

Bulletin of the Upper atmosphere over Peru

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Abstract:

The Geophysical Institute of Peru (IGP) operates a variety of instruments to monitor and study the ionosphere and upper atmosphere over Peru. These instruments include radars, GNSS receivers, magnetometers, interferometers, airglow imagers, and ionosondes. Among them, the most important one is the Incoherent Scatter (IS) radar located at the Jicamarca Radio Observatory (JRO).

In an effort to make our observations known to a wider audience, we have recently started the publication of a monthly bulletin that summarizes the behavior of the ionosphere and upper atmosphere over Peru. The bulletin is written in a friendly language to make our scientific observations more of the public interest. Moreover, it describes the impact of ionospheric or upper atmospheric phenomena on Peruvian society, needed for the implementation of disaster risk policies and strategies. In the bulletin, we consider the statistical study of different plasma irregularities such as Spread-F, 150-km Echoes, different plasma parameters such as electron densities, drifts from the IS radar, MLT winds from specular meteor radars, scintillation activity from GNSS receivers, geomagnetic field variations from magnetometers, and thermospheric neutral winds and temperatures from Fabry-Perot interferometers.

In the bulletin, we also include the correlation analysis between measurements of the same physical event observed with different instruments (for instance, Spread F from the radar and ionosonde), as well as the detailed report of the effects of atypical events, such as an eclipse, on our instrumentation. Our future goal is the implementation of a forecasting system of the state of the ionosphere and upper atmosphere based on the observations mentioned above.

Acknowledgement: The Jicamarca Radio Observatory is a facility of the Instituto Geofísico del Perú operated with support from the NSF AGS-1732209 through Cornell University. We also thank the support of Ciencia Internacional, a peruvian non-profit civil association that supports the operation of the Jicamarca Radio Observatory.

References:

Session: Ionosphere and high atmosphere

Oral or Poster: Oral.