Chad W. Higgins
Oregon State University
Department of Biological and Ecological Engineering
200 Gilmore Hall
Corvallis, OR 97331

Tel: 541-737-2286
Cell: 541-740-0849
chad.higgins@oregonstate.edu
http://newag.bee.oregonstate.edu/

Education

2000	B.S	Agricultural and Biological Engineering, Cornell University, Ithaca, New York
2005	M.E.	Mechanical Engineering, Johns Hopkins University, Baltimore, Maryland.
2007	Ph.D.	Environmental Engineering, Johns Hopkins University, Baltimore, Maryland. "Geometric Alignments in Atmospheric Boundary Layer Turbulence and Large Eddy Simulation"

Professional Experience

2013-Present	Associate Director Water Resources Engineering Oregon State University Corvallis, Oregon, USA
2017-present	Associate Professor Department of Biological and Ecological Engineering Oregon State University Corvallis, Oregon, USA
2011-2017	Assistant Professor Department of Biological and Ecological Engineering Oregon State University Corvallis, Oregon, USA
2009-2011	Lecturer, Senior Scientific Collaborator Architectural, Civil, and Environmental Engineering Ecole Polytechnique Federal de Lausanne Lausanne, Switzerland
2007-2009	Post-Doctoral Researcher/Scientific Collaborator Architectural, Civil, and Environmental Engineering Ecole Polytechnique Federal de Lausanne Lausanne, Switzerland

Publications

Referred publications

1. Hassanpour E**, Selker JS, **Higgins CW**, 'Remarkable solar panel influence on soil moisture, micrometeorolory and water use efficiency.' *Plos1, 2018, In press.*
2. Bassiouni, M**, **Higgins CW**, Still CJ, and Good SP. "Probabilistic inference of ecohydrological parameters using observations from point to satellite scales." *Hydrology and Earth System Sciences* 22, no. 6 (2018): 3229-3243.
3. Kelley, JA**, and **Higgins CW**. "Computational efficiency for the surface renewal method." *Atmospheric Measurement Techniques* 11, no. 4 (2018): 2151-2158.
4. **Higgins CW**, Liu Z**, Wing MG, Kelley J**, Sayde C, Burnett J, Predosa R**, Holmes HA. **"**A High Resolution Measurement of the Morning ABL Transition Using Distributed Temperature Sensing and an Unmanned Aircraft System. Journal of environmental fluid mechanics (2018). https://doi.org/10.1007/s10652-017-9569-1.
5. Drake, SA**, Selker, JS, and **Higgins, CW** (2017). Wind enhances differential air advection in surface snow at sub-meter scales. *Cryosphere*, *11*(5).
6. Powers CW, Predosa R**, **Higgins CW**, Schmale DG III, 'Mobile Distributed Sensing of the Air/Water Interface of an Aquatic Environment With Unmanned Surface Vehicle, *Journal of Unmanned Vehicle Systems*, https://doi.org/10.1139/juvs-2016-0036 2017.
7. Drake S and **Higgins CW**, A trace gas method of evaluating interstitial air advection and diffusion in snow, *2017, The Cryosphere, 2017-9.*
8. Kelley, J**, **Higgins, CW,** Pahlow, M., & Noller, J. (2017). Mapping soil texture by electromagnetic induction: a case for regional data coordination. *Soil Science Society of America Journal*, *81*(4), 923-931.
9. Drake S*, Selker JS, **Higgins CW, '**A low-cost acoustic permeameter.' *Geoscientific Instrumentation, Methods and Data Systems*, 2017, MS No.: gi-2016-13.
10. **Higgins CW**, Kelley J**, Barr C**, and Hillyer C*. "Determining the minimum management scale of a commercial variable rate irrigation system." *Transactions of the ASABE (59)5, 2016.*
11. Drake SD, Huwald HH, Parlange MB, Selker JS Nolin AW, and **Higgins CW**. "Attenuation of wind-induced pressure perturbations in alpine snow." *Journal of Glaciology* 62.234 (2016): 674-683. 2016, DOI: http://dx.doi.org/10.1017/jog.2016.53
12. Oldroid HJ, Pardyjak ER, **Higgins, CW**, and Parlange MB. "Buoyant Turbulent Kinetic Energy Production in Steep-Slope Katabatic Flow" *Boundary-Layer Meteorology*, 2016, doi:10.1007/s10546-016-0184-3.
13. Selker J, Tyler S, **Higgins CW**, Wing MG. "Drone Squadron to Take Earth Monitoring to New Heights" *EOS, 2015, 96*, doi:10.1029/2015EO035405.
14. Fernando HJS, Pardyjak ER, Di Sabatino S, Chow F, DeWekker S, Hoc SW, Hacker J, Pace J, Pratt T, Pu Z, Steenburgh J, Whiteman CD, Wang Y, Zajic D, Balsley B, Dimitrova R, Emmitt D, **Higgins CW**, Hunt JCR, Knievel J, Lawrence D, Nadeau D, Kit E, Blomquist B, Conry P, Coppersmith RS, Creegan E, Felton M, Grachev A, Gunawardena N, Hang C, Hocut C, Huynh G, Jeglum ME, Jensen D, Kulandaivelu V, Lehner M, Leo LS, , Liberzon D, Massey J, McEnerney K, Pal S, Sghiatti M, Silver Z, Thomson M, Zhang H, Zsedrovits T. "The MATERHORN – Unraveling the Intracacies

