

**WEDNESDAY MARCH 3, 2010** ROOM: CENTENNIAL FGH

10.00am - 12.00pm	<b>ASPRS Hot Topics Session</b> All registered delegates and visitors welcome – Centennial ABC	
1.30pm	<b>Welcome</b> Alastair MacDonald, Conference Chairman, TMS International Ltd, UK	
1.40pm - 2.10pm	<b>OPENING ADDRESS: Understanding the USGS-NGP LiDAR Base Specification</b> H. Karl Heidemann, Physical Scientist-LiDAR Science, U S Geological Survey, Earth Resources Observation & Science Center, USA	
<b>SESSION 1</b>		
Track 1: <b>DATA ACQUISITION</b> Session Chair: <b>Alastair MacDonald, TMSI, UK</b>		Track 2: <b>COASTAL ZONE &amp; BATHYMETRIC LIDAR</b> Session Chair: <b>Tim Blak, Dewberry, U.S.A</b>
ROOM: CENTENNIAL FGH		ROOM: CENTENNIAL ABC
2.15pm	<b>The considerations of new LiDAR sensor technology</b> James Young, Director of LiDAR Operations, The Sanborn Map Company, USA	<b>How low can you go: Maximum depths achieved with HawkEye II during projects in 2009</b> Dan Schnurr, Director, Blom Aerofilms Ltd, UK
2.45pm	<b>Recent advances in Wetland Vegetation Mapping using Green, Waveform LiDAR</b> Amar Nayegandhi, Project Manager, Remote Sensing Specialist, Jacobs-U.S Geological Survey, USA	<b>Successful delivery of International Hydrographic Organisation (IHO) Order 1B specification coastal survey data using Bathymetric LiDAR</b> Dr Jerry Wilson, Commercial Manager, Fugro-Pelagos, Inc, USA
3.15pm	Coffee break in exhibit hall – Compliments of Tuck Mapping	
3.45pm	<b>Compressing LiDAR Waveform Data</b> Dr Charles Toth, Ohio State University, USA	<b>Enhancements to the new SHOALS 3000 System</b> Paul LaRocque, Director, Advanced Technology, Optech Incorporated, Canada
4.15	<b>The M 7.0 Haiti Earthquake of 12 Jan 2010: How LiDAR helps</b> Kenneth W. Hudnut, Geophysicist, U. S. Department of the Interior - U. S. Geological Survey, USA	<b>Florida's Statewide Coastal LiDAR Mapping Initiative</b> Mark Nelson, Vice President, Jones, Edmunds & Associates, Inc, USA
4.45	<b>Aerial LiDAR and Multispectral Image Survey following January 2010 Haitian Earthquake - Case study in disaster response</b> Andrew Mitchell, Lidar Processing Specialist and John Antalovich Jr., President, Kucera International Inc. USA	
5.00 - 7.00 pm	<b>OPENING NIGHT COCKTAIL RECEPTION</b> in the exhibit hall	

**THURSDAY MARCH 4, 2010 - MORNING** ROOM: CENTENNIAL FGH

<b>SESSION 3: DATA FUSION &amp; PROCESSING TECHNOLOGIES</b>		
8.30am	<b>Urban Terrain Generation: LiDAR &amp; Hyperspectral data fusion and extraction</b> Raul Campos-Marquetti, Senior Hyperspectral Scientist, Merrick & Company, USA	
9.00am	<b>Leveraging data fusion innovations – Automated feature extraction</b> Aaron Lawrence, Manager, Remote Sensing Operations, Woolpert, Inc, USA	
9.30am	<b>Automatic reconstruction of lane level road geometry from LiDAR point clouds with reflectivity</b> Ole Henry Dorum, Senior Research Scientist, NAVTEQ, USA	
10.00am	<b>Pitfalls to avoid when collecting breaklines using LiDAR Grammetry</b> Harold Rempel, Senior Photogrammetrist, URS Corporation, USA	
10.30am	Coffee Break in exhibit hall	
<b>SESSION 4: RECENT PROJECTS</b>		
11.00am	<b>Automated 3D modeling of complex urban areas using LiDAR</b> Chris McGlone, Photogrammetrist, SAIC, USA	
11.30am	<b>Leveraging LiDAR data to develop a successful vegetation management program</b> Adam Rousselle, President & CEO, Utility Risk Management Corporation, USA	
12.00pm	<b>Toward ecosystem health and services monitoring with aerial and terrestrial LiDAR</b> L. Monika Moskal, Professor, University of Washington, USA	

