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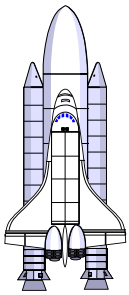
Shuttle Radar Topography Mission

SRTM Launch is Delayed



The launch is now programmed for **January 13, 2000**.

For updates, check

http://www-radar.jpl.nasa.gov/srtm

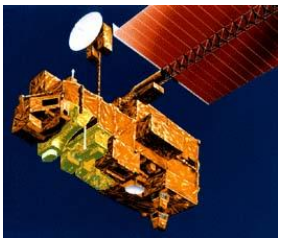
ARIES-1 Hyperspectral Resource Information Mapping Satellite Project

For more detailed information about the ARIES project, go to:

http://www.cossa.csiro.au/aries/aries1.html

EOS AM-1 Spacecraft

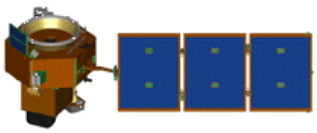
ASTER



Further information about ASTER can be obtained at either: http://asterweb.jpl.nasa.gov or by contacting Dr Anne B. Kahle (Anne.B.Kahle@jpl.nasa.gov) or Hiroji Tsu (tsu@gsj.go.jp)

ASTER Spectral Library – available on-line and can be ordered on CD-ROM via There is still no charge for the CD but please only order it if you really want it! http://speclib.jpl.nasa.gov

EO-1 (Earth Orbiter 1)



The EO-1 orbit is synchronised at 1 minute behind that of AM-1. Proposed launch date December 1999.

Home page http://fdd.gsfc.nasa.gov/missions/eo-1.html

- LANDSAT 7 GOES OPERATIONAL

Latest information on Landsat 7, data search etc. can be found at the Landsat 7 Home page http://landsat7.usgs.gov

IKONOS-2

Visit Space Imaging Europe's web site

http://www.spaceimaging.com

INSAT-2E

New Corporate Members in 1998 are:

NPA Group

Crockham Park, Edenbridge, Kent, TN8 6SR

Tel: 01732 865023 Fax:017322 866521

http://www.npagroup.co.uk

ERIM International, Inc.

P.O. Box 134008, Ann Arbor, Michigan 48113-4008, USA

Tel: +1 734 994 1200 Fax: +1 734 994 5123 http://www.erim-int.com

Analytical Spectral Devices (ASD) Inc.

5335 Sterling Drive,

Boulder, Colorado USA

Tel: +1 303 444 6522 Fax: +1 303 444 6825

Email: info@asdi.com Web: http://www.asdi.com

ERDAS (UK) Limited

Telford House, Fulbourn,

Cambridge, CB1 5HB, U.K.

Tel: 01223 880802 Fax: 01223 880160

http://www.erdas.com

Natural Environment Research Council

Directorate of Science and Technology, Polaris House,

North Star Avenue, Swindon SN2 1EU

Tel: +44 (0)1793 411500

http://www.ner.ac.uk

Corporate Member Reminder

NPA, ERIM, ERDAS & NERC are reminded that they have not yet taken advantage of their right to place a full page advert in the Newsletter and should contact the Editor when they wish to do so.

If you are a Corporate Member and your logo is not here, then please send it (as tiff, jpg or bmp) to the Editor.

If you would like your company to become a Corporate Member, then please contact the Membership Secretary.

RADAR in geosciences: still peering through the clouds?

Geological Remote Sensing Group Annual Meeting

Wednesday 24th November 1999

Burlington House, London

Programme

9.30 – 10.00: Coffee and registration

Session Chair: **Stuart Marsh**

10.00 – 10.30: **Mr Ren Capes** (Nigel Press Associates)
Capabilities of ERS InSAR for ground displacement detection

10.30 – 11.00: **Dr Andy Sowter** (Synoptics Geo Application Ltd)
Topography extraction and validation using spaceborne SAR and RADAR altimeter data of North Sumatra

11.00 – 11.30: **Professor Cordula Robinson** (University of Boston)
RADAR images of the eastern Sahara: Implications for groundwater resources

11.30 – 12.00: **Mr Colm Jordan** (British Geological Survey)
RADAR for geological mapping in Guyana

12.00 – 1.30: Lunch

Session Chair: **Prof. Geoff Wadge**

1.30 – 2.00: **Professor Claudio Vita-Finzi** (University College, London)
Synthetic stereo RADAR and the surface of Venus

2.00 – 2.30: **Dr Martin Insley** (National Remote Sensing Centre)
Oil slick detection and hydrocarbon exploration using SAR data

2.30 – 3.00: **Dr Chris Clark** (University of Sheffield)
Geomorphological mapping from RADAR imagery reveals the dynamic behaviour of former ice sheets

