

Automated detection of transient moss features

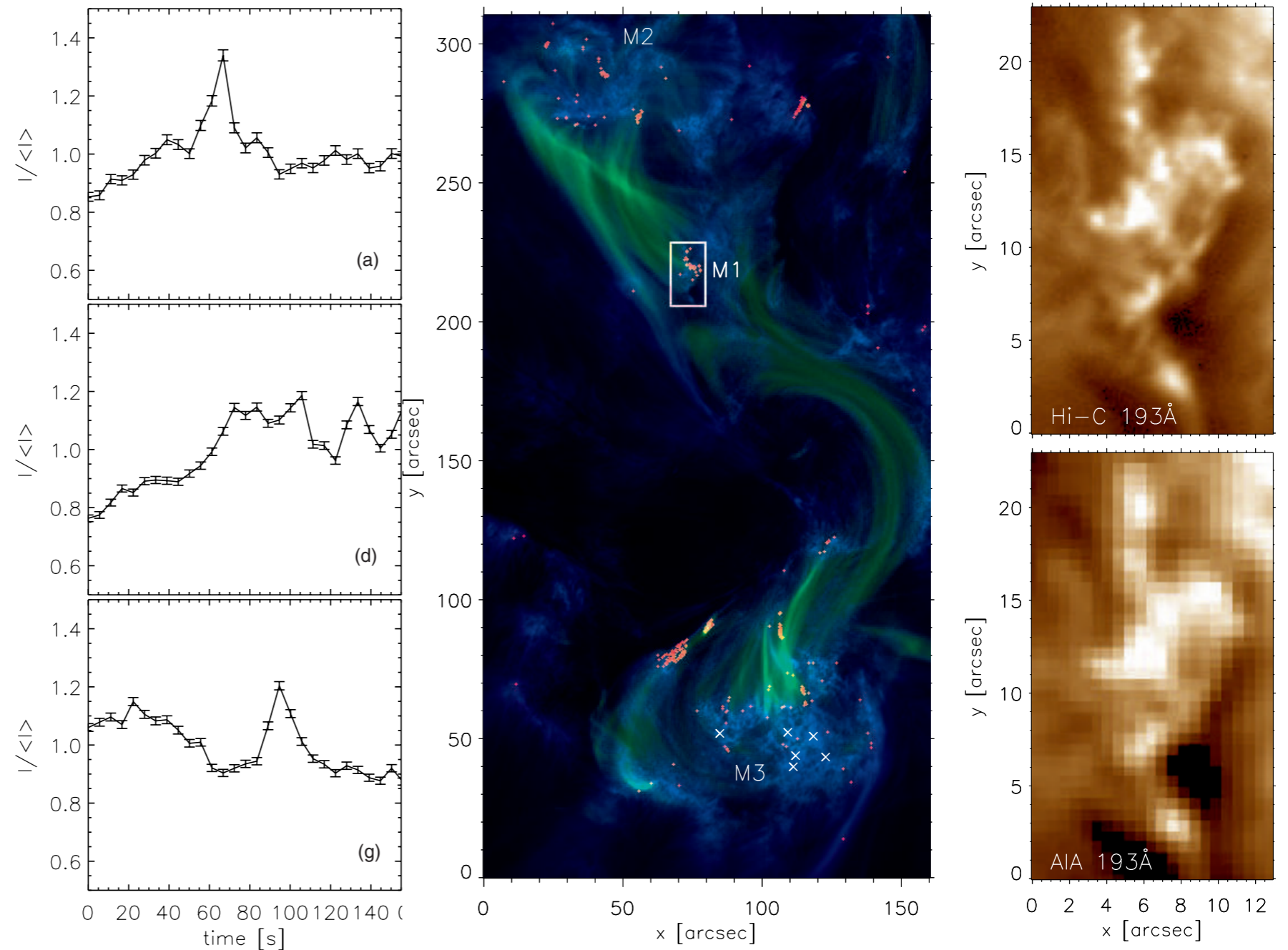
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Background

Hi-C data analysed by Testa et al. 2013 showed points with rapid intensity variation in the 193\AA images from Hi-C - hints of burst-like heating events

