# Aladin

## The interactive sky atlas

C. Bot, P. Fernique, T. Boch

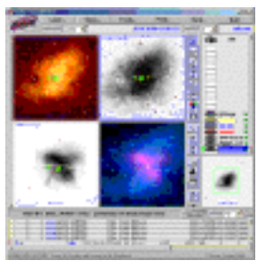
François Bonnarel, Mihaëla Buga, Chaitra, Anaïs Oberto,
François-Xavier Pineau, Jean-Yves Hangouët, Thomas Keller

# Visual exploration of the sky

- Aladin is a long term standing service of CDS
- Explore astronomical images & overlay additional information

## CDS servers+External databases

## Aladin Desktop



full fonctionalities
java
download on your machine
since 1999

## Aladin Lite

preview mode
javascript
in your browser
since 2013

# Aladin Desktop

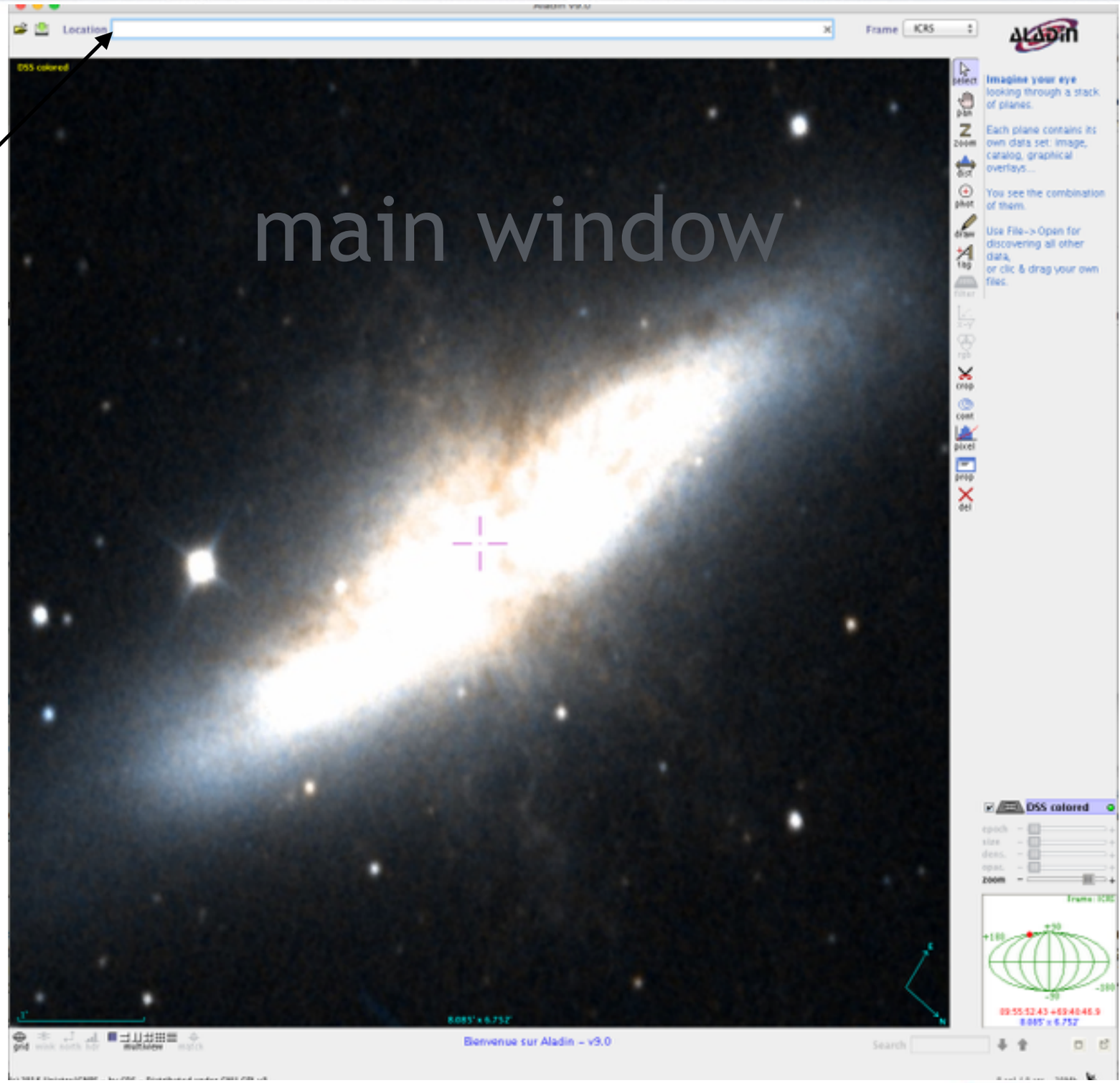
- high level features desktop

type an object name here

exemple: M82

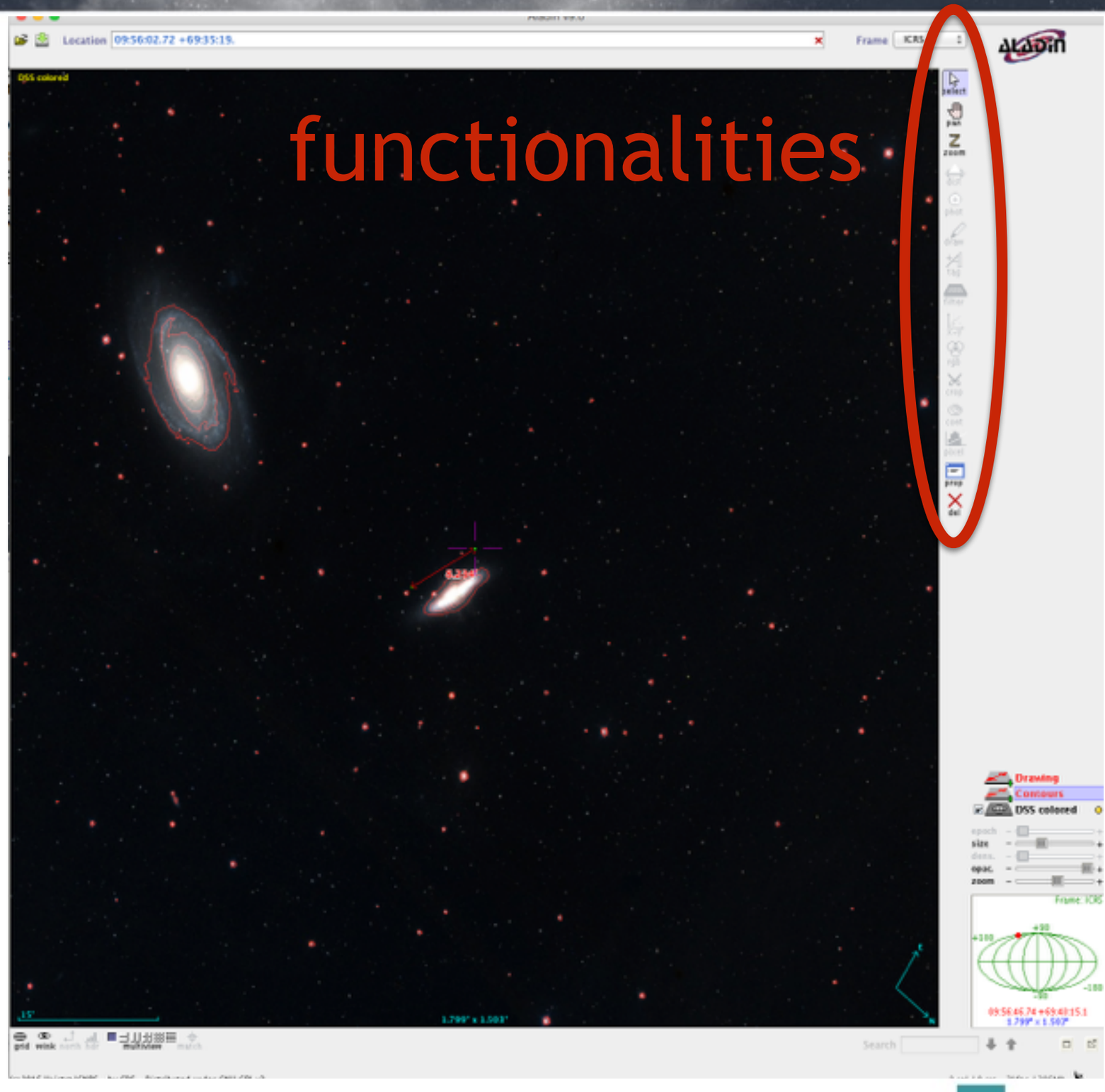
resolved through sesame

DSS color survey by default



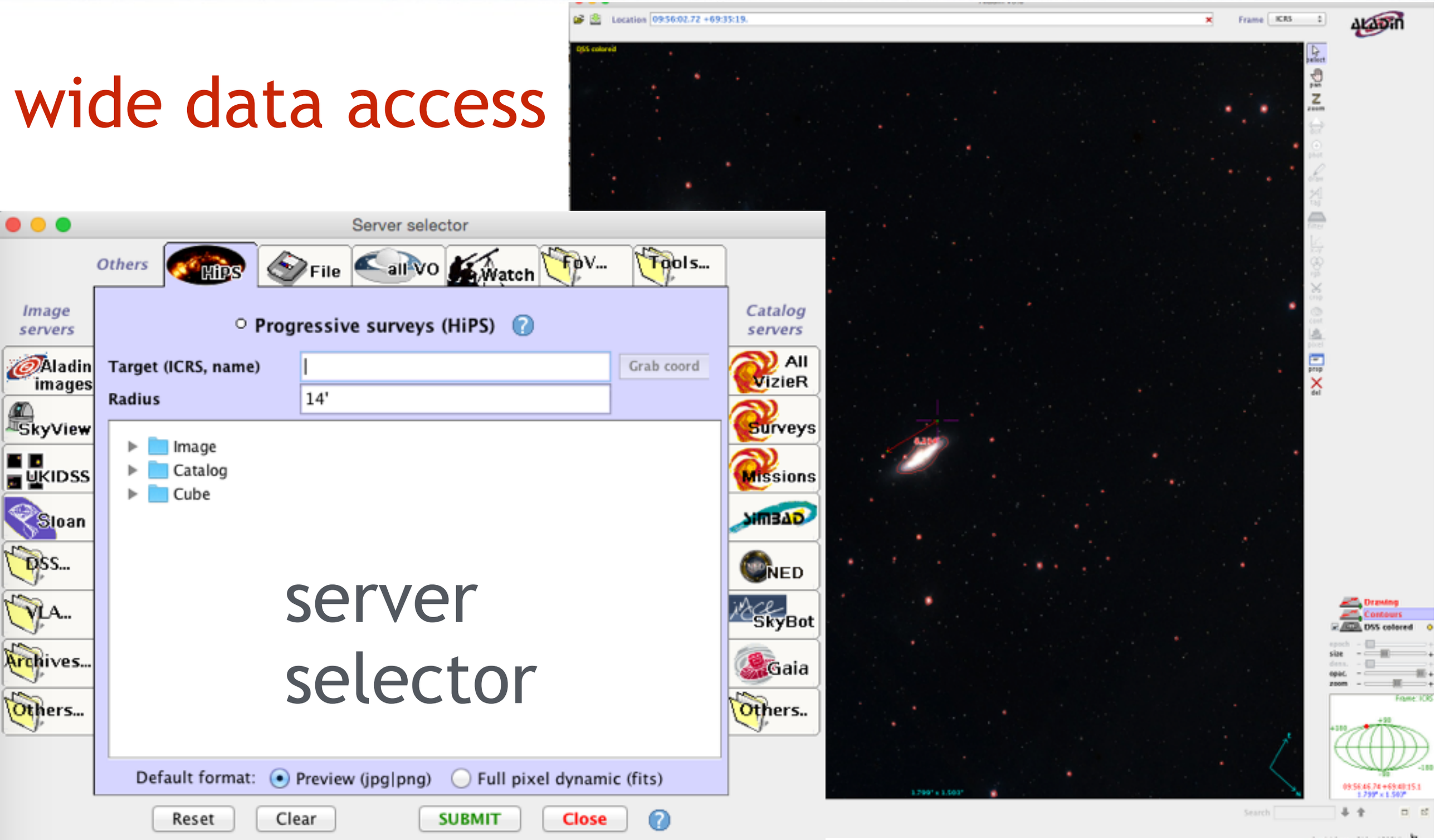
# Aladin Desktop

- high level features desktop
  - zoom in and out (until full sky view)
  - pan
  - color tables
  - contours
  - text, drawings, …



