

M12b What Influences Observed Variations in Flare Ribbon Patterns?

Qihui Ming, Kanya Kusano (ISEE, Nagoya Univ.), K.D. Leka (NWRA; ISEE)

Solar flares result from the reconnection of magnetic field in active regions. In the lower solar atmosphere, these flares produce ribbon-shaped brightenings, theorized to be the footpoints of magnetic field lines that have undergone reconnection. The characteristics of flare ribbons may reveal insights into the progression of reconnection events. In the present study, we perform a detailed comparative analysis of flare ribbons for multiple, in some cases apparently homologous, events within target flare-active regions. We examined the properties of their flare ribbons as detected by UV 1600Å images from the Atmospheric Imaging Assembly (AIA) aboard the Solar Dynamics Observatory (SDO). For events of the same region, we compared their magnetic configurations, using vector magnetograms obtained from the Helioseismic and Magnetic Imager (HMI) on SDO. This investigation aims to understand how variations in physical conditions within the same active regions lead to different flare ribbon patterns.