Deconstructing AR10961: a multi-instrument examination using Hinode, STEREO, TRACE & SOHO

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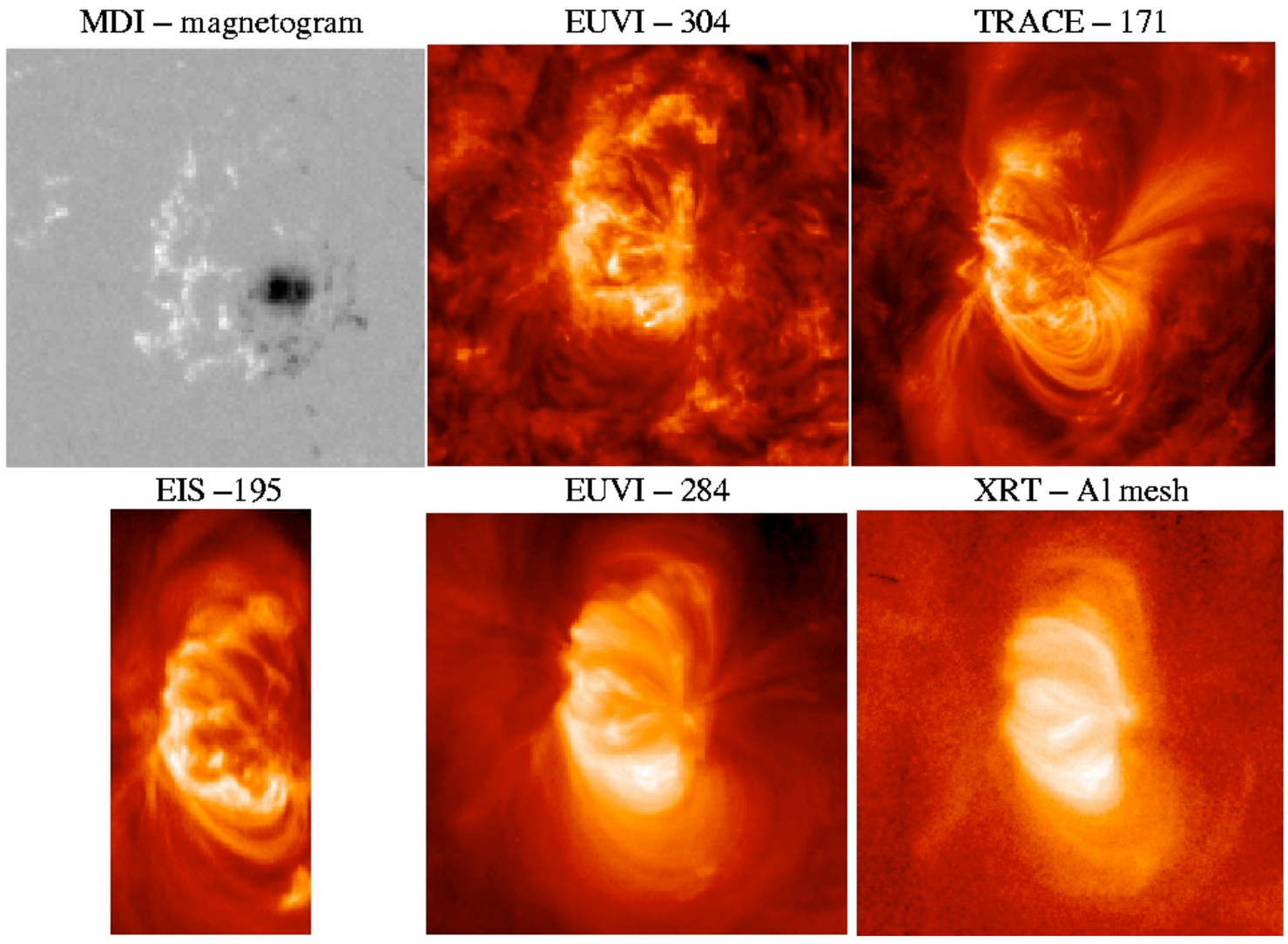
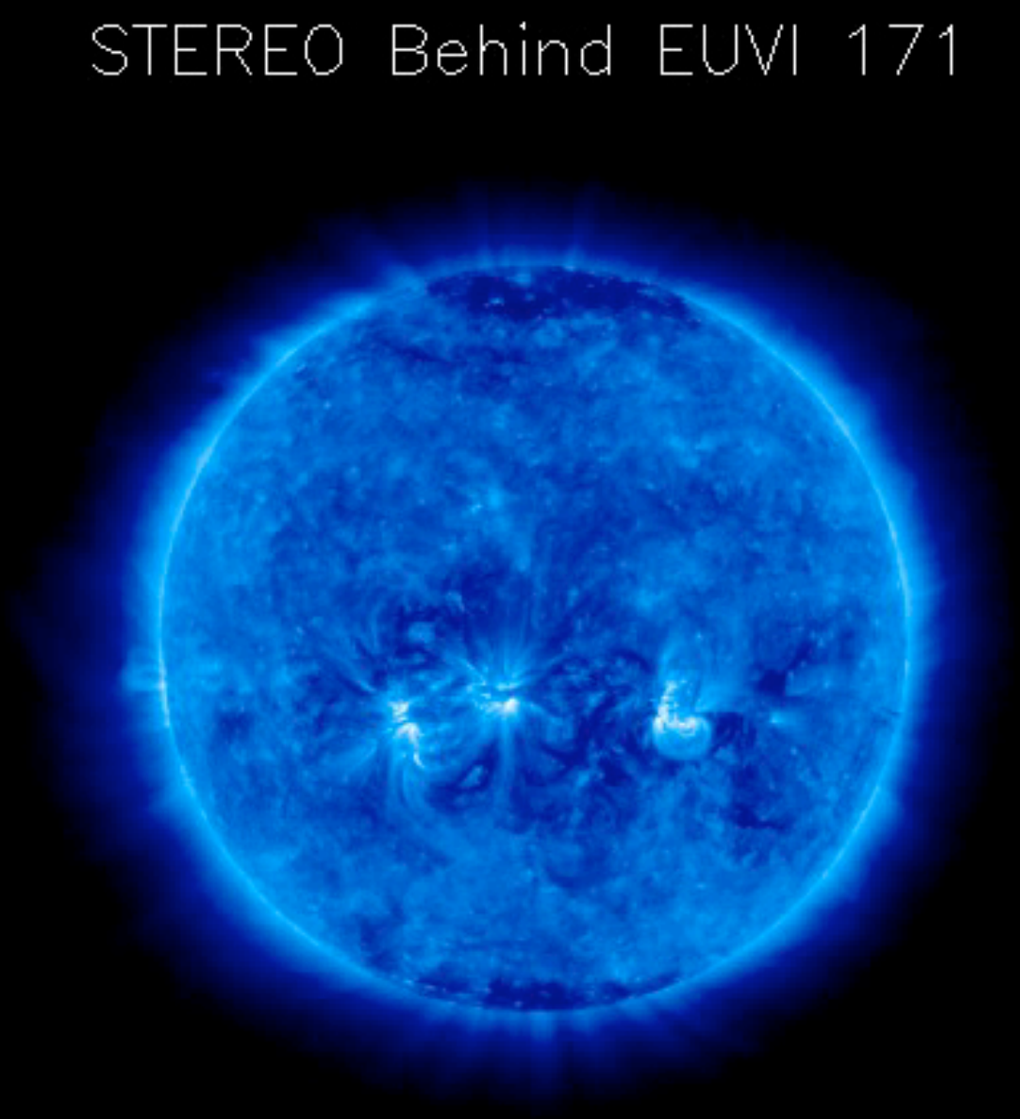
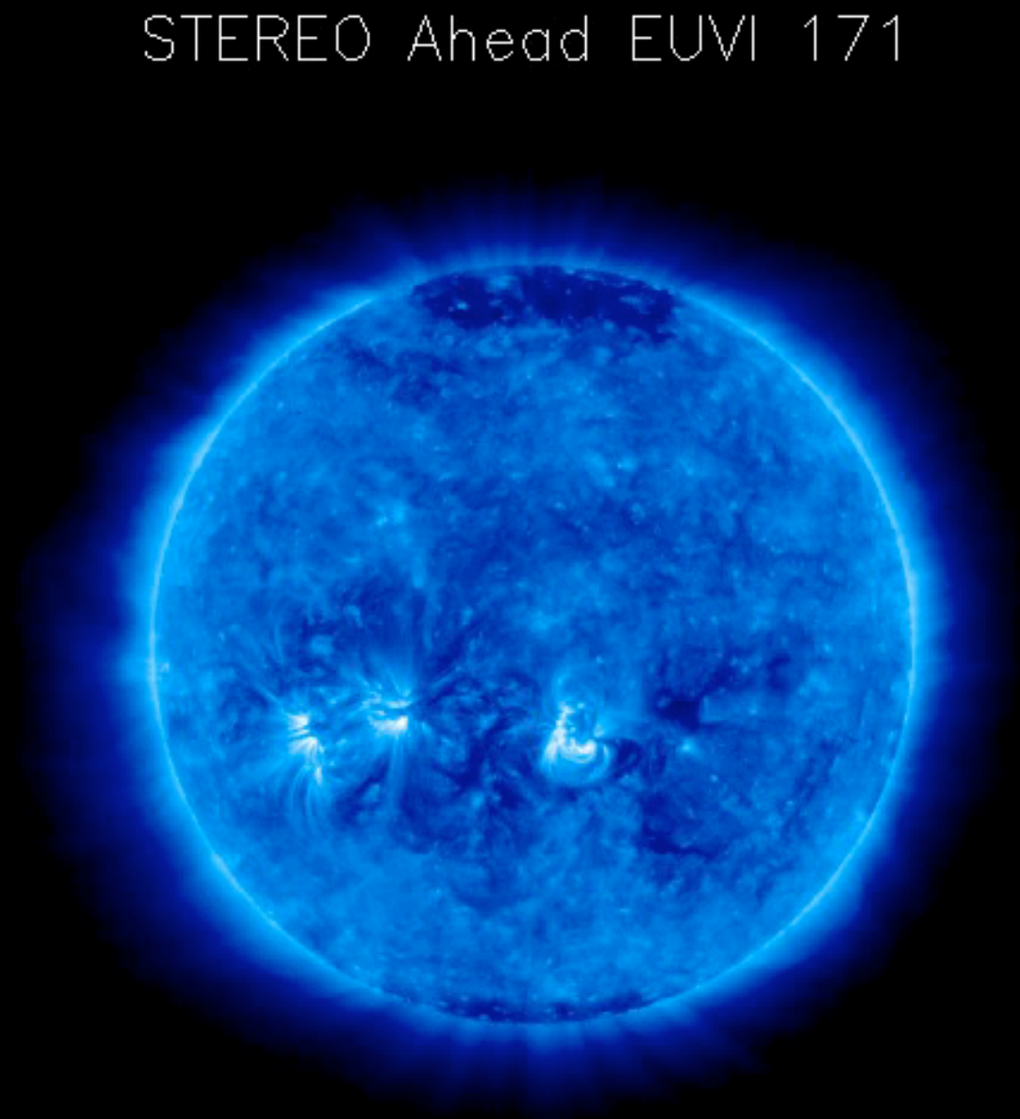


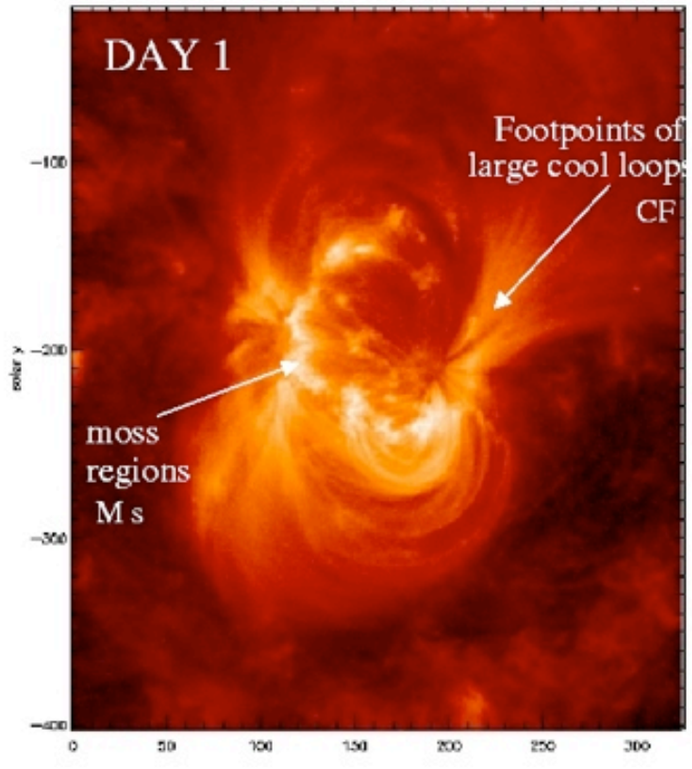
Hinode Observing Programme 018 including:

