MEIYUN LIN

Citizenship: United States of America
Email: linmeiyun@gmail.com
Phone: 609.452.6551
Mailing address: Princeton University Forrestal Campus, 201 Forrestal Road, Princeton, NJ 08540
Research Homepage: http://www.gfdl.noaa.gov/meiyun-lin-homepage
Google Scholar Citations: https://scholar.google.com/citations?user=3gWIr8oAAAAJ&hl=en
ORCID ID: https://orcid.org/0000-0003-3852-3491

Summary of Scientific achievements to date

Exposure to high levels of ground-level ozone and particulate matter harms both human and plant health. It can cause breathing problems, coughing, asthma attacks, and lower crop yields. Dr. Meiyun Lin works at the intersection of Earth system components, integrating information across scientific disciplines, to understand extreme weather, climate, and air quality interactions from global to urban scales. She develops and applies Earth system models, along with observations, to understand and predict high-impact events such as heatwaves, droughts, wildfires, and air pollution extremes. She has written 55 peer-reviewed papers, including 20 as the lead author, with eight published in top-tier Nature, PNAS, and GRL journals.

Her innovative use of models and observations has advanced our understanding of air quality-climate interactions, especially how extreme weather and climate change worsen ozone air pollution through land-biosphere feedbacks. Her work also examines how large-scale atmospheric and ocean patterns influence pollution transport, which helps with seasonal air quality predictions. These predictions can improve public education, reduce health risks, and guide air quality planners in managing resources and adapting to environmental changes.

Lin's research has been cited in U.S. House hearings and influenced the setting of U.S. National Ozone Air Quality Standards. She has been invited to speak at national and international conferences, including those hosted by AAAS, AGU, NASA, MIT, and Harvard. Her work has also received significant media attention, showcasing her ability to communicate science to the public.

Education

Ph.D. 09/2007, Department of Civil Engineering, University of Tokyo, Japan
M.E. 07/2004, Department of Environmental Engineering, Dalian University of Technology, China
B. E. 07/2001, Department of Environmental Science and Engineering, Sichuan University, China

Employment History

Physical Scientist, U.S. National Oceanic and Atmospheric Administration's Geophysical Fluid Dynamics Laboratory (NOAA GFDL), Princeton, New Jersey
Duration: 09/27/2021-present
Duties and accomplishments:

- Lead development of GFDL's variable-resolution global chemistry-climate model for research at the nexus of U.S. climate and air quality extremes

- Lead efforts to explore the influence of present-day and projected future wildfire emissions on atmospheric composition and air quality using GFDL models
- Lead evaluation and implementation of anthropogenic and biomass burning emissions of short-lived climate forcers for GFDL's next generation Earth system models ESM4.5 to support IPCC AR7
- Investigate effects of extreme weather, climate variability and change on air quality, including through changes in hydroclimate extremes, water scarcity, and associated vegetation feedbacks
- Supervise postdocs from Princeton and GFDL's Cooperative Institute for Modeling the Earth System (CIMES)

Research Scholar (tenured), Princeton University, Program in Atmospheric and Oceanic Sciences
Duration: 07/01/2016-9/26/2021
Duties and accomplishments:

- Supervised postdocs and undergraduate interns
- Conducted research on air quality and its connections with extreme weather, drought, climate change and Earth system feedbacks;
- Utilized air quality prediction and/or projection research tools, including GFDL's chemistry-climate models (AM4/AM3), land models (LM3/LM4), NOAA-sponsored field campaign data and other satellite and ground-based observational datasets;
- Authored 26 papers in the peer-reviewed literature. Notably, Lin et al. (2020) was published in the prestigious Journal *Nature Climate Change*. Lin et al. (2017) was covered by 56 news outlets, ranked in the top 5% of all research outputs scored by Altmetric, and received the *Web of Science Highly Cited Papers* award.

Associate Research Scholar, Princeton University, Program in Atmospheric & Oceanic Sciences
Duration: 06/01/2010-06/30/2016
Duties and accomplishments:

- Conducted air quality research, with a focus on background ozone trends, extremes, and large-scale transport;
- Utilized air quality prediction and/or projection research tools, including GFDL's chemistry-climate models and NOAA-sponsored field campaign data;
- Conducted research on the linkage between regional air quality and large-scale modes of oceanic and atmospheric variability;
- Conducted process-oriented evaluation of GFDL chemistry-climate models and assisting with developing models of atmospheric chemistry for air quality research;
- Authored 18 papers in the peer-reviewed literature. Notably, the pioneering work of Lin et al. (2012ab) using GFDL's high-resolution chemistry-climate models have received nearly 600 citations in the peer-reviewed literature. Lin et al. (2012a) was selected for the American Geophysical Union Editors' Highlight and featured in Nature News and Science Now in Science Magazine. Lin et al. (Nature Geoscience, 2014) and Lin et al. (*Nature* Communications, 2015) has received nearly 450 citations. These papers have influenced the setting of U.S. National Ambient Ozone Air Quality Standards.

Postdoctoral Scientist, University of Wisconsin-Madison, Center for Sustainability and the Global Environment
Duration: 03/08/2008 – 05/31/2010
Duties and accomplishments:

- Conducted research on ozone air quality;
- Participated in the UN Task Force on Hemispheric Transport of Air Pollution;
- Utilized regional-scale air quality models (WRF-Chem and CMAQ);
- Built an interface for importing global model chemical boundary conditions for regional air quality modelling;
- Published 4 first-authored papers in the peer-reviewed literature.

