

SilviLaser 2010 – Point Cloud Brings Light into the Forest

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This year the 10th international conference on LiDAR applications for assessing forest ecosystems – SilviLaser – was held in Freiburg, Germany. From 14-17 September, approximately 150 participants from 22 countries from all over the world discussed the latest findings and scientific developments. The conference was organized by the Department of Informatics and Biometrics - Forest Research Institute of Baden-Württemberg (FVA, Dr. Gerald Kändler) and the Department of Remote Sensing and Landscape Information Systems - Freiburg University (FeLis, Prof. Barbara Koch, Deputy Coordinator of IUFRO Unit 4.02.08; <http://www.iufro.org/science/divisions/division-4/40000/40200/40208/>).

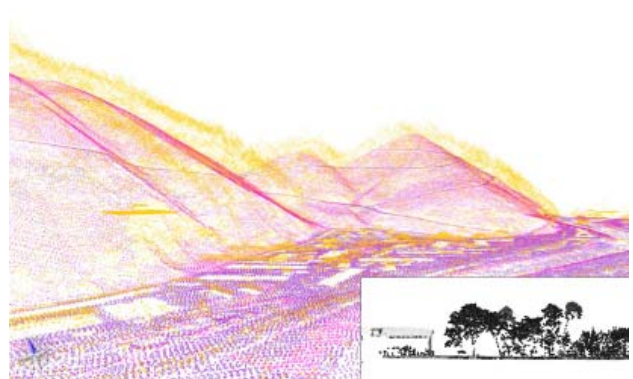
Laser scanning for forest applications is a young and promising research topic. With 51 oral and 26 poster presentations in eight session themes, the conference was an excellent chance for scientists and practitioners to share their experiences on LiDAR. In addition to the six key speeches, the session themes were:

- **Forest and Ecological Applications for Terrestrial Laser Scanning;**
- **Satellite Based LiDAR Systems and Data for Forest and Environmental Applications;**
- **Wood Quality Assessment with Laser;**
- **Airborne Laserscanner (ALS) - Single Tree Based Inventories;**
- **ALS - Ecological and Landscape Inventories;**
- **ALS - Area Based Inventories;**
- **ALS - Biomass and Forest Fuel Assessment, and**
- **Multisensoral Applications with LiDAR Data.**

The welcome speeches by Prof. Barbara Koch (University of Freiburg), Mr. Max Reger (Director of BW forest Service – ForstBW) and Prof. Hermann Schwengel (Vice Rector for Research, University of Freiburg) gave a brief introduction from the perspectives of science and practice.

Recent research on terrestrial laser scanning (TLS) data focuses on tree volume equations, canopy structure, tree architecture, individual stem mapping and wood quality assessment. The performance data depends on the site specific structure and there's still a need to develop automatic and robust algorithms.

Airborne laser scanning has a wide range of scientific and practical applications. Single tree detection was a frequent theme at the conference. Optimizing and benchmarking algorithms, leaf area detection, volume and height estimations as well as LiDAR behavior were discussed.



The data collected by satellite based LiDAR is important for wall-to-wall inventories. At the moment there is no active LiDAR satellite in the orbit. Mr. Nelson from NASA gave a future prospect on upcoming missions – ICESatII and DESDynI-LiDAR – with an expected launch in 2015 and 2017. In the submitted European Project LEAF (Lidar for Earth And Forests) 25 scientists develop the technical configuration for a satellite mission with main focus on forest inventories, topography, hydrology and archaeology.

This year's conference brought together a wide range of scientists and practitioners. Different sensor platforms, methods and new approaches for research were presented. At present there is only little use of LiDAR for forest industries. Participants expressed the wish for more presentations of practical experience and research on cost efficiency. The next SilviLaser conference will be held from 16-20 October 2011 in Tasmania, Australia.



Illustration (top): Visualized laser data of an investigation area in Germany, courtesy of Dept. of Remote Sensing and LIS, University of Freiburg, Germany

Photo: by Andreas Fitz