

# Curriculum Vitae - Adam H. Sobel

Professor

Applied Physics & Applied Mathematics and Earth & Environmental Sciences  
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## Education

- B.A., Wesleyan University, Middletown, CT, Double Major in Physics and Music, Honors in Music, 1989.
- Extension Courses in Physics, Mathematics and Computer Science, University of California at Berkeley, Berkeley, CA, 1991-92.
- Ph.D. in Meteorology, Massachusetts Institute of Technology, Cambridge, MA. Thesis defended September 1997, formal degree date February 1998. Thesis title: Quantitative Diagnostics of Stratospheric Mixing.

## Positions

- August 1992 - August 1993: Research Assistant, Nuclear Science Division, Lawrence Berkeley Laboratory, Berkeley, CA.
- September 1993 - September 1997: Graduate Research Assistant, Massachusetts Institute of Technology, Cambridge, MA, faculty advisor R. A. Plumb.
- September 1997 - December 1999: Postdoctoral Research Associate, University of Washington, Seattle, WA.
- January 2000 - July 2003: Assistant Professor, Department of Applied Physics and Applied Mathematics and Department of Earth and Environmental Sciences, Columbia University, New York, NY.
- July 2003 – June 2010: Associate Professor (tenured since 2006), Department of Applied Physics and Applied Mathematics and Department of Earth and Environmental Sciences, Columbia University, New York, NY.
- July 2010 – present: Professor, Department of Applied Physics and Applied Mathematics and Department of Earth and Environmental Sciences, Columbia University, New York, NY.

## Courses Taught

- Partial Differential Equations, APMA E3102
- Atmospheric Science Seminar, EESC G9910

- Tropical Meteorology, EESC G6928
- Partial Differential Equations, APMA E4200
- Climate Thermodynamics and Energy Transfer, EESC W4040
- Physics of Fluids, APPH E4200
- Geophysical Fluid Dynamics, APPH E4210
- Geophysical Fluid Dynamics Seminar, EESC G9815

## Fellowships and Awards

- Phi Beta Kappa, Wesleyan University, 1989.
- NASA Group Achievement Award, for participation in the Airborne Southern Hemisphere Ozone Experiment and Measurements for Assessing the Effects of Stratospheric Aircraft (ASHOE/MAESA) field program, February - November 1994.
- NASA Graduate Student Fellowship for Global Change Research, September 1994 - September 1997.
- NOAA/UCAR Postdoctoral Fellowship in Climate and Global Change Research, September 1997 - September 1999.
- Packard Fellowship in Science and Engineering, 2000.
- NASA New Investigator Award, 2001.
- AMS Editor's award for *Journal of the Atmospheric Sciences*, 2009.
- AMS Clarence Leroy Meisinger Award, 2010.
- Lamont-Doherty Earth Observatory Award for Excellence in Mentoring, 2010.
- AXA Award from the AXA Research Fund, 2013.
- AGU (Atmospheric Sciences Section) Ascent Award, 2014.
- Atmospheric Science Librarians International Choice Award (Popular Category) for *Storm Surge* (see publications), 2014.

## Service

- *Community*
  - World Climate Research Program Grand Challenge on Clouds, Circulation, and Climate Sensitivity, Steering Group member, 2013-present.
  - Co-organizer (with Michael Tippett, Suzana Camargo, and Harold Brooks) Workshop on Severe Convection and Climate, at Lamont, March 2013.
  - US-CLIVAR Working Group on Hurricanes and Climate, 2011-2012.
  - Co-organizer, ICTP Workshop on Hierarchical Modeling of Climate, July 2011, Trieste, Italy.
  - Scientific Steering committee for the Dynamics of the Madden-Julian Oscillation (DYNAMO) field program, 2010-present.
  - Committee on Atmospheric and Oceanic Fluid Dynamics, American Meteorological Society (2005-2010); chair of committee 2007-2010.
  - Associate Editor, *Journal of the Atmospheric Sciences*, 2003-2006.
  - Associate Editor, *Monthly Weather Review*, 2002.
  - Steering Committee, NOAA/UCAR Global Change Postdoctoral Fellowship Program (2005-2007).

- Program Committee, American Meteorological Society 27<sup>th</sup> Meeting on Hurricanes and Tropical Meteorology (2005-2006).
- Co-organizer (with Michela Biasutti, Alessandra Giannini, Isaac Held, and John Chiang), Workshop on Sahel climate change, at Columbia, March 2007.
- Co-organizer (with Suzana Camargo), Workshop on Tropical Cyclones and Climate, at Lamont, March 2006.
- Co-organizer (with Tapio Schneider), Conference on the Global Circulation of the Atmosphere, November 4-6, 2004, Pasadena, CA.
- Organizing committee, Japanese-American Frontiers of Science meeting, organized by U. S. National Academy of Sciences and Japanese Society for the Promotion of Science, December 2003, Shonan Village, Japan.
- *Referee*
  - Manuscripts: *Journal of the Atmospheric Sciences*, *Journal of Climate*, *Monthly Weather Review*, *Journal of Geophysical Research*, *Geophysical Research Letters*, *Quarterly Journal of the Royal Meteorological Society*, *Nature*, *Chaos*, *Multiscale Modeling and Simulation*, *Tellus*, *Journal of Advances in Modeling the Earth System*, *Earth Interactions*, *Proceedings of the National Academy of Sciences*.
  - Proposals: NSF, NASA, NOAA, Canadian Foundation for Climate and Atmospheric Science, Israel Science Foundation.
- *Columbia (APAM=Dept. of Applied Physics & Applied Mathematics; DEES=Dept. of Earth & Environmental Sciences)*
  - Columbia Initiative on Extreme Weather and Climate, Director (see [extremeweather.columbia.edu](http://extremeweather.columbia.edu))
  - Columbia University – NASA GISS Advisory Committee, 2013-2014
  - Vice Chair, APAM, 2012-2013
  - APAM applied physics faculty search committee, 2011-2012.
  - Faculty Advisory Committee, Fu Foundation School of Engineering and Applied Science, 2009-2010.
  - DEES atmospheric science faculty search committee (chair), 2008-2009.
  - APAM graduate admissions committee, 2001-2003, 2008-2010.
  - DEES graduate admissions committee, 2001-2009.
  - NSF IGERT program in Applied Mathematics and Earth & Environmental Science, steering committee, 2002-2009.
  - DEES physical oceanography faculty search committee, 2004-2005.

