

LILI XIA

Department of Environmental Sciences
Rutgers University
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EDUCATION

Rutgers University	New Brunswick, NJ
<i>Ph.D. in Atmospheric Science</i>	2014
Dissertation: <i>Could Geoengineering or a Regional Nuclear War Produce a Food Crisis in the 21st Century?</i>	
Academic advisor: <i>Alan Robock</i>	
Rutgers University	New Brunswick, NJ
<i>M.S. in Atmospheric Science</i>	2012
Peking University	Beijing, China
<i>M.S. in Quaternary Geology</i>	2007
Peking University	Beijing, China
<i>B.A. in Geography</i>	2004

APPOINTMENTS

Faculty Fellow	2026 – present
<i>Honors College, Rutgers University–New Brunswick</i>	
Staff Scientist	2025 – present
<i>The Degrees Initiative (concurrent with Rutgers appointment)</i>	
Assistant Research Professor	2021 – present
<i>Department of Environmental Sciences, Rutgers University–New Brunswick</i>	
Research Associate	2017 – 2021
<i>Department of Environmental Sciences, Rutgers University–New Brunswick</i>	
Postdoctoral Associate	2014 – 2017
<i>Center for Environmental Prediction, Rutgers University–New Brunswick</i>	
Research Assistant	2010 – 2014
<i>Atmospheric Science Graduate Program, Rutgers University–New Brunswick</i>	
Teaching Assistant	2007 – 2010
<i>Planet Earth and Planet Earth Lab, Rutgers University–Newark</i>	

HONORS

1. Elected Chair, Gordon Research Conference on Climate Engineering, 2026.
2. Appointed Member, Scientific Advisory Group for the Treaty on the Prohibition of Nuclear Weapons, 2024 - 2026.

3. Global Peace and Health Award from the International Physicians for the Prevention of Nuclear War and the Boston Chapter of Physicians for Social Responsibility, October 1, 2022.

GRANTS

1. Environmental Defense Fund (EDF), (PI), “Attributing Aerosol-Induced Crop Yield Changes: Disentangling Light Partitioning Effects from Climate Cooling Using Observations and Crop Models,” 2025–2026, \$230,000.
2. Future of Life Institute, (PI), “The Cascading Impacts of Postnuclear Ultraviolet Radiation on Photosynthesizers in the Earth System,” October 11, 2023 - October 13, 2026, \$249,888
3. Future of Life Institute, (co-PI, Alan Robock, PI), “Impacts of Nuclear War on Agriculture and Global Food Security,” September 1, 2023 - August 31, 2026, \$500,000
4. NSF, ENG-2028541 (PI), “Collaborative Research: Global Agricultural Impacts of Stratospheric Aerosol Climate Intervention,” October 1, 2020 - September 30, 2022, no-cost extension to September 30, 2023, \$266,842; supplemental funding with additional extension to March 31, 2024, \$52,802. Total funding award: \$319,644
5. NSF, AGS-2017113 (co-PI, Alan Robock, PI), “Stratospheric Aerosol Climate Intervention Designed to Minimize Negative Impacts,” July 1, 2020 - June 30, 2023, no-cost extension to June 30, 2024, \$714,708; supplemental funding with additional extension to December 31, 2025, \$39,000. Total funding award: \$753,708
6. Safe Climate Research Initiative of SilverLining, Gift to Rutgers Impact Studies of Climate Intervention (co-directed by Lili Xia and Alan Robock) to study solar climate intervention, August 20, 2020, \$400,000, and February 24, 2021, additional \$100,000

PUBLICATIONS

* mentored student or postdoc

Peer-Reviewed Journal Articles

1. Ho, A., Abiodun, B., Boone, R., **Xia, L.**, Olagbegi, B., Lekalakala, G., Nesamvuni, A. E., & Petja, B. M. (2026, accepted). Impacts of stratospheric aerosol injection on rangeland productivity and animal production in Africa. *Frontiers in Environmental Science*.
2. Harrison, C. S., Faulkner, W., Coupe, J., Asante, E. K., Bardeen, C., Garza, V., Jägermeyr, J., Lovenduski, N. S., Robock, A., Rojas, K., Scherrer, K., Toon, O. B., & **Xia, L.** (2026). Accessible climate and impact model output for studying the human and environmental impacts of nuclear conflict. *Geoscience Data Journal*, 13(3), e70076. doi:10.1002/gdj3.70076
3. Gao, C., Gao, Y., Wang, J., & **Xia, L.** (2026). Positive feedback of Gulf Stream latent heat flux in sustaining AMOC evolution under stratospheric aerosol injection. *The Innovation Geoscience*, 4(2), 100216. doi:10.59717/j.xinn-geo.2026.100216
4. Gao, P., Sie, A., **Xia, L.**, & Gao, C. (2026). Education increases solar radiation modification literacy but reinforces caution: Evidence from a pre–post university study. *Sustainability*, 18(6), 2689. doi:10.3390/su18062689
5. Ayedun, R. F., Abiodun, B. J., & **Xia, L.** (2026). Potential impacts of stratospheric aerosol injection on crop yields and related economic outcomes in Africa. *Environmental Research: Climate*, 5(2), 025009. doi:10.1088/2752-5295/ae4921
6. Clark, B.*, Robock, A., **Xia, L.**, Rabin, S.*, Guarin, J., & Jägermeyr, J. (2025). Stratospheric aerosol climate intervention could reduce crop nutritional value. *Environmental Research Letters*, 20(11), 114083. doi:10.1088/1748-9326/ae1151

