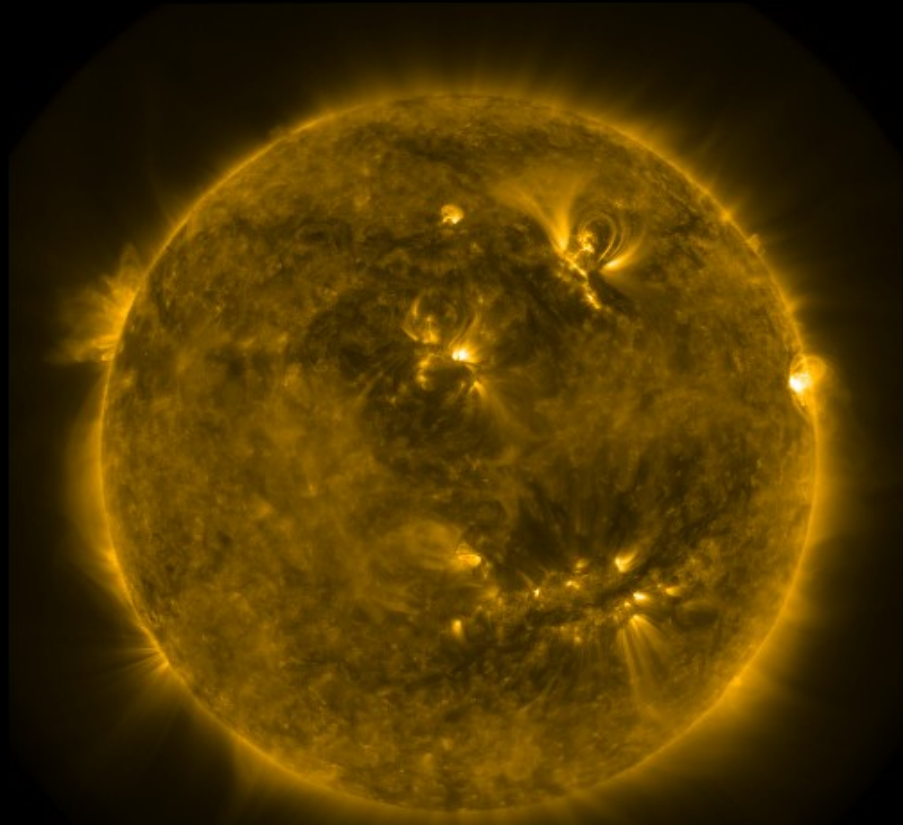


Wave-like formation of hot loop arcades

Reva A., Shestov S., Zimovets I., Bogachev S., Kuzin S.

171 A



AIA 171

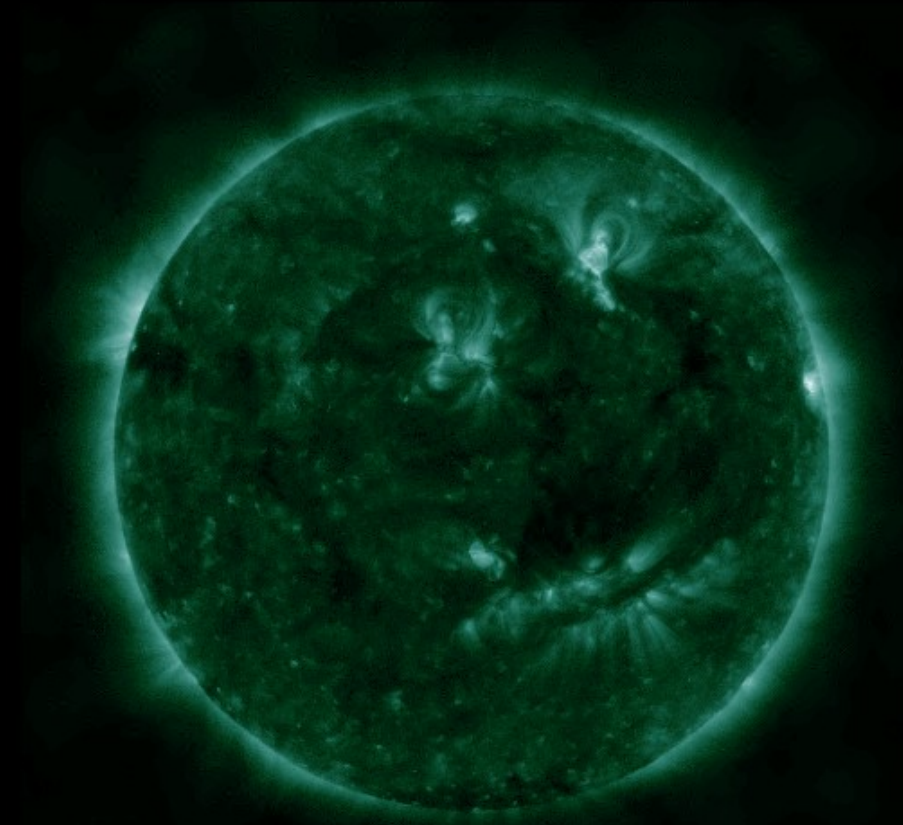
2010-12-10 11:03:00

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$T = 0.7 \text{ MK}$

94 A



AIA 94

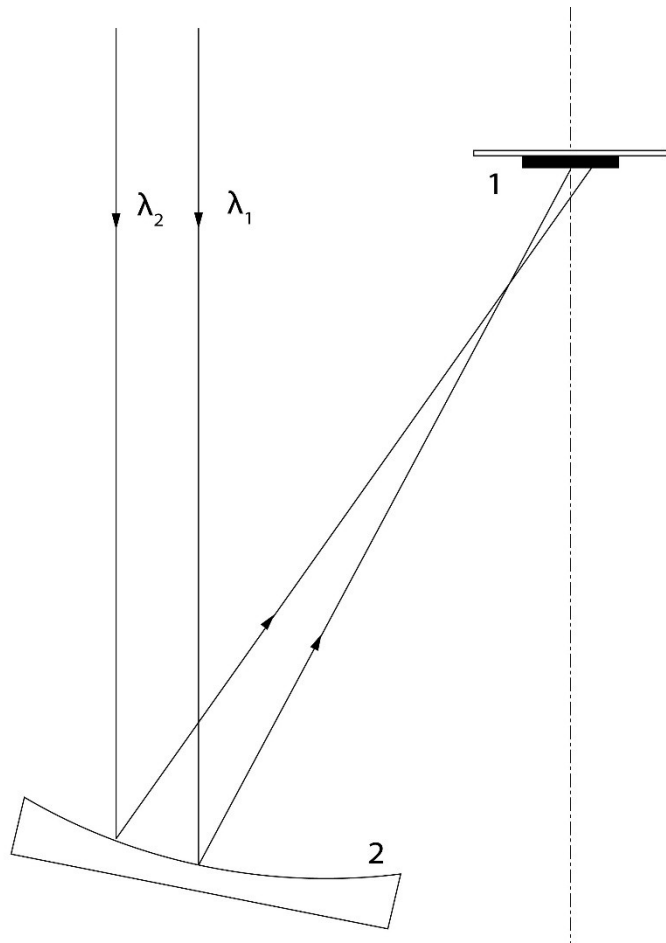
2010-12-10 11:03:02

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$T = 1 \text{ MK} + 8 \text{ MK}$

Mg XII X-ray spectroheliograph



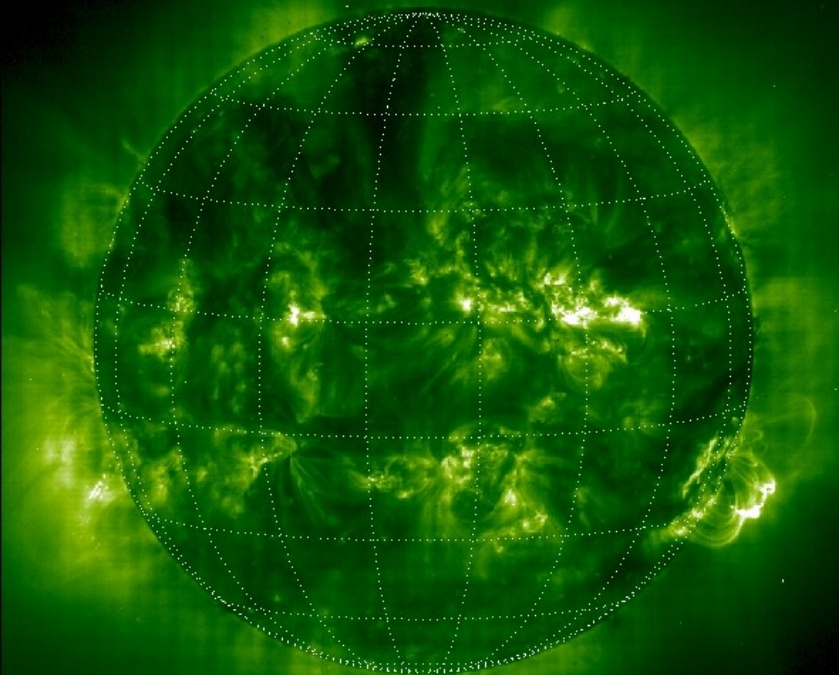
- $\lambda = 8.42 \text{ \AA}$
- $T \geq 5 \text{ MK}$
- Ly- α resonance line

