# KIDS photometric calibration strategy

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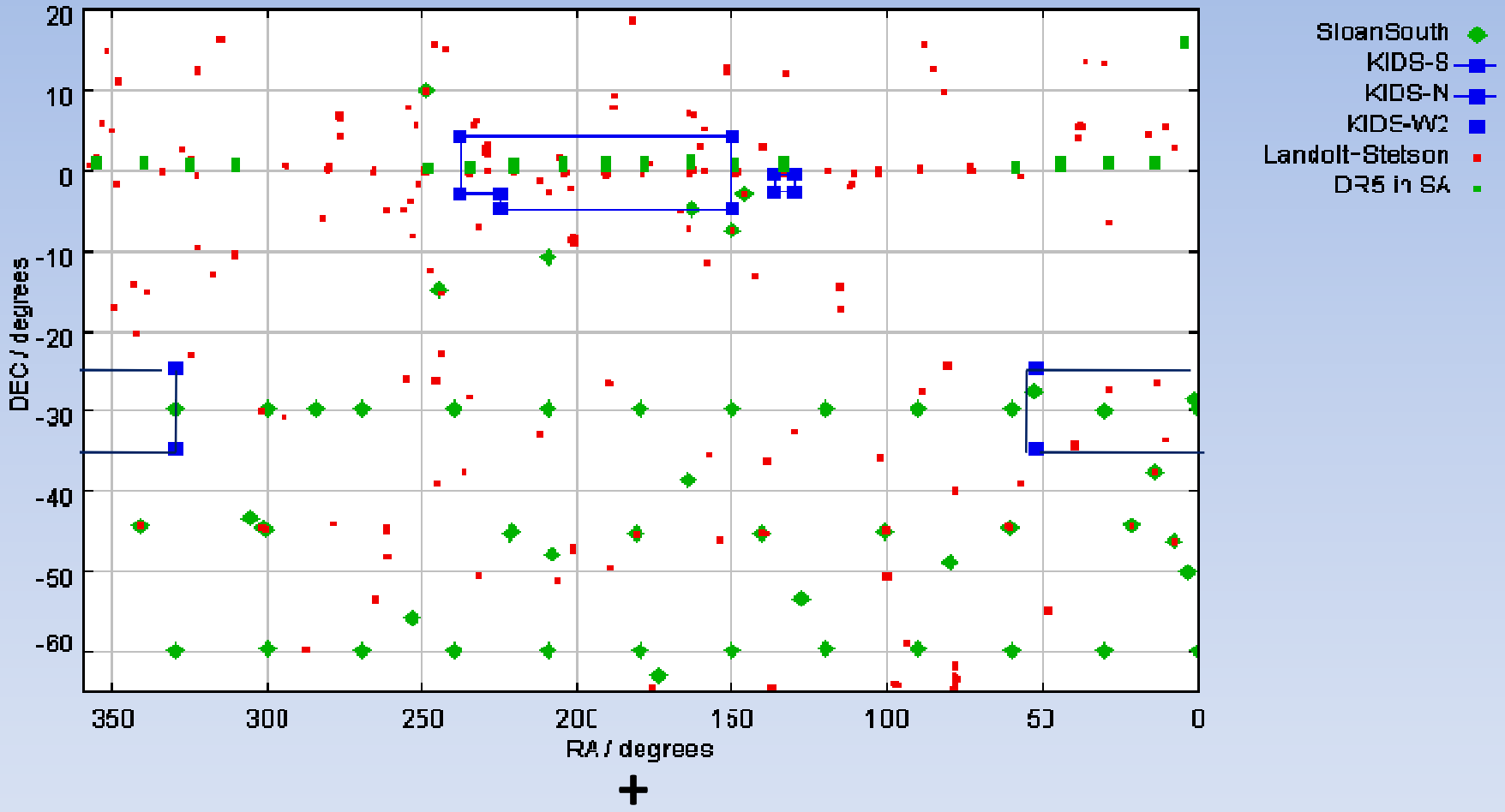
# Quick pass possible calibrators

