

Shawn Paul Serbin

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Education

- 2008 – 2011 Ph.D. Forest Ecology, University of Wisconsin – Madison (completed requirements Dec. 2011, earned May, 2012)
- 2004 - 2008 M.S. Forest Ecology & M.S. Environmental Monitoring (dual M.S. earned May 2008), University of Wisconsin – Madison
- 1999 - 2004 B.A. Telecommunications with a cognate in Geography and Geographic Information Sciences (earned May 2004), Michigan State University

Professional Appointments

- 2014 – Present Assistant Ecologist, Environ. Sciences Dept., Brookhaven National Laboratory
- 2014 – Present Affiliate Faculty, Department of Sustainability Studies, Stony Brook University
- 2014 – Present Honorary Associate Fellow, Department of Forest and Wildlife Ecology, University of Wisconsin – Madison
- 2012 – 2014 Postdoctoral Research Associate, Department of Forest and Wildlife Ecology, University of Wisconsin – Madison
- 2011 – 2013 Postdoctoral Research Associate, Department of Plant Biology, University of Illinois at Urbana-Champaign.
- 2008 – 2011 Graduate Research Assistant, Department of Forest and Wildlife Ecology, University of Wisconsin – Madison
- 2007 – 2008 Graduate Project Assistant, Center for Sustainability and the Global Environment (SAGE), Institute for Environmental Studies, UW – Madison
- 2004 – 2007 Graduate Research Assistant, Department of Forest and Wildlife Ecology, University of Wisconsin – Madison
- 2004 – 2005 Graduate Project Assistant, Environmental Remote Sensing Center, University of Wisconsin – Madison
- 2002 – 2004 Undergrad. Research Assistant, Arctic Ecology Lab., Michigan State University

Refereed Publications (→ weblink to article)

1. Couture, J.J., **Serbin, S.P.**, Townsend, P.A. (in press) Elevated temperature and periodic water stress alter growth and quality of common milkweed (*Asclepias syriaca*) and monarch (*Danaus plexippus*) larval performance, *Arthropod-Plant Interactions*
2. Banskota, A., **Serbin, S.P.**, Wynne, R.H., Thomas, V.A., Falkowski, M.J., Kayastha, N., Gastellu-Etchegorry, J.P., Townsend, P.A. (2015) A LUT-based inversion of the DART model to estimate forest leaf area index (LAI) from hyperspectral data, *Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, DOI: 10.1109/JSTARS.2015.2401515 →
3. **Serbin, S.P.**, Singh, A., McNeil, B.E., Townsend, P.A., (2014). Spectroscopic determination of leaf morphological, nutritional, and biochemical traits for northern temperate and boreal tree species. *Ecological Applications*, 24 (7), 1651-1669 →
4. Dietze, M.C., **Serbin, S.P.**, LeBauer, D.S., Davidson, C.D., Desai, A.R., Feng, X., Kelly, R., Kooper, R., D.S., Mantooth, J., McHenry, K. (2014). A quantitative assessment of a terrestrial biosphere model's data needs across North American biomes. *Journal of Geophysical Research – Biogeosciences*, 119 (3), 286-300 →

