

2022-2023 MES/MESc Speaker Series

Historical Climatology and Extreme Weather Events

Date: Tuesday, October 25, 2022 **Time:** 4:00 pm

Zoom Link: <https://us06web.zoom.us/j/86853159801?pwd=VVBmL1JxalUwZktQR01xUnVVbjlMQT09> **Passcode:** 554431

Or In person: A252-C (the Sandbox)

Presenter: Cary J. Mock, Professor, Department of Geography, University of South Carolina

This study presents an overview of my historical climatology research, with a focus on extreme weather events that extend back several hundred years. Historical documents used for reconstructing historical weather and societal impacts consist of data from ship logbooks, diaries, newspapers, and early instrumental records, collected from more than 50 different archival repositories and hundreds of archival visits. Historical climate research examples that will be presented include: 1) Atlantic Basin hurricanes and hurricane memory (including Atlantic Canada), 2) continental-scale North America extreme weather events in 1849 and societal impacts (including Hudson's Bay region), 3) East Asia typhoons, 4) Hawaii Kona storms, 5) Belize rainfall, 6) Western Arctic extremes, and 7) western North America extreme weather events such as floods and snowstorms (including Vancouver, BC). Many of these older historical weather extremes are "unprecedented" in magnitude and frequency when compared to the modern climate record. Some extremes occurred during the Late Little Ice Age in the early-mid 19th century. Challenges remain on how to relate them to different climate forcing mechanisms such as unique sea-surface temperature feedbacks, synoptic-scale climate patterns, teleconnections such as El Nino, and decadal climate variability. The presentation also will discuss information as related to community participation, secondary and higher education research, as well as web-based volunteer efforts to digitize and archive historical climate information.

Cary Mock is a climatologist with research interests in historical climatology and environments, synoptic climatology, and late-Quaternary paleoclimatology. Recently, he and Scott Elias co-edited the Encyclopedia of Quaternary Science (2nd ed., Elsevier Press). His historical climatology interests, focused mostly within the last few hundred years, include reconstructing extreme weather events and hazards, hurricanes, and assessing historical impacts of climate on society. Geographically, his research covers most of North America but has also expanded internationally and includes East Asia, the Western Arctic, Belize, Bermuda, and Constantinople (Istanbul). For more information on his historical climatology research, please refer to his Historical Climatology Research website.

Cary is also a member of the Centre for Understanding Semi-Peripheries (CUSP) at Nipissing University, and he contributed interdisciplinary work on the 1839 Hurricane, which impacted Bermuda and Atlantic Canada much in the same way as Hurricane Fiona. Please see his CUSP contributions here.

