

## *Cyg X-1 Status Report*

### *Work Since Last Team Meeting :*

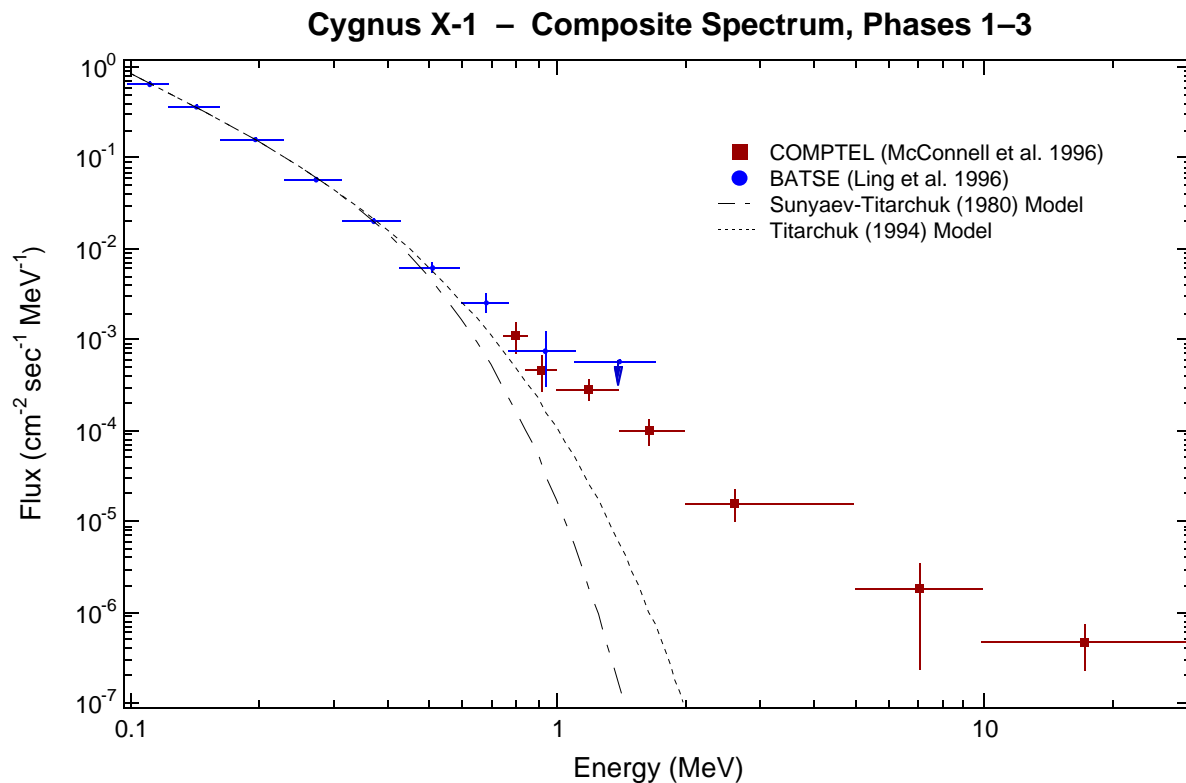
- **Repeated imaging analysis for all P123 data using BGDLCF/SRCLH0. Previous analysis had been with SRCLIX.**
  - ⇒ includes up to 3 point source models.
  - ⇒ includes two diffuse models (HI+CO and IC). No diffuse model had been included in the analysis presented last time.
- **Regenerated COMPTEL spectrum for all available P123 data.**
- **Generated COMPTEL spectrum for those viewing periods which were contemporaneous with OSSE observations (VPs 2.0, 7.0, 203.0, 203.3, 203.6, 212.0, 318.1, 328.0, 331.0, 331.5, and 333.0).**
- **Obtained OSSE and BATSE-JPL-EBOP spectra for the contemporaneous OSSE-COMPTEL viewing periods.**
  - ⇒ Permits the first contemporaneous BATSE-OSSE-COMPTEL spectrum!
- **Processed all P4 and P5 data through VP 522.5 (but not yet incorporated into the analysis).**

