Haydee Salmun

Professor of Earth and Environmental Sciences
Hunter College & The Graduate Center of The City University of New York
695 Park Ave. Room HN1035, New York, NY 10065
Tel: (212) 772-5224; Email: *hsalmun@hunter.cuny.edu*

EDUCATION AND PROFESSIONAL BACKGROUND

Johns Hopkins University	Earth & Planetary Sciences/Oceanography		PhD 1989
University of Missouri-St. Louis	Physics		MS 1980
University of Buenos Aires, Argentina	Physics		BSc 1977
University of Oxford, UK	Oceanography	Postdoctoral Research Assistant	1989-1993

POSTGRADUATION EDUCATION and OTHER TRAINING

1989 - 1993	Postdoctoral Research Assistant, University of Oxford, UK. Oceanography
1991	Junior Research Fellow at CNRS - INSU Summer School, Roscoff, France
1990	Visiting Fellow Scholar, Dept. of Earth and Planetary Sciences, Johns Hopkins University
1980	Visiting Fellow, Climate Group of the Atmospheric Analysis and Prediction Division at the National Center for Atmospheric Research, Boulder, CO
1979	Summer Student Visitor, Advanced Study Program at the National Center for Atmospheric Research, Boulder, CO

ACADEMIC POSITIONS AND RELATED EXPERIENCE

2024 - Present	Professor, Department of Geography and Environmental Science, Hunter College **and** PhD Program in Earth and Environmental Science, The Graduate Center of CUNY
2006 - 2024	Associate Professor, Department of Geography and Environmental Science, Hunter College **and** PhD Program in Earth and Environmental Science, The Graduate Center of CUNY
2003 - 2006	Assistant Professor, PhD Program in Earth and Environmental Science, The Graduate Center of CUNY
2001 - 2006	Assistant Professor, Department of Geography, Hunter College of CUNY
1993 - 2001	Associate Research Scientist, Dept. of Geography and Environmental Engineering, Johns Hopkins University
1983 - 1988	Research Assistant, Dept. of Earth and Planetary Sciences, Johns Hopkins University
1981 - 1982	Visiting Scholar, Climate Group of the Atmospheric Analysis and Prediction Division at the National Center for Atmospheric Research, Boulder, CO
1979 - 1983	Research Assistant, Dept. of Meteorology, University of Maryland, College Park
1978 - 1979	Research Assistant, Dept. of Physics, University of Missouri at St. Louis
1977 - 1978	Teaching Assistant, Dept. of Physics, University of Missouri at St. Louis

Short appointments and visits

2018	Visiting Scholar, Instituto de Geologia de Costas y del Cuaternario, Universidad Nacional de Mar del Plata, Argentina

2010 Visiting Professor at the EFLUM Laboratory of Environmental Fluid Mechanics and Hydrology, EPFL, Lausanne, Switzerland

PUBLICATIONS

a. Articles in Peer-Reviewed Journals

2024 Teixeira, J, J. R. Piepmeier, A. R. Nehrir, C. O. Ao, S. S. Chen, C. A. Clayson, A. M. Fridlind, M. Lebsock, W. McCarthy, **H. Salmun**, J. A. Santanello, D. D. Turner, Z. Wang, and X. Zeng. Toward a Global Planetary Boundary Layer Observing System: A Summary. *Bulletin of the American Meteorological Society*. ***In Submission***.

2023 **Salmun, H.,** H. Josephs* and A. Molod. GRWP-PBLH: Global Radar Wind Profiler Planetary Boundary Layer Height Data. *Bulletin of the American Meteorological Society*. DOI: 10.1175/BAMS-D-22-0002.1.

2023 Seijo-Ellis*, G., D. Giglio and **H. Salmun**. Intrusions of Amazon River waters in the Virgin Islands basin from 2007 to 2017. *J. Geophys. Res., Oceans*. Vol. 128(3). https://doi.org/10.1029/2022JC018709.

2019 Molod, A., **H. Salmun** and A. Marquardt Collow. Annual Cycle of Planetary Boundary Layer Heights estimated from NOAA Profiler Network Data. *J. Geophys. Res., Atmospheres.* Vol.17, No. 12, 6207-622.

2019 Seijo-Ellis*, G. G., D. Lindo-Atichati and **H. Salmun**. Vertical structure of the water column at the Virgin Islands shelf break and trough. *J. Mar. Sci. Eng.*, *7*(3), 74; https://doi.org/10.3390/jmse7030074.

2016 Meehan, K. C. and **H. Salmun**. Integrating Technology in Today's Undergraduate Classrooms: A Look at Students Perspectives. *Journal of College Science Teaching*. Vol 41, No. 1.

2016 **Salmun, H**. and F. Buonaiuto. The Catalyst Program at Hunter College – A partnership among earth science, physics, computer science and mathematics. *Journal of STEM Education: Innovations and Research*. Vol. 17, No. 2, 42-50.

2015 Molod, A., **H. Salmun** and M. Dempsey*. Estimating Planetary Boundary Layer Heights from NOAA Profiler Network Operational Wind Profiler Data. *Journal of Atmospheric and Oceanic Technology*. Vol. 32, No. 9, 1545-1561.

2015 **Salmun, H**., A. Molod. The use of a Statistical Model of Storm Surge as a Bias Correction for Dynamical Surge Models and its Applicability along the U. S. East Coast**.** *J. Mar. Sci. Eng.* **3(1)**, 73-86; doi:10.3390/jmse3010073.

2011 **Salmun, H**., A. Molod, K. Wisniewska* and F. Buonaiuto. Statistical prediction of the storm surge associated with cool-weather storms at The Battery, New York. *Journal of Applied Meteorology and Climatology*. **50**, 273–282.

