

# Dr. Yue Li

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## Education

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- Ph.D.** Physical Geography, **Peking University**, Beijing, China  
Sep 2014 - Jul 2019 **Thesis:** Spatiotemporal variation in global land surface albedo and its feedback to climate, supervised by **Prof. Shilong Piao**
- B.A.** Geography Science, **Wuhan University**, Wuhan, China  
Sep 2010 - Jun 2014 **Thesis:** Spatial patterns of climatological temperature lapse rate in China

## Research Experiences

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### Postdoc Research 2019-present

Department of Earth System Science, University of California, Irvine, USA  
Advisor: **Prof. James T. Randerson**

- Simulation and analysis of the tropical deforestation influence on the dust transport from North Africa to the Amazon.
- Analysis of the output from the Land Use Model Intercomparison Project (LUMIP)

### Doctoral Research 2014-2019

Sino-French Institute for Earth System Sciences, College of Urban and Environmental Sciences, Peking University, Beijing, China

Advisor: **Prof. Shilong Piao**

- Systematical assessment on the biophysical impact of Chinese large-scale afforestation and vegetation greening over the past three decades
- Coupling a land surface model (ORCHIDEE) with an atmospheric model (LMD)
- Optimization of forest physiological parameters in ORCHIDEE for 6 forest sites in China.
- Evaluating bias the simulated land surface albedo from CMIP5 global climate models

### China Scholarship Council (CSC) honors Research Oct 2017-Apr2018

Le Laboratoire de Météorologie Dynamique (LMD), Paris, France

Advisor: **Dr. Laurent Z.X. Li**

- Statistical analysis on the spatio-temporal characteristics of land surface albedo from satellite products and diagnosis on the drivers of albedo changes during historical time periods.
- Sensitivity simulations of global climate to change in land surface albedo using the coupled land-atmosphere model (LMD+ORCHIDEE).

## Visiting Student Research

Aug -Oct 2015

CSIRO Marine and Atmospheric Research, Melbourne, Australia

Advisor: **Dr. Yingping Wang**

- Coupling a terrestrial ecosystem model (CABLE) with an atmosphere model (UM) in ACCESS global climate model, to simulate the climate response to Earth's greening.

## Publications

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### First-author publications:

- Li Y, Piao S\*, Chen A, Ciais P, Li LZ. (2020) [Local and teleconnected temperature effects of afforestation and vegetation greening in China](#). *National Science Review* 7(5) doi:10.1093/nsr/nwz132
- Li Y, Zeng Z\*, Huang L, Lian X, Piao S. (2018) [Comment on "Satellites reveal contrasting responses of regional climate to the widespread greening of Earth"](#). *Science* 360(6394) doi:10.1126/science.aap7950
- Li Y, Piao S\*, Li LZ, Chen A, Wang X, Ciais P, Huang L, Lian X, Peng S, Zeng Z, Wang K, Zhou L. (2018) [Divergent hydrological response to large-scale afforestation and vegetation greening in China](#). *Science Advances*, 4(5) doi:10.1126/sciadv.aar4182
- Li Y, Yang H, Wang T, MacBean N, Bacour C, Ciais P, Zhang Y, Zhou G, Piao S\*. (2017) [Reducing the uncertainty of parameters controlling seasonal carbon and water fluxes in Chinese forests, and its implication for simulated climate sensitivities](#). *Global Biogeochemical Cycles* 31(8), 1344-1366 doi:10.1002/2017gb005714
- Li Y, Wang T\*, Zeng Z, Peng S, Lian X, Piao S\*. (2016) [Evaluating biases in simulated land surface albedo from CMIP5 global climate models](#). *Journal of Geophysical Research: Atmospheres* 121(11), 6178-6190 doi:10.1002/2016JD024774
- Li Y, Zeng Z, Zhao L, Piao S\*. (2015) [Spatial patterns of climatological temperature lapse rate in mainland China: A multi-time-scale investigation](#). *Journal of Geophysical Research: Atmospheres* 120(7), 2661-2675 doi:10.1002/2014JD022978

### Work in Progress:

- Li Y, Randerson J, et al. (2020) Biophysical amplification of tropical deforestation accelerates the vegetation carbon loss (manuscript in preparation).
- Li Y, Randerson J, Mahowald N, Lawrence P. (2020) Deforestation strengthens dust transport from North Africa to the Amazon (*Journal of Climate*, in review).