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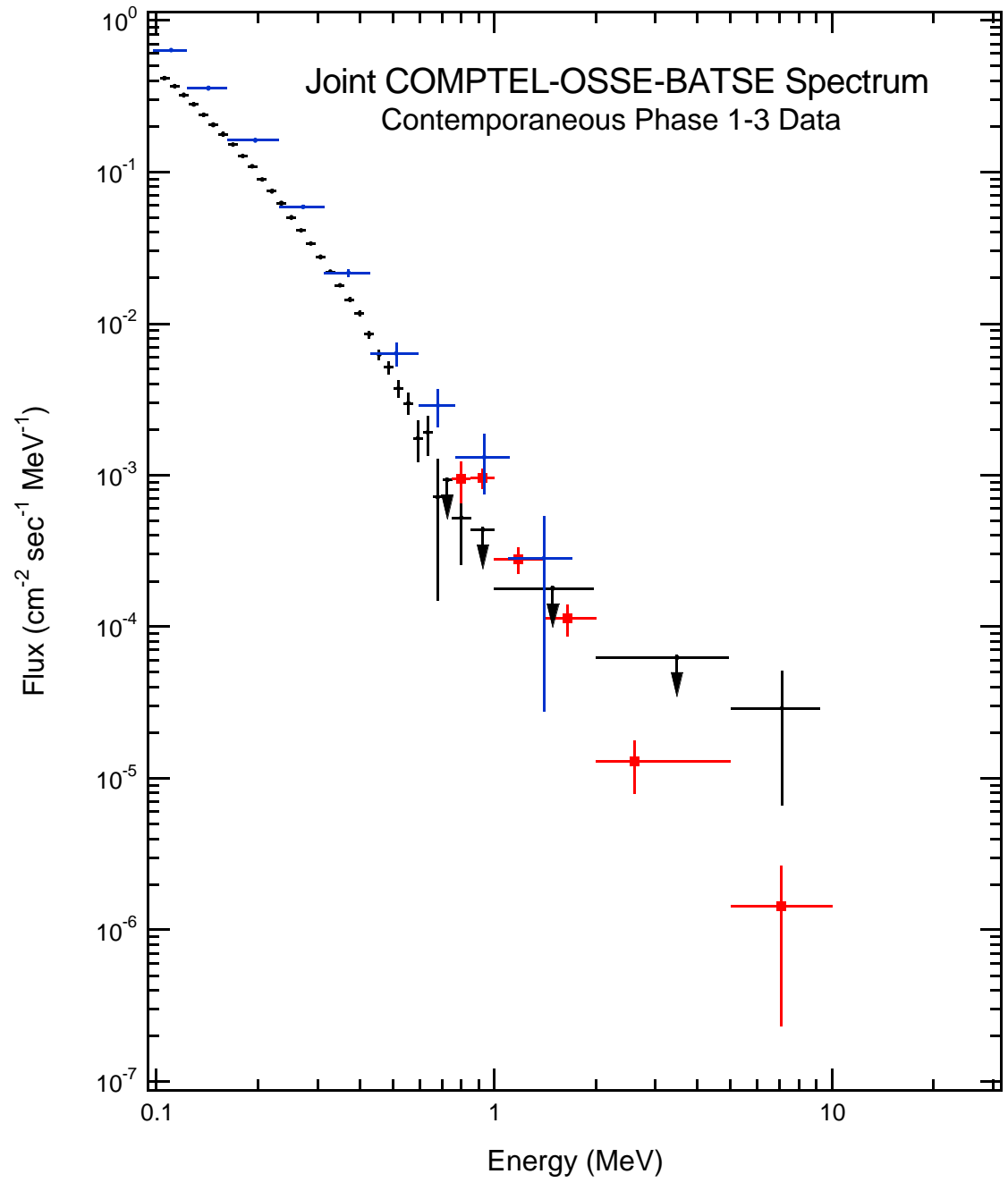
*As shown at last team meeting...*

