JONATHAN H. JIANG

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Educational Background

1996: Ph.D., Atmospheric Physics, York University, Toronto, Canada

1991: M.Sc., Astrophysics, York University, Toronto, Canada

1985: B.Sc. (Hons.), Astrophysics, Beijing Normal University, China

Present Position

Group Supervisor, Aerosols and Clouds Research Group, Earth Science Section

Principal Scientist, Engineering and Science Directorate

Jet Propulsion Laboratory (JPL)

California Institute of Technology (Caltech)

Pasadena, California 91109

Professional Activities

- **American Geophysical Union (AGU)** (1993-present)
  - **Editor**, Earth and Space Science (2014-present)
  - **Associate Editor**, Journal of Geophysical Research – Atmosphere (2012-present)
  - **Chair**, AGU Atmospheric Science Program Committee (2017)
  - **Member,** AGU Atmospheric Science Program Committee (2016)
- **American Meteorological Society (AMS)** (1995-present);
  - **Vice-Chair,** AMS Atmospheric Chemistry Committee (2017-present)
  - **Member**, AMS Atmospheric Chemistry Committee (2014-2016).
  - **Program Chairman**, AMS 19th Conference on Atmospheric Chemistry (2016-2017)
  - **Program Chairman**, AMS 20th Conference on Atmospheric Chemistry (2017-2018)
  - **Program Chairman**, AMS 21th Conference on Atmospheric Chemistry (2018-2019)
- **Review Panels**, NASA, NSF, DOE, ESA, and CSA panels (2002-present).
- **Reviewer**, AGU, AMS, EGU, IUGG and COSPAR journals (1996-present);

Honors and Awards:

2013: **NASA Exceptional Achievement Medal** *for outstanding leadership and achievements in using NASA satellite observations for climate studies and model evaluations, contributing to the IPCC AR5.*

2012: **JPL Publication Award** *for outstanding CMIP5 climate model evaluation publications.*

2010: **NASA Exceptional Achievement Medal** *for pioneering a new approach to quantifying the impact of air pollution on clouds and climate, through combining observations from multiple NASA satellites.*

2008: **NASA Team Achievement Award** *for outstanding contribution to NASA TC4 field experiment.*

2007: **JPL Team Bonus Award** *for scientific application of Aura MLS Cloud Ice product.*

2006: **NASA Group Achievement Award** *for Aura Microwave Limb Sounder Science Team.*

2006: **Ed Stone Award for Outstanding Research Paper** *Co-Author*

2005: **JPL Publication Bonus Award** *for outstanding MLS related Atmospheric Science Publications.*

2005: **NASA Group Achievement Award** *for outstanding contribution to the Aura MLS Project.*

2005: **GSFC Group Achievement Award** *for outstanding contribution to the Aura Science Team.*

2005: **NASA Space Act Award** *for Significant Contribution to National Space Program.*

2004: **NASA Group Achievement Award** *for contribution to Aura Ground Data System Development*.

2002: **JPL SPOT Award** *for successfully development of MLS cloud forward model*.

1999: **Canadian NSERC Research Scholarship Award** *for outstanding early career scientists*.

1996: **AMS Global Change Scholarship Award** *for outstanding Ph.D. thesis*.

1994: **York University Teaching Award** *for outstanding instructors and teaching assistants*.

1989-1995**: Ontario Scholarship Award** *for outstanding graduate students*.

Professional Experiences

- **Group Supervisor** (2015-present), JPL Aerosol and Cloud Research Group
- **Principal Scientist** (2015-present) JPL Engineering and Science Directorate;
  - Research Scientist V (2013-2014)
  - Research Scientist IV (2004-2012)
  - Scientist III (2002-2003)

  Major responsibilities include:

  o Managing Funded Research Projects:
    - NASA CCST: Principal Investigator (2016-present)
    - NASA ACMAP: Principal Investigator (2015-present)
    - NASA Terra/Aqua: Co-Investigator (2018-present)
    - NASA NODA: Principal Investigator (2014-2016); Co-Investigator (2014-2016)
    - DOE: Co-Principal Investigator, University of California, Los Angeles (UCLA) (2014-2016)
    - NASA IIP: Co-Investigator (2014-present)
    - California Energy Commission (CEC): Co-Principal Investigator (2016-present)
    - NASA AIST-CMDA: Co-Investigator (2015-2017)
    - NASA AST: Co-Investigator (2007-2017); Principal Investigator (2011-2014)
    - NASA COUND Program: Principal Investigator (2011-2014)
    - NASA MAP Program: Co-Investigator (2008-present); Principal Investigator (2013-2017)
    - NASA CMAC: Co-Investigator (2012-2016)
    - NASA NEWS Program: Co-Investigator (2012-present)
    - NASA AC Program: Principal Investigator and Co-Investigator (2001-2009)
    - NASA IDS Program: Co-Investigator (2007-2009); Principal Investigator (2010)
    - NSF Co-Principal Investigator (2009-2012)

