

# Bin Guan

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## Research Interests

- High-impact weather and climate
- Water cycle in the climate system
- Large-scale climate variability and trend

## Education

- **Ph.D.**, 2008, Atmospheric and Oceanic Science, University of Maryland, College Park.  
Thesis: Pacific sea surface temperatures in the twentieth century: variability, trend, and connections to long-term hydroclimate variations over the Great Plains. GPA=4.0. Advisor: Sumant Nigam.
- **M.Phil.**, 2003, Applied Physics, City University of Hong Kong, Hong Kong, China.  
Thesis: Summer monsoon over the western North Pacific: the onset and the intraseasonal variations. Advisor: Johnny Chan.
- **B.S.**, 2000, Atmospheric Sciences, Nanjing University, Nanjing, China.  
Thesis: A monotonic filter for limited area modeling. Advisor: Yuan Wang.

## Funded Projects

- California Department of Water Resources, “Subseasonal Prediction of Atmospheric Rivers and the Madden-Julian Oscillation for Water Management in California”, Co-investigator, 2016–2017.
- NASA Energy and Water Cycle Study, “Atmospheric Rivers: Water Extremes that Impact Global Climate, Regional Weather and Water Resources”, Co-investigator, 2015–2017.
- California Department of Water Resources, “Development of Seasonal Outlooks for Atmospheric Rivers”, Co-investigator, 2015–2016.

## Honors and Awards

- 2015: U.S. Permanent Residency for “Extraordinary Ability” in Weather/Climate Research.  
2011: Who’s Who in America.  
2008: The Honor Society of Phi Kappa Phi.  
2007–2008: Ann G. Wylie Dissertation Fellowship, University of Maryland Graduate School.  
2007: Jacob K. Goldhaber Travel Award, University of Maryland Graduate School.  
2003–2008: Research Assistantship, Department of Atmospheric and Oceanic Science, University of Maryland, College Park.

2001–2003: Postgraduate Studentship, City University of Hong Kong, Hong Kong, China.  
1997, 1998: Outstanding Student Award, Nanjing University, Nanjing, China.  
1996–1999: Nanjing University Scholarship, Nanjing, China.

## Research Experience

- **Assistant Researcher**, then **Associate Project Scientist**, Joint Institute for Regional Earth System Science and Engineering, University of California, Los Angeles, California, and Visiting Scientist, Jet Propulsion Laboratory, Pasadena, California, November 2012–present.  
Characteristics, impacts, and climate links of atmospheric rivers in the west coast of North America; Influence of the Madden-Julian Oscillation on regional weather/hydrology.
- **Postdoctoral Scholar** (advisors: Duane Waliser and Noah Molotch), Jet Propulsion Laboratory, Pasadena, California, March 2009–November 2012.  
Characteristics and impacts of atmospheric rivers in California; Energy-balanced, distributed modeling of the Sierra Nevada snowpack.
- **Research Assistant**, then **Research Associate** (advisor: Sumant Nigam), Department of Atmospheric and Oceanic Science, University of Maryland, College Park, August 2003–February 2009.  
Improved characterization of Pacific/Atlantic natural climate variability in the context of climate change; Impacts of Pacific/Atlantic climate on North American droughts and hurricanes.
- **Graduate student researcher** (advisor: Johnny Chan), Department of Physics and Materials Science, City University of Hong Kong, September 2001–August 2003.  
Onset and intraseasonal variations of the western North Pacific summer monsoon.

## Teaching Experience

- **Co-mentor** of student interns at Jet Propulsion Laboratory, June–August 2016.
- **Co-mentor** of CSU STAR teacher-researcher intern at Jet Propulsion Laboratory, June–August 2011.
- **Guest Lecturer**, North American Hydroclimate (graduate course), Department of Atmospheric and Oceanic Science, University of Maryland, College Park, November 2007.
- **Tutor**, Department of Physics and Materials Science, City University of Hong Kong, September 2001–August 2003.  
Courses: Physics of the Atmosphere; Atmospheric General Circulation and Climate.  
Duties: In-class tutorials; Grading homework assignments and exam papers.

