

# Antônio Alves Meira Neto, Ph.D.

Assistant Professor of Hydrologic Sciences & Engineering

Department of Civil and Environmental Engineering

Colorado State University



## Education

---

- 08/2013 – 05/2019 **Ph.D. in Hydrology**, The University of Arizona, Tucson, AZ, USA  
Department of Hydrology and Atmospheric Sciences  
Minor: Soil, Water & Environmental Science  
Ph.D. Dissertation Title: *Investigation of hydrologically mediated interactions at the Critical Zone through controlled experimentation*  
Advisor: Prof. Peter Troch
- 03/2011 – 07/2013 **M.Sc. in Hydraulic and Sanitary Engineering – Hydrology**, University of São Paulo (EESC/USP), São Paulo, Brazil  
School of Engineering of São Carlos  
M.Sc. Thesis Title: *An application of Bayesian Model Averaging for hydrologic models using different rainfall inputs.*  
Advisor: Prof. Edson Wendland
- 10/2008 – 08/2009 **Exchange Program in Civil Engineering**, Technical University of Braunschweig, Germany
- 03/2005 – 01/2011 **B.Sc. in Civil Engineering**, Federal University of Bahia (UFBA), Bahia, Brazil  
B.Sc. Thesis Title: *Applicability of the SWAT model to a complex, semi-arid hydrologic system*  
Advisor: Prof. Yvonilde Medeiros

## Appointments

---

### **Assistant Professor of Hydrologic Sciences and Engineering, Colorado State University**

June 2023 – present.

- Courses Taught: Quantitative Ecohydrology (CIVE 625), Spring 2024.

### **Visiting Assistant Professor, Colorado College**

August 2022 – May 2023.

- Teaching duties: Hydrology (EV351), Introduction to Global Climate Change (EV128), and Advanced Topics in Environmental Sciences: Sociohydrology (EV355)

### **Postdoctoral Research Associate, The University of Arizona**

January 2022 – August 2022.

- Project: Improved Understanding of the Coupled Dynamics of Terrestrial Water, Ecosystems, and Climate over the Contiguous United States. Funded by the NASA Modelling, Analysis and Prediction (MAP) program.
- Revise the current soil hydraulic representation on NoahMP to improve the representation of soil moisture estimates.

### **Volunteer Research Associate, The University of Arizona**

January 2020 – January 2021.

- Project: Assessing the Impacts of Climate Seasonality on Water Availability and Long-Term Water Balance.

### **Postdoctoral Researcher, Federal University of Espírito Santo (UFES), Brazil**

July 2019 – August 2020

- Provided predictions of hydrologic regimes for several watersheds within the state of Espírito Santo under scenarios of climate change.
- Helped plan, organize, and edit the "[Guide on Climate Change for the state of Espírito Santo.](#)" This publication had the objective of providing an overview of the science and impacts of climate change for the state of Espírito Santo. It is intended to be used by a broad audience, including state agencies and professionals from the field of earth-sciences and engineering as well as students with a high-school level and above.
- Organized and presented at the "1<sup>st</sup> Seminar for Climate Change for the State of Espírito Santo" ([link](#)). This was a 2-day virtual event with presentations from several specialists on diverse topics related to the science of climate change, as well as impacts and mitigation strategies with relevance to the State of Espírito Santo.

### **Graduate Student Research Assistant, Department of Hydrology and Atmospheric Sciences, The University of Arizona**

Fall 2017 – Spring 2019

- Planned and executed the efforts to adapt the "mini-LEO" soil lysimeter with Electrical Resistivity Imaging (ERI) capabilities, which included (i) designing, manufacturing and installing ~220 stainless steel electrodes along the walls of the lysimeter (ii) devising a cable and panel system to allow for surveys at different regions and with different resolutions (iii) writing customized codes for data acquisition, and (iv) installing and maintaining a continuous remote-system for surveying during hydrologic experiments.
- Assisted in the installation of sensors and performed extensive sampling of soil-water at the artificial hillslopes from the Landscape Evolution Observatory (LEO) as well as helped prepare tracer solutions and their application during a 50-day long hydrologic experiment.
- Received and guided several visitors to the Biosphere 2 facility, including high school students, undergraduates in earth sciences as well as the public during outreach events.

### **Teaching Assistant, Department of Hydrology and Atmospheric Sciences, The University of Arizona**

Spring 2018 & Spring 2015

- HWR 519 - Fundamentals of Surface Water Hydrology
- Graded homework assignments, assisted with class-project preparation, lectured 2 classes per semester, held weekly office-hours, replied to homework questions through email, and proctored exams.

### **Teaching Assistant, Department of Hydrology and Atmospheric Sciences, The University of Arizona**

Fall 2015

- HWR 250 – Principles of Hydrology
- Planned and executed all laboratory sessions.
- Graded laboratory reports and helped students during in-presence office-hours, as well as through email.
- Planned and executed 6 field trips and technical visits.

