NEWS and VIEWS

How far they’ll go: Moana shows the power of Polynesian celestial navigation
Moana takes to the sea. Walt Disney Studios Motion Pictures
Duane W. Hamacher and Carla Bento Guedes

This article contains minor spoilers.
One of the greatest feats of human migration in history was the colonisation of the vast Pacific Ocean by Polynesian peoples. They achieved it thanks to their sophisticated knowledge of positional astronomy and celestial navigation.

The Disney film Moana has drawn attention to these accomplishments and helped inform a new generation about the complexity of Indigenous astronomy.

Polynesia forms a triangle across the Pacific, with Hawaii to the north, Rapa Nui (Easter Island) to the southeast, and Aotearoa (New Zealand) to the southwest, with Tahiti in the centre. But Polynesian voyaging extends beyond this triangle; there is strong evidence they reached the coast of South America and sub-Antarctic islands.

Moana touches on Polynesian voyaging, showing the eponymous main character using traditional celestial techniques to navigate across the sea.
During production, Disney created the [Oceanic Story Trust](#) — a board of experts, including Polynesian locals and elders — to advise on cultural accuracy. The film accomplished this reasonably well, especially in respect to celestial navigation, despite the producers facing [criticism](#) for cultural appropriation and commodification.

**Navigating by hand**

To navigate the wide expanse of the Pacific, voyagers need to map the stars to determine their position from our perspective here on Earth. Navigator and [Polynesian Voyaging Society](#) president Nainoa Thompson explains:

If you can identify the stars as they rise and set, and if you have memorised where they rise and set, you can find your direction.

Since 1976, the famous [Hokule'a](#) voyages have demonstrated how Polynesians used traditional sea-craft and navigational techniques to cross the expanse of the Pacific, from Japan to Canada.

In 1976, the Hokelea sailed from Hawai'i to Tahiti using traditional navigational methods. [Wa‘a Kaulua – Our Canoes](#)

So what are some of these navigational techniques?

The Southern Cross is visible throughout the southern hemisphere. [Wikimedia, CC BY-SA](#)
To calculate their position on Earth, voyagers memorised star maps and used the angle of stars above the horizon to determine latitude. For example, the top and bottom stars of the Southern Cross are separated by six degrees. When the distance between those stars is equal to the bottom star’s altitude above the horizon, your northerly latitude is 21°: that of Honolulu.

When the bright stars Sirius and Pollux set at exactly the same time, your latitude is 18° South: the latitude of Tahiti.

Voyagers measure the angles between stars and the horizon using their hands. The width of your pinkie finger at arm’s length is roughly one degree, or double the angular diameter of the Sun or Moon. Hold your hand with the palm facing outward and thumb fully extended, touching the horizon. Each part of your hand is used to measure a particular altitude.

The hand method used by Nainoa Thompson to find the altitude of the Polaris. Journal of the Polynesian Society

In Hawai‘i, the “North Star”, Polaris, is Hokupa’a, meaning “fixed star”. It lies close to the north celestial pole. The altitude of Hokupa’a indicates your northerly latitude.

In the film, we see Moana Waialiki using this technique to measure the altitude of a group of stars. Look closely and you can see that she’s measuring the stars in Orion’s Belt. The position of Moana’s hand indicates the star above her index finger has an altitude of 21°. Given that the movie takes place about 2,000 years ago near Samoa, the position of Orion indicates they are travelling exactly due East.

Moana measures altitude of Orion’s belt stars. Walt Disney Studios Motion Pictures

Later in the film, we see Moana navigating by following Maui’s fish hook. In the various Polynesian traditions, the hook was used to pull islands from the sea. It is represented by the constellation Scorpius, which rises at dusk in mid-May. This indicates southeasterly travel.
However, the positions of the stars are not fixed in time. Over the 3,500 years that Polynesians have been exploring the Pacific, the stars have gradually shifted due to precession of the equinoxes.

From the latitude of Samoa, the Southern Cross has lowered from 60° altitude in 1500 BCE to 41° today. Those navigating by the stars must gradually adjust their measurements as the positions of stars slowly shift over time.

In his book *Hawaiki Rising*, Sam Low tells how navigators would develop new techniques.

**Aboriginal knowledge**

In Australia, colonists knew little about Aboriginal celestial navigation, with some researchers claiming Aboriginal people did not use it at all. However, collaborations with elders shows that Aboriginal people use celestial navigation and developed star maps to link the sky with the land.

