PrePEP 2025

Conference on Precipitation Processes – Estimation and Prediction

UNIVERSITÄT BONN

RealPEP

PROM SPP 2115

SINFONY

17 – 21 March 2025, Bonn, Germany

https://indico.scc.kit.edu/event/prepep/

PrePEP discusses new approaches to improve the monitoring, understanding, nowcasting and prediction of precipitation processes.

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DFG Deutsche Forschungsgemeinschaft
German Research Foundation

Photo: University of Bonn, main building © University of Bonn / Volker Lannert

RealPEP

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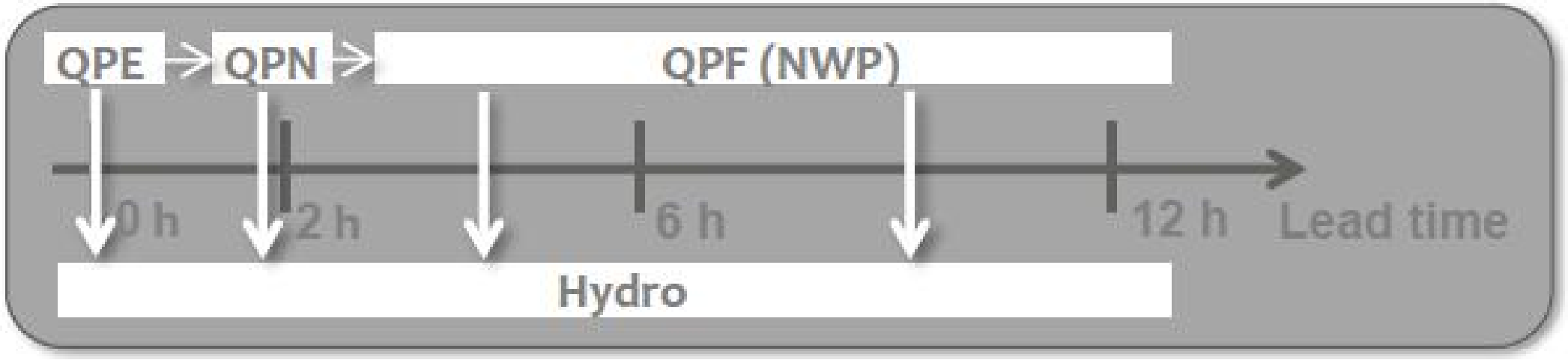
- Near-Realtime Quantitative Precipitation Estimation and Prediction -

exploit the full observational state evolution information at all stages to improve Flash floods prediction



UNIVERSITÄT BONN
KIT Karlsruher Institut für Technologie
JÜLICH FORSCHUNGSZENTRUM
Freie Universität Berlin
DWD

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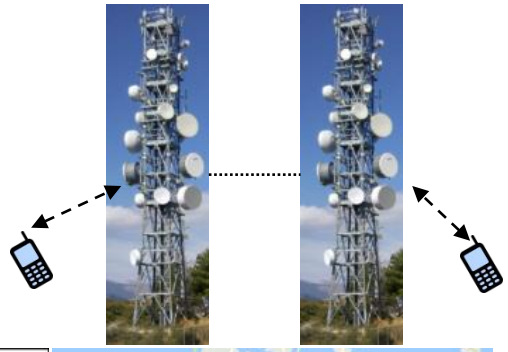
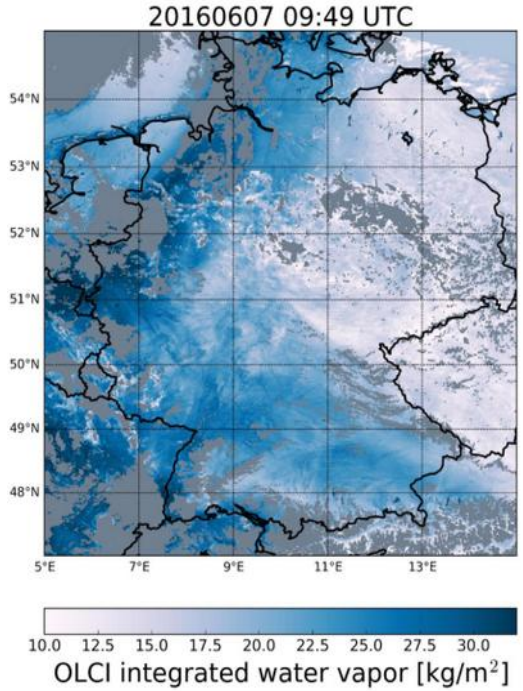
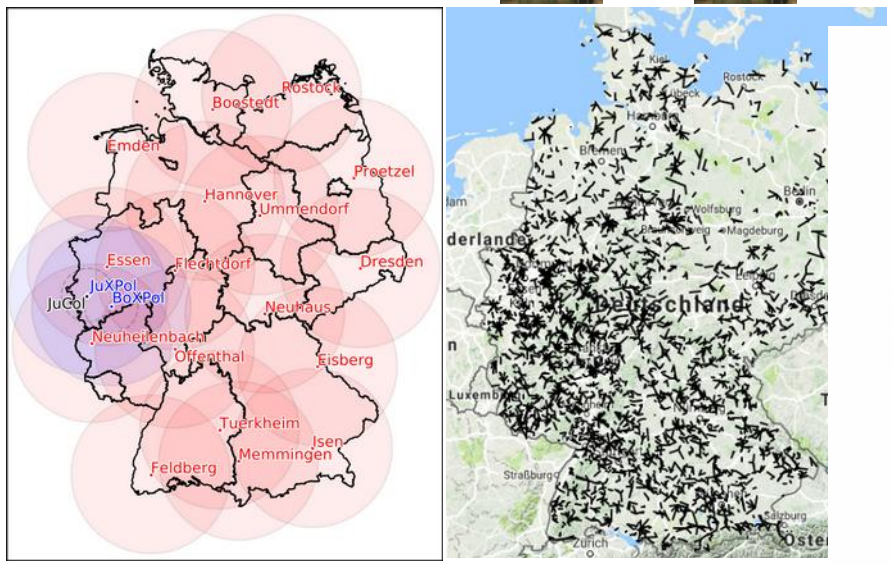


