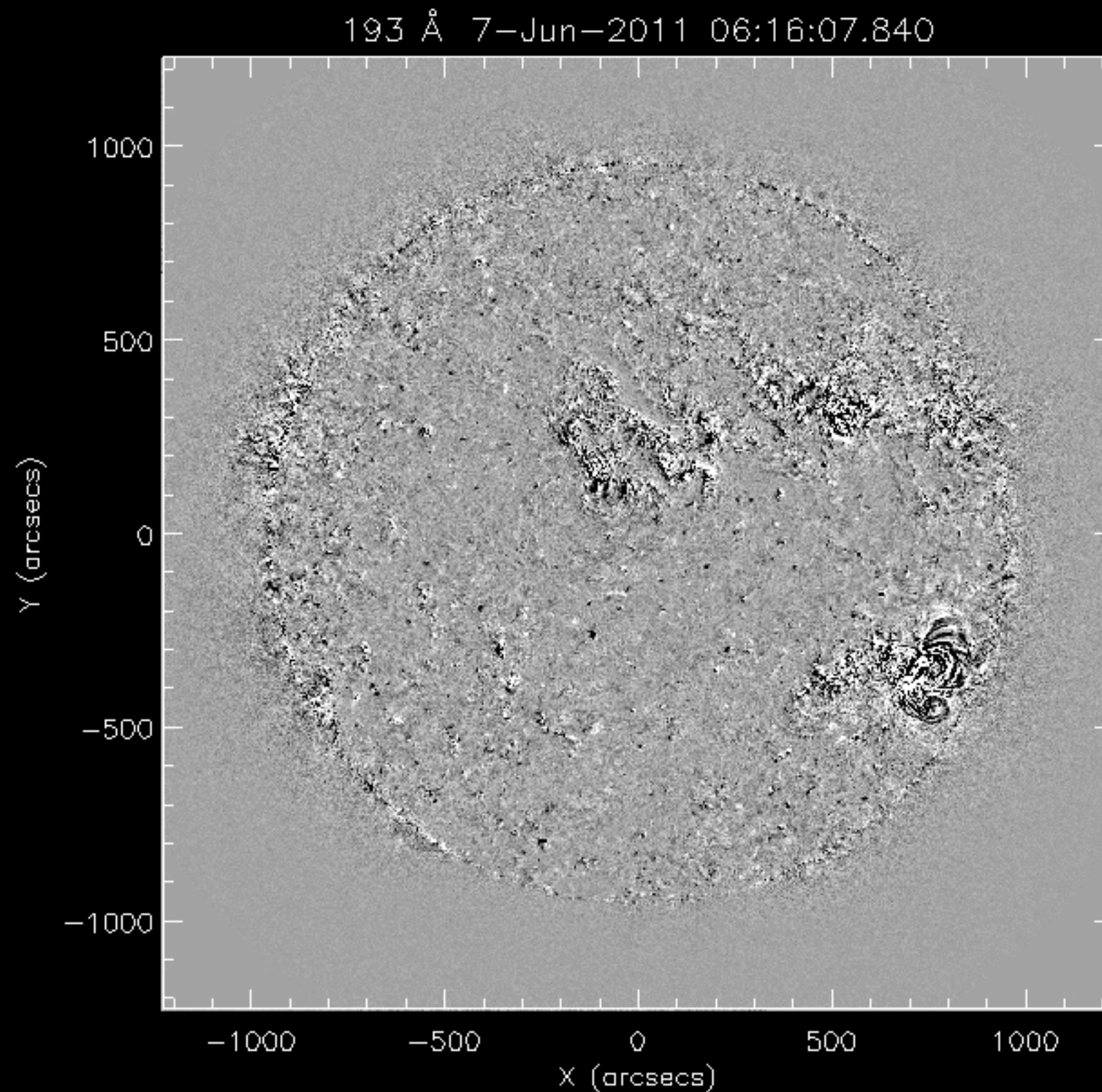


Observing “EIT waves” with SWAP, EIS and AIA

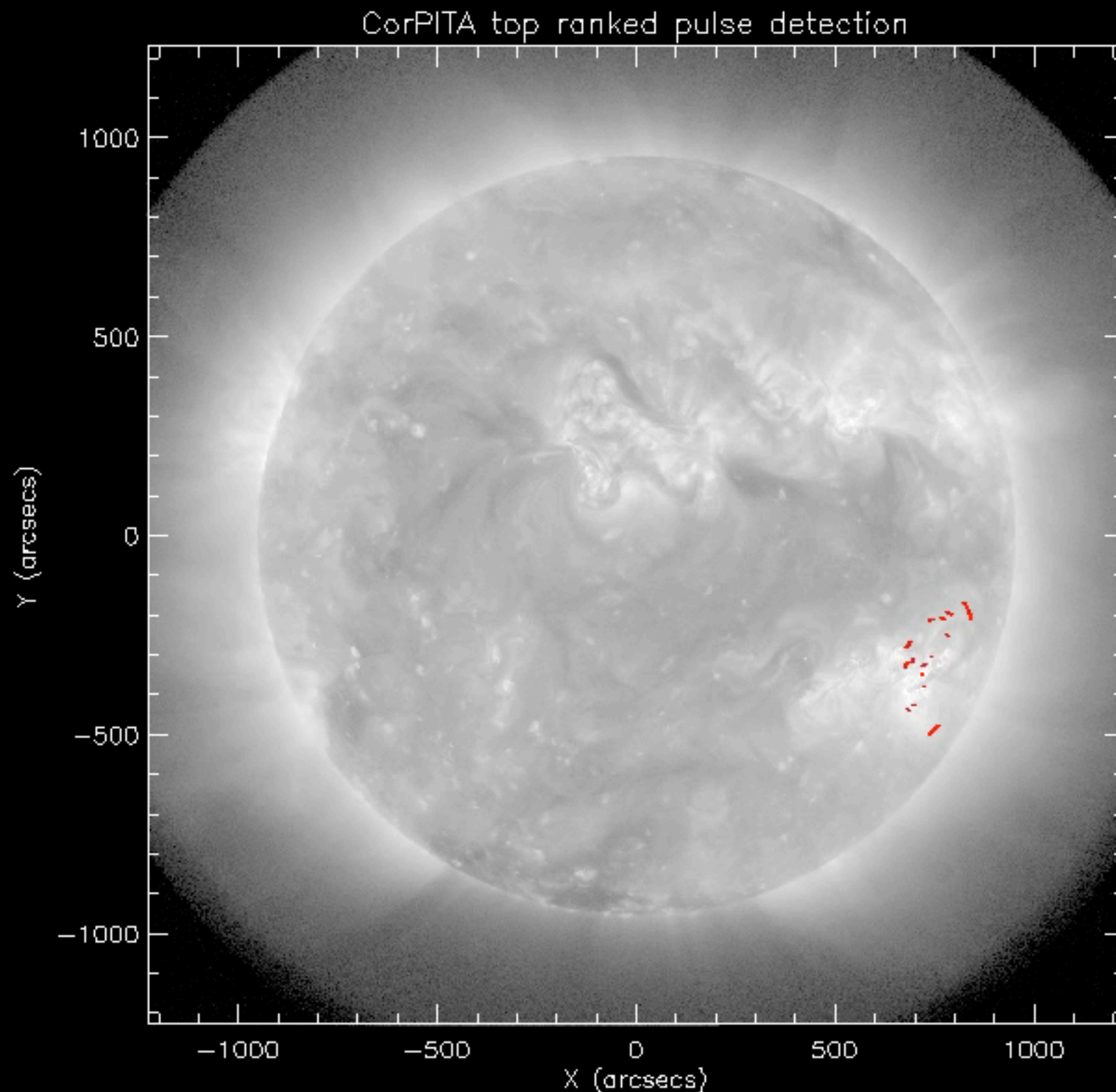
David Long¹, Dan Seaton², Louise Harra¹, Len Culhane¹
1; Mullard Space Science Laboratory,
2; Royal Observatory of Belgium
dml@mssl.ucl.ac.uk



“EIT waves”



