

Curriculum Vitae

S. Emmanouil

Personal Information:

Name: Stergios Emmanouil

Date and Place of birth: 26 Jan. 1992, Thessaloniki, Greece

Nationality: Greek

Address: 159 Discovery Dr, Storrs, CT 06269, U.S.A. | Innovation Partnership Building, Eversource Energy Center

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Education:

University of Connecticut (UConn) (2019 – 2022)

Storrs, CT, U.S.A.

Ph.D. in Civil and Environmental Engineering, July 2022

Department of Civil and Environmental Engineering

Program of Environmental Engineering

GPA: 4.00/4.00

Thesis Title: *On the spatiotemporal fate of extreme rainfall events: Understanding past and future trends.*

Academic Advisor: Prof. Emmanouil N. Anagnostou

Delft University of Technology (2016 – 2018)

Delft, Netherlands

M.Sc. in Civil Engineering, October 2018

Department of Civil Engineering and Geosciences

Hydraulic Engineering Track

Specialization of Hydraulic Structures and Flood Risk

GPA: 7.53/10 (upper 7% of Civil Engineering Graduates)

Thesis Title: *Error Correction for Wave Modelling.*

Academic Advisors: Prof. Matthijs Kok and Prof. Gabriela F. Nane,

Industry Advisors: Jan-Joost Schouten and Sandra Gaytan-Aguilar

University of Patras, School of Engineering (2011-2016)

Patras, Greece

Diploma in Civil Engineering (5-year Diploma degree), July 2016

Department of Civil Engineering

Hydraulic and Geotechnical Engineering Track

GPA: 7.73/10 (upper 3% of Civil Engineering Graduates)

Thesis Title: *Software Extension for the Analysis and Modeling of Water Supply Networks.*

Academic Advisor: Prof. Andreas Langousis

1st General Lyceum of Kastoria (2007-2010)

Kastoria, Greece

Greek Apolytirion, GPA: 18.1/20 (Ranked first in class of 2010)

1st General Gymnasium of Kastoria (2004-2007)

Kastoria, Greece

Greek Apolytirion, GPA: 19.7/20 (Ranked first in class of 2007)

Expertise: *Development and application of statistical and stochastic approaches toward modelling natural processes and engineering systems, for risk assessment, design, and control.*

Distinctions/Fellowships/Awards:

- (2023) American Geophysical Union (AGU) Outstanding Reviewer, *Water Resources Research* (WRR)
- (2022) Conference Participation Award, *Graduate School – University of Connecticut (UConn)*
- (2022) Doctoral Dissertation Fellowship, *Graduate School – University of Connecticut (UConn)*
- (2021) Civil & Environmental Engineering Pre-doctoral Fellowship, *University of Connecticut (UConn)*
- (2019) Gerondelis Foundation Graduate Study Scholarship, *Gerondelis Foundation Inc.*
- (2019 – 2022) Eversource Energy Center Graduate Fellowship, *Eversource Energy Center – UConn*
- (2004 – 2010) Awards of Excellence (a total number of 10) in all years of Secondary Education

Academic Experience:

- (Aug. 2023 – present) Assistant Research Professor, *Department of Civil and Environmental Engineering, Eversource Energy Center, University of Connecticut (UConn)*, Storrs, CT, U.S.A.
- (Aug. 2022 – Aug. 2023) Postdoctoral Research Associate, *Eversource Energy Center – UConn*, Storrs, CT, U.S.A.
- (Aug. 2022 – Jan. 2023) Adjunct Professor, *Eversource Energy Center – UConn*, Storrs, CT, U.S.A.
- Instructor of the undergraduate course “*Probability and Statistics in Civil and Environmental Engineering (CE 2251/CE 3251)*”, offered by the Department of Civil and Environmental Engineering at the University of Connecticut in the 2022 Fall Semester.
- (Jan. 2019 – Aug. 2022) Graduate Research Assistant, *Eversource Energy Center – UConn*, Storrs, CT, U.S.A.

