



Workshop ‘3-D reconstruction from airborne laserscanner and InSAR data’

**Dresden, Germany
8-10 October 2003**

Organized by:

- ISPRS commission III working group 3 (George Vosselman, Hans-Gerd Maas)
- EuroSDR commission 1: Sensors, Primary data acquisition and Georeferencing (André Streilein)
- Institute of Photogrammetry and Remote Sensing, TU Dresden

Time table:

Wednesday 13:00	Registration	
Wednesday 14:00	Opening session	
Wednesday 14:30 - 16:10	Session I	Accuracy analysis
<i>Coffee break</i>		
Wednesday 16:40 - 17:55	Session II	Forest inventory
<i>Wednesday 20:00</i>	<i>Conference dinner</i>	<i>Wenzel Prager Bierstuben, Königstraße 1, Dresden, phone 0351 - 8042010</i>
Thursday 9:00 - 10:40	Session III	Strip adjustment and calibration
<i>Coffee break</i>		
Thursday 11:10 - 12:25	Session IV	Filtering
<i>Lunch break: Mensa or surrounding restaurants (see map)</i>		
Thursday 14:00 - 15:30	Session V	Poster session
<i>Coffee break</i>		
Thursday 16:00 - 17:40	Session VI	Building reconstruction
<i>Thursday 17:45-19:00</i>	<i>Exhibitors party</i>	<i>Exhibition</i>
Thursday 16:00 - 17:40	Session VI	Building reconstruction
Friday 9:00 - 10:40	Session VII	DEM's, forestry and data fusion
<i>Coffee break</i>		
Friday 11:10 - 12:25	Session VIII	Mapping
Friday 12:25 - 12:45	Closing session	
<i>Saturday 10:00 - ??</i>	<i>Hiking tour through 'Saxon Switzerland', meeting point: Main railway station ('Dresden Hauptbahnhof')</i>	

Opening Session

Date: Wednesday October 8
Time: 14.00-14:30

Welcome Note from the ISPRS President

John Trinder, Australia

Welcome Note from EuroSDR

Andre Streilein, Switzerland

Session I: **Accuracy analysis**

Date: Wednesday October 8
Time: 14.30-16.10
Chair: Sagi Filin, The Netherlands

A Quality Assessment of Airborne Laser Scanner Data

Eero Ahokas, H. Kaartinen, Juha Hyyppä, Finland

A Method to Predict Accuracy of Matching in Least Squares Surface Matching

Robert Pâquet, Australia

Practical Methods for the Verification of Countrywide Produced Terrain and Surface Models

Roberto Artuso, Stéphane Bovet and André Streilein, Switzerland

Estimating Intrinsic Accuracy of Airborne Laser Data with Local 3D-Offsets

Frédéric Bretar, Marc Pierrot-Deseilligny and Michel Roux, France

Session II: **Forest inventory**

Date: Wednesday October 8
Time: 16.40-17.55
Chair: Benoît St-Onge, Canada

Clustering in Airborne Laser Scanning Raw Data for Segmentation of Single Trees

Felix Morsdorf, Erich Meier, Britta Allgöwer and Daniel Nüesch, Switzerland

A Top-Down Operator for the Automatic Extraction of Trees - Concept and Performance Evaluation

Bernd Straub, Germany

Forest Inventory for Eucalyptus Plantations Based on Airborne Laser Scanner Data

Roland Wack, Matthias Schardt, Austria; Uwe Lohr, Germany; Luis Barrucho, Tiago Oliveira, Portugal

Session III: **Strip adjustment and calibration**

Date: Thursday October 9
Time: 9.00-10.40
Chair: Hans-Gerd Maas, Germany

Strip Adjustment of LiDAR Data

Wolfgang Kornus and A. Ruiz, Spain

Quality Improvement of Laser Altimetry DEMs

Sander Oude Elberink, Gert Brand, Regine Brügelmann, The Netherlands

About the Calibration of LiDAR Sensors

Rolf Katzenbeisser, Germany

Analysis and Implementation of a Laser Strip Adjustment Model

Sagi Filin, The Netherlands

Session IV: Filtering

Date: Thursday October 9

Time: 11.10-12.25

Chair: George Vosselman, The Netherlands

Comparison of Filtering Algorithms

George Sithole and George Vosselman, The Netherlands

Filtering/Extraction of Terrain Points from Laser Data

Carla Nardinocchi, Gianfranco Forlani, Primo Zingaretti, Italy

Segmented Filtering of Laser Scanner DSMs

Karsten Jacobsen and Peter Lohmann, Germany

Session V: Poster Session

Date: Thursday October 9

Time: 14.00-15.30

Agricultural Applications of Laser Scanner DEMs: Quality Requirements and Analysis Methods

