

LAURA V. ALVAREZ, PhD
Assistant Professor, Department of Earth, Environmental and Resource Sciences,
University of Texas at El Paso

I. CONTACT INFORMATION

Office Phone: (405) 4414434

Email Address: alvarez@utep.edu

II. EDUCATION AND TRAINING

Doctor of Philosophy in Geography Aug 2011 –May 2015
School of Geographical Sciences and Urban Planning
Arizona State University, Tempe, Arizona

Master of Arts in Geography Aug 2008 – Aug 2010
School of Geographical Sciences and Urban Planning
Arizona State University, Tempe, Arizona

Bachelor of Engineering with Honors Aug 2001 - Sept 2007
Civil Engineering
National University of Colombia, Medellin, Colombia

III. ACADEMIC RESEARCH APPOINTMENTS

Assistant Professor Sep 2020 - Present
University of Texas in El Paso
Department of Geological Sciences

NSF-EAR Postdoctoral Research Associate Jan 2019 – Aug 2020
Affiliation: University of Oklahoma
College of Atmospheric and Geographic Sciences

University of Oklahoma
Position: **Postdoctoral Research Associate** Jan 2018- Dec 2018
Center for Autonomous Sensing and Sampling
College of Atmospheric and Geographic Sciences

Arizona State University Aug 2009 – May 2015
Position: **Research Assistant**
School of Geographical Sciences and Urban Planning
Project: Stability of Fine-Grained, Recirculation Eddy Bars Resulting From Beach
Habitat Building Flows.

New Mexico Tech Jun 2008 – Aug 2008
Position: Research Assistant
Department of Earth and Environmental Sciences
Project: Improved Seasonal Streamflow Forecasts in the Rio Sonora Basin

National University of Colombia Jan 2007 – Apr 2008
Position: GIS Analyst Full-Time
School of Environmental Sciences and Urban Planning
Project: Analysis And Evaluation of Policies Addressed to Air Quality in Itagui County

Water and Energy Government Organization of Medellin - Colombia Jan 2006 – Jun 2006
[Empresas Publicas de Medellin, in Spanish]
Position: Water Resources Internship
Project: Hydraulic Simulation of a Water Supply Net Pipe System in the Aburra Basin

IV. TEACHING EXPERIENCE

University of Texas at El Paso Sep 2020 - Present
Department of Earth Environmental and Resource Sciences
Instructor:
GEOL 4385/5321 – Introduction to Geographical Information Systems
GEOG 1306 – Physical Geography

University of Oklahoma Jan 2015 – Dec 2017
Department of Geography and Environmental Sustainability
Instructor:
GEOG 4201/5201 – River Science
GEOG 4203/5203 - Geomorphology
GEOG 1114 – Physical Geography
GEOG 3023 – Principles of Physical Geography
GEOG 4203/5203 - Geomorphology

Arizona State University Jan 2010 - Dec 2012
Department of Geographical Sciences and Urban Planning
Laboratory Instructor: GPH 111 – Introduction to Physical Geography
Co-instructor: GPH 211 - Introduction to Landform Processes (online course)

New Mexico Tech Jan 2009 – May 2009
Department of Earth and Environmental Sciences
Teaching Assistant: EARTH 340 - Global Change Hydrology

National University of Colombia Aug 2004 – Nov 2005
School of Mines
Department of Water Resources and Environmental Sciences
Laboratory Instructor: Fluid Mechanics (400 level)

V. HONORS AND AWARDS

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|---|--------------|
| [1]. National Science Foundation Postdoctoral Research (\$174,000) | January 2019 |
| [2]. 2013-2014 ASU Dissertation Fellowship (\$17,000) | August 2013 |
| [3]. Anthony Brazel Research Exam Award (\$1,000) | April 2012 |
| [4]. Arizona State University Graduate Fellowship (\$5,000) | Aug 2009 |
| [5]. Suma Cum Laude in Civil Engineering, National University of Colombia | Sept 2007 |

