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Validity of the toposequence approach along a rainfall gradient at a desert fringe

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Validity of the “classic” topo-sequence approach along a rainfall gradient at a desert fringe
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According to the “classic” toposequence approach soil’s properties are closely related to the position of a soil along a slope. The positional differences in soil properties are usually attributed to spatial differences in runoff; erosion and deposition processes. These processes reflect long term effects of the spatial redistribution of water, solids and soluble materials, which are of great importance in respect of nutrient cycling on the landscape scale, and the structuring of natural ecosystems. The “classic” toposequence approach has been seriously questioned by Sommer and Schlichting (1997). They were followed by many scientists of various disciplines (hydrology, ecology, paleopedology, paleoclimate etc). The present study covers three topo-sequences, located in southern Israel, along an average annual rainfall gradient of 90-300 mm. The classic toposequence approach does not apply to none of them, and the controlling factors vary from one site to another.