

Discriminating runoff source areas in a small forested catchment using a multi-tracer approach



Lisa Kuhnert,
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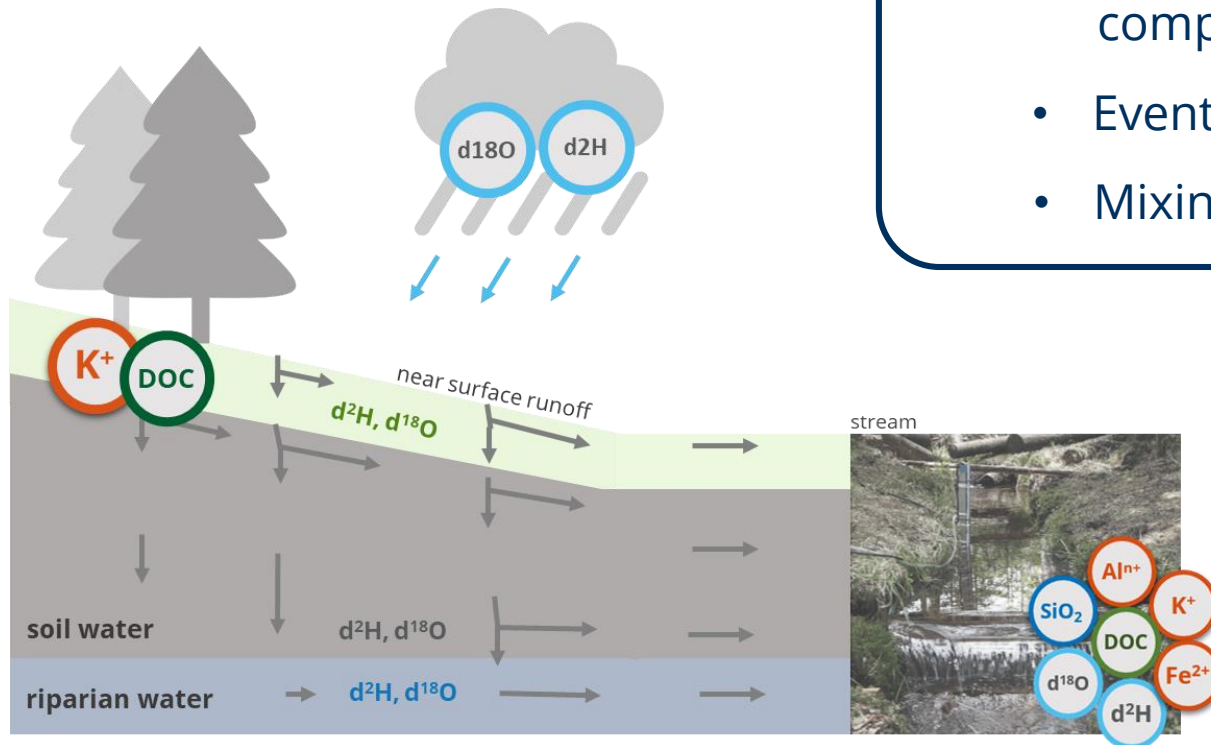
Große Ohe,
Bavarian Forest National Park

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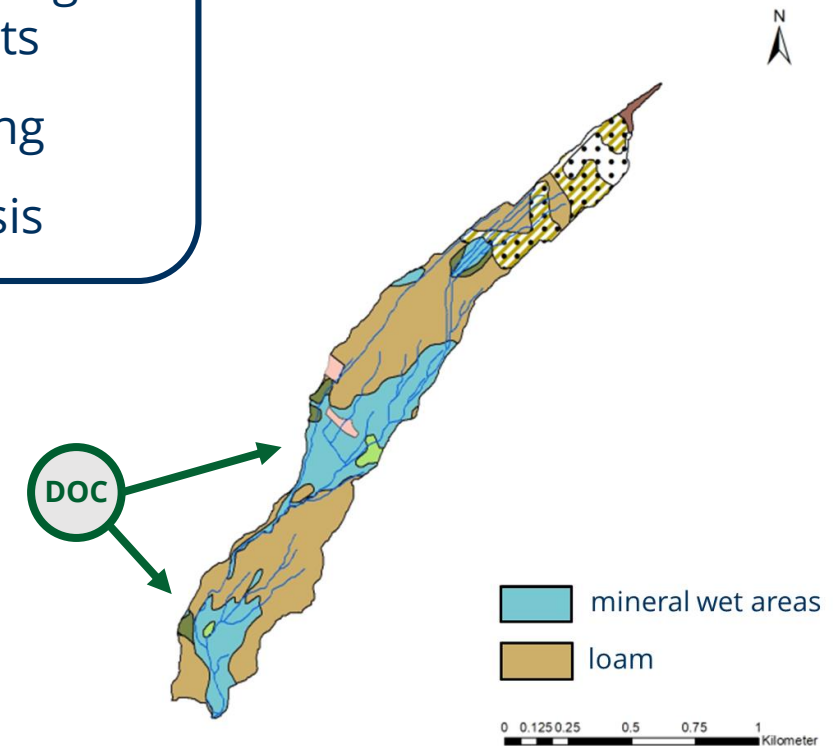
Hill slope scale