**THURSDAY MARCH 4, 2010 - AFTERNOON** ROOM: CENTENNIAL FGH

12.30pm	Lunch in exhibit hall
2.00pm	<b>The Red River of the North LiDAR Quality Assessment Project and Web GIS Dissemination Portal</b> Brian Fischer, GIS Project Manager, Houston Engineering, Inc, USA
2.30pm	<b>How does Hydrologic Enforcement affect LiDAR-derived DEM?</b> T. Edwin Chow, Assistant Professor, Texas State University, San Marcos, USA
3.00pm	<b>The Denver Police Department's Augmented Reality Mapping System: LiDAR in action</b> Tom Churchill, CEO, Churchill Navigation, USA
3.30pm	Coffee Break in exhibit hall
<b>SESSION 5: TECHNICAL DEVELOPMENTS</b>	
4.00pm	<b>Airborne LiDAR data &amp; solar maps for Berlin: New developments in software</b> Laurence McKinley, Business Development Manager, virtualcitySystems, Germany
4.30pm	<b>Multiple Sensor Test Project: Airborne laser scanning &amp; photography combined with multiple Position reference systems</b> Dagrun Aarsten, Head of LiDAR Department, Terratec AS, Norway
5.00pm	<b>SOCIAL EVENT - Leica Geosystems Reception (open to all), Mineral Hall Room F Hyatt Regency</b>
6.00pm	<b>SOCIAL EVENT - Join the ILMF team for a drink at the Wynkoop Brewing Company, compliments of Merrick</b>

**FRIDAY MARCH 5, 2010** ROOM: CENTENNIAL FGH

<b>SESSION 6: INDUSTRY ISSUES, FEDERAL/STATE LIDAR INITIATIVES</b>	
08.30am	<b>Breaklines: Do we really need them?</b> Tim Blak, Project Manager - Geodesy & Remote Sensing, Dewberry, USA
09.00am	<b>Elevation data for FEMA RiskMAP</b> Paul Rooney, Mapping Technology Specialist, FEMA, USA
9.30am	Coffee Break in exhibit hall

**SESSION 7: GIS/ DATA PROCESSING/HANDLING/ MANAGEMENT**

10.00am	<b>LiDAR display &amp; navigation using Adobe Reader</b> Michael Bufkin, Senior Solution Architect, TerraGo Technologies, USA
10.30am	<b>LiDAR data compression with Mr Sid Generation 4</b> Michael Rosen, Engineering Manager, LizardTech, USA
11.00am	<b>Direct point correspondence for LiDAR strip adjustment</b> Darion Grant, Graduate Student, Purdue University, USA
11.30am	<b>Integrated multi-sensor mobile collection &amp; 3D hybrid viewing system</b> James Lynch, Senior Research Engineer, NAVTEQ, USA
12.00pm	Lunch in exhibit hall

**SESSION 8: MOBILE MAPPING**

1.30pm	<b>Mobile Mapping – An overview of the state of the art</b> Lewis Graham, Chief Technology Officer, GeoCue Corporation, USA
2.00pm	<b>Object-oriented classification of urban objects from mobile terrestrial LiDAR scans</b> Gregory McQuat, M.Sc. Candidate, Queens University, Canada
2.30pm	<b>Lynx Mobile Mapper: Best practice techniques to maximize accuracy and return on investment</b> Brian Bailey, Regional Sales Manager, Optech Incorporated, Canada
3.00pm	<b>Emerging opportunities for Mobile Mapping in transportation infrastructure</b> Paul DiGiacobbe, National Data Acquisition Manager, HNTB, USA
3.30pm	<b>Mobile Mapping for highway surveying in The Netherlands</b> Jolle Jelle de Vries, Managing Director, Geomaat bv, The Netherlands
4.00pm	Conference and Exhibition close

**MOBILE MAPPING  
NEW FOR 2010**

## BASICS TO LIDAR WORKSHOP SERIES

ROOM: CENTENNIAL ABC All registered conference delegates welcome

The 'Basics to LiDAR Workshop Series' is aimed at providing novice operators, their managers and potential purchasers of equipment with an understanding of the basic principles and fundamental benefits and technology associated with LiDAR.

