

## **Astronomy 480 -- Discussion Questions for “CCD Data: the Good, the Bad, and the Ugly”**

What do the following mean for “good data”?

Good data would be linear:

Good data would have a bias profile that is Gaussian (hint -- what if it is non-Gaussian?):

Good data shows a Gaussian distribution in the flat field (see above hint):

A good flat would have the gain of each and every pixel be equal (hint -- otherwise, it is what?):

Ugly data is not bad data (instructor will tell you about bad data experience).

### **ARRIVAL AT THE TELESCOPE**

Is CCD attached to the telescope? Is it the one you requested? How does it work?

Check all cables; check computer control system; check if batteries are needed; check filter wheel; check cooling system; check operation of the camera.

Take bias frames. Paper give good overview of characteristics you might see in a bias frame. We have had some weird biases, including a top “higher than average count” band, and some kind of frequency noise that produces evenly spaced, even-in-width bands.

Is telescope balanced? Is mirror cover off? Is finder scope aligned?

We are going to be calculating the gain and the readnoise this week, along with the linearity of the CCD. We will also be testing the band-gap energy of the chip.

Our chip does not have an adjustable gain. There is a trade off between full-well capacity of the pixels and the ADU limit of the converter. What is it?

#### THINGS TO LOOK FOR AND DO AT NIGHT

Are you getting too many counts? What do you look for to tell if you are getting too many counts?

Are you getting enough counts? What do you look for to see if you are getting enough counts?

Does everything look OK?

Shutter problems have occasionally occurred, but are exceedingly rare with our set up.

We address the issue of flat fields in the next article reading.