Efthymios I. Nikolopoulos, Ph.D

Civil and Environmental Engineering University of Connecticut 261 Glenbrook Road Unit 3037 Storrs, CT, 06269, USA Tel: (+1) 860-617-9908 Email: efthymios.nikolopoulos@uconn.edu

My work focuses on the integration of remote sensing observations with numerical modeling in order to advance understanding and predictability of water cycle components and weather-related hazards. Specific areas of my expertise include remote sensing (radar and satellite) of precipitation, distributed hydrologic modeling and statistical error analysis. My current research directions involve a number of disciplines, such as hydrology, hydrometeorology and geomorphology and span from local scale by using radar-rainfall observations for predicting flash flood and debris flow triggering, to regional by evaluating satellite-based flood predictions, to global scale by using satellite observations for water resources analysis.

Education

Sep 2006 – May 2010	Doctor of Philosophy University of Connecticut, Department of Civil and Environmental Engineering Storrs, CT, USA
Aug 2002 – Aug 2004	Master of Science University of Iowa, Department of Civil and Environmental Engineering Iowa City, IA, USA
Sep 1997 – July 2002	Engineering Diploma Technical University of Crete, Department of Environmental Engineering Chania, Greece

Professional Appointments

 Aug 2016 – present
 Assistant Research Professor

 Dept. of Civil and Environmental Engineering, University of Connecticut

 Storrs, CT, USA

Feb 2015 – Aug. 2016	Senior Research Scientist Dept. of Physics, University of Athens Athens, Greece
Feb 2015 – Aug. 2016	Researcher - Contractor Innovative Technologies Center S.A, Athens, Greece
Feb 2013 – Jan 2015	Marie Curie Postdoctoral Fellow University of Padova, Department of Land, Environment, Agriculture and Forestry TESAF Legnaro (PD), Italy
Jan 2012 – Jan 2013	Postdoctoral Researcher University of Padova, Department of Land, Environment, Agriculture and Forestry TESAF Legnaro (PD), Italy
Jan 2011 – Dec 2011	Researcher - Contractor National Observatory of Athens Athens, Greece
Jan 2008 – Dec 2010	Researcher - Contractor Marie Curie Excellence Team at Hellenic Centre for Marine Research Anávyssos, Greece
Sep 2006 – May 2010	Graduate Research Assistant University of Connecticut, Department of Civil and Environmental Engineering Storrs, USA
Aug 2002 – Aug 2004	Graduate Research Assistant University of Iowa, Department of Civil and Environmental Engineering Iowa City, IA, USA

Academic Honors & Awards

Jan 2013	Marie Curie Intra-European Fellowship
Dec 2010	Outstanding Thesis Award, School of Engineering, Univ. of Connecticut
Jan 2008	Marie Curie Excellence Team Fellowship
Sep 2007	NASA Earth System Science Graduate Fellowship
Sep 2007	Advanced Graduate Student Award, Env. Eng. Program, Univ. of Connecticut

Grants obtained as principal investigator (PI) or co-PI

Title	Funding Source	Period	Total Budget
Continuation of "Evaluation of substations vulnerability of flooding in current and climate		2017 - 2018	\$245,000

change scenarios." (co-PI)

Evaluation of substations vulnerability of flooding in current and climate change scenarios. (co-PI)	EVERSOURCE ENERGY CENTER	2016 - 2017	\$145,000
Hydrometeorological Controls and Warning Procedures for Shallow Landslides in an Alpine Region. (PI)	EU-FP7-Marie Curie Actions	2013 - 2015	€193,726
Understanding the Use of Satellite Rainfall in Flood Prediction for Complex Terrain Basins. (PI)	NASA	2007–2010	\$84,000

Editorship, Editorial Boards, Journal Reviewing Activities

	Advances in Meteorology (editor) Journal of Hydrology (associated editor)
Reviewer for	Advances in Meteorology
	Advances in Water Resources
	Annales Geophysicae
	Arabian Journal for Science and Engineering
	Atmospheric Research
	Bulletin of Electrical Engineering and Informatics Frontiers of Earth Science
	Hydrologic Sciences Journal
	Journal of Geophysical Research - Atmospheres
	Journal of Hydrologic Engineering
	Journal of Hydrology,
	Journal of the American Water Resources Association
	Natural Hazards
	Natural Hazards and Earth System Sciences
	PLOS ONE
	Stochastic Env. Res. & Risk Assessment
	Water Resources Research

