198_ES_CP_R2

Job Reference

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Position

Researcher for climate forecast (R2)

Data de tancament

Divendres, 30 Novembre, 2018
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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

Within the Earth Sciences Department of Barcelona Supercomputing Center (BSC-ES), led by Prof Francisco Doblas-Reyes, the climate prediction group, led Dr. Pablo Ortega and Dr. Markus Donat, aims at developing climate prediction capability for time scales ranging from a few weeks to a few decades and from regional to global scales. The group is also part of the development team and a key user of the EC-Earth global climate model (http://www.ec-earth.org) and as such collaborates closely with all the members of the EC-Earth consortium.

The position offered is funded by the European H2020 project EUCP, which will develop an innovative European regional ensemble climate prediction system based on a new generation of improved and typically higher-resolution climate models, covering timescales from seasons to decades initialised with observations,
and designed to support practical and strategic climate adaptation and mitigation decision-taking on local, national and global scales.

The successful applicant will be responsible for the development and analysis of the seasonal-to-decadal climate forecast system based on the EC-Earth climate model, within the context of the BSC contribution to DCPP and CMIP6.

Key Duties

- Contribute to performing ensemble decadal predictions following the component A of the DCPP experiment with EC-Earth
- Develop alternative initialisation approaches using coupled data assimilation (full-field nudging) and perform the corresponding set of decadal predictions
- Assess the ability of the climate forecast system to simulate unprecedented and extreme events, as well as trends, in particular over the Arctic region, and to reproduce the main variability modes (AMV, IPO, AO, El Niño–Southern Oscillation (ENSO))
- Evaluate forecast quality (both skill and reliability) on a range of time (seasonal to decadal) and spatial (local to global) scales
- Produce a process-based analysis of forecast drift and initial shock in the DCPP multi-model ensemble
- Compare the skill in initialised and non-initialised global predictions for overlapping prediction time scales and estimate their relative merits
- The candidate will work closely with scientists within the Earth System Service group of the Earth Science Department, and other partners within the EC-Earth consortium EUCP and the DCPP initiative

Requirements

- Education
  - PhD in atmospheric science, applied mathematics, engineering, fluid dynamics or in a related discipline
- Essential Knowledge and Professional Experience
  - Postdoctoral experience will be valued
  - Proven ability to prepare and submit manuscripts to peer-review journals
  - A demonstrated ability to develop experimental set ups that address specific climate modeling problems
  - Experience in ocean/atmosphere modelling (or environmental modelling) and in handling climate model output
  - Programming skills: scripting (e.g. bash, python), data analysis and visualization software (e.g. CDO, NCO, R, Python, NCL)
  - Experience in handling large datasets, and a minimum knowledge of NetCDF encoding
  - Experience in HPC and parallel computing (multi-threaded applications)
- Additional Knowledge and Professional Experience
  - Interest and capacity in participating in the writing and, when possible, leading the preparation of research and computing proposals
  - Knowledge of version control systems (git, svn, cvs…)
  - Interest in tutoring and/or advising master and PhD students
- Competences
Fluency in spoken and written English, while fluency in other European languages will be also valued
Highly collaborative spirit and ability to work as part of a large, strongly-coordinated team and to continuously share both knowledge and tools

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
- 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.

Barcelona Supercomputing Center - Centro Nacional de Supercomputación