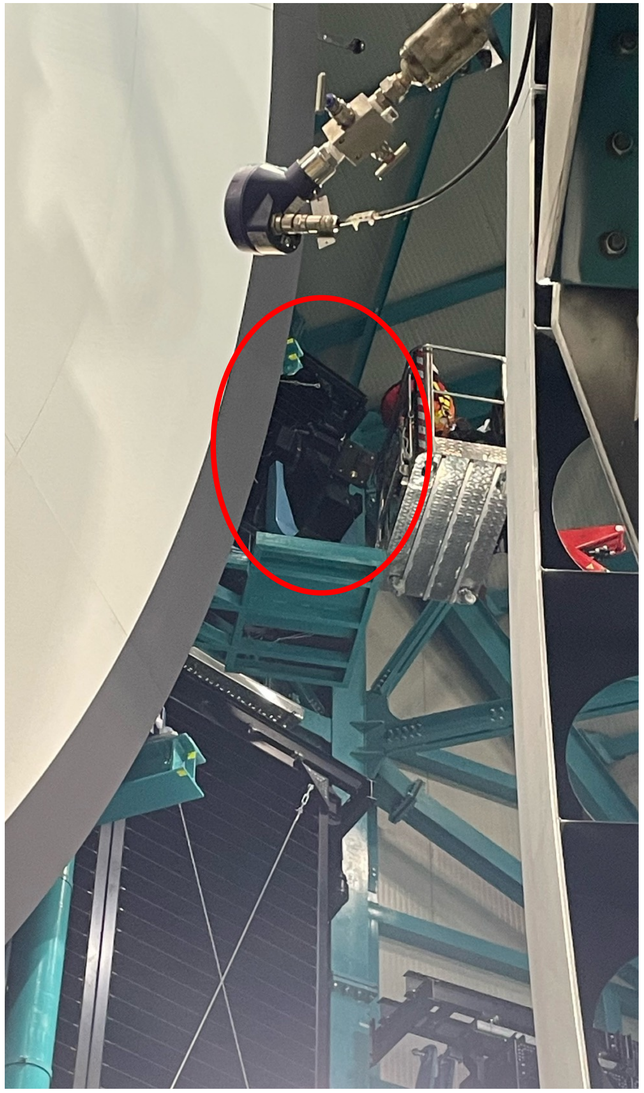
Collimated Beam Projector

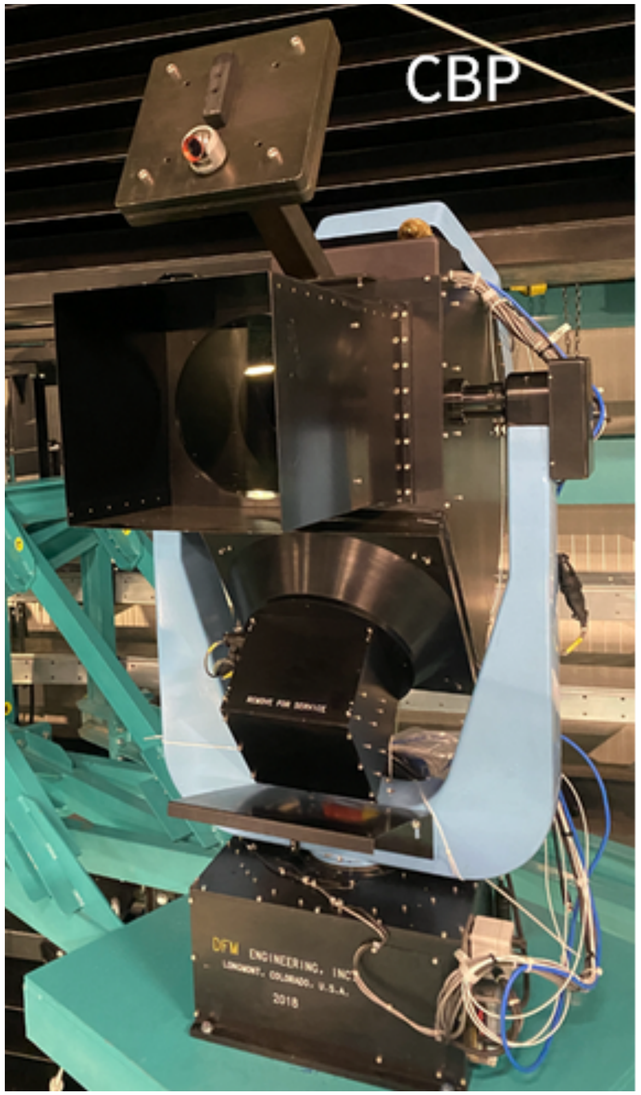
Progress and status from ComCam to LSSTCam

LSST France 13/06/2025

Nathan Amouroux

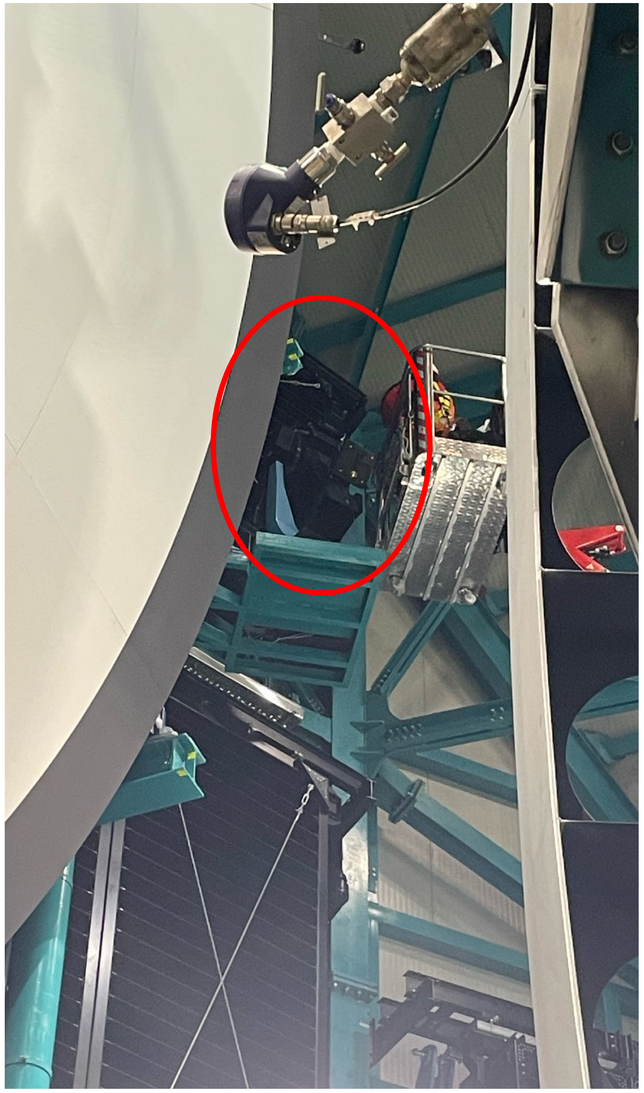
The Collimated Beam Projector (CBP)

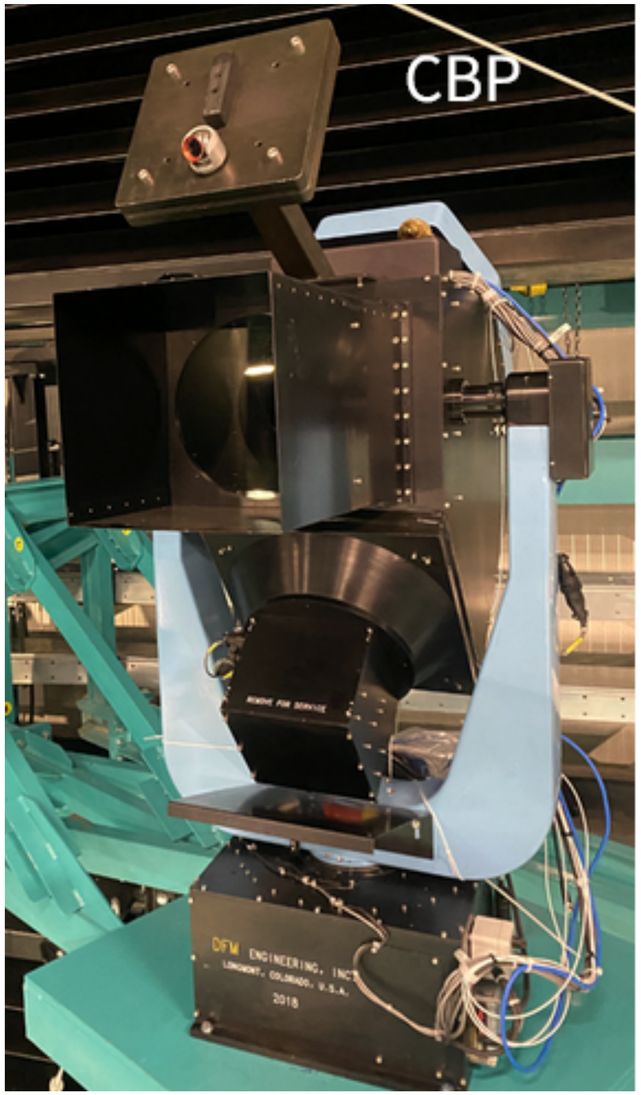


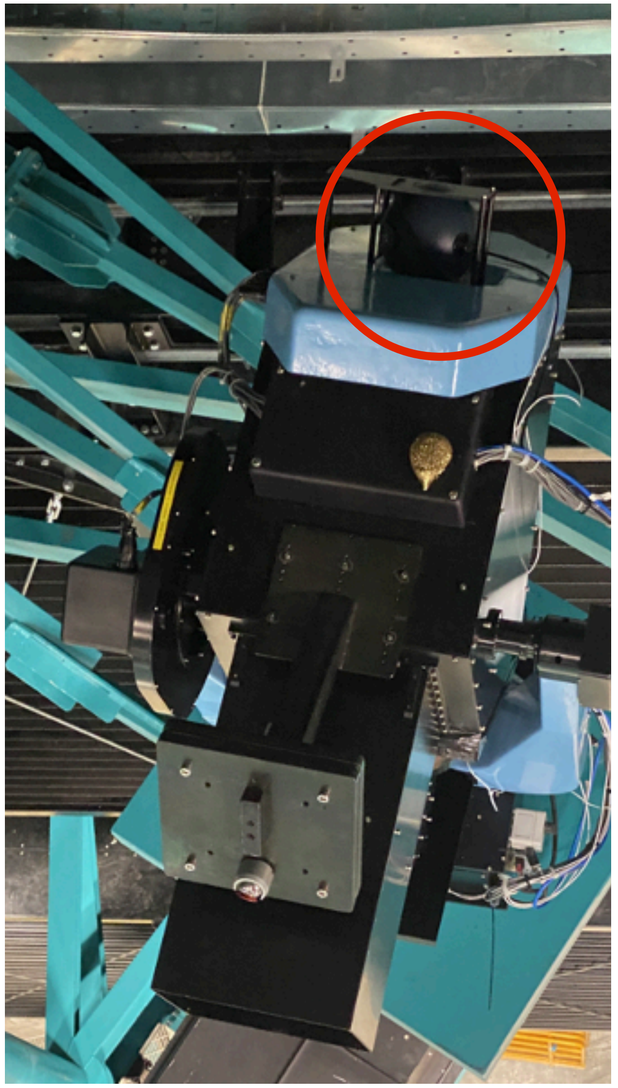


The Collimated Beam Projector (CBP)

CBP & its integrand sphere







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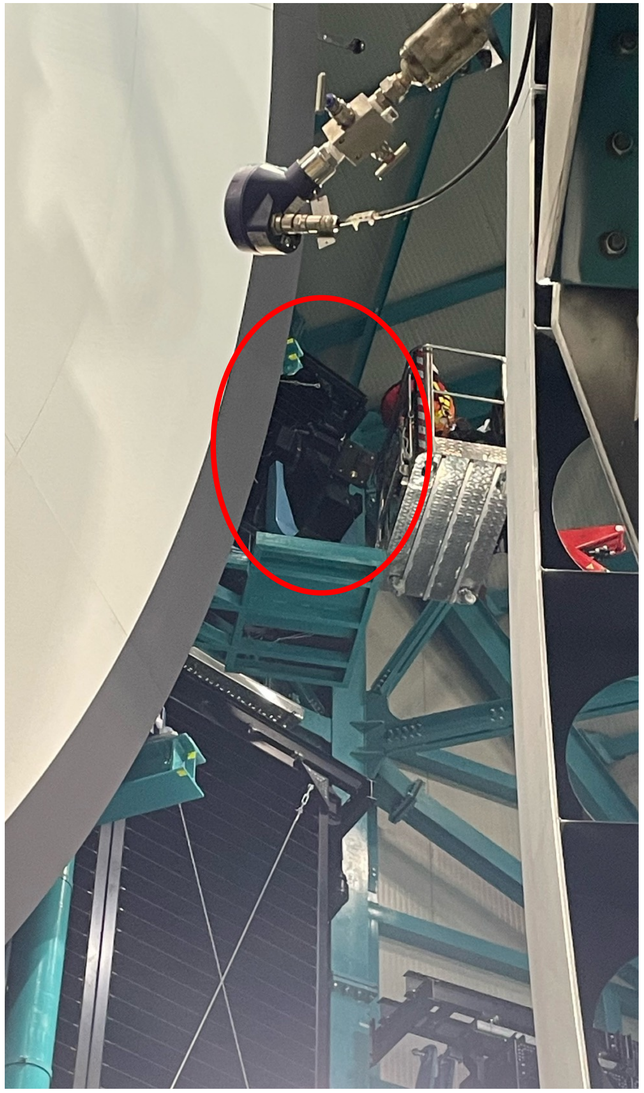

