DARK ENERGY SURVEY

Some Additional Photometric Analysis from 2012-9-22

Douglas L. Tucker

DES Calibrations Telecon: 2012-10-04

Some Additional Photometric Analysis of Stripe 82 “Field F” (2012-09-22)

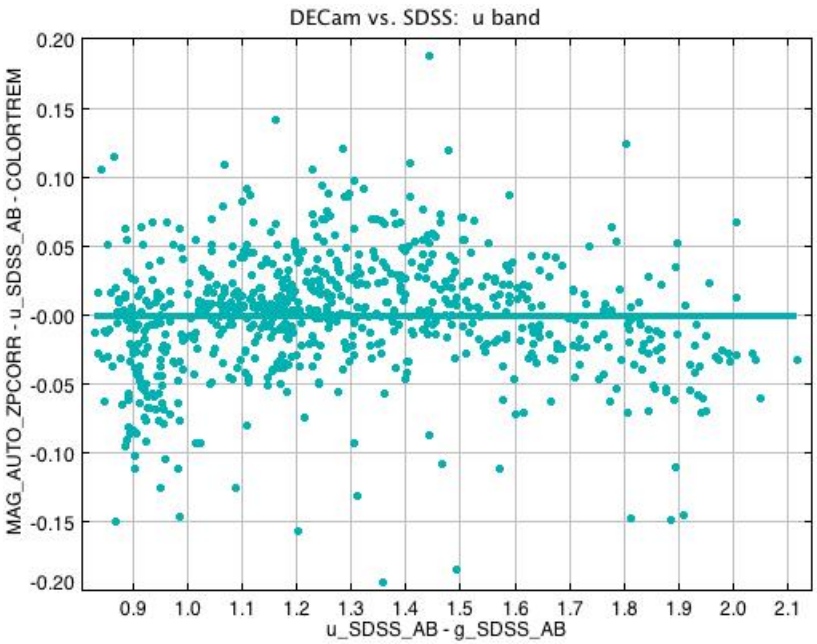
DARK ENERGY SURVEY

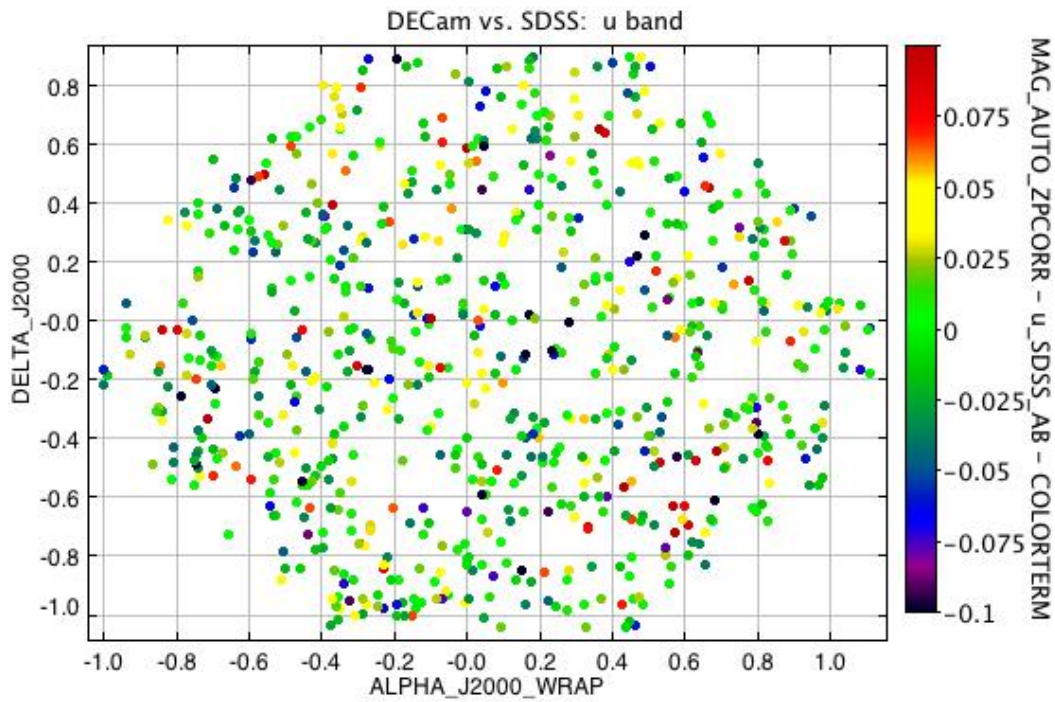
1. Used catalogs from Huan Lin’s reductions.
   - /data/des10.a/data/hlin/standalone_pipeline_tests/runindir/testrun_stripe82_fieldF_[ugrizY]/04_catlg

2. Matched against John Marriner’s Stripe 82 Standard Star Catalog + UKIDSS LAS data, trimmed to stars with g-r < 0.8 and transformed by Sahar to DES PreCam (small filter) grizY AB magnitudes.