## Professional Association

- Chinese-American Oceanic and Atmospheric Association (COAA), 2010–present.
- American Geophysical Union (AGU), 2004–present.

## Refereeing Services

- Reviewed manuscripts for: Climate Dynamics; Climatic Change; Earth Interactions; Geophysical Research Letters; Hydrology; Journal of Applied Meteorology and Climatology; Journal of Climate; Journal of Geophysical Research; Journal of Hydrology; Journal of Hydrometeorology;

Journal of Marine Systems; Journal of the Atmospheric Sciences; Remote Sensing; Water; Water Resources Research.

- Reviewed research proposals for: National Science Foundation (NSF); National Oceanic and Atmospheric Administration (NOAA).
- Reviewed book proposal for: Wiley.
- Outstanding Student Paper Award (OSPA) Judge, AGU Fall Meetings, San Francisco, California, 2011–present.
- Judge, 62<sup>nd</sup> Annual Los Angeles County Science & Engineering Fair, Pasadena Convention Center, Pasadena, California, 30 March 2012.
- Grand Award Judge, 2011 Intel International Science and Engineering Fair (ISEF), Los Angeles Convention Center, Los Angeles, California, 8–13 May 2011.
- Judge, 61<sup>st</sup> Annual Los Angeles County Science & Engineering Fair, Pasadena Convention Center, Pasadena, California, 15 April 2011.

### Professional Activities

- Panelist, “Converging on a Definition of Atmospheric Rivers”, The First International Atmospheric Rivers Conference, Scripps Institution of Oceanography, University of California, San Diego, La Jolla, California, 8–11 August 2016.
- Chair, Session on “Global and Regional Perspectives of Atmospheric Rivers”, The First International Atmospheric Rivers Conference, Scripps Institution of Oceanography, University of California, San Diego, La Jolla, California, 8–11 August 2016.
- Co-lead, Section on “Global and Regional Perspectives”, The Atmospheric Rivers Monograph (in preparation).
- Participant, Advanced School and Workshop on Subseasonal to Seasonal (S2S) Prediction and Application to Drought Prediction, Co-sponsors World Meteorological Organization (WMO), Geneva, Switzerland and The Abdus Salam International Centre for Theoretical Physics (ICTP), Trieste, Italy, 23 November–4 December 2015.
- Member, Multi-center NASA Working Group on Dynamic Downscaling, 2014–2015.
- Presentation on “atmospheric rivers” to staff members of congressional, state, and local elected officials at the Caltech/JPL Legislative Holiday Reception, The Athenaeum at Caltech, Pasadena, California, 5 December 2013.
- Briefing to Director of JPL on “atmospheric rivers”, 21 November 2013.
- Member, *Nature* Reader Advisory Panel, 2010–2011.
- Author and maintainer, GrADS script library for weather and climate analysis, 2004–present. Available at <http://bguan.bol.ucla.edu/bGASL.html>.

### Media Appearances

- **NASA News Release:** Study: Atmospheric River Storms Can Reduce Sierra Snow, 2 March 2016. Featured by [NASA](#), [JPL](#), [Scripps Institution of Oceanography](#), [Phys.org](#), [Capital Public Radio](#), [Clarksville Online](#), [Land Trust Alliance](#).
- **NASA Earth Observatory:** [Image of the Day: Early Winter Weather Across North America](#), 19 November 2015.

- **Physics World:** [New Study Could Help Predict Floods Caused by Atmospheric Rivers](#), 12 June 2015.
- **The Sacramento Bee:** NASA Sees Hurricane-force Culprits Behind Big Storms (Print Version), NASA Identifies Rare Weather Pattern That Will Help Predict California's Big Winter Storms (Web Version), 20 November 2013.
- **NASA News Release:** Study Finds Climate Link to Atmospheric-River Storms, 8 November 2013. Featured by Yahoo, [AccuWeather](#), Reuters, [NASA](#), [JPL](#), [RedOrbit](#), [Phys.org](#), [UCLA](#).
- **NASA News Feature:** [JPL Scientists Reflect on World Water Day](#), 22 March 2013.
- **Wired:** [U.S. Drought and Climate Change: Science Points to Link](#), 31 July 2012.

