Dynamic Interactions Between Subsystems during On-Sky Commissioning w/ LSSTCam: Campaign Management

Keith Bechtol, Colin Slater, Yusra AlSayyad

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Campaign Management

- We’re going to process a lot of data to commission LSSTCam on-sky.
- The Campaign Management team is responsible for processing a set of agreed-on campaigns.

- For every campaign, there is a pilot and copilot from the CM team who are responsible for getting the data processed.
- Every campaign also has a small steering committee that can make decisions about what data to process, code versions, and timelines.

Processing Campaigns

During the commissioning, these campaigns fall into two broad categories:

(1) **New data**, slowly-varying code: how we learn more about observatory / camera / pipelines performance

(2) **Constant data**, changing code: how we test and deploy new software changes

Expectations Management

- Want to avoid doing the Cartesian product of
  (every different commissioning study) x (every different tranche of observing data) x (every different data product) x (every pipeline version)
- A few reasons:
  - Limited time and effort, obviously
  - We'll learn more by focusing our collective analysis efforts onto the same datasets
  - A few multi-purpose campaigns means they get high priority; having a dozen minor processings means more people will be stuck waiting.
  - Tremendous value to having organizational focus!

Normal-flow vs non-normal processing

- We know people will want to do lots of experiments.
- Even if your experiment requires special observing, it will be much easier to turn around results if it can use the “normal” processing flow.
- We know that is not always possible. Going to take some arrangements if you need something special on a large scale.
- Most important thing is we need to know if you’re taking weird data that shouldn’t be included in normal-flow processing.
    - If you’re intentionally occulting the beam with the dome, or taking doughnuts, or turning off tracking, we absolutely need a way to know that the data is not meant for normal flow

The operations campaign management team will process the agreed upon routine campaigns

Current “routine” campaigns on our radar:

- Rapid Analysis @ the summit (realtime)
- Prompt Processing @ USDF (realtime)
- “10am” DRP-like processing @ USDF
  - As lightweight as an end-of-night report or as heavyweight as a full DRP.
  - Need to combine visits for some metrics
- Regular DRP processing of curated datasets @ USDF
  - We accept defined and labeled curated subsets of nights, fields. We will process these at regular intervals, with updated versions of the pipelines.
  - After a ramp, we will toss the precursor RC2, test-med-1 and use these LSSTCam curated datasets instead.

Routine campaigns

- “Incremental” DRP up through coadd-measurement.
  - After X days of observing, we run all of the data from those X days.
- “Cumulative” DRP through coadd-measurement (maybe more?)
  - All “usable” data taken to-date, where “usable” might exclude data prior to significant changes (like a camera parameter change)

This is already the structure we’re using for Auxtel processing.

Example Use case: I found/fixed a bug that improves processing on-sky data, how do I test it?

- DM construction-era workflow will guide
- Will have a LSSTCam test dataset (“the new RC2”) that’s the standard for testing code changes.

Campaign Prioritization

1. Campaigns that affect decisions about physical observatory changes, or changes to data taking processes.
    - E.g. “Do we need to change camera parameter X” – highest priority, our goal is to get to configuration-stability ASAP.
    - Improving observing efficiency is something we can’t “get back” later in software, but the pre-change data is still usable
2. “Normal flow”, general-purpose campaigns
    - Jump on this bandwagon! If you can do your experiment with the general-purpose processing, you become high priority!
3. Non-normal processing or special data subsets