

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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Tel: +1(860)2083868, +30(698)1119257

Education:

University of Connecticut (UConn) (2019 – 2022)

Storrs, CT, U.S.A.

Ph.D. in Civil and Environmental Engineering

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.*

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.*

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.*

Thesis Supervisor: 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*

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.)

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 25 Aug., 2022):

| | |
|---|--------------|
| Journal of Hydrology | (62 reviews) |
| Water Resources Research | (14 reviews) |
| Stochastic Environmental Research and Risk Assessment | (15 reviews) |
| Ocean Engineering | (7 reviews) |
| Journal of Hydrometeorology | (3 reviews) |
| Applied Energy | (2 reviews) |
| Earth's Future | (2 reviews) |
| Journal of Environmental Informatics | (1 review) |
| Applied Water Science | (1 review) |
| Climatic Change | (1 review) |
| Hydrological Sciences Journal | (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.

Published Work – Bibliometrics (as of 25 Aug., 2023):

- Dissertations: 3
- Research Articles in Peer-Reviewed Scientific Journals: 9
- h-index (Google-Scholar): 6
- Citations (Google-Scholar): 121
- Conference Presentations: 20
- Invited Talks and Lectures: 1
- Datasets: 1
- Committees: 1

Selected 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).
- 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).
- Yang, F., M. Koukoulas, 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).

Conference Presentations:

- Lanxin Hu, 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.
- 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.
- 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.
- 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. 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.
- 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.
- 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.
- 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.
- 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.
- 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.

- 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.
- 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.
- 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 Fransisco, 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 Fransisco, 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 Fransisco, 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.
- 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, URL: <http://resolver.tudelft.nl/uuid:e712c0c1-3c85-4cff-8455-443a84ff7537>.
- 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>.

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

Interests:

Sports, cinema, music, movies, swimming, book reading, popular science, sketching, travelling, History.