PhD Position (3-years) at KIT in the project “HailDetect”

Institute of Meteorology and Climate Research (IMK), Karlsruhe Institute of Technology (KIT)

Severe convective storms associated with large hail often cause significant damage to assets such as buildings, vehicles, photovoltaic systems, and agriculture. Despite the high societal relevance, the methods used to detect hail signals in radar data and subsequent warnings are still subject to large uncertainties.

The goal of HailDetect is to improve existing methods for hail detection in dual-pol radar data, including hailstone size estimation. This will be achieved by further methodological developments that consider the spatial and temporal development of the cells during their life cycle, by incorporating additional data sets (lightning detections, convective parameters from NWP) into existing hail detection algorithms, and/or by running a hail growth model in combination with radar-based hail trajectory and melting simulations. Particularly the latter is anticipated to be a significant step forward to improving the accuracy of hail warnings. HailDetect is linked to the large-scale field experiment Swabian MOSES 2.0 conducted in the summer of 2023 with a focus on severe convective storms in SW Germany, a region highly exposed to thunderstorm and hail hazard and risk. To capture the dynamics and thermodynamics of local storms as well as properties of hailstorms and surface hail distributions, additional observations will be conducted by a mobile "storm chasing" team (swarmsonde/hailsonde, aerial photography by drones, HailSens disdrometer and others), of which you will be a part.

We are looking for a highly motivated candidate, ideally with a background in convective storms and/or radar data analysis. The candidate should hold a Master’s degree in meteorology or physics. Basic knowledge in scientific programming (e.g. Python, Matlab, R) and statistics is required.

Salary category: 75% TV-L13, depending on the fulfillment of professional and personal requirements.

Start date: as soon as possible

For further information you can contact Prof. Michael Kunz (michael.kunz@kit.edu).

We offer an exciting and dynamic work environment at the Karlsruhe Institute of Technology (KIT), one of the largest institutions of research and higher education in natural sciences and engineering in Europe. The KIT Institute of Meteorology and Climate Research (IMK) is one of largest research institutes for Atmospheric Sciences in Germany. The Working Group "Atmospheric Risks", which will host the PhD candidate, has a research focus on severe convective storms, climate change, and risk. KIT actively supports equality, diversity and inclusion, and as an equal opportunity employer, KIT explicitly encourages applications from women as well as from others with diverse backgrounds and perspectives. Applicants with disabilities will be preferentially considered if suitably qualified.

Applications for this position should be sent to Michael Kunz (Michael.Kunz@kit.edu) no later than 24 April 2023. Applications should include (in one pdf file) a cover letter stating your scientific interests and motivation to apply for this position, CV, certificates/transcripts of records, preferred starting date, and names of at two referees.

Candidates will be short-listed based on the application materials., the top ranked candidates will be interviewed digitally and the references will be collected.