Emmanouil N. Anagnostou, Ph.D.

Board of Trustees Distinguished Professor
Eversource Energy Endowed Chair in Environmental Engineering
Executive Director, Eversource Energy Center
Applied Research Director, Connecticut Institute for Resilience and Climate Adaptation

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Career Highlights

Scholarly & Research Achievements

- <u>Archival publications</u>: 211 peer reviewed archival publications
- <u>Books</u>: 10 book chapters
- <u>Patents</u>: 3 patents (two pending)
- <u>Conferences</u>: >500 conference papers/presentations; 40 keynote & invited talks
- <u>Google Scholar</u>: H-Index 51; i10-index 137; >7400 independent citations.
- <u>Funding</u>: $ 22.5M from 11 active & 44 completed US research grants and $14.5M in pending proposals; €2.7M from six completed European Union research projects.

Leadership

- Executive Director, Eversource Energy Center
- Applied Research Director, Connecticut Institute for Resilience and Climate Adaptation
- Environmental Engineering Program Director (2012-14), School of Engineering
- Marie Curie Excellence Team Leader (2007-10), Hellenic Center for Marine Research

Major Honors & Awards

- Marie Curie Excellence Award
- European Geophysical Union Plinius Medal
- UConn Alumni Association-Excellence in Research

Teaching and Advising

- Developed and taught 4 graduate courses and taught 6 different undergraduate courses in the Civil and Environmental Engineering Department at UConn.
- Graduated 19 PhD (4 female and 2 Underrepresented Minority) and 13 MS students
- Currently advising 13 PhD (7 female) and 5 undergraduate (all female/URM) students
- Major student awards: 7 NASA Earth System Fellowships; 2 School of Engineering best PhD thesis awards; 3 American Geophysical Union (AGU) best paper awards; one national Goldwater undergraduate student award.

Professional Service & Community Outreach

- Editor-in-Chief, Journal of Hydrology.
- Former Technical Chair of the American Geophysical Union hydrology committee on precipitation.
- Led the UConn-wide energy resilience initiative that resulted in the establishment of the Eversource Energy Center with 20 million dollars of industry support.
- Co-led the formation of the Connecticut Institute for Resilience and Climate Adaptation (CIRCA), established with $2.5M State-of-Connecticut support

Entrepreneurship

- Established ACW Analytics (2018): a UConn Start-up that applies deep expertise in earth and data sciences to predict the impacts of severe weather and climate on infrastructure.
- In the first two years, I raised nearly $100,000 in service contracts and submitted a patent.

Education

Ph.D.	1997	*Hydrometeorology*, University of Iowa, Civil and Environmental Engineering.
M.S.	1994	*Hydrometeorology*, University of Iowa, Civil and Environmental Engineering.
B.S.	1990	*Hydrology, Hydraulics & Water Resources*, National Technical University of Athens, Civil and Environmental Engineering.

Appointments

2015-current   Executive Director, <u>Eversource Energy Center</u> (eversource.uconn.edu), University of Connecticut.

2014-current   Applied Research Director, <u>Connecticut Institute for Resilience and Climate Adaptation</u> (circa.uconn.edu), University of Connecticut.

2012-2014   Director, <u>Environmental Engineering Program</u>, School of Engineering, University of Connecticut.

2010-current   <u>Eversource Energy Chair in Environmental Engineering</u>, School of Engineering, University of Connecticut.

2009-current   <u>Professor</u>, Civil and Environmental Engineering, University of Connecticut

2007-2010   <u>Marie Curie Excellence Team Leader</u>, Hellenic Center for Marine Research, Greece

2008   <u>United Technologies Corporation Professor of Engineering Innovation</u>, School of Engineering, University of Connecticut

2005-2006   <u>Visiting Researcher</u>, Hellenic Center for Marine Research, Greece

2003-2008   <u>Associate Professor with Tenure</u>, Civil and Environmental Engineering, University of Connecticut

1999-2003   <u>Assistant Professor</u>, Civil and Environmental Engineering, University of Connecticut

1999-2002   <u>Adjunct Scientist</u>, National Observatory of Athens, Greece

1998-1999   <u>Visiting Researcher</u>, Dep. of Agric. Engineering, Univ. of Padova, Italy

1997-1999   <u>Visiting Scientist</u>, Laboratory for Atmospheres, GSFC, NASA

1992-1997   <u>Research Assistant</u>, Iowa Institute of Hydraulic Research, Univ. of Iowa

Areas of Research Interest

- Infrastructure resilience to weather extremes
- Optimal integration of renewables in the power grid.
- Prediction of weather-based outages in electric power distribution networks.
- Flood vulnerability analyses through integration of hydrologic modeling and Earth observation datasets.
- Understanding uptake of climate forecasts for improving water, energy & food security in low income regions.
- Uncertainty characterization of global satellite precipitation estimates.
- Estimation of precipitation from high-frequency dual-polarization weather radar.
- Long-range detection of lightning and applications in regional weather prediction.
- Development of underwater acoustic sensors for monitoring meteorological, anthropogenic and biological (marine mammals) activities at sea.

Honors & Awards

2019   University of Connecticut Board of Trustees Distinguished Professor

2016   Provost's acknowledgement for achieving excellent student evaluations

2012   *Best Advisor Award* by the School of Engineering, University of Connecticut

2011   *Excellence in Research Award* by the University of Connecticut Alumni Association

2010   Member of the *Connecticut Academy of Science and Engineering*

2010   *Eversource Energy Foundation Endowed Chair* in Environmental Engineering, University of Connecticut

2008   *United Technologies Corporation Professorship of Engineering Innovation,* School of Engineering

2005   *Marie Curie Excellence Award,* this EU award is reserved for five top outstanding scientists doing research in any area supported by EU and had received a Marie Curie training fellowship in the early years of their career.

2003   *Outstanding Junior Faculty Award*, by the School of Engineering of the University of Connecticut for achievements in research and education.

2002   *EGU Plinius Medal*, from the European Geophysical Union. This medal is reserved for excellent scientists with outstanding achievements in a field related to Natural Hazards, with important interdisciplinary activity in two or more fields related with this topic and whose research has been on the mitigation of natural risks.

2002   *NSF CAREER Award*, awarded by the Geosciences program of National Science Foundation for proposal entitled "Improved knowledge on precipitation microphysics for advancing radar rainfall estimation and quantitative precipitation forecasting". This is a highly competitive multi-year award aiming the support of faculty with high potential in the beginning of their professional career.

1999   *NASA New Investigator Award*, awarded by NASA Earth Science Directorate for proposal entitled "Understanding the Error Characteristics of Precipitation Estimates from Space-Based Observing Systems." Competition for this multi-year award is high and open to all earth scientists and engineers nationwide being at an early stage (six years from Ph.D.) of their professional careers.

1998   *Marie Curie Post-Doctoral Fellowship*, awarded by the Environment and Climate Program of the Commission of the European Community for proposal entitled "Rainfall-Runoff Modeling as Basis for Radar-Rainfall Validation Studies." This highly competitive two-year award was to support research conducted by ENA as visiting researcher at the University of Padova.

PROFESSIONAL SERVICE

Editorships

2017-current	Editor in Chief, *Journal of Hydrology*
2010	Guest co-Editor, Journal of Hydrology-Special Issue on Flash Floods
2008-2016	Associate Editor, *Journal of Hydrology*
2009	Guest co-Editor, Atmospheric Research-Special Issue on Precipitation
2000-2004	Associate Editor in the *Journal of Applied Meteorology*.

Professional Committees

2019-current	Member of International Association of Hydrologic Research-Hohai University Collaborative Committee on Higher Education and E-Learning
2013-2015	Chair, American Geophysical Union Technical Committee on Precipitation
2012-current	Advisory Board, European Meteorological Satellites program (EUMETSAT).
2007-current	Member of the International Committee on Earth Observation Satellites (CEOS)
2008-current	Member of the European Geophysical Union Hydrologic Sciences Committee
2006-current	Member of NASA's *Precipitation Measurement Mission (PMM) Science Team*

Organization of Sessions in International Conferences

- Technical Co-Chair, <u>2017 International Weather Radar and Hydrology Symposium</u>, October 2017, South Korea.

