

Reconnection signatures in solar magnetograms during the solar storms of 4-10 September 2017

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Solar flare forecasting is limited to active region classification and historical correlation, due largely to our lack of understanding of magnetic reconnection as a driving mechanism for solar flares and coronal mass ejections. Photospheric observations indicate magnetic field changes during solar flares, brought about during magnetic reconnection and related to magnetic field helicity on the solar surface. While the neutral point of the reconnection event associated with a flare usually occurs in the solar corona, some signs of the magnetic field changes should manifest as low as the photosphere. This study utilizes data from SDO HMI and Space-Weather HMI Active Regions Patches (SHARPS) to analyze full vector field component data in the photospheric magnetic field during several magnetic reconnection events during the space weather events of 4-10 September 2017.

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