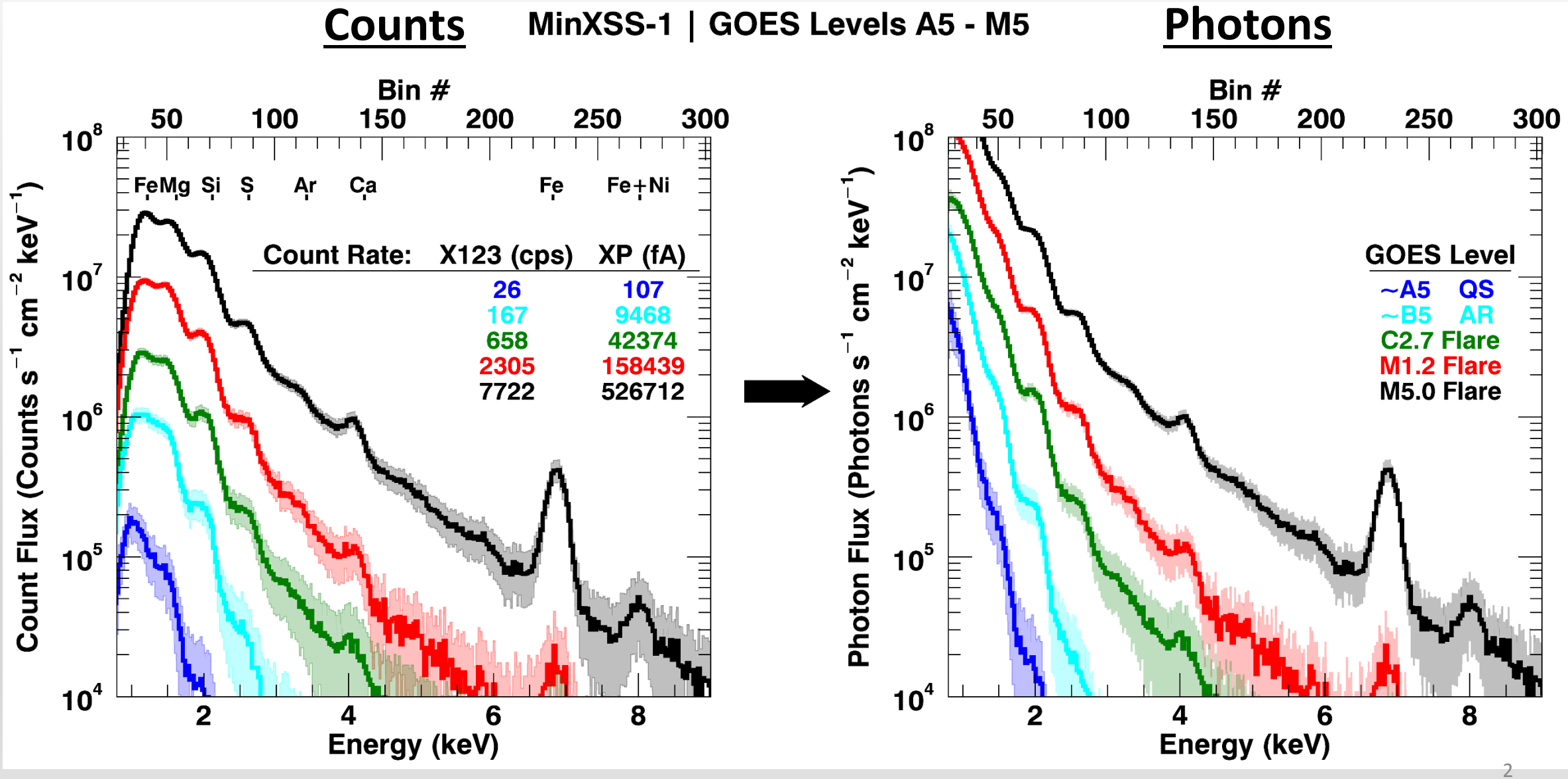
MinXSS X123 and XP Temperature Response and EM Loci Basics

Chris Moore – February 2017

Outputs from IDL functions

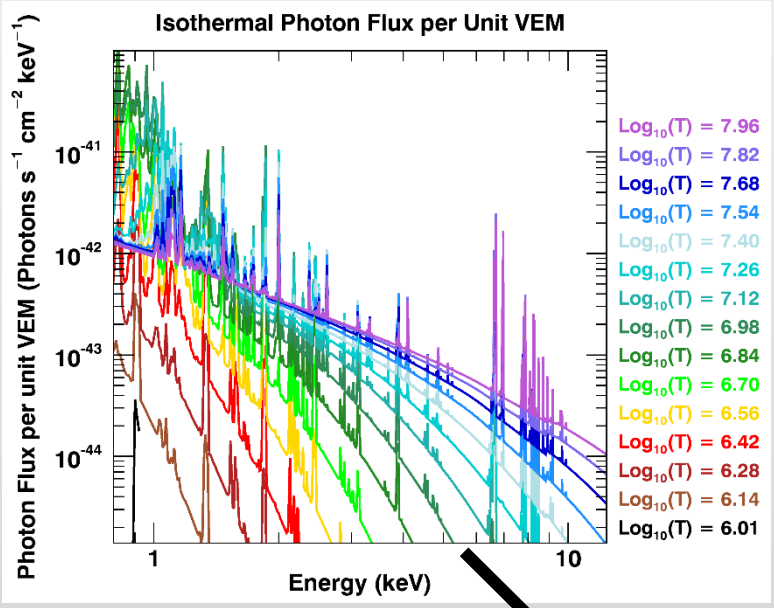
- **minxss_x123_temperature_response**
- **minxss_x123_em_loci**
- **minxss_xp_temperature_response**
- **minxss_xp_em_loci**

MinXSS Measurements



MinXSS Temperature Response

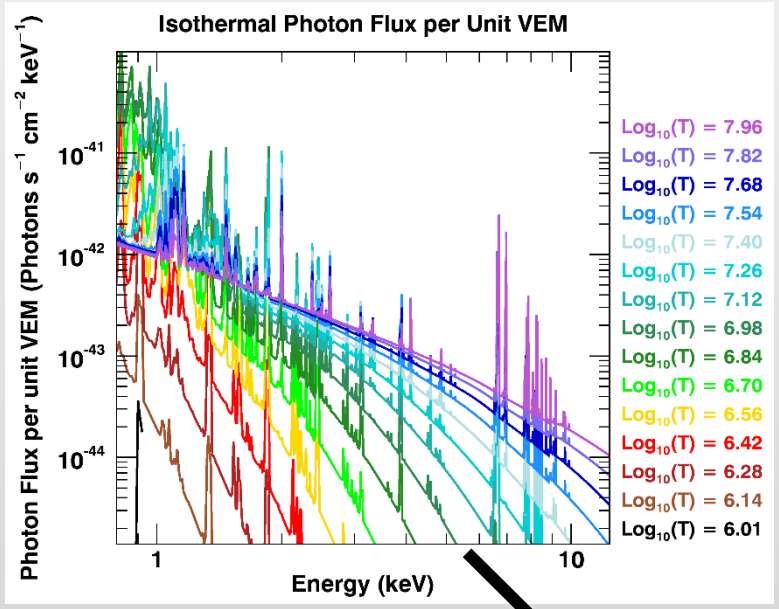
Model Photon Flux



$$\int_{E_{min,j}}^{E_{max,j}} \left[\int_0^{\infty} \int^{\Omega_\odot} S(E_{ph}, \Omega, T) A_{X123} \overline{\Re}_{X123}(E_{ph}, \Omega, E_{det}) d\Omega dE_{ph} \right] dE_{det} = F(T)_{X123\ bin,j}$$