### **Graduate Student Research Assistant, Department of Hydraulics and Sanitation Engineering, University of São Paulo**

July 2011 – December 2012

- Responsible for by-weekly field campaigns to monitor the Ribeirão da Onça (RO) catchment (62 km<sup>2</sup>). Activities included streamflow gaging, surveying of water level at multiple wells, acquisition of data from meteorological stations, programming Campbell Scientific data-loggers, equipment maintenance and field data management.
- Streamflow prediction for the RO catchment within uncertainty bounds using the Soil Water and Assessment Tool (SWAT) model through the Sequential Uncertainty Fitting (SUFI-2) algorithm.

### **Teaching Assistant, Department of Hydraulic and Sanitary Engineering, the University of São Paulo**

July – December 2011

- SHS0362 – Open Channel Flow
- Graded homework assignments, assisted with class-project preparation, held weekly office-hours, replied to homework questions through email, proctored exams.

### **Teaching Assistant, Department of Civil Engineering, Federal University of Bahia**

January – June 2010

- ENG371 – Hydrology
- Responsible for all laboratory sessions
- Graded homework assignments, assisted with class-project preparation, held weekly office-hours, replied to homework questions through email, and proctored exams.

### **Publications ( Under Review)**

---

- **Meira Neto, A. A.** Medeiros, P., de Araujo J. C., Pereira, B., Sivapalan, M. Evolution of Drought Mitigation and Water Security through 100 Years of Reservoir Expansion in Semi-Arid Brazil. Under review at *Water Resources Research*.
- Almagro, A., **Meira Neto, A. A.** Vergopolan, N., Roy, T., Troch, P., Oliveira, P. T. The drivers of hydrologic behavior in Brazil: insights from a catchment classification. Under review at *Water Resources Research*
- Niu, GY., Fang, Y., **Meira Neto., A. A.**, Guo, B., Zhang, XY., Farmani, M., Behrangi, Zheng, X. Representing Preferential Flow through Variably-Saturated Soils with Surface Ponding in a Large-Scale Land Surface Model over the Conterminous US. Under review at *Journal of Advances in Modeling Earth Systems (JAMES)*.

### **Publications (Accepted / Published)**

---

20. Ballarin, A. S., Wendland, E., Zaerpour, M., Hatami, S., **Meira Neto, A. A.**, & Papalexiou, S. M. (2024). Frequency rather than intensity drives projected changes of rainfall events in Brazil. *Earth's Future*, 12,

19. Ballarin, A. S., Oliveira, P. T. S., Marchezpe, B. K., Godoi, R. F., Campos, A. M., Campos, F. S., Almagro, A., **Meira Neto, A. A.** (2022). The Impact of an Open Water Balance Assumption on Understanding the Factors Controlling the Long-term Streamflow Components. *Water Resources Research*, 58.
18. **Meira Neto, A. A.**, Kim, M., & Troch, P. A. (2022a). Physical interpretation of time-varying StorAge Selection functions in a bench-scale hillslope experiment via geophysical imaging of ages of water. *Water Resources Research*, 58.
17. Kim, M., Volkmann, T. H. M., Wang, Y., **Meira Neto, A. A.**, Matos, K., Harman, C. J., & Troch, P. A. (2022). Direct observation of hillslope scale StorAge Selection functions in experimental hydrologic systems: Geomorphologic structure and preferential discharge of old water. *Water Resources Research*, 58.
16. Zhang, X.-Y., Jin, J., Zeng, X., Hawkins, C. P., **Neto, A. A. M.**, & Niu, G.-Y. (2022). The compensatory CO<sub>2</sub> fertilization and stomatal closure effects on runoff projection from 2016–2099 in the western United States. *Water Resources Research*, 58
15. Sengupta, A., Volkmann, T. H. M., Danczak, R. E., Stegen, J. C., Dontsova, K., Abramson, N., **Meira Neto, A. A.**, et al., (2021). Contrasting Community Assembly Forces Drive Microbial Structural and Potential Functional Responses to Precipitation in an Incipient Soil System
14. Siqueira, P. P., Oliveirta, P. T. S., Bressiani, D., **Meira Neto, A. A.**, Rodrigues, D. B. B. (2021). Effects of climate and land cover changes on water availability in a Brazilian Cerrado basin. *Journal of Hydrology: Regional Studies*, 37.
13. Melo, D. C. D., Anache, J. A. A., Borges, V. P., Miralles, D. G., Martens, B., Fisher, J. B., **Meira Neto, A. A.**, et al. (2021). Are remote sensing evapotranspiration models reliable across South American ecoregions? *Water Resources Research*, 57.
12. Kim, M., Volkmann, T. H. M., Bugaj, A., Wang, Y., **Meira Neto, A. A.**, Matos, K., Harman, C. J., & Troch, P. A. (2021). Uncovering the hillslope scale flow and transport dynamics in an experimental hydrologic system. *Hydrological Processes*, 35( 8), e14337.
11. Almagro, A., Oliveira, P. T. S., **Meira Neto, A. A.**, Roy, T., and Troch, P. (2021): CABra: a novel large-sample dataset for Brazilian catchments, *Hydrol. Earth Syst. Sci.*, 25, 3105–3135.
10. **Meira Neto, A. A.** Roy, T. Niu, G-Y, Tyler, S. W., Troch, P.A. (2020). Interactions between snow cover and evaporation lead to higher sensitivity of streamflow to temperature. *Communications Earth & Environment*, 1, (56).
9. **Meira Neto, A.A.**, Roy, T., de Oliveira, P.T.S. and Troch, P.A. (2020). An Aridity Index-Based Formulation of Streamflow Components. *Water Resources Research*, 56: e2020WR027123.
8. Lucas, M.C. Kublik, N. Rodrigues, D. B. B., **Meira Neto A. A.**, Almagro, A., Melo, D. C. D., Zipper, S. C., Oliveira, P. T. S. (2021). Significant baseflow reduction in the Sao Francisco River Basin. *Water*, 13, (2).
7. Sengupta, A., Stegen, J., **Meira Neto, A.**, Wang, Y., Neilson, J., Chorover, J., . . . Maier, R. (2019). Assessing microbial community patterns during incipient soil formation from basalt. *Journal of Geophysical Research: Biogeosciences*, 124(4), 941-958.

