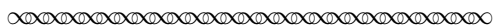


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Education

University of Washington, Chemistry	B.S. (2001)
University of Washington, Chemical Engineering	B.S. (2001)
California Institute of Technology, Chemical Engineering	M.S. (2004)
California Institute of Technology, Chemical Engineering	Ph.D. (2007)

Appointments

2020-	Professor of Mechanical Engineering, University of Colorado, Boulder.
2019-	Adjunct Research Scientist, Lamont-Doherty Earth Observatory, Columbia University.
2015-2020	Associate Professor of Mechanical Engineering, University of Colorado, Boulder.
2009-2015	Assistant Professor of Mechanical Engineering, University of Colorado, Boulder.
2007-2009	Earth Institute Postdoctoral Fellow, Columbia University, NASA GISS.
2007	Postdoctoral Scholar, California Institute of Technology.

Fellowships and Awards

2021	Outstanding Service Award <i>Department of Mechanical Engineering, CU Boulder</i>
2017-	S.P. Chip and Lori Johnson Faculty Fellowship <i>Department of Mechanical Engineering, CU Boulder</i>
2015	Outstanding Research Award <i>Department of Mechanical Engineering, CU Boulder</i>
2014	Provost's Faculty Achievement Award , <i>CU Boulder</i>
2013	Dean's Junior Faculty Performance Award <i>College of Engineering, CU Boulder</i>
2013	Woodward Outstanding Faculty Award <i>Department of Mechanical Engineering, CU Boulder</i>
2012-2015	Charles C. Gates Faculty Fellow <i>Department of Mechanical Engineering, CU Boulder</i>
2012	Outstanding Research Award <i>Department of Mechanical Engineering, CU Boulder</i>
2012	Sullivan-Carlson Innovation in Education Award <i>College of Engineering, CU Boulder</i>
2011	Outstanding Undergraduate Education Award <i>Department of Mechanical Engineering, CU Boulder</i>
2010	NASA New Investigator Program Grant
2009	EPA Early Career Grant
2007	Columbia University Earth Institute Postdoctoral Fellowship
2007	William and Sonya Davidow Graduate Fellow <i>Awarded to top graduate student in Environmental Science at Caltech.</i>
2002-2003	William H. Corcoran Memorial Fellowship for Chemical Engineering <i>Provided funding for first year of graduate studies.</i>

Peer-reviewed Publications (Henze group members underlined)

- 2022 Kleiman, G, Susan Anenberg, Z. Chafe, D. C. Appiah, T. Assefa, A. Bizberg, T. Coombes, D. Cuestas, **D. K. Henze**, A. Kessler, I. Kheirbek, P. Kinney, M. Mahlatji, J. D. Marshall, S. Naidoo, N. Potwana, A. Rodriguez, C. W. Tessum, C. Thomas, Enhanced integration of health, climate and air quality management planning at the urban scale, *submitted*.
- 2022 Tessum, M., S. Anenberg, Z. Chafe, **D. K. Henze**, G. Kleiman, I. Kheirbek, J. Marshall, C. Tessum, Sources of ambient PM_{2.5} exposure in 96 global cities, *submitted*.
- 2022 Qu, Z., **D. K. Henze**, H. M. Worden, Zhe Jiang, B. Gaubert, N. Theys, W. Wang, Sector-based top-down estimates of NO_x, SO₂, and CO emissions in East Asia, *Geophys. Res. Lett.*, 49, e2021GL096009, <https://doi.org/10.1029/2021GL096009>.
- 2022 Jiang, J., R. Zhu, K. Miyazaki, B. C. McDonald, Z. Klimont, B. Zheng, F. K. Boersma, Q. Zhang, H. Worden, J. R. Worden, **D. K. Henze**, D. B. A. Jones, K. F. Boersma, H. A.C. D. van der Gon, H. Eskes, Decadal variabilities in tropospheric nitrogen oxides over United States, Europe, and China, *J. Geophys. Res.*, 127, e2021JD035872, <https://doi.org/10.1029/2021JD035872>.
- 2022 Cao, H., **D. K. Henze**, K. Cady-Pereira, B. C. McDonald, C. Harkins, K. Sun, K. W. Bowman, T.-M. Fu, O. Nawaz, COVID-19 lockdowns afford the first satellite-based confirmation that vehicles are an under-recognized source of urban NH₃ pollution, *Environ. Sci. Technol. Lett.*, 9, 1 – 3, <https://doi.org/10.1021/acs.estlett.1c00730>.
- 2022 Lee, S., C. H. Song, K. M. Han, **D. K. Henze**, K. Lee, J. Yu, J.-H. Woo, J. Jung, Y. Choi, P. E. Saide, G. R. Carmichael, Impacts of uncertainties in emissions on aerosol data assimilation and short-term PM_{2.5} predictions over Northeast Asia, *Atmos. Environ.*, 271, 118921, <https://doi.org/10.1016/j.atmosenv.2021.118921>.
- 2022 Choi, J., **D. K. Henze**, H. Cao, C. R. Nowlan, G. González Abad, H.-A. Kwon, H.-M. Lee, Y. J. Oak, R. J. Park, K. H. Bates, J. D. Maasackers, A. Wisthaler, A. J. Weinheimer, An inversion framework for optimizing non-methane VOC emissions using remote sensing and airborne observations in Northeast Asia during the KORUS-AQ field campaign, *submitted*.
- 2022 Cao, H., **D. K. Henze**, L. Zhu, M. W. Shephard, K. Cady-Pereira, E. Dammers, M. Sitewell, M. Alvarado, C. Lonsdale, J. Bash, K. Miyazaki, C. Flechard, Y. Fauvel, R. W. Kruit, S. Feigenspan, C. Brümmer, F. Schrader, M. M. Twigg, Y. S. Tang, A. C. M. Stephens, K. Vincent, M. Meier, E. Seidler, C. Geels, T. Ellermann, S. L. Capps, 4D-Var inversion of European NH₃ emissions using CrIS NH₃ measurements and GEOS-Chem adjoint with bi-directional and uni-directional flux schemes, *submitted*.
- 2021 Nawaz, M. O., **D. K. Henze**, C. Harkins, H. Cao, B. Nault, D. Jo, J. Jimenez, S.C. Anenberg, D.L. Goldberg, Z. Qu, Impacts of sectoral, regional, species, and day-specific emissions on air pollution and public health in Washington DC, *in press*, 9 (1), 00043, <https://doi.org/10.1525/elementa.2021.00043>.
- 2021 Yu, X., D. B. Millet, and **D. K. Henze**, How well can inverse analyses of high-resolution satellite data resolve heterogeneous methane fluxes? *Geosci. Model Dev.*, 14, 7775–7793, 2021 <https://doi.org/10.5194/gmd-14-7775-2021>.
- 2021 Li, M., B. C. McDonald, S. A. McKeen, H. Eskes, P. Levelt, C. Francoeur, C. Harkins, J. He, M. Barth, **D. K. Henze**, M. M. Bela, M. Trainer, J. A. de Gouw, G. J. Frost, Assessment of updated Fuel-based emissions inventories over the contiguous United States using TROPOMI NO₂ retrievals, *J. Geophys. Res.*, 126, e2021JD035484, <https://doi.org/10.1029/2021JD035484>.
- 2021 Chen, Y., L. Zhang, **D. K. Henze**, Y. Zhao, X. Lu, W. Winiwarter, Y. Guo, X. Liu, Z. Wen, Y. Pan, Y. Song, Interannual variation of reactive nitrogen emissions and their impacts on PM_{2.5} air pollution in China during 2005-2015, *Environ. Res. Lett.*, 16, 125004, <https://doi.org/10.1088/1748-9326/ac3695>.