MinXSS Temperature Response

Model Photon Flux



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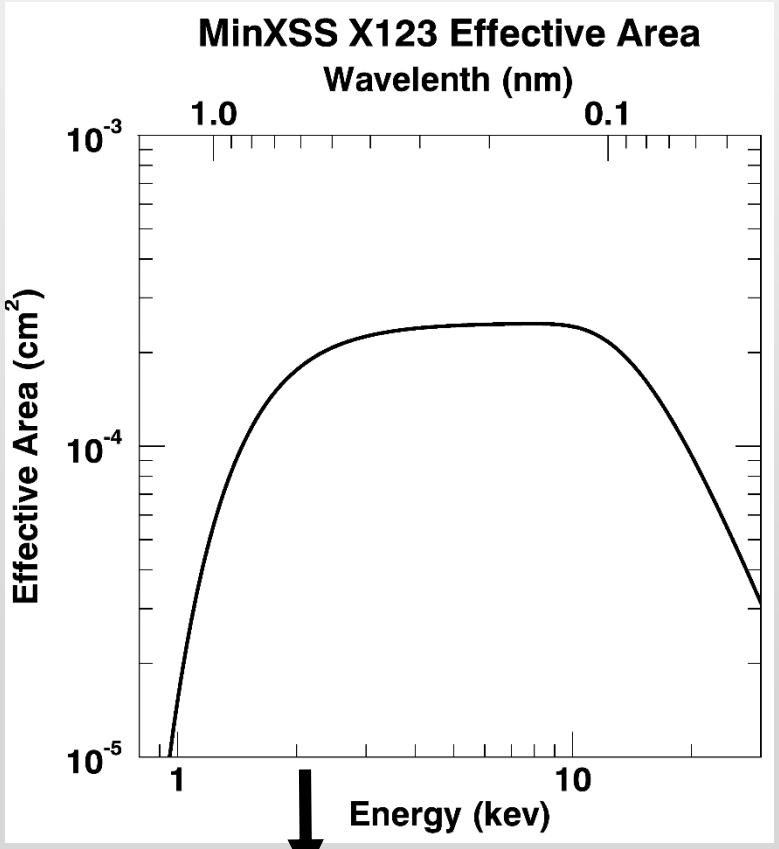
Effective Area



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MinXSS Temperature Response

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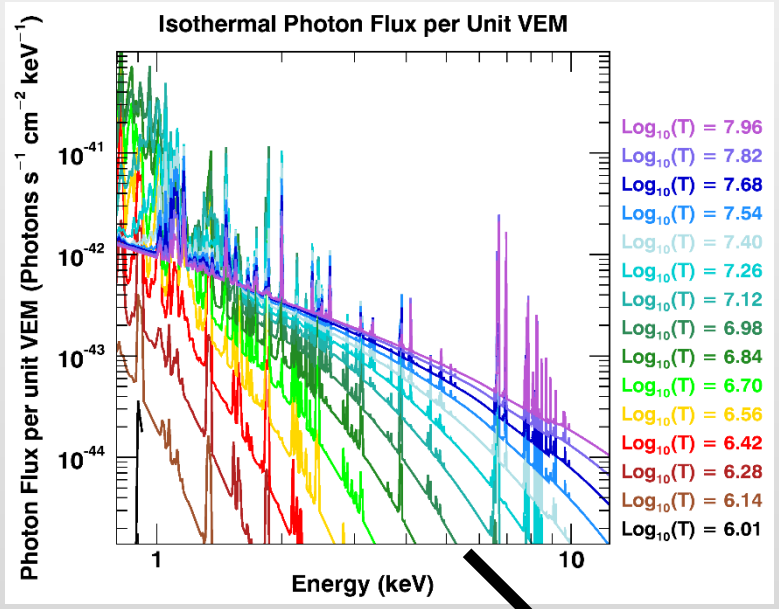

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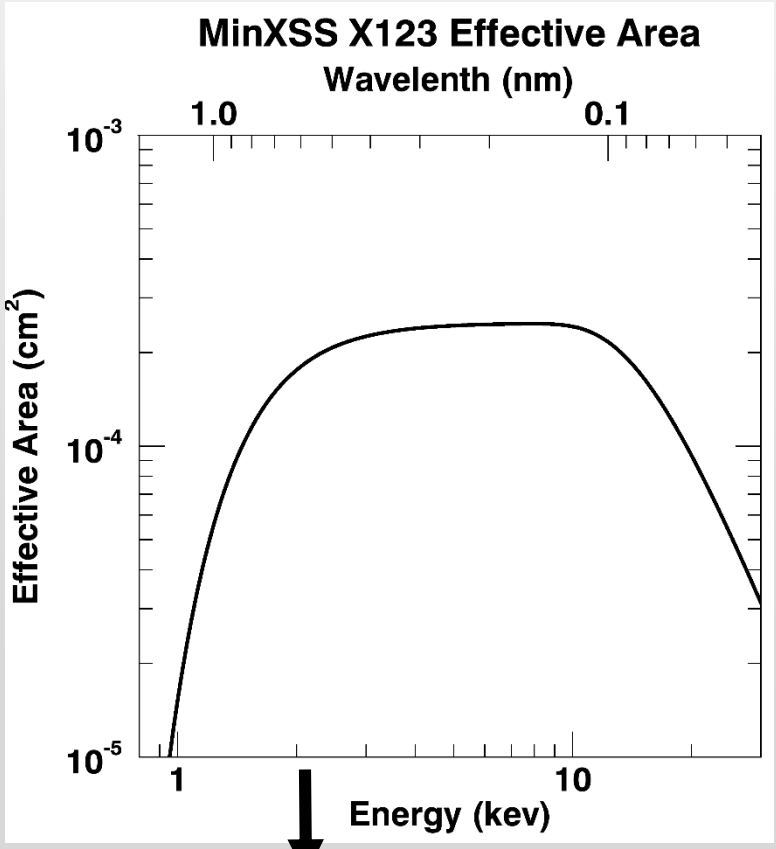
Effective Area