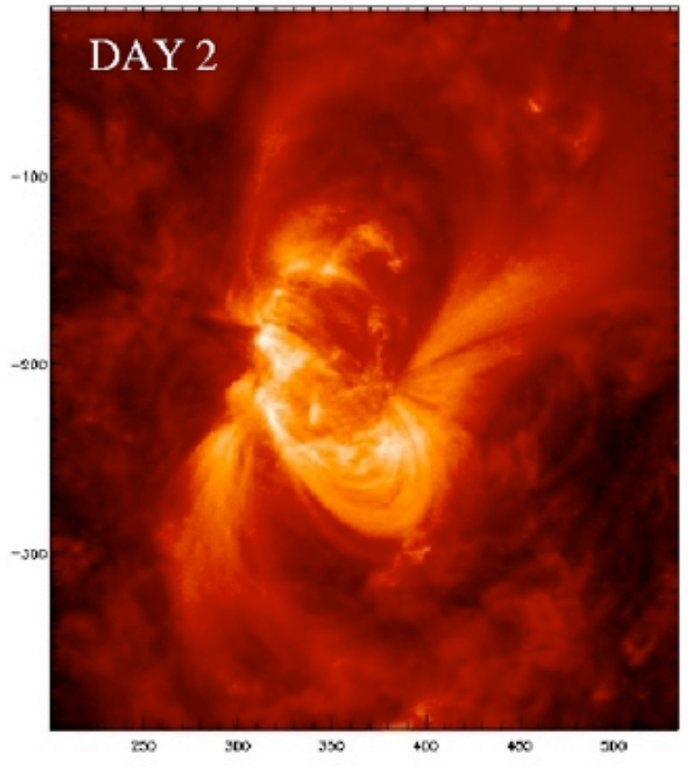
- Hinode (XRT, EIS) STEREO (EUVI), TRACE, SOHO (MDI)
- AR10961 - compact, no major flares over observng period

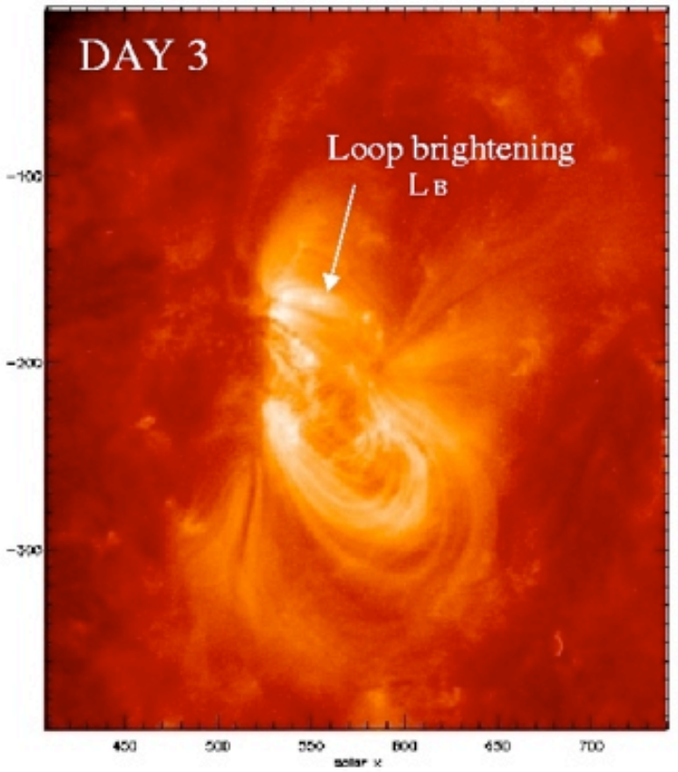


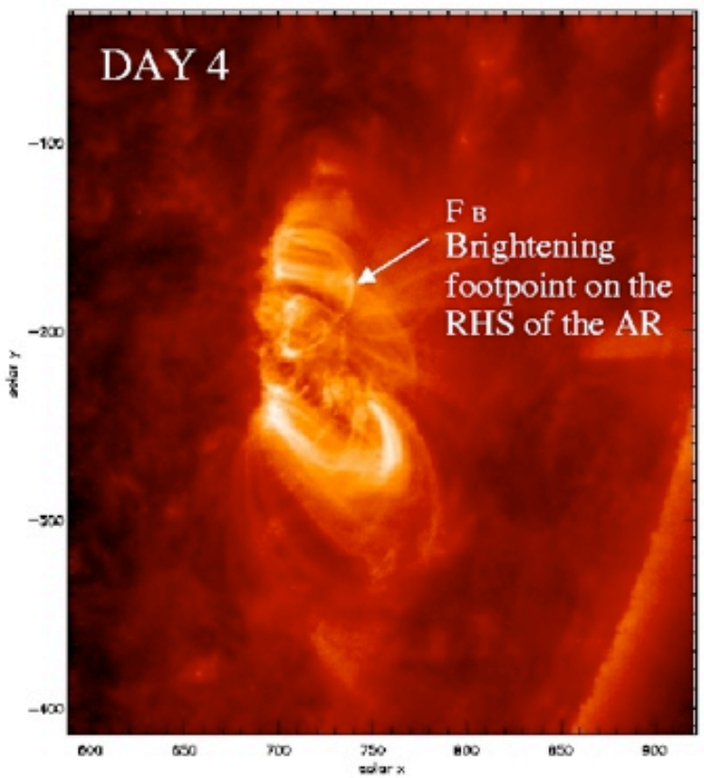


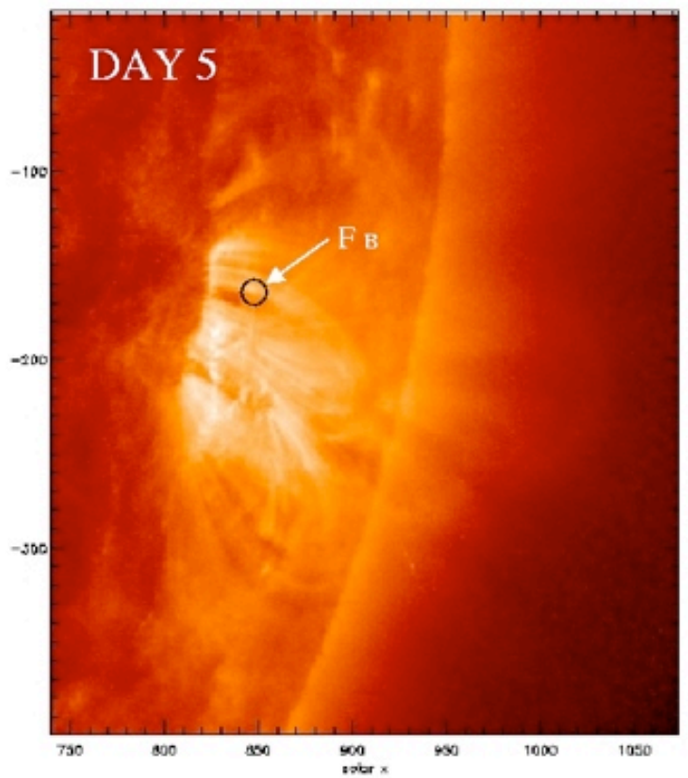
TRACE 171 Angstroms







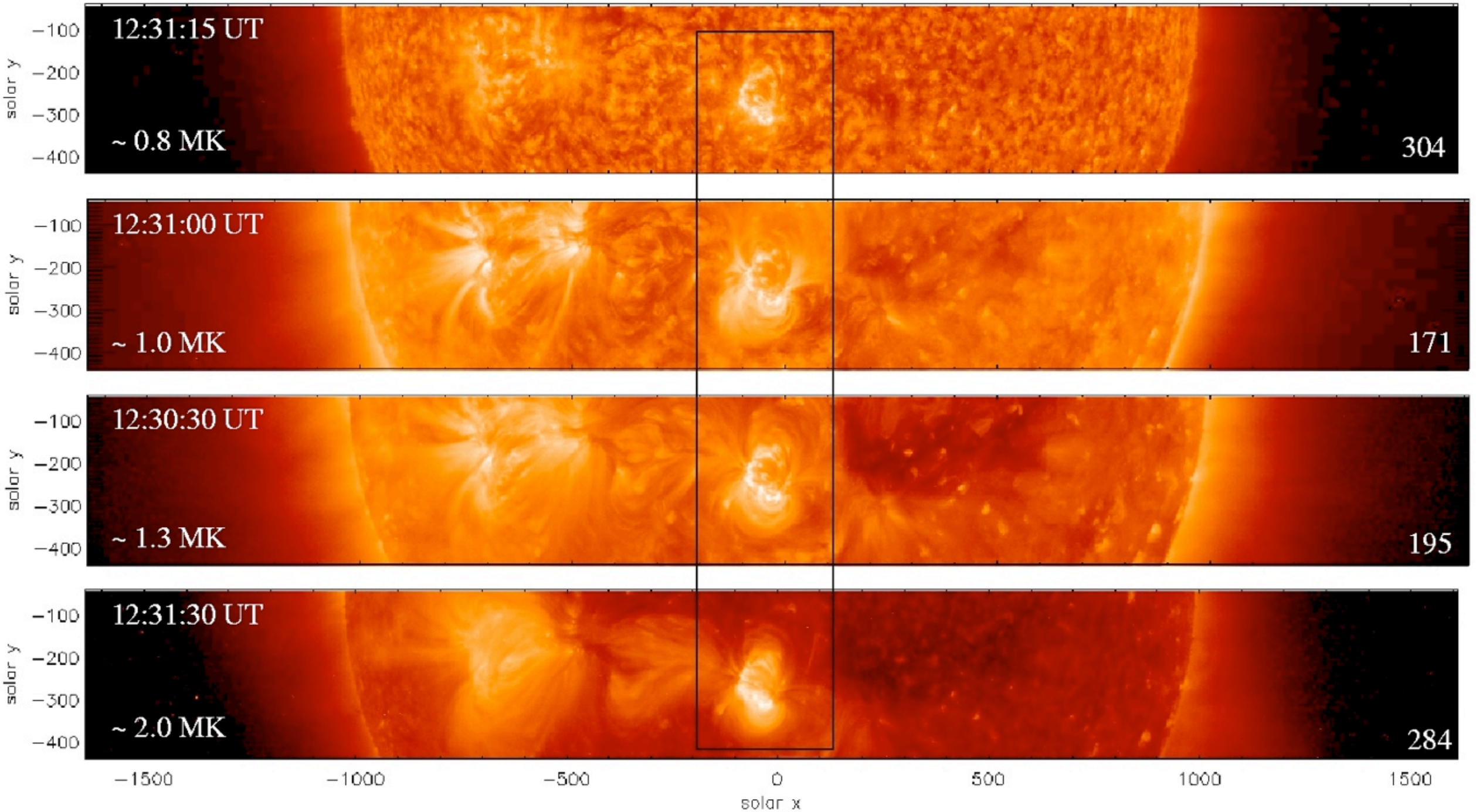




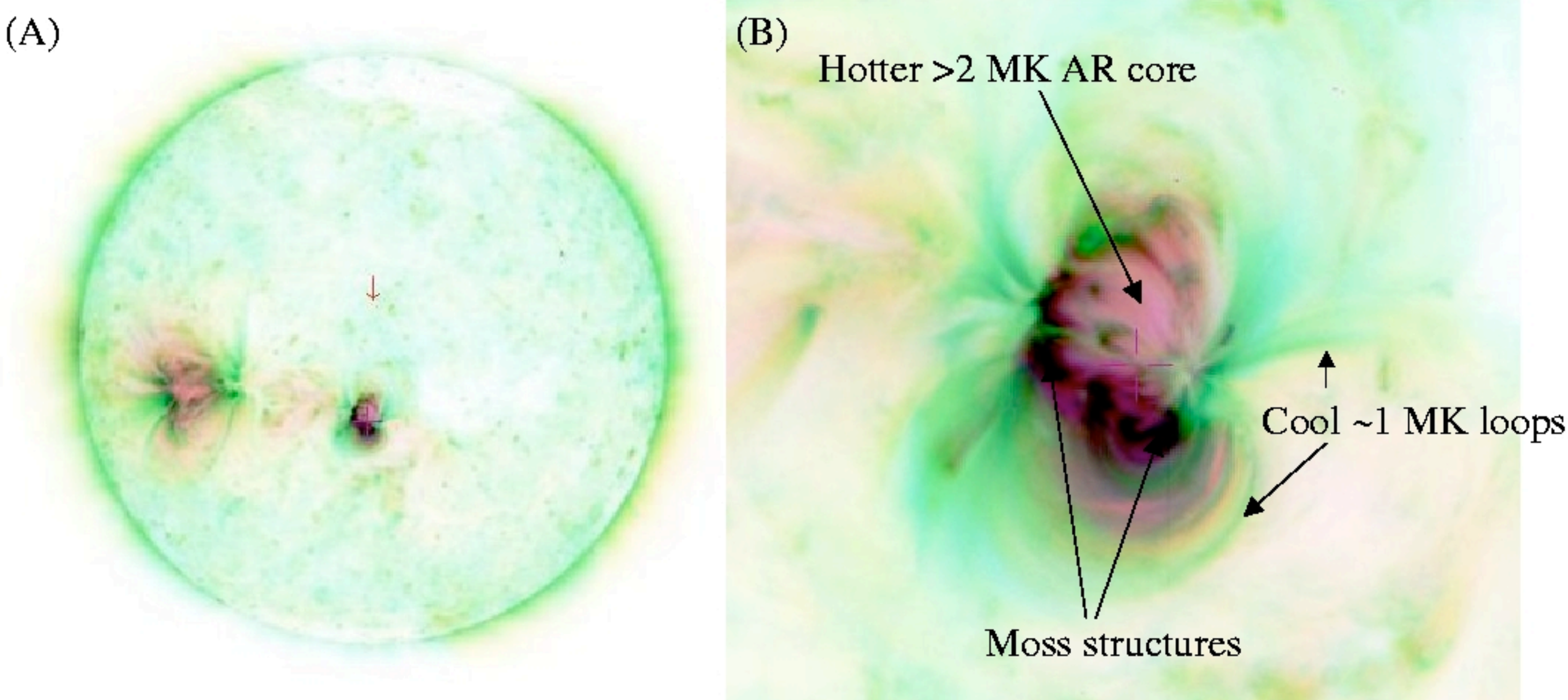
The puzzle that is AR10961

STEREO-A EUVI analysis

Day 1 (2nd July 2007)



