

Seminar on

Human influences on changes in the temperature seasonality

Date: May 9, 2018 (Wednesday)

Time: 4:30pm – 5:15pm

Venue: 902, 9/F, Yasumoto International Academic Park,
The Chinese University of Hong Kong

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Abstract

The seasonal cycle is a ubiquitous feature in geophysical time series, and more specifically in temperature records. It is the largest variability for many climate variables outside the tropics. Seasonality influences farmers' decisions about when to cultivate and sow and harvest. Whether human activities have affected the temperature seasonality at the regional scale is unclear. Here we compared long-term changes in the amplitude of surface air temperature annual cycle in the observations with those simulated by the climate models participating in phase 5 of the Coupled Model Intercomparison Project (CMIP5). Different spatial domains ranging from hemispheric to subcontinental scales in mid- to high-latitude land areas for the period 1950–2005 are considered. Both the optimal fingerprinting and a nonoptimal detection and attribution technique are used. The results show that the space–time pattern of model-simulated responses to the combined effect of anthropogenic and natural forcings is consistent with the observed changes. A human influence on the weakening in the temperature seasonality in the Northern Hemisphere is detected, particularly in the high latitudes (50° – 70° N) where the influence of the anthropogenic forcing can be separated from that of the natural forcing. In the second part of the presentation, I will show changes in the timing of the temperature seasonal cycle and quantify the urbanization effects on these changes in China.