

**JOELLEN L. RUSSELL****PRESENT POSITION**

Associate Professor, Department of Geoscience & Department of Planetary Science  
 University of Arizona, 1040 E Fourth St., Tucson, AZ 85721-0077  
 Phone: (520) 626-2194 Fax: (520) 621-2672 Email: jrussell@email.arizona.edu

**CHRONOLOGY OF EDUCATION**

- 1999** – **Ph.D.** in Oceanography, Scripps Institution of Oceanography, University of California, San Diego. Dissertation title: *The Biogeochemistry of Southern Ocean Intermediate and Mode Waters*; Primary Advisor: Andrew G. Dickson
- 1993** – **A.B.** in Environmental Geoscience, Department of Earth and Planetary Sciences, Harvard University. Thesis title: *Applying Geology to Atmospheric Research: Modern Analogs to Archean Paleosols*; Primary Advisor: H.D. Holland

**CHRONOLOGY OF EMPLOYMENT**

- 2013** – Visiting Scientist, NOAA’s Geophysical Fluid Dynamics Laboratory, Princeton, NJ
- 2013** – Visiting Fellow, Princeton University, Princeton, NJ
- 2012-present** – Associate Professor, Department of Geoscience and Department of Planetary Science, Lunar and Planetary Laboratory, University of Arizona.
- 2006-2012** – Assistant Professor, Department of Geoscience, University of Arizona.
- 2002-2006** – Research Scientist, Program in Atmospheric and Oceanic Sciences, Geosciences Department, Princeton University.
- 1999-2002** – Postdoctoral Research Associate, Joint Institute for the Study of Atmosphere and Ocean, Department of Atmospheric Sciences, University of Washington.

**HONORS AND AWARDS**

- 2014** – **1885 Society Distinguished Scholar Award**, University of Arizona
- 2012** – Member, Gary Comer Foundation “Changelings” group
- 2011-2012** – **Distinguished Lecturer**, American Association of Petroleum Geologists
- 2010** – **Provost’s General Education Teaching Award**, University of Arizona
- 2009** – **Invited Plenary**, ASLO Aquatic Sciences Meeting, Nice, France
- 1989-1993** – Radcliffe National Scholar, Harvard University, Cambridge, MA

**PUBLICATIONS/CREATIVE ACTIVITY**

36. **Russell, J.L.**, I. Kamenkovich, C. Bitz, R. Ferri, S. Gille, R. Hallberg, K. Johnson, I. Marinov, M. Mazloff, J. Sarmiento, K. Speer, L. Talley, R. Wanninkhof and P.J. Goodman, Metrics for the Evaluation of the Southern Ocean in Coupled Climate and Earth System Models, *J. Climate*, (manuscript).
35. **Russell, J.L.**, T. Delworth, K. Dixon, J.P. Dunne, P.J. Goodman, R. Stouffer, M. Winton, Propping Open the Door to the Deep Ocean: The Southern Ocean Response to Changing Winds, *J. Climate* (manuscript)
34. **Russell, J.L.**, R.J. Stouffer and J.P. Dunne, Intercomparison of the Southern Ocean in the IPCC-AR5 Earth System Model Simulations, *J. Climate*, (manuscript)
33. †Ivory, S.J. **J.L. Russell** and A.S. Cohen, Atmosphere and biosphere effects of total model carbon content in CMIP5 Earth System Models, *Climate Dynamics*, (submitted).
32. †Naiman, Z., P.J. Goodman, J.P. Krasting, S.L. Malyshev, **J.L. Russell** and R.J. Stouffer, Mountains and Tropical Circulation, *Geophysical Research Letters*, (submitted)
31. Kapp, P., A. Pullen, J.D. Pelletier, J.L. Russell, P.J. Goodman and F. Cai, From dust to dust: Quaternary wind erosion of the Mu Us Desert and Loess Plateau, China, *Geology*, (submitted)
30. Williams, N.L., R.A. Feely, C.L. Sabine, **J.L. Russell**, A.G. Dickson and L.D. Talley, Quantifying

