

# **CONFIRMATION OF AN APPARENT SUPERNOVA IN THE HOST GALAXY *ngc6946***

Giulia Iafrate  
INAF – Trieste Astronomical Observatory

# Summary

Check the apparent supernova (sn2008s) in ngc6946 comparing the image with POSS red, blue and IR

Astrometrical calibration of the image

Coordinates and offset of the supernova

Display the other supernovae in the same galaxy

Display information and bibliographic references of the other supernovae in the same galaxy


# Aladin


To load a local image download the “stand alone” version of Aladin from


<http://aladin.u-strasbg.fr/java/nph-aladin.pl?frame=downloading>


**Description** To run Aladin as an application, you will have to download and install the Aladin java code as it is explained below. Otherwise, to run the applet directly into a browser such as FireFox, Mozilla or Explorer, just use the URL: <http://aladin.u-strasbg.fr/java/nph-aladin.pl> You will find here a [short description of the JAVA concept](#)

**Download official Aladin v5.018**

**Windows:**  1) Download it on your desktop  
2) That's all

**Mac:**  1) Download it  
2) Open it  
3) Copy Aladin.app in your Application folder

**Generic:**  (Aladin+java VM) 1) Click on it  
2) Follows the instructions...

**Web Start:**  (java installer) 1) Click on it  
2) Follows the instructions...

**or Piece by piece:**

<a href="#">Aladin.jar</a>	The software
<a href="#">FAQ.html</a>	Frequently Asked Questions
<a href="#">aladin.pdf</a>	User manual

**Quick update** **Especially for Linux Aladin previous installation:**  
Just download the "Aladin.jar" file above and replace it manually in your previous installation.  
(not possible with "Aladin.exe" Windows distribution nor with Web Start)

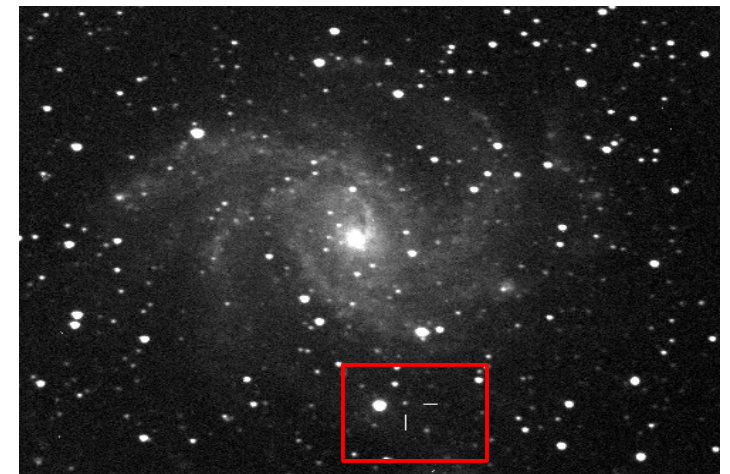
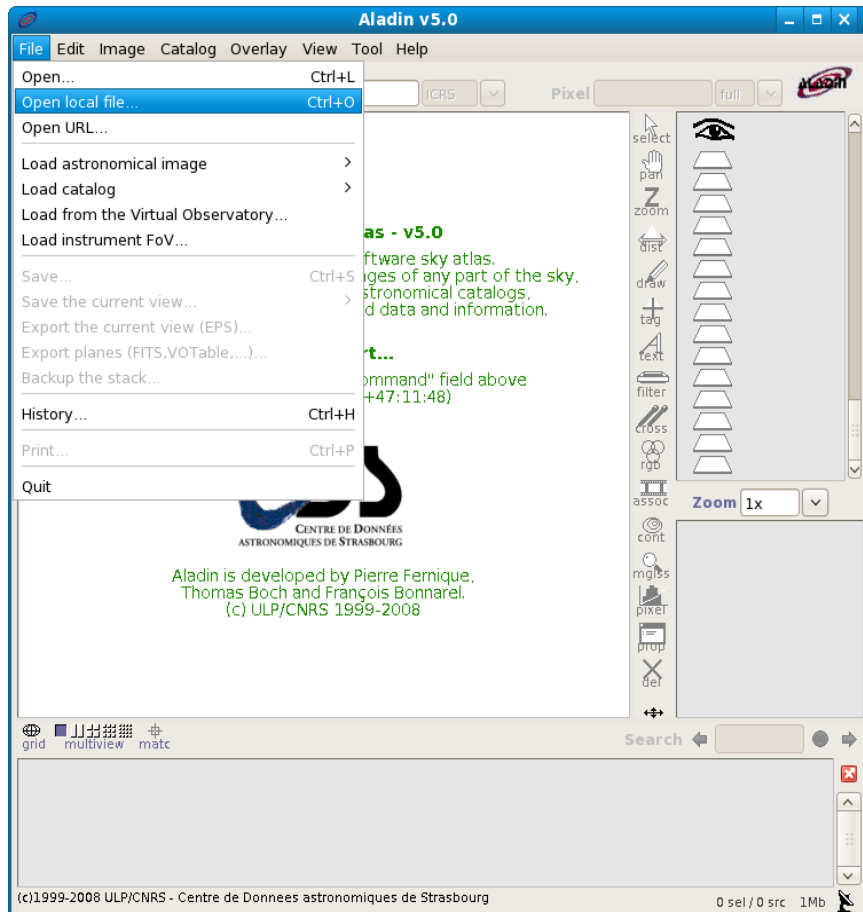
**Other Aladin versions** [\(Description...\)](#)

<b>Beta version v5.026</b>	<a href="#">AladinBeta.jar</a>
<b>Prototype version based on v5.026</b>	<a href="#">AladinProto.jar</a> + <a href="#">Proto.jar</a> (or via Web Start <a href="#">Aladin-proto.jnlp</a> )
<b>version 4.0 (last AWT GUI)</b>	<a href="#">Aladin4.0.jar</a>
<b>Version 3.6 (JVM 1.2 compatible)</b>	<a href="#">Aladin3.6.jar</a>

**Copyright** In accordance with the international conventions about intellectual property rights this software and associated documentation files (the "Software") is protected. The rightholder authorizes : the reproduction and representation as a private copy or for educational and research purposes outside any lucrative use, subject to the following conditions:  
The above copyright notice shall be included.