Periods $\sim 30\text{s}$

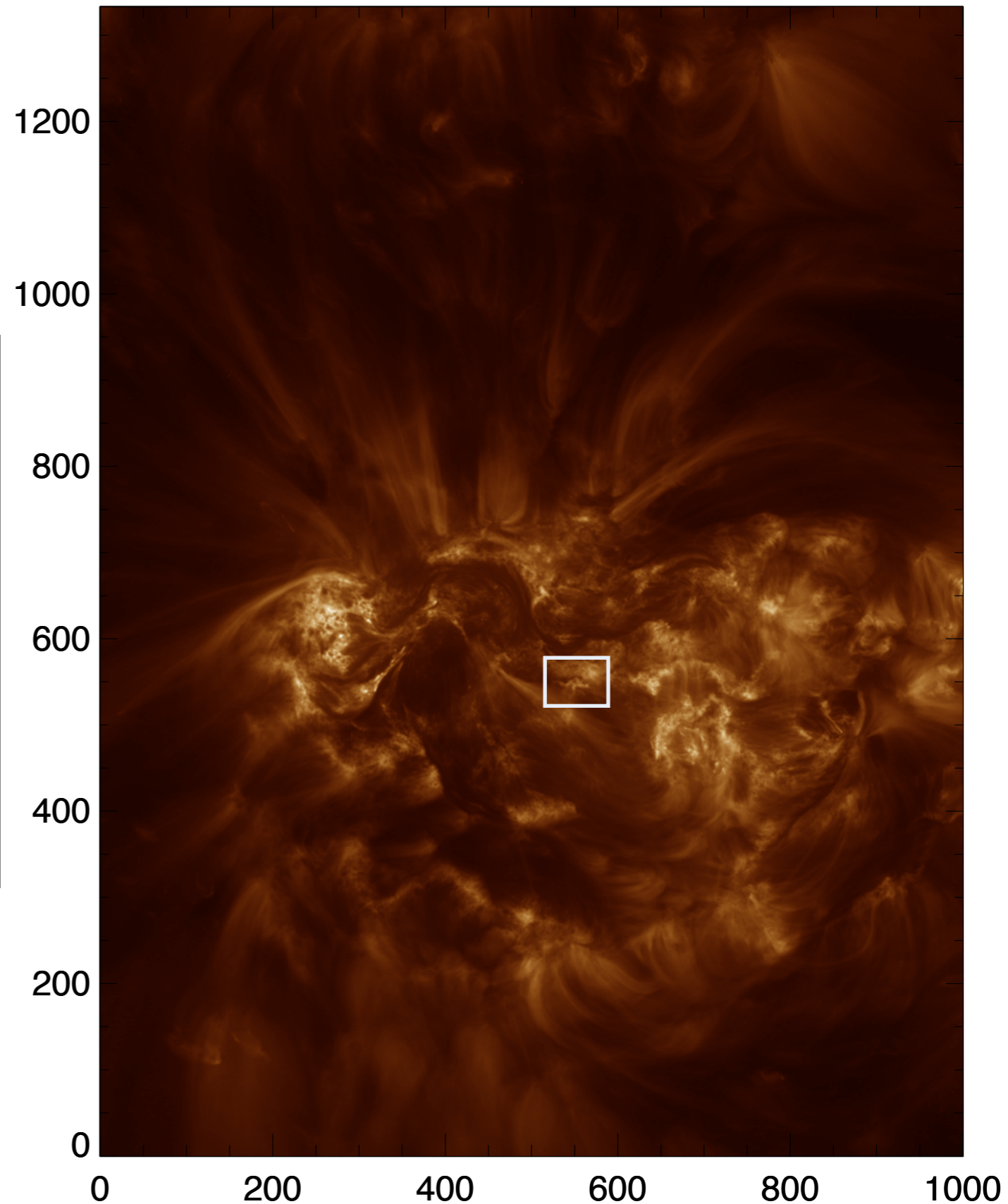
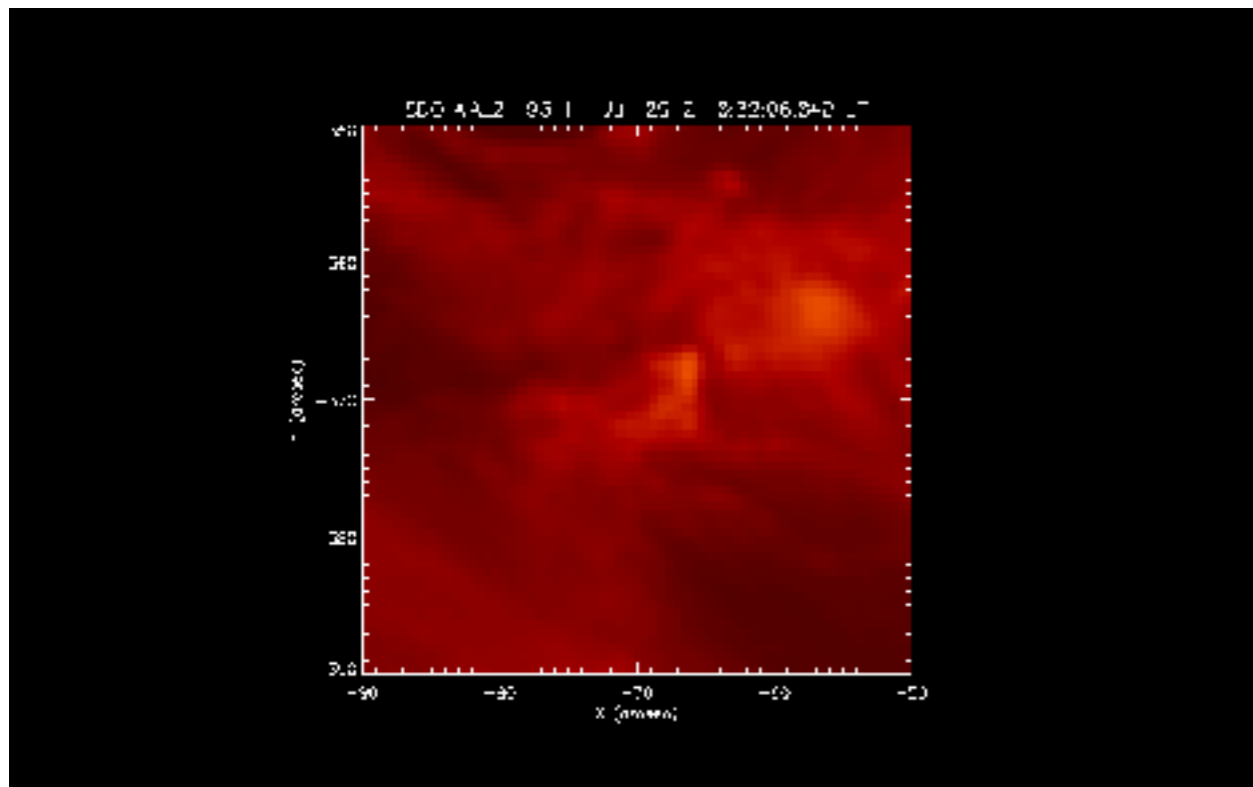
Hi-C cadence $\sim 5.5\text{s}$
 $0.3\text{-}0.4''$ resolution

