

SilviLaser 2008: Heriot-Watt University, Edinburgh, UK

8th international conference on LiDAR applications in forest assessment and inventory



SilviLaser 2008 Programme:

- September 17: 18:00 registration
19:30-22:00 ice-breaker reception
- September 18: 08:00-09:00 registration
09:00-17:45 SilviLaser conference sessions
19:30 Conference dinner
- September 19: 09:00-17:00 SilviLaser conference sessions
- September 20: Optional excursions

Organised by:



Swansea University
Prifysgol Abertawe

Sponsored by:



Thursday September 18th

- 8.00 – 9.00 **Registration and collection of delegate packs**
- 9.00 – 9:15 **Opening of SilviLaser 2008**
Ross Hill (SilviLaser 2008 Co-Chair, Bournemouth University)
Juan Suárez (SilviLaser 2008 Co-Chair, Forest Research)
James Pendlebury (Chief Executive, Forest Research)
- 9:15 – 9:45 **Keynote 1**
Richard Lucas (Aberystwyth University, UK)
Advances in forest characterisation, mapping and monitoring through integration of LiDAR and other remote sensing datasets.
- Session 1: Forestry applications & inventory**
Session Chair: Erik Næsset
- 9:45 – 10:00 Assessing effects of sample plot positioning errors on biophysical stand properties derived from airborne laser scanner data
Terje Gobakken and Erik Næsset
- 10:00 – 10:15 Comparison of individual tree detection and canopy height distribution approaches: a case study in Finland
Petteri Packalén, Juho Pitkänen and Matti Maltamo
- 10:15 – 10:30 LiDAR Forest Inventory with Single-tree, Double- and Single-Phase Procedures
Robert Parker and David Evans
- 10.30 – 11.00 **Coffee**
- 11:00 – 11:15 Variability of LiDAR volume prediction models for productivity assessment of radiate pine plantations in South Australia
Jan Rombouts, I.S. Ferguson and J.W. Leech
- 11:15 – 11:30 Estimation of crown coverage by using airborne laser scanning
Johan Holmgren, Fredrik Johansson, Kenneth Olofsson, Håkan Olsson and Anders Glimskär
- 11:30 – 11:45 Airborne laser scanning for the identification of boreal forest site types
Mikko Vehmas, Kalle Eerikäinen, Jussi Peuhkurinen, Petteri Packalén and Matti Maltamo
- Session 2: Data fusion**
Session Chair: Benoît St-Onge
- 11:45 – 12:00 Forest mensuration parameters derived from individual tree-crown forest inventory method using airborne imagery and LiDAR
Baudouin Desclee, Alain Gingras, Valery Bemelmans and Emmanuel Patigny

- 12:00 – 12:15 Full Automatic Detection of Tree Species Based on Delineated Single Tree Crowns - A data Fusion Approach for Airborne Laser Scanning Data and Aerial Photographs
Johannes Nicolas Heinzl, Holger Weinacker and Barbara Koch
- 12:15 – 12:30 Estimation of stand volume by fusing low laser-sampling density LiDAR data with QuickBird panchromatic imagery in closed-canopy Japanese cedar (*Cryptomeria japonica*) plantations
Tomoaki Takahashi, Yoshio Awaya, Yasumasa Hirata, Naoyuki Furuya, Toru Sakai and Atsushi Sakai
- 12:30 – 1:30 **Lunch (served in the Lounge area of the James Watt II Centre)**
- 1:30 – 1:45 A method for linking field-surveyed and aerial-detected single trees using cross correlation of position images and the optimization of weighted tree list graphs
Kenneth Olofsson, Eva Lindberg and Johan Holmgren
- 1:45 – 2:00 Performance of laser scanning and aerial photograph-based statistical and textural features in forest variable estimation
Markus Holopainen, Reija Haapanen, Sakari Tuominen and Risto Viitala
- 2:00 – 2:15 Integration of LiDAR and QuickBird imagery for mapping riparian zones in Australian tropical savannas
Lara Arroyo, Kasper Johansen, John Armston, Stuart Phinn and Cristina Pascual
- 2:15 – 3:45 **Poster session & company demonstrations**
(including coffee served 3:15 - 3:45)
- 3:45 – 4:15 **Keynote 2**
Wesley Newton (USGS Northern Prairie Wildlife Research Center, USA)
LiDAR and Wildlife-Habitat Applications
- Session 3: Ecological applications & habitat mapping**
Session Chair: Ross Hill
- 4:15 – 4:30 Characterising the ecological structure of a dry Eucalypt forest landscape
Naoko Miura and Simon Jones
- 4:30 – 4:45 Automatic detection of dominated vegetation under canopy using Airborne Laser Scanning data
Andrea Barilotti, Francesco Sepic and Elena Abramo
- 4:45 – 5:00 Canopy and gap dynamics analysed using multi-temporal airborne laser scanner data in a temperate deciduous forest
Yasumasa Hirata, Hiroshi Tanaka and Naoyuki Furuya
- 5:00 – 5:15 Forest microclimate modelling using gap and canopy properties derived from LiDAR and hyperspectral imagery
Zulkiflee Abd Latif and George Alan Blackburn

- 5:15 – 5:30 Height growth of regeneration in boreal forest canopy gaps – does the type of gap matter? An assessment with lidar time series
Udayalakshmi Vepakomma, Benoit St-Onge and Daniel Kneeshaw
- 5:30 – 5:45 Lidar remote sensing of bird canopy habitat use in the Northeastern United States
Scott Goetz, Daniel Steinberg, Matthew Betts, Richard Holmes, Patrick Doran, Ralph Dubayah and Michelle Hofton
- 5:45 **End**

Conference Dinner

Silvilaser 2008's official Conference Dinner will be held in the Holyrood Hotel, 81 Holyrood Road, Edinburgh, EH8 8AU.

