Trends in the F2 region of the Ionosphere over Jicamarca

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Abstract:

Mounting evidence from thermospheric densities estimates suggest that the hypothesis proposed by Roble and Dickinson (1989) regarding the impact of greenhouse gases on high altitude atmospheric densities, was correct. Nevertheless, there is still some debate about how this will affect the ionosphere. In that sense, the present work has two goals. First, to compare build time-series of foF2 and hmF2 from 2001 to 2020 using the data produced by the Digisonde Portable Sounder (DPS) Ionosonde with its corresponding values from incoherent scatter radar measurements. The discrepancies were correlated to solar activity and other time-series to understand their time variation.

As second goal, considering the uncertainties associated with trends detection are autoregressive of first and second order, similar to Weatherhead (1998), we will assess some of the predictions produced with global circulation models about the trends on regions over the JRO and will use other time-series like JULIA's drifts and ionosonde data to evaluate these claims. These results can be extended to detect trends with data from similar stations around the world.

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References:

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