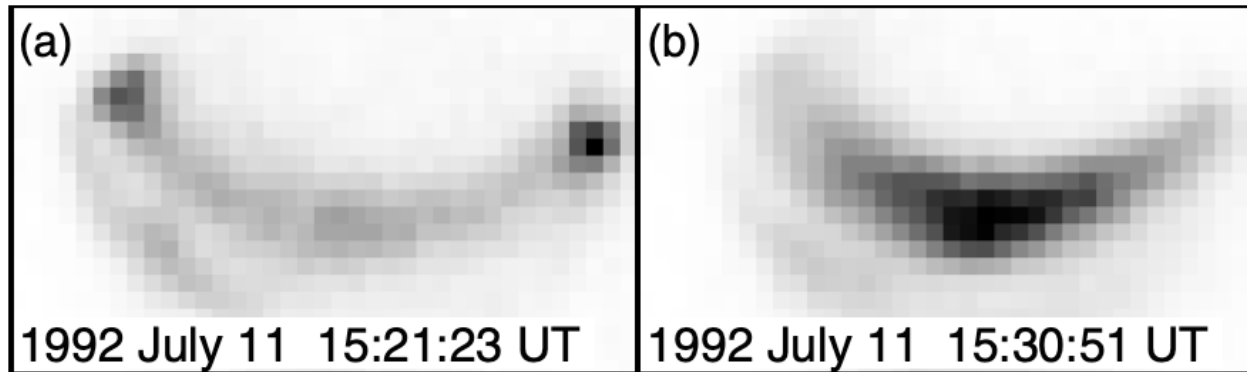


“Impulsive SXR footpoints”



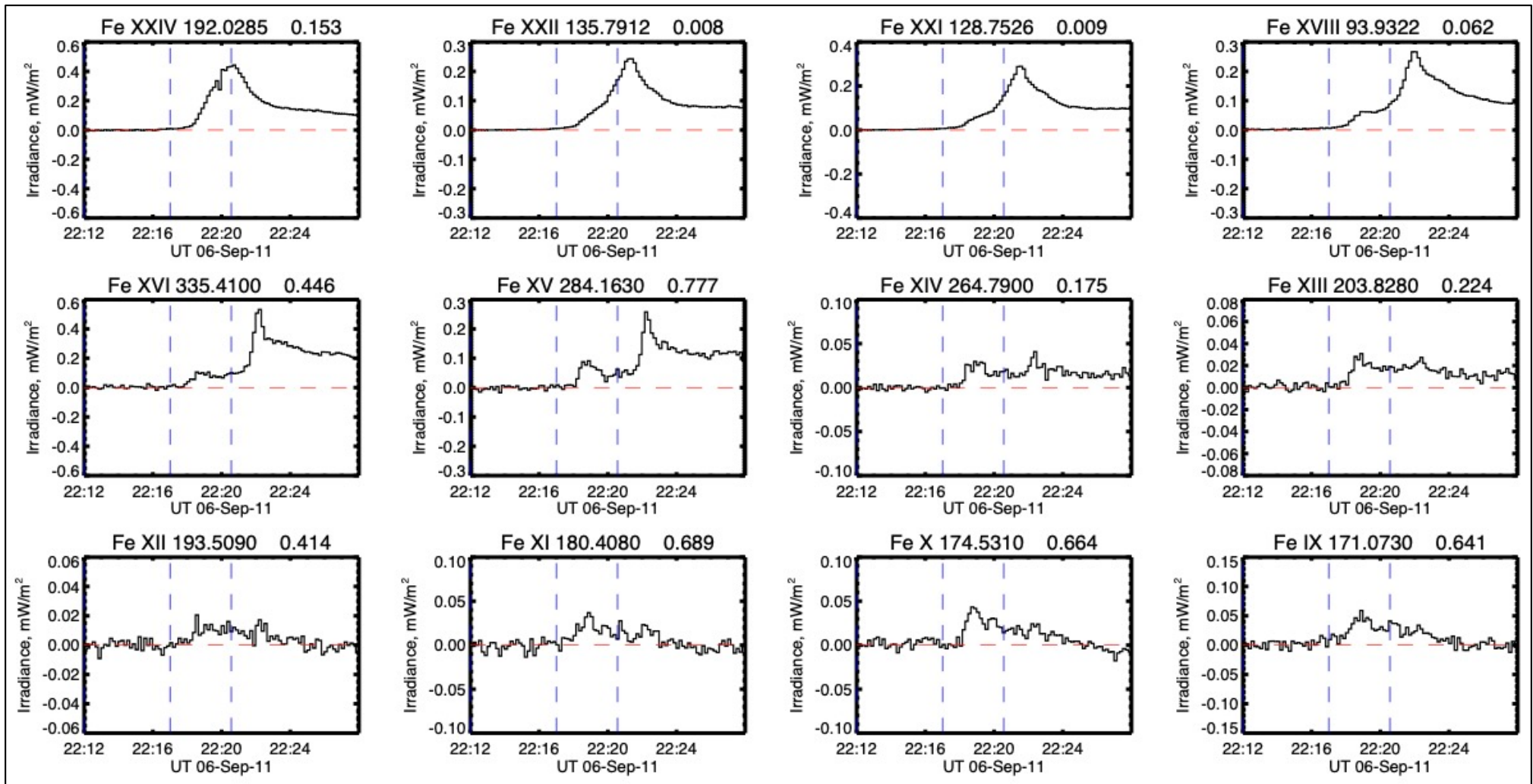
- Yohkoh/SXT sees soft X-rays at flare footpoints routinely, with time profiles matching the impulsive phase HXR/cm
- Example SOL1992-07-11 from Khan et al. 2003
- “Impulsive footpoint” behavior described by
 - Antonucci et al. 1981 (Ca XIX)
 - McTiernan et al. 1993
 - Hudson et al. 1994

