

UASI Summer 2012 UAV flight campaign results for forest and agriculture applications

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Innovative and compact system consisting of CIR (Color Infrared) and hyperspectral imagers integrated into a very light UAS (unmanned aerial system) with modern classification algorithms provides significantly improved ways for remote sensing for forest and agriculture applications. Tekes, the Finnish Funding Agency for Technology and Innovation, has granted a funding for this large cooperation research project of four research institutes and several companies. The project is coordinated by University of Jyväskylä. The objective of the project is to be able to evaluate forest and agriculture biomass changes. The project started in 2011 and several flight campaigns were carried out in summer 2011. The new Hyperspectral imager prototype was designed and built for the summer 2012 flight campaigns based on the analysis of the 2011 imaging data. The UASI 2012 imaging system consisted of the 4 Mpix CIR camera and hyperspectral imager with spatial resolution of either 2048 x 1296 or 1024 x 648 pixels in the wavelength range 500 – 900 nm at a resolution of 10...30 nm @ FWHM. In 2012 the Hyperspectral imager and CIR camera were flown together. The UASI system has been tried in summer 2012 in Southern Finland for the forest and agricultural areas. The design and calibration of the hyperspectral imager will be shortly explained. The test UASI 2012 flight campaigns on forest and crop fields and their preliminary results are also presented.



Figure 1. Infotron IT-180 UAV helicopter with both the CIR camera and Hyperspectral imager payload and flight configuration of UASI 2012 hyperspectral Imager.

References

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