Closing the Loop

Nicholas Mondrik (Harvard)

Closing the loop

Galactic scattering

$$f(i,j) \;=\; \sum_{sources} \int_0 S(\lambda)A(\lambda)G(\lambda)T(\lambda)\,d\lambda$$

Source   Atmosphere   Instrumental transmission

Instrumental Calibration

- Further use of Harvard CBP? Where/how?
- Setting up LSST CBP
    - Lab characterization
    - Testing on CTIO 4m?
    - Testing on AuxTel?
- CBP has not yet reached sub-nm calibration of filters
    - Not far off, but should demonstrate before LSST goes on-sky
- Deconvolution of laser input kernel?
- AuxTel throughput vs time?
    - Should be measured at least once, after operations begin
- Collimated starDICE-y LED head on AuxTel

Atmospheric Calibration

- Wavelength solution from stellar lines?
  - Anchoring solution in the blue?
- Target selection?
- Pre-LSST operations test strategy for atmosphere measurements
  - (Non-)Isotropic? How non-isotropic?
- Empirical atmosphere? → not super helpful as input to FGCM for computational reasons (coding effort can maybe solve this, if this turns out to be necessary)
- External monitoring equipment? (COTS sun(/moon) photometers

Stellar source selection calibration

- Heavily influenced by cadence/pointing requirements
- CALSPEC? – not very many over the sky
  - Probably most immediately useful
- White dwarfs?
- Gaia?
- AuxTel should include imaging filters.

Stellar source selection calibration

- CALSPEC?
  - Probably most immediately useful
- White dwarfs?
- Gaia?
- NIST stars people also working on this
- AuxTel should include imaging filters.
  - **If we can't close the loop on AuxTel, can we reasonably expect that AuxTel's atmospheric output will be useful for LSST? (I don't think so)**