

## Supplementary Information

Manuscript: **Prediction of dissolved reactive phosphorus losses from small agricultural catchments: calibration and validation of a parsimonious model**

Authors: C. Hahn<sup>1,2</sup>, V. Prasuhn<sup>2</sup>, C. Stamm<sup>3</sup>, P. Lazzarotto<sup>1</sup>, M.W.H. Evangelou<sup>1</sup>, and R. Schulin<sup>1</sup>

<sup>1</sup>ETH Zurich, Department of Environmental Systems Science, Zurich, Switzerland

<sup>2</sup>Agroscope Reckenholz-Tänikon Research Station ART, Zurich, Switzerland

<sup>3</sup>Eawag Swiss Federal Institute of Aquatic Science and Technology, Zurich, Switzerland

Table S1. Performance of different model versions in three catchments (Lippenrütibach catchment LIP, Stägbach catchment Stäg, Stägbach sub-catchment Stäg2), measured with the Nash-Sutcliffe-Criteria (NSC) (Nash and Sutcliffe, 1970) using simulated and measured P loads. Version 1 – corrected original model, Version 2 – separate urban parameter calibration, Version 3 – separate urban parameter calibration + different soil classification.

Model version	Lip			Stäg			Stäg2		
	25 %	50 %	75 %	NSC quantiles			25 %	50 %	75 %
Version 2	0.54	0.62	0.64	0.37	0.45	0.51	0.55	0.62	0.72
Version 3	0.5	0.56	0.59	0.39	0.47	0.54	0.53	0.68	0.79

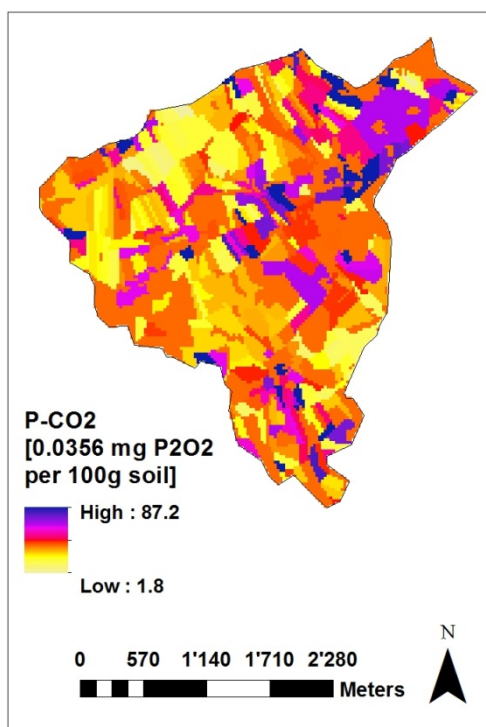


Fig. S1. Soil-P concentrations in the Stägbach catchment.

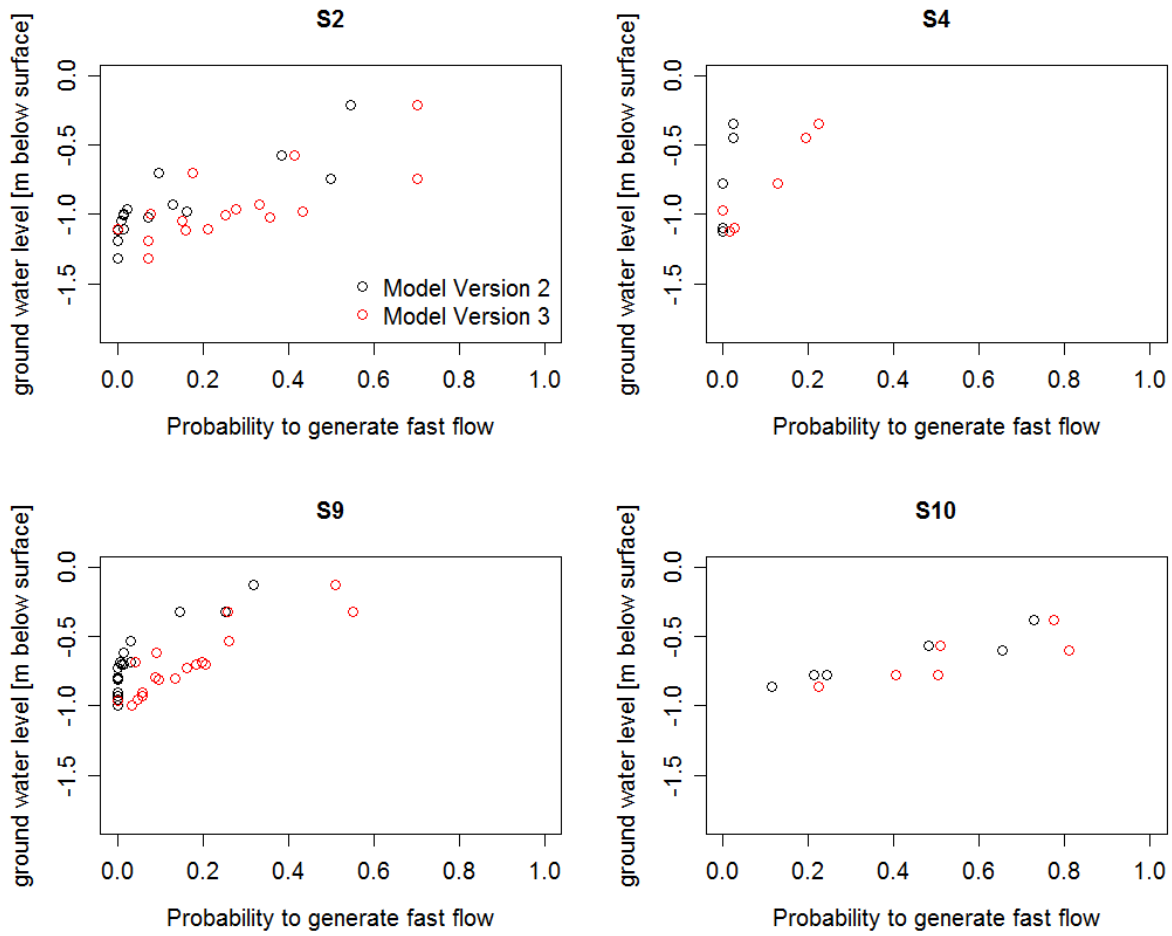


Fig. S2. Comparison of model predictions with ground water level measurements at 4 locations within the Stägbach catchment in the year 2010.

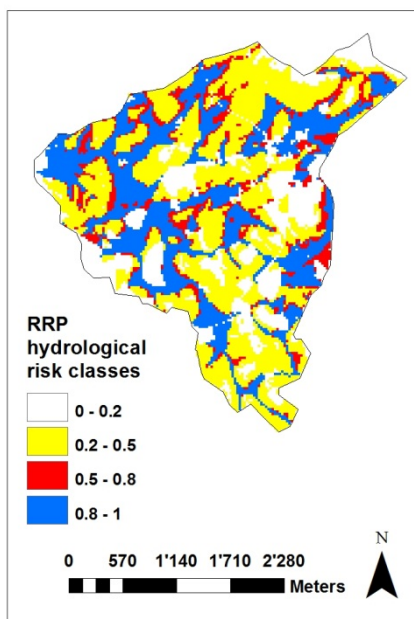


Fig. S3. Distribution of hydrological risk classes during the large event in June 2010, determined with model version 2sq for the Stägbach catchment