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Soil bioturbation. A commentary

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Organisms such as trees, ants, earthworms, termites are important components of the earth systems that have dominantly been thought of as abiotic. Despite an early focus on soil bioturbation by heavy-weights such as Charles Darwin and Nathanial Shaler in the late 19th century, sporadic attention to this theme has subsequently followed. Recent compilations demonstrate that soil bioturbation by fauna and flora is widespread across Earths terrestrial surface, and operates at geologically rapid rates that warrant further attention. Such biotic activity contributes to soil creep, soil carbon dynamics, and is critical in engineering the medium through which ecosystems draw their abiotic requirements.

Soil and its biota are fundamental components of the Earth System. However, soil scientist focussed on the dominant paradigm of landscape evolution, and bioturbation was relegated. In fact, bioturbation is still not widely appreciated within the soil and earth system research community. Nevertheless, within the last decade a review of the impact of bioturbation was launched by authors such as Geoff S. Humphreys. Bioturbation is a complex process as new soil is formed, mounds are developed, soil is buried and a downslope transport of material is done. Bioturbation modify the soil texture and porosity, increase the nutrients and encourage the soil creep flux.

A review of the State-of-the-Art of Bioturbation will be presented.