

PrePEP 2025

Precipitation Processes - Estimation and Prediction

Poster program

Day 2	Tuesday 18 March 2025, 15:15-18:00	
	Poster Session, Aula	
		Abstract ID
Session 1 A	From Classical to Integrated Remote Sensing New observation strategies for clouds and precipitation (multi-frequency, spectral polarimetry, multi-sensor)	
	Estimating precipitation characteristics using disdrometer and RADAR observations 1) Nikolaos Antonoglou* (Deutscher Wetterdienst) 2) Manuel Werner (Deutscher Wetterdienst) 3) Sophie Löbel (Deutscher Wetterdienst) 4) Ulrich Blahak (Deutscher Wetterdienst)	74
	Ice particle characterisation with the VISSS: insights from field campaigns and statistical analysis 1) Veronika Ettrichrätz* (Leipzig Institute for Meteorology (LIM), Leipzig University)) 2) Heike Kalesse-Los (Leipzig Institute for Meteorology (LIM), Leipzig University)) 3) Anton Kötsche (Leipzig Institute for Meteorology (LIM), Leipzig University)) 4) Maximilian Maahn (Leipzig Institute for Meteorology (LIM), Leipzig University)) 5) Nina Maherndl (Leipzig Institute for Meteorology (LIM), Leipzig University)) 6) Nils Pfeifer (Leipzig Institute for Meteorology (LIM), Leipzig University))	109
	Introducing the maximum diameter as a new 2DVD variable for the investigation of aerosol-cloud-interaction 1) Tom Gaudek* (TROPOS) 2) Albert Ansmann (TROPOS) 3) Cristofer Jimenez (TROPOS) 4) Kevin Ohneiser (TROPOS) 5) Patric Seifert (TROPOS) 6) Andi Klamt (TROPOS) 7) Christopher Fuchs (ETHZ) 8) Jan Henneberger (ETHZ)	50

GPM-API: A Python Interface to Access the Global Precipitation Measurement Mission Satellites Data Archive 1) Gionata Ghiggi* (EPFL) 2) Alexis Berne (Environmental remote sensing laboratory, EPFL)	56
Evaluation of Traditional and Innovative Methods for Reflectivity Calibration in Meteorological Radar 1) Michael Frech (Meteorological Observatory Hohenpeißenberg, Deutscher Wetterdienst) 2) Alexander Myagkov* (Radiometer Physics GmbH) 3) Tatiana Nomokonova (Radiometer Physics GmbH)	97
Country-wide analysis of CML rainfall estimation in Zambia: Strengths, weaknesses and the way forward 1) Nico Blettner (KIT) 2) Christian Chwala* (KIT (IMK-IFU) / Uni Augsburg) 3) Harald Kunstmann (KIT / University of Augsburg)	104
Multi-frequency radar observations of mountainous precipitation during the CHOPIN campaign 1) Nicole Clerx* (Environmental Remote Sensing Laboratory, EPFL) 2) Romanos Foskinis (Environmental Remote Sensing Laboratory & Laboratory of Atmospheric Processes and their Impacts, EPFL) 3) Christophe Le Gac (Atmospheric Space Observations Laboratory, IPSL) 4) Julien Delanoë (Atmospheric Space Observations, IPSL) 5) Alexis Berne (Environmental remote sensing laboratory, EPFL)	110
Do crowdsourced data improve rainfall observations at the catchment scale? A Europe-wide assessment 1) Nathalie Rombeek* (Delft University of Technology) 2) Markus Hrachowitz (Delft University of Technology) 3) Davide Wüthrich (Delft University of Technology) 4) Remko Uijlenhoet (Delft University of Technology)	120
IcePolCKa - A Review 1) Gregor Köcher* (Meteorologisches Institut, Ludwig-Maximilians-Universität München) 2) Florian Ewald (Institut für Physik der Atmosphäre, Deutsches Zentrum für Luft- und Raumfahrt (DLR), Oberpfaffenhofen) 3) Martin Hagen (Institut für Physik der Atmosphäre, Deutsches Zentrum für Luft- und Raumfahrt (DLR), Oberpfaffenhofen) 4) Christian Heske (Institut für Physik der Atmosphäre, Deutsches Zentrum für Luft- und Raumfahrt (DLR), Oberpfaffenhofen) 5) Christoph Knote (Medizinische Fakultät, Universität Augsburg) 6) Eleni Tetoni (Formerly at: Institut für Physik der Atmosphäre, Deutsches Zentrum für Luft- und Raumfahrt (DLR), Oberpfaffenhofen) 7) Tobias Zinner (Meteorologisches Institut, Ludwig-Maximilians-Universität München)	126
Enhanced composition of X- and C-band radar data 1) Yann Dufournet (SkyEcho B.V.) 2) Albert Oude Nijhuis* (SkyEcho B.V.)	92
Flux Observations for Process-Informed Quantitative Precipitation Estimates 1) Pierre Kirstetter (The University of Oklahoma) 2) Aimee Matland-Dixon* (The University of Oklahoma) 3) Robert Palmer (The University of Oklahoma)	142