3.00 – 3.30: Coffee and posters

Session Chair: **Alistair Lamb**

3.30 – 4.00: **Dr Liu Juan Guo** (Imperial College, London)
Change detection of landsurface in a semi-arid region in Spain using ERS interferometric SAR coherence imagery

4.00 – 4.30: **Professor Geoff Wadge** (University of Reading)
Volcano interferometry

5.00 – 6.00: GRSG AGM, Wine & savouries

CAPABILITIES OF ERS InSAR FOR GROUND DISPLACEMENT DETECTION

Ren Capes

NPA Group, Crockham Park, Edenbridge, Kent TN8 6SR, UK

Satellite radar interferometry promises to be a valuable tool for surveyors and civil engineers. It offers the capacity of detection and monitoring of large-scale ground displacements, such as subsidence, on a sub-centimetre scale over 100-km square areas or larger, in a matter of a few hours of radar data processing. The technique, known as Differential Synthetic Aperture Radar Interferometry, or difSAR, relies on the analysis of two radar images acquired on different occasions, the temporal separation of which can range from one day to several years. The process of interferometry involves the complex comparison of the reflected radar phase signals from every point on the ground for the two radar image datasets. After processing the resulting differential interferogram will exhibit distinctive fringes of phase cycles where any ground displacement has occurred during the intervening period. Because this comparison is made at the wavelength-level of the radar signal and from the image acquisition geometry, each fringe (or part thereof) can be converted to a specific amount of sub-centimetric displacement in the line-of-sight of the satellite platform.

For several years now, NPA has perfected a complete end-to-end interferometric processing capability and has routinely provided a commercial service to private companies and government agencies for the detection and monitoring of ground displacements such as subsidence (as well as for earthquake damage mapping, for instance). NPA is acknowledged to be a world-leader in commercial SAR interferometry processing and interferometric, value-added data products. Through a number of research and product development contracts, NPA has successfully detected and analysed a high number of cases of large-scale subsidence world-wide, most of them in important urban areas and many where subsidence was hitherto undetected or un-quantified.

TOPOGRAPHY EXTRACTION AND VALIDATION USING SPACEBORNE SAR AND RADAR ALTIMETER DATA OF NORTH SUMATRA

Dr Andrew Sowter

Synoptics Geo Applications Limited,Aldershot

Philippa Berry

Geomatics Unit, De Montfort University, Leicester

Stereo SAR has been a growing commercial application since the launch of Radarsat in 1995. In this paper, we describe its application over a large area of North Sumatra in an area where no ground control was available. The paper describes the process of topographic data extraction including the mosaicking of the Digital Terrain Model DTM tiles and the generation of an ortho-rectified image. Data from the ERS Radar Altimeter (RA), provided by the Geomatics Unit at DMU, was used to validate the DTM. It was confirmed that the data was within the 30m RMSE required by the customer. It was also demostrated that the combined use of SAR and RA data had some potential for the derivation of forest canopy height.

USING RADAR IMAGES TO LOCATE AREAS WITH GROUND-WATER POTENTIAL IN SOUTHWEST EGYPT AND NORTHWEST SUDAN.

Professor Cordula A. Robinson

Center for Remote Sensing, Boston University, Boston, MA 02215, USA

SIR-C and Radarsat images of SW Egypt and NW Sudan reveal an abundance of fluvial channels. Radar data are ideal for mapping the channels since some are sand covered (radar has the ability to penetrate sand in arid areas) and many show pronounced structural control (radar clearly depicts scarp faces and regional structural trends). The channels drain from more highland locations (including the Gilf Kebir Plateau and Jabal Oweinat) to the lowland area of the Selima Sand Sheet and Kharga depression. Channel morphologies include flood features and wadis, braided river systems and dendritic channels. Many channels show pronounced structural control, including those that reflect systematic conjugate joints, those with a stepwise pattern, and channels that follow very pronounced, regionally extensive faults up to 50 km length. The most intense channel dissection occurs on the highland slopes, compared with braided channels and structurally-controlled flood features which occupy the lowland inland depression. From the topographical and spatial arrangement of fluvial activity it is suggested that a lake formed in the depression of what is now the Selima Sand Sheet. The volume of lake water was probably greatest in the Pleistocene and decreased in the Quaternary. It is likely that the sediments transported by these channels acted as the source of the present-day sand that was later reworked by aeolian activity, and that overtime the water seeped through the fractures and porous rocks into the substrate to be stored as ground water.

SAR, BEAST OR BEAUTY? TWO CONTRASTING CASE STUDIES APPLYING RADAR IMAGERY TO GEOLOGICAL MAPPING IN IRELAND AND GUYANA.

Colm Jordan

British Geological Survey

Rather than discussing algorithm processing, manipulation techniques and technical aspects of SAR data this presentation will focus on two case studies where SAR data should, in theory, have been the ideal image type for geological interpretation. However, as we shall see it was highly successful in one application, but practically unusable in the other.