SPIRIT/CORONAS-F (2001-2005)

TESIS/CORONAS-PHOTON (2009)

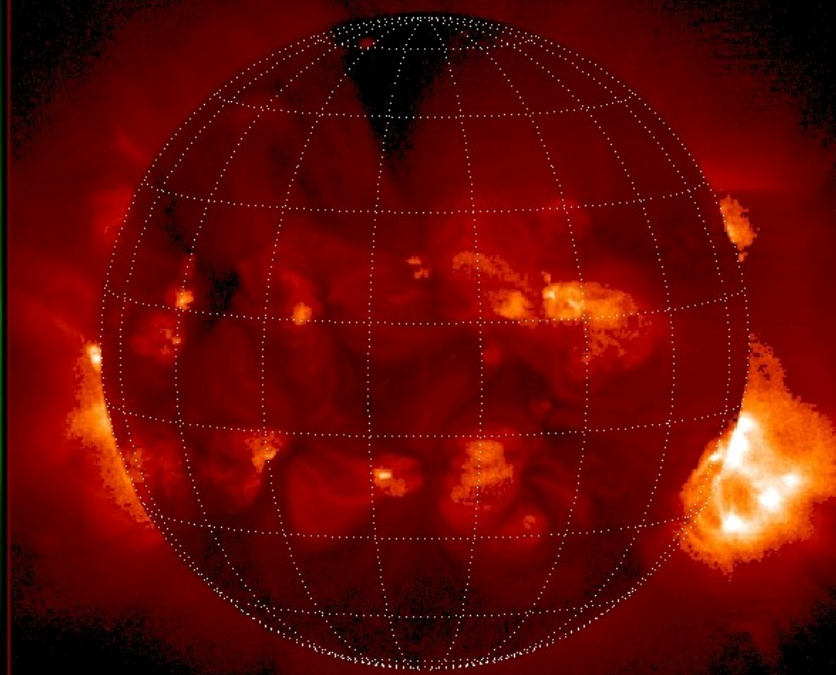


12:48:11



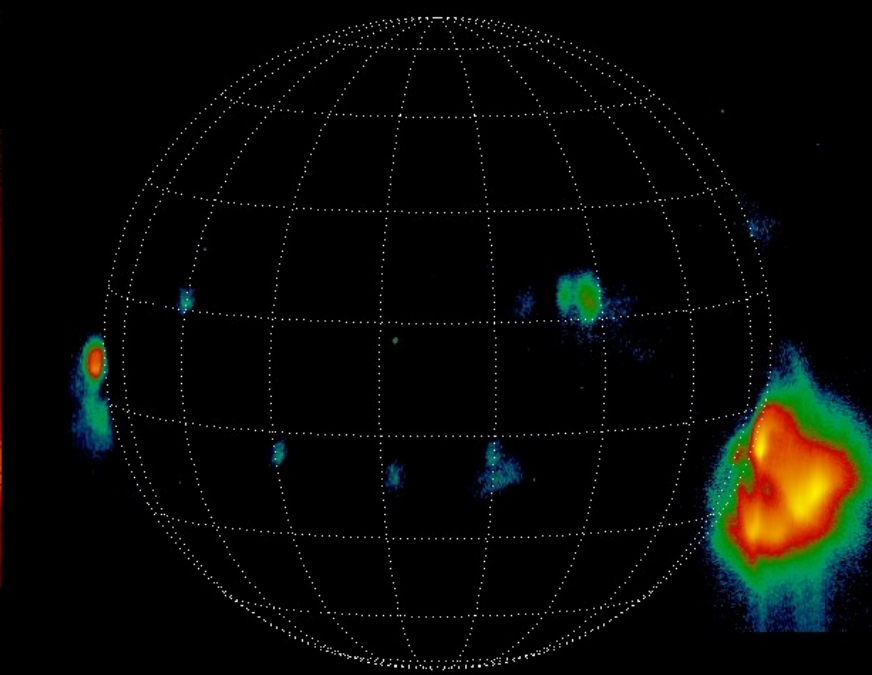
EIT 195 A: 1.5 MK and 15 MK

12:55:51



SXT: $T > 2$ MK

12:48:11