### Co-author publications:

- Lian X, Piao S, Huntingford C, Li Y, Zeng Z, Wang X, Ciais P, McVicar T, Peng S, Oettle C, Yang H, Yang Y, Zhang Y, Wang T. (2018) Partitioning global land evapotranspiration using CMIP5 models constrained by observations. *Nature Climate Change* 8(7), 640-646 doi:10.1038/s41558-018-0207-9
- Liu D, Li Y, Wang T, Peylin P, MacBean N, Ciais P, Jia G, Ma M, Ma Y, Shen M, Zhang X, Piao S. (2018) Contrasting responses of grassland water and carbon exchanges to climate change between Tibetan Plateau and Inner Mongolia. *Agricultural and Forest Meteorology* 249, 163-175 doi:10.1016/j.agrformet.2017.11.034
- Guo H, Wang X, Wang T, Ma Y, Ryder J, Zhang T, Liu D, Ding J, Li Y, Piao S. (2018) Spring Snow-Albedo Feedback Analysis Over the Third Pole: Results From Satellite Observation and CMIP5 Model Simulations. *Journal of Geophysical Research: Atmospheres* 123(2), 750-763 doi:10.1002/2017JD027846
- Yao Y, Wang X, Li Y, Wang T, Shen M, Du M, He H, Li Y, Luo W, Ma M, Ma Y, Tang Y, Wang H, Zhang X, Zhang Y, Zhao L, Zhou G, Piao S (2018) Spatiotemporal pattern of gross primary productivity and its covariation with climate in China over the last thirty years. *Global Change Biology* 24(1), 184-196 doi:10.1111/gcb.13830
- Yang H, Zhou F, Piao S, Huang M, Chen A, Ciais P, Li Y, Lian X, Peng S, Zeng Z. (2017) Regional patterns of future runoff changes from Earth system models constrained by observation. *Geophysical Research Letters* 44(11), 5540-5549 doi:10.1002/2017gl073454
- Zeng Z, Piao S, Li LZ, Zhou L, Ciais P, Wang T, Li Y, Lian X, Wood E, Friedlingstein P, Mao J, Estes L, Myneni R, Peng S, Shi X, Seneviratne S, Wang Y. (2017) Climate mitigation from vegetation biophysical feedbacks during the past three decades. *Nature Climate Change* 7(6), 432-436 doi:10.1038/nclimate3299
- Kwiatkowski L, Bopp L, Aumont O, Ciais P, Cox P, Laufkötter C, Li Y, Séférian R. (2017) Emergent constraints on projections of declining primary production in the tropical oceans. *Nature Climate Change* 7(5), 355-358 doi:10.1038/nclimate3265
- Feng X, Fu B, Piao S, Wang S, Ciais P, Zeng Z, Lü Y, Zeng Y, Li Y, Jiang X, Wu B. (2016) Revegetation in China's Loess Plateau is approaching sustainable water resource limits. *Nature Climate Change* 6(11), 1019-1022 doi:10.1038/nclimate3092
- Zhu Z, Piao S, Myneni R, Huang M, Zeng Z, Canadell J, Ciais P, Sitch S, Friedlingstein P, Arneeth A, Cao C, Cheng L, Kato E, Koven C, Li Y, Lian X, Liu Y, Liu R, Mao J, Pan Y, Peng S, Peñuelas J, Poulter B, Pugh T, Stocker B, Viovy N, Wang X, Wang Y, Xiao Z, Yang H, Zaehle S, Zeng N. (2016) Greening of the Earth and its drivers. *Nature Climate Change* 6(8), 791-795 doi:10.1038/nclimate3004
- Li B, Gasser T, Ciais P, Piao S, Tao S, Balkanski Y, Hauglustaine D, Boisier J, Chen Z, Huang M, Li LZ, Li Y, Liu H, Liu J, Peng S, Shen Z, Sun Z, Wang R, Wang T, Yin G, Yin Y, Zeng H, Zeng Z, Zhou F. (2016) The contribution of China's emissions to global climate forcing. *Nature* 531(7594), 357-361 doi:10.1038/nature17165

