

UMR 1114 INRA - UAPV "Environnement Méditerranéen et Modélisation des Agro-Hydrosystèmes"

Postdoc Position available for 18 months starting in May 2010

UMR EMMAH (INRA / Avignon University – Avignon – France)

Role of preferential flow in groundwater recharge for Mediterranean climatic conditions

The postdoctoral project:

The deep drainage component of hydrologic balance, and so the groundwater recharge, is often a roughly estimated term. In Mediterranean regions, where Potential Evapotranspiration is globally higher than rain amounts, recharge is linked to the concentration in time and space of rainfall events, the concentration of runoff water and to a deep, fast, percolation of water in soil, beneath the root zone. The research objectives of this project are to quantify and model the importance of preferential flow versus diffusive flow, as a component of the recharge process of ground water in Mediterranean conditions and its variation with climate change. The successful candidate will contribute to the experiments and data acquisition as well as to the modelling part of the project. A panel of experimental methods including investigations in the unsaturated zone (water balance, tracers, micro-lysimeters), groundwater (water level fluctuations, use of isotopes) and geophysics will be used for investigating the flow process down to groundwater. These experimental data will be used with a range of available models for screening their ability in reproducing the flow processes and their predictive behaviour. The experimental fields are located nearby the EMMAH research Unit, in south east France (Provence), between Avignon and Marseille. This research will be conducted in close collaboration with a scientist's team encompassing soil physicists, hydrogeologists and geophysicists.

Desired skills :

The candidate must have a Ph.D. and shall not be French citizen. Ideally, he/she should have a good knowledge in soil hydrology, hydrogeology and possibly applications of geophysics. A sound knowledge in modelling for environmental sciences will be beneficial. He/she should also have an interest for multidisciplinary and experimental work. Good communication skills in English (written reports and oral). Basic knowledge in French is welcome and French courses will normally be given on site.

Practical informations :

The position is to be fulfilled for May 1, 2010, for 18 months. The gross monthly salary is from 2200 € to 2900 €, depending on research experience after the Ph.D. Thesis. The postdoc fellow will be located in the EMMAH research Unit (Mediterranean Environment and Modeling of Agro-Hydro-Systems) of the INRA research center (French research institute for Agronomy) in Avignon (South of France). The EMMAH Unit conducts research related to the mass/energy transfer in the aquifer-soil-plant-atmosphere continuum at different spatial scales with an emphasis on the possible influence of global change on these processes.

How to apply and for more information:

Contact Claude Doussan, preferably by Email (doussan@avignon.inra.fr - phone: +33 (0)4 32 72 22 38) and/or Liliana Di Pietro (liliana.dipietro@avignon.inra.fr - phone: +33 (0)4 32 72 22 48), researchers in charge of the project, L. Di Pietro being also the head of the EMMAH Unit. Attach to the Email a CV (resume), a summary of research experience, a list of publication, your motivations for this postdoc project and the name/Email adress/phone of 1 or 2 referees.