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Homologous flare occurred at the quadrupole field

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Many models of the solar flare are suggested and they can explain some of the observed flares. However, they cannot explain all of the observed flares. The purpose of our study is investigating such events. We focus on homologous flares, which occur at the same location in the same active region repeatedly. We used Solar Optical Telescope (SOT) on board *HINODE* and Atmospheric Imaging Assembly (AIA) on board *Solar Dynamics Observatory* (*SDO*). We can obtain three dimensional vector of the magnetic field by using the spectropolarimetric data of SOT and investigate the coronal configurations by using the extreme ultraviolet data of AIA. We analyze the active region NOAA 11967 which produced three M class flares on 2014 February 2. These flares show homology and the magnetic field at the flaring region is quadrupole. There were four flare ribbons and they showed rapid slipping motion. The photospheric flow can be seen between the sunspot and this flow may play a role in storing free energy and triggering the flare.

Keywords: solar flare, magnetic reconnection