SPATIAL ANALYSIS OF THE RELIABILITY OF PAN-EUROPEAN REMOTE SENSING BASED FOREST MAPS WITH NATIONAL FOREST INVENTORY DATA AT REGIONAL SCALE

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ABSTRACT:

Forests' status and density are important variables for the evaluation and monitoring of ecosystems and their biodiversity. For related studies focusing on local forest structures, detailed information about the spatial distribution of the accuracy of underlying data is essential. Forest research institutes have a sound knowledge about the accuracy of data derived from intensive field data or national forest inventory (NFI) data on sample plots. Spatial explicit data and its local accuracy covering the complete area, however, are often not available.

With the new high-resolution forest density layer (HRL) of the Copernicus Land Monitoring Services, the spatial information on both variables, forest status and density, is now freely available on pan-European level. The aim of this study is to assess the applicability of this dataset within the region of the German federal state Baden-Württemberg and Switzerland. The analysis, hereby, focused on the main parameters of interest, which are forest density and derived forest delineation according to the local forest definitions. An intensive assessment concerning the relationship between these main parameters and NFI plot-based information such as forest/non-forest, stand volume and crown coverage was carried out. This assessment used different NFI inventory methods (angle count sampling and concentric circles) and tested their influence on the accuracy assessment. As a final step, the spatial distribution of accuracy depending on elevation, exposition and growing regions are illustrated.

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