

AUSLIG and RADARSAT International sign Data Distribution Agreement



REPRESENTATIVES AND GUESTS AT THE RADARSAT INTERNATIONAL (RSI) DINNER AND AUSLIG AGREEMENT SIGNING INCLUDED (FROM L TO R): SHAWN BURNS, RSI; PROF JOHN RICHARDS, ADFA; ASSOC PROF TONY MILNE, UNSW; BOB TACK, RSI PRESIDENT; PROF JOHN TRINDER, UNSW; AND DENNIS NAZARENKO, RSI.

AUSLIG and RADARSAT International (RSI) have signed a license agreement to enable ACRES to distribute RADARSAT data and data products in Australia, Papua New Guinea and New Zealand. The signing took place during a dinner hosted by RSI which was held during the week of the 8th Australasian Remote Sensing Conference in March. The announcement of the ACRES RADARSAT sub-distributors for the Australasian region was also made at the time of the signing. (See separate story.)

The President of RSI, Mr Robert E Tack, was present for the signing, along with AUSLIG General Manager, John Kent. The RADARSAT satellite has been designed, constructed, launched, and operated by the Canadian Space Agency, and is equipped with an advanced

Synthetic Aperture Radar (SAR). As the world's first operationally-oriented radar satellite, RADARSAT's unique capabilities open a vast new array of applications worldwide.

"ACRES offers RADARSAT users in this region a wealth of satellite imagery expertise. We look forward to working with ACRES in developing local applications for RADARSAT data which will yield new information products," said RSI President, Robert Tack.

RADARSAT's active SAR capability will be useful in penetrating cloud in the northern tropics, low light levels and rain in the southern winters. Requests for time specific data acquisition will no longer be weather dependent, and RADARSAT's programmable repeat cycle will allow more frequent revisits to areas during crucial times and immediately following a natural disaster.

This will be the first time that a wide range of SAR products are can be selected from a single sensor. The products vary with respect to the area covered, the view, and the final spatial resolution, and form a complementary data set to the various optical data already being received by ACRES.

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Manager's Message



The Government's recent Budget decision on AUSLIG amounts to a strong reaffirmation of AUSLIG's public interest role. Funding for AUSLIG's public interest activities including ACRES has been maintained at current levels despite severe cutbacks in other government programs. Given that ACRES already works

on an outsourced service delivery model the Budget decision is likely to have minimal impact on our operations. This should come as good news to ACRES customers and distributors.

Paul Trezise

Commonwealth Budget Decision on AUSLIG

The Minister for Administrative Services, David Jull, announced the retention and restructuring of AUSLIG as part of the Commonwealth Budget handed down on 20 August 1996.

In his Budget press release Mr Jull stated: "We have retained within government those businesses that perform important public interest functions - AGPS, AUSLIG, AGAL and AVO. At the same time, many of their service delivery activities will be market tested or contracted out to ensure that government is getting full value for money."

The Government has reaffirmed AUSLIG's responsibility for national mapping, maritime boundaries, remote sensing and geodesy services together with national land information coordination and advice. AUSLIG will focus on program management, policy, coordination and standards associated with national land information programs within the framework of a National Spatial Data Infrastructure.

"AUSLIG will continue to operate as usual during the restructuring process to deliver the full range of services to customers. Existing contracts and agreements between AUSLIG and its customers will be honoured" said AUSLIG's General Manager, Peter Holland.

"AUSLIG will keep customers, distributors, industry and other interested parties informed of organisational changes during the restructure."

RADARSAT sub-distributors appointed

Owing to AUSLIG's appointment as the exclusive distributor for RADARSAT data and data products for Australia, Papua New Guinea and New Zealand, expressions of interest were called for the appointment of sub-distributors. Following an extensive evaluation of these submission, AUSLIG announced on 28 March the appointment of six Australian and one New Zealand sub-distributor to sell data in the Australasian region.

The sub-distributors' primary focus will be on key markets such as mining, agriculture, forestry, hydrology and the environment. Over the next twelve months the sub-distributors will be required to develop case studies in their areas of primary focus to demonstrate to the user community the benefits of using this new technology.

The organisations appointed as RADARSAT sub-distributors are:

- Agrecon Pty Ltd
- Geoimage Pty Ltd
- Geo Mapping Technologies
- WA Dept of Land Administration
- Landcare Research (NZ)
- ERIC Pty Ltd

The availability of RADARSAT data is likely to open up new applications that will yield new information products. The environment, agriculture, surveillance and forestry are some of the fields where new applications are likely to arise.

To find out more about RADARSAT please contact one of the RADARSAT sub-distributors. Contact details are listed on the back cover of *ACRES Update*.

