

## From Our Members

### Sustainable Development: GSDI for Improved Decision-Making

#### 5th Conference of Global Spatial Data Infrastructure



More than 250 participants from 49 nationalities attended GSDI 5. The Conference was held in Cartagena, Colombia during 22-24 May 2001. Organised under the theme 'Sustainable Development: GSDI for Improved Decision-Making', the event was an exciting and informa-

tive opportunity for geodata producers and SDI technology developers to share with decision-makers from public and private sectors. The Colombian government took a leading role with GSDI through its national mapping agency, Agustín Codazzi Geographic Institute -IGAC.

GSDI 5 highlights include:

- GSDI to produce a statement on the need for global data sets for sustainable development, to be tabled at the forthcoming UN Rio+10 Summit taking place at Johannesburg, South Africa in 2002
- To better achieve its goal and objectives, GSDI resolved that in the short term intends to evolve into a public/private not-for-profit organisation
- Industry participation increases, moving from conventional conference sponsorship to a direct involvement in GSDI activities
- In memory of the late John Estes, Chair, International Steering Committee on Global Mapping -ISCGM. Jack Dangermond, ESRI President launched a five million dollars grant for GSDI and Global Mapping
- GSDI 5 Conference incorporated the 3rd Meeting of the Permanent Committee on Spatial Data Infrastructures for the Americas -PC IDEA and the 8th ISCGM Meeting
- PC IDEA and its sister committee for Asia and the Pacific -PCGIAP, signed a Memorandum of Understanding, addressed to promote common ground areas for SDI development at the regional level
- The next GSDI Conference will be held in Budapest, Hungary, September 2002

#### Industry Participation

The agenda of GSDI 5 included as an integrated part of the Conference, industry participation. Two sessions provided industry representatives with opportunities to discuss how technology can support and advance spatial data infrastructures. Further, this was also an excellent venue for companies to participate and join the rapidly growing global spatial data infrastructure.

#### GSDI Authorities

For the period 2001-2002 Santiago Borrero, Director General, IGAC was elected as Chair, GSDI Steering Committee, replacing Derek Clarke from South Africa. At the same time Ian Masser, President of the European Umbrella Organisation for Geographic Information -EUROGI was appointed Vice Chair. The US Federal Geographic Data Committee continues hosting the Secretariat, with John Moeller as principal. As well, Bas Kok and Harlan Onsrud will remain as Co-chairing the Legal and Economics Working Group and Doug Nebert, as Chair of the Technical Working Group.



*Santiago Borrero, Chair GSDI Steering Committee*

#### GSDI 6 Conference – Budapest, Hungary

GSDI 6 will be held in Budapest, Hungary, in September 2002. The event will be organised by EUROGI and the Hungarian National Geographic Information Association – HunGAI, under the responsibility of Gabor Remetei. The Conference theme will be: 'From Global to Local', will incorporate the 9th Meeting of the International Steering Committee on Global Mapping –ISCGM and most probably the Plenary Assembly of EUROGI.

#### Conference Proceedings and Resolutions

Twelve resolutions were adopted at the conference dealing with aspects such as 'GSDI and other relevant initiatives', 'GSDI Organisation', 'GSDI Implementation Guide and common implementation practices'. The set of resolutions and papers submitted to GSDI 5 are available at [www.gsdi.org](http://www.gsdi.org)

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## CEOS SAR Cal/Val Conference

By Masaobu Shimada, Chair of TC I, WG 4

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A four-day SAR Cal/Val conference was held at EORC NASDA from 2 to 5 April, with almost 60 participants from 13 countries. There were 66 presentations and 17 posters in seven sessions, (interferometry, polarimetry, radiometric and geometric calibration, new instrumentation, and applications for forest, ocean, and ship detection). There were also sessions devoted to ALOS and ENVISAT. Each session consisted of presentations, questions, and a round-table discussion where prepared 'seed questions' were discussed.

Three and one-half days were spent on technical sessions. The last half-day was dedicated to session summaries and recommendations. An overall summary of the meeting will be prepared based on the plenary reports and will be forwarded to the CEOS CAL/VAL meeting at ESRIN, in June 2001.

**I. Interferometry session** (chaired by Drs. F. Rocca and J.C. Souyris): Ten papers were presented. Five papers were dedicated to methodologies including design and calibration of interferometry data (SRTM, Radarsat-1) and differential interferometry missions, neural network post processing for better phase unwrapping, and correction of atmospheric effects using objective data. Five papers were dedicated to applications to tidal loading, volcano deflation, neo-tectonics in Taiwan and California, permanent scatterers. In the concluding round-table discussion, several remarks were made on the absence of a consistent long-term data series that would allow systematic analysis of long-term crustal phenomena. Another topic discussed was the optimal configuration for differential interferometry

**II. Polarimetry session** (chaired by Drs. W. M. Boerner and F. Mattia): There were nine presentations. Overall it was an excellent and lively session clearly demonstrating the benefits of developing 'fully polarimetric, and well calibrated SAR systems' with highest possible channel isolation, side lobe reduction and best possible polarimetric amplitude (less than 0.1 dB) and polarimetric phase (less than 1 degree) performance capabilities. The session included a discussion on the development of a fully polarimetric, multi-band POL-SAR system covering the spectral domain from 10MHz to 100GHz. In a first step, the existing POL-IN-SAR systems need to be upgraded to a fully polarimetric/interferometric, multi-band POL-IN-SAR imaging systems. Whenever possible POL-SAR and POL-IN-SAR systems should be placed on the same platform

**III. Calibration, Geometry & Radiometry session** (chaired by Drs. R. Hawkins, R. Bamler, and A. Luscombe): The session consisted of seven papers covering a variety of topics including validation of DTM, airborne SAR, mobile PC processor design, and status and issues with RADARSAT-1 and ERS-2 calibration

During the round-table discussion, a number of questions were considered: the need for transponders for Cal/Val, the longevity of the rainforest, round orbit calibration stability, dissemination of calibration information.

