# ZTF Camera Paper Status

## Marie Aubert

# Paper plan

## Paper status : Draft in progress

**1.** Introduction ............................................  To be written

**2.** Instrument ............................................  To be proofread

   **1.** Télescope
   **2.** Camera
   **3.** Filters

**3.** Detrending pipeline ............................  Drafted

   **1.** Pipeline Overview
   **2.** Overscan correction
   **3.** Linearity correction
   **4.** From calibration raw data to master calibration images ...............
      **1.** Master bias
      **2.** Master flat
   **5.** Detrending and science image
      **1.** Defringing
   **6.** Forced aperture photometry and catalogues

   - Add reference
   - Proofreading
   - Plots missing

**4.** Star-flat analysis ............................  Drafting
General presentation & model.

# Paper plan

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## 5. Synthetic Filters ..................................... ⬛⬛🟥🟥🟥 Drafted

  1. Instrument model
  2. tCBP campaign
  3. Filter synthesis (pupil stitching ?)
  4. Comparaison to Gaïa
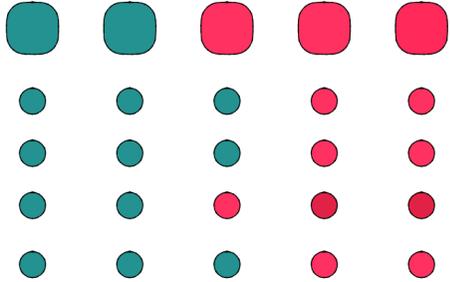
## 6. On-sky performance (?) ..................... 🟥🟥🟥🟥🟥 Unclear if this will disappear

  → Light curve & Ubercal mostly
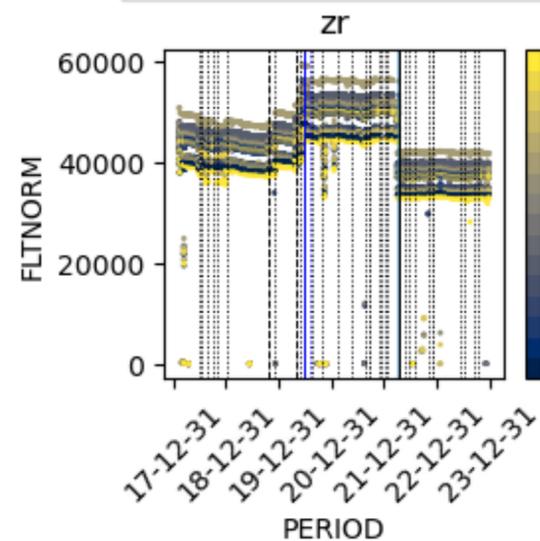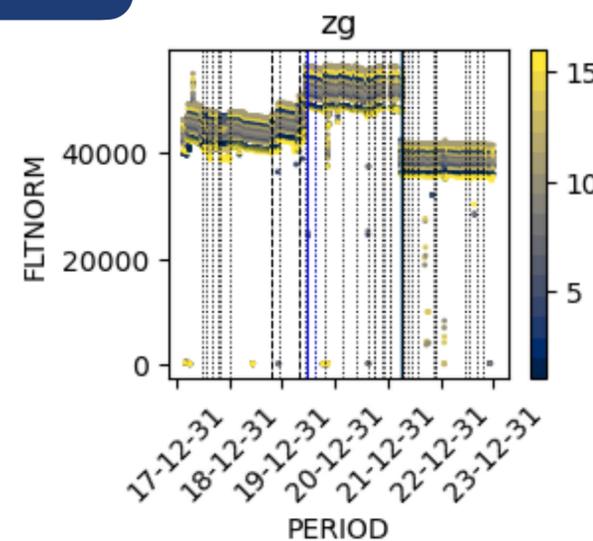
.................................. 🟥🟥🟥🟥🟥 To be written

## 7. Conclusion

# Detrending pipeline

- Mostly drafted.

- To do : Add plots. (Bias dilation, Flat-field selection)

**1** Image Input **Any raw**
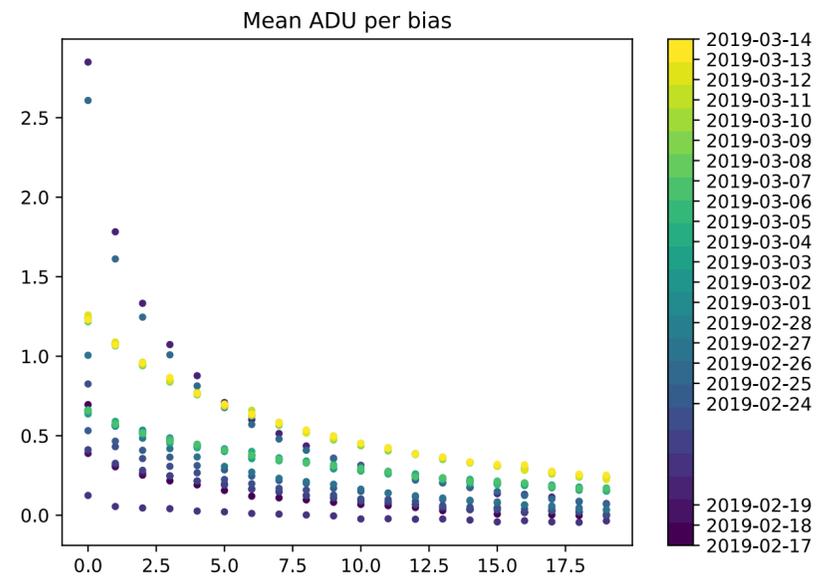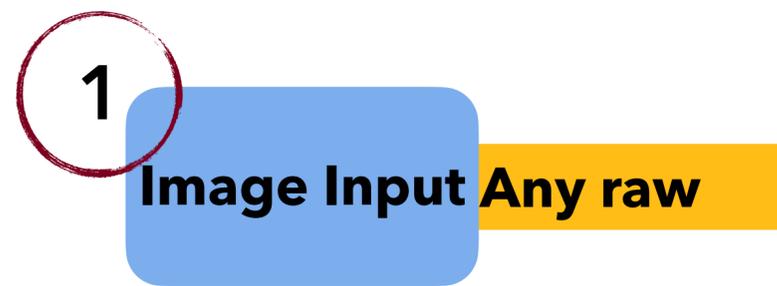
**2** Detrending **Master Calib** | **Master Bias** / **Master Flat FOCAL PLANE**