2009 **Salmun, H**., A. Molod, F. Buonaiuto, K. Wisniewska* and K. Clarke*. East Coast Cool-weather Storms in the New York Metropolitan Region. *Journal of Applied Meteorology and Climatology*. **48**, No. 11, 2320-2330.

2009 **Salmun, H**., A. Molod, J. Albrecht and F. Santos*. Scales of Variability of Surface Vegetation: Calculation and Implications for Climate Models. *J. Geophys. Res., Biogeosciences*, **114**, G02007, doi:10.1029/2008JG000762.

2007 **Salmun, H**., A. Molod and A. Ira*. Observational Validation of an Extended Mosaic Technique for Capturing Sub-Grid Scale Heterogeneity in a GCM. *Tellus, B*, **59**(3), 625–632.

2006 **Salmun, H**. and A. Molod. Progress in Modeling the Impact of Land Use Change on the Global Climate. *Progress in Physical Geography*, **30**(6), 737-749.

2006 Molod, A and **H. Salmun**. Comment on "A Proposed Structure for Coupling Tiled Surfaces with the Planetary Boundary Layer" by M.J. Best, A. Beljaars, J. Polcher, and P. Viterbo. *J. Hydrometeorology*, **7**(4), 833–834**.**

2004 Molod, A., **H. Salmun** and D. Waugh. The Impact on a GCM Climate of an Extended Mosaic Technique for the Land-Atmosphere Coupling. *Journal of Climate*, **17**, No. 20, 3877–3891.

2003 Molod, A., **H. Salmun** and D. Waugh. A new look at modeling surface heterogeneity: extending its influence in the vertical. *J. Hydrometeorology*, **5**, No. 4, 810-825.

2002 Molod, A. and **H. Salmun**. A global assessment of the mosaic approach to modeling land-surface heterogeneity. *J. Geophys. Res., Atmospheres*. V. **107**, No. D14, doi: 10.1029/2001JD000588.

1995 **Salmun, H**. Convection patterns in a triangular domain. *Int. J. Heat & Mass Transfer*, **38**, No. 2, 351-362.

1995 **Salmun, H**. The stability of a single-cell steady-state solution in a triangular enclosure. *Int. J. Heat & Mass Transfer*, **38**, No. 2, 363-369.

1992 **Salmun, H**. and O. M. Phillips. An experiment in boundary mixing. Part 2. The slope dependence at small angles. *J. Fluid Mech*., **240**, 355-377.

1991 **Salmun, H**., P. D. Killworth and J. R. Blundell. A two-dimensional model of boundary mixing. *J. Geophys. Res*., **96**, No C10, 18447-18474.

1986 Phillips, O.M., J. H. Shyu and **H. Salmun**. An experiment in boundary mixing: mean circulation and transport rate. *J. Fluid Mech*., **173**, 473-499.

1980 **Salmun, H**., R.F. Cahalan and G.R. North. Latitude-dependent sensitivity to stationary perturbations in simple climate models. *J. Atmos. Sci*., **37**, No. 8.

**** Denotes student***

b. Reports and Book chapters (Peer-reviewed)

2021 Teixeira, J, J. R. Piepmeier, A. R. Nehrir, C. O. Ao, S. S. Chen, C. A. Clayson, A. M. Fridlind, M. Lebsock, W. McCarthy, **H. Salmun**, J. A. Santanello, D. D. Turner, Z. Wang, and X. Zeng (2021): Toward a Global Planetary Boundary Layer Observing System: The NASA PBL Incubation Team Report. NASA PBL Incubation Team. 134 pp. ***https://science.nasa.gov/earth-science/decadal-pbl***

2002 **Salmun, H**. and K. Goetchius*. Assessing Atrazine Input and Removal Processes in the Chesapeake Bay Environment: An Overview. In Fate and Transport of Chemicals in the Environment: Impacts, Monitoring, and Remediation, ACS Publisher, Lipnick, R.L., Mason, R.P. and Phillips, M.L., Eds.

2001 **Salmun, H**. From teaching to learning: a course on women, gender and science. In A new Generation of Feminist Science Studies, Mayberry, M., Subramaniam, B. and Weasel, L., eds. Routledge Press.

c. Conference Proceedings (Reviewed Manuscripts)

2002 Goetchius*, K. and **H. Salmun**. Modeling the fate and transport of atrazine in the upper Chesapeake Bay. In *EM2002 Proceedings* of the ASCE 15th Engineering Mechanics Conference, Columbia University, New York, June 2-5, 8pp.

1999 Farhan, Y. H., **H. Salmun**. Assessment of dominant atrazine input and removal processes in the Chesapeake Bay. In Proceedings of the Wetlands and Remediation: An International Conference, Salt Lake City, Utah. (November 16-17).

1994 **Salmun, H**. Applicability of boundary mixing theory to the Chesapeake Bay. Proceedings Chesapeake Bay Conference, Toward a Sustainable Coastal Watershed: The Chesapeake Bay Experiment, Norfolk, Va, June 1-3.

d. In preparation

2023 **Salmun, H**., A. Molod and H. Josephs*. Planetary Boundary Layer Heights Retrievals from Radar Wind Profiler Global Networks. ***To be submitted to the Journal of Geophysical research- Atmospheres (Summer 2024)***

2023 **Salmun, H**., J. R. Lewis, V. Caicedo and R. Delgado. Characterizing PBL Height Estimates using Data from Different Instruments - A Case Study. ***To be submitted to the Journal of Geophysical research- Atmospheres (Fall 2024)***

RESEARCH GRANTS

a. External Grants (awarded)

2022 "Exploring Strategies and Developing PBL Data Assimilation Including PBL Height from Multiple Observing Systems in the Global GEOS System", ***Institutional PI***, (**PI: Y. Zhu GMAO NASA/Goddard Space Flight Center**). NASA. Award Number 80NSSC22K1865, $83,996.00, 08/01/2022-07/31/25.