of Mountain Weather." *Bulletin of the Amerian Meteorological Society*, 2015, doi: http://dx.doi.org/10.1175/BAMS-D-13-00131.1.

15. Stewart RD**, Liu Z**, Rupp DE, **Higgins CW**, and Selker JS. A New Instrument to Measure Plot-Scale Runoff. Geosci. Instrum. Method. Data Syst. 2015. 4(1): p. 57-64.

16. **Higgins CW**, Vache K*, Calaf M, Hassanpour E**, and Parlange MB. "Wind Turbines and Water in Irrigated Areas." *Agricultural Water Management*, 2015, 152:299-300. *DOI: 10.1016/j.agwat.2014.11.016.*

17. Liu Z and **Higgins CW**. Does temperature affect the accuracy of vented pressure transducer in fine-scale water level measurement? *Geosci. Instrum. Method. Data Syst. Discuss.*, 4, 533-561, 2014. doi:10.5194/gid-4-533-2014.

18. Calaf M, **Higgins CW**, and Parlange MB. "Large Wind Farms and the Scalar flux over a heterogeneous land surface." *Boundary-Layer. Meteorol.*, 2014 DOI: 10.1007/s10546-014-9959-6.

19. Assouline S, Tyler S, Selker JS*, Lunati I, **Higgins CW**, Parlange MB. "Evaporation from a shallow water table: diurnal dynamics of measured and simulated water and heat regime at the vicinity of a drying sand surface." *Water Resources Research*, 2013, *DOI:10.1002/wrcr.20293.*

20. **Higgins CW**, Pardyjak E, Froidevaux M, Simeonov, V, and Parlange MB. "Measured and Estimated Water Vapor Advection in the Atmospheric Surface Layer." *J. Hydrometeorology 2013, DOI:*10.1175/JHM-D-12-0166.1.

21. Diebold M, **Higgins CW**, Fang J, Bechmann A, and Parlange MB. "Flow over hills: A Large Eddy Simulation of the Bolund Case." *Boundary-Layer. Meteorol., 2013,* July 148(1),177-194.

22. **Higgins CW**, Katul GG, Froidevaux M, Simeonov V, and Parlange MB. "Are atmospheric surface layer flows ergodic?" *Geophysical Research Letters*, 2013, 40, 1-5, doi:10.1002.grl.50642.

23. Nadeau DF, Pardyjak ER, **Higgins CW**, and Parlange MB. "Similarity scaling over a steep alpine slope." *Boundary-Layer. Meteorol., 2013*, 147(3), 401-419 doi:10.1007/s10546-012-9787-5.

