

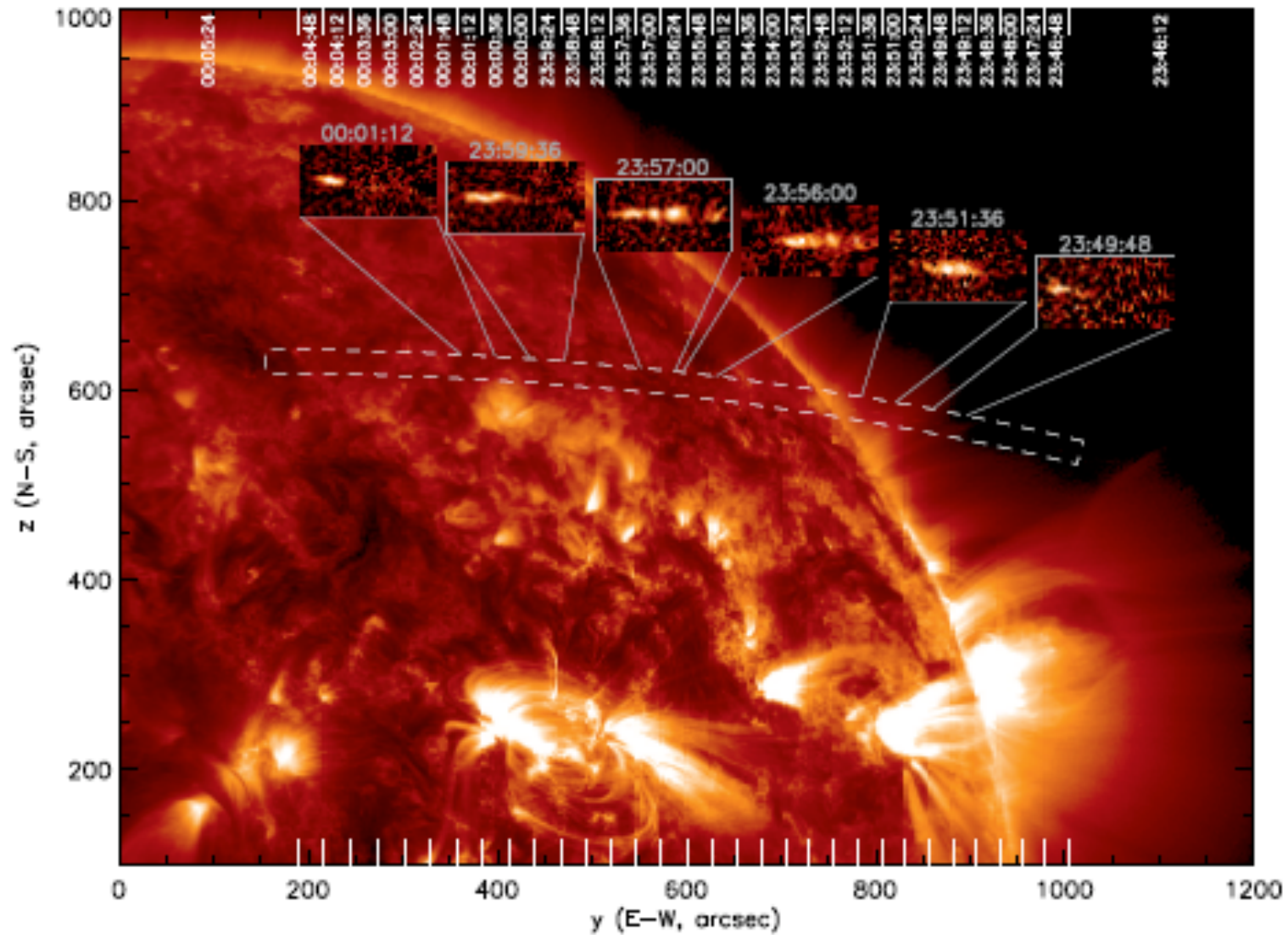
Comet SDO-1

H. Hudson

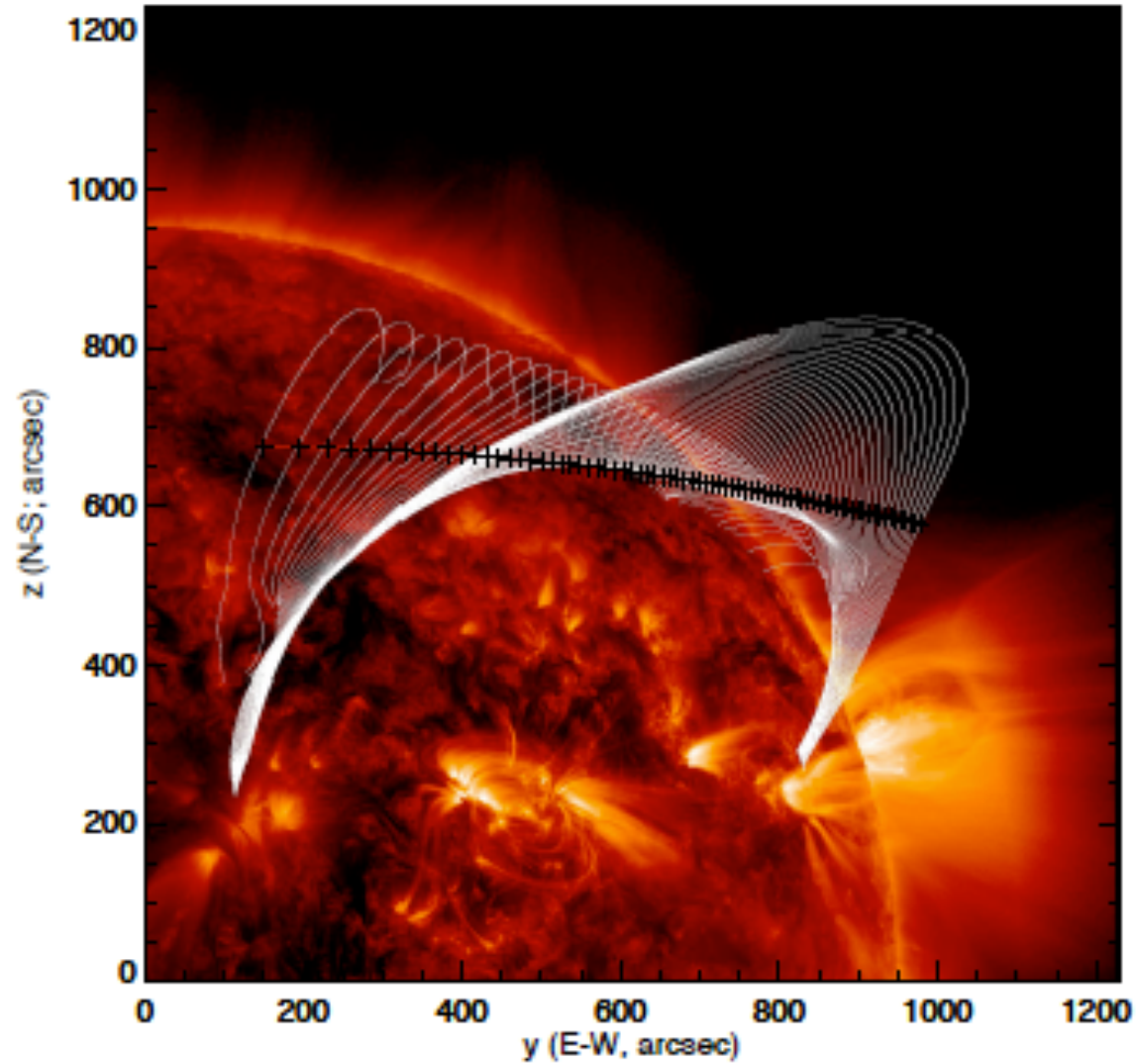
Comet SDO-1

- First observation of a comet interacting in the corona – but no radio signatures
- A comet interaction in the corona is an unprecedented plasma probe of this region

