

Product Prototypes for Vegetation Function - Canopy Chlorophyll at Medium and High Resolution

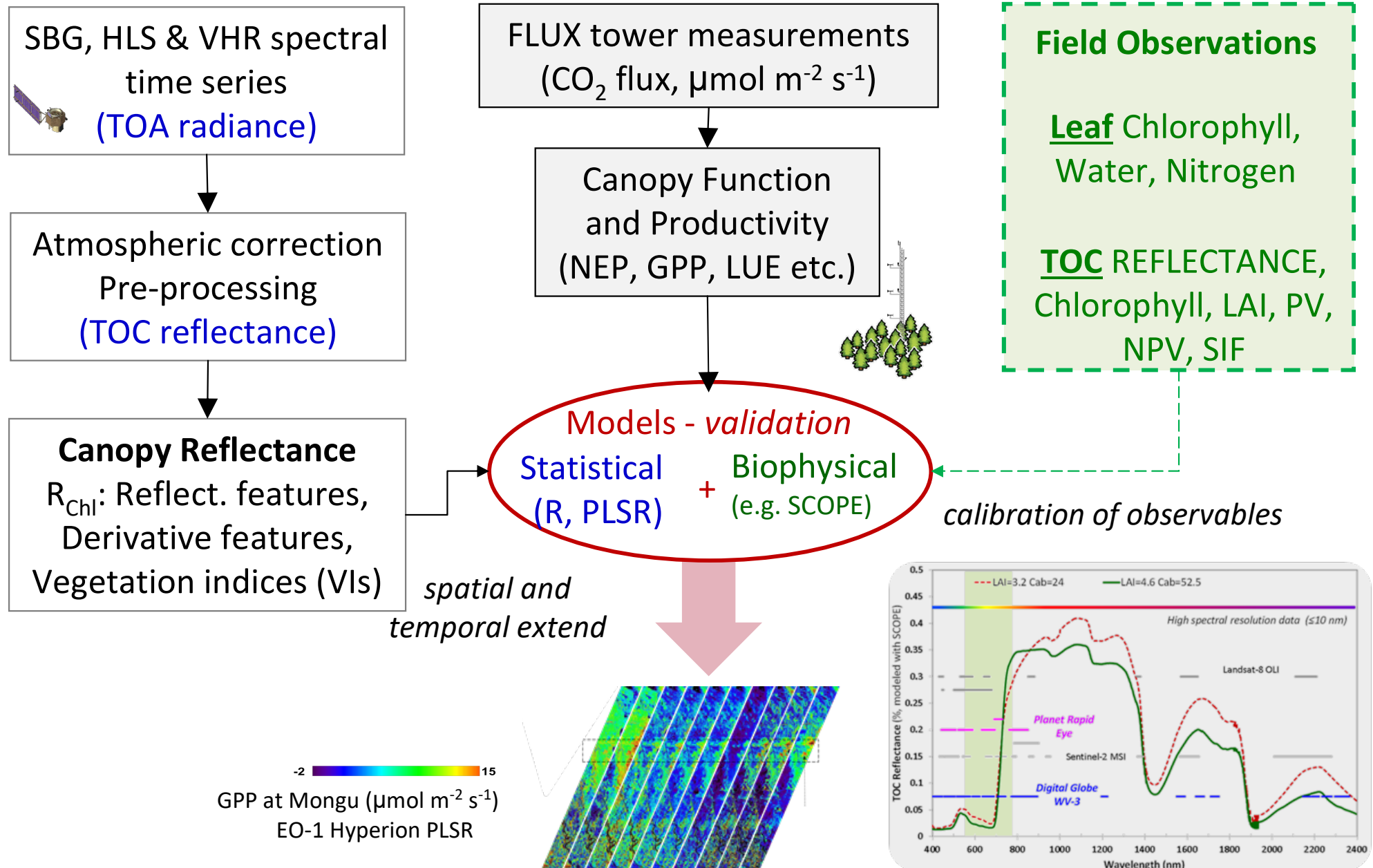
NASA LCLUC/MuSLI: Prototyping Canopy Chlorophyll for
Assessment of Vegetation Function and Productivity

