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Education

1993, Ph.D., Biological and Agricultural Engineer (Water Resources), North Carolina State University
1989, B.A./MSc, Agricultural Engineering, Polytechnic University of Madrid

Professional Record

2024-present	Distinguished Professor, Agricultural & Biological Engineering, University of Florida
2019 – 2020	(Sabbatical) Resident Distinguished Professor, Public U. of Navarre, Spain
2018	Interim Chair, Agricultural & Biological Engineering, University of Florida
2011-2024	Professor, Agricultural & Biological Engineering, University of Florida
2010-2011	Professor in Residence, CEMAGREF (now Irstea), Lyon, France
2006-2011	Associate Professor, Agricultural & Biological Engineering, University of Florida
2001-2006	Assistant Professor, Agricultural & Biological Engineering, University of Florida
2000-2001	Tenured Researcher, Canary Islands Agricultural Research Institute, Spain
1993-2000	Engineering Researcher, Canary Islands Agricultural Research Institute, Spain
1994-2001	Adjunct Professor, University of La Laguna, Spain
1989-1993	Research Assistant, Biological and Agricultural Engineering, North Carolina State University

Research Interests

Complex coupled natural human systems analysis; resilience analysis of critical systems; environmental modeling system integration; risk analysis; global sensitivity and uncertainty; water quality and hydrological modeling; water conservation; surface contaminant transport through vegetation.

Awards & Honors

2024-	Distinguished Professor (reserved to top 1-2% of University Faculty)
2024	UF/IFAS High Impact Research Publication Award. (doi: 10.1371/journal.pwat.0000059)
2024	UF/IFAS Culture of Nomination Award
2022	John Deere National Gold Medal, ASABE (American Society of Agricultural and Biological Engineers)
2021	North Carolina State University CALS Outstanding Alumnus Award
2020	AAAS Fellow (American Association for the Advancement of Science)
2018	UF/IFAS Award of Excellence for Graduate Research: Best Doctoral Dissertation Advisor, Dr. Natalie Nelson
2018	ASABE Standards Development Award, EP621 Jun2017 Guidelines for Calibrating, Validating and *Evaluating Hydrological and Water Quality Models*
2017-2020	University Term Professor
2017	UF/IFAS Award of Excellence for Graduate Research: Best Doctoral Dissertation Advisor (N Nelson, *Quantifying the spatiotemporal importance of fresh-brackish water quality drivers using data analytics and models.*
2017	UF/IFAS High Impact Research Publication Award. Science Adv. (AAAS), doi: 10.1126/sciadv.1601272
2017	Web-of-Science (Clarivate) "Highly Cited Paper", top 1% of Agricultural Science, for papers DOI: 10.1016/j.agsy.2016.05.014 and DOI: 10.1016/j.agsy.2016.09.021
2016	UF Postdoc Mentoring Award, UF Office of Postdoctoral Affairs.
2016	FL-ASABE Distinguished Achievement Award
2015	Royal Academy of Engineers of Spain, Corresponding Member, http://www.raing.es/en
2015	Fellow of ASABE (American Society of Agricultural and Biological Engineers)
2015	ADS/Hancor Soil Water Engineering National Award, ASABE (American Society of Agricultural and Biological Engineers)
2017	Web-of-Science (Clarivate) "Highly Cited Paper", top 1% of Engineering, for paper DOI:

10.1016/j.jhydrol.2012.12.004

2013 Fellow of UF Water Institute Faculty
2013 National Postdoctoral Association (NPA) Mentoring Award
2013 International Educator of the Year Award, UF/IFAS
2013 Best Paper Award, Environmental Water Resources Institute (EWRI), ASCE.
2011 University of Florida Research Foundation Professor
2009 Junior Faculty Award of Merit, Gamma Sigma Delta.
2009 Special Recognition Award, FL Section of the ASABE.
2008 UF/IFAS International Achievement Award
UF International Center International Educator Award,
2008 UF/IFAS LEAD certificate
2008 UF/CALS Teacher's College certificate
2003 USDA-Foreign Agricultural Service Certificate of Appreciation
1999 Paper of ASAE Award, Hydrology Mini-Symposium
1989-1993 Fulbright Doctoral Fellow, bilateral commission INIA-USDA

Teaching & Course Instruction

Undergraduate Courses

ABE 3212C *Land & Water Resources Engineering* (Spring), 4 ct.

Graduate Courses

ABE 6254 *Simulation of Agricultural Watershed Systems* (Fall alt,. years), 3 ct.

ABE 6265 *Vadose Zone Water & Solute Transport Modeling* (Summer, alt. years), 3 ct.

ABE 5643C *Biological Systems Modeling* (Fall), 3 ct. (co-taught with 2 other). Modules: a) Model Evaluation and testing- FITEVAL; b) Global sensitivity and Uncertainty Analysis-GSA

ABE 6649C *Advanced Biosystems Modeling* (Spring), 3 ct. (co-taught with 2 other). Modules: a) High Performance Computing-HPC; b) HPC for Global Sensitivity and Uncertainty Analysis-GSA

External invited courses

Oct. 2021 – "Evaluation of environmental models: FITEVAL and GSUA", Program of Doctoral Excellence eAi3, U. of Cordoba (Spain) (also taught in 2019, 2017)

Nov. 2019 – "Objective design of vegetative filter strips for mitigation of runoff pollution" (15 hrs), Graduate Program in Agricultural Engineering, Public University of Navarre (Spain).

Mar. 2018 – "*PWC-VFSMOD User Training*" (5 hrs). US EPA, Washington DC, March 28.

Oct. 2017 – "*Global Sensitivity and Uncertainty Analysis of Environmental Models*". Invited Seminar and Workshop (5 hrs) at Université Catholique Louvain (Belgium)

Oct. 2015 – "*Objective evaluation of model fitness and importance factor assessment.*" (12 hrs.). International Master's Program CeiA3 - Univ. Cordoba, Spain

Dec. 2011 – "*Modelling groundwater pollution of pesticides with PEARL and vegetative strip modelling with VFSMOD*" (3 hrs.). ADVANCED RESEARCH WORKSHOP: Modelling agrochemical pollution of water systems. 29 March 2011. ENVITAM.org. Université Catholique de Louvain, Belgium.

Jun. 2010 – "*Korea AG-BMP Forum, KAB-2 International Conference, AG-BMP Development for Reservoir Water Quality Improvement*", 15-16 June 2011, Hoam Faculty House, Seoul, Korea. Intl. (Organizing Committee Member).

