

## CURRICULUM VITAE

Mark A. Cane

**Address:** Lamont-Doherty Earth Observatory  
Palisades, NY 10964  
Phone: (845) 365-8344  
Fax: (845) 365-8736  
E-mail: mcane@ldeo.columbia.edu

**Education:** Harvard College, 1961-65, A.B. (Applied Mathematics)  
Harvard University, 1965-66, M.S. (Applied Mathematics)  
Geophysical Fluid Dynamics Program, Woods Hole Oceanographic Institute, 1974  
Massachusetts Institute of Technology, 1972-75, Ph.D. (Meteorology)  
Thesis advisor: Professor J. G. Charney

**Honors:** Phi Beta Kappa; A.B. *magna cum laude*; NSF Traineeship;  
Honorary John Harvard Scholarships, 1962-65  
National Science Foundation Creativity Award 1984-1986  
Sverdrup Medal of the American Meteorological Society, 1992  
Fellow, American Meteorological Society, 1993  
Fellow, American Association for the Advancement of Science, 1995  
Fellow, American Geophysical Union, 1995  
Fellow, American Academy of Arts and Sciences, 2002  
Cody Award in Ocean Sciences from Scripps Institution of Oceanography, 2003  
Bronze Award for Magazines Feature Article, 25,001 to 100,000 to “*American Scientist*”  
“Ethnoclimatology in the Andes” 2003  
*Earth and Planetary Science Letters* Most Cited Paper 2004-2007 Award  
California Department of Water Resources – Climate Science paper award, 2007  
Norbert Gerbier-MUMM International Award from the World Meteorological Organization, 2009  
Maurice Ewing Medal of the American Geophysical Union, 2013  
Member, National Academy of Sciences, 2013  
Fellow, The Oceanography Society, 2015

### **Professional Experience:**

Senior Programmer Analyst, Goddard Institute for Space Studies (Computer Appl. Inc.)	1966-1970
Assistant Professor of Mathematics, New England College	1970-1972
NAS/NRC Research Associate, Goddard Institute for Space Studies	1975-1976
Senior Analyst, Goddard Space Flight Center (Sigma Data Services Corp.)	1976-1978
Adjunct Assistant Professor of Geology, Columbia University	1976-1977
Staff Scientist, Goddard Laboratory for Atmospheric Sciences	1978-1979
Visiting Scientist, Massachusetts Institute of Technology (Meteorology Dept.)	1977-1979
Assistant and Associate Professor, MIT (Dept. of Meteorology and Physical Oceanography)	1979-1984
Visiting Scientist, University of Paris VI	1984
Sr. Research Scientist, L-DGO	1984-1987
Adjunct Associate Professor & Adjunct Professor, Columbia University	1984-1997
Doherty Senior Research Scientist, Lamont-Doherty Geological Observatory	1987-1997
Professor, Dept. of Earth and Environmental Sciences, Columbia University	1997-1998
G. Unger Vetlesen Professor of Earth and Climate Sciences in Dept. of Earth and Environmental Sciences and Dept. of Applied Physics and Applied Mathematics	1998-

### **Memberships:**

Phi Beta Kappa; American Meteorological Society; American Geophysical Union;

## CURRICULUM VITAE

American Association for the Advancement of Science; The New York Academy of Sciences. Oceanography Society.

### Selected Professional Activities:

Co-Chairman, SEQUAL (Seasonal Equatorial Atlantic Experiment, sponsored by NSF) 1979-1987  
Member, Equatorial Theoretical Panel (sponsored by NSF), 1975-  
Member, NOSS Science Working Group (sponsored by NASA) 1980-1981  
Member, CRC Study Group on Drafting a National Climate Plan on the Southern Oscillation - El Niño, 1981-1982  
Corresponding Member, NAS Ad Hoc Panel on Computing Resources and Facilities for Ocean Circulation Modeling, 1979-1982  
Participant, El Niño Rapid Response Workshop, 1982  
Invited Lecturer, IUGG, AGU Conferences, numerous universities and research laboratories  
Corresponding Member, National Academy of Sciences Committee on Ocean Modeling for Climate, 1979  
Proposal Reviewer: NASA, NSF, NOAA, NERC  
Reviewer: Journal of Marine Research, Journal of Physical Oceanography, Deep Sea Research, Dynamics of Atmospheres and Oceans, Science, Journal of Atmospheric Sciences, Oceanologica Acta, Science, Condor, Bulletin of the American Meteorological Society, Nature, Paleoceanography, J. Geophysical Research, Earth and Planetary Science Letters, Science, etc  
Participant, Tropic Heat Program (sponsored by NSF), 1982  
Participant, TOGA Pacific Drafting Workshop (sponsored by NOAA), 1982  
Member, NCAR AAP SPEC Review Panel, 1983  
Member, NAS Advisory Panel for the Tropical Ocean/Global Atmosphere Program, 1984 -1989  
Member, AMS Committee on Climate Variations, 1984 -1987  
Member, WOCE Numerical Modeling Workshop Group, 1985 -1987  
Invited Speaker, Pontifical Academy of Sciences, 1986  
Invited Speaker, Royal Meteorological Society/American Meteorological Society meeting, 1986  
Invited Speaker, Jacob Bjerknes Memorial Symposium, 1988  
Associate Editor, Journal of Climate 1989 - 1991  
Member, CDAS/NMC Advisory Panel 1989 -1993  
Member, NSCAT Science Team 1986 - 1997  
Principal Lecturer, International Course on Tropical Ocean-Atmosphere Interactions, Fortaleza, Brazil, 1989; International Centre for Theoretical Physics, Trieste, Italy, 1991 and 1993  
Invited Lecturer, Academy of Meteorological Sciences, Beijing, 1990  
Convener, International TOGA Conference, 1990  
Member, NOAA Sub-Panel on Modeling and Analytical Centers, 1990  
Member, 1990-1991 Chair 1992-1994 AMS Committee on Air-Sea Interaction  
Chairman, International TOGA Numerical Experimentation Group, (TOGA/NEG) 1991-94  
Member TOGA International Science Steering Group, 1991-94  
Member, Ad Hoc Study Group on CLIVAR (Climate Variability and Prediction Research Programme) of WCRP (World Climate Research Programme), 1991-1992  
Member, AMS Fellows Committee, 1992-1993  
Member Editorial Board, Series in Computational Physics, American Institute of Physics 1993-1996  
Member, AMS Sverdrup Award Committee 1993-1999; Chair, Award Sverdrup 1997-2000  
Invited Lecturer, Sverdrup Memorial Lecture at Fall AGU 1993-1996  
Chair 1997-2000, Member 1994-1997 AMS Sverdrup Gold Medal Committee  
Chair 1996-1997, Member 1994-1996 - Electorate Nominating Committee, AAAS Sec. on Atmospheric and Hydrospheric Sciences, 1993-1996  
Invited to brief Vice President Albert Gore, 1994  
Co-chair International CLIVAR NEG-1, 1995-1998  
Member International PAGES/CLIVAR Working Group 1996-  
Co-chair U.S. CLIVAR /PAGES Working Group 2000 - 2005  
Member NOAA Advisory Panel - 2000- 2005  
Member IRI Executive Committee, 1996-1999  
Member IRI – International Science and Technical Advisory Committee - 2000-2001; 2003-  
Chair 2002-3, Member 1999-2001, AGU Ewing Medal Committee

## CURRICULUM VITAE

Section Panel for I:4, American Academy of Arts and Sciences, 2012-

Member, NAS Board on Atmospheric Sciences and Climate, 2013-

### **Local Activities**

Member, Climate Center, L-DEO/GISS, 1988- 2005

Member, Director Search Committee, Lamont-Doherty Earth Observatory, 1989-1990

Member, Administrative Committee, Lamont-Doherty Earth Observatory, 1990-1993

Member, Admissions Committee, Department of Earth and Environmental Sciences (DEES) 1991-1992

Member, Executive Committee SIO-LDEO-NOAA consortium 1992-1993

Chairman, Examinations Committee, DEES 1994-1996, 2000

Member, Curriculum Committee DEES, 1999-2005

Member, Columbia Earth Institute Interim Academic Committee, 1999-2000

Member Earth Institute Search Committee, 1999-2001

Member, Vetlesen Medal Committee, 1999

Member, Lamont Executive Committee 1999-2002; 2006

Chair, Columbia Earth Institute/SIPA Advisory – 2004-2005

Chair, Advance STRIDE Committee 2004 –2006

Member, Committee on Dual Careers 2006

Earth Institute Academic Committee 2000-2009

Earth Institute GROCC Committee 2004- 2008

Leader, Earth Institute Cross-Cutting Initiative on Climate and Society 2004-2006

L-DEO CORC ARCHES Executive Committee 2003-2009

Advance PI Council 2003-2010

Director, MA Program in Climate and Society 2003 – 2012

DEES TA Coordinator 2004 -2006

DEES Physical Oceanography Search Committee 2004-2009

DEES Paleooceanography Search Committee 2004 -2006

DEES Graduate Admissions Committee 2004-2012

DEES Curriculum Reform Committee 2002 - 2005

DEES Schermerhorn Space Committee 2004

DEES Associate Department Chair 2004 -2006

DEES Department Chair 2006 -2008

Advisory Board, CRED 2004-2010

Chair, IRI Management Board, 2010- 2013

### **Current Local Activities**

Earth Institute Academic Faculty 2010 -

Advisory Board, Center for Science and Religion 2003 –

Advisory Board, Columbia Water Center 2006-

Advisory Board, Columbia Initiative on Extreme Weather and Climate 2014-

Member IRI – International Science and Technical Advisory Committee 2000-2001; 2003-

### **Current Department of Earth and Environmental Sciences**

Planning Committee 2004 -

### **Masters Theses Supervised; Massachusetts Institute of Technology**

Kuklinsky, Robert 1981: The effect of wind measurement errors on linear simulations of equatorial circulations

Patton, Randall 1981: A numerical model of equatorial waves with application to the seasonal upwelling in the Gulf of Guinea

Nelkin, Haim 1984: A numerical model for the thermohaline circulation

### **Ph.D Theses; Massachusetts Institute of Technology**

Zebiak, Stephen 1985: Tropical atmosphere-ocean interaction and the El Niño/Southern Oscillation phenomenon

Wacongne, Sophie 1988: Dynamics of the equatorial undercurrent and its termination

### **Ph.D Theses; Columbia University**

Seager, Richard 1990: Modeling sea surface temperature and low level winds in the tropics.

