3rd European Hail Workshop: 15 March – 18 March 2021

(last update 05 March 2021)

Time				Monday	Tuesday	Wednesday	Thursday
EDT *NY*	**UTC**	CET *Berlin*	CST *Beijing*				
08:00	**12:00**	13:00	20:00	**12:00 – 12:20 Opening & Technical information**	**12:00 – 12:50 Session 3 (3 Talks) Convection & hail in a changing climate**	**12:00 – 13:20 Session 4c (5 Talks) Hail detection & forecasting**	**12:00 – 13:30 Session 5a (6 Talks) Microphysics & dynamics of hailstorms**
08:15	**12:15**	13:15	20:15				
08:30	**12:30**	13:30	20:30	**12:20 – 13:10 Session 1 (3 Talks) Hail damage & damage prevention**			
08:45	**12:45**	13:45	20:45		**12:50 – 13:25 Session 2c (2 Talks) Hail climatology, risk & loss**		
09:00	**13:00**	14:00	21:00				
09:15	**13:15**	14:15	21:15	**13:10 – 13:20 Break (10')**		**13:20 – 13:30 Break (20')**	
09:30	**13:30**	14:30	21:30	**13:20 – 13:40 Poster pitches**	**13:25 – 13:50 Break (25')**	**13:30 – 13:55 Poster pitches**	**13:30 – 14:00 Break (30')**
09:45	**13:45**	14:45	21:45				
10:00	**14:00**	15:00	22:00	**13:40 – 15:10 1st Poster session (Hail damage & damage prevention; Hail climatology, risk & loss)**	**13:50 – 15:20 Session 2d (6 Talks) Hail climatology, risk & loss**	**13:55 – 15:40 2nd Poster session (Hail detection & forecasting; Microphysics & dynamics of hailstorms)**	**14:00 – 15:05 Session 5b (4 Talks) Microphysics & dynamics of hailstorms**
10:15	**14:15**	15:15	22:15				
10:30	**14:30**	15:30	22:30				
10:45	**14:45**	15:45	22:45				**15:05 – 15:30 Break (20')**
11:00	**15:00**	16:00	23:00				
11:15	**15:15**	16:15	23:15	**15:10 – 16:00 Break (50')**	**15:20 – 16:00 Break (40')**	**15:40 – 16:20 Break (50')**	**15:30 – 16:20 Session 5c (3 Talks) Microphysics & dynamics of hailstorms**
11:30	**15:30**	16:30	23:30				
11:45	**15:45**	16:45	23:45				
12:00	**16:00**	17:00	00:00	**16:00 – 17:05 Session 2a (4 Talks) Hail climatology, risk & loss**	**16:00 – 16:45 Session 2e (3 Talks) Hail climatology, risk & loss**		**16:20 – 16:40 Closing remarks**
12:15	**16:15**	17:15	00:15				
12:30	**16:30**	17:30	00:30				**16:40 – 17:40 Open discussion**
12:45	**16:45**	17:45	00:45		**16:45 – 17:05 Session 4a (1 Talk)**	**16:20 – 17:50 Session 4d (6 Talks) Hail detection & forecasting**	
13:00	**17:00**	18:00	01:00	**17:05 – 17:15 Break (10')**	**17:05 – 17:15 Break (10')**		
13:15	**17:15**	18:15	01:15	**17:15 – 18:00 Session 2b (3 Talks) Hail climatology, risk & loss**	**17:15 – 18:00 Session 4b (3 Talks) Hail detection & forecasting**		
13:30	**17:30**	18:30	01:30				
13:45	**17:45**	18:45	01:45				
14:00	**18:00**	19:00	02:00	**18:00 – 18:10 Break (10')**	**18:00 – 18:10 Break (10')**	**17:50 – 18:00 Break (10')**	
14:15	**18:15**	19:15	02:15	**18:10 – 19:00 Discussion**	**18:10 – 19:00 Discussion**	**18:00 – 19:00 Discussion**	
14:30	**18:30**	19:30	02:30				
14:45	**18:45**	19:45	02:45				
15:00	**19:00**	20:00	03:00				

