Postdoctoral Research Fellow in Earth and Planetary Sciences

Job description

Position as Postdoctoral Research Fellow available at Centre for Earth Evolution and Dynamics (CEED). The position concerns modelling the interior dynamics and evolution of terrestrial and icy planetary bodies and its link to surface expressions. The preferred starting date is in November 2020 (no later than February 2021).

The position is for 2 years. No one can be appointed for more than one Postdoctoral Research Fellowship at the University of Oslo.

This postdoctoral position is integrated into the project “PLATONICS - Shaping PLAnetary tecTONICS by solid-state convection incorporating damage and inheritance”, a research project with Dr. Tobias Rolf as PI, funded by the Norwegian Research Council until late 2022. The project is affiliated with several research groups at CEED, primarily with the Earth-&-Beyond- and the Earth-Modelling-Teams. The primary objective of PLATONICS is to investigate the role of history-dependent rheology in the evolution of terrestrial (Earth, Venus, and others) and icy planetary bodies (e.g., Europa) and to evaluate its importance for shaping the surface tectonics of such bodies. The focus of this fellowship will be established with the successful candidate, but should ideally be related to one of the following themes:

The role of rheological damage in the generation and diversity of planetary surface tectonics:

Dynamic models linking the Earth’s record of plate tectonics and the dynamics of the deeper interior remain fragmentary. As of now, such models do not sufficiently consider the tectonic history and its inheritance in the evolution of the plate-mantle system. Investigating the impact of such complexities in mantle convection with plate-like behavior and linking them to terrestrial observables, such as seismic anisotropy and topography, is a focus of this project. Work tasks include analyzing the role of different creep mechanisms, the accumulation of damage, and grain-size evolution. A main project goal is also to compare the importance of these processes for the tectonic evolution of different planets. This involves mainly understanding the divergent evolution of Earth and Venus, but may be extended to Mars or Mercury.

Deformation of the outer shells of icy satellites and material transport across them:

Cold ice behaves in various aspects similar to silicate rocks, so that understanding deformation in the outer shells of icy satellites adds important insight into the diversity of surface tectonics across the solar system bodies. Some icy satellites may exhibit the chemical signature from a subsurface ocean on their surface, but how it may have reached the surface through the solid outer ice shell remains enigmatic. This project part includes modelling the deformation of icy shells and the resulting surface topography as well as understanding the interaction between solid/fluid layers inside icy satellites. The model predictions are to be compared to Jupiter’s satellite Europa, which displays a tectonically active surface, and possibly other icy satellites.

The main purpose of a postdoctoral fellowship is to provide the candidate with enhanced skills to pursue a scientific top position within or beyond academia. To promote a strategic career path, all postdoctoral research fellows are required to submit a professional development plan no later than one month after commencement of the postdoctoral period.

It will be possible to assist in the supervision of related master and/or PhD projects.

Qualification requirements

The candidate must have a PhD or other corresponding education equivalent to a Norwegian doctoral degree in Earth and/or Planetary sciences or a closely related field. Curiosity, motivation and career ambitions to unravel the dynamics of icy and terrestrial planetary bodies are essential for this project.

Strong analytical thinking and experience in the numerical modelling of planetary-scale geodynamics (e.g., codes like StagYY, ASPECT, Gaia, or similar), scientific programming and data set analysis are a major asset. Experience in statistics and visualization are additional assets.

The Faculty of Mathematics and Natural Sciences has a strategic ambition is to be among Europe’s leading communities for research, education and innovation. Candidates for these fellowships will be selected in accordance with this, and expected to be in the upper segment of their class with respect to academic credentials.

- Doctoral dissertation must be submitted for evaluation by the closing date. Only applicants with an approved doctoral thesis and public defense are eligible for appointment.
- Fluent oral and written communication skills in English

We offer

- Salary NOK 523 200 - 605 500 per annum depending on qualifications in position as Postdoctoral Research Fellow (position code 1352)
- Attractive welfare benefits and a generous pension agreement
- Professionally stimulating working environment
- Vibrant international academic environment
How to apply

The application must include

- Cover letter (statement of motivation, summarizing scientific work and research interests)
- CV (summarizing education, positions, pedagogical experience, administrative experience and other qualifying activity)
- Copies of educational certificates, academic transcript of records and letters of recommendation
- A complete list of publications and up to 5 academic works that the applicant wishes to be considered by the evaluation committee
- Names and contact details of 2-3 references (name, relation to candidate, e-mail and telephone number)

The application with attachments must be delivered in our electronic recruiting system. Foreign applicants are advised to attach an explanation of their University's grading system. Please note that all documents should be in English (or a Scandinavian language).

In assessing the applications, special emphasis will be placed on the documented, academic qualifications, as well as the candidates motivation and personal suitability. Web based interviews with promising candidates shall be held in late August or early September.

It is expected that the successful candidate will be able to complete the project in the course of the period of employment.

Formal regulations

Please see the guidelines and regulations for appointments to Postdoctoral fellowships at the University of Oslo.

No one can be appointed for more than one Postdoctoral Fellow period at the University of Oslo.

According to the Norwegian Freedom of Information Act (Offentleglova) information about the applicant may be included in the public applicant list, also in cases where the applicant has requested non-disclosure.

The University of Oslo has an agreement for all employees, aiming to secure rights to research results etc.

The University of Oslo aims to achieve a balanced gender composition in the workforce and to recruit people with ethnic minority backgrounds.

Contact information

For further information please contact: Dr. Tobias Rolf; tobias.rolf@geo.uio.no

For questions regarding the electronic recruitment system, please contact HR adviser Torunn S. Guttormsen: t.s.guttormsen@mn.uio.no

About the University of Oslo

The University of Oslo is Norway’s oldest and highest rated institution of research and education with 28 000 students and 7000 employees. Its broad range of academic disciplines and internationally esteemed research communities make UiO an important contributor to society.

Centre for the Earth Evolution and Dynamics (CEED) is a Norwegian Centre of Excellence that provides a stimulating and well-funded research environment. The main goal of the centre is to develop a model that explains how mantle processes drive plate tectonics and trigger massive volcanism and associated environmental and climate changes throughout Earth's history.

The centre explores the distribution and history of tectonic plates in time and space, and examines the driving mechanisms that steer all stages of the 'Wilson Cycle', and aims to establish the links between Earth's interior, crust and oceans, atmosphere and biosphere. CEED endeavors to also unravel similarities and differences of our planet with earth-like planetary bodies.

The centre was established in 2013 and consists of ca. 70 full time and part time professors and researchers, PhD Research Fellows and Postdoctoral Research Fellows.

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