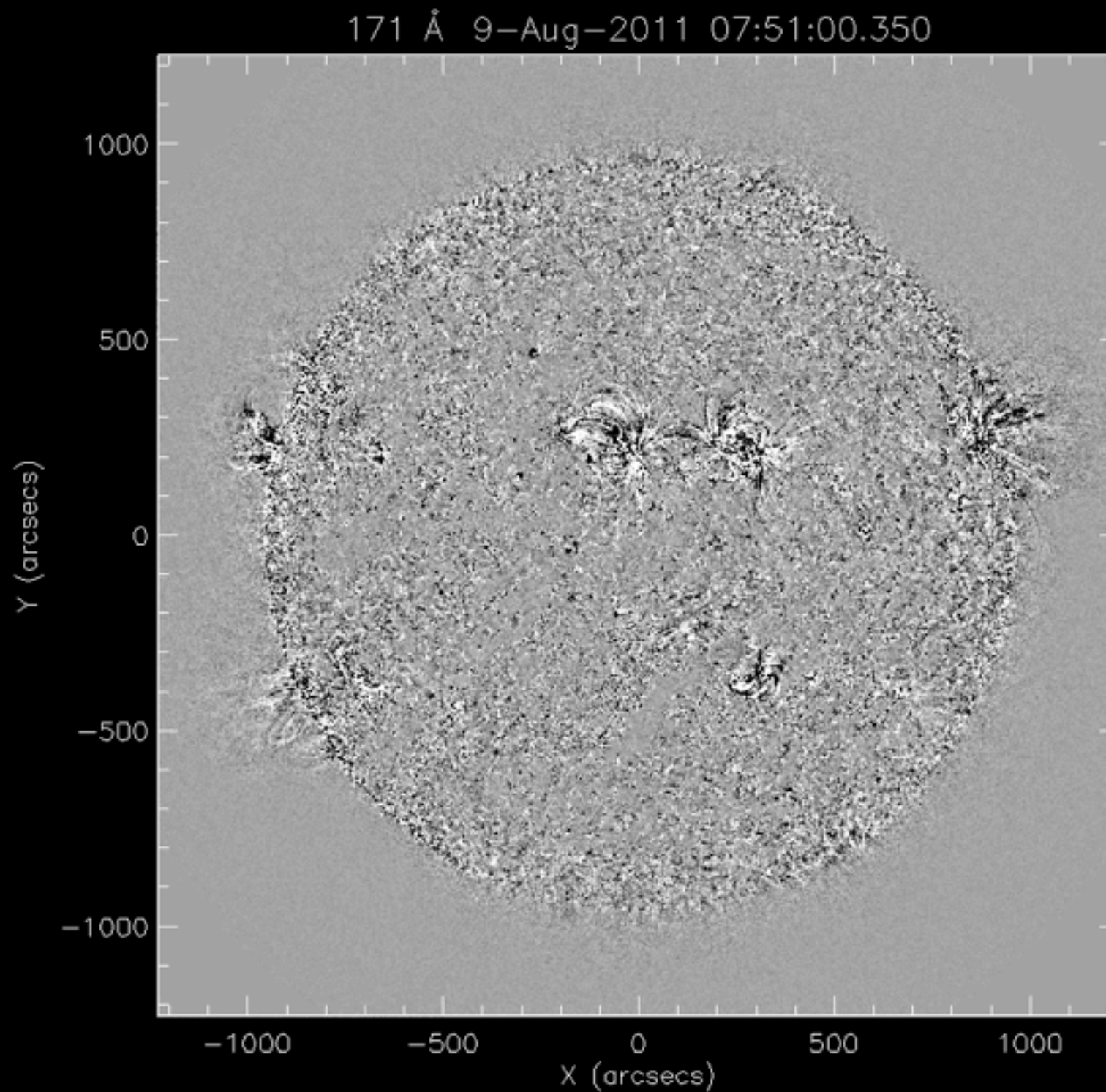
Detected “EIT wave”



