



# Indigenous Science Network Bulletin

<http://members.ozemail.com.au/~mmichie/network.html>

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Tiwi designs by Jennifer Coombs, Melville Island, NT

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## NEWS and VIEWS

### New network supports Indigenous researchers

Charles Darwin University is a founding member of a new Indigenous research network that promises to change the way higher education is approached in Australia.

Launched in Canberra recently, the National Indigenous Research and Knowledges Network will build Aboriginal and Torres Strait Islander research capacity, mentor new researchers and advance research in Indigenous knowledge systems.

Pro Vice-Chancellor Indigenous Leadership Professor Steven Larkin said the network would support early and mid-career Indigenous researchers, especially those undertaking a research higher degree.

He said it would connect Indigenous researchers across disciplines nationally and internationally, and initiate an Indigenous research agenda by applying Indigenous knowledge and expertise to collaborative projects.

Professor Larkin is the co-leader of the network's Indigenous Sociology "node", with Associate Professor Maggie Walter from the University of Tasmania.

The other nodes are: Indigenous Health, Indigenous Law, and Yuraki – History, Politics and Culture.

The Australian Government has provided \$3.2 million over four years for the network, which will be headed by Professor Aileen Moreton-Robinson from QUT.

The network comprises 22 universities and research institutes across Australia.

(Charles Darwin University Enews, Issue 8 – 2 Sept 2013, <http://www.cdu.edu.au/enews/stories/network>)

### NIRAKN

The National Indigenous Research and Knowledges Network is a multidisciplinary hub and spokes model network of Indigenous researchers at various stages of their career from over 20 collaborating universities, including AIATSIS. The aim of the network is to establish a coterie of skilled, qualified Indigenous researchers, creating pathways from undergraduate to postgraduate studies to establish a regenerative pipeline of new researchers, across institutions and fields of critical research importance. The network will provide a platform for new Indigenous multi-disciplinary research and the establishment of a critical mass

of multi-disciplinary, qualified Indigenous researchers to meet the compelling research needs of our communities.

Home page: <http://www.nirakn.edu.au/>

### **“Unethical experiments highlight need for aboriginal scientists”**

A First Nations scientist and Senator of the Canadian Government, Lillian Dyck, and Glen Aikenhead wrote a commentary (“Unethical experiments highlight need for aboriginal scientists”) and sent it to the Vancouver Sun newspaper, where the Canadian Truth and Reconciliation Commission is currently holding a national hearing. Their commentary was published on the Sun’s Editorial page (<http://www.vancouversun.com/life/Unethical+experiments+highlight+need+aboriginal+scientists/8924801/story.html>).

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## **INDIGENOUS ASTRONOMY**

### **Night Skies of Aboriginal Australia**

Wednesday 2<sup>nd</sup> October 2013 at 8pm

Kerr Grant Lecture Theatre

2nd Floor, Physics Building

University of Adelaide

#### **Paul Curnow**

Adelaide Planetarium, University of South Australia

Abstract: Australia has been occupied by humans for at least 45,000 years and possibly as long as around 60,000 years, over this time Aboriginal Australians have accumulated a detailed knowledge of the heavens above. In this talk, I will give an introduction to Australian Aboriginal cultures and how their view of the night sky differs from the contemporary western view. Night sky stories of the northern hemisphere are very familiar to many people, however the stories that are indigenous to the southern skies are less well known. We will look at how knowledge of the night sky has been passed on through oral narration; dance and art in addition to the diversity in the way the stars and constellations are viewed by different groups.



Bio: Paul Curnow (B.ED) is a council member of the Astronomical Society of South Australia and a former council member of the Field Geology Club of South Australia. He has been a lecturer at the Adelaide Planetarium since 1992 and was the recipient of the ASSA editor’s award for 2000, and then again in 2010. In 2002, he served as a southern sky specialist for visiting U.S. and British astronomers who were in Australia for the total solar eclipse. He is regarded as one of the world’s leading authorities on Australian Aboriginal night sky knowledge; and in 2004, he worked in conjunction with the Lake Erie Nature and Science Center Planetarium in Ohio, on the creation of a show that features Indigenous Australian stories of the night sky. In addition, Paul runs a number of popular courses for the general public that focus on the constellations, planetary astronomy, historical astronomy and ethnoastronomy, which primarily deals with how the night sky is seen by non-western cultures. Since 2012 Paul has taken the role of lecturer for the Astronomy & Universe course (EDUC1036) for the School of Education at the University of South Australia. Paul appears regularly in the media and has authored over 40 articles on astronomy.

