



## **Vegetation-induced spatial variability of soil redox properties in wetlands**

Zoltán Szalai (1,2), Gergely Jakab (1), Klaudia Kiss (1), Marianna Ringer (2), Réka Balázs (1), Dóra Zacháry (1), Kata Horváth Szabó (1), and Katalin Perényi (3)

(1) Research Centre for Astronomy and Earth Sciences, Budapest, Hungary, (2) Eötvös Loránd University, Department of Environmental and Landscape Geography, Budapest, Hungary, (3) Eötvös Loránd University, Department of Analytical Chemistry, Budapest, Hungary

Vegetation induced land patches may result spatial pattern of on soil Eh and pH. These spatial pattern are mainly emerged by differences of aeration and exudation of assimilates. Present paper focuses on vertical extent and temporal dynamics of these patterns in wetlands.

Two study sites were selected: 1. a plain wetland on calcareous sandy parent material (Ceglédbercel, Danube-Tisza Interfluvium, Hungary); 2. headwater wetland with calcareous loamy parent material (Bátaapáti, Hungary).

Two vegetation patches were studied in site 1: sedgy (dominated by *Carex riparia*) and reedy (dominated by *Phragmites australis*). Three patches were studied in site 2: sedgy 1 (dominated by *C. vulpina*), sedgy 2 (*C. riparia*); nettle-horsetail (*Urtica dioica* and *Equisetum arvense*). Boundaries between patches were studied separately.

Soil redox, pH and temperature studied by automated remote controlled instruments. Three digital sensors (Ponsell) were installed in each locations: 20cm and 40cm sensors represent the solum and 100 cm sensor monitors the subsoil). Groundwater wells were installed near to triplets for soil water sampling. Soil Eh, pH and temperature values were recorded in each 10 minutes. Soil water sampling for iron and DOC were carried out during saturated periods.

Spatial pattern of soil Eh is clearly caused by vegetation. We measured significant differences between Eh values of the studied patches in the solum. We did not find this kinds horizontal differences in the subsoil. Boundaries of the patches usually had more reductive soil environment than the core areas. We have found temporal dynamics of the spatial redox pattern. Differences were not so well expressed during wintertime. These spatial patterns had influence on the DOC and iron content of porewater, as well. Highest temporal dynamics of soil redox properties and porewater iron could be found in the boundaries. These observations refer to importance patchiness of vegetation on soil chemical properties in wetlands.

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