



The history of soil erosion: Interpreting historical sources, buried soils and colluvial sediments as archives of past soil erosion and human-environment interactions in the Longue Durée

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Soil erosion threatens the environment and the sustainability of agricultural practices since the earliest societies started modifying their natural environment in the Neolithic. Almost all farming-based cultures in the world, from large civilizations to peasant groups on little islands, have suffered from soil erosion by water. The amounts of soil erosion varied largely through time and space, and extreme events have left a wide variety of imprints on the landscape over millennia. Eroded hillslopes and gullies, deposited sediments in sinks like lakes, footslopes, valleys, floodplains, and river deltas are geomorphic legacies that have been linked to changes in land use and climate by many studies during the last decades. However, a standardized analysis and interpretation of these geomorphic legacies is problematic because of the variety of methodological approaches and the nonlinearity between soil erosion, climate, and land use. Cascading effects, land use structures, soil management, soil conservation strategies, and long-term system changes have produced different signals over time. Historical records are crucial and an invaluable source to provide alternative proxies about soil erosion in the past. Direct observations of individual soil erosion events may restrict the deposition of a distinct sediment package to a certain time span. They also expand the range of alternative interpretations, particularly with respect to the long-term effects of soil erosion to ecosystem services and socioeconomic processes. However, historical records also need critical analyses regarding their origin, intention, and quality. They were often created in the context of personal interests or political issues rather than being based on scientific facts; and it is often unclear if they represent certain events, narratives, or vague assumptions. This presentation will present and discuss examples of geomorphic evidences and historical records of past soil erosion for the deciphering of human-environment interactions in the Longue Durée.