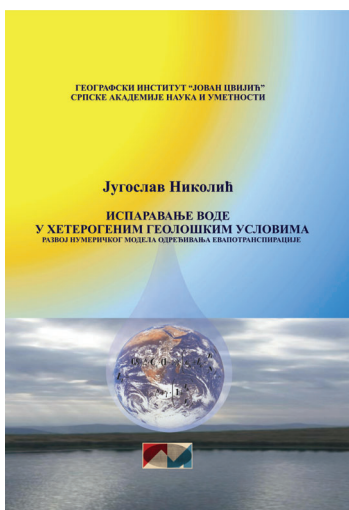


**Jugoslav Nikolić**  
**THE WATER EVAPORATION**  
**IN HETEROGENEOUS GEOLOGICAL CONDITIONS**  
– **development of numerical model for determination of evapotranspiration**  
Geographical Institute “Jovan Cvijic” SASA, special editions, vol. 77, 2010.



The subject of research, presented in the monograph “The water evaporation in heterogeneous geological conditions - development of numerical model for determination of evapotranspiration” refers to the theoretical and empirical factors of the process of water evaporation as well as development and initial calibration of the model for determination of evapotranspiration in natural conditions.

The content of the monograph is very up-to-date in terms of hydrogeology, hydrology, meteorology, geography, forestry, ecology, environmental protection, agriculture and many other scientific disciplines. Structure of the monograph consists of eight chapters and a list of 161 references.

The methodological basis for the development of numerical model to determine the total water evaporation the author is establishing on good physical approach. The case studies presented include energy and aerodynamic factors, as well as the impact of the physiology of plants and geological terrains on the size of integrated water vapor. The research of impact of all relevant factors to the evaporation of water in natural conditions is being synthesized.

The research results represent a contribution to a more accurate determination of the total water evaporation through the application of the model on basin, or catchment area that is part of the wider catchment. The essential advantage of the developed model is a good physical foundation of basic model equation and possibility of practical application without excessive investments for special measurements. The model includes processes that primarily regulate the evapotranspiration. One of them is the absorption of solar energy that secures latent evaporation heat to active surface, and the other is the mechanism of water vapor transportation from evaporation surface. The model also contains module for calculation of spatial-time albedo dependability in function of vegetation, snow cover and Sun elevation. The surface resistance of plant cover is also included, which simulates control of water vapor flow from leaves of vegetation to

surrounding space as well as aerodynamic resistance in function of wind speed and coarseness of active surface.

The model input are adequate parameters from model domain that are measured routinely, on the regular basis, by the authorized institutions as well as certain parameters that are determined by carthometric way. The output from the numerical model is the evapotranspiration field.

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