Job posting (PHY 03/2025)

The Leibniz Institute for Baltic Sea Research Warnemünde (IOW) has a temporary vacancy starting **01.08.2025** for a

Postdoctoral position in marine ecosystem modeling

in the Department of Physical Oceanography for a period of 24 months and a percentage of 100% (40h/week), subject to the funding of the project.

Remuneration is paid in accordance with the Tarifvertrag für den öffentlichen Dienst der Länder (TV-L , Public Sector Collective Agreement on Länder) salary scale at level 13. The position can also be filled on a flexible part-time basis with at least 30h/week.

About SEAGUARD

This position is embedded in the **SEAGUARD** project (Seagrass Growth and Adaptation Using AI Research & Development), which focuses on assessing the **CO_2 storage potential of seagrass meadows** and identifying **climate-resilient restoration sites** in the **Baltic Sea**.

The project integrates regional climate modeling, AI-driven simulations, and biogeochemical modeling to predict seagrass distribution under various climate and nutrient scenarios. SEAGUARD aims to provide science-based recommendations for nature-based climate mitigation and marine biodiversity conservation.

SEAGUARD is a joint effort of the IOW, the informatics department of the University of Kiel, and the remote sensing company EOMAP GmbH & Co. KG.

Who are we?

The IOW is an independent research institute of the Leibniz Association for which equal opportunities, family friendliness and work-life balance are very important. Our research focus is on the coastal and marginal seas, especially the Baltic Sea. The staff of the five departments Physical Oceanography, Marine Chemistry, Biological Oceanography, Marine Geology and Marine Observations work on an interdisciplinary basis in a joint research program.

What will be your tasks?

The successful candidate will work closely with scientists, postdoctoral researchers, and doctoral students within the department, as well as external researchers, focusing on implementing and calibrating the GrassLight module within the biogeochemical ocean

model ERGOM (https://ergom.net). The candidate will utilize the Code Generation Tool (CGT, https://ergom.net/code-generation-tool.html) and actively participate in ongoing development efforts for ERGOM.

The primary objective of this position is to generate high-resolution seagrass distribution maps for the Baltic Sea, achieving a spatial resolution of approximately 1 nautical mile for the entire region, with an enhanced resolution of 600 meters for the Western Baltic Sea. These model-generated seagrass maps will be rigorously validated against satellite imagery and field-sampling data. Furthermore, the position holder will play a central role in creating high-quality training datasets (seagrass maps) to support artificial intelligence (AI) algorithms used in related projects, thereby enabling the evaluation of different nutrient and climate-change scenarios.

Your primary responsibilities will include:

- Implementation of GrassLight in the ecosystem model ERGOM.
- Generate high resolution seagrass maps for the Baltic Sea and validate them with available observational datasets.
- Provide training data (seagrass maps) to support AI algorithms for testing nutrient and climate scenarios.
- Investigate the interplay of hydrodynamics, biogeochemistry, SPM and seagrass itself, either in hindcast mode of scenario simulations

In addition, your research will provide a **structured framework** of storylines for assessing plausible future developments in the Baltic Sea, considering both **forced responses** and **internal climate variability**.

What do we expect from you?

We seek a scientifically curious researcher who is passionate about understanding the environment. You should hold a master's degree (or equivalent diploma) and a PhD in meteorology, oceanography, or a related natural or geoscientific discipline with significant physical and mathematical components. It is essential that you have the ability to conduct independent scientific research within a collaborative team environment and demonstrate enthusiasm for contributing to the innovative IOW research programme (2024–2033). Your primary involvement will focus on Research Areas 2.2 and 2.3.

Required qualifications:

- Documented experience in developing and applying ecosystem models.
- Experience using high-performance computing systems.
- Proficiency in running numerical ocean models.
- Familiarity with operating systems such as Linux/Unix and proficiency in shell scripting.
- Strong programming skills, preferably in Fortran, C/C++, or Python.
- Competency in visualizing and analyzing large-scale climate datasets using software tools like Matlab, IDL, Ferret, Python, or R.

Merit criteria:

- Proven track record of publishing high-quality scientific articles in peer-reviewed journals.
- Excellent command of written and spoken English.
- Proficiency with advanced statistical methods for analyzing complex ecosystem and environmental datasets.
- Deep understanding of marine ecosystem processes, particularly within coastal regions.
- Understanding of underwater light field and its modulating factors
- Familiarity with climate dynamics and drivers specific to the Baltic Sea region.
- Ability and willingness to actively engage in interdisciplinary collaborations.

What does the IOW offer?

The IOW offers you a varied workplace in the immediate vicinity of the Baltic Sea with flexible working arrangements, e.g. the possibility of working from home or remotely, and qualification opportunities for the English/German language. A very good infrastructure with modern laboratory and office equipment, including our own research vessel, form the framework for the best working conditions.

How do we promote equal opportunities?

Our job offers are aimed at all people regardless of their gender. Research benefits from a diverse working environment, which is why we have signed the Diversity Charter.
IOW aims to specifically promote women in areas where they are underrepresented. For this purpose, the institute has given itself a plan to promote equality (plan for the equal opportunities committee at the IOW) and has repeatedly been awarded the Total E-Quality award for its commitment (website TOTAL E-QUALITY e. V.) Female applicants are given preference in the case of equal qualifications and suitability, as the position belongs to a working group in which women are underrepresented. You can find an overview of our measures for equal opportunities and for improving the compatibility of work and family on our website.

We give preference to applications from disabled persons with equal professional and personal suitability. Please mention the disability or equality in your letter of application and enclose a copy of the relevant certificate.

How to apply?

Please submit your complete application, including a cover letter describing your motivation and qualifications and a current CV highlighting relevant experience and publications. Combine all application documents into **a single PDF file** and send them to us **until 5. May 2025**, quoting the keyword: **PHY 03/2025** to:

bewerbung.physik@io-warnemuende.de

or:
Leibniz Institute for Baltic Sea Research Warnemünde
Human Resources Department
Seestraße 15
18119 Rostock
Germany

The interviews are expected to take place online (via Zoom) on **19. May 2025**

Unfortunately, we cannot cover your application and travel costs. Online participation in the job interview is possible.

For further information please contact:

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or visit our website: www.io-warnemuende.de.