

# **A process-based model for soil multifunctionality**

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Soils carry out many different functions, from carbon sequestration to preservation of archaeological artifacts. The determination of how well a particular soil carries out a range of these functions requires an understanding of how the soil will operate under different environmental and management conditions. Here we present a soil model under development that will allow us to ask 'how will a particular soil behave according to many different functional definitions in specific scenarios?' The model is process-based, and includes water movement, diffusion, carbon and nitrogen cycling, chemical equilibrium determination and many other soil processes. Initial validation runs against field trials show promising results, and we describe the current achievements and ongoing challenges to model development.