- Technical Co-Chair, <u>2014 International Weather Radar and Hydrology Symposium</u>, April 7th-10th, Washington, DC

- Co-Convener of the HS4.1/AS4.18/GM7.14/NH1.7 Flash floods and associated hazards: monitoring, forecasting, preparedness and coping strategies session of the <u>2014 EGU General Assembly</u>

- Steering committee of the <u>5th International Precipitation Conference</u>, June 30-July 4 2001, Maine USA

- Convener of the Global Precipitation Measurement and Hydrometeorological Extremes session of the <u>2003 EGU/AGU Joint Assembly</u>

- Convener of the Global Precipitation Measurement and Hydrometeorological Extremes session of the <u>2004 EGU General Assembly</u>

- Convener of the Global Precipitation Measurement and Hydrometeorological Extremes session of the <u>2005 EGU General Assembly</u>

- Convener of the Global Precipitation Measurement and Hydrometeorological Extremes session of the <u>2006 EGU General Assembly</u>

- Convener of NH1.01 "Satellite Remote Sensing Applications in Hydrometeorology, Water Cycle, and Flood Forecasting" session of the 2007 EGU General Assembly

- Co- convener of H21E: Rain Gage-Radar (NEXRAD) Rainfall Data Relationships: Emerging Data Quality Issues, Concepts, and Applications for Hydrologic Modeling session of 2007 AGU Fall Meeting, San Francisco

- Convener of IS24 - HS2.4/NP3.10 "Precipitation: from measurement to modeling and application in catchment hydrology" session of the 2008 EGU General Assembly

Reviews/Panels for Granting Agencies

NSF –
Hydrologic and Atmospheric Sciences programs
Office of International Science and Engineering
Multi-disciplinary programs

NASA –
New Investigator Program
Earth Science Fellowship Program
Tropical Rainfall Measuring Mission program
Precipitation Measurement Mission
Global Energy and Water Cycle program

NOAA -
Office of Global programs

European Organizations and Programs -
FP6, FP7 and Horizon 2020 programs
European Research Council
Marie Curie Program
Israel Science Foundation
Austrian Science Foundation
The Science Foundation of The Netherlands
Swiss Science Foundation

Reviews for International Journals

Advances in Water Resources,
ASCE Journal of Hydrologic Engineering,
Bulletin of the American Meteorological Society
Canadian Journal of Remote Sensing,
Computers and Geosciences
EOS, AGU Transactions
Geophysical Research Letters,
Hydrologic Processes Journal,
International Journal of Lightning,
IEEE-Transactions, Geosciences and Remote Sensing
Journal of Geophysical Research-Atmospheres,
Journal of Applied Meteorology,
Journal of Atmospheric Sciences,

Journal of Atmospheric and Oceanic Technology,
Journal of Hydrometeorology,
Journal of Environmental Systems,
Monthly Weather Review,
Meteorological Applications,
Non-Linear Processes in Geophysics,
Quarterly Journal of Royal Meteorological Society,
Remote Sensing of Environment,
Surveys in Geophysics,
Water Resources Research,
Weather and Forecasting

Society Memberships
Elected Member, Connecticut Academy of Science and Engineering (CASE)
American Geophysical Union (AGU)
American Association for the Advancement of Science (AAAS)
European Geophysical Union (EGU)
American Society of Civil Engineers (ASCE)
American Meteorological Society (AMS)
Hellenic Society of Civil Engineers, Professional Engineer

UNIVERSITY SERVICE

University Appointments
- Executive Director, Eversource Energy Center
- Applied Research Director, CIRCA (Connecticut Institute for Resilience and Climate Adaptation)
- University Senate
- President's Research Advisory Committee
- Council of Center Directors
- Council of Deans

University Committees
- Search Committee, Vice President for Research
- SoE Dean Review Committee
- Large Faculty Grant Committee
- OVPR Research Excellence Committee
- Sustainability and Resilience: Energy and Environment Committee

School Appointments/Committees
- Environmental Engineering Program Director (2012-14)
- Strategic Plan Committee
- Endowed Chairs Review Committee
- Graduate Committee
- Promotion and Tenure Review (PTR) Committee
- ABET Steering Committee

Department Committees
- Graduate Committee
- Faculty Search Committees
- Merit & Equity Review
- Space Utilization Committee
- PTR Committee

UNIVERSITY LEADERSHIP AND PUBLIC SERVICE

Major University Leadership Achievements
- Led the University of Connecticut energy resilience initiative that resulted in the establishment of the Eversource Energy Center (eversource.uconn.edu) with $20M of industry support. In the past five years, I have hired two Center faculty in Civil and Environmental Engineering (one underrepresented minority), five research professors (three female), and I am currently running a search for an endowed chair Center professor in Electrical and Computer Engineering.
- Co-led with Prof. Jim O'Donnell the formation of the Connecticut Institute for Resilience and Climate Adaptation (CIRCA; circa.uconn.edu), which was established with $2.5 million State of Connecticut support.
- Led the Environmental Engineering Program from 2012-14; during that period I hired three new faculty (two female) based on a cluster hire initiative in environmental and energy sustainability.

Major Public Service Achievements
- Led the UConn Outage Prediction Model that currently supports with power outage forecasts five different electric utilities in the New England area, benefiting millions of people where they live and work.
- Led the UConn collaboration with the Electric Power Research Institute aimed at establishing an Analytics Center of Excellence on Storm Situational Awareness for Grid Resilience
- Informed IEEE Energy Policy Committee on research innovations related to power grid resilience.
- Spearheaded an international research & education initiative aimed to reduce food insecurities of low-income farming communities in Ethiopia by supplying farmers and water managers with valuable advance information to guide their respective decisions.
- Co-led the formation of the Ethiopian Institute of Water Resources based on a USAID-Higher Education Development award.
- Engaged with Electric Edison Institute to provide research support related to the reconstruction of Puerto Rico's power grid.

Government and Industry Advising/Consulting
- National Observatory of Athens, Greece, for the design and research implementation of a mobile hydrometeorological observatory. Jan 1999 to Dec of 2001.
- Town of Simsbury, Connecticut, for conducting expert statistical assessment of the soil remediation sampling program proposed by a residential developer, Jun to July of 2000.
- Binet Inc., Oklahoma, for the development of a polarimetric radar rainfall estimation algorithm, January – September 2000.
- Resolution Displays Inc., Virginia, for the development of an optimization algorithm to be used in lightning detection from a network of VLF radio receivers, June to December 2000.
- Electronic Enterprise Corporation EEC, Alabama, for the development of rainfall algorithms for a newly developed re-deployable X-band system, 2002-03.
- Norton Engineering, Connecticut, for a hydrologic/hydraulic design study associated with a major housing development in West Hartford, Connecticut, 2003-05.

- South Florida Water Management District, Florida, for the development of a radar rainfall estimation algorithm for use by the National Weather Service for radar network measurements in the District's water management system, 2006-07 & 2008-09.

- Ethiopian Meteorological Services, Addis Ababa, for the implementation of a weather radar nowcasting system in Addis Ababa, 2006-07.

- Hellenic Center for Marine Research, Athens, for the POSEIDON system, 2005-06.

- Cyprus Meteorological Services, for the design and acquisition of two X-band Dual-Polarization radars, 2008-9

- South Florida Water Management District, Florida, for the implementation of real-time flood warning system for the C-11 basin, 2011-12.

