

G a b r i e l A . V e c c h i

Research Interests

Tropical air/sea interaction.
Ocean/atmosphere dynamics and coupling.
Coupled climate variability and change.

Education

Ph.D. Physical Oceanography

Apr., 2000 University of Washington Seattle, WA
Thesis title: "Sub-seasonal wind variability and El Niño"

M.S. Applied Mathematics

Feb. 1999 University of Washington Seattle, WA

M.S. Physical Oceanography

Dec. 1996 University of Washington Seattle, WA

B.A. Mathematics

May 1994 Rutgers University New Brunswick, NJ

Professional experience

Jun. 2006 – Present Research Oceanographer Princeton, NJ
NOAA – Geophysical Fluid Dynamics Laboratory

Nov. 2003 – Jun. 2006 UCAR Visiting Scientist Princeton, NJ
NOAA – Geophysical Fluid Dynamics Laboratory

Sep. 2004 – Jan. 2005 Lecturer New Brunswick, NJ
Rutgers University, Environmental Sci. 323 – Atmospheric Thermodynamics.

May 2001 – Nov. 2003 Research Scientist Seattle, WA
University of Washington, Joint Institute for the Study of the Atmosphere and Oceans

May 2000 – Apr. 2001 Postdoctoral Research Associate Seattle, WA
University of Washington, Department of Atmospheric Sciences / Joint Institute for the Study of the Atmosphere and Oceans

Sep. 1994 – Apr. 2000 Research Assistant Seattle, WA
University of Washington, School of Oceanography / Joint Institute for the Study of the Atmosphere and Oceans

Oct. 1993 – Sep. 1994 Research Assistant New Brunswick, NJ
Institute for Marine and Coastal Sciences, Rutgers University

Jun. 1993- Aug. 1993 Summer Research Fellow New Brunswick, NJ
Institute for Marine and Coastal Sciences, Rutgers University

Awards received Presidential Early Career Award for Scientists and Engineers (PECASE) 2004-2009:
 “For fundamental contributions concerning the roles of subseasonal variability on the onset and termination of El Niño and on Indian Monsoon rainfall.”

Editor’s Citation for Excellence in Refereeing for Geophysical Research Letters, 2004.

NASA Space Grant Scholarship, 1994-1996.

Cook College, Rutgers University Marine Sciences Student of the Year, 1994.

New Jersey Department of Education Garden State Scholar Scholarship, 1990-1994.

Community Service

Associate Editor, Journal of the Atmospheric Sciences.

Member CLIVAR Indian Ocean Panel (2007-2009)

AGU/TOS/ASLO Ocean Sciences 2006 Meeting Scientific Organizing Committee.

Judge 2005 NAACP ACT-SO Academic Competition.

Speaker: Elementary through High School.

Article reviews for: J. Physical Oceanography, Monthly Weather Review, J. of Geophysical Research, Geophysical Research Letters, J. Climate, J. Atmospheric Sciences, Nature, J. Oceanic and Atmospheric Technology, Remote Sensing of the Environment, Tellus.

Proposal reviews for: NOAA, NSF, NASA.

Professional Organizations

American Geophysical Union.

American Meteorological Society.

The Oceanography Society

Computer Experience

UNIX, Windows and Macintosh operating systems.

Extensive programming experience with Fortran. Experience with C, C++, HTML and Perl Script. Experience with UNIX scripting utilities: sed, awk.

Experience with Matlab, Ferret, Microsoft Office, and Adobe Photoshop, Illustrator and Pagemaker.

Languages

Fluent in Spanish (lived in Venezuela from age 1 to 14) and Italian. Working knowledge of French.

Interests and activities

Ultimate frisbee, soccer, snowboarding, mountain biking, SCUBA.

Publications

- Vecchi, G.A., and T.R. Knuston (2007). On Estimates of Historical North Atlantic Tropical Cyclone Activity. *J. Climate* (submitted)
- Song, Q., G.A. Vecchi and A. Rosati (2007). Predictability of Indian Ocean Sea Surface Temperature Anomalies in the GFDL Coupled Model. *Geophys. Res. Lett.*, (submitted)
- Vecchi, Clement and Soden (2007). Pacific Signature of Global Warming: "El Niño" or "La Niña". *EOS, Trans. Amer. Geophys. Union* (submitted)
- Vecchi, G.A., and B.J. Soden (2007). Global Warming and the Weakening of the Tropical Circulation. *J. Climate*, **20**(17) 4316-4340.
- Vecchi, G.A., and B.J. Soden (2007). Increased tropical Atlantic wind shear in model projections of global warming. **34**, L08702, doi:10.1029/2006GL028905.
- Vecchi, G.A., and M. Harrison (2007). An Indian Ocean Observing System Simulation Experiment. *J. Climate*, **20**, 3300-3319.
- Song, Q.N., G.A. Vecchi, and A. Rosati (2007). Indian Ocean Variability in the GFDL CM2 Coupled Climate Model. *J. Climate*, **20**, 2895-2916.
- Song, Q.N., G.A. Vecchi, and A. Rosati (2007). Impact of the Indonesian Throughflow on Climate Variability in the GFDL Coupled Climate Model. *J. Climate*, **20**, 2434-2451.
- Vecchi, G. A., and B. J. Soden (2007), Increased tropical Atlantic wind shear in model projections of global warming, *Geophys. Res. Lett.*, **34**, L08702, doi:10.1029/2006GL028905.
- Seager, R., et al (2007). Model projections of an imminent transition to a more arid climate in southwestern North America. *Science* **316**, 1181-1184.
- Lu, J., G.A. Vecchi and T.J. Reichler (2007). Expansion of the Hadley cell under global warming. *Geophys. Res. Lett.* **34**, L06805, doi:10.1029/2006GL028443.
- Vecchi, G.A., B.J. Soden, A.T. Wittenberg, I.M. Held, A. Leetmaa, M.J. Harrison (2006): Weakening of Tropical Pacific Atmospheric Circulation due to Anthropogenic Forcing. *Nature*, **441**(7089), 73-76. doi:10.1038/nature04744.
- Vecchi, G.A. (2006). The termination of the 1997-98 El Niño. Part II: Mechanisms of Atmospheric Change. *J. Climate*, **19**(12), 2647-2664.
- Vecchi, G.A., and D.E. Harrison (2006). The termination of the 1997-98 El Niño. Part I: Mechanisms of Oceanic Change. *J. Climate*, **19**(12), 2633-2646.
- Gnanadesikan, A. et al., (2006): GFDL's CM2 global coupled climate models - Part 2: The baseline ocean simulation, *J. Climate*, **19**(5), 675-697.
- CLIVAR/GOOS Indian Ocean Panel and Collaborators (2006). Understanding the Role of the Indian Ocean in the Climate System—Implementation Plan for Sustained Observations. Southampton, UK, International CLIVAR Project Office, 76pp. (ICPO Publication Series, 100) <http://eprints.soton.ac.uk/20357/>

