

Fabien Paulot

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Professional Experience

- 2019- **NOAA/GFDL (Princeton – USA)**
Research Scientist
- 2014-2019 **Princeton University (Princeton – USA)**
Associate research scholar in the Atmospheric and Oceanic Sciences program
- 2011-2014 **Harvard University Center for the Environment (Cambridge – USA)**
HUCE fellow in the Harvard Atmospheric Chemistry Modeling Group (Prof. Daniel J Jacob)

Education

- 2011 **PhD in Environmental Science and Engineering**
California Institute of Technology (Pasadena – USA)
Thesis title: Insights into the isoprene photochemical cascade
Advisor: Prof. Paul O. Wennberg
- 2007 **Dipôme d'ingénieur**
Ecole Polytechnique (Palaiseau – France)
Majors: Chemistry & Environmental Sciences
- 2001-2003 **Classes préparatoires**
Lycée Louis Le Grand (Paris – France)
Prep-class to the entrance examination to the French Grandes Ecoles
Intensive undergraduate program in mathematics, physics and chemistry.

Awards

- 2011-2013 Harvard University Center for the Environment Fellowship
- 2010-2011 NASA Earth and Space Science Fellowship
- 2007-2008 William and Sonya Davidow Graduate Fellowship

Mentorship

- 2020 Nicholas Balasus (UMBC) - Hollings scholar
- 2019 Mariela Arceo Madriz (UC Merced) - CIMES intern
- 2018- Rui Wang (Princeton) - Graduate student (Zondlo)

Publications

- [1] Clifton, O.E., Paulot, F., Fiore, A.M., Horowitz, L.W., Correa, G., Baublitz, C.B., Fares, S., Goded, I., Goldstein, A.H., Gruening, C., Hogg, A.J., Loubet, B., Mammarella, I., Munger, J.W., Neil, L., Stella, P., Uddling, J., Vesala, T., and Weng, E. Influence of Dynamic Ozone Dry Deposition on Ozone Pollution. *Journal of Geophysical Research: Atmospheres*, 125(8), 2020. doi: 10.1029/2020jd032398.
- [2] Dunne, J.P., Horowitz, L.W., Adcroft, A.J., Ginoux, P., Held, I.M., John, J.G., Krasting, J.P., Malyshev, S., Naik, V., Paulot, F., Shevliakova, E., Stock, C.A., Zadeh, N., Balaji, V., Blanton, C., Dunne, K.A., Dupuis, C., Durachta, J., Dussin, R., Gauthier, P.P.G., Griffies, S.M., Guo, H., Hallberg, R.W., Harrison, M., He, J., Hurlin, W., McHugh, C., Menzel, R., Milly, P.C.D., Nikonov, S., Paynter, D.J., Ploshay, J., Radhakrishnan, A., Rand, K., Reichl, B.G., Robinson, T., Schwarzkopf, D.M., Sentman, L.T., Underwood, S., Vahlenkamp, H., Winton, M., Wittenberg, A.T., Wyman, B., Zeng, Y., and Zhao, M. The GFDL Earth System Model version 4.1 (GFDL-ESM 4.1): Overall coupled model description and simulation characteristics. *Journal of Advances in Modeling Earth Systems*, 2020. doi: 10.1029/2019ms002015.
- [3] Horowitz, L.W., Naik, V., Paulot, F., Ginoux, P.A., Dunne, J.P., Mao, J., Schnell, J., Chen, X., He, J., John, J.G., Lin, M., Lin, P., Malyshev, S., Paynter, D., Shevliakova, E., and Zhao, M. The GFDL Global Atmospheric Chemistry-Climate Model AM4.1: Model Description and Simulation Characteristics. *Journal of Advances in Modeling Earth Systems*, 2020. doi: 10.1029/2019ms002032.
- [4] Kuai, L., Bowman, K.W., Miyazaki, K., Deushi, M., Revell, L., Rozanov, E., Paulot, F., Strode, S., Conley, A., Lamarque, J.F., Jöckel, P., Plummer, D.A., Oman, L.D., Worden, H., Kulawik, S., Paynter, D., Stenke, A., and Kunze, M. Attribution of Chemistry-Climate Model Initiative (CCMI) ozone radiative flux bias from satellites. *Atmospheric Chemistry and Physics*, 20(1):281–301, 2020. doi: 10.5194/acp-20-281-2020.
- [5] Lin, M., Horowitz, L.W., Xie, Y., Paulot, F., Malyshev, S., Shevliakova, E., Finco, A., Gerosa, G., Kubistin, D., and Pilegaard, K. Vegetation feedbacks during drought exacerbate ozone air pollution extremes in Europe. *Nature Climate Change*, 10(5):444–451, 2020. doi: 10.1038/s41558-020-0743-y.
- [6] Paulot, F., Paynter, D., Winton, M., Ginoux, P., Zhao, M., and Horowitz, L.W. Revisiting the Impact of Sea Salt on Climate Sensitivity. *Geophysical Research Letters*, 47(3), 2020. doi: 10.1029/2019gl085601.

