

CAROL ANNE CLAYSON
SENIOR SCIENTIST
DIRECTOR, OCEAN AND CLIMATE CHANGE INSTITUTE
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EDUCATION

1988 B. S., Physics and Astronomy, Brigham Young University
1990: M.S., Aerospace Engineering Sciences, The University of Colorado
1995: Ph.D., Aerospace Engineering Sciences, Program in Atmospheric and Oceanic Sciences, The University of Colorado

PROFESSIONAL EXPERIENCE

2014- Director, Ocean and Climate Change Institute
 Senior Scientist, Physical Oceanography Department
 Woods Hole Oceanographic Institution, Woods Hole, MA

2011-2014 Associate Scientist with Tenure, Physical Oceanography Department
 Woods Hole Oceanographic Institution, Woods Hole, MA

2002-2011 Associate Professor, Department of Meteorology
 Director, Geophysical Fluid Dynamics Institute
 Florida State University, Tallahassee, Florida

2001-2002 Associate Professor, Department of Earth and Atmospheric Sciences
 Purdue University, West Lafayette, Indiana

1995-2001 Assistant Professor, Department of Earth and Atmospheric Sciences
 Purdue University, West Lafayette, Indiana

1988-1995 Graduate Research Assistant, Department of Aerospace Engineering Sciences
 University of Colorado, Boulder, Colorado

RESEARCH INTERESTS

Exchanges of heat, moisture, and momentum between the ocean and the atmosphere. Turbulent boundary layers. Air-sea interaction. Remote sensing of the ocean and the near-surface atmosphere. Ocean and atmosphere modeling. Water cycle variability. Role of small-scale variability on climate scales.

AWARDS

2010 Florida State University Graduate Faculty Mentor Award
2005 Florida State University Developing Scholar Award
2000 Presidential Early Career Award for Scientists and Engineers (PECASE)
2000 ONR Young Investigator Award
1999 Purdue Teaching for Tomorrow Award
1996 NSF CAREER Award

NATIONAL/INTERNATIONAL PROFESSIONAL SERVICE/ACTIVITIES:

COMMITTEE MEMBERSHIPS:

AMS Board of Meteorological and Oceanographic Education in Universities, 2000-2003
AMS Committee on Interaction of the Sea and Atmosphere, 2000 – 2005
AMS Committee on Coastal Environments, 2009 – present
AMS Satellite Meteorology, Oceanography, and Climatology, 2012 – present
US CLIVAR Phenomena, Observation, and Synthesis Panel, 2014 - present

SCIENCE TEAM MEMBERSHIPS:

Member, NASA Sea Surface Temperature Science Team, 2009 - present
Member, NASA Ocean Salinity Science Team, 2014 - present

NATIONAL RESEARCH COUNCIL SERVICE:

Panel on Water Cycle and Water, 2005 – 2007
Board on Atmospheric Sciences and Climate, 2005 – 2009
Committee for Study on TRMM, 2004 – 2006
Committee on Earth Studies, 2002 – 2005

REVIEW BOARDS/COMMITTEES:

Institute of Geophysical and Planetary Physics, Los Alamos National Laboratory, 2009 – present
Univ. of Colo. Aerospace Engineering Sciences' External Advisory Board, 2005 - present
NOAA Cooperative Institute Reviews, 2012
NASA Science Review, 2005

PROJECT LEADS:

Chair, WCRP GEWEX SeaFlux Project, 2005 - present
Chair, Global High Resolution Sea Surface Temperature (GHRSSST) Diurnal Variability Working Group, 2014 - present

OTHER PROFESSIONAL SERVICE/ACTIVITIES:

WHOI OUTREACH: Presentation, WHOI Board of Trustees, 24 May 2012. WHOI Trustee Partner, 2012 - present. Presentation, NYC fundraising trustee event, 28 January 2013. Presentation, Massachusetts Marine Educators, 6 April 2013 at WHOI Redfield Auditorium.