### **Free – visitors welcome**

For further information visit: <http://www.assa.org.au/> or contact the Publicity Officer on: 0402 079 578 or at [starmanzone@adam.com.au](mailto:starmanzone@adam.com.au)

## AUSTRALIAN SOCIETY FOR INDIGENOUS ASTRONOMY

**Dr Duane Hamacher, Chair**

The newly formed **Australian Society for Indigenous Astronomy (ASIA)** will have its first meeting next Wednesday (2 October) at the University of New South Wales. It will bring together active researchers, educators, and elders working in Indigenous astronomy.

### CONFERENCES

ASIA is taking advantage of the opportunity to share the latest research through the Australian Space Sciences Conference, which is holding its annual meeting at UNSW. The conference is sponsoring a dedicated session and plenary talk on Indigenous sky knowledge. The organisers and co-Chairs of the session are Duane Hamacher and Alice Gorman. The speakers and papers are as follows:

John Goldsmith	(Plenary) The "Ilgarijiri- Things Belonging to the Sky" Project: Collaboration between Aboriginal communities and radio astronomy in Australia.
Les Bursill	Acknowledgement of Country and Session Introduction
Hugh Cairns	An Ancient Aboriginal Astronomy from the Northern Territory
Trevor Leaman	Ooldea Nights: Daisy Bates and the Aboriginal Sky Knowledge of the Great Victoria Desert, South Australia
Robert Fuller	The Sky Knowledge of the Kamilaroi People and Their Neighbours
David Pross	Sky Knowledge and Rock Art in the Sydney Basin
Duane Hamacher	Are Supernovae Recorded in the Astronomical Traditions of Aboriginal Australians?
Geoff Wyatt	Star wheel and signals: Sydney Observatory's Shared Sky education program
Alice Gorman	Beyond the Morning Star: the Voyager spacecraft and Australian Aboriginal culture
Ragbir Bhathal	Perspectives on Aboriginal Sky Knowledge

The papers presented in these sessions will be peer reviewed and collated into a book that will be available online for free. The book will also include papers from the 2009 Indigenous Astronomy meeting in Canberra.

### SCHOLARSHIP

Trevor Leaman is now working for UNSW's Nura Gili as a Research Assistant. He is researching Wiradjuri astronomy, supported by a grant from the Lachlan Catchment Management Authority. He plans to continue this research for a PhD.

Robert Fuller has some fantastic new results and outcomes from working with Kamilaroi custodians and elders and plans to submit his work to the prestigious journal *Oceania*.

Several new research papers on Indigenous astronomy have been accepted to journals in the last two months, some of which were mentioned in the previous issue.

### Aurorae in Australian Aboriginal Traditions

Duane W. Hamacher

*Journal of Astronomical History & Heritage*, Vol. 16(2), pp. 207-219 (2013)

[Click here for a copy of the preprint.](#)

Transient celestial phenomena feature prominently in the astronomical knowledge and traditions of Aboriginal Australians. In this paper, I collect accounts of the Aurora Australis from the literature regarding Aboriginal culture. Using previous studies of meteors, eclipses, and comets in Aboriginal traditions, I anticipate that the physical properties of aurora, such as their generally red colour as seen from southern Australia, will be associated with fire, death, blood, and evil spirits. The survey reveals this to be the case and also explores historical auroral events in Aboriginal cultures, aurorae in rock art, and briefly compares Aboriginal auroral traditions with other global indigenous groups, including the Maori of New Zealand.