# Load the image to verify

Open in Aladin the image ngc6946.fits with the apparent supernova (in the red box)

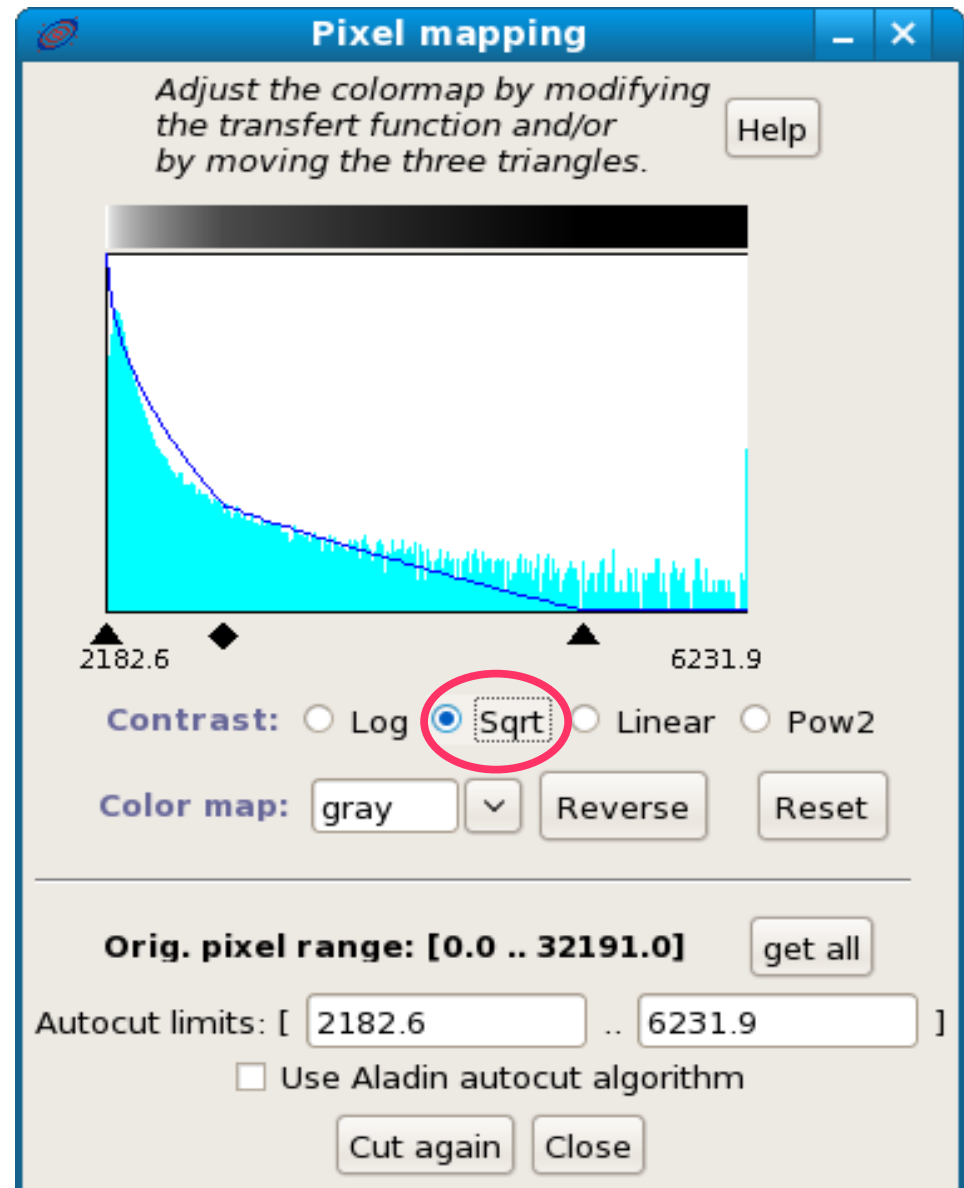


CROSS image – Col drusciè Remote Observatory Supernovae Search

# Load the image to verify

In the pixel mapping window (button “*pixel*”) select contrast --> sqrt

