

ALICE
ALONSO

Université catholique de Louvain - Earth and Life Institute - Environmental Sciences

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Ph.D. **Land & Water Resources in a Changing World**

Updated 01/2018

PROFESSIONAL TRAINING

Education

- Ph.D. in Land and Water Resources Engineering* April 2016
Dept. of Agricultural and Biological Engineering
University of Florida (UF), Gainesville, FL, USA
Advisor: Prof. Rafael Muñoz-Carpena. GPA: 3.7/4.0.
- B.S. and M.S. in Bioscience and Agricultural Engineering, Soil and Water Resources* 2010
Université catholique de Louvain (UCL), Belgium
Graduated Cum Laud
- Erasmus Exchange Program* 2009
Universidad de Córdoba, Spain

Short Courses

- Remote Sensing and Hydrology Workshop* 2016
NASA and Consortium of Universities for the Advancement of Hydrologic Science, Inc.
(CUAHSI). Biosphere 2, AZ, USA
- Google Earth Engine User Summit* 2015
Google Headquarters, Mountain View, CA, USA

Graduate Coursework (Selection)

General Hydrology; Soil Physics; Hydraulics; Soil and Water Environmental Degradation: Causes, Processes and Controls; Soil Management and Conservation; Hydraulic Engineering Applied to Irrigation Systems; Integrated Water Resources Management; Stochastic Subsurface Hydrology; Data Diagnostic; Wetland Ecology; Data Analysis Techniques for Coastal and Ocean Engineers; Grant Writing.

PROFESSIONAL EXPERIENCE

Postdoctoral Research Fellow, Université catholique de Louvain, Belgium May 2017 - present
Earth and Life Institute - Environmental Sciences
Supervisor : Prof. Marnik Vanclooster

KLIMOS-ACROPOLIS project: Generate capacity for a sustainable transition

- Research activities aim for (1) monitoring and evaluating the state of the land and water resources; and (2) the sustainable management of land and water resources for multiple ecosystem services.
- Knowledge shared with stakeholders at the governmental and non-governmental organizations and the private sector through seminars, policy briefs, and consultancy desk.

Postdoctoral Research Fellow, University of Florida, Gainesville, FL, USA April 2017
Dept. of Agricultural and Biological Engineering
Supervisor: Prof. Cheryl Palm

Sustainable Intensification Indicator Lab (SIIL) project: Meta-analysis of a massive database of socio-economic, agricultural, and environmental data collected in Tanzania as part of the Vital Sign monitoring system to advance the understanding of the linkages between agricultural intensification, human well-being, and environmental degradation. Collaborative effort with Prof. Cheryl Palm (UF), Dr. Mark Musumba (UF) and Geraldine Klarenberg (UF).

Project ongoing to this date.

Teaching and Research Appointments

Teaching Assistant and Lab Instructor: Land and Water Resources Engineering undergraduate course 2014

Dept. of Agricultural and Biological Engineering, University of Florida
Teaching, training, and mentoring of students

Teaching Assistant and Lab Instructor: Soil and Water Resources Management Graduate Program 2011-2012

Dept. of Agricultural and Biological Engineering, Université catholique de Louvain
Teaching, training, and mentoring of students for the courses of Integrated Water Resources Management; Introduction to Hydrology; Vadose Zone Hydrodynamic; Material Resistance.

Position part-time coupled with research attributions (0.5 / 0.5)

Research Associate 2011-2012

Earth and Life Institute – Environmental Sciences, Université catholique de Louvain
Supervisor: Prof. Charles Biélers
INFOSOL project: Development of Indicators of Soil Hydrological Functions
Comparison of comprehensive in-situ and lab measurements to characterize diverse agricultural soils with transect-scale, long-term water fluxes modeled with HYDRUS 2D. Derivation of indicators of soil functioning to support a rigorous yet more easily implementable assessment of agricultural soil quality (Collaborative project).

Mentorship and Training

Master and PhD Student Mentorships 2017 – present

- Co-supervisor of Pierre Snosnowski (Université catholique de Louvain) for his doctoral dissertation. Dissertation title: *Advancing the understanding and modelling of wetland hydrology, and assessing hydrological alteration. Case study in the Palo Verde wetland (Costa Rica).*

- Supervisory committee member of Nicolas Stipo (Université catholique de Louvain,). Thesis title: *Characterization and modeling of water infiltration in a swelling soil in the Palo Verde National Park, Costa Rica.* 2014-2015

- Mentor of Carlos García de Vinuesa Llamas (Université catholique de Louvain and Universidad Politécnica de Madrid). Thesis title: *Modeling of Tempisque river watershed in NW Costa Rica using transfer function models.* 2013 - 2014

Training of Research Scientific Staff at the Organization for Tropical Studies (Palo Verde National Park, Costa Rica) at the term of which the staff acquired full-autonomy for installation and maintenance of a hydro-climatic monitoring network, monthly data upload, quality assurance and control, and storage on a web-based server. 2013-2016

Internships and Work Experience in Projects Supporting Developing Countries

Repetitive stays at the Organization for Tropical Studies Research Station at the Palo Verde National Park, Costa Rica 2013- 2016

Training of the scientific staff, get acquainted with the system and region, and collect required data from the field and local/regional/national institutions.

