Minghui Diao

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Education

Ph.D. Department of Civil and Environmental Engineering, Princeton University, Princeton, NJ, 2013
B.S. Environmental Sciences, Peking University, Beijing, China, 2008

Research Positions

Professor, Department of Meteorology and Climate Science, San Jose State University, 2025–Present
Associate Professor, Department of Meteorology and Climate Science, San Jose State University, 2020–2025
Assistant Professor, Department of Meteorology and Climate Science, San Jose State University, 2015–2020
Advanced Study Program Postdoctoral Fellow, National Center for Atmospheric Research, 2013–2015
Graduate Research Assistant (advised by Prof. Mark A. Zondlo), Princeton University, 2008–2013
Undergraduate Research Assistant (advised by Prof. Maosheng Yao), Peking University, Beijing, China, 2007–2008

Research interests

Aircraft-based in-situ and remote sensing observations of water vapor, aerosols and clouds
Climate model parameterizations of cloud macrophysical and microphysical characteristics
Health impacts of fine particulate matter from wildfire emissions
Aerosol indirect effects on ice and mixed-phase clouds
Numerical simulations of global climate models (CESM, E3SM, and GEOS), weather, and cloud-resolving models

Fellowships and Awards

San Jose State University College of Science Dean's Scholar Award, 2023
Lawrence Livermore National Laboratory Mini-Faculty Sabbatical Fellowship, 2021
San Jose State University Research Foundation Early Career Investigator Award, 2019 *(award to two assistant professors in SJSU per year)*
San Jose State University Faculty RSCA Assigned Time Program Award, 2018
San Jose State University College of Science RSCA Assigned Time Award, 2018
NCAR Advanced Study Program Faculty fellowship, 2018
NCAR Advanced Study Program Faculty fellowship, 2016
NCAR Advanced Study Program postdoctoral fellowship, 2013–2015
NASA Earth and Space Science (NESSF) Fellowship, 2009–2012
Francis Robbins Upton Graduate Fellowship at Princeton University, 2008–2012 (*one of the two highest graduate fellowships given by the School of Engineering and Applied Science at Princeton University*)
Walbridge Fund Graduate Award, Princeton University, 2012 (*Award to three graduate students per year*)
Princeton Environment and Climate Scholars (PECS) Award, 2012
Outstanding Student Paper Award, American Geophysical Union 2010 Fall Meeting, San Francisco, USA, 2010
Outstanding Student Paper Award, American Geophysical Union 2009 Spring Assembly, Toronto, Canada, 2009
NSF Graduate Student Travel Award to Water Vapor and Climate System (WAVACS) workshop, France, 2009
Peking University Honored Graduate and Honored Thesis for Bachelor of Science, 2008
Jun-Tsung Fellowship (*awarded by Nobel Laureate Tsung-Dao Lee to 16 undergraduate students in China*), 2007
Baogang Fellowship, Peking University, 2007
Lin Chao Geoscience Fellowship, Peking University, 2006
Chinese Chemistry Olympiad National First Prize, 2003

Field Campaigns

May 2024 **NASA Airborne asSessment of Hyperspectral Aerosol optical depth and water-leaving Reflectance Product Performance for PACE (AirSHARP3) campaign**
Monterey, CA, USA

Jan – Feb 2018	**NSF Southern Ocean Clouds Radiation Aerosol Transport Experimental Study (SOCRATES) campaign** *Hobart, Australia*
Jan – Mar 2017	**NSF Airborne Research Instrumentation Testing Opportunity (ARISTO) campaign** *Broomfield, CO*
Jan – Feb 2016	**NSF O_2/N_2 Ratio and CO_2 Airborne Southern Ocean (ORCAS) campaign** *Punta Arenas, Chile*
2008 - 2011	**NSF HIAPER Pole-to-Pole Observations (HIPPO)** global campaign deployment #1-5 *USA, New Zealand and Australia* Four-year field work with five HIPPO deployments at multiple sites Laboratory calibration and field maintenance of the open-path VCSEL laser hygrometer onboard the NSF/NCAR Gulfstream-V (GV) research aircraft Participating in all HIPPO science meetings; presenting the results in multiple conferences
April 2013	**AQUAVIT-2** campaign at Karlsruhe Institute of Technology (KIT), *Karlsruhe, Germany* Calibration of the VCSEL hygrometer and the RHS chilled mirror system during the intercomparison campaign of water vapor instruments at the AIDA cloud chamber
May 2012	**NSF Deep Convective Clouds & Chemistry Experiment (DC3)** campaign, *Kansas, US* Field maintenance and calibration of the VCSEL hygrometer on the NSF/NCAR GV
Jan/Feb 2012	**NSF Tropical Ocean Troposphere Exchange of reactive halogen species and oxygenated VOC (TORERO)** campaign, *Costa Rica and Chile* Laboratory calibration of VCSEL laser hygrometer before and after the flight campaign
September 2010	**NSF Pre-Depression Investigation of Cloud-systems in the Tropics (PREDICT)** campaign, *US Virgin Islands* QA/QC of water vapor data; data analyses of ice crystal and ice supersaturation,
April-June 2008	**NSF Stratosphere-Troposphere Analyses of Regional Transport (START08)** campaign, *Colorado, US* QA/QC of VCSEL data; data analyses of GFS model meteorological background

Publications (*indicates student author from Minghui Diao's group)

1. Yang, C.A.*, **M. Diao**, Y. Shi, X. Liu. Hemispheric Asymmetry of Phase Partition in Mixed-Phase Clouds Based on Near Global-Scale Airborne Observations, *Geophysical Research Letters*, 2025GL115946, in review.

2. Singh, J.*, **M. Diao**, Y. Shi, X. Liu. Investigation of Arctic Cloud Properties and Surface Radiation based on MOSAiC Shipborne Observations, *Journal of Geophysical Research: Atmospheres*, 2025JD044239, in review.

3. Wang, D.*, **M. Diao**, C.A. Yang. Examination of Cloud Phase Partition and Controlling Factors Based on In-Situ and Satellite Observations and Machine Learning Approaches. *Artificial Intelligence for the Earth Systems*, AIES-D-25-0034, in review.

4. Ngo, D.*, **M. Diao**, R. Patnaude, S. Woods, G. Diskin. Aerosol–cloud interactions in cirrus clouds based on global-scale airborne observations and machine learning models, Atmos. Chem. Phys., 25, 7007–7036, https://doi.org/10.5194/acp-25-7007-2025, 2025.

5. Desai, N.*, **M. Diao**, Y. Shi, X. Liu. A comparative study of cloud properties between northern and southern high latitudes based on ARM observations and EAMv2 simulations. *Journal of Geophysical Research: Atmospheres*, 130, e2024JD041588. https://doi.org/10.1029/2024JD041588, 2025.

6. Geerts, B., B. Baeuerle, M. Diao, R. Delgado, A.G. Hallar, J.K. Lundquist, J. Mak, D.D. Turner, P. Veres, J. Vivekanandan, Recommendations for the NSF Facilities for Atmospheric Research and Education (FARE): Access and Capabilities, Bulletin of the American Meteorological Society, https://doi.org/10.1175/BAMS-D-24-0125.1, 2025.

7. Maciel, F. V.*, **M. Diao**, and C. A. Yang*. Partition between supercooled liquid droplets and ice crystals in mixed-phase clouds based on airborne in situ observations, *Atmos. Meas. Tech.*, 17, 4843–4861, https://doi.org/10.5194/amt-17-4843-2024, 2024.

8. Barone, T*, **M. Diao**, Y. Shi, X. Zhao, X. Liu, I. Silber, Impacts of Synoptic-Scale Dynamics on Clouds and Radiation in High Southern Latitudes, *Journal of Geophysical Research: Atmospheres*, 129, e2023JD040329. https://doi.org/10.1029/2023JD040329, 2024.

9. Wang, D.*, C.A. Yang*, **M. Diao**. Validation of Satellite-based Cloud Phase Distributions Using Global-Scale In-Situ Airborne Observations, *Earth and Space Science*, 11, e2023EA003355. https://doi.org/10.1029/2023EA003355, 2024.

10. Desai, N.*, M**. Diao**, Y. Shi, X. Liu, and I. Silber. Ship-based Observations and Climate Model Simulation of Cloud Phase over the Southern Ocean, *Journal of Geophysical Research: Atmospheres*, 128, e2023JD038581. https://doi.org/10.1029/2023JD038581, 2023.

11. Maciel, F. V.*, **M. Diao**, and R. Patnaude. Examination of aerosol indirect effects during cirrus cloud evolution, *Atmos. Chem. Phys*., 23, 1103–1129, https://doi.org/10.5194/acp-23-1103-2023, 2023.

