

# RSPSoc NEWSLETTER

Number 18, October 2005



The RSPSoc is a Registered Charity

# **TABLE OF CONTENTS**

	Page No
Editorial	2
Society News	3
Council News	7
Letter to the Editor	8
News and Views	9
Corporate Members' News	13
Industry News	15
Reports of Meetings	17
Conferences	19
The Medmenham Club and the Medmenham Collection	22
ISPRS News	23
The Photogrammetric Record: Table of Contents	24
The Photogrammetric Record: Editorial	24
IJRS: Table of Contents	26
Corporate Members	31

#### **Front Cover Image:**

A large alluvial fan spreads out across the desolate landscape between the Kunlun and Altun mountain ranges that form the southern border of the Taklimakan Desert in China's XinJiang Province. The left side is the active part of the fan, and appears blue from water currently flowing in the many small streams. This ASTER image was acquired May 2, 2002, covers an area of 56.6 x 61.3 km, and is centred near  $37.4^{\circ}$  N,  $84.3^{\circ}$  E.

Credits: NASA/GSFC/METI/ERSDAC/JAROS and U.S./Japan ASTER Science Team

## **EDITORIAL**

A number of Special Interest Groups (SIGs) were set up some years ago by the then Remote Sensing Society. The idea was that they would provide a clearer focus on research-related activities for members of the parent society. That, I suppose, remains the position, with one-day specialist meetings being organised by SIGs and the more generalist Annual Meeting as the Society's "days out". This arrangement seems to have worked well until recently. We now have SIGs in Archaeology, GIS, Geology, Models and Advanced Techniques, NAPLIB, Ocean Colour and SAR. Of these, the SAR SIG does not have a convenor, and Archaeology, GIS, and Models and Advanced Techniques haven't held any meetings at all. On the other hand the Geological Remote Sensing Group (which acts as a SIG but is also partly "owned" by the Geological Society) is going well, with sessions at the EARSeL Symposium in Dubrovnik, RSPSoc 2004 at Aberdeen, plus a two-day meeting at the Geological Society of London. It seems to be almost a parallel society, with a newsletter and a subscription. The Ocean Colour SIG held a one-day meeting in London on the theme of *Sensing and Mapping the Marine Environment*. The Technical Programme in the last issue of the Newsletter features the Annual Conference, meetings of the NAPLIB and Geological SIGs, an evening lecture (joint with RICS) and a three-day meeting jointly with SEB (Society for Experimental Biology).

Meetings and symposia are a measure of the health of an academic and professional society. If few meetings are held other than the Annual Conference then most of the membership will have very little contact with their fellow members (surely, conference opportunities and meeting other researchers/professionals is the main reason for joining a society!). I wonder if there are some people reading this editorial who couldn't, with a bit of help, organise a new SIG, and arrange two meetings a year. There are plenty of areas of interest for SIGs, either subject-matter oriented such as forestry, or methodological such as change techniques, or data oriented (such as hyperspectral or lidar). The third of this latter group (data oriented SIGs) could include calibration/validation activities. The NERC Centres of Excellence might give a lead as part of their raison d'être is to disseminate ideas; doing this via the Society's SIGs seems to be one obvious route.

You will see from the Chairman's Message in this issue – written quite independently of this editorial! - that the topic of SIGs was prominent at the Annual Conference in Portsmouth. SIGs should be like biological organisms, with youthful, mature, and old age stages, followed by death and preceded by birth. One new SIG (on LiDAR) has been formed and is open for business (see page 7) and four potential new SIGs have been proposed - Stuart Marsh lists the contact names in his message. I hope that younger members will channel some of their enthusiasm and energy into the SIGs and keep up the tradition of one-day meetings.

Paul Mather

Material for inclusion should be sent to the Editor by: 1<sup>st</sup> March for publication in April; 1<sup>st</sup> June for publication in July; 1st September for publication in October; and 1<sup>st</sup> December for publication in January. Articles for the Newsletter should be sent preferably by email to the Editor or to: Karen Laughton, at the RSPSoc Office, c/o School of Geography, The University of Nottingham, University Park, Nottingham NG7 2RD (UK) (<u>rspsoc@nottingham.ac.uk</u>).

Items for the RSPSoc Newsletter are accepted in good faith and the RSPSoc takes no responsibility for any inaccuracies that occur in the original material of submitted articles. For further details on advertising in the Newsletter, membership enquiries, subscription rates and subscribing to the RSPSoc Bulletin Boards, see the Society's web page: <u>http://www.rspsoc.org</u>

# SOCIETY NEWS

#### **Chairman's Message**

Welcome to the first Newsletter after a successful RSPSoc 2005 at Portsmouth University. After an excellent week on the south coast, the Society owes Richard Teeuw and his organisers a debt of gratitude, a vote of thanks and a rest. As he was elected to Council at the AGM, it will be shorter than he might wish! I look forward to welcoming him to the October meeting with David Holland, Samantha Lavender, Paul Zukowskyj and Jonathan Shears, beginning his second term. My congratulations go to all five. The AGM also introduced Philippa Mason, the new Honorary General Secretary and Paul Aplin as Vice Chairman, joining your ever-dependable Treasurer, Robert Taft, and me in a new-look Executive Committee. As well as those completing their terms, Ian Downey came off Council and Jon Finch stood down as our Honorary General Secretary. Both gave many years of distinguished service to the Society and I thank them both for their hard work on your behalf. Their achievement in establishing the new Society speaks volumes. They will be sorely missed but, with this Council and Executive Committee in place, I know that we are set to build on their legacy.

A Conference review will be included in a future Newsletter. I will simply reflect on some of the ways in which the Society's objectives were furthered. A positive feature of the conference was the way that it built on our strong external relations, featuring joint sessions with NERC and with ISPRS Working Groups. You can read in the next issue issue how happy NERC were to collaborate over this event and how pleased they were with the outcome. We share that pleasure and hope that the outcome will encourage future cooperation. Our ISPRS connections are also important and all the more so while Professor Ian Dowman of UCL is ISPRS President. With nine ISPRS Working Group's co-chaired by UK scientists, collaboration is only likely to grow.

Special Interest Groups were a common thread running throughout. The Geological Remote Sensing Group and the Ocean Colour SIG had significant roles in ensuring a strong programme. Beyond that, the future of existing SIGs and the potential for new SIGs were topics on many occasions; in the stimulating speech by Ordnance Survey's DG Vanessa Lawrence at the Annual Dinner; in the AGM and subsequent Chairman's Half-hour; and even more importantly, in the bars and restaurants of Portsmouth after hours! People wanting to be in at outset of four likely, new SIGs should contact Sarah Smith at OS (Laser Scanning), Heiko Balzter at CEH (Vegetation), Danny Donoghue at Durham (Unmanned Aerial Vehicles) or Ted Milton at Southampton (Calibration and Validation). There was also much interest in revitalising Models and Advanced Techniques (Giles Foody at Southampton would be pleased to hear from you) and SARSIG (likewise, Andy Sowter at Nottingham). Exciting times for the Society!

On the Thursday, delegates may have been surprised at being accosted by a couple of people in jeans and T-shirts from Purple Dogfish. This company won the competition to redesign the RSPSoc website and wasted no time in seeking your views. Postcards were filled in during the event and you can add your views to the debate by emailing <u>info@purple-dogfish.co.uk</u>. It's your Society and your website, so please help us to get it right by having your say. The success of this year's Annual Conference shows just what we can achieve if we make the most of our opportunities. Attendance was up by 38% and there were many new members joining, as well as renewals, both in the run-up to and during the conference. Oral and poster presentations continue to improve in quality and also in quantity. Help us to build on this success next year, in Cambridge.

Stuart Marsh

#### **RSPSoc Awards**

A full listing of this year's Award recipients is recorded in the Annual Review, April 2004 - March 2005 previously distributed to all members. The following awards were presented at the Society's Awards Ceremony on Wednesday 7<sup>th</sup> September 2005 as part of RSPSoc2005, on board HMS Warrior in Portsmouth, UK:

#### The Remote Sensing and Photogrammetry Society Award:

For 'Services to Remote Sensing and/or Photogrammetry' through sustained and distinguished contributions to furthering the science and applications which use remote sensing or photogrammetry. The terms of the award state 'to be awarded on an occasional basis and never more than once in any year'. This award consists of a suitably inscribed Gold Medal and Honorary Membership of the Society for Life.

John W. C. Gates BSc, MSc, DSc, DIC, CPhys, HonFRPS.

Citation - For Services to Remote Sensing and Photogrammetry



John Gates receives the Gold Medal of the Remote Sensing and Photogrammetry Society Award from the President, Prof. David Rhind. © Copyright P. R. T. Newby.

John Gates was born in December 1922. He has been a member of the Society for 25 years. He was awarded the Photogrammetric Society President's Medal in 1983. The Citation for that Award can be found in the *Photogrammetric Record*, 11 (63): 328-329 for April 1984. John Gates served as President of ISPRS Commission V from 1980 to 1984, presiding over an extremely successful Technical Symposium of ISPRS at York in 1982.

His career with Ilford, the Royal Aircraft Establishment and the National Physical Laboratory was distinguished. After retirement from the Civil Service, he held a visiting professorship at University College London. Although a good impression of Gates's work may be obtained from the Photogrammetric Record citation, it should be added that his profound knowledge of optics and his rigorous approach to the subject had the distinction of drawing the attention of Dr Dow Smith, one of the key scientists working on the Corona satellite programme for the Itek Corporation in America.

In the first half of the 1960s, John Gates had brought attention to basic wave optics limitations in information transfer at a meeting of the Institute of Physics Optical Group. As a result of this, and other comments he had made on the subject, in 1966-67 Dr Dow Smith attempted and almost succeeded in persuading John Gates to join Itek. Had this happened, he would have joined the small and elite group of scientists working on the, then, very advanced Corona camera system, but instead family events intervened. As a result, Gates remained in England where he continued a very distinguished career in optics and metrology.

In the succeeding years many people have had cause to thank John Gates for the benefit of his help and insight into photographic science and optics and for the very high professional and academic standards he has always set. He has supported the Society and the discipline in several ways, not least by his regular attendance at meetings over many years. It would seem appropriate that his contribution should be recognised by awarding him the Society Award, the highest award made by the Remote Sensing and Photogrammetry Society for his contributions to physics, optics, photography, photogrammetry and holography.

#### Founders' Award:

An award linked to the names of departed Founders for those who have made significant, original and personal contributions to the Society. Awarded occasionally by resolution of Council. This award consists of a Silver Medal and a cheque for  $\pounds 250$ . This award is made on an occasional basis.

Madeleine Godefroy (EARSeL)

Citation - For Services to the Remote Sensing and Photogrammetry Society

Madeleine Godefroy is the outgoing secretary of EARSeL - the European Association of Remote Sensing Laboratories. She has provided continuous and long standing, committed support to the members and to Council and Bureau of EARSeL since 1981 when she was appointed as the first full time secretary. In parallel to over 25 years of dedicated support to EARSeL, Madeleine has been a staunch supporter of both RSS and now of RSPSoc, ensuring that technical meetings and Society business are reported swiftly and accurately to EARSeL and that the Society is kept aware of European developments. Madeleine has even gone so far as to travel from France to attend and help assist coordination at almost every Society annual conference since the mid 1980s. This has been of immense practical and moral support to Karen Laughton and all the Society office staff over a considerable period, and her cheerful and efficient presence on the registration desk was always appreciated by delegates. Consequently, the Society has enjoyed excellent support, and wonderful friendship, which the Society seeks to reciprocate in full whenever possible. It is with great pleasure that the Society thanks Madeleine for everything she has given to the remote sensing community over the years, especially to the Society, and wishes her well in her retirement.

#### The Len Curtis Award:

For an outstanding technical publication published in the preceding year in the International Journal of Remote Sensing. Certificate and books to the value of £200, normally sponsored by Taylor and Francis. This reporting period coincides with the publication of the  $25^{\text{th}}$  Volume of the International Journal of Remote Sensing.

Awarded to: BHP Maathuis and JL van Genderen, "A review of satellite and airborne sensors for remote sensing based detection of minefields and landmines", IJRS 2004, Vol 25, (23), pp 5201-5245.

#### **E H Thompson Award:**

Awarded to the author(s) of the paper in The Photogrammetric Record which most merits the award. The award will be made primarily for the originality of the content and the value of the paper to photogrammetry. It will be made from all those eligible papers published in the two-year period up to and including April of the year in which the award is to be made. Certificate and cheque for £200:

Awarded to: A Grün, F Remondino and L Zhang (2004): Photogrammetric Reconstruction of The Great Buddha of Bamiyan, Afghanistan, The Photogrammetric Record, Vol. 19 (107): 177-199 (September 2004).

#### The Taylor and Francis Best Letter Award:

For the best letter published in the International Journal of Remote Sensing during the previous calendar year. Certificate and one year's free subscription to the International Journal of Remote Sensing or books to the value of £100. Sponsored by Taylor and Francis. This reporting period also coincides with the publication of the  $25^{\text{th}}$  Volume of the International Journal of Remote Sensing.

Awarded to: L. Manzo-Delgado, R. Aguirre-Gómez and R. Álvarez, for the paper: "Multitemporal analysis of land surface temperature using NOAA-AVHRR: preliminary relationships between climatic anomalies and forest fires", IJRS 2004, Vol 25 (20) pp. 4417 - 4424

#### The Student Awards:

For the best Doctoral and Masters theses, on the subjects of remote sensing and/or photogrammetry, accepted by a University during the previous calendar year and restricted to student members of the Society. Nominations should consist of a bound copy of the thesis together with a letter of recommendation from the supervisor stating why the thesis is worthy of the award and what original and noteworthy contributions have been made. Certificate and cheques for £500 (Doctoral) and £250 (Masters). These awards are sponsored by: Leica Geosystems GIS & Mapping Limited.

