



## **Which questions to ask about parameters in a landscape or soilscape evolution model?**

Arnaud Temme (1), Jantiene Baartman (2), and Marco Van De Wiel (3)

(1) Soil Geography and Landscape Group, Wageningen University, Wageningen, The Netherlands, (2) Soil Physics and Land Management Group, Wageningen University, Wageningen, The Netherlands, (3) Department of Geography, University of Western Ontario, London, Ontario, Canada

The increasing availability and wider use of landscape and soilscape evolution models raises the probability that such models are used unwisely or incorrectly. This may be particularly true for those who consider themselves model-users, rather than model-developers, because they may be unaware of some of the pitfalls associated with particular models. This contribution offers a guideline to help users choose between models and between versions of models from the viewpoint of the number of parameters in a model. A first subdivision is made between three types of model use, explorative model use, explanatory model use and predictive model use. Explorative model use describes the use of models to ask 'what-if' questions. Explanatory model use describes the use of models to correctly simulate the past evolution of existing landscapes and soilscapes, in order to find out which conditions may have led to them. Predictive model use starts from a known landscape or soilscape and predicts forward into time.

Based on this subdivision, concepts such as Occams' razor, redundancy, equifinality and calibration will be discussed in combination with the lessons that can be drawn from them to select a model. Questions that will be dealt with include: what is a suitable number of parameters, how to estimate or measure parameters, and how to report on parameters.