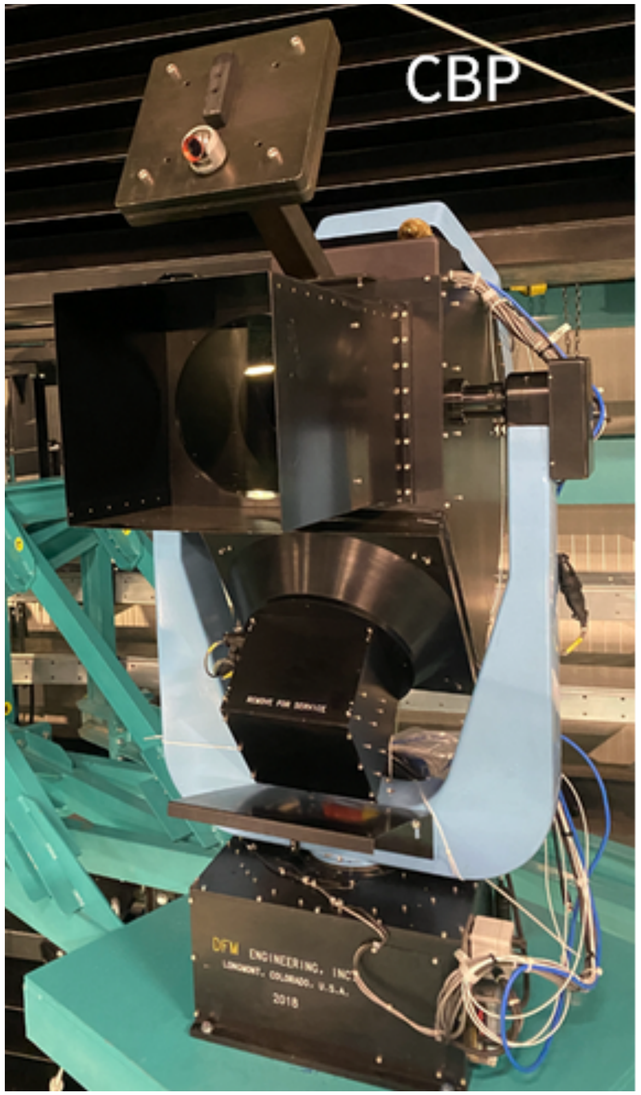

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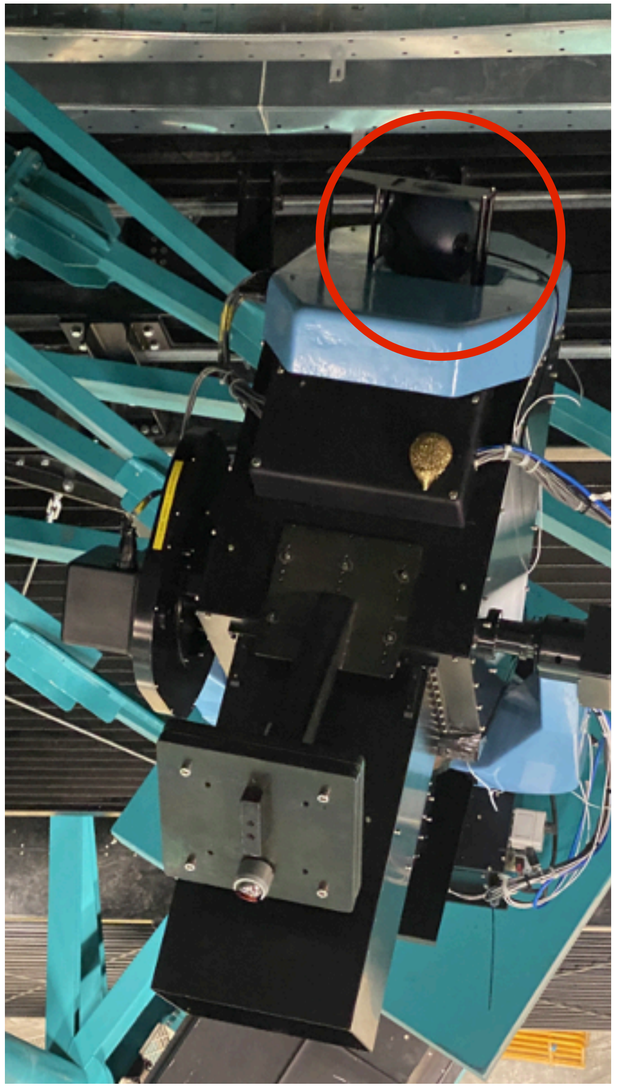
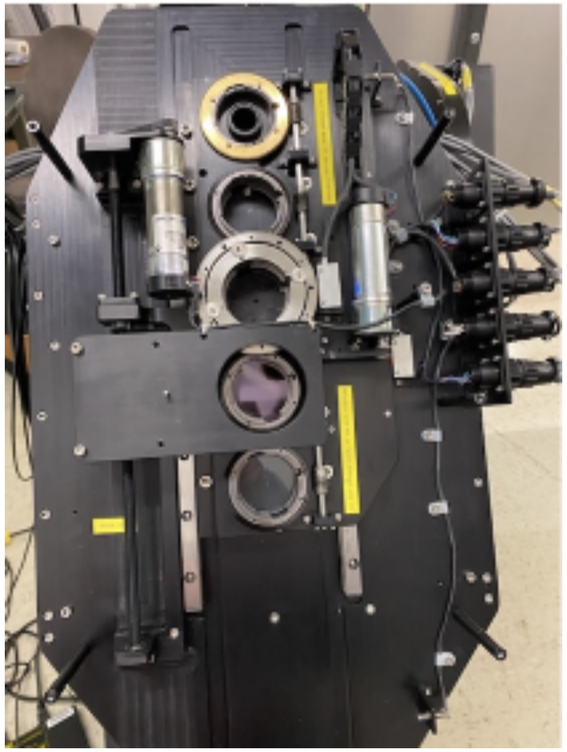


Mask holder (ComCam)



The C CBP)

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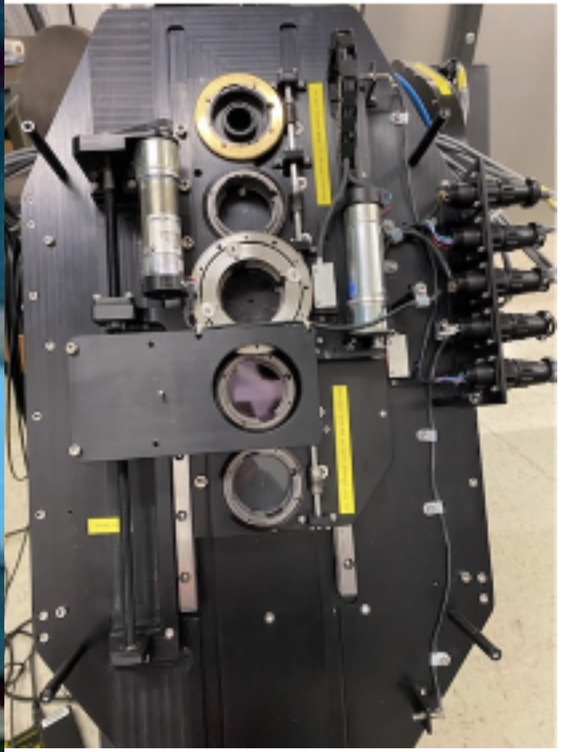
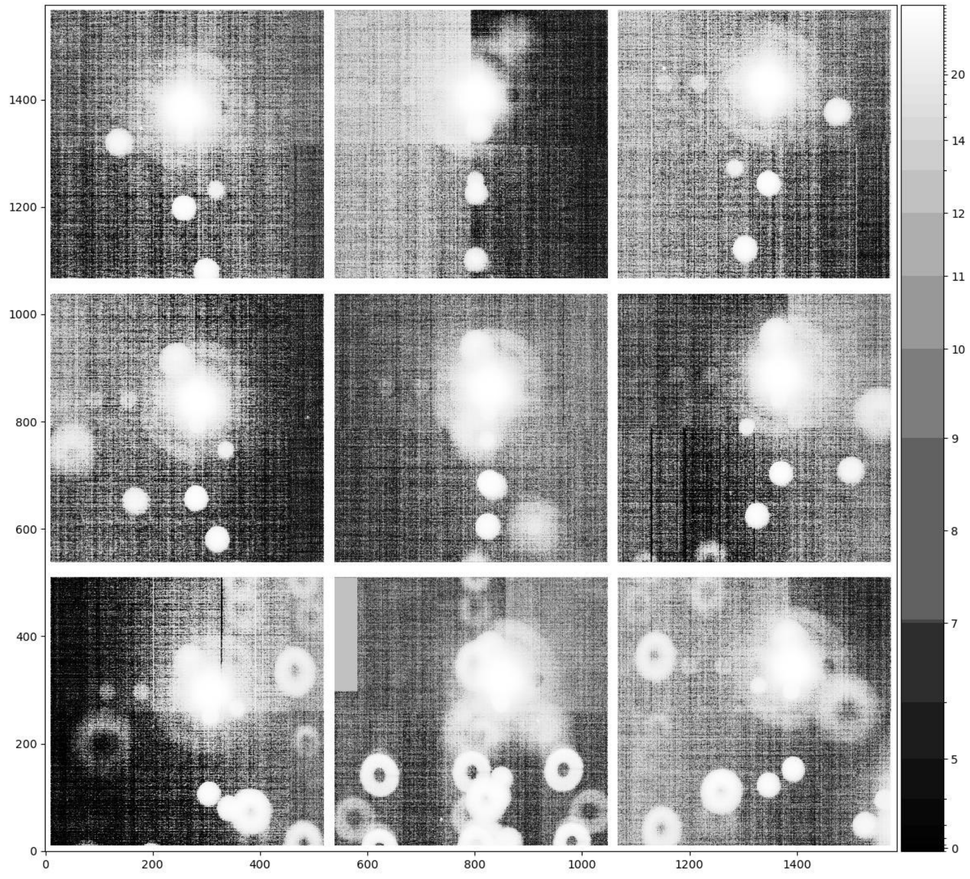
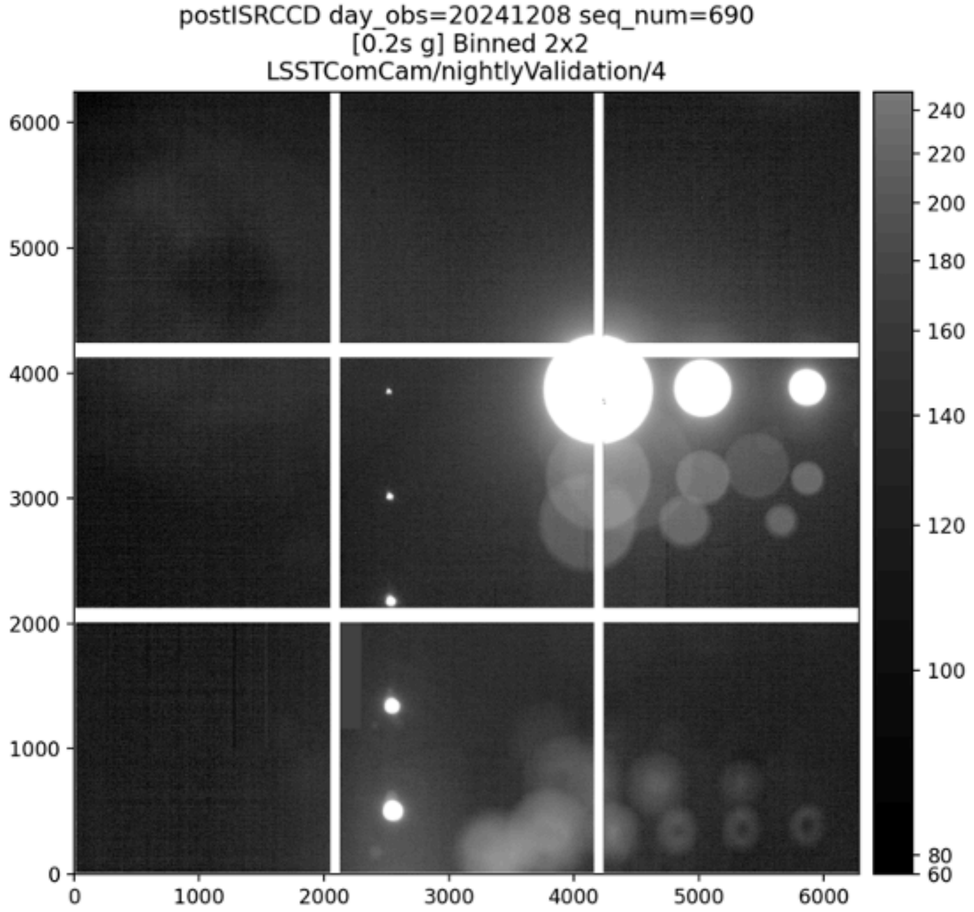