- PhD: G Sohn (UCL, London), "Extraction of Buildings from High-Resolution Satellite Data and Airborne LIDAR"
- MSc: G Schumann (University of Dundee), "The use of ASAR VH data for effective calibration of a 1-D flow routing model"

#### **Poster Paper Prize:**

For the best poster paper displayed at the Annual Conference of the Society. A main award of £100 and a runner-up merit award of £25. Sponsored by the Society.

The following were awarded at RSPSoc2004 - Mapping and Resources Management, 7 - 10 September 2004, Aberdeen, UK:

- Main Award (£100): "Forest fires in Central Siberia and their impact on emissions of greenhouse gases", H Balzter, C George, C Rowland, F Gerard, I McCallum, A Shvidenko and C Schmullius, (Centre for Ecology and Hydrology, UK)
- Merit Award (£25): "The relationship between the spectral and spatial dynamics of wetland vegetation", C O'Shea, S J Wintertottom and N J Willby (University of Stirling)

#### Professional Membership (FRSPSoc and AFRSPSoc) of the Society:

- FRSPSoc Dr C H Power was elected as a Fellow of the Society
- AFRSPSoc Dr A B Hart was elected as an Associate Fellow of the Society

#### **Travel Bursaries:**

For travel which supports the aims of the Society, especially towards part of the costs of student and younger members of the Society who are presenting papers at international conferences. Variable sums of money ( $\pounds$ 50 -  $\pounds$ 250).

Ms H Mehner (University of Newcastle), to attend the ISPRS Congress, 12-23 July 2004, Istanbul (£200)

Mr R Eyers (University of Newcastle), to attend the ISPRS Congress, 12-23 July 2004, Istanbul (£200) Dr S J Buckley (University of Newcastle), to attend the ISPRS Congress, 12-23 July 2004, Istanbul (£200)

Mr E Wallington (University of Edinburgh), to attend IGARSS 2004, 20-24 September 2004, Anchorage (£200)

Mr J Walstra (University of Loughborough), to attend the ISPRS Congress, 12-23 July 2004, Istanbul (£200)

Mr Shih-Yuan Lin (University of Newcastle), to attend the SPIE Symposium, San Jose, USA, 16-20 January 2005 (£200)

Dr D Barber (University of Newcastle), to attend the ASPRS Conference, Baltimore, USA, 6-13 March 2005 (£50)

Mr D Hetherington (University of Salford), to attend the 7<sup>th</sup> Int. Ass. Of Hydrological Sciences Assembly, Fez do Iguacu, Brazil, 3-9 April 2005 (£50)

#### HOW TO APPLY FOR THE RSPSoc AWARDS

The Society's Awards and Professional Standards Committee manages the awards scheme and welcomes constructive dialogue with and enquiries from all members of the Society on any aspects of the awards. At this time, members are invited to make nominations for the undernoted, all of which will be presented at the 2006 Awards ceremony in Cambridge.

- The Remote Sensing and Photogrammetry Society Award
- The Len Curtis Award
- The EH Thompson Award
- The Student Awards

Nominations for these awards should be sent to the Society's office in Nottingham and must be received no later than 31<sup>st</sup> January 2006. In the case of the Remote Sensing and Photogrammetry

Society Award, the nomination should be set out on not more than two sides of A4. For the Len Curtis Award and the E.H. Thompson Award, copies of the nominated publication should be accompanied by a brief explanation of its significance and contribution. The requirements of nominations for the student awards are set out above in the preceding summary of awards. Applications for RSPSoc Travel Bursaries can be made at any time using a form, which can be obtained from the Society's Office in Nottingham or is on the web. The Society's Awards and Professional Standards Committee will evaluate and adjudicate all the nominations and applications.

#### **RSPSoc Education Committee**

In parallel to the re-design and development of the RSPSoc website the Education Committee is planning to create an Education and Awareness area on the website. This will give general public awareness information on remote sensing and photogrammetry and how it can be used with links to more specific sub-areas for primary, secondary and tertiary education providing material and resources that could be used by school teachers and lecturers. In order to do this effectively we need content, expertise and members of the Society who would be willing to join the Education Committee and be involved in putting this web material together. Therefore if you are involved in education and training or web-design and feel that you would be able and willing to contribute to and be involved in this initiative please contact the Chairman of the Education Committee, Dr Clare Power (clare.power@bris.ac.uk), School of Geographical Sciences, University of Bristol, University Road, Bristol BS8 1SS, UK.

#### New Special Interest Group (LiDAR)

A new Special Interest Group for LiDAR (laser scanning) has been established, chaired by Dr Sarah Smith and Dr Doreen Boyd (Ordnance Survey). The aim of the group is to identify the common areas of LiDAR research within the United Kingdom and to encourage collaboration between members. Through the SIG there will be the opportunity for LiDAR instrumentation providers, commercial organisations and academic institutions to come together. Likely areas for joint research include: waveform LiDAR for feature extraction, the use of intensity data for classification, the fusing of LiDAR and imagery, and the registration of terrestrial and airborne datasets. The SIG will also seek to produce material for educational purposes.

A one-day workshop is to be run at Ordnance Survey (Southampton) on Friday 16<sup>th</sup> December. The workshop will identify those areas of research members wish to collaborate on, funding opportunities, and potential publications. A further aim of the group will be to encourage involvement with ISPRS and ASPRS.

Those interested in participating in the workshop should contact Sarah Smith (<u>Sarah.Smith@ordnancesurvey.co.uk</u>) for more information. Full registration details will follow shortly.

#### **COUNCIL NEWS**

Council met on 12<sup>th</sup> July at University College, London. This was the last meeting prior to the Society's AGM in September at Portsmouth. Probably the most significant matter on the agenda was the proposal for the Society's new website. The Executive Committee, together with Jon Shears, had met that morning to evaluate the three tenders that had been received. Included in their deliberations was information from the current webmaster, Martin Wickett, and others. As a result, they were able to make a recommendation to Council which, after some discussion, Council accepted. Detailed negotiations will now take place with the preferred supplier and it is anticipated that information about the new website will be available at the time of the AGM.

The draft Annual Review was presented by Jon Finch and the draft accounts by Robert Taft. These were both accepted by Council and will be distributed to all members well in advance of the AGM. Council elects the ex-officio members annually and voted to re-appoint Stuart Marsh as Chairman and Robert Taft as Honorary Treasurer. In addition Paul Aplin was appointed Vice-Chairman and Philippa Mason as Honorary General Secretary.

Robert Taft drew Council's attention to the continuing delay in member's renewing their subscription and pointed out the consequent impact on the Society's net cash flow which might result

in having to draw on the Society's investments. Council agreed that further effort would be put into reminding members to pay their subscriptions promptly.

The Society is the UK's adhering body to the ISPRS. However, the RICS and ICES also pay one third shares of the UK's ISPRS subscription fees, and so all three Societies nominate two members to the RSPSoc ISPRS Committee. The chairman of the committee is appointed by the RSPSoc. Council decided that in 2005/06 Stuart Marsh should continue as the chairman of this committee and Robert Taft and Jim Chandler were nominated as the RSPSoc's two committee members for this session.

In reporting the recent activities of the Education and Training Committee, Clare Power pointed out that, so far, no one had been identified to replace her as convener of the committee when she comes to the end of her second term on Council at the AGM. Council discussed the matter but were unable to identify a solution, a matter of concern given the importance of this committee to delivering the Society's objective. Nevertheless this committee is very active and a number of new initiatives are in progress.

Council again addressed the issue of a number of the SIGs that appear not to be active currently and determined that, should evidence of activity not be forthcoming, these would be closed down. More optimistically, there is the possibility of a new SIG being formed and Samantha Lavender will continue to liaise with those trying to form it.

Council was very encouraged by the report on progress in organising RSPSoc2005. In particular, the organiser, Richard Teeuw, was congratulated on the number and quality of the presentations and on the range of other activities that were planned. There is some concern that the confirmed income from sponsorship is less than last year but additional effort will be put into seeking to increase this. The venues for the annual conference for the following three years were confirmed and initial planning was taking place for RSPSoc2006.

This was the last Council meeting for Crona O'Shea, Clare Power and Jon Finch. Council expressed their appreciation and thanks for the commitment and effort they had put into the Society.

Jon Finch

#### LETTER TO THE EDITOR

Tuesday, 30 August 2005 RE: Hastening the Demise of the Discipline

It should be the duty of every member of this society, to hasten the demise of our discipline. You'll think me mad for suggesting such a thing, I know, but let me explain by way of example.

I was surprised to find during my first semester as a physics undergraduate (many years ago now) that my physics degree would not contain a course on generating power from nuclear reactors. This was not physics, I was told, but <u>engineering</u>. I liked that. Gazing past the air of superiority readily apparent in the lecturer who told me this interesting observation, I recognised how wonderful it was that a subject should graduate from the realms of research to the "everyday". Nuclear power had matured into something that was done, rather than something that was thought or talked about. It was engineered. It was working. It was being put into practice. No longer being tweaked and refined in a laboratory (although clearly this still takes place to some degree). So the physicists had moved on too. They were onto other stuff. More interesting. Cutting edge. State of the art. But the field of nuclear physics didn't fade away. Physics certainly didn't disappear. It evolved and kept sprightly and dynamic, pushing the boundaries, as it had always done. In the context of power, it was fusion not fission that physicists were now investigating.

So this is my role model. You might say that I am simply espousing the ambitions of "operationality" in remote sensing. But it's more than that. With a stagnant membership, many rival societies and a parallel stream of NERC-fed Earth Observation scientists (most of whom, I'll wager, are not members of the RSPSoc), we have to ask some pertinent questions about the value and significance of the Society in our modern age. We have to consider moving on and, if need be, dropping some of the baggage accumulated over the decades. The RSPSoc has to learn to keep up. When it was born, the society was modern, forward looking, ground breaking. It has an established journal to its name and has held some excellent conferences (Portsmouth 2005 potentially being one of them, I should add). So why do we have no more members than we did a decade ago? I suggest it's because the Society has so much inertia it can't move on. It's weighed down by clinging onto old missions inherited from both former societies. And it's held back by a minority of people who define who they are by the words of

their discipline. A long time ago, the society was ahead of its time. In the meantime, everyone (and everything) else has caught up.

So let's take the plunge and hasten the demise of our disciplines. Let's drop the "remote sensing and photogrammetry" label and become an Earth Observation Society. This would be a bold move to tackling a new century of scientific problems, increase our membership and inevitably provide a healthier and forward looking society. Perhaps, even, it would be ahead of its time, .... for a while at least.

Iain Woodhouse i.h.woodhouse@ed.ac.uk

## **NEWS AND VIEWS**

#### **UN Environmental Program (UNEP) Atlas**

The UN Environmental Agency, UNEP, published an atlas of satellite images, called "One Planet, Many People", in early June 2005, to mark World Environment Day. The images show environmental change over a period of 20 years or so. The images generated some media interest – *The Times* ran a double-page spread in its issue of 4 June, and the BBC showed some of the image pairs in its news broadcasts of the same day. Sedimentation as a result of increased agricultural activity, changes in farming practices, urban expansion and the shrinking of icecaps are some of the topics used to illustrate aspects of environmental change. The atlas was produced in collaboration with the US Geological Survey and NASA. The UNEP web page describing the atlas and providing download details is: http://www.unep.org/Documents.Multilingual/Default.asp?DocumentID=434&ArticleID=4806&l=en.

#### **New RADARSAT Ground Stations**

RADARSAT International has signed two new network station licensing agreements. New network stations are the Nato Undersea Research Centre (NURC) of Italy, and the Astana station of the Space Research Institute (SRI) of Kazakhstan. One-year renewal agreements are with South Korea and an unnamed station in Asia. The addition of NURC and SRI increases the global network of RADARSAT-1 ground receiving stations to 26. One of the hallmarks of the RADARSAT-1 program is the near-real time delivery of data to operational users requiring time-sensitive information. Data is processed and delivered within 1 - 4 hours after downlink to the nearest network station. The near-real time service is used internationally in surveillance and monitoring programs that involve activities such as ship detection, disaster assessment and management, and sea ice mapping. [Source: news.eoportal.org]

#### **Alliance for Earth Observations**

The Alliance for Earth Observations is a publicly and privately funded initiative of the Institute for Global Environmental Strategies to promote the understanding and use of land, air and sea observations for societal and economic benefit. It has the aim of serving as a link between the private sector, the government and the general public. The Alliance strives to ensure that systems developers, data and information providers, and researchers and users are all involved in the development and application of future observation and warning systems. More information at <a href="http://www.strategies.org/alliance/">http://www.strategies.org/alliance/</a>.

#### **Shaun Quegan Interview**

ESA's Observing the Earth web page at <u>http://www.esa.int/esaEO/</u> contains an interesting interview with Professor Sean Quegan, Director of the Sheffield Centre for Earth Observation Science (SCEOS – see <u>http://www.shef.ac.uk/~sceos/</u>).

#### **Google Earth and MSN Virtual Earth**

Google now offers mapping, including overlay and search for specific businesses such as restaurants at scales from global to local. The maps are, in fact, images with a spatial resolution of 30 m or so. Download <u>http://www.keyhole.com/downloads/GoogleEarthPlus.exe</u> and run it to install Google Earth. MSN Virtual Earth uses high-resolution Ikonos II imagery. The Microsoft offering isn't yet available but it also appears to incorporate some GIS functionality – like Yellow Pages linked to a high resolution map.

#### **Cities Revealed**

The CitiesRevealed web site <u>(http://www.crworld.co.uk/index1.htm</u>) contain links to a number of research papers that should be of interest to photogrammetrists. There is also an occasional newsletter – contact <u>newseditor@citiesrevealed.com</u>.

