

---

## News from Sustaining Members

---

### Applanix

#### Applanix and Ordnance Survey Great Britain Announce Product Sale

Applanix and the Ordnance Survey Great Britain are pleased to announce that the Ordnance Survey has purchased two Applanix POS/AV-DGTM Position and Orientation systems. The Ordnance Survey will use the POS/AV-DG systems to directly georeference aerial images captured by its survey airplanes for mapping applications.

Dieter Zeuner is the sales manager at Applanix. In making this joint announcement, he reported: "This purchase is very exciting for Applanix. Ordnance Survey, Great Britain, is one of the most respected mapping organisations in the

World, with a long tradition of quality and innovation. We are honoured that the Ordnance Survey has chosen to make Applanix's direct georeferencing system the cornerstone of its photogrammetric surveys. It affirms Applanix's POS/AV-DG systems as the industry standard for high accuracy, high throughput mapping applications."

Tony Smart is the Manager for Image and Control Acquisition at the Ordnance Survey. In making this announcement, he said "Integrating POS/AV-DG into our aerial survey program will further solidify our position as the world leader in our industry. It will increase our mapping accuracy and throughput, ultimately allowing us to better serve our customers".

[www.applanix.com](http://www.applanix.com)

[www.ordnancesurvey.gov.uk](http://www.ordnancesurvey.gov.uk)

(Source: Applanix Corporation)

### Space Imaging

#### First High-resolution Satellite Image Released of Maha Kumbh Mela, World's Largest Human Gathering

Space Imaging's IKONOS satellite has taken a detailed colour photograph of the largest human gathering in the history of the world, the Maha Kumbh Mela, a spiritual event held every 144 years in Northern India. The festival is expected to attract 70 million people to a sacred location on the Ganges River, 15 km from Allahabad, for more than a month of bathing rituals. The IKONOS image, which was collected the day before the most sacred and busiest bathing day on Jan. 24, is available for free to the media.

The one-metre resolution image of the Maha Kumbh Mela was collected by Space Imaging's IKONOS satellite, which travels four miles per-second in an orbit 423 miles above Earth. The spectacular image is the first high-resolution satellite image ever taken of such an event. The image shows the sacred site at the confluence of the Ganges, Yamuna and mythical Saraswati rivers where millions of



One-metre resolution image (tight crop) taken during the Maha Kumbh Mela.

Hindu worshippers bathe to wash away their sins and hasten the Hindu people's progress toward nirvana.

<http://www.spaceimaing.com>

(Source: Space Imaging)

### Open GIS Consortium

#### OGC Open Location Services Initiative

Open GIS Consortium (OGC) (VA, USA) recently held a sponsors meeting to launch the first test-bed of the Open Location Services (OpenLS) Initiative.

The meeting was held to confirm sponsorship interest and to solicit feedback regarding the next steps, including the forthcoming release of the Request for Quotation

document and the first test-bed. Results were positive. The OpenLS Initiative is devoted to the development of interface specifications that facilitate the use of 'spatial' or 'location' information in Internet-enabled mobile environments.

OGC introduced plans for harmonising OpenLS specifications with other industry forums and standards organisations, such as the Location Interoperability Forum (LIF). [www.opengis.org](http://www.opengis.org)

(Source: Open GIS Consortium)

---

## EarthWatch

### EarthWatch to Launch World's Highest Resolution Commercial Satellite on Delta II Launch Vehicle

EarthWatch Incorporated announced the finalisation of its corporate development plans. These include plans to provide 2 foot (61 centimetre) resolution commercial imagery by the end of this year, and to launch its QuickBird 2 satellite on the Boeing Delta II launch vehicle.

In December 2000, EarthWatch received a license from NOAA to operate a 0.5 meter resolution satellite system. The company was able to modify its plans for QuickBird 2 to increase the resolution of the satellite from the originally planned 1-meter resolution imaging system to a 61-centimetre system by adjusting the orbit in which the satellite is flown. The result is that the panchromatic resolution is increased from 1-meter to 61-centimetre and multispectral is increased from 4-metre to 2.5-metre resolution. QuickBird 2's design enables it to operate properly at the lower altitude and the satellite carries enough fuel so that its mission life is not reduced. These plans allow EarthWatch to be operating the highest resolution

commercial satellite before the end of 2001.

