DR. GREGORY J. FROST

RESEARCH CHEMIST

Chemical Sciences Laboratory (CSL), Office of Oceanic and Atmospheric Research (OAR), National Oceanic & Atmospheric Administration (NOAA). Duty station: Silver Spring, Maryland. Email: <u>Gregory.j.frost@noaa.gov</u>

Summary of Professional Achievements

As OAR's Advisor on Atmospheric Composition, Dr. Frost leads, coordinates, and communicates NOAA research activities on air quality, greenhouse gases, solar radiation modification, and carbon dioxide removal. He manages the NOAA Earth's Radiation Budget Initiative, a Congressionally directed research program investigating natural and human activities that may alter the reflectivity of the atmosphere and impact the Earth system. He serves as the User Scientist for NOAA's Geostationary Extended Observations Mission's Atmospheric Composition Instrument. In 2023-2024, he served a 1-year detail with NOAA's Chief Scientist as the Special Advisor for Carbon Dioxide Removal and Solar Radiation Modification, and he was the NOAA Co-Chair of the White House Fast Track Action Committee on Marine Carbon Dioxide Removal.

Education

Doctor of Philosophy, Physical Chemistry, University of Colorado, Boulder, CO, 1995 Bachelor of Science, Chemistry, University of California, Berkeley, CA, 1989

Professional Employment History

- 2024 present, Research Chemist, NOAA CSL, & Advisor on Atmospheric Composition, NOAA OAR
- 2023 2024, Special Advisor for Carbon Dioxide Removal and Solar Radiation Modification, NOAA HQ
- 2020 2024, Supervisory Research Chemist, NOAA CSL
- 2014 2020, Research Chemist, NOAA CSL
- 1997 2014, Research Scientist, University of Colorado, CIRES; Affiliate Scientist, NOAA Chem. Sci. Div.
- 1995 1997, NRC Postdoctoral Associate, NOAA Aeronomy Laboratory
- 1989 1995, Graduate Research Assistant, University of Colorado

Selected Publications (H-Index: 48, citations: 11,846 (Web of Science). 11 first-authored, 106 total)

- Lindsey, D. T., [...], G. J. Frost, et al., 2024, GeoXO: NOAA's Future Geostationary Satellite System. Bull. Am. Meteorol. Soc., doi:10.1175/BAMS-D-23-0048.1.
- He, J., [...], G. J. Frost, et al., **2024**, COVID-19 perturbation on US air quality and human health impact assessment. *PNAS Nexus*, doi:10.1093/pnasnexus/pgad483.
- Kopacz, M., [...], G. J. Frost, et al., 2023, Global Atmospheric Composition Needs from Future Ultraviolet-Visible-Near-Infrared NOAA Satellite Instruments. *Bull. Am. Meteorol. Soc.*, doi: 10.1175/BAMS-D-22-0266.1
- Warneke, C., [...], G. Frost, et al., 2023, Fire Influence on Regional to Global Environments and Air Quality (FIREX-AQ). J. Geophys. Res. Atmos., 128, e2022JD037758, doi: 10.1029/2022JD037758.
- Li, M., [...], <u>G. J. Frost</u>. **2021**: Assessment of updated fuel-based emissions inventories over the contiguous United States using TROPOMI NO₂ retrievals. *J. Geophys. Res. Atmos.*, 126, doi: 10.1029/2021JD035484.
- McDonald, B.C., [...], <u>G. J. Frost</u>, et al. **2018**. Volatile Chemical Products Emerging as Largest Petrochemical Source of Urban Organic Emissions. *Science*, 359, 760–764, doi:10.1126/science.aaq0524.
- Pétron, G., [...], <u>G. J. Frost</u>, et al. **2014**: A new look at methane and non-methane hydrocarbon emissions from oil and natural gas operations in the Colorado Denver-Julesburg Basin. *J. Geophys. Res. Atmos.*, 119, 6836-6852, doi:10.1002/2013JD021272.
- Karion, A., [...], <u>G. Frost</u>, et al. **2013**: Methane emissions estimate from airborne measurements over a western United States natural gas field. *Geophys. Res. Lett.*, 40, 4393-4397, doi:10.1002/grl.50811.
- Granier, C., [...], <u>G. Frost</u>, et al. **2011**: Evolution of anthropogenic and biomass burning emissions at global and regional scales during the 1980-2010 period. *Clim. Change*, **109**, 163–190, doi:10.1007/s10584-011-0154-1
- Kim, S.-W., [...], <u>G. J. Frost</u>, et al. **2009**: NO₂ columns in the western U.S. observed from space and simulated by a regional chemistry model and their implications for NO_x emissions. *J. Geophys. Res.*, 114, D11301, doi: 10.1029/2008JD011343.
- Monks, P. S., [...], <u>G. Frost</u>, et al. **2009**: Atmospheric composition change global and regional air quality. *Atmos. Environ.*, **43**, 5268–5350
- Kim, S.-W., [...], <u>G. J. Frost</u>, et al. **2006**: Satellite-observed US power plant NO_x emission reductions and their impact on air quality. *Geophys. Res. Lett.*, 33, L22812, doi:10.1029/2006GL027749.
- Frost, G. J., et al. 2006: Effects of changing power plant NOx emissions on ozone in the eastern United States: Proof-of-concept. J. Geophys. Res., 111, D12306, doi:10.1029/2005JD006354.
- Grell, G. A., [...], <u>G. Frost</u>, et al. **2005**: Fully coupled "online" chemistry within the WRF model. *Atmos. Environ.*, 39, 6957-6975.