



National Aeronautics and Space  
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# WISE Operations MMR

## IPAC/WSDS Weekly Status Report

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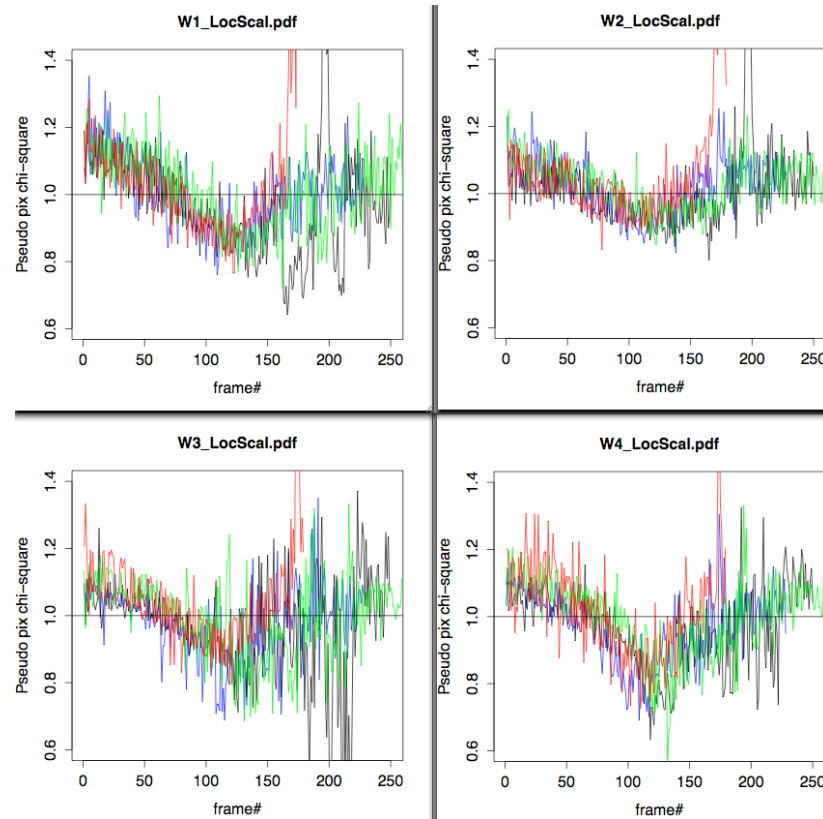




# noise-model analysis



- A trend in the ratio “robust pixel RMS/model  $\sigma$ ” ( $\approx \chi^2$ ) vs sequential frame# or zodi-level was seen during v3.5 testing:



- pixel error model has no confusion noise ( $> 1$  excursions inevitable)
- different colors  $\Rightarrow$  4 random scans

$\Rightarrow$  Poisson noise in error-model over-estimated? E.g., bad (ground) gain assumptions.





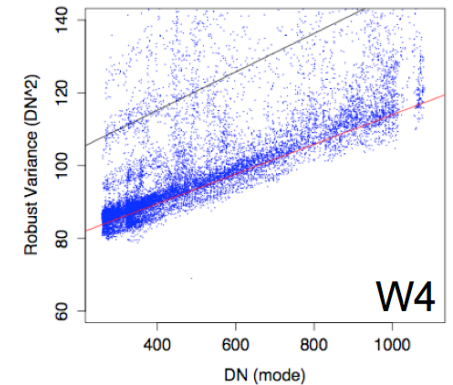
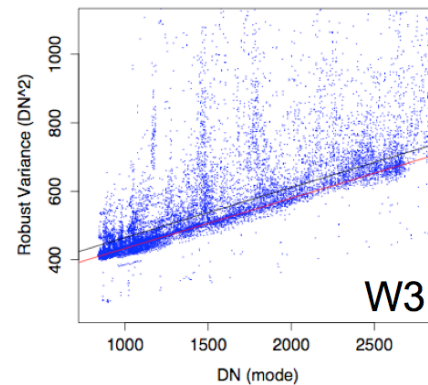
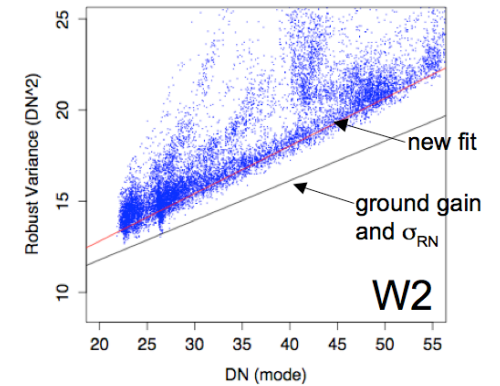
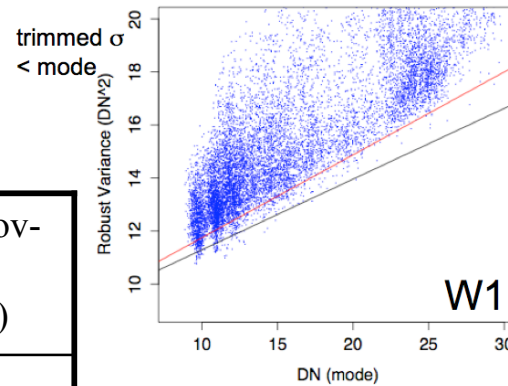
# new gain and read-noise (RN) calibrations



