Jobbnorge ID: 300928
Deadline: 5/24/2026
Website: http://www.ntnu.no
Scope: Fulltime
Duration: Temporary

The Department of Civil and Environmental Engineering has a vacancy for a

PhD Candidate in Hydrodynamic Modelling of River-to-Fjord Plume Formation

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 43,000 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

We offer an exciting 3-year PhD position based at NTNU's Department of Civil and Environmental Engineering as part of the NTNU Ocean and Coast funded project "The PLUME". The position belongs to work package WP1 Water Dynamics, which aims to build an integrated modelling platform for freshwater flow, river discharge, and plume dynemics from the full catchment of the Trondheim Fjord to the fjord itself. The main supervisor is Professor Hans Bihs, Department of Civil and Environmental Engineering. The position will work closely with Professor Knut Tore Alfredsen, Professor Mats Ehrnström, and Postdoctoral Researcher Adrian Kirkeby. The research connects directly to the ERC Consolidator Grant PARTRES and the NFR large-scale project IMod.

The new integrated modelling approach for freshwater flow, river discharge, and plume dynamics will be built around the open-source hydrodynamics framework REEF3D. The model is developed in-house and the candidate will be a member of the research team. REEF3D::NHFLOW resolves circulation, mixing, and exchange over sills and basins. It is used to produce a highly detailed picture of the plume dynamics, including spreading, dispersion and vertical exchange. Macro precipitation-runoff models are used to estimate time-resolved freshwater inflows from the entire fjord catchment, including the effects of hydropower, regulation and projected climate driven changes in rainfall and seasonality.

Are you motivated to take a step towards a doctorate and open up exciting career opportunities? As a PhD Candidate with us, you will work to achieve your doctorate, and at the same time gain valuable experience that qualifies you for a further career in higher education and research, in and outside academia.

Your immediate leader will be a professor.

About the project

The PLUME is an interdisciplinary project funded by NTNU Ocean and Coast, with the goal of understanding the Trondheim Fjord as a connected system - from river catchment to open water, from physical dynamics to public knowledge and governance. It brings together researchers from mathematics, civil engineering, biology, industrial ecology, and science and technology studies, hosted by the research team Water and Water Systems. The project runs from mid-2026 to mid-2029 across three interconnected work packages: **WP1 Water Dynamics**, **WP2 Nutrient Impacts**, and **WP3 Societal Interactions**. It is led by Mats Ehrnström (leader) and Terje Finstad (co-leader). Each position is central to one work package and will collaborate closely with the others.

Duties of the position

- Complete the doctoral education until obtaining a doctorate
- Carry out research of excellent scientific quality
- Academic publications and popular science dissemination
- Contribute to joint activities across The PLUME
- Collaborate with the PARTRES and IMod project teams at NTNU
- Contribute to the development of the open-source hydrodynamics software REEF3D
- Participate in the research group Marine Civil Engineering

Be prepared for changes to your work duties after employment.

Required selection criteria

- You must have a relevant Master's degree in coastal engineering, hydraulic engineering, oceanography or fluid mechanics. Your course of study must correspond to a five-year Norwegian course, where 120 credits have been obtained at master's level. Master students can apply, but the master's degree must be obtained and documented before starting the position.
- You must have a strong academic background from your previous studies and have an average grade from your Master's degree study, or equivalent education, which is equal to B or better compared to NTNU's grading scale. If you do not have letter grades from previous studies, you must have an equally good academic foundation. If you have a weaker grade background, you maybe considered if you can document that you are particularly suitable for a PhD education.
- You must meet the requirements for admission to the faculty's Doctoral Programme
- Strong understanding of coastal and fjord oceanography and geophysical fluid mechanics
- Experience with numerical modelling and/or computational methods for simulating waves and/or currents
- You must have in-depth knowledge on underlying mechanics of stratified flow, plume formation and the characteristics of tidal systems
- Good oral and written presentation skills in English language

PLEASE NOTE: For detailed information about what the application must contain, see paragraph “About the application”.

The appointment is to be made in accordance with NTNUs guidelines for recruitment positions for general criteria for the position.

Preferred selection criteria

- Experience with open-source hydrodynamic software
- Good oral and written presentation skills in Norwegian/Scandinavian

Personal characteristics

To complete a doctoral degree (PhD), it is important that you are able to:

- Work independently
- Work in a structured way, set goals and make plans to achieve them
- Demonstrate motivation and perserverance in solving computational physics problems
- Present and discuss your research with other professionals
- Get involved and contribute constructively with feedback
- Work constructively under pressure or in the face of adversity
- Show curiosity and a strong motivation for the subject
- Communicate clearly and professionally with others
- Be flexible and open to adjusting the plan for the project as needed

Emphasis will be placed on personal qualities.

We offer

Evaluate and remove/add what is relevant for the position.

- An exciting job with an important mission in society
- Developing tasks in a strong and international professional environment
- Career guidance and follow-up during the PhD period
- Open and inclusive working environment with committed colleagues
- Working capital that can be used to implement the project
- Mentor programme as a new employee at NTNU
- Favorable terms as a member of the Norwegian Public Service Pension Fund (SPK)

As a PhD Candidate at NTNU, you will have access to employee benefits.

Diversity

Diversity is a strength, and at NTNU we aim to be an employer that reflects the diversity in society and that makes use of the potential of the population's collective skills. Our vision is Knowledge for a better world and our values are creative, critical, constructive and respectful. We believe that an organization that is equal, diverse and gender-balanced is essential for us to achieve our goals.

We strive to attract employees with different skills, life experiences and perspectives to contribute to even better problem solving of our societal mission in research and education.

If you think this position is relevant and interesting, we encourage you to apply, regardless of gender, functional ability and cultural background, or whether you have been out of work for a period of time.

At NTNU we want to increase the proportion of women in scientific positions. We have a number of measures to promote equality.

Salary and conditions

In the position of PhD Candidate, code 1017, your gross salary will normally be NOK 550 800,-per annum depending on qualifications and seniority. A 2% statutory contribution to the State Pension Fund is deducted from the salary.

The employment period is 3 years.

For employment as a PhD Candidate, it is a prerequisite that you gain admission to the PhD programme in Engineering within three months of your employment contract start date, and that you participate in an organized doctoral programme through out the period of employment.

As an employee at NTNU, it is important that you keep yourself up to date with academic and organizational changes and adapt to them.

For the necessary professional and social interaction, it is a prerequisite that you are physically present and available to the institution on a daily basis.

The appointment is carried out in accordance with the principles of the State Employees Act, and Export control (legislation that regulates the export of knowledge, technology and services).

About the application

The attachments (including a description of your scientific work) must accompany the application as these documents form the basis of the application assessment. The documents must be in Norwegian/a Scandinavian language or English.

Please note: the application will only be assessed on the basis of the information we have received by the application deadline. Therefore, make sure that your application clearly shows how your skills and experience meet the criteria described above. The application and all attachments must be sent electronically via Jobbnorge.no. If you are invited to an interview, you must bring certified copies of certificates and diplomas upon request.

The application must include:

- Transcripts and diplomas for Bachelor's and Master's degrees
- CV
- Copy of Master's thesis. If you have recently 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.
- Project outline containing proposals for an overall description of research questions, theoretical perspectives, methodological design for the project and progress plan (maximum 1500 words/4 pages)
- Short letter of motivation (400 words/1 page)
- Possibly publications etc. other relevant research work
- Possibly certificates
- Names and contact information of three relevant referees

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. If your institution uses “diploma supplement” (normal for most European institutions), you must attach this. A description of the documentation required can also be found here. If you already have a statement from Norwegian Directorate for Higher Education and Skills (HK-dir), please attach this as well.

Joint work will be considered. If it is difficult to identify your contribution to joint work, you must attach a brief description of your participation.

When assessing the best qualified, we emphasize necessary qualifications such as education, experience and personal suitability. Motivation for the position, ambitions, and potential for research will also count when assessing the candidates.

NTNU recognizes a wide range of academic contributions and has committed itself to The San Francisco Declaration on Research Assessment and CoARA (responsible assessment of research and recognition of a greater breadth of academic contributions in accordance with NTNU's social mission).

General information

A public list of applicants with name, age, job title and municipality of residence is prepared after the application deadline. If you wish to be exempt 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 exemption is not granted.

If you think this position looks interesting and in line with your qualifications, you are welcome to apply.

If you have any questions about the position, please contact Professor Hans Bihs, e-mail: hans.bihs@ntnu.no.

If you have any questions about the recruitment process, please contact HR Consultant Oda Aune, e-mail: oda.aune@ntnu.no.

Application deadline: 24.05.2026

For practical information about working at NTNU, please visit this webpage.

The city of Trondheim is a modern European city with a rich cultural scene. Trondheim is the tech 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.

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 Civil and Environmental Engineering

We conduct research and teaching in civil and transportation engineering, technical planning, structural engineering, water and wastewater engineering and hydraulic engineering. Graduates from our programmes become employees - in both the public and private sectors - with a sustainability mindset combined with competitive knowledge and skills. The Department of Civil and Environmental Engineering is one of eight departments in the Faculty of Engineering.

Additional information

Contact person:

Hans Bihs, Professor
Phone: | E-mail: hans.bihs@ntnu.no

Place of service:

Høgskoleringen 7A 7034 Trondheim (Trondheim Municipality)