

3rd European Hail Workshop: 16 March – 18 March 2020

(last update 27 February 2020)

Time	Monday	Tuesday	Wednesday
08:30			
09:00		9:00 – 10:30 Session 3a (5 Talks) Hail climatology, risk and loss	8:30 – 10:15 Session 4b (7 Talks) Hail detection and forecasting
09:30			
10:00			10:15 – 10:45 Coffee break
10:30		10:30 – 11:00 Coffee break	
11:00		11:00 – 12:00 Session for early career scientists (4 Talks)	10:45 – 12:00 Panel discussion
11:30			
12:00	12:00 – 12:45 Registration open	12:00 – 13:00 Lunch break	12:00 – 13:15 Lunch break
12:30	12:45 – 13:05 Opening		
13:00	13:05 – 14:10 Session 1 (4 Talks) Convection and hail in a changing climate	13:00 – 14:30 Session 3b (6 Talks) Hail climatology, risk and loss	13:15 – 14:00 Session 4c (3 Talks) Hail detection and forecasting
13:30			
14:00	14:10 – 14:45 Coffee break	14:30 – 15:00 Coffee break incl. Conference photo	14:00 – 15:10 Session 5a (4 Talks) Microphysics and dynamics of hailstorms
14:30			
15:00	14:45 – 16:30 Poster session	15:00 – 16:30 Session 3c (6 Talks) Hail climatology, risk and loss	15:10 – 15:45 Coffee break
15:30			
16:00		16:30 – 17:00 Coffee break	15:45 – 17:15 Session 5b (6 Talks) Microphysics and dynamics of hailstorms
16:30	16:30 – 16:45 Coffee break		
17:00	16:45 – 17:50 Session 2 (4 Talks) Hail damage and damage prevention	17:00 – 18:20 Session 4a (5 Talks) Hail detection and forecasting	17:15 – 17:45 Closing remarks (Awards & discussion)
17:30			
18:00	18:00 Icebreaker	18:30 Get-Together	
18:30			
19:00			
19:30			
20:00			
20:30			
21:00			

Conference Programme

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Monday, 16 March 2020

12:00 – 12:45	Registration
12:45	Conference start (KIT, Building 11.40, Tulla Lecture Hall)
12:45 – 13:05	Michael Kunz (Karlsruhe Institute of Technology), Olivia Romppainen-Martius (University of Bern) Welcome & Opening remarks
Session 1: Convection and hail in a changing climate	
13:05 – 13:25	Julian Brimelow (Environment Canada) What can past changes in hailstorm environments tell us about future changes in hail?
13:25 – 13:40	Qinghong Zhang (Peking University), Rumeng Li, Xiaofei Li, Tian Zou, Ziwei Zhou, Haifan Zhang Recent progress in understanding responses of hailstorm to climate change in China
13:40 – 13:55	Sonia Lasher-Trapp (University of Illinois), Robert J. Trapp Possible trends in melting hail in a future, warmer climate
13:55 – 14:10	Roelof Bruintjes (Advanced Radar Company) Changes in microphysics and dynamics of convective storms globally affecting hail formation due to anthropogenic activity
14:10 – 14:45	Coffee Break (Tulla hall)
14:45 – 16:30	Postersession (Tulla hall)
16:30 – 16:45	Coffee Break (Tulla hall)
Session 2: Hail damage and damage prevention	
16:45 – 17:05	Ian Giammanco (Insurance Institute for Business & Home Safety), Tanya M. Brown-Giammanco Hail damage in the United States: What happened? And can we bend down the loss curve?
17:05 – 17:20	Claude Berthet (ANELFA), Jean Dessens, Jose Luis Sanchez, Andres Merino Suances Upscaling point hailfall measurements of hail in Southwestern France
17:20 – 17:35	Rebecca Barthelmie (Cornell University), Sara C. Pryor, Fred Letson Hail as a major damage vector for wind turbine blades
17:35 – 17:50	Satyanarayana Tani (Graz University of Technology), Helmut Paulitsch An investigation of severe hailstorm characteristics over the present decade in the province of Styria, Austria
18:00	Icebreaker (Tulla hall)