2021 "Collaborative Research: Enhancing Asian American and Pacific Islander Participation and Belonging in the Geosciences", ***Collaborator***, (**PIs: D. Ibarra, Brown University and K. Lau, Penn State University**). National Science Foundation, EAGER Program. Start date: 01/2022, duration: 24 months.

2021 "GP-GO: Growing the number and diversity of non-geoscience undergraduates in Cornell's graduate programs in Atmospheric and Geological Sciences with a Geoscience Learning Ecosystem", ***Collaborator***, (**PI: M. Pritchard Cornell University)**. National Science Foundation, ICER - GEOPAths-Grad Opportunities GO Program. Start date: 9/01/2021, duration: 36 months.

2020 "Using Global Ground-Based Measurements of Planetary Boundary Layer Height to Inform Incubation Study Team". NASA Grant Number 80NSSC20K0664, $71,233.00, 2/14/20-2/13/21. ***PI***.

2009 "The CATALYST Scholarship Program", ***PI*** **(F. Buonaiuto, J. Seager, A. Peluso, V. Teller, Co-PIs, Y. C. Chen, Senior Personnel)**; National Science Foundation DUE S-STEM Award Number 0850021, $596,000.00, 6/1/09-5/31/14.

2004 Gender Equity Project's Sponsorship Program - Faculty Fellow, Hunter College. National Science Foundation, PIs: Valian, Rabinowitz and Raps. (6/1/04 - 5/31/05, $3,000). ***PI***

2003 Gender Equity Project's Sponsorship Program - Faculty Fellow, Hunter College. National Science Foundation, PIs: Valian, Rabinowitz and Raps. (6/1/03 - 5/31/04, $8,100). ***PI***.

2002 Gender Equity Project's Sponsorship Program - Faculty Fellow, Hunter College. National Science Foundation, PIs: Valian, Rabinowitz and Raps. (6/1/02 - 5/31/03, $10,000). ***PI***.

1998 "The climate of the earth: Dynamics and change". (Hewlett Grant and Kenan Funds, 1998/99, for developing and teaching freshman seminars, Emily Elliot, graduate teaching assistant). ***PI***.

1997 "Role of Reduced Sulfur Species in Promoting the Transformation of Triazines in Estuaries" ***Co-PI*** (L. Roberts, PI, US Environmental Protection Agency. (10/1/97 – 9/30/2000, $305,000).

1997 "Conference in Environmental Fluid Mechanics", National Science Foundation (OCE-9725161, 8/1/97 – 7/31/98, $10,000) and NASA (4/20/98 – 5/31/98, $10,000). ***PI***.

1994 "Microscale bio-physical interactions and their contribution to variability of oceanic optical properties". Support from ONR Environmental Optics and Biological/Chemical Oceanography Programs, January 1996 – January 1997, ***Co-PI*** with A. Brandt and A. Palowich, postdoctoral associate.

b. Internal Grants (awarded)

2021 "A Combined Record of Boundary Layer Heights Retrieved from Wind Profilers and Ceilometers". PSC-CUNY Research Program, PSC-CUNY Award (Enhanced) # 64711-00, $11753.80, 7/1/21-6/30/22. ***PI***.

2020 "A long-term characterization of the water mass exchanges and connectivity at the Southern Puerto Rico shelf break and Virgin Islands trough". PSC-CUNY Research Program, PSC-CUNY Award # 63733-00 51, $5971.09, 7/1/20-6/30/21. ***PI***.

2018 "Water mass exchanges and connectivity at the Southern Puerto Rico shelf break and Virgin Islands trough". PSC-CUNY Research Program, PSC-CUNY Award #: 61687-00 49, $71,233.00, 7/1/18-6/30/19. ***PI***.

2018 "Storms along the Patagonian Shelf in the Next Century – Assessing changes with CMIP5 Data". Presidential Fund for Faculty Advancement, Hunter College of CUNY, $2,500.00, 7/1/18-6/30/19. ***PI***.

2016 "Estimation of planetary boundary layer heights from global network wind profiler data". PSC-CUNY Research Program, PSC-CUNY Enhanced Award #: 69861-00 47, $11448.80, 7/1/16-12/31/17. ***PI***.

2014 "The Catalyst Scholarship Program at Hunter College: a partnership among earth science, physics, computer science and mathematics". Presidential Fund for Faculty Advancement, Hunter College of CUNY, $1,000.00, 1/1/14-12/31/14. ***PI***.

2012 "Determining Planetary Boundary Layer Heights from Operational Wind Profiler Data". Presidential Fund for Faculty Advancement, Hunter College of CUNY, $1,800.00, 2/1/12-12/31/13. ***PI***.

2010 "Statistical prediction of storm surge associated with East Coast Cool-weather Storms at The Battery, New York." PSC-CUNY-41 Research Program, PSC-CUNY Award #: 63088-00 41, $5116.90, 7/1/10-12/30/11. ***PI***.

2008 "A study of Nor'easters using buoy data in the New York metropolitan region"; PSC-CUNY-39 Research Program, PSC-CUNY Award #: 61533-00 39, $5850.64, 7/1/08-6/30/09. ***PI***.

