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Natural organic matter properties in Swedish agricultural streams

Magdalena Bieroza (1), Katarina Kyllmar (1), Lars Bergström (1), and Stephan Köhler (2)

(1) Swedish University of Agricultural Sciences, Soil and Environment, Uppsala, Sweden, (2) Swedish University of Agricultural Sciences, Aquatic Sciences and Assessment, Uppsala, Sweden

The following paper shows natural organic matter (NOM) properties of stream water samples collected from 8 agricultural streams and 12 agricultural observational fields in Sweden. The catchments and observational fields cover a broad range of environmental (climate, soil type), land use and water quality (nutrient and concentrations, pH, alkalinity) characteristics. Stream water samples collected every two weeks within an ongoing Swedish Monitoring Programme for Agriculture have been analysed for total/dissolved organic carbon, absorbance and fluorescence spectroscopy. A number of quantitative and qualitative spectroscopic parameters was calculated to help to distinguish between terrestrially-derived, refractory organic material and autochthonous, labile material indicative of biogeochemical transformations of terrestrial NOM and recent biological production. The study provides insights into organic matter properties and carbon budgets in agricultural streams and improves understanding of how agricultural catchments transform natural and anthropogenic fluxes of organic matter and nutrients. The insights from the grab sampling are supported by high-frequency turbidity, fulvic-like and tryptophan-like fluorescence measurements with in situ optical sensor.