**JOB DESCRIPTION**

**Ref:**

**Job Title: Post-doctoral position - Air Quality Modelling. R2**

**About BSC:**

BSC-CNS (Barcelona Supercomputing Center – Centro Nacional de Supercomputación) is the National Supercomputing Facility in Spain and was officially constituted in April 2005. BSC-CNS manages MareNostrum, one of the most powerful supercomputers in Europe, located at the Torre Girona chapel. The mission of BSC-CNS is to investigate, develop and manage information technology 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 400 staff from 41 countries. To get an idea of what it’s like to work at the BSC take a look at this video: <https://www.youtube.com/watch?v=VRkEii7OzRE>

**Context and Mission:**

The Earth Sciences Department of the Barcelona Supercomputing Center (BSC-ES) was established with the objective of conducting research in Earth system modelling. Within the BSC-ES, the main objective of the Earth System Services Group, the group responsible of this proposal, 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 Framework Programmes and has collaborated with the industry and public administration in competitive projects and contracts.

The group contributes 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 use the NMMB-MONARCH is in progress.

The BSC-ES is looking for a postdoc in air quality/atmospheric composition/meteorology modelling willing to work together with scientists to do applied 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**

1. Implementation, execution and monitoring of atmospheric numerical models (WRF-ARW, CMAQ, NMMB-MONARCH) in a High Performance Computing environment.
2. Interpret data and analyze model results, prepare charts and reports of the results.
3. Prepare and evaluate data sets
4. Perform user-oriented research, understand user needs and facilitate technology transfer.
5. Interact with users and partners to understand their needs and develop user tailored products.
6. Work together with atmospheric composition scientist and IT developers to develop applied research.
7. Communicate scientific results within the Department and in international conferences.
8. Interact with scientists in the group to favor synergies.

**Requirements**

Education

* PhD in Physics/Environmental Engineering or related disciplines.

Required competences

* Experience in air quality and meteorological models and related analysis software.
* Ability to work in a professional environment and within a multidisciplinary research team.
* Strong skills in working in a Linux environment.
* Strong technical writing skills.
* Demonstrated verbal communication and technical presentation skills

Valued eligibility criteria

* Programming languages (C, C++, Fortran, Python, R, ssh, bash).
* Experience in data formats (NetCDF, GRIB, HFD5) and tools (CDO, NCO) used in Earth sciences.
* Excellent written and verbal communication skills in Spanish and Catalan.
* Experience in HPC environments.
* Experience with geographic information systems.

Professional Experience

* Previous experience in a scientific area related to the research position will be valued.
* Experience in consultancy companies will be valued.

**Conditions**

The position will be located at BSC within the Earth department in collaboration with the specific program coordinator. The candidate will work in a highly collaborative and international environment.

**Applications Procedure**

All applications must be applied in LINK including:

1. A motivation letter

2. A full CV including contact details

**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.

OTHER DETAILS INTERNAL USE:

Duration of the contract: 1 year

Funding Project: Mexico contract

Salary Range: 28-30 brutos anuales