MINING STUDY OF IONOSPHERIC DATA

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Abstract / We carried out a comparative study of different data mining techniques, applied to the case of time dependence, high dimensionality and irregular sampling. We used supervised (decision trees) and unsupervised (association rules and clustering) techniques to recognize patterns within the data. We present an implementation example in which the terrestrial ionosphere is characterized by means of data from a solar cycle, obtained at mid-latitudes. In particular, we studied the behavior of the F2 peak, since it correspond to a great interest layer in radio propagation and space weather studies, it is also the region which is the most variable, anomalous and difficult to predict. Our analysis allowed to describe and predict the ionospheric behaviour based on the different approaches provided by the implemented techniques. They were consistent with the expected relations between the F ionospheric layer and the physical processes that sculpt it.

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