GUIDE FOR USING JS9
Part 1

1) GO TO: https://js9.si.edu/nso/nso.html

You will see a blank page, with 3 pre-loaded FITS files at the top of the JS9 imaging box.

2) LOAD AN IMAGE: Click on CAS-A (Chandra)

A) Play with color: place the cursor inside the image, and click and hold while you drag it both horizontally and vertically. (If things get messed up, go to: Color → reset contrast/bias)

Try a different color display. Go to: Color → more colormaps → inferno.

Colormaps are useful when you want to see which parts of the image are of similar (or different) intensities

B) Make an energy spectrum:

1) Go to: Regions → circle. Click. A little green circle will appear near the center of the image. Move the cursor inside the region. The arrow will change to a cross. Click and hold while you drag the circle around. (Be sure you are *inside* the region when you do this, or you will be changing the contrast/bias instead! If this happens, just reset the color via 2A above.) Center the region approximately in the image.. Now, go to the corner of the box surrounding the region. The cross will turn into an arrow. Click and hold while you drag the region size to encompass the entire remnant. Things will look similar to figure 1.

2) Go to: Analysis → Energy Spectrum. Click. Voila! Figure 2 appears.

Figure 1

- CAS-A (Chandra)
- Cen-X3 (Chandra)
- GK-Per (Chandra)

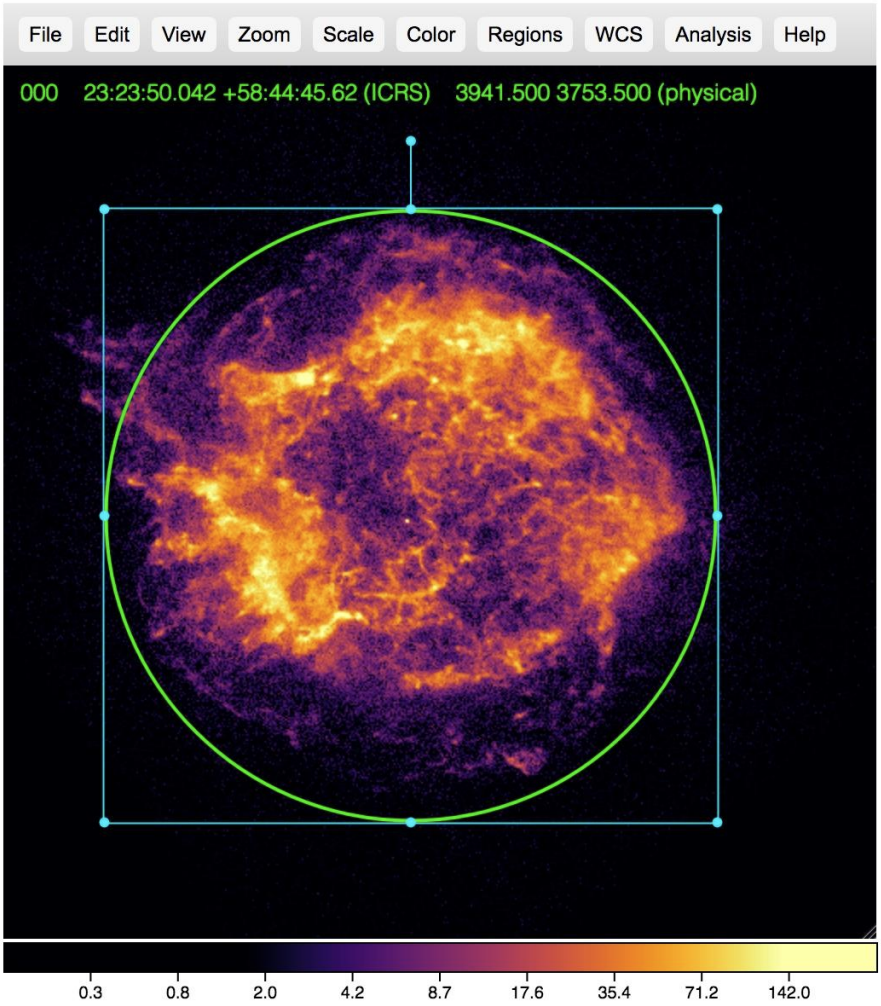
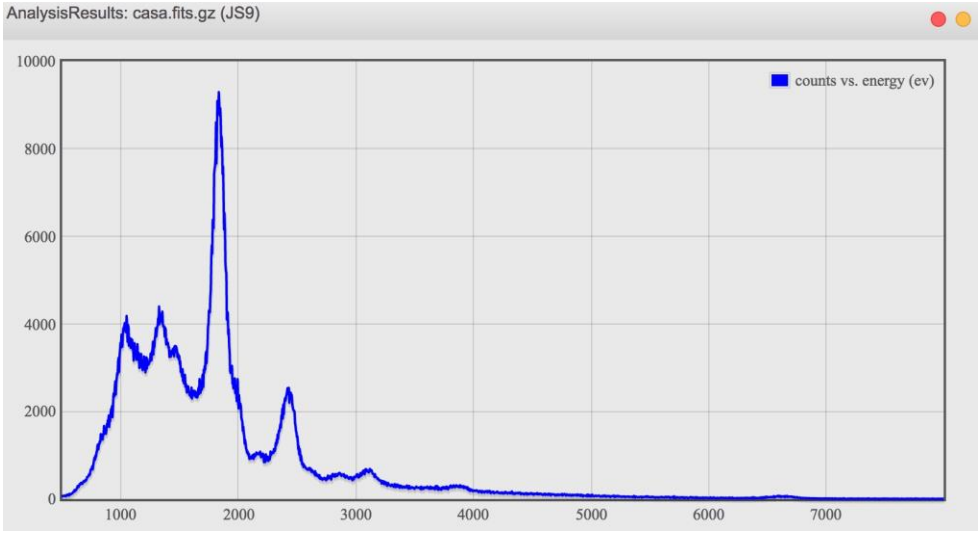