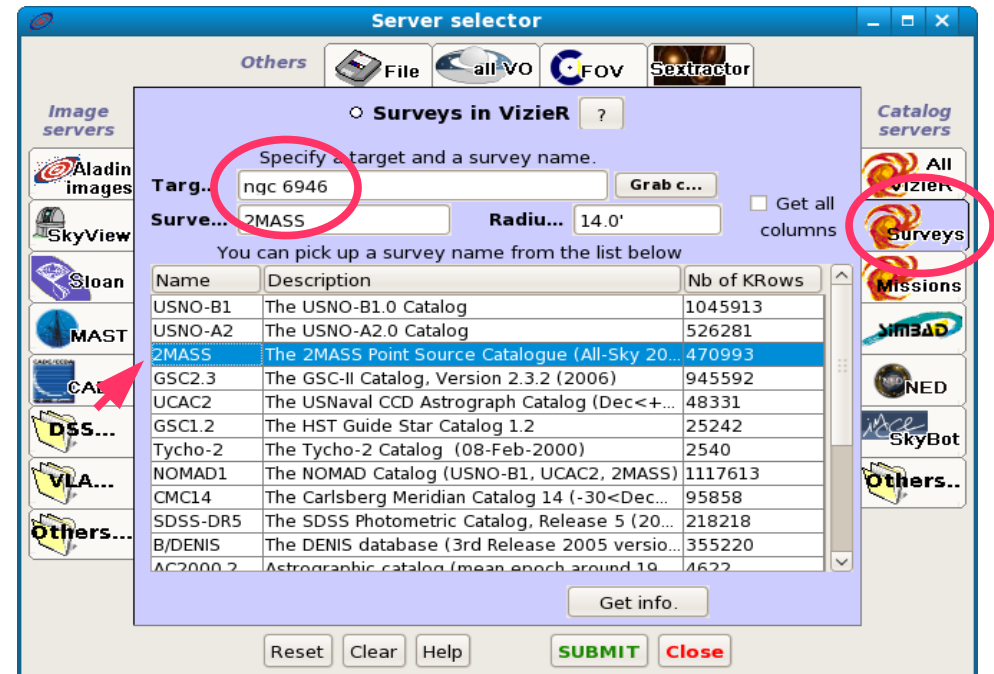
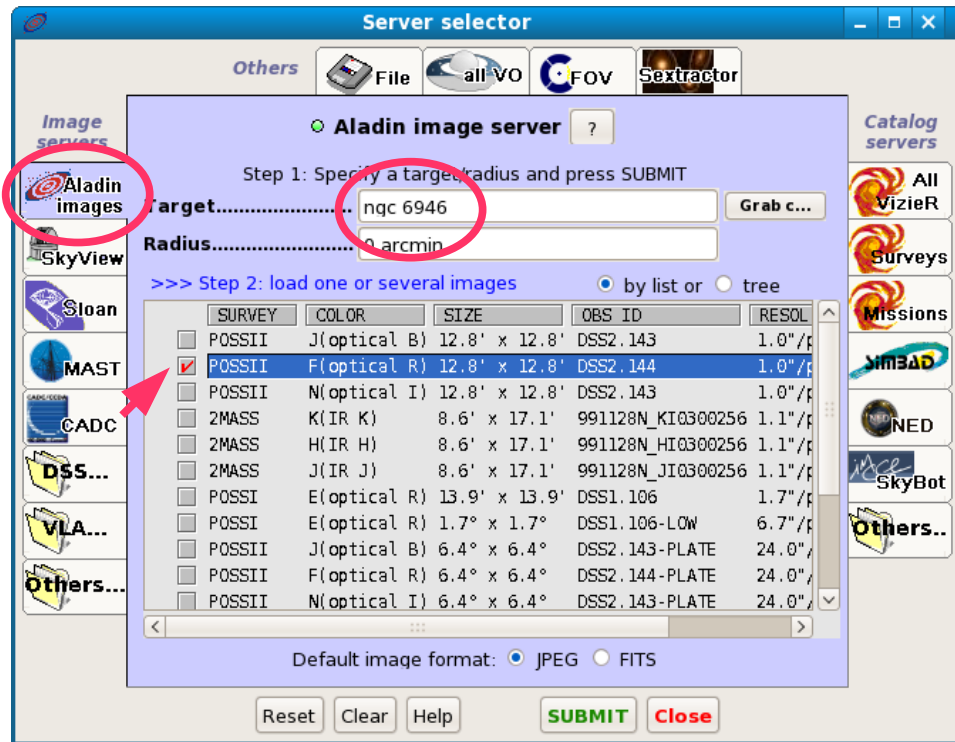
Modify the stretch to obtain a better view of the image



# Astrometrical calibration

Load a calibrated image (e.g. POSS red)

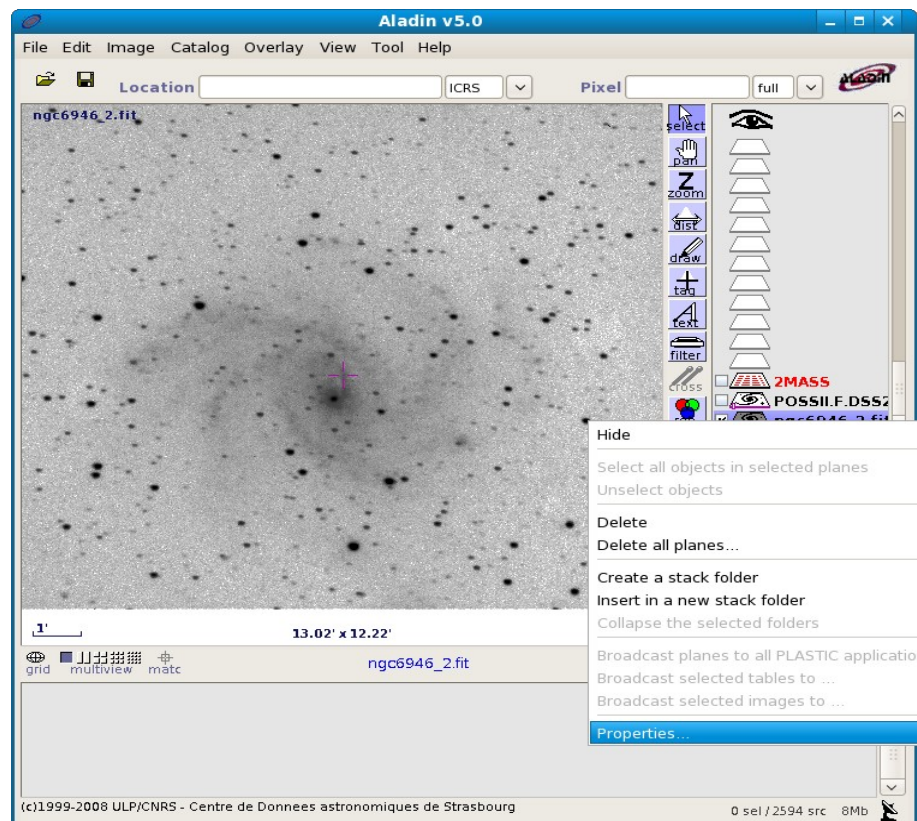
Load a reference catalog (e.g. 2MASS)



