

## Marina Astitha, PhD

Associate Professor

Department of Civil and Environmental Engineering

University of Connecticut

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### EDUCATION

Post-Doctoral Fellow 2009-2012  
The Cyprus Institute- Energy, Environment and Water Research Center

Ph.D. in Environmental Physics 2007  
*University of Athens, Department of Physics*  
Dissertation: "Characteristic scales of transport and transformation of air pollutants – Impacts on climate". Advisor: Prof. G. Kallos  
Honors: Dissertation passed "with Distinction"

M.Sc. in Environmental Physics 2002  
*University of Athens, Department of Physics*  
Thesis: "Source-Receptor relationship: A modern technique for analysis of environmental measurements". Advisor: Prof. G. Kallos  
Honors: Highest ranked student in the program

B.Sc. in Physics 1999  
*University of Athens, Department of Physics*

### PROFESSIONAL EXPERIENCE

**Associate Department Head for Graduate Education, Equity and Inclusion** 08/2019-present

University of Connecticut - Department of Civil and Environmental Engineering

**Associate Professor** 08/2019-present

University of Connecticut - Department of Civil and Environmental Engineering

**Assistant Professor** 08/2013-08/2019

University of Connecticut - Department of Civil and Environmental Engineering

**Senior Research Associate** 10/2012-07/2013

University of Athens (Department of Physics, Division of Environmental Physics-Meteorology) – Atmospheric Modeling and Weather Forecasting Group

**Post-Doctoral Fellow** 01/2009-09/2012

The Cyprus Institute – Energy, Environment and Water Research Center  
(<http://eewrc.cyi.ac.cy>)

Development of online physical parameterization scheme for mineral dust emissions in the atmospheric chemistry general circulation model EMAC (ECHAM5/MESSy Atmospheric Chemistry, Max Planck Institute for Chemistry, Mainz, Germany)

### AFFILIATIONS

**National Center for Atmospheric Research (NCAR)-Research Applications Laboratory (RAL) Affiliate Scientist** 2022-2025

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**AWARDS/DISTINCTIONS**

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|                  |   |
|------------------|---|
| 2020-2022        | Al Geib Professor of Environmental Engineering Research and Education   |
| 2017             | Best reviewer award by the Journal of the Air and Waste Management Association  |
| 2016, 2017, 2021 | C.R. Klewin, Inc. Excellence in Teaching Award bestowed by the 2015-16, 2016-17, 2020-21 senior students of the Civil & Environmental Engineering Department, Univ. of Connecticut  |
| 2007             | Young researchers EURASAP award for the paper entitled: "Heterogeneous chemical processes and their role on particulate matter formation in the Mediterranean Region" presented at the 29 <sup>th</sup> NATO/CCMS International Technical Meeting on Air Pollution Modeling and its Applications, Sep 2007, Portugal. |

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**TEACHING EXPERIENCE**

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*University Of Connecticut, Department of Civil and Environmental Engineering*

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**ENVE GRADUATE PROGRAM****Major Advisor***Current*

|   |                 |
|---|-----------------|
| PhD student Brian Filipiak (co-advised with Dr. Cerrai) | 01/2023-present |
| PhD student Israt Jahan                                 | 08/2019-present |
| PhD students Ummul Khaira, Tasnim Zaman                 |                 |
| MS student Lais DaSilva                                 | 08/2022-present |

*Graduated*

|   |                 |
|---|-----------------|
| Christina Feng Chang, PhD (now with US EPA)   | 08/2017-08/2022 |
| Jaemo Yang, PhD (now with NREL)   | 08/2013-08/2018 |
| Huiying Luo, PhD (now with UAlbany)   | 08/2014-07/2019 |
| MS students: Michael Walters (2017-20); Ghezae Fisseha(2015-18); Alexander Samalot, (2014-17) |                 |

**Associate PhD advisor:** 20+ students 2014-pres

**Course Instructor:** Hydrometeorology (ENVE 5810) Fall 2015-present

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**UNDERGRADUATE PROGRAM**

ENVE Thesis advisor (2014-2017\*; 15 students) 2014-2017  
\*Thesis is no longer a requirement after 2017

Summer Research UG opportunity: Matthew Boehmer (2020), Carrington Henry (2021)

McNair Fellows research experience: Lais Da Silva, Ted Akuffo 2017-18, 2020-21

**Course Instructor:** Environmental Modeling (ENVE 4310), Air Pollution Control (ENVE 3230), Environmental Engineering Fundamentals (ENVE 2310)

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**MENTORING HIGH SCHOOL STUDENTS**

|   |         |
|---|---------|
| <i>Amity Science Research Program, Amity Regional High School,<br/>Woodbridge, Connecticut</i>              | 2018-19 |
| Laurella Marin, "Analyzing Particulate Matter Atmospheric Pollution<br>Trends in New England"               | 2019-20 |
| Laurella Marin, "Evaluating Sea Level Trends Across the East Coast<br>to Better Prepare for Future Changes" | 2020-21 |
| Caroline and Christian Chen, "Atmospheric nitrogen deposition and<br>impacts to lake eutrophication"        | 2020-21 |

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**Teaching Evaluations**

| <b>Median Scores (out of 5)</b> | <b>Instructor</b> | <b>Department</b> | <b>School</b> |
|---------------------------------|-------------------|-------------------|---------------|
| Spring 2022                     | 5.0               | 4.1               | 4.0           |
| Fall 2022                       | 4.5               | 4.5               | 4.3           |
| Spring 2021                     | 5.0               | 4.1               | 4.0           |
| Fall 2021                       | 5.0               | 4.0               | 4.0           |
| Spring 2020                     | 5.0               | 3.8               | 4.0           |
| Fall 2019                       | 5.0               | 3.2               | 4.1           |
| Spring 2018                     | 5.0               | 4.0               | 3.6           |
| Fall 2017                       | 5.0               | 4.4               | 4.1           |
| Spring 2017                     | 5.0               | 3.6               | 3.9           |
| Spring 2017                     | 5.0               | 4.0               | 4.3           |
| Fall 2016                       | 5.0               | 4.6               | 4.0           |
| Spring 2016                     | 5.0               | 3.3               | 4.0           |
| Fall 2015                       | 4.5               | 4.2               | 4.0           |
| Spring 2015                     | 4.0               | 3.3               | 3.9           |
| Fall 2014                       | 5.0               | 4.2               | 4.1           |
| Spring 2014                     | 3.0               | 3.3               | 3.9           |

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*The Cyprus Institute – Energy, Environment and Water Research Center*

Mentor for PhD student Mohamed Abdel Kader. Advisor: Prof. J. Lelieveld. (International Max Planck Research School-IMPRS and Cyprus Institute) 2011-2012

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*University of Athens, Department of Physics, Division of Environmental Physics-Meteorology*

Co-Supervisor of MS student Serafim Kontos. Advisor: Prof. G. Kallos 2012

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Co-Supervisor of PhD student J. Kushta. Advisor: Prof. G. Kallos. 2007-2014  
Teacher/Tutor - in Master Degree on Pollutant Dispersion Modeling (project MADEPODIM). 2005-2007

#### RESEARCH INTERESTS-ACTIVITIES

- Atmospheric Physics, Dynamics and Chemistry (Regional and Global Modeling Systems)
- Prediction of extreme weather events
- Wind prediction for offshore wind farms
- Climate change assessment for the green energy sector of NE US
- Integration of multi-media modeling systems with machine learning
- Real-time weather and air quality forecasting
- Uncertainties in atmospheric and air quality modeling systems

#### PUBLICATIONS IN PREPARATION (Graduate Students Underlined)

1. M. S. Walters, U. Khaira, and Marina Astitha\*, 2023: Winter weather prediction accuracy for impactful snowfall events in the NE US. To be submitted to *Remote Sensing*, Aug 2023.
2. Tasnim Zaman, Marina Astitha\*, Timothy Juliano, Patrick Hawbecker, 2022: "On the prediction of offshore wind in the Northeast Atlantic". In preparation for submission in Sep 2023.

