



# Focal plane commissioning

LSST-France, 16 December 2023  
Parallel session



- LSSTCam

EO testing at SLAC

EO testing at L3

Dome calibration data

- ComCam

Dome calibration data

2 months of on-sky data

- AuxTel

Calibration data

Imaging data

Spectroscopy data

# Ongoing activities

- LSSTCam

CCD configuration optimization

Investigations of puzzling effects

CCOB analysis

Brighter Fatter effect

Bias correction strategy

- AuxTel

Spectroscopy analysis

Photometry (star flats)

Validation of calibrations

**1) How do we 'best integrate' our efforts in the project context?**

**2) How can we improve the organization in LSST-France (e.g. to onboard new people)?**

# Commissioning science units

- **Throughput for focused light** – Merlin Fisher-Levine
- **Delivered image quality and PSF modeling** – Josh Meyers
- **Instrument signature removal / detector characterization** – Chris Waters and Yousuke Utsumi
- **Sky background / low surface brightness / ghosts and scattered light** – Lee Kelvin
- **Photometric calibration** – Jeff Carlin
- **Astrometric calibration / proper motions** – Clare Saunders
- **Survey performance / survey strategy optimization** – Lynne Jones and Leanne Guy
- **Object detection, quality flags, V&V sample production, survey property maps** – Peter Ferguson
- **Difference image analysis – transient and variable objects** – Eric Bellm
- **Difference image analysis – Solar System objects** – Mario Juric
- **Galaxy photometry / photo-z** – Dan Taranu and Melissa Graham
- **Weak lensing shear** – Arun Kannawadi
- **Crowded stellar fields** – TBD
- **Eyeball squad / beautiful images** – TBD  
Science Pipelines representative and EPO science representative

FRA-INP-S8: not appearing in any science unit



The goal is to run dynamic tests: move the TMA in elevation and azimuth at nominal speed in order to determine if we can safely install the glass

- Set of 15 criteria
- Intermediate glass safety review on December 11<sup>th</sup>

Organize fast analysis within a small team including experts

- JIRA tickets ⇒ Notebooks ⇒ Reviews ⇒ Technical notes
- 2 Tag up meetings / week

Merlin is developing the utility tools to simplify the data access

From last SITCOM general meeting: M1M3 + cell will be removed in January

- "Mid January through March we will be using the TMA to verify requirements with ComCam, the M2 cell and the “yellow cross” surrogate in place of the M1M3 cell"

