Vegetation classification using UAV-based hyperspectral imaging

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The use of unmanned aerial vehicle (UAV)-based spectral imaging offers considerable advantages in high-resolution remote-sensing applications. Therefore, the expectation for the utilization in precision agriculture has been growing lately. However, the number of sensors mountable on a UAV is limited, and selecting the optimal combination of spectral bands is complex but crucial for conventional UAV-based multi- spectral imaging systems. To overcome these limitations, we adopted a liquid crystal tunable filter (LCTF), which can transmit selected wavelengths without the need to exchange optical filters. For calibration and validation of the LCTF-based hyperspectral imaging system, a field campaign was conducted in several vegetated areas. In this presentation, the vegetation classification maps produced from the aerial hyperspectral images are introduced and the classification accuracy is evaluated.

Keywords: Liquid crystal tunable filter, Unmanned aerial vehicle, Vegetation classification