2012 Workshop: African ionosphere and ISR radar plans

Long title
The equatorial ionospheric response to coupling from the atmosphere and the magnetosphere and its longitudinal dependence
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Description

Satellites and ground-based observations have revealed that the equatorial ionosphere responds differently at different longitude sectors to the influence from the neutral atmosphere and from the high latitudes. During the past few years several ground-based instruments have been deployed, and new space and ground-based observations have become available. One goal of this workshop is to define the science that can be accomplished taking advantage of these new data sets, with an emphasis on Africa as it has been recognized that Africa is home to the most persistent and large-scale instabilities of the highly structured global equatorial ionosphere. Currently a subgroup of the CEDAR community is considering locating an incoherent scatter radar in Ethiopia close to the magnetic equator. Together with the Low Latitude Ionospheric Sensor Network (LISN) in South America as well as C/NOFS, DMSP, and other satellite missions, new opportunities exist, and further new opportunities will become available, to combine global observations which will unravel the dynamics and complex structure of equatorial electrodynamics.

Justification

This workshop will focus on the space-atmosphere interaction region around the magnetic equator. It is in this region where the interactions between the plasma and the neutral atmosphere, at all altitudes, are characterized and influenced by the shape of the magnetic field lines, as well as by the land masses and longitudinal and seasonal variability of the storm patterns below. As such, this workshop is related to the new CEDAR vision: “Understand fundamental properties of the space-

atmosphere interaction region, indentify interconnected processes that define its global behaviors, evolution and influence the Sun-Earth system, and to explore its predictability”

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