PANEL MEMBER: NASA Physical Oceanography; NSF Physical Oceanography; NSF Atmospheric Science; NOAA Climate Prediction Program of the Americas

WORKSHOP ORGANIZER: GHRSSST (Global High Resolution SST) annual workshop, Woods Hole, MA, June 2013. Joint CLIVAR/SeaFlux Surface Fluxes: Challenges for High Latitudes, Boulder, CO, 2010. SeaFlux 4th Workshop, Amsterdam, The Netherlands, 2007.

JOURNAL REVIEWER: Journal of Atmospheric Sciences; Journal of Geophysical Research (Oceans, Atmospheres); Geophysical Research Letters; Journal of Physical Oceanography; Journal of Climate; Monthly Weather Review; Journal of Atmospheric and Oceanic Technology; Journal of Applied Meteorology; Dynamics of Atmospheres and Oceans; Journal of Applied Meteorology, Remote Sensing of the Environment

ASSOCIATE EDITOR: Monthly Weather Review, 2004 - 2006

INSTITUTIONAL COMMITTEES: WHOI (Institution Level): Scientific Staff Executive Committee (2012 – 2014): serving as Committee Chair 2013. (Departmental Level): Recruitment Committee

SOCIETY MEMBERSHIPS: American Geophysical Union, American Meteorological Society

PROGRAM CHAIR: 12th AMS Conference on Air-Sea Interactions. Science Steering Committee upcoming 2013 EUMETSAT/AMS Satellite Meteorology and Oceanography Conference. Multiple session chairs at AMS, AGU meetings.

REFEREED PUBLICATIONS:

- Emery, W. J., C. Fowler, and C. A. Clayson, 1992. Satellite image-derived Gulf Stream currents compared with numerical model results. *J. Atmos. Ocean. Tech.*, 9, 286-304.
- Kantha, L. H., and C. A. Clayson, 1994. An improved mixed layer model for geophysical applications. *J. Geophys. Res.*, 99, 25,235-25,266.
- Liu, G., J. A. Curry, and C. A. Clayson, 1995. Study of tropical cyclogenesis using satellite data. *Meteorol. Atmos. Phys.*, 56, 111-123.
- Webster, P. J., C. A. Clayson, and J. A. Curry, 1996. Clouds, radiation, and the diurnal cycle of sea surface temperature in the tropical western Pacific. *J. Climate*, 9, 1712-1730.
- Clayson, C.A., J. A. Curry, and C. W. Fairall, 1996. Evaluation of turbulent fluxes at the ocean surface using surface renewal theory. *J. Geophys. Res.*, 101, 28,503-28,513.
- Clayson, C. A., and J. A. Curry, 1996. Determination of surface turbulent fluxes for TOGA COARE: Comparison of satellite retrievals and in situ measurements. *J. Geophys. Res.*, 101, 28,515-28,528.
- Clayson, C. A., and L. H. Kantha, 1999. Turbulent kinetic energy and dissipation rate in the equatorial mixed layer. *J. Phys. Oceanogr.*, 29, 2146-2166.
- J. A. Curry, C. A. Clayson, W. B. Rossow, G. Considine, G. Liu, R. S. Sheu, P. J. Webster, and Y.-C. Zhang, 1999. High-resolution satellite-derived dataset of the surface fluxes of heat, freshwater, and momentum for the TOGA COARE IOP, *Bull. Amer. Meteor. Soc.*, 80, 2059-2080.
- Schrage, J., C. A. Clayson, and B. Strahl, 2001. Statistical properties of episodes of enhanced 2-3 day convection in the Indian and Pacific Oceans. *J. Climate*, 14, 3482-3494.
- Clayson, C.A., B. Strahl, and J. Schrage, 2002. 2-3 day convective variability in the tropical western Pacific. *Mon. Wea. Rev.*, 130, 529-548.
- Clayson, C. A., and A. Chen, 2002. Sensitivity of a coupled single-column model in the tropics to treatment of the interfacial parameterizations. *J. Climate*, 15, 1805-1831.
- Kantha, L.H. and C. A. Clayson, 2004. On the effect of surface gravity waves on mixing in an oceanic mixed layer model. *Ocean Modeling*, 6, 101-124.
- Clayson, C. A., and M. Luneva, 2004. Deep convection in the Sea of Japan: A modeling perspective, *Geophys. Res. Lett.*, 31, L17303, doi:10.1029/2004GL020497.
- Curry, J. A., A. Bentamy, M.A Bourassa, D. Bourras, E.F. Bradley, M. Brunke, S. Castro, S.H. Chou, C.A. Clayson, W.J. Emery, L. Eymard, C.W. Fairall, M. Kubota, B. Lin, W. Perrie, R.R. Reeder, I.A. Renfrew, W.B. Rossow, J. Schulz, S.R. Smith, P.J. Webster, G.A. Wick, X. Zeng, 2004. SEAFUX. *Bulletin of the Amer. Meteorol. Soc.*, 85, 409-424.
- Clayson, C. A. and D. Weitlich, 2005. Interannual variability of tropical Pacific diurnal sea surface temperature warming and nighttime cooling. *Geophys. Res. Lett.*, 2, L21604, doi:10.1029/2005GL023786.
- Carniel, S., Sclavo, M., L. H. Kantha, and C. A. Clayson, 2005. Surface gravity waves and mixing in the upper ocean. *Il Nuovo Cimento*. 28, 33 – 54.

