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(57) Abstract :

In this work, statistical and machine learning models are developed to predict the occurrence of radiation fog. These models are based on discriminant analysis, logistic regression analysis, and a support vector machine (SVM). The Akaike information criterion was used to decide the variables to be included in explaining the models (AIC). The degrees of accuracy achieved by each of the three models were evaluated and ranked. The data for temperature, humidity, wind speed, precipitation, sunlight, and visibility were considered to find the best possible combination of explanatory factors. According to the values of root mean square error (RMSE) and area under the receiver operating characteristic curve, the following combinations of variables were found to produce the best results: the presence of precipitation, the mean wind speed during the night, the minimum temperature during the night, the amount of temperature cooling during the night, the minimum humidity during the previous day, and visibility at evening.

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