

**Rafael Muñoz-Carpena, Ph.D., Professor**

Agricultural & Biological Engineering Department , University of Florida  
Gainesville Florida 32611-0570 (USA), carpena@ufl.edu ; <http://abe.ufl.edu/carpena/>

**(a) Professional Preparation**

Universidad Politécnica Madrid	Madrid, Spain	Agricultural Engineering	B.Sc./M.S. 1989
North Carolina St. University	Raleigh, NC,	Biological & Agricultural Engineer	Ph.D. 1993

**(b) Appointments**

2019-2020 (Sabbatical) Professor in Residence, Universidad Pública de Navarra , Pamplona, Spain  
2018 Interim Chair, Agricultural & Biological Engineering, University of Florida  
2011-pres. Full Professor, Agricultural & Biological Engineering, University of Florida  
2010-2011 (Sabbatical) 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.

**(c) Specialization**

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

**(d) Selected Publications** (\*Graduate student chair; \*\*Postdoc mentored)

*Impact* (Google Scholar, <http://goo.gl/8OMS7s>): citations= 8500+, h-index= 46, i10-index= 142  
Medina M.\*, R. Huffaker, R. Muñoz-Carpena and G. Kiker. 2021. An empirical nonlinear dynamics approach to analyzing emergent behavior of agent-based models. *AIP Advances*11:035133. doi:10.1063/5.0023116  
Nelson, N.G.\*, R. Muñoz-Carpena, and E. Philips. 2020. Parameter uncertainty drives important incongruities between simulated chlorophyll-a and phytoplankton functional group dynamics in a mechanistic management model. *Env. Modeling & Soft.* 129:104708. doi:10.1016/j.envsoft.2020.104708.  
Klarenberg, G.\*, R. Muñoz-Carpena, S. Perz, C. Baraloto, M. Marsik, J. Southworth, L. Zhu. 2019. A spatiotemporal natural-human database to evaluate road development impacts in an Amazon trinational frontier. *Nature Sci. Data* 6:93. doi:10.1038/s41597-019-0093-7  
Rodea-Palomares, I\*\*, M. González-Pleiter, S. Gonzalo, R. Rosal, F. Leganés, M. Casellas, R. Muñoz-Carpena, F. Fernandez-Piñas. 2016. Hidden drivers of low-dose pharmaceutical pollutant mixtures revealed by the novel GSA-QHTS screening method. *Science Adv. (AAAS)* 2(9):e1601272. doi: 10.1126/sciadv.1601272.  
Huffaker, R., R. Muñoz-Carpena, M. Campo-Bescos and J. Southworth. 2016. Demonstrating correspondence between decision-support models and dynamics of real-world environmental systems . *Env. Modeling & Soft.* 83:74-87, doi:10.1016/j.envsoft.2016.04.024  
Khare\*, Y.P., R. Muñoz-Carpena, R.W. Rooney. and C.J. Martinez. 2015. A multi-criteria trajectory-based parameter sampling strategy for the screening method of elementary effects. *Environmental Modelling & Software* 64:230-239. doi:10.1016/j.envsoft.2014.11.013.  
Shrivastava\*, V., W.D. Graham, R. Muñoz-Carpena and R. Maxwell. 2014. Insights on geologic and vegetative controls over hydrologic behavior of a large complex basin - Global Sensitivity Analysis of an Integrated Parallel Hydrologic Model. *J. of Hydrology* 519(B):2238–2257.  
Chu-Agor\*\*, M.L., J.A. Guzman, R. Muñoz-Carpena, G.A. Kiker, I. Linkov. 2014. A simplified approach for simulating changes in beach habitat due to the combine effects of long-term sea level rise, storm erosion, and nourishment. *Env. Model. & Software* 52:111-120.

Ritter, A. and R. Muñoz-Carpena. 2013. Predictive ability of hydrological models: objective assessment of goodness-of-fit with statistical significance. *J. of Hydrology* 480(1):33-45.

Chu-Agor\*\*, M.L., R. Muñoz-Carpena, G. Kiker, A. Emanuelsson and I. Linkov. 2011. Exploring sea level rise vulnerability of coastal habitats through global sensitivity and uncertainty analysis. *Env. Model. & Software* 26(5):593-604. doi:10.1016/j.envsoft.2010.12.003.

#### **(e) Awards and Honors**

2021 North Carolina State University CALS Outstanding Alumnus Award

2020 Fellow of AAAS (American Association for the Advancement of Science)

2018 UF/IFAS Graduate Research Excellence Award: Best Dissertation Advisor

2018 ASABE Standards Development Award, EP621 Jun2017

2017 UF Term Professorship (2017-2020)

2017 UF/IFAS High Impact Research Publication Award. *Science Adv.* doi: 10.1126/sciadv.1601272

2016 UF Postdoc Mentoring Award, UF Office of Postdoctoral Affairs

2016 FL-ASABE Distinguished Achievement Award (Amer. Soc. of Agric. & Biological Engineers)

2015 Royal Academy of Engineers of Spain, Corresponding Member (<http://raing.es>)

2015 Fellow of the ASABE (American Society of Agricultural and Biological Engineers)

2015 ASABE ADS/Hancor Soil Water Engineering National Award.

2013 UF Water Institute Faculty Fellow (<http://waterinstitute.ufl.edu/people/facultyfellows.html>)

2013 National Postdoctoral Association (NPA) Mentoring Award, <https://goo.gl/PVBh1y>

2013 EWRI-ASCE Best Paper Award, *J. Irr. and Drain. Eng.*

2011 UF Research Foundation Professor

2010 Junior Faculty Award of Merit Gamma Sigma Delta, Honor Society of Agriculture

2009 FL-ASABE Special Recognition Award (American Society of Agric. & Biological Engineers)

2008 UF/IFAS LEAD Diploma

2008 UF/IFAS International Achievement Award

2008 Teacher's College Diploma, College of Agriculture and Life Sciences (CALS)

2003 Certificate of Appreciation, USDA-Foreign Agricultural Service

1999 Paper of ASAE Award, Hydrology Mini-Symposium.

#### **(f) Other Synergistic Activities:**

1. *Journal and Book Editor*: Editor-in-Chief (current), Elsevier's *Journal of Hydrology Regional Studies*; Associate Editor, 2004-2010 *Transactions of ASABE and Applied Engineering in Agriculture*; Associate editor for 3 special issues of peer-reviewed journals (*Vadose Zone Journal*, *Trans. of ASABE*, *Physics and Chemistry of the Earth, Part B*); Co-editor of CRC/Lewis book with 53 international contributors
2. *NSF Funded Student development*: NSF GRF doctoral advisor, Ms. N. Nelson (started Fall 2012); NSF-REU Program, Summer 2012, faculty mentor for Wen Yang; Advisory Board 2009-2012, NSF-Innov. through Institutional Integration (I3); 2007-2011 NSF IGERT doctoral advisor, A.C. Linhoss
3. *Federal Projects Panelist*: NSF, USDA/ARS, USDA/NRI, EPA, NAS.
4. *Research Advisory Board Membership*: 2009-2012, UF Water Institute (campus wide); 2002- , Spanish Unsaturated Studies group ZNS, Spain; 2012-2014, UF/IFAS Dean of Research; UF/IFAS International Programs; 2008-, High Performance Computing Center, University of Florida (Campus wide); Ext. Advisory Board, 2015-2018, Inst. for Earth System Research (IISTA), Spain
5. *Scientific and Professional Societies*: American Association for the Advancement of Science (AAAS), Fellow 2020, Member 2012-; 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-; Member, American Geophysical Union (AGU), 1993-.