#### **Satellite and Missions Database**

A list of satellites and missions (including acronyms) together with a brief description can be accessed at <a href="http://directory.eoportal.org/res\_p1\_Earthobservation.html">http://directory.eoportal.org/res\_p1\_Earthobservation.html</a>.

#### **Astrovison Australia Plans 2008 Launch**

The University of New South Wales (<u>http://www.science.unsw.edu.au/news/2005/astrovision.html</u>) has announced plans for the launch in 2008 of a geostationary satellite that will observe the area from India to Hawaii. A feature of the video device to be carried by the satellite is that it will provide continuous real-time coverage in full colour.

#### EADS to Supply Vietnamese EO System

EADS Defence and Communications Systems (DCS) recently signed a contract with the Vietnamese Ministry of Natural Resources and the Environment for the provision of a complete environmental and natural resources monitoring system, to be operated by the national Centre for Remote Sensing in Vietnam. The integrated system consists of a receiving station for satellite images from SPOT and ENVISAT, a centre for the processing and distribution of images, and 15 specialised application systems for operational and research purposes. These systems will be installed on the premises of the main public operators, namely Vietnamese ministries and other project partners such as the Ministry of Agriculture and Rural Development, the Ministry of Fisheries, the Ministry of Natural Resources and the Environment, the national civil defence agency and the Vietnam Petroleum Institute.[Source: TerraDaily 12 July 1005]

#### **Satellites that Learn**

TerraDaily.com and <u>http://ase.jpl.nasa.gov/</u> report that The Earth Observing-1 satellite has been making its own decisions. Based on general guidelines from scientists, the spacecraft automatically tracks events such as volcano eruptions, floods and ice formation. The most recent software upgrade allows the spacecraft to accurately recognize cryospheric changes such as ice melting. A learning algorithm is used so that the software can identify specific events, and to request image acquisition. Similar software has been used to distinguish between different types of clouds in images captured by JPL's Multi-angle Imaging SpectroRadiometer, an instrument on NASA's Terra spacecraft.

#### **GPS Surveys the Forth Road Bridge**

The Institute for Engineering Surveying and Space Geodesy (IESSG) at The University of Nottingham spent 48 hours surveying movements on the Forth Road Bridge. The good news is that, unlike London Bridge in the nursery song, the Forth Road Bridge is in good health and is behaving as predicted in response to wind and to variations in traffic load. More at The University of Nottingham's web site at http://research.nottingham.ac.uk/NewsReviews/newsDisplay.aspx?id=175.

#### Forestry Commission Uses OS Imagery Layer

The OS announced on 20 May 2005 that the Forestry Commission had become the first user of the OS MasterMap Imagery Layer. The Imagery Layer is a high-resolution orthocorrected aerial photography at 24 bit colour and 25 cm spatial resolution. See the OS web page at: http://www.ordnancesurvey.co.uk/oswebsite/media/news/2005/may/imageryforestry.html

#### **EOEP-3** Consultation Meeting

The EOEP-3 Consultation Meeting, which took place on 27th June at Birkbeck College, London, proved to be a useful and interesting session, with some 70 members of the Earth Observation community in attendance. The purpose of the meeting was to review the achievements to date of NERC's investment in ESA's environmental sciences Earth Observation Envelope Programme with a view to discussing future investment in EOEP-3. A summary of the outcomes of this meeting is now available as a PDF file to download from the NERC Earth Observation Envelope Programme webpage <a href="http://www.nerc.ac.uk/funding/earthobs/documents/consultationmeetingoutput.pdf">http://www.nerc.ac.uk/funding/earthobs/documents/consultationmeetingoutput.pdf</a>.

#### **New Professor of Earth Observation**

Dr Martin Wooster (<u>http://www.kcl.ac.uk/depsta/geog/staff/wooster.html</u>) has been appointed to a Chair of Earth Observation with effect from 1 September 2005. Congratulations!

#### ALOS (Advanced Land Observation Satellite) Delay

The launch of Japan's ALOS has been delayed following the discovery of a possible fault in the satellite's electronics. JAXA, the Japan Aerospace Exploration Agency, has not yet announced a new launch date. According to the web page at <a href="http://www.nasda.go.jp/projects/sat/alos/index\_e.html">http://www.nasda.go.jp/projects/sat/alos/index\_e.html</a>, "The Advanced Land Observing Satellite (ALOS) is developed to contribute to the fields of "mapping", "precise land coverage observation", "disaster monitoring", and "resource surveying" by enhancing land observation technologies acquired through the development and operation of its predecessors, Japanese Earth Resource Satellite-1 (JERS-1, or Fuyo) and Advanced Earth Observing Satellite (ADEOS, or Midori). ALOS has three sensors: the Panchromatic Remote-sensing Instrument for Stereo Mapping (PRISM) composed of three sets of optical systems to measure precise land elevation, the Advanced Visible and Near Infrared Radiometer type 2 (AVNIR-2) to observe what covers land surfaces, and the Phased Array type L-band Synthetic Aperture Radar (PALSAR) that enables day-and-night and all-weather land observation. ALOS is expected to play an important role in high-resolution land observation with those three sensors.

#### **Russian Hi-Resolution First**

The Russian RESURS-HR1 is to be launched later this year. It can collect optical imagery across a swath 30 km wide at a resolution of 1 m (panchromatic) or 4 m (multispectral). More details at the EO Portal web site, <u>http://directory.eoportal.org/pres\_ResursDK1.html</u>.

#### **Topex-Posiedon Soldiers On**

The NASA/CNES TOPEX/Poseidon mission began on 10<sup>th</sup> August, 1992. The satellite and its instruments are still operating and providing data on sea-surface elevation to an accuracy of 5 cm. Since 2001 it has had a colleague in space – the Jason mission. For more visit <u>http://sealevel.jpl.nasa.gov/index.html</u>.

#### **USDA to Use Ikonos Imagery**

Spaceimaging (<u>www.spaceimaging.com</u>) has been awarded a contract by the US Department of Agriculture for the supply of archival and newly-collected Ikonos multispectral imagery of Alaska for use in the USDA's Natural Resources Inventory programme. The programme is meant to identify change in land cover and in land surface conditions, resulting from (for example) soil, erosion. {Source: Spaceimaging}

#### SCISAT

The Canadian SCISAT mission has been extended by two years, from 2005 to 2007. The purpose of the mission is to measure atmospheric ozone levels (but see <u>http://www.space.gc.ca/asc/eng/</u><u>satellites/scisat/default.asp</u> for details). *{Source:EOPortal}* 

#### **Flood Monitoring**

The image on the next page is a multitemporal composite; it was acquired by the ERS-2 SAR instrument. It shows a stretch of the Inn River along the German/Austrian border in the vicinity of Braunau. The Inn River is one of several rivers reported to be experiencing surges following Alpine valley floods in late August 2005. This is a composite of two radar images, one acquired on 20 July 2005, the other acquired 24 August 2005. Black indicates water surfaces. *{Source: ESA Observing the Earth web site}*.

The flooding involved parts of Germany, Austria and Switzerland. The Swiss Government activated the International Charter on Space and Major Disasters on 25 August 2005. The Charter represents a joint effort by global space agencies to put resources at the service of rescue authorities responding to major natural or man-made disasters. To date the Charter has been activated more than 80 times.

Following the UNISPACE III conference held in Vienna, Austria in July 1999, the Charter was initiated by ESA and CNES with the Canadian Space Agency (CSA). Other members include the Indian Space Research Organisation (ISRO), the US National Oceanic and Atmospheric Administration (NOAA), the Argentine Space Agency (CONAE) and the Japan Aerospace Agency

(JAXA), with the United Nations as a 'cooperating body'. It was declared operational on 1 November 2000.

More information on the central European floods can be found on <u>http://www.esa.int/esaEO/SEMFGX95QCE\_index\_0.html</u>. More on the International Charter on Space and Major Disasters at <u>http://www.disasterscharter.org/main\_e.html</u>. Image copyright © European Space Agency

#### Yet More on Disasters

This isn't remote sensing or photogrammetry, strictly speaking, but it sounds interesting. The Royal Aeronautical Society is organising a conference on Near Earth Objects – A Natural Hazard of Global Proportions (Wednesday 23 November 2005 at 4 Hamilton Place., London; register at <u>www.aerosociety.com/Conference</u>). Natural hazards seem to be on the increase (the Christmas 2004 Tsunami, and the New Orleans hurricane) so a healthy interest in objects falling from the sky is not surprising. Papers at the conference consider how to track the threatening object and kill it.

#### **Earth Observation Magazine**

This is available online at <u>subs@eomonline.com</u>. The current issue (September 2005) features ..... yes, disasters including forest fires and hurricanes.

# Defra Review of the UK's Delivery Capacity in terms of Remote Sensing and Earth Observation

As part of the development of an Earth Observation Strategy, Defra is undertaking a review of the UK's delivery capacity in terms of Remote Sensing and Earth Observation. The objective of the Delivery Capacity review is to compile a comprehensive database of EO/RS related capabilities of potential interest to Defra. It is planned that this review will include compendiums of:

- Available technologies (Platforms and Sensors).
- Types and sources of available data.
- Example applications.
- A compendium of groups and companies that provide EO related data and services.

The questionnaire has been circulated with the aim of gathering consistent information from a range of companies, organisations, groups and individuals working in the EO sector from which to compile the final section of the report.

For further information, please contact: Simon Leach, Remote Sensing Advisor, GI Unit, RDS, Defra, Government Buildings, Otley Road, Lawnswood, Leeds, LS16 5QT. Tel: 0113 2303904 GTN: 6313 3904 Fax: 0113 2300879 E-mail: <u>simon.leach@defra.gsi.gov.uk</u> www.defra.gov.uk

#### New Russian Environmental Observation Satellite Launched

Russia has a new environmental satellite that has been placed into polar orbit for mostly domestic users. The announcement came after controllers regained contact with the 1,650-pound craft a few hours after the launch. That news followed initial reports of problems. The satellite was launched from the Plesetsk Cosmodrome in the far north of Russia. The rocket's Breeze-KM upper stage placed Monitor-E into the planned Sun-synchronous orbit with an altitude of about 335 miles about an hour-and-a-half later. Built by the Russian Krunichev state space research firm, Monitor-E is the first of a new series of modest-sized satellites to conduct science investigations on a par with those previously requiring large space-based platforms. Expectations are the spacecraft will operate for at least five years. The craft will image Earth's surface in resolutions ranging from about 25 feet in swaths about 56 miles wide to over 65 feet when the width of the image approaches 100 miles.[Source: EOPortal]

#### **Professor Sir Hermann Bondi**

Professor Sir Hermann Bondi, former President of the Remote Sensing Society, has died. His obituary was published in The Times of 13 September 2005 (<u>http://www.timesonline.co.uk/article/0,,60-1777024,00.html</u>).

#### **METEOSAT Launch Planned**

Launch of the second MSG (Meteosat Second Generation) satellite is set for early Autumn 2005. This will be the second MSG satellite to be launched. The first (known as Meteosat 8) was launched in 2002 and became operational in January 2004. Source: <u>http://www.eumetsat.int/en/index.html.</u>

#### ESF Call for proposals for Conferences in the Environmental Sciences in 2007

The European Science Foundation (ESF) and Austrian partners will co-sponsor a series of Scientific Conferences, within the framework of the ESF Research Conferences Scheme. These will be of the highest scientific level with respect to topics and choice of participants, bringing together participants and experts in the area of Environmental Sciences (one of only two thematic areas for this Call) to discuss topics that are of major importance to the scientific community in Europe. The conferences will Austria be held 2007. Further details available in in are on http://www.esf.org/esf\_genericpage.php?section=10&language=0&genericpage=2293&shortcut=1 The deadline for applications is 1 October 2005.

#### Macaulay Institute Opens Virtual Landscape Facility

The Macaulay Institute, Aberdeen, has announced the opening of a Virtual Landscape Theatre. The Virtual Landscape software allows different scenarios to be simulated and assessed. For more details contact Prof. D. Miller (d.miller@macaulay.ac.uk)

# **CORPORATE MEMBERS' NEWS**

#### **Ordnance Survey Makes Profit**

The OS delivered a surplus of  $\pounds 9.2$  million for 2004 - 2005, up from  $\pounds 5.6$  million in the preceding year. For more on this, and on all aspects of OS operations, see the OSGB annual report at the OS web site at www.ordnancesurvey.co.uk

#### **RADARSAT** Name Change

RADARSAT International and several other Companies in the MacDonald Dettwiler and Associates Ltd. (MDA) family have been re-branded and are now conducting business under the common brand name "MDA". RADARSAT International belongs to MDA's Geospatial Services business area and is referred to as MDA Geospatial Services International. WWW: <u>www.mdacorporation.com</u> and <u>http://www.mdacorporation.com/products/geospatial.shtml</u>):

#### LEICA GEOSYSTEMS AG Rejects Takeover

Leica Geosystems AG has rejected a takeover bid from Hexagon, a Swedish company that is described as "a conglomerate" specializing in macro, micro and nano-measurement ". This sort of structure would take Leica Geosystems back to the '80s and an old strategy abandoned years ago after many bad experiences. As far as Leica Geosystems is concerned, Hexagon's plans definitely represent a step backwards. See <u>http://www.leica-geosystems.com/uk/news/?id=641</u>. for more.

#### **EUROPEAN FOREST FIRE INFORMATION SYSTEM – EFFIS**

EFFIS was set up in 2003 as a result of basic research work carried out by a group set up in 1999 at the European Commission DG Joint Research Centre to work specifically on the development and



implementation of advanced methods for the evaluation of forest fire risk and mapping of burnt areas at the European scale. EFFIS liaises with all Member States and DG Environment to produce prefire and post-fire information, using remotely sensed imagery to provide the basic information. Read more at http://inforest.jrc.it/effis/.