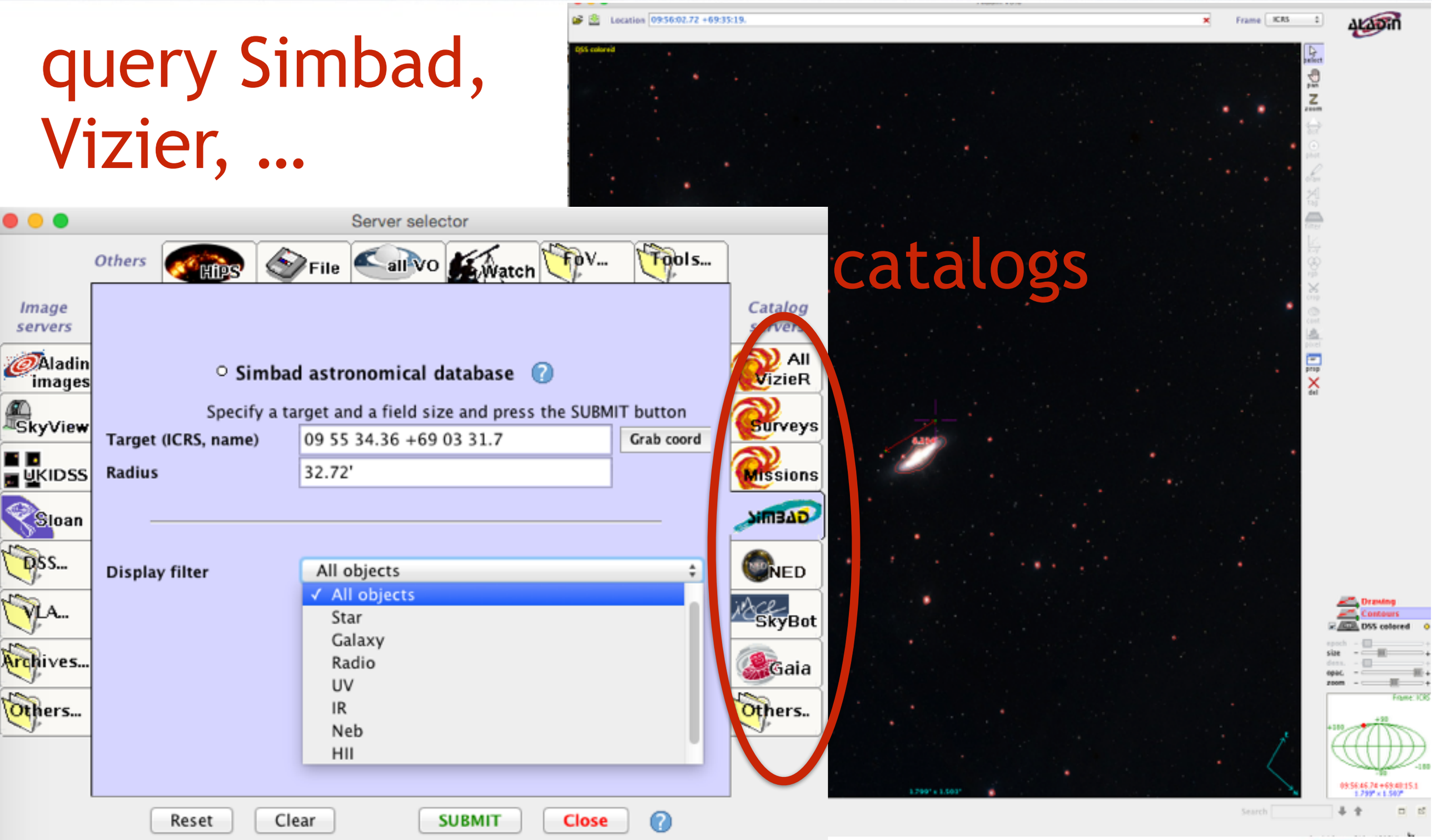
# Aladin Desktop

wide data access



# Aladin Desktop

query Simbad, Vizier, …

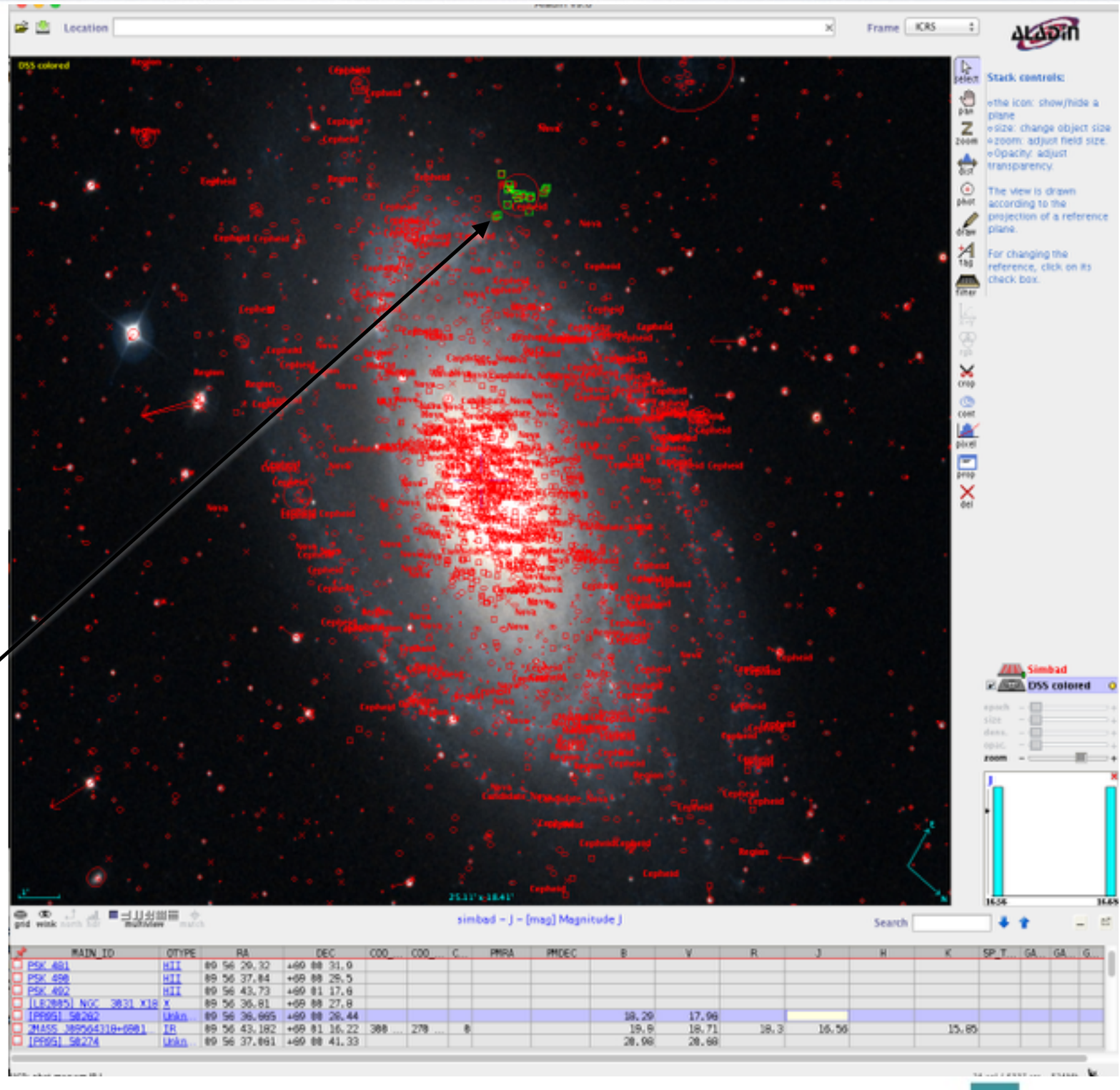


# Aladin Desktop

query Simbad, Vizier, …