Figure 2



3) LOAD AN EXTERNAL LOCAL FILE: Use JS9 with *any* fits file. We will display the Palomar image of **M100** in JS9 and answer the 2019 NSO questions about it.

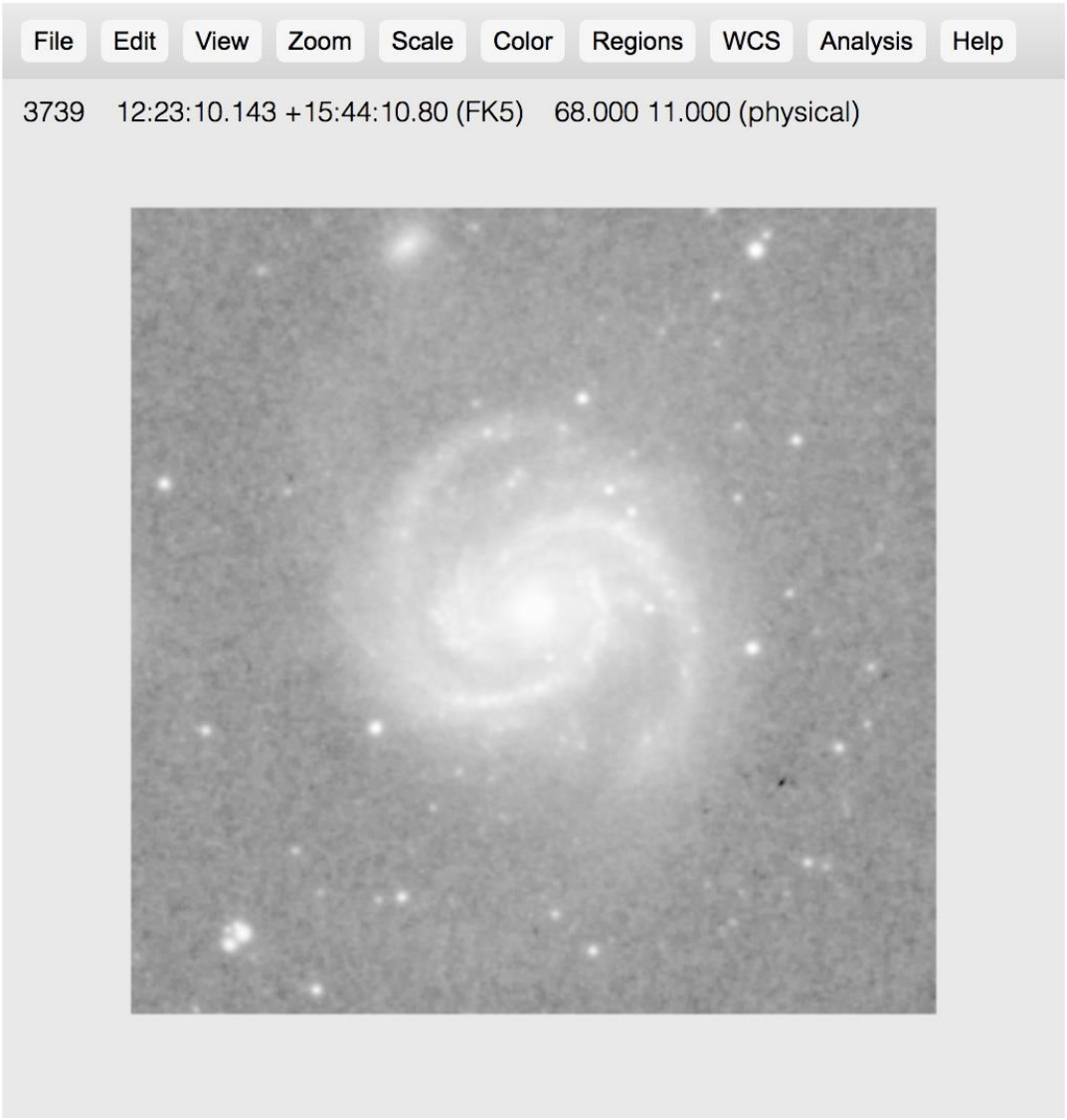
A) Go to: https://www.dropbox.com/s/yv6yaltse0ilcod/m100.fits?dl=0
This is a dropbox link to the file. Click on **Open → Download**

B) Save the **M100.fits** file somewhere convenient on your computer.

B) Go to: File → open → local file

C) Navigate to the **M100.fits** file and click on open. Figure 3 will appear.

- CAS-A (Chandra)
- Cen-X3 (Chandra)
- GK-Per (Chandra)



Note the coordinates and other data at the top of the frame. Figure 3