- Krishnamurti, T. N., A. Chakraborty, R. Krishnamurti, W. K. Dewar, and C. A. Clayson, 2006. Seasonal prediction of sea surface temperature anomalies using a suite of 13 coupled atmosphere-ocean models. *J. Climate*, 19, 6069 - 6088.
- Luneva, M., and C. A. Clayson, 2006. Connections between surface fluxes and the deep circulation in the Sea of Japan. *Geophys. Res. Lett.*, 33, L24602, doi:10.1029/2006GL027350.
- Clayson, C. A. and D. Weitlich, 2007. Variability of tropical diurnal sea surface temperature. *J. Climate*, 20, 334-352.
- Kantha, L., and C. A. Clayson, 2007. On leakage of energy from turbulence to internal waves in the oceanic mixed layer. *Ocean Dynamics*, 57, 151 – 156.
- Krishnamurti, T. N., A. Chakraborty, R. Krishnamurti, W. K. Dewar, and C. A. Clayson, 2007. Passage of intraseasonal waves in the sub-surface oceans. *Geophys. Res. Lett.*, 34, L14712, doi:10.1029/2007GL030496.
- Jordan, M. R., T. N. Krishnamurti, and C. A. Clayson, 2008. Investigating the utility of using cross-oceanic training sets for superensemble forecasting of eastern Pacific tropical cyclone track and intensity. *Weather and Forecasting*, 23, 516-522.
- Clayson, C. A., M. Luneva, and P. Cunningham, 2008. Upwelling and downwelling regimes: connections between surface fronts and abyssal circulation. *Dyn. Atmos. Oceans.*, 45, 165-186.
- Clayson, C.A. and L. H. Kantha, 2008. On turbulence and mixing in the free atmosphere. *J. Atmos. Oceanic Tech.*, 25, 833 - 852.
- Jordan, M. R. and C. A. Clayson, 2008. Evaluating the usefulness of a new set of hurricane classification indices. *Mon. Wea. Rev.*, 136, 5234-5238.
- Jordan, M. R. and C. A. Clayson, 2008. A new approach to using wind speed for prediction of tropical cyclone generated storm surge. *Geophys. Res. Lett.*, 35, L13802, doi:10.1029/2008GL033564.
- Gille, S., M. A. Bourassa, and C. A. Clayson, 2010. Surface fluxes: Challenges for high latitudes. *Eos*, 91, (35), 307.
- Krishnamurti T.N., R. Krishnamurti, A.D. Sagadevan, A. Chakraborty, W. K. Dewar, C .A. Clayson, and J. F. Tull 2009. Space-time Structures of Earthquakes. *Met. and Atmos. Phys.*, 105, 69-83.
- Fairall, C., B. Barnier, D. I. Berry, M. A. Bourassa, F. Bradley, C. A. Clayson, G. deLeeuw, W. M. Drennan, S. T. Gille, S. K. Gulev, E. C. Kent, W. R. McGillis, G. D. Quartly, V. Ryabinin, S. R. Smith, R. A. Weller, M. J. Yelland, H. M. Zhang, 2009. Observations to quantify air-sea fluxes and their role in climate variability and predictability. Community White Paper, Ocean Obs '09.
- Roberts, J. B., C. A. Clayson, F. R. Robertson, and D. Jackson, 2010. Predicting near-surface characteristics from SSM/I using neural networks with a first guess approach. *J. Geophys. Res.*, 115, D19113, doi: 10.1029/2009JD013099.
- Romanou, A., G. Tselioudis, C. S. Zerefos, C. A. Clayson, J. A. Curry, and A. Andersson, 2010. Evaporation-precipitation variability over the Mediterranean and the Black Seas from satellite and reanalysis estimates. *J. Climate*, 23, 5268-5287.
- Kantha, L., S. Carniel, C. A. Clayson, and M. Sclavo, 2011. On the use of a simple primary productivity model to assess the skill of a physical ocean model. *Oceanological and Hydrobiological Studies*, 40, 86-95.
- Liu, J., J. A. Curry, C. A. Clayson, and M. A. Bourassa, 2011. High-resolution satellite surface latent heat fluxes in North Atlantic hurricanes. *Monthly Weather Review*, 139, 9, 2735-2747.
- Roberts, J. B., F. R. Robertson, C. A. Clayson, and M. G. Bosilovich, 2011. Characterization of turbulent latent and sensible heat flux exchange between the atmosphere and ocean in MERRA. *J. of Climate*, doi: <http://dx.doi.org/10.1175/JCLI-D-11-00029.1>.

