

Hui Su

1225 ½ Flanders Road
La Canada Flintridge, CA 91011
Cell: (818) 237 0247
Home: (818) 952 5488
Work: (818) 393 7388
Email: Hui.Su@jpl.nasa.gov

Education

B.S. (with honors), Atmospheric Dynamics, Peking University, 1991
Ph.D., Atmospheric Sciences, University of Washington, 1998

Work Experience

May 2005 - present Scientist/Research Scientist, Jet Propulsion Laboratory, California Institute of Technology, Pasadena, CA

- Leading satellite data analysis to study climate variability and atmospheric dynamics, especially on water vapor feedback, cloud radiative effects and aerosol-cloud interactions
- Supervising postdoctoral scholars and mentoring summer students
- Co-chairing Aura Science Team Climate Working Group

Jul 1998 - May 2005 Assistant Researcher, Department of Atmospheric and Oceanic Sciences, University of California, Los Angeles, CA

Core member of the research team on coupled atmosphere-ocean-land tropical circulation modeling; provided guidance to junior members

Sep 1993 - Jul 1998 Research Assistant, Department of Atmospheric Sciences, University of Washington, Seattle, WA

Worked on modeling tropical convection and its interaction with large-scale dynamics

Sep 1991- Jul 1993 Research Assistant, Department of Geophysics, Peking University, Beijing, China

Worked on mesoscale modeling of vortex over Tibetan Plateau

Professional Affiliations

- Member of American Geophysical Union since 1996
- Member of American Meteorological Society since 1996

Honors and Awards

- JPL Team Bonus Award, CMIP5 model evaluation
- JPL Team Bonus Award, EV-I proposal writing team
- NASA Group Achievement Award to Genesis and Rapid Intensification Process (GRIP) Team, 2011
- NASA Exceptional Scientific Achievement Medal, 2010
- JPL Lew Allen Award for Excellence, 2008
- JPL Hurricane Team Award, 2008
- NASA Group Achievement Award to Aura MLS Team, 2006
- K. C. Wong Research Fellowship, Chinese Academy of Sciences, 2002
- Outstanding Graduate Citation, Peking University, 1991
- Guang-Hua Scholarship, Peking University, 1988, 1989, 1990, 1991, 1992, 1993

Invited Talks

- December 7, 2012, AGU Fall Meeting, San Francisco, CA
- November 6, 2012, Convection Workshop, Department of Atmospheric Science, Colorado State University
- October 18, 2012, Geophysical Fluid Dynamic Laboratory, Princeton University
- December 8, 2011, American Geophysical Union Fall Meeting, San Francisco, CA
- May 20, 2011, Convection Workshop, Department of Atmospheric Science, Colorado State University
- April 16, 2009, Department of Atmospheric, Oceanic and Space Sciences Colloquia, University of Michigan
- August 15, 2007, Laboratory of Atmospheres Distinguished Researcher Seminar Series, NASA Goddard Space Flight Center
- August 14, 2007, National Institute of Aerospace and NASA Langley Research Center Science Lecture Series, Hampton, VA
- July 24, 2006, Western Pacific Geophysics Meeting, American Geophysical Union
- April 20, 2006, Department of Physics Colloquia, New Mexico Institute of Mining and Technology

Research Grants (PI-ed)

- PI: ROSES10-NASA Energy and Water Cycle Study, “Using NEWS Water and Energy Cycle Products to Investigate Processes that Control Cloud Feedback”
- PI: ROSES10-Aura Science Team, “Investigating the Influence of Asian Aerosol Pollution on the Water Vapor Transport from the Troposphere to the stratosphere”
- PI: ROSES07-Aura Science Team, “Radiative Impact of Cirrus Clouds on Tropical Troposphere to Stratosphere Transport”
- PI: JPL R&TD FY2008 Funding Award, “Studying tropical cirrus radiative effect and its climate feedbacks using CloudSat and other A-train cloud observations”
- PI: JPL SURP DRDF FY2007 Research Funding Award, “Improving our understanding of large-scale dehydration processes near the tropical tropopause by comparing MLS observations and the GFDL AM2 model simulations”

