Julia Cisneros

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RESEARCH INTEREST:

My research seeks to identify the key mechanisms driving bedform formation and evolution across different environments. This is driven by my curiosity in how surface processes shape bedforms and how bedforms modulate the flow of solids across planet surfaces. Insight gained is used to excavate clues about the formative conditions of inaccessible and ancient environments.

EDUCATION:

Ph.D., Geology, University of Illinois Urbana-Champaign, Champaign, IL
Dissertation: *The morphology of alluvial sand dunes* May 2021
Ph.D. advisor: Dr. Jim Best

B.S., Geology (minor GIS), Magna Cum Laude, Texas A&M University, College Station, TX
Undergraduate Thesis: *Morphologic and computational fluid dynamic analysis of sand dune-topographic obstacle interactions on Earth and Titan.* May 2015
Advisor: Dr. Ryan Ewing

APPOINTMENTS:

Assistant Professor, Virginia Tech	August 2023-Present
Provost Early Career Fellow, UT Austin	Dec 2022-July 2023
NSF Postdoctoral Fellow, TAMU, UT Austin, Texas Tech Uni.	June 2021-Nov 2022
Graduate Research Fellow, University of Illinois Urbana-Champaign	August 2015-May 2021
Visiting Researcher, Utrecht and Delft, Netherlands,	July-August 2018
Visiting Researcher, Cornell University, Ithaca, NY	July 2014

PUBLICATIONS:

Published:

Lefebvre, A., & **Cisneros, J.** (2023). The influence of dune lee side shape on time-averaged velocities and turbulence. *Earth Surface Dynamics*, 11(4), 575-591.

Cisneros, J., Guhlincozzi, A. R. (2022), Grappling with barriers in Geosciences from the lens of two Latina Geoscientists. *Journal of Geoscience Education.* 1-11

Ma, H., Nittrouer, J.A., Fu, X., Parker, G., Zhang, Y., Wang, Yuanjian, Wang, Yanjun, Lamb, M.P., **Cisneros, J.**, Best, J.L., Parsons, D.R., Wu, B., (2022). Amplification of downstream flood stage due to damming of fine-grained rivers. *Nature Communications.* 13 (1), 1-11.

Ali, H., Sheffield, S. L., Bauer, J. E., Caballero-Gill, R. P., Gasparini, N. M., Libarkin, J., Gonzales, K. K., Willenbring, J., Amir-Lin, E., **Cisneros, J.**, Desai, D., Erwin, M., Gallant, E., Jeannelle Gomez, K., Keisling, B. A., Mahon, R., Marín-Spiotta, R., Welcome, L., Schneider, B. (2021), An

actionable antiracism plan for geoscience organizations. *Nature Communications.* 12 (1), 1-6.

Guhlincozzi, A. R, **Cisneros, J.** (2021), A framework for addressing the lack of diversity in the Geosciences through evaluating the current structure of institutional efforts. *GeoJournal.* doi.org/10.1007/s10708-021-10418-1

Cisneros, J. et al., (2020), Dunes in the World's big rivers are characterized by low-angle leeside slopes and a complex shape, *Nature Geoscience,* 13 (2), 156–162.

Best, J., **Cisneros, J.,** Almeida, R., Galeazzi, C., Ianniruberto, M., Ma, H., Unsworth, C., van Dijk, T. (2020), Why do large, deep rivers have low-angle dune beds?: COMMENT, *Geology*. 48 (8).

Galeazzi, C., Almeida, R., Mazoca, C., Best, J., Freitas, B., Ianniruberto, M., **Cisneros, J.,** Tamura, L. (2018). The significance of superimposed dunes in the Amazon River: Implications for how large rivers are identified in the rock record. *Sedimentology*, *65* (7), 2388-2403.

