

Dr Carol Oliver



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When on campus:

Room 624, Sixth Floor, Biological Sciences Building, UNSW, NSW 2052

PROFESSIONAL EXPERIENCE

Current role: Associate Director, Australian Centre for Astrobiology, UNSW (BEES)

- 2012 – present Senior Research Fellow, Australian Centre for Astrobiology, UNSW (BEES)
- 2010 – 2012 Senior Research Fellow, Australian Centre for Astrobiology, UNSW (BABS)
- 2008 – 2010 Science communication specialist, Australian Centre for Astrobiology (BABS)
- 2002 – 2007 Assistant Director (Management and Outreach), Australian Centre for Astrobiology, Macquarie University, Sydney
- 1994 – 2002 Science Journalist, University of Western Sydney, Sydney, and producers with the 2SER radio science show “Discovery”
- 1990 – 1994 Freelance journalist specialising in science and personal finance, Australia
- 1988 – 1990 Personal Finance Editor ‘Your Money’ Oracle Teletext Service (highest circulation personal finance magazine in the UK at that time)
- 1979 – 1988 City, news and science reporter, Independent Television News
- 1976 – 1979 Sub-editor and later deputy chief sub-editor Portsmouth News (seven edition daily newspaper)
- 1972 – 1976 Features editor, Lincolnshire Standard Newspaper Group
- 1971 – 1972 News reporter, Havering Recorder newspaper
- 1968 – 1971 Journalism apprenticeship, Hornchurch and Upminster Echo newspaper

EDUCATION

- PhD, University of New South Wales (2008) (with three ones – publication without change)
- Research Masters in science communication, Central Queensland University (2003)
- Three-year indentured apprenticeship in journalism (1968-1971)

PROFESSIONAL MEMBERSHIPS AND RESPONSIBILITIES

- Galileo teacher – astronomy in the classroom
- Member NASA Astrobiology teams at MIT and Arizona State University
<http://astrobiology.asu.edu/Astrobiology/People.html>
- Member of the NASA Astrobiology Institute Advent of Complex Life team
<http://www.complex-life.org/about>
- Full member, International Academy of Astronautics (IAA) elected for space-related international outreach activities
- Past chair International Academy of Astronautics Study Group Future Directions in Space Education
- Co-chair NASA Astrobiology Institute Science Communication Focus Group 2003-2005
- Chair, Local Organising Committee, 2002 International Bioastronomy Conference, (Bioastronomy 2002: Life Among the Stars), Hamilton Island, Great Barrier Reef, Australia
- Co-Chair, Australian-American Fulbright Symposium held in tandem with the International Bioastronomy Conference, Hamilton Island, Great Barrier Reef
- Deputy Chair (with cosmologist Prof Paul Davies), IAA SETI Post Detection Task Group

GRANT FUNDING RECORD

Title of Project and partners	Role	Funding Source	Start	Completion	Total \$
Smart Science Initiative (UNSW (lead), Flinders University, UWA, and technology partner Smart Sparrow)	CI	Australian Maths and Science Partnerships Program (DICCSTRTE)	September, 2013	October, 2014	\$1.64m
NBN Mars Lab (UNSW (lead), University of Sydney, and Powerhouse Museum) www.nbnmarslab.com	CI	NBN-Enabled Education and Skills Services Program (DEEWR)	January 2013	May, 2015	\$2.9m
Pathways to Space (UNSW (lead), University of Sydney, Powerhouse Museum, and Cisco)	CI	Australian Space Research Program (DICCSTRTE)	May, 2010	September, 2013	\$1m
Science Education in Partnership Symposium (Macquarie University)	CI	Australian-American Fulbright Association	July, 2002	July 2002	\$20,000
International Astronomical Union Symposium 213 Macquarie University and the Australia Telescope National Facility	CO-CI	International Astronomical Union	July 2002	July 2002	\$30,000
A Virtual Field Trip to the Pilbara, Western Australia (Macquarie University in partnership with NASA Learning Technologies)	CO-CI	Australian Schools Innovation in Science, Technology and Mathematics (DICCSTRTE)	2005	One year	\$119,500

RESEARCH AND TEACHING SYNOPSIS

Dr Carol Oliver spent the first half of her career as a mainstream print, radio and television journalist, in the later years as a specialist in both science and personal finance. In the second half of her career she has remained in the university environment, concentrating on the public

communication of astrobiology and in creating and researching the effectiveness of astrobiology-related outreach programs. She set a high bar for her PhD with a prominent supervisory team: geologist Malcolm Walter, cosmologist Prof Paul Davies and evolutionary biologist Prof Richard Dawkins.