Postdoctoral Scientist, University of Tokyo, Center for Climate System Research, Japan
Duration: 10/01/2007 – 02/28/2008
Duties and accomplishments:

- Conducted research on atmospheric chemistry and acid deposition in Asia;
- Utilized atmospheric composition prediction and/or projection research tools;
- Assisted with developing models of atmospheric chemistry for air quality research, such as building an emission processing interface for the application of CMAQ in Asia.

Funded External Awards

- **Meiyun Lin** (PI). "Characterizing daily-to-yearly variability in sources of ozone in the Las Vegas area". Clark County, Nevada, total budget: $142, 605 (4/1/2017-12/1/2018)
- Lesley Ott (PI), Bryan Duncan (Co-I), **Meiyun Lin** (Co-I), Anne Thompson (Co-I), Yasuko Yoshida (Co-I), J. Eric Nielsen (Co-I). "Statistics for stratospheric influence on surface GHGs during NASA's North American field campaign: A study with aircraft & satellite data and high-resolution global *models*". NASA, Total budget: $416,964, *Princeton sub-award (PI Meiyun Lin): $101,451* (7/1/2014-6/30/2017)
- Owen Cooper (PI) and **Meiyun Lin** (Co-PI). "Exploring emission versus climate drivers of tropospheric ozone variability and trends over northern mid-latitudes from space", NASA Atmospheric Composition, Total budget: $233,529, *Princeton sub-award (PI Meiyun Lin): $141,722* (3/1/2014-2/29/2016)
- Chris Emery, William Koshak, and **Meiyun Lin**, "Investigation of Global Modeling and Lightning NO_x Emissions as Sources of Regional Background Ozone in Texas", State of Texas, Total budget: $145,712, Princeton sub-award (PI Meiyun Lin): $9,810 (10/1/2012-9/30/2013)

Mentoring and Teaching Experiences:

- Supervise postdocs and undergraduate interns, Princeton University, 2017-2022
- Guest lecture, University of Wisconsin-Madison, 2009

Media Reports and Research Highlights

- Spring 2024, Lin et al. (JAMES 2024) was selected for featuring as an Editor Highlight by AGU. Less than 2% of papers are selected for featuring this way.

- Spring 2022, Lin and her postdoc advisee Xie interviewed by AGU EOS and Court House News for their article, "*Tripling of western US particulate pollution from wildfires in a warming climate*", published in PNAS.
- April 2020, Lin's article, "Vegetation feedbacks during drought exacerbate ozone air pollution extremes in Europe", Published in Nature Climate Change and featured in multiple media outlets (https://www.nature.com/articles/s41558-020-0743-y/metrics)
- March, 2017. Lin's article, published in *Atmos. Chem. Phys.*, featured in Princeton News, NOAA Research, E&E News, National Public Radio, Southern California Public Radio (SCPR), The Weather Channel, and many other public media outlets.
- May 12, 2015. *Nature Communications* published Lin's work that identifies a link between La Niña and western US deep stratospheric ozone intrusions. The paper was highlighted in NOAA Research and multiple media outlets including *Environment & Energy News*.
- January 26, 2014. *Nature Geoscience* published Lin's work that solves the mystery of Hawaiian ozone changes since the 1970s. The paper was featured in *Nature's News & Views*, *Princeton Journal Watch*, and multiple media outlets.
- June 12, 2013. *The U.S. House Subcommittee on Environment Hearing* cited *Lin et al* [2012b] on stratospheric ozone intrusions and the challenges for the western states to achieve more stringent ozone standards.
- January 1, 2013. *Lin et al.* [2012a] ranked *JGR's top 1 most cited paper* for all 2753 articles published in 2012.
- December, 2012. *NOAA's top research accomplishments of 2012* included *Lin et al.* [2012a].
- *March 6, 2012. New York Times Greenblog.* Meiyun Lin interviewed on Asian pollution and western U.S. ozone air quality.
- March 5, 2012. *NOAA Research*. Meiyun Lin interviewed on Asian pollution and western U.S. ozone air quality.
- *March 5, 2012. Nature News*. Meiyun Lin interviewed on using NASA satellites to forecast Asian pollution events over the western U.S.
- *March 1, 2012. Science* Magazine *ScienceShot*. Richard A. Kerr, a senior reporter, wrote about *Lin et al* [2012a] on imported Asian pollution.
- February 17, 2012. *Lin et al* [2012a] selected as *AGU Editors' highlight*.

Engagement in Community Research Activities

- Contributing Author, IGAC/Tropospheric Ozone Assessment Report (2015-present)
- PI for GFDL model, IGAC/Chemistry-Climate Model Initiative (2013-present)
- PI for GFDL model, Hemispheric Transport of Air Pollution Phase 2 (Contributing to AeroCom) (2011-present)
- Member/Co-Investigator, NASA Air Quality Applied Sciences Team (2011-2016)
- Contributor, U.S. EPA Integrated Science Assessment (ISA) for Ozone and Related Photochemical Oxidants 2013 (2011-2013)
- Section Co-Chair, American Geophysical Union (AGU) Fall Meeting 2011: Impacts of baseline ozone and particulate matter on surface air quality (2011)
- Reviewers for *Nature Geoscience, Nature Climate Change, Nature Communications*, *Geophys. Res. Lett., Environ. Sci. & Tech, J. Geophys. Res., Atmos. Chem. Phys., Environ. Res. Lett., Atmos. Environ. and Science of The Total Environment*

Peer-reviewed Publications (55)

Lead-authored papers (* indicates postdoc advisee)