Celestial navigation is an important component of Indigenous astronomy around the world. Try going out tonight and measuring the positions of the stars with your own hands. It’s actually quite fun!

*Reprinted courtesy of The Conversation and the authors.*
Closing the Gap: Teenager driven to improve educational outcomes of Indigenous Australians

By Nicola Gage

For Aboriginal teenager Tarni Rigney, looking at the education outcomes for Indigenous Australians is distressing.
"If you look at the literacy and numeracy rates at the moment for Aboriginal children, it's really shocking," she said.

Universities set goals to attract more Indigenous students in Australian-first

By Indigenous affairs correspondent Bridget Brennan

Australian universities are setting new targets in a bid to attract thousands more Indigenous students to campuses across the country.

Indigenous nursing graduate hopes to help close the gap

ABC Mid North Coast By Emma Siossian

A University of Newcastle Indigenous nursing graduate from Taree is hoping to make a difference and help close the gap in health services.
http://www.abc.net.au/news/2017-02-17/indigenous-nursing-graduate-hopes-to-make-a-difference/8281116

How a rock and a teacher changed Denzyl Moncrieff's life

By Alix Piatek, Source: Insight, SBS Australia

A young Denzyl Moncrieff thought teachers were the enemy, and his experience of school was far from positive. But a natural curiosity in nature and one special teacher would change everything.

Did Indigenous warriors influence the development of Australian rules football?

The Conversation By Robert Pascoe and Gerardo Papalia

There are aspects of Australian Rules football that never fail to puzzle the uninitiated.
The game has its straight up and down plays — the long-kicking and high-marking that seem to give the contest a sense of order and clarity of purpose.

But then there are the moments of pure anarchy, as the ball falls to the ground, players knock it forward or sideways, and a quick handball or a short, driving kick produces an unexpected result.

RESOURCES

**Indigenous Weather Knowledge**
This website belonging to the Australian Bureau of Meteorology has been recently updated. It contains weather and climate knowledge from a number of Indigenous Australian language groups from various parts of the country.

**Indigenous Teaching at Australian Universities: Research-Based Approaches to Teaching Indigenous Students and Indigenous Curriculum**

This booklet contains a set of research-based approaches for the teaching of Aboriginal and Torres Strait Islander students; and for the teaching of Indigenous curriculum (to mainly non-Indigenous students). The term ‘Indigenous Teaching’ embraces both of these. The research was funded from a Teaching Fellowship awarded by the Office for Learning & Teaching (www.olt.gov.au), formerly the Australian Learning & Teaching Council. This booklet presents selected exemplars but you can find many more at www.indigenousteaching.com.

For the original Fellowship, experienced Indigenous and non-Indigenous university teachers, all identified as exemplary by senior Indigenous colleagues, were interviewed. Some taught Indigenous students in ‘Block’ programs where academic preparedness varied. Most taught Indigenous curriculum to ‘Mainstream’ classes where Indigenous students may or may not be present. There is much overlap between the two, as you can see from the 15 Approaches below which came out of the initial data analysis.

**Special issue: Indigenous educational research**

This particular issue of *Australian Educational Researcher* has been led by Tracey Bunda, a Ngugi/Wakka Wakka woman—a Goori woman from Queensland, who is Head of the College for Indigenous Studies, Education and Research at the University of Southern Queensland. Each article that appears in this issue has a lead Indigenous author and researcher. It was decided that given the focus on Indigenous research, it would be most appropriate for the development of this issue to utilise an approach to authorship and review that incorporates elements of Indigenous practices, accordingly Indigenous Elders were involved in the process of review, and the articles were collated and edited by Tracey Bunda together with Val Klenowski.