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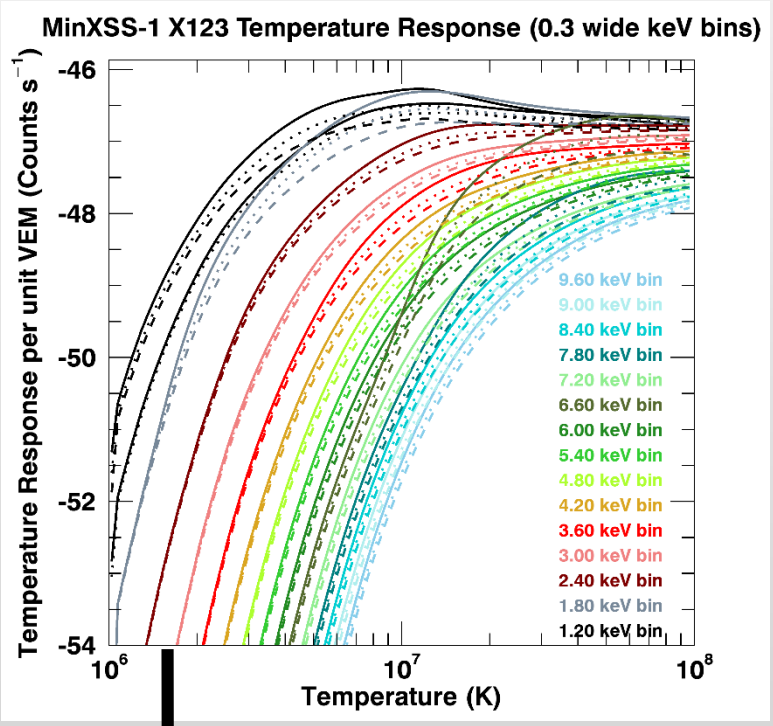
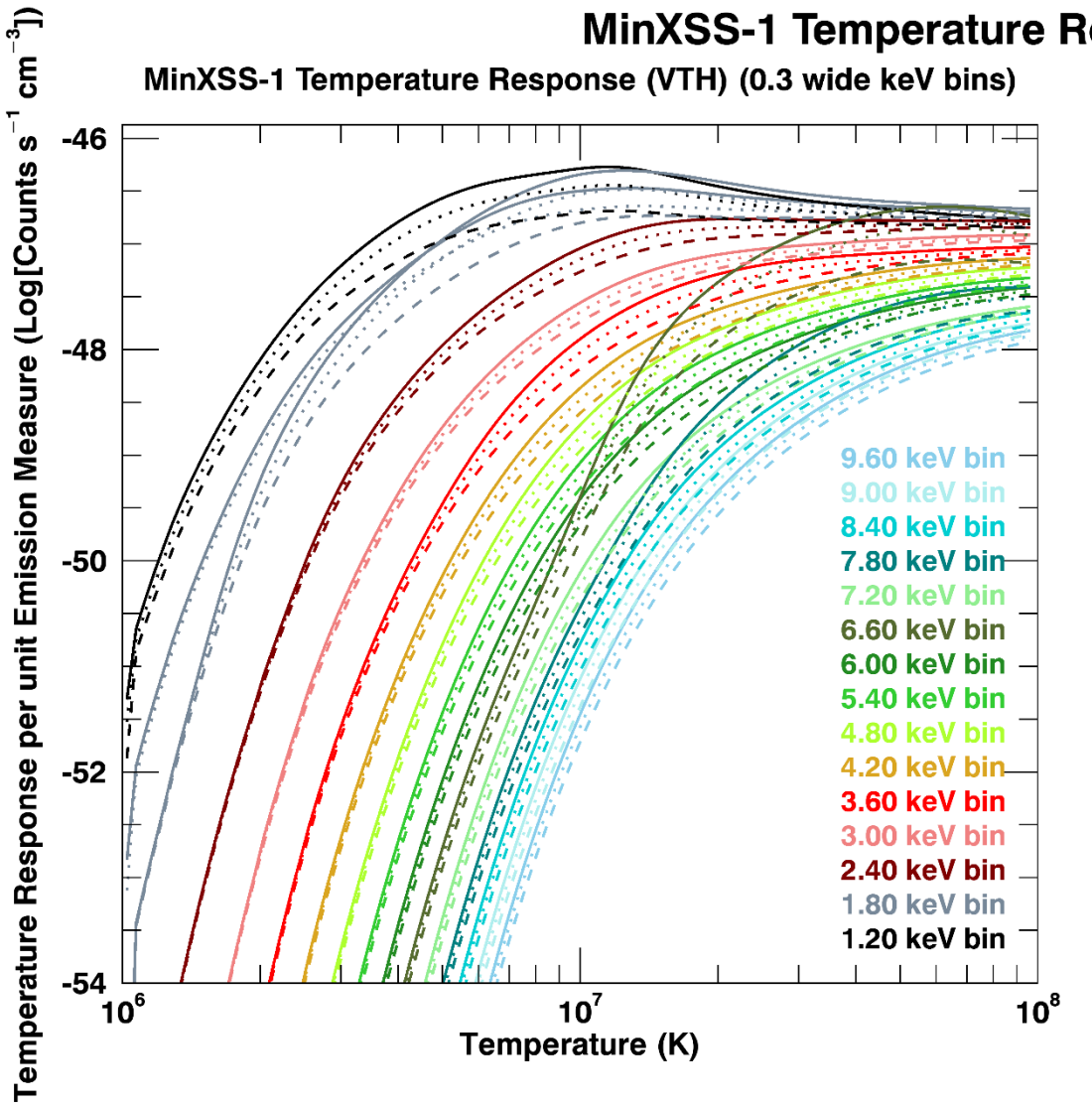
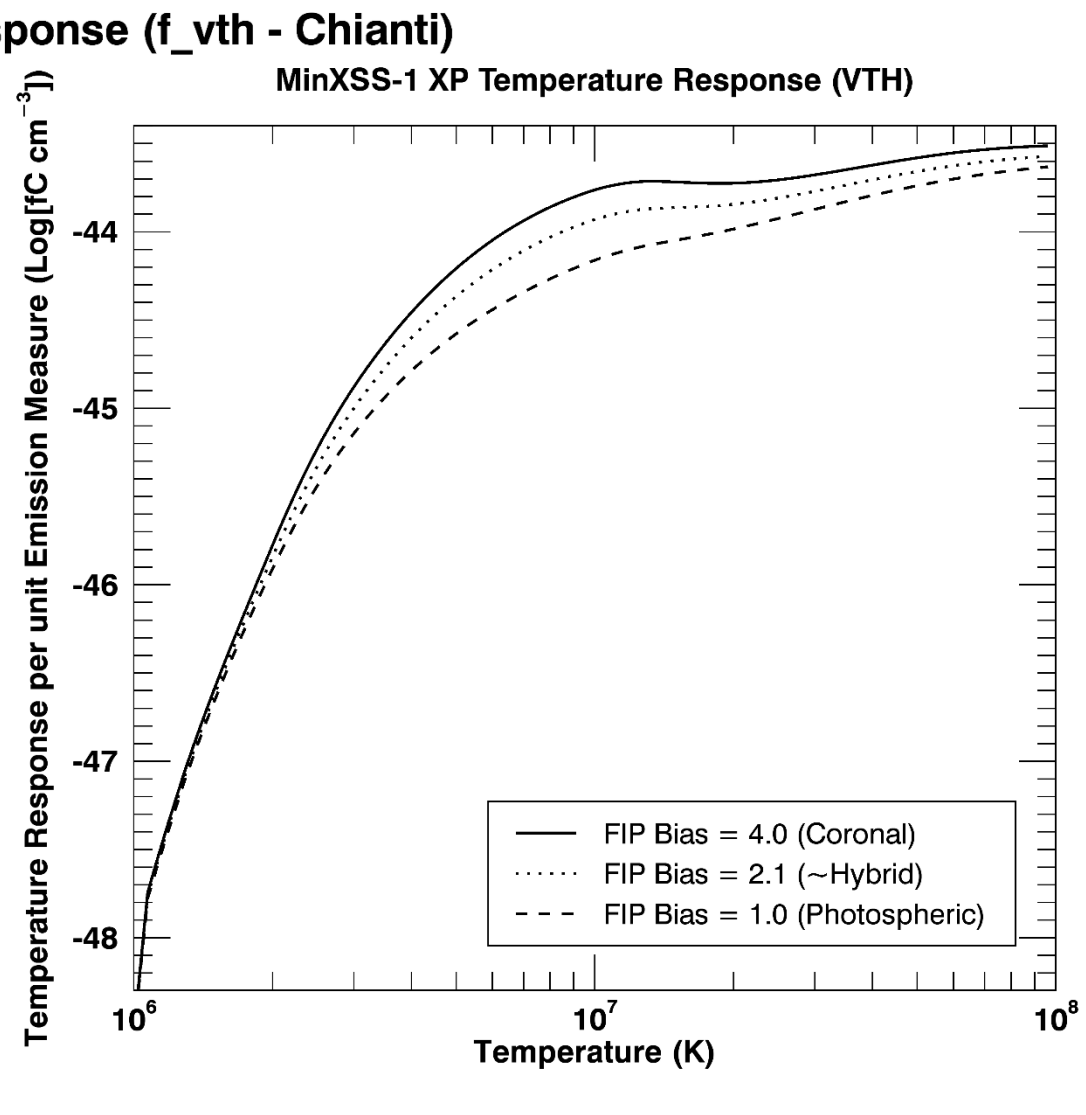
Temperature Response



$$\int_{E_{min,j}}^{E_{max,j}} \left[\int_0^{\infty} \int^{\Omega_\odot} S(E_{ph}, \Omega, T) A_{X123} \overline{\Re}_{X123}(E_{ph}, \Omega, E_{det}) d\Omega dE_{ph} \right] dE_{det} = F(T)_{X123\ bin,j}$$