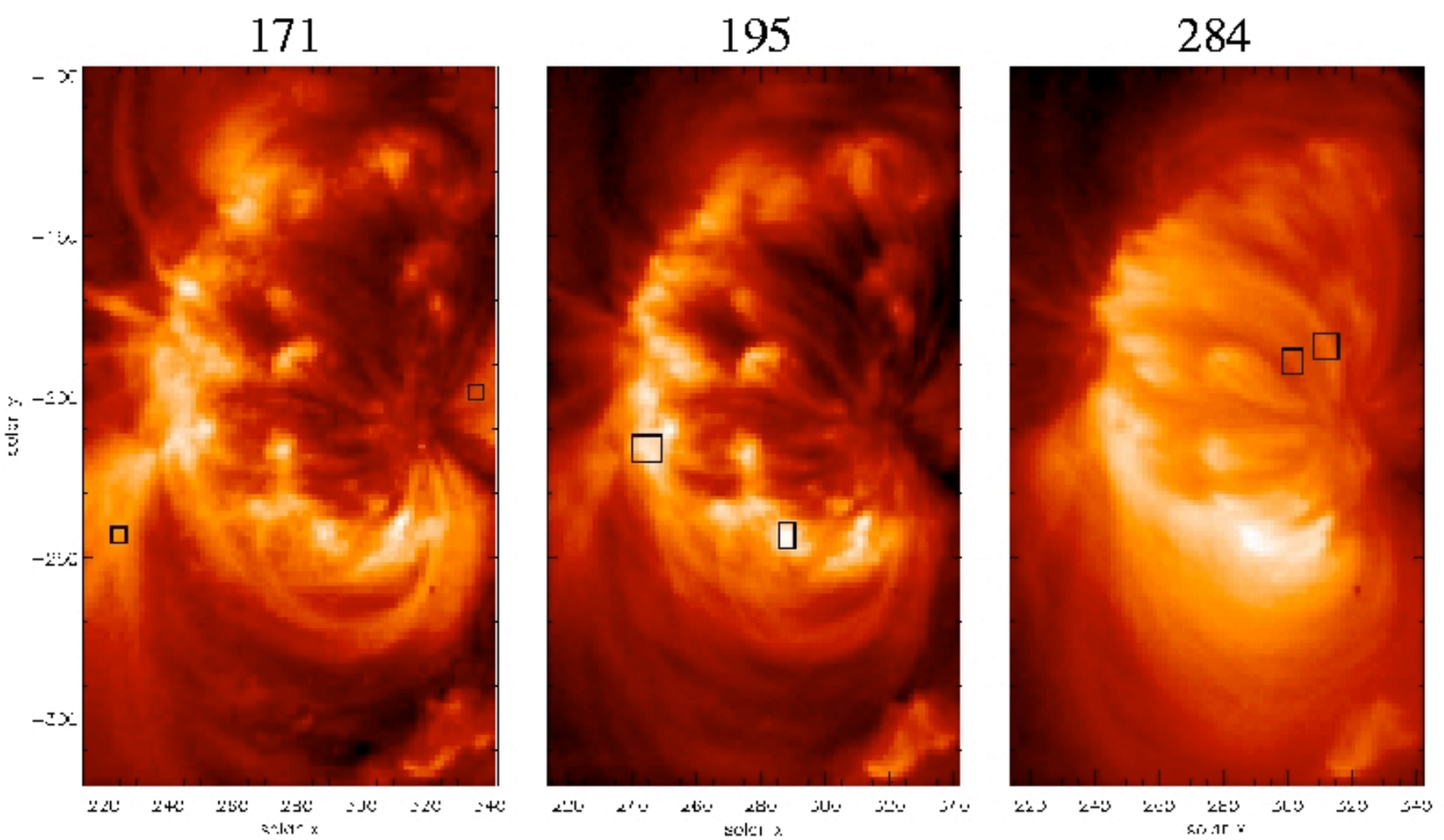
Combining 171, 195 and 284

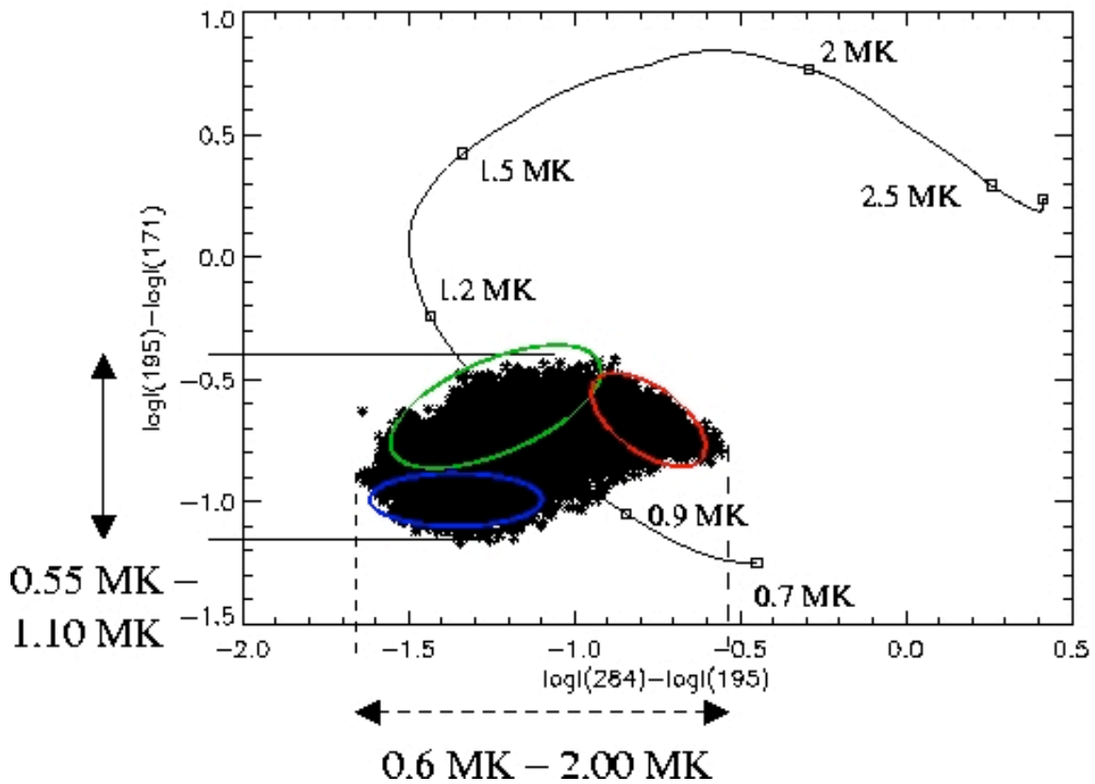


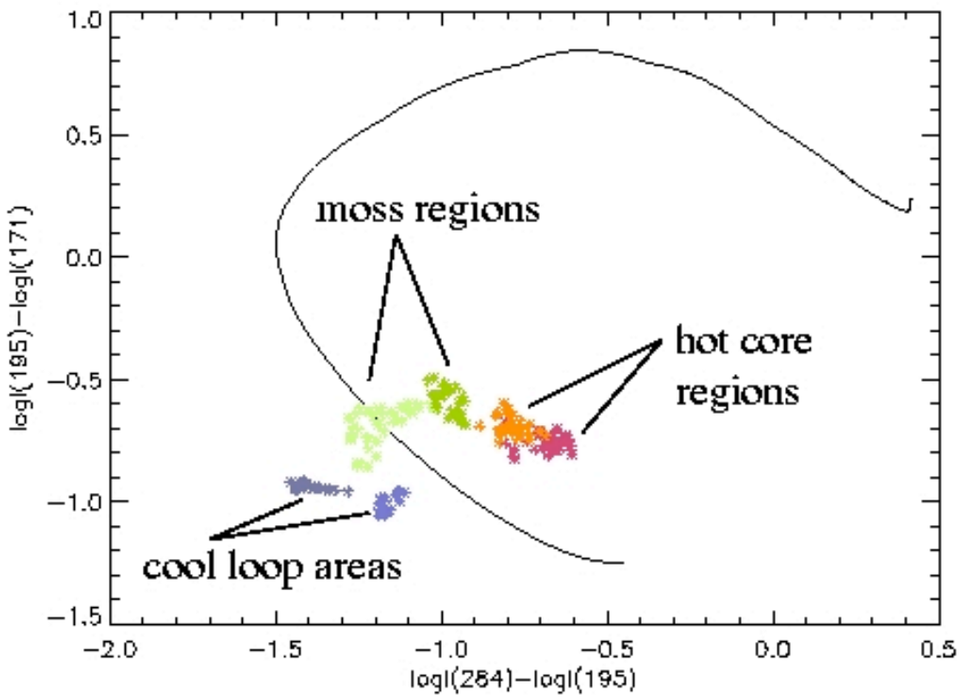
171 Angstroms - blue
195 Angstroms - yellow
284 Angstroms - red

STEREO-A EUVI
Colour-colour plots

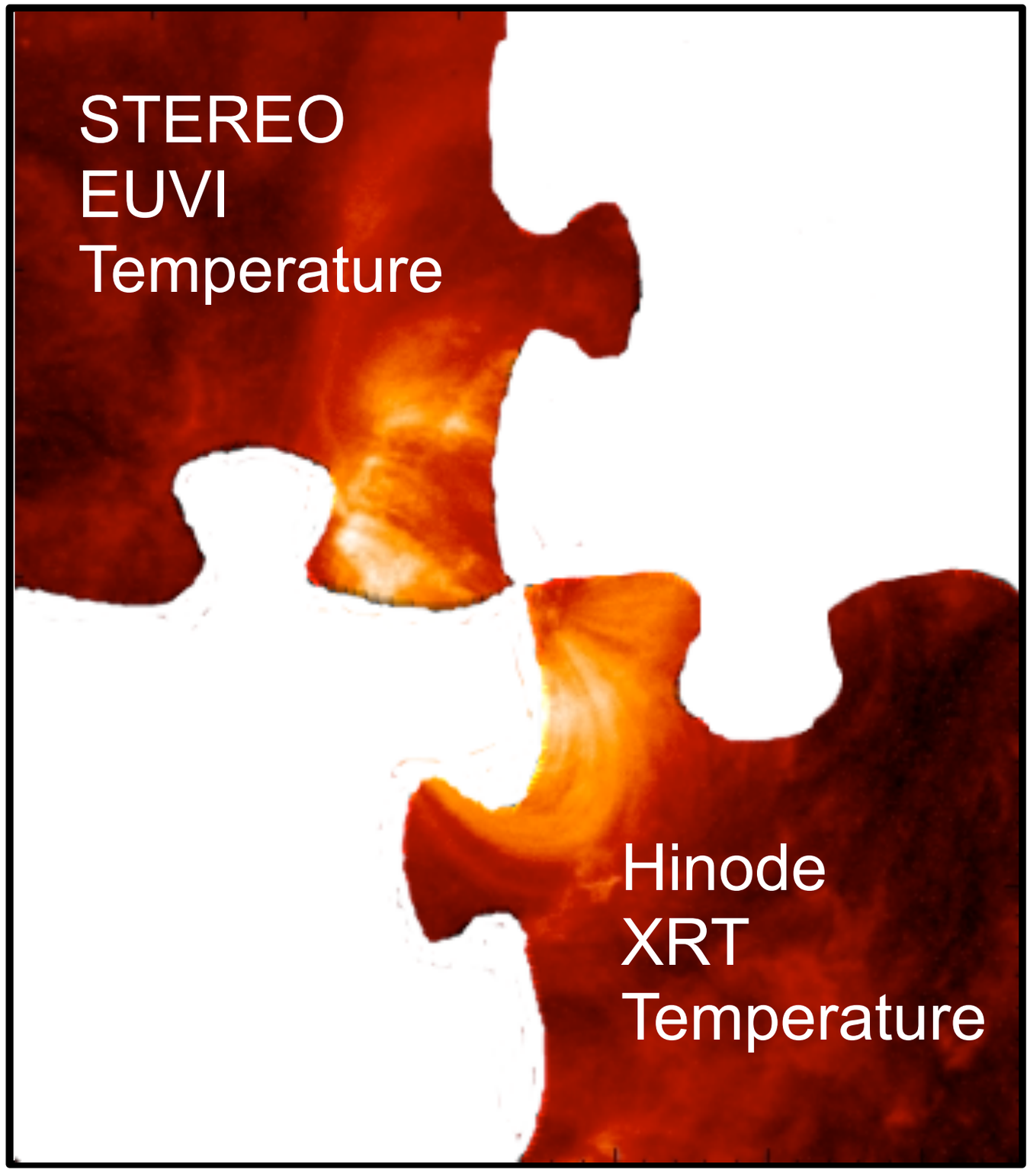
Chae et al, 2002
Noglik & Walsh, 2007
Noglik, Walsh & Cirtain, 2008