- Anthropogenic Carbon Inventory Changes in the Pacific Sector of the Southern Ocean, *Marine Chemistry*, (submitted).
29. †Lora, J.M., J.I. Lunine and **J.L. Russell**, 2015: GCM Simulations of Titan's Middle and Lower Atmosphere and Comparison to Observations, *Icarus*, **250**, 516-528, doi:10.1016/j.icarus.2014.12.030.
  28. Carrapa, B., F.S. Mustapha, M. Cosca, G. Gehrels, L.M. Schoenbohm, E.R. Sobel, P.G. DeCelles, **J.L. Russell** and P.J. Goodman, 2014: Multisystem dating of modern river detritus from Tajikistan and China: Implications for crustal evolution and exhumation of the Pamir, *Lithosphere*, **6**, 443-455, doi:10.1130/L360.1.
  27. †Lora, J.M., J.I. Lunine, **J.L. Russell** and A.G. Hayes, 2014: Simulations of Titan's Paleoclimate, *Icarus*, **243**, 264-273, doi:10.1016/j.icarus.2014.08.042.
  26. †Ivory, S.J. **J.L. Russell** and A.S. Cohen, 2013: In the hot seat: Insolation, ENSO, and vegetation in the African tropics, *Journal of Geophysical Research – Biogeosciences*, **118**, 1347-1358. doi:10.1002/jgrg.20115.
  25. Cayan, D., M. Tyree, K. E. Kunkel, C. Castro, A. Gershunov, J. Barsugli, A. J. Ray, J. Overpeck, M. Anderson, **J. Russell**, B. Rajagopalan, I. Rangwala, and P. Duffy, 2013: "Future Climate: Projected Average." In *Assessment of Climate Change in the Southwest United States: A Report Prepared for the National Climate Assessment*, edited by G. Garfin, A. Jardine, R. Merideth, M. Black, and S. LeRoy, 101–125. A report by the Southwest Climate Alliance. Washington, DC: Island Press.
  24. †McAfee, S.A, **J.L. Russell** and R.S. Webb, 2012: Influence of bias correction on simulated landcover changes, *Geophysical Research Letters*, **39**, L16702, doi:10.1029/2012GL052808.
  23. Blome, M.W., A.S. Cohen, C.A. Tryon, A.S. Brooks and **J.L. Russell**, 2012: The environmental context for the origins of modern human diversity: A synthesis of regional variability in African climate 150,000-30,000 years ago, *Journal of Human Evolution*, **62(5)**, 563-592, doi:10.1016/j.jhevol.2012.01.011.
  22. †Lora, J., P. Goodman, **J. Russell** and J. Lunine, 2011: Insolation in Titan's Troposphere, *Icarus*, **216**, 116-119, doi:10.1016/j.icarus.2011.08.017.
  21. Yin, J., J.T. Overpeck, S.M. Griffies, A. Hu, **J.L. Russell** and R.J. Stouffer, 2011: Different magnitudes of projected subsurface ocean warming around Greenland and Antarctica, *Nature Geoscience*, **4**, 524–528, doi:10.1038/ngeo1189.
  20. †McAfee, S.A, **J.L. Russell** and P.J. Goodman, 2011: Evaluating IPCC AR4 Cool-Season Precipitation Simulations And Projections For Impacts Assessment Over North America, *Climate Dynamics*, **37**, 2271-2287, DOI: 10.1007/s00382-011-1136-8.
  19. Kapp, P., J.D. Pelletier, A. Rohrmann, R. Heermance, **J.L. Russell** and L. Ding, 2011: Wind erosion in the Qaidam Basin, Central Asia: Implications for tectonics, paleoclimate and the source of the Loess Plateau, *GSA Today*, **21(4/5)**, 4-10. [doi: 10.1130/GSATG99A.1]
  18. Blight, L.K., D.G. Ainley, S.F. Ackley, G. Ballard, T. Ballerini, R.L. Brownell Jr., C.-H. C. Cheng, M. Chiantore, D. Costa, M.C. Coulter, P. Dayton, A.L. Devries, R. Dunbar, S. Earle, J.T. Eastman, S.D. Emslie, C.W. Evans, R.A. Garrott, S. Kim, G. Kooyman, A. Lescroël, M. Lizotte, M. Massaro, S. Olmastroni, P.J. Ponganis, **J.L. Russell**, D.B. Siniff, W.O. Smith Jr., B.S. Stewart, I. Stirling, J. Willis, P. Wilson, E.J. Woehler, 2010: Fishing for Data in the Ross Sea. *Science*, **330 (6009)**, 1316. [DOI:10.1126/science.330.6009.1316]
  17. Ainley, D., **J.L. Russell**, S. Jenouvrier, E. Woehler, P. O'B. Lyver, W.R. Fraser, and G.L. Kooyman, 2010: Antarctic Penguin Response to Habitat Changes as Earth's Troposphere Reaches 2°C Above Pre-Industrial Levels. *Ecological Monographs*, **80(1)**, pp. 49–66.
  16. Woodhouse, C.A., **J.L. Russell** and E.R. Cook, 2009: Two Modes of North American Drought from Instrumental and Paleoclimatic Data. *J. Climate*, **22(16)**, 4336-4347.
  15. †McAfee, S.A. and **J.L. Russell**, 2008: Northern Annular Mode impact on spring climate in the western United States. *Geophys. Res. Lett.*, **35**, L17701, doi:10.1029/2008GL034828.
  14. Toggweiler, J.R., and **J.L. Russell**, 2008: Ocean circulation in a warming climate. *Nature*, **451**, 286-288.