Theories

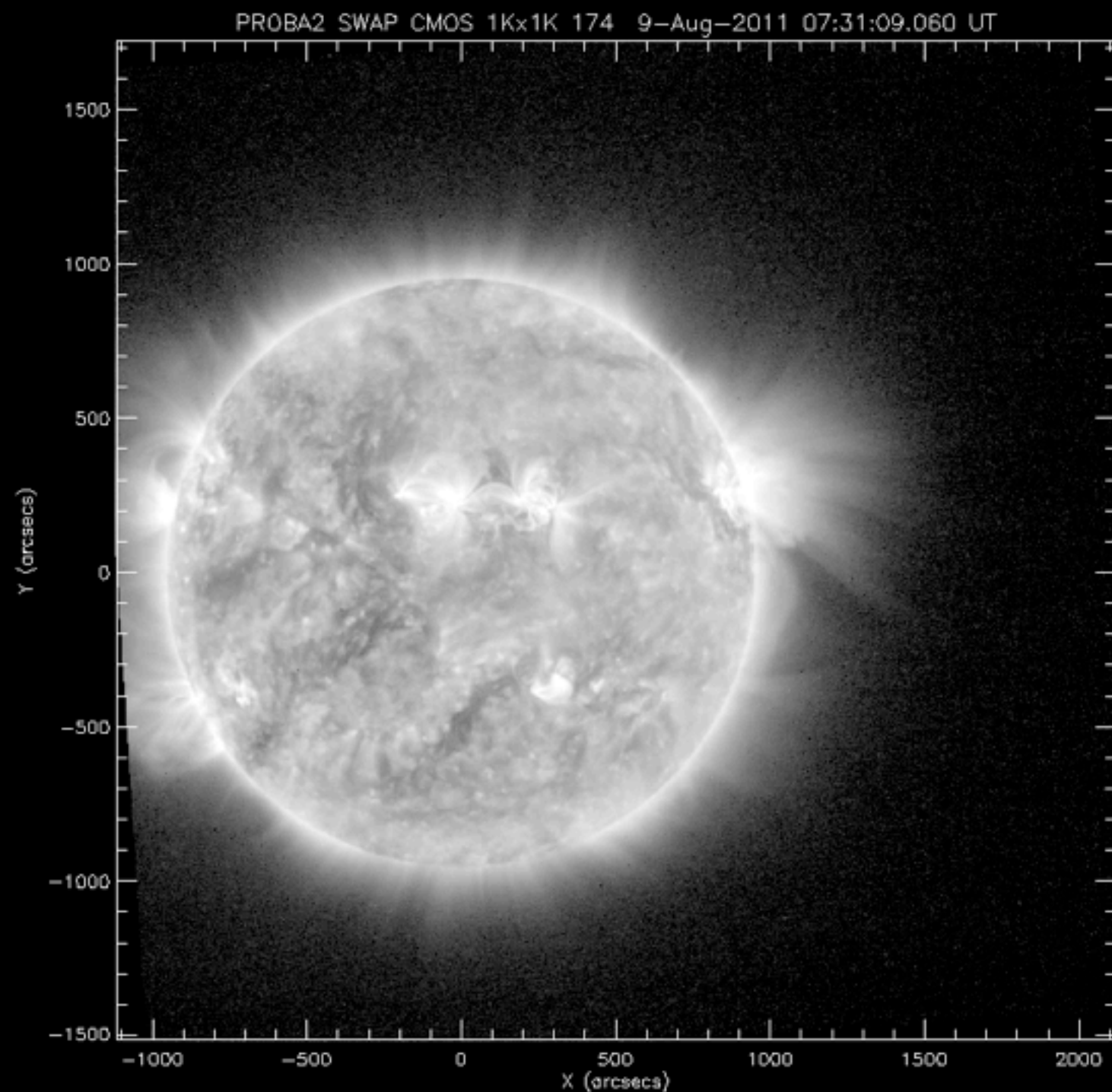
- Waves
 - Fast-mode, Slow-mode, Soliton, Shock waves
 - e.g., Thompson et al. (1998), Wang (2000), Ofman & Thompson (2002), Podladchikova et al. (2010), Wills-Davey et al. (2007), Grechnev et al. (2008)
- Magnetic field restructuring
 - Joule heating, small-scale reconnection
 - e.g., Chen et al. (2002), Delannée et al. (2008), Attrill et al. (2007)
- Both
 - Zhukov & Auchère (2004), Cohen et al. (2009), Downes et al. (2011), Liu et al. (2012)

