

# Yuko M. Okumura

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## Education

- 2005 - Ph.D. (Meteorology), University of Hawaii, Honolulu, Hawaii  
Dissertation: "Ocean-atmosphere interaction in the seasonal to decadal variations of tropical Atlantic climate", Committee: Shang-Ping Xie (chair), Kevin Hamilton, Julian McCreary, Axel Timmermann, and Bing Wang
- 2000 - M.S. (Climate Dynamics), Hokkaido University, Sapporo, Japan  
Thesis: "Ocean-atmosphere and tropical-extratropical interactions in the pan-Atlantic decadal oscillations"
- 1998 - B.S. (Geophysics), Hokkaido University, Sapporo, Japan  
Thesis: "Review of theoretical and observational studies on teleconnections associated with El Nino-Southern Oscillation"
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## Research Interests

- Climate variability and change
  - Large-scale ocean-atmosphere interaction
  - Atmospheric teleconnection
  - Paleoclimate and thermohaline circulation
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## Appointments

- Research Associate, Institute for Geophysics, Jackson School of Geosciences, The University of Texas at Austin, Austin, Texas, September 2011-Present
- Visiting Assistant Researcher, International Pacific Research Center, University of Hawaii, Honolulu, Hawaii, June 2011-August 2011
- Visiting Scientist, Climate and Global Dynamics Division, National Center for Atmospheric Research, Boulder, Colorado, September 2009 - December 2011
- NOAA Climate and Global Change Postdoctoral Fellow, UCAR Visiting Scientist Program and National Center for Atmospheric Research, Boulder, Colorado, September 2006-September 2009
- Postdoctoral Fellow, International Pacific Research Center, University of Hawaii, Honolulu, Hawaii, January 2006-July 2006
- Research Assistant, Department of Meteorology, University of Hawaii, Honolulu, Hawaii, January 2000-December 2005

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## Honor and Award

- UTIG Outstanding Young Researcher Award, 2014
- NCAR Climate and Global Dynamics Division Ronald Madden Named Visitor, 2013
- Editor's Award, *Journal of Climate*, American Meteorological Society, 2011
- NOAA Climate and Global Change Postdoctoral Fellowship, 2006-2009

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## Research Grants Awarded

- “Collaborative Research: Towards predicting persistent drought conditions associated with consecutive La Nina years”, PIs Pedro DiNezio, Yuko Okumura, and Clara Deser, NOAA OAR/CPO MAPP: \$547K (\$139 for UT Austin) for FY14-17
- “Western Pacific warm pool hydroclimate during the Last Glacial Maximum and the deglaciation”, PIs Judson Partin and Yuko Okumura, NSF AGS (Paleoclimate): \$563K for FY14-17
- “Modeling and observational study of decadal ENSO modulation and tropical Pacific decadal variability”, PI Yuko M. Okumura, NSF AGS (Climate and Large-Scale Dynamics): \$482K for FY13-16
- “Applying ice cores, instrumental records and climate modeling towards a mechanistic understanding of Antarctic climate variability on interannual to multidecadal timescales”, PIs Clara Deser, Yuko Okumura, and David Schneider, NSF ANT: \$495K for FY09-FY11

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## Publications

- 1) Okumura, Y. M., P. DiNezio, and C. Deser, 2015: Impacts of multi-year La Nina events on persistent drought conditions over the southern US. To be submitted to *Geophys. Res. Lett.* or *J. Climate*.
- 2) Sun, T., and Y. M. Okumura, 2015: Identifying the role of extratropical air-sea interactions in North Pacific climate variability with a hierarchy of CESM simulations. To be submitted to *J. Climate*.
- 3) Okumura, Y. M., and T. Sun, 2015: Asymmetric impacts of tropical Pacific decadal variability on the frequency, duration, pattern, and amplitude of El Nino and La Nina. To be submitted to *J. Climate*.
- 4) Thirumalai, K., T. M. Quinn, Y. Okumura, J. Richey, J. W. Partin, and R. Z. Poore, 2015: Centennial-scale links between Atlantic Ocean dynamics and hydroclimate over the last 4400 years: Insights from northern Gulf of Mexico. To be submitted to *Science*.
- 5) Goff, J. A., L. Lugin, S. P. S. Gulick, K. Thirumalai, and Y. Okumura, 2015: Oyster reef die-offs in stratigraphic record of Corpus Christi Bay, Texas possibly caused by drought-driven extreme salinity changes. *Holocene*, in press.
- 6) Xie, S.-P., Y. Kosaka, and Y. M. Okumura, 2015: Distinct energy budgets for anthropogenic and natural changes during global warming hiatus. *Nature Geoscience*, in press.
- 7) Partin, J. W., T. M. Quinn, C.-C. Shen, Y. Okumura, M. B. Cardenas, F. P. Siringan, J. L. Banner, K. Lin, and F. W. Taylor, 2015: A tropical perspective on hydroclimate changes during the Younger Dryas. *Nature Communications*, **6**, 8061, doi: 10.1038/ncomms9061.
- 8) Okumura, Y. M., 2013: Origins of tropical Pacific decadal variability: Role of stochastic atmospheric forcing from the South Pacific. *J. Climate*, **26**, 9791-9796.
- 9) Hereid, K. A., T. M. Quinn, and Y. M. Okumura, 2013: Assessing spatial variability in ENSO event detection skill using coral geochemistry. *Paleoceanography*, **28**, 14-23.