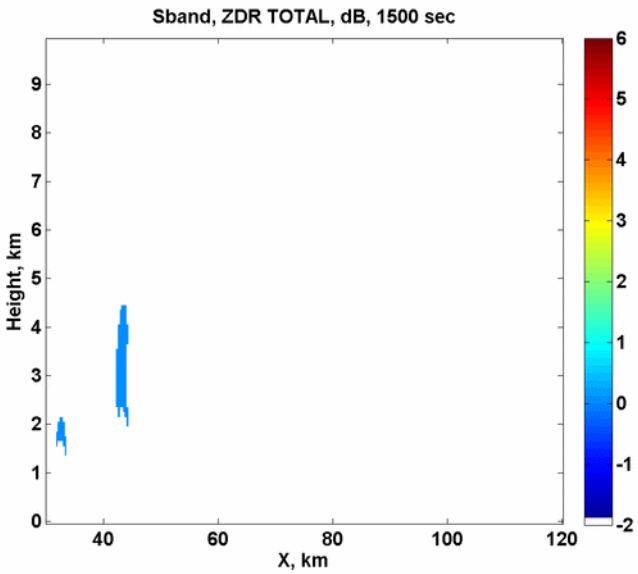
Convective Initiation





Quantitative Precipitation Estimation (

Quantitative Precipitation Nowcasting (QPN)



Courtesy of A. Khain

Cosmic-Ray Neutron Sensor

h Flood Prediction (Hydro)

SPP2115: Polarimetric Radar Observations meet Atmospheric Modelling (PROM)

Overall goal: *Fusion of Radar Polarimetry and Numerical Atmospheric Modelling Towards an Improved Understanding of Cloud and Precipitation Processes*

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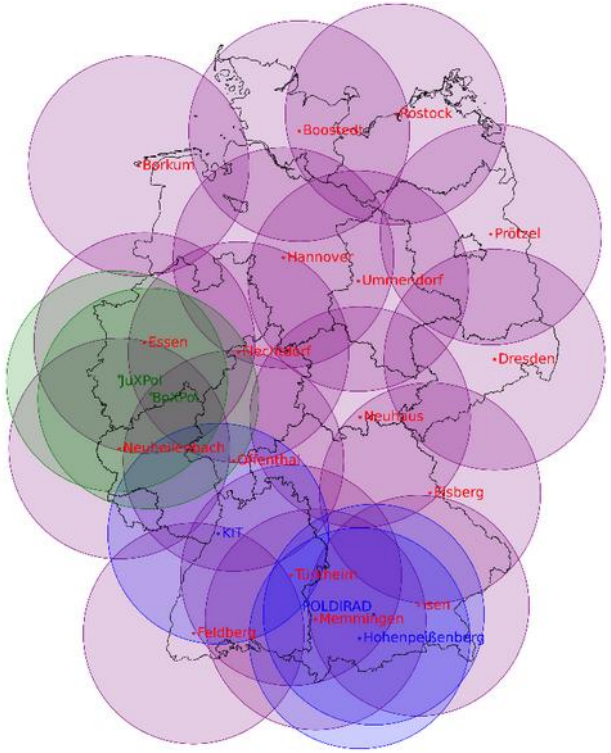
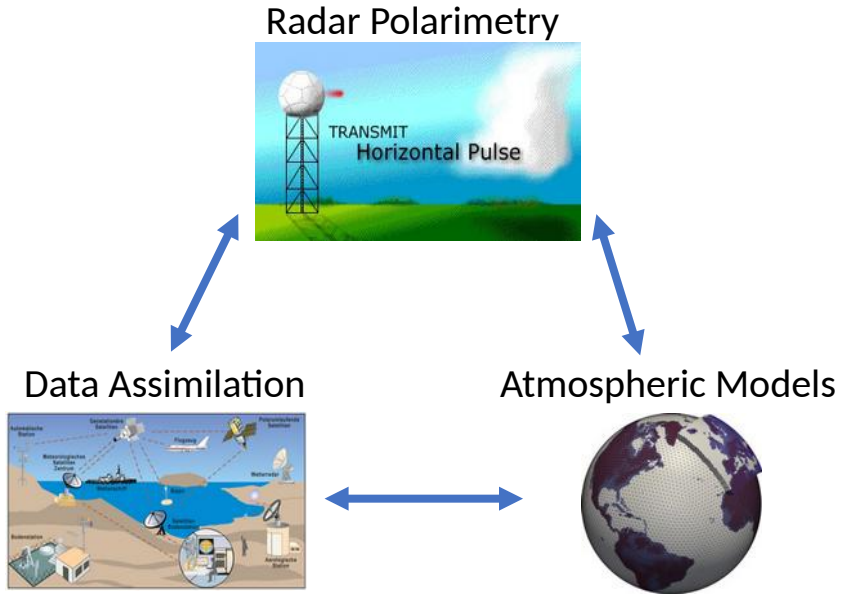
PROM: Motivation & Tools

