Modelling ionosphere using combined memory based and genetic algorithms over the Europe region.

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The state of the ionosphere depends on space weather factors like the intensity of solar activity, magnetic activity, local time, season, unfortunately the dependence is not thoroughly known.

Memory based method like K Nearest Neighbor algorithm allows predictions by the similarity between ionosphere states. In mostly the nearest neighbour method is a case based on statistical approach used to predict the ionospheric conditions. In this case part of KNN algorithm was modified by genetic programming.

Genetic programming is a method that permit to automatically

making algorithms knowing only general definition of a problem. The paper presents the using KNN whit genetic core algorithm in space weather applications and the use of this method for forecasting and mapping of the ionosphere characteristics, as foF2, M(3000)F2. The proposed algorithm is demonstrating for European area.