**LAURA V. ALVAREZ, PhD**

**NSF Postdoctoral Research Fellow**

**I. CONTACT INFORMATION**

**Office Phone:** (405) 4414434

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**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**

**NSF-EAR Postdoctoral Research Associate**  Jan 2019 - Present

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 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

**Arizona State University** Jan 2010 - Dec 2012

Department of Geographical Sciences and Urban Planning

**Laboratory Instructor:** GPH 111 – Introduction to Physical Geography

**Instructor:** GPH 211 - Introduction to Landform Processes (online course)

**New Mexico Tech** Jan 2009 – May 2009

Department of Earth and Environmental Sciences

**Teaching Assistant:** ERTH 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**

[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 20

**VI. ARTICLES IN PEER-REVIEWED JOURNALS**

[1] **Alvarez, L.V.**, Grams P.E., (accepted). 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.*

[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 Continous 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**

[16]. **Alvarez L.V**, 2018. “[The Study of Turbulence, Sediment Transport and Bed Evolution in a Canyon River Using an Eddy Resolving Three-Dimensional Model](http://adsabs.harvard.edu/abs/2018AGUFMEP24A..05A)”. Presentation Type: *Oral Presentation*. *American Geophysical Union, 2018 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 Dettached 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 Goverment 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)