Catchment scale

- Signature of hydrological compartments
- Event sampling
- Mixing analysis

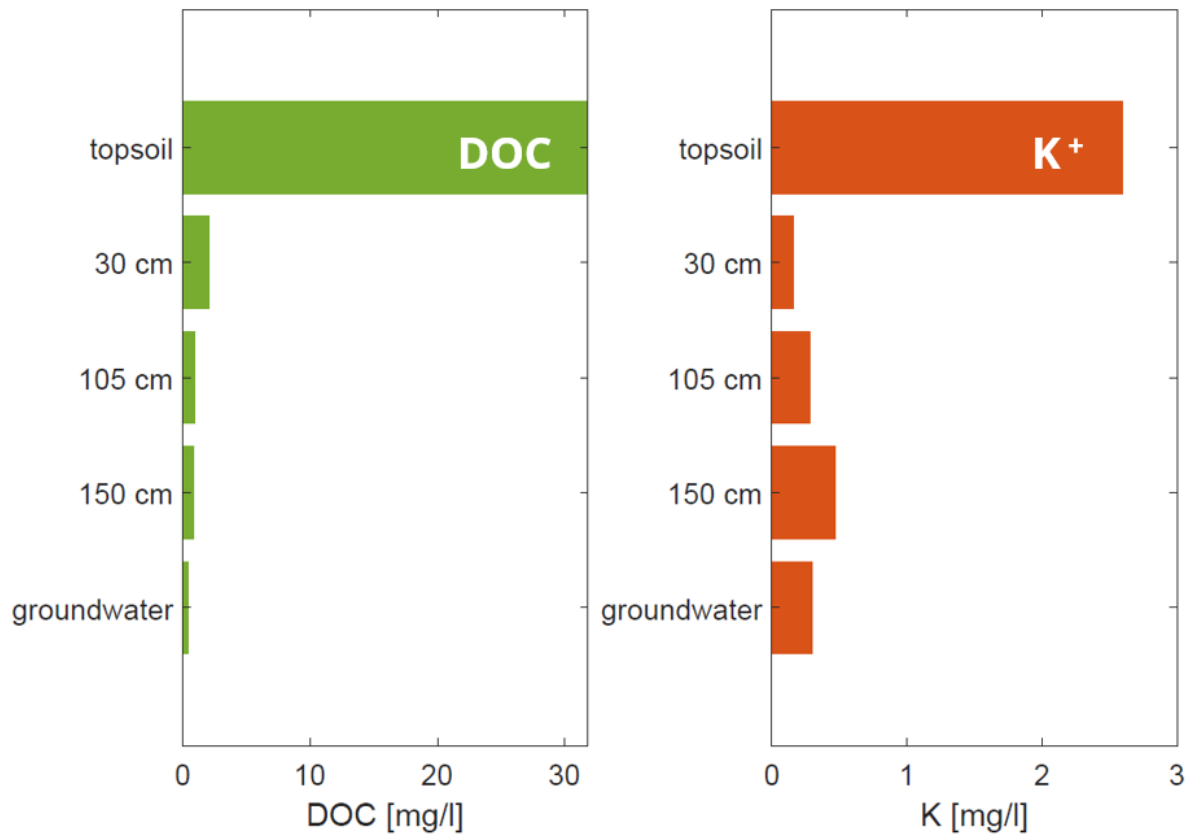


DOC – dissolved organic carbon

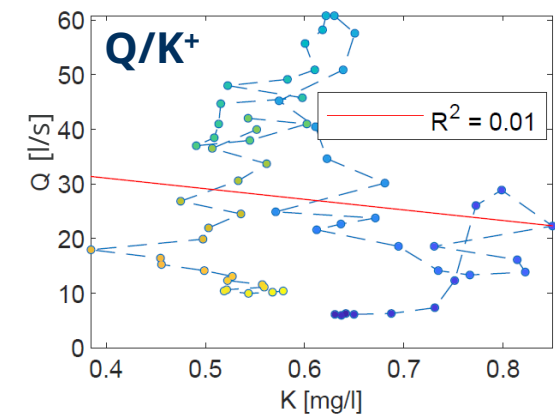
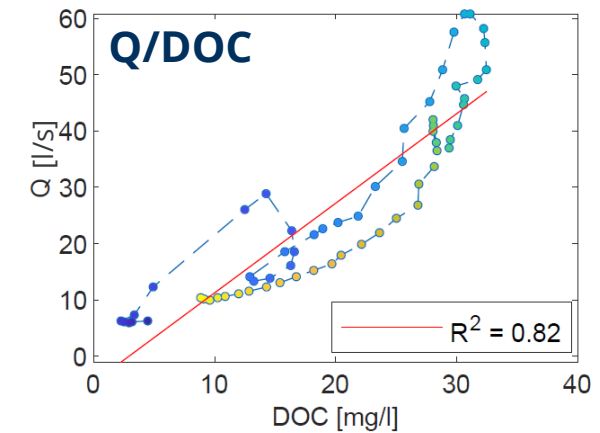


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DOC and K⁺
from organic topsoil

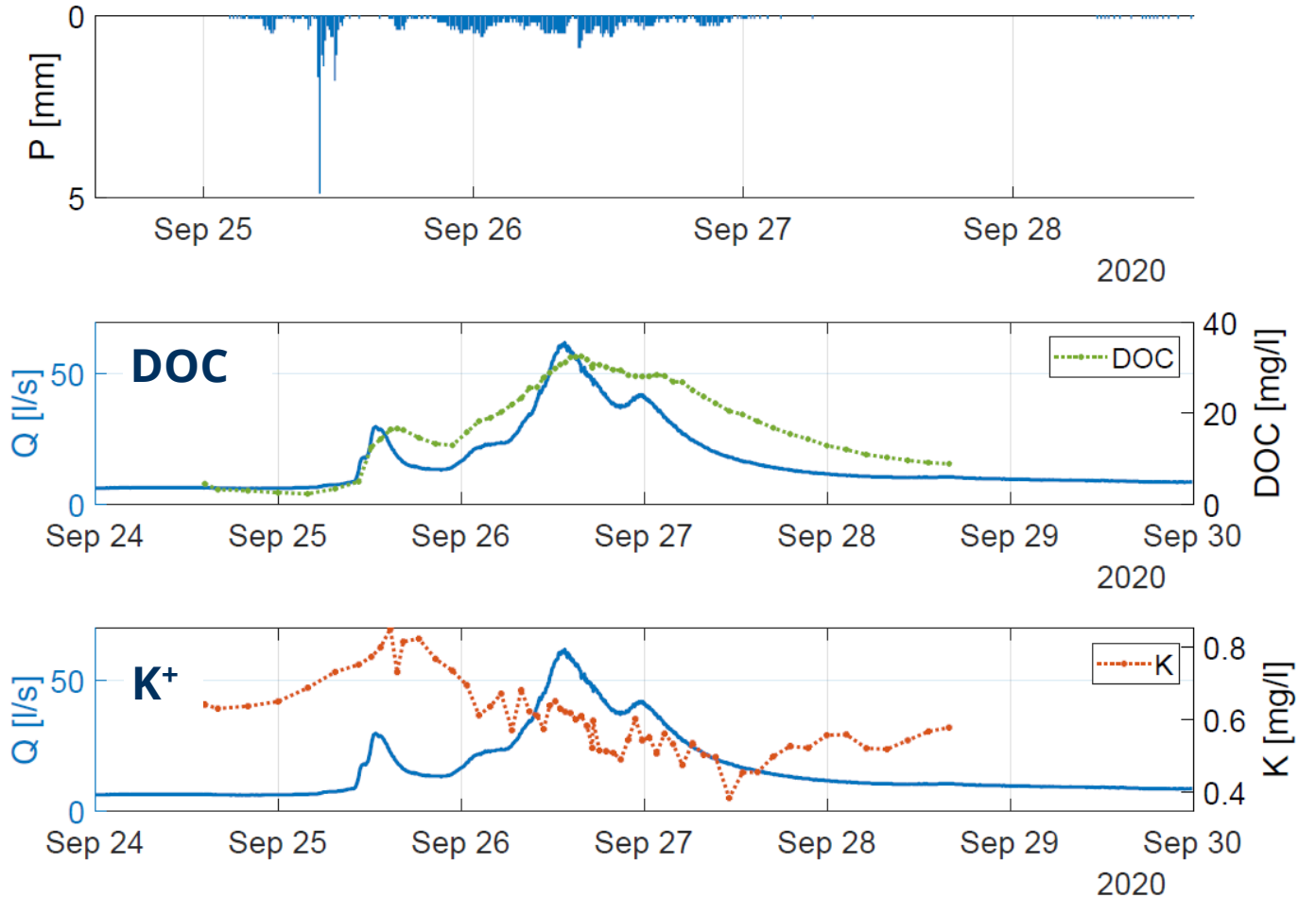
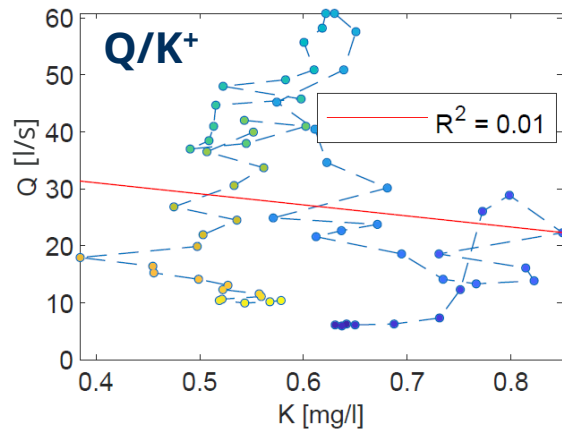
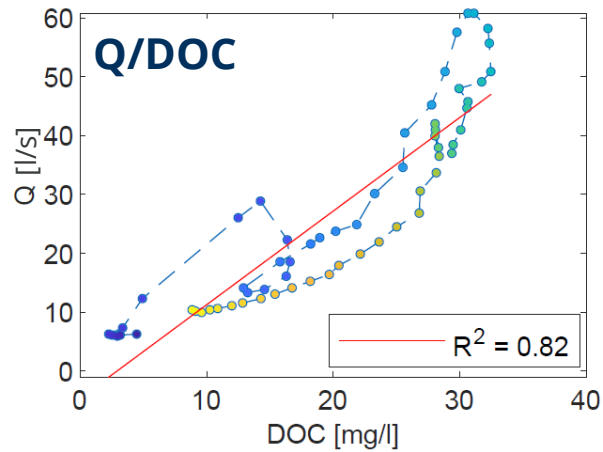