6. Wang, C., McNew, C., Lyon, S., Walter, M., Volkman, T., Abramson, N., **Meira Neto A. A.**, Dahlke, H. (2019). Particle tracer transport in a sloping soil lysimeter under periodic, steady state conditions. *Journal of Hydrology*, 569, 61-76.
5. **Meira Neto, A. A.**, Oliveira, P., Rodrigues, D., & Wendland, E. (2018). Improving streamflow prediction using uncertainty analysis and Bayesian Model Averaging. *Journal of Hydrologic Engineering*, 23(5).
4. Troch, P. A., Dwivedi, R., Liu, T., **Meira Neto, A. A.**, Roy, T., Valdés-Pineda, R., Durcik, M., Arciniega-Esparza, S., and Breña-Naranjo, J. A. (2018). Catchment-scale groundwater recharge and vegetation water use efficiency, *Hydrol. Earth Syst. Sci. Discuss.* ([Link](#) to non-peer reviewed preprint).
3. Pangle, L., Kim, M., Cardoso, C., Lora, M., **Meira Neto, A. A.**, Volkmann, T., . . . Harman, C. (2017). The mechanistic basis for storage-dependent age distributions of water discharged from an experimental hillslope. *Water Resources Research*, 53(4), 2733-2754.
2. Sengupta, A., Wang, Y., **Meira Neto, A. A.**, Matos, K., Dontsova, K., Root, R., . . . Troch, P. (2016). Soil lysimeter excavation for coupled hydrological, geochemical, and microbiological investigations. *Journal of Visualized Experiments*, 2016(115).
1. Troch, P., Lahmers, T., **Meira, A.**, Mukherjee, R., Pedersen, J., Roy, T., & Valdés-Pineda, R. (2015). Catchment coevolution: A useful framework for improving predictions of hydrological change? *Water Resources Research*, 51(7), 4903-4922.

## Reviewer for Scientific Journals

---

- Brazilian Journal of Water Resources, 2018 – Present
- Water Resources Research, 2018 – Present
- Annals of the New York Academy of Sciences, 2020 - Present
- Nature Communications, 2021 - Present
- Hydrologic Processes, 2021 – Present

## Grants

---

- Developing Ecophysiological Components for Post-Fire Hydrologic Models (ARS NACA #58-3012-4-002, \$33,000 per year for 3 years).
- Borland Equipment Grant (\$15,000)

## Awards/Recognitions

---

- **2022 Outstanding Reviewer** for Water Resources Research ([Link](#))
- **Galileo Circle Scholar**, College of Science, The University of Arizona, 2019. \$2000.
- **Best Oral Presentation Award**, Sponsored by Montgomery & Associates, El Día del Agua y la Atmósfera, The University of Arizona, 2018. \$2000.
- **Travel Grant**, Consortium of Universities for Advancement of Hydrologic Science (CUAHSI), 2017. \$500.
- **Galileo Circle Scholar**, College of Science, The University of Arizona, 2015. \$1000.
- **Services Award**, Department of Hydrology and Atmospheric Sciences, The University of Arizona, 2015. \$300

- **Travel Grant**, Consortium of Universities for Advancement of Hydrologic Science (CUAHSI), 2015. \$1000.
- **Fellowship Award**, Department of Hydrology and Atmospheric Sciences, The University of Arizona, 2014. \$1000.
- **Full Ph.D. Scholarship**, Brazilian Research Mobility Program, 2013 – 2017. \$220,000.
- **M.Sc. Scholarship**, Higher Education Improvement Coordination, 2011 – 2013. R\$31,200.
- **Undergraduate Scholarship**, National Council for Scientific and Technological Development, 2010. R\$6000.