	The Vertical Distribution of Particle Shape (VDPS) Method: Introduction, Application and Evaluation 1) Audrey Teisseire* (TROPOS) 2) Anne-Claire Billault-Roux (EPFL) 3) Teresa Vogl (Leipzig Institute for Meteorology (LIM), Leipzig University)) 4) Patric Seifert (TROPOS) 5) Kevin Ohneiser (TROPOS) 6) Heike Kalesse-Los (Leipzig Institute for Meteorology (LIM), Leipzig University)) 7) Anton Kötsche (Leipzig Institute for Meteorology (LIM), Leipzig University)) 8) Maximilian Maahn (Leipzig Institute for Meteorology (LIM), Leipzig University)) 9) Veronika Ettrichrätz (Leipzig Institute for Meteorology (LIM), Leipzig University)) 10) Martin Radenz (TROPOS)	144
Session 1 B	From Classical to Integrated Remote Sensing: New retrieval and estimation techniques (e.g. fusion, Bayesian)	
	Addressing QPE Limitations with Solid State Transmitter X-Band Radar 1) Nicolás Andrés Chaves González* (Politecnico di Milano) 2) Alessandro Ceppi (Politecnico di Milano) 3) Carlo De Michele (Politecnico di Milano) 4) Giovanni Ravazzani (Politecnico di Milano) 5) Antioco Vargiu (ARPA Lombardia)	77
	DATA-DRIVEN CLASSIFICATION OF POLARISED WEATHER RADAR OBSERVATIONS 1) Maryna Lukach* (Royal Meteorological Institute of Belgium (RMI), National Centre for Atmospheric Science (NCAS), University of Leeds) 2) Lindsay Bennett (National Centre for Atmospheric Science (NCAS), University of Leeds) 3) David Dufton (National Centre for Atmospheric Science (NCAS), University of Leeds) 4) Mansi Mungie (University of Leeds) 5) Ryan Neely III (National Centre for Atmospheric Science (NCAS), University of Leeds)	40
	The GPM-GEO Archive: A Multimodal Remote Sensing Dataset for Cloud and Precipitation Research 1) Gionata Ghiggi* (EPFL) 2) Alexis Berne (Environmental remote sensing laboratory, EPFL)	57
	Non-parametric Estimation of Drop-Size Distribution Profiles Using Cloud Radar Spectral Polarimetry 1) Tatiana Nomokonova* (RPG Radiometer Physics GmbH) 2) Michael Frech (Meteorological Observatory Hohenpeißenberg, Deutscher Wetterdienst) 3) Alexander Myagkov (RPG Radiometer Physics GmbH)	100
	Maximum-Likelihood and Hamiltonian Monte Carlo Techniques to Doppler Moment Estimation for Precipitation using Weather Radar Echoes 1) Tworit Dash (Delft University of Technology) 2) Hans Driessen (Delft University of Technology) 3) Oleg Krasnov (Delft University of Technology) 4) Alexander Yarovoy (Delft University of Technology)	116

Session 2 A	Enhancing Process Understanding: New observations for modeling and parameterization development	
	Lack of INP and precipitation in supercooled stratus clouds over the Swiss Plateau might be explained by upwind INP activation and removal 1) Veronika Ettrichrätz (Leipzig Institute for Meteorology (LIM), Leipzig University)) 2) Christopher Fuchs (ETHZ) 3) Tom Gaudek (TROPOS) 4) Hannes Griesche (TROPOS) 5) Anja Hardt (TROPOS) 6) Markus Hartmann (TROPOS) 7) Jan Henneberger (ETHZ) 8) Ulrike Lohmann (ETHZ) 9) Max Maahn (Leipzig Institute for Meteorology (LIM), Leipzig University)) 10) Anna Miller (ETHZ) 11) Kevin Ohneiser* (TROPOS) 12) Nadja Omanovic (ETHZ) 13) Martin Radenz (TROPOS) 14) Fabiola Ramelli (ETHZ) 15) Willi Schimmel (TROPOS) 16) Patric Seifert (TROPOS) 17) Fabian Senf (TROPOS) 18) Robert Spirig (ETHZ) 19) Heike Wex (TROPOS) 20) Huiying Zhang (ETHZ)	25
	Quantifying the Underestimation of Rainfall by Rain Gauge Networks: Significance, Implications and Recommendations 1) Ruth Dunn* (Newcastle University) 2) Hayley Fowler (Newcastle University) 3) Amy Green (Newcastle University) 4) Elizabeth Lewis (The University of Manchester)	41
	Development and Assessment of Instruments for Rainfall Microphysics Observations 1) Firat Testik* (University of Texas at San Antonio)	17
Session 2 B	Enhancing Process Understanding: Model parameter estimation	
	Towards Evaluating Microphysical Pathways Of Midlatitude Snow Formation in the ICON Model 1) Julian Meusel* (Karlsruhe Institute of Technology (KIT), Institute of Meteorology and Climate Research) 2) Corinna Hoose (Karlsruhe Institute of Technology (KIT), Institute of Meteorology and Climate Research) 3) Maximilian Maahn (Leipzig Institute for Meteorology (LIM), Leipzig University)) 4) Nils Pfeifer (Leipzig Institute for Meteorology (LIM), Leipzig University))	42

