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指導教員 承認印	主	副	副
			

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学位（博士）論文要旨
(Doctoral thesis abstract)

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論文題目 Title	Aerial Image Analysis Applications in Plant Discrimination and Land Cover Mapping for Agro-Environmental Studies (農業環境の研究のための植物判別と土地被覆分類への空中画像解析の応用)			
<p>SUMMARY</p> <p>In this thesis we introduce and evaluate a methodology to analyze, discriminate, and classify the earth surface by utilizing aerial images from different source and sensors in agro-environmental applications. In such applications, often accessing the area of interest is practically impossible or it is time consuming and requires high cost. Therefore, utilizing aerial images for such applications is the most common option for the users.</p> <p>In first part, we focus on aerial images from unmanned aerial vehicles (UAVs) with Red, Green, and Blue (RGB) channel sensors. The overall objective in this part is to provide a methodology for analyzing the aerial images from a small commercial UAV in order to be used in agro-environmental applications. First, we select the hairy vetch (<i>Vicia villosa</i>) as target plant to be detect and discriminated in UAV images. We characterized the features and collected the data for further analyze. Then, the challenges in image mosaicking in such applications were investigated. In the next step, we introduced a methodology for plant detection in UAV images by using machine learning techniques. Finally, the proposed methodology was test and evaluated.</p> <p>In the second part, we modify the methodology for landcover mapping by utilizing satellite imagery. The overall objective in this part is to provide a tool for landcover classification in national level for the country of Lesotho. The study was carried out in collaboration with the United Nations Food and Agriculture Organization. the proposed methodology utilizes free and open access satellite data, cloud based geospatial data processing platforms, and FAO datasets. The methodology was successfully test and evaluated in national level for Lesotho.</p> <p>Finally, the thesis will discuss the potential, limitations and future directions of the study.</p>				
(英訳) ※和文要旨の場合(300 words) If the abstract is written in Japanese, needed to translate into English.(300 words)				