## Convened Session at Scientific Conferences

---

- Convener of Sessions [H51C](#), [H52J](#), and [H55F](#) at the AGU Fall Meeting 2022: *Catchment and Critical Zone Science – Understanding Ecosystems Through Monitoring, Analysis and Experimentation*
- Moderator, Townhall [TH53H](#) at the AGU Fall Meeting 2023: *How Does AGU's Strategic Plan Affect Me? A Townhall for Students and Early Career Scientists with Their Council Representatives.*
- Moderator, Townhall [TH23B](#) at the AGU Fall Meeting 2021: *Student and Early-Career Voices at AGU.*
- Convener, Chair, and OSPA Liaison of Sessions [H22G](#), [H31H](#) and [H35ZB](#) at the AGU Fall Meeting 2021: *Machine Learning Applications in Catchment Hydrology.*
- Convener, Chair, and OSPA Liaison of Sessions [H085](#) and [H101](#) at the AGU Fall Meeting 2020: *Novel Hypotheses to Advance Hydrological Process Understanding at the Catchment Scale.*
- Convener and Chair of Sessions [H21A](#), [H22A](#) and [H23J](#) at the AGU Fall Meeting 2019: *Advancing Hydrologic Process Understanding Across Scales Using New Data Sets and Methods.*
- Convener and OSPA Liaison of Session [H23N](#) at the AGU Fall Meeting 2018: *Role of New Data Sets and Analysis Methods to Advance Hydrological Process Understanding at the Catchment Scale.*
- Convener of Session [B43A](#) at the AGU Fall Meeting 2017: *Advancing Understanding of Hydrological and Biogeochemical Interactions in Terrestrial Ecosystems Through Large-Scale Model Systems Posters.*

## Talks at Conferences and Other Events

---

- **Meira Neto, A. A.** Geophysical Imaging of Ages of Water. Van Tuyl Lecture Series Colorado School of Mines. 2023.
- **Meira Neto, A. A.** Drought Propagation in the Water-Scarce Northeast of Brazil: Societal Response to Spatio-Temporal Dynamics of Water Storage. Department of Geography & GIS. University of Illinois, Urbana-Champaign. 2023.
- **Meira Neto, A. A.** Climate change and the water resources of the State of Espírito Santo. 1<sup>st</sup> Seminar on Climate Change of the Institute on Climate Studies from Espírito Santo (IEC-ES), 2020.
- **Meira Neto, A. A.** Climate change and the water resources of the State of Espírito Santo. 1<sup>st</sup> Seminar on Climate Change of the Institute on Climate Studies from Espírito Santo (IEC-ES), 2020.

- **Meira Neto, A. A.** Enhanced temperature sensitivity of streamflow from snow-aridity interactions. Invited presentation for Prof. Guo-Yue Niu's research group. The University of Arizona, 2020.
- **Meira Neto, A. A.** An aridity index-based formulation of streamflow components. Invited talk for the course CIVE 898: Statistics in Hydrology. University of Nebraska-Lincoln, 2020.
- **Meira Neto, A. A.**, Kim M., Troch, P. A. Geophysical imaging of water ages within an experimental hillslope. Oral Presentation. El Día del Agua y la Atmósfera. The University of Arizona, 2019.
- Troch, P. A., **Meira Neto, A. A. (Presenter)**, Roy, T., Valdes-Pineda, R. Climate-based Formulation for Long-term Catchment-scale Baseflow and Direct Runoff (Invited). American Geophysical Union, Fall Meeting, Washington, DC, 2018. Oral Presentation.
- **Meira Neto, A. A.** Hydrologic controls on biogeochemical processes at the sub-meter scale. Montgomery & Associates, 2018. Oral Presentation.
- **Meira Neto, A. A.**, Sengupta, A., Wang, Y., Volkmann, Till H. M., Chorover, J., Troch, Peter A. Hydrologic controls on biogeochemical processes at the sub-meter scale. El Día del Agua y la Atmósfera, Tucson, 2018. Oral Presentation.

