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Coronal disturbances unveiled with recent observations

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Solar flares are very spectacular, and they are accompanied by various kinds of active phenomena. We also observe waves and wave-like coronal disturbances associated with flares. Moreton waves, which are seen traveling with the speed of about 1000 km/s in H-alpha images, are an example of flare-associated wave phenomena. They are thought to be the intersections of MHD fast shock front traveling in the corona with the chromosphere. As the coronal counterpart of Moreton waves, X-ray waves have also been studied. EIT waves (or EUV waves) are another major player in coronal disturbance studies. They are also expected to be the coronal counterpart of MHD fast shock, while the traveling speed is much slower of about 300 km/s than those for Moreton waves/X-ray waves. There have been, therefore, many discussions on the nature of EUV waves. I overview recent observations of flare-associated waves and wave-like coronal disturbances especially done by Hinode, STEREO, and SDO.

Keywords: solar flare, corona, chromosphere, MHD shock