CBP on ComCam



1 spot /CCD



2 lines spots

ComCam campaign

CBP comissioning

ComCam campaign

CBP comissioning

- 4 nights campaign

ComCam campaign

CBP comissioning

- 4 nights campaign
- Copoint CBP - Simonyi Telescope
  - night to night repeatability
  - small movements tests
  - copointing dance

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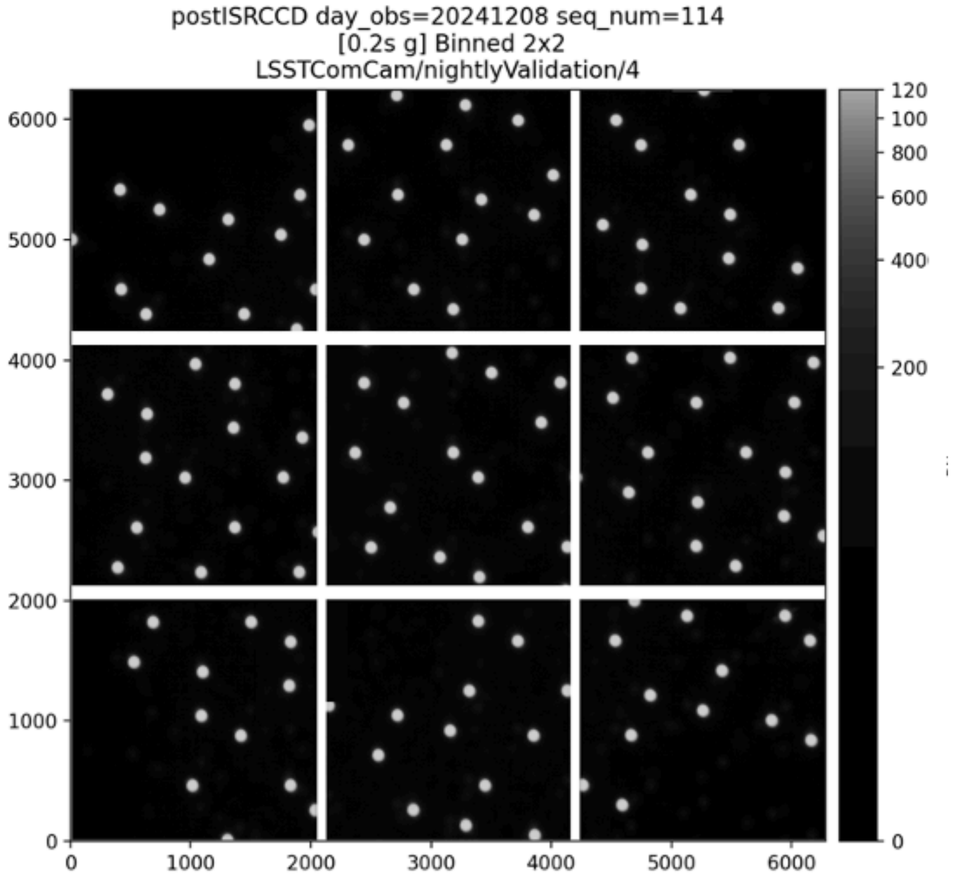

1 spot / amp

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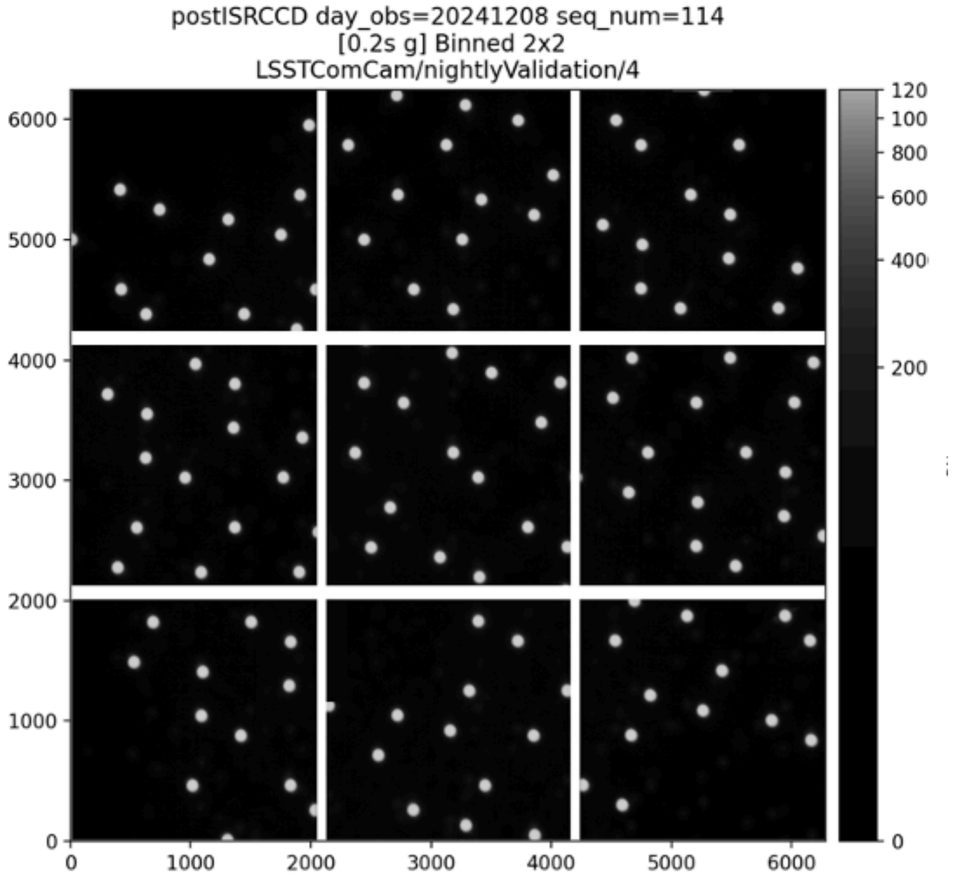
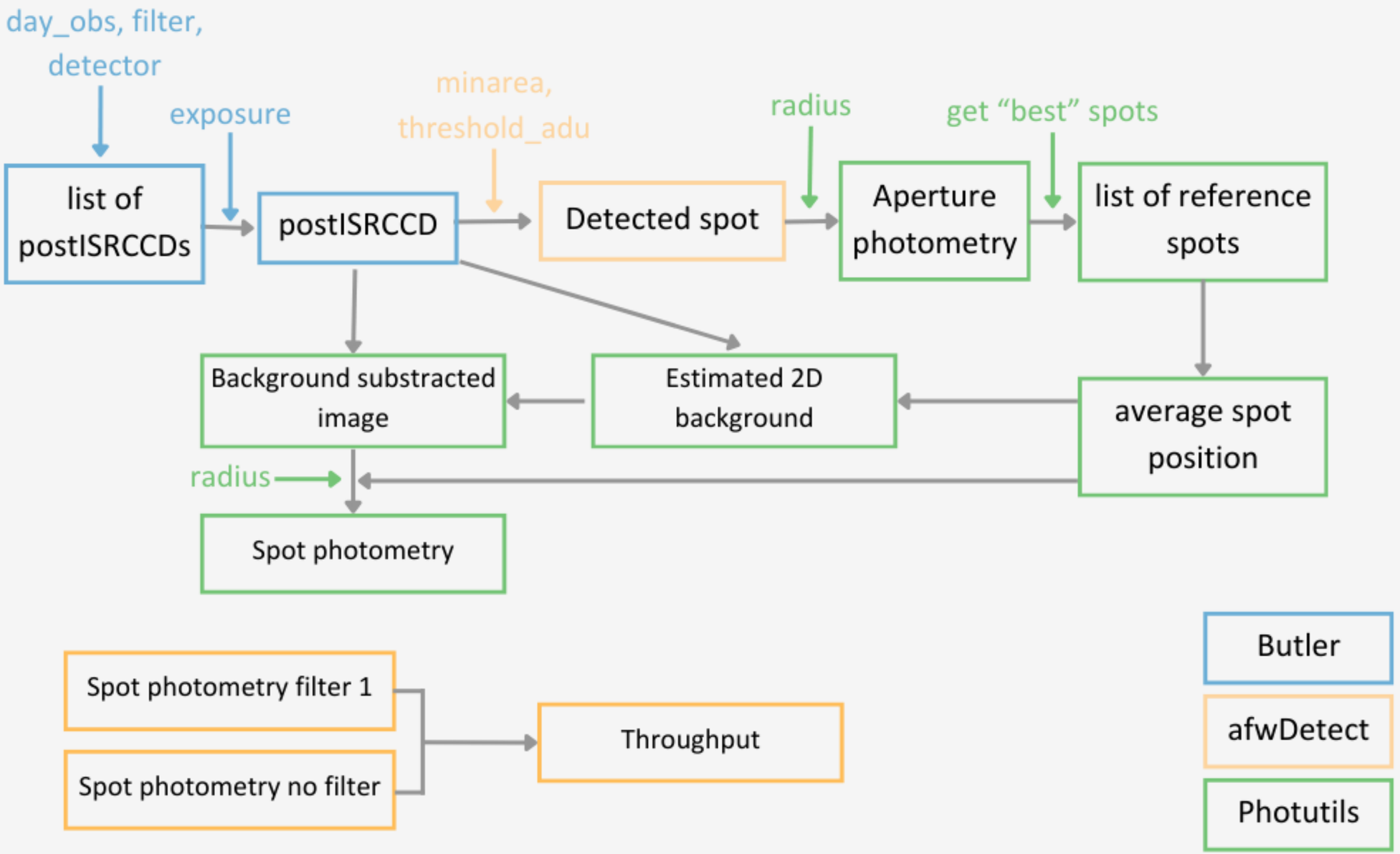


1 spot / amp

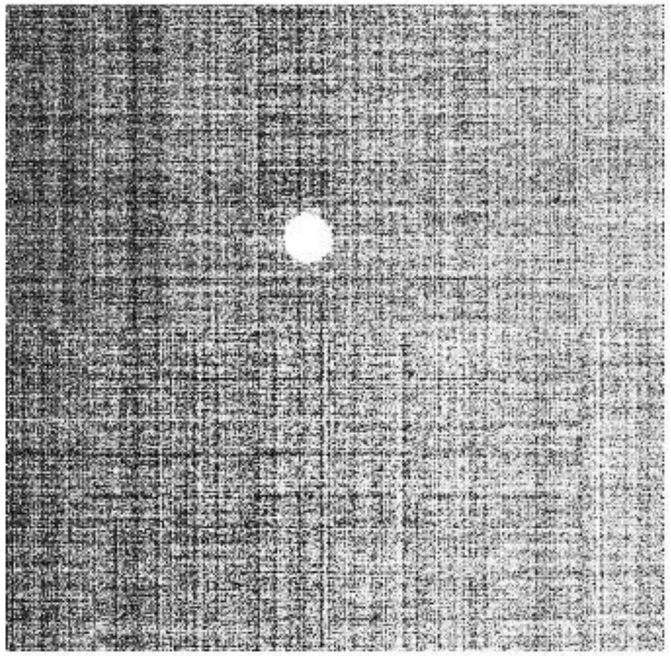
- Technote : sitcomtn-152.lsst.io

Workflow filter throughput measurement



ComCam campaign

Throughput measurement - Aperture photometry



r filter

ComCam campaign

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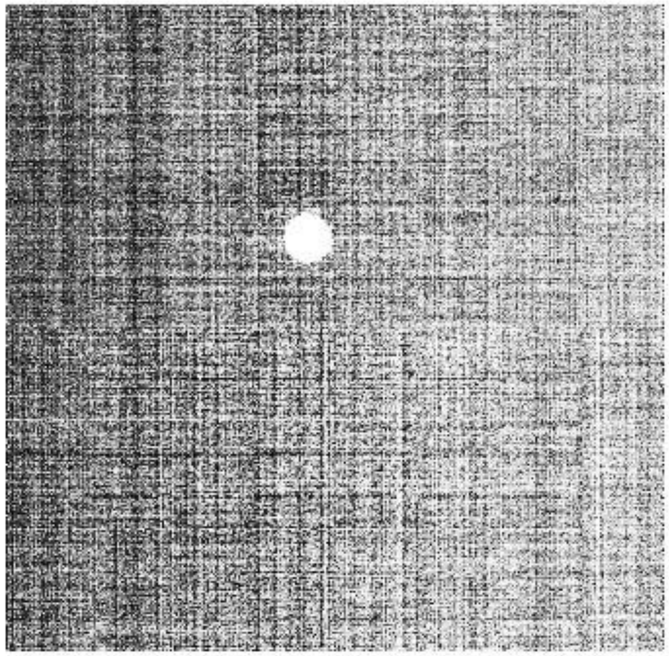