#### **RADARSAT-1** Assists Flood Relief Efforts

Richmond, BC - Canada's RADARSAT-1 satellite is being used to provide imagery and information in support of disaster response and recovery teams coping with the devastating aftermath of Hurricane Katrina. In particular, the imagery of the southern US states is being used to map and assess flood-damaged areas.

"RADARSAT-1 has been tasked to acquire imagery over the state of Louisiana and the Gulf Coast for the next few days," said John Hornsby, General Manager of MDA's Geospatial Services International. "This will allow agencies to monitor the progression of the floodwaters and support onthe-ground relief and recovery efforts with the latest up-to-date information," he added.

One of the hallmarks of the RADARSAT-1 program is the near-real time delivery of data to users requiring time-sensitive information. Data is acquired, processed and delivered to clients within 1-4 hours of downlink. RADARSAT-1 is currently acquiring data over India, Switzerland, Austria and other parts of Europe in support of flood disaster relief efforts.

#### **RSI/ENVI DEM Module**

ENVI users will soon be able to get spatially accurate, 3D representations of remotely-sensed data and imagery with the **ENVI DEM Extraction Module**.

The new ENVI DEM Extraction Module:

- Provides an easy to use tool to create accurate digital elevation models for topographical analysis, orthorectification, visualization and contour map generation.
- Includes a wizard-based tool that allows you to create DEMs in a simple, step-by-step process.
- Includes support for multiple sensors: ASTER, IKONOS, Orb-View-3, QuickBird and SPOT 1-5.

The ENVI DEM Extraction Module will be available in September, 2005.

# **INDUSTRY NEWS**

(Contributed by Ernie Wickens)

**English Heritage** recently informed **NAPLIB** members that the future of the Keele collection of aerial photographs is currently being re-assessed. This collection is an important historical record and if any member is in a position to suggest an alternative storage location and / or funding please contact David Thomas (Director, Government & Technology at the National Archives) at <u>david.thomas@nationalarchives.gov.uk</u> or on 0208 392 5222.

**DAT/EM Systems International** has enhanced the viewing capabilities of the SUMMIT EVOLUTION digital stereoplotter by integrating Planar's SD1710 3D desktop monitor as an optional component of the system. The SD 1710 is a novel stereoscopic monitor that has been developed by combining the output of two active matrix LCDs into a stereo image through the use of a unique beam splitter design. <u>www.datem.com</u>

**Applanix** has announced that Simmons Aerofilms has chosen its POS AV 310 system as the geopositioning technology behind their purchase of Pictometry's imaging/software system. JUPEM, Department of Survey and Mapping Malaysia has selected the Applanix POS AV 510 to enhance its Topographic Mapping Program. The POS AV will be integrated with an RC30 aerial camera system to generate accurate geospatial data. The company has launched its POS AV 610 (Position and Orientation System - Airborne Vehicles), designed for direct georeferencing of airborne Synthetic Aperture Radar (SAR) and high-altitude Light Detection and Ranging (LiDAR) sensors. www.applanix.com

**BAE Systems** will provide geopositioning software for Department of Defense applications under the U.S. Navy's Common Geopositioning Services Project (CGSP). The combination of SOCET GXP and the CGS Toolset will permit standalone installation of the software suite on UNIX or Windows-based workstation architectures. (*Source: GIS Monitor (www.gismonitor.com* < http://www.gismonitor.com/>) Used with permission. Copyright 2004 GITC America)

<u>Cadcorp</u> has released Cadcorp SIS OS MasterMap Database, a free solution for managing Ordnance Survey (OS) MasterMap data. The product is a relational database encapsulated in a single ODB file that can handle anything from a single OS MasterMap chunk right up to national coverage. www.cadcorp.com

**INPHO GmbH** has released a new version of the powerful terrain modeling software, SCOP++ V5.3.0. The new version brings a number of new features, some functional changes and GUI changes into the SCOP++ Kernel, LIDAR and Analyzer modules. The company has also launched a new version of its advanced DTM administration software, DTMaster V1.1.0. The software has been designed for checking, editing, visualization and classification of 3D point cloud data generated for example by LIDAR systems or MATCH-T software. The newest release of OrthoVista, (V4.1.0) has been enhanced to improve the quality of images which have been obtained using a digital camera system where there are areas of water with sun reflections. In a press release INPHO has drawn attention to the problems that arise when merging data from different digital aerial camera systems due to the inconsistent use of interior orientation matrices and Kappa rotations. Users experiencing such problems are advised to look at the advice given on the INPHO website. <u>www.inpho.de</u>

**Cities Revealed** is the chosen supplier of high-resolution aerial photography for Europe's largest and most ambitious regeneration initiative. The Thames Gateway London Partnership (TGLP), which is a sub-regional alliance including 13 local authorities and the London Development Agency, invested in Cities Revealed to provide a seamless, digital view of the entire Thames Gateway area. www.crworld.co.uk

**PCI Geomatics** is extending its partnership with <u>GeoTango</u> by becoming a global distributor of SilverEye, a software solution designed to extract 3D information from a single image. SilverEye is particularly well suited to rapidly generate 3D models of urban areas and facilities of interest. It can also obtain 2D and 3D measurements using a single satellite or aerial image. The company has released Geomatica 9, Version 9.1.7. Geomatica is the company's image-centric geospatial software solution capable of handling both large- and small-scale geomatics projects. <u>www.pcigeomatics.com</u>

**Z/I Imaging**, an Intergraph company, has sold a DMC digital mapping camera to Hansa Luftbild Sensorik und Photogrammetrie GmbH (Hansa Luftbild), Germany's largest and longest established aerial survey company. The DMC has also been sold to <u>Digital Mapping Inc.</u> (DMI), a firm in Huntington Beach, California and to the Surdex Corporation.

On July 5<sup>th</sup> 2005 Leica Geosystems GIS & Mapping was renamed Leica Geosystems Geospatial Imaging. This new name better reflects the company's position as an expert in the geospatial information marketplace. Additionally, the company has acquired Terramatics. The company has co-operated with the renowned conservationist, ecologist and Congo explorer J. Michael Fay to present the paper, "Remote Sensing: The Next Best Thing to Being There - US Support of the Gabonese National Park System" at the 2005 ESRI User Conference in San Diego, California on July 28<sup>th</sup>. The presentation demonstrated how remote sensing is playing a critical role in the preservation of the Congo Basin and the development of a National Park System in Gabon. Leica Geosystems is pleased to announce that EADS Astrium, a world leader in the design and manufacture of satellite systems, has purchased a Leica ADS40 Airborne Digital Sensor. An ADS40 has also been purchased by Digital Aerial Solutions (DAS). The company has released Leica Photogrammetry Suite (LPS) V8.7 Service Packs 2 and 3 together with the MC1200 Universal Machine Control System. Service Pack 2 provides users with the ability to process images captured with the Leica ADS40 Airborne Digital Sensor. Concurrently released are updates for Leica GPro and ORIMA Orientation Management Software. Service Pack 3 provides a combination of critical bug fixes and new functionality to provide users with enhanced ways to streamline their imaging processing workflow in LPS.

**Jena- Optronik GmbH** has released the new Jena Airborne Scanner JAS 150, a second generation aerial digital sensor developed for photogrammetry, mapping, and remote sensing of medium and large areas. Offering 5 centimetres resolution from 1000 meters flight altitude the JAS 150 satisfies high resolution imaging requirements. <u>www.jena-optronik.de</u>

**The Ordnance Survey** has published the outcome of its consultation with customers on proposed changes. A timetable of changes for both the physical control information and the margin details will be announced to customers on the Ordnance Survey website in due course. For the full consultation report, visit <u>www.ordnancesurvey.co.uk/aboutus/reports/D03701.pdf</u>

**Photarc Surveys** is conducting a photogrammetric survey of Beaumaris Castle in Anglesey for Cadw. The project has required more than 350 stereo pairs of photography which is one of the largest architectural contracts to be awarded in recent years. The Transport Research Laboratory (TRL) has purchased PhotoModeler from Photarc Surveys. TRL has been commissioned by the Highways Agency to run comparisons on the different methods available for capturing data at the scenes of road traffic collisions. <u>www.photarc.co.uk</u>

**Infoterra** has developed a comprehensive end-to-end risk management solution to the power industry. The Infoterra Power Group can provide highly accurate aerial data such as specific ground features and the measurement of power line clearance. <u>www.infoterra-global.com</u>

**Mason Land Surveys** has recently produced Digital Terrain Models (DTMs) and orthophotos of various wind farm sites on behalf of Scottish Power. The DTMs can be input to Geographic Information Systems to assist with site planning projects. <u>www.mason.co.uk</u>

**RAF. 39 (1 Photo Reconnaissance Unit) Squadron.** The last flight of the Canberra T4 took place on Thursday 1<sup>st</sup> of September. The role of the T4 was to act as a training aircraft for the Canberra PR9 reconnaissance aircraft which remains in service. This particular airframe was delivered to the RAF in 1954 (3 years after the type entered service) and has been involved with pilot training ever since. www.rafmarham.co.uk

**Intermap Technologies** has signed a royalty agreement with Norwich Union linked to the commercialisation of the UK insurer's flood map of Britain. This agreement is a significant step in making the innovative flood map available both to the public and other commercial interests. <u>www.intermap.com</u>

**BKS Surveys,** has recently become one of the first companies in Northern Ireland to be awarded the prestigious Green Dragon Environmental Standard Award. The Green Dragon Environmental Standard, which was initially developed with support from the Welsh Assembly, is now open to local businesses through the partnership formed between ARENA Network and the Coleraine Borough Council. <u>www.bks.co.uk</u>

**Pictometry International Corporation,** a provider of digital, aerial oblique imagery, and <u>Positron Public Safety Systems</u>, a provider of public safety solutions for call handling and dispatching, will embed Pictometry's measuring software and digital aerial photo databases in the Positron Power MAP product. The combined product offering will be available via both companies to new and existing Positron customers who want to add it to their Power MAP system. Film director Spike Lee has incorporated software and aerial imagery from Pictometry as part of the technical set on his film "The Inside Man," now being filmed in New York City. <u>www.pictometry.com</u>

<u>Airborne 1 Corporation</u> a provider of LiDAR services, rentals, and products, has released QT Modeler 4.0, the latest application in its suite of 3-D LiDAR visualization software. The new version allows users to import, view, and analyze LiDAR and Synthetic Aperature Radar (SAR) data. The QT Modeler 4.0 builds upon previous versions by providing an enhanced modeling and analysis package that can build surface models from raw data (e.g. ASCII XYZ or LAS), visualize 3-D models in real time, perform analysis, overlay aerial photography, and export to a variety of other software packages for further analysis. The package requires no additional or underlying software and will process and display point clouds of up to 200 million points.

(Source: GIS Monitor (www.gismonitor.com <http://www.gismonitor.com/>) Used with permission. Copyright 2004 GITC America)

**Blackwell Publishing** (publishers of *The Photogrammetric Record*) has announced the availability of their Online Geography Catalogue, which contains information on new and forthcoming books in geography, as well as of key backlist titles and entire journals publishing programme. You can buy books and journals online, and view full contents lists, reviews and sample chapters on individual books or journal web pages. To view the online catalogue, follow this link: http://www.blackwellpublishing.com/catalog/?promoid=GeographyJune05.

# **REPORTS OF MEETINGS**

#### FORESTSAT 2005:

# OPERATIONAL TOOLS IN FORESTRY USING REMOTE SENSING BORÅS, SWEDEN, 31<sup>ST</sup> MAY-3<sup>RD</sup> JUNE 2005.

## **Rachel Gaulton<sup>1</sup> and Ed Wallington<sup>2</sup>**

Edinburgh Earth Observatory, School of GeoSciences (Geography), The University of Edinburgh, Drummond Street, Edinburgh, EH8 8HN. <sup>1</sup>R.Gaulton@sms.ed.ac.uk, <sup>2</sup>e.d.wallington@ed.ac.uk

ForestSAT 2005, held in Borås, Sweden, was the final conference of the EU-Life project ForestSafe. Organised by the Swedish partners in the project (Swedish Forest Administration and Swedish University of Agricultural Sciences), it was attended by over 100 researchers, students and forestry practitioners from more than 20 countries. The conference concentrated on the practical use of new remote sensing techniques in forestry and was divided into a two day scientific workshop, one day practical workshop (aimed at demonstrating existing methods in remote sensing and GIS to a wider audience) and a final day's field excursion.

The scientific workshop focussed on new research and developments in the field of forest remote sensing. Around 50 high quality presentations covered the full range of remote sensing techniques including optical satellite sensors, aerial photography, LiDAR and SAR. Applications were varied, from mapping wind damage and forest change detection to single tree studies and the use of canopy reflectance models, although the general focus was on large-area forest inventory.

Key note speakers provided an interesting summary of some major developments and included Ronald McRoberts of the U.S.D.A. Forest Service who introduced the role of remote sensing in the forest inventory and analysis program of the U.S. forest service and Erkki Tomppo (Finish Forest Research Institute) who discussed the Finnish multi-source forest inventory. The priorities of the European Space Agency and European Union initiative on Global Monitoring of Environment and Security (GMES) were also discussed in an enlightening presentation from Herve Jeanjean from CNES, France and in a presentation on the role of the GMES in Kyoto protocol reporting by Thomas Häusler of GAF AG, Germany.

A wide variety of posters were also presented, ranging in topic from the use of landscape metrics to analyse tropical forest fragmentation to the role of remote sensing and GIS in monitoring the health of Eucalyptus plantations. All poster authors were given an opportunity during the scientific workshop to present an overview of their posters. This was an ideal opportunity to summarise work to the conference, and entice people to visit a poster and further discuss the research. These presentations were a useful feature to include in a conference, particularly when the emphasis is on interaction between researchers and forest practioners, and is something which many conferences do not promote, but which should certainly be encouraged.

