

Extreme Events, Insurance, and Resilience

Board on Atmospheric Sciences and Climate 2025 Fall Meeting – November 3, 2025, 1-4pm ET
Public Agenda

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Overview

Extreme weather events are increasing in frequency and/or severity, placing new pressures on the insurance industry and community resilience. Rising costs, limited coverage, and growing inequities pose challenges for households, businesses, and governments alike. This session builds from BASC's spring session *Extreme Weather and Lessons for More Resilient Communities*. It will bring together scientific and industry perspectives to examine the drivers of this emerging crisis and to explore pathways toward sustainable, equitable solutions.

Session Objectives

This open session aims to (1) illuminate the scientific and societal dimensions of climate-driven risk by examining how increasing extremes are reshaping physical hazards and financial exposure; (2) foster dialogue among researchers, insurers, and policymakers to explore how evolving science, regulations, and market realities intersect; and (3) catalyze future action by informing potential areas for deeper study and cross-sector collaboration to enhance national resilience to weather and climate extremes.

MONDAY, NOVEMBER 3, 2025 [ALL TIMES IN ET]

1:00–1:15 Welcome, Opening Remarks, Session Overview

Kasey White (ESR Program Director) and **Brad Colman** (BASC Chair)

1:15–2:20 Panel 1: The Science of Risk

When Extremes Become the Norm: What Science Tells Us

Moderator: Andrea Lopez Lang (U Wisconsin-Madison), BASC Member

Panel presentations (30 mins)

- Kerry Emanuel (MIT)
- Victor Gensini (Northern Illinois University)
- Ed Kearns (First Street)

Discussion and Q&A (35 mins)

Moderated exchange among panelists followed by audience Q&A

2:20–2:30 **Break**

2:30–3:30 **Panel 2: Policy and Resilience for Managing Risk**

Markets Under Pressure in an Era of Escalating Risk

Moderator: Franklin Nutter (Reinsurance Association of America)

Panel presentations (30 mins)

- Matthew Swann (Integral ILS)
- Josh Darr (Guy Carpenter)

Discussion and Q&A (30 mins)

Moderated exchange among panelists followed by audience Q&A

3:30-3:50 **Synthesis and Pathways Forward**

Moderated conversation with representatives from both panels

Moderator: Brad Colman (BASC Chair)

3:50-4:00 **Closing Remarks**

Brad Colman (BASC Chair)

4:00 **OPEN SESSION ADJOURNS**

Speaker and Moderator Bios

Brad Colman: Brad R. Colman served as Director of Weather Strategy for Bayer/The Climate Corporation (retired 2022) where he oversaw and guided the design and execution of the Bayer global enterprise weather programs. Most recently, Colman served as President of the American Meteorological Society (AMS; 2023). Before joining Bayer/Climate, Colman worked on a new Microsoft consumer weather service team to consolidate and serve weather information across the entire Microsoft ecosystem. Previously, Colman had a diverse career with the National Oceanic and Atmospheric Administration (NOAA) where he worked at The National Weather Service's forecast office in Seattle, Washington; NOAA's Environmental Research Laboratory; and was the Acting Director of NOAA's Meteorological Development Laboratory in Silver Spring, Maryland. Colman is a member and Fellow of the AMS, a member of the Washington State Academy of Sciences, co-chair of NOAA's Science Advisory Board's Environmental Information Services Working Group. and a member of NOAA's Science Advisory Board. Colman received a B.S. in Earth sciences and mathematics from Montana State University and an Sc.D. in atmospheric sciences from the Massachusetts Institute of Technology. He currently serves on the National Academy of Sciences, Engineering, and Medicine's Roundtable on Macroeconomics and Climate Change and the workshop planning Committee on Advancing Risk Communication with Decision-Makers for Extreme Tropical Cyclones.

Andrea Lopez Lang: Andrea Lopez Lang is currently an Associate Professor in the Department of Atmospheric and Oceanic Sciences at the University of Wisconsin–Madison. Prior to joining the faculty, Andrea spent 12 years on the faculty at the Department of Atmospheric and Environmental Sciences at the State University of New York at Albany. Her research expertise spans synoptic to large-scale atmospheric dynamics on the weather to seasonal timescales, where she explores these timescales in the context of variability in the troposphere and stratosphere. Beyond research, she is committed to bridging the gap between student academic experiences and the breadth of careers opportunities for atmospheric scientists. Lang was in the inaugural 2018 class of the American Meteorological Society's (AMS) Early Career Leadership Academy and was the recipient of a 2008 Ford Foundation Fellowship. She's served on the Council of the AMS and as Chair of its Board of Enterprise Economic Development. Lang received a B.S., M.S., and Ph.D. in atmospheric and oceanic sciences from the University of Wisconsin-Madison.

Panel 1 Speakers:

Kerry Emanuel: Dr. Kerry Emanuel is the Cecil and Ida Green post-tenure professor of atmospheric science at the Massachusetts Institute of Technology, where he was on the faculty from 1981 to 2022. Before that he was on the faculty of UCLA from 1978 to 1981. Emanuel's initial focus was on the dynamics of rain and snow banding in winter storms, but his interests gradually migrated to the meteorology of the tropics and to climate change. His specialty is hurricane physics and he was the first to investigate how long-term climate change might affect hurricane activity, an issue that continues to occupy him today. His interests also include cumulus convection, and advanced methods of sampling the atmosphere in aid of numerical weather prediction.