24. Froidevaux M, **Higgins CW**, Simeonov V, Ristori P, Pardyjak E, Serikov I, Calhoun R, Van den Bergh H, Parlange MB. "A Raman Lidar to Measure Water Vapor in the Atmospheric Boundary Layer." *Advances in Water Resources*, 2013, **51,** 345-356 DOI: 10.1016/j.advwatres.2013.04.008.

25. **Higgins CW**. "A-Posteriori Analysis of Surface Energy Budget Closure to Determine Missed Energy Pathways." *Geophysical Research Letters*, 2012, **39**:L19403, doi:10.1029/2012GL052918.

26. Oldroyd HJ, **Higgins CW**, Huwald H, Selker JS*, Parlange MB. "Thermal Diffusivity of Seasonal Snow Determined From Temperature Profiles." *Advances in Water Resources*, 2012, DOI: 10.1016/j.advwatres.2012.06.011.

27. Katul GG, Oren R. Manzoni S, **Higgins CW**, and Parlange MB. "Evapotranspiration: a Process Driving Mass Transport and Energy Exchange in the Soil-Plant-Atmosphere-Climate System." *Review of Geophysics,* 50(3), 2012,DOI:10.1029/2011RG000366.

28. Nadeau DF, Pardyjak E, **Higgins CW**, Huwald H, Parlange MB. "Flow During the Evening Transition Over Steep Alpine Slopes." *QJRMS,* 2012, DOI:/10.1002/qj.1985.

29. **Higgins CW**, Foidevaux M, Simeonov, V, Vercauteren N, Barry C, and Parlange, MB. "The Effect of Scale on the Applicability of Taylor's Frozen Turbulence Hypothesis in the Atmospheric Boundary Layer." *Boundary-Layer. Meteorol.*, 143(2) 379-391, 2012. DOI : 10.1007/s10546-012-9701-1.

30. Fang, J., Diebold, M., **Higgins, CW**., Parlange, MB. "Towards Oscillation-Free Implementation of the Immersed Boundary Method with Spectral-Like Methods." *Journal of Computational Physics*, 230(22), 8179-8191, 2011.

31. Nadeau DF, Pardyjak E, **Higgins CW**, Fernando HJS and Parlange MB. "A simple model for the afternoon and early-evening decay of convective turbulence over different land surfaces.". *Boundary-Layer Meteorol*., 141(2), 301-324, 2011.

32. Bou-Zeid E, **Higgins CW**, Huwald H, Meneveau C, and Parlange, MB. "Field Study of the Dynamics and Modelling of Subgrid-Scale Turbulence in a Stable Atmospheric Surface Layer over a Glacier." *J. of Fluid Mechanics*, 665, 480-515, 2010.

33. Huwald H, **Higgins CW**, Boldi MO, Bou-Zeid E, Lehning M, and Parlange MB. "Albedo Effect on Radiative Errors in Air Temperature Measurements." *Water Resources Research,* 45, w88431, 1-13, 2009.

34. **Higgins CW**, Meneveau C, Parlange MB. "Geometric Alignments of the Subgrid-Scale Force in the Atmospheric Boundary Layer." *Bound-Layer Meteorology*, 132(1), 1-9, 2009.

35. **Higgins CW**, Meneveau C, Parlange MB. "The Effect of Filter Dimension on the Components of the Subgrid-Scale Stress, Heat Flux, and Tensor Alignments in the Atmospheric Surface Layer." *J. Atmos. and Oceanic Tech*., 24(3): 360-375, 2007.

36. **Higgins CW**, Parlange MB, Meneveau C. "The Heat Flux and the Temperature Gradient in the Lower Atmosphere." *Geophysical Research Letters*, 31 (22): Art. No. L22105, 2004.

37. **Higgins CW**, Parlange MB, Meneveau C. "Alignment Trends of Velocity Gradients and Subgrid-Scale Fluxes in the Turbulent Atmospheric Boundary Layer." *Bound-Layer Meteorology*, 109 (1), 59-83, 2003.

