

PrePEP 2025

Conference on Precipitation Processes – Estimation and Prediction

Title: Open Radar – Open Source software tools for radar data processing
Instructor: Kai Mühlbauer, University of Bonn E-Mail: kai.muehlbauer@uni-bonn.de
Duration: 9 am - 5 pm including breaks
Format: in-person only
Location: Dept. of Meteorology, Auf dem Hügel 20, 53121 Bonn
Abstract: <p>The course will discuss the principles of open science and provide an overview of the most mature and exciting software packages available for radar data processing (eg. wradlib, PyART, tbc) and how they connect with the scientific software stack. The course will be built with Jupyter Notebooks as hands-on approach for interactive user experience. The main course programming language is Python. Amongst others, special emphasis will be paid to the “xradar” package, implementing the newly adopted FM301/CfRadial2 WMO standard. These tools will be used to showcase how to harness the power of xarray and dask for efficient, distributed radar data processing. Finally, participants will be enabled to implement their own algorithms. Therefore, guidance will be given to create workflows for different aspects of weather radar data processing using open datasets of interest for participants (e.g. the Ahrtal flooding in 2021). Participants are invited to make their suggestions.</p>
Learning objectives: <ul style="list-style-type: none">• Open radar and open radar science• Reading and inspecting weather radar data using xradar• Radar data processing• Learn about algorithm development• Gain knowledge about processing workflows
Technical requirement: <ul style="list-style-type: none">• Participants should bring and use their own laptops
Prior knowledge required from participants: <ul style="list-style-type: none">• Basic or intermediate knowledge of Python



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