1. **Lin, M.,** Y. Xie, I. De Smedt, L. W. Horowitz. *Ozone Pollution Extremes in Southeast China Exacerbated by Reduced Uptake by Vegetation during Hot Droughts*. **Geophysical Research Letters**, in review**,** https://doi.org/10.1029/2025GL114934, 2025
2. **Lin, M.**, L.W. Horowitz, Lu Hu, Wade Permar. *Reactive nitrogen partitioning enhances the contribution of Canadian wildfire plumes to US ozone air quality.* **Geophysical Research Letters**, https://doi.org/10.1029/2024GL109369, 2024
3. **Lin, M.**, L.W. Horowitz, M. Zhao, L. Harris, P. Ginoux, J. P. Dunne, S. Malyshev, E. Shevliakova, H. Ahsan, S. Garner, F. Paulot, A. Pouyaei, S. J. Smith, Y. Xie, N. Zadeh, L. Zhou. *The GFDL Variable-Resolution Global Chemistry-Climate Model for Research at the Nexus of US Climate and Air Quality Extremes.* **Journal of Advances in Modeling Earth Systems**, 16, e2023MS003984, https://doi.org/10.1029/2023MS003984, 2024. **[AGU Editors' Highlights].**
4. Xie Y.*, **Lin M**., Bertrand Decharme, Christine Delire, Larry W. Horowitz, David M. Lawrence, Fang Li, Roland Séférian. *Tripling of western US particulate pollution from wildfires in a warming climate*. **Proceedings of the National Academy of Sciences (PNAS),** 119 (14), DOI:10.1073/pnas.2111372119.2022.
5. **Lin, M.**, L.W Horowitz, Y. Xie, F. Paulot, S. Malyshev, E. Shevliakova et al., *Vegetation feedbacks during drought exacerbate ozone air pollution extremes in Europe*. **Nature Climate Change**, 10, 444–451, 2020.
6. Zhang, L*, Lin M., A Langford, et al.: *Characterizing sources of high surface ozone events in the southwestern U.S. with intensive field measurements and two global models. Atmospheric Chemistry and Physics*, 20, 10379–10400, doi:10.5194/acp-20-10379-2020, 2020.
7. Xie Y. *, **Lin M.**, and Larry W. Horowitz. *Summer $PM_{2.5}$ pollution extremes caused by wildfires over the western United States during 2017-2018*, ***Geophysical Research Letters***, 47, https://doi. org/10.1029/2020GL089429, 2020.
8. **Lin, M.**, Sergey Malyshev, Elena Shevliakova, Fabien Paulot, Larry W Horowitz S Fares, T N Mikkelsen, and L Zhang: *Sensitivity of ozone dry deposition to ecosystem-atmosphere interactions: A critical appraisal of observations and simulations***.** Global Biogeochemical Cycles, 33(10), doi:10.1029/2018GB006157, 2019.
9. **Lin, M.**, W. Horowitz, R. Payton, A.M. Fiore, G. Tonnesen (2017). *US surface ozone trends and extremes over 1980-2014: Quantifying the roles of rising Asian emissions, domestic controls, wildfires, and climate*. Atmos Chem. Phys., 17 (4), doi:10.5194/acp-17-2943-2017 (***Web of Science Highly Cited Papers***).
10. **Lin, M.**, L.W. Horowitz, O.R. Cooper, D. Tarasick, S. Conley, L.T. Iraci, B. Johnson, T. Leblanc, I. Petropavlovskikh, E.L. Yates (2015), *Revisiting the evidence of increasing springtime ozone mixing ratios in the free troposphere over western North America*, **Geophysical Research Letters**, 42, doi:10.1002/2015GL065311
11. **Lin, M.**, A.M. Fiore, L.W. Horowitz, A.O. Langford, S. J. Oltmans, D. Tarasick, H.E. Reider (2015), *Climate variability modulates western U.S. ozone air quality in spring via deep stratospheric intrusions,* **Nature Communications**, 6 (7105), doi:10.1038/ncomms8105 **(Cited by 232 times on Google Scholar).**

