

PhD contract for a doctorate thesis on application of AI to air quality assessment

The role

The research team on Environmental Geochemistry and Atmospheric Research (EGAR) from the Institute of Environmental Assessment and Water Research (IDAEA) from the Spanish Research Council (CSIC), located in Barcelona, offers has a 3 years contract for a PhD candidate on to carry out research for a Doctorate Thesis on applying tools of Artificial Intelligence to air quality research. This contract is in the framework of the AIRE project, and it is carried out in collaboration with the Barcelona Super Computing Centre and the University of Zaragoza. The tasks will focus on data treatment and analysis using AI tools to evaluate trends, associations and source contributions to the concentrations of advanced air pollutants, such as ultrafine particles, black carbon and components of atmospheric particulate matter. The candidate will incorporate to the EGAR team at IDAEA-CSIC, and will interact with experts from BSC and UNIZAR. Will have international contacts and relationships on these topics and will obtain a solid background on both air quality and AI tools. The candidates need to be registered and available for contracts in the contract bourse of CSIC. This can be done after the selection, but if they are already in the bourse, would be appreciated to accelerate the contract and to be incorporated in the team a.s.a.p.

What do we look for?

- **Qualifications**

Candidates, preferably with a Physics, Mathematics, Engineering, Chemistry degrees.

- **Professional experience**

Preferably with Master on atmospheric or environmental sciences, but not mandatory. Experience in research tasks is not required but valued. Data treatment and analysis will be the main focus.

- **Competences**

Interest in science and research, especially on data treatment and interpretations for air quality research and assessment, English is valued, as it is work with R or other data analysis tools, ability to integrate in hard working environments and collaborate with colleagues. Ready to learn and travel.

Working conditions

- **Contract duration:** 3 years with a possible additional one
- **Estimated annual gross salary:** Salary will commensurate with qualifications and experience, but not exceeding the CSIC predoctoral salary
- **Target start date:** As soon as possible, not later than March 2026

The group

The research team on Environmental Geochemistry and Atmospheric Research (EGAR) from the Institute of Environmental Assessment and Water Research (IDAEA) from the Spanish Research Council (CSIC), is made by around 40 members, well gender balanced. These include covering from technical staff for lab and data treatment support,

doctorate students, postdocs and young and senior permanent position researchers. The group deal with air quality, climate and environmental geochemistry research. It has a >30 years' experience on these filed and it is very active in national and international projects, with a very scientific production. It has also a dense network of national and international collaborators that supports the formation of excellent scientist and helps to define postdoctoral careers. The group is socially very active with many young scientists.

The institute

The **Institute of Environmental Assessment and Water Research (IDAEA)** is an environmental research center of the **Spanish National Research Council (CSIC)**. Distinguished by its interdisciplinary approach, our research spans chemistry, biology, toxicology, hydrology, and geology, addressing a wide range of environmental challenges.

At IDAEA, we investigate the origin and health effects of emerging contaminants, the atmosphere-ocean exchange and biogeochemistry of anthropogenic chemicals, paleoclimatic changes, and the use of chemometric tools for big data analysis. Our expertise also extends to water resource management, air quality issues, and circular economy strategies.

Our research is grounded in the One Health concept, recognizing the deep interconnection between the health of humans, animals, plants, and ecosystems. With a strong capacity for interdisciplinary research, we tackle environmental challenges at local, regional, and global scales.

Founded in 2008 and structured into two main departments—Environmental Chemistry and Geosciences—IDAEA was recognized as a "Severo Ochoa" Center of Excellence in 2020, underscoring our scientific leadership and global impact.

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 **Xavier Querol and Andrés Alastuey** at Xavier.querol@idaea.csic.es and andres.alastuey@idaea.csic.es, adding OBSAIRE_PhD to the email subject.

Deadline: 1st March 2026