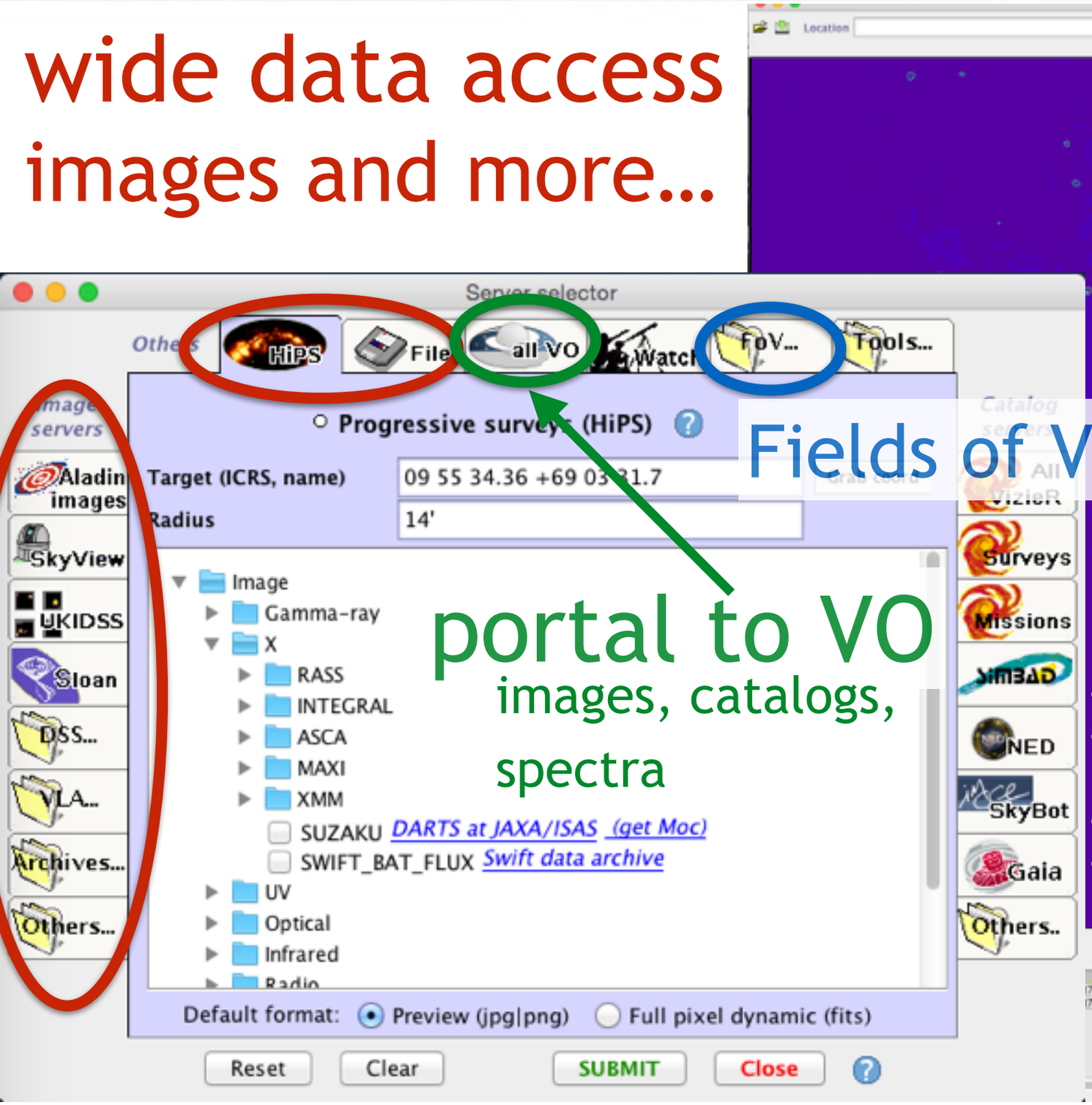
graphical display

Measurements on selected objects



# Aladin Desktop

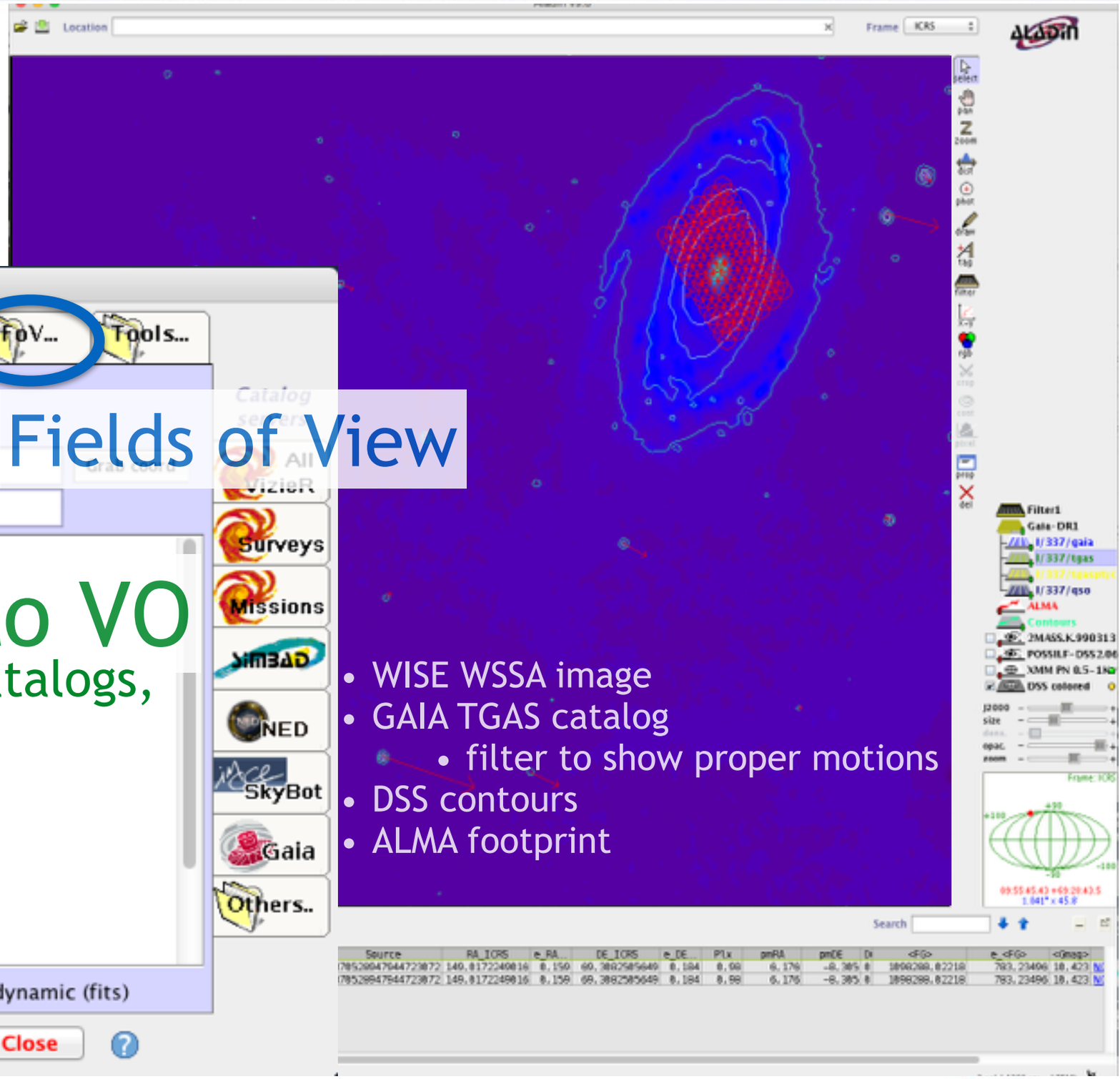
wide data access
images and more…




