



Ph. D candidate (FPI call):

Unravelling eco-hydrological processes in Mediterranean headwater catchments by means of water stable isotopes

The role

The Surface Hydrology and Erosion Group (SHEg, IDAEA-CSIC) is seeking for a PhD candidate to work within the project “Unravelling eco-hydrological processes in Mediterranean headwater catchments by means of water stable isotopes” (RHYSOTTO project).

The motivation of the Rhysotto project is to provide novel and valuable isotope-based hydrological information to scientists, and environmental managers that can be used to acquire necessary knowledge for a better management of current and future water resources in the Mediterranean areas. The project is grounded on the central hypothesis that capturing the spatio-temporal variability of the isotopic composition at high resolution will reveal previously unknown water fluxes dynamics at the plot and catchment scale. This improved representation of water fluxes dynamics is of critical importance to generate a more accurate perceptual model of the hydrological behaviour of Mediterranean headwater catchments to expand our knowledge on the effects of global change on water resources in Mediterranean headwater catchments.

The Rhysotto project is an ideal setting to host a PhD candidate in hydrology/ecohydrology, taking advantage of the demonstrated scientific experience of the host group (Surface Hydrology and Erosion group) and of the potential of the infrastructures in the Vallcebre research catchments. This framework will allow the PhD candidate to learn the handling of a great diversity of field and data processing techniques related with eco-hydrological monitoring, the use of water stable isotopes, up to date hydrological analysis techniques (IHS, Fyw) and the use of eco-hydrological models. In the Rhysotto project, the PhD candidate will be involved in a large number of planned tasks, to investigate the spatio temporal variability of (1) rainfall amount and isotopic composition at the small catchment scale and of (2) shallow groundwater level and isotopic composition. The PhD candidate will also help us (3) to boost the use of streamwater isotopic composition variations to better understand hydrological processes dynamics and (4) to focus on how different water sources are used by trees under different wetness conditions.

The candidate will be part of a team with demonstrated training capacity. The inclusion of the PhD candidate in the Rhysotto project will also allow her/him to interact with national and international researchers with whom the SHEg collaborates in several scientific networks, as well as to be trained by foreign researchers included in the work plan. Finally, the candidate will be integrated into a productive scientific environment that will allow her/him to acquire the tools necessary to disseminate the results

of her/his research in scientific articles in impact journals, as well as in scientific meetings and congresses.

What do we look for?

We seek candidates for a FPI Fellowship (Formación Personal Investigador, Spanish Ministry of Science and Innovation). FPI is a competitive call, therefore eligible candidates must have a strong academic record.

- **Qualifications**

Master's degree in environmental sciences, hydrology, hydrogeology, geology, environmental engineering, or a strongly related field.

- **Professional experience**

No professional experience is required

- **Competences**

Team spirit, flexibility, high motivation and the ability to work independently

Scientific curiosity and willingness to work on a doctoral thesis

Good computer skills and knowledge of programming

Excellent communication and writing skills in English

Driving licence

Working conditions

Contract duration: 4 years

Estimated annual gross salary : 21.000€ (FPI grant) + additional funding to cover tuition, research secondment abroad, and publication costs.

Target start date: 06/2021

The group

The [Surface Hydrology and Erosion Group](https://sites.google.com/site/surfacehydrologyerosioncsic/home) is oriented to the study of the hydrological dynamics of Mediterranean areas through a multidisciplinary and multiple-scale approach. Several aspects of the hydrological cycle are investigated, using mostly the Vallcebre Research Catchments (NE Spain) as a field laboratory to observe, quantify, and model hydrological processes at the plot and catchment scale.

<https://sites.google.com/site/surfacehydrologyerosioncsic/home>

The institute

The **Institute of Environmental Assessment and Water Research (IDAEA)** is an environmental science institute devoted to the study of the human footprint on the biosphere. Much of the research work at this institute is centred on two of the great environmental challenges of our time: cleanliness and availability of water and quality of air.

Founded in 2008 as a member of the **Spanish National Research Council (CSIC)**, the Institute brings together a wide range of expertise in environmental science. It is organized under two Departments (Environmental Chemistry and Geosciences), established with a strong record of publication in top scientific journals, leading international projects, membership on international committees, and adopting a high-profile contribution to the identification and remediation of environmental problems.

IDAEA has demonstrated strengths in the analysis of organic pollutants and their impact on ecosystems, the study and management of water resources, the development of multivariate resolution algorithms in chemometrics, and in the study of inhalable particulate matter and toxic gases.

IDAEA has been recently awarded with the distinctive **Centre of Excellence “Severo Ochoa”** (2020-2023), distinction that indicates the high-quality scientific leadership and global impact of the work developed at the centre.

We offer a diverse and inclusive environment where no discrimination against disability, gender, nationality, religion or sexual orientation will occur during the selection process.

How to apply?

Applicants interested should present their candidatures (from 13 to 27/10) through the official web page:

https://www.ciencia.gob.es/portal/site/MICINN/menuitem.dbc68b34d11ccbd5d52ffeb801432ea0/?vgnextoid=490233572bed4710VgnVCM1000001d04140aRCRD&vgnextchannel=115222e988f75610VgnVCM1000001d04140aRCRD&lang_chosen=en

Please also send your **CV** and **motivation letter** to Pilar Llorens at pilar.llorens@idaea.csic.es, adding FPI-Rhysotto to the email subject.

Deadline: 27/10/2020 at 14:00h