



Monitoring soil erosion processes: The erosion plots at the Geocampus, University of Trier

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Long term monitoring on erosion plots is one of the most reliable methods to quantify the actual soil erosion rates. Although the direct extrapolation of the measured data to regional scale is problematic, due to the high spatial and temporal variability of the soil erosion processes, they provide indispensable experimental data for soil erosion model conception, calibration and validation.

At the University Trier in 2013 four test plots were put into practice on colluvial loess loam soil with dimension 3 x 10 m and similar properties. They are representative for the regional conditions. The plots are located 265 m above sea level and they have a general inclination of 12-13°. In 2012 on two plots subsoiling was applied in order to reduce the compaction caused by the heavy machinery used during the construction of the plots. The two other plots were not disturbed and no melioration measures were applied. In the first year of the experiment after the preparation of the parcels, they were left for a spontaneous revegetation. Total runoff and sediment removal data was collected weekly, additionally a meteorological station provides continuously data about climate conditions.

The data evaluation of the first year 2013/14 revealed big difference between the single plots. Total runoff was measured between 0 and 4.76 l m⁻² (m=0.8 l m⁻²), total eroded sediment between 0 and 3.86 g m⁻² (m=0.21 g m⁻²) weekly. The higher rates were recorded on the plots without subsoiling. After the first year, total eroded soil was calculated. The results were between 0.03 and 0.17 t ha⁻¹a⁻¹.

With the help of the erosion plots at the University of Trier, the impact of the different soil use management concepts and cultivation techniques on runoff and erosion dynamics can be evaluated, additionally reliable data for modeling soil erosion can be generated as well.