#### PUBLICATIONS (PEER-REVIEWED)

(Graduate students underlined, corresponding author denoted with an asterisk \*)

1. C. Feng-Chang, P. Vlahos, **M. Astitha\***, 2023: Assessing physical and biological lake oxygen indicators using simulated environmental variables and machine learning algorithms. Manuscript submitted to *Environmental Modelling and Software*, July 5, 2023.
2. I. Jahan, D. Cerrai, **M. Astitha\***, 2023: "Storm gust prediction with the integration of machine learning algorithms and WRF model variables for NE US". Under revision with AIES, Aug 2023.
3. U. Khaira, **M. Astitha\***, 2023: "Exploring the real-time WRF forecast skill for four tropical storms, Isaias, Henri, Elsa and Irene, as they impacted the Northeast United States" *Remote Sens.* 2023, 15(13), 3219; <https://doi.org/10.3390/rs15133219>.
4. Feng Chang, C., **M. Astitha\***, Y. Yuan, C. Tang, P. Vlahos, V. Garcia, and U. Khaira, 2023: A New Approach to Predict Tributary Phosphorus Loads Using Machine Learning– and Physics-Based Modeling Systems. *Artif. Intell. Earth Syst.*, 2, e220049, <https://doi.org/10.1175/AIES-D-22-0049.1>.
5. C. Feng-Chang, V. Garcia, P. Vlahos, C. Tang, D. Wanik, J. Yan, J. Bash, **M. Astitha\***, 2021: Linking multi-media modeling with machine learning to assess and predict lake chlorophyll- $\alpha$  concentrations. *Journal of the Great Lakes Research*. Volume 47, Issue 6, December 2021, Pages 1656-1670, ISSN 0380-1330, <https://doi.org/10.1016/j.jglr.2021.09.011>.
6. H. Luo, **M. Astitha\***, C. Hogrefe, R. Mathur, ST Rao, 2020: Evaluating Seasonality and Trends in Modeled PM<sub>2.5</sub> Concentrations Using Empirical Mode Decomposition. *Atmos. Chem. Phys.*, 20, 13801–13815, 2020. <https://doi.org/10.5194/acp-20-13801-2020>.
7. H. Luo, **M. Astitha\***, S. Trivikrama Rao, C. Hogrefe & R. Mathur (2020) Assessing the manageable portion of ground-level ozone in the contiguous United States, *Journal of*

