School of Earth and Environmental Sciences
Spring 2024 Colloquium Series

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12:15 PM -1:30 PM
Science Building C-207

Zoom ID: 827 8857 5939
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Advancements in polar sea ice monitoring: integrating altimeter and radiometer satellite data in the Arctic and Antarctic

Polar sea ice plays a crucial role in the global climate system, serving as an intermediary between the atmosphere and ocean and significantly influencing their interactions. Its sensitivity to both global and polar climate variations underscore the importance of precise monitoring. A key challenge in the scientific community has been the accurate retrieval of sea ice thickness and snow depth in both the Arctic and Antarctic regions using satellite data. I will present the recent advancements in remote sensing of Arctic and Antarctic sea ice, showcasing studies on: (1) The analysis of wave-affected marginal ice zones in the Atlantic Arctic region using CryoSat-2 data; (2) Investigations into the bias in snow-dominated sea ice thickness measurements from CryoSat-2 waveforms in the Weddell Sea; (3) Assessments of the impact of snow cover on sea ice morphology in the Southern Ocean using L-Band radiometer data. Additionally, insights from my PhD research on developing a simultaneous algorithm for estimating sea ice thickness and snow depth using radar/laser altimeters and passive radiometers will be shared. These studies collectively contribute to a deeper understanding of sea ice dynamics and their implications for climate modeling and forecasting.