



CARTA 3beta: Cube Analysis and Rendering Tool for Astronomy

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CARTA

Cube Analysis and Rendering Tool for Astronomy

Project: ASIAA, IDIA, NRAO, U Alberta

Webpage: <https://cartavis.org>

Github: <https://github.com/CARTAviz>

Goal: To build a high performance, versatile image viewer for astronomy

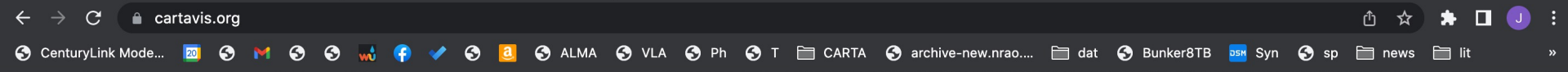
Current release version 2.0 (3 beta recommended)

Usage cases:

- CASA viewer replacement (excluding interactive clean and visibility display)
- Archive interface for images from SKA precursors, ALMA, NRAO SRDP
- Stand alone analysis tool
- Scriptable interface (publication ready images, interaction for analysis)
- Collaborative tool



CARTA on cartavis.org



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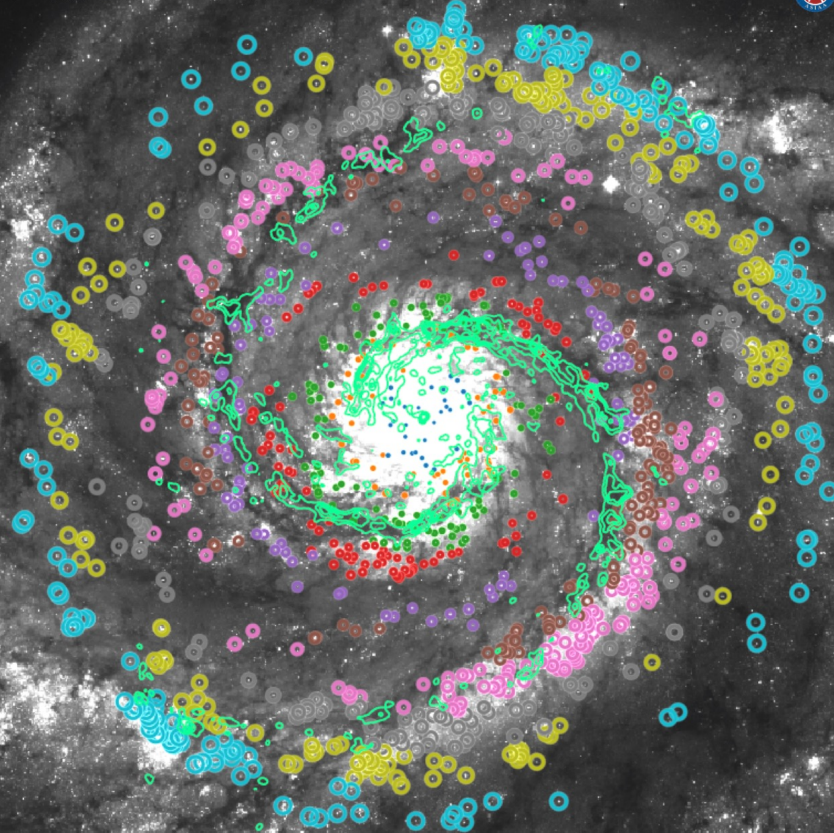
CARTA

Cube Analysis and Rendering Tool for Astronomy, is a next generation image visualization and analysis tool designed for ALMA, VLA, and SKA pathfinders.

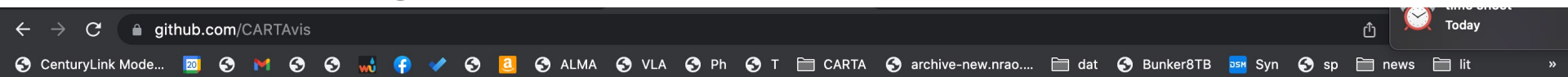
[Installation](#)

[User Manual](#)

NEW v3.0-beta.2b release is out



CARTA on github.com/CARTAviz



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CARTavis

<https://cartavis.org/> support@carta.freshdesk.com

 Overview

Repositories 33

Packages

 **People**

Projects 1

Pinned



carta Public

To CARTA users, this repo holds the CARTA release packages. Please use this repo to log bugs and feature requests. These will be triaged by the development team and prioritised as necessary in the ...

☆ 11

Repositories

🔍 Find a repository...

Type ▾

Language ▼

Sort ▼






carta-backend Public

Source code repository for the backend component of CARTA, a new visualization tool designed for the ALMA, the VLA and the SKA pathfinders.

● C++ ☆ 14 🍷 3 ☉ 82 🧩 6 Updated 4 hours ago

carta-frontend Public

Source code repository for the frontend component of CARTA, a new visualization tool designed for the ALMA, the VLA and the SKA pathfinders.

 TypeScript
  14
  4
  196 (1 issue needs help)
  5
 Updated 8 hours ago

People

This organization has no public members.
You must be a member to see who's a part of
this organization.

Top languages

● C++ ● Python ● TypeScript

- JavaScript
- Shell

CARTA

- A focus is on the performance for large datasets
 - Memory efficient image loading (1 TB cubes in seconds)
 - Parallelization and GPU-accelerated rendering
 - Progressive and responsive update of spectral profile
 - Tiled image rendering
- Works on CASA, fits, gzipped fits, MIRIAD, HDF5 image (cube) formats
- Image analysis tasks frequently (but not always) use CASA code to ensure consistency
- In remote version (recommended) it is run as a server, and connected to by one or multiple frontends in a browser
- A stand-alone version launches electron (which is a standalone browser emulator)
- OS: MacOS, Ubuntu, RHEL

CARTA

- Attention: VNC does not support webGL, use the browser version over VPN.
 - NRAO instructions:
<https://casadocs.readthedocs.io/en/latest/notebooks/carta.html>
 - Connect to VPN
 - Run “carta --no_browser” at NRAO
 - Copy and paste the URL in a local browser
 - (alternative ssh options are provided on NRAO instructions page)
 - (possible to set `LIBGL_ALWAYS_INDIRECT=1` in VNC session without VPN)
- CARTA server is considered for NRAO sites

CARTA Features

Viewing:

- Image rendering with (global) min/max clipping, scaling functions and color maps
- Image panning, zooming, etc.
- Multi-panel (3beta)
- Hardcopy
- Image/region saving
- Image blinking
- Image WCS matching spatially and spectrally
- Contours with different generators, colors, color maps
- Catalog overlays
- Setting of rest frequency
- 3-beta3
 - Vector overlays
 - Complex image display
 - LEL image arithmetic before display
 - Generating computed polarization quantities (eg. linear polarization intensity) of a Stokes cube on the fly
 - Setting a new rest frequency when saving a subimage

CARTA Features

Tools/Analysis:

- Regions: rotating box, ellipses, polygons, line, point, polyline
- Spatial (X,Y) and spectral (Z) profiles
- Spectral profiles can convert spectral axis labels (velocity, frequency, wavelength)
- Histogram
- Image/Region Statistics
- Stokes analysis widget
- Moment generator
- pV diagram (3beta)
- Spectral line labelling
- Spectral smoothing
- Distance measuring tool (3beta)
- Intensity conversion (3beta)
- 3-beta3:
 - 2D Gaussian fitting of sources in image
 - Line and polyline region spectral profiler

CARTA Features

Other:

- Server-client infrastructure for remote image access
- Server authentication
- Tiled rendering for performance
- Docking and Preferred layouts and layout saving
- Basic scripting is under active development

CASAvviewer vs CARTA

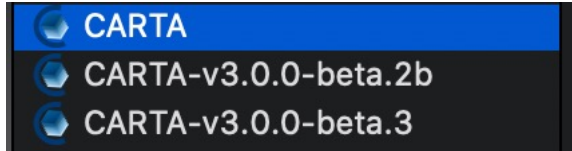
Gaps relative to CASAvviewer (green: CARTA development underway; black: future CARTA development; red: likely not implemented in CARTA)

- **Position-velocity map generator** → under development for v3
- **Complete set of fitting tools** → spectral: multiple Gaussians and Lorentzians already available with continuum polynomial; spatial: 2D Gaussian fit in v3-beta3
- Source finder tool
- **Tabular axis support** → under development
- **Spectral profile error bar plotting** (MUSE/optical feature in CASA)
- Partial image cube loading
- Image and profile annotation
- Rotated cube view (input as ra-dec-channel, view as ra-channel vs dec)
- Scalable output (SVG or PDF)
- Creation of multi-channel plots
- **Ability to reapply rest frequency for velocity conversion** → 3 beta
- Regions that extend across spectral and stokes planes
- Histogram fitting
- **Complex Image support** → available in 3beta3
- **Multi-panel display** → available in v3-beta1
- **Distance measuring tool** → available in v3-beta1
- **Markers** → they have not been widely used in the CASAvviewer
- **Interactive clean** → CASA will develop a visualization tool independent of CARTA
- **Vector overlays** → available in v3-beta3
- Full support of CRTF → was not even supported by the CASAvviewer
- Save/reload states
- **Saving sub-images** → done

CARTA – Start

MacOX installed stand-alone:

carta (or click the icon in the Applications folder)



Linux or remote (beta version needs to be downloaded from cartavis.org first):

(base) jott@Desktop ~> **CARTA-v3.0.0-beta.3-redhat7.ApplImage --no_browser**

touch: cannot touch '"/>

File loading

CARTA

File View Widgets Help

No image loaded

X Profile: Cursor

Image Active Region Active

1.00e+0
8.00e-1
6.00e-1

6 0.7 0.8 0.9 1

6 0.7 0.8 0.9 1

6 0.7 0.8 0.9 1

Render Configuration

File Browser

Users > jott > Documents > CARTA > demo

Filename	Type	Size	Date
fft-cube.im	CASA	251.0 MB	26 May 2021
fft.test	CASA	4.4 MB	26 May 2021
IRC10216.36GHzcont.image.fits	FITS	368.6 kB	29 Sep 2020
IRC10216_HC3N.cube_r0.5.image	CASA	19.4 MB	5 Jan 2020
IRC10216_HC3N.cube_r0.5.image-copy	CASA	19.4 MB	18 Mar 2020
IRC10216_HC3N.cube_r0.5.image.fits	FITS	18.7 MB	18 Mar 2020
IRC10216_HC3N.cube_r0.5.image.mir	Miriad	19.3 MB	18 Mar 2020
m82-car-2000.fits	FITS	4.0 MB	18 Mar 2020
m82-tan-2000.fits	FITS	4.0 MB	18 Mar 2020
NGC628_dss.fits	FITS	371.5 kB	9 Nov 2020
NGC628_galex.fits	FITS	371.5 kB	9 Nov 2020
NGC_628_CUBE-bin3.image	CASA	79.8 MB	9 Nov 2020
NGC_628_CUBE.image	CASA	251.0 MB	9 Nov 2020
NGC_628_NA_CUBE_THINGS.copy.fits	FITS	247.7 MB	26 May 2021
NGC_628_NA_CUBE_THINGS.copy.mir	Miriad	243.3 MB	26 May 2021
NGC_628_NA_CUBE_THINGS.copy.mir-manipulated	Miriad	243.3 MB	26 May 2021

Filter by filename with fuzzy search

Fuzzy search

Close Load

File Information Header

Name = IRC10216.36GHzcont.image.fits
HDU = 0
Shape = [300, 300, 1, 1]
Number of channels = 1
Number of polarizations = 1
Coordinate type = Right Ascension, Declination
Projection = SIN
Image reference pixels = [151, 151]
Image reference coords = [09:47:57.3820, +013.16.40.6600]
Image ref coords (deg) = [146.989 deg, 13.278 deg]
Pixel increment = -0.4", 0.4"
Pixel unit = Jy/beam
Celestial frame = FK5, J2000
Spectral frame = LSRK
Velocity definition = RADIO
Restoring beam = 2.81862" X 1.53258", -19.1115 deg

No file loaded

Load a file using the menu

No file loaded

Load a file using the menu

Help

? = help menu

1) Navigation

- Pan image: click
- Pan image (inside region): middle-click
- Pan image (inside region): cmd click
- Zoom image: mouse-wheel

2) Regions

- Toggle region creation mode: C
- Toggle current region lock: L
- Unlock all regions: \uparrow shift L
- Delete selected region: del
- Delete selected region: backspace
- Deselect region/Cancel region creation: esc
- Switch region creation mode: cmd
- Symmetric region creation: \uparrow shift
- Region properties: double-click

3) Frame controls

- Next image: alt]
- Previous image: alt [
- Next channel: alt \uparrow up
- Previous channel: alt \downarrow down
- Next Stokes cube: alt \uparrow shift \uparrow up

Help

The screenshot displays the CARTA v3beta (2022) software interface. The main window shows a radio astronomy image of NGC 628 (the 'Eagle' nebula) with axes for Right ascension and Declination. A yellow callout box with the text "Help available for each widget" is overlaid on the image. To the right, a panel titled "Image View" provides detailed help for the image viewer widget.

Image View

The image viewer widget serves as the core component of CARTA. It allows you to visualize images in rasters and in contours. Region of interests can be defined interactively with the image viewer and subsequent image analysis can be performed with other widgets. Catalogue files can be loaded and visualized in the image viewer with the Catalogue widget.

Images can be loaded via **File -> Open image** (will close all loaded image first). You may load multiple images via **File -> Append image**. All images are loaded as raster by default. Contour layers can be further generated via the contour configuration dialog.

Information of world coordinates and image coordinates at the cursor position is shown at the top of the image viewer. To freeze/unfreeze the cursor position, press **F** key.

Image tool buttons

A set of tool buttons is provided at the bottom-right corner when hovering over the image viewer. You may use these buttons to

- Select a source from catalog overlay
- Create regions
- Change image zoom scale
- Trigger WCS matching
- Change grid overlay reference frame
- Enable/disable grid lines and coordinate labels
- Export image

Catalog selection

- Create region
- Pan and select mode
- Zoom in
- Zoom out
- Zoom to fit screen resolution

Image List

Image
0 NGC_628_N

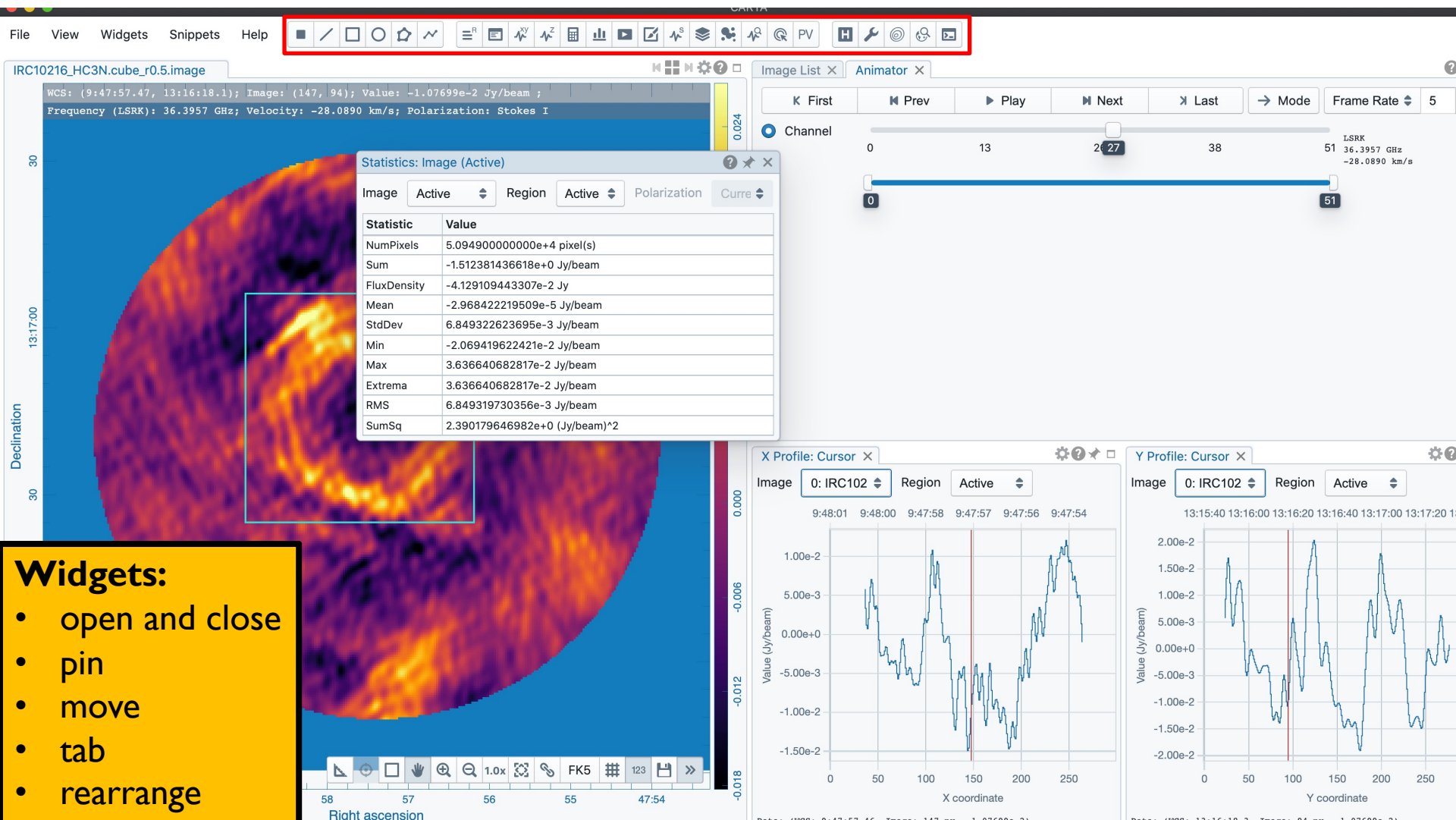
Export image

- Toggle labels
- Toggle grid
- Overlay coordinate
- WCS matching
- Zoom to fit image view

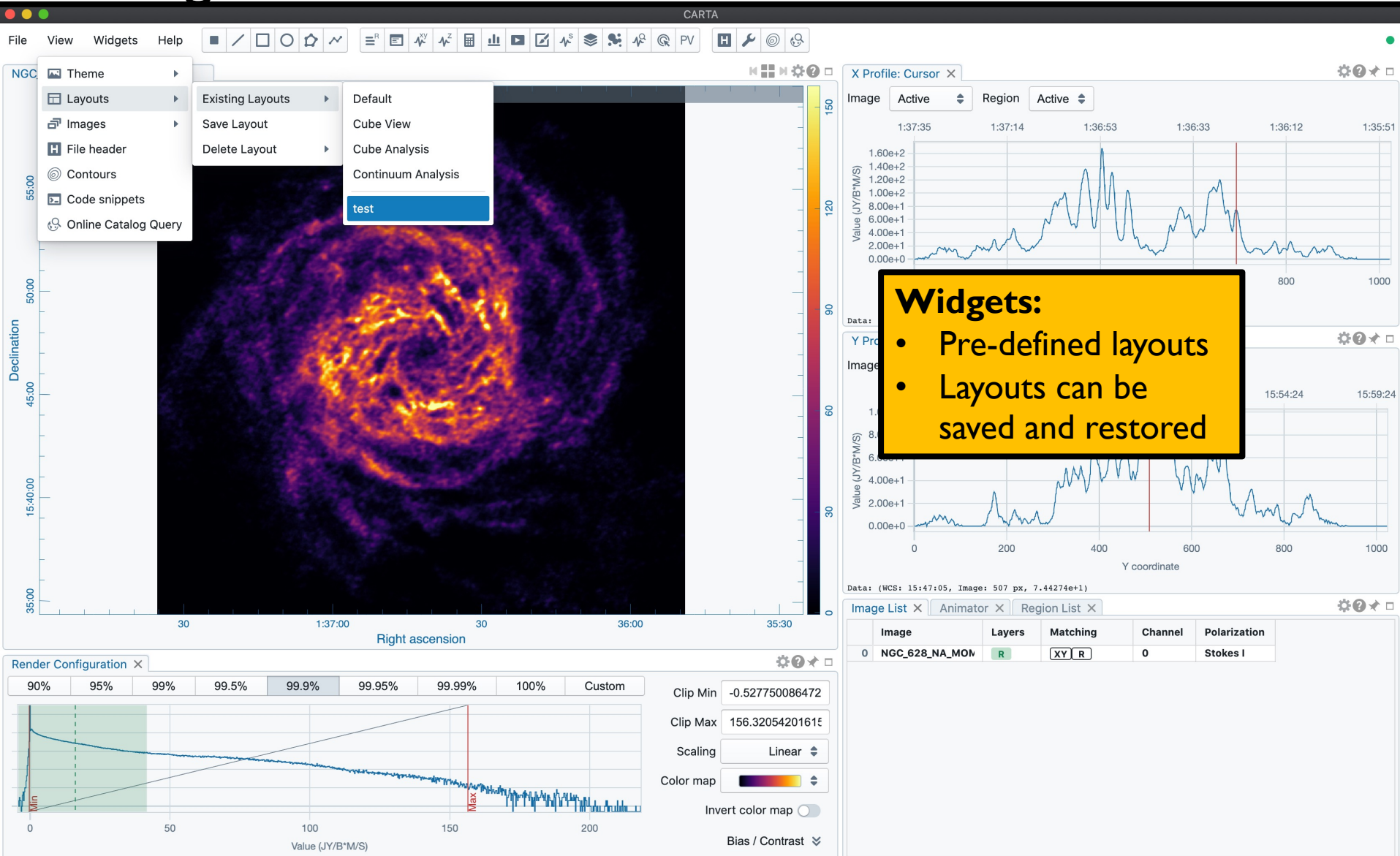
Zoom and pan

Zoom actions can be triggered in different ways. The most common one is to use mouse and scroll wheel. By scrolling up, image is zoomed in, while by scrolling down, image is zoomed out. Alternatively, you may use the tool buttons at the bottom-right corner of the image viewer to zoom in, zoom out.