portal to VO

images, catalogs, spectra

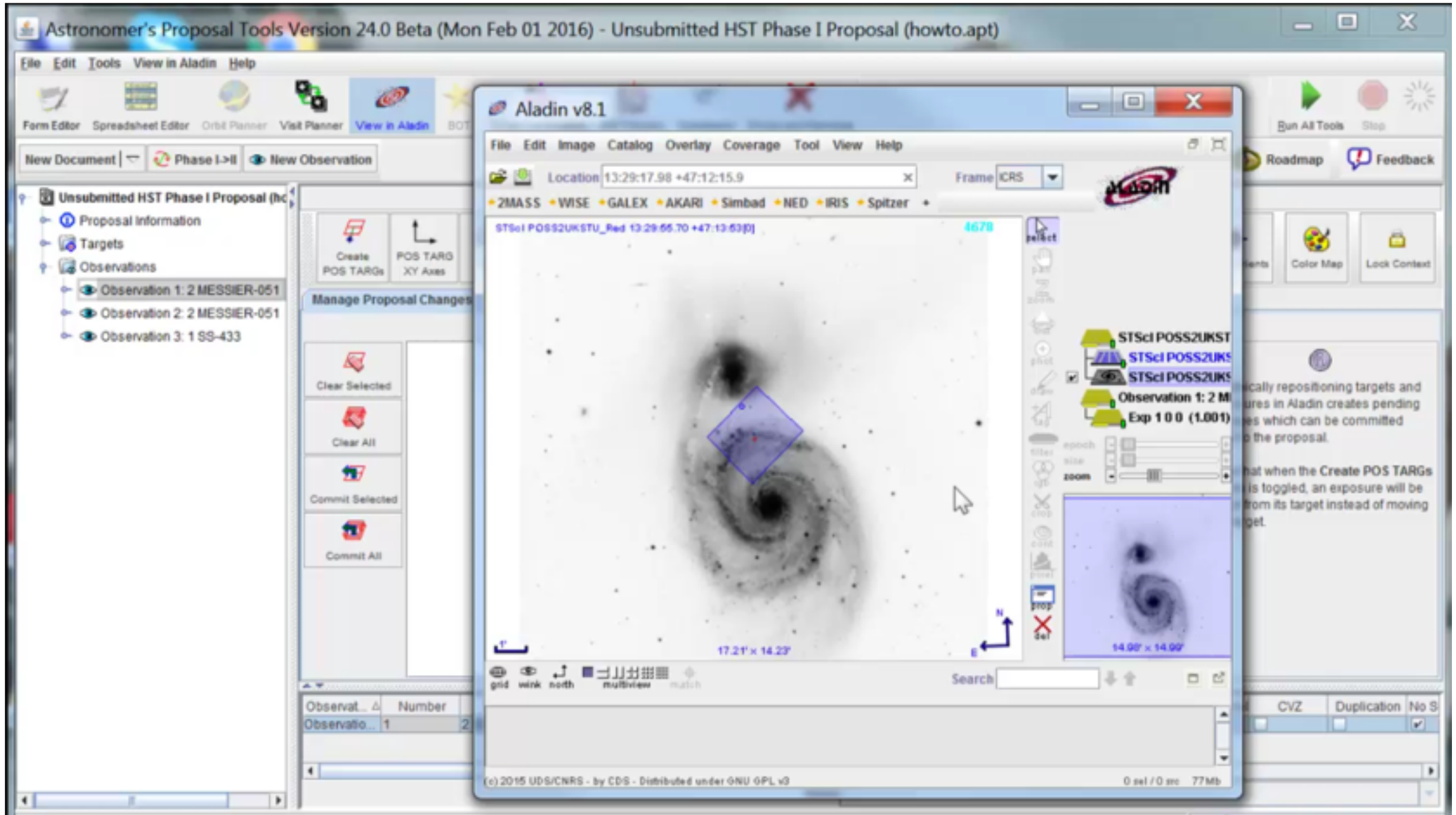
Fields of View




- WISE WSSA image
- GAIA TGAS catalog
  - filter to show proper motions
- DSS contours
- ALMA footprint