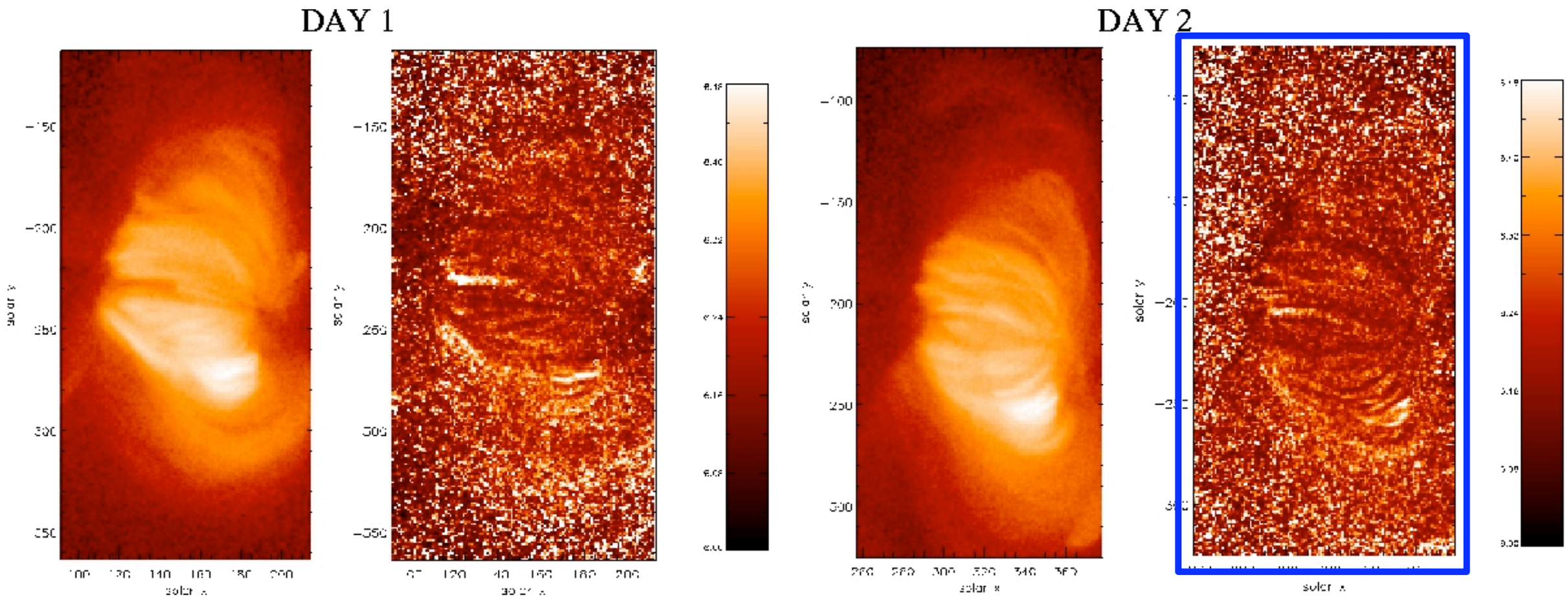
AR10961 jigsaw puzzle



Hinode XRT temperature analysis

Days 1 and 2 : Al mesh, Ti ploy - single filter ratio

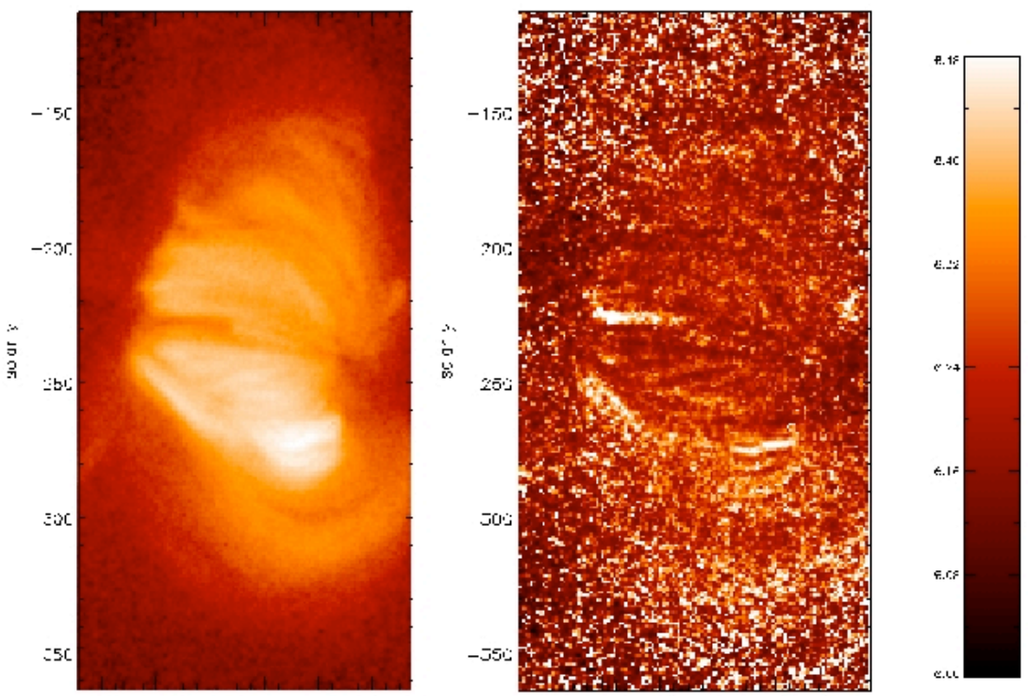
Days 3, 4 and 5 : Al ploy, C poly, Be med, Be thin, Ti ploy, Al thick, Al poly/Ti poly, C poly/Al thick
- combined improved filter ratio (Reale *et al*, 2008)