8. S. T. Rao\*, H. Luo, **M. Astitha**, C. Hogrefe, V. Garcia, R. Mathur, 2020: "On the Limit to the Accuracy of Regional Air Quality Models". *Atmos. Chem. Phys.*, 20, 1627–1639, 2020. <https://doi.org/10.5194/acp-20-1627-2020>.
  9. Z. Tang, P. Zhang\*, K. Muto, M. Sawasawa, M. Simonelli, C. Gutierrez, J. Yang, **M. Astitha**, R. Manning, James Mader, 2020: "Extreme Photovoltaic Power Analytics for Electric Utilities", *IEEE Transactions On Sustainable Energy*, Vol. 11, No. 1, Jan 2020, doi:10.1109/TSTE.2018.2884500.
  10. Yang, J., **Astitha, M.\***, & Schwartz, C. S., 2019. Assessment of storm wind speed prediction using gridded Bayesian regression applied to historical events with NCAR's real-time ensemble forecast system. *Journal of Geophysical Research: Atmospheres*, 124, 9241–9261. <https://doi.org/10.1029/2018JD029590>.
  11. Samalot, A., **M. Astitha\***, J. Yang, and G. Galanis, 2019: Combined Kalman Filter and Universal Kriging to Improve Storm Wind Speed Predictions for the Northeastern United States. *Wea. Forecasting*, 34, 587–601, <https://doi.org/10.1175/WAF-D-18-0068.1>.
  12. H. Luo, **M. Astitha\***, S. T. Rao, C. Hogrefe, R. Mathur, 2019. A New Method for Assessing the Efficacy of Emission Control Strategies. *Atmospheric Environment*, 199, 233-243, <https://doi.org/10.1016/j.atmosenv.2018.11.010>.
  13. Yang, J., **M. Astitha\***, L. Delle Monache, and S. Alessandrini, 2018: An Analog Technique to Improve Storm Wind Speed Prediction Using a Dual NWP Model Approach. *Mon. Wea. Rev.*, 146, 4057–4077, <https://doi.org/10.1175/MWR-D-17-0198.1>.
  14. **Astitha, M.\***, Kioutsoukis, I., Fisseha, G. A., Bianconi, R., Bieser, J., Christensen, J. H., Cooper, O. R., Galmarini, S., Hogrefe, C., Im, U., Johnson, B., Liu, P., Nopmongkol, U., Petropavlovskikh, I., Solazzo, E., Tarasick, D. W., and Yarwood, G.: Seasonal ozone vertical profiles over North America using the AQMEII3 group of air quality models: model inter-comparison and stratospheric intrusions, *Atmos. Chem. Phys.*, 18, 13925-13945, <https://doi.org/10.5194/acp-18-13925-2018>, 2018.
  15. Wanik, D.\*, E. Anagnostou, **M. Astitha**, B. Hartman, G. Lackmann, J. Yang, D. Cerrai, J. He, and M. Frediani, 2017: A Case Study on Power Outage Impacts from Future Hurricane Sandy Scenarios. *J. Appl. Meteor. Climatol.*, 57, 51–79, <https://doi.org/10.1175/JAMC-D-16-0408.1>.
  16. **Astitha\***, **M.**, Luo, H., Rao, S.T., Hogrefe, C., Mathur, R., Kumar, N., Dynamic evaluation of two decades of WRF-CMAQ ozone simulations over the contiguous United States, *Atmospheric Environment*, 164 (2017) 102-116, <https://doi.org/10.1016/j.atmosenv.2017.05.020>.
  17. J. Yang, **M. Astitha\***, E. Anagnostou, B. Hartman, 2017: Using a Bayesian regression approach on dual-model weather simulations to improve wind speed prediction. *Journal of Applied Meteorology and Climatology*, Vol 56, 1155-1174, <https://doi.org/10.1175/JAMC-D-16-0206.1>.
  18. He, J., D. W. Wanik, B. M. Hartman, E. N. Anagnostou\*, **M. Astitha**, M. Frediani, 2016: Nonparametric Tree-based Predictive Modeling of Storm Damage on an Electric Distribution Network. *Risk Analysis*. DOI: 10.1111/risa.12652.
  19. Karydis\*, V. A., Tsimpidi, A. P., Pozzer, A., **Astitha, M.**, and Lelieveld, J.: Effects of mineral dust on global atmospheric nitrate concentrations, *Atmos. Chem. Phys.*, 16, 1491-1509, doi:10.5194/acp-16-1491-2016, 2016.
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20. M. Abdelkader\*, S. Metzger\*, R. E. Mamouri, **M. Astitha**, L. Barrie, Z. Levin, and J. Lelieveld\*, 2015: Dust-Air Pollution Dynamics over the Eastern Mediterranean. *Atmos. Chem. Phys.*, 15, 9173-9189, 2015. doi:10.5194/acp-15-9173-2015.
  21. Wanik, D.W., E. Anagnostou\*, B.M. Hartman, M.E. Frediani, **M. Astitha**, 2015: Storm outage modeling for an electric distribution network in Northeastern USA. *Natural Hazards*, 79(2), 1359-1384, doi 10.1007/s11069-015-1908-2.
  22. Pozzer\*, A., de Meij, A., Yoon, J., Tost, H., Georgoulias, A. K., and Astitha, M.: AOD trends during 2001–2010 from observations and model simulations, *Atmos. Chem. Phys.*, doi: 10.5194/acp-15-5521-2015, 2015.
  23. J. Kushta, G. Kallos\*, **M. Astitha**, S. Solomos, C. Spyrou, C. Mitsakou, J. Lelieveld, 2014: Impact of natural aerosols on atmospheric radiation and consequent feedbacks with the meteorological and photochemical state of atmosphere. *Journal of Geophysical Research: Atmospheres*, 119, 3, Pages: 1463–1491, DOI: 10.1002/2013JD020714.
  24. **Astitha\***, M., Lelieveld, J., Abdel Kader, M., Pozzer, A., and de Meij, A.: Parameterization of dust emissions in the global atmospheric chemistry-climate model EMAC: impact of nudging and soil properties, *Atmos. Chem. Phys.*, 12, 11057-11083, doi:10.5194/acp-12-11057-2012, 2012.
  25. Kukkonen, J., Olsson, T., Schultz, D. M., Baklanov, A., Klein, T., Miranda, A. I., Monteiro, A., Hirtl, M., Tarvainen, V., Boy, M., Peuch, V.-H., Poupkou, A., Kioutsioukis, I., Finardi, S., Sofiev, M., Sokhi, R., Lehtinen, K. E. J., Karatzas, K., San José, R., **Astitha, M.**, Kallos, G., Schaap, M., Reimer, E., Jakobs, H., and Eben, K., 2012: A review of operational, regional-scale, chemical weather forecasting models in Europe, *Atmos. Chem. Phys.*, 12, 1-87, doi:10.5194/acp-12-1-2012.
  26. Solomos, S., Kallos, G., Kushta, J., **Astitha, M.**, Tremback, C., Nenes, A., and Levin, Z., 2011: An integrated modeling study on the effects of mineral dust and sea salt particles on clouds and precipitation, *Atmos. Chem. Phys.*, 11, 873-892, doi:10.5194/acp-11-873-2011, 2011.
  27. **M. Astitha**, G. Kallos, C. Spyrou, W. O’Hirok, J. Lelieveld and H.A.C. Denier van der Gon, 2010: Modelling the chemically aged and mixed aerosols over the eastern central Atlantic Ocean – potential impacts. *Atmos. Chem. Phys.*, 10, 5797-5822, 2010.
  28. Kallos G., C. Spyrou, **M. Astitha**, C. Mitsakou, S. Solomos, J. Kushta, I. Pytharoulis, P. Katsafados, E. Mavromatidis, N. Papantoniou. “Ten-year operational dust forecasting - Recent model development and future plans”. IOP Conf. Ser.: Earth Environ. Sci. 7 (2009) 012012, doi:10.1088/1755-1307/7/1/012012.
  29. **M. Astitha** and G. Kallos, 2009: “Gas-phase and aerosol chemistry interactions in South Europe and the Mediterranean Region”. *Environmental Fluid Mechanics*, Vol. 9, Number 1, February 2009. DOI: 10.1007/s10652-008-9110-7.
  30. Mitsakou C., G. Kallos, N. Papantoniou, C. Spyrou, S. Solomos, **M. Astitha** and C. Housiadas, 2008: Saharan dust levels in Greece and received inhalation doses. *Atmos. Chem. Phys.*, 8, 7181–7192, 2008.
  31. **M. Astitha**, G. Kallos and P. Katsafados, 2008: “Air Pollution Modeling in the Mediterranean Region: From Analysis of Episodes to Forecasting”. *Atmospheric Research*, 89 (2008) 358–364, <http://dx.doi.org/10.1016/j.atmosres.2008.03.006>.
  32. G. Kallos, **M. Astitha**, P. Katsafados and C. Spyrou, 2007: “Long-Range Transport of Anthropogenically and Naturally Produced Particulate Matter in the Mediterranean and North Atlantic: Current State of Knowledge”. *Journal of Applied Meteorology and Climatology*, Vol. 46, Issue 8, August 2007, pp. 1230–1251.
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33. M. Lazaridis, K. Eleftheriadis, J. Smolik, I. Colbeck, G. Kallos, Y. Drossinos, V. Zdimal, Z. Vecera, N. Mihalopoulos, P. Mikuska, C. Bryant, C. Housiadas, A. Spyridaki, **M. Astitha**, V. Havranek, 2006: "Dynamics of fine particles and photo-oxidants in the Eastern Mediterranean (SUB-AERO)". *Atmospheric Environment*, Volume 40, Issue 32, October 2006, pp. 6214-6228.
34. **Astitha M.**, Kallos G., Mihalopoulos N., 2005: "Analysis of air quality observations with the aid of the source–receptor relationship approach". *Journal of the Air and Waste Management Association*, Vol. 55, pp. 523-535, <https://doi.org/10.1080/10473289.2005.10464628>.

## SUMMARY TABLE

Citations: 1,627; h-index=18; i-10 index=21 (Source: Google Scholar, May 2023)

**Table of Journal Impact Factors** (2020 Journal Citation Reports; Clarivate Analytics)

| JOURNAL  | IMPACT FACTOR |
|--|---------------|
| Journal of Geophysical Research-Atmospheres    | 4.261         |
| Remote Sensing                                 | 5.349         |
| Journal of the Air & Waste Management Assoc.   | 2.235         |
| Weather and Forecasting                        | 3.025         |
| Monthly Weather Review                         | 3.735         |
| IEEE Transactions on Sustainable Energy        | 7.917         |
| Atmospheric Environment                        | 4.798         |
| Journal of Applied Meteorology and Climatology | 2.923         |
| Atmospheric Research                           | 5.369         |
| Atmospheric Chemistry and Physics              | 6.133         |
| Environmental Fluid Mechanics                  | 2.551         |
| Natural Hazards                                | 3.102         |
| Risk Analysis                                  | 4.000         |
| Journal of Great Lakes Research                | 2.480         |

## Reviewer and editorial services

1. Guest editor for the special issue "Prediction of Extreme Weather Events" to be published by Remote Sensing (ISSN 2072-4292, IF 2019: 4.509)
2. Member of the Editorial Board of the journal Remote Sensing (July 2020-pres)
3. Guest editor for the special issue "Weather Forecasting and Modeling by Using Satellite Data" to be published by Remote Sensing (ISSN 2072-4292, IF 2019: 4.509).
4. Member of the Editorial Review Board (ERB) for the Journal of the Air and Waste Management Association (JA&WMA), April 2016-pres.
5. Guest Editor for the Special Issue "Dust Storms Impacting on Urban Environments" published in the journal Atmosphere (ISSN 2073-4433; Impact Factor=1.704 (2017), 6 papers published). <http://www.mdpi.com/journal/atmosphere>; Impact Factor: 1.132). Apr-Dec 2016.
6. Journal Reviewer: Atmospheric Chemistry and Physics, Journal of Geophysical

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Research, Atmospheric Environment, Journal of Air & Waste Management Association, Atmospheric Research, International Journal of Climatology, Atmospheric Pollution Research, among others.