- Vecchi, G.A., A.T. Wittenberg and A. Rosati (2006). Reassessing the role of stochastic forcing in the 1997-8 El Niño. *Geophys. Res. Lett.* **33**, L01706, doi:10.1029/2005GL024738.
- Vecchi, G.A., A. Rosati, D.E. Harrison (2004): Setting the timing of El Niño termination. *Bull. Amer. Meteorol. Soc.*, **85**(8), 1065-1066.
- Bhat, G. S., G. A. Vecchi and S. Gadgil (2004). Sea Surface Temperature of the Bay of Bengal derived from TRMM. *J. Mar. Tech.*, **21**, 1283-1290.
- Vecchi, G.A., and D.E. Harrison (2004): Interannual Indian rainfall variability and Indian Ocean sea surface temperature anomalies. In *Earth Climate: The Ocean-Atmosphere Interaction*, C. Wang, S.-P. Xie, and J.A. Carton (eds.), AGU, Geophysical Monograph 147, Washington D.C., 247–260
- Vecchi, G.A., and N.A. Bond (2004): The Madden-Julian Oscillation (MJO) and northern high latitude wintertime surface air temperatures. *Geophys. Res. Lett.* **31**, L04104, doi:10.1029/2003GL018645.
- Vecchi, G.A., S.-P. Xie, and A. Fischer (2004). Air-Sea Coupling over Western Arabian Sea Cold Filaments. *J. Climate*, **17**(6), 1213–1224.
- Vecchi, G.A. and D.E. Harrison (2003). On the termination of the 2002-3 El Niño event. *Geophys Res. Lett.*, **30**(18), 1964-1967.
- Bond, N.A., and G.A. Vecchi (2003). On the Madden Julian Oscillation and Precipitation in Oregon and Washington. *Weather and Forecasting*, **18**(4), 600-613.
- Vecchi, G.A., and D.E. Harrison (2002). Monsoon Breaks and sub-seasonal sea surface temperature variability in the Bay of Bengal. *J. Climate*, **15**(12), 1485-1493.
- Harrison, D.E., R.D. Romea, and G.A. Vecchi (2001). Central Equatorial Pacific Zonal Currents II: The seasonal momentum balances and the boreal spring eastward surface current surge. *J. Mar. Res.*, **59**, 921-948.
- Harrison, D.E., and G.A. Vecchi (2001). January 1999 Indian Ocean cooling event. *Geophys. Res. Lett.* **28**(19), 3717-3720.
- Harrison, D.E. and G.A. Vecchi (2001). El Niño and La Niña: Equatorial Pacific surface temperature and thermocline variability, 1986-98. *Geophys. Res. Lett.*, **28**, 1051-1054.
- Harrison, D.E., G.A. Vecchi and R.H. Weisberg (2000). Eastward surface jets in the central equatorial Pacific. November 1991-March 1992. *J. Marine Res.*, **58**, 735-754.
- Vecchi, G.A. (2000). Tropical Pacific sub-seasonal wind variability and El Niño. Ph.D. Dissertation, University of Washington.
- Vecchi, G.A. and D.E. Harrison (2000). Tropical Pacific sea surface temperature anomalies, El Niño and equatorial westerly wind events. *J. Climate*, **13**(11), 1814-1830.
- Harrison, D.E. and G.A. Vecchi (1999). On the termination of El Niño. *Geophys. Res. Lett.* **26**(11), 1593-7.

Vecchi, G.A. and D.E. Harrison (1997). Westerly wind events in the tropical Pacific, 1986-1995: An atlas from the ECMWF operational surface wind fields. NOAA Technical Memorandum ERL PMEL-109 (NTIS PB97-188213).

Harrison, D.E., and G.A. Vecchi (1997). Westerly wind events in the tropical Pacific, 1986-1995. *J. Climate*, **10**(12), 3131-3156.