

Advanced Aladin

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Aladin v10.0. New look and feel

Detailed info on what's new in Aladin: <http://aladin.u-strasbg.fr/java/FAQ.htm#ToC1>

The screenshot displays the Aladin v10.0 web interface. At the top, the title bar reads "Aladin v10.0". Below it is a menu bar with options: File, Edit, Image, Catalog, Overlay, Coverage, Tool, View, Interop, Help. The main interface is divided into several sections:

- Available data → 23804 / 23807**: A tree view on the left side, labeled "Discovery tree" with a white arrow pointing to it. It lists various astronomical data collections such as "Gamma-rav", "X-rav", "UV", "Optical", "HST", "Skymapper", "SDSS", "CFHTLS", "Swift", "MAMA", "DECaPS", "DES", "PanSTARRS", "DSS", "DECaLS", "Mellinger color optical survey", "IPHAS", "BASS", "GTC Public Archive", "DES DR1 L1neA color", "Infrared", "Radio", "Gas-lines", "Data base", "Catalog", "Cube", "Ancillarv", "Outreach", "Others", and "Problematic".
- Command**: A text input field containing "279.22881 -00.42783".
- Frame**: A dropdown menu set to "ICRSd".
- Projection**: A dropdown menu set to "Spheric".
- Right Panel**: A "Welcome to Aladin" message with instructions: "your professional sky atlas. Discover all astronomical data available over the net! Compare them with your own data. Prepare your observation mission. To start, type any object name, such as M1, and press ENTER... Or easier, clic in the main frame and enjoy the sky...". Below the message is a vertical toolbar with icons for select, pan, dest, phot, dram, tag, moc, spect, filter, cross, plot, rgb, assoc, crop, cont, pixel, and a list of parameters: epoch, size, dens., opac., room.
- Bottom Bar**: A search bar with "select" and "from --all collections --" fields. Below it are icons for col, sort, view, scan, filter, grid, study, wink, north, hid, multiview, and match.

Simbad info

Aladin v10.0

File Edit Image Catalog Overlay Coverage Tool View Interop Help

Available data → 21301 / 21304
● in view ● out view

- Collections → 21301
 - Image → 341
 - Data base → 4
 - Catalog → 19684
 - Cube → 9
 - Ancillary → 12
 - Outreach → 43
 - Others → 1204
 - Problematic → 4

Command [] Frame ICRS Projection Spheric

SDSS 2MASS WISE GALEX PLANCK AKARI XMM Fermi Gaia Simbad MED

DSS2 color

42 Cnc
Type: M1Cl
Mag: 7.04
by Simbad

15' 1.056° x 1.164°

select
from -- all collections --

exp. sort view scan filter

grid study link north bar multiview match

epoch size dens. opac. zoom

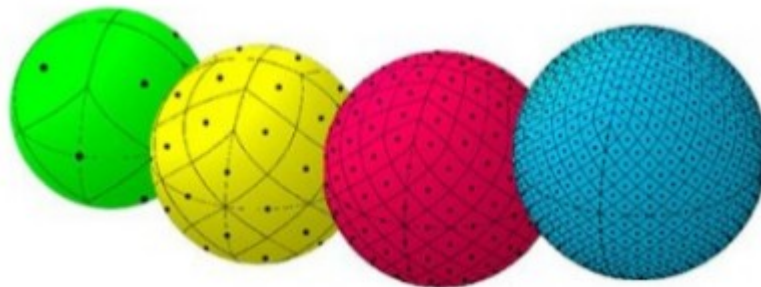
log flux VizieR Phot. at 5' log ν
↑ 15.2Jy
10THz 1PHz

42 Cnc

- Click on the star and wait a few seconds. Then, the label will pop up.
- Hitting the blue text (42 Cnc in the example) will open a new page in your browser pointing to Simbad.