**IV. Instrument design and new concept session** (chaired by Drs. J.C. Souyris and P. Steeghs): One paper was dedicated to antenna design for a small satellite, two papers to the design of Spaceborne SAR (one in L-band, the other in X-band), two papers to the design of airborne SAR architectures (respectively a 35GHz FM-CW SAR and a light X-band SAR/MTI), and two papers to the concept of interferometric cartwheel (spaceborne interferometry using a constellation of passive reflectors). One paper presented the X-SAR/SRTM instrument hardware. Finally, the updated ERS-2 performances, in connection with the mono-gyro-piloting mode, was presented

In the concluding round-table, several remarks were made that the community should articulate a priority for future SAR missions. Another issue voiced concern about the limited number of people around the world who are familiar with how to use radar imagery for land applications.

**V. Application session:** This session consisted of three sub-sessions (Forestry, Ocean, and Ship detection)

The **Forestry sub-session** (organised by Drs. Le Toan and Quegan) had two papers and two posters addressing the Potential of SAR's for biomass estimation, mapping, monitoring clearcuts and regeneration of clearcuts, detecting disturbances and forest flooding, and for height measurements. One paper was presented in the Polarimetry session, and one in the ALOS session. A driver for use of SAR in forest observations is the major international effort to quantify the terrestrial component of the Carbon Cycle and ratification of the Kyoto Protocol.

The **Ship detection sub-session** (organised by Dr. K. Ouchi) demonstrated effective uses of spaceborne SARs in Polar Regions for estimating sea ice age and thickness over the Arctic Sea on a basin scale using the wide-swath Radarsat ScanSAR data. For estimating soil moisture from ERS and SIR-C/X-SAR SAR data, two model-based approaches, a direct method trained by a neural network and an iterative method, were illustrated and their performances compared. Although the methods are limited to the areas of bare soil and those with little vegetation cover, SAR data can be utilised in this field of application.

**VI. ALOS** (chaired by Drs. M. Shimada and G. Keyte): PALSAR specifications, CAL/VAL, data distribution, and the data acquisition plan were introduced. PALSAR, the

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first operational L-band polarimetric SAR, should consider the correction of Faraday rotation in calibration

Four 'seed questions' were debated: 1) is it possible to use the Amazon rain forest for L-band cross track antenna measurements? 2) Will ionospheric disturbances affect the accurate measurement of polarimetric L-band data? 3) Should the proposed list of products for PALSAR be extended? and 4) Should the proposed TerraSAR L-band mission be harmonized with the ALOS PALSAR mission?

**VII. ENVISAT** (chaired by Drs Y-L Desnos and M. Zink): This session had nine presentations. The summary of the

Envisat mission is to provide coverage of Antarctica in three successive operations cycles and to monitor coastal zones with even higher frequency

### Summary

The plan is to produce proceedings for this workshop so that each presentator is requested to submit the full-length papers by 15 May 2001 so that proceedings can be distributed in a short time.

The next meeting will be held in UK in the autumn of 2002. More detailed information will be provided as it becomes available.

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## Call for papers - Theme issue 'Medical Imaging and Photogrammetry'

Guest editor: Frank van den Heuvel, Delft University of Technology, The Netherlands

Planned publication date: August 2002

This issue of the **ISPRS Journal of Photogrammetry and Remote Sensing** is focused on photogrammetric aspects of medical imaging. It aims at demonstrating the benefits of photogrammetry to medical imaging, at the same time stressing the importance of medical imaging as an application field for photogrammetry. The topics of the papers overlap with those of ISPRS WG V/3:

- Surface/volume modelling (e.g. face, body, or organ)
- Tracking (of human or tools, possibly during surgery)
- Registration, sensor integration, matching
- Medical Virtual Reality and Augmented Reality

Authors are requested to focus their paper on the photogrammetric techniques.

The paper must be an original contribution, not published in journals or conference proceedings, and must follow the instructions for authors (see [www.photogrammetry.ethz.ch/journal](http://www.photogrammetry.ethz.ch/journal)). Please submit the full manuscript in electronic form (Word or Latex) to the e-mail address below by **31 October 2001**.

### Frank van den Heuvel

Delft University of Technology, Department of Geodesy

Thijssseweg 11, 2629JA Delft, The Netherlands

Tel: +31-15-2787609, Fax: +31-15-2782745, E-mail: [F.A.vandenHeuvel@geo.tudelft.nl](mailto:F.A.vandenHeuvel@geo.tudelft.nl)

