CCD/Background WG

- Started in 2010 at Woods Hole
  - Airing of grievances and discussion
  - Topics too esoteric for larger plenary sessions
- Combined with the backgrounds WG in 2014
- Two full well-attended sessions in 2017!
- Presentations from XMM, Chandra, Hitomi, and Swift
• Molendi, “An in-depth analysis of the EPIC-MOS instrumental background”
  • Part of a much larger effort to better understand the XMM particle background, the particle environment in HEO and L2, and the expected background for Athena
• (special issue of Experimental Astronomy coming soon!)
IN - OUT vs. distance from Earth

Dependence of the soft proton rate on magnetospheric environment is modest if any. Conversely we find evidence of an anti-correlation of soft proton intensity with distance from the Earth.
CCD/Background WG

• Dennerl, “An empirical method for improving the XMM-Newton/EPIC-pn RMF and ARFs”
  • Parameterize and optimize RMF components
  • Proof of concept with a few sources (E0102, etc.)
  • Significant RMF/ARF improvement for 2 soft sources (<2keV)
  • Will extend to higher energies, other readout modes, longer time span, multiple detector positions, ...
CCD/Background WG

- Dennerl, “An empirical method for improving the XMM-Newton/EPIC-pn RMF and ARFs”

  Modeling the EPIC pn RMF at individual energies

- Parameterize and optimize RMF components
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12th IACHEC meeting
UCLA / Lake Arrowhead / USA, 2017 Mar 27 – 30
K. Dennerl / MPE
CCD/Background WG

Improving the EPIC pn RMF

SNR 1E0102

proof of concept
Gaetz, “Chandra ACIS Background” and “Chandra ACIS-I3 Response Width”
- Status of new ACIS blank-sky background files covering more recent times
- Future improvements for ACIS-I3 response products with better time and temperature dependence

Durham, “ACIS Gain Studies: Temporal, Spatial, and Temperature Dependencies”
- Future improvements to ACIS gain calibration
CCD/Background WG

- Beardmore, “XRT Windowed Timing Mode – Trailing Charge”
  - Low energy background increasing with time
  - Identified with trailing charge released from deep charge traps
  - Developing algorithm to identify and remove trailed events
• Beardmore, "XRT Windowed Timing Mode – Trailing Charge"

• Low energy background increasing with time

• Identified with trailing charge released from deep charge traps

• Developing algorithm to identify and remove trailed events
Whoa, we're halfway there...
Whoa-oh...