

Pedro Val

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School of Earth and Environmental Sciences
Queens College, City University of New York

EDUCATION

- Syracuse University 2012 - 2016
Ph.D. in Earth Sciences (focus area: **Tectonic and Process Geomorphology**)
Fellowship (4 years). Sponsor: CAPES – Science without Borders (Brazilian Government)
- Amazon Federal University 2006 - 2012
B.S. in Geology (Manaus, Amazonas, Brasil)
- Washington & Lee University 2009
Superior Education Consortia Program: Academic Exchange program
Sponsor: CAPES/FIPSE Brazil-USA

PROFESSIONAL EXPERIENCE

- Queens College, City University of New York – 08/2022 – Present
Assistant Professor
Primary Teaching Responsibility: Earth internal processes; Geology in the field. Research: Tectonics and Landscape evolution
- Federal University of Ouro Preto (UFOP) 08/2018 – 08/2022
Assistant Professor (tenured in July 2021)
Teaching: Geochemistry; Advanced Geomorphology. Research: Landscape evolution
- Hydrobiology Pty Ltd 05/2022 - present
Consultant in Environmental Science
- Hydrobiology Pty Ltd 08/2017 - 2018
Subconsultant in Environmental Science
- Scripps Institution of Oceanography (UCSD) 09/2016 – 07/2018
Postdoctoral Scholar in Geomorphology and Landscape Evolution
(supervisor: Jane K. Willenbring)
- Syracuse University 2015 - 2016
Academic Consultant at Student Support Services
Provide individual and group tutoring for under-represented and academically-at-risk students
(supervisor: Chris Weiss)
- PETROBRAS 2011
Internship: Sedimentology & Stratigraphy
Provide support to the sedimentology and stratigraphy sector. Describe drill-cores, build stratigraphic sections, provide field support in oil/gas-producing fields in the Amazon rainforest.

INTERNATIONAL PANELS

- **Science Panel for the Amazon** (*United Nations Sustainable Development Solutions Network*)
Coordinating Author of Chapter 1 – Geological history and geodiversity of Amazonia.

RESEARCH

*Peer-reviewed publications (journals and book chapters^o) - * denotes student author:*

Albert, JS, Carnaval, AC, Flantua, SGA, ... **Val, P**, (*accepted*) *Human impacts outpace natural processes in the Amazon. Science*

