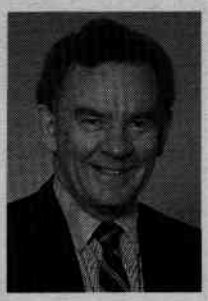
Australian Centre for Remote Sensing

ACRES

UPDATE



Manager's Message

The challenge for our industry is to successfully promote the benefits of satellite remote sensing to a much wider constituency.

This was the message from the recent Australasian Remote Sensing Conference in Wellington. User friendly products, flexible pricing policies and innovative sales activities are obvious strategies.

The European Space Agency's Principal Investigator's early results were presented to an audience of 500 in France during the same week as the Wellington meeting.

We received a briefing at the ERS-1 ground station meeting the following week. While the range of potential applications for the SAR data is impressive, I was most impressed by the rapid progress made in the derivation of Digital Elevation Models using interferometry.

ACRES has acquired a large ERS–1 SAR data archive over Australia and we are joining the ESA 'Fringe' group, which is coordinating the 30 groups working worldwide on DEMs from SAR.

A major milestone was reached on 24 November when our General Manager, Graham Bashford, signed the Memorandum of Understanding (MOU) with NASDA for the reception and distribution of Japan's JERS data at Alice Springs and Hobart when the TERSS ground station is operational next year. This MOU addresses data for research only, but we expect to broaden the arrangements to allow commercial distribution at a later date.

C. McMaster

MANAGER, ACRES

LANDSAT TM Prices Reduced

A new LANDSAT TM price list has been released effective from 1 January 1993. Substantial price reductions of up to 40% for quarter scene and map sheet digital products are the major changes to be introduced. Full scenes, floppy disks and photographic product prices are not substantially changed.

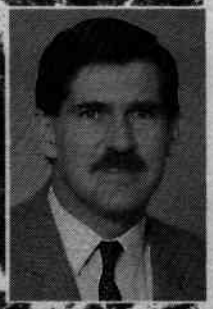
The price lists have also been simplified to be more readable and easier to interpret by new users. Several less popular levels of product do not appear on the price list, however these are still available by special request.

Four band digital map sheet products are now $990 with 1:100 000 photographic map products at $570, which are excellent value, particularly for GIS applications.

For a copy of the price list or more information contact John Lee (06)252 4431 or Madeleine Clark (06)252 4430.

INSIDE

January 1993



EDITORIAL

ACRES Update is a newsletter published quarterly by the Austalian Centre for Remote Sensing and is intended to provide the remote sensing community with information on new satellite and sensor developments, ACRES product and organizational news, national and international developments of interest to ACRES clients and information on remote sensing applications.

ACRES is a business unit within the Australian Surveying and Land Information Group in the Department of Administrative Services.

Items for publication are invited from interested parties and should be forwarded to the Editor.

Contact: Dennis Puniard, Editor/Director Marketing. Phone: (06)252 4429. FAX: (06)251 6326.

SURVEY RESULTS

The response to the questionnaire circulated with the last ACRES Update was most useful in ensuring the continuation of publishing this Newsletter and for input on its future content. In summary, readers thought the current publication is:

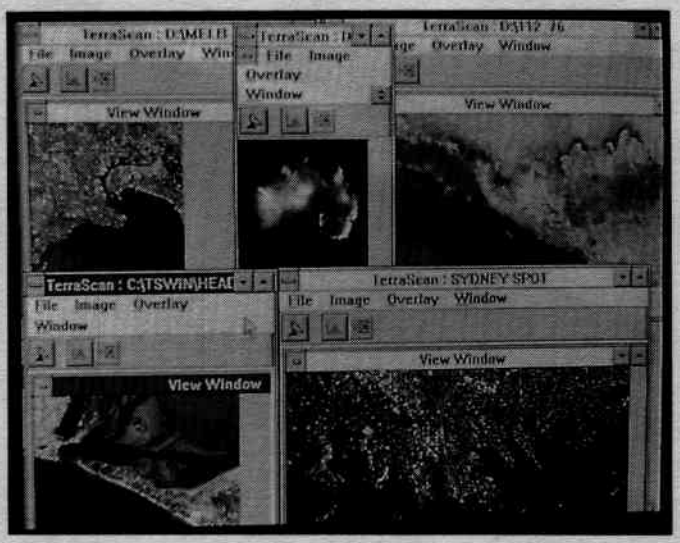
Excellent 41%; Adequate 59%.

Essential Reading 20%; Useful 73%; Marginal Interest 7%.

Content priorities: Product News 25%; Satellite/Sensor News 40%; Applications 28%; Other 7%.

Readers thought it should be: As Is 34%; Broader Remote Sensing News 38%; Generic GIS/Remote Sensing News 28%.

The image in the margin on each page is an ERS1 SAR Image on Irian Jaya



Terrascan in action!

Desktop Image Processing Software Released

ACRES Distributor, Resource Industry Associates (RIA), is pleased to announce the release of its image processing programs for display and enhancement of satellite and geophysical data sets. TerraScan Version 1.0, the SHAREWARE version, was recently released by ACRES and SPOT Imaging Services at the Remote Sensing Conference in Wellington, and the subsequent AURISA Conference on the Gold Coast. Jeff Bailey of RIA said that over 130 copies of the program are in use. RIA has now released Version 1.1 which has many enhancements and new features. As well as performing on 16 bit (32 000 colours) and 24 bit (16 million colours) video cards the program operates effectively with only 8 bit (256 colour) VGA cards.

