



Watershed hydrological modelling software

WiM-Med (*Watershed Integrated Management in Mediterranean Environments*) is a physically-based, distributed hydrological model. It uses hourly and daily meteorological data, along with certain physical properties of the soil and subsoil to perform the spatial interpolation and temporal distribution of meteorological variables, rainfall interception, snow melt, infiltration, runoff, surface slope circulation, calculation of the water in aquifers, and basin flow circulation. It thus provides the instantaneous value or evolution of the principal flows and state variables, such as water flow volumes, amount of stored water, flooded surfaces, etc. A detailed description of this model is given in Herrero et al. (2009), and examples of the application of this model to the Guadalfeo River basin can be found in Herrero (2007), Ávila (2007), Millares (2008) and Aguilar (2008) (all of them downloadable from <http://www.cuencaguadalfeo.com/publicaciones.html>).

The model is an essential part of the results obtained by the Guadalfeo Project (<http://www.cuencaguadalfeo.com>). This is an study started in 2004, promoted by the former Water Institute of the Andalusian Council and maintained by the Andalusian Water Agency. The study is being carried out to present by two main research groups: Fluvial Dynamics and Hydrology from the University of Córdoba and Environmental Flows Dynamics of the University of Granada. The motivation for Guadalfeo Project is to propose a global management model for Mediterranean basins. To this purpose, Guadalfeo River basin, located at the southern part of the province of Granada, was selected because of its singular heterogeneity, mainly due to the presence of Sierra Nevada

Range, a very short distance from the coast line (www.cuencaguadalfeo.com).

WiM-Med model was conceived as a technological tool for management. A connection between the present hydrological knowledge in the scientific world and the managers that have to make decisions based on accurate comprehension of the reality.

WiM-Med deals with climate and meteorological particularities of the Mediterranean environments with special consideration. Processes as spring and autumn torrential rain storms, high risk of persistent draughts, or high rate of sediment generation and soil loss can be correctly reproduced by the model. Knowing the physical and the hydrological properties of a watershed, WiM-Med reads the meteorological inputs (rain, snow, solar radiation, wind...) and simulates the water cycle and the generation and transport of sediment associated to it. The outputs of the model comprise a large amount of variables at different space and time scales, e.g. hourly river flow in particular control points, daily snow cover distribution, yearly real evaporation from the soil, instant aquifers level or rill erosion generated during a storm.

The current user-level version of WiM-Med 1.0 includes all the functionalities for the simulation of every aspect related to water fluxes. Sediment calculation will be released in a prompt future version of the model.

- [To download WiMMed 1.0 click here.](#)
- [To look up for hardware requirements for the installation and use of WiMMed 1.0, click here.](#)
- [To read the User manual of WiMMed 1.0, click here.](#)



