



The impact of soil compaction on runoff - a meta analysis

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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. The impacts of soil compaction are, however, not only investigated by hydrologists, but also by agricultural scientists since changes in the soil structure and water availability have a direct impact on agricultural yield. Results from these studies are also of interest to hydrologists. This study presents a meta analysis of such agricultural studies with the aim to analyse and bring together the results related to runoff processes. The study identifies the most important parameters used to describe soil compaction effects and compares the observed impacts under different 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.