PrePEP 2025
Precipitation Processes - Estimation and Prediction

Oral program

Day 2		Tuesday 18 March 2025	
Keynote	8:45-9:15	**Flash floods predictions and mitigation under change – challenges, models, perspectives** Keynote speaker: Erwin Zehe (Institute of Water and Environment, Karlsruhe Institute of Technology) 1) Erwin Zehe (Institute of Water and Environment, Karlsruhe Institute of Technology) 2) Franziska Villinger (Institute of Water and Environment, Karlsruhe Institute of Technology) 3) Ralf Loritz (Institute of Water and Environment, Karlsruhe Institute of Technology) 4) Ashish Manoj J (Institute of Water and Environment, Karlsruhe Institute of Technology) 5) Judith Nijzink (Environmental sensing and modelling, Luxembourg Institute of Science and Technology) 6) Laurent Pfister (Environmental sensing and modelling, Luxembourg Institute of Science and Technology)	
Keynote	9:15-9:45	**Advancing Precipitation Estimation and Prediction through Deep Learning at Météo-France** Keynote speaker: Léa Berthomier (Météo-France) 1) Léa Berthomier (Météo-France) 2) Frank Guibert (Météo-France AI Lab) 3) Bruno Pradel (Météo-France AI Lab) 4) Théo Tournier (Météo-France AI Lab)	

Session 5 A		Precipitation and Hydrological Models: Extreme precipitation events	
		Chair 1: Klaus Goergen, Chair: 2: Jan Bondy	
	9	9:45-10:00	**Precipitation forecast enhancements in Destination Earth: advancing toward km-scale Global simulations** 1) Estíbaliz Gascón* (European Centre for Medium-Range Weather Forecasts (ECMWF)) 2) Jasper Denissen (European Centre for Medium-Range Weather Forecasts (ECMWF)) 3) Irina Sandu (European Centre for Medium-Range Weather Forecasts (ECMWF)) 4) Maliko Tanguy (European Centre for Medium-Range Weather Forecasts (ECMWF)) 5) Benoît Vannière (European Centre for Medium-Range Weather Forecasts (ECMWF)) 6) Ervin Zsoter (European Centre for Medium-Range Weather Forecasts (ECMWF))	18
	10	10:00-10:15	**The Southern German flooding in May and June 2024** 1) Sebastian Buschow* (Institute of Geosciences, Meteorology Section, University of Bonn) 2) Petra Friederichs (Institute of Geosciences, Meteorology Section, University of Bonn) 3) Svenja Szemkus (Institute of Geosciences, Meteorology Section, University of Bonn)	88
	11	10:15-10:30	**Return Period Analysis of Maximum Daily Rainfall Disasters in the Zagros Mountains, Iran: March (2019)** 1) Elham Mobarak Hassan (Department of Environment, Ahvaz Branch, Islamic Azad University, Ahvaz) 2) Ebrahim Fattahi (Department of Hydrometeorology, Research Institute of Meteorology and Atmospheric Science, Tehran) 3) Jeff (Jafar) Sepehri* (Earth and Space Science Dept., York University)	34
	12	10:30-10:45	**A globally-applicable conceptual model for extreme precipitation events** 1) Paul Davies (Met Office) 2) David Flack* (Met Office) 3) Hayley Fowler (Newcastle University)	35
Coffee break		10:45-11:15		

Session 5 B		Precipitation and Hydrological Models. Evaluation, verification and interfaces Chair 1: Alexandre Belleflamme, Chair 2: Klaus Goergen	
	1	11:15-11:30	**Operational Hydrologic Ensemble Forecasts in Small Catchments – Implementing New Products for Precipitation Estimation and Seamless Predictions** 1) Jens Grundmann* (TU Dresden, Institute of Hydrology and Meteorology) 2) Michael Wagner (TU Dresden, Institute of Hydrology and Meteorology)	60
	2	11:30-11:45	**Evaluation of precipitation products' characteristics over Germany for hydrologic model forecasts** 1) Suad Hammoudeh* (Institute of Bio- and Geosciences (IBG-3, Agrosphere), Forschungszentrum Jülich (FZJ), Jülich) 2) Alexandre Belleflamme (Institute of Bio- and Geosciences (IBG-3, Agrosphere), Forschungszentrum Jülich (FZJ), Jülich) 3) Julián Alberto Giles (Department of Meteorology, Institute of Geosciences, University of Bonn) 4) Klaus Goergen (Institute of Bio- and Geosciences (IBG-3, Agrosphere), Forschungszentrum Jülich (FZJ), Jülich) 5) Stefan Kollet (Institute of Bio- and Geosciences (IBG-3, Agrosphere), Forschungszentrum Jülich (FZJ), Jülich) 6) Silke Troemel (Institute of Geosciences, Meteorology Section, University of Bonn)	49
	3	11:45-12:00	**DeepWaive: A Paradigm Shift in Flood Forecasting through a Hybrid AI Foundation Model** 1) Julian Hofmann* (FloodWaive Predictive Intelligence GmbH)	134
	4	12:00-12:15	**Development of Flood Level Prediction Model for Hangang Jamsoo Bridge Using Weather Climate Data and Artificial Neural Networks** 1) An Sung Wook (Kangwon National University) 2) Hanmin Cho (Korea Engineering Consultants Corp) 3) Byunghyun Lee (AI for Climate & Disaster Management Lab) 4) Sungcheol Ha* (Kangwon National University)	82