- 10) Tokinaga, H., S.-P. Xie, C. Deser, Y. Kosaka, and Y. M. Okumura, 2012: Slowdown of the Walker circulation driven by tropical Indo-Pacific warming. *Nature*, **491**, 439-443.
- 11) Okumura, Y. M., D. Schneider, C. Deser, and R. Wilson, 2012: Decadal-interdecadal climate variability over Antarctica and linkages to the tropics: Analysis of ice core, instrumental and tropical proxy data. *J. Climate*, **25**, 7421-7441.
- 12) Schneider, D. P., Y. Okumura, and C. Deser, 2012: Observed Antarctic interannual climate variability and tropical linkages, *J. Climate*, **25**, 4048-4066.
- 13) Grodsky, S. A., J. A. Carton, S. Nigam, and Y. Okumura, 2012: Tropical Atlantic biases in CCSM4. *J. Climate*, **25**, 3684-3701.
- 14) Deser, C., A. S. Phillips, R. A. Tomas, Y. Okumura, M. A. Alexander, A. Capotondi, J. D. Scott, Y.-O. Kwon, and M. Ohba, 2012: ENSO and Pacific decadal variability in a 1300-year control integration of Community Climate System Model Version 4. *J. Climate*, **25**, 2622-2651.
- 15) Chowdary, J. S., S.-P. Xie, H. Tokinaga, Y. M. Okumura, H. Kubota, N. C. Johnson, and X.-T. Zheng, 2012: Inter-decadal variations in ENSO teleconnection to the Indo-western Pacific for 1870-2007. *J. Climate*, **25**, 1722-1744.
- 16) Tokinaga, H., S.-P. Xie, A. Timmermann, S. McGregor, T. Ogata, H. Kubota, and Y. M. Okumura, 2012: Regional patterns of tropical Indo-Pacific climate change: Evidence of the Walker circulation weakening. *J. Climate*, **25**, 1689-1710.
- 17) Schneider, D. P., C. Deser, and Y. Okumura, 2012: An assessment and interpretation of the observed warming of West Antarctica in the austral spring. *Climate Dynamics*, **38**, 323-347.
- 18) Okumura, Y. M., M. Ohba, C. Deser, and H. Ueda, 2011: A proposed mechanism for asymmetric duration of El Niño and La Niña. *J. Climate*, **24**, 3822-3829.
- 19) Okumura, Y. M., and C. Deser, 2010: Asymmetry in the duration of El Niño and La Niña. *J. Climate*, **23**, 5826-5843.
- 20) Hodson, D. L. R., R. T. Sutton, C. Cassou, N. Keenlyside, Y. Okumura, and T. Zhou, 2010: Climate impacts of recent multidecadal changes in Atlantic Ocean sea surface temperature: A multimodel comparison. *Climate Dynamics*, **34**, 1041-1058.
- 21) Zhou, T., R. Yu, J. Zhang, H. Drange, C. Cassou, C. Deser, D. L. R. Hodson, E. SanchezGomez, J. Li, N. Keenlyside, X. Xin, and Y. Okumura, 2009: Why the western Pacific subtropical high has extended westward since the late 1970s. *J. Climate*, **22**, 2199-2215.
- 22) Timmermann, A., L. Menviel, Y. Okumura, A. Schilla, U. Merkel, O. Timm, A. Hu, B. Otto-Bliesner, and M. Schulz, 2009: Towards a quantitative understanding of millennial-scale Antarctic warming events. *Quaternary Science Reviews*, **29**, 74-85, doi: 10.1016/j.quascirev.2009.06.021.
- 23) Okumura, Y. M., C. Deser, A. Hu, A. Timmermann, and S.-P. Xie, 2009: North Pacific climate response to freshwater forcing in the subarctic North Atlantic: Oceanic and atmospheric pathways. *J. Climate*, **22**, 1424-1445.
- 24) SanchezGomez E., C. Cassou, D. L. R. Hodson, N. Keenlyside, Y. Okumura, and T. Zhou 2008: North Atlantic weather regimes response to Indian-western Pacific Ocean warming: A multi-model study. *Geophys. Res. Lett.*, **35**, L15706, doi:10.1029/2008GL034345.
- 25) Xie, S.-P., Y. Okumura, T. Miyama, and A. Timmermann, 2008: Influences of Atlantic climate change on the tropical Pacific via the Central American Isthmus. *J. Climate*, **21**, 3914-3928.
- 26) Timmermann, A., Y. Okumura, S.-I. An, A. Clement, B. Dong, E. Guilyardi, A. Hu, J. H. Jungclaus, M. Renold, T. F. Stocker, R. J. Stouffer, R. Sutton, S.-P. Xie, and J. Yin, 2007: The influence of a weakening of the Atlantic meridional overturning circulation on ENSO. *J. Climate*, **20**, 4899-4919.