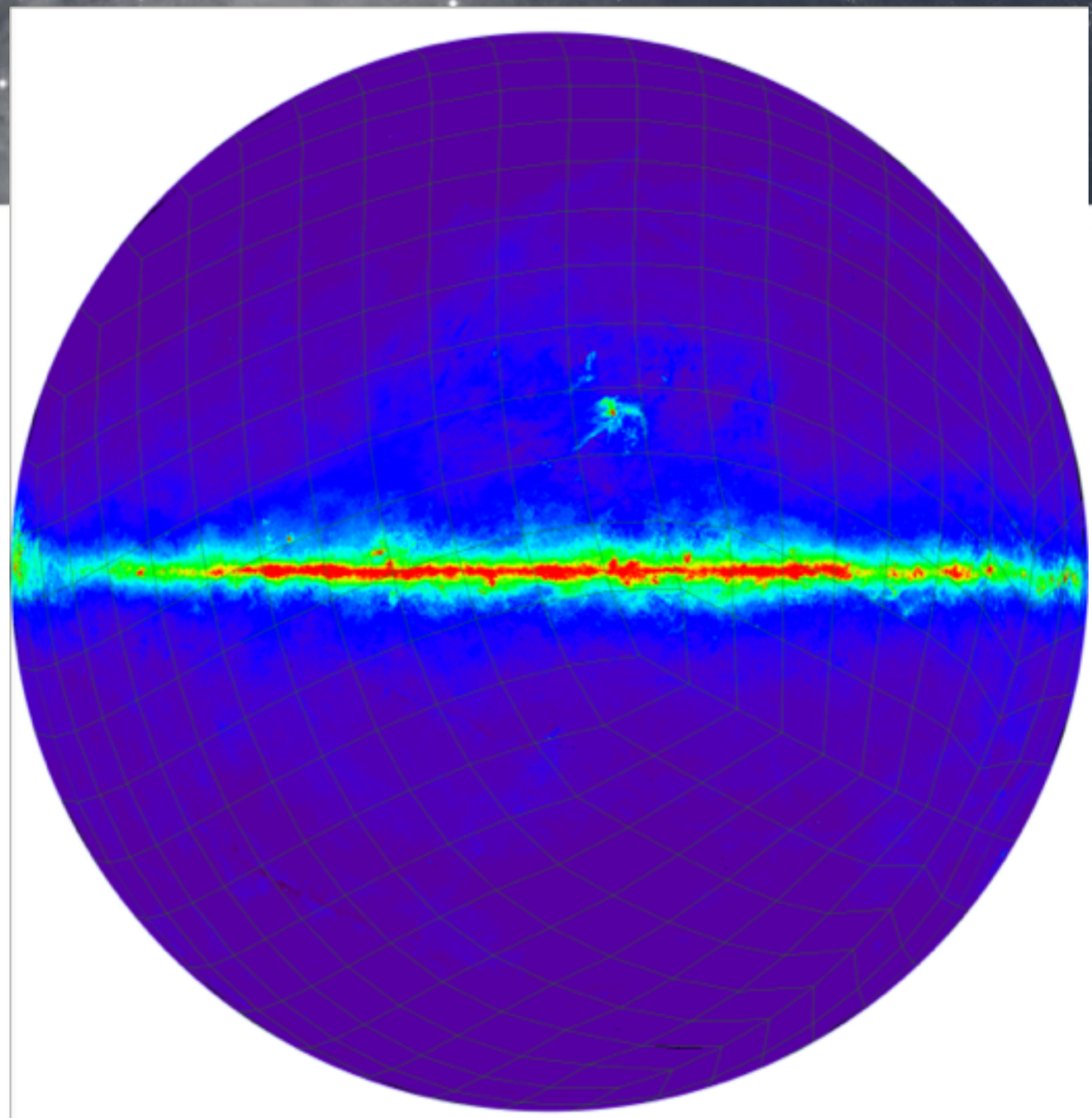
# Aladin Desktop usage

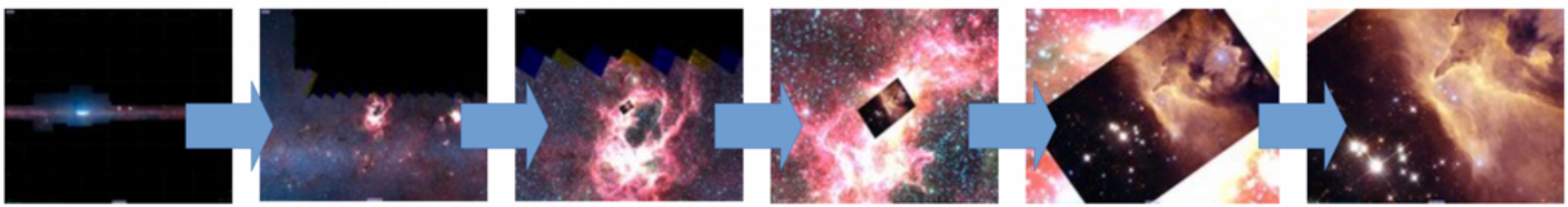
- Used to discover, explore and compare datasets
- Aladin Desktop is also used for preparing observations:
  - incorporated in APT tool for HST since 2006
  - used in GuideCam for ESO observations since 2015



