**Ashley M. Matheny, PhD**
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ashley.matheny@jsg.utexas.edu

**EDUCATION:**

| | | | |
|---|---|---|---|
| Doctorate in Civil Engineering | The Ohio State University, Columbus, OH (OSU) | | 8/2016 |
| Advisor: Dr. Gil Bohrer | | | |
| Master of Science in Civil Engineering | OSU | | 5/2013 |
| Advisor: Dr. Gil Bohrer | | | |
| B.S Civil Engineering with Honors in Engineering | OSU | *Cum Laude* | 6/2010 |
| B.A Spanish with Honors in Arts and Sciences | OSU | *Cum Laude* | 6/2010 |

**CERTIFICATION:** Passed the FE exam in preparation for subsequent PE licensure 12/2010

**EMPLOYMENT HISTORY:**

Assistant Professor, Department of Geological Sciences, Jackson School of Geosciences, The University of Texas at Austin, August 2017-Present
Postdoctoral Research Scientist, Department of Civil, Environmental, and Geodetic Engineering, August 2016-August 2017
Graduate Research Associate, Department of Civil, Environmental, and Geodetic Engineering, Ohio State University, 2010-2016
Civil Engineer, U.S. Army Corps of Engineers, Huntington District, Summers 2009, 2012, 2013
Student Assistant, Department of Facilities, Design, and Construction, OSU, 2007-2010

**HONORS AND AWARDS:**

Knebel Teaching Award (based on student votes) 2020
University of Texas Rising STARs Faculty Award 2017
Professor of The Month, NRHH student-nominated teaching award 2016
2nd Place Oral Presentation, 32nd Conference on Agricultural and Forest Meteorology 2016
Presidential Fellowship, Ohio State University 2015-2016
Marian P. and David M. Gates Student Research Fellowship 2015
P.E.O. Scholar Award ($15,000) 2015-2016
P.E.O. Ohio Scholarship 2015-2016
Outstanding Student Paper Award (OSPA), AGU Hydrology Section 2014
Keith W. Bedford Travel Grant 2014
Marian P. and David M. Gates Student Research Fellowship 2014
OSU Women in Engineering Distinguished Graduate Student Award 2011
University Fellowship, Ohio State University 2010-2011
Beanie Drake Student Leadership Endowment Fund Finalist 2009-2010
Dr. Carolyn Merry Scholarship 2009-2010
OSU Women in Engineering Leadership Award 2008-2009
OSU Women in Engineering Outstanding Academic Achievement Award 2008-2009

**CURRENT AND RECENT SUPPORT:**

Department of Energy Terrestrial Ecosystem Science (0000246697), Exploring halophyte hydrodynamics and the role of vegetation traits on ecosystem response to disturbance at the terrestrial-aquatic interface. (PI), $882,483, 2019-2022
Monash University, Melbourne Australia, Networks of Excellence, Ecohydrology and Physiological Ecology of Coastal Wetlands (CO-I, $9,000), Ruth Reef (PI) grant total $25,000, 2020-2021.
Exxon Mobile (Through UT Energy Institute), Linking Plant Strategies to Complex Subsurface Hydrology to Predict Ecosystem Carbon Storage across Texas. (CO-I, $10,836), Caroline Farrior (PI) grant total $239,796. 2020-2022.

University of Texas at Austin, Experiential Learning Initiatives Faculty Innovation Grant (PI), $10,000, 2019-2020

University of Texas at Austin, Planet Texas 2050 Urban Watershed Resilience, Renewal: The role of urban riparian areas in the reduction of heat islands and the improvement of environmental health. (PI), $5,600, 2019-2020

University of Texas at Austin, Summer Research Assignment, Simulating the forest water cycle in response to disturbance (PI), $20,000, 2019

University of Texas at Austin, Planet Texas 2050 Urban Watershed Resilience, The role of urban riparian areas in the reduction of heat islands and the improvement of environmental health. (PI), $13,000, 2018-2019

University of Texas at Austin, Faculty Travel Grant, $1,200, 2018

University of Texas Rising STARs Faculty Award, $250,000, 2017

NSF Hydrological Sciences (1521238), Including tree water storage dynamics in modeling of stomatal conductance. (CO-PI). Gil Bohrer (PI), $496,537, 2015-2018

**TEACHING:**

Assistant Professor, Department of Geological Sciences, University of Texas at Austin
Physical Hydrology (GEO382S/376S), Field Methods in Groundwater Hydrology (GEOF382C/F376L), Ecohydrology and Biometeorology (GEO371T/391), Introduction to Physical and Chemical Hydrogeology (GEO346C).

Co-Lecturer, Civil and Environmental Engineering OSU Aug. 2016 – Dec. 2016
Applied Hydrology (CE5130, 53 Students)

Invited lecturer, Karlsruhe Institute of Technology, Germany 16-27 Aug. 2015
Modeling of land surface-atmosphere interactions (MICMOR Summer School, 28 Students) Graduate

Teaching Associate, First Year Engineering Program OSU Sept. 2011 - Dec. 2012
First Year Engineering (Engineering 1181, 72 Students, Autumn 2011, Winter 2012)
Engineering Graphics (Engineering 1186, 72 Students, Autumn 2012)

Teaching Assistant, Civil Engineering, Dr. Shive Chaturvedi OSU Sept. 2009 – June 2010
Reinforced Concrete Design (CE 535, 55 Students)
Structural Analysis (CE 431, 55 Students)

**GRADUATE STUDENTS:**

| **PhD students, serves or served as supervisor or co-supervisor (denoted by *)** | | | |
|---|---|---|---|
| Name | Started under my supervision | Passed candidacy | Graduation |
| Ana Maria Restrepo Acevedo | Fall 2018 | Spring 2020 | In progress |
| Lingcheng Li* | Spring 2018 | Spring 2018 | Summer 2020 |
| Suvan Cabraal | Fall 2020 | N/A | |
| | | | |
| **MS & MA students, serves or served as supervisor** | | | |
| Name | Started under my supervision | Graduation | |
| Austin Rechner | Fall 2018 | Summer 2020 | |
| Maria Ulatowski | Fall 2020 | | |
| Jack McLaughlin | Fall 2020 | | |

