

CURRICULUM VITAE

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BIRTH: July 6, 1958 Cleveland, Ohio

DEGREES: 1980 B.S. in Physical Oceanography
Florida Institute of Technology

1986 Ph.D. in Physical Oceanography
Scripps Institution of Oceanography, UCSD

POSITIONS HELD:

2000-present Research Oceanographer
Senior Lecturer in Climate Sciences

2007-present Co-Director, Climate, Atmospheric Science, and Physical Oceanography (CASPO) Division
Scripps Institution of Oceanography

2000-2007 Associate Director, Climate Research Division
Scripps Institution of Oceanography

1996-2000 Associate Research Oceanographer
Lecturer in Climate Sciences
Climate Research Division, Scripps Institution of Oceanography

1992-1994 Scientist (while on leave from SIO)
SACLANT Undersea Research Centre, La Spezia, Italy

1991 Orson Anderson Visiting Scholar
IGPP, Los Alamos National Laboratory

1988 Lecturer (while at SIO)
Department of Geography, San Diego State University

1988-1996 Assistant Research Oceanographer
Climate Research Division, Scripps Institution of Oceanography

1986-1988 Andrew W. Mellon Foundation Postdoctoral Fellow
Climate Research Group, Scripps Institution of Oceanography

1980-1986 Research Assistant
Institute of Geophysics and Planetary Physics
Scripps Institution of Oceanography

1980 Physicist
Naval Research Laboratory, Orlando, Florida

PROFESSIONAL

SOCIETIES: American Meteorological Society, American Geophysical Union
The Oceanography Society

DISSERTATION:

Miller, A. J., 1986. Barotropic planetary-topographic oscillations in ocean basins. Ph.D. dissertation. Scripps Institution of Oceanography, University of California, San Diego, 133 pp.

REFEREED PUBLICATIONS:

Miller, A. J., 1986: Non-divergent planetary oscillations in mid-latitude ocean basins with continental shelves. *Journal of Physical Oceanography*, **16**, 1914-1928.

Miller, A. J., W. R. Holland and M. C. Hendershott, 1987: Open-ocean response and normal mode excitation in an eddy-resolving general circulation model. *Geophysical & Astrophysical Fluid Dynamics*, **37**, 253-278.

Miller, A. J., 1989: On the barotropic planetary oscillations of the Pacific. *Journal of Marine Research*, **47**, 569-594.

Miller, A. J. and J. O. Roads, 1990: A simplified coupled model of extended-range predictability. *Journal of Climate*, **3**, 523-542.

Miller, A. J., 1992: Large-scale ocean-atmosphere interactions in a simplified coupled model of the midlatitude wintertime circulation. *Journal of the Atmospheric Sciences*, **49**, 273-286.

Miller, A. J., 1992: On forced barotropic vorticity oscillations. *Journal of Physical Oceanography*, **22**, 808-810.

Miller, A. J., J. M. Oberhuber, N. E. Graham and T. P. Barnett, 1992: Tropical Pacific Ocean response to observed winds in a layered ocean general circulation model. *Journal of Geophysical Research*, **97**, 7317-7340.

Miller, A. J., D. S. Luther and M. C. Hendershott, 1993: The fortnightly and monthly tides: Resonant Rossby waves or nearly equilibrium gravity waves? *Journal of Physical Oceanography*, **23**, 879-897.

Miller, A. J., T. P. Barnett and N. E. Graham, 1993: A comparison of some tropical ocean models: Hindcast skill and El Niño evolution. *Journal of Physical Oceanography*, **23**, 1567-1591.

Miller, A. J., D. R. Cayan, T. P. Barnett, N. E. Graham and J. M. Oberhuber, 1994: Interdecadal variability of the Pacific Ocean: Model response to observed heat flux and wind stress anomalies. *Climate Dynamics*, **9**, 287-302.

Miller, A. J., D. R. Cayan, T. P. Barnett, N. E. Graham and J. M. Oberhuber, 1994: The 1976-77 climate shift of the Pacific Ocean. *Oceanography*, **7**, 21-26.

Miller, A. J., H. G. Arango, A. R. Robinson, W. G. Leslie, P.-M. Poulain and A. Warn-Varnas, 1995: Quasigeostrophic forecasting and physical processes of Iceland-Faroe Frontal variability. *Journal of Physical Oceanography*, **25**, 1273-1295.

