

## Curriculum Vitae

### Joost de Gouw

Professor, Department of Chemistry  
& Fellow, Cooperative Institute for Research in Environmental Sciences (CIRES)  
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### History of Employment

Professor, CIRES and Department of Chemistry, University of Colorado	2018-present
Fellow of CIRES, joint institute between NOAA and University of Colorado	2008-present
Adjoint Professor, Department of Chemistry & Biochemistry, University of Colorado	2014-2018
Research Scientist, CIRES and NOAA Earth System Research Laboratory	2001-2018
Research Professor, Inst. for Marine and Atmospheric Research, University of Utrecht	1998-2001
Postdoc (with Dr. Howard), NOAA Aeronomy Laboratory	1997-1998
Postdoc (with Dr. Leone), JILA, Univ. of Colorado at Boulder	1994-1996

### Degrees

University of Utrecht, Netherlands	MSc, Physics, 1990	
University of Utrecht, Netherlands	PhD, Physics, 1994 (cum laude)	Prof. Heideman

### Narrative of Research Experience

Joost de Gouw's personal research interests are focused on the sources and chemical transformations of organic compounds in the atmosphere, and the role that these processes play in air quality and climate change. To study these processes, he has used field measurements of volatile organic compounds by mass spectrometry and gas chromatography from various platforms including research aircraft. He has published papers on the emissions of VOCs from vegetation, wildfires, oceans, urban areas, industry, and oil and gas exploration. He has also studied how these emissions are transported and chemically transformed in the atmosphere to form secondary pollutants like ozone and secondary organic aerosol. Joost de Gouw has also used data from satellite remote sensing measurements to study emissions from oil and gas exploration, and wildfires. Joost de Gouw has served as Principal and co-Principal Investigator on several NOAA field missions including the California Nexus ([CalNex](#)) study in 2010, the Southeast Nexus ([SENEX](#)) study in 2013 and the Shale Oil and Natural Gas Nexus ([SONGNEX](#)) study in 2015.

### Short List of Key Publications

Dix, B., Francoeur, C., Meng, L., Serrano-Calvo, R., Levelt, P., Veefkind, P., McDonald, B., and de Gouw, J.: Quantifying NO<sub>x</sub> emissions from U.S. oil and gas production regions using TROPOMI NO<sub>2</sub>, *ACS Earth Space Chem.*, 6, 403–414, <https://doi.org/10.1021/acsearthspacechem.1c00387>, 2022.

Jensen, A., Liu, Z., Tan, W., Dix, B., Chen, T., Koss, A. R., Zhu, L., Li, L., and de Gouw, J. A.: Measurements of Volatile Organic Compounds during the COVID-19 Lockdown in Changzhou, China, *Geophys. Res. Lett.*, 48, e2021GL095560, <https://doi.org/10.1029/2021GL095560>, 2021.

de Gouw, J. A., Veefkind, J. P., Roosenbrand, E., Dix, B., Lin, J. C., Landgraf, J., and Levelt, P. F.: Daily Satellite Observations of Methane from Oil and Gas Production Regions in the United States, *Sci. Rep.*, 10, 1379, <https://doi.org/10.1038/s41598-020-57678-4>, 2020.