Invited Seminars & Presentations

Sept. 2024 Advances on latest VFSMOD version for regulatory use. VFSMOD - Workshop. XVII Symposium on Pesticide Chemistry, Piacenca, Sept. 3-6, 2024. Università Cattolica del Sacro Cuore, Piacenza, Italy

June 2024	Advances in Quantitative Pesticide Mitigation with VFSMOD in high-tier environmental exposure assessments. 26th International Akademie Fresenius AGRO Conference "Behaviour of Pesticides in Air, Soil and Water". 6-7 June 2024, Duren/Germany
May 2024	Invited presentation. Infrastructure Dynamics and Adaptive Recovery from Repeated Shocks through Resilience Stress Testing in Complex Human/ natural systems. EU Horizon ReCharge, Webinar, May 10th, Athens, Greece.
Sept. 2023	Invited presenter, "*Quantification of pesticide run-off from spot treatment to mitigate exposure of pesticides to surface water*". 11th European Modelling Workshop (EMW11), Montpellier, France, September 25-27, 2023.
Oct. 2023	Invited, "*UF Hipergator in biocomplexity engineering*". ABE Graduate Student Association. Seminar. UF ABE Frazier Rogers Hall.
June 2023	Invited, "*Convergence of Mechanistic Modeling and Artificial Intelligence in Hydrologic Science and Engineering*". NRES Distinguished Lecturer Series. International Meeting of the American Society of Agricultural and Biological Engineering, Omaha, Nebraska, June 11, 2023.
May 2023.	Invited Platform presentation. "*The effect of alternative synthetic hydrographs when quantifying pesticide mitigation efficiencies with VFSMOD in exposure assessments"*. SETAC Europe 33rd Annual Meeting, Dublin, Ireland, 4 May, 2023
May 2023	Inviter Seminar, "*Unintended Effects of the Inter-Basin Water Transfer Project on the Palo Verde National Park Wetlands*". OTS 60th Anniversary Conference Series. Organization for Tropical Studies (OTS), San José, Costa Rica, Wednesday, May 31 2023 (virtual presentation)
March 2023	Invited, "*Water Systems Analysis and Modeling to address State, National and Global Water Issues: UF ABE Core Expertise*". UF ABE Centennial Seminar Series. March 23, 2023.
August 2022	Invited presenter, "*Quantitative pesticide mitigation with VFSMOD in high- tier environmental exposure assessments: Opportunities and challenges".* 10th European Modelling Workshop, York UK, August 28-31, 2022.
May 2022	Invited Platform Presentation, "*Importance of surface pesticide residues in the quantitative mitigation of pesticides with vegetative filter strips: VFSMOD development and analysis*", EGU General Assembly 2022, Vienna, Austria, 23–27 May 2022.
August 2021	Invited speech, *"Career reflections since my doctoral years as a Wolfpack and Gator*". CALS NC State University Distinguished Alumni Award presentation. N.C. State University, Raleigh. August 14, 2021
June 2021	Master Class: "*Vegetative Filter Strips Effectiveness to Mitigate Pesticides in Regulatory Exposure Assessments: Mechanistic Analysis with VFSMOD*" (Eficacia de los filtros verdes para mitigar los plaguicidas de escorrentía en el análisis de riesgo de contaminación: Análisis mecánico con VFSMOD). Universidad de Concepción, Chile, 21 June 2021 (virtual due to COVID)
Oct. 2021	Invited talk, "*Identifying important drivers in pesticide mitigation exposure assessments*". EPA Purdue Workshop on Wetland Endangered Species Assessment of Herbicides. Oct. 22-23. Purdue Univ. Lafayette, IN, USA
May 2021	Invited talk, "*Fate of pesticide residues in vegetative filter strips in long-term exposure assessments: VFSMOD development and analysis*". SETAC Europe. May 3-6, 2021. Seville, Spain
Sept. 2020	Invited talk, "*VFS Effectiveness to Mitigate Pesticides: Mechanistic Analysis with VFSMOD*". Clemson University, SC, Graduate Seminar Series, September 3, 2020.
June 2020	Invited talk, "*Vegetative Filter Strip Modelling*". 22nd International Akademie Fresenius AGRO Conference, June 16-17, Mainz, Germany
Aug. 2020	Invited talk, "*Advances in vegetative filter strips modeling to mitigate pesticides*". CERSA North American Vegetative Filter Strips Workshop, August 31, Raleigh.
May 2020	Invited talk, "*VFS Effectiveness to Mitigate Pesticides: Mechanistic Analysis with VFSMOD*", EGU Annual Conference, May 3-6. Vienna, 2020.
Apr. 2019	Invited talk, "*Effectiveness of Vegetative Filter Strips for Pesticides Mitigation: Mechanistic Analysis with VFSMOD*", Mitigation of Pesticides in Surface Water in California Agriculture Symposium. Organized by California Dept. of Pesticide Regulation. Sacramento, California.