### Peer-reviewed Publication

1. **Guan, B.**, D. E. Waliser, F. M. Ralph, E. J. Fetzer, and P. J. Neiman (2016): Hydrometeorological characteristics of rain-on-snow events associated with atmospheric rivers, *Geophys. Res. Lett.*, 43, doi:[10.1002/2016GL067978](#).
2. **Guan, B.**, and D. E. Waliser (2015), Detection of atmospheric rivers: Evaluation and application of an algorithm for global studies, *J. Geophys. Res. Atmos.*, 120, 12514–12535, doi:[10.1002/2015JD024257](#).
3. Behrangi, A., **B. Guan**, P. J. Neiman, M. M. Schreier, and B. H. Lambriksen (2015), On the quantification of atmospheric rivers precipitation from space: Composite assessments and case studies over the eastern North Pacific Ocean and the western United States, *J. Hydrometeorol.*, 17, 369–382, doi:[10.1175/JHM-D-15-0061.1](#).
4. Jiang X., and Coauthors (including **B. Guan**) (2015), Vertical structure and physical processes of the Madden-Julian oscillation: Exploring key model physics in climate simulations, *J. Geophys. Res. Atmos.*, 120, 4718–4748, doi:[10.1002/2014JD022375](#).
5. Halkides, D. J., D. E. Waliser, T. Lee, D. Menemenlis, and **B. Guan** (2014), Quantifying the processes controlling intraseasonal mixed-layer temperature variability in the Tropical Indian Ocean, *J. Geophys. Res.*, 120, 692–715, doi:[10.1002/2014JC010139](#).
6. **(Invited)** Molotch, N. P., M. T. Durand, **B. Guan**, S. A. Margulis, and R. E. Davis (2014), Snow cover depletion curves and snow water equivalent reconstruction, in *Remote Sensing of the Terrestrial Water Cycle*, *Geophys. Mono. Ser.*, vol. 206, edited by V. Lakshmi, D. Alsdorf, M. Anderson, S. Biancamaria, M. Cosh, J. Entin, G. Huffman, W. Kustas, P. van Oevelen, T. Painter, J. Parajka, M. Rodell, and C. Rüdiger, pp. 159–174, John Wiley & Sons, Inc, Hoboken, NJ, doi:[10.1002/9781118872086.ch10](#).
7. **Guan, B.**, D. E. Waliser, T. Lee, and D. J. Halkides (2014), Influence of the Madden-Julian oscillation on the Indian Ocean cross-equatorial heat transport, *Geophys. Res. Lett.*, 41, 7314–7322, doi:[10.1002/2014GL061789](#).
8. **Guan, B.**, T. Lee, D. J. Halkides, and D. E. Waliser (2014), Aquarius surface salinity and the Madden-Julian Oscillation: The role of salinity in surface layer density and potential energy, *Geophys. Res. Lett.*, 41, 2858–2869, doi:[10.1002/2014GL059704](#).
9. **(Invited)** **Guan, B.**, N. P. Molotch, D. E. Waliser, E. J. Fetzer, and P. J. Neiman (2013), The 2010/2011 snow season in California's Sierra Nevada: Role of atmospheric rivers and modes of large-scale variability, *Water Resour. Res.*, 49, 6731–6743, doi:[10.1002/wrcr.20537](#), Special Collection on Oceanic Sources of Continental Precipitation. Featured in [NASA News Release](#).

