

Carolina Hurtado-Pulido

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Ph.D. Candidate – Geology and Earth Sciences

Ph.D. Candidate and Cadastral and Geodesic Engineer.

Ph.D. candidate with experience in use of geodetic data and use of open-source software to quantify surface deformation, map, and display results for the audience. Knowledge about peer review process and review literature in geosciences. Bilingual (Spanish – native /English – fluent).

View my CV website at: https://carolinah23.github.io/CV_online/

EDUCATION

Ph.D. Geology and Earth Sciences

August 2019 – Present

Tulane University (Louisiana, USA)

Department of Earth and Environmental Science.

Bachelor of Engineering Cadastral and Geodesy

August 2012 – March 2018

Universidad Distrital Francisco Jose de Caldas (Bogota, Colombia).

Engineering school.

PROFESSIONAL EXPERIENCE

Research Assistant, GATR Laboratory with Dr. Cynthia Ebinger.

January 2021 – Present

Tulane University (Louisiana USA)

- Collected and organized open-source geodetic datasets (>10 Tb) to estimate surface deformation in Louisiana.
- Calculated surface deformation using LiDAR and InSAR datasets over two areas in Louisiana to identify processes causing subsidence for the last two decades.
- Organized group meetings to share research progress among members of the research group.
- Advised one undergraduate student on the use of Qgis, Bash scripts and interpretation of well data.

Research assistant, with Dr. Reda Amer.

May 2021 – August 2021

Lamar University (Remote)

- Calculated surface deformation using LiDAR datasets to detect areas with surface deformation at west of the Sabine Lake, Texas.
- Modeled future sea level rise for the area using LiDAR data and resulting DEMs to detect flooding areas at west of the Sabine Lake, Texas.

Teaching assistant, Earth as a Living Planet lab

August 2019 – January 2021, January 2023- May 2023

Tulane University (Louisiana, USA)

- Guided undergraduate (12 – 20 students) through the laboratory class so they could see concepts related to natural systems explained during the lecture class.

Data Analysis intern, with B.E. Sergio Laiton

May 2017 – January 2018

Secretaria Distrital de Planeación (Bogotá, Colombia)

- Organized data collected by the company during 2017 related to environmental factors for the city of Bogota to produce statistical metrics.
- Calculated and presented comprehensive environmental metrics about each subarea of the city.
- Created a Geographic Information System using ArcGIS desktop for internal use of the company and mapped the variables for visual comprehension.
- Drafted the environmental section of Bogota's monographies, in total there were produced 22 documents one per each subarea and a general document for the city. The documents can be consulted in this [link](#).

TECHNICAL SKILLS

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|------------------------------------|----------------------------|-----------------------------|
| ♦ Python/Jupyter notebooks | ♦ Bash scripts | ♦ C++, JavaScript (Interm.) |
| ♦ HTML, CSS (Beg.) | ♦ Qgis, ArcGIS Desktop | ♦ GitHub |
| ♦ Windows, Linux | ♦ PDAL, LAStools for LiDAR | ♦ ISCE, MintPy for InSAR |
| ♦ Confident in mathematical skills | | |

PROFESIONAL TRAINING

- Hands-on Hydrogeodesy: Combining GPS and Hydrologic datasets. CUAHSI. Missoula, Montana (July 18-22, 2022).
- InSAR Processing and Theory with GMTSAR short course. UNAVCO. Online (July 11-15, 2022).
- The Generic Mapping Tools (GMT) for Geodesy. UNAVCO. Online (July 5-7, 2022)
- InSAR Processing and Time-Series Analysis for Geophysical Applications: ISCE, ARIA tools, and Mintpy. UNAVCO. Online (August 23-27, 2021).
- InSAR Theory and Processing. UNAVCO. Boulder, Colorado (August 12-16, 2019).

POSTERS AND TALKS

- Poster. **Hurtado-Pulido, C.**, Ebinger, C., (March, 2023). SAR and GNSS Detection of Crustal Movements Related to Fluid injection and Hydrocarbon extraction, Louisiana. In GAGE/SAGE 2023 Community Science Workshop. Pasadena, USA.
- Poster. **Hurtado-Pulido, C.**, Ebinger, C., Kraus, E., (December, 2022). SAR and GNSS detection of vertical crustal movements in Mesozoic rift basins undergoing fluid injection and hydrocarbon extraction, Louisiana. In American Geophysical Union Fall meeting. Chicago, USA.
- Poster. **Hurtado-Pulido, C.**, Amer, R., Ebinger, C., Holcomb, H., (August, 2022). Variations in subsidence from Airborne-LiDAR differencing and Time Series InSAR in Louisiana. In NISAR Science Community Workshop meeting. Pasadena, USA.
- Poster. **Hurtado-Pulido, C.**, Amer, R., Ebinger, C., Holcomb, H., (December, 2021). Variations in subsidence along the Gulf of Mexico passive margin determined from Airborne-LiDAR data in Louisiana and Texas. In American Geophysical Union Fall meeting. New Orleans, USA.
- Poster. **Hurtado-Pulido, C.**, Ebinger, C., Amer, R., (December, 2020). Analyzing rates of fault creep along passive margin growth faults in coastal Louisiana using Airborne-LiDAR. In American Geophysical Union Fall meeting (Online)