2007 "An Investigation of the Strength of Land-Atmosphere Coupling in General Circulation Models"; PSC-CUNY-38 Research Program, PSC-CUNY Award #: 69727-00 38, $3,084.00, 7/1/07-6/30/08. ***PI***

2006 "Observational Validation of an Extended Mosaic Technique for the Land-Atmosphere Coupling"; PSC-CUNY-37 Research Program, PSC-CUNY Award #: 68640-00 37, $4233.64, 7/1/06-6/30/07. ***PI***

2005 "An Investigation of a Potential Climate-Scale Mode of Interaction between the Land Surface and the Atmosphere" - renewal; PSC-CUNY-35 Research Program, PSC-CUNY Award #: 67865-00 36, $ 3,385.00, 7/1/05-6/30/06. ***PI***

2004 "Exploring the Intersections of Gender, Race and Science" (PI, Co-PI: R. Oza); CUNY Faculty Development Program (6/1/04 - 5/31/05, $4,620). ***PI***.

2004 "An Investigation of a Potential Climate-Scale Mode of Interaction between the Land Surface and the Atmosphere"; PSC-CUNY-35 Research Program (6/1/04 - 5/31/05, $4,971). ***PI***

2003 "Horizontal Scales of Land Surface Heterogeneity"; PSC-CUNY-34 Research Program. (7/1/03 - 6/30/04, $4,301). ***PI***.

2002 "Impact of the Land Surface Heterogeneity on the Vertical Structure of the Atmosphere"; PSC-CUNY-33 Research Program. (4/1/02 - 4/1/03, $5,000). ***PI***.

1994 "Control of plankton distribution by small-scale physical processes", APL/Whiting School of Engineering - R & D Initiative, JHU, ***Co-PI*** (A. Brandt (9/1/94 - 6/30/97)

1994 "Turbulence generation of non-linear waveforms in shear stratified flows". Support: Applied Physics Laboratory, Department of Earth and Planetary Sciences and Geography and Environmental Engineering, Johns Hopkins University, 1994 – 1996. ***PI***.

ACADEMIC AND PROFESSIONAL HONORS AND AWARDS

GAIN (Geoscience Academics in Northeast) Summer Writing Retreat for women geoscientists award (NSF-ADVANCE Program), 2007, 2008, 2011, 2012, 2013 and 2016.

Hunter College Presidential Travel Award, 2004, 2005, 2006, 2008, 2010, 2011, 2013 and 2016.

Outstanding Undergraduate Mentoring in the Sciences Award, Hunter College of CUNY, 2011.

Gender Equity Program Fellowship, Hunter College of CUNY, 2002, 2003 and 2004.

Selected for the AAAS Lecture Series on Women in Science and Engineering, AAAS 2002.

Gilman Fellowship, Johns Hopkins University

PROFESSIONAL ACTIVITIES

a. ***Recent Invited Presentations***

2018 *Studying coastal dynamics along the Patagonian Shelf: an integrated Earth Systems Science approach*. Presented at the Instituto de Geologia de Costas y del Cuaternario, Universidad Nacional de Mar del Plata, Argentina.

2016 *Estimating Planetary Boundary Layer Heights from NOAA Profiler Network Wind Profiler Data*. Earth Science Seminar Series, School of Earth and Environmental Science, Queens College of CUNY.

2013 *Statistical Models for Predicting Storm Maximum Storm Surge and their Application to Forecasting in Coastal Regions*. Presented at the BIT - 3rd Annual World Congress of Marine Biotechnology, Session 1-5: Physical Oceanography and Marine Chemistry; September 23-25, Hangzhou, China.

2012 *A turbulent* journey of doing science on fluid earth*. Presented at the Science Today Series: Focus on Women in Science, Technology, Engineering and Mathematics, SUNY Oswego (February).
(*)'Turbulent' because, by and large, the 'flow' cannot be orderly (laminar) for a woman in STEM, and because the subject of turbulent processes is what ties a lot of my work together.

2008 *Academic Career Opportunities in Earth Sciences and the Role of Mentoring in Promoting Diversity*. Presented at the annual conference of the National Association of Black Geologists and Geophysicists, as part of a special session on *Diversity in Earth Sciences: Disciplines, People and Careers*. Atlanta, Georgia.

2008 *East Coast Cool-weather Storms in the New York Metropolitan Area*. Presented at the annual conference of the National Association of Black Geologists and Geophysicists, Atlanta, Georgia.

2007 *New York meets Nor'easters: Are our Coasts Prepared*, with F. Buonaiuto. Public lecture for the 2007 Summer Series of CUNY's Program Climate Change at Governors Island, NY.

2006 Invited On-Camara Interview: "*Geo Basics: An Introduction to Earth Science*", an educational Earth Science video series produced for Cambridge Educational (The Cambridge Core Science Series), an 8-part series to be distributed as supplemental educational material to high schools, colleges and libraries throughout North America. The interview highlighted Hunter College and the Geography Department, besides my scientific and educational expertise (September).

2006 *Progress in Modeling the Impact of Land Cover Change on the Global Climate*. Geography Seminar Series, Department of Geography, Hunter College of CUNY (February) **and** School of Earth and Environmental Science, Queens College of CUNY, (April).

b. *Recent Conference Abstracts*

2024 **Salmun, H**., J. R. Lewis Jr., A. Molod, V. Caicedo, R. Delgado, R. K. K. Sakai, and E. J. Welton. Towards Obtaining Global PBL Height Retrievals from Multi-instrument, Ground-based, Observations. American Meteorological Society 104rd Annual Meeting, Baltimore, MD & Online, 28 January– 1 February.

