



Temperature-humidity criterion of tropical cyclones generation studied with climatic and satellite microwave scanner data

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The problem of tropical cyclones forecasting is still very complicate and important. Suggested by V.N.Pelevin temperature-humidity criterion calculated from ocean surface temperature, water vapor amount above the ocean surface and Coriolis parameter was investigated by us for some years in the North Atlantic using satellite microwave scanner data. It was shown the value of this criterion correlated with the possibility of tropical cyclone generation. The results of some further investigation of the criterion statistics are given here.

The average values of the criterion calculated using climatic ocean maps are compared to the frequency of tropical cyclones generation given by the long period statistics data. The particular attention is paid to the factors preventing cyclonic activity such as atmospheric pressure peculiarities, strong winds or heavy rains. Then we tried to reveal the possibility to trace some of these factors by means of satellite microwave radiometry methods. It was shown that stability of cloudiness can be to some extent the sign of still weather. Water in drops can also be obtained by microwave radiometer. Adding these easily measured by satellite microwave scanner parameters we modified the criterion.

For realization of the modified criterion the program of the satellite information processing was developed allowing to obtain its distribution over the aquatoria of interest as well as estimate average values over the desired squares. Distribution of the suggested criterion in the tropical Atlantic was analyzed several days before tropical cyclones generation in 2002-2006.