Heidelberg University is a comprehensive university with a strong focus on research and international standards. With around 30,000 students and 8,400 employees, including numerous top researchers, it is a globally respected institution that is also of outstanding economic importance for the Rhine-Neckar metropolitan region.

The following positions (TV-L E13, 50% each) are to be filled at the Institute of Environmental Physics for a limited period of initially 2 years as soon as possible:

Two PhD student positions: Boundary layer dynamics from observations and modelling for wind energy applications

The Institute of Environmental Physics conducts research on the topics atmospheric modeling and observations. We are looking for two enthusiastic PhD students who are interested in fundamental research on boundary layer meteorology tailored to the needs for wind energy. The positions are part of the exciting research and transfer project MiRadOr led by University Heidelberg with well-known European partners from research and globally leading industry partners for wind energy. Through MiRadOr, you will be at the forefront of developing knowledge and technology to help accelerate the expansion of renewable energy production through fundamental research in atmospheric physics, and you will gain an international network through the partners for prospects of a career in industry and/or research.

MiRadOr is based on a one-year long field campaign with remote sensing instruments in northern Germany and includes an intense observation period during summer where our team will be in the field. The work will include comparisons of the new MiRadOr measurements and model output from atmospheric models with focus on stability metrics and boundary layer dynamics. Evaluations of the model results against observational datasets of different origin and format are expected. The successful candidates will have a leading role for the collection, transfer and management of measurement data for the field campaign of MiRadOr. As successful candidates, you will collaborate with MiRadOr partners in research and industry and report findings to the consortium. You will be a member of the new research team of Prof. Dr. Stephanie Fiedler who leads MiRadOr.

Your tasks:

- You will be responsible for performing and analysing measurements for the field campaign, including launching radiosondes during the intense observation period in summer in northern Germany.
- You will acquire the necessary skills for analysing meteorological conditions including stability metrics and low-level jets in atmospheric models and remote sensing measurements.
- You will be responsible for the reporting and presentation of results to the MiRadOr project partners in research and industry.
- You will write scientific publications and present the findings at international scientific conferences.
- **Position 1 (IUP-2025-PhD1):** You will co-create and perform new model experiments with ICON, manage and document the model output, be responsible for the quality control of our experiments, and have a focus on comparisons to other model output and observational data of MiRadOr.
- **Position 2 (IUP-2025-PhD2):** You will focus on the analysis of the MiRadOr measurement data, manage and document the measurement data, work with partners for the retrieval development and evaluation, and collaborate with others for data comparisons.

Your profile:

- You hold a master degree in physics, climate sciences, meteorology or a closely related field, preferably obtained within the last year, and have an interest in atmospheric observations and/or modeling for the atmospheric boundary layer and wind energy applications.
- You have very good skills in programming for data analysis (python, shell scripts, FORTRAN and/or comparable) of different formats (e.g., netCDF, ASCII) and from different sources (observation, model output).
- You are interested in applying methods for automated detections of weather (e.g., cyclones, jets, frontal systems) which can include machine learning methods.

- You have first experience in scientific research practices of the field, e.g., obtained through specialised master courses (e.g., remote sensing, programming, modeling) and/or a master thesis in environmental physics.
- You have achieved very good results in education and training.
- You are enthusiastic and enjoy working both in a team and on your own, and you want to further develop your skills in the sense of lifelong learning.
- You have very good oral and written English skills (German is not mandatory) and the willingness for inter-/national travel to collaborators and conferences.

We offer:

- An exciting research project at the forefront of measurement techniques for wind energy applications based on new fundamental research for relevant meteorological conditions.
- an internationally active research team on climate, aerosols and modelling based in Heidelberg.
- a young, motivating and dynamic research team in a stimulating and internationally recognised environment for excellent research.
- a modern research infrastructure, offers for additional training support and mentoring programs for a successful start of your career at Heidelberg University.
- the appropriate financial framework and access to computing resources for our joint successes.
- freshly refurbished working rooms with modern computers and laboratories for experimental field work in environmental physics.
- a life in a beautiful historic city with diverse offers for leisure and sport, good traffic connections, and a vibrant international scene.

The position is not divisible due to the requirements of deliverables according to project plans. Depending on qualifications, remuneration will be up to pay grade E13 TV-L.

We look forward to receiving your electronic application with the usual documents (CV, motivation letter, certificates, etc.) in a single PDF file by e-mail to job_application@iup.uni-heidelberg.de stating the job identifier “IUP-2025-PhD1” or “IUP-2025-PhD2” to indicate your preference. The start of MiRadOr is planned for 1 April 2025. A first cutoff date for applications is therefore 31 March 2025 with a first round of interviews in the first week of April, but the positions remain open for applications until they are filled. The start date of the position is flexible and ideally as soon as possible.

Heidelberg University stands for equal opportunities and diversity. Persons with severe disabilities will be given preference if they are equally qualified. Information on job advertisements and the collection of personal data is available at www.uni-heidelberg.de/en/job-market.