13. deBoer, A.M., D.M. Sigman, J.R. Toggweiler, and **J.L. Russell**, 2007: The effect of global ocean temperature change on deep ocean ventilation. *Paleoceanography*, **22**, PA2210, doi:10.1029/2005PA001242.
12. Gnanadesikan, A., **J.L. Russell**, and F. Zeng, 2007: How does ocean ventilation change under global warming? *Ocean Science*, **3**, 43-53.
11. **Russell, J.L.**, R.J. Stouffer, and K.W. Dixon, 2007: Corrigendum. *J. Climate*, **20(16)**, 4287.
10. **Russell, J.L.**, K.W. Dixon, A. Gnanadesikan, R.J. Stouffer, and J.R. Toggweiler, 2006: The Southern Hemisphere Westerlies in a Warming World: Propping Open the Door to the Deep Ocean. *J. Climate*, **19(24)**, 6382-6390.
9. **Russell, J.L.**, R.J. Stouffer, and K.W. Dixon, 2006: Intercomparison of the Southern Ocean Circulations in the IPCC Coupled Model Control Simulations. *J. Climate*, **19(18)**, 4560-4575
8. Stouffer, R.J., **J.L. Russell**, and M.J. Spelman, 2006: Importance of Oceanic Heat Uptake in Transient Climate Change. *Geophys. Res. Lett.*, **33**, L17704, doi:10.1029/2006GL027242.
7. Toggweiler, J.R., **J.L. Russell**, and S.R. Carson, 2006: Midlatitude westerlies, atmospheric CO<sub>2</sub>, and climate change during the ice ages. *Paleoceanography*, **21**, PA2005, doi:10.1029/2005PA001154.
6. Gnanadesikan, A., K.W. Dixon, S.M. Griffies, V. Balaji, M. Barreiro, J.A. Beesley, W.F. Cooke, T.L. Delworth, R. Gerdes, M.J. Harrison, I.M. Held, W. Hurlin, H-C. Lee, Z. Liang, G. Nong, R. Pacanowski, A. Rosati, **J.L. Russell**, B.L. Samuels, Q. Song, M.J. Spelman, R.J. Stouffer, C.O. Sweeney, G. Vecchi, M. Winton, A.T. Wittenberg, F. Zeng, R. Zhang, and J.P. Dunne, 2006: GFDL's CM2 Global Coupled Climate Models. Part 2: The baseline ocean simulation. *J. Climate*, **19(5)**, 675-697.
5. Delworth, T.L., A.J. Broccoli, A. Rosati, R.J. Stouffer, V. Balaji, J.A. Beesley, W.F. Cooke, K.W. Dixon, J. Dunne, K.A. Dunne, J.W. Durachta, K.L. Findell, P. Ginoux, A. Gnanadesikan, C.T. Gordon, S.M. Griffies, R. Gudgel, M.J. Harrison, I.M. Held, R.S. Hemler, L.W. Horowitz, S.A. Klein, T.R. Knutson, P.J. Kushner, A.R. Langenhorst, H-C. Lee, S-J. Lin, J. Lu, S.L. Malyshev, P.C.D. Milly, V. Ramaswamy, **J.L. Russell**, E. Shevliakova, M.D. Schwarzkopf, J.J. Sirutis, M.J. Spelman, W.F. Stern, M. Winton, A.T. Wittenberg, B. Wyman, F. Zeng, and R. Zhang, 2006: GFDL's CM2 Global Coupled Climate Models. Part I: Formulation and simulation characteristics. *J. Climate*, **19(5)**, 643-674.
4. Griffies, S.M., A. Gnanadesikan, K.W. Dixon, J.P. Dunne, R. Gerdes, M.J. Harrison, A. Rosati, **J.L. Russell**, B.L. Samuels, M.J. Spelman, M. Winton, and R. Zhang, 2005: Formulation of an Ocean Model for Global Climate Simulations. *Ocean Science*, **1**, 45-79.
3. **Russell, J.L.**, and J.M. Wallace, 2004: Annual carbon dioxide drawdown and the Northern Annular Mode, *Global Biogeochem. Cycles*, **18**, GB1012, doi:10.1029/2003GB002044.
2. \***Russell, J.L.**, and A.G. Dickson, 2003: Variability in oxygen and nutrients in South Pacific Antarctic Intermediate Water, *Global Biogeochem. Cycles*, **17(2)**, 1033, doi:10.1029/2000GB001317.
1. \*Hine, A.C., D.A. Feary, M.J. Malone, and the Leg 182 Shipboard Party (M. Andres, C. Betzler, G.R. Brooks, C.A. Brunner, M.D. Fuller, A.E. Holbourn, M. Huuse, A.R. Isern, N.P. James, B.C. Ladner, Q. Li, H. Machiyama, D.J. Mallinson, H. Matsuda, R.M. Mitterer, R.S. Molina, C. Robin, **J.L. Russell**, S. Shafik, J.A. Simo, P.L. Smart, G.H. Spence, F.C. Surlyk, P.K. Swart, and U.G. Wortmann), 1999: Research in the Great Australian Bight Yields Exciting Early Results. *EOS Transactions*, AGU, 80, #44, Nov. 2, 1999, pp. 521, 525-526.