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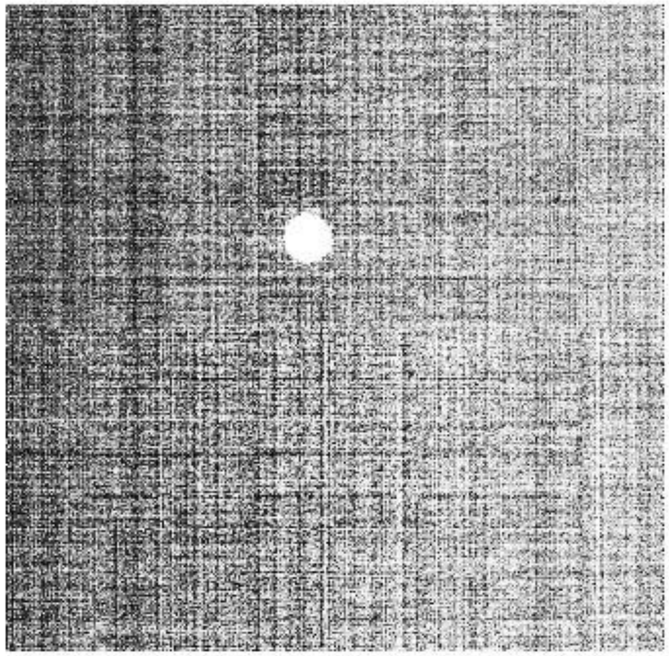

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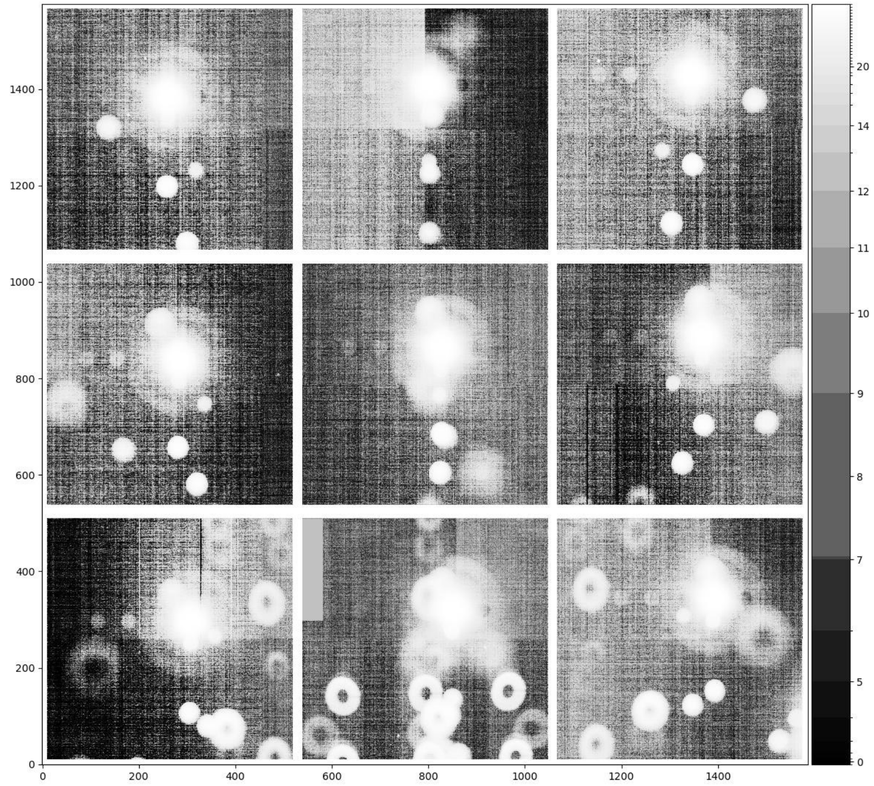

ComCam campaign

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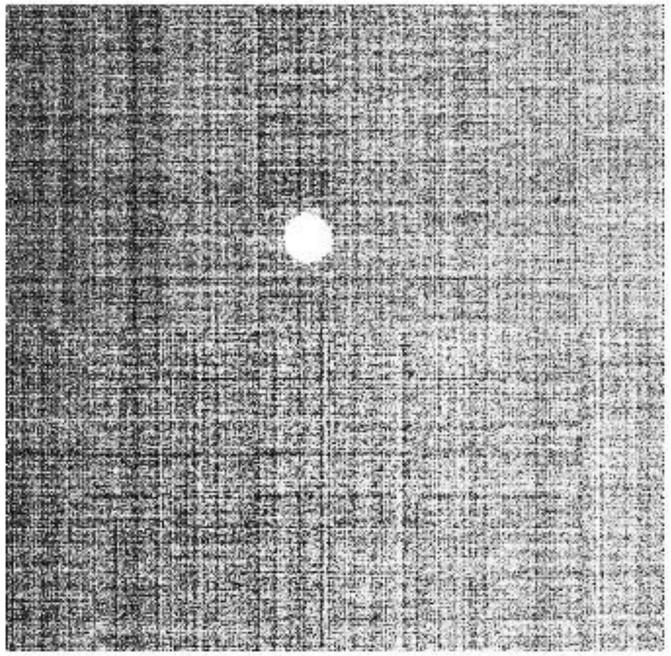

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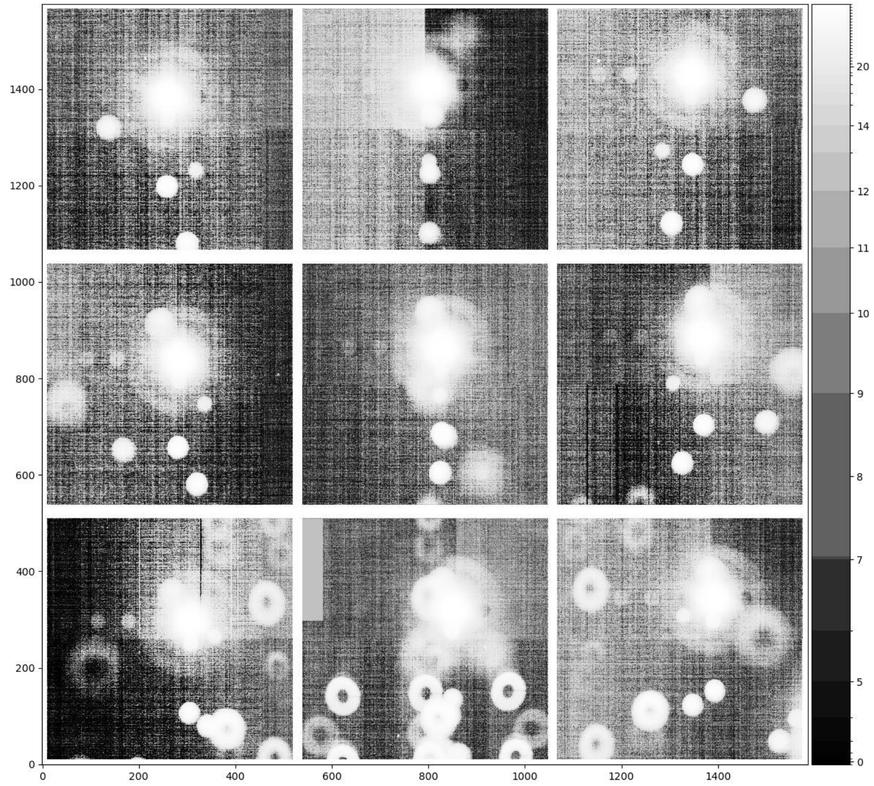

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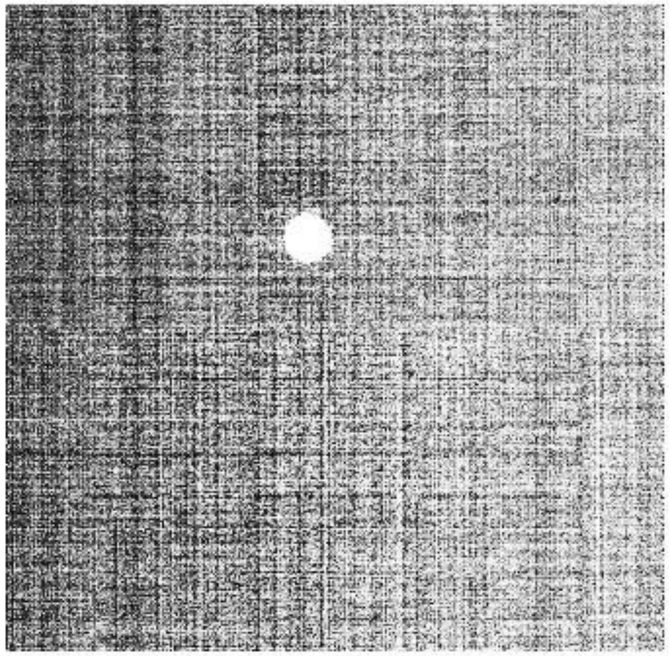

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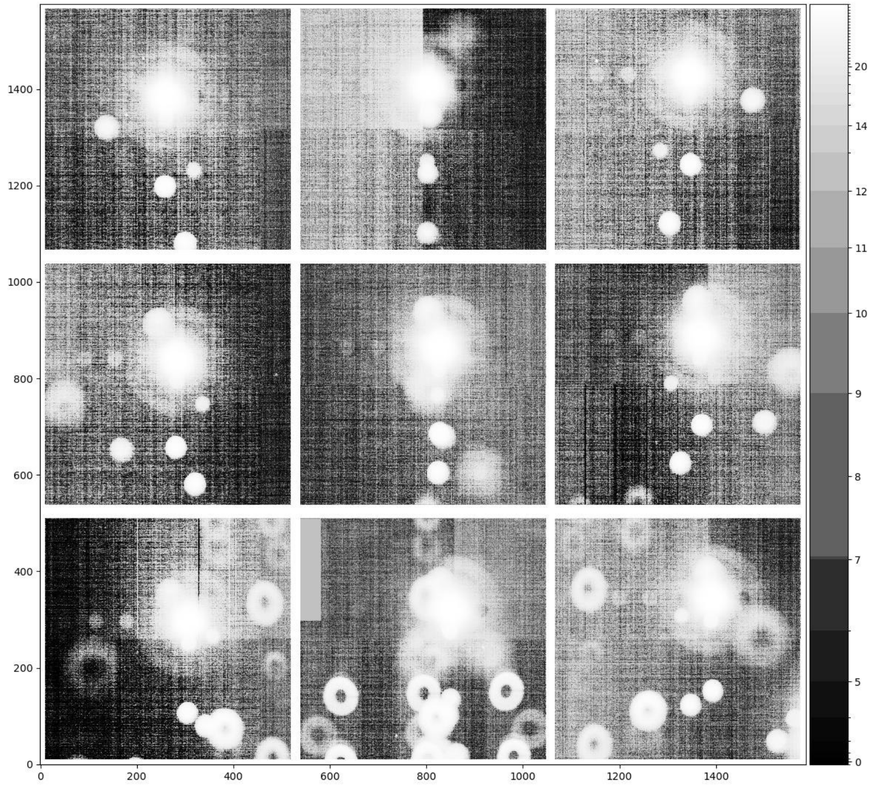

