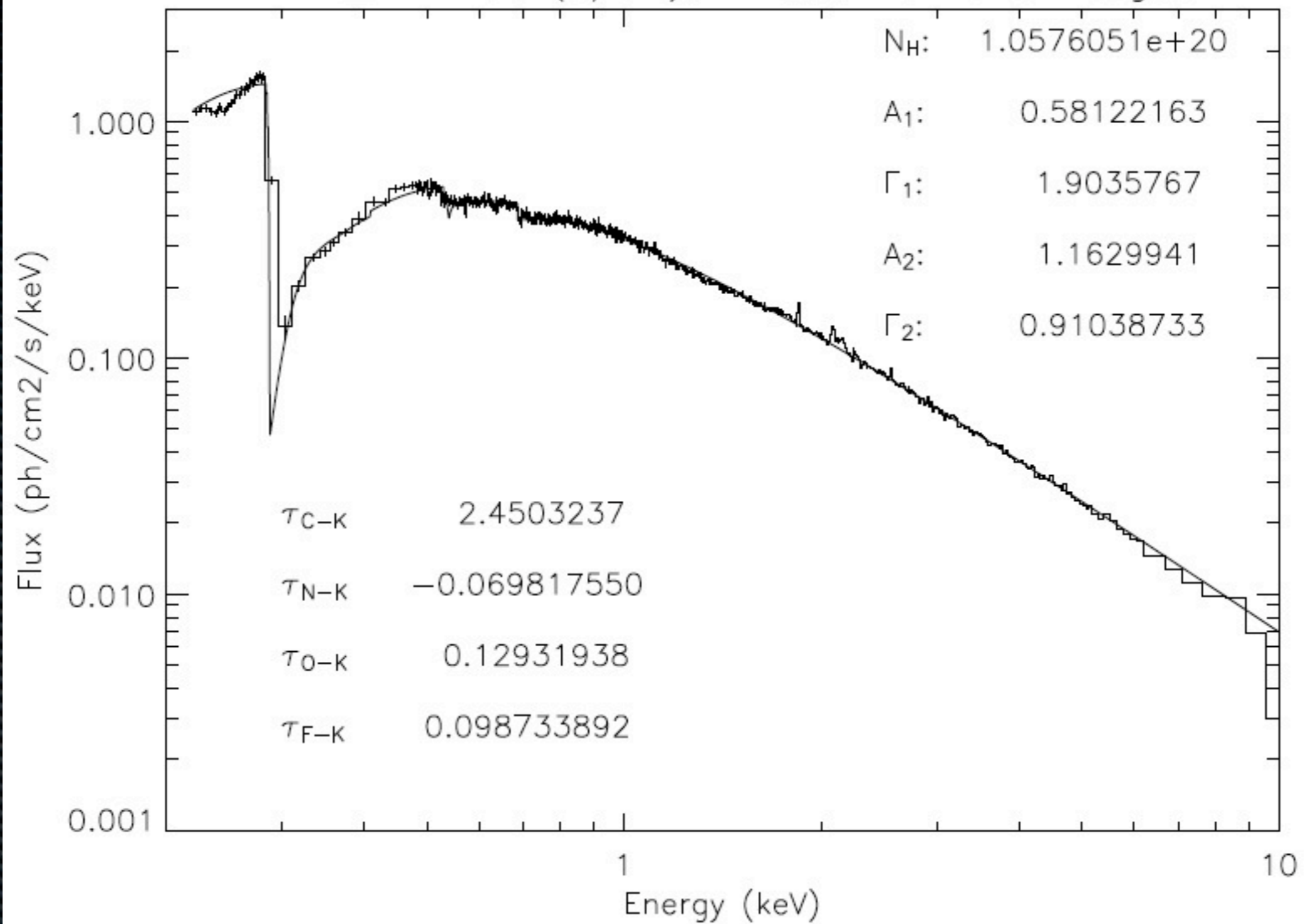


Contamination Working Group

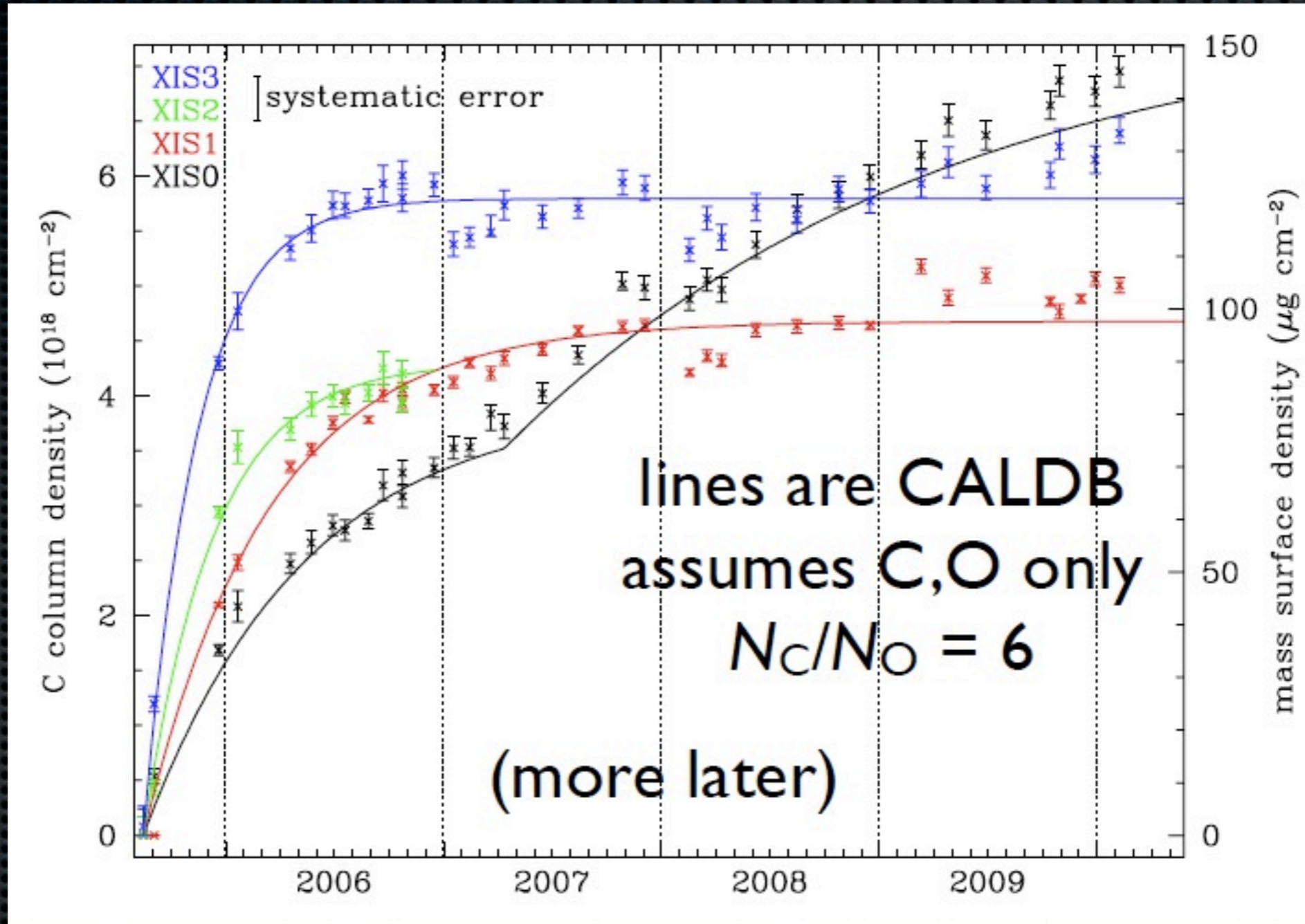
Who's got it?

- ✦ Einstein SSS (ice)
- ✦ ASCA (Hydrocarbon)
- ✦ Chandra ACIS and HRMA
- ✦ XMM RGS
- ✦ Suzaku
- ✦ Hinode
- ✦ Hubble WFC3/IR