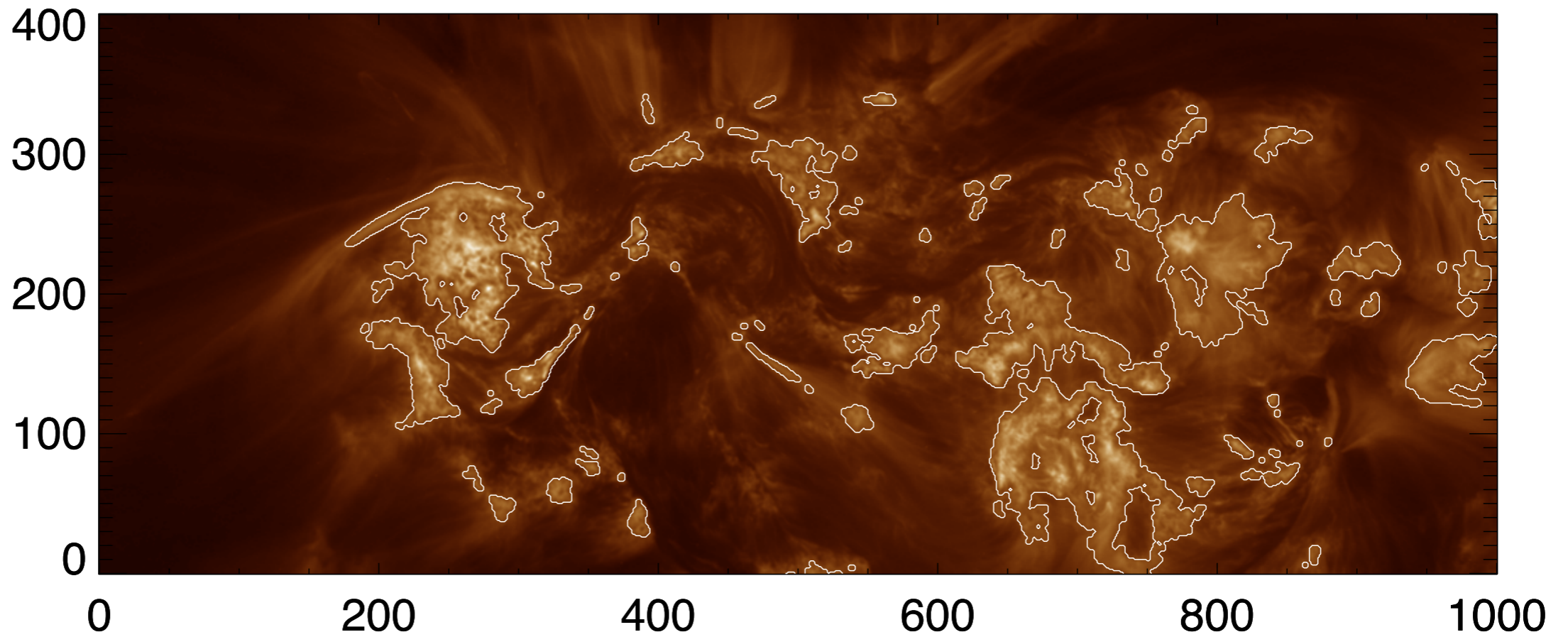
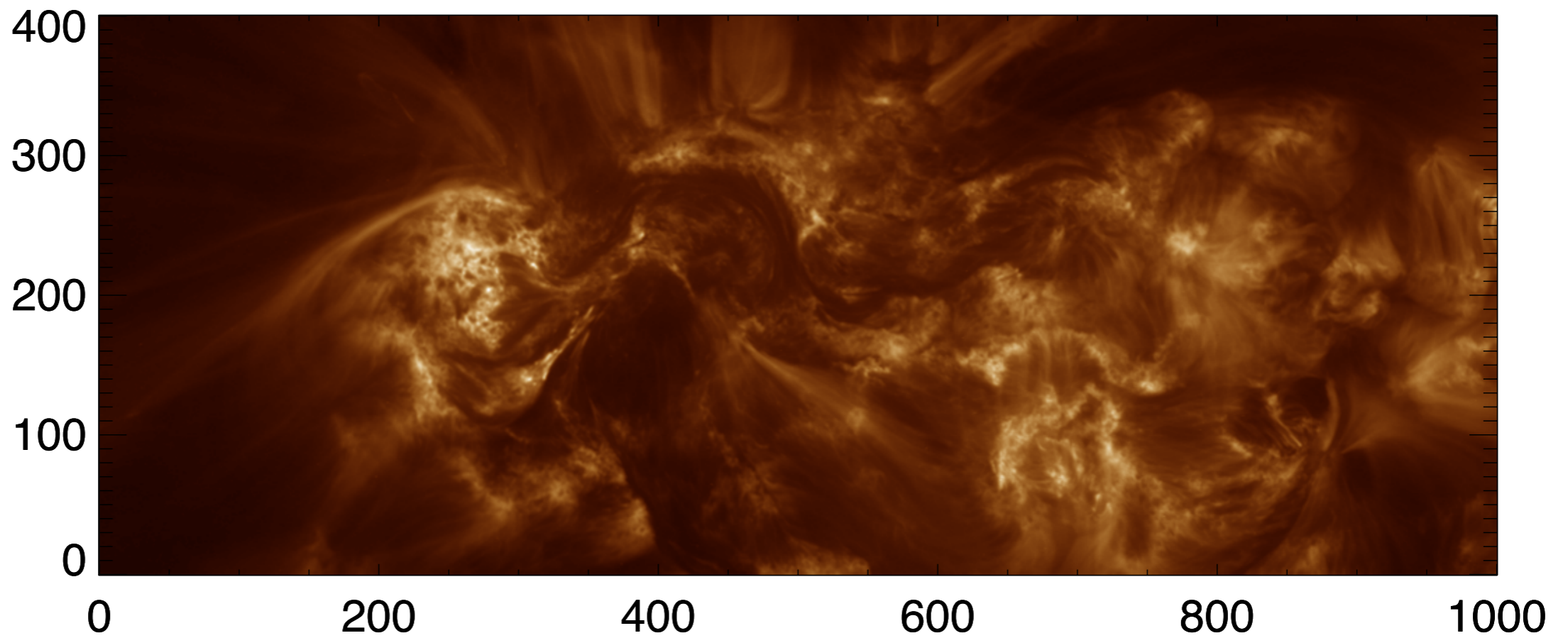


Are these features visible or common in AIA data?
(cadence of 12s @ $0.6''/\text{pixel}$ for several wavelength channels)