- 2021 Malley, C. S., W. K. Hicks, J. C. I. Kulyenstierna, E. Michalopoulou, A. Molotoks, J. Slater, C. G Heaps, S. Ulloa, J. Veysey, D. T. Shindell, **D. K. Henze**, O. Nawaz, S. C. Anenberg, B. Mantlana, T. P. Robinson, Integrated assessment of global climate, air pollution, and dietary, malnutrition and obesity health impacts of food production and consumption between 2014 and 2018, *Environ. Res. Commun.*, 3, 075001, <https://doi.org/10.1088/2515-7620/ac0af9>.
- 2021 Stanevich, I., D. B. A. Jones, K. Strong, M. Keller, **D. K. Henze**, R. J. Parker, H. Boesch, D. Wunch, J. Notholt, C. Petri, T. Warneke, R. Sussmann, M. Schneider, F. Hase, R. Kivi, N. M. Deutscher, V. A. Velazco, K. A. Walker, F. Deng, Characterizing model errors in chemical transport modelling of methane: Using GOSAT XCH4 data with weak constraint four-dimensional variational data assimilation, *Atmos. Chem. Phys.*, 9545–9572, <https://doi.org/10.5194/acp-21-9545-2021>.
- 2021 Laughner, J. L., J. L. Neu, D. Schimel, P. O. Wennberg, K. Barsanti, K. Bowman, A. Chatterjee, B. Croes, H. Fitzmaurice, **D. K. Henze**, J. Kim, E. A. Kort, Z. Liu, K. Miyazaki, A. J. Turner, S. Anenberg, J. Avise, H. Cao, D. Crisp, J. de Gouw, A. Eldering, J. C. Fyfe, D. L. Goldberg, K. R. Gurney, S. Hasheminassab, F. Hopkins, C. E. Ivey, D. B.A. Jones, N. S. Lovenduski, R. V. Martin, B. A. McKinley, L. Ott, B. Poulter, M. Rua, S. P. Sander, N. Swart, Y. L. Yung, Z.-C. Zeng, and the rest of the Keck Institute for Space Studies “COVID-19: Identifying Unique Opportunities for Earth System Science” study team, Societal shifts due to COVID-19 reveal large-scale complexities and feedbacks between atmospheric chemistry and climate change, *Proc. Nat. Acad. Soc.*, 118 (46), <https://doi.org/10.1073/pnas.2109481118>.
- 2021 Yu, X., D. B. Millet, K. C. Wells, **D. K. Henze**, H. Cao, T. J. Griffis, E. A. Kort, G. Plant, M. J. Deventer, R. K. Kolka, D. T. Roman, K. J. Davis, A. R. Desai, B. C. Baier, K. McKain, A. C. Czarnetzki, A. A. Bloom, Aircraft-based inversions quantify the importance of wetlands and livestock for Upper Midwest methane emissions, *Atmos. Chem. Phys.*, 21, 951–971, <https://doi.org/10.5194/acp-21-951-2021>.
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- 2021 Wang, X., T.-M. Fu, L. Zhang, H. Cao, Q. Zhang, H. Ma, L. Shen, M. Evans, P. Ivatt, X. Lu, Y. Chen, X. Yang, L. Zhu, **D. K. Henze**, Sensitivities of ozone air pollution in the Beijing-Tianjin-Hebei area to local and upwind precursor emissions using adjoint modeling, *Environ. Sci. Technol.*, 55, 9, 5752–5762, <https://doi.org/10.1021/acs.est.1c00131>.
- 2021 Holloway, T., D. Miller, S. Anenberg, M. Diao, B. Duncan, A. Fiore, **D. K. Henze**, J. Hess, P. Kinney, Y. Liu, J. Neu, S. O’Neill, R. B. Pierce, A. Russell, D. Tong, J. J. West, M. Zondlo, Satellite monitoring for air quality and health, *Ann. Rev. Biomed. Data Sci.*, 4, 417-447, <https://doi.org/10.1146/annurev-biodatasci-110920-093120>.
- 2021 Chen, Y., H. Shen, J. Kaiser, Y. Hu, S. L. Capps, S. Zhao, A. Hakami, J.-S. Shih, G. K. Pavur, M. G. Russell, M. D. Turner, **D. K. Henze**, P. B. Percell, J. Resler, A. Nenes, A. J. Pappin, S. L. Napelenok, J. O. Bash, K. M. Fahey, G. R. Carmichael, C. O. Stanier, T. Chai, L. Clarisse, P.-F. Coheur, M. Van Damme, A. G. Russell, High-resolution hybrid inversion of IASI ammonia columns to constrain U.S. ammonia emissions using the CMAQ adjoint model, *Atmos. Chem. Phys.*, 21, 2067–2082, <https://doi.org/10.5194/acp-21-2067-2021>.
- 2021 Nault, B. A., D. S. Jo, B. C. McDonald, P. Campuzano-Jost, D. A. Day, W. Hu, J. C. Schroder, J. Allan, D. R. Blake, M. R. Canagaratna, H. Coe, M. M. Coggon, P. F. DeCarlo, G. S. Diskin, R. Dunmore, F. Flocke, A. Fried, J. B. Gilman, G. Gkatzelis, J. F. Hamilton, T. F. Hanisco, P. L. Hayes, **D. K. Henze**, A. Hodzic, J. Hopkins, M. Hu, L. G. Huey, B. T. Jobson, W. C. Kuster, A. Lewis, M. Li, J. Liao, M. Omar Nawaz, I. B. Pollack, J. Peischl, B. Rappenglück, C. E. Reeves, D. Richter, J. M. Roberts, T. B. Ryerson, M. Shao, J. M. Sommers, J. Walega, C. Warneke, P. Weibring, G. M. Wolfe, D. E. Young, B. Yuan, Q. Zhang, J. A. de Gouw, and J. L. Jimenez, Anthropogenic secondary organic aerosols contribute substantially to air pollution mortality, *Atmos. Chem. Phys.*, 21, 11201–11224, <https://doi.org/10.5194/acp-21-11201-2021>.

- 2021 Zhao, N., X. Dong, K. Huang, J. S. Fu, M. T. Lund, K. Sudo, **D. K. Henze**, T. Kucsera, Y. F. Lam, M. Chin, S. Tilmes, Responses of Arctic Black Carbon and Surface Temperature to Multi-Region Emission Reductions: an HTAP2 Ensemble Modeling Study, *Atmos. Chem. Phys.*, 21, 8637–8654, <https://doi.org/10.5194/acp-21-8637-2021>.
- 2021 Chen, Z., J. Liu, **D. K. Henze**, D. N. Huntzinger, K. C. Wells, S. Sitch, P. Friedlingstein, E. Joetzier, V. Bastrikov, D. S. Goll, V. Haverd, A. K. Jain, E. Kato, S. Lienert, D. L. Lombardozzi, P.C. McGuire, J. R. Melton, J. E. M. S. Nabel, B. Poulter, H. Tian, A. J. Wiltshire, S. Zaehle, S. M. Miller, Linking global terrestrial CO₂ fluxes and environmental drivers: inferences from the Orbiting Carbon Observatory 2 satellite and terrestrial biospheric models, *Atmos. Chem. Phys.*, 21, 6663–6680, <https://doi.org/10.5194/acp-21-6663-2021>.
- 2021 Harkins, C., B. C. McDonald, **D. K. Henze**, and C. Wiedinmyer, A fuel-based method for updating mobile source emissions during the COVID-19 pandemic *Environ. Res. Lett.*, 16, 065018, <http://dx.doi.org/10.1088/1748-9326/ac0660>.
- 2021 Lyu, C., S. L. Capps, K. Kurashima, **D. K. Henze**, G. Pierce, A. Hakami, S. Zhao, J. Resler, G. R. Carmichael, A. Sandu, A. G. Russell, G. Chai, J. Milford, Evaluating oil and gas contributions to ambient nonmethane hydrocarbon mixing ratios and ozone-related metrics in the Colorado Front Range, *Atmos. Environ.*, 246(11):118113, <https://doi.org/10.1016/j.atmosenv.2020.118113>.
- 2020 Fritz, T. I. Dedoussi, S. Eastham, R. Speth, **D. K. Henze**, S. Barrett, Identifying the ozone-neutral aircraft cruise altitude, *submitted*.
- 2020 Qu, Z., **D. K. Henze**, O. R. Cooper, and J. L. Neu, Impacts of global NO_x inversions on NO₂ and ozone simulations, *Atmos. Chem. Phys.*, 20, 13109–13130, <https://doi.org/10.5194/acp-20-13109-2020>.
- 2020 Cao, H., **D. K. Henze**, M. W. Shephard, E. Dammers, K. Cady-Pereira, M. Alvarado, C. Lonsdale, G. Luo, F. Yu, L. Zhu, C. G. Danielson, E. S. Edgerton, Inverse modeling of NH₃ sources using CrIS remote sensing measurements, *Environ. Res. Lett.*, 15, 104082.
- 2020 Elguindi, N., C. Granier, T. Stavrou, S. Darras, M. Bauwens, H. Cao, C. Chen, H.A.C. Denier van der Gon, O. Dubovik, T. M. Fu, **D. K. Henze**, Z. Jiang, J. J. P. Kuenen, J. Kurokawa, C. Liousse, K. Miyazaki, J.-F. Müller, Z. Qu, K. Sekou, F. Solmon, B. Zheng, Intercomparison of magnitudes and trends in anthropogenic surface emissions from bottom-up inventories, top-down estimates, and emission scenarios, *Earth's Future*, 8 (8), <https://doi.org/10.1029/2020EF001520>.
- 2020 Zheng, Y., J. A. Thornton, N. L. Ng, H. Cao, **D. K. Henze**, E. E. McDuffie, W. Hu, J. L. Jimenez, E. A. Marais, E. Edgerton, J. Mao, Long-term observational constraints of organic aerosol dependence on inorganic species in the southeast US, *Atmos. Chem. Phys.*, 20, 13091–13107, <https://doi.org/10.5194/acp-20-13091-2020>.
- 2020 Kuylenstierna, J. C. I., C. G. Heaps, T. Ahmed, H. W. Vallack, W. K. Hicks, M. R. Ashmore, C. S. Malley, G. Wang, E. N. Lefevre, S. C. Anenberg, F. Lacey, D. T. Shindell, U. Bhattacharjee, **D. K. Henze**, Development of the Low Emissions Analysis Platform – Integrated Benefits Calculator (LEAP-IBC) tool to assess air quality and climate co-benefits: Application for Bangladesh, *Environ. Int.*, 145, 106155, <https://doi.org/10.1016/j.envint.2020.106155>.
- 2020 Anenberg, S. C., M. Bindl, M. Brauer, J. J. Castillo, S. Cavalieri, B. N. Duncan, A. M. Fiore, R. Fuller, D. L. Goldberg, **D. K. Henze**, J. Hess, T. Holloway, P. James, X. Jin, I. Kheirbek, P. L. Kinney, Y. Liu, A. Mohegh, J. Patz, M. Pescador-Jimenez, A. Roy, D. Tong, K. Walker, N. Watts, J. J. West, Using satellites to track indicators of global air pollution and climate change impacts: Lessons learned from a NASA-supported science-stakeholder collaborative, *Geo. Health*, 4 (7), <https://doi.org/10.1029/2020GH000270>
- 2020 Mao, Y. H., X. C. Zhao, H. Liao, **D. K. Henze**, H. Cao, L. Zhang, J. Li, L. Ran, Q. Zhang, J. D. Li, Sources of black carbon during severe haze events in the Beijing-Tianjin-Hebei region using the adjoint method, *Sci. Tot. Environ.*, 740 (20), 140149, <https://doi.org/10.1016/j.scitotenv.2020.140149>.

