

*Department of Geological and Mining Engineering and Sciences  
Presents:*

# **DR. CHRISTINA PATRICOLA**

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***Dow 610***

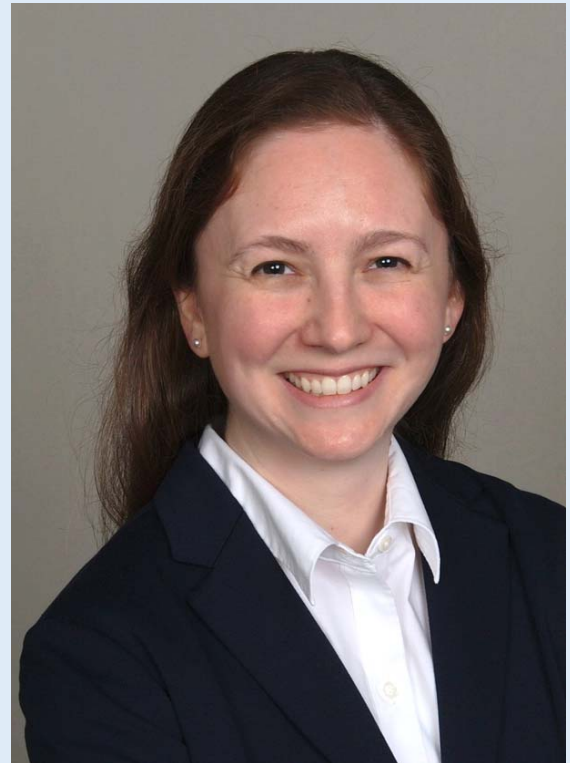
***Monday, April 4th at 4:00 PM***

***Social to follow in Dow 632 - Waterfront Atrium***

Large-scale climate controls on extreme climate events  
in the past, present, and future

**ABSTRACT:**

The impacts of climate variability and change on humans occur through extreme climate events, such as tropical cyclones, floods, and droughts. Climate variability and change influence large-scale climate features, such as basin-scale ocean temperatures, atmospheric thermodynamic structure and circulation, and continental-scale land-surface conditions, leading to changes in the frequency and severity of extreme events. In order to adapt to these changes and improve predictability, it is necessary to understand the physical relationships between extreme events and the large-scale climate in observations and high-resolution climate models capable of resolving weather phenomena. Several cases will be presented, including abrupt West African paleo-monsoon change induced by land-atmosphere interactions, oceanic controls on present day tropical cyclone activity, and the role of anthropogenic emissions in contributing to an extreme flood event.



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