5. Ainsworth, E.A., **Serbin, S.P.**, Skoneczka, J.A., Townsend, P.A. (2014). Using leaf optical properties to detect ozone effects on foliar biochemistry. *Photosynthesis Research*, 119 (1-2), 65-76, DOI: 10.1007/s11120-013-9837-y. ➔
6. Banskota, A., Wynne, R.H., Thomas, V.A., **Serbin, S.P.**, Kayastha, N., Gastellu-Etchegorry, J.P., Townsend, P.A. (2013). Investigating the utility of wavelet transforms for inverting a 3-D radiative transfer model using hyperspectral data to retrieve forest LAI. *Remote Sensing*, 5(6), 2639-2659. ➔
7. Banskota, A., Wynne, R.H., **Serbin, S.P.**, Kayastha, N., Thomas, V.A., Townsend, P.A. (2013). Utility of the wavelet transform for LAI estimation using hyperspectral data. *Photogrammetric Engineering & Remote Sensing*, 79(7), 653-662. ➔
8. Bernacchi, C.J., Bagley, J.E., **Serbin, S.P.**, Ruiz-Vera, U.M., Rosenthal, D.M., Van Loocke, A. (2013). Modeling C3 photosynthesis from the chloroplast to the ecosystem. *Plant Cell & Environment*, 36(9), 1641-1657. DOI: 10.1111/pce.12118. ➔
9. **Serbin, S.P.**, Ahl, D.E., Gower, S.T. (2013). Spatial and temporal validation of the MODIS LAI and FPAR products across a boreal forest wildfire chronosequence. *Remote Sensing of Environment*, 133, 71-84. ➔
10. Townsend, P.A., **Serbin, S.P.**, Kruger, E.L., Gamon, J.A. (2013). Disentangling the contribution of biological and physical properties of leaves and canopies in imaging spectroscopy data. *Proceedings of the National Academy of Sciences*, 110 (12), E1074. ➔
11. Couture, J.J., **Serbin, S.P.**, and Townsend, P.A. (2013). Spectroscopic sensitivity of real-time, rapidly induced phytochemical change in response to damage. *New Phytologist*, 198 (1), 311-319. ➔
12. Isaacson, B., **Serbin, S.P.**, and Townsend, P.A. (2012). Detection of relative differences in phenology of forest species using Landsat and MODIS. *Landscape Ecology*, 27 (4), 529-543. ➔
13. Deel, L.N., McNeil, B.E., Curtis, P.G., **Serbin, S.P.**, Singh, A., Eshleman, K.N., Townsend, P.A. (2012). Relationship of a Landsat cumulative disturbance index to canopy nitrogen and forest structure. *Remote Sensing of Environment*, 118, 40-49. ➔
14. **Serbin, S.P.**, Dillaway, D., Kruger, E.L., Townsend, P.A. (2012). Leaf optical properties reflect variation in photosynthetic metabolism and its sensitivity to temperature. *Journal of Experimental Botany*, 63, 489-502. ➔
15. Kucharik, C.J., **Serbin, S.P.**, Vavrus, S., Hopkins, E.J., Motew, M.M. (2010). Patterns of climate change across Wisconsin from 1950 to 2006. *Physical Geography*, 31 (1), 1-28. ➔
16. **Serbin, S.P.**, Kucharik, C.J. (2009). Spatio-temporal mapping of daily temperature and precipitation for the development of a multi-decadal climatic dataset. *Journal of Applied Meteorology and Climatology*, 48 (4), 742-757. ➔
17. **Serbin, S.P.**, Gower, S.T., Ahl, D.E. (2009). Canopy dynamics and phenology of a boreal black spruce wildfire chronosequence, *Agricultural and Forest Meteorology*, 149, 187-204. ➔
18. Kucharik, C.J., **Serbin, S.P.** (2008). Impacts of recent climate change on Wisconsin corn and soybean yield trends. *Environmental Research Letters*, 3 (3), 10pp. ➔
19. Peckham, S.D., Ahl, D.E., **Serbin, S.P.**, Gower, S.T. (2008). Fire-induced changes in start of growing season and leaf maturity in Canadian forests measured by satellite remote sensing. *Remote Sensing of Environment*, 112, 3594-3603. ➔

Manuscripts in revision

- Singh, A., **Serbin, S.P.**, McNeil, B.E., Kingdon, C.C., Townsend, P.A. (in revision) Imaging spectroscopy algorithms for mapping canopy foliar chemical and morphological traits and their uncertainties, *Ecological Applications*
- Davidson, C.D., Hu, F.S., LeBauer, D.S., **Serbin, S.P.**, Dietze, M.C., (in revision). Iterative calibration of the Ecosystem Demography model for Alaskan tundra: Model-data feedbacks and data assimilation, *Ecosphere*

Manuscripts review or preparation

- Serbin, S.P.**, Couture, J.J., Kruger, E.L., Townsend, P.A., (in prep). Use of reflectance spectroscopy to estimate the key determinants of leaf photosynthetic capacity and their response to temperature. *Global Change Biology*
- Townsend, P.A., **Serbin, S.P.**, Singh, A., Couture, J.J., McNeil B.E., and Kingdon, C.C. (in prep). Predicting foliar traits at the leaf and canopy level from spectroscopy using partial least squares – A primer. *Remote Sensing of Environment*
- Gamon, J.A., Pastorello, G.Z., **Serbin, S.P.**, Townsend, P.A. (in prep). Ecological applications of spectral data: Challenges and opportunities. *Ecological Applications*