Conference Programme

3rd European Hail Workshop: 15 March – 18 March 2021

(last update 08 March 2021)

Monday, 15 March 2021

12:00 - 12:20	**Conference start (Main conference room)**
	Michael Kunz (Karlsruhe Institute of Technology), Olivia Romppainen-Martius (Univeristy of Bern) Welcome & Opening remarks **Susanna Mohr (Karlsruhe Institute of Technology), Katharina Schröer (MeteoSwiss)** Technical information
Session 1: Hail damage & damage prevention (Main conference room)	
12:20 – 12:40	**INVITED: Ian M. 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?
12:40 – 12:55	**Rebecca J. Barthelmie (Cornell University), Fred Letson, Sara C. Pryor** Hail as a major damage vector for wind turbine blades
12:55 – 13:10	**Satyanarayana Tani (Graz University of Technology), Helmut Paulitsch** An investigation of severe hailstorm characteristics over the present decade in the province of Styria, Austria
13:10 – 13:20	**Break**
13:20 – 15:10	**1st Poster session** **Hail damage & damage prevention and Hail climatology, risk & loss** Poster pitches (Main conference room) Poster discussions (Each in the corresponding breakout room)
15:10 – 16:00	**Break**
Session 2a: Hail climatology, risk & loss (Main conference room)	
16:00 – 16:20	**INVITED: Elisa Murillo (University of Oklahoma), Cameron Homeyer, John Allen** United States hail climatology: How good can we get?
16:20 – 16:35	**Sara C. Pryor (Cornell University), Fred Letson, Tristan Shepherd, Rebecca J. Barthelmie** Modelling convective storms and hail over the southern Great Plains with WRF
16:35 – 16:50	**Kristopher M. Bedka (NASA Langley Research Center)** Hail storm risk assessment using space-borne remote sensing observations and reanalyses
16:50 – 17:05	**Sarah D. Bang (NASA Marshall Space Flight Center), Daniel J. Cecil** Multi-satellite passive-microwave hail retrieval and climatologies
17:05 – 17:15	**Break**
Session 2b: Hail climatology, risk & loss (Main conference room)	
17:15 – 17:30	**Heinz Jürgen Punge (Karlsruhe Institute of Technology), Kristopher M. Bedka, Michael Kunz, Sarah D. Bang** Hailstorm detection and hail environments in South Africa
17:30 – 17:45	**Ansie Smit (University of Pretoria), Andrzej Kijko, Liesl Dyson** Probabilistic hail hazard and risk assessment for South Africa
17:45 – 18:00	**Juergen Grieser (Risk Management Solutions), Marc Hill** On the importance of the hailstone-size distribution for hail-risk modelling
18:00 – 18:10	**Break**
18:10 – 19:00	**Discussions**