Mar. 2019	Invited talk, "*Incorporating the Benefits of Vegetative Filter Strips into Risk Assessment and Risk Management of Pesticides*", AGRO Lunch & Webinar series/Eurofins. March 13, 2019.
Dec. 2018	Invited talk, "*Incorporating the Benefits of Vegetative Filter Strips into Risk Assessment and Risk Management of Pesticides*", 2018 Workshop on Innovation and Regulation in Agriculture. N.C. State University Center of Excellence on Regulatory Science in Agriculture (CERSA), Raleigh, NC
Nov. 2018	Invited talk, "*Identifying important drivers in exposure and effects mitigation assessments: A general global sensitivity and uncertainty analysis framework*", 2018 Society of Environmental Toxicology and Chemistry (SETAC) North America 39th Meeting. Sacramento, CA.
Jul. 2018	Invited talk, "*What drives the ecological quality of freshwater ecosystems at the continental scale in Europe?"*. Public university of Pamplona, Spain.
May 2016	Invited, Induction Ceremony speech, "Representación del comportamiento "Real" de los sistemas biocomplejos,retos y oportunidades para la ingeniería". Royal Academy of Engineering of Spain, Madrid, Spain, February 3, 2016.
Oct. 2012	Invited (keynote speaker), SWAN-VFSMOD European Pesticide Assessment Tool. Training Workshop. October 2, 2013, Paris, France.
Nov. 2012	Invited speaker, Taishan Symposium of Agriculture and Environment, Shandong Agricultural University, November 2012, Shandong, China
Nov. 2014	Predictive ability of hydrological models: objective assessment of goodness-of-fit with statistical significance. Universidad Católica de Murcia, Spain. Nov. 4, 2014.
May 2014	Complexity and unintended consequences in the Tempisque Basin PRAT project, Costa Rica. University of Costa Rica, San Jose May 2, 2014.
Nov. 2013	Dynamic factor analysis as a tool to unravel the behavior of complex environmental systems. Agricultural Engineering School and Mathematics Department, University of Navarra, November 2013.
Sept. 2013	Total Maximum Daily Load and the Best Management Practices program in Florida: the case for Vegetative Filter Strip Design. Sustainable Management of Soil and Water Resources Workshop - Dubai, United Arab Emirates - September 15-19, 2013. Sponsored by USDA-ARS International Programs.
July 2013	Dynamic Factor Analysis of Environmental Systems I: Introduction and Initial lessons learned. Session coorganizer and Invited Speaker. XXIX-th European Meeting of Statisticians, July 20-25, 2013, Budapest, Hungary.
May 2013	FITEVAL: A tool to assess the predictive ability of hydrological models through objective assessment of goodness-of-fit with statistical significance. Invited Seminar. Université Catholique de Louvain, Louvain-la-Neuve, Belgium. May, 2013.
April 2013	Hydrological sensors data acquisition and management for the hydrological monitoring network at the Palo Verde National Park. April 2013, Workshop presented at the Organization for Tropical Studies Biological Stations in Palo Verde National Park, Guanacaste, Costa Rica.
Feb. 2011	VFSMOD use for pesticides (Keynote Speech). Workshop: "From AIM to TOPPS-Prowadis". European Crop Protection Association, Brussels, - 24 February 2011.
June 2011	Importance of mechanistic, science driven design of best management practices for watershed quality protection (Keynote Speech). In: Yoon and Choi (eds.), Korea KAB-2 International Conference on AG-BMP Development for Reservoir Water Quality Improvement, June 15-16, Seoul, Korea.
June 2011	Recent advancement in evaluation of Environmental Models with Global Sensitivity and Uncertainty Analysis. National Taiwan University, June, 18, Taipei, Taiwan.
Jun. 2010	Invited talk, "Predicting Runoff Pesticide Reduction with Vegetative Filter Strips: Factor importance, Uncertainty, and Regulatory Opportunities". Keynote speech at the World UIPAC-RACI conference. 12th International Congress on Pesticide Science UIPAC 2010, July 4-10, 2010, Melbourne, Australia.
Oct. 2010	Invited talk, "*Model Relevance: Frameworks for Exploring the Complexity-Sensitivity-Uncertainty Trilemma.*" (NATO Climate Change Conference, Hella, Iceland, 2010).

Nov. 2009 Invited talk, "*Formal Exploration of the Complexity and Relevance of Biogeochemical Models through Global Sensitivity and Uncertainty Analysis: Opportunities and Challenges*" (Keynote speech at the Unsaturated Zone Studies Conference, Barcelona-Spain, 2009).

Professional Service & Membership

1. *Journal and Book Editor*:

2017-	Editor-in-Chief, Elsevier's *Journal of Hydrology: Regional Studies*, https://www.sciencedirect.com/journal/journal-of-hydrology-regional-studies/about/editorial-board
2004-2010	Associate Editor, Transactions of ASABE and Applied Engineering in Agriculture
2001-	Associate editor for 3 special issues of peer-reviewed journals (*Vadose Zone Journal*, *Trans. of ASABE*, *HESS* (EGU Physics and Chemistry of the Earth, Part B)
2005	Co-editor of CRC/Lewis book with 53 international contributors

2. *Research Advisory Board Membership*:

2021-	Organization for Tropical Studies, Board of Directors (OTS, https://tropicalstudies.org/portfolio/board-of-directors/)
2018-	UF Senate University Information Technology Committee
2018-	UF H.W. College of Engineering Research Advisory Council (RAC)
2015-	Institute for Earth System Research (IISTA), Spain
2008-	UF Research Computing Advisory Committee (RCAC)
2002-	Spanish Unsaturated Studies group ZNS, Spain, http://zonanosaturada.com
2014-2015	UF Global Food Systems Institute (GFSI), Advisory board member
2009-2012	UF Water Institute Faculty Advisory Board
2012-2014	UF/IFAS Dean of Research Advisory Board
2012-2014	UF/IFAS International Programs
2006-2011	UF Hydrologic Sciences Academic Cluster, http://hydrology.ufl.edu. Elected Chair, 2008–10, member of the Faculty Advisory Committee, 2006–2011

3. *NSF Funded Student development*:

2012-2017	NSF GRF doctoral advisor, Dr. N. Nelson
2012	NSF-REU Program, Summer 2012, faculty mentor for Wen Yang
2009-2012	NSF-Innovation through Institutional Integration (I3), UF Advisory Board
2007-2011	NSF IGERT doctoral advisor, A.C. Linhoss

4. *Federal Panelist*: NSF, NAS, USDA/ARS, USDA/NRI

5. *Scientific and Professional Societies*:

2015-	American Society of Agricultural and Biological Engineers (ASABE), Fellow ASABE, 2015-, Member Engineer, 1993-, Chair Natural Resources and Environmental Systems Division NRES-02, NRES-21 Hydrology Chair, 2008-2009, Member, SW-5, Publications Review Committee, 2004-;
1993-	American Geophysical Union (AGU), Member.
2007-	American Association for the Advancement of Science (AAAS), Member.

6. *University Committees*

IFAS Tenure and Promotion Board, 2014-2016; IFAS 2013 Food Safety Cluster, defined faculty positions, participated in Chairs planning meetings; IFAS Research Advisory Group, IFRAG, member, 2012-2015; IFAS Faculty Enhancement Awards (Sabbatical), member, 2011-2014; - Search and screen committees: Pre-Eminent Professor Risk Analysis, ESSIE-COE member, 2014-2015; Pre-eminent Professor, Dynamic optimization of networks, ISE-COE, Chair, 2014

7. *Departmental Committees*

ABE Tenure and Promotion Committee, Chair, 2018-present; ABE Graduate Certificate program, Chair, 2012-present; ABE Graduate committee, member, 2005–present; ABE Computer committee, Chair. 2006–present; Faculty Mentoring Committees: Dr. Nikolay Blyznyuk, member, 2014–; Dr. Eric McLamore, member, 2011-2016; Dr. Jeff

