IRAF Data Reduction Setup

Data reduction activities will be done by logging into Lick Observatory's data reduction computer, *duck*, from your laptop. Hence you will need to have xterm capability, e.g. XQuartz on Mac, PuTTY/XMing or WSL on Windows. A good video about how to install Xming and how to configure it for use with PuTTYis at: https://www.youtube.com/watch?v=dc_30pB82Gw. WSL on more recent versions of Windows includes and X server, though in a WSL terminal you might need to use the following command: sudo apt install x11-apps -y

Account names are userNN where NN is 01 through 20.
Passwords for the accounts are 2026BworkshopNN where NN is the same number as the user account name. Each workshop participant will be assigned a numbered account to use for the workshop.

You will generally be working in pairs for the data reduction activities, so each group will decide whose numbered account to use. To log into the account from an xterm on your laptop type, for example,

ssh –Y user02@duck.ucolick.org

at the password prompt you will enter *2026Bworkshop02* in this case.

Data for the IRAF data reduction activity will be from the Kast spectrograph and in the directory /u/user00/KastRawData/.

You will want to copy the data from the user00 directory to your own data reduction directory. For example:

cp /u/user00/KastRawData/* irafDataReduction/.

You'll want to be in the directory with the data to do the data reduction, so move to that directory:

cd irafDataReduction

The first step of the data reduction is to do overscan subtraction for all Kast data files. This is done from the command line with a python script. The python script requires an input list of files from which to subtract the overscan. This file, in this case called allfiles.list, can be easily created from the command line with the following command:

ls *.fits > allfiles.list

We now need to make a file containing list of new file names to write the overscan subtracted data to. Unix/linux has a command called *sed* that can easily do text replacement in a file and write the results to a new file. In this case we can replace .fits in each file name with _os.fits to indicate the new files have the overscan subtracted and write to a new file called allfiles_os.list :

sed 's/.fits/_os.fits/g' allfiles.list > allfiles_os.list

Now you can run the following python script to overscan subtract all the Kast data and it will be ready for reducing in IRAF.

overscanLickObs.py -f -i allfiles.list -o allfiles_os.list

To start IRAF type
cl

The cl command is configured to start an xgterm to run IRAF which puts it in the /u/userNN/iraf/ directory, so you'll need to change to the directory with the data to be reduced in the IRAF xgterm, e.g.

cd ../irafDataReduction

At this point you can refer to the data reduction tutorial documents for the data reduction activity.