Department of Physics Colloquium

Speaker: Dr. Morgan Loechli

Department of Physics
Kalamazoo College

"Modeling Spatial Variations in Carbon Exchange Using Diurnal and Seasonal Cycles in Remotely Sensed CO_2"

Open to the public, free of charge

Monday, December 4, 2023 – 4 p.m. – 1110 Rood Hall

Refreshments: 3:30-3:50 p.m., Bradley Commons, 2202 Everett Tower

Abstract: Have you ever wondered why CO_2 levels in the atmosphere vary by location and time? To answer this question, we analyze data from a network of ground-based spectrometers called the Total Carbon Column Observing Network (TCCON) and from a satellite called the Orbiting Carbon Observatory-2 (OCO-2). Notably, when viewing the northern hemisphere as a whole, TCCON's seasonal cycle amplitude (SCA) appears smaller than that found using OCO-2 data, suggesting site-specific biases. To understand what is causing these biases, we look for correlations between SCA and other factors. What we see highlights the role of both large-scale atmospheric dynamics and local-scale carbon exchange in determining what atmospheric CO_2 looks like at a given place and time. These insights illuminate challenges in upscaling TCCON observations and deepen our understanding of spatial variability in observed SCAs.

Parking: Metered parking is available in Parking Structure #2, near Miller Auditorium.
More information: (269) 387-4941 Department of Physics email Campus map

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