



Distribution and Fate of Organic Carbon Deposited in the Floodplain of the Danube National Park

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Mineral soils of riverine floodplain systems are characterized by high contents of organic carbon (OC) in both top and sub soils. Two different mechanisms of OC enrichment are important in these soils: the sedimentation of allochthonous OC rich material during flood events and the enrichment of autochthonous derived biomass in soils. The accumulation of allochthonous OC eroded along the river catchment reveals that floodplain soils act as a sink for organic carbon.

We have investigated the spatial distribution of organic carbon in floodplain soils among different vegetation units at 70 sampling plots of the Danube National Park near Vienna (Austria). Furthermore, a density fractionation of the organic matter is being carried out with some of the soil samples to gain information on relevant processes of C storage. We will separate free particulate organic matter (fPOM), intra-aggregate particulate organic matter (iPOM) and mineral-associated organic matter (mOM).

Our first results indicate a huge C sequestration potential of the floodplain soils. Stocks of organic C were up to 20 kg/m² (0 - 1 m soil depth). No correlations were found between recent biomass production and the C contents of the soils, proving the high relevance of erosion and sedimentation for carbon dynamics at our study sites. Results of the C fractionation, will give insight into the fate of allochthonous organic matter after sedimentation in the floodplain.