Miller, A. J., P.-M. Poulain, A. R. Robinson, H. G. Arango, W. G. Leslie and A. Warn-Varnas, 1995: Quantitative skill of quasigeostrophic forecasts of a baroclinically unstable Iceland-Faroe Front. *Journal of Geophysical Research*, **100**, 10,833-10,849.

Cayan, D. R., A. J. Miller, T. P. Barnett, N. E. Graham, J. N. Ritchie and J. M. Oberhuber, 1995: Seasonal-interannual fluctuations in surface temperature over the Pacific: Effects of monthly winds and heat fluxes. In: *Natural Climate Variability on Decadal-to-Century Time Scales*, National Academy Press, pp. 133-150

Robinson, A. R., H. G. Arango, A. J. Miller, P.-M. Poulain, A. Warn-Varnas and W. G. Leslie, 1996: Real time operational forecasting on shipboard of the Iceland-Faroe frontal variability. *Bulletin of the American Meteorological Society*, **77**, 243-259.

- Robinson, A. R., H. G. Arango, A. Warn-Varnas, W. G. Leslie, A. J. Miller, P. J. Haley and C. J. Lozano, 1996: Real-time regional forecasting. In: *Modern Approaches to Data Assimilation in Ocean Modeling*, P. Malanotte-Rizzoli, ed., Elsevier Science, B.V., pp. 377-410.
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- Miller, A. J., P. F. G. Lermusiaux and P.-M. Poulain, 1996: A topographic-Rossby mode resonance over the Iceland-Faeroe Ridge. *Journal of Physical Oceanography*, **26**, 2735-2747.
- Miller, A. J., W. B. White and D. R. Cayan, 1997: North Pacific thermocline variations on ENSO time scales. *Journal of Physical Oceanography*, **27**, 2023-2039.
- Miller, A. J., D. R. Cayan and W. B. White, 1998: A westward-intensified decadal change in the North Pacific thermocline and gyre-scale circulation. *Journal of Climate*, **11**, 3112-3127.
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- Miller, A. J. and B. D. Cornuelle, 1999: Forecasts from fits of frontal fluctuations. *Dynamics of Atmospheres and Oceans*, **29**, 305-333.
- Schneider, N., S. Venkze, A. J. Miller, D. Pierce, T. Barnett, C. Deser and M. Latif, 1999: Pacific thermocline bridge revisited. *Geophysical Research Letters*, **26**, 1329-1332.
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- Miller, A. J. and N. Schneider, 2000: Interdecadal climate regime dynamics in the North Pacific Ocean: Theories, observations and ecosystem impacts. *Progress in Oceanography*, **47**, 355-379.
- Miller, A. J., E. Di Lorenzo, D. J. Neilson, B. D. Cornuelle and J. R. Moisan, 2000: Modeling CalCOFI Observations during El Niño: Fitting physics and biology. *California Cooperative Oceanic Fisheries Investigations Reports*, **41**, 87-97.
- Auad, G., A. J. Miller, J. O. Roads and D. R. Cayan, 2000: Pacific Ocean wind stresses and surface heat fluxes from the NCEP Reanalysis and observations: Cross-statistics and ocean model responses. *Journal of Geophysical Research*, **106**, 22,249-22,265.
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- Schneider, N., A. J. Miller and D. W. Pierce, 2002: Anatomy of North Pacific decadal variability. *Journal of Climate*, **15**, 586-605.
- Miller, A. J., M. A. Alexander, G. J. Boer, F. Chai, K. Denman, D. J. Erickson, R. Frouin, A. J. Gabric, E. A. Laws, M. R. Lewis, Z. Liu, R. Murtugudde, S. Nakamoto, D. J. Neilson, J. R. Norris, J. C. Ohlmann, R. I. Perry, N. Schneider, K. M. Shell, and A. Timmermann, 2003: Potential feedbacks between Pacific Ocean ecosystems and interdecadal climate variations. *Bulletin of the American Meteorological Society*, **84**, 617-633.
- McGowan, J. A., S. J. Bograd, R. J. Lynn and A. J. Miller, 2003: The biological response to the 1977 regime shift in the California Current. *Deep-Sea Research*, **50**, 2567-2582.

