

[478_24_ES_ADC_R2](#)

Job Reference

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Position

Post-doc researcher: Understanding atmospheric iron deposition in the ocean under present and future climates

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About BSC

The Barcelona Supercomputing Center - Centro Nacional de Supercomputación (BSC-CNS) is the leading supercomputing center in Spain. It houses MareNostrum, one of the most powerful supercomputers in Europe, was a founding and hosting member of the former European HPC infrastructure PRACE (Partnership for Advanced Computing in Europe), and is now hosting entity for EuroHPC JU, the Joint Undertaking that leads large-scale investments and HPC provision in Europe. The mission of BSC is to research, develop and manage information technologies in order to facilitate scientific progress. BSC combines HPC service provision and R&D into both computer and computational science (life, earth and engineering sciences) under one roof, and currently has over 1000 staff from 60 countries.

Look at the BSC experience:

[BSC-CNS YouTube Channel](#)

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We are particularly interested for this role in the strengths and lived experiences of women and underrepresented groups to help us avoid perpetuating biases and oversights in science and IT research. In instances of equal merit, the incorporation of the under-represented sex will be favoured.

We promote Equity, Diversity and Inclusion, fostering an environment where each and every one of us is appreciated for who we are, regardless of our differences.

If you consider that you do not meet all the requirements, we encourage you to continue applying for the job offer. We value diversity of experiences and skills, and you could bring unique perspectives to our team.

Context And Mission

The Earth Sciences Department of the BSC (BSC-ES) carries out research into modelling and understanding the behavior of the Earth's system. BSC-ES focuses on atmospheric emissions, air quality, mineral dust, climate variability and change, global health resilience, and Earth system services for end users.

Within the BSC-ES, the Atmospheric Composition Group develops a modelling capability to combine atmospheric dynamical and chemical processes relevant at a wide range of spatial scales, and investigates their impacts on weather, air quality, climate, health and ecosystems. A core activity of the group is dust modelling and forecasting, and as a result of its excellence, the BSC-ES hosts the WMO Sand and Dust Storm Warning Advisory and Assessment System for North Africa, the Middle East and Europe, and an AXA Chair on Sand and Dust Storms. The group is also highly active in the EC Framework Programs and collaborates with the administrations on competitive projects and contracts.

Atmospheric deposition of soluble iron associated with dust and combustion aerosols influences primary productivity and carbon uptake in vast regions of the open ocean. The amount and solubility of the deposited iron depend upon its origin and chemical processing during transport. Large uncertainties remain on the absolute and relative contributions of anthropogenic and natural sources as well as the atmospheric iron dissolution mechanisms that determine the bioavailable iron supply from the atmosphere to the ocean and its impact on the carbon cycle. Better understanding these influences is fundamental in a context of changing climate and global implementation of climate-mitigation policies.

The Atmospheric Composition group from the ES-BSC is looking for a postdoctoral fellow to improve our understanding of the natural and anthropogenic contributions to the soluble iron deposition in the ocean. Part of the research will consist of further developing and constraining the atmospheric iron cycle in the EC-Earth Earth System model. Among other key novelties, the researcher will incorporate observationally constrained information on the mineralogy of dust sources by the NASA-EMIT mission and explore the role of vegetation and land-use changes on dust emission in present and future climates. The analyses and assessments will be complemented with the incorporation of state-of-the-art anthropogenic and biomass burning emissions beyond CMIP6 estimates.

The researcher will have the opportunity to follow multiple training activities, including those aimed at improving coding and data analysis, scientific and project writing abilities, or project management. All this will be implemented via the formal courses organized by the Education and Training team and Human Resources, and the participation in the regular seminars organized by the department. The proposed research will be managed through biweekly meetings with the supervisor to ensure full coherence between the research planned and the general objectives of the department. The researcher will work in a highly collaborative environment, with tight links with other researchers in the Atmospheric Composition group and other members of the department, including ocean biogeochemistry modelers. In this context, the applicant will be encouraged to participate in discussions and meetings involving several funded projects related to the fellow's work, including the Spanish ministry grant entitled BIOTA (Ocean BIOgeochemistry response To refined Atmospheric iron inputs in present and future climate) led by the supervisors, and other core projects of the group focusing on dust and climate research, e.g., the AXA Chair on Sand and Dust Storms or the ERC Consolidator Grant entitled FRAGMENT (FRontiers in dust minerAloGical coMposition and its Effects upoN climaTe). Female candidates are especially encouraged to apply.

