

# Predicting Weather a Season in Advance



Sam Stechmann

Associate Professor, Mathematics & Atmospheric and Oceanic Sciences, University of Wisconsin-Madison

## CURRENT RESEARCH

### Mathematical models for the new frontier of weather and climate prediction

While packing for a vacation, one of the first things many people do is check the weather forecast to dress accordingly with predictions. Such weather predictions have become instrumental not only for appropriate dress but also for agriculture, aviation, and even hazard response and preparation. What if climate predictions could be made a month in advance with high accuracy? Dr. Sam Stechmann, of the University of Wisconsin-Madison, focuses on mathematical problems in atmospheric and oceanic science to improve weather and climate predictions and our understanding of their processes and predictability. Therefore, his research is helping to facilitate the accurate prediction of the weather-climate interface one week, month, or season in advance!

Dr. Stechmann uses new mathematics to understand the extended challenges required by different weather and climate processes; his advanced mathematical models and computations offer novel insight to applications in weather, climate, clouds, rainfall, and their prediction. In so doing, he and his team are able to incorporate multiple variables and probability measures to make sense of something as uncertain as next month's weather. Additionally, his close collaboration with atmospheric scientists and mathematicians lends a crucial interpretation to understanding observational data and staying up-to-date on the newest challenges. In short, Dr. Stechmann's combination of advanced mathematics, close collaboration, and translational research makes his work relevant in exciting ways. While his work may help to predict what your outfit will be in two months, even more importantly, it may be the tool necessary for preparing or evacuating an area with two months notice because...

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## AFFILIATION



University of Wisconsin-Madison

## EDUCATION

- Ph.D., in Mathematics, 2008 . Courant Institute of Mathematical Sciences, New York University
- Postdoctoral scholar, in Mathematics & Atmospheric and Oceanic Sciences, 2008 - 2010 . University of California, Los Angeles
- B.A., in Mathematics, 2003 . University of St. Thomas
- B.S., in Physics, 2003 . University of St. Thomas
- B.A., in Chemistry, 2003 . University of St. Thomas

## AWARDS

- 2014 Sloan Research Fellowship
- 2012 Office of Naval Research Young Investigator Award
- 2012 Honored Instructor Award, UW-Madison University Housing
- 2008 National Oceanic and Atmospheric Administration Climate and Global Change Postdoctoral Fellowship
- 2008 National Science Foundation Mathematical Sciences Postdoctoral Research Fellowship

## RESEARCH AREAS

Environment, Atmospheric / Space, Oceanic, Computational Sciences / Mathematics

## FUNDING REQUEST

Your contributions will support Sam Stechmann, of the University of Wisconsin-Madison, as he uses mathematics to predict weather, climate, clouds, and rainfall. Donations will support the necessary \$500K/year required for personnel, travel, and supplies. Join in developing more advanced climate and weather predictions which will impact agriculture, aviation, and even our level of preparedness for natural disasters!