- Val, P.** & Willenbring, JK, 2022. Across-strike asymmetry of the Andes orogen linked to the age and geometry of the Nazca plate. *Geology*, doi: 10.1130/G50545.1
- *Fadul, C. M.; *Oliveira, P.; **Val, P.**, 2022. Ongoing landscape transience in the Eastern Amazon Craton consistent with lithologic control of base level. *Earth Surface Processes and Landforms*, doi: 10.1002/esp.5447
- Schaefer, JM; Codilean, AT; Willenbring, JK; Lu, Z-T; Keisling, B; Fülöp, R-H; **Val, P.**, 2022 Cosmogenic Nuclide Techniques, *Nature Reviews Methods Primers*, 2, 18, doi: 10.1038/s43586-022-00096-9 - INVITED
- °**Val, P.**, Willenbring, JK, 2022 Subduction Zone Dynamics and the Topography of Cordilleran Orogens. In: Shroder, J.J.F. (Ed.), *Treatise on Geomorphology*, vol. 2. Elsevier, Academic Press, pp. 68–86. <https://dx.doi.org/10.1016/B978-0-12-818234-5.00090-0>. - INVITED
- Hoorn, C; Boschman, LM; Kukla, T; Sciumbata, M; **Val, P.**, 2022 The Miocene wetland of western Amazonia and its role in biogeography, *Perspective Article*, Botanical Journal of the Linnean Society, doi: 10.1093/botlinnean/boab098
- Hoorn, C; Kukla, T; Bogotá-Angel, G.; van Soelen, E; González-Arango, C; Wesselingh, FP; Vonhof, H; **Val, P.**; Morcote-Rios, G; Roddaz, M; Dantas, EL; Santos, RV; Damsté, JSS; Kim J-H; Morley, RJ, 2022 Cyclic sediment deposition by orbital forcing in the Miocene wetland of western Amazonia? New insights from a multidisciplinary approach. *Global and Planetary Change*, 210, doi: 10.1016/j.gloplacha.2021.103717
- Val, P.**; Lyons, N; Gasparini, N; Willenbring, J; Albert, J 2022 Landscape evolution as a diversification driver in freshwater fishes, *Frontiers in Ecology and Evolution*, 9, doi: 10.3389/fevo.2021.788328
- Peifer, D; Cremon, ÉH; **Val, P.**, Fernandes, NF 2022. Bases teóricas do modelo stream-power de incisão fluvial. *Revista Brasileira de Geomorfologia*, 23(2), 1512-1523.
- Fernandes, NF; Peifer, D; **Val, P.** 2022 Capítulo 35: Modelos numéricos de evolução do relevo (LEMS) e sua importância para estudos de evolução da paisagem. In: Júnior, ABC; Gomes, MCV; Guimarães, RF; Gomes, RAT. *Revisões da Literatura da Geomorfologia Brasileira*
- Sá Leitão, CS; Souza, É; Santos, CH; **Val, P.**; Val, AL; Almeida-Val, VMF. 2021 River reorganization affects populations of dwarf cichlid species (*Apistogramma* genus) in the lower Negro River, Brazil. *Frontiers in Ecology and Evolution*, 9, doi: 10.3389/fevo.2021.760287
- °**Val, P.**; Figueiredo, J; Melo, G; Flantua, SGA; Quesada CA; Fan, Y; Albert, JA; Guayasamin, JM; Hoorn, C, 2021 Chapter 1: Geology and geodiversity of the Amazon: Three billion years of history, In: Nobre C, Encalada A, ... (Eds). *Amazon Assessment Report 2021. United Nations Sustainable Development Solutions Network, New York, USA. Available from theamazonwewant.org/spa-reports/*. doi: 10.55161/POFE6241 - INVITED
- Lyons, N; **Val, P.**; Albert, J; Willenbring, J; Gasparini, N. 2020 Topographic controls on divide migration, stream capture, and diversification in riverine life. *Earth Surf. Dynam. Discuss.*, doi: 10.5194/esurf-8-893-2020
- Albert, J; **Val, P.**; Hoorn, C. 2018 The changing course of the Amazon River in the Neogene: center stage for Neotropical diversification. *Neotropical Ichthyology*. 16, n.3, doi: 10.1590/1982-0224-20180033
- Ruetenik, G; Moucha, R; Hoke, G; **Val, P.** 2018 Regional landscape response to thrust belt dynamics: The Iglesia basin, Argentina. *Basin Research*. 30, 6, 1141-1154
- Val, P.**; Venerdini AL; Ouimet W; Alvarado P; Hoke GD. 2018 Tectonic control of erosion rates in the southern Central Andes, *Earth Planet. Sci. Lett.* 482, 160-170, doi: 10.1016/j.epsl.2017.11.0004
- Sá-Leitão, CS; Santos, CH; Souza, EM; **Val, P.**; Vilarinho, G; Silva, MN; Val, AL; Almeida-Val, VMF; 2017 Development and characterization of microsatellite loci in Amazonian dwarf cichlids

- Apistogramma spp. (Peciformes: Cichlidae): uncovering geological influence on Amazonian fish population. *Journal of Applied Ichthyology* 33, 6, 1196-1199, doi: 10.1111/jai.13490
- Val, P.;** Hoke, GD. 2016 A practical tool for examining paleo-erosion rates from sedimentary deposits using cosmogenic radionuclides: examples from hypothetical scenarios and data. *Geochemistry, Geophysics, Geosystems* 17, 1-11, doi: 10.1002/2016GC006608
- Val, P.;** Hoke, GD; Fosdick, JC; Wittmann H. 2016 Reconciling tectonic shortening, sedimentation and spatial patterns of erosion from ¹⁰Be paleo-erosion rates in the Argentine Precordillera. *Earth Planet. Sci. Lett.* 450, 173–185 doi: 10.1016/j.epsl.2016.06.015
- Val, P.;** Silva, CL; Harbor, DJ; Morales, N; Maia, TFA; Amaral, FR. 2014 Erosion of an active fault scarp leads to drainage capture in the Amazon region, Brazil. *Earth Surface Processes and Landforms*, Vol. 39, p. 1062-1074, doi: 10.1002/esp.3507
- Val, P.;** Silva, CL; Santos, JM; Morales, N; Harbor, D 2013 Distribuição de knickpoints em bacias de drenagem na região de Manaus (AM) e seu potencial para o estudo neotectônico e evolução da paisagem na Amazônia. *Contribuições à Geologia da Amazônia*, 8, 7-24