## Academic Advising

- *Postdocs*
  - Guojun Gu (now at NASA Goddard Space Flight Center)
  - Joseph Galewsky (now Associate Professor at University of New Mexico)
  - Cristina Perez (now Research Scientist at UK Meteorological Office, Reading, UK)
  - Michela Biasutti (now Lamont Assistant Research Professor at Lamont-Doherty Earth Observatory of Columbia University)
  - Gilles Bellon (now Research Scientist at Centre Nationale de Recherches Meteorologiques, Toulouse, France)

- Jonathon Wright (now Associate Professor, Center for Earth System Science, Tsinghua University, Beijing, China)
- Hamish Ramsay (now at Monash University, Melbourne, Australia)
- Lei Zhou (now at Second Institute of Oceanography, Hangzhou, China)
- Daehyun Kim (now Assistant Professor at University of Washington)
- Shuguang Wang (now Associate Research Scientist, APAM)
- Ji Nie (current)
- Chia-Ying Lee (current, co-advised with Michael Tippett and Suzana Camargo)
- John Allen (current, co-advised with Michael Tippett and Suzana Camargo)
- Allison Wing (current, co-advised with Suzana Camargo)
- *Graduate Students*
  - Sam Burns (PhD 2006, now Research Scientist at Johns Hopkins University)
  - Deborah Herceg (PhD 2006)
  - Francesca Terenzi (PhD 2009; academic advisor, research advisor T. Hall)
  - Abby Swann (MS 2005, now Assistant Professor at University of Washington)
  - Casey Burleyson (MS 2008, now PhD student at N.C. State)
  - Bo Zhou (MS 2002, ABD)
  - Kirk Knobelspiesse (PhD 2010; academic advisor, research advisor B. Cairns/B. Carlson)
  - Kyle Krouse (PhD 2010)
  - Nick Mykins (MS 2011, now at yodle.com)
  - John Dwyer (PhD 2014, co-advised with Michela Biasutti)
  - Usama Anber (current)
  - Dan Shaevitz (current)
- *Graduate Student Committees, at present*
  - Sophia Brumer (DEES)
  - Catherine Pomposi (DEES)
- *External Graduate Student Committees*
  - Sarah Kang (Princeton), thesis defense committee, defense May 2009.
  - Carl Schreck (SUNY Albany), advisory committee, 2008-2011, defense 2011.
  - Juliana Dias (Courant Institute, NYU), thesis defense committee, spring 2010.
  - Allison Wing (MIT), defense October 2014.
- *Undergraduate Research Advising*
  - Dan Shaevitz
  - Pearl Flath
  - Martin Kang
  - Alicia Wagner
  - Emmi Yonekura
  - Allison Wing (Cornell; summer intern at Columbia in 2006 and 2007)
  - Marla Schwartz
  - Earle Wilson
  - Nathan Dadap
  - Julio Herrera-Estrada
  - Deanna Tufano

**Journal Articles** (peer-reviewed, published or in press)

1. Goody, R. M., and A. H. Sobel, 1996: A graduate radiation course based upon numerical methods. *Bull. Amer. Meteor. Soc.*, **77**, 2919-2924.
2. Sobel, A. H., R. A. Plumb, and D. W. Waugh, 1997: Methods of computing transport across the polar vortex edge. *J. Atmos. Sci.*, **54**, 2241-2259.
3. Wieman, H., E. Anderssen, A. Banerjee, W. Betts, R. Bossingham, V. Ghazikhanian, W. Gong, D. Greiner, G. Harper, H. Huang, E. Hjort, L. Kotchenda, A. Lebedev, I. Sakrejda, D. Shuman, M. Smith, M); A. Sobel, N. Stone, B. Stringfellow, T. Trainor, S. Trentalange, R. Wells, 1997: STAR TPC at RHIC. *IEEE Trans. Nucl. Sci.*, **44**, 671-678.
4. Sobel, A. H., and R. A. Plumb, 1999: Quantitative diagnostics of mixing in a shallow-water model of the stratosphere. *J. Atmos. Sci.*, **56**, 2811-2829.
5. Sobel, A. H., 1999: Diffusion vs. nonlocal models of stratospheric mixing, in theory and practice. *J. Atmos. Sci.*, **56**, 2571-2584.
6. Sobel, A. H., and C. S. Bretherton, 1999: Development of synoptic-scale disturbances over the summertime tropical northwest Pacific. *J. Atmos. Sci.*, **56**, 3106-3127.
7. Gettelman, A., and A. H. Sobel, 2000: Direct diagnoses of stratosphere-troposphere exchange. *J. Atmos. Sci.*, **57**, 3-16.
8. Sobel, A. H., and T. Horinouchi, 2000: On the dynamics of easterly waves, monsoon depressions, and tropical depression type disturbances. *J. Meteor. Soc. Japan*, **78**, 167-173.
9. Sobel, A. H., and G. R. Flierl, 2000: Cross-channel advective-diffusive transport by a monochromatic traveling wave. *Phys. Fluids*, **12**, 1377-1381.
10. Sobel, A. H., and E. D. Maloney, 2000: Effect of ENSO and the MJO on western north Pacific tropical cyclones. *Geophys. Res. Lett.*, **27**, 1739-1741.
11. Sobel, A. H., and C. S. Bretherton, 2000: Modeling tropical precipitation in a single column. *J. Climate*, **13**, 4378-4392.
12. Sobel, A. H., J. Nilsson, and L. M. Polvani, 2001: The weak temperature gradient approximation and balanced tropical moisture waves. *J. Atmos. Sci.*, **58**, 3650-3665.
13. Polvani, L. M., and A. H. Sobel, 2002: The Hadley circulation and the weak temperature gradient approximation. *J. Atmos. Sci.*, **59**, 1744-1752.
14. Sobel, A. H., I. M. Held, and C. S. Bretherton, 2002: The ENSO signal in tropical tropospheric temperature. *J. Climate*, **15**, 2702-2706.
15. Chiang, J. C.-H., and A. H. Sobel, 2002: Tropical temperature variations caused by ENSO and their influence on the remote tropical climate. *J. Climate*, **15**, 2616-2631.
16. Bretherton, C. S., and A. H. Sobel, 2002: A simple model of a convectively coupled Walker circulation using the weak temperature gradient approximation. *J. Climate*, **15**, 2907-2920.
17. Sobel, A. H., 2002: Water vapor as an active scalar in tropical atmospheric dynamics. *Chaos*, **12**, 451-459.
18. Bretherton, C. S., and A. H. Sobel, 2003: The Gill model and the weak temperature gradient approximation. *J. Atmos. Sci.*, **60**, 451-460.
19. Sobel, A. H., and C. S. Bretherton, 2003: Large-scale waves interacting with deep convection in idealized mesoscale model simulations. *Tellus*, **55A**, 45-60.
20. Sobel, A. H., 2003: On the coexistence of an evaporation minimum and precipitation maximum in the warm pool. *J. Climate*, **60**, 1003-1009.
21. Gildor, H., A. H. Sobel, M. A. Cane, and R. N. Sambrotto, 2003: A role for ocean biota in tropical intraseasonal atmospheric variability. *Geophys. Res. Lett.*, **30**, 1460, 10.1029/2002GL016759.