TerraScan operates under Microsoft Windows 3.1 on any DOS computer. By using the Windows shell the processed images can be annotated and printed.

TerraScan has been developed by Elvin Slavik in association with RIA and AMIRA. An advanced version of the program called TerraScan Pro is also available at a cost of $1 000.

TerraScan has been developed primarily as a program to display on a PC the Landsat and SPOT digital data distributed in Australia by RIA. The availability of such a program will develop many new users of satellite data.

Bailey advised that one advantage of TerraScan to users was the ability of the program to display the output from advanced systems such as MicroBrian, DISIMP and ERMapper, a program which he initiated at AMIRA in 1987. It is interesting to note that the mining and oil companies that were quick to pick up

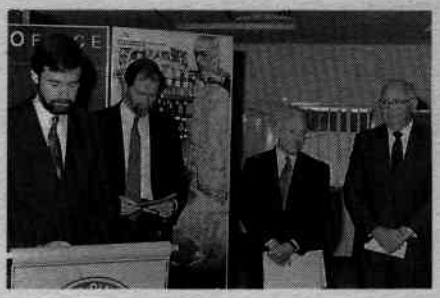
image processing have also been keen to use TerraScan in their field offices to display data sets that have been warped and processed on their advanced head office systems.

RIA is one of the biggest distributors of raw satellite data and GPS systems and is keen to extend these technologies to a wider user group. The company has been very successful with its introduction of the Magellan PRO GPS receivers into the resource industries in Australia and overseas. While it has continued to work with the Magellan technology for a range of professional applications, RIA has used its expertise to extend GPS technology to a wider community via the introduction of the range of GPS products from Sony Corporation.

The interest in the tiny eight channel SONY GPS core module by the security industry has also given RIA the opportunity to introduce satellite imagery using TerraScan. Jeff describes this example of the security industry as just one of many opportunities where GPS and TerraScan have complimented each other. Just as the GPS technology has been transferred to the consumer market, RIA hopes that TerraScan will be the vehicle to transfer satellite image data to the wider professional and education markets.

Contact Jeff Bailey or Terry Boyd at RIA on (03)482-4945 for a copy of TerraScan Version 1.1 for evaluation as well as a suitable graphics card to display your data with improved speed and resolution. Registered users of TerraScan receive an upgrade to version 1.1.

Mr Alistair Hodgson, Managing Director BAeA, explains some aspects of the FDP to Senator Button



Drew Clarke, Acting General Manager, AUSLIG, at handover ceremony with (left to right) John Boyd, Executive Director, Australian Space Office, Senator Button, and Noel Tanzer, Secretary DAS

Fast Delivery Processor for SAR Products installed at ACRES

On 11 November 1992 the Minister for Industry, Technology and Commerce, Senator John Button, officially handed over to ACRES the Fast Delivery Processor (FDP) for SAR products, developed and built by British Aerospace Australia (BAeA).

The FDP development was funded by the Australian Space Office. The FDP, which is specified to deliver products at 1/10th real time, is a world leader and surpasses anything available in Europe at this time.

In its initial configuration the FDP will be used to process images from the ERS-1 SAR sensor. Products now released are full scene (100km x 100km) data sets at two levels:

Level 0 Raw Data CCT	$1250
Level 1 Fast Delivery Product CCT or Photo	$1350

Sample images for assessment are also available at $170 for a CCT sample product or $270 for a sample photo product. For further information contact John Lee (06)252 4431 or Madeleine Clark (06)252 4430.

AGREEMENT SIGNED FOR JERS-1 RECEPTION IN AUSTRALIA

On 24 November 1992 a Memorandum of Understanding was signed between AUSLIG and Japan's National Space Development Agency (NASDA) for the reception in Australia of data from the Japanese Earth Resources Satellite (JERS-1). The agreement will allow ACRES to receive and process data from both the optical and SAR instruments on JERS for Australian based research projects. ACRES, with the help of the CSIRO Office of Space, Science & Applications and NASDA, has approved nine projects which this agreement will now allow to proceed.

Reception facilities at ACRES Alice Springs facility have already been upgraded to receive JERS-1 data and the processing system upgrade now in progress will provide processing capability for the data from the OPS sensor. No committment has yet been made for JERS SAR processing.

ACRES Manager, Carl McMaster, oversees the signing of the JERS MOU by Mr Graham Bashford, AUSLIG General Manager, and Mr Juichi Kawakami, NASDA Executive Director. Mr Noel Tanzer, Secretary DAS (far left), observed proceedings.

ACRES Trains Taiwanese in Remote Sensing Operations

In December 1992 ACRES conducted a training course for four remote sensing specialists from the Republic of China. The four specialists were from the Centre for Space and Remote Sensing Research at the National Central University, which is responsible for the establishment and operation of the new remote sensing ground station and processing centre due to commence operations in mid 1993. The system they will be using will be similar to that at ACRES.

Professors A.J. Chen and Hsien Ta Wang are directors of the centre and Mrs Sha-Li (Sally) Tang and Jue-Jean (Anne) Chen will be responsible for operations at the Centre. Extensive training in all aspects of operations and marketing was conducted over a two week period involving most ACRES senior Staff. Mr Don Gray, ex Manager of ACRES, has acted as a consultant for Taiwan and was responsible for arranging the training, which was very well regarded by the visitors.