**3** Aperture



Mean ADU per bias

Dilation example

Outlier rejection



Legend: Linearity coef, Capacity well redux, Flatfield power. change, mirror clean, Oversat. Flats, Restored capacity well, Corr. cleaning, spare cam

zg    zr    zi

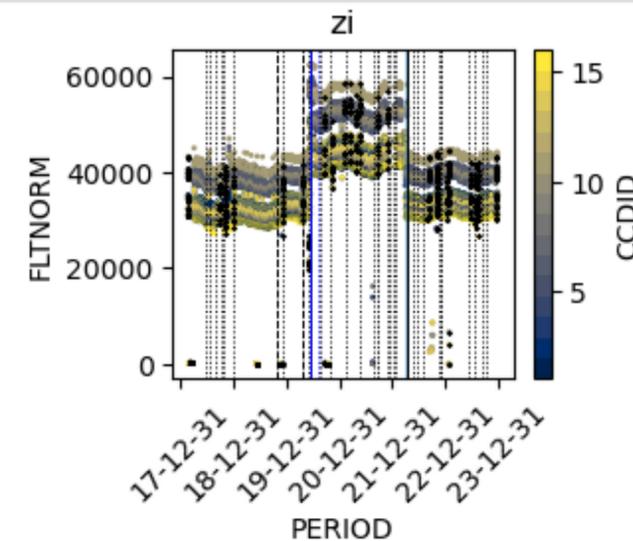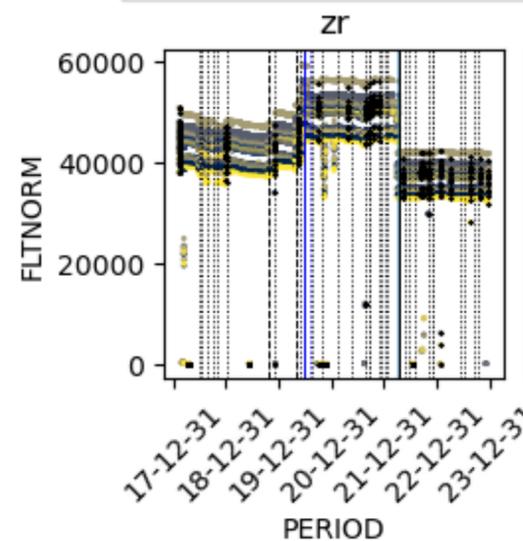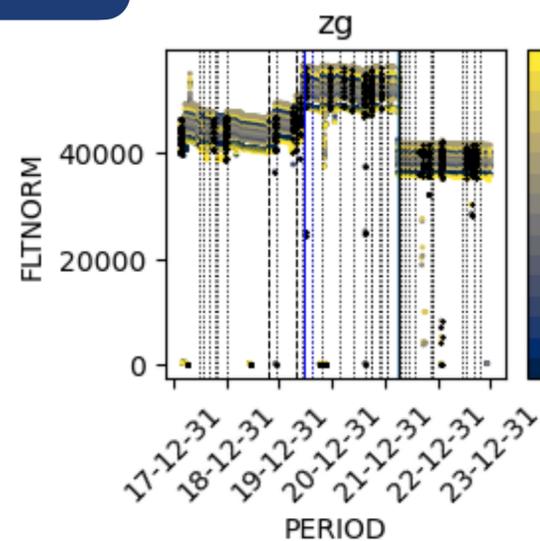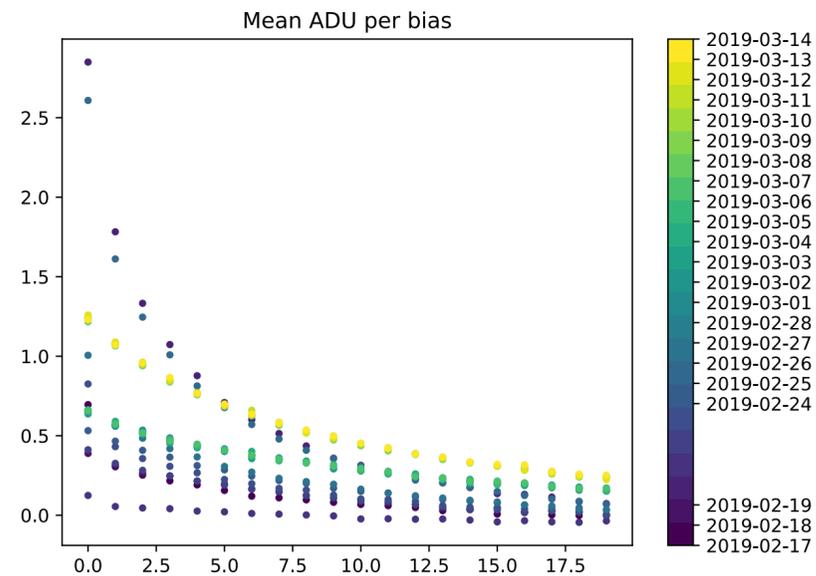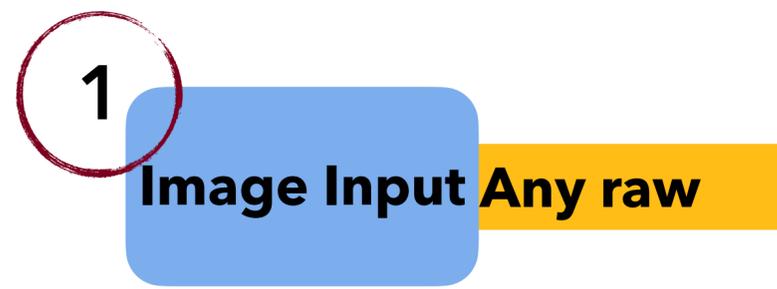**UNCLEAR :** Overscan correction (5 last pix)

→ Implemented for now but pocket correction integration in paper & pipeline makes it unclear.