Book Chapters

1. **Higgins CW**, Barr C, Hilyer C, Kelley J. 'Agricultural Irrigation Initiative: Precision Water Application Test.' *Northwest Energy Efficiency Alliance*, Report #E15-009, 2015
2. **Higgins CW**, Kelley J, Liu Z, Hillyer C. 'Agricultural Irrigation Initiative: Using Soil Electrical Conductivity Mapping For Precision Irrigation in the Columbia Basin.' *Northwest Energy Efficiency Alliance*, Report #E15-010, 2015.

3. Pardyak E, **Higgins CW**. and Parlange, MB. "Atmospheric Flux Measurements" in *Handbook of Environmental Fluid Mechanics* (H.J.S. Fernando ed.) 2012, *Taylor and Francis.*
4. **Higgins CW**, Parlange, MB, Meneveau C. "Energy Dissipation in Large Eddy Simulation: Dependence on Flow Structure and Effects of Eigenvector Alignments." in *Atmospheric turbulence and mesoscale meteorology : Scientific research inspired by Douglass K Lilly* (E. Fedorovich, R. Rotunno and B. Stevens eds.) Cambridge Univ., 2004**.**

Proceedings articles and reports

1. Higgins CW, Liu Z, Stewart R, Kelley JA, Drake SJ, 'Design Guide for Roadside Infiltration Stips in Western Oregon' Final Report, to the Oregon Department of Transporation. Document #SPR 758, 2016
2. Higgins CW, Kelley JA, Cuenca R. 'Assessing Agricultural Consumptive Use Including Remote Sensing of Actual Evapotranspiration: Phase 2 Report (section 3 and 4), Bureau of Reclamation, 2016
3. Hillyer C*, Kelley J*, and Higgins CW. "Catch Can Testing of a Variable Rate Irrigation System and Evaluation Using a Time Varying Densogram." 2013 *ASABE Annual International Meeting* Kansas City, Missouri; July 21 – 24, 2013 paper #1620517.
1. Hillyer C*, **Higgins CW**, English M*, Rhodig, L Wickes G, and le Roux, J. "A Demonstration of Energy & Water Savings Potential from an Integrated Precision Irrigation System." *Irrigation Education Conference*; Irrigation Association, Austin, Texas November 4-8 2013
2. **Higgins CW**, Meneveau C, Parlange MB, "The effect of Eigenvector alignments on subgrid-scale dissipation and turbulent kinetic Energy" 15th symposium on Boundary Layers and Turbulence AMS 2002.
3. **Higgins CW**, Parlange MB, Meneveau C, "Preferred alignments of subgrid stress and strain rate in the atmospheric boundary layer" 3rd international Symposium on Environmental Hydraulics Dec 5-8 2001**.**

Instructional Summary

Credit Courses

Course	Course Title	Term/Year	Credits
BEE 322	Ecological Engineering Thermodynamics and Transfer Process	Winter 2012	4
BEE 461	Ecological Engineering Laboratory	Spring 2012	3
BEE 311	Ecological Fluid Mechanics	Fall 2012	4

BEE 322	Ecological Engineering Thermodynamics and Transfer Process	Winter 2013	4
BEE 461	Ecological Engineering Laboratory	Spring 2013	3
BEE 311	Ecological Fluid Mechanics	Fall 2013	4
BEE 472/572	Intro to Food Engineering Principles	Fall 2013	5
BEE 322	Ecological Engineering Thermodynamics and Transfer Process	Winter 2014	4
BEE 461	Ecological Engineering Laboratory	Spring 2014	3
BEE 599	Environmental Data Analysis	Spring 2014	3
BEE 311	Ecological Fluid Mechanics	Fall 2014	4
BEE 322	Ecological Engineering Thermodynamics and Transfer Process	Winter 2015	4
BEE 599	Synthesis and Writing Workshop I	Winter 2015	3
BEE 361	Ecological Engineering Laboratory	Spring 2015	3
BEE 599	Synthesis and Writing Workshop II	Spring 2015	3
BEE 311	Ecological Fluid Mechanics	Fall 2015	4
BEE 599	Boundary Layer Meteorology	Fall 2015	4
BEE 322	Ecological Engineering Thermodynamics and Transfer Process	Winter 2015	4
BEE 599	Evaporation	Spring 2016	4
BEE 361	Ecological Engineering Laboratory	Spring 2016	3
BEE 311	Ecological Fluid Mechanics	Fall 2016	4
BEE 322	Ecological Engineering Thermodynamics and Transfer Process	Winter 2017	4
BEE 599	Environmental Transport Processes	Spring 2017	3
BEE 361	Ecological Engineering Laboratory	Spring 2017	3
BEE 311	Ecological Fluid Mechanics	Fall 2017	4
BEE 599	Environmental Transport Processes	Fall 2017	3
BEE 322	Ecological Engineering Thermodynamics and Transfer Process	Winter 2018	4