Professional Experience:

- (Jul. 2014 – Aug. 2014) Trainee Civil Engineer, *ANODOS Construction Company*, Kastoria, Greece
- Construction site supervision in hydraulic and road works.
 - Site measurements and office duties.
- (Dec. 2017 – Oct. 2018) Intern Hydraulic Engineer, *Deltares*, Delft, Netherlands
- Development of an error correction model for met-ocean data forecasting (Meteo Dashboard operational platform).
 - M.Sc. Thesis preparation, focusing on the accurate forecasting and uncertainty estimation of met-ocean parameters.
- (Aug. 2017 – present) Professional Civil Engineer (Reg. No: 141145)

Professional Memberships:

Technical Chamber of Greece (T.C.G.)
 American Geophysical Union (A.G.U.)
 American Society of Civil Engineers (A.S.C.E.)
 European Geosciences Union (E.G.U.)
 International Association of Hydrological Sciences (I.A.H.S.)
 American Meteorological Society (A.M.S.)

Editorial Boards:

- *Associate Editor*: Stochastic Environmental Research and Risk Assessment (SERRA), (2022 – present)
- *Guest Editor*: Stochastic Environmental Research and Risk Assessment (SERRA), Special Issue: Artificial Intelligence and High-Performance Computing Algorithms for Environmental Research and Risk Quantification

Peer-Review Referee Work (as of 15 Oct., 2023):

Journal of Hydrology Elsevier	(66 reviews)
Water Resources Research Wiley	(14 reviews)
Stochastic Environmental Research and Risk Assessment Springer	(24 reviews)
Ocean Engineering Elsevier	(7 reviews)
Journal of Hydrometeorology AMS	(3 reviews)
Applied Energy Elsevier	(2 reviews)
Earth's Future Wiley	(2 reviews)
Journal of Environmental Informatics ISEIS	(1 review)
Applied Water Science Springer	(1 review)
Climatic Change Springer	(1 review)
Hydrological Sciences Journal Taylor & Francis	(1 review)

Scientific and Professional Committees:

- Member of the scientific committee of the Precipitation and Climate Sub-Division of the European Geosciences Union (EGU), (2021-present).

Organization of Conferences and Conference Sessions:

- Member of the Scientific Committee and Co-Convener: *Hydrometeorologic stochastic: from theoretical advancements in extremes, scales and probabilities to applications in industry* (HS7.7), European Geosciences Union (EGU) General Assembly, Vienna, Austria, 2023.

Participation in Conferences and Conference Sessions:

- 20th Student Conference “Repair and Strengthening of Structures”, University of Patras, Patras, 26-27 February 2014, Greece.
- 7th National Geotechnical Engineering Conference, Athens, Greece, 5-7 November 2014.
- 22nd Student Conference “Repair and Strengthening of Structures”, University of Patras, Patras, 16-17 February 2016, Greece.
- American Geophysical Union 2019 Fall Meeting, San Francisco, CA, 09-13 December 2019, U.S.A.
- American Geophysical Union 2020 Fall Meeting, Online Everywhere, 01-17 December 2020.
- American Geophysical Union 2021 Fall Meeting, New Orleans, LA, 13-17 December 2021, U.S.A.
- European Geosciences Union 2022 General Assembly, Vienna, 23–27 May 2022, Austria.
- 12th International Workshop on Statistical Hydrology (STAHY2022), Chia, Sardinia, Italy, 17 – 20 September, 2022.
- American Geophysical Union 2022 Fall Meeting, Chicago, IL, 12-16 December 2022, U.S.A.
- European Geosciences Union 2023 General Assembly, Vienna, 23–28 April 2023, Austria.
- 14th International Precipitation Conference (IPC14), Norman, Oklahoma, 05-09 June 2023, U.S.A.
- 12th International Workshop on Precipitation in Urban Areas (UrbanRain23), Pontresina, 29 November – 02 December 2023, Switzerland.
- American Geophysical Union 2023 Fall Meeting, San Francisco, CA, 11-15 December 2024, U.S.A.

