



## **Variability of streamflow under climate change: A study for 26 Brazilian large basins and sub-catchments.**

Jorge Isidoro (1,3) and Rafael Tiezzi (2)

(1) Institute of Engineering, University of Algarve, Faro, Portugal, (2) Institute of Science and Technology, Federal University of Alfenas, Poços de Caldas-MG, Brazil, (3) Marine and Environmental Sciences Centre (MARE), Coimbra, Portugal

Human activity is entirely dependent on water resources, thus highly vulnerable to the effects of rainfall variability. This work aims to analyse the impact of rainfall variability on streamflow for 26 Brazilian large basins and sub-catchments. Records from 83-years of observations (1931-2013) were compared with the results of simulations for the 2011-2100 (90-year) period. Two rainfall-runoff hydrological models were used for the numerical simulations: Soil Moisture Accounting Procedure-SMAP (process-based) and Stochastic Linear Model-MEL (stochastic). Very significant impacts were found, namely the increase in streamflow in the Southern basins that may reach almost 100%, while in the Northern and Northeastern basins, streamflow may decrease about 90%. These major changes can aggravate the history of flooding in the Southern basins and of droughts in several regions of the North and Northeast basins.