Emanuel is the author or co-author of over 300 peer-reviewed scientific papers, and three books, including *Divine Wind: The History and Science of Hurricanes*, published by Oxford University Press and aimed at a general audience, and *What We Know about Climate Change*, published by the MIT Press and now entering its third edition. His graduate textbook "Physics of the Tropical Atmosphere and Tropical Cyclones" will be published by Princeton University Press in 2026. He was a co-founder and co-director of MIT's Lorenz Center, a climate think tank devoted to basic, curiosity-driven climate research. He is the Chief Scientific Officer and co-founder of WindRiskTech, LLC, which provides clients with advanced synthetic tropical cyclone events sets for assessing current and future tropical cyclone risks worldwide.

Victor Gensini: Dr. Victor Gensini is a professor in the Department of Earth, Atmosphere, and Environment at Northern Illinois University (NIU), where he leads research efforts focused on extreme weather and climate. His work centers on severe convective storms—particularly tornadoes and hail—and how these hazards are influenced by large-scale climate variability. Through innovative modeling and forecasting techniques, Gensini has advanced our understanding of how to anticipate severe weather events weeks in advance, pushing the boundaries of traditional forecasting.

He is widely recognized for bridging operational meteorology with cutting-edge climate science. In 2025, helped lead the In-situ Collaborative Experiment for Collection of Hail in the Plains (ICECHIP), the largest hail-focused field campaign in over four decades. Supported by the National Science Foundation, ICECHIP seeks to improve the detection and prediction of damaging hailstorms, which cause billions in annual losses across the U.S. Dr. Gensini is also a public-facing scientist whose expertise is frequently featured in major media outlets such as The New York Times, PBS NewsHour, and the Associated Press. He serves as an editor for the Journal of Applied Meteorology and Climatology and chairs the American Meteorological Society's Committee on Severe Local Storms.

Ed Kearns: Dr. Ed Kearns is the Chief Science Officer for the First Street where he leads the development of climate risk information products to enable their translation to financial risks. He also serves as a member on NASA's Applied Sciences advisory committee and served on the US Treasury's Climate-related Financial Risk Advisory Committee to the Financial Stability Oversight Council. Previously, Dr. Kearns served as NOAA's first Chief Data Officer starting in 2017 as well as the interim Chief Data Officer for the US Department of Commerce. During his 15 year Federal career, Dr. Kearns led projects related to NOAA's climate data records, NASA's science budget formulation, NOAA's data archive systems, NOAA's Big Data Project, and the National Park Service's Everglades ecosystem restoration efforts. As a professor at the University of Miami, he led satellite calibration efforts for NASA ocean products and developed marine observing data systems. Dr. Kearns holds a Bachelor of Science in Physics and Marine Science from the University of Miami (1990), and a Ph.D. in Physical Oceanography from the University of Rhode Island (1996).

Panel 2 Speakers:

Franklin Nutter: Frank Nutter is President of the Reinsurance Association of America (RAA). Mr. Nutter currently serves on the Advisory Board of the OECD's International Network for the Financial Management of Large-Scale Disasters, the RAND Center on Catastrophic Risk Management and Compensation, and the University of Cincinnati's Carl H. Lindner III Center for Insurance and Risk Management Advisory Board. He has recently served on the Advisory Board of the Center for Health and the Global Environment, an adjunct to the Harvard University School of Public Health, Council of the American Meteorological Society, and the Board of the University Center for Atmospheric Research, a consortium of universities managing the National Center for Atmospheric Research sponsored by the National Science Foundation. He has served as a member of the Board of Directors of the Advocates for Highway and Auto Safety, the Insurance Institute for Highway Safety, and the Worker's Compensation Research Institute, the Board of Overseers of the Institute for Civil Justice, a subsidiary of the Rand Corporation and on the Board of the Bermuda Institute for Ocean Sciences.

Mr. Nutter has a Juris Doctorate from the Georgetown University Law Center and a bachelor's degree in economics from the University of Cincinnati. The University of Cincinnati awarded Mr. Nutter the 2020 Kautz Alumni Masters Award. Mr. Nutter was an officer in the U.S. Navy and is a Vietnam veteran.

Matthew Swann: Dr. Matthew Swann is Head of Research at Integral ILS, a Bermuda-based asset manager specialising in natural catastrophe reinsurance. Matt has worked in the reinsurance industry since 2007 in roles spanning catastrophe modelling/research, underwriting and portfolio management. Prior to this, Matt completed a PhD in climate prediction at the university of East Anglia UK, and holds a 1st class honours degree in geography from the University of Oxford.

Josh Darr: Josh Darr is Global Head of Peril Advisory, Managing Director, Meteorologist at Guy Carpenter Analytics and Advisory. Joining the firm in 2013, Josh leads teams in London and the US of seasoned scientists and engineers advising clients on natural catastrophe risk and climate change. Josh's client efforts surround the impact of weather and climate trends on client business processes, catastrophe model usage, and applications for underwriting, claims handling and portfolio management. In addition to responsibilities at Guy Carpenter, Josh is an Adjunct Professor at Northern Illinois University in the Department of Geography & Atmospheric Sciences, commencing that role in 2010. Prior to 2013, Josh was a member of the corporate hedging team for Chesapeake Energy while leading a weather and agribusiness consulting firm, CHK Weather. Josh's career began at catastrophe modeler Risk Management Solutions, where he held titles of Global Manager of Analytical Services and Director of North America Climate Hazards.

He received his BS degree from Cornell University and his MS degree from the University at Albany, New York, both in Atmospheric Sciences. Josh enjoys participating in the American Meteorological Society where he has been the Chair of the Mentorship Committee, Board of Private Sector Meteorologists and committee members of the Investment Committee and Climate Linked Economics Forum. Josh actively participates in the International Society of Catastrophe Managers. Josh carries the Certified Catastrophe Risk Management Professional designation from the Casualty Actuarial Society and is also a Certified Catastrophe Risk Analyst.