Buses will depart from the front of Heriot-Watt University at 7.15 pm arriving at the hotel for dinner, which will be served at 8.30 pm.

The bus will then depart the Holyrood Hotel at 11.45 pm returning to Heriot-Watt University.

Friday September 19th

- 9:00 – 9:30 **9.00 Keynote 3**
Ralph Dubayah (University of Maryland),
The Use of Large Footprint Waveform Lidar for Landscape Characterization: Past Experience and Future Prospects
- Session 4: Waveform LiDAR**
Session Chair: Ross Nelson
- 9:30 – 9:45 Representation of vegetation and topography within satellite LiDAR waveforms for a mixed temperate forest
Jacqueline Rosette, Peter North, Juan Suárez and Sietse Los
- 9:45 – 10:00 A Monte Carlo radiative transfer model of satellite waveform lidar
Peter North, Jacqueline Rosette, Juan Suárez and Sietse Los
- 10:00 – 10:15 Assessing the accuracy of forest height estimation with long pulse waveform lidar through Monte-Carlo ray tracing
Steven Hancock, Philip Lewis, Mathias Disney, Mike Foster and Jan-Peter Muller
- 10:15 – 10:30 Model effects on GLAS-based regional estimates of forest biomass and carbon
Ross Nelson
- 10:30 – 11:00 **Coffee**
- 11:00 – 11:15 3D segmentation and classification of single trees with full waveform lidar data
Josef Reitberger, Peter Krzystek and Uwe Stilla
- 11:15 – 11:30 Area-based parameterization of forest structure using full-waveform airborne laser scanning data
Bernhard Höfle, Markus Hollaus, Hubert Lehner, Norbert Pfeifer and Wolfgang Wagner
- Session 5: Algorithm & techniques development**
Session Chair: Sorin Popescu
- 11:30 – 11:45 Estimation of leaf area index using LiDAR data in forest of South Korea
Doo-Ahn Kwak, Woo-Kyun Lee and Hyun-Kook Cho
- 11:45 – 12:00 Comparing discrete echoes counts and intensity sums from ALS for estimating forest LAI and gap fraction
Svein Solberg
- 12:00 – 12:15 Modelling multi-spectral LIDAR vegetation backscatter – assessing structural and physiological information content
Felix Morsdorf, Caroline Nichol, Tim Malthus, Genevieve Patenaude and Iain Woodhouse

- 12:15 – 12:30 Diameter distribution modelling using ALS
Johannes Breidenbach, Christian Gläser and Matthias Schmidt
- 12:30 – 1:30 **Lunch(served in the Lounge area of the James Watt II Centre)**
- 1:30 – 1:45 A new automated approach for co-registration of national forest inventory and airborne laser scanning data
Wouter Dorigo, Markus Hollaus, Klemens Schadauer and Wolfgang Wagner
- 1:45 – 2:00 Probability models for individually segmented tree crowns in a sampling context
James Flewelling
- Session 6: Terrestrial laser scanning & laser cameras**
Session Chair: Matti Maltamo
- 2:00 – 2:15 Single-scan TLS methods for forest parameter retrieval
Paula Litkey, Xinlian Liang, Juha Hyypä, Antero Kukko, Harri Kaartinen and Markus Holopainen
- 2:15 – 2:30 Impact of the sampling design on the quality of ground-based LiDAR datasets
Dimitry Van der Zande, Inge Jonckheere, Jan Stuckens, Willem Verstraeten and Pol Coppin
- 2:30 – 2:45 Accuracy and efficiency of Laser-camera
Timo Melkas, Mikko Vastaranta and Markus Holopainen
- 2:45 – 3:00 Spatial quantification of vegetation density from terrestrial laser scanner data for characterization of 3D forest structure at plot level
Sylvie Durrieu, Tristan Allouis, Richard Fournier, Cédric Véga and Laurent Albrech
- 3:00 – 3:15 Terrestrial laser scanners to measure forest canopy gap fraction
F. Mark Danson, R.P. Armitage, V. Bandugula, F.A. Ramirez, N.J. Tate, K.J. Tansey and T. Tegzes
- 3 :15 – 3 :45 **Coffee**
- 3:45 – 4:45 **Panel session**
Panel Chair: Juan Suárez
- 4:45 – 5:00 **Conference conclusions & announcements of future conferences**
- 5:00 **End**