First Australian ERS-1 Image

The Australian Centre for Remote Sensing (ACRES) has released the first Australian image acquired from the European Earth Resources Satellite (ERS1) The Synthetic Aperture Radar (SAR) instrument on board the satellite is the first operational space radar instrument that has been directly accessible through Australian reception facilities

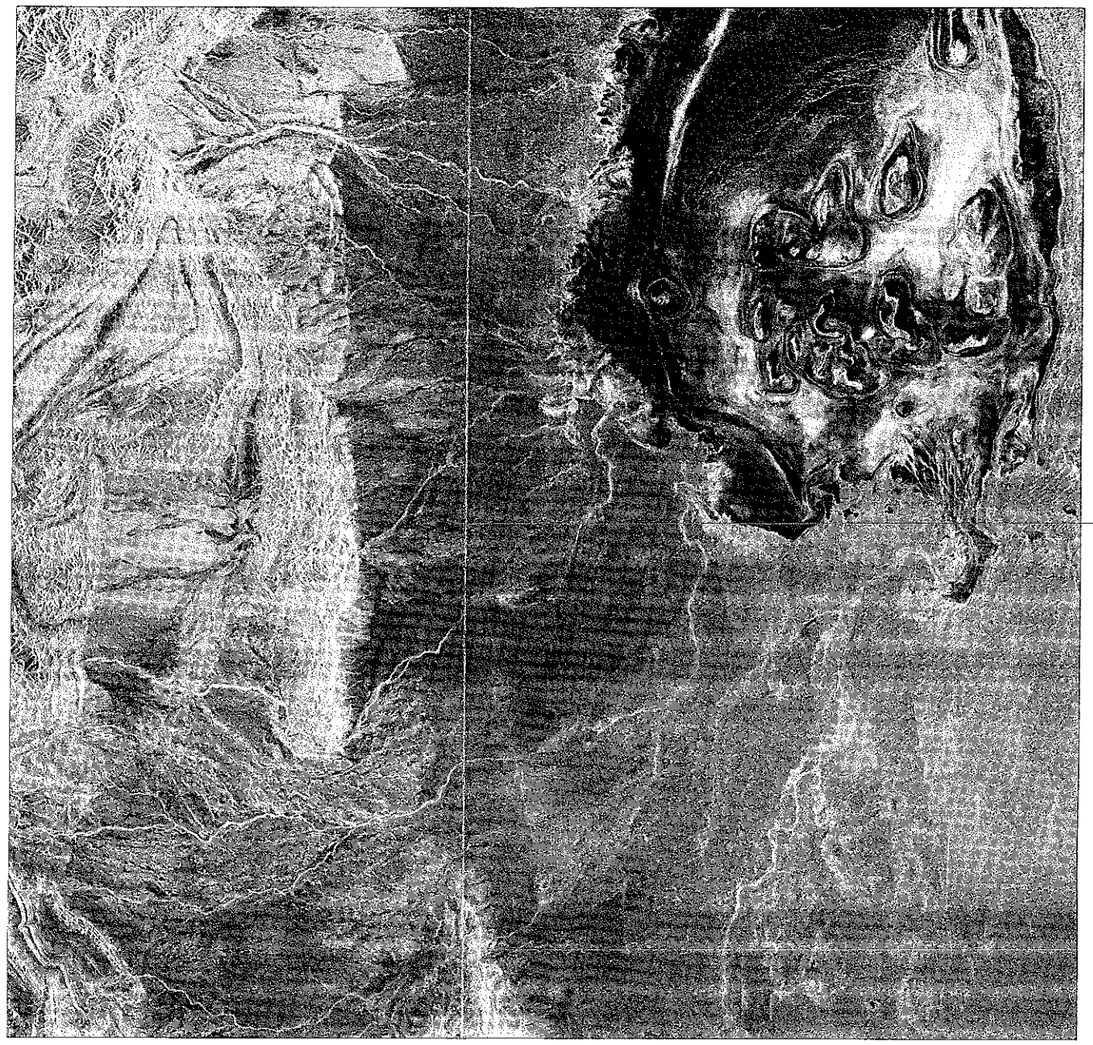
The image is of the Lake Frome area, South Australia It was acquired at the ACRES Alice Springs receiving station in September 1991 as part of the calibration and validation of the satellite instrument by the radar research group at the Defence Science and Technology Organisation based at Salisbury in South Australia The image has been processed by the European Space Agency's central processing facility at Frascati near Rome in Italy and output through ACRES facility in Canberra

