Jobbnorge ID: 233532
Deadline: 11/5/2022
Website: http://www.ntnu.no
Scope: Fulltime
Duration: Temporary

The Department of Geoscience and Petroleum has a vacancy for a

PhD Candidate in Environmental seismology for detection of rockslide activity in Norway - IV-188/22

This is NTNU

NTNU is a broad-based university with a technical-scientific profile and a focus in professional education. The university is located in three cities with headquarters in Trondheim.

At NTNU, 9,000 employees and 42,000 students work to create knowledge for a better world.

You will find more information about working at NTNU and the application process here.

Video: https://youtu.be/Xt-yHCN5QS0

About the position

For a position as a PhD Candidate, the goal is a completed doctoral education up to an obtained doctoral degree.

Active rockslides occur in high mountain terrain where multiple surface processes including rockslides, snow avalanches, rock fall, and rock glacial creep are coexisting and are primarily driven by geological processes and climate change. Rockslide activity is manifested by the failure process at depth as well as rock fall activity at its surface. Precise localization of the seismic source and its characteristics is thus essential to use environmental seismology to better characterize the rockslide activity in its three dimensions. This is especially applicable at depths where surface monitoring systems have no access to. Characterization of seismic signals from rockslide processes with different failure characteristics will be employed on selected sites in northern and western Norway. Comparison of seismic signals with monitoring data of the rock slope obtained from satellite-based InSAR with a temporal resolution of 6 days (SENTINEL data) and environmental data (precipitation, rainfall) from weather stations will allow a better understanding of the seasonal impacts of meteorological conditions on the rockslide activity. Data from the site in western Norway have been collected over the past two years. Two additional sites will be instrumented in northern Norway in this project, where 28 sites with important post-glacial deformation exist. Some of those are among those with the highest deformation rates in Norway today. Some of the sites are instrumented with corner reflectors that enable for year-round monitoring of surface deformation. This guarantees deformation monitoring of the rockslide all year round, making the area an ideal natural laboratory to better understand deep-seated rockslide activity.

This work package thus aims at training seismic signal analyses on monitored slopes (relating seismological signals to displacement rates) during varying environmental conditions throughout the year.

The goal of the project is to develop a method to detect rockslide fracture processes with seismological tools to allow:

- The localization of the rockslide process
- The classification of the rockslide process
- The quantification of the rockslide process

The main supervisor of the project will be adjunct professor Reginald L. Hermanns. You will report to your supervisor and Head of Department.

Duties of the position

- Plan and assist field installation of seismic equipment in mountainous terrain
- Process seismic data collected on unstable rock slopes in northern and western Norway
- Report on project results internally at NTNU, to project partners in Norway and the Doctoral Network EnviSeis “Studying the Earth’s surface with seismic methods” in form of poster presentations, scientific talks including international conferences and in written preferentially in international scientific journals
- Meet with the stakeholder NORSAR in Oslo
- Cooperate in a media project with a media partner at geoforskning.no
- Having extended research visits to the project partner at Université Grenoble Alpes; France
- Fulfil the requirements of a PhD training of NTNU

Required selection criteria

- You must have a professionally relevant background/masters in geophysics, physics, or geology; with a strength on data processing
- Your education must correspond to a five-year Norwegian degree program, where 120 credits are obtained at master's level
- You must have a strong academic background from your previous studies and an average grade from the master's degree program, or equivalent education, which is equal to B or better compared with NTNU's grading scale. If you do not have letter grades from previous studies, you must have an equally good academic basis. If you have a weaker grade background, you may be assessed if you can document that you are particularly suitable for a PhD education.
- You must meet the requirements for admission to the Faculty of Engineering's doctoral programme https://www.ntnu.edu/studies/phiv
- Having a driver's license category B
- **Special condition: the successful candidate must have at least lived 10 months out of Norway during the past 12 months (EU mobility requirement).**

The appointment is to be made in accordance with Regulations concerning the degrees of Philosophiae Doctor (PhD) and Philosodophiae Doctor (PhD) in artistic research national guidelines for appointment as PhD, post doctor and research assistant

Preferred selection criteria

- experience in working in mountain terrain
- interest in handling technical equipment
- international exchange experience
- fluent written and oral English language skills

Personal characteristics

- self-driven co-worker
- interest in exchanging with colleagues beyond own discipline
- interested in travelling internationally

Emphasis will be placed on personal and interpersonal qualities.

We offer

The Doctoral Network "Studying the Earth's surface with seismic methods" (EnvSeis) is funded by the European Commission's Marie Skłodowska-Curie Actions. Bringing together 10 leading research groups from 7 countries, EnvSeis supports 12 early stage researchers in the emerging field of environmental seismology, in which seismic methods are used to study processes at or near the Earth´s surface, such as landsliding, river sediment transport, debris flows, and glacial and marine processes. Projects in the network are connected by the common methodology and joined training and networking activities. More information can be found on the project website EnvSeis - EnvSeis.

We invite you to apply for several ESR positions of your interest and in that case, indicate it in your application with the order of preference. Applicability follows the mobility rules of the European Commission's Marie Skłodowska-Curie Actions Doctoral Networks. Candidates must not have resided or carried out their main activity (work, studies, etc.) in Norway for more than 12 months in the 36 months immediately before the recruitment date. In addition, an extended secondment (at least 6 months) abroad is required.

