

Chandra Calibration Status

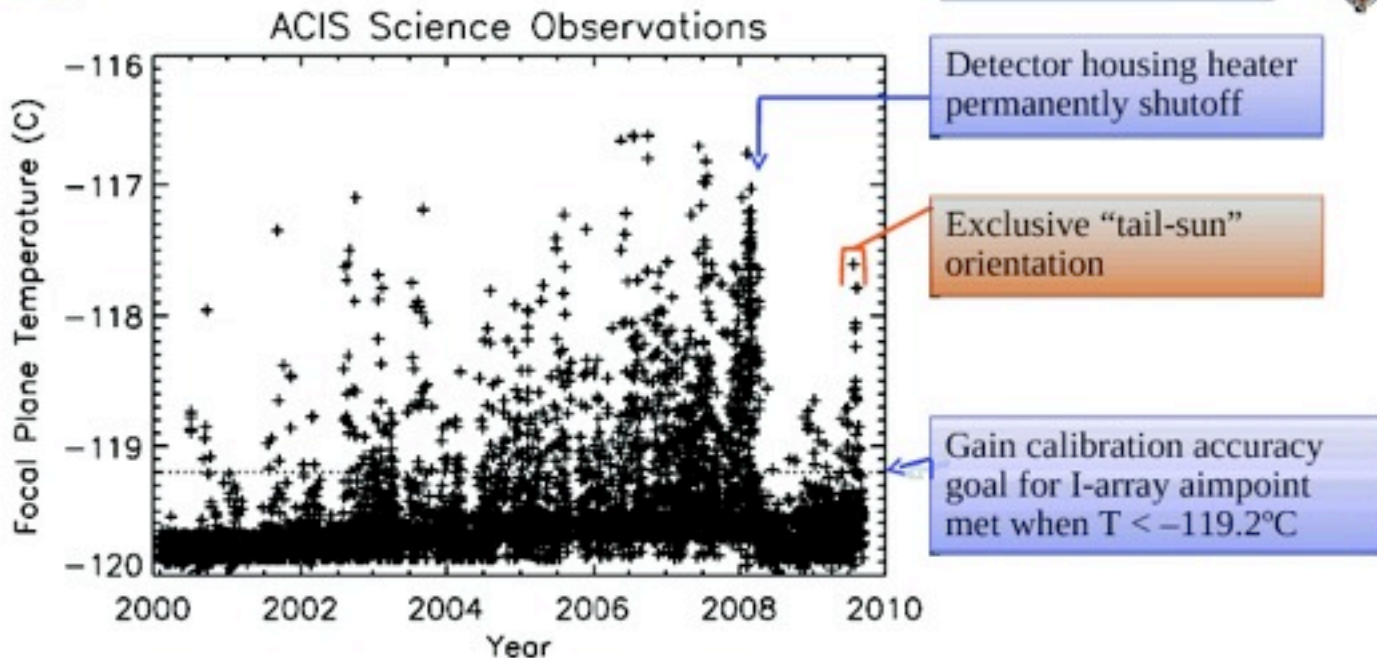
IACHEC 2010

- Temperature-dependent CTI corrections
- Updates to the ACIS contamination model
- Continuous Clocking (CC) Mode calibration
- Updates to LETG/HRC-S calibration

Temperature-dependent ACIS gain corrections



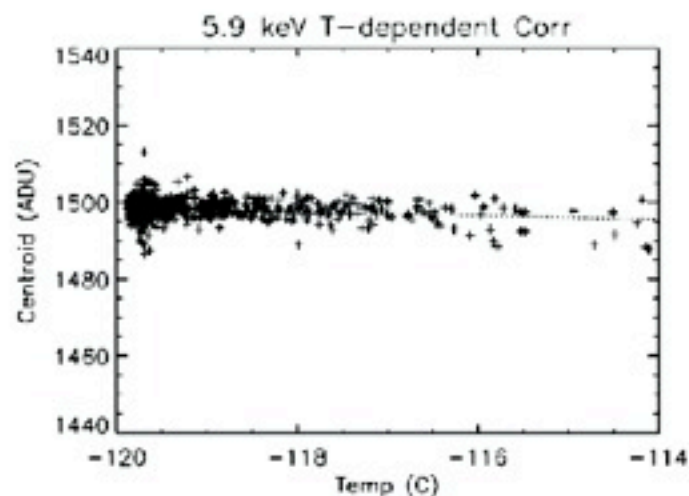
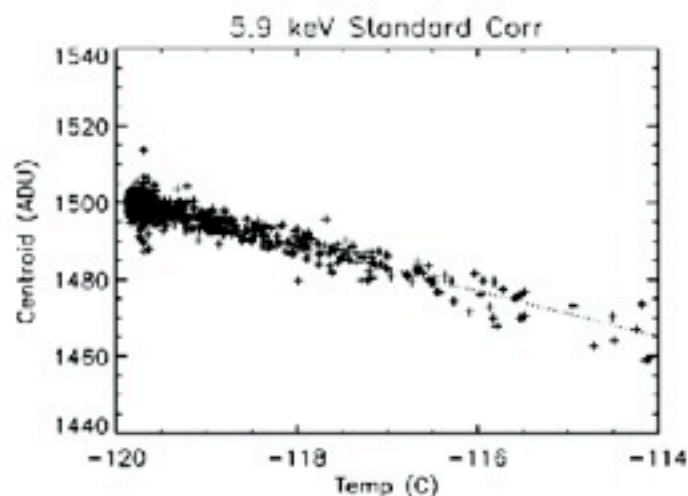
Focal plane temperature excursions



- ACIS cooling is less efficient in some Chandra orientations
 - Other spacecraft constraints not always favorable for ACIS
- In 2000, 99% of observations $< -119.2^{\circ}\text{C}$; in 2007, 68%
- For more on temperature history and other mitigation strategies, see poster C.22 by C. Grant