Tuesday, 16 March 2021

Session 3: Convection & hail in a changing climate (Main conference room)	
12:00 – 12:20	**INVITED: Timothy Raupach (University of New South Wales), Olivia Romppainen-Martius, John Allen, Michael Kunz, Sonia Lasher-Trapp, Susanna Mohr, Kristen Rasmussen, Robert J. Trapp, Quinghong Zhang** Hail in a warming climate
12:20 – 12:35	**Qinghong Zhang (Peking University), Rumeng Li, Xiaofei Li, Tian Zou, Ziwei Zhou, Haifan Zhang** Recent progress in understanding how hailstorms respond to climate change in China
12:35 – 12:50	**Ruoyi Cui (ETH Zurich), Nikolina Ban, Marie-Estelle Demory, Christoph Schär** Exploring hail and lightning mechanisms over the Alpine-Adriatic region using HAILCAST and LPI in a convection-resolving model
Session 2c: Hail climatology, risk & loss (Main conference room)	
12:50 – 13:10	**INVITED: Simona Trefalt (MeteoSwiss), Katharina Schröer, Urs Germann, Alessandro Hering, Luca Nisi, Cornelia Schwierz** An updated and extended radar-based climatology of hail for Switzerland: A public-private partnership lead by MeteoSwiss
13:10 – 13:25	**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
13:25 – 13:50	**Break**
Session 2d: Hail climatology, risk & loss (Main conference room)	
13:50 – 14:05	**Xiang Ni (Southwest University), , Andreas Muehlbauer, John Allen, Qinghong Zhang, Jiwen Fan** A climatology and extreme value analysis of large hail in China
14:05 – 14:20	**Stefan Müller (Meteotest AG), Michael Schmutz, Willi Schmid, Hans-Heinrich Schiesser, René Cattin** Database of historical hail events for the past 150 years in Switzerland
14:20 – 14:35	**Monika Feldmann (Environmental Remote Sensing Laboratory), Marco Gabella, Alexis Berne** Characterization of rotation in severe convection in Switzerland
14:35 – 14:50	**Julien Cardinal (AXA), Remi Meynadier, Madeleine-Sophie Deroche, Florent Lobligeois** AXA probabilistic hail model in Western Europe
14:50 – 15:05	**Christopher Castellano, Pieter Groenemeijer (European Severe Storms Laboratory), Anja Rädler, Eberhard Faust, Tomáš Púcik** Estimating changes in high-end hail losses in Europe using a hail event set
15:05 – 15:20	**Abdullah Kahraman (Newcastle University), Elizabeth J. Kendon, Hayley J. Fowler** Hail in Europe: A CPM-based climatology
15:20 – 16:00	**Break**
Session 2e: Hail climatology, risk & loss (Main conference room)	
16:00 – 16:15	**Tomeu Rigo (Meteorological Service of Catalonia), Carme Farnell, Jordi Moré, Maite Torà, Elisabeth Porta** A 6-year comparison of hail-pad observations and radar-based hail estimating products: VIL and POH
16:15 – 16:30	**Agostino Manzato (ARPA FVG – OSMER), Andrea Cicogna, Massimo Centore, Paolo Battistutta, Mauro Trevisan** 1988-2016 hailstone climatology from the FVG hailpads network
16:30 – 16:45	**Michalis Sioutas (ELGA-Meteorological Applications Center)** Spatiotemporal distributions and variability of hailfalls intensity in Greece
Session 4a: Hail detection & forecasting (Main conference room)	
16:45 – 17:05	**INVITED: Kristen Rasmussen (Colorado State University)** Subtropical South American hailstorm characteristics and environments
17:05 – 17:15	**Break**

Session 4b: Hail detection & forecasting (Main conference room)	
17:15 – 17:30	**Hernán Bechis (Universidad de Buenos Aires), Milagros Alvarez Imaz, Inés Simone, Victoria Galligani, Maite Cancelada, Franco Piscitelli, Paula Maldonado, Paola Salio** A case study of a severe hailstorm in Mendoza, Argentina, during the RELAMPAGO-CACTI field campaign
17:30 – 17:45	**John Allen (Central Michigan University), Cameron Nixon, Matthew Kumjian, Ryan Jewell, Bryan Smith, Rich Thompson** Forecast parameters for hail occurrence and size
17:45 – 18:00	**Kyle F. Itterly (Science Systems and Applications, Inc.), Sarah D. Bang, Daniel J. Cecil, Kristopher M. Bedka, Benjamin R. Scarino, Douglas A. Spangenberg, Konstantin Khlopenkov** Hailstorm analyses and detection derived from current and historical satellite data and convective environmental parameters
18:00 – 18:10	**Break**
18:10 – 19:00	**Discussions**