7. Reviewer for federal agencies (NSF, DOE, NSF GRFP, NASA postdoctoral program).

## PUBLICATIONS (BOOKS)

1. **Marina Astitha** and Efthymios Nikolopoulos (co-Editors): *“Extreme Weather Forecasting: State of the science, uncertainty and impacts”*. Elsevier (edited contribution), October 2022. eBook ISBN: 9780128202432, Paperback ISBN: 9780128201244.
2. J. Lelieveld, M. Abdelkader, **M. Astitha**, V.A. Karydis, K. Klingmüller: “Modeling air pollution by atmospheric desert dust”. Book chapter contributed to *Pollution Assessment for Sustainable Practices in Applied Sciences and Engineering*, ISBN: 978-0-12-809582-9, 2020.
3. G. Kallos, C. Mitsakou, A. Alastuey, J. van Ardenne, **M. Astitha**, M. Cusack, U. Doering, E. Gerasopoulos, N. Hatzianastassiou, M. Kanakidou, J. Kushta, J. Lelieveld, Z. Levin, N. Mihalopoulos, M. Millán, J. L. Palau, N. Perez, J. Pey, X. Querol, S. Solomos, C. Spyrou, C. Theodosi, C. Zerefos: Part I - Chapter 4: “Mechanisms of climate variability, air quality and impacts of atmospheric constituents in the Mediterranean Region. A. Navarra and L. Tubiana (eds.), *Regional Assessment of Climate Change in the Mediterranean*, Advances in Global Change Research 50, DOI 10.1007/978-94-007-5781-3\_4, © Springer Science+Business Media Dordrecht 2013.

## INVITED TALKS

1. **Marina Astitha**, 2023: Behind the microscope, Today’s woman pioneers in Science, June 10, 2023. Panel discussion at the Bay Street Theater in Sag Harbor, NY.
2. **Marina Astitha**, 2023: Environmental modeling for extreme weather, offshore wind and lake water quality: how to integrate physics-based models with machine learning. 2023 Women in Data Science (WiDS) Central Massachusetts Conference, March 15, 2023.
3. **Marina Astitha**, 2015: Atmospheric composition and dynamics: aerosol influence on cloud/precipitation formation and prediction of extreme weather events. Invited seminar at the Department of Marine Sciences, University of Connecticut, Avery Point, Groton, CT, March 20<sup>th</sup>, 2015.
4. **Astitha M.**, 2014: “Links and Feedbacks between Atmospheric Dynamics and Atmospheric Composition: modelling the impact of natural aerosols”. Invited Seminar at NASA/GISS, May 23<sup>rd</sup>, 2014, NY.
5. **Astitha M.**, 2014: “Atmospheric Composition and Dynamics: Understanding Aerosols as Players and Moderators”. Invited lecture at the Department of Natural Resources and the Environment, UConn, October 3<sup>rd</sup>, 2014, Storrs, CT, USA.
6. **M. Astitha**, J. Lelieveld, A. Pozzer, H. Tost and L. Smoydzin, 2009: Air quality in the Mediterranean Region. *Workshop on the Impacts of Mediterranean Climate Change on Human Health*, 19-21 October 2009, Pafos, Cyprus.
7. **M. Astitha**, 2009: Long-range transport of Air Pollution to and from North Africa (including Saharan dust and industrial emissions). *Sub-Regional Workshop: Better Air Quality in North Africa*, 23-25 November 2009, Tunis (UNEP, IUAPPA, GAPP, SEI).



## SELECTED CONFERENCE PRESENTATIONS

(Graduate students underlined)

1. Tasnim Zaman, Marina Astitha, Makduma Badhan, Yelin Jiang, Guiling Wang, Ethan Gutmann, Patrick Hawbecker, and Timothy W. Juliano: Offshore wind prediction and statistical downscaling for climate change assessment of wind energy in the Northeast US. 103rd American Meteorological Society Annual Meeting, 14th Conference on Weather, Climate, and the New Energy Economy, Jan 8-12, 2023, Denver, CO.
2. Christina Feng Chang, Marina Astitha, Penny Vlahos, Valerie Garcia, 2023: Comparing the capability of two ML algorithms to assess physical and biological oxygen indicators in freshwater ecosystems using simulated environmental variables. 103rd American Meteorological Society Annual Meeting, 22nd Conference on Artificial Intelligence for Environmental Science, Jan 8-12, 2023, Denver, CO.
3. Israt Jahan, Marina Astitha, Diego Cerrai, 2023: Application of Machine Learning (ML) Algorithms for Wind Gust prediction: a Comparison between WRF and AI. 103rd American Meteorological Society Annual Meeting, 22nd Conference on Artificial Intelligence for Environmental Science, Jan 8-12, 2023, Denver, CO.
4. Ummul Khaira, Diego Cerrai, Greg Thompson, and Marina Astitha, 2022: Challenges and successes of snowfall forecasting using machine learning and numerical prediction for the Northeast United States. AGU 2022 Fall Meeting, Chicago, Dec 12-15, 2022.
5. Israt Jahan, Marina Astitha, Diego Cerrai, 2022: Improving wind gust prediction with the combination of WRF and machine learning algorithms. AGU 2022 Fall Meeting, Chicago, Dec 12-15, 2022.
6. Tasnim Zaman, Marina Astitha, Patrick Hawbecker, and Timothy W. Juliano, 2022: Impact of High-resolution Mesoscale and Atmospheric Stability on predicting Offshore Wind in the Northeast Atlantic Cluster. AGU 2022 Fall Meeting, Chicago, Dec 12-15, 2022.
7. Tasnim Zaman, Marina Astitha, Makduma Badhan, Yelin Jiang, Guiling Wang, Ethan Gutmann, 2022: Application of statistical downscaling for climate change assessment of wind energy in the Northeast U.S. AGU 2022 Fall Meeting, Chicago, Dec 12-15, 2022.
8. Christina Feng Chang, Marina Astitha, Yongping Yuan, Chunling Tang, Penny Vlahos, Valerie Garcia. 2022: Applying a Machine Learning and Multi-Media Modeling Framework to Predict Tributary Phosphorus Loads. The 22nd Annual Community Modeling and Analysis System (CMAS) Conference, University of North Carolina, 17-19 Oct 2022.
9. T. Zaman, U. Khaira, M. Astitha, 2022: High-Resolution Wind Prediction Capabilities for an Offshore Wind Energy Farm in the North-East Atlantic Cluster. WISER IUCRC Planning Meeting/Workshop, March 21-22, 2022, Albany NY. (Poster presentation)
10. U. Khaira, D. Cerrai and M. Astitha, 2022: Development of a New Snowfall Prediction Approach with the Integration of Numerical Weather Prediction, Observations, and Machine Learning Algorithms, AMS 102nd Annual Meeting, 21st Conference on Artificial Intelligence for Environmental Science, virtual event, January 22-28, 2022. (oral presentation)
11. C. Feng Chang, M. Astitha, V. Garcia, P. Vlahos, 2021: Scenario Evaluations through a Machine Learning-Based Model that Predicts Chlorophyll- $\alpha$  Using Multi-Media Modeling Environmental Predictors. AGU 2021 Fall Meeting, Dec 13-17, 2021. (oral presentation)
12. T. Zaman, U. Khaira, M. Astitha, 2021: Updates on Accuracy Analysis in Wind Prediction Using High-Resolution WRF Simulations for an Offshore Wind Farm Facility in the Northeast Atlantic Cluster. AGU 2021 Fall Meeting, Dec 12-16, 2021. (poster)
13. U. Khaira, T. Zaman, M. Astitha, 2021: Improving the Real-Time Forecast of Tropical Storm Isaias for NE US, AGU 2021 Fall Meeting, Dec 12-17, 2021. (poster)
14. C. Feng Chang, M. Astitha, V. Garcia, P. Vlahos, 2021: Exploring the Management Value of a Machine Learning-Based Model that Predicts Chlorophyll- $\alpha$  Using Multi-Media Modeling Environmental Predictors. The 20th Annual Community Modeling and Analysis System (CMAS) Conference, University of North Carolina, 1-5 Nov 2021 (oral presentation, virtual event).
15. T. Zaman, U. Khaira, M. Astitha, 2021: High-resolution wind prediction for offshore wind farm facilities in the Northeast Atlantic cluster. School of Engineering 7th Annual Poster Competition, April 1st, 2021 (Virtual event, Poster presentation, 1st position in the CEE Department).
16. C. Feng Chang, M. Astitha, V. Garcia, C. Tang, P. Vlahos, D. Wanik, J. Bash, 2021: Updates on Utilizing Multi-media Modeling and Machine Learning to Investigate Conditions that Affect Chlorophyll- $\alpha$  Concentrations: a Lake Erie Case Study. AMS 101<sup>st</sup> Annual Meeting, January 9-15, 2021.
17. T. Zaman, M. Walters, U. Khaira, and M. Astitha, 2021: Uncertainty in Wind Prediction for an Offshore Wind Farm in the Northeast United States. AMS 101<sup>st</sup> Annual Meeting, 12th