- 2020 Brown, K. E., **D. K. Henze** and J. B. Milford, Comparing health benefit calculations for alternative energy futures, *Air Qual. Atmos. & Health*, 13, 773–787, <https://doi.org/10.1007/s11869-020-00840-8>.
- 2020 Nawaz, M. O., and **D. K. Henze**, Premature deaths in Brazil associated with long-term exposure to PM_{2.5} from Amazon fires between 2016–2019, *Geo Health*, 4, e2020GH000268, <https://doi.org/10.1029/2020GH000268>.
- 2020 Pfister, G. G., S. D. Eastham, A. F. Arellano, B. Aumont, K. C. Barsanti, M. C. Barth, A. Conley, N. A. Davis, L. K. Emmons, J. D. Fast, A. M. Fiore, B. Gaubert, S. Goldhaber, C. Granier, G. A. Grell, M. Guevara, **D. K. Henze**, A. Hodzic, X. Liu, D. R. Marsh, J. J. Orlando, J. M. C. Plane, L. M. Polvani, K. H. Rosenlof, A. L. Steiner, D. J. Jacob, Guy P. Brasseur, The Multi-Scale Infrastructure for Chemistry and Aerosols (MUSICA) *Bull. Am. Meteorol. Soc.*, 101 (10), E1743–E1760, <https://doi.org/10.1175/BAMS-D-19-0331.1>
- 2020 Bousserez, N., J. J. Guerrette, **D. K. Henze**, Enhanced parallelization of the incremental 4D-Var data assimilation algorithm using the Randomized Incremental Optimal Technique (RIOT), *Q. J. R. Meteorol Soc*, 146, 1351–1371, <https://doi.org/10.1002/qj.3740>.
- 2020 Nakarmi, A., B. Sharma, U. S. Rajbhandari, A. Prajapati, C. S. Malley, J. C. I. Kuylenstierna, H. W. Vallack, **D. K. Henze**, A. Panday, Mitigating the impacts of air pollutants in Nepal and climate co-benefits: A scenario-based approach, *Air Qual. Atmos. & Health*, 13, 361–370.
- 2020 Cooper, M. J., R. V. Martin, **D. K. Henze**, and D. B. A. Jones, Effects of a priori profile shape assumptions on comparisons between satellite NO₂ columns and model simulations, *Atmos. Chem. Phys.*, 20, 7231–7241, <https://doi.org/10.5194/acp-20-7231-2020>.
- 2020 Hammer, M. S., A. van Donkelaar, A., C. Li, A. Lyapustin, A. M. Sayer, N. C. Hsu, R. C. Levy, M. J. Garay, O. V. Kalashnikova, R. A. Kahn, M. Brauer, J. S. Apte, **D. K. Henze**, L. Zhang, Q. Zhang, B. Ford, J. R. Pierce, R. V. Martin, R. V., Global Estimates and long-term trends of fine particulate matter concentrations (1998–2018), *Environ. Sci. Technol.*, doi:10.1021/acs.est.0c01764.
- 2020 Wang, Y., J. Wang, X. Xu, **D. K. Henze**, Z. Qu, Inverse modeling of SO₂ and NO_x emissions over China using multi-sensor satellite data: 1. formulation and sensitivity analysis, *Atmos. Chem. Phys.*, 20, 6631–6650, <https://doi.org/10.5194/acp-20-6631-2020>.
- 2020 Wang, Y., J. Wang, M. Zhou, **D. K. Henze**, C. Ge, W. Wang, Inverse modeling of SO₂ and NO_x emissions over China using multi-sensor satellite data: 2. Downscaling techniques for air quality analysis and forecasts, *Atmos. Chem. Phys.*, 20, 6651–6670, <https://doi.org/10.5194/acp-20-6651-2020>.
- 2020 Zhao, S., M. G. Russell, A. Hakami, S. L. Capps, M. D. Turner, **D. K. Henze**, P. B. Percell, J. Resler, H. Shen, A. G. Russell, A. Nenes, A. J. Pappin, S. L. Napelenok, J. O. Bash, K. M. Fahey, G. R. Carmichael, C. O. Stanier, C. O., T. Chai, A multiphase CMAQ version 5.0 adjoint, *Geosci. Model Dev.*, 13, 2925–2944, <https://doi.org/10.5194/gmd-13-2925-2020>.
- 2019 Lyu, C., S. L. Capps, A. Hakami, S. Zhao, J. Resler, G. R. Carmichael, A. Sandu, A. G. Russell, T. Chai, **D. K. Henze**, Elucidating emissions control strategies for ozone to protect human health and public welfare within the continental United States, *Environ. Res. Lett.*, 14, 124093, <https://doi.org/10.1088/1748-9326/ab5e05>.
- 2019 Chen, C., O. Dubovik, **D. K. Henze**, M. Chin, T. Lapyonak, G. L. Schuster, F. Ducos, D. Fuertes, P. Litvinov, L. Li, A. Lopatin, Q. Hu, B. Torres, Constraining global aerosol emissions using POLDER/PARASOL satellite remote sensing observations, *Atmos. Chem. Phys.*, 19, 14585–14606, <https://doi.org/10.5194/acp-19-14585-2019>.
- 2019 Zhao, H., Q. Zhang, S. J. Davis, X. Li, Y. Liu, G. Geng, M. Li, B. Zheng, H. Huo, L. Zhang, **D. K. Henze**, K. He, Inequality of household consumption and air pollution deaths in China, *Nature Com.*, 10, 10, 4337, <https://doi.org/10.1038/s41467-019-12254-x>.

- 2019 Philip, S., M. S. Johnson, C. Potter, V. Genovesse, D. F. Baker, K. D. Haynes, **D. K. Henze**, J. Liu, B. Poulter, Prior biosphere model impact on global terrestrial CO₂ fluxes estimated, *Atmos. Chem. Phys.*, 19, 13267–13287, <https://doi.org/10.5194/acp-19-13267-2019>.
- 2019 Diao, M., T. Holloway, S. Choi, S. M. O'Neill, M. Z. Al-Hamdan, A. van Donkelaar, R. V. Martin, X. Jin, A. M. Fiore, **D. K. Henze**, F. Lacey, P. L. Kinney, F. Freedman, N. K. Larkin, Y. Zou, A. Vaidyanathan, Methods, availability, and applications of PM_{2.5} exposure estimates derived from ground measurements, satellite, and atmospheric models, *J. A. & W. M. A.*, <https://doi.org/10.1080/10962247.2019.1668498>.
- 2019 Anenberg, S. C., P. Achakulwisut, M. Brauer, D. Moran, J. S. Apte, **D. K. Henze**, Particulate matter-attributable mortality and relationships with carbon dioxide in 250 urban areas worldwide, *Sci. Reports*, 9 (11552), <https://doi.org/10.1038/s41598-019-48057-9>.
- 2019 Yi, K., J. Meng, H. Yang, C. He, **D. K. Henze**, J. Liu, D. Guan, Z. Liu, L. Zhang, X. Zhu, Y. Cheng, S. Tao, The cascade of global trade to large climate forcing over the Tibetan Plateau glaciers, *Nature Com.*, 10, 3281, <https://doi.org/10.1038/s41467-019-10876-9>.
- 2019 Zhang, X., D. B. A. Jones, M. Keller, T. W. Walker, Z. Jiang, **D. K. Henze**, H. M. Worden, A. E. Bourassa, D.A. Degenstein, Y. J. Rochon, S. Wofsy, Quantifying emissions of CO and NO_x using observations from MOPITT, OMI, TES, and OSIRIS, *J. Geophys. Res.*, 124, 1170–1193, <https://doi.org/10.1029/2018JD028670>.
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Books and additional publications

- 2021 Sandu, A., **D. K. Henze**, and G. Carmichael, *Dynamic Data Assimilation for Atmospheric Composition: Advances and Perspectives*, in DDDAS-Book-II – Handbook on Dynamic Data Drive Application Systems (DDDAS) (Vol. II), *submitted*.
- 2020 Saide, P., **D. K. Henze**, A. Benedetti, M. Bocquet, G. Carmichael, A. da Silva, A. Inness, L. Johansson, A. Karppinen, M. Pagowski, A. Sandu, M. Sofiev, Y. Zhang, *Bias Correction and Forecast Skill Improvement Methods*, Ch. 10 of Training Materials and Best Practices for Chemical Weather/Air Quality Forecasting, World Meteorological Organization (WMO), ETR- No. 26.
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- 2016 **Henze, D. K.**, *Source-apportionment methods*, in Using Satellite Data for Air Quality Management, Ed. M. Estes, <https://aqast.wisc.edu/source-apportionment-methods.htm>
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Professional Societies and Service

- 2019 Co-Chair session *Data Assimilation and Inverse Modeling of the Atmospheric Composition Applications*, AGU Fall Meeting, San Francisco, CA.
- 2019 Co-Chair session *Systems Approach to a Clean Environment*, EU-US, National Academy of Science Frontiers of Engineering Symposium, Stockholm, Sweden, Nov 18-20.
- 2019 Co-Chair sessions *Data Assimilation and Inverse Modeling* and *New and Innovative Modeling Techniques: Machine Learning, New Computational Methods/GPUs, Exposure Estimate Improvement, Data Simulation*, Meteorology and Climate - Modeling for Air Quality (MAC-MAQ), Davis, CA, Sep 11 - 13.

