

EGU2020-8882

<https://doi.org/10.5194/egusphere-egu2020-8882>

EGU General Assembly 2020

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Satellite and ground-based magnetic field observations related to volcanic eruptions

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In this study we investigate volcanic eruption phenomena related to ionospheric disturbances, e.g. Heki (2006) used total electron content (TEC) measurements for this task. In particular, a model is developed how discharge phenomena (e.g. Houghton et al, 2013) can produce magnetic field variations at SWARM and CSES satellite orbits, i.e. altitudes of ~500 km in the F-region. Several coupling mechanism between lithosphere, atmosphere, and ionosphere are discussed by Simões et al (2012).

Experimental evidence is based on magnetic field observations aboard CSES mission in the time frame July 2018 to January 2019. The theoretical considerations include the source mechanism, propagation path, and the signal strength at low earth orbit satellite altitude.

Ref:

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