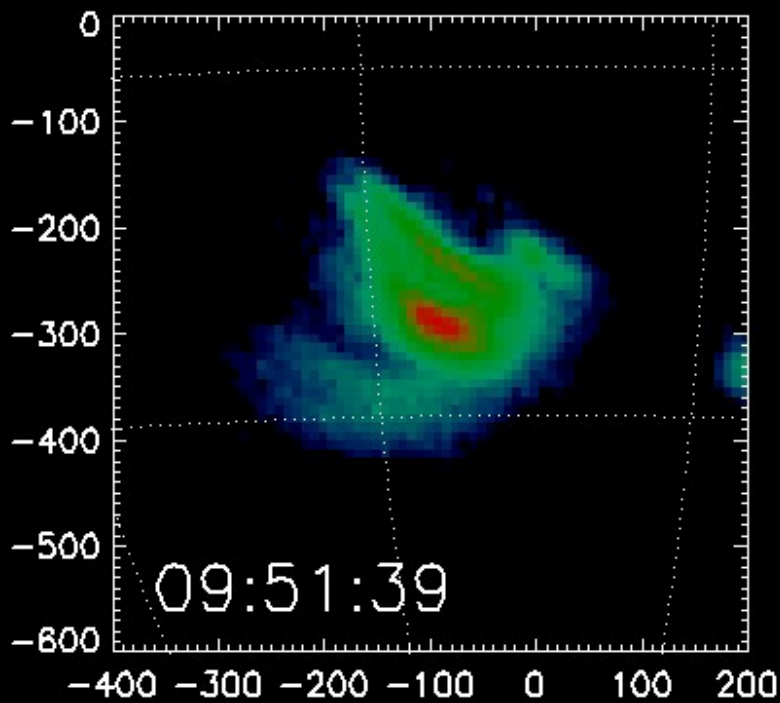
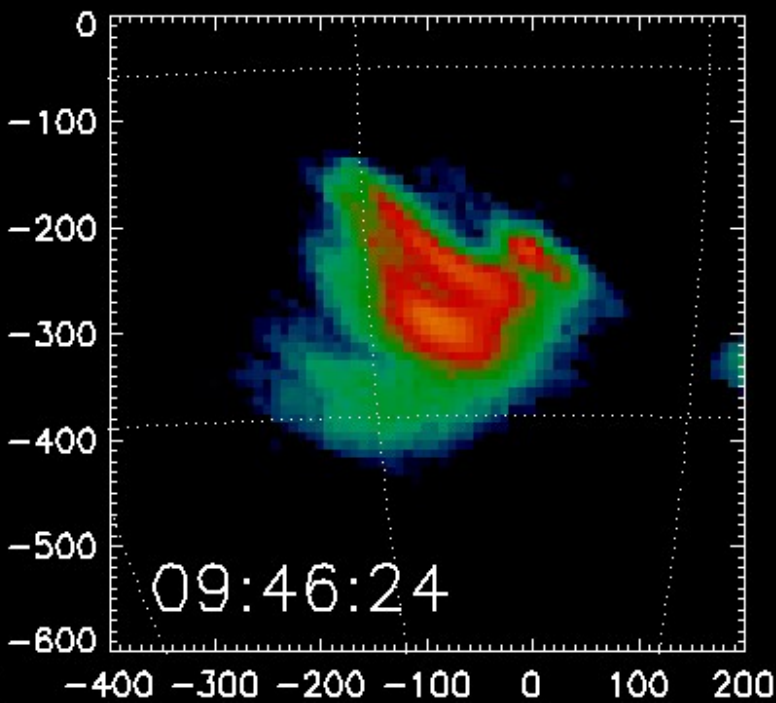
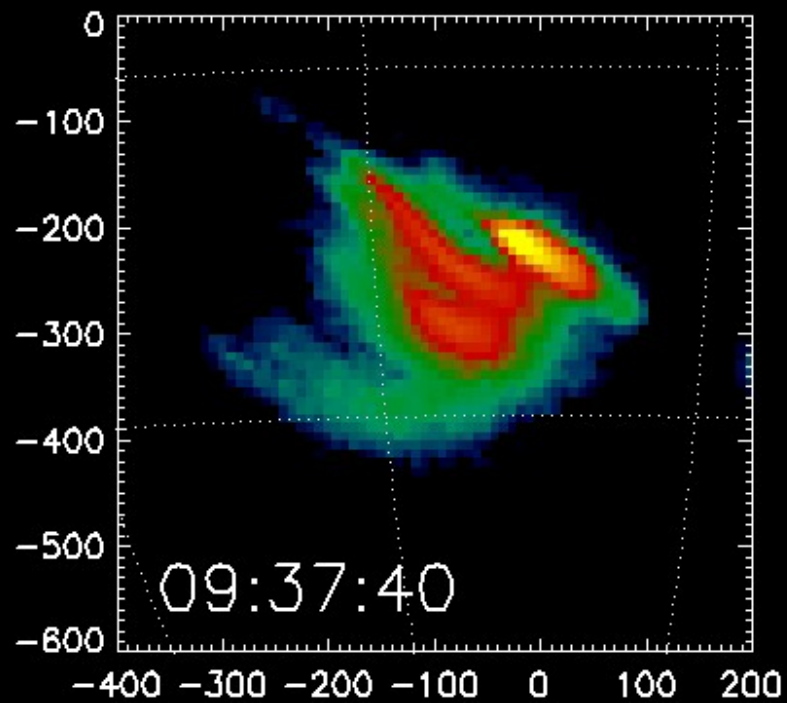
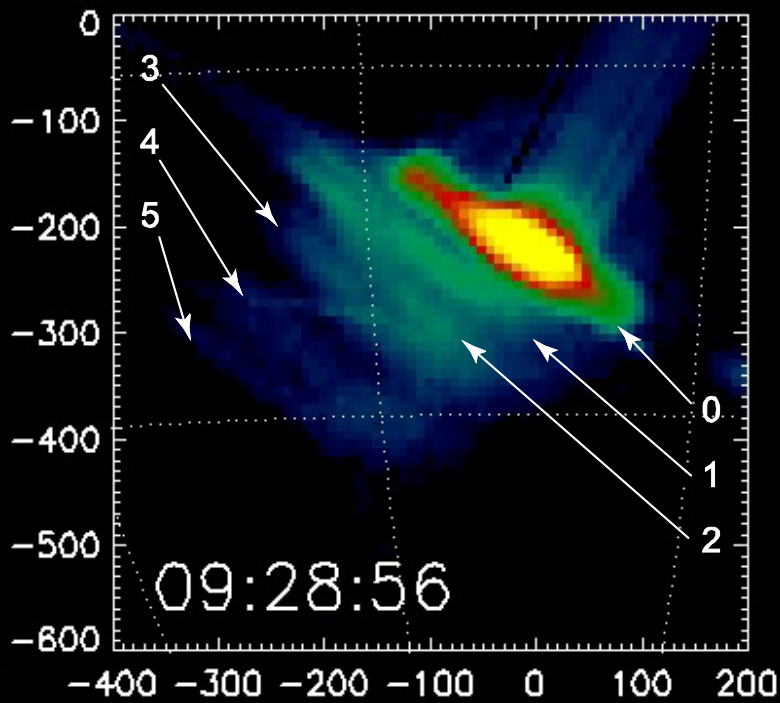
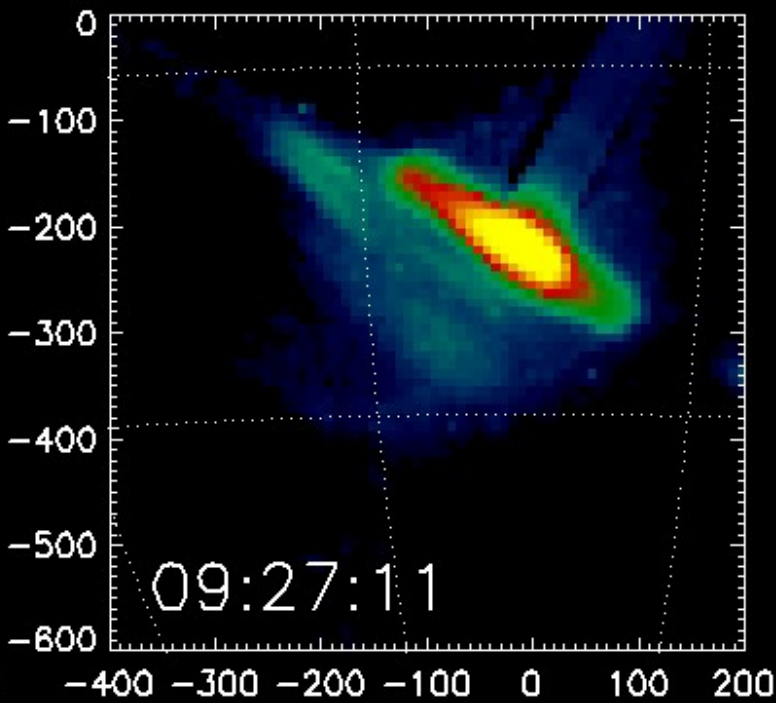
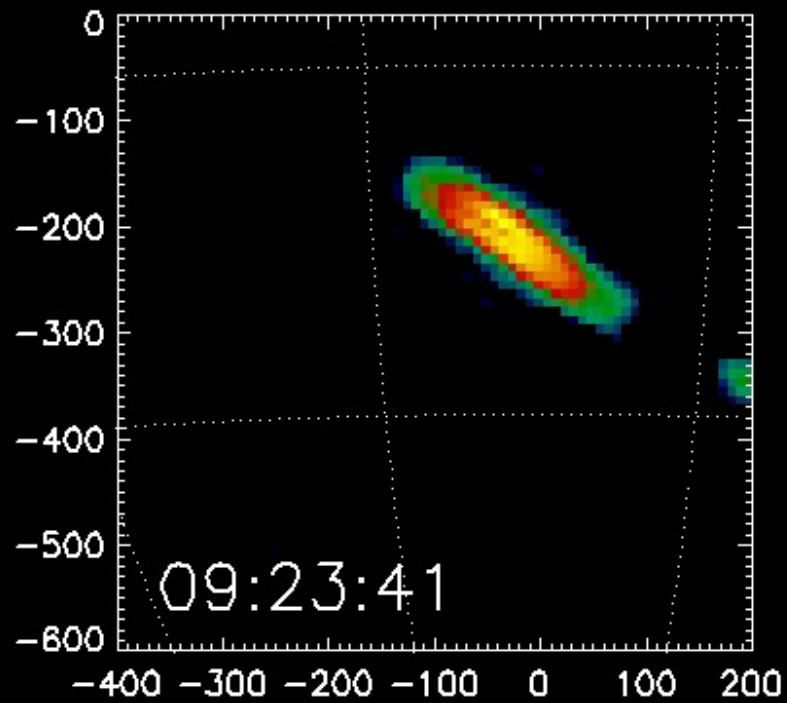
Mg XII: $T > 5$ MK