"The utility of the higher resolution imagery is extraordinary. By increasing the spatial resolution and accuracy of the imagery collected by QuickBird, we will uniquely address image information markets with an unparalleled product offering. EarthWatch will have the ability to more accurately and reliably identify image details of approximately 2 foot detail versus approximately 3 foot detail", stated Herb Satterlee, President and CEO of EarthWatch. EarthWatch is under contract with The Boeing Company to launch the QuickBird spacecraft on a Delta II rocket in October of 2001 from Vandenberg Air Force base in California. EarthWatch selected the Delta II launch vehicle because of its outstanding launch record. The overall Delta II launch record is 97.9% since 1989, and 39 of the 39 launches conducted since 1997 have been successful.

"The decisions that we have made in defining how we move forward underscore our commitment to offering our customers the best quality product possible", stated Herb Satterlee. "This plan not only provides significant potential for our customers but also addresses the needs of our stakeholders. We have been able to fully finance this plan and look forward to establishing ourselves as the leader in the high-resolution market place".

*(Source: EarthWatch Incorporated)*

## LH Systems

### LH Systems to Enter LIDAR Business by Acquiring Azimuth

LH Systems has signed a letter of intent to acquire the business of Azimuth Corporation, the Westford, Massachusetts, USA manufacturer of the AeroScan system for airborne laser mapping. As soon as the formalities of the acquisition are completed, the business of Azimuth will become a division of LH Systems. AeroScan, enhanced and re-branded as the LH Systems ALS40 Airborne Laser Scanner, will join the LH Systems product palette of systems for the acquisition, processing and maintenance of precise information from imagery.

ALS40 systems will be supplied on their own or in joint configurations with the RC30 aerial film camera or ADS40 Airborne Digital Sensor. The ALS40 will include the POS/DG Position and Orientation System from Applanix Corporation, with which LH Systems already has an agreement for a specially designed sub-system for the ADS40. The ALS40 will be distributed and supported through LH Systems' existing network of sales offices, subsidiaries and exclusive third party distributors and with existing Azimuth partners in a limited number of situations. Development and manufacture will continue in Azimuth's existing Massachusetts facility. Close links with LH Systems' software development group in San Diego

will ensure synergies through the use of the SOCET SET® digital photogrammetry suite for post-processing LIDAR data. Furthermore, contact between Azimuth engineers



*Azimuth Corporation's high performance AeroScan LIDAR system, which will be offered as the LH Systems ALS40 Airborne Laser Scanner. The performance of this unit has risen steadily through its development: based on a diode-pumped solid state laser, it can operate at altitudes from 500 to 6,100 metres and can record up to five return pulses with a maximum pulse rate of 25 kHz. AeroScan data can be used to develop digital terrain models, contours, intensity images and various other representations of elevation.*

and LH Systems' Swiss operation in Heerbrugg will improve integration and design consistencies between the LIDAR and the RC30 and ADS40 lines.

Bruce Wald, President and CEO of LH Systems, explained his company's rationale for the move: "Azimuth is an ideal partner for us, with its clear expertise in high performance, robust LIDAR systems that are highly regarded in the mapping industry. There is a technical overlap between airborne sensors and LIDAR systems, both of which use flight planning, GPS, inertial, computer, storage and software systems, synergies that we hope we can leverage to offer our

customers exceedingly attractive LIDAR solutions." Doug Flint, President of Azimuth Corporation, who will become the Director of LH Systems' Airborne LIDAR Systems Division, was equally delighted: "We have felt for some time that our LIDAR product meets a need in the mapping community, but it takes a relationship with a leading systems supplier in the aerial photography and photogrammetry world to enable our product to reach and support its full potential customer base."  
[www.lh-systems.com](http://www.lh-systems.com)

(Source: LH Systems, LLC)

---

## Other Business News

---

### Metria Satellus

#### First High-resolution Imagery from EROS A1

Metria Satellus (Sweden) has introduced the first sample imagery from the EROSA1 satellite, launched in December last year. In panchromatic, the imagery has a resolution of 1.8 metre 'standard' or 1 metre 'over sampled'.

Imagery from different areas of the world will be available for customers through Metria Satellus. The satellite data will be down-linked to a global network of ground receiving stations. A complete European coverage is obtained by using ground stations in Kiruna in northern Sweden, Sturup in southern Sweden and Villa Grande in Sardinia, Italy.