AUSLIG Open Day – Australian Science Festival

The Australian Science Festival is an annual event in Canberra, appealing to all ages, with displays, events and demonstrations about a variety of scientific subjects. The festival lasts for over a week with activities all over Canberra. On Saturday 27 April, AUSLIG hosted its Open Day, as part of the festival, to help promote and stimulate a general interest in the types of activities we undertake. Over 200 people took the opportunity to visit us and learn of our activities.

A major part of our display consisted of various examples of satellites and satellite imagery, and included a live link to the ACRES digital catalogue. Visitors could also "surf" through the ACRES/AUSLIG World Wide Web pages to gain a greater understanding of the organisation. Other items of interest included demonstrations of Global Positioning Systems (GPS), Digital Elevation Models and AUSLIG's new atlas on CD-ROM called "Australia Unfolded".

8th Australasian Remote Sensing Conference

The 8th Australasian Remote Sensing Conference held at the end of March in Canberra proved to be another success with many highlights, including an inspiring audio-visual presentation at the opening and closing ceremony. At the official dinner an amazing (and knowledgeable) after dinner speaker convinced many people, for a while at least, that he was Dr Allen E Cosby, Director of Research and Development at Orbital Sciences, USA. However his true identity was revealed after the speech as actor/impersonator Campbell McComas.

As usual, the conference provided an ideal opportunity for anybody involved in remote sensing to network with others and discuss a multitude of issues. The organising committee deserve to be congratulated for a job well done.

Five ACRES' distributors had booths at the conference, as did RADARSAT International and AUSLIG/ACRES. The highlight of the AUSLIG/ACRES booth was a live connection to the ACRES Digital Catalogue, with a colour printer available for 'take-away' images. Being relatively new, the digital catalogue proved to be extremely popular, with many comments received about the excellent quality of the images.

The theme of the conference was "What's New, What Works". Conference proceedings are still available from:

Australian Convention and Travel Services,
GPO Box 2200
Canberra ACT 2601
Tel: +61 6 257 3299
Fax: +61 6 257 3256

The cost of the proceedings is \$50 for hard copy or CD-ROM.



ACRES STAFF MIKE PASFIELD, ROBERT DENIZE AND JENNY WEISSEL AT THE ACRES BOOTH DURING THE 8TH ARSC.



ACRES DISTRIBUTORS KEN DAWBIN, DOLA, AND PROF BRIAN BUTTON, AGRECON, SHARING A CHAT DURING CONFERENCE WEEK.

Minister Jull visits ACRES

On the 4th of June 1996 the new Minister for Administrative Services, the Hon David Jull MP, visited AUSLIG and ACRES for the first time. Mr Jull spent about two hours being briefed on AUSLIG's operations and viewing a wide range of products. He showed considerable interest in remote sensing and was particularly interested in ACRES new digital catalogue system.



ACRES MANAGER, PAUL TREZISE, DISCUSSING THE VARIOUS ASPECTS OF ACRES OPERATIONS WITH THE HON DAVID JULL MP.

ACRES wins EOSAT award for sales results

ACRES recently received an award from the Earth Observation Satellite Company (EOSAT), for being an "Outstanding Regional Representative".

The major reason for ACRES' award was for achieving a 165% increase in Landsat sales for the calendar year of 1995. In dollar terms this was the largest increase in the world, and now places ACRES second in the world for Landsat sales, behind USA, and ahead of Europe, Japan, Thailand and Canada. The figure is further testimony to the good work of ACRES, ACRES Distributors and ACRES Specialist Consultants.

The award was presented to Jim Mollison, ACRES Product Manager, at an informal dinner during the 1996 EOSAT Global Distributors' Meeting, recently held in Hawaii.



JIM MOLLISON ACCEPTS THE ACRES AWARD FOR 'OUTSTANDING REGIONAL REPRESENTATIVE' FROM SUSAN SINCLAIR, EOSAT DIRECTOR OF WORLDWIDE DISTRIBUTOR NETWORK.

ERS SAR information seminars

The European Space Agency (ESA), in conjunction with ACRES and the University of New South Wales will hold a series of information seminars around Australia in early September. At the time of writing, it is likely that the seminars will be held in Perth, Adelaide, Melbourne, Canberra, Sydney and Brisbane. The seminars will cover various aspects of ERS Synthetic Aperture Radar (SAR) satellite data and its applications.

If you are interested in attending, please contact Jim Mollison at ACRES, (Tel 06 201 4129 Fax 06 201 4366), or your local Distributor (see back page of *ACRES Update*).