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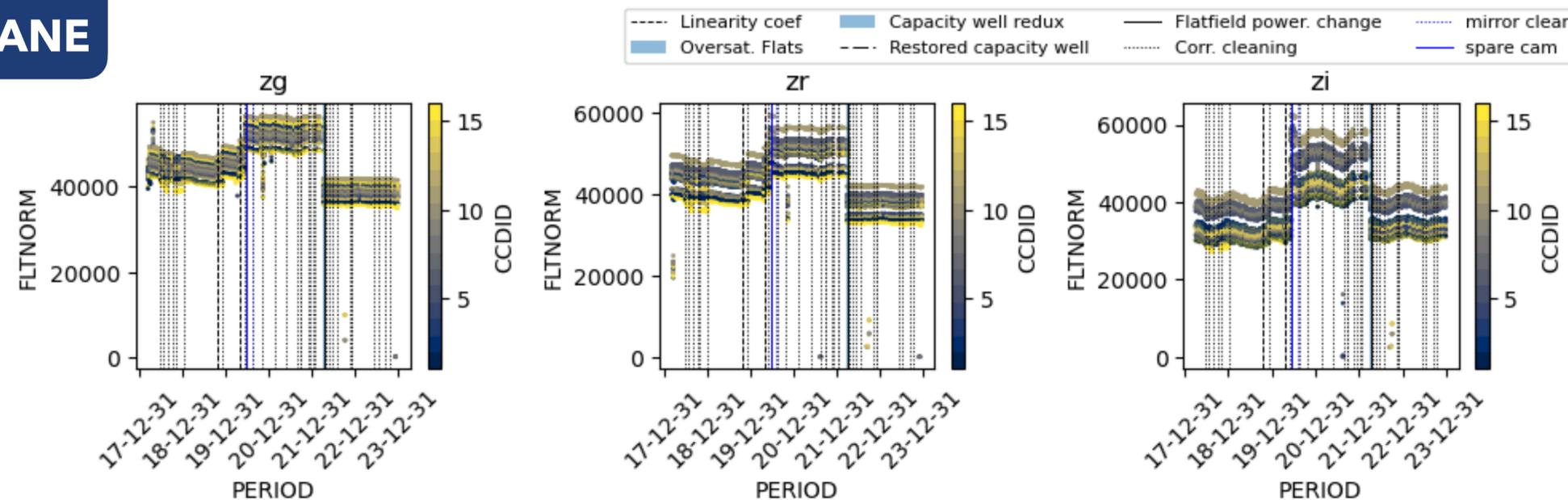
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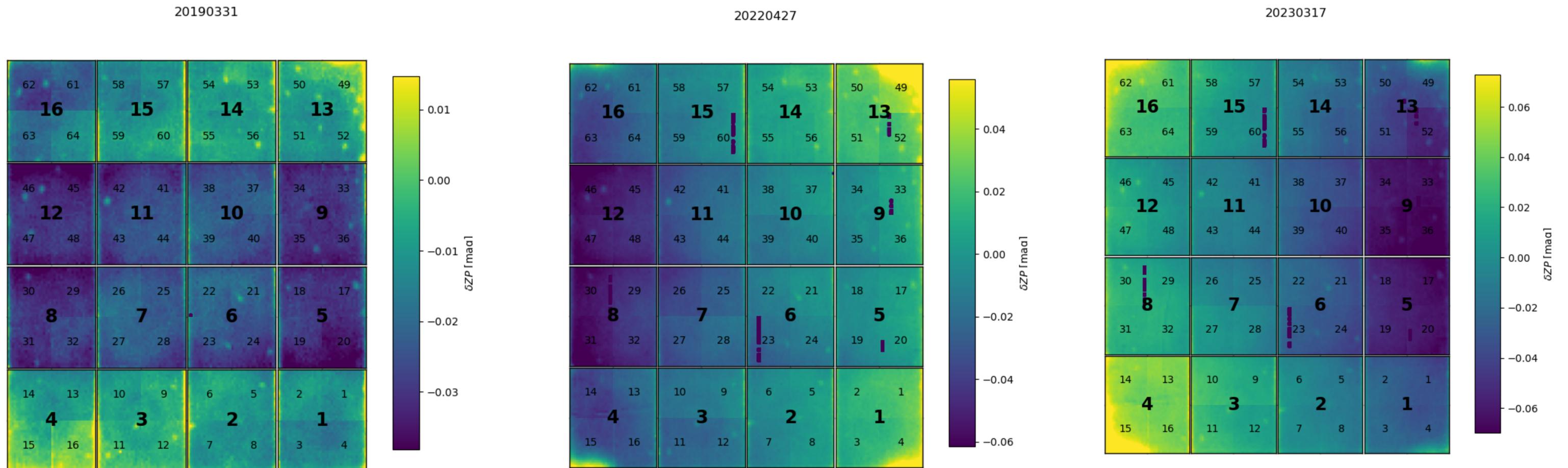→ Implemented for now but pocket correction integration in paper & pipeline makes it unclear.

# Starflat Analysis

- Finish interpreting the results and plug into paper (in a table).

- Issue : *Overlap with Ubercal to be defined.*

- Ran individually on each star flat acquisition.
Should it be synthesized per year or per filter only ?