22. Sobel, A. H., and H. Gildor, 2003: A simple model of SST hot spots. *J. Climate*, **16**, 3978-3992.
23. Sobel, A. H., S. E. Yuter, C. S. Bretherton, and G. N. Kiladis, 2004: Large-scale meteorology and deep convection during TRMM KWAJEX. *Mon. Wea. Rev.*, **132**, 422-444.
24. Camargo, S. J., and A. H. Sobel, 2004: Formation of tropical storms in an atmospheric general circulation model. *Tellus*, **56A**, 56-67.
25. Shaevitz, D. A., and A. H. Sobel, 2004: Implementing the weak temperature gradient approximation with full vertical structure. *Mon. Wea. Rev.*, **132**, 662-669.
26. Maloney, E. D., and A. H. Sobel, 2004: Surface fluxes and ocean coupling in the tropical intraseasonal oscillation. *J. Climate*, **17**, 4368-4386.
27. Gu, G., R. F. Adler, and A. H. Sobel, 2005: The eastern Pacific ITCZ during the boreal spring. *J. Atmos. Sci.*, **62**, 1157-1174.
28. Galewsky, J., and A. H. Sobel, 2005: Moist dynamics and orographic precipitation in northern California during the New Year's flood of 1997. *Mon. Wea. Rev.*, **133**, 1594-1612.
29. Camargo, S. J., and A. H. Sobel, 2005: Western north Pacific tropical cyclone intensity and ENSO. *J. Climate*, **18**, 2996-3006.
30. Galewsky, J., A. H. Sobel, and I. M. Held, 2005: Diagnosis of subtropical humidity dynamics using tracers of last saturation. *J. Atmos. Sci.*, **62**, 3353-3367.
31. Sobel, A. H., and S. J. Camargo, 2005: Influence of western north Pacific tropical cyclones on their large-scale environment. *J. Atmos. Sci.*, **62**, 3396-3407.
32. Biasutti, M., A. H. Sobel, and Y. Kushnir, 2006: GCM precipitation biases in the tropical Atlantic. *J. Climate*, **19**, 935-958.
33. Swann, A., A. H. Sobel, S. E. Yuter, and G. N. Kiladis, 2006: Observed radar reflectivity in convectively coupled Kelvin and mixed Rossby-gravity waves. *Geophys. Res. Lett.*, **33**, doi:10.1029/2006LG025979.
34. Galewsky, J., C. P. Stark, S. Dadson, C.-C. Wu, A. H. Sobel, and M.-J. Horng 2006: Tropical cyclone triggering of sediment discharge in Taiwan. *J. Geophys. Res. (Earth Surface)*, **111**, F03014, doi:10.1029/2005JF000428.
35. Sobel, A. H., and J. D. Neelin, 2006: The boundary layer contribution to intertropical convergence zones in the quasi-equilibrium tropical circulation model framework. *Theor. Comp. Fluid Dyn.*, **20**, 323-350.
36. Burns, S. P., A. H. Sobel, and L. M. Polvani, 2006: Asymptotic solutions to the moist axisymmetric Hadley circulation. *Theor. Comp. Fluid Dyn.*, **20**, 443-467.
37. Zhou, B., and A. H. Sobel, 2006: Nonlinear shallow water solutions using the weak temperature gradient approximation. *Theor. Comp. Fluid Dyn.*, **20**, 469-484.
38. Herceg, D., A. H., Sobel, L. Sun, and S. Zebiak, 2006: The big brother experiment with the NCEP regional spectral model. *Climate Dyn.*, **27**, 69-82.
39. Maloney, E. D., and A. H. Sobel, 2007: Idealized hot spot experiments with a general circulation model. *J. Climate*, **20**, 908-925.
40. Wing, A., A. H. Sobel, and S. J. Camargo, 2007: The relationship between the potential and actual intensities of tropical cyclones on interannual time scales. *Geophys. Res. Lett.*, **34**, L08810, doi:10.1029/2006GL028581
41. Camargo, S. J., K. A. Emanuel, and A. H. Sobel, 2007: Use of a genesis potential index to diagnose ENSO effects on tropical cyclone genesis. *J. Climate*, **20**, 4819-4834.