12. D'Alessandro, J. J., McFarquhar, G. M., Stith, J. L., Diao, M., DeMott, P. J., McCluskey, C. S., et al. An evaluation of phase, aerosol-cloud interactions and microphysical properties of single- and multi-layer clouds over the Southern Ocean using in situ observations from SOCRATES. *Journal of Geophysical Research: Atmospheres*, 128, e2023JD038610. https://doi.org/10.1029/2023JD038610, 2023.

13. Zhao, X., Liu, X., Burrows, S., DeMott, P. J., Diao, M., McFarquhar, G. M., et al. Important ice processes are missed by the Community Earth System Model in Southern Ocean mixed-phase clouds: Bridging SOCRATES observations to model developments. *Journal of Geophysical Research: Atmospheres*, 128, e2022JD037513. https://doi.org/10.1029/2022JD037513, 2023.

14. Yorks, J.E., J. Wang, M.J. McGill, M. Follette-Cook, E.P. Nowottnick, J.S. Reid, P.R. Colarco, J. Zhang, O. Kalashnikova, H. Yu, F. Marenco, J.A. Santanello, T.M. Weckwerth, Z. Li, J.R. Campbell, P. Yang, M. Diao, V. Noel, K.G. Meyer, J.L. Carr, M. Garay, K. Christian, A. Bennedetti, A.M. Ring, A. Crawford, M.J. Pavolonis, V. Aquila, J. Kim, and S. Kondragunta, A SmallSat Concept to Resolve Diurnal and Vertical Variations of Aerosols, Clouds, and Boundary Layer Height, *Bull. Amer. Meteor. Soc.*, 104, E815–E836, https://doi.org/10.1175/BAMS-D-21-0179.1, 2023

15. Järvinen, E., C. S. McCluskey, F. Waitz, M. Schnaiter, A. Bansemer, C. G. Bardeen, A. Gettelman, A. Heymsfield, J. L. Stith, W. Wu, J. J. D'Alessandro, G. M. McFarquhar, **M. Diao**, J. A. Finlon, T. C. J. Hill, E. J. T. Levin, K. A. Moore, P. J. DeMott. Evidence for secondary ice production in Southern Ocean maritime boundary layer clouds. *Journal of Geophysical Research: Atmospheres*, 127, e2021JD036411. https://doi.org/10.1029/2021JD036411, 2022.

16. Yang, C.A.*, **M. Diao**, A. Gettelman, K. Zhang, J. Sun, W. Wu, G. McFarquhar, Ice and Supercooled Liquid Water Distributions over the Southern Ocean based on In Situ Observations and Climate Model Simulations, *Journal of Geophysical Research: Atmospheres*, 126, e2021JD036045, https://doi.org/10.1029/2021JD036045, 2021.

17. Yip, J.*, **M. Diao**, T. Barone, I. Silber, A. Gettelman. Evaluation of the CAM6 climate model using cloud observations at McMurdo Station, Antarctica. *Journal of Geophysical Research: Atmospheres*, 126, e2021JD034653. https://doi.org/10.1029/2021JD034653, 2021.

18. Atlas, R., J. Mohrmann, J. Finlon, J. Lu, I Hsiao, R. Wood, **M. Diao**. The University of Washington Ice-Liquid Discriminator (UWILD) improves single particle phase classifications of hydrometeors within Southern Ocean clouds using machine learning, *Atmospheric Measurement Techniqu*es, 14, 7079–7101, https://doi.org/10.5194/amt-14-7079-2021, 2021.

19. Holloway, T., D. Miller, Susan Anenberg, **M. Diao**, B. Duncan, A.M. Fiore, D. Henze, J. Hess, P. Kinney, Y. Liu, J.L. Neu, S. O'Neill, M.T. Odman, R.B. Pierce, A. Russell, D. Tong, J.J. West, M.A. Zondlo. Satellite Monitoring for Air Quality and Health, *Annu. Rev. Biomed. Data Sci*. 4, https://doi.org/10.1146/annurev-biodatasci-110920-093120, 2021.

20. Patnaude, R.*, **M. Diao**, X. Liu, S. Chu. Effects of Thermodynamics, Dynamics and Aerosols on Cirrus Clouds Based on In Situ Observations and NCAR CAM6 Model. *Atmospheric Physics and Chemistry*, 21, 1835–1859, https://doi.org/10.5194/acp-21-1835-2021, 2021.

21. O'Neill, S., **M. Diao**, S. Raffuse, M. Al-Hamdan, M. Barik, Y. Jia, S. Reid, Y. Zou, D. Tong, J. West, J. Wilkins, A Marsha, F. Freedman, J. Vargo, N. Larkin, E. Alvarado, P. Loesche. A Multi-Analysis Approach for Estimating Regional Health Impacts from the 2017 Northern California Wildfires. *Journal of Air & Water Waste Management (JA&WMA)*, https://doi.org/10.1080/10962247.2021.1891994, 2021.

22. Patnaude R.* and **M. Diao**, Aerosol indirect effects on cirrus clouds based on global aircraft observations, *Geophysical Research Letter*, 47, e2019GL086550. https://doi.org/10.1029/2019GL086550, 2020.

23. Sanchez, K. J., G. C. Roberts, **M. Diao**, and L. M. Russell. Measured Constraints on Cloud Top Entrainment to Reduce Uncertainty of Nonprecipitating Stratocumulus Shortwave Radiative Forcing in the Southern Ocean. *Geophys. Res. Lett.*, 47, e2020GL090513, https://doi.org/10.1029/2020GL090513, 2020.

24. **Diao M.**, T. Holloway, S. Choi, S.M. O'Neill, M.Z. Al-Hamdan, A. van Donkelaar, R.V. Martin, X. Jin, A.M. Fiore, D.K. Henze, F. Lacey, P.L. Kinney, F. Freedman, N.K. Larkin, Y. Zou, J.T. Kelly, and A. Vaidyanathan. Methods, availability, and applications of $PM_{2.5}$ exposure estimates derived from ground measurements, satellite, and atmospheric models, *Journal of Air & Water Waste Management,* https://doi.org/10.1080/10962247.2019.1668498, 2019. (review article)

25. Zhang, M., X. Liu, **M. Diao**, J. D'Alessandro, Y. Wang, C. Wu, D. Zhang, Z. Wang, and S. Xie, Impacts of representing heterogeneous distribution of cloud liquid and ice on phase partitioning of Arctic mixed-phase clouds with NCAR CAM5, *Journal of Geophysical Research: Atmosphere,* 124, 13071–13090. https://doi.org/10.1029/2019JD030502, 2019.

26. D'Alessandro, J.*, **M. Diao**, C. Wu, X. Liu, B. Stephens, and J.B. Jensen, Cloud phase and relative humidity distribution over the Southern Ocean based on in-situ observations and global climate model simulations, *Journal of Climate*, 32, 2781–2805, https://doi.org/10.1175/JCLI-D-18-0232.1, 2019.

27. **Diao, M.**, G.H. Bryan, H. Morrison, and J.B. Jensen, Ice nucleation parameterization and relative humidity distribution in idealized squall line simulations, *Journal of the Atmospheric Sciences*, 74, 2761–2787, https://doi.org/10.1175/JAS-D-16-0356.1, 2017.

28. Stephens B.B. M.C. Long, R.F. Keeling, E.A. Kort, C. Sweeney, E.C. Apel, E.L. Atlas, S. Beaton, J.D. Bent, N.J. Blake, J.F. Bresch, J. Casey, B.C. Daube, **M. Diao**, E. Diaz, H. Dierssen, V. Donets, B. Gao, M. Gierach, R. Green, J. Haag, M. Hayman, A.J. Hills, M.S. Hoecker-Martínez, S.B. Honomichl, R.S. Hornbrook, J.B. Jensen, R. Li, I. McCubbin, K. McKain, E.J. Morgan, S. Nolte, J.G. Powers, B. Rainwater, K. Randolph, M. Reeves, S.M. Schauffler, K. Smith, M. Smith, J. Stith, G. Stossmeister, D.W. Toohey, and A.S. Watt, The O_2/N_2 Ratio and CO_2 Airborne Southern Ocean Study. *Bull. Amer. Meteor. Soc.*, 99, 381–402, https://doi.org/10.1175/BAMS-D-16-0206.1, 2018.

29. Wu, C., X. Liu, **M. Diao**, K. Zhang, A. Gettelman, Z. Lu, J.E. Penner, and Z. Lin. Direct comparisons of ice cloud macro- and microphysical properties simulated by the Community Atmosphere Model version 5 with HIPPO aircraft observations, *Atmos. Chem. Phys*., doi:10.5194/acp-17-4731-2017, 2017.

30. D'Alessandro, J. J., **M. Diao**, C. Wu, X. Liu, M. Chen, H. Morrison, T. Eidhammer, J.B. Jensen, A. Bansemer, M.A. Zondlo, J.P. DiGangi. Dynamical conditions of ice supersaturation and ice nucleation in convective systems: a comparative analysis between in-situ aircraft observations and WRF simulations, *Journal of Geophysical Research: Atmosphere*, 122, doi:10.1002/2016JD025994, 2017.