# Astrometrical calibration

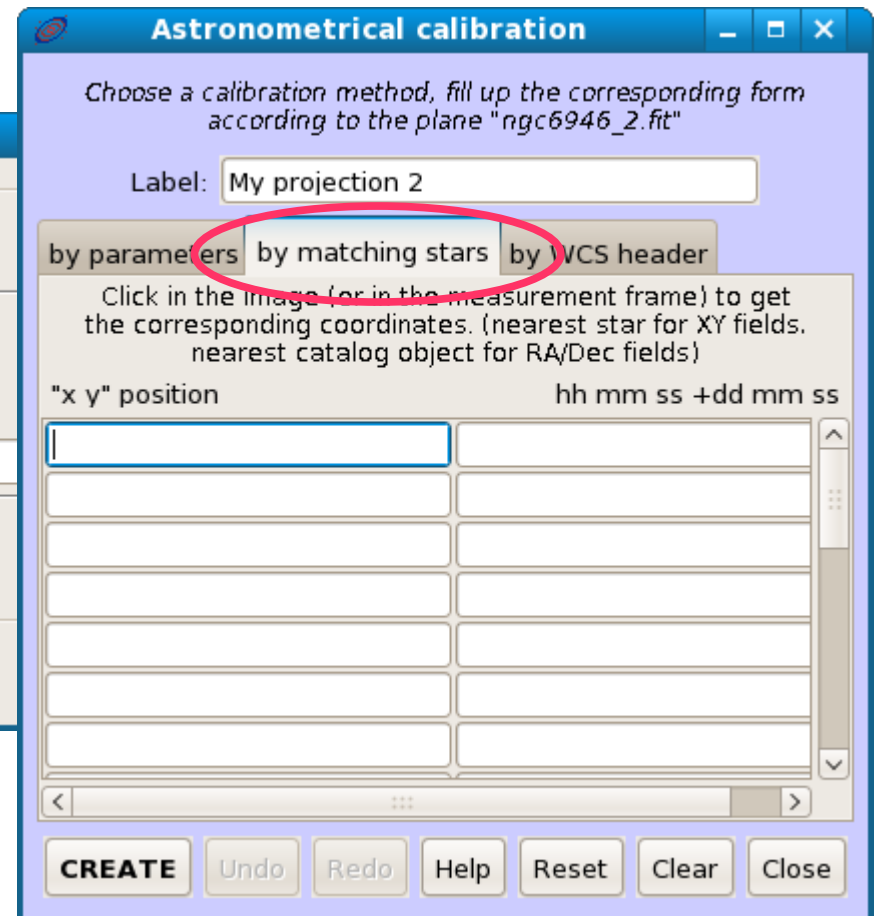
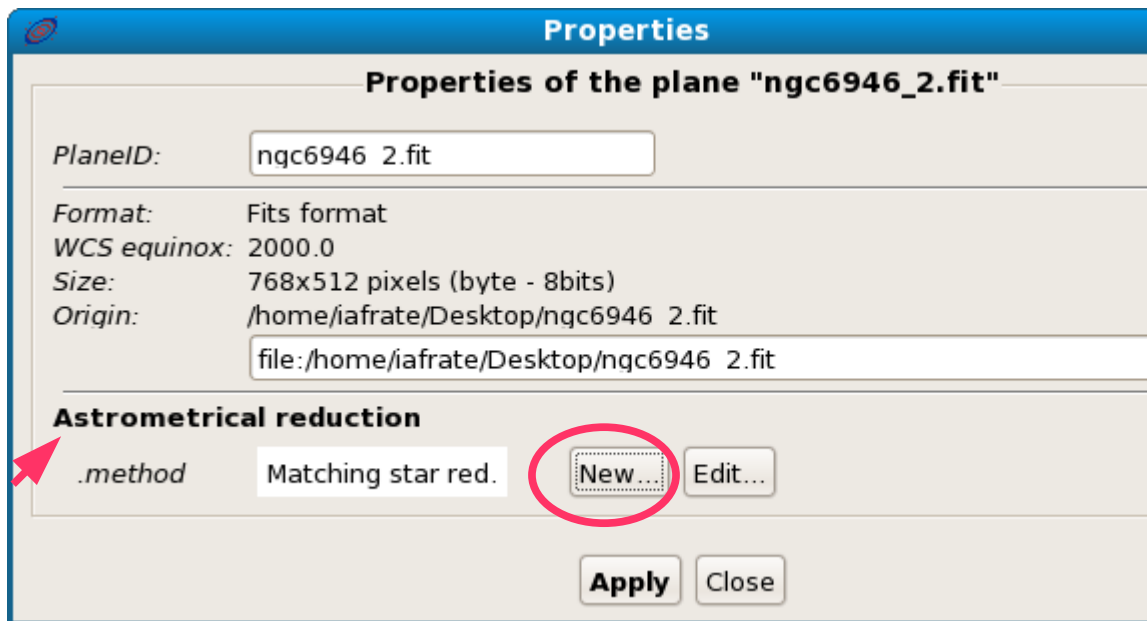
The 2 images and the catalog have been loaded in the Aladin planes