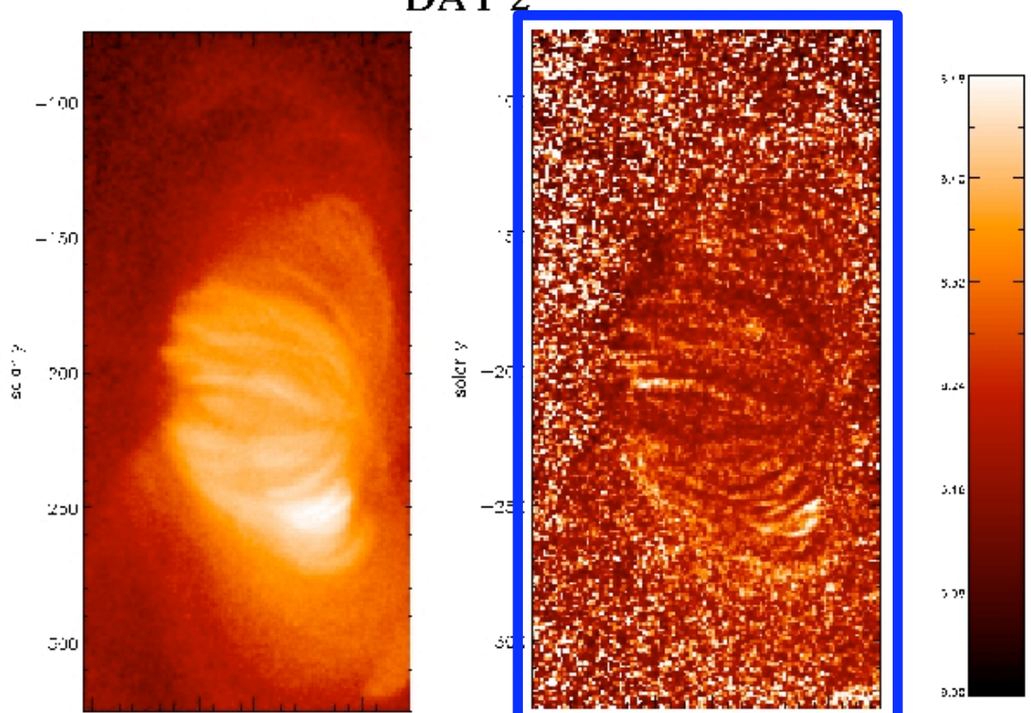
Al mesh

Hinode XRT temperature single filter ratio

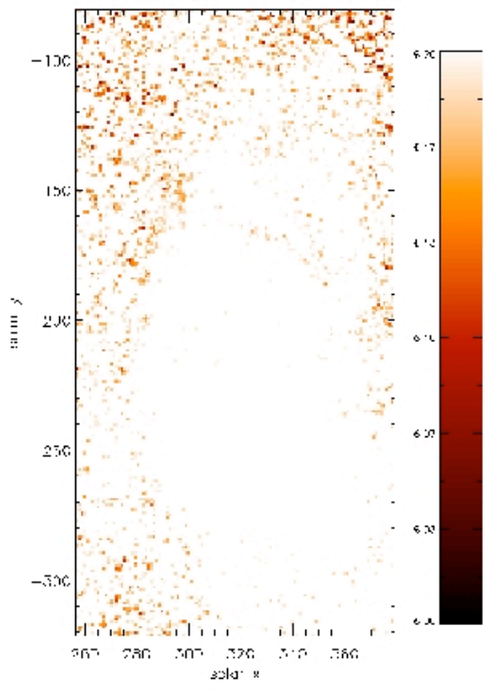
DAY 1



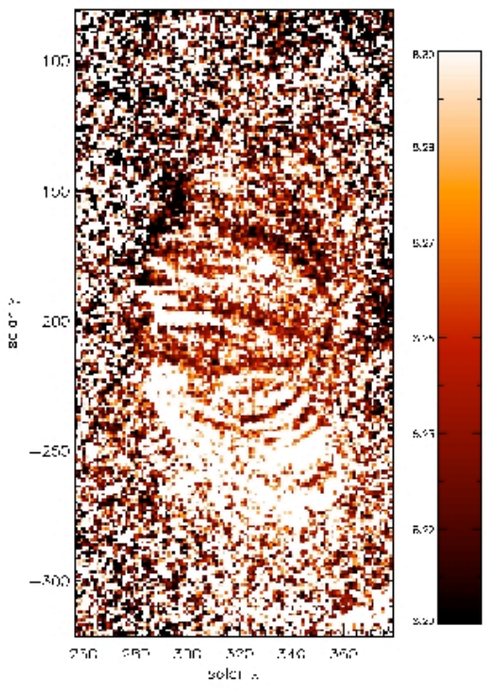
DAY 2



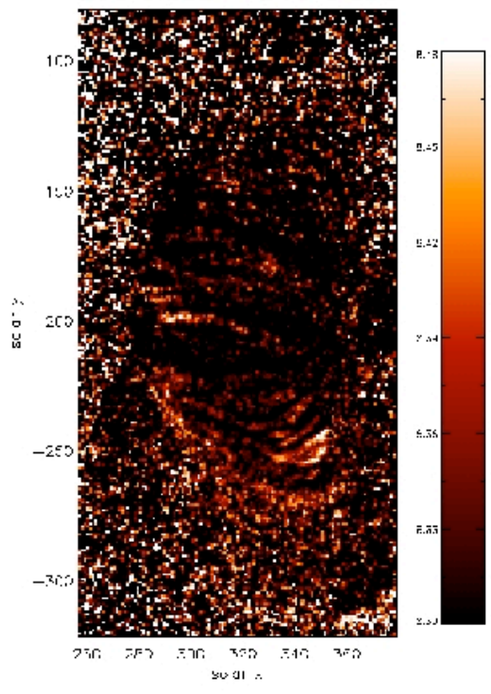
0.7 MK – 1.6 MK



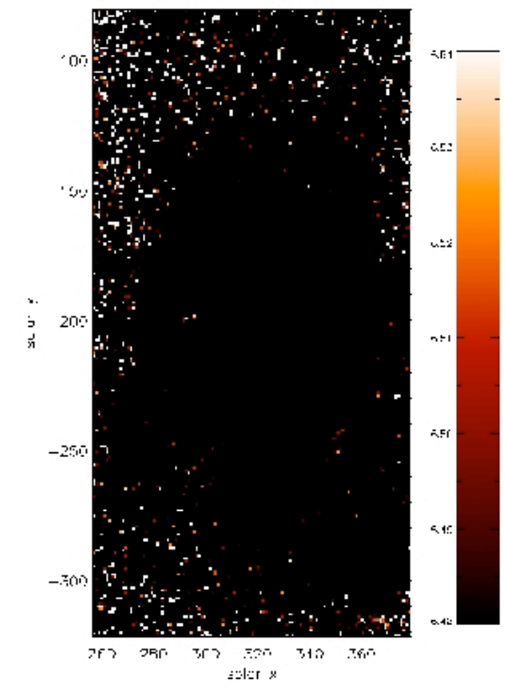
1.6 MK – 2.0 MK



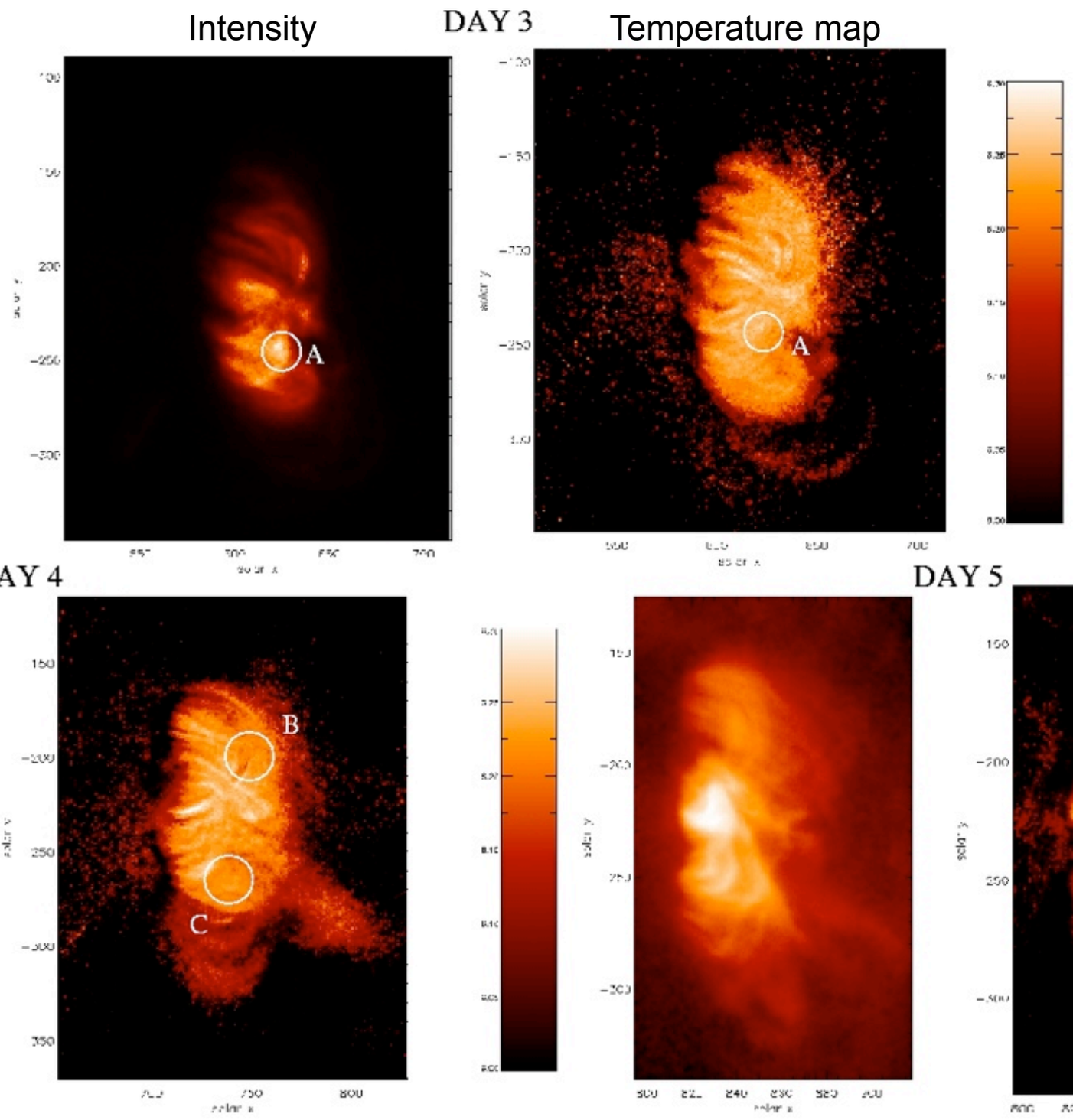
2.0 MK – 3.0 MK



3.0 MK – 3.5 MK

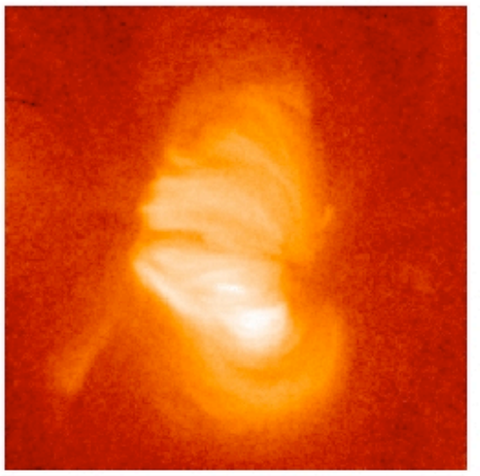


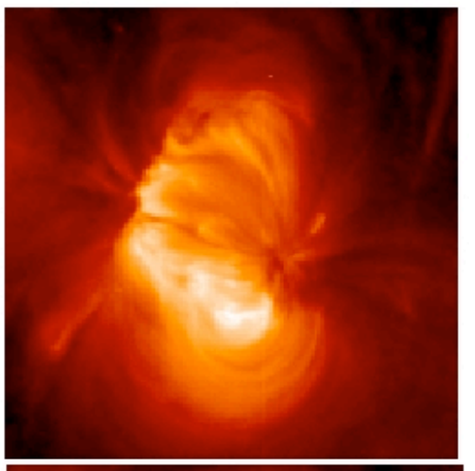
Hinode XRT CIFR technique



STEREO B – 284 | XRT | STEREO A – 284

DAY 1





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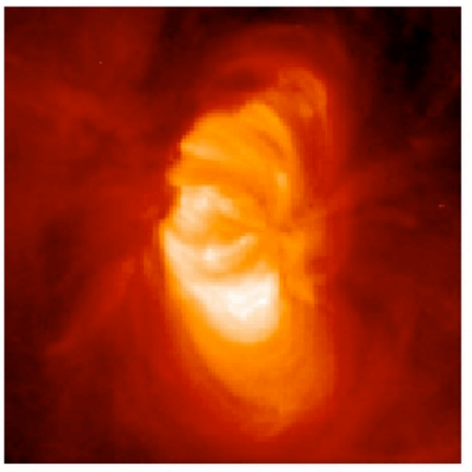

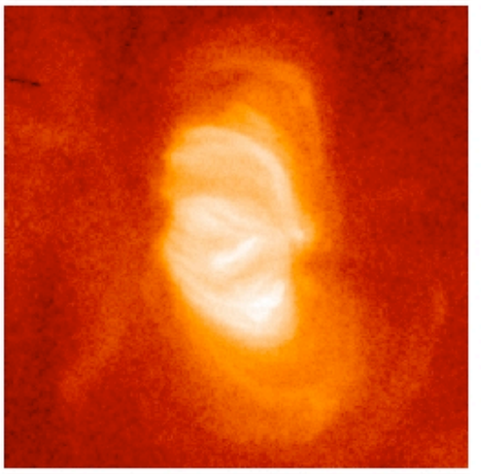

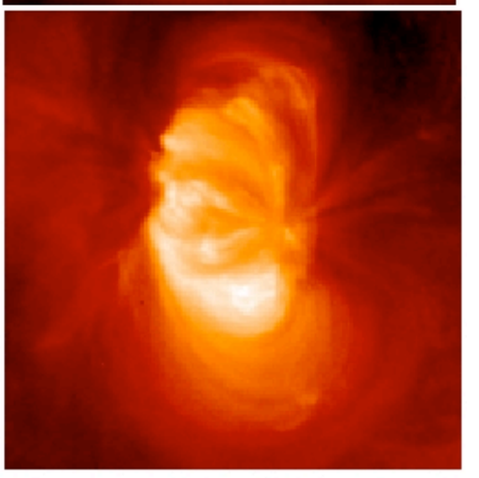

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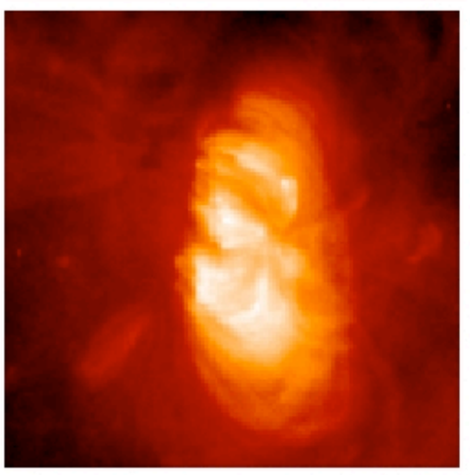

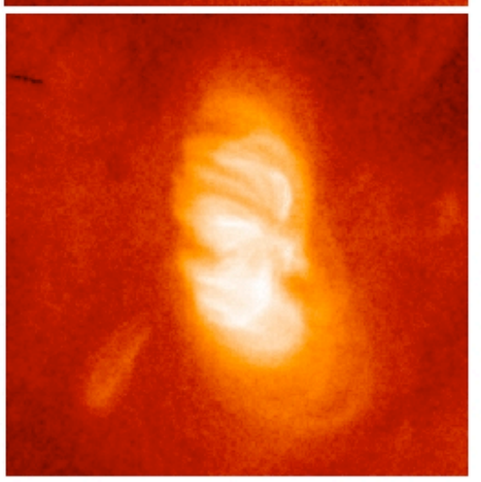

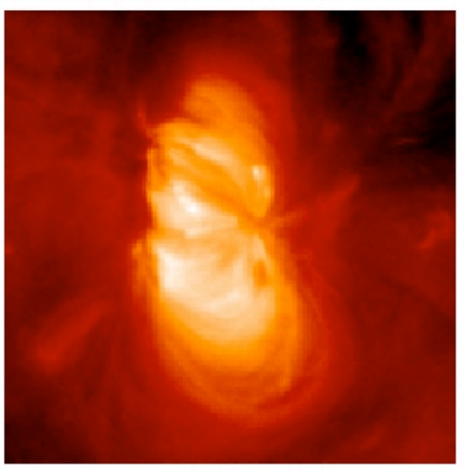

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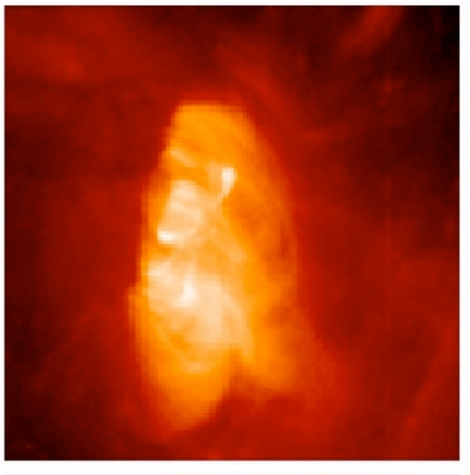

