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DOLA participates in international satellite experiment

In October last year, DOLA's Geographic Services Branch participated in IGEX98, an international experiment to record satellite data from both the Russian GLONASS and the GPS satellite constellations, which are used for global positioning and time transfer.

By participating in this project, DOLA has contributed to the determination of post-processed GLONASS satellite orbit parameters. These are expressed in the world standard International Terrestrial Reference Frame (ITRF).

Importantly, a rigorous transformation between the GPS and GLONASS will now be available allowing a greater simultaneous use of data from both sets of satellites.

This is a huge advantage as it makes available a more accurate positioning particularly in areas of poor sky view, such as city blocks or dense forest, where structures and vegetation restrict the reception of satellite signals.



DOLA's GPS Test Project Manager, Jock Beer, adjusting a receiving antenna on the roof of the Midland Building.

Data from the two satellite positioning systems was simultaneously recorded at 53 sites in 23 countries around the world, from 19 October 1998 to 21 January 1999.

DOLA's Midland building was one of two sites in Western Australia to receive data from the satellites. Two receiving antennae were located on the roof, with one connected to an Ashtech Z12 (GPS) receiver and the other to an Ashtech GG (GLONASS) receiver. The positioning of the receivers was surveyed to an accuracy of within 1 millimetre.

Data transmitted from the satellites was recorded in the receivers at 30-second intervals. This data was then transferred to DOLA's Internet file site every two days for further transfer to the Australian project coordinator in Canberra.

The project was a joint initiative by international navigational and positioning institutions, including the International Association of Geodesy, the International GPS Service, the Institute of Navigation, and the International Earth Rotation Service. Post processing of the data is being undertaken at various international research institutions under the leadership of these groups. More information on the IGEX Project is available at <http://164.214.2.59/GandG/ion/index.htm>.

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DOLA Year 2000 Progress Report

As the community becomes increasingly aware of the potential technological problems associated with the Year 2000, DOLA is pursuing a number of strategies to minimise its impact on operations.

DOLA's objective is to ensure that services will continue to be delivered in an efficient manner before, during and after the Year 2000.

DOLA's relationships with its wide range of customers are vital. DOLA is aware that many of its customers will need to ensure their own "readiness" through testing systems and data flows, and this will require cooperation and coordination between organisations.

Current Year 2000 status information is posted on the DOLA website and will be updated as progress is made.

DOLA Year 2000 Status as at February 1999

DOLA has an approved and funded Year 2000 (Y2K) project, which is now well underway.

A recent review of DOLA's strategic technology and systems has determined that all major systems (including Customer Remote Search and Land Information Access) will remain operational into and beyond the Year 2000.

DOLA's Business Impact Assessment identified that, as the majority of DOLA systems already use four

digit years, the mainframe application systems require only minimal changes.

Upgrading of the mainframe system software is complete, with all software upgraded to "Y2K ready" versions.

The development of a discrete testing environment is underway to enable the large workload of application systems correction and testing to proceed.

Planning for the testing and correction of application systems commenced in October 1998 and is scheduled for completion in mid-May 1999.

Replacement of DOLA's Unix environment is now complete, with hardware and system software at Y2K ready level.

Upgrades of key applications for the Human Resource and Financial Management Systems have started. Testing of the applications will commence in mid-February. The completion date depends on the delivery of some Y2K ready components.

DOLA has incorporated Y2K compliance requirements into all new purchases and is now checking all recently commissioned PCs. The majority of existing PCs have now been checked.

The status of building services such as security systems, lifts and fire alarms, is now satisfactory and only two minor upgrades remain to be scheduled. These include air-conditioning and the Security Access System.

DOLA's PABX switchboard has been upgraded to a Y2K ready state and will undergo final testing in March.

A comprehensive Business Continuity Plan is being written for the Y2K transition period, in accordance with the existing Disaster Recovery Procedures.

For any further information please contact Russell Cooper, Year 2000 Project Manager by e-mail: russell_cooper@dola.wa.gov.au or by telephone on (08) 9273 7517.

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Land Monitor Project Provides Help to Esperance

In January, DOLA responded swiftly to an urgent call from the Shire of Esperance. The Shire needed urgent land information assistance following the recent floods, which inflicted damage to the road and drainage infrastructure in the region.

