Job announcement (Phy 02/2021)

The Department of Physical Oceanography and Instrumentation at the Leibniz-Institute for Baltic Sea Research Warnemünde (IOW) is offering a

Scientist position as
Software developer in the field of real-time data management

within a project of the German Marine Research Alliance (DAM). The position is to be filled full-time (40h per week) until 31.12.2022. The remuneration is according to EG 13 TV-L. The position can also be filled part-time with at least 30 working hours per week.

The IOW is an independent institute of the Leibniz Association, engaged in system analysis of coastal and marginal seas, with special focus on the Baltic Sea. The scientists of the four departments (Physical Oceanography and Instrumentation, Marine Chemistry, Biological Oceanography and Marine Geology) cooperate within the framework of a joint research program. A marine instrumentation working group within the physical oceanography section of the IOW supports the use of complex marine metrology on research vessels as well as on automatic stations and autonomous underwater measurement systems across sections.

As part of a third-party funded project of the German Marine Research Alliance (DAM), the candidate will be responsible for the conceptual design and development of a software system for data processing and quality assurance of oceanographic data. The DAM promotes the cooperation of German institutions for marine research and aims to strengthen the sustainable use of oceans and seas through research, infrastructures and knowledge transfer. In particular, the aim of this project is to strengthen networking between the partners involved and thus to provide open and sustainable access to "underway" research data from the German research vessel fleet. The DAM thus provides an important building block for the development of the national research data infrastructure (NFDI).

Job description
The candidate will work in the field of data management for complex underwater probe systems (so-called CTD rosette for the determination of conductivity as well as temperature and pressure) in the instrumentation group. Working in between technology development and applied science, a holistic workflow from data acquisition with oceanographic probes to processing and automated quality assurance (flagging), the transfer of data into decentralized and central databases as well as simplified visualization will be developed within the project work. Essential tasks are a scientific analysis of the previous processes of data acquisition, processing and archiving when using so-called CTD rosettes, their evaluation and
systematization as well as the development and implementation of a holistic system architecture for data acquisition, data processing, meta-data linking, quality assurance, archiving and simplified provision of oceanographic data as well as the operation of specified interfaces and scientific services.

The complex, IT-related tasks require a basic familiarization with the functionality of modern underwater sensor systems as well as their sensors and information-technical interfaces. After appropriate familiarization, a basic understanding of the most important oceanographic and meteorological measurement parameters and their dynamics is expected, especially under the special conditions of the Baltic Sea. Based on this, a functional demonstrator is to be developed until it is ready for use, which, by means of independent software developments, will enable the entire data processing for high-precision probes with the highest possible dynamics and the best possible error correction, including the linking with meta data and the associated visualization and archiving processes in near real time. The software developments are to be extensively tested and evaluated in practical use in comparison to previous data processing.

**Job profile**

- Abstraction and analysis of previous data acquisition, processing, and archiving processes in the use of high-precision CTD probes in oceanography.
- Scientific evaluation and systematization of the complicated mathematical sensor signal conditioning, error correction and fitting processes, and information technology processing and archiving procedures to date.
- Independent software developments for the entire data processing with oceanographic high-precision probes with best possible dynamics and error correction.
- Comprehensive testing of the stack and software developments in comparison to the previous data processing for CTD probes in practical use.

**Qualifications**

**Basic requirements:**

- Good or very good university degree (Master, Diploma) in a relevant field of study such as computer science, business informatics, information technology, electrical engineering, environmental engineering or a comparable field of study
- Excellent knowledge of modern programming languages (especially Java, Python, and JavaScript) and modern software development methodologies
- Experience in developing scalable web services with Docker, Python (Flask) and Node.js
- Very good language skills in English
- Very good teamwork and communication skills
Additional requirements:

- Knowledge and skills in data management and hardware/sensor integration
- Practical skills in data science and machine learning
- Experience in the field of environmental monitoring and sensor technology

Applicants are requested to send their meaningful application documents (cover letter, curriculum vitae, copies of certificates, description of relevant activities and experience, any certificates or references) by 31.03.2021, quoting the keyword Phy 02/2021, to:

bewerbung.physik@io-warnemuende.de

or

Leibniz Institute for Baltic Sea Research Warnemuende
Dept. Human Resources
Seestrasse 15
D-18119 Rostock
Germany

Interviews are expected to take place in week 15 2021.

Applications of disabled persons with the same professional and personal qualification will be treated preferentially. Please indicate a handicap in the cover letter and enclose the relevant certificate.

The job advertisement is aimed at all persons regardless of their gender. The IOW promotes equal opportunities and was awarded the Total Equality Award (TEQ) in 2013, 2016 and 2019. An overview of our equal opportunities measures and to improve the compatibility of work and family can be found at http://www.io-warnemuende.de/gleichstellung.html. Our family office, equipped with computer workstation and toys, offers parents the opportunity to take children to the IOW for shorter time periods. Applications of female candidates are particularly encouraged and will be treated preferentially in case of equal qualifications and suitability, as the open position belongs to a structural unit in which women are underrepresented.

The Leibniz Institute for Baltic Sea Research offers a varied work in the immediate vicinity of the Baltic Sea. Interdisciplinary research topics on the Baltic Sea ecosystem, broad in-house expertise in physical, chemical and biological oceanography, and marine geology, state-of-the-art-laboratory equipment and infrastructure together with modern facilities provide an excellent framework for best research conditions.

Application and travel costs cannot be reimbursed unfortunately.
For further information please contact:

Dr.-Ing. Robert Wagner (robert.wagner@io-warnemuende.de)
or visit our website: www.io-warnemuende.de