## **Catchment Science – Should we Focus on Emergent Properties?**

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The stream network is the most obvious emergent property of a catchment, the result of a vast number of process interactions that defy complete description. The stream network controls many aspects of the spatial and temporal patterns of physical, chemical and biological processes. It is proposed that the stream network also controls the spatial distribution of components of sediment budgets through hillslope-stream link gradients, floodplain and terrace distribution and width, connectivity of tributary and trunk streams, and gully-stream connectivity. The temporal dynamics of the components of sediment budgets may also be controlled by the spatial location of the components and therefore by the stream network. If it can be shown that both the spatial location and temporal dynamics of sediment budget components are controlled by the stream network, then a method is available for extrapolation and, potentially, prediction of the impacts of land use and climate change.