  o Postdoctoral researchers supervised/co-supervised:
    - Kathleen Schiro (2018-present), JPL postdoctoral fellow, PhD. UCLA
    - Ryan Stanfield (2017-present), Caltech postdoctoral scholar, PhD. University of North Dakota.
    - Bin Zhao (2016-present), UCLA postdoctoral scholar, PhD. Tsinghua University, China.
    - Lei Huang (2013-2016), currently at University of California, Los Angeles as assistant researcher.
    - Yuan Wang (2013-2016), current at California Institute of Technology as staff scientist.
    - Hanii Takahashi (2013-2015), currently at University of California, Los Angeles as asst. researcher.
    - Jianjun Jin (2008-2012), currently at NASA Goddard Space Flight Center as associate scientist.
    - Jennifer Small (2009-2012), currently at University of Hawaii as an assistant professor.
    - Rohini Bhawar (2009-2011), currently at University Pune as an assistant professor.
    - Longtao Wu (2009-2010), currently at Jet Propulsion Laboratory as scientist.

  o Graduates, undergraduates, and high school internships sponsored/mentored/supervised:
    - Arushi Sinha, UCLA (2018)
    - Matthew Worden, University of California, Berkeley (2018)
    - Jocelyn Luna, University of California, Riverside (2018)

- Crystal Yu, University of California, Santa Cruz (2018)
- Edward Tian, University of California, Santa Cruz (2018)
- Sheldon Zhu, University of Cambridge (2018)
- Kylan Zhao, La Canada High school (2018)
- Jiazheng Li, California Institute of Technology (2017)
- Kelly Cheng, Diamond Bar High School, California (2017)
- Skylar Lee, Georgia Institute of Technology (2017)
- Albert Zhai, La Canada High School (2016; 2017)
- Ty Limpasuvan, California Institute of Technology (2016)
- Mark Bauman, University of Hawaii at Manoa, Hawaii (2015)
- Jungmin Park, Ewha Womans University (2015)
- Patrick Brown, Duke University, North Carolina (2014; 2016)
- Ryan Stanfield, University of North Dakota (2014; 2016)
- Alice Zhai, La Canada High School, California (2014)
- Erica Dolinar, University of North Dakota (2013)
- Sarah Worden, Cresenta Valley High School, California (2013).
- Zachary Lawrence, New Mexico Institute of Mining and Technology (2013)
- Daniel Russell, University of California, Los Angeles (2013)
- Nick Tang, University of California, Berkeley (2010, 2012)
- Jinqiang Chen, California Institute of Technology (2012-2013)
- Lei Huang, University of Texas, Austin (2009; 2012).
- Huiwen Chung, University of Michigan, Ann Arbor, Michigan (2009).

o Serviced on Students' Thesis Committees:

- Mark Bauman, M.Sc. candidate, University of Hawaii at Manoa, Hawaii (2015).
- Ryan Stanfield, Ph.D. candidate, University of North Dakota (2014-2017).
- Betsy Berry, Ph.D. candidate, University of Utah (2013-2017).
- Jinqiang Chen, Ph.D. candidate, California Institute of Technology (2013-2015).
- Erica Dolinar, M.Sc. candidate, Ph.D. candidate, University of North Dakota (2012-present).
- Lei Huang, Ph.D candidate, University of Texas, Austin (2009-2013).

o **Atmospheric Scientist:** Aura Microwave Limb Sounder (MLS) Science Team (2002-present)

o **Lead:** Aura MLS upper tropospheric measurements bi-weekly summary(2006-present)

- MLS forward model development, implementation and simulation; ice cloud retrieval and validation.
- Aura MLS upper tropospheric weekly inspection and summary.

o **Task Lead:** JPL Strategic Initiative for Air Quality (2017-present)

o **Principal Investigator**, Strategic Initiative: Innovative Method for Aerosol Profiling (2017-present)

- **Project Scientist** (2010-present), Joint Institute for Regional Earth System Science and Engineering, University of California, Los Angeles (UCLA).

  o Researcher sponsored/supervised:

  - Yu Gu, Researcher for NASA and CEC Projects (2010; 2014-present).