- Stephens, G., J. Li, M. Wild, C. A. Clayson, N. Loeb, S. Kato, T. L'Ecuyer, P. Stackhouse Jr., M. Lebsock, and T. Andrews, 2012: An update on the Earth's energy balance in light of new surface energy flux estimates. *Nature Geosciences*, 5, 691-696, doi:10.1038/ngeo1580.
- Clayson, C.A. and A. Bogdanoff, 2013. The effect of diurnal sea surface temperature warming on climatological air-sea fluxes. *Journal of Climate*, 26, 2546-2556.
- Bourassa, M., S. Gille, S. Bitz, D. Carlson, I. Cerovecki, C. A. Clayson, M. Cronin, W. Drennan, C. Fairall, R. Hoffman, , R. Hoffman, G. Magnusdottir, R. Pinker, I. Renfrew, M. Serreze, K. Speer, L. Talley, and G. Wick, 2013: High-Latitude Ocean and Sea Ice Surface Fluxes: Challenges for Climate Research. *Bull. Amer. Meteorol. Soc.*, 94, 402-423.
- Clayson, C. A., J. B. Roberts, and A. Bogdanoff, 2013: SeaFlux Version 1: a new satellite-based ocean-atmosphere turbulent flux dataset. *Int. J. Climatol.*, revised.
- Roberts, J. B. and C. A. Clayson, 2014: Assessing the closure of the mixed layer temperature balance from observations. Part I: Seasonal variability. *J. Geophys. Res.*, in revision.
- Clayson, C. A. and J. Brown, 2014: Connections between the Madden-Julian Oscillation and diurnal warming of the sea surface temperature. *J. Climate*, in revision.
- Bogdanoff, A. S., D. L. Westphal, J. R. Campbell, J. A. Cummings, E. J. Hyer, J. S. Reid, and C. A. Clayson, 2014: Impact of airborne dust on sea surface temperature retrievals, *Rem. Sens. Environment*, revised.
- Luneva, M. V., C. A. Clayson, M. S. Dubovikov, and V. M. Canuto, 2014: Assessment of mixed layer mesoscale parameterization in eddy resolving simulations. *Geophysical and Astrophysical Fluid Dynamics*, in revision.
- L'Ecuyer, T., H. K. Beaudoin, M. Rodell, W. Olson, B. Lin, S. Kato, C. A. Clayson, E. Wood, J. Sheffield, R. Adler, G. Huffman, M. Bosilovich, G. Gu, F. Robertson, P. Houser, D. Chambers, J. Famiglietti, E. Fetzer, W. T. Liu, X. Gao, C. A. Schlosser, E. Clark, D. Lettenmeier, and M. Hilburn, 2014: The observed state of the energy budget in the early 21st century. *J. Climate*, submitted.
- Rodell, M., H. K. Beaudoin, T. S. L'Ecuyer, W. S. Olson, J. S. Famiglietti, P. R. Houser, R. Adler, M. Bosilovich, C. A. Clayson, D. Chambers, E. Clark, E. J. Fetzer, X. Gao, G. Gu, K. Hilburn, G. Huffman, D. P. Lettenmaier, W. T. Liu, F. R. Robertson, C. A. Schlosser, J. Sheffield, E. F. Wood, 2014: The observed state of the water cycle in the early 21st century. *J. Climate*, submitted.