Satellite Programming Needs to be Customer Driven

As ACRES becomes more involved with the reception of data from a range of satellites it is becoming more critical with only one receiving antenna that customers provide their input to satellite programming. Already there are clashes between the satellites and choices have to be made. In the near future for both SPOT and LANDSAT our reception will be limited to a certain quota of time for each year due to the cost structures of the new agreements. This quota will be considerably less than we are now receiving which means selective programming will occur rather that the 'blanket' coverage we have been able to achieve in the past. Thus if customers have a requirement for a particular season or time coverage they must advise our satellite programmers to ensure they acquire their data needs. Contact: Rosalie Booth ph: (06) 252 4404 or Steve Alder ph: (06) 252 4409.

MICROFICHE Subscriptions Reminder

All microfiche subscriptions end the first week in January 1993. Renewal letters are being sent out. Please return them promptly. Any queries contact Sandra Browne (06)252 4407.

Drew Clarke, AUSLIG Acting General Manager, presents Dr Soegiarto with a framed image of Canberra.

INDONESIAN MARINE SCIENCE EXPERT IN CANBERRA

AUSLIG and ACRES were privileged to host a visit to Canberra on 28 October 1992 by Dr Aprilani Soegiarto, Deputy Chairman for Natural Sciences of the Indonesian Institute of Sciences (LIPI). Dr Soegiarto is also Professor of Oceanology at Bogor Agricultural University and an internationally recognized marine scientist. He inspected AUSLIG GIS and remote sensing facilities in Canberra and fruitful discussions were held which should further progress AUSLIG and ACRES developing links with Indonesian government agencies.

Transcription Software for Exabyte Data

TEX1 is a new software product from Canada that transcribes satellite data from Exabyte tapes to the hard disk on an IBM PC or 100% compatible PCs. The data can then be accessed by an application program, such as Eidetic's RSVGA image analysis package, by reading the data from the hard disk. TEX1 is the only PC software product available that gives PC owners access to Exabyte satellite data. It is generic and can be used with many different GIS and remote sensing systems.

An Australian version of the program, called ATEX1, has been made specifically to handle ACRES Exabyte data products.

ATEX1 consists of two menu-driven programs. One is used for transcribing

Continued page 6

Transcription Software for Exabyte Data *continued*

the data file-by-file (i.e. band-by-band) under user control. The other is used for checking that the Exabyte and its associated controller are functioning properly.

INPUT DEVICE: Exabyte 8200 tape drive

INPUT FORMAT: EOSAT's Fast Format and equivalents (ATEX1 accepts ACRES CEOS format data)

OUTPUT DEVICE: PC hard disk

OUTPUT FORMAT: Same as the input format

EXABYTE CONTROLLER: Adaptec AHA 1540/1542BK with the Adaptec ASP14DOS.SYS driver

OPERATING SYSTEM: DOS

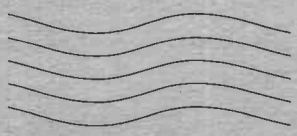
COMPUTER: IBM PC/AT, 386, or 486 with math coprocessor and 640K main memory

PRICE: Includes single computer software licence, executable programs on a 1.2M disk, 22 page User's Manual with software installation instructions and Exabyte/ Adaptec hardware installation tips

– Non US Users: US $375; Shipping $16 by registered air mail or courier by special quote

ORDERING INFORMATION: The product is available from EIDETIC Digital Imaging Ltd with a prepaid cheque on a US or Canadian bank or official purchase order.

Contact: *EIDETIC Digital Imaging Ltd, 1210 Marin Park Drive, Brentwood Bay, British Columbia, CANADA, V0S 1A0. Phone: 604-652-9326. FAX: 604-652-5269.*



LANDSAT 6 LAUNCH DELAYED

Due to 'technical problems', the launch of LANDSAT 6 has been postponed. It would appear the problems are not sensor related, so that at least is good news. However, it appears the launch could be delayed for some months. ACRES has completed our upgrade of Alice Springs reception facilities to allow the dual downlink from LANDSAT 6 and the upgrade presently underway to processing facilities will provide processing capability for all LANDSAT 6 sensors. ACRES has copies of the EOSAT publication 'Landsat Technical Notes' on LANDSAT 6 available. We will also be publishing our own LANDSAT 6 Data Sheet prior to satellite launch. Contact Madeleine Clark on (06)-252-4430 for copies of these.

LANDSAT 7 STATUS

LANDSAT 7 funding has been approved by the US Government and program responsibility transferred from NOAA to NASA/DOD. The new LANDSAT Act passed by US Congress in October 1992 places responsibility for development and launch of LANDSAT 7 with a joint NASA/DOD program office. Proposals for the development and construction of the satellite by US Industry have been accepted and it appears that the instruments to be flown in the late 1990s may include a 5m PAN sensor.

