



Impacts of rewetting on hydrological functioning and dissolved organic carbon flux in a degraded peatland (La Guette, France)

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In Sphagnum-dominated peatlands, dissolved organic carbon (DOC) fluxes are mainly controlled by peat water saturation state corresponding to the equilibrium between recharge/drainage fluxes and to the peat storage capacity. Rewetting is a wide spread method that has been used for restoring the global hydrological behavior of degraded peatland ecosystems. Therefore, there is a need to assess the impact of rewetting on peatland hydrology but also on the modification of dynamics and DOC fluxes that significantly impact on carbon sink function of these ecosystems.

To investigate this question, meteorology, hydrological data, DOC concentrations and dissolved organic matter (DOM) quality (aromaticity and fluorescence) were monthly monitored at the watershed scales and in two piezometer transects since 2010 in a hydrologically disturbed peatland, La Guette, which experienced a rewetting action on February 2014. One piezometer transect (called downstream plots) was supposedly influenced by the hydrological restoration while the other (called upstream plots) was considered as a control. Collected data allowed studying the impact of the restoration on hydrology and dynamics and DOC fluxes in the peatland.

Preliminary results indicate that water table level became more stable after the rewetting in the area affected by the restoration. This seems to have an impact on DOC quantity and quality since concentrations became higher in the same area with also a higher aromaticity degree and a larger proportion of low-weight molecules compared to upstream area. This could indicate that in the downstream area, more anaerobic conditions inhibit microorganism activity responsible for the mineralization of peat organic matter.