WISE Operations MMR

IPAC/WSDS Weekly Status Report

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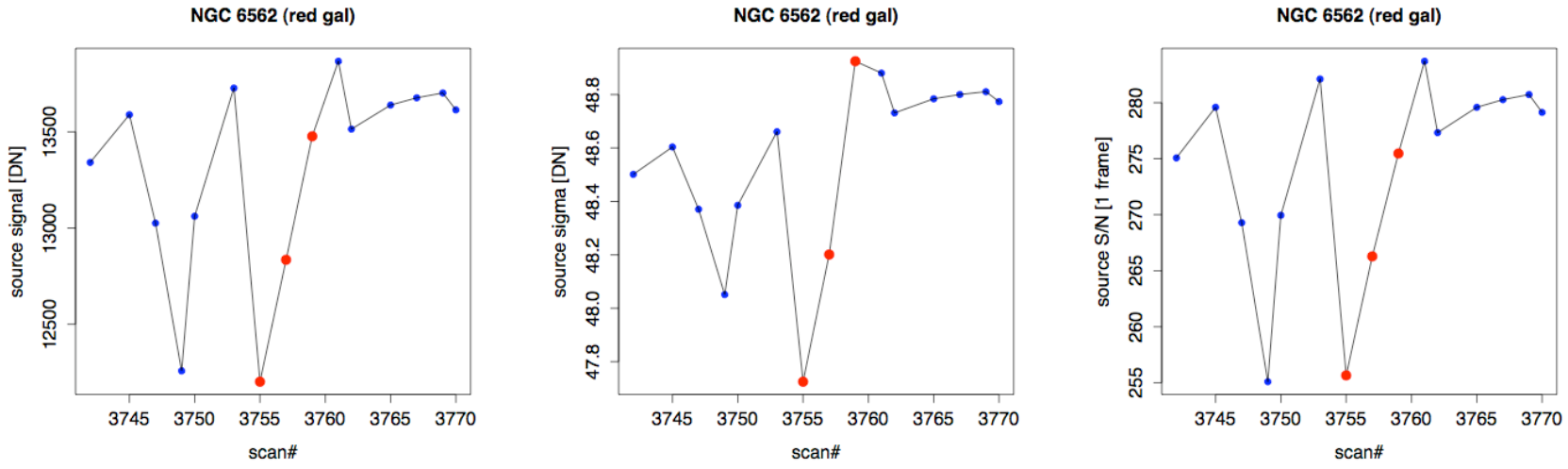
W4 Bias Expmt: source S/N vs bias

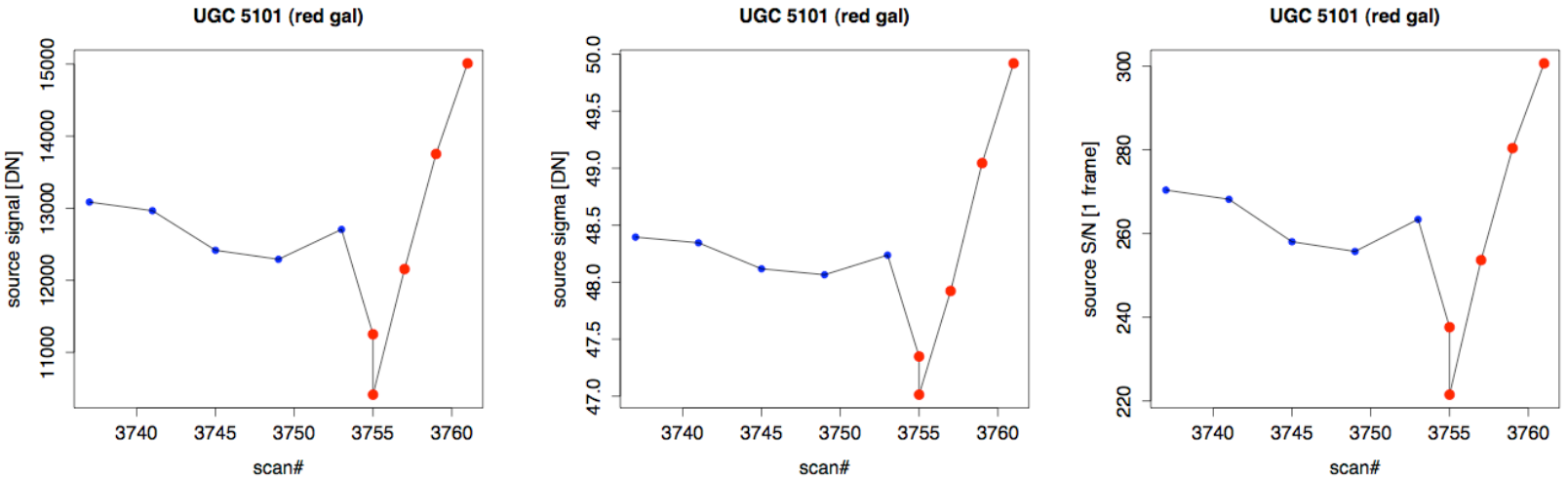
- Used simple single-frame model: S/N ~ #DN / sqrt[(#DN/g) + N_p*V_{rn}], where:
  #DN = integrated DN from PSF-fit photometry (Jarrett);
  g = gain in e-/DN (bias dependent);
  N_p = noise pix (=24.29 for W4);
  V_{rn} = read-noise var in DN^2.
- ignores error from background sub; confusion noise, PSF estimation error.
- Below is NGC 6552 (red galaxy #1): blue=1.97V (nominal); red=1.68, 1.82, 2.11V (left to right)