2024 Zhu, Y. E.-G. Yang, N. Arnold, M. Ganeshan, S. Palm, **H. Salmun**, J. A. Santanello, E. L. McGrath-Spangler, J. R. Lewis. Improving Boundary Layer Data Assimilation in the NASA GEOS System. American Meteorological Society 104rd Annual Meeting, Baltimore, MD & Online, 28 January– 1 February.

2023 **Salmun, H**., Jasper R. Lewis, V. Caicedo. Integrating Multiple Ground-based Instruments to Characterize PBL Height Retrievals. American Geophysical Union Fall Meeting. San Francisco, CA & Online Everywhere, 11 – 15, December.

2023 Zhu, Y., N. Arnold, R. Todling, E-G. Yang, M.Ganeshan, S. P. Palm, **H. Salmun**, A. Molod, J. A. Santanello, E. L. McGrath- Spangler, J. R. Lewis, V. Buchard, A. Da Silva. Observation impacts in the lower troposphere and challenges of Planetary Boundary Layer data assimilation. *Planetary Boundary Layer Session, AIRS/Sounder Science Meeting – October 2023,*

2023 Ganeshan, M., Y. Zhu, E-G. Yang, N. Arnold, S. P. Palm, J. A. Santanello, E. L. McGrath-Spangler, J. R. Lewis, **H. Salmun**, and D. L. Wu. Utilizing Multi-Source PBL Height Observations in the NASA GEOS System: Assessing the Potential for Improved PBL Representation. American Geophysical Union Fall Meeting. San Francisco, CA & Online Everywhere, 11 – 15, December.

2023 Arnold, N., Y. Zhu, E-G. Yang, M. Ganeshan, **H. Salmun**, S. P. Palm, J. A. Santanello, E. L. McGrath-Spangler, and J. R. Lewis. Boundary Layer Data Assimilation and Interaction with Parameterizations in the NASA GEOS Model (Invited). American Geophysical Union Fall Meeting. San Francisco, CA & Online Everywhere, 11 – 15, December.

2023 Zhu, Y., Arnold, N., Ganeshan, M., **Salmun, H**., and 15 other authors. Understanding and Utilizing PBL Height Data from Multiple Observing Systems in the GEOS System. 2023 IEEE International Geoscience and Remote Sensing Symposium (IGARSS), 16 – 21 July, Pasadena, CA.

2023 **Salmun, H**., A. Molod and H. Josephs. Land-Atmosphere Interactions Using Planetary Boundary Layer Heights Estimated Using Data from a Global Network of Radar Wind Profilers. (***JointJ1 B.4***), American Meteorological Society 103rd Annual Meeting, Denver, CO & Online, 8 – 12 January.

2021 **Salmun, H**., A. Molod and H. Josephs. PBL Height Estimates from Global Networks of Radar Wind Profilers. (*Abstract: A21D-08*). American Geophysical Union Fall Meeting. New Orleans, LA & Online Everywhere, 13 – 17, December.

2021 Zhu, Y., N. Arnold, N. Boukachaba, E. El Akkraoui, M. Ganeshan, J. Jin, H. Josephs, B. Karpowicz, J. R. Lewis, E. L. McGrath-Spangler, A. Molod, J. Munchak, S. P. Palmer, S. Pawson, **H. Salmun**, J. A. Santanello, R. Todling, E. J. Welton, D. L. Wu and J. E. Yorks. Strategies and Development of Global PBL Data Assimilation Including PBL Height in the

GMAO GEOS System. (*Abstract: A21D-05*). American Geophysical Union Fall Meeting. New Orleans, LA & Online Everywhere, 13 – 17, December.

2021 Teixeira, J, J. R. Piepmeier, A. R. Nehrir, C. O. Ao, S. S. Chen, C. A. Clayson, A. M. Fridlind, M. Lebsock, W. McCarthy, **H. Salmun**, J. A. Santanello, D. D. Turner, Z. Wang, and X. Zeng. NASA Planetary Boundary Layer (PBL) Incubation Study (**Invited Presentation**). AMS101, 101st Annual Meeting, American Meteorological Society, 10 – 15 January.

2018 Seijo-Ellis, G. G., D. Lindo-Atichati and **Salmun, H**. Vertical Structure of the Water Column at the Virgin Islands Shelf Break and Trough (*Abstract: OS31D-1820*). American Geophysical Union Fall Meeting. Washington, DC, 10 – 14, December.

2018 **Salmun, H**, A. Molod and A. Collow. The Use of MERRA-2 near surface meteorology to understand the behavior of planetary boundary layer heights derived from Wind Profiler data over the US Great Plains. (*Abstract: A13M-2638*). ***New/Updated Results***. American Geophysical Union Fall Meeting. Washington, DC, 10 – 14, December.

2017 Lindo-Atichati, D., R. Smith, **H. Salmun** and G. Seijo Ellis. Modeling biophysical surface transport and cross-shelf exchanges. NOAA CARICOOS Meeting, 28 April, Puerto Rico.

2017 Bayron, J. M., **H. Salmun**, D. S. Ebel, H. C. Connolly Jr., V. E. Hamilton and D. S. A. Lauretta. Fluid Flow Model for Chondritic Parent Bodies. Solar System Symposium in Sapporo, Japan.

2016 Molod, A. and **H. Salmun**. Estimating Planetary Boundary Layer Heights from NOAA Profiler Network Wind Profiler Data; in *Advances in Understanding and Remote Sensing of Land-Atmosphere Interactions: From Bedrock to Boundary Layer I*. American Geophysical Union Fall Meeting. San Francisco, CA, 12 – 16 December.