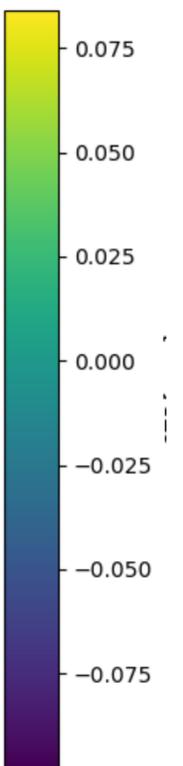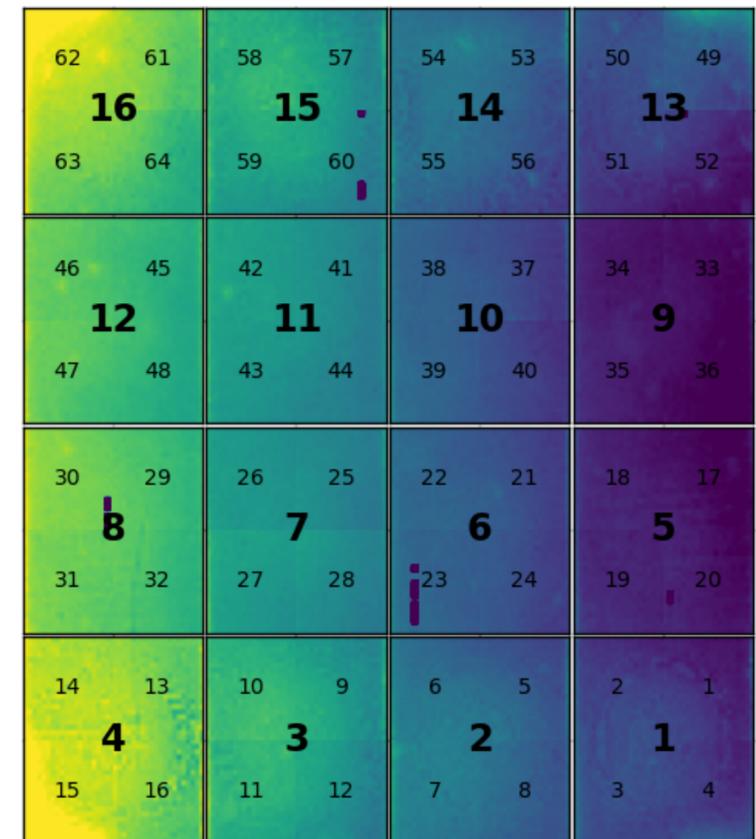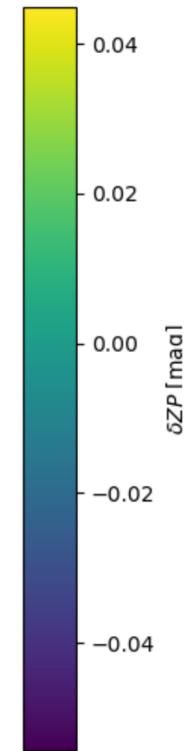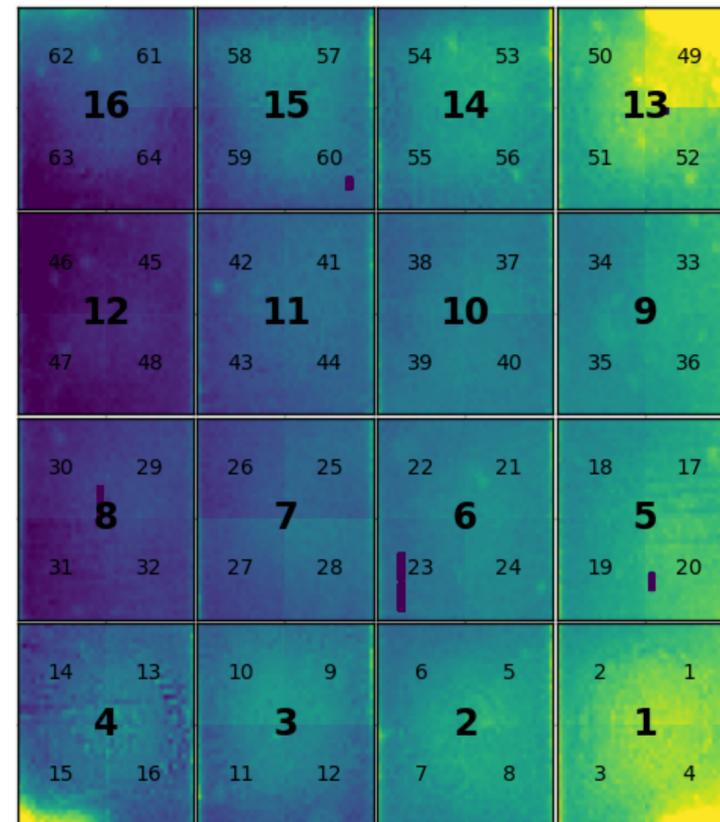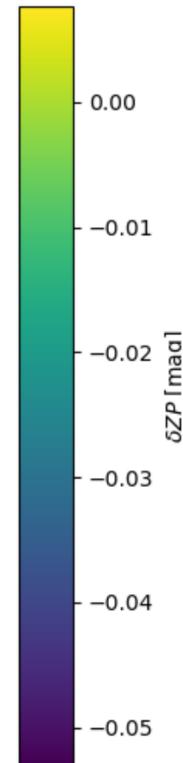- Might need one last round of processing

- Should compare with IPAC starflat ?

G band.
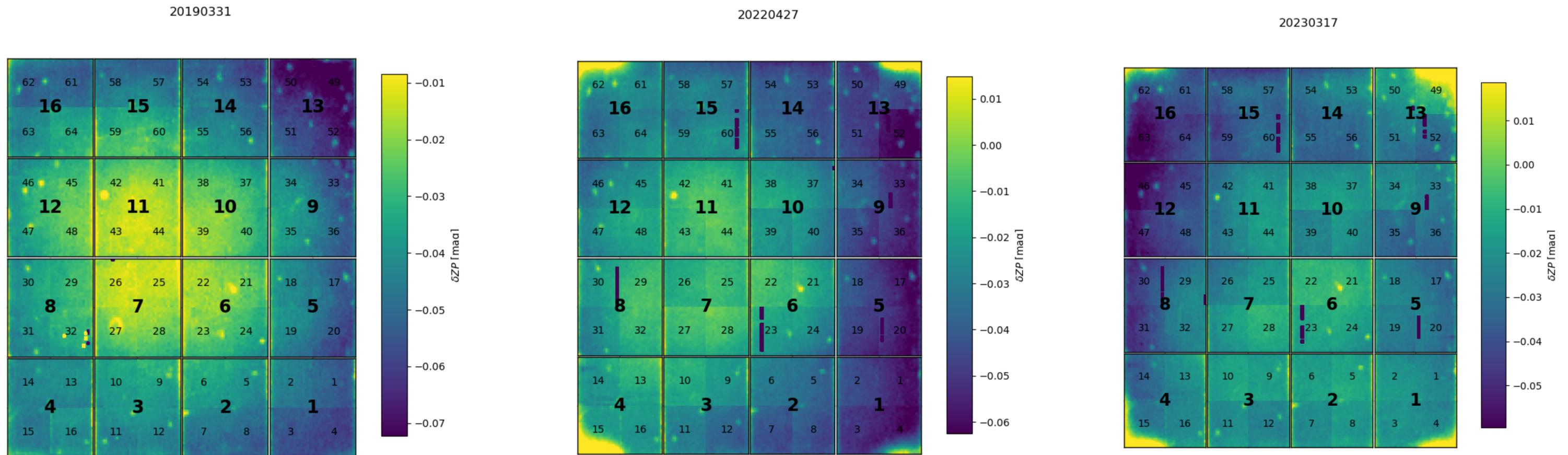
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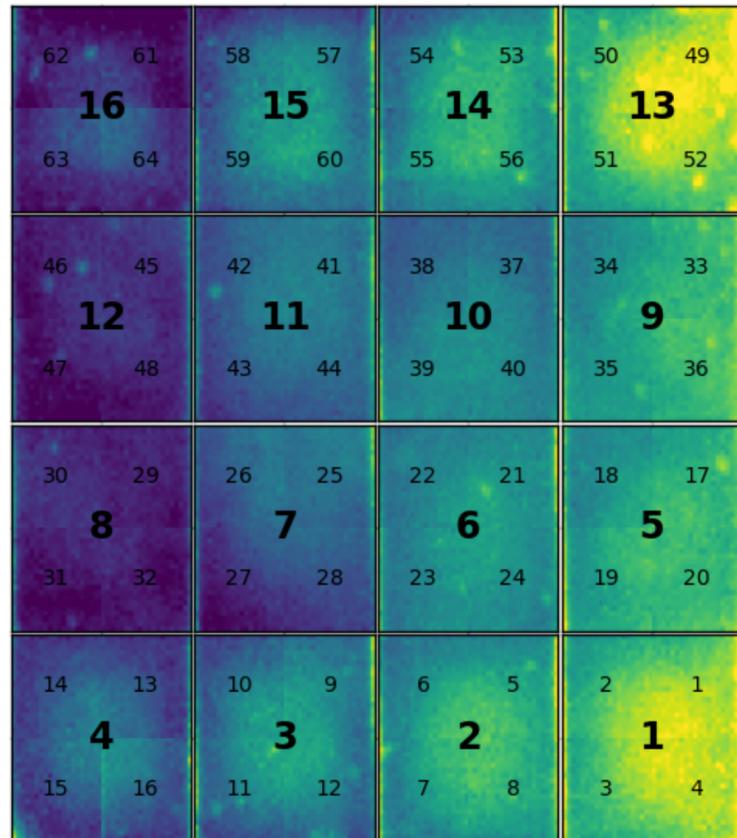
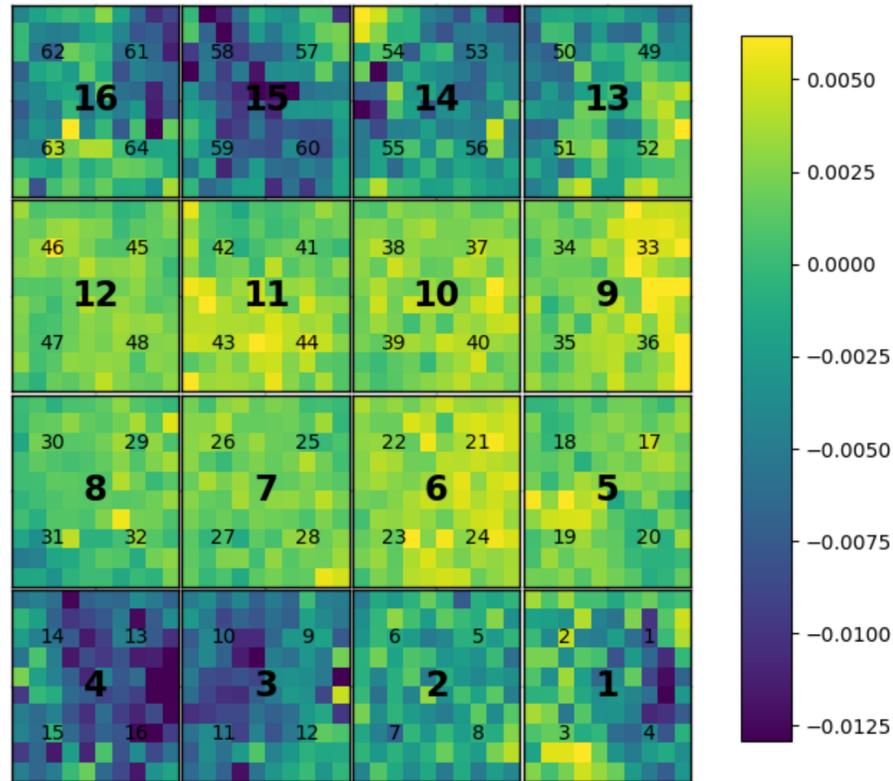- Should compare with IPAC starflat ?

