



## **OMERE a long term hydrological research observatory about anthropogenic and climate change impacts on water and matter flow in Mediterranean rural catchments**

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The continuous growth of population density and intensification of land use in the Mediterranean area together with the predicted climate change lead to serious agricultural and environmental issues that will have to be answered in the near future: limiting and controlling floods and soil erosion, protecting, restoring and evaluating the quality of water and soil resources, estimating the impacts of climate change on water resources, developing monitoring networks of soil and water quality.

In this context, the aims of the hydrological research observatory OMERE are i) to study the impact of climate and land use change on the water flow regime and soil-vegetation-atmosphere interactions in Mediterranean head-water catchments, ii) to evaluate the intensity and dynamic of erosion processes, iii) to analyze the main mechanisms that control long term changes in water quality as influenced by pollution pressure by pesticides, iv) to develop generic hydrological distributed modelling approaches in rural areas.

The observatory is one of the long term research observatories (Observatoire de Recherche en Environnement) launched by the French Ministry of research. It consists in two catchments which are similar with respect to climatic conditions, but differ according to the change in land use they are submitted to. One of them represents the trends in land use change in the south Mediterranean: the Kamech catchment (245

ha), located on the Cap Bon (Tunisia) where occurs a progressive intensification of agriculture with a full use of the area available for agriculture and an increase in irrigated areas. The other catchment represents land use change occurring in south France: the Roujan catchment (92 ha, Hérault) where intensification of agriculture has already been operated for a few decades and has produced severe water pollution and where land abandonment now occurs. Monitoring, that started in 1994 for Kamech and in 1992 for Roujan, includes atmospheric inputs, surface flow, groundwater fluctuations, land management practices, solute and erosion fluxes, evaporation fluxes. This paper will present the sampling strategy, the data storage procedure and some of the major results that were obtained by the observatory. They concern the inter-annual variation in the fate and transport of pesticides at the field and catchment scale, the dynamic of runoff and erosion processes, the estimation of evapotranspiration fluxes at the catchment scale. More details on OMERE can be found at its web site <http://sol.ensam.inra.fr/omere/>.