**GRADUATE STUDENT COMMITTEE SERVICE:**

| **PhD students, serves or served as dissertation committee member** | | |
|---|---|---|
| Name | Department | Supervisor |
| Logan Schmidt | Geological Sciences | Rempe |
| Seungwon Chung | Geological Sciences | Yang |
| Michael O'Connor | Geological Sciences | Cardenas |

| | | |
|---|---|---|
| **PhD students, served as qualifying committee chairperson** | | |
| Name | Department | Supervisor |
| Kelly Olsen | Geological Sciences | Bangs |
| Cole Speed | Geological Sciences | Sylvester |
| | | |
| **MS & MA students, serves or served thesis committee member** | | |
| Name | Department | Supervisor |
| Francisco Ochoa | Geography | Doolittle |

**UNDERGRADUATE STUDENTS:**

| **BS students who worked on an undergrad or honors thesis, serves or served as supervisor** | | | |
|---|---|---|---|
| Name | Started under my supervision | Institution | Thesis completed |
| Athena Kovner | 2019- | UT | In Progress |
| Claire Pluim | 2020- | UT | In Progress |
| Sally Jung | 2018- | UT, EVS | In Progress |
| Erica McCormick | 2017-2019 | UT | Spring 2020 |
| Alec Blair | 2018-2020 | UT, Plan II | Spring 2020 |
| Suvan Cabraal | 2018-2019 | UT, GEH | Fall 2019 |
| Jake Gearon* | 2017-2018 | UT, GEO | Spring 2019 |
| Bianca Valdez | Fall 2017 | UT, GEO | Spring 2018 |
| | | | |
| **BS students, served as Research Experience for Undergraduate supervisor** | | | |
| Name | Year | Institution | |
| A. Rio Mursinna | 2017-2018 | UT | Spring 2018 |
| | | | |
| **BS students, served as undergraduate research assistant supervisor** | | | |
| Name | Year | Institution | |
| Christian Romulis | 2018-2019 | UT | |
| Kelly Malone | 2017-2019 | UT | |
| Chance Bolduc | 2018-2019 | UT | |
| Riley Winebarger | 2018-2019 | UT | |
| Mariana Velasquez | 2017-2018 | UT | |
| Katie Van Horn | 2017-2018 | Austin Com. College | |
| Lisa Sartin | 2016-2017 | Ohio State U. | |

**STUDENT AWARDS:**

GCA Zone VI Fellowship in Urban Forestry, Garden Club of America, (Supervisor). Student: E. McCormick, University of Texas at Austin, $5,000, 2019

Plan II Skaaren Climate Fellowship, Student: E. McCormick, UT Austin $1,000, 2019

Graduate Research Fellowship, *Mort Neff Graduate Student Research Fund* (Supervisor). Student: A. M. Restrepo Acevedo, University of Michigan Biological Station, $1,436, 2019

NSF Research Experience for Undergraduates, Climate change in the Great Lakes region, (Supervisor). Student: A.R. Mursinna, University of Michigan Biological Station. $20,000, 2018

Graduate Research Fellowship, *Dr. Ralph E. Bennett Endowment Fund* (Supervisor). Student: A. Rechner, University of Michigan Biological Station, $2,700, 2018

**SERVICE:**

Department of Energy, Terrestrial Ecosystem Science Grant Review Panel, Summer 2020
Surface Atmosphere Exchange Technical Working Group, National Ecological Observatory Network (NEON) 2018-2020
Community Terrestrial Systems Model Advisory Committee, National Center for Atmospheric Research (NCAR) 2018-2022
AGU Ecohydrology Technical Committee 2018-2022
University of Texas at Austin, Provost's Committee on Faculty LGBTQ+ Access, Equity, and Inclusion committee, 2019-2020
AGU 2019 Fall Meeting Session Chair: Forest Water Dynamics, Plant Hydraulics, and Drought Responses in the Earth System I and II
University of Texas at Austin, Provosts Committee on LGBTQ Faculty Affairs 2019-2020
Department of Geological Sciences, UT Austin, WCE Faculty Annual Review Committee 2018-2019
Department of Geological Sciences, UT Austin, GCS Membership Review Committee, 2018-2019
Department of Geological Sciences, UT Austin, Social Coordinating Officer 2018-2019
Department of Geological Sciences, UT Austin, DeFord Lecture Series Committee Representative '18/19
Department of Geological Sciences, UT Austin, WCE Webpage Committee 2017-2018
Editor, *Forests* Special Edition: "Defining, Quantifying, Observing and Modeling Forest Canopy Traits"
AMS 2018 Annual Meeting Session Chair: Advances in Evaporation and Evaporative Demand

**PUBLICATIONS:**

**Totals: Peer reviewed journal articles 25, theses 2, conference proceedings 77**

Underline denotes student or post-doctoral fellow * denotes undergraduate student

1. Li, L., Z-L. Yang, **A. M. Matheny**, H. Zheng, S. Swenson, D. Lawrence, M. Barlage, B. Yan (In Revision) Development of plant hydraulics in the Noah-MP Land Surface Model. *Journal of Advances in Modeling Earth Systems*.
2. Agee, E., L. He, G. Bisht, V. Couvreur, P. Shahbaz, F. Meunier, C. Gough, **A. M. Matheny**, G. Bohrer, V. Ivanov (In Revision) Root lateral interactions drive water uptake patterns under water limitation. *Advances in Water Resources*.
3. Poyatos, R., V. Granda, V. Flo, M.A. Adams, […] **A. M. Matheny,**[…],et al., (2020). Global transpiration data from sap flow measurements: the SAPFLUXNET database. *Earth System Science Data*, 1-57.
4. Aron, P. G., C. J. Poulsen, **A. M. Matheny**, R. P. Fiorella, T. Veverica (2020) An isotopic approach to quantify transpiration in a mixed deciduous forest. *Ecohydrology* DOI: 10.1002/eco.2229
5. Pappas, C., J. Maillet, S. Rakowski, J. L. Baltzer, A. G. Barr, T. A. Black, S. Fatichi, C. P. Laroque, **A. M. Matheny**, A. Roy, O. Sonnentag, T. Zha, (2020) Aboveground tree growth is a minor and decoupled fraction of boreal forest carbon input. *Agricultural and Forest Meteorology* DOI: 10.1016/j.agrformet.2020.108030
6. **Matheny, A. M.** and G. Bohrer (2019) Water cycling: 3.7 Sap flux. In Halbritter, et al., The handbook for standardized field and laboratory measurements in terrestrial climate-change experiments and observational studies (ClimEx). *Methods in Ecology and Evolution* DOI: 10.1111/2041-210x.13331
7. **Matheny, A. M.**, P. Marchetto, J. Powell, A. Rechner, J.-Y. Chuah, E. McCormick*, S. Pierce, (2019) LEAF: Logger for Ecological and Atmospheric Factors. *HardwareX*. DOI:10.1016/j.ohx.2019.e00079
8. Aron, P., C. Poulsen, R. Fiorella, **A. M. Matheny** (2019) Stable Water Isotopes Reveal Effects of Intermediate Disturbance and Canopy Structure on Forest Water Cycling. *Journal of Geophysical Research: Biogeosciences* DOI: 10.1029/2019JG005118 **Highlighted in EOS Research Spotlight**