In review:

Cisneros, J., Best, J. (in revision) Controls on the Leeside Angle of Dunes in Shallow Unidirectional Flows, *J. Geophys. Res. Earth Surf.*

Baar, A., **Cisneros, J.** (in revision), Influence of grain size-dependent bedform morphology on flow and transverse slope in river bends, *J. Geophys. Res. Earth Surf.*

In prep:

Cisneros, J., Best, J., van Dijk, T., Mosselman, E., Kleinhans, M., (in prep) Dune morphology and hysteresis in alluvial channels during long-duration floods revealed using high temporal-resolution MBES bathymetry, In preparation for submission to *J. Geophys. Res. Earth Surf.*

Cisneros, J. (in prep) The Bedform Analysis Method for Bathymetric Information (BAMBI), In preparation for submission to *Journal of Open Source Software*

Peer-reviewed undergraduate research publications:

Guhlin, A., Flores, J., and **Cisneros, J.** (2015), A Crumbling Campus, Explorations: The Texas A&M Undergraduate Journal

Cisneros, J., McDonald, G. D., Hayes Jr., A. G. and Ewing, R. C. (2014), Sand Dunes: the Clue to Titan's Climate, Explorations: The Texas A&M Undergraduate Journal.

CURRENT PROJECTS:

'Geoscience Camps as a Tool for Generating Long-term Institutional Partnerships and Commitment to JEDI in Geosciences' supported by the Departments of Women's and Gender Studies and Geography at University of Missouri in collaboration with Dr. Aída Guhlincozzi

FUNDING:

The Morphodynamics of Giant Dunes in Wind and Water' June 2021
NSF EAR Postdoctoral Fellowship

INVITED TALKS:

Presented:

'*Dune morphology and dynamics in alluvial channels'*, Soft Sediment Seminar, Jackson School of Geosciences, UT Austin	March 2020
'*How do weirdly-shaped dunes both see into the past and predict the future, and why?'*, Earth Symposium Keynote Presentation, Departments of Environmental Science and Ecology and Geological Sciences, UTSA	September 2020
'*How do weirdly-shaped dunes inform us about the landscapes of the past, present, and future?'*, Department of Geology and Geophysics, Texas A&M University	October 2020
'*Looking Forward: How do we encourage young BIPOC and Latinx students to be Geoscientists?*', Geological Society of America Pardee Symposium, The Next Generation of Geoscience Leaders: Strategies for Excellence in Diversity and Inclusion	October 2020
'What controls the shape of dunes in alluvial channels?', American Geophysical Union Fall Meeting 2020, EP004. Autogenic dynamics of bedrock and sedimentary systems	December 2020
'*The shape of dunes in rivers and possible controls on their formation*',	
Department of Geology, Western Washington University	February 2021
Department of Geoscience, University of Wisconsin-Madison	February 2021
Department of Earth, Atmospheric, and Planetary Sciences, Purdue University	February 2021
'*What controls the shape of dunes in alluvial channels?*', Department of Geography, Durham University	May 2021
'*The shape of dunes in rivers and possible controls on their formation*', University of Engineering and Technology, Peru	August 2021
'The Morphology of Alluvial Sand Dunes',	
Department of Geography, UW Madison	October 2021
Marine, Earth & Atmospheric Sciences, North Carolina State University	November 2021
Department of Earth and Environmental Sciences, Tulane University	November 2021
Department of Geosciences, Texas Tech University	November 2021
Department of Earth and Space Sciences, University of Washington	November 2021
Department of Geology and Environmental Science, University of Pittsburgh	January 2022
UTIG, Jackson School of Geosciences	September 2022

PUBLICATIONS TAUGHT IN COURSEWORK:

Cisneros, J. et al., (2020), Dunes in the World's big rivers are characterized by low-angle leeside slopes and a complex shape, *Nature Geoscience,* 13 (2), 156–162.

- Department of Geology, Calvin University, Geography, and Environment, *Sedimentology and Stratigraphy* taught by Dr. Melinda Higley
- Department of Earth and Planetary Sciences, UT Austin, *Dynamics of Sedimentary Systems* taught by Dr. David Mohrig

Guhlincozzi, A. R, **Cisneros, J.** (2021), A framework for addressing the lack of diversity in the Geosciences through evaluating the current structure of institutional efforts. *GeoJournal.* doi.org/10.1007/s10708-021-10418-1

- Department of Geography, Univ. of Missouri, *Community Geography* taught by Dr. Aida Guhlincozzi

HONORS:

University of Illinois Urbana-Champaign:

AGU 2020 Presidential Citation (Call for a Robust Anti-Racist Action Plan)	December 2020
Young Researcher Spotlight - AGU EPSP (nominated award)	July 2019
Award for Best Presentation at the Marine and River Dune Dynamics Conf.	April 2019
Academic Excellence through Office of Diversity, Equity & Inclusion	March 2018
Ranked as Outstanding (top 10%) TA by students	May 2017
Campus Insights student representative for Board of Trustees dinner	April 2017
Graduate College Distinguished Fellow	August 2015 to August 2017
Academic Excellence through Office of Diversity, Equity & Inclusion	March 2017
ASPIRE Graduate Student Panelist for students underrepresented in academia	August 2016
Co-Chair at Marine and River Dune Dynamics Workshop	April 2016

Texas A&M University:

College of Geosciences Distinguished Student Award	May 2015
Geology and Geophysics Outstanding Senior Award for Academic Excellence	May 2015
Keynote Speaker at Geology and Geophysics Scholarship Dinner Banquet	May 2015
2nd Place Best Paper Award for Undergraduate Research Scholar Thesis	May 2015
1st Place Geology and Geophysics Department Research Symposium Oral	April 2015
1st Place Geology and Geophysics Department Research Symposium Poster	April 2014

FELLOWSHIPS, GRANTS, AND SCHOLARSHIPS:

Provost Early Career Fellowship	Dec 2022 to Dec 2024
NSF EAR Postdoctoral Fellowship ($174,000)	June 2021-2023
NSF Graduate Research Fellowship ($138,000)	August 2017 to August 2020
Harriet Wallace Geology Graduate Student Service Award ($750)	April 2020
Marine and River Dune Dynamics International Travel Student Award (€500)	April 2019
NSF Graduate Research Opportunities Worldwide ($5,000 + €4,500)	June 2018
Outstanding Women Geology Graduate Student ($2,000)	April 2018
UIUC Graduate College Distinguished Fellowship ($75,000)	August 2015 to August 2017
GSA Graduate Research Grant ($1,550)	March 2017
International Association of Sedimentologists Research Grant (€1,000)	July 2016
Marine and River Dune Dynamics International Travel Student Award (€500)	April 2016
ExxonMobil Field Camp Scholar Award ($2,000)	May 2014

Will Rogers Memorial Scholarship	August 2014 to May 2015
Murry D Page Endowed Scholarship	August 2014 to May 2015
B P Loughnane Scholarship Fund	August 2013 to May 2015
Michael K Endowed Scholarship	August 2012 to May 2013
Geosciences Department Scholarship	August 2011 to May 2015
Texas Top 10% Award ($8,000)	August 2011 to May 2015
Devon Energy Corporation Foundation Excellence Award	August 2011 to May 2015

CONFERENCE PRESENTATIONS:

Cisneros, J., Ewing R., Mohrig, D., Nittrouer, J. (2021), Preliminary assessment of giant dune morphology in fluvial and aeolian environments, American Geophysical Union Fall Conference, New Orleans, LA, Dec.

Cisneros, J., Best, J. L, Garcia, M. H. (2019), The Formation of Dunes under Unidirectional Flows in Coarse Silts and Fine Sands, accepted, American Geophysical Union Fall Conference, San Francisco, CA, Dec.

Cisneros, J., Guhlincozzi, A. R. (2019), Geoscience Camp! Methods for Introducing Geosciences to Middle School Girls, poster presentation, American Geophysical Union Fall Conference, San Francisco, CA, Dec.

Guhlincozzi, A. R., **Cisneros, J.** (2019), Geoscience Camp! Methods for Introducing Geosciences to Middle School Girls, oral presentation, Latinx Excellence in the Midwest Conference, Iowa City, IA, Oct.

Cisneros, J., Best, J. L, van Dijk, T., Mosselman, E. (2019), Dune morphology and hysteresis in alluvial channels during long-duration floods revealed using high temporal-resolution MBES bathymetry, oral presentation, Marine and River Dune Dynamics Conference VI, Bremen, Germany, Apr.

Cisneros, J., Best, J. L, van Dijk, T., Mosselman, E. (2018), Dune morphology and hysteresis in alluvial channels during long-duration floods revealed using high temporal-resolution MBES bathymetry, oral presentation, American Geophysical Union, Washington DC, Dec.

Cisneros, J., Best, J. L. (2018), Quantifying the morphology of dunes in big rivers, oral PICO presentation, European Geophysical Union, Vienna, Austria, Apr.

