

The impact of soil compaction on runoff

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Soil compaction caused by intensive agricultural practices is known to influence runoff processes at the local scale and is often speculated to have an impact on flood events at much larger scales. Due to the complex and diverse mechanisms related to soil compaction, the key processes influencing runoff at different scales are still poorly understood. In this study we are analyzing data from a subsoil compaction database [Trautner et al., 2003] that includes the results of a large number of field and laboratory experiments across Europe. We are focusing on changes in parameters relevant for hydrology such as saturated hydraulic conductivity and bulk density. We will compare the observed impacts in relation to climatic and soil conditions. The specific type of agricultural practice causing the soil compaction is also taken into account. In a further step the results of this study shall be used to derive a toy model for scenario analysis in order to identify the potential impacts of soil compaction on runoff processes at larger scales than the plot scale.

Reference :

Trautner, A., Van den Akker, J.J.H., Fleige, H., Arvidsson, J. and Horn, R., 2003. A subsoil compaction database: its development, structure and content. *Soil & Till. Res.* 73: 9-13.