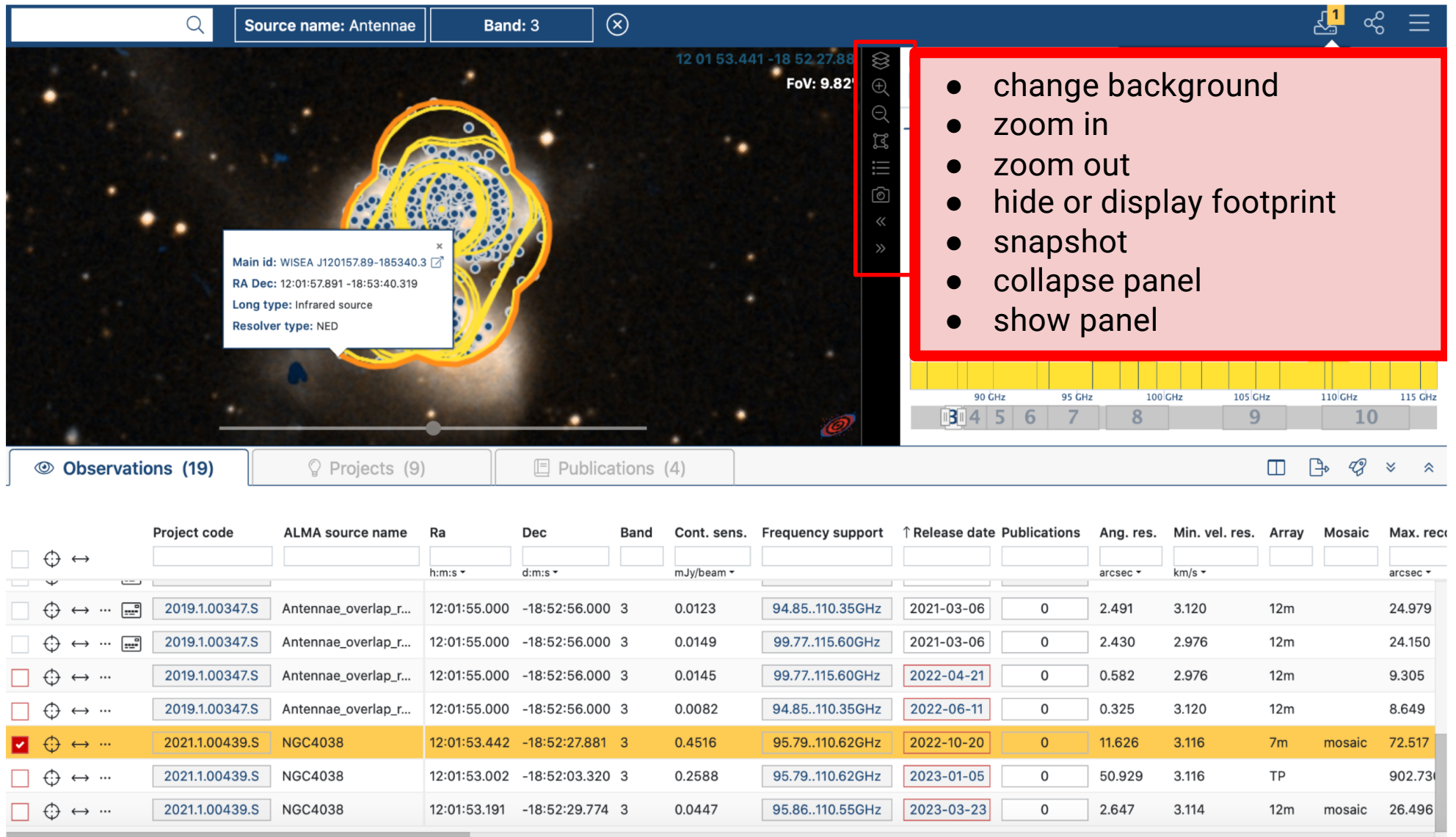
902.73

12m

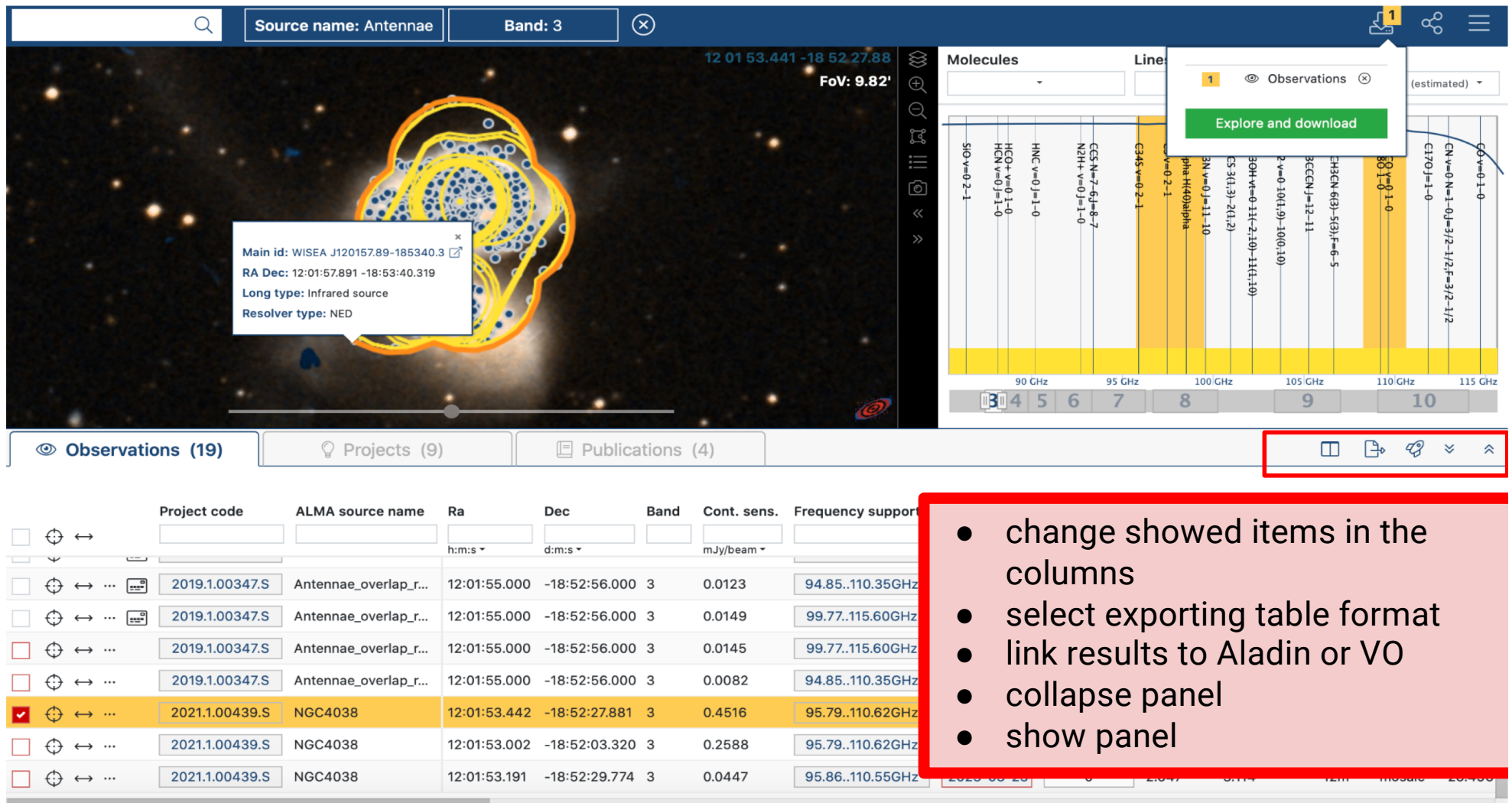
mosaic

26.496

The ALMA Science Archive: the search results



The ALMA Science Archive: the search results



Source name: Antennae Band: 3

12 01 53.441 -18 52 27.88 FoV: 9.82'

Main id: WISEA J120157.89-185340.3
RA Dec: 12:01:57.891 -18:53:40.319
Long type: Infrared source
Resolver type: NED

Molecules

Line

Observations (19) Projects (9) Publications (4)

Project code	ALMA source name	Ra	Dec	Band	Cont. sens.	Frequency support
2019.1.00347.S	Antennae_overlap_r...	12:01:55.000	-18:52:56.000	3	0.0123	94.85..110.35GHz
2019.1.00347.S	Antennae_overlap_r...	12:01:55.000	-18:52:56.000	3	0.0149	99.77..115.60GHz
2019.1.00347.S	Antennae_overlap_r...	12:01:55.000	-18:52:56.000	3	0.0145	99.77..115.60GHz
2019.1.00347.S	Antennae_overlap_r...	12:01:55.000	-18:52:56.000	3	0.0082	94.85..110.35GHz
2021.1.00439.S	NGC4038	12:01:53.442	-18:52:27.881	3	0.4516	95.79..110.62GHz
2021.1.00439.S	NGC4038	12:01:53.002	-18:52:03.320	3	0.2588	95.79..110.62GHz
2021.1.00439.S	NGC4038	12:01:53.191	-18:52:29.774	3	0.0447	95.86..110.55GHz

- change showed items in the columns
- select exporting table format
- link results to Aladin or VO
- collapse panel
- show panel

Note:

- To link results to Aladin or VO, you have to open before them

The ALMA Science Archive: VO services

The screenshot displays the ALADIN v11.0 web interface. The main window shows a deep-field image of a galaxy cluster with various overlays. A security dialog box is open in the foreground, asking for authorization to connect to the SAMP Hub. The dialog includes fields for Name, Origin (https://almascience.eso.org), and URL (undeclared). It also contains a warning about local file access and a 'Do you authorize connection?' prompt with 'No' and 'Yes' buttons. A red arrow points from the 'Yes' button to a red box at the bottom of the slide that says 'Please authorize connection'. In the background, a table of astronomical data is visible, listing parameters like Band, Cont., se..., Freq..., Release, Publicat..., and Ang. for various observations.

Available data → 27744
in view out view

Collections → 27744
Image → 501
Data base → 4
Catalog → 25947
Cube → 27
Ancillary → 74
Outreach → 50
Others → 1141

Command [DSS] [PanSTARRS] [SDSS] [2MASS] [GALEX] [Gaia] [Simbad] [NED] +

Frame [ICRS] Projection [Aitoff]

DSS2 color

23.13' x 15.48'

Search

ec	Band	Cont. se...	Frequenc...	Release ...	Publicat...	Ang.
661...	6	2.180289...	[229.25...	2016-07-31	14	4.9967
660...	6	0.404301...	[229.31...	2016-07-31	14	1.0453
660...	6	0.219358...	[229.31...	2016-10-07	14	0.4962
661...	6	0.507975...	[229.25...	2017-07-01	14	22.064
661...	6	1.553699...	[229.25...	2017-08-03	7	4.3445
661...	3	0.134416...	[95.00....	2017-12-29	1	11.826
661...	3	0.146392...	[89.51....	2018-02-10	1	10.786
661...	3	0.011644...	[95.07....	2018-02-18	1	1.466
661...	3	0.011559...	[89.56....	2018-03-21	1	1.466

Do you authorize connection?

No Yes

Please authorize connection

The ALMA Science Archive: the download

ALMA Request Handler

Anonymous User: Request #2158545106693 ✓

Request Title: [click to edit](#)

Download Selected

☒ readme ☒ product ☒ auxiliary ☐ raw ☐ raw (semipass) ☐ external

Project / OUSet / Executionblock Updated

Request 2158545106693

Project 2012.1.00185.S

Science Goal OUS uid://A002/X5a9a13/X724

Group OUS uid://A002/X5a9a13/X725

Member OUS uid://A002/X5a9a13/X726 2020-06-22

SB NGC4038_88_12m_C32-4

<input checked="" type="checkbox"/>	readme	member.uid_A002_X5a9a13_X726.README.txt	7 kB	✓	
<input checked="" type="checkbox"/>	product	2012.1.00185.S_uid_A002_X5a9a13_X726_001_of_001.tar	275 MB	✓	
<input type="checkbox"/>	product	member.uid_A002_X5a9a13_X726.HCOp_cube.fits	272 MB	✓	
<input type="checkbox"/>	product	member.uid_A002_X5a9a13_X726.HCOp_line.fits	1 MB	✓	
<input type="checkbox"/>	product	member.uid_A002_X5a9a13_X726.NGC4038-cont.fits	2 MB	✓	
<input checked="" type="checkbox"/>	auxiliary	2012.1.00185.S_uid_A002_X5a9a13_X726_auxiliary.tar	1 GB	✓	
<input type="checkbox"/>	raw	2012.1.00185.S_uid_A002_X5e8889_X214.asdm.sdm.tar	17 GB	✓	
<input type="checkbox"/>	raw	2012.1.00185.S_uid_A002_X5e8f77_X1cc.asdm.sdm.tar	14 GB	✓	
<input type="checkbox"/>	raw	2012.1.00185.S_uid_A002_X7e4988_Xe32.asdm.sdm.tar	19 GB	✓	
<input type="checkbox"/>	raw	2012.1.00185.S_uid_A002_X7e72ba_X5e0.asdm.sdm.tar	27 GB	✓	
<input type="checkbox"/>	raw	2012.1.00185.S_uid_A002_X7e72ba_X82a.asdm.sdm.tar	27 GB	✓	
<input type="checkbox"/>	raw (semipass)	2012.1.00185.S_uid_A002_X5e7b34_X64e.asdm.sdm.tar	16 GB	✓	

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 had to be discontinued due to changes in java. Please use one of the other options instead.

