

2022 Workshop: Equatorial aeronomy and space weather

Long title

New capabilities for studying equatorial aeronomy and space weather

Conveners

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Description

Several ongoing, planned, and proposed upgrades to the Jicamarca Radio Observatory prompt a reassessment of how space science and space weather research in the equatorial zone should be pursued. The upgrades include electronic beam steering, new 24/7 IS radar modes, new high-sensitivity modes, and network of regional radio arrays. Combined with new techniques based both in direct numerical simulation and in machine learning, the prospects for accurate space weather specification and forecasting are promising. We invite community participation in planning how to utilize the new capabilities, conduct forecast trials, and propose a NASA sounding rocket campaign in Peru.

Agenda

1. Danny Scipión, new Jicamarca radar capabilities
2. Fabiano Rodrigues, AMISR14 observations at Jicamarca
3. Tzu-Wei Fang, Equatorial ionospheric forecasting
4. Sevag Derghazarian, High Altitude Echoes in the Inner Plasmasphere: New Observations
5. Enrique Rojas, Machine learning approaches to predicting ionospheric structures
6. Jorge L. Chau, MLT observations using SIMONE at Jicamarca and Piura
7. Cesar Valladares, Expansion of the LISN network and new HF receivers.
8. Rob Pfaff, Possibilities for a sounding rocket campaign in Peru

Justification

The timeliness of this proposal arises from the upgrades that have taken place or are in the proposal process at Jicamarca together with the emergence of new methods for incorporating the IS radar data in space weather forecasting. Several recent experimental campaigns conducted in conjunction with ICON, a regional network of MIMO meteor radars, a regional network of HF beacons, and regional optical instruments compel the workshop further. Finally, a window is opening for proposing a NASA sounding rocket campaign in the Peruvian sector, and we want to take advantage.

Keywords

equatorial, aeronomy, space weather, forecasting

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