2016 **Salmun, H**. A synergistic effort among geoscience, physics, computer science and mathematics at Hunter College of CUNY as a Catalyst for educating Earth scientists; in *NSF-Supported Undergraduate Learning Opportunities About the Earth, Oceans, and Atmospheric Sciences*. American Geophysical Union Fall Meeting. San Francisco, CA, 12 – 6 December.

c. *Conference and Workshop Organizing*

2020 **Co-host, co-lead & session co-chair**: *NASA PBL Incubation VIRTUAL Workshop*. The gathering, international in scope and attended by over 200 scientists, consisted of technical sessions with invited speakers; short contributions by attendees followed by discussions. 19, 20, 26 & 27 May 2020.

2016 **Session Co-Organizer & Chair**: *Advances in Understanding and Remote Sensing of Land-Atmosphere Interactions: From Bedrock to Boundary Layer I & II*. American Geophysical Union Fall Meeting. San Francisco, CA, 12 – 16 December.

2012 **Session Organizer**: *From supercells to water quality: modeling atmospheric and oceanographic processes (Oral Presentations)*. Association of American Geographers – Annual Meeting. New York, N. Y., 24 – 28 February.

1998 **Co-Organizer & Co-Chair**: *Johns Hopkins Conference in Environmental Fluid Mechanics*. An international conference on critical aspects of fluid flow in the environment, with a special session dedicated to honor the work and contributions of Professor Owen M. Phillips.

PROFESSIONAL SERVICE TO THE COMMUNITY

a. ***Committees & Panels***

2023 Member of Editorial Board of Advances in Meteorology (***since 2015***)

2021 Member NASA Earth Science Panel & of Earth Venture Mission: Science Panel

2021 Member NSF STEM Review Panel **(*also 2020/10/09*)**

2014 Member of a Site Visit for an NSF ADVANCE Institutional Transformation Awardee

2012 NSF S-STEM Projects Meeting coordinated by American Society for Engineering Education, October 14-16, Arlington, VA. **Invited**.

2007 - 2010 Member of the AWIS Diversity Task Force.

2005 - 2006 Member of the PSC-CUNY Earth and Environmental Science Review Panel.

2005 – 2010 Member of Editorial Board of the Women's Studies Quarterly (WSQ). A journal published by the Feminist Press at the Graduate Center of The City University of New York. ***Specialty***: Women in Science.

b. ***Manuscripts Reviewed***

Journal of Fluid Mechanics; International Journal of Heat and Mass Transfer; Limnology and Oceanography; Water Resources Research; Journal of Geophysical Research/Oceans; Heat Transfer Engineering; Advances in Water Resources; Journal of Heat Transfer; Journal of Theoretical and Applied Climatology; International Journal of Thermal Sciences; Landscape and Urban Planning; The Professional Geographer; AREA: Journal of the Royal Geographical Society; International Journal of Climatology; Weather, Climate and Society; Journal of Applied Meteorology and Climatology; Journal of Marine Science and Engineering; Advances in Meteorology; Atmosphere; Geosciences, J. of STEM Education, J. of Advances in Modeling of Earth Science, Atmospheric Measurements Techniques (EGU, Copernicus), Remote Sensing.

c. ***Proposals Reviewed***

National Science Foundation, Physical and Biological Oceanography Programs and Dynamic Meteorology Program; CICEET (NOAA/UNH Cooperative Institute for Coastal and Estuarine Environmental Technology) Rhode Island Sea Grant College Program (URI); NASA Earth Science Programs; North Carolina Water Resources Research Institute; PSC CUNY Research Award Program; Swiss National Science Foundation, NASA.

ACADEMIC SERVICE AT THE CITY UNIVERSITY OF NEW YORK

a. ***Hunter College***

2012 – 2017 Member of Hunter College Senate.

2013 – 2014 Member of Arts and Sciences Strategic Plan Implementation Committee, Hunter College.

2013 – 2016 Member of Hunter College Senate Committee on Computing & Technology.

2004 – 2008 Member of Hunter College Senate.

2007 Member of Mellon Project at Hunter College. Sub-Committees on Pluralism & Diversity in the General Education Curriculum & on Math and Science in General Education.

2006 Developed and co-taught with Professor Steve Greenbaum a Thomas Hunter Honors seminar *Our Energy Future: Hydrogen or Else?*

2004 Co-Organizer for the Round Table of Gender Race and Science at Hunter College. Event co-sponsored by Geography, the Gender Equity Project, Dean of Arts & Sciences and the Provost Offices of Hunter College.

b. *The Graduate Center*

2010 – 2022 Member Curriculum Committee, Earth and Environmental Sciences Doctoral Program, Graduate Center of CUNY.

2007 – 2022 Member of First Year Doctoral Examination for the Earth and Environmental Sciences Doctoral Program, Graduate Center of CUNY.

2011 – 2017 Co-organizer of the GEOS seminar series at the Earth and Environmental Sciences Doctoral Program, The Graduate Center of CUNY.

2015 – 2017 Member Ad Hoc Advisory Committee for the Earth & Environmental Science Program, The Graduate Center, CUNY.

2013 – 2014 Member of Faculty Membership Committee, Earth and Environmental Sciences Doctoral Program, Graduate Center of CUNY.

2003 – 2007 Member of Executive Committee for the Earth and Environmental Sciences Doctoral Program, Graduate Center of CUNY and Member of two Doctoral Dissertations Committees.

2004 Organizer Fall Seminar Series for the Urban Coastal Environmental Processes Research Center, Graduate Center of CUNY.

c. *Department of Geography and Environmental Science*

2023 – 2024 Deputy Chair.

2009 – Present Member of Personnel & Budget Committee.

2003 – Present Member of Environmental Studies Curriculum Sub-Committee.

2018 – Present Lab Issues Committee Chair.