File List

View a text file containing a list of URLs. This is useful for using third-party download manager's such as *DownThemAll*.

different downloads

Size	Accessible	Actions
2 GB		

The ALMA Science Archive: the download

ALMA Request Handler

[Login](#)

Anonymous User: Request #2158545106693 ✓

Request Title: [click to edit](#)

Download Selected

☒ readme ☒ product ☒ auxiliary ☐ raw ☐ raw (semipass) ☐ external

Project / OUSet / Executionblock	Updated	File	Size	Accessible	Actions
▼ Request 2158545106693			2 GB		
▼ Project 2012.1.00185.S					
▼ Science Goal OUS uid://A002/X5a9a13/X724					
▼ Group OUS uid://A002/X5a9a13/X725					
▼ Member OUS uid://A002/X5a9a13/X726	2020-06-22				
▶ SB NGC4038_88_12m_C32-4					
<input checked="" type="checkbox"/> readme		member.uid_A002_X5a9a13_X726.README.txt	7 kB	✓	
▼ <input checked="" type="checkbox"/> product		2012.1.00185.S_uid_A002_X5a9a13_X726_001_of_001.tar	275 MB	✓	
<input type="checkbox"/> product		member.uid_A002_X5a9a13_X726.HCOp_cube.fits	272 MB	✓	
<input type="checkbox"/> product		member.uid_A002_X5a9a13_X726.HCOp_line.fits	1 MB	✓	
<input type="checkbox"/> product		member.uid_A002_X5a9a13_X726.NGC4038-cont.fits	2 MB	✓	
<input checked="" type="checkbox"/> auxiliary		2012.1.00185.S_uid_A002_X5a9a13_X726_auxiliary.tar	1 GB	✓	
<input type="checkbox"/> raw		2012.1.00185.S_uid_A002_X5e8889_X214.asdm.sdm.tar	17 GB	✓	
		2012.1.00185.S_uid_A002_X5e8f77_X1cc.asdm.sdm.tar	14 GB	✓	
		2012.1.00185.S_uid_A002_X7e4988_Xe32.asdm.sdm.tar	19 GB	✓	
		2012.1.00185.S_uid_A002_X7e72ba_X5e0.asdm.sdm.tar	27 GB	✓	
<input type="checkbox"/> raw		2012.1.00185.S_uid_A002_X7e72ba_X82a.asdm.sdm.tar	27 GB	✓	
<input type="checkbox"/> raw (semipass)		2012.1.00185.S_uid_A002_X5e7b34_X64e.asdm.sdm.tar	16 GB	✓	

pdf of qa2 report

The ALMA Science Archive: the download

ALMA Request Handler

[Login](#)

Anonymous User: Request #2158545106693 ✓

Request Title: [click to edit](#)

Download Selected

☒ readme ☒ product ☒ auxiliary ☐ raw ☐ raw (semipass) ☐ external

Project / OUSet / Executionblock	Updated	File	Size	Accessible	Actions
Request 2158545106693			2 GB		
Project 2012.1.00185.S					
Science Goal OUS uid://A002/X5a9a13/X724					
Group OUS uid://A002/X5a9a13/X725					
Member OUS uid://A002/X5a9a13/X726	2020-06-22				
SB NGC4038_88_12m_C32-4					
<input checked="" type="checkbox"/> readme		member.uid_A002_X5a9a13_X726.README.txt	7 kB	✓	
<input checked="" type="checkbox"/> product		2012.1.00185.S_uid_A002_X5a9a13_X726_001_of_001.tar	275 MB	✓	
<input type="checkbox"/> auxiliary		member.uid_A002_X5a9a13_X726.HCOp_cube.fits	272 MB	✓	
<input type="checkbox"/> raw		member.uid_A002_X5a9a13_X726.HCOp_line.fits	1 MB	✓	
<input type="checkbox"/> raw (semipass)		member.uid_A002_X5a9a13_X726.NGC4038-cont.fits	2 MB	✓	
<input checked="" type="checkbox"/> auxiliary		2012.1.00185.S_uid_A002_X5a9a13_X726_auxiliary.tar	1 GB	✓	
<input type="checkbox"/> raw		2012.1.00185.S_uid_A002_X5e8889_X214.asdm.sdm.tar	17 GB	✓	
<input type="checkbox"/> raw		2012.1.00185.S_uid_A002_X5e8f77_X1cc.asdm.sdm.tar	14 GB	✓	
<input type="checkbox"/> raw		2012.1.00185.S_uid_A002_X7e4988_Xe32.asdm.sdm.tar	19 GB	✓	
<input type="checkbox"/> raw		2012.1.00185.S_uid_A002_X7e72ba_X5e0.asdm.sdm.tar	27 GB	✓	
<input type="checkbox"/> raw		2012.1.00185.S_uid_A002_X7e72ba_X82a.asdm.sdm.tar	27 GB	✓	
<input type="checkbox"/> raw (semipass)		2012.1.00185.S_uid_A002_X5e7b34_X64e.asdm.sdm.tar	16 GB	✓	

selected images to download

Note: the image name contains the information on the spw not frequency

<input type="checkbox"/> product	member.uid_A001_X133d_X965.J1159-2228_ph.spw27.mfs.l.mask.fits	360 KiB	✓	
<input type="checkbox"/> product	member.uid_A001_X133d_X965.J1159-2228_ph.spw27.mfs.l.pb.fits.gz	146 KiB	✓	
<input type="checkbox"/> product	member.uid_A001_X133d_X965.J1159-2228_ph.spw27.mfs.l.pbcor.fits	360 KiB	✓	

The ALMA Science Archive: the products

More details in Using ALMA Archival data - A Primer (Sect. 4.3)

<https://almascience.eso.org/documents-and-tools/cycle9/archive-primer>

science targets *_sci.* , bandpass calibrators *_bp.* , phase calibrators *_ph.* , check sources *_ch.* , polarisation calibrator *_polleak.* , *_Pol_Cal* , *_pol*

*pbcor.fits:	primary-beam corrected image or data cube.
*sd.im.fits:	single-dish images.
mfs.A. or *mfs.POLA*:	polarisation angle map.
mfs.P. or mfs.POLI*:	linear polarisation intensity map, which is defined as U + Q
.	
spw##.cube.l.:	spectral image cube of a single spectral window.
spw##.mfs.l.:	multi-frequency synthesis (mfs) continuum I image a
single spw	
spw##_##_##_#.cont.l.:	aggregate bandwidth or continuum I image on listed spws.
spw##_##_##_#.cont.l.alpha.:	spectral index image, which is defined as tt1/tt0
spw##_##_##_#.cont.l.tt0.:	I cont image from the mtmfs deconvolver containing the 0th Taylor
term	
spw##_##_##_#.cont.l.tt1.:	I cont image from the mtmfs deconvolver containing the first Taylor
term	
spw##_##_##_#.cont.IQIV.:	aggregate bandwidth or continuum full Stokes cube from listed spws

The ALMA Science Archive: External products

ALMA Request Handler [Login](#)

Anonymous User: Request #3000000754199 ✓
Request Title: [click to edit](#)

Download Selected

☐ readme ☐ product ☐ auxiliary ☐ raw ☐ raw (semipass) ☒ external

Project / OUSet / Executionblock	File	Size	Accessible	Actions
▼ Request 3000000754199		1 GiB		
▼ Project 2015.1.01362.S		1 GiB		
▼ Science Goal OUS uid://A001/X2d6/X224		1 GiB		
▼ Group OUS uid://A001/X2d6/X225		1 GiB		
▼ Member OUS uid://A001/X2d6/X226		1 GiB		
▶ SB SDP11_a_09_TE				
<input type="checkbox"/> readme	member.uid_A001_X2d6_X226.README.txt	14 KiB	✓	
▶ <input type="checkbox"/> product	2015.1.01362.S_uid_A001_X2d6_X226_001_of_001.tar	45 MiB	✓	
<input type="checkbox"/> auxiliary	2015.1.01362.S_uid_A001_X2d6_X226_auxiliary.tar	60 MiB	✓	
<input type="checkbox"/> raw	2015.1.01362.S_uid_A002_Xbab09c_X2c2d.asdm.sdm.tar	8 GiB	✓	
▼ <input checked="" type="checkbox"/> external	2015.1.01362.S_uid_A001_X2d6_X226_external_001_of_001.tar	1 GiB	✓	
<input type="checkbox"/> external	member.uid_A001_X2d6_X226.ar1_J0854p2006_bp.spw0_1_2_3_681205MHz.12m.cont.l.mask.fits.gz	5 KiB	✓	
<input type="checkbox"/> external	member.uid_A001_X2d6_X226.ar1_J0854p2006_bp.spw0_1_2_3_681205MHz.12m.cont.l.pb.fits.gz	186 KiB	✓	
<input type="checkbox"/> external	member.uid_A001_X2d6_X226.ar1_J0854p2006_bp.spw0_1_2_3_681205MHz.12m.cont.l.pbcor.fits	366 KiB	✓	
<input type="checkbox"/> external	member.uid_A001_X2d6_X226.ar1_J0854p2006_bp.spw0_682161MHz.12m.cube.l.pb.fits.gz	20 MiB	✓	
<input type="checkbox"/> external	member.uid_A001_X2d6_X226.ar1_J0854p2006_bp.spw0_682161MHz.12m.cube.l.pbcor.fits	41 MiB	✓	
<input type="checkbox"/> external	member.uid_A001_X2d6_X226.ar1_J0854p2006_bp.spw0_682161MHz.12m.mfs.l.mask.fits.gz	5 KiB	✓	

Two types:

- ARI-L

<https://almascience.eso.org/alma-data/aril>

- Large Programs

<https://almascience.eso.org/alma-data/lp>

Note:

- ARI-L and Large Programs are also present in the Collections Column in the Query Interface

The ARI-L development project (PI M. Massardi)

<https://almascience.eso.org/alma-data/aril>
(Massardi et al. 2022)

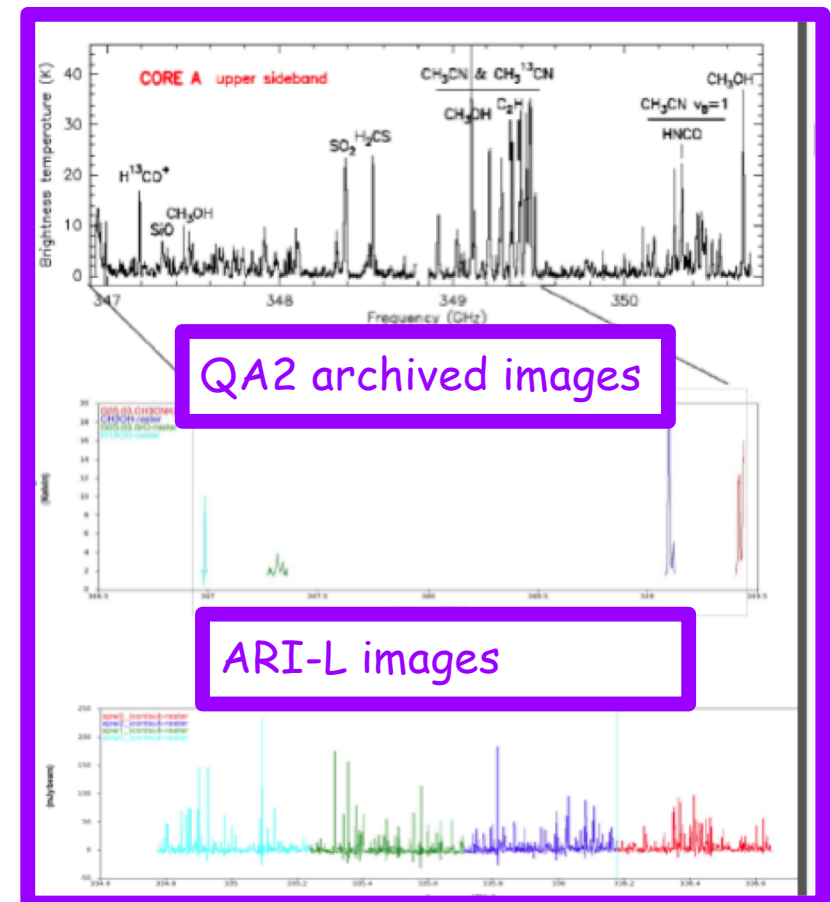
It will produce and ingest into the ASA a set of additional image products representative of the **whole data content for more than 70% of the observing projects in cycles 2-4** that can be processed through the ALMA Imaging Pipeline, to complement the QA2-generated images.

In addition **calibrated MS** of the processed dataset will be released.

ARI-L philosophy

- think of the miners
- homogeneity
- completeness
- add value to the ASA

For support help-desk@alma.inaf.it



ALMA Large Programs

<https://almascience.eso.org/alma-data/lp>

[About](#)
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[Proposing](#)
[Observing](#)
[Data](#)
[Processing](#)
[Tools](#)
[Documentation](#)
[Help](#)

Large Programs

Large Programs are designed to address strategic scientific issues that require a coordinated effort across multiple proposal teams produce high level data products and documentation which are made available to the scientific community. Large Programs are distinguished from Regular Proposals in the following ways:

- They are programs with an estimated execution time of greater than 150 hours on the ACA in stand-alone mode.
- They are designed to be coherent science projects that are not necessarily tied to a single proposal.
- Investigators must deliver high level data products and relevant documentation.