### **The Discovery and History of the Dalgara Meteorite Crater, Western Australia**

Duane W. Hamacher and Craig O'Neill

*Australian Journal of Earth Sciences*, Vol. 60(5), pp. 637-646 (2013)

[Click here for a copy of the preprint.](#)

The Dalgara meteorite crater, 100 km northeast of Yalgoo, Western Australia, was one of the first impact structures identified in Australia, the smallest isolated crater found in Australia, and the only confirmed crater in the world associated with a mesosiderite projectile. Discovered by an Aboriginal stockman, 17 years passed before the Dalgara meteorites were described in the scientific literature and nearly 40 years passed before a survey of the structure was published. The reasons for the time-gap were never explained and a number of factual errors about the discovery and early history remain uncorrected in the scientific literature. Using historical and archival documents, and discussions with people involved in Dalgara research, the reasons for this time gap are explained by a series of minor misidentifications and coincidences. The age of the crater has yet to be determined, but using published data, we estimate the projectile mass to be 500-1000 kg.

### **Astronomical Orientations of Bora Ceremonial Grounds in Southeast Australia**

Robert S. Fuller, Duane W. Hamacher and Ray P. Norris

*Australian Archaeology*, No. 77, in press (2013)

[Click here for a copy of the preprint.](#)

Ethnographic evidence indicates that bora (initiation) ceremonial sites in southeast Australia, which typically comprise a pair of circles connected by a pathway, are symbolically reflected in the Milky Way as the 'Sky Bora'. This evidence also indicates that the position of the Sky Bora signifies the time of the year when initiation ceremonies are held. We use archaeological data to test the hypothesis that southeast Australian bora grounds have a preferred orientation to the position of the Milky Way in the night sky in August, when the plane of the galaxy from Crux to Sagittarius is roughly vertical in the evening sky to the south-southwest. We accomplish this by measuring the orientations of 68 bora grounds using a combination of data from the archaeological literature and site cards in the New South Wales Aboriginal Heritage Information Management System database. We find that bora grounds have a preferred orientation to the south and southwest, consistent with the Sky Bora hypothesis. Monte Carlo statistics show that these preferences were not the result of chance alignments, but were deliberate.

### **Aboriginal Oral Traditions of Australian Impact Craters**

Duane W. Hamacher and John Goldsmith

*Journal of Astronomical History & Heritage*, Vol. 16(3), in press (2013)

[Click here for a copy of the preprint.](#)

We explore Aboriginal oral traditions that relate to Australian meteorite craters. Using the literature, first-hand ethnographic records, and fieldtrip data, we identify oral traditions and artworks associated with four impact sites: Gosses Bluff, Henbury, Liverpool, and Wolfe Creek. Oral traditions describe

impact origins for Gosse's Bluff, Henbury, and Wolfe Creek craters and non-impact origins of Liverpool crater, with Henbury and Wolfe Creek stories having both impact and non-impact origins. Three impact sites that are believed to have formed during human habitation of Australia - Dalgarranga, Veevers, and Boxhole - do not have associated oral traditions that are reported in the literature

### **Meteors in the Maori astronomical traditions of New Zealand**

Tui R. Britton and Duane W. Hamacher

*WGN - Journal of the International Meteor Organization*, in press (2013)

[Click here for a copy of the preprint.](#)

We review the literature for perceptions of meteors in the Māori cultures of New Zealand. We examine representations of meteors in religion, story, and ceremony. We find that meteors are sometimes personified as gods or children, or are seen as omens of death and destruction. The stories we found highlight the broad perception of meteors found throughout the Māori culture and demonstrate that some early scholars conflated the terms *comet* and *meteor*.

### **Did Aboriginal people of South Australia record the variability of the star Betelgeuse?**

Trevor Leaman, Duane W. Hamacher and David J. Frew

*Journal of Astronomical History & Heritage*, Vol. 17(2), in review (2014)

No preprint yet available.