Presentations in the practical workshop focused on GIS and remote sensing techniques that have reached an operational stage and are being used in the UK and Swedish forestry industries. Topics covered were varied, including reindeer management plans, the results of large area LiDAR tests and the UK Forestry Commission forestry management system (FORESTER GIS). The FORESTER module allows forest managers to run management simulations of their forests, and asses the results in terms of timber yield or landscape change for example. This form of pre-implementation management would not have been possible before the development of GIS and the use of data captured through remote sensing.

The practical workshop aimed to convey the latest in remote sensing and GIS to a wider audience, and a considerable number of forestry practitioners attended. The use of emerging, online technologies for the transfer of knowledge to such an audience shows great potential for forest management. One example demonstrated was that of 'My Forest', a web based tool for forest owners. An interesting feature of this website-based management system was the ability of individual forest managers to create a homepage relevant to their own forest and needs, thereby creating a sense of ownership and control for the individual manager.

The conference concluded with a field excursion to nearby Pickesjön, where a number of applications were discussed in more detail while out in the forest. Of particular interest was a demonstration of unmanned aerial vehicles being developed by the Swedish University of Agricultural Sciences for use in providing video and digital images for low-cost forest monitoring. The demonstration showed the potential for providing affordable and rapid aerial assessments of forests where more sophisticated remote sensing or ground survey is not possible.

Closing discussions highlighted the need for data supply continuity, especially for satellite sensors of the LandSAT type. It is still the case however, that much high-level policy is aimed at and driven by satellite systems and data. There were many examples of airborne data being used, with the possibility of operational use in the near future. It is felt that more emphasis on airborne systems and data continuity should also be included in policy at international, national and local levels. Forestry practitioners also reminded us all that although more techniques have become operationally viable since the previous ForestSAT conference in 2002, more needs to be done to quantify cost benefits and ensure data is accessible to end users.

In conclusion it was particularly encouraging to see forest managers and practitioners attending a remote sensing conference. The only way that forest remote sensing is going to become fully operational, is through the input of foresters into research, development and implementation of systems and technologies and ForestSAT 2005 allowed a useful opportunity for discussion of this process and it is great news that another ForestSAT conference is being planned for two years time.

Keep an eye out for a selection of papers presented during the scientific workshop that will be published in a special issue of Remote Sensing of Environment. Full papers and a selection of the presentations are available for download on the ForestSat website, see: http://www.svo.se/minskog/templates/Page.asp?id=12928.



Olle Hagner retrieving an Unmanned Aerial Vehicle (UAV) during the field excursion.

# **CONFERENCES**

#### **OCTOBER 2005**

- 3 5 October, 2005, Vienna, Austria. 7th Conference on Optical 3-D Measurement Techniques. WWW: <u>http://info.tuwien.ac.at/ingeo/optical3d/o3d.htm</u>.
- 6 October 2005, Stoneleigh Park, Coventry, UK. IoP Optical Environmental Sensing one-day conference. <u>http://www.photonex.org</u>. Dr Moira Hilton, J. J. Thomson Physical Laboratory, The University of Reading, Whiteknights, Reading, RG6 6AF, U.K. tel: +44(0)118 3788539. fax:+44(0)118 9750203. email: <u>m.hilton@reading.ac.uk</u> or Dr Peter Hodgson, Environment Department, Corus RD&T, Swinden Technology Centre, Rotherham, S60 3AR, UK. tel:+44(0)1709 825478. fax:+44(0)1709 825400 email: <u>Peter.Hodgson@corusgroup.com</u>
- 6 7 October, 2005, Institute of Photogrammetry and Remote Sensing, Vienna University of Technology. Course on Laserscanning - Data Acquisition and Modelling. WWW: http://www.ipf.tuwien.ac.at/events/unil laser 2005.html
- 7 October 2005, Bruges, Belgium. Airborne Imaging Spectroscopy Workshop. Email: vdab@belspo.be.
- 9 12 October, 2005, Kansas City, MO. URISA 43<sup>rd</sup> Annual Conference. Email: <u>info@urisa.org</u>. WWW: <u>www.urisa.org</u>.
- 11 13 October 2005, Fukuoka, Japan. Twelfth Session of the Asia-Pacific Regional Space Agency Forum (APRSAF-12), in conjunction with the UN-IAF Workshop and the 56th International Astronautical Congress (IAC 2005), focusing on "Maximizing Space Benefits for the Society" with the aim to focus on the use of space technology to cope with environmental problems, to prevent and mitigate risks of disasters, to improve quality of life, and to bring about better future for the next generation". Web: http://www.aprsaf.org
- 12 14 October 2005, Jeju-city, Korea. International Symposium on Remote Sensing 2005 (ISRS2005) Dr. Kiwon Lee, The Korean Society of Remote Sensing (KSRS) Tel.: +82-2-760-4254, Fax: +82-2-760-4347. E-mail: <u>kilee@hansung.ac.kr, orksrs@ksrs.or.kr Web:</u> <u>http://www.ksrs.or.kr/isrs2005.</u>
- 14 16 October, 2005, Hangzou, China. ISPRS International Workshop on Service and Applications of Spatial Data Infrastructure. Email: <u>isprswg41@nsdi.gov.cn</u>, WWW: <u>http://www.isprswg41.nsdi.gov.cn</u>. Tel.: +86-10-68483218. Fax: +86-10-68424101.
- 15 16 October, 2005, Beijing, China. ISPRS WG III/I, III/2 Workshop BenCOS, Towards Benchmarking Automated Calibration, Orientation and Surface Reconstruction from Images, WWW: <u>http://www.ipf.tuwien.ac.at/isprs/wgiii1/ws2005\_wg12.html</u>

- 17 19 October, 2005, Beijing, China. 9th International Symposium: Physical Measurements and Signatures in Remote Sensing (ISPMSRS). WWW: http://www.ISPMSRS2005.org or http://www.geog.umd.edu/ispmsrs2005. Email:sliang@geog.umd.edu.
- 23 27 October, 2005, Sioux Falls, SD, USA. Pecora 16: Global Priorities in Land Remote Sensing Co-sponsored by ASPRS. WWW: http://www.asprs.org/pecora16/index.html.
- 25 October 2005, National Physical Laboratory, London Digital Futures 2005: Quantitative Aspects of Imaging. Organised jointly by the National Physical Laboratory & the Imaging Science Group of The Royal Photographic Society. Contact: Dr. S. Triantaphillidou, triants@wmin.ac.uk. Internet: http://www.rps-isg.org/events.shtml
- 26 28 October, 2005, Warsaw Poland. 20th ESRI European User Conference.. Tel. +48 22 326 73 00. Email: euc2005@esripolska.com.pl. WWW: www.euc2005.com.
- 31 October 2 November 2005, Wuhan, China. 4th International Symposium on Multispectral Image Processing and Pattern Recognition. Email: lilyshy@mail.liesmars.wtusm.edu.cn. WWW: http://www.liesmars.wtusm.edu.cn/MIPPR2005/index.html.

#### NOVEMBER 2005

- 1 3 November, 2005, London. 17th AGI Conference. Contact Angela McMahon, Tel:020 7017 8497. Email: angela.mcmahon@agi.org.uk. WWW: http://www.agi2005.org.uk/index.php.
- 4 5 November, 2005, Bremen Germany. 13th ACM Symposium on Advances in Geographic Information Systems. WWW: http://infolab.usc.edu/acmgis05/index.html.
- 4 6 November, 2005, Bangkok, Thailand. ISPRS Joint Workshop on Disaster Monitoring & Assessment through Images. WWW: http://www.star.ait.ac.th/dmai2005/
- 7 11 November, 2005, Hanoi, Vietnam. 26th Asian Conference on Remote Sensing (ACRS2005) WWW: http://www.acrs2005.ac.vn. Email: eisa.ig@fpt.vn.
- 8-11 November 2005, Hanoi, Vietnam. 2nd Asian Space Conference jointly with the Asian Conference on Remote Sensing. Web: www.iias.nl/space
- 9 10 November 2005, University College London, Advances in GPS Data Processing and Modelling for Geodynamics. Tel: 020 7679 7028 Fax: 020 7380 0453. Email: paul.cross@ge.ucl.ac.uk or marek.ziebart@ge,ucl.ac.uk.
- 10 11 November, 2005, Naples, Italy. International Conference on Earth Observation for Vegetation Monitoring and Water Management. Fax: +39 081 2539412. E-mail: durso@unina.it. WWW: http://www.agraria.unina.it/CONGRESS/EOnapoli2005/.
- 14 16 November, 2005, Rabat, Morocco. Workshop on Spatial Information and Sustainable Development. Email: <u>emran@israbat.ac.ma</u> or <u>trache@emi.ac.ma</u>. 22 - 24 November, 2005, Tanta, Egypt. 4<sup>th</sup> International Symposium on Geophysics, WWW:
- http://www.tanta.edu.eg/EN/isg.htm or http://alaamasoud.tripod.com/id4.html
- 28 30 November, 2005, Vienna, Austria. 3rd Symposium on LBS and TeleCartography. http://cartography.tuwien.ac.at/symposium2005/
- 30 November 2 December, 2005, Moscow, Russia. Second International Conference: Earth from Space. WWW: http://www.transparentworld.ru/conference/2005/index.html

#### **DECEMBER 2005**

- 5 9 December, Dunedin, New Zealand. International Symposium on Sea Ice. International Glaciological Society. Email: igsoc@igsoc.org. WWW: http://www.igsoc.org/ and http://www.physics.otago.ac.nz/research/ice/igs/ .
- 16 December, 2005. Geological Society, London. GRSG ASIG annual meeting - Advances in Geological Remote Sensing. Contacts: Tim Wright: tim.wright@earth.ox.ac.uk and Rachel Holley: rjh@mail.nerc-essc.ac.uk
- 12 14 December, Warsaw, Poland. Integration of the New EU Member Countries into the GMES Programme. Eurisy ASssociation, 3 – 5 rue Mario Nikis, 75015 Paris, France. Tel. +33 (0)1 47 34 00 79. Email: eurisy-lc@wanadoo.fr. Web: www.eurisy-asso.fr.

#### JANUARY 2006

20 - 21 January, 2006, Copenhagen Denmark. EARSeL Workshop on the analysis of time series of image data. Register with the EARSeL Secretary Gesine Bottcher, at boettcher@ipi.uni-hannover.de, before 1 October 2005 for preferential rates. Venue: Meeting Room 1, Building 101, The Danish Technical University, Kongens Lyngby, Copenhagen, Denmark. Alternative contact: Keith.McCloy@agrsic.dk.

#### FEBRUARY 2006

- 14 15 February, 2006, Vienna, Austria. ISPRS/EARSeL Workshop on 3D Remote Sensing in Forestry. Email: <u>werner.schneider@boku.ac.at.</u> WWW: <u>http://ivfl.boku.ac.at/3DRSForestry/</u>. Tel.: +43-1-47654-5100.
- 14 17 February, 2005, Delhi, India. Mesoscale Processes in Atmosphere, Ocean and Environmental Systems [IMPA 2006]. WWW: <u>http://paniit.iitd.ac.in/~impa2006/</u>

#### MARCH 2006

- 2 3 March 2006, Berlin-Adlershof, Germany. First Workshop of the EARSeL Working Group on Urban Remote Sensing. Urban Remote Sensing: Challenges and Solutions. Humboldt University, Berlin, Germany. Tel. +49.30.2093-6805. Fax -6844 Email: <u>sig-urs@hurs.de</u>. Alternative: Professor Dr P. Hostert (<u>Patrick.hostert@geo.hu-berlin.de</u>). WWW: <u>www.hurs.de</u> (look in left hand margin).
- 6 10 March, 2006, London, England. World Maritime Technology Conference: Maritime Innovation Delivering Global Solutions. <u>http://www.wmtc2006.com/welcome/</u>.
- 9 March, 2006, University of Edinburgh, Scotland. Evening lecture (joint with RICS), Innovative Topographical Survey to Support Biomass Estimation from Airborne radar in Northern Belize. Contact: James Kavanagh: jkavanagh@rics.org.uk
- 9 12 March, 2006, Accra, Ghana. 5th FIG Regional Conference for Africa.
- 29 31 March, 2006, Berlin, Germany. 5<sup>th</sup> International Symposium, 'Turkish-German Joint Geodetic Days'.

#### APRIL 2006

- 5-7 April 2006, University of Kent, Canterbury. Three day meeting (joint with SEB): Imaging Techniques for Understanding Plant Responses to Stresses. Contact: Hamlyn Jones: <u>h.g.jones@dundee.ac.uk</u>
- 30 April 4 May, 2006, Reno, Nevada. ASPRS Annual Conference. Tel. +1-301-493-0290, Email <u>asprs@asprs.org.</u>

#### MAY 2006

- 1 4 May, 2006, Reno, Nevada, USA. ASPRS Annual Conference. Prospecting for Geospatial Information Integration. Tel. +1-301-493-0290, WWW:<u>http://www.asprs.org/reno2006/</u>
- 8 11 May 2006 Enschede, The Netherlands ISPRS Mid-term Symposium 2006 "Remote Sensing: From Pixels to Processes". Contact: Mrs. Saskia Tempelman P.O. Box 6 7500 AA ENSCHEDE The Netherlands Tel.: +31 (0)53 4874 333 Fax: +31 (0)53 4874 554 email: isprsc7@itc.nl
- 29 May 1 June 2006, Warsaw, Poland. 26<sup>th</sup> EARSeL Symposium. Contact Gesine Boettcher at Boettcher@ipi.uni-hannover.de or c/o Institute of Photogrammetry and GeoInformation (IPI) Technical University of Hannover, Nienburger Strasse 1D-30167, Hannover, Germany, Tel: +49 511 762 2482 Fax: +49 511 762 2483.