Performance of adjusted corrector

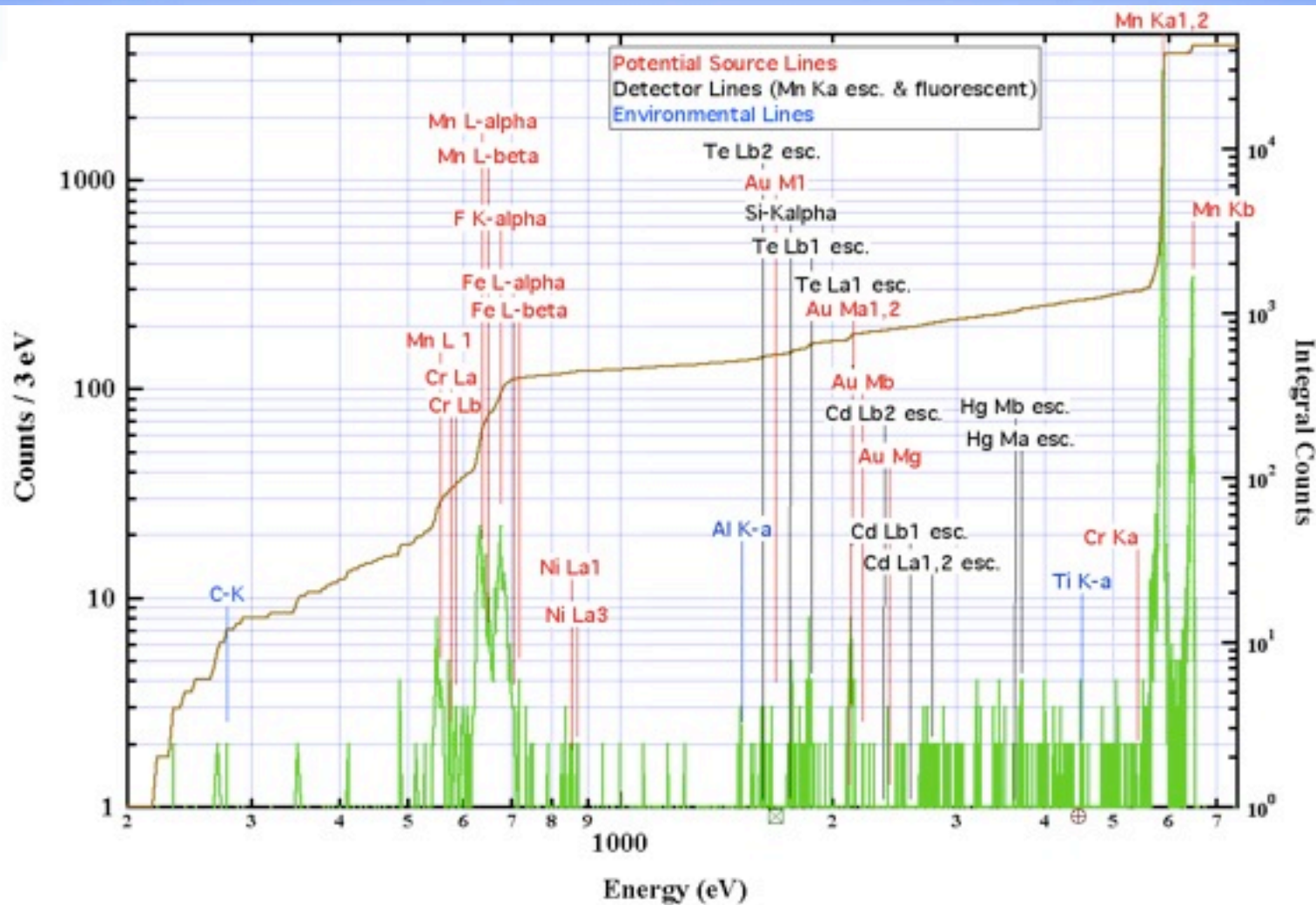


Temperature-dependent pulseheight change (% / deg)

	1.5 keV	6 keV
Standard	-0.7%	-0.4%
T-dependent	+0.03%	-0.07%

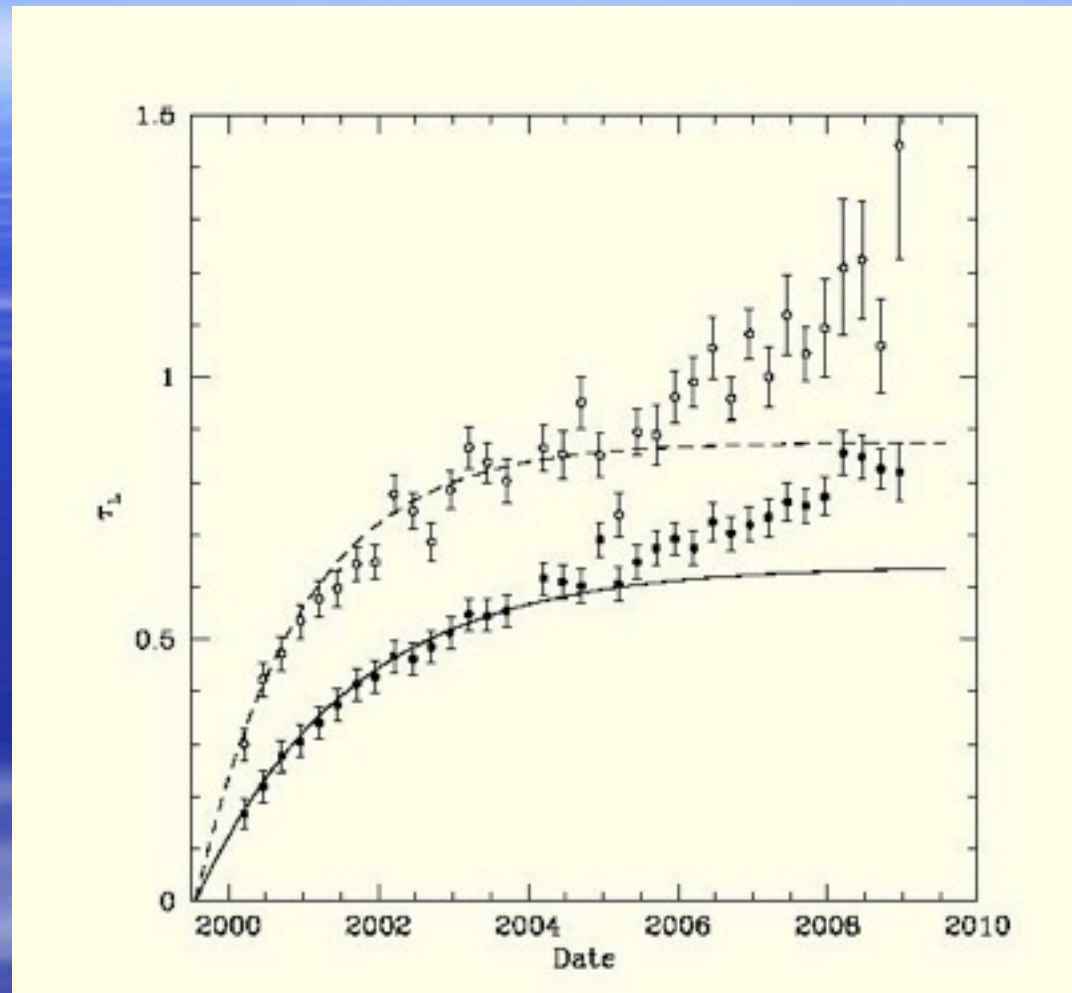
- Reduces temperature dependence of pulseheight
- >99% of observations now within 0.3% pulseheight calibration goal

External Calibration Source (ECS)



