The Decision Sciences Area at IIM Bangalore welcomes you to a webinar, titled:

'A Bayesian change point model to identify local temperature changes related to urbanization'

by

Dr. Candace Berrett

Date: 27th October, 2021
Time: 8:30 a.m. to 9:30 a.m.

Abstract:

Changes to the environment surrounding a temperature measuring station can cause local changes to the recorded temperature that deviate from regional temperature trends. This phenomenon -- often caused by construction or urbanization -- occurs at a local level. If these local changes are assumed to represent regional or global processes it can have significant impacts on historical data analyses. These changes or deviations are generally gradual, but can be abrupt, and arise as construction or other environment changes occur near a recording station. We propose a methodology to examine if changes in temperature trends at a point in time exist at a local level at various locations in a region. Specifically, we propose a Bayesian change point model for spatio-temporally dependent data where we select the number of change points at each location using a "forwards" selection process using deviance information criterion (DIC). We then fit the selected model and examine the linear slopes across time to quantify the local changes in long-term temperature behavior. We show the utility of this model and method using a synthetic data set and observed temperature measurements from eight stations in Utah consisting of daily temperature data for 60 years.