

Curriculum Vitae

JI NIE

Assistant Professor

Department of Atmospheric and Planetary Sciences

School of Physics, Peking University

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Education

Ph.D. in Atmospheric Sciences, Harvard University, 2013

Thesis: Probing the Dynamics of Shallow Cumulus Convection

Advisor: Zhiming Kuang

M.S. in Atmospheric Sciences, Peking University, 2008

B.S. in Atmospheric Sciences, Peking University, 2005

Professional Experience

Assistant Professor, September 2017-

Department of Atmospheric and Oceanic Sciences, Peking University

Associate Research Scientist, January 2017-August 2017

Lamont-Doherty Earth Observatory, Columbia University

Postdoctoral Research Scientist, December 2013- December 2016

Lamont-Doherty Earth Observatory, Columbia University

Postdoctoral Research Scientist, September 2013-November 2013

Department of Earth and Planetary Sciences, Harvard University

Awards

China's Young Thousand Talents Program, 2017

Lamont-Doherty Postdoctoral Fellowship, Columbia University, 2013-2015

Service

Reviewer for Journal of the Atmospheric Sciences, Geophysical Research Letters, Journal of Geophysical Research, Journal of Advances in Modeling Earth Systems, Quarterly Journal of the Royal Meteorological Society, Climate

Dynamics, Meteorology and Atmospheric Physics, Atmospheric Science Letters, Scientific Reports

Publications

1. **Nie, J.**, Y. Xia, S. Hu, J. Yang, and D. Ma*: Similarity of atmospheric thermal stratification over elevated surface under Radiative-Convective Equilibrium, *Geophysical Research Letters*, accepted.
2. Martin, Z.D.*, S. Wang, **J. Nie**, and A. H. Sobel, 2019: The influence of the quasi-biennial oscillation on the Madden-Julian oscillation in idealized cloud-resolving simulations, *Journal of the Atmospheric Sciences*, accepted.
3. Tian, Y.*, Z. Kuang, M. Singh, and **J. Nie**, 2018: The vertical momentum budget of shallow cumulus convection: insights from a Lagrangian perspective, *Journal of Advances in Modeling Earth Systems*, 11. <https://doi.org/10.1029/2018MS001451>.
4. Tandon, N. F.*, **J. Nie**, and X. Zhang, 2018: Strong Influence of Eddy Length on Boreal Summertime Extreme Precipitation Projections, *Geophysical Research Letters*, doi.org/10.1029/2018GL079327.
5. **Nie, J.***, A. H. Sobel, D. A. Shaevitz, and S. Wang, 2018: Dynamic Amplification of Extreme Precipitation Sensitivity, *Proc. Natl. Acad. Sci.*, 115, 9467-9472.
6. **Nie, J.***, D. Shaevitz, and A. H. Sobel, 2016: Forcings and Feedback in the 2010 Pakistan Flood: Modeling Extreme Precipitation with Interactive Large-Scale Ascent, *Journal of Advances in Modeling Earth Systems*, 8, [doi:10.1002/2016MS000663](https://doi.org/10.1002/2016MS000663).
7. **Nie, J.***, Z. Kuang, D. Jacob and J. Guo, 2016: Representing effects of aqueous phase reactions in shallow cumuli in global models, *Journal of Geophysical Research: Atmospheres*, 121, [doi:10.1002/2015JD024208](https://doi.org/10.1002/2015JD024208).
8. **Nie, J.*** and A. H. Sobel, 2016: Modeling the Interaction between Quasi-Geostrophic Vertical Motion and Convection in a Single Column, *Journal of the Atmospheric Sciences*, 73, 1101-1117, [doi:10.1175/JAS-D-15-0205.1](https://doi.org/10.1175/JAS-D-15-0205.1).
9. Gentine, P.*, A. Garelli, S. Park, **J. Nie**, G. Torri, and Z. Kuang, 2016: Role of surface heat fluxes underneath cold pools, *Geophysical Research Letters*, 43, [doi:10.1002/2015GL067262](https://doi.org/10.1002/2015GL067262).
10. Wang, S.*, A. H. Sobel, and **J. Nie**, 2016: Modeling the MJO rain rates using parameterized large-scale dynamics: vertical structure, radiation, and horizontal advection of dry air, *Journal of Advances in Modeling Earth Systems*, 8, [doi:10.1002/2015MS000529](https://doi.org/10.1002/2015MS000529).
11. **Nie, J.*** and A. H. Sobel, 2015: Responses of tropical deep convection to the QBO: cloud-resolving simulations, *Journal of the Atmospheric Sciences*, 72, 3625-3638, [doi:10.1175/JAS-D-15-0035.1](https://doi.org/10.1175/JAS-D-15-0035.1).
12. **Nie, J.*** and Z. Kuang, 2012: Beyond bulk entrainment and detrainment