BOOKS:

- Kantha, L. H., and C.A. Clayson, 2000: *Numerical Models of Oceans and Oceanic Processes*. International Geophysics Series, Volume 66. Foreword by Kirk Bryan. Academic Press, pp. 940.
- Kantha, L. H., and C.A. Clayson, 2000: *Small Scale Processes in Geophysical Flows*. International Geophysics Series, Volume 67. Foreword by Walter Munk. Academic Press, pp. 888.

BOOK CHAPTERS:

- Overland, J. E., S. Solo, L. H. Kantha, and C.A. Clayson, 1999: Thermal stratification and mixing on the Bering Shelf, in *Dynamics of the Bering Sea*, T. Loughlin and K. Ohtani, eds. University of Alaska Sea Grant, Alaska.
- Kantha, L. H. and C. A. Clayson, 2002: Ocean Mixed Layer, in *Encyclopedia of Atmospheric Sciences*, J. R. Holton, J. A. Pyle, and J. A. Curry, eds. Elsevier Science, 2002.

NATIONAL RESEARCH COUNCIL REPORTS:

Steps to Facilitate Principal Investigator-led Earth Science Missions. National Academies Press, 2004. 80 pp.

Assessment of the Benefits of Extending the Tropical Rainfall Measuring Mission: A Perspective from the Research and Operations Communities, Interim Report. National Academies Press, 2004. 104 pp.

NOAA's Role in Space-Based Global Precipitation Estimation and Application. National Academies Press, 2006. 122 pp.

Earth Science and Applications from Space: National Imperatives for the Next Decade and Beyond, National Academies Press, 2007.

Review of the U.S. Climate Change Science Program's Synthesis and Assessment Product 5.2, "Best Practice Approaches for Characterizing, Communicating, and Incorporating Scientific Uncertainty in Climate Decision Making", 2007. (LEAD AUTHOR)

PATENTS:

Clayson, Carol Anne; and Kantha, Lakshmi, granted 31 August 2010. "Systems and methods for determining turbulence and turbulent mixing in the free atmosphere". US Patent 7788035.

INVITED PRESENTATIONS:

Department of Atmospheric Sciences, Colorado State University, April 19, 1996, Diurnal Variability in the Upper Ocean and Air-sea Fluxes during TOGA COARE.

Department of Geography, Indiana University, November 21, 1997, Title: Air-Sea interaction in the tropical Pacific.

GEWEX/CLIVAR Workshop on Climate Feedbacks, Atlanta, GA, 18 November 2002, Title: Feedback examination using Granger causality.

NASA Goddard Institute for Space Studies, New York, NY, 27 November 2003, Title: Deep convection in the Sea of Japan.

Office of Naval Research Southeast Meeting, St. Petersburg, FL, 11 May 2004, Title: Deep convection in the Japan (East) Sea: A modeling study.

Sixteenth GEWEX Radiation Panel Session, Paris, France, 5 October 2005, Title: SEAFLUX: Status report.

National Research Council Panel on Water Resources and the Hydrologic Cycle, Irvine, CA, 29 August 2005, Title: Ocean evaporation.

Department of Physics, Florida State University, 22 September, 2005. Title: The ocean boundary layer: How small-scale processes affect our climate.