31. Tan, X., Y. Huang, **M. Diao**, A. Bansemer, M. A. Zondlo, J. P. DiGangi, R. Volkamer, and Y. Hu. An assessment of the radiative effects of ice supersaturation based on in situ observations, *Geophysical Research Letter*, 43, 11,039–11,047, doi:10.1002/2016GL071144, 2016.

32. **Diao, M.**, J.B. Jensen, L.L. Pan, C.R. Homeyer, S. Honomichl, J.F. Bresch and A. Bansemer. Distributions of ice supersaturation and ice crystals from airborne observations in relation to upper tropospheric dynamical boundaries, *Journal of Geophysical Research: Atmosphere*, 120, 5101–5121. doi: 10.1002/2015JD023139, 2015.

33. **Diao, M.**, M.A. Zondlo, A.J. Heymsfield and S.P. Beaton. Hemispheric comparison of cirrus cloud evolution using in situ measurements in HIAPER Pole-to-Pole Observations, *Geophysical Research Letters*, doi:10.1002/2014GL059873, 2014.

34. **Diao, M.**, M.A. Zondlo, A.J. Heymsfield, L.M. Avallone, M.E. Paige, S.P. Beaton, T. Campos and D.C. Rogers. Cloud-scale ice supersaturated regions spatially correlate with high water vapor heterogeneities, *Atmospheric Chemistry and Physics*, 14, 2639-2656, https://doi.org/10.5194/acp-14-2639-2014, 2014.

35. **Diao, M.**, M.A. Zondlo, A.J. Heymsfield, D.C. Rogers and S.P. Beaton. Evolution of ice crystal regions on the microscale based on in situ observations, *Geophysical Research Letters*, 40 (13), 3473-3478, doi: 10.1002/grl.50665, 2013.

36. **Diao, M.**, L. Jumbam, J. Sheffield, E. Wood and M.A. Zondlo. Validation of AIRS/AMSU-A water vapor and temperature data with in situ aircraft observations from surface to UT/LS at 87°N–67°S, *Journal of Geophysical Research: Atmospheres,* 118 (12), doi:10.1002/jgrd.50483, 2013.

37. Cziczo, D.J., K.D. Froyd, C. Hoose, E.J. Jensen, **M. Diao**, M.A. Zondlo, J.B. Smith, C. Twohy and D.M. Murphy. Clarifying the Dominant Sources and Mechanisms of Cirrus Cloud Formation, *Science*, 340 (6138), 1320–1324, DOI:10.1126/science.1234145, 2013.

38. Froyd, K.D., D.J. Cziczo, C. Hoose, E.J. Jensen, **M. Diao**, M.A. Zondlo, J.B. Smith, C.H. Twohy, D.M. Murphy, Cirrus cloud formation and the role of heterogeneous ice nuclei (Conference Paper), AIP Conference Proceedings, 1527 (2013), 976-978, 19th International Conference on Nucleation and Atmospheric Aerosols (ICNAA), 2013.

39. Kort, E.A., S.C. Wofsy, B.C. Daube, **M. Diao**, J.W. Elkins, R.S. Gao, E.J. Hintsa, D.F. Hurst, R. Jimenez, F.L. Moore, J.R. Spackman and M.A. Zondlo. Atmospheric Observations of Arctic Ocean Methane Emissions up to 82° North, ***Nature Geoscience***, 5, 318-321, https://doi.org/10.1038/ngeo1452, 2012.

40. Wofsy, S.C., B.C. Daube, R. Jimenez, E. Kort, J.V. Pittman, S. Park, R. Commane, B. Xiang, G.Santoni, D. Jacob, J. Fisher, C. Pickett-Heaps, H. Wang, K. Wecht, Q.-Q. Wang, B.B. Stephens, B. B.,S. Schertz, P. Romashkin, T. Campos, J. Haggerty, W.A. Cooper, D. Rogers, S. Beaton, J.W. Elkins, D. Fahey, R. Gao, F. Moore,S.A. Montzka, J.P. Schwartz, D. Hurst, B. Miller, C. Sweeney, S. Oltmans, D. Nance, E.F. Hintsa, G. Dutton, L.A. Watts, R. Spackman, K. Rosenlof, E. Ray, M.A. Zondlo, **M. Diao**, M.J. Mahoney, M. Chahine, E. Olsen, R. Keeling, J. Bent, E.A. Atlas, R. Lueb, P. Patra, K. Ishijima, R. Engelen, R. Nassar, D.B. Jones, and S. Mikaloff-Fletcher. HIAPER Pole-to-Pole Observations (HIPPO): Fine grained, global scale measurements of climatically important atmospheric gases and aerosols, *Philosophical Transactions of the Royal Society of London* A, 369 (1943), 2073-2086, https://doi.org/10.1098/rsta.2010.0313, 2011.

41. Wunch, D., G. C. Toon, P. O. Wennberg, S. C. Wofsy, B. B. Stephens, M. L. Fischer, O. Uchino, J. B. Abshire, P. Bernath, S. C. Biraud, J.-F. L. Blavier, C. Boone, K. P. Bowman, E. V. Browell, T. Campos, B. J. Connor, B. C. Daube, N. M. Deutscher, **M. Diao**, J. W. Elkins, C. Gerbig, E. Gottlieb, D. W. T. Griffith, D. F. Hurst, R. Jiménez, G. Keppel-Aleks, E. A. Kort, R. Macatangay, T. Machida, H. Matsueda, F. Moore, I. Morino, S. Park, J. Robinson, C. M. Roehl, Y. Sawa, V. Sherlock, C. Sweeney, T. Tanaka, and M. A. Zondlo. Calibration of the Total Carbon Column Observing Network using aircraft profile data. *Atmos. Meas. Tech*., 3, 1351-1362, https://doi.org/10.5194/amt-3-1351-2010, 2010.

42. **Diao, M**. and M. Yao. Use of Zero-Valent Iron Nanoparticles in Inactivating Microbes, *Water Research*, 43:5243-5251, doi:10.1016/j.watres.2009.08.051, 2009.

Manuscripts in preparation

43. Yang, C.A.*, M. Diao, Y. Shi, X. Liu. "Hemispheric Asymmetries of Mixed-Phase Cloud Properties Based on Near Global-Scale Airborne Observations", to be submitted to *Geophysical Research Letters*.

Selected Student Theses:

44. Patnaude, R.*, 2020 (Adviser: **M. Diao**): Cirrus Cloud Microphysical Properties and Aerosol Indirect Effects using Airborne Observations and a Global Climate Model. M.S. thesis, 5107. Dept. of Meteorology and Climate Science, San Jose State University, 87 pp., https://scholarworks.sjsu.edu/etd_theses/5107.

45. Kathryn Steinmann 2019 (Adviser: **M. Diao**): Evaluating Tropical Tropospheric Ozone and Water Vapor in MERRA-2, ERA-Interim, and CAM-Chem Using Aircraft Observations from the Western Pacific. M.S. thesis, Dept. of Meteorology and Climate Science, San Jose State University, 58 pp., 5081. https://scholarworks.sjsu.edu/etd_theses/5081.

46. D'Alessandro, J.*, 2018 (Adviser: **M. Diao**): Cloud microphysical properties based on airborne in situ observations and evaluation of a weather forecasting model and a global climate model. M.S. thesis, Dept. of Meteorology and Climate Science, San Jose State University, 78 pp., https://doi.org/10.31979/etd.7855-fqvh.

Ph.D. Thesis

Minghui Diao. (Adviser: Mark A. Zondlo). Ice supersaturation and cirrus cloud formation from global in-situ observations. Princeton University, 2013. PDF: http://dataspace.princeton.edu/jspui/handle/88435/dsp01q524jn894

Presentations and Posters

1. Diao, M. et al. Advancing the Understanding of Clouds and Aerosols Using Multiscale Observations and Simulations, Naval Research Laboratory, research seminar on May 15, 2025 (invited).
2. Diao, M. Serving as a panelist on the NAS BASC board meeting, Extreme Weather and Lessons for More Resilient Communities: Board on Atmospheric Sciences and Climate 2025 Spring Meeting, May 6, 2025 (invited)
3. Diao, M. et al. Examining Climate Impacts of Cirrus Clouds through Past, Present and Future NASA Airborne Campaigns, NASA AirSHARP field campaign dry run meeting, March 10-11, 2025 (virtual).
4. Diao, M. et al. Examining Partition between Ice Crystals and Supercooled Liquid Water based on Multi-Scale Observations and Climate Model Simulations, AGU Fall Meeting 2024, December 10, 2024 (poster).
5. Diao, M. Panel discussion on applications of the DOE E3SM model, invited speaker, DOE E3SM model 10th year anniversary, December 8, 2024 (invited oral).
6. Diao, M. Examining Climate Impacts of Cirrus Clouds through Past, Present and Future NASA Airborne Campaigns, NASA MOSAIC program workshop, December 7, 2024 (poster).
7. Diao, M. et al. California Community and Earth-system Integrated Climate Resilience Center (CalCEI CRC), U.S. Department of Energy 2024 Urban IFL PI Meeting, October 28-29, 2024 (poster).
8. Diao, M. et al. Examining Climate Impacts of Cirrus Clouds through Past, Present and Future NASA Airborne Campaigns, NASA MOSAIC program cohort meeting, September 16, 2024 (virtual).
9. Diao, M. Overview of SJSU Cloud and Aerosol Laboratory, Peking University College of Urban and Environmental Sciences Seminar Series, Beijing, China, August 26, 2024 (invited).