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- Miller, A. J., F. Chai, S. Chiba, J. R. Moisan and D. J. Neilson, 2004: Decadal-scale climate and ecosystem interactions in the North Pacific Ocean. *Journal of Oceanography*, /twb 60, 163-188.
- Moore, A. M., H. G. Arango, E. Di Lorenzo, B. D. Cornuelle, A. J. Miller and D. J. Neilson, 2004: A comprehensive ocean prediction and analysis system based on the tangent linear and adjoint of a regional ocean model. *Ocean Modelling*, **7**, 227-258.
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- Auad, G., A. J. Miller, and J. O. Roads, 2004: Pacific Ocean forecasts. *Journal of Marine Systems*, **45**, 75-90.
- Moisan, J. R., A. J. Miller, E. Di Lorenzo and J. Wilkin, 2005: Modeling and data assimilation. In: *Remote Sensing in Coastal Aquatic Environments*, R. L. Miller, C. E. Del Castillo, and B. A. McKee, Eds., Springer, Dordrecht, The Netherlands, pp. 229-257.
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- Miller, A. J., E. Di Lorenzo, D. J. Neilson, H.-J. Kim, A. Capotondi, M. A. Alexander, S. J. Bograd, F. B. Schwing, R. Mendelssohn, K. Hedstrom and D. L. Musgrave, 2005: Interdecadal changes in mesoscale eddy variance in the Gulf of Alaska circulation: Possible implications for the Steller sea lion decline. *Atmosphere-Ocean*, **43**, 231-240.
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- Capotondi, A., M. A. Alexander, C. Deser and A. J. Miller, 2005: Low-frequency pycnocline variability in the Northeast Pacific. *Journal of Physical Oceanography*, **35**, 1403-1420.
- Seo, H., M. Jochum, R. Murtugudde and A. J. Miller, 2006: Effect of ocean mesoscale variability on the mean state of tropical Atlantic climate. *Geophysical Research Letters*, **33**, L09606, doi:10.1029/2005GL025651.
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- Auad, G., A. Miller, and E. Di Lorenzo, 2006: Long term forecast of oceanic conditions off California and biological implications. *Journal of Geophysical Research-Oceans*, **111**, C09008, doi:10.1029/2005JC003219.
- Miller, A. J., A. J. Gabric, J. R. Moisan, F. Chai, D. J. Neilson, D. W. Pierce, and E. Di Lorenzo, 2006: Global change and oceanic primary productivity: Effects of ocean-atmosphere-biological feedbacks. *Global Climate Change and Response of the Carbon Cycle in the Equatorial Pacific and Indian Oceans and Adjacent Land Masses*, H. Kawahata and Y. Awaya, eds., Elsevier Oceanography Series, **73**, pp. 29-65.
- Trites, A. W., A. J. Miller, H. D. G. Maschner, M. A. Alexander, S. J. Bograd, J. A. Calder, A. Capotondi, K. O. Coyle, E. Di Lorenzo, B. P. Finney, E. J. Gregr, C. E. Grosch, S. R. Hare, G. L. Hunt, J. Jahncke, N. B. Kachel, H.-J. Kim, C. Ladd, N. J. Mantua, C. Marzban, W. Maslowski, R. Mendelssohn, D. J. Neilson, S. R. Okkonen, J. E. Overland, K. L. Reedy-Maschner, T. C. Royer, F. B. Schwing, J. X. L. Wang and A. J. Winship, 2006: Bottom-up forcing and the decline of Steller sea lions in Alaska: Assessing the ocean climate hypothesis. *Fisheries Oceanography*, **16**, 46-67.

