PhD position in sedimentary geology: Influence of emplacement of large igneous provinces on source-to-sink systems

PhD position

There is a vacancy for a PhD position in sedimentary geology: Influence of emplacement of large igneous provinces on source-to-sink systems at the Department of Earth Science. The position is for a fixed-term period of 3 years. The position is part of the Marie Curie Innovative Training Network "S2S-FUTURE". The project involves field work on Svalbard and collaborations with multiple European institutions and industrial partners, including required research stays at Equinor, Oslo and Université de Rennes 1.

About the project/work tasks:

About this PhD project:

Erosion rates and sediment volumes supplied from onshore areas are strongly controlled by upland relief. Magmatic activity, especially in areas of Large Igneous Provinces, can cause large and temporally variable pulses of uplift and subsidence, and how these influence source-to-sink systems have not yet been studied in detail. The Palaeocene succession east of Shetland contains shallow- and deep-marine deposits which show pulses of sediment delivery. These pulses are hypothesized to be caused by transient magmatic uplift of the Shetland platform. The objective of this project is to use 3D seismic surveys, available well data, biostratigraphic data, and regional 2D seismic lines to define timing of activity and supplied sediment volumes through time for these systems, in order to better understand influence of magmatic uplift on source-to-sink systems. A secondary objective is to investigate the response of these sedimentary systems to the Palaeocene-Eocene Thermal Maximum, which is a period when global temperatures increased by 5-8 °C, likely due to large-scale CO2 release. This provides a way to investigate both response to tectonic forcing and climatic forcing on such source-to-sink systems.

Specifically, the candidate will complete the following tasks. 1) Interpret presence and volumes of Palaeocene sedimentary systems in seismic and well data around Shetland, 2) correlate these sedimentary systems using seismic data and biostratigraphic data, 3) Investigate magnitude of sediment volumes supplied through time and how these relate to uplift, climate and landscape development

This project within the framework of the S2S-FUTURE research project:

This PhD position is within the framework of a European ITN project named S2S-FUTURE: SIGNAL PROPAGATION IN SOURCE TO SINK for the FUTURE of earth Resources and Energies involving 15 PhD positions.

Under the supervision of Christian Haug Eide (Associate Professor, University of Bergen, Geodynamics and Basin Studies), the PhD student will investigate 2- and 3D seismic data, well data and core data from the Paleogene deposits in area E of Shetland. The data will be used to determine sediment volumes supplied from Shetland through time in order to reconstruct landscape development and uplift, which is believed to have been controlled by transient magmatic uplift of the Shetland platform. These results will increase the understanding of how sedimentary systems respond to strong but gradual perturbations (ITN Work Package “SLOW”). The project involves collaborations with multiple European institutions and industrial partners, including required research stays (secondment) at Equinor, Norway (Oslo, Dr. Tor Samme 1 month), VBPR - Volcanic Basin Petroleum Research (Oslo, Dr. Sverre Planke, 1 month), Université de Rennes 1, France (Rennes, Prof. François Guillocheau & Cécile Robin, 1 month).

The PhD student will be also involved in scientific/soft-skills meetings and in research activities conducted in other laboratories/companies from Europe and associated countries.

An important component of the training will be the participation to 3 main major “Summer Institutes”:

**Summer 2020:** “Dragonstone” - South-Pyrenees Spain and France: an innovative combination of field excursion and computer modeling of surface processes from source to sink.

**Summer 2021:** “The Factory” - Norway, Great Britain and Switzerland: field visit of modern S2S systems and course intensive program program of technical and soft skills to accelerate the students’ research, write and present their results, consolidate their profiles and develop concrete plans for their future.

**Summer 2022:** “Inside Africa” - South-Africa: an immersion of the PhD candidates in the modern source-to-sink system of a continental-scale large river, the Orange in Southern Africa, with high economic implications for mining industries.

