DOMINANT TREND AT MAPWORLD FORUM 2007

Lidar Technology in India

Lidar technology emerged as the dominant trend at Map World Forum 2007, attracting keen interest among stakeholders. While Lidar and aerial photo capture may be enjoying a large and increasing international market, in India no company has been forthcoming with investment for fear of burning its fingers; government policy on aerial data collection has been unclear. However, it seems all lights are now turning green for a private sector eager to conduct aerial survey here.

Lidar was allotted a full afternoon at MapWorld Forum 2007, while all major Lidar-sensor manufacturers exhibited products and several Lidar-service companies participated. There were no fewer than two hundred delegates. A panel discussion highlighted important aspects of Lidar implementation in India.

Presentations

Chairing the seminar, SOI Surveyor General Maj. Gen. M. Gopal Rao pointed out the usefulness of Lidar for India. Mr R.A. Rauf Campos Maroquetti of Spectrum Mapping LLC showed various projects, in particular integration of Lidar with hyperspectral data, and outlined the urgent need to look into algorithm development for data processing, which is still largely manual. Mr K Kalyanraman, general manger at NRSA, presented work utilising its in-house instrument ALS40 in Hyderabad, over the coastal belt (for providing quick relief in tsunami affected areas) and on the islands of Andman and Nicobar. He showcased the NRSA facility and told the meeting about other future projects. Mr David Collison of Optech Inc focused on the new development of a multi-pulse-based sensor that breaks with the limitations of a hardwired system and can produce a higher measuring rate. Time of flight could be reduced by half, so that cost of operation also fell whilst the same data density and accuracy was achieved. He showed his audience how increasing flying height and scan angle reduced accuracy. Dr Bharat Lohani of IIT Kanpur showed applications both present and future, discussing emergent research avenues. He demonstrated why Lidar data was special and superior for the efficient and accurate generation of 3D-terrain models. David Jonas of AAMHatch focused on projects undertaken by his company, demonstrating how Lidar helped in mapping difficult terrain. Other presentations came from Pasco India, on algorithm development, and from Toposys Germany on developments in sensors.

Panel Discussion

Panellists were unanimous concerning the high potential of Lidar for India and other developing countries; Lidar could help in reducing time of completion on large projects, thus avoiding cost escalation due to delay whilst providing quality data. Further, 3D Lidar data might support major cities in India that lacked basic geospatial data for their management. Flooding problems in Mumbai, tsunami damage and flood-related heavy damage to oil refineries in Gujrat were pointed to as applications for which 3D data was crucial. The ambitious Indian Government project for urban renewal of 63 cities (JNURM) will cost Rs. 12,05,360 million and a fraction of this investment could help in providing data to guarantee the success of the mission. High-resolution (3D) geo-data is considered a secur–"ity threat to India but the panellists agreed that this was based on a misconception. Therefore government concerns should be addressed within a geo-political context and a workshop held at which the issue of security and high-resolution data might be discussed. Further, airborne remote sensing needed to be deregulated and the process for obtaining survey permission made more efficient and transparent. The private sector should come forward with investment and government should play the role of facilitator in encouraging this development. The chairman pointed to the absence of open-source software for Lidar processing and requested industry to initiate steps to ensure interoperability. Further, data standards (like RINEX format) for raw data (basic measurements) were needed to facilitate primary data processing (for X, Y, Z and intensity) independent of sensor type. Although not yet feasible because different sensors have differing modes of operation and collect different kind of raw data, efforts on the part of industry to arrive at LAS format to ensure interoperability were recognised.