

Numerical simulation of heavy precipitation during floods in Carpathian

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The three-dimension diagnostic and prognostic models of frontal cloud systems with non-elastic dynamics and detailed microphysics modified by orography have been used for modeling of heavy precipitation accompanied strong flood in Carpathian region.

Synoptic analysis and numerical simulation of whole synoptic processes and several cloud clusters for some cases with floods were fulfilled. Processes of November 1998 and March 2001 will be presented in more detail. Source of moisture, energy of instability, vertical and vertical motion were modeled and analyzed.

Series of numerical experiments with different mechanism of cloud and precipitation development were carried out.

Series experiments with different sources of vertical motion were fulfilled. Influence on vertical motion, cloud and precipitation of orography have been investigated. Numerical models of selected frontal system with including and non-including of orography have been constructed and modeling results will be presented.