

Generating Learning Data for Hierarchical Vegetation Classification Methods using Support Vector Machine

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In a previous study, we developed a method for classifying vegetation on a river bank managed by the Ministry of Land, Infrastructure, Transport and Tourism, by using images acquired from the Omonogawa River flowing through the Akita Prefecture. We focused specifically on color and texture information from those images, and proposed a method for classifying vegetation with a support vector machine, which is a pattern recognition model. However, the color features of the turf and the harmful vegetation, *Fallopia japonica*, were roughly the same when calculated during the same season across different years. Distinguishing images based on the acquired seasons should enable high-precision classification. Thus, in this study, we develop a learning data generation method that can classify new data. Specifically, we categorize the learning data by month and determine parameters for the appropriate unlearned data. An experiment is conducted using data generated from May, June, and July of 2015 and 2016. We found that the proposed generation method can classify river bank vegetation with high accuracy in comparison with the previous approach.

Keywords : Support vector machine, Learned data, Vegetation classification, River bank