Two of Carol's three large grants have created a 140 square metre Mars Yard (scientifically accurate representation of the Martian surface) and robotics/science lab at the Powerhouse Museum, where engineering, science and education research is undertaken. The Mars Yard is the largest of its kind in a public space anywhere in the world. See <http://www.nbnmarslab.com>>

Her third large grant allows the establishment of a web-based smart tutor for high school students in four areas – astrobiology, climate change, nanotechnology and medicine. A fourth large grant has been applied for to enable students in remote and rural areas to participate in university level Mars-related research as mentioned above.

In addition, Carol was the originator of the astrobiology Virtual Field Trip concept, building the first one with NASA Learning Technologies 2005-2007. The aim was to engage high school students as well as provide a 3-D access to the field for researchers who have visited or are about to visit the location of the earliest best evidence of life on Earth in the Pilbara of Western Australia. The attendant wiki has had more than two million full page downloads <http://pilbara.mq.edu.au>

Carol is now a member of the NASA Astrobiology Teams at MIT and Arizona State University continuing to develop Virtual Field Trips using new and emerging communications technologies in highly visual, 3-D, immersive environments aimed at high school students, researchers and the public. In 2013 the VFTs won the International Academy of Arts award for interactive media created in the academic environment. <http://vft.asu.edu>

Dr Jennifer Fergusson completed her PhD with Carol who is also co-supervisor for two other PhD students. In 2007 Carol's two Honours students, Mikayla Keen and Eric Dalgliesh, both attained first class honours.

A group of Year 10 and 11 students from four Sydney high schools undertook a research project with Carol in 2012. They presented at a science conference and subsequently had a refereed conference proceedings publication accepted in the 12th Australian Space Science Conference, Melbourne, 2012, for their work on identifying Martian craters that may contain evidence of ancient hydrothermal systems. The two Year 11 students entered two top universities (University of Sydney and University of New South Wales) with scholarships.

Carol co-wrote and is the co-convenor for the third level BABS 6741 Astrobiology: Life in the Universe, with numbers over the past three years averaging around 30 students. She also created with technology partner Smart Sparrow a virtual lab for the course as a first step to eventually making the course an on-line offering.

In 1997 Carol raised \$100,000 for a very high-resolution spectrometer to piggyback on the Parkes Radio Telescope multibeam two-year all-sky survey and beyond 1998-2002). The purpose of the spectrometer was to analyse normal radio astronomy data for evidence of intelligence elsewhere in the universe. Southern SERENDIP, built in association with UC Berkeley, San Francisco, was an Australian follow-on project to a six-month stint on the telescope by the SETI Institute in Mountain View, California.

WORKSHOPS PRESENTED

Astronomy from the Ground Up, Parkes radio telescope, May, 2013, live cross to Mars Yard to demonstrate use of Mars rovers in variety of curriculum-related classroom activities for teachers from around Australia.

Australian Science Communicators, University of New South Wales, June, 2009. Presented an evidence-based science communication workshop for science journalists and science communicators. See http://www.asc.asn.au/blog/2009/08/24/nswscicomm_workshop/

Harley Wood Astronomy Winter School, Freemantle, July 2008, workshop for university students and researchers on how to communicate like cosmologist Carl Sagan. **Invited speaker.** <http://www.asa2008.conf.uwa.edu.au/hwws2008/>

AWARDS

The Australian Innovation Challenge 2013, finalist in the education category for the Mars Yard project located at the Powerhouse Museum, Sydney.

Staff excellence award, University of Western Sydney, 2000.

American Field Service scholarship, 1966-1967.

OPINION PIECES

December, 2013, The Conversation. *To launch Australia into space, we need inspiration*, M. Walter, B. Biddington, C. Oliver, and R. Sach. <http://theconversation.com/to-launch-australia-into-space-we-need-inspiration-20722>

March, 2009, UNSW, C. Oliver: [Science communication - the importance of evidence](#)

AUSTRALIAN GOVERNMENT INVITED PRESENTATIONS

Digital Productivity Conference, Brisbane, June, 2013: A live demonstration of controlling rover in Mars Yard at the Powerhouse, Sydney, via the Internet.

