

Report

SMPR International Conference on Sensors and Models in Photogrammetry and Remote Sensing Organized jointly with ISPRS WG I/4 and WG II/4

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The SMPR Conference held at the University of Tehran, Tehran Iran was the first conference of its kind on this broad field of scientific research in photogrammetry and remote sensing held in Iran. The program was presented by Prof. Mahmoud Delavar after the welcome speech of Prof. Kamarei, Dean of School of Engineering. Keynote speeches were given by Dr. Fazieli, Chief of Iranian Space Organisation, Prof. Manfred Ehlers from the University of Osnabrueck, Germany, on image and data fusion, Prof. Jonathan Li, University of Waterloo, as well as by Prof. Alfred Stein from ITC, Netherlands, on modelling of uncertainty in image interpretation. After these very interesting presentations the sessions were opened. The over 200 participants of the conference came from universities and research institutes, but also from application oriented institutions, primarily from Iran but also from countries like Germany, Slovenia, Ukraine, China, Malaysia, Indonesia and others. The conference was very well organized by the local committee and included enough time for discussion and exchange between the participants after the talks and during breaks.

The main topics of the conference have been on airborne remote sensing using optical camera systems and LIDAR instrumentation from different platforms, on using satellite data, optical and radar, for a wide range of applications and on methodological cutting edge developments (e.g. data fusion and hyperspectral data evaluation).

Within the airborne remote sensing topic it could be noted that many new systems and platforms are coming up, allowing more detailed new applications. Real-time or near time monitoring from air is becoming interesting for several tasks like traffic monitoring, damage assessment and infrastructure monitoring. In this context new platforms like gyrocopters, light weight aircrafts and especially UAV are of high interest. Even without the knowledge of exact attitude the data can be orthorectified if a digital elevation model (DEM) is available, or as well, acquiring largely overlapping scenes, these height models can be generated directly from the stereo data. For LIDAR data new results have been shown on single tree detection as well as estimating their height and area (e.g. for biomass extraction) and on road detection and extraction. Further on the evaluation of hyperspectral data has been a main contribution in the conference. This research topic ranged from dimensionality reduction, anomaly detection, endmember estimations and to applying bees and genetic algorithms. Interesting new results were presented and discussed within and after the sessions.

On the satellite data evaluation two presentations were discussing the topic of accuracy analysis on DEM generation with high resolution space borne sensors like IRS-P5, Worldview-1/2 and GeoEye-1. Very large blocks of IRS-P5 data have been evaluated in one bundle adjustment using millions of tie points but only very few ground control points and the SRTM DEM as lateral and height constraint. Using the VHR data with GSD of 0.5 m, already buildings are present in the DEMs but the representation accuracy assessment of these objects is a current topic of research. Some suggestions were made on how to evaluate that quantitatively and also for the extraction of single buildings including their roof ridges. The

results looked very promising. Also the generation of digital terrain models from the digital surface models of these very high resolution data has been shown and quantitatively analysed. Another important scientific topic is automatic change detection; it was demonstrated in several presentations. This problem has a lot of challenges which have been shown and partly covered but surely has to be addressed in further research work. One application for this is damage assessment after natural hazards or man made conflicts, which was shown within some presentations.

The application of remote sensing combined with GIS for decision making has been addressed in a further keynote talk on the second day of the conference by Prof. Sharifi: many interesting and promising results have been reached e.g. for a natural hazard damage assessment system but there is still a lot to do to address the specific needs and answers to decision makers in due time.

During the poster session mainly young master and PhD student could present their work. A lot of discussions could be followed of advantages and disadvantages on certain methods on feature extraction, classification, data fusion and other topics.

Overall it can be said that SMPR 2011 has been a very interesting and vivid conference with a broad range of high level presentations of very good scientific quality. It would have deserved more attention from participants all over the world and the organizers hope to raise a higher rate of participants from more countries in the next SMPR conference, envisaged for 2013. The proceedings are available on CD-ROM.