Murtugudde, Raguram 1993: Upstream finite-difference methods for an isopycnal ocean GCM. (Dept. of Mechanical Engineering).

Shukla, Vijay 1994: A study of asymmetry and variability in convectively driven flows. (Dept. of Mechanical Engineering)

## CURRICULUM VITAE

- Xue, Yan 1995: Predictability of a coupled model of ENSO using singular vector analysis: optimal growth and forecast skill.
- Zhao, Yeuchen 1995: On improving the accuracy of mixed layer parameterization for ocean general circulation models.
- Krupitsky, Alexander 1995: Studies of topographic influences on zonally recirculating flows with application to the Antarctic circumpolar current.
- Eshel, Gideon 1996: Coupling of deep-water formation and the general circulation: a case study of the Red Sea.
- Rodgers, Keith 1997: A modeling study of Pacific thermocline circulation using D14C and idealized tracers.
- Clement, Amy 1998: Mechanisms of tropical climate change: glacial cycles to greenhouse warming, 1998.
- Evans, Mike 1999: Sea surface temperature field reconstruction from coral data: Methodology and application.
- Cullen, Heidi 1999: The North Atlantic and the Middle East: Investigating climate dynamics & variability in a water scarce region.
- Giannini, Alessandra 2000: Climate variability between the Atlantic and Pacific Oceans: observations and modeling of Caribbean rainfall.
- Chiang, John 2000: The Intertropical Convergence Zone in Tropical Atlantic Climate Variability.
- Shaman, Jeffery 2003: Modeling and Forecasting Land Surface Wetness Conditions, Mosquito Abundance, and Mosquito-Borne Disease Transmission.
- Karspeck, Alicia 2004: Predictability of ENSO on interannual and decadal timescales.
- Herweijer, Celine 2006: North American Droughts from Medieval Times to the Modern Day: Characterization, Causes and Global Context.
- Emile-Geay, Julien 2006: ENSO dynamics and the Earth's climate from decades to Ice Ages.
- Ihara, Chie 2007: The state of climate over the tropical Indian Ocean and India from the late 19th century throughout the 20th century.
- Gorodetskaya, Irina 2007: Polar radiation budget: separating the effects of sea ice and clouds.
- Grass, David 2008: Assessing the human health impacts of air pollution and extreme weather conditions in New York City and Santiago, Chile.
- Wang, Daiwei 2010: The tropical Pacific Ocean in a warming climate.
- Hsiang, Solomon 2011: Essays on the Social Impact of Climate (Sustainable Development PhD program, SIPA)
- Wu, Yuchen 2011: Midlatitude Storm Track Response to Greenhouse Warming
- Ruiz, Daniel 2012: High-altitude Andean ecosystems and Plasmodium falciparum malaria infections: towards adaptation strategies to climate change.
- Yang, Wenchang 2014 The Hydroclimate of East Africa: Seasonal cycle, Decadal Variability, and Human-induced Climate Change.

### **Current Students**

- C. Chen (sponsor, DEES)
- N. Ramesh (2<sup>nd</sup>, DEES)
- J. Rising (2<sup>nd</sup>, SUSDEV)

### **Publications (\* indicates student first author)**

Chen, D., T. Lian, C. Fu, M.A. Cane, Y. Tang, R. Murtugudde, X. Song, Q. Wu, L. Zhou 2015: Strong influence of westerly wind bursts on El Niño diversity, *Nat. Geosci.* accepted

Kelley, C., S. Mohtadi, M. Cane, R. Seager, Y. Kushnir, 2015: Climate change in the Fertile Crescent and implications of the recent Syrian drought. *Proc. Natl. Acad. Sci.* in press.

Lee, D.E., D. Chapman, N. Henderson, C. Chen and M.A. Cane, 2014: Multilevel Vector Autoregressive Prediction of Sea Surface Temperature in the North Tropical Atlantic Ocean and the Caribbean Sea. *Climate Dynamics*, in revision.

\*Wang, D., S. Khatiwala, M. A. Cane, 2015: Present and future source regions and transit time distributions of Pacific equatorial thermocline waters. *To be submitted*

Yuan, X., M.A. Cane, M.R. Kaplan 2015: Connecting the Tropics to Polar Regions *EOS* accepted

## CURRICULUM VITAE

Cane, M.A., E. Miguel, M. Burke, S. M. Hsiang, D. B. Lobell, K. C. Meng, S. Satyanath, 2014: Temperature and violence. *Nature Clim. Change* (Letter).

Pal I, Robertson AW, Lall U, Cane MA, 2014: Modeling Winter Rainfall in Northwest India using a Hidden Markov Model: Understanding Occurrence of Different States and their Dynamical Connections. *Clim. Dyn.* DOI 10.1007/s00382-014-2178-5

\*Ruiz, D., M.A Cane, R. Cousin, A.G. Muñoz, A. Jaramillo, and R. Martínez, 2014: Shifting atmospheric stability and tropical Andean biodiversity hotspots in trouble. *J. of App. Met. and Clim.* submitted.

\*Yang, W., R. Seager, M.A. Cane and B. Lyon, 2015: The Annual Cycle of East African Precipitation. *J. Climate*, DOI:10.1175/JCLI-D-14-00484.1, in press.

\*Yang, W., R. Seager, M.A. Cane, B. Lyon, 2014: The East African Long Rains in Observations and Models *J. Climate*, **27**,7185-7207, DOI: 10.1175/JCLI-D-13-00447.1.

Cane, M.A. and D.E. Lee, 2013: What Do We Know about the Climate of the Next Decade? In *Food Security and Sociopolitical Stability*, Christopher B. Barrett, ed., Oxford U. Press. January 2014, DOI: 10.1093/acprof:oso/9780199679362.001.0001.

\*Deplazes, G., A. Lückge, L.C. Peterson, A. Timmermann, Y. Hamann, K.A. Huguen, U. Röhl, C. Laj, M.A. Cane, D.M. Sigman, and G.H. Haug, 2013: Links between tropical rainfall and North Atlantic climate during the last glacial period. *Nature Geoscience*, **6**, 213-217, doi:**10.1038/ngeo1712**. IPRC-951.

Karamperidou, C, M.A. Cane, U. Lall, A.T. Wittenberg 2013: Intrinsic modulation of ENSO predictability viewed through a local Lyapunov lens. *Clim. Dyn.* 10.1007/s00382-013-1759-z.

Liu, J., B. Wang, M. Cane, S.-Y. Yim, and J.Y. Lee, 2013: Divergent global precipitation changes induced by natural versus anthropogenic forcing. *Nature*, **493** (7434), 656-659; DOI: 10.1038/nature11784.

Pal, I., U. Lall, A.W. Robertson, M.A. Cane and R. Bansal, 2013: Predictability of Western Himalayan river flow: melt seasonal inflow into Bhakra reservoir in Northern India, *J. Hydrol. Earth Syst. Sci*, **17** : 2131-2146, doi:10.5194/hess-17-2131-2013.

Pal I, U. Lall, A.W. Robertson, M.A. Cane, R. Bansal, 2013: Diagnostics of Western Himalayan Satluj River Flow: warm season (MAM/JJAS) inflow into Bhakra dam in India. *J. Hydrology*, **478**, 132-147, 10.1016/j.jhydrol.2012.11.053.

\*Yang, W., R. Seager and M.A. Cane, 2013: Zonal Momentum Balance in the Tropical Atmospheric Circulation during the Global Monsoon Mature Months. *J. Atmos. Sci*, doi:10.1175/JAS-D-12-0140.1.

McCormick, M., U. Büntgen, M.A. Cane, E.R. Cook, K. Harper, P. Huybers, T. Litt, S.W. Manning, P.A. Mayewski, A.F.M. More, K. Nicolussi and W. Tegel, 2012: Climate Change during the Roman Empire Reconstructing the Past from Scientific and Historical Evidence. *J. Interdisciplinary History*, xliiii:2 169–220.