Widgets



Widgets



Widgets

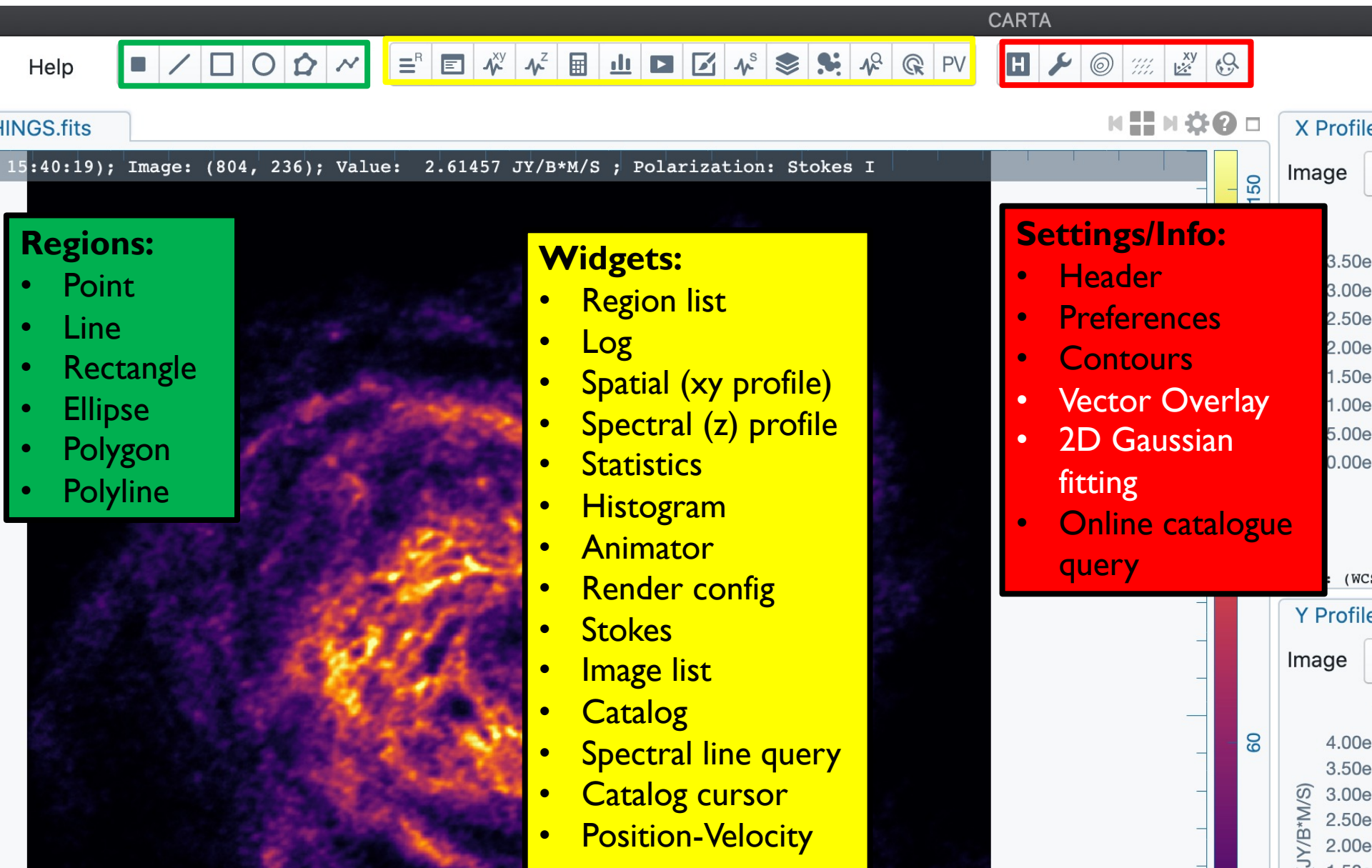
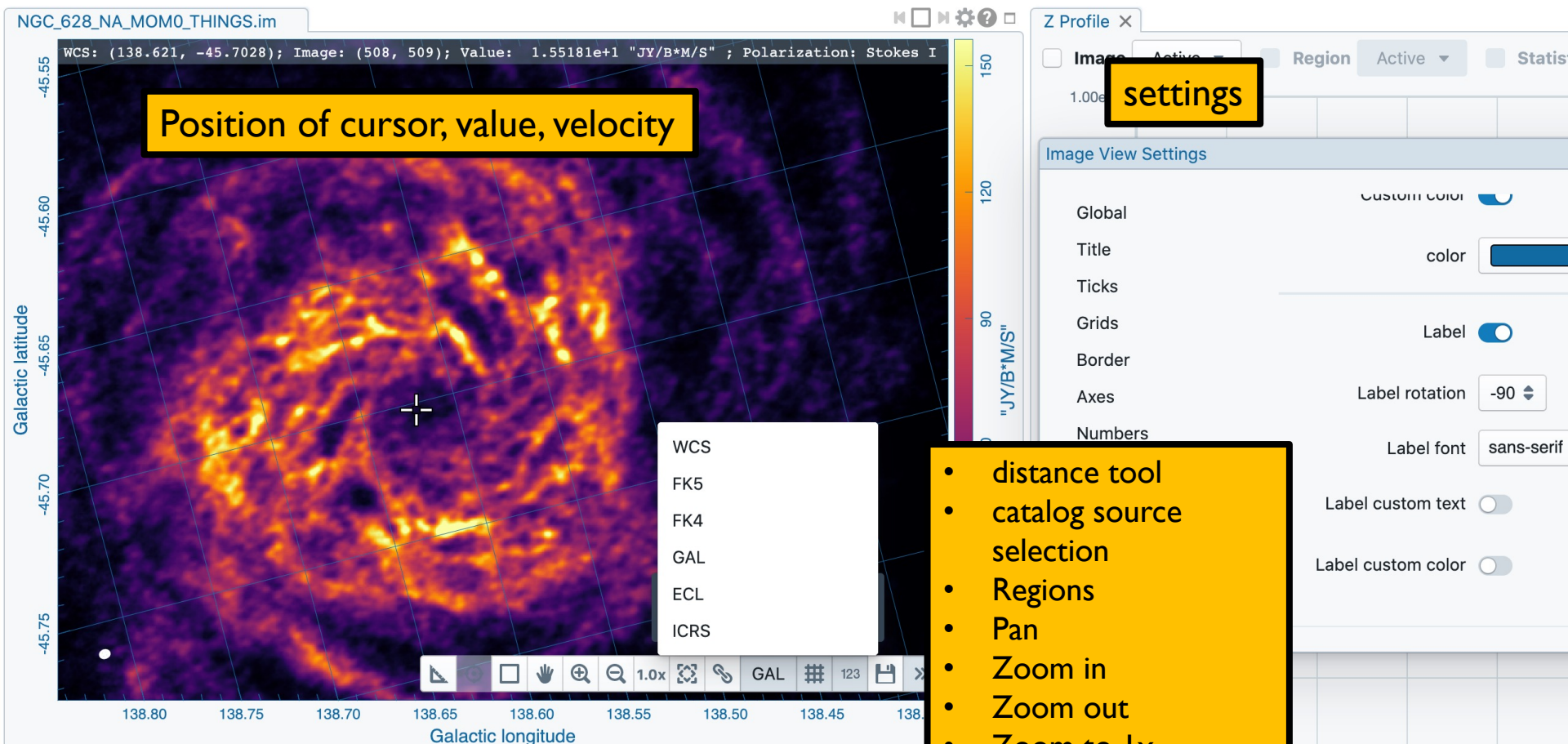


Image display widget



- distance tool
- catalog source selection
- Regions
- Pan
- Zoom in
- Zoom out
- Zoom to 1x
- Zoom to fit
- WCS matching
- Overlay coordinate
- Grid
- Labels
- Export

Distance Measurement

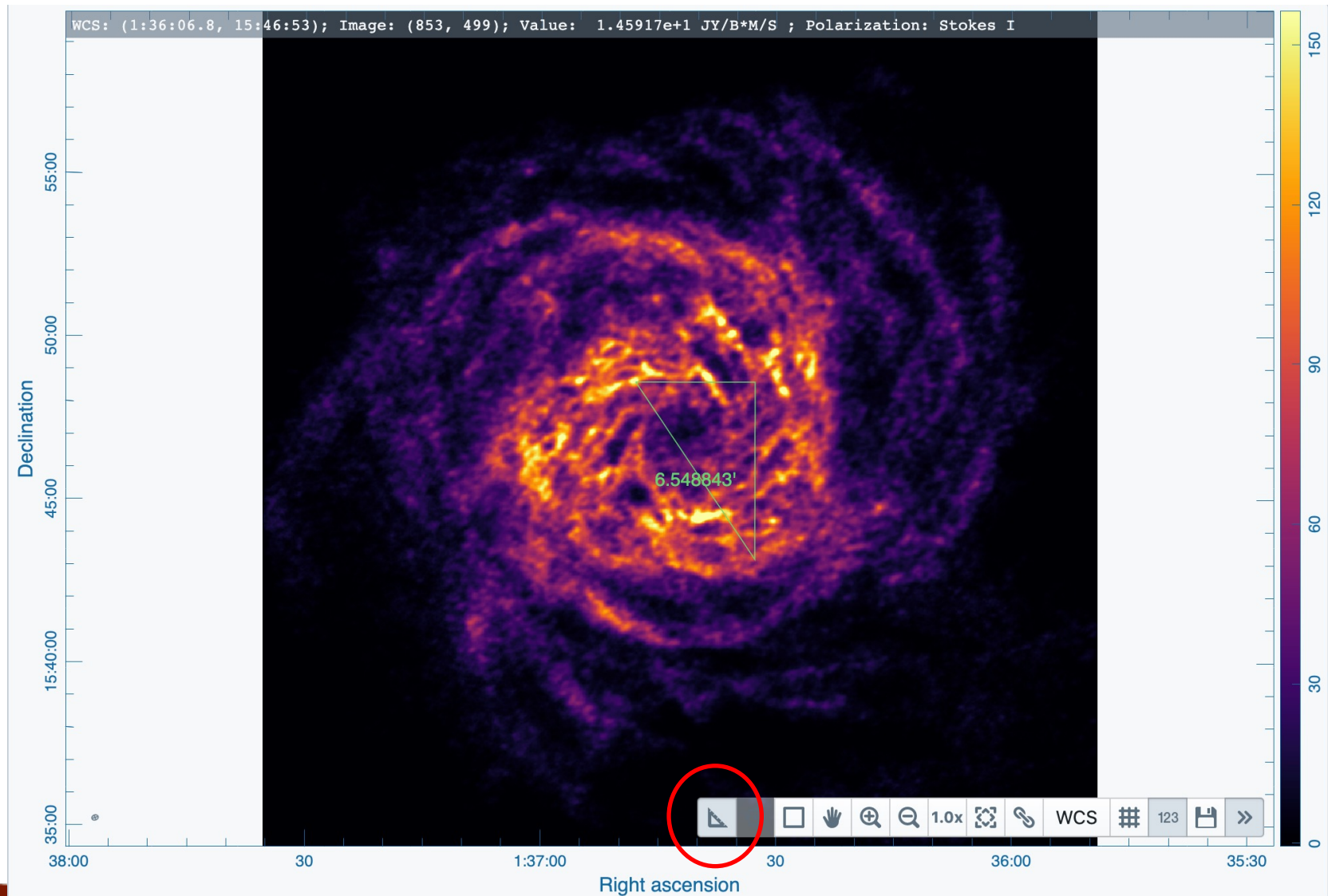


Image display widget - multipanel

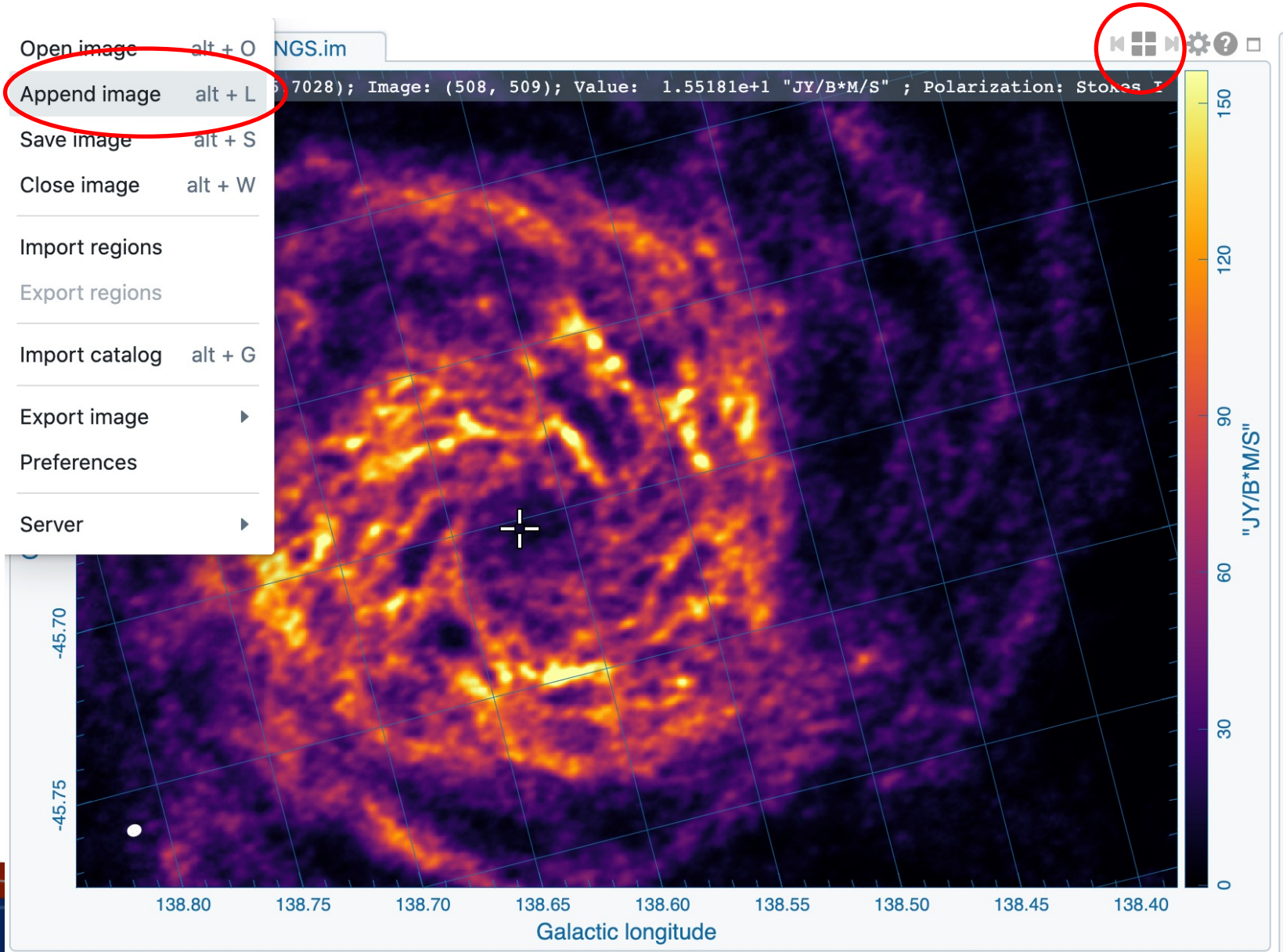


Image display widget - multipanel

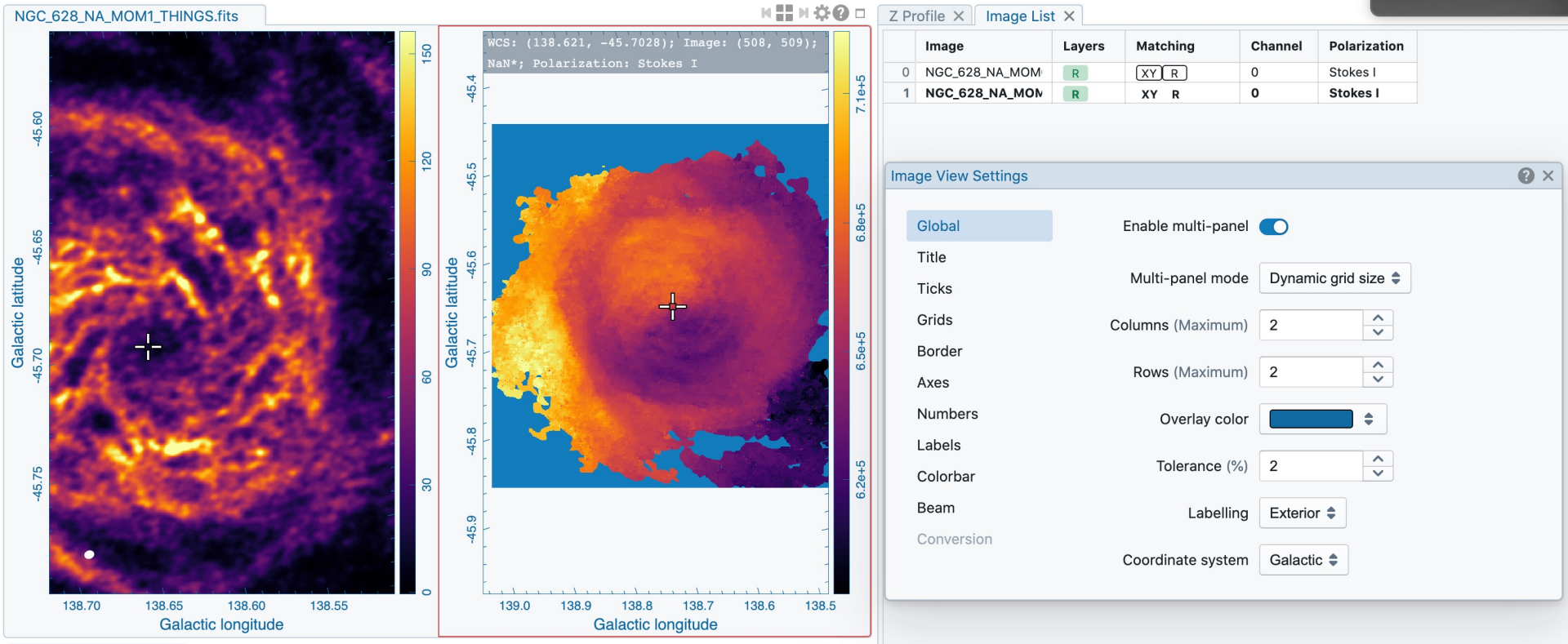
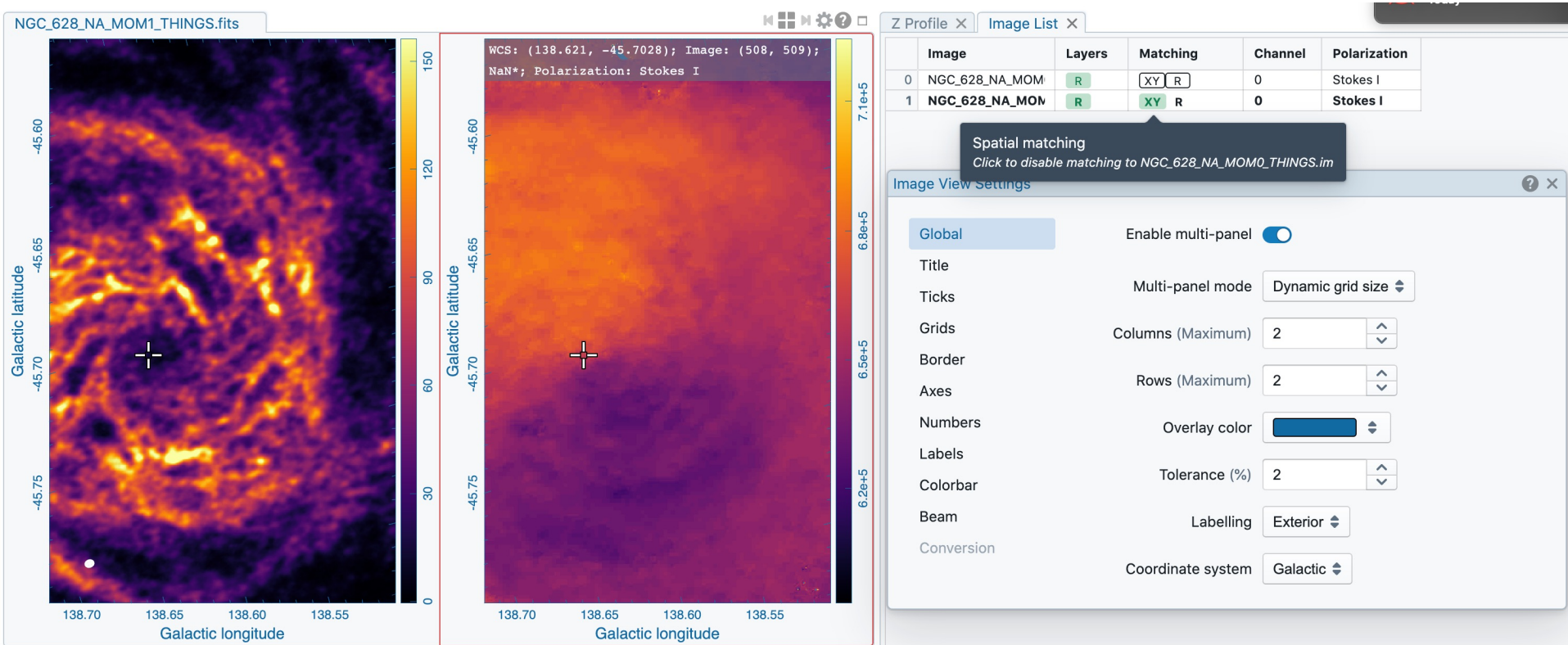