- Talk. **Hurtado-Pulido, C.**, (August, 2017). Análisis de contaminación de PM2.5 a través de herramientas geográficas en la ciudad de Bogotá. In Semana Geomática International (International Geomatic Week). Instituto Geografico Agustin Codazzi Bogota, Colombia.
- Talk. **Hurtado-Pulido, C.**, Mendez, E., (August, 2016). Sistema de información geográfica para evaluación de equipamientos para las nuevas zonas de densificación urbana en la localidad de Kennedy (Bogotá-Colombia). In Simposio Internacional “Derecho a la ciudad”.(International symposium “Right to the City”). Instituto de Estudios Urbanos. Bogotá, Colombia

PUBLICATIONS

Hurtado-Pulido, C., (2023). InSAR and airborne LiDAR for monitoring slow vertical land motion. Nature Reviews Earth Environment. doi:10.1038/s43017-023-00442-9.

Hurtado-Pulido, C., Amer, R., Ebinger, C., Holcomb, H., (2023). Geodetic displacement data from Airborne-LiDAR data and Time Series InSAR: Baton Rouge Case Study. (Version 1) [Data set]. Zenodo. <https://doi.org/10.5281/zenodo.8187870>

Hurtado-Pulido, C., (2017). Análisis de contaminación de PM2.5 a través de herramientas geográficas en la ciudad de Bogotá (Pollution analysis of PM2.5 using geographic tools in the city of Bogotá). *Análisis Geográficos*. 53, 121-141.

UPCOMING PUBLICATIONS

Hurtado-Pulido C., Amer, R., Ebinger, C., Holcomb, H., [Submitted]. Variations in subsidence patterns in the Gulf of Mexico passive margin from Airborne-LiDAR data and Time Series InSAR: Baton Rouge Case Study. Journal of Geophysical Research: Earth Surface.

HONORS AND AWARDS

- Outstanding Research Assistant, Department of Earth and Environmental Sciences, Tulane University (April/2023)
- Graduate Studies Student Association (GSSA) Travel award, Tulane university (August/2022)

OUREACH

Dept. representative . Graduate Studies Student Association (GSSA) **August 2023 - Present**

Represent the Earth and Environmental Sciences department in the GSSA organization, I present projects that can benefit the graduate students in the department and secure funding for these projects (academic travel and recreation). Also, I communicate with the students and faculty and collaborate in the assignation of funding from the department.

Volunteer. GeoLatinas Mentoring group **August 2023 - Present**

Facilitate the transition to a new platform to mentor geoscience students online, and retake website initiative with other members of the team. The mentoring group helps to connect mentors and mentees interested in sharing and learning about career development, study opportunities, migration, university, and professional life.

Volunteer. GeoLatinas por el Mundo - podcast. **January 2022 - Present**

Compile and analyze numerical data to determine what variables were influencing the number of reproductions and listeners. This information was presented to the content creators to be considered for future episodes. This podcast shares experiences and academic/job opportunities for Latin-American women in Geosciences in Spanish and Portuguese.

Volunteer. GiST - Girls in STEM at Tulane**October 2022**

Tulane University. Lead the Earthquakes and Volcanoes activity.

Speaker. Programa DeVolver ConCiencia**May 2022**

“¿Qué hace una ingeniera catastral? (What is the work of a Cadastral engineer?)” Talk directed to high school students explaining what an engineer can do in this area (Spanish)

Speaker. Semana con GeoLatinas: Las mujeres en las geociencias**November 2020**

Museo de Geociencias, Colombia. “GeoLatinas Tulane – Equipo Local (Tulane Geolatinas – Local Team)”. Talks directed to women undergrad students (Spanish).

Speaker. Programa Haiko digital, Fundación Haiko**July 2020**

“Remote Sensing – Descubriendo el mundo con un rayo laser (Remote Sensing - Discovering the world with a laser ray)”. Scientific talks directed to secondary and high school kids (Spanish).

Volunteer. GiST - Girls in STEM at Tulane**March 2020**

Tulane University. Earthquakes and Volcanoes activity.

Volunteer. BATS - Boys at Tulane in STEM**September 2019**

Tulane University. The Missing Tooth activity.

MEDIA APPEARANCE AND MENTIONS

Mention. “Tulane team a national semifinalist in energy technology competition”. Tulane Today. [Link](#). (April 2022)

Podcast. “Carolina Hurtado Pulido (Asistente de Enseñanza, Universidad de Tulane, EE. UU.)”. Estudios Planeteando – GeoLatinas por el Mundo. Available at Spotify and AppleMusic. (April 2021).

MEMBERSHIPS

- GSSA EES representative (August 2023 – present)
- GeoLatinas (August 2023 – Present) – Mentoring team
- GeoLatinas (January 2022 - Present) – Podcast team.
- American Geophysical Union – (2020 – present).
- GeoLatinas (2020 - Present) – Dry Runs and Peer review volunteer.
- Tulane GeoLatinas local team (2019 - Present) – Founder member.