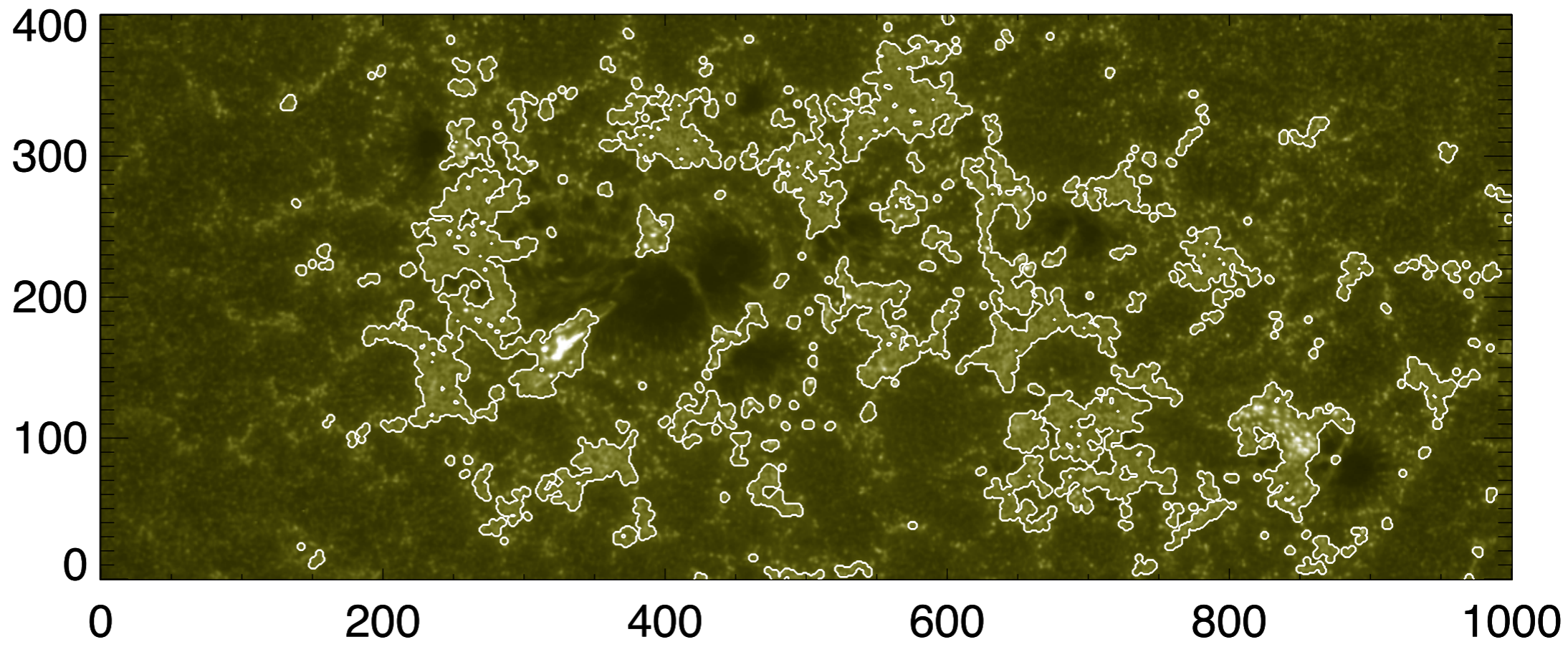
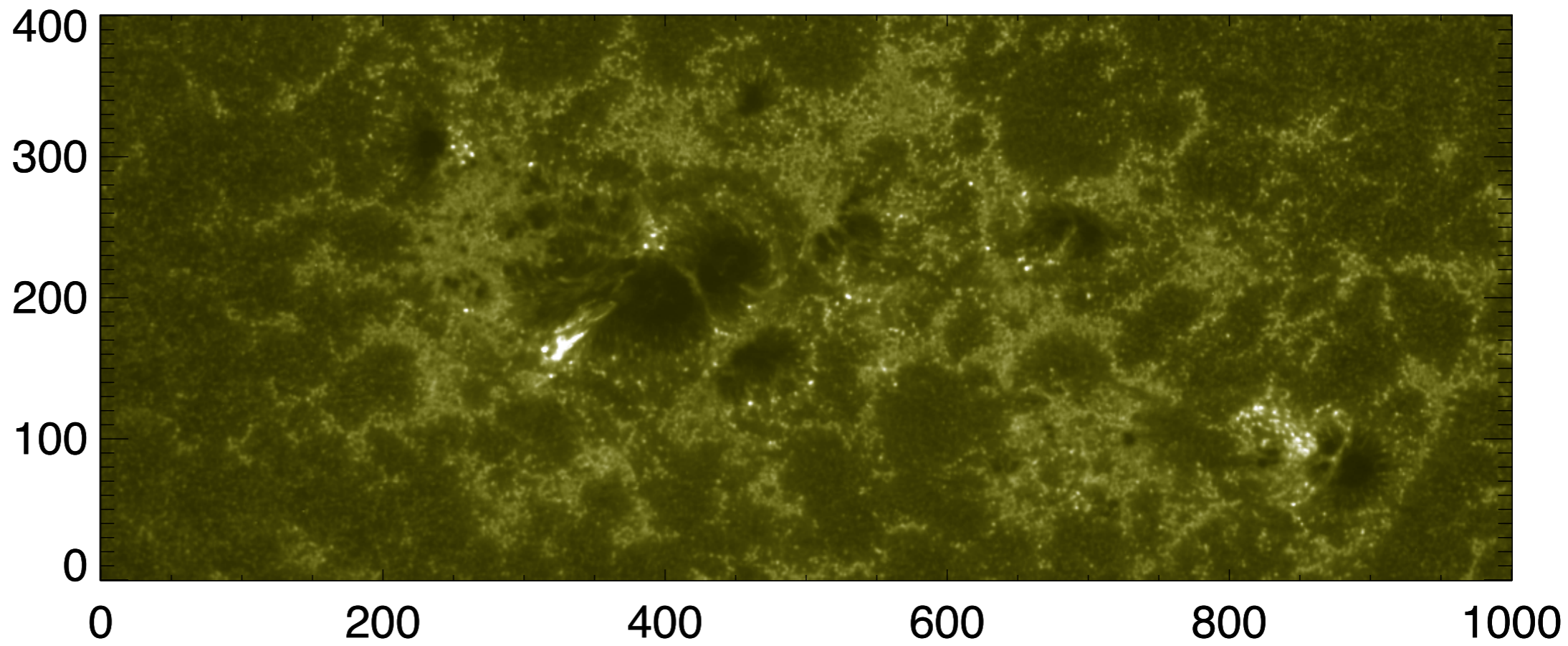
Investigate the connection between short lived brightenings in the moss and their connection to the coronal plasma

