Rui Wang

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EMPLOYMENT

Postdoctoral Research Associate Aug 2023–present
Atmospheric and Oceanic Sciences Program
Princeton University, Princeton, NJ, USA.

Postdoctoral Research Associate Jan 2023–July 2023
Department of Civil and Environmental Engineering
Princeton University, Princeton, NJ, USA.

EDUCATION

Ph.D. Civil and Environmental Engineering Sep 2016–Dec 2022
Princeton University, Princeton, NJ, USA.
Advisor: Mark Zondlo (mzondlo@princeton.edu)
Dissertation: Constraining Ammonia Emissions Through In-situ and Satellite Observations

M.A. Civil and Environmental Engineering Sep 2016–May 2018
Princeton University, Princeton, NJ, USA.

B.S. Environmental Sciences Sep 2012–Jul 2016
Peking University, Beijing, China.

B.S. Mathematics and Applied Mathematics (minor) Sep 2013–Jul 2016
Peking University, Beijing, China.

PUBLICATIONS

[1] **Wang, R.**, Guo, X., Pan, D., Kelly, J. T., Bash, J. O., Sun, K., Paulot, F., Clarisse, L., Van Damme, M., Whitburn, S., Coheur, P. F., Clerbaux, C., and Zondlo, M. A. (2021). Monthly patterns of ammonia over the contiguous United States at 2-km resolution. *Geophysical Research Letters*, 48(5), e2020GL090579, https://doi.org/10.1029/2020GL090579.
(NASA Earth Observatory Image of the Day: The Seasonal Rhythms of Ammonia)

[2] Beale, C. A., Paulot, F., Randles, C. A., **Wang, R.**, Guo, X., Clarisse, L., Van Damme, M., Coheur, P.-F., Clerbaux, C., Shephard, M. W., Dammers, E., Cady-Pereira, K., and Zondlo, M. A. (2022). Large sub-regional differences of ammonia seasonal patterns over India reveal inventory discrepancies. *Environmental Research Letters*, 17, 104006, https://doi.org/10.1088/1748-9326/AC881F.

[3] Chen, Y., Soskind, M., McSpiritt, J., Liu, J., **Wang, R.**, Li, N., Guo, X., Zondlo, M., and Wysocki, G. (2021). Fugitive methane detection using open-path stand-off chirped laser dispersion spectroscopy. *Optical Letters*, 46(13), 3005-3008, https://doi.org/10.1364/OL.427837.

[4] Pan, D., Benedict, K., Golston, L., **Wang, R.**, Collett Jr, J., Tao, L., Sun, K., Guo, X., Ham, J., Prenni, A., Schichtel, B., Mikoviny, T., Müller, M., Wisthaler, A., and Zondlo M. A. (2021). Ammonia dry deposition in an alpine ecosystem traced to agricultural emission hotpots. *Environmental Science and Technology*, 55(12), 7776-7785, https://doi.org/10.1021/acs.est.0c05749.

[5] Guo, X., **Wang, R.**, Pan, D., Zondlo, M., Clarisse, L., Van Damme, M., Whitburn, S., Coheur, P. -F., Clerbaux, C., Franco, B., Pan, D., Golston, L., Wendt, L., Sun, K., Tao, L., Miller, D., Mikoviny, T., Müller, M., Wisthaler, A., Tevlin, A., Murphy, J., Nowak, J., Roscioli, R., Volkamer, R., Kille, N., Neuman, J., Eilerman, S., Crawford, J., Yacovitch, T., Barrick, J., and Scarino, A. J. (2021). Validation of IASI satellite ammonia observations at the pixel scale using in-situ vertical profiles. *Journal of Geophysical Research: Atmosphere*, 126(9), e2020JD03347, https://doi.org/10.1029/2020JD033475.

[6] Soskind, M. G., Chen, Y., **Wang, R.**, Li, N. P., Moore, D. P., Patrick, C. L., Zondlo, M., A., and Wysocki, G. (2020). Tomographic Methane Leak Localization via Chirped Laser Dispersion Spectroscopy. *Optical Sensors and Sensing Congress*, EM3C.1. https://doi.org/10.1364/ES.2020.EM3C.1.

[7] Yi, H., Tao, L., Pan, D., Guo, X., McSpiritt, J., **Wang, R.**, Luu, C. and Zondlo, M. A. (2020). Open-path atmospheric ammonia sensor based on 9.06 pm hollow core fiber coupled quantum cascade laser. *Conference on Laser Electro-Optics*, ATu3I.6. https://doi.org/10.1364/CLEO_AT.2020.ATu3I.6.