- **Caltech Guest Principal Scientist** (2017).

  o Exoplanet studies.

- **Caltech Postdoctoral Scholar** (1999-2001), California Institute of Technology, USA

  Major Achievements:

  o Conducted atmospheric convection, water vapor, and gravity wave studies using UARS MLS data.

  o Developed a microwave radiative transfer model for cloud ice retrievals for MLS missions.

- **Research Associate** (1998-1999), Université du Québec à Montréal, Canada

Achievements:

- **Member** of the NARCM (Northern Atmospheric Regional Climate Model) development team, responsible for development and testing of convective cloud parameterization for the NARCM project.
- Implemented a fast stochastic cloud scheme into the NARCM model
- **Physics Lecturer**, Department of Physics, Trent University, Canada (1997-1998)
  Instructed "*The Classic Mechanics*" for graduate students;
  Instructed "*Introductory Astronomy"* for undergraduate students (twice).
- **Physics Lecturer**, Department of Physics, University of Waterloo, Canada (1999)
  Instructed "*Introductory Astronomy*" for science, engineering and arts students.

- **Postdoctoral Research Fellow** (1996-97), McGill University, Quebec, Canada

  Achievements:
  - Developed stochastic scheme for cloud parameterization using sub-scale vertical velocity spectrum.
  - **Physics Lecturer**, Department of Physics, University of Waterloo, Canada (1996).
    Instructed *Introductory Astronomy* for science, engineering and arts students.
- **Research Assistant** (1992-95), Centre for Research in Earth & Space Sciences, York University, Canada
  - Assisted the development of radiative transfer codes for Canadian Middle Atmospheric Model (CMAM) and conducted model simulations for the CMAM project.
- **Physics Lab Instructor** (1990-95), Department of Physics and Astronomy, York University, Canada
  - Instructed *Advanced Physics Laboratory* to physics major students for five years.
- **Assistant Astronomer** (1989-1991), Space Astrophysics Lab, Inst. Terrestrial & Space Sci., Canada
  - Worked on IUE (International Ultraviolet Explorer) satellite data reduction for supergiant stars.
  - Combined IUE satellite observations with the ground based visual and IR data for comparison and evaluation of the Kurucz stellar atmospheric models for Cepheids and nonvariable supergiants;
- **Assistant Physics Lecturer** (1985-1988), Nanking Institute of Technology (NIT), China
  - Instructed "*Introductory Physics Laboratory*" and "*Introductory Astronomy*" for physics and engineering students; Established first educational astronomical observatory for NIT.

Invited Seminars / Invited Speakers or Presentations

- Invited presentation, AMS annual conference, Long Beach (1996).
- Invited presentations, COSPAR conference, Houston (2002); Paris (2004).
- Invited seminar, York University CRESS Seminar Series (2005).
- Invited seminar (video-taped), Environmental Canada (2005).
- Invited seminar, McGill University and UQAM Joint Atmospheric Seminar (2005).
- Invited presentation, COSPAR conference, Beijing (2006).
- Invited seminar, Goddard Space Flight Center Earth Science Seminar (2007).
- Invited seminar, University of California, Irvine, Atmospheric Science Seminar (2008).
- Invited seminar, Northrop Grumman Corporation Earth Science Seminar (2008).
- Invited presentation, invited press release, AGU Joint Assembly, Fort Lauderdale, Florida (2008).
- Invited seminar, University of Utah, Salt Lake City, Atmospheric Science Seminar (2009).
- Invited seminar, Harvard University, Atmospheric Chemistry Seminar (2009).
- Invited seminar, University of California, Los Angeles, Atmospheric Science Seminar (2010).
- Invited seminar, City College of N.Y. & Goddard Institute for Space Studies Joint Seminar (2010).
- Invited seminar, Lawrence Berkeley National Laboratory, Earth Science Seminar (2011).
- Invited seminar, NASA Ames Research Center, Invited Earth Science Seminar (2011).
- Invited Seminar, CMIP5 climate model evaluation, Lawrence Livermore National Laboratory (2012).