7. Jehn, F. U., Gajewski, Ł. G., Hedlund, J., Arnscheidt, C. W., **Xia, L.**, Wunderling, N., & Denkenberger, D. (2025). Food trade disruption after global catastrophes. *Earth System Dynamics*, 16, 1585–1603. doi:10.5194/esd-16-1585-2025
8. Eastham, S., Butler, A., Doherty, S., Gasparini, B., Tilmes, S., Bednarz, E., Burkhardt, U., Chiodo, G., Cziczo, D., Diamond, M., Keith, D., Leisner, T., MacMartin, D., Quaas, J., Rasch, P., Sourdeval, O., Steinke, I., Thompson, C., Visioni, D., Wood, R., **Xia, L.**, & Yu, P. (2025). Key gaps in models' physical representation of climate intervention and its impacts. *Journal of Advances in Modeling Earth Systems*, 17(6), e2024MS004872. doi:10.1029/2024ms004872
9. Shi, Y., Montes, F., Davenport, G. F., **Xia, L.**, Bardeen, C., Anderson, C., Gil, Y., Khider, D., Ratnakar, V., & Kemanian, A. (2025). Adapting agriculture to climate catastrophes: The nuclear winter case. *Environmental Research Letters*, 20(6), 064006. doi:10.1088/1748-9326/adcfb5
10. Feng, Z., Tan, M., Liew, J., Tye, M., **Xia, L.**, & Zhang, F. (2025). Effects of solar radiation modification on precipitation extremes in Southeast Asia: Insights from the GeoMIP G6 experiments. *Advances in Climate Change Research*, 16(3), 591–605. doi:10.1016/j.accre.2025.04.009
11. Du, H., Tan, M., **Xia, L.**, Tew, Y., & Yaseen, Z. (2025). Tropical hydro-climatic responses to global warming and solar radiation modification in the Kelantan River Basin, Malaysia. *Journal of Water and Climate Change*, 16, 977–994. doi:10.2166/wcc.2025.587
12. Clark, B*, Robock, A., **Xia, L.**, Rabin, S*, Guarin, J., Hoogenboom, G., & Jägermeyr, J. (2025). Maize yield changes under sulfate aerosol climate intervention using three global gridded crop models. *Earth's Future*, 13(2), e2024EF005269. doi:10.1029/2024ef005269
13. Grant, N*, Robock, A., **Xia, L.**, Singh, J*, & Clark, B* (2025). Impacts on Indian agriculture due to stratospheric aerosol intervention using agroclimatic indices. *Earth's Future*, 13(1), e2024EF005262. doi:10.1029/2024ef005262
14. Singh, J*, Sahany, S., Singh, K. K., Robock, A., & **Xia, L.** (2024). Future climate change impacts on rice in Uttar Pradesh, India's most populous agrarian state. *Earth's Future*, 12(5), e2023EF004009. doi:10.1029/2023ef004009
15. Rabin, S. S*, Sacks, W. J., Lombardozzi, D. L., **Xia, L.**, & Robock, A. (2023). Observation-based sowing dates and cultivars significantly affect yield and irrigation for some crops in the Community Land Model (CLM5). *Geoscientific Model Development*, 16(24), 7253–7273. doi:10.5194/gmd-16-7253-2023
16. Clark, B*, **Xia, L.**, Robock, A., Tilmes, S., Richter, J. H., Visioni, D., & Rabin, S* (2023). Optimal climate intervention scenarios for crop production vary by nation. *Nature Food*, 4, 902–911. doi:10.1038/s43016-023-00853-3
17. Mousavi, S. V., Karami, K., Tilmes, S., Muri, H., **Xia, L.**, & Rezaei, A. (2023). Future dust concentration over the Middle East and North Africa region under global warming and stratospheric aerosol intervention scenarios. *Atmospheric Chemistry and Physics*, 23(18), 10677–10695. doi:10.5194/acp-23-10677-2023
18. Tang, W., Tilmes, S., Lawrence, D. M., Li, F., He, C., Emmons, L. K., Buchholz, R. R., & **Xia, L.** (2023). Impact of solar geoengineering on wildfires in the 21st century in CESM2/WACCM6. *Atmospheric Chemistry and Physics*, 23(9), 5467–5486. doi:10.5194/acp-23-5467-2023
19. Robock, A., **Xia, L.**, Harrison, C. S., Coupe, J., Toon, O. B., & Bardeen, C. G. (2023). Opinion: How fear of nuclear winter has helped save the world, so far. *Atmospheric Chemistry and Physics*, 23(12), 6691–6701. doi:10.5194/acp-23-6691-2023
20. Visioni, D., Kravitz, B., Robock, A., Tilmes, S., Haywood, J. M., Boucher, O., Lawrence, M., Irvine, P., Niemeier, U., **Xia, L.**, Chiodo, G., Lennard, C., Watanabe, S., Moore, J. C., & Muri, H. (2023). Opinion: The scientific and community-building roles of the Geoengineering Model Intercomparison Project (GeoMIP) past, present, and future. *Atmospheric Chemistry and Physics*, 23(9), 5149–5176. doi:10.5194/acp-23-5149-2023
21. **Xia, L.**, Robock, A., Scherrer, K., Harrison, C. S., Bodirsky, B. L., Weindl, I., Jägermeyr, J., Bardeen, C. G., Toon, O. B., & Heneghan, R. (2022). Global food insecurity and famine from reduced crop, marine fishery and livestock production due to climate disruption from nuclear war soot injection. *Nature Food*, 3(8), 586–596. doi:10.1038/s43016-022-00573-0

