

PROPOSAL FOR FLUXNET SYNTHESIS PUBLICATION



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TITLE OF PAPER AND OUTLINE

Determinants of spatial and temporal gradients in ecosystem fluxes and their dependency upon climate drivers: a comparison between North America and Europe

In this regional synthesis paper, we seek to address the following topics.

1. How is the spatial variability of ecosystem gross and net fluxes related to climate conditions in both continents ?
2. Can the spatial variability of ecosystem fluxes in relation with climate be reproduced by state of the art ecosystem models which do not possess an explicit description of local land use history nor management ?
3. Is the temporal (interannual) variability different from the spatial variability in magnitude?
4. Is the slope of temporal vs. spatial variability of fluxes different ?
5. Is the temporal variability driven by GPP or by TER over both continents
6. Is the temporal variability of TER and GPP controlled by climate in a similar way over both continents

The focus of the analysis will be forest ecosystems. Building up upon the recent analysis of Reichstein et al. GRL (2006) over Europe, the spatial and temporal response of gross and net fluxes to climate will be decomposed and determined for each continent. The results will be compared to the simulations of the ORCHIDEE global ecosystem model. If the model proves able to reproduce the observed variability, it will then be used to map climatic gradients of fluxes.

PROPOSED SITES TO BE INVOLVED

All sites containing at least 4 full years of flux and meteorological data maybe considered for this analysis.

PROPOSED RULES FOR CO-AUTHORSHIP

The rules as proposed in the disclaimer for the FLUXNET2007 synthesis will be applied. Strong collaboration with colleagues working on other IAV studies in this FLUXNET synthesis context will be sought for and co-leading authorship will be assumed for coordinators of other IAV syntheses.