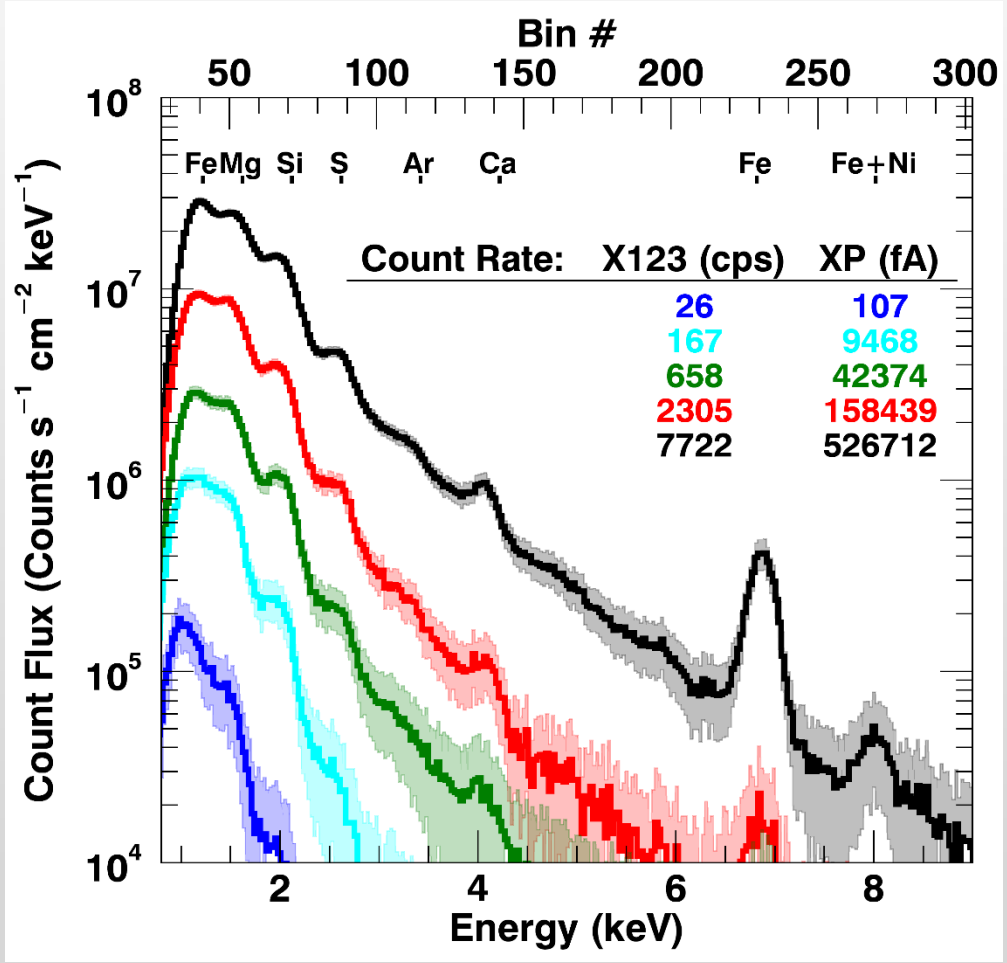
MinXSS Temperature Response

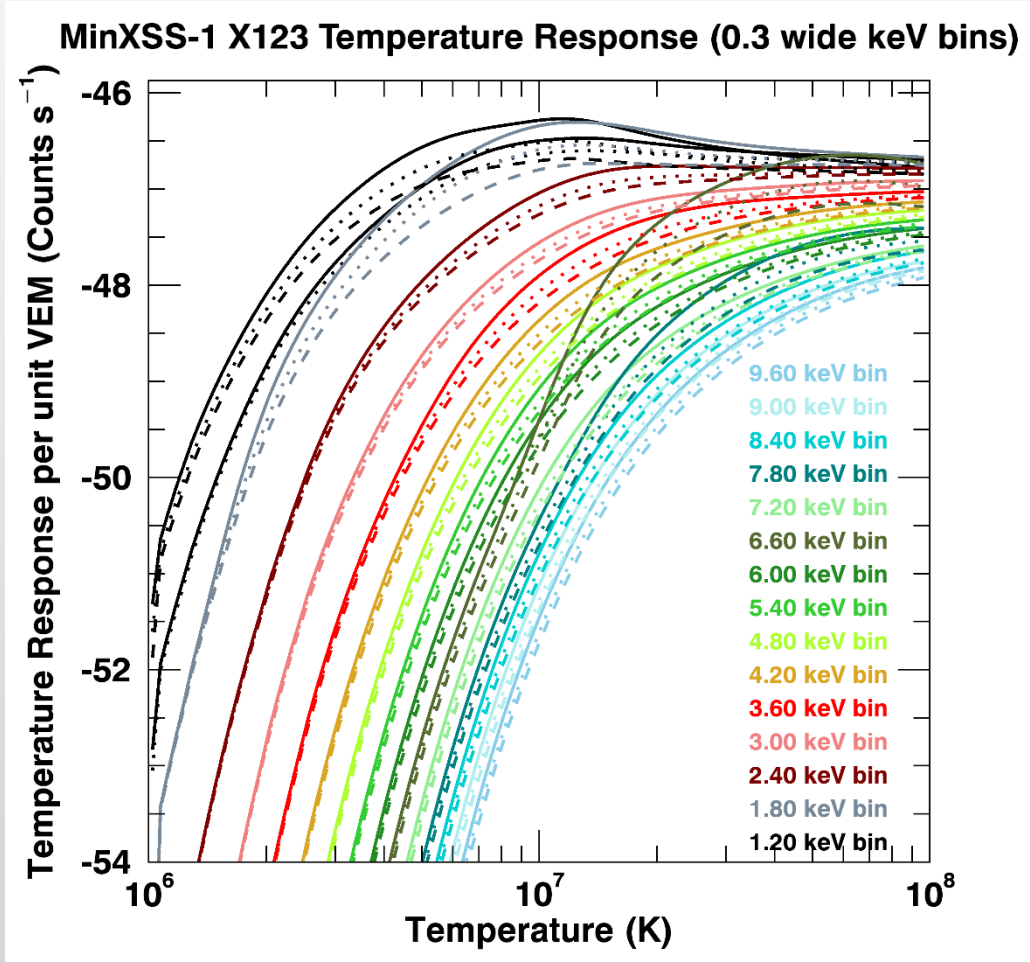




MinXSS-1 Temperature Response (f_vth - Chianti)