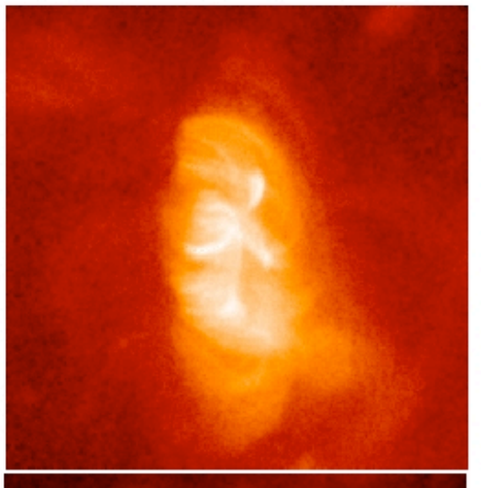

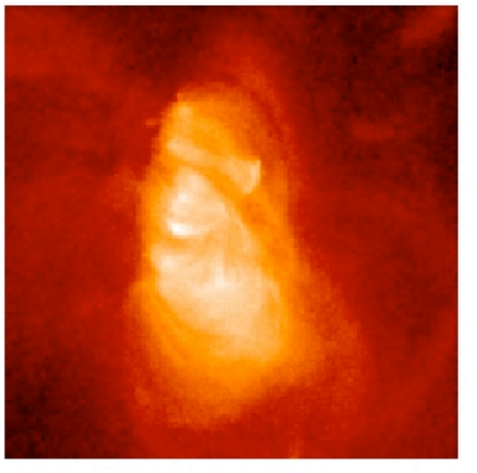

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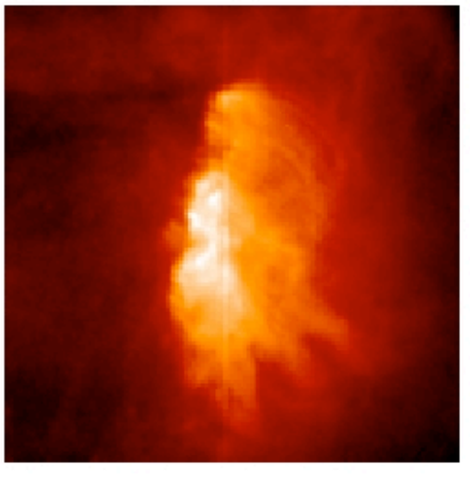
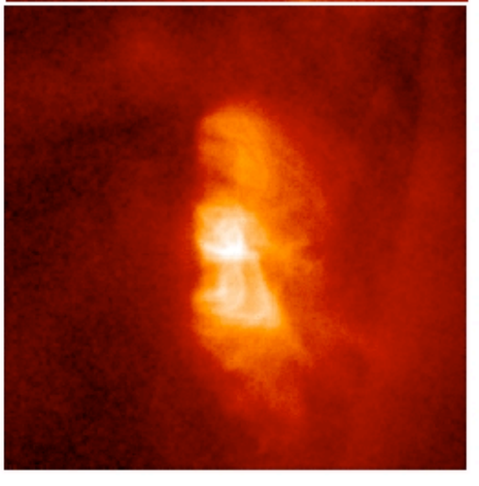
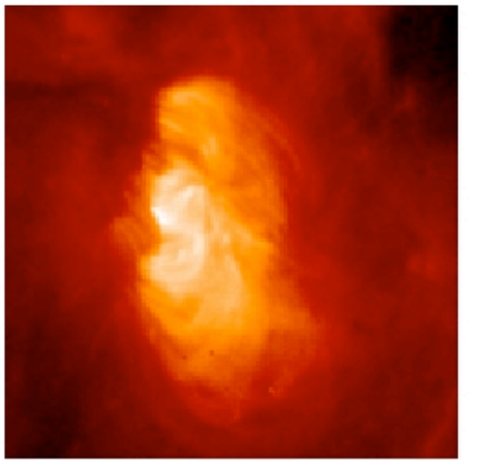
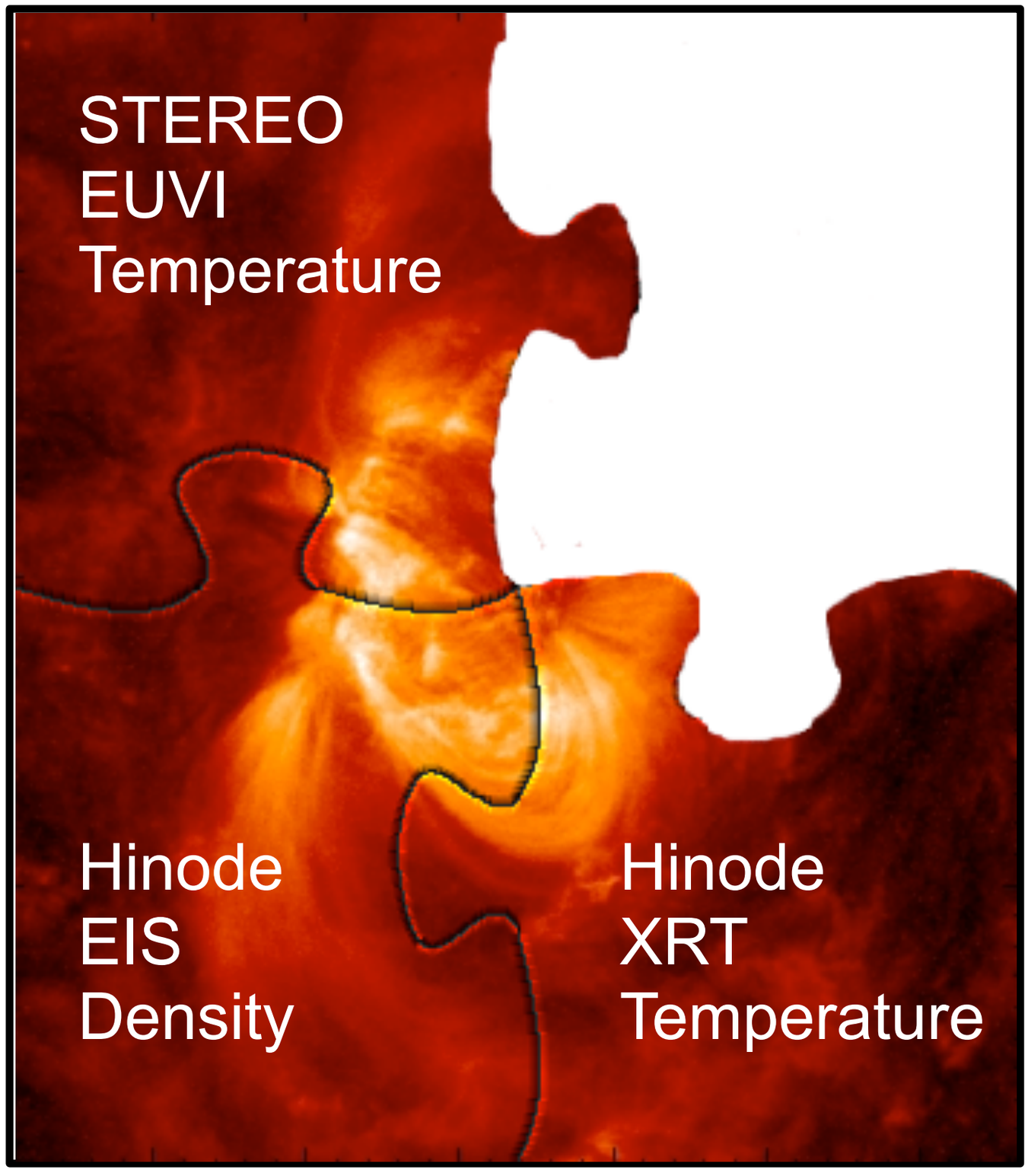