R band.

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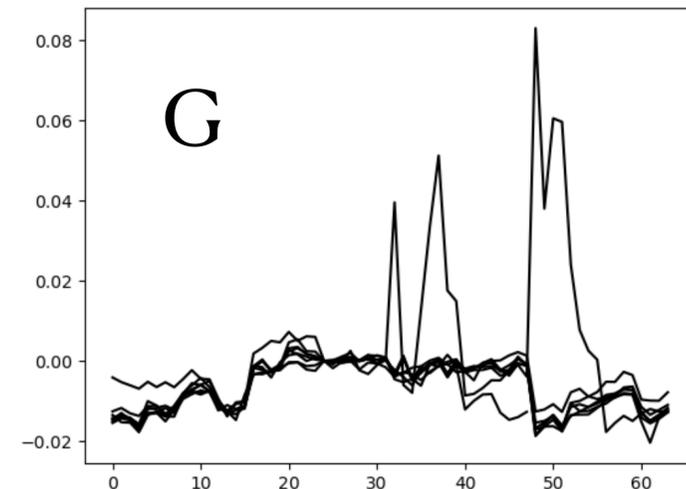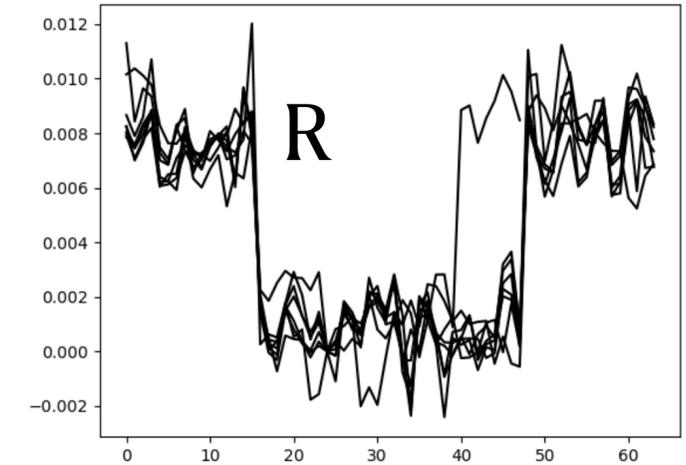- Issue : *Overlap with Ubercal to be defined.*

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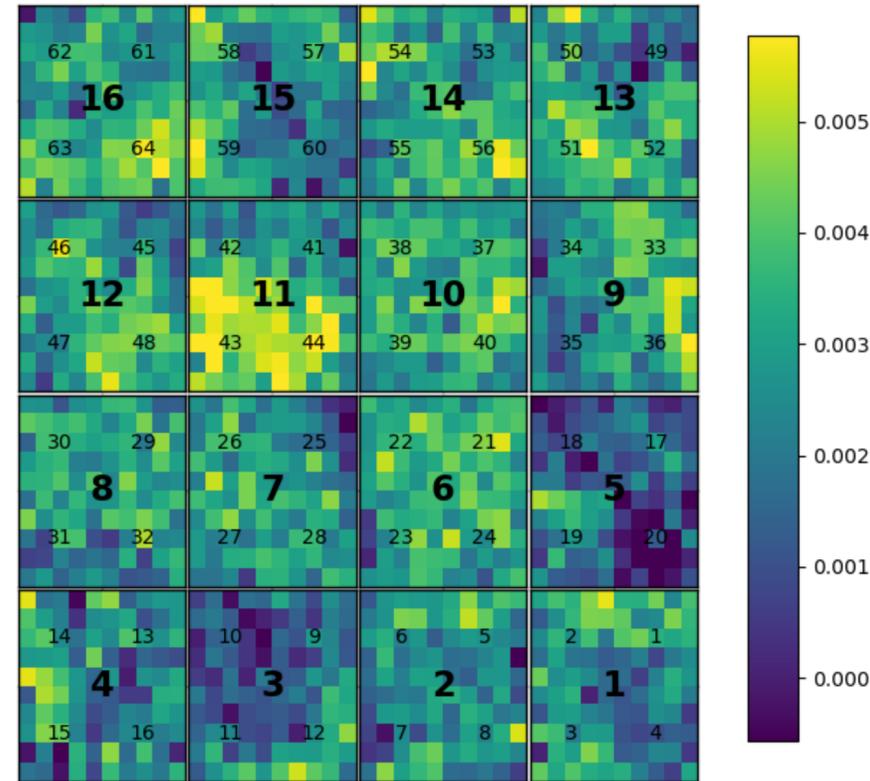
I band.