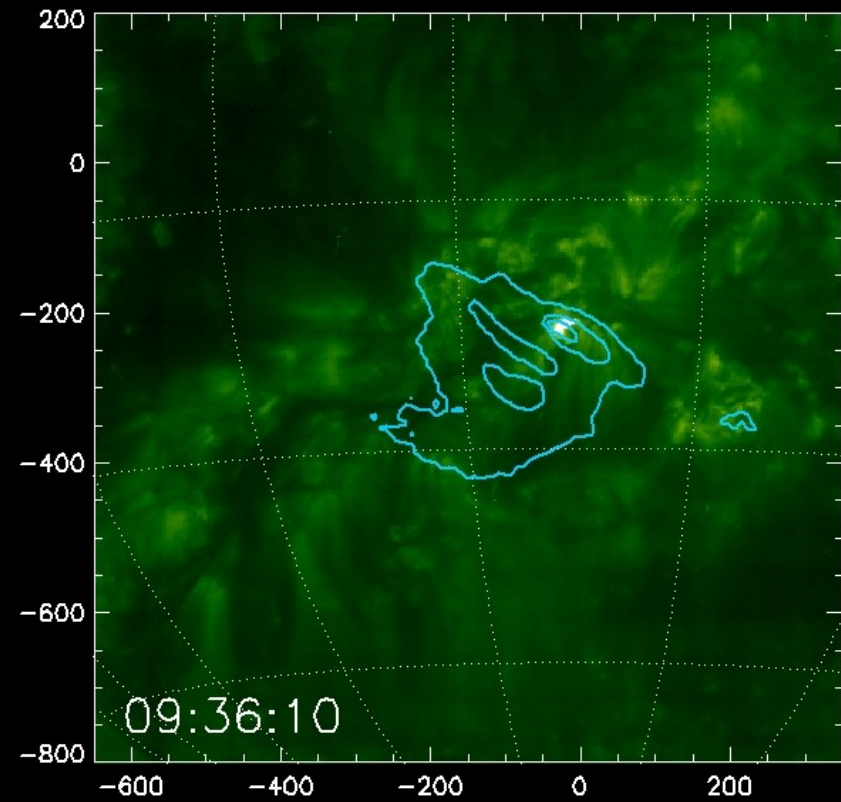
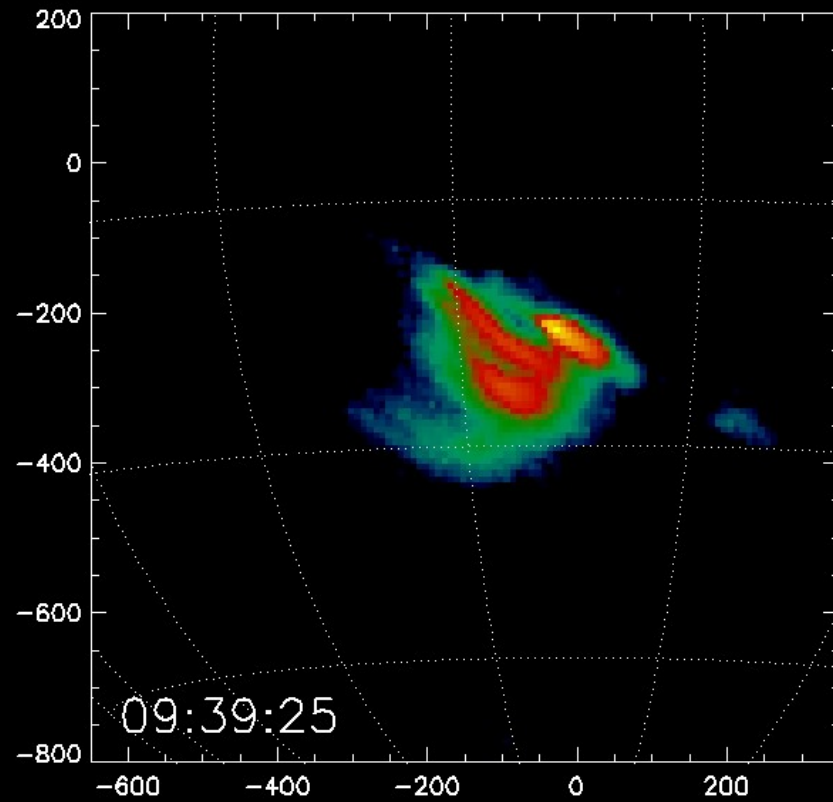
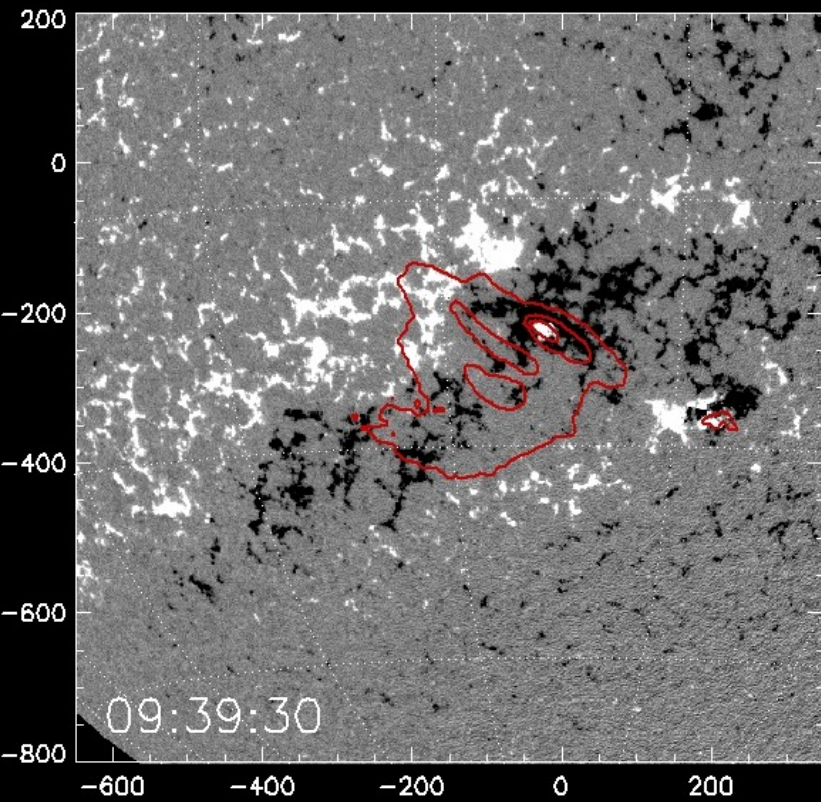
Hot arcades

