

ATS Instrument Update

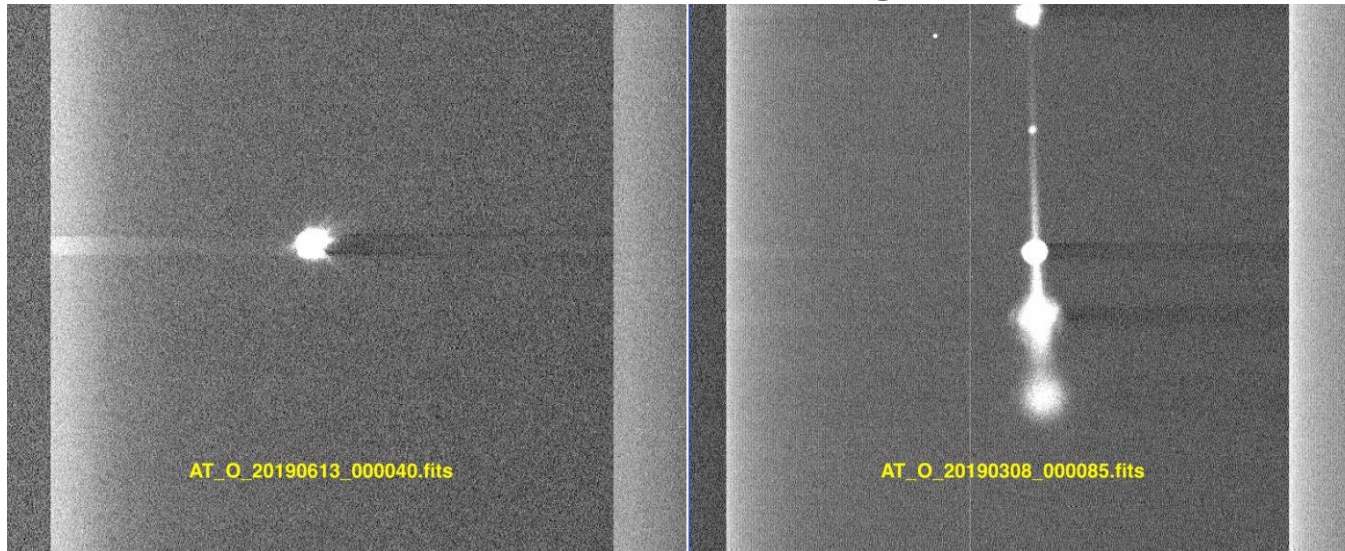
N. Mondrik

DESC PCWG Meeting

Paris 07/09/2019

The Issue(s):

- Original CCD showed numerous issues:
 - Jumps in bias voltage (seemingly common to LSST sensors – see Claire, Pierre Astier et al. for more information on that. Can be solved by changing ASPIC gain → software fix)
 - Also an issue w/ deferred charge:



The original device also required ITL voltage set B, which WREB was not designed to supply natively.

Deferred Charge (Image credit: C. Lage)