- Invited seminar, Scripps Institution of Oceanography, San Diego, Earth Science Seminar (2012).
- Invited seminar, University of California, Berkeley, Earth Science Seminar (2012).
- Invited seminar, GFDL-Princeton University Joint Climate Science Seminar (2012).
- Invited seminar, University of North Dakota, Earth Science Seminar (2012).
- Invited seminar, Texas A&M University Earth Seminar (2013).
- Invited seminar, Environmental Canada-CCCMA Invited Seminar (2013).
- Invited seminar (video taped), MICRO and MRI Invited Seminar on Climate model evaluations (2013).
- Invited seminar, Ewha Woman's University, Seoul, Korea (2013).
- Invited presentation, AGU Fall Meeting (2014).
- Invited presentation, AGU Fall Meeting (2015).
- Invited seminar, Fu Dan University, Shanghai (2014; 2015).
- Invited presentation, AOGS annual conference, Beijing (2016).
- Invited seminar, Duke University (2016)
- Invited seminar, University of Arizona (2017)

Conference Session Chairs

- Session chair, aerosol-cloud-precipitation interactions, AGU Fall Meeting (2008).
- Session chair, impact of pollution on clouds, precipitation and climate, AGU Fall Meeting (2009).
- Session chair, effect of aerosols on water cycle and climate, AGU/WPGM Meeting (2009).
- Session chair, using multiple satellite observations for climate model evaluations, AOGS (2010).
- Session chair, eval. climate model simulations of clouds & water vapor, AGU Fall Meeting, (2011).
- Science committee co-chair, CALIPSO-CloudSat-EarthCare joint workshop, Paris, (2012).
- Session chair, CMIP5 climate model evaluations and analysis, AGU/AOGS/WPGM Meeting (2012).
- Session chair, CMIP5/post-CMIP5 model evaluations and improvements, AGU Fall Meeting (2012).
- Session chair, aerosols and clouds, ISCCP-30 Meeting (2013).
- Session chair, aerosols and clouds, AMS Annual Meeting (2014).
- Session chair, climate sensitivity, AGU Fall Meeting (2014).
- Session organizer/chair, atmospheric convection & composition, AMS Annual Meeting (2015).
- Session organizer/chair, atmospheric convection & composition, AMS Annual Meeting (2016).
- Session organizer/chair, aerosol and cloud remote sensing, AOGS Annual Meeting, Beijing (2016).
- Session organizer/chair, atmospheric convection & composition, AMS Annual Meeting (2017).
- Session organizer/chair, aerosol and cloud remote sensing, AOGS Annual Meeting, Hawaii (2018).

Scientific Publications

- 142 peer-reviewed scientific publications to date.
- 6367 total citations.
- H-Index 38.

1. **Jiang, J.H**., H. Su, L. Huang, Y. Wang, S. Massie, B. Zhao, A. Omar, Z. Wang, Do Aerosols Inhibit or Invigorate Convection? A Tale of Three Aerosol Types, *Nature Communications*, in press, 2018.
2. **Jiang, J.H.,** A.J. Zhai, J. Herman, C. Zhai, R. Hu, H. Su, V. Natraj, J. Li, F. Xu, Y.L.Yung, Using Deep Space Climate Observatory Measurements to Study the Earth as An Exoplanet, *Astronomical Journal,* https://arxiv.org/ftp/arxiv/papers/1805/1805.05834.pdf, in press, 2018.