SPOT news

SPOT International Seminar

In late October 1992 ACRES assisted SPOT Image with a series of seminars held in Canberra, Melbourne and Brisbane. The half day presentations were attended by over 100 people and were aimed at those involved in Topographic Mapping applications of SPOT. The speakers and their topics were:

Dennis Puniard, ACRES:	Introduction and Chairman
Patrick van Grunderbeeck, SIS:	Vector Data Base Updates using SPOT
Phillippe Munier, SPOT Image (France):	SPOT Data Products for Cartography/new SPOT Satellites Characteristics
Ashoki Sujanani, Intergraph (USA):	Building and Managing a Large Mapping Project Based on SPOT Imagery
Jan Peter Muller, University College, London (UK):	Automated DEM Generation using SPOT Data
Major John Mobbs, Australian Defence Force Academy:	Application of SPOT Data to Military Mapping

Some lively discussion followed the presentations. Ashoki Sujanani's presentation was particularly interesting as he had been project manager of an operational mapping programme in Saudi Arabia using SPOT data. Also of particular interest was the work of MCL and Peter Muller's team in the development of extremely fast DEM extraction algorithms that have the potential to provide accurate, high resolution DEMs over large areas in a cost effective way using SPOT imagery.

Copies of technical papers are available from Dennis Puniard at ACRES on (06)252 4429 or Patrick van Grunderbeeck at SIS on (02)906 1733.

SPOT '2 for 1' Offer

As a limited offer, ACRES and SIS are promoting a special offer for SPOT data until the end of February 1993.

The offer applies to data in digital form (CCT, EXABYTE or Floppy Disks) from the ACRES archive. The purchase of one SPOT product at normal price entitles the purchaser to a second equivalent product free.

The offer definitely ends on 28 February.

For details contact John Lee at ACRES on (06)252 4431 or Thomas Tse at SIS on (02)906 1733.

Left to Right: Major John Mobbs, Ashoki Sujanani, Peter Muller, Philippe Munier, Patrick van Grunderbeeck, Dennis Puniard.

ALCORSS MEETING DEBATES REMOTE SENSING POLICY

During the 6th Australasian Remote Sensing Conference the annual meeting of the Australian Liaison Committee for Remote Sensing by Satellite (ALCORSS) was held on 3 November, hosted by DOSLI, New Zealand.

The committee's role is to provide a forum to discuss national remote sensing issues and to advise the Minister for Administrative Services on matters relating to the operation of ACRES and associated issues. All states and territories are represented, as well as the Bureau of Meteorology, COSSA, AGSO (formerly BMR) and a tertiary education representative. The committee is chaired by the AUSLIG General Manager.

Issues discussed at the NZ meeting included:

- Data packages for the education sector;
- The role of ALCORSS in relation to policy issues and its relationship with the Remote Sensing Committee of the Australian Space Council;
- The archiving policies of ACRES, particularly in the LANDSAT 6 era;
- The future of SPOT reception in Australia;
- Pricing policies for remote sensing data; and
- The future of Remote Sensing data reception in Australia, particularly options for expansion of the number of x-band receiving sites.

Copies of the 1991/92 ALCORSS Annual Report are available from the AUSLIG Secretariat, PO Box 2, Belconnen, ACT, 2616, or contact Peter Golding: Ph: (06)201 4301.

Remote Sensing Association Now Incorporated

The AGM of the Remote Sensing Association of Australasia was held at the 6th Australasian Remote Sensing Conference in New Zealand. The biennial conference is held under the auspices of the Association, which allocates the conference and manages the funds associated with it. Two newsletters were published in 1992, in February and October. The 7th Remote Sensing Conference has been awarded to Melbourne and will be run at the World Congress Centre from 28 February to 4 March 1994. The conference chairman is Peter Woodgate.

The AGM approved a new Memorandum of Association and the Association is now an incorporated body with up to 12 Directors as the office bearers. Norm Campbell was re-elected as Chairman/President.

The meeting discussed mechanisms to link the national Association with existing State based committees, and whilst all agreed this was desirable, a mechanism to achieve this was not finalized.

