



## **Carbon, energy and water fluxes at the forest site ‘Hohes Holz’ and the grassland ‘Am Grossen Bruch’**

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Two different ecosystem observatories have been established in the Magdeburger Börde in central Germany with the goal to determine carbon, water and energy fluxes of a mixed-beech ecosystem forest (‘Hohes Holz’) and a meadow (‘Am Grossen Bruch’). Even though eddy covariance (EC) measurements allow the assessment of the carbon (Net Ecosystem Exchange, NEE) and water balance at the ecosystem scale, the relative contributions of evaporation and transpiration as well as carbon sources and sinks need, however, to be determined separately for thorough process understanding. Thus the carbon and water fluxes within the forest are determined not only via the eddy covariance method from a 50m high tower but are also additionally partitioned where possible: carbon dioxide fluxes from the soil are measured continuously via soil chambers on eight spots and on 40 spots on a campaign basis to reflect the spatial variability of the soil. Water fluxes are partitioned via throughfall and stemflow measurements and water reaching the soil is reflected by spatially distributed soil sensors for soil moisture determination. Transpiration is determined via sap flow measurements at selected trees within the forest stand. The forest station (DE-HoH) is equipped following the standards of a class 1 ecosystem station within the ICOS-RI and has recently been labelled, confirming that all requirements for a class 1 ecosystem station are fulfilled.

The meadow site (DE-GsB) about 10km away from the forest site is also equipped with EC measurements such that the behavior of different ecosystems in the same climatic region can be compared. Since the establishment of both stations some abnormal years mainly with respect to precipitation amounts have occurred. We will show the different reactions of the ecosystems on drought events of different intensities. Lag effects need further investigations and clearly show the need for long-term measurements in such ecosystems.