

Statement of relevance to the NOAA climate science and services program
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The proposed research project focuses on the underlying and fundamental processes that control the climate system's response to radiative perturbations. We focus on coupled interactions between the atmospheric dynamics, large scale radiation, ocean circulation and the cryosphere recognizing the inherent inter-connectedness of the sub-components of the climate system. We believe this project fits well with NOAA's climate science and services programs, especially with Earth System Science Program's stated 1st major activity: "Elucidating the physical climate mechanisms involving land-atmosphere-ocean-ice interactions responsible for intraseasonal to multi-centennial climate variability, including abrupt climate change."

Our proposed research is global in scale and falls toward the idealized end of the spectrum of climate research. We believe that we are in a unique position to make progress on understanding the fundamental processes in the coupled climate system that control the transient response to climate change. Our proposed research relies heavily on using a hierarchy of models and observational analysis. We will begin by isolating the system behavior given a limited number of physical processes (and idealized boundary conditions). We will then build layers of complexity both in terms of the modeled physics, the coupling between the various subcomponents of the system, and the boundary conditions. Ultimately, we will work toward understanding more realistic simulations of the climate system and the observational record while still keeping site of the lessons learned from the idealized experiments. We believe this approach will allow us to explore the system from a fundamental perspective while maintaining relevance between our experiments and the real climate system and its inherent complexities.

I am a strong believer that climate research needs to be communicated beyond the immediate research community and I believe my service record to the broader community (both the broader science community and the general public) reflects this belief. I founded the Graduate Climate Conference in 2006-- an inter-disciplinary graduate student only conference-- citing a need for inter-disciplinary collaboration and communication amongst young climate scientists. The conference has now been held 4 times and each conference attracts over 80 participants; over 50 different institutions have been represented at the conference. I've also put together and deliver a 3 part lecture series on climate change for the general public at the local libraries and frequently give lectures at Cornish College of the Arts. I believe these priorities are in line with NOAA's Climate and Societal Interactions Program and hope to continue my climate outreach activities during my post-doctoral position.