

JOSÉ DANIEL VÉLEZ C.

EDUCATION

MS Environmental Engineering Sept 2020
Universidad de Antioquia Medellín, Antioquia

Thesis: “Recent Morphological Changes in the Atrato River Delta: Analysis of Erosion and Progradation Trends with Google Earth Engine”

Cum Laude distinction

Advisor: Julio Eduardo Cañón Barriga

BS Sanitary Engineering Dec 2007
Universidad de Antioquia Medellín, Antioquia

RESEARCH EXPERIENCE

Graduate Researcher Nov 2017 – Apr 2020
Universidad de Antioquia, Professor: Julio E. Cañón Medellín, Antioquia

- Developed an image segmentation algorithm in Javascript (Google Earth Engine)
- Developed an algorithm to retrieve areas of coastal erosion and progradation
- Analyzed and measured changes in coastlines using the mentioned algorithms
- Observed relationship between land cover and use changes in basin and progradation and erosion processes in coastlines

Research Intern Aug 2009 – Dec 2012
Universidad Nacional de Colombia - Campus Medellín, Medellín, Antioquia

- Developed a multilayer model to calculate periods of internal waves in tropical lakes
- Constructed an algorithm to calculate periods in internal waves in lakes in Matlab
- Presented the multilayer model and the results of its application at an international event

TEACHING EXPERIENCE

Adjunct Professor Mar 2021 - Present
Politecnico Jaime Isaza Cadavid Medellín, Antioquia
Facultad de Ciencias Agrarias

- Hydrology and climatology, undergraduate course averaging 20 students per semester
- Developed quizzes, exams, homework and guides for field work
- Coordinate field works

Adjunct Professor
Universidad Nacional de Colombia - Sede Medellín
Teaching Assistant, Department

Mar 2015 - Nov 2016
Medellín, Antioquia

- Hydroclimatology, undergraduate course averaging 20 students per semester
- Developed quizzes, exams, homework and guides for field work
- Coordinate field works

GRANTS, SCHOLARSHIP, HONORS AND AWARDS

- Fulbright - Minciencias Scholarship** 2021
To pursue a PhD degree in U.S. beginning in fall 2022
- Universidad de Antioquia - Facultad de Ingeniería, Cum Laude** 2020
For the research work “Recent Morphological Changes in the Atrato River Delta: Analysis of Erosion and Progradation Trends with Google Earth Engine”
- Universidad de Chile, Travel and Participation Grant** 2009
in summer School on Environmental Fluid Mechanics
- Academic Excellence: Laboratory assistant position in Biological Process Lab** 2008
Universidad de Antioquia
Assist and supervise students

PUBLICATIONS

Journal Publications

Vélez, J.D., Betancurth, L. And Cañón, J.: Erosion and progradation in the Atrato River delta: A spatiotemporal analysis with Google Earth Engine, *Journal of Facultad de Ingeniería Universidad de Antioquia*, doi: 10.17533/udea.redin.20200688, 2020

Vélez, J.D., Gómez-Giraldo, A.: Multilayer models to calculate the period of the internal seiches modes in tropical lakes and reservoirs, *Journal of Tecnología y Ciencias del Agua*, ISSN: 2007-2422, vol. 4 (2), 2013.
(<https://www.redalyc.org/pdf/3535/353531982012.pdf>)

Botero, E.A., Jaramillo, S., Vélez, G.F., **Vélez, J.D.** and López, J.P.: Guía para el Manejo Integral de Residuos – Subsector Transporte Terrestre (Guide for Comprehensive Waste Management - land transport cluster), Ed. Universidad Pontificia Bolivariana, ISBN: 978-958-44307-5-5, 2008.
(https://www.sabaneta.gov.co/files/doc_varios/Gu%C3%ADa%20para%20el%20Manejo%20Integral%20de%20Residuos%20-%20Subsector%20de%20transporte%20terrestre.pdf)

Botero, E.A., Jaramillo, S., Vélez, G.F., **Vélez, J.D.** and López, J.P.: Guía para el Manejo Integral de Residuos – Subsector Repuestos y Accesorios (Guide for Comprehensive Waste Management - Car workshops cluster), Ed. Universidad Pontificia Bolivariana, ISBN: 978-958-44306-8-7, 2008.
(https://www.sabaneta.gov.co/files/doc_varios/Gu%C3%ADa%20para%20el%20Manejo%20Integral%20de%20Residuos%20-%20Subsector%20de%20repuestos%20y%20accesorios.pdf)