## Starflat Analysis

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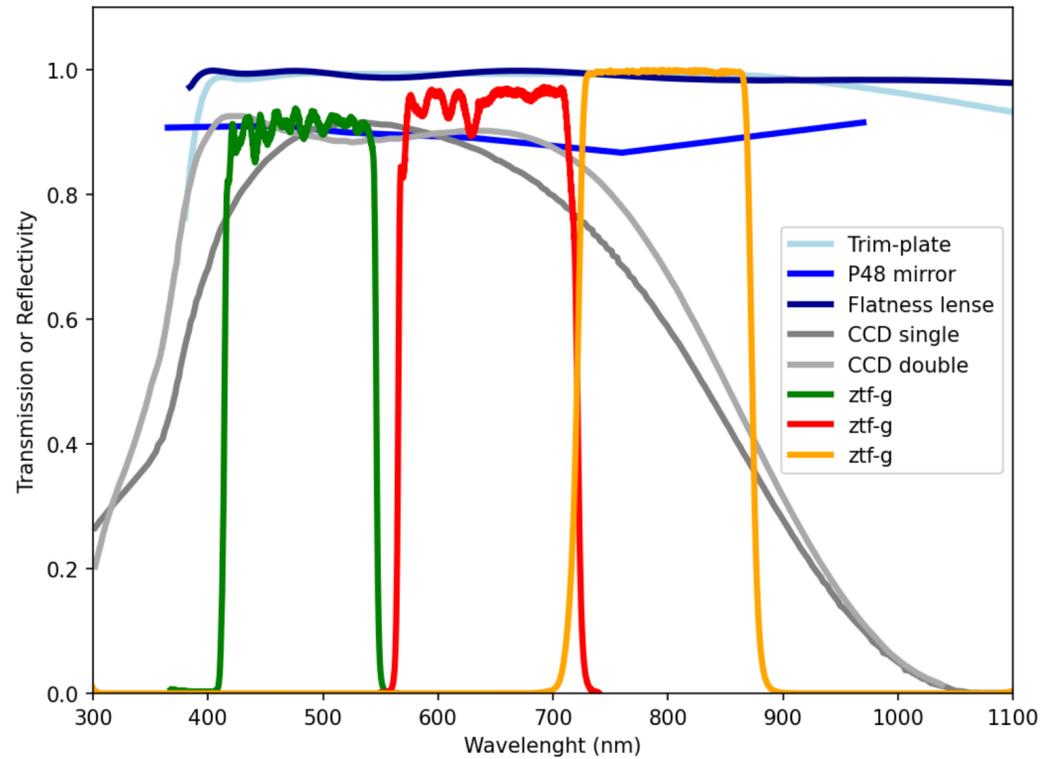
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COLOR



