

MATHEMATICAL MODELING OF FILTRATION PROBLEM FOR THE MULTILAYER LIQUID-PERMEABLE HORIZONS

David Gordeziani, Tinatin Davitashvili*, Teimuraz Davitashvili** , Meri Sharikadze**

*Iv. Javakhishvili Tbilisi State University, Faculty of Exact and Natural Sciences, Tbilisi, Georgia
tinatin.davitashvili@tsu.ge

**Iv. Javakhishvili Tbilisi State University, I.Vekua Institute of Applied Mathematics
Tbilisi, Georgia, tedavitashvili@gmail.com, meri.sharikadze@tsu.ge

The present work is devoted to the analysis of some mathematical models describing a movement of subsoil waters (liquids) into the soil having the non-homogeneous multilayer structure in the vertical direction.

The corresponding systems of two-dimensional differential equations in stationary and non-stationary cases are considered. For the first one the problem with classical and non-classical boundary conditions is stated. For numerical solution of the problem with nonlocal boundary conditions the iteration process is constructed, which allows one to reduce the solution of the initial problem to the solution of a sequence of classical Dirichlet problems.

Some results of numerical calculations for the soil having two-layer structure are presented.