



**School of Tropical Environmental Studies  
and Geography**



**James Cook University  
14 – 17 July 2002**

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## AUSTRALIAN MAP CIRCLE 2002 CONFERENCE

**Welcome** to the Australian Map Circle (AMC) 2002 Annual Conference at James Cook University, Cairns Campus. This is the first AMC conference in the Far North. The program for this conference will celebrate mapping frontiers, in the context of political boundaries, historical explorations and new knowledge.

This year the AMC is pleased to incorporate the annual seminar of the Far North GIS group. This is a unique opportunity for Geographic Information Systems professionals in the far north to interface with a group whose primary focus is mapping and map history. Since so much new mapping is coming from GIS and so much GIS data has been derived from existing maps, it is an appropriate mix and an exciting chance to share knowledge.

**Elsewhere in this volume you will find the programme of activities, followed by abstracts for the papers. Please also note the following general information about the conference:**

**Venue.** Activities will commence promptly at 9:00 am each day at Crowther Lecture Theatre, James Cook University. A registration table will be open daily at 8:00 am for day registrants. JCU is located in Smithfield, approximately 17km North of the city of Cairns. All papers will be presented at the Crowther Theatre. Although it is the mid-semester break, classes continue, and we share the facility with a postgraduate intensive subject. Attendees are encouraged to step outside during breaks to enjoy Cairns' magnificent winter weather and keep the noise in the foyer to a minimum.

**Parallel Sessions.** In order to accommodate the FUNGIS mentoring session and their Annual General Meeting, these events will run parallel to AMC conference activities. FUNGIS members are asked to please check the program for times. The venue for FUNGIS meetings is room B1-106, which is in the Library.

**Prizes.** The Estelle Canning Memorial Prize, donated by Victor and Dorothy Prescott, commemorates our Vice-President who passed away on 20 September 1999. It consists of an award of \$250.00 for the author presenting the best paper, as judged by the AMC President at each AMC conference.

**Transport.** Transport by mini-bus will be provided from hotels in Trinity Beach via the Student Lodge to the Crowther Theatre each morning. (Transport might possibly include other locations by arrangement, at the convenience of the committee). The technical tour and Sunday activity will take conference delegates into Cairns city; transport by mini-bus will be provided for these activities. It may also be possible to provide some transport to Cairns Airport by mini-bus on Wednesday afternoon at the conclusion of the Conference. FUNGIS has arranged separate transport for its members to the Hydrographic Office for Tuesday's technical tour.

**Meals.** Morning tea, lunch and afternoon tea will be provided each day for all full registrants and speakers. Also included in full registration are the Welcome BBQ on Sunday evening and the Conference Dinner on Tuesday evening. The committee is confident the catering will provide a fine sampling of Northern cuisine. Delegates should make their own breakfast arrangements each day, as well as arrangements for dinner on Monday and Wednesday evenings.

**Acknowledgements.** The Conference Planning Committee wishes to thank the following for their assistance in making this conference happen:

- Peter Griggs for his enthusiasm and hard work, and for suggesting that JCU nominate as host
- The Cairns Historical Society for loaning maps from their collection
- Kate Elder, Cairns Campus Librarian for allowing the use of the special collections room in the library
- Ross Thomas for presenting the workshop on Logan Jack
- Commander John Maschke and the staff of the Cairns Hydrographic Office
- Our lunch caterer, the Sunny Oven, and Scott Edwards who kindly offered to prepare morning and afternoon tea
- Cathy Cooper assisted with the authoring of this document
- The FUNGIS executive for putting together the satchels
- Ian Overton of *Mapping and Beyond* who generously sponsored the drinks at the conference dinner.

Finally, we thank all the speakers and delegates who have made the conference possible.

**We trust that all delegates and speakers will find the conference a productive, rewarding and enjoyable experience.**

AMC 2002 Conference Planning Committee.

**Adella Edwards, Peter Griggs**

## ABOUT THE AUSTRALIAN MAP CIRCLE



The Australian Map Circle (AMC) is a national group of map producers, users and curators, which acts as a medium of communication for all those interested in maps. The AMC was founded as the Australian Map Curators' Circle in 1973.

The aims of the AMC are:

- To promote communication between producers, users and curators of maps.
- To improve the skills and status of persons working with map collections.
- To promote the development and effective exploitation of map collections throughout Australia.

**The AMC Annual Conference is held in a different city each year. All aspects of map use and mapping are discussed and the proceedings of the conference are published as part of the journal of the AMC, *The Globe*. The diversity of the papers presented at the AMC's annual conferences reflects the broad range of interests of its members. Topics covered at these conferences include historical maps, map production techniques, the cataloguing and archiving of maps, government policy and technological change.**

Membership of the AMC is available to anyone who has an interest in maps. Subscription rates for an individual are \$30.00 a year, for which you receive the AMC journal *The Globe*, and the occasional *Newsletter*.