10. **Guan, B.**, N. P. Molotch, D. E. Waliser, S. M. Jepsen, T. H. Painter, and J. Dozier (2013), Snow water equivalent in the Sierra Nevada: Blending snow sensor observations with snowmelt model simulations, *Water Resour. Res.*, 49, 5029–5046, doi:[10.1002/wrcr.20387](https://doi.org/10.1002/wrcr.20387).
11. **Guan, B.**, D. E. Waliser, J.-L. F. Li, and A. da Silva (2013), Evaluating the impact of orbital sampling on satellite–climate model comparisons, *J. Geophys. Res.*, 118, 355–369, doi:[10.1029/2012JD018590](https://doi.org/10.1029/2012JD018590).
12. Kim, J., D. E. Waliser, P. J. Neiman, **B. Guan**, J.-M. Ryoo, and G. A. Wick (2013), Effects of atmospheric river landfalls on the cold season precipitation in California, *Clim. Dyn.*, 40, 465–474, doi:[10.1007/s00382-012-1322-3](https://doi.org/10.1007/s00382-012-1322-3).
13. Waliser, D. E., **B. Guan**, J.-L. Li, and J. Kim (2012), Addendum to “Simulating cold season snowpack: Impacts of snow albedo and multi-layer snow physics”, *Climatic Change*, 114, 399–400, doi:[10.1007/s10584-012-0531-4](https://doi.org/10.1007/s10584-012-0531-4).
14. Li, J.-L. F., D. E. Waliser, W.-T. Chen, **B. Guan**, T. Kubar, G. Stephens, H.-Y. Ma, M. Deng, L. Donner, C. Seman, and L. Horowitz (2012), An observationally-based evaluation of cloud ice water in CMIP3 and CMIP5 GCMs and contemporary reanalyses using contemporary satellite data, *J. Geophys. Res.*, 117, D16105, doi:[10.1029/2012JD017640](https://doi.org/10.1029/2012JD017640).
15. Waliser, D. E., and Coauthors (including **B. Guan**) (2012), The "Year" of Tropical Convection (May 2008 to April 2010): climate variability and weather highlights, *Bull. Amer. Meteor. Soc.*, 93, 1189–1218, doi:[10.1175/2011BAMS3095.1](https://doi.org/10.1175/2011BAMS3095.1).
16. **Guan, B.**, D. E. Waliser, N. P. Molotch, E. J. Fetzer, and P. J. Neiman (2012), Does the Madden-Julian Oscillation influence wintertime atmospheric rivers and snowpack in the Sierra Nevada? *Mon. Wea. Rev.*, 140, 325–342, doi:[10.1175/MWR-D-11-00087.1](https://doi.org/10.1175/MWR-D-11-00087.1).
17. Nigam, S., **B. Guan**, and A. Ruiz-Barradas (2011), Key role of the Atlantic Multidecadal Oscillation in 20th century drought and wet periods over the Great Plains, *Geophys. Res. Lett.*, 38, L16713, doi:[10.1029/2011GL048650](https://doi.org/10.1029/2011GL048650).
18. **Guan, B.**, and Weizhong Zheng (2011), Diurnal cycle of the North American monsoon in a mesoscale model simulation: Evolution of key parameters in relation to precipitation, *Atmosphere*, 2, 57–66, doi:[10.3390/atmos2020057](https://doi.org/10.3390/atmos2020057).
19. **Guan, B.**, N. P. Molotch, D. E. Waliser, E. J. Fetzer, and P. J. Neiman (2010), Extreme snowfall events linked to atmospheric rivers and surface air temperature via satellite measurements, *Geophys. Res. Lett.*, 37, L20401, doi:[10.1029/2010GL044696](https://doi.org/10.1029/2010GL044696).
20. Nigam, S., and **B. Guan** (2010), Atlantic tropical cyclones in the twentieth century: natural variability and secular change in cyclone count, *Clim. Dyn.*, 36, 2279–2293, doi:[10.1007/s00382-010-0908-x](https://doi.org/10.1007/s00382-010-0908-x).
21. **Guan, B.**, and S. Nigam (2009), Analysis of Atlantic SST variability factoring interbasin links and the secular trend: clarified structure of the Atlantic Multidecadal Oscillation, *J. Climate*, 22, 4228–4240, doi:[10.1175/2009JCLI2921.1](https://doi.org/10.1175/2009JCLI2921.1).
22. **Guan, B.**, and S. Nigam (2008), Pacific sea surface temperatures in the twentieth century: An evolution-centric analysis of variability and trend, *J. Climate*, 21, 2790–2809, doi:[10.1175/2007JCLI2076.1](https://doi.org/10.1175/2007JCLI2076.1).
23. **Guan, B.**, and J. C. L. Chan (2006), Nonstationarity of the intraseasonal oscillations associated with the western North Pacific summer monsoon, *J. Climate*, 19, 622–629, doi:[10.1175/JCLI3661.1](https://doi.org/10.1175/JCLI3661.1).

