

# Jonathan H. Jiang

**Email:** [Jonathan.H.Jiang@jpl.nasa.gov](mailto:Jonathan.H.Jiang@jpl.nasa.gov); **Tel:** 1-818-207-8734; **Address:** 4800Oak Grove Drive, Pasadena, CA 91109, USA.

**Research Areas:** My research centers on developing novel methodologies for retrieving microphysical properties of ice clouds from space, and the applications to the studies of cloud forcing and feedbacks, aerosol-cloud interaction, and climate modeling and climate change projections. I am leading a team of scientists and engineers at JPL to help manage current Earth science missions (MISR and CloudSat) and to prepare future missions (MAIA and ENTICE). In addition to Earth science field, I am also involved active research in astrophysics, focusing on exoplanet and space science research.

## Education

- 1997: **Postdoctoral Research Fellow** in Atmospheric Science, McGill University, Montreal, Canada
- 1996: **Ph.D.** in Atmospheric Science, York University, Toronto, Canada
- 1991: **M.Sc.** in Astrophysics, York University, Toronto, Canada
- 1985: **B.Sc.** in Astrophysics, Beijing Normal University, China

## Employment

- **Group Supervisor** (2015-present), Aerosol and Cloud Research Group, Jet Propulsion Laboratory (JPL), California Institute of Technology (Caltech), Pasadena, California, USA.
- **Principal Scientist** (2014-present), JPL Engineering and Science Directorate, Caltech
- **Research Scientist V** (2013-2014), JPL, Caltech
- **Research Scientist IV** (2004-2012), JPL, Caltech
- **Scientist III** (2002-2003), JPL, Caltech
- **Caltech Postdoctoral Scholar** (1999-2001), Caltech
- **Research Associate** (1998-1999), Université du Québec à Montréal, Quebec, Canada
- **Physics Lecturer** (1997-1998), Trent University, Peterborough, Ontario, Canada
- **Postdoctoral Research Fellow** (1996-97), McGill University, Montreal, Quebec, Canada
- **Research Assistant** (1991-1995), Centre for Research in Earth and Space Science, Toronto, Canada
- **Assistant Researcher** (1989-1990), Space Astrophysics Laboratory, Ontario, Canada
- **Physics Lecturer** (1985-1989), Nanking Institute of Technology, Nanjing, China

## Selected Awards

- 2020: **The Reuters List of Word's Top Climate Scientists**  
*<https://www.reuters.com/investigates/special-report/climate-change-scientists-list/>*
- 2019: **Exceptional Scientific Achievement Medal** for exceptional scientific achievement by significantly enhancing understanding of impacts of aerosol pollution on convection, clouds, and climate.
- 2019: **Edward Stone Award** for outstanding scientific research publications.
- 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.
- 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.
- 2005: **NASA Space Act Award** for Significant Contribution to National Space Program.

## Other leadership positions, notable committees and professional activities

- **American Meteorological Society (AMS)** (1995-present);
  - **Chair**, AMS Atmospheric Chemistry Committee (2020-present)
  - **Vice-Chair/Member**, AMS Atmospheric Chemistry Committee (2014-2019)
  - **Program Chair**, AMS Conference on Atmospheric Chemistry (2015-2020)
- **American Geophysical Union (AGU)** (1995-present)
  - **Editor in Chief**, Earth and Space Science Open Archive (2021-present)
  - **Editor**, Earth and Space Science (2014-present)
  - **Associate Editor**, Journal of Geophysical Research – Atmosphere (2012-present)
  - **Chair**, AGU Atmospheric Science Program Committee (2017)

## Selected Refereed Publications

(Over 220 peer-reviewed papers, H-Index 51)

