

- 12) Insure that the CCD temperatures are within *0.1 degree of -120*. If not call an expert (ask the TO or robot operator who to call).
- 13) Go to the **StandardOps tab**. Select "*bias*" for the exposure type, and take *~10 frames*. Inspect these on "*ds9*", and insure there is no pattern noise. The first image or two may be saturated - ignore these.
- 14) Take a *300s dark exposure*, 2 or three if there is time. Use "*ira*" > **implot** to inspect these for excess counts. A line plot where several hundred lines have been averaged is the best way (e.g., **implot filename.fits[im2]**, then **:l 4000 4200**, that's letter l, not the number 1. The pixels beyond 1075 are overscan. The dark level should not be more than about 0.6 counts above the overscan in 300 seconds. If it is, call an expert.
- 15) Have the robot operator configure the fibers to the calibration setup. Have the telescope operator open the mirror covers.
- 16) Bring up the schedule, by typing in a terminal > **cd ; schedule chelle 2008c** , for instance, but use the current trimester name ("a"=Jan-Apr, "b"=May-Jul; "c"=Sep-Dec". Select the current **calendar day (not UT day) tab**, and click on **print**.
- 17) Review the program information from the proposals (these are kept in */home/spec/*.pdf* use **gv** to view). In particular note which orders are to be used for that night. The robot operator may have already printed out the schedule & proposal list, please co-ordinate with them.
- 18) *Focus* the spectrograph in the *RV31 order*, using *1x1 binning*. To do this, in **Spice**, select the **Standards Ops tab**, and find "*focus*" in the pull down menu. Between *4 and 10* exposures will be needed, using a *step size of 0.04*. After those are taken, the script '**FOCUS.sh n**' executed in an *xterm* window will analyze **n** exposures, and provide a plot. Another script, '**display_focus n**' will display the **n** most recent focus frames on '*ds9*' for inspection. *Set* the focus value in the **Focus tab**, *save* it, and then *configure* the bench in the **Config tab**.
- 19) Take *domeflats in each order* planned for the night, using *1x1 binning*. For OB21 & Ca19 you should take spec box flats (these use the boxes mounted on the walls in the chamber, not the lights at the secondary mirror). Talk to the robot operators if you need assistance with this.
- 20) Now turn off the continuum lamps, and select comps. *Take comps in each order* planned for the night in *1x1 binning*.
- 21) 10 - 15 minutes before sunset, start taking *skyflats*, in the *RV31 order*.

- 22) It is always a good idea to configure for the first field early, and even move the telescope to the position, even if you have to wait a while to begin observing. Starting early will allow problems to be caught early.
- 23) After the robot operator configures for a new field, **Spice** will know about the exposure info and title. So most of the time you simply have to click "**GO**" to take the exposure. If the order has been changed, you'll need to "*ConfigBench*" in the **Config tab** before exposing (a warning will remind you of this).
- 24) *Before* each science exposure, *take a comp and a flat*, using the requested order and binning. *After* each exposure, *take an additional comp*.
- 25) During the night, monitor the time and try to keep to the schedule. *Enter comments* in to the logs about the conditions (seeing and clouds) and problems. *qspect* is run automatically on the data; *check these spectra to insure good data quality*. The spectra are not wavelength calibrated, nor sky-subtracted, but still the extractions should be sufficient to assess data quality.
- 26) The robot operator & TOs are always there to help you.