3. Focus on searching for trends in photometry vs. position on the DECam focal plane.

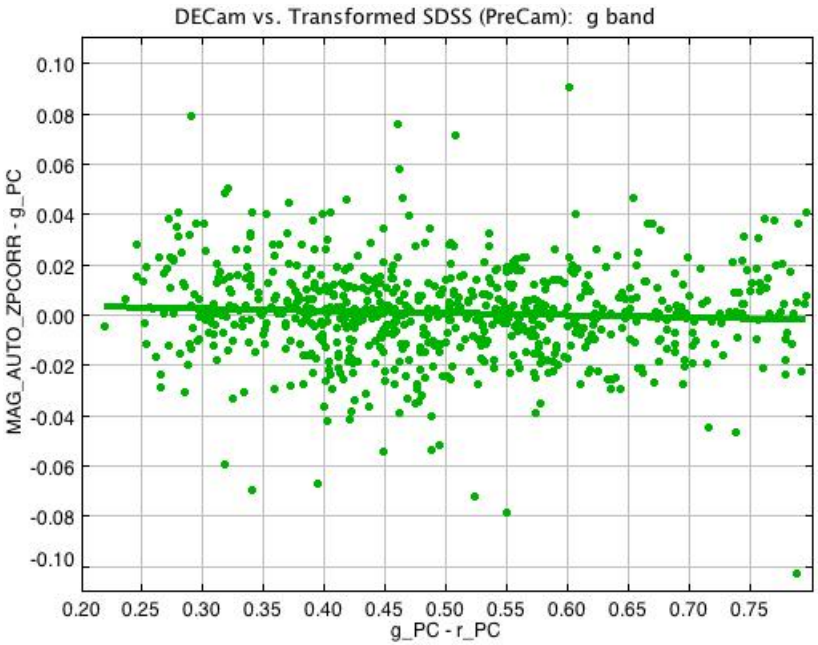
u-band

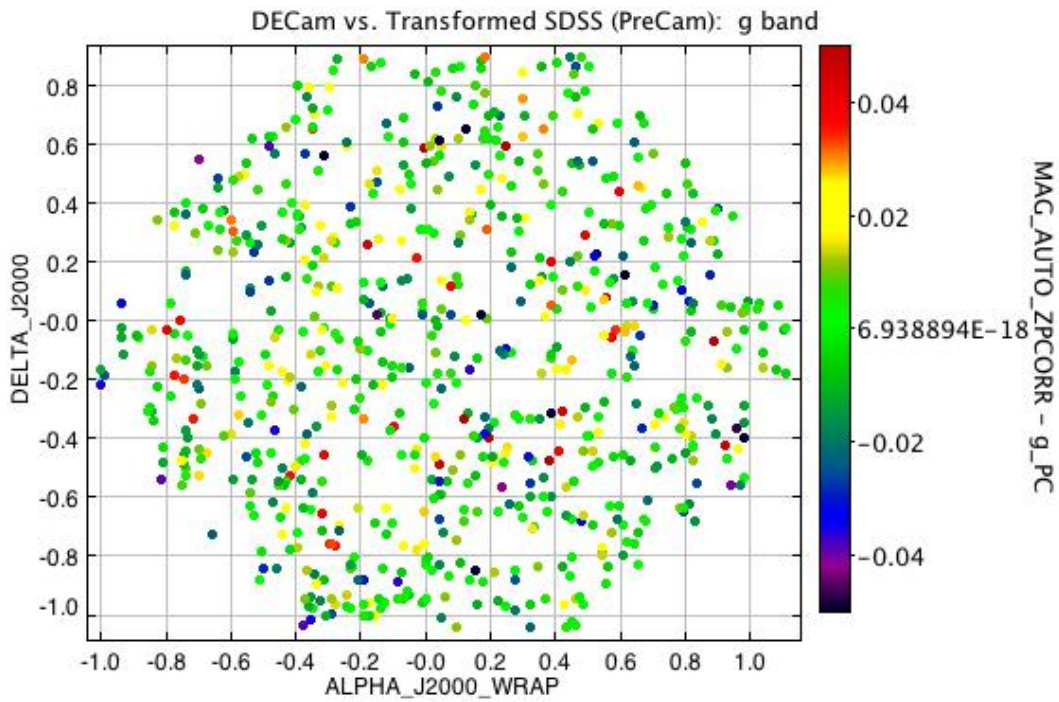




- Color term applied

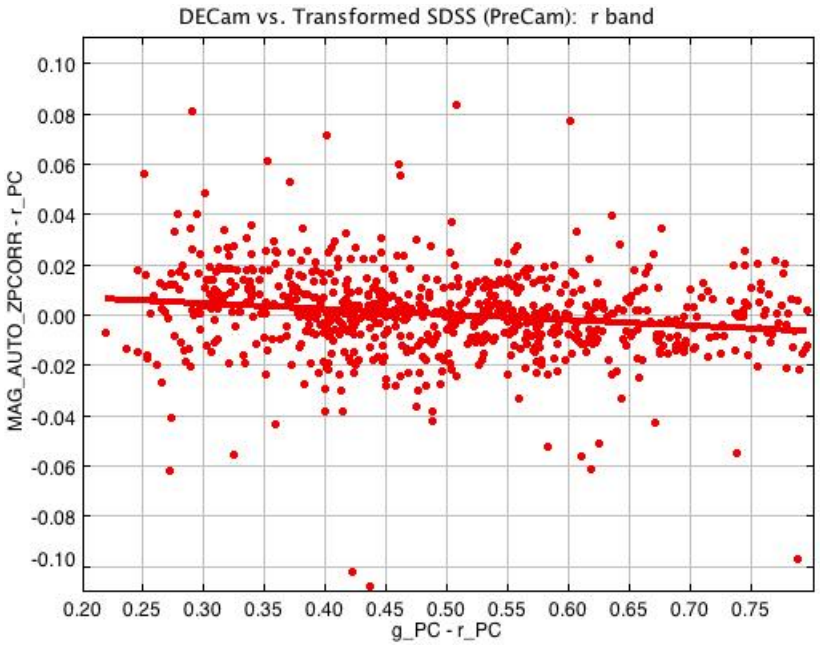
g-band

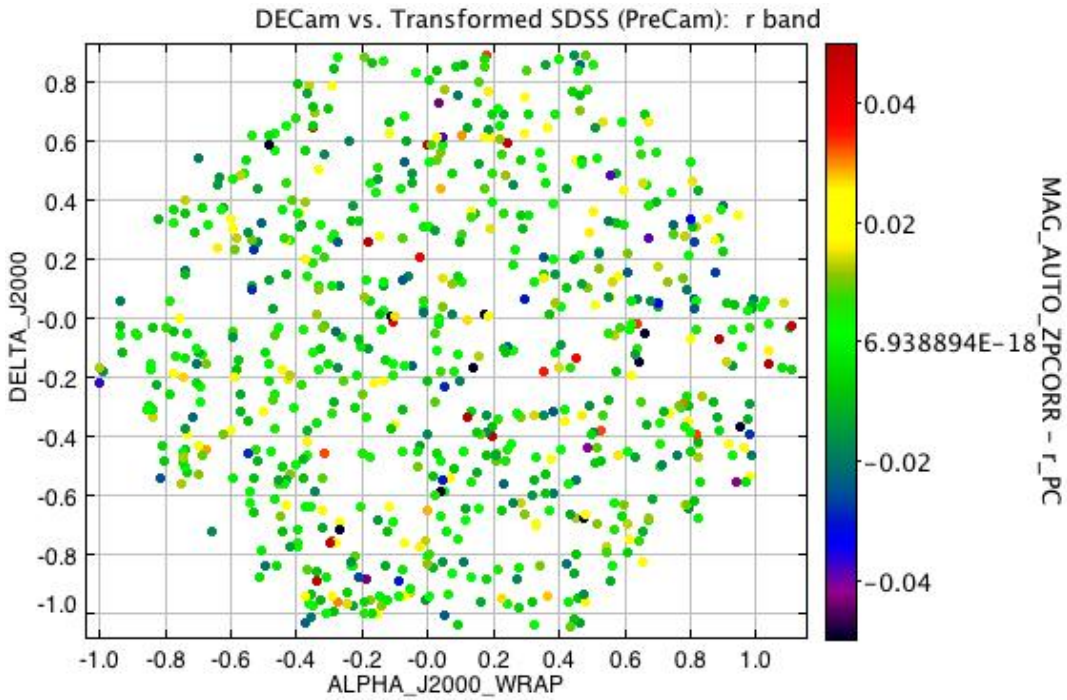




- No color term applied

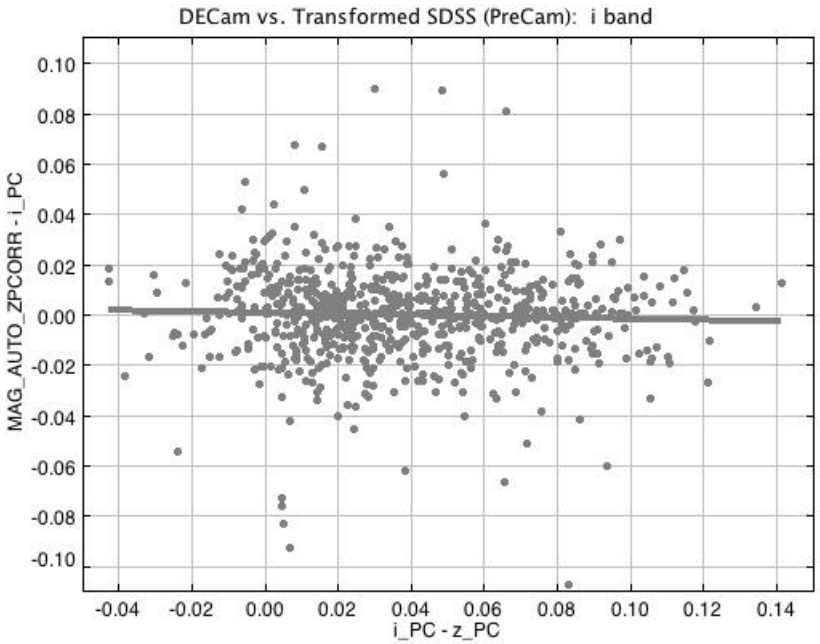