2015 – 2019 Undergraduate Adviser for the Environmental Studies Major.

2003 – 2015 Member of Lab Issues Committee. Chair since 2005.

2002 – 2009 Undergraduate Adviser for the Environmental Studies Major.

2002 – 2006 Member of Graduate Admissions Committee.

2004 – 2005 Co-organizer of the Faculty Seminar Series.

2005 – 2008 Implemented, Sponsored and Co-organized Departmental Seminar.

TEACHING & CURRICULAR ACTIVITIES

a. *Curricular Development*:

A course entitled “Women, Gender and Diversity in Science and Engineering" designed to understand the intersection between issues of gender, societal behavior and scientific knowledge

from the perspective of a practicing scientist. Syllabus, methodology and reading list available from *A New Generation of Feminist Science Studies*, Routledge Press (2001).

A course entitled "Catalyst Seminar" designed to reinforce the cross-disciplinary and inter-disciplinary nature of many of today's Science, Technology, Engineering and Mathematics (STEM) careers and professional opportunities where STEM knowledge is relevant. Published in…..

b. *Undergraduate Courses*

Introductory Courses: Weather and Climate, Introduction to Oceanography, Introduction to Environmental Science
Mid-level Courses: Earth Science Systems I & II (***New Courses*** developed for Environmental Studies Core Curriculum)
Upper-level Advanced Courses:

- Advanced Oceanography (***New Course***)
- Introduction to Fluid Mechanics – joint with Physics (***New Course*** to Hunter's science curriculum)
- Introduction to the Southern Ocean – **Study Abroad winter course**, upper level (***New Course***; field trip component, Argentina)
- Hydrology
- The Catalyst Seminar; ***New Course***, undergraduate seminar; this 3-semester sequence was one of the 3 main pillars of The Catalyst Scholarship Program at Hunter College.
- Global Climate Change
- Climate Science in Context (***New Course 2023***)

c. *Graduate Courses*

- Earth System Science I & II – Graduate core courses for first year doctoral students, Doctoral Program in Earth and Environmental Science, The Graduate Center, CUNY.
- Advanced Analysis of Atmosphere/Ocean Dynamics (with Matlab) – new graduate seminar for second year doctoral students at Doctoral Program in Earth and Environmental Science, The Graduate Center.
- Dissertation Proposal Writing Workshop – Second year Ph. D. Students at Doctoral Program in Earth and Environmental Science, The Graduate Center.

d. *Mentoring of Undergraduate Students Independent Study, Capstone, Honors & Other Research Projects* (*Selected from a total of 58 students; illustrative examples since 2015 only*)

2024 **Miriam Perez** (BA'2024, Environmental Studies, Honors). Project Title: *Thawing Permafrost and its Implications for Global Temperature Rise.*

Cobey Li (BA'2024 Environmental Studies). Project *Title: Exploring the effects of soil moisture on the height of the planetary boundary layer.*

2023 **Cloè Cozette Muller** (MS'2023, Master Sciences de la Mer, Sorbonne Université). MS Thesis Title: *Evaluating the Ecological Connectivity between Marine Protected Areas at the Virgin Islands Basin.* **2022 Fulbright Scholarship Recipient. At present: Research Scientist at the US Naval Research Laboratory, Stennis Space Center, MI.**

Laine McGannon (BA'2023 Environmental Studies). Project Title: *An Overview of Rising Water Levels and Flooding in New York City*.

2022 **Tyreik Kelly** (BA'2022 Environmental Studies). Project Title: *Is the Intensity and Number of Tropical storms, such as Hurricanes in the Atlantic rising?* **At present: An MS student in the Teachers College at Columbia University.**

Jonathan Lopez (MA/BA Program '2022 Environmental Studies, Honors). Honors Thesis: *The Great Green Wall in Africa and its ability to combat environmental and social issues.*

2021 **Cloè Cozette Muller** (BA'2021 Environmental Studies, Honors). Honors Thesis: *A Piece of the Caribbean Sea: A look into the local ocean dynamics at the Virgin Island Shelf Break and Trough.* **Winner of the 2012 Miriam and Saul B. Cohen Prize for Geographic Excellence and 2022 Fulbright Scholarship Recipient.**

Victoria Caegle (BA'2021 Environmental Studies, Honors). Honors Thesis: *The Potential for Hydroxyapatite and its Modifications for Bioremediation of Polluted Waters.*

Loviena Motilall (BA'2021 Environmental Studies, Honors). Honors Thesis: *Marine Heatwaves are Exacerbating the Decay of Coral Reefs in the Main Hawaiian Islands.*

Michelle Fahme (BA '2021 Environmental Studies, Honors). Honors Thesis: *Reliability of Portable X-Ray Fluorescence Instrument for the Elemental Analysis of Wet Organic-Rich Samples.*

2020 **Emily Li** (BA' 2020, Environmental Earth Science, Honors). Research Project: *Effects of Soil Lead Concentration, Soil Management, Washing, and Washing Techniques on Urban Grown Lettuce.*

Jacob Rogers (BA' 2020, Geography, Honors). Research Project: *Mycoremediation: Is it economical and efficient enough for commercial use?*

2019 **Rebecca Alisandratos** (BA' 2020, Environmental Earth Science, Honors). Research Project: *The Relationships Between Environmental Factors and Fish Abundance and Species Richness on Caribbean Coral Reefs.*

2018 **Franklin Rivera** (BA' 2018, Environmental Earth Science). Research Project: *Sea level variation in the Galapagos Islands and its impact on mangrove populations*.