### THURSDAY MARCH 4, 2010

8.30 – 9.30am	<b>LiDAR fundamentals and requirements for contour development</b> Qassim A. Abdullah, Fugro, USA	The session will focus on demonstrating the fundamentals of the LiDAR system and performance. The goal is to provide a dynamic forum to address current Lidar acquisition systems and acquisition parameters and to review industry best practices for collecting breaklines in support of LiDAR data modeling. The outline will include; what is LiDAR?; operational theory; LiDAR data processing overview; LiDAR calibration and boresighting; using LiDAR data to for topographic mapping; generating LiDAR stereopairs; requirements for contour development.
9.30 – 10.30am	<b>An introduction to Mobile Mapping</b> Martin Flood, GeoCue Corporation, USA	In this workshop GeoCue will provide an overview of Mobile Mapping workflows from data collection to point cloud processing. Also included in the discussions will be a summary of the geometric processing for high accuracy projects.
11.00 – 12.00pm	<b>Getting the most from your LiDAR dataset</b> Kermit Lewis, Northrop Grumman, USA	This presentation will introduce the types of products that are derived from LiDAR data sets using sensor integration, photogrammetry, and GIS.
12.00 – 12.30pm	<b>How best to manage and store LiDAR data</b> Jon Skiffington, LizardTech, USA	With the rapidly increasing use of LiDAR comes an increase in the frustration of geospatial professionals who need to manage and store their LiDAR data. LiDAR files can get unmanageably large very quickly and in this presentation we will discuss how we address the problem using a new wavelet-based technique for compressing data making files much smaller while still usable in a variety of applications.
2.00 – 3.00pm	<b>High accuracy Mobile Mapping</b> Graham Hunter, Street Mapper, United Kingdom	Mobile Mapping LiDAR systems are becoming popular but there are significant challenges in maintaining high accuracy. Compared to airborne LiDAR, the GPS quality is very poor due to obstructions caused by buildings and vegetation. This workshop will focus on the technology and workflow issues that contribute to maintaining high accuracy.
3.00 – 3.30pm	<b>Fundamentals for LiDAR management and analysis using GIS</b> Lindsay Weitz, ESRI, USA	This session will focus on the basic principles of using ArcGIS to manage and analyze LiDAR data. A GIS system organizes and stores information about the world as a collection of thematic layers. Learn how to use these layers and their features to model the natural and constructed environment through a common geographical representation. You will also learn how to use ArcGIS's powerful and versatile organizational and analytical tools to solve many real-world problems, such as integrating and analyzing LiDAR information in 3D.
4.00 – 5.00pm	<b>Introduction to Breaklines</b> Kenny Legleiter, Merrick & Company, USA	Breaklines are linear features compiled to enforce a change in elevation within a digital elevation model (DEM). As part of LiDAR projects, breaklines are usually compiled along hydrographic (water) features to 'flatten' water bodies and to enforce a stream channel into the DEM. Breaklines are collected along the land/water interface and the Z elevation values for these features are usually derived from the bare-earth LiDAR dataset. This session will provide an explanation of breaklines, why they are needed to support LiDAR data collection projects, common compilation techniques, popular delivery formats, and how they improve the accuracy of a LiDAR-derived digital terrain model (DTM)

