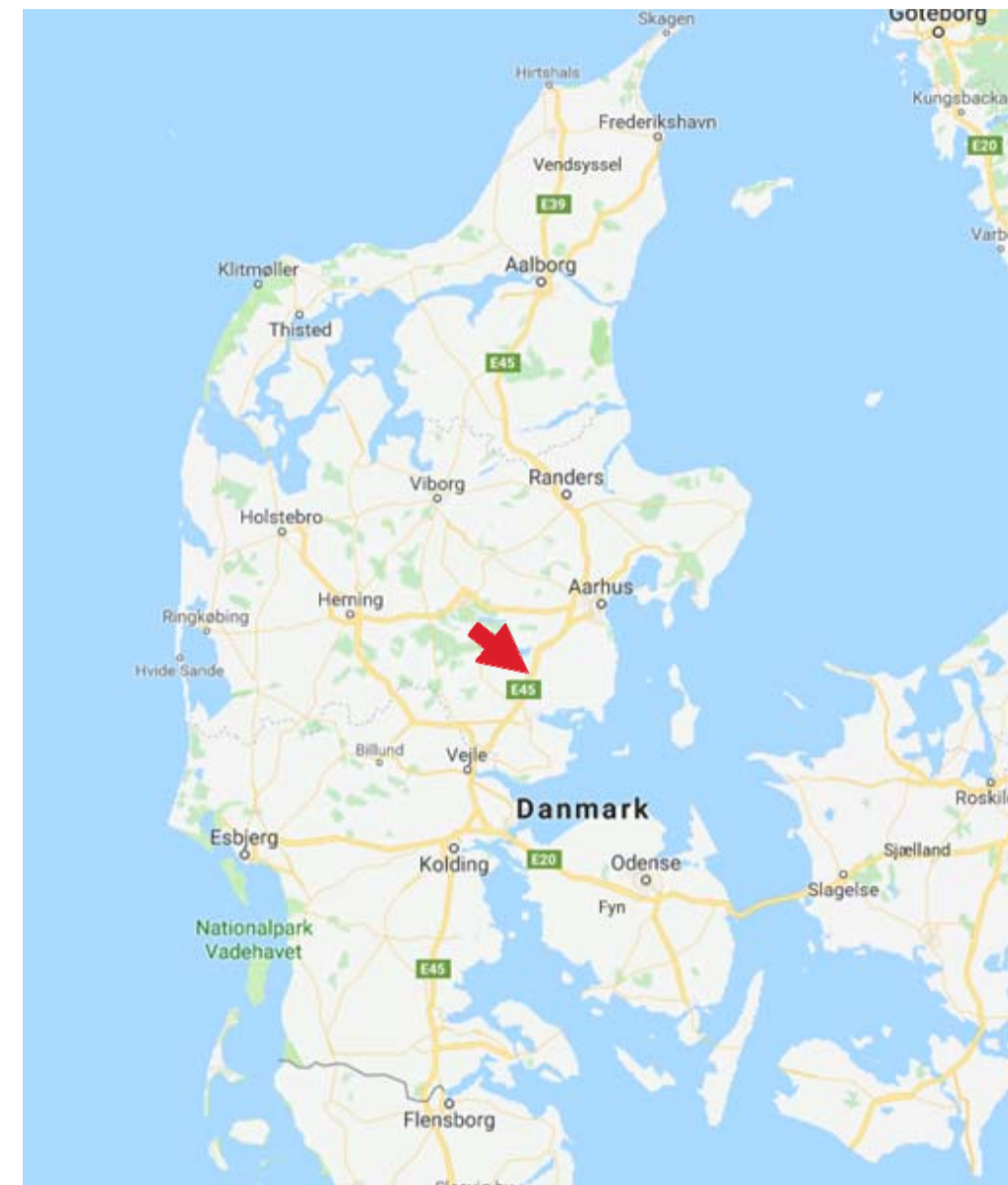


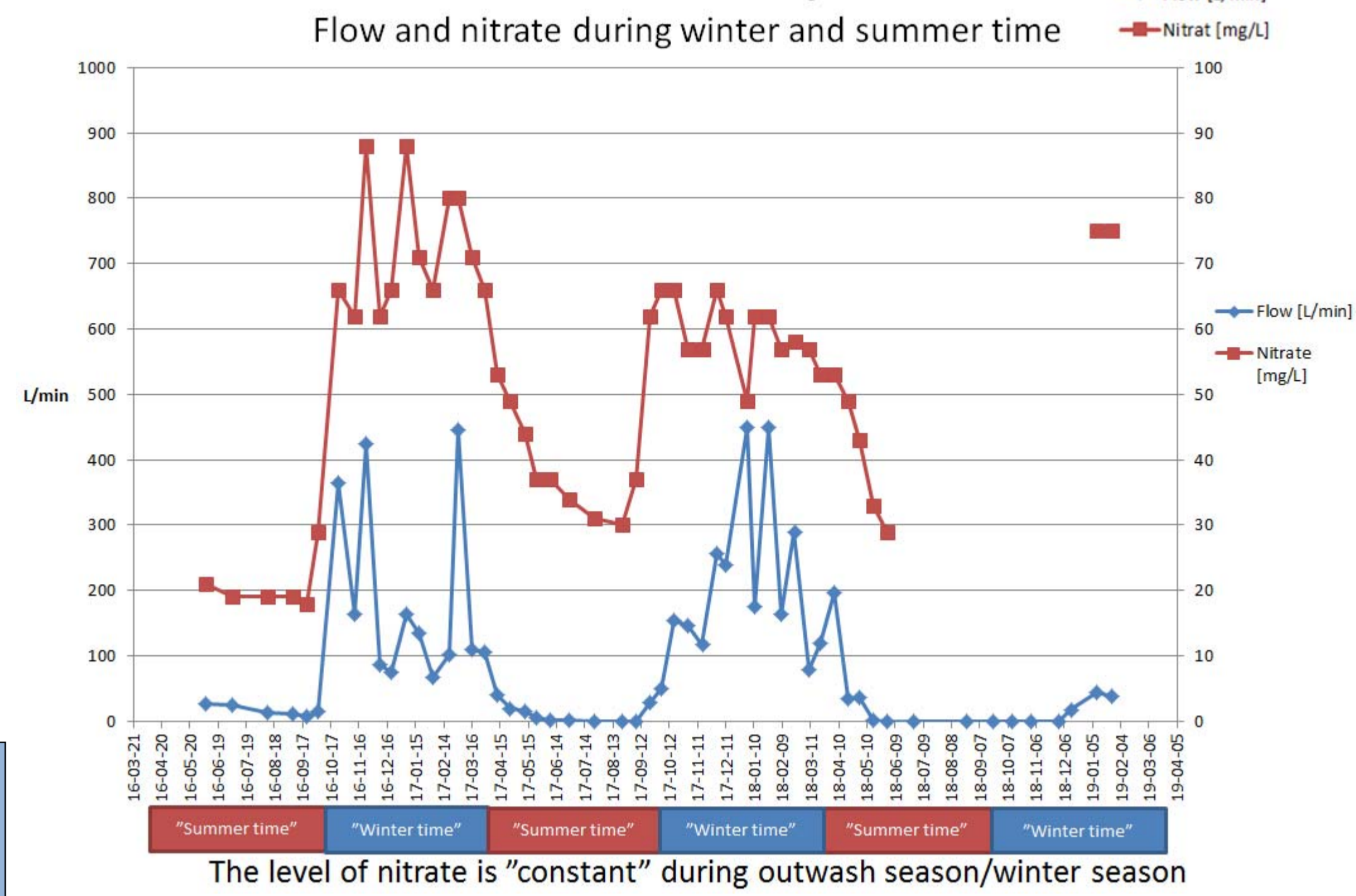
DK2A Lillerupgaard

Objectives:

To investigate whether increasing the fertilizer allocation on less vulnerable soils and reducing the allocation of fertilizers to vulnerable soils, can enable the farmer to achieve greater yields while reducing the overall leaching of nitrogen into surface water and groundwater. Furthermore it is an objective to investigate how the soil can interact as a buffer component holding water for dry periods and retaining water in wet periods.



Water samples



Leaching of nitrate is high during the entire winter period.

Precipitations will rise with 40 % in a future climate.