For more details or for a membership brochure, please see our web site:

<http://australianmapcircle.org.au>

Or write to:

Australian Map Circle  
c/o Department of Geography  
University of Melbourne, VIC, 3010  
AUSTRALIA

## ABOUT FUNGIS



Far North Queensland GIS User Group Inc.

The Far North Queensland GIS Group Inc (FUNGIS) is a non profit organization established as a local forum for knowledge exchange on GIS, and to promote the use and awareness of GIS in the far north.

A particular highlight of this years FUNGIS Annual Seminar is the **Mentoring Workshop – “Spatial Angels”** on Monday 3:15-4:45pm. The Mentoring Program promises to be a great community project providing benefits to those just starting (or wishing to start) with GIS, and those with GIS expertise that have an interest in participating in a wide range of projects. Discussion at the workshop will be vigorous with interests ranging from private, through community groups and government, to fully commercial. The Mentoring Workshop will provide the opportunity for potential mentors and recipients to define the program structure and objectives based on the needs of both the users and providers.

The Directions Forum and Annual General Meeting will be held Wednesday from 1:30 onwards. The venue for both these events will be room B1-106, in the JCU Library.

**Members of FUNGIS enjoy a number of benefits, including newsletters, discount prices to Forums and Seminars, information about local, state and national developments in GIS, and technical support through being a part of a group with local knowledge.**

Membership is by annual subscription:

Full time student or unemployed	- \$20.00
Individual	- \$40.00
Corporate	- \$80.00

(Corporate membership allows an organization to nominate up to 5 people for the mailing list and to send up to 5 representatives to any FUNGIS function at membership prices)

For more information:

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PO Box 1920, Cairns, Qld 4870

Monday, July 15

**MAPPING FRONTIERS**

8:00 – 8:50	Registration
8:50 – 9:00	Welcome AMC
9:00 – 9:10	Welcome FUNGIS
9:10 – 9:20	Welcome JCU
9:20 – 10:15	Keynote: Mapping Frontiers Beneath the Earth <b>Professor David Gillieson</b>
10:15 – 10:45	Morning tea
10:45 – 11:15	Waiting for the Esquimo <b>Brenden Whyte</b> chair: Adella Edwards
11:15 – 11:45	Native Title: to the sea <b>Emeritus Professor Victor Prescott</b>
11:45 – 12:15	Using Historical Survey plans to Map Aboriginal/Vegetation/Fire Relationships <b>Rosemary Hill</b>
12:15 – 1:15	Lunch
1:15 – 1:45	The Coonawarra: A Viticulture Frontier or Just a Case of Sour Grapes? <b>Max Foale and Derek Smith</b> chair: Victor Prescott
1:45 – 2:15	Maps on Stamps: Frontiers and Magpies <b>Frank Urban</b>
2:15 – 2:45	The Influence of Hydrographic Surveying in the Development and Settlement of Australia <b>Commander John Maschke</b>
2:45 – 3:15	Afternoon tea
3:15 – 4:15	Workshop: Historical Maps of the Far North Cairns Historical Society (special collections Room, 2 <sup>nd</sup> floor, JCU Library) FUNGIS mentoring workshop
7:00 – 9:30	cartographic movie: <b>Three Graves to Cairo</b> wine & cheese

Tuesday, July 16

**CURRENT MAPPING TRENDS AND TECHNOLOGY**

8:00 – 9:00	Registration
9:00 – 9:30 chair: Peter Wilson	GIS in Education – A North Queensland Perspective <b>Kenneth Melchert</b>
9:30 – 10:00	A GIS for rainforest restoration and environmental education – a case study of Peterson Creek, Atherton Tablelands <b>Amanda Freeman</b>
10:00 - 10:30	A Conceptual Model: Data Sharing, incremental updating and future topographic map production <b>Tony Baker</b>
10:30 – 11:00	Morning tea
11:00 – 11:30 chair: Bob Peever	The Queensland Spatial Information Infrastructure Strategy (QSIIS) and the role of the QSIIS Information Office <b>Graham Stanton</b>
11:30 – 12:00	On Error Correction and Accuracy Assessment of Thematic Map Generation Using Satellite Imagery <b>Xiuping Jia</b>
12:00 – 12:30	Mapping tropical cyclone disturbance of the Great Barrier Reef <b>Marji Puotinen</b>
12:30 – 1:15	Lunch
1:15 – 4:45	<b>Technical Tour</b> <b>Cairns Hydrographic Office</b> <b>HMAS Cairns</b>
5:00 – 7:00	Informal drinks Palm Cove Tavern
7:00 – 9:30	<b>Conference Dinner</b> Courtyard Marriott Great Barrier Reef Resort

