
Authors' response:

Dear reviewer (2), thank you for taking the time to review and comment upon the manuscript. We carefully considered your input and revised the respective parts of the manuscript accordingly. We hope that this will help to improve the quality of the manuscript and address your constructive criticism.

In the following response to the review, the reviewers' comments are written in regular black text, the authors reply to a respective comment starts with a "->" and is written in regular blue, the proposed change in the revised manuscript starts again with a "->" is written in green, if necessary a quote of the proposed text in the revised manuscript is posted in black italics.

Line numbers in the answers to the reviewers' comments generally relate to the original submission file.

Remarks:

From the data provided, it is not possible to understand what kind of soil this represents. Please supply more basic soil data, most importantly the soil classification, organic C and soil pH. - Lines 100-110 (approx.).

→ More comprehensive soil information will be added to table 1, which in the revised version will also contain the following lines:

site	Vessertal (VES)	Mitterfels (MIT)	Conventwald (CON)
Soil classification (WRB 2015) ^b	<i>Hyperdystric skeletal chromic cambisol (Hyperhumic. Loamic)</i>	<i>Hyperdystric folic cambisol (Arenic. Nechic. Loamic. Protospodic)</i>	<i>Hyperdystric skeletal folic cambisol (Hyperhumic. Loamic)</i>
Soil pH (H ₂ O) 0-5 cm ^b	2.8	3	3.2
Soil C 0-5 cm (mg g ⁻¹) ^b	18	18	22

b: Lang et al. 2017

To construct the sampling device, a trench was dug in the soil. Such a disturbance could potentially cause nitrification and other undesirable side effects initially. Please explain if and how such effects were considered, and whether e.g. the first sample was collected after a certain time period to avoid possible disturbance effects.

→ At lines 84-85 there is written "Sample collection was carried out from March to November 2015 with the construction of the field installations taking place the year before."

→ This will be changed to include the following:

"Sample collection was carried out from March to November 2015 with the construction of the field installations taking place the year before or earlier (CON: Sept-Nov 2013, MIT: Mar-May 2014, VES: Jun-Sept 2014). It is assumed that the period in between construction of the trenches and the beginning of the sampling campaign was sufficient to allow for equilibration of the relevant biochemical processes."

Just as reviewer 1, I was also wondering what water the authors actually collected (i.e. overland or subsurface flow), and the reply from the authors does not really provide any clues. Please consider this once more, this may be significant for the overall interpretation of the results.

→ The revised version of the manuscript based on the suggestions by reviewer 1 contains the following sentence in the methods-section: “In the present method there is no distinction between overland flow and subsurface flow in the organic layer.”

→ This will be changed to include the following:

“In the present method there is no distinction between overland flow and subsurface flow in the organic layer. This is due to the fact that the organic layer is made up of fragmented materials without a contiguous surface which prevents the possibility of discrimination between surface runoff and subsurface flow in this soil layer. For this reason, this type of flow is sometimes referred to as biomat flow (Sindle et al. 2007).”

Minor remarks:

Line 70 – “transport capacity transport”.

→ This was a mistake on our part. The third word will be deleted in the revised manuscript.

Style: Mix of past and present tense at places, try to be consistent

→ Past tense will not be used in the revised manuscript.

Fig. 1. This graph with multiple entries is a bit hard to understand at first, it would be easier if it was broken up in two separate figures, with a smaller number of dependent variables

→ We considered the possibility of breaking this graph into two graphs but decided against it for the following reason: It is important so see all variables together, since the aim is for the reader to see that there is no immediate connection between P concentrations and the other environmental variables on a seasonal scale.

→ However, we take your input serious and will take measures to improve the readability of the graph. This includes added spacing in between the three subplots and more accessible labeling of the experimental sites with label the three subplots:

Fig. 3 caption. “data data”. One “data” too many?

→ Yes, this will be changed in the revised manuscript

Line 217, “that do not coincident”, should be “that do not coincide”

→ This will be changed accordingly in the revised manuscript