Geophysical Research Abstracts,
Vol. 11, EGU2009-2928, 2009
EGU General Assembly 2009

Transitonal Environments

N. Kuhn
(nikolaus.kuhn@unibas.ch)

Modern geomorphologic research focuses on dynamic interaction between surface and climate, especially the impact of climate change on spatial and temporal patterns of surface processes and landscape development. On a continental scale, the effects of climatic gradients on surface processes and landforms are well understood. However, the relatively small changes of rainfall and temperatures predicted for the next 100 years produce a highly variable range of geomorphic responses in landscapes altered by human activities. Our understanding of the impact environmental change on surface processes and landscape development is limited in two ways. First, climate and land use are in a quasi-permanent state of transition, which affects the nature, spatial and temporal patterns of surface processes. Second, over time, soils and vegetation will be altered in response to changing processes, generating themselves a feedback on surface processes. In the 21st century, continuing climate change, probably also accompanied by further land use change, will therefore create environments characterised by a permanent state of transition. Therefore, the impact of changing land use and climate on surface processes and landscape development cannot be addressed, as is commonly done, by simply linking future climate to runoff ratios and erosion rates observed under current surface conditions. This approach ignores the dynamic nature of surface-climate interaction. In this paper, a conceptual approach to identifying the role of environmental transition in landscape system analysis is presented.