22. Hochman, G., Zhang, H., **Xia, L.**, Robock, A., Saketh, A., van der Mensbrugghe, D. Y., & Jägermeyr, J. (2022). Economic incentives modify agricultural impacts of nuclear war. *Environmental Research Letters*, 17(5), 054003. doi:10.1088/1748-9326/ac61c7
23. Bardeen, C. G., Kinnison, D. E., Toon, O. B., Mills, M. J., Vitt, F., **Xia, L.**, Jägermeyr, J., Lovenduski, N. S., Scherrer, K. J. N., Clyne, M., & Robock, A. (2021). Extreme ozone loss following nuclear war results in enhanced surface ultraviolet radiation. *Journal of Geophysical Research: Atmospheres*, 126(18), e2021JD035079. doi:10.1029/2021jd035079
24. Zarnetske, P. L., Gurevitch, J., Franklin, J., Groffman, P. M., Harrison, C. S., Hellmann, J. J., Hoffman, F. M., Kothari, S., Robock, A., Tilmes, S., Vioni, D., Wu, J., **Xia, L.**, & Yang, C.-E. (2021). Potential ecological impacts of climate intervention by reflecting sunlight to cool Earth. *Proceedings of the National Academy of Sciences*, 118(15), e1921854118. doi:10.1073/pnas.1921854118
25. Scherrer, K. J. N., Harrison, C. S., Heneghan, R. F., Galbraith, E., Bardeen, C. G., Coupe, J., Jägermeyr, J., Lovenduski, N. S., Luna, A., Robock, A., Stevens, J., Stevenson, S., Toon, O. B., & **Xia, L.** (2020). Marine wild-capture fisheries after nuclear war. *Proceedings of the National Academy of Sciences*, 117(47), 29748–29758. doi:10.1073/pnas.2008256117
26. Yang, C.-E., Hoffman, F. M., Ricciuto, D. M., Tilmes, S., **Xia, L.**, MacMartin, D. G., Kravitz, B., Richter, J. H., Mills, M., & Fu, J. S. (2020). Assessing terrestrial biogeochemical feedbacks in a strategically geoengineered climate. *Environmental Research Letters*, 15(10), 104043. doi:10.1088/1748-9326/abacf7
27. Xu, Y., Lin, L., Tilmes, S., Dagon, K., **Xia, L.**, Diao, C., Cheng, W., Wang, Z., Simpson, I., & Burnell, L. (2020). Climate engineering to mitigate the projected 21st-century terrestrial drying of the Americas: A direct comparison of carbon capture and sulfur injection. *Earth System Dynamics*, 11(3), 673–695. doi:10.5194/esd-11-673-2020
28. Tilmes, S., MacMartin, D. G., Lenaerts, J. T. M., van Kampenhout, L., Muntjewerf, L., **Xia, L.**, Harrison, C. S., Krumhardt, K. M., Mills, M. J., Kravitz, B., & Robock, A. (2020). Reaching 1.5 and 2.0 °C global surface temperature targets using stratospheric aerosol geoengineering. *Earth System Dynamics*, 11(3), 579–601. doi:10.5194/esd-11-579-2020
29. Vioni, D., Slessarev, E., MacMartin, D. G., Mahowald, N. M., Goodale, C. L., & **Xia, L.** (2020). What goes up must come down: Impacts of deposition in a sulfate geoengineering scenario. *Environmental Research Letters*, 15(9), 094063. doi:10.1088/1748-9326/ab94eb
30. Jägermeyr, J., Robock, A., Elliott, J., Müller, C., **Xia, L.**, Khabarov, N., Folberth, C., Schmid, E., Liu, W., Zabel, F., Rabin, S. S., Puma, M. J., Heslin, A., Franke, J., Foster, I., Asseng, S., Bardeen, C. G., Toon, O. B., & Rosenzweig, C. (2020). A regional nuclear conflict would compromise global food security. *Proceedings of the National Academy of Sciences*, 117(13), 7071–7081. doi:10.1073/pnas.1919049117
31. Toon, O. B., Bardeen, C. G., Robock, A., **Xia, L.**, Kristensen, H., McKinzie, M., Peterson, R. J., Harrison, C. S., Lovenduski, N. S., & Turco, R. P. (2019). Rapidly expanding nuclear arsenals in Pakistan and India portend regional and global catastrophe. *Science Advances*, 5(10), eaay5478. doi:10.1126/sciadv.aay5478
32. Trisos, C. H., Amatulli, G., Gurevitch, J., Robock, A., **Xia, L.**, & Zambri, B. (2018). Potentially dangerous consequences for biodiversity of solar geoengineering implementation and termination. *Nature Ecology & Evolution*, 2(3), 475–482. doi:10.1038/s41559-017-0431-0
33. **Xia, L.**, Nowack, P. J., Tilmes, S., & Robock, A. (2017). Impacts of stratospheric sulfate geoengineering on tropospheric ozone. *Atmospheric Chemistry and Physics*, 17(19), 11913–11928. doi:10.5194/acp-17-11913-2017
34. Sugiyama, M., Asayama, S., Ishii, A., Kosugi, T., Moore, J. C., Lin, J., Lefale, P. F., Burns, W., Fujiwara, M., Ghosh, A., Horton, J., Kurosawa, A., Parker, A., Thompson, M., Wong, P.-H., & **Xia, L.** (2017). The Asia-Pacific's role in the emerging solar geoengineering debate. *Climatic Change*, 143(1–2), 1–12. doi:10.1007/s10584-017-1994-0
35. Toon, O. B., Robock, A., Mills, M., & **Xia, L.** (2017). Asia treads the nuclear path, unaware that self-assured destruction would result from nuclear war. *The Journal of Asian Studies*, 76(2), 437–456. doi:10.1017/s0021911817000080
36. Gabriel, C. J., Robock, A., **Xia, L.**, Zambri, B., & Kravitz, B. (2017). The G4Foam experiment: Global climate

