

Hyperspectral remote sensing flight campaigns using AISA systems in 2010

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University of Helsinki, department of geosciences and geography has this year carried out two hyperspectral remote sensing campaigns in Finland applying AISA Eagle and AISA Dual sensors. The main purpose of the campaigns was to collect data for

- modeling the impact of the atmosphere on the airborne spectral measurements
- modeling the reflectance of different forest types and agricultural crops

The first campaign was organised at the Arctic Research station of the Finnish Meteorological Institute in Sodankylä. Two flights were carried out with AISA Dual measuring spectral range of 400 - 2500 nm on March 18 and 21. Simultaneous ASD - ground based spectral measurements and ASD - mast based measurements from 30 meters height were performed in order to validate airborne hyperspectral measurements. Specific focus is to model the effect of the forest reflectance and transmission, and also the impact of the atmosphere on the airborne spectral measurements. The results enable the development of satellite methods to observe the snow-coverage of the forest.

The second campaign was organized in Helsinki metropolitan area on July 16 and July 27 using AISA Eagle measuring spectral range of 400 – 1000 nm. The aim of the campaign was to monitor the water quality of river Vantaanjoki, study reflectance characteristics of trees within Viikki Arboretum of the University of Helsinki and to study the phenology of various crops in agricultural test fields of the University of Helsinki in the Viikki campus. The flights were accompanied with thermal camera and ENSOMosaic digital camera system. For the river Vantaanjoki these data sets allow studies on water parameters like temperature, chlorophyll content and turbidity.

Preliminary results will be presented in the hyperspectral session of the Remote Sensing Days.