Only **DOC** correlates with discharge **Q** during HQ-event



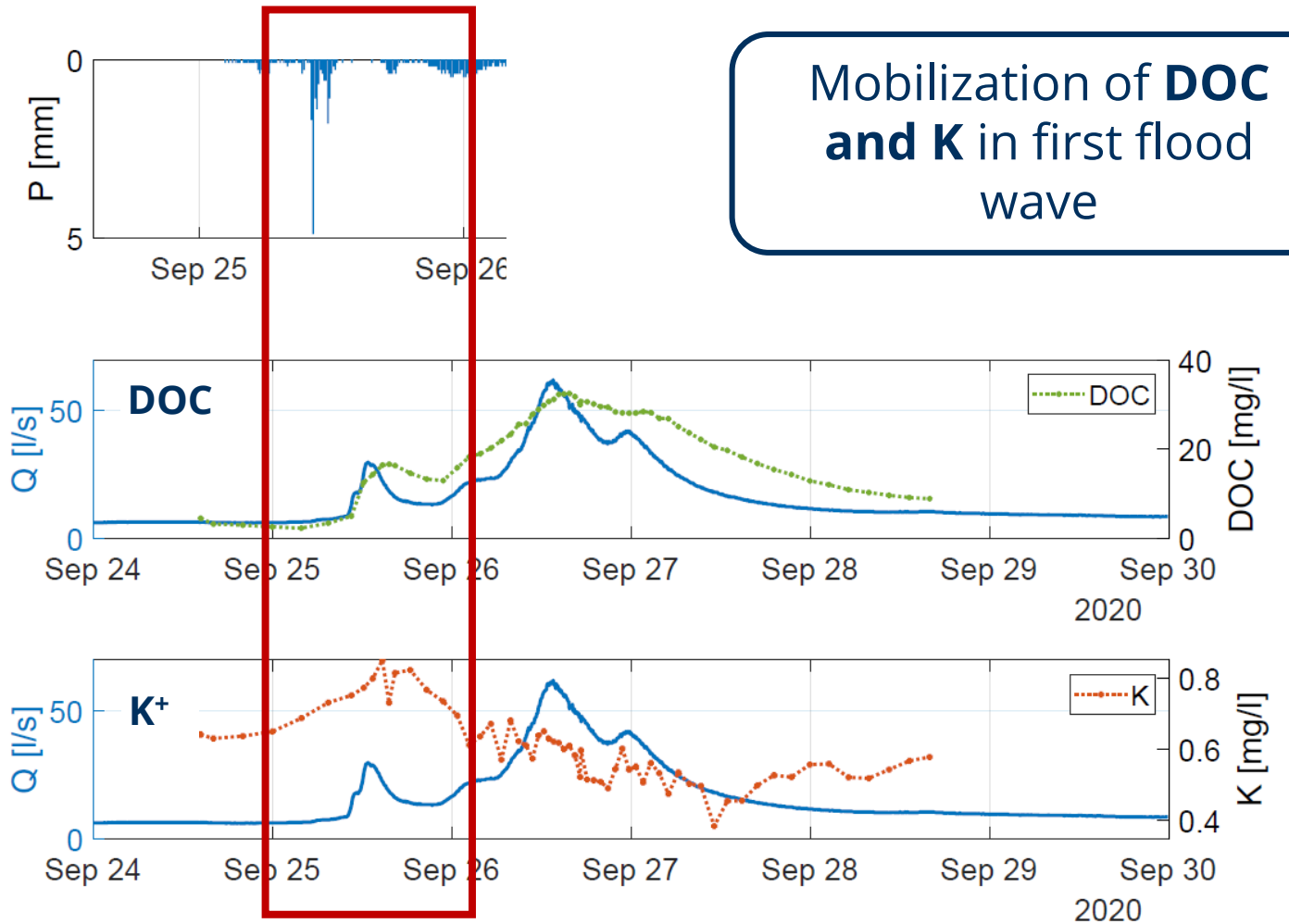
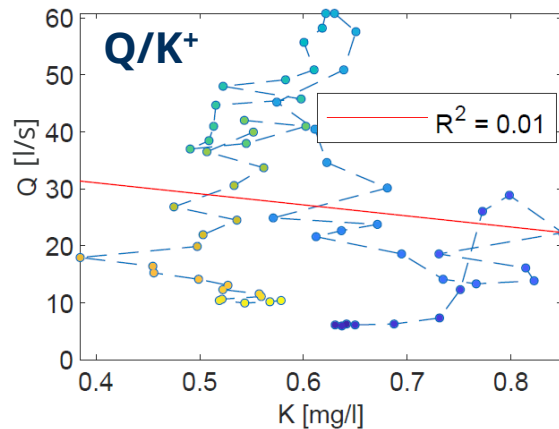
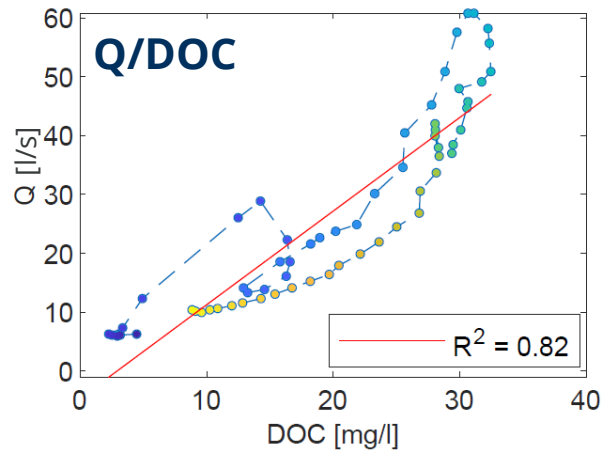
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Event sampling



