Verification Datasets

David's presentation on the verification datasets at the LSST2015 meeting.

Weekly Meeting

Wed 10-11am PT

Blue Jeans link: http://ls.st/vkv or https://bluejeans.com/788706616/

Meeting Agenda/Minutes

Goal

Run large precursor datasets through the stack "end-to-end" and manually inspect the results. Treat them as if we were going to do science on them.
Want datasets to test the stack in regimes of four primary science drivers:

- Dark Energy / Dark Matter
- Solar System
- Transients
- Milky Way

Want datasets to test two main categories of data products:

- Level 1, Alert Production (difference imaging, transients)
- Level 2, Data Release Production (deep stacks, "static" sky)

Want datasets taken in different environments (e.g. crowded/sparse regions, good/bad seeing, etc.).
We need multiple datasets since no existing survey spans all these regimes the way LSST will.

The Datasets

DECam

All of the public raw and CP-reduced DECam data can be downloaded from the NOAO Science Archive.

COSMOS field, PI: Dey (PropID: 2013A-0351)

- Deep (~26 AB mag), 3 sq. deg., ugrizY

- ~1500 images

- All public

- Lots of existing datasets and catalogs for reference

Bulge survey, PI: Saha (PropID:2013A-0719)

- ugriz, 6 fields

- ~3500 shallow frames (~700 per field), ~3500 deep frames (~7000 per field)

- Crowded field, looking for variables

- All public

Solar system objects, PI: Allen (PropID: 2013A-0724, 2013B-0536)

- Covering large area, looking for solar system objects

- ~3900 60s r-band images public so far

HiTS survey, PI: Forster (PropID: 2014A-0608, 2015A-0608)

- Difference imaging, transients, SNe

- ~2800 images of 40 fields going public in 2015B (almost all g) and more in 2016B

- ~100-150s exposures, most g (~7000) and r (~1000)

- ~50 fields, ~30-40 epochs per field

SMASH survey, PI: Nidever (PropID:2013A-0411,2013B-0440)

- Deep, ~24.5 mag, ugriz

- 180 fields, ~30 frames per field

- Magellanic Clouds and periphery

- Crowded and sparse fields

- Stripe82 data, useful reference field with good astrometry and photometry from SDSS

- Eventually want to run the full dataset through the stack

CFHT
CFHT Lensing Survey

- Deep, ~25 mag, ugriz, 154 sq. deg

- Good for weak lensing

- To be run by our French colleagues at IN2P3 (Dominique Boutigny et al.)

- The stack is already set up to run on CFHT data

HSC

HSC COSMOS data

- Very good seeing, very deep (deeper than 10yr LSST)

- Telescope/camera similar to LSST

- Won't be publicly available until **March 2016**

- The stack is already set up to run on HSC data

LSST Simulations

- Still need to figure out what we want/need

- But important to test that the stack is ready for LSST data

Twinkles Project