- Conclusion: change in S/N relative to nominal bias inconclusive (2.25V not available)

W4 Bias Expmt: source S/N vs bias

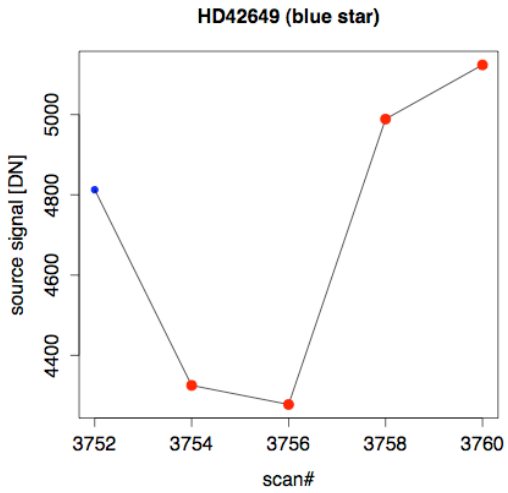
- Below is UGC 5101 (red galaxy #2):
  blue = 1.97V (nominal)
  red = 1.68, 1.68 [=>in frame overlap], 1.82, 2.11, 2.25V (left to right)

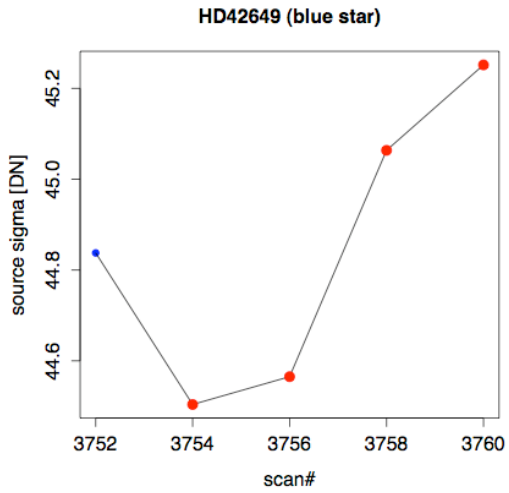


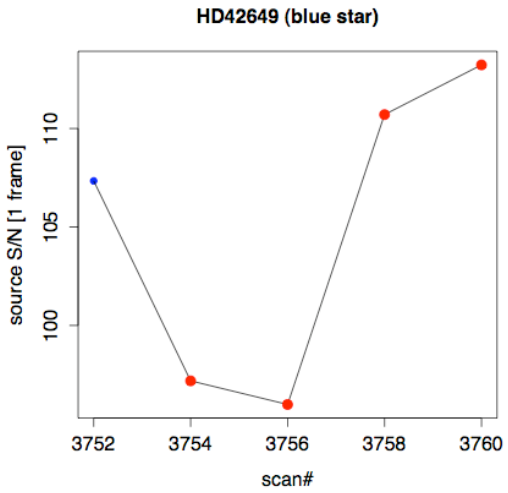
- Conclusion: S/N increases by ~15% from nominal bias to 2.25V bias

W4 Bias Expmt: source S/N vs bias

- Below is HD 42649 (blue standard star):
  blue = 1.97V (nominal)
  red = 1.68, 1.82, 2.11, 2.25V (left to right)







- <u>Conclusion</u>: S/N increases by ~5.5% from nominal bias to 2.25V bias