- Stay at the Eastern Observatory of Water and Environment, Université Mohammed I, Oujda, Morocco for Master's thesis project (1.5 month).* 2009
 Conducted surveys with farmers, water samples collection and lab physico-chemical analysis.
- Intern at the Malagasy Farming Association 'Fekritama'* 2007
 Antananarivo, Tsiroanomandidy and Ambararatabe, Madagascar.
 Undergraduate program internship (1 month).
 Accompanied a farmer and active member of Fekritama in administrative tasks and meetings at the regional and national headquarters, outreach meetings in local communities, and daily agricultural work.

PUBLICATIONS

Peer-Reviewed Journal Articles

- Alonso, A., Muñoz-Carpena, R., Robert, K., and Murcia, C. 2016. Wetland landscape spatio-temporal degradation dynamics using the new Google Earth Engine cloud-based platform: opportunities for non-specialists in remote sensing. *Transaction of the ASABE* 59(4). doi:10.13031/trans.59.11608
- Alonso, A., Muñoz-Carpena, R., Kaplan, D. 2017. Wetness Status Spectral Identification Rule coupling high resolution field monitoring and remote sensing data for reconstructing wetlands historical hydroperiod (Under review in *Remote Sensing of the Environment*)
- Alonso, A., Feltz, N., Vanclooster, M. Integrated Assessment of Irrigation System Performance under Transition: A case study in the Triffa Agricultural district, NE Morocco (Under review in *Agricultural Water Management*)
- Alonso, A., Muñoz-Carpena, R., and Valle-Levinson, A. 2017. Paradoxical evidence of increase in flooding in a coastal wetland caused by upland overuse and drying of a river (In preparation for submission to *Geophysical Research Letters*)
- Alonso, A., Muñoz-Carpena, R., Murcia, C., Sasa, M., Serrano, J., Pazmino, M. 2017. A hydro-meteorological database to unravel the effects of an inter-basin water transfer project on the Tempisque watershed and downstream Palo Verde National Park wetland (In preparation for submission to *Nature Scientific Data*)

Scientific and Technical Reports (non-refereed)

- Alonso, A. 2013: Palo Verde National Park hydrological instrumentation network: Guide for field data collection and upload on the Hydrobase server. Spanish version only.
- Bielders, C., Alonso, A., Germeau, M., Laloy, E., Matern, S., Javaux, M., Roisin, C., Vanclooster, M. 2013. Towards indicator of soil functioning: Methodological approach for soil hydric regulation and plant physical support. 102 p. French version only.

Ph.D. Dissertation and Master Thesis

- Alonso, A. 2017: 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.
- Alonso, A. 2010: Assessing water quality and pollution origin of the Bou-Areg aquifer (NE Morocco). Advisor: Prof. Marnik Vanclooster. Rewarded by the CERA price for best master thesis.

HONORS & AWARDS

Traveling and Field Research Grants: CUAHSI Instrumentation Discovery Travel Grant (\$1,000; 2016); CUAHSI Student Travel Grant (\$500, 2016); Fellow for the Google Earth Engine Summit (2015); Organization for Tropical Studies Research Fellowship Recipient (\$2,600; 2014); UF-Tropical Conservation and Development Field Research Grant Fellow (\$1,500; 2014)

University of Florida – Dept. of Agricultural and Biological Engineering Graduate Student Assistantship. \$22,000/year and tuition waiver for four years (2012-2016)

Let's Talk About Water. \$6,000 including matching funds by Consortium of Universities for the Advancement of Hydrologic Science, Inc. and University of Florida Water Institute. Team award. (2015)

American Water Resources Association Annual Conference Poster Symposium. 1st place (\$250; 2015)

2015 Annual UF-ABE Department Poster Symposium. 1st place (\$250; 2015)

R. A. Herbert Scholarship (American Water Resources Association) for excellence in research in water resources (\$2,000; 2015)

S.N. Young Scholarship (Florida Section of American Water Resources Association) for excellence in research in water resources (\$2,000; 2015)