42. Camargo, S. J., A. H. Sobel, A. Barnston, and K. A. Emanuel, 2007: Tropical cyclone genesis potential in climate models. *Tellus A*, **59**, 428-443.
43. Herceg, D., A. H. Sobel, and L. Sun, 2007: Regional modeling of decadal rainfall variability over the Sahel. *Climate Dyn.*, **29**, 89-99.
44. Sobel, A. H., G. Bellon and J. Bacmeister, 2007: Multiple equilibria in a single-column model of the tropical atmosphere. *Geophys. Res. Lett.*, **34**, L22804, doi:10.1029/2007GL031320.
45. Bellon, G., and A. H. Sobel, 2008a: Poleward-propagating intraseasonal monsoon disturbances in an intermediate-complexity axisymmetric model. *J. Atmos. Sci.*, **65**, 470-489.
46. Bellon, G., and A. H. Sobel, 2008b: Instability of the axisymmetric monsoon flow and intraseasonal oscillation. *J. Geophys. Res.*, **113**, D07108, doi:10.1029/2007JD009291.
47. Krouse, K. D., A. H. Sobel, and L. M. Polvani 2008: On the wavelength of the Rossby waves radiated by tropical cyclones. *J. Atmos. Sci.*, **65**, 644-654.
48. Giannini, A., M. Biasutti, I. M. Held, and A. H. Sobel, 2008: A global climate system perspective on African environmental change. *Climatic Change*, DOI 10.1007/s10584-008-9396-y.
49. Holder, C., S. E. Yuter, A. H. Sobel, and A. Aiyyer, 2008: The mesoscale characteristics of tropical oceanic precipitation during Kelvin and mixed Rossby-gravity wave events. *Mon. Wea. Rev.*, **136**, 3446-3464 .
50. Biasutti, M., I. M. Held, A. H. Sobel, and A. Giannini, 2008: SST forcings and Sahel rainfall variability in simulations of the 20th and 21st centuries. *J. Climate*, **21**, 3471-3486.
51. Bellon, G., A. H. Sobel, and J. Vialard, 2008: Ocean-atmosphere coupling in the monsoon intraseasonal oscillation: a simple model study. *Journal of Climate*, **21**, 5254-5270.
52. Sobel, A. H., E. D. Maloney, G. Bellon, and D. M. Frierson, 2008: The role of surface fluxes in tropical intraseasonal oscillations. *Nature Geoscience*, **1**, 653-657.
53. Sobel, A. H., and G. Bellon, 2009: The effect of imposed drying on parameterized deep convection. *J. Atmos. Sci.*, **66**, 2085-2096.
54. Wright, J., A. H. Sobel, and G. A. Schmidt, 2009: The influence of condensate evaporation on water vapor and its stable isotopes in a GCM. *Geophys. Res. Lett.*, **36**, L12804, doi:10.1029/2009GL038091.
55. Sobel, A. H., and T. Schneider, 2009: Single-layer axisymmetric model for a Hadley circulation with parameterized eddy momentum forcing. *J. Adv. Model. Earth Syst.* **1**, doi:10.3894/JAMES.2009.1.10.
56. Raymond, D. J., S. Sessions, A. H. Sobel, and Z. Fuchs, 2009: The mechanics of gross moist stability. *J. Adv. Model. Earth Syst.*, **1**, doi:10.3894/JAMES.2009.1.9.
57. Biasutti, M., A. H. Sobel, and S. J. Camargo, 2009: The role of the Sahara low in Sahel rainfall variability and change in the CMIP3 models. *J. Climate*, **22**, 5755-5771.
58. Camargo, S. J., M. C. Wheeler, and A. H. Sobel, 2009: Diagnosis of the MJO modulation of tropical cyclogenesis using an empirical index. *J. Atmos. Sci.*, **66**, 3061-3074.
59. Biasutti, M., and A. H. Sobel, 2009: Delayed Sahel rainfall and global seasonal cycle in a warmer climate. *Geophys. Res. Lett.*, doi:10.1029/2009GL041303.
60. Sobel, A. H., E. D. Maloney, G. Bellon, and D. M. Frierson, 2010: Surface fluxes and tropical intraseasonal variability: A reassessment. *J. Adv. Model. Earth Syst.*, **2**, doi:10.3894/JAMES.2010.2.2.