RADAR's capacity to help the interpreter distinguish landscape textures and geomorphological information should make it the ideal data type for the study of glacial landforms. Coupled with its ability to penetrate cloud cover, this should mean it is ideally suited to mapping the Quaternary geology of Ireland. However, despite attempting every processing technique in the book, and a few that are not, ERS-1 data did not provide sufficient geological information to justify its purchase. It was found in the Irish context however that Winter Landsat Thematic Mapper data and even Summer TM data provided superior geological information, with minimal processing. It was concluded that the quantity of geological information

within the ERS-1 data was reduced by eight days of heavy rainfall in the area prior to image capture. This swamped the backscatter and masked the dielectric properties of the landscape, a factor which may have been compounded by data degradation during geocoding at the receiving station.

In contrast to the Irish experience with ERS-1 data, fine beam RADARSAT imagery has been used with far greater success in the rainforests of Guyana. Again, SAR should be ideally suited to this environment where there is near total cloud cover and unbroken forest canopy. Both geomorphological and structural information was discerned using the SAR imagery, whereas neither could be distinguished from Landsat TM data of the area. These examples demonstrate that while RADAR imagery can provide valuable geological information care must be taken when evaluating the terrain and climate conditions beyond assessing cloud cover. It is also important to choose the appropriate SAR sensor and processing level, otherwise data that promise everything will deliver nothing.

SYNTHETIC STEREO RADAR AND THE SURFACE OF VENUS

Professor Claudio Vita-Finzi

University College, London

Stereopsis remains a powerful ally in the interpretation of remotely sensed imagery, and human stereopsis remains an important complement to automated systems, such as those used for generating DEMs, because it combines optical illusion with geological experience. Synthetic stereoscopic radar imagery goes one better: besides helping the interpretation of three-dimensional structures it reduces (in the mind of the observer) some of drawbacks of radar imaging, notably foreshortening and elongation, and thus paradoxically renders terrain more familiar by exaggerating it.

ONSHORE AND OFFSHORE HYDROCARBON EXPLORATION USING SAR DATA

Martin Insley

NRSC Exploration Services, Southwood Crescent, Southwood, Farnborough

Almost 75% of frontier hydrocarbon exploration occurs in sedimentary basins located in either onshore vegetated areas or offshore. The focus of exploration in such areas, particularly in the offshore, has resulted in a dramatic increase in the use of ERS and Radarsat SAR data.

Onshore, the use of SAR data is largely driven by the absence of suitable cloud-free optical data. The wide range of imaging modes of Radarsat provides cost effective data for generating mosaics to establish the regional tectonics of whole countries as well as for more detailed prospect-scale structural mapping. SAR imagery improves the identification of subtle surface features by enhancing topography by simulating low sun angle illumination as well as textural and tonal variations. The limitations of using 'raw' ERS and Radarsat imagery onshore are: inherent geometric distortion of the imagery related to foreshortening due to variations in relief (the horizontal displacement of ridges, often coincident with the crests of anticlines as in the case of fold and thrust belts in Papua New Guinea and Irian Jaya, is 2-3 times the vertical change in elevation); lack of penetration of dense vegetation cover resulting in the interpretation of 'tree-top' geology; directional bias of features interpreted from the imagery orientated perpendicular to the look-direction of the sensor;

reduction of the visual resolution of the imagery due to speckle. These limitations can be compensated to some degree by using stereo Radarsat imagery, for stereoscopic interpretation; creation of anaglyphs for 3D visualisation; generation of DEMs and production of georeferenced ortho-corrected images. Best results are achieved through combining information derived from both stereo Radarsat and Landsat TM to generate products for logistical planning, environmental assessment and geological mapping.

Offshore, SAR imagery provides a rapid and cost effective method of screening large areas for natural oil seeps to help define the limits of a petroleum playfairway. An estimated 10,000 Wide 1 Mode Radarsat scenes are required to provide just single pass coverage of a third of the worlds most prospective offshore basins down to 2000m water depth. Surface slicks appear as dark features on SAR imagery due to the reduction in the backscatter of the radar signal caused by the dampening effect of oil on the capillary waves. Sea surface conditions are therefore critical for seep screening and collection of good quality scenes require careful analysis of the weather conditions prior to image acquisition.

The Caspian Basin has a leaky world-class petroleum system and therefore provides an important case study where SAR data has been successfully used to define the present day petroleum playfairway. The study involved some 80 satellite scenes based on a combination of tandem ERS 1 and 2, Radarsat, and ten year old Landsat TM data. More than 150 potential seep targets were identified of which 25% were associated with repeating point sources (Figure 1). ERS-1 and 2 tandem data was used to differentiate drifting pollution slicks from natural seeps associated with fixed source points. A number of areas contained seepage slicks repeating over a 10 year period (Figure 2). The seep locations were integrated with seismic and gravity data to establish their geological context and evaluate the prospectivity of the basin.

