



Soil biogeochemical modelling - from empirical description to emergent behavior

Markus Reichstein, Bernhard Ahrens, and Marion Schrumpf

Max-Planck-Institute for Biogeochemistry, Department of Biogeochemical Integration, Jena, Germany
(mreichstein@bgc-jena.mpg.de)

For a long time, soil organic matter modelling has concentrated (successfully) on semi-empirical approaches for describing the fate of soil organic matter in response to abiotic factors such as moisture, temperature, soil chemical and physical properties and biotic factors. Yet, evidence has accumulated that important aspects on soil organic matter dynamics cannot be adequately described in a general way with these approaches. Instead models have to be further developed to describing interactions between soil organic matter (SOM), microbes and the soil matrix affecting transport and transformation of SOM. Particular emphasis should be on carbon-water interactions in this context. This talk will review and conceptualize the past model developments and give a perspective into the future. A very similar talk has been given at the ISMC in Wageningen 2018.