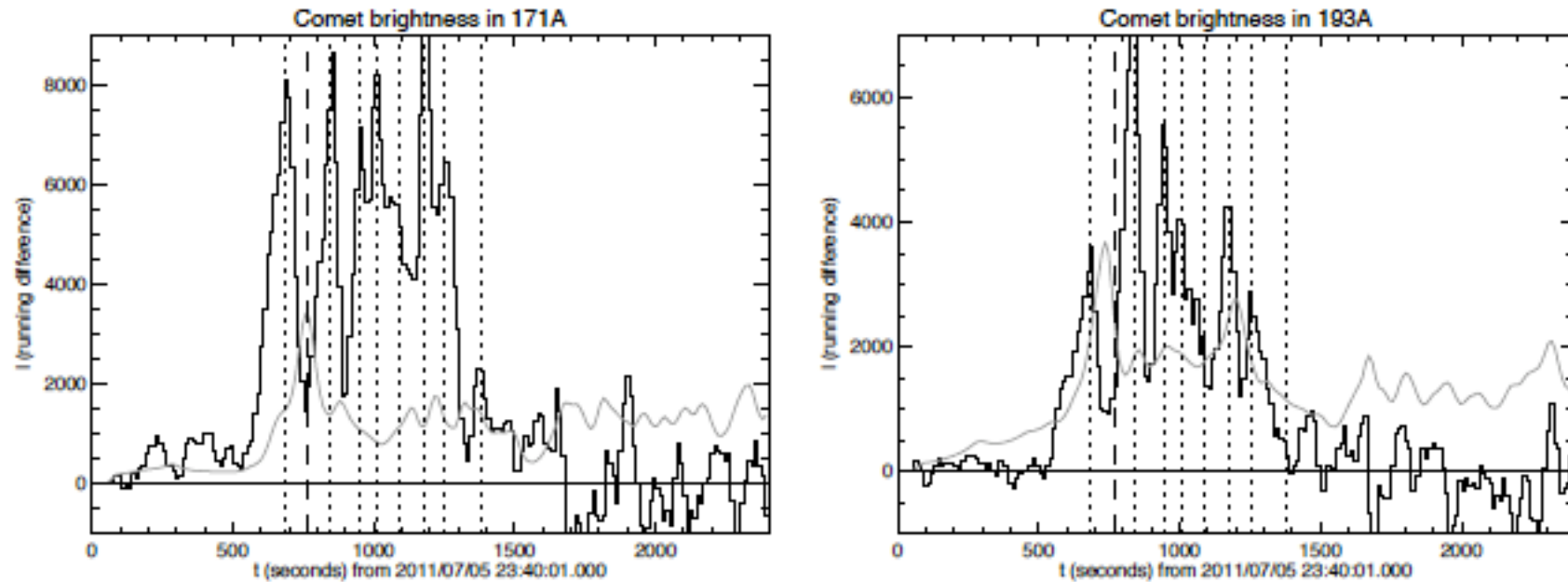
AIA 171 A Imaging