- 2019- Analysis of Emissions Using Observations (AMIGO) Steering Committee
- 2019- Multi-scale Chemistry Modeling (MUSICA) Advisory Panel Member and Evaluation and Data Assimilation Working Group Co-Chair.
- 2018 Co-Chair session *Data Assimilation and Inverse Modeling of the Atmospheric Composition Applications*, AGU Fall Meeting, Washington D. C.
- 2017 Co-Chair session *Data Assimilation and Inverse Modeling of the Atmospheric Composition Applications*, AGU Fall Meeting, New Orleans, LA.
- 2017- NASA Earth Science Advisory Committee
- 2016 Co-Chair session *Data Assimilation and Inverse Modeling of the Atmospheric Composition Applications*, AGU Fall Meeting, San Francisco, CA.
- 2015-2021 US EPA Clean Air Scientific Advisory Committee (CASAC) for secondary SO_x/NO_x standards.
- 2015 Co-Chair session *Data Assimilation and Inverse Modeling for Atmospheric Composition Applications*, AGU Fall Meeting, San Francisco, CA.
- 2014 Co-Chair session *Energy and Climate*, CMAS Conference, Chapel Hill, NC, Oct 27 - 29.
- 2014 Participant in WHO Expert Workshop on Integrated Health Assessment Tools, Bonn, May 11 - 14.
- 2012- Work Package Lead 2.6: *Comparison of source-receptor and source-attribution methods*, United Nations Task Force on Hemispheric Transport of Atmospheric Pollutants (HTAP).
- 2011 Organizing Committee and session Co-Chair (Aerosol Thermodynamics and Dynamics), International Aerosol Modeling Algorithms Conference, Davis, CA, Nov 30 - Dec 2.
- 2011-2018 Co-chair Emissions Working Group for GEO-CAPE Science Team.
- 2010 Co-Chair session *Measuring Earth-Atmosphere Fluxes and Tropospheric Composition from Space*, AGU Fall Meeting, San Francisco, CA.
- 2009- GEOS-Chem Adjoint Model Scientist and member of GEOS-Chem Steering Committee.
- 2009, 2011, 2013, 2015, 2017, 2019 Co-Chair adjoint modeling sessions at the GEOS-Chem Users' Meetings, Cambridge, MA.
- 2005- Member of American Geophysical Union (AGU).

University Service

- 2022- Mechanical Engineering Associate Chair and Graduate Program Chair
- 2021 Mechanical Engineering Diversity Equity and Inclusion Action Grants review committee.
- 2020-2021 Mechanical Engineering Associate Chair and Undergraduate Program Chair
- 2020- Mechanical Engineering Executive Committee
- 2020-2021 Diversity, Equity, and Inclusion Committee
- 2018-2020 Mechanical Engineering Undergraduate Committee
- 2018 Fluid Dynamics Preliminary Exam Committee
- 2017-2018 College of Engineering Search Committee (Robotics and Controls)
- 2017-2019 Mechanical Engineering Personnel Committee

2017 Fluid Dynamics Preliminary Exam Committee

2015-2016 Mechanical Engineering Associate Chair and Undergraduate Program Chair

2015 Staff Search Committee Chair (Instructor)

2015 Staff Search Committee Chair (Undergraduate Advisor)

2015 Fluid Dynamics Preliminary Exam Committee

2014-2016 Mechanical Engineering Executive Committee

2014 Faculty Search Committee (Fluids)

2014 Staff Search Committee (Undergraduate Advisor)

2013 Staff Search Committee (Financial Manager)

2012-2015 Chair of Undergraduate Student Affairs and Professionalism Subcommittee

2012 Fluid Dynamics and Air Quality Preliminary Exam Committees

2012 Faculty Search Committee (Fluids)

2011 Fluid Dynamics and Air Quality Preliminary Exam Committees

2010-2012 Student Affairs and Professionalism Subcommittee

2010 Undergraduate Curriculum and Assessment Subcommittee

2010 Fluid Dynamics Preliminary Exam Committee

2009 Graduate Committee

Research Advisors

2007-2009 Earth Institute Postdoctoral Fellow, Columbia University, NASA GISS. Advisor: Dr. Drew Shindell.

2007 Postdoctoral Scholar, California Institute of Technology. Advisor: Prof. John H. Seinfeld.

2007 Ph.D., California Institute of Technology. Advisor: Prof. John H. Seinfeld.

Additional Thesis Committee members: Prof. Richard Flagan (Caltech), Prof. Tapio Schneider (Caltech), Prof. Qinbin Li (UCLA).

Research Mentees

Postdocs Dr. Hansen Cao
 Dr. William Tsui
 Dr. Yixuan Gu (co-advised remotely, with Dr. Ulrich Wagner, Mannheim University)

PhD Omar Nawaz
 Jinkyul Choi
 Chia-Hua Hsu
 Worapop Thongsame
 Colby Francoeur
 Xueying Yu (co-advised remotely, with Dr. Dylan Millet at University of Minnesota)

BS Benjamin Sapper-Worden

Staff Yanko Davila, Scientific Programmer, part-time
 Colin Lee, Research Scholar, part-time
 Corey Trujillo, System Admin, part-time

Alumni

Dr. Zhen Qu (Ph.D. 2019, next a Postdoc at Harvard)
Dr. Nicolas Bousserez (Postdoc 2011-2018, next a research scientist at ECMWF)
Dr. Azadeh Keshavarzmohammadian (PhD 2018)
Dr. Jonathan Guerrette (Ph.D. 2016, next a Postdoc at NOAA)
Dr. Sojin Lee (Postdoc 2017 - 2018)
Dr. Shannon Capps (Postdoc 2014 - 2016, co-advised with J. Milford, next an Assistant Professor at Drexel University)
Dr. Forrest Lacey (Ph.D. 2016, next a Postdoc at NCAR)
Dr. Hyungmin Lee (Ph.D. 2016, next a Postdoc at Seoul National University)
Dr. Kristen Brown (Ph.D. 2016, next a Postdoc at US EPA)
Dr. Li Zhang (Postdoc 2012 - 2016, next a Research Scientist at NOAA)
Dr. Kateryna Lapina (Postdoc 2011 - 2015, co-advised with J. Milford)
Dr. Brian Meland (Postdoc 2011-2013, next at CU Denver)
Dr. Gill-Ran Jeong (Postdoc 2010-2012, next a Research Scientist at KIAPS)
Dr. Matthew Turner (Ph.D. 2015, next a Postdoc at NRL)
Dr. Juliet (Lye) Zhu (Ph.D. 2014, next a Postdoc at CSU)
Colin Harkins (MS 2021, next a Research Associate at NOAA)
Ping Kang (visiting Ph.D. fellow from Wuhan University, 2014-2015)
Youfan Chen (visiting Ph.D. fellow from Peking University, 2018 - 2019)
Siyuan Shen (visiting undergraduate research fellow from Peking University, 2019)
Brigitte Rooney (Undergraduate researcher, Discovery Learning Apprentices, 2012-2013, next a graduate student at Caltech)
Carl Hussman (Scientific programmer 2013-2014)
Joseph Parks (Undergraduate researcher, 2012-2014)
Andre Perkins (BS, SOARS Protege, 2012-2013, now a graduate student at University of Washington)
Alexander J. Turner (Undergraduate researcher and Discovery Learning Apprentice 2010-2012, next a graduate student at Harvard University)
Steven Vogel (Undergraduate researcher 2012, next a graduate student at Stanford University)
Michael Seltzer (High school research intern 2013-2014, next an undergraduate student at Tufts University)

Other

Shanon Reckinger, PhD Comprehensive Exam 2010, PhD Committee 2011
Dave Makhija, PhD Comprehensive Exam 2010, PhD Committee 2013
Christopher Lang, PhD Preliminary Exam 2010
Sebastian Kreissl, PhD Committee 2011
Ingrid Ulbrich, PhD Committee 2011
Carlos Hernan Villanueva, PhD Preliminary Exam 2012
Eric Brown-Dymkoski, MS Committee 2012, PhD Preliminary Exam 2013, PhD Comprehensive Exam 2014, PhD Committee 2016
Xiaoguang Xu, U. of Nebraska Lincoln, PhD Comprehensive Exam 2012, PhD Committee 2015
Berkeley Almand, PhD Preliminary Exam 2012, PhD Comprehensive Exam 2014
Mingjie Xie, PhD Comprehensive Exam 2012, PhD Committee 2013
Nick Clements, PhD Comprehensive Exam 2012, PhD Committee 2013
Ryan King, PhD Preliminary Exam 2013, PhD Comprehensive Exam 2015
Nurlybek Kasimov, PhD Comprehensive Exam 2014, PhD Committee 2016
Spencer Alexander, MS Committee 2014
Ji Peng, PhD Comprehensive Exam 2014, PhD Committee 2015
Birendra Adhikari, PhD Comprehensive Exam 2014, PhD Committee 2015
Scott Wieland, PhD Preliminary Exam 2014, PhD Comprehensive Exam 2017, PhD Committee 2017
Katherine Smith, PhD Preliminary Exam 2014
Collin J. Bezrouk, PhD Comprehensive Exam 2015, PhD Committee 2016
Irene Dedoussi, MIT, PhD Exam Proposal 2016, PhD Committee 2018
Luke Engvall, PhD Comprehensive Exam 2017, PhD Committee 2018