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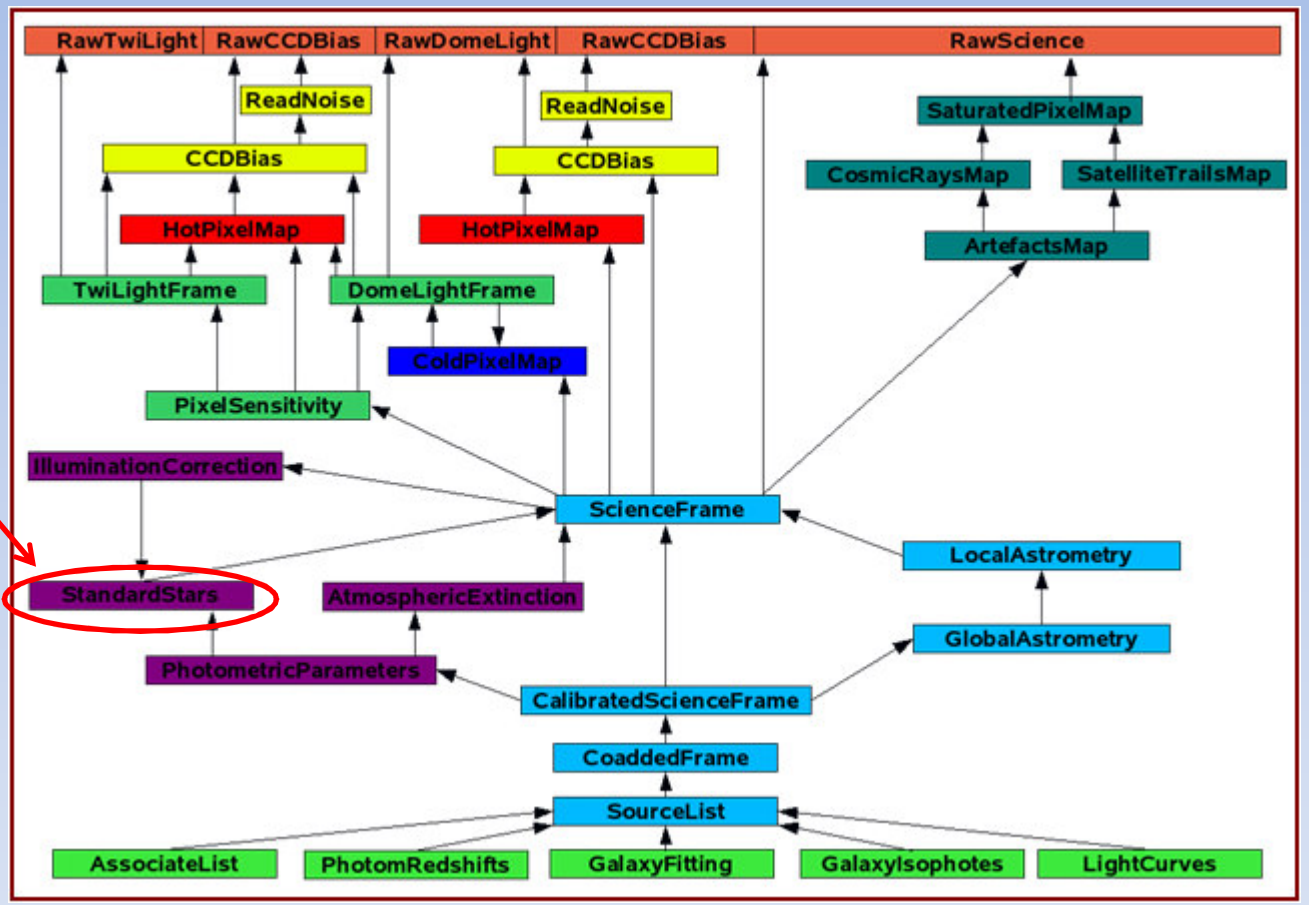
KIDS: SkyMapper project (tied to Tycho-2 catalog (BV)+transformations
KIDS-N: Sloan primary standards
KIDS-S: ATLAS survey