Image display widget - multipanel

WCS image registration will align coordinates of different images
Master is outlined; aligned images in green
Alignment in XY (spatial) and/or Z (spectral), and or R (color scale)



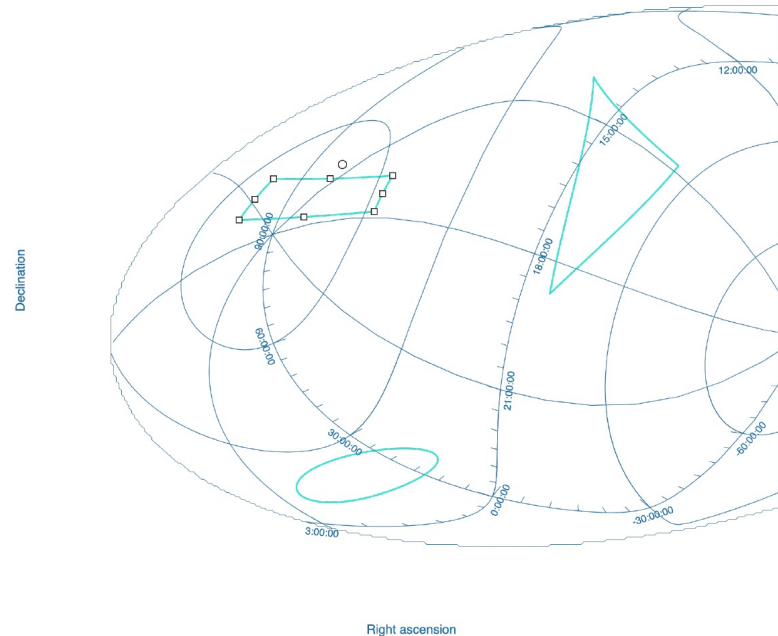
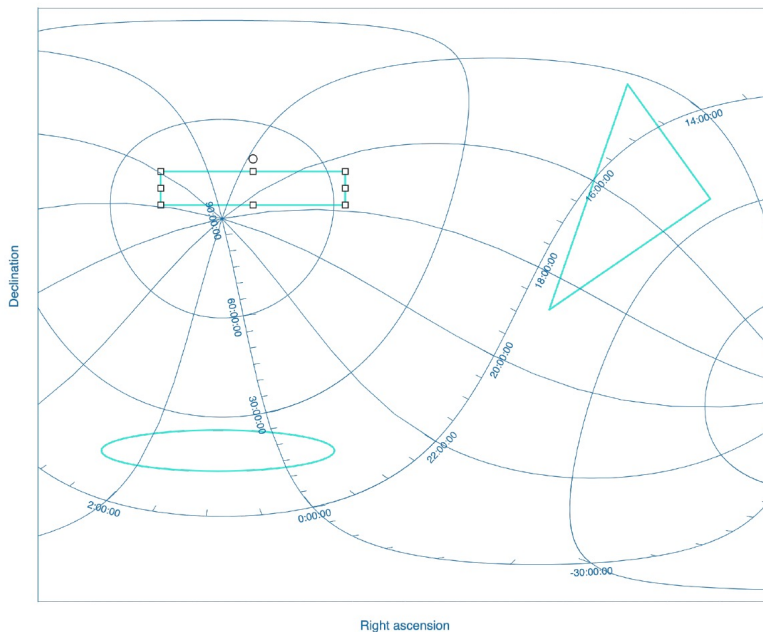
CARTA

Projection handling:

To avoid regridding, WCS matching shifts and rotates the image to the master image
This produces a small error for large fields, only visible in blinking
But images are projected correctly when overlaid as contours

Spectral matching: Nearest interpolation

Regions: They project correctly when moving across the sky in different coordinate systems



Rendering

Selection of

- Color map
- Scaling
- Per plane or per cube scaling
- Global scaling through the image list widget
- Bias/Contrast

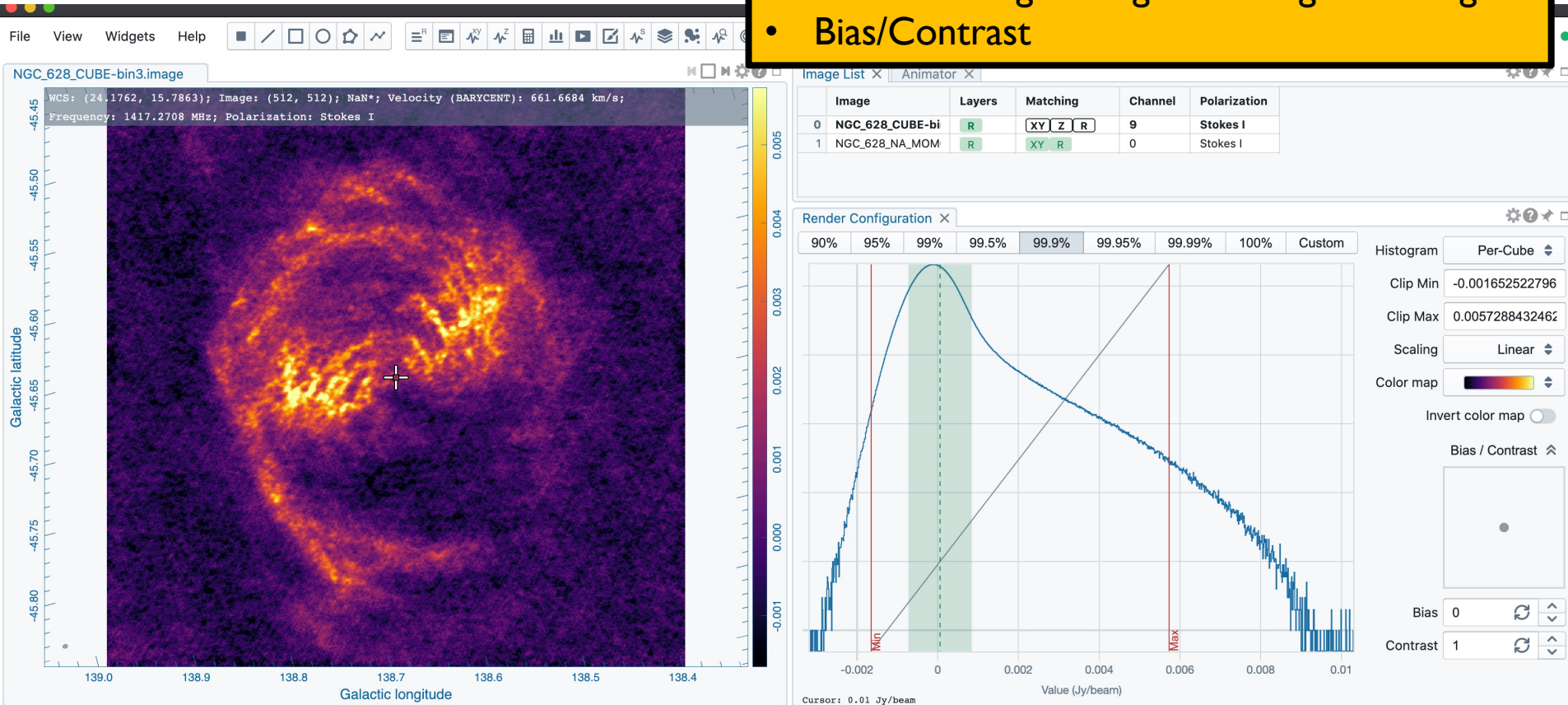
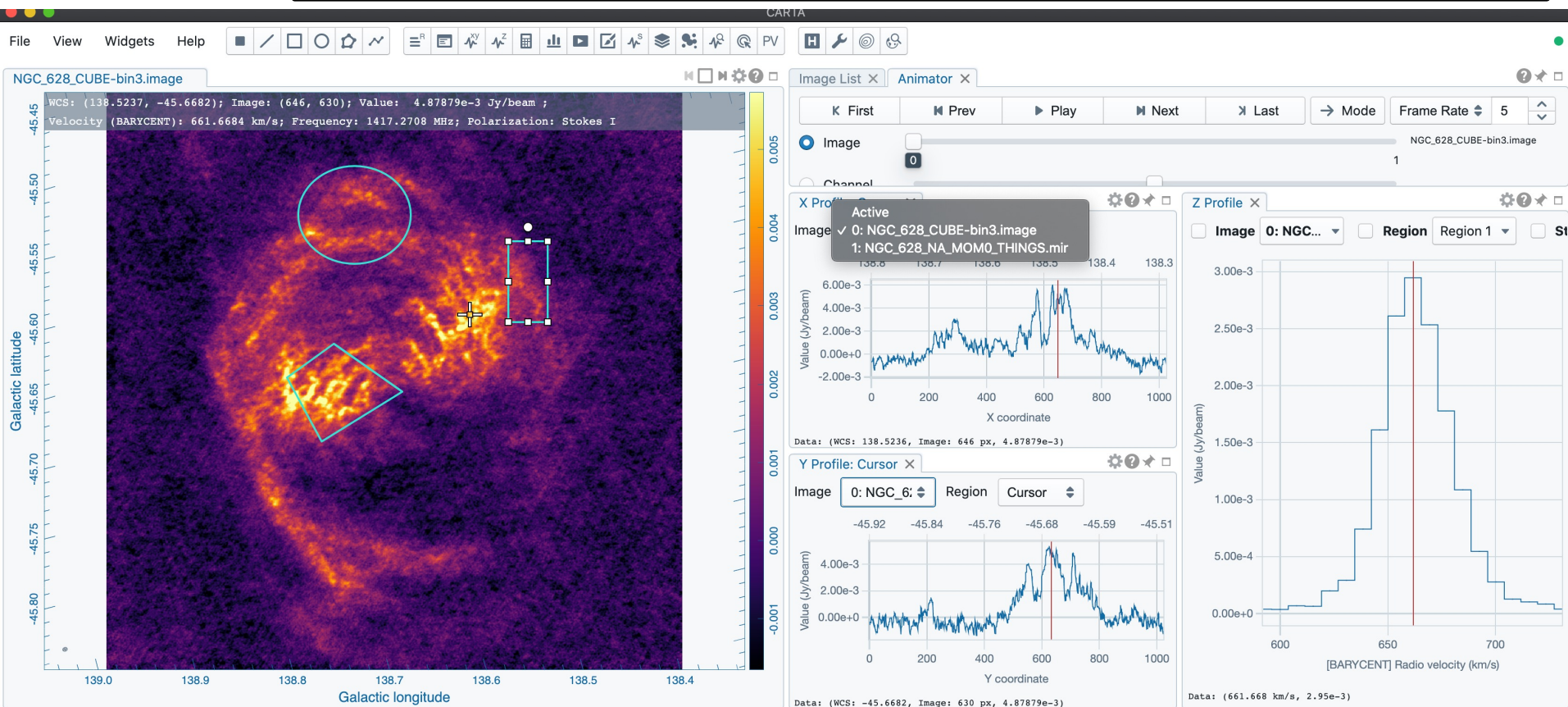


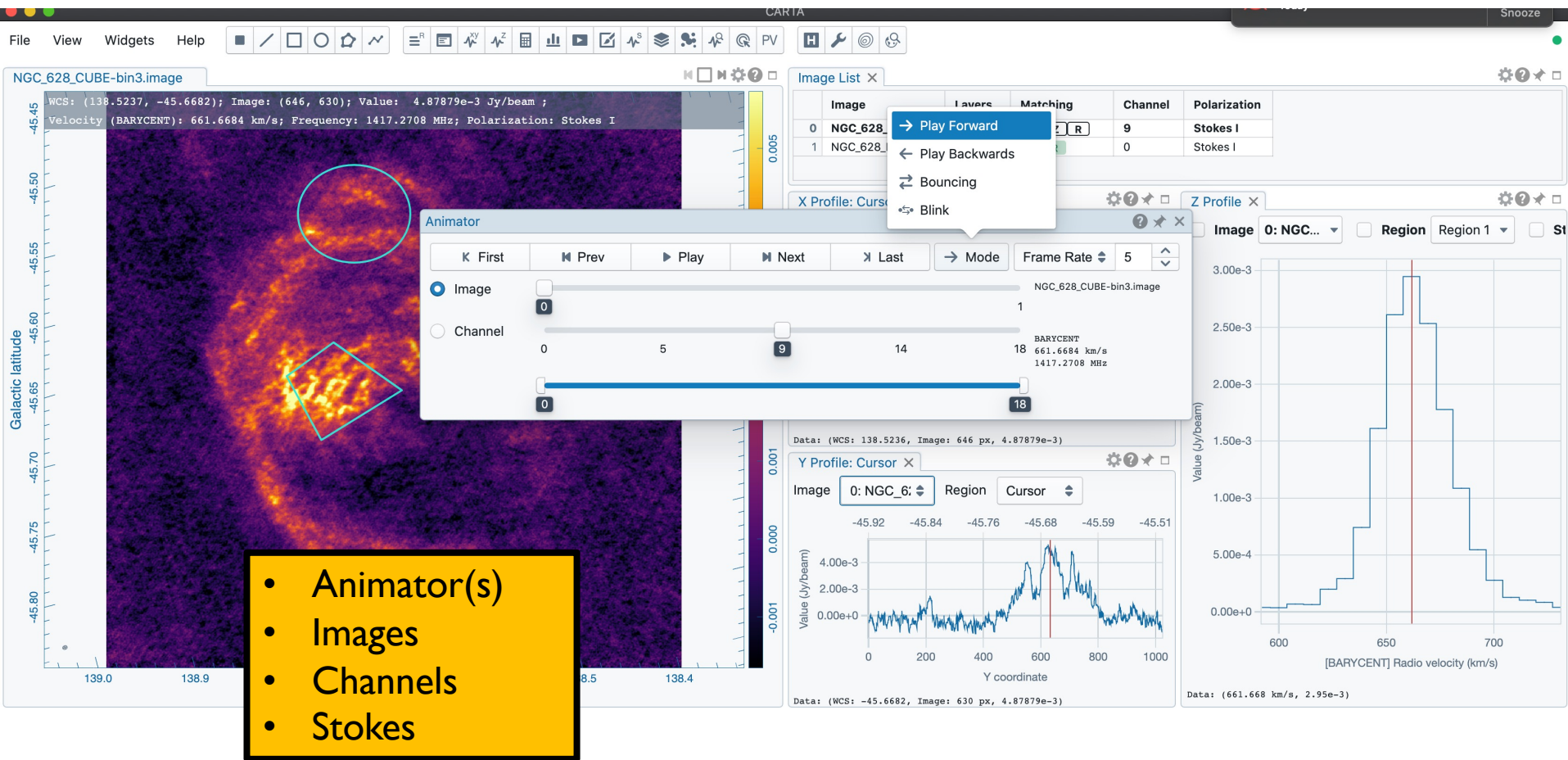
Image statistics, setting the cuts manually or by percentage or by values

Profiles

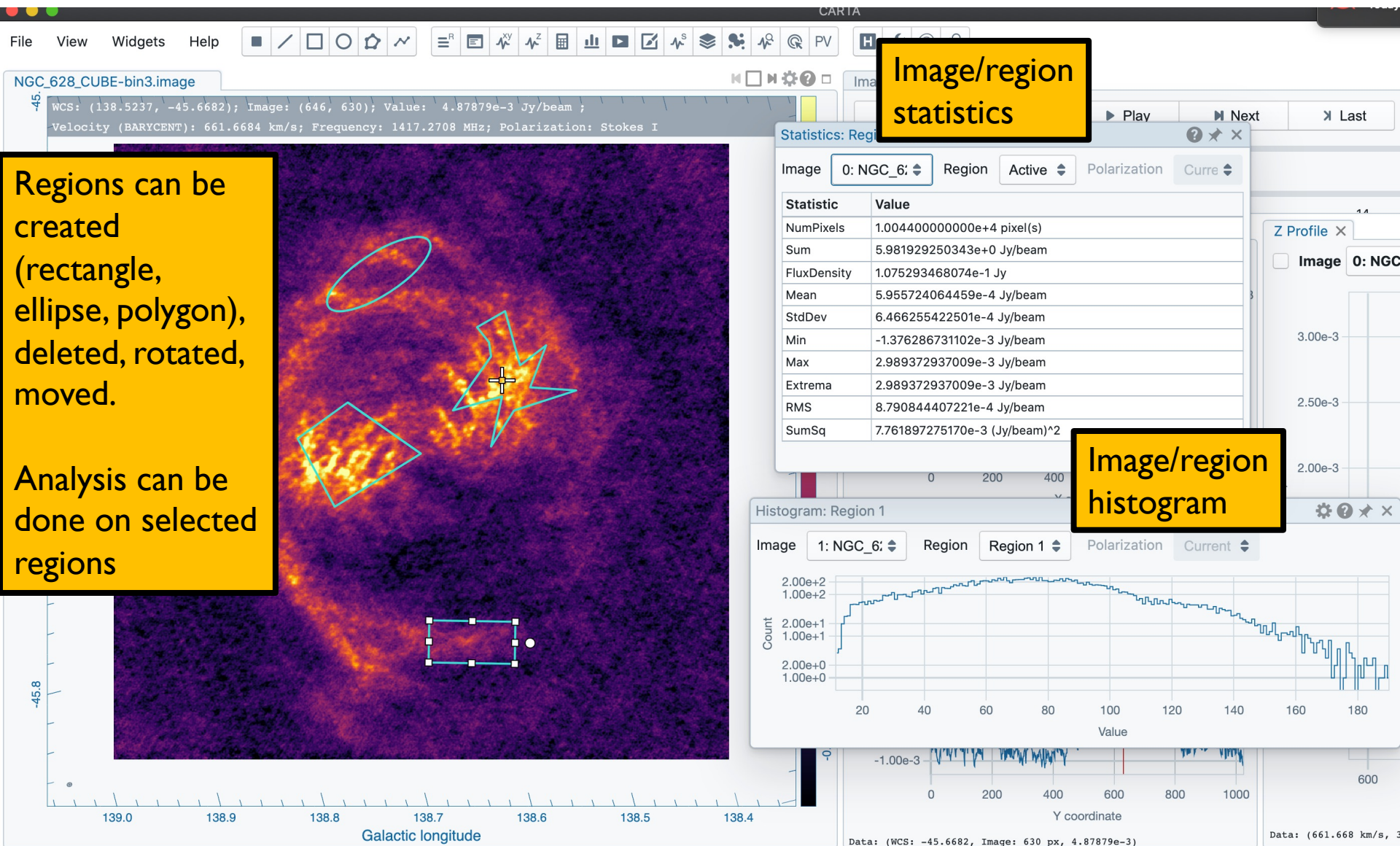
- Spatial/Spectral profile: Line shape can be changed (color, steps/connect/points), spectral smoothing; data can be saved as ascii
- Marker is the position of the cursor/animotor (freeze with 'f')
- Selection of region and image in each widget
- For spectral profile, regions can be selected, as well as statistics, axis labels (velocity, frequency, channel, wavelength, ..)
- 3d Position is marked by a red vertical line