61. Krouse, K. D., and A. H. Sobel, 2010: An observational study of multiple tropical cyclone events in the western north Pacific. *Tellus*, **62A**, 256-265.
62. Maloney, E. D., W. M. Hannah, and A. H. Sobel, 2010: Intraseasonal variability in an aquaplanet general circulation model. *J. Adv. Model. Earth Syst.*, **2**, doi:10.3894/JAMES.2010.2.5.
63. Bellon, G., and A. H. Sobel, 2010: Multiple equilibria of the Hadley circulation in an intermediate-complexity atmospheric model. *J. Climate*, **23**, 1760-1778.
64. Sessions, S., S. Sugaya, D. J. Raymond, and A. H. Sobel, 2010: Multiple equilibria in a cloud-resolving model. *J. Geophys. Res.*, **115**, D12110, doi:10.1029/2009JD013376.
65. Wright, J., A. H. Sobel, and J. Galewsky, 2010: Diagnosis of relative humidity changes in a warmer climate. *J. Climate*, **23**, 4556-4570.
66. Camargo, S. J., and A. H. Sobel, 2010: Revisiting the influence of the quasi-biennial oscillation on tropical cyclone activity. *J. Climate*, **23**, 5810-5825.
67. Sobel, A. H., 2010: Raised bar for rain. *Nature Geosci.*, **3**, 821-822. ("News & Views", not peer reviewed.)
68. Ramsay, H. A., and A. H. Sobel, 2011: The effects of relative and absolute sea surface temperature on tropical cyclone potential intensity using a single column model. *J. Climate*, **24**, 183-193.
69. Sobel, A. H., and S. J. Camargo 2011: Projected future changes in tropical summer climate. *J. Climate*, **24**, 473-487.
70. Sobel, A. H., and C. D. Burleyson and S. E. Yuter, 2011: Rain on small tropical islands. *J. Geophys. Res.*, **116**, D08102, doi:10.1029/2010JD014695.
71. Tippett, M. K., S. J. Camargo, and Sobel, 2011: A Poisson regression index for tropical cyclone genesis and the role of large-scale vorticity in genesis. *J. Climate*, early online, doi: 10.1175/2010JCLI3811.1
72. Wang, S., and A. H. Sobel, 2011: Response of convection to relative SST: cloud-resolving simulations in 2D and 3D. *J. Geophys. Res.*, **116**, D11119, doi:10.1029/2010JD015347.
73. Kim, D., A. H. Sobel, E. D. Maloney, D. W. M. Frierson, and I.-S. Kang, 2011: A systematic relationship between intraseasonal variability and mean state bias in AGCM simulations. *J. Climate*, **24**, 5506-5520.
74. Biasutti, M., A. H. Sobel, S. J. Camargo, and T. Creyts, 2011: Projected changes in the physical climate of the Gulf coast and Caribbean. *Climatic Change*, **112**, 819-845.
75. Tippett, M. K., S. J. Camargo and A. H. Sobel, 2012: Association of U.S. tornado occurrence with monthly environmental parameters. *Geophys. Res. Lett.*, **39**, L02801, doi:10.1029/2011GL050368.
76. Sobel, A. H., and E. D. Maloney, 2012: An idealized semi-empirical framework for modeling the Madden-Julian oscillation. *J. Atmos. Sci.*, **69**, 1691-1705.
77. Zhu, H., and A. H. Sobel, 2012: Comparison of a single column model in weak temperature gradient mode to its parent AGCM. *Q. J. Royal Met. Soc.*, doi:10.1002/qj.967.
78. Kim, D., A. H. Sobel, and I.-S. Kang, 2012: A mechanism denial study on the Madden-Julian Oscillation. *J. Adv. Model Earth Syst.*, **3**, M12007, DOI:10.1029/2011MS000081.
79. Kim, D., A. H. Sobel, A. Del Genio, Y. Chen, S. J. Camargo, Yao, M. Kelley, and L. Nazarenko, 2012: The tropical subseasonal variability in the NASA GISS general circulation model. *J. Climate*, **25**, 4641-4659.



80. Biasutti, M., C. Burleyson, S. E. Yuter, and A. H. Sobel, 2012: Very high resolution rainfall patterns measured by TRMM precipitation radar: seasonal and diurnal cycles. *Clim. Dyn.*, **39**, 239-258
81. Wang, S., and A. H. Sobel, 2012: Impact of imposed drying on deep convection in a cloud-resolving model. *J. Geophys. Res.*, **117**, D2, doi:10.1029/2011JD016847
82. Zhou, L., A. H. Sobel, and R. Murtugudde, 2012: Kinetic energy budget for the Madden-Julian oscillation in a multiscale framework. *J. Climate*, in press.
83. Dwyer, J. G., M. Biasutti, and A. H. Sobel, 2012: Projected changes in the seasonal cycle of surface temperature. *J. Climate*, **25**, 6359-6374.
84. Sobel, A. H., 2012: Tropical Weather. *Nature Education Knowledge*, **3** (10), 2.
85. Sobel, A. H. and D. Kim, 2012: The MJO-Kelvin wave transition. *Geophys. Res. Lett.*, **9**, L20808, doi:10.1029/2012GL053380.
86. Field, R. D., C. Risi, G. A. Schmidt, J. Worden, A. Voulgarakis, A. N. LeGrande, A. H. Sobel, and R. J. Healy, 2012: A tropospheric emission spectrometer HDO/H<sub>2</sub>O retrieval simulator for climate models. *Atmos. Chem. Phys.*, **12**, 10485-10504.
87. Lintner, B., G. Bellon, A. H. Sobel, D. Kim, and J. D. Neelin, 2012: Implementation of the quasi-equilibrium circulation model 2 (QTCM2): Global simulations and sensitivity to free-tropospheric moisture. *J. Adv. Model Earth Sys.*, **4**, M12002, doi:10.1029/2012MS000174.
88. Sobel, A. H., and E. D. Maloney, 2013: Moisture modes and the eastward propagation of the MJO. *J. Atmos. Sci.*, **70**, 187-192.
89. Lintner, B., P. Gentine, K. Findell, F. D'Andrea, and A. H. Sobel, 2013: An idealized prototype for large-scale land-atmosphere coupling. *J. Climate*, **26**, 2379-2389.
90. Tandon N., E. P. Gerber, A. H. Sobel, and L. M. Polvani, 2013: Understanding Hadley cell expansion vs. contraction: insights from simplified models and implications for recent observations. *J. Climate*, **26**, 4304-4321.
91. Benedict, J., E. Maloney, A. H. Sobel, D. M. W. Frierson, and L. Donner, 2013: Tropical intraseasonal variability in version 3 of the GFDL atmosphere model. *J. Climate*, **26**, 426-449.
92. Auffhammer, M., S. Hsiang, W. Schlenker, and A. H. Sobel, 2013: Using weather data and climate model output in economic analyses of climate change. *Review of Environmental Economics and Policy*, doi: 10.1093/reep/ret016.
93. Wang, S., A. H. Sobel, and Z. Kuang, 2013: Cloud-resolving simulation of TOGA COARE using parameterized large-scale dynamics. *J. Geophys. Res.*, doi: 10.1002/jgrd.50510.
94. Hall, T. M., and A. H. Sobel, 2013: The impact angle of hurricane Sandy's New Jersey landfall. *Geophys. Res. Lett.*, doi: 10.1002/grl.50395.
95. Emanuel, K. A., and A. H. Sobel, 2013: Response of sea surface temperature, precipitation, and tropical cyclone-related variables to changes in global and local forcing. *J. Adv. Model Earth Sys.*, doi: 10.1002/jame.20032
96. Barnes, E. A., L. M. Polvani, and A. H. Sobel, 2013: Model projections of atmospheric steering of Sandy-like superstorms. *Proc. Nat. Acad. Sci.*, doi:10.1073/pnas.1308732110.
97. Kim, D., J.-S. Kug, and A. H. Sobel, 2014: Propagating vs. non-propagating Madden-Julian oscillation events, *J. Climate*, **27**, 111-125.
98. Zhu, H., M. Wheeler, A. H. Sobel, and D. Hudson, 2014: Seamless precipitation prediction skill in the tropics and extratropics from a global model. *Mon. Wea. Rev.*, **142**, 1556-1569.