r-band

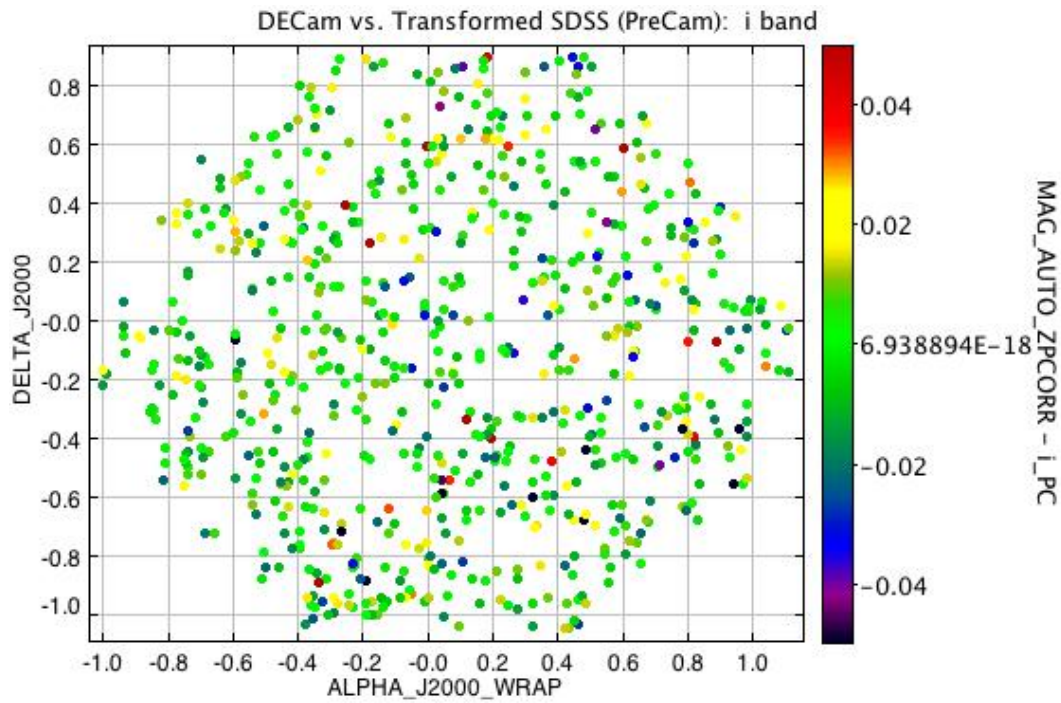




- No color term applied

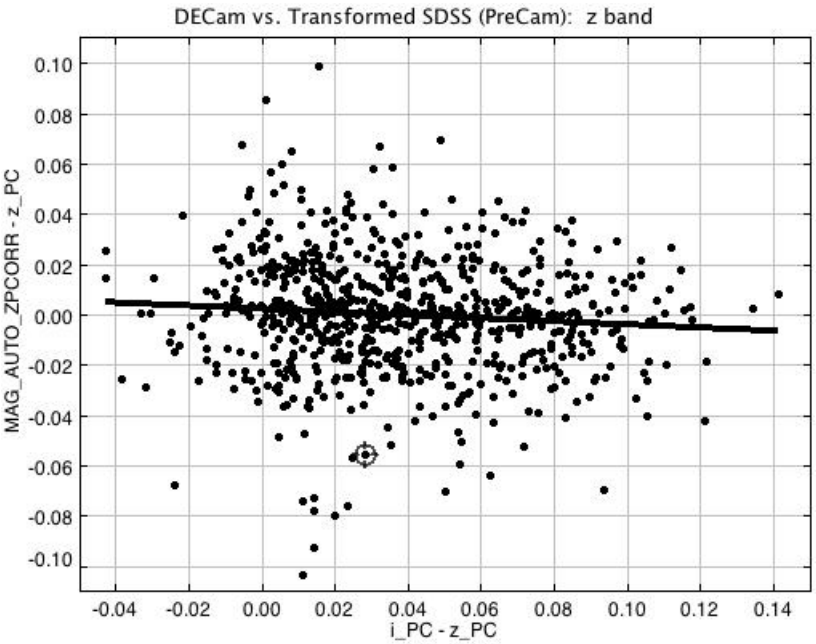
i-band

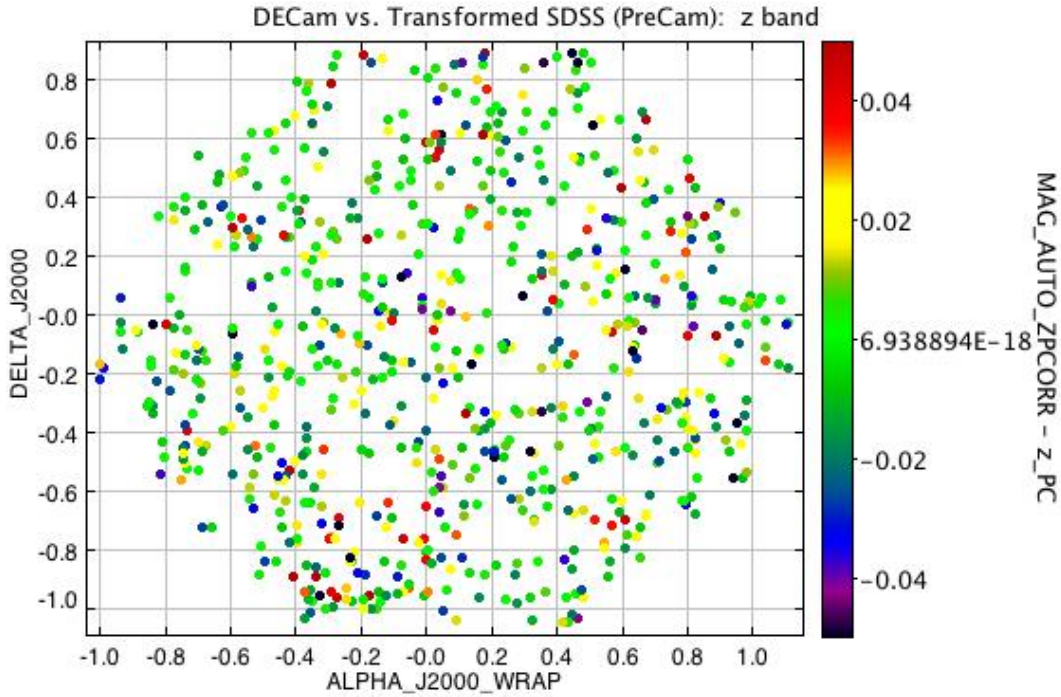




- No color term applied

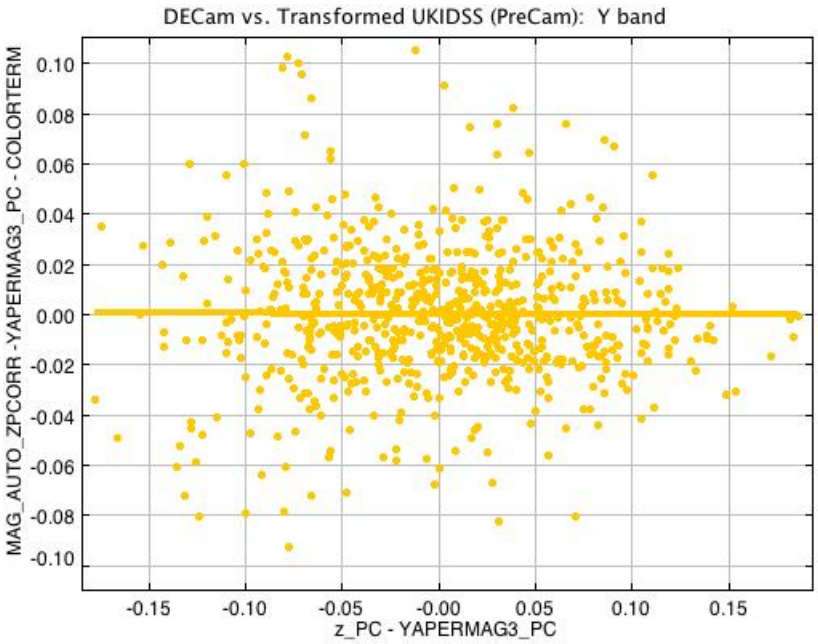
z-band

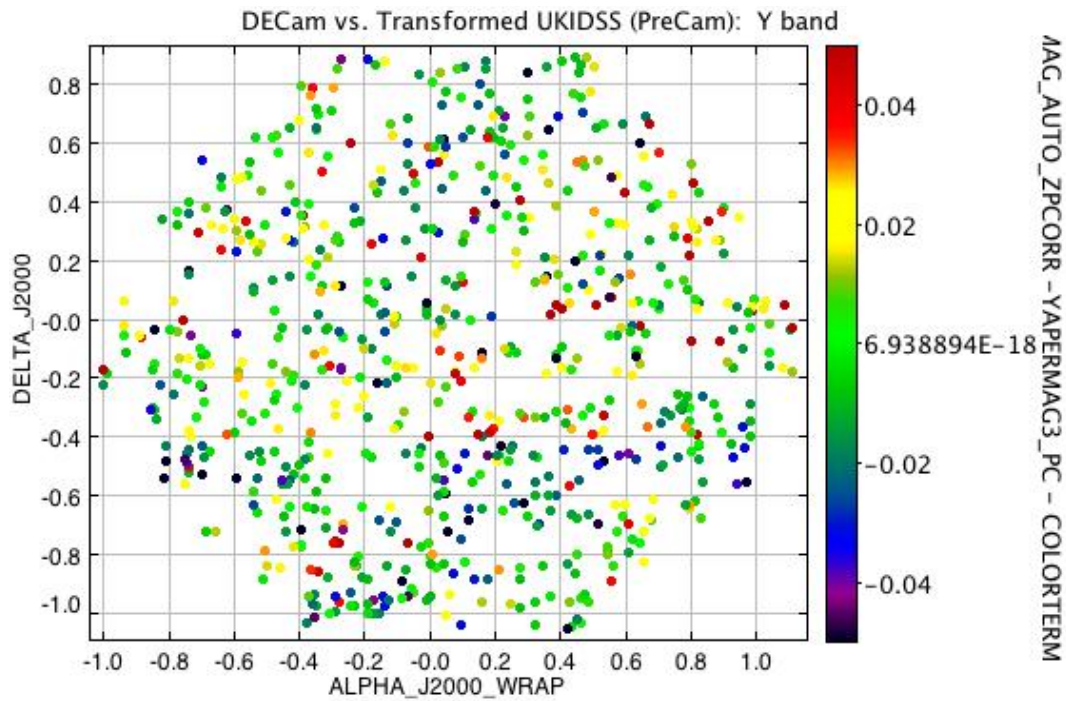




- No color term applied

Y-band