Tuesday, 17 March 2020

Session 3a: Hail climatology, risk, and loss	
09:00 – 09:20	Elisa Murillo (University of Oklahoma), Cameron Homeyer, John Allen United States hail climatology: How good can we get?
09:20 – 09:40	Anja Rädler (Munich Re), Christopher M. Castellano, Pieter Groenemeijer, Thomas Pucik, Eberhard Faust Expected changes in severe hailstorm risk across Europe in the 21st century
09:40 – 10:00	Simona Trefalt (MeteoSwiss), Katharina Schröer, Urs Germann, Alessandro Hering, Olivia Martius, Luca Nisi, C. Schwierz An updated and extended Radar-based climatology of hail for Switzerland – A public-private partnership lead by MeteoSwiss
10:00 – 10:15	Katharina Schröer (MeteoSwiss), Urs Germann, Alessandro Hering, Simona Trefalt, Cornelia Schwierz, Luca Nisi An environmentally constrained probabilistic hazard model to estimate hail risk in complex terrain
10:15 – 10:30	Luca Nisi, Alessandro Hering, Urs Germann, Katharina Schröer (MeteoSwiss), Hélène Barras, Michael Kunz, Olivia Martius On the diurnal cycle of hail storms in the Alps: a radar-based high-resolution analysis between 2002 and 2017
10:30 – 11:00 Coffee Break (Tulla hall)	
Session for early career scientists	
11:00 – 11:15	Marco Planzer (University of Bern), Hélène Barras, Mauro Bolzern, Olivia Martius On the role of building characteristics for vulnerability to hail
11:15 – 11:30	Christoph von Matt (University of Bern), Olivia Martius, Hélène Barras, Alessandro Hering, Urs Germann, Marco Boscacci, Jordi Figueras i Ventura, Marco Gabella ZDR-Column Detection in Switzerland
11:30 – 11:45	Tian Zou (Peking University), Qinghong Zhang, Wenhong Li Responses of Hail and Storm Days to Climate Change in the Tibetan Plateau: Observations and climate models
11:45 – 12:00	Ziwei Zhou (Peking University), Xiang Ni, Qinghong Zhang Seeking favorable environment for severe hailstorm from the global view
12:00 – 13:00 Lunch Break (Tulla hall)	
Session 3b: Hail climatology, risk, and loss	
13:00 – 13:15	Roberto Cremonini (ARPA Piemonte) Short radar-based climatology of hail and severe weather in Northern Italy
13:15 – 13:30	Agostino Manzato (ARPA FVG - OSMER), Andrea Cicogna, Massimo Centore, Paolo Battistutta, Mauro Trevisan, Furio Pieri 1988 – 2016 hailstone climatology from the FVG hailpads network
13:30 – 13:45	Abdullah Kahraman (Newcastle University), Elizabeth J. Kendon, Hayley J. Fowler Hail in Europe: A 9-year climatology based on unified model convective-permitting simulations
13:45 – 14:00	Stefan Müller (Meteotest AG), Michael Schmutz, Willi Schmid, Hans-Heinrich Schiesser Database of historical hail events for the past 150 years in Switzerland
14:00 – 14:15	Sarah D. Bang (NASA Marshall Space Flight Center), Daniel J. Cecil Satellite-borne Passive-Microwave Hail Retrieval and Climatology
14:15 – 14:30	Sara C. Pryor (Cornell University), Fred Letson, Tristan Shepherd, Rebecca Barthelmie Modelling convective storms and hail over the southern Great Plains with WRF
14:30 - 15:00 Coffee Break (Tulla hall)	

Tuesday, 17 March 2020

Session 3c: Hail climatology, risk, and loss

15:00 – 15:15 Kasirga Yildirak (Hacettepe University), Ismail Gur, Ashis Sengupta

Actuarial hail map for crops

15:15 – 15:30 John Allen (Central Michigan University), Nicholas Bogen, Olivia Vanbuskirk, Eberhard Faust, Markus Steuer, Jan Eichner

Tying hail to its potential impacts over the United States

15:30 – 15:45 Juergen Grieser (Risk Management Solutions), Marc Hill

On the Importance of the hailstone-size distribution for hail-risk modelling

15:45 – 16:00 Ansie Smit (University of Pretoria), Andrzej Kijko, Liesl Dyson

Probabilistic hail hazard and risk assessment for South Africa

16:00 – 16:15 Eric Robinson, Stefanie Meul (AIR Worldwide), Chris Bednarczyk, Bernhard Reinhardt

A severe thunderstorm risk assessment model for Europe

16:15 – 16:30 Kyle F. Itterly (Science Systems and Applications) and Co-Authors

Hail storm risk assessment using space-borne remote sensing observations and reanalysis data

16:30 - 17:00 Coffee Break (Tulla hall)

Session 4a: Hail detection and forecasting

17:00 – 17:20 Xiaofei Li (Northwest University)