99. Tippett, M. K., A. H. Sobel, S. J. Camargo, and J. T. Allen, 2014: An empirical relation between U.S. tornado activity and monthly environmental parameters. *J. Climate*, **27**, 2983-2999.
100. Anber, U., S. Wang, and A. H. Sobel, 2014: Response of atmospheric convection to vertical wind shear: cloud resolving simulations with parameterized large-scale circulation. Part I: Specified radiative cooling. *J. Atmos. Sci.*, **71**, 2976-2993
101. Dwyer, J. G., M. Biasutti, and A. H. Sobel 2014: The effect of greenhouse-gas-induced changes in SST on the seasonality of tropical precipitation. *J. Climate*, **27**, 4544-4565.
102. Sobel, A. H., S. Wang, and D. Kim, 2014: Moist static energy budget of the MJO during DYNAMO. *J. Atmos. Sci.*, **71**, 4276-4291.
103. S. Wang, S. J. Camargo, A. H. Sobel, and L. M. Polvani, 2014: Impact of tropopause temperature on the intensity of tropical cyclones: An idealized study using a mesoscale model. *J. Atmos. Sci.*, **71**, 4333-4348.
104. Shaevitz, D. A., S. J., Camargo, A. H. Sobel, and coauthors, 2014: Characteristics of tropical cyclones in high-resolution models in the present climate. *J. Adv. Model. Earth Sys.*, DOI: 10.1002/2014MS000372.
105. Rochetin, N., B. Lintner, K. Findell, A. H. Sobel, and P. Gentine, 2014: Radiative-convective equilibrium over a land surface. *Journal of Climate*, **23**, 8611-8629
106. Camargo, S. J., M. K. Tippett, G. A. Vecchi, and M. Zhao, 2014: Testing the performance of tropical cyclone genesis indices in future climates using the HIRAM model. *J. Climate*, **27**, 9171-9196.
107. Benedict, J., E. D. Maloney, A. H. Sobel, and D. M. W. Frierson, 2014: Gross moist stability and MJO simulation skill in three full-physics GCMs. *Journal of the Atmospheric Sciences*, **71**, 3327-3349.
108. Allen, J. T., M. K. Tippett, and A. H. Sobel, 2015: An empirical model relating U.S. monthly hail occurrence to large-scale meteorological environment. *J. Adv. Model Earth Sys.*, **7**, doi:10.1002/2014MS000397.

## Books

1. T. Schneider and A. H. Sobel, Eds., 2007: *The Global Circulation of the Atmosphere*, Princeton University Press, 400pp.
2. L. M. Polvani, A. H. Sobel, and D. W. Waugh, Eds., 2010: *The Stratosphere: Dynamics, Transport, and Chemistry*, American Geophysical Union, Geophysical Monograph Series, **190**, 220pp.
3. A. H. Sobel, 2014: *Storm Surge: Hurricane Sandy, Our Changing Climate, and Extreme Weather of the Past and Future*, Harper-Collins, to appear in October 2014. (Popular science.)

## Book Chapters

1. Sobel, A. H., C. S. Bretherton, H. Gildor, and M. E. Peters, 2004: Convection, cloud-radiative feedbacks and thermodynamic ocean coupling in simple models of the Walker circulation. *Earth's Climate: The Ocean-Atmosphere Interaction*. C. Wang, S.-P. Xie, and J. Carton, Eds., AGU Geophysical Monograph **147**, 393-405.

2. Sobel, A. H., 2007: Simple models of ensemble-averaged precipitation and surface wind, given the SST. *The Global Circulation of the Atmosphere*, T. Schneider and A. H. Sobel, Eds., Princeton University Press.
3. Camargo, S. J., A. H. Sobel, A. G. Barnston, and P. Klotzbach, 2009: The influence of natural climate variability, and seasonal forecasts of tropical cyclone activity. *Global Perspectives on Tropical Cyclones*, 2nd edition, J. Chan and J. D. Kepert, Eds., World Scientific, 325-360.
4. Sobel, A. H., 2009: Going to extremes. *Climate Change: Picturing the Science*, G. Schmidt and J. Wolfe, Eds., Norton. (Popular science, not peer reviewed).
5. Sobel, A. H., 2010: R. Alan Plumb: A brief biographical sketch, and personal tribute. *The Stratosphere: Dynamics, Transport, and Chemistry*, AGU, Geophys. Monogr. Ser., **190**, L. M. Polvani, D. W. Waugh, A. H. Sobel, Eds. (Foreword chapter, not peer reviewed.)