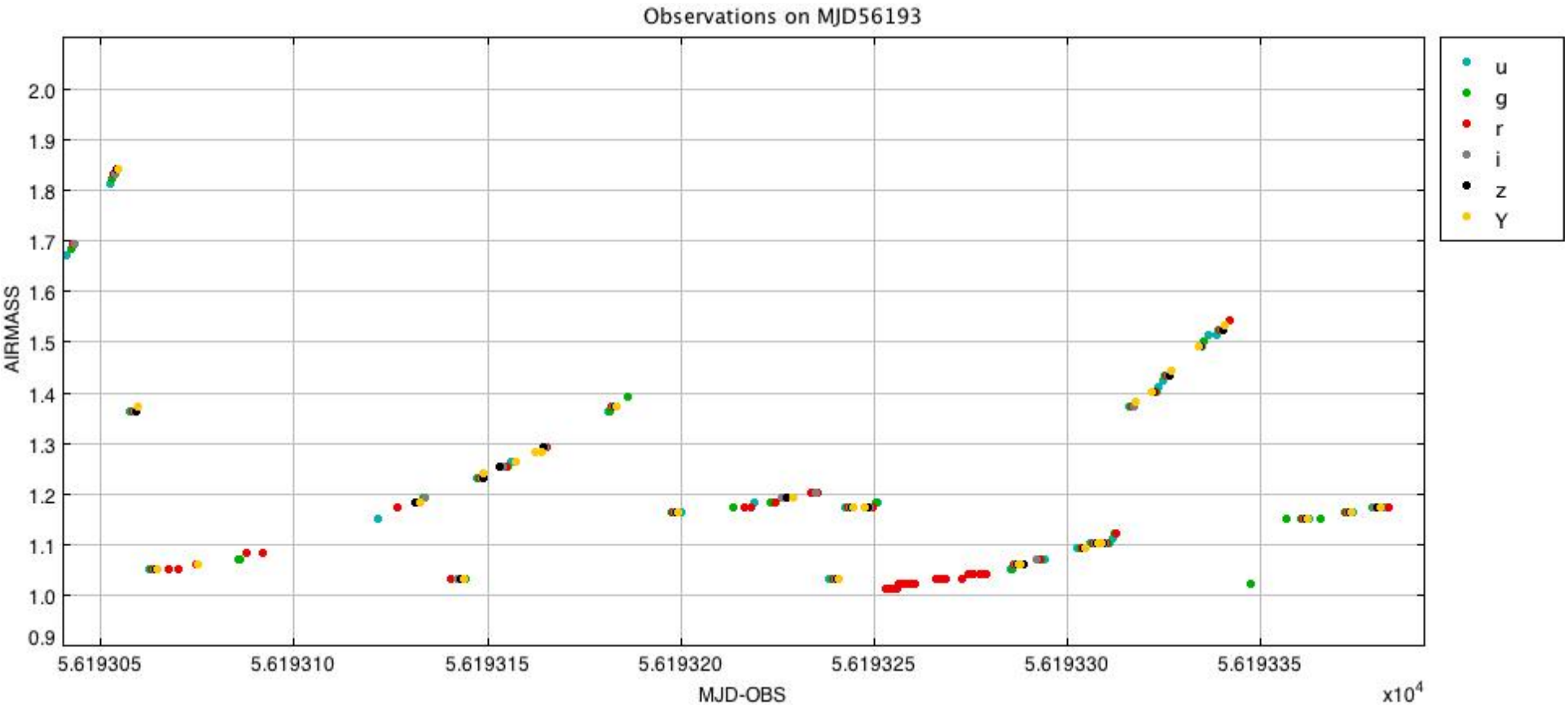




- Color term applied

Other Photometry Data from 2012-09-22

DARK ENERGY SURVEY



Other Photometry Data from 2012-09-22

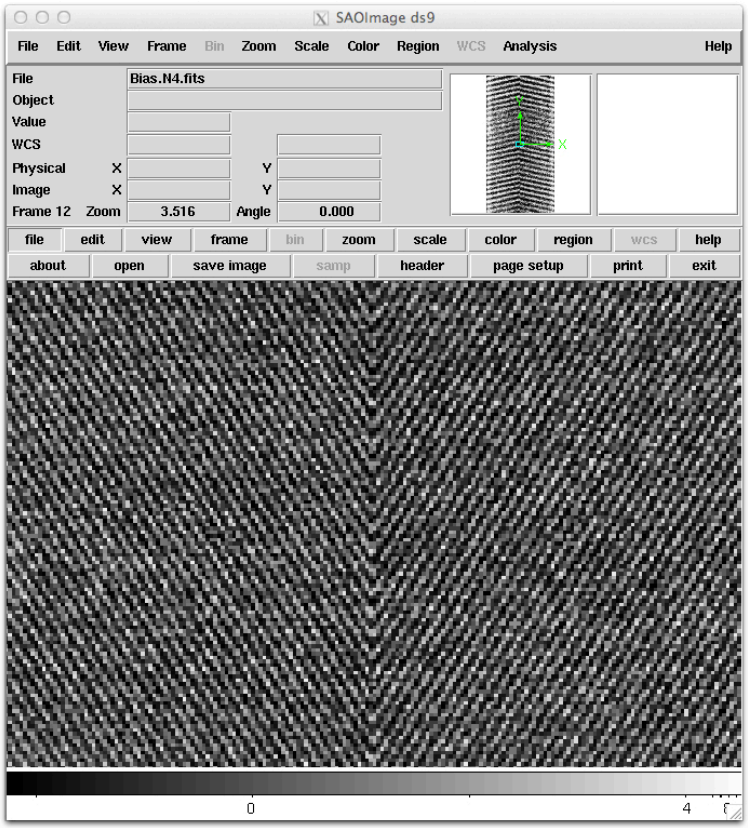
DARK ENERGY SURVEY

- Last week, started to process the innermost 2 chips for all the data from the night using a homebrewed set of python scripts.
