

CGD Seminar Series

Disturbances within the North American Boreal and Arctic Domains: Observations and potential future trends

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NCAR

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Time: 11am – 12pm

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*For live stream information, visit the
CGD Seminar Webpage*

ABSTRACT

Climate and human activity are leading to increasing frequency, severity, and extent of many disturbances within the North American arctic and boreal zone, including wildfire, biotic disturbances, those related to permafrost, as well as human-related disturbances such as logging and oil and gas exploration. These disturbances have a variety of impacts on ecosystem function in the northern high latitudes and have different sensitivities to climate and trajectories of vegetation recovery. However, many of these disturbances are not well studied, and most are not included in Earth system models. Because most of these processes involve biotic and geophysical feedbacks that can lead to regional and global impacts on biogeochemical cycling, an accurate understanding of their interactions and impacts is necessary for improved Earth system modeling. I present work related to a synthesis of vegetation response to arctic and boreal disturbances using Landsat satellite imagery. I will highlight the current capabilities for simulating these types of disturbances within Earth system models, and present ongoing efforts to improve modeling of wildfire within the Arctic-Boreal region. Dynamic simulation of these disturbances is crucial to capturing the Earth system. With improved simulation, we can more accurately capture the current as well as potential future trajectories of vegetation and climate change.

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