Title: Dynamic moss observed with Hi-C

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Abstract:

The High-resolution Coronal Imager (Hi-C), flown on 11 July 2012, has revealed an unprecedented level of detail and substructure within the solar corona. Hi-C imaged a large active region (AR11520) with 0.2-0.3'' spatial resolution and 5.5s cadence over a 5 minute period. An additional dataset with a smaller FOV, the same resolution, but with a higher temporal cadence (1s) was also taken during the rocket flight. This dataset was centered on a large patch of 'moss' emission that initially seemed to show very little variability. Image processing revealed this region to be much more dynamic than first thought with numerous bright and dark features observed to appear, move and disappear over the 5 minute observation.

Moss is thought to be emission from the upper transition region component of hot loops so studying its dynamics and the relation between the bright/dark features and underlying magnetic features is important to tie the interaction of the different atmospheric layers together. Hi-C allows us to study the coronal emission of the moss at the smallest scales while data from SDO/AIA and HMI is used to give information on these structures at different heights/temperatures. Using the high temporal and spatial resolution of Hi-C the observed moss features were tracked and the distribution of displacements, speeds, and sizes were measured. This allows us to comment on both the physical processes occurring within the dynamic moss and the scales at which these changes are occurring.