Sensitivity of hail precipitation to ensembles of uncertainties of initial environmental conditions and CCN

17:20 – 17:35 John Allen (Central Michigan University), Cameron Nixon, Matthew Kumjian, Ryan Jewell, Bryan Smith, R. Thompson

Forecast parameters for hail occurrence and size

17:35 – 17:50 H el ene Barras (University of Bern), Olivia Martius, Alessandro Hering, Urs Germann, Ulrich Hamann, Loris Foresti, Shruti Nath, Daniele Nerini, Joel Zeder

Nowcasting hail with machine learning

17:50 – 18:05 Mari Schmidt (University of Bonn), Clemens Simmer, Silke Tr omel, Alexander Ryzhkov

Detection and nowcasting of hail growth and size at C band

18:05 – 18:20 Chandrasekar Radhakrishnan, Chandrasekar Venkatachalam (Colorado State University)

CASA hail prediction system over Dallas Fort Worth Urban network

18:30 Get-Together (Tulla hall)

Wednesday, 18 March 2020

Session 4b: Hail detection and forecasting	
08:30 – 08:45	Bartosz Czernecki (Adam Mickiewicz University) Application of machine learning to large hail prediction - the importance of radar reflectivity, lightning occurrence and
08:45 – 09:00	Rachel Gutierrez (Pennsylvania State University) Environmental and radar characteristics of Gargantuan hail-producing storms
09:00 – 09:15	Nathalie Caloz (MeteoSwiss), Ulrike Lohmann, Jordi Figueras i Ventura, Jacopo Grazioli, Martin Lainer What can polarimetric radar signatures tell us about the characteristics of storms?
09:15 – 09:30	Tomeu Rigo (Servei Meteorològic de Catalunya), Carme Farnell, Jordi Moré, Maite Torà A 5-year comparison of hail-pad observations and radar-based hail estimating products: VIL and POH
09:30 – 09:45	Robert J. Trapp (University of Illinois), Stephen Nesbitt, Geoffrey Marion Satellite-based anticipation of extreme convective weather through quantification of convective updraft characteristics: Application to hail severity
09:45 – 10:00	Xiang Ni (Southwest University) Detections of hailstorms from spaceborne precipitation radar
10:00 – 10:15	Alessandro Hering (MeteoSwiss), Urs Germann, Luca Nisi, Ulrich Hamann The potential of lightning-jumps for nowcasting hailstorms in the Alpine area
10:15 – 10:45	Coffee Break (Tulla hall)
10:45 – 12:00	Panel discussion: A new hail field experiment in Europe – is it time for a “Grossversuch” 2.0?
12:00 – 13:15	Lunch Break (Tulla hall)
Session 4c: Hail detection and forecasting	
13:15 – 13:30	Damjan Jelic (University of Zagreb), Barbara Malecic, Petra M. Jurkovic, Maja T. Prtenjak, Natasa S. Mahovic Lightning jump as a diagnostic tool for hail occurrence in Croatia
13:30 – 13:45	Ena Hirschi (Schweizerische Mobiliar Versicherungsgesellschaft AG), H�el�ene Barras, Alessandro Hering, Urs Germann How can automatic hail sensor measurements improve the existing hail products?
13:45 – 14:00	Claus Riehle (dimeto GmbH), Dominik Sch�on About physics and calibration procedure of the first real-time hail measurement sensor
Session 5a: Microphysics and dynamics of hailstorms	
14:00 – 14:20	Constanze Wellmann (Heidelberg University), Corinna Hoose, Michael Kunz, Andrew Barrett, J. Johnson, B. Vogel, K. Carslaw Using statistical emulation for sensitivity studies of deep convective clouds
14:20 – 14:40	Matthew R. Kumjian (The Pennsylvania State University), Kelly Lombardo, Yuzhu Lin, Scott Loeffler Environmental and storm structural influences on hail size inferred from hailstone growth trajectory model calculations
14:40 – 14:55	Becky Adams-Selin (Atmospheric and Environmental Research) Comparison of one-dimensional pseudo-Lagrangian, three-dimensional fully Lagrangian, and four-dimensional time-dependent trajectories when forecasting hail size
14:55 – 15:10	Andrew Barrett (Karlsruhe Institute of Technology) Processes contributing to hail formation in COSMO & ICON simulations
15:10 - 15:45	Coffee Break (Tulla hall)
Session 5b: Microphysics and dynamics of hailstorms	
15:45 – 16:00	Alberto de Lozar (Deutscher Wetterdienst), Axel Seifert, Rafael Posada, Ulrich Blahak Two-moment microphysics provides a better representation of high-reflectivity cores in ICON-D2
16:00 – 16:15	Barbara Malecic (University of Zagreb) Sensitivity of WRF-HAILCAST to PBL parametrization schemes in simulating hail event over Croatia
16:15 – 16:30	Raquel Evaristo (University of Bonn), Clemens Simmer, Silke Tr�omel Characteristics of updrafts and relationship to the development of hail and Zdr columns
16:30 – 16:45	Joshua Soderholm (Australian Bureau of Meteorology), Matthew Kumjian, Nicholas McCarthy, Paula Madonado Observing hail: new approaches for measuring size distribution and trajectories aloft.
16:45 – 17:00	Urs Germann (MeteoSwiss), Armin Auf der Maur A Re-Evaluation of the Swiss Hail Suppression Experiment Using a Four-Moment Approximation to the Permutation Test
17:00 – 17:15	Yun Chen (National Meteorological Center of CMA) Characteristics of atmospheric stratification and melting effect of severe hail events in Guangdong Province

