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CURRENT EMPLOYMENT

Research Physical Scientist, NOAA Chemical Sciences Laboratory, Boulder

EDUCATION

2001 Doctor of Philosophy, Department of Environmental Sciences, University of Virginia, Charlottesville
1997 Master of Science, Department of Environmental Sciences, University of Virginia, Charlottesville
1994 Bachelor of Science with Highest Honors and Distinction, Gillings School of Global Public Health -
 Major in Environmental Sciences and Engineering, University of North Carolina, Chapel Hill

WORK EXPERIENCE

2024 - Research Physical Scientist, NOAA Chemical Sciences Laboratory, Boulder
2016- 2024 Senior Research Scientist, Cooperative Institute for Research in Environmental Sciences (CIRES)
 University of Colorado Boulder/NOAA Chemical Sciences Laboratory, Boulder
2006-2016 Research Scientist III, Cooperative Institute for Research in Environmental Sciences (CIRES)
 University of Colorado Boulder /NOAA Earth System Research Laboratory, Boulder
2003-2006 Research Scientist II, Cooperative Institute for Research in Environmental Sciences (CIRES)
 University of Colorado Boulder /NOAA Earth System Research Laboratory, Boulder
2002-2003 Research Scientist I, Cooperative Institute for Research in Environmental Sciences (CIRES)
 University of Colorado Boulder /NOAA Aeronomy Laboratory, Boulder, Colorado
2001-2002 National Research Council Associate at the NOAA Aeronomy Laboratory, Boulder, Colorado.
1994-2001 Department of Environmental Sciences, University of Virginia, Graduate Student Research Assistant
 and Teaching Assistant
1994 Argonne National Laboratory, Energy Systems Division, Argonne, IL, Student Internship

RESEARCH INTERESTS

Application of polar orbiting and geostationary satellite products for air quality research; the impact of weather, climate and wildfires on air quality; trends in U.S. and global air quality; the global tropospheric ozone budget and trends

AWARDS

2020 CIRES Outstanding Performance Award, for initiating IGAC's Tropospheric Ozone Assessment Report
2015 2014 Editors' Citation for Excellence in Refereeing for JGR-Atmospheres
2007 NOAA OAR (Office of Atmospheric Research) Outstanding Scientific Paper Award
2007 2006 Editors' Citation for Excellence in Refereeing for JGR-Atmospheres
2001 Outstanding Student Paper Award, Spring Meeting, American Geophysical Union, Boston

PEER REVIEWED PUBLICATIONS

A total of 133 peer-reviewed publications with an h-index of 65, as compiled by Web of Science.

