



Long-term monitoring of stream bank stability under different vegetation cover

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Vegetated buffer zones are common environmental measures in many countries, including Norway. The presence of riparian vegetation on stream banks not only provides ecological benefits but also influence bank slope stability, through several complex interactions between riparian vegetation and hydro – mechanical processes. The hydrological processes associated with slope stability are complex and yet difficult to quantify, especially because their transient effects (e.g. changes throughout the vegetation life cycle). Additionally, there is very limited amount of field scale research focusing on investigation of coupled hydrological and mechanical influence of vegetation on stream bank behavior, accounting for both seasonal time scale and different vegetation type, and none dedicated to marine clay soils (typically soil for Norway).

In order to fill this gap we established continues, long term hydrogeological monitoring o selected cross – section within stream bank, covered with different types of vegetation, typical for Norwegian agriculture areas (grass, shrubs, and trees). The monitoring involves methods such as spatial and temporal monitoring of soil moisture conditions, ground water level and fluctuation of water level in the stream.

Herein we will present first 10 months of monitoring data: observed hydrological trends and differences between three cross – sections. Moreover, we will present first modelling exercises that aims to estimate stream banks stability with accounting on presence of different vegetation types using BSTEM and HYDRUS models.

With this presentation, we would like to stimulate the discussion and get feedback that could help us to improve both, our experimental set up and analysis approach.