Evaluation of Past Land Use Practices in Peatlands Using Aerial Photos

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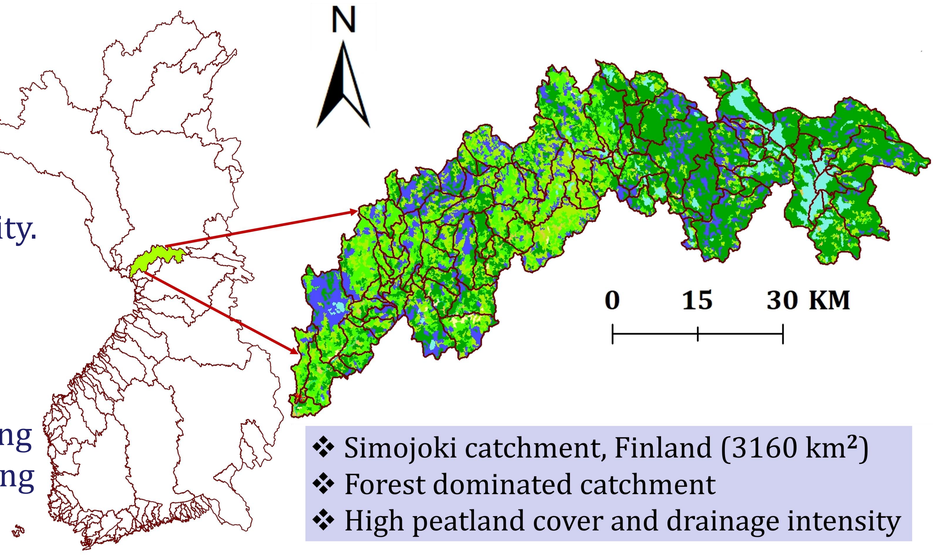
Background

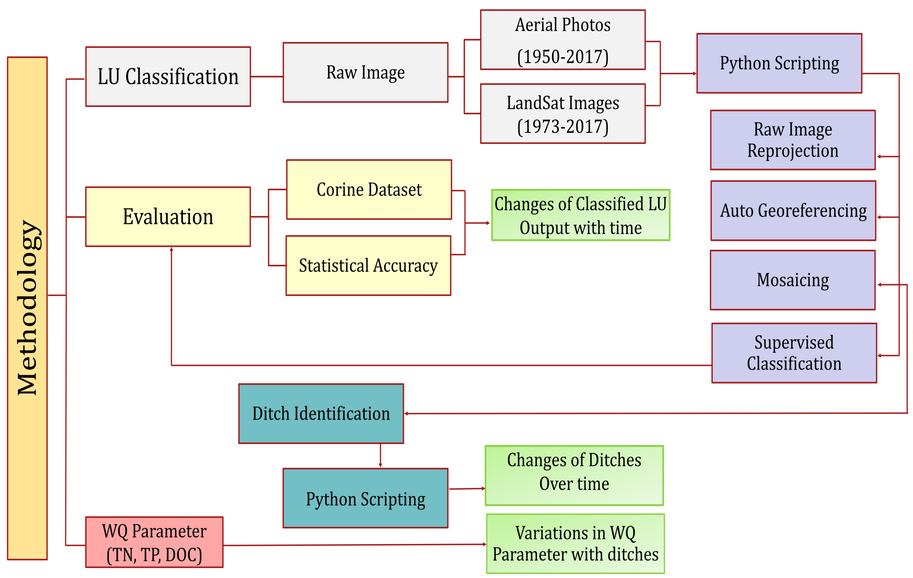
Drainage, peat mining and forestry have negatively affected peatlands in much of Northern Europe. Information on past peatland change is needed to assess the consequences of intensive peatland use on catchment hydrology, runoff and water quality. However, inclusive knowledge of historical development of peatland uses in Nordic countries is largely unknown at catchment scale. Aerial photos and remote sensing images enlarge the possibilities for identifying past land use changes in peatlands, by offering better spatial and temporal resolution.



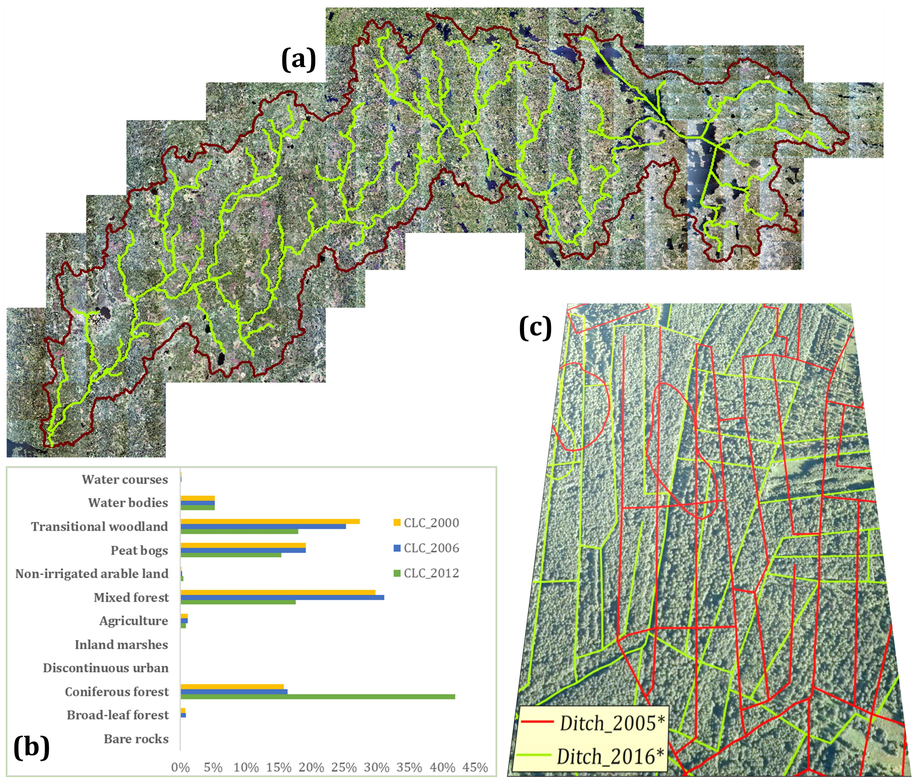
- ❖ Simojoki catchment, Finland (3160 km²)
- ❖ Forest dominated catchment
- ❖ High peatland cover and drainage intensity

Objectives

- Algorithm development to assess aerial photos and Landsat images
- Procedure development to identify ditches from aerial photos
- Time series generation for drainage patterns and timing in peatlands
- Use of aerial photos to demonstrate historical land use changes in hydrology and water quality



Results



(a) Use of aerial photos to classify land uses
(b) LU changes based on Corine Land cover dataset
(c) Automatic detection of ditches for different years in a sample portion of Simojoki

** Data source: AVAA-open data publishing platform to scientific community by the Ministry of Education and Culture, Finland*

Conclusions

Analysis of historical peatland use changes by using aerial photos and Landsat images is useful to explain historical variations in catchment hydrology and loading from land uses, not only for specified catchment but also for larger scales.

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