\*Hsiang, S., K. Meng, and M.A. Cane, 2011: Civil conflicts are associated with the global climate, *Nature*, **476**, 438-441, doi:10.1038/nature10311

Wang, D. and M.A. Cane, 2011: Pacific Shallow Meridional Overturning Circulation in a Warming Climate. *J. Climate*, **24**, 6424-6439, DOI: 10.1175/2011JCLI4100.1.

\*Wolff, C., G. H. Haug, A. Timmermann, J. S. Sinninghe Damste, A. Brauer, D. M. Sigman, M. A. Cane, D. Verschuren, 2011: Reduced inter-annual rainfall variability in East Africa during the last ice age., *Science*, **333**, 6043, 743-747, DOI: 10.1126/science.1203724.

## CURRICULUM VITAE

Cane, M.A., 2010: Decadal predictions in demand. *Nature Geoscience*, **3**, 231-232

Cane, M.A., 2010: A moist model monsoon. *Nature*, **463**, 163-164.

Harnik, N., R. Seager, N. Naik, M.A. Cane and M. Ting, 2010: The role of linear wave refraction in the transient eddy–mean flow response to tropical Pacific SST anomalies *Quart. J. Roy. Meteor. Soc.*, **136**(653): 2132-2146.

Sarachik, E.S. and M.A. Cane, 2010: *The El Niño-Southern Oscillation Phenomenon*, Cambridge University Press, and London. 384pp.

Seager, R., N. Naik, M. Ting, M. A. Cane, N. Harnik and Y. Kushnir, 2010: Adjustment of the atmospheric circulation to tropical Pacific SST anomalies: Variability of transient eddy propagation in the Pacific-North America sector. *Quarterly Journal of the Royal Meteorological Society*, **136**: 277-296. DOI: 10.1002/qj.588.

Wu, Y., M. Ting, R. Seager, M.A. Cane and H.-P. Huang, 2010: Changes in storm tracks and energy transports in a warmer climate simulated by the GFDL CM2.1 model. *Clim. Dyn.*, doi 10.1007/s00382-010-0776-4.

Cane, M.A., 2009: Das Klima in den Strömungen der Geschichte. *In Die Ursprung der modernen Welt*, Eds. J. Robinson and Klaus Weigandt, pp. 113-165. In German; [Climate in the Currents of History, In *Emergence of the Modern World: Comparative History and Science*]

\*Emile-Geay, J., and M.A. Cane, 2009: Pacific decadal variability in the view of linear equatorial wave theory. *J. Phys. Oceanogr.*, **39**, 1, 203-219.

Ihara, C., Y. Kushnir, M.A. Cane and V.H. de la Peña, 2009: Climate change over the equatorial Indo-Pacific in global warming. *J. Climate*, **22**, 10, 2678-2693.

Karnauskas, K.B., R. Seager, A. Kaplan, Y. Kushnir, and M.A. Cane, 2009: Observed strengthening of the zonal sea surface temperature gradient across the equatorial Pacific ocean. *J. Climate*, **22**, 4316-4321.

Seager, R., M. Ting, M. Davis, M.A. Cane, N. Naik, J. Nakamura, C. Li, E. Cook and D.W. Stahle, 2009: Mexican drought: An observational, modeling and proxy reconstruction study of variability and climate change. *Atmosfera*, **22**, (1), 1-31.

\*Ihara, C. Y. Kushnir, and M.A. Cane, 2008: July droughts over Homogeneous Indian Monsoon region and Indian Ocean dipole during El Niño events. *Int. J. Climatol.* **28**(13): 1799-1805.

Chen, D. and M.A. Cane, 2008: El Niño prediction and predictability. *J. Computational. Phys* **227**, (7), Predicting weather, climate and extreme events 3625-3640. doi:10.1016/j.jcp.2007.05.014.

\*Emile-Geay, J., R. Seager, M. A. Cane, E.R. Cook and G. H. Haug, 2008: Volcanoes and ENSO over the last millennium. *J. Climate.*, **21**, 3134-3148.

\*Gorodetskaya, I.V., L.-B. Tremblay, B. Liepert, M.A. Cane and R.I. Cullather, 2008: The influence of cloud and surface properties on the Arctic ocean shortwave radiation budget in coupled models. *J. Climate*, **21**, 866-882.

\*Grass, D. and M.A. Cane, 2008: The Effects of Weather and Air Pollution on Cardiovascular and Respiratory Mortality in Santiago, Chile during the winters of 1988-1996. *J. of Climatology*, **28**, 1113-1126, DOI: 10.1002/joc.1592. DOI: 10.1002/joc.1592.

\*Ihara, C. Y. Kushnir, M.A. Cane, and A. Kaplan, 2008: Timing of El Niño-related warming and Indian summer monsoon rainfall. *J. Climate*, **21**, 11, 2711-2719.

## CURRICULUM VITAE

\*Ihara, C., Y. Kushnir, M. A. Cane, 2008: Warming Trend of the Indian Ocean SST and Indian Ocean Dipole from 1880 to 2004. *J. Climate*, 21, 2035-2046.

Molnar, P. and M.A. Cane, 2008: Pre-Ice Age El Niño-like Global Climate: Which El Niño? *Geosphere*, 3, 5, 337-365; DOI: 10.1130/GES00103.1.

Seager, R., Y. Kushnir, M. Ting, M.A. Cane, N. Naik and J. Velez, 2008: Would advance knowledge of 1930s SSTs have allowed prediction of the Dust Bowl drought? *J. Climate*, 21, 3261-3281, DOI: 10.1175/2007JCLI2134.1.

Cook, E.R., R. Seager, M.A. Cane and D.W. Stahle, 2007: North American Drought: Reconstruction, Causes, and Consequences. *Earth Science Reviews*, 81, 93-134.

\*Emile-Geay, J., M.A. Cane, R. Seager, A. Kaplan and P. Almasi, 2007: El Niño as a mediator of the solar influence on climate, *Paleoceanography*, 22, PA3210, doi:10.1029/2006PA001304.

\*Ihara, C., Y. Kushnir, M.A. Cane and V. de la Pena, 2007: Indian Summer Monsoon Rainfall and its link with ENSO and the Indian Ocean Dipole Mode. *International Journal of Climatology*, 27, 179-187.

Anchukaitis, K. J., M. N. Evans, A. Kaplan, E. A. Vaganov, M. K. Hughes, H. D. Grissino-Mayer, M. A. Cane, 2006: Forward modeling of regional scale tree-ring patterns in the southeastern United States and the recent influence of summer drought. *Geophys. Res. Lett.*, 33, L04705, doi:10.1029/2005GL025050.

Cane, M.A., P. Braconnot, A. Clement, H. Gildor, S. Joussaume, M. Kagayama, M. Khodri, D. Paillard, S. Tett and E. Zorita, 2006: Progress in Paleoclimate modeling. CLIVAR Conference Special Issue, *Journal of Climate*, 19, No. 20, pages 5031-5057.

Clement, A.C., J. Emile-Geay, R. Seager, M.A. Cane and M.N. Evans, 2006: Solar forcing of the tropical Pacific climate and impacts over North America for the last millennium, *PAGES Newsletter*, Aug. 2006, 14, (2), 12-14.

Evans, M. N., B. K. Reichert, A. Kaplan, K. J. Anchukaitis, E. A. Vaganov, M. K. Hughes, and M. A. Cane, 2006: A forward modeling approach to paleoclimatic interpretation of tree-ring data, *J. Geophys. Res.*, 111, G03008, doi:10.1029/2006JG000166.

\*Gorodetskaya I.V., M.A. Cane, L.-B. Tremblay, and A. Kaplan, 2006: The effects of sea ice and land snow concentrations on planetary albedo from the Earth Radiation Budget Experiment. *Atmosphere-Ocean*, 44(2), 195-205.

\*Karspeck, A.R., A. Kaplan, M.A. Cane, 2006: Predictability loss in an intermediate ENSO model due to initial error and atmospheric noise, *J.Climate*, 19,15, 3572-3588.

Kumar, K.K., B. Rajagopalan, M. Hoerling, G. Bates and M.A Cane, 2006: Unraveling the Mystery of Indian Monsoon Failure During E Niño. *Science*, 314: 115-119. doi: 10.1126/science.1131152.

Newton, B., L. B. Tremblay, M. A. Cane, and P. Schlosser, 2006: A simple model of the Arctic Ocean response to annular atmospheric modes, *J. Geophys. Res.*, 111, C09019, doi:10.1029/2004JC002622.

\*Shaman, J., J.F. Day, M. Stieglitz, S.E. Zebiak and M.A. Cane, 2006: A Ensemble Seasonal Forecast of Human Cases of St. Louis Encephalitis in Florida Based on Seasonal Hydrologic Forecasts. *Climatic Change*, 75, 495-511. DOI: 10.1007/s10584-006-6340-x.

\*Shaman, J., M. Spiegelman, M.A. Cane and M. Stieglitz, 2006: A Hydrologically Driven Model of Swamp Water Mosquito Population Dynamics. *Ecological Modelling*, 194, 4, 395-404.

## CURRICULUM VITAE

Bell, R., J. Laird, S. Pfirman, J. Mutter, R. Balstad and M.A. Cane, 2005: An Experiment in Institutional Transformation. *Oceanography Magazine*, **18**, 1, 25-34.

Cane, M.A., 2005: The evolution of El Niño, past and future. *Earth and Planetary Science Letters*, **230**, 227-240.