Ullman, member, 2011–2015; Dr. Kati W. Migliaccio, Chair, 2005–2010; Dr. Bin Gao, Chair, 2007– 2012; - Search and screen committees: Data analytics Assistant/Associate Professor, ABE, Chair, 2016; Biocomplexity Engineering Assistant/Associate Professor, ABE, Chair, 2014; IT expert, ABE, 2014

Mentions in the media

- *Innovative Application of AI Gives New Life to Long-term Monitoring Data*. April 30, 2018 | Environmental Monitor (United States). View article
- *How to prevent harmful algal blooms.* March 6, 2018 | Morning Ag Clips (United States). View article
- *UF Study: To Help Prevent Harmful Algal Blooms, Limit Nitrogen and Phosphorus***.** March 6, 2018 | Newswise (United States). View article
- *Engineering the Design of Buffers and Vegetative Filter Strips.* March 1, 2018 | RESource (ASABE). View article
- *New UF/IFAS Method Detects Low-Dose Impacts of Man-Made Chemicals in Water***.** September 7, 2016 | Newswise (United States). View article
- *U of Florida Researcher Receives ASABE's ADS Soil and Water Engineering Award***.** September 24, 2015 | Agri Marketing (United States). View article
- *University of Florida Professor Receives ADS Achievement Award.* September 22, 2015 | Water & Wastes Digest (United States). View article
- *Two UF/IFAS Agricultural Engineering Faculty Earn High Global Honors.* May 13, 2015 | Newswise (United States). View article
- *USA: Computer Model to Help Managers with Renourishment Decisions.* February 27, 2014 | Dredging Today (Netherlands). View article
- *Computer Model Can Help Coastal Managers with Nourishment Decisions***.** February 26, 2014 | Science Daily (United States). View article
- *UF Top 10, faculty profile, 2014*
- *UF Alumni Calendar, 2014*

Funded Research

(Total federal funding while at UF as PI/Co-I/SP: ~$22 million, PI Share $5 Million)

Current:

[1] NATO SPC GVddZnqQ. Pathways for Infrastructure Resilience in Ukraine. NATO Science for Peace and Security (2023), Multi-Year Projects (MYP). 01/01/2025- 22/31/2026. PI: Rafael Muñoz-Carpena (UF). $461,879

[2] FDACS #31193. Assessing leaching rain event parameters for supplement fertilizer application in Florida. Fl Department of Agriculture and Consumer Services, Agricultural Water Pollution, 07/01/2024-6/30/2028, PI: Vivek Sharma, Co-PI: Rafael Muñoz-Carpena (UF). $562,428.

[3] AWD2402580. NSF EAGER: IMPRESS-U Adaptive Infrastructure Recovery from Repeated Shocks through Resilience Stress Testing in Ukraine. National Science Foundation, Office Of International Science & Engineering. International Research Collab (USA, Ukraine, Poland, Lithuania, Estonia), CPS-Cyber-Physical Systems PI: Rafael Muñoz-Carpena (UF) 01/05/2024-30/06/2026. $298,348

[4] AWD13253. Being a good neighbor, managing adjacent land use risks associated with bioaerosols from cattle and poultry operations to fresh produce. US Department of Agriculture Ag Marketing Svc. Co-PI: Rafael Muñoz-Carpena (UF) 14/09/2022-28/02/2025. $104,847

[5] FLA-CRC-005984. Scientific Challenges and Cost-Effective Management of Risks Associated with Implementation of Produce Safety Regulations. US Department of Agriculture. National Institute of Food and Agriculture. Specialty Crop Research Initiative. Co-PI: Rafael Muñoz-Carpena (UF). 01/09/2020-31/08/2025. $290,667

[6] AWD07062. Ecohydrological Model in Laikipia, Kenya to Evaluate Impacts of Land Use and Management. Syngenta Foundation for Sustainable Agriculture. PI: Rafael Muñoz-Carpena (UF). 01/09/2019-31/07/2023. $74,960.00

[7] AWD04312. Towards a Multi-Scale Theory on Coupled Human Mobility and Environmental Change. US DEPT OF DEFENSE NATL RECON-MURI. Co-Pi: Rafael Muñoz-Carpena (UF). 02/04/2018-30/06/2021. $622,858

[8] AWD02662. Influence of Preferential Flow on Coupled Colloid, Nitrogen, and Phosphorus Transport through Riparian Buffers. US Department of Agriculture. National Institute of Food and Agriculture PI: Rafael Muñoz-Carpena (UF). 15/11/2017-14/11/2020. $5,135,404

[9] ROSF2024:AI Fusion of Trad. Ecological Knowledge and structure data for extreme events. UF Research Opportunity Seed Fund. PI. Rafael Muñoz Carpena. 01/07/2024-31/07/2026. $ 99,577
[10] Florida Digital Twin. University of Florida. Co-PI: Rafael Muñoz Carpena. 01/01/2024-31/12/2024. $ 1,750,000
[11] Fast and slow impacts of sudden extractive land use change at the OSBS boundary. UF IFAS DeLuca Preserve/Forest Systems Jumpstart Funding. PI: Rafael Muñoz Carpena. 01/05/2023-01/05/2024. $75,910
[12] Implementation of Remobilization into VFSMOD for quantitative runoff pesticide in the regulatory exposure framework. Bayer AG, Environmental Safety, ESAS, Monheim, Germany. PI. Rafael Muñoz Carpena. 01/04/2021-31/12/2025. $ 242,771

Research Journal Publication

(Google Scholar h-index http://goo.gl/8OMS7s) (see full list at https://go.ufl.edu/v6vvx04)
* Graduate student; ** Postdoctoral Associate/Visiting Scholar supervised by Dr. Muñoz-Carpena

2024

176. Canatan*, M., R. Muñoz-Carpena, Z. Boz. 2025. Continuous surface temperature monitoring of refrigerated fresh produce through visible and thermal IR sensor fusion. *Postharvest Biology and Technology* 222:113354. doi: 10.1016/j.postharvbio.2024.113354.
175. Huffaker, R. R. Muñoz-Carpena and K.W. Migliaccio. 2024. Sensor records can be used to forecast complex soil moisture dynamics with symbiosis of empirical nonlinear dynamics and echo state neural network AI. *Comput. Electron. Agric.* 222, 109031. doi: org/10.1016/j.compag.2024.109031
174. Huffaker, R., M. Campo-Bescós, E. Luquin, J. Casalí, and R. Muñoz-Carpena. 2024. Hydrological records can be used to reconstruct the resilience of watersheds to climatic extremes. *Nature Communications Earth & Environment* 5, 19. doi:10.1038/s43247-023-01181-x.
173. Carmona-Cabrero*, A., R. Muñoz-Carpena, R. Muneepeerakul, W.S. Oh*. 2024. Decomposing variance for stochastic models: application to a proof-of-concept human migration agent-based model. *Journal of Artificial Societies and Social Simulation (JASSS)* 27(1) 16, doi:10.18564/jasss.5174