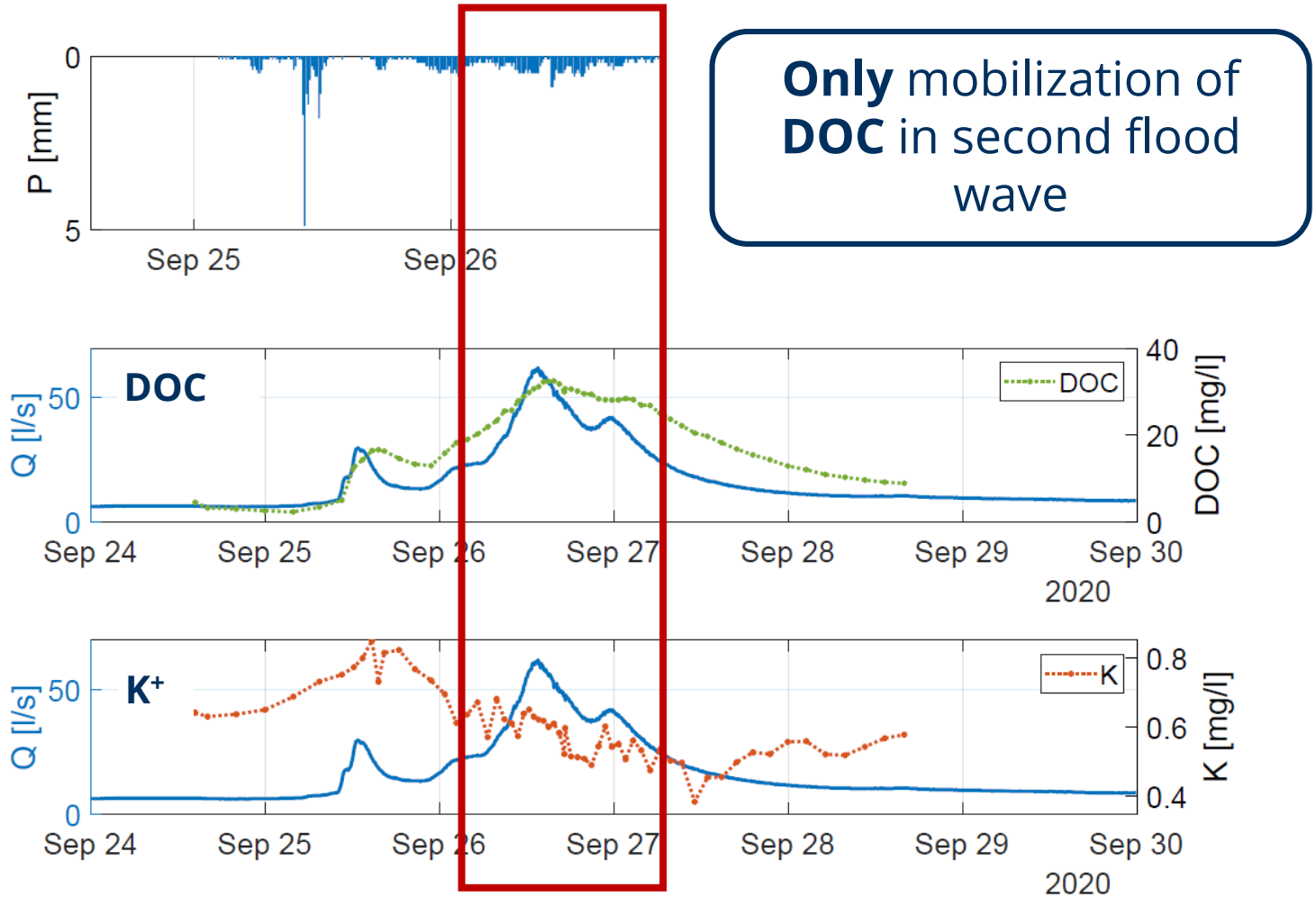
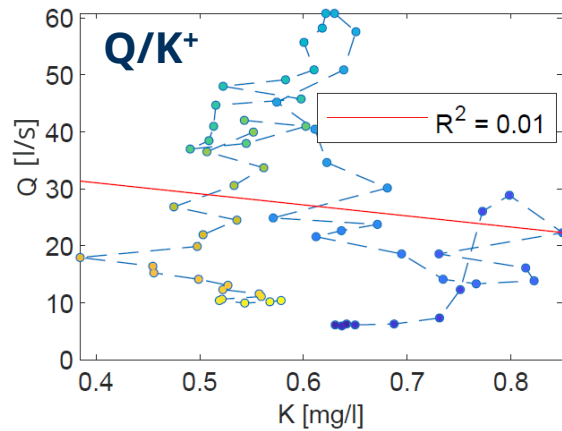
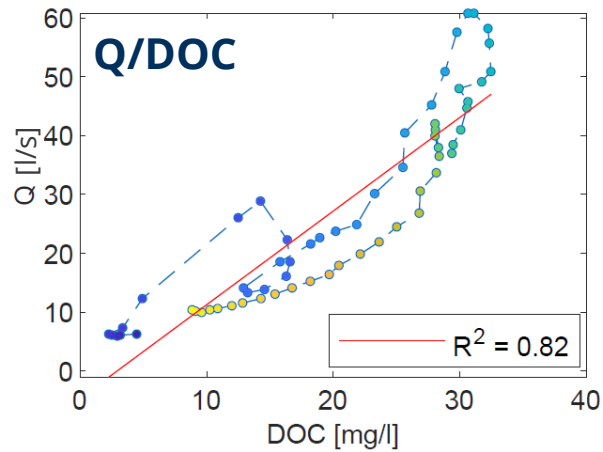
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Event sampling