(continues)
http://link.springer.com/article/10.1007/s13384-017-0227-x

**Learning Communities: International Journal of Learning in Social Contexts**
Number 20, October 2016
Special Issue: New Connections in Education Research
- Editorial - Sue Erica Smith
- Place, Workplace, and Mindful Movement - Sue Erica Smith, Emma Schuberg Barnes, Jon Mason & Julia Broome
- Using authentic language resources to incorporate Indigenous knowledges across the Australian Curriculum - Catherine Bow
- Online learning and teacher education: The experiences of Indigenous teacher education students - Alison Reedy & Heleana Wauchope Gulwa
The AIATSIS map of Aboriginal Australia
The Aboriginal Language Map attempts to represent all of the language or tribal or nation groups of Indigenous people of Australia. It indicates general locations of larger groupings of people which may include smaller groups such as clans, dialects or individual languages in a group. David R Horton is the creator of the Indigenous Language Map. This map is based on language data gathered by Aboriginal Studies Press, AIATSIS and Auslig/Sinclair, Knight, Merz, (1996). For more information about the groups of people in a particular region contact the relevant Land Councils.

Use the magnifier to zoom into a region of interest.

International Journal of Multicultural Education
Special Issue-Critical Autoethnography in Pursuit of Educational Equity

Critical Autoethnography in Pursuit of Educational Equity: Introduction to the IJME Special Issue (1-6)
Sherry Marx, Julie L. Pennington, Heewon Chang
Disrupting Equilibrium: Working for Equity and Social Justice in Education for English Learners (7-23)
Rachel G. Salas
Intercultural Manifestations of Racial, Language, and Class Privilege in Schooling: An Autoethnographic Tale (24-40)
Sherry Marx
My Story of Sal: A Critical Self-reflective Autoethnography Revealing Whiteness in the Classroom (41-59)
Craig Anthony Wood
On Being an Angry Black Man (60-78)
Stephen John Quaye
Critical Autoethnography, Education, and a Call for Forgiveness (79-88)
Tony E Adams
We Are Woke: A Collaborative Critical Autoethnography of Three “Womxn” of Color Graduate Students in Higher Education (89-104)
Aeriel A Ashlee, Bianca Zamora, Shamika N Karikari
Employing Autoethnography to Examine Our Diverse Identities: Striving Towards Equitable and Socially Just Stances in Literacy Teaching and Research (105-124)
Cynthia Helen Brock, Adeline Borti, Tia Frahm, Lori Howe, Dilnoza Khasilova, Karen Ventura-Kalen
“Knowing What It Is like”: Dialoguing with Multiculturalism and Equity Through Collective Poetic Autoethnographic Inquiry (125-143)
Kathleen Pithouse-Morgan, Inbanathan Naicker, Daisy Pillay
Bourdieu and Critical Autoethnography: Implications for Research, Writing, and Teaching (144-154)
Deborah Reed-Danahay
INDIGENOUS ASTRONOMY

Aboriginal Skies
Presented by the Adelaide Planetarium at the University of South Australia - Celebrating its 45th Anniversary in 2017 in conjunction with NAIDOC Week.

Friday 7th July & Saturday 8th July 2017 (Book now - strictly limited seating!)
7:30pm – 9:30pm
Adelaide Planetarium,
Mawson Lakes Campus,
University of South Australia

Paul Curnow
Adelaide Planetarium
University of South Australia

Abstract: Aboriginal Australians have been looking at the night sky for thousands of years. During this time they have been able to build up a complex knowledge of the stars and their movements. Come and learn how to find the different constellations (stellar patterns) as seen by indigenous groups throughout Australia. Hear about the Dreaming stories that relate to the night sky, and learn about how constellations like the Southern Cross and Orion are seen by Aboriginal Australians. The evening is strictly designed for the adult beginner, with little or no astronomical knowledge who would like to know more about the night sky and the constellations, as seen by the Aboriginal Peoples of Australia.

Bio: Paul Curnow [B.ED] is the Vice President of the Astronomical Society of South Australia (member since 1991) 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; 2010; and then again in 2013. 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. He appeared as the keynote speaker at the inaugural 2010 Lake Tyrrell Star Party in Sea Lake, Victoria and in 2011 was a special guest speaker at the Carter Observatory in Wellington, New Zealand. Since 2012 Paul has taken the role of Lecturer for the Astronomy & Universe course (EDUC2066) for the School of Education at the
University of South Australia. Paul appears regularly in the media and has authored over 50 articles on astronomy.