2023

172. Zhang*, C., G. Hoogenboom. M.A. Ritenour. J.G. Perez-Perez, S.M. Alam-Eldein, R. Muñoz-Carpena, S.A. Sargent. 2023. Modeling of grapefruit external color as affected by drought stress. *Hortscience* 58(11):1427–1437. doi:10.21273/hortsci17386-23.
171. Larios*,** K., S. Gerber, R. Muñoz-Carpena, P. Inglett, K.R. Reddy, M. Chimney. 2023. Effects of increasing complexity in biogeochemistry and hydrology on variability of total phosphorus concentration in models of a low flow subtropical wetland. *Ecological Engineering*198(2024)107131. doi:10.1016/j.ecoleng.2023.107131.
170. Chen. H., D.S. Carley, R. Muñoz-Carpena, G. Ferruzzi, Y. Yuan, A. Blankinship, T.L. Veith, R. Breckels, G. Fox, Y. Luo, D. Osmond, H.E. Preisendanz, Z. Tang, K. Armbrust, K. Costello, L.L. McConnell, P. Rice, J. Westgate, M. Whiteside. 2023. Incorporating the benefits of vegetative filter strips into risk assessment and risk management of pesticides. *Integr Environ Assess Manag (IEAM)*. doi:10.1002/ieam.4824.
169. Muñoz-Carpena, R., A. Carmona-Cabrero, Z. Yu, G.A. Fox, O. Batelaan. 2023. Convergence of mechanistic modeling and artificial intelligence in hydrologic science and engineering. *PLOS Water*. doi:10.1371/journal.pwat.0000059
168. Shin*, S., Y. Her, R. Muñoz-Carpena, X. Yu, C. Martinez and A. Singh. 2023. Climate change impacts on water quantity and quality of a watershed-lake system using a spatially integrated modeling framework in the Kissimmee River-Lake Okeechobee system. *J. of Hydrology: Regional Studies* 47:101408. doi:j.ejrh.2023.101408
167. Shin*, S, Y. Her, R. Muñoz-Carpena and Y. Xiao. 2023. Quantifying the contribution of external loadings and internal hydrodynamic processes to the water quality of Lake Okeechobee. *Sci. Total Env.* 883:163713 doi:10.1016/j.scitotenv.2023.163713
166. Shin, S., Y.Her, R. Muñoz-Carpena, and Y.P. Khare. 2023. Multi-parameter approaches for improved ensemble prediction accuracy in hydrology and water quality modeling. *J. Hydrology*doi:10.1016/j.jhydrol.2023.129458

165. Zhang, Y., R. Bhattarai and R. Muñoz-Carpena. 2023. Effectiveness of vegetative filter strips for sediment control from steep construction landscapes. *Catena* 226(2023):10705. doi:10.1016/j.catena.2023.107057
164. Griffith D., R. Muneepeerakul, G. Guerry, A. Carmona-Cabrero, J.C. Johnson. R. Muñoz-Carpena, M. Puma, U. Lall, M. Homayounfar. 2023. Migration and livelihood constellations: Assessing common themes in the face of environmental change in Somalia and among Agro-Pastoral peoples. *Int. Migr.* 2023(00):1–15. doi: 10.1111/imig.13122
163. Morgan*, S., R. Huffaker, R. Giménez, M.A. Campo-Bescos, R. Muñoz-Carpena, and G. Govers. 2023. Experimental evidence that rill-bed morphology is governed by emergent nonlinear spatial dynamics. *Scientific Reports*-Nature 12:21500. doi:10.1038/s41598-022-26114-0.
162. Reichenberger S., R. Sur, S. Sittig, S. Multsch, Á. Carmona-Cabrero, J.J. López and R. Muñoz-Carpena. 2023. Dynamic prediction of effective runoff sediment particle size for improved assessment of erosion mitigation efficiency with vegetative filter strips. *Sci. Total Env.* 857(3):159572. doi:10.1016/j.scitotenv.2022.159572

2022

161. Zhang*, C., G. Hoogenboom, M.A. Ritenour, S.M. Alam-Eldein, R. Muñoz-Carpena and S.A. Sargent. 2022. Modeling the relationship between air temperature and grapefruit quality traits. *Journal of the Science of Food and Agriculture.* doi: 10.1002/jsfa.12219
160. Oh*, W.S., A. Carmona-Cabrero, **R. Muñoz-Carpena**, R. Muneepeerakul. 2022. On the interplay among multiple factors: effects of factor configuration in a proof-of-concept migration agent-based model. *Journal of Artificial Societies and Social Simulation* 25(2):7. doi:10.18564/jasss.4793.

2021

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3. **Muñoz-Carpena, R**. and J. Álvarez-Benedí. 2005. "Preface". In: J. Álvarez-Benedí and R. Muñoz-Carpena (eds). Soil-Water-Solute Process Characterization. pp. v-xii. CRC Press LLC:Boca Raton.

2. Álvarez-Benedí, J., **R. Muñoz-Carpena** and M. Vanclooster. 2005. "Modeling as a characterization tool". In: J. Álvarez-Benedí and R. Muñoz-Carpena (eds). Soil-Water-Solute Process Characterization. Chapter 3. pp, 87-35. CRC Press LLC:Boca Raton.

1. Vanclooster M., J. Boesten, A. Tiktak, N. Jarvis, J.G. Kroes, **R. Muñoz-Carpena** , B.E. Clothier and S.R. Green. 2004. "On the use of unsaturated flow and transport models in nutrient and pesticide management". In: R.A. Feddes; G.H. de Rooij and J.C. van Dam (eds.) Unsaturated-Zone Modeling: Progress, Challenges and Applications. Chapter 11, pp. 331-361. Wageningen University and Research Centre, Wageningen, The Netherlands.

Creative works

a) Software. See details at https://abe.ufl.edu/faculty/carpena/software/

1. *VFSMOD-W*
   - Vegetative Filter Strip Modeling System.
2. *FITEVAL*
   - Program for objective assessment of model goodness-of-fit with statistical significance.
3. *PDunne*
   - Soil-saturated hydraulic conductivity calculation with the Philip-Dunne permeameter.
4. *HPC - Global Sensitivity and Uncertainty Analysis (GSUA)*
   - High Performance Computing scripts for GSUA (SLURM linux cluster compatible).