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- Conference on Weather, Climate, and the New Energy Economy, January 9-15, 2021 (virtual event).
18. U. Khaira, M. S. Walters, T. Zaman and M. Astitha, 2021: Impact of initial/boundary conditions and model configuration towards the prediction of tropical storm Isaias. AMS 101<sup>st</sup> Annual Meeting, 12th Conference on Weather, Climate, and the New Energy Economy, January 9-15, 2021 (virtual event).
  19. T. Zaman, M. S. Walters, U. Khaira, M. Boehmer, M. Astitha, 2020: High-resolution WRF simulations for Offshore wind farm facilities in the Northeast Atlantic cluster. AGU 2020 Fall Meeting, virtual event, Dec 1-17, 2020. Poster presentation.
  20. U. Khaira, M. S. Walters, T. Zaman and M. Astitha, 2020: Impact of initial/boundary conditions and model configuration to predict storms for the Northeast United States. AGU 2020 Fall Meeting, virtual event, Dec 1-17, 2020. Poster presentation.
  21. C. Feng Chang, M. Astitha, V. Garcia, C. Tang, P. Vlahos, D. Wanik, J. Bash, 2020: Updates on the Assessment of Environmental Variables Affecting Chlorophyll-a through Multi-media Modeling and Machine Learning: a Lake Erie Case Study. AGU 2020 Fall Meeting, virtual event, Dec 1-17, 2020.
  22. C. Feng Chang, M. Astitha, V. Garcia, C. Tang, P. Vlahos, D. Wanik, J. Bash: On the Sensitivity of a Machine Learning-Based Model to Predict Chlorophyll- Using Multi-Media Modeling Environmental Predictors. 19th Annual Community Modeling and Analysis System (CMAS) Conference, University of North Carolina, 26-30 Oct 2020 (oral presentation, virtual event).
  23. C. Feng Chang, M. Astitha, V. Garcia, C. Tang, P. Vlahos, D. Wanik, J. Yan, Using Multi-media Modeling and Machine Learning to Assess Environmental Variables that Affect Chlorophyll-a and Dissolved Oxygen: a Lake Erie application. Chesapeake Community Research Symposium 2020-ChesCRS20, June 8-10, 2020. Virtual format (oral presentation).
  24. C. Feng Chang, M. Astitha, V. Garcia, C. Tang, P. Vlahos, D. Wanik, J. Yan, 2020: Utilizing Multi-media Modeling and Machine Learning to Assess dissolved oxygen as a proxy for Hypoxia in Lake Erie. AMS 100th Annual Meeting, 19th Conference on Artificial Intelligence for Environmental Science, Boston, MA, Jan 2020.(oral presentation)
  25. Walters, M., Yang, J., Koukoulou, M., Astitha M., 2020. Evaluation of winter weather prediction during extreme snowfall events. American Meteorological Society 100th Annual Meeting, Boston, MA. Jan 12-16, 2020. Poster presentation.
  26. Walters, M., Astitha, M., 2019: On the predictive accuracy of wind gusts related to severe storms for the Northeast United States. American Geophysical Union AGU 2019 Fall Meeting, San Francisco, CA. Dec 9-13, 2019. Poster presentation.
  27. C. Feng Chang, M. Astitha, V. Garcia, C. Tang, P. Vlahos, D. Wanik, J. Yan, 2019: Assessment of Environmental Variables that Affect Harmful Algal Blooms and Hypoxia in Lake Erie Using Multi-media Modeling and Machine Learning. AGU 2019 Fall Meeting, Dec 9-13 2019 (poster presentation).
  28. C. Feng Chang, M. Astitha, V. Garcia, C. Tang, P. Vlahos, D. Wanik, J. Yan. Using Multi-media Modeling and Machine Learning to Assess Parameters Associated with Harmful Algal Blooms. 10<sup>th</sup> US Symposium on Harmful Algae, Orange Beach, Alabama, 3-8 Nov, 2019. Oral presentation.
  29. H. Luo, M. Astitha, C. Hogrefe, R. Mathur, S.T. Rao, 2019: Evaluating Seasonality and Trends in Modeled PM2.5 Concentrations Using Empirical Mode Decomposition. 18th Annual Community Modeling and Analysis System (CMAS) Conference, University of North Carolina at Chapel Hill's Friday Center, NC, 22-24 Oct 2019 (oral presentation).
  30. Christina Feng Chang, Marina Astitha, Valerie Garcia, Chunling Tang, Penny Vlahos, David Wanik, Jun Yan, 2019: Assessment of Environmental Variables that Affect Dissolved Oxygen, Total P, and Total N Concentrations in Lake Erie Using Multi-media Modeling and Machine Learning, 18th Annual Community Modeling and Analysis System (CMAS) Conference, University of North Carolina at Chapel Hill's Friday Center, NC, 22-24 Oct 2019 (poster presentation; poster award)
  31. H. Luo, M. Astitha, C. Hogrefe, R. Mathur, S.T. Rao, 2019: Seasonality and Trends of Modeled PM2.5 using WRF-CMAQ using Empirical Mode Decomposition. Meteorology And Climate - Modeling for Air Quality (MAC-MAQ) Conference, Sep 11-13, 2019, UC Davis, Davis, CA.
  32. Christina Feng Chang, Marina Astitha, Valerie Garcia, Ellen Cooter, Chunling Tang, Penny Vlahos, David Wanik. Using Machine Learning to Assess Parameters Associated with Harmful Algal Blooms (HABs) and Hypoxia for Lake Erie. Meteorology And Climate - Modeling for Air Quality (MAC-MAQ) Conference, Sep 11-13, 2019, UC Davis, Davis, CA.
  33. Jaemo Yang, Marina Astitha\*, Diego Cerrai, Peter Watson, 2018: "Uncertainty Assessment of Extreme Storm Forecasts Using Numerical Weather Prediction and Gridded Bayesian Linear Regression". AGU Fall
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- Meeting 2018, A048-Extreme Weather Events: Forecast skill, Uncertainty Quantification and Impact Modeling, Washington, DC, 10-14 December 2018. Poster presentation.
34. Michael S. Walters, Jaemo Yang, Marika Koukoulou, Gregory Thompson and **Marina Astitha\***, 2018: "Evaluation of Winter Weather Prediction During Extreme Snowfall Events for the NE US." AGU Fall Meeting 2018, A048-Extreme Weather Events: Forecast skill, Uncertainty Quantification and Impact Modeling, Washington, DC, 10-14 December 2018. Poster presentation.
  35. **M. Astitha**, H. Luo, C. Hogrefe, R. Mathur, and S.T. Rao. Quantifying the influence of boundary conditions and anthropogenic emissions to ozone concentrations towards estimating the modelled controllable portion of the ozone burden in continental United States, 17th Annual Community Modeling and Analysis System (CMAS) Conference, University of North Carolina at Chapel Hill's Friday Center, NC, 22-24 Oct 2018 (oral presentation).
  36. H. Luo, **M. Astitha**, C. Hogrefe, R. Mathur, and S.T. Rao. Dynamic evaluation of WRF-CMAQ PM2.5 simulations over the Contiguous United States for the period 2000-2010. 17th Annual Community Modeling and Analysis System (CMAS) Conference, University of North Carolina at Chapel Hill's Friday Center, NC, 22-24 Oct 2018 (oral presentation).
  37. Christina Feng Chang, Catherine Nowakowski, **Marina Astitha**, Valerie Garcia, Ellen Cooter, Chunling Tang, Penny Vlahos, David Wanik. Updates on Using Multi-media Modeling to Investigate Conditions Leading to Harmful Algal Blooms. 17<sup>th</sup> Annual Community Modeling and Analysis System (CMAS) Conference, University of North Carolina at Chapel Hill's Friday Center, NC, 22-24 Oct 2018 (poster award).
  38. P. Zhang, Z. Tang, X. Liu, J. Yang, K. Muto, J. Yan, **M. Astitha**, J.N. Debs, D.A. Ferrante, D. Marcaurele, I.M. Hazlewood, D. Hedman, 2018: PV extreme capacity factor analysis. IEEE Power and Energy Society General meeting, Aug 5-10, 2018, Portland, OR.
  39. H. Luo, **M. Astitha**, S.T. Rao, C. Hogrefe, R. Mathur: Probabilistic assessment of emission control scenarios in meeting the ozone standard. 36th International Technical Meeting on Air Pollution Modelling and its Application, 14-18 May 2018, Ottawa, Canada. Oral presentation.
  40. **M. Astitha**, I. Kioutsoukis, G. Araya Fisseha, R. Bianconi, J. Bieser, J. H. Christensen, O. Cooper, S. Galmarini, C. Hogrefe, U. Im, B. Johnson, P. Liu, U. Nopmongkol, I. Petropavlovskikh, E. Solazzo, D. W. Tarasick, G. Yarwood, 2018: Seasonal ozone vertical profiles over North America using the AQMEII group of air quality models. 36th International Technical Meeting on Air Pollution Modelling and its Application, 14-18 May 2018, Ottawa, Canada. Oral presentation.
  41. J. Yang, **M. Astitha** and C. S. Schwartz, 2018: Gridded Bayesian Linear Regression to Improve Storm Forecasts Using NCAR's Real-Time Prediction System for Northeast United States. 98<sup>th</sup> Annual Meeting of the American Meteorological Society, 25th Conference on Probability and Statistics, Jan 8-11, 2018, Austin, TX, USA. Oral presentation.
