Cloud Computing with Context Cameras

Las Cumbres Observatory Global Telescope

Abstract

We summarize plans to monitor, calibrate and validate photometric observations with our autonomous, robotic network of 2m, 1m and 40cm telescopes - sited globally to optimize our ability to observe time-variable sources. Wide-field “context” cameras aligned with our telescopes cycle through (BVriz) filters, spanning our optical range every 2 minutes, measuring instaneous transparency throughout (transparency) against calibrated Tycho stars and (occasionally) against primary standards. Similar “flash” measurements are made for science images, but for fewer calibrators in our science fields of about 6.5 degrees. Comprehensive transparency measurements, cf. SkyProbe, can be used to inform and calibrate our data. In characterizing and modeling our sites, and to select photometric periods when traditional calibrations of Target against Standard fields can be optimally & automatically performed.

Photometric Goals range between:

- Accurate time-series science measurements, including transits measured to few nights at short periods
- Accurate cross-calibrations using our local network of 2m, 1m and 40cm telescopes - standard reflectance curve in red
- Accurate cross-calibrations using our local network of 2m, 1m and 40cm telescopes - standard reflectance curve in red
- Accurate cross-calibrations using our local network of 2m, 1m and 40cm telescopes - standard reflectance curve in red
- Accurate cross-calibrations using our local network of 2m, 1m and 40cm telescopes - standard reflectance curve in red
- Accurate cross-calibrations using our local network of 2m, 1m and 40cm telescopes - standard reflectance curve in red

Filters and Bandpasses

- Not possible to create or check historical system bandpasses, but...
- Same filters for all LCOGT telescopes and instruments
- BB chosen to match Johnson/Cousins/Landolt UBVRI system &
- close to Sloan UBVRIZ system with filters in black and red
- Flat Fields and Baffling

- Removal of the instrument signature should remove pixel-to-pixel variations, instrumental signature should remove pixel-to-pixel variations, instrumental signature should remove pixel-to-pixel variations, instrumental signature should remove pixel-to-pixel variations, instrumental signature should remove pixel-to-pixel variations, instrumental signature should remove pixel-to-pixel variations, instrumental signature should remove pixel-to-pixel variations, instrumental signature should remove pixel-to-pixel variations, instrumental signature should remove pixel-to-pixel variations, instrumental signature should remove pixel-to-pixel variations, instrumental signature should remove pixel-to-pixel variations, instrumental signature should remove pixel-to-pixel variations, instrumental signature should remove pixel-to-pixel variations, instrumental signature should remove pixel-to-pixel variations, instrumental signature should remove pixel-to-pixel variations, instrumental signature should remove pixel-to-pixel variations, instrumental signature should remove pixel-to-pixel variations, instrumental signature should remove pixel-to-pixel variations, instrumental signature should remove pixel-to-pixel variations, instrumental signature should remove pixel-to-pixel variations, instrumental signature should remove pixel-to-pixel variations, instrumental signature should remove pixel-to-pixel variations, instrumental signature should remove pixel-to-pixel variations, instrumental signature should remove pixel-to-pixel variations, instrumental signature should remove pixel-to-pixel variations, instrumental signature should remove pixel-to-pixel variations, instrumental signature should remove pixel-to-pixel variations, instrumental signature should remove pixel-to-pixel variations, instrumental signature should remove pixel-to-pixel variations, instrumental signature should remove pixel-to-pixel variations, instrumental signature should remove pixel-to-pixel variations, instrumental signature should remove pixel-to-pixel variations, instrumental signature should remove pixel-to-pixel variations, instrumental signature should remove pixel-to-pixel variations, instrumental signature should remove pixel-to-pixel variations, instrumental signature should remove pixel-to-pixel variations, instrumental signature should remove pixel-to-pixel variations, instrumental signature should remove pixel-to-pixel variations, instrumental signature should remove pixel-to-pixel variations, instrumental signature should remove pixel-to-pixel varia...