WSDC Status

Gains and RN sigmas were revised by fitting to ~7000 frames from v3.5 test set (robust spatial variance vs modal DN). Gain  $\approx 1/\text{slope}$  formed by lower-bounding envelope.

new/assumed gains [e-/DN]	ground gains (SDL)	new/assumed RN-sigmas [DN]	IOC cov-on RN (mode)
3.20	3.75	2.94	2.94
3.83	4.60	2.75	2.73
6.83	6.83	16.93	17.83
24.50	18.92	8.55	9.69

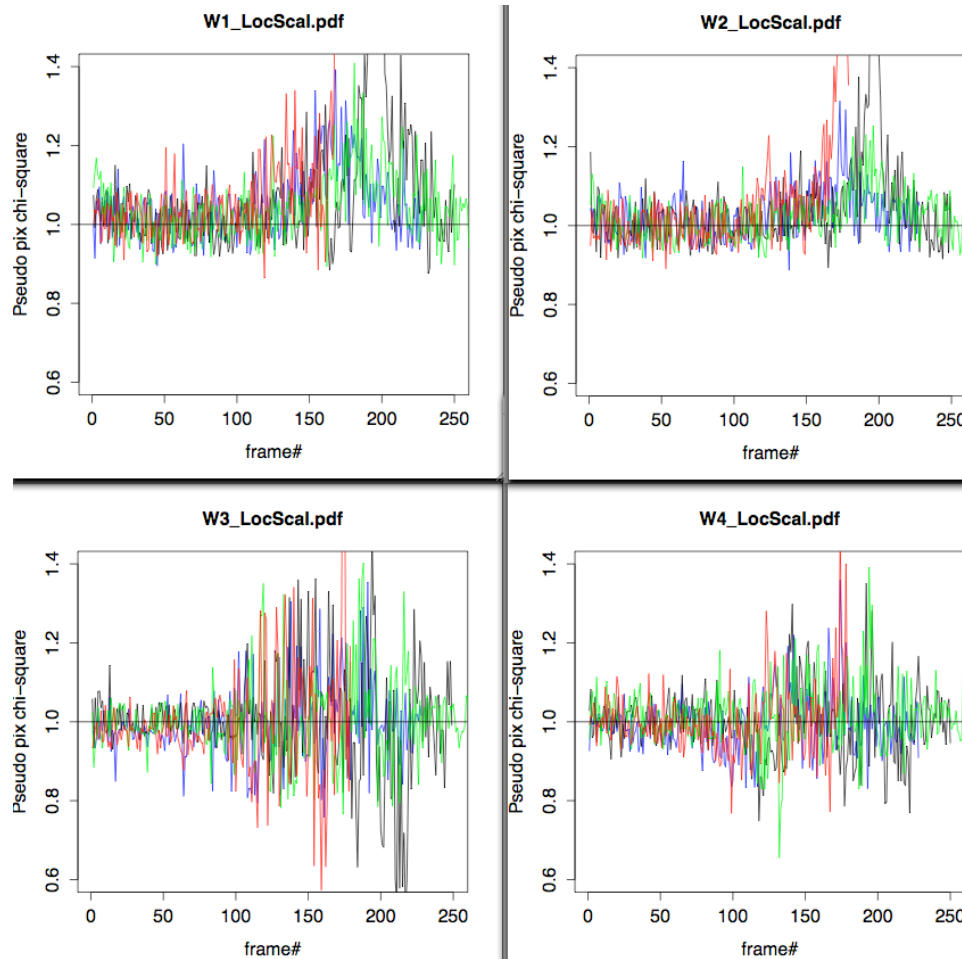




# new gains + RN sigmas



New gains remove trend in ratio “robust pixel RMS/model  $\sigma$ ” vs zodi-level.



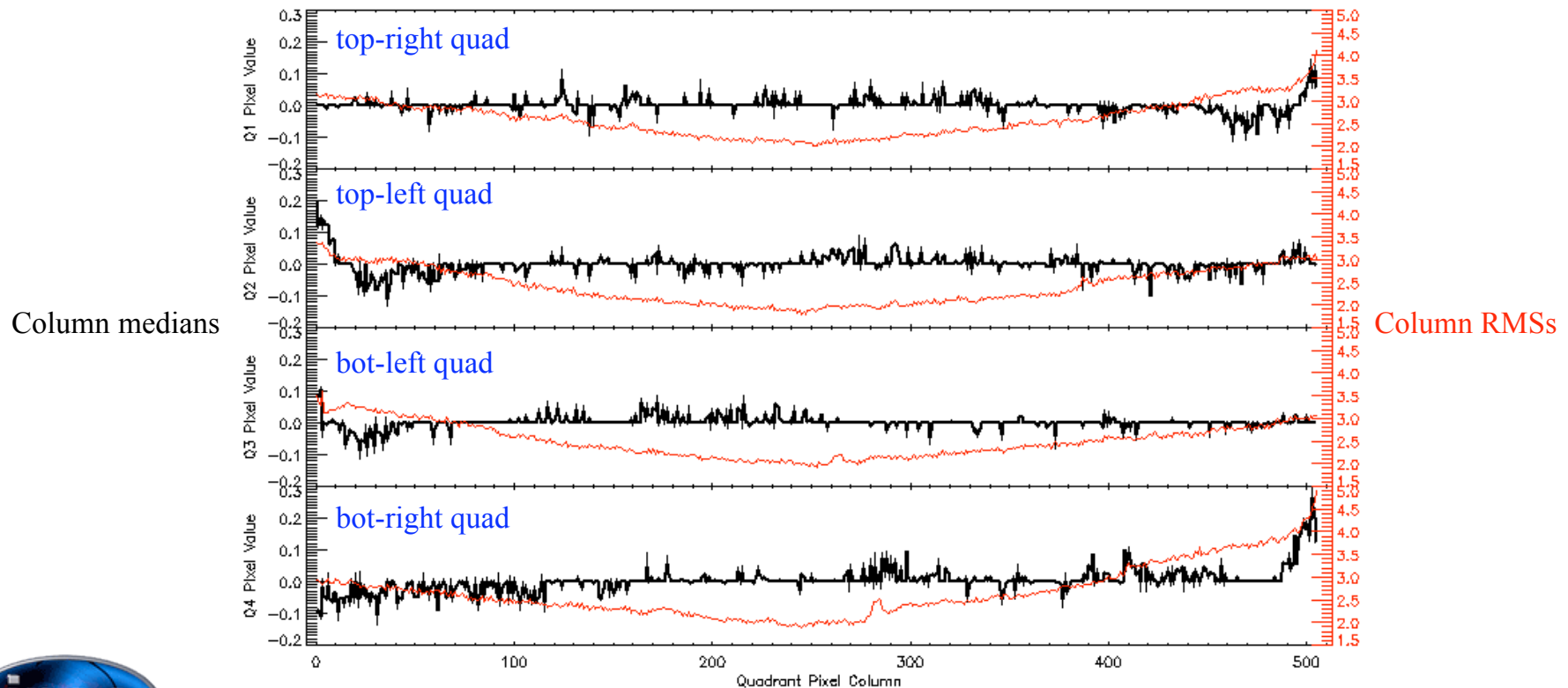
- pixel error model has no confusion noise (> 1 excursions inevitable)
- different colors => 4 random scans