The first step: identify these in AIA

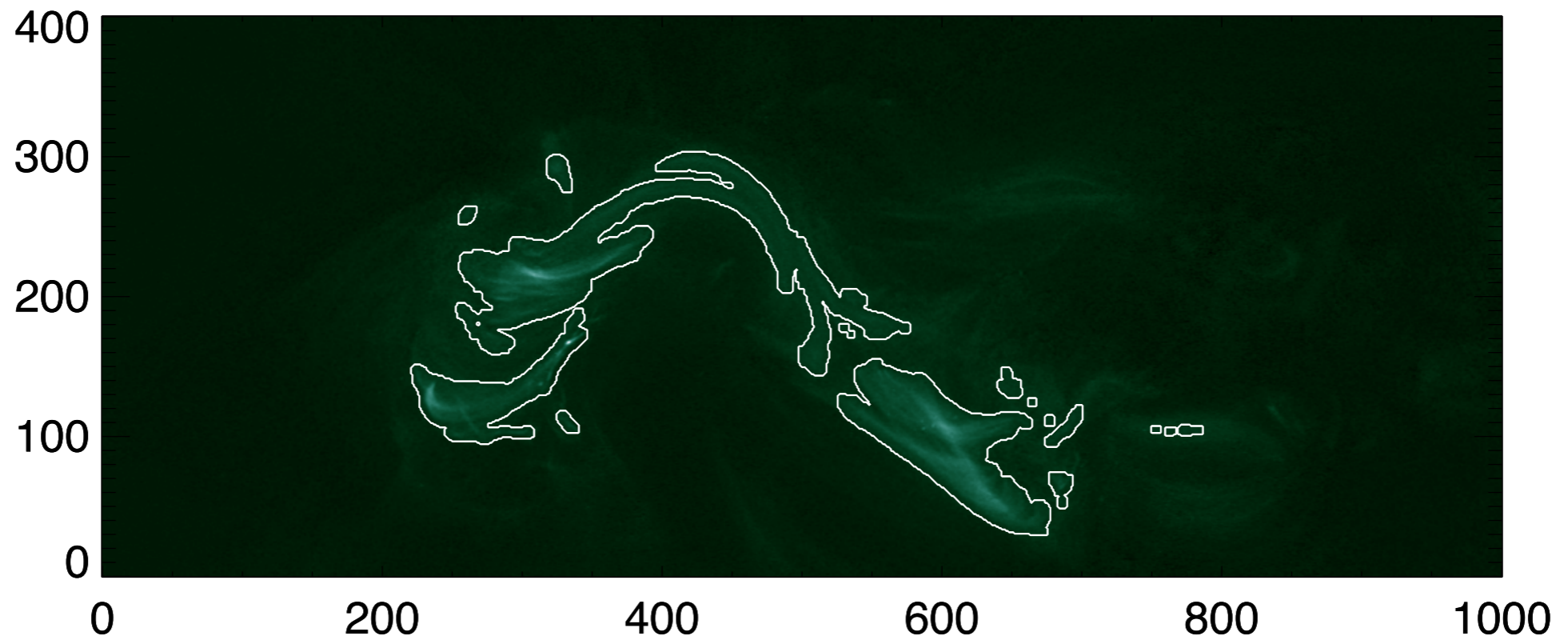
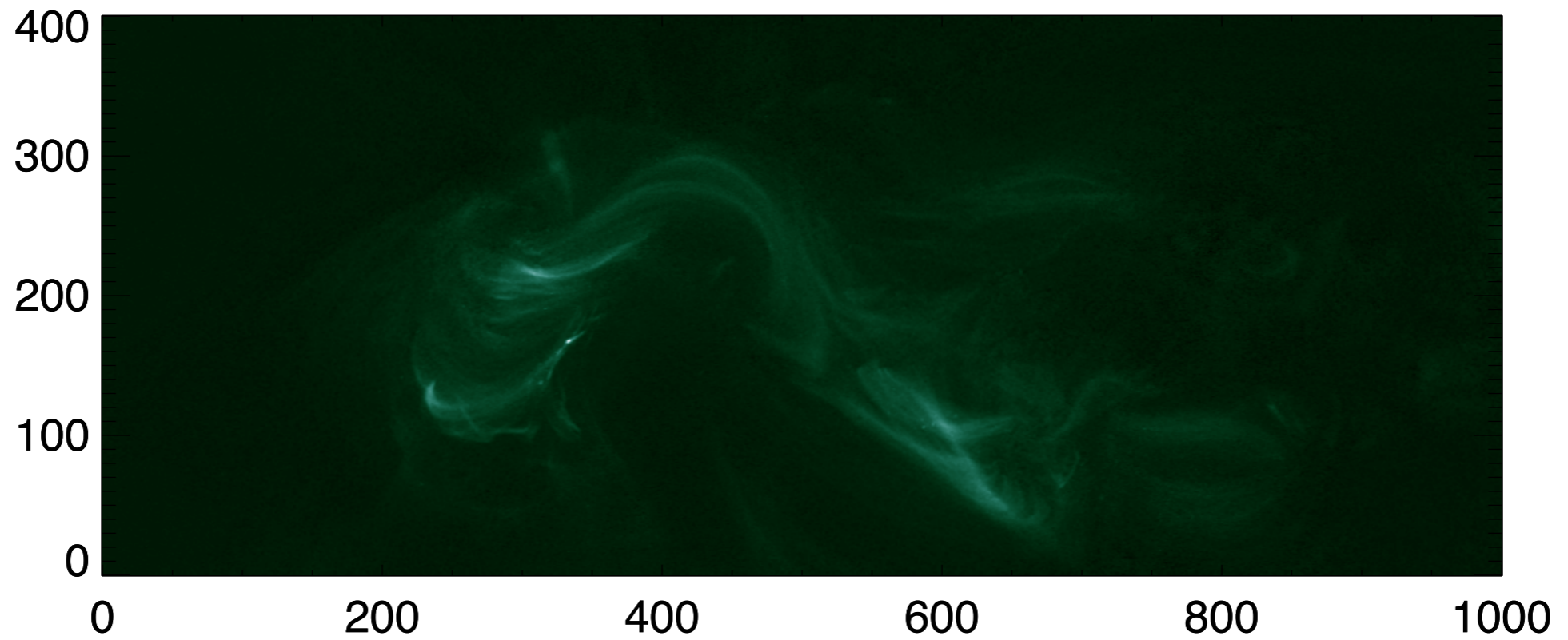




$I_{\text{threshold}} < I > + 2.5$ apply erode and dilate functions for smoothing