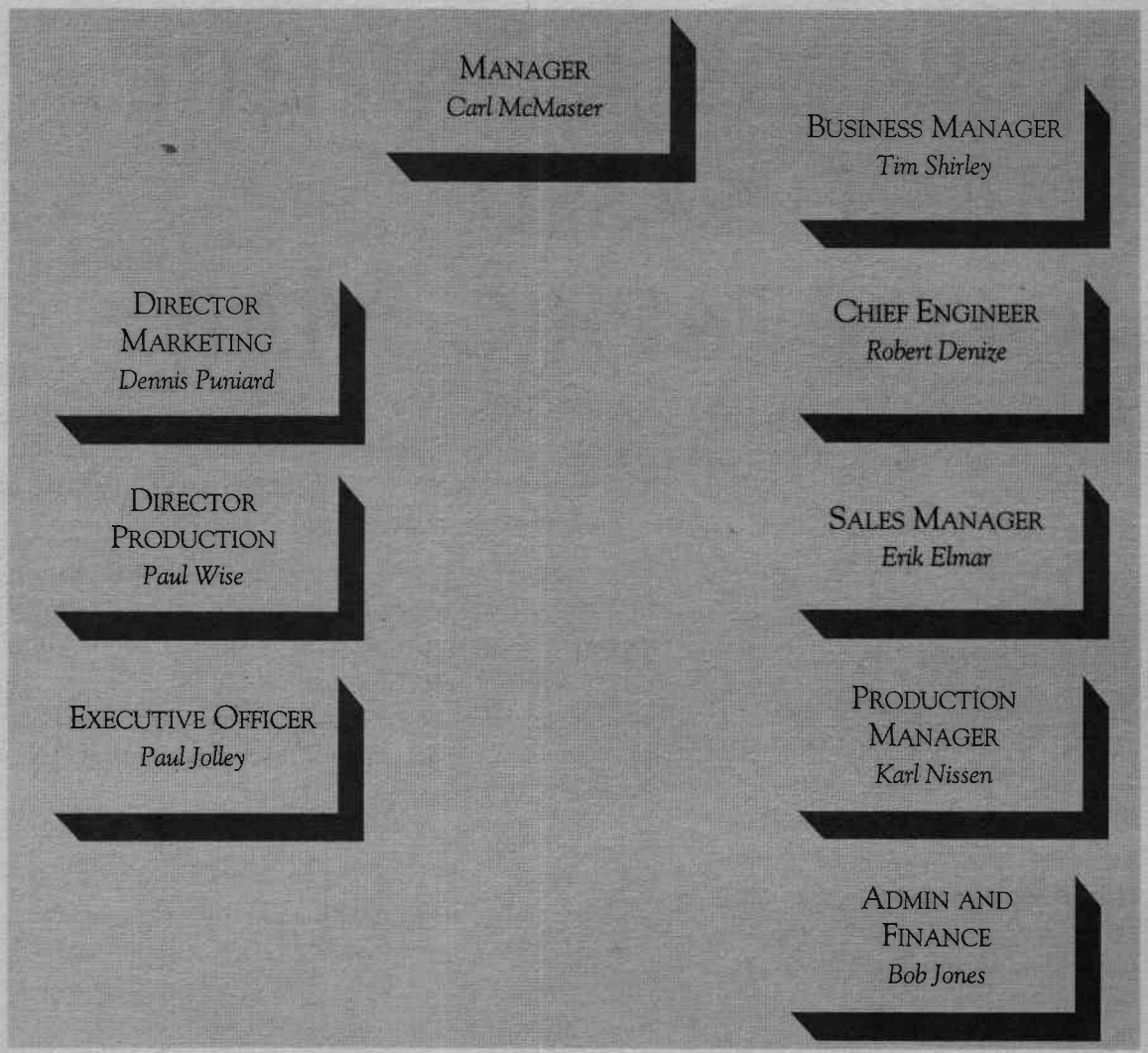
Membership fees for the Association are $10 for students, $20 for ordinary members and $40 for corporate membership.

For further information contact Dr Norm Campbell, CSIRO Mathematics & Statistics. Ph: (09)387 0305.

ACRES ORGANIZATIONAL CHANGES

Over the past few months some organizational changes have occurred in ACRES with the arrival of the new Business Manager and some re-allocation of responsibilities. The organizational structure now reflects the new roles of the two AUSLIG Directors and the CSA contract staff responsibilities.

See Chart on page Opposite

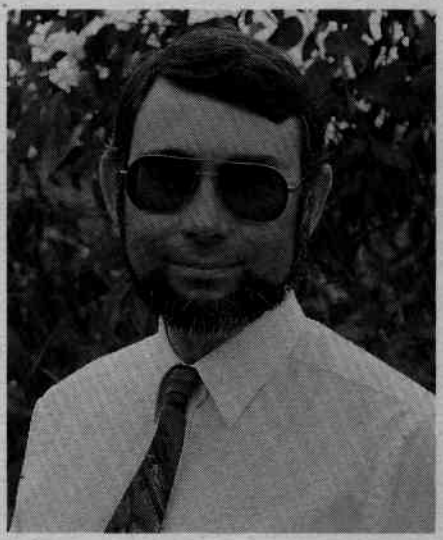


Tim Shirley is New ACRES Business Manager

In September 1992 Tim Shirley joined the ACRES team as the new CSA Contract Business Manager, replacing Linden Elliott.

Tim comes to ACRES after joining CSA in 1992. Previously Tim was employed by Digital Equipment Corporation (DEC) as Senior Consultant and Project Manager for 5 years. His previous work experience includes 20 years in the computer industry in technical and management positions .

Tim has responsibilities for contract management, including staff administration and budget/financial management. He will also take a lead role with product delivery and quality issues as ACRES further develops its Total Quality Management (TQM) strategies.



Staff Arrivals/Departures

In the past few months there have been several staff move on and new staff join ACRES.

Those who have moved on are Linden Elliott, Jenny Lawton and Sharelle Payne.

New arrivals are:

Tim Shirley — Business Manager

Peter Radonyi — Project Engineer (primarily for ERS-1 processing)

Anil Rai — Programmer

Rosalie Booth has rejoined the ACRES team after 12 months maternity leave and is working with Steve Alder in the satellite programming area.

Towards a Satellite Image Based Topographic Map

A modified version of a poster paper presented at the 6th Australasian Remote Sensing Conference, Wellington, NZ by P. Wise, C. Smith and D. Puniard.

Introduction

Using modern image analysis and computer aided cartographic and lithographic techniques, AUSLIG is moving towards a satellite image based topographic map which can be generated quickly and cost-effectively with up-to-date content. This paper draws on AUSLIG's satellite image mapping experience, in Australia antarctic Territory, to show that with the high spatial resolution satellite remotely sensed data now available, topographic maps, approaching and often meeting cartographic specifications, with image backgrounds, can now be produced.