TEACHING

Teaching Approach and Innovations

At UConn I have taught 10 graduate and undergraduate Civil and Environmental Engineering courses including three new graduate courses that I developed (Hydrometeorology, Remote Sensing and Probabilistic Methods in Environmental Systems). In the classroom I am a proponent of active learning and discussion teaching methods, and I put special emphasis on investigation as the basis for learning. I strive to excite students' enthusiasm by delivering lectures in an interactive mode and by incorporating the latest advancements on the course topic, connecting the fundamental engineering concepts to real-life examples and by enhancing student engagement through scientific debates and literature review. I expose students to both experimental and numerical methods through short trips (in the field or research labs), and participation in field campaigns or research projects. I regularly bring my rich interdisciplinary research experiences into the classroom, to inspire and innovate research thinking. Finally, an intellectual activity that I consider very important for enhancing students' knowledge is related to seminars delivered by experts from various disciplines. I, therefore, like to promote the idea of in-class seminars and involve not only academics but also people from industry in order to stimulate interest and exchange of ideas. I believe that such activities help students to gain new and interdisciplinary knowledge and develop critical thinking, which is crucial for training the next generation of scientists and engineers.

Courses Summary
- Graduate:
  - Hydrometeorology (developed this course)
  - Advanced Topics in Environmental Engineering - Remote Sensing (developed this course)
  - Probabilistic Methods in Environmental System (developed this course)
  - Environmental Quantitative Methods
  - Advanced Topics in Environmental Engineering - Predictive Analytics (co-developed this course with David Wanik)
- Undergraduate:
  - Hydraulic Engineering
  - Engineering Hydrology
  - Probability and Statistics in in Civil and Environmental Engineering
  - Decision Analysis in Civil and Environmental Engineering
  - Fluid Mechanics
  - Environmental Modelling

ADVISING

Advising Approach and Goals

My advising philosophy is an extension of my teaching philosophy. In one-to-one advising my relationship with the students is a partnership. They jointly create new knowledge and share the excitement that results from such an endeavor. Like every partnership, I believe it takes a lot of work to make it successful. People come from different backgrounds and different cultural norms. These differences make the student-advisor partnership complex and sometimes difficult to succeed. I understand that many students don't need guidance, they need space, they need time to grow and make their own mistakes. I am very aware of the power I might have over my students and have established an atmosphere that power issues are minimized. I always try to identify the "transference issues" that might exist and eliminate them at once. I am happy to note that my advising strategy has resonated well with my research team leading to a happy and highly productive research environment. In terms of productivity, I have co-authored over 118 journal papers with my Ph.D. students over the past 15 years, which represents an average of 6 journal papers per Ph.D. student. In addition, several of my graduate students have received top recognitions and awards listed below. In addition, I would like to note that I put particular emphasis on diversity. Currently, six of my ten Ph.D. students, two of my four research associates and six of my seven undergraduate students are female. In 2012 I was recognized by the School of Engineering with the **best advisor award**.

Diversity
- Current undergraduates: two underrepresented minority students
- Current PhD students: six female
- Current research associates: two female
- Past students: three female and two underrepresented minority PhD students; five female and underrepresented minority undergraduate students

Student Recognitions
- Seven of my former Ph.D. students received the highly competitive NASA Graduate Student Earth System Fellowship that supported their PhD research.
- Two of my Ph.D. students were recognized with the best PhD thesis awards by the School of Engineering
- Three of my Ph.D. students have received the highly prestigious AGU best paper award
- One of my undergraduate students has received the prestigious national Goldwater award

Current Supported Research Associates
- Dr. Xinyi Shen, Started Spring 2015
- Dr. Giulia Sofia, Started August 2018
- Dr. Diego Cerrai, 2019-2020
- Dr. Ha Nguyen, Started January 2021

Current UConn Ph.D. Advisees
- Marika Koukoula, Started Spring 2017 (expected graduation: Spring 2021)
- Feifei Yang, Started Fall 2016 (expected graduation: Spring 2021)
- Peter Watson, Started Fall 2017 (expected graduation: Summer 2021)
- Sardorbek Musayev, Start Fall 2017 (expected graduation: Summer 2021)
- Fahad Khadim, Started Fall 2017 (expected graduation: Fall 2021)
- Rehenuma Lazin, Started Fall 2017 (expected graduation: Fall 2021)
- Lanxin Hu, Started Fall 2015 (expected graduation: Spring 2021)

- Emmanouil Stergios, Started Spring 2019 (expected graduation: TBD)
- Mariam Khanam, Started Fall 2018 (expected graduation: TBD)
- Kang He, Started Fall 2019 (expected graduation: TBD)
- Mahjabeen Fatema Mitu, Started Fall 2019 (expected graduation: TBD)
- William Taylor, Started Fall 2019 (expected graduation: TBD)
- Genevieve Rigler, Started Spring 2020 (expected graduation: TBD)

Current UConn Undergraduate Advisees
- Civil and Environmental Engineering
    o Sita Nyame, senior (honors)
    o Brandon Hermoza-Ricci, junior

- Computer Science and Engineering
    o Aaron Spaulding, senior (honors)

Past UConn Undergraduate Advisees
- Civil and Environmental Engineering
    o Xinyu Lin, junior (honors)
    o Natalie Roach, junior
    o Sophie Macdonald, senior

- Computer Science and Engineering
    o Berk Alpay, junior (honors & **Goldwater awardee**)

- BS Physiology and Neurobiology, BA Sociology
    o Himaja Nagireddy, senior (honors & STEM scholar)

Graduated UConn Ph.D. Advisees

Yagmur Derin, Graduated Summer 2019
    Currently: Post Doc in the Department of Meteorology, University of Oklahoma
Diego Cerrai, Graduated Spring 2019
    Currently: Assistant Research Professor in the Department of Civil and Environmental
    Engineering, UConn
Ehsan Md. Bhuiyan, Graduated Summer 2018
    Currently: Post Doc in the Department of Natural Resources and Environment, UConn
Xinxuan Zhang, Graduated Spring 2018
    Currently: Post Doc, George Mason University
Yiwen Mei, Graduated Spring 2017
    Currently: Post Doc, George Mason University
Maria Frediani, Graduated Spring 2017
    Currently: Research Associate, NCAR
Muhammet Dis, Graduated Summer 2015
    Currently: Assistant Professor, Turkey
David Wanik, Graduated Summer 2015 (*EPRI Fellow*)
    Currently: Senior Manager, HSB
Dimitrios Stampoulis, Graduated Spring 2014

Currently: Post Doc, University of Arizona
Hojjat Seyyedi, Graduated Spring 2014 (*FM Global graduate student Fellow*)
    Currently: Senior Risk Analyst, AON Re-Insurance
Viviana Maggioni, Graduated Spring 2012 (*NASA graduate student Fellow*)
    Currently: Assistant Professor, George Mason University
Efthymios Nikolopoulos, Graduated Spring 2010 (*NASA graduate student Fellow*) (*School of Engineering Best PhD Thesis Award*)
    Currently: Assistant Research Professor, UConn
Shah Alamgir (international co-advisor), Graduated Spring 2009 (INRS- ETE, University of Québec, Canada).
    Currently: Research Fellow at INRS-ETE, Canada
Alemu Tadesse, Graduated Fall 2007. (*NASA graduate student Fellow*)
    Currently: Research Associate at National Center for Atmospheric Research, USA
Dagang Wang (co-advised with Prof. Guiling Wang), Ph.D., Graduated Spring 2007 (*NASA graduate student Fellow*)
    Currently: Associate Professor, Sun Yat-Sen University, China
Tufa Dinku, Ph.D., Graduated Summer 2005 (*NASA graduate student Fellow*)
    Currently: Senior Research Associate, IRI, Columbia University, USA
Faisal Hossain, Ph.D., Graduated Summer 2004 (*NASA graduate student Fellow)* (*School of Engineering Best PhD Thesis Award*)
    Currently: Associate Professor, University of Washington, USA
Themis Chronis, Ph.D., Graduated Summer 2004 (*NASA graduate student Fellow*)
    Currently: Research Professor, University of Alabama-Huntsville.
Carlos Morales, Ph.D., Graduated Fall 2001
    Currently: Professor, University of Sao Paolo, Brazil

Graduated M.S. Advisees with Thesis Option
- Daniel McGraw, Graduated Summer 2018
- Sage Hardesty, Graduated Spring 2018
- Eric Buckley, Graduated Fall 2014
- Di Wu, Graduated Summer 2013
- Yiwen Mei, Graduated Summer 2012
- David Wanik, Graduated Fall 2012
- Xinxuan Zhang, Graduated Summer 2012
- Muhhamet Dis, M.S., Graduated Summer 2011.
- Ryan Knox, M.S., Graduated Summer 2004.
- Sandrine Baun (co-advised with Prof. Bagtzoglou), M.S., Graduated Summer 2004.
- Alemu Tadese, M.S., Graduated Summer 2004.
- Tufa Dinku, M.S., Graduated Fall 2001
- Neeraj Agarwal, M.S., Graduated Summer 2001

Former Post Docs / Research Associates
- Dr. Efthymios Nikolopoulos, appointment period 2016-2019, current position Assistant Professor, Florida Institute of Technology.
- Dr. Zoi Dokou, appointment period 2016-2019, current position: Assistant Professor California State University-Sacramento.
- Dr. Mircea Grecu, appointment period 1999-2002, current position NASA Scientist, Goddard Space Flight Center
- Dr. Khil Ha Lee, appointment period 2003-2004, current position unknown.