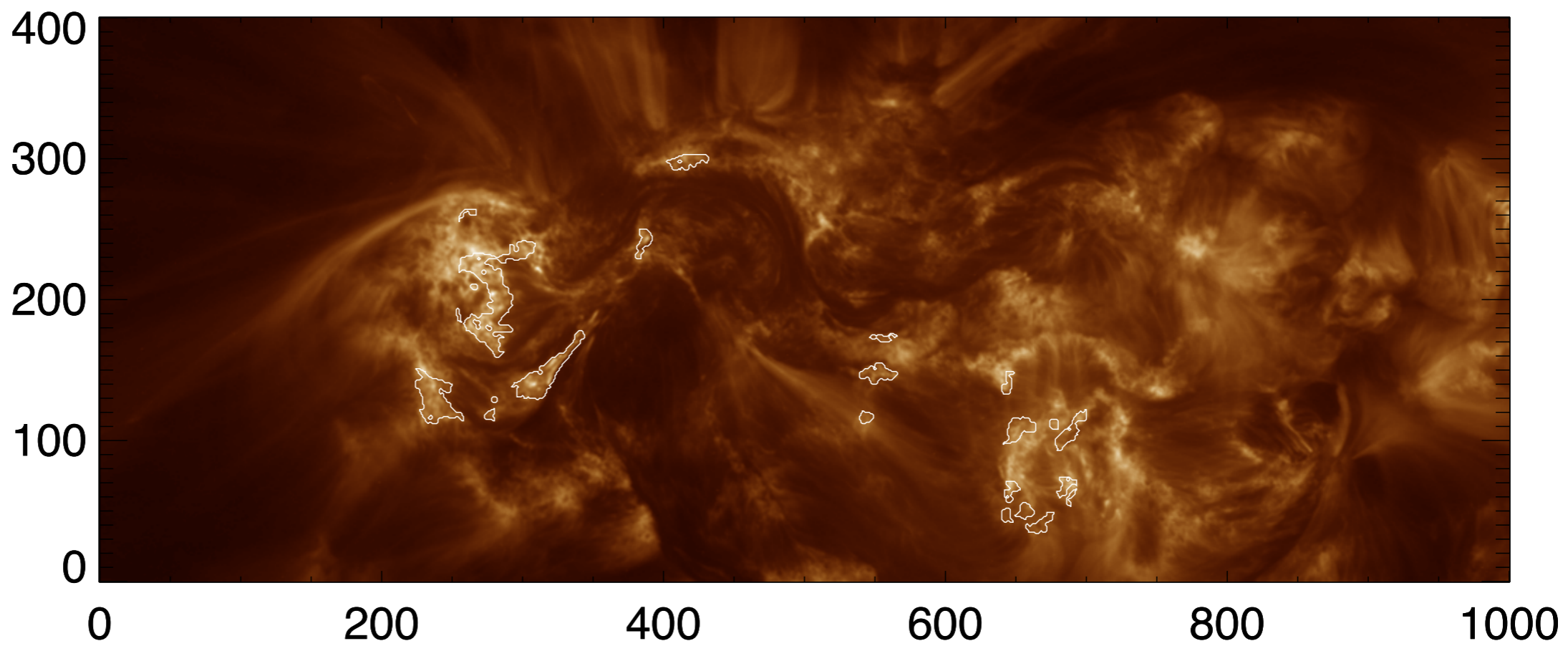
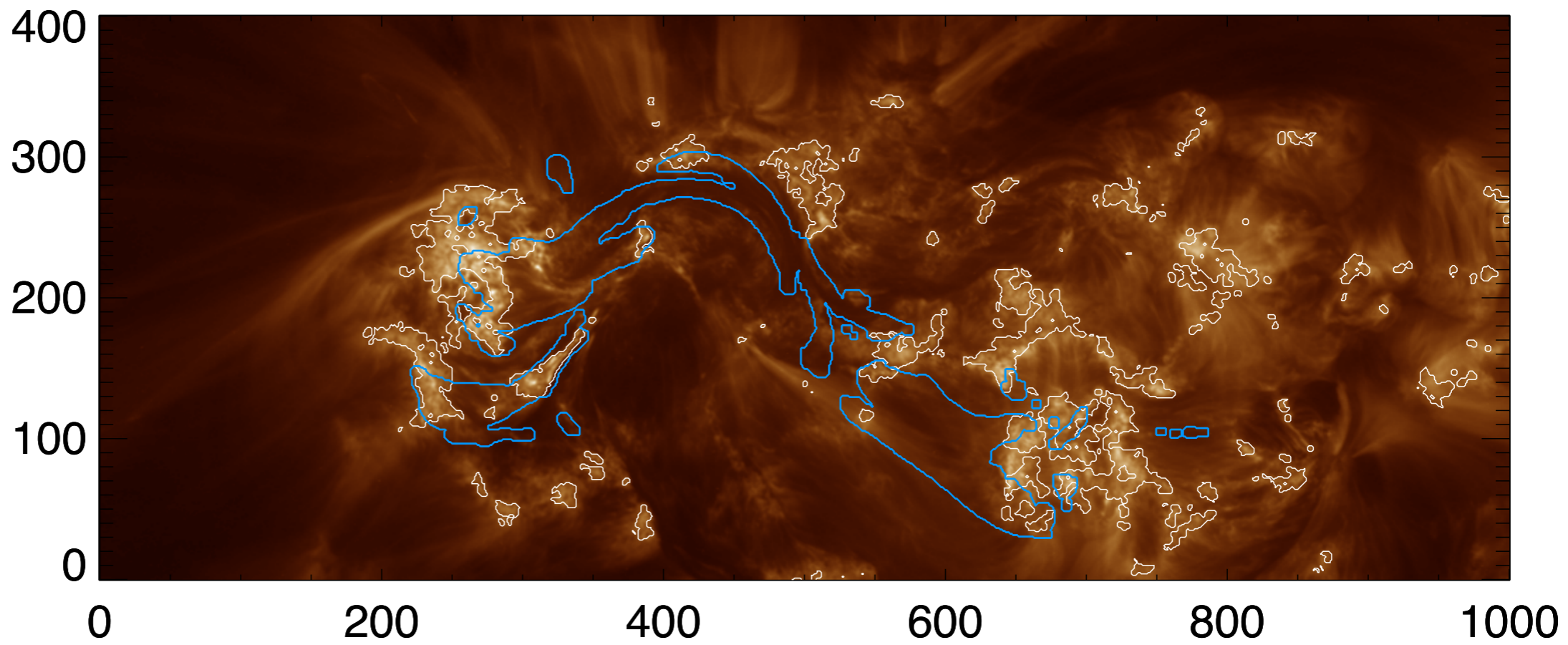