Frank Schmidt, Germany

Airborne Laser Scanning Technology and its Potential for Applications in Glaciology

Thomas Geist, Eric Lutz, Hans Stötter, Austria

Aspects of Raster DEM Data Derived from Laser Measurements

Gerhard Löffler, Germany

Derivation of Roof Types by Cluster Analysis in Parameter Spaces of Airborne Laser Scanner Point Clouds

Alexandra Hofmann, Hans-Gerd Maas, Germany; André Streilein, Switzerland

Filtering of Laser Scanning Data in Forest Areas using Finite Elements

Peter Krzystek, Germany

Fusion, Interpretation and Combination of Geodata for the Extraction of Topographic Objects

Claus Brenner, Christoph Dold and Katharina Jülge, Germany

Interactive Relative Orientation Between Terrestrial Images and Airborne Laser Scanning Data

Petri Rönholm, Hannu Hyypä, Petteri Pöntinen, Henrik Haggrén, Finland

Investigating the Spatial Structure of Error in Digital Surface Models Derived from Laser Scanning Data

Sarah Louise Smith, David Holland and Paul Longley, United Kingdom

Investigations of Airborne Laser Scanning Signal Intensity on Glacial Surfaces - Utilizing Comprehensive Laser Geometry Modeling and Orthophoto Surface Modeling (A Case Study: Svartisheibreen, Norway)

Eric Lutz, Thomas Geist, Hans Stötter, Austria

On the Quality of Object Classification and Automated Building Modelling Based on Laser Scanning Data

Thomas Vögtle and Eberhard Steinle, Germany

The STIN method: 3D-Surface Reconstruction by Observation Lines and Delaunay TENS

Edward Verbree and Peter van Oosterom, Netherlands

Vehicle Recognition from LiDAR Data

Charles Toth, USA, Arpad Barsi and Tamas Lovas, Hungary

Session VI: **Building reconstruction**

Date: Thursday October 9

Time: 16.00-17.40

Chair: Claus Brenner, Germany

Building Extraction using LiDAR DEMs and IKONOS Images

Gunho Sohn and Ian Dowman, United Kingdom

Automatic Generation of Building Models from LiDAR Data and the Integration of Aerial Images

Franz Rottensteiner and Christian Briese, Austria

SAR-Based 3D Reconstruction of Complex Urban Environments

Timo Balz and Norbert Haala, Germany

Iterative Building Reconstruction from Multi-Aspect InSAR Data

Uwe Sörgel, U. Thönnessen, Uwe Stilla, Germany

Session VII: **DEM's, forestry and data fusion**

Date: Friday October 10

Time: 9.00-10.40

Chair: André Streilein, Switzerland

Determination of Terrain Features in a Terrain Model from Laser Radar Data

Fredrik Lantz, Erland Jungert, Mats Sjövall, Sweden

High Altitude LIDAR To Enhance GeoSAR System Performance

Roland Haarbrink, USA

Combining Stereo-Photogrammetry and LiDAR to Map Forest Canopy Height

Benoît St-Onge and Cédric Véga, Canada

A Comparison of Forest Canopy Models Derived from LiDAR and InSAR Data in a Pacific NorthWest Conifer Forest

Hans-Erik Andersen, Robert J. McGaughey, Ward W. Carson, Stephen E. Reutebuch, Bryan Mercer, Jeremy Allan, USA

Session VIII: **Mapping**

Date: Friday October 10

Time: 11.10-12.25

Chair: Franz Rottensteiner, Australia

Automatic Detection of Buildings from Laser Scanner Data for Map Updating

Leena Matikainen, Juha Hyypä and Hannu Hyypä, Finland

Extraction of Road Geometry Parameters from Laser Scanning and Existing Databases

Carsten Hatger, Claus Brenner, Germany

3D Reconstruction of Roads and Trees for City Modelling

George Vosselman, The Netherlands

Exhibition:

The workshop is accompanied by an exhibition, where system manufacturers, data providers and software developers show their newest achievements:

- Eurosense, Fugro, GeoLas, MilanFlug, TerraImaging, TerraSolid, TopScan, TopoSys

An exhibitors party is planned for Thursday, 9. October, 17:45-19:00.

Social events:

The conference dinner will take place at **Wenzel Prager Bierstuben**, Königstraße 1, Dresden (phone 0351 - 8042010) on Wednesday, **8. October at 19:30**.



Stadtplan



Luftbild

Those who would like to stay over the weekend (which we highly recommend!), are cordially invited to participate in a one-day hiking tour through the scenic area of 'Saxon Switzerland' on Saturday, 11. October. Registration for this tour is not required. The meeting point will be announced during the conference. Please bring along walking shoes. Costs: about 10€ for the train ticket.