

SEMINAR

Monday June 25th, 17.00, ETH Hönggerberg HIL E10.1

DR. ATHANASIOS PASCHALIS

DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING, IMPERIAL COLLEGE LONDON

The effects of climate variability on the ecosystem responses under elevated atmospheric CO₂

It is currently widely accepted that elevated CO₂ concentration impacts the biogeochemical and hydrological cycles at the ecosystem scale. While the significance of elevated atmospheric CO₂ concentration on instantaneous leaf-level processes such as photosynthesis and transpiration is rarely disputed, its integrated effect at the ecosystem level and at long-time scales remains a subject of debate. In this seminar, I will discuss how different components variability affect our skill in quantifying this integrated effect. The presentation will focus on three different sources of variability (a) meteorological variability at different temporal scales, (b) variability of the biochemical parameters regulating vegetation carbon uptake and (c) variability related to the successional status of the ecosystems. Combining simulation results from a mechanistic ecohydrological model and data obtained at the Duke Free air CO₂ enrichment experiment, a quantification of the variability of the responses from the leaf up to the ecosystem scale related to the water (e.g. changes in transpiration, evapotranspiration partitioning, soil moisture dynamics) and carbon (e.g. changes in carbon fluxes and stocks) cycles will be presented..

For more information, please contact Professor Peter Molnar (molnar@ifu.baug.ethz.ch)