Cisneros, J., Best, J. L. (2017), Quantifying the morphology of dunes in big rivers using automated bedform analysis, oral presentation, 11th International Conference on Fluvial Sedimentology, Calgary, Alberta, Canada, Jul.

Cisneros, J., Best, J. L. (2016), Low-angle dunes in big rivers: morphology, occurrence and speculations on their origin, oral presentation, American Geophysical Union Fall Meeting, San Francisco, CA, Dec.

Cisneros, J., Best, J. L. (2016), Low-angle dunes in big rivers: morphology, occurrence and speculations on their origin, oral presentation, Marine and River Dune Dynamics Conference V, Bangor, Wales, United Kingdom, Apr.

Cisneros, J., Best, J. L. (2016), Low-angle dunes in big rivers: morphology, occurrence and speculations on their origin, oral presentation, North Central GSA, Champaign, IL, Apr.

Cisneros, J., McDonald, G. D., Hayes Jr., A. G,. Smyth, T. and Ewing, R. C. (2015), Morphologic and Computational Fluid Dynamic Analysis of Sand Dune-Topographic Obstacle Interactions on Earth and Titan, oral presentation, Department of Geology and Geophysics Symposium, Texas A&M University, College Station, TX, Apr.

Cisneros, J., McDonald, G. D., Hayes Jr., A. G., Smyth, T. and Ewing, R. C. (2015), Morphologic and Computational Fluid Dynamic Analysis of Sand Dune-Topographic Obstacle Interactions on Earth and Titan, Abstract 45756 oral presentation, Lunar and Planetary Science Conference, Houston, TX, Mar.

Cisneros, J., McDonald, G. D., Hayes Jr., A. G. and Ewing, R. C. (2014), Morphologic and Computational Fluid Dynamic Analysis of Sand Dune-Topographic Obstacle Interactions on Earth and Titan, Abstract 18472 presented at 2014 Fall Meeting, AGU, San Francisco, CA, Dec.

Cisneros, J., McDonald, G. D., Hayes Jr., A. G. and Ewing, R. C. (2014), Sand Dunes: the Clue to Titan's Climate, poster presentation, Department of Geology and Geophysics Symposium, Texas A&M University, College Station, TX, Apr.

Cisneros, J., Rivers, C., Skrla, B., Ortiz, M., Moore, C., Price, A. E., and Johnson II, H. (2013), Gaining International Experience through a Bi-National Mapping Team Approach between Texas A&M University and the University of Costa Rica: The Student Perspective, Abstract 125-16 presented at 2013 Fall Meeting, GSA, Denver, CO, Oct.

TEACHING:

Guest Instructor, UT Geophysics Marine Geology & Geophysics Field Course May 2022
Mentored 16 undergraduates, graduates, and BP professionals on geophysical acquisition techniques for Multi Beam echosounder survey systems. Advised student deployment of my bedform analysis toolbox, BAMBI, which allowed interpretation of bedform morphodynamics and the identification of bidirectional and unidirectional bedforms in newly acquired MBES data.

Teaching Assistant, University of Illinois Urbana Champaign January-May 2017
Taught the laboratory section of the upper-level undergraduate course Sedimentology and Stratigraphy.

Teaching Assistant, Dept of Geology, Texas A&M University May-June 2015
Taught the 6-week field methods camp for upper-level undergraduates.

FIELD EXPERIENCE:

Field Researcher, Amazon River, Manaus and Tefé, Brazil June 2016 & November 2017
Conducted two-week river field surveys by deploying acoustic Doppler current velocimeter (ADCP) and multibeam echosounder (MBES) systems and conducting sedimentological investigation of riverbanks on the Amazon River during the wet and dry season.

Field Researcher, Huang He (Yellow) River, Huayuankou, China July 2016
Conducted a two-week river field survey deploying parametric echosounder (PES) and MBES on

the Huang He River during the wet season.

SERVICE, OUTREACH AND PUBLIC ENGAGEMENT:

Panelist, Somos Escritoras, College of Education at U. Texas, Austin **June 2022**
Invited panelist at the Somos Escritoras Program led by Dr. Tracey Flores (College of Education at University of Texas at Austin). Somos Escritoras is a program to support Latinx girls in their writing journey as they develop the skills to define themselves and amplify their unique voices within a supportive community of Latinx scholars and mentors.

