



Water Balance Modelling and Mapping in the Danube River Basin

P. Petrovič (1), K. Bad'urová (1), L. Holko (2), Z. Kostka (2)

(1)Water Research Institute, Bratislava, Slovakia, (2) Institute of Hydrology, Slovak Academy of Sciences; (pavelp@vuvh.sk, badurova@vuvh.sk, kostka@uh.savba.sk, holko@uh.savba.sk)

Poster summarises results obtained within the solution of the project

„Basin – Wide Water Balance in the Danube River Basin“

in frame of the international co-operation of the Danube countries on the field of hydrology under the guidelines of the IHP UNESCO.

Aim of the project is very closely bound with the Joint Action Programme of the ICPDR where in the chapter 3.13 was given a task: „Contracting parties shall establish on the basis of a harmonised methodology domestic water balances, as well as the general water balance of the Danube River Basin“.

In the first part of the solution the modified WatBal model (Yates, Strzepek, 1994) recommended by the US EPA for climate change study was used. Example of data preparation and modelling is presented in the poster. The initial idea was to apply this model to the balance regions covering the whole territory of the Danube catchment. It was found that in some balance regions in the middle and down part of the Danube region the resulting outflow (difference between inflows and outflow) can obtain even negative long term average of the data set. For such regions it was not possible to calculate water balance by this model. Approximately 80 % of the total Danube basin area was modelled by the model WatBal in our modification.

In the second part of the solution, map of precipitation is constructed on the base of all precipitation measurements. Map of actual evapotranspiration represents the task to extrapolate the mean value of ETa estimated by WatBal over the sub-basin. The "index" approach was chosen. The index was related to the spatial pattern of evapotranspiration over the whole sub-catchment based on the distribution of climatic

factors. Finally map of the long-term mean runoff depth was prepared as a difference between precipitation and actual evapotranspiration.

At present a draft of the publication is in the review process in the Danube countries. We suppose that the results of the hydrological water balance in the Danube River basin after agreement of the National Committees of IHP UNESCO in the Danube basin can be published by the end of 2005.

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