

PROPOSAL FOR FLUXNET SYNTHESIS PUBLICATION



Initial coordinators:: Manuela Balzarolo, Dario Papale
Collaborators needing access to data: _____
Affiliations: DiBAF – University of Tuscia (Italy)

DATASET PROPOSED

LaThuile database

TITLE OF PAPER AND OUTLINE

Analysing the relationships among carbon fluxes and broadband vegetation indices at global scale

Broadband vegetation indices derived from measurements of incoming and outgoing photosynthetically active radiation (PAR) and shortwave global radiation (Rg) or directly measured by optical sensors mounted on eddy covariance towers can contribute in understanding carbon fluxes at ecosystem scale. They also play an important role in scaling-up, at regional and global scales, of *in-situ* biophysical vegetation parameters and in modeling, validating, and predicting carbon dioxide fluxes that are typically measured by eddy covariance. Since the relationship between carbon fluxes and broadband vegetation indices varies spatially and temporally in relation of plant functional types, environmental condition and management, a global evaluation of this relationship and their parameters can be done using tower based vegetation indices. However few works have considered the relation between carbon fluxes and broadband vegetation indices and suggested the relationship is site specific, varies with climate conditions and is affected by management.

Our aims are to understand how much general is the relationship between broadband vegetation indices and fluxes, which meteorological conditions mainly impact on it and how much these additional data can help to better reproduce carbon fluxes. Metrics of broadband vegetation indices will be analysed over a large number of eddy covariance sites with different plant functional types and across the seasons. Estimations of carbon fluxes from broadband vegetation indices will be conducted by regression analysis, artificial neural networks and model's accuracy by statistical analysis.

PROPOSED SITES TO BE INVOLVED

All FLUXNET sites with measurements of incoming and outgoing photosynthetically active radiation (PAR_inc and PAR_out), incoming and outgoing short-wave radiation (Rg_inc and Rg_out) or NDVI measurements. Ancillary data of biomass and LAI will be also taken into account.

PROPOSED RULES FOR CO-AUTHORSHIP

All PIs and collaborators will be invited to contribute to the work following the data policy proposed in the disclaimer for the FLUXNET2007 synthesis.