Wednesday July 17

**HISTORICAL MAPPING**

9:00 – 10:30		Technical Session Logan Jack maps <b>Ross Thomas</b> (special collections Room, 2 <sup>nd</sup> floor, JCU Library)
10:30 – 11:00		Morning tea
11:00 – 11:30	chair: Peter Griggs	Staging the Southern Continent 1565-1606 <b>Mercedes Camino</b>
11:30 – 12:00		Chart and Sailing direction problems for Early Navigators <b>Bill Richardson</b>
12:00 – 12:30		The Secret Agenda of Robert Dale (1809-1853): Australian explorer and Liverpool Timber Merchant <b>Karen Cook</b>
12:30 – 1:30		Lunch
1:30 – 2:00	chair: John Cain	A comparison of the maps and charts produced by the eighteenth century voyages of Louis-Antoine Bougainville and James Cook to the Pacific <b>John Robson</b>
2:00 – 2:30	<b>FUNGIS</b> 2002/2003 Directions forum and Annual general Meeting	Identifying potential archaeological sites from historical maps <b>Brad Duncan</b>
2:30 – 3:00	room B1-106, Library	Demonstration of Map Librarian <b>Benjamin Wragg</b>
3:00 – 3:10		closing remarks
3:10 – 3:30		Afternoon tea
3:30 – 4:30		AMC Annual General meeting

## **A CONCEPTUAL MODEL. DATA SHARING, INCREMENTAL UPDATING, AND FUTURE TOPOGRAPHIC MAP PRODUCTION.**

**Anthony John BAKER**

Organisations started sharing information long before the introduction of computers and GIS. Whilst the data-sharing task has become easier due to their continued evolution, it has also increased its complexity. The amount of data that is being shared has risen markedly over the last decade. There is now a demand for data to be not only spatially accurate but also up to date in both content and currency.

Since the late eighties LPI has maintained cadastral information over NSW in the form of the Digital Cadastral Data Base (DCDB). Up to date cadastral information is available to LPI customers in the form of incremental updates. Despite LPI also maintaining the state's topographic information (DTDB) a similar mechanism does not presently exist.

This paper examines current data sharing practices and proposes a conceptual model for topographic map production through the use of data sharing and incremental updates. These discussions are reinforced through the use of relevant local and overseas examples.

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**Tony Baker** is currently employed with the Spatial Information Services Division, Land and Property Information (LPI) (NSW), Panorama Ave Bathurst NSW 2795. He has worked there a little over 16 years with the last three dedicated to the production of topographic maps. He holds qualifications in cartography and environmental technology and is currently is studying part time at University of Southern Queensland in the Master of Geomatics research program. Current investigations include the production of "on demand" topographic maps. e-mail: [tony.baker@ditm.nsw.gov.au](mailto:tony.baker@ditm.nsw.gov.au).

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## STAGING THE SOUTHERN CONTINENT 1565-1606

### Mercedes CAMINO

The classical idea of *Totus Mundus Agit Histrionem* (“all the world is a stage”) pervades many maps produced during the early modern period. The theatricality of the world is of special interest in relation to the mythical Southern Continent. For as long as the Pacific remained uncharted, geographical discoveries and fantasy interacted in the construction or invention of this large area of the world.

The maps looked at in this paper are cultural, social and spatial representations that stand at the threshold between the moralized geography prevalent in the Middle Ages and the post-enlightenment representations with which we are now familiar. Thus, many early modern maps present a vision of the world that is both moral and geographical. Reality and fantasy merge in the histrionic representation of the world as a stage that informs the mapping of the Pacific at the time the journeys of Alvaro Mendaña and Pedro Fernandez de Quiros took place between 1567 and 1606. Reinforced by a view of life as representation, and of the world as a stage where humans follow the designs of divine destiny, these maps, like the narratives that often accompanied them, reify a universe where fiction and reality *are* representation both for the actors and for the viewers.

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**Mercedes Maroto Camino** is a Senior Lecturer at the University of Auckland, where she specialises in the early modern period. She has published widely in the areas of women’s writing, history of cartography, colonialism and the *comedia*. Her first book was published by The Edwin Mellen Press and the second, *Practising Places*, by Rodopi. Her articles have appeared in journals such as *Hispanic Review*, *Revista Canadiense de Estudios Hispánicos*, *Cartographica*, *Parergon*, *Spenser Studies*, *Forum for Modern Language Studies* and *Bulletin of the Comediantes*. Dr Maroto Camino has also been the recipient of various international awards and fellowships, including the Newberry Library (Chicago), National Maritime Museum (London), Spanish Ministry of Foreign Affairs, American Geographical Society (University of Milwaukee) and J. B. Harley Trust (London). She is currently the recipient of a two-year Marsden Grant given by the Royal Society of New Zealand to develop the topic on which this paper is focused, that is, exploration and mapping of the Pacific between 1567 and 1606. E-mail: m.camino@auckland.ac.nz.