MinXSS Emission Measure (EM) Loci Calculation





$$Em\_Loci = \frac{Signal}{F(T)}$$

MinXSS EM Loci

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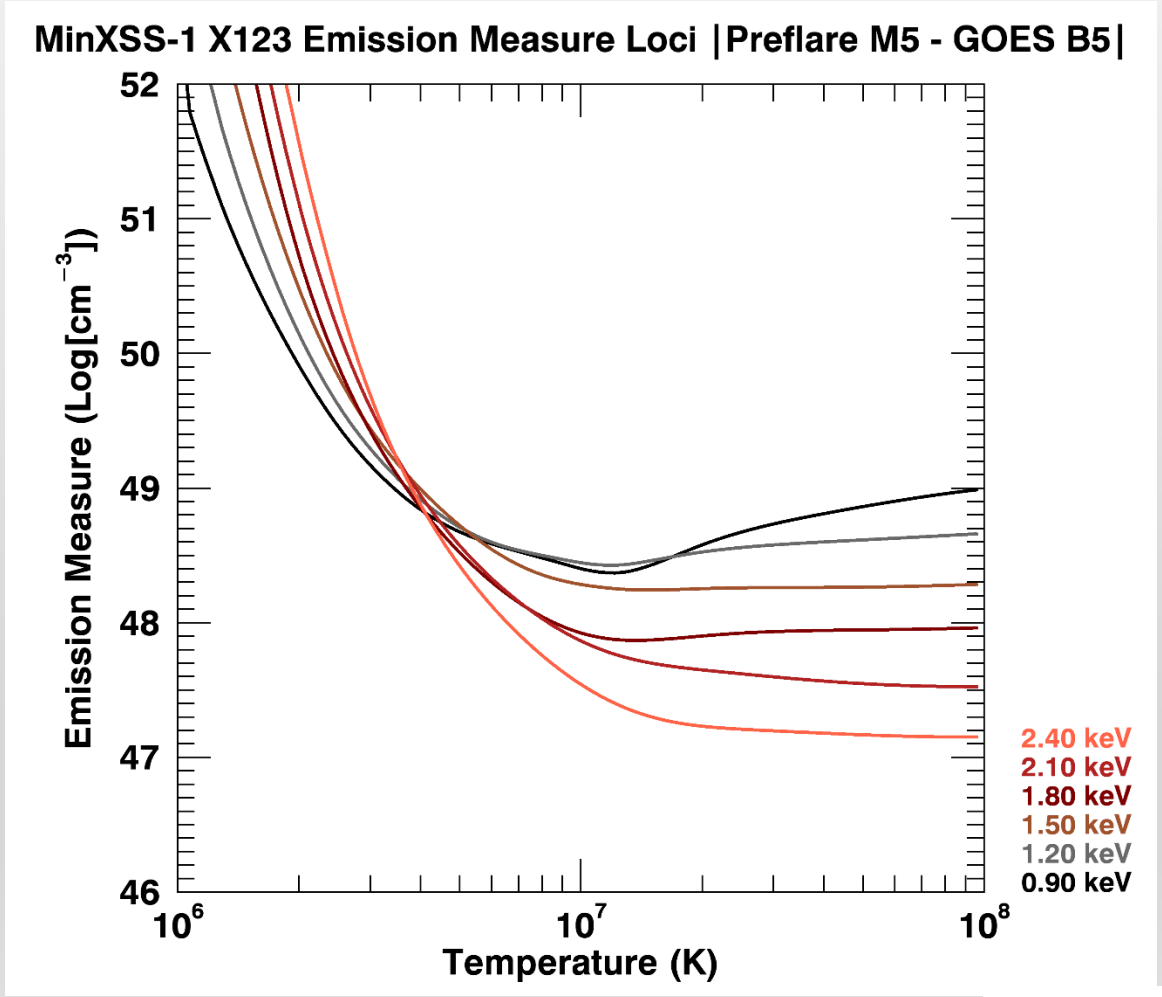
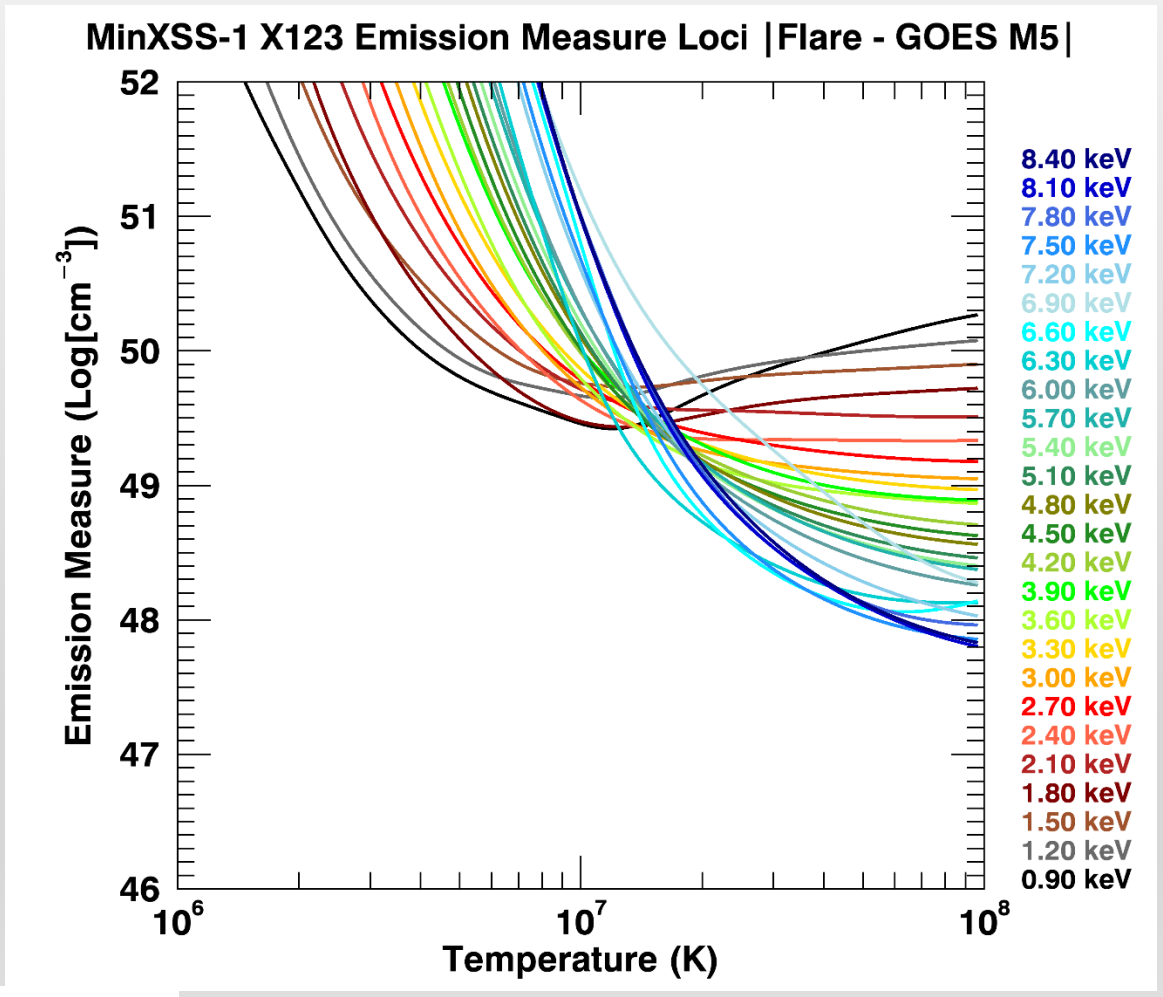