In Review

- Ruetenik, G., Jansen, J. D., **Val, P.**, and Ylä-Mella, L. (*in review, open access*) Optimising global landscape evolution models with ¹⁰Be, *Earth Surf. Dynam. Discuss.* Doi: 10.5194/esurf-2022-54

Doctoral dissertation

- Val, P.** 2016 The pace and timing of changing landscapes as viewed through cosmogenic radionuclides: synthetic and real examples from the Central Andes and Amazonia. *Syracuse University*

Conference talks and posters - Selected:

- Val, P.** 2022. Elevação e simetria de orógenos Cordilheiranos: da zona de subducção ao feedback climático.
- Ruetenik, G. R.; Jansen, J.; **Val, P.** 2022. Understanding landscape evolution parameters using global ¹⁰Be erosion rates. EGU General Assembly
- Willenbring, J. K.; **Val, P.** 2021. When do tectonic take the back seat? A macroscopic view of Earth's Surface (Invited). AGU Fall Meeting
- Oliveira, P.; **Val, P.;** Hoke, D. 2020. Spatial distribution and quantification of surface uplift in the South-Central Andes and Precordillera. AGU Fall Meeting 2020.
- Val, P.;** Willenbring, J. K. 2020. Across-strike asymmetry of the Andes orogen linked to the age and geometry of the Nazca plate. AGU Fall Meeting
- Fadul, C.M.*; **Val, P.** 2020. River capture and transient incision across lithologically controlled topographic barriers in Amazonia's eastern Guiana Shield. Geological Society of America. Annual Meeting
- Val, P.;** Willenbring, J. K. 2020. Building and moving mountains: Subduction zone imprints on the heights and asymmetries of cordilleran mountains. Geological Society of America. Annual Meeting
- Val, P.;** Willenbring, J. K. 2019. The tail doesn't wag the dog: Asymmetry of the Andes orogen driven by the geometry of the subducting Nazca slab. Regional Conference in Geomorphology, Athens 2019
- Val, P.;** Willenbring, J. K. 2019. Asymmetry of the Andes orogen, geometry of the subducting Nazca slab, and topographic trends across rain shadows. CLAST 2019 Penrose Conference, Juneau AK 2019 - *INVITED*

- Lyons, N.; Gasparini, N.; Albert, J.; **Val, P.**; Willenbring, J. K. 2018. Isolating the conditions of drainage reorganizations and its impacts on species evolution using numerical models. American Geophysical Union – Fall Meeting, Washington, D.C.
- Willenbring, J.; **Val, P.** 2018 Not feeling the buzz: tectonic-not climate-sets mountain heights (Invited Presentation). In: GSA Meeting, 2018, Indianapolis. GSA Annual Meeting in Indianapolis, Indiana, USA – 2018
- Lyons, N; **Val, P.**; Albert, J; Gasparini, N; Willenbring, J. K. Stream captures: Dynamics and impacts on biodiversity. In: European Geosciences Union General Assembly 2018, 2017, Vienna. European Geosciences Union General Assembly 2018.
- Val, P.**; Venerdini AL; Ouimet W; Alvarado P; Hoke, GD. 2016 Surface uplift governs millennial and decennial erosion rates in the southern Central Andes. Poster presentation, paper #T31A-2890. American Geophysical Union – Fall Meeting, San Francisco, CA.
- Val, P.**; Hoke, GD; Fosdick, JC; Wittmann, H. 2015 Dynamics of erosion in a compressional mountain range revealed by ¹⁰Be paleoerosion rates. Oral presentation, paper #T12B-04. American Geophysical Union – Fall Meeting, San Francisco, CA
- Val, P.**; Hoke, G. D. 2015 Surface uplift of the Frontal Cordillera at 30.5° - 31°S constrained through river profile analysis of the Castaño and Calingasta catchments, south-central Argentina. Poster #311-2 Geological Society of America 2015 – *Baltimore, MD Meeting*.

