Medbasin II: an integrated rainfall – runoff software package for watershed management

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Medbasin is a software package which has been developed at the Laboratory of Reclamation Works & Water Resources Management of the National Technical University of Athens tailored to be more adaptive to the conditions of the Mediterranean region. The core of the software is based on the principles of a conceptual rainfall – runoff model (MERO), which has been used in several projects of FAO. The input data are the daily precipitation and the potential evapotranspiration of the watershed. The parameters of the model describe the physical characteristics of the basin and can be calibrated if measured runoff data are available.

Recently, the revised version of Medbasin has been released. The study of climatic scenarios with an emphasis on drought events is one of the important features of this new version. The drought scenarios are formulated using mainly two indices – the widely used Standardised Precipitation Index (SPI) and the new Reconnaissance Drought Index (RDI). The produced results can be presented in 3D charts showing the change in runoff compared to the change of precipitation and potential evapotranspiration.

Another important component of Medbasin II is the inclusion of various inflow scenarios. These scenarios can be simulated in order to assess the inflow volumes from adjacent basins contributing to the runoff of the basin under study. This task allows the estimation of the surface water potential of a region which is a key factor for a water resources management plan.

Many studies have been carried out with Medbasin such as the investigation of the interconnection between adjacent watersheds, the study of various climatic scenarios, the impact of drought events in runoff etc. in several Mediterranean countries with satisfactory results.