384_25_ES_HPCES_RE2

Job Reference

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Position

HPC scientific software engineer (RE2/R2)

Data de tancament

Dilluns, 09 Juny, 2025
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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
Let's stay connected with BSC Folks!

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 mission of the Earth Sciences Department of the Barcelona Supercomputing Centre, led by Prof. Francisco Doblas-Reyes, is to carry out research and develop methods for environmental forecasting, with a particular focus on the atmosphere-ocean-biosphere system. This includes the management and transfer of technology to support key societal challenges through the use of models and data applications in High Performance Computing (HPC) and AI infrastructures. It also includes the dissemination of real-time air quality and climate information based on its research expertise in collaboration with the Spanish authorities and the World Meteorological Organisation (WMO).

The successful candidate will join the HPC for Earth Sciences team under the Computational Earth Sciences (CES) group. This team, composed of 20 members but steadily growing, plays a crucial role in the research to operations cycle, including initiatives such as Destination Earth and the EC-Earth model. It has strong links with the other teams in the CES group and with the research groups in the department. The new person will be involved in different European projects that contribute to the development of the new version 4 of EC-Earth, the European climate model. In particular, developing new features in the source code of the model, including the coupling of the different components.

Key Duties

- Develop and/or integrate new scientific features into the source code of the models used in the department, focusing on the new EC-Earth 4 model.
- Validate the scientific correctness of the new developments.
- Measure the computational impact of the new developments to guarantee an efficient scalability.
- Contribute to the development strategy of the department's tools, thereby increasing the applicability and international visibility - and hence impact - of the research arising from current and future projects.
- This position involves close interaction with the Climate Variability and Change (CVC) group and external collaborators.

Requirements

- Education
    - Possess a bachelor's or master's degree in computer science, physical engineering, mathematics, physics, or a closely related field. A PhD in a related field is not essential but will be appreciated.

- Essential Knowledge and Professional Experience
    - Experience in scientific research, particularly in areas related to climate or ocean modelling.
    - Experience in running scientific codes on large HPC systems.
    - Experience in HPC software development.
    - Excellent computing skills in high-level computer languages (especially Fortran or C/C++).
    - Experience with Unix/Linux environments and scripting languages (Bash, Python, etc).
    - Programming skills to manage big and collaborative projects and experience with git and/or SVN.

- Additional Knowledge and Professional Experience

    - Knowledge in parallel programming such as MPI or OpenMP will be valued.
    - Knowledge of HPC performance and profiling tools will be valued.

- Competences
    - Excellent problem-solving skills.
    - Proactive attitude.
    - Learning capacity and motivation to maintain a learning progression.
    - Good written and verbal skills and capacity to support Earth and Computational scientists.
    - Fluency in English.

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 submitted via the BSC website and contain:

- A full CV in English including contact details
- A cover/motivation letter with a statement of interest in English, clearly specifying for which specific area and topics the applicant wishes to be considered. Additionally, two references for further contacts must be included. Applications without this document will not be considered.

Development of the recruitment process

The selection will be carried out through a competitive examination system ("Concurso-Oposición"). The recruitment process consists of two phases:

- **Curriculum Analysis:** Evaluation of previous experience and/or scientific history, degree, training, and other professional information relevant to the position. - ***40 points***
- **Interview phase:** The highest-rated candidates at the curriculum level will be invited to the interview phase, conducted by the corresponding department and Human Resources. In this phase, technical competencies, knowledge, skills, and professional experience related to the position, as well as the required personal competencies, will be evaluated. - ***60 points.*** *A minimum of 30 points out of 60 must be obtained to be eligible for the position.*

The recruitment panel will be composed of at least three people, ensuring at least 25% representation of women.

In accordance with OTM-R principles, a gender-balanced recruitment panel is formed for each vacancy at the beginning of the process. After reviewing the content of the applications, the panel will begin the interviews, with at least one technical and one administrative interview. At a minimum, a personality questionnaire as well as a technical exercise will be conducted during the process.

The panel will make a final decision, and all individuals who participated in the interview phase will receive feedback with details on the acceptance or rejection of their profile.

At BSC, we seek continuous improvement in our recruitment processes. For any suggestions or comments/complaints about our recruitment processes, please contact recruitment [at] bsc [dot] es.
For more information, please 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

During this period, the contract is funded by the project: Predictibilidad de la precipitación en simulaciones climáticas inicializadas idealizadas y realistas - REACT- EUR2024-153543 MICIU/AEI/10.13039/501100011033.

Barcelona Supercomputing Center - Centro Nacional de Supercomputación

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