To be held at the Adelaide Planetarium (upstairs), Building P, University of South Australia, Mawson Lakes Campus, Mawson Lakes Boulevard, Mawson Lakes SA 5095. BOOKINGS ESSENTIAL. **Cost $30.00 per person.** Enrolments are subject to the seating capacity of the planetarium, so book early to avoid disappointment - to make a booking or for further information phone 8302 3138; or BOOK ONLINE at: https://www.conferenceonline.com/bookingform/index.cfm?page=booking&object=conference&id=21739&bookingid=0&categorykey=F4CFCBAC-D22F-4518-ACEA-7C2D9BDCF80B&CFID=4623589&CFTOKEN=a3e715b580245581-4A9AD643-D619-DCF0-7C9A540FEE7E0655 or email the planetarium at adelaide.planetarium@unisa.edu.au. To make general course content enquiries only; contact Paul Curnow at starmanzone@adam.com.au.

**Aboriginal Skies**
This is also a Facebook page that some members may be interested in joining. https://www.facebook.com/Aboriginal-Skies-156305897720881/

**Indigenous Astronomy**
Dr Duane W. Hamacher, Monash University

Recent months have seen substantial activity in Indigenous Astronomy, including the publication of new research, festivals, outreach articles, and biographical features of Indigenous students in astronomy.

Monash University is seeking students interested in pursuing doctoral studies examining the intersection between science and Indigenous culture and scholarships are available. Please contact Dr Hamacher at duane.hamacher@monash.edu.

*Summer solstice over Wurdi Youang*

**New Research**


Biographies of Aboriginal Astronomers

We are excited to see an emerging generation of Aboriginal scholars pursuing studies in astrophysics, astronomy education, and Indigenous Astronomy at universities across the country. Below are biographical articles written about four of these students.

1. The passions of Aboriginal Astronomy guide, Willy Stevens. *COSMOS Magazine* (Feb ’17)
2. How a celestial emu inspired Kirsten Banks. *COSMOS Magazine* (Feb ’17)
4. A new star in the making: Jesse Fleay. *Edith Cowan University* (Sep ’16)

The Conversation


Karlie Noon: Reaching for the stars
ABC Science, by Anna Salleh

Indigenous science graduate Karlie Noon fought hard to get a double major in pure maths and physics. She talks about her journey and her hopes for the future.

CONFERENCES

19th Annual International Conference on Education
15-16 May 2017
Athens, Greece.

The Athens Institute for Education and Research (ATINER), a world association of academics and researchers based in Athens, organizes its 19th Annual International Conference on Education, 15-16 May 2017, Athens, Greece. You are more than welcome to submit a proposal for a presentation by email to atiner@atiner.com, before 31 March 2017. The registration fee is 540 euro and includes accommodation during the days of the conference, participation to all sessions of the conference, breakfasts, two lunches and all taxes. If you need more information, please let me know and our administration will send it through to you.

The language of the conference is English for both presentations and discussions. Abstracts should be 200-300 words in length and it should include names and contact details of all authors. All abstracts are blind reviewed according to ATINER’s standards and policies. Acceptance decisions are sent within four weeks
following submission. Papers should be submitted one month before the conference only if the paper is to be considered for publication at ATINER’s series.

**Science Education for Equity, Diversity, and Social Justice (SEEDS)**

6-8 October 2017  
San Juan, Puerto Rico

The absence of a platform for critical voices in science education to address and enact equity, diversity and social justice issues in culturally diverse science learning contexts inspired SEEDS first annual conference. Educators, researchers, school and community stakeholders and activists will come together to move the agenda for a social justice in science education forward by creating a space that examines the disparities that have historically marginalized people based on race, sex, gender expression, ethnicity, socioeconomic status, access, ability, sexual orientation, language, national origin, and/or religion. This inaugural conference is a platform for timely work at a time when inequity and injustices calls for alternatives and broader notions of equity-in-action. To facilitate this, instead of providing definitions of key terms, we ask that each contributor explicitly define and reference relevant literature for the intellectual history of their use of terms such as equity, social justice, and diversity, as well as other terms that may have multiple meetings.

[https://sites.google.com/view/seedsconferences/2017-conference/call-for-proposals?authuser=0](https://sites.google.com/view/seedsconferences/2017-conference/call-for-proposals?authuser=0)

Additional information: Science/environmental scholars, activists, educators: We hope you will submit a proposal to the Science Educators for Equity, Diversity, & Social Justice (SEEDS) inaugural conference in Puerto Rico Oct 6-8, 2017. DEADLINE EXTENDED to April 13. Visit us at [http://seedsweb.org/index.html](http://seedsweb.org/index.html) for more information or email us at [hello@seedsweb.org](mailto:hello@seedsweb.org) with questions. Direct link to submissions is located here: [https://sites.google.com/view/seedsconferences/home](https://sites.google.com/view/seedsconferences/home)

**9th International Conference on Science, Mathematics, and Technology Education**

7-10 November 2017  
Universiti Malaysia Sabah  
Kota Kinabalu, Sabah, Malaysia

It is with great pleasure that STEM Research Group (formerly SMEC), Curtin University announces the 9th International Conference on Science, Mathematics, and Technology Education to be held in collaboration with the Faculty of Psychology and Education, Universiti Malaysia Sabah.