  a) Master bias, master flats, processed images.
  b) Stopped at astrometric step.
  c) See /blue-orch/dtucker/DECam/20120922/Reduced/
  d) See also https://cdcvs.fnal.gov/redmine/projects/des-sci-verification/wiki/MJD56193_Standard_Star_Observations

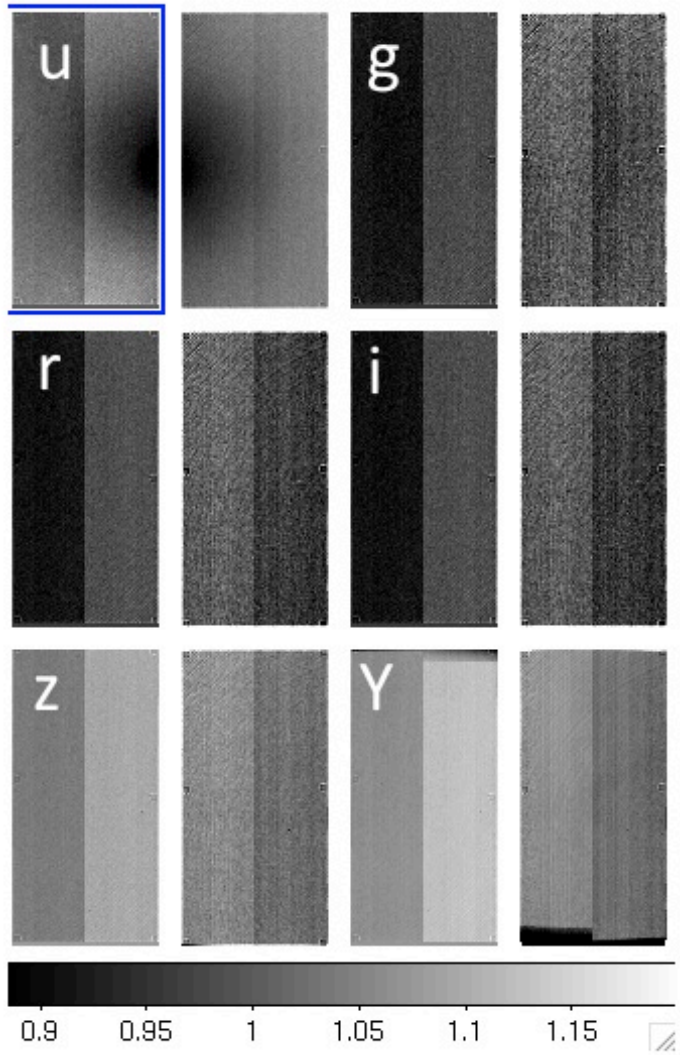
Other Photometry Data from 2012-09-22: A Sampling of Initial Results