Mk 421 LETGS (5/04), LETGS, with CNOF edges



Suzaku

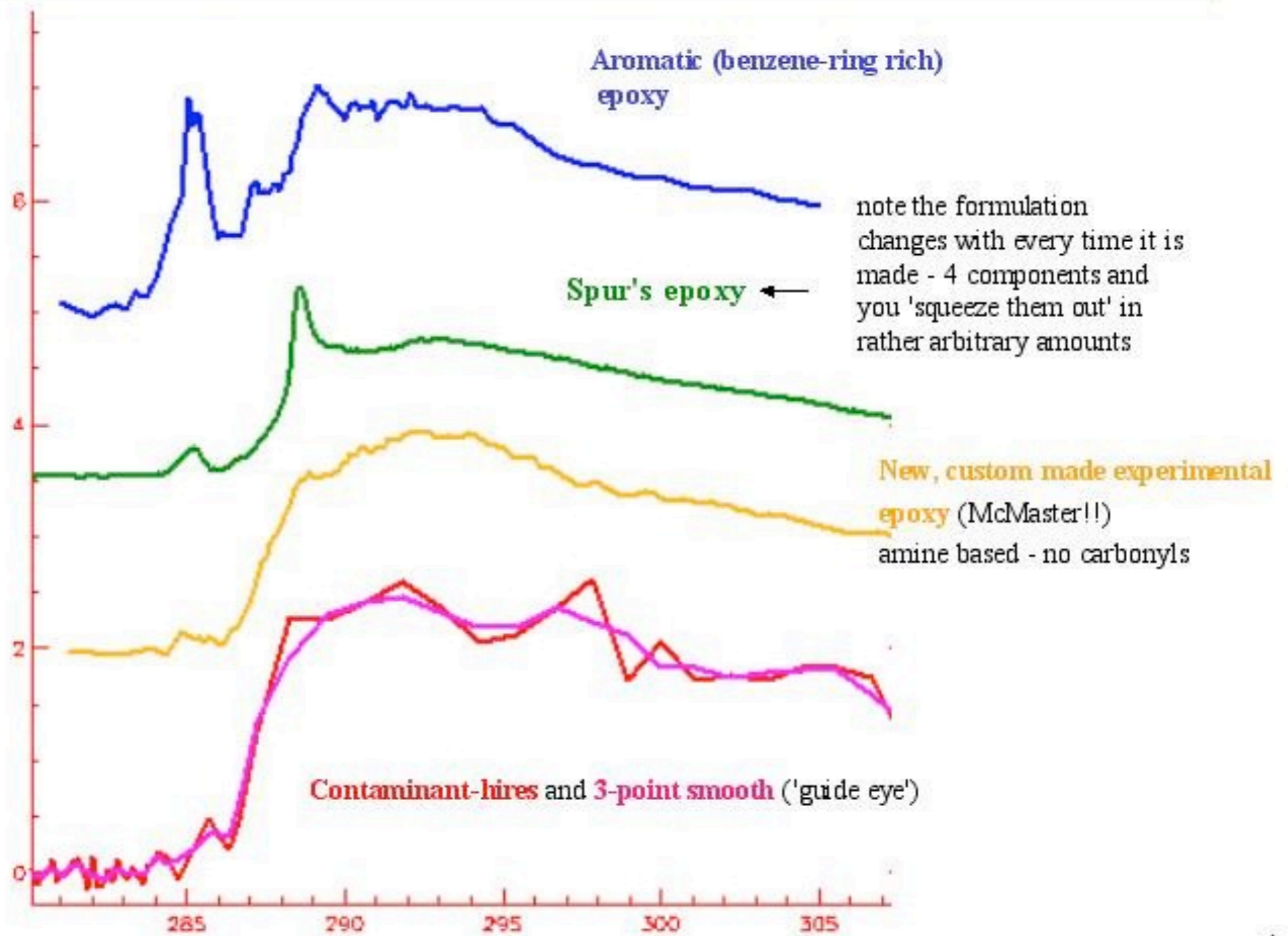


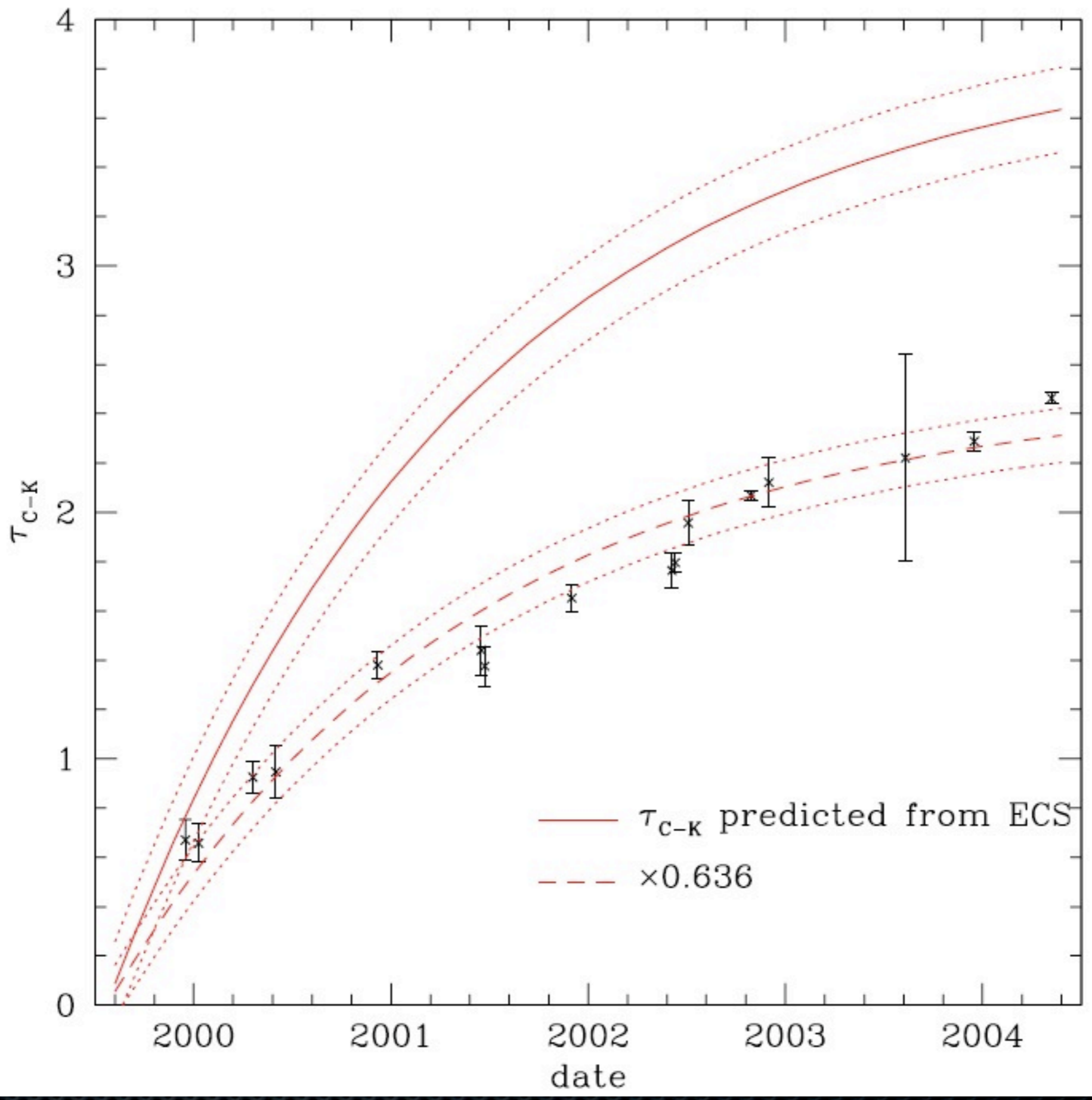
from Eric Miller

What is it?

- ✦ Generally unknown --> often composition is assumed
- ✦ Chandra (using LETG/ACIS)
 - ✦ $n(\text{C})/n(\text{O}) = 11.5 \pm 1$
 - ✦ $n(\text{C})/n(\text{O}) = 14 \pm 1$
 - ✦ $n(\text{C})/n(\text{N}) > 30$
 - ✦ Weak/no 285 eV absorption --> not aromatic HC
 - ✦ Spatially/temporally variable