The following table contains the full list of ALMA Large Programs, as well as links to the data products delivered by the teams. The Programs are listed first by Science Category, then by Cycle number:

Archive

Large Programs

Calibrator Catalogue

Science Verification

Publication acknowledgement

ARI-L

Nickname	PIDs	Cycle	Title (Abstracts)	Primary Investigator - Institution	Primary Article	Team's Site	Data Deliveries
Cosmology and High Redshift Universe							
ASPECS	2016.1.00324.L	4	ASPECS: The ALMA SPECTral line Survey in the UDF - An ALMA Large Program	Fabian Walter / MPIA Heidelberg	link	link	link
ALPINE	2017.1.00428.L	5	ALPINE: The ALMA Large Program to INvestigate CII at Early Times	Olivier Le Fèvre / Laboratoire D'Astrophysique de Marseille			
ALCS	2018.1.00035.L	6	ALCS: ALMA Lensing Cluster Survey	Kotaro Kohno / University of Tokyo			
	2019.1.01634.L	7	REBELS: An ALMA Large Program to Discover the Most Luminous [CII]+[OIII] Galaxies in the Epoch of Reionization	Rychard Bouwens / University of Leiden			
CRISTAL	2021.1.00280.L	8	CRISTAL: a survey of gas, dust and stars on kiloparsec scales in star-forming galaxies at z~4-5	Rodrigo I Herrera-Camus / Universidad de Concepción		link	
Galaxies and Galactic Nuclei							

The ALMA Science Archive: the CARTA Preview

ALMA Request Handler

[Login](#)

Anonymous User: Request #2158545106693 ✓

Request Title: [click to edit](#)

Download Selected

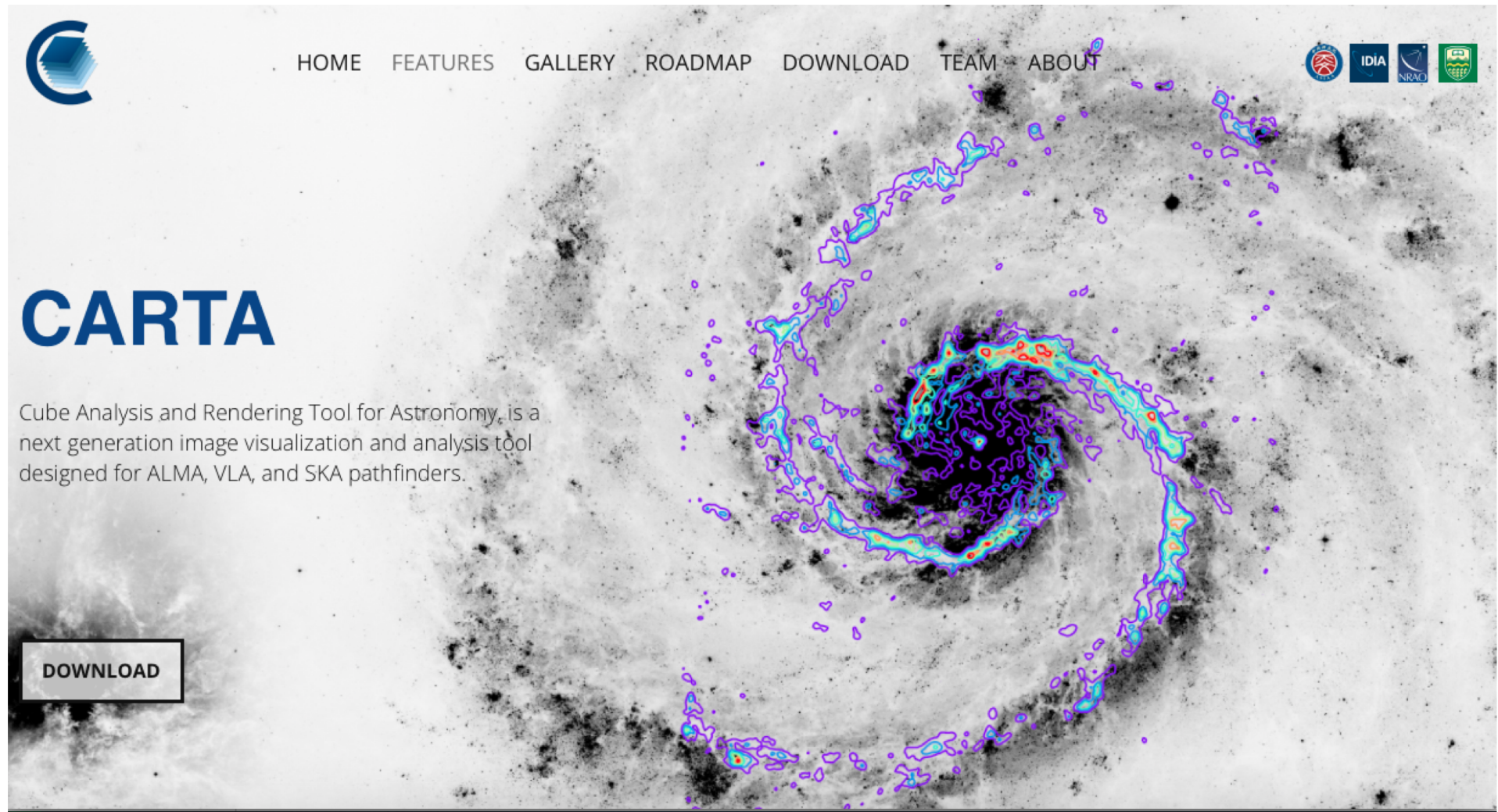
☒ readme ☒ product ☒ auxiliary ☐ raw ☐ raw (semipass) ☐ external

Project / OUSet / Executionblock	Updated	File	Size	Accessible	Actions
▼ Request 2158545106693			2 GB		
▼ Project 2012.1.00185.S					
▼ Science Goal OUS uid://A002/X5a9a13/X724					
▼ Group OUS uid://A002/X5a9a13/X725					
▼ Member OUS uid://A002/X5a9a13/X726	2020-06-22				
▶ SB NGC4038_88_12m_C32-4					
<input checked="" type="checkbox"/> readme		member.uid_A002_X5a9a13_X726.README.txt			
▼ <input checked="" type="checkbox"/> product		2012.1.00185.S_uid_A002_X5a9a13_X726_001_of_001.tar	275 MB	✓	
<input type="checkbox"/> product		member.uid_A002_X5a9a13_X726.HCOp_cube.fits	272 MB	✓	
<input type="checkbox"/> product		member.uid_A002_X5a9a13_X726.HCOp_line.fits	1 MB	✓	
<input type="checkbox"/> product		member.uid_A002_X5a9a13_X726.NGC4038-cont.fits	2 MB	✓	
<input checked="" type="checkbox"/> auxiliary		2012.1.00185.S_uid_A002_X5a9a13_X726_auxiliary.tar	1 GB	✓	
<input type="checkbox"/> raw		2012.1.00185.S_uid_A002_X5e8889_X214.asdm.sdm.tar	17 GB	✓	
<input type="checkbox"/> raw		2012.1.00185.S_uid_A002_X5e8f77_X1cc.asdm.sdm.tar	14 GB	✓	
<input type="checkbox"/> raw		2012.1.00185.S_uid_A002_X7e4988_Xe32.asdm.sdm.tar	19 GB	✓	
<input type="checkbox"/> raw		2012.1.00185.S_uid_A002_X7e72ba_X5e0.asdm.sdm.tar	27 GB	✓	
<input type="checkbox"/> raw		2012.1.00185.S_uid_A002_X7e72ba_X82a.asdm.sdm.tar	27 GB	✓	
<input type="checkbox"/> raw (semipass)		2012.1.00185.S_uid_A002_X5e7b34_X64e.asdm.sdm.tar	16 GB	✓	

CARTA visualization



CARTA: the Cube Analysis and Rendering Tool for Astronomy



- CARTA homepage <https://cartavis.github.io>
- EU ARC i-TRAIN <https://www.youtube.com/watch?v=K71rFeAhQ5o>
- if you need help write to help-desk@alma.inaf.it

CARTA preview

select one or more fits

The screenshot displays the CARTA software interface. A red box highlights the 'File' menu and the 'File Browser' window. The 'File Browser' window shows a directory structure with 'Simulations' containing two FITS files: 'HD_142527_IQUV.cube.fits' (288.0 MB) and 'HD_142527_IQUV.mfs.fits' (5.8 MB). The 'File Information' panel on the right provides details for the selected file: Name = HD_142527_IQUV.cube.fits, HDU = 0, Shape = [600, 600, 50, 4], Number of channels = 50, Number of stokes = 4, Coordinate type = Right Ascension, Declination, and Projection = SIN. The bottom of the interface shows a histogram of the data with a Gaussian fit, a color map, and a table of layers.

File Browser

home > paladino > 9_cycle2022

Filename	Type	Size
Simulations		
HD_142527_IQUV.cube.fits	FITS	288.0 MB
HD_142527_IQUV.mfs.fits	FITS	5.8 MB

Filter by filename with fuzzy search

File Information

Name = HD_142527_IQUV.cube.fits
HDU = 0
Shape = [600, 600, 50, 4]
Number of channels = 50
Number of stokes = 4
Coordinate type = Right Ascension, Declination
Projection = SIN

Close Load selected Load as hypercube

Render

90%

Value (Jy/beam)

Scaling: Linear

Color map: [Color bar]

Invert color map: [Toggle]