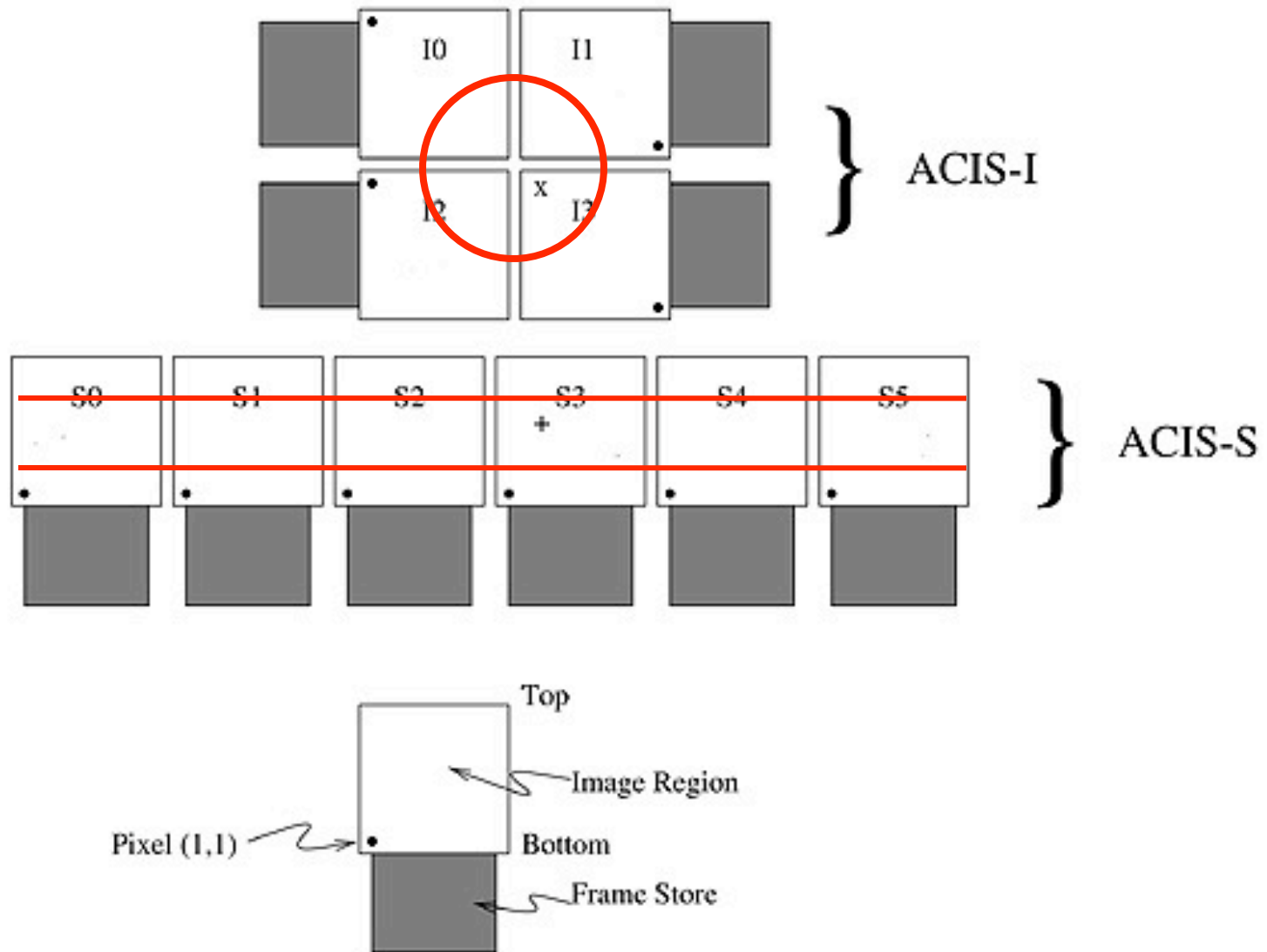
Courtesy of Dan McCammon

Updates to the ACIS contamination Model

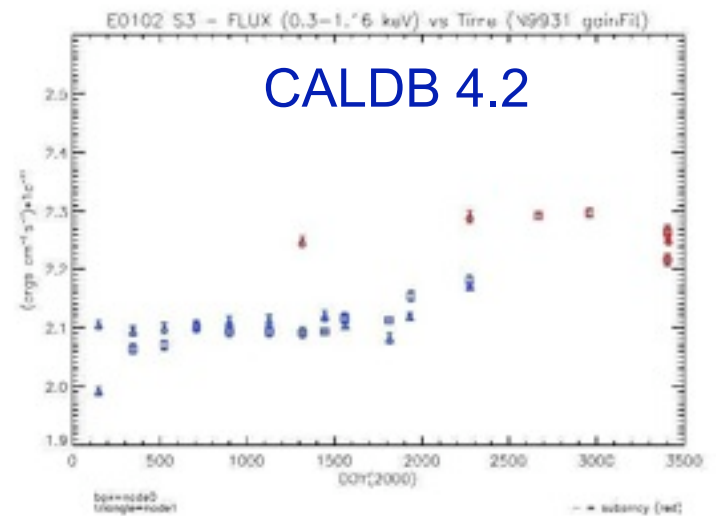
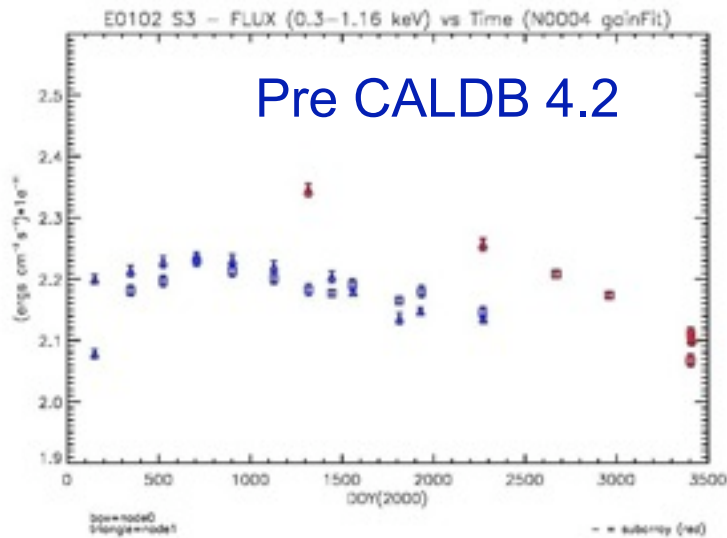