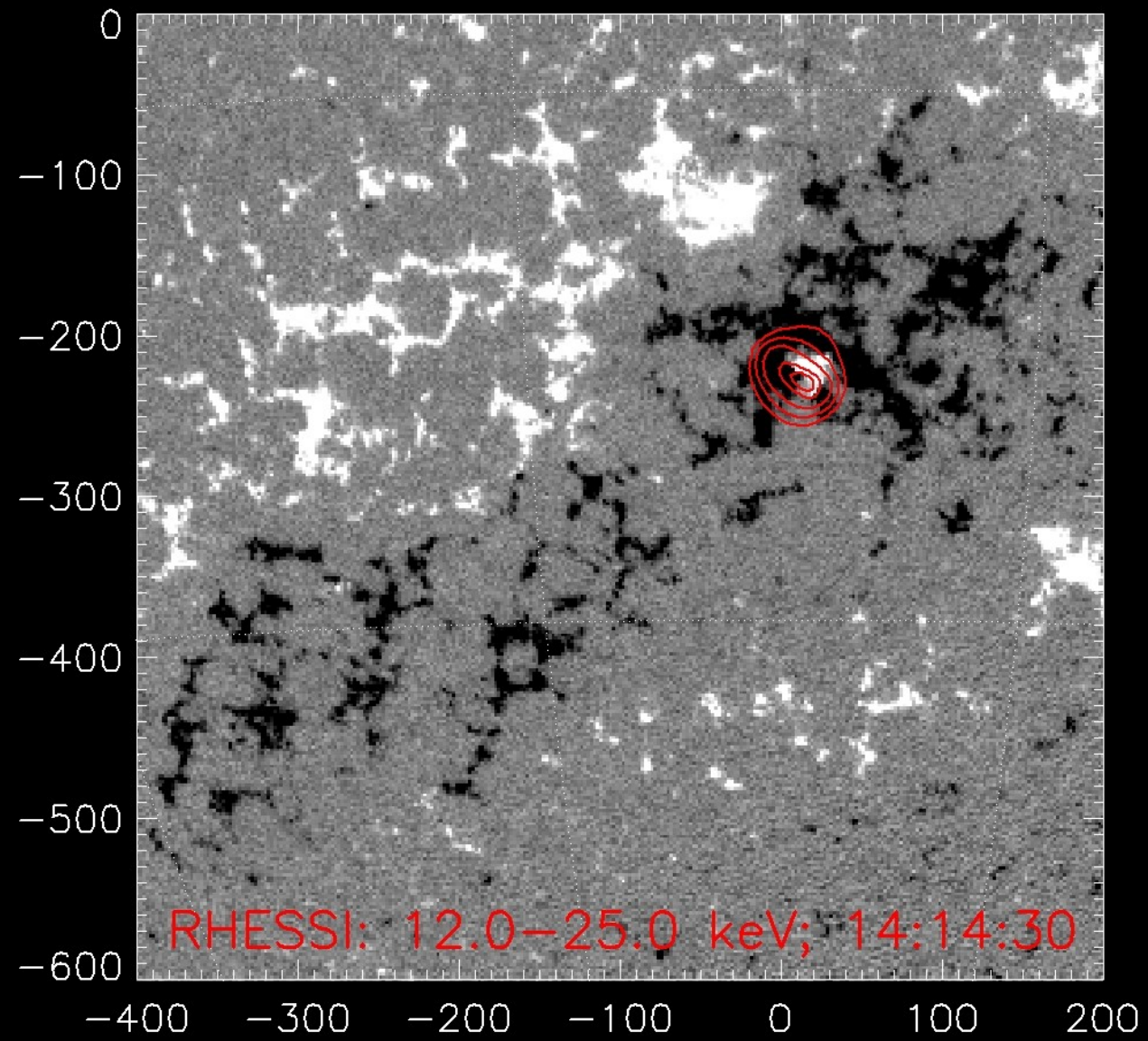
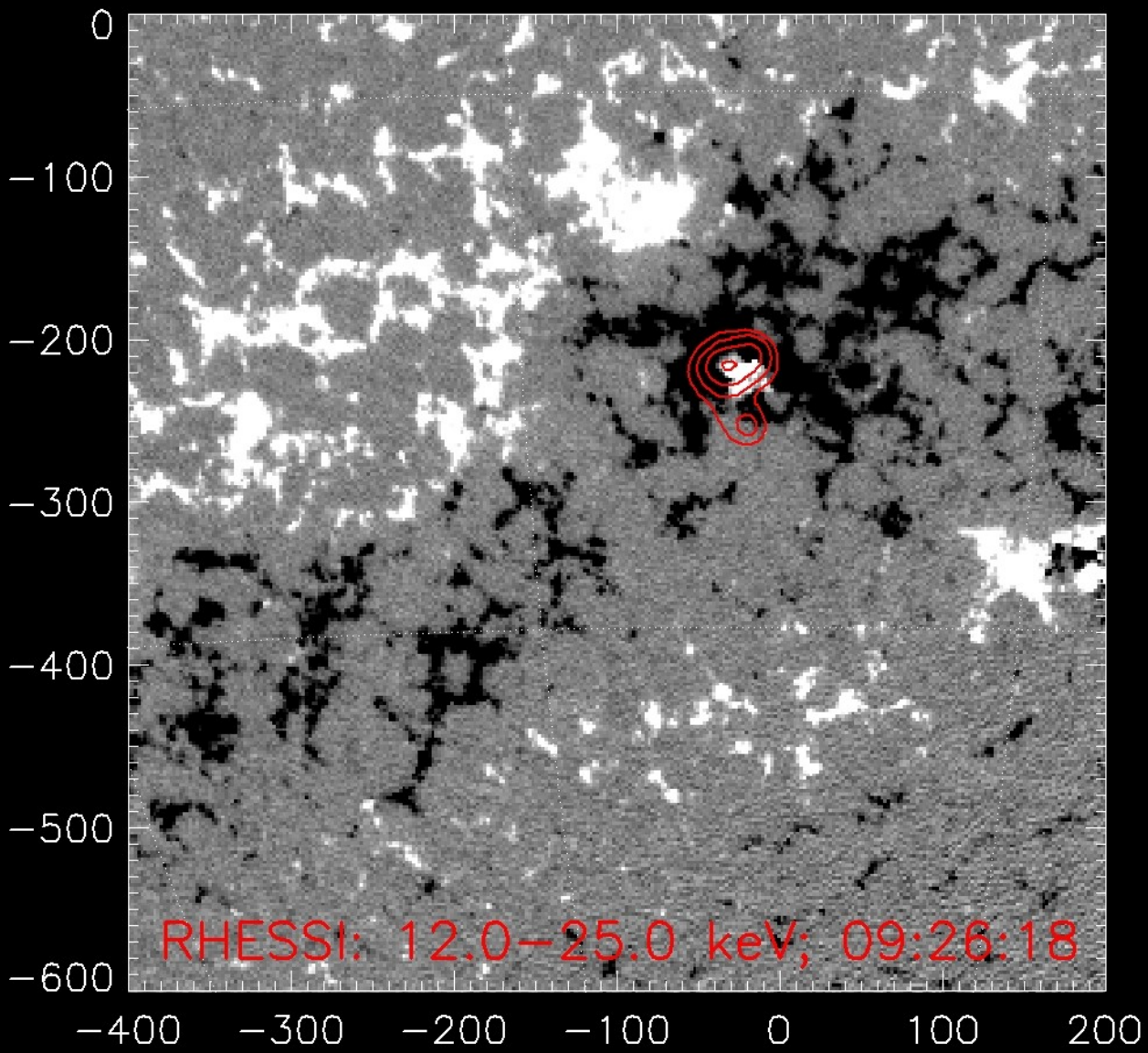
- Precursor (C-class flare) appears, RHESSI data;
 - Hot plasma appears in a wave-like manner;
 - Fast heating (5-20 min) and gradual decay (1 hour);
 - No other notable changes in EIT & MDI data;
-
- Formation of 4 hot arcades;
 - Above PIL between NOAA 09847 and 09848