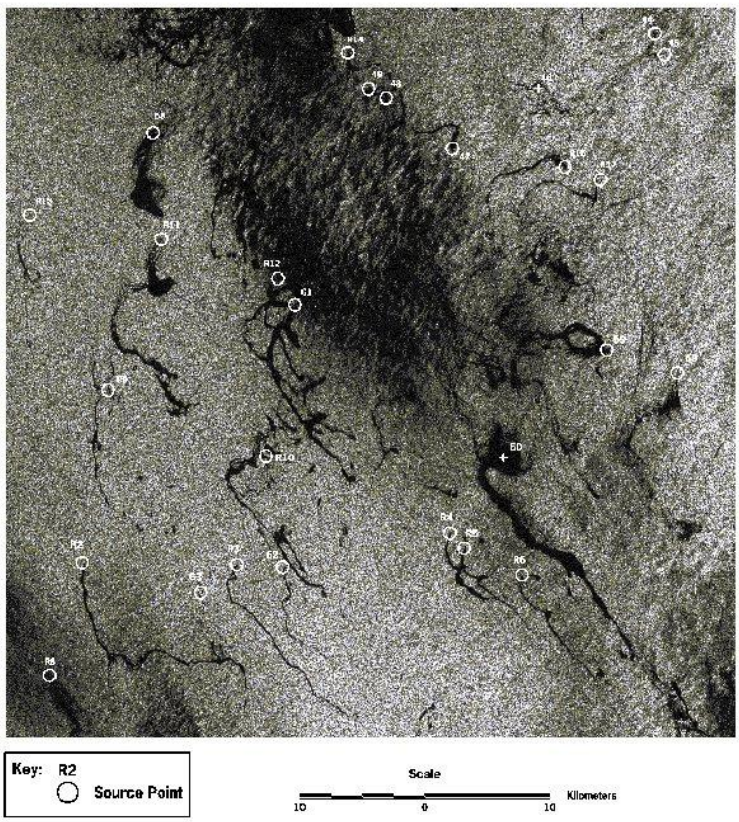


Figure 1. South Caspian Basin Example of Multiple Seeps (ERS data).

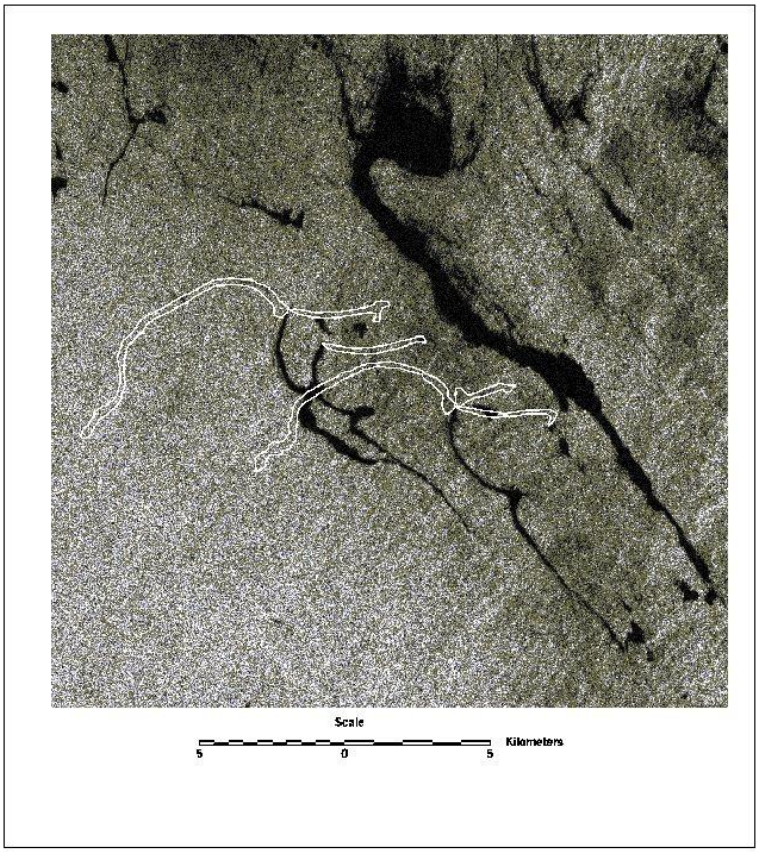


Figure 2. South Caspian Basin Repeat Seeps. 1996 ERS image showing slicks overlain with white outlines of slicks identified on tandem ERS image and 1987 Landsat TM.