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**THE SECRET AGENDA OF ROBERT DALE (1809-1853):  
AUSTRALIAN EXPLORER AND LIVERPOOL TIMBER MERCHANT**

**Karen Severud COOK**

Robert Dale's entry in the *Bicentennial Dictionary of Western Australia* mentions his arrival at Swan River as a British Army ensign (1829), explorations and land acquisitions, promotion to lieutenant (1832) and return to England (1833). It omits to say that he took to England the smoked head of the slain aboriginal leader, Yagan, and also published a nine-foot-long panoramic view of King Georges Sound (1834). My interest in Robert Dale was aroused during research into a supposed secret expedition to Australia's center. According to the *Leeds Mercury* newspaper (1834) a British expedition marched inland from the coast in 1832 and discovered a colony descended from a Dutch shipwreck. Whether or not that expedition occurred and involved Robert Dale remains a mystery. However, his four years exploring, surveying and clearing roads in Western Australia earn him a place in Australian map history. He came from a military family, but back in England he left the army to become a timber merchant in Liverpool. This paper uses evidence from British archives to fill in details of his life before, during and after Australia and shed light upon his personal agenda.

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**Karen Severud Cook** is Assistant Special Collections Librarian (Manuscripts) at Spencer Research Library, University of Kansas. She holds MS and PhD degrees in Geography (University of Wisconsin) and a MLS (Emporia State University). She previously worked in the British Library Map Library where ten years ago a reference inquiry from Australia led her to begin researching Australian exploration in British archives. She is also a cartographer, an experience contributing to her longstanding research interests in the history of map design and reproduction and of geological cartography. In addition to publishing on these topics, she edited *Images & Icons of the New World: Essays on American Cartography* (London: The British Library, 1996), which includes her article about an allegorical map by Benjamin Franklin depicting the American colonies as a snake. She is presently writing an exploratory essay on the history of "Cartography and Photography" for the 20<sup>th</sup>-century volume of the *History of Cartography* series (University of Chicago Press). Address: Spencer Research Library, University of Kansas' 1450 Poplar Lane, Lawrence, KS 66045-7616 USA. E-mail: kscook@ku.edu.

**FORGOTTEN RELICS OR MARINER'S MESS: THE IDENTIFICATION OF POTENTIAL UNDERWATER ARCHAEOLOGICAL SITES IN PORT PHILLIP BAY (VICTORIA), THROUGH INVESTIGATION OF HISTORIC CHARTS IN A GIS FORMAT.**

**Brad DUNCAN**

For many years, maritime archaeology in Australia has concentrated predominantly on investigating shipwreck sites, with some limited focus on jetty, wharf and groyne sites. However, Australian Maritime archaeology is now refocusing its direction to investigate other types of underwater sites. This paper will outline one aspect of my PhD project, which uses historical charts and other mapping sources to identify areas of past historical activity in Port Phillip Bay, Victoria. Integration of these historic documents in a GIS format has allowed the present location of these sites to be tentatively identified, enabling archaeological investigation of sites that have not previously been located or inspected.

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**Brad Duncan** is currently a PhD Candidate (Maritime Archaeology) with the School of Anthropology, Archaeology and Sociology at the Townsville Campus of James Cook University. He is a member of the Queensland Council for the Australasian Institute for Maritime Archaeology and a Queensland State Tutor for the Nautical Archaeology Society. He has worked in the maritime archaeology field since 1984. E-mail: [brad.duncan@jcu.edu.au](mailto:brad.duncan@jcu.edu.au).

## **THE COONAWARRA: A VITICULTURE FRONTIER OR JUST A CASE OF SOUR GRAPES?**

**Max FOALE and Derek L. SMITH**

From the late 1980s, it became necessary to define “on the ground” the boundaries of Australian grape growing and wine making regions. Around 1990, there were some 400 “recognised” grape growing regions in Australia. For most there were no obvious problems in drawing lines on a map which defined the region. For a few there was great disagreement and conflict. The “Coonawarra” was one such region.

From 1994 a committee set up by the Australian Wine and Brandy Corporation, the Geographic Indications Committee (GIC), became responsible for defining the regions. For the Coonawarra there was in 1997 an Interim Determination, followed in 1999 by a second Interim Determination, and later in 1999 by the Final Determination. The heart of the region was a strip of Terra Rossa soil, but grape growing and wine making had extended beyond this and some 45 grape growers had been excluded. The determination appeared to lack geographical and historical validity and differed greatly from other determinations such as the Barossa or McLaren Vale. The excluded growers lodged a class appeal which was heard by the Australian Appeals Tribunal early in 2001. Numerous interested parties and expert witnesses were called including two geographers who alone attempted to define a boundary. The decision handed down in October 2001 has still not resolved the issue.

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**Mr Max Foale** was, until his retirement, Cartographer and Map Librarian in the Department of Geographical and Environmental Studies at the University of Adelaide. **Mr Derek Smith** is Senior Lecturer in the same department with teaching and research interests in Economic Geography, Regional Development and Environment. In recent years the authors have worked together as consultants in a number of projects including acting as consultants to a group of grapegrowers in the Coonawarra area and to their legal representatives, in an appeal against the determination of the Coonawarra Region by the Geographical Indications Committee. E-mail: derek.smith@adelaide.edu.au

**A GIS FOR RAINFOREST RESTORATION AND ENVIRONMENTAL EDUCATION:  
A CASE STUDY OF PETERSON CREEK, ATHERTON TABLELANDS.**

**Amanda FREEMAN**

The Peterson Creek catchment, centered on the town of Yungaburra on the Atherton Tablelands in far north Queensland, is the focus of several rainforest restoration projects.