Goodman, P.J., W. Hazeleger and M.A. Cane, 2005: Pathways into the Pacific Equatorial Undercurrent: A Trajectory Analysis. *J. Phys. Oceanogr.*, **35**, 2134-2151.

Khatiwala, S., M. Visbeck and M.A. Cane, 2005: Accelerated simulation of passive tracers in ocean circulation model. *Ocean Modelling*, **9**, 1, 51-69.

Khodri, M., M.A. Cane, G. Kukla, J. Gavin, and P. Braconnot, 2005: The impact of precession changes on the Arctic Climate during the last interglacial-glacial transition. *Earth and Planetary Science Letters*, **236**, Issues 1-2, 285-304.

Mann, M.E., M.A. Cane, S.E. Zebiak and A. Clement, 2005: Volcanic and Solar Forcing of El Niño over the past 1000 years. *J. Climate*, **18**, 447-456.

Schade, A., D. Downie and M.A. Cane, 2005: New master's program at Columbia focuses on climate impacts and policy. *Bulletin of the American Meteorological Society*, **86**, (1): 16-17.

\*Shaman, J., M.A. Cane, A. Kaplan, 2005: The Relationship between Tibetan Snow Depth, ENSO, River Discharge and the Monsoons of Bangladesh. *International Journal of Remote Sensing*, **26**, 3735-3748.

Cane, M.A., 2004: Review of *El Niño in History: Storming Through the Ages*, by César N. Caviedes. *J. World History*. 15. p.87-88.

Chen, D., M.A. Cane, A. Kaplan, S.E. Zebiak and D.J. Huang, 2004: Predictability of El Niño over the past 148 years. *Nature*, **428**, 733-736.

Guilderson, T.P., D.P. Schrag and M.A. Cane, 2004: Surface water mixing in the Solomon Sea as documented by a high-resolution coral-<sup>14</sup>C record. *J. Climate*, **17**, 1147-1156.

Hazeleger, W., R. Seager, M.A. Cane and N. Naik, 2004: How can tropical Pacific Ocean heat transport vary? *J. Phys. Oceanogr.*, **24**, 320-333.

Kaplan, A., M.A. Cane, D. Chen, D. Witter, R. Cheney, 2004: Small-scale variability and model error in tropical Pacific sea level. *J. Geophys. Res. - Oceans*, **109**, C02001, doi:10.1029/2002JC001743: 1-17.

\*Karspeck, A.R., R. Seager and M.A. Cane, 2004: Predictability of tropical Pacific decadal variability in an intermediate model. *J. Climate*, **17**, 2842-2850.

Seager, R., A. Karspeck, M. Cane, Y. Kushnir, A. Giannini, A. Kaplan, B. Kerman, J. Velez, 2004: Predicting Pacific decadal variability. In *The Ocean-Atmosphere Interaction*, Eds. C. Wang, S.-P. Xie and J.A. Carton, AGU, 105-120.

\*Shaman J, M., Stieglitz, M., S.E. Zebiak, M.A. Cane and J. Day, 2004: A Local Forecast of Land Surface Wetness Conditions, Drought, and St. Louis Encephalitis Virus Transmission Derived from Seasonal Climate Predictions. *Proceedings of the World Water and Environmental Resources Congress 2003*. Available on CD-ROM

\*Shaman, J., J.F. Day, M. Stieglitz, S.E. Zebiak and M.A. Cane, 2004: A Seasonal forecast of St. Louis Encephalitis Virus Transmission in Florida. *Emer. Infect. Dis.* **10** (5): 802-809, 2004.

## CURRICULUM VITAE

Bell, R.E., K.A. Kastens, M.A. Cane, R.B. Miller, J.C. Mutter and S. Pfirman, 2003: Righting the Balance: Gender Diversity in the Geosciences. EOS, Transactions, American Geophysical Union, **84**, No. 31, August 5, 2003, pg. 292.

Basher, R., and M.A. Cane, 2003: Climate Variability, Climate Change and Malaria. In "The contextual determinants of malaria" E. Casman and H. Dowlatabadi, RFF Press, Published by Resources for the Future, Washington, D.C., p. 189-215.

\*Emile-Geay, J., M.A. Cane, N. Naik, R. Seager, A. Clement and A. van Geen, 2003: Warren revisited: Atmospheric freshwater fluxes and "Why is no deep water formed in the North Pacific?" *J. Geophys. Res., Oceans*, **108**, No. C6, Art. No. 3178, 10.1029/2001JC001058.

Gildor, H., A.H. Sobel, M.A. Cane and R.N. Sambrotto, 2003: A role for ocean biota in tropical intraseasonal atmospheric variability, *Geo. Res. Lett.*, **30**, No. 9, Art. No. 1460, doi: 10.1029/2002GL016759.

Kaplan A., M.A. Cane, and Y. Kushnir, 2003: Reduced space approach to the optimal analysis interpolation of historical marine observations: Accomplishments, difficulties, and prospects, in *Advances in the Applications of Marine Climatology: The Dynamic Part of the WMO Guide to the Applications of Marine Climatology*, WMO/TD-1081, World Meteorological Organization, Geneva, Switzerland, pp. 199-216.

Rosenzweig, C., W. Baethgen, A. Busalacchi, M.A. Cane, D. Rind and C.J. Tucker, 2003: Using earth science tools...to improve seasonal climate prediction for agriculture. *Earth Observation Magazine*, March/April, 32-35.

\*Shaman J, M. Stieglitz, S.E. Zebiak, M.A. Cane, 2003: A Local Forecast of Land Surface Wetness Conditions Derived from Seasonal Climate Predictions. *Journal of Hydrometeorology* 4 (3): 611-626, 2003.

Agrawala, S. and M.A. Cane, 2002: Sustainability: Lessons from Climate Variability and Climate Change. *Columbia Journal of Environmental Law*, 27, 309-321.

Cane, M.A., 2002: Understanding and predicting the world's climate system in impacts of El Niño and climate variability on agriculture. *American Society of Agronomy (ASA Special Publication)*. p. 1-20.

\*Evans, M.N., A. Kaplan and M.A. Cane, 2002: Pacific sea surface temperature field reconstruction from coral  $\delta^{18}O$  data using reduced space objective analysis. *Paleoceanogr.*, **17**, 1, 100, doi: 1029/2001PA000663..

\*Karspeck, A. and M.A. Cane, 2002: Tropical pacific 1976-77 climate shift in a linear, wind driven model. *J. Phys. Oceanogr.*, **32**, 2,350-2,360.

Kukla, G.J., A. Clement, M.A. Cane, J.E. Gavin and S.E. Zebiak, 2002: Last interglacial and early glacial ENSO. *Quaternary Research*, **58**, 27-31.

Molnar, P. and M.A. Cane, 2002: El Niño's tropical climate and teleconnections as a blueprint for pre-Ice-Age climates. *Paleoceanogr.*, **17**, 2, doi: 10.1029.2001PA000663.

Orlove, B.S., J.C.H. Chiang and M.A. Cane, 2002: Forecasting Andean rainfall and crop yield: Western Science and Folk-Wisdom in *Contemporary Cultures and Societies of Latin America*. [Ed. Dwight B. Heath] Waveland Press, Inc., pp.485-489.

Orlove, B.S., J.C.H. Chiang and M.A. Cane, 2002: Ethnoclimatology in the Andes. *American Scientist*, 90, 428-435.

## CURRICULUM VITAE

Seager, R., D.S. Battisti, J. Yin, N. Gordon, N. Naik, A.C. Clement and M.A. Cane, 2002: Is the Gulf Stream responsible for Europe's mild winters? *Q.J.R. Meteorol. Soc.*, **128**, 2,563-2,586.

\*Shaman, J., M. Stieglitz, C. Stark, S. Le Blancq and M.A. Cane, 2002: Using a dynamic hydrology model to predict mosquito abundances in flood and swamp water. *Emerging Infectious Diseases*, **8**, 6-13.

Cane, M.A., and P. Molnar, 2001: Closing of the Indonesian Seaway as a precursor to east African aridification around 3-4 million years ago. *Nature*, **411**, 157-162.

Cane, M.A., 2001: Predicting El Niño. *Earth: Inside and Out*. Edited by Edmond A. Mathez. Published by The New Press, New York, in conjunction with the American Museum of Natural History, 146-153.

Cane, M.A., 2001: Understanding and Predicting the world's Climate System in *Chaos in Geophysical Flows*. Eds., G. Boffetta, G. Locorata, G. Visconti and A. Vulpiani. Inter. Summer School on Atmos. And Oceanic Sci. L'Aquila, Italy, p. 105.

Cane, M.A., 2001: El Niño and the Southern Oscillation. Multiscale Variability and Global and Regional Impacts. *EOS*, Book Review 11/13/01, Editors, Diaz, H.F. and V. Markgraf. Cambridge University Press, NY.

Cañizares, R., A. Kaplan, M.A. Cane, D. Chen and S.E. Zebiak, 2001: Use of data assimilation via linear low order models for the initialization of ENSO predictions, *J. Geophys. Res. – Oceans*, **106**, 30,947-30,959.

\*Chiang, J.C.H., S.E. Zebiak and M.A. Cane, 2001: Relative roles of elevated heating and surface temperature gradients in driving anomalous surface winds over tropical oceans. *J. Atmos. Sci.*, **58**, 1,371-1,394.