## Conference Abstracts

---

\* AGU FM YYYY = American Geophysical Union Fall Meeting Year

- **Meira Neto, A. A.** Fang, Y. Niu, GY., Assessing the effects of multiple soil physics parameterizations on continental scale soil moisture patterns. AGU FM 2023. To be decided.
- **Meira Neto, A. A.**, Pereira, B., Medeiros, P., Araújo, J. C., Sivapalan., M. Drought propagation in the water-scarce northeast of Brazil: societal response to spatio-temporal dynamics of water storage. AGU FM 2022. Poster.
- Goldtooth, A., Agnihotri, J., Meira Neto., A. A., Niu, GY., Impacts of Warming on Frozen Soil Permeability over the Ohio River Basin through Recession Flow Analysis. AGU FM 2022. Poster
- **Meira Neto, A. A.**, Kim, M., Troch, P. Physical interpretation of time-varying StorAge Selection functions in a model hillslope via geophysical imaging of ages of water. AGU FM 2022. Oral presentation.
- Kishawi, Y., Liu, C., Huong, P., **Meira Neto, A. A.**, Roy, T., Oliveira, P. T. S. A data-based approach for the estimation of streamflow components. AGU FM 2020. Poster.
- Oliveira, P. T. S., Almagro, A., Pitaluga, F., **Meira Neto, A. A.** Durcik, M., Troch, P. CABra: a novel large-scale dataset for Brazilian catchments. European Geosciences Union General Assembly, 2020. Poster.
- **Meira Neto, A. A.**, Roy, T., Oliveira, P. T. S., Troch, P. A. A Budyko-type formulation for baseflow and direct runoff. AGU FM 2019. Poster.
- Kim, Minseok, Volkmann, T. H. M., Abramson, N., Bugaj, Aaron, Hunt, Edward A., Matos, Katarena A., **Meira Neto, A. A.**, Meredith, L. K., Dontsova, K., Sengupta, A., Harman, C. J., Chorover, J., Troch, P. A. Experimental observation of a hillslope-scale rank StorAge Selection function: Process controls on its functional form, time variability, and hysteresis. AGU FM 2018. Poster.
- Litwin, D., **Meira Neto, A. A. (Presenting Author)**, Troch, P. A. Scaling of flow quantiles and mean catchment fluxes and storage provides empirical formulation of the flow duration curve. AGU FM 2018, Poster Presenter.
- Matos, K. A., **Meira Neto, A. A.**, Volkmann, T. H. M., Troch, P. A. Investigation of hydrological response of three identical artificial hillslopes at the Landscape Evolution Observatory. AGU FM 2018. Poster.

- **Meira Neto, A. A.**, Sengupta, A., Wang, Y., Volkmann, Till H. M., Chorover, J., Troch, Peter A. Establishment of quantitative hydrological indexes for studies of hydro-biogeochemical interactions at the subsurface. AGU FM 2017, New Orleans. Poster.
- Sengupta, A., Stegen, J., **Meira Neto, A. A.**, Wang, Y., Chorover, J., Troch, P. A. Microbial community assembly patterns under incipient conditions in a basaltic soil system. AGU FM 2017, New Orleans. Poster.
- Volkmann, T. H. M., Sengupta, A., Pangle, L. A., Abramson, N., Barron-Garfford, G., **Meira Neto, A. A.**, Troch, P. A. Controlled experiments of hillslope co-evolution at the Biosphere 2 Landscape Evolution Observatory: toward prediction of coupled hydrological, biogeochemical, and ecological change. AGU FM 2017, New Orleans. Poster.
- Matos, K. A., **Meira Neto, A. A.**, Troch, P. A., Volkmann, Till H. M. Investigation of Hydrological Response of Three Identical Artificial Hillslopes at the Landscape Evolution Observatory. American Geophysical Union Fall Meeting 2017, New Orleans. Poster.
- Litwin, D., **Meira Neto, A. A.**, Troch, P. A., Ferré, P. T. An electrical resistivity-based method for investigation of subsurface structure. American Geophysical Union Fall Meeting 2017, New Orleans. Poster.
- Wang, Y. Umazor, M., **Meira Neto, A. A.**, Sengupta, A., Amistadi, M. K., Root, R., Troch, P. A., Chorover, J. Elemental Redistribution at the Onset of Soil Genesis from Basalt as Measured in a Soil Lysimeter System. American Geophysical Union Fall Meeting 2017, New Orleans. Oral Presentation.
- Troch, P., Diwedi, R., Liu, T., **Meira Neto, A. A.**, Roy, T., Valdés-Pineda, R., Durcik, M., Arciniega, S., Brena-Naranjo, J. A. Catchment-scale groundwater recharge and vegetation water use efficiency. AGU FM 2017, New Orleans. Poster Presenter.
- Litwin, D., **Meira, A.**, Troch, P. Evaluating the effectiveness of ERT for assessing subsurface structure at the Landscape Evolution Observatory. GSA Annual Meeting 2017, Seattle. Poster.
- Sengupta, A., Neilson, J., **Meira, A.**, Wang, Y., Meza, M., Chorover, J., Maier, R. M., Troch, P. A. Strategies influencing spatial heterogeneity of microbial life in a soil lysimeter. AGU FM 2016, San Francisco. Oral Presentation.
- Pangle, L., Kim, M., Cardoso, C., Lora, M., **Meira, A.**, Volkmann, T. H. M., Wang, Y., Troch, P. A., Harman, C. J. Physical basis for storage-dependent age distributions of water discharged from an experimental hillslope. AGU FM 2016, San Francisco. Poster.
- **Meira Neto, A. A.**, Matos, K. A., Wang, Y., Troch, P. A., Chorover, J., Ferré, P. T. A forensics-based approach for assessing incipient heterogeneity of a hydrologic system. AGU FM 2015, San Francisco. Oral Presentation.
- Kim, M., Pangle, L., Cardoso, C., Lora, M., **Meira, A.**, Volkmann, T. H. M., Wang, Y., Harman, C. J., Troch, P. A. Relative controls of external and internal variability on time-variable transit time distributions, and the importance of StorAge Selection function approaches. AGU FM 2015, San Francisco. Poster.
- Roy, T., Lahmers, T., **Meira Neto, A. A.**, Mukerjhee, R., Pedersen, J. M., Valdes-Pineda, R., Yoshida, T., Troch, P. A. Catchment Coevolution: A useful framework for improving predictions of hydrological change? AGU FM 2015, San Francisco. Poster.
- **Meira Neto, A. A.**, Fontes, A. S., Medeiros Y. D. Applicability of the SWAT model for a complex semi-arid basin. Brazilian Water Resources Conference, Alagoas, Brazil, 2011. Oral Presentation.
- Paes, C. O., **Meira Neto, A. A.**, Manzione, R. L. Influence of agricultural soil compaction on groundwater recharge at the Guarani Aquifer System outcrop zone. XVII Brazilian Groundwater Conference, Bonito, MS, 2012. Poster.
- Melo, D. C. D., **Meira Neto, A. A. (Presenter)**, Wendland, E. Experimental Basin at the Guarani Aquifer System's Outcrop region. Brazilian Water Resources Conference Alagoas, Brazil, 2011. Oral Presentation.