#### JULY 2006

- 2 June, Warsaw, Poland. EARSeL Special Interest Group on Geologic Applications Workshop on Geohazards with emphasis on lowland hazards. Contact: Pror. F.van der Meer at vdMeer@itc.nl.
- 13 17 July, 2006, Wollongong and Sydney, Australia. COASTGIS 2006: GIS for the coastal zone: Spatial Data, Modelling and Management: Extending the Spatial Data Infrastructure. Web: www.coastgis.org.
- 31 July 4 August, 2006, Front Range, Colorado, USA. IGARSS 2006. Email Emery@frodo. colorado.edu.

#### SEPTEMBER 2006

- September 2006 (date to be announced), University of Cambridge, Cambridge, UK. RSPSoc2006 Annual Conference: Understanding a Changing World: Integrated Approaches to Monitoring, Measuring and Modelling the Environment. Contact: Bernard Devereux, bjd1@cam.ac.uk.
- 25 27 September, 2006, Dresden, Germany. ISPRS Commission V Symposium, Image Engineering and Vision Metrology. WWW: http://www.commission5.isprs.org

MAY 2006
15 - 17 May, 2006 Aalborg, Denmark. UDMS 2006 - 25th Urban Data Management Symposium. e-mail: e.fendel@otb.tudelft.nl, WWW:http://www.udms.net
29 - 31 May, 2007, Padua, Italy. ISPRS IC WG I/V Mobile Mapping Technology Symposium (MMT2007), http://www.cirgeo.unipd.it/sitocirgeo/mmt frst.html

JULY 2007 23 - 27 July 2007. Barcelona, Spain. IGARSS 2007.

# THE MEDMENHAM CLUB and the MEDMENHAM COLLECTION



Although Imagery Analysis (IA) is only one of a number of skills that the Services teach its embryo intelligence staffs during basic training and later by more specialised courses, it has a special place for many. Imagery analysis is responsible for up to 80% of all intelligence gathered to support operations and targeting and still requires the analytical skills demanded from the Photographic Interpreters (PIs) who supported the front line in WWI and all operational areas in WWII. Although, initially, only open to the Photographic Interpreters (PIs) who served in the WWII PI Units, but primarily those who served at RAF Medmenham (The Allied Central Interpretation Unit (ACIU), the Medmenham Club has adapted to changing times and is now open to all who qualify on a full IA Course.

The Club was established in 1946 to maintain the camaraderie enjoyed by the photographic interpreters who served in the Allied Central Interpretation Unit (ACIU) at RAF Medmenham during the Second World War. Membership was, however, extended to those PIs who served in the many overseas locations (North Africa, Italy, India, Burma, The Far East etc) The Club's first President was the late Dr Hamshaw Thomas who pioneered aerial photographic interpretation in Palestine in 1916 and later served at Medmenham. Dr (Wg Cdr) "Ham" Hamshaw Thomas is considered by the faithful to be the "Father of PI" as he established the working principles of military photographic interpretation during the First World War and introduced the procedures that are largely still followed today. His "daytime" job was as one of the world's leading Botanists at Cambridge University!

WWII experience is, sadly, now limited to a few senior members. However, membership has been widened since the early days, and many "younger" members have practised photographic interpretation in operational theatres throughout the world and been involved in most world crises from the 1950s through to the 1980s. Now, in 2005, some of our truly younger members have gained experience serving in support of current operations in Europe and the Middle East. Thus we could be said to form a unique association of former and serving photographic interpreters and imagery analysts (IAs) spanning every world event of significance from the Second World War to the present. Sarah Oliver (nee Churchill), Lady Charlotte Bonham-Carter, and Art Lundahl (of Cuban Missile Crisis fame) were all members. (We await recognition for some of our younger members!)

Membership of the Club is open to all serving and retired photographic interpreters and imagery analysts of all ranks who have completed and passed a long PI/IA Course, including all branches of the Armed Services, the Volunteer Reserve and equivalent Intelligence Officer grades in the Civil Service. Associate membership is also open to those who have worked in a supporting role or had a close working association with the PI/IA profession. Club membership stands at approximately 330 active members.

The main aim of the Club is to keep former and serving PIs (IAs) in touch. We try and achieve this through a very informal, but we hope informative, biannual newsletter. The Club also holds an annual reunion; typically on the first or second Saturday in June, usually at a place of current PI activity or, alternatively, nostalgia - and a Spring and Autumn lunch in London. Members, partners (to use a modern term) and friends are all welcome to attend Club functions.

The Club sponsors the Medmenham Trophy, which is awarded annually to a practising imagery analyst, either Service or civilian, who is judged by a panel of senior officers from the MOD to have made the most outstanding contribution to military imagery intelligence during the previous

Club members have also contributed material and experience to the ever-growing Medmenham Collection (PI Museum) that has been developed with the support of OC The Joint School of Photographic Interpretation (JSPI), now the Medmenham Wing of the Defence College of Intelligence (DCI), located at the Defence Intelligence and Security Centre (DISC), Chicksands. The museum contains a fine collection of aerial cameras and photo-interpretation equipment, together with an interesting collection of aerial photographs, the most historic of which are on display. Visitors to the museum are welcome but need to arrange their visit in advance. Entry is free

For more information about the Medmenham Club or the museum contact the Club's Honorary Secretary: M D Mockford, 11, Moory Croft Close, Great Staughton, St. Neots, Cambs, PE19 5DY (Telephone; 01480-860755, e-mail: <u>michaelmockford@cyberware.co.uk</u>)

# ISPRS News (contributed by Ernie Wickens).

#### 29 Sep-1 Oct 2005,

4th International Conference on Forestry Lidar Applications "Silviscan: Lidar Applications in Forest Assessment & Inventory" <u>http://cears.fw.vt.edu/silviscan/</u>Blacksburg, Virginia, USA

**2-4 Nov 2005** WSEAS International Conference on Remote Sensing <u>http://www.worldses.org/</u> <u>conferences/2005/venice/remote/index.html</u>.Venice, ITALY

**6-9** Nov 2005 12th Canadian Coastal Conference(CCC2005). <u>http://www.ccc2005-ccl2005.ca/welcome\_e.html</u> Dartmouth, Nova Scotia, CANADA

**7 Nov 2005 I**SPRS WG VIII/6 joint Workshop/CCC2005: Remote Sensing for Coastal Zone Research, Monitoring & Management, <u>http://www.ccc2005-ccl2005.ca/welcome\_e.html</u>, Dartmouth, Nova Scotia, CANADA

**2-3 Mar 2006** ISPRS WG VIII/1 sponsored 1st Workshop of the EARSeL Special Interest Group on Urban Remote Sensing "Urban Remote Sensing: Challenges & Solutions" <u>http://www.hurs.de</u> Berlin-Adlershof, GERMANY

**7-12 May 2006** 2006 International Congress of Imaging Science (ICISÂ'06): Linking the Explosion of Imaging Applications with the Science and Technology of Imaging. http://www.imaging.org/conferences/icis06/index.cfm. New York, USA

**7-8 August 2006** International Workshop on 3D Geoinformation 2006. <u>www.fksg.utm.my/3Dgeoinfo2006</u>. Kuala Lumpur, Malaysia

#### Updated Events:

**14-16 Feb 2006.** ISPRS WG I/5-6 Workshop on 'Topographic Mapping from Space' <u>http://www.bilten.metu.edu.tr/ISPRSWorkshopAnkara2006/</u>. Ankara, Turkey

#### **Education**

Postgraduate Diploma Programme in 'Space Science and Technology Applications'. Beginning: January 2006. Organised by the UN-affiliated African Regional Centre for Space Science and Technology Education in English (ARCSSTE-E) in collaboration with the Nigerian National Space Research and Development Agency (NASRDA).<u>http://www.oauife.edu.ng/research/arcsstee/</u>

ISPRS EuroSDR 'International Calibration and Orientation Workshop (EuroCOW 2006)' 25-27 January 2006, Castelldefels, Spain Abstract submission is open until October 17th, 2005. http://www.eurocow.org

ISPRS WG IV/1 Workshop on 'Service and Application of Spatial Data Infrastructure'. 14-16 October 2005, Hangzhou, China, <u>http://www.commission4.isprs.org/wg1/</u>

ISPRS Workshop on Multiple Representation and Interoperability of Spatial Data February 22 - 24, 2006, Hannover, Germany.Submission of full paper: 15. November 2005 <u>http://www.ikg.uni-hannover.de/isprs/workshop.htm</u>

8-12 May 2006 ISPRS Commission VII Symposium <u>http://www.commission7.isprs.org</u> Enschede, The NETHERLANDS
3-6 July 2006 ISPRS Commission I Symposium <u>http://www.commission1.isprs.org</u> Marne-le-Valle, Paris, FRANCE
27-30 Sep 2006 ISPRS Commission IV Symposium <u>http://www.commission4.isprs.org</u> Goa, INDIA. http://www.commission4.isprs.org/ISPRS com4 symp06.pdf

# THE PHOTOGRAMMETRIC RECORD:

#### The Photogrammetric Record

The Photogrammetric Record has been enhanced. The number of issues has been increased from 2 to 4 per year, and the journal is now available online. You can recommend that your institution subscribes to the Journal; see www.blackwellpublishing.com/PhotRec for details. Individual subscriptions are available through the Society office.

#### TABLE OF CONTENTS

#### June 2005

**Combined Digital Photogrammetry and Time-of-Flight Laser Scanning for Monitoring Cliff Evolution**, Michael Lim, David N. Petley, Nicholas J. Rosser, Robert J. Allison, Antony J. Long, David Pybus.

**Spot Revisited:** Accuracy Assessment, Dem Generation and Validation from Stereo Spot 5 Hrg Images, Gürcan Büyüksalih, Güven Koçak, Hüseyin Topan, Murat Oruç, Aycan Marangoz.

Stereo-Photogrammetric Mapping of Tooth Replicas Incorporating Texture, Malcolm J. Grenness, Jon E. Osborn, Martin J. Tyas.

**Quality Assessment Of Digital Surface Models Generated From IKONOS Imagery**, Joanne Poon, Clive S. Fraser, Zhang Chunsun, Zhang Li, Armin Gruen.

#### September 2005

Hyper Redundancy for Accuracy Enhancement in Automated Close Range Photogrammetry, Clive S. Fraser, Alex Woods, Danny Brizzi.

Spectral Filtering and Classification of Terrestrial Laser Scanner Point Clouds, Derek D. Lichti.

Development of a Robust Photogrammetric Metrology System for Monitoring the Healing of Bedsores, Abbass Malian, Ali Azizi, Frank A. van den Heuvel, Mahmoud Zolfaghari

Direct Sensor Orientation for Large Scale MappingPotential, Problems, Solutions, Nac Yastikli, Karsten Jacobsen

**3D Building Modelling with Digital Map, Lidar Data and Video Image Sequences**, Yongjun Zhang, Zuxun Zhang, Jianqing Zhang, Jun Wu

# THE PHOTOGRAMMETRIC RECORD JUNE 2005

 $\underline{\text{EDITORIAL}^{1}}$ 

IT WILL NOT HAVE ESCAPED our readers' attention that, since *The Photogrammetric Record* was explicitly styled an international journal by our predecessor shortly before his retirement, many more contributions have been published (and even more have been received) from countries and institutions not traditionally associated with either *The Photogrammetric Record* or the United Kingdom. It has also gradually but emphatically become clear to us that, in some such countries, the academic authorities are relying on our services as a filter for research carried out by their Ph.D. candidates. While the formalisation of the *Record's* already well established status as an international journal was certainly intended to assist the UK academic community in the modern-day rat race of "publish or die", by providing opportunities for peer-reviewed publication in an international journal specialising in photogrammetry, it seems unlikely that the wider consequence of the change was either intended or foreseen.

In what are sometimes still described as "the good old days", University of London Ph.D. regulations apparently specifically prevented candidates from publishing doctoral thesis content prior to conclusion of its examination by the university authorities. It may still be argued by some that thesis material should remain internal unless the researcher's supervisors and their peers see a need for early publication. It is much easier to see why an institution, such as the University of London, which prides itself both on offering an effective training for a research career and on rapid publication of leading-edge research, long ago amended such a regulation in favour of allowing, or even encouraging, graduate students to submit to the discipline of seeking to publish their work in peer-reviewed journals.

However, this change of perspective has evidently gone further in some quarters: it has now emerged that the award of a research Ph.D. in some, perhaps many, countries, is conditional upon acceptance for publication of the results of that research in an international journal. Because of our proud record of reasonably rapid turnround of our peer review process, *The Photogrammetric Record* is now receiving a disproportionate number of papers in this category, from a range of authors of widely varying ability, and frequently with far too little time to spare before the lead author's defence of his Ph.D. This leads in turn to increasingly importunate and desperate, and thus extremely unwelcome and time-consuming, correspondence with such authors. When the focus of attention shifts to quick publication, as opposed to production of good papers, quality is obviously liable to suffer, so it is particularly sad when even an unusually good paper, destined for easy acceptance after due process, embroils us in correspondence of this kind.

Our team of volunteers, including our International Editorial Board members, perform their tasks for *The Photogrammetric Record* for a range of motivations which we are aware includes the altruistic one of supporting academic activity in developing countries, but we do not seek to become the arbiters of success or failure for individuals other than in the simple question of whether a short paper is worthy of publication in this journal. Neither is *The Photogrammetric Record* in the employ or the pay of the academic authorities in any country; we do not seek to become so employed; and we do not accept any obligation towards any such authority except that of maintaining our independence, which obviously in turn precludes such employment.

Ph.D. candidates who find themselves in this bind must understand our position and take account of reasonable time scales, if they hope to see their papers published before they are called upon to defend the theses on which the short papers are based. It is perhaps less obvious, but is equally essential, that academic authorities who are tempted to make use of us in this way also understand our position. We would prefer these authorities to have the courage of their own convictions in assessing their students' work, naturally with the assistance of their external examiners in order to maintain international standards. Nevertheless we cannot avoid accepting that we do have a role in establishing the wider recognition of young academics. It is likely that we influence their prospects for future employment in the international arena and that we are also being used in turn by authorities in other places to guide their recruitment processes.

