WISE Operations MMR

IPAC/WSDS Weekly Status Report

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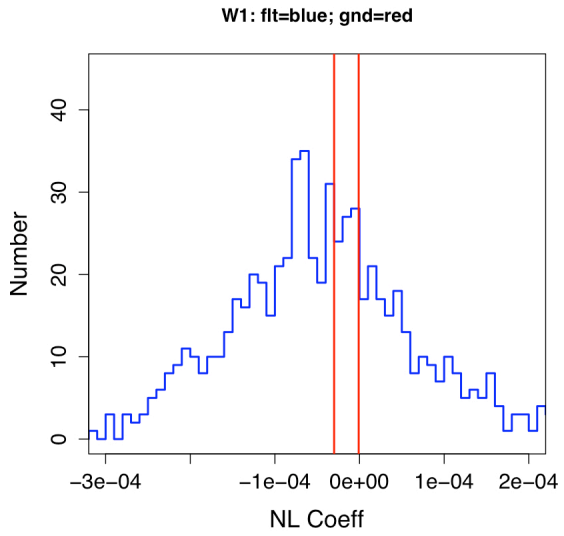
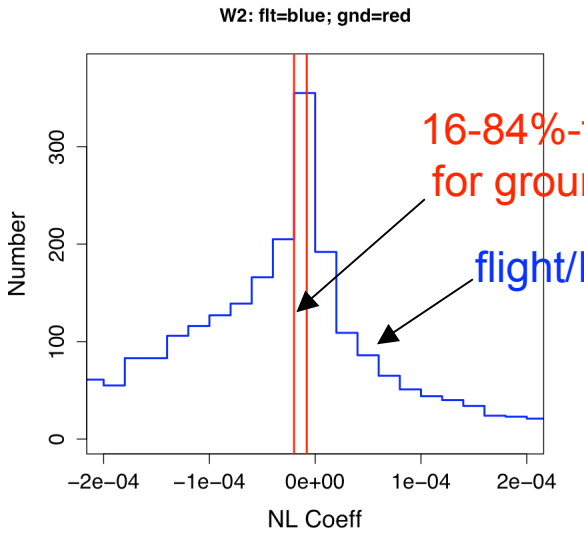
Non-Linearity Validation

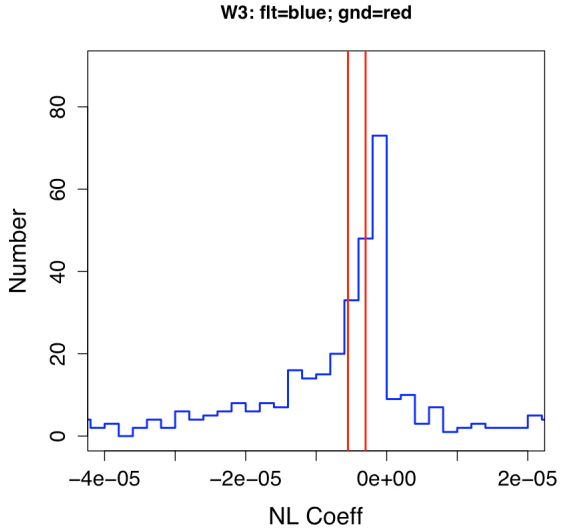
- Data from IOC linearity experiment has been analyzed
- Large scatter in photometry gave noisy ramps, severely affecting the NL estimates
- Conclusions:
  - flight non-linearity estimates not inconsistent with ground values, although uncertainties are large
  - agreement is best for W2, W3. Marginal for W1
  - source statistics are poor in W4
  - assume ground NL estimates (per pixel) for now
  - plan to revisit when better frame registration across all bands is available
  - will also be monitoring calibration Zero Points as more measurements become available