Invited Panelist: 'Finding Your Place for Change: How & Where to Take an Active Role in DEI Initiatives as Early-Career Researchers and Students' **December 2021**
AGU Fall meeting Hydrology Section Townhall.

Invited Panelist: 'Building a supportive research community' **April 2021**
AGU EPSP Connects seminar series.

Invited Panelist & Speaker: 'The Next Generation of Geoscience Leaders: Strategies for Excellence in Diversity and Inclusion' **October 2020**
GSA Pardee Symposium.

Writer and Signatory, Geoscience AntiRacism Petition @ Change.org, **June 2020**
Contributed writing actions on the petition, 'Call for a Robust Anti-Racism Plan for The Geosciences' (http://tiny.cc/4w2crz). The petition has garnered more than 26,000 signatures as of June 2022. This petition has created discourse and opportunities for Geoscience societies, institutions, and research labs to explore antiracism literature and ideas, and take antiracist action.

Curator and Contributor, GeosciencesLearners and GeoReadingForEquity **June 2020**
Curated and organized literature regarding diversity, equity, and inclusion research in the Geosciences. This resource was offered online via my GeoscienceLearners initiative and yielded over 25,000 impressions and 300 link clicks of its organized database (https://tinyurl.com/yafwro3h). Subsequently, this resource was combined with other resources following my original organizational scheme and launched on the https://www.georeadingforequity.com website.

Mentor, CU One-to-One Program, Champaign, IL **August 2015 – May 2022**
Mentor a young, middle-school aged girl once a week during the school year through the CU One-to-One mentoring program.

Hydro-Geo Discussion Group Leader, UIUC **August 2017 – May 2020**
Led a weekly discussion group between the Geology, Geography, and Hydrosystems departments. This student-driven discussion group was meant to foster real collaboration and academic/personal relationships among those working on fluvial-related topics. Duties included moderating discussion, confirming dates and speakers, and sending weekly reminders.

Created, organized and led the Geoscience Camp for Girls **August 2019**

Developed the first ever Geoscience Camp for Girls. Recruited 30 girls to attend and c. 70 girls to take an IRB approved survey focused on interest and knowledge levels in Geoscience. Survey results were used to explore diversity and inclusion in Geoscience at the School of Earth, Society and Environment, the University of Illinois at Urbana Champaign (see below).

UIUC Liberal Arts & Sciences News (2019) 'Getting more girls into geoscience - Students organize unique summer camp for middle schoolers'

(https://las.illinois.edu/news/2019-08-16/getting-more-girls-geoscience).

Science exhibitor, Engineering Open House, UIUC **March 2017, 2018, and 2019**

Created the 'Journey through the Amazon' exhibit to share my research about the Amazon River with young children and non-scientist adults.

Peer mentor, Sloan UCEM, UIUC **August 2017 - May 2018**

Peer mentor to an incoming graduate student through the Sloan University Center of Exemplary Mentoring (UCEM) at Illinois. Met with mentee twice a semester to offer advice and resources. As a mentor, attended workshops, presentations, and mini-conferences related to diversity and inclusion, professional development, and effectively mentoring.

Invited speaker, Campus Insights, UIUC **April 2017**

I was the *first ever* student invited to share my research via a PechaKucha style presentation to the President, the Chancellor, and the Board of Trustees of the University of Illinois at the annual Campus Insights event that shares the learning, research, public engagement and social activities happening on campus. YouTube link: https://www.youtube.com/watch?v=q3MUCgaogBs

Science communicator, UIUC **November 2017**

Wrote a blog (link below) and did a 'snapchat takeover' about my field work in the Amazon River to share with students and alumni at the University of Illinois Urbana Champaign.

UIUC Liberal Arts & Sciences News (2017) 'Journey to the riverbank and back in time' (https://las.illinois.edu/news/blog/2017-02-20/journey-riverbank-and-back-time).

Campus infrastructure consultant, Texas A&M University **July 2015**

Conducted a GPS survey and GIS analysis of areas of disrepair on campus as an undergraduate class project and published my results in a peer-reviewed undergraduate research journal. The article garnered interest from the university's third-party contractor of campus infrastructure who asked to meet to discuss the methods used and subsequently offered funding to the Geography Society to produce a campus-wide map.