Wednesday, 17 March 2021

Session 4c: Hail detection & forecasting (Main conference room)	
12:00 – 12:20	**INVITED: Xiaofei Li (Northwest University), Qinghong Zhang, Matthew Kumjian, Jiwen Fan, Fuqing Zhang** From meteorological conditions to aerosols, an evaluation on hail predictability
12:20 – 12:35	**Ziwei Zhou (Peking University), Xiang Ni, Qinghong Zhang** How many types of hailstorm on the earth?
12:35 – 12:50	**Lukas Josipovic (German Weather Service), Manuel Werner, Robert Feger, Kathrin Wapler, Jörg Steinert, Markus Schultze, Ulrich Blahak** Object-based nowcasting at DWD using KONRAD3D, HYMEC, and lightning data
12:50 – 13:05	**Claus Riehle (dimeto GmbH), Dominik Schön** About physics and calibration procedure of the first real-time hail measurement sensor
13:05 – 13:20	**Jose Luis Sanchez (University of León), Claude Berthet, Jean Dessens, Andres Merino Suances, Sara Gil Gallego, Jose Luis Marcos, Roberto J. Weigand, Eduardo Garcia-Ortega, Andres Navarro** Estimation of hail maximum diameter from meteorological variables applied to Southwestern France
13:20 – 13:30	**Break**
13:30 – 15:40	**2nd Poster session** **Hail detection & forecasting and Microphysics & dynamics of hailstorms** Poster pitches (Main conference room) Poster discussions (Each in the corresponding breakout room)
15:40 – 16:20	**Break**

Session 4c: Hail detection & forecasting (Main conference room)	
16:20 – 16:35	**Hélène Barras (University of Bern), Olivia Romppainen-Martius, Alessandro Hering, Urs Germann, Ulrich Hamann, Loris Foresti, Shruti Nath, Daniele Nerini, Joël Zeder** Nowcasting hail with machine learning
16:35 – 16:50	**Jérôme Kopp (University of Bern), Alessandro Hering, Urs Germann, Olivia Romppainen-Martius** Quantification of the Lagrangian persistence of hail in Switzerland
16:50 – 17:05	**Alessandro Hering (MeteoSwiss), Luca Nisi, Ulrich Hamann, Urs Germann** The potential of lightning-jumps for nowcasting hailstorms in the Alpine area
17:05 – 17:20	**Ena Hirschi (Schweizerische Mobiliar Versicherungsgesellschaft), Alessandro Hering, Urs Germann** How can automatic hail sensor measurements improve the existing hail products?
17:20 – 17:35	**Rachel Gutierrez (The Pennsylvania State University), Matthew Kumjian** Environmental and radar characteristics of gargantuan hail-producing storms
17:35 – 17:50	**Cameron Nixon (Central Michigan University), John Allen** Hodographs for hailstorms in the United States
17:50 – 18:00	**Break**
18:00 – 19:00	**Discussions**

