Yang Yang

Post Doctorate Research Associate
Atmospheric Sciences & Global Change
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RESEARCH INTERESTS

Interactions between aerosol, cloud, radiation, circulation and climate

Global and regional sources, sinks, transport, and radiative forcing of aerosols

Roles of meteorology and emissions on regional air quality

Intensification of haze in China

EDUCATION

Ph.D. Atmospheric Physics and Atmospheric Environment, 2014, Institute of Atmospheric Physics, Chinese Academy of Sciences

B.Sc. (**with honors**) Atmospheric Sciences, 2009, Nanjing University of Information Science & Technology

EXPERIENCE

Post Doctorate Research Associate, Atmospheric Sciences & Global Change, Pacific Northwest National Laboratory (PNNL), Richland, WA, USA — 2016.5 – present

Postdoctoral Researcher, Scripps Institution of Oceanography, University of California San Diego (UCSD), La Jolla, CA, USA — 2015.2 – 2016.4

AWARDS/RECOGNITIONS

PNNL EBSD BEST Award: ASGC Paper of the Year	2017
Graduate Scholarship, Institute of Atmospheric Physics, Chinese Academy of Sciences	2009 – 2014
Honors Outstanding Graduate, Nanjing University of Information Science & Technology	2009
University Scholarship, Nanjing University of Information Science & Technology	2005 – 2009

AFFILIATIONS/MEMBERSHIPS

American Meteorological Society (AMS)	2016 – present
American Geophysical Union (AGU)	2010 – present

PROFESSIONAL SKILLS

Experienced with the global chemical transport model GEOS-Chem, the earth system model NCAR CESM.

Skillful with software packages and coding languages: FORTRAN, MATLAB, R, NCL, IDL, and NCO.

Familiar with data formats: Binary, NC, HDF, BPCH, and MAT.

Excellent written and oral communication skills.

PUBLICATIONS (GOOGLE SCHOLAR)

2018

Yang, Y., H. Wang, S. J. Smith, R. Zhang, S. Lou, H. Yu, C. Li, and P. J. Rasch, Source apportionments of aerosols and their direct radiative forcing and long-term trends over continental United States, *Earth's Future*, 6, 793–808, doi:10.1029/2018EF000859, 2018.

Yang, Y., H. Wang, S. J. Smith, R. Zhang, S. Lou, Y. Qian, P.-L. Ma, and P. J. Rasch, Recent intensification of winter haze in China linked to foreign emissions and meteorology, *Sci. Rep.*,

8, 2107, doi:10.1038/s41598-018-20437-7, 2018. **(Reported by PNNL Highlight)**

Yang, Y., H. Wang, S. J. Smith, R. Easter, and P. J. Rasch, Sulfate aerosol in the Arctic: Source attribution and radiative forcing, *J. Geophys. Res. Atmos.*, 123, 1899–1918, doi:10.1002/2017JD027298, 2018. **(Figure Published on Journal Cover; Reported by PNNL Highlight)**

Yang, Y., H. Wang, S. J. Smith, C. M. Mills, and P. J. Rasch, Variability and timescales in the climate response to black carbon emissions, ready to submit to *Nat. Clim. Change*.

Yang, Y., S. J. Smith, H. Wang, S. Lou, and P. J. Rasch, Impact of the uncertainty in emission height on global aerosol modeling, ready to submit to *Geophys. Res. Lett*.

Lou, S., **Y. Yang***, H. Wang, S. J. Smith, and P. J. Rasch, Black carbon amplifies haze in North China Plain by weakening East Asian winter monsoon, ready to submit to *Geophys. Res. Lett*.

Lou, S., **Y. Yang***, H. Wang, S. J. Smith, and P. J. Rasch, Black carbon enhances extreme ENSO events, ready to submit to *J. Climate.*

Zhang, R., H. Wang, Q. Fu, A. G. Pendergrass, M. Wang, **Y. Yang**, P.-L. Ma, and P. J. Rasch, Local radiative feedbacks over the Arctic based on observed short-term climate variations, *Geophys. Res. Lett.*, 45, doi:10.1029/2018GL077852, 2018.

Li, K., H. Liao, W. Cai, and **Y. Yang**, Attribution of anthropogenic influence on atmospheric patterns conducive to recent most severe haze over eastern China, *Geophys. Res. Lett.*, 45, 2072–2081, doi:10.1002/2017GL076570, 2018.