ACRES sales results

Jim Mollison, Remote Sensing Product Manager

The financial year of 1995/96 has seen yet another large increase in ACRES sales. The value of gross sales increased by about 78% from the previous year to a total of about \$6.53 Million in 1995/96. The healthy increase is attributed to a number of factors including some major government sales, a more mature market, and better provision and affordability of associated software.

Total Gross Sales

Year	\$Million
1994/95	3.65
1995/96	6.53

The importance of digital data (verses photographic) was again demonstrated by a further increase in the proportion of products sold in digital form. For products produced at ACRES, 94% of them (in dollar terms) were delivered on digital media.

The following summary shows that Landsat was once again the primary data source, accounting for about 70% of total gross sales. SPOT data accounted for about 24% of total sales compared to 26% in the previous financial year. Despite this minor fall in the proportion of SPOT sold, the value of sales for both Landsat and SPOT increased dramatically.

ACRES/AUSLIG are very pleased with the results for 1995/96, and congratulate our Distributors and Specialist Consultants on a job well done.

Summary of ACRES' Gross Sales for 1995/96

	Sales (\$)	Percent of Total
Landsat		
ACRES MSS	116,530	2
ACRES TM	4,099,511	63
EOSAT (mainly TM)	267,280	4
NRCT - Thailand (TM)	50,858	1
EROS (MSS)	15,055	-
Total	4,549,234	
SPOT		
Panchromatic	1,304,180	20
Multispectral	284,302	4
Total	1,588,482	
Other		
ERS SAR	9,237	-
NOAA AVHRR	6,600	-
Image Writing	246,165	4
Royalties	61,221	1
Miscellaneous	68,665	1

EOSAT Global Distributors' Meeting

EOSAT (Earth Observation Satellite Company, USA) held their Global Distributors' Meeting during the last week in June this year. EOSAT administers ACRES' agreement for the reception of Landsat data in Australia. In addition ACRES is EOSAT's representative in Australia for the sale of worldwide Landsat data, and more recently JERS and IRS data.

The main reason for the meeting was to assemble all of EOSAT's worldwide distributors together for discussions on products, new sensors (especially IRS) and a variety of sales and marketing issues.

EOSAT stated that their main focus for the future would be towards the Indian IRS program. EOSAT are the exclusive worldwide distributor of IRS data (outside of India) and their agreement allows them to distribute IRS data on a totally commercial basis. This is in contrast to the distribution of Landsat data where US Government policy plays a significant role.

Indian representatives were present at the meeting to inform attendees of the philosophy behind the IRS program and to provide a wide range of additional information.

Two of the representatives were N Sampath, Executive Director of Antrix, and Dr M G Chandrasekhar, Director Earth Observation Systems, ISRO. Dr Chandrasekhar gave an absorbing keynote address on "Using Space to Enhance Life on Earth". The speech contained many thought provoking points and a number of practical examples of how remote sensing has improved lifestyles in India.

EOSAT's overall marketing strategy was also outlined at the meeting, with the major emphasis being on education and awareness. Their eagerness to work in partnership with their distributors was clearly evident, helping to pave the way for a stronger global remote sensing industry.

Landsat Data used in Greenhouse Gas Emissions Study

In 1994 Australia's National Greenhouse Gas Inventory identified agricultural land clearing as a potential significant source of greenhouse gas emissions. It was acknowledged that the original emission estimates were very uncertain, largely due to the difficulties in obtaining accurate data on changes in agricultural land cover.

In the meantime Australia was required to prepare an inventory of greenhouse gas emissions as part of its obligations under the United Nations Framework Convention on Climate Change. The Bureau of Resource Sciences of the Department of Primary Industry and Energy therefore convened a national workshop in 1994 to develop a cost effective method for collecting the data required to improve the estimates of gas emissions. The workshop was attended by 25 representatives of Commonwealth and State agencies as well as non-government organisations with an interest in land cover change.

The workshop concluded that the estimates of gas emission due to changes in land cover could be substantially improved using remotely sensed data eg. Landsat TM, to locate and assess the extent of land clearing.

BRS therefore approached AUSLIG on behalf of the Commonwealth and States agencies to buy the large data sets required for such a study. In response to this request and similar requests from Distributors and other government agencies, AUSLIG developed the Joint Agency Data Agreement (JADA) to provide a mechanism for permitting large data sets to be purchased and utilised by a number of agencies involved in public interest programs. The agreement permits two or more Commonwealth and/or State organisations to share the cost of Landsat digital data over large areas, thereby making it more cost effective for the data to be purchased, and facilitates the increased use of remotely sensed data. The BRS JADA involves 23 Commonwealth and State Government Departments.