MOC: Multi-object coverage

- Described at:
<http://www.ivoa.net/documents/MOC/20140602/REC-MOC-1.0-20140602.pdf>
- MOC is used to describe sky regions (e.g. footprints) and provides a very fast mechanism to perform operations (union, intersection, ...) between them.
- Based on HealPix
(<https://iopscience.iop.org/article/10.1086/427976/pdf>).



MOC: Usage example

- What is the region of the sky in common between SDSS DR9 and IPHAS DR2?
- We first load the SDSS and IPHAS MOCs (r-band in both cases).

The screenshot displays the Aladin v10.0 software interface. On the left, a tree view shows the 'Available data' structure, including collections like 'SDSS' and 'HST', and catalogs like 'VizieR'. A search bar at the bottom left shows 'select sdss' and 'from - all collections -'. The central panel features a 'Command' window with a search for 'SDSS9 band r' and a 'Load' button. The search results show 'Provenance: SLOAN...', 'Coverage: 35.62% 541.5nm/553.6THz ... 698.9nm/429THz 2008..2014-08-30 Res: 402.5mas', and options for 'Access mode', 'derived prod', 'progressive', 'coverage', and 'Links to orig.img.'. The right-hand panel contains a 'Welcome to Aladin' message and a list of tool icons for navigation and analysis.

MOC: Usage example

Aladin v10.0

File Edit Image Catalog Overlay Coverage Tool View Interop Help

Available data → 23804 / 23807

Command Frame |CRS Projection Spheric

DSS SDSS 2MASS Simbad IJED +

CDS/P/SDSS9/r MOC

select
pan
dist
phot
draw
tag
moc
spect
filter
cross
xyc
rgb
assoc
crop
cont
pixel
prop
del

Welcome to Aladin,
your professional sky atlas.

- Discover all astronomical data available over the net!
- Compare them with your own data.
- Prepare your observation missions.

To start, type any object name, such as M1, and press ENTER...

Or easier, clic in the main frame and enjoy the sky...

CDS/P/IPHAS/DR2/r MOC
CDS/P/SDSS9/r MOC

epoch -
size -
dens. -
opac. -
zoom -

00 39 59.02560 +10 00 14.
23:55:07.95 +31:15:43.5
180° x 103.3°

select
from -- all collections --

coll. ↑ sort view scan filter

grid study weak north hd multiview match

MOC: Usage example

- Click on Coverage / Logical operations. A new window “MOC operations” appears.
- Select the planes and “Intersection”. Hit “Create”.

The screenshot displays the Aladin v10.0 software interface. The main window shows a 3D view of the sky with a grid and several overlapping MOC planes. A dialog box titled "MOC operations" is open in the foreground, prompting the user to specify one or two MOC planes and choose a logical operation. The dialog box contains the following fields and options:

Specify one or two MOC planes,
choose a MOC operation and
press the CREATE button to generate the resulting MOC.

Plane	CDS/P/SDSS9/r MOC - "00 00 00.00000 +00 00 00.00000"
Plane	CDS/P/IPHAS/DR2/r MOC - "23 21 12.16841 +00 14 34.08888"
Plane	-- none --
Plane	-- none --
Plane	-- none --
Plane	-- none --

Union Intersection Subtraction Difference Complement

CREATE Reset Close ?

The background interface shows a list of available data on the left, including SDSS, CFHTLS, DEEP, Swift, MAMA, DECaPS, DES, PanSTARRS, DSS, DECaLS, Mellinger color optical survey, IPHAS, BASS, GTC Public Archive, DES DR1 LineA color, Infrared, Radio, Gas-lines, Data base, and Catalogo. The main view shows a 3D sky map with a grid and several overlapping MOC planes. The right panel shows a toolbar with various tools and a small sky map at the bottom right.

MOC: Usage example

- A new plane (red) showing the sky region in common will appear.
- Hit “Prop” icon to know the size of the region of the sky in common.