- impacts of regional ocean albedo modification. *Atmospheric Chemistry and Physics*, 17(1), 595–613. doi:10.5194/acp-17-595-2017
37. **Xia, L.**, Robock, A., Tilmes, S., & Neely, R. R. (2016). Stratospheric sulfate geoengineering could enhance the terrestrial photosynthesis rate. *Atmospheric Chemistry and Physics*, 16(3), 1479–1489. doi:10.5194/acp-16-1479-2016
 38. **Xia, L.**, Robock, A., Mills, M., Stenke, A., & Helfand, I. (2015). Decadal reduction of Chinese agriculture after a regional nuclear war. *Earth's Future*, 3(2), 37–48. doi:10.1002/2014ef000283
 39. **Xia, L.**, Robock, A., Cole, J., Curry, C. L., Ji, D., Jones, A., Kravitz, B., Moore, J. C., Muri, H., Niemeier, U., Singh, B., Tilmes, S., Watanabe, S., & Yoon, J.-H. (2014). Solar radiation management impacts on agriculture in China: A case study in the Geoengineering Model Intercomparison Project (GeoMIP). *Journal of Geophysical Research: Atmospheres*, 119(14), 8695–8711. doi:10.1002/2013jd020630
 40. **Xia, L.**, & Robock, A. (2012). Impacts of a nuclear war in South Asia on rice production in Mainland China. *Climatic Change*, 116(2), 357–372. doi:10.1007/s10584-012-0475-8
 41. **Xia, L.**, & Gao, Y. (2011). Characterization of trace elements in PM_{2.5} aerosols in the vicinity of highways in northeast New Jersey in the U.S. east coast. *Atmospheric Pollution Research*, 2(1), 34–44. doi:10.5094/apr.2011.005
 42. **Xia, L.**, & Gao, Y. (2010). Chemical composition and size distributions of coastal aerosols observed on the US East Coast. *Marine Chemistry*, 119(1–4), 77–90. doi:10.1016/j.marchem.2010.01.002