Teaching & Advising

Instructor	Fundamentals in Environmental Engineering, Undergraduate course, CEE Dept., University of Connecticut, Spring 2017. Ocean Meteorology – Hydrology, Graduate course, Dept. of Physics, University of Athens, Spring 2015/2016
Associate Advisor o Research Mentor	 Yiwen Mei (PhD), Dept. of Civil & Env. Eng., University of Connecticut, graduated Jan. 2017 Nikos Bartsotas (PhD), Dept. of Physics, University of Athens, expected date of completion Sep. 2017 Elisa Destro (PhD), Dept. of Land, Environment, Agriculture and Forestry, University of Padova, expected date of completion Dec. 2017 Ehsan Bhuiyan (PhD), Dept. of Civil & Env. Eng., University of Connecticut, expected date of completion Jan. 2018 Lanxin Hu (PhD), Dept. of Civil & Env. Eng., University of Connecticut, expected date of completion Sep. 2019 Marika Koukoula (PhD), Dept. of Civil & Env. Eng., University of Connecticut, enrolled in the program Jan. 2017
Graduate teaching assistant	g Undergraduate course in "Engineering Hydrology", Dept. of Civil & Env. Eng., University of Connecticut, Fall 2006
Other	Instructor during a 4month (Apr-Jul 2015) training (in hydrology, hydrometeorology and remote sensing) of 2 PhD candidates (Dejene Sahlu & Haileyesus Belay) from the Ethiopian Institute of Water Resources, Addis Ababa University, Ethiopia.
Service	
Memberships	Marie Curie Alumni Association American Geophysical Union European Geophysical Union Technical Chamber of Greece
Reviewing activities for agencies	UK National Environment Research Council
Other Professional	Judge for the AGU Outstanding Student Paper Award (OSPA), AGU Fall

ServiceMeeting 2013 & AGU Fall Meeting 2016, San Francisco, CA.Chair of "Flash Flood" session, 8tth HyMeX workshop, 2014, Valletta, Malta.Chair of "Flash Flood" session, 9tth HyMeX workshop, 2015, Mykonos, Greece.

Publications

Refereed Journals (* denotes that lead author is a student I mentor/co-advise)

- 1. *Mei, Y., E.N. Anagnostou, X. Shen, and E.I. **Nikolopoulos** (2017). Decomposing the Satellite Precipitation Error Propagation Through the Rainfall-Runoff Processes. Advances in Water Resources, 109, 253-266.
- Marra, F., E. Destro, E.I. Nikolopoulos, D. Zoccatelli, F. Guzzetti, and M. Borga (2017). Impact of rainfall spatial aggregation on the identification of debris flow occurrence thresholds. Hydrology and Earth System Sciences, 21(9), 4525-4532.
- Nikolopoulos E.I., E. Destro, V. Maggioni, F. Marra and M. Borga (2017). Satellite-rainfall estimates for debris flow prediction: An evaluation based on rainfall accumulation-duration thresholds. Journal of Hydrometeorology, 18(8), 2207-2214.
- 4. Maggioni V., E.I. **Nikolopoulos**, E.N. Anagnostou and M. Borga (2017). Modeling satellite precipitation errors over mountainous terrain: the influence of gauge density, seasonality, and temporal resolution, IEEE Transactions on Geosciences and Remote Sensing, PP(99), 1-11.
- 5. Diakakis, M, E I **Nikolopoulos**, S Mavroulis, E Vassilakis, and E Korakaki. (2017). Observational evidence on the effects of mega-fires on the frequency of hydrogeomorphic hazards. The case of the Peloponnese fires of 2007 in Greece, Science of the Total Environment, 592, 262–76.
- *Destro E., F. Marra, E.I. Nikolopoulos, D. Zoccatelli, J.D. Creutin and M. Borga (2017). Spatial estimation of debris flows-triggering rainfall and its dependence on rainfall return period, Journal of Geomorphology, 278 IS, 269-279.
- *Bartsotas N., E.I. Nikolopoulos, E.N. Anagnostou, S. Solomos, G. Kallos (2017). Moving towards sub-km modeling grid spacings: Impacts on atmospheric and hydrological simulations of extreme flash-flood inducing storms. Journal of Hydrometeorology, 18(1), 209-226.
- *Sahlu D., E.I. Nikolopoulos, S.A. Moges, E.N. Anagnostou and D. Hailu (2016). First evaluation of the integrated multi-satellite retrieval for GPM (IMERG) over the upper Blue Nile Basin, Journal of Hydrometeorology, 17(11), 2875-2882.
- Shen, X., H.J. Vergera, E.I. Nikolopoulos, E. N. Anagnostou, Y. Hong, Z. hao and K. Zhang (2016). GDBC: A Tool for Generating Global-Scale Distributed Basin Morphometry. Environmental Modelling & Software, 83, 212-223.
- *Mei, Y., E.I. Nikolopoulos, E.N. Anagnostou, D. Zoccatelli and M. Borga (2016). Error analysis of satellite precipitation-driven modeling of flood events in complex alpine terrain, Remote Sensing, 8(4), 293.
- 11. Yagmur Derin, Emmanouil Anagnostou, Alexis Berne, Marco Borga, Brice Boudevillain, Wouter Buytaert, Che-Hao Chang, Guy Delrieu, Yang Hong, Yung Chia Hsu, Waldo Lavado-Casimiro, Bastian Manz, Semu Moges, Efthymios I. Nikolopoulos, Dejene Sahlu, Franco Salerno, Juan-Pablo Rodríguez-Sánchez, Humberto J. Vergara and Koray K. Yilmaz (2016). Multi-regional satellite precipitation products evaluation over complex terrain, Journal of Hydrometeorology, 17(6). 1817-1836.

