# Overview on approaches to predict contributing areas in Switzerland

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This presentation reports on different approaches to use the concept of contributing areas for the mitigation of diffuse pollution in Switzerland. The approaches range from indicator systems based on expert knowledge to the use of distributed models to simulate water and solute transport.

The traditional pedological soil maps in Switzerland contain attributes about the water regime of the soils. Based on the experience of the field pedologists, the water regime classes are converted to four risk classes for a) runoff and b) leaching to groundwater. While giving qualitative information about the probability of diffuse losses from a certain site the quantitative ranking is rather arbitrary and lacks a sound and well defined scientific underpinning. In a similar way, the risk indicator for herbicide losses to one of the Swiss lakes considering soil type, topography and connectivity to the open water (Stamm et al., 2004) has also to be considered as an ad-hoc proposition hat requires quantitative testing.

The approach developed by Schmocker-Fackel et al. (Schmocker-Fackel et al., 2007) derives quantitative runoff data from a decision tree based to a large extend on pedological data. It was mainly developed for hydrological purposes but could be used in the context of diffuse pollution as well. While this approach is mainly meant for single event predictions the model by Lazzarotto et al. (Lazzarotto et al., 2006) provides a possibility for continuous simulations of contributing areas. This semi-distributed approach, which differentiates between poorly and well-drained soils, was combined with P data in soils to locate critical areas for P losses in a small agricultural catchment (Lazzarotto, 2005; Lazzarotto et al., 2005). The application of a more mechanistic model (SMDR) (Gérard-Marchant et al., 2006) for the prediction of contributing areas for herbicide losses will be described in a companion presentation (Frey et al.).

Finally, the prediction of erosion has to be mentioned as a further tool for locating critical fields within catchments that have to be managed carefully in order to reduce diffuse pollution. The tool that is used corresponds to the USLE adapted to Swiss and German conditions.

References:

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