Display the properties of the plane with the image to calibrate (ngc6946.fits)



# Astrometrical calibration

In the properties window select *astrometrical reduction* --> *new* --> *by matching stars*

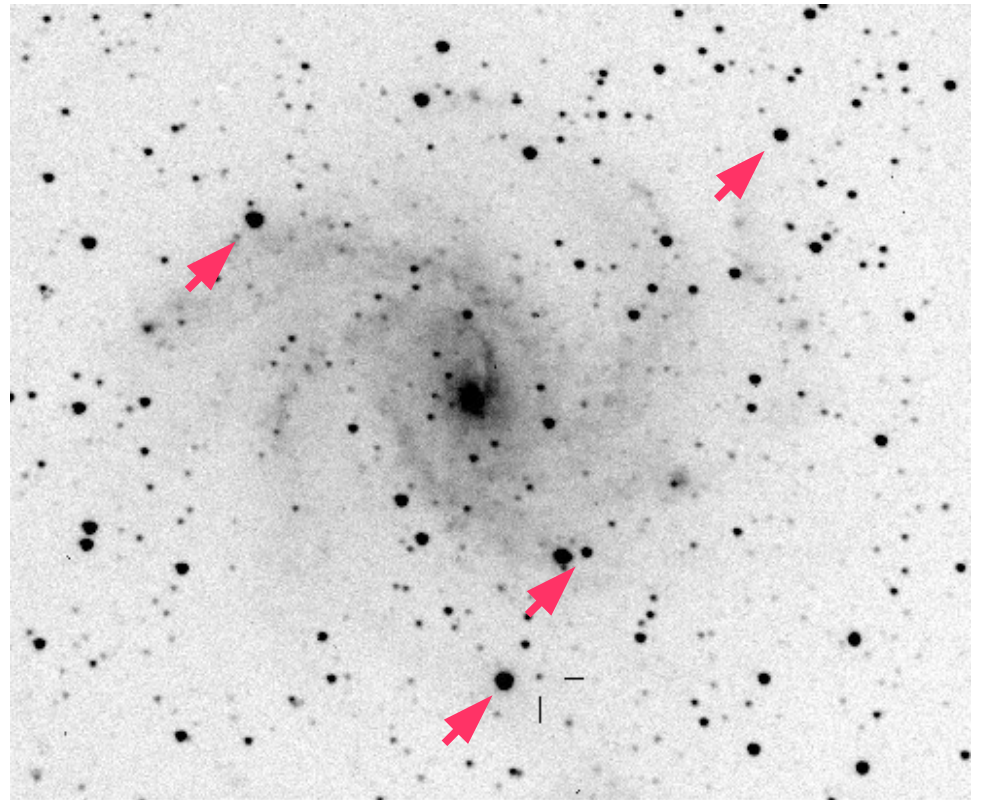




# Astrometrical calibration

Insert in the left column the coordinates (x, y) of 3 or 4 stars of the uncalibrated image (ngc6946.fits), by clicking them

Insert in the right column the coordinates (RA, dec) of the same stars of the calibrated image (POSS II), by clicking them

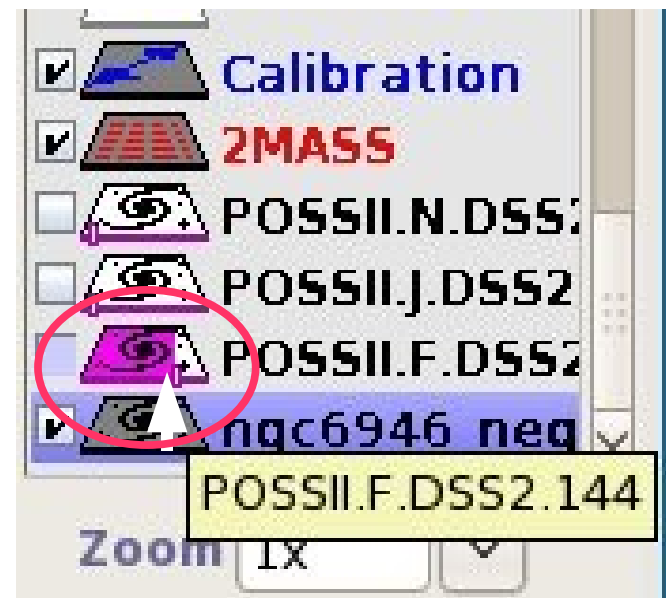


# Comparison with POSS red

Now your image is calibrated, you can compare it with the POSS red one

Select the plane `ngc6946.fits`, go to the icon of the plane POSS II red and modify its transparency level to show both images overlaid