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- Seo, H., A. J. Miller and J. O. Roads, 2006: The Scripps Coupled Ocean-Atmosphere Regional (SCOAR) model, with applications in the eastern Pacific sector, *Journal of Climate*, **20**, 381-402.
- Kim, H.-J. and A. J. Miller, 2006: Did the thermocline deepen in the southern California Current after the 1976-77 climate regime shift? *Journal of Physical Oceanography*, **37**, 1733-1739.
- Seo, H., M. Jochum, R. Murtugudde, A. J. Miller and J. O. Roads, 2007: Feedback of Tropical Instability Wave-induced atmospheric variability onto the ocean. *Journal of Climate*, **20**, 5842-5855.
- Alexander, M., A. Capotondi, A. Miller, F. Chai, R. Brodeur and C. Deser, 2007: Decadal variability in the Northeast Pacific in a physical-ecosystem model: The role of mixed layer depth and trophic interactions. *Journal of Geophysical Research*, in press.
- Miller, A. J., D. J. Neilson, D. S. Luther, M. C. Hendershott, B. D. Cornuelle, P. F. Worcester, M. A. Dzieciuch, B. D. Dushaw, B. M. Howe, J. C. Levin, H. G. Arango and D. B. Haidvogel, 2007: Barotropic Rossby wave radiation from a model Gulf Stream. *Geophysical Research Letters*, in press.
- Seo, H., M. Jochum, R. Murtugudde, A. J. Miller and J. O. Roads, 2007: Precipitation from African Easterly Waves in a coupled model of the tropical Atlantic. *Journal of Climate*, in press.
- Haidvogel, D. B., H. Arango, W. P. Budgell, B. D. Cornuelle, E. Curchitser, E. Di Lorenzo, K. Fennel, W. R. Geyer, A. J. Hermann, L. Lanerolle, J. Levin, J. C. McWilliams, A. J. Miller, A. M. Moore, T. M. Powell, A. F. Shchepetkin, C. R. Sherwood, R. P. Signell, John C. Warner, and J. Wilkin, 2007: Regional ocean forecasting in terrain-following coordinates: model formulation and skill assessment. *Journal of Computational Physics*, accepted pending minor revisions.
- Muccino, J. C., H. G. Arango, A. B. Bennett, B. S. Chua, B. D. Cornuelle, E. Di Lorenzo, G. D. Egbert, D. Haidvogel, L. Hao, J. C. Levin, A. J. Miller, A. M. Moore and E. D. Zaron, 2007: The Inverse Ocean Modeling System. II: Applications. *Journal of Atmospheric and Oceanic Technology*, *sub judice*.
- Moore, A. M., H. G. Arango, E. Di Lorenzo, A. J. Miller and Bruce D. Cornuelle, 2007: An adjoint sensitivity analysis of the Southern California Current circulation and ecosystem. Part I: The physical circulation. *Journal of Physical Oceanography*, *sub judice*.
- Overland, J., J. Alheit, A. Bakun, J. Hurrell, D. L. Mackus and A. J. Miller, 2007: Climate controls on marine ecosystems and fish populations. *Journal of Marine Systems*, *sub judice*.
- Di Lorenzo, E., N. Schneider, K. M. Cobb, P. J. S. Franks, K. Chhak, A. J. Miller, J. C. McWilliams, S. J. Bograd, H. Arango, E. Curchitser, T. M. Powell and P. Riviere, 2007: North Pacific Gyre Oscillation links ocean climate and ecosystem change. *Geophysical Research Letters*, *sub judice*.

SCIENTIFIC SERVICE:

Editorial Board, *Atmospheric Science Letters*, Royal Meteorological Society (2000-present)

Special Issue Editorial Board, *Journal of Oceanography*, The Oceanographic Society of Japan (2002)

Reviewer for *Journal of Physical Oceanography*, *Journal of Climate*, *Journal of Geophysical Research*, *Tellus*, *Monthly Weather Review*, *Dynamics of Atmospheres and Oceans*, *Geophysical Research Letters*, *Journal of the Atmospheric Sciences*, *Fisheries Oceanography*, *Journal of Marine Systems*, *Progress in Oceanography*, *Fisheries Oceanography*, *Oceanologica Acta*, *EOS*, *Deep-Sea Research*, *Conservation Biology*, *Canadian Journal of Fisheries and Aquatic Sciences*, *Journal of Marine Research*, *International Journal of Remote Sensing*, *Bulletin of the American Meteorological Society*, *Journal of Oceanography*, *Oceanography*, *Journal of Oceanic and Atmospheric Technology*, *ICES Journal of Marine Science*, *United Nations University Press*, and *Cambridge University Press*.

Reviewer for NSF, NOAA, NASA, PFRP, NPRB, CEC, IRI, NCAR, NERC (UK), and BSF (Israel-USA)

Panelist for NSF Ocean Sciences (1996), NSF GLOBEC (2004) and NOAA CLIVAR Program (2001)

Member, U.S. GLOBEC Scientific Steering Committee (2004-present)

Member, VAMOS Ocean-Cloud-Atmosphere-Land Study (VOCALS) Modeling Group (2004-present)

Member, PICES Evaluations of Climate Change Projections Working Group (2005-present)

Member, Bering Ecosystem Study (BEST) Scientific Steering Committee (2005-2007)