**Other Publications: Not Peer-Reviewed**

6. **Russell, J.**, J. Sarmiento, H. Cullen, R. Hotinski, K. Johnson, S. Riser and L. Talley, 2014: The Southern Ocean Carbon and Climate Observations and Modeling Program (SOCCOM), Ocean Carbon and Biogeochemistry News, 7(2) (available at: [http://us-ocb.org/publications/OCB\\_NEWS\\_FALL14.pdf](http://us-ocb.org/publications/OCB_NEWS_FALL14.pdf))
5. Deutsch C., E. Hofmann, T. Ito, N. Lovenduski, **J. Russell**, J. Sarmiento, W. Smith and P. Strutton, 2010: A U.S. Southern Ocean Carbon, Ecosystems and Biogeochemistry Science Plan: A report of the Southern Ocean Scoping Workshop sponsored by the Ocean Carbon and Biogeochemistry Program and the NSF Office of Polar Programs (available online at: [http://www.us-ocb.org/publications/SOWorkshop\\_Report\\_FINAL.pdf](http://www.us-ocb.org/publications/SOWorkshop_Report_FINAL.pdf))

4. Tynan, C.T. and **J.L. Russell**, 2008: Assessing the impacts of future 2°C global warming on Southern Ocean cetaceans. International Whaling Commission, Scientific Committee document SC/60/E3 (available online at: [assets.panda.org/downloads/wwf\\_russell30may08\\_tynan.doc](http://assets.panda.org/downloads/wwf_russell30may08_tynan.doc))
3. Tynan, C.T. and **J.L. Russell**, 2008: Icebreaker: Pushing the Boundaries for Whales: Impacts of a 2°C global warming on Southern Ocean whales, World Wildlife Fund, 10pp. (available online at: <http://www.wwf.org.au/publications/icebreaker/>)
2. Ainley, D., **J. Russell** and S. Jenouvrier, 2008: The Fate Of Antarctic Penguins When Earth's Tropospheric Temperature Reaches 2°C Above Pre-Industrial Levels, World Wildlife Fund, 35pp. (available online at: [http://assets.panda.org/downloads/wwf\\_climate\\_penguins\\_final\\_1.pdf](http://assets.panda.org/downloads/wwf_climate_penguins_final_1.pdf))
1. Ainley, D., **J. Russell** and S. Jenouvrier, 2008: 2° is Too Much! Impacts of 2 degrees Celsius global warming on Antarctic Penguins, World Wildlife Fund, 8pp. (available online at: <http://www.wwf.org.au/publications/2degreesistoomuchwwf.pdf>)

\*Publication is based largely on work done as a graduate student

†Publication's first author is a current or former graduate student advisee.

### **GRANTS AND CONTRACTS (Current, Pending & Completed)**

16. **09/30/2014-09/30/2016** Principal Investigator, Amazon Web Services Climate Grant Award, \$15,000 and 4M core-hours.
15. **09/01/2014-08/31/2020** Co-Investigator, NSF (PLR, subaward through Princeton University) "Southern Ocean Carbon and Climate Observations and Modeling (SOCCOM)"; \$2,363,971 (UA, \$21M total).
14. **12/20/2013-6/30/2014** Principal Investigator, University of Arizona, Online Education Project, "Hybrid Course Development for GEOS212: Introduction to Oceanography", \$10,000.
13. **09/01/2013-08/31/2018** Co-Principal Investigator, NSF (EAR) "FESD Type I: Earth System Dynamics and its Role in Human Evolution in Africa", \$4,905,187.
12. **08/15/2013-07/31/16** Principal Investigator, NSF (PLR) "The Southern Ocean in a Warming World: Winds, Carbon and Heat", \$323,343.
11. **07/01/2013-06/30/2016** Co-Investigator, Arizona Board of Regents, Regents Innovation Fund "A State-wide Research Initiative in Environmental Informatics: Arizona Environmental Grid Infrastructure Service (AEGIS)", \$1,350,000.
10. **07/01/2012-06/30/2018** Co-Principal Investigator, Scientific Committee on Antarctic Research (SCAR) "Antarctic Climate Change in the 21<sup>st</sup> Century (AntClim<sup>21</sup>)", \$120,000.
9. **09/01/12-08/31/14**, Principal Investigator, NASA – NESSF, "Modeling Titan's Atmospheric Dynamics and their Interaction with Methane", \$60,000.
8. **06/01/2012-05/31/15** Principal Investigator, NSF (AGS) "Collaborative Research: P2C2 – Tracking Long-Term Glacial-Interglacial Wind Pattern Variability In Central Asia Using Geochemical Analysis Of Aerosol Derived Detritus", \$200,984.
7. **09/01/2010-08/31/2013** COSA2, (DeCelles PI, many other co-PIs in Department of Geosciences), ExxonMobil, \$1,890,000.
6. **01/25/2010-01/30/2010** Junior Faculty Conference Grant, Travel Expenses to 2009 ASLO (Advancing the Science of Limnology and Oceanography) Aquatic Sciences Meeting in Nice, France. \$900.
5. **09/01/2008-08/31/2011** Consultant, NSF Coupled Natural-Human Systems Initiative (NSF 07-598), "Collaborative Research: Urban Vulnerability to Climate Change: A System Dynamics Analysis." \$15,000.
4. **09/01/2007-08/31/2012** Collaborator, NSF Amazon PIRE, "Partnership for International Research and Education in Amazon-Climate Interactions." ([amazonpire.org](http://amazonpire.org))
3. **06/01/2007-05/31/2010** Convergent Orogenic Systems Analysis, (COSA, DeCelles PI, many other co-PIs in Department of Geosciences), ExxonMobil, \$1,500,000.
2. **05/01/2007-04/30/2012** Principal Investigator, NOAA Office of Global Programs, "A climate process team on Southern Ocean water mass transformation and the carbon cycle." \$309,762.