3. Wang, Y., J. Vogel, Y. Lin, B. Pan, J. Hu, Y. Liu, X. Dong, **J.H. Jiang**, Y. L. Yung, R. Zhang, Aerosol microphysical and radiative effects on continental cloud ensembles, *Advances in Atmos*. Sci., 35(2), 234–247, https://doi.org/10.1007/s00376-017-7091-5, 2018.
4. Zhao, B., Liou, K.-N., Gu, Y., **Jiang, J.H**., Li, Q., Fu, R., Huang, L., Liu, X., Shi, X., Su, H., and He, C., Impact of aerosols on ice crystal size, *Atmos. Chem. Phys*., 18, 1065-1078, https://doi.org/10.5194/acp-18-1065-2018, 2018.
5. Wang, Y., **J.H. Jiang**, H. Su, Y. Choi, L. Huang, Y. Yung, Elucidating the Role of Anthropo-genic Aerosols in Arctic Sea Ice Variations. *J. Climate*, 31, https://doi.org/10.1175/JCLI-D-17-0287.1, 2018.
6. Basha, G., P. Kishore, M. Ratnam, S. Ravindrababu, I. Velicogna, **J.H. Jiang** and C. Ao, Global Climatology of Planetary Boundary Layer top obtained from multi-satellite GPS RO observations, *Climate Dynamics*, in press, 2018.
7. Zhao, B., Y. Gu, K. Liou, Y. Wang, X. Liu, L. Huang, **J.H. Jiang**, Hui Su, Type‐Dependent Responses of Ice Cloud Properties to Aerosols From Satellite Retrievals, *Geophys. Res. Lett*., Vol. 45, https://doi.org/10.1002/2018GL077261, 2018.
8. A. Kao, X. Jiang, L. Li, J. Trammell, G. Zhang, H. Su, **J.H. Jiang**, and Y. Yung, A Comparative Study of Atmospheric Moisture Recycling Rate between Observations and Models, *Journal of Climate*, https://doi.org/10.1175/JCLI-D-17-0421.1, 2018.
9. Hwang, H., Y. Choi, W. Kim, H. Su, **J.H. Jiang**, Observational estimation of radiative feedback to surface air temperature over Northern High Latitudes, *Climate Dynamics*, Vol.50, pp 615-628, 2018.
10. Wu, L., Y. Gu, **J.H. Jiang**, H. Su, N. Yu, C. Zhao, Y. Qian, B. Zhao, K. Liou, Y. Choi. Impacts of aerosols on seasonal precipitation and snowpack in california based on convection-permitting WRF-chem simulations. *Atmospheric Chemistry and Physics*, 18(8), 5529-47, 2018.
11. Liu, R., H. Su, K. Liou, **J.H. Jiang**,Y. Gu, S. Liu, C. Shiu, An Assessment of Tropospheric Water Vapor Feedback Using Radiative Kernels, *J. Geophys. Res, Atmosphere*, https://doi.org/10.1002/2017JD027512., 2018
12. **Jiang, J.H.**, Q. Yue, H. Su, P. Kangaslahti, S. Reising, W. Deal, E. Schlecht, L. Wu, and K.F. Evans, A Simulation of Ice Cloud Particle Size, Humidity and Temperature Measurements from the TWICE CubeSat, *Earth and Space Science*, 4, doi:10.1002/2017EA000296, 2017.
13. H. Su, **J.H. Jiang**, J.D. Neelin, T. Shen, C. Zhai, Q. Yue, Z. Wang, L. Huang, Y. Choi, G. Stephens, Y. Yung, Tightening of tropical ascent and high clouds key to precipitation change in a warmer climate, *Nature Communications*, doi: http://dx.doi.org/10.1038/ncomms15771, 2017
14. Zhao, B., **J.H. Jiang**, Y. Gu et al., Decadal-scale trends in regional aerosol particle properties and their association with emission changes, *Environ. Res. Lett.*, doi: https://doi.org/10.1088/1748-9326/aa6cb2, 2017.
15. Wang, Y., **J.H. Jiang**, H. Su, Y-S Choi, Y.L. Yung, L. Huang, Muted Past and Emerging Now: The influence of anthropogenic aerosol variations on the Arctic sea ice, *Science Advances*, in press, 2017.
16. Liu, R., K.N. Liou, H. Su, Y. Gu, B. Zhao, **J. H. Jiang**, and S.C. Liu, High cloud variations with surface temperature from 2002 to 2015: Contributions to atmospheric radiative cooling rate and precipitation changes, *J. Geophys. Res. Atmos.*, 122, 5457–5471, doi:10.1002/2016JD026303, 2017
17. Hwang, J., Y-S Choi, W. Kim, H. Su, **J.H. Jiang**, Observational Estimation of Climate Feedbacks over Northern High Latitudes, *Climate Dynam*ics, doi: 10.1007/s00382-017-3629-6, 2017.
18. G.S. Elsaesser, A. Del Genio, **J.H. Jiang**, M. van Lier-Walqui, An Improved Convective Ice Parameterization for the NASA GISS Global Climate Model and Impacts on Cloud Ice Simulation, *Journal of Climate*, doi: http://dx.doi.org /10.1175/JCLI-D-16-0346.1, 2017.
19. Wu, L., H. Su, O. Kalashnikova, **J.H. Jiang**, C. Zhao, M. Garay, J. Campbell, N. Yu, WRF-Chem simulation of aerosol seasonal variability in the San Joaquin Valley, *Atmos. Chem. Phys*., 17, doi:10.5194/acp-2016-981, 2017.
20. Zhao, B., S. Wang, J. Xing, X. Chang, K. Liou, **J.H Jiang**, Y. Gu, C. Jang, J. Fu, Y. Zhu, J. Wang, A modeling study of the nonlinear response of fine particles to air pollutant emissions in the Beijing–Tianjin–Hebei region, *Atmos. Chem. Phys*., 17, https://doi.org/10.5194/acp-17-12031-2017, 2017.