A Geographic Information System is used by staff and students at the nearby Centre for Rainforest Studies (CRS) as a tool for recording progress of current projects and identifying opportunities for future rainforest restoration work within the catchment. Digital data, including soils, vegetation, aerial photography and fauna records have been provided by governmental and non-governmental organisations and supplemented with finer scale, purpose-specific, mapping carried out by CRS. The project's success is due, in no small part, to the support received from the GIS community, including FUNGIS.

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**Angela Freeman** is based at the Centre for Rainforest Studies, School for Field Studies, PO Box 141, Yungaburra, 4872. E-mail: [afreeman@cyberwizards.com.au](mailto:afreeman@cyberwizards.com.au).

## MAPPING FRONTIERS: THE WORLD OF CAVES.

**David GILLIESON**

Caves and their attendant karst terrains have long been objects of interest and awe to humanity. Early attempts to depict and map caves verged on the fanciful with the depiction of cave decorations as anthropomorphs and lithographed maps being both inaccurate and limited in their coverage. Evolving use of caves for water supply, for their mineral resources and as sanatoria led to better attempts at depiction, especially in the nineteenth century. Cave photography evolved in parallel with surface photography and some of the earliest flashlit photographs were taken in Australian caves from the 1860s onwards. Recreational use of caves from the early decades of the twentieth century has led to widespread adoption of conventional survey instruments and standardisation of cave mapping standards and symbols through the International Union of Speleology. The need to better map cave resources led to the establishment of specialised cave research institutes in America, China, Cuba, France, Hungary and Slovenia, initiating the profession of cave surveyor. The arrival of AutoCAD has led to the evolution of specialised cave mapping programs that better depict the complex three-dimensional geometry of cave passages. In many cases the perennial problem of multilevel caves overlapping in plan and section can be resolved through three dimensional models and rotation. Using GIS it is now possible to map both surface and underground features of karst terrains, providing new insights into their formation and precise definition of their extent for the first time.

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**David Gillieson's** research interests focus on limestone landscape (karst) processes, cave management, environmental monitoring and the applications of remote sensing and geographical information systems to land management issues in protected areas. He has recently completed a study of karst land classification and ecological risk management at Jenolan Caves, New South Wales. In 2000 he was a member of the team that produced the management plan for the Gunung Mulu World Heritage Area in Sarawak, Borneo. Author of the international text *Caves: processes, development and management* (Blackwell publishers, 1996). This book won the inaugural publication prize at the International Union of Speleology Congress, La Chaux de Fonds, Switzerland in 1997. He is the author of six books on caves and karst, and over ninety refereed papers in international journals and monographs. He is also the deputy chairman of the International Geographical Union Commission on karst and a member of the World Commission on Protected Areas, IUCN. He is currently Acting Chairman of the Australian National Committee on Geography. E-mail: David.Gillieson@jcu.edu.au

## **USING HISTORICAL SURVEY PLANS TO MAP ABORIGINAL/VEGETATION/FIRE RELATIONSHIPS.**

**Rosemary HILL**

The impact of Aboriginal fires on Australian vegetation communities has long been the subject of controversy in the ecological literature. In the wet tropics, mapping of vegetation change from 1945 and later aerial photographs has shown an expansion in rainforest at the expense of open eucalypt forest. However, little data is available that accurately depicts the vegetation patterns in Australia immediately prior to European occupation. In the Mossman district, maps compiled from circa 1890 survey plans demonstrate that rainforest expansion since 1945 is actually a recovery following extensive rainforest destruction in the first 70 years of European occupation. Environmental and oral history link the vegetation patterns mapped in 1890 to a conservative approach to fire management by the traditional owners, Kuku-Yalanji people. The data from these early maps demonstrates the risks in extrapolating from a trend visible over the last fifty years when aerial photographic coverage is available.

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**Rosemary Hill** lectures in tropical rainforest conservation and Indigenous environmental management in the School of Tropical Environment Studies and Geography at James Cook University. She conducts collaborative research with Aboriginal people focused on achieving cultural sustainability in environmental management, as well as research into natural heritage and conservation planning. E-mail: [Rosemary.Hill@jcu.edu.au](mailto:Rosemary.Hill@jcu.edu.au)

## ON ERROR CORRECTION AND ACCURACY ASSESSMENT OF THEMATIC MAP GENERATION USING SATELLITE IMAGERY.

**Xiuping JIA**

Digital images recorded by satellite detectors provide rich information on ground cover types of the Earth. Since satellites have the advantages of regularity of coverage and a scale of coverage that could never be achieved from an aircraft, thematic map generation from satellite imagery is effective and reliable. Moreover, its digital format is suitable for being processed by computer, which can save manpower significantly. However, satellites data need to be used in conjunction with traditional sources of information, with aerial photography and ground observation. Those reference data are required for rectifying geometric errors of satellite images and can aid in data interpretation and information verification.