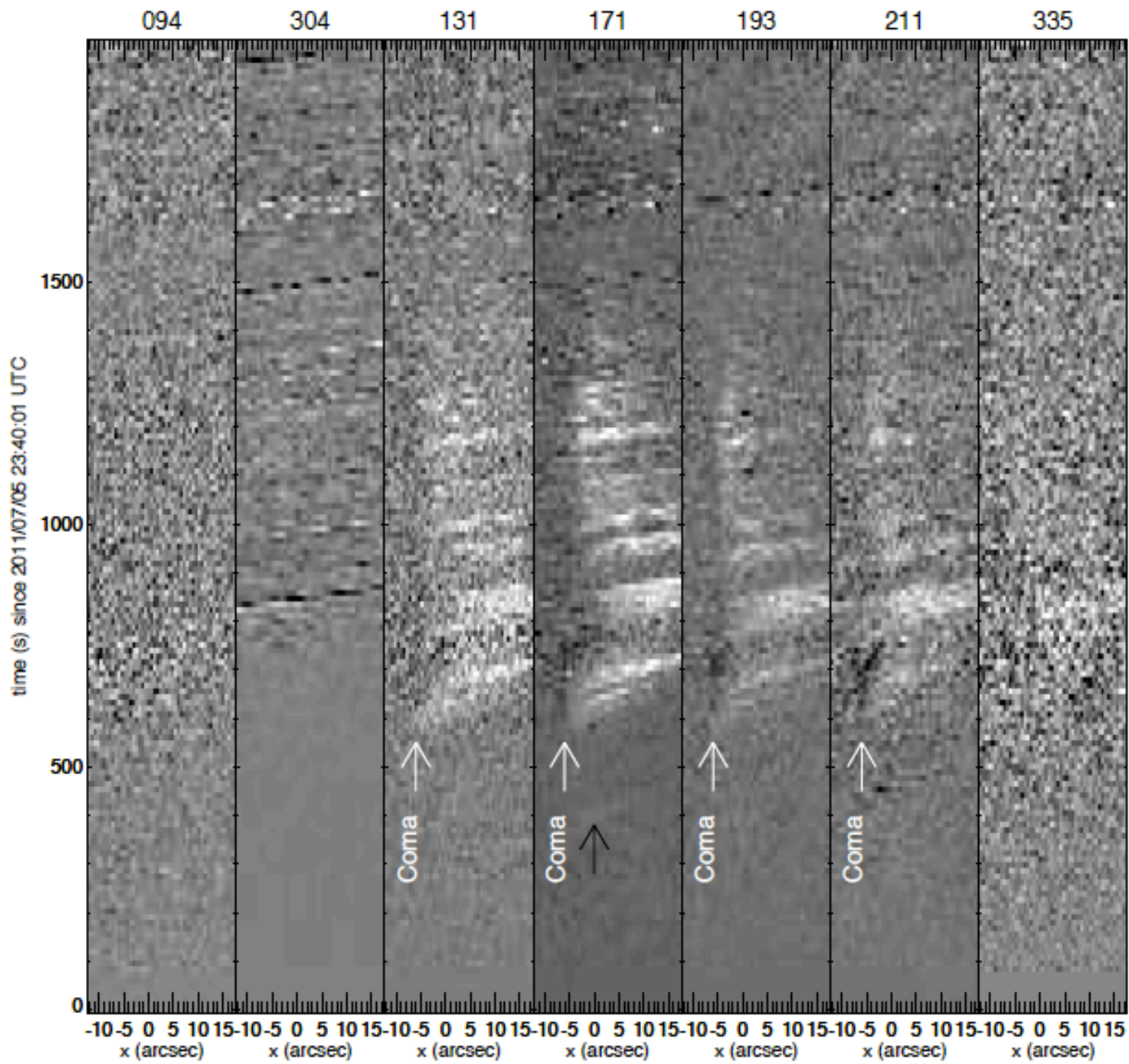
Coronal B field (PFSS)



