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Comparison of the performance of PCA-NN models for daily mean TEC over the Iberian Peninsula: the role of space weather parameters as predictors for TEC

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The total electron content (TEC) over the Iberian Peninsula was modeled using a PCA-NN models based on the decomposition of the observed TEC series using the principal component analysis (PCA) and reconstruction of the daily mean TEC and daily PCA modes' amplitudes by different types of neural networks (NN) using several types of space weather parameters as predictors. Lags of 1 and 2 days between the TEC and space weather parameters are used.

Two main goals are set:

- To find a NN configuration(s) that produces forecasts of reasonable quality with minimal amount of input data
- To find a best set of space weather parameters that work as predictors for PCA-NN models

Here we present preliminary results related to the second goal: PCA-NN models with different sets of predictors are compared. Among predictors we consider proxies for the solar UV and XR fluxes, number of the solar flares of different types, parameters of the solar wind and of the interplanetary magnetic field, and geomagnetic indices.