1. **07/01/2005-06/30/2008** Principal Investigator, NOAA Office of Global Programs (GC05-146),  
 “Optimal network design to detect spatial patterns and variability of ocean carbon sources and sinks  
 from underway surface CO<sub>2</sub> measurements.” \$163,674.

**TEACHING**

Semester	Course	Title	Enrollment
2015/Spring	GEOS596H	Ocean’s Role in Climate: Physical and Chemical Oceanography	11
2014/Fall	GEOS212-1	Introduction to Oceanography	350
2014/Fall	GEOS212-2	Introduction to Oceanography: Honors	26
2014/Fall	GEOS397A	Teaching Geosciences	26
2014/Spring	GEOG/GEOS547	Global and Regional Climatology (with K. Hirschboeck)	12
2013/Fall	GEOS212-1	Introduction to Oceanography	351
2013/Fall	GEOS212-2	Introduction to Oceanography: Honors	24
2013/Fall	GEOS397A	Teaching Geosciences	24
2012/Fall	GEOS396H	Honors Seminar: The Ocean’s Role in Climate	3
2012/Fall	GEOS212-1	Introduction to Oceanography	341
2012/Fall	GEOS212-2	Introduction to Oceanography: Honors	35
2012/Fall	GEOS397A	Teaching Geosciences	35
2012/Spring	GEOG/GEOS547	Global and Regional Climatology (with K. Hirschboeck)	12
2011/Fall	GEOS596H	Climate and Tectonics (with B. Carrapa)	9
2011/Fall	GEOS479/579	Introduction to Climate Dynamics (with J. Yin)	7
2011/Fall	GEOS212-1	Introduction to Oceanography	369
2011/Fall	GEOS212-2	Introduction to Oceanography: Honors	23
2011/Fall	GEOS397A	Teaching Geosciences	23
2011/Spring	GEOS596H	Advances in Climate Modeling	7
2010/Spring	GEOS596H	Modes of Climate Variability	8
2009/Fall	GEOS212-1	Introduction to Oceanography (with G. Gehrels)	1054
2009/Fall	GEOS212-2	Introduction to Oceanography: Honors (with G. Gehrels)	15
2009/Fall	GEOS397A	Teaching Geosciences	15
2009/Fall	GEOS342	Evolution of the Earth, Ocean, and Atmosphere (with P. Reiners)	15
2009/Spring	GEOS596H	Advances in Climate Modeling	6
2008/Fall	GEOS212-1	Introduction to Oceanography	359
2008/Fall	GEOS212-2	Introduction to Oceanography: Honors	19
2008/Fall	GEOS397A	Teaching Geosciences	19
2008/Fall	GEOS342	Evolution of the Earth, Ocean, and Atmosphere (with P. Reiners)	14
2008/Spring	GEOS596C	South American Paleoclimate (with J. Quade)	3
2007/Fall	GEOS212	Introduction to Oceanography	379
2007/Fall	GEOS397A	Teaching Geosciences	15
2007/Spring	GEOS596H	Modes of Climate Variability	7
2006/Fall	GEOS212	Introduction to Oceanography (with R. Richardson)	150

**Lectures for other courses**

Earth: Birth to Death (J. Kapp, GEOS170A1, UA, Fall 2014)  
 Contemporary Earth System Science (Reiners, GEOS195K, UA, Fall 2009)  
 Global and Regional Climatology (Hirschboeck, GEOG 431/531, UA, Spring 2009, 2010)  
 The Climate System (Woodhouse, GEOG530, UA, Fall 2008,2009)  
 Mesoscale Modeling (Castro, ATM558, UA, Spring 2008)  
 Planetary Science (Swindle, PTYS195a, UA, Spring 2008)  
 Introductory Oceanography (Neuer, BIO/GLG325, ASU, Spring 2008)  
 Climate Change and the New IPCC Report (Brazel, BIO591, ASU, Spring 2008)