## Meeting Summaries

1. Schneider, T., and A. H. Sobel, 2006: Global circulation of the atmosphere (2004). *Bull. Amer. Meteor. Soc.*, **87**, 807-809.
2. Camargo, S. J., and A. H. Sobel, 2007: Workshop on tropical cyclones and climate. *Bull. Amer. Meteor. Soc.*, **88**, 389-391.
3. Biasutti, M., A. Giannini, A. H. Sobel, I. M. Held, and J. C.-H. Chiang, 2007: Sahel climate change. *EOS*, **88**, (29), 295.

## Op-Eds

[CNN](#), "What we didn't learn from Superstorm Sandy." Oct. 26, 2013.

[CNN](#), "How deadly storms claim a bigger toll." Nov. 10, 2013.

[Los Angeles Times](#), "Monitoring a climate epidemic." Nov. 15, 2013 (with Naomi Oreskes).

[CNN](#), "Record cold doesn't disprove global warming." Jan. 7, 2014.

[CNN](#), "Is China climate deal the best we can get?" Nov. 18, 2014.

[Salon](#), "Forget the 'polar vortex' backlash: How I learned to love an overused media buzzword." Nov. 22, 2014.

[Los Angeles Times](#), "Flood, drought risks must be managed, with or without climate change." December 18, 2014 (with Richard Seager).

[CNN](#), "Wrong but right about winter storm." January 27, 2015.

## Talks (since 2002)

### Invited

1. Yale University, Dept. of Geology and Geophysics, New Haven, CT, March 2002.
2. American Geophysical Union Spring Meeting, Washington, DC, May 2002.
3. Stockholm University, Dept. of Meteorology, Stockholm, Sweden, June 2002.
4. Japanese-American Frontiers of Science Symposium, Irvine, CA, December 2002.
5. UCLA Dept. of Atmospheric & Oceanic Sciences, Los Angeles, CA, January 2003.
6. 1<sup>st</sup> Northeast Tropical Meteorology Workshop, Rhinebeck, NY, June 2003.
7. Kyoto University, Radio Atmospheric Science Center, Uji, Japan, December 2003.

8. Oregon State University, College of Oceanic and Atmospheric Sciences, Corvallis, OR, December 2003.
9. University of Maryland, Dept. of Meteorology, College Park, MD, March 2004.
10. MIT Atmospheric Science Seminar Series, Cambridge, MA, April 2004.
11. University of Washington, Dept. of Atmospheric Sciences, Seattle, WA, March 2005.
12. Courant Institute of Mathematical Sciences, New York University, CAOS seminar, New York, NY April 2005.
13. Global Chemistry and Climate Summer School, Banff, Canada, May 2005 (3 invited lectures).
14. California Institute of Technology, Dept. of Earth and Planetary Sciences, Pasadena, CA, May 2005.
15. 2<sup>nd</sup> Northeast Tropical Meteorology Workshop, Rensselaerville, NY, June 2005.
16. National Center for Atmospheric Research, Institute for Mathematics Applied to Geosciences' Workshop on Emerging Mathematical Strategies for Multi-Scale and Stochastic Modeling of the Atmosphere and Climate, Boulder, CO, November 2005.
17. CIMMS/IPAM Workshop on Multiscale Modeling and Computation: Basic Theory and the Geosciences, Pasadena, CA, November 2005.
18. Colorado State University, Dept. of Atmospheric Sciences, Fort Collins, CO, April 2006.
19. Massachusetts Institute of Technology, Dept. of Earth, Atmospheric, and Planetary Sciences, Cambridge, MA, May 2006.
20. Workshop on Geophysical Fluid Dynamics and Fluid dynamics in the Tropics, Singapore National University, Singapore, November 2006 (2 invited lectures).
21. NASA Goddard Institute for Space Studies, New York, NY, February 2007.
22. Australian Bureau of Meteorology, Melbourne, Australia, September 2007.
23. Australian Bureau of Meteorology Northern Territory Regional Office, Darwin, Australia, September 2007.
24. National Taiwan University, Dept. of Atmospheric Sciences, Taipei, Taiwan, November 2007.
25. National Central University, Taipei, Taiwan, November 2007.
26. University of Tokyo, Center for Climate Systems Research, Chiba, Japan, November 2007.
27. University of Melbourne, Dept. of Meteorology, Melbourne, Australia, November 2007.
28. National Institute for Water and Atmosphere, Lauder, New Zealand, January 2008.
29. National Institute for Water and Atmosphere, Wellington, New Zealand, January 2008.
30. Australian Bureau of Meteorology Northern Territory Regional Office, Darwin, Australia, February 2008.
31. Australian Defense Force Academy, Canberra, Australia, May 2008.
32. Stony Brook University, School of Marine and Atmospheric Sciences, Stony Brook, NY, September 2008.
33. Princeton University, Department of Geosciences, Princeton, NJ, October 2008.
34. NOAA Geophysical Fluid Dynamics Laboratory, Princeton, NJ, October 2008.
35. Cornell University, Department of Earth and Atmospheric Sciences, Ithaca, NY, November 2008.
36. University of Toronto, Department of Physics, Toronto, Canada, April 2009.
37. University of Chicago, Department of Geosciences, Chicago, IL, May 2009.
38. Princeton Center for Theoretical Science, Workshop on Fundamental Problems in Climate Dynamics, Princeton, NJ, May 2009.