P. Campbell AND J. Albrechtova

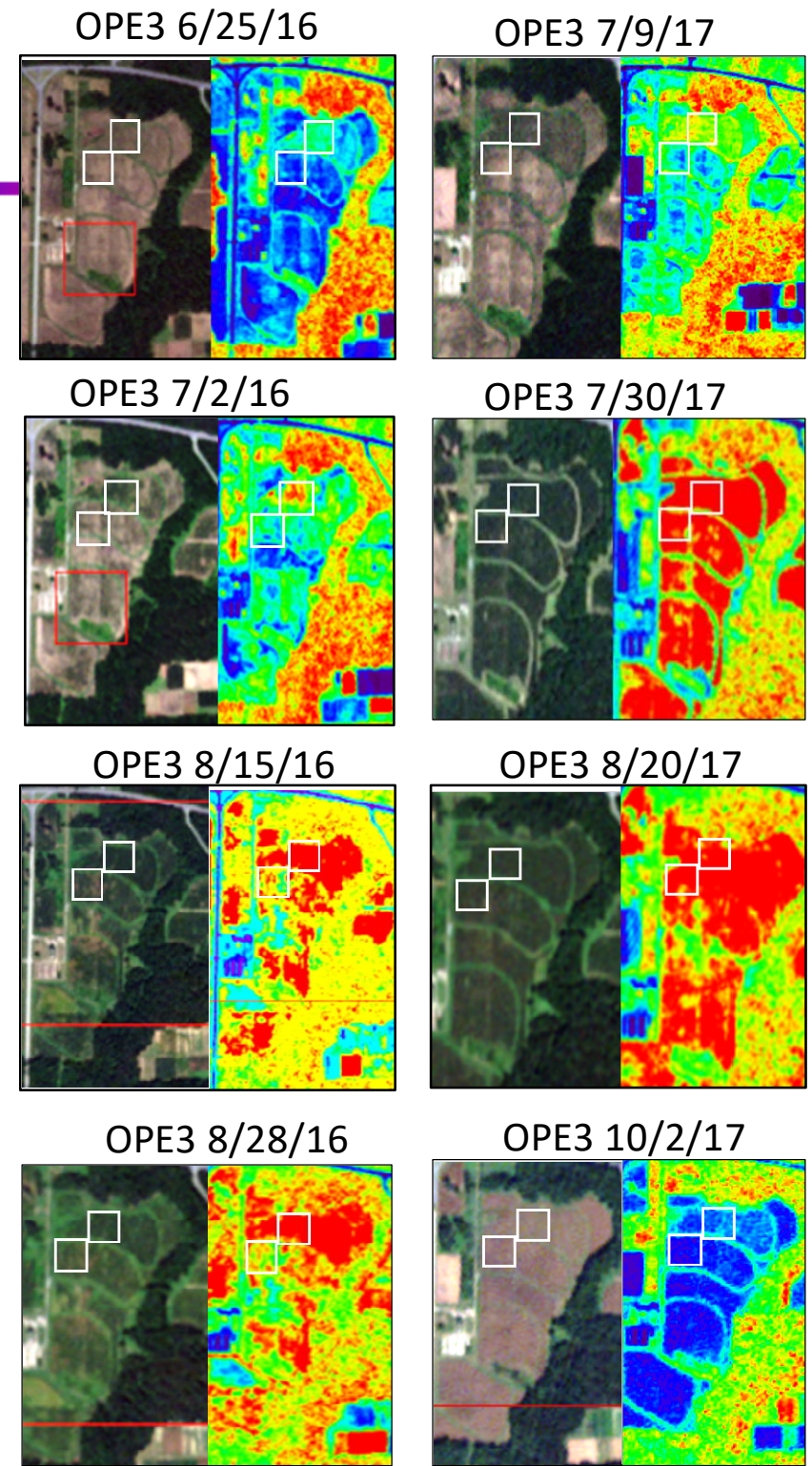
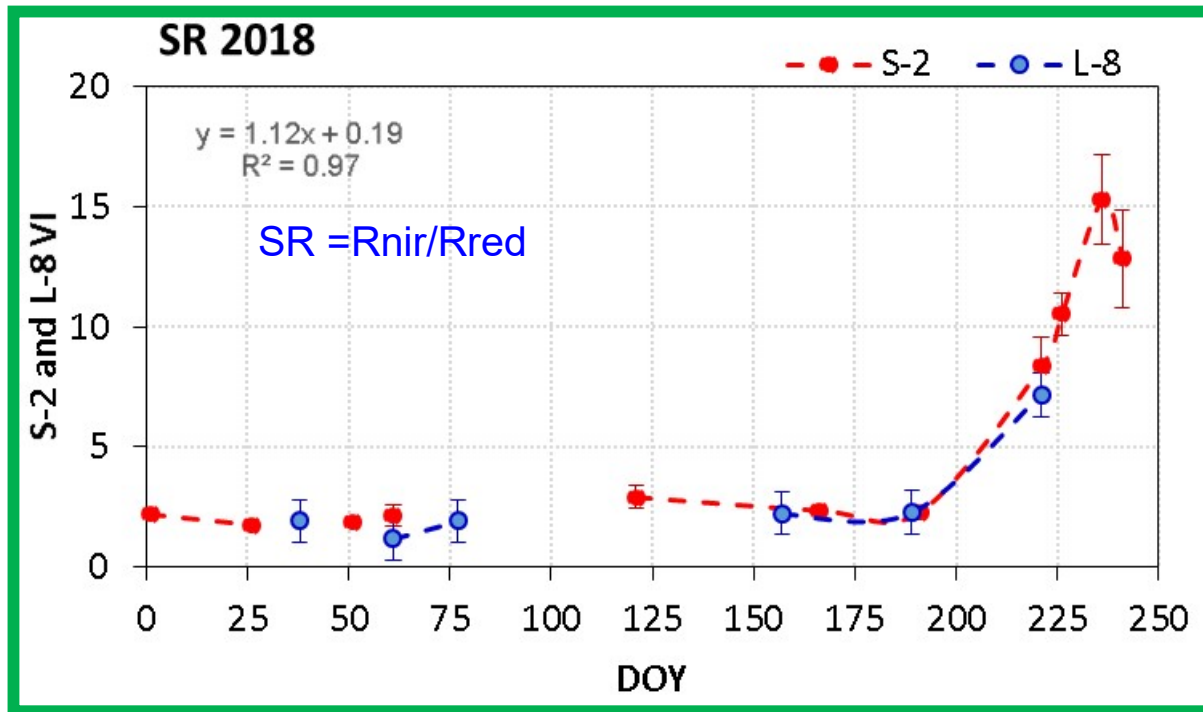
*Co-Is: F. Huemmrich, C. Neigh, E. Middleton and P. Lukes
and
Collaborators*



Combining Field & Satellite Reflectance Observations to Estimate Canopy Chlorophyll and Function (GPP)



Prototyping TOC Chl Time Series – HLS & RE



- HLS R_{Chl} - synergy depicting seasonal differences
- VHR RE R_{Chl} depicting within plot seasonal variability

In Summary

- Chlorophyll content is the most important driver of photosynthesis and a key characteristic of vegetation function and productivity.
- The Chl feature is one of the most prominent vegetation spectral characteristics. Both hyperspectral (HS) and multi-spectral (MS) systems show potential for measuring remotely canopy Chl content (TOC Chl), with different accuracy.
- Dense time series (weekly/biweekly) are required to capture the changes in TOC Chl in response to environmental factors and with phenology, which can be obtained only through synergy between HS and MS observations.
- Field measurements at FLUX sites enable product calibration, while integrated modes (e.g. SCOPE) facilitate evaluation and validation of TOC Chl and GPP.

This project will contribute for a better understanding of the effects of the seasonal dynamics in environmental conditions on vegetation traits and productivity. The research contributes to meet the requirements of the US Decadal Surveys (NRC, 2007 and 2017) and is directly relevant to the forthcoming Surface Biology and Geology (SBG/NASA, USA) mission.