As a member of the Helmholtz Association, Forschungszentrum Jülich makes an effective contribution to solving major challenges facing society in the fields of information, energy, and bioeconomy. It focuses on varied tasks in the area of research management and utilizes large, often unique, scientific infrastructure. Come and work with around 6,100 colleagues across a range of topics and disciplines at one of Europe’s largest research centres.

We look forward to receiving your application until 04.03.2020 via our Online-Recruitment-System!

Questions about the vacancy?
Contact us by mentioning the reference number 2020-022: career@fz-juelich.de
Please note that for technical reasons we cannot accept applications via email.

www.fz-juelich.de

The Institute of Bio- and Geosciences – Agrosphere (IBG-3) conducts research to improve our understanding of biogeochemical and hydrological processes in terrestrial systems. A combination of experiments, modelling and innovative observation technologies is used to bridge the gap between model, process and management scale. Its research contributes to the sustainable and resource-conserving use of soils and water and to the quantification of the effect of climate and land use change on terrestrial ecosystems. We offer a competent and interdisciplinary working environment, as well as an excellent framework in the areas of experiments and modelling. Geoverbund ABC/J is the geoscientific network in the research region of Aachen–Bonn–Cologne/Jülich. The geoscientific institutes of RWTH Aachen University, the University of Bonn, the University of Cologne, and Forschungszentrum Jülich collaborate under its umbrella. The Geoverbund ABC/J initiates and supports research projects among its different partners, promotes scientific offspring and works towards easier access of scientific infrastructure (http://www.geoverbund.de).

Verstärken Sie diesen Bereich als

**2020-022 - Postdoc for the Coordination of the Simulation Laboratory Terrestrial Systems in the framework of Geoverbund ABC/J**

**Your Job:**
The competence center High-Performance Scientific Computing in Terrestrial Systems (HPSC TerrSys) of the Geoverbund aims at the use of geoscientific models on HPC systems and has established together with the Jülich Supercomputing Centre (JSC) the Simulation Laboratory Terrestrial Systems (SimLab TerrSys). SimLabs are the interface between the computational sciences communities and HPC-resources at the Jülich Supercomputing Centre, operating one of the most powerful HPC-infrastructures in
Europe. SimLab TerrSys conducts HPSC in geosciences and contributes to an improved understanding and prediction of geophysical, hydrological, meteorological and bio-geochemical processes in terrestrial systems. The focus is on the development and application of highly efficient, parallel modelling tools, especially fully coupled terrestrial simulation platforms from groundwater into the atmosphere. Moreover, SimLab TerrSys provides the geoscientists of the ABC/J region with scientific and technical support for their research activities by means of its supercomputers (http://www.hpsc-terrsys.de).

Your tasks in this area will include the following:
- Coordination and active participation in HPSC service and support, as well as research and development activities of SimLab TerrSys
- Close collaboration with HPSC TerrSys, JSC, and other SimLabs in the Computational Science Division and with JSC’s cross-sectional groups (e.g., Performance Analysis, Application Optimization, Visualization)
- Facilitation of fluent communication between all HPC activities and the research scientists involved in Geoverbund ABC/J and the research in overlapping areas between HPSC and geosciences
- Participation in ongoing work, e.g., near real-time, fully coupled, ultrahigh-resolution forecasts, climate change simulations up to continental scales, as well as research on water cycle processes, land-atmosphere coupling, and groundwater hydrodynamics, as part of national and international projects and collaborations
- Setup, development, and extension of new and existing parallel scientific software tools, parameterizations, or processing chains, with a focus on two-way coupled high-resolution subsurface–land surface–atmospheric simulation platforms such as Terrestrial Systems Modelling Platform (www.terrsysmp.org); HPSC aspects include efficient, hybrid parallelizations, utilization of accelerators, scientific visualization, and future exascale applications
- Contribution to solutions for the big data challenges in geosciences, as well as the application and advancement of data assimilation techniques and data synthesis approaches; handling of a broad range of in situ and remotely-sensed measurements
- Testing and use of the latest (JSC) HPC systems (including heterogeneous architectures) for a wide range of usage scenarios and numerical experiments, including porting, profiling, and tuning; development of standard implementations, optimum use cases; code maintenance; developments towards petascale applications

If you have any technical questions regarding the position you are welcome to contact the scientific director of HPSC TerrSys.

Your Profile:
- A university degree in a geoscience discipline, computer science, physics, civil engineering, applied mathematics, or related fields with a doctoral degree and at least two years of experience as a postdoc, as well as relevant scientific publications
- Knowledge in the areas of meteorology, hydrology, numerical methods and especially the modelling of fluxes at compartmental interfaces is desirable
- Experience in HPC and modelling, preferably in geosciences (e.g., atmosphere, hydrology, ocean, vegetation, or biogeochemical cycles)
- Proven experience in simulation code porting, profiling, and tuning; affinity to various aspects of High-Performance Computing
- Proven (parallel) programming skills with FORTRAN, and/or C/C++, and ideally also Python under Linux; experience in professional software development
- Ability to work both independently and collaboratively in an international, interdisciplinary team across institutes; very good communication and organizational
skills; experience in supervision of research projects and technical staff
• Experience in scientific project acquisition and coordination
• Very good command of the English language

Our Offer:
• Main place of employment will be JSC on the campus of Forschungszentrum Jülich with a vibrant, international, and interdisciplinary working environment that is ideally situated between the cities of Cologne, Düsseldorf, and Aachen
• Participation in national and international conferences and workshops
• Opportunities for scientific and technical training conducted by international experts
• Flexible working hours and various opportunities to reconcile work and private life
• Limited for 2 years with possible longer-term prospects
• Full-time position with the option of slightly reduced working hours
• Salary and social benefits in conformity with the provisions of the Collective Agreement for the Civil Service (TVöD)

Forschungszentrum Jülich promotes equal opportunities and diversity in its employment relations.

We also welcome applications from disabled persons.