The screenshot shows the Aladin v10.0 software interface. The main window displays a 3D MOC map of the sky with several overlapping planes. A red plane is highlighted, representing the region in common. The interface includes a menu bar (File, Edit, Image, Catalog, Overlay, Coverage, Tool, View, Interop, Help), a toolbar, and a list of available data sources on the left. The properties panel for the selected plane "CDS/P/SDSS9/r MOC" is visible, showing details such as PlaneID, Color, Format, Coverage, Best MOC ana res, Drawing method, and Specific drawing method.

Available data → 23804 / 23807

Command: CDS/P/SDSS9/r MOC

Frame: ICRS Projection: Spheric

Properties

Properties of the plane "CDS/P/SDSS9/r MOC"

PlaneID: CDS/P/SDSS9/r MOC

Color: [Color selection palette]

Format: Multi-Order Coverage map (MOC)

Coverage: 35.617% of sky => 14693**2

Best MOC ana res: 51.53" (moc order=12)

Drawing method: perimeter cell borders fill in

Coord.svs.: ICRS

Specific drawing method

.projection: Default

.frame: Default

01:09:31.01 +43:02:47.6
180° x 103.3°

MOC: Usage example (II)

- How many ASAS sources lie in the VVV field of view?
- Load the VVV MOC (Note that “Frame” is in Gal. coordinates).

The screenshot displays the Aladin v10.0 software interface. The main window shows a sky map with a grid of Galactic coordinates. A blue MOC (Multi-Object Coverage) region is overlaid on the map, centered around the VVV field. The interface includes a menu bar (File, Edit, Image, Catalog, Overlay, Coverage, Tool, View, Interop, Help), a command line, and a toolbar with various icons for navigation and data manipulation. On the left, a tree view shows the available data collections, including ASAS Variable Stars in Southern hemisphere (Poimanski+), Beta Cephei stars in the ASAS-3 data, and various other astronomical datasets. On the right, a panel displays the Aladin logo and a welcome message, along with a list of features and a search bar. At the bottom right, a small inset window shows a zoomed-in view of the MOC region, with coordinates 342.58127 +00.95859 and 180° x 138.1°.

MOC: Usage example (II)

- How many ASAS sources lie in the VVV field of view?
- Load the ASAS catalogue just in the MOC region

The screenshot displays the Aladin v1.0.0 software interface. The main window shows a 3D galactic map with a grid overlay. A rectangular region is highlighted in blue, representing the MOC (Multi-Object Coverage) field of view. A pop-up window titled "ASAS Catalog of Variable Stars. Version 2005-09-05 (asas3) ..." is open, showing the following details:

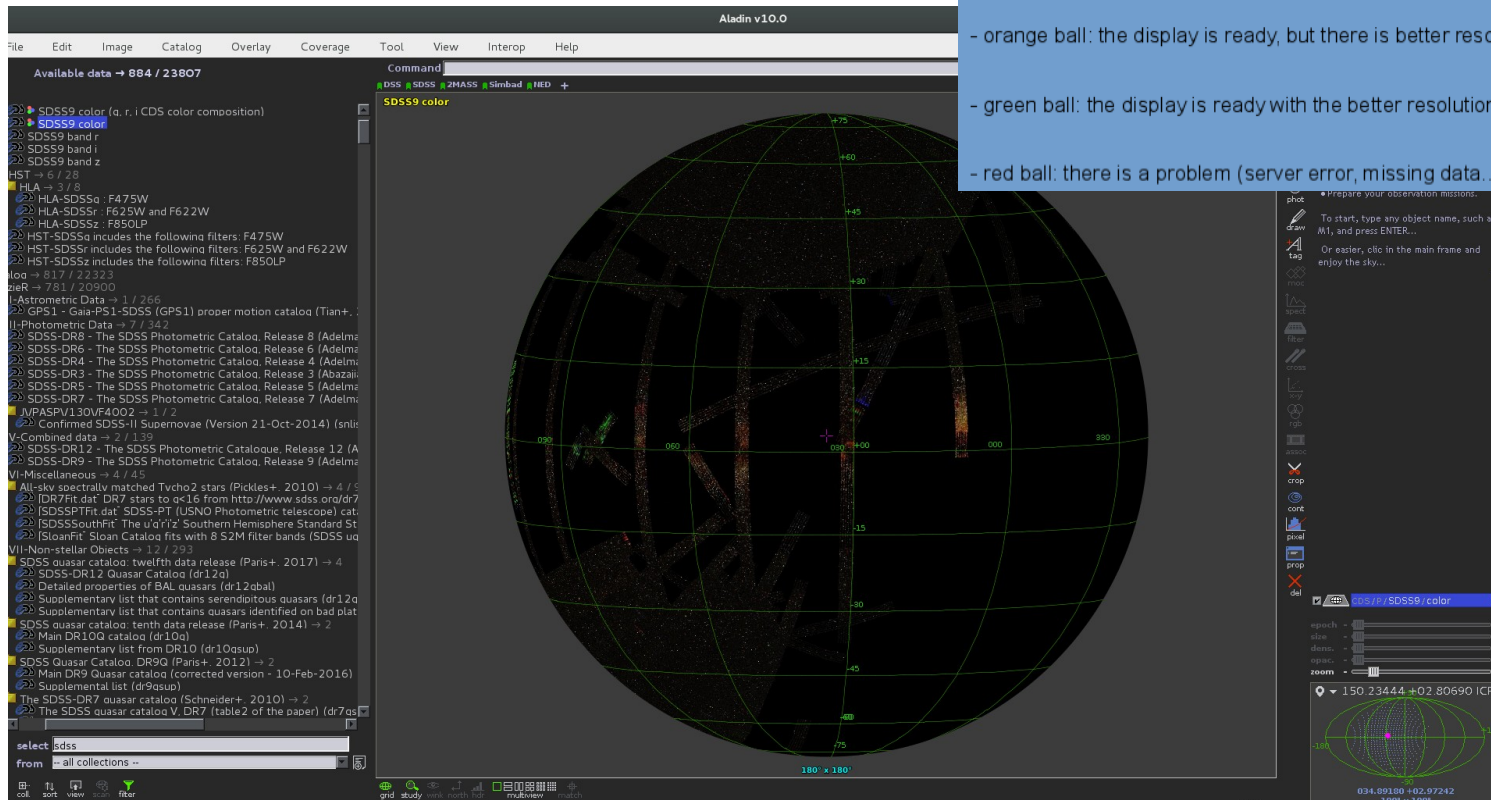
- Provenance: CDS ...
- Coverage: 40.98°
- Reference pub. year: 2002
- Nb rows: 50,122
- Access mode: Whole data in view by region & MOC by CDS Xmatch by criteria
- derived prod. coverage density map

The interface also shows a sidebar with a tree view of available data collections, including "ASAS Variable Stars in Southern hemisphere (Poimanski)", "ASAS Catalog of Variable Stars. Version 2005-09-05", and "ASAS Galactic fundamental mode RR Lyrae stars (S)". The bottom right corner displays the current coordinates: 150.23444 +02.80690 ICRS.

