

# PrePEP 2025

## Precipitation Processes - Estimation and Prediction

### Oral program

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| <b>Day 3</b>       | <b>Wednesday 19 March 2025</b>  |  |    |
| <b>Keynote</b>     | 8:45-9:15   | <b>How ML is transforming our approach to seamless weather forecasting</b><br>Keynote speaker: Daniele Nerini (MeteoSwiss)<br>1) Daniele Nerini (MeteoSwiss) and MeteoSwiss colleagues   |    |
| <b>Session 4 A</b> | <b>Seamless Prediction: Data assimilation integrating nowcasting and new observations</b><br>Chair 1: Ulrich Blahak, Chair 2: Nora Linn Strotjohann |  |    |
|                    | 1   | 9:15-9:30<br><b>Assimilation of Lightning and Reflectivity Texture Fraction in ICON-LAM</b><br>1) Ulrich Blahak (Deutscher Wetterdienst)<br>2) Lisa Neef* (Deutscher Wetterdienst)<br>3) Klaus Stephan (Deutscher Wetterdienst)<br>4) Christian Welzbacher (Deutscher Wetterdienst)  | 23 |
|                    | 2   | 9:30-9:45<br><b>Assimilation of 3D polarimetric microphysical retrievals using the operational ICON model framework of DWD</b><br>1) Armin Blanke* (Institute of Geosciences, Meteorology Section, University of Bonn)<br>2) Roland Potthast (Deutscher Wetterdienst)<br>3) Silke Trömel (Institute of Geosciences, Meteorology Section, University of Bonn) | 48 |
|                    | 3   | 9:45-10:00<br><b>Commercial Microwave Link (CML) Data Assimilation with the LETKF</b><br>1) Klaus Vobig* (Deutscher Wetterdienst)<br>2) Christian Chwala (KIT (IMK-IFU))<br>3) Julius Polz (KIT (IMK-IFU))<br>4) Roland Potthast (Deutscher Wetterdienst)  | 72 |

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| 4                   | 10:00-10:15 | <b>Evaluate the Impact of Dual-Polarization Radar Data Assimilation Using Observation Operators</b><br><br>1) Chin-Chuan Chang* (Department of Atmospheric Sciences, National Central University)<br>2) Kao-Shen Chung (Department of Atmospheric Sciences, National Central University)<br>3) Chen-Hao Lan (National Center for Atmospheric Research, Colorado)<br>4) Bing-Xue Zhuang (Department of Atmospheric and Oceanic Sciences, McGill University)      | 121 |
| 5                   | 10:15-10:30 | <b>Latest Result of Including ZDR Column for Enhanced Radar Data Assimilation at German weather Service (DWD)</b><br><br>1) Ulrich Blahak (Deutscher Wetterdienst)<br>2) Kobra Khosravian* (Deutscher Wetterdienst)<br>3) Jana Mendrok (Deutscher Wetterdienst)<br>4) Klaus Stephan (Deutscher Wetterdienst)<br>5) Alberto de Lozar (Deutscher Wetterdienst)  | 127 |
| <b>Coffee break</b> |             | 10:30-11:00   |     |
| <b>Session 4 A</b>  |             | <b>Seamless Prediction: Data assimilation integrating nowcasting and new observations</b><br><br>Chair 1: Axel Seifert, Chair 2: Armin Blanke   |     |
| 6                   | 11:00-11:15 | <b>High resolution data assimilation in the GLORI Project</b><br><br>1) Virginia Poli* (Agenzia ItaliaMeteo / Arpae Emilia-Romagna)<br>2) Pier Paolo Alberoni (Arpae Emilia-Romagna)<br>3) Davide Cesari (Arpae Emilia-Romagna)<br>4) Alfonso Ferrone (Arpae Emilia-Romagna)<br>5) Thomas Gastaldo (Agenzia ItaliaMeteo / Arpae Emilia-Romagna)<br>6) Chiara Marsigli (Agenzia ItaliaMeteo / Arpae Emilia-Romagna)<br>7) Enrico Minguzzi (Arpae Emilia-Romagna) | 128 |
| 7                   | 11:15-11:30 | <b>The impact of GNSS-ZTD and lightning data assimilation on the short-term precipitation forecast over Italy</b><br><br>1) Stefano Dietrich (CNR-ISAC)<br>2) Stefano Federico* (ISAC-CNR)<br>3) Rosa Claudia Torcasio (CNR-ISAC)<br>4) Giovanna Venuti (Dept. Civil and Environmental Engineering, Politecnico di Milano)  | 138 |
| <b>Session 4 B</b>  |             | <b>Seamless Prediction: Blending and probabilistic techniques based on nowcasting and NWP ensembles</b>   |     |
| 1                   | 11:30-11:45 | <b>Current status of SINFONY – The combination of nowcasting and numerical weather prediction for forecasting convective events at DWD</b><br><br>1) Ulrich Blahak* (Deutscher Wetterdienst)<br>2) Researcher-team of the project SINFONY (Deutscher Wetterdienst)  | 118 |

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| 2                |             | <p><b>Project IMA: seamless predictions at the Royal Meteorological Institute of Belgium</b></p> <p>1) Lesley De Cruz* (Royal Meteorological Institute of Belgium - Vrije Universiteit Brussel)<br/> 2) Michiel Van Ginderachter (Royal Meteorological Institute of Belgium)<br/> 3) Maarten Reyniers (Royal Meteorological Institute of Belgium)<br/> 4) Alex Deckmyn (Royal Meteorological Institute of Belgium)<br/> 5) Simon De Kock (Vrije Universiteit Brussel - Royal Meteorological Institute of Belgium)<br/> 6) Idir Dehmous (Royal Meteorological Institute of Belgium)<br/> 7) Wout Dewettinck (Royal Meteorological Institute of Belgium)<br/> 8) Felix Erdmann (Royal Meteorological Institute of Belgium)<br/> 9) Ruben Imhoff (Deltares)<br/> 10) Arthur Moraux (Royal Meteorological Institute of Belgium)<br/> 11) Ricardo Reinoso-Rondinel (KU Leuven-KMI)<br/> 12) Mats Veldhuizen (Koninklijk Nederlands Meteorologisch Instituut)<br/> 13) Joseph James Casey (Vrije Universiteit Brussel)<br/> 14) Loic Faleu Kemajou (Royal Meteorological Institute of Belgium)<br/> 15) Anshul Kumar (Royal Meteorological Institute of Belgium)<br/> 16) Viktor Van Nieuwenhuize (Royal Meteorological Institute of Belgium)</p> | 122 |
| 3                |             | <p><b>Seamless Combination of Object-Based Probabilistic Nowcasting and NWP Ensemble of Convective Cells From KONRAD3D</b></p> <p>1) Lukas Josipovic* (Deutscher Wetterdienst)<br/> 2) Nora-Linn Strotjohann (Deutscher Wetterdienst)<br/> 3) Gregor Pante (Deutscher Wetterdienst)<br/> 4) Ulrich Blahak (Deutscher Wetterdienst)</p>  | 19  |
| 4                |             | <p><b>Seamless Integrated Rainfall Forecasts using Nowcasting and NWP-Ensembles</b></p> <p>1) Christian Berndt* (Deutscher Wetterdienst)<br/> 2) Ulrich Blahak (Deutscher Wetterdienst)<br/> 3) Martin Rempel (Deutscher Wetterdienst)<br/> 4) Markus Schultze (Deutscher Wetterdienst)</p>   | 44  |
| <b>Excursion</b> | 12:30-18:00 | <b>Excursion to the Ahr valley with guided hydrological tour, departure at 12.30</b>  |     |