



Emergence, reductionism and landscape response to climate change

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Predicting landscape response to external forcing is hampered by the non-linear, stochastic and contingent (ie dominated by historical accidents) forcings inherent in landscape evolution. Using examples from research carried out in southwest Ireland we suggest that non-linearity in landform evolution is likely to be a strong control making regional predictions of landscape response to climate change very difficult. While uncertainties in GCM projections have been widely explored in climate science much less attention has been directed by geomorphologists to the uncertainties in landform evolution under conditions of climate change and this problem may be viewed within the context of philosophical approaches to reductionism and emergence. Understanding the present and future trajectory of landform change may also guide us to provide an enhanced appreciation of how landforms evolved in the past.