BEE 361	Ecological Engineering Laboratory	Spring 2018	3
BEE 599	Dimensional Analysis and Scaling	Spring 2018	3

Non-Credit Courses and Workshops

Teaching events:

Precision Irrigation in the Willamette Valley, McMinnville Irrigation meeting, November 3rd 2015, Oregon Regional Extension, [150 attendees] **Invited**.

"The Nexus of Energy, Water, and Agriculture." BRR seminar class, November 2nd 2015, Oregon State University, [60 attendees] **Invited.**

"Does Water Really Flow Downhill?" HJ Andrews Day, June 23rd 2015, HJ Andrews experimental forest [200 attendees] **Invited.**

"The Nexus of Energy, Water, and Agriculture." Ecological Engineering Student Club, May 13th 2015, Oregon State University, [30 attendees] **Invited.**

"Precision Irrigation." Oregon Processed Vegetable Commission Grower Meeting; Linn County Expo Center, Albany, OR; January 22nd 2014. [85 attendees]. **Invited.**

"Deficit Irrigation." The 40th Annual Hermiston Farm Fair – Seminars and Tradeshow; Hermiston Conference Center, Hermiston, OR; December 15th 2013. [125 attendees]; **Invited**.

"Precision Irrigation, How Good Can We Get?" The 40th Annual Hermiston Farm Fair – Seminars and Tradeshow; Hermiston Conference Center, Hermiston, OR; December 15th 2013. [125 attendees]; **Invited**.

"The Nexus of Energy Water and Agriculture: what are the exchange rates?" Bioresources Seminar Series; Oregon State University, Corvallis, OR; October 13th 2013. [50 attendees]; **Invited**.

Workshops organized or co-organized:
"Agricultural Irrigation Energy Efficiency", Madison Farms, Echo, OR; June 26th 2013, [60 attendees], Co-organizer.

Graduate and Undergraduate Students and Postdoctoral Trainees

Graduate students advised:

Colleen Barr	MS	2014 {Water Resource Engineering} {USEPA}
Robert Pedrosa	MS	2016 {Water Resource Engineering} {West Consulting}
Maggie Grahm	MS	2020 (Expcted) {Water Resource Engineering}
Steve Drake	Ph.D.	2016 {Atmospheric Science} {Assistant Professor, University of Nevada at Reno}
Jason Kelley	Ph.D.	2016 {Water Resource Engineering} {Assistant Professor, University of Idaho
Alex Krejci	MS	2018 (expected) {Water Resource Engineering}

Elnaz Hassanpour	Ph.D.	2018 (expected)	{Water Resource Engineering}
Hadi Al Agele	Ph.D.	2019 (expected)	{Water Resource Engineering}
Maoya Bassouini	Ph.D.	2019 (expected)	{Water Resource Engineering}
Casey Steadman	Ph.D	2021 (expected)	{Water Resource Engineering}
Cynthis Schwartz	Ph.D	2021 (expected)	{Water Resource Engineering}

Graduate students, committee member:

Chadi Sayde	Ph.D.	2012	(Grad Committee Member) {Postdoc at Oregon State University}
Holly Oldroyd	Ph.D.	2014	(Ecole Polytechnique Federale de Lausanne, Grad Committee Member)
Landon Gryczkowski	Ph.D.	2015	(Grad Committee Member)
Ankita Juneja	Ph.D.	2015	(Grad Committee Member)
Chaitanya Ghodke	Ph.D.	2016	(Grad Committee Member)
Matt Zaiger	PhD	2018	(expected) Grad Council Representative)
Ali Malekghasemi	Ph.D.	2018	(expected) (Grad Committee Member)
Lena Phister	Ph.D	2019	(expected) (Grad Committee Member)
Jacob Kollen	MS	2015	(Grad Committee Member)
William Koski	MS	2012	(Graduate Council Representative)
Lisa Hall	MS	2013	(Grad Committee Member) {Employed at Engineering Firm in Portland}
Colleen Wall	MS	2014	(Graduate Council Representative)
Yorick Olin Wahaus	MS	2015	(Minor Advisor)
Leah Tai	MS	2015	(Grad Committee Member)
Austin Hall	MS	2015	(Grad Committee Member)
Alex McDaniel	MS	2015	(Grad Committee Member)
Daniel Wright	MS	2016	(Grad Committee Member)
Michael Sumner	MS	2017	(Grad Committee Member)
Bran Black	MS	2017	(Graduate Council Representative)
Sebastian Okhovat	MS	2017	(Graduate Council Representative)
Susan Elliot	MS	2017	(Grad Committee Member)

Undergraduate students advised:

Missy Buntin	(Thesis Mentor)
Kayla Nollette	(Thesis Mentor)
Jessica Cugley	(Project Mentor)
Edward Smith	(Project Mentor)
Zane Rogers	(Project Mentor)
El guernaoui Omar	(Project Mentor)
Patricia Marsh	(Project Mentor)
Gabriella Coughlin	(Project Mentor)
Blake Inglin	(Project Mentor)

Andrew Kearney	(Project Mentor)
Courtney Holley	(Project Mentor)
Natalie McDonald	(Project Mentor)
Jessie Cugley	(Project Mentor)
Kayla Nollette	(Project Mentor)
Laurel Shepard	(Project Mentor)
Tom DeBell	(Project Mentor)
Sean Carrigg	(Thesis Committee Member)
Brian Daugherty	(Thesis Committee Member)

Faculty Advisor of Ecological Engineering Student Society: 2011-present

Postdoctoral trainees:

Ryan Stewart	May 2013 – December 2013	{Assistant Professor at Virginia Tech}
Ziru Liu	November 2013-2105	{Monsanto}

Presentations to peers

List of recent presentations

"The Case for Agrivoltaic Systems" American Geophysical Union Conference December 2018, Washington DC

"High resolution profiling of the atmospheric boundary layer with UAS and DTS" American Geophysical Union Conference December 2018, Washington DC **Invited.**

"An Organizing Principle for the Energy Water Food Nexus" University Council for Water Resources annual meeting, June 2018, Pittsburgh PA, **Invited**

"Scarcity Amidst Abundance in the Willamette Valley", Polk County Soil and Water district annual meeting, January 2018, Polk County, OR**, Invited**

"Scarcity Amidst Abundance in the Willamette Valley," NSF PI INFEWS Meeting, June 2018, Washington, DC, **Invited**

"Nexus Thinking" Benton county Leadership workshop, spring 2018, **Invited**

"Timecale of the surface flux transitions in response to a solar eclipse" American Geophysical Union Conference, December 2017, New Orleans, LA.

"Distributed Measurements reveal Critical Local Intermittent Processes (CLIPS)". Boston University Seminar Series, September 18th 2016, Boston MA, **Invited**

"What is the WEF Nexus?" The 3rd Future Earth Water-Energy-Food Nexus Workshop, 4th April 2016, Kyoto, Japan. **Invited**

"The Nexus Equation" 16th National Conference and Global Forum on Science Policy and the Environment, January 19th 2016, Washington DC.

"UAS and Distributed Temperature Sensing Reveal Previously Unseen Atmospheric Processes" American Geophysical Union Conference; December 16th 2015, San Francisco CA, **Invited**

"The Nexus Equation: Toward an integrated conceptual and Mathematical Framework for the Water-Energy-Food Nexus" American Geophysical Union Conference; December 16th 2015, San Francisco CA.