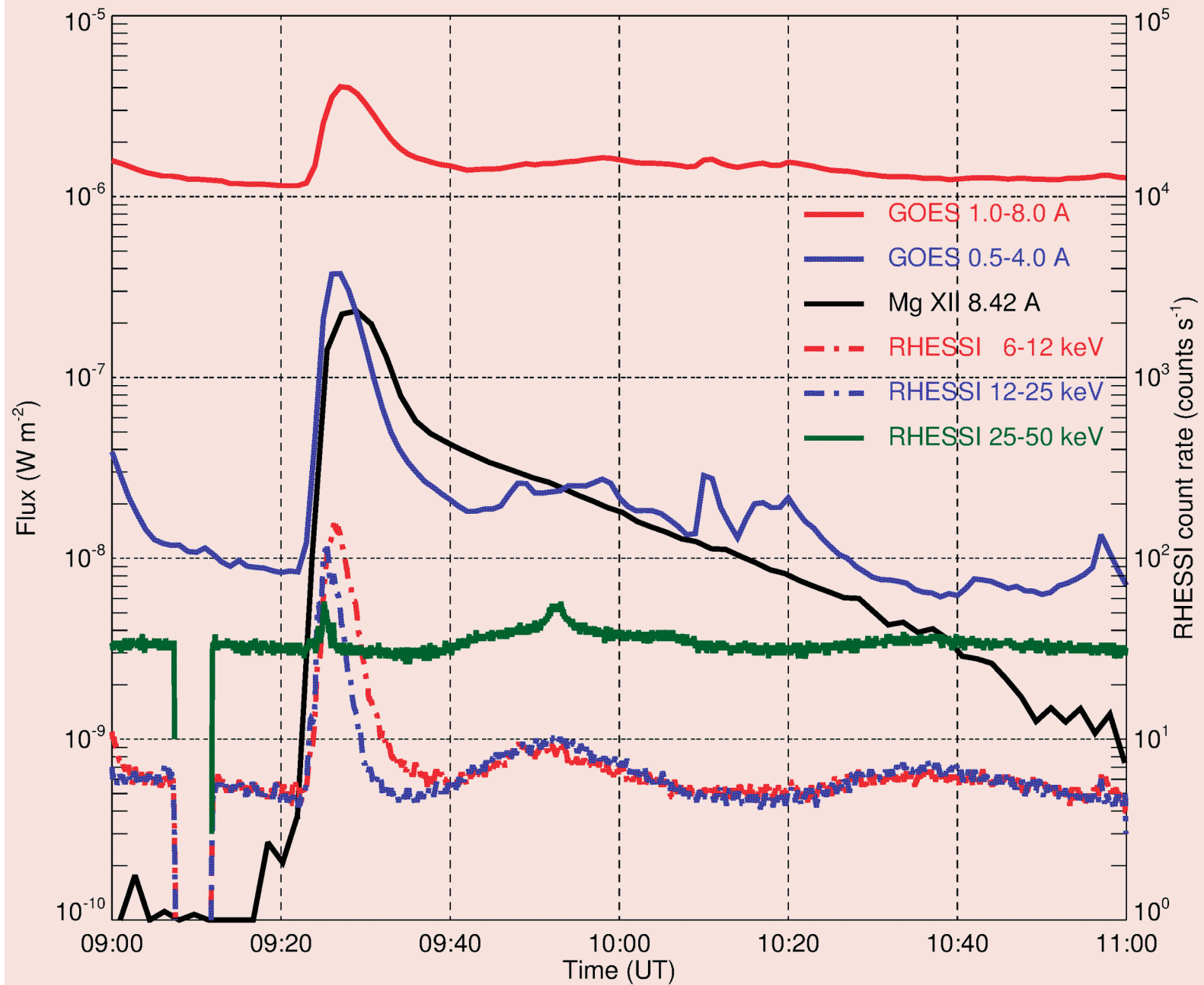


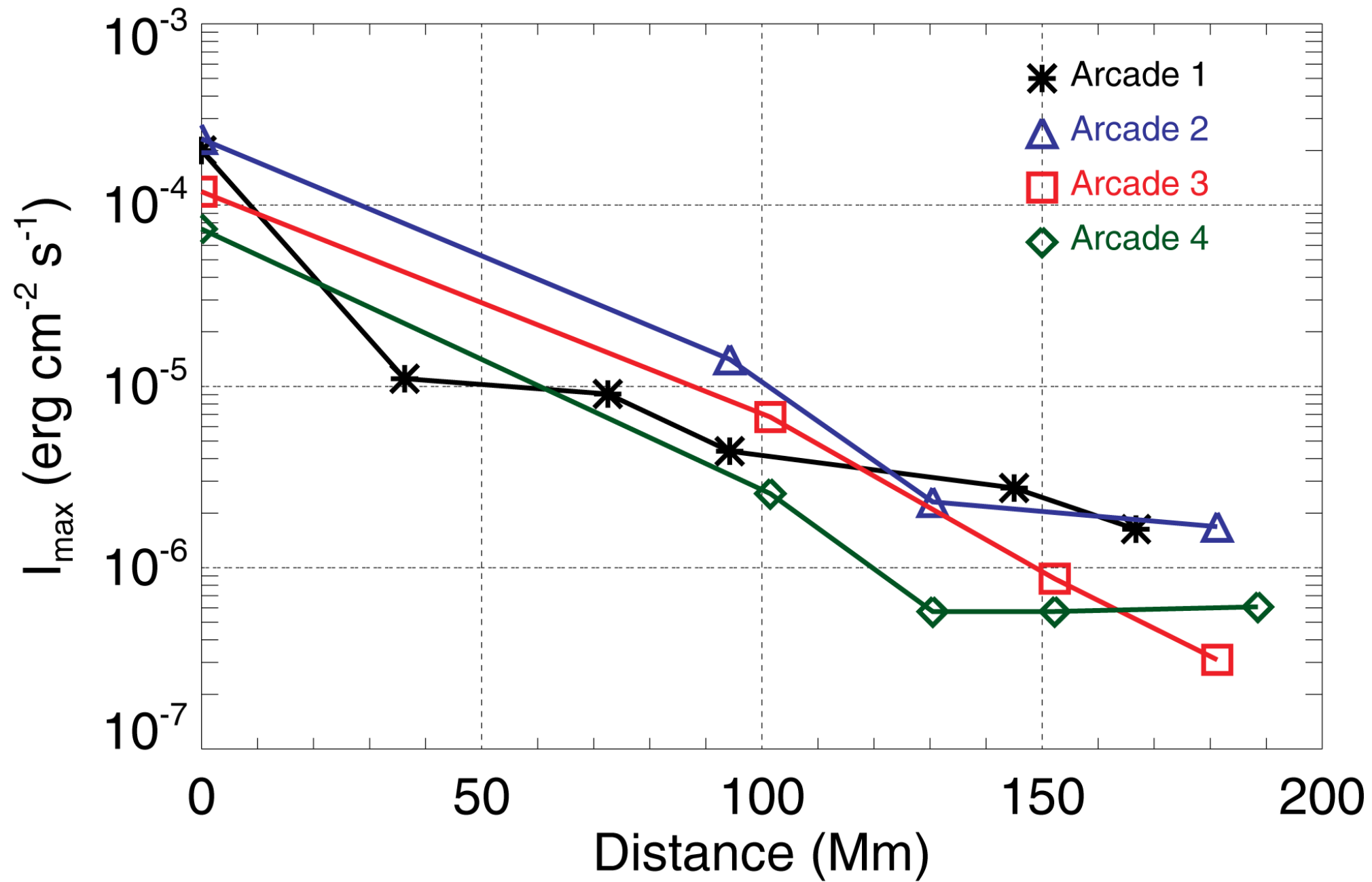




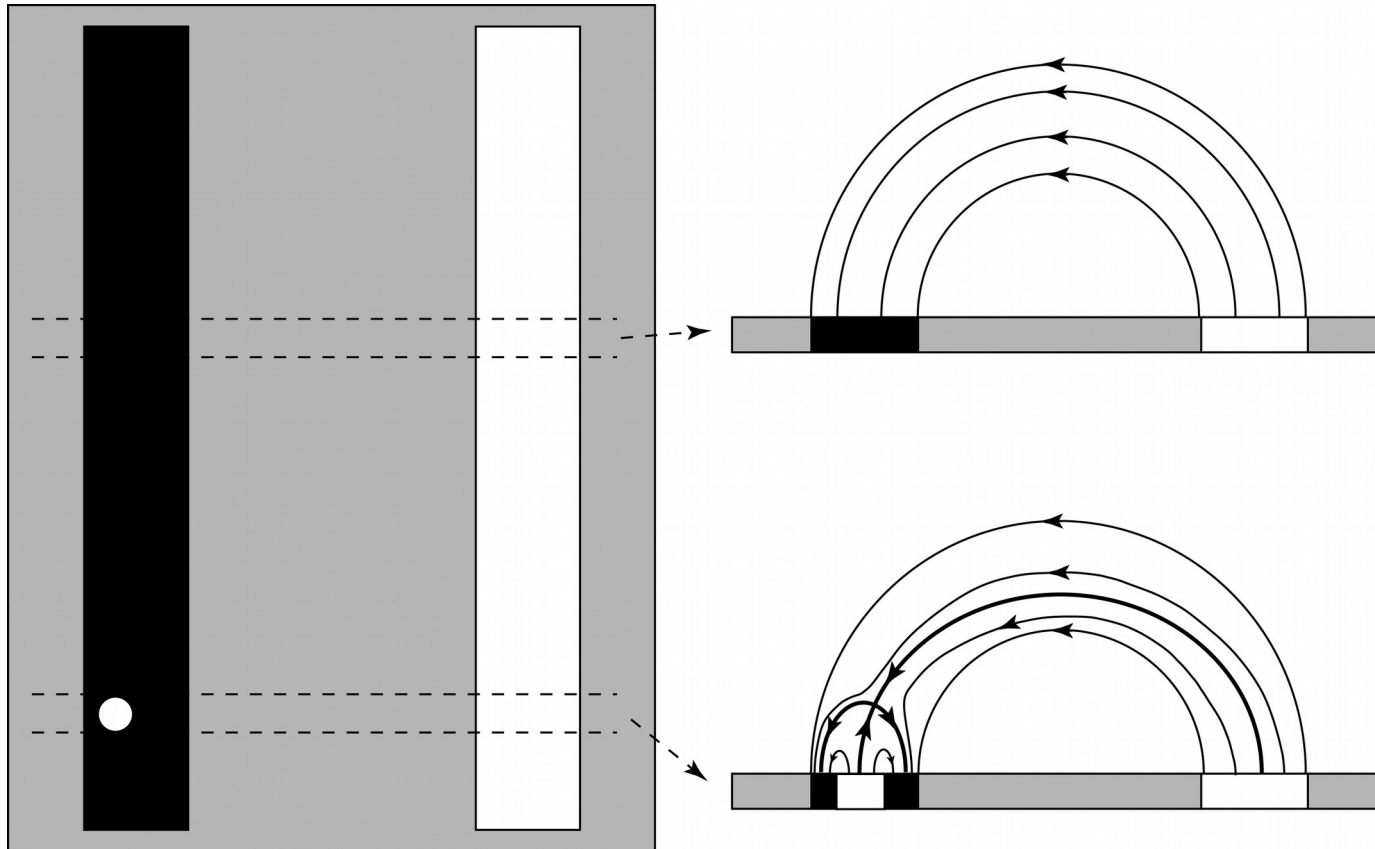