AIA



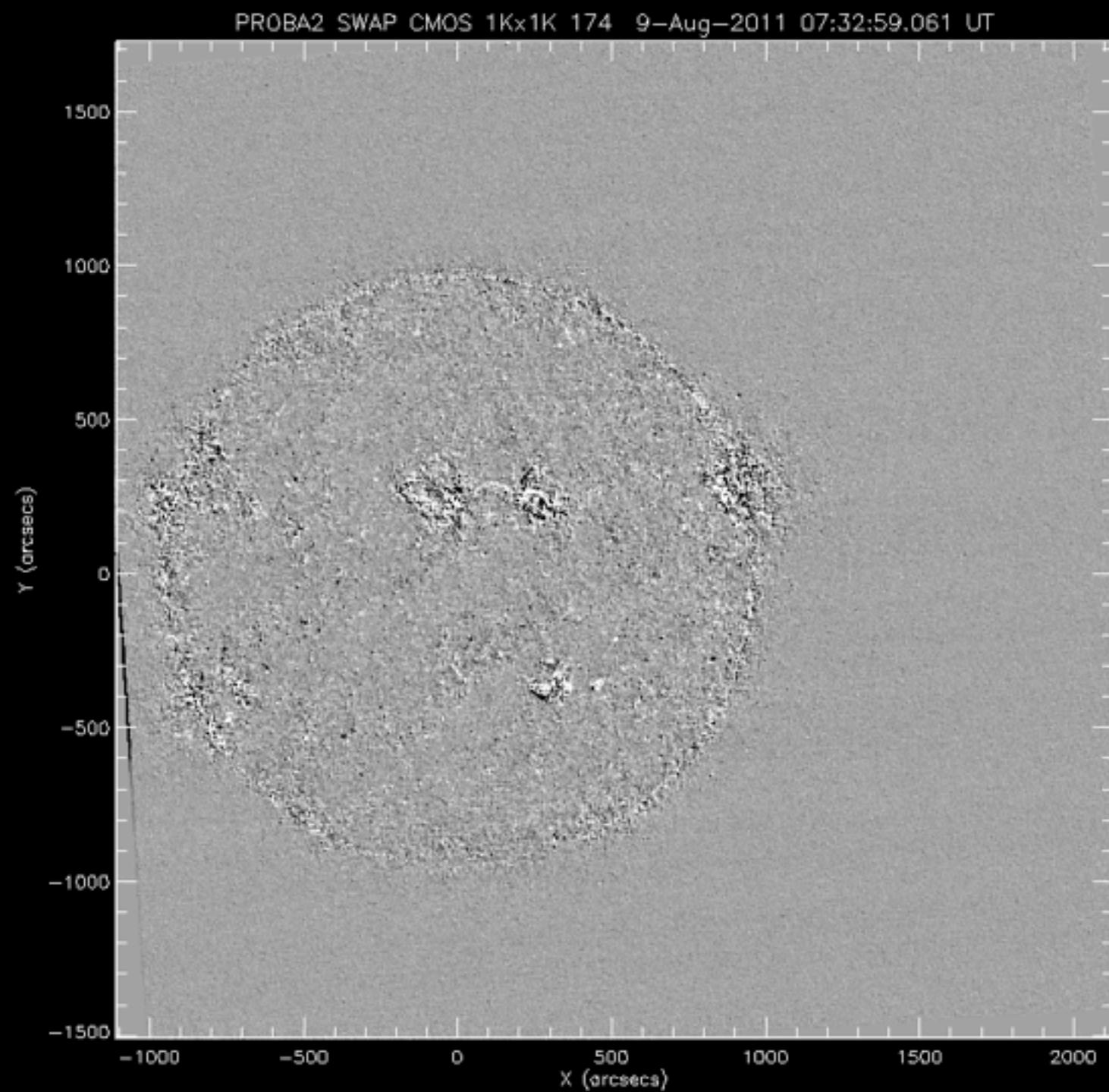
2011-Aug-9

SWAP



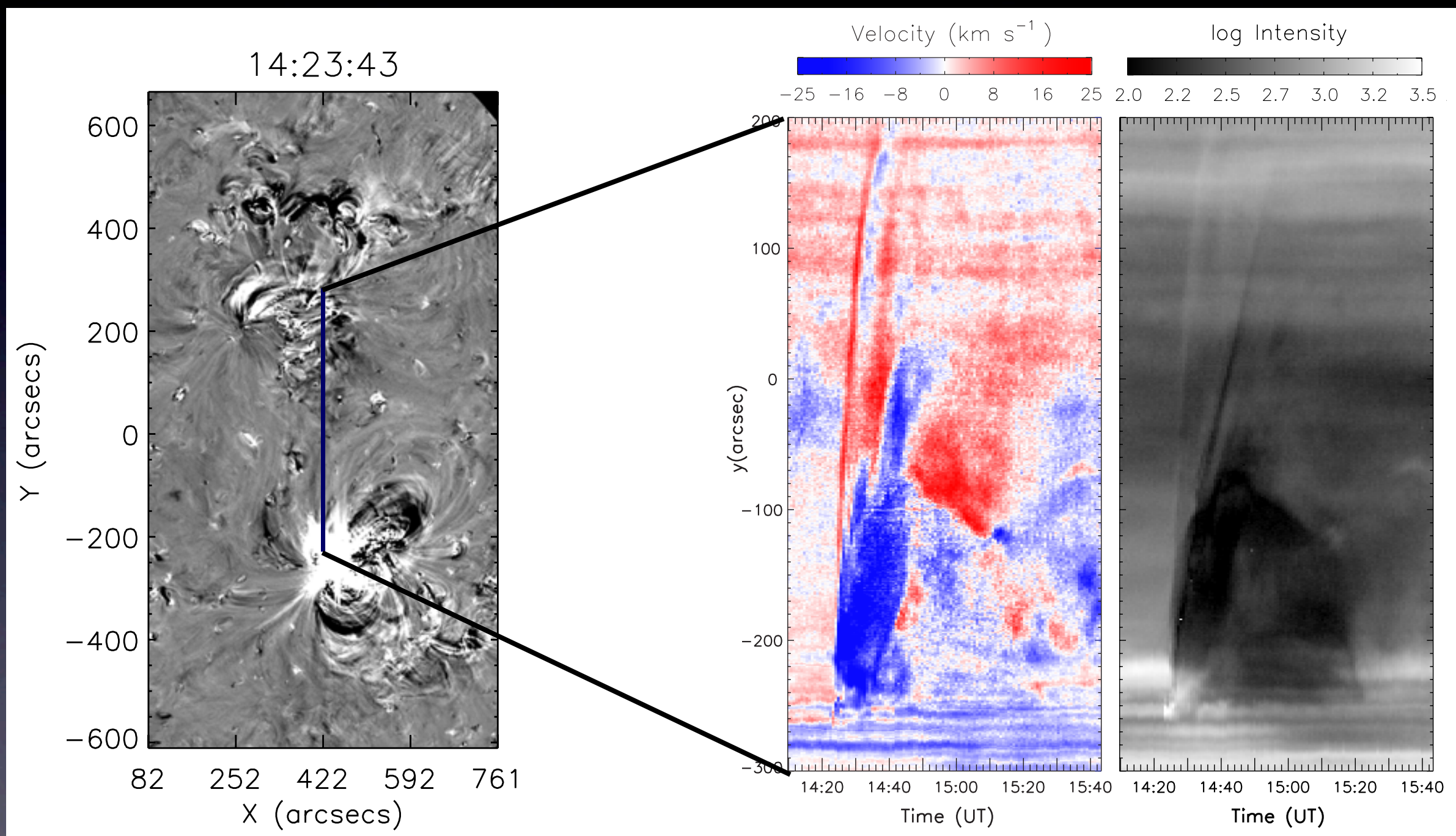