In agreement with the Land Monitor Project Management Team, DOLA rearranged its program of digital elevation model (DEM) capture to provide essential land information to the Shire of Esperance. This involved the derivation of accurate 2 metre contours from nearly 11 million height data points in the area. A DEM results from the calculation of the vertical height above mean sea level of a large number of points on the ground. This calculation is carried out with aerial photography and computer storage technologies.

The priority area included the critical catchments of Coramup Creek and Dalyup River, and amounted to

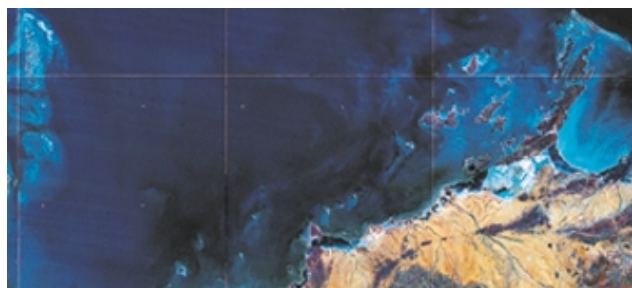
a combined area of almost 110,000 hectares. Contour information of this density over such a large area is only practical using the DEM methodology. DOLA's assistance has provided the Shire with a timely and accurate means of analysing the stormwater discharge from the catchments, and will aid in the provision of emergency drainage structures such as culverts and floodways.

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Coastal Mosaic Completed

Satellite Remote Sensing Services (SRSS) recently completed a mosaic of satellite images covering the entire Western Australian coast and stretching 100km inland.

SRSS has compiled the mosaic from more than 50 satellite images of the coast, providing seamless tiles, which have been enhanced to provide optimum detail.



The Dampier tile is shown here with the Monte Bello Islands in the west and Dampier in the east.

The mosaic is part of an initiative by Environment Australia, to create an *Australian Coastal Atlas*. The *Atlas* is a Web-based geographic information system, which allows the public to access a large range of datasets and overlay these on satellite or other map data.

The datasets remain under the custodianship of agencies across Australia and are linked and accessed via the *Atlas* at http://www.environment.gov.au/marine/coastal_atlas.

SRSS has provided Environment Australia with various digital output formats of the information, as well as enhanced hard-copy prints at a scale of 1:250,000.

Environment Australia has expressed delight at the products that SRSS has delivered.

Project coordinator at SRSS, Ken Dawbin, pointed out that one of the benefits of the project is that the numerous Western Australian agencies collaborating with Environment Australia on the *Atlas* now have access to a large satellite data archive at minimal cost. This information is being increasingly used for a range of coastal projects.

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DOLA work recognised by the WA Police Service

The Western Australian Police Service has paid tribute to the Department of Land Administration for its high-definition aerial images. By producing high-definition images of specific locations, DOLA assists police during operations such as murder inquiries, searches and kidnappings.

In recognition of DOLA's services, Inspector Neil Clarke, from Police Response and Emergency, presented a plaque to DOLA's Director of Service Delivery, Grahame Searle.

Inspector Clarke said that DOLA was an important strategic partner in Police operations and that he looked forward to the partnership continuing.



After the presentation, Inspector Clarke and other members of the Response and Emergency Unit were shown how DOLA creates the images and maps used in Police operations.



(From left to right) DOLA's Brian Lawrence, Ian Campbell, Vanessa Jones, Police Inspector Neil Clarke and DOLA's Director, Service Delivery, Grahame Searle.

"The first phase reviewed the existing practices and procedures and the second tested modern surveying, mapping, land registration and taxation practices using a series of pilot projects."

This latest contract, funded by the Asian Development Bank (ADB), will run for twelve months until the end of 1999, and develop specifications for Bangladesh's major Land Administration and Taxation Reform project, an ADB five year loan project valued at US\$25 million and planned for 2001-2005.

The first stage of this project involves a close examination and development of strategies for land law reform, institutional re-organisation and the use of aerial photography for cadastral mapping. One Perth based firm, Kevron, has already benefited by securing the air photography contract from DOLA for this project.