## Service and Voluntary Activities

---



### **Task Force on Campus Safety of the AGU Hydrology Section**

January 2023 – Present

- This task force aims to provide recommendations to academic institutions on how to better handle campus and classroom safety.

### **Committee Member of the Outstanding Student Presentation Award (OSPA) of the AGU Hydrology Section**

March 2022 – Present

- Plan strategies to better reward student presentations within the Hydrology section at the AGU Fall Meeting.

### **Catchment Hydrology Technical Committee Member, Hydrology Section, the American Geophysical Union**

December 2020 – Present

- The Catchment Hydrology Technical Community organizes scientific sessions around emerging and frontier topics at the AGU Fall Meetings.

### **Council Representative, the American Geophysical Union (AGU)**

January 2019 – December 2022

- Represent Student and Early Careers (SEC) within the American Geophysical Union (AGU) Council by generating ideas to strengthen AGU's activities and science policies. More on the AGU Council [here](#).
- Actively participate in the development of the newly released [AGU Strategic Plan](#) through several leadership wide as well as small, focused group meetings.
- Improve SEC experience at the 2019 and 2020 Fall Meetings by facilitating discussions at the Student Lounge, creating a SEC-tailored selection of events, and holding in person meet-and-greets with the goal of maximizing SEC engagement and participation.
- Organize virtual meetings to disseminate and exchange practices and experiences between SEC representatives from all AGU sections.

### **Newsletter Editor of the AGU Hydrology Section**

January 2019 – January 2021

- Proof-read, organize, and edit (using Adobe InDesign software) the Hydrology Section's bi-yearly newsletter including articles from the section leadership, articles from award winners, personal opinions, among others.
- Implement social media strategies to amplify the Newsletter reach.
- Currently working on transitioning the format from a PDF to a web format, to increase reach, accessibility, and interactivity of the Newsletter.

### **President of the Hydrology and Atmospheric Sciences Students Association (HASSA), Department of Hydrology and Atmospheric Sciences, The University of Arizona**

August 2014 – July 2015

- Planned, executed, and co-chaired the "Annual El Día del Agua y la Atmosfera", a day-long student research symposium with poster and oral presentations as well as invited speakers and discussions. More on the event [here](#).
- Organized weekly social gatherings, and the departmental weekly colloquium.
- Realized outreach activities for K-12 students, and community members.
- Met with prospective graduate students to provide them with a student's perspective of the department. More on HASSA [here](#).

## **Co-Chair of the Earth Week 2015 School of Earth and Environmental Sciences (SEES), The University of Arizona**

August 2014 – July 2015

- Earth Week is a joint conference held yearly by all the departments of the SEES. While all departments contribute to the organization of the conference, the chair and co-chair positions are rotated yearly through each department's student association. As a co-chair I participated at several department-head meetings to update them on the progress of the event organization as well as held monthly meetings with other student associations to define timelines, speakers and decide on organizational aspects of the event.