Background comments

- This phenomenon has never been explicitly studied, so far as I can recall
- Footpoint brightening would be expected from the thick-target model
- EVE has poor SNR but can observe this in powerful and impulsive events (Karin's SOL2011-09-06 here)

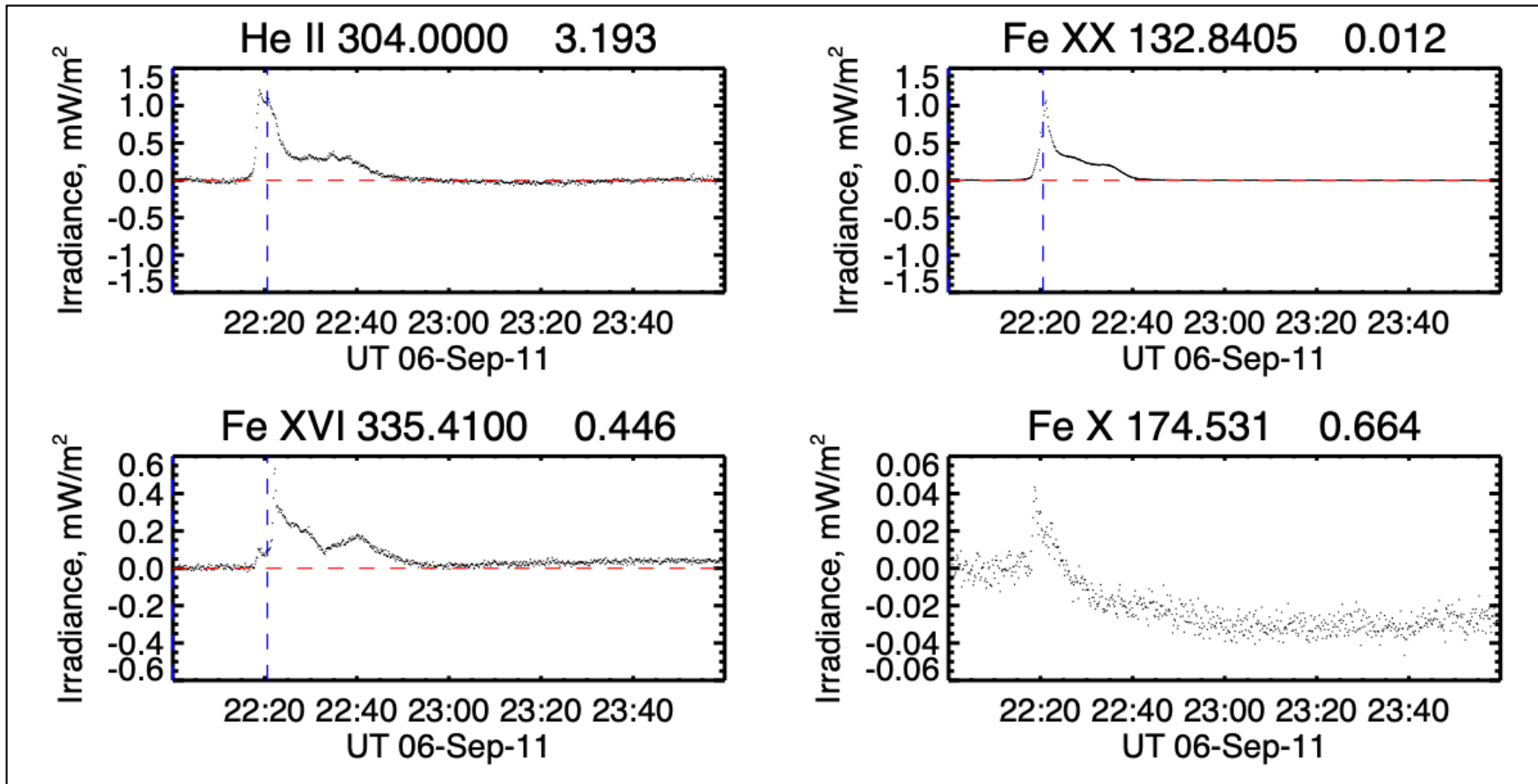
- Can a careful analysis of the timeseries spectra help to describe dimming outflow and/or CME initiation?
 - Mason et al. 2016
- A toy model is needed: RADYN 1D radiation hydro via the F-CHROMA database?
 - Carlsson et al. 2023