Rene Nsanzineza, PhD Comprehensive Exam 2017, PhD Committee 2018
 Jason Christopher, PhD Comprehensive Exam 2017
 Michaela Farr, Masters Thesis Committee 2017
 Yi Wang, U. Iowa, PhD Comprehensive Exam 2018, PhD Committee 2019
 Cheng Chen, U. Lille, PhD Committee 2018
 Lie Li, U. Lille, PhD Committee 2018
 Jake Thorson, MS Committee 2019
 Parker Case, PhD Comprehensive Exam 2019
 Olga Doronina, PhD Comprehensive Exam 2019, PhD Committee 2020
 Nathan Malarich, PhD Comprehensive Exam 2020, PhD Committee 2020
 Skyler Kern, PhD Preliminary Exam 2020, 2021
 Corey Wetterer-Nelson, PhD Comprehensive Exam 2020, PhD Committee 2021
 Xiaomeng Jin, Columbia University, PhD Committee 2020
 Julian Quick, PhD Preliminary Exam 2020, PhD Comprehensive Exam 2021, PhD Committee 2021
 Congmeng (Trammell) Lyu, Drexel University, PhD Proposal 2020, PhD Committee 2021
 Sumit Sankhyan, PhD Preliminary Exam 2021, PhD Comprehensive Exam 2021
 William Patterson, PhD Comprehensive Exam 2021

Mentoring and Outreach

2019 Interview for National Academy of Science “Sciences Sessions” podcast series for PNAS, Feb 17.
 2014 Supported Dr. Lapina’s creation of two ozone gardens (one at NCAR, one on campus)
 2014 Alicia Camacho, SOARS Protege, Research Mentee
 2013-2014 Michael Seltzer, summer student, Research Mentee
 2013 Judge, SOARS Protege Research Colloquium, NCAR, Aug 29
 2012-2013 Andre Perkins, SOARS Protege, Research Mentee
 2010 Raymond Detweiler, SOARS Protege, Writing Mentee
 2009 Victoria Dorr, McNair Scholar, Research Mentee

Previous Research Grants

Observations, trends and health impacts for air quality in African urbanization hotspots \$21,367, Patrick L. Kinney (PI), Henze (Co-PI).

- Columbia Univ. Earth Institute CCI; Robin DeJong (robin@ei.columbia.edu)
- 09/01/2008 – 09/01/2010
- Academic / summer / total months per year: 1/0/1

Inverse modeling and attainment analysis for improved decision support of PM_{2.5} air quality regulations \$1,201,007, Henze (PI), Patrick Kinney (Co-PI).

- NASA ROSES NNH08ZDA001N-Decisions; Lawrence Friedl (LFriedl@nasa.gov)
- 09/01/2009 – 08/30/2015
- Academic / summer / total months per year: 0/1/1

Regional effects of climate change on energy management and climate impact of potential changes in transportation sector emissions \$279,000, Drew T. Shindell (PI), (Henze is Collaborator, nonfunded).

- NASA ROSES NNH08ZDA001N-Decisions; Lawrence Friedl (LFriedl@nasa.gov)
- 01/01/2009 – 12/31/2012
- Academic / summer / total months per year: 0.5/0/0.5

Further development, application, and evaluation of multi-phase adjoint sensitivity analysis for multidimensional air quality modeling \$179,840, Amir Hakami (PI), (Henze is Consultant, \$25,000).

- American Petroleum Institute; Dan Baker (dan.baker@shell.com)
- 10/01/2009 – 09/31/2011
- Academic / summer / total months per year: 0/0.5/0.5

Constraining ammonia emissions and PM_{2.5} control efficiencies with a new combination of satellite data, surface observations and adjoint modeling techniques \$249,942, Henze (PI).

- EPA STAR EPA-G2009-STAR-D2; Sherri Hunt (hunt.sherri@epa.gov)
- 01/05/2010 – 04/30/2014
- Academic / summer / total months per year: 0/1/1

Constraining local to global sources and distributions of tropospheric ammonia through model assimilation of satellite and in situ observations \$485,162, Henze (PI).

- NASA ROSES NNH09ZDA001N-ACMA; D. Considine (David.B.Considine@nasa.gov)
- 03/17/2010 – 03/16/2015
- Academic / summer / total months per year: 0/1/1

Collaborative research: Quantifying the sensitivity of antarctic snowpack nitrate to primary NO_x sources and photodenitrification: Implications for the ice core record \$443,640, Becky Alexander (PI), (Henze is Co-PI, \$116,440).

- NSF ANT - OPP; Peter Milne (pmilne@nsf.gov)
- 05/01/2010 – 04/30/2012
- Academic / summer / total months per year: 0/1/1

Development of the CO/CO₂ adjoint for GEOS-Chem \$59,665 Daven Henze (PI).

- NASA JPL; Gabriel Obregon (gabriel.obregon@jpl.nasa.gov)
- 03/08/2010 - 12/17/2010
- Academic / summer / total months per year: 0/2/2

Internalizing Environmental Damage Costs to Shape US Power System Development \$35,000 Jana Milford (PI), Henze (Collaborator).

- RASEI Seed Grant; Carl A. Koval (koval@colorado.edu)
- 07/01/2010 – 06/30/2011
- Academic / summer / total months per year: 0/0/0

Constraining global estimates of aerosol direct radiative forcing and surface concentrations with APS data and the GEOS-Chem adjoint model \$385,752 Henze (PI).

- NASA ROSES NNH09ZDA001N-GLORY; Hal Maring (hal.maring@nasa.gov)
- 11/01/2010 – 10/31/2014
- Academic / summer / total months per year: 0/1/1

Linking radiative forcing of fine-mode aerosols and tropospheric ozone to precursor emissions \$328,650 Henze (PI).

- NASA ROSES NNH09ZDA001N-NIP; Ming-Ying Wei (Ming-Ying.Wei-1@nasa.gov)
- 08/06/2010 – 08/05/2014
- Academic / summer / total months per year: 1/1/2

Estimation and attribution of global CO₂ surface fluxes using satellite observations of CO₂ and CO from TES, GOSAT, and MOPITT \$1,399,210 Dylan Jones (PI), (Henze is a Co-I, \$57,942).

- NASA NNH09ZDA001N-ACOS; Kenneth Jucks (kenneth.w.jucks@nasa.gov)
- 09/02/2010 – 09/01/2015
- Academic / summer / total months per year: 0/1/1

Constraining urban-to-global scale estimates of black carbon distributions, sources, regional climate impacts, and co-benefit metrics with advanced coupled dynamic - chemical transport - adjoint models. \$904,211 Greg Carmichael (PI) (Henze is a Co-PI, \$512,892).

- EPA-G2010-STAR-L1; Bryan Bloomer (bloomer.bryan@epa.gov)
- 09/01/2011 – 08/31/2015
- Academic / summer / total months per year: 1/0/1

Source contributions to seasonal vegetative exposure to ozone \$70,000 Daven Henze (PI), Jana Milford (Co-PI)

- NASA AQAST TT; John Haynes (jhaynes@nasa.gov)
- 09/01/2011 – 08/31/2012
- Academic / summer / total months per year: 0/0/0

The power of GEO-CAPE observations to constrain our understanding of ammonia fluxes \$20,000 Daven Henze (PI).

- NASA GEO-CAPE Science Team; Jassim A. Al-Saadi (j.a.al-saadi@nasa.gov)
- 01/01/2012 – 12/31/2013
- Academic / summer / total months per year: 0/0/0

Source attribution of radiative forcing from short lived climate forcing agents \$244,446 Daven Henze (PI).

- EPA-G2011-ORD-A1; James Davies (davies.james@epa.gov)
- 06/01/2012 – 05/31/2016
- Academic / summer / total months per year: 0.5/0/0.5

Continuation of the CMS Flux Pilot Project \$1,542,900 Kevin Bowman (PI) (Henze is Co-I, \$104,485).

- NASA CMS; Diane Wickland (Diane.E.Wickland@nasa.gov)
- 08/31/2012 – 02/28/2014
- Academic / summer / total months per year: 0/1/1

Collaborative Research: SNOWpack Photodenitrification from the Antarctic and Arctic Cryosphere (SNOW-PAAC) \$197,689 Becky Alexander (PI) (Henze is a Co-PI, \$57,151).

- NSF 11-532; Peter Milne (pmilne@nsf.gov)
- 06/01/2013 – 05/31/2015
- Academic / summer / total months per year: 0/1/1

Source contributions to reactive nitrogen in the US \$69,915 Daven Henze (PI), Jana Milford (Co-PI)

- NASA AQAST TT; John Haynes (jhaynes@nasa.gov)
- 10/01/2011 – 09/30/2012
- Academic / summer / total months per year: 0/0/0

NASA AQAST Year 3 Tiger Teams \$92,105 Daven Henze (PI)

- NASA AQAST TT; John Haynes (jhaynes@nasa.gov)
- 03/01/2014 – 02/28/2015
- Academic / summer / total months per year: 0/0/0

Optimal aggregation schemes for inversion of geostationary remote sensing observations \$75,000 Daven Henze (PI).

- NASA GEO-CAPE Science Team; Jassim A. Al-Saadi (j.a.al-saadi@nasa.gov)
- 03/01/2016 – 12/31/2016
- Academic / summer / total months per year: 0.1/0/0.1

Using remote sensing and adjoint modeling for integration of climate impacts into design of ozone and aerosol control strategies \$738,461 Henze (PI).

- NASA NNH09ZDA001N-AQAST; Lawrence Friedl (LFriedl@nasa.gov)
- 05/12/2011 – 05/11/2017
- Academic / summer / total months per year: 1/1/2

Optimal dimension reduction techniques for near-real time regional inversions of methane fluxes using WRF-DA and MCMC simulations \$60,000 Daven Henze (PI).

- NASA GEO-CAPE Science Team; Jassim A. Al-Saadi (j.a.al-saadi@nasa.gov)
- 03/01/2017 – 12/31/2017
- Academic / summer / total months per year: 0.1/0/0.1

Sustainable Energy Pathways: A lab-to-market paradigm for the optimal design of sustainable energy storage materials \$1,900,000 Sehee Lee (PI) (Henze is funded Collaborator).