"Next Generation Measurements of the Atmospheric Boundary Layer" Fluids Mechanics Symposium, Virginia Tech. November 11th 2015, Blaksberg, VA. **Invited.**

"Probing the Atmospheric Boundary Layer with Next Generation Approaches." Fall Science Seminar Series, Washington State University; September 14th 2015, Vancouver, WA, **Invited**

"Next Generation Approaches for Near Surface Atmospheric Boundary Layer Measurement" Western Weather Working Group, Working Meeting, August 6th 2015, Ventura, CA, **Invited**.

"Some Thoughts on Next Generation Technologies for Agriculture" Colloquia Series at Sharp Technologies Inc. July 14th 2015, **Invited.**

"UAS and Distributed Temperature Sensing Reveal Previously Unseen Atmospheric Processes" Autonomous Systems @ OSU Event, June 29th 2015, **Invited.**

"Complexity and Simplicity in Flows over Complex Topography" HJ Andrews Science Seminar Series, June 5th 2015, Oregon State University, **Invited**.

"UAS as a platform for observation" Ryegrass association meeting, Jan 21st 2015 Albany, Oregon, **Invited**.

"Tradeoffs in the Energy, Water, food Nexus: Precision Irrigation and Renewable Energy" USGS Portland office brownbag seminar, Feb 3, 2015, Portland Oregon, **Invited**

"Scaling Relationships for Slope Flows." American Geophysical Union Conference; San Francisco, CA; December 17th 2014, San Francisco Ca, **Invited**

"Soil mapping techniques in the Columbia Basin", Hermiston Farm Fair, Dec 6th 2014, Hermiston, Oregon, **Invited**

"Precision Irrigation in the West: Bringing Technology Together for VRI." InfoAg Conference; July 29th 2014, St Louis, **Invited**

"Future directions in hydrologic measurement." Symposia honoring the Career of Dr. Richard Cuenca; Oregon State University, Corvallis OR; April 11th 2014; **Invited.**

"An investigation of water and energy efficiencies in optimized variable rate irrigation" 2014 Nexus Conference; Chapel Hill, NC; March 6th 2014.

"The temperature gradient and transition timescales as a function of topography in complex terrain." American Geophysical Union Conference; San Francisco, CA; December 9th 2013.

"Leveraging the outdoor 'laboratory:' field measurements of atmospheric boundary layer turbulence over a broad range of scales." Thermal Fluid Sciences Seminar Series; Oregon State University, Corvallis, OR; October 23rd 2013; **Invited.**

"The Nexus of Energy Water and Agriculture: managing and incorporating spatial variability." Water Resources Seminar Series; Oregon State University, Corvallis, OR; Jan 30th 2013; **Invited**.

"The Nexus of Energy Water and Agriculture: managing and incorporating spatial variability." Department of Mechanical Engineering Fall seminar series; Portland State University, Portland, OR; October 12th ,2013; **Invited**.

"A-Posteriori Analysis of Surface Energy Budget Closure." American Geophysical Union Conference; San Francisco, CA; December 6th 2012.

"Turbulent Water Vapor Transport, Advection and the Surface Energy Budget." Global Change & Ecosystem Center Seminar Series; The University of Utah, Salt Lake City, UT; April 17th 2012; **Invited**.

"Measurement and simulation of water vapor transport in the turbulent atmospheric boundary layer." Department of Physics Colloquium Series, Oregon State University, Corvallis, OR; April 23rd 2012; **Invited**.

"A-Posteriori Analysis of Surface Energy Budget Closure to Determine Missed Energy Pathways." Parlange Brutsaert Symposium; Ithaca, NY; May 14th 2012.