EVE in the Impulsive Phase

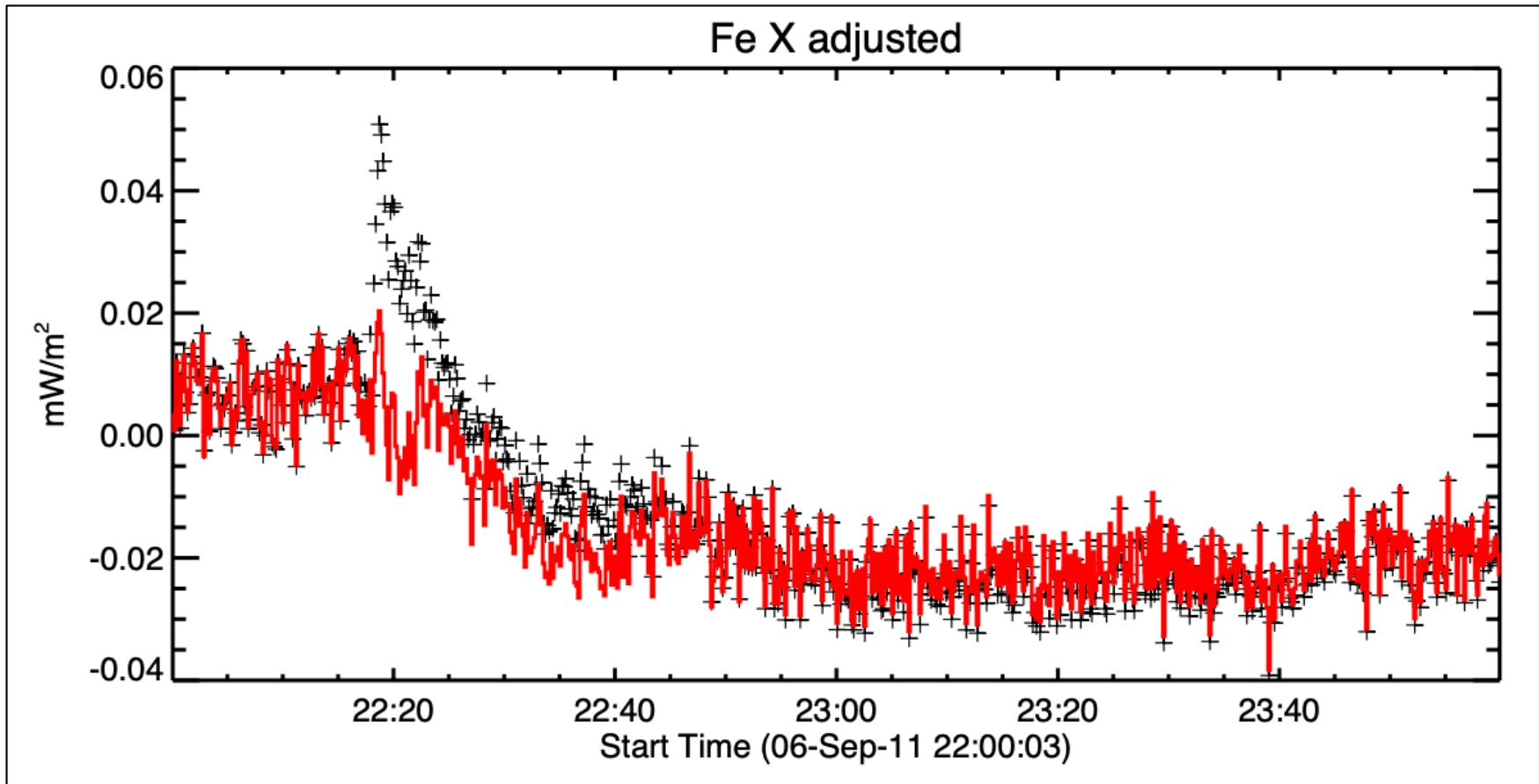


- Dashed lines show 50 keV onset and GOES peak
- Note 2nd impulsive peak at about 22:22 - interesting

What about He II 304?



Subtracting He II 304



Comments

- The impulsive excess has a flat DEM
 - The relationship between the impulsive-phase excess and the dimming is conjectural
 - The He II correction is conjectural
 - A limb dimming event would be cleaner
-
- The right modeling approach here might be RADYN (via the F-Chroma grid, for example), but this would not treat the corona properly

Conclusions

- The EVE data are very nice, but maybe not optimum for studying CME flows
- EVE Doppler should be studied
- The best observational tool would be soft X-ray imaging spectroscopy (MaGIXS, for example)