12. **Lin, M.**, L.W. Horowitz, S. J. Oltmans, A.M. Fiore, S. Fan (2014), *Tropospheric ozone trends at Manna Loa Observatory tied to decadal climate variability,* **Nature Geoscience**, 7, 136-143, doi:10.1038/NGEO2066 **(Cited by 180+ times on Google Scholar).**
13. **Lin, M.**, A. M. Fiore, O. R. Cooper, L. W. Horowitz , A. O. Langford , Hiram Levy II , B. J. Johnson , V. Naik , S. J. Oltmans , C. Senff (2012b), *Springtime high surface ozone events over the western United States: Quantifying the role of stratospheric intrusions*, J. Geophys. Res., 117 (D21), doi:10.1029/2012JD018151 **(Cited by 300+ times on Google Scholar).**
14. **Lin, M.,** A. M. Fiore, L. W. Horowitz, O. R. R. Cooper, V. Naik, J. S. Holloway, B. J. J. Johnson, A. M. Middlebrook, S. J. J. Oltmans, I. B. Pollack, T. B. Ryerson, J. Warner, C. Wiedinmyer, J. Wilson, and B. Wyman (2012a). *Transport of Asian ozone pollution into surface air over the western United States in spring*, J. Geophys. Res., 117 (D21), doi:10.1029/2011JD016961 **(AGU Editors' Highlight; Cited by 250+ times)**.
15. **Lin, M**., T. Holloway, G. R. Carmichael., A. M. Fiore (2010), *Quantifying pollution inflow and outflow over East Asia in spring with regional and global models*. Atmos. Chem. Phys., 10, 4221-4239.
16. **Lin, M**., T. Holloway, T. Oki, D.G. Streets, and A. Richter (2009), *Multi-scale model analysis of boundary layer ozone over East Asia*. Atmos. Chem. Phys**.**, 9, 3277-3301
17. **Lin, M.**, T. Oki, M. Bengtsson, S. Kanae, T. Holloway, D.G. Streets (2008), *Long-range transport of acidifying substances in East Asia Part I: Model evaluation and sensitivity studies*. Atmos. Environ**.** 42 (24), 5939-5955, doi:10.1016/j.atmosenv.2008.04.008
18. **Lin, M.**, T. Oki, M. Bengtsson, S. Kanae, T. Holloway, D.G. Streets (2008), *Long-range transport of acidifying substances in East Asia Part II: Source-receptor relationships*. Atmos. Environ. 42 (24), 5956-5967, doi:10.1016/j.atmosenv.2008.03.039
19. **Lin, M.**, T. Oki, and M. Bengtsson. *Long-range Transport and Transformations of Acidifying Substances over East Asia in Spring Time*. Annual Journal of Hydraulic Engineering, JSCE, Vol.51, 91-96, 2007
20. **Lin, M.**, S. Zhang, and Y. Chen. *Distance-to-Target Weighting in Life Cycle Impact Assessment Based on Chinese Environmental Policy for the Period 1995-2005. International Journal of Life Cycle Assessment*. 10 (6), 393-398, 2005

Co-authored papers:

21. Whaley, C. H., Butler, T., Adame, J. A., Ambulkar, R., Arnold, S. R., Buchholz, R. R., Gaubert, B., Hamilton, D. S., Huang, M., Hung, H., Kaiser, J. W., Kaminski, J. W., Knote, C., Koren, G., Kouassi, J.-L., **Lin, M.**, Liu, T., Ma, J., Manomaiphiboon, K., Bergas Masso, E., McCarty, J. L., Mertens, M., Parrington, M., Peiro, H., Saxena, P., Sonwani, S., Surapipith, V., Tan, D., Tang, W., Tanpipat, V., Tsigaridis, K., Wiedinmyer, C., Wild, O., Xie, Y., and Zuidema, P.: *HTAP3 Fires: Towards a multi-model, multi-pollutant study of fire impacts*, Geosci. Model Dev. Discuss. [preprint], https://doi.org/10.5194/gmd-2024-126, 2025.
22. Langford, A. O., Senff, C. J., Alvarez II, R. J., Aikin, K. C., Baidar, S., Bonin, T. A., Brewer, W. A., Brioude, J., Brown, S. S., Burley, J. D., Caputi, D. J., Conley, S. A., Cullis, P. D., Decker, Z. C. J., Evan, S., Kirgis, G., **Lin, M.**, Pagowski, M., Peischl, J., Petropavlovskikh, I., Pierce, R. B., Ryerson, T. B., Sandberg, S. P., Sterling, C. W., Weickmann, A. W., and Zhang,

L.: *The Fires, Asian, and Stratospheric Transport-Las Vegas Ozone Study (FAST-LVOS)*, Atmos. Chem. Phys., https://doi.org/10.5194/acp-2021-690, 2022.