Optical depth of the contaminant at the Mn-L and F-K complex on
ACIS-S

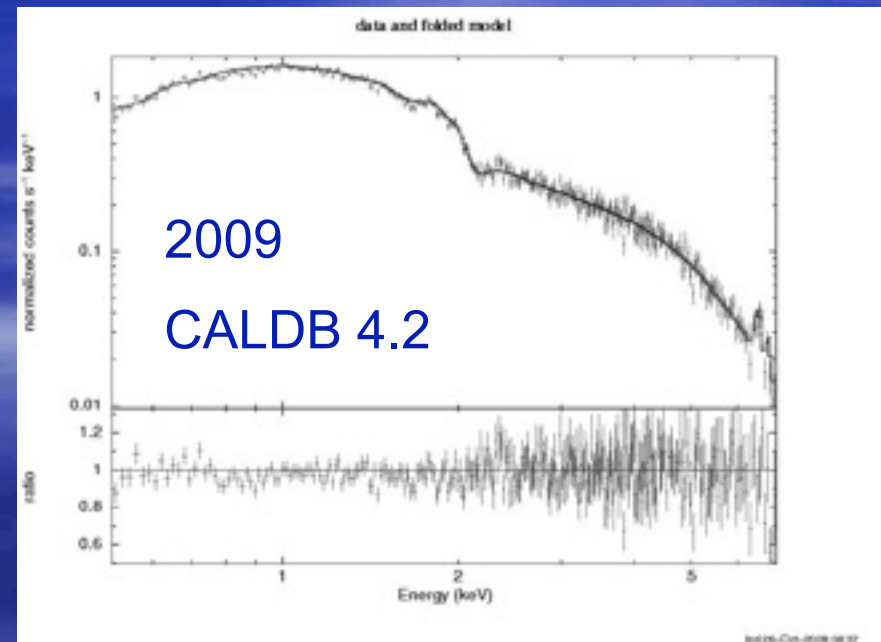
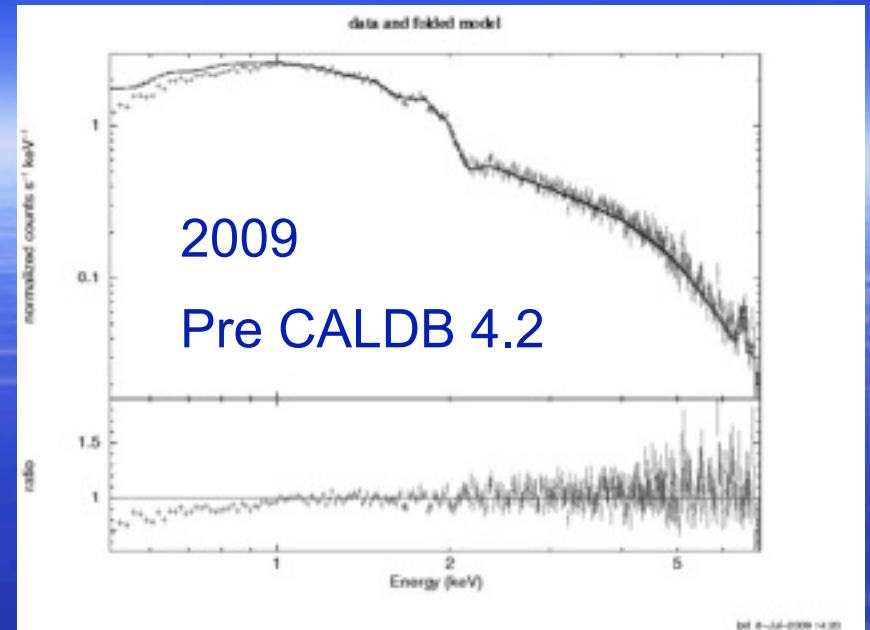
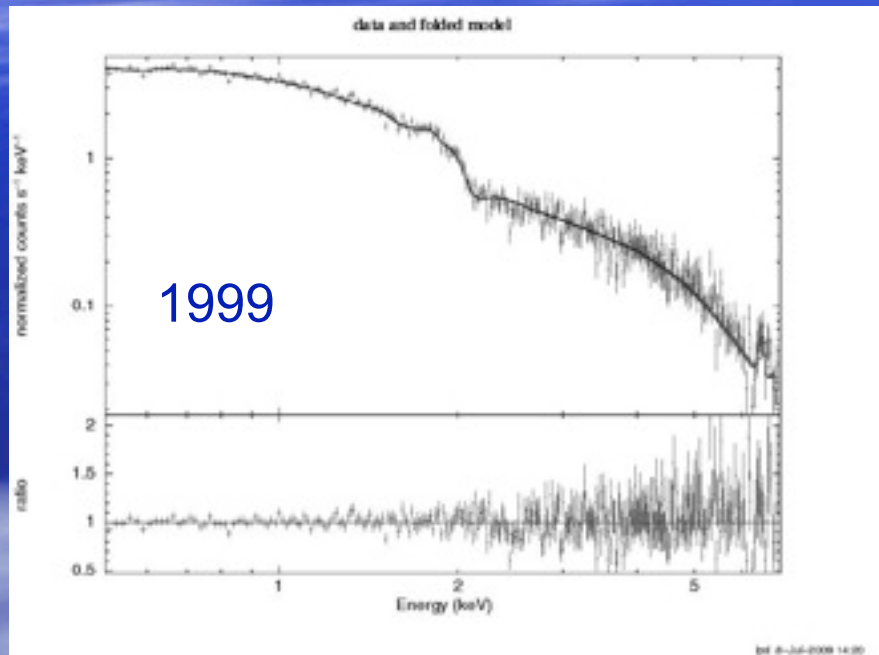
ACIS FLIGHT FOCAL PLANE



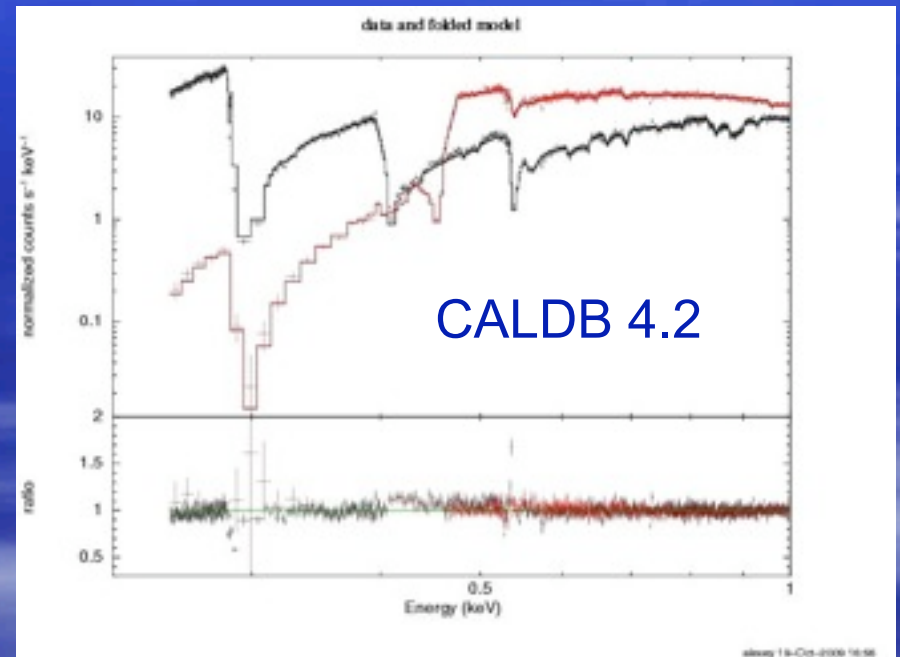
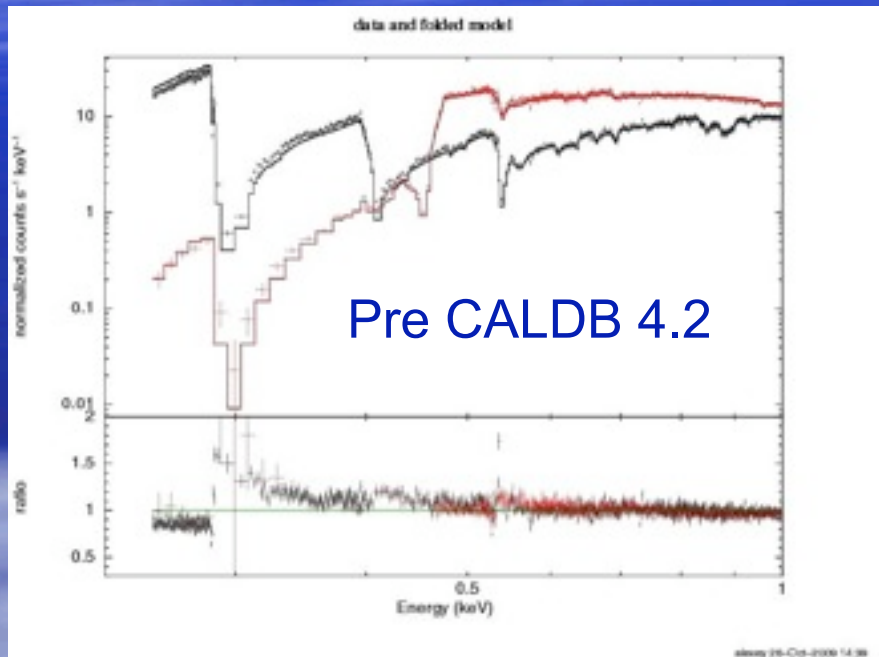
Revised ACIS Contamination Model – CALDB 4.2