5. *VGPest3*
   - Program to fit van Genuchten's curve to experimental soil moisture retention data.
6. *WinGAmpt*
   - A Windows based teaching tool for Green-Ampt Infiltration for Unsteady Rainfall Model.
7. *SWINGO*
   - A Fortran comand line program to calculate infiltration for soils bounded by a shallow water table.
8. *Morris SU sampling*
   - A Matlab code for improved input factor sampling for Morris (elementary effect) global sensitivity analysis.
9. *MGAR 1D/3D*
   - A fortran program to calculate soil infiltration and redistribution from a series of storms using the MGAR method for 1D (vertical flow) and 3D (point source) conditions.
10. *Programas de Cálculo para Riego Localizado*
    - Drip Irrigation Design Suite (in Spanish)

b) Patents

1. Low Cost Automatic Weather Station. R. Muñoz-Carpena. Patent no. P9502391 (Spain, Portugal and Latin America). 1995
2. Quantified Soil Moisture-Based Irrigation Control System. M.D. Dukes, R. Muñoz-Carpena, L.W. Miller. UF#11415. US Patent Applied in 2004.

c) Videos (UF/ABE Biocomplexity Engineering YouTube Channel)

(https://www.youtube.com/playlist?list=PLU-Q9kmYD4CJ5EDDVIIE3iK5MyaOk9yEl)

1. *Detecting Pharmaceuticals in the Waterways (IFAS Video)*
2. *VFS Effectiveness to Mitigate Pesticides: Mechanistic Analysis with VFSMOD*
3. *Clearing Up The Scum*
4. *Socioecological effects of road construction in the Amazon*
5. *Unintended Consequences of Engineered Water Systems*
6. *Living with Thirst Part One*
7. *Living with Thirst Part Two*

Training of New Researchers

a) Doctoral students

This is a list of Ph.D. dissertations from students advised directly by Dr. Muñoz-Carpena (Chair or Co-Chair).

1. Taisha Venort. 2023. A landscape-scale approach to assess soil and hydrologic Ecosystem Services for sustainable food production - Case studies in Kenya and Tanzania. Ph.D. dissertation. [Gainesville, Fla.]: University of Florida. (Chairs: R. Muñoz–Carpena & Cheryl Palm)
2. Lory Willard. 2023. Quantitative modeling for analysis of water quality impacts in the developing region of Nanyuki, Kenya. Ph.D. dissertation. [Gainesville, Fla.]: University of Florida. (Chair: R. Muñoz–Carpena)
3. Alvaro Carmona-Cabrero. 2022. Coupling global sensitivity analysis with machine learning and agent-based models to disentangle complex system drivers: application to human refugee migration. Ph.D. dissertation. [Gainesville, Fla.]: University of Florida. (Chairs: R. Muñoz–Carpena & R. Muneepeerakul)
4. Enrique Orozco-López. 2020. Subsurface preferential flow and transport in riparian buffers. Ph.D. dissertation. [Gainesville, Fla.]: University of Florida. (Chairs: R. Muñoz–Carpena & B. Gao)
5. Ian K. Hahus. 2018. Impact of spatial resolution on predicting hydrology and ecological responses in the Arthur R. Marshall Loxahatchee National Wildlife Refuge, FL. Ph.D. dissertation. [Gainesville, Fla.]: University of Florida. (Chairs: K.W. Migliaccio & R. Muñoz–Carpena)
6. Geraldine Klarenberg. 2017. Hidden disturbance in regional vegetation dynamics from road paving in a coupled natural and human system: A case study from the Southwest Amazon. Ph.D. dissertation. [Gainesville, Fla.]: University of Florida. (Chairs: R. Muñoz–Carpena & G.A. Kiker)

7. Natalie G. Nelson. 2017. Quantifying the spatiotemporal importance of fresh-brackish water quality drivers using data analytics and models. Ph.D. dissertation. [Gainesville, Fla.]: University of Florida. (Chair: R. Muñoz–Carpena)
8. Alice Alonso. 2016. Novel quantification of long-term hydrological and landscape spatiotemporal dynamics of coupled natural human systems: the case study of the Tempisque-Palo Verde National Park coastal wetland, Costa Rica. Ph.D. dissertation. [Gainesville, Fla.]: University of Florida. (Chair: R. Muñoz–Carpena)
9. Yogesh P. Khare. 2014. Hydrologic and Water Quality Model Reliability With Global Sensitivity Analysis: Improvements and Applications. [Gainesville, Fla.]: University of Florida. (Chairs: Dr. Christopher J. Martinez and R. Muñoz–Carpena)
10. Isaya Kisekka. 2013. Modeling influences of canal stage raises on groundwater and soil water in the C-111 basin of south Florida. Ph.D. dissertation. [Gainesville, Fla.]: University of Florida. (Chairs: Dr. K.W. Migliaccio and R. Muñoz–Carpena)
11. Nathan Barasa Wangusi. 2013. Investigating the relationship of scale and resilience in integrated water resource management in the Crocodile River, South Africa. Ph.D. dissertation. [Gainesville, Fla.]: University of Florida. (Chairs: Dr. G.A. Kiker and R. Muñoz–Carpena)
12. Lei Wu. 2013. Filtration and transport of colloids and nanoparticles in dense emergent vegetation: theory, experiments and modeling. Ph.D. dissertation. [Gainesville, Fla.]: University of Florida. (Chairs: R. Muñoz-Carpena and B. Gao).
13. Congrong Yu. 2011. Colloids transport in surface runoff through dense vegetation. Ph.D. dissertation. [Gainesville, Fla.]: University of Florida. (Chairs: R. Muñoz-Carpena and B. Gao).
14. Anna M. Cathey Linhoss. 2011. Hydrology and fish population dynamics in the Okavango basin: managing for uncertainty in a data poor environment. Ph.D. dissertation. [Gainesville, Fla.]: University of Florida. (Chairs: R. Muñoz-Carpena and G.A. Kiker).
15. Chung T. Nguyen. 2011. Effects of a prescribed fire on soil nutrient pools in the pine rockland forest ecosystem. Ph.D. dissertation. [Gainesville, Fla.]: University of Florida. (Chairs: Y.Li and R. Muñoz-Carpena).
16. Gareth A. Lawerwall. 2011. Modeling *Typha Domingensi*s in an Everglades Wetland. Ph.D. dissertation. [Gainesville, Fla.]: University of Florida. (Chairs: Greg A. Kiker and R. Muñoz-Carpena).
17. Zuzanna B. Zajac. 2010. Global sensitivity and uncertainty analysis of hydrologic spatially distributed watershed models[3.8 MB].Ph.D. dissertation. [Gainesville, Fla.]: University of Florida. (Chairs: R. Muñoz-Carpena and Wendy D. Graham).
18. Oscar Pérez-Ovilla. 2010. A flexible numerical component to simulate biogeochemical transport processes through vegetative filter strips[3.3 MB].Ph.D. dissertation. [Gainesville, Fla.]: University of Florida. (Chair: R. Muñoz-Carpena).
19. Stuart J. Muller. 2010. Adaptive spatially-distributed water-quality modeling: an application to mechanistically simulate phosphorus conditions in the variable-density surface-waters of coastal Everglades wetlands[10.8 MB].Ph.D. dissertation. [Gainesville, Fla.]: University of Florida. (Chair: R. Muñoz-Carpena).
20. David D. Kaplan. 2010. Linking river, floodplain, and vadose zone hydrology in a coastal wetland impacted by saltwater intrusion : the Loxahatchee river (Florida, USA)[3.3 MB].Ph.D. dissertation. [Gainesville, Fla.]: University of Florida. http://purl.fcla.edu/fcla/etd/UFE0021213. (Chair: R. Muñoz-Carpena).
21. Leslie C. Gowdish. 2007. An improved Green-Ampt soil infiltration and redistribution method and its application to 1-dimensional and quasi 3-dimensional (point source) flow domains[3.3 MB].Ph.D. dissertation. [Gainesville, Fla.]: University of Florida. http://purl.fcla.edu/fcla/etd/UFE0021213. (Chair: R. Muñoz-Carpena).
22. Yi-Ming Kuo. 2007. Vegetative filter strips to control surface runoff phosphorus transport from mining sand tailings in the Upper Peace River basin of central Florida[3.3 MB].Ph.D. dissertation. [Gainesville, Fla.]: University of Florida. http://purl.fcla.edu/fcla/etd/UFE0021212. (Chair: R. Muñoz-Carpena).
23. Axel Ritter. 2002. Application of inverse optimization techniques to modeling flow and solute transport in volcanic soils as a tool to evaluate current management practices[3.1 MB].Ph.D. dissertation. [Cordoba, Spain]: University of Córdoba. (Chair: R. Muñoz-Carpena).

