Test Data Suite for Software Development and Verification

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Recommendation from SATCON2 Algorithms WG

- "early development of a test dataset repository is a priority"

- “Validate algorithms and compare performance of different algorithms”

- Can be real data or simulated data with streaks added.

- Best if pair of images – one with streak and one without to test TrailMask.
Will cover range of telescopes and instruments types

*All sky camera*

*DECam DELVE Survey/CTIO/AURA?NSF*

*DECam single CCD*
Requirements for inclusion

- Has a streak!
- Instrumental signature removed – bias subtracted and flat fielded.
- Full metadata
  - Site location in geodetic cords – lat, long, and altitude (WGS84).
  - Full image World Coordinate System (WCS)
  - Exposure start time and duration – ref for time (GPS)?
  - Optical system – telescope aperture and focal length, filter, etc.
  - Photometric zeropoint.
  - Gain, readnoise.
- Challenging cases – non uniform streaks.
Simulations – you know what the right answer is!
Satellite pass test suite to test PassPredict

● Can you predict when/where a satellite will pass a telescope/instrument?

● Supply:
  ○ Image(s) with trails.
  ○ Observing configuration (location, telescope, camera, pointing, time,....
  ○ Ephemerides from database or specific to this observation.

● Predict time, where (RA, Dec), brightness (if possible).
Summary

- Repository of test data at one of the existing astronomical data centers.
- Useful for testing and refining algorithms.
- For TrailMask – pairs of images (one with trail, one without) with full metadata.
- For PassPredict – image with full metadata and ephemerides.
Thank you for your attention!