Spatio-temporal analysis of climate variables around the Korean Peninsula

Presenter: Jaehong Jeong

Department of Mathematics, Hanyang University

Renewable energy has significant potential for future energy portfolios without negative environmental impacts. We analyze climate variables, such as wind vectors and wave height, around the Korean Peninsula from the fifth-generation ECMWF atmospheric reanalysis (ERA5). To model the spatio-temporal dynamics of these variables, we explore several modeling approaches, including trans-Gaussian processes, Fixed Rank Kriging, and/or deep learning models. The results provide practical insights into the optimal site selection for power generation and highlight the feasibility of renewable energy sources in South Korea.