21. Zhao, B., K. Liou, Y. Gu, Q. Li, **J.H Jiang**, H. Su, C. He, H. Tseng, S. Wang, R. Liu, L. Qi, W. Lee, J. Hao, Enhanced PM2.5 pollution in China due to aerosol-cloud interactions, **Scientific Reports**, doi:10.1038/s41598-017-04096-8, 2017.
22. E. Dolinar, X. Dong, B. Xi, **J.H. Jiang**, and N.G. Loeb, A clear-sky radiation closure study using a one-dimensional radiative transfer model and collocated satellite-surface-reanalysis data sets, *J. Geophys. Res. Atmos.,* 121, 13,698–13,714, doi:10.1002/2016JD025823, 2016.
23. Gu, Y., K. Liou, **J.H. Jiang**, R. Fu, S. Lu, X. Xue, A GCM Investigation of Impact of Aerosols on the Precipitation in Amazon during the Dry to Wet Transition, *Atmos. Chem. Phys*., doi:10.1007/s00382-016-3211-7, 2016
24. Huang, L., **J.H. Jiang**, L. Murry, M. Damon, H. Su, and N. Livesey, Evaluation of UTLS carbon monoxide simulations in GMI and GEOS-Chem chemical transport models using Aura MLS observations, *Atmos. Chem. Phys*., 6, 5641-5663, doi:10.5194/acp-16-5641-2016, 2016.
25. Wang, Y., H. Su, J**.H. Jiang**, N. Livesey, M. Santee, L. Froidevaux, W.G. Read, and J. Anderson, The linkage between stratospheric water vapor and surface temperature in an observation-constrained coupled general circulation model, *Climate Dynamics*, doi:10.1007/s00382-016-3231-3, 2016.
26. Takahashi, H., H. Su, **J.H. Jiang**, Water Vapor Changes Under Global Warming and the Linkage to Present-day Interannual Variabilities in CMIP5 Models, *Climate Dynamics*, doi:10.1007/s00382-016-3035-5, 2016.
27. Brown, P.T., W. Li, **J.H. Jiang**, and H. Su, Unforced surface air temperature anomalies and their opposite relationship with the TOA energy imbalance at local and global scales, *J. Climate*, 29, 2, doi: http://dx.doi.org/10.1175/JCLI-D-15-0384.1, 2016. **NASA News Release.**
28. Guo, J., H. Liu, F. Wang, J. Huang, F. Xia, M. Lou, Y. Wu, **J.H. Jiang**, T. Xie, Y. Zhaxi, and Y. Yung, Three-dimensional structure of aerosol in China: A perspective from multi-satellite observations, *Atmos. Res*., 178, doi: http:// dx.doi.org/10.1016/j.atmosres.2016., 2016.
29. Kishore, P., I. Velicogna, M. Ratnam, T. Ourda, S. Namboothiri, **J.H. Jiang**, T. Sutterley, G. Madhavi, and S. Rao, Sudden stratospheric warmings observed in the last decade by satellite measurements, *Remote Sensing of Environment*, 184, 263-275, doi:10.1016/ j.rse.2016.07.008, 2016.
30. Li, K.F., H. Su, S. Mak, T.M. Chang, **J.H. Jiang**, J.R. Norris, and Y.L. Yung, An analysis of high cloud variability: imprints from the El Niño–Southern Oscillation, *Climate Dynamics*, doi:10.1007/s00382-016-3086-7, 2016.
31. Massie, S.T., J. Delanoë, C.G. Bardeen, **J.H. Jiang**, and L.Huang, Changes in the shape of cloud ice water content vertical structure due to aerosol variations, *Atmos. Chem. Phys.*, 16, 9, doi:10.5194/acp-16-6091-2016, 2016.
32. Minschwaner, K., H. Su, and **J.H. Jiang**, The upward branch of the Brewer-Dobson circulation quantified by tropical stratospheric water vapor and carbon monoxide measurements from the Aura Microwave Limb Sounder, *Journal of Geophysical Research: Atmospheres*,121, doi:10.1002/2015JD023961, 2016.
33. S. Reising, P. Kangaslahti, E. Schlecht, **J.H. Jiang**, X.Bosch-Lluis, M. Ogut, Y. Goncharenko, S. Padmanabhan, R. Cofield, N. Chahat, S.T. Brown, W. Deal, A. Zamora, K. Leong, S. Shih, G. Mei, Tropospheric water and cloud ICE (TWICE) millimeter and submillimeter-wave radiometer instrument for 6U-Class nanosatellites, Infrared, Millimeter, and Terahertz Waves (IRMMW-THz), DOI: 10.1109/IRMMW-THz.2016.7758396, 2016.
34. P. Kangaslahti, E. Schlecht, **J.H. Jiang**, W. Deal, A. Zamora, K. Leong, S.C. Reising, X. Bosch, M. Ogut, CubeSat scale receivers for measurement of ice in clouds, Microwave Radiometry and Remote Sensing of the Environment (MicroRad), DOI: 10.1109/MICRORAD.2016.7530501, 2016
35. Wang, Y., P.L. Ma, **J.H. Jiang**, H. Su, and P.J. Rasch, Toward reconciling the influence of atmospheric aerosols and greenhouse gases on light precipitation changes in Eastern China, *Journal of Geophysical Research: Atmospheres*, 120, doi:10.1002/2016JD024845, 2016.
36. **Jiang, J.H.,** et al., An assessment of upper-troposphere and lower-stratosphere water vapor in MERRA, MERRA2, and ECMWF reanalysis using Aura MLS observations, *J. Geophys. Res*., 120, 11,468–11,485, doi:10.1002/ 2015JD023752, 2015. **EOS Research Spotlight.**