**Current and Former Graduate Students:** Sarah Dasher (MS 2012, now with British Petroleum, Houston, TX), Alison Drain (MS 2009, now with ESRI, St. Louis, MO), Sophie Everatt (MS 2012), Stephanie McAfee (PhD 2009, now an Assistant Professor at U. Nevada – Reno), Juan Lora (PhD 2014, now a post-doc at UCLA), Zachary Naiman (current)

**Current and Former Undergraduate Students with Arizona/NASA Space Grant Fellowships:** Hannah Zanowski (BS 2011 Math/Physics, now in PhD program in Atmospheric/Oceanic Sciences at Princeton), Kiley Yeakel (BS 2012 ChEE, now at PhD program at Scripps Institution of Oceanography, UCSD), Angelica Alvarez (Neuroscience, Current), Jessica Rudd (Geosciences, BS 2014)

## SERVICE

### National/International:

**2015-present – Member,** NOAA Climate and Global Change Steering Committee

**2014-present – Member,** U.S. Carbon Cycle Science Program's Carbon Cycle Scientific Steering Group (CCSSG) (<http://carboncyclescience.gov/carbon-cycle-scientific-steering-group-ccssg>)

**2014-present – Member,** CLIVAR/CLiC/SCAR Southern Ocean Region Panel (<http://www.clivar.org/organization/southern>)

**2014 – Co-Convener,** The Southern Ocean and Its Role in the Climate System: Observations and Modeling of Physical and Biogeochemical Processes – 2014 Ocean Sciences Meeting, Honolulu, HI (<http://www.sgmeet.com/osm2014/sessionschedule.asp?SessionID=072>)

**2013 – Panelist,** GFDL Science Symposium, Princeton, NJ (<http://www.gfdl.noaa.gov/2013-gfdl-science-symposium>)

**2012-present – Co-Lead,** International Council for Science (ICSU), Scientific Committee on Antarctic Research Planning Group: Antarctic Climate Change in the 21st Century (AntClim21)

**2012-present – Co-Chair,** Southern Ocean Working Group, sponsored by US CLIVAR/OCB (<http://www.usclivar.org/working-groups/southern-ocean>)

**2012 – Co-Convener,** The Southern Ocean and Its Role in the Climate System, Session at the Ocean Sciences Meeting, Salt Lake City, Utah.

**2011 – EPA STAR Graduate Fellowship Review Panel,** Washington D.C.

**2011 – NASA Climate & Biological Response: Research and Applications Review Panel,** Washington D.C.

**2010-present – Member,** U.S. CLIVAR Office, Process Studies and Model Improvements Panel, ([www.usclivar.org](http://www.usclivar.org))

**2010 – NSF Arctic System Science Program Review Panel,** Washington D.C.

**2009 – Co-Convener,** New Frontiers in Southern Ocean Biogeochemistry and Ecosystem Research, Ocean Carbon and Biogeochemistry Scoping Workshop, Princeton, New Jersey.

**2008 – World Wildlife Fund,** Antarctic Climate Change Focal Project: Impacts Of 2°C Global Warming On Southern Ocean Cetaceans (With Dr. Cynthia Tynan, WHOI): presented to International Whaling Commission 60<sup>th</sup> Annual Meeting, Santiago, Chile

**2008 – Early Career Geoscience Faculty: Teaching, Research, and Managing Your Career Workshop,** College of William and Mary, Williamsburg, Virginia

**2008 – World Wildlife Fund,** Antarctic Climate Change Focal Project: Impacts Of 2°C Global Warming On Antarctic Penguins (With Dr. David Ainley of H.T. Harvey and Assoc.)

**2007 – Member,** National Research Council for the **National Academy of Science**, Committee to Review the “U.S. Climate Change Science Program’s Synthesis and Assessment Product 3.2, Climate Projections Based on Emission Scenarios for Long-lived and Short-lived Radiatively Active Gases and Aerosols”.