Published Work – Student Supervision – Bibliometrics (as of 15 Oct., 2023):

- Dissertations: 3
- Research Articles in Peer-Reviewed Scientific Journals: 9
- Research Articles in Preparation: 5 (3 with advisees)
- Peer-Reviewed Articles in Conference Proceedings: 1
- h-index (Google-Scholar): 6
- Citations (Google-Scholar): 130
- Conference Presentations: 20
- Invited Talks and Lectures: 1
- Datasets: 1
- Open-Source Software: 1
- Scientific Committees: 1
- Supervision of Doctoral Theses: 1
- Supervision of Undergraduate Students: 1
- Participation in Doctoral Committees: 2

Peer-Reviewed Journal Articles:

- Emmanouil, S., A. Langousis, E.I. Nikolopoulos, and E.N. Anagnostou (2023) Exploring the future of rainfall extremes over CONUS: The effects of high emission climate change trajectories on the intensity and frequency of rare precipitation events, *Earth's Future*, **11**, e2022EF003039, DOI: [10.1029/2022EF003039](https://doi.org/10.1029/2022EF003039).
- Yang, F., M. Koukoulou, S. Emmanouil, D. Cerrai, and E.N. Anagnostou (2023) Assessing the Power Grid Vulnerability to Storms based on Long-Term Atmospheric Reanalysis, *Stochastic Environmental Research and Risk Assessment*, DOI: [10.1007/s00477-023-02508-y](https://doi.org/10.1007/s00477-023-02508-y).
- Emmanouil, S., A. Langousis, E.I. Nikolopoulos, and E.N. Anagnostou (2022) The spatiotemporal evolution of rainfall extremes in a changing climate: A CONUS-wide assessment based on multifractal scaling arguments, *Earth's Future*, **10**(3), e2021EF002539, DOI: [10.1029/2021EF002539](https://doi.org/10.1029/2021EF002539).
- Emmanouil, S., A. Langousis, E.I. Nikolopoulos, and E.N. Anagnostou (2021) An ERA-5 Derived CONUS-Wide High-Resolution Precipitation Dataset Based on a Refined Parametric Statistical Downscaling Framework, *Water Resources Research*, **57**(6), e2020WR029548, DOI: [10.1029/2020WR029548](https://doi.org/10.1029/2020WR029548).
- Emmanouil, S., J. Philhower, S. Macdonald, F.K. Khadim, M. Yang, E. Atsbeha, H. Nagireddy, N. Roach, E. Holzer, and E.N. Anagnostou (2021) A comprehensive approach towards the design of a renewable energy microgrid for rural Ethiopia: the technical and social perspectives, *Sustainability*, **13**, 3974, DOI: [10.3390/su13073974](https://doi.org/10.3390/su13073974).
- Emmanouil, S., E.I. Nikolopoulos, B. François, C. Brown, and E.N. Anagnostou (2021) Evaluating existing water supply reservoirs as small-scale Pumped Hydroelectric Storage options – A case study in Connecticut, *Energy*, **226**, 120354, DOI: [10.1016/j.energy.2021.120354](https://doi.org/10.1016/j.energy.2021.120354).
- Emmanouil, S., A. Langousis, E.I. Nikolopoulos, and E.N. Anagnostou (2020) Quantitative assessment of annual maxima, peaks-over-threshold (PoT) and multifractal parametric approaches in estimating intensity-duration-frequency (IDF) curves from short rainfall records, *Journal of Hydrology*, **589**, 125151, DOI: [10.1016/j.jhydrol.2020.125151](https://doi.org/10.1016/j.jhydrol.2020.125151).
- Emmanouil, S., S. Gaytan-Aguilar, G.F. Nane, and J.-J. Schouten (2020) Statistical models for improving significant wave height predictions in offshore operations, *Ocean Engineering*, **206**, 107249, DOI: [10.1016/j.oceaneng.2020.107249](https://doi.org/10.1016/j.oceaneng.2020.107249).
- Emmanouil, S., and A. Langousis (2017) UPStream: Automated Hydraulic Design of Pressurized Water Supply Networks, *SoftwareX*, **6**, 248-254, DOI: [10.1016/j.softx.2017.09.001](https://doi.org/10.1016/j.softx.2017.09.001).