2017

Yang, Y., L. M. Russell, S. Lou, H. Liao, J. Guo, Y. Liu, B. Singh, and S. J. Ghan, Dust-wind interactions can intensify aerosol pollution over eastern China, ***Nat. Commun.***, 8, 15333, doi:10.1038/ncomms15333, 2017. **(Reported by BBC, the Guardian, ScienceDaily etc., ASGC Paper of the Year, ESI Highly Cited Paper)**

Yang, Y., H. Wang, S. J. Smith, R. Easter, P.-L. Ma, Y. Qian, H. Yu, C. Li, and P. J. Rasch, Global source attribution of sulfate concentration and direct and indirect radiative forcing, *Atmos. Chem. Phys.*, 17, 8903–8922, doi:10.5194/acp-17-8903-2017, 2017.

Yang, Y., H. Wang, S. J. Smith, P.-L. Ma, and P. J. Rasch, Source attribution of black carbon

and its direct radiative forcing in China, *Atmos. Chem. Phys.*, 17, 4319–4336, doi:10.5194/acp-17-4319-2017, 2017. **(Reported by BAMS, Phys.org, PNNL Highlight)**

Lou, S., L. M. Russell, **Y. Yang**, Y. Liu, B. Singh, and S. J. Ghan, Impacts of interactive dust and its direct radiative forcing on interannual variations of temperature and precipitation in winter over East Asia, *J. Geophys. Res. Atmos.*, 122, 8761–8780, doi:10.1002/2017JD027267, 2017.

Zhu, J., H. Liao, Y. Mao, **Y. Yang**, and H. Jiang, Interannual variation, decadal trend, and future change in ozone outflow from East Asia, *Atmos. Chem. Phys.*, 17, 3729–3747, doi:10.5194/acp-17-3729-2017, 2017.

Feng, J., J. Li, J. Zhu, H. Liao, and **Y. Yang**, Simulated contrasting influences of two La Niña Modoki events on aerosol concentrations over eastern China, *J. Geophys. Res. Atmos.*, 122, 2734–2749, doi:10.1002/2016JD026175, 2017.

2016

Yang, Y., H. Liao, and S. Lou, Increase in winter haze over eastern China in recent decades: Roles of variations in meteorological parameters and anthropogenic emissions, *J. Geophys. Res. Atmos.*, 121, 13,050–13,065, doi:10.1002/2016JD025136, 2016.

Yang, Y., L. M. Russell, S. Lou, M. A. Lamjiri, Y. Liu, B. Singh, and S. J. Ghan, Changes in Sea Salt Emissions Enhance ENSO Variability, *J. Climate*, 29, 8575–8588, doi:10.1175/JCLI-D-16-0237.1, 2016.

Yang, Y., L. M. Russell, L. Xu, S. Lou, M. A. Lamjiri, R. C. J. Somerville, A. J. Miller, D. R. Cayan, M. J. DeFlorio, S. J. Ghan, Y. Liu, B. Singh, H. Wang, J.-H. Yoon, and P. J. Rasch, Impacts of ENSO events on cloud radiative effects in preindustrial conditions: Changes in cloud fraction and their dependence on interactive aerosol emissions and concentrations, *J. Geophys. Res. Atmos.*, 121, 6321–6335, doi:10.1002/2015JD024503, 2016.

Yang, Y., L. M. Russell, S. Lou, Y. Liu, B. Singh, and S. J. Ghan, Rain-aerosol relationships influenced by wind speed, *Geophys. Res. Lett.*, 43, 2267–2274, doi:10.1002/2016GL067770, 2016.

Xu, L., P. Cameron-Smith, L. M. Russell, S. J. Ghan, Y. Liu, S. Elliott, **Y. Yang**, S. Lou, M. A. Lamjiri, and M. Manizza, DMS role in ENSO cycle in the tropics, *J. Geophys. Res. Atmos.*, 121, 13,537–13,558, doi:10.1002/2016JD025333, 2016.

Lou, S., L. M. Russell, **Y. Yang**, L. Xu, M. A. Lamjiri, M. J. DeFlorio, A. J. Miller, S. J. Ghan, Y. Liu, and B. Singh, Impacts of the East Asian Monsoon on springtime dust concentrations over China, *J. Geophys. Res. Atmos.*, 121, 8137–8152, doi:10.1002/2016JD024758, 2016.

2015

Yang, Y., H. Liao, and S. Lou, Decadal trend and interannual variation of outflow of aerosols from East Asia: Roles of variations in meteorological parameters and emissions, *Atmos. Environ.*, 100,141–153, doi:10.1016/j.atmosenv.2014.11.004, 2015.

Lou, S., H. Liao, **Y. Yang**, and Q. Mu, Simulation of the interannual variations of tropospheric ozone over China: Roles of variations in meteorological parameters and anthropogenic emissions, *Atmos. Environ.*, 122, 839–851, doi:10.1016/j.atmosenv.2015.08.081, 2015.