GEOMORPHOLOGICAL MAPPING FROM RADAR IMAGERY REVEALS THE DYNAMIC BEHAVIOUR OF FORMER ICE SHEETS

Chris D. Clark

Sheffield Centre for Earth Observation Science (SCEOS)& Department of Geography, University of Sheffield

During the last glacial period, which culminated at around 18 ka BP, continental-scale ice sheets covered most of North America, Fennoscandinavia and Britain. These were of sufficiently large size to modulate global-scale climate and it is now known that glaciological instabilities controlled climate flips on sub-millennial timescales. Understanding the behaviour of such ice sheets is a major goal in terms of reconstructing Quaternary climate change and is also relevant for predicting the stability of the West Antarctic Ice Sheet.

The behaviour and dynamics of palaeo ice sheets are encoded in the landforms that they left behind. Moraines mark former marginal positions and subglacial bedforms such as drumlins record flow patterns and the centres of ice dispersal (their high points). Much of the bedform geomorphology exists at large scales (>10's kms) and covers large areas, and it has been shown than remote sensing captures a greater degree of information than can be observed from aerial photographs alone. Using Landsat imagery for Canada, the bedform geomorphology revealed complex and palimpsest patterns of ice flow that have been interpreted to record major (ca. 1000

km) and dramatic shifts in the centres of mass of the ice sheet through the last glacial.

Recent availability of radar imagery of the beds of former ice sheets has added an important tool for mapping glacial geomorphology. The sensitivity of backscatter to slope angle means that images can contain excellent landform information. The benefits of radar are weighed against difficulties in use and biases in the mapping procedure. Our methodology for automated and visual mapping is outlined.

The effectiveness of these approaches are illustrated in two case studies, one which utilised over 70 ERS scenes of Quebec to reconstruct the dynamics of this sector of the ice sheet, and one that is using ERS data to identify and investigate palaeo- ice streams. These projects have a bearing on the stability of ice sheets to change and our understanding of ice sheet – climate interactions. Palaeo flow direction is also important for mineral prospecting in formerly glaciated terrains.

EROSION AND LANDUSE CHANGE DETECTION USING ERS SAR INTERFEROMETRIC COHERENCE IMAGERY (ESA ERS AO3-113)

Jian Guo Liu, Hoonyol Lee and Timothy Pearson

T. H. Huxley School of Environment, Earth Science and Engineering

Imperial College of Science, Technology and Medicine, Prince Consort Road, London

This paper reports the main findings of ESA ERS AO3-113 project for erosion detection in SE Spain using ERS SAR multi-temporal coherence images. Coherence images derived from fringe pairs with temporal separation from 70 to 526 days of Almeria region and from two one-day tandem pairs of Granada region were analysed in conjunction with interferograms, topographic maps, TM images and geological maps. Evidences of rapid erosion were found

on the slopes of marls where the vegetation cover is nearly none. The comparison between two coherence images of tandem pairs taken across a rainfall event and in dry conditions revealed the dynamics of rainfall/erosion process in relation to slope, lithology and vegetation cover. Large areas of disturbed lands were defined by image features with high coherence in 70 but de-coherence in 140 days. These features closely correspond to the recent massive plantation of olive and almond trees on gentle slopes of phyllites and schists. The stripping off the nature vegetation and surface crust of the land makes the thin soil vulnerable to erosion.

VOLCANO INTERFEROMETRY

Professor G. Wadge

Environmental Systems Science Centre, University of Reading

There is still much to be learnt about what can be achieved by applying InSAR techniques to volcanoes. Eventually methodological and operational strategies will evolve but these are still some way off. Some of the capabilities that have been proven in the last few years are:

- Mapping the thicknesses (> 10m) of new deposits, including lava flows and pyroclastic flow deposits.
- Measurement of thermal contraction histories of lava flows.
- Measurement of ground surface deformation associated with eruptions and modelling of the sources responsible.
- Measurement of ground surface deformation not associated with eruptions e.g. hydrothermal activity and gravity spreading.

There are a number of constraints to further progress. Our ability to understand the surface deformation signals in terms of internal magma behaviour is still elementary. However, it is mainly technical progress that is needed to exploit the volcanological information fully. For example we need:

- Ways of explicitly removing the effects of atmospheric water vapour
- An L-band spaceborne SAR to counter the effects of vegetation
- A single-pass spaceborne SAR to measure dynamic topography (e.g. domes)
- Better-populated archives of SAR data for individual volcanoes.

3RD INTERNATIONAL CONFERENCE ON FUSION OF EARTH DATA

26-28 January 2000

Sophia Antipolis, Cote d'Azur, France

For further information or to submit abstracts, contact:

Fusion Conference Office, Group Teledetection & Modulisation, Ecole des Mines de Paris, BP 207, 06904 Sophia Antipolos cedex, France.

