香港浸會大學
HONG KONG BAPTIST UNIVERSITY

社會科學院
FACULTY OF SOCIAL SCIENCES

Department of Geography --- Public Seminar Series

"A road map for enhanced research on the historical and geological record of past tropical cyclone events in the South China Sea and Western Pacific"

Speaker:

Prof. Adam D. Switzer

Associate Professor and the Associate Chair (Academic), the Asian School of the Environment

Principal Investigator, the Earth Observatory of Singapore

Nanyang Technological University, Singapore

Date: 22nd August 2018 (Wednesday)

Time: 11:30am – 1:00pm

Venue:

Room AAB1312, Multi-purpose Room, Faculty of Social Sciences,

Academic and Administration Building (AAB), Baptist University Road Campus,

Hong Kong Baptist University

All are welcome

Recent Tropical Cyclones (TCs) including 2013 Typhoon Haiyan in the Philippines, 2016 Cyclone Winston in Fiji, and 2017 typhoon Hato in southern China were extremely intense typhoons. All events caused significant economic and social disruption and in the case of Haiyan claimed more than 6000 lives and affected more than 16 million people. Although these events were clearly large typhoons it is near impossible to state with confidence how they compare to past events beyond a few decades. Although many of the coasts of Asia have long detailed written histories that extend back several millennia and record numerous TCs e.g. China, Japan and Philippines the historical record is commonly fragmentary, incomplete and lacks spatial balance. Despite some obvious limitations, the historical record provides a vital link between instrumental datasets and the geological record that allows for detailed reconstruction of past events (e.g. Soria et al., Bull. Amer. Met. Soc., 2016). Beyond historical accounts lies the realm of paleotempestology, the study of past TCs using geological techniques. This rapidly advancing discipline is based on data from a variety of sources including traditional sedimentary techniques applied to coastal sediment sequences including particle size analysis and micropaleontological studies but also new techniques XRF core scanning, water isotope analysis and tree ring and speleothem chemistry. To date paleotempestological studies in the region are limited to very few locations and the present spatial coverage of these studies limits the usefulness of such records. Here, I synthesize the small but deep state of our knowledge in the region before reviewing a combination of new proxies and discussing their strengths and limitations at resolving past typhoon activity in the region. I will conclude with some statements on future research directions for paleotempestology and TC studies in the region. This body of work aims at preparing the populations of the region for potential changes in TC intensity and periodicity with changing climate.