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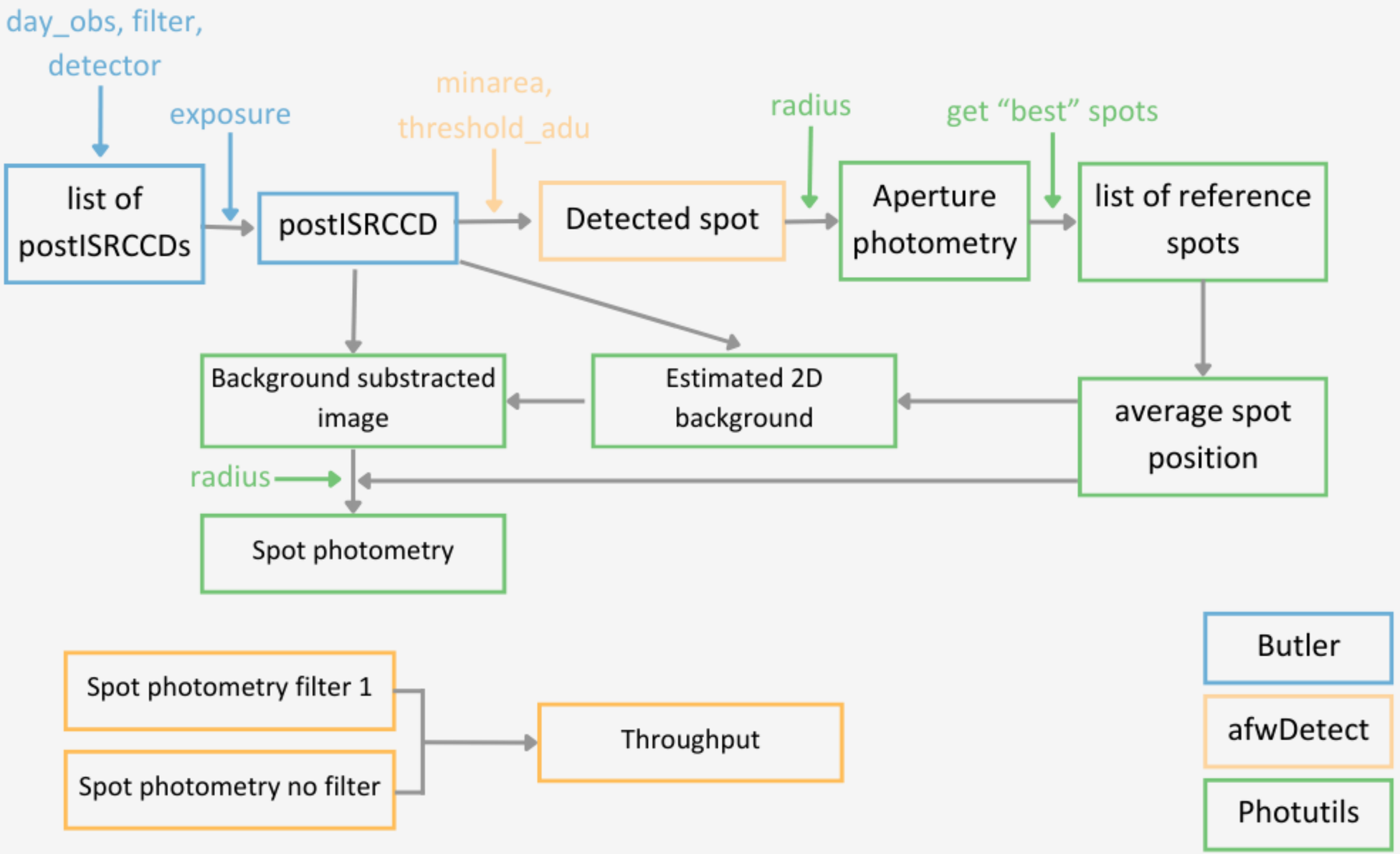
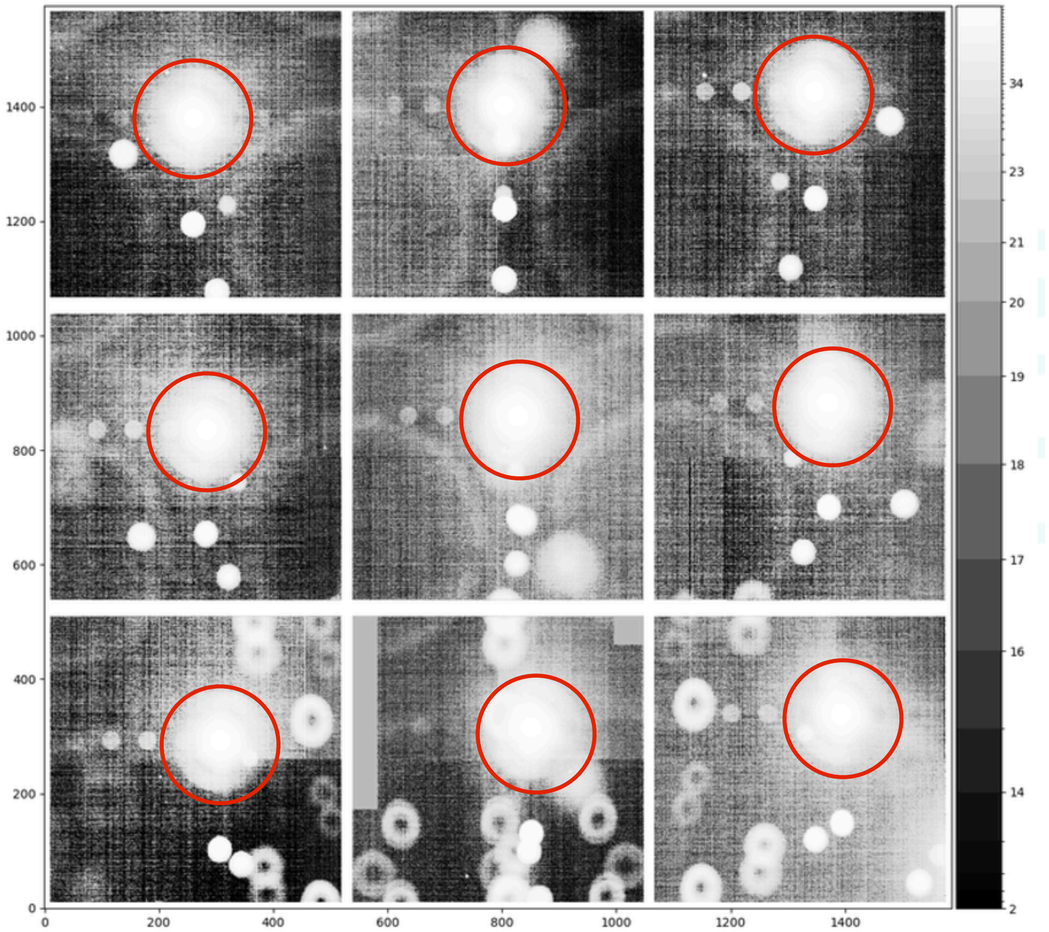
68										0.50		acq		2024-12-11T22:37:31.486	11.38	545	r_03
67										0.50		acq		2024-12-11T22:36:45.078	12.44	545	g_01