Australian Information and Communications Technology in Education Committee, Brisbane, July, 2013, presentation on use of Mars Yard in the classroom to 57th AICTEC meeting.

MEDIA

Forbes Magazine "Does Australia have a space future?" 6 December, 2013. <http://www.forbes.com/sites/brucedorminey/2013/12/06/does-australia-have-a-space-future/2/>

The Australian "Martian discovery used to lure students into science", 6 November, 2013. <http://www.theaustralian.com.au/innovationchallenge/martian-discovery-used-to-lure-students-into-science/story-fn9dkrp5-1226753626040>

Robyn Williams Science Show, May, 2011. Mars created in Sydney aids rover research. <http://www.abc.net.au/radionational/programs/scienceshow/mars-created-in-sydney-aids-rover-research/2947478>

Big ideas: ABC TV Café Scientific "Are we still alone?" August, 2010. <http://www.abc.net.au/tv/bigideas/stories/2010/08/17/2984127.htm#comments>

Mornings with Margaret Throsby, ABC Classic FM, August 2010. <http://www.abc.net.au/classic/throsby/stories/s2893177.htm>

PUBLICATIONS

1. Fergusson, J., **Oliver, C.A.** and Walter, M.R. (2012) *Astrobiology outreach and the nature of science: The role of creativity*, *Astrobiology*, **12**:12 (1143-1153).
2. Fergusson, J., **Oliver, C.A.** and Walter, M.R. (2010) *Future space scientists: Will Australians be ready for lift-off?* Refereed proceedings of the 9th Australian Space Science Conference, Sydney, 28-30 Sept, 2009.
3. **Oliver, C.A.** and Walter, M.R. (2009) *Outback search for life on Mars*, *Australasian Science* **30**:7 (18-21).
4. **Oliver, C.A.** (2008) *Australian space science education and outreach: an overview of current programs*, Refereed proceedings of the 7th Australia Space Science Conference, Sydney, September 24-27, 2007.
5. **Oliver, C.A.** (2008) *Communicating astrobiology in public: a study of scientific literacy*, doctoral thesis, University of New South Wales
http://www.unsworks.unsw.edu.au/primo_library/libweb/action/dlDisplay.do?docId=unsworks_3533&vid=UNSWORKS (cited by 2)
6. **Oliver, C.A.**, Walter, M.R. and Davies, P. (2008) *How a novel international astrobiology education projected changed the understanding of science for almost half the participating students*, *Astrobiology*, **8**:12 (403-417)
7. **Oliver, C.A.** and Fergusson, J. (2007) *Astrobiology: A pathway to science literacy?*, 56th International Astronautical Congress, Fukuoka, Japan, October 16-21. *Acta Astronautica*, Elsevier **61** (716-723) (cited by 7).
8. **Oliver, C.A.** (2007) *The Virtual Global Space Exploration Education Portal* *Acta Astronautica*, Elsevier **61** (548-552) (cited by 5)
9. DeVore, E., **Oliver, C.A.**, Wilmoth, K.L. and Vozzo, L. (2004) *Science Education in Partnership: The 2002 Australian-American Fulbright Symposium*, *Advances in Space Research*, Elsevier **34** (2116-2120) (cited by 1)
10. Vozzo, L., Oliver, C.A., Silburn, K. and Tweed, D. (2000) *Science education using SETI as a context for the NSW Stage 4 and 5*, *Bioastronomy 1999* refereed conference proceedings.
11. Shostak, S.G. and **Oliver, C.A.** (2000) *Immediate Reaction Plan: A strategy for dealing with a SETI detection*, *A new Era in Bioastronomy*, *Astronomical Society of the Pacific Conference Series*, **21** (635-640) (cited by 3).