Fax: +33 4 93 95 75 35
Email: fusion@cenerg.cma.fr
Web page: http://www-datafusion.cma.fr/conf

Or contact the EARSel Secretariat: earsel@meteo.fr

AVIRIS WORKSHOP

February 23 - 25, 2000
NASA Jet Propulsion Laboratory

This is the first announcement for the AVIRIS Earth Science and Applications Workshop. The AVIRIS Workshop is a forum to report science research and applications results with spectral images measured by the NASA Airborne Visible/Infrared Imaging Spectrometer (AVIRIS). At the 1999 workshop 75 papers were presented and there were more than 300 attendees.
If you wish to present research, applications, or other results related to AVIRIS, please send me an email (rog@gomez.jpl.nasa.gov) with the title, authorship and a brief abstract.
Information about the workshop will be updated on the AVIRIS website:
http://makalu.jpl.nasa.gov
This website also contains information to request AVIRIS Low Altitude data in the year 2000. To date AVIRIS has flown 47 times in 1999. Results from these data and previous years data will be presented at the 2000 workshop. Topics will include: science research, applications, calibration, engineering, requirements, and data algorithms.
Please inform your colleagues who might be interested in this workshop. A registration form is included with this message. I hope you will be able to join us.
Sincerely,
Robert O. Green
AVIRIS Experiment Scientist

REGISTRATION FORM FOR THE
AVIRIS Earth Science and Applications Workshop
February 23 to 25, 2000

Von Karman Auditorium, Jet Propulsion Laboratory, Pasadena, California
NAME: _____
ADDRESS:_____
_____
_____
_____
EMAIL: _____
PHONE: _____
CITIZENSHIP: _____
PLEASE RETURN FORM BY EMAIL TO: Valentina Grigoryan
Email: valentina@gomez.jpl.nasa.gov
Or Fax (818) 393-4489
Or Mail-Stop 306-336, 4800 Oak Grove Drive, Jet Propulsion Laboratory
Pasadena, California 91109
Tel (818) 354-5615

Robert O. Green Internet: rog@gomez.jpl.nasa.gov
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4800 Oak Grove Dr. Support: Valentina Grigoryan
Pasadena, CA 91109-8099 valentina@gomez.jpl.nasa.gov

28TH SYMPOSIUM ON REMOTE SENSING OF THE ENVIRONMENT

March 2000

Cape Town, South Africa

For further information, contact:
Jim Weber
Tel: +1 410 455 5573
Fax: +1 410 455 5575

Email: isrse@symposia.org

Web page: http://www.symposia.org

GIS 2000 - WISDOM, KNOWLEDGE, VISION

March 13-16, 2000

Metro Toronto Convention Centre, Toronto, Ontario

GIS 2000 is the 14th Annual Conference on Geographic Information Systems. The year 2000 seems an appropriate time to take stock of where the industry has come from and to forecast the future. The wisdom of industry pioneers will be tapped to discuss the origins of GIS, the knowledge of practitioners will demonstrate

innovative and practical applications of present-day technology, and panel discussions will provide vision on the future of geospatial technologies. Following are mini-conference topics.

Topic areas:

o AM/FM, Telecommunications and Utilitieso Business Geographics
o Data and Data Visualisation o Environmental GIS
o First Nations GIS o Fishing and Coastal GIS
o Forestry GIS o History of GIS o Internet GIS
o Precision Farming o Precision GPS How you can participate

Also specify if you would like to:

o Organise a mini-conference; Present a formal paper or poster(s)
o Present a workshop, tutorial or technical tour
o Chair conference session(s)
o Participate in/organise a visionary panel
o Organise an industry theme session (vendors and consulting groups only)

All submissions should be made via our online abstract submittal form, which can be found on our Web site (www.GIS2000.com).

The deadline for submissions is September 30, 1999. Further details regarding the submission process appear on the Web site. If you have any questions, please contact us at: Phone: 303-544-0594, E-mail: info@GIS2000.com

REMOTE SENSING AND HYDROLOGY 2000

2-7 April 2000

Dresden, Germany

Contact: EARSel Secretariat
Tel: +33 1 45 5 673 60
Fax: +33 1 45 56 73 61

Email: earsel@meteo.fr

RISK 2000

SPACE TECHNOLOGIES FOR THE MANAGEMENT OF MAJOR RISKS AND THEIR CONSEQUENCES

6-8 April 2000

UNESCO Hq Paris, France

Organised by EARSeL, Prospective 2100 and the Ecole des Mines de Paris
Contact: EARSel Secretariat