Office of Naval Research Southeast Meeting, Miami, FL, 15 March 2006. Title: Frontal dynamics and deep mixing in the Sea of Japan.

7th GHRSSST-PP Science Team Meeting, Boulder, CO, 28 March 2006. Title: Diurnal warming and SST requirements from SEAFLUX.

Earth and Atmospheric Sciences Department, Georgia Institute of Technology, GA, 25 August 2006. Title: Oceanic and Atmospheric Deep Convection.

First Pan-GEWEX Meeting. European Space Agency, Frascati, Italy, 11 October 2006. Title: SEAFLUX Intercomparison Project.

Joint EUMETSAT Meteorological Satellite Conference and 15th AMS Satellite Met. And Oceanogr. Conference, Amsterdam, The Netherlands, 26 September 2007. (Keynote). Title: An overview of SeaFlux: New science and methods in air-sea fluxes.

International Public Seminar Series, sponsored by the Space Studies Board of the National Research Council. Tallahassee, FL, January 16, 2008. Title: Using satellite observations for meteorological events.

Using a new Storm Surge Index to Evaluate Changes in Surge Associated With Possible Climate Changes. *Eos Trans. AGU* 89(23), Jt. Assem. Suppl., Abstract U33C-03, AGU Joint Assembly, Ft. Lauderdale, FL.

Uncertainties in surface fluxes: The way forward. 12th U.S.-Japan Workshop on Global Change. Hosted by NSF and MEXT. Boulder/Broomfield, Colorado, 2 July 2008.

Modeling deep convection in the Sea of Japan. University of South Carolina, 6 February 2009.

SeaFlux needs and Sea Surface Temperature. 5th Diurnal Variability Working Group meeting. Rome, Italy, 24 February 2009.

Current issues in deriving surface air-sea fluxes from satellites and models. 2009 Scatterometry and Climate Meeting, Arlington, VA, 19 August 2009.

Project Status Report – SeaFlux. 2009 Meeting of GRP Working Group on Data Management and Analysis, College Park, MD, 3 September 2009.

An update on the SeaFlux project. 20th International GEWEX Radiation Panel meeting, Rostock, Germany, 14 October 2009.

SeaFlux Dataset Version 1.0 *NASA Energy and Water Cycle PI meeting*, Baltimore, MD, 2 December 2009.

Ocean wind and other near-surface properties from SSM/I. *NOAA 2010 Workshop on Climate Data Records from Satellite Microwave Radiometry*, Silver Spring, MD, March 23.

High-frequency feedbacks between the ocean and atmosphere: Effects on longer time scales. *Physical Oceanography*, Woods Hole Oceanographic Institution, Falmouth, MA, May 11, 2010.

SeaFlux update. *2nd Pan-GEWEX Science Meeting*, Seattle, WA, August 2010.

SeaFlux and the Water Cycle. *5th Workshop of the International Precipitation Working Group*. Hamburg, Germany, October 2010.

New developments and remaining issues with satellite-derived air-sea flux climatologies (Plenary talk). *2010 EUMETSAT Meteorological Satellite Conference*, Cordoba, Spain, September 2010.

Ocean surface fluxes. *US CLIVAR Workshop on Evaluation of Reanalyses -- Developing an Integrated Earth System Analysis (IESA) Capability*. Baltimore, MD, November 2010.

High-frequency extremes and feedbacks between the ocean and atmosphere. *City College of New York, Department of Electrical Engineering*, New York, NY, 8 March 2011.

Sources of error in satellite-derived air-sea fluxes. *2011 GHRSSST XII Science Team Meeting*, Edinburgh, Scotland, June 2011.

Thoughts on satellite-derived air-sea fluxes. *ESPC Data Assimilation Workshop*. Baltimore, MD 28 September 2011.

Recent developments in the physics of air-sea exchanges (Keynote, plenary presentation). *Surface Ocean Lower Atmosphere Study (SOLAS) Open Science Conference*, Cle Elum, WA May 2012.

High-frequency feedbacks between the ocean and atmosphere. Graduate School of Oceanography, University of Rhode Island, Narragansett, RI 9 November 2012.

