Time series of UV energy flux and their correlation to ionosonde parameters

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Abstract:

Time series of geophysical parameters have been used in numerous empirical, physics-based, and machine learning models. One of the most important parameters for ionospheric research is "f10.7", even though it measures the energy flux of a portion of the spectrum that does not play a dominant role in the ionization process or dynamics. Furthermore, wavelengths that do have a central role in ionization have been measured by satellites continuously for the past couple of decades by several missions. For this work, we started building a database of time series for energy fluxes of wavelengths below 100 nm beginning on the year 2000. Using this time series, we explore their correlation with different ionosonde and ISR measurements compared to the ones obtained using the f10.7 parameter. Finally, we outline some possible applications of these new time series.

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