b) Masters students

This is a list of Masters thesis from students advised directly by Dr. Muñoz-Carpena (Chair or Co-Chair).

1. Kathleleen Vazquez. 2017. Statistical and mechanistic analysis of bacterial water quality to evaluate and inform food safety agricultural water regulations . M.Sc. Thesis. [Gainesville, Fla.]: University of Florida (Advisors: R. Muñoz-Carpena & Arie Havelaar).
2. Luis Pablo Barquín-Valle, 2009. Modeling shallow groundwater table contribution to soil water retention in the unsaturated zone of a calcareous soil of south Florida. M.Sc. thesis. [Gainesville, Fla.]: University of Florida. http://purl.fcla.edu/fcla/etd/UFE0025060. (Advisors: K.W. Migliaccio and R. Muñoz-Carpena).
3. Manon Bachelin, 2009. Water Balance, Seasonal Hydroperiod Variation and Time of Residence of a Small Natural Freshwater Wetlands in the Humid Tropics in Costa Rica. M.Sc. thesis. Civil and Environmental Engineering, Swiss Federal Institutes of Technology (EPFL), Laussane, Switzerland. (Advisors: R. Muñoz-Carpena and A. Rinaldo).
4. Jason T. Icerman, 2007. Approaches for two-dimensional monitoring and numerical modeling of drip systems. M.Sc. thesis. [Gainesville, Fla.]: University of Florida. http://purl.fcla.edu/fcla/etd/UFE0021417. (Advisors: M.D. Dukes and R. Muñoz-Carpena).
5. Amanda E.Mortl, 2006. Monitoring soil moisture and soil water salinity in the Loxahatchee floodplain[4.8 MB]. M.Sc. thesis. [Gainesville, Fla.]: University of Florida. http://purl.fcla.edu/fcla/etd/UFE0015734. (Advisor: R. Muñoz-Carpena).
6. Jonathan H. Schroder. 2006. Soil moisture-based drip irrigation for efficient use of water and nutrients and sustainability of vegetables cropped on coarse soils. M.Sc. thesis. [Gainesville, Fla.]: University of Florida. http://purl.fcla.edu/fcla/etd/UFE0014283. (Advisor: R. Muñoz-Carpena).
7. Martin Morawietz. 2003. The Biscayne aquifer: a local groundwater study in the agricultural areas adjacent to the Everglades National Park, south Florida. M.Sc.thesis (Diplomarbeit) Institute of Hydrology, Freiburg: Universität Freiburg, Germany. (Advisor: R. Muñoz-Carpena).

c) Post-doctoral researchers

15 postdocs supervised and mentored by Dr. Muñoz-Carpena. He has been recognized with the 2013 National Postdoctoral Association Garnett-Powers & Associates Advisor of the Year Award.

d) Graduate student Awards

Honors for graduate students under Dr. Muñoz-Carpena's direct supervision.