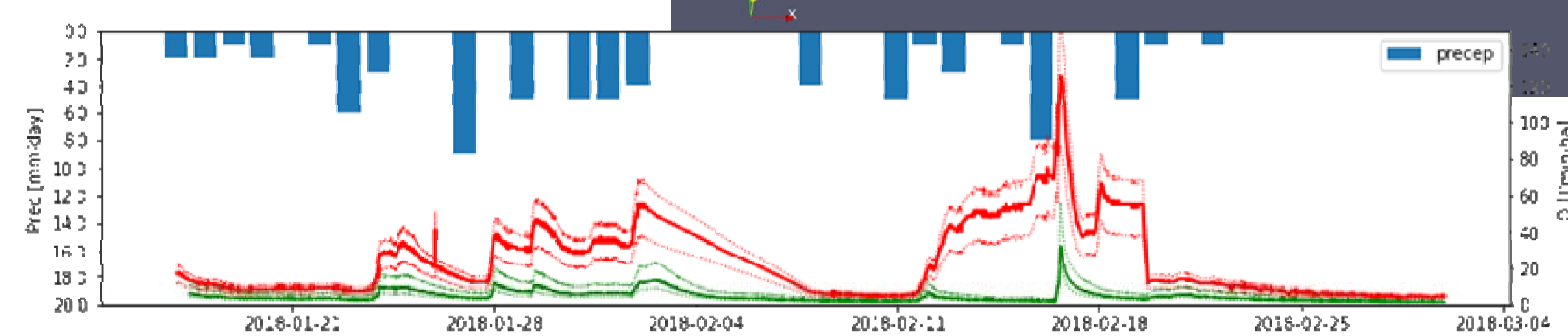
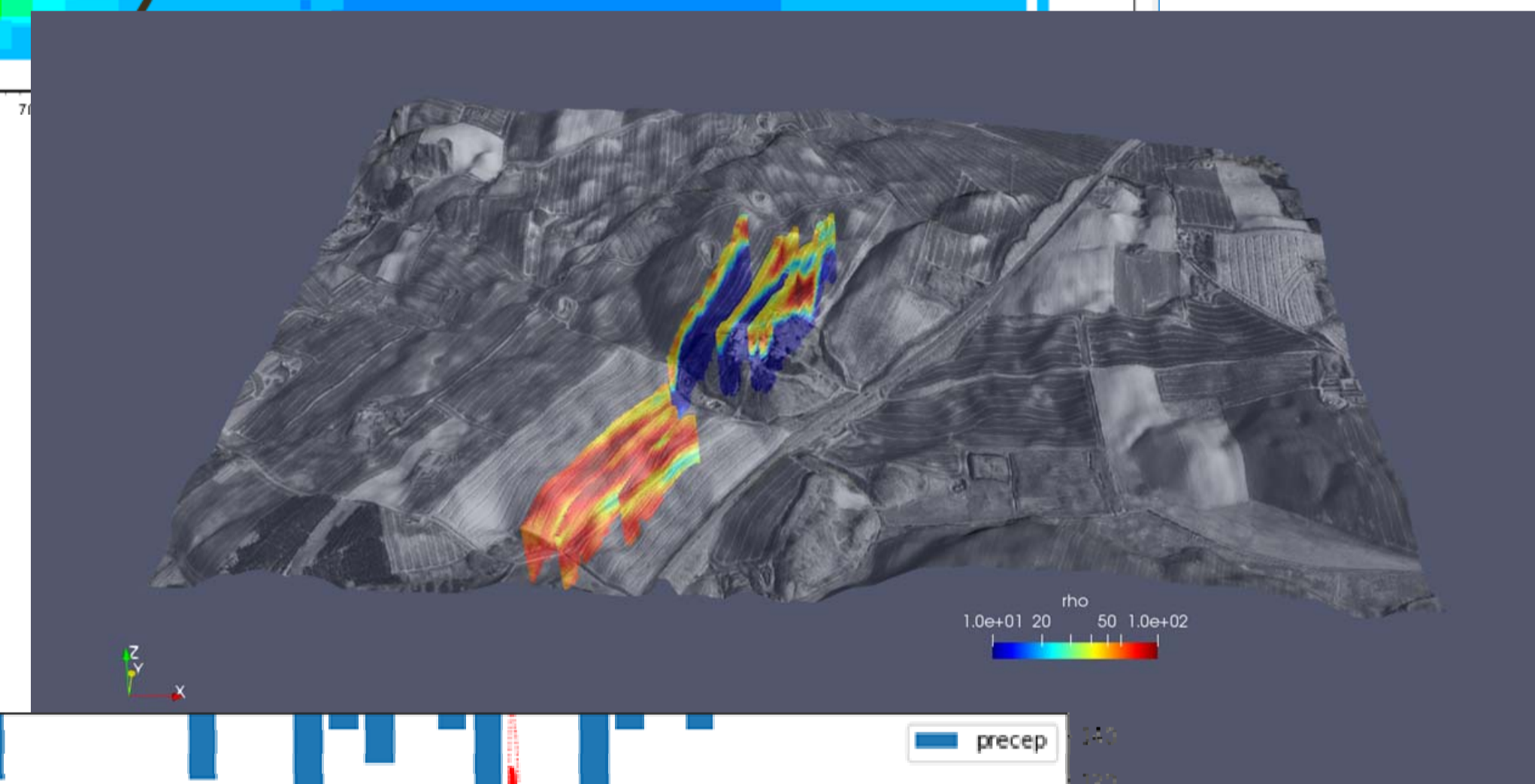
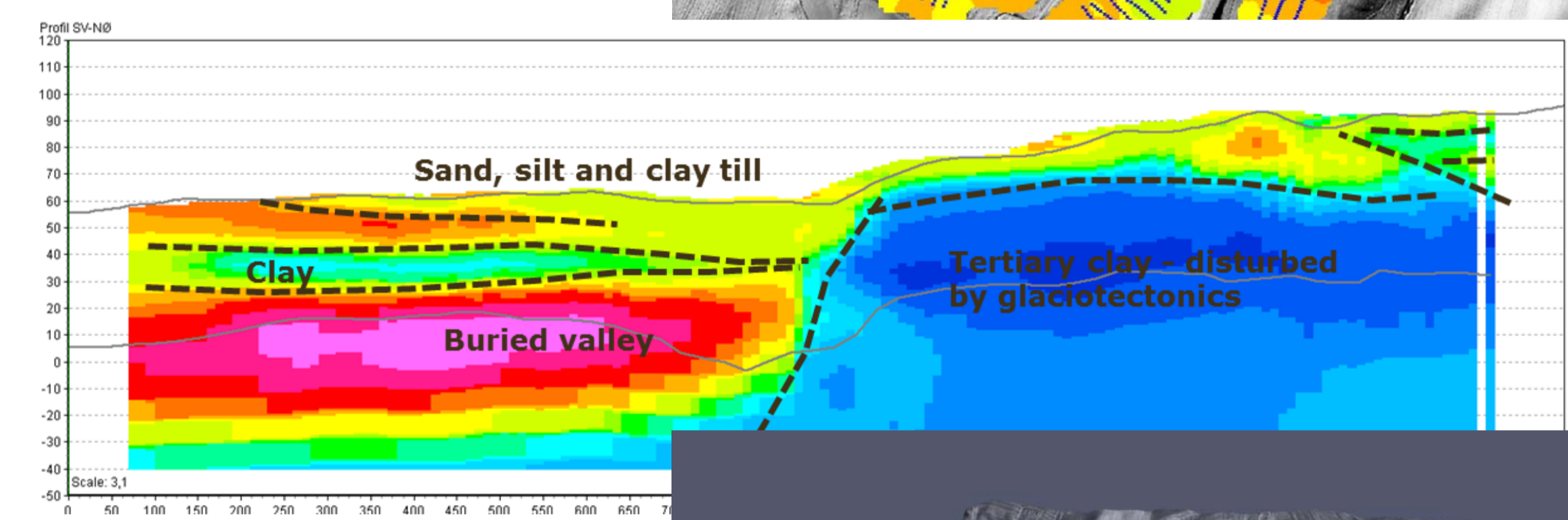