### **FITS TO COMPTEL-BATSE SPECTRUM : (100 keV - 5 MeV)**

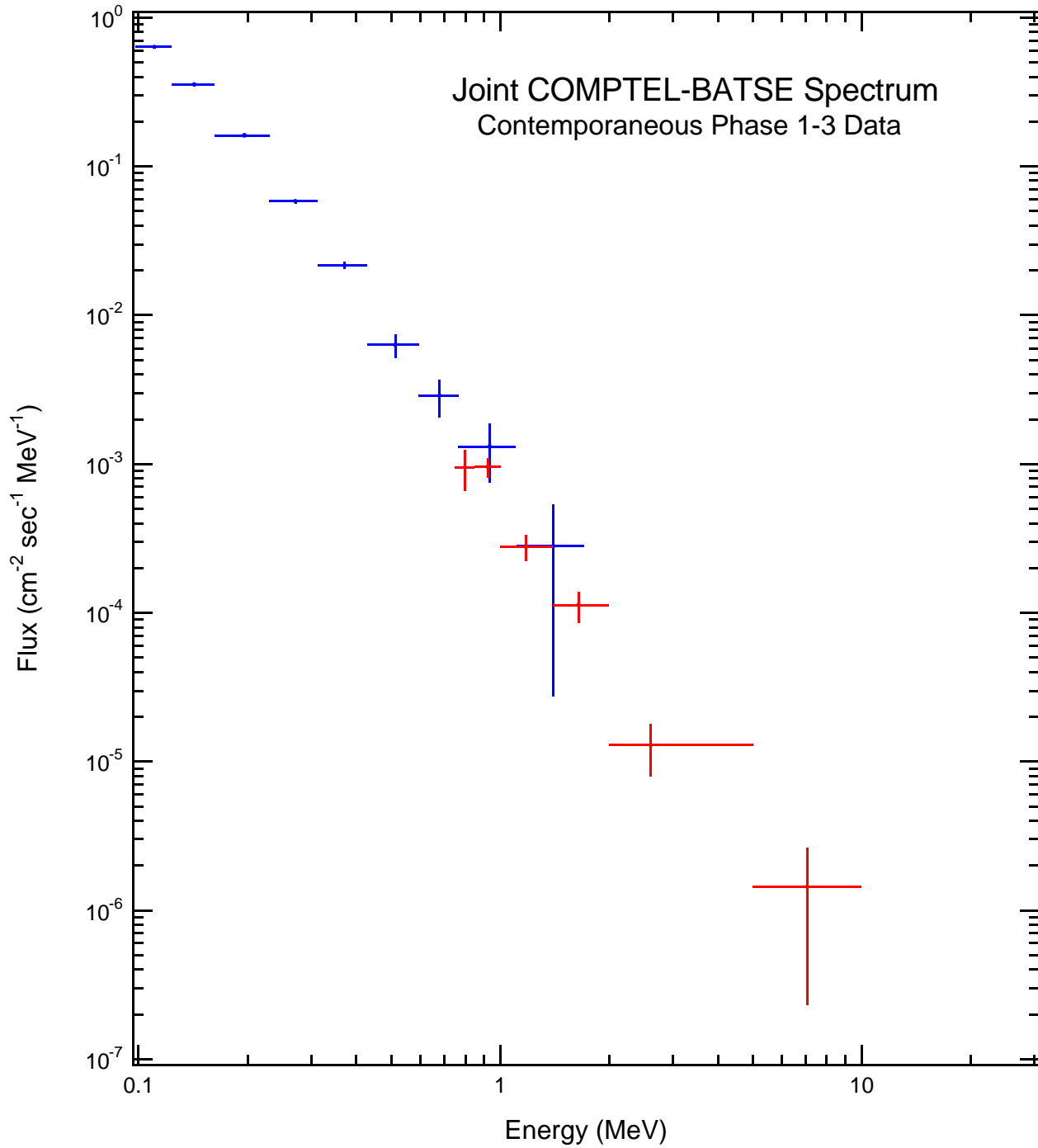
- Wien Spectrum,  $276 \pm 6$  keV, red  $\chi^2 = 6.7$
- ST80 Spectrum,  $76 \pm 1$  keV,  $\tau = 1.44 \pm 0.07$ , red  $\chi^2 = 7.9$
- T94 Spectrum,  $111.8$  keV,  $\tau = 0.25 \pm 0.04$ , red  $\chi^2 = 5.4$