In this paper, the use of reference map for satellite image registration and classification are presented, demonstrating the individual vital roles each data source plays. Sources of geometric distortion are discussed. The correction is conducted using the polynomials mapping functions determined by ground control points. Data recorded over Canberra region by Landsat ETM+ on 2 February 2000 are used as a case study.

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**Xiuping Jia** received her B Eng. degree from Beijing University of Posts and Telecommunications in 1982, and Ph D in electrical engineering from The University of New South Wales in 1996. She joined the School of Electrical Engineering in the University College, The University of New South Wales, Australian Defence Force Academy in 1988. She is currently a lecturer with research interests in remote sensing and imaging spectrometry. She is the co-author of the remote sensing textbook, *Remote Sensing Digital Image Analysis*, 3<sup>rd</sup> Ed. 1999, Springer-Verlag.

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## THE INFLUENCE OF HYDROGRAPHIC SURVEYING IN THE DEVELOPMENT AND SETTLEMENT OF AUSTRALIA.

John MASCHKE

Underlying the settlement and development of Australia was the work of hydrographic surveyors. The choice of Australia for English settlement was for strategic and trade reasons and without the work of hydrographic surveyors, and hydrographic data collection by ship masters and other mariners, Australia would not have progressed to what it is today.

Hydrographic surveyors have provided the means for the the progressive settlement and development of Australia since European colonisation. They have provided the basis for such things as identification of safe shipping routes, coastal settlement, port development, freedom of manoeuvre for naval operations, naval control of shipping, protection of the marine environment and delineation of maritime boundaries. Despite the involvement of hydrographic surveyors in the development of Australia, very little acknowledgement is given to their role despite the high profile of people such as Cook, Flinders and Phillip Parker King. Hydrographic surveying is sometimes confused with that of oceanography, and the fundamental nature of hydrographic surveying is often overlooked.

This paper will discuss the influence of hydrographic surveying in Australia's development as a nation. Key topics include the early coastal exploration of Australia, the importance of hydrographic surveying to strategic, defence, trade and marine environmental policy, and the continuing fundamental requirement for hydrographic surveying.

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**John Maschke** joined the Royal Australian Navy (RAN) on 2 April 1974. In August 1977, he received a commission and graduated in July 1978 from the Royal Australian Naval College. After gaining his watchkeeping qualifications in HMAS BRISBANE, he became a hydrographic surveying sub-specialist and returned to the RAN Hydrographic Service in 1980. He was promoted to Commander on 1 July 1998. CDR Maschke has completed the RAN Staff Course and is qualified with the International Hydrographic Organisation as a Category "A" Hydrographic Surveyor. He is a member of the Institute of Surveyors (Australia), the Australian Institute of Management, the Hydrographic Society (of which he is currently East Australian Region Chairman) and the Naval Association of Australia (of which he is currently Patron of the Illawarra Sub-branch). CDR Maschke has the distinction of having a charted shoal (Maschke Shoal) named after him at the entrance to Hydrographer's Passage off the coast of North Queensland. He gained a Masters degree in Maritime Policy in 2000, and is currently a PhD student at the University of Wollongong. E-mail: John.Maschke@defence.gov.au

## **GIS IN EDUCATION – A NORTH QUEENSLAND PERSPECTIVE.**

**Kenneth MELCHERT**

Townsville City Council is encouraging local high school students to become involved in GIS through its “GIS in Schools” Program. This program originally involved open days (GIS DAY), school visits and work experience opportunities, however it was recognised that Council had projects that would be suitable for high school students and would generate a high level of interest with the students. The first program was a joint venture with the City Safe Unit to identify the graffiti problem areas in the region. It was recognised that this project should not just be a data collection exercise but to use the data and GIS to prepare a report with recommendations on how to prevent the graffiti problem. This project has been immensely successful and as a result we have undertaken other projects in partnership with local schools and other Council departments. These projects include Urban Forestry and the Mapping of Significant Trees; the mapping of Heritage Buildings and Sites; and the study of natural hazards in the local community. Through ESRI's K12 program we were successful in obtaining software (ArcView) and support for the schools. We also realised, that through the early introduction of GIS and its capabilities into schools, that Council would have the benefit of more informed graduates leaving University and entering the Local Government work force. We see the 'GIS in Schools' Program as a WIN/WIN situation for Local Government and the Community at large, with this program contributing to our goal of introducing and communicating the benefits of GIS to the local community.

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**Kenneth Melchert** is the Customer Service Supervisor (GIS) with the Land Information Unit, Townsville City Council. E-mail: [kwm@townsville.qld.gov.au](mailto:kwm@townsville.qld.gov.au)

## THE POLITICAL GEOGRAPHY OF NATIVE TITLE CLAIMS TO THE SEAS.

**Victor PRESCOTT**

In 2001 the High Court of Australia confirmed that some native title rights exist to the sea . This decision will not surprise any scholars who have worked with clans of Aborigines located along the coasts of northern Australia. The Court's decision in the Croker island case was assisted by the fact that the strong cultural connection between the people of Croker Island and the adjacent seas was not in doubt. Newspaper reports of the decision expressed hopes that the large number of outstanding claims with a marine component could now be settled quickly. The outcome of those cases will depend on the ability of the claimants to establish a satisfactory traditional connection with the adjacent seas.