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131. **Cooper, O. R.**, J. R. Ziemke, and K.-L. Chang (2024): Tropospheric Ozone [in “State of the Climate in 2023”]. *Bull. Amer. Meteor. Soc.*, 105 (8), S94–S96, <https://doi.org/10.1175/BAMS-D-24-0116.1>
130. Chang, K.-L., **Cooper, O. R.**, Gaudel, A., Petropavlovskikh, I., Effertz, P., Morris, G., and McDonald, B. C. (2024), Technical note: Challenges in detecting free tropospheric ozone trends in a sparsely sampled environment, *Atmos. Chem. Phys.*, 24, 6197–6218, <https://doi.org/10.5194/acp-24-6197-2024>
129. Li, M., Kurokawa, J., Zhang, Q., Woo, J.-H., Morikawa, T., Chatani, S., Lu, Z., Song, Y., Geng, G., Hu, H., Kim, J., **Cooper, O. R.**, and McDonald, B. C. (2024), MIXv2: a long-term mosaic emission inventory for Asia (2010–2017), *Atmos. Chem. Phys.*, 24, 3925–3952, <https://doi.org/10.5194/acp-24-3925-2024>
128. Putero, D., Cristofanelli, P., Chang, K.-L., Dufour, G., Beachley, G., Couret, C., Effertz, P., Jaffe, D. A., Kubistin, D., Lynch, J., Petropavlovskikh, I., Puchalski, M., Sharac, T., Sive, B. C., Steinbacher, M., Torres, C., and **Cooper, O. R.** (2023), Fingerprints of the COVID-19 economic downturn and recovery on ozone anomalies at high-elevation sites in North America and western Europe, *Atmos. Chem. Phys.*, 23, 15693–15709, <https://doi.org/10.5194/acp-23-15693-2023>
127. Becker, J.S., M. N. DeLang, K.-L. Chang, M. L. Serre, **O. R. Cooper**, M. G. Schultz, S. Schröder, X. Lu, L. Zhang, M. Deushi, B. Josse, C. A. Keller, J.-F. Lamarque, M. Lin, J. Liu, V. Marécal, S. A. Strode, K. Sudo, S. Tilmes, L. Zhang, M. Brauer, J. J. West (2023), Using Regionalized Air Quality Model Performance and Bayesian Maximum Entropy data fusion to map global surface ozone concentration, *Elementa: Science of the Anthropocene*, 11(1). DOI: <https://doi.org/10.1525/elementa.2022.00025>
126. **Cooper, O. R.**, J. R. Ziemke, and K.-L. Chang (2023): Tropospheric Ozone [in “State of the Climate in 2022”]. *Bull. Amer. Meteor. Soc.*, 104 (9), S76–S78, <https://doi.org/10.1175/BAMS-D-23-0090.1>
125. Peischl, J., K. C. Aikin, B.C. McDonald, C. Harkins, A. M. Middlebrook, A. O. Langford, **O. R. Cooper**, K.-L. Chang, and S. S. Brown (2023), Quantifying anomalies of air pollutants in 9 U.S. cities during 2020 due to COVID-19 lockdowns and wildfires based on decadal trends, *Elem Sci Anth*, 11: 1. DOI: <https://doi.org/10.1525/elementa.2023.00029>
124. Chang, K.-L., **Cooper, O. R.**, Rodriguez, G., Iraci, L. T., Yates, E. L., Johnson, M. S., et al. (2023). Diverging ozone trends above western North America: Boundary layer decreases versus free tropospheric increases. *Journal of Geophysical Research: Atmospheres*, 128, e2022JD038090. <https://doi.org/10.1029/2022JD038090>
123. Malashock, Daniel A., Marissa N. Delang, Jacob S. Becker, Marc L. Serre, J. Jason West, Kai-Lan Chang, **Owen R. Cooper**, Susan C. Anenberg (2022), Global Trends in Ozone Concentration and Attributable Mortality for Urban, Peri-Urban and Rural Areas between 2000 and 2019: A Modelling Study, *The Lancet Planetary Health*, Volume 6, Issue 12, Pages E958–E967, [https://doi.org/10.1016/S2542-5196\(22\)00260-1](https://doi.org/10.1016/S2542-5196(22)00260-1)
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121. Wang, H., Lu, X., Jacob, D. J., **Cooper, O. R.**, Chang, K.-L., Li, K., Gao, M., Liu, Y., Sheng, B., Wu, K., Wu, T., Zhang, J., Sauvage, B., Nédélec, P., Blot, R., and Fan, S. (2022), Global tropospheric ozone trends, attributions, and radiative impacts in 1995–2017: an integrated analysis using aircraft (IAGOS) observations, ozonesonde, and multi-decadal chemical model simulations, *Atmos. Chem. Phys.*, 22, 13753–13782, <https://doi.org/10.5194/acp-22-13753-2022>