DARK ENERGY SURVEY

Master Bias: N4



Master Flats: S4 + N4



Other Photometry Data from 2012-09-22: Standalone Processing of Central 10 CCDs

DARK ENERGY SURVEY

1. This week, started processing 10 central CCDs for all standard star data from 2012-09-22 using standalone pipeline.

2. Much, much help from Brian Yanny.

3. Using biases and flats from Huan Lin.

4. Currently, g, r, i, & z bands processed.

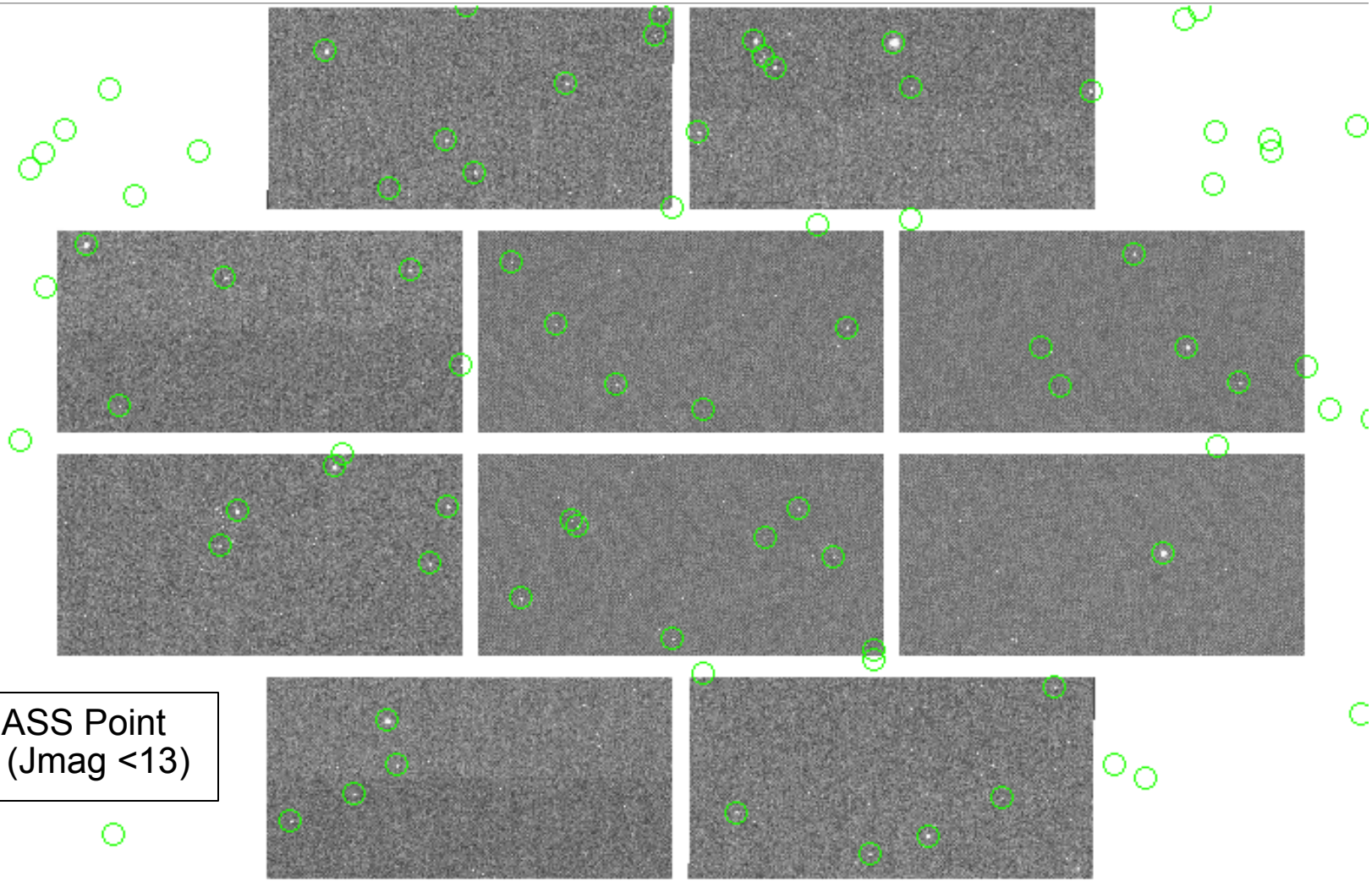
   u band is being processed now. Y this afternoon?

5. See /data/des10.a/data/dtucker/test/runindir/20120922red_[u,g,r,i,z,(Y)]

Other Photometry Data from 2012-09-22: Standalone Processing of Central 10 CCDs

DARK ENERGY SURVEY

SA92 Standard Star Field



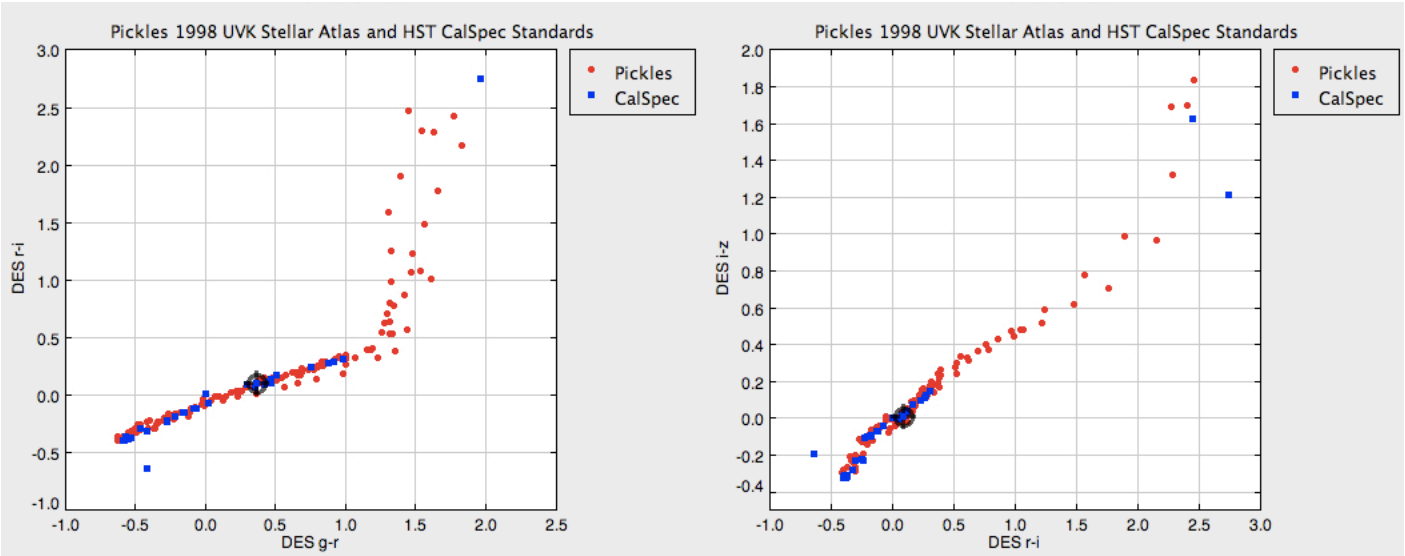
O = 2MASS Point Source (Jmag <13)