Abstracts:

12. Fergusson, J., **Oliver, C.** and Walter, M. (2011) *Engaging in science through astrobiology outreach*, American Geophysical Union Fall meeting.
13. Fergusson, J. and **Oliver, C.A.** (2006) *Learning in authentic Earth and planetary contexts*, American Geophysical Union Fall meeting. (Cited by 1)

CONFERENCE PRESENTATIONS

1. Dougherty, K., **Oliver, C.** and Fergusson, J. (2013) Pathways to Space: a mission to foster the next generation of scientists and engineers, 64th International Astronautical Congress, Beijing, People's Republic of China, September.
2. Dougherty, K. and **Oliver, C.** (2013) Pathways to Space: ASRP Project Review, Australian Space Science Conference, University of New South Wales, September.
3. **Oliver, C.A.** (2012) Pathways to Space and Beyond: News on the future of the project, 12th Australian Space Science Conference, Melbourne, Victoria, 24-26 Sept.
4. **Oliver, C.A.**, Dougherty, K., Fergusson, J. and Connell, M. (2012) Pathways to Space: Bringing research and education together in a museum environment, Museums Australia National Conference, University of Adelaide, Adelaide, South Australia 24-28 Sept.
5. **Oliver, C.A.**, Connell, M., Sukkarieh, S., O'Brien, M. and Walter, M.R. (2011) A new unique multi-million dollar astrobiology and space robotics education and research project, Origins, Joint ISSOL and Bioastronomy International Conference, Montpellier, France, July. (poster)
6. Dougherty, K., **Oliver, C.A.** and Fergusson, J. (2012) Pathways to Space: A first year report card, 12th Australian Space Science Conference, Melbourne, Victoria, 24-26 Sept.
7. Dougherty, K. and **Oliver, C.A.** (2011) Pathways to Space: A mission to foster the next generation of scientists and engineers, 11th Australian Space Science Conference, Canberra.
8. **Oliver, C.A.**, Connell, M., Sukkarieh, S., O'Brien, M. and Biddington, B. (2010) Pathways to Space: Empowering the Internet generation, 10th Australian Space Science Conference, Brisbane, 27-30 Sept.
9. **Oliver, C.A.** (2010) Social media: Implications for post-detection strategies, International Astronautical Congress, Prague, September.
10. **Oliver, C.A.** (2010) SETI in Australia: Past, present and future, American Association for the Advancement of Science, San Diego, February.
11. **Oliver, C.A.** (2008) *Professional SETI to restart in the Southern Hemisphere*, International Academy of Astronautics symposium, Searching for Life Signatures, UNESCO, Paris, September 2008.
12. **Oliver, C.A.** (2007) *Australian space science education and outreach: laying the foundations?* Presented at the 7th Australian Space Science Conference, Sydney, September 24-27. **Invited keynote speaker.**
13. **Oliver, C.A.**, Fergusson, J., Bruce, G., Gaskins, T., Evans, R. (2006) *The NASA-Macquarie University Pilbara Education Project: Connecting the public to 'science in the making' via virtual reality and the Internet*, **invited paper**, American Geophysical Union Fall Meeting, San Francisco, December 11-16.
14. **Oliver, C.A.** (2006) *The Virtual Global Space Exploration Education Portal*, 57th Astronautical Congress, Valencia, Spain. October 2-6.