Peer-Reviewed Publications

1. Wu, L., **H. Su**, and J. H. Jiang, Regional simulation of aerosol impacts on precipitation during the East Asian summer monsoon, *J. Geophys. Res.*, in review.
2. Huang, L., J.H. Jiang, J.L. Tackett, **H. Su**, and R. Fu, Seasonal and Diurnal Variations of Aerosol Extinction Profile and Type Distribution from CALIPSO 5-year Observations, *J. Geophys. Res.*, in review.
3. **Su, H.**, J. H. Jiang, C. Zhai, V.S. Perun, J.T. Shen, A. Del Genio, L.S. Nazarenko, L.J. Donner, L. Horowitz, C. Seman, C. Morcrette, J. Petch, M. Ringer, J. Cole, M. Mesquita, T. Iversen, J.E. Kristjansson, A. Gettelman, L. Rotstayn, S. Jeffrey, J.L. Dufresne, M. Watanabe, H. Kawai, T. Koshiro, T. Wu, E.M. Volodin, T. L'Ecuyer, J. Teixeira, and G.L. Stephens, Diagnosis of Regime-dependent Cloud Simulation Errors in CMIP5 Models Using “A-Train” Satellite Observations and Reanalysis Data, *J. Geophys. Res.*, in press.
4. **Su, H.**, and J.H. Jiang, Tropical Clouds and Circulation Changes During the 2006-07 and 2009-10 El Niños, *J. Climate*, in press.
5. Wu, L., **H. Su**, R. G. Fovell, B. Wang, J. T. Shen, B. H. Kahn, S. M. Hristova-Veleva, B. H. Lambriksen, E. J. Fetzer, and J. H. Jiang, Relationship of environmental relative

- humidity with North Atlantic tropical cyclone intensity and intensification rate, *Geophys. Res. Lett.*, 39, L20809, doi:10.1029/2012GL053546, 2012.
6. Jiang, J.H., **H. Su**, C. Zhai, V.S. Perun, A. Del Genio, L.S. Nazarenko, L.J. Donner, L. Horowitz, C. Seman, J. Cole, A. Gettelman, M. Ringer, L. Rotstajn, S. Jeffrey, T. Wu, F. Brient, J-L. Dufresne, H. Kawai, T. Koshiro, M. Watanabe, T. L'Ecuyer, W.G. Read, J.W. Waters, B. Tian, J.P. Teixeira, and G.L. Stephens, Evaluation of Cloud and Water Vapor Simulations in IPCC AR5 Climate Models Using NASA "A-Train" Satellite Observations, *J. Geophys. Res.*, 117, D14105, 24 PP, 10.1029/2011JD017237, 2012.
 7. Wu, L., **H. Su**, J.H. Jiang, and W.G. Read, Hydration or dehydration: competing effects of upper tropospheric cloud radiation on the TTL water vapor, *Atmos. Chem. Phys.*, 12, 7727-7735, 10.5194/acp-12-7727-2012, 2012.
 8. Gu, Y., K.N. Liou, J.H. Jiang, **H. Su**, and X. Liu, Dust aerosol impact on North Africa climate: a GCM investigation of aerosol-cloud-radiation interactions using A-Train satellite data, *Atmos. Chem. Phys.* 12, 1667-1679, doi:10.5194/acp-12-1667-2012, 2012.
 9. Small, J.D., J.H. Jiang, and **H. Su**, Relationships of biomass burning aerosols with precipitation and cloud properties in Australia, *Geophys. Res. Lett.* 38, L23802, doi:10.1029/2011GL049404, 2011.
 10. Wu, L., **H. Su** and J. H. Jiang, Regional simulations of deep convection and biomass burning over South America. Part I: Model evaluations using multiple satellite datasets. *J. Geophys. Res.*, 116, D17208, doi:10.1029/2011JD016105, 2011.
 11. Wu, L., **H. Su** and J. H. Jiang, Regional simulations of deep convection and biomass burning over South America. Part II: Biomass burning aerosol effects on clouds and precipitation. *J. Geophys. Res.*, 116, D17209, doi:10.1029/2011JD016106, 2011.
 12. **Su, H.**, J.H. Jiang, J. Teixeira, A. Gettelman, X. Huang, G. Stephens, D. Vane, and V.S. Perun, Comparison of Regime-Sorted Tropical Cloud Profiles Observed by CloudSat with GEOS5 Analyses and Two General Circulation Model Simulations, *J. Geophys. Res.*, 116, D09104, doi:10.1029/2010JD014971, 2011.
 13. **Su, H.**, J. H. Jiang, X. Liu, J. E. Penner, W. G. Read, S. T. Massie, M. R. Schoeberl, P. Colarco, N. J. Livesey, and M. L. Santee, Observed Increase of TTL Temperature and Water Vapor in Polluted Clouds over Asia, *J. Climate*, **24**, 2728-2736, doi: 10.1175/2010JCLI3749.1, 2011.
 14. Jiang, J.H., **H. Su**, C. Zhai, S.T. Massie, M.R. Schoeberl, P.R. Colarco, S. Platnick, Y. Gu, and K.N. Liou, Influence of convection and aerosol pollution on ice cloud particle effective radius, *Atmos. Chem. Phys.* **11**, 457-463, doi:10.5194/acp-11-457-2011, 2011.
 15. Jiang, J.H., **H. Su**, S. Pawson, H.C. Liu, W. Read, J.W. Waters, M. Santee, D.L. Wu, M. Schwartz, N. Livesey, A. Lambert, R. Fuller, and J.N. Lee, Five-year (2004-2009) Observations of Upper Tropospheric Water Vapor and Cloud Ice from MLS and Comparisons with GEOS-5 analyses, *J. Geophys. Res.*, **115**, doi:10.1029/2009JD013256, 2010.
 16. **Su, H.**, J. H. Jiang, J. D. Neelin, B. Kahn, J. W. Waters, N. J. Livesey, and Y. Gu, Reply to comment by Roberto Rondanelli and Richard S. Lindzen on "Variations in convective precipitation fraction and stratiform area with sea surface temperature", *J. Geophys. Res.*, D06203, doi:10.1029/2009JD012872, 2010.
 17. Jiang, J. H., **H. Su**, S. T. Massie, P. Colarco, M. Schoeberl, S. Platnick, Aerosol-CO Relationship and Aerosol Effect on Ice Cloud Particle Size: Analyses from Aura MLS and Aqua MODIS Observations, *J. Geophys. Res.*, **114**, D20207, doi:10.1029/2009JD012421, 2009.
 18. **Su, H.**, J. H. Jiang, G.L. Stephens, D.G. Vane, and N.J. Livesey, Radiative effects of upper tropospheric clouds observed by Aura MLS and CloudSat, *Geophys. Res. Lett.*, **36**, L09815, doi:10.1029/2009GL037173, 2009.
 19. **Su, H.**, J.H. Jiang, D.G. Vane, and G.L. Stephens, Observed Vertical Structure of Tropical Oceanic Clouds Sorted in Large-scale Regimes, *Geophys. Res. Lett.* 35,