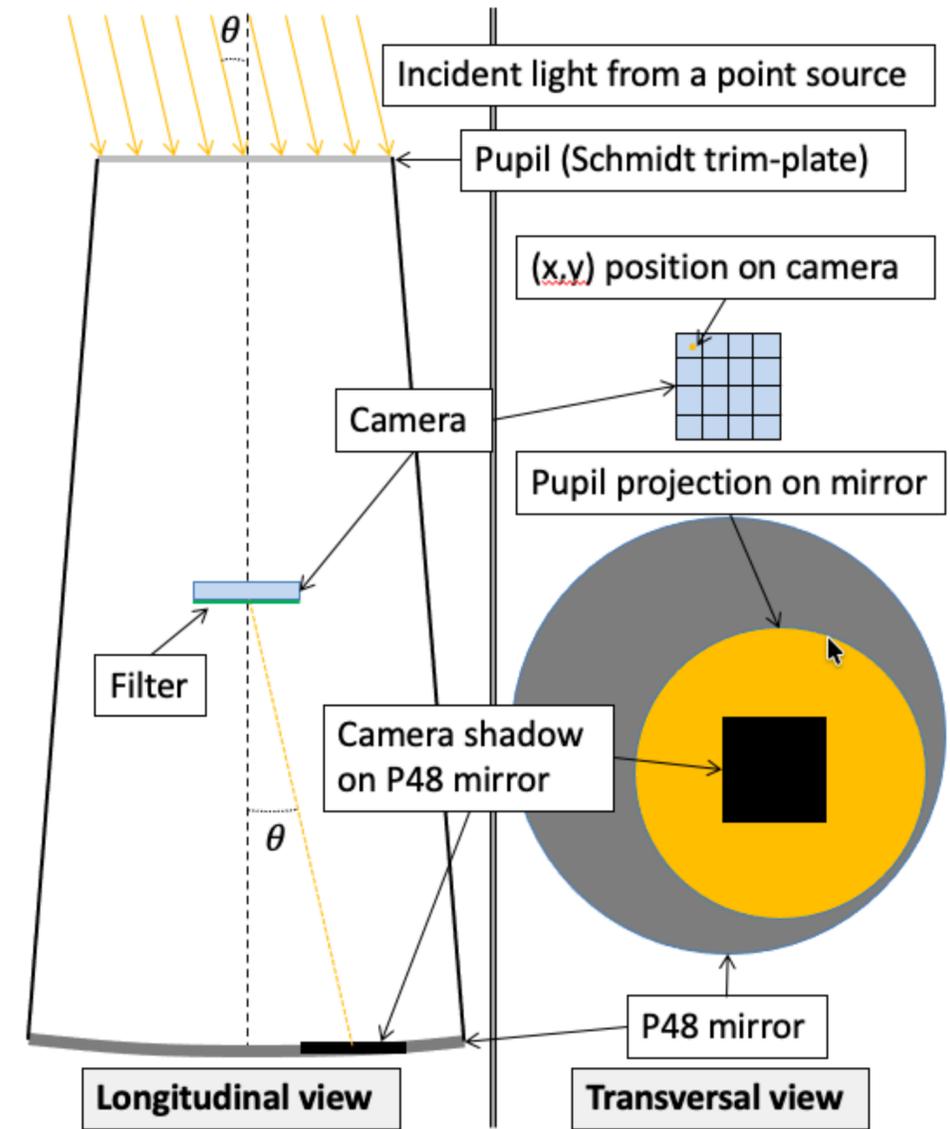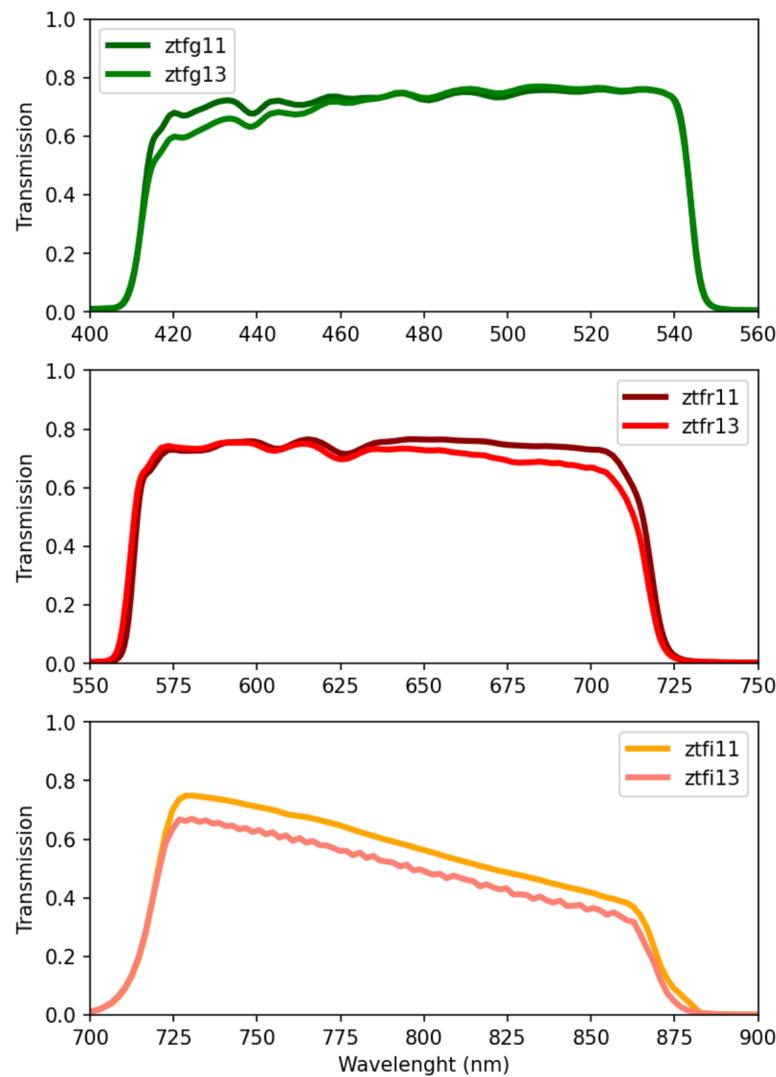Fringe correction change color in starflats.

# Pupil stitching model

- New filter to be passed to BBF. (tCBP paper WIP)