GRANTS AND AWARDS

- 2019 Grant: AMazon Evolution driven by RIver CApture eventS** - Instituto Serrapilheira (R\$99,274)
- 2019** Research Incentive, Federal University of Ouro Preto (R\$3,500)
- 2018 Grant: Detrital zircon provenance in the Guiana Shield.** CNPq (R\$20,000 + R\$4,800 REU scholarship for an undergraduate student at UFOP) #438735/2018-8.
- 2015** Newton E Chute Award for Outstanding Graduate Scholarship, Service to the Department and Professional Promise. Dpt. of Earth Sciences (Syracuse U.)
- 2015** John J Prucha Research Fund (U\$3,000) - Dpt. of Earth Sciences (Syracuse U.)
- 2014** John J Prucha Research Fund (U\$3,000) - Dpt. of Earth Sciences (Syracuse U.)
- 2014** Graduate Student Travel Grant (U\$900) - Geological Society of America (GSA)
- 2013** John J Prucha Research Fund (U\$3,000) - Dpt. of Earth Sciences (Syracuse U.)
- 2012** Full-time Ph.D. fellowship – CAPES – Science Without Borders (duration: 4 years)
- 2009** CAPES-FIPSE Superior Consortia Program - Environmental Studies at Washington & Lee University.

EDITORIAL BOARDS

- Editorial Advisor (honorary)* – Earth Surface Processes and Landforms (since 2022)
- Review Editor* – Frontiers in Earth Sciences (Sedimentology, Stratigraphy and Diagenesis Section) (since 2018)

PEER-REVIEW

Reviewer for: NSF | Tectonics | Journal of Geophysical Research: Earth Surface | Geology | Earth and Planetary Science Letters | Frontiers in Earth Science | Quaternary Science Reviews | Earth Surface Processes and Landforms | Geomorphology | Tectonophysics | Scientific Reports | Brazilian Journal of Geomorphology | Brazilian Journal of Geology | Journal of South American Earth Sciences | Hydrological Processes | Journal of Maps

INVITED TALKS AND KEYNOTES

- 2022** Brooklyn College – Earth and Environmental Sciences Weekly Seminar - *It's just a lithologic effect: Widespread transience in intraplate settings*
Syracuse University - Earth and Environmental Sciences K. Doulgas Nelson Seminar Series (*same talk as above*)
Landscapes Live Seminar Series (*same talk as above*)
Quantitative Geology Conference Keynote (Sao Paulo, Brazil) (*same talk as above*)
- 2021** Amazon Cooperation Treaty Organization (ACTO) – *The Amazon Assessment Report Part 1*
50° Brazilian Geology Congress Keynote - *Climate's minimal impact in the evolution of Cordilleran Mountain ranges*
CUNY-QC - *Climate's minimal impact in the evolution of Cordilleran Mountain ranges*
USP Geophysics Institute (IAG) – *Tectonic control of elevation and asymmetry of Cordilleran Mountain Ranges*
- 2020** GEAFS *Cosmogenic nuclide applications in surface processes*
UBG *Landscape evolution modeling in quantitative geomorphology*
- 2019** UFMG *Quantitative Geomorphology: theory and application*
- 2018** CUNY-QC *Dynamics of landscape change in space and time*
- 2017** TULANE *Catching up with Topography: Dynamics of erosion during mountain building*
UCLA *Erosion during mountain building: insights from the southern Central Andes*
ADAPTA (INPA – Brazil) *The AMERICAS Project: AAmazon Evolution by RIver Capture eventS*
- 2016** SCRIPPS *Erosion during mountain building: insights from the southern Central Andes*

HIGHER EDUCATION TRAINING

2018-2022

Sala Aberta – Training for tenure-track professors (UFOP)

2016-2018

EPIC Program - Educator Training Path (UCSD)

2017 Course Design Studio @ Center for Engaged Teaching (UCSD)

2017 Pathways to Scientific Teaching with Diane Ebert-May (UCSD)

SCIENCE COMMUNICATION (pt)

2022 [Por que ainda existem montanhas no Brasil?](#) (*Why are there mountains in Brazil still?*)

[O relógio das paisagens cai do céu](#) (*The landscape's clock falls from the sky*)

[A queda do paredão em Capitólio era uma questão de tempo](#) (*The rockfall in Capitólio was a matter of time*)

2021 [Como a Terra construiu a Amazônia?](#) (*How did Earth build the Amazon?*)

[O chão que pisamos é uma janela para o passado](#) (*The ground we step on is a window to the past*)