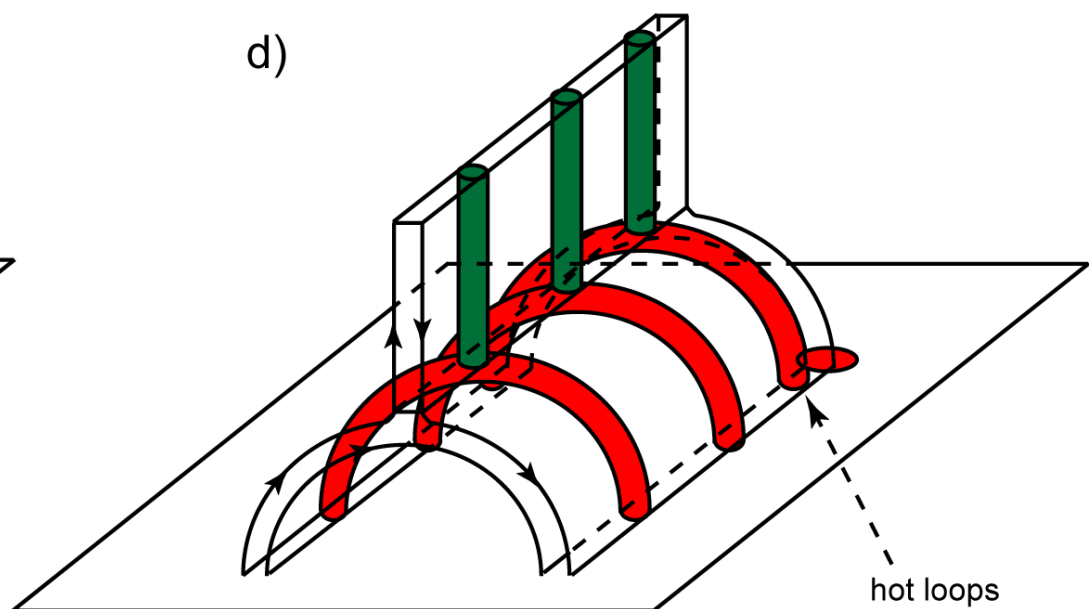
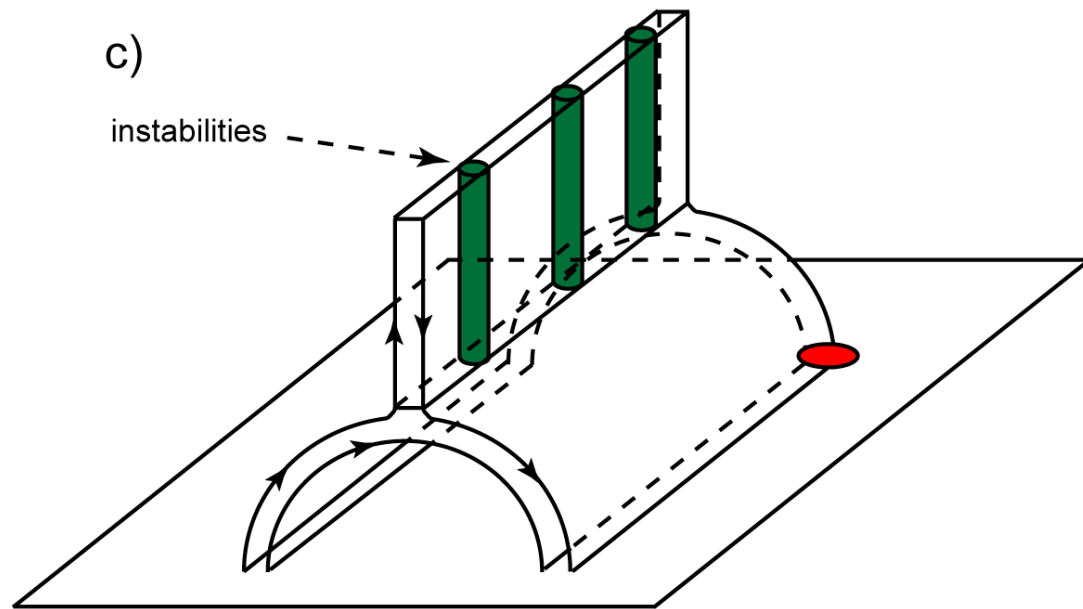
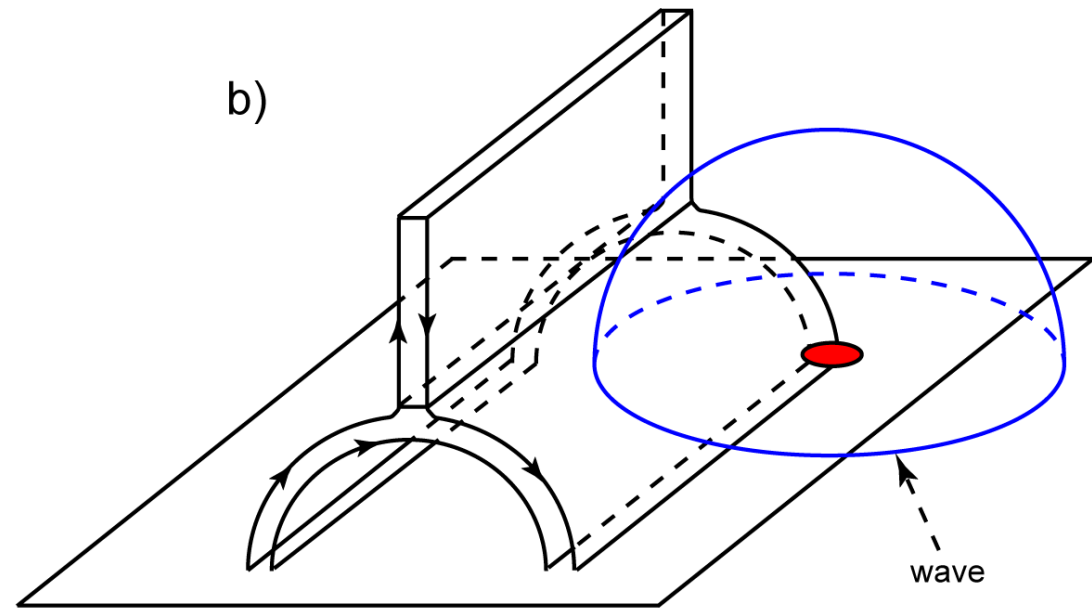
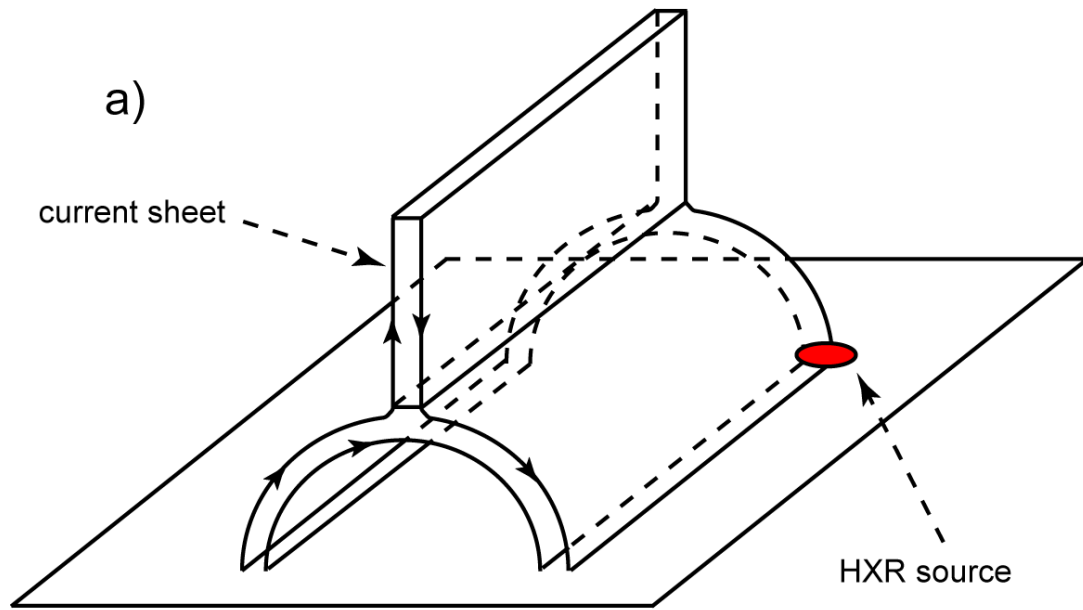


