2015 Workshop: Conjugate observations

Long title
Conjugate Observations and Models of ionospheric processes
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Description

Ionospheric processes are strongly dependent on geomagnetic field characteristics. Some of these processes occurring locally can also be observed in the opposite hemisphere at magnetically conjugate locations. At low and midlatitudes, equatorial spread F (ESF) and Medium scale travelling ionospheric disturbances (MSTIDs) are clear examples of conjugate processes. At sub-auroral latitudes, where coupling with the inner magnetosphere is important, sub-auroral polarization streams (SAPS), storm enhanced densities (SEDs), stable auroral red (SAR) arcs, occur at both hemispheres. Not many studies have discussed their conjugate characteristics. How the pre-conditioning of the ambient thermosphere-ionosphere affects the occurrence of these processes in both hemispheres? Are there characteristics of ionospheric processes that reveal the influence of the South Atlantic Magnetic Anomaly (SAMA) in the American/Atlantic longitude sector? This workshop aims to provide answers to these questions and to discuss studies of ionospheric processes when observations and models at both hemispheres are available

Justification

The proposed workshop reflects the comprehensive focus described in the document “CEDAR: The New Dimension” that calls for the need to approach the study of coupling processes with a broader view that recognizes inherent linkages between different aspects of the Sun-Earth system. This ‘system approach’ is a common theme in the different stages of the workshop: from the Magnetosphere-Ionosphere coupling to the ionosphere-thermosphere coupling to the latitudinal coupling (from high to midlatitudes), and finally inter-hemispheric coupling. The document also identified several ‘strategic thrusts’, and the workshop will address some of them, like (a) to undertake a ‘system perspective of geospace’; and (b) to understand

energy exchange processes at boundaries and transition regions

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