9. Mirfenderesgi, G., **A. M. Matheny**, G. Bohrer (2019) Hydrodynamic trait coordination and cost-benefit tradeoffs throughout the isohydric-anisohydric continuum in trees. *Ecohydrology*, 12(1): e2041. DOI: 10.1002/eco.2041
10. Mursinna, A. R.*, E. McCormick*, K. Van Horn*, L. Sartin*, **A. M. Matheny** (2018) Plant hydraulic trait covariation: a global meta-analysis to reduce degrees of freedom in trait-based hydrologic models. *Forests*, 9(8). DOI: 10.3390/f9080446 **Cover Article**
11. Fiorella, R., C. Poulsen, **A. M. Matheny** (2018) Seasonal patterns of water cycling in a deep, continental mountain valley inferred from stable water vapor isotopes. *Journal of Geophysical Research: Atmospheres.* DOI:10.1029/2017JD028093
12. Pappas, C., **A. M. Matheny**, J. Baltzer, A. Barr, T. Black, G. Bohrer, M. Detto, J. Maillet, A. Roy, O. Sonnentag, J. Stephens (2018) Boreal tree hydrodynamics: asynchronous, diverging, yet complementary. *Tree Physiology*. DOI: 10.1093/treephys/tpy043 **Cover Article**
13. Peters, R.L., P. Fonti, D. C. Frank, R. Poyatos, C. Pappas, A. Kahmen, V. Carraro, A. L. Prendin, L. Schneider, J. L. Baltzer, G. A. Barron-Gafford, L. Dietrich, I. Heinrich, **A. M. Matheny**, R. L. Minor, O. Sonnentag, K. Steppe (2018) Quantification of uncertainties in conifer sap flow measured with the thermal dissipation method. *New Phytologist.* DOI: 10.1111/nph.15241
14. **Matheny, A. M.**, S. R. Garrity, G. Bohrer (2017) The calibration and use of capacitance sensors to monitor stem water content in trees. *JoVE Journal of Visual Experiments.* DOI:10.3791/57062
15. Fisher, R. A., C. Koven, W. R. L. Anderegg, B. O. Christoffersen, M. C. Dietze, C. Farrior, J. A. Holm, G. Hurtt, R. G. Knox, P. J. Lawrence, J. W. Lichststein, M. Longo, **A. M. Matheny**, D. Medvigy, H. C. Muller-Landau, T. L. Powell, S. P. Serbin, H. Sato, J. Shuman, B. Smith, A. T. Trugman, T. Viskari, H. Verbeeck, E. Weng, C. Xu, X. Xu, T. Zhang, P. Moorcroft (2017) Vegetation demographics in Earth system models: a review of progress and priorities. *Global Change Biology*. DOI: 10.1111/gcb.13910
16. Morin, T. H., C. Rey-Sánchez, C. S. Vogel, **A. M. Matheny**, G. Bohrer (2017) Carbon dioxide emissions from an oligotrophic temperate lake: an eddy covariance approach. *Ecological Engineering*. DOI: https://doi.org/10.1016/j.ecoleng.2017.05.005
17. Kenny, W. T., G. Bohrer, T. H. Morin, C. S. Vogel, **A. M. Matheny**, A. R. Desai (2017) Implications of surface-induced turbulence and sub-mesoscale advection on the interpretation of eddy covariance measurements in small lakes. *Boundary Layer Meteorology*. DOI: 10.1007/s10546-017-0268-8
18. Morin, T. H., K. Stefanik, G. Bohrer, A. Rey-Sanchez, **A. M. Matheny**, W. Mitsch (2017) Combining eddy-covariance and chamber measurements to determine the methane budget from a small, heterogeneous urban floodplain wetland park. *Agricultural and Forest Meteorology*. DOI: https://doi.org/10.1016/j.agrformet.2017.01.022
19. **Matheny, A. M.**, G. Mirfedneresgi, G. Bohrer, (2017) Trait-based representation of hydrological functional properties of plants in weather and ecosystem models. *Plant Diversity*. DOI: 10.1016/j.pld.2016.10.001
20. **Matheny, A. M.**, R. Fiorella, G. Bohrer, C. Poulsen, T. H. Morin, A. Wunderlich, C. S. Vogel, P. S. Curtis (2017) Contrasting strategies of water acquisition and use in two co-dominant temperate tree species. *Ecohydrology*. DOI: 10.1002/eco.1815
21. Mirfenderesgi, G., G. Bohrer, **A. M. Matheny**, S. Fatichi, K. V. R. Schafer (2016) Tree-level hydrodynamic approach for stomatal conductance parameterization. *Journal of Geophysical Research: Biogeosciences*, 121. DOI:10.1002/2016JG003467.
22. **Matheny, A. M.**, G. Bohrer, S.R. Garrity, T. H. Morin, C.J. Howard, C.S. Vogel (2015) Observations of stem water storage in trees of opposing hydraulic strategies. *Ecosphere*, *6*(9), 165. DOI:10.1890/ES15-00170.1
23. Frasson, R.P.M, G. Bohrer, D. Medvigy, **A. M. Matheny**, C.S. Vogel, C.M. Gough, K.D. Maurer, P.S. Curtis (2015) Severity of moderate disturbances affect the post-disturbance carbon dynamics in a simulated northern temperate forest, *Journal of Geophysical Research: Biogeosciences*, *120*(11):2178-2193. DOI: 10.1002/2015JG003035
24. **Matheny, A. M.**, G. Bohrer, C. S. Vogel, T. H. Morin, L. He, R. P. M. Frasson, G. Mirfenderesgi, K.V.R. Schafer, C. M. Gough, V. Y. Ivanov, P. S. Curtis (2014) Species-Specific transpiration

responses to intermediate disturbance in a northern hardwood forest, *Journal of Geophysical Research: Biogeosciences, 119*(12), 2014JG002804. DOI: 10.1002/2014JG002804 **Highlighted in EOS Research Spotlight**