37. Wang, Y., **J. H. Jiang**, H. Su, Atmospheric Responses to the Redistribution of Anthropogenic Aerosols, *J. Geophys. Res*., 120, 9625–9641 doi:10.1002/ 2015JD023665, 2015.
38. Huang, L., **J.H. Jiang**, Z. Wang, H. Su, M. Deng, S. Massie, Climatology of cloud water content associated with different cloud types observed by A-Train satellites, *J. Geophys. Res*., 120, doi: 10.1002/2014JD022779, 2015.
39. Zhai, C., **J.H. Jiang**, H.Su, Long-term cloud change imprinted in seasonal cloud variation: another evidence of high climate sensitivity, *Geophys. Res. Lett.*, 42, 8729–8737, doi:10.1029/2015GL065911, 2015
40. R. Stanfield, **J.H Jiang**, X. Dong, B. Xi, H. Su, L. Donner, L. Rotstayn, T. Wu, J. Cole, E. Shindo, A quantitative assessment of precipitation associated with the ITCZ in the CMIP5 GCM simulations, *Climate Dynamics*, doi:10.1007/s00382-015-2937-y, 2015.
41. Takahashi, H., H. Su, **J.H. Jiang**, Error Analysis of Upper Tropospheric Water Vapor in CMIP5 Models using "A-Train" Satellite Observations and Reanalysis Data, *Climate Dynamics*, doi:10.1007/s00382-015-2732-9, 2015.
42. **Jiang, J.H.,** et al., Evaluating the diurnal cycle of upper tropospheric ice clouds in climate models using SMILES observations, *J. Atmos. Sci.* 72, 1022–1044, doi: http://dx.doi.org/10.1175/JAS-D-14-0124.1, 2015.
43. Ao, C., **J.H. Jiang**, A. Mannucci, H. Su, O. Verkhoglyadova, C. Zhai, J. Cole, L. Donner, T. Inversen, C. Morcrette, L. Rotstayn, M. Watanabe, and S. Yukimoto, Evaluation of CMIP5 upper troposphere geopotential height with GPS radio occultation observations, *J. Geophys. Res.*, 120, doi:10.1002/2014 JD022239, 2015.
44. Vergados, P., A. Mannucci, C. Ao, **J.H. Jiang**, H. Su, On the comparisons of tropical relative humidity in the lower and middle troposphere among COSMIC radio occultations and MERRA and ECMWF data sets, *Atmos. Mea. Techniques*, 8, 1789-1797, doi:10.5194/amt-8-1789-2015, 2015.
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