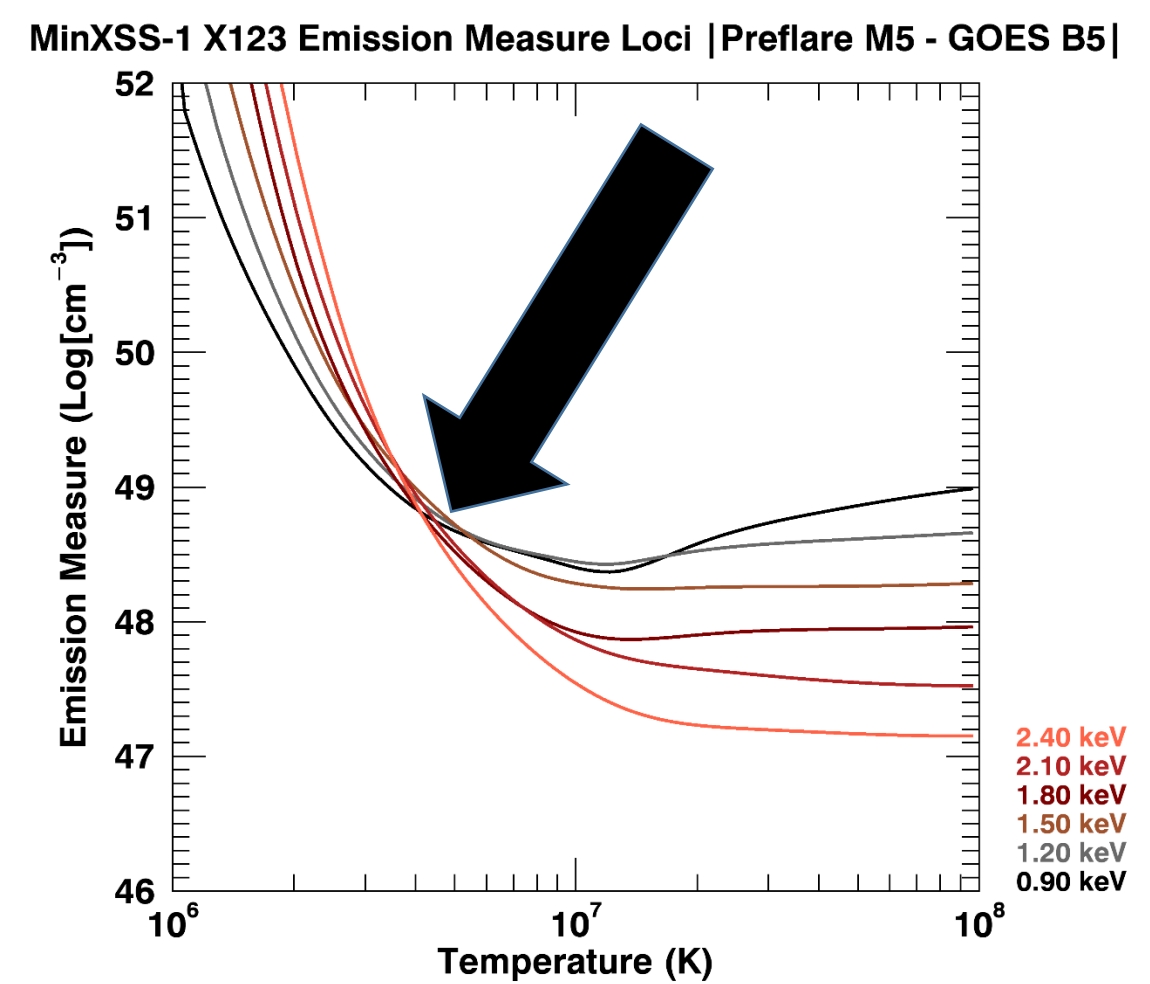


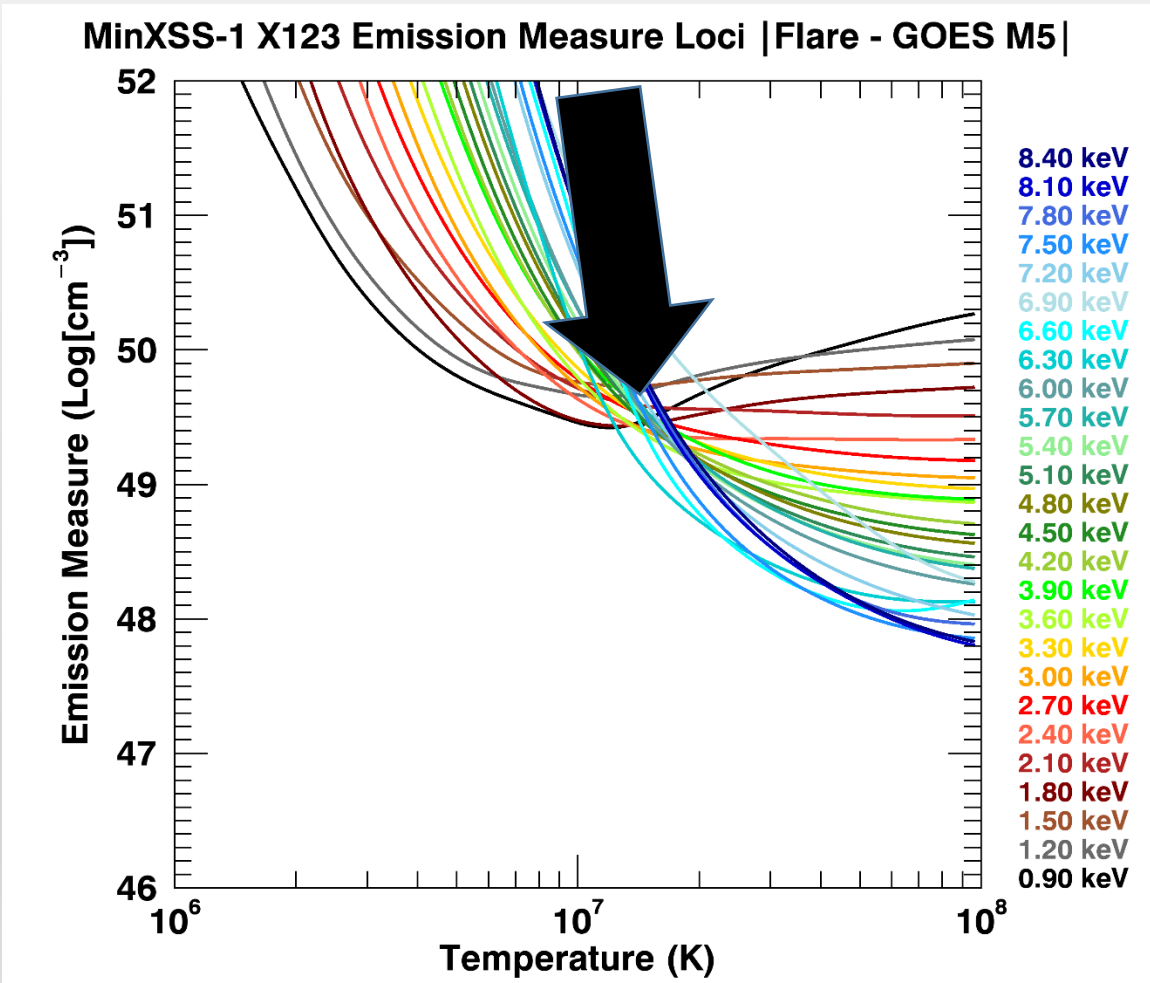
0.3 keV wide bins

MinXSS EM Loci

$$Em\_Loci = \frac{Signal}{F(T)}$$

- Loci intersection estimates isothermal emission measure