- Dr. Themis Chronis, appointment period 2004-2006, Research professor, University of Alabama-Huntsville
- Dr. Marios Anagnostou, appointment period Dec 2006 to Jan 2008, Research Scientist, National Observatory of Athens
- Dr. Clement Alo, appointment period Jan 2009 to Jul 2010, Assistant Professor, Montclair University
- Dr. Juan Stella, appointment period Oct 2010 to May 2012, current position unknown.

International Advisees
- Matteo Zampieri, appointment period July 2009 to July 2010, Marie Currie Excellence Team Research Fellow, Hellenic Center for Marine Research
- Liliana Velea, appointment period Jan 2009 to Dec 2010, Marie Currie Excellence Team Research Fellow, Hellenic Center for Marine Research
- Maria Tzortziou, appointment period Jan 2008 to Dec 2010, Marie Currie Excellence Team Research Fellow, Hellenic Center for Marine Research
- Paolo Tarolli, appointment period June 2010 to Dec 2010, Marie Currie Excellence Team Research Fellow, Hellenic Center for Marine Research
- Efthymios Serpetzoglou, Ph.D. advisee, Marie Currie Excellence Team Research Fellow, Hellenic Center for Marine Research

RESEARCH

Research Interests:

My research expertise is on modeling and remote sensing applications in water and energy resources with particular focus on the nexus of hydro-meteorological extremes with water-energy-food systems and associated impacts on human security. The hallmark of my innovative research is a systems-based approach that integrates earth observations with mechanistic and machine learning models across hydro-climate and infrastructure to reduce weather-driven hazards and promote sustainability and resiliency of water and energy resources. Innovative concepts developed with my students and co-workers are poised to advance methods for quantifying hydro-climatic extremes and improve predictability of impacts on the environment and infrastructure.

Research Leadership

Inaugural Director and Current Executive Director of the Eversource Energy Center: Worked with Eversource and UConn leadership to establish the Eversource Energy Center, which was launched in 2014 with a $9M initial investment from Eversource Energy and an additional $2M from other utilities and industrial partners. Eversource Energy recently announced the continuation of its funding for our Center with an additional $7M. This dynamic partnership between industry and academia advances leading-edge interdisciplinary research and technology to ensure the reliable provision of power during extreme weather and security events. We founded the center by capitalizing on groundbreaking research results on outage prediction modeling and vegetation management initiatives, with which we were able to demonstrate to a largely skeptical industry sector that research innovation could enhance its ability to deliver reliable power as well as provide analytical support for effective and cost-efficient decisions to manage weather risks. Within three years of the Eversource Energy Center's inauguration, this university-wide interdisciplinary research program was supporting twenty-two UConn faculty, twenty-five graduate students, and a number of undergraduate students from three different schools (Engineering, Agriculture, and Business) and engaging collaborators from universities and national labs across the country. The center continues to grow rapidly in both reputation and research capacity, having attracted industrial support from several electric utilities and other industries.

Applied Research Director, Connecticut Institute for Resilience and Climate Adaptation: I was one of the leads for the formation of the Connecticut Institute for Resilience and Climate Adaptation (CIRCA; circa.uconn.edu); I am currently serving as director of applied research for CIRCA, leading the engineering research component of the institute, which focuses on the resilience of infrastructure (roads, power plants, wastewater plants, power grid, and so on) to coastal and inland flooding and the impact of changing climate patterns on vulnerability to floods. In that capacity, I have contributed to all major development phases of CIRCA, including recent strategic initiatives to secure new research funds based on federal climate resilience programs. This effort has resulted in the award of a National Disaster Resilience Center to the state of Connecticut; CIRCA will be leading the nearly $8M research grant.

Principal Investigator of the International Water and Food Security Project in Ethiopia: Since 2016, I have spearheaded a multi-institutional water and food security project in Ethiopia (pire.engr.uconn.edu), supported by the U.S. National Science Foundation Partnership for International Research and Education (PIRE), capitalizing on an earlier USAID-sponsored capacity-building activity that led to the formation of the Ethiopian Institute of Water Resources. This international research & education initiative aims to reduce insecurities of low-income communities in the Blue Nile Basin by training a multi-disciplinary team of US scientists and engineers who will

research effective scientific and communication tools for supplying farmers and water managers with valuable advance information to guide their respective decisions. This guidance translates into greater yields or increased energy production and minimizes losses by reducing the risk of crop exposure to climatic extremes. The international collaboration for this project convenes a team of twenty-five faculty/researchers from six U.S. and eight foreign institutions, along with a cohort of fourteen U.S. and fourteen Ethiopian graduate students and several undergraduates, who are participating through senior design or Engineers without Borders (EWB) activities. This international activity will strengthen the research and educational infrastructure needed to position our Department as a global leader in the multidisciplinary field of food security through international research and education activities.

Marie Curie Excellence Team Leader: From 2017 through 2010, I led an international Marie Curie Excellence Team in the Hellenic Center for Marine Research, which consisted of fifteen junior and mid-career researchers investigating advanced techniques for satellite remote sensing retrieval of water cycle parameters and applications in coastal hydroclimatic hazards and water resources modeling of the Mediterranean region.

Funded Research

Active US Grants: PI in 11 active research grants totaling over $8.5M and eight pending grants totaling $14.5M. Currently leading a $10M multi-PI DOE proposal for improving offshore wind energy forecasts. The grants and pending proposals are presented below:

1. PIRE: Taming Water in Ethiopia - An Interdisciplinary Approach to Improve Human Security in a Water-Dependent Region, PI: Anagnostou.; Source: NSF. Total Award Amount: $4,400,000. Award period: 2016 - 2022.

2. The UConn OPM - Enhancing Prediction Accuracy & Supporting the Emergency Response Team with Real-Time Outage Forecasts; PI: Anagnostou; Source of Support: Eversource; Total Award Amount: $1,378,602; Award Period Covered: 5/1/20-4/30/23

3. High-Resolution Mapping of Renewable Energy Sources; PI: Emmanouil Anagnostou; Source of Support: Eversource; Award Amount: $200,000; Award Period: 6/1/20-4/30/23

4. Pumped-Hydroelectric Energy Storage from Water Supply Reservoirs in New England; PI: Emmanouil Anagnostou; Source of Support: Eversource; Award Amount: $150,000; Award Period Covered: 5/1/20-10/21/2021

5. Protecting Critical Infrastructure from UAV Threats-Developing an Integrated Multi-sensor System for UAV Detections; (co-I Anagnostou) PI: Chandi Witharana; Source of Support: Eversource; Award Amount: $211,178; Award Period Covered: 5/1/20-4/30/21

6. Assessing the Vulnerability of the Electric Grid to Weather Extremes: Pilot over the NE US; PI: Emmanouil Anagnostou; Source of Support: Electric Power Research Institute; Award Amount: $35,000; Award Period Covered: 7/8/20-08/31/21

7. Damage Prediction Model for Transmission System; (co-I Anagnostou) PI: Diego Cerrai; Source of Support: ISO New England; Award Amount: $259,454; Award Period Covered: 9/1/20-8/31/22