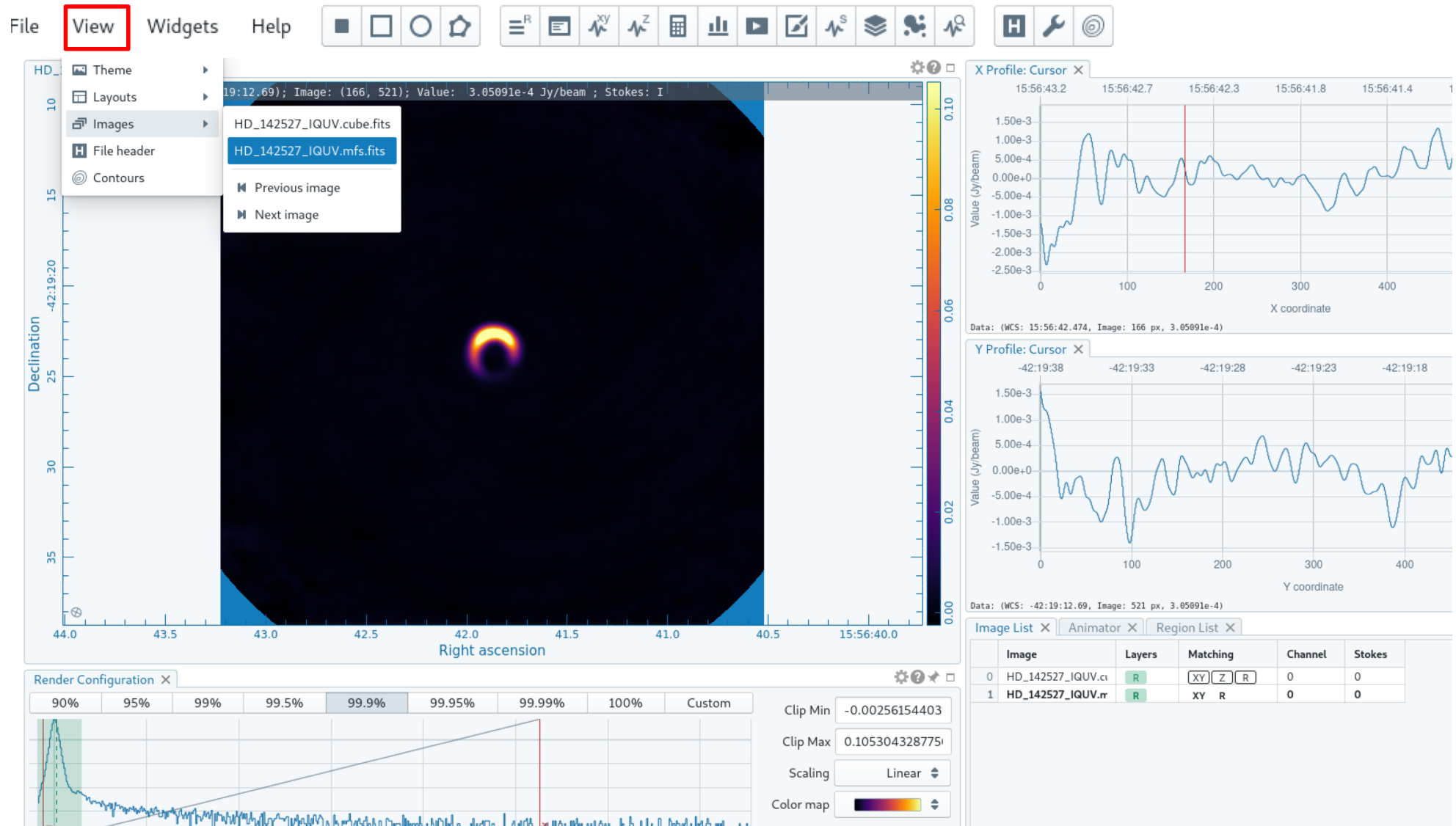
Clip Min: -0.009486

Clip Max: 0.0095822

Image	Layers	Matching	Channel
0 member.uid__A001>	R	XY Z	0

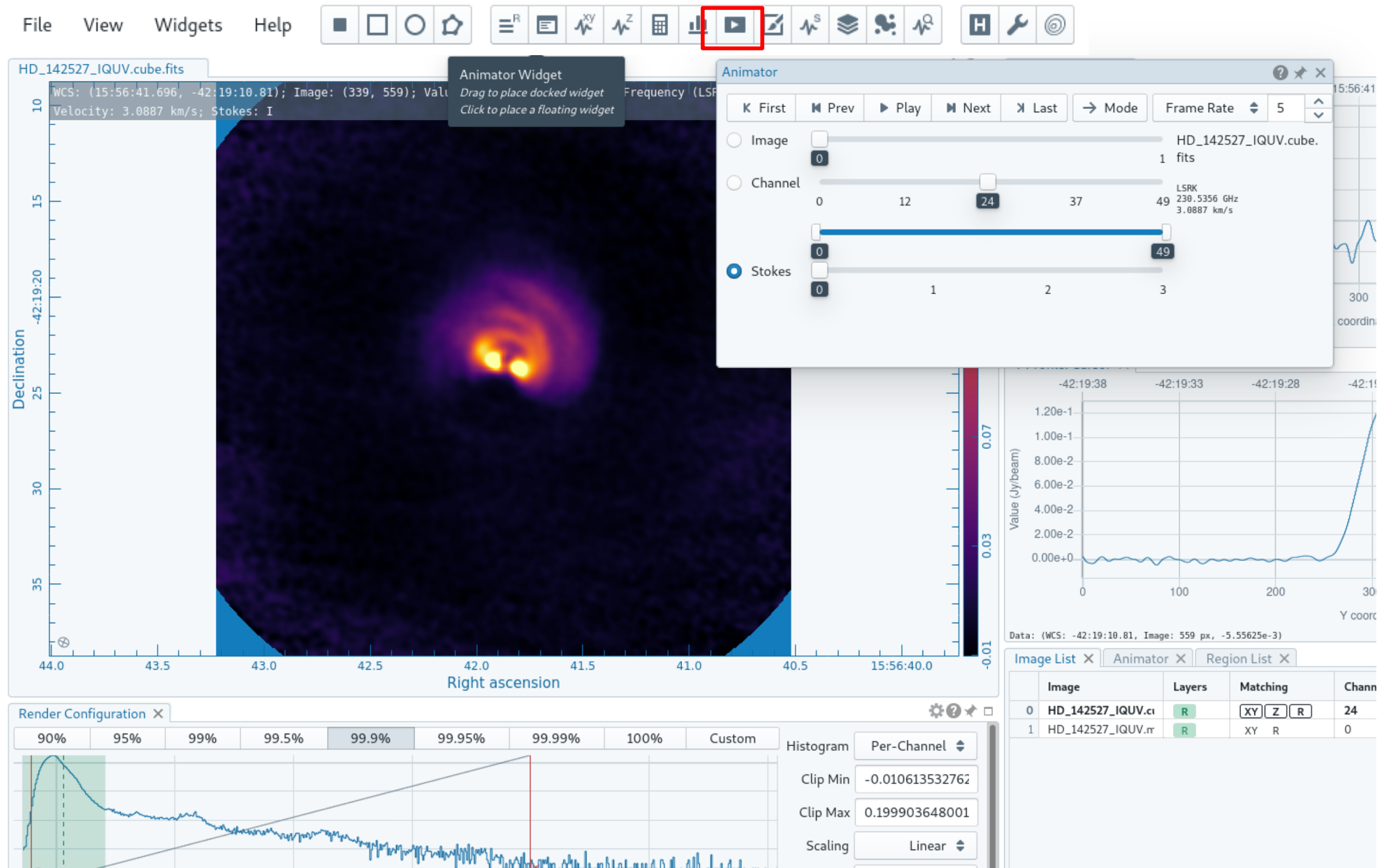
CARTA preview

switch between them



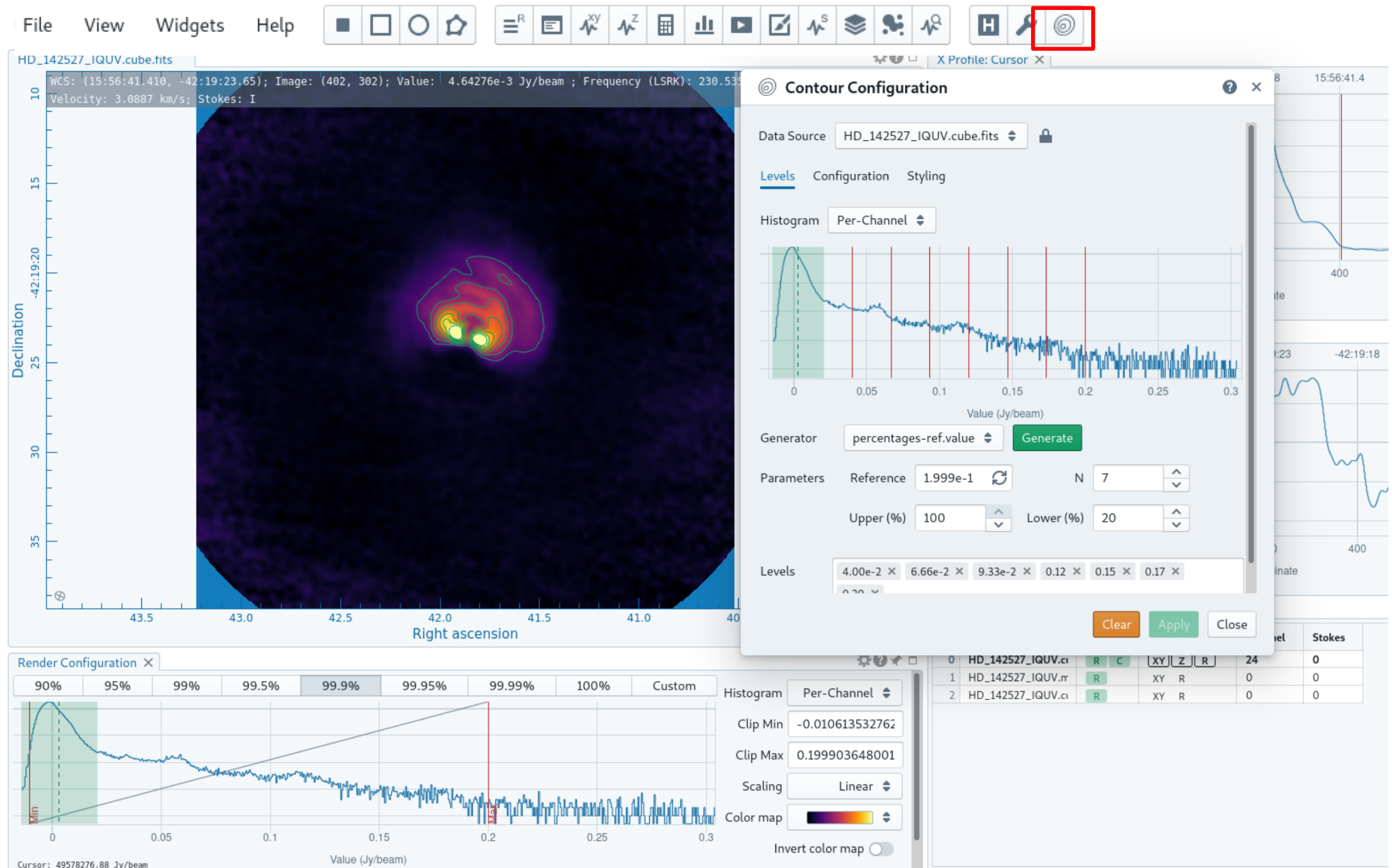
CARTA preview

switch between images channels and Stokes



