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Global Soil and Sediment transfer during the Anthropocene

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The vulnerability of soils to human-induced erosion and its downstream effects on fluvial and deltaic ecosystems is highly variable in space and time; dependent on climate, geology, the nature and duration of land use, and topography. Despite our knowledge of the mechanistic relationships between erosion, sediment storage, land-use and climate change, the global patterns of soil erosion, fluvial sediment flux and storage throughout the Holocene remain poorly understood.

The newly launched PAGES working group GloSS aims to determine the sensitivity of soil resources and sediment routing systems to varying land use types during the period of agriculture, under contrasting climate regimes and socio-ecological settings.

Successfully addressing these questions in relation to the sustainable use of soils, sediments and river systems requires an understanding of past human-landscape interactions. GloSS, therefore, aims to:

- Develop proxies for, or indices of, human impact on rates of soil erosion and fluvial sediment transfer that are applicable on a global scale and throughout the Holocene;
- Create a global database of long-term (102-104 years) human-accelerated soil erosion and sediment flux records;
- Identify hot spots of soil erosion and sediment deposition during the Anthropocene, and
- Locate data-poor regions where particular socio-ecological systems are not well understood, as strategic foci for future work.

This paper will present the latest progress of the PAGES GloSS working group.