- Wang T, Peng S, Krinner G, Ryder J, Li Y, Dantec-Nédélec S, Ottlé C. (2015) Impacts of Satellite-Based Snow Albedo Assimilation on Offline and Coupled Land Surface Model Simulations. *PLoS ONE* 10(9),e0137275 doi:10.1371/journal.pone.0137275
- Shen M, Piao S, Jeong S, Zhou L, Zeng Z, Ciais P, Chen D, Huang M, Jin C, Li LZ, Li Y, Myneni R, Yang K, Zhang G, Zhang Y, Yao T. (2015) Evaporative cooling over the Tibetan Plateau induced by vegetation growth. *Proceedings of the National Academy of Sciences* 112(30), 9299–9304 doi:10.1073/pnas.1504418112
- Yang H, Piao S, Zeng Z, Ciais P, Yin Y, Friedlingstein P, Sitch S, Ahlström A, Guimberteau M, Huntingford C, Levis S, Levy P, Huang M, Li Y, Li X, Lomas M, Peylin P, Poulter B, Viovy N, Zaehle S, Zeng N, Zhao F, Wang L. (2015) Multi-criteria evaluation of discharge simulation in Dynamic Global Vegetation Models. *Journal of Geophysical Research Atmospheres* 120(15), 7488-7505 doi:10.1002/2015JD023129
- Zeng Z, Chen A, Ciais P, Li Y, Li LZ, Vautard R, Zhou L, Yang H, Huang M, Piao S. (2015) Regional air pollution brightening reverses the greenhouse gases induced warming-elevation relationship: Warming-Elevation Relationship. *Geophysical Research Letters* 42(11), 4563-4572 doi:10.1002/2015GL064410
- Piao S, Tan J, Chen A, Fu Y, Ciais P, Liu Q, Janssens I, Vicca S, Zeng Z, Jeong J, Li Y, Myneni R, Peng S, Shen M, Peñuelas J. (2015) Leaf onset in the northern hemisphere triggered by daytime temperature. *Nature Communications* 6, 6911 doi:10.1038/ncomms7911
- Piao S, Yin G, Tan J, Cheng L, Huang M, Li Y, Liu R, Mao J, Myneni R, Peng S, Poulter B, Shi X, Xiao Z, Zeng N, Zeng Z, Wang Y. (2015) Detection and attribution of vegetation greening trend in China over the last 30 years. *Global Change Biology* 21(4),1601-1609 doi:10.1111/gcb.12795

## Teaching Experiences

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### Certificate on Course Design

Aug 2020

- DTEI (Division of Teaching Excellence and Innovation in UC Irvine) certificate program on course design. In this program, I've designed the syllabus for the course "Earth System Data Analysis".

### Teaching Assistant

Fall 2017, Spring 2018

- *Ecology* for undergraduate student given by Prof. Shilong Piao; My duty is helping the students learn basic excel analysis of the climate and remote sensing vegetation data, and map them.

## Research Interests & Area of Expertise

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Research interests: Vegetation coupling with physical climate, hydrology, energy balance and biogeochemical cycles, Climate change and feedback

Area of Expertise: Remote sensing, GIS, land-atmosphere coupling, Climate & Earth system modeling

## Academic Activities

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### Reviewer for peer-reviewed journals

Agriculture, Ecosystems and Environment  
Philosophical Transactions of the Royal Society B: Biological Sciences  
Journal of Geophysical Research: Biogeosciences  
Agricultural and Forest Meteorology  
Science Bulletin  
Journal of Hydrology

### Workshops & Conferences

Oct 2020 DOE RGMA PI Meeting  
Apr 2020 EGU Meeting  
Mar 2020 NCAR land & BGC working group meeting  
Nov 2019 E3SM Annual meeting  
Sep 2019 RUBISCO-AmeriFlux workshop  
Apr 2018 EGU Meeting  
Dec 2015, 2016, 2018 AGU Fall Meeting, poster

### Presentations & Talks

Oct 2020 **Invited talk** in NASA Jet Propulsion Laboratory (JPL), on topic “More forests, more droughts?”, hosted by Dr. Paul Levine  
Jul 2020 **Invited talk** for GeoInsider, a group formed by GeoScience colleagues who focus on the most cutting-edge researches in geoscience, on topic “Biophysical Climate Effects of Afforestation and Vegetation Greening in China from 1982 to 2011”, hosted by Dr. Yelu Zeng  
Mar 2020 **Invited talk** in Department of Biology, Colorado State University, on topic “Afforestation in China and its Biogeophysical Feedbacks to the Climate and Water Cycles”, hosted by Dr. Anping Chen  
Mar 2020 **Oral presentation** in NCAR land & BGC working group meeting, on topic “Deforestation strengthens the dust transport from the Sahara to the Amazon”, hosted by NCAR land & BGC team

## Awards & Grants

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*Dec 2018* **National Scholarship (top 0.2%)**

The Ministry of Education of the People's Republic of China (The highest level of scholarship set by the Chinese government)

*(Sep 2014 – Aug 2016)* **Principal's PhD student Scholarship (top 6%)**

*Sep 2018 – Aug 2019)* Peking University

*Dec 2014* **Excellent Bachelor's Thesis in Hubei Province (top 4%)**

Hubei Provincial Department of Education

## Skills

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*Analysis Tools* MATLAB (main analysis tools), NCAR Command Language (NCL) (main analysis tools), Linux Shell (frequently used), ArcGIS (skillful), ENVI (a little, including a little Python & IDL)

*Climate Models* CESM (CAM6, CLM5, able to perform simulations), IPSL-CM (ORCHIDEE, LMDz, familiar with model components and modification)

*Languages* Chinese (native), English (fluent), French (a little)