Topographic Mapping from Spaceborne Imagery

Topographic maps are a large scale portrayal of the spatial asociations of a selection of diverse natural and man-made features such as roads, boundaries between areal features, waterbodies, elevations, coastlines and settlements.

For the compilation of topographic maps at a scale of 1:250 000 or larger, the imagery from which the position and type of detail is extracted must have a high spatial resolution. Welch (1982) suggests a resolution of between 5-10m, whereas Konecny et al (1982) suggest the lower resolution of 14m. Data with such spatial resolution is now able to be acquired from satellite sensors.

Conventional line maps, of which topographic maps are one type, include information on names, road classification and feature identification, that cannot be obtained from any airborne/space imagery (Colvocoresses, 1984). However, the fact that any image data from space will generally need to be augmented by data from other sources need not be a significant deterrent to its application.

The major advantage of image based mapping from space is that it readily lends itself to automation and rapid map production, whereas preparation of line maps may take several years. It is for this reason that AUSLIG, based on its mapping experience in the Antarctic, is moving towards a satellite image based topographic map.

Overview of Antarctic Satellite Image Mapping in AUSLIG

Mapping in Antarctica presents a technical challenge to the cartographer (Manning and Rogers, 1990). There is very little aerial photography available, and only a limited amount of ground control. Satellite imagery and positioning from satellite systems such as Transit (Doppler) and Navstar (GPS) offer a means of economically producing selected mapping products for areas of special interest to scientists in the Australian Antarctic Territory.

The initial satellite image based Antarctic maps were a black and white dyeline series which utilised LANDSAT MSS prints and traditional photographic mosaicing techniques. The mosaicing, geocoding and enhancement of digital data on an image analysis system allowed a superior mapping product to be generated provided image data at a suitable spatial and spectral resolution and ground control were available. More recent Antarctic maps have used LANDSAT TM and SPOT data to produce colour image maps at scales from 1:25 000 up to 1:100 000.

Recent Developments – Canberra 1:100 000 Image Map

The specifications for the Canberra 1:100 000 scale satellite image map were for a four colour map with an image base overprinted with selected existing vector data, mainly roads, railways, major rivers and streams, names and a 1cm grid. Contours and vegetation were not required.

LANDSAT TM was selected as the data set and three bands were geocoded and enhanced to provide pseudo-natural colour. When the image base was overlaid with the existing vectors the major 'misfitting' was identified as recent road realignments or original cartographic infidelity in tracing complex patterns. These minor irregularities were manually corrected prior to printing.

Printing was undertaken using the Satellite Image MAPping process or SIMAP. Essentially this technique, developed for volume printing the Antarctic maps, takes the enhanced digital data and reformats it for subsequent transfer to a graphics art scanner/plotter. The colour balance is customised in this raster system, before the plate-making film is produced by a laser plotter. As the SIMAP process is computer controlled, an accurate output scale is always achieved. Accurate scale is crucial in image mapping where the image and grids and graticules must overlay precisely. After combining the vector information and the manually produced surround details, careful printing is undertaken to match an approved colour proof.

As the colouring in the Canberra image base was deemed to be 'too strong' it was screened back in the final printing. The major water features which had different tones were all printed in the same blue. All other vector information was printed, in traditional colours, over the top.

The final map appears to achieve an excellent mix of colour and information and the combined vector and raster data does not overwhelm the user with a complex visual pattern.

The map with all its teething problems was produced in under three months. However, the hurdle that still needs to be overcome is the representation of height.

Future Developments

The major development will focus on portraying height information without significantly obscuring the image background. There are a number of options available, ranging from using spot heights to selective contouring or a mix of each and even printing this information in opaque inks. Each will need to be tested in differing terrain. However, this is a difficult task and one where the cartographer needs to undertake the compilation of the 'height' layer interactively.

This would mean that with the image background displayed on the screen the various digital countours/spot height combinations could be interactively manipulated and displayed by the cartographer so that the effect could be seen and output as an intermediate plot to gauge overall impact.

Taking this one stage further, if the height layer is to be interactively compiled then why not the other vectors. Misfitting, as occurred with the Canberra data, could be simply rectified, and the 'revised digital data' saved.

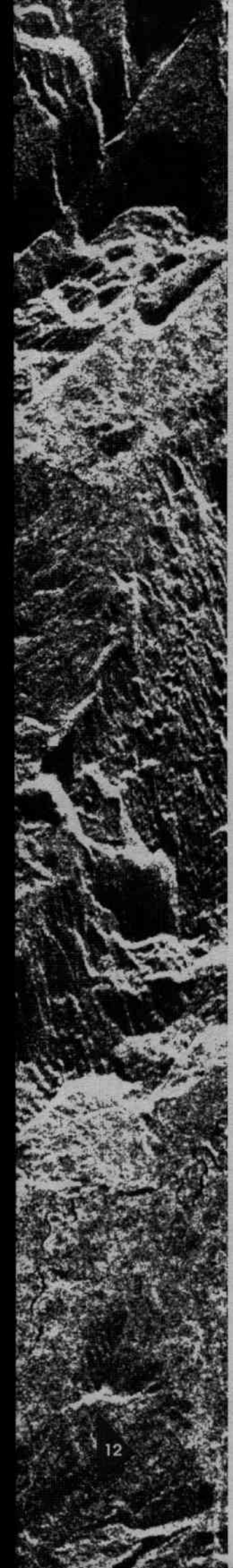
Once compiled, the vector layers would be output on a cartographic plotter and combined with the image base through SIMAP and printed.