Workflow filter throughput measurement

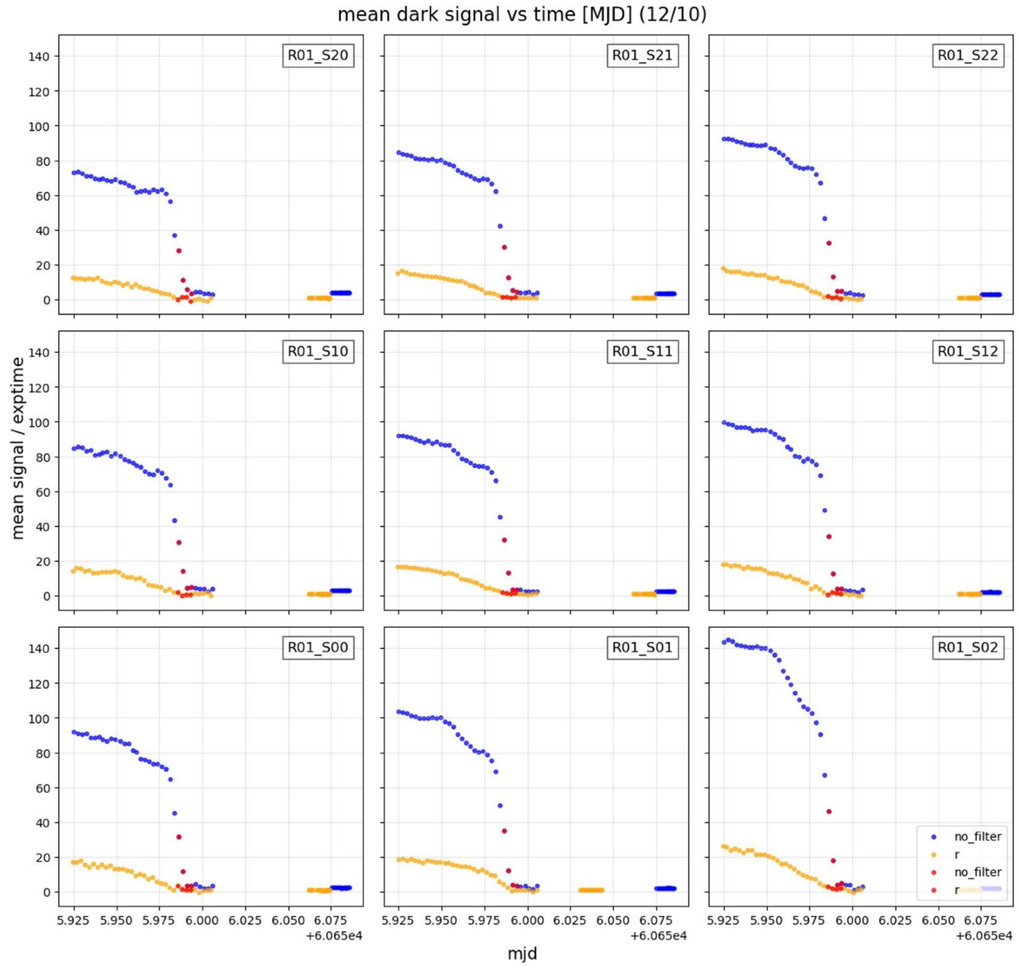


Filters throughput measurement

ComCam example



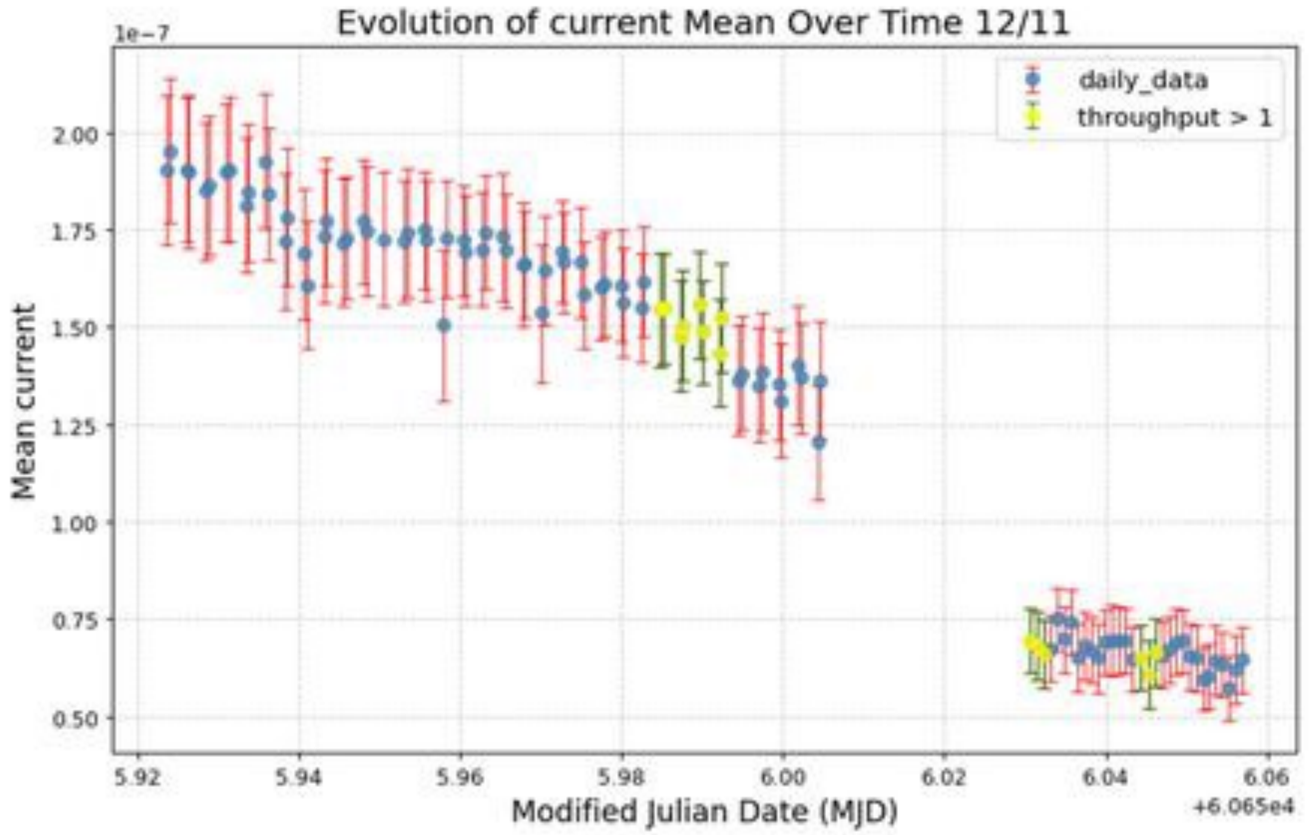
Aperture photometry



Background

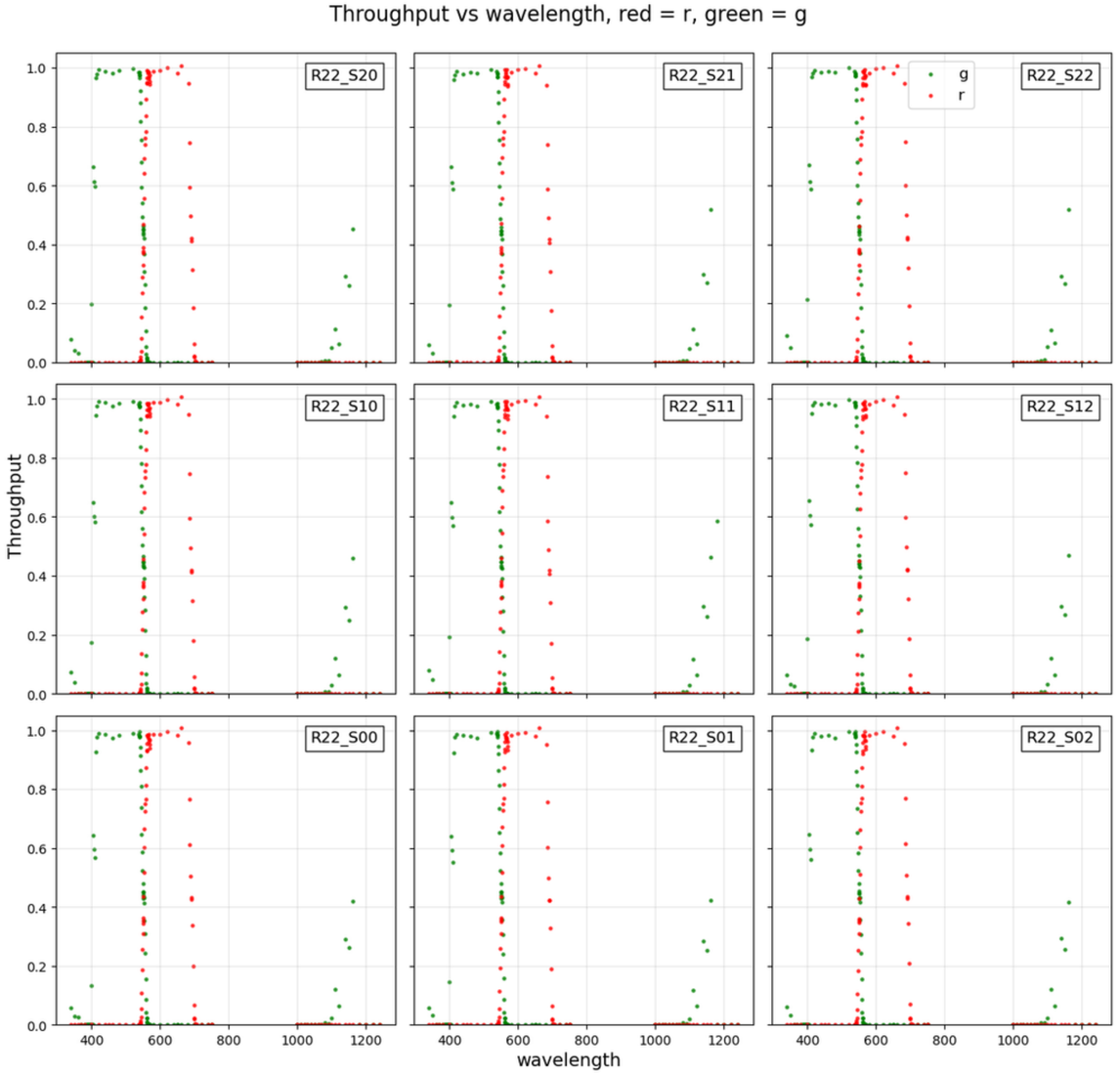
Filters throughput measurement

ComCam example

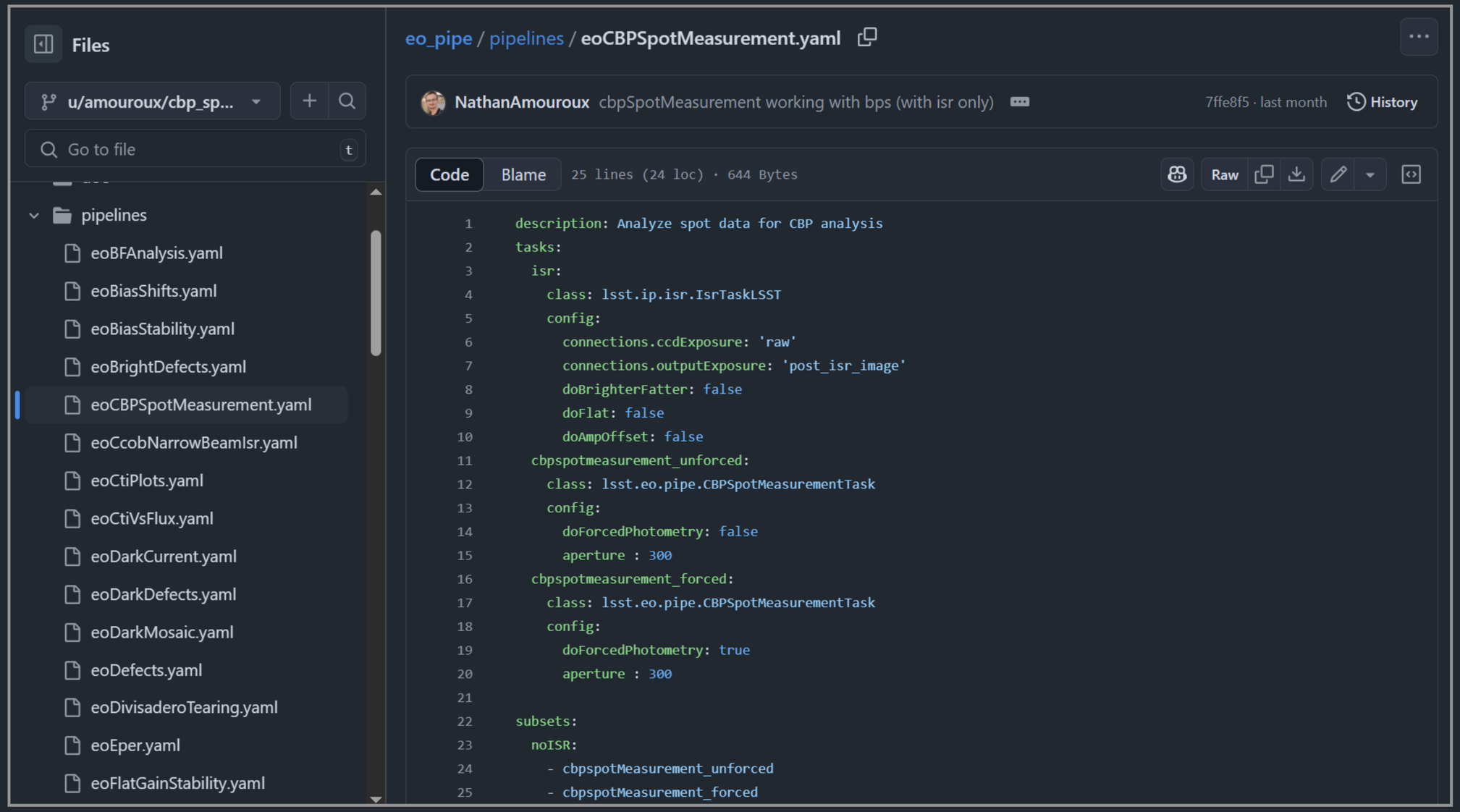


Photodiode data

ComCam filters throughput



CBPSpotMeasurement task



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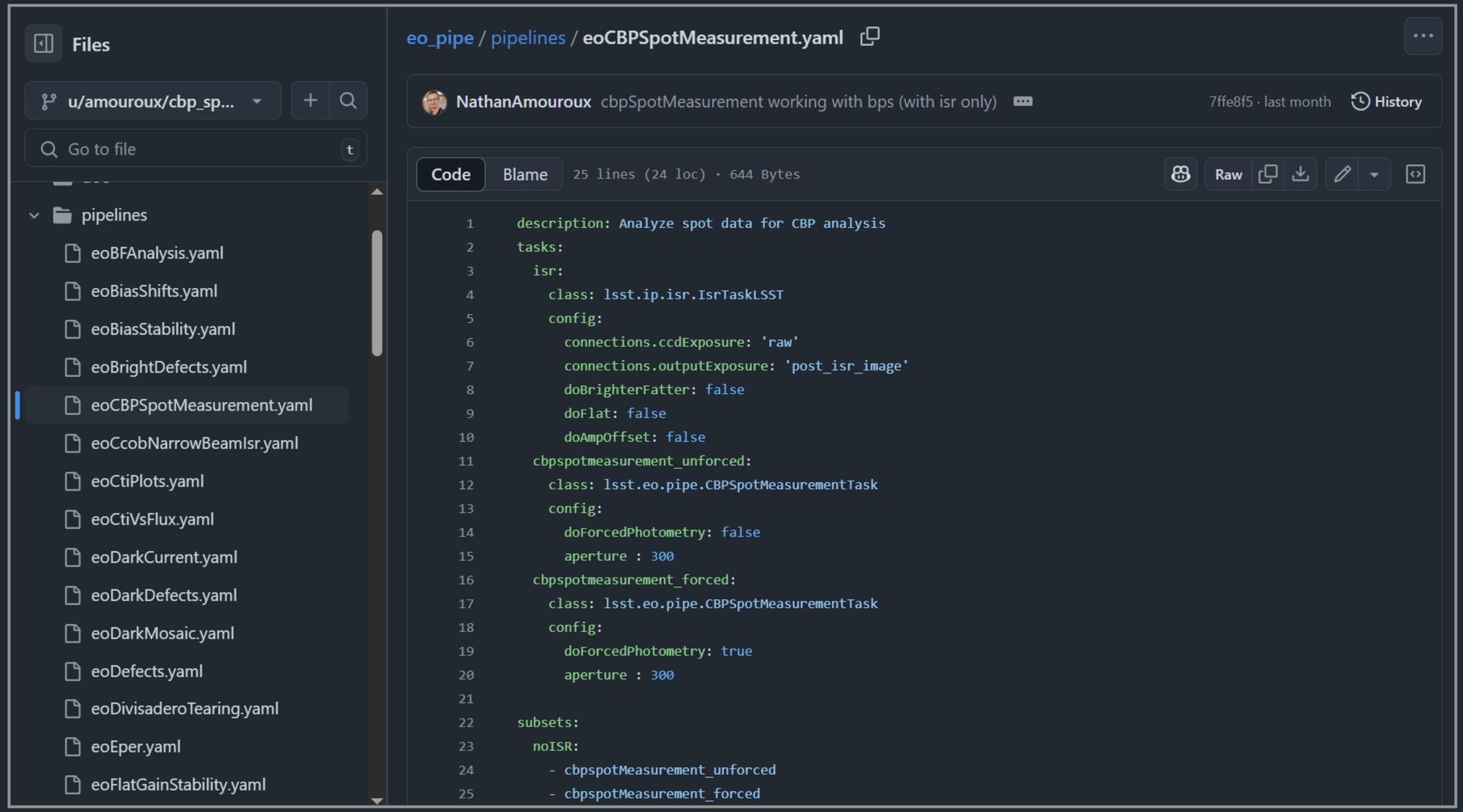
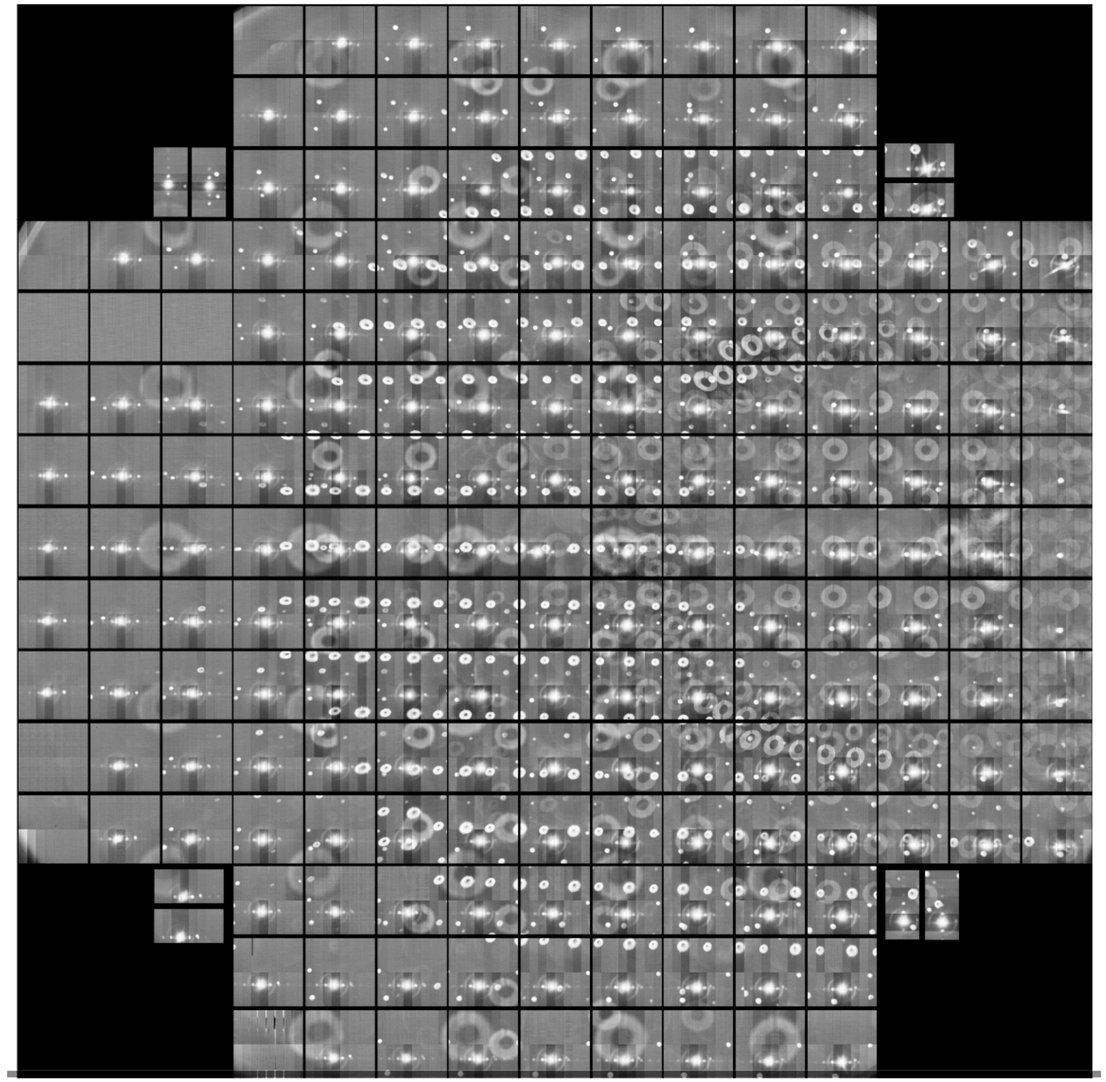
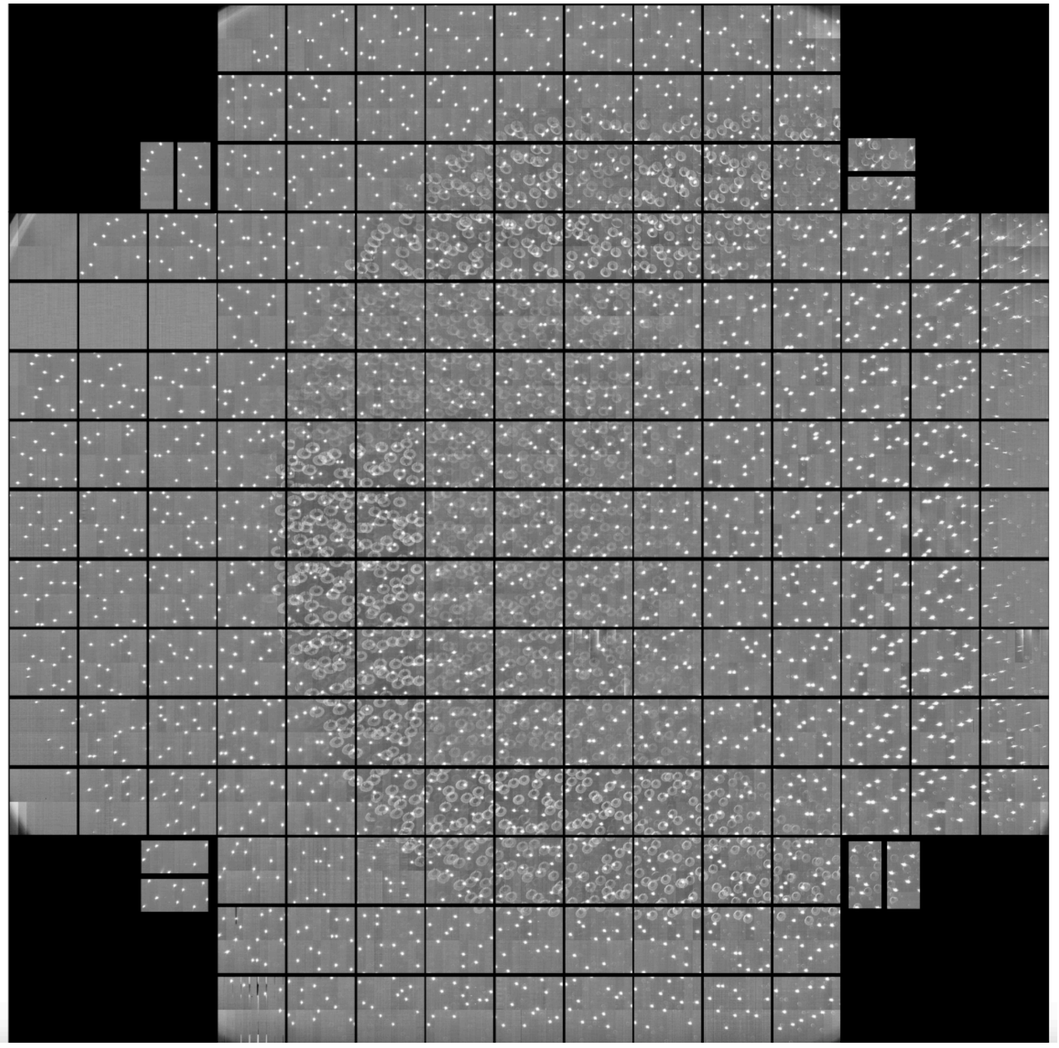