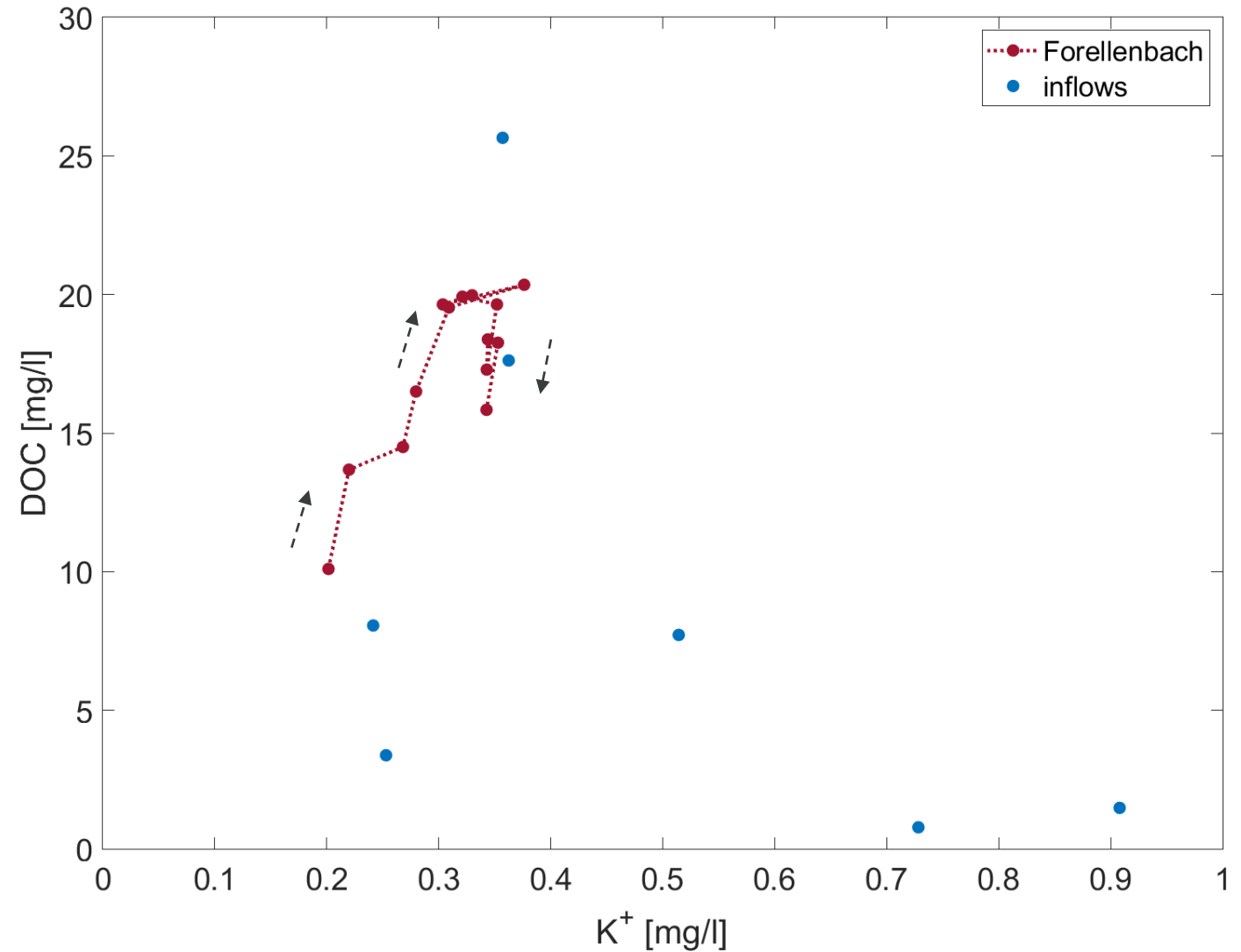
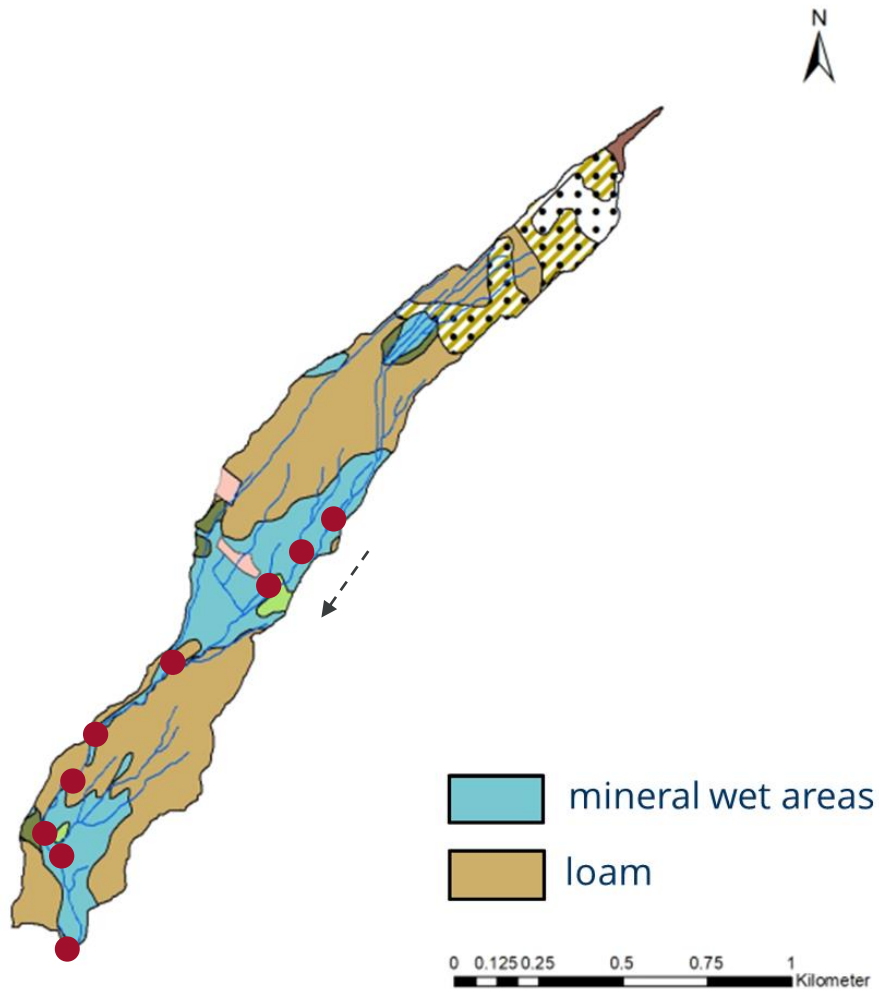


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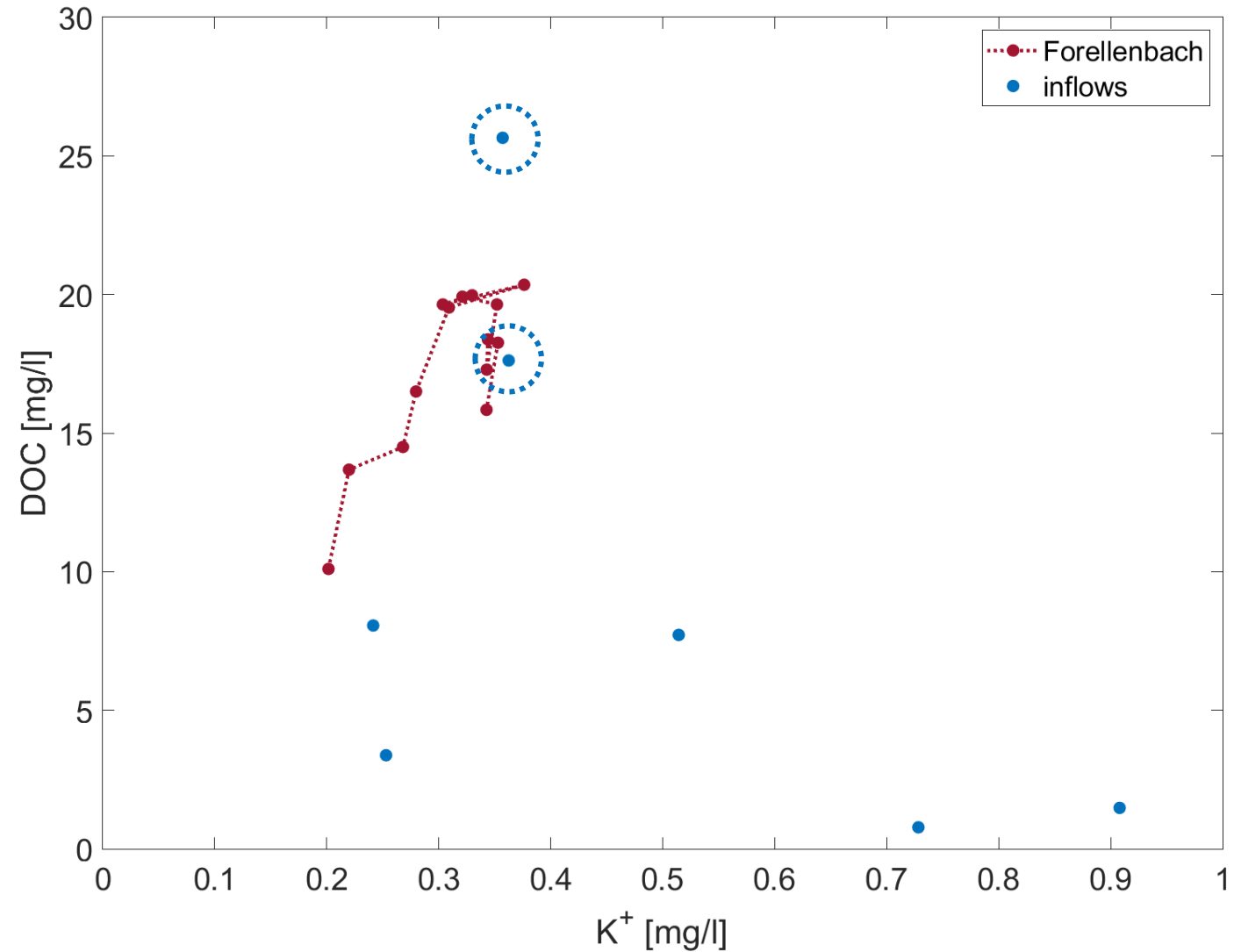
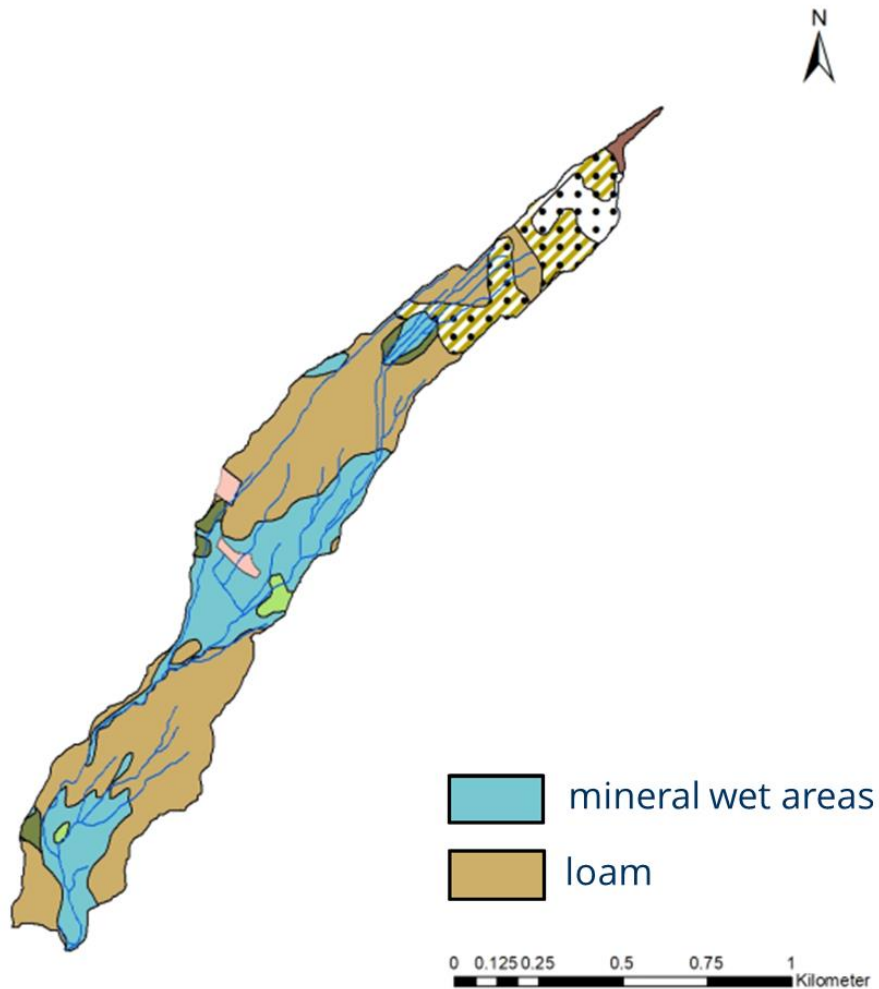
Event sampling