McNair Bostick Scholarship for research in Agricultural and Natural Resource Systems (\$500; 2014)

2014 Annual UF-ABE Department Poster Symposium. Honorable mention.

W.V. Storch Award (Florida section of American Water Resources Association) for Research in Water Resources (\$1500; 2014)

Grinter Fellowship Award. (\$3,600/year; 2013 & 2014)

CERA Award. Best Master Thesis Award. Université catholique de Louvain – Bioscience and Agricultural Engineering Department (€1,000; 2010)

Forem TransEurop Grant Fellow for an abroad internship (\$3,000; 2010)

PROFESSIONAL LEADERSHIP, SERVICES & SYNERGISTIC ACTIVITIES

Coordinator and co-PI for international and interdisciplinary Joint Water JPI Call 2017. Title: Watershed Diagnostic Toolbox for disentangling the drivers and dynamics of water systems. Total requested funding: 982,927€. Submitted in December 2017. Decision pending.

Co-PI on a FRIA proposal (Competitive call from Belgian National Fund for Scientific Research to cover 4-year scholarship for a graduate student): Protect wetlands through informed management: Advancing the understanding and modelling of wetland hydrology, and assessing hydrological alteration. Case study in the Palo Verde wetland (Costa Rica). 2017. Final grading: A – Excellent. Decision of the board of the trustees: Rejection due to lack of financial means. We received a one-year UCL-FSR scholarship exceptionally granted to well highly ranked students who did not obtained the FRIA, in order to prepare for a re-submission in 2018.

Assistant to the Editor-in-Chief of the Journal of Hydrology: Regional Studies for the Americas (Elsevier). Handling of manuscripts, including initial triage, reviewer assignments, and revisions (2016)

UF - Let's Talk About Water event. Initiator and Coordinator. Documentary and debate with a panel of experts to raise awareness and encourage campus-wide discussion about water issue challenges. Sponsored by CUAHSI Let's Talk About Water Challenge Grants program and UF-Water Institute (February 2016)

American Water Resources Association - UF Chapter. President (2014-15); Vice-President (2013-14)

Mentor-Mentee Program at the UF-ABE Dept. Initiator team member and Chair (2014)

Community Support Agriculture "GAC'ôté de chez Vous". Treasurer. Louvain-la-Neuve (Belgium, 2011)

Volunteer Trainee in and Vegetable and Citrus Organic Farm. Fellow of the TransEurop Grant. Murcia, Spain (4 months, 2010)

Nonprofit Association Ave Planète Terre. Active member. Louvain-la-Neuve (Belgium, 2008-2010)

Numerous and varied remunerated student jobs during weeks, WE and holidays (baby-sitting, bakery saleswoman, restaurant waitress and trilingual touristic guide mainly) (2002 – 2010)

Youth Organization Les Scouts. Leader. Belgium (2005 – 2008)

NGO Damien Foundation. Volunteer for the fundraising and building of a community clinic in India (1 month, 2005)

TECHNICAL SKILLS

Data visualization and analysis; Modelling; Uncertainty and sensitivity analysis

Programming Languages

Matlab and some of R, Unix, Python and JavaScript

GIS and Remote Sensing

ArcGIS and Google Earth *Engine*

Field and Lab Work

Three projects with strong field work components:

- Sub and Surface Water in Morocco (Master thesis, 2010): synoptic sampling for physicochemical and nitrate isotopic analysis (isotopic analysis conducted by a specialized lab)
- Soils in Belgium (INFOSOL project, 2011-2012): synoptic soil sampling and laboratory analysis for textural, structural and hydraulic properties (infiltrometer, sand bed / pressure pan, suction cups, Multi-Step Outflow)
- Water and meteorology in Costa Rica (Ph.D. project, 2012-2016): design, installation and supervision of a hydro-meteorological instrumentation network (multi-parameter self-contained sensors and wireless cellular data loggers; 12 stations; 110+ sensors total). Three+ years of continuous monitoring. Bi-annual field visits, and continuous communication with the in-situ research station staff for data transmission and rapid response in the event of detected malfunctions. Synoptic sampling for physico-chemical lab analysis and flow profiling, including tidal rivers salinity longitudinal and transversal profiling, and repeated continuous tidal rivers velocity 2D transects during the 12-hour tidal cycles. Organization and processing of collected data.

