RESEARCH SEMINAR

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

Three-dimensional remote sensing of atmosphere and a risk-based air pollution management system

28 March 2024 (Thu)
4:30 – 6:00 pm (UTC+8)
Rm 221, Chen Kou Ben Building, CUHK

Systematic monitoring of the Earth and atmosphere necessitates the employment of diverse techniques, ranging from ground-based to space-based approaches. Satellite remote sensing techniques have emerged as valuable tools for monitoring the Earth-atmosphere-ocean system across extensive regions. In my research, various physical and machine-learning-based algorithms have been developed to convert columnar satellite measurements into ground-level concentrations. A series of air pollution and health studies have been initiated, building upon my satellite-based air pollution products. Lidar technology has also emerged as a powerful tool capable of remotely measuring the vertical variations of the atmosphere within the planetary boundary layer. Lidar measurements have been employed to study the dynamics of the boundary layer. By combining satellite and lidar remote sensing data with innovative algorithms, my research contributes to a more comprehensive monitoring of the three-dimensional variations of the atmosphere, enabling better insights into their impacts on the environment and human health. Furthermore, a risk-based system was developed to facilitate the synergistic management of climate change and air pollution.

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Dr. Lin is currently a Research Assistant Professor in the Division of Environment and Sustainability at the Hong Kong University of Science and Technology. Dr. Lin has published 95 papers in reputable journals. Among these, he is the first or corresponding author for 27 scientific papers. As of March 2024, his publications have accumulated a total citation count of >4100, resulting in an h-index of 34. His research interests encompass earth monitoring and satellite remote sensing, greenhouse gases and climate change, in-situ lidar remote sensing and atmospheric boundary layer, land-ocean-atmosphere interactions, and synergistic climate change and air pollution management.

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