



## **Comparative measurements of soil and canopy gas exchange in three crops on multiple scales**

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In the framework of the FLOWatch project, methods of measuring and modelling soil moisture, temperature, respiration and related surface-atmosphere fluxes are compared at an agricultural test site in Germany (50°50' N, 06°30' E). During August 2007, the COCA-IV campaign, comparing airborne and ground-based flux measurements from single leaf to regional scale, was performed on wind-parallel flight tracks crossing this site. Main land use types of the study area at this time of the year are maize, sugar beet, and freshly harvested cereal fields. These three stand types were characterized regarding their spectral properties within the UV to NIR range, fluxes of energy and CO<sub>2</sub>, and state variables. Chambers and chlorophyll fluorescence were used to measure CO<sub>2</sub> fluxes of soil and plants at the point scale. The eddy covariance method was used to evaluate field-scale (low ground-based) and regional (airborne/tower) fluxes. The poster focuses on the first step of methodological analysis, i.e. comparison of spatial averages of local-scale fluxes, to eddy covariance field scale fluxes with and without footprint-based corrections. It is shown that especially CO<sub>2</sub> fluxes from the bare field, due to their small-scale variability and small magnitude as compared to adjacent field NEE, require filtering and correction both of chamber spatial averages and

eddy covariance measurements.