

SMPR 2013 2nd International Conference on Sensors and Models in Photogrammetry and Remote Sensing

University of Tehran, jointly with ISPRS WG I/4 and WG II/4
University of Tehran, Tehran, Iran, 06-08 October, 2013, <http://smpr.ut.ac.ir/>



Peter Reinartz, Hossein Arefi, Mahmoud R. Delavar, and Mohammad A. Sharifi

The SMPR Conference held at the University of Tehran (UT), Tehran, Iran was the second conference of its kind on the broad field of scientific research and development in photogrammetry, remote sensing, and geoinformation topics. The goal of this conference was to bring together geospatial and image data providers, academic researchers, policy makers and end users. In addition the conference has provided a unique opportunity to learn about the latest science and technology developments as well as new applications in photogrammetry, remote sensing and spatial sciences and it served as an excellent way to report on recent activities.

The overall success of this SMPR conference was demonstrated by the impressive attendance, with more than 350 participants from universities and research organizations, but also from application oriented institutions, primarily from Iran but also from 15 other countries such as Germany, Switzerland, Netherlands, Canada, Hong Kong, India, Pakistan, Malaysia, Saudi-Arabia, and others. The conference was very well organized by the local organizing committee and there was included enough time for discussion and exchange between the participants after the talks and during the breaks.

The scope of the presentations covered a broad range of topics from microwave remote sensing to medium and high resolution optical remote sensing as well as hyperspectral data evaluation and all themes with lots of different applications. Besides hot topics like sensor networks with spatial information fusion and real-time remote sensing, land use/land cover change detection, urban growth modelling, spatial data fusion, feature extraction, thermal remote sensing, seismic vulnerability and risk assessment, orthophoto and DTM generation, ubiquitous GIS, LBS, web and multidimensional GIS, which will be surely in focus in the upcoming events have been addressed.

In the opening session, the program was presented by Prof. Mahmoud R. Delavar elaborating on future GI research directions after the welcome speech of the Dean of College of Eng., UT, Prof. Kamarei and Prof. Shekarchizadeh, Deputy Minister of Road, Housing and Urban Planning. The main keynote speech in the opening session was given by Prof. Christian Heipke, University of Hanover, the Secretary General of ISPRS. The very interesting and vivid talk on road extraction and combined usage of GIS data and 3D information concentrated on updating and improving GI databases. Prof. Heipke stressed the fact that this work can only partly be solved by automatic image analysis, but always a manual step has to be carried out for critical cases. As a general result, approximately 2/3rd of operator time can be saved by using image analyse techniques.

The first session opened with a keynote talk by Prof. Niemeyer, University of Braunschweig, Germany, on Space and Ground Based Radar Interferometry. Prof. Niemeyer gave a good insight into the use of both technologies in real world engineering applications related to ground deformation measurements. On the topic of land slide investigations, Prof. Cakir from the Technical University of Istanbul continued with a detailed analysis of the Tabriz Fault in Iran, followed by Prof. Jonnson from Kaust, Saudi-Arabian University, who showed interesting studies on ground deformation measurement in and around the Arabian Plate. Both used InSAR time series from different satellite sensors.

The next session was dedicated to advanced methods in dense image matching and digital surface model (DSM) generation. The keynote speaker, Dr. Karsten Jacobsen, gave a very comprehensive insight on post-processing of DSM from optical and SAR images as well as Lidar data. He compared different methods to generate a digital terrain model (DTM) from DSM data. Further presentations in

this session on DSM generation and optimization showed that there is still necessary to improve methods and continue research in order to come as close as possible to the real surface of objects, even if only satellite data are available. Fusion of DSMs from different data sources is one important topic in this context. In the session on spatial data modelling, Prof. John Shi from Hong Kong Polytechnic University elaborated in his key note talk on modelling uncertainty in remotely sensed images to improve object recognition and classification. He showed results and comparisons on fuzzy topology based maximum likelihood and support vector machine (SVM) classifications.

The second day started with a session on wireless sensor networks and spatial information fusion. Prof. Samadzadegan, UT, introduced in his key note talk the necessity for using dynamic solutions of acquiring data for Rapid Mapping and many other applications. Unmanned aerial vehicles (UAV) as aerial, ground based and marine sensors can be used as sensor networks, however, the different properties of each of them has to be analysed and selections have to be taken into account for optimum use and combination. Multiple platform architecture therefore has to be the next step, which was also the topic of further presentations. A specific talk on using wireless sensor networks for weather outlier detection for managing transportation infrastructure and early warning for air pollution rounded up the session.

Prof. Peter Reinartz from DLR, Remote Sensing Technology Institute, gave a key note on an operational real-time airborne remote sensing system for rapid mapping and traffic monitoring. He showed that the system, developed at DLR, is capable of on-board online orthorectification as well as vehicle detection and tracking for 64 MPixel camera data (acquired with a frame rate of 3Hz), providing large area detailed information in case of disasters and mass events. A further presentation on estimation of traffic flow from single satellite images using the very small time delay between different multispectral bands showed that a rough estimation of traffic data is possible.

On the third day of the conference, Prof. Alavipanah, UT, presented a keynote talk on thermal remote sensing in which a number of challenges on the topic have been raised. In addition, Prof. Hanssen, from Delft University of Technology, the Netherlands, presented a keynote speech on "Spaceborne SAR geodesy: opportunity and challenges" addressing a wide range of issues in SAR geodesy.

During the poster session mainly young master and PhD students presented their works. Many discussions were carried out about advantages and disadvantages on certain methods on feature extraction, classification, data fusion and other topics, regarding data from SAR, optical image and Lidar data as well as sensor networks.

The closing ceremony was started by Dr. Hossein Arefi, Chair of the 2nd SMPR conference. A brief report regarding to the different aspects in organization of the conference as well as the hierarchical procedure to evaluate and select the final articles as well as selecting best papers has been described. A number of 73 oral and 95 poster papers have been selected out of 364 received extended abstracts to be presented in 17 oral and 3 poster sessions. In addition to the oral and poster presentations, seven workshops have been organized before and after the conference by teaching outstanding and internationally known researchers on different fields of geospatial data analysis and application. They were including context aware-geosensor networks, 3D city modelling, metric exploitation of high resolution satellite images, modelling seismic displacement fields, earthquake prediction using remote sensing, principles of modelling uncertainties in spatial data and analyses, and UAV photogrammetry. Finally the conference ends by granting awards to the candidates of best paper and student contest. Accordingly, the awards have been granted to Homayoon Zahmatkesh and Roghayeh Shamshiri due to their high quality articles and interesting presentations.

Overall it can be stated that SMPR 2013 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 even 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 2015. The proceedings are available through ISPRS Archives <http://www.int-arch-photogramm-remote-sens-spatial-inf-sci.net/XL-1-W3/>.