

Curriculum Vitae

Name: Andres Schmidt
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Professional experience

- Since 2022:** Assistant Professor (Sen. Res.) Department of Fisheries, Wildlife and Conservation Sciences, Oregon State University
- 2020 – 2022:** Research Associate, Department of Fisheries, Wildlife and Conservation Sciences, Oregon State University.
- 2018 – 2020:** Contract GIS scientist for the Forestry & Natural Resources Extension Fire Program at Oregon State University, College of Forestry.

Contract Research Scientist in hydrological forest research at OSU, College of Forestry (Dept. Forest Engineering and Resource Management).
- 2018 – 2019:** PT Faculty, Dept. of Science, Engineering, & Mathematics, LBCC, Albany, OR.
- 2017 – 2018:** Full Professor (W2) of Physical Geography and Climatology, Dept. of Geography, RWTH Aachen University, Germany. Head of the working group Physical Geography and Climatology (resigned for family reasons).
- 2015 – 2017:** Assistant Professor (Sen. Res.), Oregon State University, Dept. of Forest Ecosystems and Society.
- 2012 – 2015:** Faculty Research Associate, Oregon State University. Dept. of Forest Ecosystems and Society
- 2009 – 2012:** Post-doctoral Research Associate, Oregon State University. Dept. of Forest Ecosystems and Society
- 2006 – 2009:** Graduate Research Assistant (PhD student), University of Münster, Germany.

Education:

2006 – 2009:

Research Assistant and PhD student, Institute of Landscape Ecology, University of Münster, Germany

Degree: Dr. rer. nat. (PhD), March 2009

Thesis: *Turbulent atmospheric exchange of greenhouse gases and aerosol particles above the urban area of Münster, Germany.*

2005–2006:

Physics, Ruhr-University Bochum, Germany

Degree: B.Sc. (Physics), March 2006

Thesis: *Spectral analytical derivation of hydraulic parameters for geothermal energy applications.*

1996–2002:

Geography, Ruhr-University Bochum, Germany

Degrees:

B.Sc. Geography, September 2000

Diploma (M.Sc.) Geography, December 2002

Thesis: *Intercomparison of mesoscale flow models.*

Publications in peer-reviewed journals

Schmidt A., D. Leavell, J. Punches, M.A. Rocha Ibarra, J.S. Kagan, M. Creutzburg et al. (2022). A quantitative wildfire risk assessment using a modular approach of geostatistical clustering and regionally distinct valuations of assets—A case study in Oregon. *PLoS ONE* 17, e0264826. <https://doi.org/10.1371/journal.pone.0264826>.

Rastogi B., A. Schmidt, M. Berkelhammer, D. Noone, F.C. Meinzer, J. Kim, C. J. Still (2022). Enhanced Photosynthesis and Transpiration in an Old Growth Forest Due to Wildfire Smoke. *Geophysical Research Letters* 49, e2022GL097959, <https://doi.org/10.1029/2022GL097959>.

Schmidt A., L. Ellsworth, J. Tilt, M. Gough (2022) Predicting conditional maximum contaminant level exceedance probabilities for drinking water after wildfires with Bayesian regularized network ensembles. *Machine Learning with Applications* 7, 100227, <https://doi.org/10.1016/j.mlwa.2021.100227>.

Schmidt, A., D. Mainwaring, and D. Maguire (2020). Development of a tailored combination of machine learning approaches for modeling volumetric soil water content within a mesic forest in the Pacific Northwest, *Journal of Hydrology* 588, 125044. <https://doi.org/10.1016/j.jhydrol.2020.125044>.

Schmidt, A., W. Creason, B.E. Law (2018). Estimating Regional Effects of Climate Change and altered Land Use on Biosphere Carbon Fluxes using Distributed Time Delay Neural Networks with Bayesian Regularized Learning, *Neural Networks* 108, 97-113.

Schmidt, A., B. Law, M. Göckede, C. Hanson, Z. Yang, and S. Conley (2016). Bayesian optimization of the Community Land Model simulated biosphere-atmosphere exchange using CO₂ observations from a dense tower network and aircraft campaigns over Oregon. *Earth Interactions* 20, 1-35.