23. DeLang, Marissa; Becker, Jacob; Chang, Kai-Lan; Serre, Marc; Cooper, Owen; Schultz, Martin; Schröder, Sabine; Lu, Xiao; Zhang, Lin; Deushi, Makoto; Josse, Beatrice; Keller, Christoph; Lamarque, Jean-Francois; **Lin, M.**; Liu, Junhua; Marecal, Virginie; Strode, Sarah; Sudo, Kengo; Tilmes, Simone ; Zhang, Li; Cleland, Stephanie; Collins, Elyssa; Brauer, Michael; West, J. Jason. *Mapping yearly fine resolution global surface ozone through the Bayesian Maximum Entropy data fusion of observations and model output for 1990–2017.* Environmental Science & Technology, es-2020-077425.R2, 2021
24. A.T. Archibald, J. L. Neu, Y. Elshorbany, O. R. Cooper, P.J. Young, H. Akiyoshi, R.A. Cox, M. Coyle, R. Derwent, M. Deushi, A. Finco, G.J. Frost, I. E. Galbally, G. Gerosa, C. Granier, P.T. Griffiths, R. Hossaini, L. Hu, P.Jöckel, B. Josse, **Lin M.** et al.: Tropospheric Ozone Assessment Report: Critical review of changes in the tropospheric ozone burden and budget from 1960-2100, *Elementa: Science of the Anthropocene,* 8(1), https://doi.org/10.1525/elementa.2020.034, *2020*
25. Larry W. Horowitz, Vaishali Naik, Fabien Paulot, Paul A. Ginoux, John P. Dunne, Jingqiu Mao, Jordan Schnell, Xi Chen, Jian He, **Lin M.**, Pu Lin, Sergey Malyshev, David Paynter, Elena Shevliakova, Ming Zhao. *The GFDL Global Atmospheric Chemistry-Climate Model AM4.1: Model Description and Simulation Characteristics.* Journal of Advances in Modelling Earth Systems, 12, e2019MS002032. https://doi.org/ 10.1029/2019MS002032, 2020.
26. Chang, Kai-Lan, O Cooper, J J West, M L Serre, M G Schultz, and **Lin M.**, et al., March 2019: *A new method (M3Fusion-v1) for combining observations and multiple model output for an improved estimate of the global surface ozone distribution*. *Geoscientific Model Development*, 12(3), DOI:10.5194/gmd-12-955-2019.
27. Tarasick, D W., I Galbally, O Cooper, M G Schultz, G Ancellet, T Leblanc, T J Wallington, J R Ziemke, Xiong Liu, M Steinbacher, J Staehelin, C Vigouroux, J W Hannigan, O Garcia, G Foret, P Zanis, E C Weatherhead, I Petropavlovskikh, H Worden, M Osman, Jane Liu, Kai-Lan Chang, A Gaudel, and **M. Lin** et al.: *Tropospheric Ozone Assessment Report: Tropospheric ozone from 1877 to 2016, observed levels, trends and uncertainties. Elementa: Science of the Anthropocene*, **7**, 39, doi:10.1525/elementa.376, 2019
28. D. Jaffe, O. Cooper, A. Fiore, B. Henderson, G. Tonneson, T.R. Russell, D. Henze, A. Langford, **M. Lin**, T. Moore (2018)**.** *Scientific assessment of background ozone over the U.S.: Implications for air quality management.* Elem Sci Anth., doi: 10.1525/elementa.309
29. Dhomse, S., Kinnison, D., Chipperfield, M. P., Cionni, I., Hegglin, M., Abraham, N. L., Akiyoshi, H., Archibald, A. T., Bednarz, E. M., Bekki, S., Braesicke, P., Butchart, N., Dameris, M., Deushi, M., Frith, S., Hardiman, S. C., Hassler, B., Horowitz, L. W., Hu, R.-M., Jöckel, P., Josse, B., Kirner, O., Kremser, S., Langematz, U., Lewis, J., Marchand, M., **Lin, M.**, Mancini, E., Marécal, V., Michou, M., Morgenstern, O., O'Connor, F. M., Oman, L., Pitari, G., Plummer, D. A., Pyle, J. A., Revell, L. E., Rozanov, E., Schofield, R., Stenke, A., Stone, K., Sudo, K., Tilmes, S., Visioni, D., Yamashita, Y., and Zeng, G.: *Estimates of Ozone Return Dates from Chemistry-Climate Model Initiative Simulations*, Atmos. Chem. Phys. 18, 8409-8438, https://doi.org/10.5194/acp-18-8409-2018, 2018.
30. Young PJ, Naik V, Fiore AM, Gaudel A, Guo J, **Lin M.**, et al. *Tropospheric Ozone Assessment Report: Assessment of global-scale model performance for global and regional*

ozone distributions, variability, and trends. Elem Sci Anth. 2018;6(1):10. DOI: http://doi.org/10.1525/elementa.265

31. Jonson, J E., M Schulz, L K Emmons, J Flemming, D K Henze, K Sudo, M Tronstad Lund, and **M. Lin**, et al., in press**:** *The effects of intercontinental emission sources on European air pollution levels.* Atmos. Chem. Phys., 18, 13655-13672, https://doi.org/10.5194/acp-18-13655-2018, 2018
32. Liang, C-K, J J West, R A Silva, H Bian, M Chin, F Dentener, Y Davila, L K Emmons, G Folberth, J Flemming, D K Henze, U Im, J E Jonson, T Kucsera, T J Keating, M Tronstad Lund, A Lenzen, and **M. Lin**, et al.: *HTAP2 multi-model estimates of premature human mortality due to intercontinental transport of air pollution.* Atmos. Chem. Phys., 18, 10497-10520, https://doi.org/10.5194/acp-18-10497-2018, 2018.
33. Turnock, S, O Wild, F Dentener, Y Davila, L K Emmons, J Flemming, G Folberth, D K Henze, J E Jonson, T J Keating, S Kengo, and **M. Lin**, et al.: *The Impact of Future Emission Policies on Tropospheric Ozone using a Parameterized Approach.* Atmos. Chem. Phys., 18, 8953-8978, https://doi.org/10.5194/acp-18-8953-2018, 2018.
34. Xu, W, X Xu, and **M. Lin,** et al., January 2018: *Long-term trends of surface ozone and its influencing factors at the Mt. Waliguan GAW station, China, Part 2: The role of anthropogenic emissions and climate variability.* Atmospheric Chemistry and Physics, 18(2)**,** DOI:10.5194/acp-18-773-2018.
35. Hogrefe, C., Liu, P., Pouliot, G., Mathur, R., Roselle, S., Flemming, J., Lin, M.Y., and Park, R. J.: *Impacts of Different Characterizations of Large-Scale Background on Simulated Regional-Scale Ozone Over the Continental United States*, Atmos. Chem. Phys., 18, 3839-3864, https://doi.org/10.5194/acp-18-3839-2018, 2018
36. Doherty, R, C Orbe, G Zeng, M J Prather, D A Plummer, and **M. Lin**, et al., November 2017: *Multi-model Impacts of Climate Change on Pollution Transport from Global Emission Source Regions.* Atmos. Chem. Phys., 17(23), doi:10.5194/acp-17-14219-2017.
37. Naik, Vaishali, Larry W Horowitz, M Daniel Schwarzkopf, and **M. Lin**, September 2017: *Impact of Volcanic Aerosols on Stratospheric Ozone Recovery.* Journal of Geophysical Research, 122 (17), DOI:10.1002/2016JD025808.
38. M. Leonard, I. Petropavlovskikh, **Lin, M.,** A. Mcclure-Begley, B. J. Johnson, S. J. Oltmans, D. Tarasick (2017). *An assessment of 10-year NOAA aircraft-based tropospheric ozone climatology in Colorado.* Atmos. Environ., 158 (2017), 116-127, doi:10.1016/j.atmosenv.2017.03.013.
39. Shen, Zhaoyi; Yi Ming; Larry W. Horowitz; V. Ramaswamy; **Lin, M.** (2017). *On the Seasonality of Arctic Haze*. J. of Climate, 30 (12), 4429-4441.
40. Peng, Wei; Yuan, Jia-Hai; Zhao, Yu; **Lin, M.**; Zhang, Qiang; Victor, David; Mauzerall, Denise (2017). *Air Quality and Climate Benefits of Long-distance Electricity Transmission in China.* Environ. Res. Lett., 12 (6), 064012, DOI:10.1088/1748-9326/aa67ba.
41. Langford, A.O., R.J. Alvarez II, J. Brioude, R. Fine, M. Gustin, J.S. Holloway, **Lin, M.**, R.D. Marchbanks, R.B. Pierce, S.P. Sandberg, C.J. Senff, A.M. Weickmann, E.J. Williams (2017), *Entrainment of stratospheric air and Asian pollution by the convective boundary layer in the Southwestern U.S.*, J. Geophys. Res., 122 (2), doi:10.1002/2016JD025987.
42. Morgenstern, O., Hegglin, M. I., Rozanov, E., O'Connor, F. M., Abraham, N. L., Akiyoshi, H., Archibald, A. T., Bekki, S., Butchart, N., Chipperfield, M. P., Deushi, M., Dhomse, S. S.,