- 12. *Mei, Y., E.I. **Nikolopoulos**, E.N. Anagnostou, and M. Borga (2016). Evaluating satellite precipitation error propagation in runoff simulations of mountainous basins, Journal of Hydrometeorology, 17(5), 1407-1423.
- Marra, F., E.I. Nikolopoulos, J.-D. Creutin, and M. Borga (2015). Space-time organization of debris flows-triggering rainfall and its effect on the identification of the rainfall threshold relationship, Journal of Hydrology, 541 Part A IS, 246-255.
- *Mei, Y., E.N. Anagnostou, E.I. Nikolopoulos and M. Borga (2015). Reply to "Comments on 'Error Analysis of Satellite Precipitation Products in Mountainous Basins". Journal of Hydrometeorology 16(3), 1445-1446.
- 15. **Nikolopoulos**, E.I., N.S. Bartsotas, E.N. Anagnostou, and G. Kallos (2015) Using high-resolution numerical weather forecasts to improve remotely sensed rainfall estimates: the case of the 2013 Colorado flash flood. Journal of Hydrometeorology, 16 (4), 1742–51.
- 16. **Nikolopoulos**, E.I., M. Borga, J.D. Creutin, and F. Marra (2015). Estimation of debris flow triggering rainfall: influence of rain gauge density and interpolation methods, Geomorphology, 243, 40-50.
- Nikolopoulos, E.I., M. Borga, F. Marra, S. Crema, and L. Marchi (2015). Debris flows in the eastern Italian Alps: seasonality and atmospheric circulation patterns. Natural Hazards and Earth System Science 15 (3). Copernicus Publications: 647–56.
- Zoccatelli, D., M. Borga, G.B. Chirico and E.I. Nikolopoulos (2015). The relative role of hillslope and river network routing in the hydrologic response to spatially variable rainfall fields, Journal of Hydrology, 531(2), 349-359.
- 19. Nikolopoulos, E.I., S. Crema, L. Marchi, F. Marra, F. Guzzetti, and M. Borga (2014). Impact of uncertainty in rainfall estimation on the identification of rainfall thresholds for debris flow occurrence, Geomorphology, 221, 286–297.
- Nikolopoulos, E.I., M. Borga, D. Zoccatelli, and E.N. Anagnostou (2014). Catchment-scale storm velocity: quantification, scale dependence and effect on flood response, Hydrological Sciences Journal, 59(7), 1363–1376.
- 21. Marra, F., E.I. **Nikolopoulos**, J.D. Creutin, and M. Borga (2014). Radar rainfall estimation for the identification of debris-flow occurrence thresholds, Journal of Hydrology, 519, Part B(0), 1607–1619.
- *Mei, Y., E.N. Anagnostou, D. Stampoulis, E.I. Nikolopoulos, M. Borga, and H.J. Vegara (2014). Rainfall organization control on the flood response of mild-slope basins, Journal of Hydrology, 510, 565–577.
- 23. *Mei, Y., E.N. Anagnostou, E.I. **Nikolopoulos**, and M. Borga (2014). Error analysis of satellite precipitation products in mountainous basins, Journal of Hydrometeorology, 15(5), 1778–1793.
- 24. **Nikolopoulos**, E.I., E.N. Anagnostou, and M. Borga (2013). Using high-resolution satellite rainfall products to simulate a major flash flood event in Northern Italy, Journal of Hydrometeorology, 14(1), 171–185.
- Stampoulis, D., E.N. Anagnostou, and E.I. Nikolopoulos (2013). Assessment of high-resolution satellite-based rainfall estimates over the Mediterranean during heavy precipitation events, Journal of Hydrometeorology, 14(5), 1500–1514.