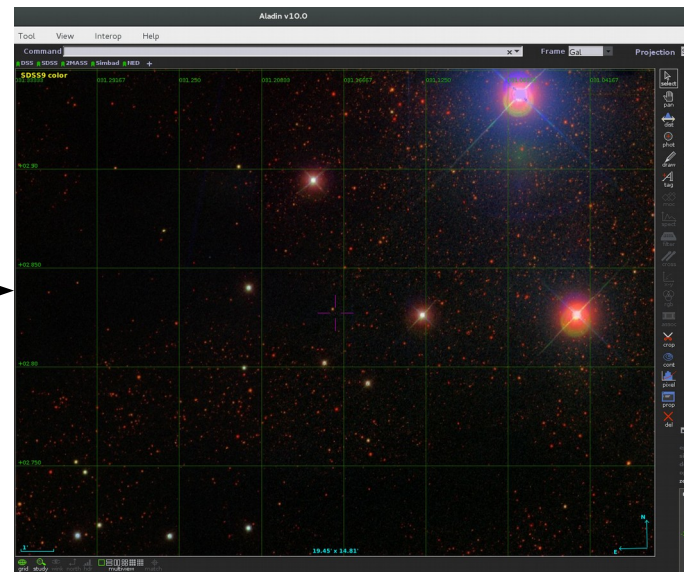
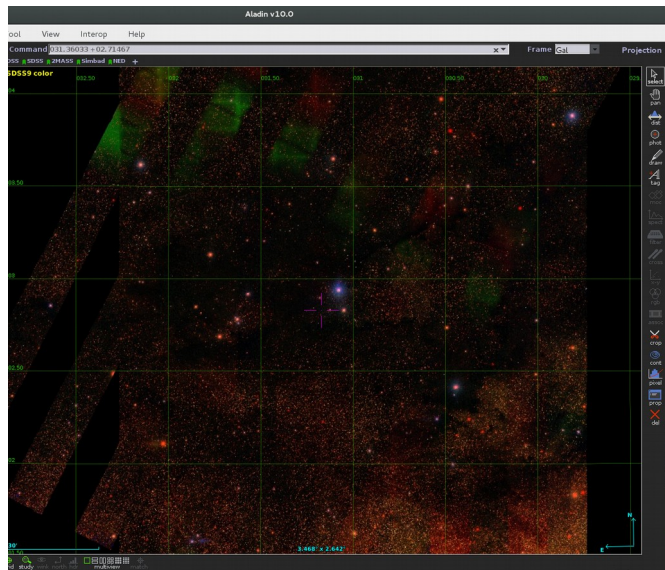
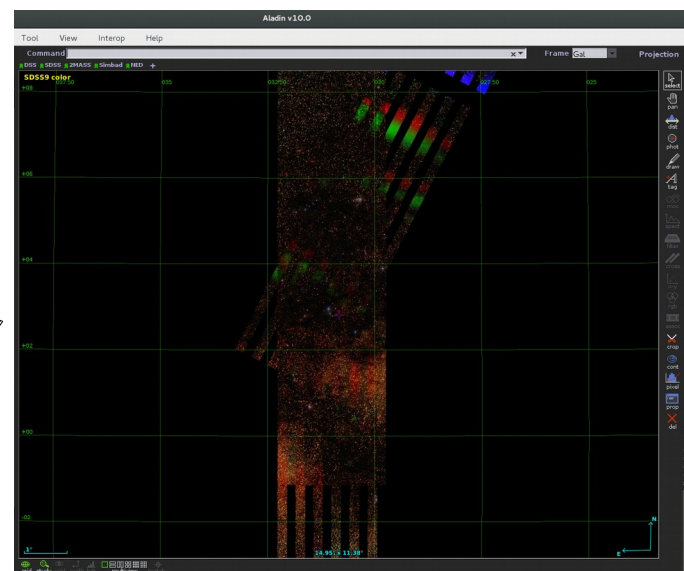
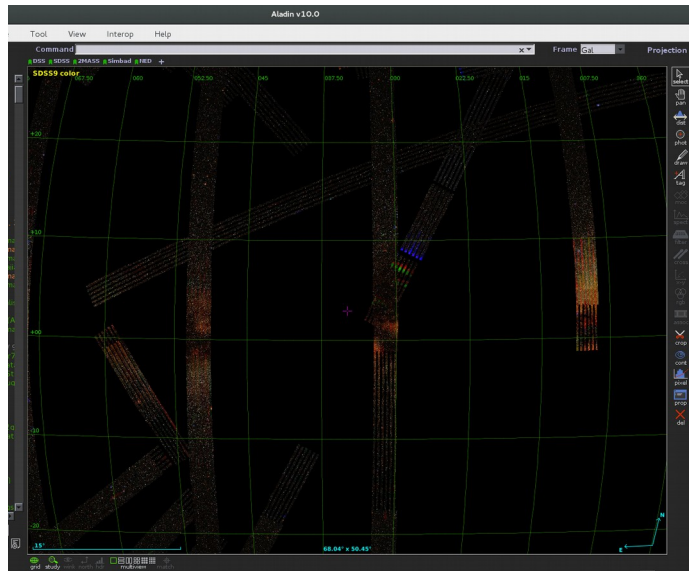
HIPS

