Astronomy 350: Unix Lab II: Data Reduction

- Note in what follows dont type the ¡¿ brackets.
- Login to the moxie lab and from there login to the machne 129.3.17.55 using ssh -X -l < *username* > 129.3.1.55.
- Now open up some "xterms" using the command xterm& from your command line.
- Type the following: cp /*data*/*ast*350/*elana*/061102_057 ∗ .*fits*.
- What did this command do?
- Type gunzip 061102_057 ∗ .*fits*. What did this command do?
- Type ds9&
- Click ok if needed.
- Type mkdir test and cd into this directory.
- Type cp ../061102_057 . What did this command do?
- Type mkiraf and when it asks a question, type xterm.
- Now type cl: this is the command to start IRAF, a program to analyze fits images.
- Type display 061102_0575.*fits* and press return. You may need to press return twice.
- You should see the fits image on the ds9 viewer. Move the cursor around and see what happens.
- You should see the X,Y coordinates of the cursor position change and the "count" change. Play around with it. Take the cursor to a bright/dark spot. What happens?
- In iraf, type imstat 061102_0575.*fits*.
- Try and describe what happens.
- Use the display command to see what 061102_0575.*fits* and 061102_0576.*fits* look like.
- Type epar imarith and answer the questions. This is asking you parameters for the imarith command which is a way of doing arithmetic with fits images.

- Aim to store the addition of 061102_0575.*fits* and 061102_0576.*fits* into a file called test.fits.
- Is test.fits different from the originals? Do imstat to find out.
- Try *imhist* < *fitsimage* >. What do you think the picture describes?
- Now try adding up all the fits images you have into another images test1.fits.
- Try subtracting a constant from each image etc.
- Examine the header of the fits file with the command imhead.
- Become familiar with imarith.
- Now you can go on to take a look at the images we got at SCC.
- They are in the directory shashi/SCC, sorted by date. Copy them over and take a look.
- See if you can examine the header files to find out information about when the picture was taken, exposure time, what sort of picture etc.
- For a picture with no autodark, see if you can subtract a bias and dark from it.Is there any difference in the image?
- Investigate if the flats are any good.
- See what science-dark/flat looks like compared to the original.
- Now go on to the data reduction sheet which you have.
- First type cd, then type ln -s /data/ast350/¡username¿ cpapir
- Take a look at whats there. gunzip the files and start working on it following the data reduction sheet.