# Position Offered: PREDOCTORAL RESEARCHER Project: Consolidation of Climate Services in Spain: Utilizing AI and Big Data to Enhance Preparedness for Extreme Events

Technological and scientific fields: Service Platforms for Climate Services, Artificial Intelligence, Massive Data and Information Processing Technologies, High-Performance Computing, Cloud Computing, Advanced Data Analytics/Edge Computing

Location: Zaragoza, Aragón, Instituto Pirenaico de Ecología, https://www.ipe.csic.es

**Research Group/PI:** Environmental Hydrology and Climate-Human Activity Interactions, Sergio Vicente Serrano

#### **PROJECT SUMMARY**

The research project aims to improve the management of climate variability and extreme weather events in Spain in the context of climate change. It utilizes advanced technologies such as Big Data, artificial intelligence, and cloud computing, combined with knowledge in meteorology and climatology, to develop efficient climate services that meet specific sectoral needs and enhance socioeconomic and environmental management. Advances in these technologies allow the creation of massive databases, improvement in the quality of climate predictions and projections, and the development of effective early warning systems, reducing risks and vulnerabilities. The project focuses on the standardization and customization of climate services, supporting climate change adaptation and mitigation, with the goal of positioning Spain at the forefront in the use of these technologies for sustainable and resilient development.

#### **PROFESSIONAL PROFILE**

Minimum requirements:

Academic degrees required:

- Graduate in Computing engineering
- Graduate in geography and environment •
- Graduate in mathematics
- Graduate in economy

### Merits to be considered:

Knowledge on programming languages

## WHAT IS OFFERED

The project offers research and training activities in innovative aspects related to climate services and climate variability and change processes. The research project is structured in several phases over four years. The core of the thesis will be the training of predictive models on specific phenomena such as droughts and heat waves, developing continuous monitoring and early warning systems based on predictive models, with the implementation of algorithms that analyze data in real-time. The pre-doctoral contract will include various training stays and courses to develop skills in climate analysis techniques, programming in R, and agrometeorological indicators, totalling 60 ECTS in stays. During the second year, the researcher will complete a 50 ECTS stay at national or international research centers and other 5 ECTS stays each to complement specific research topics. Additionally, the researcher will undertake a 60 ECTS Master's in Research in Artificial Intelligence at UNED, to integrate spatial databases and artificial intelligence techniques into their doctoral thesis project. Complementarily, the researcher will take courses from the CSIC Training Plan, focusing on artificial intelligence, programming languages, and supercomputing, accumulating an additional 24 ECTS.

#### Contract conditions:

Predoctoral Researcher contract of 4 years' duration. Gross annual salary of 23,871.33 €.

## Start of contract: before 31 December 2024

## PRINCIPAL INVESTIGATOR CONTACT

Email: svicen@ipe.csic.es Phone: +34876243764