Cloud and precipitation processes are a main source for uncertainties in weather prediction and climate change projections, which largely result from **limited scientific understanding** and the **missing of sufficiently detailed observations.**

New Observations



Model-Observation Fusion



Seamless INtegrated FOrecastiNg sYstem

Talk by the head of SINFONY, U. Blahak in Session 4B on Wednesday at 11:15:

Current status of SINFONY – The combination of nowcasting and numerical weather prediction for forecasting convective events at DWD

Representing Organizing Committee

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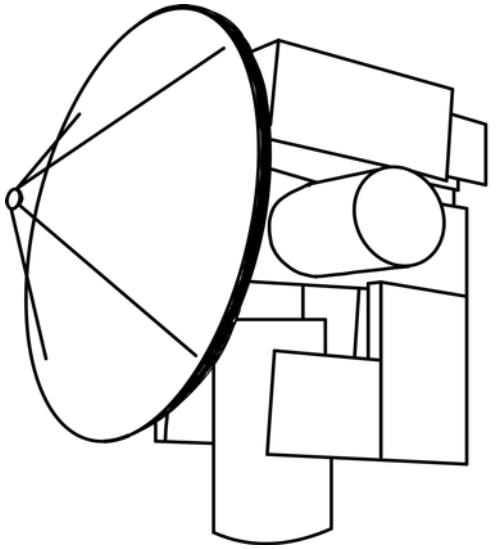
PROM SPP 2115

SINFONY

- PD Dr. Silke Trömel, University of Bonn
- Dr. Ulrich Blahak, Deutscher Wetterdienst Offenbach
- Prof. Dr. Roland Potthast, Deutscher Wetterdienst Offenbach
- Dr. Christian Chwala, Karlsruhe Institute of Technology, Campus Alpin
- Prof. Dr. Clemens Simmer, University of Bonn
- Assistant Prof. Dr. Ricardo Reinoso-Rondinel, KU Leuven-KMI,
- PD Dr. Miklos Szakall, University of Mainz
- Kathrin Michel, University of Bonn

Radar history at University of Bonn



1961	founding of Meteorological Institute by Prof. Dr. Hermann Flohn
1966	installation of the 1st radar at a German university
1997	thorough modernisation
1998	continuous measurements, first every 15, later every 10, nowadays every 5 min
2003	Doppler ability
2008	installation of polarimetric X band radar BoXPol
2023	✝BoXPol, stop of operations

Organization

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SINFONY

- Upload your presentations the day before
- Stay in time, time slots for talks are 12 min + 3 min discussions
- Posters are displayed the whole week, poster session with authors in attendance is scheduled for tomorrow
- Your acceptance to make PrePEP presentations publicly available after conference?
- Market place has several options for lunch
- After Icebreaker, we need to leave at 21:30 latest
- Bus for Ahrtal excursion on Wednesday leaves at 14:00, i.e. later than previously scheduled
- WLAN access: Keep your password for the entire week and log in again daily

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Overview of sessions and their scope

Session 1: From Classical to Integrated Remote Sensing

1.A New observation strategies for clouds and precipitation (multi-frequency, spectral polarimetry, multi-sensor)
1.B New retrieval and estimation techniques (e.g. fusion, Bayesian)

Session 2: Enhancing Process Understanding

2.A New observations for modeling and parameterization development
2.B Model parameter estimation

Session 3: Prediction Scales and Model Development

3.A Modeling elements in nowcasting
3.B Hectometer scale modeling for precipitation

Session 4: Seamless Prediction

4.A Data assimilation integrating nowcasting and new observations
4.B Blending and probabilistic techniques based on nowcasting and NWP ensembles

Session 5: Precipitation and Hydrological Models

5.A Extreme precipitation events
5.B Evaluation, verification and interfaces

Contact: *prepep2025@uni-bonn.de*