Job Reference

224_ES_AC_R2

Position

Postdoctoral Researcher - modelling the atmospheric iron cycle (R2)

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Divendres, 30 Novembre, 2018
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Job title: Postdoctoral Researcher - modelling the atmospheric iron cycle (R2)

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, and is a hosting member of the PRACE European distributed supercomputing infrastructure. 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 500 staff from 44 countries.

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Context And Mission

The Department of Earth Sciences of the Barcelona Supercomputing Centre-Centro Nacional de Supercomputación (BSC-CNS), BSC-ES henceforth (bsc.es/earth-sciences) is one of the most active groups in air quality and atmospheric composition modelling, climate prediction and climate services in Europe. The department is currently composed of about 80 people, including scientists and technical and support staff, and is structured in four distinct but interacting research groups: Atmospheric Composition (AC), Climate Prediction, Earth System Services, and Computational Earth Sciences.

The AC group, led by Carlos Pérez García-Pando, aims at better understanding and predicting the
spatiotemporal variations of atmospheric pollutants along with their effects upon air quality, weather and climate.

We are looking for a chemistry/aerosol/climate model developer who will work on understanding the atmospheric delivery of bioavailable Fe to the ocean. He/she will contribute to develop and constrain the atmospheric Fe cycle in the EC-Earth Earth System model, which will ultimately allow fully coupled simulations that account for the effect of bioavailable Fe variations upon the carbon and nitrogen cycles. The guiding principle will be to find an optimum balance among mechanistic representation, complexity, computational efficiency and agreement to observations. This question is of interest to the broader modeling community who must choose the appropriate level of complexity in their own models. The fellow will emphasize on novel aspects such as the role of dust mineralogy and the relative contributions of anthropogenic (combustion) and natural (dust) sources in the deposition of soluble Fe in present and future climate.

The successful candidate will work in collaboration with other modellers from BSC-ES and will benefit from the training program and BSC staff benefits: international multidisciplinary scientific environment, advanced research training, and advanced computational facilities. We encourage applications from highly motivated physicists, engineers, mathematicians (and related disciplines) with outstanding qualifications.

**Key Duties**

- Implement and constrain the atmospheric Fe cycle in the EC-Earth Earth System model
- Quantify the natural and anthropogenic contribution to the soluble iron deposition in present and future climate
- Develop and apply tailored evaluation methods considering multiple observation datasets
- Design, launch and monitor Earth System Model simulations
- Communicate scientific results within the Department and in international conferences
- Write quality papers in scientific journals
- Interact with scientists from the Earth Sciences Department and other communities (e.g. EC-Earth community) to favor synergies and contribute to the developments therein

**Requirements**

- **Education**
  - PhD in Atmospheric Sciences/Meteorology/Environmental Engineering or related disciplines

- **Essential Knowledge and Professional Experience**
  - Previous experience in model development and application in parallel computing environments
  - Experience in Earth System Models or atmospheric modelling and related analysis software
  - Experience in atmospheric aerosols and/or chemistry
  - Ability to work in a professional environment and within a multidisciplinary research team
  - Demonstrated verbal communication and technical presentation skills

- **Additional Knowledge and Professional Experience**
- Experience in high-level computer languages (especially FORTRAN 77/90 and C) and UNIX/LINUX environments
- Experience Python and/or R
- Experience in data formats (NetCDF, GRIB, HDF5) and tools (CDO, NCO) used in Earth sciences
- Experience in HPC environments

- Competences
  - Very good interpersonal skills
  - Fluency in English
  - 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, a good working environment, a highly stimulating environment with state-of-the-art infrastructure, flexible hours, extensive training plan, tickets restaurant, private health insurance, fully support to the relocation procedures
- 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**

All applications must include:

- A motivation letter with a statement of interest, including two contacts for further references - COMPULSORY - Applications without this document will not be considered
- A full CV including contact details

**Deadline**

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

**Diversity and Equal Opportunity Employment**

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.