Member, U.S. CLIVAR Pacific Sector Implementation Panel (2002-2005)

Overview Advisory Group, GLOBEC Climate Impacts on Open Ocean Top Predators Program (2003-2004)

Committee on Academic Personnel, Scripps Institution of Oceanography (1998-2001, 2005-present)

Supervisor, SIO Climate Computing Facility (2000-present)

SIO Climate Research Division Seminar Series Coordinator (1998-present)

Surfside Climate Workshop Co-organizer: "California Current Modeling and Observations" (1999)
"Oceanic Ecosystem Feedbacks with Interdecadal Climate Variability" (2001)

Climate-Culture Workshop Co-organizer: "Impacts of Climate Variability on Cultural Development in Peru and the Andes" (2003)

CIFAR Synthesis Workshop Co-organizer: "The Climate Regime Shift Hypothesis and the Decline of the Steller Sea Lion Population" (2003)

Art-Science Workshop co-organizer: "The Confluence of Art, Music, Science and the Environment" (2006)

Organizer: "Hendershott Symposium" (2006)

Interviewed by numerous local, national, and international newspaper, magazine, radio, and television reporters (1995-present)

TEACHING ACTIVITIES:

Instructor, Introduction to Meteorology, Geography 103, SDSU (1988)

Postdoctoral advisor to:

Guillermo Auad, SIO (1996-2001)

Doctoral advisor to:

Emanuele Di Lorenzo, Climate Sciences, SIO (Ph.D. 2003)

Hyodae Seo, Climate Sciences, SIO (Ph.D., 2007)

Hey-Jin Kim, Climate Sciences, SIO (2002-present)

Dian Putrasahan, Climate Sciences, SIO (2005-present)

Ha Joon Song, Climate Science, SIO (2005-present)

Aneesh Subramanian, Climate Sciences, SIO (2006-present)

Doctoral committee member to:

Xiang San Liang, Applied Mathematics, Harvard University (Ph.D. 2002)

Thomas Reichler, Climate Sciences, SIO (Ph.D., 2002)

Catherine Johnson, Biological Oceanography, SIO (Ph.D. 2003)

David Field, Biological Oceanography, SIO (Ph.D. 2004)

Ehecatl Muñoz-Mejía, Fisheries Ecology, CIBNOR, La Paz, Mexico, (2002-2005)

Chih-Hao Zac Hsieh, Biological Oceanography (Ph.D. 2006)

Elena Brambilla, Physical Oceanography, (Ph.D. 2006)

Elizabeth Douglass, Physical Oceanography, (Ph.D. 2007)

Alex Ruane, Climate Sciences, (Ph.D. 2007)

Daniel Birch, Physical Oceanography, (Ph.D., 2007)

Masters committee chair to:

Gino Passalacqua, Climate Sciences, (2005-present)

Masters committee member to:

Miles Woodard, Climate Sciences, (2005-present)

SIO Climate Sciences Curriculum Open House Coordinator (1998, 1999, 2004, 2005, 2006, 2007)

CURRENT RESEARCH FUNDING:

Decadal Coupled Ocean-Atmosphere Interactions in the North Pacific (NSF)

- with N. Schneider (Hawaii)

Dynamics of Ocean Climate Changes in the Gulf of Alaska (NSF)

- with M. Alexander (NOAA), A. Capotondi (Colorado) and E. Di Lorenzo (GaTech)

LTFR: Nonlinear transitions in the California Current Coastal Pelagic Ecosystem (NSF)

- with M. Ohman (SIO) et al.

ROMS Data Assimilation Tools and Techniques (ONR)

- with B. Cornuelle (SIO)

Modeling, Assimilating and Predicting Physical-Biological Variations of the California Current (NASA)

- with E. Di Lorenzo (GaTech) and J. Moisan (NASA)

Experimental Climate Prediction Center (NOAA)

- with J. Roads (SIO) et al.

Southern California Coastal Ocean Observing System (NOAA)

- with B. Cornuelle (SIO) et al.

Using Ocean Data Assimilation to Input Environmental Variations in Sardine and Squid Assessment (NOAA)

- with S. McClatchie (NOAA) et al.

Predictability and Diagnosis of Low-Frequency Climate Processes in the Pacific (DOE)

- with N. Schneider (SIO), T. Barnett (SIO), and D. Cayan (SIO)

Circulation and Coastal Sea Level (CDBW)