

Abstract

In this work I created the overview of instability indices and other characteristics of convective environment which can be found in the literature. On the basis of variables, which the instability indices are calculated from, I suggested their categorization. It was created five groups of instability indices: (i) indices of isobaric levels differences, (ii) indices of rising air parcel, (iii) indices of potential temperatures, (iv) indices of the energy potential of convection and (v) indices of wind shear. In addition to these five categories it was created the sixth category consists of other thermodynamic characteristics. In the last chapter I used the upper air soundings data and values of instability indices of the University of Wyoming for one storm in Prague and I compared instability indices to each other. The group of the indices of potential temperatures was the most successful in the storm forecast, except the Rackliff index. The bulk Richardson number from the group of indices of wind shear forecasted a supercell storm correctly. The work could be used for creation of instability climatology of the Czech Republic on the basis of the selected instability indices.

Keywords: instability index, convection, convective storm