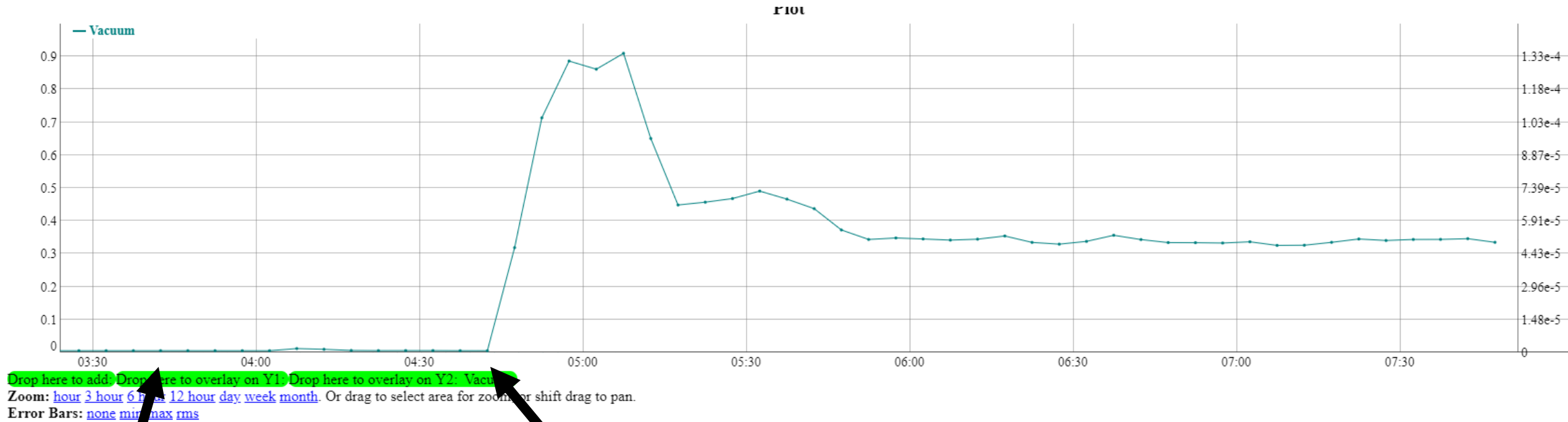
WREB

- During EO testing of the CCD, the WREB was damaged, most probably by accidentally shorting OD to ground.
- Following this, P. Doherty flew out to Tucson to do WREB replacement as well as EO testing (on old CCD: 098). This was successful in improving the performance of the device, but did not get rid of shadowing/streaking issues shown in last slide.
- Following this, the decision was made to swap to a CCD using ITL voltage set A. ITL-068 was chosen as the new CCD.
 - On the old (damaged) WREB, a Zener protection diode was removed to allow the board to reach the prescribed voltages. The new board still has (and does not require removal of) the diode.

CCD Swap

- I flew out to Tucson in mid-June to change the CCD in the AuxTel dewar, w/ help from B. Stalder and P. Ingraham. After a brief struggle with a loose cable, the new CCD was able to take warm images that indicated life in the device.
- After CCD was replaced, we started pumping on the dewar, and all was well