- [7] Paulot, F., Stock, C., John, J.G., Zadeh, N., and Horowitz, L.W. Ocean ammonia outgassing: modulation by CO₂ and anthropogenic nitrogen deposition. *Journal of Advances in Modeling Earth Systems*, 2020. doi: 10.1029/2019ms002026.
- [8] Stock, C.A., Dunne, J.P., Fan, S., Ginoux, P., John, J., Krasting, J.P., Laufkötter, C., Paulot, F., and Zadeh, N. Ocean Biogeochemistry in GFDL’s Earth System Model 4.1 and its Response to Increasing Atmospheric CO₂. *Journal of Advances in Modeling Earth Systems*, 2020. doi: 10.1029/2019ms002043.
- [9] Held, I.M., Guo, H., Adcroft, A., Dunne, J.P., Horowitz, L.W., Krasting, J., Shevliakova, E., Winton, M., Zhao, M., Bushuk, M., Wittenberg, A.T., Wyman, B., Xiang, B., Zhang, R., Anderson, W., Balaji, V., Donner, L., Dunne, K., Durachta, J., Gauthier, P.P.G., Ginoux, P., Golaz, J.C., Griffies, S.M., Hallberg, R., Harris, L., Harrison, M., Hurlin, W., John, J., Lin, P., Lin, S.J., Malyshev, S., Menzel, R., Milly, P.C.D., Ming, Y., Naik, V., Paynter, D., Paulot, F., Rammawamy, V., Reichl, B., Robinson, T., Rosati, A., Seman, C., Silvers, L.G., Underwood, S., and Zadeh, N. Structure and Performance of GFDL’s CM4.0 Climate Model. *Journal of Advances in Modeling Earth Systems*, 11(11):3691–3727, 2019. doi: 10.1029/2019ms001829.
- [10] Schnell, J.L., Naik, V., Horowitz, L.W., Paulot, F., Ginoux, P., Zhao, M., and Horton, D.E. Air quality impacts from the electrification of light-duty passenger vehicles in the United States. *Atmospheric Environment*, 208:95–102, 2019. doi: 10.1016/j.atmosenv.2019.04.003.
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- [12] Paulot, F., Malyshev, S., Nguyen, T., Crouse, J.D., Shevliakova, E., and Horowitz, L.W. Representing sub-grid scale variations in nitrogen deposition associated with land use in a global Earth system model: implications for present and future nitrogen deposition fluxes over North America. *Atmospheric Chemistry and Physics*, 18(24):17963–17978, 2018. doi: 10.5194/acp-18-17963-2018.
- [13] Paulot, F., Paynter, D., Ginoux, P., Naik, V., and Horowitz, L.W. Changes in the aerosol direct radiative forcing from 2001 to 2015: observational constraints and regional mechanisms. *Atmospheric Chemistry and Physics*, 18(17):13265–13281, 2018. doi: 10.5194/acp-18-13265-2018.
- [14] Schnell, J.L., Naik, V., Horowitz, L.W., Paulot, F., Mao, J., Ginoux, P., Zhao, M., and Ram, K. Exploring the relationship between surface PM_{2.5} and meteorology in Northern India. *Atmospheric Chemistry and Physics*, 18(14):10157–10175, 2018. doi: 10.5194/acp-18-10157-2018.
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- top-down estimates. *Atmos. Chem. Phys.*, 18(1):339–355, 2018. doi: 10.5194/acp-18-339-2018.
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- [17] Zhao, M., Golaz, J.C., Held, I.M., Guo, H., Balaji, V., Benson, R., Chen, J.H., Chen, X., Donner, L.J., Dunne, J.P., Dunne, K., Durachta, J., Fan, S.M., Freidenreich, S.M., Garner, S.T., Ginoux, P., Harris, L.M., Horowitz, L.W., Krasting, J.P., Langenhorst, A.R., Liang, Z., Lin, P., Lin, S.J., Malyshev, S.L., Mason, E., Milly, P.C.D., Ming, Y., Naik, V., Paulot, F., Paynter, D., Phillipps, P., Radhakrishnan, A., Ramaswamy, V., Robinson, T., Schwarzkopf, D., Seman, C.J., Shevliakova, E., Shen, Z., Shin, H., Silvers, L.G., Wilson, J.R., Winton, M., Wittenberg, A.T., Wyman, B., and Xiang, B. The GFDL Global Atmosphere and Land Model AM4.0/LM4.0 - 2. Model Description, Sensitivity Studies, and Tuning Strategies. *J. Adv. Model. Earth Syst.*, 2018. doi: 10.1002/2017ms001209.
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- [19] Paulot, F., Fan, S., and Horowitz, L.W. Contrasting seasonal responses of sulfate aerosols to declining SO₂ emissions in the Eastern U.S.: Implications for the efficacy of SO₂ emission controls. *Geophys. Res. Lett.*, 44(1):455–464, 2017. ISSN 1944-8007. doi: 10.1002/2016GL070695. 2016GL070695.
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- [21] Lee, H.M., Paulot, F., Henze, D.K., Travis, K., Jacob, D.J., Pardo, L.H., and Schichtel, B.A. Sources of nitrogen deposition in Federal Class I areas in the US. *Atmos. Chem. Phys.*, 16(2):525–540, 2016. doi: 10.5194/acp-16-525-2016.
- [22] Li, J., Mao, J., Min, K.E., Washenfelder, R.A., Brown, S.S., Kaiser, J., Keutsch, F.N., Volkamer, R., Wolfe, G.M., Hanisco, T.F., Pollack, I.B., Ryerson, T.B., Graus, M., Gilman, J.B., Lerner, B.M., Warneke, C., de Gouw, J.A., Middlebrook, A.M., Liao, J., Welti, A., Henderson, B.H., McNeill, V.F., Hall, S.R., Ullmann, K., Donner, L.J., Paulot, F., and Horowitz,