25. **Matheny, A. M.**, G. Bohrer, P. Stoy, I. Baker, T. A. Black, A. R. Desai, M. Dietze, C. M. et. Al. (2014), Characterizing the diurnal patterns of errors in the prediction of evapotranspiration by several land-surface models: an NACP analysis, *Journal of Geophysical Research: Biogeosciences, 119*(7), 2014JG002623. DOI: 10.1002/2014JG002623.
26. Thomsen, J., G. Bohrer, **A. M. Matheny**, V. Y. Ivanov, L. He, H. Renninger, and K. Schäfer (2013), Contrasting hydraulic strategies during dry soil conditions in *Quercus rubra* and *Acer rubrum* in a sandy site in Michigan, *Forests, 4*(4), 1106-1120. DOI: 10.3390/f4041106

**THESES:**

27. **Matheny, A. M.** (2016) Development of a Novel Plant-Hydrodynamic Approach for Modeling of Forest Transpiration During Drought and Disturbance. *Ph.D. Dissertation, The Ohio State University, Department of Civil, Environmental, and Geodetic Engineering.* Supervisor – Gil Bohrer.
28. **Matheny, A. M.** (2013) Quantifying the Sensitivity of Land-Surface Models to Hydrodynamic Stress Limitations on Transpiration. *Master's Thesis, The Ohio State University, Department of Civil and Environmental Engineering.* Supervisor – Gil Bohrer.

**CONFERENCE PRESENTATIONS:**

29. **Matheny, A. M.**, L. Li, A.M. Restrepo Acevedo, A. Rechner (Aug. 2020) Incorporating plant hydraulic strategies into land-atmosphere models: new challenges and approaches from plant to regional scales. Invited Oral. *Ecological Society of America Annual Meeting*, Salt Lake City, UT.
30. **Matheny, A. M.**, A. Rechner, A.M. Restrepo Acevedo, S. Cabraal, (June 2020) The effects of partial species removal on a semi-arid forest in west Texas. Poster. *34th Conference on Agricultural and Forest Meteorology*. Minneapolis, MN.
31. **Matheny, A. M.**, M. Detto, A. Molini, C. Xu, T. Shanahan, A. M. Restrepo Acevedo (May 2020) Incorporating halophyte hydrodynamics into plant hydraulics models to capture mangrove forest responses to a changing climate. Poster. *DOE PI Meeting*, Washington D.C.
32. G. Bohrer, T. Yazbeck, A. M. Restrepo Acevedo, **A. M. Matheny**, (May 2020). Diurnal and inter-day hysteresis of species-specific stomatal conductance from sap-flow measurements illustrates hydraulic-stress responses strategies of trees. Poster. *EGU General Assembly*, Vienna, Austria.
33. C. Pappas, J. Maillet, S. Rakowski, J. L. Baltzer, A. G. Barr, T. A. Black, S. Fatichi, C. P. Laroque, **A. M. Matheny**, A. Roy, O. Sonnentag, and T. Zha (May 2020) Aboveground tree growth is a minor and decoupled fraction of boreal forest carbon input. Poster. *EGU General Assembly*, Vienna, Austria.
34. **Matheny, A. M.**, C. Xu, A. Molini, M. Detto, T. Shanahan (Dec. 2019) Towards the inclusion of osmotic potential in plant hydrodynamics models to capture mangrove forest responses to changing climate. Poster. *AGU Fall Meeting*, San Francisco, CA.
35. Li, L., Z.-L. Yang, **A. M. Matheny**, H. Zheng, S. C. Swenson, D. M. Lawrence, N. Barlage, B. Yan (Dec. 2019) Develop the plant hydrodynamics in the Noah-MP Land Surface Model. Oral. *AGU Fall Meeting*, San Francisco, CA.
36. Restrepo Acevedo, A. M., E. Agee, **A. M. Matheny** (Dec. 2019) Influence of tree water content in the zero-flow maximum temperature difference: a theoretical and experimental approach. Poster. *AGU Fall Meeting*, San Francisco, CA.
37. Rechner, A., C. He*, S. A. Cabraal*, J. Baiocchi*, C. Demir, A. Denham*, A. Edgington*, B. Ferrari*, C. Fisher*, E. J. Goldfarb, B. Jones*, H. Manlove, E. L. McCormick*, M. A. Pedrazas, A. M. Restrepo Acevedo, C. Roumelis*, C. Smith-Saldago*, J. Trcka*, L. K. Beal, P. Southard, S. B. Ferencz, L. Li, G. Perkins, R. C. Roback, M. O'Connor, **A. M. Matheny** (Dec. 2019) Groundwater

and surface water interactions in the Valles Caldera Watershed, New Mexico: an evaluation of water chemistry and sensitivity to precipitation variability. Poster, *AGU Fall Meeting*, San Francisco, CA.

