

Interactive comment on “Modelling pesticide leaching under climate change: parameter vs. climate input uncertainty” by K. Steffens et al.

Anonymous Referee #2

Received and published: 31 October 2013

This is a well written paper about a relevant topic: Pesticide leaching under future climate scenarios. The major objective of the paper was elucidate uncertainties arising from different climate scenarios versus parameterization uncertainties. The study supports earlier findings that parameter uncertainty is less important than climate uncertainty.

The manuscript may be published almost as it is. I have just a few remarks the authors may want to consider in minor revisions.

- While the authors are correct with respect to decreasing sorption and increasing diffusion rates, this effects are probably very minor if temperature changes are just by a few degrees – here a quantitative statement about expected changes would be

C6020

appreciated. In general, the authors could work out more clearly the physical reasons for the observed increased or reduced losses of pesticides applied in different seasons.

- Change in soil moisture such as extended droughts would have much more significant effects concerning reduced (or stopped) biodegradation and faster gas diffusion in strongly unsaturated soil (leading to potentially strong volatilization of pesticide the atmosphere). Also, during very dry periods strong sorption onto dry mineral surfaces may become significant besides partitioning into soil organic matter. All that is probably not considered by the model. Mentioning physical processes not covered by the model could clarify that for the readers.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 10, 10461, 2013.

C6021