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ESTIMATION OF BIOMASS POTENTIAL BASED ON CLASSIFICATION AND HEIGHT INFORMATION

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Abstract. On the way to make energy supply independent from fossil resources more and more renewable energy sources have to be explored. Biomass has become an important energy resource during the last years and the consumption is rising steadily. Common sources of biomass are agricultural production and forestry but the production of these sources is stagnating due to limited space. To explore new sources of biomass like in the field of landscape conservation the location and available amount of biomass is unknown. Normally, there are no reliable data sources to give information about the objects of interest such as hedges, vegetation along streets, railways and rivers, field margins and ruderal sites. There is a great demand for an inventory of these biomass sources which could be answered by applying remote sensing technology. As biomass objects considered here are sometimes only a few meters wide, spectral unmixing is applied to separate different material mixtures reflected in one image pixel. The spectral images are assumed to have a spatial resolution of 5– 20 m with multispectral or hyperspectral band configurations. Combining the identified material part fractions with height information and GIS data afterwards will give estimates about the location of biomass objects. The method is applied to test data of a Sentinel-2 simulation and the results are evaluated visually.

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