8. Mapping Changes in Hydroclimatic Risk in High Mountain Asia; PI: Emmanouil Anagnostou; Source of Support: NASA; Award Amount: $202,030; Award Period Covered: 8/1/20-7/31/23

9. Merow NSF HDR project, 950,000

10. Expanding the UConn Predictive Storm and Outage Model to MA & NH; PI: Emmanouil Anagnostou; Source of Support: Eversource; Award Amount: $300,000; Award Period Covered: 11/1/19-10/31/21

11. Enhancing Predictability of Weather-Caused Power Outages with NY Mesonet Observations: Demonstration on the AVANGRID Service Territory; PI: Emmanouil Anagnostou; Source of Support: NYSERDA/SUNY Albany; Award Amount: $349,973; Award Period Covered: 3/1/21-8/31/23

12. AEOLUS: Atmosphere-Ocean Interactions and Offshore Wind Forecasting; PI: Emmanouil Anagnostou; Source of Support: DOE; Total Award Amount: $10,000,000; Award Period Covered: 09/01/21-08/31/26 **(pending; selected in alternate funding category)**

13. A Remote Sensing-Based Irrigation Management System, Piloting in Upper Blue Nile Ethiopia; PI: Giulia Sofia (co-I Anagnostou); Source of Support: NASA; Total Award Amount: $600,000; Award Period Covered: 09/01/21-08/31/24 **(pending)**

14. IUCRC Planning Grant University of Connecticut: Center for Weather Innovation, Smart Energy and Resilience (WISER) Conditions; PI: Emmanouil Anagnostou; Source of Support: NSF; Total Award Amount: $20,000; Award Period Covered: 03/01/21-002/28/22 **(pending)**

15. Planning for Climate Resilient and Fish-Friendly Road/Stream Crossings: Planning for FishFriendly and Flood Resilient Road-Stream Crossings in the Naugatuck Valley; PI: Xinyi Shen (co-I Anagnostou); Source of Support: Natl. Fish & Wildlife Fdn/Housatonic Valley Association; Award Amount: $91,000; Award Period Covered: 06/01/16 - 05/31/21 **(pending)**

16. Utilizing Synthetic Aperture Radar (SAR) in US Water Surface Extent Mapping; PI: Xinyi Shen (co-I Anagnostou); Source of Support: DOI / USGS; Award Amount: $249,994; Award Period Covered: 07/01/20 – 06/30/23 **(pending)**

17. Increase the Flood Resilience by Predicting the Property Claims, and Quantify the Inequity in Flood Recovery; PI: Xinyi Shen (co-I Anagnostou); Source of Support: NSF; Award Amount: $361,988; Award Period Covered: 3/15/21-3/14/24 **(pending)**

18. HDR Institute: Biodiversity and Biosphere Forecasting Institute for Advancing Conservation, Ecological Science and Discovery; PI: Cory Merow (co-I Anagnostou); Source of Support: NSF; Total Award Amount: $2,755,653; Award Period Covered: 01/01/22 - 12/31/26 **(pending)**

19. The Effects of Social Inequality on Community Resilience Through The Risk of Property Loss From Coastal Flooding; PI: Xinyi Shen (co-I Anagnostou); Source of Support: NOAA / OAR; Total Award Amount: $299,949; Award Period Covered: 95/01/21 – 08/31/23 **(pending)**

Completed US Grants: PI of 41 completed grants totaling over $14M in the period 1999-2020. The grants are presented below:

1. Outage Prediction Modeling, Schneider Electric. Total Awarded: $400,000. PI: Anagnostou. Contract period 2016 - 2020.

2. Evaluation of Substations Vulnerability of Flooding in Current and Climate Change Scenarios, Eversource Energy, co-PI Anagnostou (PI Shen); total requested funding: $400,000. Period 2017-2019.

3. Sewer Backup Risk Score, Travelers Insurance. Co-PI: Anagnostou (PI Shen). Total Award: $42,554. Contract period: October 2018 – October 2019.

4. Municipal Resilience Planning Assistance Project, HUD/Department of Housing & Urban Development. Total Awarded: $149,181. PI: Anagnostou. Contract period 2016 - 2018.

5. Predictive Storm & Damage Modeling for Preparedness and Emergency Response Support, <u>Eversource Energy</u>. Total Awarded: $3,767,895. PI: Anagnostou. Contract period 2015 - 2019.

6. Resiliency Analysis to Storm Surge for I-95 Right-of-Way at Long Wharf / New Haven, CT, <u>FHWA/ConnDOT</u>. Total Awarded: $54,000. PI: Anagnostou. Contract period: 2016 - 2018.

7. GAANN: Environmental engineering at the forefront of water policy and education, <u>Department of Education</u>. Total Awarded: $738,195 PI: Vadas (Co-PI with 1/5th share) Contract Period: 2015 - 2018.

8. Flood Vulnerability Analysis of Connecticut Inland River Network, <u>CT DEEP</u>. Total Awarded: $254,625. PI: Anagnostou. Contract Period: 2015 - 2019.

9. EPRI preparatory grand for development Analytics Center of Excellence on Storm Situational Awareness for Grid Resilience. <u>EPRI</u>. Total Awarded: $50,000, PI: Anagnostou. Contract Period: 2017-18.

10. Next Generation United Illuminating Predictive Storm Damage Modeling Enhancements for Preparedness and Emergency Response Support, <u>The United Illuminating Company</u>. Total Awarded: $275,000. PI: Anagnostou. Contract period 2016-2018

11. Expanding the UCONN Predictive Storm & Outage Model into Eversource MA and NH, <u>Eversource-NH & MA</u>. Total Awarded: $560,000. PI: Anagnostou. Contract period 2016-2019

12. Calibration of Ground-Based Weather Radar Systems From TRMM Space-Based Radar Observations: A Demonstration Project, <u>Tropical Rainfall Measuring Mission-NASA</u>, Single P.I.: E.N. Anagnostou, $340,000 (1/1/1999 – 12/31/2001).

13. Understanding the Error Characteristics of Precipitation Estimates from Space-Based Observing Systems, <u>New Investigator Program-NASA</u>, Single P.I.: E.N. Anagnostou, $327,000 (10/1/1999-9/30/2002).

14. Rainfall Remote Sensing, <u>NASA EPSCoR Preparation Grant Proposal, thrust area 4 - Remote sensing</u>, PI of Remote Sensing of Rainfall research topic, $10,000 (9/1/99-5/1/01).

15. Investigating the Adequacy of TRMM Precipitation Radar Observations for Calibrating Ground-Based Weather Radar Reflectivity Measurements, <u>NASA-Tropical Rainfall Measuring Mission</u>, Single P.I.: E.N. Anagnostou, $375,000 (1/1/2001-12/31/2003).

16. Experimental Investigation of X-band Polarimetric-Radar Rainfall Estimation, <u>NSF-Geosciences</u>, $146,313 (9/1/00-9/1/01).

17. Assimilation of TRMM-calibrated rainfall data derived from infrared sensors in DAO's global model, <u>NASA/GSFC</u>, $32,207 (11/1/00-8/31/01).

18. Deployment of a mobile polarimetric X-band radar and in situ instrumentation to support QPE and microphysical studies of tropical systems in CAMEX-4, <u>Earth Sciences-NASA</u>, Single P.I.: E.N. Anagnostou, $360,231 (6/1/01 – 5/31/04).

19. A real-time risk-based highway accident prevention system (RiskHAPS): A proactive safety approach, <u>MIT-New England University Transportation Center (USDOT)</u>, E.N. Anagnostou (10% co-PI), $63,390 (9/1/01 – 8/31/02).

20. Investigation of Thunderstorm Monitoring from an Experimental Sferics Receiver Network, <u>NASA Earth System Science Fellowship</u>, PI E.N. Anagnostou (awarded student: Mr. Themis Chronis), $74,000 (9/1/01-8/31/04).

21. Investigation of Flood Prediction from Satellite Data, <u>NASA Earth System Science Fellowship</u>, PI E.N. Anagnostou (awarded student: Mr. Faisal Hossain), $74,000 (9/1/02-8/31/05).