Schmidt, A., C. W. Rella, M. Göckede, C. Hanson, Z. Yang, B. E. Law (2014). Removing traffic emissions from CO₂ time series measured at a tall tower using mobile measurements and transport modeling. *Atmospheric Environment* 97, 94-108.

Kathilankal, J. C., O'Halloran, T. L., Schmidt, A., Hanson, C. V., and Law, B. E. (2014). Development of a semi-parametric PAR (Photosynthetically Active Radiation) partitioning model for the United States, version 1.0, *Geoscientific Model Development*, 7, 2477-2484, doi:10.5194/gmd-7-2477-2014.

Schmidt, A. and M. Suchaneck (2014). Comparison and Optimization of Neural Networks and Network Ensembles for Gap Filling of Wind Energy Data. *Journal of Renewable Energy*, 2014:986830.

Novick K.A., J. Walker, W.S. Chan, A. Schmidt, C. Sobek, J.M.Vose (2013). Eddy covariance measurements with a new fast-response, enclosed-path analyzer: spectral characteristics and cross-system comparisons. *Agricultural and Forest Meteorology* 181, 17-32.

Schmidt A., C. Hanson, W.S. Chan, B.E. Law (2012). Empirical assessment of uncertainties of meteorological parameters and turbulent fluxes in the AmeriFlux network. *Journal of Geophysical Research* 117, G04014, doi:10.1029/2012JG002100.

Schmidt A., B.E. Law, C. Hanson, O. Klemm (2012). Distinct Global Patterns of Strong Positive and Negative Shifts of Seasons over the Last 6 Decades. *Atmospheric and Climate Sciences* 2, 76-88.

Martin J.G., C.L. Phillips, A. Schmidt, J. Irvine, and B.E. Law (2011). High Frequency Analysis of the Complex Linkage between Soil CO₂ Fluxes, Photosynthesis, and Environmental Variables. *Tree Physiology* 32, 49-64.

Publications in peer-reviewed journals (continued)

Schmidt A., C. Hanson, J. Kathilankal, B.E. Law (2011). Classification and Assessment of Turbulent Fluxes above Ecosystems in North America with Self Organizing Feature Map Networks. *Agricultural and Forest Meteorology* 151, 508-520.

Publications in peer-reviewed journals (continued)

Gelhausen E., K.P. Hinz, A. Schmidt, B. Spengler (2011). Characterization of vertical aerosol flows by single particle mass spectrometry for micrometeorological analysis. *Atmospheric Research* 102, 49-56.

Burba, G., A. Schmidt, R.L. Scott, T. Nakai, J. Kathilankal, G. Fratini, C. Hanson, B.E. Law, D. McDermitt, R. Eckles, M. Furtaw, M. Velgersdyk (2011). Calculating CO₂ and H₂O eddy covariance fluxes from an enclosed gas analyzer using an instantaneous mixing ratio. *Global Change Biology*. 18, 385-399.

Dahlkötter, F., F. Griessbaum, A. Schmidt, O. Klemm (2010). Direct measurement of CO₂ and particle emissions from an urban area. *Meteorologische Zeitschrift* 19, 565-575. DOI: 10.1127/0941-2948/2010/0492

Griessbaum F. & A. Schmidt (2009). Advanced tilt correction from flow distortion effects on turbulent CO₂ fluxes in complex environments using large eddy simulation, *The Quarterly Journal of the Royal Meteorological Society* 135, 1603-1613.

EI-Madany, T., H. Geiß, A. Schmidt, O. Klemm (2009). Regionalization of turbulent fluxes by combining aircraft measurements with footprint analysis. *Biogeosciences Discuss.* 6, 7017-7051.

Schmidt A. and O. Klemm (2008). Direct determination of highly size-resolved turbulent particle fluxes with the disjunct eddy covariance method and a 12 – stage electrical low pressure impactor. *Atmospheric Chemistry and Physics* 8, 7405-7417.

Schmidt A., T. Wrzesinsky and O. Klemm (2008). Gap Filling and Quality Assessment of CO₂ and Water Vapour Fluxes above an Urban Area with Radial Basis Function Neural Networks. *Boundary-Layer Meteorology* 126, 389-413.

Beiderwieden E., A. Schmidt, Y.-J. Hsia, S.-C Chang, T. Wrzesinsky and O. Klemm (2007). Nutrient input through occult and wet deposition into a subtropical montane cloud forest. *Water, Air & Soil Pollution* 186, 273-288.

Presentations on conferences and meetings (presented by first author listed)

Leavell D., A. Schmidt, C. Berger, M/A/ Rocha Ibarra: Protecting Valuable Resources in a Multi-Scale Effort in Oregon Through Comprehensive Wildfire Hazard Assessments on the Regional to Landscape Scale, AGU Fall Meeting 2020, 1-17 December 2020 (Online).

Schmidt, A.: Machine Learning in Forestry - Linking Data to Models, Center for Intensive Planted-forest Silviculture (CIPS) meeting, December 12, 2018, Corvallis, OR.

Schmidt, A., L. Berner, B.E. Law, and Chris Still: Changing carbon cycle dynamics in Oregon's urban-suburban-forested-agricultural landscapes in a bioenergy land-use change scenario. AGU Fall Meeting 2016, 12-16 December 2016, San Francisco, CA.

Schmidt, A., B. Law, C. Still, T. Hilker: Carbon Cycle Dynamics in Oregon's urban-forested-agricultural landscape, DOE ESS PI Meeting, Potomac, MD, April 26 – 27, 2016.

Schmidt, A., S. Conley, Z. Yang, B.E. Law, M. Göckede, C. Hanson, A. Andrews, C. Sweeney, and K. Masarie: A Framework for Bayesian Optimization of modeled Net CO₂ Fluxes in Oregon using a dense Tower Network, Aircraft Campaigns, and the Community Land Model, AGU Fall Meeting, San Francisco, CA, 14-18 December, 2015.

Hanson, C., A. Schmidt, B.E. Law, S. Biraud: Quantifying the Representation Error of Land Biosphere Models using High Resolution Footprint Analyses and UAS Observations, AGU Fall Meeting, San Francisco, CA, 14-18 December 2015.

Schmidt A., S. Conley, B.E. Law: Bayesian optimization of NEE in Oregon using a dense CO₂ observation tower network and the Community Land Model CLM4.5, 43rd Global Monitoring Annual Conference, Boulder, CO, May 18-20, 2015.

Law, B.E., L. Berner, A. Schmidt, Z. Yang, P. Ciais: Long-term observation and analysis for an integrated carbon observing system, The 2015 ESA Annual Meeting, August 9-14, Baltimore, MD, 2015.

Andrews, A., K. Thoning, M. Trudeau, K. Masarie, D. Worthy, E. Dlugokencky, C. Sweeney, A. Karion, J. Miller, B. Stephens, S. Richardson, K. Davis, A. Schmidt, B.E. Law, C. O'Dell, D. Wunch, S. Biraud, M. Fischer, C.D. Sloop, J.W. Munger, S. Wofsy, P. Tans: North American CO₂ flux, inflow, and uncertainties estimated using atmospheric measurements from the North American Carbon Program. NOAA Global Monitoring Division Conference, Boulder, CO, May 18-20, 2015.

Schmidt, A., B. Law, C. Still, T. Hilker: Carbon cycle dynamics within Oregon's urban-suburban-forested-agricultural landscapes - A NACP Core Project. 5th NACP Principal Investigator Meeting & Ameriflux Principal Investigator Meeting, January 26 – 30, Washington D.C., 2015.

Schmidt, A.: Removing Traffic Emissions from CO₂ Time Series Measured at a Tall Tower Using on Road Measurements and WRF-Stilt Transport Modeling. AGU Fall Meeting, San Francisco, CA, 14-19 December 2014.

Schmidt, A., M. Göckede, Z. Yang, B.E. Law: Bayesian optimization of NEE in Oregon using a new CO₂ observation tower network and the Community Land Model, 42nd NOAA ESRL Global Monitoring Annual Conference, Boulder, CO, May 20-22, 2014.

Schmidt, A., C. Rella, S. A. Conley, M. Göckede, B. E. Law: Constraining CO₂ tower measurements in an inhomogeneous area with anthropogenic emissions using a combination of car-mounted instrument campaigns, aircraft profiles, transport modeling and neural networks, AGU Fall Meeting 2013, San Francisco, CA, 9-13 December 2013.

