Note 90Prime does not currently support changing filters with an observing script. This must be done manually through the GUI.

January, 2015

- AzCamServer has been updated to version 5.2.3 in order to support the DESI survey. The internal configuration and logging systems have changed, please report issues to Michael Lesser (lesser@itl.arizona.edu).
- A new menu is now used for starting AzCam from the bokccd screen. The original 90prime and 90primeOne modes are the first two options listed.
- A new Class can be accessed in the AzCamConsole window which is named "primefocus". See 90primenotesfeb2015.pdf for details. Of special interest is the mode of moving the telescope during CCD readout to save time.

August, 2013

Maintenance and upgrades were performed on 90Prime at ITL during downtime. Four new video boards were purchased and installed in the controller to improve performance.

- A new PCI-Express fiber optic interface was installed in the bokccd computer (replacing the PCI interface).
- A new 16 channel preamp was designed, fabricated, and installed in 90Prime to improve noise immunity and performance.
- All code was optimized for faster data transfer.
- Readout time for the full mosaic is now about 30 seconds with similar noise to last year.
- AzCam 5.1 was released.
- The operating temperature is now about -135 C.

June 29, 2011

Significant work has been performed inside the dewar due to a vacuum leak which was recently identified.

See 90Prime Upgrade Report Jun2011.pdf for detailed characterization info in June, 2011.

- Noise is about 8 electrons in the active imaging area in most channels. A few less well behaved channels sometimes measure around 11 electrons.
- There is no longer a spurious noise issue.
- CCD2 and CCD3 have been replaced with new detectors.
- CCD1 and CCD4 have been swapped (so now 90PrimeOne mode uses what was CCD4).
- CCD1 and CCD4 have been cleaned.
- A vacuum leak was found and fixed in the dewar.
- New video preamps have been added to all four CCDs in order to reduce crosstalk and improve noise immunity at the telescope.

June 1, 2011

1) Since the May run, the filter wheel was taken apart and adjusted. We'd like to think that this will solve the "filter jam" indicator issue. Note that most of the time, the filter jam is caused by the outer limit switch not being engaged. But every once in a while it's a real jam. The most sensible thing to do if you get a jam indicator is to move it in and out (using the gui) to see if the jam light goes away. The second thing to do is to try this at the zenith. the third thing to do is to ask the operator to call Bill on the mountain.

2) If you're observing blueward of the g' or V band, please take good flats, and please reduce the data in the afternoon. The symptom you'll see when you take flats is "ugly looking flats". We will bring the dewar to the lab on June 7.

3) As we said in email (and we hope to update this message later today), here is the current workaround for fw-gui gray screens of death or fw-gui not responding to commands:

Jeff Fookson will still be working on fw-gui today. He can make fw-gui hang, but has yet to be able to find how to stop the problem.

[NOTE: the galil isn't hung, and it remembers some stuff, and the azcam is not hung and works just fine even without fw-gui. So you could actually observe if you didn't want to change the focus (you can take a focus frame and display it) or if you didn't want to change the filter.] We will update you if there are new instructions, but at this moment all i can say is:

If the gui turns gray or unresponsive.

kill it kill galilserver (in some previous email i told you to kill dataserver, that's obviously wrong) restart galilserver restart the gui go through filter-wheel initialization procedure. 4) If anyone has created a crosstalk correction file (in iraf or idl or anything) since Jan 20 2011, please let us know the parameters. If anyone has the time to make a crosstalk observations, you need to put a bright star (you want to get it almost saturated) on EACH OF THE 16 AMPS in turn and take an exposure. the fewer stars on an image, the easier your work is. You then find the ghosts, and measure the total ghost counts above background, in each amp where you see it for, say, amp 1 star, relative to total counts (including bleeded trail if necessary) of the bright star. A star on amp 1 may have ghosts on several other amps. So for "amp 1" you might be reporting several ratios. then for amp 2… amp16.

5) You need to take a good sequence of zero images. In iraf-speak, data reductions would go as

1. a) overscan-correct and trim all images, including zeros
2. b) average together all zeros.
3. c) subtract this master ZERO.fits from all flats and program frames.
4. d) create a master flat for each filter
5. e) divide the master flat of the appropriate filter into the data
6. f) combine amps

Shutter

The shutter has been tested at ITL and at Steward. On the mountain on the two nights of Jan 23 and

24, 2011 we saw no shutter failures. We realize that there were some in Fall 2010 but have not been able to reproduce them.

Focus Sequence

In May, 2011 We tested focus frames with a wide variety of step sizes, and could never make the focus routine crash, as some observers reported in Fall 2010. While we do not see hysteresis on the stepper motors, we anecdotally report that moving 30-60 stepper motor steps from best focus as determined by the focus sequence seems to improve the images. WE DO NOT KNOW WHY, and user beware. (If you ran focus with +30 unit steps, and set best focus, the true best focus MIGHT BE -60 stepper motor steps from there. We don't know why.) So, in other words, run focus sequence, determine best focus, set best focus, take a short image, move focus a few 10s of stepper motor steps, and take another short frame. See which one is better. We certainly might be wrong about this.