[www.imagenet.satellus.se](http://www.imagenet.satellus.se)

(Source: Metria Satellus)

### Azimuth Corporation

#### Azimuth Improves Airborne Laser Scanning System

Azimuth Corporation (MA, USA) has announced new capabilities for its AeroScan line or airborne laser mapping systems, including an intensity mapping feature, increased laser pulse rate and increased scan rate.

The AeroScan system performs intensity measurements on both first and second returns from each outbound laser pulse at rates of up to 25kHz. The new high-rate scanner also permits a 45-degree field of view to be scanned at 26Hz while operating at altitudes up to 3,000 metres AGL. First imagery was accomplished after only three months of effort. Further refinements are planned, including the addition of automatic scaling (allowing intensity output to be auto-matically adjusted for changes in receiver gain) and intensity-based point-cloud filtering.

(Source: Azimuth Corporation)



AeroScan LIDAR intensity image (white = high received signal, black = low received signal).

**i-cubed**

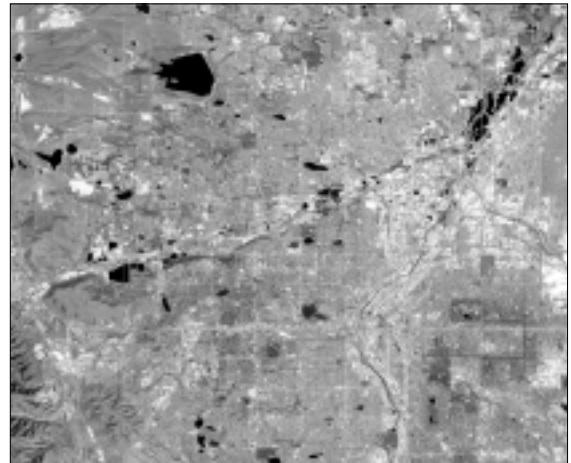
**Imagery Mosaic of Continental U.S. from i-cubed**

i-cubed (CO, USA) has introduced the Instant Imagery USA Millennium Mosaic, a colour satellite image mosaic of the continental United States produced at 15-metre spatial resolution.

The USA Millennium Mosaic is composed of over 450 individual Landsat 7 satellite scenes mosaicked into a single image, but clients can purchase portions of the image map by the city, county, or other area of choice.

At 15-metre resolution, areas as small as a quarter-acre are clearly visible in the imagery.  
[www.i3.com](http://www.i3.com)

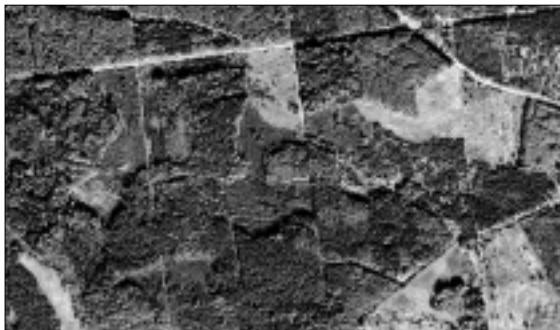
*(Source: information integration & imaging LLC)*



*Instant Imagery USA.*

**Stora Enso Forest Consulting**

**Updated Digital CIR System from Finland**



*Aerial digital CIR mosaic from Latvia.*

Stora Enso Forest Consulting (Finland) has updated the EnsoMOSAIC digital aerial imaging system with a MS3100-CIR camera of DuncanTech Inc. The integrated system now offers a low-cost solution for digital mapping and monitoring applications which require near infra red data.

In addition to MS3100, other models of DuncanTech cameras may also be used in EnsoMOSAIC. The components provided include camera triggering software and electronics and image rectification and mosaicking software EnsoMOSAIC 3.0. One or two persons carry out imaging and image mosaicking can be performed semi-automatically, with a capacity of 30,000 hectares per work station per week.

The system has already been used in Finland and Latvia.  
[www.storaenso.com](http://www.storaenso.com)

*(Source: Stora Enso Forest Consulting)*

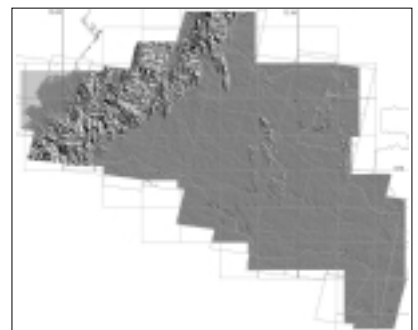
**Vexcel Corporation**

**RSI and Vexcel Create DEM Mosaic of Colombia**

RADARSAT International (RSI) (Canada) and Vexcel Corporation (CO, USA) have completed a 500,000km<sup>2</sup> RADARSAT-1 stereo-derived DEM covering southern Columbia. The data covers 62 one-degree tiles and is accurate to within 25-30 metres RMSE (Root Mean Squared Error) with a slightly lower accuracy in the Andes.