eo_pipe branch —> cbp_analysis —> cp_pipe fork ?

CBP Current status - LSSTCam campaign



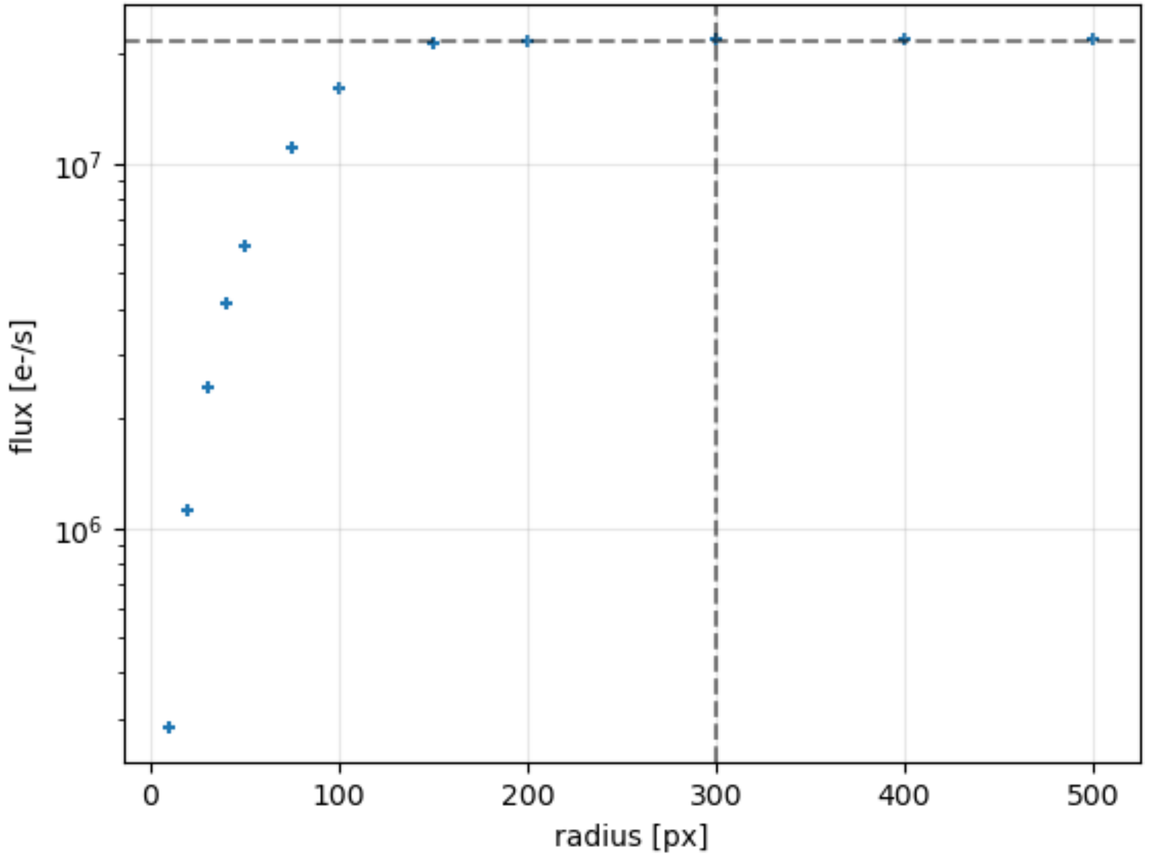
1 spot/CCD - No filter scan



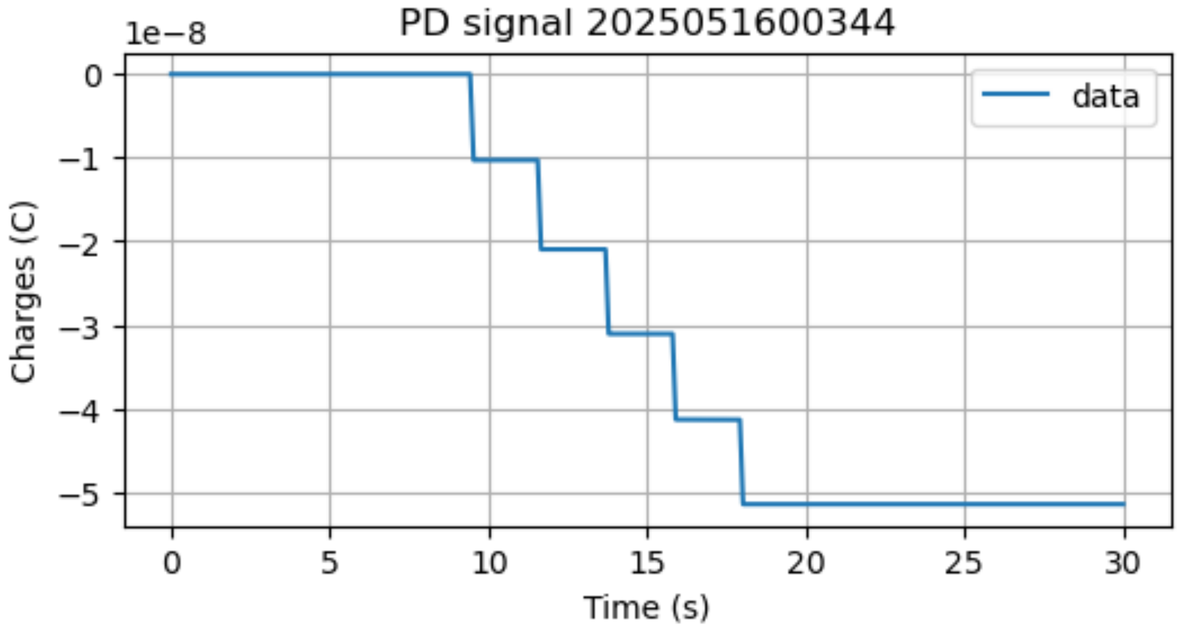
16 spots/CCD - Motion test

Ingredients for the QE scan

CBP spots growth curve - g filter



Photodiode data (charge mode)



Package developed by Jeremy to analyze those data

- Aperture photometry
- charge = max - min

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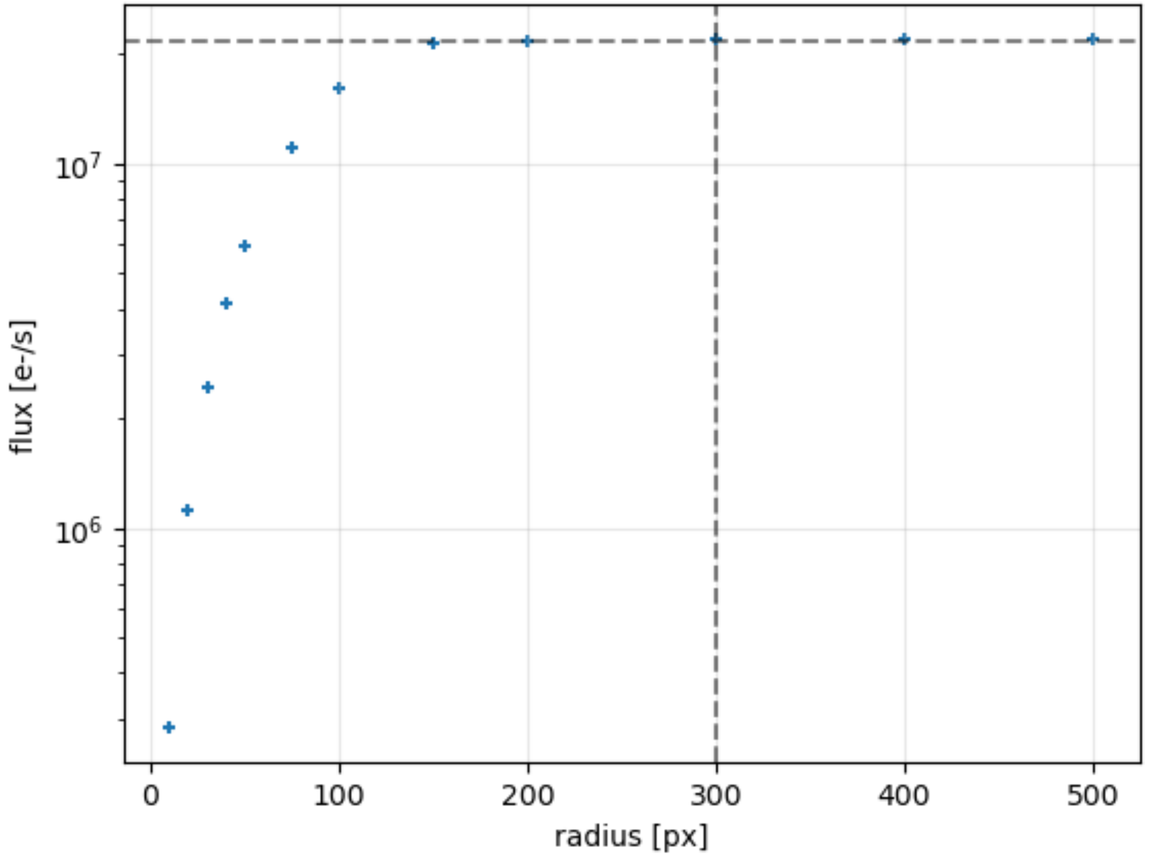