- NSF SEP; Zeev Rosenzweig (zrosenzw@nsf.gov)
- 10/01/2012 – 09/30/2017
- Academic / summer / total months per year: 0/1/1

GEOS-Chem adjoint inversion of aerosol source emissions with multi-sensor (MODIS, MISR, and OMI) datasets over east Asia, and consequences for estimating aerosol direct radiative forcing and transboundary air pollution \$466,002 Jun Wang (PI) (Henze is a Co-I, \$127,280).

- NNH12ZDA001N-ACMAP; Richard S. Eckman (Richard.S.Eckman@nasa.gov)
- 07/15/2013 – 07/14/2017
- Academic / summer / total months per year: 0.1/0/0.1

Constraining US and global sources of nitrous oxide based on field observations and the GEOS-Chem adjoint model \$412,359 Dylan Millet (PI) (Daven Henze is Co-PI, \$76,999).

- NOAA-OAR-CPO-2013-2003445; Monika Kopacz (monika.kopacz@noaa.gov)
- 08/01/2013 – 07/31/2017
- Academic / summer / total months per year: 1/0/1

Sources, formation, and impacts of ammonium nitrate and ammonium sulfate aerosols: A modeling analysis constrained by surface, aircraft, and satellite data \$453,637 Matthew J. Alvarado (PI) (Daven Henze is Co-PI, \$76,999).

- NOAA-OAR-CPO-2013-2003445; Monika Kopacz (monika.kopacz@noaa.gov)
- 08/01/2013 – 07/31/2017
- Academic / summer / total months per year: 1/0/1

Inorganic aerosol precursor emissions during SENEX: A modeling analysis constrained by surface, aircraft and satellite data \$392,884 Matthew J. Alvarado (PI) (Daven Henze is Co-PI, \$82,507).

- NOAA-OAR-CPO-2014-2003692; Monika Kopacz (monika.kopacz@noaa.gov)
- 08/01/2014 – 07/31/2017
- Academic / summer / total months per year: 0.25/0/0.25

Source attribution of greenhouse gases in the Southeast at the interface of biogenic and anthropogenic emissions: multi-scale inverse modeling and uncertainty quantification \$580,731 Daven Henze (PI).

- NOAA-OAR-CPO-2014-2003692; Monika Kopacz (monika.kopacz@noaa.gov)
- 08/01/2014 – 07/31/2017
- Academic / summer / total months per year: 0.25/0/0.25

CyberSEES: Type 2: Collaborative Research: Connecting Next-generation Air Pollution Exposure Measurements to Environmentally Sustainable Communities \$845,936, Qin Lv (PI) (Daven Henze is Co-PI).

- NSF 14-531; Bruce K. Hamilton (bhamilto@nsf.gov)
- 09/01/2014 – 08/31/2018
- Academic / summer / total months per year: 0/0.35/0.35

Sensitivity analysis and recovery of dust emissions from spectral climate signals \$539,721 Jun Wang (PI) (Daven Henze is Co-I, \$216,451).

- NNH14ZDA001N-ACSCS; Hal Maring, hal.maring@nasa.gov
- 11/01/2014 – 10/31/2018 (one year NCE)
- Academic / summer / total months per year: 0/0.5/0.5

Supporting health impact assessment tools using remote sensing and earth system models - Tiger Team Supplement \$100,000 Daven Henze (PI).

- NNH15ZDA001N-HAQST: John Haynes (jhaynes@nasa.gov)
- 07/01/2017 – 06/30/2018
- Academic / summer / total months per year: 0/0.25/0.25

High resolution atmospheric carbon cycle data assimilation \$52,500 Daven Henze (PI).

- NASA JPL SURP; Kevin Bowman (kevin.bowman@nasa.gov)
- 10/01/2018 – 09/30/2019
- Academic / summer / total months per year: 0/0/0

Improving emissions, predictions and impact assessments of biomass burning smoke and dynamic air quality using FIREX observations, ground networks and satellite data \$703,678 Daven Henze (PI).

- NOAA-OAR-CPO-2016-2004413; Monika Kopacz (monika.kopacz@noaa.gov)
- 07/01/2016 – 06/30/2021
- Academic / summer / total months per year: 1/0/1

Supporting health impact assessment tools using remote sensing and earth system models \$348,143 Daven Henze (PI).

- NNH15ZDA001N-HAQST: John Haynes (jhaynes@nasa.gov)
- 08/11/2016 – 08/10/2021
- Academic / summer / total months per year: 0/1/1

Novel Use of NASA data with Emission Data Assimilation to Support U.S. National Air Quality Forecasting Capability and WMO Regional Chemical Reanalysis \$367,145 Daniel Tong (PI) (Daven Henze Co-I, \$43,606).

- NNH15ZDA001N-HAQST: John Haynes (jhaynes@nasa.gov)
- 08/11/2016 – 08/10/2021
- Academic / summer / total months per year: 0/1/1

Supporting health impact assessment tools using remote sensing and earth system models - Tiger Team Supplement 2 \$350,782 Daven Henze (PI).

- NNH15ZDA001N-HAQST: John Haynes (jhaynes@nasa.gov)
- 09/01/2018 – 08/30/2021
- Academic / summer / total months per year: 0/0.29/0.29

Closing Methane Budget for the US Corn Belt \$1,527,183 Dylan Millet (PI). (Daven Henze Co-I, \$45,865)

- NASA NNH16ZDA001N-IDS, Hank Margolis (hank.a.margolis@nasa.gov)
- 5/15/2017 – 5/14/2020
- Academic / summer / total months per year: 0/0/0

Air quality and health impact assessment of transport sector air pollution \$20,003, Daven Henze (PI)

- International Council on Clean Transportation; Josh Miller (josh@theicct.org)
- 03/01/2020 – 11/30/2020
- Academic / summer / total months per year: 0/0/0

Atmospheric Modelling in support of the GIZ - SEI collaboration on PMEHE project “Integrated air quality management and climate change mitigation” \$11,372, Daven Henze (PI)

- Stockholm Environmental Institute; Johan Kuylenstierna (johan.kuylenstierna@york.ac.uk)
- 07/15/2020 - 12/31/2020
- Academic / summer / total months per year: 0/0/0

Active Research Grants

Multi-phase inversion of aerosol sources using MODIS, MISR, OMI, and AERONET data and the GEOS-Chem adjoint. \$809,486 Daven Henze (PI).

- NNH16ZDA001N-ACMAP; Kenneth Jucks (kenneth.w.jucks@nasa.gov)
- 02/17/2017 – 02/16/2022
- Academic / summer / total months per year: 0/1/1

Inverse modeling constraints on sources of NH₃ using CrIS remote sensing measurements \$450,000, Daven Henze (PI).

- NNH17ZDA001N-TASNPP; Paula Bontempi (paula.bontempi@nasa.gov)
- 03/23/2018 – 03/22/2022
- Academic / summer / total months per year: 0/1/1

Using remote sensing and Earth system models to improve air quality and public health in megacities \$1,048,738 Susan Anenberg (PI) (Daven Henze is institutional PI, \$417,346).

- NNH17ZDA001N-HAQ; John Haynes (jhaynes@nasa.gov)
- 11/16/2018 – 06/14/2022
- Academic / summer / total months per year: 0/1/1

Methods and tools to integrate air quality and health into urban climate action planning \$634,509 Susan Anenberg (Daven Henze is Co-I, \$49,564).

- Wellcome Trust 2018 Climate Change and Health, ourplanetourhealth@wellcome.ac.uk
- 11/1/2019 – 10/30/2022
- Academic / summer / total months per year: 0/0.66/0.66

Multi-sensor (OMI, OMPS, VIIRS, and TROPOMI) constraints and downscaling of NO_x emissions in the continental U.S. during 2005-2018 and beyond \$565,697 Jun Wang (Daven Henze is Co-I/Institutional PI, \$236,485).

- 18-ACMAP18-0112; Richard Eckman (richard.s.eckman@nasa.gov)
- 03/01/2019 – 02/28/2022
- Academic / summer / total months per year: 0/1/1

Surrogate modeling for atmospheric chemistry and data assimilation \$770,775, Daven Henze (PI)

- NNH18ZDA001N-AIST; Michael Little (michael.m.little@nasa.gov)
- 01/16/2020 – 09/30/2022
- Academic / summer / total months per year: 0/1/1

Automated Model Reduction for Atmospheric Chemical Mechanisms \$799,699, V. Faye McNeill (PI) (Henze is Co-I)

- EPA-G2019-STAR-C; Serena Chung (serena.chung@gov)
- 01/01/2020 – 12/31/2022
- Academic / summer / total months per year: 0/0.5/0.5

Integrating Air Pollution Prediction Models: Uncertainty Quantification and Propagation in Health Studies \$475,533 direct costs in year 1, Marianthi Kioumourtzoglou (PI) (Henze is Co-I)

- NIEHS R01 ES030616; Dr. Bonnie Joubert (bonnie.joubert@nih.gov)
- 03/16/2020 – 12/31/2024
- Academic / summer / total months per year: 0/0.5/0.5

Interpreting NASA airborne observations with the GEOS-Chem model in the context of complementary satellite and ground-based data for tracking changes in air quality \$573,628, Randall Martin (PI) (Henze is Co-I, \$180,000)

- NNH20ZDA001N-ACCDAM; Dr. Richard Eckman (richard.s.eckman@nasa.gov)
- 04/01/2021 – 03/31/2024
- Academic / summer / total months per year: 0/0.5/0.5

Improvements to the NASA CrIS NH₃ product \$494,465, Karen Cady-Pereira (PI) (Henze is Co-I, \$58,522)

- NNH20ZDA001N-SNPPSP; Dr. Barry Lefer (barry.lefer@nasa.gov)
- 09/01/2023 – 08/31/2024
- Academic / summer / total months per year: 0/0.5/0.5 only in year 1

Pending Research Proposals

Enrich and Enhance the Application of TEMPO and GEOS Data Products for Regional Air Quality and Public Health Management Under Smoke Conditions \$1,094,794, Jun Wang (PI) (Henze is Co-I, \$191,608).