The Coma Cluster



LETG/ACIS-S Observation of Mkn 421



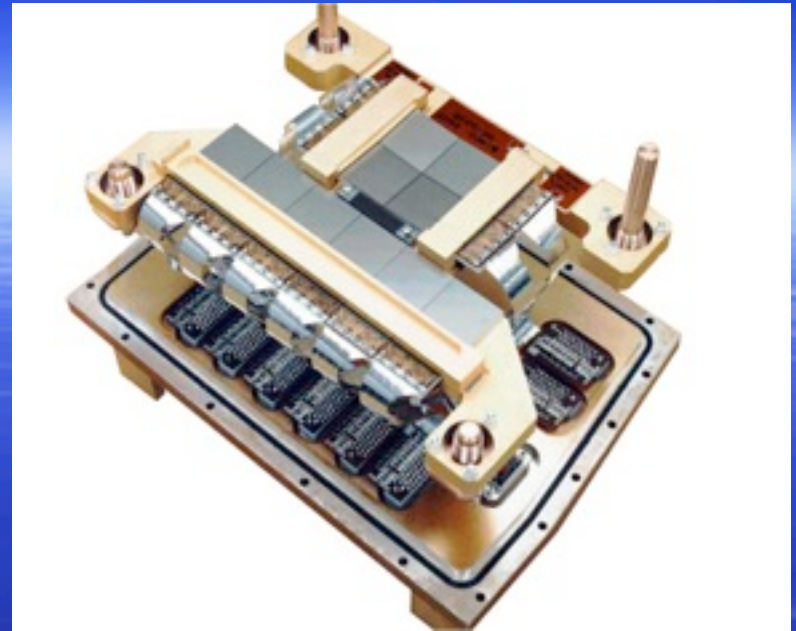
ACIS

Operating Modes

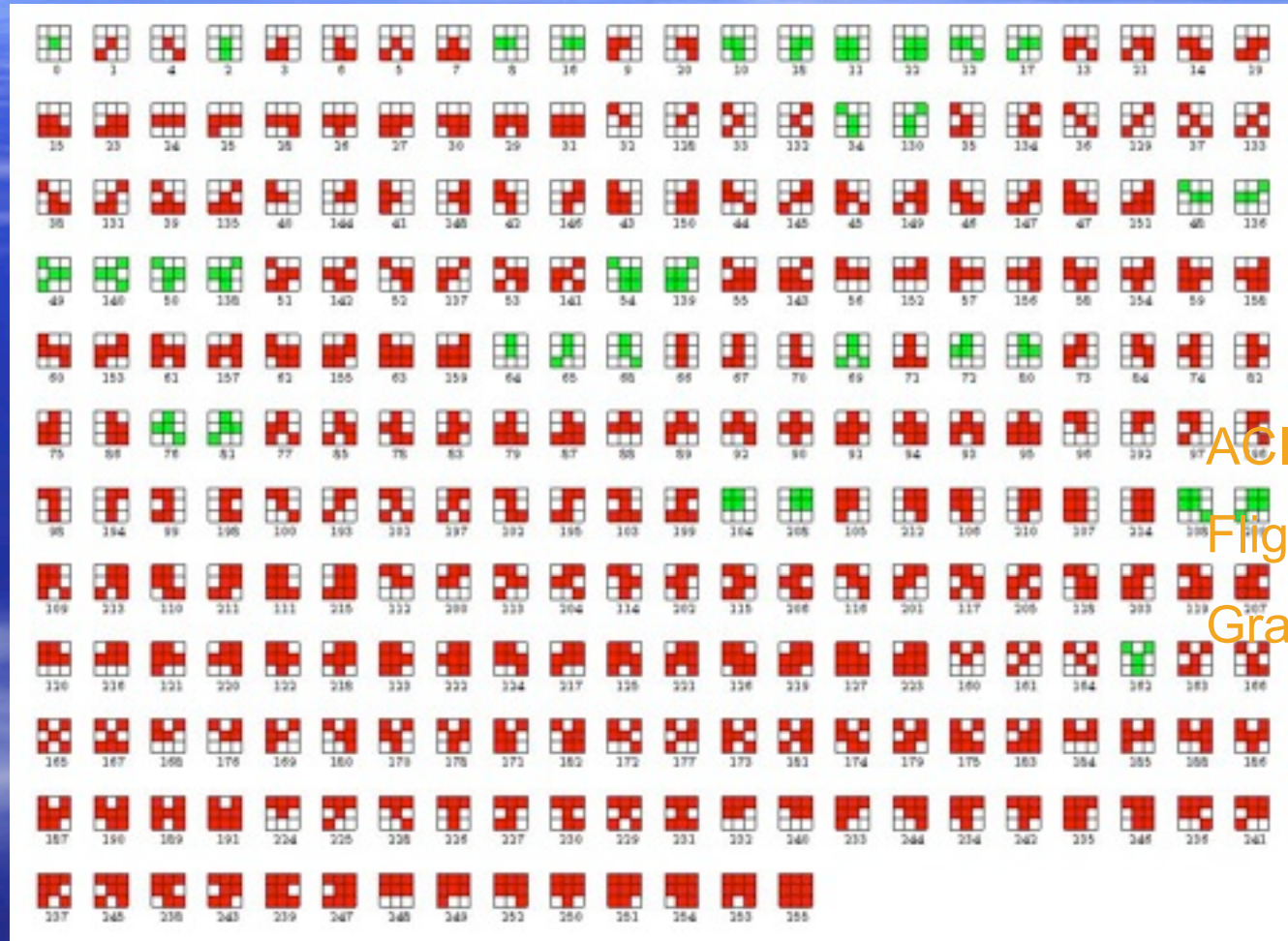
1. Timed event mode (TE)
2. Continuous Clocking Mode (CC)