1600Å Flat intensity threshold \sim 300 DN



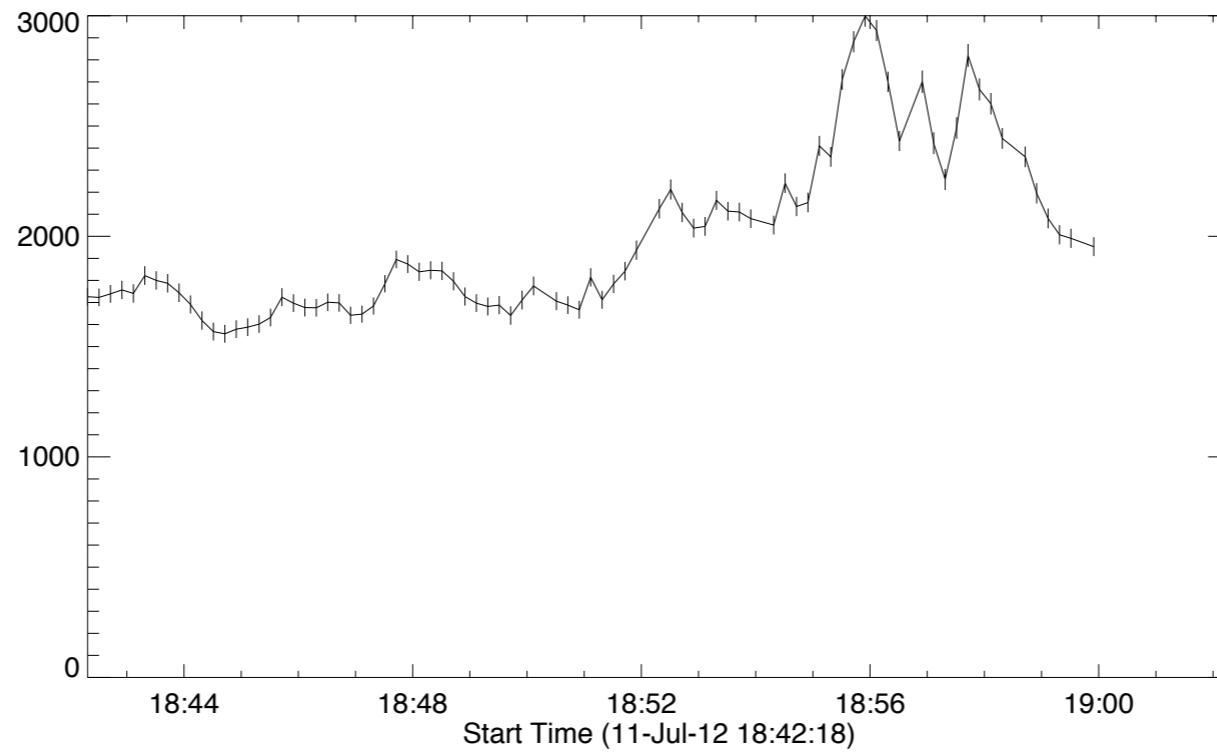
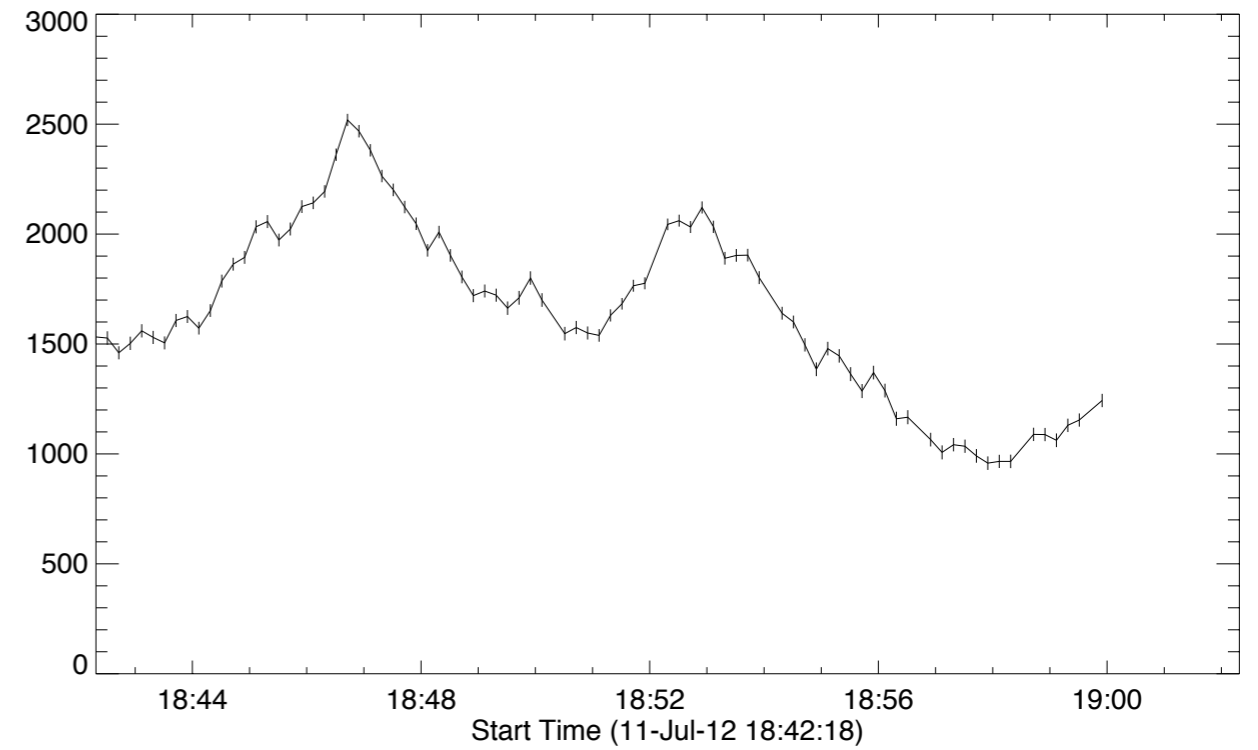
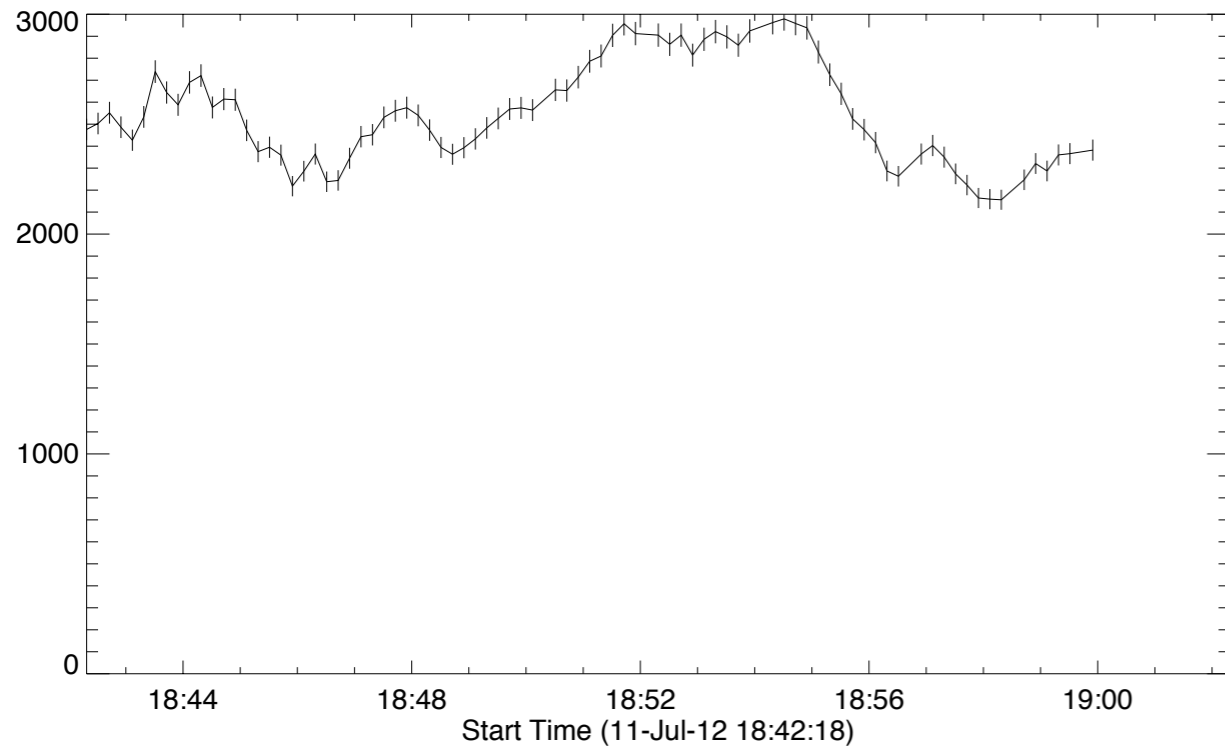
$\text{Fe XVIII} > 94\text{\AA} - 211\text{\AA}/210 - 171\text{\AA}/450$