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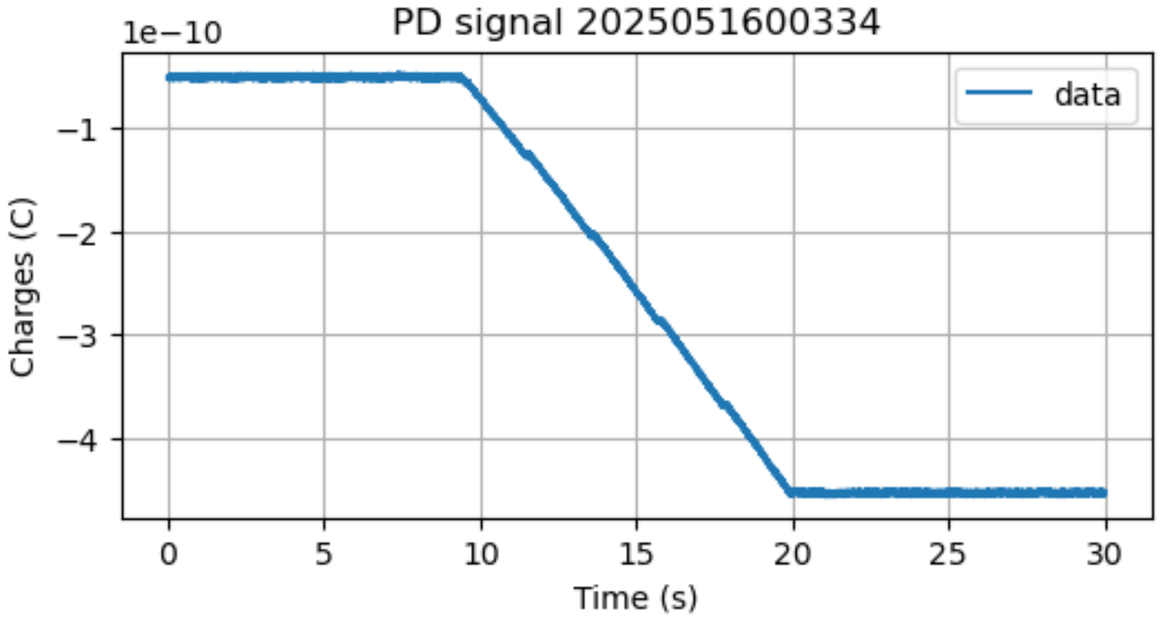

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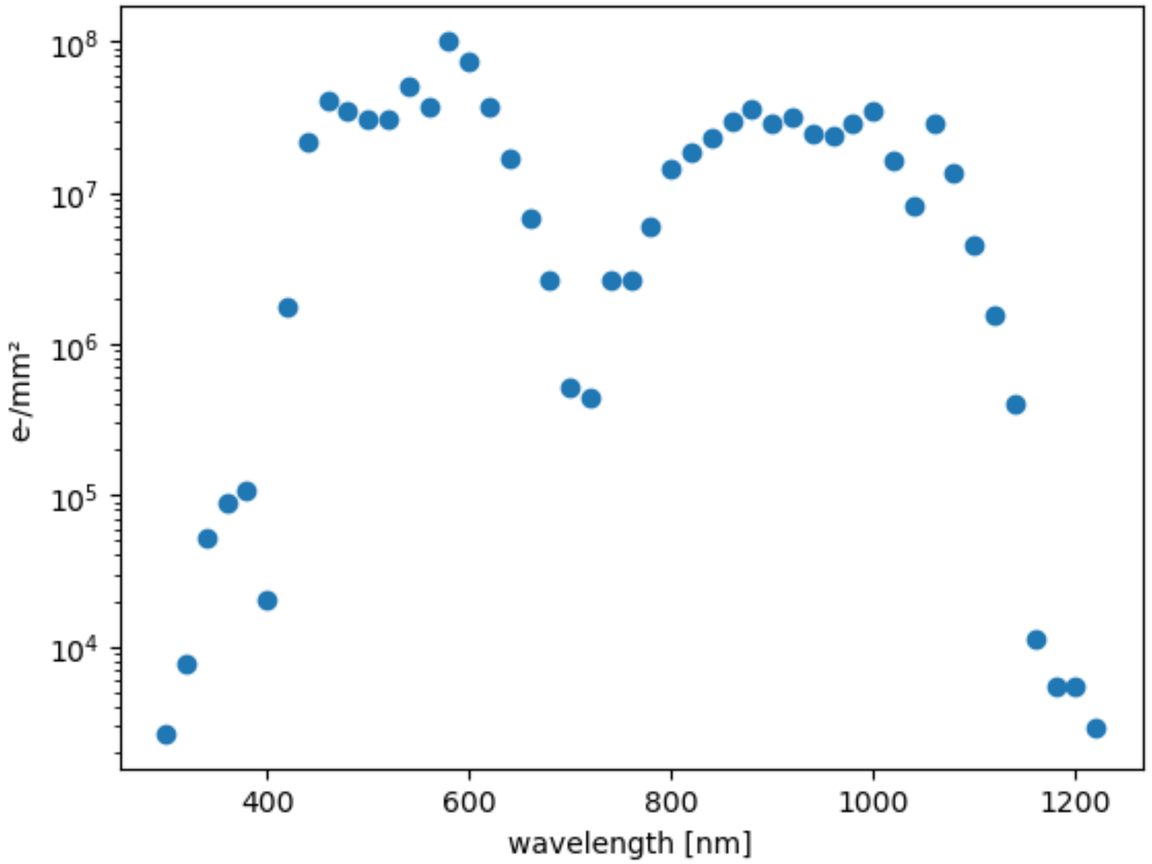
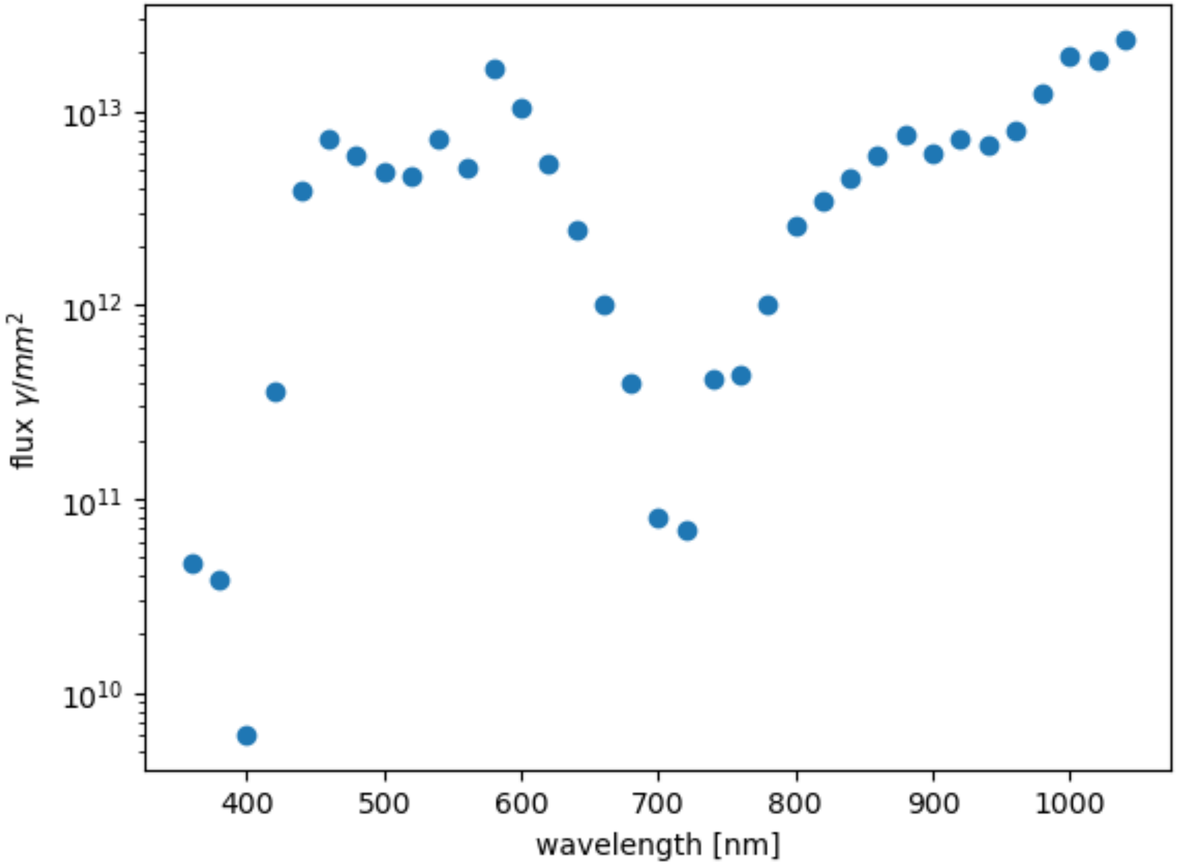
Ingredients for the QE scan

Signal from aperture photometry ‘R22_S00’



Signal from photodiode data

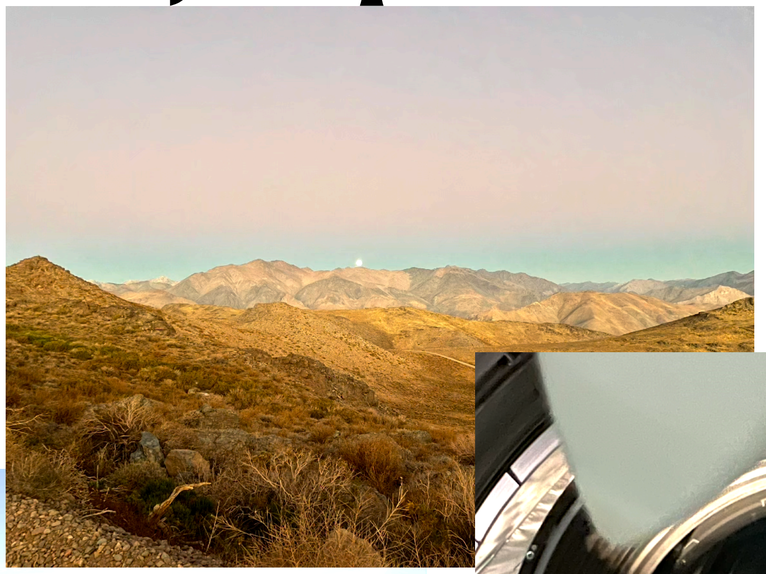


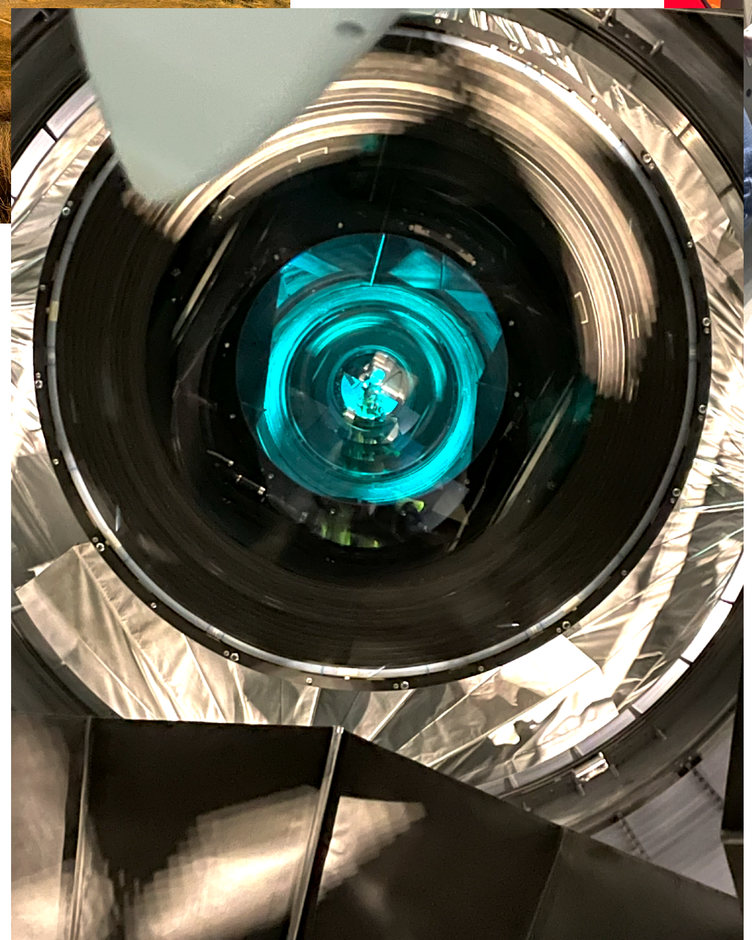
QE = ratio of these two plots : We’re almost there !

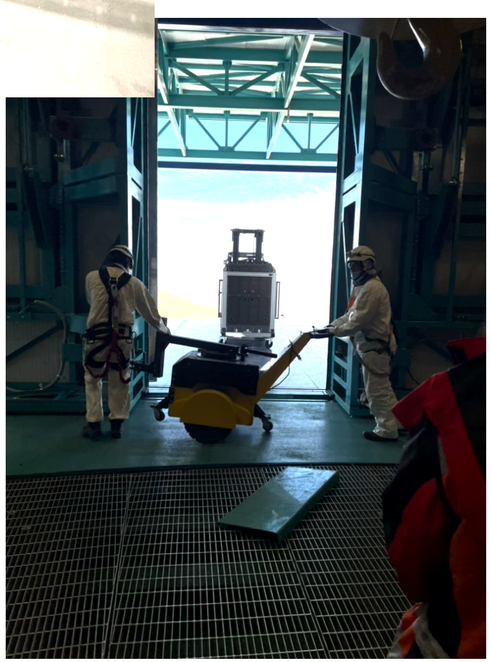
Conclusion

- ComCam campaign was a success
- CBP comissioning during ComCam
- ComCam g and r filters throughput measured
- New masks installed for LSSTCam
- LSSTCam detectors QE
- u,g,r,z,y bandpass measured on LSSTCam : analysis ongoing
- Different pointings for incidence angle investigation

My trip to the observatory







L'odyssée cosmique de Pénélope