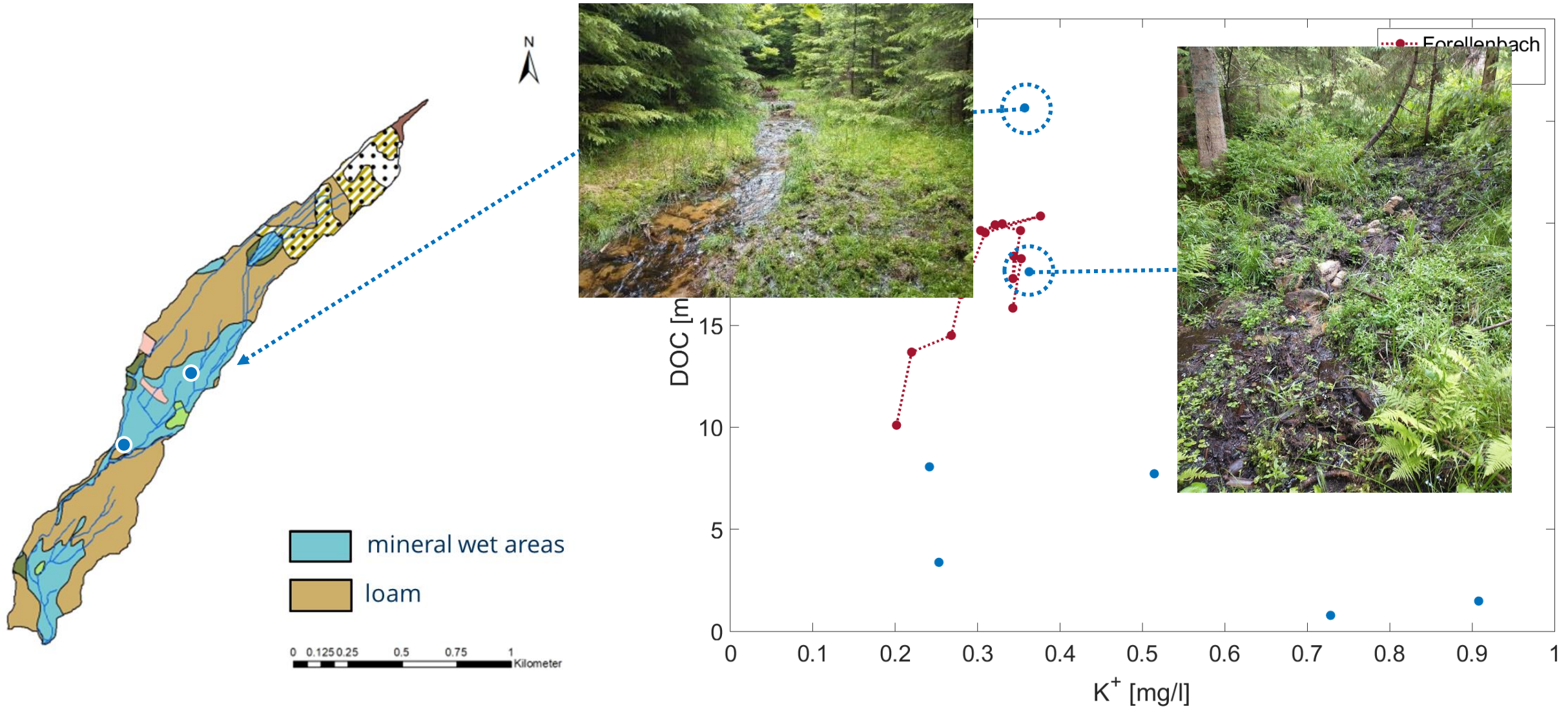
Discriminating runoff source areas using a multi-tracer approach



