Abstract

Machine learning techniques are used in different types of pattern recognition works. Nowadays, these techniques are applied in meteorological fields for prediction purpose. In this paper, the pattern to be recognized is the severe weather event of squall-thunderstorms. Prediction of severe thunderstorms are done here by applying K-Nearest Neighbor (K-NN) technique. K-NN is a very good classifier which can classify two classes of events ‘storm days’ and ‘no storm days’. It is a non-parametric method. Three types of weather parameters such as moisture difference, dry adiabatic lapse rate and vertical wind shear are considered here as predictors. Both surface as well as upper air data which are measured by radiosonde/ rawinsonde in the early morning are used in this case. Weather forecasting is a challenging job because of the dynamic behavior of the atmosphere. ‘Storm days’ are predicted correctly more than 91% and both ‘storm and no storm days’ are classified more than 82% accuracy, having a lead time around 12 hours.
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Index Terms

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Keywords

Squall-thunderstorm  
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K-Nearest Neighbor and Similarity Measure