Post doc position in marine hydrodynamic modelling

We are seeking applicants for a 2-year Post Doc in 3D marine hydrodynamic modelling to join us at the Department of ECOSCIENCE working with developing and improving numerical methods for solving differential equations on unstructured computational meshes. This includes optimizing existing code to solve the Navier-Stokes equations using the predictor-corrector method and implement new methods to improve other parts of the model, such as advection-diffusion, turbulence and boundary conditions. Additionally, calibration and validation of existing model setups as well as setting up new models including generation of new computational meshes will be required.

Application Deadline:
06 February 2025

Faculty:
Faculty of Technical Sciences

Institute/Faculty:
Department of Ecoscience

Academic contact person:
Marie Maar
Professor MSO, sektionsleder
mam@ecos.au.dk
+4521730711

Vacant positions:
1

Hours per week:
37

Number of months:
24

Expected date of accession:
15/08/2025

Expected start date and duration of employment

This is a 2–year position from 15 Aug 2025 or as soon as possible.
This is a fixed-term position to end on 14 Aug 2027.

Job description

- You will be contributing to improving 3D hydrodynamic-biogeochemical models of the North Sea, Inner Danish waters and other areas as well as developing model setups for new areas and/or with new features.
- You will be working primarily with implementing new features and improving in the hydrodynamic “in-house” model FlexSem (https://marweb.bios.au.dk/flexsem)
- You will be a part of the marine group that covers research and advisory tasks across the marine environment mainly related to Danish and Arctic waters
- These activities will be conducted in close collaboration with the model group and other colleagues at the department as well as international partners

Applicants should hold a PhD in oceanography, physics, mathematical engineering, programming, or similar. We expect that you have:

- Expert knowledge on 3D hydrodynamic models and fluid dynamics
- Expert understanding of numerical methods for solving differential equations on unstructured meshes
- Expert knowledge of marine physical processes in coastal and/or open waters
- Very good skills in scientific programming and analyzing tools (e.g., C++, Python, R, MatLab)
- Some publications in good journals
- Good collaboration skills and ability to work in an interdisciplinary team within marine science
- Very good knowledge of English (written and oral)
- Good communication skills (scientific community, the public, stakeholders, and managers)
- Experience in data analysis and statistical tools

Who we are

The Department of Ecoscience is engaged in research programs and advisory work covering the major biological subdisciplines. We conduct world-class research in the areas of aquatic biology and ecology, Arctic environment and ecosystems, biodiversity, conservation biology and wildlife management. The Department currently employs approximately 275 academic and technical staff, as well as many PhD students.

The successful candidate will work in a dynamic and internationally engaged scientific environment at the Section for Applied Marine Ecology and Modelling (for more information see: https://ecos.au.dk/en/researchconsultancy/research-areas/applied-marine-ecology-and-modelling).

The department is, and wishes to continue to be, an active, dynamic and inspiring workplace with exciting challenges, enthusiastic colleagues and academic opportunities for development. The department wishes to support employees in creating a good balance between their work and home lives and to maintain and attract talented and committed staff, where freedom, creativity and respect for the long-term perspective are core values. For more information on the department see: http://ecos.au.dk/en/.

What we offer

The department offers:

- a well-developed research infrastructure, laboratories and access to shared equipment
- an exciting interdisciplinary environment with many national, international and industrial collaborators
- a research climate encouraging lively, open and critical discussion within and across different fields of research
- a workplace characterised by professionalism, equality and a healthy work-life balance.

Place of work and area of employment

The place of work is Frederiksborgvej 399, 4000 Roskilde, Denmark, and the area of employment is Aarhus University with related departments.

Contact information

For further information, please contact Head of Section, Professor Marie Maar, mam@ecos.au.dk +45 21730711 or special consultant Janus Larsen janus@ecos.au.dk.

Application procedure

Shortlisting is used. This means that after the deadline for applications – and with the assistance from the assessment committee chairman, and the appointment committee if necessary, – the head of department selects the candidates to be evaluated. All applicants will be notified whether or not their applications have been sent to an expert assessment committee for evaluation. The selected applicants will be informed about the composition of the committee, and each applicant is given the opportunity to comment on the part of the assessment that concerns him/her self. Once the recruitment process is completed a final letter of rejection is sent to the deselected applicants.

Letter of reference

If you want a referee to upload a letter of reference on your behalf, please state the referee's contact information when you submit your application. We strongly recommend that you make an agreement with the person in question before you enter the referee's contact information, and that you ensure that the referee has enough time to write the letter of reference before the application deadline.
Unfortunately, it is not possible to ensure that letters of reference received after the application deadline will be taken into consideration.

Formalities and salary range

Technical Sciences refers to the Ministerial Order on the Appointment of Academic Staff at Danish Universities under the Danish Ministry of Science, Technology and Innovation.

The application must be in English and include a curriculum vitae, degree certificate, a complete list of publications, a statement of future research plans and information about research activities, teaching portfolio and verified information on previous teaching experience (if any). Guidelines for applicants can be found here.

Appointment shall be in accordance with the collective labour agreement between the Danish Ministry of Taxation and the Danish Confederation of Professional Associations. Further information on qualification requirements and job content may be found in the Memorandum on Job Structure for Academic Staff at Danish Universities.

Salary depends on seniority as agreed between the Danish Ministry of Taxation and the Confederation of Professional Associations.

Aarhus University's ambition is to be an attractive and inspiring workplace for all and to foster a culture in which each individual has opportunities to thrive, achieve and develop. We view equality and diversity as assets, and we welcome all applicants.

Research activities will be evaluated in relation to actual research time. Thus, we encourage applicants to specify periods of leave without research activities, in order to be able to subtract these periods from the span of the scientific career during the evaluation of scientific productivity.

Aarhus University offers a broad variety of services for international researchers and accompanying families, including relocation service and career counselling to expat partners. Read more here. Please find more information about entering and working in Denmark here.

Aarhus University also offers a Junior Researcher Development Programme targeted at career development for postdocs at AU. You can read more about it here.

The application must be submitted via Aarhus University's recruitment system, which can be accessed under the job advertisement on Aarhus University's website.

Aarhus University

Aarhus University is an academically diverse and research-intensive university with a strong commitment to high-quality research and education and the development of society nationally and globally. The university offers an inspiring research and teaching environment to its 38,000 students (FTEs) and 8,300 employees, and has an annual revenues of EUR 935 million. Learn more at www.international.au.dk/