An array of radar reflectors in an "h" shape is visible in the lake bed in the top part of the image Apart from the detail visible in the bed of the dry saltpan lake, other features obvious in this image are the stream patterns flowing into Lake Frome a few roads and tracks and the geological structure of the eastern part of the Flinders Ranges including Mt Frome

The ground resolution of the SAR instrument is approximately 25m from its orbit 780km above the earth s surface The SAR is an active microwave instrument using energy transmitted by the satellite and reflected by ground objects it does not rely on reflected sunlight for image acquisition so it is possible to acquire clear imagery both day and night Since the instrument operates in the microwave region of the electromagnetic spectrum it also 'sees' through cloud thus making the imagery available in all weather This is a major attribute of the system in comparison to current sensors that operate in the visible and infrared regions which are limited by daylight and cloud cover

ACRES is part of a worldwide network of ground receiving stations and distribution centres for data from ERS1 Its receiving facility at Alice Springs has been upgraded to receive the data and has been receiving and recording SAR data over Australia since September 1991 In September 1992 ACRES expects to take delivery of a Fast Delivery Processor system being developed by British Aerospace Australia under a contract with the Australian Space Office

Prime researchers in the use of this data are in the oceanography area with the University of Sydney and the CSIRO Marine Laboratories being prominent amongst the principal investigators There are many potential applications of the data in other areas such as mineral exploration, agricultural assessment, environmental monitoring and mapping, particularly in tropical regions which are notorious for their consistent cloud cover



ERS–1 Image of Lake Frome

For further information contact:

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Landsat 6

EOSAT have advised that the launch of Landsat 6 is now rescheduled to January 22nd 1993

In the meantime ACRES Data Acquisition Facility (DAF) in Alice Springs and the Data Processing Facility (DPF) in Canberra are being upgraded The upgrades should be complete by September and November respectively

The upgrade will enable ACRES to receive the dual transmissions from the both the TM and ETM(Enhanced Thematic Mapper) and to output the data as Levels 4.5.6 8 and 9 digital and photographic products

There is no MSS instrument on the Landsat 6 spacecraft The acquisition of Landsat 5 MSS post the Landsat 6 launch is uncertain depending on EOSAT s policy for the continued operation of Landsat 5

ERS-1: The Current Status

Acquisition and archiving of C-band ERS-1 Synthetic Aperture Radar data is occurring on a regular basis Most passes allocated to Australia have been acquired

ERS-1 is currently in a 3 day ice phase revisit program The orbital pattern Synthetic Aperture Radar and other instruments are set to acquire data specific to studying ice and glacier dynamics in the northern and southern polar and sub-polar zones

Next month the satellite will be reconfigured for the 35 day multi-disciplinary phase with instruments and orbit set to provide time sequential data with unchanging parameters for analysis of processes and change This phase will acquire data of all of Australia

Upon receipt of the Fast Delivery Processor production of customer orders at ACRES will proceed Initially two levels of processing will be available: Level 0 5 -annotated raw data; and Level 1 0 processed or correlated data without any radiometric or geometric corrections

Prices of ERS-1 SAR products have not been finalised however it is envisaged ACRES prices will generally be in line with those charged by ESA approximately $A1200 for a CCT of 100km x 100km scene