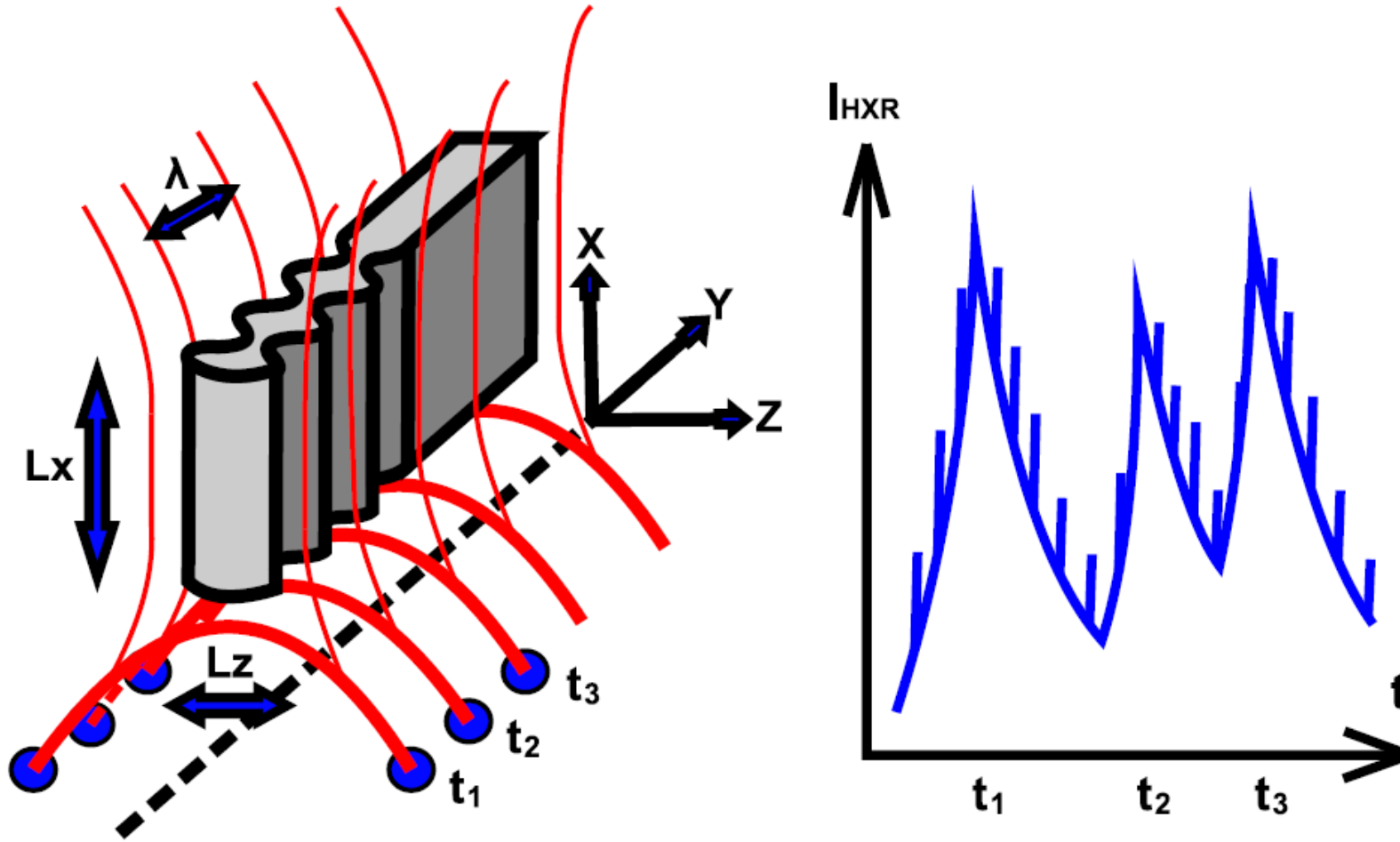


Analysis



- Magnetic field configuration
- Wave-like behaviour
- Hot loops & cold gaps





Other possible scenarios

- Emslie (1981);
- Nakariakov and Zimovets (2011);
- Liu, Alexander, and Gilbert (2009);

Conclusion

Observations:

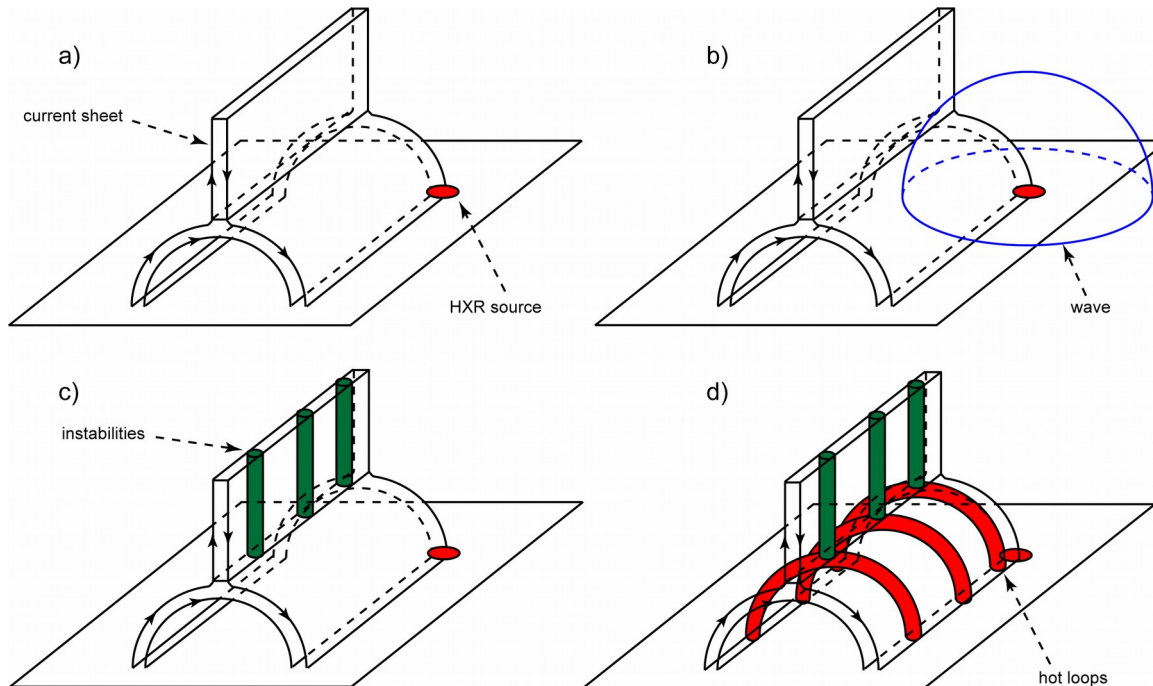
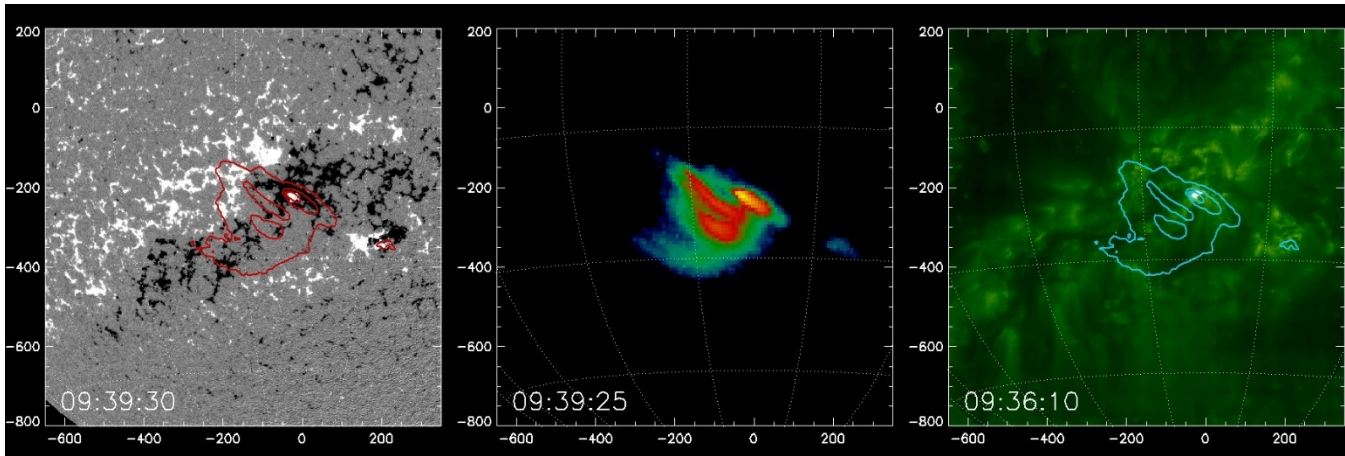
wave-like formation of hot loop arcades

Interpretation: an instability inside vertical CS, caused by MHD wave

Solar Phys
DOI 10.1007/s11207-015-0769-x

Wave-like Formation of Hot Loop Arcades

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S. Kuzin¹



Thank you!