- 27) Okumura, Y., and S.-P. Xie, 2006: Some overlooked features of tropical Atlantic climate leading to a new Nino-like phenomenon. *J. Climate*, **19**, 5859-5874.
  - 28) Okumura, Y., and S.-P. Xie, 2004: Interaction of the Atlantic equatorial cold tongue and the African monsoon. *J. Climate*, **17**, 3589-3602.
  - 29) Okumura, Y., S.-P. Xie, A. Numaguti, and Y. Tanimoto, 2001: Tropical Atlantic air-sea interaction and its influence on the NAO. *Geophys. Res. Lett.*, **28**, 1507-1510.
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## **Community Service**

- Member, NOAA CPO MAPP Drought Task Force, 2014-
  - Member, American Meteorological Society Committee on Air-Sea Interaction, 2008-2012
  - Organizer, 18th AMS Conference on Air-Sea Interaction, Boston, Massachusetts, 2012
  - Co-chair and Session Chair, 17th AMS Conference on Air-Sea Interaction, Annapolis, Maryland, 2010
  - Reviews for *NSF proposals*, *NOAA proposal*, *Nature Climate Change*, *Nature Communications*, *Journal of Climate*, *Geophysical Research Letters*, *Journal of Geophysical Research*, *Climate Dynamics*, *International Journal of Climatology*, *Paleoceanography*, *Quaternary Science Reviews*, *Journal of Marine Research*, *Environmental Research Letters*, *Journal of the Meteorological Society of Japan*, and *AGU Monograph*
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## **Internal Committee and Service**

- UTIG Science Council 2014-2016
  - UTIG Annual Performance and Evaluation Committee, 2014
  - UTIG Postdoctoral Fellowship Selection Committee, 2014-
  - UTIG Seminar Committee, 2013-
  - UTIG Ewing/Worzel and Gale White Fellowships Selection Committee, 2012-
  - Jackson School of Geosciences Postdoctoral Fellowship Selection Committee, 2012
  - Judge, the 1st Annual Jackson School Research Symposium Poster Contest, 2012
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## **Professional Memberships**

- American Meteorological Society
  - American Geophysical Union
  - Meteorological Society of Japan
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## **Presentations**

### *Invited Presentations*

- "Impacts of Multi-year La Nina Events on Persistent Drought Conditions over the Southern US", Texas A&M University Department of Atmospheric Sciences Seminar, November 2015
- "Origins of Tropical Pacific Decadal Variability: Role of Stochastic Atmospheric Forcing from the South Pacific", CESM Climate Variability and Change Working Group Meeting, Boulder, Colorado, March 2013

- “Origins of Tropical Pacific Decadal Variability: Role of Stochastic Atmospheric Forcing from the South Pacific”, AOGS 10th Annual Meeting, Brisbane, Australia, June 2013
- “Low-frequency climate variability over Antarctica and linkages to the tropics: Analysis of instrumental data and ice core and coral records for the past 100-200 years”, Physical Oceanography Seminar, WHOI, Woods Hole, Massachusetts, April 2011
- “Low-frequency climate variability over Antarctica and linkages to the tropics: Analysis of instrumental data and ice core and coral records for the past 100-200 years”, Institute for Geophysics Seminar, University of Texas at Austin, Austin, Texas, April 2011
- “Atlantic Niño II: Phenomena and Implications for Climate Predictability”, AMMA-Ocean/TACE/PIRATA Meeting, Karlsruhe, Germany, November 2007
- “Shutdown of the Atlantic thermohaline circulation and its impact on North Pacific climate”, 12th Annual CCSM Workshop, Breckenridge, Colorado, June 2007