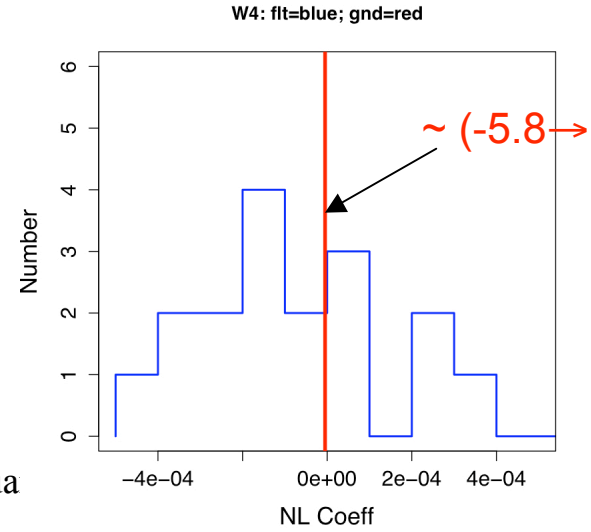
NL model coefficients: flight vs ground

$$DN_{obs} = C * DN_{lin}^2 + DN_{lin}; \quad C \le 0$$









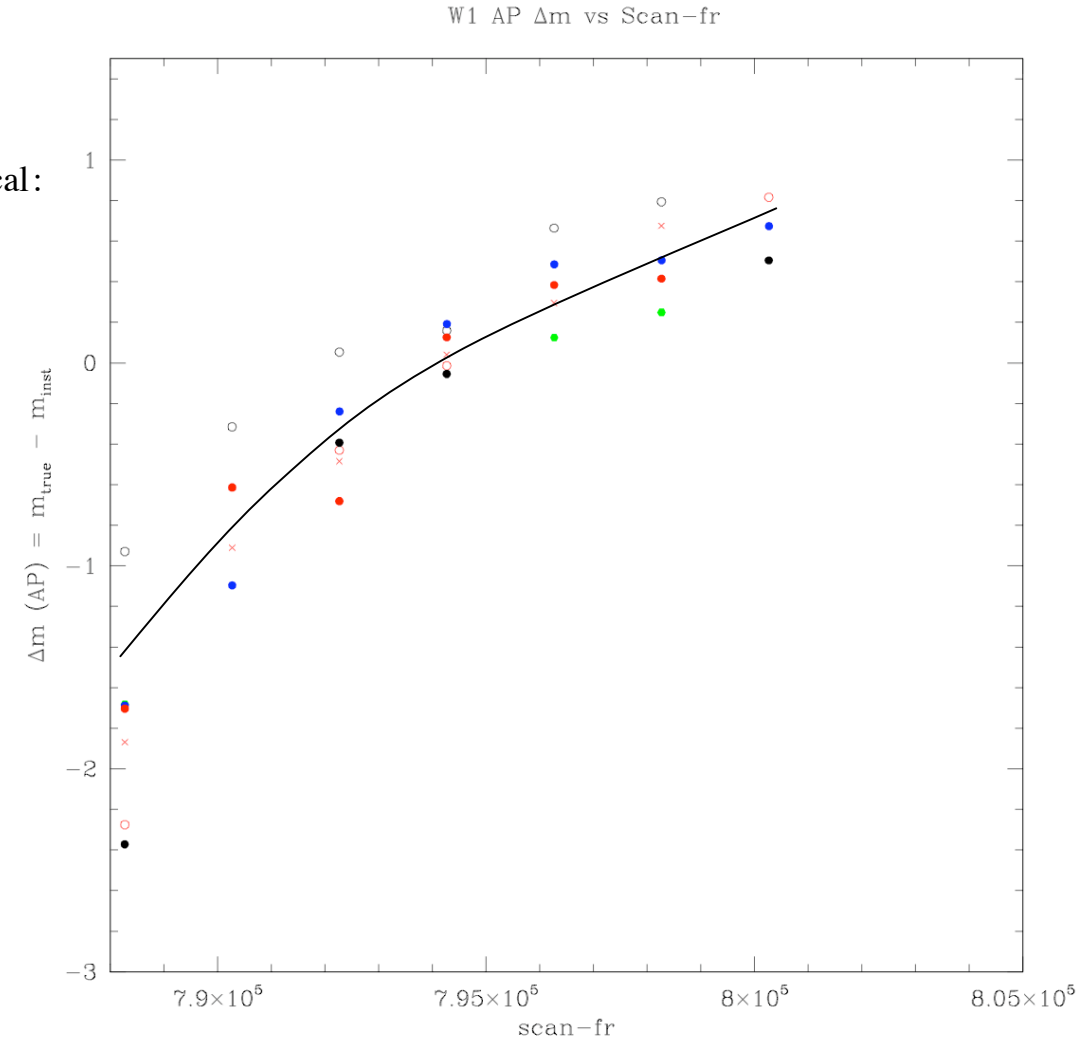
W1 calibrators vs SUTR

Predicted DN in CDS units using ground cal:

$DN_{obs} = DN_{lin} - 8.8 \times 10^{-6} DN_{lin}^2$

$\langle DN_{lin} \rangle = 700$DN per CDS read

data:
courtesy of Sherry Wheelock



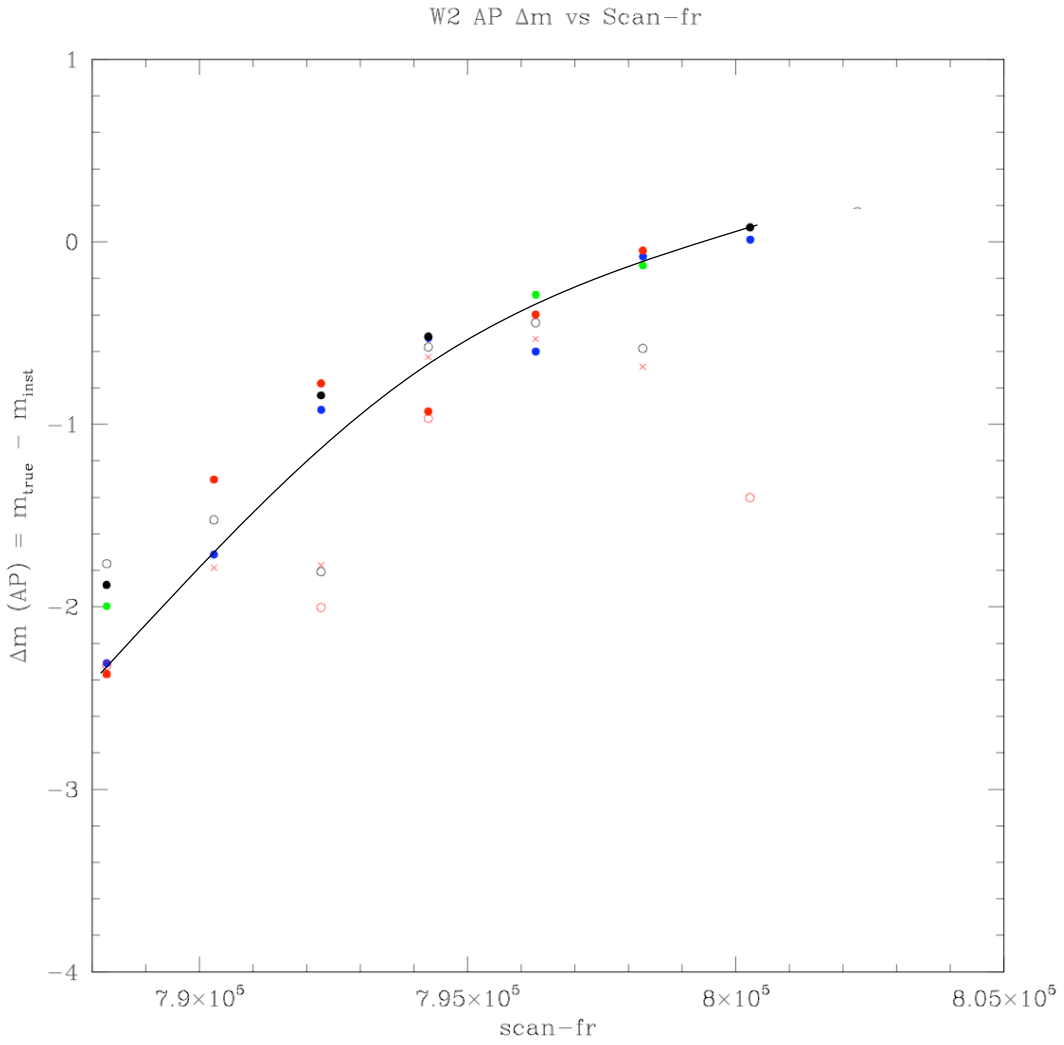
W2 calibrators vs SUTR

Predicted DN in CDS units using ground cal:

$DN_{obs} = DN_{lin} - 1.2 \times 10^{-5} DN_{lin}^2$

$\langle DN_{lin} \rangle$ = 700DN per CDS read

data:
courtesy of Sherry Wheelock



W3 calibrators vs SUTR

Predicted DN in CDS units using ground cal:

$DN_{obs} = DN_{lin} - 7.9 \times 10^{-6} DN_{lin}^2$

$\langle DN_{lin} \rangle = 1000$DN per CDS read

data:
courtesy of Sherry Wheelock