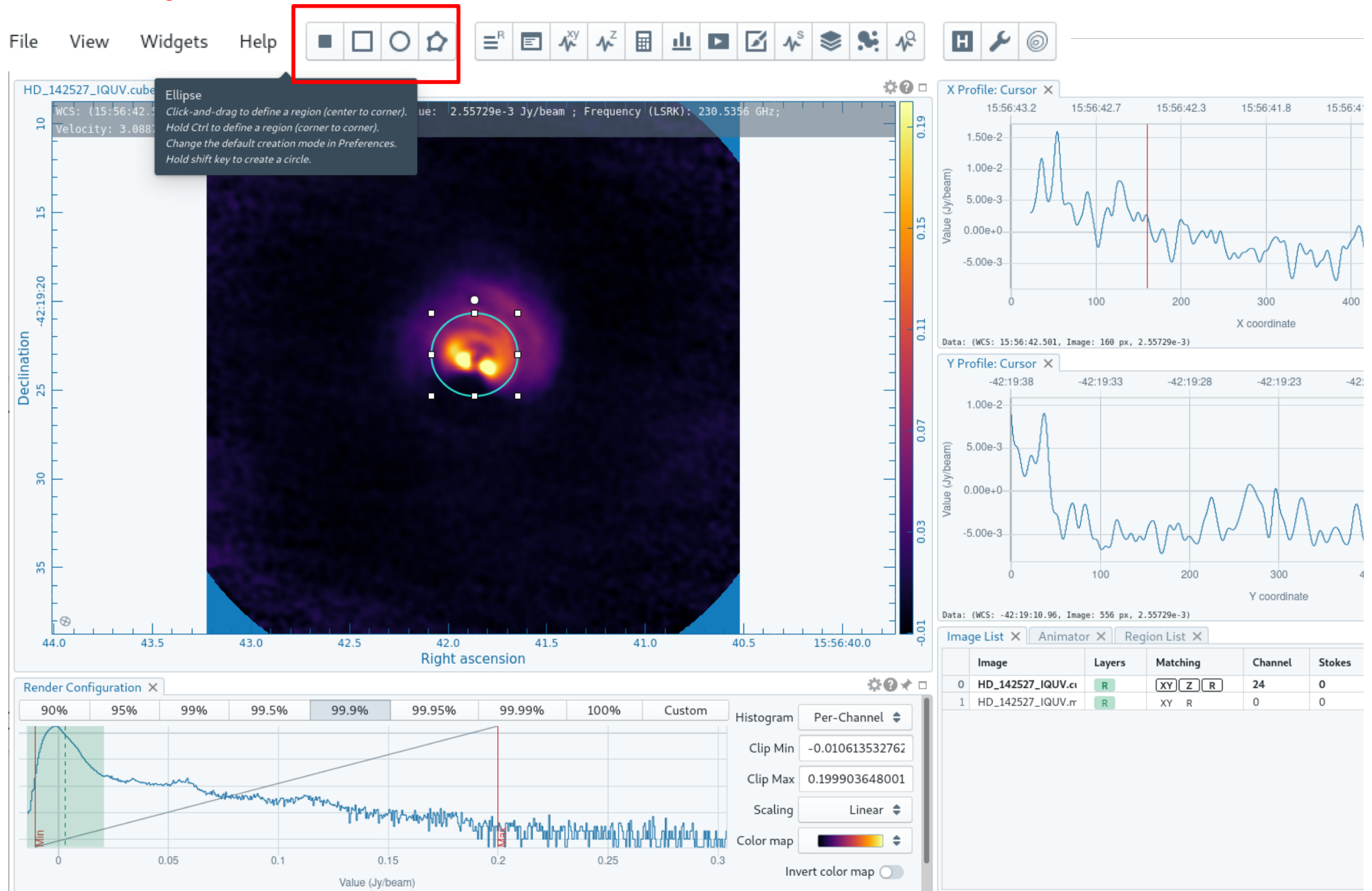
CARTA preview

draw contours



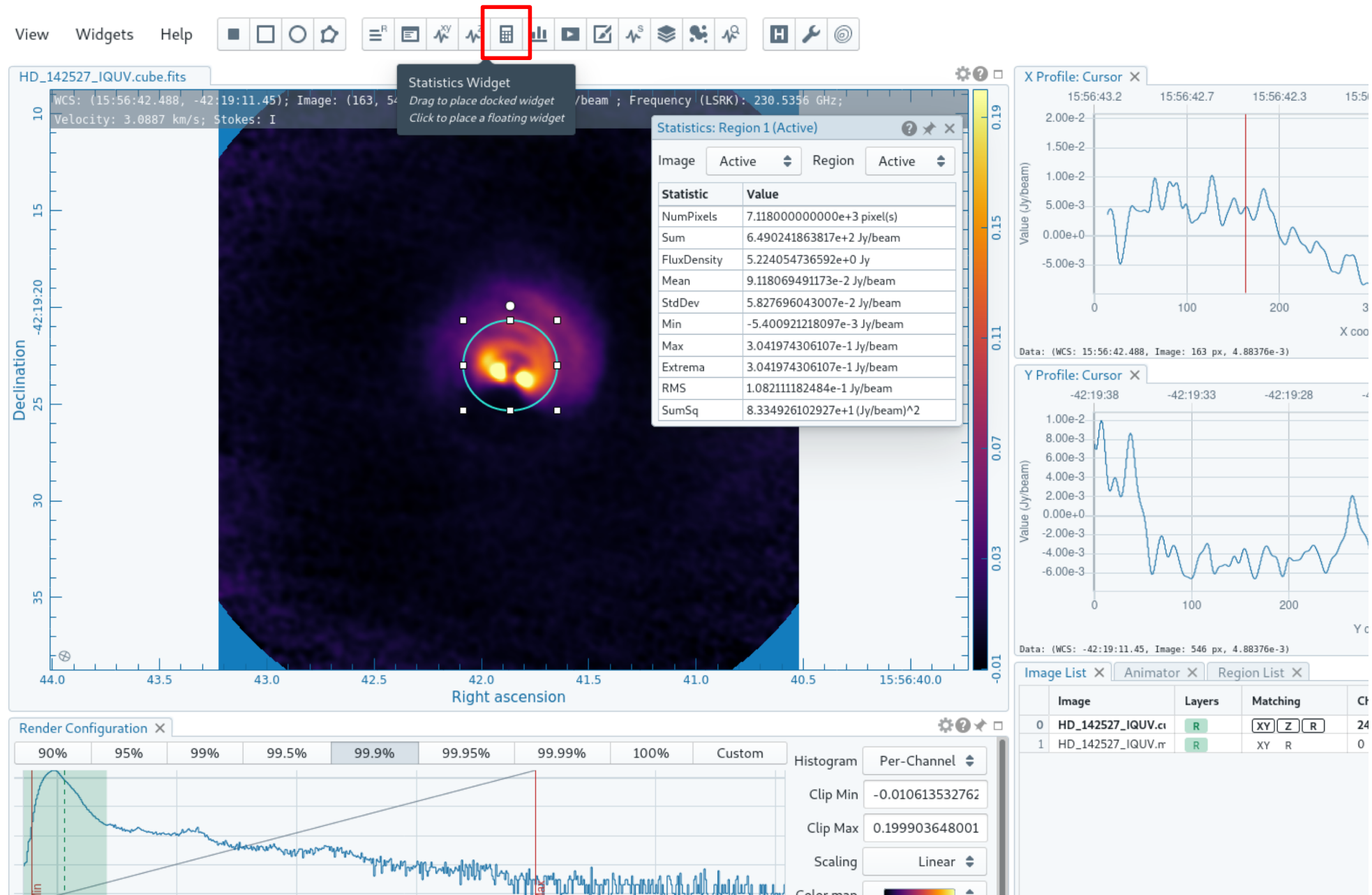
CARTA preview

draw regions



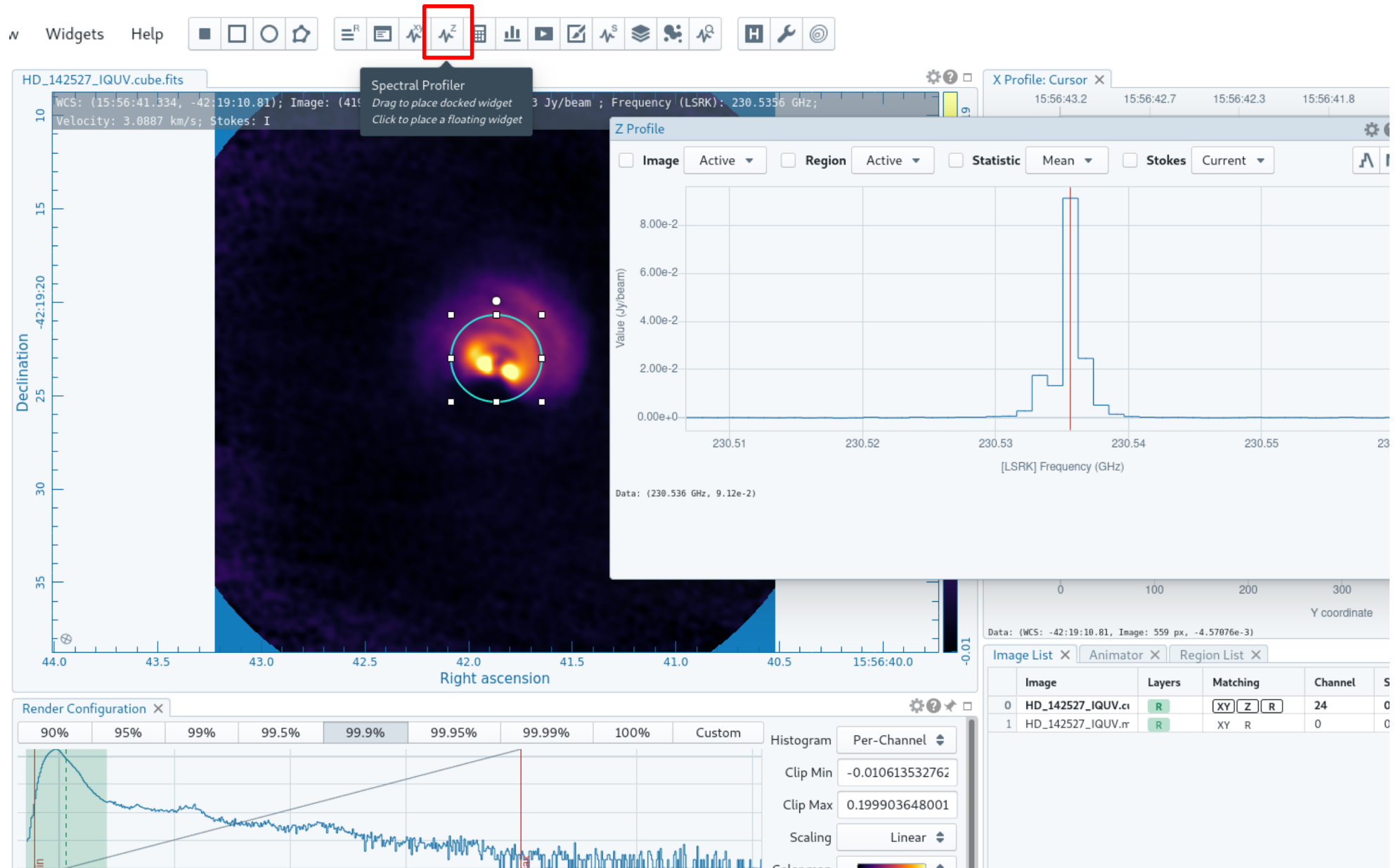
CARTA preview

compute statistics in the regions



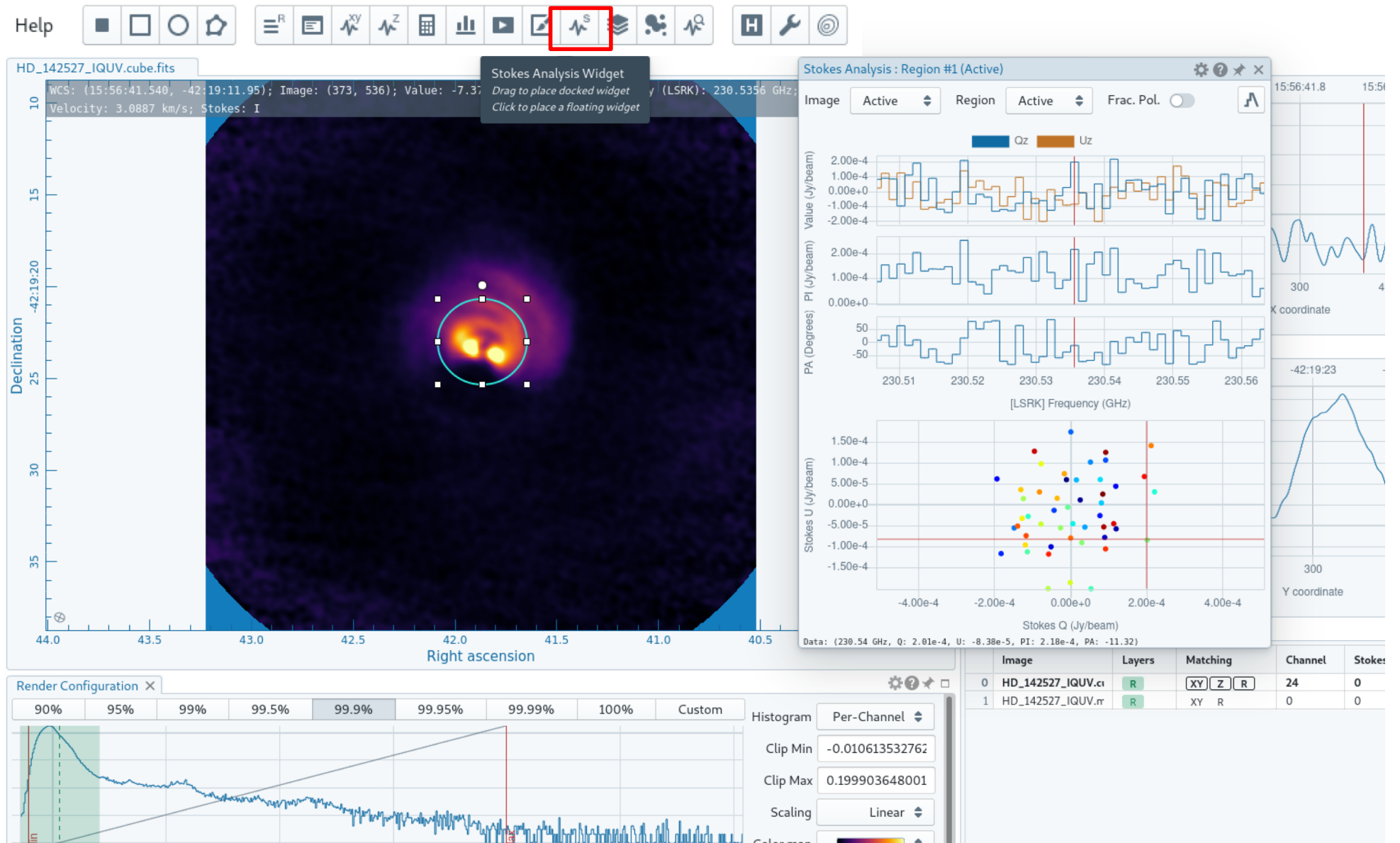
CARTA preview