- 26. Zampieri, M., E. Serpetzoglou, E.N. Anagnostou, E.I. **Nikolopoulos**, and A. Papadopoulos (2012). Improving the representation of river–groundwater interactions in land surface modeling at the regional scale: Observational evidence and parameterization applied in the Community Land Model, Journal of Hydrology, 420, 72–86.
- 27. **Nikolopoulos**, E.I., E.N. Anagnostou, M. Borga, E.R. Vivoni, and A. Papadopoulos (2011). Sensitivity of a mountain basin flash flood to initial wetness condition and rainfall variability, Journal of Hydrology, 402(3-4), 165–178.
- 28. Chronis, T., V. Papadopoulos, and E.I. **Nikolopoulos** (2011). QuickSCAT observations of extreme wind events over the Mediterranean and Black Seas during 2000–2008, International Journal of Climatology, 31(14), 2068–2077.
- 29. **Nikolopoulos**, E.I., E.N. Anagnostou, F. Hossain, M. Gebremichael, and M. Borga (2010). Understanding the scale relationships of uncertainty propagation of satellite rainfall through a distributed hydrologic model, Journal of Hydrometeorology, 11(2), 520–532.
- Anagnostou, E.N., V. Maggioni, E.I. Nikolopoulos, T. Meskele, F. Hossain, and A. Papadopoulos (2010). Benchmarking high-resolution global satellite rainfall products to radar and rain-gauge rainfall estimates, IEEE Transactions on Geoscience and Remote Sensing, 48(4), 1667–1683.
- Serpetzoglou, E., E.N. Anagnostou, A. Papadopoulos, E.I. Nikolopoulos, and V. Maggioni (2010). Error propagation of remote sensing rainfall estimates in soil moisture prediction from a land surface model, Journal of Hydrometeorology, 11(3), 705–720.
- 32. Anagnostou, M.N., J.A. Nystuen, E.N. Anagnostou, E.I. **Nikolopoulos**, and E. Amitai (2008). Evaluation of underwater rainfall measurements during the Ionian sea rainfall experiment, IEEE Transactions on Geoscience and Remote Sensing, 46(10), 2936–2946.
- 33. **Nikolopoulos**, E.I., A. Kruger, W.F. Krajewski, C.R. Williams, and K.S. Gage (2008). Comparative rainfall data analysis from two vertically pointing radars, an optical disdrometer, and a rain gauge, Nonlinear Processes in Geophysics, 15(6), 987–997.
- Krajewski, W.F., A. Kruger, C. Caracciolo, P. Golé, L. Barthes, J.-D. Creutin, J.-Y. Delahaye, E.I. Nikolopoulos, F. Ogden, and J.-P. Vinson (2006). DEVEX-disdrometer evaluation experiment: Basic results and implications for hydrologic studies, Advances in Water Resources, 29(2), 311-325.
- 35. Psillakis, E., A. Ntelekos, D. Mantzavinos, E. **Nikolopoulos**, and N. Kalogerakis (2003). Solid-phase microextraction to monitor the sonochemical degradation of polycyclic aromatic hydrocarbons in water, Journal of Environmental Monitoring, 5(1), 135-140.