2020 [A revisão por pares é um trabalho fundamental](#) (*Peer review is a fundamental job*)

[Poderia o clima acelerar os motores tectônicos da Terra?](#) (*Could climate accelerate Earth's tectonic motors?*)

[O silenciamento do submundo](#) (*The silencing of the underworld*)

VOLUNTEER, OUTREACH, AND SERVICE

2023 Landscapes Live Seminar Organizing Committee

2022 DELTA H (Creator and Coordinator) – Brazil's one-day scientific meeting on landscape evolution

- 2020** Science for those in need (Creator) – *Free science presentations in exchange for donations to NGOs battling COVID-19*
- 2017** Syracuse University Project Advance (SUPA) – *The Earth System for High School Teachers / Invited speaker*
 Soil Kitchen: Free lead-screening for urban residents – *XRF operator and science educator*
 Scripps Community Outreach Program for Education (SCOPE) – *SIO Pier/Geology tour guide*
 Student-led Brazilian Students and Scholars' Conference (BRASCON) – *Editor*
- 2015** Central New York Earth Science Student Symposium – *Coordinator*
- 2013** Central New York Earth Science Student Symposium – *Sponsorship Agent*
- 2009** First Geology-Week of the Amazon Federal University (student-led) – *Program Chair*
- 2007** Spreading the knowledge of Earth Sciences at public schools in Manaus – *Speaker*
- 2006-2012**
 The Brazilian Science and Technology Week, Manaus – *Geology Presenter*

ADVISING AND ADVISORY COMMITTEES

Graduate level

Ongoing:

Pedro S. Oliveira – PhD student – *City University of New York* (Advisor)
Constraining the incision of the lower Amazon River system

Caio Augusto Crelier Cubas – MSc student – *Universidade Federal de Ouro Preto* (Advisor)
Divide migration in the Paraná Basin

Finished

2022 Jéssica Miranda – PhD – *Universidade Federal do Rio Grande do Sul* (Coadvisor)
Geomorphic imprints of neotectonics in Southeast Brazil

Camila Fadul – MSc – *Universidade Federal de Ouro Preto* (Advisor)
Ongoing landscape transience in the Guiana Shield

Undergraduate level

2018-2022

Pedro Dutra Drummond (Climatic influences on the morphology of coastal basins in Brazil)
 Arthur Lima Eugênio (Topographic analysis and numerical modeling of river captures in SE Brazil)
 Matheus Parreiras (Using drones to quantify gully erosion)
 Mariana Vilela (Landscape evolution modeling knickpoint distributions in chi-space using Landlab)
 Luane Ferreira (Detecting climatic imprints on the topography of the Peruvian Andes)
 Pedro Silvestre (Landscape evolution modeling of the Precordillera thrust belt using Landlab)
 Caio Cubas (Brazil's continental divide migration)

COURSES AND WORKSHOPS TAUGHT

2022 – present

Courses @ Queens College, CUNY: Methods in Geosciences; Earth Internal Processes (includes Structural Geology); Geology in the Field

2018 – 2022

Quantitative Geomorphology (Workshops May/19 and October/19)
 Undergrad courses @ UFOP: Geochemistry; Advanced Quantitative Geomorphology: Theory and Practice; Introduction to Geology; Macroscopic Petrography; Analytical techniques in environmental geochemistry; Environmental Geochemistry

BACKGROUND AND TOOLS

Scientific Programming: Matlab, Python, LANDLab

Geographic Information System and Remote Sensing: ArcGIS, QGIS

Laboratory experience: In-situ and meteoric cosmogenic nuclide sample processing; Mineral separation

PRESS

2022 [Como a Terra construiu a Amazônia?](#) (interview in Portuguese)

2020 [From DNA to Geology](#) (interview in Portuguese)

2019 [Pesquisador investiga mudanças em paisagens pelo DNA dos peixes](#)

Translation (own): Researcher investigates landscape changes in fish DNA

<http://minasfazciencia.com.br/2019/09/23/pesquisador-investiga-mudancas-em-paisagens-pelo-dna-dos-peixes/>

2016 [Huge time-lag between erosion and mountain building.](#)

(<https://phys.org/news/2016-07-huge-time-lag-erosion-mountain.html>)

IDIOMS

English – Fluent | Spanish – Regular | Portuguese – Native Language