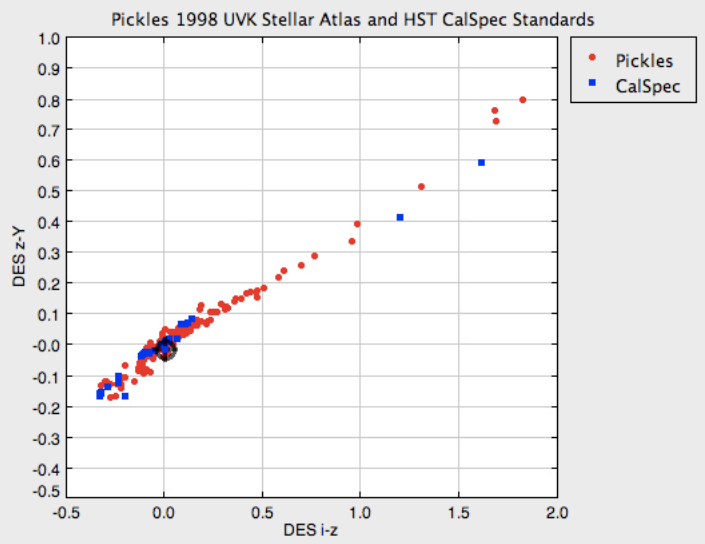
DARK ENERGY
SURVEY

Extra Slides

Standard Stars: HST CalSpec Standards

DARK ENERGY SURVEY

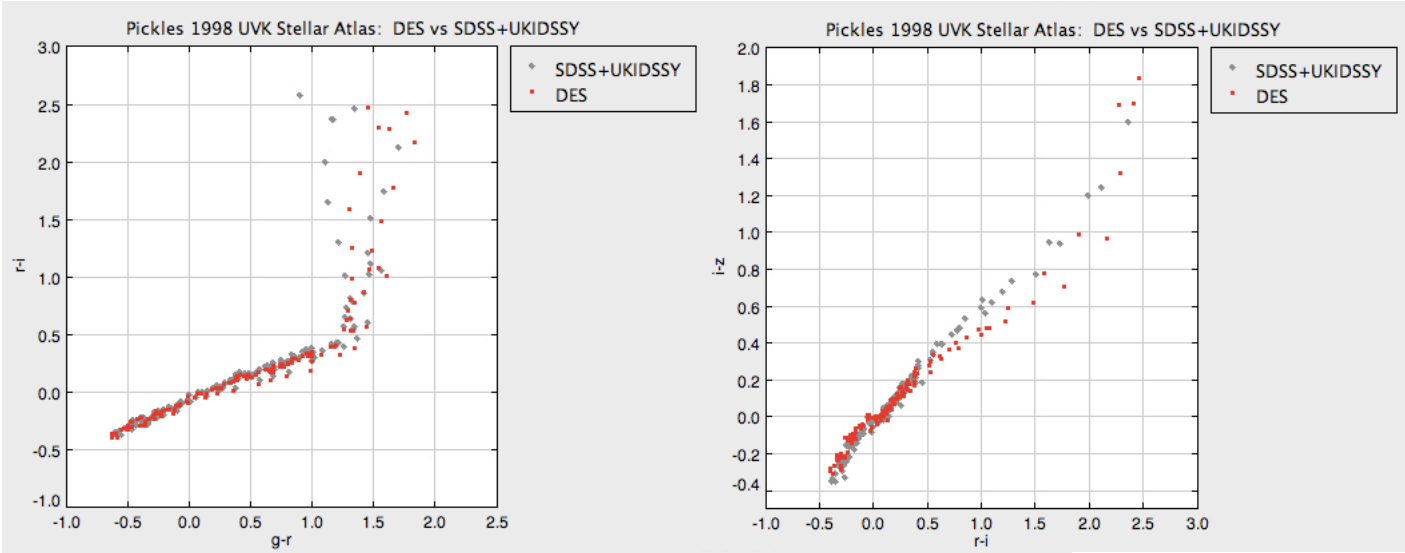


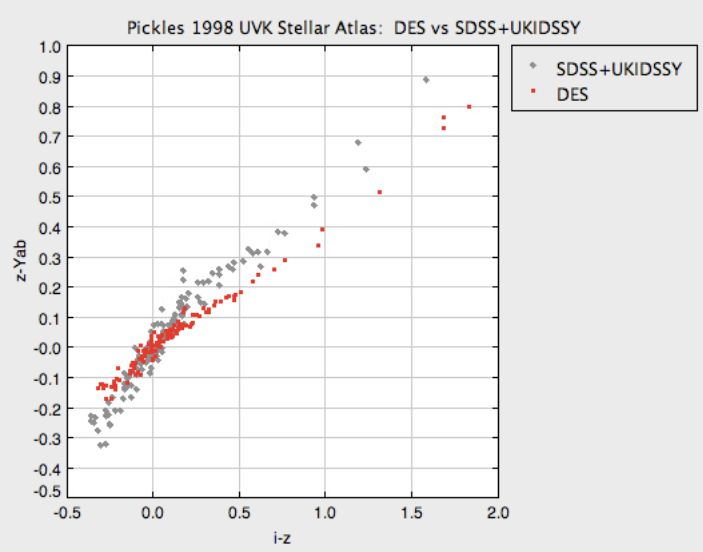


= C26202

DES grizY vs SDSS griz + UKIDSS Yab

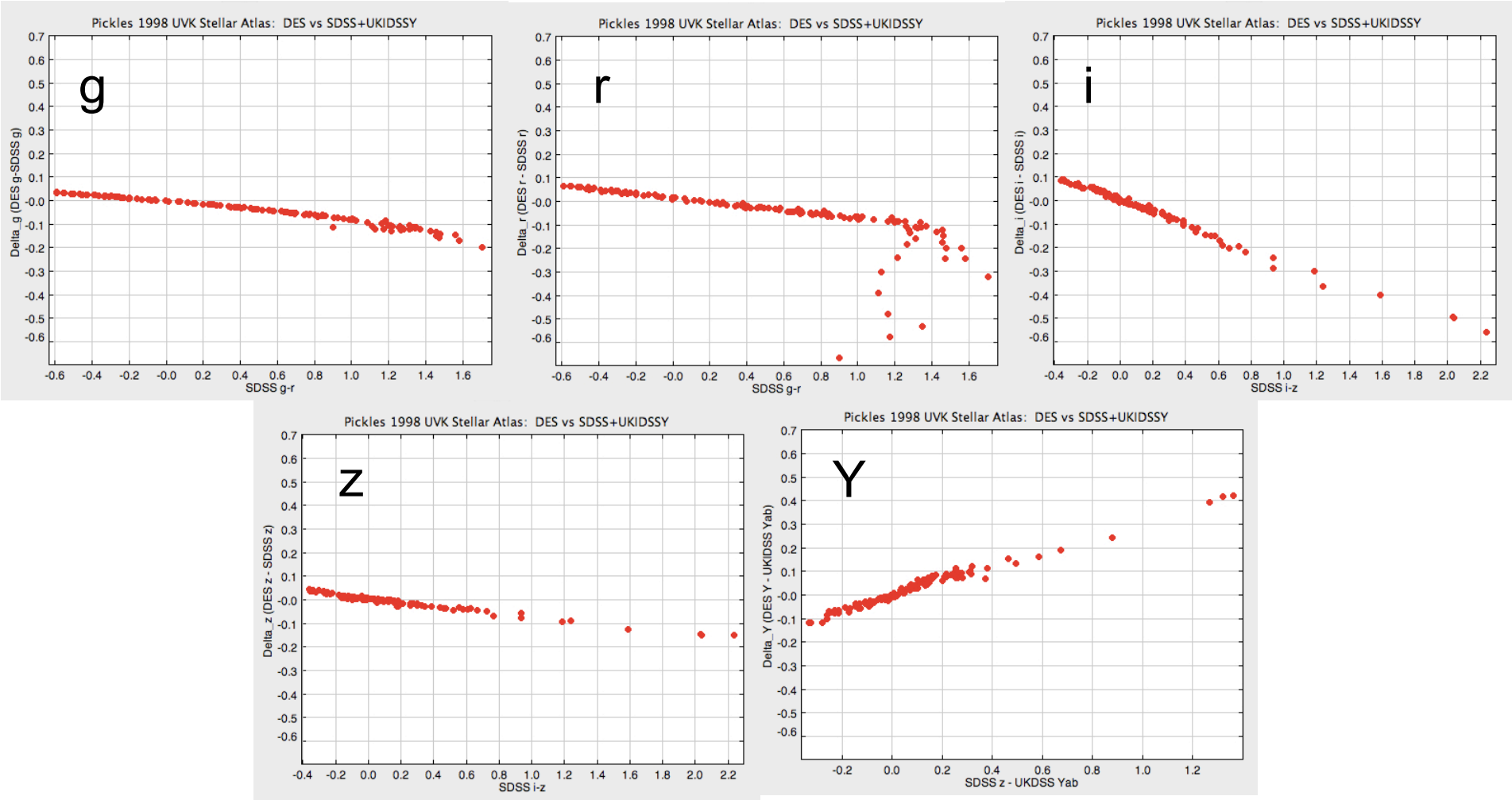
DARK ENERGY SURVEY





DES grizY vs SDSS griz + UKIDSS Yab

DARK ENERGY SURVEY



SDSS/UKIDSS → PreCam DES grizY Transformation Equations (g-r < 0.8)