38. Agee, E., J. W. Atkins, C. M. Gough, B. P. Bond-Lamberty, K. C. Mathes, **A. M. Matheny**, V. Ivanov (Dec. 2019) Below-ground structural and ecohydrological feedbacks across disturbance severity gradients. Poster. *AGU Fall Meeting*, San Francisco, CA.
39. Bohrer, G., T. Yazbeck, A. M. Restrepo Acevedo, A. Rechner, **A. M. Matheny** (Dec. 2019) Tree-level hydraulic stress: insights from long-term measurements of sap-flow and tree-water storage. Oral. *AGU Fall Meeting*, San Francisco, CA.
40. Rechner, A., A. M. Restrepo Acevedo, E. L. McCormick*, C. Bolduc*, A. R. Mursinna*, C. Romulis*, **A. M. Matheny** (Dec. 2019) Comparing transpiration changes of three tree species based on hydraulic strategy in a semi-arid region. Poster. *23rd International Congress on Modelling and Simulation*, Canberra, Australia.
41. Silva, M., **A. M. Matheny**, V. Pauwels, G. Bohrer, E. Daly (Dec. 2019) Tree-hydrodynamic modelling of *Eucalyptus globulus* for plantation assessment. Oral. *23rd International Congress on Modelling and Simulation*, Canberra, Australia.
42. Ochoa F., K. Crews, T. Meyer, **A. M. Matheny**, Diurnal processes of photosynthesis and its effects on the calibration of evapotranspiration models based on vegetation indices in the American Southwest. Oral. *Southwest Division of the American Association of Geographers Annual Meeting*, Fort Worth, T.X.
43. Powell, J., Marchetto, P., **Matheny, A.M.**, Pierce, S., (Mar. 2019) The conversion of a multipoint data logging system into a mesh-based observation network. Oral. *Measurements and Observations in the 21st Century (MOXXI)*, New York, N.Y.
44. **Matheny, A.M.**, Bohrer, G., Agee, E., Rechner, A., Restrepo Acevedo, A.M., Mursinna, A.R.* (Dec. 2018) Dynamics of ecosystem-scale water use efficiency as a product of plant hydraulic strategy. Invited Oral. *AGU Fall Meeting*, Washington, D.C.
45. Mursinna, A.*, **Matheny, A.M.**, Agee, E. (Dec. 2018) Beyond isohydricity: a whole-plant approach to understanding hydraulic strategy. Poster**,** *AGU Fall Meeting*, Washington, D.C.
46. Southard, P., Johnson, J. P., Rempe, D.M., **Matheny, A.M.** (Dec. 2018) Impact of spring-associated riparian vegetation on channel morphology and sediment distribution in ephemeral dryland channels: Henry Mountains, Utah, USA. Oral**,** *AGU Fall Meeting*, Washington, D.C.
47. Bolduc, C.A.*, Soto-Kerans, N.*, Mungia, Z.*, Winebarger, R.*, Schmidt, L., Turetcaia, A., Beal, L.K., Kernan, C.*, Gomez-Velez, J.D., Perkins, G., Mursinna, A.R.*, Davis, T.*, McCormack, K.A., O'Connor, M., Ferencz, S.B., Carlson, P.E., **Matheny, A.M.**, Rempe, D. M. (Dec. 2018) Quantifying spatial patterns of hyporheic exchange in a floodplain meander system via high-resolution hydrogeologic, geochemical, and geophysical observations. Poster**,** *AGU Fall Meeting*, Washington, D.C.
48. Marchetto, P., **Matheny, A.M.**, Yang, C., Pierce, S., Maull, K.E., Powell, J., Chuah, J., Leeman, J., Jacobs, G. (Dec. 2018) Imbroglio by an inferno: the IS-GEO Hawai'i Workshop and ad hoc sensor network session. Poster**,** *AGU Fall Meeting*, Washington, D.C.
49. Bisht, G., Riley, W., Mirfenderesgi, G., Bohrer, G., **Matheny, A.M.** (Dec. 2018) Development of a flexible modeling framework for representing soil-plant continuum in the E3SM global land model. Poster**,** *AGU Fall Meeting*, Washington, D.C.
50. Bohrer, G., Ruehr, N., Fatichi, S., **Matheny, A.M.**, Rehschuh, R., Mirfenderesgi, G. (Dec. 2018) Tree-level recovery from hydraulic stress: insights from experiments and hydrodynamic models. Poster**,** *AGU Fall Meeting*, Washington, D.C.
51. **Matheny, A.M.**, Restrepo Acevedo, A.M., Rechner, A., Mursinna, A.R.*, (Oct. 2018) Dynamic interactions between ecosystem function and water availability. Invited Oral. *Global Change Challenges: Water Sustainability and Security*, Nanjing, China.
52. Bohrer G, Mirfenderesgi G, **Matheny, A.M.** (Oct. 2018) The role of tree hydraulic traits in response to soil water availability. Oral, *AmeriFlux PI Meeting*, Bloomington, IN.

53. **Matheny, A. M.** (August 2018) Improving the representation of vegetation-atmosphere interactions through plant-hydrodynamics models. Invited Oral. *CUAHSI Biennial Colloquium.* Shepherdstown, WV.
54. **Matheny, A. M.** (June 2018) Simulating the diurnal hysteresis of transpiration through the lens of hydraulic capacitance. Oral. *Computational Methods in Water Resources XXII,* Saint-Malo, France.
55. Bohrer, G., Mirfenderesgi, G., **Matheny, A. M.** (June 2018) Hydrodynamic model used to bridge observations at multiple scales and define tree hydraulic traits. Oral. *Computational Methods in Water Resources XXII,* Saint-Malo, France.
56. **Matheny, A. M.** (May 2018) Vegetation hydrodynamics model captures forest response to disturbance-induced changes to microclimate. Oral. *American Meteorological Society 33rd Conference on Agricultural and Forest Meteorology.* Boise, ID.
57. Bohrer, G., Mirfenderesgi, G.**, Matheny, A.M.** (May 2018) Hydrodynamic model illuminates the role of tree hydraulic traits in transpirational response to soil water availability. Oral. *American Meteorological Society 33rd Conference on Agricultural and Forest Meteorology.* Boise, ID.
58. **Matheny, A. M.** (Feb. 2018) The FETCH2 plant hydrodynamic model and biomass hydraulic capacitance. Oral. *NCAR Land model working group meeting,* Boulder, CO.
59. **Matheny, A. M.** (Jan. 2018) Transpiration and the emergence of vegetation hydrodynamic models. Oral. *Texas Water Research Network Network-wide Meeting,* Austin, TX.
60. Bohrer, G., G. Mirfenderesgi, **A. M. Matheny** (Jan. 2018) Hydrodynamic model illuminates the role and consequences of tree hydraulic traits. Oral. *American Meteorological Society Annual Meeting,* Austin. TX.
61. **Matheny, A. M.**, G. Bohrer (Jan. 2018) The role of biomass hydraulic capacitance in forest transpiration. Poster. *American Meteorological Society Annual Meeting,* Austin. TX.
62. **Matheny, A.M.**, G. Bohrer (Dec. 2017) Implications of vegetation hydraulic capacitance as an indicator of water stress and drought recovery. Poster. *American Geophysical Union Fall Meeting,* New Orleans, LA.
63. Pappas, C., J. L. Baltzer, A. Barr, T. A. Black, G. Bohrer, M. Detto, J. Maillet, **A. M.** Matheny, A. Roy, O. Sonnentag, J. Stephens (Dec. 2017). Boreal tree light- and water –use: asynchronous, diverging, yet complementary. Poster. *American Geophysical Union Fall Meeting*, New Orleans, LA.
64. Mirfenderesgi, G., **A. M. Matheny**, G. Bohrer (Dec. 2017) Hydrodynamic trait coordination and cost-benefit tradeoffs throughout the isohydric-anisohydric continuum in trees. Oral. *American Geophysical Union Fall Meeting*, New Orleans, LA.
65. Bohrer, G., **A. M. Matheny**, G. Mirfenderesgi, P. S. Curtis, C. S. Vogel, A. C. Rey-Sanchez (Mar. 2017) Plant hydraulic regulation of response to drought and plot-scale canopy disturbance. Poster. *Ameriflux Principal Investigators Meeting*, Washington, DC.
66. **Matheny, A. M.**, G. Mirfenderesgi, G. Bohrer (Jan. 2017) Tree water storage as a diagnostic metric of forest response to drought. Oral. *97th American Meteorological Society Annual Meeting*, Seattle, WA.
67. **Matheny, A. M.**, G. Boher, G. Mirfenderesgi, T.H. Morin, A. C. Rey-Sanchez, C. S. Vogel, C. M. Gough, P. S. Curtis (Dec. 2016) Plant hydrodynamics help govern forest water cycling response to intermediate severity disturbance. Oral. *American Geophysical Union Fall Meeting 2016*, San Francisco, CA.
68. Agee, E., L. He, G. Bisht, C. M. Gough, V. Couvreur, **A. M. Matheny**, G. Bohrer, V. Ivanov (Dec. 2016) Root water uptake and later interactions among root systems in a temperate forest. Poster. *American Geophysical Union Fall Meeting 2016*, San Francisco, CA.
69. Mirfenderesgi, G., G. Bohrer, **A. M. Matheny**, S. Fatichi, R.P.M. Frasson, K.V.R. Schafer, (Dec. 2016) Tree-level hydrodynamic approach for modeling aboveground water storage and stomatal conductance highlights the effects of tree hydraulic strategy. Poster. *American Geophysical Union Fall Meeting 2016*, San Francisco, CA.
70. Bohrer, G., G. Mirfenderesgi, **A. M. Matheny**, S. Fatichi (Dec. 2016) Tree to plot scaling – how individual properties and species specific traits add up to describe a forest. Poster. *American Geophysical Union Fall Meeting 2016*, San Francisco, CA.