Other Publications, Reports and Conference Proceedings (→ weblink to article)

- Kooper, R., McHenry, K., Dietze, M.C., LeBauer, D.S., **Serbin, S.P.**, Desai, A., (2013). Ecological cyberinfrastructure and HPC: Towards more accurately predicting future levels of greenhouse gasses. *Peer-reviewed Proceedings of XSEDE13: Extreme Science and Engineering Discovery Environment*, 07/2013. →
- Kucharik, C.J., & **Serbin, S.P.**, (2008). Impacts of Past and Future Changes in Climate and Atmospheric CO₂ on Wisconsin Agriculture, final report submitted to Wisconsin Focus on Energy Program. →
- Serbin, S.P.**, Graves, A., Zaks, D.P., Brown, J., Tweedie, C.E., (2004). The Utility of Survey Grade Differential Global Positioning Systems (DGPS) Technology for Monitoring Coastal Erosion: Arctic Coastal Dynamics, Report of an International Workshop, *Berichte zur Polar und Meeresforschung*, 482(2004): 29-30. →
- Graves, A., Tweedie, C.E., Zaks, D.P., **Serbin, S.P.**, Manley, W.F., Brown, J., and Bulger, R., 2004, Spatial Data Infrastructure Supports Long Term Measurements to Detect Arctic Change: Arctic Coastal Dynamics, Report of an International Workshop, *Berichte zur Polar und Meeresforschung*, 482(2004): 29-30. →

Honors, Grants & Fellowships

- 2014 BNL Professional Development (PD) funds, *Scaling Physiology for Earth System Models (ESMs)*, Project dates: 2014-2017 (PI, \$1,018,367)
- 2013 NASA Terrestrial Ecology (TE) Program, *Assimilation of imaging spectroscopy data to improve the representation of vegetation dynamics in ecosystem models*, Project dates: 05/01/2014 – 04/31/2017 (PI, \$520,097)
- 2012 NASA HypIRI Preparatory Airborne Activities & Associated Science & Applications Research, *Measurement of ecosystem metabolism across climatic and vegetation gradients in California for the 2013-2014 NASA AVIRIS/MASTER airborne campaign*, Project dates: 01/01/2013 – 12/31/2015 (Science-PI, \$675,144)
- 2011 USGS Mendenhall Research Fellowship (October, 2011, awarded but did not accept)
- 2010 Wisconsin Space Grant Consortium (WSGC) Dr. Laurel Salton Clark Memorial Graduate Fellowship, *Quantifying regional light-use efficiency of forest ecosystems in the Upper Midwest using airborne remote sensing data*, (PI, 1 year, \$6,000).

- 2010 NASA HypsIRI Preparatory Activities, *Detection of key leaf physiological traits using spectroscopy and hyperspectral imagery*, (Science-PI, 1 year, \$107,985)
- 2008 NASA Earth & Space Sciences Fellowship, *An integrative approach for quantifying the effects of disturbance on regional forest carbon cycling*, (PI, \$30,000 / yr for 3 years). Funded PhD research.
- 2004 Merit award, Undergraduate Research & Arts Forum, Michigan State University (\$300)
- 2003 International Arctic Science Committee Young Scientist award recipient (\$3,000). Supported travel to attend and present at the Arctic Coastal Dynamics (ACD) Workshop in St. Petersburg, Russia.

Scholarly Presentations & Posters (→ weblink to presentation)