  42. V. Garcia, C. Nowakowski, **M. Astitha**, P. Vlahos, E. Cooter, C. Tang, 2017: Using Multi-media Modeling to Investigate Conditions Leading to Harmful Algal Blooms. American Geophysical Union (AGU) Fall 2017 Meeting, New Orleans. 11-15 December 2017. Oral presentation.
  43. J. Yang, **M. Astitha** and C. S Schwartz, 2017: Improvement of Storm Forecasts Using Gridded Bayesian Linear Regression for Northeast United States. AGU Fall Meeting 2017, NG001: Advances in Data Assimilation, Predictability and Uncertainty Quantification, New Orleans, 11-15 December 2017. Oral presentation.
  44. D. Cerrai, E.N. Anagnostou, J. Yang, **M. Astitha**, 2017: Predicting Power Outages Using Multi-Model Ensemble Forecasts. American Geophysical Union (AGU) Fall 2017 Meeting, New Orleans. 11-15 December 2017. Poster presentation.
  45. **M. Astitha**, H. Luo, C. Hogrefe, R. Mathur, S. T. Rao, 2017: Predicting Future-Year Ozone Concentrations: Integrated Observational-Modeling Approach for Probabilistic Evaluation of the Efficacy of Emission Control strategies. 16th Annual Community Modeling and Analysis System (CMAS) Conference, University of North Carolina at Chapel Hill's Friday Center, NC, 23-25 Oct 2017 (oral presentation).
  46. H. Luo, **M. Astitha**, S.T. Rao, C. Hogrefe, R. Mathur, and N. Kumar, 2017: Dynamic evaluation of two decades of WRF-CMAQ ozone simulations over the contiguous United States. 16th Annual Community Modeling and Analysis System (CMAS) Conference, University of North Carolina at Chapel Hill's Friday Center, NC, 23-25 Oct 2017 (poster presentation).
  47. **M. Astitha**, H. Luo, S. T. Rao, C. Hogrefe, R. Mathur, and N. Kumar, 2017: Dynamic Evaluation of Two Decades of WRF-CMAQ Ozone Simulations over the Contiguous United States. Meteorology And Climate - Modeling for Air Quality (MAC-MAQ) Conference, Sep 13-15, 2017, UC Davis, Davis, CA. (oral presentation)
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48. **H. Luo, M. Astitha**, S. T. Rao, C. Hogrefe, R. Mathur, 2017: Estimating the confidence bounds for projected ozone design values under different emissions control options. Meteorology And Climate - Modeling for Air Quality (MAC-MAQ) Conference, Sep 13-15, 2017, UC Davis, Davis, CA. (oral presentation)
  49. **J. Yang, M. Astitha**, L. Delle Monache, and S. Alessandrini, 2017: Improvement of wind speed prediction using statistical and analog techniques for NE U.S. 97<sup>th</sup> Annual Meeting of the American Meteorological Society, 22–26 January, 2017 Washington State Convention Center, Seattle, Washington. Poster presentation.
  50. **J. Yang, M. Astitha**, L. Delle Monache, and S. Alessandrini, 2016: Analog ensemble and Bayesian regression techniques to improve the wind speed prediction during extreme storms in the NE U.S. American Geophysical Union Fall 2016 Meeting, Dec 12-16, 2016, San Francisco, CA. Poster presentation.
  51. **J. Yang, M. Astitha** and L. Delle Monache, 2016: Improvement of the numerical prediction of extreme weather events using Analog ensemble and Bayesian regression techniques in NE U.S. 3rd Annual New England Graduate Student Water Symposium (NEGSWS), September 9-11, 2016, University of Massachusetts Amherst, MA. Poster presentation.
  52. **M. Astitha, H. Luo**, S.T. Rao, C. Hogrefe, R. Mathur, N. Kumar, 2016: Dynamic evaluation of two decades of CMAQ simulations over the continental U.S. 35th NATO/SPS International Technical Meeting on Air Pollution Modelling and its Application, 3-7 Oct, 2016, Chania, Greece. Oral presentation.
  53. S.T. Rao, **H. Luo, M. Astitha**, C. Hogrefe, R. Mathur, N. Kumar, 2016: On regional modelling support for air quality policies. 35th International Technical Meeting on Air Pollution Modelling and its Application, 3-7 Oct, 2016, Chania, Greece. Oral presentation.
  54. **M. Astitha, H. Luo**, S.T. Rao, C. Hogrefe, R. Mathur, N. Kumar, 2016: Two Decades of WRF/CMAQ simulations over the continental U.S.: New approaches for performing dynamic model evaluation and determining confidence limits for ozone exceedances. 15th Annual Community Modeling and Analysis System (CMAS) Conference, University of North Carolina at Chapel Hill's Friday Center, NC, 24-26 Oct 2016 (oral presentation).
  55. **C. Nowakowski, M. Astitha**, V. Garcia, P. Vlahos, E. Cooter, C. Tang, B. Hinckley, 2016: Prediction of harmful water quality parameters combining weather, air quality and ecosystem models with in-situ measurements. 15th Annual Community Modeling and Analysis System (CMAS) Conference, University of North Carolina at Chapel Hill's Friday Center, NC, 24-26 Oct 2016 (poster presentation).
  56. S.T. Rao, **H. Luo, M. Astitha**, C. Hogrefe, and R. Mathur, 2016: Scale Issues in Regional Air Quality Modeling for Policy Support. 10th International Conference on Air Quality - Science and Application, March 2016, Milan, Italy.
  57. D. W. Wanik, E. N. Anagnostou, B. M. Hartman, **M. Astitha**, and M. E. B. Frediani, 2016: Forecasting Storm-Related Power Outages in Connecticut and Massachusetts, AMS 96th Annual Meeting, New Orleans, LA, January 13, 2016.
  58. **Yang, J., M. Astitha**, E.N. Anagnostou, B. Hartman, G. Kallos, 2015: Predictability of extreme weather events for NE U.S.: improvement of the numerical prediction using a Bayesian regression approach. American Geophysical Union Fall 2015 Meeting, Dec 14-18, 2015, San Francisco, CA.
  59. Anagnostou, E.N, D. Wanik, **M. Astitha**, M. Frediani, G. Lackmann, J. He, **J. Yang**, 2015: Evaluation of power outages in Connecticut during hypothetical future Hurricane Sandy scenarios. American Geophysical Union Fall 2015 Meeting, Dec 14-18, 2015, San Francisco, CA.
  60. Wanik, D., E.N. Anagnostou, B. Hartman, M. Frediani, **M. Astitha**, 2015: Using Predictive Analytics to Predict Storm Outages at Electric Distribution Utilities. American Geophysical Union Fall 2015 Meeting, Dec 14-18, 2015, San Francisco, CA.
  61. Cifuentes-Lorenze, A., M. Howard-Strobel, T. Flake, G. McCardell, J. O'Donnell, **M. Astitha**, 2015: Modeling Waves and Coastal Flooding along the Connecticut Coast. American Geophysical Union Fall 2015 Meeting, Dec 14-18, 2015, San Francisco, CA.
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62. **M. Astitha**, ST Rao, J. Yang and H. Luo, 2015: Inherent uncertainty in the prediction of ozone and particulate matter for NE US. 14th Annual CMAS (Community Modeling and Analysis System) Conference, October 5-8, 2015, UNC-Chapel Hill, NC.
  63. **M. Astitha**, ST Rao, J. Yang and H. Luo, 2015: Quantifying inherent uncertainty in the prediction of atmospheric pollutant concentrations: variability stemming from the initial state. Meteorology and Climate-Modeling Air Quality conference (MAC-MAQ), Sep 6-8, 2015, Sacramento, CA.
  64. **Marina Astitha**, Jaemo Yang, Huiying Luo, S.T. Rao, 2015: Inherent uncertainties in atmospheric modeling: weather and air pollution. 34th International Technical Meeting on Air Pollution Modelling and its Application 4-8 May, 2015, Montpellier, France. Oral presentation.
  65. **M. Astitha**, S.T. Rao, J. Yang, H. Luo, 2015: Discussion on inherent uncertainties in atmospheric modeling: altering the initial state. Symposium on Coupled Chemistry-Meteorology/Climate Modelling, WMO Headquarters, Geneva, Switzerland 23-25 February 2015. Oral presentation.
  66. X. Zhang, E. N Anagnostou, **M. Astitha**, H. Vergara, J. Gourley, E. Hong Yang, 2014: Adjusting Satellite Rainfall Error in Mountainous Areas for Flood Modeling Applications, 2014 AGU Fall Meeting, San Francisco, CA, USA.
  67. **M. Astitha**, E. Anagnostou, J. Yang, X. Zhang, 2014: Natural aerosol feedback effects during extreme weather events for North East U.S. AGU 2014 Fall Meeting (American Geophysical Union) (Dec 15-19, 2014, San Francisco, CA).
  68. Karydis, V., Tsimpidi, A., **M. Astitha**, and J. Lelieveld, 2014: Effects of mineral dust on global atmospheric nitrate concentrations. *European Geosciences Union General Assembly 2014, Vienna, Austria (oral present.)*.
  69. **Astitha M.**, 2014: "Aerosol-Cloud-Precipitation Interactions". Guest lecture at the course Air Pollution and Atmospheric Chemistry (Prof. K. Wagstrom), Department of Chemical and Biomolecular Engineering, October 22<sup>nd</sup>, 2014, Storrs, CT, USA.