71. Pappas, C. **A. M. Matheny**, J. Maillet, J. Baltzer, J. Stephens, A. Barr, T. A. Black, O. Sonnentag (Dec. 2016) Plant hydraulic strategies and their variability at high latitudes: insights from a southern Canadian boreal forest site. Poster. *American Geophysical Union Fall Meeting 2016*, San Francisco, CA.
72. Bohrer, G. **A. M. Matheny**, G. Mirfenderesgi, T.H. Morin, A. C. R. Sanchez, C. M. Gough, C. S. Vogel, K. J. Nadelhoffer, P. S. Curtis (Dec. 2016) Forest disturbance spurs growth of modeling and technology. Invited Oral. *American Geophysical Union Fall Meeting 2016*, San Francisco, CA.
73. Fiorella, R., C. J. Poulsen, **A. M. Matheny**, A. C. R. Sanchez, A. T. Fotis, T. H. Morin, C. S. Vogel, C. M. Gough, P. Aron, G. Bohrer (Dec. 2016) Forest canopy water cycling response to an intermediate disturbance revealed through stable water vapor isotopes. Poster. *American Geophysical Union Fall Meeting 2016*, San Francisco, CA.
74. Mirfenderesgi, G., G. Bohrer, **A. M. Matheny**, S. Fatichi, R. P. M. Frasson, K. V. R. Schäfer (Nov. 2016) Tree level hydrodynamic approach for resolving aboveground water storage and stomatal conductance and modeling the effects of tree hydraulic strategy. Poster. *45th Annual Water Management Association of Ohio Conference*, Columbus, OH.
75. **Matheny, A. M.**, G. Bohrer, G. Mirfenderesgi (Jun. 2016) Shifting the plant functional type paradigm to reflect hydraulic properties may improve model simulations of drought and disturbance. Oral, *American Meteorological Society 32nd Conference on Agricultural and Forest Meteorology*, Salt Lake City, UT. **(2nd Place Oral Presentation)**
76. **Matheny, A. M.**, G. Bohrer, R. Fiorella, G. Mirfenderesgi (Apr. 2016) Plant hydraulic traits govern forest water use and growth. Poster. *European Geosciences Union General Assembly 2016*, Vienna, Austria.
77. Bohrer, G., **A. M. Matheny**, G. Mirfenderesgi, T. H. Morin, S. Fatichi (Apr. 2016) Scaling tree-level hydrodynamics to plot-level hydrology using novel model and measurements. Oral. *European Geosciences Union General Assembly 2016*, Vienna, Austria.
78. Bohrer, G., **A. M. Matheny**, G. Mirfenderesgi (Jan. 2016) Including tree water potential in plot-level transpiration modeling using the hydrodynamic approach. Oral. *American Meteorological Society 30th Conference on Hydrology*, New Orleans, LA.
79. Mirfenderesgi, G., G. Bohrer, S. Fatichi, **A. M. Matheny**, R.P.M. Frasson, K. Schafer (Jan. 2016) Application of a tree-level hydrodynamic model to simulate plot-level transpiration in the upland oak/pine forest in New Jersey. Oral. *American Meteorological Society 30th Conference on Hydrology*, New Orleans, LA.
80. **Matheny, A. M.,** G. Bohrer, R. Fiorella, G. Mirfenderesgi (Dec. 2015) Proposed hydrodynamic model improves resolution of species-specific responses to drought and disturbance. Poster, *American Geophysical Union Fall Meeting 2015*, San Francisco, CA.
81. Fiorella, R., C. Poulsen, **A. M. Matheny**, G. Bohrer (Dec. 2015) Constraints on water cycling in a deep mountain valley from stable water isotope and sap flux measurements. Poster. *American Geophysical Union Fall Meeting*, San Francisco, CA.
82. Mirfenderesgi, G., G. Bohrer, **A. M. Matheny**, S. Fatichi, R.P.M. Frasson, K. Schafer (Dec. 2015) Application of a tree-level hydrodynamic model to simulate plot-level transpiration in the upland oak/pine forest in New Jersey. Poster. *American Geophysical Union Fall Meeting*, San Francisco, CA.
83. Agee, E., L. He, V. Couvreur, G. Bisht, C. Gough, V. Ivanov, P. Shahbaz, S. Fatichi, **A. M. Matheny**, G. Bohrer (Dec. 2015) **C**ompensatory root water uptake in overlapping root systems. Poster. *American Geophysical Union Fall Meeting*, San Francisco, CA.
84. Mirfenderesgi, G., G. Bohrer, R.P.M. Frasson, **A. M. Matheny,** K.V.R. Schäfer (July 2015) Tree-Level Hydrodynamic Approach for Improved Stomatal Conductance Parameterization. Oral, *13th US National Congress on Computational Mechanics*, San Diego, CA.
85. **Matheny, A. M.,** T. Morin, G. Bohrer, S. Garrity, C. Vogel, V. Ivanov, P. Curtis (Jan. 2015) Improved latent heat flux modeling through plant hydrodynamics accounts for the influence of species-specific storage and diurnal hysteresis. Poster, *5th Annual NACP Principal Investigators Meeting*, Washington, DC.