The interactive compilation of image based maps has the ability to maintain the vector data layers in the digital data base as well as generating an up to date map, thus providing a practical link between remote sensing and GIS technologies.

Summary

This paper has provided an insight into the development of image mapping in AUSLIG. While initially image mapping was seen as a solution to mapping the Australian Antarctic Territory, the developments are having an impact on the way AUSLIG might generate its topographic maps of Australia and maintain its digital vector data base.

Overall, AUSLIG's image mapping experience has shown the advantages of continuing to develop the most effective combination of remote sensing, image analysis, cartographic and lithographic technologies to generate satellite image based topographic maps. Production times can be reduced, map accuracy improved and the quality of reproduction not degraded.



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Manning, J. and Rogers, P. (1990). The Beaver Lake 1:100 000 *Satellite Image Map*. *Cartography*, 19(2), pp 11-13.

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IMAGE MAPS NOW AVAILABLE THROUGH AUSLIG MAP SALES

Cocos Island Image Map Released

The latest of ACRES Satellite Image Maps (SIMAP) to be released is the Cocos (Keeling) Islands map. The image map is at 1:50 000 scale in full colour with names and cultural features added. It is a poster style map with historical text incorporated. It is a bargain at RRP $10.80. Contact: AUSLIG Map Sales: Phone (06)201 4308. FAX (06)201 4367.

FULL RANGE OF IMAGE MAPS FOR SALE (All $10.80 RRP)

Poster Maps

Canberra - A View from Space (Merged SPOT/TM Data)	1:50 000
Cocos (Keeling) Islands (SPOT Data)	1:50 000

Topographic Image Maps

(at true scale, full AMG Grid, topographic features enhanced)

Canberra (TM Data)	1:100 000
Heard and McDonald Islands	1:50 000
Antarctica:	
Larsemann Hills, Princess Elizabeth Land topographic map reverse side	1:25 000
Bunger Hills East, Wilkes Land	1:50 000
Bunger Hills West, Wilkes Land	1:50 000
Rauer Group, Princess Elizabeth Land	1:50 000
Windmill Islands, Wilkes Land	1:50 000
Amanda Bay, Princess Elizabeth Land	1:100 000
Vestfold Hills, Princess Elizabeth Land	1:100 000, 1:50 000
Framnes Mountains, MacRobertson Land	1:100 000
Beaver Lake, MacRobertson Land	1:100 000

Contact: AUSLIG Map Sales ph: (06) 201 4308
fax: (06) 201 4367

Australian Remote Sensing on Show in Mongolia

The 13th Asian Remote Sensing Conference was held at Ulan Bator, Mongolia, from 7-11 October 1992. Despite the remote location and difficulties in securing flights in and out of Ulan Bator, the conference was successful and well attended. Six Australian representatives attended. Other countries represented were Austria (1), Bangladesh (3), China (39), France (4), India (1), Indonesia (1), Iran (1), Japan (36), Korea (1), Malaysia (4), Poland (1), Sri Lanka (1), Sweden (2), The Netherlands (3), Thailand (17), USA (6) and Mongolia (85). Representatives of UNESCO and UNESCAP also attended.

The Conference is organized by the Asian Remote Sensing Association, chaired by Dr Shunji Murai of the University of Tokyo. Deputy Chairman is Dr Suvit Vibulsresth of Thailand. Australia is represented on the committee by Dr Bruce Forster of UNSW. A commercial exhibit was part of the conference and an Australian stand was put together by MicroBRIAN and the Australian Space Office, with several ACRES products on display. Australian papers were presented by Tim McVicar of CSIRO Water Resources and Ed Cory of the Australian Space Office. ACRES presented a poster paper.

(9) The Australian contingent led by Bruce Forster entertains at the conference cocktail party.

(8) Hal Shuster of MPA demonstrates MicroBRIAN on the Australian Stand at 13th ARSC.

ACRES Hosts International Meeting of CEOS Working Group

The thirteenth meeting of the Committee on Earth Observation Satellites (CEOS) Working Group on Data (WGD-13) was held on 27-29 October 1992 in Canberra, hosted by ACRES. Attendees were present from Australia (ACRES, CSIRO, ERIN), Canada (CCRS), ESA, France (CNES), Germany (DLR), Japan (NASDA, GSI), Sweden (SNSB), UK (BNSC, EOS), the USA (NASA, NOAA, USGS) and the WMO. Also in attendance was a representative from the State Meteorological Administration (SMA) of the People's Republic of China (PRC).

The meeting was chaired by Mr Levin Lauritson of NOAA/NESDIS.

Major issues addressed at the meeting:

- Cooperation between satellite operators and environmental agencies;
- The International Geosphere/ Biosphere Programme, including the global 1km AVHRR database;
- The Global Climate Observing System;
- The CEOS International Directory Network (IDN) and the development of Directory Interchange Formats (DIFs);
- Data Formats for remote sensing data; and
- Archiving and Catalogue formats

For more information contact: Erik Elmar. Ph: (06)252 4406.