- doi:10.1029/2008GL035888, 2008.
20. Huang, X., and **H. Su**, Cloud radiative effect on tropical troposphere to stratosphere transport represented in a large-scale model, *Geophys. Res. Lett.*, 35, L21806, doi:10.1029/2008GL035673, 2008.
 21. Jiang, J. H., **H. Su**, M. Schoeberl, S. T. Massie, P. Colarco, S. Platnick, N. J. Livesey: Clean and polluted clouds: relationships among pollution, ice cloud and precipitation in South America, *Geophys. Res. Lett.*, 35, L14804, doi:10.1029/2008GL034631, 2008.
 22. Fetzer, E. J., W. G. Read, D. Waliser, B. Kahn, B. Tian, H. Vömel, B. Irion, **H. Su**, A. Eldering, M. T. Juarez, J. H. Jiang, V. Dang: Comparison of Upper Tropospheric Water Vapor Observations from the Microwave Limb Sounder and Atmospheric Infrared Sounder, *J. Geophys. Res.*, 113, D22110, doi:10.1029/2008JD010000., 2008.
 23. Read, W.G., M.J. Schwartz, A. Lambert, **H. Su**, N.J. Livesey, W.H. Daffer, and C.D. Boone, "The Roles of Convection, Extratropical Mixing, and In-Situ Freeze-drying in the Tropical Tropopause Layer," *Atmos. Chem. Phys.*, 8, 6051--6067, 2008.
 24. **Su, H.** J. H. Jiang, Y. Gu, J. D. Neelin, B. H. Kahn, D. Feldman, Y. L. Yung, J. W. Waters, N. J. Livesey, M. L. Santee, and William G. Read, Variations of tropical upper tropospheric clouds with sea surface temperature and implications for radiative effects, *J. Geophys. Res.*, doi:10.1029/2007JD009624, 2008.
 25. Fovell, R., and **H. Su**, Impact of cloud microphysics on hurricane track forecasts, *Geophys. Res. Lett.* 34, L24810, doi:10.1029/2007GL031723, 2007.
 26. Jiang, J. H., N. J. Livesey, **H. Su**, L. Neary and J. C. McConnell, 2007: Connecting surface emissions, convective uplifting, and long-range transport of carbon monoxide in the upper-troposphere: New observations from Microwave Limb Sounder on Aura Satellite, *Geophys. Res. Lett.*, L18812, doi:10.1029/2007GL030638, 2007.
 27. Read, W.G., A. Lambert, J. Bacmeister, R.E. Cofield, L.E. Christensen, D.T. Cuddy, W.H. Daffer, B.J. Drouin, E. Fetzer, L. Froidevaux, R. Fuller, R. Herman, R.F. Jarnot, J.H. Jiang, Y.B. Jiang, K. Kelly, B.W. Knosp, H.C. Pumphrey, K.H. Rosenlof, X. Sabounchi, M.L. Santee, M.J. Schwartz, W.V. Snyder, P.C. Stek, **H. Su**, L.L. Takacs, R.P. Thurstans, H. Vomel, P.A. Wagner, J.W. Waters, C.R. Webster, E.M. Weinstock, and D.L. Wu, Aura Microwave Limb Sounder upper tropospheric and lower stratospheric H₂O and relative humidity with respect to ice validation, *J. Geophys. Res.* 112, D24S35, doi:10.1029/2007JD008752, 2007.
 28. Liu, C., E. Zipser, T. Garrett, J. Jiang, **H. Su**: How do the water vapor and carbon monoxide "tape recorder" start near the tropical tropopause? *Geophys. Res. Lett.*, 34, L09804, doi:10.1029/2006GL029234, 2007.
 29. Lin, X., J.-L. F. Li, M. J. Suarez, A. M. Tompkins, D. E. Waliser, M. M. Rienecker, J. Bacmeister, J. H. Jiang, H.-T. Wu, C. M. Tassone, J.-D. Chern, B. Chen, **H. Su**, 2006: A View of Hurricane Katrina With Early 21st Century Technology, *Eos Trans. AGU*, 87(41), 433, 2006.
 30. **Su, H.**, D.E. Waliser, J.H. Jiang, J-L. Li, W.G. Read, J.W. Waters, and A.M. Tompkins, 2006: Relationships of upper tropospheric water vapor, clouds and SST: MLS observations, ECMWF analyses and GCM simulations, *Geophys. Res. Lett.* 33, L22802, doi:10.1029/2006GL027582, 2006.
 31. **Su, H.**, W.G. Read, J. H. Jiang, J.W. Waters, D.L. Wu, and E.J. Fetzer: Enhanced positive water vapor feedback associated with tropical deep convection: New evidence from Aura MLS, *Geophys. Res. Lett.*, 33, L05709, doi:10.1029/2005GL025505, 2006.
 32. Neelin, J. D., M. Munnich, **H. Su**, J. E. Meyerson, and C. Holloway: Tropical drying trends in global warming models and observations, *Proc. Nat. Acad. Sci.*, 103, 6110-6115, 2006.
 33. **Su, H.**, J. D. Neelin and J. E. Meyerson: Mechanisms for lagged atmospheric response to ENSO SST. *J. Climate*, 18, 4195-4215, 2005.