Thursday, 18 March 2021

Session 5a: Microphysics & dynamics of hailstorms (Main conference room)	
12:00 – 12:15	**Joshua Soderholm (Australian Bureau of Meteorology), Alain Protat, Matthew Kumjian** Observing hail: New approaches for measuring hail shape, structure, trajectories and distribution
12:15 – 12:30	**Yiying Guan (Heilongjiang Meteorological Bureau)** Application of relative rate of change of electric field in forecasting severe convective weather
12:30 – 12:45	**Andrew Barrett (Karlsruhe Institute of Technology), Corinna Hoose** Non-systematic sensitivity of hail to aerosol explained different microphysical pathways
12:45 – 13:00	**Andrey Martynov (University of Bern), Olivia Romppainen-Martius, Timothy Raupach, Thomas Lanz** Pre-storm environments of thunderstorms over Switzerland in current and future climate conditions
13:00 – 13:15	**Raquel Evaristo (University of Bonn), Clemens Simmer, Silke Trömel, Kai Muehlbauer** Characteristics of updrafts and relationship to the development of hail and Zdr columns
13:15 – 13:30	**Alexander Theis (Max Planck Institute for Chemistry), Miklos Szakall, Subir Kumar Mitra, Karoline Diehl, Andrew Heymsfield, Stephan Borrmann** A wind tunnel study on the microphysics of melting hail; size distribution of the shed drops
13:30 – 14:00	**Break**
Session 5b: Microphysics & dynamics of hailstorms (Main conference room)	
14:00 – 14:20	**INVITED: Matthew 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
14:20 – 14:35	**Yuzhu Lin (The Pennsylvania State University), Matthew Kumjian** How does CAPE influence hail production?
14:35 – 14:50	**Andrew Heymsfield (National Center for Atmospheric Research), Micael Cecchini, Paul Field, Andrew Detwiler** The relationship of hail size distributions to updraft velocity and liquid water content based on measurements in hailstorms
14:50 – 15:05	**Rebecca Adams-Selin (Atmospheric and Environmental Research)** Development of a density-based clustering algorithm for three-dimensional hail trajectories and sub-trajectories
15:05 – 15:30	**Break**
Session 5c: Microphysics & dynamics of hailstorms (Main conference room)	
15:30 – 15:50	**INVITED: Julian Brimelow (Environment and Climate Change Canada)** A major upgrade to HAILCAST: Insights and lessons learned
15:50 – 16:05	**Micael Cecchini (University of São Paulo), Ryan Honeyager, Paul Field, Luiz Machado, Maria Silva Dias, Andrew Heymsfield** Studying the sensitivities involved in radar retrievals and simulations of hail size distributions
16:05 – 16:20	**Barbara Malecic (University of Zagreb), Damjan Jelic, Kristian Horvath, Natasa Strelec Mahovic, Petra Mikus Jurkovic, Karmen Babic, Maja Telišman Prtenjak** Performance of HAILCAST and Lightning Potential Index in simulating hail events over Croatia: Sensitivity to microphysics and PBL parameterization schemes
16:20 – 16:40	**Closing remarks**
16:40 – 17:40	**Space for open discussions**

Poster session (Monday, 15 March 2021 13:20 – 15:10; incl. 1 min-Pitches)

Session 1: Hail damage & damage prevention	
01	**Tomeu Rigo, Maria del Carmen Llasat, Laura Esbri, Antonio Parodi, Massimo Milelli, Vincenzo Mazzarella, Martina Lagassio, Andrea Parodi, Marco Temme, Olga Gluchshenko, Markus Kerschbaum, Christian Windisch, Roman Nossal, Eugenio Realini, Riccardo Biondi, Andrea Gatti, Giulio Tagliaferro, Nicola Surian** SINOPTICA: A project of analysis of hail affectation on Air Traffic Management
02	**Tsvetelina Dimitrova (Hail Suppression Agency), Stefan Georgiev, Ivan Tsonevsky, Lilia Bocheva** Hail-producing supercell developed over Bulgaria on May 15th 2018 – Characteristics, evolution and damages
03	**Valentina Campana (ARPA Piemonte), Orietta Cazzuli, Roberto Cremonini, Renzo Bechini, Antioco Vargiu** Large hail detection with combined use of weather radar reflectivity data and freezing level forecast in north-western Italy: First results
04	**Magomet Abshaev, Aminat Malkarova, Ali Abshaev (Hail Suppression Research Center "Antigrad"), Emil Sirbu** Assessment of multi-year hail suppression operations in different climate regions
05	**Daniel Florea (S.C. Interventii Active in Atmosfera S.R.L.), Gheorghe Catrina, Doru-Dorian Popescu, Dragos Andrei Sirbu** 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
06	**Bruce Boe (Weather Modification International), Daniel Gilbert** An operational cloud seeding program to suppress urban hail damage in Alberta, Canada
Session 2 Hail climatology, risk & loss	
07	**Vera Meyer (Zentralanstalt für Meteorologie und Geodynamik), Lukas Tüchler** A thunderstorm and hail study over Austria
09	**Ursina Schwyn (University of Bern), Olivia Romppainen-Martius, Katharina Schröer** Comparing hail characteristics in two Swiss hotspot regions: The role of large-scale conditions and local orography for hailstorm tracks in the Napf and Zurich region
10	**Kellie Cook (Macquarie University), Joshua Soderholm, Harald Richter, Benjamin McBurney, Kevin Cheung, Paul Beggs** A convective hailstorm climatology and associated environments for Sydney, Australia
11	**Ilie Nicolae (S.C. Interventii Active in Atmosfera S.R.L.), Axinte Aurel-Danut, Emil Sirbu, Miron Moldovan** The synoptic conditions associated to hailstorms in Moldova
12	**Istrate Vasilica (S.C. Interventii Active in Atmosfera S.R.L.), Emil Sirbu, Eremeico Serghei, Lazar Ionut** European Severe Weather Database hail reports in Romania – Climatology and analysis sounding-derived parameters