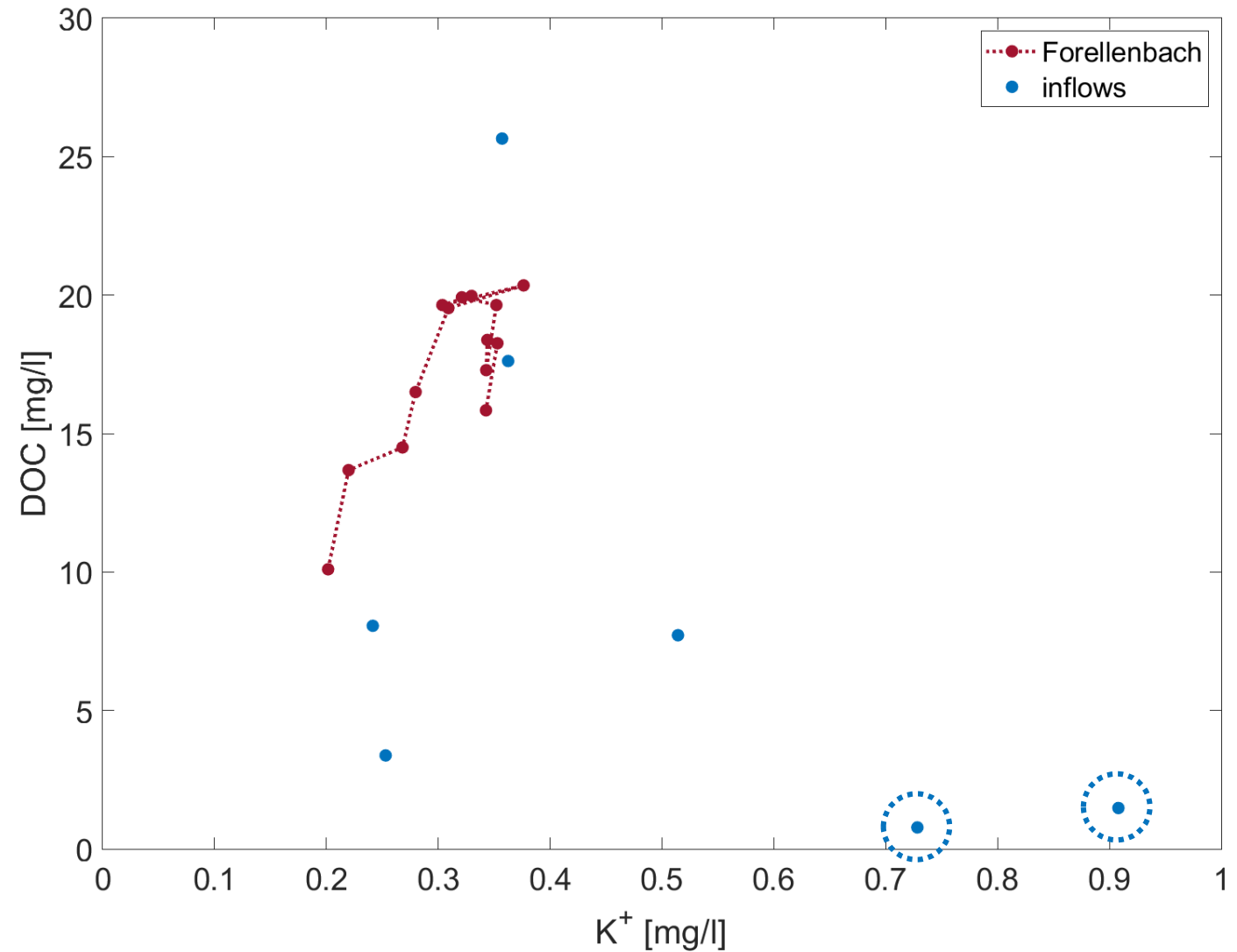
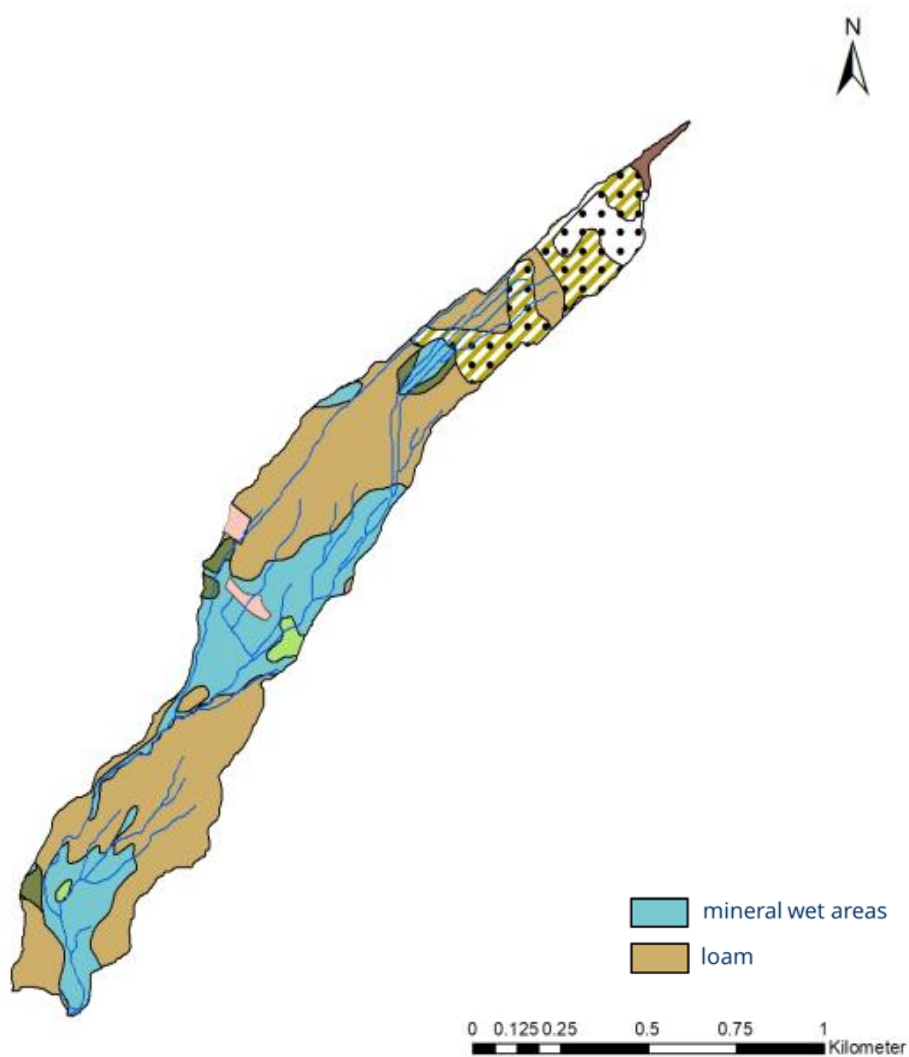
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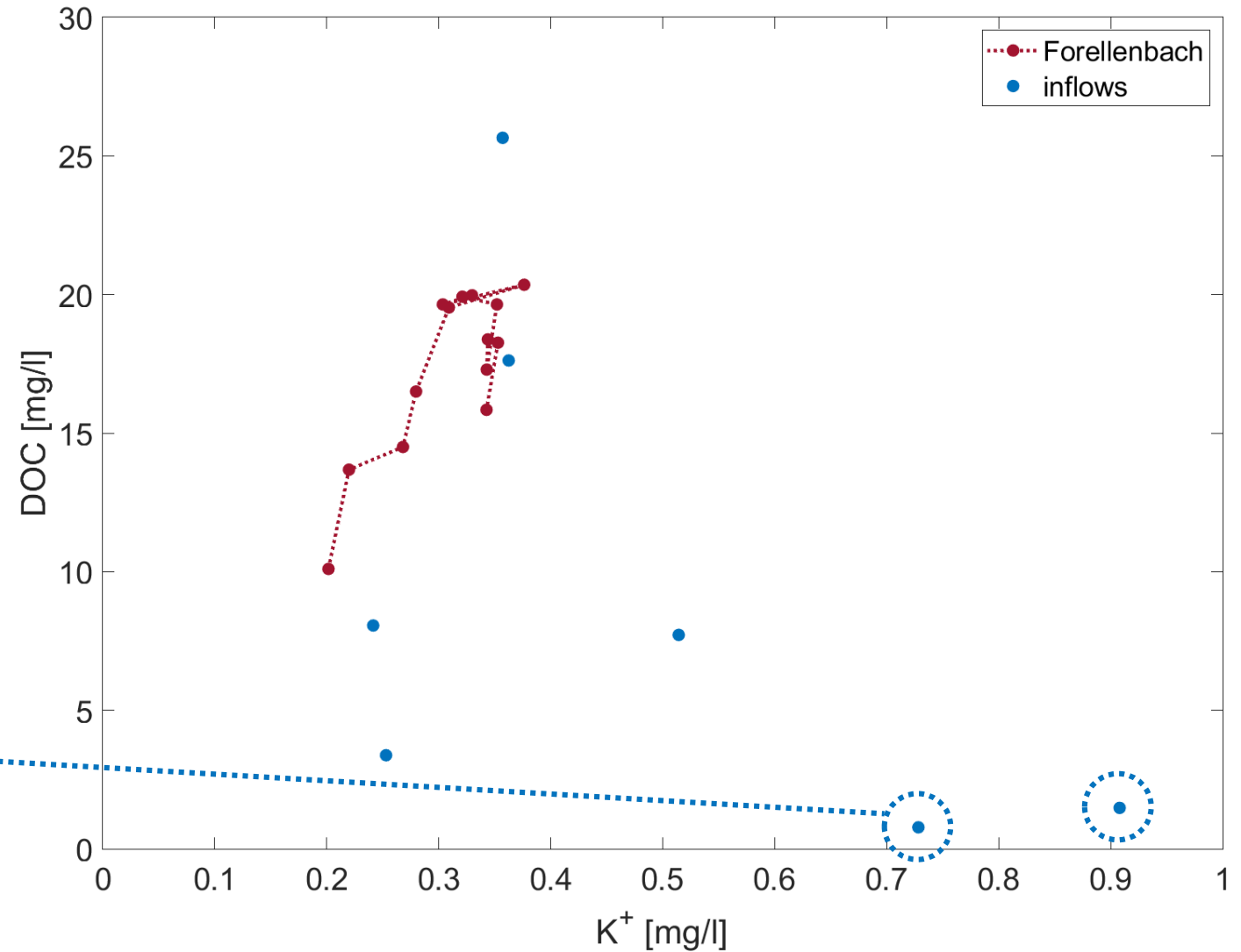
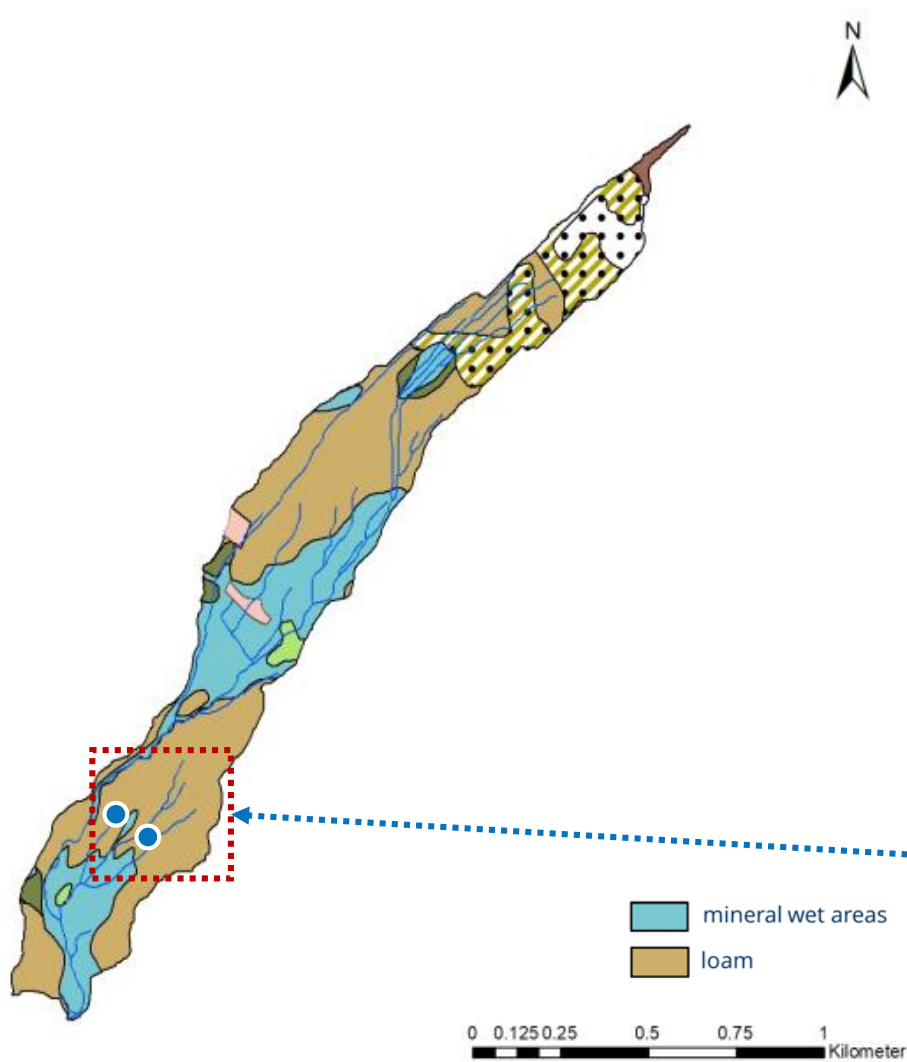
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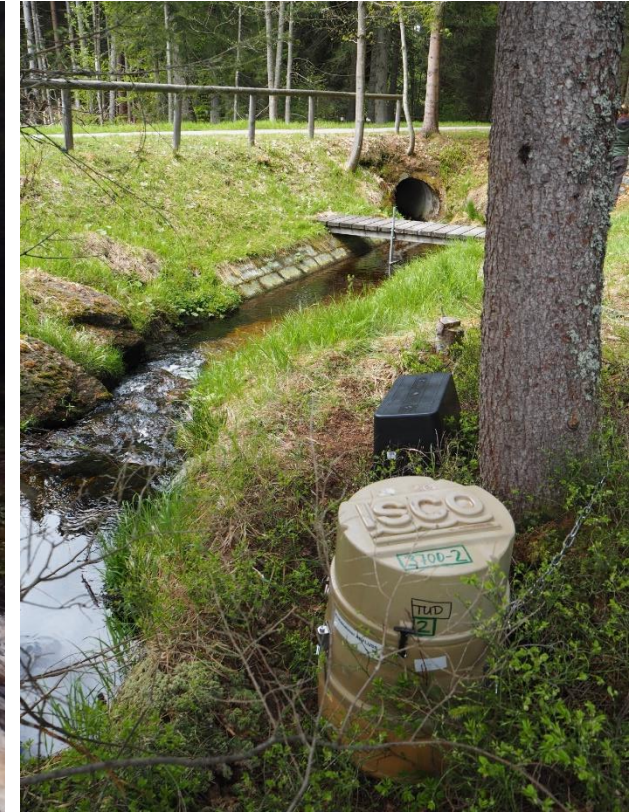
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What we learned so far...

- Different DOC- and K^+ -concentration profiles during HQ-event indicate changing runoff processes
- First, near surface runoff is main contributor to catchment runoff (rising DOC- and K^+ -concentration in the stream water)
- Then hydrological connectivity of wet areas in catchment lead to high DOC-, but low K^+ -concentration in the stream water („fill & spill“)

Thank you!

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