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51. B.N. Duncan, A. I Prados, L. Lamsal, Y. Liu, D. Streets, P. Gupta, E. Hilsenrath, R. Kahn, JE Nielsen, A. Beyersdorf, S. Burton, AM Fiore, J Fishman, D Henze, C Hostetler, NA Krotkov, P. Lee, **M. Lin**, S. Pawson, G. Pfister, KE Pickering, B. Pierce, Y. Yoshida, L. Ziemba (2014), *Satellite data of atmospheric pollution for U.S. air quality applications: Examples of applications, summary of data end-user resources, answers to FAQs, and common mistakes to avoid.* Atmos. Environ., 94, 647–662, DOI: 10.1016/j.atmosenv.2014.05.061

52. Fiore, A.M., R. B. Pierce, R. Dickerson, **M. Lin** (2014). Detecting and attributing episodic high background ozone events. Environmental Manager
53. Lapina K., D. K. Henze, J. B. Milford, M. Huang, **M. Lin**, A. Fiore, G. Carmichael, G. G. Pfister and K. Bowman (2014), *Assessment of source contributions to seasonal vegetative exposure to ozone in the U.S.*, J. Geophys. Res., DOI: 10.1002/2013JD020905
54. Naik, V., Voulgarakis, A., Fiore, A. M., Horowitz, L. W., Lamarque, J.-F., **Lin, M.**, Prather, M. J. + 25 coauthors (2013): *Preindustrial to present-day changes in tropospheric hydroxyl radical and methane lifetime from the Atmospheric Chemistry and Climate Model Intercomparison Project (ACCMIP)*, Atmos. Chem. Phys., 13, 5277-5298, doi:10.5194/acp-13-5277-2013.
55. Fang, Y., A.M. Fiore, J.-F. Lamarque, L. W. Horowitz, and **M. Lin** (2013), *Using synthetic tracers as a proxy for summertime PM2.5 air quality over the Northeastern United States in physical climate models,* Geophys. Res. Lett., 40, 755–760, doi:10.1002/grl.50162.

Book Chapters and Reports (2)

Characterizing daily-to-yearly variability in sources of ozone in the Las Vegas area. Project report for The Clark County Department of Air Quality, Nevada, *submitted in fulfillment of the Memorandum of Agreement No. 604279 between Clark County, Nevada and Princeton University*

UN Task Force on Hemispheric Transport of Air Pollution (2010). **Meiyun Lin** served as a contributing author to *Chapter 4: "Global and Regional Modeling". In: Hemispheric Transport of Air Pollution 2010 (HTAP 2010) - Part A Ozone and Particulate Matter*, pp. 135-198, UNECE Air Pollution Studies No. 17 (ISSN 1014-4625), www.htap.org

Presentations

Dec 2024**, Oral Presentation at AGU Fall Meeting 2024**: Reactive nitrogen partitioning and pyrogenic VOCs enhance the contribution of Canadian wildfire plumes to US ozone air quality, Washington DC, USA

May 2024, **Oral Presentation at AGES+ workshop**: Reactive nitrogen partitioning enhances the contribution of Canadian wildfire plumes to US ozone air quality, Colorado, USA

April 2024, **Invited department seminar speaker at Rutgers University**: Earth system feedbacks on air quality in a changing climate, New Jersey

Dec 2023, **Oral Presentation at AGU Fall Meeting 2023**: The GFDL Variable-Resolution Global Chemistry-Climate Model for Research at the Nexus of US Climate and Air Quality Extremes

Sep 2023, **Invited Speaker at The Meteorology and Climate - Modeling for Air Quality Conference**: Understanding US drought - air quality linkages for seasonal prediction potential, UC-Davis, USA

May 2022, **Invited speaker at UC-Irvine Earth System Science Seminar**, Earth System Feedbacks to Air Quality Extremes in a Changing Climate.