Thus it appears that none of our team can avoid this unlooked-for responsibility, but the International Editorial Board and the referees whom they appoint can certainly take pride in the work that they do and in the independence which they must maintain. We heartily thank them for the effort and enthusiasm which they bring to their task. And finally, we emphasise that our purpose is to publish well written accounts of the results of original research and of interesting applications involving photogrammetry, from any country and from authors at any age or stage in their careers. Obviously our

<sup>&</sup>lt;sup>1</sup> This article was published in The Photogrammetric Record 20(110): 107–108 (June 2005) © The Remote Sensing and Photogrammetry Society and Blackwell Publishing Ltd.

aim is to seek excellence and to eliminate the unworthy; the pressure of candidacy for award of a Ph.D. degree is almost entirely irrelevant to this aim and that purpose.

On another aspect of excellence, some readers will have seen the news in March 2005 that HM the Queen had conferred an honorary knighthood on Mr William Gates of Seattle, Washington, USA. We have accepted advice to delete our own intended comments on this honour, its recipient and the company which he heads, and on the judgement of the Ministers of the Crown responsible for advising the Queen in this context; however, use of commonly available search engines will reveal that the appointment has not been greeted with universal acclaim. For the benefit of those who are unfamiliar with the arcane conjunction of US Law and UK custom which govern matters of this nature, we add that we may acknowledge Mr William Gates, KBE, but that he should not be referred to as Sir William.

PAUL NEWBY West Wellow, Hampshire, England

May 2005

# **IJRS: TABLE OF CONTENTS**

#### Volume 26, Number 1, 2005

Satellite and ground-based observations of the typhoon which passed through south-east Korea on 12 September 2003, pp. 1 - 6, Y. S. Chung, H. S. Kim, K. H. Park

Moving on to the next 25 years, pp. 7 - 8, Arthur P. Cracknell

**AVHRR automated detection of volcanic clouds**, pp. 9 - 28, A. Bonfiglio, M. Macchiato, N. Pergola, C. Pietrapertosa, V. Tramutoli

**Experimental study of polarization characteristics of lidar signal in case of occlusion front**, pp. 29 - 46, I. N. Kolev, B. I. Tatarov, P. B. Savov, T. T. Trifonov, B. K. Kaprielov

**Estimating surface solar radiation over complex terrain using moderate resolution satellite sensor data**, pp. 47 - 58, Kaicun Wang, Xiuji Zhou, Jingmiao Liu, M. Sparrow

Determination of palaeotectonic and neotectonic features around the Menderes Massif and the Gediz Graben (western Turkey) using Landsat TM image, pp. 59 - 78, K. S. Kavak

**Urban surface model generation from remotely sensed airborne image sequence data**, pp. 79 - 98 Guoqing Zhou, Pinggang Song, P. Cheng

Land-cover binary change detection methods for use in the moist tropical region of the Amazon: a comparative study, pp. 101 - 114, D. Lu, P. Mausel, M. Batistella, E. Moran

**Repeatability of hyperspectral imaging systems—quantification and improvement**. pp. 115 - 139, K. Peleg, G. L. Anderson, Chenghai Yang

Merging of airborne elevation data and Radarsat data to develop a Digital Elevation Model, pp. 141 - 166, N. Baghdadi, S. Cavelier, J.P. Chiles, B. Bourgine, Th. Toutin, C. King, P. Daniels, J. Perrin, C. Truffert

Lidar observation of a strongly nonlinear internal wave train in the Gulf of Alaska, pp. 167 - 177, J. H. Churnside and L. A. Ostrovsky

Iterative self-consistent approach for Earth surface temperature determination, pp. 185 - 192, Y. Xue, Guoyin Cai, Y. N. Guan, A. P. Cracknell, Jiakui Tang

**Mapping insect-induced tree defoliation and mortality using coarse spatial resolution satellite imagery**, pp. 193 - 200, R. H. Fraser and R. Latifovic

Detection of mining related ground instabilities using the Permanent Scatterers technique—a case study in the east of France, pp. 201 - 207, C. Colesanti, S. Le Mouelic, M. Bennani, D. Raucoules, C. Carnec, A. Ferretti

Using PCA transformation to remove the tenuous cloudiness effect in multispectral satellite sensor images, pp. 209 - 216, S. García-López, J. Delgado, J. Cardenal, J. Caracuel

Random forest classifier for remote sensing classification, pp. 217 - 222, M. Pal

You know what land cover is but does anyone else?...an investigation into semantic and ontological confusion, pp. 223 - 228, A. Comber, P. Fisher, R. Wadsworth

#### Volume 26, Number 2, 2005

Aerosol optical depth over the Baltic Sea derived from AERONET and SeaWiFS measurements, pp. 233 - 245, T. Carlund, B. Håkansson, P. Land

SeaWiFS ocean colour chlorophyll algorithms for the southern Baltic Sea, pp. 247 - 260, M. Darecki, S. Kaczmarek, J. Olszewski

The combined use of optical remote sensing data and unattended flow-through fluorometer measurements in the Baltic Sea, pp. 261 - 282, J. Vepsäläinen, T. Pyhälahti, E. Rantajärvi, K. Kallio, S. Pertola, T. Stipa, M. Kiirikki, J. Pulliainen, J. Seppälä

Derivation of dissolved organic carbon concentrations from SeaWiFS data, pp. 283 - 293, J. N. Schwarz

**Industrial plume detection in hyperspectral remote sensing data**, pp. 295 - 313, P. Philipson née Ammenberg, M. Liljeberg, T. Lindell

**Ocean colour remote sensing relevant water constituents and optical properties of the Baltic Sea**, pp. 315 - 330, H. Siegel, M. Gerth, T. Ohde, T. Heene

Spectral backscattering coefficient in coastal waters, pp. 331 - 343, E. Aas, J. Høkedal, K. Sørensen

**Empirical relationships between coloured dissolved organic matter (CDOM) absorption and apparent optical properties in Baltic Sea waters**, pp. 345 - 370, P. Kowalczuk, J. Olszewski, M. Darecki, S. Kaczmarek

Spectral optical and bio-optical relationships in the Oslo Fjord compared with similar results from the Baltic Sea, pp. 371 - 386, J. Høkedal, E. Aas, K. Sørensen

Spectral absorption and fluorescence characteristics of phytoplankton in different size fractions across a salinity gradient in the Baltic Sea, pp. 387 - 414, J. Seppälä, P. Ylöstalo, H. Kuosa

Point or pointless - quality of ground data, pp. 415 - 423, Antti Lindfors, Kai Rasmus, Niklas Strömbeck

#### Volume 26, Number 3, 2005

Mapping forest degradation in the Amazon region with Ikonos images, pp. 425 - 429, C. M. Souza and D. Roberts

Mapping individual tree location, height and species in broadleaved deciduous forest using airborne LIDAR and multi-spectral remotely sensed data, pp. 431 - 455, S. Koukoulas and G. A. Blackburn

**EO-1 Hyperion, ALI and Landsat 7 ETM+ data comparison for estimating forest crown closure and leaf area index**, pp. 457 - 474, R. Pu, Q. Yu, P. Gong, G. S. Biging

Estimating and mapping pteridophyte and Melastomataceae species richness in western Amazonian rainforests, pp. 475 - 793, S. Rajaniemi, E. Tomppo, K. Ruokolainen, H. Tuomisto

**Evaluating high spatial resolution imagery for detecting citrus orchards affected by sooty mould**, pp. 495 - 502, R. S. Fletcher

A practical approach for estimating the red edge position of plant leaf reflectance, pp. 503 - 521, G. V. G. Baranoski and J. G. Rokne

**Capabilities of multispectral thermal data for identification of Anopheles gambiae mosquito larval habitats in African urban environments**, pp. 523 - 534, Benjamin G. Jacob, James L. Regens, Charles M. Mbogo, Andrew K. Githeko, Christopher M. Swalm, John I. Githure, John C. Beier

**Use of ordinal conversion for radiometric normalization and change detection**, pp. 535 - 541, T. Nelson, H. G. Wilson, B. Boots, M. A. Wulder

**Comparison of function- and structure-based schemes for classification of remotely sensed data**, pp. 543 - 561, B. Prenzel and P. Treitz

Using logit models to classify land cover and land cover change from Landsat Thematic Mapper, pp. 63 - 577, K. C. Seto and R. K. Kaufmann

**Satellite image classification using genetically guided fuzzy clustering with spatial information**, pp. 579 - 593, S. Bandyopadhyay

Comparison between Mallat's and the 'à trous' discrete wavelet transform based algorithms for the fusion of multispectral and panchromatic images, pp. 595 - 614, M. González-Audícana, X. Otazu, O. Fors, A. Seco

**Multifractal characterization of the spatial distribution of ulexite in a Bolivian salt flat**, pp. 615 - 627, A. N. D. Posadas, R. Quiroz, P. E. Zorogastúa, C. León-Velarde

**Monitoring East Asian migratory locust plagues using remote sensing data and field investigations**, pp. 629 - 634, Jianwen Ma, Xiuzhen Han, Hasibagan, Changlin Wang, Yuejin Zhang, Jinyi Tang, Zhiyu Xie, T. Deveson

Mapping forest successional stages following deforestation in Brazilian Amazonia using multi-temporal Landsat images, pp. 635 - 642, F. D. B. Espírito-Santo, Y. E. Shimabukuro, T. M. Kuplich

Changes in ocean properties associated with Hurricane Isabel, pp. 643 - 649, R. Gautam, R. P. Singh, M. Kafatos

#### Volume 26, Number 4, 2005

Remote sensing of urban areas, pp. 655 - 659, D. Maktav, F. S. Erbek, C. Jürgens

A global analysis of urban reflectance, pp. 661 - 681, C. Small

A novel method for generating 3D city models from high resolution and multi-sensor remote sensing data, pp. 683 - 698, Jochen Schiewe and Manfred Ehlers

Measuring temporal compositions of urban morphology through spectral mixture analysis: toward a soft approach to change analysis in crowded cities, pp. 699 - 718, Tarek Rashed, John R. Weeks, Doug Stow, Debbie Fugate

Assessment of the rectification accuracy of IKONOS imagery based on two-dimensional models, pp. 719 - 731, Ahmed Shaker, Wenzhong Shi, Hazem Barakat

The utility of texture analysis to improve per-pixel classification for high to very high spatial resolution imagery, pp. 733 - 745, Anne Puissant, Jacky Hirsch, Christiane Weber

**Comparing feature extraction techniques for urban land-use classification**, pp. 747 - 757, C. Özkan and F. Sunar Erbek

**GIS and remote sensing as tools for the simulation of urban land-use change**, pp. 759 - 774, Cláudia Maria De Almeida, Antonio Miguel Vieira Monteiro, Gilberto Câmara, Britaldo Silveira Soares-Filho, Gustavo Coutinho Cerqueira, Cássio Lopes Pennachin, Michael Batty

**The use of satellite image maps for urban planning in Turkey**, pp. 775 - 784, F. Sunar Erbek, A. Ulubay, D. Maktav, E. Ya-iz

Urban development in the Athens metropolitan area using remote sensing data with supervised analysis and GIS, pp. 785 - 796, Christiane Weber, Chryssanthi Petropoulou, Jacky Hirsch

Analysis of urban growth using multi-temporal satellite data in Istanbul, Turkey, pp. 797 - 810, D. Maktav and F. S. Erbek

Hyperspectral image assessment of oil-contaminated wetland, pp. 811 - 821, Foudan Salem, Menas Kafatos, Tarek El-Ghazawi, Richard Gomez, Ruixin Yang

Automatic detection of earthquake-damaged buildings using DEMs created from pre- and post-earthquake stereo aerial photographs, pp. 823 - 832, Mustafa Turker and Bulent Cetinkaya

#### **Books for review in IJRS**

The books listed below have been received by the Book Reviews Editor of IJRS who is looking for volunteers to write a short review in return for keeping the book. Anyone interested should contact Robin Vaughan at <u>r.a.vaughan@dundee.ac.uk</u> either with an offer or to request further information of a particular book.

- 1. Introduction to mathematical techniques used in GIS. Peter Dale.
- 2. Theory of remote image formation. Richard Blahut
- 3. *New strategies for European Remote Sensing*. Marinko Oluic. Proceedings of the EARSeL workshop held in Dubrovnik in June 2004.
- 4. *Geodynamics*. Peter Atkinson, Giles Foody, Stephen Darby and Fulong Wu. Contributions based on the Geocomputation conference held in Southampton sept 2003.
- 5. Satellite monitoring of inland and coastal water quality retrospection, introspection and *future directions*. Robert Bukata
- 6. *Geographic information systems and science*. 2<sup>nd</sup> ed. Paul Longley, Nicheal Goodchild, David Maguire and David Rhind.
- 7. Wildland Fire Danger Estmation and mapping. The role of RS data. Ed Emilio Chuvieco
- 8. *GPS Satellite Surveying* 3<sup>rd</sup> ed. Alfred Leick
- 9. Telegeoinformatics location based computing and services. Ed Hassan Karimi and Amin Hammad

#### UK-Based ISPRS WG Chairmen 2004–2008

We congratulate the nine UK-based individuals listed below on their appointments as Chair or Co-Chair of ISPRS Working Groups as indicated, and we wish them well in their activities during the session. The following information should enable interested parties in any country to make contact with them. The ISPRS Committee of the Remote Sensing and Photogrammetry Society warmly encourages UK participation in ISPRS Technical Commission activity through these or any other appropriate Working Group. Every Commission now has а web presence through http://www.commission\*.isprs.org (where \* indicates the Commission number in arabic numerals 1, 2, 3, and so on). For an overview of all ISPRS Technical Commissions and Working groups for 2004-2008 and links to all other relevant addresses, see http://www.isprs.org/tcwg.