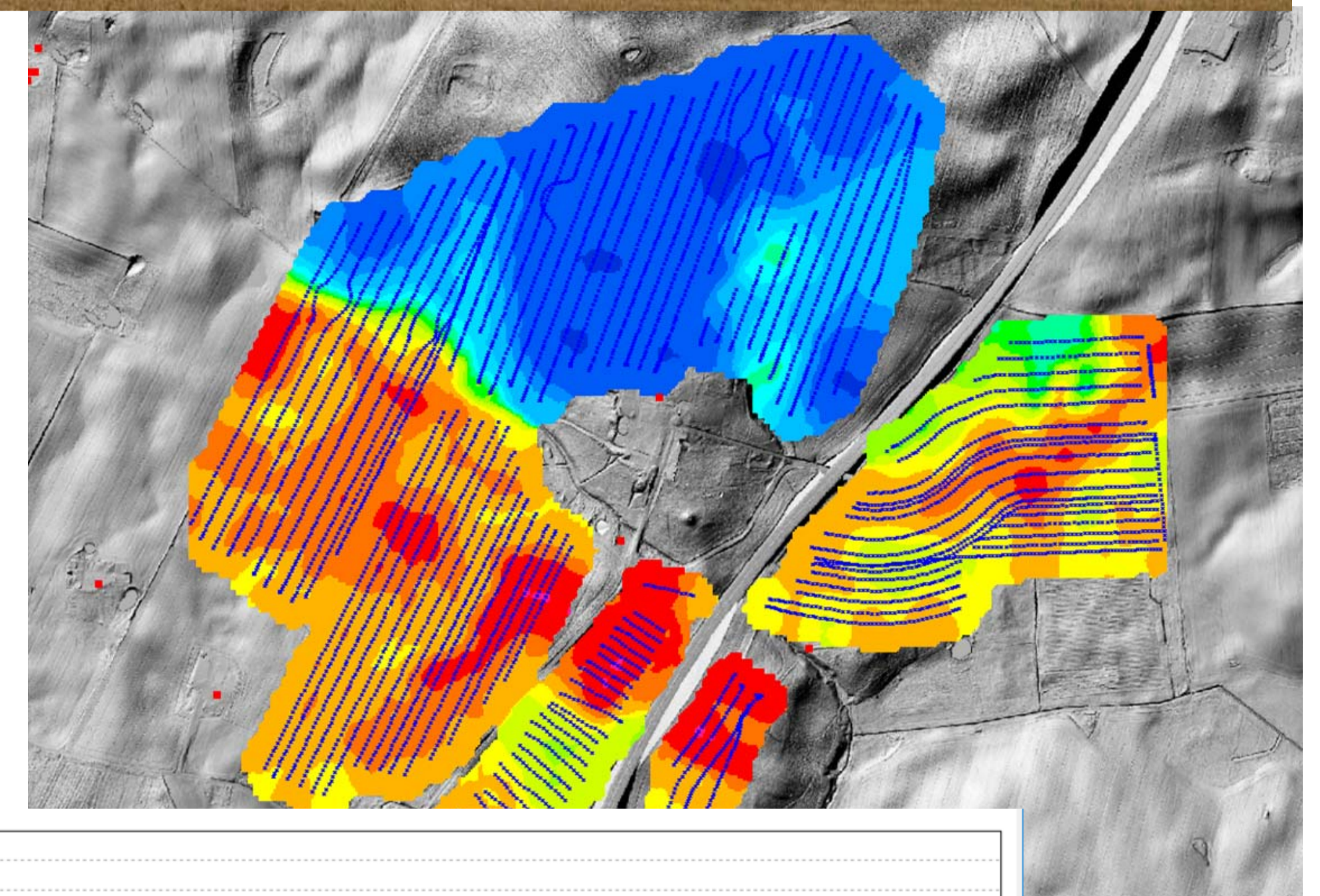
How can we improve groundwater buffering?