34. Neelin, J. D., and **H. Su**: Moist teleconnection mechanisms for the tropical South American and Atlantic sector during El Niño, *J. Climate*, 18, 3928-3950, 2005.
35. **Su, H.** and J. D. Neelin: Dynamical mechanisms for African monsoon changes during the mid-Holocene. *J. Geophys. Res.*, 110, D19105, doi:10.1029/2005JD005806, 2005.
36. **Su, H.**, J. D. Neelin, and J. E. Meyerson: Tropical tropospheric temperature and precipitation response to sea surface temperature forcing. In Ocean-Atmosphere Interaction and Climate Variability.. Geophysical Monograph Series, 147, 379-392. C. Wang, S.-P. Xie, J. Carton, eds., *Amer. Geophys. Union*, 2004.
37. **Su, H.**, and J. D. Neelin: The scatter in tropical average precipitation anomalies. *J. Climate*, 16, 3966-3977, 2003.
38. Neelin, J. D., C. Chou, and **H. Su**: Tropical drought regions in global warming and El Niño teleconnections. *Geophys. Res. Lett.*, 30(24) 2275, doi:10.1029/2003GLO018625, 2003.
39. **Su, H.**, J. D. Neelin and J. E. Meyerson: Sensitivity of tropical tropospheric temperature to sea surface temperature forcing. *J. Climate*, 16, 1283-1301, 2003.
40. **Su, H.**, and J. D. Neelin: Teleconnection mechanisms for tropical Pacific descent anomalies during El Niño. *J. Atmos. Sci.*, 59, 2682-2700, 2002.
41. Chou, C., J. D. Neelin and **H. Su**: Ocean-atmosphere-land feedbacks in an idealized monsoon. *Quart. J. Roy. Meteor. Soc.*, 127, 1869-1891, 2001.
42. Zeng, N., J David Neelin, Chia Chou, Johnny Wei-Bing Lin, **H. Su**, Climate and variability in the first quasi-equilibrium tropical circulation model, Chapter 15, 457-488, *Academic Press*, 2001.
43. **Su, H.**, J. D. Neelin and C. Chou: Tropical teleconnection and local response to SST anomalies during the 1997-1998 El Niño. *J. Geophys. Res.*, 106, 20,025-20,043, 2001.
44. **Su, H.**, C. S. Bretherton and S. S. Chen: Self-aggregation and large-scale control of tropical deep convection. *J. Atmos. Sci.*, 57, 1797-1816, 2000.
45. **Su, H.**, S. S. Chen and C. S. Bretherton: Three dimensional week-long simulation of TOGA-COARE convective systems using PSU/NCAR mesoscale model MM5. *J. Atmos. Sci.*, 56, 2326-2344, 1999.