Lessons learned from the 2007 NASA Decadal Survey. *Water Cycle Missions for the Next Decade workshop*, Baltimore, MD, 29 April 2013.

Surface Turbulent Heat Fluxes. *CERES Science Team Meeting*, NASA Langley Research Center, Hampton, VA, 8 May 2013.

Turbulence parameters from HVRRD. *Workshop on Research Applications of HVRRD*, Stony Brook University, Stony Brook, NY, 27 May 2013.

Air-sea fluxes of heat, freshwater, and momentum over the global ocean, including SeaFlux. *CLIVAR/ESA Earth Observation Measurement Constraints on Ocean Heat Budget*. University of Reading, Reading, UK. 3 July 2013.

High-frequency feedbacks between the ocean and atmosphere. Los Alamos National Laboratory, Los Alamos, NM 12 July 2013.

Observing the SST from space: what we have learned about the ocean's impact on the climate system from looking at the surface. *2013 AGU Fall Meeting*, San Francisco, CA, 12 December 2013.

Air-sea satellite flux datasets and what they do (and don't) tell us about the air-sea interface in the Southern Ocean. *Workshop on Clouds, Aerosols, Radiation and Air-Sea Interface of the Southern Ocean: Establishing Directions for Future Research*. University of Washington, Seattle, WA 18 March 2014.

CRUISE ACTIVITY:

Roundabout Leg 18, Seamounts/Sea Beam, onboard R/V Thomas Washington. Honolulu, HI – San Diego, CA, May 3 – May 30, 1989. Performed XBT survey of Fieberling Guyot.

GRADUATE STUDENTS AND POST-DOCS ADVISED:

Past: Brian Strahl (M.S., Purdue), Kimberly Waugh (M.S., Purdue), Brian Getzewich (M.S., Purdue), Heidi Zeleznik (M.S., Purdue), Shalini Mohleji (M.S., Purdue), Derrick Weitlich (M.S., Purdue), Aidong Chen (Ph.D., Purdue), Michael Hanggi (M.S., FSU), Jorge Lopez (M.S., FSU), Christine Haman (M.S., FSU), Bryan Rahter (M.S., FSU), Buddy Jordan (Ph.D., FSU), Jeremiah Brown (Ph.D., FSU), Alec Bogdanoff (M.S., FSU), Rebecca Hunniford (M.S., FSU), Rob Deal (M.S., FSU), Brent Roberts (Ph.D., FSU), H. Winterbottom (Ph.D., FSU).

Current: Alec Bogdanoff (Ph.D., MIT/WHOI).

Postdocs Advised: Jon Schrage, Maria Luneva, Gauher Shaheen.

COURSES TAUGHT:

At Purdue:

ATMS 535, Boundary Layer Meteorology (Cross-listed undergraduate/graduate)

ATMS 403, Physical Oceanography (undergraduate)
GEOS 191 (later GEOS 109), The Dynamic Earth (undergraduate)
ATMS 230, Survey of Atmospheric Science (undergraduate)
ATMS 591C, Numerical Ocean Modeling (graduate)
ATMS 591, Small-Scale Processes (graduate)

At FSU:

OCP 5551, Physics of the Air-Sea Boundary Layers
MET 6480A, Atmospheric Turbulence
MET 1010, Introduction to the Atmosphere
MET 4159, Boundary Layer Meteorology
MET 6480B, Satellite Oceanography

In MIT/WHOI Joint Program:

12.820 Turbulence in the Atmosphere and Oceans

COMMUNITY OUTREACH TALKS:

Ocean evaporation and Earth's changing water cycle. Presentation to the Massachusetts Marine Educators, Woods Hole, MA 6 April 2013.

The importance of oceans to climate variability. Presentation to the Tennessee Environmental Conference, Kingsport, TN 25 March 2014.

A dialog on our ability to predict the climate. Presentation to Eastman Chemical Company, Kingsport, TN, 26 March 2014.

The ocean's impact on water variability. Presentation to the Scituate Science Symposium, Scituate, MA 10 April 2014.