extract spectrum from the region



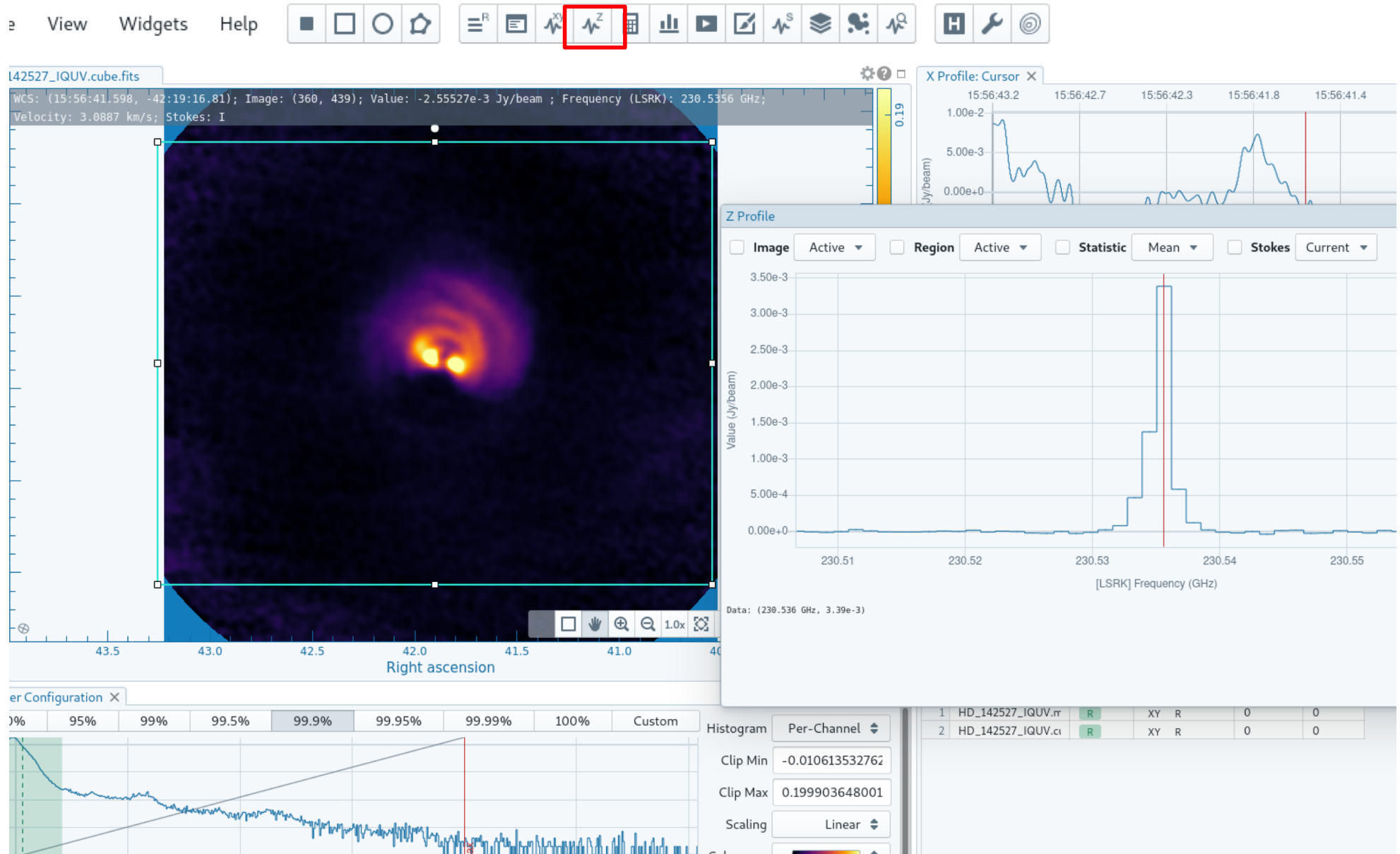
CARTA preview

Perform Stokes analysis in the region



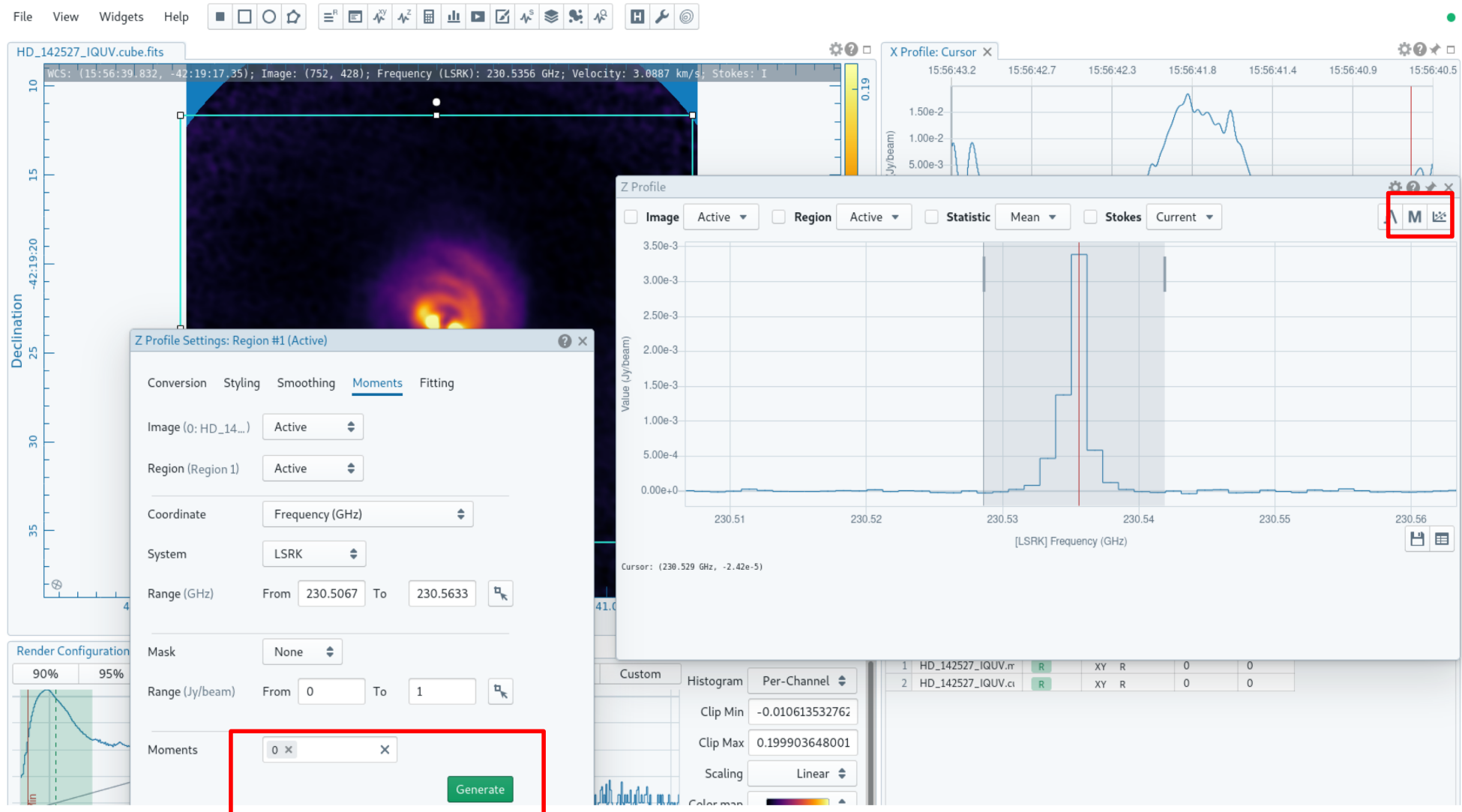
CARTA preview

Extract moments



CARTA preview

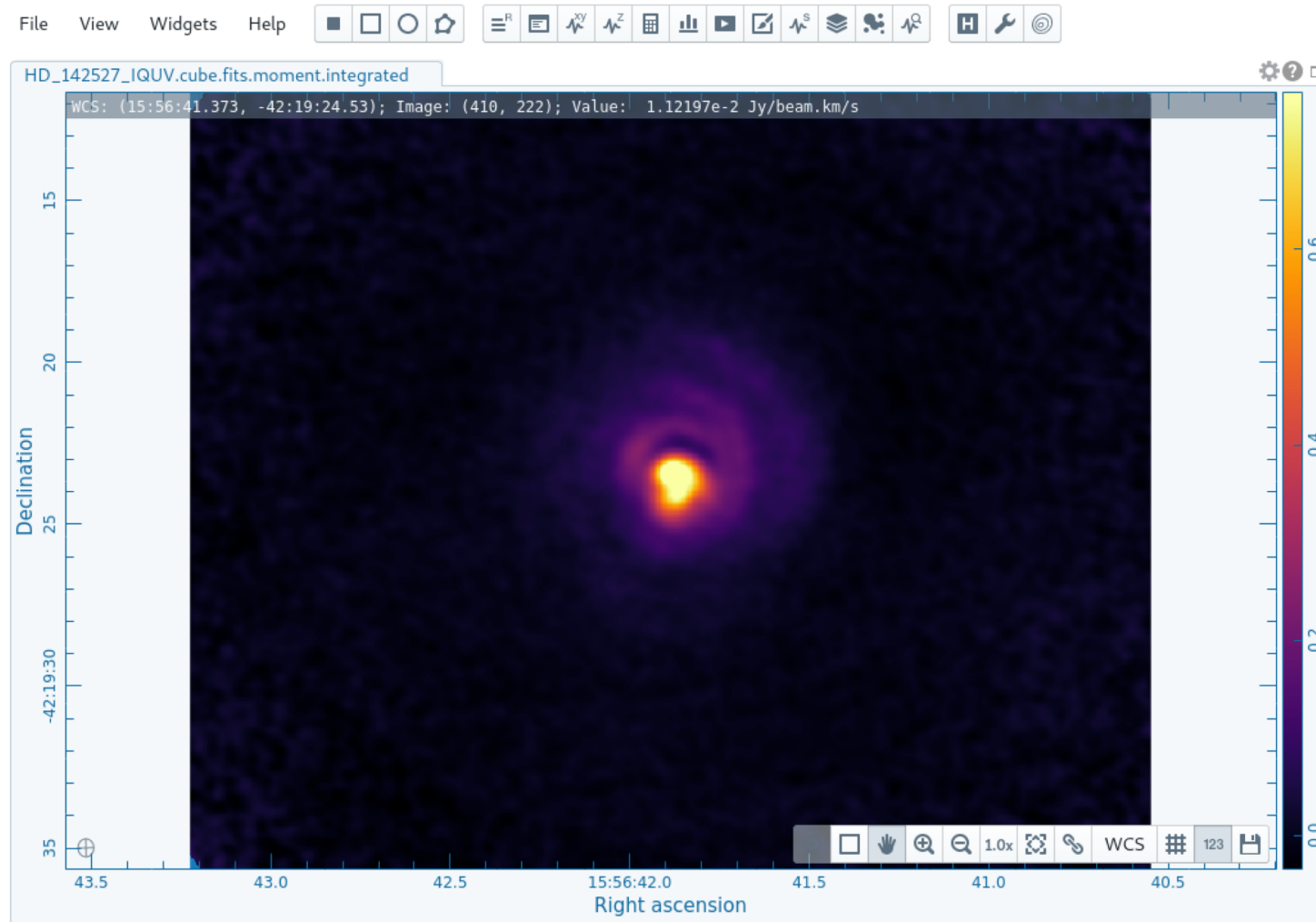
Extract moments
select interactively the frequency range