Comparison of 3 different epoxies to high resolution ACIS data

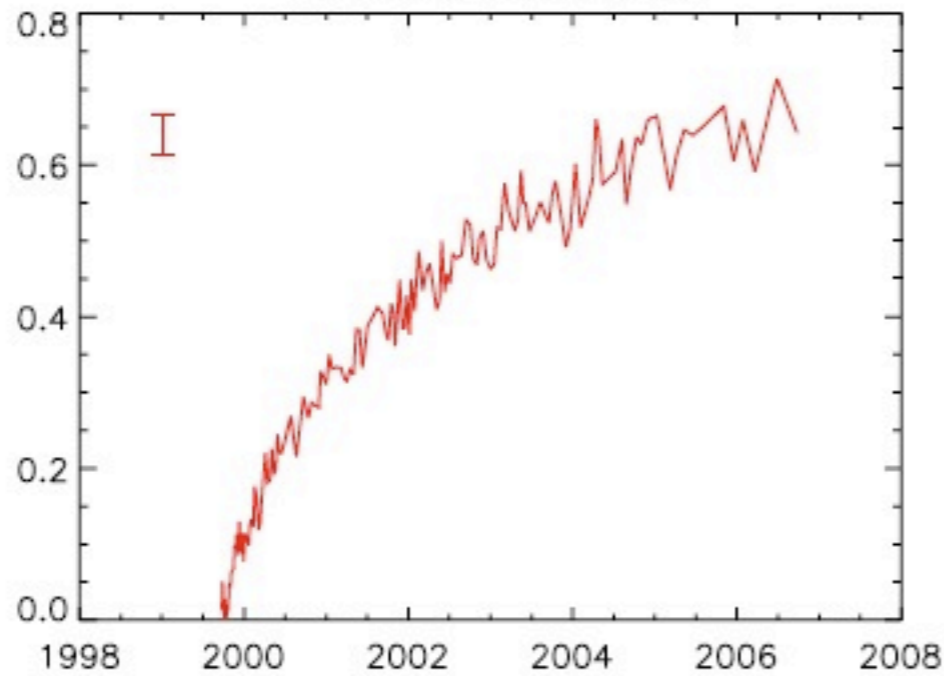




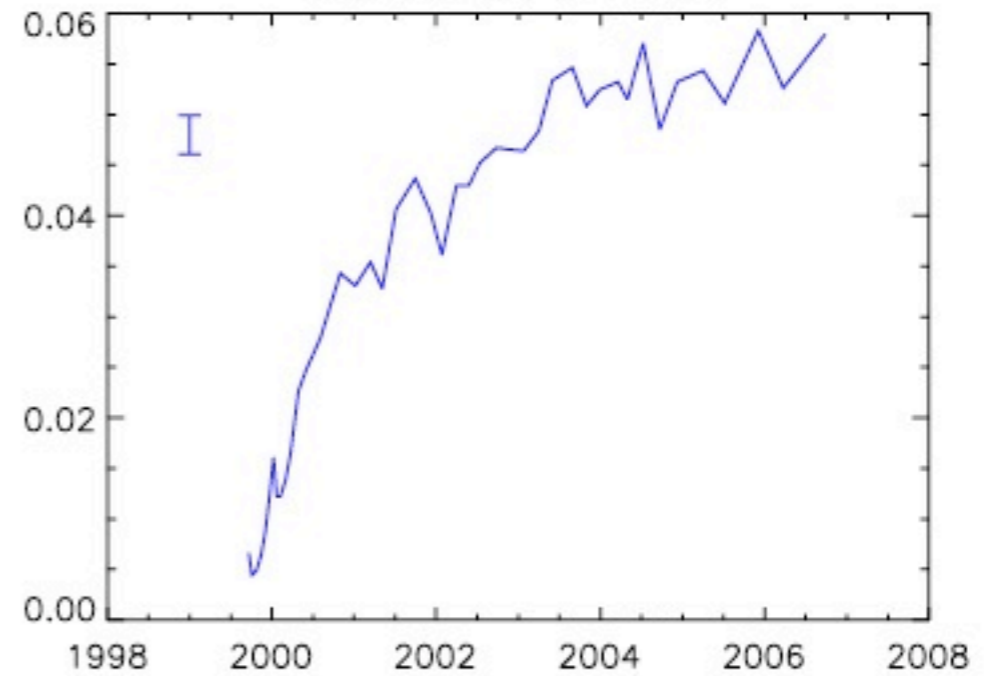
Problems

- ✦ Chandra
 - ✦ Optical depths grow differently
 - ✦ Single CFO model doesn't fit
- ✦ Suzaku
 - ✦ Growth rates vary by detector
 - ✦ Composition may vary temporally
- ✦ Other satellites: clumped in blobs