Notice that the supernova doesn't appear in the POSS red image



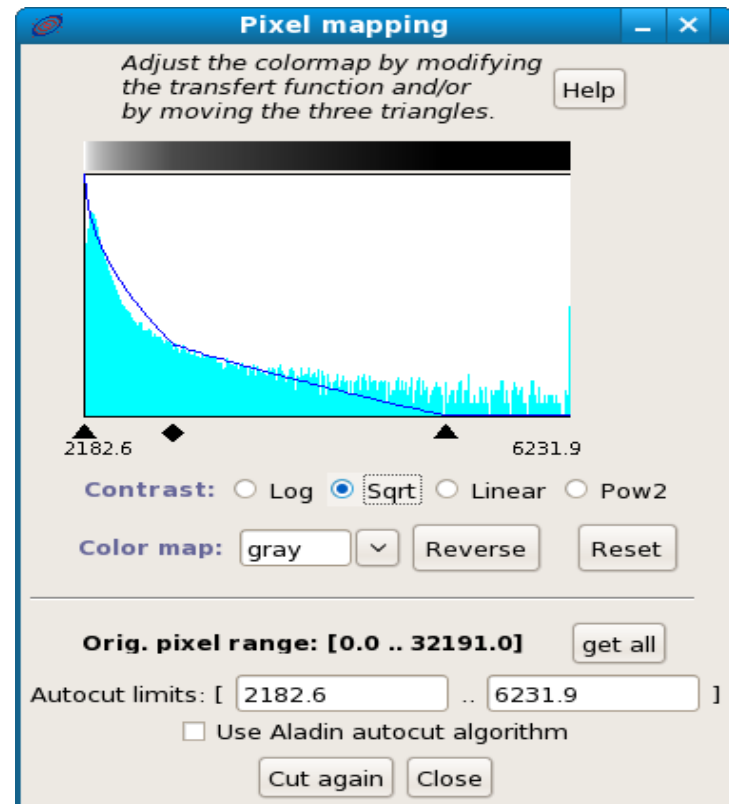
# Comparison with POSS red

## ALTERNATIVE PROCEDURE FOR IMAGE COMPARISON:

You can create an animation (blink)

Click the button “*assoc*”  
and select the 2  
images to compare

If necessary modify  
the stretch of the 2  
images with the  
button “*pixel*”

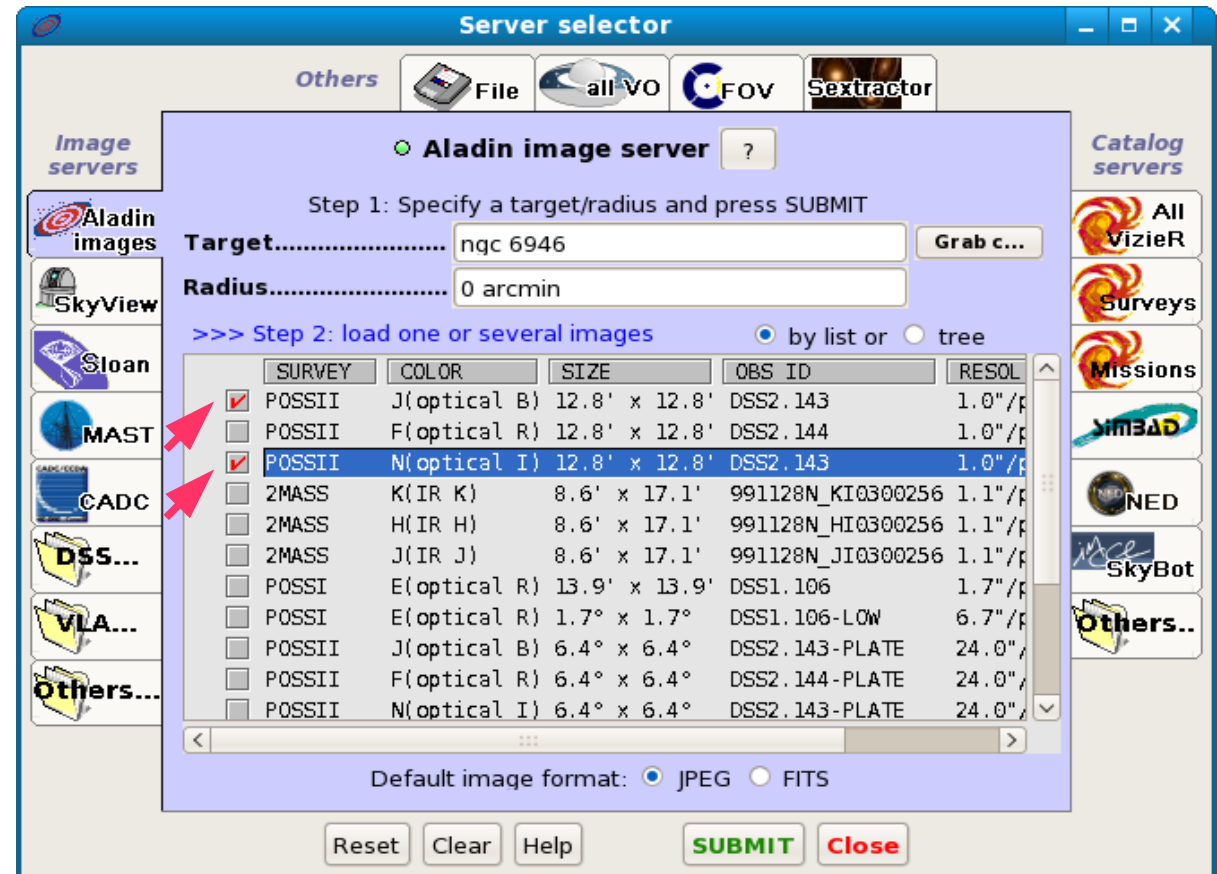


# Comparison with POSS blue and IR

Load the images POSS blue and IR

Repeat the procedure of the previous pages to compare them

Note that the supernova doesn't appear in these images either



# Coordinates of the supernova

Click on the supernova (in the plane `ngc6946.fits`)

In the field "*command*" are displayed the coordinates of the supernova [20:34:45.45 +60:05:56.5]

The offset from the nucleus of `ngc6946` can be computed from the coordinates or by drawing a distance vector (button "*dist*")