- 2014 Townsend, P.A., **Serbin, S.P.**, Kruger, E., Dubois, S., Desai, A., Jablonski, A., Singh, A., Goulden, M. *How do we measure ecosystem physiology with HypsIRI?*, HypsIRI Science and Application Workshop, Pasadena, CA, October 14-16, 2014
- 2014 **Serbin, S.P.**, Singh, A., Kingdon, C.C., Couture, J.J., Kruger, E.L., McNeil, B.E., Townsend, P.A., *Quantifying the variability of ecosystem functional traits and plant metabolism with field and imaging spectroscopy*, Ecological Society of America (ESA) Annual Meeting, Aug. 10-15, 2014 (Presentation) →
- 2014 LeBauer, D.S., Dietze, M.C., **Serbin, S.P.** *Combining heterogeneous data and process understanding using the Predictive Ecosystem Analyzer*, Ecological Society of America (ESA) Annual Meeting, Aug. 10-15, 2014 (Presentation) →
- 2014 **Serbin, S.P.**, *Introduction to spectroscopy: Capturing spatial variation in carbon cycling. Mechanisms and Interactions of Climate Change in Mountain Regions (MICMoR)*, KIT/IMK-IFU, Garmisch-Partenkirchen, Germany, July 21 - 30, 2014 (Presentation)
- 2014 DuBois, S.G., Desai, A.R., **Serbin, S.P.**, Townsend, P.A., Kruger, E.L., Kingdon, C.C., *The use of hyperspectral imagery to assess the sensitivity of ecosystem photosynthetic parameters along two California climate gradients*, Global Land Project Open Science Meeting, Berlin, Germany (Poster) →
- 2014 Serbin, S.P. *Challenges and opportunities in modeling terrestrial carbon fluxes*, CREST/CCNY-BNL Joint Workshop, April 10, 2014 (Presentation)
- 2014 Townsend, P.A., **Serbin, S.P.**, Kruger, E.L., DuBois, S.G., Desai, A.R., Jablonski, A., Singh, A. *Imaging spectroscopy of plant physiology*, NASA HypsIRI Airborne Science Team Meeting, March 17th – 18th, NASA Headquarters, Washington DC (Presentation)
- 2013 **Serbin, S.P.**, DuBois, S.G., Desai, A.R., Kruger, E.L., Townsend, P.A., Dietze, M.C., Viskari, T., Hardiman, B., LeBauer, D.S., Kooper, R., McHenry, K., Goulden, M., Drewry, D., Green, R., Hook, S. *Informing terrestrial ecosystem models with leaf and imaging spectroscopy to improve the representation and prediction of vegetation dynamics and carbon cycling*, Ecosystem Demography (ED) Workshop, LBNL (Presentation)
- 2013 **Serbin, S.P.**, Dietze, M.C., Desai, A.R., LeBauer, D.S., Viskari, T.T., Kooper, R., McHenry, K., Townsend, P.A. *Assimilation of Leaf and Canopy Spectroscopic Data to Improve the Representation of Vegetation Dynamics in Terrestrial Ecosystem Models*, American Geophysical Union Fall Meeting, San Francisco, CA (Presentation) →
- 2013 Musinsky, J., Wasser, L.A., Kampe, T.U., Leisso, N., Krause, K., Petroy, S.B., Cawse-Nicholson, K., van Aardt, J.A., **Serbin, S.P.**, *Developing a Scalable Remote Sampling Design for the NEON Airborne Observation Platform (AOP)*, American Geophysical Union, San Francisco, CA (Presentation) →
- 2013 Kampe, T.U., Leisso, N., Krause, K., Musinsky, J., Petroy, S.B., Wasser, L.A., Cawse-Nicholson, K., van Aardt, J.A., Schaaf, C., Strahler, A.H., **Serbin, S.P.**, *NEON Collaborative Data Collection Campaign at Pacific South West Site in California*, American Geophysical Union, San Francisco, CA (Presentation) →

