Estimation of time-varying coefficients between discharge and nutrient loads in Swedish rivers

Sweden has long time series of water chemistry data. Consistent series for nutrient loads are available since the 1960s. The origins of nutrients in rivers have however changed during this time: from point sources (industry, sewage plants,…) to a larger amount of diffuse sources (e.g. from agriculture and forest management). The goal of this study is to investigate if such changes can be observed in the relationship between water discharge and nutrient loads, i.e. to see if this relationship between these is constant throughout the years or if relationships vary over time.

The data material used is monthly nutrient loads during the last 40-50 years in a variety of Swedish rivers. The selection will be made in collaboration with the Dept. of Aquatic Sciences and Assessment, SLU.

Methods used are regression analysis in a moving window approach. Additional terms that can be interesting to consider is: how seasonal variation should be modelled, which time windows should be used, if weighted regression gives a better presentation of how coefficients are changing than ordinary regression,...

**Subject:** Statistics

**Level:** B.Sc thesis, 15 hp or M.Sc. thesis 30 hp

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**Requirements:** knowledge of R