"Estimating advection for water vapor transport and the surface energy balance." American Geophysical Union Conference; San Francisco, CA; December 7th 2011

Grant and contract support

Grant support:

Year(s)	PI(s)	Agency	Title	Total $	$ to my program
2017-2021	Chad Higgins Adell Amos Anne Nolin David Hulse Gregoty Characklis	NSF EAR	INFEWS/T1: Scarcity Amid Abundance: Understanding Trade-offs in the Food-Energy-Water Nexus in the Willamette River Basin	$2,430,138	$1,260,000
2017-2020	Chad Higgins	NSF PDM	Collaborative Research: Unfolding the link between forest canopy structure and flow morphology: A physics-based representation for	$75,000	$75,000

			numerical weather prediction simulations		
2017-2022	Ganthi Murthi Chad Higgins Et. Al.	USDA	CAP: the Nutrient Water Energy Nexus	250,000	115,000
2016-2018	Clinton Shock, Chad Higgins Alan Fern Sharmodeep Bhattacharyya Alan Cambpell	Oregon BEST	Smart Vineyards	250,000	21,000
2014-2019	John Selker, Michael Wing, Chad Higgins	NSF	Collaborative Research: Facility Support: Center for Transformative Environmental Monitoring Programs (CTEMPs)	961,167	75,000
2012-2017	Ganthi Murthi Chad Higgins Et. Al.	USDA	CAP: the water Energy Nexus	250,000	115,000
2012-2014	Charles Hillyer, Chad Higgins	Northwest Energy Efficiency Alliance	Irrigation Management Demonstration for Enhancing Energy Efficiency and Profitability	647,000	180,000
2013-2016	Chad Higgins	ODOT	Determination of the appropriate width of filter strips for natural dispersion of stormwater in western Oregon	280,000	280,000
2014	Chad Higgins, Ziru Liu		Topography as an indicator for cold pool development in the Andrews Forest	25,000	25,000
2012-2013	Chad Higgins, Todd Miller	Magy Corp.	Feasibility analysis of a water and olive foam emulsion for frost protection in orchards	9,000	6,000

Professional Affiliations

Professional affiliations with:
American Geophysical Union-Hydrology Section

American Physical Society-Division of Fluid Dynamics
American Meteorological Society

Service

Department/unit

Member-Search Committee for Ecohydrology Hire; 2014
Member-Search Committee for Ag Technology Hire; 2015
Member-Search Committee for Ag Technology Hire; 2016
Member-Search Committee for CEAOS Remote Sensing Hire; 2015
Member-Search Committee for CEAOS Remote Sensing Hire; 2016
Chair-Undergraduate Curriculum Committee; 2014-present
Member-Undergraduate Curriculum Committee; 2011-2014
Member-Ecampus Committee; 2011-2013
Member-building committee; 2011-2013
Member-postdoctoral hiring committee 2012

University

Associate Director, Water Resources Engineering Grad Program, 2014-present.

Organizer, Water Resources Seminar Series, Spring Term, 2013: Land, Atmosphere and Water, The Next 20 Years

Organizer, Water Resources Seminar Series, Spring Term, 2016: Breakthroughs in Hydrology

Student presentation judge “Water Research Symposium at Oregon State University” 2013-2016

Organizer: Tri-State Energy-Water-Food Nexus workshop 2017

Organizer: Tri-State Energy-Water-Food Nexus workshop 2018

Offices/roles in professional societies
Committee Member: AGU Committee on Large Field Experiments in Hydrology 2012-1017

Vice president: AGU Committee on Large Field Experiments in Hydrology 2017-present

Convener: Advances in spatial scaling of hydrologic and biogeochemical processes, AGU fall meeting 2013

Convener: Atmospheric Boundary Layer Processes, AGU Fall Meeting 2015-2017

Student poster competition judge, 2012, 2013, 2014, 2015 AGU general assembly

Editor or Assoc. Editor of Journal

Associate Editor, Nature-Frontiers: Frontiers in Hydrosphere

Papers reviewed
I review for the following journals:

Boundary-Layer Meteorology
Cold Region Science and Technology
Dynamics of Atmospheres and Oceans
Environmental Fluid Mechanics
Geophysical Research Letters
Irrigation Science
Journal of Advances in Modeling Earth Systems
Journal of Electromagnetic Waves and Applications
Journal of Fluid Mechanics
Journal of Turbulence
Progress in Electromagnetics Research
Quarterly Journal of the Royal Meteorological Society
Remote Sensing the Environment
Sensors
Stochastic Environmental Research and Risk Assessment
Swiss National Science Foundation
Water Resources
Water Resources Research