GEOMAR
Helmholtz-Zentrum für Ozeanforschung Kiel

GEOMAR Helmholtz Centre for Ocean Research Kiel is a foundation under public law jointly financed by the Federal Republic of Germany (90%) and the State of Schleswig-Holstein (10%). It is one of the internationally leading institutions in the field of marine research.

Through our research and our commitment to the transfer of knowledge and technology, we contribute significantly to the preservation of the function and protection of the ocean for future generations.

The research unit Marine Mineral Resources of the research division Dynamics of the Ocean Floor - Magmatic and Hydrothermal Systems offers a position for a

Doctoral researcher (m/f/d) in Marine Data Science in the project *"AI-derived thermodynamic parameters for aqueous modelling (AI-queous)"*

starting on 01. January 2026 or soon after.

The position offers the opportunity to pursue a doctoral degree in natural or computer science as a member of the graduate school "Helmholtz School for Marine Data Science" (MarDATA). MarDATA is dedicated to training a new generation of "marine data scientists" by integrating expertise from computer science and mathematics into the field of ocean sciences. The school's interdisciplinary focus spans supercomputing, modeling, (bio)informatics, robotics, statistics, and big data methodologies. Doctoral researchers benefit from a structured training program that promotes cross-disciplinary collaboration and provides in-depth scientific insight as well as a systematic approach to marine data science. For more information, visit: https://www.mardata.de/.

Job Description

As part of the MARDATA doctoral network, the project *"**AI**-derived thermodynamic parameters for **aqueous** modelling (**AI-queous**)"* invites applications for a PhD position at the intersection of Computer Science and Chemical Oceanography, but with a focus on the Computer Science aspects. The successful candidate will work on the development of a physics-informed, hybrid AI model to calculate key chemical parameters that are currently poorly constrained across an extended range of pressure, temperature, and salinity (pTS). The goal is to improve the predictive accuracy and consistency of such parameters for complex geochemical systems, including deep sea hydrothermal vent environments of geothermal fluids.
This project bridges modern artificial intelligence with geochemical modelling, aiming to deliver transformative advances in the understanding of marine trace elements, resource systems, and subsurface processes relevant to environmental and geoscientific risk assessments.

The work will be conducted within a project consortium led by Dr. Laura Haffert and Prof. Dr. Sylvia Sander (GEOMAR Helmholtz Centre for Ocean Research Kiel), in close collaboration with Prof. Dr. Kevin Köser (Computer Science, Kiel University).
By joining these two groups, you become part of a vibrant and forward-thinking research community at the forefront of ocean science. Sylvia Sander's group brings geochemistry to life through field campaigns on research vessels, state-of-the-art laboratory analyses, and the development of models that reveal how trace metals behave in various marine environments. Meanwhile, the Marine Data Science Group at the Department of Computer Science (Kiel University) is working on AI technology for ocean observations. Together, these groups are driving innovations that expand our understanding of the ocean and shape how we engage

with it in the future.

Qualification

Required

- Master's degree (or equivalent) in Computer Sciences or a related field by the beginning of the project
- Experience in machine learning
- Ability to communicate fluently in spoken and written English
- Experience in programming, including Python

If the required degree is not completed at the time of application, the degree certificate must be handed in before the start date of the contract and the application must contain plausible evidence that the degree can be finished before that date.

Desired

- Interest in marine processes
- Basic knowledge of chemistry
- Ability to work in a collaborative, interdisciplinary team and the MarDATA school
- Good communication skills
- Ability and interest to delve into a new topic, including in a field of natural sciences
- Implementation and public sharing of own programming projects

At a workplace, directly on the Kiel Fjord with many leisure and recreational opportunities, we offer you:

- Good conditions for work-life balance: We offer, among other things, the possibility of mobile working and individual working time arrangements, vacation courses for the children of our employees, and good support in finding a place in a daycare center at the Kiel site
- Support services for professional and personal life situations
- An exciting work environment with the opportunity to provide important impetus for the development of sustainable solutions
- Exciting topics in an international environment
- Work in the field of marine and climate research, a forward-looking area with social significance
- 30 vacation days + additional time off at Christmas Eve and New Year's Eve
- Company pension plan and capital-forming benefits

The position is available for a funding period of 3 years and should be filled as soon as possible. The salary depends on qualification and could be up to the class E13 TVöD-Bund of the German tariff for public employees. This is a full-time position and cannot be split. The fixed-term contract shall comply with Section 2 Paragraph 1 of The Act of Academic Fixed-Term Contract (German WissZeitVG).

GEOMAR Helmholtz Centre for Ocean Research Kiel seeks to increase the proportion of female scientists and explicitly encourages qualified female academics to apply. GEOMAR is an equal opportunity employer and encourages scientists with disabilities to apply. Qualified disabled applicants will receive preference in the application process.

Please send your application for this post **not later than 19. October 2025** under the following link:

GEOMAR
Helmholtz-Zentrum für Ozeanforschung Kiel

Online application

As soon as the selection procedure has finished, all your application data will be removed according to data protection regulation.

For further information regarding the position and research unit please contact Dr. Laura Haffert (lahaffert@geomar.de).

We will answer all your questions if you send us an e-mail to bewerbung@geomar.de. In doing so, please refer to the keyword “**MarDATA - AI-queous**”.

For further information on GEOMAR Helmholtz Centre for Ocean Research Kiel or the Helmholtz Association, please visit www.geomar.de or www.helmholtz.de.

GEOMAR is committed to an objective and non-discriminatory personnel selection. Our job advertisements address all people. We expressly renounce the submission of application photos.

The TOTAL E-QUALITY award is presented to GEOMAR for efforts in terms of human resource management aimed at providing equal opportunity.