86. Frasson, R.P.M., G. Bohrer, D. Medvigy, **A. M. Matheny,** C. Gough, C. Vogel, P. Curtis (Jan. 2015) Modeling forest carbon cycle response to tree mortality: effects of plant functional type and disturbance intensity. Poster, *Ameriflux Principal Investigators Meeting*, Washington, DC.
87. **Matheny, A. M.**, G. Bohrer, G. Mirfenderesgi (Dec. 2014) Proposed hydrodynamic model increases the ability of land-surface models to capture intra-daily dynamics of transpiration and canopy structure effects. Oral Presentation, *American Geophysical Union Fall Meeting 2014*, San Francisco, CA. **(Outstanding Student Paper Award winner)**
88. Mirfenderesgi, G., G. Bohrer, **A. M. Matheny**, V. Ivanov (Dec. 2014) Tree-level hydrodynamic approach for improved stomatal conductance parameterization. Poster, *American Geophysical Union Fall Meeting 2014*, San Francisco, CA.
89. Ball, B.W., **A. M. Matheny**, P. Hatfield, A. Keffer, M.F. Spoor (Oct. 2014), Local protection projects and Ohio River bank terraces. *Ohio River Valley Soil Seminar XLV*. Oral Presentation, Cincinnati, Ohio.
90. Kenny, W., G. Bohrer, T. Morin, **A. M. Matheny** (Sept. 2014) Development of the high resolution VOC atmospheric chemistry in canopies (Hi-VACC) model and application to a lake flux scenario. Poster, *Advancing the science of gas exchange between fresh waters and the atmosphere*. Poster, Hyytiälä forestry field station, Finland.
91. **Matheny, A. M.**, G. Mirfenderesgi, G. Bohrer (June 2014) Tree-Level hydrodynamic approach for improved stomatal conductance parameterization. Oral Presentation, *Computational Methods in Water Resources XX*, Stuttgart, Germany.
92. **Matheny, A. M.**, G. Bohrer (May 2014), Proposed hydrodynamic model increases the ability of land-surface models to capture hysteretic nature of transpiration. Poster, *Second Annual Conference on Atmospheric Biogeosciences*, Portland, OR.
93. **Matheny, A. M.**, G. Bohrer (Dec. 2013) Multi-site model-observations comparison shows the diurnal effects of hydrodynamic stress on evapotranspiration. Poster, *American Geophysical Union Fall Meeting 2013*, San Francisco, CA.
94. Bohrer, G., **A. M. Matheny** (July 2013) The Finite-Elements Tree-Crown Hydrodynamics model (FETCH): Assessing the effects of hydrodynamic strategy in different tree species. Invited Oral Presentation, *12th U.S. National Congress on Computational Mechanics, USNCCM12*, Raleigh, NC.
95. Frasson, R.P.M., G. Bohrer, **A. M. Matheny**, et al. (May 2013) Exploring the influence of time and spatial resolution on the prediction of latent heat fluxes. Poster, *Joint DOE-TES/DOE-SBR PI Meeting*, Potomac, MD.
96. **Matheny, A. M.**, G. Bohrer, V. Ivanov, P. Stoy (Feb. 2013) Typical patterns of latent heat flux error indicative of missing hydrodynamic processes in land-surface models. Poster, *4th NACP All-Investigator Meeting*, Albuquerque, NM.
97. Bohrer, G., C. Gough, V. Ivanov, K. Maurer, R. Frasson, **A. M. Matheny**, L. He, B. Hardiman, K. Nadelhoffer, C. Vogel, L. Nave, P. Curtis (Feb. 2013) Forecasting carbon stocks in Eastern forests: joining experimental and tree-level modeling approaches to understand structure-function dynamics with ecological succession and disturbance. Poster, *4th NACP All-Investigator Meeting*, Albuquerque, NM.
98. **Matheny, A. M.**, G. Bohrer, J. Tompsen, R. Frasson, C. Frasson, V. Ivanov (Dec. 2012) A framework for incorporating the effects of hydrodynamic stress on forest photosynthesis and evaporation. Poster, *American Geophysical Union Fall Meeting 2012*, San Francisco, CA.
99. **Matheny, A. M.**, G. Bohrer (Sept. 2012) Mechanistic linking of stomata conductance to soil moisture using a tree level hydrodynamic model. Poster, *4th International EcoSummit on Ecological Sustainability*, Columbus, OH.
100. Kenny, W., G. Bohrer, S. Dodge, S. Garrity, **A. M. Matheny**, P. Low, K. Maurer (Sept. 2012) Tree-scale forest structure for modeling of hydrodynamic stress. Poster, *ForestSAT 2012*, Cornwallis, OR.
101. **Matheny, A. M.**, G. Bohrer (June 2012) Mechanistic linking of stomata conductance to soil moisture using a tree level hydrodynamic model. Oral Presentation, *Computational methods in Water Resources*, Urbana-Champaign, IL.