**2007 – Member,** National Research Council for the **National Academy of Science**, Review Committee for “Review of the U.S. Climate Change Science Program’s Draft Synthesis and Assessment Product 1.3, Re-analyses of Historical Climate Data and Implications for Attribution”

**2007** – Ocean Carbon and Biogeochemistry Scoping Workshop on Ocean Acidification Research, Scripps Institution of Oceanography, La Jolla, California

**2006-present** – Biospheric Processes Team, Geophysical Fluid Dynamics Laboratory, National Oceanic and Atmospheric Administration

**2006** – Amicus brief to the United States Supreme Court (Massachusetts vs. the EPA)

**University:**

**2015** – Briefing to the National Science Foundation Director (Dr. France Cordova), Tucson, AZ

**2014** – Briefing to the College of Science Dean's Board of Advisors, Tucson, AZ

**2014** – Reviewer, Faculty Small Grants Program, Office of the Vice Provost for Research

**2013** – **Keynote Speaker**, UA College of Science Honors Winter Convocation

**2013-2014** – Faculty Mentor, American Indian Science and Engineering Society (AISES) Geoscience Outreach Program

**2012-present** – Chair, UA Research Computing Governance Committee (RCGC)

**2012-present** – Member, UA Institute of the Environment Faculty Advisory Committee

**2011** – Reviewer, Packard Fellowship Applications, Office of the Vice President for Research

**2010-2012** – Faculty Representative (College of Science), Interdisciplinary Studies Degree Committee

**2010-2012** – Chairperson, High-Performance Computing (HPC) Technical Refresh Committee

**2008-present** – Executive Committee member, UA Climate Dynamics and Hydrometeorology Center

**2008** – Reviewer, Faculty Small Grants Program, Office of the Vice Provost for Research

**2007-2010** – Member, High-Performance Computing (HPC) Allocation Committee

**Reviewer:** *Nature*, *Nature Geosciences*, *Nature Climate Change*, *J. Climate*, *J. Physical Oceanography*, *Geophysical Research Letters*, *Proceedings of the National Academy of Sciences*, *Paleoceanography*, *J. Geophysical Research*, *Global Biogeochemical Cycles*, *Climate Dynamics*, *Climate Change Letters*

**Review Panels:** *NASA*, *NSF*, *EPA*

**OUTREACH (Invited Presentations)**

2/2015 Harvard Club of Southern Arizona, Tucson, AZ

12/2014 Playground Games, Institute of the Environment, University of Arizona, Tucson, AZ

11/2014 Marine Awareness Conservation Society, University of Arizona, Tucson, AZ

11/2014 Teacher Symposium, Department of Geosciences, University of Arizona, Tucson, AZ, **Keynote**

9/2014 Odyssey Storytelling, Tucson, AZ

5/2014 Pima County Local Drought Impacts Group, Tucson, AZ

1/2013 Lulu Walker Elementary Science Extravaganza, Tucson, AZ

9/2012 Science Cafe, Tucson, AZ

7/2012 Society of American Military Engineers, Tucson, AZ

2/2012 Sustainability Café, US Arizona Green Building Council, Tucson, AZ

1/2012 Arizona Climate and Water Resources Alliance Collaborative Workshop on Climate Extremes, Tempe, AZ

12/2011 Science Café, College of Science, Tucson, AZ

5/2011 Arizona Project WET Riparian Symposium, University of Arizona, Tucson, AZ, **Keynote**

11/2010 Earth Sciences Saturday Academy, University of Arizona, Tucson, AZ, **Keynote**

2/2010 League of Women Voters, Tucson Chapter, Tucson, AZ

4/2008 Border-Area Climate Change Impacts & Water Sector Adaptation Workshop, California Department of Water Resources, Tucson, AZ

2/2008 Superstition Vistas Planning Workshop, Phoenix, AZ

12/2007 Salt River Project, Tempe, AZ

10/2007 11<sup>th</sup> Annual Great Divide Workshop, National Weather Service, Great Falls, MT

7/2007 SGI User Group Annual Meeting, SGIUG 2007, Minneapolis, MN, **Keynote**

4/2007 Montana Water Center, University of Montana, Bozeman, MT  
 12/2006 Tucson Water, Department of the City of Tucson, Tucson, AZ