Animator



Regions



Saving subimages

WCS: (9:47:57.47, 13:16:46.2); Image: (147, 164); Value: -1.3649e-2 Jy/beam ;
Frequency (LSRK): 36.3957 GHz; Velocity: -28.0890 km/s; Polarization: Stokes I

Decination

Right ascension

File Browser

Filename	Type	Size
fft-cube.im	CASA	251.0 MB
fft.test	CASA	4.4 MB
IRC10216_36GHzcont.image.fits	FITS	368.6 kB
IRC10216_HC3N.cube_r0.5.image	CASA	19.4 MB
IRC10216_HC3N.cube_r0.5.image-copy	CASA	19.4 MB
IRC10216_HC3N.cube_r0.5.image.fits	FITS	18.7 MB
IRC10216_HC3N.cube_r0.5.image.mir	Miriad	19.3 MB
m82-car-2000.fits	FITS	4.0 MB
m82-tan-2000.fits	FITS	4.0 MB
NGC628_dss.fits	FITS	371.5 kB
NGC628_galex.fits	FITS	371.5 kB
NGC_628_CUBE-bin3.image	CASA	79.8 MB
NGC_628_CUBE.image	CASA	251.0 MB
NGC_628_NA_CUBE_THINGS.copy.fits	FITS	247.7 MB
NGC_628_NA_CUBE_THINGS.copy.mir	Miriad	243.3 MB
NGC_628_NA_CUBE_THINGS.copy.mir-manipulated	Miriad	243.3 MB

IRC10216_HC3N.cube_r0.5.image

Save Image

Source: IRC10216_HC3N.cube_r0.5.image

Region: 1 (RECTANGLE)

Range unit: Frequency (GHz)

LSRK

Range from: 36.39235438064446 (GHz)

Range to: 36.39873012520509 (GHz)

☒ Drop degenerate axes

Close Save

No catalog file loaded

Load a catalog file using the menu

No catalog file loaded

Load a catalog file using the menu

36.3957 GHz; Velocity: -28.0890 km/s; Polarization: Stokes I

36.39235438064446 (GHz)

36.39873012520509 (GHz)

Drop degenerate axes

Close Save

No catalog file loaded

Load a catalog file using the menu

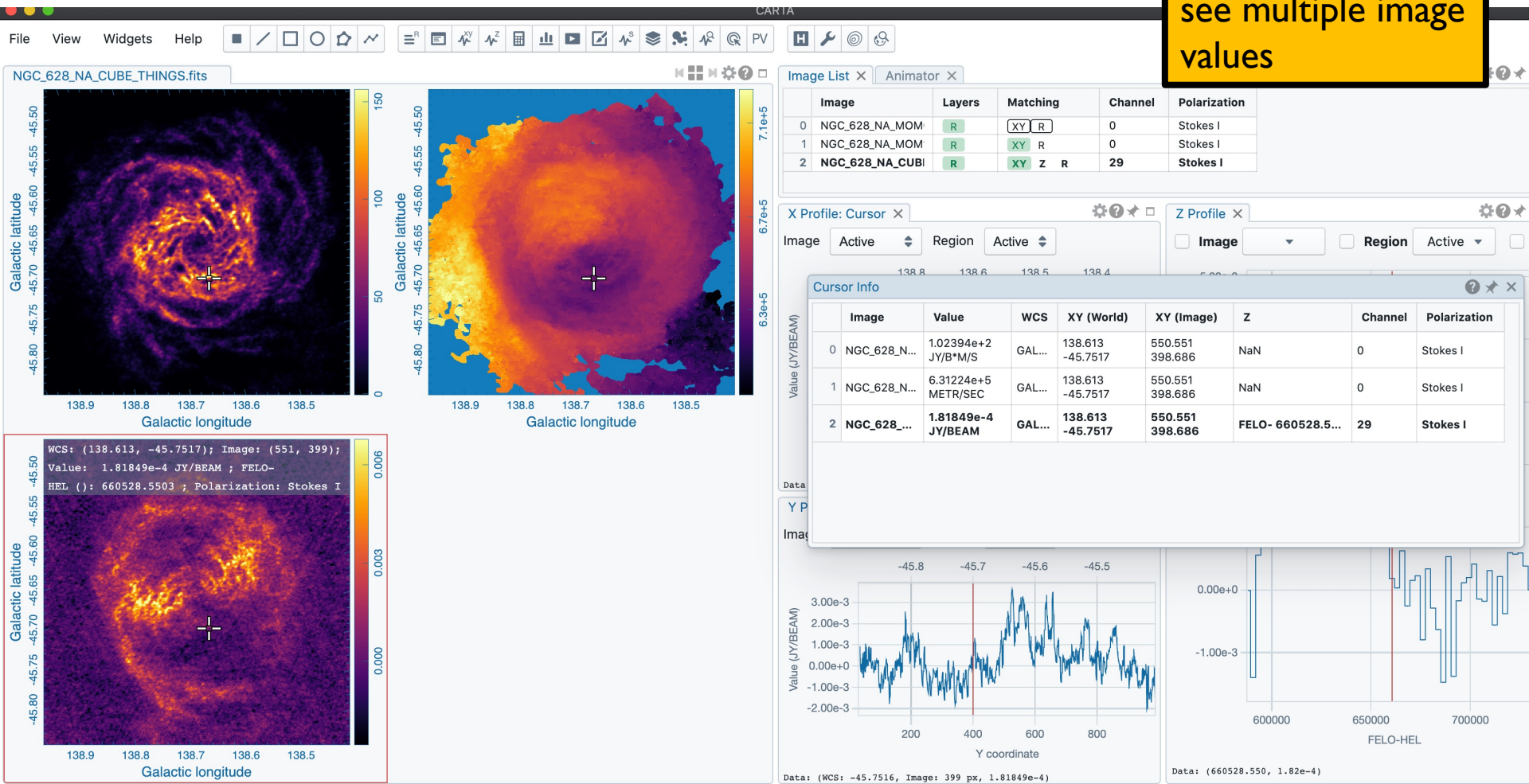
No catalog file loaded

Load a catalog file using the menu

Select portion of image
(3beta3: assign new rest
frequency if desired)

Cursor Widget

Align WCS first to see multiple image values



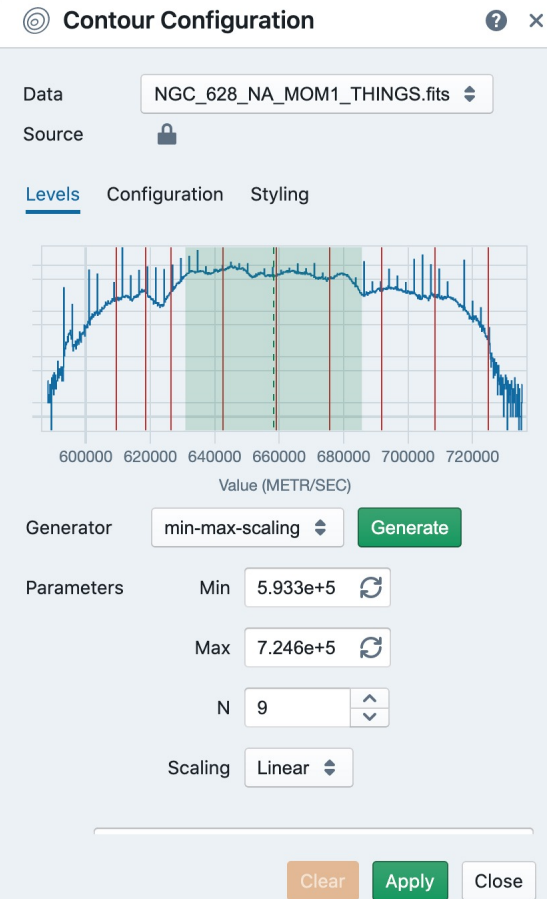
Contours

- Match the coordinates for multiple images in the image list. This can be done spatially and spectrally
- Set reference image
- Set matched images
- Also: delete images from list

Multiple images can be loaded (append)

Contour overlay:
Create contours in various ways: percentage, min max, scaling, direct input, etc. The contour levels are shown on an image histogram and can be edited
Styling allow color map as well as constant color

	Image	Layers	Matching	Channel	Polarization
0	NGC_628_NA_MOM1	R	XY R	0	Stokes I
1	NGC_628_NA_MON	R	XY R	0	Stokes I
2	NGC_628_NA_CUBE	R	XY Z R	29	Stokes I



Contours

CARTA

File View Widgets Help

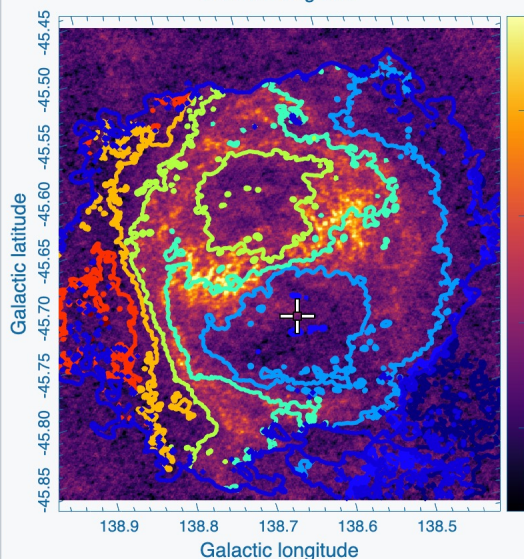
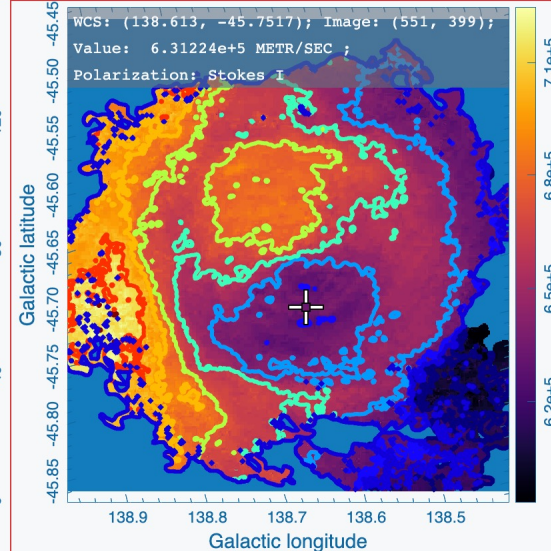
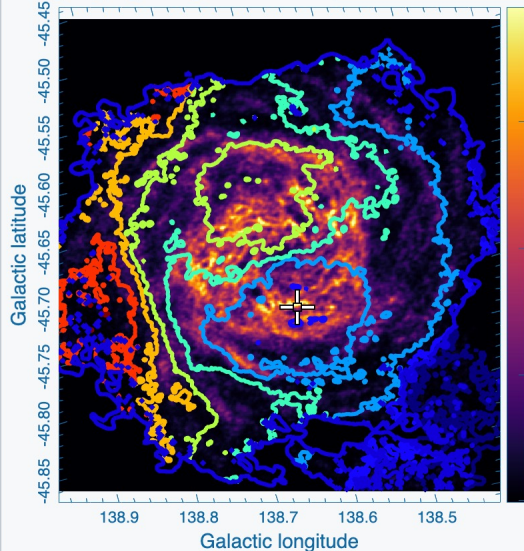


NGC_628_NA_MOM1_THINGS.fits



Image List x Animator x

Image	Layers	Matching	Channel	Polarization
0 NGC_628_NA_MOM1_THINGS.fits	R	XY R	0	Stokes I
1 NGC_628_NA_MOM1_THINGS.fits	R C	XY R	0	Stokes I
2 NGC_628_NA_CUBE	R	XY Z R	29	Stokes I



X Profile: Cursor x

Image Active



Data: (WCS: 138.6126, Image: 0)

Y Profile: Cursor x

Image Active



Data: (WCS: -45.7516, Image: 0)