22. Better understanding of the spatio-temporal characteristics of deep convection in the tropics using satellite data and continuous long-range lightning observations, Earth Sciences-NASA, P.I.: E.N. Anagnostou, (awarded student: Mr. Alemu Tadesse), $74,000 (9/1/04-8/31/07).

23. Multi-Sensor Precipitation Estimation and Investigating Improvements on Weather and Climate Analysis, Earth Sciences-NASA, Single P.I.: E.N. Anagnostou, $242,000 (1/1/02-12/31/04).

24. CAREER: Improved knowledge on precipitation microphysics for advancing radar rainfall estimation and quantitative precipitation forecasting, NSF-Geosciences, Single P.I.: E.N. Anagnostou, $420,000 (3/1/02 – 12/1/06).

25. WCP: Continuous and High-Resolution Thunderstorm Monitoring in Africa and Beyond to Support Water Cycle Research, NSF-Water Cycle Program, Single P.I.: E.N. Anagnostou, $331,234 (03/03-02/06).

26. Collaborative Research: Spatial Averaging of Oceanic Rainfall Variability Using Underwater Sound, NSF-Physical Oceanography, E.N. Anagnostou (UConn PI at 39%), $570,436 (03/03-02/06).

27. Cyclones from Africa: The Transition of African Easterly Waves from Continent to Ocean, NASA-AMMA, PI E.N. Anagnostou, $120,000 (06/2006 – 06/2007)

28. Defining Optimality Criteria for the Effective Use of Satellite Precipitation Datasets in Land Surface Hydrology and Water Cycle Studies, NASA-Precipitation Measurement Mission, P.I.: E.N. Anagnostou, (Co-PI Bagtzoglou, 20%), 01/2007 – 01/2010, $432,070

29. Estimation of precipitation and sea surface parameters from passive microwave satellite observations and continuous assimilation in the POSEIDON oceanographic system, European Investment Bank (sub-contract to OCEANOR SA, Norway), P.I.: E.N. Anagnostou, $397,000 (6/1/06 – 12/31/08).

30. Understanding the Use of Satellite Rainfall in Flood Prediction for Complex Terrain Basins, NASA, PI E.N. Anagnostou, 09/2007 – 09/2010, $84,000

31. Investigating the impact of improved model error characterization on the assimilation of remotely sensed soil moisture in a land data assimilation system, NASA, PI E.N. Anagnostou, 09/2009-08/2012, $90,000

32. Collaborative Research: Rainfall estimation accuracy and classification from deep underwater sound measurements, NSF, PI E.N. Anagnostou, 09/2009-08/2012, $210,702

33. Investigation of Satellite QPE and Hydrologic Validation in Complex Terrain Basins, NASA, PI E.N. Anagnostou, 3/2010-8/2013, $450,000

34. The Ethiopian-U.S. Partnership in Sustainable Water Resources: Capacity Building in Education, Research and outreach, USAID, co-PI (30%) Anagnostou, 12/2010-06/2013, $1,100,000

35. Performance Assessment of Satellite Rainfall Data for Hydrologic Modeling of Northern Hydrologic Regimes, FM Global, P.I. Anagnostou, 08/2012-12/2013, $62,515

36. Weather Based Damage Prediction Model for Northeast Utilities Infrastructure, Northeast Utilities, PI E.N. Anagnostou, 03/2012-05/2013, $88,872

37. Damage Prediction System of the NU Center Bridge-Funding, Northeast Utilities, PI E.N. Anagnostou, 04/2013-06/2015, $1,188,872

38. The United Illuminating Company (UI) Participation in the 2-Year Demonstration Activity, United Illuminating Co., P.I. E.N. Anagnostou, 03/2014 – 01/2016, $513,737

39. Evaluation of tree-trimming in power utility damages, <u>Electric Power Research Institute</u>, P.I. E.N. Anagnostou, 3/2014 – 3/2015, $50,000

40. Commercialization of a Passive Aquatic Listener (PAL) Sensor for Underwater Sound Classifications, NSF-ICORPS, P.I. E.N. Anagnostou, 02/2015-08/2015, $50,000

41. Use of ground-validation data to evaluate and improve uses of satellite-rainfall in hydrologic modeling of complex terrain basin processes, <u>NASA</u>, PI: Anagnostou, Total Awarded: $380,000. Contract period 2013 - 2017.

European Union Grants*:* PI in five completed EU grants (totaling over 2.5 MEuros) from the FP6 and FP7 programs routed through the Hellenic Center for Marine Research (HCMR) or the Innovation Technologies Center (ITC). The grants are presented below:

1. Global Earth Observation for integrated water resource assessment (EartH2Observe), <u>ENV.2013.6.3-3 call—European Commission FP7</u>, (WP leader), 540,000 Euros, 1/2014-12/2017

2. Advancing the predictability of water cycle through an improved understanding of land surface and coastal water processes and optimal integration of models with observational data, <u>EU Marie Curie Excellence Grant</u>, Team Leader and Scientist in Charge: E.N. Anagnostou, 1,400,000 Euros from EU and 300,000 Euros match from the Hellenic General Secretariat for Research and Technology (01/01/07 – 31/12/2010).

3. Acoustic Monitoring of Marine Rainfall, <u>Marie Curie International Incoming Grant</u>, Scientist in Charge: E.N. Anagnostou (Marie Curie Fellow: Dr. Jeff Nystuen), 201,000 Euros from EU and 40,000 match from the Hellenic General Secretariat for Research and Technology (1/9/2009-31/8/2011)

4. Joint assimilation of satellite aerosol, cloud, and precipitation observations in numerical models to support climate and hydrologic applications, <u>Marie Curie Re-Integration Grant</u>, Marie Curie Fellow: Dr. Mircea Grecu, Scientist in Charge: E.N. Anagnostou, 100,000 Euros and 20,000 match from the Hellenic General Secretariat for Research and Technology (1/5/2008-4/30/2012)

5. Advancing understanding of carbon cycling and coloured dissolved organic matter dynamics in European wetlands & coastal ecosystems through integration of observations and novel modelling approaches, <u>Marie Curie Re-Integration Grant</u>, Marie Curie Fellow: Dr. Maria Tzortziou, HCMR Scientist in Charge: E.N. Anagnostou, 100,000 Euros and 20,000 match from the Hellenic General Secretariat for Research and Technology (1/5/2008-30/4/2012)

6. Hydrometeorological data resources and technologies for effective flash flood forecasting (HYDRATE), <u>EU 4th Call of the Energy, Environment and Sustainable Development Programme—STREP Project</u>, HCMR Scientist in Charge: E.N. Anagnostou, 170,000 Euros from EU and 80,000 match from the Hellenic General Secretariat for Research and Technology (1/6/2006-31/5/2009)

SCHOLARSHIP

Invited Talks

Keynote lectures

1. **Keynote presentation** at <u>Peking University</u> on Satellite Precipitation Estimation and Applications in Hydrologic Forecasting, May 25-31, 2018, Beijing, China.
2. **Keynote presentation** at the National Climate Change Conference organized by the <u>State Hydrometeorological Service of Moldova</u>, June 15-17, 2010, Chisinau, Moldova
3. "Satellite and in situ observations in HyMEX" **Keynote presentation**, <u>3rd HyMeX International Workshop</u>, Heraklion, Crete, June 1-4 2009
4. "Extreme Weather Events" **Keynote lecture**, <u>Cyprus Meteorological Association and Ministry of Education Prizes Ceremony</u>, Nicosia-Cyprus, 10 April 2008.
5. "Advancing high-frequency precipitation monitoring through combined use of satellite IR with long-range lightning network observations," **keynote presentation**, <u>Brazilian Meteorological Conference</u>, 29 August 2004.
6. "Real-time multi-sensor based rainfall monitoring and its implications on advancing flood forecasting accuracy." **Plinius Medal lecture**, <u>2002 EGU General Assembly</u>, Nice, France, April 21, 2002.
7. "Global rainfall monitoring from multiple space based platforms and long-range ground sensor lightning measurements." **Keynote presentation**, <u>5th International Precipitation Conference</u>, June 30-July 4, 2001, Maine, USA.