During the early 20th century, the famous amateur anthropologist Daisy Bates lived among the Aboriginal people of the Great Victoria Desert near Ooldea, South Australia. Her vast collection of unpublished field notes and published materials contain significant insight into the astronomical knowledge and traditions of the local Aboriginal people. One particular oral tradition seems to describe the periodic change in brightness of the star Betelgeuse in the constellation Orion. The tradition is also enacted during a male initiation ceremony. In this paper, we investigate the life of Daisy Bates, examine the oral tradition in question, and explore the role of Betelgeuse in the traditions of other Australian Aboriginal cultures, searching for possible representations of this phenomenon. While our findings are not definitive, we are able to clarify some of the misidentifications in Bates' work and encourage further research into the subject of stellar variability recorded in Aboriginal astronomical traditions.

### **OUTREACH & EDUCATION**

**Dr Hugh Cairns** gave an exciting talk about Aboriginal Astronomy in the Northern Territory at Sydney Observatory on 9 September for the [Sydney Space Frontier Society](#). He focused on the astronomy of the Wardaman people, but also touched on the Sydney region as well. In 2003, Hugh and Wardaman elder Bill Yidumduma Harney published the most in-depth astronomical study of an Indigenous Australian group. The book, entitled "[Dark Sparklers](#)", is available online.

**Dr Duane Hamacher** gave a TEDx talk at the Northern Sydney Institute sponsored event called [This Way Up!](#) On 28 August. The talk was about Indigenous Astronomy and the collaboration between Microsoft Research and Nura Gili for the WorldWide Telescope. The video will be available in due course. Duane also presented talks to the [Indigenous Spring Forum](#) at UNSW on 4 September and the [Castlecrag Conservation Society](#) in Sydney on 26 September. Duane was interviewed by Radio 4MW 1260AM "The Voice of the Torres Strait" to discuss Islander astronomy. In September, he met with local Wiradjuri elders to build a collaborative relationship on a project to study Wiradjuri astronomy. He will return with Trevor Leaman and Tui Britton in mid-October.

**Paul Curnow's** [Aboriginal Skies](#) Facebook group now boasts nearly 1,500 followers and posts regularly about Indigenous views of the sky across the world, as well as new scientific discoveries. Join if you haven't already!

The [Australian Indigenous Astronomy Blog](#) has exceeded 150,000 views, but has slowed recently in posting, as the editor, Duane, is being a bit overwhelmed with work ☺. New posts are planned and the blog will pick up soon.

**Charcoal Nights: Re-Imagining the Night Sky.** '[Charcoal Night](#)' documents a group of students who, once introduced to the wonder of astronomy, Indigenous stories of space, and the beauty of astrophotography, create a stop motion animation re-imagining the night sky. Partnering with the Astronomical Society of Albury-Wodonga and Albury-Wodonga Community College (AWCC), Murray Arts brought together local artists, astronomers and school students to inspire curiosity and engagement in science, astronomy, storytelling, animation and photography. [Read more here](#).

Our sister society across the Tasman, the [Society for Maori Astronomy Research and Traditions](#) - otherwise known as the SMART Group, is obtaining funding for their education programs and research. They are about to finish their website and are active in researching the Maramataka and astronomy. The SMART Group is chaired by Dr Pauline Harris, an astronomer at Victoria University in Wellington.

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## RESOURCES

### Indigenous Education Resource Update

The Indigenous Education Resource Update is a comprehensive regular email newsletter about emerging resources in Indigenous education. It details nationally appropriate resources, their availability, a brief description of content and utility, and a hyperlink to the resource.

[Want to view previous issues? Click here](#)

### *Science Education International*

You can find latest issue of *Science Education International* on the:

[http://www.icasonline.net/seiweb/index.php?option=com\\_content&view=article&id=99&Itemid=63](http://www.icasonline.net/seiweb/index.php?option=com_content&view=article&id=99&Itemid=63)

Volume 24 Issue 2 June (2013)



Editorial *Bulent Cavas*

[Full Text: PDF Size \(329 KB\)](#)

A cross-age study of an understanding of light and sight concepts in physics *Salih Uzun, Nedim Alev, Işık Saliha Karal*

[Full Text: PDF Size \(1.7 MB\)](#)

Life-cycle analysis and inquiry-based learning in chemistry teaching *Marianne Juntunen, Maija Aksela*