# HiPS

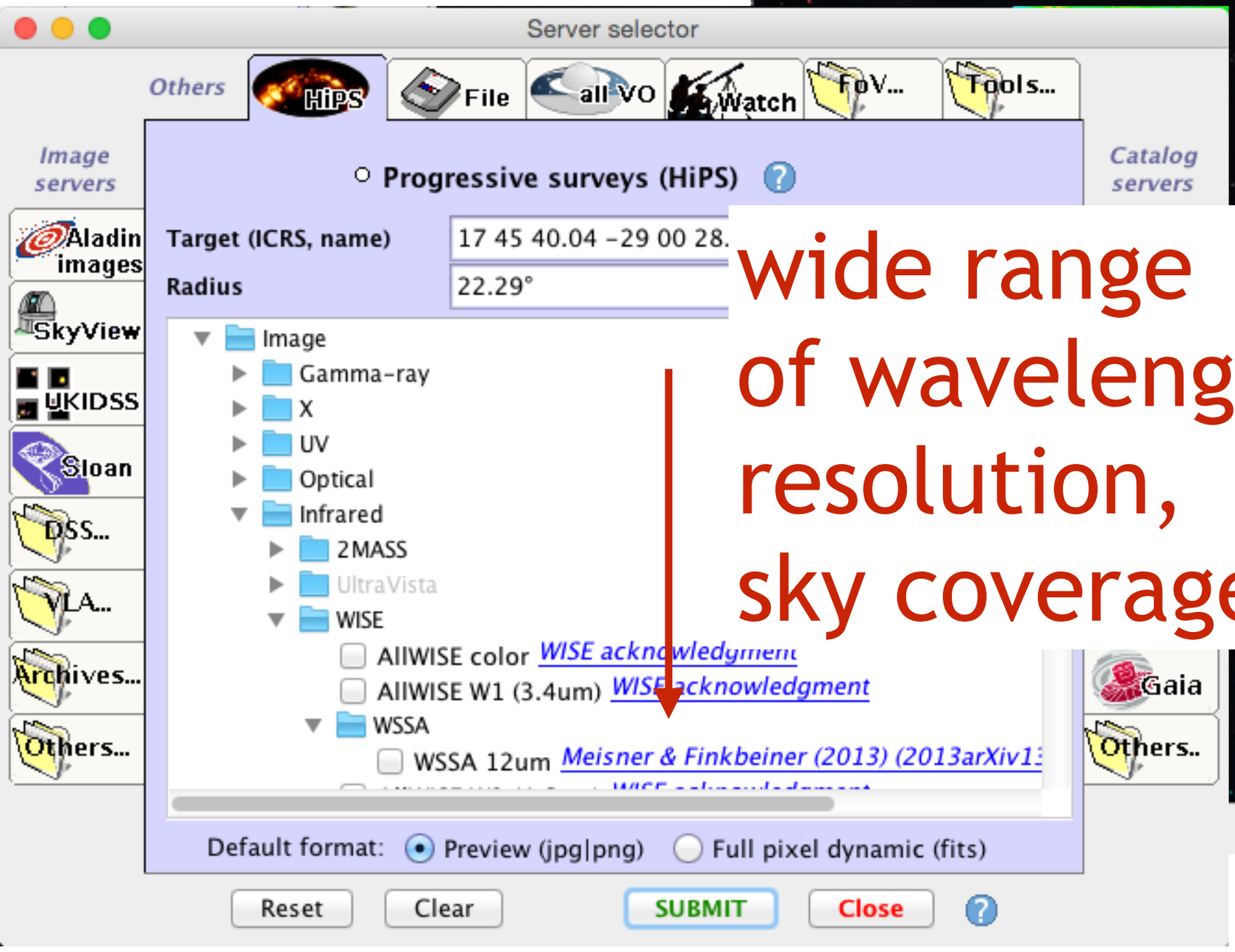
- Hierarchical Progressive Surveys
- Display a survey progressively
  - The more you zoom, the more details you see
- stemmed from healpix
  - tessellation of the sphere
  - all-sky projection
- Fernique et al. (2015) 2015A&A...578A.114F
- images, but also catalogs and data cubes
- HiPSgen to generate HiPS from collection of images





# Aladin Desktop and HiPS

HiPS is now the default tab
in Aladin server selector

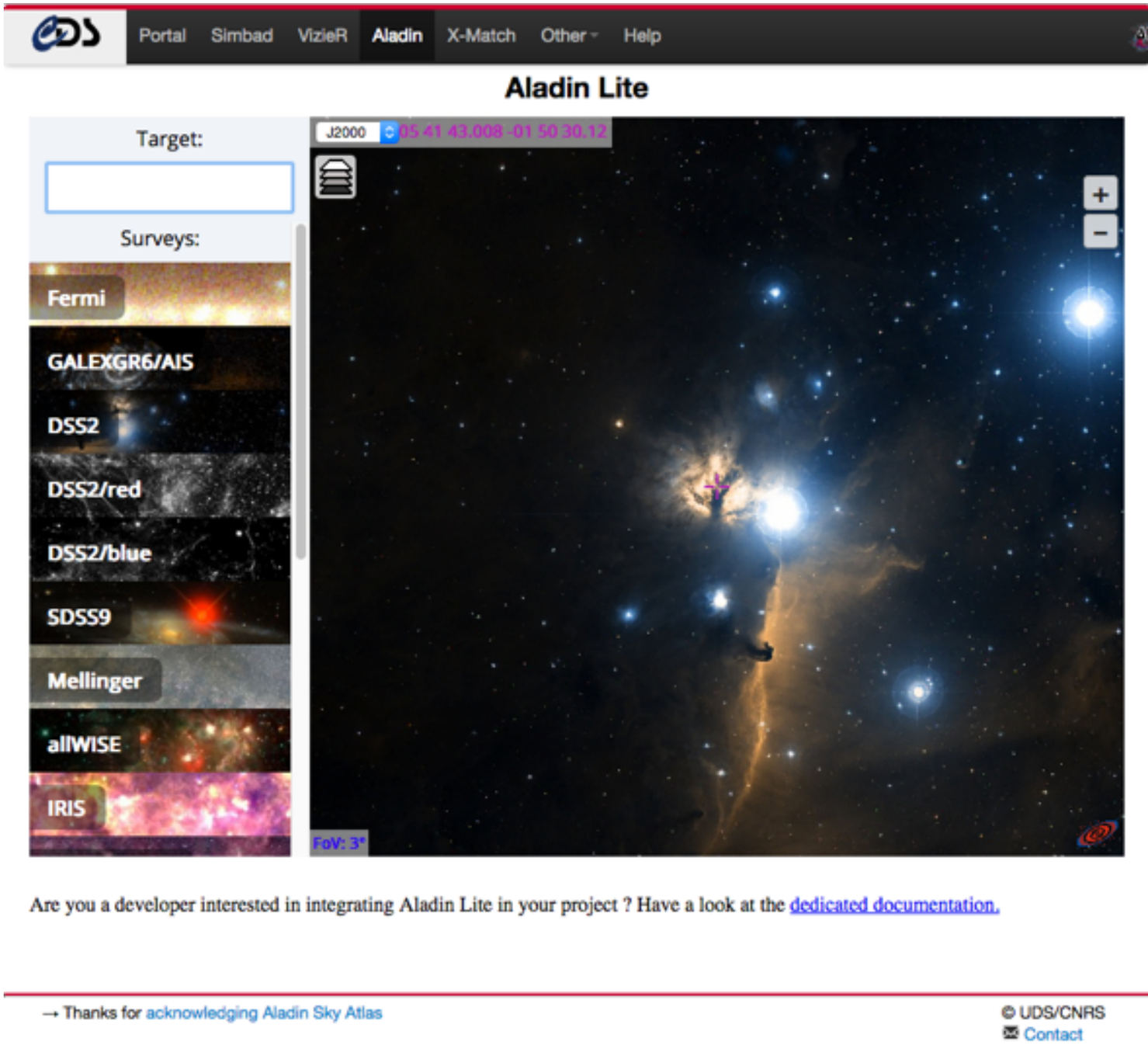



wide range
of wavelength,
resolution,
sky coverage

# Aladin Lite

http://aladin.u-strasbg.fr/AladinLite/

- **Web HiPS visualizer**
  - view HiPS images
  - graphical overlays
    - catalogs, footprint
  - zoom, pan, select
- **In any web browser**
  - no plugin nothing to install
  - run on any device
- API Javascript



# easy to embed in a webpage

Choose options:

| | | |
|---|---|---|
| Width | 400 | px |
| Height | 400 | px |
| Image survey | DSS colored | |
| Initial location | Position or object name | |
| Initial FoV | 60 | degrees |

