

RESEARCH SEMINAR

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

Carbon Stocks and Fluxes in an Evergreen Subtropical City: Variability, Sources, and Drivers

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Urban areas are expanding rapidly in population and land area. There is a strong need to consider cities in national and global carbon budgets and climate change mitigation policies. While cities are generally major sources of anthropogenic CO₂ emissions, research has shown that parts of urban areas may also act as CO₂ sinks due to CO₂ uptake by vegetation. However, available data are related to a large degree of uncertainty due to the limitations of the applied methods and the limited number of studies available from urban areas. Further, the specific conditions of cities such as warmer temperatures and evergreen vegetation can alter carbon stocks and fluxes. In this talk, I will present a range of studies conducted in Auckland, New Zealand, a subtropical city dominated by evergreen vegetation. Our aim is to quantify carbon stocks and fluxes and its temporal and spatial variation, assess the sources of urban CO₂ emissions and investigate the drivers influencing carbon stocks and fluxes using a combination of approaches (e.g., eddy covariance, radiocarbon isotopes, remote sensing).



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Dr Luitgard Schwendenmann is an Associate Professor in Carbon and Ecosystem Science at the University of Auckland, New Zealand. She obtained her PhD degree in Landscape Ecology from the Georg-August University of Göttingen, Germany. Dr Schwendenmann established and leads the University of Auckland Carbon and Ecosystem Science Lab. Her research focusses on the effects of global environmental change on ecosystem processes. Current research includes the effects of plant pathogens on ecosystems functions and greenhouse gas emissions from terrestrial and aquatic systems. Dr Schwendenmann's research integrate a diverse range of research fields (e.g., biogeochemistry, ecohydrology, tree physiology, forest ecology, stable isotopes).



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