*Time series data  
recorded in an  
InfluxDB database*

- LSSTCam

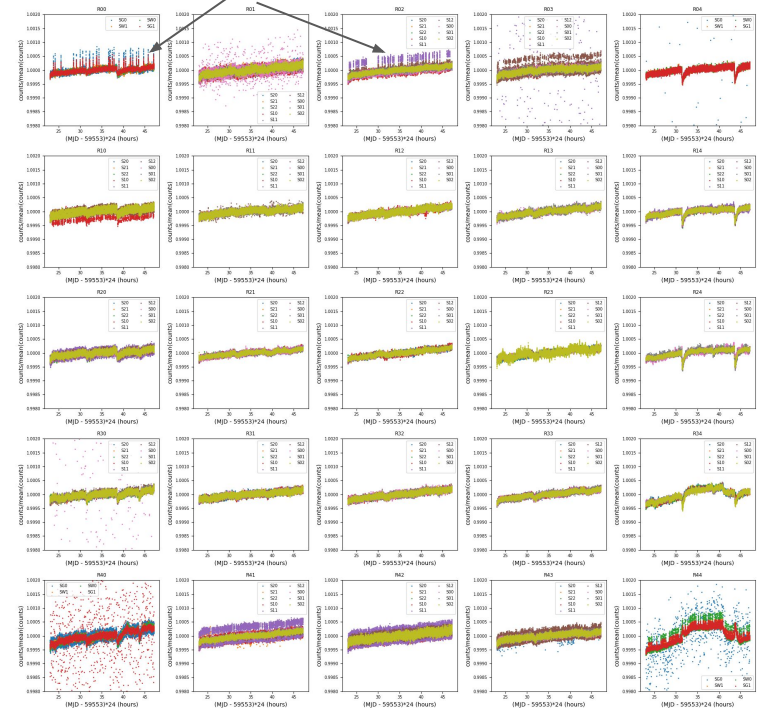
Full replication at CC of EO test data

- AuxTel

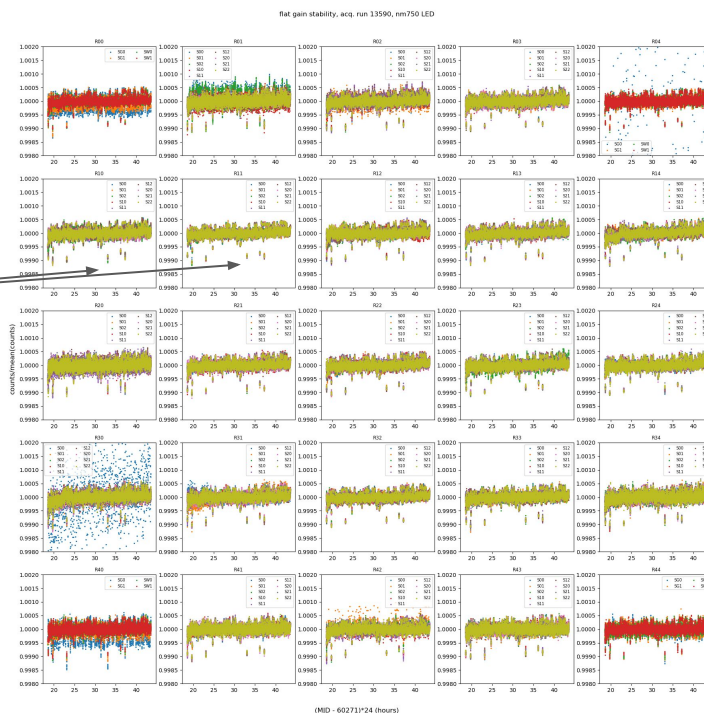
Work at USDF

- ComCam?

Run 5 : itl gain glitches



Run 6 : no gain glitch ...still ( see next slides )



In run6 :  
Any small slope over  
time ? probably ...wtf?

Photo diode glitch ? I  
guess

We still have no "ITL  
bias glitch" detection /  
"family classification  
algo"

- Embargoed data (30 days during Commissioning, 80 hours during Operations) **must not** leave USDF.
  - Can view in browser but **not** save to a local machine or transport to an institutional resource.
  - Applies to all data in the /repo/embargo Butler repo.
- Post-embargo data must be kept private until released.
  - Can move to other machines but not share with non-staff.
  - All such data is in the /repo/main Butler repo.
  - Make sure someone doesn't take a picture of your screen and scoop our Communications team.
  - Still working out details of how daily and annual Data Releases will be identified, likely via collection.
- All data products are subject to the data rights policy ([RDO-13](#))