15. **Oliver, C.A.**, Fergusson, J., Bruce, G., Gaskins, T. and Evans, R. (2006) *Hi-tech tools capture astrobiology in the making at Mars analog site in Western Australia*, UK Astrobiology Conference, University of Kent, UK, April 18-21.
16. **Oliver, C.A.**, Fergusson, J., Bruce, G., Gaskins, T. and Evans, R. (2006) *NASA Macquarie University Pilbara Education Project: A hi-tech approach to astrobiology education*, AbSciCon 2006, Washington DC, March 27-30.
17. **Oliver, C.A.**, Fergusson, J., Bruce, G., Gaskins, T. and Evans, R. (2006) *Getting connected to the future: It's virtually here*, CONTACT Cultures of the Imagination 2006, NASA Ames Research Center, Mountain View, California, March 17-19.
18. **Oliver, C.A.** and Fergusson, J. (2005) *Astrobiology: A pathway to science literacy?*, 56th International Astronautical Congress, Fukuoka, Japan, October 16-21.
19. **Oliver, C.A.** and Fergusson, J. (2005) *Does adult science illiteracy begin at high school?*, 5th Australian Space Science Conference, Melbourne, Victoria, Australia, September 14-16.
20. **Oliver, C.A.**, Fergusson, J., Scalice, D., Evans, R.H., Gaskins, T., Walter, M.R.W. and Hogan, P. (2005) *Evolving a new approach for science education using astrobiology*, NASA Astrobiology Institute General Meeting, Boulder, Colorado. April 10-14.
21. **Oliver, C.A.** and Morrow, C.A. (2005) *NAI Science Communication Group: The First Year*, NASA Astrobiology Institute General Meeting, Boulder, Colorado. April 10-14. **(cited by 1)**
22. **Oliver, C.A.**, Fergusson, J., Ryde, S., Anitori, R., Walter, M. and DeVore, E. (2004) *Education project provides interesting results*, International Bioastronomy Conference, Reyjavik, Iceland, July 12-16.
23. **Oliver, C.A.** and Morrow, C.A. (2003) *Communicating Astrobiology: A New Approach*, SETI Session II IAA 9.2.04, 54th International Astronautical Congress, Bremen, Germany, Sept 28-Oct 3.
24. DeVore, E., **Oliver, C.A.**, Wilmoth, K.L. and Vozzo, L. (2002) *Science Education in Partnership: The 2002 Australian-American Fulbright Symposium*, 34th Scientific Assembly of the Committee on Space Research (COSPAR) at the World Space Congress, Houston Oct 9-19.
25. **Oliver, C.A.** (2001) *Astrobiologists and Journalists: Closing the Communication Gap*, Astrobiology Workshop, Macquarie University, July 12-13.
26. Stootman, F., Wellington, K.J., De Horta, A.Y. and **Oliver, C.A.** (2000) *Galactic Plane SETI Candidates - Results from the Southern SERENDIP Spectrometer*, IAA SETI I: Technical Session of the 51st International Astronautical Congress, Rio de Janeiro, Brazil, Oct 2-6.
27. **Oliver, C.A.**, DeVore, E. and Vozzo, L. (2000) *SETI in High Schools Down Under*, 51st IAF Congress, IAA.9.2. SETI Session II, Rio de Janeiro, Brazil, Oct 2-6.
28. Dierdrich, J., Wright, S. and **Oliver, C.A.** (2000) *The Convergence of Intelligences: Learning, Symbols and Efficient Communication*, 51st IAC Congress, IAA.9.2. SETI Session II, Rio de Janeiro, Brazil, Oct 2-6.
29. **Oliver, C.A.**, DeVore, E. and Vozzo, L. (1999) *SETI in Australian High Schools*, CONTACT Cultures of the Imagination 1999, Santa Clara, USA.

30. Stootman F.H., Wellington, K.J., De Horta, A.Y. and **Oliver, C.A.** (1999) *The Southern SERENDIP Project*, International Bioastronomy Conference, Kohala Coast, Hawaii, USA. **(cited by 4)**
31. Shostak, G.S. and **Oliver, C.A.**, (1999) *Immediate Reaction Plan: A Strategy for Dealing with a SETI Detection*, International Bioastronomy Conference, Kohala Coast, Hawaii, USA.
32. Vozzo, L., **Oliver, C.A.**, Silburn, K. and Tweed, D. (1999) *Science Education using SETI as a Context for the NSW Stage 4 and Stage 5 Science Syllabus*, International Bioastronomy Conference, Kohala Coast, Hawaii, USA.
33. **Oliver, C.A.**, Shostak, G.S. and Sim, H. (1999) *The Case of EQ Peg: Challenge and Response*, 50th International Astronautical Congress, IAA 9.2 SETI Session II, Amsterdam, Holland. **(cited by 7)**
34. **Oliver, C.A.** (1999) *Is anyone out there?*, Skeptics Annual Conference, Adelaide, Australia, November.
35. **Oliver, C.A.** (1998) *SETI and the Media Response*, SETI into the 21st Century Conference, University of Western Sydney, Sydney, Australia.
36. **Oliver, C.A.** (1998) *SETI and the Media in the 21st Century*, 49th International Astronautical Congress, IAA 9.2 SETI II Interdisciplinary Session, Melbourne, Australia. **(cited by 1)**
37. **Oliver, C.A.** (1997) *SETI and the Media*, 48th International Astronautical Congress, IAA 9.2 SETI Session II, Turin, Italy.