Book Chapters

1. Toon, O. B., Robock, A., Mills, M., **Xia, L.**, & Bardeen, C. (2018). Climatic consequences and agricultural impacts of nuclear conflicts. In T. Beer, J. Li, & K. Alverson (Eds.), *Global Change and Future Earth* (pp. 328–340). Cambridge University Press. doi:10.1017/9781316761489.032
2. Trisos, C. H., Gabriel, C., Robock, A., & **Xia, L.** (2018). Ecological, agricultural, and health impacts of solar geoengineering. In K. Alverson & Z. Zommers (Eds.), *Resilience* (pp. 291–303). Elsevier. doi:10.1016/b978-0-12-811891-7.00024-4

Commentaries and Other Publications

1. Robock, A., **Xia, L.**, & Mian, Z. (2026). Willful ignorance of the global impact of nuclear war. *Physics Today*, July 13, 2026. doi:10.1063/pt.70241b41ab
2. Eastham, S., Doherty, S., Keith, D., Richter, J., & **Xia, L.** (2021). Improving models for solar climate intervention research. *Eos*, 102. doi:10.1029/2021eo156087
3. Robock, A., Toon, O. B., Bardeen, C. G., **Xia, L.**, Kristensen, H. M., McKinzie, M., Peterson, R. J., Harrison, C. S., Lovenduski, N. S., & Turco, R. P. (2019). How an India-Pakistan nuclear war could start—and have global consequences. *Bulletin of the Atomic Scientists*, 75(6), 273–279. doi:10.1080/00963402.2019.1680049

Manuscripts in Review

1. Xu, S.*, **Xia, L.**, Robock, A., Bardeen, C., Yook, S., Solomon, S., Madronich, S., & Setoguchi, S. (2026, under revision). Impacts of nuclear war on human health from changed surface ultraviolet radiation. *Earth's Future*.
2. Yin, D., Li, F., Jägermeyr, J., Müller, C., **Xia, L.**, Zabel, F., Liu, W., Folberth, C., Mialyk, O., Lin, T.-S., & Li, M. (2026, under revision). Weather and climate extremes drive grain yield reductions and economic losses in China. *Nature Communications*.
3. Harper, A., Francois, C., **Xia, L.**, Durand, M., Tilmes, S., & Kooperman, G. (2026, under revision). Impacts of solar geoengineering through stratospheric aerosol injection on terrestrial ecosystems and ecosystem services. *Earth's Future*.
4. Gao, Y., **Xia, L.**, Wang, J., & Gao, C. (2026, under revision). Compensation of ocean latent heat to SAI-induced cooling and its comparison to volcanic aerosols. *Journal of Geophysical Research: Oceans*.
5. Grant, N.*, Robock, A., **Xia, L.**, Kiniry, J., & Clark, B.* (2026, submitted). Can solar climate intervention save coffee and chocolate from climate change? *Communications Earth & Environment*.

TEACHING EXPERIENCE

Courses Taught (undergraduate, Rutgers University–New Brunswick)

Climate Dynamics (11:670:461)	Fall 2025, Fall 2026
Interdisciplinary Honors Seminar (01:090:297), Honors College	Spring 2026
“Climate Intervention: Where Science Meets Ethics” (course developed by me)	
Earth’s Changing Climate (11:670:102)	Spring 2025

Teaching Assistantships

Planet Earth and Planet Earth Lab, Rutgers University–Newark	2007 - 2010
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Guest Lectures

1. Physics and Ethics (undergraduate), Department of Physics, Universität Hamburg, taught by Dr. Moritz Kütt, Summer 2026.
2. Science and Global Security: From Nuclear Weapons to Artificial General Intelligence (SPI/MAE 353, undergraduate), Princeton University, taught by Dr. Alexander Glaser, Fall 2025.
3. First-Year Seminar (FRS 160, undergraduate), Princeton University, taught by Dr. Zia Mian, Fall 2025.
4. Earth Systems: Science and Policy (ENVR 300, undergraduate), University of Delaware, taught by Dr. Kyle Davis, Fall 2025.
5. Modeling of Climatic Change (16:107:544, graduate), Rutgers University–New Brunswick, taught by Dr. Alan Robock, Fall 2020, 2022, and 2024.