[Full Text: PDF Size \(1.5 MB\)](#)

An understanding of sustainability and education for sustainable development among German student teachers and trainee teachers of chemistry *Mareike Burmeister, Ingo Eilks*

[Full Text: PDF Size \(1.1 MB\)](#)

Constructing arguments: Investigating pre-service science teachers' argumentation skills in a socio-scientific context *Brooke Robertshaw, Todd Campbell*

[Full Text: PDF Size \(517 KB\)](#)

### ***International Journal of Environmental & Science Education***

A new issue of the International Journal of Environmental & Science Education is available at:  
<http://ijese.com/currentissue.htm>

### **Recent papers and books**

Lowan-Trudeau, G. (2012). Methodological métissage: An interpretive Indigenous approach to environmental education research. *Canadian Journal of Environmental Education*, 17, 113-130.

Abstract: This article discusses the development of a methodological métissage that combined Indigenous and interpretive traditions. This métissage was developed during a doctoral study conducted with Canadian environmental educators who incorporate Western and Indigenous knowledge and philosophy into their ecological identities and pedagogical praxis. It is presented as an invitation to environmental education researchers from all cultural backgrounds to acknowledge and engage with Indigenous knowledge, philosophies, and methodologies.

Stewart, Georgina M. (2010). *Good science? The growing gap between power and education*. Rotterdam, Boston & Taipei: Sense Publishers.

Abstract: This work uses narrative research, including accounts of personal experiences, to explore the margins of science and ethics. Boundaries between science and other cultural and disciplinary forms of knowledge are illuminated through studying the inter-relationships between identity, knowledge and power, using narratives both in and as a form of philosophical reflection on educational practice. The story centres on a contemporary real-world context of minority-language science education, showing how this fits into longstanding trans-disciplinary intercultural debates about the nature of science and of knowledge in general. The narrative form is used to bridge and interweave the multiple discourses influencing both the real-world context and the approach to its investigation. This analysis clarifies the linkages between paradigms of critical postcolonial research and post-positivist epistemology, and illustrates how social science, including educational research, may use science and technology to assist, rather than delimit, our understanding of complex human phenomena such as education, culture, language and science. Those interested in reading this book will include critical scholars, educators and practitioners of indigenous knowledge, critical sociolinguistics and science and multicultural education.

[Free Preview Good Science? The Growing Gap between Power and Education](#)

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## **CONFERENCES**

### **CONTEMPORARY APPROACHES TO RESEARCH IN MATHEMATICS, SCIENCE, HEALTH AND ENVIRONMENTAL EDUCATION**

Melbourne City Centre Deakin University  
28-29 November 2013

The symposium will focus on practical and theoretical aspects of research methodology. It follows the highly successful symposia held annually from 1993 to 2005 and again from 2010 to 2012, in which methodological techniques and issues – such as socio-cultural perspectives, productive use of quantitative data, collaborative practitioner research designs, and analysing discourse – have been discussed in a lively, informal setting.

It is expected that academic researchers and higher degree research students will gain from the symposium. Please encourage your higher degree students to come even if you cannot attend.

Expression of Interest: Presentations

The closing date for expression of interest is Friday 27 September 2013.

For further details see the symposium website at [www.deakin.edu.au/arts-ed/efi/conferences/car-2013](http://www.deakin.edu.au/arts-ed/efi/conferences/car-2013)

## **INDIGENOUS MEN & WOMEN CONFERENCE: B2B Call for Papers**

Pullman Cairns International Hotel, Cairns QLD

28-30 July 2014

### **The Men Conference**

This conference presents a unique opportunity for men to participate in an event which is devoted to the sharing of information and the empowering of men. In our everyday working environment, the day to day stress of our positions tends to limit us in expanding our knowledge and network whether you work at a community level or at government level, the opportunity to network and gain contacts outside your local region tends to be limited. This is why this conference will be so valuable for Indigenous Men, Support Workers, Indigenous Men's Groups, Community Leaders/Elders, Social Workers, NGOs, Nurses, Allied Health Workers, Rural and remote health professionals, Doctors, Counselors, Cultural Officers, Police and Correctional Officers, DV workers and to those who are interested in closing the gap in Indigenous men's health. Topics include Men's Health, Family Violence, Education and men, Achievements of Men, Careers, Our Family and Men, The Empowering of Men with our Culture.