In addition to the BRS funding the Queensland Department of Natural Resources has funded a separate, but related project called "The Statewide Landcover and Trees Study (SLATS)". (See separate article in this edition of *ACRES Update*.)

FORMER AUSLIG GENERAL MANAGER, JOHN KENT, WITH MICHELE BARSON OF COMMONWEALTH BUREAU OF RESOURCE SCIENCES (BRS), DEPT OF PRIMARY INDUSTRIES AND ENERGY, DURING THE SIGNING OF THE BRS JADA.



LGSOWG-25 meeting

Paul Trezise

During June 1996 I attended the 25th annual meeting of the Landsat Groundstation Operators Working Group (LGSOWG), which was hosted by the South African CSIR Satellite Applications Centre in Pretoria. The other attendees were from Taiwan, Thailand, Japan, Canada, China, Brazil, ESA, India and EOSAT as well as the US agencies NASA, NOAA and USGS. The LGSOWG meetings are held annually and are a chance for the groundstation operators from around the world who receive Landsat to be informed about the status of the program.

STATUS OF LANDSAT 5 SATELLITE

EOSAT reported that the health of the 12 year old Landsat 5 satellite was very encouraging. The rate of degradation of the X-band downlink and the TM sensor was such that, barring catastrophic failure, the satellite could remain operational until the year 2000. If this happened there would be no data gap in the Landsat series, providing Landsat 7 is successfully launched in 1998.

GLOBAL LANDSAT SALES STATISTICS

Global Landsat sales declined by approx 9% to US\$21.0 million during calendar year 1995 largely due to big declines in the US and European markets. In contrast Australia achieved the best sales increase in the world (US\$2.35 million). This now puts Australia second in the World in Landsat sales, only behind the USA and ahead of Europe, Japan, Thailand and Canada.

LANDSAT 7 MISSION

There have been no major changes in the Landsat 7 mission scenario since the last LGSOWG. Importantly, Landsat 7 is ahead of schedule for a launch on May 15 1998, with NASA having paid additional money to contractors to accelerate the development process. NASA is now very confident that the May 1998 launch date will be met or bettered barring some unforeseen catastrophe.

NASA still plans to operate Landsat 7 in conjunction with the AM-1 satellite which will have the MODIS sensor on board. AM-1 will cover the same track as Landsat and be 15-60 minutes behind Landsat. This will permit the use of MODIS data for atmospheric corrections to Landsat ETM+ data.

BEYOND LANDSAT 7?

The current plan for a post Landsat 7 follow on is for the LATI (Landsat Advanced Technology Instrument) to fly on the AM-2 platform in 2004. However NASA has also been directed to explore other options such as the use of private industry funding and management, or a government/industry joint venture.

The LATI instrument is planned to be radically different to the ETM+ sensor on Landsat 7. It will be hyperspectral, much lighter and involve many new technological innovations. This being the case NASA is understandably nervous about trialing the instrument for the first time within such a vital program as Landsat.

NASA's New Millennium Program has a goal of developing and validating revolutionary technologies to reduce development times and life cycle mission costs. On March 22nd this year it was announced that the Advanced Land Imager (ALI) sensor concept has been chosen as the first (ie highest priority) New Millennium mission (to be known as EO-1). It is targeted for launch in late 98/early 99 in order to test LATI concepts early enough for the results to be incorporated into the design of the final LATI sensor. Total mission costs will be limited to US\$90 million.

The ALI design incorporates both multispectral and hyperspectral instruments. The mission plan will be to position the satellite 15 minutes ahead of Landsat 7 so that direct comparisons can be made with ETM+ data.

Landsat 5 – descending equatorial crossing time

Steve Alder – ACRES SATOPS

Users of Landsat 5 imagery will be aware that the descending node (equatorial) crossing time of the satellite is currently progressively changing as a result of orbital correction manoeuvres conducted by EOSAT late in 1995. These manoeuvres were necessary to correct the orbit inclination and to gradually change the crossing time back to the nominal time of 09:37 Mean Local Sun Time (MLST). Currently the crossing time is approximately 09:26 MLST and it is expected that the nominal crossing time will be achieved during January 1997.

The following table provides an indication of the nominal overpass times in UTC* against the current (17 July 1996) times for some Australian cities:

City	Path/Row	Nominal Acquisition Time (UTC*)	Acquisition Time (UTC*) on 17 July 1996
Sydney	89/83	23:07:00	22:57:54
Adelaide	97/84	23:56:00	23:47:30
Perth	112/82	01:27:30	01:19:42
Darwin	106/69	00:45:30	00:37:10

*Add 8 hours for WA time, 9.5 hours for central Australian time and 10 hours for eastern Australian time. (Extra adjustments are needed for daylight saving times.)