In addition to the DEM, the companies also completed a 25-metre orthoimage product from RADARSAT-1 Standard beam mode imagery. DEM data such as this can assist in applications including land-use planning, natural resource exploration, hydrologic modelling, flight safety

*Shaded display of the entire project area 500,000 km<sup>2</sup> of Southern Colombia.*



and line-of-sight determination for communications.

[www.vexcel.com](http://www.vexcel.com)

*(Source: Vexcel Corporation)*

**Trimble**

**Trimble Launches New Laser-GPS System**

Trimble (CA, USA) has introduced the LaserStation 3D system, the first in a series of new cost-effective real-time Construction Positioning Systems (CPS). New laser technology makes it possible to perform complete layout and positioning tasks with only one person, both reducing errors and increasing productivity. Typically best suited for jobs around the size of a football field, the LaserStation system performs well in rugged and harsh environments. The system uses proven laser technology in combination with so-called 3D-Intelligence functionality. It accomplishes the same work as the traditional theodolite with only one person and offers a multi-user environment, allowing independent tasks to be completed with one system. The 3D-Intelligence locates points and objects in space with centimetre accuracy and is used to navigate an operator to defined positions on a job-site.



*Trimble's new LaserStation CPS provides one-person layout capabilities for complete positioning on the job-site.*

The system comprises a self-levelling, laser transmitter and a second, non-self-levelling transmitter with a receiver that measures horizontal and vertical planes and angles in three dimensions. The addition of the second transmitter enables the calculation of a parallel, perpendicular or radial distance and elevation. Single or dual slopes can be identified up to 50 per cent, as well as any horizontal, vertical or plumb angles.

Specific applications for the system include site layout with elevation, footing and foundation layout, anchor bolts and columns installation, elevation control, spreading sub-base, slopes and grade determination, curved wall layout, tilt-up wall layout, steel erection and contract inspections.

www.trimble.com  
(Source: Trimble Navigation Limited)

**Rollei**

**Industrial 3D and topographical surveying**



The Rolleiflex 6008 metric is a surveying camera designed to meet the changing needs of the busy professional. It comes with a wide range of back components and inter-changeable back walls, and can take a bulk film magazine or digital back.

With the Rollei d7 metric Rollei presents a solution in the mega pixel range.

RolleiMetric can deliver software solutions running under Windows for most photogrammetry assignments in research, development and manufacturing.



**If you want to find out more, call us or visit our web site.**

Rollei Fototechnik GmbH · Dep. RolleiMetric  
P. O. Box 32 45 · D-38022 Braunschweig  
Phone +49 5 31 / 6 80 02 22  
Fax + 49 5 31 / 6 80 03 03  
e-mail: info@rolleimetric.de  
Internet: http://www.rolleimetric.de

**RolleiMetric photogrammetry systems**



## Spatial Data Infrastructure

*Successful and Easy Implementation in Southern Africa?\**

*By Karin Viergever, Wageningen University Research(WUR), The Netherlands*

The use and distribution of accurate data is essential for development of the environment, people and economy of any country. To date, the concept and basic attributes of a Spatial Data Infrastructure (SDI) are well-known and have been successfully implemented in a number of developed countries. It is widely believed that also developing countries will benefit from the implementation of national SDI. Governments of many developing countries are therefore more than willing to share in the advantages of such a system. However, the resources and prevailing conditions in these countries represent serious constraints. Knowing the relative difficulty with which existing SDI have been brought into operation, the author discusses the question of whether or not results may be achieved in developing countries comparable to those in the developed world.

Spatial Data Infrastructure (SDI) should be seen as more than just a means for sharing data. The components of such an infrastructure are spatial datasets, distribution networks to provide access, standards that enable integration and policies that ensure compatibility, as well as users, providers and 'value-adders' at local through to

global level. The trick is to set up these components whilst continually adapting to external conditions.

