LANDSCAPE-CARTOGRAPHIC SUPPORT OF HYDROLOGICAL MATHEMATICAL MODELS OF THE WATER FLOW FORMATION

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The solution to many problems in hydrology associated with the card from the stage of initial information gathering to presentation of research results. Development of geographic information technology the use of thematic cartographic information, in particular landscape maps in hydrological mathematical modeling, conducted in the Altai state university jointly with the Institute for water and environmental problems SB RAS. Currently the object of research is the flood plain of the Upper Ob. The Upper Ob river is an important water resource and water supply value. Floodplain landscapes are dynamic natural systems, characterized by changing water flow and periodic flooding.

Created geoinformation mapping model of floodplain landscapes of the Upper Ob to perform a landscape-hydrological analysis and hydrological mathematical modelling. Geoinformation mapping model meets the requirements for use of hydrological mathematical models. Used landscape map created at the end of 1980-ies in scale 1:100 000.

Digitized over 1,000 landscapes gradation of groups of tracts. The landscape is differentiated into low, medium and high floodplain and classified according to the nature of the relief: segment-maned, flat low, flat, linear-maned, wavy. Performed GIS analysis of floodplain landscapes of the Upper Ob. Based on the DEM for the floodplain of the Upper Ob the maps of angles of slope and exposure of slopes, which allows to obtain the necessary morphometric data. The analysis of landscape dynamics for 20 years, based on the comparison with the data of modern satellite imagery.

Developed object-oriented attribute database landscapes. The database contains characteristics of the soils and vegetation of floodplain landscapes, information for calculation of the coefficient of roughness, evapotranspiration, dynamic characteristics, etc.