Bias and Dark Calibration of ACS/WFC Data: Post-SM4 Automated Pipeline

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Before SM4

- ACS ISR 2004-07 (Mutchler et al.)
- ACS TIR 2007-04 (Lucas et al.)

After SM4

- WFC3 TIR 2008-01 (Martel et al.; Borders) and automated MAST retrieval (Viana et al. 2012; in prep.)
- Refitted for ACS/WFC and manually executed (Armstrong et al. 2012; in prep.)
- Automated since Sep 2011 (Lim et al. 2012; in prep.)
New vs. Old

Pros
• Fast turnaround
• New CALACS
• No IRAF
• Less clunky
• Improved codes
• Easier to adapt for new mode or SI

Cons
• No DSB support
• No version control
• Shared machine
• Uses FTE and disk space in AWT
Cron Jobs

• Nightly check for new RAW
  – Every 2-3 days

• Weekly check for new anneal (Sun)
  – 1-2 weeks after each monthly anneal

• Weekly check for the need to organize and create new reference files (Thu)
  – When new anneal is found
  – Followed by manual inspection (Armstrong) and CDBS delivery (McMaster)
Reference Files

• 2 superbias per anneal cycle
• 2 basedark per anneal cycle
• 1 daydark per DATE-OBS
• Basedark + daydark = 1 superdark per DATE-OBS
Outputs

• Reference files to deliver
• Smoothed images to show underlying pattern
• Plots
  – RAW stats by exposure
  – Pixel distribution histograms
  – Stats and flags over time
  – Column profiles for amp jump (superdark only)
• Log files with miscellaneous info
• Error files (on failed execution only)
• Emails with CDBS delivery template
Smoothed Superbias
Smoothed Superdark
Future Work

• Add subarray superbias support
• Publish ACS ISR (Lim et al. 2012; in prep.)
• Start delivering DKC files
• Maintain compatibility with new CALACS (Hack et al. 2012; in prep.)
• Add support for CRDS (?)

Thank You