Invited presentations at international conferences

8. " The University of Connecticut OPM – A five year collaboration with industry." **Panel speaker**, <u>MarcusEvans conference</u>, June 2019.
9. "Taming storms: from complex terrain & coastal floods to power outages." **Invited talk**, <u>EPFL</u>, Lausanne, Switzerland, June 2019.
10. "Hyper-Resolution Hydrologic Simulations at Global-Scale". **Invited Presentation**, <u>Google Flood Forecasting Meets Machine Learning Workshop</u>, Tel Aviv, Israel, January 2019.
11. "Evaluation of Precipitation Resolution and Quantification Error Effects on Flood Modeling of Mid-Latitude Basins" **Invited Presentation**, <u>2018 EGU General Assembly</u>, Vienna, 8-13 April, 2018.
12. "Improving Flood Modeling Applications of Global Reanalysis Precipitation Products through Satellite-driven Downscaling" **Invited Presentation**, 2014 AGU Fall Meeting, San Francisco, 15-19 December, 2014.
13. "Hydrologic Evaluation of Satellite Precipitation Products in Mountainous Basins" **Solicited presentation**, 2014 EGU General Assembly, Vienna, 27 April – 2 May.
14. "Demonstrating an Integrated Atmospheric-hydrologic Modeling Platform for issuing Flood Warning Over Saudi Arabia" **Invited presentation**, 2014 PetroEnvironment Conference, 24-26 February 2014, Seef Center, Al Khobar, Saudi Arabia
15. "Monitoring Physical Processes in Oceanic Environment using an Underwater Passive Aquatic Listener" **Invited presentation**, 2014 PetroEnvironment Conference, 24-26 February 2014, Seef Center, Al Khobar, Saudi Arabia
16. "The Use of Satellite Rainfall for the Prediction of Floods in Mountainous Basins" **Invited presentation**, <u>2012 AGU Fall Meeting</u>, San Francisco, 3-7 December, 2012
17. "Using high-resolution satellite rainfall products to nowcast major flash-flood inducing storms" **Invited presentation**, <u>2010 AGU Fall Meeting</u>, San Francisco, 13-17 December, 2010
18. "A framework for studying optimal satellite rain retrievals in hydrologic applications", <u>2007 EGU General Assembly</u>, **Invited presentation**, Vienna, 15-20 April, 2007

19. "Lightning as an Indicator of Tropical Cyclogenesis in African Easterly Waves" **Invited presentation**, 2006 AGU Fall meeting, December 11-15, 2006. San Francesco, CA, USA
20. "Improving Convective Precipitation Forecasting through Assimilation of Regional Lightning Measurements in a Mesoscale Model", **invited presentation,** 2003 AGU Fall Meeting, San Francisco Dec 3-10 2003.
21. "Radar rainfall estimation uncertainty and its implications on flood prediction accuracy." **Invited presentation**, 2nd Plinius Conference on Mediterranean Storms, Siena, Italy, 2000.
22. "On the ground-based radar calibration problem." **Invited presentation** at the 2000 EGU General Assembly, Niece, France, April 2000.
23. "The role of WSR-88D in TRMM research." **Invited presentation** at the WSR-88D workshop of NCDC, December 2-3, 1999.

Invited Seminars
24. "Advancing storm hazards risk management: flash floods, coastal floods and power outage", Invited seminar, **University of Oklahoma**, 23 September 2014
25. "Hydrological Application of X-band Polarimetric Radar Rainfall Estimation in Complex Terrain", Invited Seminar Presentation, **CEMADEN**, 17 November 2014, Brazil
26. "Flash Floods: Understanding the Runoff Generation Processes and the Use of Satellite-Rainfall in Hydrologic Simulations", Invited seminar presentation at the **National Severe Storms Laboratory** of NOAA and the University of Oklahoma, Norman, OK, February 2011
27. "Flash Floods: Understanding the Runoff Generation Processes and the Use of Satellite-Rainfall in Hydrologic Simulations", Invited seminar presentation at the **National Center for Atmospheric Research**, Boulder, Colorado, March 2011
28. "Real-Time Radar Rainfall Estimation from WSR-88D", **Seminar** at South Florida Water Management District, West Palm Beach, 20 Nov 2006.
29. "Advanced Topics in Remote Sensing", **Invited Lectures** at the University of Sao Paolo, Department of Astronomy and Atmospheric Sciences, 24 October to 7 November 2005.
30. "A framework for studying optimal satellite rain retrievals in hydrologic applications", **seminar**, NASA-GSFC, 7 June 2004.
31. "Satellite Rainfall Estimation: Challenges and Hydrologic Applications," **seminar**, MIT, 3 May 2004.
32. "Quantitative satellite based precipitation estimation: An overview on merging algorithms and validation techniques", **seminar**, Hellenic Center for Marine Research, 7 January 2004.
33. "Overland precipitation estimation from TRMM microwave observations." **Seminar** presented at the Institute of Atmospheric Physics of the Italian Research Council, Rome, Italy, 2000.
34. "On the use of satellite data for monitoring precipitation in semi-arid climatic regions." **Seminar** at the Institute of Meteorology and Hydrology of the state of Ceara (FUNCEME), Brazil, August 20-25, 1999.
35. "A satellite infrared technique for diurnal rainfall variability studies." **Seminar** presented at MIT, January 1999.
36. "On the use of real-time radar rainfall estimates for rainfall-runoff prediction in mountainous basins." **Seminar** presented at the Office of Hydrology, National Weather Service, November 1998.
37. "Remote Sensing Rainfall Estimation and Applications." **Seminar** presented at the Civil and Environmental Engineering Department of the University of Connecticut, May 1998.
38. "Real-Time Radar-Rainfall Estimation and Validation." **Seminar** presented at the School of Meteorology of the University of Oklahoma, April 1998.
39. "Development of Precipitation Climatologies over the Amazon Region Using SSM/I Data." **Seminar** presented at the Water Resources Department of Georgia Institute of Technology, November 1997.

40. "Mean-Field Radar Rainfall Bias Studies for NEXRAD." **Seminar** presented at the <u>Office of Hydrology</u>, National Weather Service, May 1996.
41. "Radar Rainfall Estimation With Quantification of Estimation Uncertainty." **Seminar** presented at <u>NASA</u>, Goddard Space Flight Center, May 1996.

Patents
* Advisee, post-doctoral or research associate in my group

1. Anagnostou, E.N., D. Wanik*, B. Hartman, and J. He: Systems and Methods for Outage Prediction, U.S. Application No. 16/317,354
2. P. Watson*, D. Cerrai*, and E.N. Anagnostou: System and Method for Damage Assessment and Restoration. U.S. Application No. 16/683,701
3. X. Shen, E. Anagnostou, Q. Yang: System and Methods to Produce High Resolution Flood Maps in Near Real Time. Provisional U.S. Patent.