Contour Configuration

Data NGC_628_NA_MOM1_THINGS.fits

Source

Levels Configuration Styling

Thickness 3

Dashes NegativeOnly

Color Mode Color-mapped

Color Map

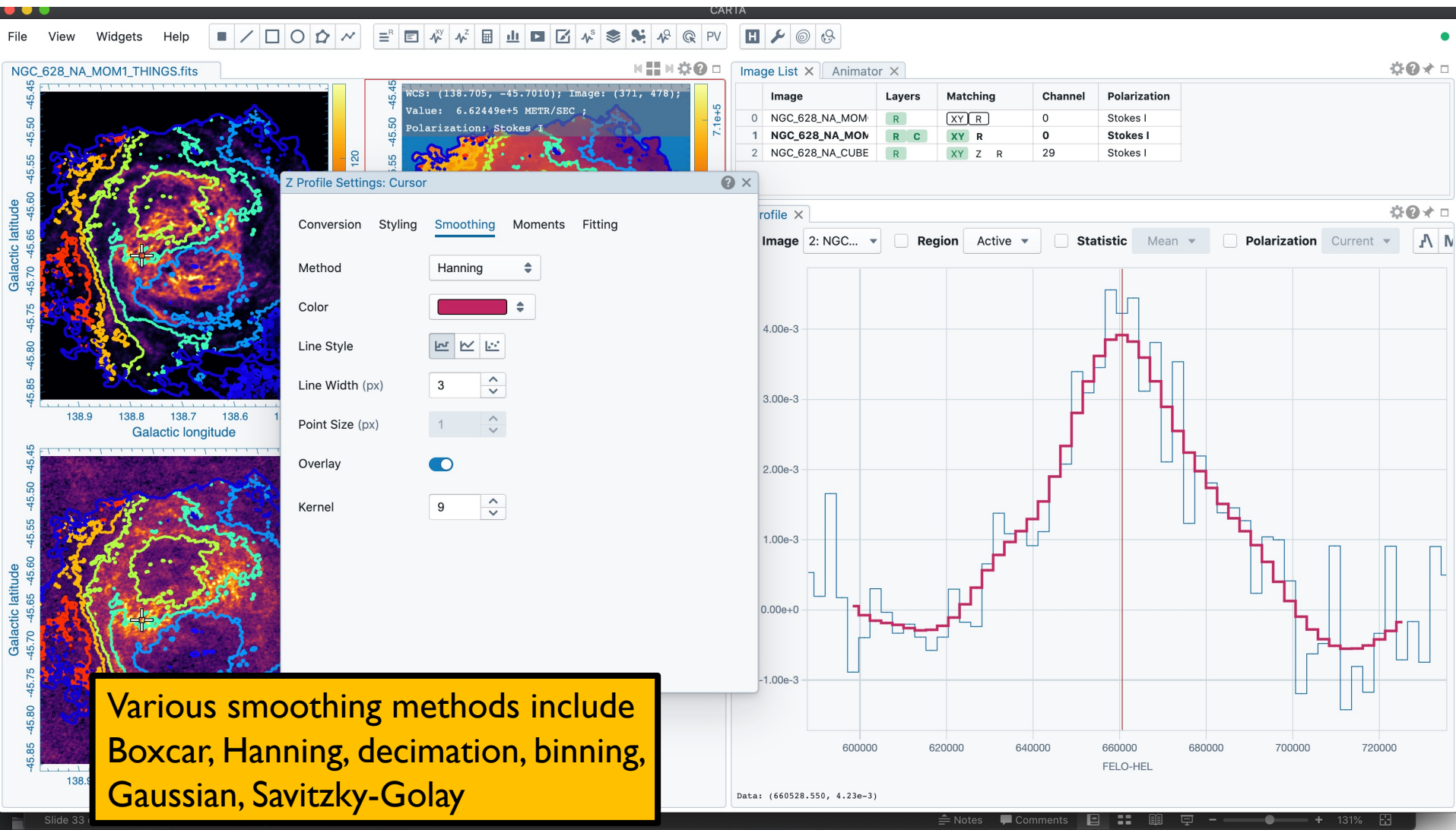
Bias 0

Contrast 1

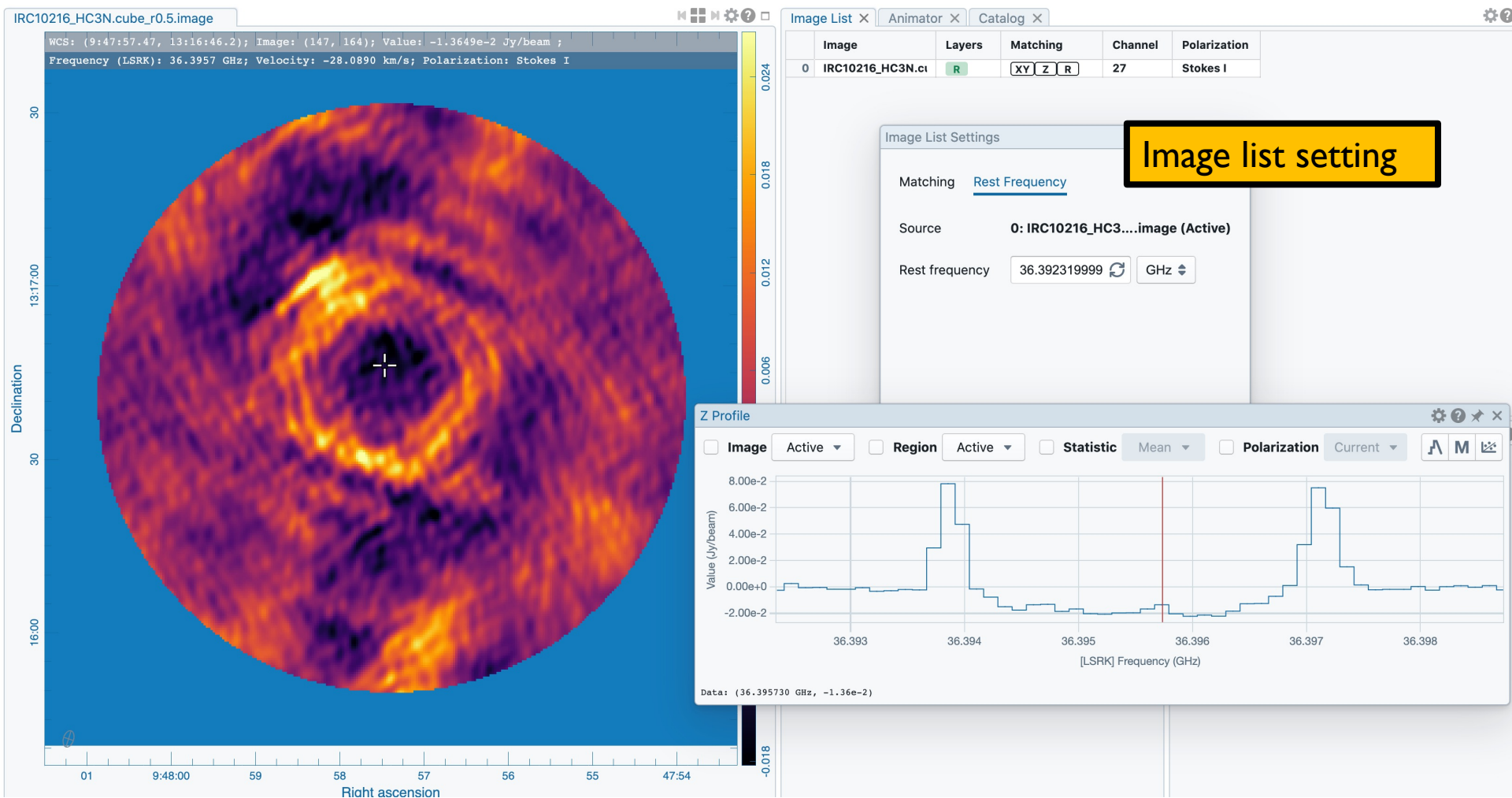
Color

Clear Apply Close

Spectral smoothing

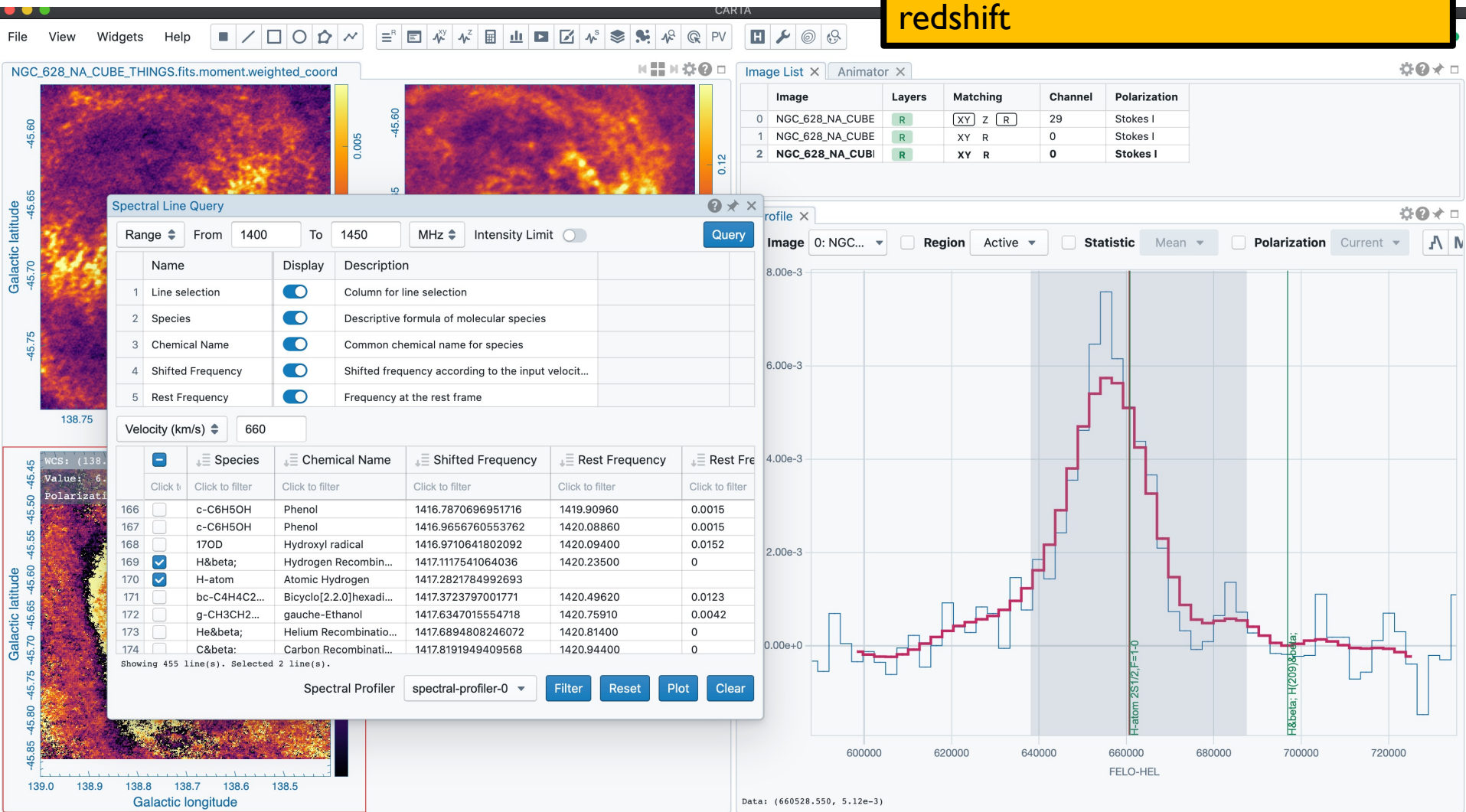


Set new rest frequency



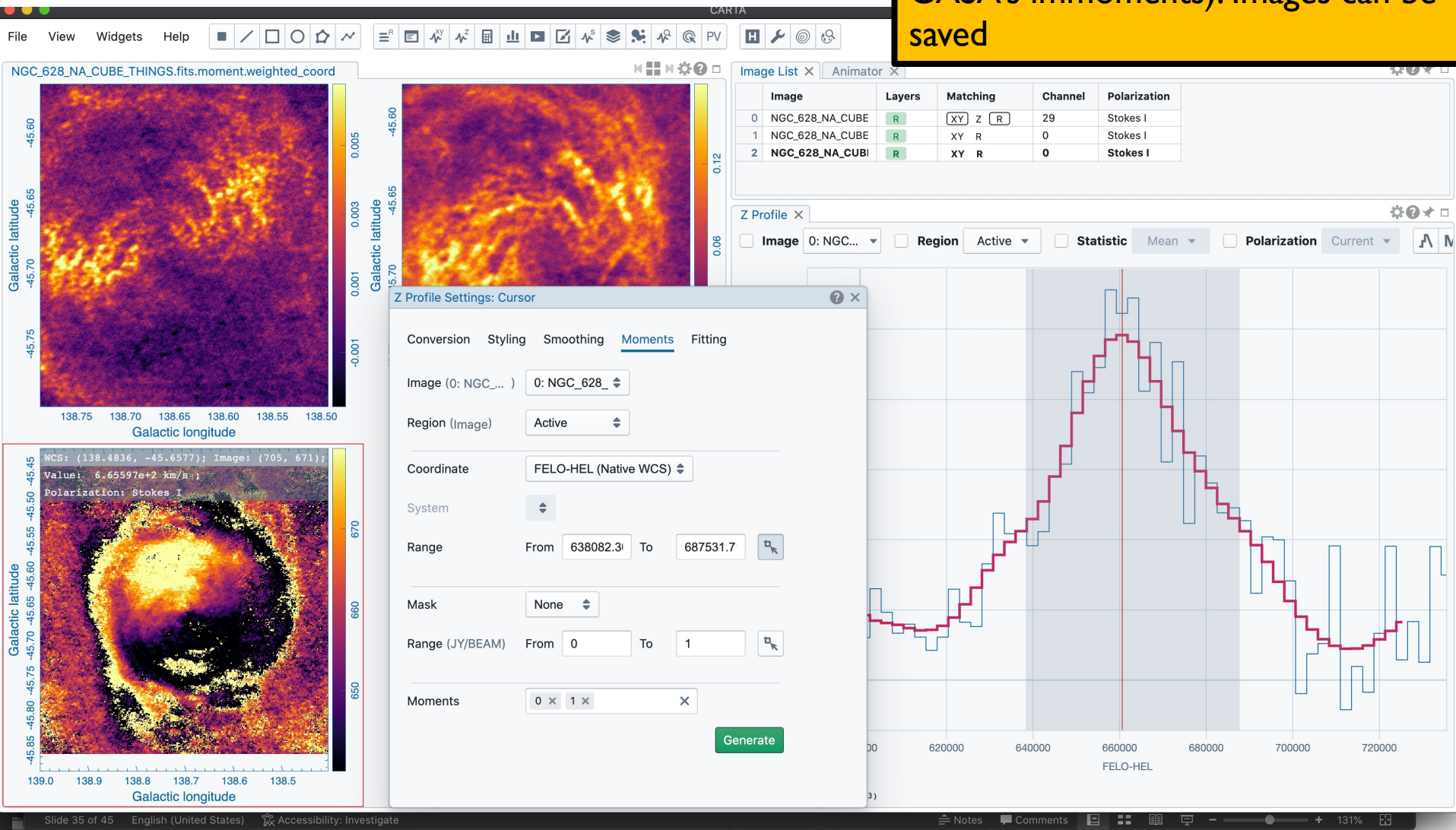
Spectral line labeling

Based on splatalogue, select line strength, frequency range and redshift



Moment maps

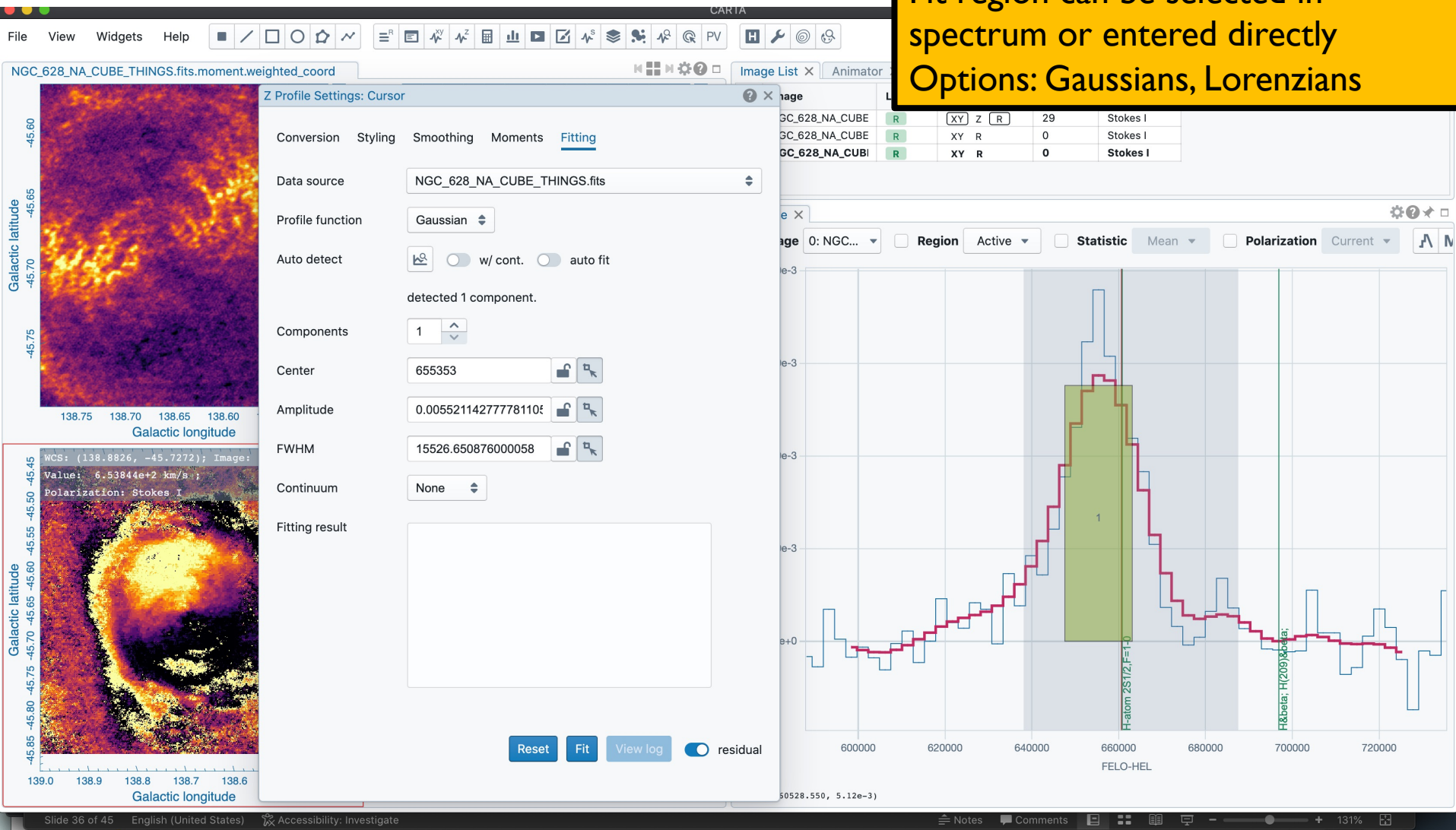
Spectral selection can be done interactively, including clip (uses CASA's immoments). Images can be saved



Spectral Line Fitting

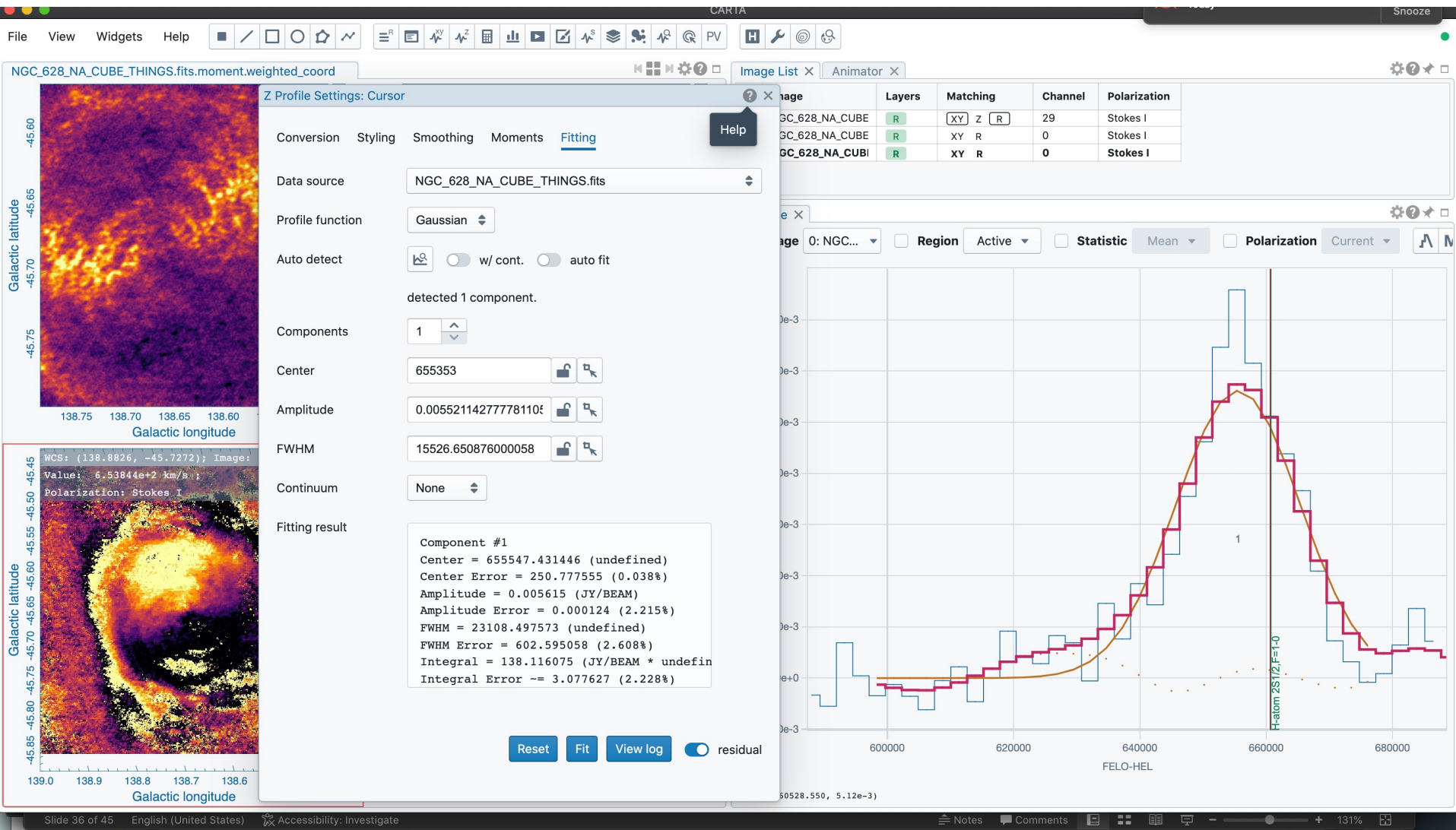
Autodetection of line (can also be set manually).

Fit region can be selected in spectrum or entered directly
Options: Gaussians, Lorenzians