Poster session (Monday, 16 March 2020 14:45 – 16:30)

Session 1: Convection and hail in a changing climate

- 01 **Susanna Mohr (Karlsruhe Institute of Technology), Jan Wandel, Olivia Martius, Michael Kunz**
Severe convective storms connected with hail across Europe and their relation to large-scale mechanisms
- 02 **Timothy Raupach, Olivia Martius (University of Bern), John Allen, Michael Kunz, Susanna Mohr, Sonia Lasher-Trapp, Kristen Rasmussen, Michael Tippett, Robert Trapp, Quinghong Zhang**
How will climate change affect hailstorms?
- 03 **Timothy Raupach, Olivia Martius (University of Bern), Alessandro Hering, Andrey Martynov, Luca Nisi, Yannick Barton**
Tracking simulated thunderstorms in complex terrain
- 04 **Ruoyi Cui (ETH Zurich), Nikolina Ban, Marie-Estelle Demory, Christoph Schär**
Case studies of hail and lightning in convection-resolving simulations over the Alpine-Adriatic region
- 05 **Lucía Elizabeth Arena (Universidad Nacional de Tucumán)**
Comparative Study of Giant Hailstones fallen in the Province of Córdoba-Argentina in 1988 and 2018

Session 2: Hail damage and damage prevention

- 06 **Bruce Boe (Weather Modification International)**
An operational cloud seeding program to suppress urban hail damage in Alberta, Canada
- 07 **Daniel Florea (S.C. Interventii Active in Atmosfera.S.R.L.), Catrina Gheorghe, Doru-Dorian Popescu, Sarbu Dragos**
The hail study in Moldavia area based on radar archive in 2017 and 2018 and the importance of the hail suppression unit "Moldova 1" Iasi
- 08 **Chukwuma Anoruo (University of Nigeria)**
Seasonal trend investigation of hailstorms in Germany using temperature influence on precipitation
- 09 **Saskia Drossaert van Dusseldorp (ETH Zurich), Ulrike Lohmann**
Assessing operational hail mitigation over the Swiss Plateau
- 10 **Magomet Abshaev, Aminat Malkarova, Ali Abshaev (Hail Suppression Research Center "Antigrad"), Emil Sirbu**
Assessment of multi-year hail suppression operations in different climate regions
- 11 **Andreas Bernatzky (Technische Hochschule Rosenheim)**
Investigation of the influence of hail defence on hail damage and meteorological data in the district of Rosenheim

Session 3: Hail climatology, risk, and loss

- 12 **Vera Meyer (Zentralanstalt für Meteorologie und Geodynamik), Lukas Tüchler**
A thunderstorm and hail study over Austria
- 13 **Katerina Skripnikova (Czech Academy of Sciences)**
The distribution of radar-based hail risk over the Czech territory
- 14 **Michèle Lai (Risk Management Solutions), Alison Dobbin, Philip Haines, Marc Hill, Juergen Grieser**
Estimating hail risk in Europe for the insurance industry
- 15 **Liliya Bocheva (National Institute of Meteorology and Hydrology), Vulcho Pophrstov**
Regional analysis of hail precipitation in Bulgaria (1991-2018)
- 16 **Pieter Groenemeijer (European Severe Storms Laboratory), Anja Rädler, Eberhard Faust, Tomáš Púčik, Ch. Castellano**
Estimating changes in high-end hail losses in Europe using a hail event set
- 17 **Heinz Jürgen Punge (Karlsruhe Institute of Technology), Kristopher Bedka, Michael Kunz**
Hail hazard assessment for South Africa using satellite and climate model data
- 18 **Julijana Nadj (Republic Hydrometeorological Service of Serbia), Dragana Vujovic**
Analysis of hail/ice pellet precipitation in Serbia during the period 1981-2015
- 19 **Hans de Moel (Vrije Universiteit), L.A. Wouters, M. Boon, D. van Putten, B. van t' Veen, S. Tijm, E. E. Koks**
Developing a hail climatology for the Netherlands and impacts on solar panels