Standing at the back from left to right:

Dr Paul D Howard (EOS) , Mr George Saxton (NOAA), Mr Gunter Schreier (DLR), Mr Jeffrey Eidenshink (USGS) , Mr Tom Holm (USGS), Mr Joerg Gredel (DLR), Mr Dieter Schiessl (WMO), Mr Robin Buckley (ERIN), Mr Liu Chang (SMA), Mr Bob Jones (ACRES)

Mid row:

Mr Alan Haskell (RAE), Mr Ted Meyer (NASA), Mr Mathew Schwaller (NASA), Mr Luigi Fusco (ESA), Ms Martha Maiden (NASA), Mr Stefan Zenker (SNSB), Mr Hiroshi Kikuchi (NASDA), Mr Minoru Akiyama (GSI), Mr Carroll A Hood (RDC), Mr Jeff Kingwell (COSSA), Ms Jill Healand (ACRES), Ms Ana Grzic (ACRES)

Sitting:

Ms Betty Howard (NOAA), Mr Levin Lauritson (NOAA), Mr Erik Elmar (ACRES)

Not present:

Mr Christophe Dabin (CNES), Mr Terry Fisher (CCRS), Dr Dean Graetz (CSIRO)

Inventory of Education and Training now Available

An inventory of education and training courses available in Australasia covering Urban and Regional Information Systems (including GIS and Remote Sensing) has been published by AURISA. The author was Ken Granger of the Chemical Hazards Environmental Management Unit in Queensland. The survey was a very extensive one and provides essential information for those interested in Education and Training in Remote Sensing and related disciplines. It is available from AURISA for $15. Contact: AURISA Executive Director, Virginia Walsh. Ph: (06)273 4054. fax: (06)273 4057.

CALENDAR

of Remote Sensing and Associated Events

1993

21-25 Mar Ottawa, CANADA

Fifth International Conference on GIS. Contact: L. Aubrey. Phone (613)995 0266. FAX (613)995 6001.

29-31 Mar Alburqueque, New Mexico, USA

1993 GIS for Transportation Symposium. Contact: Jim Dolson. Phone (904)488 1954.

4-8 Apr Graz, AUSTRIA

25th International Symposium on Remote Sensing and Global Environment Change. Contact: Dorothy Humphrey, ERIM. Phone (313)994 1200. FAX (313)994 5123.

19-23 Apr Enschede, NETHERLANDS

International Symposium on Operational Remote Sensing. Contact: Myriam Fahner. Phone (31)53 87 4255. FAX (31)53 87 4436.

3-9 May Cologne, GERMANY

16th International Cartographic Conference. Contact: AKM Congress Service, Clarastrasse 57, CH-4005, Basil, Switzerland.

10-13 May Budapest, HUNGARY

GIS/LIS 93. Contact: Congrex (USA). Phone (301)469 03355. FAX (301)469 3360.

10-13 May Paris, FRANCE

From Optics to Radar - SPOT and ERS Applications. Contact: SOCFI - Collogne SPOT/ERS. Phone (33)1 42 33 8994. FAX (33)1 40 26 0444.

18-19 June SINGAPORE

Far East Workshop on GIS (FE GIS 93). Contact: Mrs Ho Siew Foong, University of Singapore. FAX: (65)779 4580.

21-25 June SINGAPORE

Third International Symposium on Large Spatial Databases (SSD 93). Contact: Mrs Ho Siew Foong, University of Singapore. FAX: (65)779 4580.

20-22 July UNSW, SYDNEY

Advanced Remote Sensing Conference 'Coming of Age – 21 Years after LANDSAT'. Contact: Prof Bruce Forster. Phone (02)697 4127. FAX (02)313 7493.

20-22 July UNSW, SYDNEY

Conference on Land Information Management and GIS. Contact: Mr J.R. Pollard, Department of Surveying. Phone (02)697 4184. FAX (02)313 7493.

25-30 Oct ADELAIDE

Course on Photogeology and Image Interpretation for Mineral and Petroleum Exploration. Contact: Australian Mineral Foundation. Phone (08)379 0444. FAX (08)379 4634.

2-4 Nov Minneapolis, USA

GIS/LIS 93. Contact: Secretariat. Phone (301)493 0200. FAX (301)493 8245.

24-26 Nov ADELAIDE

AURISA 93 Environmental, Urban and Social Planning - The Winning Vision. Contact: Secretariat. Phone (08)363 1307. FAX (08)363 1604.

CALENDAR

1994

28 Feb - 4 Mar MELBOURNE

Seventh Australasian Remote Sensing Conference. Contact: Secretariat. Phone (03)387 9955.

FAX (03)387 3120.

5-12 Mar MELBOURNE

FIG XX International Congress. Contact: ICMS. Phone (03)387 9955. FAX (03)387 3120.

ACRES Takes Delivery of New Optical Tape Recorders

In October 1992 ACRES took delivery of two new optical tape recorders from the CREO company of Canada. ACRES is now a world leader in the use of optical tape technology for the archiving of remote sensing data. With the total complement of three recorders it will be possible to rapidly transfer the archive of deteriorating magnetic tapes so that the priceless record of the Australian landscape of the past 20 years is preserved. The optical tape recorders will soon be integrated into the production system resulting in more efficient access to the archive.

ACRES Chief Engineer Robert Denize inspects the latest optical tape recorder installed in Canberra