Dec 2021, **AGU Press Conference**: Wildfire in changing climate (YouTube)

Dec 2021, **Oral Presentation at AGU Fall Meeting 2021** (A44E-03): A variable-resolution global chemistry-climate model for research at the nexus of US climate and air quality extremes.

Dec 2021, **Oral Presentation at AGU Fall Meeting 2021** (A32G-03): Ozone and particulate air pollution trends and extremes in China from 2000 to 2021: Quantifying the roles of regional emission controls, heterogenous chemistry, meteorology, and vegetation feedbacks.

Sep 2021, **International Global Atmospheric Chemistry 2021 Conference**: Vegetation feedbacks during drought exacerbate ozone air pollution extremes in Europe.

Nov 2020, **Invited Speaker for the 2020 Atmospheric Chemistry Mechanism (ACM) Conference**: How do vegetation feedbacks exacerbate ozone air pollution extremes in Europe, North America, and Asia?

Nov 2020, **Atmospheric Chemistry Mechanism (ACM) Conference**: Summer $PM_{2.5}$ pollution extremes caused by wildfires during 2017-2018 (Contributed).

May 2020, **EGU General Assembly**, Vegetation feedbacks during drought exacerbate ozone air pollution extremes in Europe.

Dec 2019, **AGU Fall Meeting 2019:** European ozone pollution extremes exacerbated by land-biosphere feedbacks in a drying climate.

Dec 2019, **AGU Fall Meeting 2019:** Sensitivity of ozone dry deposition to ecosystem-atmosphere interactions: A critical appraisal of observations and simulations

Nov 2019, **NOAA CPO ESSM workshop:** Land-biosphere feedbacks exacerbate climate penalty on air pollution extremes

Oct 2019, **GFDL External Lab Review:** Land-biosphere feedbacks on air quality

Feb 2019, **AAAS Annual Meeting – Science Transcending Boundaries**, **Washington DC**. Global dimensions of local air quality **(Invited)**

May 2018: **The National Academy of Sciences, Engineering, and Medicine, Board on Atmospheric Sciences and Climate:** Interannual variability in sources of U.S. background ozone and their connections with climate **(Invited)**

Feb 2018, **NOAA Climate Program Office Director Visit to GFDL:** *Heat waves, drought, and air quality.*

Feb 2018, **NOAA OAR's Director of Weather and Air Quality John Cortina's Visit to GFDL**: *Atmospheric chemistry and connection to Earth system modeling.*

Dec 2017, **Oral Presentation at AGU Fall Meeting, New Orleans:** U.S. surface ozone extremes and trends over 1980-2015: Quantifying the roles of rising Asian emissions, wildfires, biosphere-atmosphere couplings, and climate.

Nov 2017, **Fall 2017 GFDL Science Symposium:** Tropospheric Chemistry and Air Quality.

Aug 2017, **Congressional Staff Visit to GFDL**: Air Quality and Climate.

July 2017, **NOAA OAR Formulation and Congressional Analysis Division Brief:** Linking climate variability to surface ozone extremes and trends.

Apr 2017, **Presentation to Environmental Defense Fund:** Global Dimensions to U.S. Ozone Pollution: Implications for Air Quality Policy

Mar 2017. **Background Ozone Scientific Assessment Workshop, Denver, Colorado**: Processes controlling U.S. background ozone extremes and trends.

Oct 2016, **University of Toronto Noble Seminar Series**: *Linking climate variability to surface ozone trends and extremes* (***Invited***)

Sep 2016, Poster presentation at International Global Atmospheric Chemistry (IGAC) Project 2016 Science Conference

Apr 2016, **MIT Atmospheric Science Seminar:** *Climate versus emission drivers of ozone pollution trends and extremes* (***Invited***)

Apr 2016, **Harvard University Atmospheric Science Seminar**: *The roles of climate variability on U.S. surface ozone trends and extremes* (***Invited)***

Oct 2015**, IGAC/SPARC Chemistry Climate Model Initiative Workshop, Italy**: ***The Role of Climate, the Stratosphere, and Emissions on US Surface O_3 Trends and Extremes*** (***Invited***)

Sep 2015**, CARB/UC Davis Meteorology And Climate - Modeling for Air Quality (MAC-MAQ) Conference**: *Detecting changes in US background ozone means and extremes amidst climate variability* (***Invited***)

Aug 2015, **Western States Air Resources Council**. Key drivers of western US surface ozone means and extremes: Climate variability, stratospheric intrusions, and Asian pollution (**Invited seminar**)

May 2015, **HTAP: Modeling Air Quality from the Global to Local Scales, NCAR**: Establishing process-oriented constrains on global models for ozone source attribution: Lessons from GFDL AM3

May 2015, **Western Regional Air Partnership (WRAP), NCAR**: Key drivers of western US surface ozone variability over recent decades: Stratospheric intrusions, Asian pollution, and Climate variability (***Invited***)

Apr 2015, ***NASA AIRS Science Team Meeting, JPL, Pasadena***: Challenges in quantifying sources and variability of lower tropospheric ozone over western N. America: Perspectives from satellites and models (***Invited***)

Apr 2015, ***Yosemite Transboundary Ozone Pollution Conference:*** Quantifying Asian influence on Western U.S. surface ozone exceedances and long-term trends (***Invited***)

Feb 2015, ***CENRS Air Quality Research Subcommittee***: Key drivers of Western U.S. surface ozone variability over recent decades: Stratospheric intrusions, Asian pollution, and climate ***(Invited)***

Dec 2014, ***American Geophysical Union Fall Meeting***: Key drivers of Western U.S. surface ozone variability from 1980-2050: From extreme events to background trends ***(Invited)***

Dec 2014, ***American Geophysical Union Fall Meeting***: Role of climate variability on tropospheric ozone ***(Invited)***

June 2014, ***NASA Air Quality Applied Sciences Team (AQAST) Meeting***, Harvard University: Year-to-year variability in Western U.S. high-ozone events tied to stratospheric influence: Implications for seasonal prediction to aid regional air quality planning.

