Information system as the tool of research dynamics of a ecosystem deep reservoir and its basin (on example of Lake Teletskoye)

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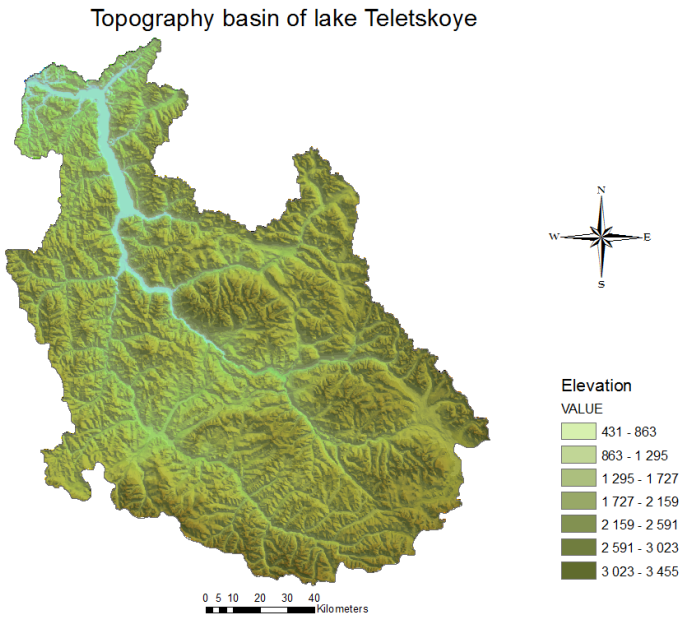

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For research of Lake Teletskoye has been chosen a model **CE-QUAL-W2** Version 3.5 [http://www.cee.pdx.edu/w2], because it describes non-stationary variables of hydrodynamics and water quality, capable to reproduce any density stratification of deep reservoirs.

The following data are needed for model application: 1. geometric data 2. initial conditions 3. boundary conditions 4. hydraulic parameters 5. kinetic parameters 6. calibration data.

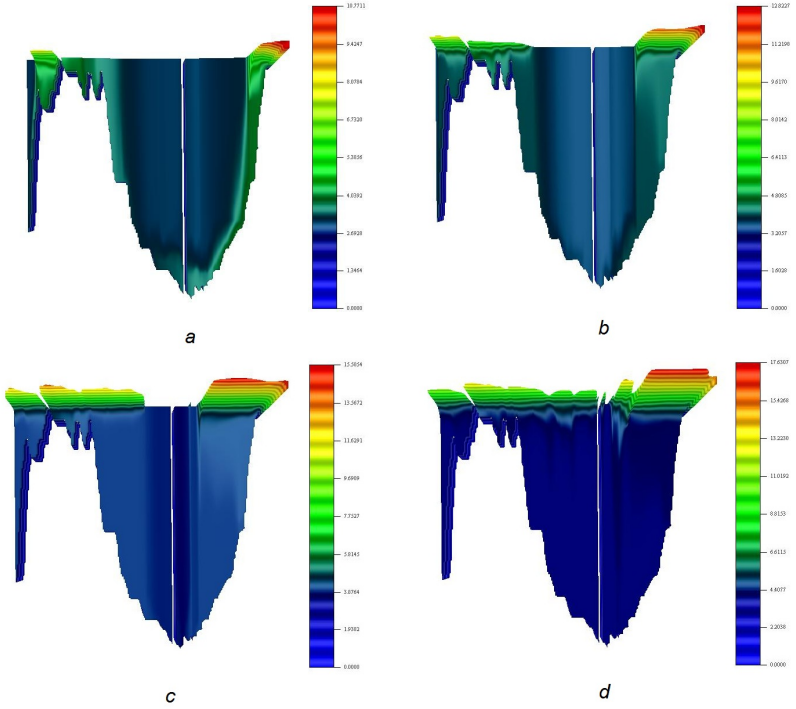
Goals

- Creation of the databases necessary for the definition boundary and initial conditions, for calibration and verification of model an ecosystem dynamics of Lake Teletskoye (bathymetry, the meteorological data, lateral inflows and the outflows, observations for the hydrological, hydrochemical and hydrobiological lake modes).

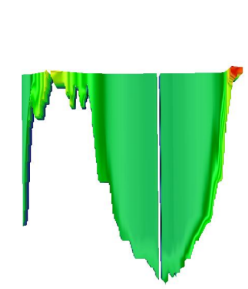
- Carrying out of the spatial analysis of Lake Teletskoye and it basin by means of ESRI ArcGis 9.2 for construction of model geometry a hollow of lake and a grid for numerical modelling.

- Carrying out of calibration of variables of hydrodynamics and temperature.

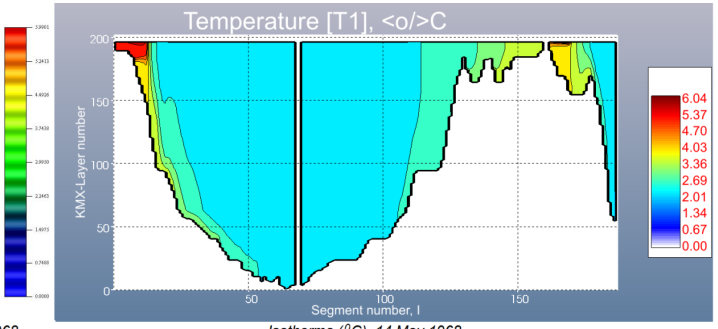
In the report results of decision the following problems defined by the joint program of research of the Lake Teletskoye are presented: working out models of geometry a hollow of lake and a computational grid for numerical modelling; results of hydrothermal calculations.



Example of calculation the Tw field (the second phase of the spring warming .)
Distribution Tw across the riverine and lacustrine thermal bars
(a) 10 june 1968; b) 25 june 1968; c) 5 july 1968; d) 13 july 1968)



example of calculation the Tw field, 13 May 1968



Isotherms (^{0}C), 14 May 1968

Longitudinal sections of Tw in Teletskoye Lake (the first phase of the spring warming)

Thank you for attention