Comet brightness



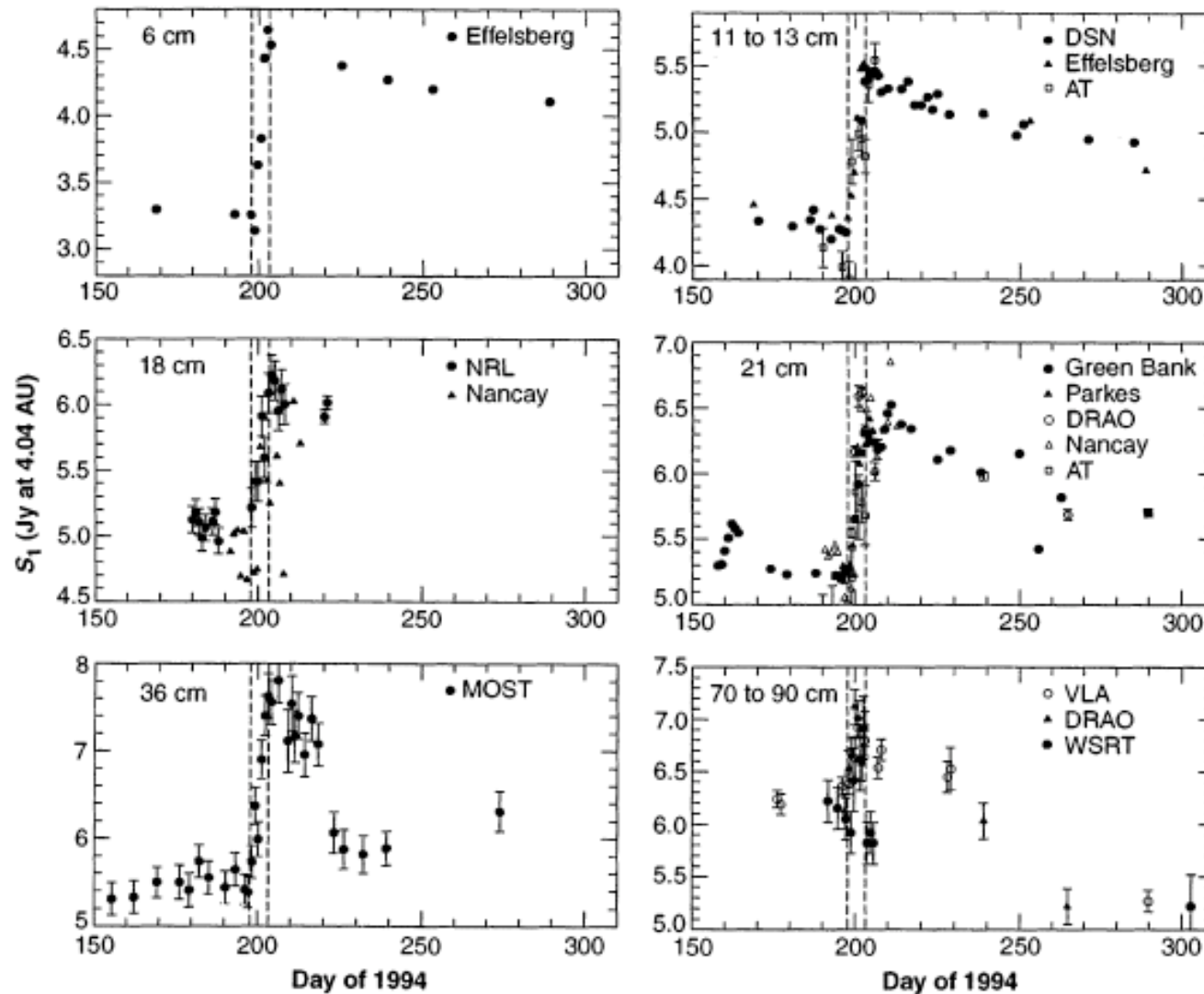
- The comet was detected in all of the AIA passbands except for 304A
- In the plots above the gray line is 1% of the coronal background
- These passbands nominally show Fe ions, but we are not sure in this case



Interesting questions

- How do we relate the physics of the comet interaction in the corona to the “artificial comet” experiments (e.g., AMPTE barium releases)? cf. [Haerendel et al. 1986](#)
- What can we learn from the radio spectrum? For SDO-2, Pascal St.-Hilaire estimates a maximum plasma frequency of ~ 10 MHz, but... cf. [De Pater et al. 1995](#)

Shoemaker-Levy at Jupiter



Conclusions

- Paper on SDO-1 (Schrijver et al.) to appear in Science, January 20, 2012
- Another comet is coming December 16 (perihelion 00:07 UT); it may be much brighter