Telemetry Formats

1. Very faint (VF) 5 x 5
2. Faint (F) 3x3
3. Graded

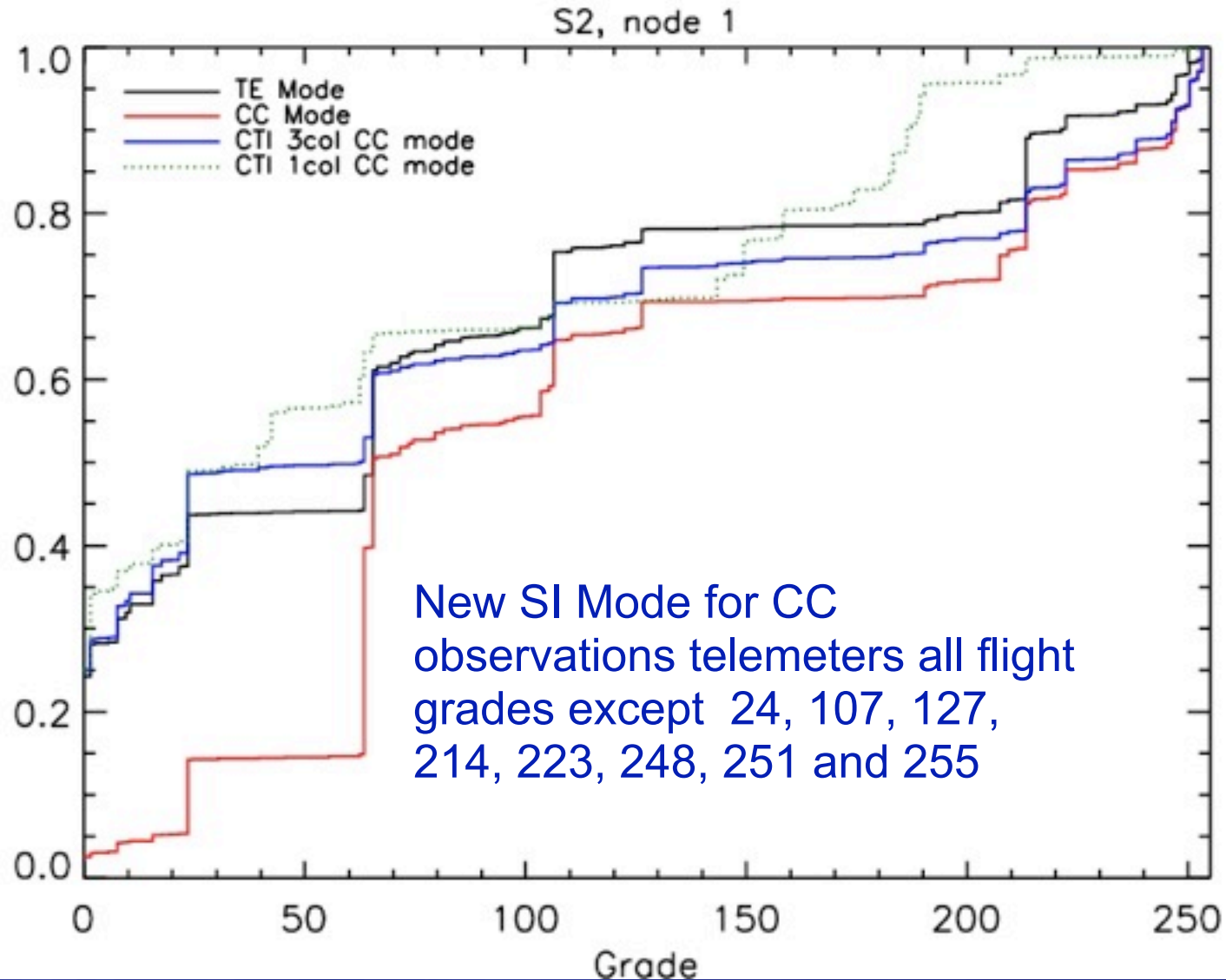


ACIS CC Faint Mode Calibration

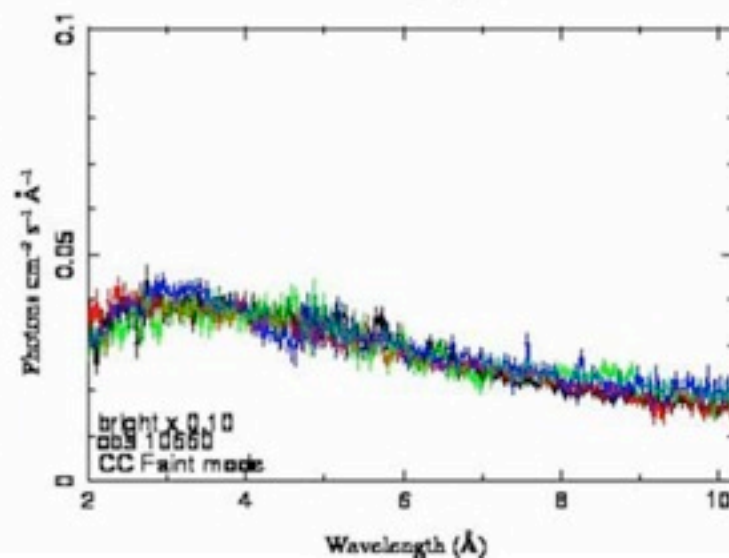
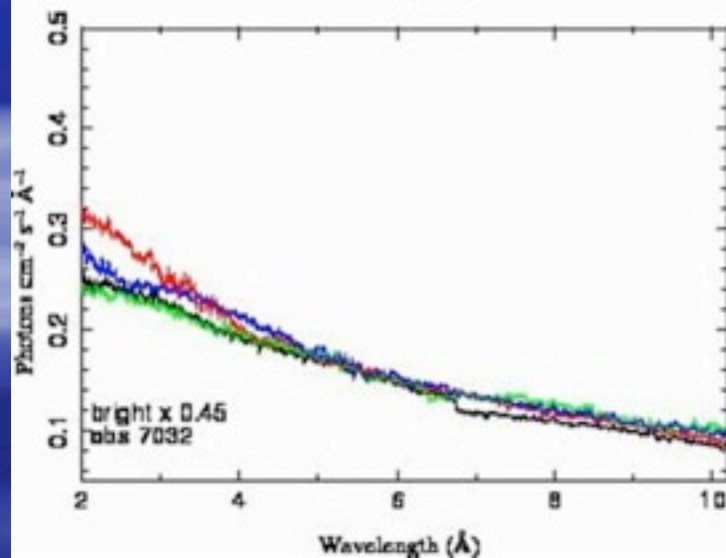
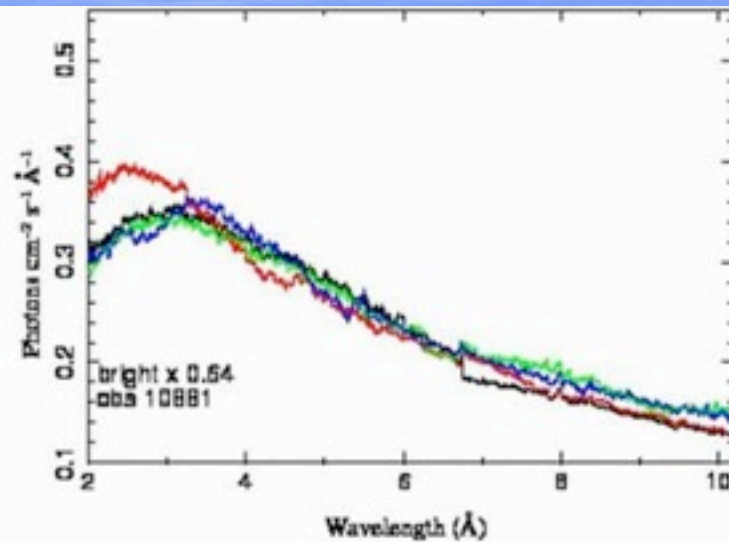
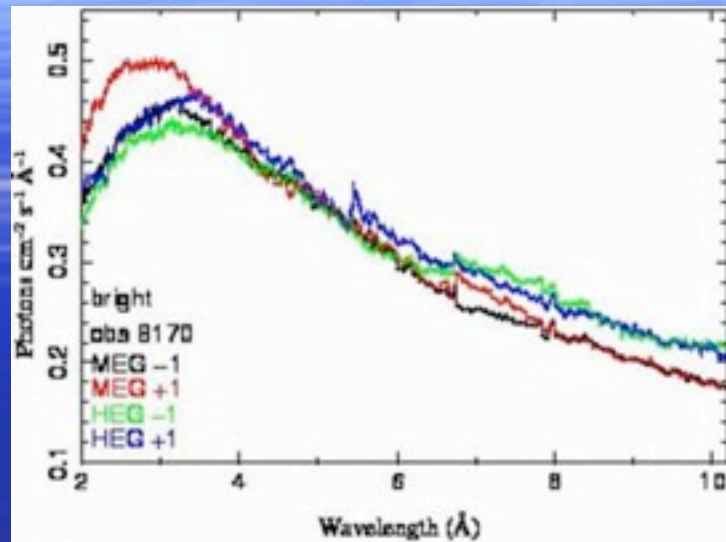