10. Diao, M. Cirrus Cloud Microphysical Properties and Aerosol Indirect Effects based on In-Situ Observations and Global Climate Models, International Commission on Clouds and Precipitation (ICCP), Jeju Island, Korea, July 21, 2024 (oral).
11. Diao, M. et al. Cloud Phase and Radiation in High Latitudes based on DOE ARM Field Campaign Observations and DOE E3SM Climate Model, International Radiation Symposium (IRS), Hangzhou, China (oral).
12. Diao, M. Clouds and Aerosols – the Two Wildcards of Climate Change, Chengdu University of Information Technology Seminar Series, Chengdu, China, May 20, 2024 (invited).
13. Diao, M. Clouds and Aerosols – the Two Wildcards of Climate Change, Peking University College of Physics Seminar Series, Beijing, China, April 26, 2024 (invited).
14. Diao, M. Clouds and Aerosols – the Two Wildcards of Climate Change, Stanford University Seminar Series, April 5, 2024 (invited).
15. Diao, M. Integrating Earth-System Modeling and Multi-Scale Observations to Support Health Studies in California, SJSU WIRC Seminar Series, March 13, 2024 (invited).
16. Diao, M. et al., 9A.5 Aerosol Indirect Effects on Cirrus Clouds based on NASA Flight Campaigns and Global Climate Models, American Meteorological Society (AMS) 104th Annual Meeting, January 31, 2024, Baltimore (oral presentation).
17. Diao, M. Cirrus Cloud Microphysical Properties and Aerosol Indirect Effects Using Global-Scale Airborne Observations and Global Climate Model Simulations, AGU Fall Meeting 2023, San Francisco, December 13, 2023 (oral presentation).
18. Diao, M. Integrating Earth-System Modeling and Multi-Scale Observations to Support Health Studies in California, IAMA conference, UC Davis, December 6, 2023 (invited).
19. Diao, M. Clouds and Aerosols – Two Wildcards in A Changing Climate, DOE PNNL HBCU/MSI seminar series, joint seminar with weekly seminar, October 24, 2023.
20. Diao, M. Challenges, Needs, Opportunities, to Get Your Feet (Back) in the Door, NCAR FARE User Workshop, September 19, 2023, Boulder, CO (invited).
21. Diao, M. Hemispheric Comparisons of Ice and Mixed-Phase Cloud Properties based on In-situ Observations and DOE E3SMv1 Model, DOE ASR/ARM PI meeting, breakout session, August 9, 2023 (invited).
22. Diao, M. Clouds and Aerosols – Clouds and Aerosols – Two Wildcards in Climate Change, Tianjin University, July 10, 2023, Tianjin, China (invited).
23. Diao, M. Clouds and Aerosols – Clouds and Aerosols – Two Wildcards in Climate Change, Nanjing University, May 4, 2023, Nanjing, China (invited).
24. Diao, M. Clouds and Aerosols – the Wildcards of Climate Change, SJSU College of Science weekly seminar, February 17, 2023.
25. Diao, M. Developing Partnership between San Jose State University and DOE Lawrence Livermore National Laboratory to Enhance Climate Research Equity and Inclusion, DOE RDPP PI meeting, Jan 12, 2023, virtual.
26. Diao, M. Aerosol indirect effects on cirrus cloud formation and evolution, NASA AOS satellite workshop, Nov 17, 2022, virtual.
27. Diao, M. Evidence of Secondary Ice Production based on In-situ and Remote Sensing Observations in the High Latitudes, DOE ARM/ASR PI Meeting, October 26, 2022, virtual.
28. Diao, M. Linking multi-scale observations and simulations of mixed-phase clouds based on DOE MARCUS, MICRE and AWARE campaigns, DOE ARM/ASR PI Meeting, October 25, 2022, virtual.
29. Diao, M. Ice and Mixed-Phase Clouds in the High Latitudes based on Multiple ARM Observation Platforms and Climate Simulations, research seminar at DOE Brookhaven National Laboratory, August 24, 2022.
30. Diao, M. Airborne and Ground-based Observations of Water Vapor, Clouds and Aerosols, and Applications in Climate Research, 2022 Optical Sensors and Sensing Congress, July 11, 2022 (invited talk).
31. Diao, M. Ice and Mixed-phase Cloud Microphysical Properties and Aerosols Indirect Effects based on Multi-scale Observations and Climate Model Simulations. NCAR EOL seminar, March 29, 2022 (invited virtual talk).
32. Diao, M., Aviation Effect on Climate Change, NASA Ames – SJSU Aviation & Climate Change Forum Flyer. January 20, 2022 (invited).
33. Diao, M. Evaluation of Ice and Mixed-Phase Cloud Characteristics in GCMs based on In-situ and Remote Sensing Observations over the Southern Ocean and Antarctica. AGU Fall Annual Meeting 2021. December 17, 2021. (poster)
34. Diao, M. Advance the Understanding of Clouds and Aerosols by Linking In Situ Measurements, Satellite Observations and Climate Model Simulations. Lawrence Livermore National Laboratory Seminar, September 15, 2021 (invited).

35. Diao, M., R. Patnaude, V. Maciel, D. Ngo, X. Liu and S. Chu. Cirrus Cloud Formation and Evolution Based on Global Aircraft Observations and Simulations. International Commission on Clouds and Precipitation (ICCP) 2021 Conference, August 2, 2021.
36. Diao, M., N. Desai, C.A. Yang, J. Yip, X. Liu, I. Silber, A. Gettelman, K. Zhang, J. Sun, W. Wu, G. McFarquhar. Mixed-Phase Cloud Processes and Aerosol Indirect Effects over Southern Ocean and Antarctica, DOE ARM/ASR PI Meeting, June 21 – 24, 2021.
37. Diao, M., J. Yip, C.A. Yang, A. Gettelman, I. Silber, K. Zhang, J. Sun, X. Liu, W. Wu, G. McFarquhar. Ice and Mixed-phase Cloud Characteristics and Aerosol Indirect Effects in High Southern Latitudes. NCAR CESM Workshop, June 6 – 8, 2021.
38. Diao, M., J. Yip, C.A. Yang, A. Gettelman, I. Silber, K. Zhang, J. Sun. Ice and Mixed-Phase Cloud Characteristics over McMurdo, Antarctica and the Southern Ocean, AMS 16th Conference on Polar Meteorology and Oceanography Virtual Meeting, June 3, 2021.
39. Diao, M., R. Patnaude, X. Liu, and S. Chu. Global-scale Aircraft Observations and Simulations of Cirrus Clouds and Aerosol Indirect Effects, EGU General Assembly 2021, online, 19–30 Apr 2021, EGU21-420, https://doi.org/10.5194/egusphere-egu21-420, 2021 (virtual).
40. Diao, M., Advance the Understanding of Clouds and Aerosols by Linking In-Situ Measurements, Satellite Observations and Climate Model Simulations, NASA Ames Earth Science Division Seminar, March 18, 2021, (invited).
41. Diao, M., C. Yang, A. Gettelman, K. Zhang, J. Sun. Mixed-phase Clouds and Aerosol Indirect Effects over the Southern Ocean based on In-Situ Observations and Climate Model Simulations, AMS Annual Meeting 2021 oral, Jan 13, 2021 (virtual).
42. Diao, M., R. Patnaude, C. Yang, Aerosol Indirect Effects on Ice and Mixed-phase Clouds based on Eight NSF Flight Campaigns and Climate Model Simulations, AGU Fall 2020 oral, Dec 16, 2020 (virtual).
43. Diao, M., F. Freedman, M. Al-Hamdan, J. Vargo, Satellite-based Decision Support Tool for Surface PM2.5 Estimates in California, AGU Fall 2020 poster, Dec 15, 2020 (virtual).
44. Diao, M. Clouds and Aerosols: The Wild Cards in Climate Change and Air Quality, SJSU College of Science Virtual Seminar, July 31, 2020 (virtual).
45. Diao, M. R. Patnaude, X. Liu, S. Chu, Ice Microphysical Properties Below -40˚C based on Seven NSF Flight Campaigns and NCAR CAM6 Model Simulations. NCAR CESM Workshop, June 16, 2020 (virtual).
46. Diao, M. "The Air in Your Community: Estimating Surface PM2.5 in California with a Fusion of Monitor Data, Satellite Observations, and Downscale Modeling", HAQAST2020 webinar, March 10, 2020 https://haqast.org/haqast2020/ (invited).
47. Diao, M. Laboratory calibration and applications of water vapor measurements from the surface to UT/LS using VCSEL (invited), ARM Aerial Instrumentation Workshop, March 2020, PNNL, Richland, WA.
48. Diao, M. Advance the Understanding of Clouds and Aerosols by Linking In-Situ Measurements, Satellite Observations and Climate Model Simulations (invited), February 2020, U. Wyoming, Laramie, WY.
49. Diao, M. R. Patnaude, C.A. Yang. Characteristics of ice and mixed-phase clouds in clean and polluted conditions based on in-situ observations and climate model simulations, December 2019, AGU Fall Meeting, San Francisco, CA.
50. Diao, M. F. Freedman, M. Al-Hamdan, S. O'Neill, A. Venkatram, I. Cruz, Barik, M. Satellite applications for analysis of surface PM2.5 concentrations in California and contiguous U.S., December 2019, AGU Fall Meeting, San Francisco, CA.
51. Diao, M. Advance the Understanding of Clouds and Aerosols by Linking In-Situ Measurements, Satellite Observations and Climate Model Simulations (invited), Michigan Technological University, November 4 2019, Houghton, MI.
52. Diao, M. F.R. Freedman, M. Al-Hamdan, S. O'Neill, A. Venkatram, I. Cruz, Barik, M. Applications of satellite data in analysis of surface PM2.5 in California (invited), NCAR FASCINATE Workshop, September 10, Boulder, CO.
53. Diao, M. Applications of satellite-derived PM2.5 in health studies for California wildfires (oral), NASA HAQAST-6 Workshop, July 10 – 12 2019, Pasadena, CA.
54. Diao, M. Bridging the Gap between Observations and Model Simulations for Improved Understanding of Ice and Mixed-Phase Clouds (oral), NCAR CESM Workshop, June 17 – 19 2019, Boulder, CO.
55. Diao, M. Microphysical Properties of Mixed-phase and Ice Clouds over the Southern Ocean and Antarctica and Comparison with NCAR CAM model (poster). Department of Energy, 2019 ARM/ASR PI Meeting, June 10 – 13, Rockville, Maryland.

