



Study of Ionospheric Equinoctial Asymmetry using data from Swarm satellites

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Ionospheric Equinoctial Asymmetry (IEA) is one of the most interesting features of the terrestrial Ionosphere. It is characterized by significantly larger F region ionospheric electron densities during the Vernal equinox than during the Autumnal equinox. The drivers of the asymmetry are not fully understood and quantified, which pose a challenge for ionospheric models to accurately reproduce the IEA. In this study we use data from European Space Agency's Swarm satellites to characterize the variability and strength of the IEA at different latitudes and times. Specifically, we analyze data from Swarm Langmuir Probes (LP) which provide information about electron densities and temperatures in the topside ionosphere at about 500 km altitude. In addition to Swarm LP measurements, we use complementary data of various thermospheric and ionospheric parameters from different ground- and space-based instruments, and lastly try to simulate the observed asymmetries using physics-based ionospheric and coupled ionosphere-thermosphere models.