- rates: a new framework for diagnosing mixing in cumulus convection, *Geophysical Research Letters*, 39, doi:10.1029/2012GL053992.
13. **Nie, J.*** and Z. Kuang, 2012: Responses of shallow cumulus convection to large-scale temperature and moisture perturbations: a comparison of large-eddy simulations and a convective parameterization based on stochastically entraining parcels, *Journal of the Atmospheric Sciences*, 69, 1936-1956, doi:10.1175/JAS-D-11-0279.1.
 14. **Nie, J.**, W. R. Boos, and Z. Kuang*, 2010: Observational Evaluation of a Convective Quasi-Equilibrium View of Monsoons, *Journal of Climate*, 23, 4416-4428, doi:10.1175/2010JCLI3505.1.
 15. **Nie, J.***, P. Wang, W. Yang, and B. Tan, 2008: Northern Hemisphere Storm Tracks in Strong AO Anomaly Winters, *Atmospheric Science Letters*, doi: 10.1002/asl.186.
 16. Yang, W.*, **J. Nie**, P. Lin, and B. Tan, 2007: Baroclinic wave packets in an extended quasigeostrophic two-layer model, *Geophysical Research Letters*, 34, doi:10.1029/2006GL029077.

Presentations

Invited talks

- Dec. 2018, Institute of Atmospheric Physics, Center for Monsoon System Research
- Nov. 2018, Nanjing University of Information Science and Technology, School of Atmospheric Physics
- Nov. 2018, Sun Yat-sen University, School of Atmospheric Sciences
- Oct. 2018, Academia Sinica of Taiwan, Research Center for Environmental Changes
- Oct. 2018, National Central University of Taiwan, Department of Atmospheric Sciences
- Aug. 2018, Fudan University, Department of Atmospheric and Oceanic Sciences
- Feb. 2017, Stanford University, Earth System Science seminar
- Jul. 2016, University of New South Wales, Climate Change Research Centre
- Mar. 2016, Yale University, AOCD seminar
- Jan. 2016, McGill University, Atmospheric and Oceanic Sciences seminar
- Jan. 2016, University of Toronto, Atmospheric Physics seminar
- Jun. 2013, Sun Yat-sen University, Atmospheric Sciences colloquium
- May 2013, Peking University, Atmospheric and Oceanic Sciences colloquium