- WG I/4 Airborne Digital Photogrammetric Sensor Systems Jon Mills
- <u>j.p.mills@ncl.ac.uk</u> <u>http://www.commission1.isprs.org/wg4/</u> WG I/6 Small Satellites Arthur Cracknell (co-chair)

a.p.cracknell@dundee.ac.uk http://www.commission1.isprs.org/wg6/

- ICWG II/IV Dynamic and Multi-Dimensional Systems and Applications Christopher Gold <u>cmgold@glam.ac.uk</u> <u>http://www.comp.glam.ac.uk/gis/isprs/</u>
  - (see also http://www.comp.glam.ac.uk/GIS/DMGIS05)
- WG IV/3 Automated Geospatial Data Acquisition and Mapping
   Peter Woodsford (co-chair)

   peter.woodsford@laser-scan.com
   http://www.ipi.uni-hannover.de/ISPRS\_WG\_IV\_3/
- WG IV/9 Mapping from High Resolution Spaceborne and Airborne Data
   David Holland

   dholland@ordsvy.gov.uk
   http://commission4.1uphost.net/wg9.html
- WG VIII/5 Policies, Treaties and Data Access Bhupendra Jasani <u>bhupendra.jasani@kcl.ac.uk</u> <u>http://geo.haifa.ac.il/~isprs/wgs/wg5.htm</u>
- WG VIII/6 Coastal Management, Ocean Colour and Ocean State Forecasting: Samantha Lavender (cochair)
  - s.lavender@plymouth.ac.uk http://geo.haifa.ac.il/~isprs/wgs/wg6.htm
- WG VIII/10 Precision Farming and Sustainable Food Production Gavin A. Wood (co-chair)

# g.a.wood@cranfield.ac.ukhttp://geo.haifa.ac.il/~isprs/wgs/wg10.htmWG VIII/11Sustainable Forest and Landscape ManagementAlan Blackburn (co-chair)alan.blackburn@lancaster.ac.ukhttp://geo.haifa.ac.il/~isprs/wgs/wg11.htmISPRS MID-TERM SYMPOSIA, 2006

THE INTERNATIONAL SOCIETY for Photogrammetry and Remote Sensing (ISPRS) has published the following calendar of mid-term Technical Commission Symposia for the 2004–2008 session. Full details will become available on each Commission's own website as indicated.

8–12 May 2006, Commission VII: Thematic processing, modeling and analysis of remotely sensed data. Enschede, The Netherlands. (<u>http://www.commission7.isprs.org</u>)

27–30 June 2006, Commission VI: Education and outreach. Yokohama, Japan. (http://www.commission6.isprs.org)

3–6 July 2006, Commission I: Image data acquisition - sensors and platforms. Marne-la-Vallée, France. (http://www.commission1.isprs.org)

12–14 July 2006, Commission II: Theory and concepts of spatio-temporal data handling and information. Vienna, Austria. (<u>http://www.commission2.isprs.org</u>)

4–7 Sep 2006, Commission VIII: Remote sensing applications and policies. Haifa, Israel. (http://www.commission8.isprs.org)

20-22 Sep 2006, Commission III: Photogrammetric computer vision and image analyses. Bonn, Germany. (<u>http://www.commission3.isprs.org</u>)

25–27 Sep 2006, Commission V: Close-range sensing: analysis and applications. Dresden, Germany. (http://www.commission5.isprs.org)

27–30 Sep 2006, Commission IV: Geo-databases and digital mapping. Goa, India. (http://www.commission4.isprs.org)

# REMOTE SENSING AND PHOTOGRAMMETRY SOCIETY CORPORATE MEMBERS

- ATKINS SURVEY & MAPPING, Connect 17, Langley Park, Avon Way, Chippenham, SN15 1GG, UK (Tel: 01249 455000, Fax: 01249 455045, <u>info@atkinsglobal.com</u>)
- **BAE SYSTEMS**, Sheraton House, Castle Park, Cambridge, CB3 OAX, UK (Tel: +44 1223 370023, Fax: +44 7801 713267, Email: <u>jw.allan@baesystems.com</u>)
- **BKS SURVEYS LTD,** 47 Ballycairn Road, Coleraine, Co. Londonderry, N Ireland, BT51 3HZ (Tel: +44 2870 352 311. Fax: +44 2870 357 637. Email: <u>accs@bks.co.uk</u>)
- CANADIAN REMOTE SENSING SOCIETY, c/o Canadian Aeronautics and Space Institute, 1685 Russell Road, Unit 1R, Ottawa, Ontario K1G 0N1, Canada (Tel: (+613) 234 0191 Fax: (+613) 234 9039, email: casi@casi.ca)
- **CARTOGRAPHIC ENGINEERING LTD**, North Common, Sherfield English, Romsey, Hampshire, SO51 6JT, UK (Tel: +44 1794 344700, Fax: +44 1794 344701 e.mail: info@cartographicengineering.co.uk www.cartographicengineering.co.uk)
- CARTOGRAPHICAL SURVEYS LTD, The Survey Centre, Waterworks Road, Worcester, WR1 3EZ, UK (Tel: + 44 1905 29085, Fax: 01905 617771, email: <u>csoffice@cartosurveys.co.uk</u>)
- DARTCOM, Powdermills, Postbridge, Yelverton, Devon, PL20 6SP, UK (Tel: 01822 88253, Fax: 01822 88232)
- **DEFENCE GEOGRAPHIC CENTRE**, Library and Information Centre, Rm G4, MacLeod Building, Elmwood Avenue, Feltham, Middlesex, TW13 7AH, UK (Tel: 020 8818 3137. Fax: 020 8818, 3130. Email: <u>dgc-infoprovlic-c1@dgia.mod.uk</u>)
- EARSeL, 2 avenue Rapp, 75340 Paris Cedex 07, France (Tel: 33-1 455 67360, Fax: 33-1 455 67361, <u>email: earsel@meteo.fr</u>)
- **ENGLISH HERITAGE**, The Photogrammetric Unit, The Survey Team, 37 Tanner Row, York, YO1 6WP, UK (Tel: + 44 1904 601959, Fax: +44 1904 601999)
- ENVIRONMENT AGENCY, Science Group Technology, Lower Bristol Road, Twerton, Bath, BA2 9ES, UK (Tel: 01225 444066. Fax: 01225 469939)
- ESRI (UK) IMAGING SOLUTIONS GROUP, Prebendal House, Parsons Fee, Aylesbury, Bucks, HP20 2QZ, UK (Tel: 01296 745500, Fax: 01296 745544, <u>info@esriuk.com</u>)
- GETMAPPING PLC, Virginia Villas, High Street, Hartley Wintney, Hants, RG27 8NW, <u>UK (Email: mail@getmapping.com</u>) Tel: +44 (0) 870 7740174
- HTSPE LTD, Thamesfield House, Boundary Way, Hemel Hempstead, Hertfordshire, HP2 7SR, UK Tel: +44 (0) 1442 202400 Fax: +44 (0) 1442 219886, Email: info@htspe.com
- **INFOTERRA LIMITED**, Atlas House, 41 Wembley Road, Leicester, LE3 1UT, UK (Tel: 0116 273 2300, Fax: 0116 273 2400, <u>www.infoterra-global.com</u>)
- IREA, Istituto per il Rilevamento Elettromagnetico Dell' Ambiente (IREA), Cnr Via Bassini 15, 20133 Milano, Italy (Tel: 00 39 223699281Fax: 00 39 2 23699300)
- JARIC, RAF Brampton, Huntingdon, Cambs, PE28 4YG (Tel: 01480 52141 x 7302)
- KODAK LTD, Kodak House, Station Road, Hemel Hempstead, Herts, HP1 1JU, UK (Tel: 01442844473. Fax: 01442844842, Email: emmanuel.loidreau@kodak.com)
- LEICA GEOSYSTEMS GEOSPATIAL IMAGING GmbH, Heinrich-Wild-Strasse, CH-9435 Heerbrugg, Switzerland (Tel: + 41 71 727 3411, Fax: + 41 71 727 4691, <u>www.gi.leica-geosystems.com</u>)
- LEICA GEOSYSTEMS GIS & MAPPING LIMITED, Building D1, Fairoaks Airport, Chobham, Surrey, GU24 8HU, UK (Tel: + 44 1276 855756, Fax: + 44 1276 855365, Email: <u>Robert.Taft@gis.leica-geosystems.com</u>)
- MASON LAND SURVEYS LTD, Dickson Street, Dunfermline, Fife, KY12 7SL, UK (Tel: +44 138 372 7261. Fax: +44 138 373 9480 Email: <u>kevan.mason@mason.co.uk</u>)
- NATIONAL AEROSPACE LABORATORY, NLR, Remote Sensing Dept, PO Box 153, 8300 AD Emmeloord, The Netherlands (Tel: +20 5113113, Fax: 20511 3216)Email: info@nlr.nl
- NERC EARTH OBSERVATION EXPERT PROGRAMME, Polaris House, North Star Avenue, Swindon, Wiltshire, SN2 1EU, UK (Tel: 01793 442000, Fax: 01793 411501)
- NIGEL PRESS ASSOCIATES GROUP, Crockham Park, Edenbridge, Kent, TN8 6SR, UK (email: info@npagroup.co.uk) Tel: +44 (0) 1732 865023 Fax: +44 (0) 1732 866521
- **ORDNANCE SURVEY**, Romsey Road, Maybush, Southampton, Hampshire, SO16 4GU, UK (Tel: +44 2380 792349. Fax: + 44 2380 792472. Email: <u>enquiries@ordnancesurvey.co.uk</u>)

- ORDNANCE SURVEY OF NORTHERN IRELAND, Colby House, Stranmillis Court, Belfast, BT9 5BJ, UK (Tel: +44 28 90 255740, Fax: +44 28 90 255700, <u>Email: osni@nics.gov.uk</u>)
- ORDNANCE SURVEY IRELAND, Phoenix Park, Dublin 8, Ireland (Tel: +353 1802 5383, Fax: +353 1820 4156)
- PCI GEOMATICS GROUP LTD, 33-35 Station Road, Henley on Thames, Oxfordshire, RG9 1AT, UK (Tel: +44 1491 412114) Fax: +44 (0) 1491 412 115 Email: sales@pcigeomatics.com
- PHOTARC SURVEYS LTD, Beech House, Beech Avenue, Harrogate, North Yorkshire, HG2 8DS, UK (Tel: +44 142 387 1629, Fax: +44 142 387 1639)
- QASCO (NSW) PTY Ltd, PO Box 233, 9 Seven Hills Road, Baulkham Hills, NSW 1755, Australia (Tel: +61 2 6398822)
- QinetiQ, R. 1758, A8 Building, Farnborough, Hants, GU14 OLX, UK Tel: +44 (0) 8700 100 942
- **RADARSAT INTERNATIONAL**, 13800 Commerce Parkway, MacDonald Dettwiler Building, Richmond BC, V6V 2J3, Canada (Tel: (604) 231 5000, Fax: (604) 231 4900)Email: info@rsi.ca
- **RESEARCH SYSTEMS INTERNATIONAL (UK) Ltd**, A Kodak Company, 31 Wellington Business Park, Dukes Ride, Crowthorne, Berks, RG45 6LS, UK (Tel: +44 (0)1344 760 400 Fax: +44 (0)1344 760 409)Email: uksales@rsinc.com
- ROYAL GEOGRAPHICAL SOCIETY WITH THE INSTITUTE OF BRITISH GEOGRAPHERS, 1 Kensington Gore, London, SW7 2AR, UK (Tel: +44 (0) 207 591 3040 Fax: +44 (0) 207 5913001) Email: enquiries@rgs.org
- SERVICES FEDERAUX DES AFFAIRES SCIENTIFIQUES, TECHNIQUES ET CULTURELLES, Bibliotheque, Rue de la Science 8, 1000 Brussels, Belgium
- SIMMONS AEROFILMS LTD, The Astrolabe, Cheddar Business Park, Wedmore Road, Cheddar, Somerset, BS27 3EB, UK (Tel: 01934745820, Fax: 01934 745825 email: INFO@SIMMONSAEROFILMS.COM, www.simmonsaerofilms.com)
- UK HYDROGRAPHIC OFFICE (The Library), Admiralty Way, Taunton, Somerset, TA1 2DN, UK (Tel: 01823 337900 x3500, Fax: 01823 284077)
- UNIVERSITY OF DERBY, Department of Geography, Kedleston Road, Derby, DE22 1GB, UK (Tel: 01332 622222, Fax: 01332 294861, email: O.J.TOMLINSON@DERBY.AC.UK)
- **UNIVERSITY OF NORTHERN IOWA**, Rod Library Technical Services, 1227 W. 27<sup>th</sup> Street, Cedar Falls, Iowa 50613 3675, USA (Tel: 319 273 2801 Fax: 319 273 2870)
- UPTC Ltd, c/o The Library, Drake Circus, Plymouth, Devon, PL4 8AA, UK (Tel: 01752 232015)
- Z/I IMAGING (UK) LTD, Delta 100, Delta Business Park, Great Western Way, Swindon, Wilts, SN5 7XP, UK (Tel: + 44 1793 492567, Fax: + 44 1793 492993, Email: <u>direson@ziimaging.com</u>, <u>www.ziimaging.com</u>
- **3D LASER MAPPING LTD**, 1A Church Street, Bingham, Nottingham, NG13 8AL, UK (Tel: 0870 442 9400, Fax: 0870 121 4605, Email: <u>graham@3dlasermapping.com</u>)
- **3Di INTERNATIONAL LTD**, Unit 1, Ham Business Centre, Brighton Road, Shoreham-by-Sea, East Sussex, BN43 6PA, UK (Tel: +44 127 346 4883, Fax: + 44 127 345 4238, Email: <u>3di@dial.pipex.com</u>)