Liao, H., W. Chang, and **Y. Yang**, Climatic effects of air pollutants over China: A review, *Adv. Atmos. Sci.*, 32, 115–139, doi:10.1007/s00376-014-0013-x, 2015.

2014

Yang, Y., H. Liao, and J. Li, Impacts of the East Asian summer monsoon on interannual variations of summertime surface-layer ozone concentrations over China, *Atmos. Chem. Phys.*, 14, 6867–6880, doi:10.5194/acp-14-6867-2014, 2014.

Yang, Y., H. Liao, and S. Lou, Simulated impacts of sulfate and nitrate aerosol formation on surface-layer ozone concentrations in China, *Atmos. Oceanic Sci. Lett.*, 7, 441–446, doi:10.3878/j.issn.1674-2834.14.0033, 2014.

CONFERENCES

Yang Y., H. Wang, S. J. Smith, R. Zhang, S. Lou, Y. Qian, P.-L. Ma and P. J. Rasch. Recent intensification of winter haze in China linked to foreign emissions and meteorology. AOGS Annual Meeting 2018, June 3– June 8, 2018, Honolulu, Hawaii, USA.

Yang Y., H. Wang, S. J. Smith, and P. J. Rasch. Impacts of injection height of industrial emissions on recent SO_2 trend over China. AOGS Annual Meeting 2018, June 3– June 8, 2018, Honolulu, Hawaii, USA. (**Session Chair**)

Yang Y., H. Wang, S. J. Smith, R. Easter, P.-L. Ma, Y. Qian, H. Yu, C. Li, and P. J. Rasch. Global source attribution of sulfate concentration, direct and indirect radiative forcing. AGU Fall Meeting 2017, December 11– December 15, 2017, New Orleans, Louisiana, USA.

Yang Y., H. Wang, S. J. Smith, P.-L. Ma, and P. J. Rasch. Source attribution of black carbon and its direct radiative forcing in China. AMS Annual Meeting 2017, January 23–January 26, 2017, Seattle, Washington, USA.

Yang Y., and L. Russell, Interannual variation of strength of aerosol-cloud interaction over tropical Pacific Ocean, PNNL Collaborative Meeting, Richland, WA, USA, May 11, 2015.

Yang Y., H. Liao, and S. Lou, Decadal trend and interannual variation of outflow of aerosols from East Asia: Roles of variations in meteorological parameters and emissions, AGU Fall Meeting 2014, San Francisco, CA, USA, December 15– December 19, 2014.

Yang Y., H. Liao, and S. Lou, Decadal trend and interannual variation of outflow of aerosols from East Asia: Roles of variations in meteorological parameters and emissions, The 31th China meteorological administration annual meeting, Beijing, China, November 3– November 5, 2014.

Yang Y., H. Liao, S. Lou and Q. Mu, Interannual variation of ozone, aerosols over China, The 5th national atmospheric boundary layer physics and atmospheric chemistry symposium, Beijing, China, September 18– September 19, 2014.

Yang Y., H. Liao, S. Lou and Q. Mu, Interannual variation of ozone, aerosols over China, The 30th China meteorological administration annual meeting, Nanjing, China, October 23– October 26, 2013.

Yang Y., H. Liao, and J. Li, Impacts of the East Asian summer monsoon on interannual variations of summertime surface-layer ozone concentrations over China, The 4th national atmospheric boundary layer physics and atmospheric chemistry symposium, Chongqing, China, August 10– August 13, 2013.

Yang Y., H. Liao, and J. Li, Impacts of the East Asian summer monsoon on interannual variations of summertime surface-layer ozone concentrations over China, The 3th national atmospheric boundary layer physics and atmospheric chemistry symposium, Jiaozuo, China, June 9– June 11, 2012.

Yang Y., and H. Liao, Impacts of reductions in emissions of multi-pollutants over 2005-2030 on

regional air quality and climate change, AGU Fall Meeting 2011, San Francisco, CA, USA, December 5– December 9, 2011.

Yang Y., and H. Liao, Impacts of reductions in emissions of multi-pollutants over 2005-2030 on regional air quality and climate change, WCRP open science conference, climate research in service to society, Sheraton Denver Downtown Hotel, Denver, CO, USA, October 24– October 28, 2011.

Yang, Y, H. Liao, and S. Lou, Simulated impacts of sulfate and nitrate aerosol formation on surface-layer ozone concentrations in China, The 8th international Conference on Acid Deposition, Beijing, China, 15–18 June, 2011.