May 2014, IGAC/SPARC **Chemistry-Climate Model Initiative Workshop**, Lancaster, UK: Role of climate variability on tropospheric ozone variability and trends (***Invited***)

Dec 2013, **UN Task Force on Hemispheric Transport of Air Pollution (HTAP)**, San Francisco. Influence of decadal climate variability on hemispheric pollution transport.

Aug 2013, ***Hiram "Chip" Levy Symposium,*** Princeton: Footprints of decadal climate variability in ozone at Manna Loa Observatory

July 2013, **Western Regional Air Partnership (WRAP)**-*Western Air Quality Modeling Workshop*, Boulder: Asian and stratospheric influences on Western U.S. ozone variability and trends ***(Invited)***

Dec 2012, **American Geophysical Union (AGU) Fall Meeting 2012**, San Francisco: Developing space-based indicators of stratospheric influence on Western U.S. high surface ozone events

Nov 2012, ***NASA Sounder Science Team Meeting***, Maryland: Predicting Western U.S. high surface ozone events from Asian pollution and stratospheric intrusions: Exploration of AIRS Data ***(Invited)***

Oct 2012, ***Western States Air Resources Council (WESTAR)***-*Western Ozone Transport* Workshop, Nevada: Daily to decadal variability in sources of springtime surface ozone events over the western United States: stratospheric intrusions, Asian pollution, and fires ***(Invited)***

Oct 2012, ***NASA Aura Science Team Meeting***, Pasadena: Identifying and forecasting deep stratospheric ozone intrusions over the western United States from space ***(Invited)***

June 2012, ***NASA Air Quality Applied Sciences Team (AQAST) Meeting***, Wisconsin: Strong stratospheric influence on springtime surface high-O3 events over the western United States in spring: Not-so-rare events?

May 2012, ***California's South Coast Air Quality Management District (SCAQMD)***, Ontario: Global sources of local ozone pollution in Southern California ***(Invited)***

May 2012, ***NOAA Earth System Research Laboratory***, Chemical Science Division, Boulder: Background ozone over the United States in 1980-2010: origin, extremes, and long-term changes ***(Invited)***

Feb 2012, ***UN Task Force on Hemispheric Transport of Air Pollution (TF HTAP)***-*2011-2015 Work Plan Meeting, Pasadena*: Transport of Asian ozone pollution into surface air over the western United States in spring

Dec 2011, ***American Geophysical Union (AGU) Fall Meeting 2011***, San Francisco: Variability and changes in tropospheric ozone over the western United States (1980-2010): Exploring the roles of stratosphere-to-troposphere transport and El Nino-Southern Oscillation

Nov 2011, ***NASA AQAST Meeting, EPA Research Triangle Park***: Estimating background ozone and its specific components over the United States to support NAAQS-setting, implementation, and attainment planning,

Nov 2011, ***NASA AQAST Meeting, EPA Research Triangle Park***: Model Intercomparison of background ozone to inform NAAQS setting and implementation

Oct. 2011, ***NOAA Geophysical Fluid Dynamics Laboratory Science Symposium***, Princeton: Stratospheric impacts on ground-level ozone air quality over the western United States.

July 2011, ***NOAA Senior Research Council***, Princeton: Asian and stratospheric impacts on tropospheric ozone over western North America: means, extremes and the role of ENSO ***(Invited)***

Apr 2011, ***International Workshop on Tropospheric Ozone Changes,*** Toulouse, France: Trends and variability of tropospheric ozone at northern mid-latitudes in 1980-2010: Exploring the role of emissions, ENSO and STE

Dec 2010, **AGU Fall Meeting 2010**, San Francisco: Impacts of Asian emissions on ozone air quality over the western United States

Oct. 2009, **University of Tokyo**, **Institute of Industrial Science**, Japan: Connections between air pollution and the hydrological cycle

Oct. 2009, **Hong Kong Polytechnic University**, Hong Kong, China: Multi-scale model analysis of air pollution in Asia

Oct. 2009, **Acid Deposition Monitoring Network in East Asia (EANET)** - Regional Scientific Workshop, Japan: Multi-scale model analysis of EANET Data (***Invited***)

June 2009, **United Nations TF HTAP** - Linkages between regional and global modeling, air quality and climate change, Paris, France: Quantifying pollution inflow and outflow over East Asia through coupling regional and global models

Feb 2009, **International Institute for Applied Systems Analysis (IIASA)**, **Austria** - 11th workshop for Model Inter-Comparison Study for Asia: Inter-comparison of two regional atmospheric chemistry models (WRF-Chem and CMAQ) for East Asia

Nov 2008, **University of Wisconsin-Madison, Center for Climate Research** -Climate, People, and Environment Program Seminar: What controls the seasonality of boundary layer ozone in Asia?

Oct 2008, **United Nations TF HTAP**, **Vietnam**: Regional impacts of hemispheric air pollution transport

Feb 2008, **International Institute for Applied Systems Analysis (IIASA), Austria** -10th workshop for Model Inter-Comparison Study for Asia: Evaluating gaseous pollutants and source-receptor relationships for reactive nitrogen deposition in East Asia (***Invited***)