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Hydrology and Earth System Sciences Discussions

Interactive comment on "Promoting interdisciplinary education – the Vienna Doctoral Programme on Water Resource Systems" *by* G. Blöschl et al.

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We are very grateful for the comments and questions raised by the referee. We recognise that the reviewer would like the paper to more explicitly address whether our interdisciplinary programme is leading to new research questions or exploring existing research problems in novel ways. We do provide several examples within the paper of how students are creatively exploring interactions and developing new hypotheses between disciplines. For example, at one of our research study sites a hydrogeologist and a remote sensing researcher have collaboratively devised and tested a hypothesis on

whether information on vegetation structure derived from airborne laser scanning is a good indicator for hydraulic (flood plain) roughness. The Programme has led to the creative development of many new research questions and novel applications (a selection of which are included in the revised version of the paper): Spatial analysis techniques applied to measure the extent of foam cover on surface water; Numerical analysis of the effects of river level fluctuation on virus removal by river bank filtration; Model reduction techniques developed for structural mechanics applied to rainfall/runoff modelling; Long-range dependence and its relevance for climate predictions; Statistical entropy concepts applied to describe the efficiency of wastewater treatment processes; Upscaling nutrient pollution modelling by incorporating soil science, hydrology and water chemistry parameters.

Our experiences show that the development and testing of joint hypotheses tends to focus around the Programmes study sites. This highlights the importance of study sites for interdisciplinary research and education. We have also started to assess our Programme in terms of its capacity to achieve "new" research questions and apply novel approaches. To do this we are examining how joint hypotheses are formed, and which driving factors are important for creativity. We hope to report our findings as the Programme matures.

One of the critical challenges within the Programme is to balance the importance of free and creative thinking that may sometimes lead to research findings that are difficult to publish, against the importance of publications. Our efforts to address this are shaped by the mechanisms and support systems described in the paper. These are designed to create a "free" environment where creativity blossoms, but which support students and focus their energies onto research topics where results are achievable.

Our responses to all the issues raised by the referee will be included in the revised manuscript.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 8, 9843, 2011.