Tel: +33 1 45 5 673 60
Fax: +33 1 45 56 73 61
Email: earsel@meteo.fr

SIXTH INTERNATIONAL CONFERENCE REMOTE SENSING FOR MARINE AND COASTAL ENVIRONMENTS

1-3 May 2000

Charleston, South Carolina, USA

Abstract deadline: October 4, 1999. Electronics submissions to:
http://www.erim-int.com/CONF/marine/MARINE.html or

Email: marine@erim-int.com or write/fax to:

ERIM/Marine Conference
P.O. Box 134008
Ann Arbor, MI 48113-4008, USA Fax. +1 734 994 5123

SECOND EARSEL WORKSHOP ON IMAGING SPECTROSCOPY *From air to space*

11-13 July 2000

ITC, Hengelosestraat 99, Enschede, the Netherlands

The second EARSeL Workshop on Imaging Spectroscopy is a follow-up of the first of it's kind held in the fall of 1998 at Remote Sensing Laboratories of the Technical University of Zurich (ETHZ). The workshop will be hosted by the International Institute for Aerospace Surveys and Earth Sciences (ITC) in Enschede and co-organized by two EARSeL SIG's: the special interest group on Imaging Spectroscopy (Chaired by Andreas Mueller) and the special interest group on Geological Applications (Chaired by Freek van der Meer. The turn of the millennium marks the onset of a new era for imaging spectroscopy as the first measurements from spaceborne instruments become available to the science community.

The EARSeL workshop also relates to events organized within the framework of the 50th anniversary of ITC (see http://www.itc.nl/). Alternatively, registration/abstracts can be mailed or faxed to the workshop secretariat at ITC or to the EARSeL secretariat in Paris. Exhibition A commercial and professional exhibition will be organized as part of the Workshop. Details can be found on the website or by sending a request for information to the local secretariat. Those that wish to sponsor are also instructed to the web-pages or to the above addresses. Alternatively you can leave us a message at IS2@itc.nl.

Register or submit abstracts electronically now at: http://www.itc.nl/is2/
Deadline for abstracts 15 December 1999; Notification of authors 15 January 2000; Preliminary programme 11 July 2000, Deadline for Papers 11-13 July 2000

Details from: Location: Daniela Semeraro, ITC EARSeL IS2 secretariat
P.O. box 6 7500 AA
Enschede, the Netherlands
fax: +31-53-4874400
phone: +31-53-4874444 email: IS2@itc.nl

The meeting is timed such that participants can also attend the 19th Congress of the International Society for Photogrammetry and Remote Sensing (ISPRS) *Geoinformation for All,* that takes place in Amsterdam from 16-23 July 2000 with on-site workshops and tutorials on 14 and 15 July 2000 (see http://www.itc.nl/~isprs).

19TH ISPRS CONGRESS – GEOINFORMATION FOR ALL

16-23 July 2000

Amsterdam, Netherlands

Manuscript deadline: March 2000 Preliminary programme: April 2000

For further information, contact: Prof. Klaas-Jan Beck or Secretary: Dr Freek D. van Meer, ITC Hengelosestraat 99, P.O.Box 6, 7500 AA Enschede, The Netherlands.

Fax: +31 53 487 4335 Email: isprs@itc.nl

19TH ISPRS CONGRESS - GEOINFORMATION FOR ALL - ISPRS 2000

16-23 July 2000

Amsterdam, The Netherlands

Deadline for manuscripts: March 2000; Preliminary programme: April 2000.

Contact: Prof Klaas-Jan Beck or Secretary - Dr Freek D. van de Meer, ITC Hengelosestraat 99, P. O. Box 6, 7500 AA Enschede, The Netherlands.

Fax: +31 53 487 4335 Email: isprs@itc.nl

Web page: http://www.itc.nl/~isprs

BRAZIL 2000 - 31ST INTERNATIONAL GEOLOGICAL CONGRESS

6-17 August 2000

Rio de Janeiro, Brazil

For further information, contact: Secretariat Bureau, Av. Pasteur, 404, Casa Brazil 2000, Urca Rio de Janeiro, RJ, Brazil, Cep 22.290-240
Tel: +55 21 295 5847
Fax: +55 21 295 8094

Email: 31igc@31igc.org
Web page: http://www.31igc.org

Among its activities, four General Symposia will be devoted to Geological Remote Sensing:

15-1: Remote Sensing and Geologic Applications: Case Histories
15-2: Remote Sensing in Mineral and Petroleum Exploration
15-3: Hyperspectral Remote Sensing
15-4: Microwave Remote Sensing

More info about the 31st IGC (Rio´2000) can be found at: http://www.31igc.org

The 2nd Circular is due to be release soon and those willing to receive it contact: 31igc@31igc.org

Fourth International Airborne Remote Sensing Conference and Exhibition / 21st Canadian Symposium on Remote Sensing

Ottawa Canada, 21-24 June 1999

Andy Fraser,

Integrated Statistical Solutions

This conference, organised by ERIM, is held approximately every 18 months. It is a unique international conference that brings together airborne technology developers, data and information service providers, software vendors, and end users. As such it provides a valuable snapshot of the whole airborne remote sensing sector.