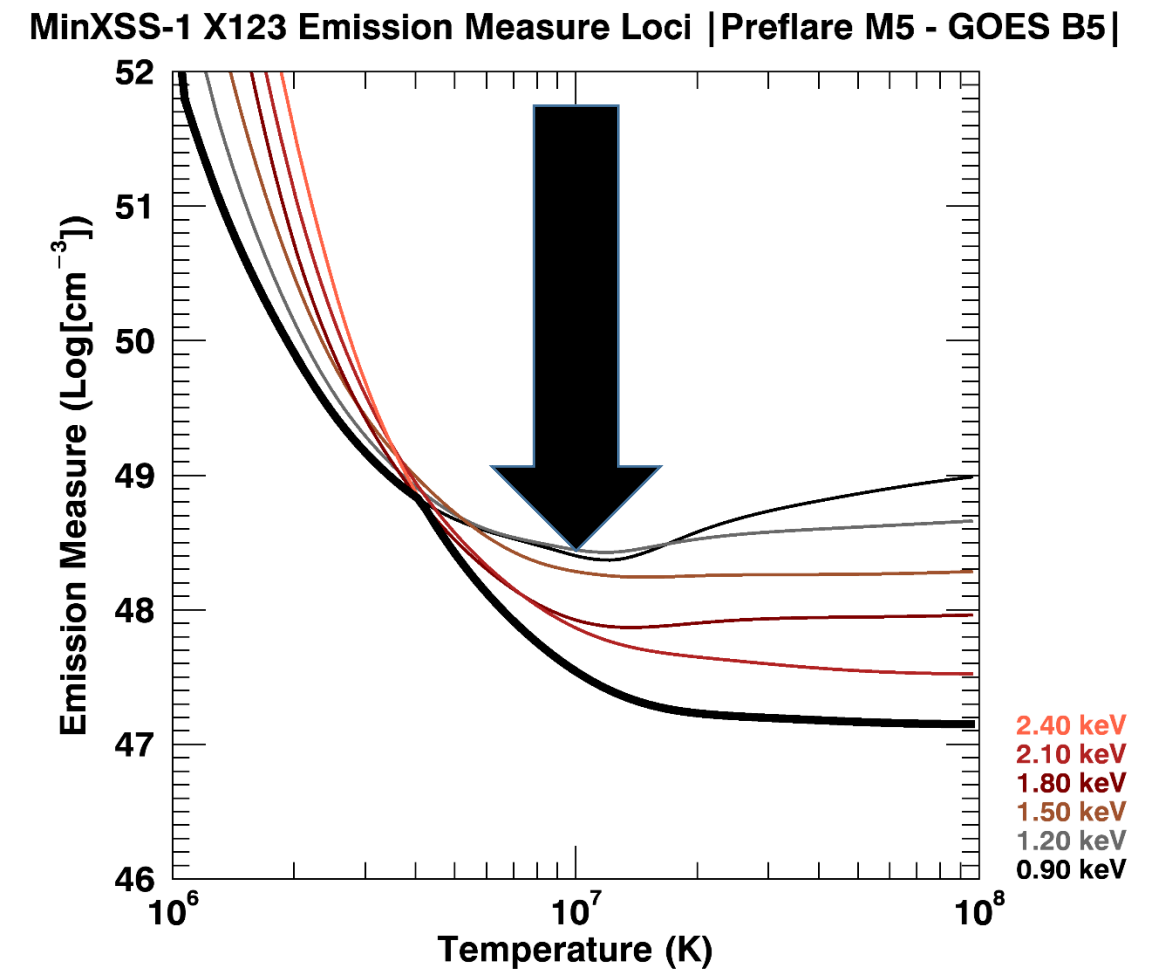


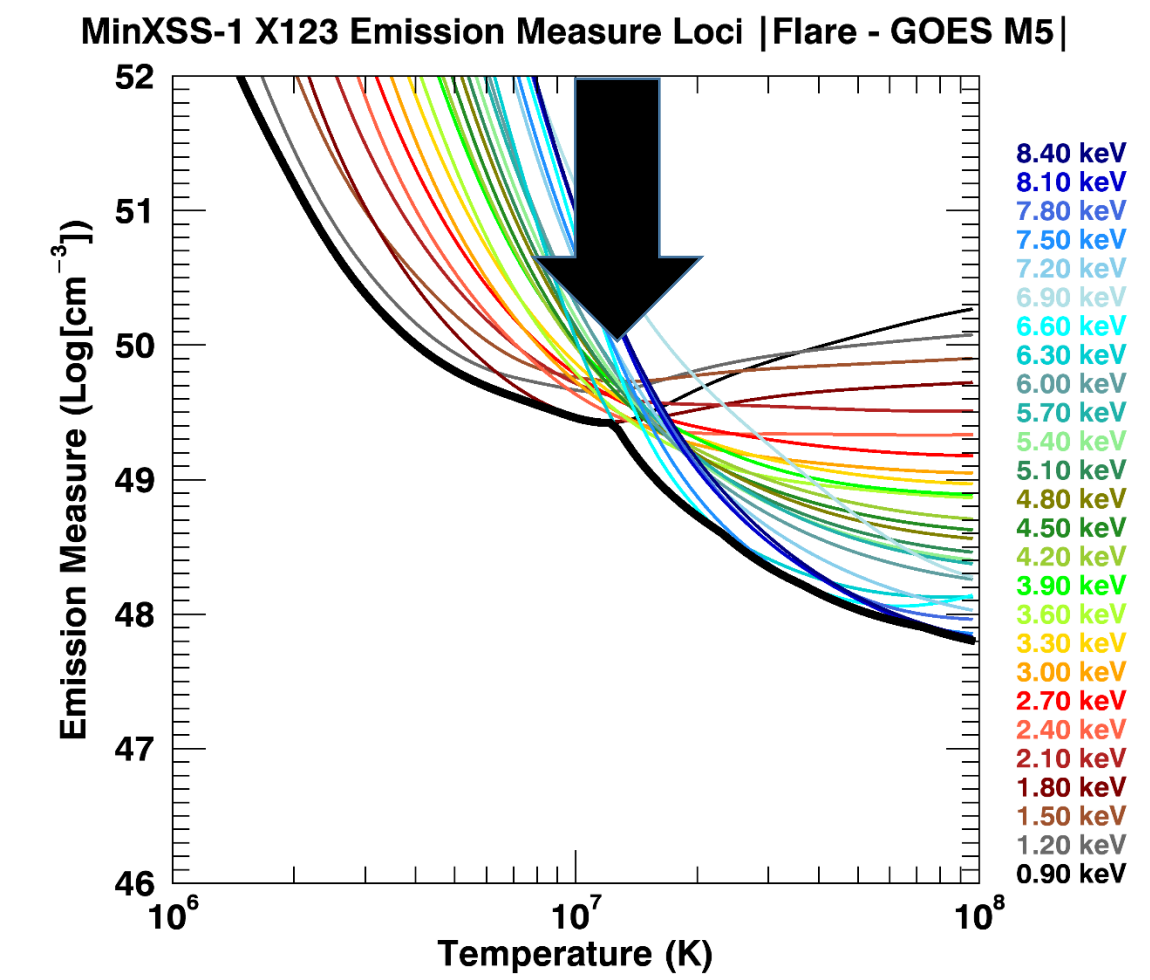
0.3 keV wide bins

MinXSS EM Loci

$$Em\_Loci = \frac{Signal}{F(T)}$$

- Loci intersection estimates isothermal emission measure
  - Indicates an upper limit on em vs. T



