ChangeHabitats2

Network for Habitat Monitoring by Airborne-supported Field work
– an innovative and effective process in implementation of the Habitat Directive

International Workshop

on

Advanced remote sensing methodology development to support Natura 2000 management actions across EU

7 December 2011, Budapest, Hungary

WORKSHOP PROGRAMME

Venue:	**VITUKI Environmental and Water Management Research Institute** **1095 Budapest, Kvassay Jenő út 1., Hungary**
9:00-9:30	**Registration**
9.30-10.00	WELCOME and WORKSHOP OPENING Opening by János Fehér, Business Development Director of VITUKI, Chair of the Workshop Welcome by László Kóthay, Managing Director of VITUKI Environmental and Water Management Research Institute, Budapest Welcome by Hermann Heilmeier, Professor at TU Bergakademie Freiberg, Consortium Leader of ChangeHabitat2 project
10.00–12.30	**Morning session**
10:00-10:20	Attila András Takács, Deputy Head, Nature Conservation Department, Ministry of Rural Development, Hungary: Actual challenges in nature conservation monitoring and survey
10:20-10:40	Hermann Heilmeier and Susanne Rahner: The ChangeHabitat2 project - objectives, project methodology, expected outcomes - Project idea and Motivation: regular monitoring of Natura2000 habitats - Project objective: time and cost effective methods - Project methodology: remote sensing (airborne laser scanning, hyperspectral imaging) plus field mapping of habitats, habitat assessment - Expected outcomes: derivation of habitat indicators for airborne data, estimation of annual cost savings
10:40-11:00	Nikolaus Studnicka, Peter Rieger and Martin Pfennigbauer, RIEGL: Airborne Laser Scanning – Technology and Data Acquisition A brief overview is given on the principles of operation of airborne laser scanning. The potential of this technology is demonstrated by demonstrating its capabilities with respect to radiometric calibration, vegetation filtering, and DTM extraction. Key specifications of RIEGL's state-of-the-art instruments are discussed. Furthermore, data acquisition process is shown including flight planning, actual scanning, and post processing using the example of the two projects conducted in the course of the ChangeHabitats2 activity. The workflow is discussed and corresponding software tools are introduced.
11:00-11:20	Werner Mücke and Norbert Pfeifer, Vienna University of Technology, Institute of Photogrammetry and Remote Sensing: Analysis of laser scanning point clouds acquired over Changehabitat2 areas In the first year of ChangeHabitats2, two airborne laser scanning (ALS) campaigns were carried out over pre-defined study areas. The presentation will include a short overview on the areas (Uckermark / Germany and Sopron / Hungary) and especially the ALS flight details and parameters. Additionally, the results of the quality checking of data will be shown. Furthermore, investigations of the acquired point clouds will be shown, including first results of created models with regard to selected Natura2000 relevant parameters.
11:20-11:40	Béla Licskó, VITUKI: Remote sensing applications in water and environmental management; János Fehér, VITUKI: Comments to VITUKI presentation
11:40-12:00	Prof. János Tamás, University of Debrecen: Applied hyperspectral technologies supporting Natura 2000 requirements Since 2002 many studies have been made related to the advantages of hyperspectral technology especially in examination and evaluation of alkali grasslands and their ecological parameters. Based on the foregoing practical

	experience the advantages of this technology can be used to optimal data preparation (on-site measurements, reference points) and effective interpolation methods (mixed pixels, data classification). This is a typical interdisciplinary task where applicable results can be gained by cooperation with ecologists and hydrologists. Hyperspectral data of the consortium can be reached through a map database system. In near future, this database can be a useful tool, a monitoring background for the Nature 2000 management and decision making. The presentation will introduce the experience of the hyperspectral data collection gained during the last 10 years and give an overview of the advantages, disadvantages and the applicability methods - in the case of Natura 2000 sites - of this technology.
12:00-12:20	Invited commenter: Rita Fonseca and Carla Patinha, University of Évora, Portugal: Assessing the impact of metals loads and other contaminants in large freshwater bodies using hyperspectral remote sensing. A challenge for the future of lakes and rivers management The use of remote sensing to estimate water quality parameters, such as suspended sediments, metals and nutrients distribution, seems to be a useful technology to use as a preliminary study in large freshwater bodies. Empirical models based on the relationships between spectral measurements and water and sediments quality analytical data, will decrease the number of sampling sites in the basin, since remote sensing is a considered a potential method to estimate water quality variations. In order of having a synergy between hyperspectral data and geochemical, mineralogical and hydrological information, we would like to use the hyperspectral remote sensing technology in two different scenarios: (1) A contamination area by intense agriculture and (2) A contamination area by mine industry.
12:20-12:50	Discussion
12.50-13.40	**Lunch/Coffee/Tea**
13.40-16.00	**Afternoon session**
13:40-14:00	Susanne Rahner, YGGDRASIL1: Survey on geodata requirements
14:00-14:20	Anke Schroiff, Susanne Diemer and Petra Wirth, YGGDRASILDiemer: Field survey of selected habitat areas in Germany and Hungary - Methods of fieldwork for mapping and assessment of habitat types, - Introduction of study sites, - Selected results
14:20-14:40	Tünde Fórián and Gergely Hunyady, University of Debrecen: Evaluation of habitate sites by applied remote sensing This study represents some results of measuring methods to determine ecological parameters of habitats. The high resolution spectral data evaluation can help to identify different ecological indicators, landscape fragmentation and the dimension disturbing on the basis of supervised classification and texture examination. The next analysis method is the spectral curves fitting and indices calculation (FFT, feature fitting), after processing special ecological problem can be detected e.g. dead woods, phytosanitary problems, changes in pigment activity, lignin cellulose and nitrogen content. In case of habitat management tasks, it is very important to locate that area, where natural phenomenon (erosion, drought, flood) and anthropogenic impacts (treading, waste disposal, range of allergenic weed species) were taken place.
14:40-15:00	Balázs Székely (Vienna Univ. of Techn., Inst. of Photogrammetry and Remote Sensing), Adam Kania (ATMOTERM) and Norbert Pfeifer (Vienna Univ. of Techn., Inst. of Photogrammetry and Remote Sensing): A conceptual model for extraction of relevant geospatial data in ChangeHabitats2 project
15:00-15:30	Discussion
15:30-16:00	**Conclusions** **Closing the Workshop**

Exhibitors:

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