Applying of combine opportunities of the runoff formation model (ECOMAG), the mesoscale atmosphere circulation model (COSMO-Ru) and the snow model (SnoWE) for the territory of the Russian Federation

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The investigation devoted to development of new runoff forecast methods in modern climate conditions. The main purpose of the research is creation a new scheme of assimilation and application of initial (in situ) and model data (COSMO-Ru and SnoWE) for a hydrological model ECOMAG. For analysis of flood characteristics, the most promising method is the method of synthesizing models of the hydrometeorological cycle. Initial meteorological data for the hydrological model ECOMAC can be obtained from in-situ observations and (or) the mesoscale atmospheric circulation model COSMO-Ru and information about snow and snow cover characteristics can be obtained from the SnoWE with different spatial steps. The main focus of this research is creation of cord between the hydrological (ECOMAG) and the meteorological (COSMO-Ru) models and cord between ECOMAG and the snow model (SnoWE). Moreover, we have to launch of the hydrological model on the COSMO-Ru grids. This approach can be effective for analyzing of possible extreme hydrometeorological events and allows to solve diverse problems associated with the flooding of the territory, both in the short-term forecast mode and for various scenario simulations. At the same time, the combination of multi-scale models is expected to lead to a loss of accuracy when moving from one level to another and requires the improvement of modeling techniques.
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