Book Chapters
* Advisee, post-doctoral or research associate in my group

1. Anagnostou, E.N., 2007: Assessment of satellite rain retrieval error propagation in the prediction of land surface hydrologic variables, Book Chapter in Measuring Precipitation from Space: EURAINSAT and the Future, (eds) V. Levizzani, P. Bauer and F.J. Turk. Kluwer Academic Publishers, 357-369
2. Anagnostou, E.N., and T.G. Chronis*, 2007: The worth of long-range lightning observations on overland satellite rainfall estimation, Book Chapter in Measuring Precipitation from Space: EURAINSAT and the Future, (eds) V. Levizzani, P. Bauer and F.J. Turk. Kluwer Academic Publishers, 135 - 149.
3. Anagnostou E.N. and M.N. Anagnostou*, 2008: Performance of algorithms for rainfall retrieval from polarimetric X-band radar measurements, Book Chapter in Precipitation: Advances in measurement, estimation and prediction, (ed) S. Michaelides. Springer Academic Publishers, 313-337.
4. Grecu* M. and E.N. Anagnostou, 2008: Precipitation dynamic and microphysical retrievals from satellite active and passive observations. Book Chapter in Precipitation: Advances in measurement, estimation and prediction, (ed) S. Michaelides. Springer Academic Publishers, 219-228.
5. Anagnostou, E.N., E.I., Nikolopoulos*, F. Hossain, 2010: Regional Evaluation through Hydrological Application: Europe, Book Chapter in: Satellite Rainfall Applications for Surface Hydrology, (eds) M. Gebremichael and F. Hossain, Springer-Verlag, ISBN: 978-90-481-2914-0, pp. 215-226
6. Hossain, F. L. Tang E.I. Nikolopoulos*, E.N. Anagnostou, 2010: A Practical Guide to a Space-Time Stochastic Error Model for Simulation of High Resolution Satellite Rainfall Data, Book Chapter in: Satellite Rainfall Applications for Surface Hydrology, (eds) M. Gebremichael and F. Hossain, Springer-Verlag, ISBN: 978-90-481-2914-0, pp. 145-166
7. Anagnostou, E.N., 2010: Remote Sensing for Precipitation and Hydrologic Applications, Book Chapter in: Advances in Data-based Approaches for Hydrologic Modeling and Forecasting, (eds) B. Sivakumar and R. Berndtsson, World Scientific, ISBN: 978-981-4307-97-0, pp. 245-266
8. Mei* Y., E. I. Nikolopoulos and E.N. Anagnostou, 2016: Satellite-based precipitation for modeling floods: current status and limitations, Book Chapter in: Remote sensing of hydro-meteorological hazards, (eds) George P. Petropoulos and Tanvir Islam (in press).

9. Derin*, Y., E.I. Nikolopoulos and E.N. Anagnostou, 2018: Estimating Extreme Precipitation Using Multiple Satellite-Based Precipitation Products, chapter in the book, Extreme Hydroclimatic Events in a Changing Environment., (edt) Viviana Maggioni, Elsevier.
10. Cerrai, D. and E.N. Anagnostou, 2021: Power Outages, chapter in the book, Extreme Weather Forecasting, (edt) Marina Astitha and Efthymios Nikolopoulos, Elsevier.

Journal Papers - Published, accepted or in press
* Advisee, post-doctoral or research associate in my group;

2021
1. Shen* X., C. Cai, Q. Yang, E. Anagnostou, 2021: The US COVID-19 pandemic in the flood season, Science of the Total Environment, 755, part 2, art. 142634, DOI:10.1016/j.scitotenv.2020.142634.
2. Yang, Q., X. Shen*, E. Anagnostou, J. Eggleston, and A. Kettner, 2021: "An Unprecedented High-Resolution Inundation Dataset Delineated from SAR over the CONUS—from 2016 to Present." Bulletin of the American Meteorological Society.
3. Lazin*, R., X. Shen*, and E. N. Anagnostou, 2021: "Predicting Flood Damaged Crop Lands Using Convolutional Neural Network (CNN)." Environmental Research Letter.
4. Khanam*, M., G. Sofia*, M. Koukoula*, R. Lazin*, E. I. Nikolopoulos, X. Shen*, and E. N. Anagnostou. 2021: "Impact of Compound Flood Event on Coastal Critical Infrastructures Considering Current and Future Climate." Natural Hazards and Earth Systems Sciences 21:1–19. https://doi.org/10.5194/nhess-21-1-2021.
5. Emmanouil*, S., E. Nikolopoulos, B. Francois, E. Anagnostou, Forthcoming: Evaluating small-scale Pumped Hydroelectric Storage as a distributed storage solution to renewable energy penetration – A case study in Connecticut, Energy.
6. Emmanouil*, S., A. Langousis, E. I. Nikolopoulos, and E. N. Anagnostou. Forthcoming: An ERA-5 derived CONUS-wide high-resolution precipitation dataset based on an advanced parametric statistical downscaling framework. Water Resources Research.
7. Emmanouil*, S., E.I. Nikolopoulos, B. François, C. Brown, and E.N. Anagnostou, Forthcoming: Evaluating existing water supply reservoirs as small-scale Pumped Hydroelectric Storage options - A case study in Connecticut, Energy, (accepted).
8. Emmanouil*, S., J. Philhower, S. Macdonald, F.K. Khadim*, M. Yang, E. Atsbeha, H. Nagireddy, N. Roach, E. Holzer, and E.N. Anagnostou, Forthcoming: A comprehensive approach towards the design of a renewable energy microgrid for rural Ethiopia: the technical and social perspectives, Sustainability.
9. Emmanouil*, S., A. Langousis, E.I. Nikolopoulos, and E.N. Anagnostou, Forthcoming: A CONUS-wide, long-term and high-resolution precipitation dataset based on a refined statistical downscaling framework, Water Resources Research.
10. Koukoula*, M., C. Schwartz, E. Nikolopoulos, E.N. Anagnostou, Forthcoming: Evaluation of soil state representation in the NCAR Ensemble's continuously-cycling limited-area data assimilation system. Journal of Hydrology.

2020
11. Taylor*, W., M. Anagnostou, D. Cerrai, E. Anagnostou, 2020: Machine Learning Methods to Approximate Rainfall and Wind From Acoustic Underwater Measurements, IEEE-TGRS, 10.1109/TGRS.2020.3007557.
12. Watson*, P., D. Cerrai, M. Koukoula*, D. Wanik, E. Anagnostou, 2020: Weather-related power outage model with a growing domain: structure, performance, and generalizability, The Journal of Engineering, doi: 10.1049/joe.2019.1274.
13. Yang, M., Wang, G., Lazin*, R., Shen*, X., and Anagnostou, E.N. "Impact of planting time soil moisture on cereal crop yield in the Upper Blue Nile Basin: a novel insight towards agricultural water management", Agricultural Water Management, vol. 243(1),106430 DOI:10.1016/j.agwat.2020.106430.
14. Walsh*, T., D. Wanik, E. Anagnostou, J. Mellor, Application of a Power Outage Restoration Agent-Based Model to Study Restoration Times for Future Hurricane Sandy, IEEE-Access.
15. Hu*, L.; Nikolopoulos, E. I.; Marra, F.; Morin, E.; Marani, M.; Anagnostou, E. N., Evaluation of MEVD-based Precipitation Frequency Analyses from Quasi-global Precipitation Datasets against Dense Rain Gauge Networks. Journal of Hydrology 2020, 590, 125564.

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224.   Lazin*, R., Shen*, X., Moges S., Anagnostou, E., Impact of Climate Change on the Hydrology and Hydropower in the Upper Blue Nile Basin (Under Preparation)

225.   Hu*, L.; Nikolopoulos, E. I.; Marra, F.; Anagnostou, E. N., Flood Frequency Analysis with Metastatistical Extreme Value Distribution applied to Simulated River Flows across CONUS. (in preparation)

Conference Proceedings
Over 500 papers presented at international conferences including the American Geophyscial Union, American Meteorological Society, European Geophysical Union.

ENTREPRENEURSHIP

In 2018, I founded with two of my PhD students ACW Analytics (https://www.acw-analytics.com), which I directed as inaugural CEO for two years (through May 2020). ACW applies deep expertise in earth and data sciences to predict the impacts of severe weather and climate events on infrastructure assets. Our first use case is to create real-time situational intelligence for electrical utilities during storms. The company has a patent pending entitled "System and Method for Damage Assessment and Restoration of the Electric Grid," submitted jointly with the University of Connecticut, and has raised nearly $100,000 during the first two years based on service contracts with a major weather impact analytics company (DTN LLC). ACW is included in the University of Connecticut new Data Science Incubator located in Stamford Connecticut (https://today.uconn.edu/2021/02/uconn-grows-in-stamford-with-new-data-science-incubator/).

Currently, under the leadership of Dr. Vijay Jayachandran, experienced executive with two decades of prior experience in engineering, operations, marketing and strategy at United Technologies Corporation (UTC) / Otis Elevator Company, the company is exploring additional applications in Infrastructure Resilience, Risk Management, and Insurance. My new role in the company is chair of the advisory board.