56. Diao, M. Bridging the Gap between Observations and Model Simulations for Improved Understanding of Cloud and Aerosol Processes (invited), University of California, Davis, June 5 2019, Davis, CA.
57. Diao, M. Observations of clouds and relative humidity over the Southern Ocean and evaluation of the NCAR CAM model (invited), Lawrence Livermore National Laboratory, May 29 2019, Livermore, CA.
58. Diao, M. J. D'Alessandro, A. Gettelman, I. Silber, C. Wu, X. Liu, B.B. Stephens, J.B. Jensen. Southern Ocean Cloud Characteristics Based on in-Situ Observations and NCAR Community Atmosphere Model Simulations (oral presentation), AMS Polar Meteorology and Oceanography meeting, May 21 2019, Boulder, CO.
59. Diao, M. Clouds, Aerosols and Climate Change (oral presentation), San Jose State University Celebration of Research Day, recipient of the SJSU Early Career Investigator Award, April 23, 2019, San Jose, CA.
60. Diao, M. Cloud phase and relative humidity distributions over the Southern Ocean in austral summer based on in situ observations, CAM5 and CAM6 simulations (oral presentation), NCAR CESM Atmosphere Working Group Meeting, February 21, 2019, Boulder, CO.
61. Diao, M. F. R. Freedman, M. Z. Al-Hamdan, and A. Venkatram, 6.4 Assisting Bay Area Air Pollution Management of Surface PM2.5 by Using Satellite AOD Data (oral presentation), American Meteorological Society 99th Annual Meeting, January 9 2019, Phoenix, AZ.
62. Yip, J. M. Diao, A Survey of Dominant Conditions in the Formation of Southern High-Latitude Stratiform Cloud-Voids (oral presentation), American Meteorological Society 99th Annual Meeting, January 8 2019, Phoenix, AZ.
63. Steinmann, K. and M. Diao, 4A.3 Examining the Relationships between Ozone, Water Vapor, and Vertical Velocity in the Tropical Western Pacific during the CONTRAST Campaign and Their Representation in MERRA-2 Reanalysis (oral presentation), American Meteorological Society 99th Annual Meeting, January 8 2019, Phoenix, AZ.
64. Diao, M. and O'Neil, S. Air Quality and Health Burden of 2017 Northern California Wildfires (oral presentation), NASA HAQAST-5 science meeting, January 3, 2019, Phoenix, AZ.
65. Diao, M. F Freedman, M Z Al-Hamdan, A Venkatram, Applications of satellite data in analyses of surface PM2.5 (oral presentation), NASA HAQAST-5 science meeting, January 3, 2019, Phoenix, AZ.
66. Diao, M., F Freedman, M Z Al-Hamdan, A Venkatram. A51M-2365 POSTER Progress on the Use of MODIS Aerosol Optical Depth for Fine-Scale PM Analysis: Case Studies for California, AGU Fall 2018, December 14 2018, Washington DC.
67. Diao, M., A Gettelman, A24G-05 Cloud phase distributions based on in-situ and ground-based observations over the Southern Ocean and Antarctica and comparisons with a GCM, oral presentation, AGU Fall 2018, December 11 2018, Washington DC.
68. Diao, M., Calibration of the Vertical Cavity Surface Emitting Laser (VCSEL) water vapor hydrometer, SOCRATES science team meeting, November 27, 2018, Boulder, CO.
69. Diao, M. and F. Freedman. Using satellite-derived PM2.5 dataset to assist air pollution management in California, California Department of Public Health, Richmond, CA, November 2, 2018.
70. Diao, M., Clouds and climate change, Science Symposium Series (invited), Skyline College, October 24, 2018, San Bruno, CA.
71. Diao, M., Clouds and aerosols: linking aircraft measurements, satellite observations and model simulations. NCAR Earth Observing Laboratory, August 15, 2018, Boulder, CO.
72. Diao, M., Applications of satellite observations of aerosol optical depth for assisting air pollution management of PM2.5 in California. NCAR Atmospheric Chemistry Observation and Modeling Laboratory, August 9, 2018, Boulder, CO.
73. Diao, M., Using satellite-derived PM2.5 dataset to assist air pollution management in California. NASA HAQAT-4 science meeting, July 16, 2018. Madison, Wisconsin.
74. Diao, M. Cloud phase and relative humidity distributions over the Southern Ocean in austral summer based on in situ observations and CAM5 simulation. American Meteorological Society (AMS) Cloud Physics conference, July 13, 2018, Vancouver, Canada.
75. Diao, M. Clouds and aerosols: linking aircraft measurements, satellite observations and model simulations. Nanjing University, Department of Atmospheric Sciences, June 28, 2018, Nanjing, China
76. Diao, M. Clouds and aerosols: linking aircraft measurements, satellite observations and model simulations. Chinese Academy of Science / Institute of Atmospheric Physics, June 22, 2018 Beijing, China
77. Diao, M. Clouds and aerosols: linking aircraft measurements, satellite observations and model simulations. Beijing Meteorological Bureau, Institute of Urban Meteorology, June 18, 2018, Beijing, China.
78. Diao, M. and F. Freedman. Using satellite-derived PM2.5 dataset to assist air pollution management in California, California Air Resource Board (CARB), Sacramento, CA, May 17, 2018.