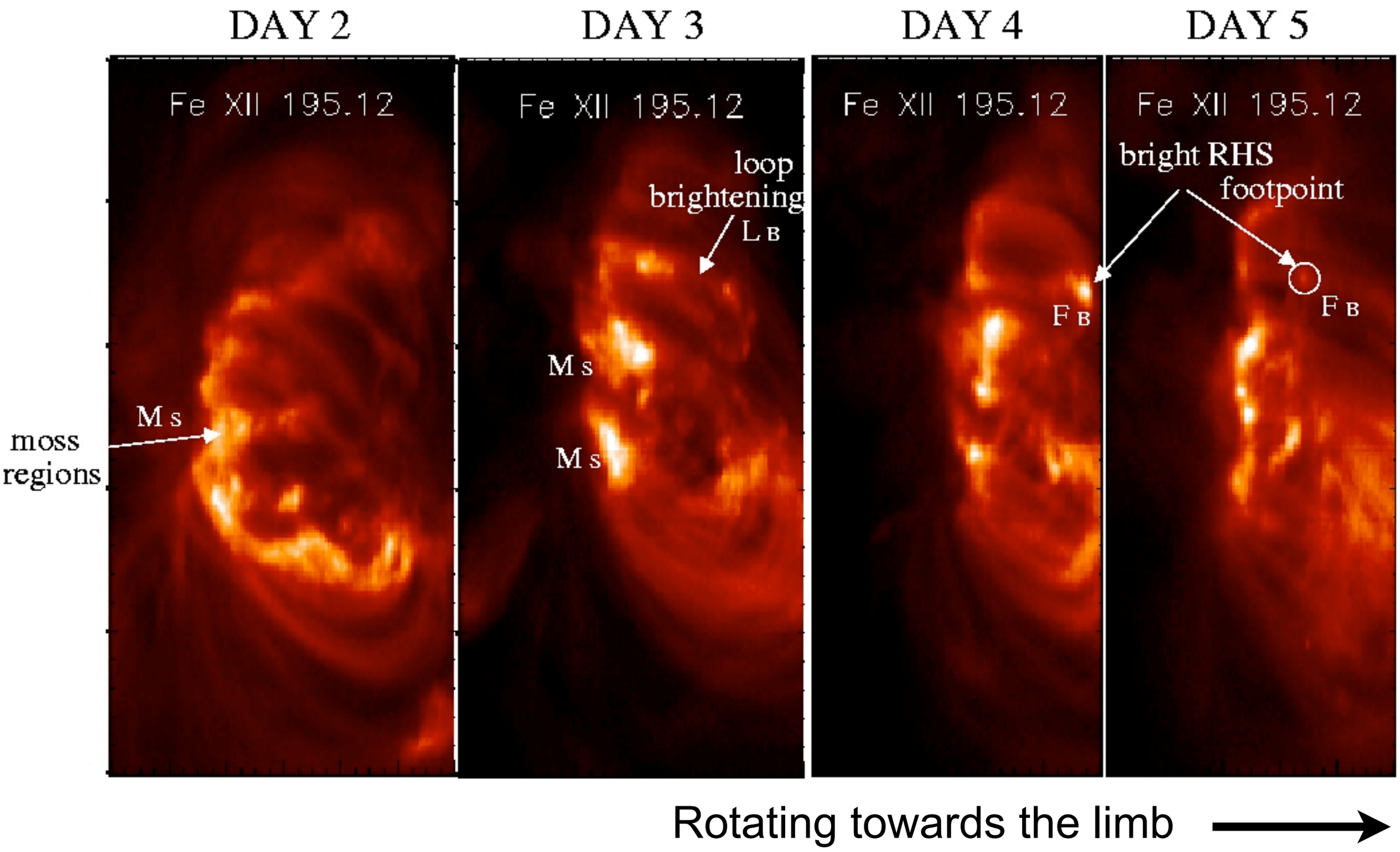




AR10961 jigsaw puzzle



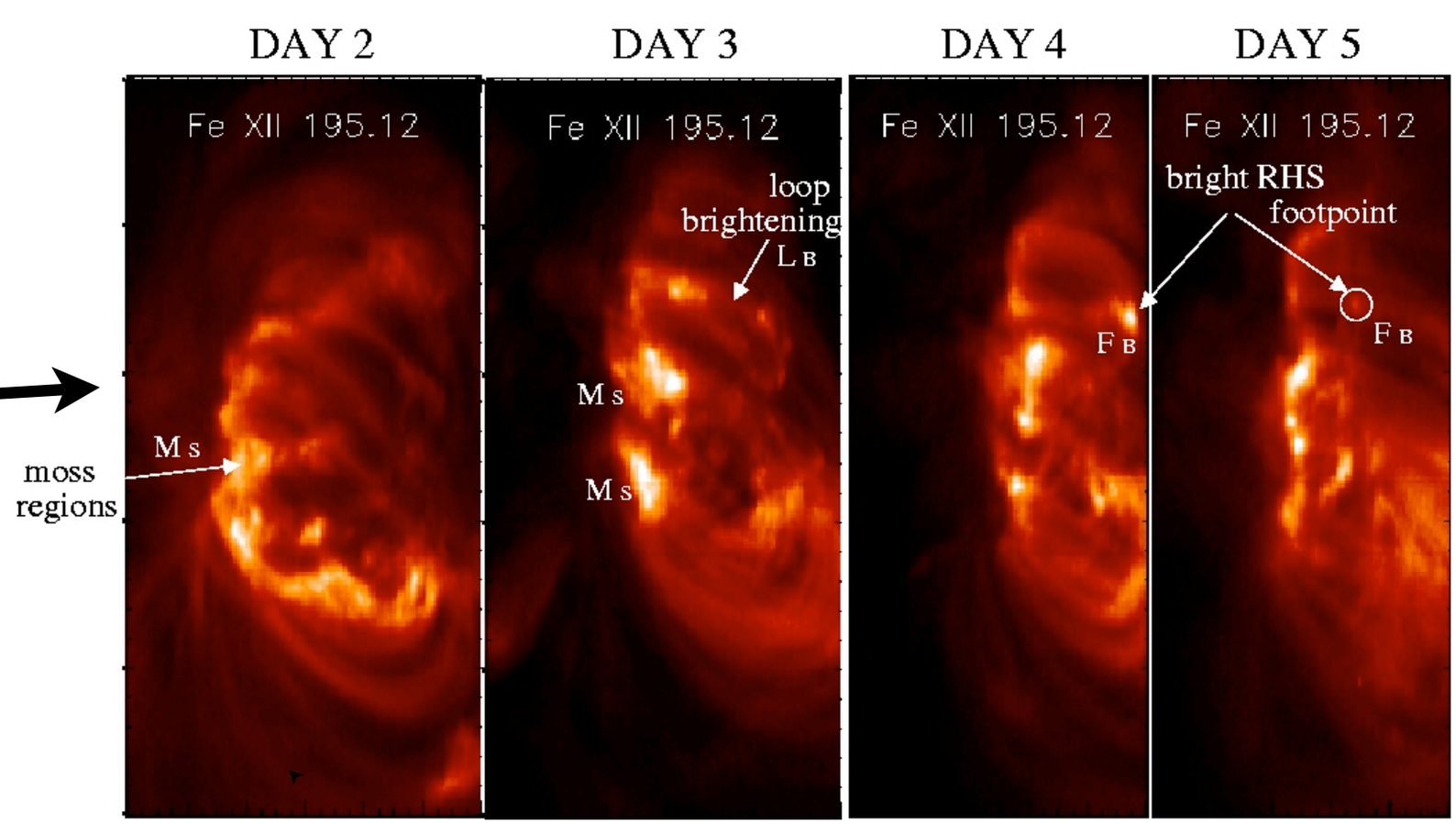
Hinode EIS Fe XII intensities

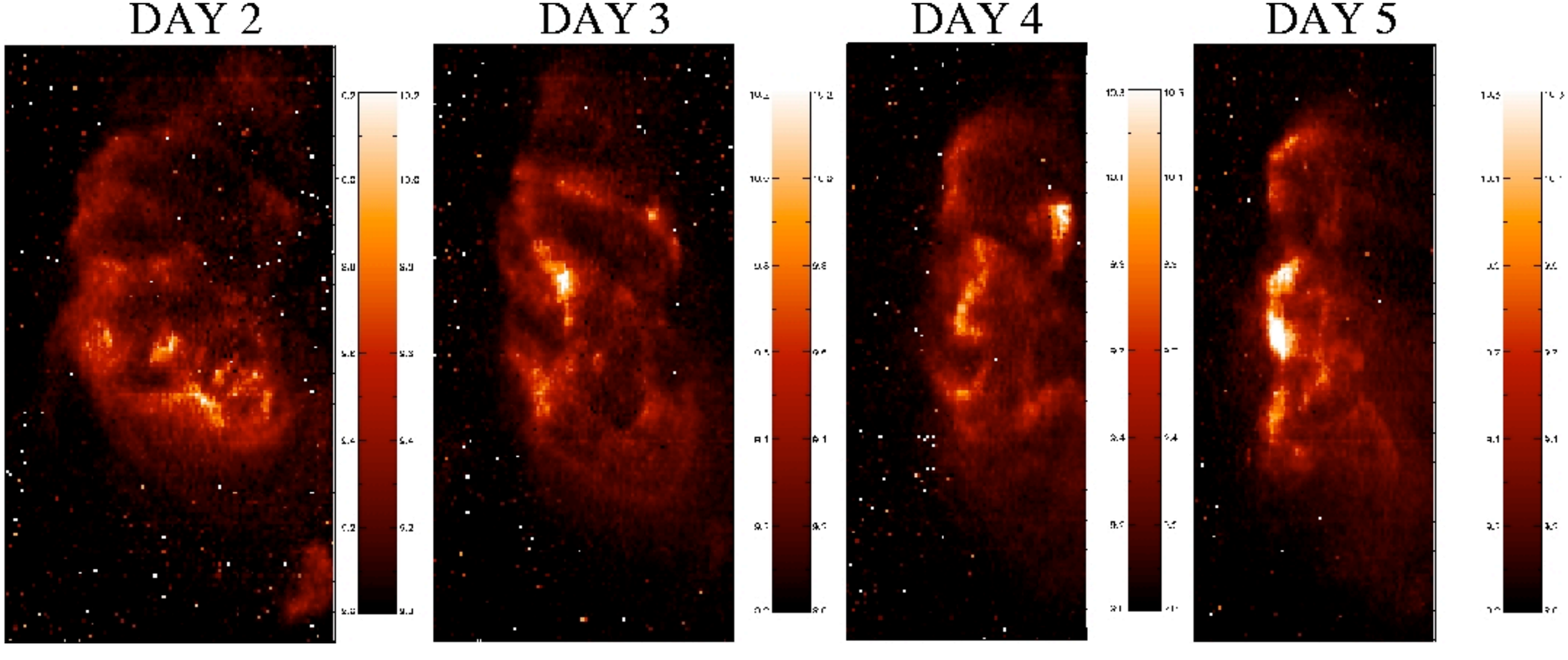


Hinode EIS Fe XII

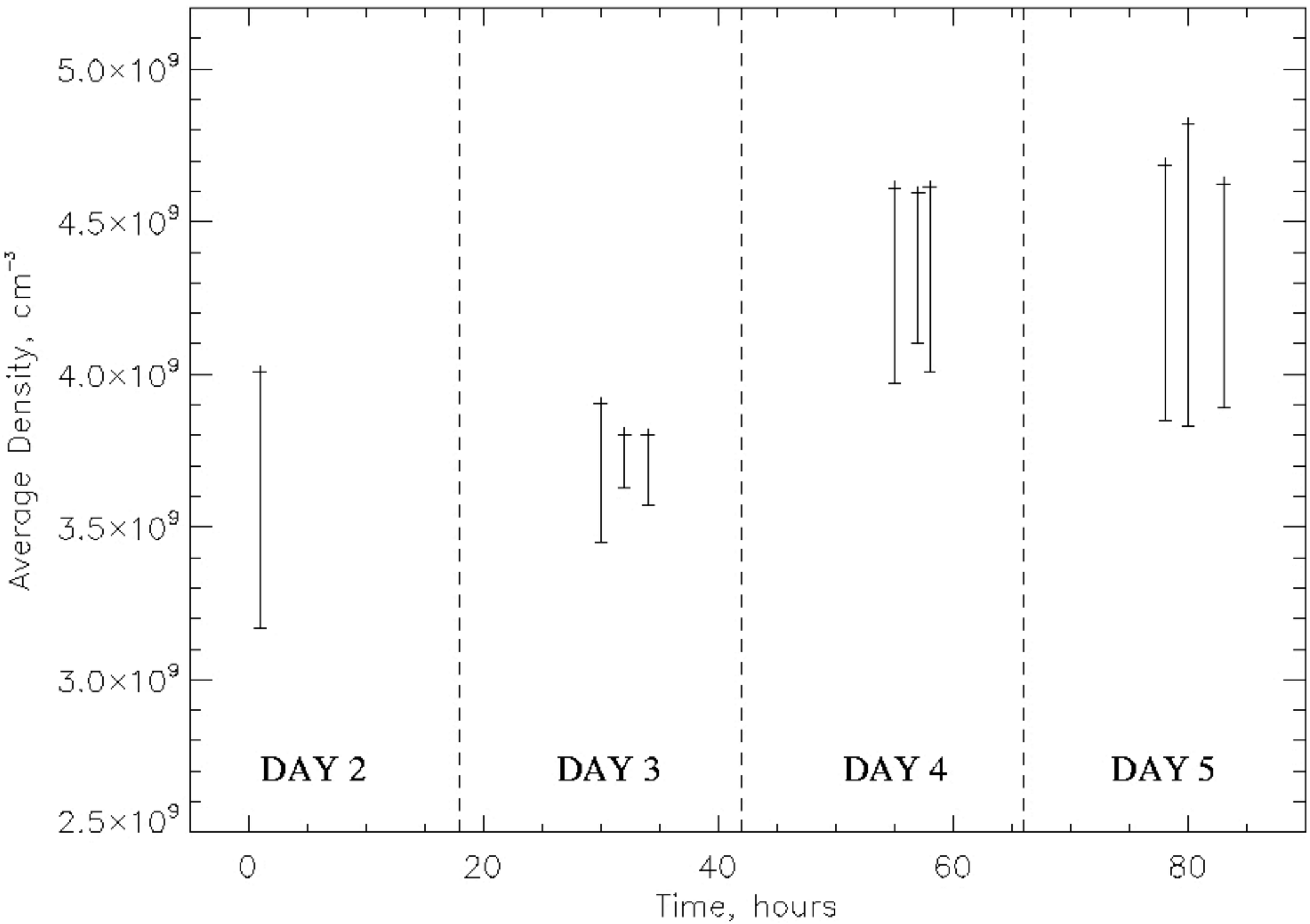
intensity

density

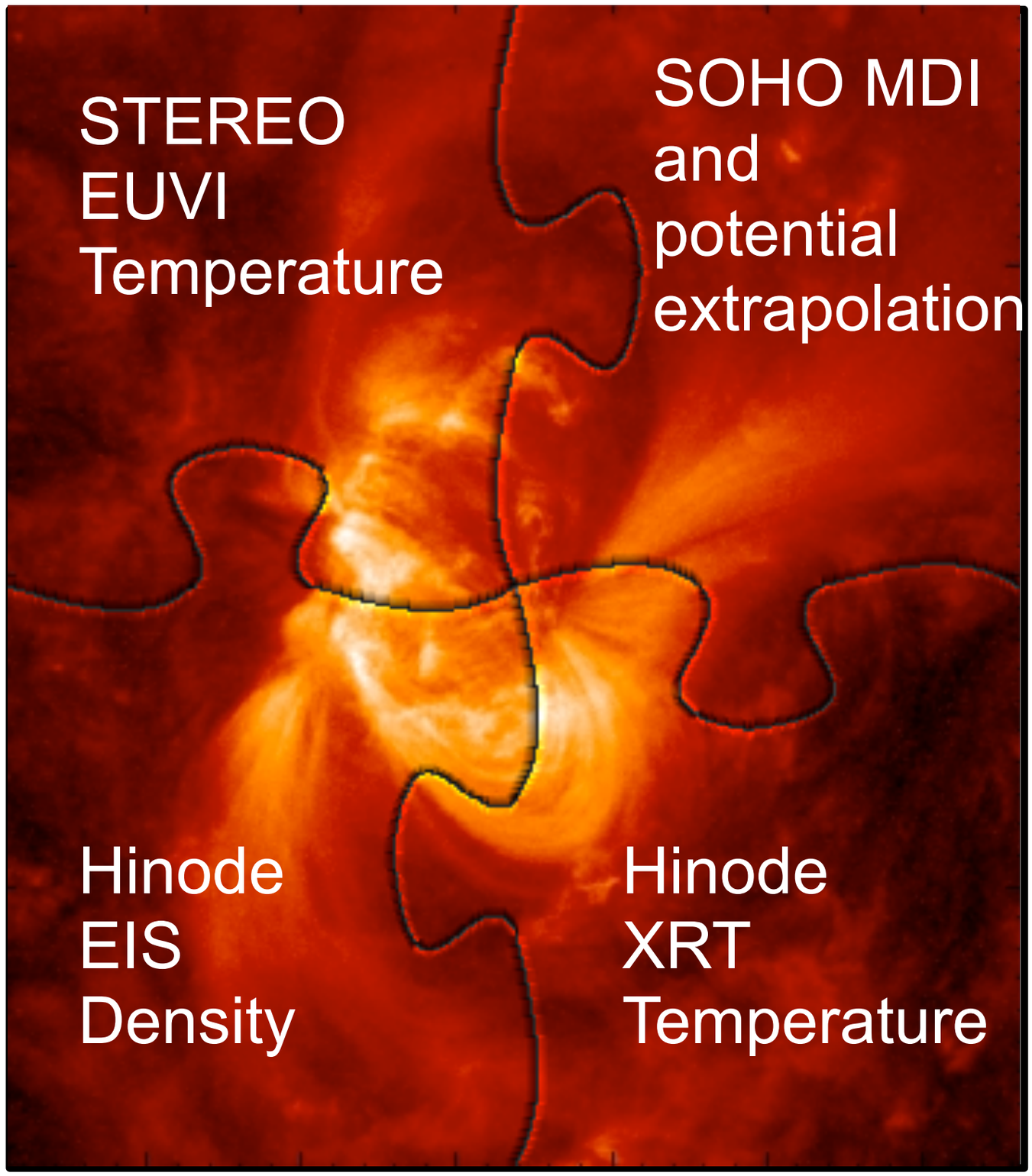




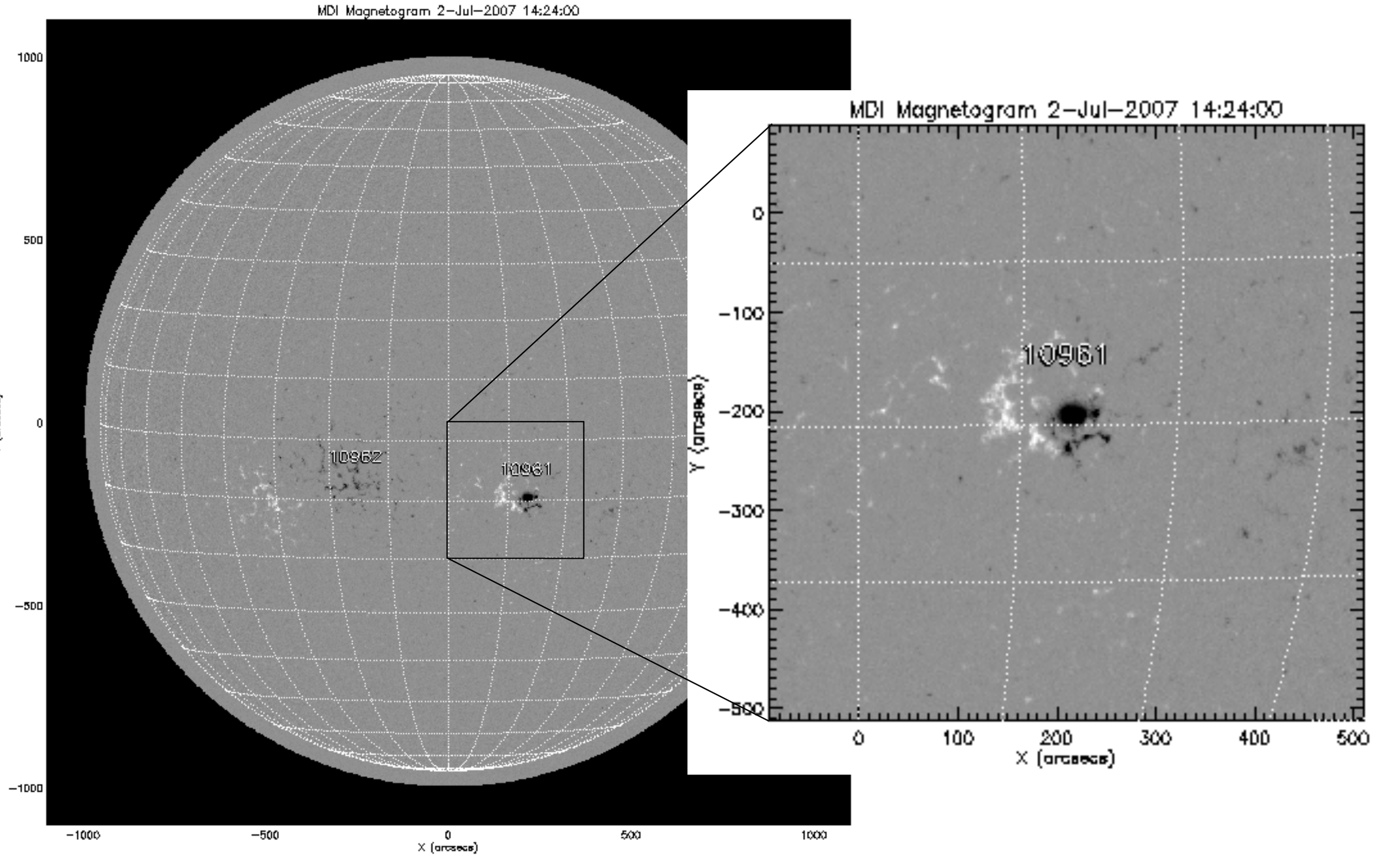
Average density across region in time



AR10961 jigsaw puzzle



SOHO MDI magnetogram

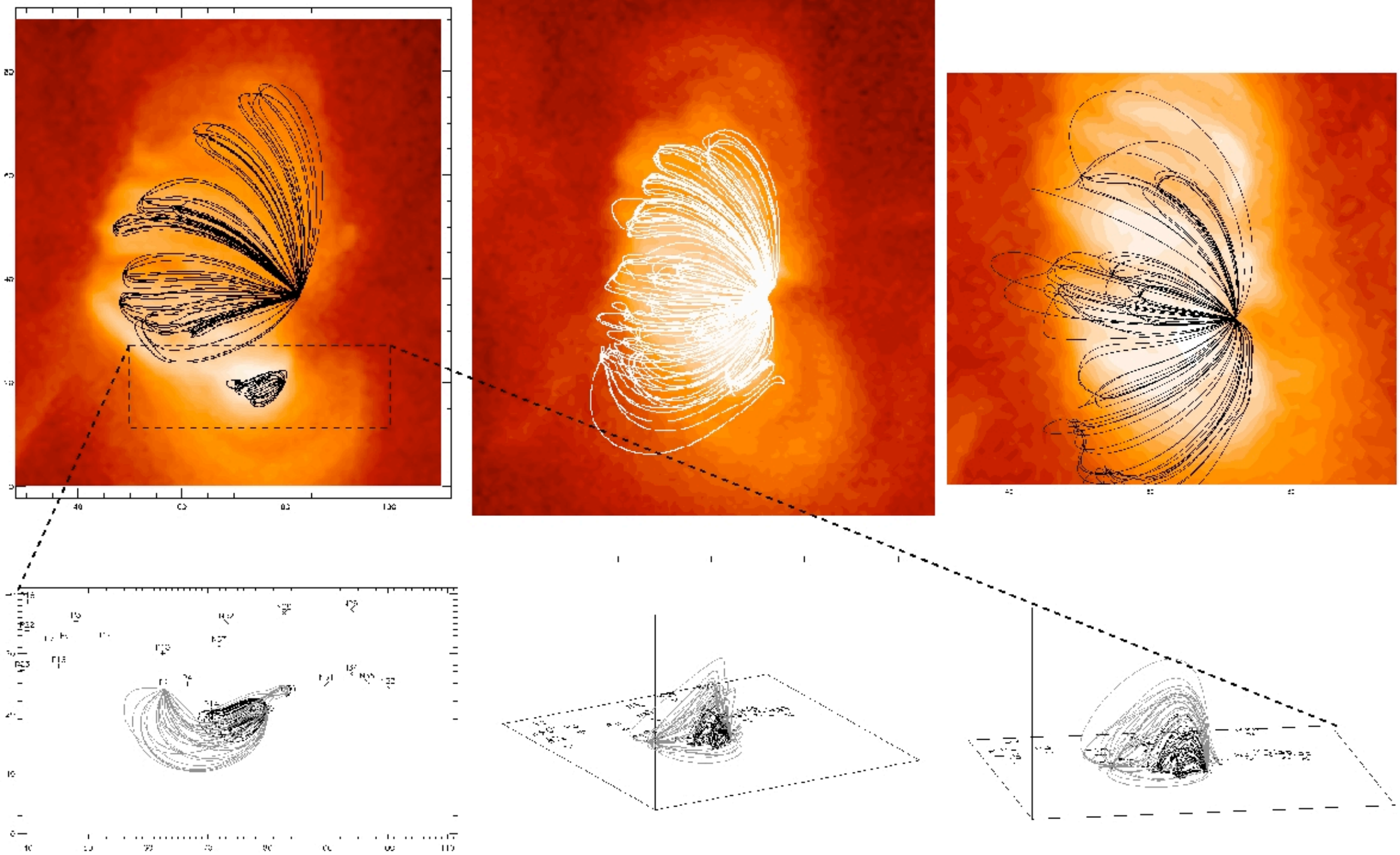


XRT with extrapolated potential field

DAY 1 : 02/072007

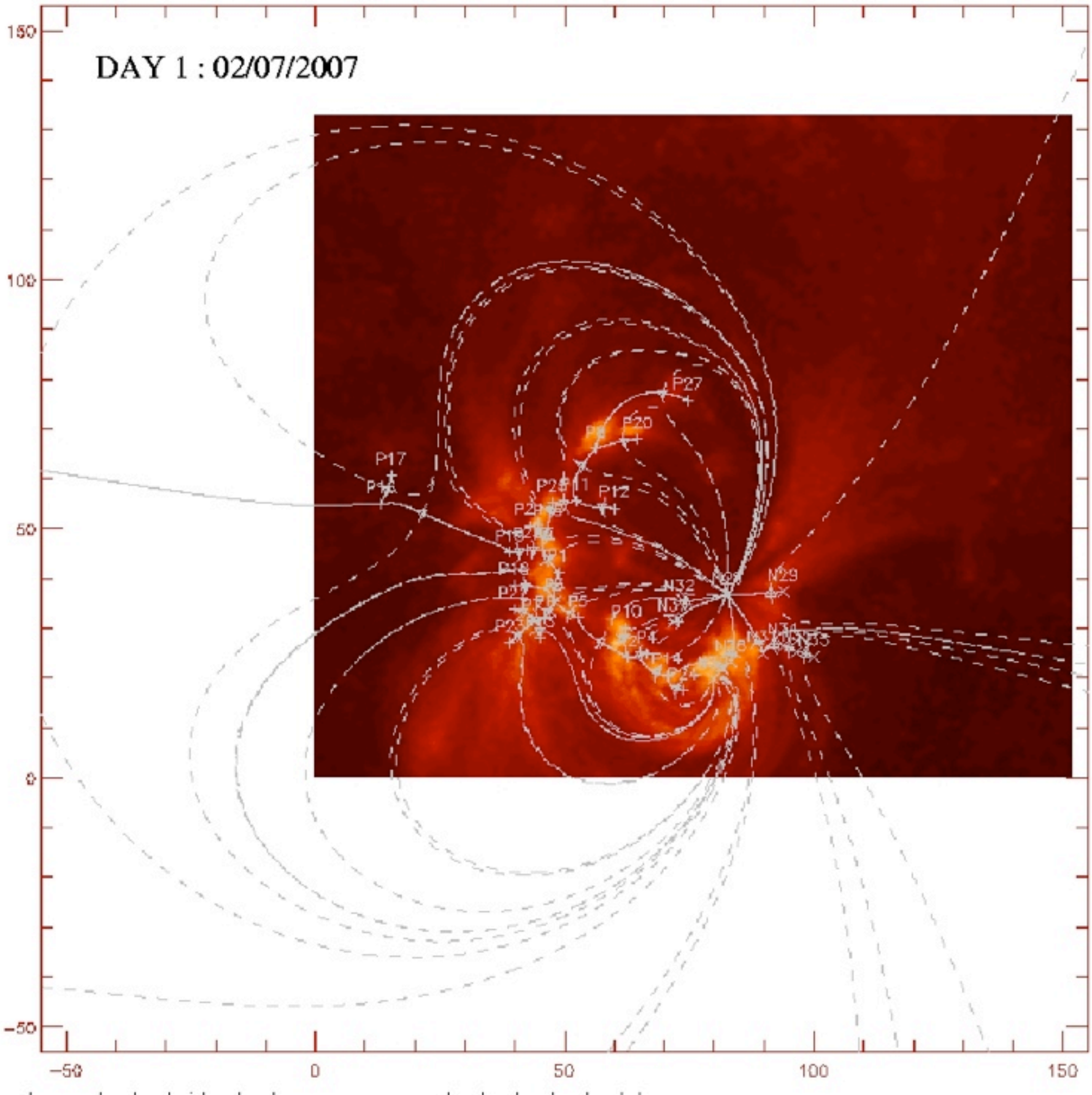
DAY 2 : 03/07/2007