5	12:15-12:30	**Tailoring SINFONY forecasts and other DWD products to flood forecasting applications following a co-design approach** 1) Jan Bondy* (Deutscher Wetterdienst) 2) Vanessa Fundel (Deutscher Wetterdienst) 3) Julia Keller* (Deutscher Wetterdienst) 4) Ina Blumenstein-Weingartz (Deutscher Wetterdienst) 5) Olga Kiseleva (Deutscher Wetterdienst) 6) Maja Rüth (Deutscher Wetterdienst) 7) Stefan Wolff (Deutscher Wetterdienst) 8) Thomas Deutschländer (Deutscher Wetterdienst) 9) Stefanie Hollborn (Deutscher Wetterdienst) 10) Kathrin Feige (Deutscher Wetterdienst) 11) Felix Fundel (Deutscher Wetterdienst) 12) Andreas Lambert (Deutscher Wetterdienst) 13) Armin Rauthe-Schöch (Deutscher Wetterdienst) 14) Ute Badde (LUBW Landesanstalt für Umwelt Baden-Württemberg) 15) Manfred Bremicker (LUBW Landesanstalt für Umwelt Baden-Württemberg) 16) Norbert Demuth (Landesamt für Umwelt Rheinland-Pfalz) 17) Natalie Stahl-van Rooijen (Bayerisches Landesamt für Umwelt) 18) Joachim Stoermer (Bayerisches Landesamt für Umwelt)	112
6	12:30-12:45	**Developing early warning systems for Greek Prefectures and Municipalities** 1) Kostas Lagouvardos* (National Observatory of Athens) 2) Vasiliki Kotroni (National Observatory of Athens) 3) Antonis Bezes (National Observatory of Athens) 4) Theodore Giannaros (National Observatory of Athens) 5) Christos Giannaros (National Observatory of Athens) 6) Athanasios Karagiannidis (National Observatory of Athens) 7) Ioannis Koletsis (National Observatory of Athens)	140
Lunch break	12:45-14:00		
Keynote	14:00-14:30	**Precipitation nowcasting: from Lagrangian models to advanced ML approaches** Keynote speaker: Ulrich Hamann (MeteoSwiss) 1) Ulrich Hamann (MeteoSwiss) 2) Ioannis Sideris (MeteoSwiss) 3) Loris Foresti (MeteoSwiss) 4) Daniele Nerini (MeteoSwiss) 5) Jussi Leinonen (NVIDIA Corporation) 6) Athanasios Ntoumos (MeteoSwiss) 7) Urs Germann (MeteoSwiss)	

Session 3 A		Prediction Scales and Model Development: Modeling elements in nowcasting Chair 1: Ricardo Reinoso-Rondinel, Chair 2: Lesley De Cruz	
	1	14:30-14:45	**Application of a predictive recurrent neural network for quantitative precipitation nowcasting** 1) Mst Mahfuja Akter* (Institute of Geosciences, Meteorology Section, University of Bonn) 2) Silke Trömel (Institute of Geosciences, Meteorology Section, University of Bonn)	86
	2	14:45-15:00	**Enhancing radar-based nowcasting of heavy precipitation using IoT Rain Sensors and Machine Learning: A Field Study in Four German Cities** 1) Annika Jahnke-Bornemann* (hydro & meteo GmbH) 2) Alrun Jasper-Tönnies (hydro & meteo GmbH) 3) Thomas Einfalt (hydro & meteo GmbH)	125
Session 3 B		Prediction Scales and Model Development: Hectometer scale modeling for precipitation	
	1	15:00-15:15	**Studies of Convection-Permitting Ensemble Forecasting for ICON-D2 with a 1km Nest over the Alps** 1) Zara Parsakhoo* (Deutscher Wetterdienst) 2) Christoph Gebhardt (Deutscher Wetterdienst) 3) Jan Keller (Deutscher Wetterdienst) 4) Chiara Marsigli (Deutscher Wetterdienst) 5) Axel Seifert (Deutscher Wetterdienst)	123
Poster session		15:15-18:00	**Poster session with coffee and drinks in the Aula**