102. Bohrer, G., **A. M. Matheny**, K. Maurer, R. Frasson (May 2012) Modeling hydrodynamic stress limitations on transpiration. Oral Presentation, *American Meteorological Society 30th Conference on Agricultural and Forest Meteorology,* Boston, MA.
103. **Matheny, A. M.**, G. Bohrer, P. Curtis, V. Ivanov, K. Schäfer (Apr. 2012) Plot-level measurements and modeling of sap flux- providing a mechanistic link between stomata conductance and soil moisture. Poster, *Department of Energy, Terrestrial Ecosystem Science PI meeting,* Washington, DC.
104. **Matheny, A. M.**, G. Bohrer, V. Ivanov, P. Stoy (Dec. 2011) Towards modeling hydrodynamic stress limitations on transpiration. Poster, *American Geophysical Union Fall Meeting 2011,* San Francisco, CA.
105. Bohrer, G., **A. M. Matheny**, K. Meyer, K. Maurer (Sept. 2011) Detecting and modeling hydrodynamic stresses on stomatal conductance in the forest accelerated succession experiment (FASET). Poster, *ILEAPS International Science Conference.* Garmisch-Partenkirchen, Germany.
106. Bohrer, G., K. Maurer, **A. M. Matheny**, K. Meyer, S. Garrity (Dec. 2010) Assessing the effects of hydrodynamic stresses on photosynthesis with natural and modified canopy structures. Invited Oral Presentation, *American Geophysical Union Fall Meeting 2010,* San Francisco, CA.

**SEMINARS AND GUEST LECTURES:**

Invited speaker 'The theoretical basis for plant hydraulics' KECK Institute for Space Studies, Sensing Forest Water Dynamics From Space: Towards Predicting the Earth System Response to Droughts. Plenary Lecture, Pasadena, CA. 10/4/2019

Invited speaker 'Towards a new hydrodynamic approach for modeling mangrove responses to a changing climate' Marine Science Institute, University of Texas 9/20/2019

Invited speaker 'Improving the representation of vegetation-atmosphere interactions through plant-hydrodynamics models', Department of Bioproducts and Biosystems Engineering, University of Minnesota 4/26/2019

Invited speaker 'Improving the representation of vegetation-atmosphere interactions through plant-hydrodynamics models', Department of Civil Engineering, Monash University 3/15/2019

Invited speaker, 'Green water on the blue planet: the invisible river that keeps Earth's hydrologic cycle flowing', Texas Senate Committee on Agriculture, Water, and Rural Affairs 9/18/2018

Invited speaker, 'Vegetation hydrodynamics modeling and mangrove forest hydrology'
'Water flux sensor theory and construction'
'Sap flux calibration and data processing'
Principios y metodos de investigacion del ciclo del carbono, Universidad Technologica de Panama, Panama City, Panama 6/26/2018-7/6/2018

Invited speaker, 'A novel hydrodynamics model to simulate water flux in forests'
Environmental and Water Resources Engineering, University of Texas at Austin 3/29/2018

Invited speaker, 'Water movement and storage within living biomass'
Impacts of the changing environment on the hydrologic cycle and eco-environment
Hohai University, Nanjing, China 3/12/2018

Invited speaker, 'The case for the inclusion of vegetation hydraulics in climate models'
Department of Civil and Environmental Engineering, University of Michigan 2/9/2018

Invited speaker, 'The FETCH2 plant hydrodynamic model and biomass hydraulic capacitance'
Land Model Working Group Meeting, National Center for Atmospheric Research 2/7/2018

Invited speaker, 'Transpiration and the emergence of vegetation hydrodynamics models'
Bureau of Economic Geology 11/30/2017

Invited speaker, 'The case for the inclusion of trait-based vegetation representation in climate and ecosystem models', DeFord Lecture Series UT Austin 11/17/2017

Invited speaker, 'Ecohydrology and biometeorology'
Undergraduate Geology Society, UT Austin 10/18/2017

Invited speaker, 'Using the porous media analogy for vegetation-water transport to improve latent heat flux modeling', UT Austin Climate Forum 9/20/2017

Guest lecturer 'Evapotranspiration'
Physical Hydrology (GEO 376S), UT Austin Department of Geological Sciences 9/11/2017

Invited speaker, 'Ripple effects of philanthropy in science' P.E.O. Ohio State Convention Projects Luncheon, Cincinnati, OH, 6/4/2016

Guest lecturer, 'Using MATLAB beyond the classroom' First year engineering seminar OSU 12/3/2015

Guest lecturer, 'Versatility within the field of civil engineering' First year engineering seminar OSU 4/23/2015

**OUTREACH AND LEADERSHIP:**

Featured July 2018 "Leaf" for AGU's Ecohydrology blog: Adding our leaves

P.E.O. Scholar Award Search Committee Chair 2016-2017, Chapter AV

Judge for OSU's Denman Undergraduate Research Forum 2015, 2016, 2017

Judge for OSU's Engineering Education and Innovation Center's Alternative Energy Vehicle Competition 2015

Created and led outreach experiments in fluid dynamics for middle school girls for the Introduce a Girl to Engineering program organized by OSU's Society of Women Engineers 2011 – 2012

Journal Reviewer for: Nature, Proceedings of the National Academy of Science, Water Resources Research, Geophysical Research Letters, Biogeosciences, Journal of Geophysical Research: Biogeosciences, Journal of Geophysical Research: Atmospheres, Agricultural and Forest Meteorology, Global Change Biology, Journal of Hydrology, New Phytologist, PLoS ONE, Ecohydrology, Trees Structure and Function, Remote Sensing, Plant Physiology, Ecological Modeling, Ecosystems, Plant and Soil

Planned, coordinated, and organized *Biological Response to Climate Change: Track Annotation Workshop* in Point Reyes, CA Nov. 2011

Appeared on WOSU and Big Ten Network to discuss biological station research Sept. 2010

College of Engineering Honors Committee: student representative 2008- 2010

Chi Epsilon, CE honor fraternity: Vice President 2008 – 2010, Permanent Member

Concrete Canoe Team Captain 2008-2009, Member 2007-2010

ASCE Student Fundraising Chair 2008-2009, Member 2006 – Present

Attended ASCE leadership conference Feb 6-8, 2008 in Cherry-Hill, NJ

Study Abroad: 2 wks. London, UK; 6 wks. Toledo, Spain; 3wks. Gamboa, Panama

Member AGU, AMS, AGI, AEG, ESWN, WIE, P.E.O. Chapter AV

**LANGUAGES:** Spanish (working proficiency), French (elementary proficiency)