Journal Articles in Preparation:*advisees are noted by (*)*

- Emmanouil, S., A. Langousis, E. Perry, L. Madaus, J.P. Hacker, and E.N. Anagnostou (2024) A parametric framework for the evaluation of flood risk from compound hydrometeorological hazards (in preparation).
- Emmanouil, S., A.V. Nair, E.I. Nikolopoulos, B. François, D. Cerrai, and E.N. Anagnostou (2024) The impact of high spatiotemporal resolutions and long record lengths on the evaluation of renewable energy resources: A case study over Northeastern United States (in preparation).
- Prevezianos*, A., S. Emmanouil, P. Watson, X. Zhang, D. Cerrai, D. Pasqualini, and E.N. Anagnostou (2024) A data-driven framework for the identification of winter storms over CONUS, *Bulletin of the American Meteorological Society* (in preparation).
- Prevezianos*, A., S. Emmanouil, and E.N. Anagnostou (2024) The effects of electric grid reinforcements on the magnitude and frequency of power outage events over the State of Connecticut (in preparation).
- Enea*, L., S. Emmanouil, J. Philhower, and E.N. Anagnostou (2024) The potential of distributed generation to improve electric service reliability for coastal communities in the State of Connecticut (in preparation).
- Emmanouil, S., A. Prevezianos*, A. Langousis, and E.N. Anagnostou (2023) Evaluating the effects of extreme rainfall trends on the failure rates of existing water infrastructure across the Housatonic River Basin, *Stochastic Environmental Research and Risk Assessment* (in preparation).

Conference Proceedings:

- Langousis, A., E.I. Nikolopoulos, S. Emmanouil, and E.N. Anagnostou (2018) Using approximations from multifractal theory to estimate IDF curves at ungauged locations, In: *Rainfall monitoring, modelling and forecasting in urban environments, Conference Proceedings of the 11th International Workshop on Precipitation in Urban Areas (UrbanRain18)*, Pontresina, Switzerland, 5-7, Dec. 2018, Eds: Peter Molnar and Nadav Peleg, Institute of Environmental Engineering, ETH Zurich, Switzerland. DOI: 10.3929/ethz-b-000347485 (ETH E-collection, 2019).