Poster session (Monday, 16 March 2020 14:45 – 16:30)

Session 4: Hail detection and forecasting

- 20 **Mykhailo Koman (Ukrainian Hydrometeorological Institute)**
Identification of hail by lightning detection network data
- 21 **Hernán Bechis (Universidad de Buenos Aires), Milagros Alvarez Imaz, Maite Cancelada, Inés Simone, Franco Piscitelli, Paula Maldonado, Paola Salio, Victoria Galligani**
A case study of a severe hailstorm in central Argentina during the RELAMPAGO-CACTI field campaign
- 22 **Stavros Dafis (Polytechnic Institute of Paris), Chantal Claud, Vassiliki Kotroni, Konstantinos Lagouvardos, Jean-François Rysman**
Hail-producing storms and passive microwave retrievals
- 23 **Ding Jianfang (The Weather Modification Center of Henan Province)**
Research and Application Command System of Artificial Hail Suppression Operation in Henan
- 24 **Roland Góth (Hungarian Meteorological Service), Kálmán Csirmaz**
The role of meteorology in the new Hungarian hail suppression system
- 25 **Ivan Tsonevsky (European Centre for Medium-Range Weather Forecasts)**
ECMWF's Extreme Forecast Index applied to predicting severe convection
- 26 **Istrate Vasilica (S.C. Interventii Active in Atmosfera S.R.L.), Emil Sirbu, Serghei Eremeico, Iono-Lucian Lazar**
European severe weather database hail reports in Romania – climatology and analysis sounding-derived parameters
- 27 **Manuel Schmidberger (Karlsruhe Institute of Technology), Michael Kunz**
Can we predict explosive development of severe hailstorms?
- 28 **Hélène Barras (University of Bern), Olivia Martius, Alessandro Hering, Urs Germann, Pascal A. Noti, Andrey Martynov**
Comparing >60'000 crowdsourced hail reports with radar based hail products
- 29 **Rafael Posada, Ulrich Blahak (Deutscher Wetterdienst), Robert Feger, Kathrin Wapler, Kathrin Feige, Markus Schultze, Manuel Werner**
Object-based probabilistic forecast combining Nowcasting and NWP ensembles
- 30 **Jannik Wilhelm (Karlsruhe Institute of Technology), Michael Kunz, Ulrich Blahak, Robert Feger, Kathrin Wapler, Roland Potthast**
Life cycle analysis of convective cells for Nowcasting purposes in consideration of atmospheric environment conditions (LifeCycle)
- 31 **Tomeu Rigo (Servei Meteorològic de Catalunya), Carme Farnell**
Improving the knowledge about the life cycle of severe thunderstorms in Catalonia

Session 5: Microphysics and dynamics of hailstorms

- 32 **Tomeu Rigo (Servei Meteorològic de Catalunya), Carme Farnell**
The relationship between the lightning jump and different types of precipitation in Summer events: first results comparing hail and heavy rainfall in Catalonia
- 33 **Camila Lopes (University of São Paulo), Rachel Albrecht**
Microphysics, Kinematics and Electrical Activity of Hail Producing Storms during SOS-CHUVA Project
- 34 **Tsvetelina Dimitrova (Hail Suppression Agency), Stefan Georgiev, Ivan Tsonevsky, Liliya Bocheva**
Hail-producing supercell developed over Bulgaria on May 15th 2018 - characteristics, evolution and damages.
- 35 **Lena Frey, Corinna Hoose (Karlsruhe Institute of Technology), Michael Kunz, Annette Miltenberger**
Representation of hailstorms in ICON-ART
- 36 **Alexander Theis, Andrew Heymsfield, Arnoud Apituley, Herman Russchenberg, Miklós Szakáll (University of Mainz)**
Novel experimental insight into the kinematics of hailstones – Initiation of an international collaborative project