# Quick pass implementation in Astro-WISE

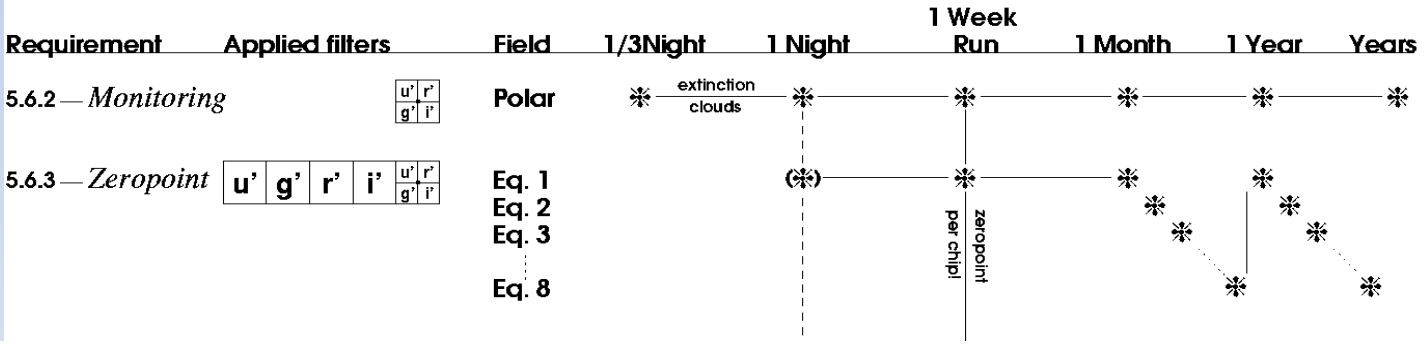
1. Obtain quick-pass mags in usual way
2. Add to Standard Star Catalog
3. Use “origin” selection as desired on Standard Stars



# Further thoughts on KIDS photometric requirements

- Maximum accuracy in colors (Δcolor~<0.02?)
  - Back-to-back ugri observations in quick-pass