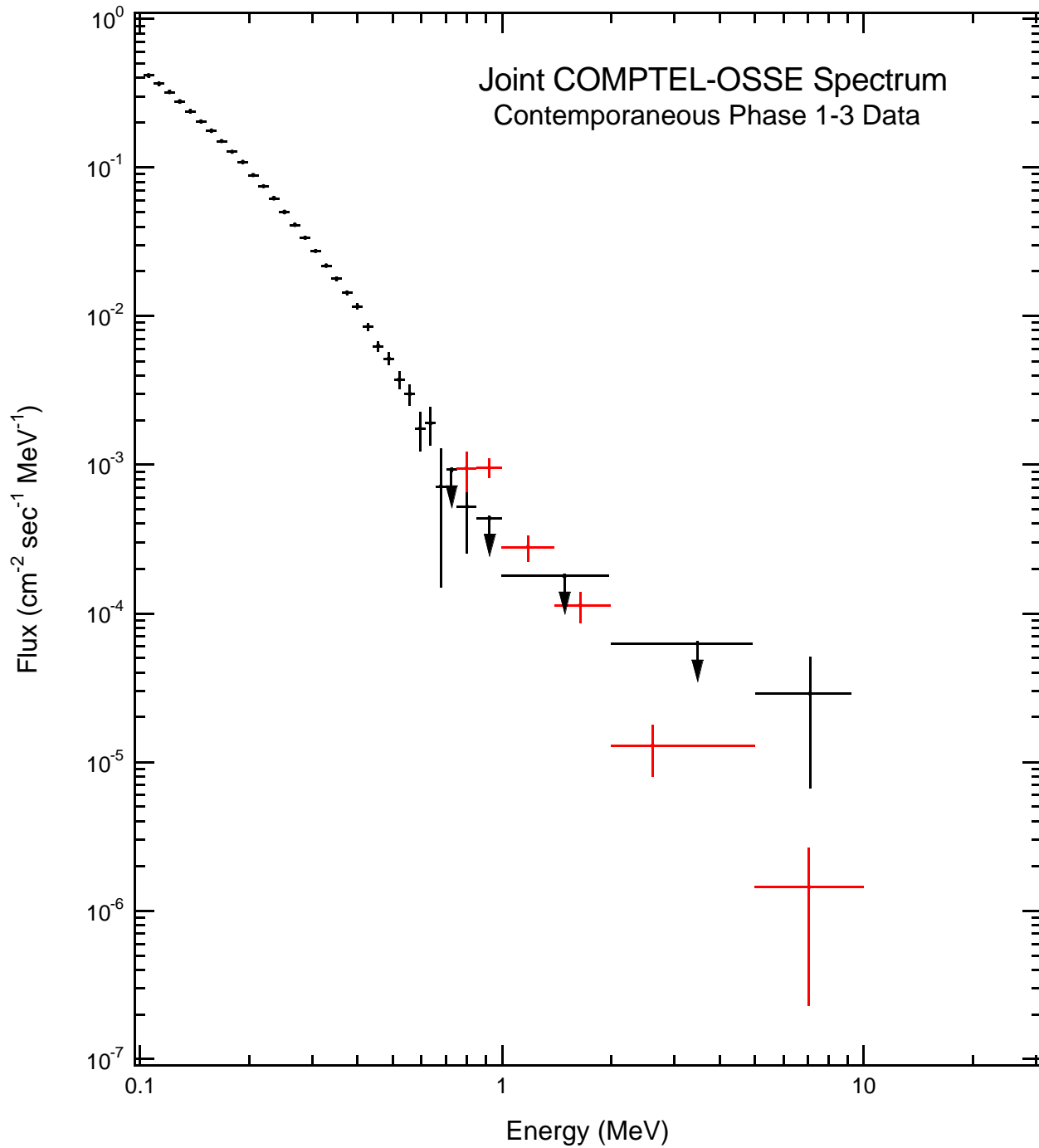
# BATSE-OSSE-COMPTEL Spectrum



## COMPTEL-BATSE Spectrum



## COMPTEL-OSSE Spectrum



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### **OUTSTANDING ISSUES**

- **The issue of when to include sources in the COMPTEL modeling is still rather ambiguous:**
  - ⇒ SRCLIK allows for negative source fluxes, which artificially inflates the flux level of the other sources being modeled.
  - ⇒ Source model should be included only if it is statistically significant.
  - ⇒ The present analysis requires a  $3\sigma$  significance. Perhaps a  $1\sigma$  or  $2\sigma$  significance would be sufficient (as possibly suggested by the 0.85-1.0 MeV datapoint).
- **The interpretation of the spectrum may be dependent on whether we accept the OSSE spectrum or the BATSE spectrum.**
- **Phase 4 and 5 data has not yet been included in the overall analysis:**
  - requires new set of BATSE and OSSE spectra.
  - unique nature of VP 522.5 (ToO)
  - possible additional source above 10 MeV!

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### *Publication:*

*Work had been put on hold , hoping for a resolution of the cross-calibration issues. Since these issues are still not resolved, it is proposed that paper preparation be continued :*

- **Based on phase 1-3 data only. (Majority of the data.)**
- **First, we need to clarify the modeling requirements.**
  - ⇒ **Require a minimum  $1\sigma$  significance for the addition of a model.**
- **Include both the OSSE and BATSE spectra, but treat them separately :**
  - **a discussion of the BATSE-COMPTEL spectrum (as shown at the last team meeting).**
  - **a discussion of the OSSE-COMPTEL spectrum (as shown here).**
- **The paper would not make any attempt to resolve any discrepancies between the OSSE and BATSE spectra, but rather attempt to discuss the implications of each.**