- 2013 DuBois, S.G., **Serbin, S.P.**, Desai, A.R., Kruger, E.L., Kingdon, C.C., Goulden, M.L., Townsend, P.A. *Measurement of ecosystem metabolism across climatic & vegetation gradients in California*, American Geophysical Union, San Francisco, CA (Poster) ➔
- 2013 Singh, A., **Serbin, S.P.**, Kingdon, C., Townsend, P.A. *Scaling, propagating and mapping uncertainty in spectroscopy-derived foliar traits from the leaf to the image*, American Geophysical Union Fall Meeting, San Francisco, CA (Presentation) ➔
- 2013 Townsend, P.A., **Serbin, S.P.**, Kingdon, C.C., Singh, A., Couture, J.J., Gamon, J. *Spectral data captures important variability between and among species and functional types*, American Geophysical Union Fall Meeting, San Francisco, CA (Presentation) ➔
- 2013 Desai, A.R., Dubois, S., **Serbin, S.P.**, Viskari, T.T., Dietze, M.C., Townsend, P.A., *Advancing techniques for informing terrestrial ecosystem models with leaf and imaging spectroscopy to improve the representation and prediction of vegetation dynamics and carbon cycling*, EuroSpec Conference, Trento, Italy, November 6-8 (Presentation) ➔
- 2013 **Serbin, S.P.**, DuBois, S.G., Desai, A.R., Kruger, E.L., Kingdon, C.C., Goulden, M.L., Townsend, P.A. *Characterizing ecosystem metabolism across climatic and vegetation gradients in California as part of the NASA HypIRI Airborne Campaign*, HypIRI Workshop, Pasadena, CA. (Poster)
- 2013 **Serbin, S.P.**, Singh, A., Kingdon, C., Townsend, P.A. *Scaling, propagating and mapping uncertainty in spectroscopy-derived foliar traits from the leaf to the image*, HypIRI Workshop, Pasadena, CA. (Presentation) ➔
- 2013 Townsend, P.A., **Serbin, S.P.**, Kruger, E.L., *Leaf- and canopy-level reflectance spectroscopy show potential to estimate photosynthetic capacity*, The 16th International Congress on Photosynthesis, August 11-16th
- 2013 Hardiman, B.S., **Serbin, S.P.**, Mantooth, J.A., Kennedy, R., Dietze, M.C. *Assimilating PALSAR remote sensing data to reduce uncertainty in ED2 predictions of forest biomass dynamics following disturbance*, Ecological Society of America (ESA), Minneapolis, MN, August 4th-9th (Presentation) ➔
- 2013 LeBauer, D., Dietze, M., Jaiswal, D., Kooper, R., Long, S.P., **Serbin, S.P.**, Wang, D., *Reducing uncertainty through data-driven model development*, Ecological Society of America (ESA), Minneapolis, MN, August 4th-9th (Presentation) ➔
- 2013 Kooper, R., McHenry, K., Dietze, M.C., LeBauer, D.S., **Serbin, S.P.**, Desai, A., *Ecological cyberinfrastructure and HPC: Towards more accurately predicting future levels of greenhouse gasses*, XSEDE13, San Diego, CA, (Poster) ➔
- 2012 Bizjack, M, Brooks, B., Dietze, M.C., **Serbin, S.P.**, *Bridging local scale ground-based tree assessments to large scale inventory and remote sensing data to quantify landscape representativeness of an atmospheric study tower*, American Geophysical Union Fall Meeting, San Francisco, CA (Poster) ➔
- 2012 Dietze, M.C., Davidson, C.D., Kelly, R., Higuera, P.E., Hollister, R., Hu, F.S., Rocha, A., Serbin, S.P. *The modeled effects of fire on carbon balance and vegetation abundance in Alaskan tundra*, American Geophysical Union Fall Meeting, San Francisco, CA (Presentation)
- 2012 Dietze, M.C., Davidson, C.D., Desai, A.R., Feng, X., Kelly, R., Kooper, R., LeBauer, D.S., Mantooth, J., McHenry, K., **Serbin, S.P.**, Wang, D., *What do we need to measure, how much, and where? A quantitative assessment of terrestrial data needs across North American biomes through data-model fusion and sampling optimization*, American Geophysical Union Fall Meeting, San Francisco, CA (Presentation) ➔
- 2012 McHenry, K., Kooper, R., **Serbin, S.P.**, LeBauer, D., Desai, A., Dietze, M. *A Web interface for ecosystem modeling*, American Geophysical Union Fall Meeting, San Francisco, CA (Poster)