- McDonald, B. C., de Gouw, J. A., Gilman, J. B., Jathar, S. H., Akherati, A., Cappa, C. D., Jimenez, J. L., Lee-Taylor, J., Hayes, P. L., McKeen, S. A., Cui, Y., Kim, S.-W., Gentner, D. R., Isaacman-VanWertz, G. A., Goldstein, A. H., Harley, R. A., Frost, G. J., Roberts, J. M., Ryerson, T. B., and Trainer, M.: Volatile Chemical Products Emerging as Largest Petrochemical Source of Urban Organic Emissions, *Science*, 359, 760–764, <https://doi.org/10.1126/science.aag0524>, 2018.
- Krechmer, J. E., Lopez-Hilfiker, F. D., Koss, A. R., Hutterli, M. A., Stoerner, C., Deming, B. L., Kimmel, J. R., Warneke, C., Holzinger, R., Jayne, J. T., Worsnop, D. R., Fuhrer, K., Gonin, M., and de Gouw, J. A.: Evaluation of a New Reagent-Ion Source and Focusing Ion-Molecule Reactor for use in Proton-Transfer-Reaction Mass Spectrometry, *Anal. Chem.*, 90, 12011–12018, <https://doi.org/10.1021/acs.analchem.8b02641>, 2018.
- Koss, A. R., Sekimoto, K., Gilman, J. B., Selimovic, V., Coggon, M. M., Zarzana, K. J., Yuan, B., Lerner, B. M., Brown, S. S., Jimenez, J. L., Krechmer, J., Roberts, J. M., Warneke, C., Yokelson, R. J., and de Gouw, J.: Non-methane organic gas emissions from biomass burning: identification, quantification, and emission factors from PTR-ToF during the FIREX 2016 laboratory experiment, *Atmos. Chem. Phys.*, 18, 3299–3319, <https://doi.org/10.5194/acp-18-3299-2018>, 2018.
- Yuan, B., Koss, A. R., Warneke, C., Coggon, M. M., Sekimoto, K., and de Gouw, J. A.: Proton-Transfer-Reaction Mass Spectrometry: Applications in Atmospheric Sciences, *Chem. Rev.*, 117, 13187–13229, <https://doi.org/10.1021/acs.chemrev.7b00325>, 2017.
- de Gouw, J. A., Parrish, D. D., Frost, G. J., and Trainer, M.: Reduced emissions of CO<sub>2</sub>, NO<sub>x</sub> and SO<sub>2</sub> from U.S. power plants owing the switch from coal to natural gas with combined cycle technology, *Earths Future*, 2, 75–82, <https://doi.org/10.1002/2013EF000196>, 2014.
- de Gouw, J. A., Middlebrook, A. M., Warneke, C., Ahmadov, R., Atlas, E. L., Bahreini, R., Blake, D. R., Brock, C. A., Brioude, J., Fahey, D. W., Fehsenfeld, F. C., Holloway, J. S., Le Henaff, M., Lueb, R., McKeen, S. A., Meagher, J. F., Murphy, D. M., Paris, C., Parrish, D. D., Perring, A. E., Pollack, I. B., Ravishankara, A. R., Robinson, A. L., Ryerson, T. B., Schwarz, J. P., Spackman, J. R., Srinivasan, A., and Watts, L. A.: Organic aerosol formation downwind from the Deepwater Horizon oil spill, *Science*, 331, 1295–1299, <https://doi.org/10.1126/science.1200320>, 2011.
- de Gouw, J. A. and Warneke, C.: Measurements of volatile organic compounds in the Earth's atmosphere using proton-transfer-reaction mass spectrometry, *Mass Spec. Rev.*, 26, 223–257, <https://doi.org/10.1002/mas.20119>, 2007.
- de Gouw, J. A., Middlebrook, A. M., Warneke, C., Goldan, P. D., Kuster, W. C., Roberts, J. M., Fehsenfeld, F. C., Worsnop, D. R., Canagaratna, M. R., Pszenny, A. A. P., Keene, W. C., Marchewka, M., Bertman, S. B., and Bates, T. S.: Budget of organic carbon in a polluted atmosphere: Results from the New England Air Quality Study in 2002, *J. Geophys. Res.-Atmos.*, 110, D16305, <https://doi.org/10.1029/2004JD005623>, 2005.

### Honors

Fellow, American Geophysical Union	2020
Web of Science Highly Cited Researcher in the category Cross-Field	2018
Honorable Mention, Colorado Governor's Award for High-Impact Research	2018
Web of Science Highly Cited Researcher in the Geosciences	2017
Co-recipient, Outstanding Paper Award, NOAA Oceanic & Atmospheric Research	2017
Co-recipient, Colorado Governor's Award for High-Impact Research	2012 & 2014
CIRES Outstanding Performance Award	2007

### Professional Society Memberships

American Geophysical Union  
 American Chemical Society