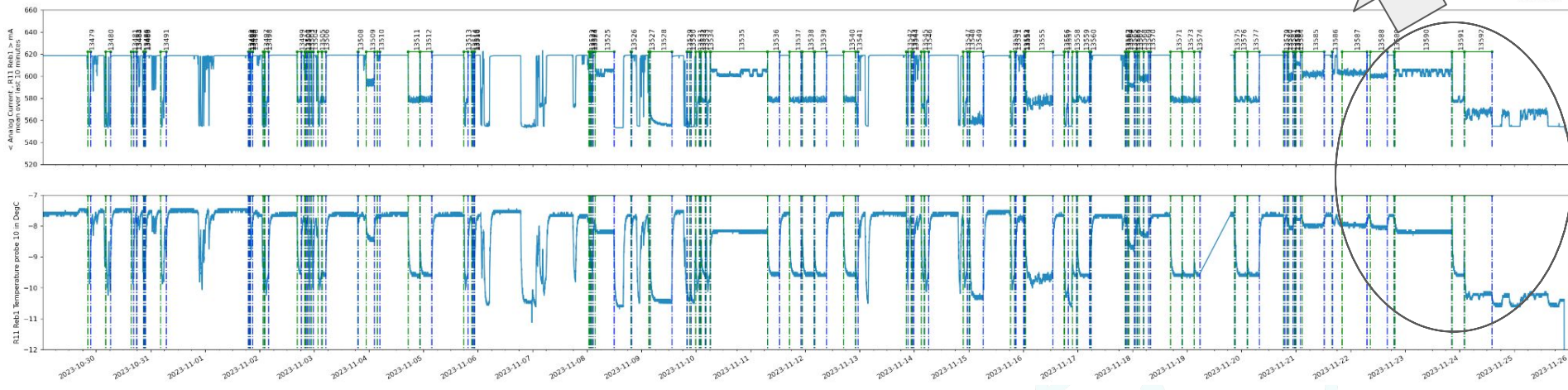
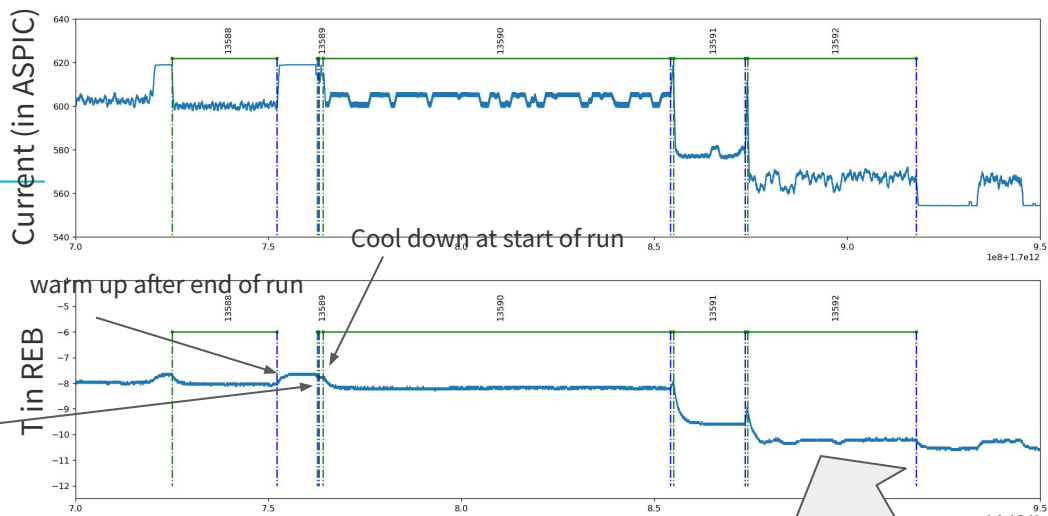
Pierre's question : and the in dome calibration data ?  
can we have them at CC in real time : running study in real time at cc on this  
will give us lots of freedom / computing time / training



# Pierre's ideas

Stability : like often they forgot why we implemented "IDLE\_FLUSH" = clear/flush between exposure  $\Rightarrow$  it prevents the ASPIC to get crazy / over heat . Still with IDLE\_FLUSH how stable are we ? With the current data it's a mess but we should have a look.

REMARK : Temp is the main source of gain change ... we can also use those data to demonstrate T correction ( gain change  $< 0.0005$  here)



In an old talk, I showed that the persistency was visible in the saturated image of the PTC : all lines of the // overscan get large signal ~ after saturation.

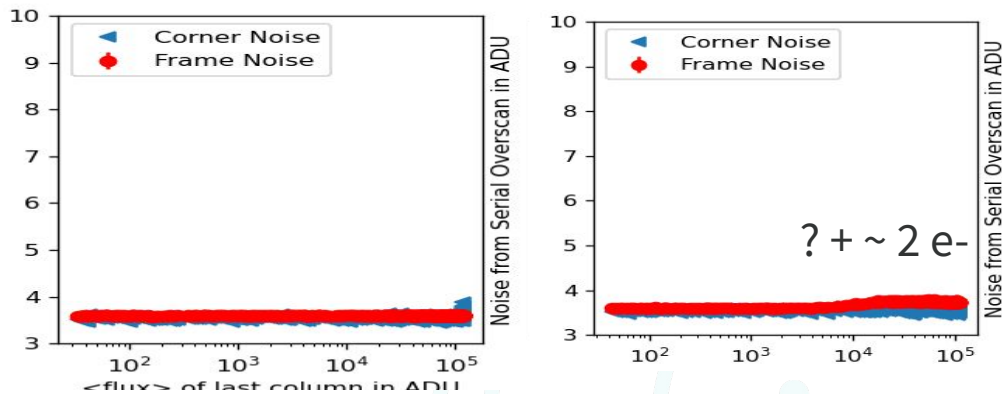
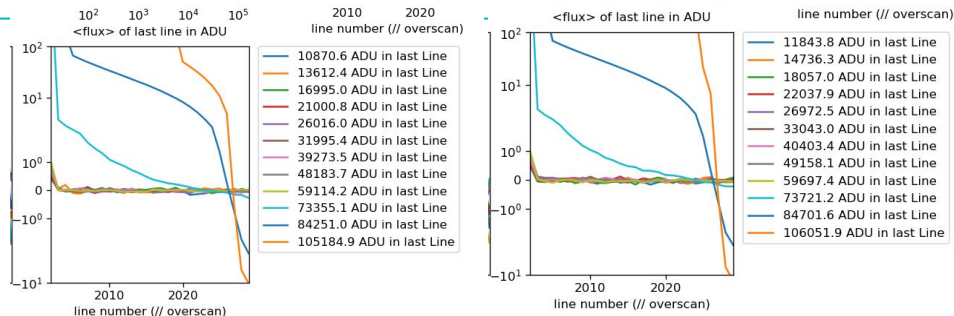
I wonder if the effect is lambda dependent ( the persistency can be lambda dependent ... )  $\Rightarrow$  We have the ptc at # lambda so it should be easy to look at .

