Dark and Quiet Skies for Science and Society II
Implementing the recommendations
La Palma, Canary Islands, Spain
3 - 7, October, 2021

Test Data Suite
for Software Development and Verification

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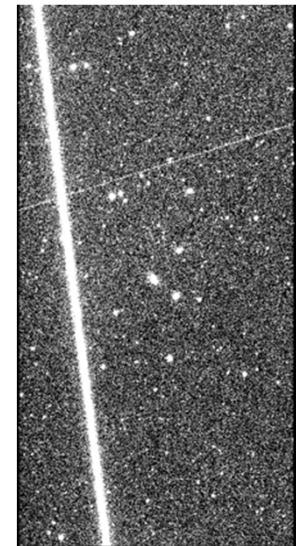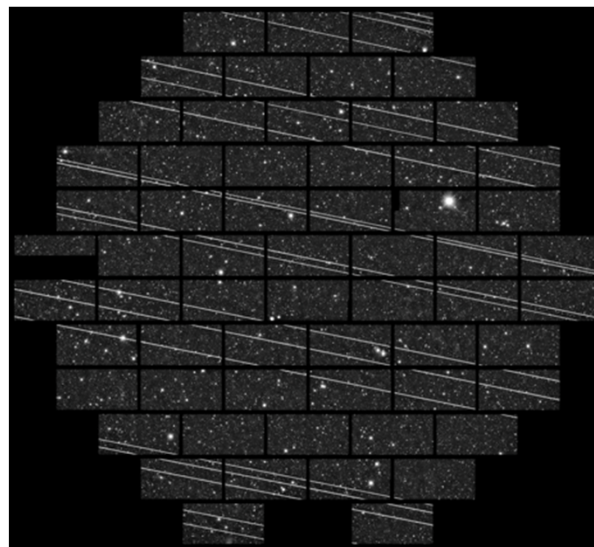3 - 7, October, 2021

Recommendation from SATCON2 Algorithms WG

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

- "Validate algorithms and 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**.

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Will cover range of telescopes and instruments types

All sky camera

DECam DELVE Survey/CTIO/AURA?NSF

DECam single CCD

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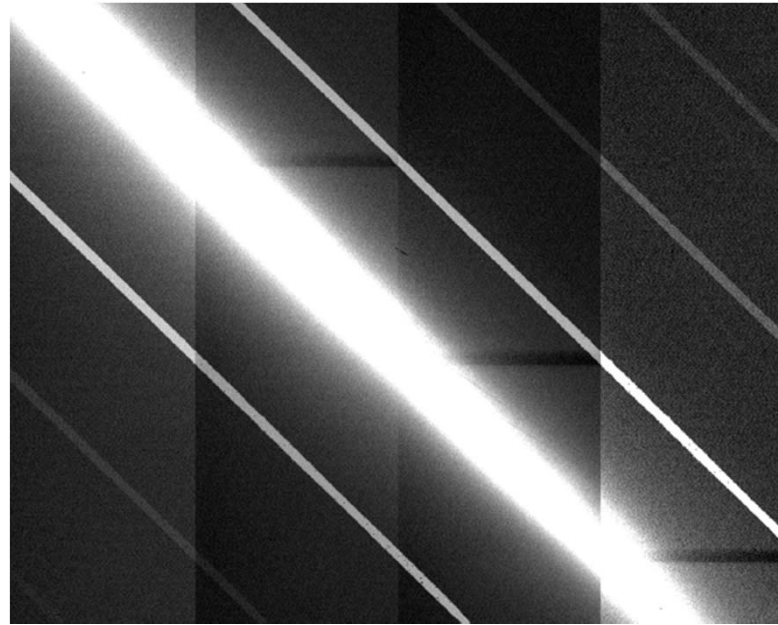La Palma, Canary Islands, Spain
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Requirements for inclusion

- 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.

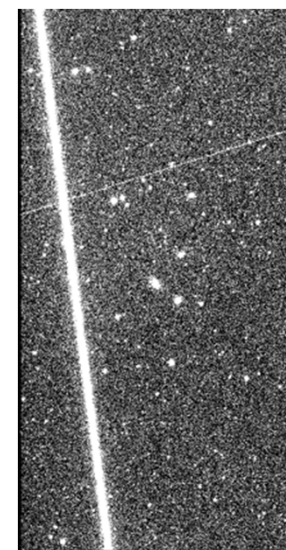- Challenging cases – non uniform streaks.

Titan 3C Transtage 04632
Magellan 6.5-m 15 sec exposure

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Simulations – you know what the right answer is!

Rubin Observatory/LSST

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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).

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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!