Botero, E.A., Jaramillo, S., Vélez, G.F., **Vélez, J.D.** and López, J.P.: Guía para el Manejo Integral de Residuos – Subsector Confeción, Telas y Vestuario (Guide for Comprehensive Waste Management - Textile industry), Ed. Universidad Pontificia Bolivariana, ISBN: 978-958-44307-0-0, 2008.
(https://www.sabaneta.gov.co/files/doc_varios/Gu%C3%ADa%20para%20el%20Manejo%20Integral%20de%20Residuos%20-%20Subsector%20confecion,%20telas%20y%20vestuario.pdf)

Botero, E.A., Jaramillo, S., Vélez, G.F., **Vélez, J.D.** and López, J.P.: Guía para el Manejo Integral de Residuos – Subsector Industria Litográfica (Guide for Comprehensive Waste Management - Lithographic industry), Ed. Universidad Pontificia Bolivariana, ISBN: 9978-958-44306-6-3, 2008.
(https://www.sabaneta.gov.co/files/doc_varios/Gu%C3%ADa%20para%20el%20Manejo%20Integral%20de%20Residuos%20-%20Subsector%20de%20litografia.pdf)

Botero, E.A., Jaramillo, S., Vélez, G.F., **Vélez, J.D.** and López, J.P.: Guía para el Manejo Integral de Residuos – Subsector Calzado, Cuero, Plástico y sus manufacturas (Guide for Comprehensive Waste Management - Shoe, leather and plastic industries), Ed. Universidad Pontificia Bolivariana, ISBN: 978-958-44306-9-4, 2008.
(https://www.sabaneta.gov.co/files/doc_varios/Gu%C3%ADa%20para%20el%20Manejo%20Integral%20de%20Residuos-%20Subsector%20de%20calzado,%20cuero,%20plastico%20y%20sus%20manufacturas.pdf)

Botero, E.A., Jaramillo, S., Vélez, G.F., **Vélez, J.D.** and López, J.P.: Guía para el Manejo Integral de Residuos – Subsector Minimercados y abarrotes, (Guide for Comprehensive Waste Management - Mini-markets and grocery stores), Ed. Universidad Pontificia Bolivariana, ISBN: 978-958-44306-4-0, 2008.
(https://www.sabaneta.gov.co/files/doc_varios/Gu%C3%ADa%20para%20el%20Manejo%20Integral%20de%20Residuos%20-%20Subsector%20de%20minimercado%20y%20abarrotes.pdf)

Botero, E.A., Jaramillo, S., Vélez, G.F., **Vélez, J.D.** and López, J.P.: Guía para el Manejo Integral de Residuos – Subsector Productos Químicos (Guide for Comprehensive Waste Management - Chemical products industry), Ed. Universidad Pontificia Bolivariana, ISBN: 978-958-44306-7-0, 2008.

(https://www.sabaneta.gov.co/files/doc_varios/Gu%C3%ADa%20para%20el%20Manejo%20Integral%20de%20Residuos%20-%20Subsector%20de%20productos%20quimicos.pdf)

Botero, E.A., Jaramillo, S., Vélez, G.F., **Vélez, J.D.** and López, J.P.: Guía para el Manejo Integral de Residuos – Subsector Colchones (Guide for Comprehensive Waste Management - Mattresses industry), Ed. Universidad Pontificia Bolivariana, ISBN: 978-958-44307-4-8, 2008.

(https://www.sabaneta.gov.co/files/doc_varios/Gu%C3%ADa%20para%20el%20Manejo%20Integral%20de%20Residuos%20-%20Subsector%20de%20colchones.pdf)

Botero, E.A., Jaramillo, S., Vélez, G.F., **Vélez, J.D.** and López, J.P.: Guía para el Manejo Integral de Residuos – Subsector Fotografía (Guide for Comprehensive Waste Management - Photography industry), Ed. Universidad Pontificia Bolivariana, ISBN: 978-958-44307-3-1, 2008.

(https://www.sabaneta.gov.co/files/doc_varios/Gu%C3%ADa%20para%20el%20Manejo%20Integral%20de%20Residuos%20-%20Subsector%20de%20fotografia.pdf)

Botero, E.A., Jaramillo, S., Vélez, G.F., **Vélez, J.D.** and López, J.P.: Guía para el Manejo Integral de Residuos – Subsector Instituciones Educativas (Guide for Comprehensive Waste Management - Educational institutes), Ed. Universidad Pontificia Bolivariana, ISBN: 978-958-44307-1-7, 2008.