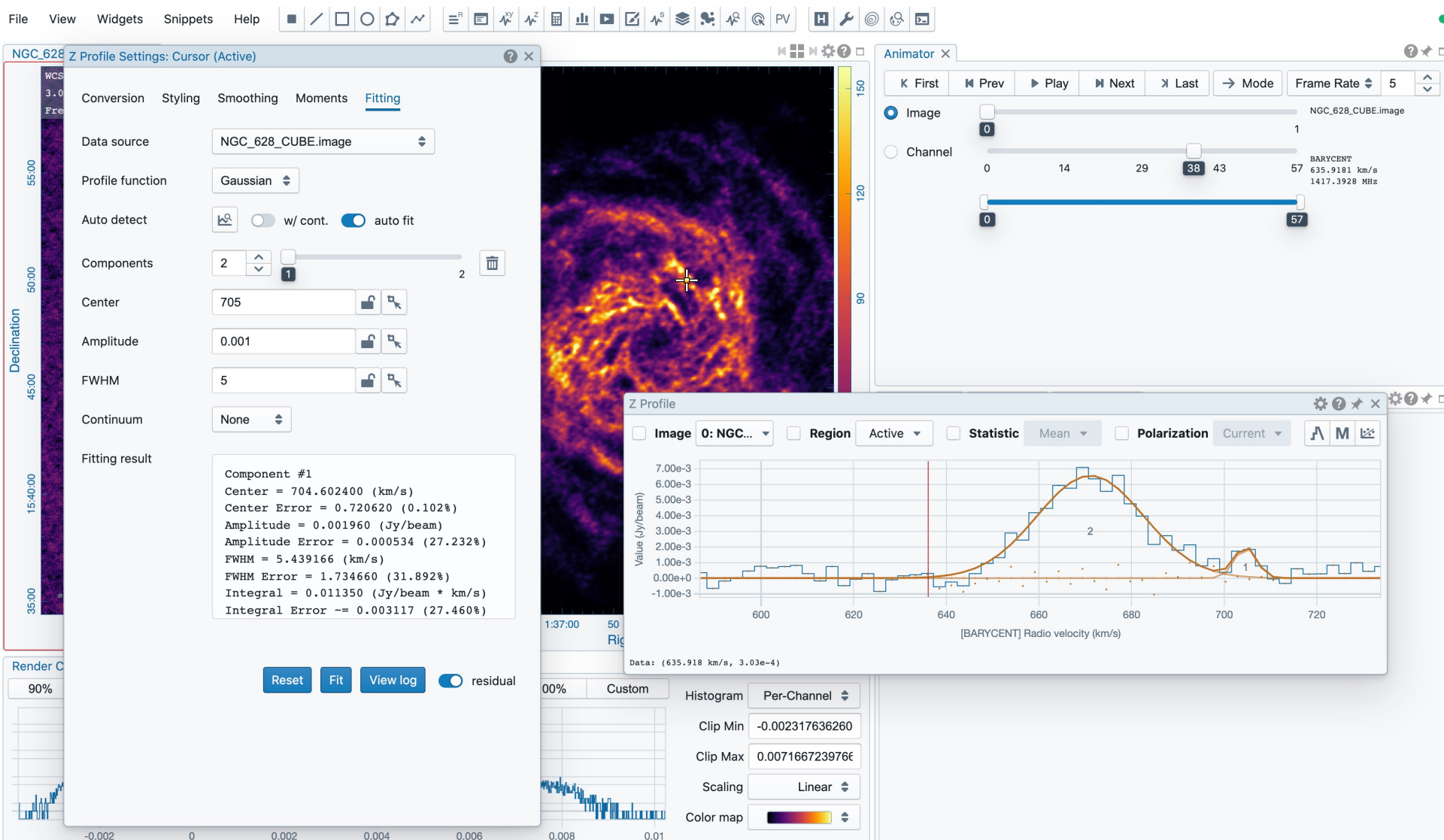
Spectral Line Fitting

Fit results can be copied/pasted

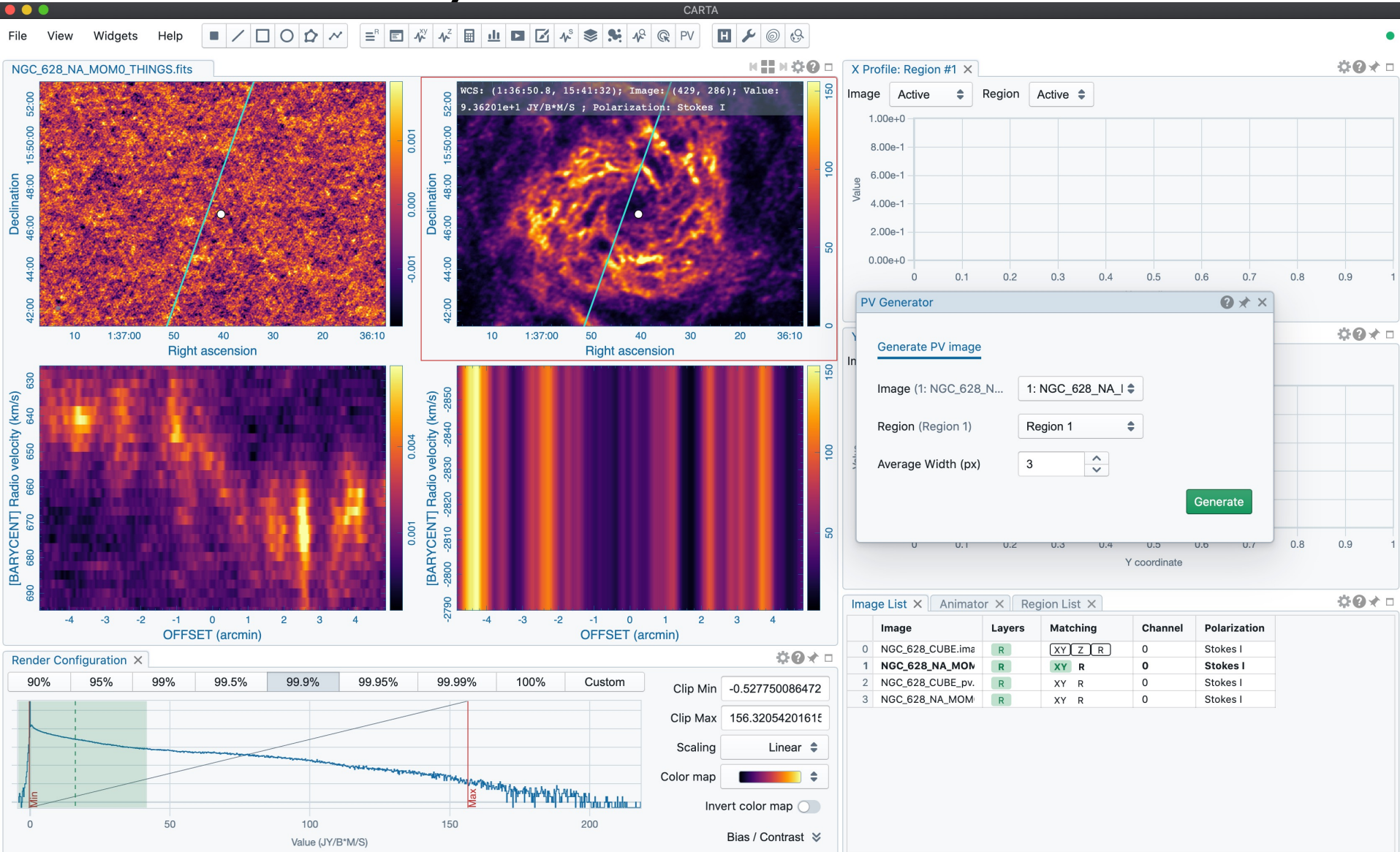


Spectral Line Fitting

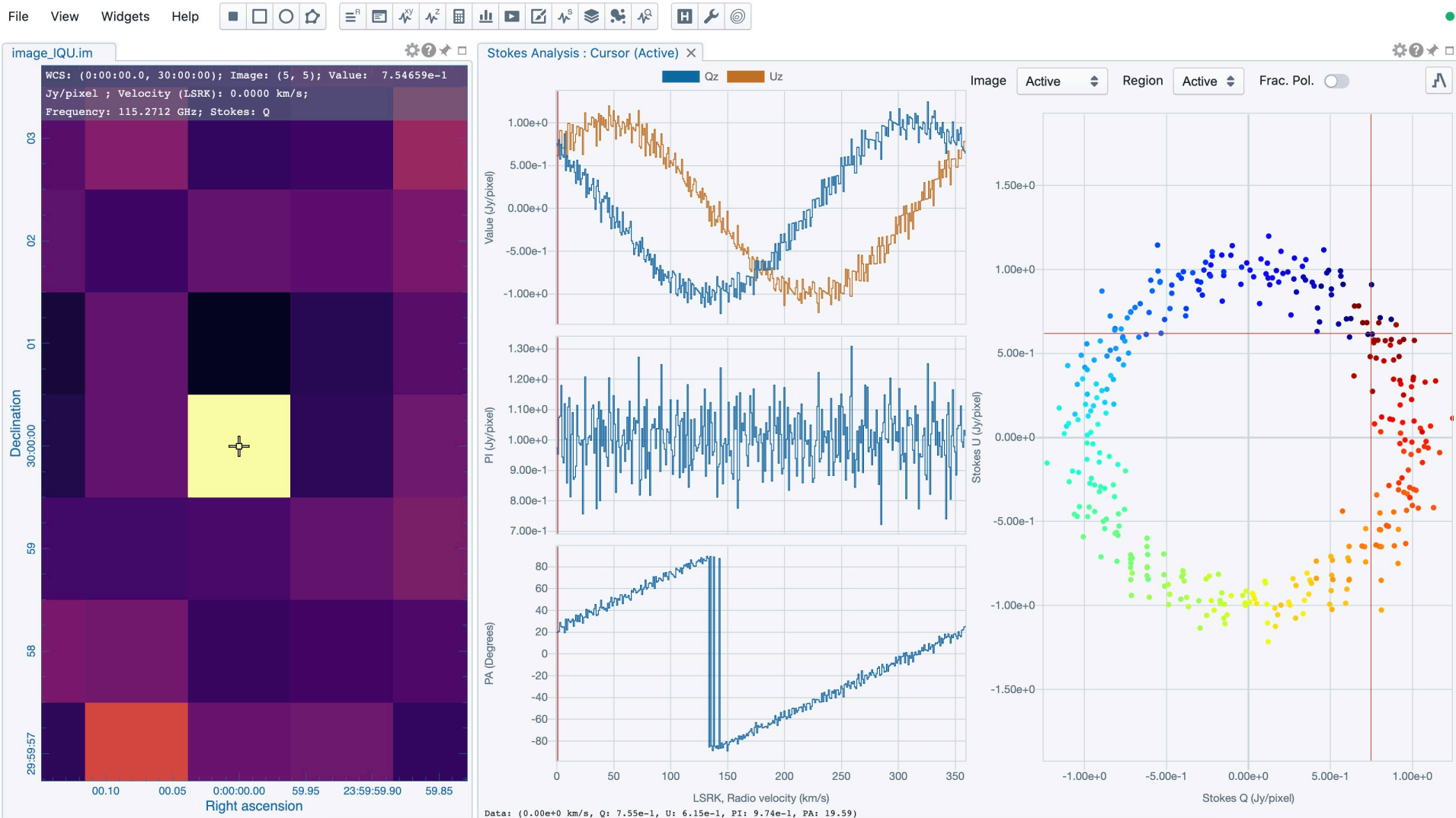
Multiple Gaussians



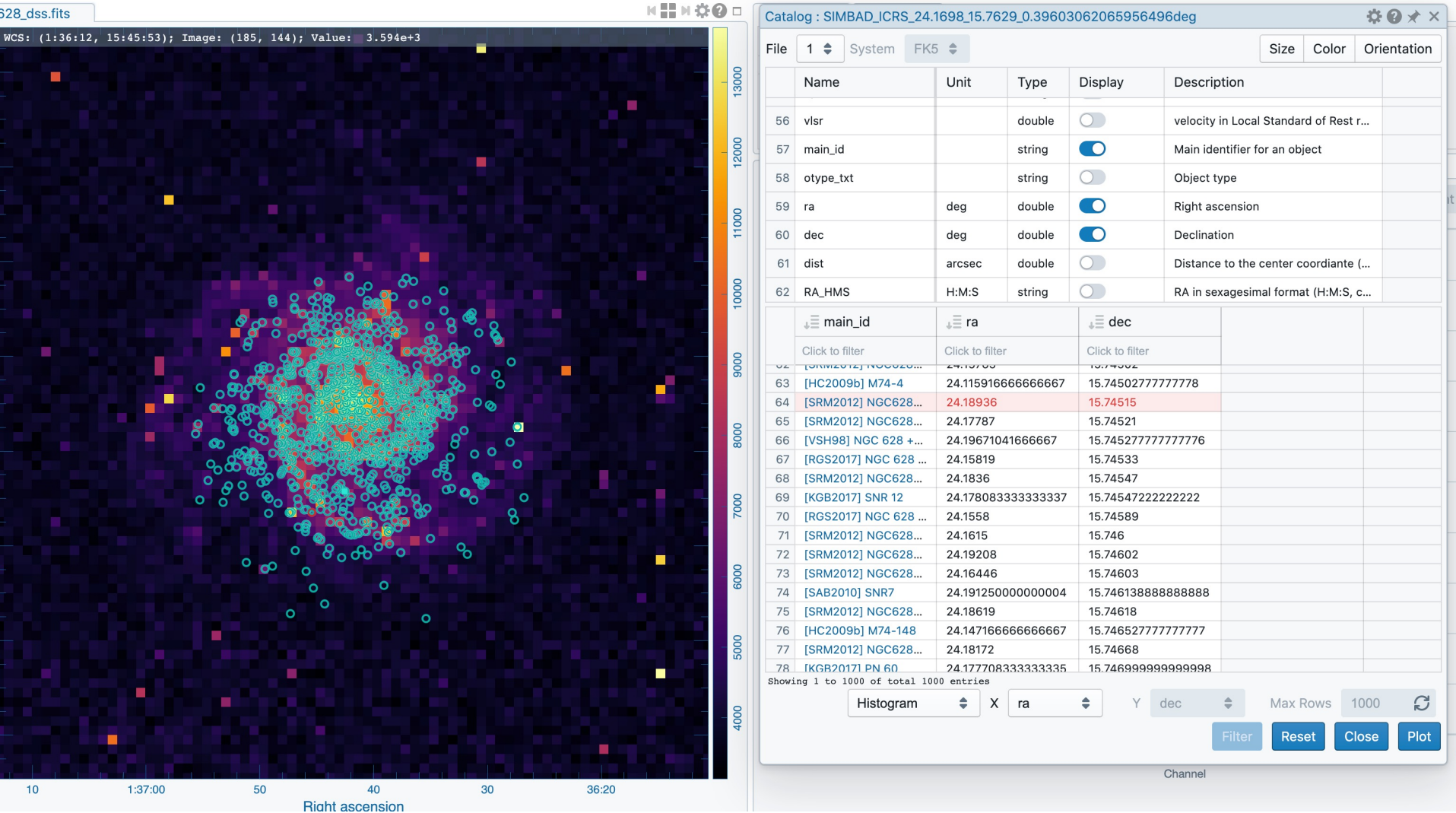
Position-Velocity



CARTA – Stokes Analysis Widget



CARTA – Catalog tool



The screenshot displays the SIMBAD software interface. The main window shows a 2D scatter plot of stars, with axes labeled 'Right ascension' (RA) and 'Declination' (Dec). The plot is color-coded by radial velocity (RV), with a color bar on the right indicating values from -100 km/s (blue) to 100 km/s (red). A 'Catalog Settings' panel is open, showing options for 'File', 'Shape', 'Size', 'Color', 'Overlay Highlight', 'Column', 'Scaling', 'Color Map', 'Invert Color Map', 'Clip Min', and 'Clip Max'. The 'Catalog Settings' panel is currently set to 'File: 1: SIMBAD_ICRS_24.1698_15.7629_0.39603', 'Shape: 0', 'Size: Color', 'Overlay Highlight: Red', 'Column: ra', 'Scaling: Linear', 'Color Map: Rainbow', 'Invert Color Map: Off', 'Clip Min: 2.411e+1', and 'Clip Max: 2.423e+1'. The 'Catalog Settings' panel also includes a 'Catalog 2D Scatter: SIMBAD' sub-panel showing a scatter plot of 'ra' vs 'dec'.

The 'Catalog Settings' panel is titled 'Catalog Settings: SIMBAD_ICRS_24.1698_15.7629_0.39603'. It contains the following settings:

- File: 1: SIMBAD_ICRS_24.1698_15.7629_0.39603
- Shape: 0
- Size: Color
- Color: [Color bar]
- Overlay Highlight: [Red bar]
- Column: ra
- Scaling: Linear
- Color Map: [Rainbow bar]
- Invert Color Map: [Off]
- Clip Min: 2.411e+1
- Clip Max: 2.423e+1

The main window displays a scatter plot of stars with the following axes:

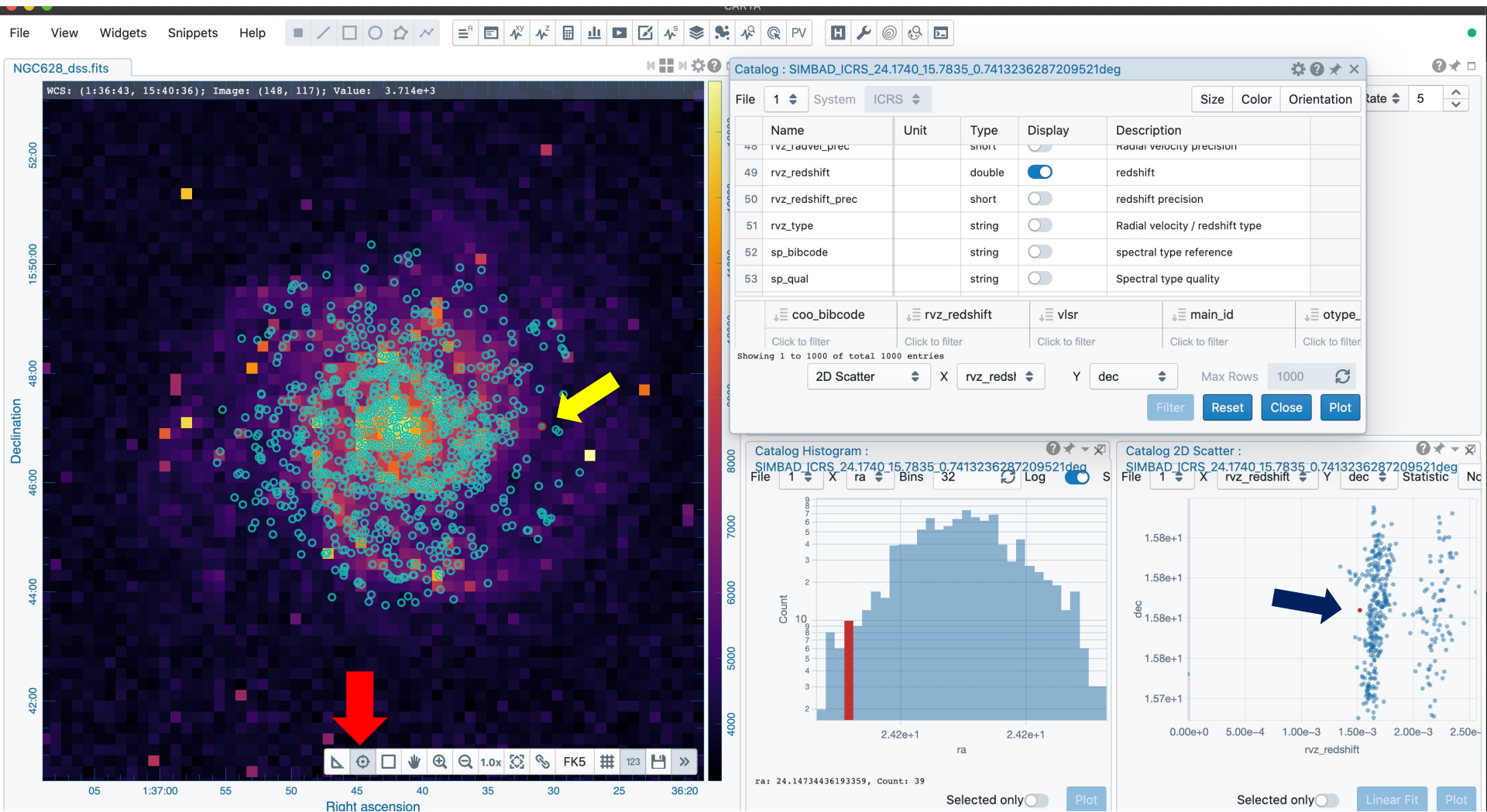
- X-axis: Right ascension (RA)
- Y-axis: Declination (Dec)

The plot shows a dense cluster of stars, with colors ranging from blue to red, indicating radial velocity. The plot is titled 'Catalog 2D Scatter: SIMBAD'.

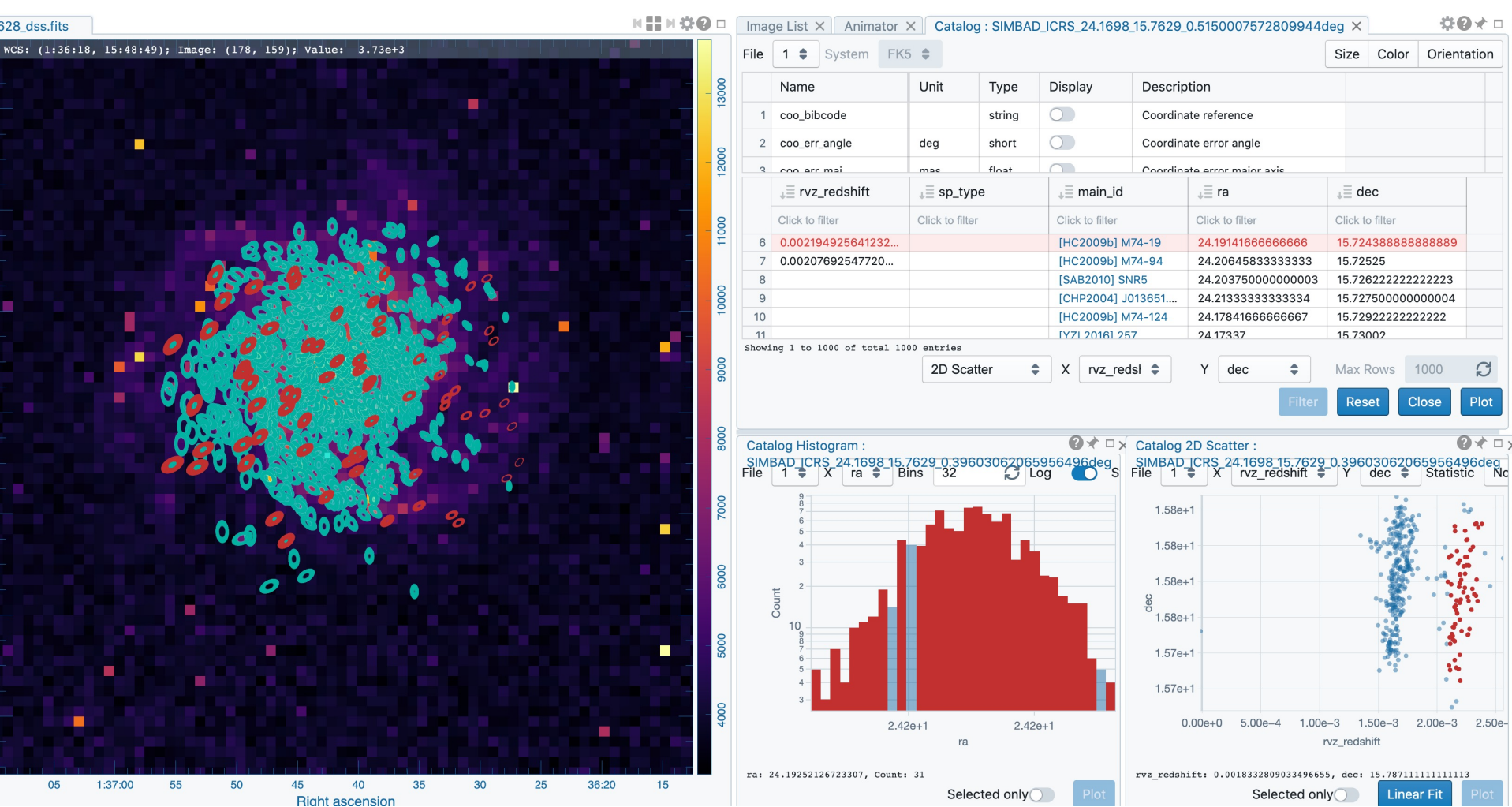
The 'Catalog Settings' panel also includes a 'Catalog 2D Scatter: SIMBAD' sub-panel showing a scatter plot of 'ra' vs 'dec'.