### FRIDAY MARCH 5, 2010

8.30 – 9.30am	<b>Fundamental elements to a mobile LiDAR Mapping System</b> Jim van Rens, Riegl USA Inc, USA	This workshop will include an introduction to Mobile Lidar making reference to relevant terminology; eye safety in Lidar; main parts of an MLS system; error budget; data collection workflow; data processing workflow; example data and key features. This presentation is relevant for those investigating mobile laser mapping such as Project Managers, Sensor Operators, Data Processors, Principals and Owners as well as End Users of the data.
10.00 – 11.00am	<b>Fundamentals of full waveform digitization in airborne</b> Ron Roth, Leica Geosystems Inc, USA	This workshop will examine the history of Full Waveform. Digitization (FWD) in airborne LiDAR systems, currently available implementations and performance of today's FWD capture systems. Flexibility in data acquisition will be discussed, with a focus on recommendations for system setup and processing. Examples of workflow using standard LAS 1.3 data will be given, and conclusions drawn regarding the future of both hardware and exploitation software.

### FRIDAY MARCH 5, 2010 Continued

11.00 – 12.00pm	<b>Lidar Basics 101</b> Optech Inc, Canada	The workshop will provide the attendee a basic overview of the mobile mapping platform, some workflow basics and a study on accuracies using the practice of block adjustment. This presentation is relevant for all stake holders in the mobile mapping process.
1.30 – 2.30pm	<b>Increasing workflow efficiency and quality for DTM generation</b> Trimble, Canada	This workshop presents a complete workflow for deriving DTMs from LIDAR data. At each step, key challenges and alternative approaches are presented for an efficient and high quality process. Considerations when processing simultaneously acquired LIDAR and imagery are presented. Finally, processing and administering huge nation-wide DTMs is addressed.
2.30 – 3.30pm	<b>How to plan for a LIDAR project</b> Jennifer Whitacre & Christopher Guy, MJ Harden Associates, Inc, USA	Since all LiDAR projects are different it is important to understand what is actually needed for various data applications. In this workshop we will discuss what requirements and specifications are needed for LiDAR collection depending on the users intended data applications. We will work through various project scenarios to help provide the end user with a better LiDAR background.
3.30 – 4.00pm	<b>Understanding LiDAR's role in vegetation management</b> Vesa Leppanen, MSc, Utility Risk Management Corp. USA	Database-driven vegetation management, relying on extensive utilization of accurate decision information, provides a solution to meet budgets, comply with regulation and improve service. This presentation will discuss, automatic interpretation of LiDAR data used to produce polygons (filled with distance, growth-prediction and tree-location data) as vegetation data containers.

## WEDNESDAY 3 TO FRIDAY 5 MARCH

ROOM: ILMF EXHIBIT FLOOR

The following posters will be manned by the presenting author on Wednesday March 3 from 3.15pm to 3.45pm, on Thursday March 4 from 1pm to 2pm and on Friday March 5, from 1pm to 2pm.

1	<b>Enhancing the accuracy of urban feature extraction: The data fusion approach</b>	Amit A. Kokje, PhD Candidate The University of Auckland, New Zealand
2	<b>Integrating Mobile Laser Scanning into the mapping and surveying workflow</b>	Eric Andelin, VP Aerial Data Service, Inc. USA
3	<b>Automated building extraction from LiDAR data</b>	Hassan Eid, PhD Student, University of Calgary, Canada
4	<b>Erosion assessment in Guam using LiDAR and GIS</b>	Jamie Carter, Remote Sensing Analyst NOAA Pacific Services Center, USA
5	<b>Feature extraction using Discriminant Machine Learning</b>	Kyle Holland, PhD Candidate University of California, Berkeley, USA
6	<b>Airborne Laser Scanning based DTM production workflow in The National Land Survey of Finland</b>	Risto Ilves, Development Engineer National Land Survey of Finland
7	<b>The best of both worlds: Building a dense point cloud with precise photo texture</b>	Tommy Noble, Cartographer Bureau of Land Management, USA
8	<b>Blending ASTER GDEM, SRTM3, GLAS and LiDAR measurements to generate DSM and DTM</b>	Wataru Takeuchi, Institute of Industrial Science University of Tokyo, Japan
9	<b>laszip: Lossless compression for LiDAR in LAS format</b>	Martin Isenburg, Research Scientist Center for Applied Scientific Computing Lawrence Livermore National Laboratory, USA