This paper reviews two factors that would have encouraged use of the seas by clans in times past. They are the nature of the coastline and adjacent seas and access to water craft. It will also consider the best ways to present the cartographic evidence that supports sea claims and the most precise ways of delimiting marine areas that are successfully claimed.

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**Victor Prescott** is a political geographer who has studied national maritime claims and international maritime boundaries for more than thirty years. He has appeared as an expert witness in cases before the International Court of Justice and the United States Supreme Court. In the past 15 years his interest has included claims to the sea by Aborigines and in the 1980s Victor assisted the people of Milingimbi in their successful claim to seas in the vicinity of Howard Island . He retired as Professor of Geography at the University of Melbourne in 1996 and continues to publish in the field of maritime political geography.  
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**MAPPING TROPICAL CYCLONE DISTURBANCE OF THE GREAT BARRIER REEF.****Marji PUOTINEN**

Tropical cyclones periodically cross the Great Barrier Reef (GBR) region. The large waves they generate break along shallow reef areas, resulting in impacts ranging from broken corals to removal of entire sections of reef structure. However, mapping the risk of cyclone disturbance across the GBR over time poses a challenge. While the GBR region is vast (over 340,000 sq km) and cyclones operate over large areas (100s of km), cyclone damage surveys and reef vulnerability to cyclone impacts occur at very local scales (meters). Further, the positional uncertainty of key data sets (cyclone paths and reef polygons) is unquantified but predicted to be significant. Recent advancements in interactive cartography / visualisation offer valuable tools for developing creative solutions to these challenges.

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**Marji Puotinen** is a lecturer in GIS at James Cook University. She is currently completing her PhD thesis, which investigates tropical cyclone disturbance of the Great Barrier Reef region. Before coming to JCU, she worked as GIS coordinator for the Iowa Department of Public Defense's Emergency Management Division. In 1992, she won an internship in the Cartographic Division of the National Geographic Society, which included doing map research for several articles in the *National Geographic Magazine*. Prior to that, she worked for the US Army Corps of Engineers in the Planning Division in Rock Island, Illinois. E-mail: [Marji.Puotinen@jcu.edu.au](mailto:Marji.Puotinen@jcu.edu.au)

## **CHART AND SAILING DIRECTION PROBLEMS FOR EARLY QUEENSLAND NAVIGATORS.**

**W. A. R. (Bill) RICHARDSON**

After a very brief outline of how early mariners navigated, a miscellany of examples will be given of how they could be misled by copying errors on charts and in sailing directions; most will be illustrated from documentary source material

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**Bill Richardson** was Reader in Spanish and Portuguese at Flinders University until retirement in 1987. Since then he has continued as a Visiting Scholar at Flinders University, continuing research begun in 1980 into place-name corruption and other defects contained on early charts and maps, and in sailing directions. Articles published in Australia, the USA, the UK, Portugal, Spain and Argentina.

**A COMPARISON OF THE MAPS AND CHARTS PRODUCED BY THE EIGHTEENTH  
CENTURY VOYAGES OF LOUIS-ANTOINE BOUGAINVILLE AND  
JAMES COOK TO THE PACIFIC.**

**John ROBSON**

Louis-Antoine Bougainville and James Cook were contemporaries who led voyages of exploration to the Pacific in the late 1760s. The personalities and interests of the two leaders shaped the voyages and determined what was achieved. The results of their voyages and the way in which history has remembered them have been very different. Cook had been trained in surveying and mapmaking so the maps and charts of his voyage are professional and the forerunners of modern hydrographic charts while those from Bougainville's voyage fare poorly in comparison. Bougainville's engineer /cartographer, Romainville, and his naturalist, Commerson, both left the voyage at Ile de France (Mauritius). Their contribution to the record of the voyage was minimal causing it to lack detail. Against which the natural history contribution of Solander and Banks, and Cook's own charts, ensured that Cook's voyage would be celebrated as the first scientific voyage of exploration. Their visits to the Queensland coast near Cairns are also contrasted.

The French sailor, soldier, statesman and mathematician, Louis-Antoine de Bougainville, was one of the most interesting characters of the Eighteenth Century. Born in Paris in 1729, he started the first settlement in the Iles Malouines (Falkland Islands); he led a voyage around the world in the 1760s; he fought in the American War of Independence; he wrote mathematical treatises and was elected to scientific academies; and he survived a duel and the French Revolution to become a friend of Napoleon and grow roses. After his death in 1811 he had islands, mountains and plants named after him. He was a Renaissance man in the Enlightenment. He nearly visited Australia. James Cook – you know about.

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**John Robson** is the Map Librarian at the University of Waikato Library, Hamilton, New Zealand. He has an interest in eighteenth century Pacific exploration, especially Captain James Cook. In 2001, Random House, Australia, published his book *Captain Cook's World*. He is now preparing material for a similar work about Laperouse and Bougainville. E-mail: [jrobson@waikato.ac.nz](mailto:jrobson@waikato.ac.nz).