120. **Cooper, O. R.**, J. R. Ziemke, and K.-L. Chang (2022): Tropospheric Ozone [in "State of the Climate in 2021"]. *Bull. Amer. Meteor. Soc.* 103 (8), S96–S98, <https://doi.org/10.1175/BAMS-D-22-0092.1>
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118. Chang, K.-L., **O. R. Cooper**, A. Gaudel, M. Allaart, G. Ancellet, H. Clark, S. Godin-Beekmann, T. Leblanc, R. Van Malderen, P. Nédélec, I. Petropavlovskikh, W. Steinbrecht, R. Stübi, D. W. Tarasick, C. Torres (2022), Impact of the COVID-19 economic downturn on tropospheric ozone trends: an uncertainty weighted data synthesis for quantifying regional anomalies above western North America and Europe, *AGU Advances*, 3, e2021AV000542. <https://doi.org/10.1029/2021AV000542>
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114. DeLang, Marissa N., Jacob S. Becker, Kai-Lan Chang, Marc L. Serre, **Owen R. Cooper**, Martin G. Schultz, Sabine Schröder, Xiao Lu, Lin Zhang, Makoto Deushi, Beatrice Josse, Christoph A. Keller, Jean-François Lamarque, Meiyun Lin, Junhua Liu, Virginie Marécal, Sarah A. Strode, Kengo Sudo, Simone Tilmes, Li Zhang, Stephanie E. Cleland, Elyssa L. Collins, Michael Brauer, and J. Jason West (2021), 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*, DOI: 10.1021/acs.est.0c07742, <https://pubs.acs.org/doi/10.1021/acs.est.0c07742>
113. Steinbrecht, Wolfgang, Dagmar Kubistin, Christian Plass-Dülmer, Jonathan Davies, David W. Tarasick, Peter von der Gathen, Holger Deckelmann, Nis Jepsen, Rigel Kivi, Norrie Lyall, Matthias Palm, Justus Notholt, Bogumil Kois, Peter Oelsner, Marc Allaart, Ankie PETERS, Michael Gill, Roeland Van Malderen, Andy W. Delcloo, Ralf Sussmann, Emmanuel Mahieu, Christian Servais, Gonzague Romanens, Rene Stübi, Gerard Ancellet, Sophie Godin-Beekmann, Shoma Yamanouchi, Kimberly Strong, Bryan Johnson, Patrick Cullis, Irina Petropavlovskikh, James W. Hannigan, Jose-Luis Hernandez, Ana Diaz Rodriguez, Tatsumi Nakano, Fernando Chouza, Thierry Leblanc, Carlos Torres, Omaira Garcia, Amelie N. Röhlings, Matthias Schneider, Thomas Blumenstock, Matt Tully, Clare Paton-Walsh, Nicholas Jones, Richard Querel, Susan Strahan, Ryan M. Stauffer, Anne M. Thompson, Antje Inness, Richard Engelen, Kai-Lan Chang, **Owen R. Cooper** (2021), COVID-19 Crisis Reduces Free Tropospheric Ozone Across the Northern Hemisphere, *Geophysical Research Letters*, 48, e2020GL091987. <https://doi.org/10.1029/2020GL091987>
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108. Chang, K.-L., **O. R. Cooper**, A. Gaudel, I. Petropavlovskikh and V. Thouret (2020), Statistical regularization for trend detection: An integrated approach for detecting long-term trends from sparse tropospheric ozone profiles, *Atmos. Chem. Phys.*, 20, 9915–9938, <https://doi.org/10.5194/acp-20-9915-2020>
107. Gaudel, A., **O. R. Cooper**, K.-L. Chang, I. Bourgeois, J. R. Ziemke, S. A. Strode, L. D. Oman, P. Sellitto, P. Nédélec, R. Blot, V. Thouret, C. Granier (2020), Aircraft observations since the 1990s reveal increases of tropospheric ozone at multiple locations across the Northern Hemisphere. *Sci. Adv.* 6, eaba8272, DOI: 10.1126/sciadv.aba8272
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105. **Cooper, O. R.**, M. G. Schultz, S. Schröder, K.-L. Chang, A. Gaudel, G. Carbajal Benítez, E. Cuevas, M. Fröhlich, I. E. Galbally, D. Kubistin, X. Lu, A. McClure-Begley, S. Molloy, P. Nédélec, J. O'Brien, S. J. Oltmans, I. Petropavlovskikh, L. Ries, I. Senik, K. Sjöberg, S. Solberg, T. G. Spain, W. Spangl, M. Steinbacher, D. Tarasick, V. Thouret, X. Xu (2020), Multi-decadal surface ozone trends at globally distributed remote locations, *Elem Sci Anth*, 8(1), p.23. DOI: <http://doi.org/10.1525/elementa.420>
104. Tarasick, D. W., I. E. Galbally, **O. R. Cooper**, M. G. Schultz, G. Ancellet, T. Leblanc, T. J. Wallington, J. Ziemke, X. Liu, M. Steinbacher, J. Staehelin, C. Vigouroux, J. W. Hannigan, O. García, G. Foret, P. Zanis, E. Weatherhead, I. Petropavlovskikh, H. Worden, M. Osman, J. Liu, K.-L. Chang, A. Gaudel, M. Lin, M. Granados-Muñoz, A. M. Thompson, S. J. Oltmans, J. Cuesta, G. Dufour, V. Thouret, B. Hassler, T. Trickl and J. L. Neu (2019), Tropospheric Ozone Assessment Report: Tropospheric ozone from 1877 to 2016, observed levels, trends and uncertainties. *Elem Sci Anth*, 7(1), DOI: <http://doi.org/10.1525/elementa.376>
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95. Gaudel, A., **O. R. Cooper**, et al. (2018), Tropospheric Ozone Assessment Report: Present-day distribution and trends of tropospheric ozone relevant to climate and global atmospheric chemistry model evaluation, *Elem. Sci. Anth.*, 6(1):39, DOI: <https://doi.org/10.1525/elementa.291>
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91. Ziemke, J. R., and **O. R. Cooper** (2017): [Global Climate] Tropospheric Ozone [in "State of the Climate in 2016"]. *Bull. Amer. Meteor. Soc.*, 98 (8), S52-S54.

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ADDITIONAL PUBLICATIONS

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PROFESSIONAL ORGANIZATIONS

1997 - present	American Geophysical Union
1998 - present	American Meteorological Society
2003 – present	European Geophysical Union

November, 2024