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Time series prediction in agroecosystems

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This work proposes a novel model to predict time series such as frost, precipitation, temperature, solar radiation, all of them important variables for the agriculture process. In the proposed model, Artificial Neural Networks (ANN) combined with clustering algorithms and sensor data fusion are used. The real time series are obtained from different sensors. The clustering algorithms find relationships between variables, clustering involves the task of dividing data sets, which assigns the same label to members who belong to the same group, so that each group is homogeneous and distinct from the others. Those relationships provide information to the ANN in order to obtain the time series prediction. The most important issue of ANN in time series prediction is generalization, which refers to their ability to produce reasonable predictions on data sets other than those used for the estimation of the model parameters.