



## **DETECTION OF WINDTHROW AREAS BY OBJECT BASED IMAGE SEGMENTATION**

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In high resolution aerial images, areas that are uniform from the view of the application are not represented by an average spectral pattern, but are resolved into their components. While this enhanced information content offers the possibility of a more differentiating and correct classification, the classical spectral classification of single pixels comes up against its limits. Image analysis methods that take into account local neighborhood characteristics (edges, textures) can help to some extent, but deliver crumbled information that needs additional treatment.

The new method of object based multispectral image segmentation (software "eCognition") promises a solution. In a first step, the image is segmented into areas that are "looking" uniform, with respect to spectral, textural and shape properties. For each area, some characteristic values are calculated. In the second step, the segments are classified according to these attributes. The classification can be refined by giving training areas and previous knowledge (fuzzy class membership functions). In a third step, the classification can be improved by iterative application of neighbourhood criteria.

In this work, the object based segmentation approach is applied to the detection of windthrow areas in multispectral images gained by an airborne survey with a digital line scanner. The characteristic pattern of lying trees, that is obvious to the human observer, can be detected in this way. Additionally, foreground objects (clouds) and settlement areas, which must be excluded, can be found.

The derived damage pattern can be used for an analysis of orographical influence on storm damage to forests in mountain areas (contribution of J. Schmoeckel and Ch. Kottmeier).