- Hierarchical Progressive Survey
- Visualization “a la Google Maps”
- Zoom in/out with the cursor to get the collection of images shown in the next slide

- blinking green/orange ball: Aladin is still downloading additional data;
- orange ball: the display is ready, but there is better resolution data for this region;
- green ball: the display is ready with the better resolution data for this region;
- red ball: there is a problem (server error, missing data...)



HIPS



Other functionalities: Sextractor

- File / Open Server Selector
- In “Server Selector” → Tools / S-Extractor
- Work with individual images (no HIPS).

The screenshot displays the Aladin v10.0 software interface. The main window shows a star field visualization with a grid overlay. The top menu bar includes File, Edit, Image, Catalog, Overlay, Coverage, Tool, View, Interop, and Help. The left sidebar shows a tree view of available data and collections. The bottom-left window is the "Server selector" dialog, which is open to the "Tools" tab. The "S-extractor facility (v2.8.6)" tool is selected, and its configuration parameters are visible:

- Image reference: 2MASS J 9810075 J10160257
- Threshold (x RMS): 2.0
- Mag zero point: [empty]
- Saturation (ADU): [empty]
- stellar FWHM (arcs...): 1.2
- Filter type: default.conv
- Phot diam. apertur...: [empty]
- Background type: GLOBAL
- Backgd annulus thi...: [empty]
- Display filter: Object elongation

The main visualization area shows a star field with a grid overlay. The grid is labeled with coordinates: RA (279.50833, 279.550, 279.54167, 279.53333, 279.5250, 279.51667) and Dec (-00.250, -00.25833, -00.26667, -00.2750, -00.28333, -00.29167, -00.30). The bottom status bar shows the field size: 3.815" x 3.068".

Other functionalities: FoV

- File / Open Server Selector
- In “Server Selector” → FOV

The screenshot displays the Aladin v1.0.0 software interface. The main window shows a grid of astronomical images in a Spherical projection, with a central frame labeled 'ICRSd'. The interface includes a menu bar (File, Edit, Image, Catalog, Overlay, Coverage, Tool, View, Interop, Help), a Command line, and a Frame/Projection selector. A 'Server selector' dialog box is open, showing a table of instrument fields of view (FoV) and a 'File' button.

Server selector

Others File FoV... Tools...

Image servers: Aladin images, SkyView, Sloan, DSS..., VLA..., Archives..., Others...

Catalog servers: All VizieR, SIMBAD, SDSS, Gaia, SkyBot, NED, VO, Others...

Instrument fields of view ?

Specify a position, select one instrument and press the SUBMI...

Target (ICRSd, name) 279.54038000 -00.27628000

Angle (in degrees) 0.0

Instrument	Tele...	Description	Author
CFH12K	CFHT	Large field camera	CFH
ESPADONS	CFHT	Echelle Spectropolarimetric device	CFH
MEGACAM	CFHT	Wide field imaging camera	CFH
MEGAPRIME	CFHT	Wide field imaging camera + quid...	CFH
WIRCAM	CFHT	Wide field IR camera	CFH
HST	HST	All Hubble Space Telescope FoVs	STScI/...
WFCINT	INT	Isaac Newton Telescope Wide Fi...	Luis Co...
SOFI	NTT	ESO NTT single CCD camera	ESO-C...
SuprimeCam	SUBARU	The Subaru Prime Focus Camera ...	CDS/S...

Create your o... Load it...

Reset Clear SUBMIT Close ?