1. Johnson, K., **Jiang, J.H.**, Q. Yue, K. Fahy, S. Palo, ENTICE Satellite Orbital Simulator to Study Ice Clouds, *Earth and Space Science*, doi:10.11029/2021EA002145, 2022.
2. **Jiang, J.H.**, H. Su, L. Wu, C. Zhai, K. Schiro, Improvements in cloud and water vapor simulations over the tropical oceans in CMIP6 compared to CMIP5, *Earth and Space Science*, 8, doi:10.1029/2020EA001520, 2021.
3. **Jiang, J.H. et al.**, Simulation of remote sensing of clouds and humidity from space using a combined platform of radar and multi-frequency microwave radiometers, *Earth and Space Science*, Vol. 6, Issue 7., 2019.
4. Vignesh, P., **J.H. Jiang**, et al. Assessment of CMIP6 Cloud Fraction and Comparison with Satellite Observations, *Earth and Space Science*, <https://doi.org/10.1029/2019EA000975>, 2019. [EOS Research Spotlight](#).
5. Patel., P., **J.H. Jiang**, Cloud condensation nuclei characteristics at the Southern great Plains site: role of particle size distribution and aerosol hygroscopicity, *Environ. Res. Commun*, 3, 7, doi: 10.1088/2515-7620/ac0e0b, 2021.
6. Kubar, T., **J.H. Jiang**, Net Cloud Thinning, Low-Level Cloud Diminishment, and Hadley Circulation Weakening of Precipitating Clouds with Tropical West Pacific SST, *Remote Sensing*, doi:10.3390/rs11101250, 2019.
7. **Jiang, J.H.** et al., Contrasting Effects on Deep Convective Clouds by Different Types of Aerosols, *Nature Communications*, 9, 3874, doi:10.1038/s41467-018-06280-4, 2018. [NASA News Release](#).
8. Zhao, B., **J.H. Jiang** et al., Intra-annual variations of regional aerosol optical depth, vertical distribution, and particle types from multiple satellite and ground-based observational datasets, *Atmos. Phys. and Chem.*, 18, 2018.
9. **Jiang, J.H. et al.**, Using Deep Space Climate Observatory Measurements to Study the Earth as An Exoplanet, *Astronomical Journal*, 156, 10.3847/1538-3881/aac6e2, 2018. [NASA News Release](#).
10. **Jiang, J.H.** et al., 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.
11. Su, H., **J.H. Jiang**, et al., Tightening of tropical ascent and high clouds key to precipitation change in a warmer climate, *Nature Communications*, Vol. 8, 2017. [NASA News Release](#)
12. 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.
13. **Jiang, J.H.**, et al., Evaluating the diurnal cycle of upper tropospheric ice clouds in climate models using SMILES observations, *J. Atmos. Sci.* 72, doi: <http://dx.doi.org/10.1175/JAS-D-14-0124.1>, 2015.
14. **Jiang, J.H.** et al., An assessment of upper-troposphere and lower-stratosphere water vapor in MERRA, MERRA2 and ECMWF reanalyses using Aura MLS observations, *Journal of Geophysical Research: Atmospheres*, 120, 2015.
15. R. Stanfield, **J.H. Jiang** et al., A quantitative assessment of precipitation associated with the ITCZ in the CMIP5 GCM simulations, *Climate Dynamics*, doi:10.1007/s00382-015-2937-y, 2015.
16. 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, doi:10.1029/2015GL065911, 2015.
17. Zhai, A., **J.H. Jiang**, Dependency of U.S. Hurricane Economic Loss on Maximum Wind Speed and Storm Size, *Environmental Research Letters*, 9, 6, doi:10.1088/1748-9326/9/6/064019, 2014. [NASA News Release](#).
18. Su, H., **J.H. Jiang** et al., Weakening and strengthening structures in the Hadley circulation change under global warming, *J. Geophys. Res.*, doi:10.1002/2014JD021642, 2014. [NASA News Release](#).
19. **Jiang, J.H.**, et al., Evaluation of Cloud and Water Vapor Simulations in CMIP5 Climate Models Using NASA A-Train Satellite Observations, *J. Geophys. Res.* 117, 10.1029/2011JD017237, July 2012. [EOS Research Spotlight](#)
20. **Jiang, J.H.**, et al., 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.
21. **Jiang, J.H.** et al. 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.
22. **Jiang, J.H.** et al., Clean and polluted clouds: relationships among pollution, ice cloud and precipitation in South America, *Geophys. Res. Lett.*, 35, L14804, doi:10.1029/2008GL034631, 2008. [NASA News Release](#).
23. **Jiang, J.H.** et al., Ice and Water Permittivities for Millimeter and Sub-millimeter Remote Sensing Applications, *Atmos. Sci. Lett.*, 5, 146-151, 2004.
39. Small, J., **J.H. Jiang**, H. Su, and C. Zhai, Relationship between aerosol and cloud fraction over Australia, *Geophys. Res. Lett.* 38, L23802, doi:10.1029/2011GL049404, 2011.
40. **Jiang, J.H.** et al., 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, D15103, 2010.
41. L'Ecuyer, T., **J.H. Jiang**, Touring the atmosphere aboard the A-Train, *Physics Today*, 63, 7, 36-41, 2010.
42. **Jiang, J.H.** et al., Connecting surface emissions, convective uplifting, and long-range transport of carbon monoxide in the upper-troposphere: New observations from the Aura Microwave Limb Sounder, *Geophys. Res. Lett.*, 34, 2007.
43. **Jiang, J.H.** et al. A Search for Mountain Waves in MLS Stratospheric Limb Radiances from the Winter Northern Hemisphere: Data Analysis and Global Mountain Wave Modeling, *J. Geophys. Res.*, Vol. 109, D3, 2004.