\*Clement, A.C., M.A. Cane and R. Seager, 2001: An orbitally driven tropical source for abrupt climate change. *J. Climate*, **14**, 11, 2,369-2,375.

\*Evans, M.N., M.A. Cane, D.P. Schrag, A. Kaplan, B.K. Linsley, R. Villalba, G.M. Wellington, 2001: Support for tropically-driven Pacific decadal variability based on paleoproxy evidence. *Geophys. Res. Lett.*, **28**, 3689-3692.

\*Evans, M.N., A. Kaplan, M.A. Cane and R. Villalba, 2001: Globality and optimality in climate field reconstructions from proxy data, in V. Markgraf (Ed.), *Present and Past Inter-hemispheric Climate Linkages in the Americas and their Societal Effects*, Cambridge University Press, 53-57.

\*Giannini, A., Y. Kushnir and M.A. Cane, 2001: Seasonality in the impact of ENSO and the north Atlantic high on caribbean rainfall. *Phys. Chem. Earth (B)*, **26**, 143-147.

\*Giannini, A., M.A. Cane and Y. Kushnir, 2001: Interdecadal changes in the ENSO teleconnection to the Caribbean region and the North Atlantic Oscillation. *J. Climate*, **14**, 2,867-2,879.

\*Giannini, A., J.C.H. Chiang, M.A. Cane, Y. Kushnir and R. Seager, 2001: The ENSO teleconnection to the tropical Atlantic Ocean: contributions of the remote and local SSTs to rainfall variability in the tropical Americas. *J. Climate*, **14**, 4,530-4,544.

Goddard, L., S.J. Mason, S.E. Zebiak, C.F. Ropelewski, R. Basher and M.A. Cane, 2001: Current approaches to seasonal to interannual climate predictions. *International J. of Climatology*, **21**, 1,111-1,152.

Hazeleger, W., M. Visbeck, M. A. Cane, A. Karspeck, and N. Naik, 2001: Decadal upper ocean temperature variability in the tropical Pacific. *J. Geophys. Res., Oceans*, **106**, 8,971-8,988.

## CURRICULUM VITAE

Khatiwala, S., B.E. Shaw and M.A. Cane, 2001: Enhanced sensitivity of extreme events to weak forcing in a dynamical system: Implications for climate change. *Geo. Res. Lett.*, **28**, 2,633-2,636.

Seager, R., Y. Kushnir, N.H. Naik, M.A. Cane and J. Miller, 2001: Wind-driven shifts in the latitude of the Kuroshio-Oyashio Extension and generation of SST anomalies on decadal timescales. *J. Climate*, **14**, 4,249 - 4,265.

Cane, M.A. and P.A. Arkin, 2000: Current capabilities in long-term weather forecasting for agricultural purposes. In: Sivakumar, M.V.K. (ed.). *Climate Prediction and Agriculture: Proceedings of an International Workshop*. International START Secretariat.

Cane, M.A. and M. Evans, 2000: Do the Tropics Rule? *Science*, **290**, 1,107-1,108.

Cane, M.A., 2000: Understanding and predicting the world's climate system. In "*Applications of seasonal climate forecasting in agricultural and natural ecosystems - The Australian Experience*". Ed. G. Hammer, Kluwer Academic Publishers, Netherlands, p. 29-50.

Cane, M., 2000: Climate Prediction. Proceedings of the international forum on climate prediction, agriculture and development, (IRI), Palisades, New York 26-28, April, pp. 24-26.

Chen, D., M.A. Cane, S.E. Zebiak, R. Cañizares and A. Kaplan, 2000: Bias correction of an ocean-atmosphere coupled model. *Geophys. Res. Lett.*, **27**, 2,585-2,588.

\*Clement, A., R. Seager and Mark A. Cane, 2000: Suppression of El Niño during the mid-holocene by changes in the earth's orbit, *Paleoceanogr.*, **15**, 731-737.

Eshel, G., M.A. Cane and B.F. Farrell, 2000: Forecasting eastern Mediterranean droughts. *Mon. Wea. Rev.*, **128**, 3,618-3,630.

\*Evans, M.N., A. Kaplan and M.A. Cane, 2000: Intercomparison of coral oxygen isotope data and historical SST: Potential for coral-based SST field reconstructions. *Paleoceanogr.* **15**, 551-563.

\*Giannini, A., and M.A. Cane, 2000: The relationship between rainfall variability in the Caribbean/Central American and sub-Saharan regions. In Proceedings of the workshop on the West African Monsoon variability and predictability (WAMAP), Dakar, Senegal, 1-4 June 1999.

\*Giannini, A., Y. Kushnir and M. A. Cane, 2000: Interannual variability of Caribbean rainfall, ENSO and the Atlantic Ocean. *J. Climate*, **3**, 2, 297-311.

Huang, R.-X., M.A. Cane, N. Naik and P. Goodman, 2000: Global adjustment of the thermocline in response to deepwater formation. *Geophys. Res. Lett.*, **27**, 759-762.

Israeli, M., N. Naik, and M.A. Cane, 2000: An unconditionally stable scheme for the shallow water equations. *Mon. Wea. Rev.*, **128**, 810-823.

Kaplan, A., Y. Kushnir and M.A. Cane, 2000: Reduced-space optimal interpolation of historical marine sea level pressure: 1854-1992. *J. Climate*, **13**, 2,987-3,002.

Kleeman, R., N. Naik and M.A. Cane, 2000: Meridional location of the Pacific Ocean subtropical gyre. *J. Phys. Oceanogr.*, **30**, 1,988-2,000.

Kumar, K., N.R. Deshpande, K.R. Kumar and M.A. Cane, 2000: Impact of regional and global climate Variability on the production/yield of major agricultural crops in India. Proceedings of the International Forum on Climate Prediction, Agriculture and Development, (IRI), Palisades, New York 26-28 April, pp. 178.

## CURRICULUM VITAE

Orlove, B.S., J.C.H. Chiang and M.A. Cane, 2000: Forecasting Andean rainfall and crop yield from the influence of El Niño on Pleiades visibility. *Nature*, **403**, 68-71.

\*Rodgers, K., D. Schrag, M.A. Cane and N. Naik, 2000: The bomb-C14 transient in the Pacific ocean. *J. Geophys. Res. Oceans*, **105**, 8,489-8,512.

Seager, R., A.C. Clement and M.A. Cane, 2000: Glacial cooling in the tropics: exploring the roles of tropospheric water vapor, surface wind speed and boundary layer processes. *J. Atmos. Sci.*, **57**, 2,144-2,157.

Cane, M.A. and A. Clement, 1999: A role for the tropical Pacific coupled ocean-atmosphere system on Milankovitch and millennial timescales. Part II: Global impacts in Mechanisms of Millennial-Scale Global Climate Change, (eds. P.U. Clark, R.S. Webb) 29 Am. Geophys. Union, p. 373.

Cane, M.A. and V. Kamenkovich, 1999: Comments on "On the utility and disutility of JEBAR". *J. Phys. Oceanogr.*, **29**, Part 2, p.2,119.

Chen, D., M.A. Cane and S.E. Zebiak, 1999: The impact of NSCAT winds on predicting the 1997/98 El Niño: A case study with the Lamont model. *NSCAT Special Section of J. Geophys. Res.*, **104**, 11,321 - 11,327.

Chen, D., W. T. Liu, S. E. Zebiak, M.A. Cane, Y. Kushnir and D. Witter, 1999: The sensitivity of the tropical Pacific ocean simulation to the spatial and temporal resolution of wind forcing. *J. Geophys. Res.*, **104**, 11,261 - 11,271.

\*Clement, A. and Cane, M.A., 1999: A role for the tropical Pacific coupled ocean-atmosphere system on Milankovitch and millennial timescales. Part I: A modeling study of tropical Pacific variability in Mechanisms of Millennial-Scale Global Climate Change, (eds. P.U. Clark, R.S. Webb) 29 Am. Geophys. Union, p. 363.

\*Clement, A., R. Seager and M.A. Cane, 1999: Orbital controls on tropical climate. *Paleoceanol.*, **14**, 441-456.

\*Clement, A., M.A. Cane and Richard Seager, 1999: Patterns and mechanisms of twentieth century climate change. *World Resource Rev.*, **10**, 161-185.

Krishna Kumar, K., B. Rajagopalan and M.A. Cane, 1999: On the weakening relationship between the Indian Monsoon and ENSO. *Science*, **284**, 2,156-2,159.

Krishna Kumar, K., R. Kleeman, M.A. Cane and B. Rajagopalan, 1999: Epochal changes in Indian monsoon-ENSO precursors. *Geophys. Res. Letters*, **26**, 75-78

Phillips, J., B. Rajagopalan, M.A. Cane and C. Rosenzweig, 1999: The role of ENSO in determining climate and maize yield variability in the U.S. cornbelt. *Inter. J. of Climatol.*, **19**, 877-888.

Rajagopalan, B., U. Lall and M.A. Cane, 1999: Reply to the comment of Trenberth and Hurrell. *Bull. Amer. Meteor. Soc.*, **80**, 2,724-2,726.

\*Rodgers, K., M.A. Cane, N. Naik and D. Schrag, 1999: The role of the Indonesian throughflow in equatorial Pacific thermocline ventilation. *J. Geophys. Res.*, **104**, 20,551-20,570.