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Wennberg, P.O. Importance of secondary sources in the atmospheric budgets of formic and acetic acids. *Atmos. Chem. Phys.*, 11(5):1989–2013, 2011.

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- [44] Paulot, F., Crounse, J.D., Kjaergaard, H.G., Kurten, A., St. Clair, J.M., Seinfeld, J.H., and Wennberg, P.O. Unexpected Epoxide Formation in the Gas-Phase Photooxidation of Isoprene. *Science*, 325(5941):730–733, 2009.

Presentations

- 2019 TriMIP (Princeton, USA) – talk
- 2018 ICOS (Praha, Czech Republic) – poster
- 2018 EGU (Vienna, Austria) – talk
- 2016 AGU (San Francisco, USA) – poster
- 2016 IGAC (Breckenridge, USA) – talk
- 2015 CCMI (Rome, Italy) – poster
- 2015 AEROCOM meeting (Rome, Italy) – talk
- 2015 Ocean Carbon Biogeochemistry meeting (Woods Hole, USA) – talk
- 2014 Boston University (Boston, USA) – talk
- 2014 GEIA meeting (Hamburg, Germany) – talk
- 2014 AQAST (Houston, USA) – talk
- 2013 AGU (San Francisco, USA) – talk
- 2013 AQAST (College Park, USA) – talk
- 2012 AQAST (Madison, USA) – talk
- 2012 AMS Biogeosciences conference (Boston, USA) – talk
- 2011 Gordon Research Conference (Mount Snow, USA) – poster
- 2011 ACCESS XI (Brookhaven, USA) – talk

CURRICULUM VITAE

- 2010 AGU Fall Meeting (San Francisco, USA) – talk
- 2010 Atmospheric chemical mechanisms (Davis, USA) – talk
- 2009 AGU Fall Meeting (San Francisco, USA) – poster
- 2009 GEOS-Chem Meeting (Cambridge, USA) – talk
- 2008 IGAC (Annecy, France) – poster
- 2007 AGU Fall Meeting (San Francisco, USA) – talk and poster