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Comparability of different rainfall simulators - Relevance and chances for soil erosion research

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Rainfall simulation is an essential tool in research of recent process dynamics of soil erosion. Worldwide a lot of rainfall simulators with different design, rainfall intensities, rain spectra, etc. are used. Due to different research questions a standardisation of rainfall simulation is not in sight.
For this reason both types of rainfall simulators of the Department of Physical Geography at Trier University (small portable rainfall simulator & portable combined wind and rainfall simulator) are to compare with other simulators in Europe.
The data are used increasingly for soil erosion modelling and become therefore the basis for decision-makers in application-oriented erosion protection.
We consider it helpful to compare different rainfall parameters like the drop spectra with each other. A comparison of different calibration methods has proved that calibration results of different methods may lead to contradictory results. Not alone in Europe, but in the whole world very different calibration methods are applied for artificially generated rainfall. Hence, our working group considers the standardization of the calibration methods as the most urgent need of research. With standardized calibration methods, preferably Laser Disdrometer for drop spectra and rain collectors for spatial distribution, high-resolution and uniform data on rainfall characteristics can be generated as pluviograms. These pluviograms can be used for comparison of the artificial with natural rainfall.
Within the scope of research a criteria catalogue could be provided for estimation of the different simulators. Moreover, correction factors for each rainfall simulator could be compiled for the key factors runoff, infiltration and eroded material. With these correction factors all results can be made comparable, at least in Europe.