DAY 3 : 04/07/2007

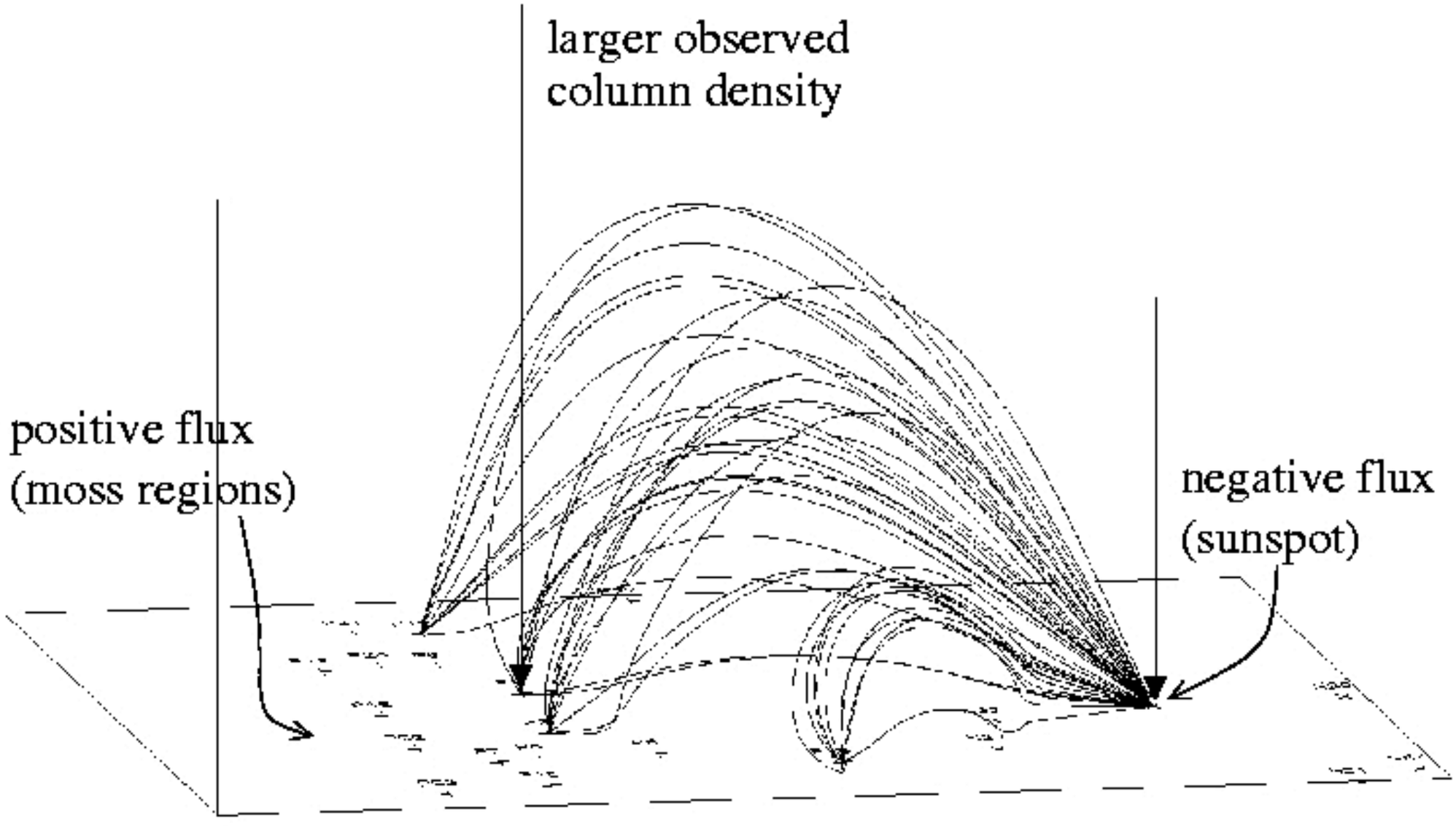


TRACE 171 Angstrom

Outer loop structures follow closely the separatrix dome.

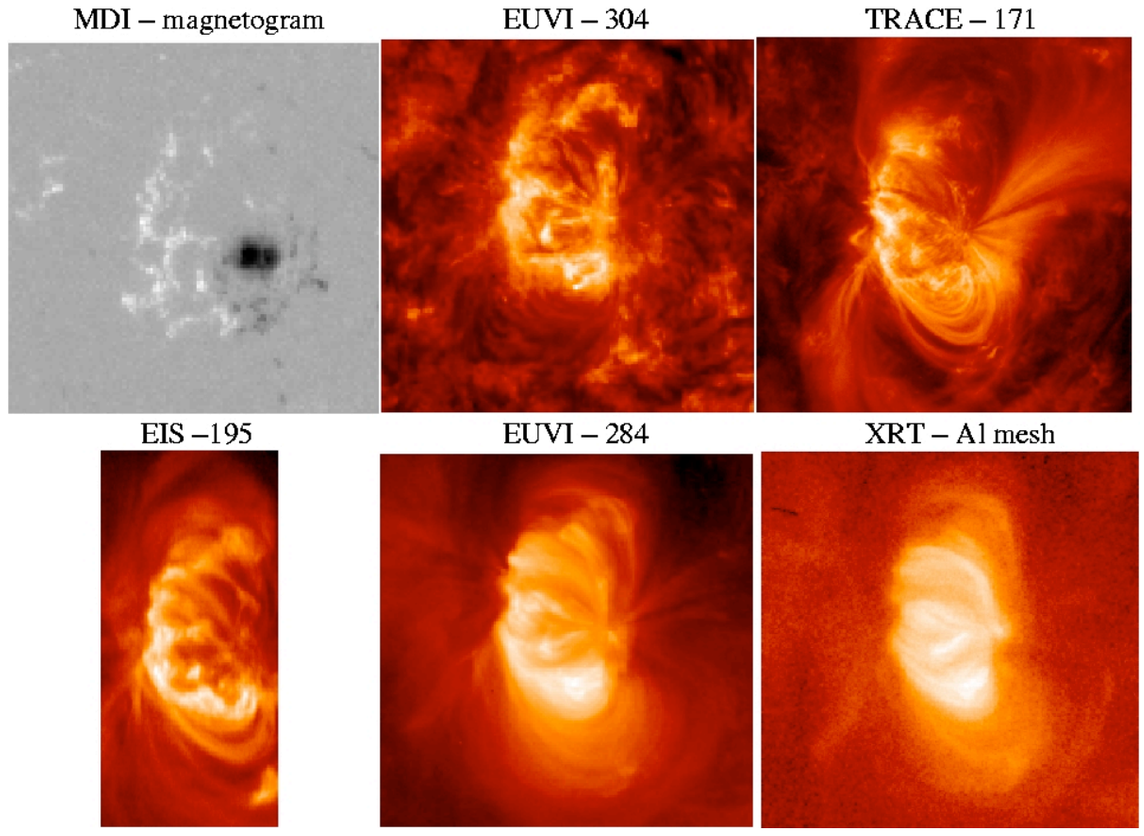


Extrapolated fieldlines above moss region



Conclusions and future work

- AR10961: temperature drops, density rises
- XRT potential, outer TRACE 171 along separator dome



- EIS velocity profiles
- Localised features including the moss and loop/loop footpoint brightenings
- Another run of an “adapted” version of HOP018 in “near” future

8-12 December 2008
Napa Valley, California

sprg.ssl.berkeley.edu/RHESSI/napa2008/