Submitted, Under Preparation or Revision

1. Anagnostou M.N., E. I. **Nikolopoulos**, J. Kalogiros, E. N. Anagnostou, F. Marra, E. Mair G. Bertoldi, U. Tappeiner and M. Borga (2017). Hydrological evaluation of X-band polarimetric radar rainfall estimation in a mountainous basin, Journal of Hydrology, (under revision).

2. *E. Destro, Amponsah, W., E.I. **Nikolopoulos**, L. Marchi, F. Marra, D. Zoccatelli and M. Borga (2017). Coupled prediction of flash flood response and debris flow occurrence: analysis based on extreme alpine flood event, Journal of Hydrology, (under moderate revision).

3. *Bhuiyan, M.A.E, E.I. **Nikolopoulos**, E. N. Anagnostou, P. Quintana-Seguí, A. Barella-Ortiz (2017). A nonparametric statistical technique for combining global precipitation datasets: development and hydrological evaluation over the Iberian Peninsula. Hydrology and Earth System Sciences (under moderate revision).

4. *Koukoula, M., E.I. **Nikolopoulos**, E.N. Anagnostou, and G. Kallos (2017). The role of initial soil moisture conditions on the simulation of mesoscale convective systems. Atmospheric Research (under preparation).

Book Chapters

- 1. Mei, Y., **E.I. Nikolopoulos**, E.N. Anagnostou (2017). Satellite-based precipitation for modeling floods: current status and limitations. Remote sensing of hydro-meteorological hazards. Taylor & Francis, ISBN 1498777589.
- Marra, F., E.I. Nikolopoulos, J.D. Creutin, M. Borga (2017) Radar-rainfall estimates for debris flows forecasting based on Intensity-Duration thresholds. Remote sensing of hydro-meteorological hazards. Taylor & Francis, ISBN 1498777589.
- 3. Destro, E, E.I. Nikolopoulos, J.D. Creutin and M. Borga (2017), Floods. Environmental Hazards Methodologies for Risk Assessment and Management, IWA, eISBN 978178040713.
- Anagnostou, M.N., J. Kalogiros, E.I. Nikolopoulos, Y. Derin, E.N. Anagnostou, M. Borga (2016). Satellite Rainfall Error Analysis with the Use of High-Resolution X-Band Dual-Polarization Radar Observations Over the Italian Alps. Perspective on Atmospheric Sciences, Springer Atmospheric Sciences. doi:10.1007/978-3-319-35095-0.
- 5. **Nikolopoulos**, E.I., F. Marra and M. Borga (2015), Uncertainty in estimation of debris flow triggering rainfall: Evaluation and impact on identification of threshold relationships. Natural Hazard Uncertainty Assessment: Modeling and Decision Support, Geophysical Monograph 223, First Edition.
- 6. **Nikolopoulos**, E.I., E.N. Anagnostou and F. Hossain (2010), Error Propagation of Satellite-Rainfall in Flood Prediction Applications over Complex Terrain: A Case Study in Northeastern Italy. Satellite Rainfall Applications for Surface Hydrology, Springer Science+Business Media B.V.
- Hossain, F., L. Tang, E. N. Anagnostou, and E. I. Nikolopoulos (2010), A Practical Guide to a Space-Time Stochastic Error Model for Simulation of High Resolution Satellite Rainfall Data, Satellite Rainfall Applications for Surface Hydrology, Springer Science+Business Media B.V.

Thesis

- Nikolopoulos E.I., (2010), Flash floods: Understanding the Runoff Generation Processes and the Use of Satellite-Rainfall in Hydrologic Simulations. PhD dissertation. University of Connecticut, Storrs, CT, USA.
- 2. Nikolopoulos E.I., (2004), Analysis of High Resolution Data of Vertical Structure of Rainfall. MSc thesis. The University of Iowa, Iowa City, IA, USA.
- 3. Nikolopoulos E.I., (2002), On the Biological Treatment of Landfill Leachate. Eng. Diploma thesis. Technical University of Crete, Chania, Crete, Greece.