Then copy/paste the following code in your page:

```
<!-- include Aladin Lite CSS file in the head section of your page -->
<link rel="stylesheet" href="http://aladin.u-strasbg.fr/AladinLite/api/v2/latest/aladi
n.min.css" />

<!-- you can skip the following line if your page already integrates the jQuery librar
y -->
<script type="text/javascript" src="http://code.jquery.com/jquery-1.9.1.min.js" charse
t="utf-8"></script>

<!-- insert this snippet where you want Aladin Lite viewer to appear and after the loa
ding of jQuery -->
<div id="aladin-lite-div" style="width:400px;height:400px;"></div>
<script type="text/javascript" src="http://aladin.u-strasbg.fr/AladinLite/api/v2/lates
t/aladin.min.js" charset="utf-8"></script>
<script type="text/javascript">
    var aladin = A.aladin('#aladin-lite-div', {survey: "P/DSS2/color", fov:60});
</script>
```

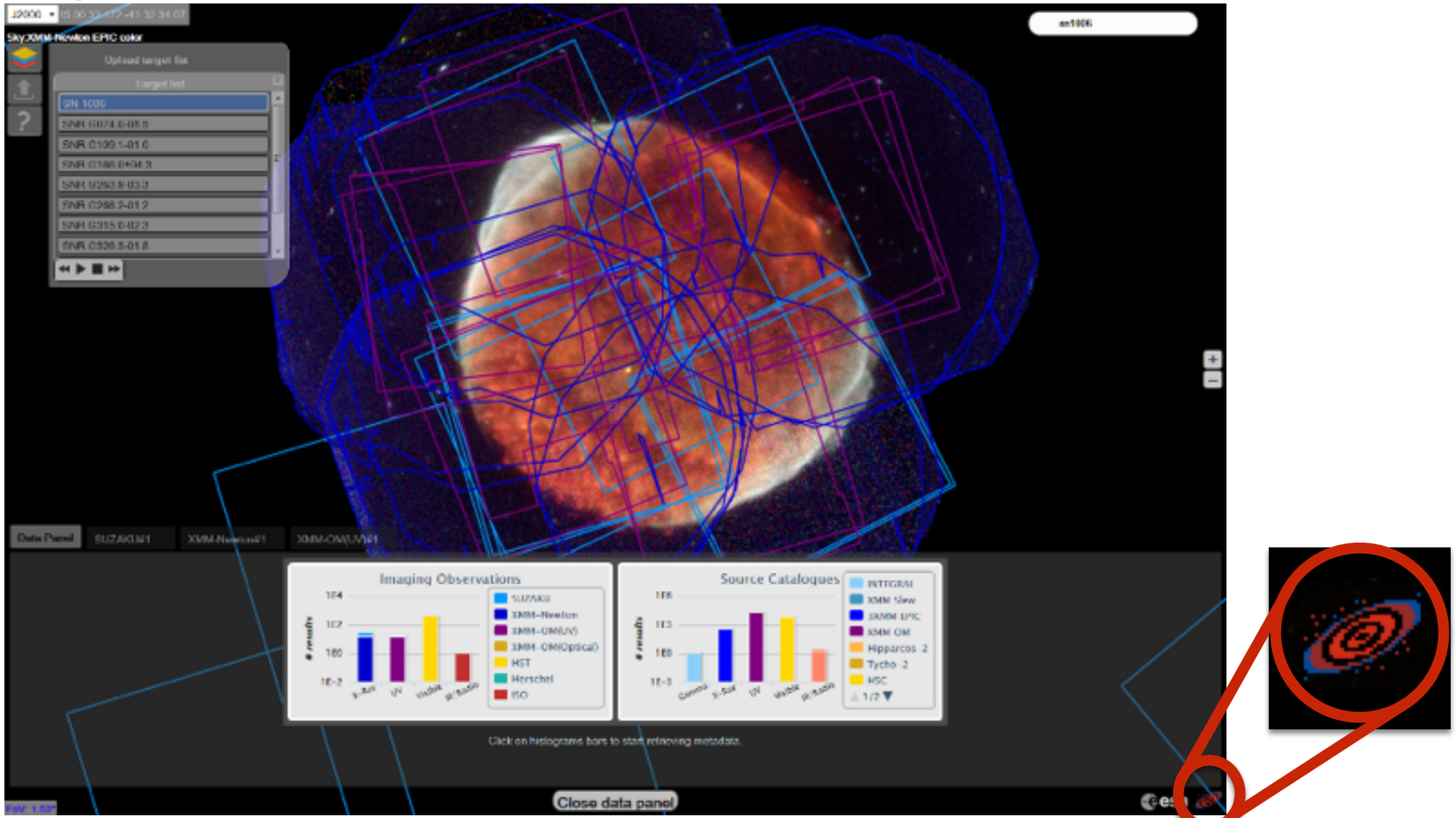
# Aladin Lite everywhere (Nov 2016)

- (*) ESASky
- (*) LIGO Skymap viewer
- (*) ARCHES Walker
- MOPRA pointing
- (*) JUDO2
- Akari explore tool
- Cassis atlas Spitzer spectra
- (*) GLIMPSE 360
- (*) CADE
- (*) ADS All Sky Survey
- Maser DB
- Webb Deep-Sky Society
- Galaxy of interactive stars
- (*) Gamma-Sky
- eHST
- DACE
- http://www.tauceti.caltech.edu
- UWISH2
- Olimpiadi italiane di astronomia
- ICRAR What's up
- NOAO Data Labs
- Planck Legacy archive
- SkyWatch
- (*) Gaia archive visualization interface
- EXOSS Citizen Science
- Giraffe archive
- (*) Astrodeep
- (*) XMM X-Class
- Clusterix SVO
- BlackCAT
- GALAH
- XMM Newton at IRAP
- Subaru Suprime cam
- Skymapper Skyviewer
- (*) ESO Phase3 query interface

*(*) with CDS direct collaborations*

# example: ESA Sky

- discovery portal for ESA space mission data
- highly visible implementation of Aladin Lite




- fully based on Aladin Lite functionalities
- large technical support from CDS during development

# Aladin

- **Aladin Desktop**
  - high level features **desktop**
  - access images, catalogs, footprints
  - **<u>full range of functionalities</u>**
  - interoperable with VO tools
    - Aladin is a VO portal
    - used to validate most standards
  - Used for observation preparation tools (APT, GuideCam)
  - going all hierarchical now! (HiPS)

- **Aladin Lite**
  - **Web** HiPS visualizer
  - preview mode
  - embed in any webpage
  - **<u>easy appropriation</u>**
  - **<u>highly used in wide range of sites/services</u>**
  - basic functions… but more and more!