# Residual calibration check (W3)

- Made super-median and RMS column-cuts by combining ~7000 W3 level-1b frames from v3.5.
- Residual following application of all calibrations (dynamic+static):  $< \sim 0.3$  DN at edges;
- Excess RMS residual relative to value  $\sim 20$  pixels from edge  $< \sim 1$  DN.

Plots courtesy of Doug Hoffman.



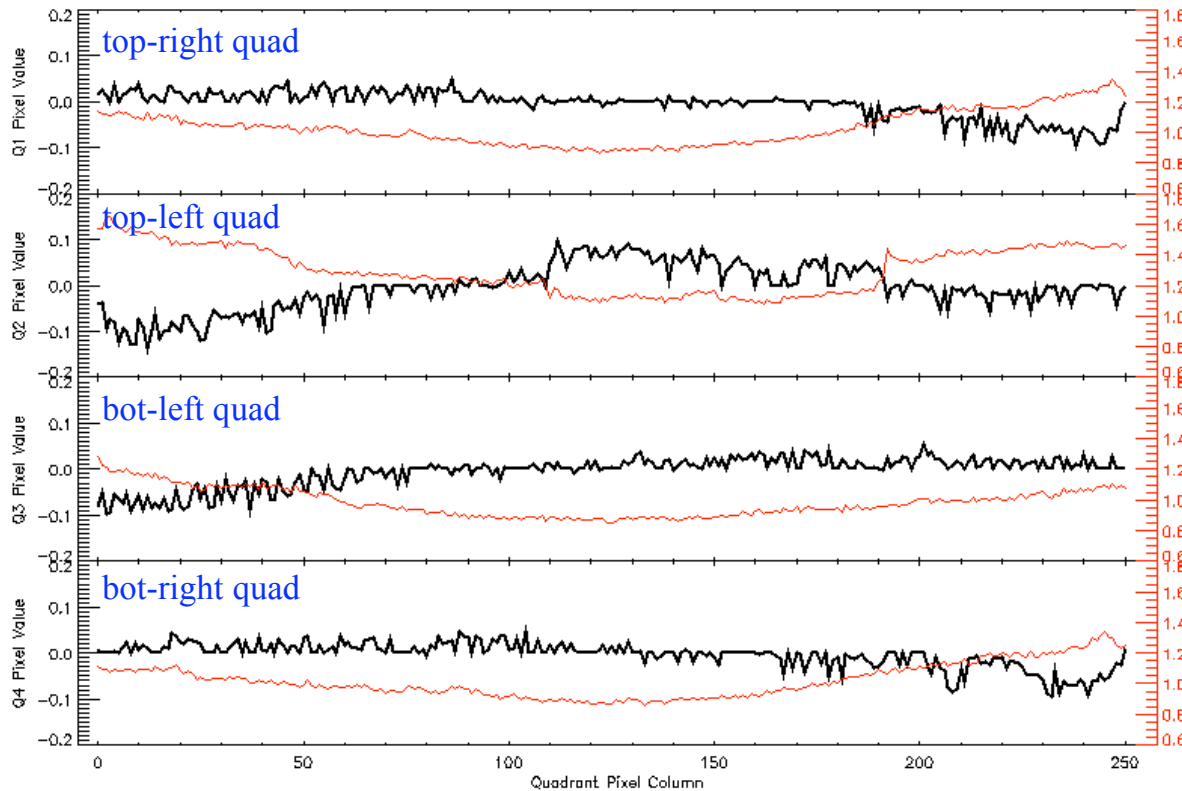


# Residual calibration check (W4)



- Residual following application of all calibrations (dynamic+static):  $< \sim 0.1$  DN;
- Excess RMS residual relative to value  $\sim 20$  pixels from edge  $< \sim 0.2$  DN.

Plots courtesy of Doug Hoffman.



Column medians

Column RMSs