NON-REFEREED PUBLICATIONS/CONFERENCE PROCEEDINGS:

Clayson, C. A., 1993: Impact of westerly wind bursts on surface fluxes as determined from satellite data. *20th Conference on Hurricanes and Tropical Meteorology*, San Antonio, TX, Amer. Meteor. Soc.

Curry, J. A., C. A. Clayson, W. B. Rossow, Y. Zhang, and P. J. Webster, 1993: Determination of the tropical sea surface energy balance from satellite. *20th Conference on Hurricanes and Tropical Meteorology*, San Antonio, TX, Amer. Meteor. Soc., 591-594.

Wick, G. A., C. A. Clayson, W. J. Emery, and J. A. Curry, 1994: The relationship between sea surface temperature, bulk temperature and surface heat fluxes in the tropical Pacific. *Seventh Conference on Satellite Meteorology and Oceanography* Monterey, CA, Amer. Meteor. Soc., 3-5.

Clayson, C. A., and J. A. Curry, 1996: Determination of the diurnal cycle of sea surface temperature from satellite in the tropical western Pacific Ocean. *Conference on Air/Sea Interactions*, Atlanta, GA, Amer. Meteor. Soc.

Webster, P. J., C. A. Clayson, and J. A. Curry, 1996: Clouds, radiation, and the diurnal cycle of sea surface temperature in the tropical western Pacific. *Conference on Air/Sea Interactions*, Atlanta, GA, Amer. Meteor. Soc.

Clayson, C. A., J. A. Curry, P. J. Webster, and L. H. Kantha, 1996: Impact of Precipitation on the Tropical Ocean Mixed Layer. *Conference on Air/Sea Interactions*, Atlanta, GA, Amer. Meteor. Soc.

- Curry, J. A., C. A. Clayson, and W. B. Rossow, 1997: An integrated approach to determining tropical ocean surface heat flux components from satellite. *22nd Conference on Hurricanes and Tropical Meteorology*, Fort Collins, CO, Amer. Meteor. Soc., 682-683.
- Clayson, C. A., A. Chen, L. H. Kantha, and P. J. Webster, 1997: Numerical simulations of the equatorial Pacific during the TOGA/COARE IOP. *22nd Conference on Hurricanes and Tropical Meteorology*, Fort Collins, CO, Amer. Meteor. Soc., 600-601.
- Chen, A., C. A. Clayson, and J. A. Curry, 1998: A study of air-sea interaction in the TOGA-COARE region using a single-column model. *Ninth Conference on Interaction of the Sea and Atmosphere*, Phoenix, AZ, Amer. Meteor. Soc.
- Johnson, T. and C. A. Clayson, 1998: The use of instructional simulations and web-based interactivity for teaching numerical ocean modeling. *Seventh Symposium on Education*, Phoenix, AZ, Amer. Meteor. Soc.
- Schrage, M. M., D. G. Vincent, A. Fink, and C. A. Clayson, 1999: Modulation of intraseasonal (25-70 day) processes by the superimposed ENSO cycle across the Pacific basin. *AMS Annual Conference*, Dallas, TX.
- Strahl, B., C. A. Clayson, and J. Schrage, 2000: 2-3 Day convective variability in the tropical Pacific. *AMS 24th Conference on Hurricanes and Tropical Meteorology*, Ft. Lauderdale, FL.
- Zeleznik, H. and C. A. Clayson, 2000: Upper ocean heat and salt variability in the equatorial Pacific. *AMS 10th Conference on Interaction of the Sea and Atmosphere*, Ft. Lauderdale, FL.
- Clayson, C. A. and M. Luneva, 2002: Studies of deep convection processes using a numerical ocean model: The Japan (East) Sea. *AGU Ocean Sciences*, Honolulu, HI.
- Mohleji, S. and C. A. Clayson, 2002: Precipitation variability and barrier-layer formation in the North Indian Ocean. *AMS 25th Conference on Hurricanes and Tropical Meteorology*, San Diego, CA.
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- Chen, A. and C. A. Clayson, 2002: Sensitivity of a coupled single column model in the tropics to treatment of the interfacial parameterizations. *AMS 25th Conference on Hurricanes and Tropical Meteorology*, San Diego, CA.
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