(https://www.sabaneta.gov.co/files/doc_varios/Gu%C3%ADa%20para%20el%20Manejo%20Integral%20de%20Residuos-%20Subsector%20instituciones%20educativas.pdf)

Botero, E.A., Jaramillo, S., Vélez, G.F., **Vélez, J.D.** and López, J.P.: Guía para el Manejo Integral de Residuos – Subsector Pequeño Comercio (Guide for Comprehensive Waste Management - Shopping sector), Ed. Universidad Pontificia Bolivariana, ISBN: 9978-958-44307-2-4, 2008.

(https://www.sabaneta.gov.co/files/doc_varios/Gu%C3%ADa%20para%20el%20Manejo%20Integral%20de%20Residuos%20-%20Subsector%20de%20pequeño%20comercio.pdf)

PRESENTATIONS AND INVITED LECTURES

Lecture, “Multilayer model to calculate period of natural modes of oscillation in tropical reservoirs”, IARH - Latinamerican Hydraulics Congress. Uruguay, November 2010.

PARTICIPATION IN ACADEMIC AND SCIENTIFIC EVENTS

Attendant Latinamerican Hydraulics Congress, IARH. Punta del Este, Uruguay, November 2010.

Attendant, Summer School on Environmental Fluid Mechanics, at the University of Chile. Santiago de Chile, January 2009.

Attendant, I National Congress on Swamps and Lagoons of Colombia, at the University of Antioquia – University Research Campus. Colombia, September 2008.

PROFESSIONAL EXPERIENCE

CORPORACIÓN AUTÓNOMA REGIONAL DE LOS RIOS NEGRO Y NARE - CORNARE
(Territorial Governmental Authority for natural resources care and manage)

Oct 2019 – Present
Santuario - Antioquia

Hydrology and Hydraulics Specialist in Water Resource Group

- Evaluated hydrologic and hydraulics studies for environmental permits
- Reviewed hydraulic structures designs
- Outlined technical guidelines for the implementation of hydraulic structures in rivers and its flood plain
- Implemented new technical and environmental requirements for the implementation of hydraulic structures in rivers and its flood plain

SEDIC S.A. Consulting Engineers,
Hydraulic and Environmental Specialist

Aug 2012-Mar 2013 and Jun 2015-Oct 2019
Medellín-Colombia

- Reviewed and approved technical reports
- Controlled designs plans
- Designed hydraulic structures
- Proposed technical solutions
- Coordinated a group of 15 professionals
- Coordinated and supervised field work
- Planned delivery times for designs, studies and reports

PLANES Y MANEJOS AMBIENTALES – PLYMA
Project Manager

Nov-2011-Jul 2012
Medellín - Colombia

- Coordinated technical aspects of projects
- Reviewed and approved technical reports
- Developed and managed schedule of activities of projects
- Coordinated a group of 10 professionals
- Coordinated and supervised field work
- Planned delivery times for designs, studies and reports

GOTTA INGENIERÍA S.A.S.
Sanitary Engineer

Sep 2011 - Feb 2012
Medellín - Antioquia

- Elaborated technical and environmental studies for the management and use of the Peñol-Guatapé reservoir
- Wrote technical and environmental reports
- Proposed a Plan of management and regulation of activities through the reservoir
- Presented the Plan to communities, local and regional authorities

PROFESSIONAL SERVICE

National Students Meeting Co-Organizer

Encuentro Nacional de Estudiantes de Ingeniería Sanitaria y Ambiental, 2005

EVALUATION COMMITTEE

Redcolsi Foundation 2021

Academic Evaluation Committee

Project: Diseño de un fotocolorímetro de bajo costo para medición de flujo continuo (Design of a low-cost photocolorimeter for continuous flow measurement)

Redcolsi Foundation 2021

Academic Evaluation Committee

Project: Estudio analítico y numérico de un prototipo de motor cohete (Analytical and numerical study of a prototype rocket engine)

Redcolsi Foundation 2021

Academic Evaluation Committee

Project: Fabricación y pruebas de probetas para la caracterización de propolente sólido compuesto para motores cohete (Manufacture and testing of specimens for the characterization of solid compound propellant for rocket engines)

Redcolsi Foundation 2021

Academic Evaluation Committee

Project: Estudio del potencial de infiltración de un suelo y su capacidad de purificación de lixiviados procedentes de rellenos sanitarios (Study of the potential of infiltration of a soil and its capacity to purify leachates from landfills)

LANGUAGES

Spanish: Native

English: Advanced

Portuguese: Advanced

COMPUTER SKILLS

Programming: Javascript, Python, Matlab, R, HTML, CSS

Applications: ArcGIS, QGIS, HecRAS, HecHMS, AutoCAD

Cloud Computing: Google Earth Engine

Platforms: Linux, MacOS, Windows