## **THE QUEENSLAND SPATIAL INFORMATION INFRASTRUCTURE STRATEGY (QSIIS) AND THE ROLE OF THE QSIIS INFORMATION OFFICE.**

**Graham STANTON**

The QSIIS Information Office (the Office) is a business unit of the Office of Economic and Statistical Research in Queensland Treasury. The office is operated on behalf the Queensland Spatial Information Infrastructure Council (QSIIC) and is an essential component of the Queensland Spatial Information Infrastructure Strategy (QSIIS).

The Office strives to be a change agent, driving the implementation of improved distribution and access arrangements, including online access, the freeing up of the data, and where appropriate, the establishment of the data in standard open environments.

QSIIC has identified certain key strategic areas in the QSIIS 2001-2003 Strategic Plan that provide a focus for the implementation of the QSIIS 2001 Action Plan. The Office has primary responsibility for many of the tasks being implemented in 2001-2002 on behalf of QSIIC.

The presentation will report on the establishment of the Office and the status of some of the key tasks that are being undertaken to stimulate economic growth through the spatial information industry sector.

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**Graham Stanton** was appointed Director of the QSIIS Information Office in July 2000. Prior to his appointment he was the Director of Product Marketing in the Queensland Department of Natural Resources and Mines. Graham is the current President of the Asia-Pacific Region of the International Map Trade Association and Life Member of the Australasian Urban and Regional Information Systems Association. Address: PO Box 37 Albert Street Brisbane Qld 4002. E-mail: [QIO@treasury.qld.gov.au](mailto:QIO@treasury.qld.gov.au).

## **MAPS ON STAMPS: FRONTIERS AND MAGPIES**

**Frank URBAN**

From the perspective of a cartographer and fledgling philatelist, this paper covers Philately Today and the First Map Stamp. It goes on to discuss where the boundaries of more than three states meet, as well as where a frontier is defined by no more than a cease-fire line: Kashmir. Finally, it touches on Themes on Map Stamps, including exploration. The topics are illustrated with relevant postage stamps.

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**Frank Urban** graduated from the University of Witwatersrand and practiced as a Land Surveyor in Rhodesia before studying photogrammetry at the International Training Centre for aerial survey in the Netherlands. He joined the Central Mapping authority of New South Wales, helped complete the first topo-cadastral map series of a state in Australia, and retired as Director. E-mail: [f\\_urban@hotmail.com](mailto:f_urban@hotmail.com).

## WAITING FOR THE ESQUIMO

**Brendan WHYTE**

Enclaves are pieces of one country totally surrounded by another. Of the 256 enclaves currently existing in the world, 198 are along the northern Indo-Bangladesh border at Cooch Behar, and a further 30 at the Belgo-Dutch village of Baarle, forming the two most complex boundary sectors in the world. My thesis compares both sets of enclaves, to investigate the history and geography of each, to understand why the enclaves have survived over the centuries, to discover what everyday life is like for the present residents, and to compare the current peace and profitability of the jigsaw-like village of Baarle with the instability and problems at Cooch Behar.

Is it the enclaves themselves that are the cause of the problem there, or are they just a focus for generally poor trans-boundary relations? Will a proposed exchange of enclaves solve the problems? If so, why has this proposed exchange remained unimplemented for 44 years? Or is exchange only one option? Can Baarle be used as a role-model for the development of the Cooch Behar enclaves as a tourist attraction?

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**Brenden Whyte** is a PhD student, University of Melbourne. This paper presents the findings of his PhD research (1998-2001), including fieldwork undertaken in mid-2000, on the Cooch Behar enclaves of India and Bangladesh, and the Baarle enclaves of Belgium and the Netherlands. E-mail:

[brwhyte@hotmail.com](mailto:brwhyte@hotmail.com).

## **MAPPING AND BEYOND**

### **Benjamin WRAGG**

'MapLibrarian' has won the Mapping Sciences Institute of Australia and HATCH Associates Pty Ltd Technology Research and Development Award for 2002, presented at the Mapping Sciences conference in Melbourne in May this year.

MSIA and HATCH Associates Pty Ltd sponsor the prestigious Technology Research and Development Award, which recognises excellence in the mapping sciences. Entries for the Award were judged against the following criteria:

- Its technical merit - the use of technology, technological innovation, rigour of approach, degree of R&D investment;
- Its significance to the mapping sciences industry;
- The degree to which it satisfies a perceived need; and
- The quality of the presentation - professional, user-friendly, and well documented.

Mapping and Beyond is proud to be the recipient of this award and looks forward to promoting this product worldwide. MapLibrarian is an online map exploring web browser solution for the management of hard copy and digital map and image libraries. Its target audiences are libraries, government departments and Universities. For more information please visit the website at <http://www.maplibrarian.com>

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**Benjamin Wragg** is an employee of Mapping and Beyond