Generate moments

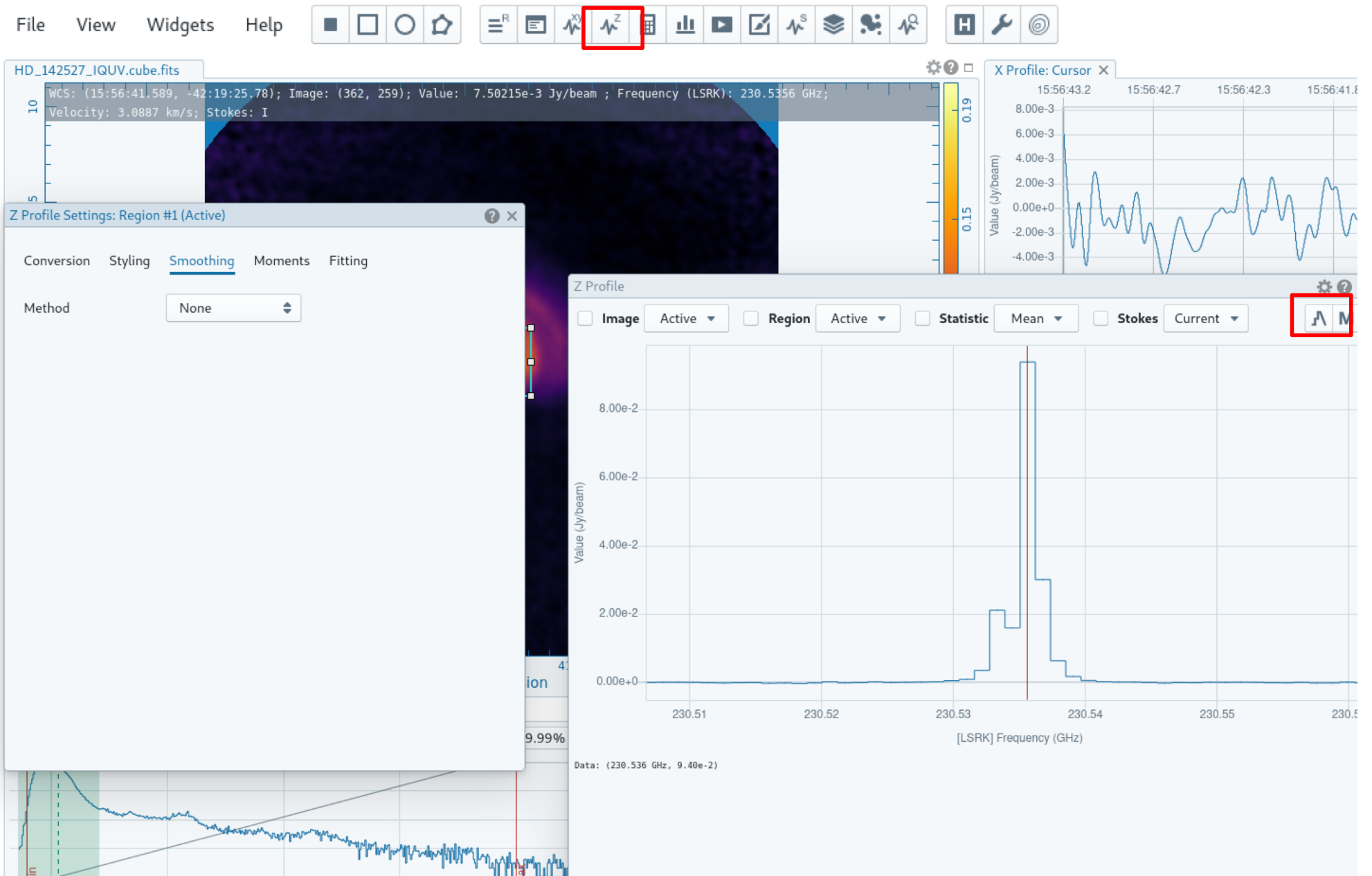
CARTA preview

The generated moment opens in the viewer



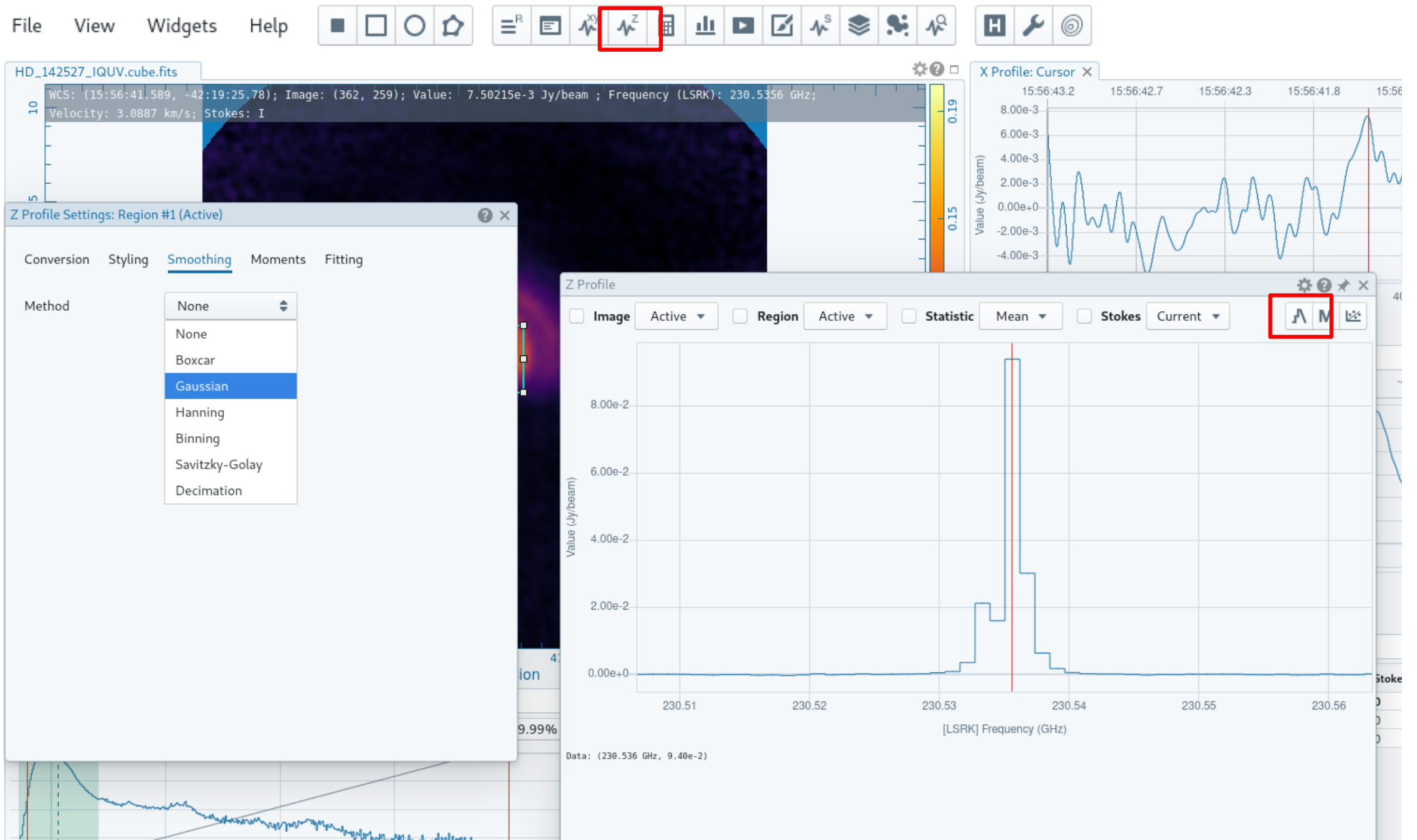
CARTA preview

Smooth spectral profile



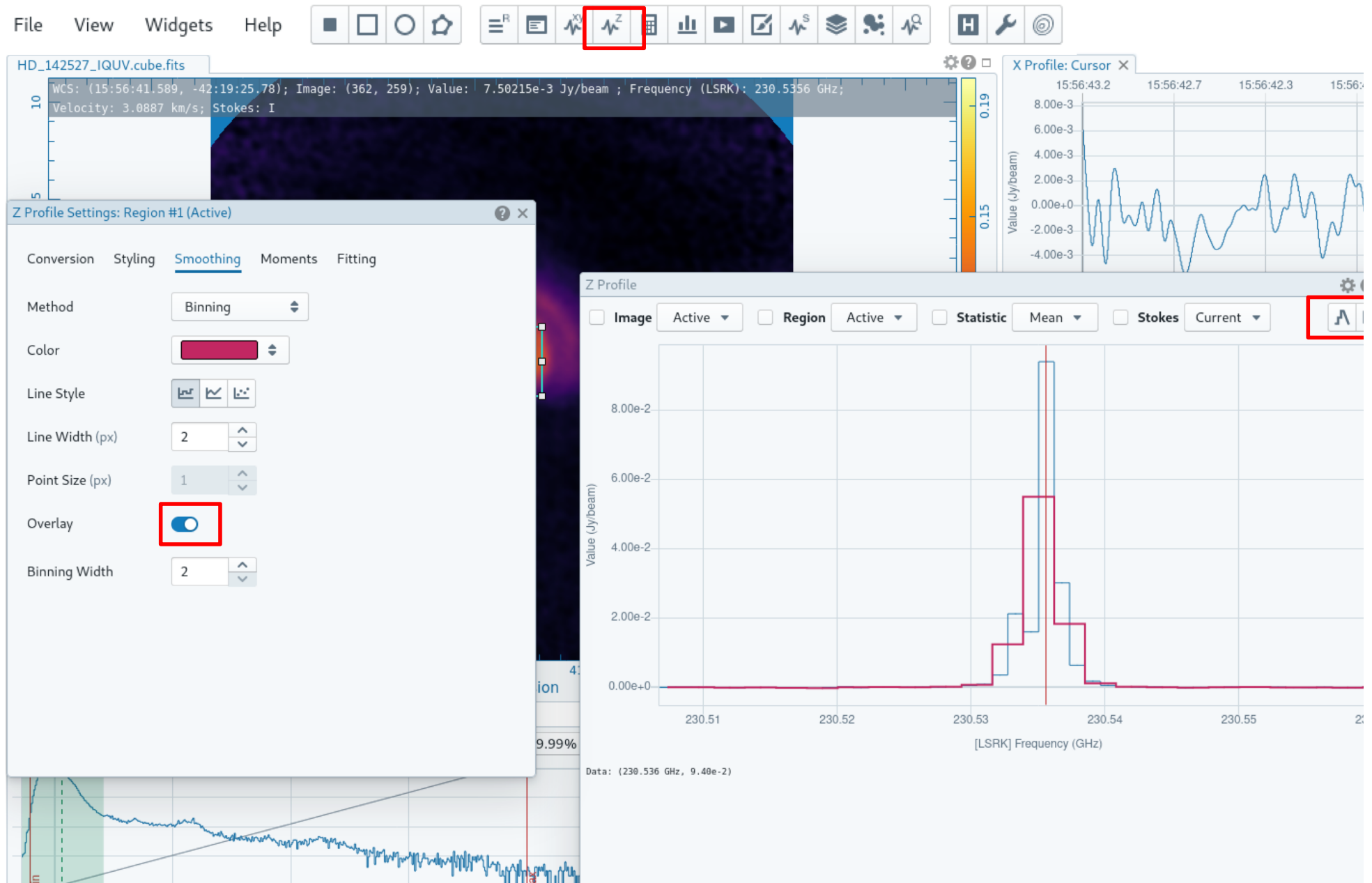
CARTA preview

Select smoothing method



CARTA preview

Overlay original and smoothed profile



Important dates

Event

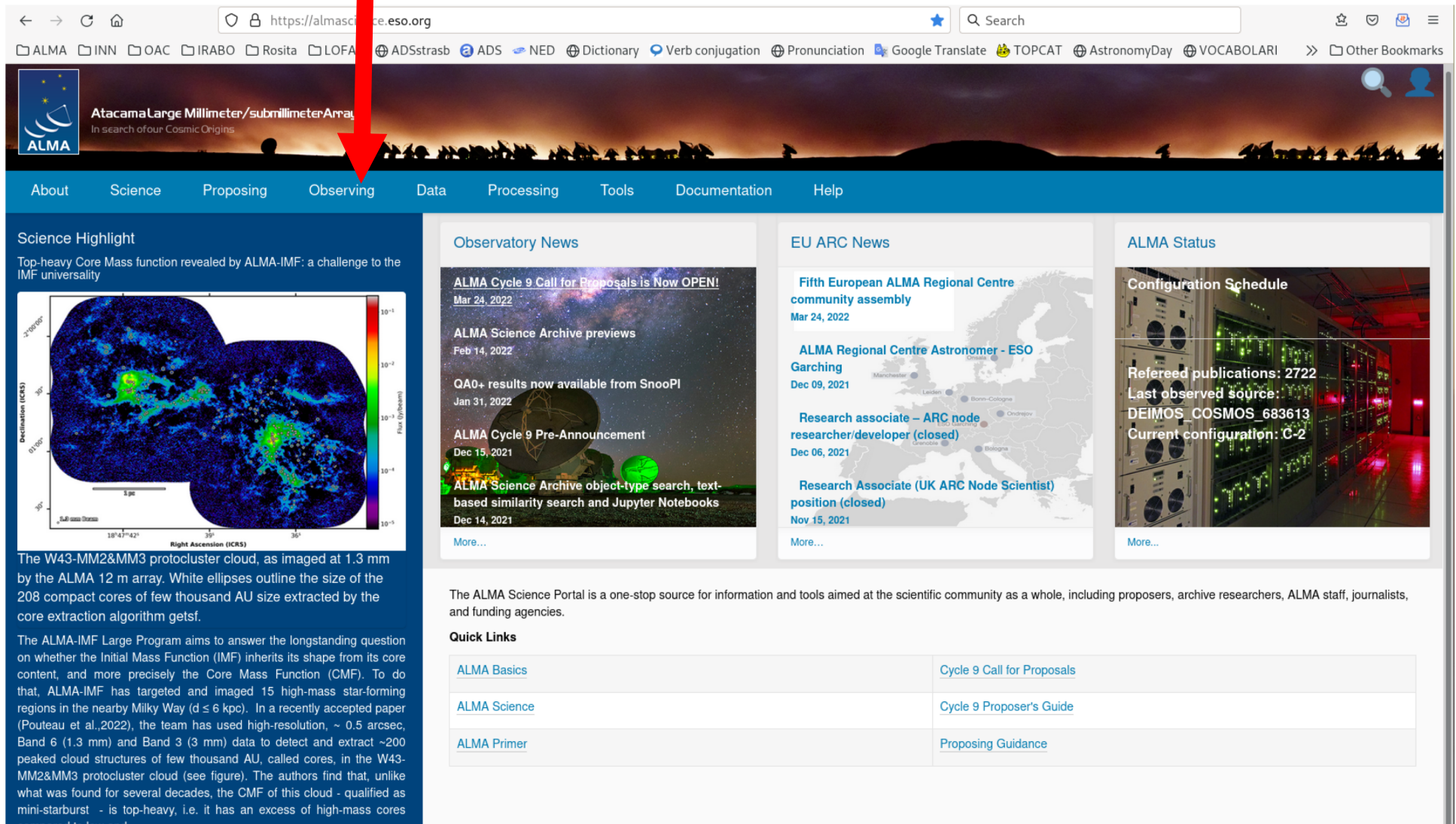
	24 March 2022 15:00 UT	Proposal submission opens + Release of Docs & Tools
	21 April 2022 15:00 UT	Proposal submission deadline
	1 June 2022 15:00 UT	Review submission deadline
	August 2022	Results of proposal review sent to proposers
	October 2022	Begin Cycle 9 observations
	September 2023	End of Cycle 9 observations

There will NOT be a supplemental CfP for stand-alone ACA

The ALMA Science Portal

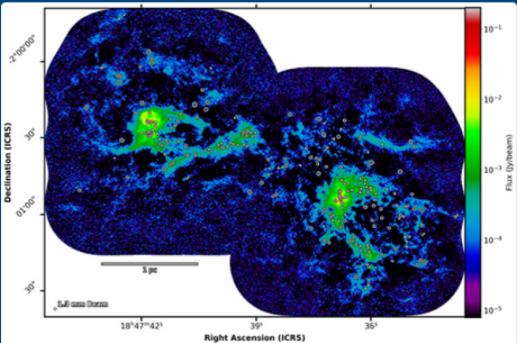
<https://almascience.eso.org>

Access SnooPI



The screenshot shows the ALMA Science Portal website. A red arrow points from the 'Access SnooPI' text to the 'Observing' tab in the navigation bar. The website features a header with the ALMA logo and the text 'Atacama Large Millimeter/submillimeter Array In search of our Cosmic Origins'. The navigation bar includes links for About, Science, Proposing, Observing, Data, Processing, Tools, Documentation, and Help. The main content area is divided into several sections: Science Highlight, Observatory News, EU ARC News, and ALMA Status. The Science Highlight section features a figure of the W43-MM2&MM3 protocluster cloud and a text description. The Observatory News section lists recent announcements. The EU ARC News section lists regional center news. The ALMA Status section provides configuration and observation details.

Science Highlight
Top-heavy Core Mass function revealed by ALMA-IMF: a challenge to the IMF universality



The W43-MM2&MM3 protocluster cloud, as imaged at 1.3 mm by the ALMA 12 m array. White ellipses outline the size of the 208 compact cores of few thousand AU size extracted by the core extraction algorithm getsf.

The ALMA-IMF Large Program aims to answer the longstanding question on whether the Initial Mass Function (IMF) inherits its shape from its core content, and more precisely the Core Mass Function (CMF). To do that, ALMA-IMF has targeted and imaged 15 high-mass star-forming regions in the nearby Milky Way ($d \leq 6$ kpc). In a recently accepted paper (Pouteau et al., 2022), the team has used high-resolution, ~ 0.5 arcsec, Band 6 (1.3 mm) and Band 3 (3 mm) data to detect and extract ~ 200 peaked cloud structures of few thousand AU, called cores, in the W43-MM2&MM3 protocluster cloud (see figure). The authors find that, unlike what was found for several decades, the CMF of this cloud - qualified as mini-starburst - is top-heavy, i.e. it has an excess of high-mass cores compared to low and

Observatory News

- ALMA Cycle 9 Call for Proposals is Now OPEN!
Mar 24, 2022
- ALMA Science Archive previews
Feb 14, 2022
- QA0+ results now available from SnooPI
Jan 31, 2022
- ALMA Cycle 9 Pre-Announcement
Dec 15, 2021
- ALMA Science Archive object-type search, text-based similarity search and Jupyter Notebooks
Dec 14, 2021

[More...](#)

EU ARC News

- Fifth European ALMA Regional Centre community assembly
Mar 24, 2022
- ALMA Regional Centre Astronomer - ESO Garching
Dec 09, 2021
- Research associate – ARC node researcher/developer (closed)
Dec 06, 2021
- Research Associate (UK ARC Node Scientist) position (closed)
Nov 15, 2021

[More...](#)

ALMA Status

Configuration Schedule

Refereed publications: 2722
Last observed source: DEIMOS_COSMOS_683613
Current configuration: C-2

[More...](#)

The ALMA Science Portal is a one-stop source for information and tools aimed at the scientific community as a whole, including proposers, archive researchers, ALMA staff, journalists, and funding agencies.

Quick Links

ALMA Basics	Cycle 9 Call for Proposals
ALMA Science	Cycle 9 Proposer's Guide
ALMA Primer	Proposing Guidance

SnooPI - The Snooping Project Interface

A software tool that allows PIs, Co-Is and Delegees to track the observational and processing status of their ALMA science projects

The screenshot displays the SnooPI web interface. On the left is a dark blue sidebar with navigation links: Home, My Projects, My SBs, QUICK LINKS (User Manual, Science Portal, Archive Query, Helpdesk), and logos for ESO, NRAO, and NAOJ. The main content area has a header with the ALMA logo, 'SnooPI', user information 'George Banks Executive: EU; ARC: EU', and buttons for 'Help' and a user icon. Below the header, project metadata is shown: 'Project Code: 2016.1.01234 .S', 'ARC node: Dutch (Allegro)', 'Contact scientist: Mary Poppins', and buttons for 'Download Proposal [pdf]' and 'Project report'. The central panel is divided into two columns. The left column shows a tree view of the project structure: 2016.1.01234 .S (expanded) -> A Supercalifragilisticexpialidocious proposal to observe the entire Universe -> Observing Program -> SG OUS -> Group OUS -> Member OUS (sz129) -> sz129_a_06_TM2 (selected) -> Member OUS (sz129) -> sz129_a_06_TM1 -> SG OUS (Carbon budget in Lupus...) -> Group OUS -> Member OUS (sz98) -> sz98_a_06_TM1. The right column displays detailed information for the selected block (sz129_a_06_TM1): Scheduling Block Name, Scientific Goal Name (SG OUS), Member ObsUnitSet (uid://A001/X879/X346), Array (12m), RA, Dec (15h 59m 16.5s, -41° 57' 10.3"), Pointing information (Multiple sources), Band (6), Representative Frequency, GHz (262.00), Nominal configuration (C40-5), Min/Max Angular Resolution [arcsec] (0.187 / 0.228), Successful Executions (1 / 3), and QA2 status (green checkmark). A table at the bottom shows execution details for the selected block.