## RESEARCH PROJECTS

*Total Funding Share since joining UConn: ~ \$3.1M*

### CURRENT PROJECTS

1. Deployment of a high-resolution wind prediction system for the offshore wind farm facilities in the Northeast Atlantic cluster. Marina Astitha (PI), Eversource Energy \$200,000; 9/2022-9/2027.
2. Improving Extreme Weather Forecasting Capabilities in support of Power Outage Prediction Activities: Phase II – wind gust and winter weather. Marina Astitha (PI), Eversource Energy Center, \$350,000; 09/2023-08/2026.
3. Improving Extreme Weather Forecasting Capabilities in support of Power Outage Prediction Activities. Marina Astitha (PI), Eversource Energy Center, \$300,000; 05/01/2020-12/30/2023.
4. Climate change assessment for offshore wind energy. Marina Astitha (PI). Research Excellence Program of the Office of the Vice President for Research, UConn. \$24,772; 05/2023-6/2024.
5. NSF IUCRC Phase I Grant University of Connecticut, E. Anagnostou (PI UConn), Marina Astitha (senior personnel). 750K, 7/2023-6/2028.
6. Power system vulnerability assessment under a changing climate. Xinxuan Zhang (PI), Marina Astitha, Guiling Wang, Stergios Emmanouil (co-PIs). 88K, 09/2023-08/2025.