Cane, M.A., 1998: A role for the tropical Pacific. *Science*, **282**, 60-61.

Cane, M.A., V.M. Kamenkovich, and A. Krupitsky, 1998: On the utility and disutility of JEBAR. *J. Phys. Oceanogr.*, **29**, 519-526.

## CURRICULUM VITAE

Chen, D., M. A. Cane, S. E. Zebiak and A. Kaplan, 1998: The impact of sea level data assimilation on the Lamont model prediction of the 1997/98 El Niño. *Geophys. Res. Lett.*, **25**, 2,837-2,840.

\*Evans, M.N., A. Kaplan and M.A. Cane, 1998: Optimal sites for coral-based reconstruction of sea surface temperature. *Paleoceanogr.*, **13**, 502-516.

Kaplan, A., M., A. Cane, Y. Kushnir, A. C. Clement, B. Blumenthal, and B. Rajagopalan, 1998. Analyses of global sea surface temperature, 1856 - 1991, *J. Geophys. Res.*, **103**, 18,567-18,589.

Latif, M., D. Anderson, T. Barnett, M.A. Cane, R. Kleeman, A. Leetmaa, J. O'Brien, A. Rosati, and E. Schneider, 1998: A review of the predictability and prediction of ENSO. *J. Geophys. Res.*, **103**, 14,375-14,393.

Ni, Y., S.E. Zebiak, M. Cane, L. Marx and J. Shukla, 1998: Experimental El Niño Predictions with a Hybrid Coupled Ocean-Atmospheric Model. *Chinese J. of Atmos. Sci.*, **22** (2), 163-171.

Phillips, J.G., M.A. Cane and C. Rosenzweig, 1998: ENSO, Seasonal rainfall patterns and maize yield variability in Zimbabwe. *Agric. Forest Meteor.*, **90**,39-50.

Tziperman, E., M.A. Cane, S.E. Zebiak, Y. Xue, and M.B. Blumenthal, 1998: On the locking of El Niño's peak time to the end of the calendar year in the delayed oscillation picture of ENSO. *J. Climate*, **11**, 2,191-2,199.

Blanchet, I., C. Frankignoul and M.A. Cane, 1997: A comparison of adaptive Kalman filters for a tropical Pacific ocean model. *Mon. Wea. Rev.*, **125**, 40-58.

Buckland, R.W. and M.A. Cane, 1997: Some Post-Workshop Developments in Southern Africa: Workshop's First Fruit, M.H. Glantz, ed., Usuable Science Against Famine: Food Security, Famine Early Warning, and El Niño. ENSO/FEWS Workshop Budapest, Hungary Oct. 25-28, 1993. Boulder, CO National Center for Atmospheric Research, Issue No. 2, pp. 86.

Cane, M.A., 1997: ENSO and its Prediction, M.H. Glantz, ed., Using Science Against Famine: Food Security, Famine Early Warning, and El Niño. Special Issue of the Internet Journal for African Studies. Internet: (<http://www.brad.ac.uk/research/ijas/ijasno2/ijasno2.html>). ISSN 1363-2914. Bradford, UK: University of Bradford. ENSO/FEWS Workshop Budapest, Hungary Oct. 25-28, 1993, Issue No. 2, pp. 20.

Cane, M.A., A.C. Clement, A. Kaplan, Y. Kushnir, R. Murtugudde, D. Pozdnyakov, R. Seager and S.E. Zebiak, 1997: 20th century sea surface temperature trends. *Science*, **275**, 957-960.

Chen, D., S.E. Zebiak, M.A. Cane, and A.J. Busalacchi, 1997: On the initializations and predictability of a coupled ENSO Model. *Mon. Wea. Rev.*, **125**, 773-788.

Kaplan, A., Y. Kushnir, M.A. Cane, and M.B. Blumenthal, 1997: Reduced space optimal analysis for historical datasets: 136 years of Atlantic sea surface temperatures. *J. Geophys. Res.*, **102**, 27,835-27,860.

\*Krupitsky, A., and M.A. Cane, 1997: A two-layer wind driven ocean model in a multiply connected domain with bottom topography. *J. Phys. Oceanogr.*, **27**,395-2,404.

Kushnir, Y., V.J. Cardone, J.G. Greenwood and M.A. Cane, 1997: The recent increase in North Atlantic wave heights. *J. Climate*, **10** (8): 2,107-2113.

Miller, R.N. and M.A. Cane, 1997: Tropical Data Assimilation: Theoretical aspects, in *Modern Approaches to Data Assimilation in Ocean Modeling*, P. Malanotte-Rizzoli, ed., Elsevier Oceanography Series, Amsterdam, 207-234.

## CURRICULUM VITAE

Rajagopalan, B., U. Lall, and M.A. Cane, 1997: Anomalous ENSO occurrences: an alternate view. *J. Climate*, **10**, 2,351-2,357.

\*Rodgers, K., M.A. Cane, and D. Schrag, 1997: Seasonal variability of sea surface D<sup>14</sup>C in the equatorial Pacific in an ocean circulation model. *J. Geophys. Res.*, **102**, 18,627-18,639.

Tziperman, E., S.E. Zebiak, and M.A. Cane, 1997: Mechanisms of seasonal - ENSO interaction. *J. Atmos. Sci.*, **54**, 61-71.

Tziperman, E., H. Scher, S. Zebiak and M. A. Cane, 1997: Controlling spatiotemporal chaos in a realistic El Niño prediction model. *Physical Review Letters*, **79**, 6, 1,034-1,037.

\*Xue, Y., M.A. Cane, S.E. Zebiak and T. Palmer, 1997: Predictability of a coupled model of ENSO using singular vector analysis. Part II: Optimal growth and ENSO forecast skill. *Mon. Wea. Rev.* **125**, 2,057-2,073.

\*Xue, Y., M.A. Cane and S.E. Zebiak, 1997: Predictability of a coupled model of ENSO using singular vector analysis. Part I: Optimal growth in seasonal background and ENSO cycles. *Mon. Wea. Rev.*, **125**, 2,043-2,056.

Cane, M.A., A. Kaplan, R.N. Miller, B. Tang, E.C. Hackert, and A.J. Busalacchi, 1996: Mapping tropical Pacific sea level: Data assimilation via a reduced state space Kalman filter. *J. Geophys. Res.*, **101**, 22,599-22,617.

\*Clement, A., R. Seager, M.A. Cane and S.E. Zebiak, 1996: An ocean dynamical thermostat. *J. Climate*, **9**, 2,190-2,196.

Krupitsky, A., V. Kamenkovich, N. Naik, and M.A. Cane, 1996: A linear equivalent barotropic model of the Antarctic circumpolar current with realistic coastlines and bottom topography. *J. Phys. Oceanogr.*, **26**, 1803-1824.

Ni, Y., S.E. Zebiak, M. A. Cane, and D.M. Straus, 1996: Comparison of Surface Wind Stress Anomalies over the Tropical Pacific Simulated by an AGCM and by a Simple Atmospheric Model. *Advances in Atmos. Sci.*, **13** (2), 229-243.

Ni, Y., S.E. Zebiak, M.A. Cane and L. Marx, 1996: Reconstruction of Wind Stress Anomalies Simulated by an AGCM Using SVD Technique. *Acta Meteorologica Sinica*, **10** (3), 258-269.

Reverdin, G., A. Kaplan, and M.A. Cane, 1996: Sea level from temperature profiles in the Tropical Pacific Ocean, *J. Geophys. Res.*, **101**, 18,105 - 18,119.

Yuan X., M.A. Cane, and D. Martinson, 1996: High latitude variability - An emerging component in global climate. *Nature*, **380**, 673-674.

Bürger, S.E. Zebiak and M.A. Cane, 1995a: Quasi-fixed points and periodic orbits of the Zebiak-Cane ENSO model, Part I: Monthly Quasi-fixed points, *Mon. Wea. Rev.*, **123**, 2,802-2,813.

Bürger, S.E. Zebiak and M.A. Cane, 1995b: Quasi-fixed points and periodic orbits of the Zebiak-Cane ENSO model, Part II: Periodic orbits, *Mon. Wea. Rev.*, **123**, 2,814-2,824.

Cane, M.A., I.A. Kane, and C. Rosenzweig, 1995: The prospects for predicting ENSO impacts, TOGA 1994 Conference Summary, *The World Meteorological Organization*, Peter J. Webster, ed.

Cane, M.A., S.E. Zebiak, and Y. Xue, 1995: Model studies of the long-term behavior of ENSO in

## CURRICULUM VITAE

Natural Climate Variability on Decade-to-Century Time Scales. Martinson, D.G., K. Bryan, M. Ghil, M.M. Hall, T.R. Karl, E.S. Sarachik, S. Sorooshian, and L.D. Talley, eds. National Academy Press, Washington, D.C., DEC-CEN Workshop, Irvine, CA. pp. 442-457.

Cardone, V.J., J.G. Greenwood, Y. Kushnir and M.A. Cane, 1995: Link between North Atlantic wave climate and circulation changes. In Proceedings of the Second International Conference of Air-Sea Interaction and Meteorology of the Coastal Zone. September 1994, Lisbon, Portugal, p. 59-61.