## **Civil Engineering Students Office (ENGETOP), Federal University of Bahia**

March 2005 – April 2007

- ENGETOP is a non-profit organization lead by civil engineering students, aiming at providing basic engineering services for the low-income population. Projects are led by students in their last years of their engineering programs with the supervision of department faculty. Students in their initial years learn project management skills and help with the organizational aspects of the office. I took an active participation at ENGETOP, being elected president for the year of 2006.

## **Current Students**

---

**Victória Wojahn**, PhD Student, CEE CSU. (Jan 2024 - present)

## **Graduate Students Advised**

---

### **Andre Almagro, PhD student, Environmental Engineering – Hydrology, Federal University of Mato Grosso do Sul (UFMS), Brazil**

July 2019 – Sep 2021

- Paulo Tarso O. Sanches, Advisor and Antônio A. Meira Neto, Co-Advisor
- [André](#) developed a large dataset of Brazilian catchments including climate and landscape attributes (Almagro et al., 2020). He is currently preparing 2 manuscripts: one on watershed classification across different Brazilian biomes, and a second one on prediction of water availability under climate change scenarios (following CMIP6 models).

### **Jéssica Loureiro, M.Sc. student, Environmental Engineering – Hydrology, Federal University of Espírito Santo (UFES), Brazil**

Jan 2020 – Jul 2021

- Diogo Costa Buarque, Advisor and Antônio A Meira Neto, Co-Advisor
- Jéssica worked on hydrologic predictions with different scenarios of climate change focusing on water provision for the metropolitan region of Vitória, the capital of the State of Espírito Santo.

### **Julielza Baldoto, M.Sc. student, Environmental Engineering – Hydrology, Federal University of Espírito Santo (UFES), Brazil**

Sept 2019 – Jul 2021

- Diogo Costa Buarque, Advisor and Antônio A Meira Neto, Co-Advisor
- Julielza investigated large-scale water storage variations for the State of Espírito Santo. She is using information from the GRACE satellite together with a large-scale physically based hydrologic model to revisit a severe drought experienced in the State in 2016-2017, as well as predicting continental water storage under climate change scenarios.

## Undergraduate Students Advised

---

### **David Litwin, Research Experience for Undergraduates (REU), Biosphere2, The University of Arizona**

Summer 2017

- Introduced David to the practical and computational aspects of Electrical Resistivity Imaging (ERI) of soils in hydrology. Held weekly meetings, and helped him develop his independent research question, which was later [presented](#) at the 2017 Annual Meeting of Geological Society of America.

### **Tamara Jouly, Latin American Summer Program 2016, The University of Arizona**

Summer 2016

- Tamara received practical training in laboratory measurements of soil bulk density and hydraulic conductivity, as she helped me run ~120 hydraulic conductivity and bulk density samples. Additionally, we held weekly meetings to define and prepare for her summer research presentation.

### **Haluizio Damasceno, Research Experience Undergraduate (REU), the Brazilian Scientific Mobility Program, The University of Arizona**

Summer 2015

- Haluizio was introduced to the research done at the LEO at Biosphere 2 and trained on laboratory measurements of hydraulic conductivity. I helped him devise a small experiment to test a hypothesis on the hydraulic behavior of the basaltic soil used in the LEO hillslopes.

## Non-Peer Reviewed Writing

---

- **Meira Neto, A. A.**, et al., (2023). Climate Change and Water Resources (Chapter. 3), In: [Guide on Climate Change for the State of Espírito Santo](#) (translated from Portuguese). Federal University of Espírito Santo, Paco Publishers.
- **Meira Neto, A. A.** Cold and Vulnerable. [Blogpost](#) for the “Behind the Paper” blog from Springer Nature Sustainability Community, 2020.
- **Meira Neto, A. A.**, Matos K. A New Chapter for the Hydrology Newsletter. Hydrology Section Newsletter, [December 2020 Issue](#), 2020.
- Nobre, C. A., **Meira Neto, A. A.**, Soares W. R., Martins, M. Q. Recommendations for the Forum on Climate Change of the State of Espírito Santo (translated from Portuguese), 2020.
- Tyler, S., Luce, C., Barros, A., McDonnell, J., Arumugam, S., Blume, T., Clark, M., Saberi, L., **Meira Neto, A. A.**, Matos, K. The Hydrology Section on Diversity, Inclusion and Equity. [Blogpost](#) for the Hydrology Section website, 2020.
- **Meira Neto, A. A.** (2019). Investigation of hydrologically mediated interactions at the Critical Zone through controlled experimentation. Ph.D. Dissertation, The University of Arizona. [Link](#).