MENTORING EXPERIENCE

M.S. Students Supervised

Brendan Clark	2022
Mahjabeen Rahman	2023
Nina Grant	2023

Ph.D. Students Supervised

Shu Xu	current student
Nina Grant	2026
Brendan Clark	2024

Postdocs Supervised

Sam Rabin	2021 - 2023
Jyoti Singh	2021 - 2024

Serving on Ph.D. Committees

Corey J. Gabriel	2015
Joshua Coupe	2020

INVITED TALKS

1. Recent research on food production after nuclear war scenarios (Invited talk for the Informal Expert Consultation to the Independent Scientific Panel on the Effects of Nuclear War, New York, December 2, 2025)
2. Accelerating SRM research: Scientific program and new initiatives (Invited talk at Fudan University, Shanghai, China, August 20, 2025)
3. Geoengineering research: History and current landscape (Invited talk at Institute of Geology, China Earthquake Administration, Beijing, China, August 5, 2025)

4. Geoengineering research: History and current landscape (Invited talk at Beijing Normal University, Beijing, China, August 4, 2025)
5. Geoengineering research: History and current landscape (Invited talk at China Agricultural University, Beijing, China, August 2, 2025)
6. Accelerating SRM research: Scientific program and new initiatives (Invited talk at Institute of Atmospheric Physics, Chinese Academy of Sciences, Beijing, China, July 31, 2025)
7. Geoengineering research: History and current landscape (Invited talk at Institute of Tibetan Plateau Research, Chinese Academy of Sciences, Beijing, China, July 31, 2025)
8. Climate adaptation, mitigation, and intervention (Invited lecture at Zhejiang University, Hangzhou, Zhejiang, China, July 24, 2025)
9. Stratospheric aerosol impact on agriculture (Invited talk at the 2025 International Symposium on solar radiation management, Xi'an, Shaanxi, China, July 21, 2025)
10. Recent research on impacts of nuclear war on global food security (Invited talk at the United Nations during First Committee 2024 on nuclear war impacts and the role of scientific community, New York City, New York, October 9, 2024)
11. Nuclear winter (Invited seminar at Illinois State University, Normal, Illinois, September 24, 2024)
12. The impacts of climate change and intervention on agriculture and food security (Invited lecture at Zhejiang University, Hangzhou, China, July 23, 2024)
13. Impacts of nuclear war on food security (Invited talk at Students for Nuclear Disarmament, online, August 10, 2024)
14. Climate impacts of stratospheric aerosol injection climate intervention (Invited talk at Institute of Atmospheric Physics, Chinese Academy of Sciences, Beijing, China, July 22, 2024)
15. Impacts of nuclear war on food security (Invited talk at Public Health in a Nuclear War hosted by Disarmament and Security Center at New Zealand, online, February 8, 2024)
16. Impacts of Nuclear War on Climate and Food Security (Invited talk at Princeton SGS School, Princeton, New Jersey, October 13 - October 17, 2023)
17. Agricultural Impacts of Stratospheric Aerosol (Invited seminar talk at University At Albany, Albany, New York, September 18, 2023)
18. Impacts of Solar Radiation Management (Invited talk at the Quadrature Climate Foundation New Climate Reality and SRM Workshop, online, June 6, 2023)
19. Mass Starvation? Impacts of Nuclear War on the Climate and Food Security (Invited talk at German Physics Society Spring Meeting on Nuclear Winter, presented by Kim Scherrer, Dresden, Germany, March 22 - March 24, 2023)
20. Agriculture as a Climate Intervention Target (Invited talk at the Second Community Climate Intervention Strategies Workshop, NCAR, Boulder, Colorado, October 31 - November 2, 2022)
21. Agricultural impacts of stratospheric aerosol injection climate intervention (Invited talk at Stratospheric Aerosol Intervention - Ecology Meeting, Newry, Maine, June 22 - 24, 2022)
22. Agricultural impacts of stratospheric aerosol (Invited talk at Rutgers University New Brunswick, Center for Agricultural Food Ecosystems, February 25, 2022)
23. Agricultural impacts of solar radiation management (Invited online talk at Indiana University Bloomington, Department of Earth and Atmospheric Sciences, March 15, 2021)
24. Agricultural impacts of solar radiation management (Invited online talk at Rutgers University New Brunswick, Department of Environmental Sciences, February 26, 2021)
25. SRM impacts on vegetation and agriculture (Invited talk at Ecosystem Response to SRM workshop, University of Minnesota Twin Cities, MN, U.S., November 1, 2019)
26. How to study SRM impacts on agriculture? (Invited talk at the second Geoengineering Research Consortium meeting, Harvard University, Boston, September 30, 2019)
27. Solar radiation management impacts on agriculture (Invited talk at the first Geoengineering Research Consortium meeting, NCAR, Boulder, Colorado, May 20, 2019)
28. Stratospheric Sulfate Geoengineering Impacts on Agriculture and Air Pollution (Invited presentation at

- Gordon Research Conference - Climate Engineering; Newry, Maine, July 23 - 28, 2017)
29. Sulfate Injection Geoengineering Impacts on Agriculture (Invited talk at International Workshop on Climate Engineering Toward (non-) Research Collaboration in the Asia- Pacific region, University of Tokyo, Tokyo, Japan, March 22 - 23, 2016)
 30. How Does Stratospheric Sulfate Geoengineering Affect Food Supply in China (Invited talk at Beijing Normal University, Beijing, China, December 28, 2010)