Chen, D., S.E. Zebiak, A.J. Busalacchi and M.A. Cane, 1995: An improved procedure for El Niño forecasting. *Science*, **269**, 1,699-1,702.

\*Murtugudde, R., M.A. Cane and V. Prasad, 1995: A reduced gravity, primitive equation, isopycnal ocean GCM: Formulation and simulations. *Mon. Wea. Rev.*, **123**, 2,864-2,887.

Naik, N., M. Israeli, M.A. Cane and S. Basin, 1995: A solver for the barotropic mode in the presence of variable topography and islands. *Mon. Wea. Rev.*, **123**, 817-832.

Seager, R., Y. Kushnir and M.A. Cane, 1995: On heat flux boundary conditions for ocean models. *J. Phys. Oceanogr.*, **25**, 3,219-3,230.

Tziperman, E., M.A. Cane and S.E. Zebiak, 1995: Irregularity and locking to the seasonal cycle in an ENSO prediction model as explained by the quasi-periodicity route to chaos. *J. Atmos. Sci.*, **52**, 293-306.

Barnston, A.G., H.M. van den Dool, S.E. Zebiak, T.P. Barnett, M. Ji, D.R. Rodenhuis, M.A. Cane, A. Leetmaa, N.E. Graham, C.F. Ropelewski, V.E. Kousky, E.A. O'Lenic and R.E. Livezey, 1994: Long-Lead Seasonal Forecasts - Where Do We Stand? *Bull. Amer. Meteor. Soc.*, **75**, 2,097-2,114.

Bürger, G., and M.A. Cane, 1994: Interactive Kalman filtering. *J. Geophys. Res.*, **99**, 8,015-8,031.

Cane, M.A., G. Eshel, R.W. Buckland, 1994: Forecasting maize yield in Zimbabwe with Eastern equatorial Pacific sea surface temperature. *Nature*, **370**, No. 6486, pp. 204-205.

\*Eshel, G., M.A. Cane and B. Blumenthal, 1994: Modes of subsurface, intermediate and deep-water renewal in the Red sea. *J. Geophys. Res.*, **99**, 15,941-15,952.

Graham, N.G., T.P. Barnett, M.A. Cane and S.E. Zebiak, 1994: Simulated greenhouse warming and model ENSO cycles. SIO Reference Series, 94-04, Scripps Institution of Oceanography, La Jolla, CA. 92093, 17pp. + figs.

Hunt, B.G., S.E. Zebiak and M.A. Cane, 1994: Experimental predictions of climate variability of lead times of twelve months. *Int. J. Climatol*, **14**, 507-526.

\*Krupitsky, A., and M.A. Cane, 1994: On topographic pressure drag in a zonal channel. *J. Mar. Res.*, **52**, 1-23.

Latif, M. T. Barnett, M.A. Cane, M. Flügel, N. Graham, H. von Storch, J. Xu, and S. Zebiak, 1994: A review of ENSO prediction studies. *Clim. Dynamics*, **9**, 4/5, 167-179.

Sennechael, N., C. Frankignoul and M.A. Cane, 1994: An adaptive procedure for tuning a sea surface temperature model. *J. Phys. Ocean.*, **24**, 2,288-2,305.

Tziperman, E., L. Stone, M.A. Cane and H. Jarosh, 1994: El Niño Chaos: Overlapping of resonances between the seasonal cycle and the Pacific Ocean-Atmosphere oscillator. *Science*, **264**, 72-74.

Voice, M. and M.A. Cane, 1994: International cooperation can improve seasonal outlooks in the western Pacific region, *Agricultural Systems & Information Technology*, **6**, 25-28.

## CURRICULUM VITAE

\*Xue, Y., M.A. Cane, S.E. Zebiak and B. Blumenthal., 1994: On the prediction of ENSO: a study with a Low Order Markov Model. *Tellus*. **46A**, 512-528.

Cane, M.A., 1993: Near surface mixing and the Ocean's role in climate in *Large Eddy Simulations of Complex Engineering and Geophysical Flows*, B. Galperin, ed., Cambridge U. Press, 439-509.

Cane, M.A., 1993: Tropical Pacific ENSO models: ENSO as a mode of the coupled system: in *Climate System Modeling*, K. Trenberth, ed., Cambridge Univ. Press. pp. 583-614.

Frankignoul, C., N. Scoffier and M.A. Cane, 1993: An adaptive inverse method for model tuning and testing. In *Probability concepts in physical oceanography* Proc. Aha Huliko'a Hawaiian Winter Workshop, ed. P. Muller, D. Henderson, University of Hawaii, 331-349.

Kushnir, Y., S.E. Zebiak, M.A. Cane, and R.L. Tagett, 1993: Towards a dynamically constrained analysis of sea level pressure and winds. Proceeding of the International COADS Workshop, Boulder, Colorado, 13-15 January 1992.

Simpson, H.J., M.A. Cane, S.K. Lin, A.L. Herczeg and S.E. Zebiak, 1993: Forecasting annual discharge of River Murray, Australia from a geophysical model of ENSO, *J. Climate*, **6**, 387-390.

Simpson, H.J., M.A. Cane, A.L. Herczeg, S.E. Zebiak and J.H. Simpson, 1993: Annual river discharge in SE Australia Related to ENSO Forecasts of Sea Surface Temperatures. *Water Resour. Res.*, **29**, 3,671-3,680.

Blumenthal, M.B., Y. Xue and M.A. Cane, 1992: Predictability of an ocean/atmosphere model using adjoint model analysis, 13-15 November In *Proceeding of the Workshop on Predictability, 1991*. European Centre for Medium-Range Weather Forecasts.

Cane, M.A., 1992: A note on the fast-wave limit and interannual oscillations. *J. Atmos. Sci.*, **49**. 1947-1949.

\*Murtugudde, R., M.A. Cane and V. Prasad, 1992: A reduced gravity, primitive equation ocean GCM with an vertical isopycnal coordinate, in Oceans '92, The Oceanic Engineering Society of IEEE, Newport, RI, October 26-29.

Neelin, J.D., M. Latif, M.A.F. Allaart, M.A. Cane, U. Cubasch, W.L. Gates, P.R. Gent, M. Ghil, C. Gordon, N.C. Lau, C.R. Mechoso, G.A. Meehl, J.M. Oberhuber, S.G.H. Philander, P.S. Schopf, K.R. Sperber, A. Sterl, T. Tokioka, J. Tribbia and S.E. Zebiak, 1992: Tropical air-sea interaction in general circulation models. *Clim. Dynamics*, **7**, 73-104.

Cane, M.A., 1991: Forecasting El Niño with a Geophysical Model in *ENSO Teleconnections Linking Worldwide Climate Anomalies: Scientific Basis and Societal Impacts*. Richard W. Katz, Michael H. Glantz, and Neville Nicholls Eds., Cambridge U. Press 535 pp.

du Penhoat, Y., and M.A. Cane, 1991: Effect of low-latitude Western boundary gaps on the reflection of equatorial motions. *J. Geophys. Res.*, **3**,307-3,322.

Münnich, M., M.A. Cane and S.E. Zebiak, 1991: A study of self-excited oscillations of the tropical ocean-atmosphere system. Part II: nonlinear cases. *J. Atmos. Sci.*, **48**, 1,238-1,248.

Shukla, V., R. Murtugudde, V. Prasad and M.A. Cane, 1991: Natural convection in a cavity with linear temperature variation on the top, Mixed Convection Heat Transfer - 1991, Proceedings, 28th National Heat Transfer Conference, ASME, 163, 1-8.

## CURRICULUM VITAE

Zebiak, S.E. and M.A. Cane, 1991: Natural climate variability in a coupled model. In *Greenhouse Gas-Induced Climatic Change: Critical appraisal of Simulations and Observations*, M.E. Schlesinger, Ed. Elsevier, 457-470.

Cane, M.A., M. Münnich and S.E. Zebiak, 1990: A study of self-excited oscillations of the tropical ocean-atmosphere system. Part I: linear analysis. *J. Atmos. Sci.*, 47, 1,562-1,577.

Cardone, V.J., J.F. Greenwood and M.A. Cane, 1990: On trends in marine surface wind observations. *J. Climate*, 3, 113-127.

Blumenthal, B., and M.A. Cane, 1989: Accounting for parameter uncertainties in model verification: an illustration with tropical sea surface temperature. *J. Phys. Oceanogr.* 19, 815-830.

Cane, M.A., 1989: A mathematical note on Kawase's study of the deep ocean circulation. *J. Phys. Oceanogr.* 19, 548-550.

Frankignoul, C., C. Duchene and M.A. Cane, 1989: A statistical approach to testing equatorial ocean models with observed data. Part 1: Seasonal Variations. *J. Phys. Oceanogr.* 19, 1191-1207.

Gent, P., and M.A. Cane, 1989: A reduced gravity, primitive equation model of the upper equatorial ocean. *J. Comp. Phys.*, 81, 444-480.

Miller, R.N., and M.A. Cane, 1989: A Kalman Filter analysis of sea level height in the tropical Pacific. *J. Phys. Oceanogr.*, 19, 773-790.

Posmentier, E. S., M.A. Cane and S. E. Zebiak, 1989: Tropical Pacific climate trends since 1960. *J. Climate*, 2, 731-736.