VI. ARTICLES IN PEER-REVIEWED JOURNALS

- [1] **Alvarez, L.V.**, Grams P.E., 2021 (in press/corrected proofs). An eddy-resolving numerical model to study turbulent flow, sediment and bed evolution using Detached Eddy Simulation in a lateral separation zone at the field-scale, *Journal of Geophysical Research-Earth Surface*, 126, e2021JF006149. doi:10.1029/2021JF006149
- [2]. **Alvarez L.V**, Moreno H.A, Segales A.R, Pham T.G, Pillar-Little E.A, Chilson P.B, 2018. “Merging Unmanned Aerial Systems (UAS) Imagery and Echo Soundings with an Adaptive Sampling Technique for Bathymetric Surveys”. *Remote Sensing*, 10 (9). doi:10.3390/rs10091362.
- [3]. Moreno H.A, Ogden F.L, **Alvarez L.V**, 2018. “Unstructured-Mesh Terrain Analysis and Incident Solar Radiation for Continuous Hydrologic Modeling in Mountain Watersheds”. *Water*, 10 (4), p 398 doi:10.3390/w10040398.
- [4] **Alvarez, L.V.**, Schmeeckle, M.W., Grams P.E., 2017. A Detached Eddy Simulation Model for the Study of Lateral Separation Zones Along a Large Canyon-Bound River, *Journal of Geophysical Research-Earth Surface*, 122(1) pp 25-49. doi:10.1002/2016JF00.895.
- [5]. **Alvarez L.V**, Schmeeckle M.W, 2013. “Erosion of River Sandbars by Diurnal Stage Fluctuations in the Colorado River in Marble and Grand canyons: Full-Scale Laboratory Experiments”. *River Research and Applications*, 29: 839-854. doi:10.1002/rra.2576.
- [6]. **Alvarez, LV.**, 2015. Turbulence, Sediment Transport, Erosion, and Sandbar Beach Failure Processes in Grand Canyon, *Dissertation Thesis*.

VII. BOOKS PUBLISHED

- [1]. Rave C.C, **Alvarez L.V**, Smith R.A, Cadena A.I, Builes L.A, Giraldo J.D, Martinez C.A, Chejne-Janna F, Restrepo J.E. “Evaluation of the Alternatives to Sustainable Development of the Industry Sector in the Metropolitan Area of the Valley of Aburra”, pg 40 (in Spanish).

VIII. PRESENTATIONS AT SCIENTIFIC MEETINGS

- [20]. **Alvarez L.V**, Venditti J.G, Chilson P.B. 2019. Eddy Resolving Model of Flow and Sediment Dynamics in Canyon Rivers at the Laboratory and Field Scales. Presentation Type: *Oral Presentation*, *American Geophysical Union, 2019 Fall Meeting, San Francisco, CA*.
- [19]. Doyle W, **Alvarez L.V**, Whitehead M.S, Britto G, Chilson P.B. 2019. “Custom Autonomous Watercraft with Improved Transect Heading Accuracy to Ascertain Higher Quality Measurements with the Sontek River Surveyor S5. *American Geophysical Union, 2019 Fall Meeting, San Francisco, CA*.
- [18]. **Alvarez L.V**, 2018. “The Study of Turbulence, Sediment Transport and Bed Evolution in a Canyon River Using an Eddy Resolving Three-Dimensional Model”. *American Geophysical Union, 2019 Fall Meeting, San Francisco, CA*.
- [17] **Alvarez L.V**, P Grams, 2017. Numerical model of turbulence, sediment transport, and morphodynamics tested in the Colorado River at Grand Canyon. *American Geophysical Union, 2017, Fall Meeting, San Francisco, CA*.
- [16] Maples B.L, **Alvarez L.V**, Moreno H.A, Chilson P.B, Segales A. 2017. “Combining Cluster Analysis and Small Unmanned Aerial Systems (sUAS) for Accurate and Low-cost Bathymetric Surveying”. *American Geophysical Union, 2017, Fall Meeting, San Francisco, CA*.
- [15] **Alvarez L.V**, 2017. The Study of Fluvial Processes through Super Computer Models and Full-Scale Laboratory Techniques. Colloquium - National University of Colombia
- [14] **Alvarez L.V**, 2017. Using MBES to Develop a Detached Eddy Simulation (DES) Model in a Canyon-Bound River. Presentation - *MBES in Rivers Workshop*.
- [13]. **Alvarez L.V**, Schmeeckle M.W, Grams P.E, Moreno H.A. 2015. “A coupled Turbulence Resolving Model of Turbulence and Sediment Transport of Lateral Separation Zones at Field Scale using Detached Eddy Simulation”. *American Geophysical Union, 2015 Fall Meeting, San Francisco, CA*.
- [12]. **Alvarez L.V**, Schmeeckle M.W, Grams P.E, Moreno H.A. 2015. “A coupled Turbulence Resolving Model of Turbulence and Sediment Transport of Lateral Separation Zones at Field Scale using Detached Eddy Simulation”. *American Geophysical Union, 2015 Fall Meeting, San Francisco, CA*.
- [11] Moreno, H.A, Ogden F.L, Steinke, R.C, **Alvarez L.V**. 2015. “A vectorial model to compute terrain parameters, local and remote sheltering, scattering and albedo using TIN domains for Hydrologic Modeling”. *American Geophysical Union, 2015 Fall Meeting, San Francisco, CA*.
- [10] Moreno, H.A, Ogden F.L, Steinke, R.C, **Alvarez L.V**. 2015. “A vectorial model to compute terrain parameters, local and remote sheltering, scattering and albedo using TIN domains for Hydrologic Modeling”. *American Geophysical Union, 2015 Fall Meeting, San Francisco, CA*.
- [9]. **Alvarez L.V**, Schmeeckle M.W. 2013. “Numerical Model of Turbulence, Sediment Transport, and Sediment Cover in a Large Canyon-Bound River”. Presentation Type: *Oral Presentation* Abstract ID:

1813508. Final Paper Number: EP24B-07. *American Geophysical Union, 2013 Fall Meeting, San Francisco, CA.*

[8] **Alvarez L.V**, Schmeeckle M.W. 2013. “Numerical Modeling of Turbulence and Sediment Transport in Lateral Recirculation Zones along the Colorado River in Grand Canyon”. *Community Surface Dynamics Modeling System (CSDMS) 2013 Annual Meeting, Boulder, CO*

[7]. **Alvarez L.V**, Schmeeckle M.W. 2012. “Laboratory and Numerical Modeling of Sandbar Bank Erosion, Application to Diurnal Stage Variations in Grand Canyon”. *American Association of Geographers, 2012 Meeting, New York city, NY.*

[6]. **Alvarez L.V**, Schmeeckle M.W. 2011. “Laboratory and Numerical Modeling of Sandbar Bank Erosion, Application to Diurnal Stage Variations in Grand Canyon”. *American Geophysical Union, 2011 Fall Meeting, San Francisco, CA.*

[5]. **Alvarez L.V**, Schmeeckle M.W. 2010. “Sandbar Beach Stability under River Stage Fluctuations, Full-Scale Laboratory Experiments”. *American Geophysical Union, 2010 Fall Meeting, San Francisco, CA.*

[4]. Schmeeckle M.W, Akahori R, Travis Q.B, **Alvarez L.V**. 2009. “Sandbars in the Colorado River in Grand Canyon, USA Downstream of Glen Canyon Dam”. *Water Resources University's 50th Anniversary Workshop.*

[3]. Smith R, Rave C, Builes A, Piedrahita C, **Alvarez L.V**. 2008. “Policy assessment in air quality management using an integrated bottom-up modeling approach and environmental and public health externalities estimation”. *International Federation of Operational Research Societies Conference (IFORS), Sandton, Gauten., South Africa.*

[2]. Smith R, Rave C, Builes A, Piedrahita C, Perez S, **Alvarez L.V**. 2008. “Methodology for Assessment of Environmental Noise as Atmospheric Contaminant in the Aburra Valley Basin”. *International Seminar of Environmental Noise, Medellin, Colombia (in Spanish).*

[1]. Smith R, Rave C, Builes A, Piedrahita C, **Alvarez L.V**. 2008. “Formulation of Government Policies for the Improvement of Air Quality based on Strategic Modeling of Energy, Environment and Economy”. *XIV Latin Ibero-American Congress of Decision Making, Cartagena, Colombia (in Spanish).*

X. PROFESSIONAL AFFILIATIONS

[1]. Association of American Geographers (AAG)

[2]. American Geophysical Union (AGU)

[3]. Professional Engineer License (PE) in Colombia

[4]. National Association of Engineering in Colombia (ANEIC)

XI. ADVISEES

Rosa Elena Espana (M.S student in Environmental Sciences, UTEP)

Fernando Sotelo (M.S student in Electrical Engineering, UTEP)

Jayanga Samarasinghe (PhD Environmental Science and Engineering)