- NNH21ZDA001N-HAQ; John Haynes (john.haynes@nasa.gov)
- 01/01/2022 – 12/31/2024
- Academic / summer / total months per year: 0/0/0; 0/0.25//0.25; 0/1/1

Assimilation of multiple satellite retrievals to improve air quality forecasting and develop machine learning models for efficient prediction of air quality exceedances Matthew Johnson (PI) (Henze and Mizzi are is Co-I, \$758,345).

- NNH21ZDA001N-HAQ; John Haynes (john.haynes@nasa.gov)
- 12/20/2021 – 12/19/2024
- Academic / summer / total months per year: 0/0.15/0.15

Source footprints of satellite-based estimates of urban to national air pollution health impacts \$988,047, Daven Henze (PI).

- NNH21ZDA001N-HAQ; John Haynes (john.haynes@nasa.gov)
- 12/18/2021 – 12/17/2024
- Academic / summer / total months per year: 0/1/1

Improving the representation of wildfires in air quality forecast models and the understanding of their health impacts \$748,866, Siyuan Wang (PI) (Henze is Co-I, \$130,045).

- NNOAA-OAR-CPO-2022-2006799; Monika Kopacz (monika.kopacz@noaa.gov)
- 9/1/2022 – 8/31/2025
- Academic / summer / total months per year: 0/0.5/0.5

Recent (2016 - 2021) Invited Seminars

- 2021 **Henze, D. K., W. Tsui, J. Choi,** Hee-Sun Choi, Alireza Doostan, A. Hodzic, D. Gagne, J. Schreck, S. Rowland, M.-A. Kioumourtzoglou, F. Wiser, V. F. McNeill, Reduction of large datasets and expensive air quality model calculations through statistical analysis and machine learning, International Aerosol Modeling and Algorithms (IAMA), hosted virtually, Dec 9, **Keynote**.
- 2021 **Henze, D. K., O. Nawaz,** C. Lyu, S. Capps, Observationally constrained source attribution modeling of air pollution health impacts, Meteorology and Climate - Modeling for Air Quality (MAC-MAQ), hosted virtually, Sep 16.
- 2021 **Henze, D. K.,** Estimating the health impact from air pollution: An overview of modeling tools, Health Effects Institute webinar, hosted virtually, April 20.
- 2020 **Henze, D. K., H. Cao ,** K. Cady-Pereira, C. Lonsdale, M. Alverado, M. Shephard, E. Dammers, G. Luo, F. Yu, L. Zhu, C. Danielson, E. Edgerton, J.J. Guerrette, N. Bousserez, 'Satellite-based constraints on aerosol, aerosol precursor, and GHG emissions: applications and new inverse modeling techniques, Harvard University, Cambridge, MA, March 6.
- 2019 **Henze, D. K., H. Cao, M. Omar Nawaz,** C. Malley, Evaluation and application of remote sensing and air quality modeling for international health and climate assessment studies, European Commission Joint Research Centre, Ispra, Italy, Oct 3.
- 2019 **Henze, D. K., Z. Qu, H. Cao,** J. J. Guerrette, N. Bousserez, L. Zhang, Satellite-based constraints on aerosol, ozone, and GHG precursors emissions: applications and new inverse modeling techniques, University of Helsinki, Department of Physics, Helsinki, Finland, Aug 22.
- 2019 **Henze, D. K., C. Lee,** A. von Donkelaar, R. Martin, F. Lacey, S. Anenberg, C. Malley, H. Zhao, Using models and remote sensing to estimate global health impacts of air pollution, Frontiers of Atmospheric Science and Chemistry: Integration of Novel Applications and Technological Endeavors (FASCINATE), Boulder, CO, Sep 9 - 12.
- 2019 **Henze, D. K., Z. Qu, H. Cao,** Z. Jiang, Top-down constraints on emissions of NO₂, SO₂ and NH₃, NASA Health and Air Quality Applied Sciences Team Meeting 6, Pasadena, CA, Jul 10 - 12.
- 2019 **Henze, D. K., Z. Qu,** J. Milford, K. Brown, S. Anenberg, P. Achakulwisut, M. Brauer, D. Moran, J. S. Apte, Mortality from particulate matter in cities worldwide: a challenge and an opportunity for co-benefits from low carbon development, 15th Meeting of the Atmospheric Composition Virtual Constellation (NASA CEOS AC-VC), Tokyo, Japan, Jun 10-12.
- 2019 Qu, Z., **D. K. Henze,** 4D-Var NO_x emission constraints and the potential of future high-resolution geo-stationary observations, TEMPO Science Team Meeting, Madison, WI, June 7.
- 2019 **Henze, D. K.,** F. Lacey, H. Cao, K. Brown, J. Milford, M. Omar Nawaz, Application of remote sensing and air quality models for constraining sources and impacts of air quality and greenhouse gas emissions, Johns Hopkins University, Department of Environmental Health and Engineering, Baltimore, MD, Apr 30.
- 2019 **Henze, D. K.,** F. Lacey, H. Cao, K. Brown, J. Milford, M. Omar Nawaz, Evaluation and application of remote sensing and air quality modeling for international health and climate assessment studies, Department of Mechanical Engineering, University of California Riverside, Apr 19.
- 2019 **Henze, D. K.,** C. Malley, J. C. I. Kuylenstierna, R. W. Pinder, S. Terry, H. Vallack, C. Heaps, E. Lefevre, S. Anenberg, S. Penn, A. CurryBrown, N. Fann, J. Neumann, H. Roman, K. Hicks, Y. Davila, E. Marais, F. Lacey, O. Nawaz, J. Choi, H. Lee, Air quality and climate assessment tools and analyses to inform policy, American Association for the Advancement of Science (AAAS) 185th Annual Meeting, Panel Member for Transboundary Air Pollution: The Impact of Science on Policy, Washington D.C., Feb 16.

- 2019 **Henze, D. K.**, C. Malley, J. C. I. Kuylenstierna, R. W. Pinder, S. Terry, H. Vallack, C. Heaps, E. Lefevre, S. Anenberg, S. Penn, A. CurryBrown, N. Fann, J. Neumann, H. Roman, K. Hicks, Y. Davila, E. Marais, F. Lacey, P. Kinney, Use of satellite-informed PM_{2.5} concentrations in an international integrated assessment tool (LEAP-IBC), NASA Health and Air Quality Applied Sciences Team Meeting 5, Phoenix, AZ, Jan 3 - 4.
- 2018 **Henze, D. K.**, C. Malley, J. C. I. Kuylenstierna, R. W. Pinder, S. Terry, H. Vallack, C. Heaps, E. Lefevre, S. Anenberg, S. Penn, A. CurryBrown, N. Fann, J. Neumann, H. Roman, K. Hicks, Y. Davila, E. Marais, F. Lacey, A33F-01: Linking global-scale and urban-scale integrated assessment tools, AGU Fall Meeting, Washington D.C., Dec. 10 – 14.
- 2018 Worden, H., Z. Jiang, B. McDonald, J. R. Worden, K. Miyazaki, Z. Qu, **D. K. Henze**, D. B. A. Jones, A. Arellano, E. Fischer, L. Zhu, F. Boersma, D. Jacob, R. S. Silvern, A31B-02: Unexpected slowdown of US pollutant emission reduction in the past decade, AGU Fall Meeting, Washington D.C., Dec. 10 – 14.
- 2018 Bowman, K., N. Bousserez, J. Liu, M. Lee, **D. K. Henze**, A21A-03: Resolving the information in large-scale inversions: application to CMS-Flux, AGU Fall Meeting, Washington D.C., Dec. 10 – 14.
- 2018 **Henze, D. K.** and C. Shim, NMVOCs and NH₃ top-down emissions using 4-D VAR adjoint modeling The First Workshop for the Development of Korean Air Quality Forecasting System, Busan, Korea, Nov 8 – 10.
- 2018 **Henze, D. K.**, H. Cao, J. Choi, H. M. Lee, Z. Qu, R. Park, Satellite remote-sensing constraints on O₃ precursor emissions in East Asia, The First Workshop for the Development of Korean Air Quality Forecasting System, Busan, Korea, Nov 8 – 10.
- 2018 **Henze, D. K.**, H. M. Lee, J. Choi, R. Park, Sources of PM_{2.5} during pollution events in Korea, Air Pollution Extremes Workshop, Columbia University, Nov 1 – 2.
- 2018 **Henze, D. K.**, Jiang, Z., McDonald, B. C., H. Worden, J. R. Worden, K. Miyazaki, Z. Qu, D. B. A. Jones, A. F. Arellano, E. V. Fischer, L. Zhu, K. F. Boersma, Slowing Declines in U.S. NO_x Emissions Reductions Detected With OMI, EPRI webinar, Sep 11.
- 2018 **Henze, D. K.**, J. Wang, and Y. Davila, GEOS-Chem adjoint model and data assimilation working group, NCAR, Boulder, July 30.
- 2018 **Henze, D. K.**, Jiang, Z., McDonald, B. C., H. Worden, J. R. Worden, K. Miyazaki, Z. Qu, D. B. A. Jones, A. F. Arellano, E. V. Fischer, L. Zhu, K. F. Boersma, Slowing Declines in U.S. NO_x Emissions Reductions Detected With OMI, NASA Health and Air Quality Applied Sciences Team Meeting 4, July 16 – 17.
- 2018 **Henze, D. K.**, N. Bousserez, and J. J. Guerrette, Randomized Incremental Optimal Technique (RIOT) for large-scale Bayesian atmospheric inversions and data assimilation, Asia Oceania Geosciences Society, Honolulu, HI, June 4 – 8.
- 2018 **Henze, D. K.**, International air quality, health, and climate impacts of cookstoves, diesel NO_x, and recent updates to ozone health impacts, CU Boulder, Department of Chemistry, Mar 5.
- 2018 **Henze, D. K.**, N. Bousserez, and J. J. Guerrette, Error estimation, dimension reduction, and the Randomized Incremental Optimal Technique (RIOT) for large-scale Bayesian atmospheric inversions and data assimilation, NASA GMAO, Greenbelt, MD, Feb 27.
- 2017 **Henze, D. K.**, N. Bousserez, and J. J. Guerrette, Dimension reduction, error estimation, and the Randomized Incremental Optimal Technique (RIOT) for large-scale Bayesian atmospheric inversions and data assimilation, Korean Society for Atmospheric Environment, Daegu, Korea, Nov 8 – 9.
- 2017 **Henze, D. K.** International air quality, health, and climate impacts of cookstoves, diesel NO_x, and other anthropogenic sectors via PM_{2.5} and O₃, NCAR ACOM, Boulder CO, Oct 2.

