

Melissa Payer Sulprizio

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PROFESSIONAL EXPERIENCE

Senior Scientific Software Engineer	Harvard University, Cambridge, MA	2022–present
Senior Scientific Programmer	Harvard University, Cambridge, MA	2017–2022
Scientific Programmer	Harvard University, Cambridge, MA	2011–2017
Chemistry Tutor	Anna Maria College, Paxton, MA	2011
Graduate Research Assistant	University at Albany, SUNY, Albany, NY	2009–2010
Graduate Teaching Assistant	University at Albany, SUNY, Albany, NY	2009–2010
Summer Research Intern	Hobart & William Smith Colleges, Geneva, NY	2006, 2008
Research Intern	NOAA Space Weather Prediction Center, Boulder, CO	2007

LEADERSHIP ROLES

Fundraising Co-Chair, Groton Community School Board of Directors	2023–present
GEOS-Chem Model Engineer	2021–present
GEOS-Chem Software Engineering Working Group Co-Chair	2019–present
GEOS-Chem Steering Committee Member	2019–present
Methane Project Support Lead, Harvard Atmospheric Chemistry Modeling Group	2012–present
GEOS-Chem Support Team Member	2011–present
Co-President, American Meteorological Society Plymouth State University Chapter	2007–2008
Vice President, American Meteorological Society Plymouth State University Chapter	2006–2007

EDUCATION

M.S. Atmospheric Science, University at Albany, SUNY	2010
Thesis: Precipitation Distributions Associated with Cool-season Cutoff Cyclones in the Northeast US	
B.S. Meteorology, Minor in Technical Mathematics, Plymouth State University	2008

SKILLS

Operating Systems	Linux, Mac OS X, Windows
Programming	Fortran, Python, bash, C, Make, IDL, Perl, R, NCL
Web Development	HTML, JavaScript, CSS, Jekyll, ReadTheDocs, MediaWiki
Scientific Tools	Git, TAU, MATLAB, SPSS, HYSPLIT
Other	Microsoft Office, Adobe Photoshop

HONORS AND AWARDS

AMS Graduate Fellowship	American Meteorological Society	2008
Senior Meteorology Achievement Award	Plymouth State University	2008
David S. Johnson Endowed Undergraduate Scholarship	American Meteorological Society	2007
Ernest F. Hollings Undergraduate Scholarship	NOAA	2006
NASA Space Grant Scholarship	NASA	2005–2007
Geneva Smith Meteorology Scholarship	Plymouth State University	2005, 2006
Presidential Scholarship	Plymouth State University	2004–2008

SELECT PUBLICATIONS

Maasakkers, J.D., E.E. McDuffie, M.P. Sulprizio, C. Chen, M. Schultz, L. Brunelle, R. Thrush, J. Steller, C. Sherry, D.J. Jacob, S. Jeong, B. Irving, and M. Weitz, A gridded inventory of annual 2012-2018 U.S. anthropogenic methane emissions, submitted to Environ. Sci. Technol., <https://doi.org/10.31223/X5RQ3M>, 2023.

Varon, D.J., D.J. Jacob, M. Sulprizio, L.A. Estrada, W.B. Downs, L. Shen, S.E. Hancock, H. Nesser, Z. Qu, E. Penn, Z. Chen, X. Lu, A. Lorente, A. Tewari, and C.A. Randles, Integrated Methane Inversion (IMI 1.0): a user-friendly, cloud-based facility for inferring high-resolution methane emissions from TROPOMI satellite observations, Geosci. Model Dev., 15, 5787–5805, <https://doi.org/10.5194/gmd-15-5787-2022>, 2022.

Delwiche, K.B., J.A. Harrison, J.D. Maasakkers, M.P. Sulprizio, J. Worden, D.J. Jacob, and E.M. Sunderland, Estimating drivers and pathways for hydroelectric reservoir methane emissions using a new mechanistic model, J. Geophys. Res. Biogeosciences, 127, e2022JG006908, 2022, <https://doi.org/10.1029/2022JG006908>.

Lin, H., D.J. Jacob, E.W. Lundgren, M.P. Sulprizio, C.A. Keller, T.M. Fritz, S.D. Eastham, L.K. Emmons, P.C. Campbell, B. Baker, R.D. Saylor, and R. Montuoro, Harmonized Emissions Component (HEMCO) 3.0 as a versatile emissions component for atmospheric models: application in the GEOS-Chem, NASA GEOS, WRF-GC, CESM2, NOAA GEFS-Aerosol, and NOAA UFS models, Geosci. Model Dev., 14, 5487–5506, 2021.

Maasakkers, J.D., D.J. Jacob, M.P. Sulprizio, T.R. Scarpelli, H. Nesser, J. Sheng, Y. Zhang, X. Lu, A.A. Bloom, K.W. Bowman, J.R. Worden, and R.J. Parker, 2010-2015 North American methane emissions, sectoral contributions, and trends: a high-resolution inversion of GOSAT satellite observations of atmospheric methane, Atmos. Chem. Phys., 21, 4339–4356, 2021.

Kopplitz, S.N., D.J. Jacob, M.P. Sulprizio, L. Myllyvirta, and C. Reid, Burden of disease from rising coal emissions in Southeast Asia, Environ. Sci. Technol., 51, 1467–1476, 2017.

Maasakkers, J.D., D.J. Jacob, M.P. Sulprizio, A.J. Turner, M. Weitz, T. Wirth, C. Hight, M. DeFigueiredo, M. Desai, R. Schmeltz, L. Hockstad, A.A. Bloom, K.W. Bowman, S. Jeong, and M.L. Fischer, Gridded national inventory of U.S. methane emissions, Environ. Sci. Technol., 50, 13123–13133, 2016.

Wecht, K.J., D.J. Jacob, M.P. Sulprizio, G.W. Santoni, S.C. Wofsy, R. Parker, H. Bösch, and J.R. Worden, Spatially resolving methane emissions in California: constraints from the CalNex aircraft campaign and from present (GOSAT, TES) and future (TROPOMI, geostationary) satellite observations, Atm. Chem. Phys., 14, 8175–8184, 2014.

Payer, M., N.F. Laird, Surface fronts, troughs, and baroclinic zones in the Great Lakes region, Weather and Forecasting, 26 (4), 555–563, 2011.

Laird, N.F., J. Desrochers, M. Payer, Climatology of lake-effect precipitation events over Lake Champlain, J. Applied Meteorology and Climatology, 48 (2), 232–250, 2009.

Payer, M., J. Desrochers, N.F. Laird, A lake-effect snow band over Lake Champlain, Monthly Weather Review, 135 (11), 3895–3900, 2007.