2011-Aug-9

SWAP



2011-Aug-9

EIS



2011-Feb-16

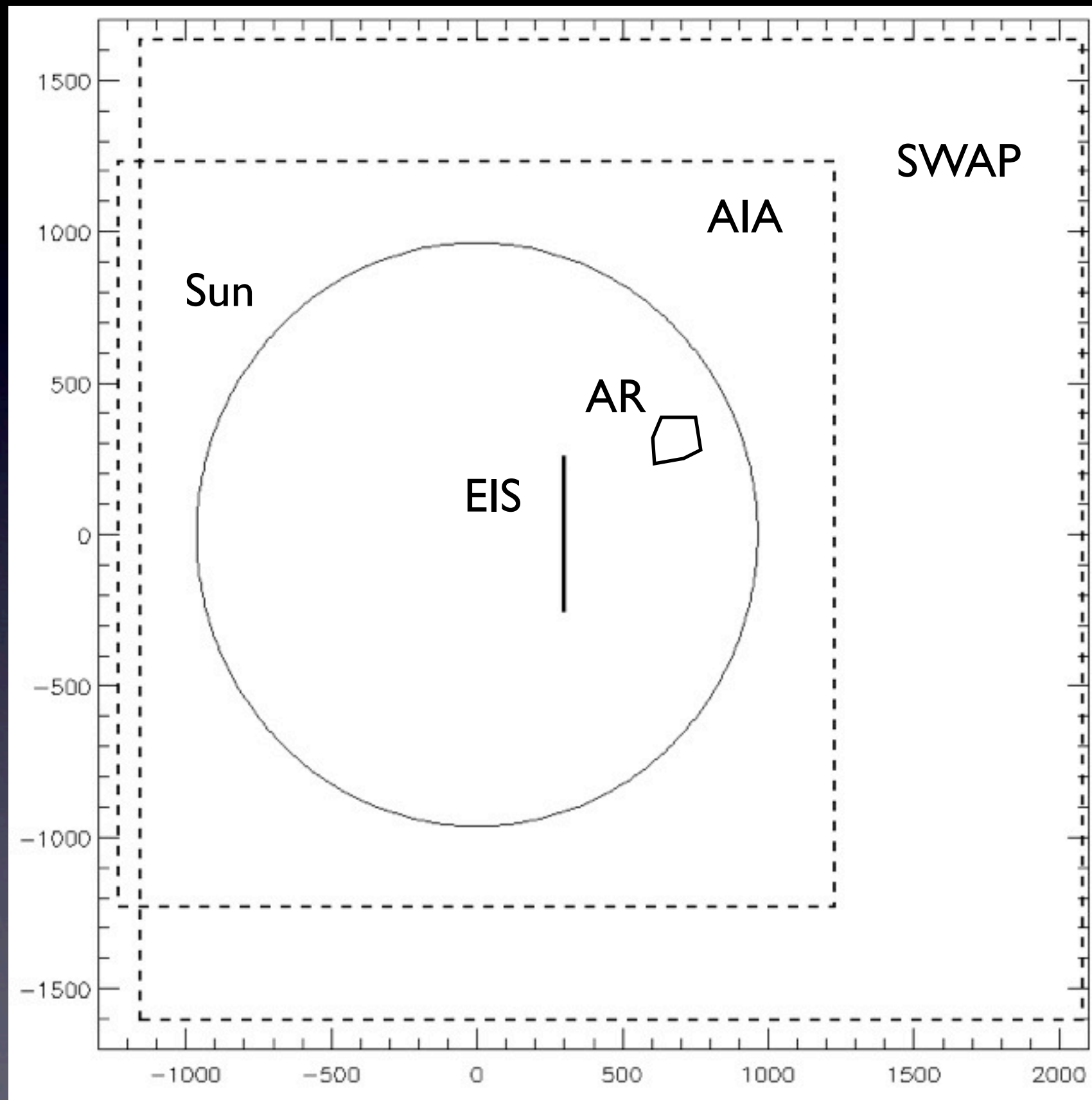
Harra et al. (2011), Veronig et al. (2011)

Joint Observing Plan

(HOP 207)

