

RESEARCH SEMINAR

DEPARTMENT OF GEOGRAPHY AND RESOURCE MANAGEMENT
THE CHINESE UNIVERSITY OF HONG KONG

Emerging research frontiers in paleotempestology and paleoecology for the northern Gulf of Mexico coast

19 Oct 2023 (Thur)
4:30 – 6:00 pm (UTC+8)
Rm 221, Chen Kou Bun
Building, CUHK

The northern Gulf of Mexico coast is sensitive to the effects of global climate changes, particularly to the destructive impacts of intense hurricanes and the ecosystem responses to climatic perturbations. Over the past three decades I have pioneered the field of paleotempestology by using marine indicators in coastal sedimentary records to reconstruct the Holocene history of hurricane activities in the Gulf of Mexico and Caribbean regions. However, an emerging research frontier is to investigate the role of freshwater or fluvial processes in storm sedimentation, which is critical for assessing the risk of storm-induced compound flooding in coastal areas. Biogeographically, the northern Gulf of Mexico coast encompasses the poleward range limit of mangrove populations in North America, which has been extending northward in response to winter warming. However, the long-term climate sensitivity of individual mangrove species is unknown due to the lack of paleoecological records. During the past decade we have produced palynology-based multi-proxy records from multiple locations along the Gulf of Mexico coast, which have revealed the Holocene history of mangrove migration and population dynamics in response to climate changes. I will use case studies from my own research to illustrate both research frontiers.

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Kam-biu Liu is the George William Barineau III Professor and past department Chair (2013-2023) in the Department of Oceanography and Coastal Sciences at Louisiana State University (LSU). Liu's research has centered around the use of fossil pollen, lake sediments, and ice cores to reconstruct the patterns and processes of climatic and environmental changes on timescales of centuries to millennia. Liu is a Fellow of both the American Association for the Advancement of Science (AAAS) and the American Association of Geographers (AAG). He received the Lifetime Achievement Award in Paleoenvironmental Change from the AAG in 2018, and another Lifetime Achievement Award from the AAG Climate Specialty Group in 2023. He was honored as a SLLW Visiting Fellow (黃林秀蓮訪問學人) by the Chung Chi College of CUHK in 2015 and is currently a Vice-Chancellor Visiting Professor in the Geography and Resource Management Department at CUHK.



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