The 'Catalog Settings' panel also includes a 'Catalog 2D Scatter: SIMBAD' sub-panel showing a scatter plot of 'ra' vs 'dec'.

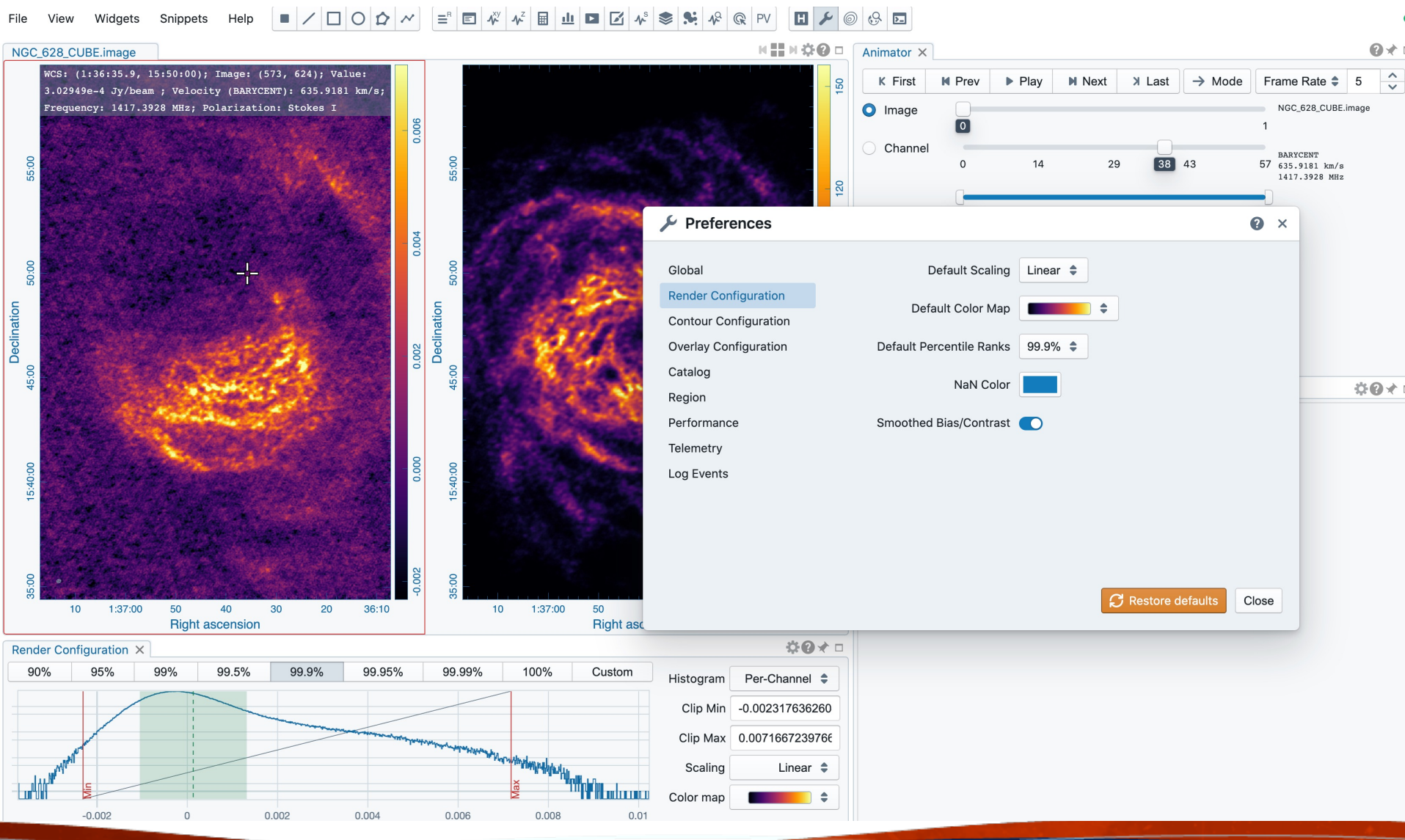
CARTA – Catalog tool



CARTA – Catalog tool



Preferences



Python scripting in progress/Code snippet

The screenshot displays the CARTA v3beta (2022) interface. At the top, a navigation bar includes 'Examples' and 'Tutorial' tabs. The 'Tutorial' tab is active, showing a list of sections: '01. Basics', '02. Functions', and '03. Loading images'. Below this, a 'Create new snippet' button is visible.

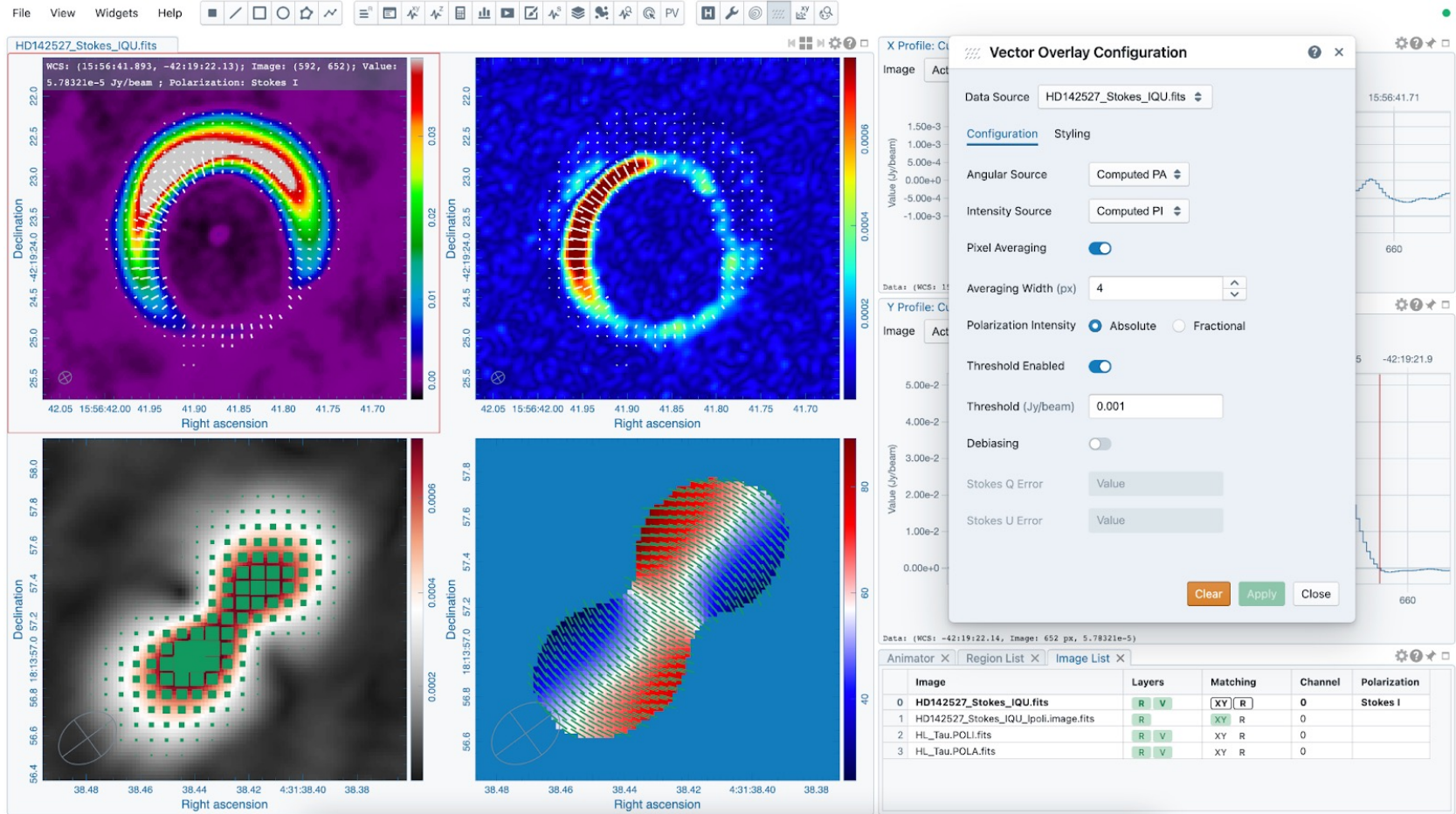
The 'Edit code snippet' window is open, showing a Python script for loading images. The script includes comments and function calls like `carta.showSplashScreen()`, `await carta.delay(1000)`, and `app.hideSplashScreen()`. It also mentions 'frames' and 'activeFrame'.

The 'Preferences' dialog is open, showing settings for 'Global', 'Render Configuration', 'Contour Configuration', 'Overlay Configuration', 'Catalog', 'Region', 'Performance', 'Telemetry', and 'Log Events'. The 'Global' tab is selected, showing options like 'Theme' (Light), 'Enable Code Snippets' (checked), 'Auto-launch File Browser' (checked), 'File List' (Filter by file content), 'Initial Layout' (Default), 'Initial Cursor Position' (Tracking), and 'Initial Zoom Level' (Zoom to fit).

The main application area shows two panels, each with a folder icon and the text 'No catalog file loaded'. Below this text, it says 'Load a catalog file using the menu'.

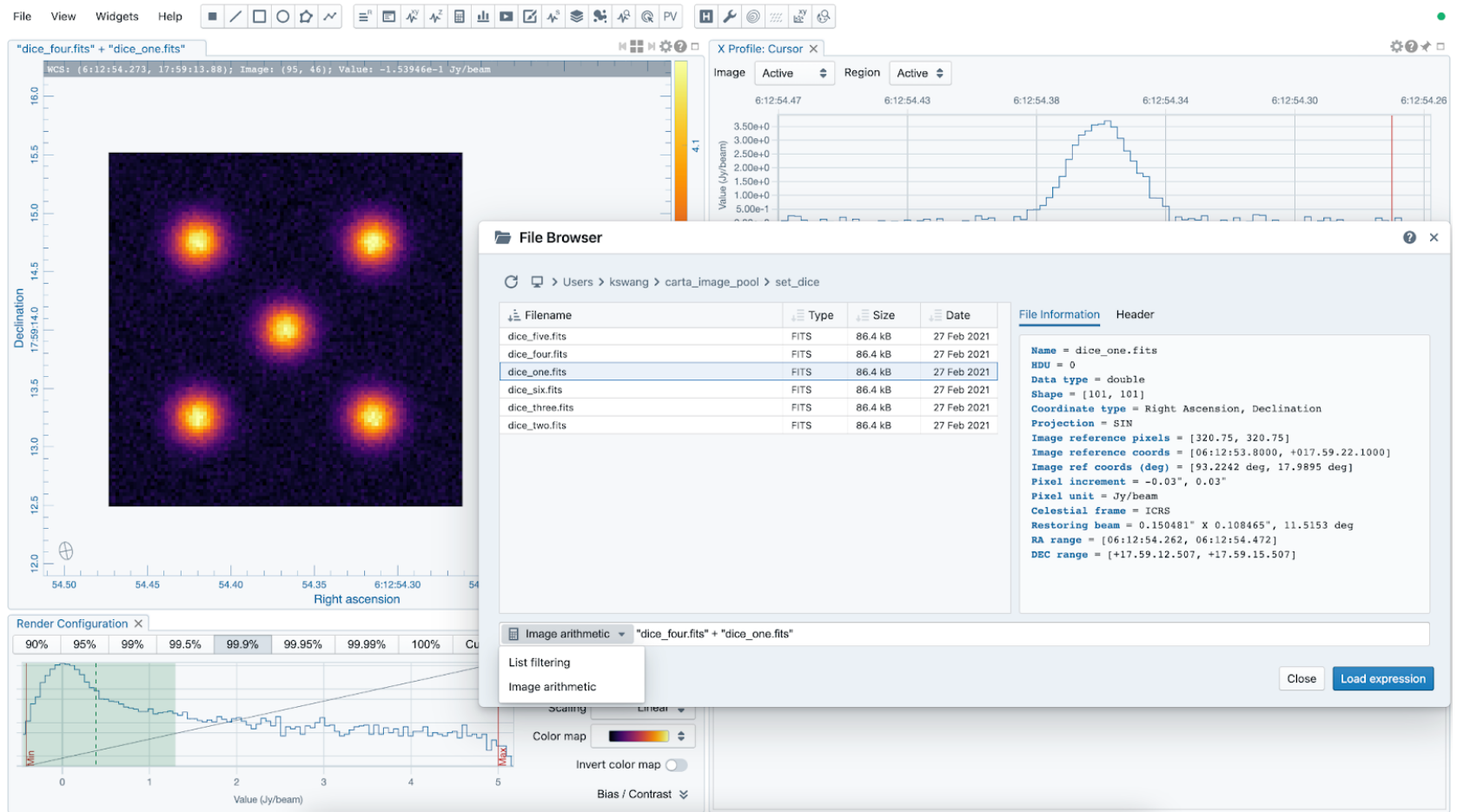
New in v3-beta3 (released just a few days ago...)

Vector field rendering



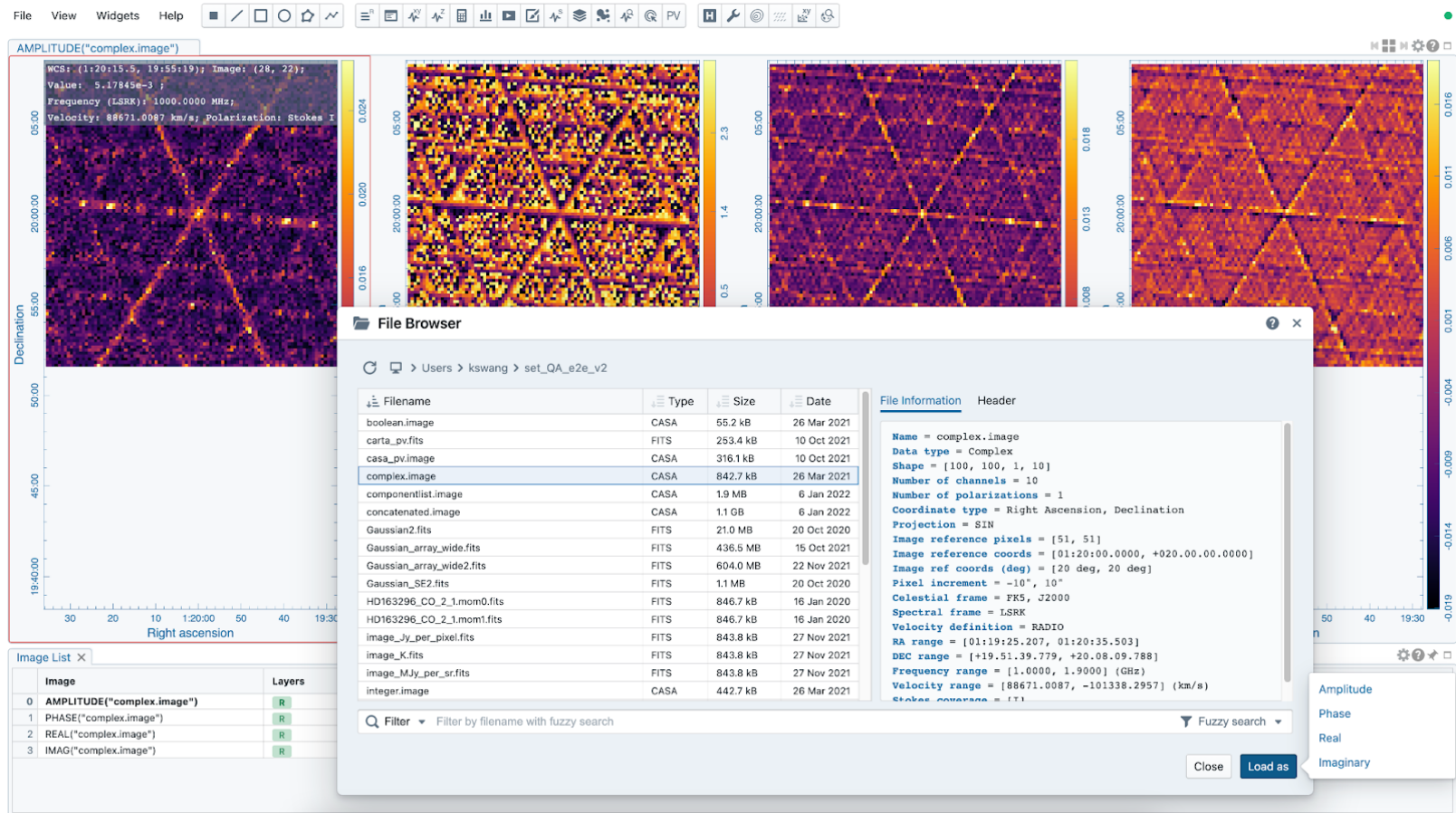
New in v3-beta3 (released just a few days ago...)

LEL image loading (mathematical expressions)



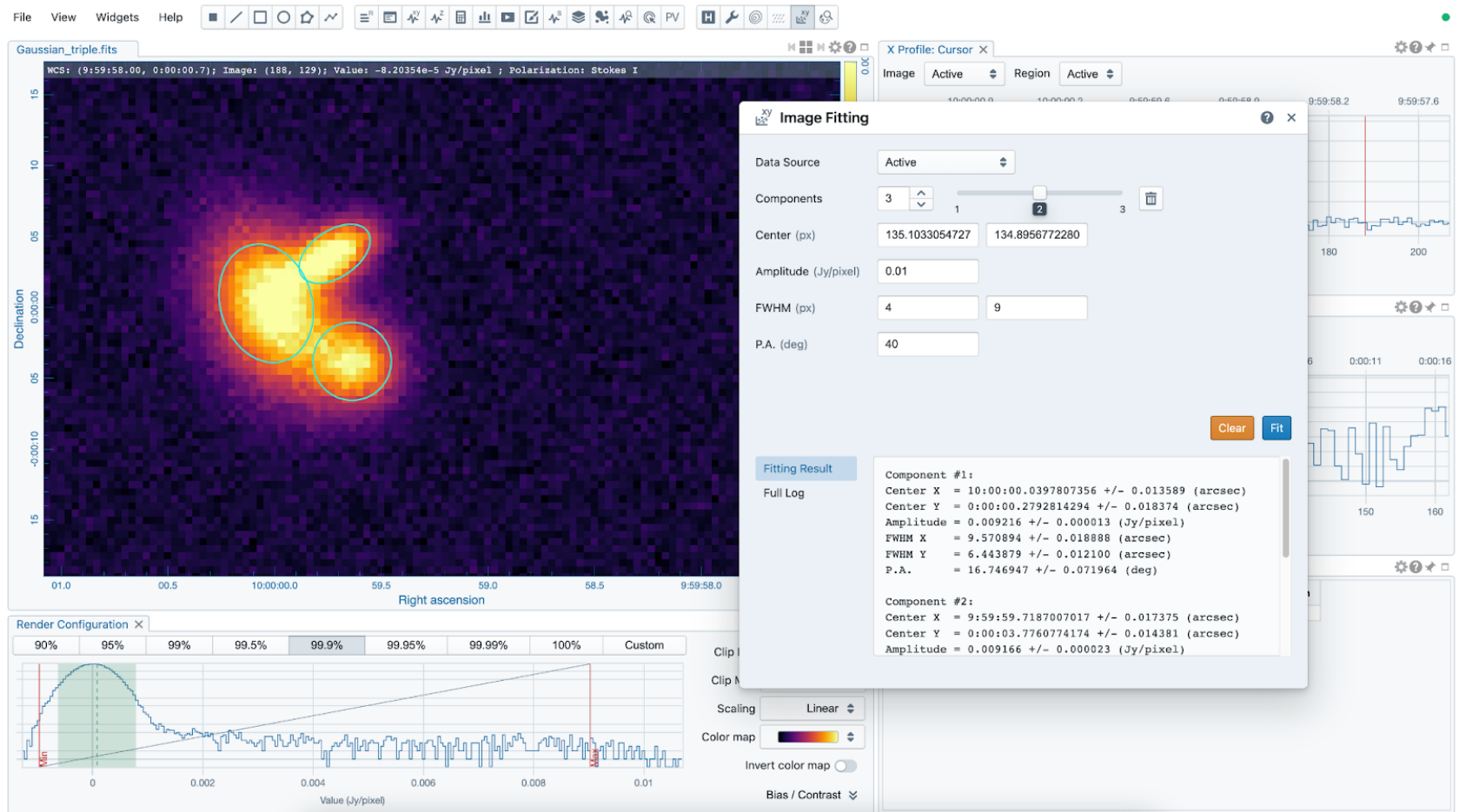
New in v3-beta3 (released just a few days ago...)

