171_ES_ESS_R2

Job Reference

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Position

Researcher in air quality modelling (R2)

Data de tancament

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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, 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 modeling, 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 (ESS), and Computational Earth Sciences.

The candidate will work together with AC and ESS groups. The AC group aims at better understanding and predicting the spatiotemporal variations of atmospheric pollutants along with their effects on air quality,
weather, and climate. The main objective of the Earth System Services Group (www.bsc.es/ess) is to demonstrate the ongoing value of climate prediction services, atmospheric composition and weather forecasting to both society and economic actors. The group actively works in identifying user needs that will partly guide research in the BSC-ES Department and aims to quantify the impact of weather, climate, aerosols and gaseous pollutants upon socio-economic sectors through the development of user-oriented services that ensure the transfer of the technology developed and the adaptation to a rapidly changing environment, especially of those highly vulnerable to those changes. The group is extremely active in the EC Research Programmes and has collaborated with the industry and public administration in competitive projects and contracts.

ESS and AC groups contribute to a variety of forecasting activities. The dust component of the NMMB-MONARCH runs operationally at the first WMO Regional Specialized Meteorological Center for Atmospheric Sand and Dust Forecast (i.e., the Barcelona Dust Forecast Center, BDFC), and contributes to multi-model ensemble forecasts both at the WMO Sand and Dust Storm Warning Advisory and Assessment System Regional Center (WMO SDS-WAS RC) for Northern Africa, Middle East and Europe, and the International Cooperative for Aerosol Prediction (ICAP). Both WMO Regional Centers are co-hosted by BSC and the Spanish Meteorological Agency (AEMET). The group also develops and maintains the CALIOPE air quality system (“CALIdad del aire Operacional Para España”), which provides high-resolution air quality forecasts over Europe and Spain using the in-house emission model HERMES. CALIOPE is currently based on the WRF and CMAQ systems, and its transition to using the NMMB-MONARCH is in progress.

The BSC-ES is looking for a postdoc in air quality/atmospheric composition/meteorology modeling willing to do research and provide user-tailored products for different air quality related projects. The position will support the developments to set up this system and will face different and state-of-the-art technologies. Successful candidates will benefit from the training program and BSC-CNS 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**

- Implementation, execution and monitoring of atmospheric numerical models (WRF-ARW, CMAQ, NMMB-MONARCH) in a High-Performance Computing environment.
- Interpret data and analyze model results, prepare charts and reports of the results.
- Perform innovative user-oriented research, interact with users and facilitate technology transfer.
- Work together with atmospheric composition scientist and IT developers.
- Communicate scientific results within the Department, in international conferences and write quality papers in scientific publications.
- Involvement in the preparation of competitive grants and projects.

**Requirements**

- Education
  - PhD in Meteorology/Environmental Engineering or related disciplines.
- Essential Knowledge and Professional Experience
- 0-3 years of experience in a similar position.
- Experience in air quality and meteorological models and related analysis software.
- Ability to work in a professional environment and within a multidisciplinary research team.
- Demonstrated verbal communication and technical presentation skills (English is a must).

- Additional Knowledge and Professional Experience
  - Computing skills in high-level computer languages (especially FORTRAN 77/90 and C) and experience with UNIX/LINUX environments.
  - Experience in data formats (NetCDF, GRIB, HDF5) and tools (CDO, NCO) used in Earth sciences.
  - Experience in consultancy companies will be valued.
  - Experience in air quality planning and/or dust modeling will be valued.
  - Previous experience in model development and application in parallel computing environments will be valued.

- Competences
  - Willing to travel.
  - Fluency in English.
  - Fluency in other European languages will be also valued.

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
- Duration: Temporary - 1 year renewable
- 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 - 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.

Barcelona Supercomputing Center - Centro Nacional de Supercomputación