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TESTING ALGORITHMS FOR THE IDENTIFICATION OF ASBESTOS ROOFING BASED ON HYPERSPECTRAL DATA

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Abstract

There are several environmental issues in urban areas that are caused by the unintentional consequences of past activities. One of these issues is the wide application of asbestos cement in roofing materials in the 2nd half of the 1900s. In this study, our goal was to identify different roof types and to determine those with asbestos components using high-ground (1 m) and spectral (126 bands) resolution airborne hyperspectral imagery (AISA Eagle II) and several classification approaches. In addition, we aimed to identify those wavelengths that play a significant role in distinguishing the different roof types. In the image analysis, the SAM, MLC and SVM classification methods were used to evaluate the different types of roofs. These methods resulted in accurate maps of the roof types, and asbestos cement roofs were identified with over 85% accuracy.

Key words: Aisa EAGLE, asbestos-cement, hyperspectral remote sensing, image classification, roofs

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