Session 3 A	Prediction Scales and Model Development: Modeling elements in nowcasting	
	Evaluation and improvements of a nationwide radar-based precipitation nowcasting 1) Mathias Emond* (Institute of Geosciences, Meteorology Section, University of Bonn) 2) Ricardo Reinoso-Rondinel (KU Leuven-KMI) 3) Silke Trömel (Institute of Geosciences, Meteorology Section, University of Bonn)	46
	Localized Radar-Based Nowcasting of Convective Rainfall 1) Daniel Eduardo Villarreal-Jaime* (KU Leuven) 2) Patrick Willems (KU Leuven) 3) Lesley De Cruz (Royal Meteorological Institute of Belgium, Vrije Universiteit Brussel) 4) Ricardo Reinoso-Rondinel (KU Leuven-KMI)	117
	Nowcasting model of thunderstorms intensity and probability TSP 1) Anna Jurczyk (Institute of Meteorology and Water Management (IMGW-PIB)) 2) Przemysław Baran* (Institute of Meteorology and Water Management (IMGW-PIB)) 3) Krystian Specht (Institute of Meteorology and Water Management (IMGW-PIB)) 4) Agnieszka Kurcz (Institute of Meteorology and Water Management (IMGW-PIB)) 5) Jan Szturc (Institute of Meteorology and Water Management (IMGW-PIB))	124
	Advanced Heavy Rain Forecasting: Artificial Intelligence-Driven Insights from High-Density Optical Rain Sensor Networks 1) Alexander Buddrick (NIVUS GmbH) 2) Nibesh Shrestha* (NIVUS GmbH) 3) Abdellah Lemouedda (NIVUS GmbH) 4) Benjamin Mewes (Okeanos Smart Data Solutions GmbH) 5) Henning Oppel (Okeanos Smart Data Solutions GmbH)	78
Session 4 A	Seamless Prediction: Data assimilation integrating nowcasting and new observations	
	Using a 3D Wind retrieval algorithm to improve the understanding of dynamics of hail cells in Germany 1) Tobias Scharbach* (Institute of Geosciences, Meteorology Section, University of Bonn) 2) Silke Trömel (Institute of Geosciences, Meteorology Section, University of Bonn)	98
	OPTIMAL EXPLOITATION OF POLARIMETRY FOR PRECIPITATION-INDUCED FLOOD FORECAST 1) Thomas Gastaldo (Arpae Emilia-Romagna, Hydro-Meteo-Climate Structure (Arpae-SIMC), Bologna) 2) Sagar Sitaram Pokale* (Institute of Geosciences, Meteorology Section, University of Bonn) 3) Virginia Poli (Arpae Emilia-Romagna, Hydro-Meteo-Climate Structure (Arpae-SIMC), Bologna) 4) Silke Trömel (Institute of Geosciences, Meteorology Section, University of Bonn)	135