- 2017 **Henze, D. K.** and A. Fiore, Overview of current evaluations, applications and advances in global air quality models, Western Regional Air Quality Modeling, NCAR, Boulder, CO, Sep 6 – 8.
- 2017 **Henze, D. K.**, Top-down constraints on NH₃ emissions, EPA Emissions Webinar Series, June 19.
- 2017 **Henze, D. K.**, NASA Health and Air Quality Applied Sciences Team, ICESat-2, Boulder, CO, May 31 – June 2.
- 2017 **Henze, D. K.** International air quality, health, and climate impacts of cookstoves, diesel NO_x, and other anthropogenic sectors via PM_{2.5} and O₃, EHS, Columbia University, New York City, NY, May 18.
- 2017 **Henze, D. K.** The GEOS-Chem adjoint model, IGC8, Harvard University, Cambridge, MA, May 1 – 4.
- 2017 **Henze, D. K.** Remote sensing constraints on aerosol and greenhouse gas emissions, BPE Lecture Series, Columbia University, New York City, NY, April 21.
- 2017 **Henze, D. K.** Dimension reduction, error estimation, and the Randomized Incremental Optimal Technique (RIOT) for large-scale Bayesian atmospheric inversions and data assimilation, SCiCS Lecture Series, Columbia University, New York City, NY, April 20.
- 2017 **Henze, D. K.** International air quality, health, and climate impacts of cookstoves, diesel NO_x, and recent updates to ozone health impacts, Climate Center Lecture Series, Columbia University, New York City, NY, April 19.
- 2017 **Henze, D. K.** International air quality and climate impacts of emissions control strategies for cookstoves and diesel NO_x, G&G AOCD, Yale University, New Haven, CT, March 30.
- 2017 **Henze, D. K.** and N. Bousserez, A. Doostan, and J. J. Guerrette, Algorithm needs for addressing chemical data assimilation and source inversion, NSF, Unified Data Assimilation, Alexandria, VA, April 5.
- 2017 **Henze, D. K.**, Adjoint and perturbation estimates of PM_{2.5} and O₃ source-receptor relationships, HTAP, EPA, RTP, NC, April 3.
- 2017 **Henze, D. K.**, Climate and health impacts of cookstoves: Evaluation with satellite-data, modeling, and source attribution, HAQAST 2, Seattle, WA, Feb 28.
- 2016 **Henze, D. K.**, Evaluating international air quality, climate, and ecosystem impacts of control strategies using remote sensing and adjoint modeling – case studies on cookstoves and diesel NO_x emissions, SIPA, Columbia University, New York City, NY, Oct 10.
- 2016 **Henze, D. K.**, Adjoint modelling, International Summer School on Atmospheric and Oceanic Sciences (ISSAOS), Advanced Programming Techniques for the Earth System Science, Gran Sasso Science Institute, August 28 – September 2, L'Aquila, Italy.
- 2016 **Henze, D. K.**, How scientific and technical air quality modeling tools interact with policy, Advances in Air Quality Analysis and Prediction: The Interaction of Science and Policy, NCAR ASP Summer Colloquium, Boulder, CO, July 25 – Aug 5.
- 2016 **Henze, D. K.**, Inverse problems and parameter (emissions) estimation, Advances in Air Quality Analysis and Prediction: The Interaction of Science and Policy, NCAR ASP Summer Colloquium, Boulder, CO, July 25 – Aug 5.
- 2016 **Henze, D. K.**, Current and future impacts of long-range transport on vegetative ozone exposure in the U.S., Telluride Gas Phase Atmospheric Chemistry Meeting, July 18 – 22.
- 2016 **Henze, D. K.**, Constraining sources of air pollution using air quality adjoint models and remote sensing observations, Department of Chemical Engineering, Columbia University, New York City, NY, March 22.

- 2016 **Henze, D. K.**, Constraining sources of air pollution using air quality adjoint models and remote sensing observations, NCAR Advance Studies Program, Boulder, CO, April 26.
- 2016 **Henze, D. K.**, and N. Bousserez, Preparing an air quality assimilation system for operational requirements and next generation measurement technologies, Blueprints for Next Generation Data Assimilation Systems Convened jointly by the NCAR DA Program and the JCSDA, Boulder, CO, March 8 – 10.

Peer Review of Journals and Proposals

Advances in Meteorology: 2016 (1)
Aerosol Science and Technology: 2017 (1), 2011 (2), 2009 (1), 2006 (1)
Aerosol and Air Quality Research: 2016 (1)
Asia-Pacific Journal of Atmospheric Sciences: 2012 (2)
Atmosphere: 2011 (2)
Atmospheric Chemistry and Physics: 2021 (1), 2020 (3), 2019 (8), 2018 (7), 2017 (8), 2016 (3), 2015 (5), 2014 (6), 2013 (10), 2012 (5), 2011 (8), 2010 (4), 2009 (2), 2008 (4), 2006 (1)
ACS Earth and Space Chemistry: 2021 (1)
Atmospheric Environment: 2020(1), 2016 (1), 2015 (4), 2012 (4), 2011 (3), 2010 (2), 2009 (3), 2008 (1), 2006 (1)
Atmospheric Research: 2017 (1), 2016 (1)
Climate Change: 2011 (1)
Computers & Geosciences: 2011 (2)
Earth System Dynamics: 2017
Elementa: 2021 (1), 2020 (1)
Environment International: 2016 (3)
Environmental Pollution: 2021(1), 2017 (1), 2016 (1)
Environmental Research Letters: 2021 (1), 2020 (1), 2019 (2), 2017 (2), 2016 (5), 2015 (2)
Environmental Science and Technology: 2021 (1), 2020 (2), 2019 (5), 2018 (1), 2017 (3), 2016 (3), 2015(3), 2014 (1), 2013 (1), 2012 (2), 2011 (2), 2010 (3), 2009 (1), 2006 (1)
Environmental Science and Technology Letters: 2022(1), 2018 (1)
Geoscientific Model Development: 2020 (2), 2019 (1) 2018 (1), 2017 (1), 2016 (1), 2015 (1), 2014 (2), 2013 (1), 2010 (1), 2009 (2)
Geophysical Research Letters: 2020 (1), 2018 (2), 2017 (1), 2016 (2), 2013 (1), 2010 (1)
Global Biogeochemical Cycles: 2011 (1)
International Journal of Climatology: 2010 (1), 2009 (1)
Inverse Problems: 2018 (1)
Journal of Advances in Modeling Earth Systems: 2013 (2)
Journal of Aerosol Science: 2008 (1), 2007 (1)
Journal of Exposure Science And Environmental Epidemiology: 2019 (1)
Journal of Geophysical Research: 2019 (1), 2018 (4), 2016 (4), 2015 (4), 2014 (4), 2013 (3), 2012 (2), 2011 (3), 2010 (6), 2009 (2), 2008 (2), 2006 (2), 2005 (2), 2004 (2)
Nature: 2018 (1)
Nature Communications: 2021 (2)
PLOS Medicine: 2018 (2)
PNAS: 2021(2), 2020 (1), 2018 (1), 2013 (1)
QJRMS: 2013 (1)
Remote Sensing: 2013 (2)
Remote Sensing of Environment: 2015 (2)
Science: 2015 (1), 2009 (1), 2006 (1)
Science Advances: 2021 (2), 2015 (1), 2009 (1), 2006 (1)
Science of the Total Environment: 2019 (1), 2009 (1)
Scientific Reports: 2019 (1), 2017 (1)
The Lancet Planetary Health: 2021 (4)

CARA: 2016 (1)

CORE: 2013 (2)
CU Seed Grant Panel: 2011 (1)
DOE SCGSR: 2020 (1),
Dutch Research Council Proposal Review: 2019 (1)
Finland National Academy: 2021 (1)
NASA Review Panel: 2022 (1), 2021 (1), 2013 (1), 2012 (2), 2011 (1), 2010 (1)
NERC Proposal Review: 2013 (1)
Netherlands Space Office (NSO): 2011 (1)
NSF Proposal Review: 2021 (1), 2017 (1), 2014 (1), 2011 (1), 2010 (1)
NOAA Proposal Review: 2020 (4), 2019 (2), 2016 (1), 2011 (1), 2010 (1)
NWO Veni Proposal Review: 2020 (1), 2019 (1)