HTT31-P05   Room:Convention Hall   Time:May 19 18:15-19:30

Creating the vegetation and land-cover classification map by video camera onboard helicopter

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1. Method

Fukushima Daiichi nuclear disaster brought about wide area radioactive contamination in March, 2011. The deposition of radioactive material emitted from the plants differ by tree species and geographical feature. Therefore, to grasp vegetation and geographical feature is important for making countermeasure against radiation contamination.

Target area is Yamakiya-district, Kawamata-town, Fukushima-Pref., one of planed evacuation area. We measured the distribution of air dose rate by walking mountain slopes with gamma ray spectrometer with GPS. High spatial resolution visible images were taken by the video camera installed on helicopter. Vegetation and land-cover classification map based on the captured video camera images were superimpose on the map of dose rate, and examining the relationship between air dose rate and the vegetation or land-cover.

2. Results

We create the vegetation and land-cover classification map using"eCognition8.8" softwere. Element of classification is "Broad-leaved tree", "Cryptomeria", "Pine", "Field", "Land and grass", "Artifact", "Path".

The result is as follows. We can read out what the air dose rate is high level around the evergreen needle-leaved tree.

3. Remarks

We were able to create the accurate vegetation and land-cover map and analyze the relationship between air dose rate and the vegetation and land-cover at low cost remote sensing. To tackle with radioactive contamination, we have to apply vegetation-land cover map with the result of field survey.

Keywords: Nuclear Disaster, Proximal Remote Sensing, Fukushima, Yamakiya, Video Camera, object-based image analysis