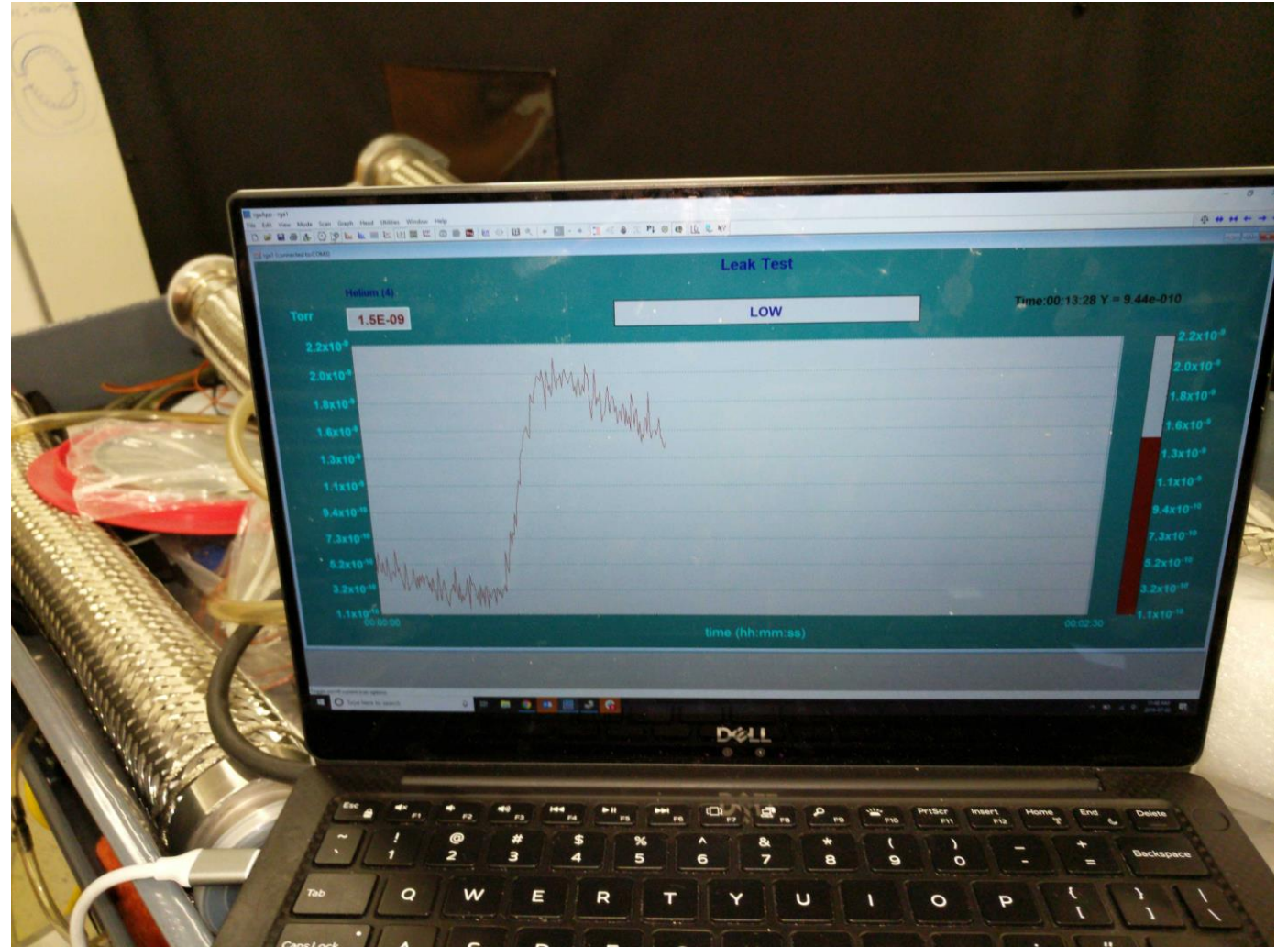
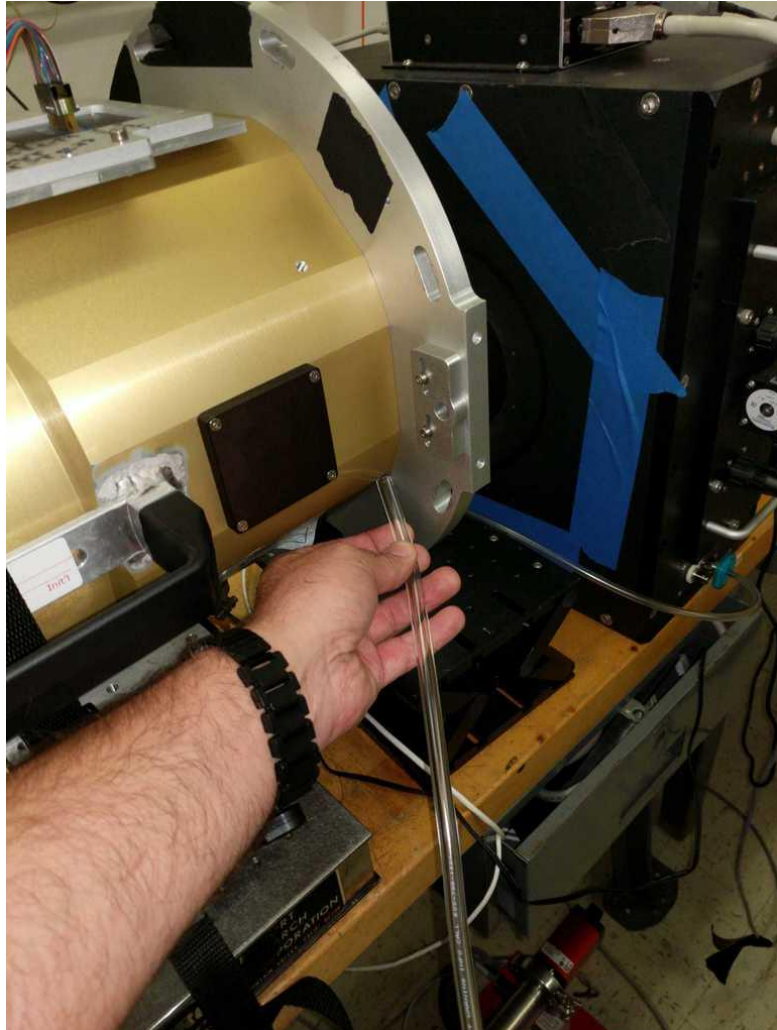
Until...



Dewar behaving well,
running on ion pump w/
cooler active

???? Leak appears from nowhere. Seems to be an actual leak rather than a pocket, since it did not pump back down, even after putting the system back on the turbo pump.

Leak Testing



Next Steps

- P. Ingraham is in Chile for AuxTel mount/telescope commissioning efforts (see update from R. Lupton) – not able to fix leak before departure
 - Dewar purged with Nitrogen, CCD is disconnected and shorted, so that software integration efforts can continue

TODO List:

- Spectrograph end of instrument is essentially complete
- Fix vacuum leak
- CCD EO optimization
- Cabling work
- 220V equipment tests
- Thermal control configuration documentation/procedure (software?)
- Hardware tweaks
- Packing/shipping