- 2012 **Serbin, S.P.**, Singh, A., Couture, J.J., Kingdon, C., Kruger, E.L., Townsend, P.A. *Characterization of forest ecosystem functioning using imaging spectroscopy and thermal IR imagery*, ForestSAT, Corvallis, OR, September 11th – 14th (Presentation). ➔
- 2012 **Serbin, S.P.**, Bolstad, P.V., Cook, B.D., Desai, A.R., Ewers, B.E., Kooper, R., LeBauer, D.S., Martin, J.G., McHenry, K., Townsend, P.A., Dietze, M.C., *From multiple datasets to ecological prediction – The PEcAn workflow and model-data assimilation*, ForestSAT, Corvallis, OR, September 11th – 14th (Poster). ➔
- 2012 Townsend, P.A., Asner, G.P., **Serbin, S.P.**, Singh, A., McNeil, B.E. *Drivers of spectral differences between and within species: Important considerations in practical application*, ForestSAT, Corvallis, OR, September 11th – 14th (Presentation).
- 2012 Singh, A., **Serbin, S.P.**, Kingdon, C., Gu, H., Townsend, P.A. *Issues in scaling forest functional traits across space and time: Inter-comparability in multi-date airborne spectroscopic imagery*, ForestSAT, Corvallis, OR, September 11th – 14th (Presentation)
- 2012 Townsend, P.A., Singh, A., **Serbin, S.P.** *Scaling chemical and biophysical retrievals from imaging spectroscopy data through space and time*, NEON, May, 2012.
- 2012 Townsend, P.A., **Serbin, S.P.**, Singh, A., McNeil, B.E., Kruger, E.L., Dillaway, D., Couture, J.J. *Obtaining and delivering spectral data over vegetation*, ACEAS workshop on Bio-optical data: Best practice and legacy datasets, Brisbane, Australia
- 2011 **Serbin, S.P.**, Townsend, P.A. *Quantifying the regional variation in forest ecosystem light-use efficiency using airborne remote sensing*, AGU, San Francisco, CA (Presentation). ➔
- 2011 Townsend, P.A., **Serbin, S.P.**, Kruger, E.L. *Combined VIS-NIR-SWIR and thermal imaging spectroscopy can be used to measure ecosystem metabolic rates*, American Geophysical Union Fall Meeting, San Francisco, CA (Presentation) ➔
- 2011 **Serbin, S.P.**, Kruger, E.L., Singh, A., Townsend, P.A. *Empirical basis for the measurement of plant metabolic and functional status using HypsIRI*, NASA CC&E Joint Science Workshop, October 3rd – 7th (Poster) ➔
- 2011 Townsend, P.A., **Serbin, S.P.**, Singh, A., Kruger, E.L. *HypsIRI: Temperature and the measurement of ecosystem processes*, NASA CC&E Joint Science Workshop, October 3rd – 7th (Presentation, **presented by Serbin, S.P.**) ➔
- 2011 **Serbin, S.P.**, Townsend, P.A. *Quantifying the regional variation in forest ecosystem light-use efficiency using airborne remote sensing data*, USIALE Symposium, April 3-7th, Portland, OR (Poster). ➔
- 2010 Isaacson, B., **Serbin, S.P.**, Singh, A., Townsend, P.A. *Mapping ash trees (Fraxinus spp) using Landsat-scale phenology for improved management of the emerald ash borer (Agrilus planipennis Fairmaire)*, ESA Annual Meeting, August 1st – 6th ➔
- 2010 **Serbin, S.P.**, Kruger, E.L., Singh, A., Townsend, P.A. *Making the connection between imaging spectroscopy and direct measurements of ecosystem function*, HypsIRI Workshop August 24-26th, Pasadena, CA (Invited Presentation).
- 2010 Townsend, P.A., **Serbin, S.P.**, Singh, A., McNeil, B.E., Kruger, E.L. *Imaging spectroscopy of plant metabolic and ecological function*, HypsIRI Workshop August 24-26th, Pasadena, CA (Presentation).
- 2009 **Serbin, S.P.**, Dillaway, D., Kruger, E.L., Townsend, P.A. *Detection of key leaf physiological traits using field and imaging spectroscopy*, American Geophysical Union 2009 Fall Meeting, San Francisco, CA (Presentation). ➔
- 2009 Isaacson, B., **Serbin, S.P.**, Singh, A., Townsend, P.A. *Mapping ash trees across a broad spatial extent with Moderate Resolution to support emerald ash borer*, USFS Emerald Ash Borer Research and Technology Development Meeting, October 20th – 21st
- 2009 **Serbin, S.P.**, Dillaway, D., Kruger, E.L., Townsend, P.A. *Use of imaging spectroscopy to detect plant physiological traits*, HypsIRI Workshop August 11-13th, Pasadena, CA (Presentation). ➔

