

# **ISPRS WG V/3 Terrestrial Laser scanning and 3D Imaging**

## **2009 Annual Report**

### ***A. State of Science and Technology of Working Group Topics***

The recent (1-2 September 2009) Laserscanning workshop held in Paris gives a very good cross-section of the current state-of-the art in TLS research. In the subject area of sensor modelling, calibration and testing, there were at least 6 papers published in the proceedings on subjects ranging from geometric modelling to stochastic modelling to denoising. Also prominent was registration and pose estimation, with 4 papers including one on the integration of the iterative closest point (ICP) algorithm and Kalman filtering for dynamic registration. There were also papers on the fusion of TLS data with other sources, TLS segmentation and filtering. Several papers (at least 3) were devoted to mobile TLS systems, which reflect the fact that there are several such systems available worldwide. There was also one paper on phase unwrapping of range camera data. The number of range camera papers can be expected to increase for the next Laser Scanning workshop. Notable TLS application areas featured in papers included geology, forestry, archaeology and cultural heritage recording.

### ***B. Accomplishments of the Working Group***

#### **Membership**

Excluding the executive (Chair, etc.) there are in total 42 working group members from 20 different countries.

#### **Website**

The website is regularly updated by Kwang-Ho Bae.

A Resources and Links section of WG website was compiled by the Secretary (Arias-Sánchez).

Two TLS sample datasets are available datasets on the WG website. Four requests for these datasets were handled during the reporting year.

#### **Conferences and Workshops**

The Chair (Lichti) and Co-Chair (Maas) were intimately involved in the Laserscanning 2009 workshop held in Paris as Scientific Committee members, paper reviewers and session chairs.

The Chair and Co-Chair (Maas) were members of the Program Committee for the SPIE 3D Imaging Metrology conference held in San José, CA, 18 – 22, January 2009 and for the SPIE Videometrics, Range Imaging, and Applications X conference held in San Diego CA, 2 - 3 August 2009.

Co-Chair (Maas) was a member of the Scientific Committee for the 9<sup>th</sup> Conference on Optical 3-D Measurement Techniques 2009 held in Vienna, 1-3 July 2009 and a Programme Committee member for the 12<sup>th</sup> AGILE International Conference on Geographic Information Science held in Hannover, 2-5 June 2009.

The Chair's application to hold the 2011 Laser Scanning workshop in Calgary was approved. It will be held in Calgary, Canada on 29, 30, 31 August 2011.

### **On-line Database**

The Chair secured funding from the ISPRS Science Initiatives Program to construct a comprehensive, on-line terrestrial laser scanning bibliography. A University of Calgary student (Sonam Jamtsho) began working on the project on 1 September 2009. The progress made so far is as follows:

- Attended free training sessions on website design;
- Built HTML templates for the database;
- Compiled reference information for 70 journal papers

Compilation of patent database resources is to be performed by the Co-Chair (Scaioni)

### **Links to the FIG**

The Chair and Co-Chair (Scaioni) have attempted to establish closer collaboration with the FIG, specifically its Commission 6, Engineering Surveys. Several possible means to achieve this have been discussed, including common paper presentation sessions at ISPRS events. A joint session on Deformation Measurement and Metrology was arranged for the Paris workshop, but it did not materialise due to the lack of relevant papers.

### **Short Courses**

The Chair delivered a short course entitled Fundamentals of Terrestrial Laser Scanning to participants of the 6<sup>th</sup> Brazilian Geodetic Science Colloquium in Curitiba, Brazil on 4-5 November.

## ***C. Working Group Activities during the Current Year***

The WG's primary activities were the Paris Laserscanning workshop, which was attended by some 155 participants, and the commencement of the on-line TLS database project. Plans for the next reporting year include:

- The Chair's participation (as a co-organiser and co-presenter) of a Tutorial on Terrestrial Sensors at the 2010 Technical Commission V Symposium in Newcastle, UK; and
- Planning of the 2011 Laser Scanning Workshop (i.e. recruiting of the Scientific Committee, circulation of the First Call for Papers, etc.)