

# Calcul pour DESC - Algos - Reprocessing

LSST-France - Paris, 20-22 mars 2017

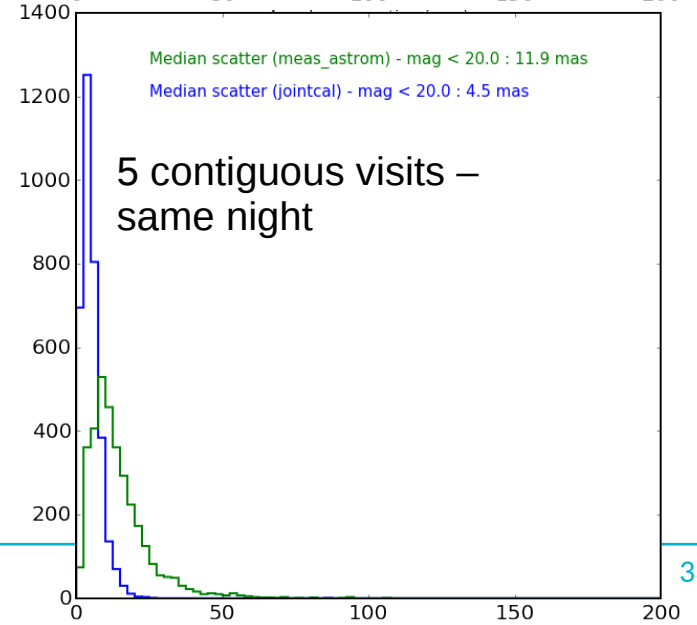
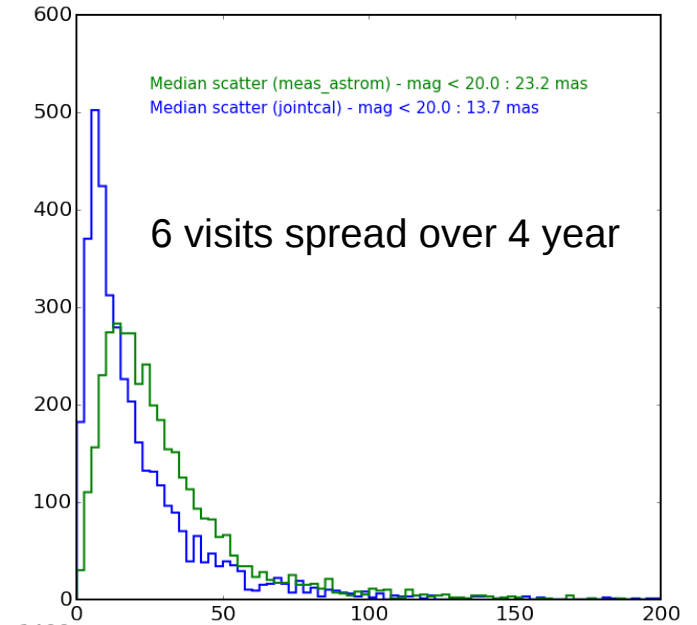
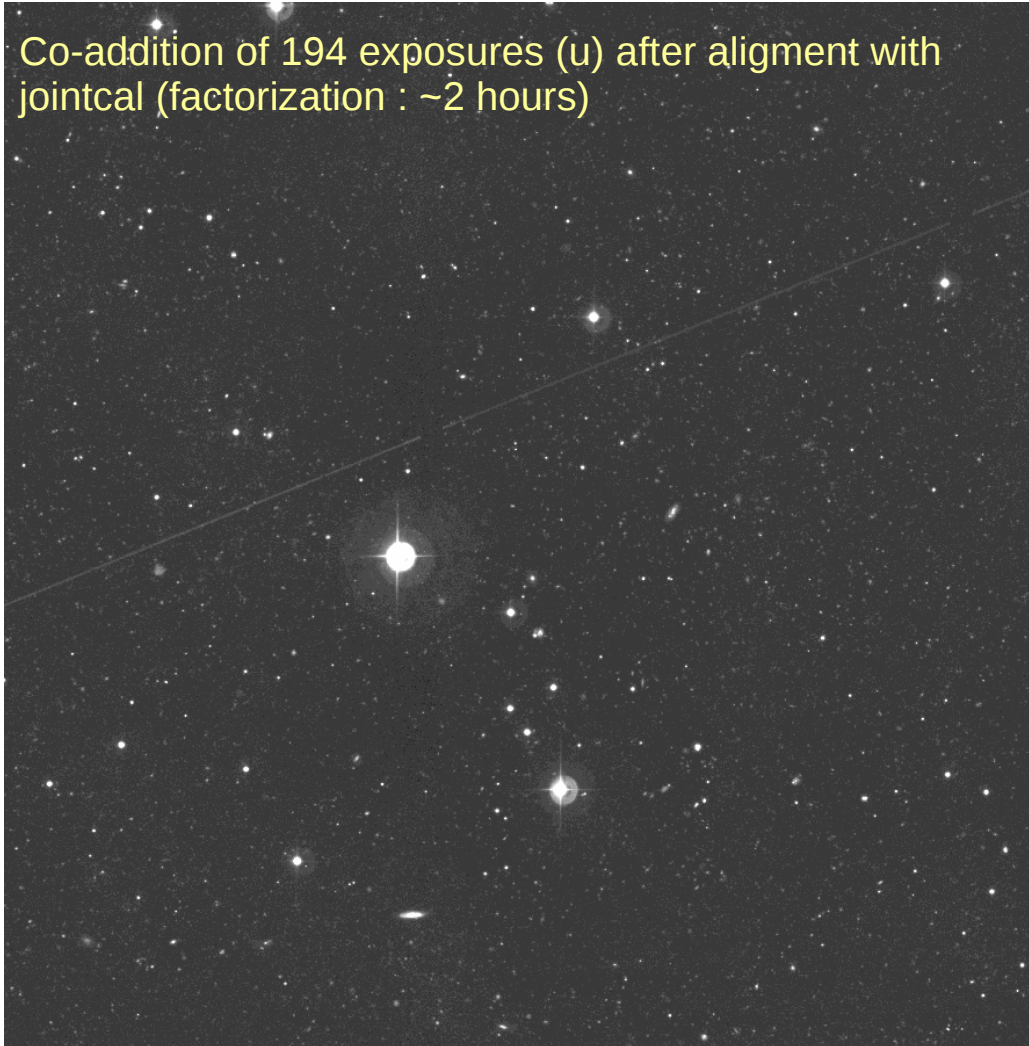
Dominique Boutigny