#### *Other Conference Presentations*

- AGU Fall Meeting, San Francisco, California, December 2015
- AMS 95th Annual Meeting, Phoenix, AZ, January 2015
- Ocean Science Meeting, Honolulu, Hawaii, February 2014
- AMS 93rd Annual Meeting, Austin, TX, January 2013
- AGU Fall Meeting, San Francisco, California, December 2012
- WCRP Open Science Conference, Denver, Colorado, October 2011
- West Antarctic Ice Sheet Workshop, Loveland, Colorado, September 2011
- AMS 17th Conference on Air-Sea Interaction, Annapolis, Maryland, September 2010
- Ocean Science Meeting, Portland, Oregon, February 2010
- 8th NOAA Summer Institute, Steamboat Springs, Colorado, July 2008
- Junior Faculty Forum, Boulder, Colorado, July 2008
- 13th Annual CCSM Workshop, Breckenridge, Colorado, June 2008
- AMS 15th Conference on Air-Sea Interaction, Portland, Oregon, August 2007
- Ocean Science Meeting, Honolulu, Hawaii, February 2006
- AMS 86th Annual Meeting, Atlanta, Georgia, January 2006
- U.S. CLIVAR Atlantic Science Conference, Miami, Florida, February 2005
- MSJ Autumn Meeting, Fukuoka, Japan, October 2004
- AGU Joint Assembly, Montreal, Canada, May 2004
- IUGG General Assembly, Sapporo, Japan, July 2003
- U.S. CLIVAR Atlantic Science Conference, Boulder, Colorado, June 2001
- Chapman Conference on the North Atlantic Oscillation, Orense, Spain, December 2000
- AMS 10th Conference on Air-Sea Interaction, Fort Lauderdale, Florida, May 2000

#### *Seminars/Symposium*

- Climate Analysis Section Seminar, NCAR, Boulder, Colorado, August 2014
- Climate Forum, University of Texas at Austin, Austin, Texas, April 2013

- Climate and Global Dynamics Division Seminar, NCAR, Boulder, Colorado, October 2011
- International Pacific Research Center Seminar, University of Hawaii, Honolulu, Hawaii, May 2011
- Climate and Global Dynamics Division Research Report, NCAR, Boulder, Colorado, January 2010
- Climate and Global Dynamics Division Research Report, NCAR, Boulder, Colorado, April 2006
- Climate and Global Dynamics Division Seminar, NCAR, Boulder, Colorado, November 2006
- Annual Symposium, International Pacific Research Center, Honolulu, Hawaii, May 2006
- Meteorology Department Seminar, University of Hawaii, Honolulu, Hawaii, October 2004
- Meteorology Department Seminar, University of Hawaii, Honolulu, Hawaii, March 2

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## Media Releases

- “Ancient Cold Period Could Provide Clues About Future Climate Change”, UT News, September 2nd, 2015 (<http://news.utexas.edu/2015/09/02/ancient-cold-period-could-provide-clues-on-climate-change>)
- “Early years of California’s drought may be linked to lingering effect of La Nina”, NOAA Climate.gov, April 20th, 2015 (<http://climate.gov/news-features/featured-images/early-years-california’s-drought-may-be-linked-lingering-effect-la>)
- “Changes in sea surface temperature patterns caused 60-year slowdown of walker circulation”, UT Jackson School of Geosciences, November 14th, 2012 (<http://www.jsg.utexas.edu/news/2012/11/changes-in-sea-surface-temperature-patterns-caused-60-year-slowdown-of-walker-circulation/>)

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## Educational Activities

### *Graduate Research Advisor*

- Tianyi Sun (Ph.D., UT Austin, Fall 2014-)
- Xian Wu (Ph.D., UT Austin, Fall 2015-)

### *Undergraduate Research Advisor*

- Stewart Young (UT Austin, Fall 2014-)

### *Graduate Thesis Committee Members*

- Kaustubh Thirumalai (Ph.D., UT Austin, 2012-)
- Chris Maupin (Ph.D., UT Austin, 2012-2014)

### *Guest Lecture*

- “Equatorial annual cycle and seasonality of El Nino-Southern Oscillation”, Invited to present a lecture in advanced graduate student course “Analysis and Diagnosis of Climate Variability”, Colorado State University, Fort Collins, Colorado, October 2006

### *Outreach*

- “Weather and Climate”, Invited to present a special lecture at Austin Japanese School (over 100 elementary and middle school students, parents, and teachers), Austin, Texas, February 2014

- "El Nino, La Nina, and Global Climate: My Career Path in Climate Research", Invited to present a lecture at a weekly meeting of the Science Undergraduate Research Group (SURGe) at UT Austin, November 2013