Complex-valued images



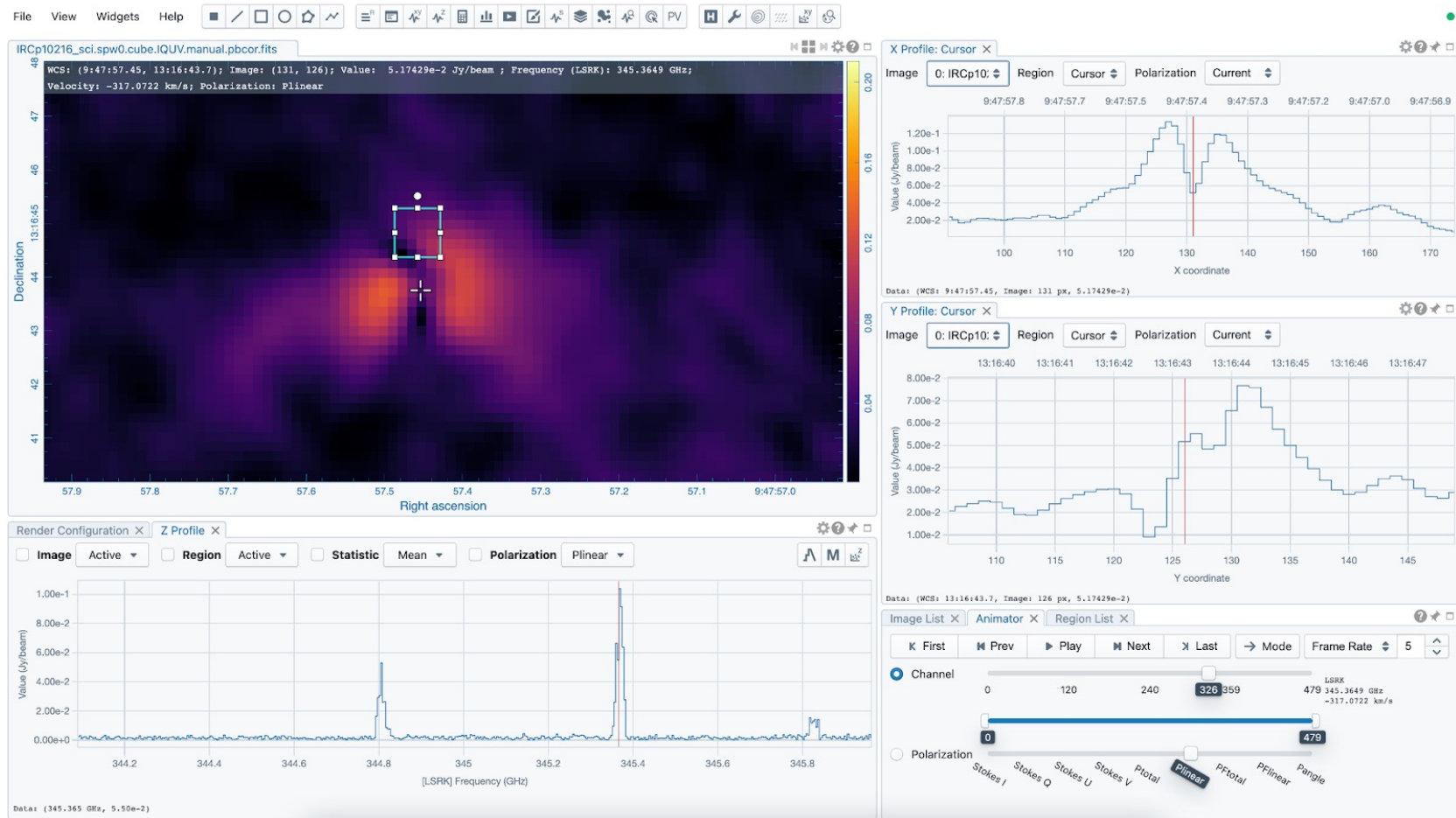
New in v3-beta3 (released just a few days ago...)

2D Gaussian Fitting



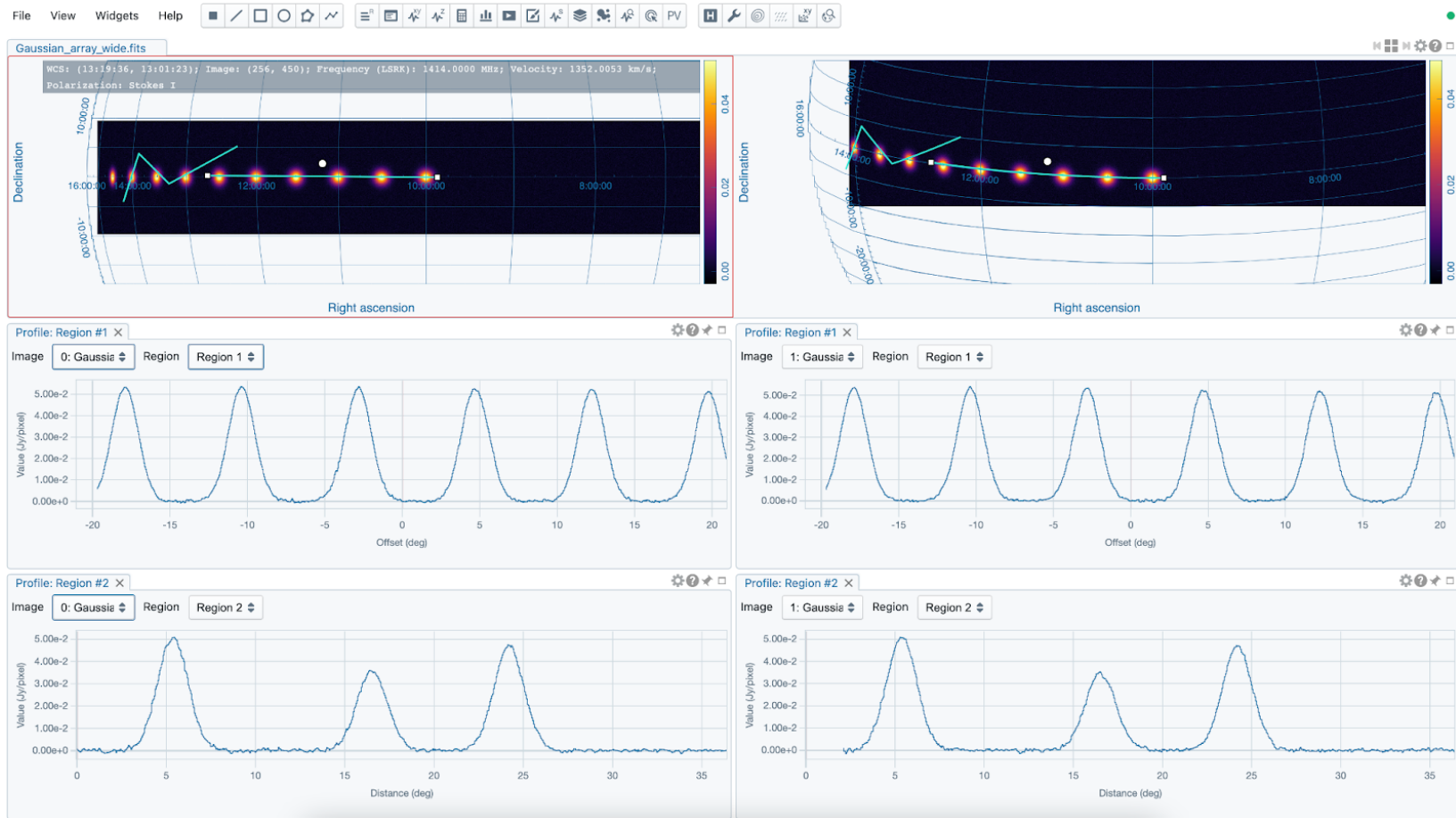
New in v3-beta3 (released just a few days ago...)

Calculation of polarization quantities (like linear polarization intensity, polarization angle from Stokes IQUV cube



New in v3-beta3 (released just a few days ago...)

Line and Polyline spatial profiles



ALMA archive

CARTA v1.4 x CARTA - Cube Ar x CARTA - Cube Ar x Survey of missin x CARTAVIS - GitHu x ALMA Science Ar x ALMA Science Ar x Alma Request Ha x CARTA x +





almscience.eso.org/rh/submission

ALMA Request Handler

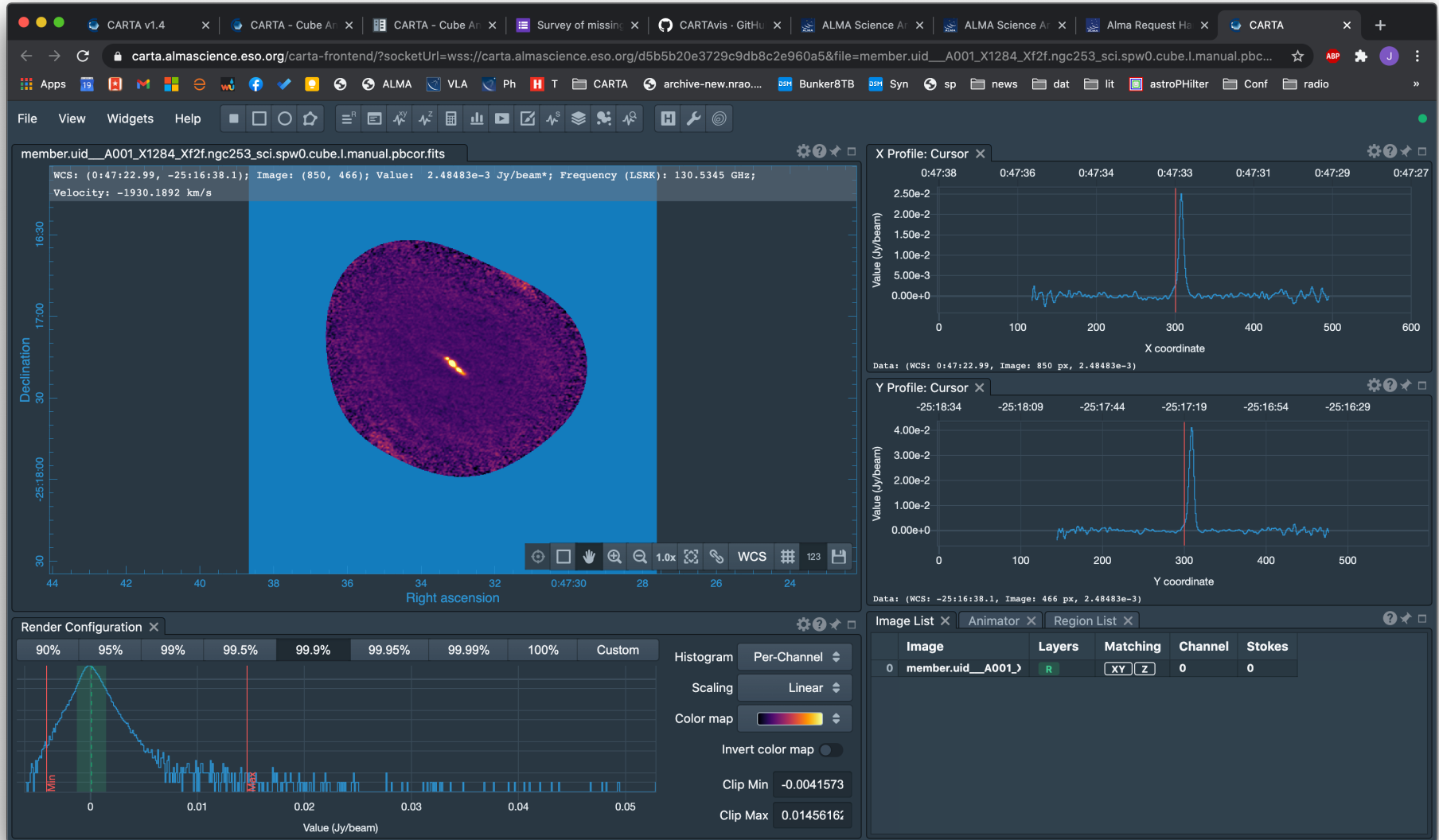
Anonymous User: Request #2154992946764 ✓
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Project / OUSet / Executionblock	File	Size	Accessible	Actions
Request 2154992946764		3 GiB		
Project 2017.1.00161.L				
Science Goal OUS uid://A001/X1284/Xf2d				
Group OUS uid://A001/X1284/Xf2e				
Member OUS uid://A001/X1284/Xf2f				
SB ngc253_b_04_TM1				
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<input type="checkbox"/> product	member.uid_A001_X1284_Xf2f.ngc253_sci.spw0.cube.l.manual.mask.tgz	720 KiB	✓	
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<input type="checkbox"/> product	member.uid_A001_X1284_Xf2f.ngc253_sci.spw1.cube.l.manual.mask.tgz	720 KiB	✓	
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Member OUS uid://A001/X1284/Xf31				
SB ngc253_b_04_7M				
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


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	↕ Project	↕ Longitude	↕ Latitude	↕ Band	Sp Resolution	Beam Axis Ratio	↕ File Name
 	VLASS1.1	0h2m28.328s	-36°30'0.000"	S	2.520	2.554	VLASS1.1.q1.T01t01.J000228-363000.10.2048.v1.l.iter1.image.pbcor.tt0.subim.fits
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 	VLASS1.1	0h7m24.984s	-36°30'0.000"	S	2.518	2.440	VLASS1.1.q1.T01t01.J000724-363000.10.2048.v1.l.iter1.image.pbcor.tt0.subim.fits
 	VLASS1.1	0h7m30.769s	-37°30'0.000"	S	2.455	1.881	VLASS1.1.q1.T01t01.J000730-373000.10.2048.v1.l.iter1.image.pbcor.tt0.subim.fits
 	VLASS1.1	0h7m36.847s	-38°30'0.000"	S	2.502	1.462	VLASS1.1.q1.T01t01.J000736-383000.10.2048.v1.l.iter1.image.pbcor.tt0.subim.fits
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CARTA v3beta (2022)



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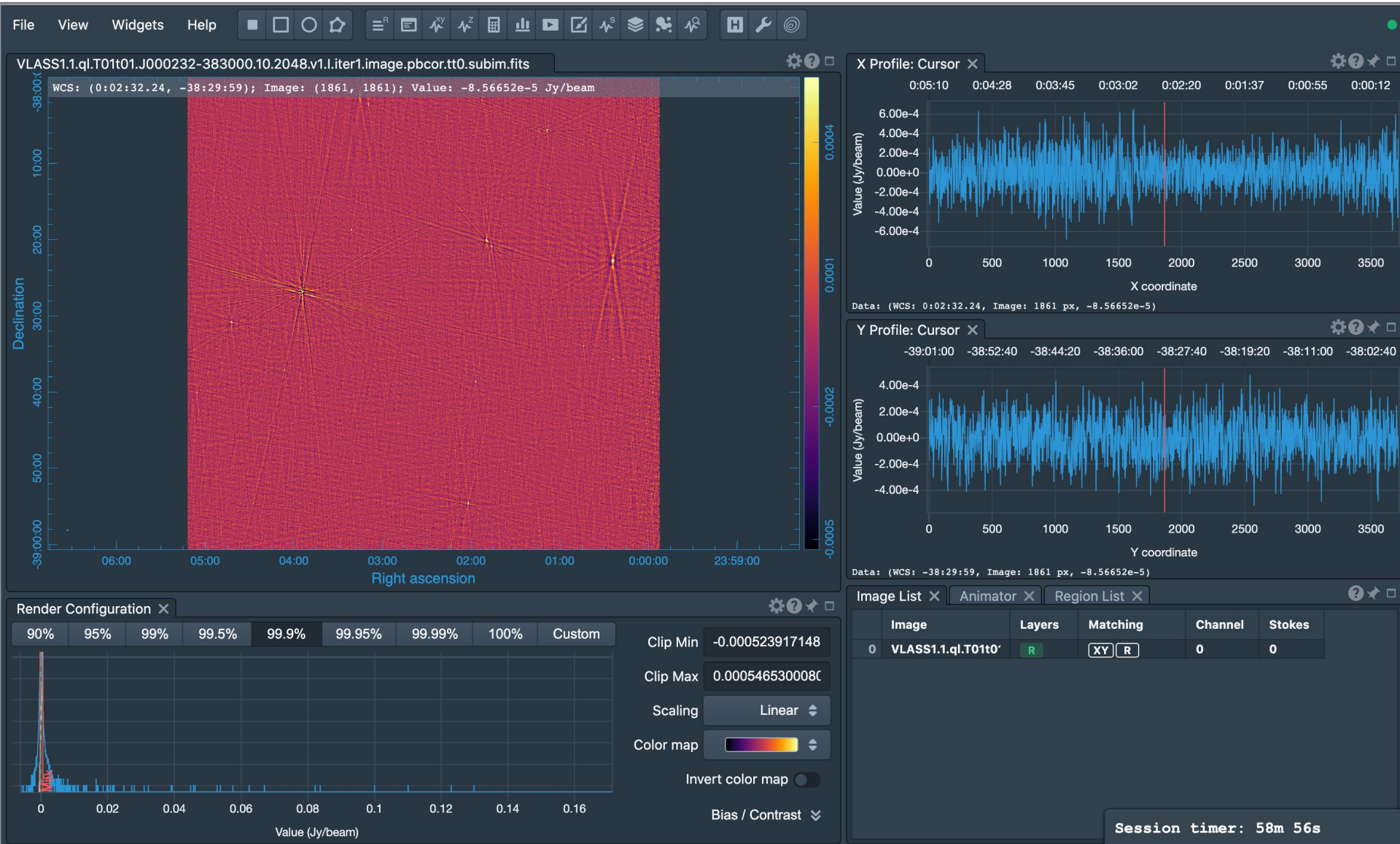
Project / OUSet / Executionblock	File	Size
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Data entities 1-1 of 1		



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CARTA

Future development:

- Channel map view
- Position-velocity map generator **in progress**
- Collaborative tools (server) **developing the science and use cases**
- Volume (3D) rendering
- Improved Profile, histogram, and image fitting tools
- Scripting interface with Python3 (**ongoing**)
- Three-color (RGB) blender
- Ultra-efficient HDF5-IDIA format
- Source finder
- VO support **in progress**
- Publication quality export → **scripting and high-res png**
- Dynamic pV cuts
- Transposed cubes
- Partial image cube loading
- Image smoothing
- Collaboration tools
- VR integration (IDaVie)

CARTA

- CARTA is the new visualization tool, actively developed for radio images (but may be used for any fits image [cube]). It replaces the CASAviewer that is not supported anymore.
- Performance and architecture of CARTA are ideal for displaying large images hosted locally (VLA, ALMA, ...) or remotely (SKA, ngVLA, VLASS, ...)
- A few CASA viewer features (like cube rotation, source finding) are not implemented in CARTA yet and are now prioritized against other, new features.
- CARTA is integrated in the ALMA and NRAO/SRDP archives
- For questions, comments, suggestions, please contact the CARTA helpdesk support@carta.freshdesk.com
- CARTA homepage: cartavis.org



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