

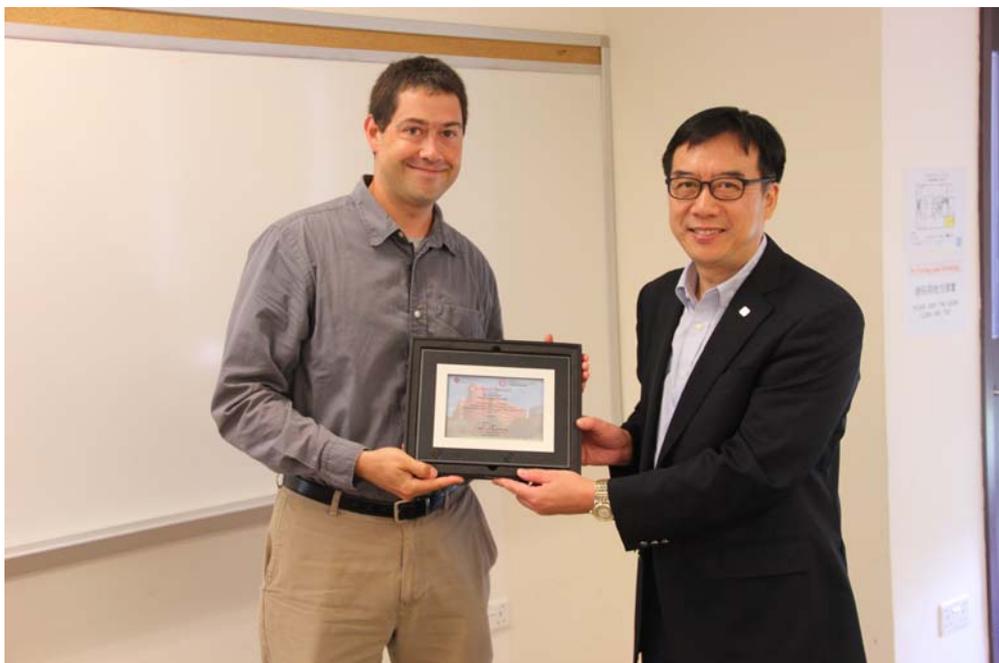


## LSGI Distinguished Lecture Series

### “Developing Ensemble-Based Sensitivity Tools to Improve and Understand the Predictability of High-Impact Events”

#### Overview

It was our pleasure to invite Dr. Brian ANCELL, Associate Professor of Atmospheric Sciences, Department of Geosciences, Texas Tech University, Lubbock, TX, USA, to deliver a seminar of the LSGI Distinguished Lecture Series, to deliver a seminar of the LSGI Distinguished Lecture Series on 30 July 2018.



#### Biography

Brian Ancell is an Associate Professor of Atmospheric Sciences at Texas Tech University. His research focuses on atmospheric predictability, numerical modeling, and data assimilation. He is particularly interested in developing probabilistic tools that can be applied within an ensemble system to improve forecasts of high-impact weather. Dr. Ancell has received funding from the Department of Energy, the National Oceanic and Atmospheric Administration, and the National Science Foundation for his research, and he runs an operational ensemble system that is used extensively by the National Weather Service. Dr. Ancell also serves as an Editor of the American Meteorological Society journal *Weather and Forecasting*.

#### *Developing Ensemble-Based Sensitivity Tools to Improve and Understand the Predictability of High-Impact Events*

Ensemble forecasting of the atmosphere is a computationally-intensive technique that provides high-quality forecasts and their associated uncertainties and probabilities of high-impact weather. Given advances in computational power, today's atmospheric real-time ensemble forecast systems can be run with many members (~50) at convection-allowing scales (~4-km grid spacing) over relatively large areas. Once an ensemble forecast has been run, it is possible to derive relationships within the forecasts between high-impact weather later in a forecast, such as severe convection, and the atmospheric flow earlier in time. This method is known as ensemble sensitivity, and provides both a

means for understanding the critical flow features relevant to the predictability of severe weather and the opportunity to choose ensemble members that are likely to provide a more skillful forecast distribution than the full ensemble. This talk details the development of an operational, convective-scale ensemble data assimilation/forecasting system at Texas Tech University and efforts to use ensemble sensitivity to improve forecasts of high-impact events.