CONFERENCE PRESENTATIONS (first author)

1. Enabling global solar radiation modification impact research: updates from the Degrees Modeling Fund and the GRID-CC data platform (Oral presentation at the American Geophysical Union Fall Meeting, New Orleans, Louisiana, December 15 - 19, 2025)
2. Representation of Diffuse Radiation in Climate Models under Stratospheric Aerosol Intervention (Poster presentation at the American Geophysical Union Fall Meeting, San Francisco, California, December 11 - 15, 2023)
3. Impacts of Stratospheric Aerosol Intervention on Surface Air Pollutants (Oral presentation at CESM Land Model Working Group Meeting, June 13, 2023)
4. Impacts of Stratospheric Aerosol Intervention on Surface Air Pollutants (Oral presentation at the American Geophysical Union Fall Meeting, Chicago, Illinois, December 12 - 16, 2022)
5. Impacts of sulfate injection climate intervention on particulate matter with diameter less than 2.5 μm (Poster presentation at the Gordon Research Conference Climate Engineering, Newry, Maine, June 26 - July 7, 2022)
6. Natural vegetation responses in Geoengineering Model Intercomparison Project (GeoMIP) G6 experiments (Poster presentation at American Geophysical Union Fall Meeting, New Orleans, Louisiana, December 12 - 16, 2021)
7. Natural vegetation responses in Geoengineering Model Intercomparison Project (GeoMIP) G6 Experiments (Oral presentation at Climate Engineering in Context, Online, October 4 - 8, 2021)
8. Assessing terrestrial biogeochemical feedbacks in a geoengineered climate (Oral presentation at American Association for the Advancement of Science Annual Meeting, Online, February 8 - 11, 2021)
9. Diffuse radiation impact on vegetation under Geoengineering Model Intercomparison Project G6 experiments (Poster presentation at American Geophysical Union Fall Meeting, Online Everywhere, December 1 - 17, 2020)
10. Sulfate geoengineering impacts on agriculture (Oral presentation at American Meteorological Society; Boston, Massachusetts, January 12 - 16, 2020)
11. Impacts of nuclear war on terrestrial carbon processes (Poster presentation at American Geophysical Union Fall Meeting, San Francisco, California, December 9 - 13, 2019)
12. Impacts of Sulfate Injection Geoengineering on Particulate Matter with Diameter less than 2.5 μm (with Alan Robock; presented by Alan Robock; the ninth GeoMIP workshop, Beijing Normal University, Beijing, China, August 14 - 17, 2019)
13. Impact on Agriculture from Surface Ozone and Ultraviolet Radiation Changes due to Stratospheric Sulfate Injection (Poster presentation at American Geophysical Union Fall Meeting, Washington, DC, December 10 - 14, 2018)
14. Impacts of Stratospheric Sulfate Geoengineering on PM_{2.5} (Poster presentation at the Stratosphere-troposphere Processes and Their Role in Climate 2018 General Assembly, Kyoto, Japan, October 1 - 5, 2018)
15. Impacts of Stratospheric Black Carbon on Agriculture (Oral presentation at American Geophysical Union Fall Meeting, New Orleans, Louisiana, December 11 - 15, 2017)
16. Impacts of Solar Radiation Management on Surface Ozone (Oral presentation at Community Earth System Model Winter Group Meetings, Boulder, Colorado, February 27 - March 2, 2017)