In addition to these major milestones of the program, the PhD students will 1) continuously develop their core research skills via their own research project locally and within the network while at secondments and conferences, 2) receive a mandatory amount of hard and soft-skills training specific to their own doctoral school, along with mentoring by joint supervising bodies, 3) use EGU conferences both as dissemination events for PhD results and network events for progress reports and evaluations, and 4) collaborate into practical activities aimed at network-structuring legacy deliverables.

Qualifications and personal qualities:
Applicants must hold a master’s degree or equivalent education in Earth Science or relevant field, or must have submitted his/her master's thesis for assessment prior to the application deadline. It is a condition of employment that the master's degree has been awarded.

- Excellent technical skills including experience with seismic interpretation is a requirement.
- Experience with well log interpretation and core interpretation is a strong advantage.
- Previous experience working with clastic sediments, including sequence stratigraphy, is an advantage.
- Field experience with clastic sediments is an advantage.
- Applicants must be able to work independently and in a structured manner and demonstrate good collaborative skills.
- Applicants must be proficient in both written and oral English.
- Availability to travel for training events and research secondments is required.

Personal and relational qualities will be emphasized. Ambitions and potential will also count when evaluating the candidates.

Special requirements for the position:
The applicant should not have lived and had his/her main activity in the same country as the beneficiary institute (Norway) for more than 12 months during the last 3 years on the date of appointment. This is a requirement for all Marie Curie sponsored exchange scholarships.

In addition, the successful candidate should satisfy at the time of the recruitment the following mandatory characteristics:

- having not more than 4 years of equivalent research experience (i.e. working as researcher after obtaining your master's degree)
- having not been awarded a title of PhD

About the PhD position:
The fellowship will be for a period of 3 years.

About the research training
As a PhD candidate, you must participate in an approved educational programme for a PhD degree within a period of 3 years. A final plan for the implementation of the research training must be approved by the faculty within two months after you have commenced in the position. It is a condition that you satisfy the enrolment requirements for the PhD programme at the University of Bergen.

We can offer:

- a good and professionally stimulating working environment
- salary at pay grade 54 (Code 1017/Pay range 20, alternative 10) in the state salary scale. This constitutes a gross annual salary of NOK 479 600,-.
  Further promotions are made according to length of service in the position
- enrolment in the Norwegian Public Service Pension Fund
- good welfare benefits

Your application must include:

- a brief account of the applicant's research interests and motivation for applying for the position
- the names and contact information for two referees. One of these should be the main advisor for the master's thesis or equivalent thesis
- CV
- transcripts and diplomas showing completion of the bachelor's and master's degrees. If you have not yet completed your master's degree, please submit a statement from your institution confirming that the master's thesis has been submitted relevant certificates/references
- approved documentation of proficiency in English (if required, cf. English language requirements for PhD admission)
- a list of any works of a scientific nature (publication list)
- any publications in your name

The application and appendices with certified translations into English or a Scandinavian language must be uploaded at Jobbnorge.

General information:
Detailed information about the position can be obtained by contacting: Christian Haug Eide (Associate professor, University of Bergen, +47 55 58 33 93)

The state labour force shall reflect the diversity of Norwegian society to the greatest extent possible. Age and gender balance among employees is therefore a goal. It is also a goal to recruit people with immigrant backgrounds. People with immigrant backgrounds and people with disabilities are encouraged to apply for the position.

The University of Bergen applies the principle of public access to information when recruiting staff for academic positions. Information about applicants may be made public even if the applicant has asked not to be named on the list of persons who have applied. The applicant must be notified if the request to be omitted is not met.

The successful applicant must comply with the guidelines that apply to the position at all times.

For further information about the recruitment process, click here.

About The University of Bergen
The University of Bergen is a renowned educational and research institution, organised into seven faculties and approximately 54 institutes and academic centres. Campus is located in the centre of Bergen with university areas at Nygårdsøyden, Haukeland, Marineholmen, Møllendalsveien and Årstad.
There are seven departments and several centres at Faculty of Mathematics and Natural Sciences. Read more about the faculty and departments.