Key Duties

- Develop model components related to natural and anthropogenic sources of iron in Earth System models.
- Design model experiments and run them in HPC systems.
- Gather observations and evaluate model experiments.
- Develop original research and analysis strategies.
- Participate in collaborative projects with partner institutions.
- Present results at international meetings.
- Publish results in high-impact peer-reviewed journals.
- Contribute ideas for new research projects.
- Other duties include contributing to the development of common analysis tools; assisting in grant applications; and other duties as assigned.

Requirements

- Education
 - Having a PhD in Atmospheric Chemistry, Environmental engineering, Meteorology, Physics, or related discipline.
- Essential Knowledge and Professional Experience
 - Advanced understanding of atmospheric aerosol, particularly dust aerosol, and knowledge of the Earth System components and their interactions.
 - Experience in atmospheric, climate, chemistry or aerosol model developments.
 - Excellent computing skills in high-level computer languages (FORTRAN is valued).
 - Experience with UNIX/LINUX environments and with scripting languages (such as bash).
 - Experience atmospheric science data formats (NetCDF) and with scientific software and tools (CDO, NCO, Python or R) .
- Additional Knowledge and Professional Experience
 - Previous experience with Earth System Models will be valued.
 - Experience in analyzing climate information will be valued.
 - Experience working with version control systems, such as GitLab or GitHub, will be valued.
 - Fluency in English.

- Competences
 - Excellent interpersonal skills.
 - Excellent written and verbal communication skills.
 - Ability to take initiative, prioritize and work under set deadlines.
 - Ability to work both independently and within a team.

Conditions

- The position will be located at BSC within the Earth Sciences Department
- We offer a full-time contract (37.5h/week), a good working environment, a highly stimulating environment with state-of-the-art infrastructure, flexible working hours, extensive training plan, restaurant tickets, private health insurance, support to the relocation procedures
- Duration: Open-ended contract due to technical and scientific activities linked to the project and budget duration
- Holidays: 23 paid vacation days plus 24th and 31st of December per our collective agreement
- Salary: we offer a competitive salary commensurate with the qualifications and experience of the candidate and according to the cost of living in Barcelona
- Starting date: ASAP

Applications procedure and process

All applications must be made through BSC website and contain:

- A full CV in English including contact details
- A Cover Letter with a statement of interest in English, including two contacts for further references - Applications without this document will not be considered

In accordance with the OTM-R principles, a gender-balanced recruitment panel is formed for every vacancy at the beginning of the process. After reviewing the content of the applications, the panel will start the interviews, with at least one technical and one administrative interview. A profile questionnaire as well as a technical exercise may be required during the process.

The panel will make a final decision and all candidates who had contacts with them will receive a feedback with details on the acceptance or rejection of their profile.

At BSC we are seeking continuous improvement in our recruitment processes, for any suggestions or feedback/complaints about our Recruitment Processes, please contact recruitment [at] bsc [dot] es.

For more information follow [this link](#)

Deadline

The vacancy will remain open until a suitable candidate has been hired. Applications will be regularly reviewed and potential candidates will be contacted.

OTM-R principles for selection processes

BSC-CNS is committed to the principles of the Code of Conduct for the Recruitment of Researchers of the European Commission and the Open, Transparent and Merit-based Recruitment principles (OTM-R). This is applied for any potential candidate in all our processes, for example by creating gender-balanced recruitment panels and recognizing career breaks etc.

BSC-CNS is an equal opportunity employer committed to diversity and inclusion. We are pleased to consider all qualified applicants for employment without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, age, disability or any other basis protected by applicable state or local law.

For more information follow [this link](#)

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