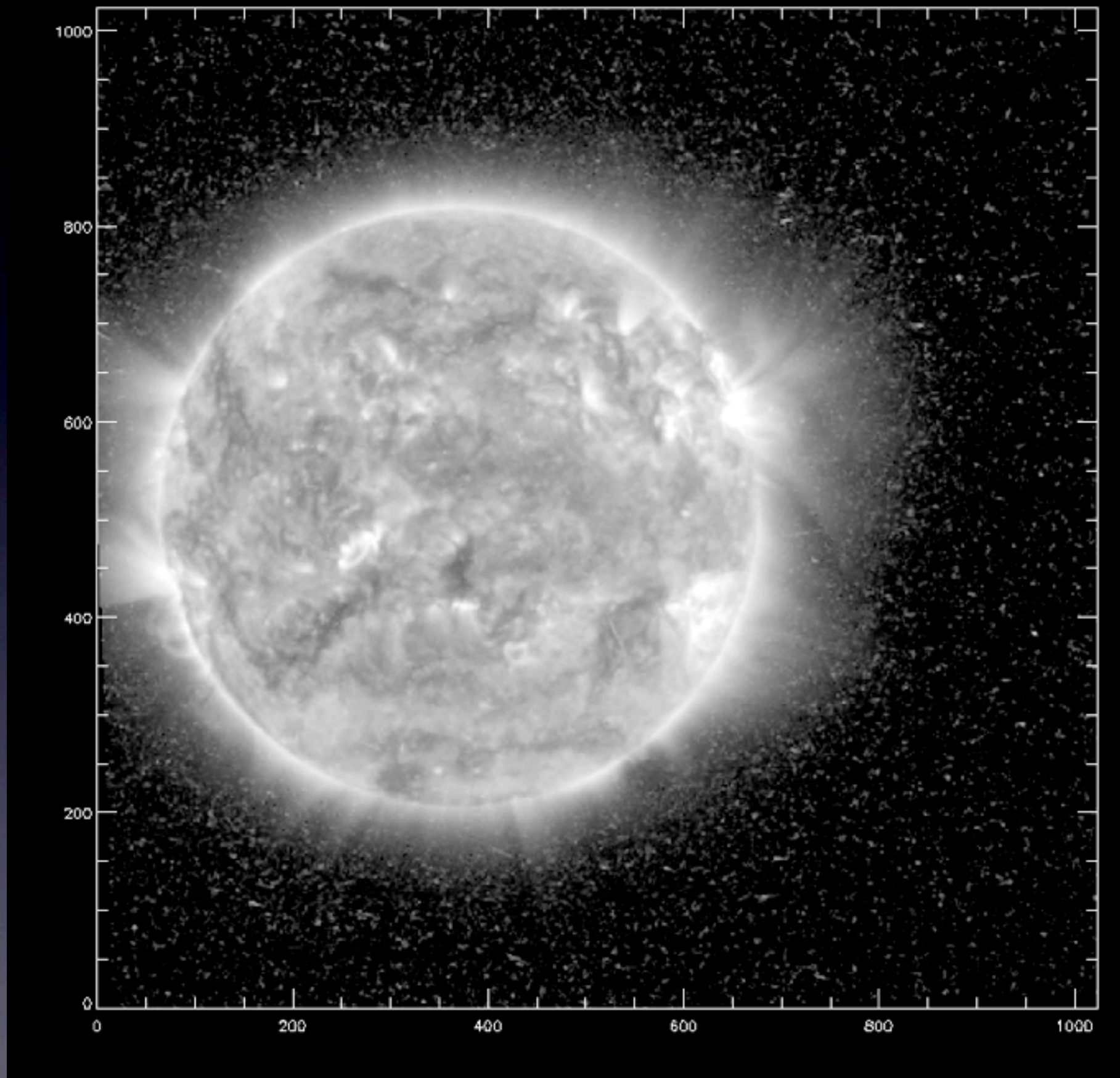
- *Proba-2/SWAP*:
 - Off-pointed with high-cadence, high-intensity images (174A @ 100s nominal cadence)
- *Hinode*:
 - XRT used to identify flare in target active region, triggering EIS
 - EIS used to get spectroscopic observations of “EIT Wave” pulse
 - Multiple density-sensitive line ratios across a range of temperatures
- AIA;
 - High-resolution, high-cadence low coronal observations

Joint Observing Plan



So far..

- 3 observing runs; 12 & 20 March, 2 April
 - No successful observations
- Some issues on all occasions
 - Hinode manoeuvres, Proba-2 server issues etc.
- EIS observing plan now fully incorporated
- Actively hunting for promising active regions



2012-Mar-20

Science & Space Weather Opportunities for *PROBA-2*, ROB, 2012-May-4

dml@mssl.ucl.ac.uk

Friday 4 May 2012