Conference Presentations:*advisees are noted by (*)*

- Hu, L., E.I. Nikolopoulos, A. Langousis, S. Emmanouil, and M.N. Anagnostou (2018) High-resolution Statistical Downscaling of Global Reanalysis Precipitation Using Multi-Radar/Multi-Sensor (MRMS) Rainfall Estimates – Evaluation over CONUS, *American Geophysical Union Fall Meeting*, Washington D.C., 10-14 December 2018 ([active link](#)).
- Langousis, A., E.I. Nikolopoulos, S. Emmanouil, and M.N. Anagnostou (2018) Using Approximations from Multifractal Theory to Estimate IDF Curves at Ungauged Locations, *11th International Workshop on Precipitation in Urban Areas*, Sporthotel, Pontresina, Switzerland, 05-07 December 2018 ([active link](#)).
- Emmanouil, S., E.I. Nikolopoulos, B. François, X. Shen, C. Brown, and E.N. Anagnostou (2019) Small-scale Pumped-Hydroelectric Storage (PHS): a solution for reaching the target for renewable energy penetration levels in New England, *NECPUC*, Hartford, CT, U.S.A., 02-05 June 2019.
- Emmanouil, S., E.I. Nikolopoulos, B. François, X. Shen, C. Brown, D. Castillo, S. Woolard, and E.N. Anagnostou (2019) Evaluating existing water infrastructure as a storage solution to the renewable energy penetration in New England, *American Geophysical Union Fall Meeting*, San Francisco, CA, 09-13 December 2019 ([active link](#)).
- Emmanouil, S., E.I. Nikolopoulos, A. Langousis, and E.N. Anagnostou (2019) Statistical downscaling of Global Reanalysis Precipitation Products: A comparison of parametric and non-parametric approaches over CONUS, *European Geosciences Union 2019 General Assembly*, Vienna, Austria, 7-12 April 2019.
- Emmanouil, S., A. Langousis, E.I. Nikolopoulos, and E.N. Anagnostou (2020) Improving the accuracy of reanalysis-based hourly precipitation estimates over CONUS, *American Geophysical Union Fall Meeting*, Online, 1-17 December 2020 ([active link](#)).
- Emmanouil, S., A. Langousis, E.I. Nikolopoulos, and E.N. Anagnostou (2021) A CONUS-wide assessment of the climate change impact on low probability precipitation events: Combining information from the past and scaling arguments to estimate future trends, *American Geophysical Union Fall Meeting*, New Orleans, LA, 13-17 December 2021 ([active link](#)).
- Emmanouil, S., A. Langousis, E.I. Nikolopoulos, and E.N. Anagnostou (2022) Assessing future extreme rainfall trends through multifractal scaling arguments: A CONUS-wide analysis based on NA-CORDEX model outputs, *European Geosciences Union 2022 General Assembly*, Vienna, Austria, 23–27 May 2022. DOI: [10.5194/egusphere-egu22-10931](https://doi.org/10.5194/egusphere-egu22-10931).
- Emmanouil, S., A. Langousis, E.I. Nikolopoulos, and E.N. Anagnostou (2022) A multifractal framework to evaluate extreme rainfall trends across scales under a changing climate, *17th Plinius Conference on Mediterranean Risks*, Villa Mondragone, Monte Porzio Catone, Rome, Italy, 18 – 21 October 2022. DOI: [10.5194/egusphere-plinius17-1](https://doi.org/10.5194/egusphere-plinius17-1).
- Emmanouil, S., A. Langousis, E.I. Nikolopoulos, and E.N. Anagnostou (2022) The evolution of Intensity-Duration-Frequency curves under climate change: A CONUS-wide investigation based on multifractal scaling arguments, *STAHY2022 – 12th International Workshop on Statistical Hydrology*, Chia, Sardinia, Italy, 17 – 20 September, 2022 ([active link](#)).
- Emmanouil, S., A. Prevezianos*, A. Langousis, and E.N. Anagnostou (2022) Investigating the Effects of Extreme Rainfall Trends on Existing Water Infrastructure and Design Considerations across the Connecticut River Basin, *American Geophysical Union Fall Meeting*, Chicago, IL, 12-16 December 2022 ([active link](#)).
- Zhang, X., E.N. Anagnostou, S. Emmanouil, F. Yang, and D. Cerrai (2023) Changes of Electric Distribution Network Storm Outages in Future Climate Scenarios: Evaluation for a Service Territory in Northeastern United States, *European Geosciences Union 2023 General Assembly*, Vienna, Austria, 23-28 April 2023. DOI: [10.5194/egusphere-egu23-9211](https://doi.org/10.5194/egusphere-egu23-9211).
- Emmanouil, S., A. Prevezianos*, A. Langousis, and E.N. Anagnostou (2023) Investigating the effects of extreme rainfall trends on the flow capacity of streams over the Northeast United States, *European Geosciences Union 2023 General Assembly*, Vienna, Austria, 23-28 April 2023. DOI: [10.5194/egusphere-egu23-6081](https://doi.org/10.5194/egusphere-egu23-6081).
- Emmanouil, S. (2023) Climate Change and Extremes: Challenges and Future Paths (**Invited Talk**), *14th International Precipitation Conference (IPC14), Pre-conference Early Career and Student Virtual Workshop*, May 24th, 2023 ([active link](#)).
- Emmanouil, S., A. Langousis, E. Perry, L. Madaus, J.P. Hacker, and E.N. Anagnostou (2023) Decomposing the effects of compound mechanisms on flood risk estimation for urban environments: A case study over Greater Boston, *12th International Workshop on Precipitation in Urban Areas (UrbanRain23)*, Pontresina, Switzerland, 29 November – 02 December 2023.
- Emmanouil, S., A. Langousis, E. Perry, L. Madaus, J.P. Hacker, and E.N. Anagnostou (2023) Assessing the effects of climate change on flood risk estimates for urban coastal areas: A case study over Greater Boston, *American Geophysical Union Fall Meeting*, San Francisco, CA, 11-15 December 2023.