Presentations on conferences and meetings (continued)

Chan, S., A. Schmidt, C. Hanson, B.E. Law, S. Biraud, M. Torn: Real-world error and uncertainties across the AmeriFlux network: Synthesis of 10 years of QA/QC site inter-comparisons, Joint Conference of 11th AsiaFlux International Workshop, 3rd HESSS (Hydrology delivers Earth System Science to Society), GCEER (Global Centers of Excellence in Education and Research), and 14th Annual Meeting of Korean Society of Agricultural Forest Meteorology, Seoul, Korea, August 21-24, 2013.

Schmidt, A.: Combining CO₂ observations from towers, aircraft profiles, and a car-mounted instrument using a combination of transport modeling and neural networks, 41th NOAA ESRL Global Monitoring Annual Conference, Boulder, CO, May 21-22 2013.

Göckede, M., V. Yadav, A. Schmidt, A.M. Michalak, B.E. Law: A comparison of geostatistical and Bayesian atmospheric inversion techniques for detecting interannual variability in regional-scale CO₂ budgets, AGU Fall Meeting, San Francisco, CA, 3-7 December 2012.

Schmidt A., C. Hanson, B. E. Law and O. Klemm: Global patterns of the shifts of seasons over the last 6 decades and their phenological impacts, AGU Fall Meeting, San Francisco, CA, 3-7 December 2012.

Schmidt A.: Improving and Extending a CO₂ Observation Network in the Pacific Northwest, 40th NOAA ESRL Global Monitoring Annual Conference, Boulder, CO, May 14-17, 2012.

Schmidt A., C. Hanson, W.S. Chan, B.E. Law: Empirical assessment of uncertainties in the AmeriFlux data network. TES Principal Investigator's Meeting, Washington D.C., April 23 - 24, 2012.

Hanson C., A. Schmidt, W.S. Chan, B.E. Law: Overview of AmeriFlux QA/QC Lab Activities. TES Principal Investigator's Meeting: April 23 - April 24, 2012, Washington D.C.

Schmidt A., C. Hanson, J. Kathilankal, B.E. Law: Classification and Assessment of Turbulent Fluxes above Ecosystems in North-America with Self Organizing Feature Map Networks. Presented at the AmeriFlux/NACP 3rd All-Investigators Meeting, New Orleans, LA. January 31 - February 4, 2011.

Hanson C., J. Kathilankal, A. Schmidt, B.E. Law: PAR measurement uncertainty: from sensor to network. AmeriFlux/NACP 3rd All-Investigators Meeting, New Orleans, LA, January 31 - February 4, 2011.

Burba G., A. Schmidt, R.L. Scott, T. Nakai, J. Kathilankal, G. Fratini, C. Hanson, B.E. Law, D. McDermitt, R. Eckles, M. Furtaw, M. Velgersdyk: Calculating CO₂ and H₂O eddy covariance fluxes from an enclosed gas analyzer using an instantaneous mixing ratio. AGU Fall Meeting, San Francisco, CA, December 13-17, 2010.

Schmidt A.: Direct determination of highly size-resolved particle fluxes with the disjunct eddy covariance method. European Aerosol Conference (EAC), Thessaloniki, Greece, 24-29 August 2008.

Editorial service

Member of the editorial board of the international peer-review journal ADVANCES IN METEOROLOGY, 2015-2017.

Guest editor for the special issue "Biosphere-Atmosphere Interactions: Measurements, Models, and Model-Data Fusion" of the journal ATMOSPHERE, 2017.

Peer-reviewed for: Environment Protection Engineering, Neural Computing and Applications, Neural Networks, Atmospheric Chemistry and Physics, Atmospheric Environment, Atmospheric Measurement Techniques, Biogeosciences, British Journal of Applied Science & Technology, Environmental Management, Global Change Biology, International Conference on Energy Engineering and Environmental Protection, Journal of Atmospheric and Oceanic Technology, Journal of Geophysical Research, Physical Science International Journal, Remote Sensing

Corresponding peer-review activity references:

- <https://publons.com/researcher/1178606/andres-schmidt/peer-review/>.
- <https://orcid.org/0000-0001-7110-6652>