39. Northeast Tropical Meteorology Conference, Rensselaerville, NY, June 2009.
40. Workshop on Climate Monitoring and Modeling, Korean Ocean Research and Development Institute, Seoul, South Korea, June 2009.
41. IAMAS-IAPSO-IACS Joint Assembly “MOCA 2009”, Session on “Advances in Theoretical Dynamics”, Montreal, Canada, July 2009.
42. Workshop on Large-Scale Circulations in Moist Convecting Atmospheres, Harvard University, Cambridge, MA, October 2009.
43. Wesleyan University, Physics Department, Middletown, CT, October 2009.
44. Pennsylvania State University, Dept. of Meteorology, February 2010.
45. Harvard University, Dept. of Earth and Planetary Sciences, March 2010.
46. Split Workshop in Atmospheric Physics and Oceanography, Split, Croatia, May 2010.
47. MJO workshop, Busan, Korea, June 2010.
48. US-Korea workshop on seasonal climate prediction, Busan, Korea, June 2010.
49. Max Planck Institute for Meteorology, Hamburg, Germany, June 2010.
50. IFM-GEOMAR, Kiel, Germany, July 2010.
51. “Fighting for Survival: The Vulnerability of America’s Gulf Coast and the Caribbean Basin”, conference at Tulane University, New Orleans, LA, August 2010.
52. University of Arizona, Department of Atmospheric Sciences, September 2010.
53. Association of Small Island States/CARIBSAVE Losses and Damages Workshop, Oxford, UK, November 2010.
54. California Institute of Technology, Pasadena, CA, March 2011.
55. Rosenstiel School of Marine and Atmospheric Sciences, University of Miami, March 2011.
56. Max Planck Institute for Meteorology, Hamburg, Germany, August 2011.
57. University of California, Berkeley, Center for Atmospheric Science seminar, October 2011.
58. Geophysical Fluid Dynamics Laboratory, Princeton, NJ, December 2011.
59. CLIVAR Tropical Cyclone Working Group Workshop, New Orleans, LA, January 2012.
60. NCAR Advanced Study Program Summer Colloquium, June 2012.
61. First Pan-Global Atmospheric System Study Meeting, Boulder, CO, September 2012.
62. University at Albany, Earth and Atmospheric Sciences Department seminar, November 2012.
63. Secret Science Club, The Bell House, Brooklyn, NY, November 2012.
64. Lamont Public Lecture, AppNexus, New York, NY, April 2013.
65. Federal Emergency Management Agency (FEMA) Joint Field Office, Forest Hills, NY, April 2013.
66. New York Public Library, New York, NY, June 2013.
67. Workshop on the Nature of MJO, George Mason University, Fairfax, VA, June 2013.
68. Laboratoire Meteorologie Dynamique, Ecole Normale Supérieure, Paris, France, June 2013.
69. EUCLIPSE Summer School on Clouds and Climate, Les Houches, France, July 2013.
70. Workshop on Fluid Dynamics in Earth and Planetary Sciences (FDEPS), Kyoto, Japan – sole lecturer, 17 hours of lectures over 4 days, December 2013.
71. AGU Fall Meeting, December 2013.
72. Workshop on Tropical Dynamics and the MJO, Honolulu, HI, January 2014.
73. World Climate Research Program Grand Challenge Workshop on Clouds, Circulation, and Climate Sensitivity, Rottach-Egern, Germany, March 2014.
74. University of Oklahoma School of Meteorology, Norman, OK, May 2014.
75. Brooklyn School for Collaborative Studies, June 2014 (high school class).

76. Latsis Symposium on Atmosphere and Climate Dynamics, Zurich, Switzerland, June 2014.
77. Geophysical Fluid Dynamics Program, Woods Hole Oceanographic Institute, Woods Hole, MA, July 2014.
78. Yale University, Geology & Geophysics Department, September 2014.
79. WCRP Climate Symposium, Darmstadt, Germany, October 2014.
80. 8<sup>th</sup> International Workshop on Tropical Cyclones, Jeju, Korea, December 2014.
81. Tel Aviv University, Department of Geosciences (3 lectures), Tel Aviv, Israel, January 2015.
82. Hebrew University, Jerusalem, Israel, January 2015.
83. Weizmann Institute, Rehovot, Israel, January 2015.
84. Rutgers University, Department of Environmental Sciences, January 2015.
85. Reinsurance Association of America Catastrophe Modeling Conference, Orlando, FL, February 2015.
86. TEDx Broadway, New York, NY, February 2015.

### **Contributed**

1. AGU Fall Meeting, San Francisco, CA, December 2002.
2. Tropical Biases Workshop, Geophysical Fluid Dynamics Laboratory, Princeton, NJ, May 2003.
3. 14<sup>th</sup> AMS Conference on Atmospheric and Oceanic Fluid Dynamics, San Antonio, TX, June 2003.
4. Lamont-Doherty Earth Observatory, Ocean and Climate Physics Seminar, Palisades, NY, April 2004.
5. 26<sup>th</sup> AMS Conference on Hurricanes and Tropical Meteorology, Miami, FL, May 2004.
6. Western Pacific Geophysics Meeting, Honolulu, HI, August 2004.
7. 15<sup>th</sup> AMS Conference on Atmospheric and Oceanic Fluid Dynamics, Cambridge, MA, June 2005.
8. 27<sup>th</sup> AMS Conference on Hurricanes and Tropical Meteorology, Monterey, CA, April 2006.
9. AGU Fall Meeting, San Francisco, CA, December 2006.
10. 16<sup>th</sup> Conference on Atmospheric and Oceanic Fluid Dynamics, Santa Fe, NM, June 2007.
11. Australian Meteorological and Oceanographic Society Annual Meeting, Geelong, Australia, January 2008.
12. AMS Conferences on Air-Sea Interaction and Climate Variability and Change, AMS Annual Meeting, Phoenix, AZ, January 2009.
13. AGU Fall Meeting, San Francisco, CA, December 2010.
14. 18<sup>th</sup> Conference on Atmospheric and Oceanic Fluid Dynamics, Spokane, WA, June 2011.
15. Workshop on Hierarchical Modeling of Climate, International Centre for Theoretical Physics, Trieste, Italy, July 2011.
16. 30<sup>th</sup> AMS Conference on Hurricanes and Tropical Meteorology, Ponte Vedra, FL, April 2012.
17. AGU Fall Meeting, San Francisco, CA, December 2012.
18. AGU Fall Meeting, San Francisco, CA, December 2013.
19. AMS Annual Meeting, Atlanta, GA, February 2014.
20. AGU Fall Meeting, San Francisco, CA, December 2014.