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News from Sustaining Members

Space Imaging

Space Imaging Introduces IKONOS Satellite Stereo Imagery Product to the Global Commercial Marketplace *Customers Now Have a New Tool to Visualise the Earth in 3-D*

Space Imaging, a provider of Earth imagery and related services to commercial and government markets, announced that it is now offering one-metre resolution, stereo imagery from its IKONOS satellite to the commercial marketplace. These products were previously offered only to government customers.

Stereo products consist of two IKONOS satellite images of the same location on Earth, taken from two different perspectives during one orbital pass. The pair of images is collected in-track, or on the same ground path just moments apart, to maintain the tonal consistency between each image, enabling better interpretability. One of the two images is taken at a high elevation angle of greater than 72 degrees, which can be used to make a highly accurate orthorectified image.

The primary advantage of stereo imagery is the ability to extract cultural and geographic features in three dimensions such as buildings, roads and elevation contours. Stereo imagery is especially important for global markets where accurate elevation data is not readily available. Many commercial markets will benefit from stereo imagery including mapping, telecommunications, exploration and mining, transportation, environmental, urban planning and forestry. For example, airport officials can use stereo imagery for navigation and simulation; the telecommunications industry can develop 3-D line-of-sight models to identify potential locations for wireless towers; the exploration and mining industries can visualise and measure the geographical features of a site; urban planners can extract GIS vector layers to update and map geographic information; and forestry managers can determine marketable timber and even calculate the amount of timber lost due to fire, natural disasters or illegal harvesting.

Space Imaging's stereo imagery product also includes an Image Geometry Model (IGM) file, a mathematical way to express the complex sensor model of IKONOS. By incorporating the IGM and stereo pair images into commonly used commercial imagery software suites, users will now be able to create their own Digital Elevation Models (DEMs) and orthorectify the high-angle image with superior accuracy. Software packages supporting IKONOS stereo imagery include: BAE SYSTEMS' SOCET

SET, ERDAS' Stereo Analyst and OrthoBASE, PCI's OrthoEngine, Z/I Imaging's ImageStation and SSK. All software packages are registered trademarks of their respective companies.

"Feature extraction of the built and natural environment is significantly enhanced using stereo pairs viewed in 3-D," said Jeff Young, Vice-President of Global Solutions Sales and Marketing. "With the appropriate tools that are available today the geospatial user can now extract elevation values of any location on Earth. This allows for the efficient extraction and analysis of features, modelling of terrain and urban landscapes, and the ability to detect changes in geographic position and elevation."

"This is a fantastic enabling technology for our broadband, wireless telecom customers," said Russell Cowart, President of I-cubed and a value-added reseller of IKONOS imagery. "Accurate 3-D building models and high-resolution canopy DEMs are critical components to establish the infrastructure for the next generation of telecommunications. The global availability of IKONOS stereo products will ensure a consistent platform for our customers to rely upon."

Stereo products can be purchased as 11-bit or 8-bit data and are offered in the same accuracy levels as other IKONOS products:

- Precision 1m Stereo has a horizontal accuracy of up to four meters with 1:4,800 NMAS for an area of interest (AOI) within North America (1:5,000 for AOIs outside North America) and a vertical accuracy of five metres. Base pricing begins at US\$ 175 per sq. km. for an AOI within North America and US\$ 250 per sq. km. for an AOI outside North America. Standard colour, bundle and license upgrades apply with a minimum order of US\$ 10,000
- Reference 1m Stereo has a horizontal accuracy of up to 25 metres with 1:50,000 National Map Accuracy Standard (NMAS) and a vertical accuracy of 22 metres. Base pricing begins at US\$ 52 per sq. km. for black-and-white (B&W) products for an AOI within North America and US\$ 128 for an AOI outside of North America. Standard colour, bundle and license upgrades apply with a minimum order of 100 sq. km.

Ordering Products

Customers can order a product by calling the Customer Service Center at 800-232-9037 or 301-552-0537 or by contacting a Space Imaging Regional Affiliate or authorised reseller. Customers can also check to see if a specific area is in the archive by accessing Space Imaging's Web site and using CARTERRA Online™ <<http://carterraonline.spaceimaging.com>>. The site provides detailed

instructions about how to conduct an archived image search to obtain the image scene identification number and latitude and longitude coordinates. By using these tools, customers can select a specific image where multi-

ple archive images are available of the same area.

www.spaceimaging.com
(Source: Space Imaging)

Book Review

A Decade of Trans-European Remote Sensing Co-operation

Proceedings of the 20th EARSeL Symposium, Dresden, Germany, 14-16 June 2000

Edited by Manfred F Buchroithner. AA Balkema Publishers, Lisse, The Netherlands. Publication date 2001 ISBN 90 5809 187 2, 427 pages

Reviewed by Ray Harris, Department of Geography, University College London

This book is the proceedings of the 20th annual symposium of the European Association of Remote Sensing Laboratories (EARSeL) which was held in the German city of Dresden in June 2000. The editor of the book is presented with something of a quandary: the EARSeL symposium traditionally has an advertised theme, but equally traditionally the presented papers pay scant attention to that theme. This does not make the symposium any the less interesting, but it does mean that claims for coherence with a central theme are rather thin. Then when the book of the symposium is published the claim by the editor that the "papers in this volume reflect the theme chosen" can only be seen as window dressing. Given the traditional disregard by scientists for the symposium theme for this EARSeL conference, and for most other remote sensing conferences for that matter, it would be preferable to present the book as reports on recent remote sensing progress in Europe, which is what the book is good at.

The book is successful at capturing the wide range of current remote sensing research taking place in Europe. There are sections on agriculture and forestry, hydrology and oceanography, and on ecology and protected landscapes. To these thematic sections is added a section on techniques and methods which has the great merit of always being linked to applications. This techniques and methods section is probably the strongest, with papers on indices (vegetation, snow), texture (including fractals), environmental models and neural networks, although at 4 – 5 pages each of the papers is generally short. So, overall this book is a collection of 58 papers on the applications of remote sensing, mainly in Europe and by European authors.

In this book, and indeed representative of the state of the art of current remote sensing publications, most of the papers are of a certain style. Papers begin with a sweeping statement of context, followed by the normal scientific method of study site – data – modelling – results. I am thinking here of the analogy of taking a computer and beating the data to death. The conclusions are normally orientated very positively and show that the research was successful, but with little or no reference to either how the research might be used more widely or how the results relate to the sweeping context presented at the start. This structure is the dominant paradigm in the book, and examples of the paradigm can be found on forest reflectance modelling, coastline height comparisons and moorland mapping. There are some papers that do not follow this paradigm and provide a welcome relief, for example a paper on the use of aerial photography for precision agriculture, or a paper on visual interpretation of imagery (unusual nowadays). Chris Rapley's keynote address on remote sensing of polar ice is a very interesting and useful summary, although not connected either to the rest of the book or to the theme of the EARSeL symposium.

This book is full of good ideas on how to exploit remote sensing data. I particularly enjoyed the papers on CORINE land cover, forest and forest fire mapping, oil spill detection, landscape mapping and ecological analysis. As a statement of what primarily central European researchers (from both western and eastern directions) have produced recently it is a valuable addition to the remote sensing literature.