79. Diao, M and F. Freedman. Assisting the Bay Area Air Quality Management District (BAAQMD) in Using of the NASA MAIAC AOD Product, Bay Area Air Quality Management District, San Francisco, CA, March 13, 2018.
80. Diao, M., J. D'Alessandro, J.B. Jensen, Relationship between macroscopic and microphysical properties for mixed-phase and ice clouds over the Southern Ocean in ORCAS campaign, AGU Fall meeting, December 2017, Louisiana, New Orleans, oral presentation.
81. D'Alessandro, M., Airborne, Comparisons of Cloud Properties over the Southern Ocean between In situ Observations and WRF Simulations, AGU Fall meeting, December 2017, Louisiana, New Orleans, poster presentation.
82. Steinmann, K., M. Diao, Bimodal Distributions of Ozone in Relation to Water Vapor, Cloud Hydrometeors, and Other Chemical Tracers Over the Tropical Western Pacific, AGU Fall meeting, December 2017, Louisiana, New Orleans, poster presentation.
83. Diao, M. "In situ vapor pressure and ice supersaturation using the VCSEL hygrometer". CAESAR Campaign Planning Meeting. October 2017, Boulder, CO.
84. Diao, M., Airborne, Aircraft-based In-Situ Observations of Water Vapor, Clouds and Aerosols from the Microscale to the Global Scale. Seminar at Chinese Academy of Sciences, Institute of Atmospheric Physics, Beijing, China, July 2017, oral presentation (INVITED).
85. Diao, M., Airborne, Aircraft-based In-Situ Observations of Water Vapor, Clouds and Aerosols from the Microscale to the Global Scale. Seminar at Department of Environmental Sciences and Engineering, Peking University, Beijing, China, July 2017, oral presentation (INVITED).
86. Diao, M., Aircraft-based In-Situ Observations of Water Vapor, Clouds and Aerosols from the Microscale to the Global Scale. Seminar at Department of Environmental Sciences and Engineering, Shandong University, Jinan, China, June 2017, oral presentation (INVITED).
87. Diao, M., Clouds and Climate Change. Seminar at Department of Environmental Sciences and Engineering, Shandong University, Qingdao campus, China, June 2017, oral presentation (INVITED).
88. Diao, M., Airborne, In-situ Observations of Water Vapor, Relative Humidity, Cloud Formation and Evolution from Pole to Pole. Seminar at Department of Atmospheric Science, Nanjing University, Nanjing, China, June 2017, oral presentation (INVITED).
89. Diao, M., J. D'Alessandro, C. Wu, X. Liu, and J. B. Jensen. 4.2 Characteristics of Ice and Mixed-Phase Clouds Based on in-Situ Observations over the Southern Ocean and Comparisons with the NCAR Community Atmosphere Model. AMS annual meeting, Seattle, WA, January 2017, oral presentation.
90. Steinmann. K., M. Diao and C. Wu, 4.6 Distributions of Relative Humidity, Vertical Velocity, and Chemical Tracers in the Tropical Tropopause Layer from ATTREX and CONTRAST Campaigns and Their Representation in Numerical Models, AMS annual meeting January 2017, Seattle, WA, oral presentation.
91. Diao, M., J. D'Alessandro, C. Wu, X. Liu, J.B. Jensen, A42F-07 Microphysical and macrophysical characteristics of ice and mixed-phase clouds compared between in-situ observations from the NSF ORCAS campaign and the NCAR Community Atmospheric Model. AGU Fall meeting 2016, San Francisco, CA, oral presentation.
92. D'Alessandro, J., M. Diao, C. Wu, X. Liu, J.B. Jensen, A42F-07 Airborne in-situ measurements of relative humidity and clouds over the Southern Ocean. AGU Fall meeting 2016, oral presentation.
93. Steinmann, K., M. Diao and C. Wu. A43F-0298 Distributions of Relative Humidity, Vertical Velocity, and Chemical Tracers in the Tropical Tropopause Layer from ATTREX and CONTRAST Campaigns. AGU Fall meeting 2016, poster presentation.
94. Diao, M., J. D'Alessandro, K. Steinmann, Ice cloud formation from in-situ airborne observations to a hierarchy of models, Lawrence Berkeley National Laboratory, CA, November 14, 2016, oral presentation (INVITED).
95. Diao, M., J. D'Alessandro, C. Wu, X. Liu, J.B. Jensen, Water vapor measurements from the VCSEL hygrometer and cloud microphysical properties in ORCAS campaign. NSF ORCAS campaign science meeting, NCAR, Boulder, CO, September 6, 2016, oral presentation.
96. Diao, M., Ice cloud formation from in-situ airborne observations to a hierarchy of models. NCAR Earth Observing Laboratory (EOL) seminar Boulder, CO, August 2, 2016, oral presentation.
97. Diao, M., J. D'Alessandro, K. Steinmann, Comparisons of ice supersaturation and ice microphysical properties between in-situ observations and a hierarchy of models: a cloud-resolving model, WRF and CAM5, NCAR, Atmospheric Chemistry Observation and Modelling (ACOM) Laboratory seminar, Boulder, CO, July 2016, oral presentation.
98. Diao, M., Understanding ice microphysics based on in-situ observations and multi-scale models, Sino-US Workshop on Climate Change and Air Pollution Interactions and Impacts, July 26-27, 2016, oral presentation (INVITED).

99. Diao, M., J. D'Alessandro, X. Tan, Y. Huang, A. Bansemer, MA, Zondlo, JP DiGangi, R Volkamer, Y Hu, X Liu, C. Wu, An assessment on radiation effects of ice supersaturation based on in-situ observations and implications for cirrus cloud simulations in global climate models. NCAR CESM workshop, Jun 2016, Breckenridge, CO, poster.
100. Diao, M. G. Bryan, H. Morrison, JB Jensen, Sensitivity of ice supersaturated region's characteristics to spatial resolution in idealized squall line simulations, NCAR WRF workshop, Boulder, CO, June 2016, poster.
101. D'Alessandro, J., M. Diao, M. Chen, C. Wu, X. Liu, H. Morrison, A. Bansemer, T. Eidhammer, Dynamical conditions of ice supersaturation in convective systems: a comparative analysis between in-situ airborne observations and WRF simulations, NCAR WRF workshop, Boulder, CO, June 2016, poster.
102. Diao, M., U. Schumann, A. Minikin, J.B. Jensen, Comparisons of cirrus cloud microphysical properties between polluted and pristine air. AGU Fall meeting 2015, poster presentation.
103. D'Alessandro, J., M. Diao, M. Chen, Comparisons of anvil cirrus spatial characteristics between airborne observations in DC3 campaign and WRF simulations. AGU Fall meeting 2015, poster presentation.
104. Diao, M., J. D'Alessandro, C. Wu, X. Liu, J.B. Jensen, Clouds: the wild card of climate change - Airborne in-situ observations of ice clouds from the microscale to global scale. San Jose State University, Nov 17, 2015.
105. Diao, M., J.B. Jensen, Comparisons of cirrus cloud properties between polluted and pristine air based on in-situ observations from the NASA ATTREX, NSF HIPPO and EU INCA campaigns, CT3LS ATTREX campaign science meeting, NOAA, Boulder, CO, August 2015.
106. Diao, M., U. Schumann, A. Minikin, J.B. Jensen, Airborne observations of cirrus cloud microphysical properties between polluted and pristine air. Gordon Research Seminar, Bates College, Maine, July 2015, oral presentation.
107. Diao, M., J. D'Alessandro, C. Wu, X. Liu, J.B. Jensen, Sensitivity of ice supersaturated region's characteristics to spatial resolution in an idealized squall line scenario, AMS 27th Conference on Weather Analysis and Forecasting, 29 June–3 July 2015, Chicago, IL, oral presentation.
108. Diao, M., J. D'Alessandro, C. Wu, X. Liu, J.B. Jensen, Cirrus cloud formation and evolution from the microscale to the synoptic scale, May 2015, University of Wyoming, oral presentation.
109. Diao, M, Comparisons of cirrus cloud microphysical properties between polluted and pristine air using global-scale in-situ observations, NCAR Science Day, April 17, 2015, oral presentation.
110. Diao, M., Clouds: the wild card of climate change - Understanding ice cloud formation using global-scale in-situ observations, December 2014, San Jose State University.
111. Diao, M., J.B. Jensen, G. Bryan, H. Morrison and D. Stern. Comparing cirrus cloud formation and evolution using in-situ aircraft observations and a cloud-resolving model. AGU Fall meeting, December 17, 2014, San Francisco (poster #A31I-3123).
112. Diao, M., J.B. Jensen, L.L. Pan, C.R. Homeyer, S. Honomichl, J.F. Bresch, A. Bansemer and E. Jensen. Distributions of ice supersaturation and ice crystals from airborne observations in relation to upper tropospheric dynamical boundaries. AGU Fall meeting, December 16, 2014, San Francisco (poster #A41C-0065).
113. Diao, M. and J.B. Jensen. Cirrus cloud formation and evolution from the microscale to the synoptic scale. NCAR EOL Seminar, Aug 5 2014, NCAR Boulder. Oral presentation http://video.ucar.edu/mms/eol/2014/m_diao.mp4
114. Diao, M., J.B. Jensen, L.L. Pan, E. Jensen and C. Homeyer. Dynamical condition of ice supersaturation and ice crystal formation in the extratropical upper troposphere and lower stratosphere. AMS Cloud Physics Meeting, July 9 2014, Boston. Oral presentation (Abstract ID #250736).
115. Diao, M., M.A. Zondlo, A.J. Heymsfield and S.P. Beaton. Hemispheric comparison of cirrus cloud evolution using in situ measurements in HIAPER Pole-to-Pole Observations. AMS Cloud Physics Meeting, July 10 2014, Boston. Poster presentation (Abstract ID #250741).
116. Diao, M. "Do cirrus clouds evolve differently between the Northern and Southern Hemispheres?" School of Environmental Sciences and Engineering, Peking University, January 27, 2014, Beijing, China. Oral presentation.
117. Diao, M., J. DiGangi, A. O'Brien and M.A. Zondlo, Ice crystal formation and evolution in five campaigns: START08, HIPPO Global, DC3, PREDICT and TORERO. AGU Fall meeting, December 12, 2013, San Francisco (poster #A41C-0065).
118. Diao, M. and M.A. Zondlo, Ice crystal formation and evolution in DC3 campaign. Deep Convection, Clouds and Chemistry (DC3) campaign science meeting, February 25-28, 2013, Boulder, CO.
119. Diao, M. and M.A. Zondlo, In-situ aircraft observations of ice supersaturation and cirrus clouds in global field studies. AGU Fall meeting, December 5 2012, San Francisco (Oral presentation #A32A-06).
120. Diao, M. and M.A. Zondlo, In-situ aircraft observations of ice supersaturation and cirrus clouds in global field studies. Princeton Research Symposium, December 1, 2012.

