

## ***Interactive comment on* “Catchment tracers reveal discharge, recharge and sources of groundwater-borne pollutants in a novel lake modelling approach” by Emil Kristensen et al.**

**Emil Kristensen et al.**

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Dear editor.

Here are our answers to the referee. We have made major changes to the manuscript which we hope will improve the understanding.

We have attached the answers as a PDF.

Merry Christmas and a happy new year!

Best regards Emil

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[Discussion paper](#)



Please also note the supplement to this comment:

<https://www.biogeosciences-discuss.net/bg-2017-209/bg-2017-209-AC1-supplement.pdf>

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Interactive comment on Biogeosciences Discuss., <https://doi.org/10.5194/bg-2017-209>, 2017.

**BGD**

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Data preparation

Collection of water samples from the lake and groundwater wells close to the shore. The groundwater samples are filtered through a GF/F filter to remove particles.

Determine the concentrations of the chosen tracers in the samples

Find appropriate degradation models for the desired tracers related to the lake type and catchment area

From the lake concentrations calculate the amount of degraded tracer for a range of WRT to estimate the mixed concentration of tracers in the discharging groundwater. Relate these estimates with measured groundwater concentrations to find a maximum WRT.

Analysis

Chose a conservative tracer and incorporate it into a hierarchical Euclidean dendrogram to isolate sites which receives lake water

Split the dataset into groundwater recharge sites and possible groundwater discharge sites

Isolate one or more tracers

Possible groundwater discharge sites are incorporated in the CATS model together with estimates of the mixed inflowing tracer concentration related to a range of possible WRT

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