### **The Women Conference**

This conference presents a unique opportunity for women to participate in an event which is devoted to the sharing of information and the empowering of women. In today's society, Indigenous women are developing careers while maintaining a home and family life. Indigenous women are empowered to determine their future nowadays. It is said that women can multitasking far more easily than men. However when it comes to equal rights for Indigenous issues, women tend to walk together with Indigenous men to fight against social injustice for indigenous people. Indigenous women play vital roles on community boards from grassroots level through to national levels. This is why this conference will be so valuable for Indigenous Women, Support Workers, Indigenous Women's Groups, Community Leaders/Elders, Social Workers, Doctors, NGO Group, Consultant, Nurses, Allied Health Workers, Rural and remote health professionals and to those who are interested in closing the gap in Indigenous women's health. Topics include Women's Health, Family Violence, Women and Education, Achievements of Women.

### **SHARE & CELEBRATE INDIGENOUS MEN'S & WOMEN'S STORIES**

Come and celebrate Aboriginal and Torres Strait Islander cultures, strengths, successes and empowerment. To share each other's stories and ideas about what has work for you or your communities and how we address life's challenges as Indigenous Men and Women.

For more information, [www.indigenoushealth.net](http://www.indigenoushealth.net)

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## **CALENDAR OF EVENTS**

This is mostly a summary of upcoming conferences. More details may have been given in this or previous bulletins as shown. A web-based contact is usually included. Inclusion of conferences in this list is not to be read as an endorsement of the conference.

### **2013**

#### ***October 2013***

30 October - 1 November: IOSTE Eurasian Regional Symposium & Brokerage Event Horizon 2020. Antalya, Turkey ([www.ioste2013.org](http://www.ioste2013.org)) (Aug13)

### ***November 2013***

11-14 November: Fifth International Conference on Science and Mathematics Education (CoSMEd 2013), Penang, Malaysia (<http://www.recsam.edu.my/cosmed/index.html>) (Oct12)

25-27 November: 2013 National Indigenous Health Conference, Pullman Cairns International, Cairns, Australia (<http://www.indigenoushealth.net/submitpaper.htm>) (Feb13)

28-29 November: Contemporary Approaches to Research in Mathematics, Science, Health and Environmental Education, Melbourne City Centre Deakin University ([www.deakin.edu.au/arts-ed/efi/conferences/car-2013](http://www.deakin.edu.au/arts-ed/efi/conferences/car-2013)) (Oct12)

### ***December 2013***

5-6 December: Australian Critical Race and Whiteness Studies Association conference, 'Mapping Your Law/Lore' The Sebel, Mandurah, Western Australia (<http://www.acrawsa.org.au/conference/>) (April13)

## **2014**

### ***March 2014***

30 March – 2 April: NARST 2014 Annual International Conference, Pittsburgh, PA, USA (<https://www.narst.org/annualconference/futureconf.cfm>)

### ***July 2014***

1-4 July: Australasian Science Education Research Association conference, Hilton on the Park, Melbourne (host: Monash University) (<http://asera.org.au/>)

6-9 July: CONASTA 63, Conference of the Australian Science Teachers Association, Adelaide, South Australia (<http://asta.edu.au/conasta>)

28-30 July: Indigenous Men & Women Conference, Pullman Cairns International Hotel, Cairns QLD ([www.indigenoushealth.net](http://www.indigenoushealth.net)) (Oct13)

### ***August 2014***

5-9 August: 2014 IOSTE Conference, Kuching, Sarawak, Malaysia. (<http://www.sarawak.uitm.edu.my/iosteBorneo/index.html>)

### ***Future Australasian Science Education Research Association (ASERA) conferences***

2015 – Perth (host: University of Western Australia)

2016 – Canberra (host: University of Canberra)