2012 Workshop: LISN and ESF forecast

Long title
LISN: to develop a strategy to forecast ESF
Conveners
Cesar E Valladares
J. L. Chau
Claudio Brunini
Eurico dePaula
Description

The Low-Latitude Ionospheric Sensor Network (LISN) is dedicated to monitor and specify the conditions of the equatorial and low-latitude ionosphere and atmosphere in a regional context. LISN aims to study and forecast the ionospheric phenomena, with special emphasis on plasma structures and dynamics. To specify and forecast, LISN provides near real-time observables (nowcast) from different instruments spaced across the South American low-latitude ionosphere. LISN consists of 46 dual-frequency GPS receivers, 5 magnetometers installed on 2 baselines across South America, and 1 VIPIR ionosonde operating at Puerto Maldonado, Peru near the magnetic equator. The second VIPIR is being installed near the city of Tupiza in Bolivia (magnetic latitude = -11°).

This workshop will start with a report of the status of the instrument deployments, scientific results of several projects that have been carried out using regional maps of TEC, TIDs and TEC depletions collected in South America. The introduction will also include the latest results on assimilation and modeling efforts using LISN data sets. The rest of the 2-hour workshop will be devoted to outline a strategy on how to use the present instrumentation, especially both VIPIR ionosondes GPS receivers and magnetometers to study the seeding conditions and the favorable conditions of the ionosphere for initiation of ESF. We invite all of our CEDAR colleagues, post-docs, and students to participate in a round-table discussion of the projects described above.

Justification

The strategic Thrust # 4 applies to this workshop as we plan to develop a strategy to forecast ESF. This will include tomography reconstructions of 2D density profiles

across the low-latitude ionosphere, assimilation techniques to calculate the drivers of the IT system and wind measurements conducted with FPIs that are operating in South America. We also plan to discuss how to introduce data from other instruments that operate in South America.

View PDF