

Session 4. MODFLOW-OWHM, Topics, and Applications of this Integrated Hydrologic Modeling Software

1. [Using the new FREEWAT platform for water management: development and preliminary applications](#) (pdf 7.3mb)

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Abstract:

The FREEWAT platform has been developed in the framework of a HORIZON 2020 European project. FREEWAT is an open source and public domain GIS integrated modelling environment for simulation of water quantity and quality in surface water and groundwater with an integrated water management and planning module. FREEWAT aims at promoting water resource management by simplifying the application of the Water Framework Directive and related Directives. Specific objectives of the project are: to coordinate previous EU and national funded research to integrate existing software modules for water management in a single environment into the GIS based FREEWAT and to support the FREEWAT application in an innovative participatory approach gathering technical staff and relevant stakeholders (policy and decision makers) in designing scenarios for application of water policies. The open source characteristics of the platform allow to consider this an initiative "ad includendum", as further institutions or developers may contribute to development.

Main expected impact of FREEWAT is to help produce scientifically and technically sound decisions and policy making based on data and innovative data analysis tools and to support participatory approach not only in the final stage of discussion but during the phase of scenario generation.

The platform currently includes specific modules for: 1) water management and planning to help managing and aggregating the distributed data coming from simulation scenarios; 2) calibration, uncertainty and sensitivity analysis; 3) solute transport in unsaturated zone; 4) crop growth and water requirements in agriculture; 5) tools for groundwater quality issues; 6) tools for analysis, interpretation and visualization of time series and hydrogeological data.

The platform is currently being tested using test cases throughout Europe, one case study in Turkey and one transboundary aquifer between South Africa and Namibia. Some preliminary results about practical applications will be presented