The project team, all with extensive international experience, includes two DOLA staff; Ken Alexander, Survey and Mapping Specialist, and Ian Hyde, Land Information Specialist; a valuer, Graeme Jeffery, from the Valuer General's Office; and four Australian private sector consultants.

The second stage of this project is expected to include a training component for up to 200 Bangladesh surveyors, with two WA TAFE lecturers conducting a train-the-trainer program in Dhaka.

The Pacific Region

DOLA has won its first project in the Pacific Region. Partnered by the NSW Land Titles Office, DOLA has been selected by AusAID to manage the Solomon Islands Institutional Strengthening of Land Administration and Land Registration project.



View of Honiara, Guadalcanal, as seen from the US War Memorial site

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DOLA International reports

Bangladesh Project

Western Australia's Department of Land Administration (DOLA) has won a \$1.4 million contract to manage the next phase of the Reform of Land Administration System in Bangladesh.

"This contract is the third won in Bangladesh by DOLA International and brings the value of projects in that country to \$3.25 million since 1996," Project Director Max Van Weert said.

There are numerous areas of the Solomon Islands Ministry of Land (MOL) in need of institutional strengthening. A number of these areas are being addressed by the Solomon Islands Government, with consideration being given to privatising traditional cadastral surveying, mapping and printing functions.

While issues such as poor revenue collection will be frequently highlighted and addressed during the project, the specific development problem, as detailed by numerous government agencies, is a

lack of land information to guide and support social and economic development.

Short-term technical assistance was mobilised in November 1998 to provide support to the MOL for three consultants to begin addressing these and other issues.

NSW Legal Adviser, Tony Lamb, will review the Land and Title Act and other related legislation and regulations to seek greater clarity in the legislative framework and to improve the revenue generating capacity of the MOL. Following recommendations made in his first mission, Tony is presently in Honiara developing draft policy for submission to the Solomon Islands Government to implement many of the proposed changes.

NSW Land Titles Financial Controller, Steve Nieuwendyk, will review the computerised accounting systems, the revenue collection processes from leased land, and the procedures for following up on arrears. Where necessary, recommendations for changing these systems and processes have been made and Steve is providing training on the systems and processes adopted.



Boat landing and anchorage near Honiara (Solomon Islands).

The terms of reference for the project also included the provision for future reforms and institutional strengthening. Project Director/Land Administration Specialist, Max Van Weert, was required to review the overall systems of survey and mapping, land registration, land valuation, and information technology, and to develop a project design document for a future institutional strengthening of land administration projects in the MOL.

This intervention aims at developing a modern land administration system which provides and maintains, on a responsive transaction demand basis, a complete, comprehensive, current and unambiguous record of every land parcel in the jurisdiction.

What has been very heartening for all three consultants has been the degree of interest and enthusiasm shown by the MOL officers. Many of these staff have the technical capability but lack the modern equipment and management to implement their practice. It was interesting to see that while most staff had graduated from a university in Papua New Guinea, three cartographers were recent Curtin University of Technology graduates.

The project is scheduled for completion in May this year.

PanAIRama digitised aerial photography

DOLA's award winning "PanAIRama" CD-ROM reference, containing aerial photography of Western Australia, now includes oblique photographs of selected areas of the State.

Containing more than 400 images, the new CD-ROM collection provides a unique bird's-eye perspective of the state, with oblique photographs in colour and black and white.

The CD-ROM is unique because, while aerial photographs are traditionally taken from directly above the subject, the photographs in this collection were taken from an angle. This provides greater and more detailed information.



Titled Aerial Scenes of Western Australia, the CD-ROM has aerial photographs of both coastal and inland locations. It includes profile shots of Perth from above the Swan River and photographs of the Bungle Bungle Range, Wolfe Creek Meteorite Crater (See photo) and other natural features of the State, as far south as Albany.

Other images in the collection include views of Perth (up to 40 years old), with the Barracks buildings, which were demolished to make way for the Mitchell Freeway in the 1960s.

Scenes on the CD-ROM are selected via a simple menu, and can be zoomed in on to provide greater detail.

The information has proven useful for emergency services such as the Fire Brigade and the Police. It has also been used by local government councils and members of the public interested in the unique and often beautiful images of the State.

Anyone interested in the CD-ROM should contact DOLA's CENTRAL MAP AGENCY on (08) 9273 7209.

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