### Spatial Data

As spatial data was already available in southern Africa, especially in map form, this is the aspect in which most advancement has been made. The greatest source of spatial data is the national mapping agencies, but many municipal authorities have also gathered spatial data (e.g. cadastral records). Thematic datasets are sometimes available, for example in Zimbabwe, from agencies such as the Natural Resources Board, the Department of Agricultural and Extension Services (AGRITEX), the Remote Sensing Institute and the Central Statistics Office. Many of these datasets are maintained to support administrative responsibilities of the various organisations. Most data is still only available in hardcopy and data in digital format is mostly supplied on CD-ROM.

### Databases and Metadata

Efforts are underway to create digital databases through the conversion of existing maps into digital format and



*Spatial Data Infrastructure: Can it be successfully and easily implemented in Southern Africa?*



*People should not only be trained in the use of software. Knowledge about the basic principles of GIS, data acquisition and integration, as well as data management are very important for setting up and maintaining a successful SDI.*

new production of digital information products. There is, however, often a lack of capacity to effectively utilise the vast amounts of data generated in these processes. The main problem is the lack of co-ordination in efforts to set up SDI. Datasets produced by the different departments are not always compatible, even though they relate to the same area. This uncoordinated approach causes duplication both of data and in its distribution, which strongly limits data exchange and escalates costs. In many cases, metadata systems are not yet far developed, which makes it very difficult for potential users to learn what datasets exist and if they would satisfy their needs.

#### **Communication Networks and Technology**

The functionality of SDI depends on the technologies that hold the network together and utility infrastructures such as electricity and telecommunications. In many developing countries electricity is only available in the urban centres where the supply is not always constant. Frequent power

failures and surges damage sensitive equipment. The cost of computerisation therefore usually includes costs of standby generators and ancillary equipment for stabilising power supply.

The teledensity of countries across southern Africa barely reaches 12 per cent. Problems arise not only due to shortage of technology but lack of regulatory policy. State monopolies in telecommunications, with vested interests in obsolete technologies and a high cost structure, represent major obstacles to development. It is feared that the continuing growth of the global information society will accelerate the marginalisation of Africa as the gap between those who are linked up and those who are not expands.

#### **International Initiatives**

Major initiatives have been launched by a host of institutions to provide African countries with the necessary



infrastructure for intra- and international communication, supporting national economic and social development. The Leland Initiative is a five-year, \$15 million U.S. government effort to extend full internet connectivity to 21 African countries. In order to achieve its goal, the Initiative works on creating an enabling policy environment, organising a sustainable supply of internet services and enhancing internet use for sustainable development. The southern Africa Regional Telecommunications Restructuring (RTR) Programme has been running for almost five years and, amongst other things, helps establish a workable regulatory regime capable of advancing telecommunications reform in the SADC member states (see text box).

### Standards

Policies and standards provide the 'rules' for capturing, describing, transferring and pricing data. The importance of standardisation is, by now, universally acknowledged. The development of policies and standards requires participation on the part of all stakeholders, as well as strong political support for enforcement. In Africa these issues have either not yet been formally addressed or have not been adhered to. In many countries, the lack of a body to drive standardisation is the main problem. Despite the lack of standards in so many countries, a few have started working on standards and policies pertaining to their individual situations. National efforts are mostly undertaken by the national mapping agencies, sometimes in collaboration with the donor community and regional agencies. At SADC regional level, a background report has been published for the development of a SADC Environmental Information Systems data policy within the context of a broad regional policy and strategy for environmental and sustainable development.

### Institutional Arrangements

A successful SDI contains institutional arrangements that co-ordinate the many organisations involved during development and maintenance. Many southern African countries still follow an approach in which data is managed by various government departments. These bodies are not responsive to the needs of private users and communication with other government departments and the outside world is almost non-existent. A dedicated, independent, organisation is needed charged primarily with managing the corporate information resource for the good of all. This management body should also have enough power to participate in policymaking and be able to enforce rules and standards. An example of efforts towards dedicated information co-ordination in southern Africa is the foundation of the Committee on Environmental Data Management in Lesotho. This body establishes data quality standards, advises on the formulation of policies for data management and promotes a culture of data exchange.