This conference brings together science, mathematics, and technology educators and researchers together to discuss and address issues in improving science, mathematics, and technology education for the 21st century. The question of how we develop children's ability to think scientifically and apply scientific, mathematical, and technological knowledge for personal as well as for the benefit of the community is the heart of this conference.

**Conference Theme**

Those applying to present at the conference are invited to align their submissions with the conference theme "Sustaining Science, Mathematics, and Technology Education for Future Generations" in conjunction with one of the following topics:

- Environment
- Teaching and Learning
- STEM Communication and Engagement
- Creativity and Innovation

**Conference registration**

For more information about registration and submission, please visit the conference website: [http://smte2017.ums.edu.my](http://smte2017.ums.edu.my)
Oceania Comparative and International Education Society
8-10 November 2017
New Caledonia

Advanced notice for your diaries of the 2017 OCIES conference to be held at Université de la Nouvelle-Calédonie. Evening reception on 7th November and full 3 days of conference from 8-10 November 2017.

Check out the OCIES.org website for updates and more information. We hope to see some of you there presenting your research and submitting research papers for the journal.

Australian Association for Research in Education (AARE) Conference 2017
26-30 November 2017
Canberra ACT

The Organising Committee invites you to submit an abstract for presentation at the 2017 conference in Canberra. We are seeking submissions that will provoke debate, stimulate discussion, offer new ideas and encourage the dissemination of research findings. The abstract should reflect the conference theme ‘Education: What’s politics got to do with it?’.

The conference program will be organised into streams corresponding to the themes or focus areas of AARE Special Interest Groups (SIGs).

All abstracts must be submitted online no later than Tuesday, 16 May 2017.

Submission to offer a ‘Featured Symposium’ is separate to the Call for Abstracts. Information on Featured Symposium will be available shortly.


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 should not to be interpreted as an endorsement of the conference.

2017

April

May
15-16 May: 19th Annual International Conference on Education, Athens, Greece (April17)

**June**

24-28 June: 2017 Sandra K. Abell Institute for Doctoral Students, National Taiwan Normal University, Taipei, Taiwan (NARST's website or [SK Abell Institute](http://www.uts.edu.au/partners-and-community/conferences-and-seminars/aser-conference/about-conference) (Feb17)


**July**
July 4-7: 14th Biennial Conference of International History, Philosophy and Science Teaching (IHPST), Ankara, Turkey [ihpsti2017@gmail.com](mailto:ihpsti2017@gmail.com) (Feb17)


17-19 July: 8\textsuperscript{th} International Conference on New Horizons in Education, Freie University Campus, Berlin, Germany (http://www.taset.net) (Feb17)


**October**
6-8 October: Science Education for Equity, Diversity, and Social Justice (SEEDS), San Juan, Puerto Rico [https://sites.google.com/view/seedsconferences/2017-conference/call-for-proposals?authuser=0](https://sites.google.com/view/seedsconferences/2017-conference/call-for-proposals?authuser=0) (April17)

10-12 October: 3\textsuperscript{e} édition du Colloque sur la persévérance et la réussite scolaires chez les Premiers Peuples, Quebec, Canada [http://colloques.uqac.ca/prscpp/appel-de-propositions/](http://colloques.uqac.ca/prscpp/appel-de-propositions/) (Dec16)


**November**
7-10 November: Oceania Comparative and International Education Society, Université de la Nouvelle-Calédonie, New Caledonia. [OCIES.org](http://www.ocies.org) (April17)

7-10 November: 9\textsuperscript{th} International Conference on Science, Mathematics, and Technology Education, Universiti Malaysia Sabah, Kota Kinabalu, Sabah, Malaysia [http://smte2017.ums.edu.my](http://smte2017.ums.edu.my) (April17)