JERS-1 Status

The Japanese Earth Resources Satellite -1 (JERS-1) was successfully launched on February 11th from the Osaki Range of the Tanegashima Space Center Japan

The solar panels on the satellite were deployed successfully and the optical instruments spanning the visible/near infrared to the shortwave infrared are reported as operating satisfactorily

Unfortunately the SAR antenna was not deployed successfully and is currently under examination

It is expected that ACRES will be in a position to acquire JERS-1 data as from mid-June 1992 pending the upgrade to the Alice Springs data acquisition facility A processing capability for the optical data will be installed at ACRES and customer products from this system should be available by the end of this year

Various options to produce customer products from the L-band SAR are presently being investigated by ACRES. Our aim is to have these products available by the end of 1992.

We will keep you posted!

Restructure of market sales

ACRES have restructured the marketing and sales functions to allow greater diversity of operations

Jenny Weissel has joined the Engineering Team where she will work with Erik Elmar, Project Engineer; and the existing marketing team will join with Administration to become the new Sales and Support group under Linden Elliot Project Director

New Farm Image on Track for Success

The new ACRES Farm Image Product attracted considerable interest at the recent Outlook '92 Conference held in Canberra in early February Designed specifically to assist rural producers with on-farm planning crop monitoring and land management "Farm Image" is a customised satellite image product which offers many advantages over standard aerial photographs including regular acquisition and advanced spectral capabilities. The product is available through licensed distributors AgRecon and Mapping an Monitoring Technology and consists of a 15.5 by 15.5 km data set over any farm in Australia The data is geocoded (ACRES level 8 processing) and can be purchased as a photographic product at 1:50,000 or 1:25,000 scale for $300.00 or as a data package which contains both the photographic product and a three band digital floppy disk data set for $550.00. These prices do not include postage and handling charges Further details about the product can be obtained from ACRES or the licensed distributors

Dr Brian Button, managing director AgRecon, Sharelle Payne and Sue Campbell University of Canberra discuss "Farm Image" at the Outlook'92 Conference.

"Sticky Tape Syndrome"

ACRES High Density Digital Tape Rejuvenation

During the course of MSS data processing it was noticed that the high density digital tape containing early Landsat-2 and Landsat-3 data was undergoing a change in physical characteristic (sticky tape syndrome) The composition of all magnetic tapes consists of magnetic media bound to a mylar substrate by a polyester binder research by ACRES indicated that the polyester binder had become soft on high density digital tapes approaching ten years in age The problem was serious enough to prevent the extraction of the MSS data from the tape consequently some of the MSS scenes acquired between 1979 and 1983 could not be processed

Further research indicated that the softness of the binder could be reversed temporarily by baking the tapes in an oven at a constant temperature of 55C An industrial oven was installed which allows ten tapes to be baked at one time The process of baking has proved to be extremely successful recovering data of excellent quality

ACRES is the first ground station to employ this technology The process of tape baking is currently being used on all MSS tapes prior to transcription of the data to optical tape ensuring the continued existence of the national archive

EXABYTE Digital Products

The provision of digital data on the EXABYTE 8mm cassette system is currently under investigation at ACRES. Trials of the product are being carried out on a variety of GIS platforms. A release date for the product (pending any problems from the trials) should be 30-March-1992 Pricing will be identical to the equivalent 6250 bpi CCT product

The media format will consist of the EXABYTE standard 8 mm data cassette (SONY GG 112M or equivalent) of 2 3 Gigabyte capacity only

The data format will conform to the ACRES CCRS format as presently used for 6250 bpi and 1600 bpi CCTs. Current ingest routines used for ACRES CCT products should be able to read the EXABYTE product without modification

Each EXABYTE volume will contain a single data set

ACRES Reference Centre Review

ACRES has recently completed a review of the Reference/Browse Centre concept and has concluded that the present arrangements are no longer effective in the delivery of the benefits of remote sensing data to the Research and Development Community