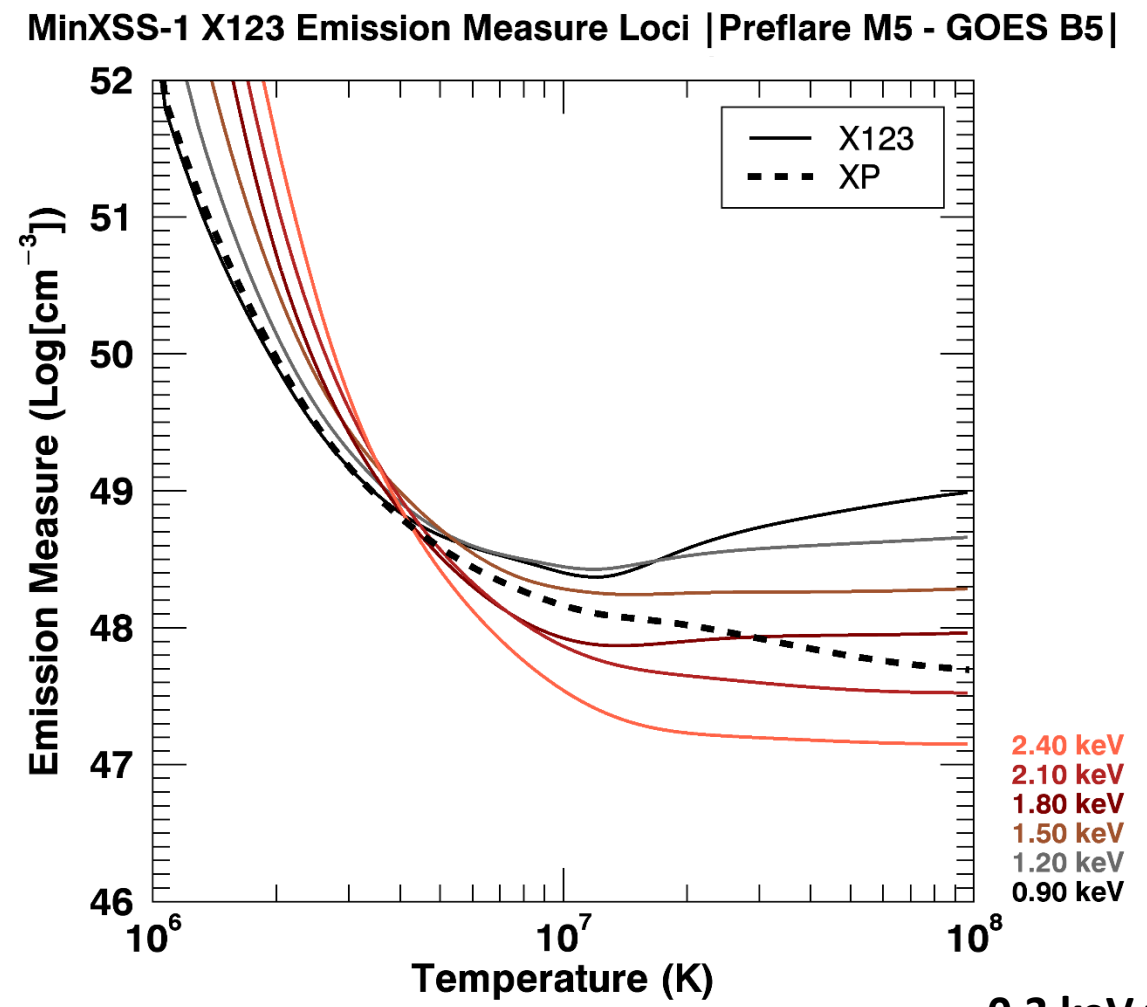


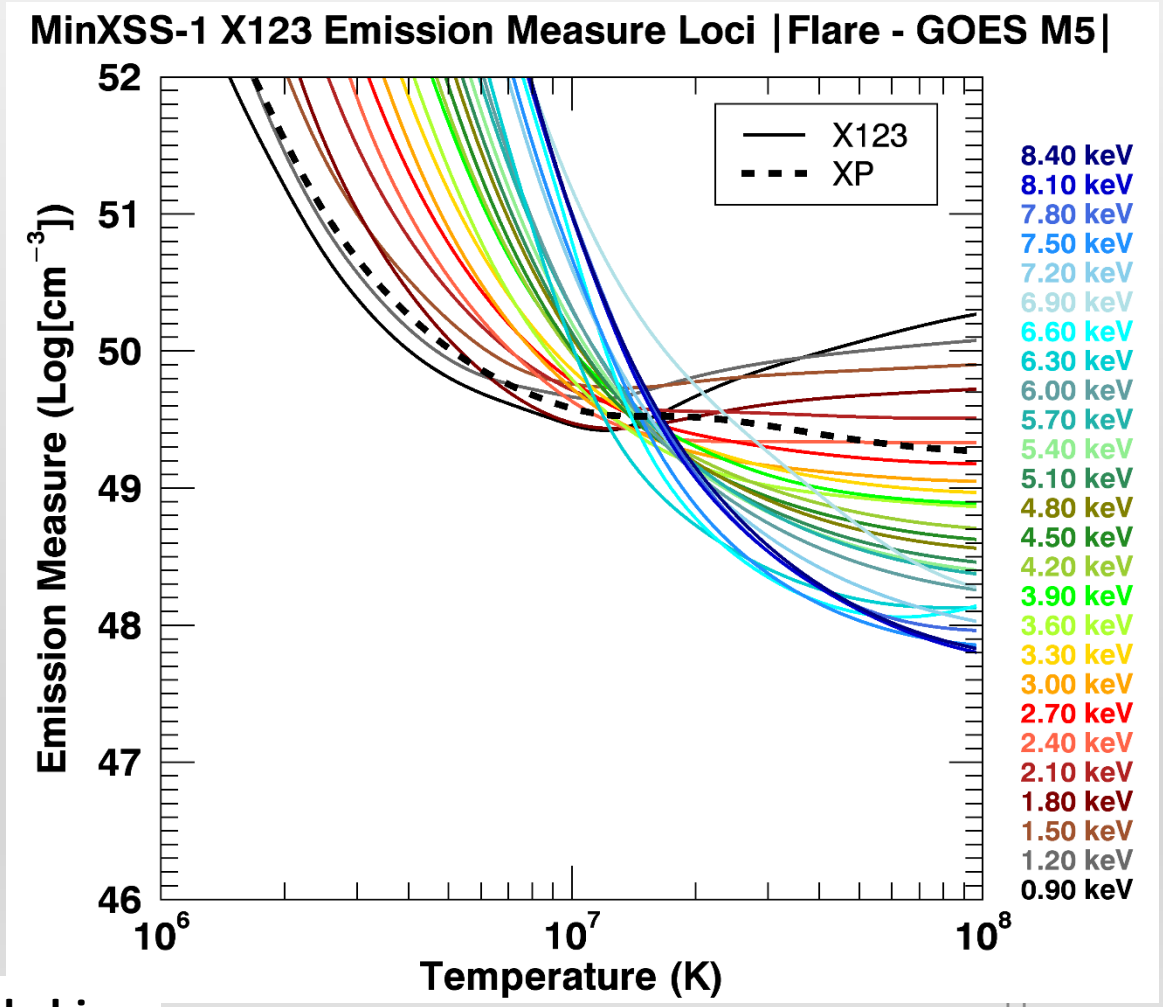
0.3 keV wide bins

MinXSS EM Loci

$$Em\_Loci = \frac{Signal}{F(T)}$$

- XP Data Confirms the X123 estimates!!





0.3 keV wide bins