## Conference Abstracts (as Leading or Presenting Author)

- **(Invited)** Guan, B., J. J. Rutz, and A. Gershunov: Global perspective of atmospheric rivers: Climatology, and climate modulation. Oral presentation, The First International Atmospheric Rivers Conference, La Jolla, California, 8–11 August 2016.
- Guan, B., and D. E. Waliser: Detection of atmospheric rivers: An algorithm for global climatology and model evaluation studies. Oral presentation, 2015 AGU Fall Meeting, San Francisco, California, 14–18 December 2015.
- Guan, B., N. P. Molotch, D. E. Waliser, E. J. Fetzer, and P. J. Neiman: Influence of large-scale climate modes on atmospheric rivers that drive regional precipitation extremes. Oral presentation, 2014 AGU Fall Meeting, San Francisco, California, 15–19 December 2014.
- D. E. Waliser, B. Guan (presenter), J. Kim, L. R. Leung, and F. M. Ralph: Atmospheric river model simulation diagnostics and performance metrics. Poster presentation, 2014 AGU Fall Meeting, San Francisco, California, 15–19 December 2014.
- Guan, B., N. P. Molotch, D. E. Waliser, E. J. Fetzer, and P. J. Neiman: Influence of large-scale climate modes on atmospheric rivers that drive regional precipitation extremes. Oral presentation, World Weather Open Science Conference, Montreal, Canada, 16–21 August 2014.
- Waliser, D. E., X. Jiang, N. P. Klingaman, P. K. Xavier, S. J. Woolnough, J. Petch, and B. Guan (presenter): Vertical structure and physical processes of the MJO: A global model evaluation project. Oral presentation, 31<sup>st</sup> conference on Hurricanes and Tropical Meteorology, San Diego, California, 30 March–4 April, 2014.
- Guan, B., D. J. Halkides, T. Lee (presenter), and D. E. Waliser: Sea surface salinity signature of the Madden-Julian Oscillation in two years of Aquarius observations. Oral presentation, 2014 Ocean Sciences Meeting, Honolulu, Hawaii, 23–28 February 2014.
- Guan, B., X. Jiang, and D. E. Waliser: Evaluating Vertical Moisture Structure of the Madden-Julian Oscillation in Contemporary GCMs. Poster presentation, 2013 AGU Fall Meeting, San Francisco, California, 9–13 December 2013.
- Guan, B., D. E. Waliser, T. Lee, and D. J. Halkides: Indian Ocean cross-equatorial heat transport associated with the MJO. Poster presentation, 2012 AGU Fall Meeting, San Francisco, California, 3–7 December 2012.
- Guan, B., N. P. Molotch, D. E. Waliser, S. M. Jepsen, and J. Dozier: Snow water equivalent in the Sierra Nevada: Blending snow sensor observations with snowmelt model simulations. Oral presentation, 2011 AGU Fall Meeting, San Francisco, California, 5–9 December 2011.
- Guan, B., D. E. Waliser, N. P. Molotch, Eric J. Fetzer, and P. J. Neiman: Does the Madden-Julian Oscillation influence wintertime atmospheric rivers and snowpack in the Sierra Nevada? Poster presentation, WCRP Open Science Conference, Denver, Colorado, 24–28 October 2011.
- Guan, B., D. E. Waliser, N. P. Molotch, Eric J. Fetzer, and P. J. Neiman: Does the Madden-Julian Oscillation influence wintertime atmospheric rivers and snowpack in the Sierra Nevada? Poster presentation, YOTC International Science Symposium and Asian Monsoon Years International Workshop, Beijing, China, 16–19 May 2011.
- Guan, B., D. E. Waliser, N. P. Molotch, Eric J. Fetzer, and P. J. Neiman: Does the Madden-Julian Oscillation influence the frequency and precipitation of wintertime atmospheric rivers in California? Poster presentation, 2010 AGU Fall Meeting, San Francisco, California, 13–17 December 2010.

