

Job Advertisement 2024-23

13.12.2024

At the Leibniz Institute of Atmospheric Physics (IAP), a full-time position (40h/week) in the Department “Modelling of Atmospheric Processes” is available as

Postdoctoral scientist “Atmosphere-ionosphere variability above the Baltic Sea region” (f/m/d)

The position is offered for **four years** with a start date on April 1, 2025. The salary is according to class EG 13 TV-L.

This position is part of the project “Atmospheric Impact on the R-Mode Positioning System” with participation from IAP, the University of Greifswald, the DLR Institute for Solar-Terrestrial Physics, the DLR Institute of Communications and Navigation, and the Leibniz Institute for Baltic Sea Research Warnemünde.

Satellite-based navigation systems (GNSS) provide essential services for position determination and time synchronization, but synthetic interferences often disrupt the GNSS signals in the Baltic Sea area, which can have catastrophic consequences for air or ship traffic. This collaborative effort aims to establish a backup system based on the R-Mode (Ranging Mode) technology that provides sufficiently accurate position and time data in the event of a GNSS disruption. Waves emitted by R-Mode transmitters travel close to the surface (ground wave) or they are reflected at the E layer (90-130 km). Superposition of the latter signal with the ground wave leads to a deterioration of R-mode accuracy. This is of little concern during daytime, as the wave is damped when passing the D layer (60-90 km). However, at night, but also when there are fluctuations in the D layer, this attenuation disappears or is reduced.

Your Tasks:

The department Modelling of Atmospheric Processes develops the upper-atmosphere version of the general circulation model ICON, i.e. UA-ICON. The successful candidate will conduct UA-ICON simulations in two different configurations. Regional high-resolution simulations are carried out with the focus region of the Baltic Sea, which will

be validated using all existing observations to quantify wave dynamics in the D and E layer. Global simulations will be used to analyze the influence of long-term changes and large-scale phenomena on the dynamics in the D and E layers, as well as the impacts of solar and geomagnetic activity on atmospheric density in these regions. The successful candidate will also quantify the impact of large-scale circulation changes and atmospheric waves on the chemistry of the ionosphere.

Your Qualifications / Experience:

- A PhD in Meteorology, Physics, Geoscience or a related field
- Interest in numerical modelling on HPC systems
- Proficiency in the analysis of large data sets
- Proficiency in English as a working language
- Excellent communication and team work skills

What we offer:

- an attractive working place near the Baltic Sea
- modern equipment
- engagement in an international work environment
- participation in the company pension scheme (VBL)
- employment relationship in accordance with the provisions of the Collective Agreement for the Public Service of the Federal States (TV-L)
- flexible working hours and mobile working within the framework of the applicable regulations
- family office

Who we are: Our institute's mission is to advance the scientific understanding of the mesosphere and lower thermosphere, focusing on atmospheric physics, instrumentation, data analysis, and modeling. As part of the Leibniz Association, we prioritize research that addresses pressing societal challenges, such as climate change, while fostering an inclusive and supportive work environment. Our partnerships include collaborations with the University of Rostock and other research institutions worldwide, ensuring a strong network for academic exchange and development.

Interested?

Please send your application as one pdf with complete, informative documents, including

- motivational letter
- curriculum vitae
- diploma with indication of final grade
- copy of certificates, possibly testimonies and references

under indication of the keyword: **2024-23**

to: personal@iap-kborn.de

Applications received before January 31, 2025 will receive full consideration, but the position will remain open until filled. Unfortunately, application and travel costs cannot be covered by the state of Mecklenburg-Vorpommern. By submitting your application, you consent to the processing of your personal data for the purpose of the application process.

Equal Opportunities: We pursue a family-friendly personnel policy, and strive to increase the proportion of women. Qualified women are therefore explicitly encouraged to apply. People with disabilities are given preference if they have the same qualifications.

Contact: For further information, please contact Prof. Dr. Claudia Stephan (CCStephan@iap-kborn.de) or inform yourself under www.iap-kborn.de.