The network of Research and Development Support Centre is to be closely linked with the ACRES Data Distribution network

THE ROLE OF RESEARCH AND DEVELOPMENT SUPPORT CENTRE

The new RDSC role will incorporate most of the previous Reference Centre roles except for the sales role which is now seen to rest entirely with the Data Distribution network However the RDSC will expand their role beyond the reference centre role into the support and management of the R & D Support Scheme

Thus the roles of RDSC are:

To provide advice on remote sensing to the academic and research community on remote sensing technology and applications;

To promote the technology of remote sensing from satellites and its use in the education and research sector:

To assist the research and education communities in the development and implementation of applications projects using remote sensing data from satellite;

To refer sales and availability queries to nominated Data Distributors; and

To manage the ACRES Research and Development Support Scheme

It is proposed to hold a briefing for potential RDSC at ACRES on 9 April 1992 Applications will close on 23 April and the new scheme is to commence on 1 May

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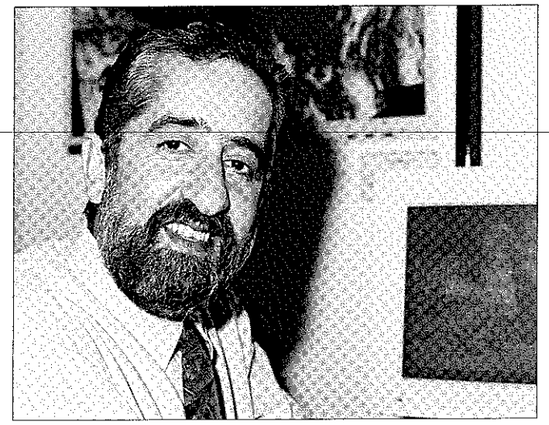
Update

ACRES

MARCH 1992

Minister presents display to the South Australian Investigative Science Centre



Senator Bolkus with the ACRES Display

INVESTIGATIVE SCIENCE CENTRE

The Minister for Administrative Affairs. Senator Nick Bolkus. presented an ACRES developed interactive display of satellite imagery to the South Australian Investigative Science Centre on 16 March 1992, as part of the International Space Year

The display is intended to familiarise the general public with the features and uses of remote sensing when addressing global environmental and developmental issues

The interactive display enables visitors to gain an overview of Australia at "the click of a button", the display is set up on a Macintosh LC computer and comprises of approximately 50 images broadly representing conditions in each state or territory

Manager's Message

1992 promises to be another significant year for Australian remote sensing The Australian Space Office has published a report "Observing Australia" compiled by the Australian Space Board's Remote Sensing Committee The report's recommendations and conclusions address issues such as research and development, industry capability and data use and access

The Australian Liason Committee on Remote Sensing by Satellite (ALCORSS) chaired by ACRES parent organisation AUSLIG at its March meeting set-up a number of working parties to address from a national perspective management, infrastructure data, applications, and market development issues

Reports and working parties come and go The measure of their value and success is through the tangible programs they inspire and generate This is the challenge for the individuals involved and their sponsoring organisations.

Satellite remote sensing even for a country that does not currently have to pay for and support a space sector, is an expensive activity which needs the co-operation of all the relevant organisations - data suppliers and users government and private sectors - if we are to maximise the returns of this technology to the Australian economy

The LANDSAT program in the United States is undergoing significant change From the launch of LANDSAT 6 now planned for January 1993 program responsibility will move from NOAA within the Department of Commerce to the Department of Defence and NASA Data costs to United States government and research agencies will be significantly less Whether it is practical for ACRES to follow this lead will depend on our ability to generate increased sales to deliver the required products and level of service AUSLIG is currently required to fund around 20% of ACRES annual costs through sales revenue

While it is our objective to deliver to users the maximum number of products they need we need to pitch our prices to achieve our budget That is perhaps our major challenge

Carl McMaster