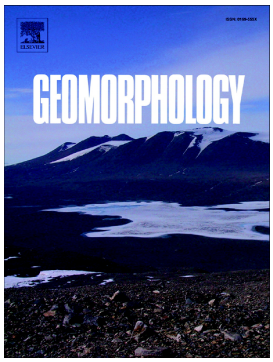

Variability in fluvial geomorphic response to anthropogenic disturbance

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Variability in fluvial geomorphic response to anthropogenic disturbance

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Abstract

Humans have greatly impacted the processes and intensities of erosion, sediment transport and storage since the introduction of agriculture. In many regions around the world, accelerated floodplain sedimentation can be related to increases in human pressure on the environment. However, the relation between the intensity of anthropogenic disturbance and the magnitude of change in fluvial sediment dynamics is not straightforward and often non-linear. Here, we review a number of case studies from contrasting environmental settings in the European loess belt, the Eastern Mediterranean mountain ranges and the eastern USA. Detailed field-based sediment archive studies and sediment budgets covering time periods ranging from 200 to over 5000 yr, as well as the use of pollen and sediment provenance techniques, show that no overarching concept of changes in floodplain sedimentation following anthropogenic disturbance can be established. Slope-channel (dis)connectivity controls the existence of thresholds or tipping points that need to be crossed before