DARK ENERGY SURVEY

- SDSS g → PreCam DES g:

  $g_{precam} = g_{sdss} - 0.0055 - 0.0659x(g-r)_{sdss} - 0.0115x(g-r)_{sdss}^2$

- SDSS r → PreCam DES r:

  $r_{precam} = r_{sdss} + 0.0102 - 0.0876x(g-r)_{sdss}$

- SDSS i → PreCam DES i:

  $i_{precam} = i_{sdss} - 0.0009 - 0.2522x(i-z)_{sdss}$

- SDSS z → PreCam DES z:

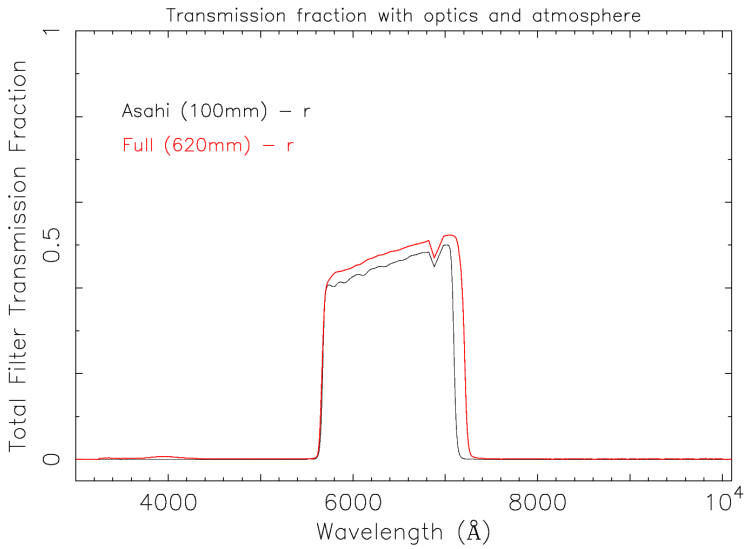
  $z_{precam} = z_{sdss} - 0.0011 - 0.0893x(i-z)_{sdss}$

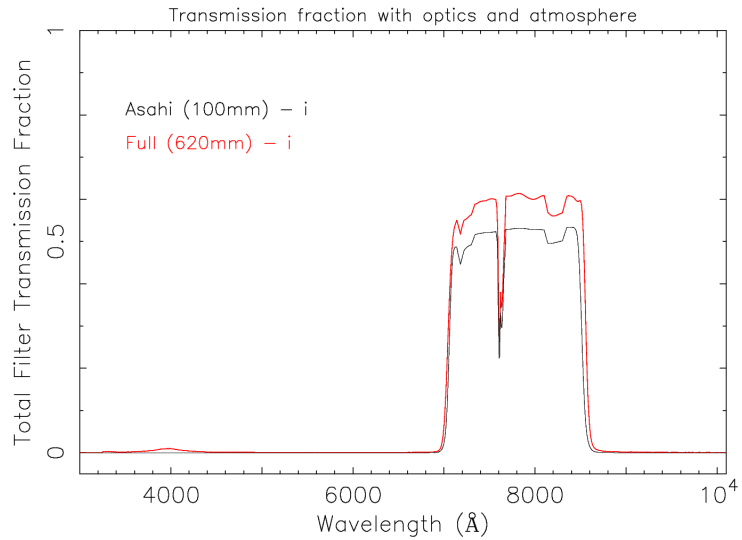
- UKIDSS Yab → PreCam DES Y:

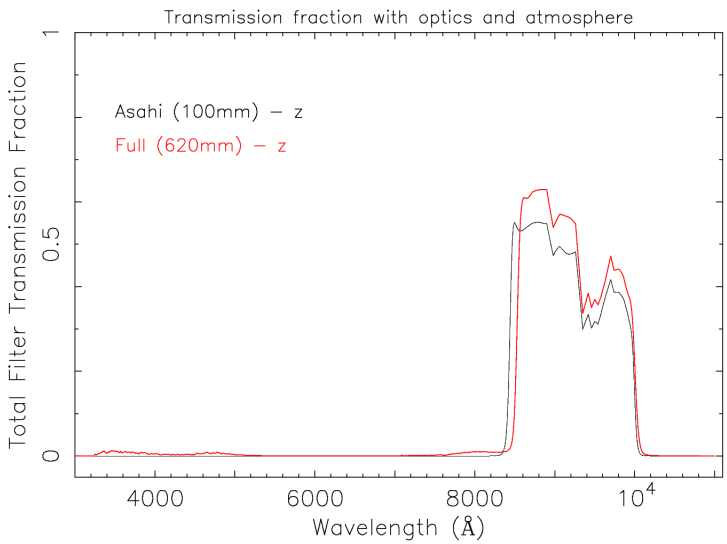
  $Y_{precam} = Y_{ab,ukidss} - 0.0046 + 0.3428x(z_{sdss} - Y_{ab,ukidss})$

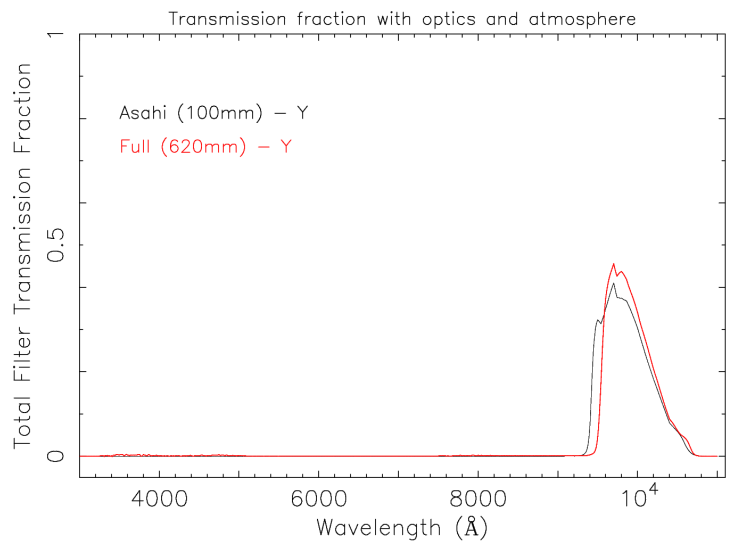
Updated Filter Curves
(David James, DES-doc#6229)

DARK ENERGY SURVEY









Standard Stars: WD “Bronze” Sample

DARK ENERGY SURVEY

1. Calculate synthetic DES griz(Y) mags of all identified DA WDs with SDSS spectroscopy or equivalent (e.g., from the ARC3.5m program) that lie within the DES footprint.
   a) Particularly within the Year 1 footprint.
   b) Variation of Batchelor python code.

2. Identify any Bronze Sample DA WDs in the PreCam fields (→ absolute color calibration of PreCam data).