This, the fourth of this series of conferences, was held in Ottawa. There was a broad international attendance, with delegates from Australia, Europe, South Africa, Asia, Russia and America. It was particularly encouraging to see strong representation from South Africa across a number of sectors from traditional mineral exploration to agriculture and defence. The UK was strongly represented at the conference with delegates from NERC, Environmental Agency, Newcastle University, Air Reconnaissance Ltd., NRSC, and Integrated Statistical Solutions Ltd, amongst those attending.

There was a wide range of airborne technologies on show, some of which are established and some, (Of which LIDAR is a good example.) that are obviously expanding rapidly in availability and use. There were a number of technologies that require merit particular attention:

LIDAR: It was clear from the exhibition and presentations that LIDAR is rapidly becoming an established technology in a number of applications sectors. There were interesting displays of corridor mapping, civil engineering, and flood mapping, all of which appeared to be of a practical commercial nature. General conversation of delegates seemed to reinforce the impression of a technology whose foundation would grow rapidly in the near future with increasing numbers of units becoming commercially available, leading to reduced data costs. (Small service providers get ready to exploit this technology !!!)

Digital Cameras: DLR exhibited a number of excellent photogrammetric case studies involving their recently developed system. The quality of the imagery was stunning, and the photogrammetric quality of the product was very good. There were a number of other such systems being reviewed, showing a clear trend towards the use of a technology that has many operational advantages over traditional analogue photography.

Hyper-spectral scanners: The Itres' CASI sensor continued to dominate commercial hyperspectral scanner applications at the conference. There were a number of application papers concerning this sensor, and a number of presentations of the new CASI-2 sensor. Other prominent sensors included HYMAP, and the Finnish SPECIM instrument.

INS Technology: Although not imaging technology itself, it appears obvious that the proliferation of commercially available Inertial Navigation Systems (INS) into remote sensing aircraft will have a significant impact on the commercial airborne remote sensing. Use of this technology significantly reduces aircraft motion distortion effects, and coupled with GPS allows real-time geocoding of imagery to be made. As a result value added 'GIS ready' products can be generated much more efficiently.

There was a wide range of presentation and poster sessions during the conference. These included a wide range of topics from the evaluation of new signal and image processing techniques, through to focused case study papers.

A number are of particular topical interest, and indeed technical success regarding the use of hyperspectral data for water quality assessment. There were a number of papers on this topic. All the authors were picking up on the ability of hyperspectral sensors to detect Chlorophyll A and B in the water column.

There were interesting contributions from South Africa concerning the use of low cost multispectral scanners for crop monitoring. Of particular interest was the rapid and efficient way in which data could be collected, and processed.

Airborne SAR still appears not to be delivering its true commercial potential. There were a number of exhibitors including DLR, and Dornier.

Summary

In summary, the exhibition was worth attending. The message from the conference is that airborne remote sensing is becoming increasingly commercially viable, and that sensors such as LIDAR and hyperspectral instruments will increasingly provide a significant source of new and valuable data.

GRSG Presentation to the NW Geological Society

Warrington, 18th March 1999

Andy Fraser

Integrated Statistical Solutions

The NW branch of Geolsoc. approached Stuart Marsh, inviting the GRSG to make a presentation at an evening meeting on the subject of 'Developments in remote sensing and its applications.' It was agreed that Andy Fraser of Integrated Statistical Solutions give this presentation on the basis that ISS's current remote sensing applications in the area of pipeline inspection, closely matched the interest of a number of NW branch members.

The presentation went ahead at Warrington on the evening of 18th March. Attendance was approximately 30. AF presented a number of new and future space and aircraft sensors, including IKONOS 2, Earthwatch, airborne thermal, LIDAR, and imaging spectrometer systems. Following on from this AF presented a number of case studies. These included;

- The use of satellite data for mapping urban change in 3rd world countries.
- The use of thermal imagery for water pipeline leakage detection.
- Use of imaging spectroscopy for crop loss evaluation.
- Use of 3D data for corridor route evaluation and visual impact assessment.

The presentation lasted approximately 40 minutes. After the meeting there was a number of questions from the audience. These questions were fairly wide ranging. There was a great deal of interest in the new, high resolution satellites, with particular interest in the comparison with air photography, the capabilities of the system's very near IR band, and it's 3D capability. There was also a lot of interest shown in CASI imagery, in particular the application of this to land-use, crop loss and contaminated land.

In conclusion, there appeared to be a genuine interest in remote sensing technology. Significantly from a commercial view-point there was definite interest in data cost, and the practical delivery of information from remote sensing sources.

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