- Prevezianos*, A., S. Emmanouil, X. Zhang, P. Watson, and E.N. Anagnostou (2023) Assessing the effects of electric grid reinforcements on the magnitude and frequency of power outage events: A case study over underserved communities in the State of Connecticut, *American Geophysical Union Fall Meeting*, San Francisco, CA, 11-15 December 2023.
- Zhang, X., F. Yang, S. Emmanouil, E.N. Anagnostou, and D. Cerrai (2023) A Novel Framework for Accessing the Power System Resilience under the Changing Climate, *American Geophysical Union Fall Meeting*, San Francisco, CA, 11-15 December 2023.
- Prevezianos*, A., S. Emmanouil, P. Watson, X. Zhang, D. Cerrai, D. Pasqualini, and E.N. Anagnostou (2024) A data-driven framework for the identification of winter storms over CONUS: Integrating existing event reports and atmospheric reanalysis data, *104th American Meteorological Society (AMS) Annual Meeting*, Baltimore, MD, 28 January – 01 February 2024.
- Zhang, X., P. Patlakas, S. Emmanouil, I. Chaniotis, D. Cerrai, and E.N. Anagnostou (2024) Simulation of Power Grid Outages from Historical Landfalling Hurricanes in the Northeast United States, *15th Conference on Weather, Water, Climate, and the New Energy Economy*, Baltimore, MD, 28 January – 01 February 2024.

Dissertations:

- Emmanouil, S. (2022) On the spatiotemporal fate of extreme rainfall events: Understanding past and future trends, *Ph.D. Thesis*, Department of Civil and Environmental Engineering, Environmental Engineering Program, University of Connecticut, Storrs, CT, U.S.A ([active link](#)).
- Emmanouil, S. (2018) Error Correction for Wave Modelling, *MSc thesis*, Department of Civil Engineering and Geosciences, Track of Hydraulic Engineering, Delft University of Technology, Delft, Netherlands ([active link](#)).
- Emmanouil, S. (2016) Software Extension for the Analysis and Modeling of Water Supply Networks, *Diploma Thesis*, Department of Civil Engineering, Division of Geotechnical and Hydraulic Engineering, University of Patras, Patras, Greece (in Greek).

Datasets:

- Emmanouil, S., A. Langousis, E.I. Nikolopoulos, and E.N. Anagnostou (2021) High-resolution CONUS-wide downscaled rainfall estimates (HRCBRE), Dryad, Dataset, <https://doi.org/10.5061/dryad.8kpr4xnq>.

Open-Source Software:

- Emmanouil, S. and A. Langousis (2017) *UPStream: Automated Hydraulic Design of Pressurized Water Distribution Networks*. SOFTX-D-17-00034, Legal Code License: Apache 2.0 ([active link](#)).

Courses Taught:

- *Probability and Statistics in Civil and Environmental Engineering* (CE 2251/CE 3251): Undergraduate course in the Department of Civil and Environmental Engineering at the University of Connecticut, Storrs, U.S.A. (Fall Semester 2022)

Languages:

Greek: Mother tongue

English: Fluent in conversation, reading and writing

Additional Skills and Competencies:

- Proficient in Programming Languages: C/C++, Fortran, Matlab, Visual Basic, R, RStudio, Python, Shell scripting, and Cross-Programming

- Proficient in Languages of Technical Computing: Mathematica, Minitab, Prob2B, Netica, Uninet
- Proficient in Microsoft Office Tools: Word, Excel, PowerPoint, Visio, Outlook
- Proficient in Hydraulic Simulation Models: EPANet
- Proficient in Scientific Graphing and Data Analysis: Origin
- Expert in Computer Aided Design: AutoCAD
- Knowledge of Structural Software for Analysis and Design: Sap2000, ETABS
- Knowledge of Graphic Design Applications: Photoshop
- Knowledge of GIS tools: ArcGIS, QGIS