End time	Duration [min]	Execution Block UID	QA0
2017-07-15 01:19:53	64.56	uid://A002/Xc2172b/Xe88	Report

Use **SnooPI** to follow the progress
of your **ALMA Projects!**


You can find SnooPI on the [ALMA Science Portal](#) under “Observing”



Please, send inputs and feedbacks at amiotell@eso.org or through the ALMA Helpdesk

USEFUL LINKS

<http://www.alma.inaf.it>



[Main page](#)
[About us](#)
[ARC staff](#)
[Areas of expertise](#)
[The ARC cluster](#)
[Contact us](#)

[Support and tools](#)
[User support](#)
[Software tools](#)

[Events and documents](#)
[Events](#)
[Publications](#)
[In the media](#)



[Lectures and thesis](#)
[Courses](#)
[Theses](#)

[ALMA useful links](#)
[ALMA Info](#)
[ALMA Science Portal](#)

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[Main page](#) [Discussion](#) [Read](#) [View source](#) [View history](#)

Italian ALMA Regional Centre



EUROPEAN ARC
ALMA Regional Centre || Italian

The Italian node of the European ALMA Regional Centre is hosted by the [Istituto di Radioastronomia](#) in Bologna and is one of the seven nodes that constitute the European network that provides technical and scientific support to ALMA users. The nodes operate in close collaboration with each other and with the [ALMA Regional Centre at ESO](#), Garching. Each node contributes its own specific expertise, in order to ensure that maximum advantage is taken of the European competences in the field of mm-astronomy and interferometry.

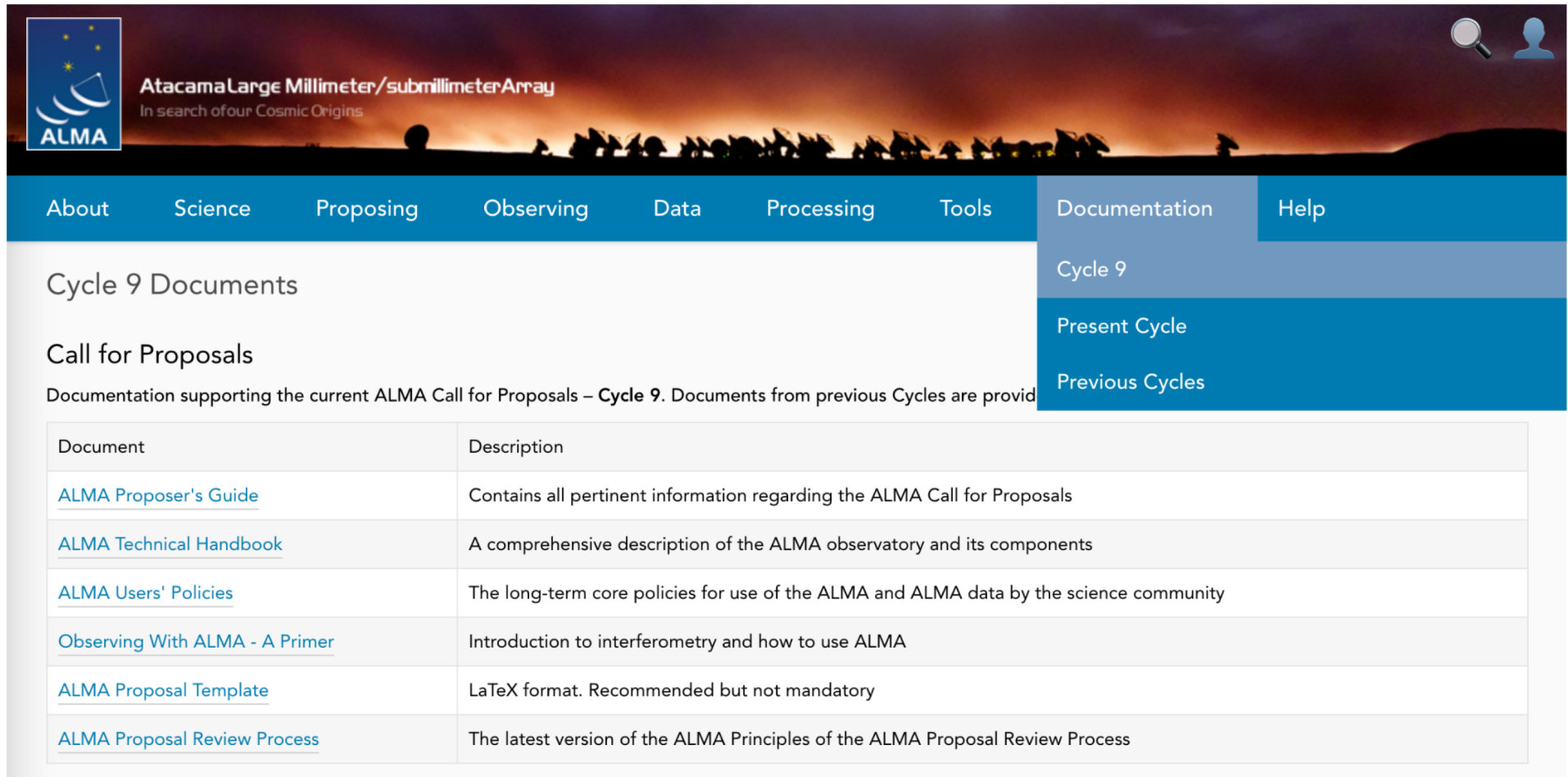
Our ARC node staff support the ALMA users in all the steps of their projects, by helping in

- ALMA proposal preparation and submission
- optimising the observing strategy
- tracking the project status
- reducing interferometric data with CASA
- archive mining
- handling large data sets
- polarimetry
- array combination
- mm-VLBI with ALMA

Italian ALMA Regional Centre @ INAF-IRA Bologna

USEFUL LINKS

<https://almascience.eso.org/documents-and-tools/cycle-9-documents>



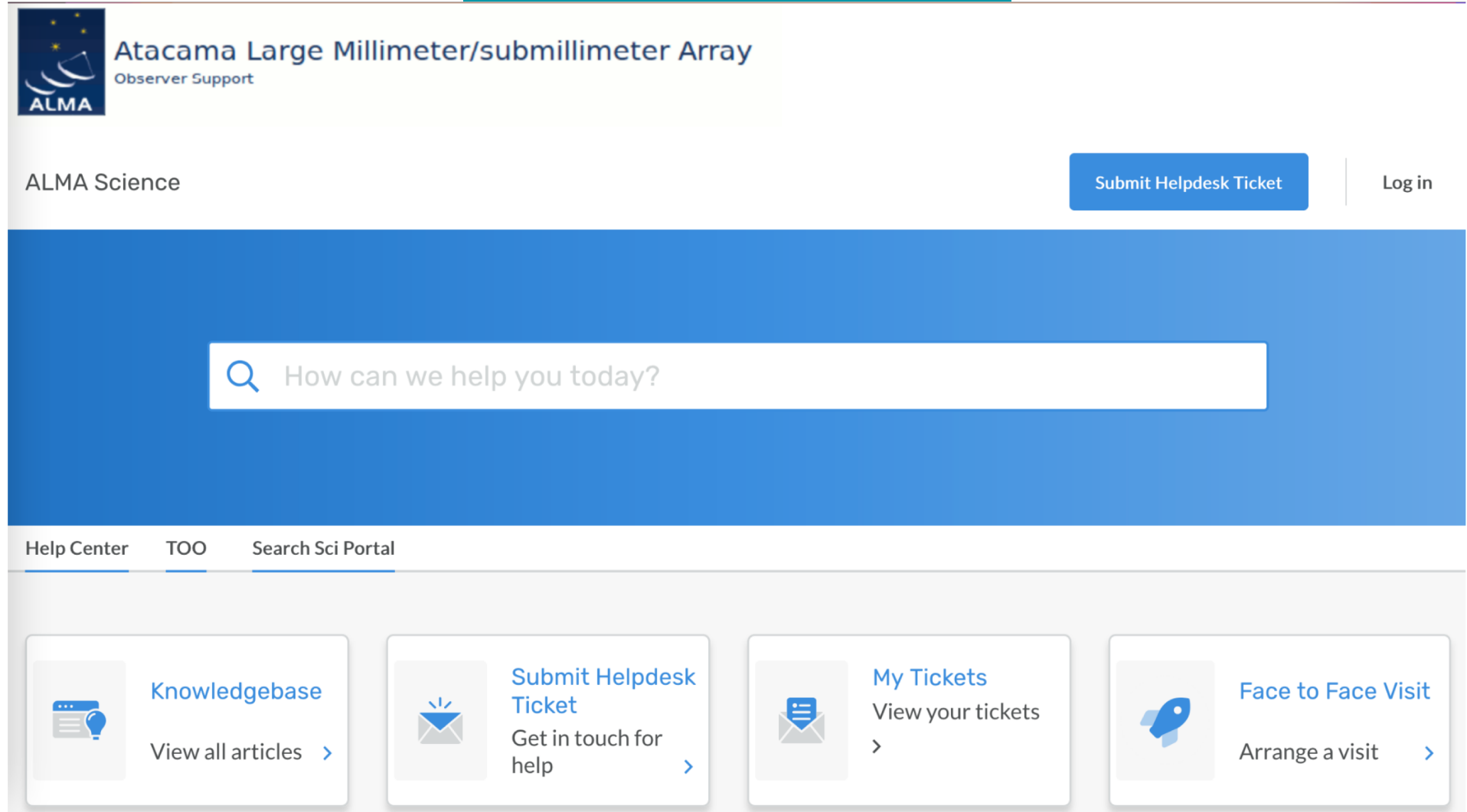
The screenshot shows the ALMA website header with the logo and tagline "Atacama Large Millimeter/submillimeter Array In search of our Cosmic Origins". The navigation bar includes links for About, Science, Proposing, Observing, Data, Processing, Tools, Documentation, and Help. The "Documentation" menu is open, showing "Cycle 9", "Present Cycle", and "Previous Cycles". The "Cycle 9 Documents" section is titled "Call for Proposals" and includes a sub-header "Documentation supporting the current ALMA Call for Proposals – Cycle 9. Documents from previous Cycles are provided". Below this is a table listing various documents and their descriptions.

Document	Description
ALMA Proposer's Guide	Contains all pertinent information regarding the ALMA Call for Proposals
ALMA Technical Handbook	A comprehensive description of the ALMA observatory and its components
ALMA Users' Policies	The long-term core policies for use of the ALMA and ALMA data by the science community
Observing With ALMA - A Primer	Introduction to interferometry and how to use ALMA
ALMA Proposal Template	LaTeX format. Recommended but not mandatory
ALMA Proposal Review Process	The latest version of the ALMA Principles of the ALMA Proposal Review Process

Cycle 9 documentation supporting the ALMA CfP

USEFUL LINKS

<http://help.almascience.org>



The screenshot displays the ALMA Science Helpdesk website. At the top left is the ALMA logo, featuring a stylized radio telescope dish and the text "ALMA". To its right, the text "Atacama Large Millimeter/submillimeter Array" is displayed in a large, dark blue font, with "Observer Support" in a smaller font below it. Below the logo and header text, the words "ALMA Science" are visible on the left. On the right side of the header, there is a blue button labeled "Submit Helpdesk Ticket" and a "Log in" link. A large blue banner spans the width of the page, containing a white search bar with a magnifying glass icon and the placeholder text "How can we help you today?". Below the banner, a navigation bar includes links for "Help Center", "TOO", and "Search Sci Portal". At the bottom, there are four white rectangular tiles with rounded corners. The first tile, titled "Knowledgebase", features a lightbulb icon and a link to "View all articles >". The second tile, titled "Submit Helpdesk Ticket", features an envelope icon and a link to "Get in touch for help >". The third tile, titled "My Tickets", features an envelope icon and a link to "View your tickets >". The fourth tile, titled "Face to Face Visit", features a rocket icon and a link to "Arrange a visit >".

ALMA Science

Submit Helpdesk Ticket

Log in

How can we help you today?

Help Center TOO Search Sci Portal

Knowledgebase
View all articles >

Submit Helpdesk Ticket
Get in touch for help >

My Tickets
View your tickets >

Face to Face Visit
Arrange a visit >

The ALMA Helpdesk website


USEFUL LINKS

<https://help.almascience.org/kb/articles/what-cycle-9-proposal-issues-and-clarifications-should-i-be-aware-of-before-submitting-my-prop>

Help C... > Knowledg... > Gen... > What Cycle 9 proposal issues and clarifications should I be aware of before submitting my proposal?

TOO



Search Sci ...



What Cycle 9 proposal issues and clarifications should I be aware of before submitting my proposal?

SW

Last updated: Mar 24, 2022 by Sarah Wood



Subscribe

Labels

CfP

Author

Sarah Wood

Date Created

Mar 3, 2022

This Knowledgebase article is a repository for information relevant to submission of Cycle 9 proposals. These items may affect how users write their proposals or set up their observations in the OT. The content may evolve rapidly as the 21 April 2022 proposal deadline approaches. Items added to this list after its initial deployment will include the date they were added. We encourage all PIs to check back here regularly prior to proposal submission.

[ALMA Cycle 9 Announcement](#)

Date	Milestone
24 Mar 2022	Release of the ALMA Cycle 9 CfP and Observing Tool, and opening of the archive for proposal submission
21 April 2022 (15:00 UT)	Proposal submission deadline
August 2022	Announcement of the outcome of the proposal review process process

Knowledgebase: Cycle 9 proposal issues & clarifications



EUROPEAN ARC
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Q & A session



thank you for attending



<http://www.alma.inaf.it>

help-desk@alma.inaf.it