I had a quick look ... hum ... the difference looks milde , but a deeper look is needed .

But I had a surprise looking at my old CTE plots :

In the serial direction I see a (tiny) jump in noise ( estimated from the serial register ) at  $\sim 10^4$  ADU in the red for all channels ??????

I love this job !



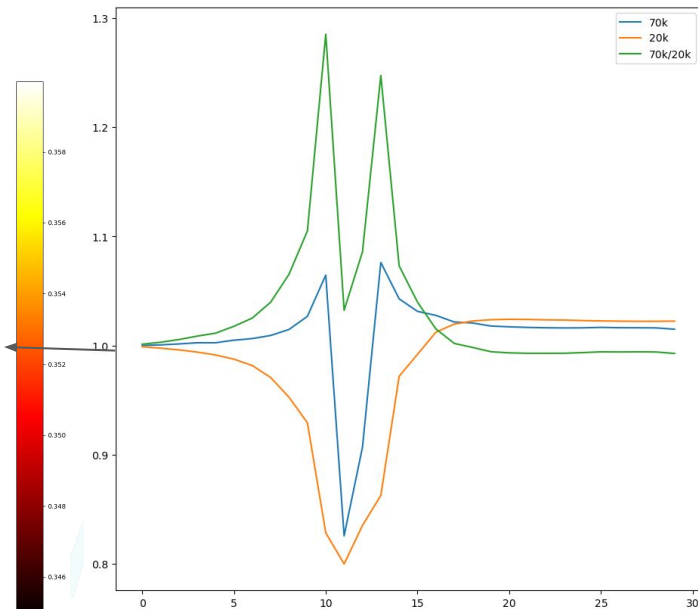
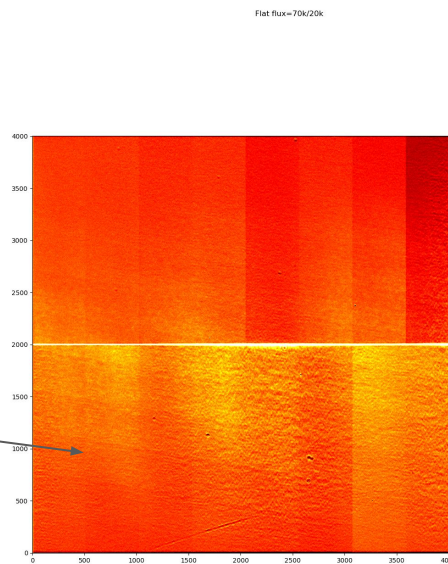
# Pierre's ideas

We should work on the edge effects :  
flux , lambda dependent ?

edge between amplifiers (run 13571)



middle edge between amplifiers (run 13571)



# Pierre's ideas

The pin holes filter , generate spots on the focal plane ...

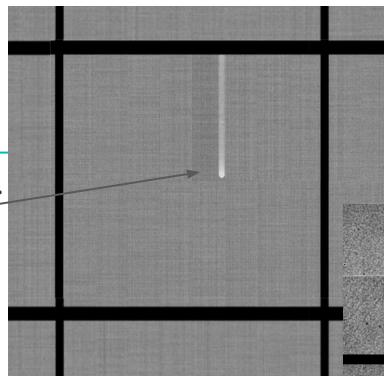
Some are saturated

⇒ persistence study & ghost

some are not

⇒ could be used also for other study :

- Ex : Reproducibility of the filter position ( offset in the hole = offset in their image , run 13520 , 13546 )



Run 13521

By the way , rings centred on the optical axis in flats ??? Kesaco ?