- Astrometry fit fully re-written by J. Bosch
- Source selection improvements
  
- Availability of new reference catalogs
  - SDSS
  - Gaia *Available at CC-IN2P3 : /sps/lst/data/refcats/htm*
  - PanSTARRS
  
- New format “butler-compatible”
  - Easier to build catalogs
  - Integrated to the stack
  - Possibility to use different catalogs for astrometry and photometry

⇒ Astrometry in LSST stack ~stable

- Simultaneous astrometry fit on a set of exposures
  - Developed by Pierre Astier
  - Integrated to the stack by J. Parejko
  - Interfaced to any instrument supported by the stack
  - Compatible with the new reference catalog

Co-addition of 194 exposures (u) after alignment with jointcal (factorization : ~2 hours)



DM decided to use the **Starlink AST** to represent WCS and other coordinates transformations

- Will allow to combine an arbitrary complex set of distortions and geometrical transformations
- Astshim package

jointcal can also be used for photometric fit

- At the moment : fit a single zero-point / CCD
- Soon : position dependant

### **To be done :**

- Compute color terms : Megacam → PanSTARRS
  - OK for HSC → PanSTARRS

A multifit algorithm (multi-epoch / multi filter) is foreseen in the LSST stack (J. Bosch) but not before 2018.

→ Need to implement something in the mean time

Hack day during the last DESC meeting to interface the stack output to the **ngmix** algorithm from Erin Sheldon (gaussian mixture )

- LSST Stack → **meds** → ngmix
- meds : “A Python library to create and read Multi Epoch Data Structures”
- ~90% ok

## Clusters :

- ~ easy : small number of exposures / small field
- A few days to reprocess a complete cluster “manually”
- Still a few issues (fast evolution of the stack) but most of the problems have been solved
  - A lot of help from the developers (Slack and Community)

## Plans :

- Small team to implement the SLAC workflow engine in order to automatize the reprocessing
- Reprocess CFHTLS D3
  
- Reprocess HSC / SXDS ultra-deep field
  - Small field : will allow to understand HSC specific issues
  
- Later (few months): full HSC 100 deg<sup>2</sup> reprocessing
  - Use this as a science data sample for the Science Platform prototype @CC-IN2P3
    - Mass maps ?