1. **2023 Yue Zhang** (Ph.D. ABE), Best Poster Presentation Award, Intl. Conf. on Sust. Soil Waste Treat. Manag. (SWTM)
2. **2023 Lory Willard** (Ph.D. ABE)**,** UF ABE Poster Symposium – 1st Prize
3. **2022 Yicheng Tang** (Ph.D. ABE), UF CALS M. Glenn and A. W. Morton Scholarship
4. **2022 Yicheng Tang** (Ph.D. ABE), Florida Stormwater Association, Educational Foundation Scholarships
5. **2022 Mert Canatan** (Ph.D. ABE), UF ABE Three Minute Thesis Competition (3MT), 3rd Prize
6. **2022 Lory Willard** (Ph.D. ABE)**,** UF Research Abroad for Doctoral Students Award
7. **2021 Yue Zhang** (Ph.D. ABE)**,** Travel Grant Award, UF Graduate Student Council (GSC)
8. **2021 Yue Zhang** (Ph.D. ABE)**,** Best Nano-Agriculture Poster, National Nanotechnology Day (NanoDay)
9. **2021 Yue Zhang** (Ph.D. ABE)**,** Alpha Epsilon Honor Society, Am. Soc. Agric. and Biol. Engineering (ASABE)
10. **2021 Yicheng Tang** (Ph.D. ABE), UF ABE Three Minute Thesis Competition (3MT), 2nd Prize
11. **2021 Yicheng Tang** (Ph.D. ABE), Travel Grant Award, UF Graduate Student Council (GSC)**2020 Yicheng Tang** (Ph.D. ABE), Best Nano-Agriculture Poster, National Nanotechnology Day (NanoDay)
12. **2021 Mert Canatan** (Ph.D. ABE)**,** UF ABE Pathfinder Fellowship
13. **2019 Yue Zhang** (Ph.D. ABE)**,** Outstanding volunteer award, Intl. Conf. on Sust. Soil Waste Treat. Manag. (SWTM)
14. **2019 Taisha Venort** (Ph.D. ABE), Corteva Agriscience DELTA research grant award.
15. **2019 Lory Willard** (Ph.D. ABE)**,** UF ABE Ken and Cindy Campbell Graduate Fellowship
16. **2018 Taisha Venort** (Ph.D. ABE), UF McKnight doctoral fellowship
17. **2018 Taisha Venort** (Ph.D. ABE), UF ABE Ken & Cindy Campbell travel award
18. **2018 Lory Willard** (Ph.D. ABE), UF ABE Graduate Fellowship
19. **2017 Natalie Nelson** (Ph.D. ABE)**.** UF/IFAS Best Doctoral Dissertation Award.

20. **2015 Alice Alonso** (Ph.D. ABE). UF ABE McNair Bostic Scholarship
21. **2015 Nicolas Stipo** (MSc. UCL, Belgium). OTS (Org. Trop. Studies) Research Fellowship Recipient (~$4000)
22. **2014 Alice Alonso** (Ph.D. ABE)**.** UF-ABE Poster Symposium. Hon. Mention.
23. **2014 Alice Alonso** (Ph.D. ABE)**.** William V. Storch Award (AWRA). ($1500)
24. **2014 Alice Alonso** (Ph.D. ABE)**.** OTS Research Fellowship Recipient. ($2630)
25. **2014 Alice Alonso** (Ph.D. ABE). UF Tropical Cons. Development Field Research Fellow. ($1500)
26. **2014 Alice Alonso** (Ph.D. ABE)**.** UF Grinter Fellowship Award. ($3600)
27. **2014 Yogesh Khare** (Ph.D. ABE). UF ABE McNair Bostic Scholarship
28. **2014 N. Nelson** (Ph.D. ABE)**.** Richard A. Herbert Memorial Scholarship, Am. Water Resour. Assoc. (AWRA)
29. **2014 N. Nelson** (Ph.D. ABE)**.** ASABE Student Video Competition, 1st Place, (National Team Award).
30. **2014 N. Nelson** (Ph.D. ABE). US EPA Campus RainWorks Challenge: 1st Team Place Master Plan Category
31. **2014 N. Nelson** (Ph.D. ABE)**.** Am. Soc. Ag. Biol. Eng. (ASABE) Robert Stewart Engineering-Humanities National Award.
32. **2014 N. Nelson** (Ph.D. ABE). UF ABE Research Poster Competition, 1st Place
33. **2014 N. Nelson** (Ph.D. ABE). UF CALS A.S. Herlong Sr. Graduate Scholarship, 2 years
34. **2014 N. Nelson** (Ph.D. ABE). Sanford N. Young Scholarship, Am. Water Resour. Assoc.
35. **2014 N. Nelson** (Ph.D. ABE). Florida Section, ASABE Student Speaker Award, 1st Place
36. **2014 N. Nelson** (Ph.D. ABE). University Women's Club, Graduate Scholarship
37. **2014 N. Nelson** (Ph.D. ABE), ABE Three Minute Thesis Competition (3MT), 3rd Prize
38. **2014 N. Nelson** (Ph.D. ABE). UF Water Institute Symposium, Best Graduate Student Poster Award
39. **2013 Yoguesh Khare.** (Ph.D. ABE). UF International Center, Alec Courtosis International Student Award.
40. **2013 Natalie Nelson,** EPA Campus RainWorks Award, April 2013.
41. **2010. David Kaplan** (Ph.D. ABE). Gamma Sigma Delta Graduate Student Award of Merit
42. **2010. Stuart Muller** (Ph.D. ABE). Florida Section, ASABE Student Speaker Award, 1st Place
43. **2010. Anna Cathey** (Ph.D. ABE). UF CALS James Davidson Graduate Travel Scholarship
44. **2009. Anna Cathey** (Ph.D. ABE). Ecological Society of America Travel Award, 2009 Millennium Conference.
45. **2010. Anna Cathey** (Ph.D. ABE). NSF-IGERT Travel Award to National Conference, "Living with Thirst" science video.
46. **2009. Oscar Pérez-Ovilla** (Ph.D, ABE). UF College of Engineering, Outstanding International Student Certificate of Excellence.
47. **2009. Stuart Muller** (Ph.D. ABE). UF CALS James Davidson Graduate Travel Scholarship
48. **2009. David Kaplan** (Ph.D. ABE). UF ABE McNair Bostick Scholarship for Research in Agricultural and Natural Resource Systems.
49. **2009. David Kaplan** (Ph.D. ABE). Student Speaker Award, 1st Place, Florida Section, ASABE
50. **2009. David Kaplan** (Ph.D. ABE). Travel Awards for research in Costa Rica: UF Office of Research, UF IFAS, UF Graduate Student Council
51. **2009. Zuzanna Zajac** (Ph.D. ABE). UF CALS James Davidson Graduate Travel Scholarship
52. **2008. Zuzanna Zajac** (Ph.D. ABE). Student Speaker Award, 1st Place, Florida Section, ASABE
53. **2008. Stuart Muller** (Ph.D. ABE). Florida Society of Environmental Analysts Travel Scholarship. St. Petersburg, FL.
54. **2007. Zuzanna Zajac** (Ph.D. ABE). Journal *Trans. of ASABE*. Outstanding paper.
55. **2007. Stuart Muller** (Ph.D. ABE). UF CALS Alec Courtelis Award 2007
56. **2005. Stuart Muller** (Ph.D. ABE). Storch Scholarship, Am. Water Resour. Assoc. (AWRA).
57. **2004. Stuart Muller** (Ph.D. ABE). UF International Center. Certificate of Merit