121. Diao, M. L. Jumbam, J. Sheffield, E. Wood and M.A. Zondlo. Water vapor and temperature comparisons between AIRS/AMSU-A and in situ aircraft observations from 87°N to 67°S and sensitivities to spatial and temporal differences. NASA Sounder Science Team Meeting 2012, Greenbelt, Maryland, November 14, 2012 (Oral presentation).
122. Diao, M. and M.A. Zondlo. How is ice cloud formation influenced by anthropogenic activities? - Aircraft in situ observations of cirrus cloud formation in the Northern and Southern Hemispheres? Brown bag seminar, Civil and Environmental Engineering, Princeton, Oct 19, 2012, oral presentation.
123. Diao, M. and M.A. Zondlo. Aircraft *in situ* observations of cirrus cloud formation in the Northern and Southern Hemispheres. Goddard Institute of Space Science (GISS), New York City, August 2012 (INVITED)
124. Diao, M. and M.A. Zondlo. Ice supersaturation and cirrus clouds in HIPPO Global Campaign #1-5. HIPPO Global Campaign science meeting, NOAA, Boulder, March 2012.
125. Diao, M. and M.A. Zondlo. Clock of cirrus cloud's life: Ice cloud formation and evolution based on in-situ aircraft observations? Brown bag seminar, Civil and Environmental Engineering, Princeton, February 2012, oral presentation.
126. Diao, M., M. A. Zondlo, L. L. Pan and E. Jensen. In-situ observations of ice cloud formation from ice supersaturated regions. AGU Fall meeting, San Francisco, December 2011.
127. Diao, M. and M.A. Zondlo. Comparisons of VCSEL and AIRS /AMSU-A on water vapor and temperature in HIPPO#1. HIPPO Science Meeting, March 2011.
128. Diao, M. and M.A. Zondlo. Ice Supersaturated Regions Formed by the Inhomogeneities of Water Vapor Field in the Upper Troposphere in START08 and HIPPO Global Campaigns. AGU Fall meeting, San Francisco, December 2010 (*Outstanding Student Paper Award for AGU 2010 Fall Meeting*)
129. Diao, M. and M.A. Zondlo. What are the conditions for ice supersaturation in the upper troposphere and lower stratosphere? Brown bag seminar, Civil and Environmental Engineering, Princeton, March 12, 2010, oral presentation.
130. Diao, M. and M.A. Zondlo. In situ measurements of ice supersaturation in the upper troposphere in START08 campaign. AGU Joint Assembly, Toronto, Canada, May 2009 (*Outstanding student presentation award for AGU 2009 Joint Assembly*).
131. Diao, M. and M.A. Zondlo. Ice supersaturations from the VCSEL Hygrometer in HIPPO Global and START08 Campaigns. Water Vapor and Climate System (WAVACS) summer school, Corsica, France, September 2009.

Teaching

METR 215 Advanced Physical Meteorology (Graduate-level), 2016 – present
METR 125 Physical Meteorology (Undergraduate-level), 2016 – present
METR 112 Global Climate Change (Undergraduate general education), 2015 – present
METR 12 Global Warming (Undergraduate General Education), 2019

Advising

2024 – present, Eleni Konstantelos, Rachel Stadtlander, MS candidates
2023 – present, Elder Contreras, M.S. candidate
2023 – 2024, Will Carter, B.S., will start working at US Air Force in 2025
2022 – 2023, Jay Singh, M.S., currently working at NASA Ames Research Center
2021 – 2023, Derek Ngo, M.S., currently as research assistant with Minghui on NASA cirrus cloud project
2021 – 2023, Dao Wang, M.S., currently at University of Utah as a PhD candidate
2020 – 2023, Tyler Barone, M.S., currently at TAMU as a PhD candidate
2020 – 2022, Flor Vanessa Maciel, M.S., currently at UCLA, received the prestigious *Cota-Robles Fellowship*
2019 – 2023, Ching An Yang, M.S., currently at University of Michigan, received the *Rackham Merit Fellowship*, which is only offered to 5% of the incoming graduate students at U Michigan.
2018 – 2020, Ryan Patnaude, M.S., received PhD from Colorado State University in 2023 and currently a postdoc at Colorado State University
2015 – 2019, Kathryn Steinmann, M.S., currently at University of Wyoming as a PhD candidate
2015 – 2018, John D'Alessandro, M.S. degree at San Jose State University (John received the Walker Fellowship ($5000), and the *John P. and Anna Monteverdi Scholarship* 2017-2018 ($10,000))
2017 – 2020, Jackson Yip, B.S., currently at Rainmaker. Co, a start-up company for artificial rain
2017 – 2019, Abril Alberto, Ching An Yang, B.S.

Professional Services

1. National Academy of Sciences (NAS) Climate Crossroads: Pathways to Action (invited attendee among 35 people): https://www.nationalacademies.org/ccx/climate-crossroads

2. DOE ASR Ice Processes Workshop committee and drafting BAMS article to be submitted. https://asr.science.energy.gov/science/working-groups/clc/ice
3. NCAR Facility for Atmospheric Research and Education (FARE) steering committee; organized the workshop and drafted a BAMS article. https://www.eol.ucar.edu/fare-users-workshop
4. National Academy of Sciences (NAS) Technology Developments to Advance Antarctic Research, I served as the workshop planning committee: https://www.nationalacademies.org/our-work/technology-developments-to-advance-antarctic-research-a-workshop
5. Co-Editor to Journal: *Atmosphere*, Special Issue Title: *Aerosol influence on Mixed-phase and Ice clouds: Laboratory, Field, Remote-sensing and Modeling studies*, Duration: 1 October 2019 – 31 September 2020.
6. Chair and convener of conference sessions "Microphysical and Macrophysical Properties and Processes of Ice and Mixed-Phase Clouds: Linking in Situ, Remote Sensing Observations and Multiscale Models (oral and poster)" at ***AGU Fall meetings from 2016 – 2024.***
7. Reviewer for U.S. **National Science Foundation**, **Department of Energy** and **NASA** proposals.
8. Reviewer for *Science*, *Nature*, Journal of Geophysical Research-Atmosphere, Atmospheric Measurement Techniques, and Bulletin of the American Meteorological Society.

Professional Organizations

2023 – present	**National Academy of Sciences (NAS) Board for Atmospheric Sciences and Climate (BASC)** committee member
2020 – present	DOE ARM Cloud and Precipitation Measurements and Science Group (**CPMSG**) committee, organizing annual meeting in Fall 2024, https://www.arm.gov/about/constituent-groups/cpmsg-group
2016 – 2021	NASA Health and Air Quality Applied Science Team (**HAQAST**) member
2016 – 2020	AMS Cloud Physics Committee
2013 – present	American Geophysical Union
2013 – present	American Meteorological Society

Funding sources (sum: ~$5 M)

28. **NASA MOSAIC program award 80NSSC24K1616.** Award amount $300,000. Period: 10/01/2024 – 09/30/2026. "Examining Climate Impacts of Cirrus Clouds through Past, Present and Future NASA Airborne Campaigns". Minghui Diao (PI).

27. **DOE Climate Resilience Center (CRC) program award DE-SC0024439**. Award amount $950,000. Period: 09/01/2023 – 08/31/2026. "California Community and Earth-system Integrated Climate Resilience Center (CalCEI CRC)". Minghui Diao (PI).

26. **NSF FIRE-PLAN workshop** grant. Award amount $198,171. Period: 09/01/2023 – 08/31/2025. Craig Clements (PI), Minghui Diao et al. (Co-Is).

25. **DOE RDPP program award DE-SC0023155**. Award amount $149,992. Period: 09/01/2022 – 05/31/2025. "Developing Partnership between San Jose State University and DOE Lawrence Livermore National Laboratory to Enhance Climate Research Equity and Inclusion". Minghui Diao (PI).