**Dist = 3.31' (RA=51.898") 6.95 s. DE=3.2' PA = 195.2 deg)**

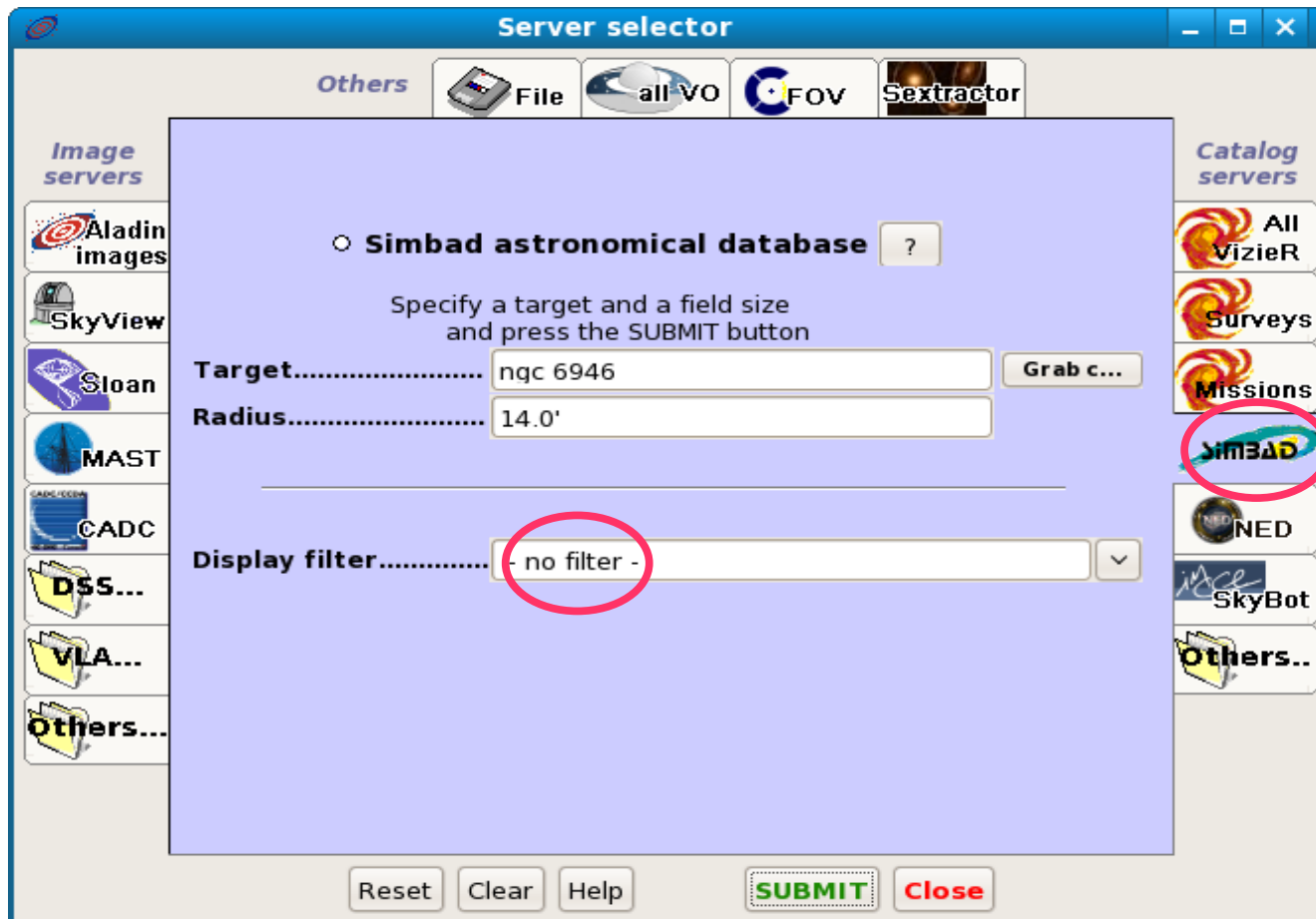
offset



# Supernovae in ngc6946

Load the SIMBAD astronomical database

In the field “*display filter*” select -no filter-



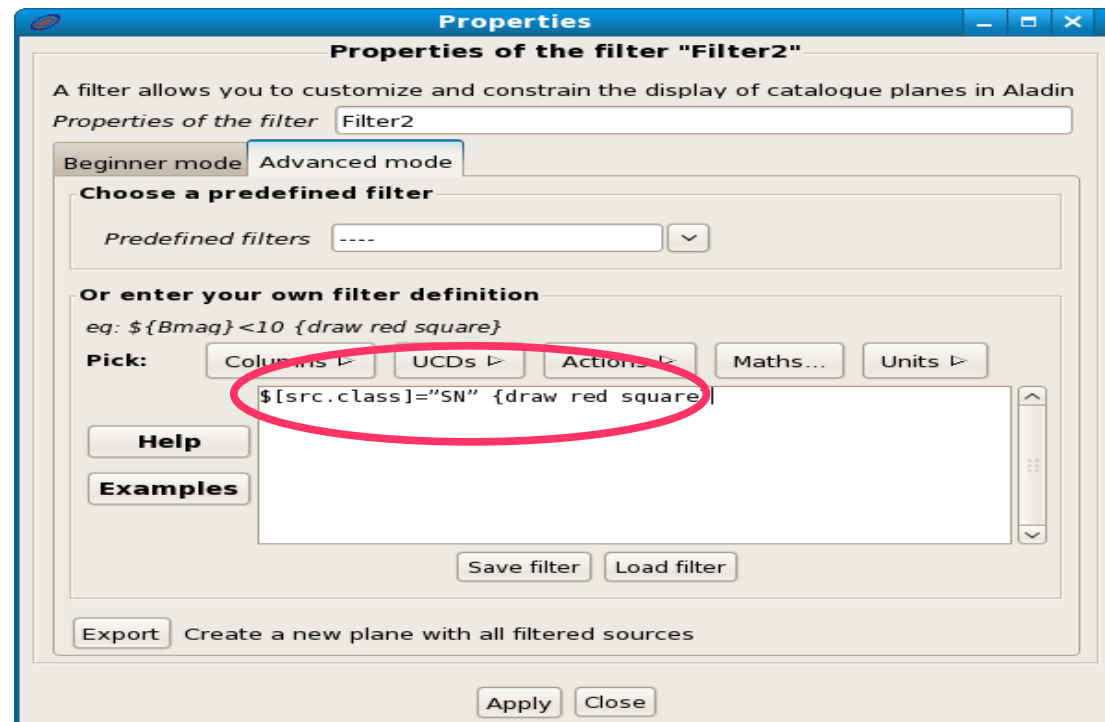
# Supernovae in ngc6946

Click the button “*filter*” and switch to the window “*advanced mode*”

Write the following string in the box:

`$[\text{src.class}] = \text{SN}$  {draw red square}`

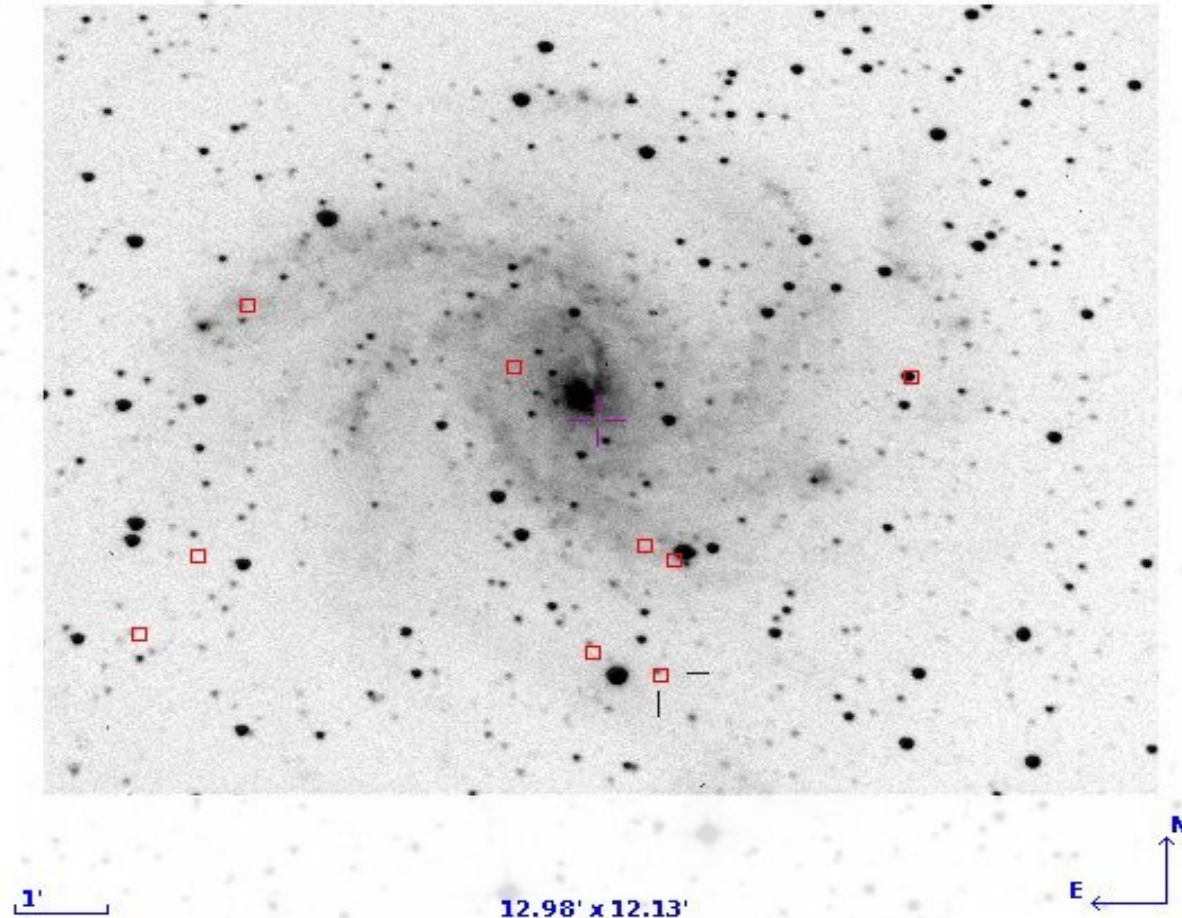
Click “*apply*”





# Supernovae in ngc6946

The 9 supernovae in the galaxy ngc6946 are displayed in the filter plane (red squares)





# Supernovae in ngc6946

If you select a supernova its data appear in the measurement window

If you click on its name you open a window in your web browser with the SIMBAD page of the supernova (with information, references, etc.)

MAIN ID	OTYPE	RA	DEC	COO ...	COO ...	C...	PMRA	PMDEC
<input type="checkbox"/> <a href="#">SN 2004ET</a>	<a href="#">SN</a>	20 35 25.33	+60 07 17.7					

Clicca per caricare nel tuo browser i dati correlati

# Save your work

*File --> Save...*

options:

- *Export Planes*, e.g. the plane of the original image with the astrometrical calibration
- *Stack Backup*, save all the planes, included data, catalogs and images in an Aladin file, in order to continue your work later (possibly offline)