CC Faint Mode Calibration

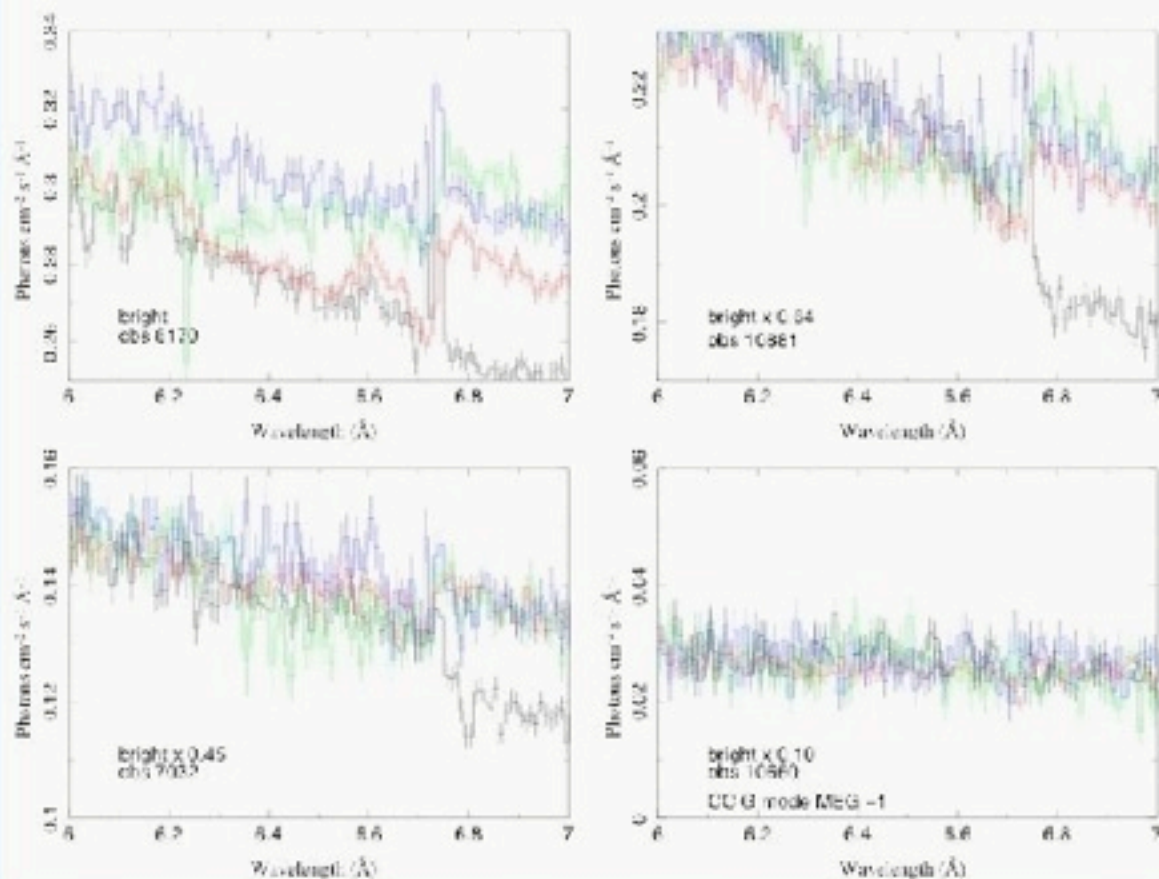
Comparison of TE and CC Flight Grade Distribution



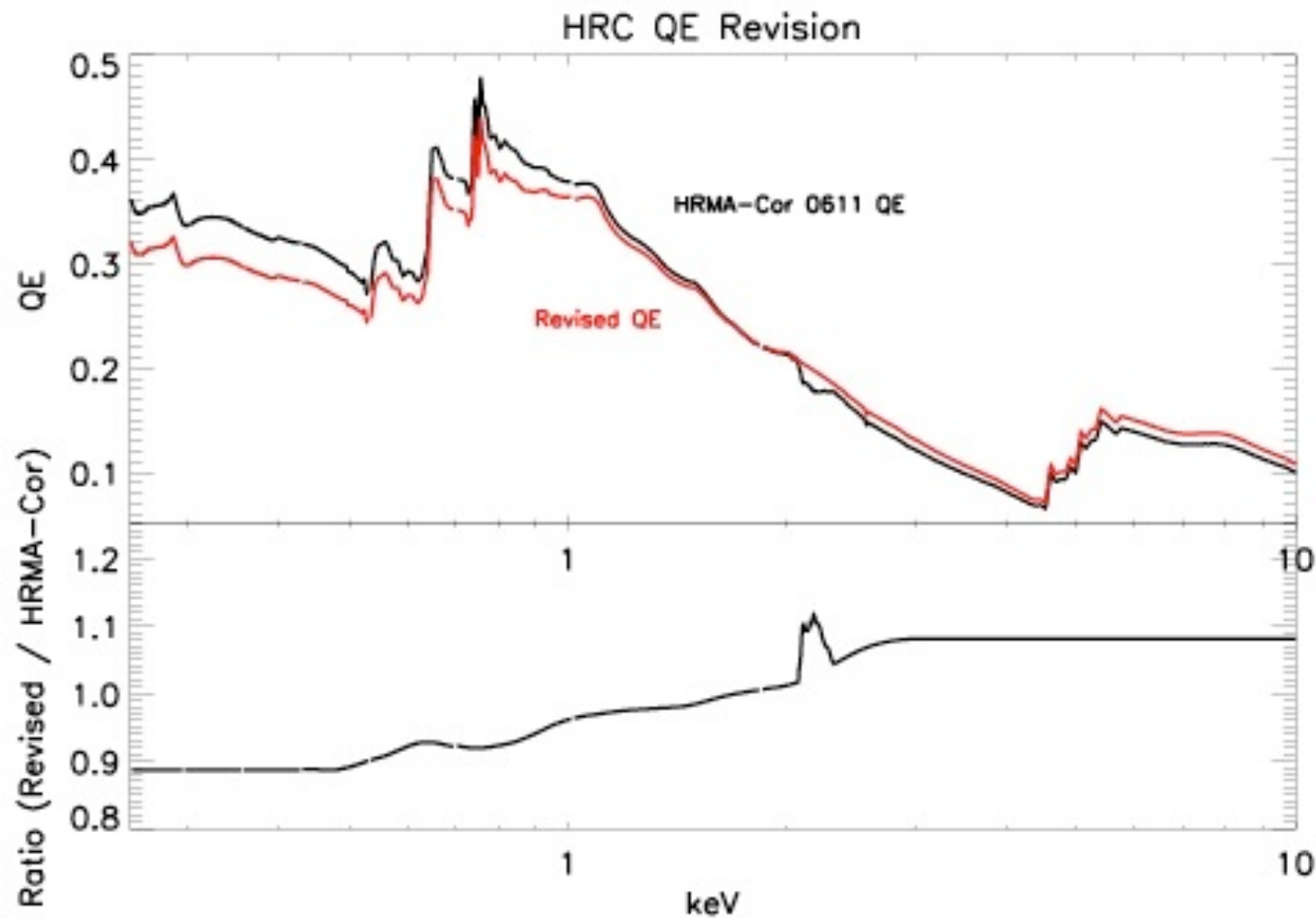
HETG/ACIS-S observations of bright sources in CC-G Mode