24. **NASA ROSES-2020 grant 80NSSC21K1457, A.23 Atmospheric Composition Campaign Data Analysis and Modeling (ACCDAM)**. Award amount $599,486. Period: 09/01/2021 – 08/31/2025. "*Aerosol indirect effects on cirrus clouds based on NASA flight campaigns and global climate models*". Minghui Diao (PI).

23. SJSU Division of Research and Innovation award number 22-LUG-08-006. Award amount $20,000. Period 6/1/2022 - 5/31/2023. "*Development of a long-term sustainable data Hub for Observation-based Model Evaluation (HOME)*" Minghui Diao (PI).

22. **DOE Lawrence Livermore National Laboratory (LLNL) Mini Faculty Sabbatical Fellowship**. Award amount: $43,500. Period 08/16/2021 – 12/17/2021.

21. SJSU's first Curriculum Sustainability cohort sponsored by SJSU Center for Faculty Development, granted through PepsiCo's Pouring Rights contract with SJSU in 2022. $500 in Professional Development funds.

20. **US DOE Atmospheric System Research (ASR) grant #DE-SC0021211**. Award amount: $629,187. Period 09/01/2020 – 08/31/2025. "*Advancing the Understanding of Cloud Microphysical Processes and Aerosol Indirect Effects in High-Latitude Mixed-Phase Clouds by Linking ARM Measurements with Climate Model Simulations*", Minghui Diao (PI).

19. **NSF Office of Polar Programs (OPP) grant #1744965**. Award amount: $478,897. Period 04/15/2018 – 03/31/2024. *"Collaborative Research: Ice Supersaturation over the Southern Ocean and Antarctica, and its Role in Climate",* Minghui Diao (PI).

18. **NCAR ASP Faculty Fellowship**. Award amount: $8,750. Award period 7/20/18 – 8/19/18, Minghui Diao (PI).

17. **NSF Division of Atmospheric and Geospace Sciences (AGS) grant #1642291.** Award amount: $338,940. Award period 08/15/17 – 07/31/22. "*Collaborative Research: Cirrus Cloud Formation and Microphysical Properties from In-situ Observed Characteristics to Global Climate Impacts*", Minghui Diao (PI).

16. **NASA ROSES-2016 NNX16AQ91G** Award amount: $699,188. Award period 08/17/16 – 08/16/21. "*Satellite-Derived PM2.5 Grids with Dispersion Model Downscaling: PM2.5 Data to Support Community-Scale Air Quality Health Research and Policy Development*", Minghui Diao (PI).

15. **NSF Major Research Instrument (MRI) program grant #1727052** Award amount: $684,462. Award period 09/01/17 – 07/31/21. "MRI: Acquisition of a Multi-purpose Cloud Radar", Craig B. Clements (PI), Minghui Diao (Co-I), Neil Lareau (Co-I).

14. SJSU Undergraduate Research Grant (URG), Award period: 8/1/2019 – 6/30/2020. Award amount: $1,000 for undergraduate student research assistantship, "Cloud Characteristics at McMurdo Station in Antarctica in AWARE campaign", Minghui Diao (PI).

13. SJSU Central Research, Scholarship and Creative Activity (RSCA) Program; Award period: 8/1/2019 – 6/30/2020. Award amount: $5,000 for graduate student research assistantship. "Improving Understanding of Clouds in Polar Regions based on Recent Field Campaigns in Arctic, Antarctica and Southern Ocean", Minghui Diao (PI).

12. SJSU COS Just-in-Time Fund Award amount: $3000, $800, $2400. Award period 2017 – 2019. Travel support to Minghui Diao and her students to attend conferences.

11. National Center for Atmospheric Research (NCAR) **Advanced Study Program Faculty Fellowship**. Award amount: $19,750. Award period 5/17/16 – 8/16/16. "Ice crystal formation and evolution based on airborne in-situ observations and laboratory calibration", Minghui Diao (PI).

10. SJSU Central Research, Scholarship and Creative Activity (RSCA) Infusion Program; Award period: 3/1/16 – 5/31/16. Award amount: $3,999 for graduate student research assistantship. "Anthropogenic influences on ice cloud formation based on in situ airborne observations over the Southern Ocean", Minghui Diao (PI).

9. NCAR extra travel fund ($2000): funded my travel to AMS 14th Cloud Physics conference, Boston, and AMS 27th Conference on Weather Analysis and Forecasting (WAF), Chicago, 2013-2014.

8. NCAR Advanced Study Program (ASP) postdoctoral fellowship ($57,500 + $3000 for two years): Funded my two-year postdoc research at NCAR, travel to AGU 2013 and 2014 Fall meetings and the AMS 14th Cloud Physics conference, 2013.

7. Princeton Environment and Climate Scholars (PECS) Grant ($1000): Funded my trip to the Rio+20 United Nation Conference on Sustainability at Rio de Janeiro, Brazil in April 2012; funded my visits to IIT, Mumbai and College of Engineering at Pune, India in May-June 2013.

6. Walbridge Fund Graduate Award ($7000): Funded my participation in the AQUAVIT-2 campaign at Karlsruhe, Germany, and my visit to the DOE ARM site at Cape May, MA during DOE TCAP campaign, 2012-2013.

5. NSF Student Travel Award ($1500): Funded my participation in the Water Vapor and Climate System (WAVACS) summer school in France, 2009.

4. NASA NESSF graduate fellowship NNX09AO51H ($30,000 + $3000 travel per year for 3 years), 2008-2012: Funded my research on the validation of NASA AIRS retrievals of water vapor and temperature with aircraft-based observations; funded my travels during the NSF HIPPO Global deployment 2-5.

3. Princeton University waived tuition for graduate students winning external funding ($35,500 per year), 2008-2012.

2. Princeton University fellowship to first year graduate student with waived tuition ($30,000+35,500), 2008-2009.

1. Princeton University Francis Upton fellowship ($4000 extra stipend per year; $1000 campus visiting trip fund), 2008-2012

News highlights and outreach activities

2021-present	Host of a YouTube channel called "*ClimoNemo*", with videos for K-12 school students, focusing on clouds, aerosols, polar research, and climate change: https://www.youtube.com/channel/UCY1ya3QRLqHdSmBGvWl4DbQ
2024-March	Accidental Geographer S4 E3: Minghui Diao with Provost Vincent J. Del Casino. https://www.linkedin.com/video/live/urn:li:ugcPost:7176729402372739072/
2022-March	KPIX (CBS Bay Area) news on air pollution. https://sanfrancisco.cbslocal.com/video/6218801-wildfire-smoke-study-raises-concerns-about-future-california-wildfires/
2022-March	ABC 7 news on wildfire smoke. https://abc7news.com/wildfire-smoke-california-wildfiresclimate-change-noaa/11699092/
2019-June	San Jose State University Spartan News, Immigration Heritage Month, featured article: https://blogs.sjsu.edu/newsroom/2019/sjsu-celebrates-immigrant-heritage-month-with-spartan-stories/
2019-April	SJSU News Spartan Daily, "Cloudy with a Chance of Honor", featured article: https://sjsunews.com/article/cloudy-with-a-chance-of-honor
2014-Sep	NCAR Newsletter featured story: Atmospheric science: from research to the real world. http://www.asp.ucar.edu/asp_update/14/September2014.pdf
2013-May	Princeton Energy and Climate Scholars (PECS) international trip Presented my research at the seminar on campus sustainability with College of Engineering at Pune (COEP) at Pune; Organized discussions with professors at India Institute of Technology (IIT) on climate and energy issues at Mumbai, India.
2013-Apr	North Star academy high school career open day Volunteered to do presentations about Princeton university graduate school application process, grad student life and academic career path introduction.
2012-Aug	Research highlighted in Princeton School of Engineering and Applied Sciences (SEAS) Equad News, Summer 2012, Volume 24, Issue 1
2012-May	Research highlighted in Princeton Environmental Institute website for 2012 Walbridge Award: https://environment.princeton.edu/news/archive/?id=7498
2010-2012	Graduate Student Chair at Civil and Environmental Engineering Department

	Organized student activities and seminars
2012 Jun	Rio+20 United Nations Conference on Sustainable Development at Rio de Janeiro, Brazil Organized a UN Side events side event during Rio+20 conference Organized a workshop at the Pontificia Universidade Catolica (PUC) at Rio de Janeiro
2011-Dec	Research highlighted in Princeton Environmental Institute website: https://environment.princeton.edu/news/archive/?id=6300
2010-Fall	Research highlighted in Princeton SEAS Equad News, "Round-the-world mission puts greenhouse gases in laser focus": https://engineering.princeton.edu/sites/default/files/atoms/files/e-quad-news-winter-2010.pdf
2010-Jul	Research highlighted on Princeton homepage news: https://www.princeton.edu/news/2010/07/15/earths-last-frontier-atmosphere?section=mm-featured#top
2010-Apr	Research highlighted in Princeton Alumni Weekly, issue April 07 2010