- Guan, B., N. P. Molotch, D. E. Waliser, Eric J. Fetzer, and P. J. Neiman: Local and synoptic-scale characteristics of high- and low-impact atmospheric rivers in California. Poster presentation, 2010 Western Pacific Geophysics Meeting, Taipei, Taiwan, 22–25 June 2010.
- Guan, B., N. P. Molotch, D. E. Waliser, Eric J. Fetzer, and P. J. Neiman: Atmospheric rivers and snow accumulation in the Sierra Nevada connected by surface air temperature. Poster presentation, 2009 AGU Fall Meeting, San Francisco, California, 14–18 December 2009.
- Guan, B., and S. Nigam: Pacific sea surface temperatures in the twentieth century: An evolution-centric analysis of variability and trend. Poster presentation, 2007 AGU Fall Meeting, San Francisco, California, 10–14 December 2007.

## **Seminars and Talks**

- Hydrometeorological characteristics of rain-on-snow events associated with atmospheric rivers. Oral presentation, 2016 AIRS Science Team Meeting, Pasadena, California, 22 March 2016.
- Atmospheric rivers and climate variability: Global connections and implications. Oral presentation, Center for Western Weather and Water Extremes (CW3E) Meeting Week, Scripps Institution of Oceanography, University of California, San Diego, La Jolla, California, 20 January 2016.
- Hydrometeorological characteristics of rain-on-snow events associated with atmospheric rivers. Oral presentation, Center for Western Weather and Water Extremes (CW3E) Meeting Week, Scripps Institution of Oceanography, University of California, San Diego, La Jolla, California, 19 January 2016.
- Atmospheric rivers and climate variability: Regional and global connections. Oral presentation, Open House of the Joint Institute for Regional Earth System Science and Engineering (JIFRESSE), University of California, Los Angeles, California, 12 November 2015.
- Atmospheric rivers and climate variability: Regional and global connections. Yuk L. Yung Lunch Seminar, Division of Geological and Planetary Sciences, California Institute of Technology, Pasadena, California, 18 August 2015.
- Atmospheric rivers and climate variability: Regional and global connections. Oral presentation, Atmospheric Rivers Science Planning Workshop, Scripps Institution of Oceanography, University of California, San Diego, La Jolla, California, 15–17 June 2015.
- Oceanic components of the Madden-Julian Oscillation: Surface Salinity and Cross-equatorial heat transport. Center for Climate Sciences Research Seminar, Jet Propulsion Laboratory, Pasadena, California, 13 February 2015.
- Aquarius surface salinity and the Madden-Julian Oscillation: The role of salinity in surface layer density and potential energy. Oral presentation, Ocean Surface Mixed-Layer Workshop, Jet Propulsion Laboratory, Pasadena, California, 20–22 January 2015.
- Influence of large-scale climate modes on atmospheric rivers that drive precipitation extremes in California. Center for Climate Sciences Research Seminar, Jet Propulsion Laboratory, Pasadena, California, 25 April 2014.
- The 2010/2011 snow season in California's Sierra Nevada: Role of atmospheric rivers and modes of large-scale variability. AOS271 Special Seminar, University of California, Los Angeles, California, 12 November 2013.