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## FINISHED PROJECTS SINCE JOINING UConn

1. "CLEAN EARTH: CoLaboratory of Environmental Advocacy, Net-zEro-Carbon And Renewable Technologies", Marina Astitha (co-PI Climate/Extremes), (PI: Emmanouil Anagnostou), Office of the Vice President for Research, University of Connecticut, FY22 New England University Collaboration on Renewable and Sustainable Energy. \$100,000. 3/2022 – 3/2023.
  2. High resolution wind prediction capabilities. Marina Astitha (PI), Eversource Energy, \$87,000; 1/1/2020-6/30/2021.
  3. Improving prediction of severe wind storms with the combination of weather prediction models, observations and machine learning algorithms. Marina Astitha (PI), Diego Cerrai (co-PI). Research Excellence Program of the Office of the Vice President for Research, UConn. \$24,772; 08/2021-12/2022.
  4. Climate Change Assessment for the Green Energy Sector in the U.S. Northeast. Prof. Guiling Wang (PI) and Marina Astitha (Co-PI). May 2022-Dec 2022. UConn CEE Initiative, \$22K.
  5. Predictive Storm & Damage Modeling for Preparedness and Emergency Response Support, \$4,048,284, Eversource Energy. Emmanouil Anagnostou (PI), Marina Astitha (co-PI). July 1, 2015 - May 31, 2020. (20% contribution)
  6. Enhancing Predictability of Power Outages from a new Representation of Weather and Vegetation Impacts in UConn's Outage Prediction Model. E.N. Anagnostou (PI), Marina Astitha (co-PI). 01/01/2018-12/31/2019. Award: \$1,411,000 (20% contribution)
  7. Understanding the information embedded in observations and regional air quality model outputs and using models for regulatory assessments. Funding agency: Electric Power Research Institute (EPRI). PI: M. Astitha, co-PI: ST Rao (NCSU and UConn). Award: \$220,398. 12/2/2015-06/30/2018.
  8. Department of Education's Graduate Assistantships in Areas of National Need (GAANN) project: Environmental engineering at the forefront of water policy and education. T. Vadas (PI), G. Wang (project director), C. Kirchhoff, M. Astitha, E. Anagnostou, J. Mellor. 2015-2019. Award: \$738,195. (16% contribution)
  9. Grid-side System enhancements to integrate distributed energy resources (Phase-II). PI: Peng Zhang, co-PI: Marina Astitha, Efthymios Nikolopoulos. Eversource Energy Center. \$200,000; 01/01/2018-12/31/2019.
  10. Expanding the UCONN Predictive Storm & Outage Model into Eversource MA and NH. E.N. Anagnostou (PI), David Wanik, Marina Astitha. Eversource Energy (\$330,000) 09/01/2016-12/31/2018.
  11. Next Generation United Illuminating Predictive Storm Damage Modeling Enhancements for Preparedness and Emergency Response Support. E.N. Anagnostou (PI), Marina Astitha, and David Wanik. United Illuminating (\$275,000) 05/01/2016-01/31/2019.
  12. Predictive Storm & Damage Modeling for Preparedness and Emergency Response Support. E.N. Anagnostou (PI), David Wanik, Marina Astitha. Eversource Energy (\$2,348,284) 07/01/2015-12/31/2017. (20% contribution)
  13. Grid-scale Systems enhancements to integrate distributed energy resources. PI: Peng Zhang, co-PI: Marina Astitha. Award: \$82,300. Eversource Energy Center. 10/01/2016-12/31/2017.
  14. Establishing a Dominion/UConn Carbon Dioxide time series in Long Island Sound, Award: \$24,500. PI: Vlahos, co-PI: Astitha, Dominion Foundation. 09/2016 to 08/2017.
  15. Damage Modeling and Forecasting System of the NU Center Bridge-Funding. Northeast Utilities and Department of Civil and Environmental Engineering, School of Engineering, University of Connecticut. Principal Investigator: Prof. E. Anagnostou (\$1.150.000). 04/15/2013-05/31/2015. (15% contribution, co-PI).
  16. The United Illuminating Company (UI) participation in the damage prediction modeling and vegetation management. Department of Civil and Environmental Engineering, School of Engineering, University of Connecticut. Principal Investigator: Prof. E. Anagnostou. (\$513,000).02/01/2014-01/31/2016. (20% contribution, co-PI)
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17. The Importance of Vegetation Management Information on Storm Damage Prediction funded by The Energy and Power Research Institute (EPRI). PI: Prof. E. Anagnostou (\$50,000). 04/01/2014-04/01/2015. (20% contribution, co-PI)

## SYNERGISTIC ACTIVITIES

1. Elected member of the Board of Directors for the Air and Waste Management Association (2021-pres).
2. Member of the Board of Directors for the Air and Waste Management Association New England chapter (2023-present).
3. Chair of the Civil and Environmental Engineering (CEE) Antiracism and Equity Action Team (ACT); Fall 2020-present.
4. Member of the Resilient Infrastructure and Nature-based Solutions Working Group for the CT Governor's Council on Climate Change, 2022-2023.
5. Participated at the Women in STEM Leadership program, Alda Center's Women in STEM Leadership Program, Alan Alda Center for Communicating Science, Stony Brook University Oct-Nov 2021.
1. Appointed Associate Director of the Environmental Engineering program, UConn (2018-2019; 1-yr term)
2. Certificate: Preparing for Distance Education by UConn's CETL, May 29-June 4, 2020.
1. Primary convener and chair of the AGU Fall Meeting 2018-2022 sessions: "Extreme weather events: forecast skill, uncertainty quantification and impact modeling".
2. Convener of the AMS 2020 session "Severe Weather: Predictability, Uncertainty and Best Use of Forecast Information", 30th Conference on Weather Analysis and Forecasting/26th Conference on Numerical Weather Prediction, Boston, MA, Jan 12-16 2020.
3. Co-chair of the Annual Community Modeling and Analysis System (CMAS) Conference, session "Multiscale Model Applications and Evaluations", 2019-2022.
4. Participation in UConn's NEAG School of Education online "Disability Awareness and Inclusive Teaching Training project", Sep 2019.
5. Appointed Team Leader of the "Forecasting" Thematic Area for the Eversource Energy Center at the University of Connecticut (2017-2019. 2-yr term). In this role, I am steering new Center initiatives and coordinate efforts of Center investigators pursuing funding opportunities in this thematic area.
6. Member of the Environmental Literacy subcommittee (UConn), 2018-19, 2019-20, 2020-21.
7. Chair of the graduate admissions committee for the Environmental Engineering program (2016-2017).
8. Participation in the Air Quality Model Evaluation International Initiative (AQMEII) phase 3. Prepare a two-continent (EU and North America) air quality model evaluation in collaboration with HTAP (Task Force on Hemispheric Transport of Air Pollution). Conference abstract and peer-review manuscript.
9. Member of the 2015 CMAQ model external scientific peer review panel organized by EPA-ORD/CMAS. June 17-19, 2015, Research Triangle Park, NC.
10. Member of the Atmospheric Sciences Group (ASG) seminar committee, University of Connecticut (2015-present).
11. Member of the Environmental Engineering program seminar committee (2014-2015).

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12. Reviewer for the Environmental Engineering Graduate Program applications (continuous, CEE, UConn).
  13. Participation in the Joy of Teaching (by P. Filene) book group. Organized by the Institute for Teaching and Learning. September-October 2013. Storrs campus, UConn, CT, USA.

#### **COMPUTER KNOWLEDGE – MODELING SYSTEMS**

- Fortran 77, Fortran 90, 95, Intel and Portland Group Fortran Compilers, Dos, Unix, Linux, MS Windows, Word, Excel, Linux shell scripting, NCAR graphics (Linux), Vis5d (Linux), Ferret (Data Visualization and Analysis), GRIB, NETCDF3/4, MATLAB, ArcGIS.
- CAMx air quality model, RAMS/ICLAMS modeling system, HYPACT dispersion model, MDMS dispersion model, SKIRON/Eta modeling system, CMAQ Community Multiscale Air Quality Modeling System, Weather Research and Forecasting Model (WRF).
- EMAC (ECHAM5/MESSy) atmospheric chemistry general circulation model.

#### **MEMBERSHIPS**

- American Geophysical Union (AGU) Life Member
- European Geosciences Union (EGU) Life Member
- American Meteorological Society (AMS) Member
- Association of Environmental Engineers and Science Professors (AEESP)
- Air and Waste Management Association (A&WMA) Member
- American Association of University Professors (AAUP) Member