Soil quality relates to buffer capacity as organic rich soils holds more water. Organic matter must be incorporated in soils to a greater extend than at present time. Furthermore buffer capacity can be enhanced by an enlarged drainage depth which will increase root depth. This will also entail that crops will be more drought resistant.

How can we improve break down capacity?

Nitrate leaching will increase in a future climate which is in conflict with the EU Water Frame Directive. Reducing nitrate leaching demands a change of paradigms for farming.

New and more accurate knowledge on the subsoil zones with extra attention for runoff, drainage and infiltration can be used to redistribute fields. By redistribution individual fields will perform evenly. Fields on vulnerable areas can be managed accordingly. Nitrate vulnerable areas should be planted early to reduce nitrate leaching. Innovative use of permanent grassland may be a solution.



Key stakeholders:



Results indicator:

Water Quality: 20 % reduction in flux of water drains and recharge in a future climate by innovative management

Water Quantity: To improve by 20 % the soils ability to hold excess water for a longer period and likewise retain water for dry periods

Target: 20 % nitrate reduction in flux of water drains and recharge in a future climate by innovative management

TOPSOIL Challenges addressed:

Buffer capacity

Breakdown capacity

Soil conditions

Buffer capacity varies with geologic setting.

Improvement of the retention time will improve denitrification and reduce flooding in rivers.

Please leave your comments here: