

Linking canopy greening, leaf phenology and photosynthetic activity in Arctic vegetation

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ABSTRACT: I propose to take advantage of a unique and timely opportunity to borrow (for one year), custom built, multi-sensor instrument arrays to track canopy phenology (greening) and associated environmental variables in the Arctic tundra. The goal of the research will be to quantify the relationships among leaf expansion, canopy greening and photosynthetic competency to facilitate a broader understanding of landscape level carbon balance. Preliminary fluorescence measurements from last growing season indicate a potentially important offset between canopy greening and the initiation of photosynthesis in the woody shrub component of the tundra ecosystems. Quantifying this relationship could prove vital to efforts to estimate landscape carbon exchange based on remotely sensed vegetation indices. Taking advantage of the availability of these unique instrument clusters to monitor spectral reflectance while simultaneously measuring physiological activity will provide a rare opportunity to consider the contribution of early and late season physiological activity in this important and quickly changing ecosystem. *This project is not appropriate for an undergraduate summer intern due to budget constraints associated with station fees and travel.*