Barnett, T., N. Graham, M.A. Cane, S. Zebiak, S. Dolan, J. O'Brien and D. Léger, 1988: On the prediction of the El Niño of 1986 - 1987. *Science*, 241, 192-196.

Busalacchi, A., and M.A. Cane, 1988: The effect of varying stratification on low -frequency equatorial motions. *J. Phys. Oceanogr.* 18, 801-812.

Cane, M.A., and S. E. Zebiak, 1988: Dynamical forecasts of the 1986-1987 ENSO with a coupled model. Proceedings of the 13th Climate Diagnostics Workshop, Oct. 31 - Nov. 4. pp. 283-288.

\*Seager, R., S. E. Zebiak and M.A. Cane, 1988: A model of the tropical Pacific sea surface temperature climatology. *J. Geophys. Res.*, 93, 1,265-1,280.

Zebiak, S. E., and M.A. Cane, 1988: Diagnostic studies of a coupled model's climate variability. Proceedings of the 13th Climate Diagnostics Workshop, Oct. 31 - Nov. 4. pp. 278-287.

Cane, M.A., and A. Busalacchi, 1987: Atlantic seasonality: Conclusions, in *Further Progress in Equatorial Oceanography*. E. Katz, J. Witte, Eds. (Nova University Press, Ft. Lauderdale) 255-258.

Cane, M.A., and R.W. Houghton, 1987: Atlantic seasonality: Observations, in *Further Progress in Equatorial Oceanography*. E. Katz, J. Witte, Eds. (Nova University Press, Ft. Lauderdale) pp. 215-234.

Cane, M.A., and S.E. Zebiak, 1987: Deterministic Prediction of El Niño Events in *Atmosphere and Oceanic Variability* H. Cattle, Ed. Royal Meteorological Society/American Meteorological Society, London, 153-182.

\*Zebiak, S.E., and M.A. Cane, 1987: Elements of a model ENSO proceedings of Japan - U.S. Workshop on the Southern oscillation phenomenon, Tokyo, Japan, Nov. 3-7.

## CURRICULUM VITAE

\*Zebiak, S.E., M.A. Cane, 1987: A model El Niño Southern Oscillation. *Mon. Wea. Rev.* 115, 2,262-2,278.

Zebiak, S.E., M.A. Cane and S. Dolan, 1987: Long - range forecasting of ENSO proceedings of second world meteorological organization conference on long-range forecasting. Toulouse, France, May.

Cane, M.A., 1986: El Niño. *Annual Review of Earth and Planetary. Sci*, **14**, 43-70.

Cane, M.A., S.E. Zebiak and S. Dolan, 1986: Experimental forecasts of El Niño. *Nature*, 322, 827-832.

Cane, M.A., 1986: Modelling and Forecasting El Niño, In *Workshop on Comparison of Simulations by Numerical Methods of the Sensitivity of the Atmospheric Circulation to Sea Surface Temperature Anomalies*. (N.C.A.R., Boulder, CO USA: WMO/TD No. 138 WCP - 121), 167-176.

Cane, M.A., 1986: Introduction to Ocean Modeling, in *Advanced Physical Oceanographic Numerical Modeling*, J.J. O'Brien, Ed. Reidel Publishing Company, Dordrecht, Holland, 5-21.

Cane, M.A., and S.E. Zebiak, 1986: On the Mechanisms of the El Niño/Southern Oscillation Cycle, in Study Week on: *Persistent Meteo-oceanographic anomalies and Teleconnections* C. Chagas and G. Puppi, Eds. (Pontifical Academy of Science), Vatican City, 59-96.

Busalacchi, A.J., and M.A. Cane, 1985: Hindcasts of sea level variations during 1982/83 El Niño. *J. Phys. Oceanogr.*, **15**, 213-221.

Cane, M.A., and S.E. Zebiak, 1985: A theory for El Niño and the Southern Oscillation. *Science*, **228**, 1,085-1,087.

Busalacchi, A.J., and M.A. Cane, 1984: Hindcast of 1982-1983 Pacific sea level, in Papers from 1982-1983 ENSO Data Display Workshop, 147-158.

Cane, M.A., 1984: Modeling sea level during El Niño. *J. Phys. Oceanogr.*, **14**, 1,864-1,874.

Cane, M.A., and P. Gent, 1984: Reflections of low-frequency equatorial waves at western boundaries. *J. Mar. Res.*, **42**, 487-502.

Harrison, D.E. and M.A. Cane, 1984: Changes in the Pacific during the 1982-1983 event. *Oceanus*, 27, No. 2, 21-28.

Cane, M.A., and R. Patton, 1984: A numerical model for low frequency equatorial dynamics. *J. Phys. Oceanogr.*, **14**, 1,853-1,863.

Reverdin, G., and M.A. Cane, 1984: The near surface equatorial Indian Ocean in 1979. Part I: Simulations with linear dynamics. *J. Phys. Oceanogr.*, **14**, 1,817-1,828.

Cane, M.A., 1983: Oceanographic events during El Niño. *Science*, **222**, 1,189 -1,195.

Cane, M.A., and E.S. Sarachik, 1983: Seasonal heat transports in a forced equatorial baroclinic model. *J. Phys. Oceanogr.*, **13**, 1,744-1,746.

Cane, M.A., and E.S. Sarachik, 1983: Equatorial oceanography. *Rev. Geophys. and Space Physics*, **21**, 1,137-1,148.

du Penhoat, Y., M.A. Cane and R. Patton, 1983: Reflections of low frequency equatorial waves on partial boundaries. *Memoires Societe Royale des Sciences de Liege*, J. Nihoul (ED.) 6e serie, Tome XIV, 237-258.

## CURRICULUM VITAE

Gent, P., K. O'Neill and M.A. Cane, 1983: A model of the semi-annual Oscillation in the equatorial Indian Ocean. *J. Phys. Oceanogr.*, **13**, 2148-2,160.

Schopf, P., and M.A. Cane, 1983: On equatorial dynamics, mixed layer physics, and sea surface temperature. *J. Phys. Oceanogr.*, **13**, 917-935.

\*Zebiak, S.E., and M.A. Cane, 1983: Modeling of sea-surface temperature during El Niño in papers from 1982-1983 ENSO Data Display Workshop, 223-229.

Cane, M.A., 1982: The variability of equatorial currents. *Recent Progress in Equatorial Oceanography*. McCreary, S.P., D.W. Moore, J. Witte, Eds., Nova/NYIT Press, Ft. Lauderdale, Florida, 197-206.

Cane, M.A., and Y. Du Penhoat, 1982: On the effect of islands on low frequency equatorial motions. *J. Mar. Res.*, **40**, 937-962.

Cane, M.A., and E.S. Sarachik, 1982: Linear baroclinic response of equatorial Oceans to periodic forcing. *Recent Progress in Equatorial Oceanography*. McCreary, S.P., D.W. Moore, J. Witte, Eds., Nova/NYIT Press, Ft. Lauderdale, Florida, 365-372.

Cane, M.A., and V. Cardone, 1981: The potential Impact of scatterometry on oceanography: A Wave Forecasting Case, in *Oceanography from Space*, J. F. Gower, editor. Plenum Press, New York, 587-596.

Cane, M.A., and V. Cardone, M. Halem, I. Halberstam, 1981: A simulation studies of the impact of SEASAT- A on weather prediction. *J. Geophys. Res.*, **86**, 8,093-8,106.

Cane, M.A., and D.W. Moore, 1981: A note on low frequency equatorial basin modes. *J. Phys. Oceanogr.*, **11**, 1578-1,584.

Cane, M.A., and E.S. Sarachik, 1981: The response of a Linear baroclinic equatorial Ocean to periodic forcing. *J. Mar. Res.*, **39**, 651-693.

Cane, M.A., 1980: On the dynamics of equatorial currents with application to the Indian Ocean. *J. Mar. Res.*, **27A**, 525-544.

Cane, M.A., 1979: The response of an equatorial Ocean to simple wind stress patterns II: Numerical Results. *J. Mar. Res.*, **37**, 253-299.

Cane, M.A., 1979: The response of an equatorial Ocean to simple wind stress patterns I: Model Formulation and Analytic Results. *J. Mar. Res.*, **37**, 233-252.

Cane, M.A., and E.S. Sarachik, 1979: Forced baroclinic Ocean motion III: An enclosed Ocean. *J. Mar. Res.*, **37**, 355-398.

Cane, M.A. and V.J. Cardone, 1978: Realistic Simulations of Global Observing System and of Seasat-a Marine Wind Data. *Transactions-American Geophysical Union*, **59** (12): 1093-1093.

Cane, M.A., and E.S. Sarachik, 1977: Forced baroclinic Ocean motion II: The Equatorial Unbounded Case. *J. Mar. Res.*, **35**, 395-432.

Cane, M.A., and E.S. Sarachik, 1976: Forced baroclinic Ocean motion I: The Equatorial Unbounded Case. *J. Mar. Res.*, **34**, 629-665.

Cane, M.A., 1975: A study of the wind-driven Ocean circulation in an equatorial basin. Ph.D. Thesis, Massachusetts Institute of Technology, 372 pp.

## CURRICULUM VITAE

Cane, M.A., 1974: Forced motions in a baroclinic equatorial Ocean. *G.F.D. Notes, Reference No. 74-63*, Woods Hole Oceanographic Institution.