Title:

The challenges and opportunities of being able to interrogate ensembles of numerical weather prediction models

Abstract:

Inherent uncertainties in predicting the future state of the atmosphere motivate the use of ensembles: many integrations of a numerical weather prediction (NWP) model with some small differences in the initial conditions, or the configuration of the model. Even a single run of a NWP model at high resolution generates a large amount of output; running 20 or 50 or 100 versions of that model becomes a 'big data' problem rather quickly. There are standard ways to summarize the output of an ensemble (calculating the mean and standard deviation, etc.), but this neglects a large amount of potentially valuable information. Few efforts have been consistently successful in producing methods for interrogating large ensembles in a user-friendly way for either research or forecasting. I will summarize some of these efforts, and discuss what is needed in the future for efficient use of these ensemble datasets.

Bio:

Russ joined the faculty at Colorado State in the fall of 2011. He received his B.S. with majors in meteorology and humanities from Valparaiso University in Indiana in 2001, and earned his M.S. in 2003 and Ph.D. in 2008 from the Department of Atmospheric Science at Colorado State University. Russ received an Advanced Study Program Postdoctoral Fellowship from the National Center for Atmospheric Research, and spent 2008-2009 at NCAR in Boulder. From 2009-2011, Russ was assistant professor in the Department of Atmospheric Sciences at Texas A&M University. He received the CAREER award from the National Science Foundation in 2010, and was selected as Outstanding Professor of the Year by the students of the department in 2012. He was selected to receive the Editor's Award for the journals *Monthly Weather Review* and *Weather and Forecasting* in 2015. Russ was promoted to Associate Professor at CSU in July 2016. In October 2017, Russ was appointed the director of the Colorado Climate Center and the Colorado State Climatologist. http://schumacher.atmos.colostate.edu/people/people.php