Conference Proceedings

- 1. Anagnostou, M.N., E.I. **Nikolopoulos**, J. Kalogiros, E.N. Anagnostou, F. Marra, M. Borga, E. Mair, G. Bertoldi, & U. Tappeiner (2014). Evaluating the potential of X-band polarimetric radar observations in mountainous hydrology. In 8th European Conference on Radar in Meteorology and Hydrology.
- 2. Zoccatelli, D., M. Borga, E. I. **Nikolopoulos**, and E. N. Anagnostou (2012), Quantifying catchment-scale storm motion and its effects on flood response, IAHS-AISH publication, 520–525.
- Nikolopoulos, E. I., E. N. Anagnostou, and C. S. Pathak (2007), Improving the Consistency of Basin-Average Radar and Rain Gauge Rainfall Datasets in Central and South Florida. In Restoring Our Natural Habitat - Proceedings of the 2007 World Environmental and Water Resources Congress, pp. 1–7, ASCE.
- 4. Kruger, A., W. F. Krajewski, E. **Nikolopoulos**, C. Williams, and K. Gage (2004), A comprehensive data analysis from two vertically pointing radars. In Sixth International Symposium on Hydrological Applications of Weather Radar, Melbourne, Australia.

Presentations in Conferences (10 most recent out of 40+)

- 1. **Nikolopoulos**, E.I., M. Anagnostou, E.N. Anagnostou, C. Albergel, E. Dutra, G. Fink, A. Martinez de la Torre, S. Munier, J. Polcher, P. Quintana-Segui (2016). A multi-model/multi-forcing investigation of precipitation uncertainty propagation in hydrologic simulations. AGU Meeting, San Francisco, USA.
- Mei, Y., E.N. Anagnostou, X. Shen, and E.I. Nikolopoulos (2016). An analytical framework to quantify the error propagation of satellite precipitation in hydrologic simulations. AGU Meeting, San Francisco, USA.
- 3. Bhuiyan, M.A.E, E.I. **Nikolopoulos**, E. N. Anagnostou, P. Quintana-Seguí, A. Barella-Ortiz (2016). Precipitation Error Modeling Using a Nonparametric Statistical Technique: Development and Hydrological Evaluation over the Iberian Peninsula. AGU Meeting, San Francisco, USA.
- 4. **Nikolopoulos**, E. I., Polcher, J., Anagnostou, E.N., Eisner, S., Fink G. & Kallos, G. (2016). Precipitation uncertainty propagation in hydrologic simulations: evaluation over the Iberian Peninsula. In EGU General Assembly Conference Abstracts (Vol. 18, EGU2016-14667), Vienna, Austria.
- 5. Maggioni, V., **Nikolopoulos**, E.I., Marra, F., Destro, E. & Borga M. (2016). Satellite-rainfall estimation for identification of rainfall thresholds used for landslide/debris flow prediction. In EGU General Assembly Conference Abstracts (Vol. 18, EGU2016-15006), Vienna, Austria.
- *Mei, Y., Nikolopoulos, E.I., Anagnostou, E.N., Zoccatelli, D. & Borga, M. (2016). Characteristics and dependencies of error in satellite-based flood event simulations. In EGU General Assembly Conference Abstracts (Vol. 18, EGU2016-15654), Vienna, Austria.
- *Destro E., Marra, F., Nikolopoulos, E.I., Zoccatelli, D., Creutin, J.D. & Borga, M. (2016). Spatial estimation of debris-flows and its dependence on rainfall severity. In EGU General Assembly Conference Abstracts (Vol. 18, EGU2016-14984), Vienna, Austria.
- 8. **Nikolopoulos,** E.I., Bartsotas, N., Anagnostou, E.N., & Kallos, G. (2015). Using a high-resolution numerical weather prediction model to improve satellite-based hydrologic simulations over mountainous regions. In Earth Observation for Water Cycle Science 2015, Frascati, Italy.

- 9. **Nikolopoulos**, E. I., Borga, M., Destro, E., & Marchi, L. (2015). Predicting debris flow occurrence in Eastern Italian Alps based on hydrological and geomorphological modeling. In EGU General Assembly Conference Abstracts (Vol. 17, EGU2015-8736), Vienna, Austria.
- 10. **Nikolopoulos**, E. I., Bartsotas, N.S., Borga, M., & Kallos, G. (2015). Evaluating the use of highresolution numerical weather forecast for debris flow prediction. In EGU General Assembly Conference Abstracts (Vol. 17, EGU2015-8902), Vienna, Austria.