Threshold, add smoothing and use dilate function to grow the region slightly

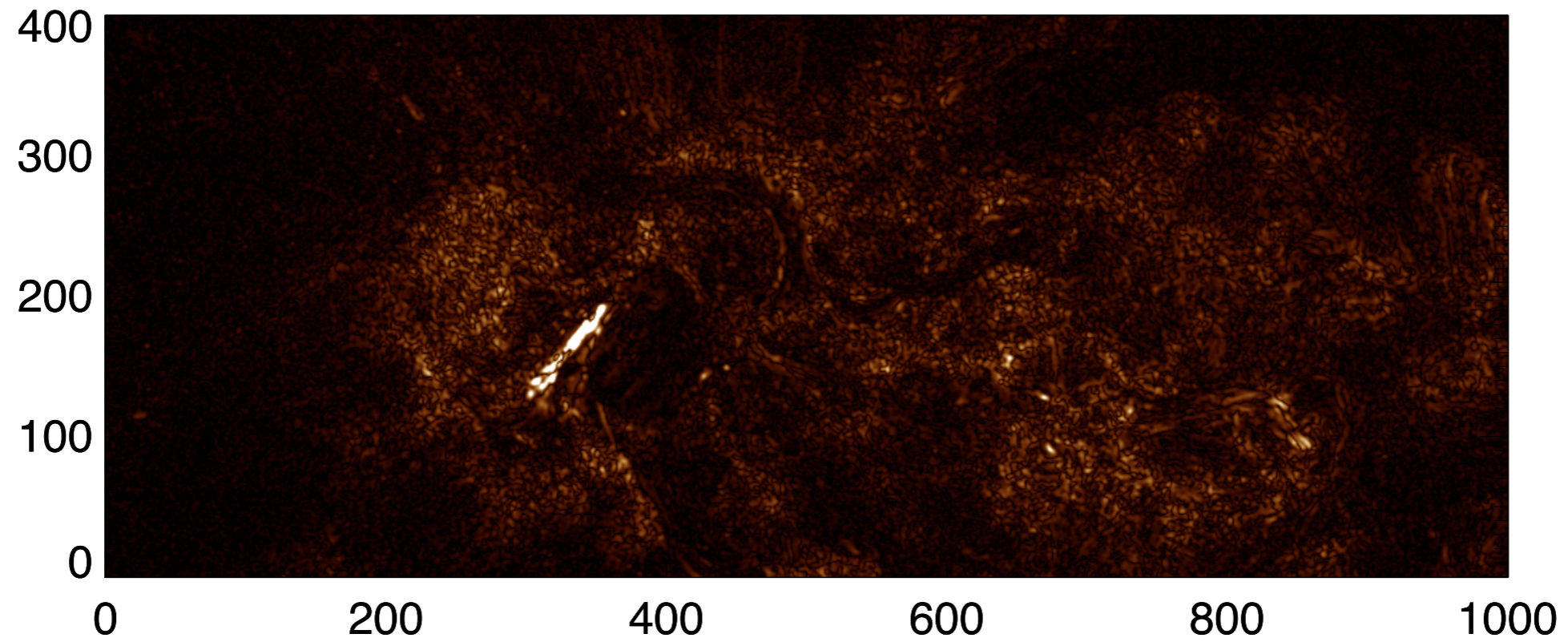


Combining all three (plus a check for magnetic field in HMI >250 DN)

Example pixels 193Å Intensity



In pixels from the 'Hi-C' region some range of intensity modulations are seen



Running difference (5 step)

Filter pixels with absolute difference above the AIA uncertainty (with previous filters)