## Outreach Activities

---

- **Judge for Science Fair Projects**, Sam Hughes Elementary School, Tucson, AZ. April 2019.
- **LEO Tour Guide**, Earth-Day Celebrations, Biosphere 2, Oracle, AZ. Introduced the public to the soil-water-content and CO<sub>2</sub> concentration measurements, their importance, and the broad implications for the understanding of earth-surface processes. March 2017.
- **Tucson Book Festival Science City Volunteer**, The University of Arizona, Tucson, AZ. Interacted with the community and answered questions regarding Arizona water resources and Arizona water issues. Led a hands-on activity to teach the community about the connection between surface and groundwater. March 2015.
- **Outreach Volunteer for the Basis Oro Valley Middle School Campus Visit**, The University of Arizona, Tucson, AZ. Engaged 120 Basic Elementary School students, teachers, and parents in 3 soils outreach activities (soil dig, build your own terrarium, and just passing through infiltration experiment). February 2015.
- **Presenter at “What if…” Series**, Biosphere-2, Oracle, AZ. Presented the talk “*What if we could study hillslopes under glass,*” which introduced the public on the concepts of watersheds, hillslopes and the interactions of water and biogeochemical processes in shaping the quality of the earth’s water resources. November 2016.
- **Presenter at “What if…” Series**, Biosphere-2, Oracle, AZ. Presented the talk “*What if we could understand erosion,*” which introduced the public to the processes causing erosion at multiple spatial and timescales and the importance of studying them. November 2015.
- **Judge for Regional Science Fair**, the Southern Arizona Research Science and Engineering Foundation (SARSEF), Tucson, AZ. April 2015.
- **Presenter at “What if…” Series**, Biosphere 2, Oracle, AZ. Presented the talk “*What if we could understand watersheds,*” which introduced concept of watersheds and water cycle to the public. January 2015.
- **Science Tour Guide**, Biosphere-2 Discovery Nights, Oracle, AZ. Presented the Landscape Evolution Observatory to an open-house aiming at showcasing the research done at Biosphere 2 to the local community. September 2013.

## Professional Advancement

---

- *Teacher Development Program, Colorado College*, Crown Center, Colorado College. (September 2022 – May 2023)
- *AGU Mentoring Network*. (January 2021 – Present)
- *Speaking Up: How Bystanders can Change the Conversation in STEMM*. Workshop facilitated by Stephanie Goodwin, Ph.D., AGU headquarters, Washington D.C. 2020.
- *Wireless Sensing for Urban Hydrology*. Workshop by the Consortium of Universities for the Advancement of Hydrologic Science (CUAHSI), University of Michigan. 2017.
- *The Role of Runoff and Erosion on Soil Carbon Stocks: From Soils to Landscapes*. Workshop by the Consortium of Universities for the Advancement of Hydrologic Science (CUAHSI), Purdue University, Indiana. 2015.
- *Near Surface Geophysics for Hydrology*. Workshop by the Consortium of Universities for the Advancement of Hydrologic Science (CUAHSI), University of Wyoming. 2015.
- *Advanced Techniques in Watershed Science*. Workshop by the Consortium of Universities for the Advancement of Hydrologic Science (CUAHSI), University of Arizona. 2014.

- *Time-Series Analysis applications in Hydrology*. Workshop by The University of Arizona and the University of São Paulo, 2012.
- *Teaching Methodologies for Engineering*. University of São Paulo, Brazil. Graduate course, 180 hours, 2011.
- *The Soil and Water Assessment Tool (SWAT) Model*. Workshop by Texas A&M and the University of São Paulo. 2011.
- *Applied Statistics*. Workshop by the Federal University of Bahia. 2010.
- *Introduction to ArcGIS 9.3*. Workshop by the Federal University of Bahia. 2010.
- *Planning of Urban Drainage Systems*. Workshop by the Federal University of Bahia. 2009.
- *Introduction to Finite Element Methods Applied to Mechanics of Solids*. Workshop by the Federal University of Bahia. 2007.

## Professional Society Memberships

---

- American Geophysical Union (AGU). 2015 – Present.
- Brazilian Water Resources Association (ABRH). 2019 – 2021.

## Language Skills

---

- English: Advanced knowledge
- German: Advanced knowledge
- Spanish: Advanced knowledge
- Portuguese: Native language

## Professional References

---

### **Peter A. Troch**

Professor  
University of Arizona,  
Hydrology and Atmospheric Sciences  
patroch@arizona.edu

### **Murugesu Sivapalan**

Professor  
University of Illinois, Urbana-Champaign  
Civil & Environmental Engineering  
sivapala@illinois.edu

### **Guo-Yue Niu**

Associate Professor  
University of Arizona  
Hydrology and Atmospheric Sciences  
niug@arizona.edu

### **Scott W. Tyler**

Professor  
University of Nevada, Reno  
Geological Sciences & Engineering  
styler@unr.edu