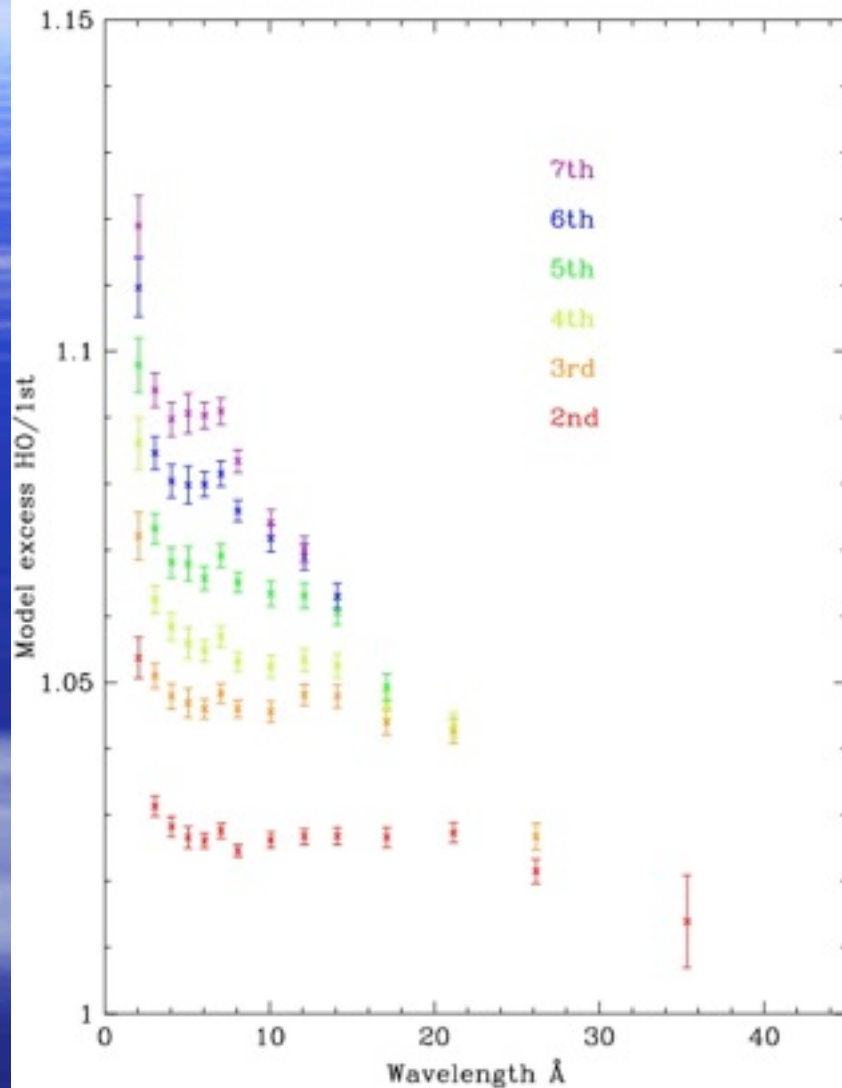


Features near the Si-K edge in HETG/ACIS-S observations of bright sources in CC-G mode



Recent Updates to the LETG/HRC-S Effective Area - CALDB 4.2.1

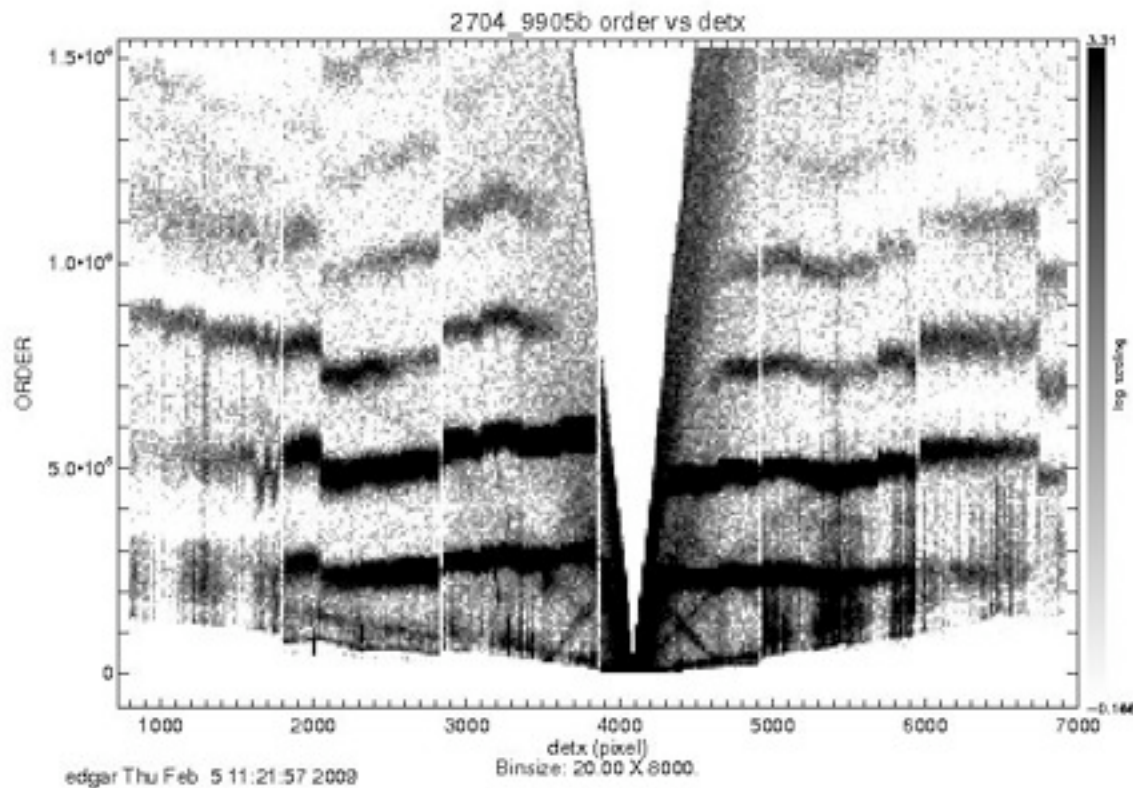




Relative adjustments to the LETG higher order efficiencies

Order sorting plot for HETG/ACIS-S spectrum

3 column averaged trap map



Single column trap maps are now being generated for CC-F mode data based on the AL-Ka line in the ECS data