

PhD position on hydrogeological modelling (flow and transport) and groundwater quality assessment (inorganic and organic pollutants)

The role

We are hiring pre-doctoral candidate for working in research projects funded by international (PRIMA-2023) and national (TRANSMISIONES-2023) calls. Overall, these projects address groundwater related issues (quantity and quality) under the current context of global change, and are focused, among others, on the development of numerical models (catchment and local scales) for predicting (i) the impact of climate change on groundwater resources and (ii) the evolution of inorganic and organic pollutants, assessment of groundwater potential uses considering quality aspects and the development of adaptation solutions to climate change and mitigation strategies against its consequences on water resources.

What do we look for?

- **Qualifications**

MSc (or BSc) degree in hydrogeology, environmental engineering, geology or related fields.

- **Professional experience and competences**

Required:

- Highly motivated person willing to learn and work in the fields of hydrogeological modelling and groundwater quality.
- Ability to work in collaborative projects with partners from other disciplines and/or countries.
- Personal characteristics such as interpersonal skills, analytical and problem-solving skills, good communication skills, and the ability to work independently and as part of a team are required. Also, initiative, and independence.

Not required but valued:

- Groundwater modelling, hydrochemistry, machine learning, modelling of flow and transport processes in porous media, emerging organic micropollutants in groundwater, statistics, basic programming.
- Ability to disseminate scientific results through scientific papers and the participation in conferences.

Working conditions

- **Contract duration:** 1 year (extendable until 3 years)
- Estimated annual gross salary: 22800 euros.
- Target start date: As soon as possible, but the date can be adapted depending on the needs of the candidate (no later than 01/06/2024).
- Support for applying to fellowships and projects.

The group

The Groundwater and Hydrogeochemistry group studies the hydraulic, chemical, thermal, and mechanical processes that take place in porous media from pore to regional scale. The group employs mathematical, numerical, and analytical approaches as well as laboratory- and field-

scale experiments and sampling methods (using hydraulic, hydro-geochemical and environmental isotope data sampled directly or through specifically designed tests).

The group is active in the development of numerical and mathematical models and modelling techniques for complex porous media processes across spatial and temporal scales, laboratory and field scale experimentation and sampling and data analysis. This includes geospatial data and information management.

Applications include the assessment and management of groundwater resources, groundwater and soil remediation, the management of urban aquifers, the study of emerging inorganic and organic pollutants in urban aquifers and artificial recharge facilities, the study of wetlands, seawater intrusion in coastal aquifers, water management in mining operations, civil works, storage of waste and/or its recovery, water decontamination methodologies, the study of the unsaturated zone, the study of the hydro-thermo-mechanical and chemical processes associated with the injection and extraction of fluids at great depth (storage of CO₂, storage of nuclear waste, geothermal energy, shale gas, induced seismicity).

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 awarded with the distinctive **Centre of Excellence “Severo Ochoa”** (2020-2024), 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?

Those interested may email their **CV** and **motivation letter** to Dr. Anna Jurado and Dr. Estanislao Pujades at anna.jurado@idaea.csic.es and estanislao.pujades@idaea.csic.es, adding “2024-M1 PhDposition” to the email subject. Please, remember to include 2-3 references in the CV.

Deadline: 16/02/2024