2017 **Glenn Liu** (BA' 2017, Environmental Earth Science, Honors). Honors Thesis: *Assessing the Variability of Salinity, Temperature, and Chlorophyll-a in the Hudson River Estuary for Oyster Reef Restoration*. **At present: a PhD student in the Department Earth, Atmospheric and Planetary Science at MIT & Woods Hole Oceanographic Institution.**

Elliot David (BA' 2018, Environmental Earth Science, ***2018 Schwarzman Scholar***). Research Project: *Pollution in Portugal: A case study in fishing practices and environmental policy in Cascais.*

2016 **Sofia Chelpton** (BA' 2016, Environmental Earth Science, Honors). Honors Thesis: *Study of the dynamics and transport of pollutants into the upper troposphere using data form the CONTRAST Experiment.*

2015 **Miri Dainson** (BA' 2015, Environmental Earth Science, Honors). Honors Thesis: *Effect of Avian Brood Parasite Range Expansion on Host Defensive Behaviors.*

e. *Supervision and Mentoring of Graduate Students (MA, MS & PhD; selected from a total of 26 students)*

2019 – 2021 **Holly Josephs**, MS' 2021. Research Project: *Estimation of planetary boundary layer heights from global network wind profiler data*. **At present: a PhD student in the Department of Civil & Environmental Engineering at Rutgers University**.

2018 – 2019 **Deana Baron**, MS' 2019. Research Project: *Using StrideSearch algorithm to study storm tracks in the Southwestern Atlantic Ocean.*

2018 **Jeyavinoth Jeyaratman (JJ)**, PhD'2023, Doctoral Committee Member. Thesis Title: *Study of convective cloud Properties Using Multi-Satellite Observations and Cloud-Resolving Model and Evaluation of GCM Cumulus Parameterization*.

2017 – 2020 **Giovanni G. Seijo-Ellis**, PhD Student - Transferred to University of Colorado, Boulder in 2020, ***Co-Advisor***. Research Focus: Oceanography.

2016 **Jasmine Bayron**, PhD'2020, Doctoral Committee Member. Thesis Title: *The Solar System Family Tree: Investigating a Possible Parent body Relationship between B-type Asteroids and Aqueously Altered Carbonaceous Meteorites*.

Peter Matt, PhD'2019, Doctoral Committee Member. Thesis Title: *The Physical State of Mobilized Sulfide Ore During Regional Metamorphism ~1150 Ma, Balmat Zinc Mine, Northwest Adirondacks, New York.*

2015 **Yi Tang**, PhD'2019, Doctoral Committee Member. Thesis Title: *The distribution, fractionation, and application of the 210Po/210Pb system: Insights from three GEOTRACES transects.*

Samuel Frank, PhD'2015, Doctoral Committee Member. Thesis Title: C*utting Carbon Emissions in the States: A National Patchwork Leading to a National Policy.*

2010 – 2013 **Mark Dempsey**, MA' 2013. Thesis Title: *Estimation of planetary boundary layer heights using wind profiler data.*

2004 – 2007 **Andreea Ira**, MA' 06. Thesis Title: *Observational Validation Study of the Extended Mosaic Technique for the Land Surface – Atmosphere Coupling in Global Models.*

Fernanda Santos, MA' 07. Thesis Title: *Quantifying the Scales of the Land Surface Heterogeneity.*

SYNERGISTIC ACTIVITIES

Participation in GeoDES (Geoscience Diversity Experiential Simulations), an NSF funded project to train 30 geoscientists (faculty and administrators) selected from all institutions in the country, to be "champions for diversity" and combat the hostile climates in geoscience departments. 2017 - 2018. https://cpaess.ucar.edu/meetings/2017/geodes-workshop

Principal Investigator and Director of The Catalyst Scholarship Program at Hunter College, a program established with an award from the National Science Foundation (NSF), Division of Undergraduate Education (DUE), 2009 – 2014. Participating Disciplines: Earth Science (Geography), Physics, Computer Science and Mathematics and Statistics.

AAAS Lecture Series on Women in Science and Engineering 2002: one of nine women scientists selected to participate the Latin America Series in Panama City.

MEMBERSHIP IN PROFESSIONAL SOCIETIES

American Geophysical Union, Ocean Sciences Section
American Meteorological Society
American Association for the Advancement of Science

TEACHING, MENTORING & SERVICE AT JOHNS HOPKINS UNIVERSITY, 1994-2001

a. *Courses Taught*

Climate Modeling and Climate Change (upper level /graduate)
Women in Science/Women on Science (upper level /graduate seminar)
Women, Gender and Diversity in Science and Engineering (undergraduate seminar)
The Earth's Climate: Dynamics and Change (freshman seminar)
Introduction to Oceanography (introductory graduate level)
Introduction to Fluid Mechanics (introductory graduate level)
Principles in Hydrology (graduate level)

b. *Supervision and Mentoring of Students*

April Bowling, BS 1996; Xin Lu, MS 1997; Reina Nakamura, BS 1997; Anthony Cahill, PhD 1998, (Member of Doctoral Committee); Dusan Zagar, International Exchange Student (PhD), Fall 1997; Reena Bhatt, BS 2000; Kristin Goetchious, MSE in Water Resources, 2001.

c. *Postdoctoral Advisees*

Andrew Palowich, 1995-1997; Qingping Zu, 1996-1997; Yassar Farhan, 1998-1999.

d. *Service*

Departmental Committee for Student recruitment, 1998-1999.

Whiting School of Engineering Committee on Gender Issues, 1999-2000.

Member of 3 PhD Committees for students in Environmental Engineering

External member of Graduate Board Orals/Thesis defense in the Department of Hispanic and Italian Studies for works related to the history, culture and literature of Argentina and environmental change.