17. Impacts of Solar Radiation Management on Surface Ozone (Oral presentation at American Geophysical Union Fall Meeting, San Francisco, California, December 12 - 16, 2016)
18. A Comparison of Sulfate Injection Geoengineering and Solar Reduction Geoengineering (Oral presentation at the Sixth GeoMIP Meeting, University of Oslo, Oslo, Norway, June 21 - 22, 2016)
19. Stratospheric Sulfate Geoengineering Impacts on Global Agriculture (Poster presentation at American Geophysical Union Fall Meeting, San Francisco, California, December 14-18, 2015)
20. Solar Radiation Management and Its Agriculture Impact (Oral presentation at Chinese Geoengineering Workshop, Beijing Normal University, Beijing, China, August 26 - 28, 2015)
21. Solar Radiation Change from G4SSA and Its Agricultural Impact (Oral presentation at the Fifth GeoMIP Workshop, National Center for Atmospheric Research, Boulder, CO, July 22 - 23, 2015)
22. Two Possible Future Climate Scenarios for AgMIP-GGCM - Sulfate Injection Climate Intervention and Regional Nuclear War (Poster presentation at Our Common Future under Climate Change meeting, Paris, France, July 7 - 10, 2015)
23. Global Agricultural Impact from the G4 Specified Stratospheric Aerosol (G4SSA) GeoMIP Simulation Using the CESM-CAM4 Climate Model (Oral presentation at 26th General Assembly of the International Union of Geodesy and Geophysics, Prague, Czech Republic, June 26 - July 2, 2015)
24. Climate Sensitivity of DSSAT under Different Agriculture Practice Scenarios in China (Poster presentation at American Geophysical Union Fall Meeting, San Francisco, California, December 15 - 19, 2014)
25. Impacts on Chinese Agriculture of Geoengineering and Smoke from Fires Ignited by Nuclear War (Poster presentation at American Geophysical Union Fall Meeting, San Francisco, California, December 9 - 13, 2013)
26. Impacts of Balancing CO₂ Increases with Solar Insolation Reduction (from the GeoMIP G2 scenario) on Chinese Agricultural Production (Oral presentation at the Geoengineering Modeling Intercomparison Project (GeoMIP) workshop, Institute for Advanced Sustainability Studies, Potsdam, Germany, April 15 - 16, 2013)
27. Agriculture Impacts of Regional Conflict (Oral presentation at European Geosciences Union General Assembly, Vienna, Austria, April 7 - 12, 2013)
28. Impacts of Stratospheric Sulfate Geoengineering on Chinese Food Supply (Poster presentation on American Geophysical Union Fall Meeting, San Francisco, California, December 3 - 7, 2012)
29. Impacts of Geoengineering and Nuclear War on Chinese Agriculture (Poster presentation on American Geophysical Union Fall Meeting, San Francisco, California, December 5 - 9, 2011)
30. Agricultural Response on Stratospheric Geoengineering (Oral presentation on the second Keck Institute for Space Studies Geoengineering Workshop, California Institute of Technology, Pasadena, California, November 15 - 18, 2011)
31. Agricultural Feedback on Stratospheric Sulfate Geoengineering (Poster presentation on World Climate Research Programme Open Science Conference, Denver, Colorado, October 24 - 28, 2011)
32. Impacts of Nuclear War on Agriculture in China (Oral presentation on the Severe Atmospheric Aerosol Event Conference, Max Planck Institute, Hamburg, Germany, August 11 - 12, 2011)
33. Geoengineering Impacts on Agriculture - Forced by ModelE and CAM4 (Poster presentation on 16th Annual CESM workshop, Boulder, Colorado, June 20 - 23, 2011)
34. Impacts of Stratospheric Sulfate Geoengineering on Food Supply - Update (Oral presentation on Keck Institute for Space Studies Geoengineering Workshop, California Institute of Technology, Pasadena, California, May 23 - 26, 2011)
35. Impacts of Stratospheric Sulfate Geoengineering on Food Supply (Oral presentation on GeoMIP workshop, Rutgers University, New Brunswick, NJ, February 10 - 12, 2011)
36. Effects of Stratospheric Sulfate Geoengineering on Food Supply in China (Oral presentation on American Geophysical Union Fall Meeting, San Francisco, California, December 13 - 17, 2010)
37. Chemical Composition and Size Distribution of Coastal Aerosol Observed on the US East Coast (Oral presentation at American Geophysical Union Fall Meeting, San Francisco, California, December 15 - 19, 2008)

SERVICE

1. Member, Steering Committee, Geoengineering Model Intercomparison Project (GeoMIP), 2026 - present.
2. Chair of Gordon Research Conference on Climate Engineering, 2026.
3. Review panel for the call for proposals “Understanding the potential impacts of Solar Radiation Modification on Sub-Saharan Africa,” the University of Exeter and the Advanced Research and Invention Agency (ARIA), 2026.
4. Vice Chair of Gordon Research Conference on Climate Engineering, 2024.
5. Member of the Scientific Advisory Group for the Treaty on the Prohibition of Nuclear Weapons, 2024 - 2026.
6. Planning committee of the National Academies of Sciences, Engineering, and Medicine for a workshop on Climate Intervention in an Earth System Science Framework, 2023.
7. NOAA review panel for “Atmospheric aerosols and their potential roles in solar climate intervention methods,” March 30-31, 2022.
8. Member, Steering Committee, Geoengineering Modeling Research Consortium (<http://www.cgd.ucar.edu/projects/gmrc/>), 2019-2022.
9. Member, Scientific Advisory Team, Developing Country Impacts Modeling Analysis for SRM (DECIMALS) Fund, 2017-2025.
10. Reviewer for journals, e.g., Nature Climate Change, Journal of Geophysical Research, Atmospheric Chemistry and Physics, and Earth’s Future.
11. Convener for sessions at the American Geophysical Union Fall Meeting in 2018, 2019, 2021, 2024, and 2025.
12. Convener for sessions at the Asia Oceania Geosciences Society Annual Meeting in 2025 and 2026.
13. Convener for sessions at the European Geosciences Union Annual Meeting in 2025 and 2026