Shunzi Lu

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Education

Since 09/2019 **Ph.D.** (Earth & Environmental Science), University of Pennsylvania
Thesis: Multi-decadal Dynamics of Southern Ocean Open-Ocean Polynyas and Deep Convection: Insights from Climate Models

2018 **Master of Science** (Geography), Peking University
Thesis: Estimating Urban Vegetation Productivity using Chlorophyll Fluorescence Derived from Remotely Sensed Data

2015 **Bachelor of Science** (Environmental Science), Tongji University
Thesis: Occurrence of Heavy Metals in Marine Biota Samples in Fildes Peninsula, Antarctica

Publications

C: Corresponding Author

Planned publications

[3] **Lu, S.**, Wang, R., Marinov, I. & Molodtsov, S. (in preparation). Centennial Southern Ocean oscillations and circumpolar links between the Ross and Weddell Seas.

[2] Marinov, I., **Lu, S.** & Molodtsov, S. (in preparation). Multidecadal ocean variability driven by Weddell and Ross sea convection in three generations of GFDL climate models.

[1] **Lu, S.**, Marinov, I. & Molotsov, S. (in preparation). Linking open-ocean polynyas and deep convection in the Southern Ocean across CMIP6 models.

Peer-reviewed journals

[5] Wang, J., **Lu, S.**[C], Wang, W., Tang, L., Ma, S. & Wang, Y. (2019). Estimating vegetation productivity of urban regions using sun-induced chlorophyll fluorescence data derived from the OCO-2 satellite. *Physics and Chemistry of the Earth, Parts A/B/C*, *114*, 102783. https://doi.org/10.1016/j.pce.2019.05.003

[4] Du, Y., Wang, J., **Lu, S.**, Li, J. & Cai, A. (2019). Study on Characteristics of Virtual Water Flow Spatial Change and Influencing Factors in China. *Acta Scientiarum Naturalium Universitatis Pekinensis*, *55*(*6*), 1141. https://doi.org/10.13209/j.0479-8023.2019.117

[3] **Lu, S.**, Wang, J., Wang, Y. & Yan, J. (2018). Analysis on the variations of atmospheric CO_2 concentrations along the urban–rural gradients of Chinese cities based on the OCO-2 XCO_2 data. *Int. J. Remote Sens.*, *39*(*12*), 4194-4213. https://doi.org/10.1080/01431161.2017.1415482

[2] Wang, J., Wang, Y., **Lu, S.** & Wang, S. (2018). Large-scale assessments and mapping of snow hazards in pastoral areas of the Tibetan Plateau using microwave remote sensing data and ground records. *Nat. Hazard.*, *90*(*1*), 461-476. https://doi.org/10.1007/s11069-017-3055-4

[1] Yan, J., Wang, J., **Lu, S.** & Zeng, H. (2017). Impacts of Rapid Urbanization on Carbon Dynamics of Urban Ecosystems in Shenzhen. *Ecology and Environmental Sciences*, *26*(*3*), 553-560.

Conferences

P: poster, O: oral presentation

Lu, S., Miller, L., Wang, R., Marinov, I. & Molotsov, S. (2026). Heat and carbon exchange signatures of Southern Ocean open-ocean polynyas across CMIP6 Models[P]. *Ocean Sciences Meeting 2026*. February 22-27, 2026

Lu, S., Molotsov, S. & Marinov, I. (2024). Local dynamics of deep convection and sea ice in Southern Ocean subpolar gyres: insights into multi-decadal open-ocean polynya variability[O]. *Ocean Sciences Meeting 2024*. February 18-23, 2024

Molotsov, S., Marinov, I. & **Lu, S.** (2024). Teleconnections between the tropical atmosphere and Southern Ocean on multidecadal time scale[P]. *Ocean Sciences Meeting 2024*. February 18-23, 2024

Lu, S., Molotsov, S. & Marinov, I. (2022). Deep water formation in the North Atlantic and Southern Ocean: interhemispheric links on multidecadal timescales[O]. *Ocean Sciences Meeting 2022*. February 24 - March 4, 2022

Kochetkova, E., Kostadinov, T., Marinov, I., **Lu, S.** & Roy, S. (2020). Seasonality of Phytoplankton in two satellite products and novel CMIP6 climate models[P]. *AGU Fall Meeting 2020*. December 7-11, 2020

Marinov, I., Asadieh, B., Molotsov, S. & **Lu, S.** (2020). Linking High Latitude Convection with the Meridional Overturning Circulation in a Hierarchy of GFDL climate Models[P]. *AGU Fall Meeting 2020*. December 7-11, 2020

Marinov, I., **Lu, S.**, Sharma, P., Cabré, A. & Asadieh, B. (2020). Seasonal cycles of plankton ecology and CO2: subpolar lessons from satellite data and coupled climate models[O]. *Ocean Sciences Meeting 2020*. February 16-21, 2020

Teaching experience

Course	Role
Introduction to Oceanography	Teaching Assistant
Earth System Science	Teaching Assistant
Climate and Big Data	TA/Student Research Project Advisor

Additional training (selection)

Methods training

2021 **NCAR CESM Workshop on climate modeling**, Online

2022 **NCAR Virtual Summer School on Artificial Intelligence**, Online

Certificate

2024 **CETLI Teaching Certificate**, University of Pennsylvania