In the project ESR 09 "Environmental seismology for detection of rockslide activity in Norway" hosted by NTNU:

- an open and inclusive work environment with dedicated colleagues
- favourable terms in the Norwegian Public Service Pension Fund
- employee benefits

Salary and conditions

As a PhD candidate (code 1017) you are normally paid from gross NOK 501 200 per annum before tax, depending on qualifications and seniority. From the salary, 2% is deducted as a contribution to the Norwegian Public Service Pension Fund.

The PhD candidate will also receive mobility and family allowances, as applicable according to the Innovative Training Networks guidelines.

The period of employment is 3 years. We aim for a common start date of this European Commission's Marie Skłodowska-Curie Action on the 01.03.2023 so that the successful candidate can participate in all training and networking activities. A slight shift in this is negotiable.

Appointment to a PhD position requires that you are admitted to the PhD programme in Engineering (https://www.ntnu.edu/studies/phiv) within three months of employment, and that you participate in an organized PhD programme during the employment period.

The engagement is to be made in accordance with the regulations in force concerning State Employees and Civil Servants, and the acts relating to Control of the Export of Strategic Goods, Services and Technology. Candidates who by assessment of the application and attachment are seen to conflict with the criteria in the latter law will be prohibited from recruitment to NTNU.

After the appointment you must assume that there may be changes in the area of work.

The position is subject to external funding by the EU MARIE SKŁODOWSKA-CURIE ACTIONS Doctoral Network "Studying the Earth's surface with seismic methods" (EnvSeis).

It is a prerequisite you can be present at and accessible to the institution daily.

About the application

The application and supporting documentation to be used as the basis for the assessment must be in English.

Publications and other scientific work must follow the application. Please note that your application will be considered based solely on information submitted by the application deadline. You must therefore ensure that your application clearly demonstrates how your skills and experience fulfil the criteria specified above.

The application must include:

- CV and certificates
- transcripts and diplomas for bachelor's and master's degrees. If you have not completed the master's degree, you must submit a confirmation that the master's thesis has been submitted.
- A copy of the master's thesis. If you recently have submitted your master's thesis, you can attach a draft of the thesis. Documentation of a completed master's degree must be presented before taking up the position.
- Name and contact information of three referees
- If you have publications or other relevant research work

If all, or parts, of your education has been taken abroad, we also ask you to attach documentation of the scope and quality of your entire education, both bachelor's and master's education, in addition to other higher education. Description of the documentation required can be found here. If you already have a statement from NOKUT, please attach this as well.

We will take joint work into account. If it is difficult to identify your efforts in the joint work, you must enclose a short description of your participation.

In the evaluation of which candidate is best qualified, emphasis will be placed on education, experience and personal and interpersonal qualities. Motivation, ambitions, and potential will also count in the assessment of the candidates.

NTNU is committed to following evaluation criteria for research quality according to The San Francisco Declaration on Research Assessment - DORA.

General information

Working at NTNU

NTNU believes that inclusion and diversity is our strength. We want to recruit people with different competencies, educational backgrounds, life experiences and perspectives to contribute to solving our social responsibilities within education and research. We will facilitate for our employees' needs.

NTNU is working actively to increase the number of women employed in scientific positions and has a number of resources to promote equality.

The city of Trondheim is a modern European city with a rich cultural scene. Trondheim is the innovation capital of Norway with a population of 200,000. The Norwegian welfare state, including healthcare, schools, kindergartens and overall equality, is probably the best of its kind in the world. Professional subsidized day-care for children is easily available. Furthermore, Trondheim offers great opportunities for education (including international schools) and possibilities to enjoy nature, culture and family life and has low crime rates and clean air quality.

As an employee at NTNU, you must at all times adhere to the changes that the development in the subject entails and the organizational changes that are adopted.

A public list of applicants with name, age, job title and municipality of residence is prepared after the application deadline. If you want to reserve yourself from entry on the public applicant list, this must be justified. Assessment will be made in accordance with current legislation. You will be notified if the reservation is not accepted.

If you have any questions about the position, please contact Reginald L. Hermanns, telephone +47 99091720, e-mail reginald.hermanns@ntnu.no / reginald.hermanns@ngu.no. If you have any questions about the recruitment process, please contact HR consultant Anne-Lise Brekken e-mail: anne.lise.brekken@ntnu.no.

If you think this looks interesting and in line with your qualifications, please submit your application electronically via jobbnorge.no with your CV, diplomas and certificates attached. Applications submitted elsewhere will not be considered. Upon request, you must be able to obtain certified copies of your documentation.

Application deadline: 05.11.2022

NTNU - knowledge for a better world

NTNU - knowledge for a better world

The Norwegian University of Science and Technology (NTNU) creates knowledge for a better world and solutions that can change everyday life.

Department of Geoscience and Petroleum

We conduct teaching and research related to management of Earth’s geological resources. Norway’s rich resources of wind, water, oil, gas and minerals have been and are essential to the country’s prosperity, and will continue to be in the future. The Department plays a key role in the development of technology and the education of graduates who enable value creation based on our natural resources. The Department of Geoscience and Petroleum is one of eight departments in the Faculty of Engineering.

Additional information

Place of service:

Institutt for geovitenskap og petroleum 7491 Trondheim (Trondheim Municipality)