- Monitoring the Photometric Calibration

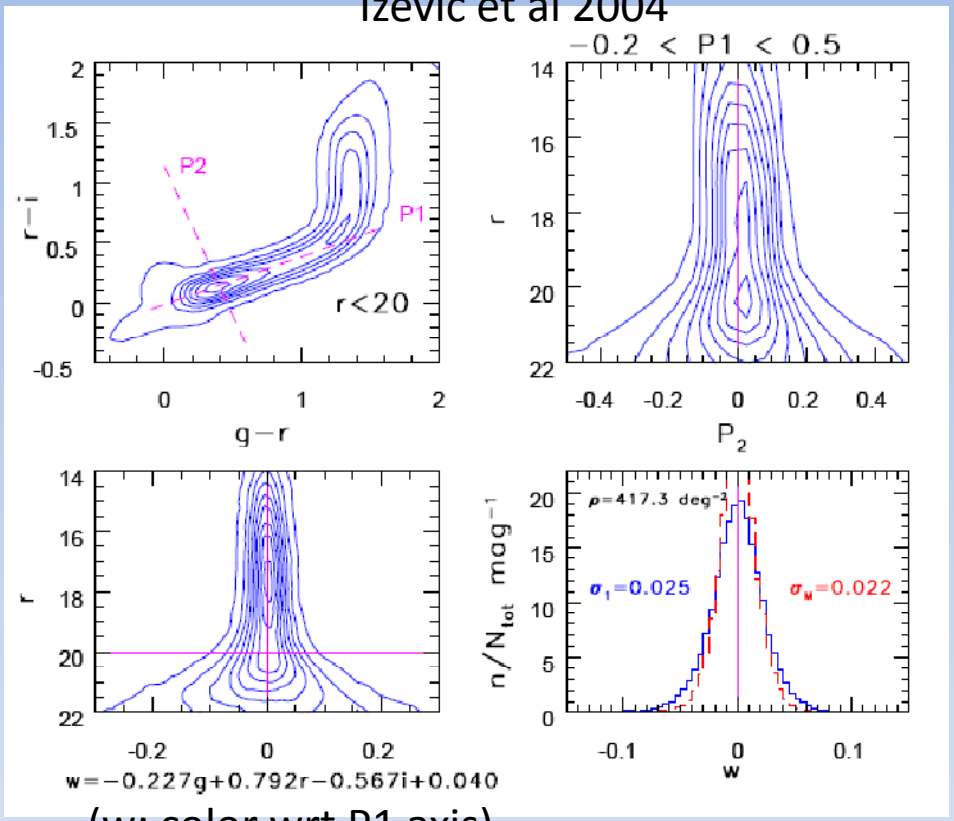


# Further thoughts on KIDS photometric requirements

- Minimal ZPT variation over full KIDS survey area: relative photometry
  - Consistency tests:
    - Stellar locus
    - Source counts
    - Overlapping, but independent primary standards
  - A posteriori relative photometry using overlap?

# Stellar locus in SDSS color-color space

Izevic et al 2004



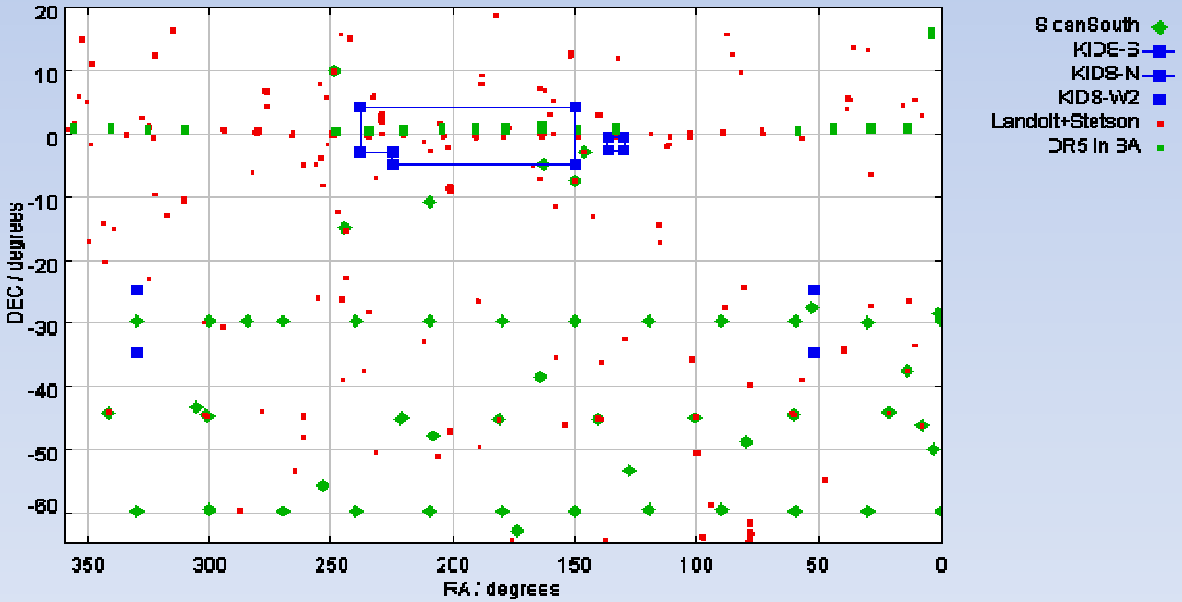

(w: color wrt P1 axis)

**Abstract.** We summarize the Sloan Digital Sky Survey data acquisition and processing steps, and describe *nmQA*, a pipeline designed for automated data quality assessment. In particular, we show how the position of the stellar locus in color-color diagrams can be used to estimate the accuracy of photometric zeropoint calibration to better than 0.01 mag in 0.03 deg$^2$ patches. Using this method, we estimate that typical photometric zeropoint calibration errors for SDSS imaging data are not larger than $\sim$ 0.01 mag in the $g$, $r$, and $i$ bands, 0.02 mag in the $z$ band, and 0.03 mag in the $u$ band (root-mean-scatter for zeropoint offsets).

Method breaks down at |b|<10-15deg

# Other consistency checks

- Source counts: TBD
- Independent primary standards



# Relative photometry

- Accuracy from few % overlaps: TBD
  - Illumination variations
- Implementation

1. Quick-pass in Standard Star catalog
2. Photometric calibration for each (coadded) dither
3. Use calibration timestamps as narrow as desired