### SCHOLARLY PRESENTATIONS

2/2015 Southern Ocean Dynamics and Biogeochemistry Workshop, California Institute of Technology, Pasadena, CA, **Invited**  
 12/2014 AGU Fall Meeting, San Francisco, CA (Poster)  
 12/2014 A Joint US Climate Variability and Predictability (CLIVAR)—Ocean Carbon Biogeochemistry (OCB) Workshop on “Ocean’s Carbon and Heat Uptake: Uncertainties and Metrics”, San Francisco, CA, **Invited**  
 9/2104 Hedberg Conference on “Latitudinal Controls on Stratigraphic Models and Sedimentary Concepts”, Banff, Alberta, **Keynote Speaker**  
 9/2014 Bolin Centre for Climate Research, Stockholm University, Stockholm, Sweden, **Invited**  
 8/2014 XXXIII SCAR Biennial Meeting and 2014 Open Science Conference, Auckland, New Zealand, **Invited**  
 7/2014 Ocean Carbon & Biogeochemistry Summer Science Workshop, Woods Hole, MA, **Invited**  
 7/2014 2014 Pan-CLIVAR Meeting, The Hague, The Netherlands, **Invited**  
 7/2014 2014 US CLIVAR Summit, Denver, CO, **Invited**  
 2/2014 Ocean Sciences Meeting, Honolulu, HI, **Invited**  
 12/2013 AGU Fall Meeting, San Francisco, CA (Poster)  
 9/2013 SCAR Workshop on “Quantification of Antarctic Climate Variability”, Castine, ME, **Invited**  
 7/2013 Ocean Carbon and Biogeochemistry Summer Workshop, Woods Hole, MA, **Invited**  
 4/2013 Rosenstiel School of Marine and Atmospheric Science, Miami, FL, **Invited**  
 2/2013 Atmosphere and Oceanic Sciences, Princeton University, Princeton, NJ, **Invited**  
 2/2013 US Argo Science and Implementation Working Group Meeting, Monterrey, CA, **Invited**  
 ([http://vintage.joss.ucar.edu/us\\_argo/](http://vintage.joss.ucar.edu/us_argo/))  
 1/2013 Winter Breeding Institute, Tucson, AZ, **Invited**  
 12/2012 AGU Fall Meeting, San Francisco, CA, **Invited**  
 10/2012 GeoPRISMS Planning Workshop, Morristown, NJ, **Invited**  
 9/2012 Department of Geosciences Colloquium, University of Arizona, Tucson, AZ, **Invited**  
 5/2012 European Science Foundation, Obergurgl, Austria, **Invited**  
 3/2012 Ross Sea Workshop, San Diego, CA, **Invited**  
 2/2012 Ocean Sciences Meeting, Salt Lake City, UT  
 12/2011 AGU Fall Meeting, San Francisco, CA  
 10/2011 Department of Earth and Environmental Science, University of Pennsylvania, Philadelphia, PA, **Invited**  
 7/2011 Atmospheric and Oceanic Sciences/Cooperative Institute for Climate Science, Princeton University, Princeton, NJ, **Invited**  
 6/2010 Deep Ocean Workshop: Observed and Model-Simulated Property Changes in the Deep Ocean of the Southern Hemisphere, Hobart, Australia, **Invited**  
 2/2010 Ocean Sciences Meeting, Portland, OR, **Invited**  
 11/2009 Greenaccord, VII International Media Forum on the Protection of Nature, Viterbo, Italy, **Invited**  
 9/2009 Department of Geological Sciences, Brigham Young University, Provo, UT, **Invited**  
 7/2009 Global Sustainability Workshop, Santa Fe Institute, Santa Fe, NM, **Invited**  
 5/2009 International Marine Conservation Congress, Washington, DC, **Invited**  
 4/2009 SOLS Seminar Series, School of Life Sciences, Arizona State University, Tempe, AZ, **Invited**  
 2/2009 CLIVAR/CliC/SCAR Southern Ocean Region Implementation Panel 5th Meeting, Sydney Australia, **Invited**  
 2/2009 9th International Conference on Southern Hemisphere Meteorology and Oceanography, Melbourne, Australia, **Invited Keynote**  
 1/2009 ASLO Aquatic Sciences Meeting, Nice, France, **Invited Plenary**



- 12/2008 AGU Fall Meeting, San Francisco, CA  
8/2008 IDC HPC User Forum, Tucson, AZ, **Invited**  
5/2008 ExxonMobil, Houston, TX, **Invited**  
4/2008 Department of Geosciences Colloquium, Tucson, AZ  
2/2008 Ocean Sciences Meeting, Orlando, FL  
10/2007 Southern Ocean Physical Oceanography and Cryosphere Linkages (SOPHOCLES) Meeting, Bergen, Norway, **Invited**  
9/2007 National Weather Service, Great Falls, MT, **Invited**  
9/2007 Rice University, Houston, TX, **Invited**  
9/2007 ExxonMobil, Houston, TX, **Invited**  
7/2007 NOAA Global Carbon Cycle Principal Investigators Meeting, Silver Spring, MD, **Invited**  
6/2007 NOAA Southern Ocean Climate Process Team Workshop, Princeton, NJ, **Invited**  
5/2007 Arizona Hydrological Society, Tucson, AZ, **Invited**  
5/2007 Surface pCO<sub>2</sub> and Ocean Vulnerabilities Workshop, IOC/UNESCO, Paris, France, **Invited**  
3/2007 Gordon Research Conference, Ventura, CA, **Invited Keynote**  
10/2006 Geophysical Fluid Dynamics Laboratory, Princeton, NJ, **Invited**  
9/2006 16<sup>th</sup> Annual V.M. Goldschmidt Conference, Melbourne, Australia, **Invited**  
7/2006 Ocean Carbon Biogeochemistry Workgroup, Woods Hole Oceanographic Institution, Woods Hole, MA, **Invited**  
7/2006 NOAA Office of Climate Observation - Annual System Review, Silver Springs, MD, **Invited**  
4/2006 Atmospheric Science Seminar, University of Arizona, Tucson, AZ, **Invited**  
2/2006 Ocean Sciences Meeting, Honolulu, HI