Poster session (Wednesday 18 March 2021 13:30 – 15:40; incl. 1 min-Pitches)

Session 4: Hail detection and forecasting	
13	**Ivan Tsonevsky (European Centre for Medium-RangeWeather Forecasts)** ECMWF's Extreme Forecast Index applied to predicting severe convection
14	**Don Wood (Sentinel Systems LLC), Andrew Heymsfield, John Wood** Sentinel Smart Tile: Technology for monitoring hail and changes in environmental conditions
15	**Lukas Tüchler (Zentralanstalt für Meteorologie und Geodynamik), Vera Meyer** HYMID – Hail detection using dual-pol radar data
16	**Stavros Dafis (Polytechnic Institute of Paris), Chantal Claud, Vassiliki Kotroni, Konstantinos Lagouvardos, Jean-François Rysman** Hail-producing storms and passive microwave retrievals
17	**Mykhailo Koman (Ukrainian Hydrometeorological Institute)** Using lightning detection network data for hail short-range forecasting in Ukraine
18	**Tomeu Rigo, Carme Farnell (Meteorological Service of Catalonia)** Differences in the behavior of the lightning jump in Catalonia in Summer events of heavy rainfall and hail
19	**Damjan Jelic (University of Zagreb), Barbara Malecic, Maja Telišman Prtenjak, Tanja Renko, Otília Anna Megyeri, Andreina Belušic Vozila** Potential uses of new Thunderstorm Intensity Index

21	**Jannik Wilhelm (Karlsruhe Institute of Technology), Ulrich Blahak, Robert Feger, Kathrin Wapler, Roland Potthast, Michael Kunz** Influence of atmospheric ambient conditions on the life cycle and the predictability of convective cells
22	**Georgios Papavasileiou (National Observatory of Athens), Konstantinos Lagouvardos, Vassiliki Kotroni, Theodore M. Giannaros** Observational and numerical study of a giant hailstorm in Attica, Greece, on October 4, 2019
23	**Roland Góth (Hungarian Meteorological Service), Kálmán Csirmaz, Péter Baár, Tibor Kelemen** The role of meteorology in the new Hungarian hail suppression system
	Session 5: Microphysics and dynamics of hailstorms
24	**Matthew Kumjian (The Pennsylvania State University), Joshua Soderholm, Julian Brimelow** What is the theoretical upper limit for hail size?
25	**Patrick Kuntze (University of Mainz), Michael Kunz, Corinna Hoose, Annette Miltenberger** Role of initial condition and parametric uncertainty in a severe hailstorm forecast
26	**Camila Lopes (University of São Paulo), Rachel Albrecht** Microphysics, kinematics and electrical activity of hail producing storms during SOS-CHUVA project
27	**Tomeu Rigo (Meteorological Service of Catalonia), Carme Farnell, Roger Vendrell, Raul Raul Rodríguez** First results of an automatic hail-pad in Catalonia
28	**Xin Guo (Beijing Weather Modification Office)** Microphysical structure and formation mechanism of a large-hailstone producing severe storm in Beijing
29	**Lena Frey (Karlsruhe Institute of Technology), Patrick Kuntze, Michael Kunz, Annette Miltenberger, Corinna Hoose** Representation of a severe hailstorm in ICON and ICON-ART