Conference presentations

- Jan. 2019, Annual Meeting of AMS, Phoenix, AZ: Synoptic characteristics of extreme precipitation events in East China and Southeast United States (oral presentation)
- Dec. 2018, Annual Meeting of IAP-LASG, Beijing: (invited talk)
- Nov. 2018, Annual Meeting of the Key Laboratory of Mesoscale Severe Weather of Nanjing University, Nanjing: (invited talk)
- Oct. 2018, Annual Meeting of the Chinese Meteorological Society, Hefei: 一个新的基于随机夹卷的浅对流参数化模型 (oral presentation)
- Oct. 2018, Workshop "Atmospheric Sciences across the Straits", Taipei: Climatic Responses Of Extreme Precipitation (oral presentation)
- May 2018, Workshop "frontier of climate dynamics" in Shiyan, Hubei: 极端降雨的气候响应 (oral presentation)
- Mar. 2018, Monash University workshop "Understanding and Modelling Atmospheric Processes", Lorne, Australia: Does extreme precipitation scaling follow CC scaling? (oral presentation)
- Sept. 2017, the 5th nonlinearly atmospheric-oceanic dynamics workshop, Wuhan, Hubei: 极端降雨中的大尺度—对流相互作用 (oral presentation)
- Dec. 2016, 2016 American Geophysical Union Annual Fall meeting, San Francisco, CA: Enhanced Sensitivity of Precipitation Extremes on Surface Temperature in the 2015 Texas Flood (poster presentation)
- Dec. 2016, Columbia University Workshop "S2S extremes", New York, NY: Enhanced Sensitivity of Precipitation Extremes on Surface Temperature in the 2015 Texas Flood (poster presentation)
- Sept. 2015, Columbia University Workshop "Monsoons & ITCZ: the annual cycle in the Holocene and the Future", New York, NY: Modeling interactions between the quasi-geostrophic vertical motion and convection in a single column (poster presentation)
- Jun. 2015, American Meteorological Society's 20th Conference on Atmospheric and Oceanic Fluid Dynamics, Minneapolis, MN: Modeling interactions between the quasi-geostrophic vertical motion and convection in a single column (oral presentation)
- May 2015, California Institute of Technology workshop "Monsoons — Past, Present and Future", Pasadena, CA: Modeling interactions between the quasi-geostrophic vertical motion and convection in a single column (oral presentation)
- Apr. 2015, Yale University workshop "Tropical extremes: A workshop on high-impact weather events in monsoon regions", New Haven, CT: the dynamics of extreme precipitation events in Northern Pakistan during

- monsoon seasons -- a new modeling framework and its applications (oral presentation)
- Jan. 2015, 95th American Meteorological Society Annual Meeting, Phoenix, AZ: Responses of tropical convection to the QBO: cloud resolving simulations and observations (oral presentation)
 - Apr. 2014, American Meteorological Society's 31th Conference on Hurricanes and Tropical Meteorology, San Diego, CA: Representing effects of aqueous-phase reactions in shallow cumuli in global models (oral presentation)
 - Jan. 2014, University of Hawaii workshop "Tropical Dynamics and the MJO", Honolulu, HI: A new multi-plume convective model based on buoyancy sorting (oral presentation)
 - May 2013, the Sixth Northeast Tropical Workshop, Rensselaerville, NY: The Role of In-Cloud Heterogeneity in Nonlinear Chemistry (oral presentation)
 - Dec. 2012, 2012 American Geophysical Union Annual Fall meeting, San Francisco, CA: Beyond bulk entrainment and detrainment rates: a new framework for diagnosing mixing in cumulus convection (oral presentation)
 - Apr., 2012, American Meteorological Society's 30th Conference on Hurricanes and Tropical Meteorology, Ponte Vedra Beach, FL: Probing the Response of Convection to Large-scale Temperature Anomalies with a Lagrangian Particle Dispersion Model (oral presentation)
 - Jun. 2011, American Meteorological Society's 18th Conference on Atmospheric and Oceanic Fluid Dynamics, Spokane, WA: Understanding the Response of Shallow Convection to Perturbations using LES and a Stochastic Parcel Model (poster presentation)
 - May 2011, the Fifth Northeast Tropical Workshop, Dedham, MA: The Response of Shallow Convection to Temperature Perturbations (oral presentation)
 - May 2010, American Meteorological Society's 29th Conference on Hurricanes and Tropical Meteorology, Tucson, AZ: Observational Evaluation of a Convective Quasi-Equilibrium View of Monsoons (oral presentation)

(updated: Feb. 2019)