



Towards a global assessment of anthropogenic soil erosion and sediment transfers to the coastal zones

Veerle Vanacker (1), Thomas Hoffmann (2), Albert Kettner (3), Lu Xixi (4), Gary Stinchcomb (5), Dan Penny (6), and the GLOSS team

(1) Earth and Life Institute, Georges Lemaître Centre for Earth and Climate Research, Université catholique de Louvain, Louvain-la-Neuve, Belgium. , (2) German Federal Institute of Hydrology, Koblenz, Germany. , (3) CSDMS, INSTAAR, University of Colorado. , (4) Department of Geography, National University of Singapore, Singapore. , (5) Watershed Studies Institute & Department of Geosciences, Murray State University, USA., (6) School of Geoscience, Faculty of Science, University of Sydney, Australia.

The rate of anthropogenic soil erosion exceeds the rate of soil production by several orders of magnitude in many parts on Earth, threatening the sustainability of several food production systems that are essential to human well-being. Despite our knowledge of the mechanistic relationships between soil erodibility, land use and climate based on individual case-studies, the heterogeneity of land use history implies that global patterns of anthropogenic soil erosion and fluvial sediment transfer remain poorly understood.

The PAGES Global Soil and Sediment transfers in the Anthropocene (GloSS) working group aims to build a comprehensive global database on soil and sediment transfers in the Anthropocene, to identify hotspots of soil erosion and sediment deposition in response to human impacts, and locate data-poor regions as strategic foci for future work. This paper will give an overview of the GloSS database structure and standard operating procedures for data-submission, server-side data cleaning and quality control. The database includes four proxies/indices of soil and sediment transfers: (1) sediment loads, (2) sedimentation rates, (3) cosmogenic radionuclide denudation rates, and (4) soil erosion rates. In order to obtain a better global overview of the availability of GLOSS proxies/indices, a user-friendly wiki was developed (<https://pagesgloss.colorado.edu/wiki/>) that includes a draft map of the four proxies/indices of soil and sediment transfers.