Environmental Science Graduate Program Student Seminar Series

Modeling Responses of Crop Yields to Climate Variabilities

Tongxi Hu

Smith 3150 | 11/22/19 | 2:00 - 3:00 pm

Tongxi is a second-year Ph.D. student in ESGP mentored by Dr. Kaiguang Zhao. His research interest is to understand the climatic impacts on agriculture using a combined toolset including biophysical & climate modeling, Bayesian statistics.

Abstract:

Throughout the world, agriculture is facing pressure to feed the rapidly increasing world population in the context of climate change. To fight global change, a lot of efforts have been made to understand responses of crops under different scenarios, so that effective adaptions could be made. These efforts include conducting field experiments with various climatic conditions, developing models (e.g., statistical or numerical models). Previous studies, using either statistical analysis or numerical simulations, concluded that that unabated warming will lead to substantial declines in mean crop yields globally and regionally. However, methods used in these studies, for instance, linear regression or old process-based models, might not be advanced enough to tackle complicated relationships between climate variables and crop yields. We are intended to use multiple approaches including both improved statistical methods and process-based model to explore how climate variables (e.g., temperature and precipitation) has and will influence agriculture production.