Languages

French (native), English and Spanish (professional working proficiency), Dutch (limited proficiency)

COMMUNICATION & ORGANISATIONAL SKILLS

- Synthetic and technical writing (peer-reviewed papers, technical and scientific reports, proposals) and graphical skills (maps and charts)
- Active listening
- Self-motivated
- Autonomous
- Leadership
- Ability to work in a team, and collaborate with colleagues, partners, and technical staff
- Adaptability in challenging environments, locally or abroad
- Ability to meet the projects standards in terms of output quality, documentation, and deadlines
- Reliable

PRESENTATIONS

Platform Presentations (Selection)

- Alonso, A.; Kaplan, D.; Muñoz-Carpena, R. Combining field monitoring with remote sensing to reconstruct historical hydroperiod in a degrading tropical wetland. **2017 AGU Fall Meeting**, New Orleans, LA-USA, December 2017.
- Alonso, A.; Vanclooster M.: Conversion to new irrigation technologies in Maghreb region: Promises and drawbacks. Policy lessons from Morocco and neighbouring countries. **KLIMOS seminars. FPS Foreign Affairs and Development Cooperation**. Brussels, Belgium. October 2017.
- Alonso, A.; Vanclooster M.: Land and water monitoring for the indicators of Sustainable Development Goals: Advance and challenges. **KLIMOS seminars. FPS Foreign Affairs and Development Cooperation**. Brussels, Belgium. September 2017.
- Alonso, A.; Muñoz-Carpena, R.: Google Earth Engine: An unprecedented tool to study spatiotemporal landscape dynamics. **ASABE Annual International Meeting**. Orlando, FL-USA July 2016.
- Alonso, A.; Muñoz-Carpena, R., Kennedy R., Murcia C.: Google Earth Engine: an unprecedented tool to study spatiotemporal landscape dynamics. Introduction for and by non-specialists in remote sensing. **AgSystems Seminar series**, UF-ABE, Gainesville, FL-USA, May 2016. **Invited**.
- Alonso, A.; Muñoz-Carpena, R., Valle-Levinson, A.: Can upstream anthropogenic activities reshape the tidal Influence on a downstream wetland? **South Florida Water Management Annual Conference**, Ft Myer, FL-USA, January 2016. **Invited**.
- Alonso, A.; Muñoz-Carpena, R.: Underlying dynamics of a complex engineered watershed and downstream degraded wetland to inform sustainable water management. **FASABE Annual Conference**. Ponte Vedra, FL-USA, June 2015.
- Alonso, A.; Muñoz-Carpena, R.; Campo-Bescós, M.A.; Huffaker, R.: Towards sustainable management of water resources in complex engineered water systems: a case study in a NW Costa Rican Watershed. **FASABE Annual Conference**. Naples, FL-USA. June 2014.
- Alonso, A.; Biielders, C.; Germeau, M. et al. Soil functioning indicators (INFOSOL): a methodological approach for developing and assessing dynamic soil functions within the soil protection strategy context. **4th International Congress EUROSOIL**, Bari, Italy. July 2012.

Poster Presentations (Selection)

- Alonso, A.; Muñoz-Carpena, R., Valle-Levinson, A., Murcia, C.; Can flow alteration in a tidal river redefine the structure of the Palo Verde Marsh? **5th UF Water Institute Symposium: Trends, Cycles and Extreme Events**. February 2016, Gainesville, FL-USA.
- Alonso, A.; Muñoz-Carpena, R.; Kennedy, R.E.; Murcia, C.: Google Earth Engine: an unprecedented tool to study Spatiotemporal Landscape Dynamics. **UF- ABE Department Poster Symposium**. Gainesville, FL. October 2015 & **AWRA Annual Conference**. Denver, CO-USA. 2015.
- Alonso, A.; Muñoz-Carpena, R.; Campo-Bescós, M.; Murcia, C.; Sasa, M.: Hydrological data collection in a Costa Rican watershed and its downstream remote wetland: Challenges, methodology and lessons learned. **UF- ABE Department Poster Symposium**. Gainesville, FL-USA. October 2014 & **CUAHSI Virtual Workshop on Field Data Management Solutions**. October 2014.
- Alonso, A.; Muñoz-Carpena, R.; Campo-Bescós, M.A.; Kiker, G.A. Towards a sustainable management of water resources: Understanding the interactions between anthropogenic activities and natural systems. A case study in the Tempisque-Bebedero watershed, NW Costa-Rica project overview and first steps. **FASABE Annual Conference**. St-Augustine, FL-USA. June 2013.
- Alonso, A.; Biielders, C.; Germeau, M. et al. INFOSOL Project: towards the development of soil functioning indicators. **EGU General Assembly**, Vienna, Austria. April 2011.
- Alonso, A.; Sbaa, M.; Vanclooster. M. Assessing water quality and pollution origin of the Bou-Areg aquifer (north east Morocco). **EGU General Assembly**, Vienna, Austria. April 2011.