[8] Chen, Y., Soskind, M. G., McSpiritt, J., **Wang, R.**, Li, N., Zondlo, M. and Wysocki, G. (2019). Methane Leak Detection Using Chirped Laser Dispersion Spectroscopy. *Conference on Lasers and Electro-Optics*, AM1K.2. https://doi.org/10.1364/CLEO_AT.2019.AM1K.2.

PREPRINTS

[9] **Wang, R.**, Pan, D., Guo, X., Sun, K., Clarisse, L., Van Damme, M., Coheur, P. F., Clerbaux, C., Puchalski, M., and Zondlo, M. A. Bridging the spatial gaps of the Ammonia Monitoring Network using satellite ammonia measurements. *Atmospheric Chemistry and Physics*, https://doi.org/10.5194/egusphere-2023-190, in review.

[10] **Wang, R.**, Moore, D., Guo, X., Pan, D., Sun, K., Paulot, F., Guan, K., Peng, B., Li, Z., Clarisse, L., Van Damme, M., Coheur, P. F., Clerbaux, C., Cady-Pereira, K., Shephard, M., and Zondlo, M. A. Large, episodic ammonia blooms in the U.S. Midwest in spring and links to fertilization application. In preparation.

[11] **Wang, R.**, Guo, X., Pan, D., Lindaas, J., Pollack, I., Fischer, E., Clarisse, L., Van Damme, M., Coheur, P. F., Clerbaux, C., and Zondlo, M. A. Wildfire ammonia emissions derived from satellite observations. In preparation.

[12] Cady-Pereira, K. E., Guo, X., **Wang, R.**, Leytem, A., Calkins, C., Berry, E., Sun, K., Müller, M., Wisthaler, A., Payne, V. H., Shephard, M. W., Zondlo, M. A., and Kantchev, V. H. (2023). Validation of NH_3 observations from AIRS and CrIS against aircraft measurements from DISCOVER-AQ and a surface network in the Magic Valley. *Atmospheric Measurement Technique Discussion*, https://doi.org/10.5194/amt-2022-336, in review.

TEACHING

Teaching assistant, CEE 311, Global Air Pollution, Princeton University — Spring 2018, 2023

SIGNIFICANT PRESENTATIONS

- "Bridging the Spatial Gaps of the Ammonia Monitoring Network Using Satellite Ammonia Measurements", US EPA New Insights in Atmospheric Science Seminar Series, virtual, July 2023.
- "Large, Episodic Ammonia Blooms in the U.S. Midwest in Spring and Links to Fertilization Application", American Geophysical Union 2022 Fall Meeting, Chicago, IL, Dec 2022.
- "Bridging the Spatial Gaps of the Ammonia Monitoring Network Using Satellite Ammonia Measurements", American Geophysical Union 2022 Fall Meeting, Chicago, IL, Dec 2022.
- "Atmospheric ammonia emissions from nitrogen fertilizer application: impacts on air quality at daily scales", American Geophysical Union 2020 Fall Meeting, virtual, Dec 2020.
- "Utilizing satellite ammonia observations to better understand ammonia variability", European Geosciences Union General Assembly 2020, virtual, May 2020.
- "Bridging the gaps: synthesizing the Ammonia Monitoring Network with satellite ammonia measurements", American Geophysical Union 2019 Fall Meeting, San Francisco, CA, Dec 2019.
- "Identifying the spatiotemporal variability of NH3 across the contiguous U.S.", NASA Health and Air Quality Applied Science Team 5th Meeting, Phoenix, AZ, Jan 2019.

POSTERS

- "Wildfire ammonia emissions derived from satellite observations: a case study of the 2018 Ferguson Fire in California", American Geophysical Union 2021 Fall Meeting, New Orleans, LA,

Dec 2021.

- "Satellite ammonia observations to bridge the gap of the ammonia monitoring network ", NASA Health and Air Quality Applied Science Team 6th Meeting, Pasadena, CA, July 2019.
- "Identifying the spatiotemporal variability of NH_3 across the contiguous U.S.", Geophysical Fluid Dynamics Laboratory 2019 Poster Exposure, Princeton, NJ, May 2019.
- "Spatiotemporal variability of NH_3 across the contiguous U.S.", American Meteorological Society 2019 Meeting, Phoenix, AZ, Jan 2019.
- "High resolution ammonia map based on a new oversampling algorithm", NASA Health and Air Quality Applied Science Team 4th Meeting, Madison, WI, July 2018.
- "Validation of CrIS ammonia observations in the San Joaquin Valley during DISCOVER-AQ", NASA Health and Air Quality Applied Science Team 4th Meeting, Palisades, NY, Nov 2017.

SERVICE

Reviewer for *Atmospheric Chemistry and Physics*.

AWARDS

Princeton University Fellowship, Princeton University, 2016

Learning Excellence Award, Peking University, 2015

Top Academic Talent Scholarship, Peking University, 2015

Huirong Li Scholarship, Peking University, 2015