- Do we need to applied a filtering of remaining fringing effects on i-filter ?
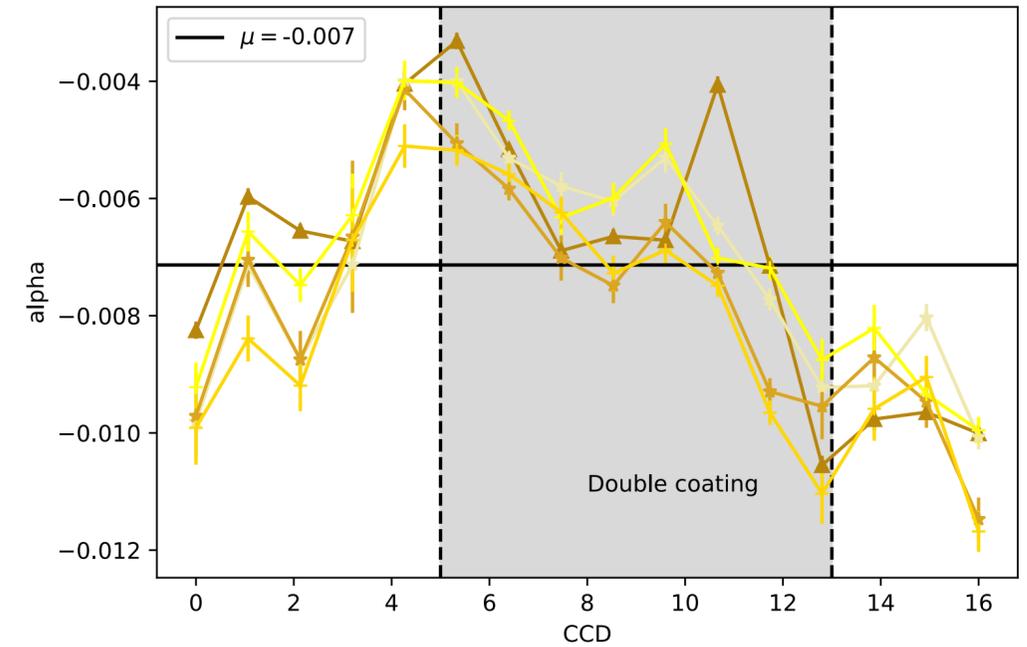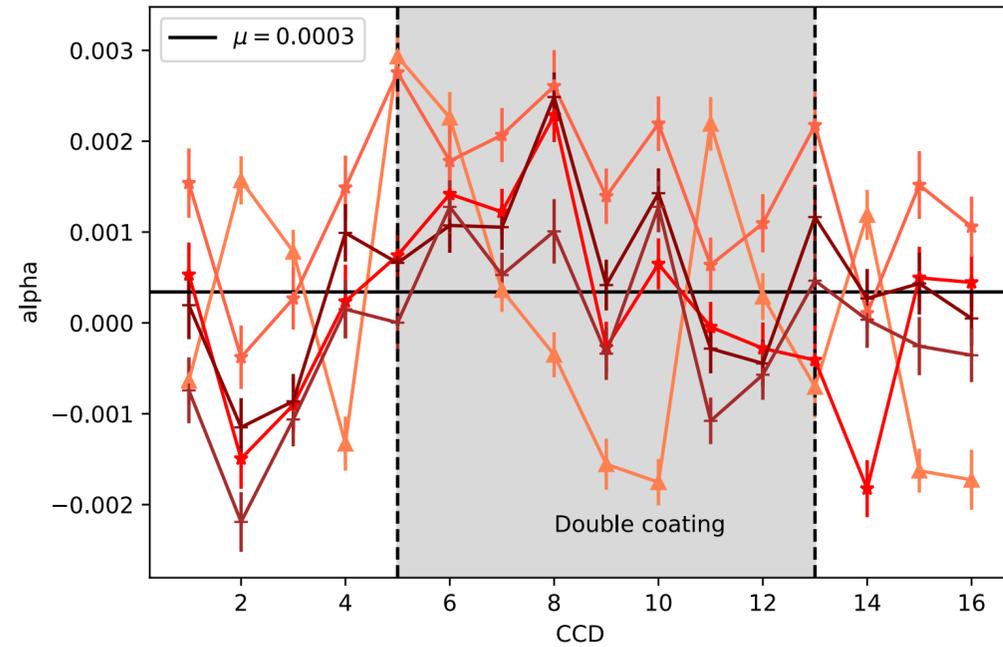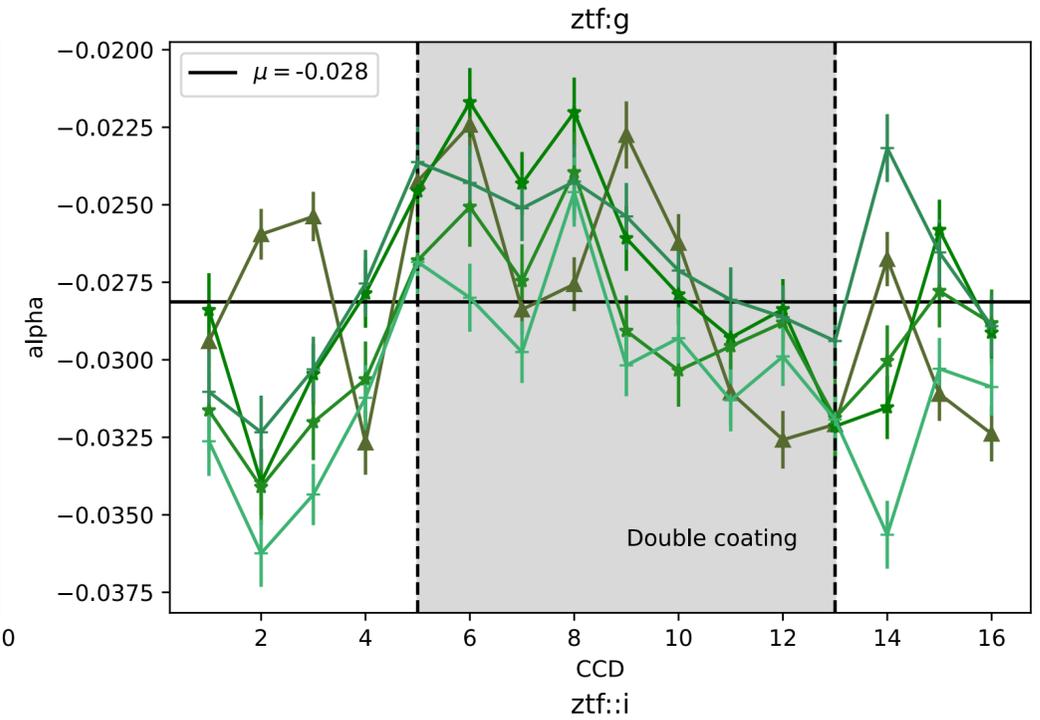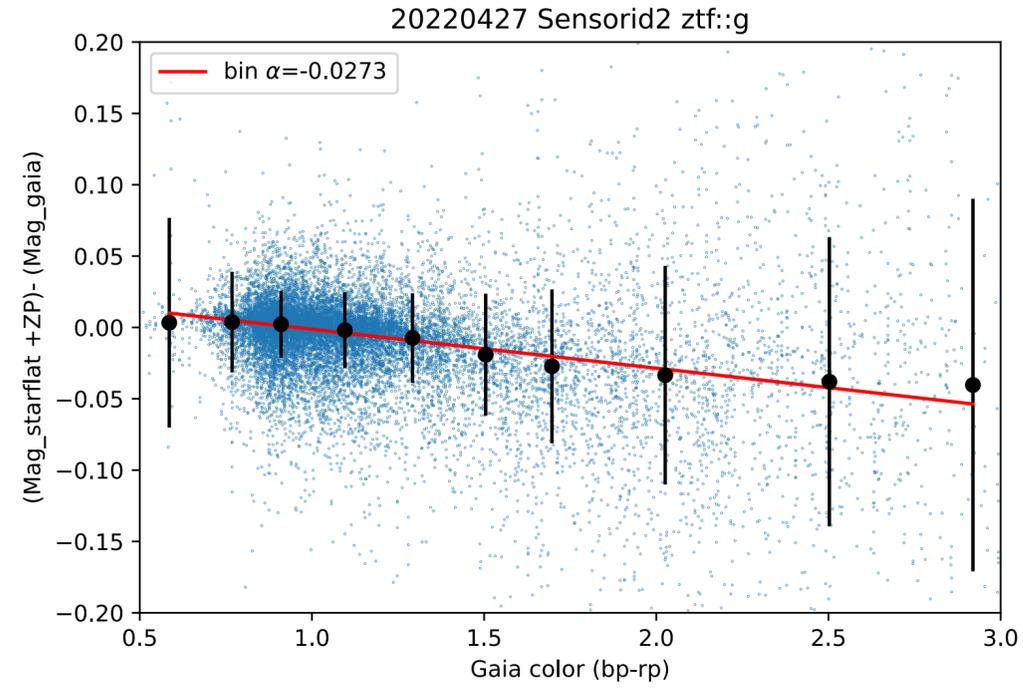
## Transmissions



Input of instrument model

Instrument Model

# Synthetic Photometry

- BBF description missing

→ Try with higher density :

→ Same question as star flat use concatenated sequences / filter ?

# Conclusion / Notes

## What else

- Core of the paper *mostly* written. Some tweaking due to data analysis & interpretation.

- Proof-reading & harmonization.

- Conclusion & Intro to be written :
  Why & how we can do better in some aspects (re-training fringes etc) for DR3+.

# On the to-do list

## Or questions

- Detrending :
  - Discussion & finalize.
  - Document the pipeline for « easy » usage.

- Starflat analysis :
  - Interpretation & write.
  - Year-round or individual
  - Versus IPAC or not ?
- Ubercal overlap to be discussed.

- Filter synthesis :
  - Refine fringe correction ?

*Blank space to add other things I didn't think about after discussion :*