

# Modeling discharge and water quality in a temporary river basin using SWAT model: A case-study on the Ardila river

*(Poster presentation)*

*Hydrological modeling*

Anabela Durão<sup>1,2</sup>, António Serafim<sup>2</sup>; David Brito<sup>3</sup>, Manuela Morais<sup>2</sup>

<sup>1</sup>Politecnico Institute of Beja, Rua Pedro Soares Campus do IPB 7800-295 Beja - Portugal, PhD student of University of Évora

<sup>2</sup>University of Évora, Laboratório de Água, CGE Rua Barba Ralanº1 Parque Industrial e Tecnológico 7005-345 Évora – Portugal

<sup>3</sup>Instituto Superior Técnico Av. Rovisco Pais 1049-001 Lisboa - Portugal

e-mail address of the corresponding: adurao@ipbeja.pt

## **Abstract**

Temporary rivers have a hydrologic variability, which are characterized by long drought periods and short floods events, that influences water quality. Analysis of river flow generated in the Ardila river basin (temporary regime) using precipitation data (from 1931 to 2003) from a weather station, located within the basin, at the Portuguese side (which represents only 22% of the study area) showed a discrepancy between the modeled and observed runoff since 1981. It was also revealed a satisfactory Nash-Sutcliffe efficiency ( $NSE=0.84$ ) and root mean square error ( $R^2=0.89$ ) for monthly data. This paper evaluates the enhancement of the results taking into account daily precipitation data (from 1955 to 2000) of one more station on the Spanish side. The results in term of river flow show a better agreement between modeled and observed monthly data ( $NSE=0.93$ ;  $R^2=0.93$ ).

Keywords: SWAT model/runoff/ water quality/Ardila basin