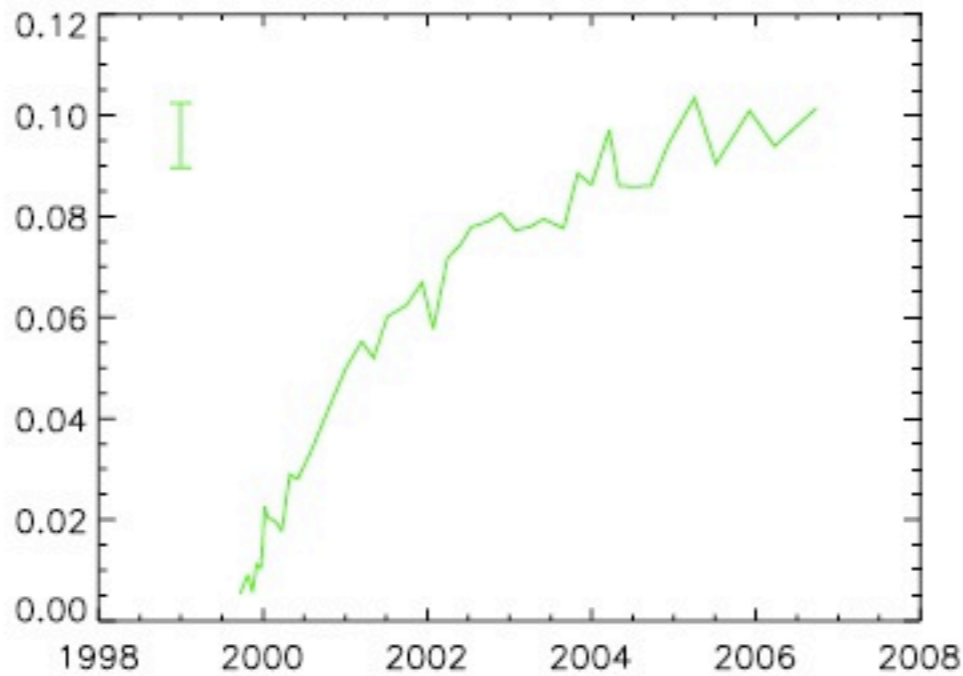
700 eV S3 Full CCD



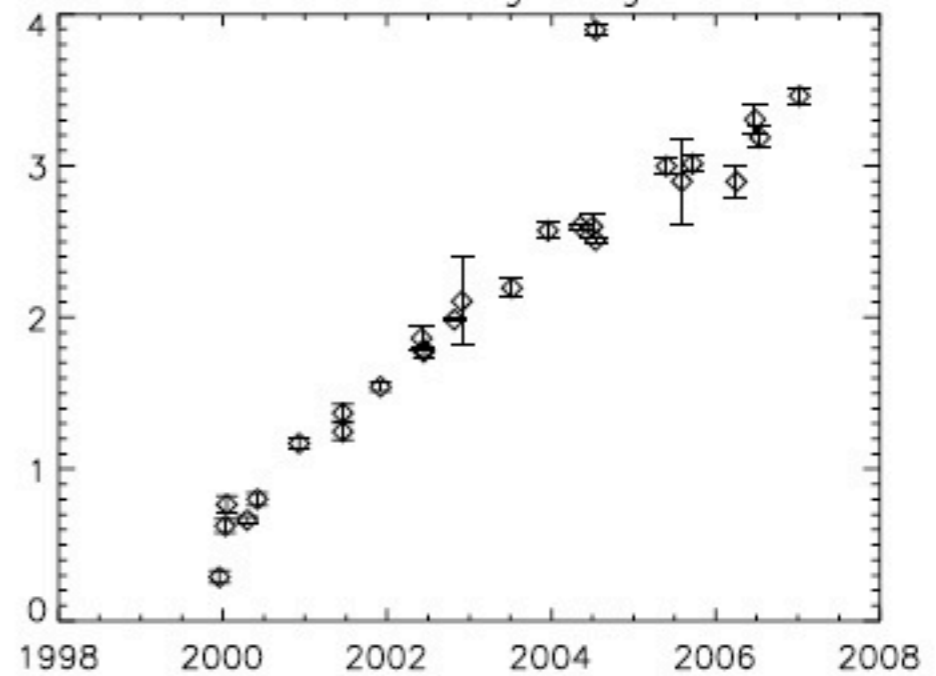
1.5 keV S3 Full CCD



1.5 keV S3 Bottom 100 Rows



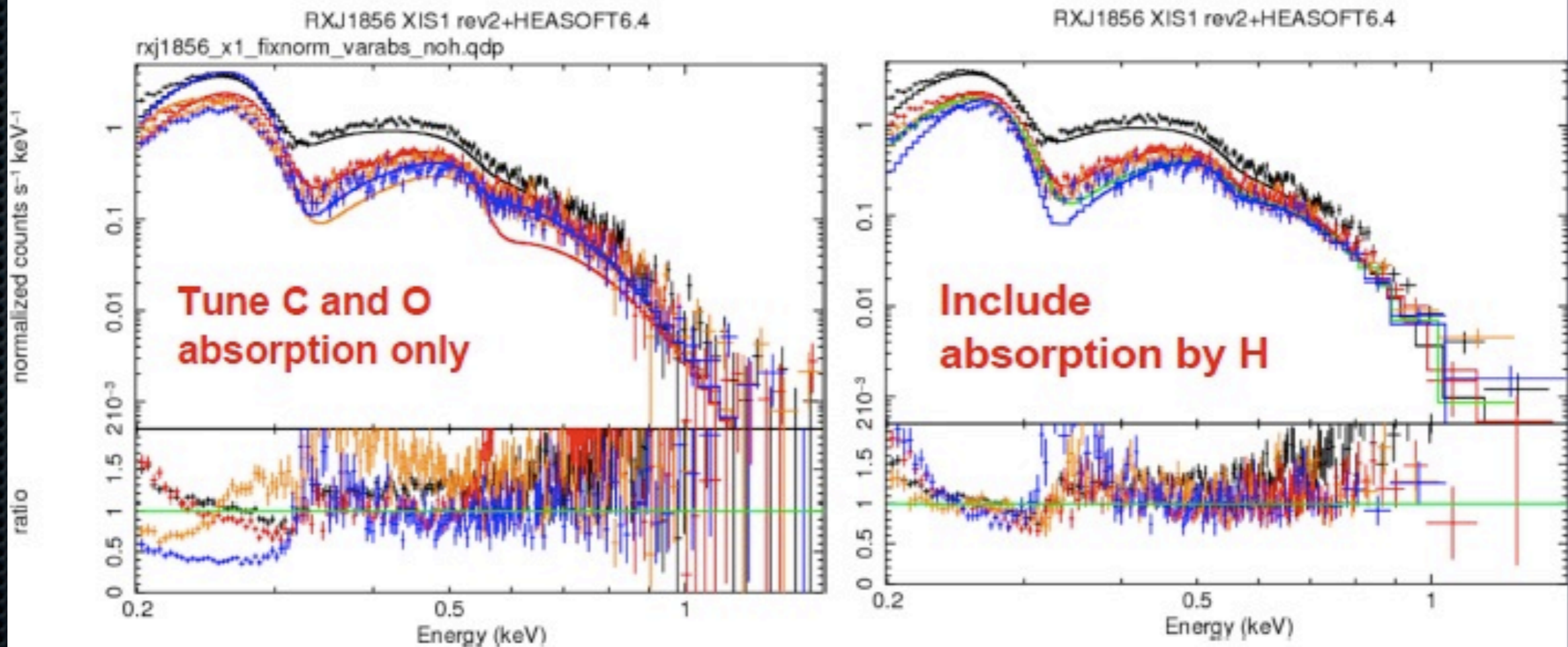
C-K from gratings



Suzaku

Factor of 2 underestimate below 0.3keV

- Unable to improve the fit only with C & O
- Absorption by Heavier Element **No apparent edge found**
- **Absorption by H** (or He) but **too much $\sim 10^{21} \text{cm}^2$**
- Constant Factor (Grating Problem at low energy?)



Remaining Problems

- ✦ Chandra
 - ✦ Different models for ACIS-I, ACIS-S
 - ✦ Arbitrary spectral component added (“gaussium”)
- ✦ Suzaku
 - ✦ compositional variation
 - ✦ small, rapid changes
- ✦ Others?