### Users

The users are those organisations and individuals that access and use the infrastructure to acquire data and the

### SADC

The Southern African Development Community (SADC) consists of fourteen member states. This treaty was signed in 1992 by Angola, Botswana, Democratic Republic of Congo, Lesotho, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Swaziland, Tanzania, Zambia and Zimbabwe. It aims to co-ordinate, harmonise and rationalise the policies and strategies of the member states for sustainable development and replaces the previous Southern African Development Co-ordination Conference (SADCC).

organisations that produce and maintain the datasets in the system. All members of this user group should possess the appropriate knowledge and skills to enable them to perform their roles in the SDI effectively, be it providing data, transforming data, managing data or exploiting the SDI. Southern African countries have enough individuals and groups that adopt the roles described above but the skills base is very low and so is general computer literacy. This results in manual performance of operations that should be handled digitally, thus limiting the ability to participate fully in the operations of the infrastructure.

### SDI Activities in the SADC Region

Despite the many existing constraints, SDI activities are being undertaken in southern Africa. For example, the Regional Remote Sensing Unit (RRSU) of Zimbabwe in 1994 began the development of a unique spatial database to support the analysis of remote sensing products. They now co-ordinate a programme, based on co-operation in various sectors, in which the use of remote sensing and GIS technology plays an important role in environmental monitoring activities. The database includes information on national and sub-national boundaries, elevation, infrastructure, hydrology, major growing areas, forests, protected areas and cultural sites, as well as satellite, climate and agricultural information in raster format. Although the main focus of the RRSU is on early warning for food security it has also become clear that the activities, databases and outputs are beneficial for a wide range of environmental monitoring and spatial data activities.

### Conclusion

The fact that much of southern Africa is still not ready for a full on-line spatial data infrastructure can be ascribed in large part to a lack of financial and human resources. Inadequate funds are mainly responsible for the poor state of telecommunication and electricity networks. Besides the importance of standardisation and a clear policy framework, the success or failure of SDI in the developing world will depend on the attitudes of the people involved. Steps should be taken to break down the lack of co-operation culture currently existing between organisa-



tions so as to ensure full participation when the necessary physical infrastructures become available. Another major hurdle is a lack of understanding of SDI concepts and importance on the part of decision-makers. Finally, where people have not continually been exposed to rapid change, as is the case in the developing world, the setting up of SDI is bound to be more difficult than it is in the western world.

**Further Reading**

- Home page of Global Spatial Data Infrastructure (GSDI): <http://www.gsdi.org/u>

**Biography of the Author**

Karin Viergever obtained a B.Sc. (Hons) degree in

Geography from the University of Pretoria in 1995. She immediately afterwards worked for five years as junior lecturer in Geography and Environmental Studies at the University of South Africa. During this period she obtained a M.Sc. (Rural and Regional Resource Planning) from the University of Aberdeen, Scotland. She is currently studying towards an M.Sc. (Geo-Information Science) at the University of Wageningen, The Netherlands.

*Centre for GeoInformation (CGI), Wageningen University & Research (WUR), P.O. Box 47, 6700 AH Wageningen, The Netherlands, E-mail: [Karin.Viergever@msc.student.wau.nl](mailto:Karin.Viergever@msc.student.wau.nl)*

*\* Article reproduced from GIM International and with consent of author*

# Now available!

## Volume XXXIII proceedings of the XIXth ISPRS 2000 Congress

Valuable information at your fingertips

- Set of CD-ROMs (3 CDs) : fl. 150,00 \*
- Set of hardcopies (14 books) : fl. 595,00 \*

*\* = Prices do not include VAT (if applicable) nor shipping & handling*

Contact Jeroen Zaagemans at GITC bv: [jeroen.zaagemans@gitc.nl](mailto:jeroen.zaagemans@gitc.nl)



# ISPRS Highlights will now be available from GITC bv at



**US\$ 28 per year**  
(for individuals who belong to an ISPRS member organisation)

**US\$ 35 per year** (for non-members)

**Please contact GITC's subscription department for more details or e-mail: [martina.sonsma@gitc.nl](mailto:martina.sonsma@gitc.nl)**

To receive ISPRS Highlights you only have to send us the complete address (*personal name, organisation name, address, city + postcode, country, phone, fax, e-mail, date, signature*) together with the (details of) payment. You can pay by credit card (*number, expiry date, signature*) or by mailing to GITC by separate post (*cheque, postal order, international money order, evidence of bankdraft*). The delivery of the magazine will start after receipt of payment