Session 4 B	Seamless Prediction: Blending and probabilistic techniques based on nowcasting and NWP ensembles	
	Scale-Dependent Evaluation of Seamless Short-Term Forecasts of Convective Precipitation 1) Martin Rempel* (Independent Radar Scientist) 2) Markus Schultze (Deutscher Wetterdienst) 3) Ulrich Blahak (Deutscher Wetterdienst)	85
	Verification and further development of KONRAD3D-SINFONY 1) Ulrich Blahak (Deutscher Wetterdienst) 2) Lukas Josipovic (Deutscher Wetterdienst) 3) Nora Linn Strotjohann* (Deutscher Wetterdienst)	87
Session 5 A	Precipitation and Hydrological Models: Extreme precipitation events	
	Urban influences on convective rainfall across different city structures 1) Herminia Torelló-Sentelles* (Institute of Earth Surface Dynamics, University of Lausanne) 2) Marika Koukoulou (Institute of Earth Surface Dynamics, University of Lausanne) 3) Nadav Peleg (Institute of Earth Surface Dynamics, University of Lausanne) 4) Gabriele Villarini (Department of Civil and Environmental Engineering, Princeton University)	84
	Real-time assessment of rainfall extremity using observations and seamless short-term forecasts in small river catchments in Germany 1) Jan Bondy* (Deutscher Wetterdienst) 2) Christian Berndt (Deutscher Wetterdienst) 3) Ulrich Blahak (Deutscher Wetterdienst) 4) Vanessa Fundel (Deutscher Wetterdienst)	95
	Tailoring Weather Warnings in the DWD Warning Portal to Meet the Requirements of Flood Forecasting Centers 1) Maja RÜth* (Deutscher Wetterdienst) 2) Jan Bondy (Deutscher Wetterdienst) 3) Kira Riedl (Deutscher Wetterdienst) 4) Christian Vogel (Deutscher Wetterdienst) 5) Björn Reetz (Deutscher Wetterdienst) 6) Reik Schaab (Deutscher Wetterdienst) 7) Linda Noël (Deutscher Wetterdienst) 8) Heiko Niebuhr (Deutscher Wetterdienst) 9) Kathrin Feige (Deutscher Wetterdienst) 10) Vanessa Fundel (Deutscher Wetterdienst)	96
	PRECIPITATION AND HYDROLOGICAL EVENTS IN NORTHWEST BULGARIA SINCE 2001 1) Tsvetelina Dimitrova (Hail Suppression Agency) 2) Hristo Popov* (Sofia University)	102
	Automatic Early warning for severe thunderstorms in Piemonte, Italy 1) Roberto Cremonini* (Arpa Piemonte) 2) Renzo Bechini (Arpa Piemonte) 3) Valentina Campana (Arpa Piemonte) 4) Gabriele Fasano (Arpa Piemonte)	136

Session 5 B	Precipitation and Hydrological Models: Evaluation, verification and interfaces	
	Predictability plots as a means to assess meteorological input for hydrological models 1) Ina Blumenstein-Weingartz* (Deutscher Wetterdienst)	139
	Predicting hydrological drought in Gangwon the Far East using weather climate data and AI models 1) Ji Hun Park*(AI for Climate & Disaster Management Center, Kangwon National University) 2) Seung Cheol Choi (AI for Climate & Disaster Management Center, Kangwon National University) 3) So Hyun Lee (Kangwon National University) 4) Byung Sik Kim (Department of Artificial Intelligence & Software/Graduate School of Disaster Prevention, Kangwon National University)	69
	Predicting inflows to the Soyang River Dam using Weather climate data and Machine learning 1) Byung Sik Kim* (Department of Artificial Intelligence & Software/Graduate School of Disaster Prevention, Kangwon National University) 2) Seung Cheol Choi (AI for Climate & Disaster Management Center, Kangwon National University) 3) Ji Hun Park (AI for Climate & Disaster Management Center, Kangwon National University)	70
	QPE, QPF and EPS in flood forecasting 1) Tobias Heppelmann* (State Environmental Agency Rhineland-Palatinate) 2) Norbert Demuth (State Environmental Agency Rhineland-Palatinate)	94
	Rain, Snow or Freezing Rain? – Radar-based Surface Precipitation Type Analysis and Verification at DWD 1) Markus Schultze (Deutscher Wetterdienst) 2) Tim Böhme* (Deutscher Wetterdienst) 3) Jörg Steinert (Deutscher Wetterdienst)	101
	Initial Results of Implementing SINFONY Forecast Products in Flood Prediction Using the LARSIM Model at the Flood Forecast Centre of Baden-Württemberg 1) Olga Kiseleva* (Deutscher Wetterdienst) 2) Armin Rauthe-Schöch (Deutscher Wetterdienst) 3) Ute Badde (LUBW Landesanstalt für Umwelt Baden-Württemberg) 4) Thomas Deutschländer (Deutscher Wetterdienst) 5) Manfred Bremicker (LUBW Landesanstalt für Umwelt Baden-Württemberg) 6) Ulla Schwieters (LUBW Landesanstalt für Umwelt Baden-Württemberg) 7) Dominik Elfgang (LUBW Landesanstalt für Umwelt Baden-Württemberg) 8) Julius Weimper (HYDRON Ingenieurgesellschaft für Umwelt und Wasserwirtschaft mbH, Karlsruhe)	39
	Improving Flood Forecasting by Assimilating Remotely Sensed Soil Moisture Data into the ParFlow-CLM Model 1) Samira Sadat Soltani* (Institute of Bio- and Geosciences; Agrosphere (IBG 3), Forschungszentrum Jülich GmbH) 2) Stefan Kollet (Institute of Bio- and Geosciences; Agrosphere (IBG 3), Forschungszentrum Jülich GmbH and University of Bonn)	20