

Experimental investigation of potential wind erosion in open argan woodlands in the Souss Basin, Morocco

Miriam Marzen, Mario Kirchhoff, Irene Marzloff, Ali Ait Hssaine & Johannes B. Ries

The endemic argan woodlands cover large parts of South Morocco and create a characteristic landscape with areas of sparsely vegetated and bare soil surfaces between the single trees. This unique ecosystem has been under extensive agrosilvopastoral management for centuries and is now at risk of degradation caused by overgrazing and increasing scarcity and variability of rainfall.

To investigate susceptibility to wind erosion, we conducted an experimental-empirical study and quantified wind erodible material on five different associated surface types. The highest emission flux was measured on freshly ploughed surfaces and typical strongly crusted surfaces characterised by residual rock fragment accumulation and wash processes. Formerly ploughed areas with a re-established crust produced a much lower emission flux, and tree-shaded areas were a considerable source of organic material possibly affecting substrate conditions positively on a larger regional scale. Lowest flux was measured on rock fragment covered surfaces.

The open argan woodland environment appears to be located at the intersection of traditional, possibly sustainable management and an increasing pressure caused by livestock management and climate change. An adapted management must include the conservation of the argan trees to prevent severe wind erosion and dust emission and mitigate possible impacts of land-use and climate-change.

Kontakt:

Miriam Marzen: Universität Trier, E-Mail: mmarzen@uni-trier.de