

A study of relations between activity centers
of the climate system and regions of ecological risk

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Some aspects that are intersection of climate and ecology studies are discussed. The studies are performed in the frames of Geosphere –Biosphere Program. The goal is to understand how activity centers of the climatic system relate to the regions of increased ecological risk respecting to human induced impact. To reach the goal it needs to construct the mathematical tools that allow one to produce the quantity descriptions of activity centers and risk regions. For the future, a possibility to predict developing the ecological situations are considered in dependence on the fact in which relations are the control regions as prognosis sites and activity centers.

The studies are fulfilled on the base of a joint use of the models and measured data. To calculate the influence domains of thermodynamic factors and the regions of ecological risk the numerical models of atmospheric hydrodynamics and pollutants transport are used in forward and inverse modes.

The system organization of the approach are based on the combination of numerical tools of four kinds, namely, factor analysis and selection of the main components and factors, sensitivity methods with respect to the parameter perturbations for the models and functionals, and forward and inverse techniques with data assimilation procedures.

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