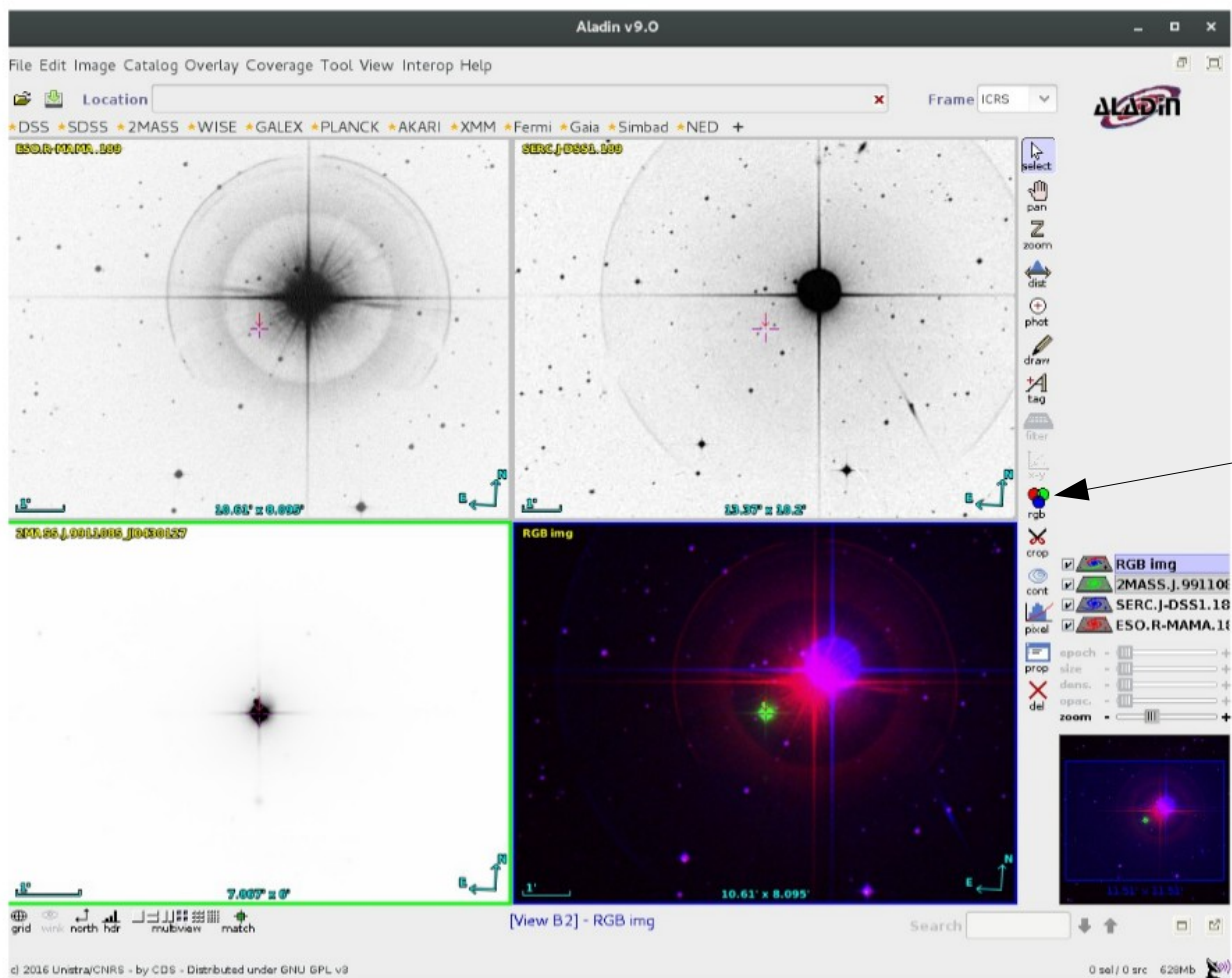
epoch size dem. opac. zoom

18 38 09.69120 -00 16 34.6

279.54038 -00.27628
1.135° x 1.061°

Other functionalities: RGB builder

- Work with images (no HIPS)



Other functionalities: Mosaic builder

- Work with images (no HIPS)

