



Observations for the Role of Flux rope Eruption in a Geoeffective Solar Flare

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Abstract

On September 24, 2011 a solar flare of M 7.1 class was released from the Sun. The flare was observed by most of the space and ground based observatories in various wavebands. We have carried out a study of this flare to understand its causes on Sun and impact on earth. The flare was released from NOAA active region AR 11302 at 12:33 UT. Although the region had already produced many M class flares and one X- class flare before this flare, the magnetic configuration was not relaxed and still continued to evolve as seen from HMI observations. From the Solar Dynamics Observatory (SDO) multi-wavelength (131 Å, 171 Å, 304 Å and 1600Å) observations we identified that a rapidly rising flux rope triggered the flare although HMI observations revealed that magnetic configuration did not undergo a much pronounced change. The flare was associated with a halo Coronal Mass Ejection (CME) as recorded by LASCO/SOHO Observations. The flare associated CME was effective in causing an intense geomagnetic storm with minimum Dst index -103 nT. A radio burst of type II was also recorded by the WAVES/WIND. In the present study attempt is made to study the nature of coupling between solar transients and geospace.

Key words: Solar Flare, Magnetic Flux Rope, CME, Geoeffectiveness.



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