- Evaluating the impact of orbital sampling on satellite–climate model comparisons. Center for Climate Sciences Research Seminar, Jet Propulsion Laboratory, Pasadena, California, 3 August 2012.
- Atmospheric rivers, MJO, and the Sierra Nevada snowpack. Oral presentation, High-performance Computing Workshop on Climate Modeling, University of Texas, Austin, Texas, 30 January–1 February 2012.
- Extreme snowfall events linked to atmospheric rivers via satellite measurements. Oral presentation, NASA Sounder Science Team Meeting, Greenbelt, Maryland, 8–11 November 2011.
- Does the Madden-Julian Oscillation influence wintertime atmospheric rivers and snowpack in the Sierra Nevada? Poster presentation, 2011 JPL Postdoc Research Day, Pasadena, California, 7 September 2011.
- Does the Madden-Julian Oscillation influence wintertime atmospheric rivers and snowpack in the Sierra Nevada? Postdoctoral Seminar, Jet Propulsion Laboratory, Pasadena, California, 22 September 2011.
- Does the Madden-Julian Oscillation influence wintertime atmospheric rivers and snowpack in the Sierra Nevada? Oral presentation, CalWater Science Workshop, Scripps Institution of Oceanography, University of California, San Diego, La Jolla, California, 8–10 June 2011.
- Extreme snowfall events in the Sierra Nevada linked to atmospheric rivers and surface air temperature via satellite measurements. Poster presentation, 2010 JPL Postdoc Research Day, Pasadena, California, 25 August 2010.
- Local and synoptic-scale characteristics of high- and low-impact atmospheric rivers in California. Oral presentation, 2010 AIRS Science Team Meeting, Pasadena, California, 21 April 2010.
- Atlantic sea surface temperatures and tropical cyclones: Decadal/multidecadal variations and trends. Yuk L. Yung Lunch Seminar, Division of Geological and Planetary Sciences, California Institute of Technology, Pasadena, California, 20 April 2010.
- Atmospheric rivers and snow accumulation in the Sierra Nevada: relationship with mountain surface air temperature. Oral presentation, 34<sup>th</sup> Climate Diagnostics and Prediction Workshop, Monterey, California, 26–30 October 2009.
- Atmospheric rivers: observation and modeling studies on the connections between tropical convection and West Coast hydrology. Oral presentation (co-presenter), CalWater Atmospheric Rivers Planning Meeting, Scripps Institution of Oceanography, University of California, San Diego, La Jolla, California, 9–10 June 2009.
- Twentieth century SST trend and natural variability: clarified structure, and implications to Atlantic hurricane activities. Seminar, Shanghai Typhoon Institute, China Meteorological Administration, Shanghai, China, 29 December 2008.
- Pacific sea surface temperatures and long-term hydroclimate variations over the Great Plains. Yuk L. Yung Lunch Seminar, Division of Geological and Planetary Sciences, California Institute of Technology, Pasadena, California, 11 December 2008.
- Pacific sea surface temperatures and long-term hydroclimate variations over the Great Plains. Seminar, Joint Institute for Regional Earth System Science and Engineering (JIFRESSE), University of California, Los Angeles, California, 10 December 2008.

- Pacific and Atlantic SSTs in the twentieth century: a clarifying analysis of decadal/multidecadal variability structure. Seminar, Earth System Science Interdisciplinary Center (ESSIC), University of Maryland, College Park, Maryland, 8 December 2008.
- Pacific sea surface temperature variability in the twentieth century: ENSO, decadal variability, and secular trend. Oral presentation at the Laboratory for Atmospheric Research, City University of Hong Kong, Hong Kong, China, 15 January 2008.
- Pacific sea surface temperature variability in the twentieth century: Spatiotemporal structures, and connections to long-term droughts over the Great Plains. Seminar, NOAA/Geophysical Fluid Dynamics Laboratory, Princeton University, Princeton, New Jersey, 9 January 2008.
- Pacific decadal SST variability 1900–2002: Structure and evolution. Oral presentation, 11<sup>th</sup> Annual CCSM Workshop, Breckenridge, Colorado, 20–22 June 2006.