- 2008 **Serbin, S.P.**, Townsend, P.A. *An integrative approach to quantifying the effects of disturbance on regional forest carbon cycling*, American Geophysical Union Fall Meeting, San Francisco, CA (Poster). →
- 2007 **Serbin, S.P.**, Ahl, D.E., Gower, S.T. *Quantifying the growing season dynamics and phenology of a boreal black spruce wildfire chronosequence: Coupling field measurements with remote sensing*, American Geophysical Union Fall Meeting, San Francisco, CA (Poster). →
- 2006 **Serbin, S.P.**, Ahl, D.E., Gower, S.T. *Application of MODIS to resolve the effects of global change on boreal forest C dynamics: Disturbance versus climate warming*, Global Vegetation Workshop, Missoula, MT (Poster). →
- 2003 **Serbin, S.**, Graves, A., Zaks, D., Brown, J., Tweedie, C.E., *The utility of survey grade differential global positioning systems (DGPS) technology for monitoring coastal erosion*, 4th Arctic Coastal Dynamics Workshop, VNIIOkeangeologia, St. Petersburg, Russia (Presentation) →
- 2003 Graves, A., Tweedie, C.E., Zaks, D., **Serbin, S.**, Manley, W., Brown, J., Bulger, R., *Spatial data infrastructure supports long term measurements to detect arctic change*, 4th Arctic Coastal Dynamics Workshop, VNIIOkeangeologia, St. Petersburg, Russia (Presentation) →

Teaching Experience

- 2014 Invited instructor, Mechanisms and Interactions of Climate Change in Mountain Regions (MICMoR), KIT/IMK-IFU, Garmisch-Partenkirchen, Germany, July 21 - 30, 2014
- 2013 Co-Instructor FWE 875 (Remote Sensing of Ecosystems / Spectroscopy), University of Wisconsin – Madison
- 2011 Guest Lecturer IES 556 (Digital Image Processing), University of Wisconsin – Madison. Instructor: Mutlu Ozdogan
- 2011 Teaching Assistant & Guest Instructor FWE 875 (Remote Sensing of Ecosystems), University of Wisconsin – Madison. Instructor: Philip A. Townsend
- 2006 Laboratory Teaching Assistant for Forestry 550 (Forest Ecology), UW – Madison. Instructor S. Thompson Gower
- 2003 Guest instructor, USDA Sponsored Culture Camp, “North Slope Geography, Maps and GPS.” Ilisagvik College, Barrow Alaska. 7 August 2003 (Presentation & Oral Lecture)

Professional Service & Affiliations

Panel participant, Climate Change teach-in at University of Wisconsin – Madison. Part of the National Teach-in Day on Climate Change, October 22, 2009.

Graduate student representative (2010 – 2011). Attended faculty meetings, organized departmental events and assisted with graduate student issues in the department and on campus. Assisted in the development of the ongoing Forest and Wildlife Ecology (FWE) departmental seminar series.

Journal Reviewer for: Agricultural and Forest Meteorology, Ecological Applications, EGU Biogeosciences, Environmental Science and Technology, Canadian Journal of Remote Sensing, Journal of Applied Meteorology and Climatology, Journal of Experimental Botany, Journal of Geophysical Research – Biogeosciences, Journal of Geophysical Research – Atmospheres, Journal of Plant Physiology, International Journal of Climatology, Landscape Ecology, Progress in Physical Geography, PLoS-One, Remote Sensing of Environment, Remote Sensing, Forest Ecology and Management, Nature Communications, New Phytologist

Proposal Reviewer for: National Aeronautics and Space Administration (NASA, served on NESSF panel), Department of Energy (DOE, Early Career & SBIR)

Professional Affiliations: American Geophysical Union (AGU), US-IALE, IEEE, American Society for Photogrammetry and Remote Sensing (ASPRS)

Synergistic Activities

2012 – Present Collaborator & active developer, Predictive Ecosystem Analyzer (PEcAn) project
2012 – Present Collaborator, University of Illinois SoyFACE facility
2013 – Present Collaborator & contributor, NASA funded Ecological Spectral Information System (EcoSIS) leaf + imaging spectral database and data exploration system

Student Mentoring

Undergraduate Students and Technicians: Angelique Edgerton, Jennifer Limbach, Jessica Nelson-Urban, Christopher Kniffen

Graduate Students: Alexey Shiklomanov (Boston University), Bernard Isaacson (University of Wisconsin), Ingrid Van Herk (University of Wisconsin), Sean DuBois (University of Wisconsin), Christopher Montes (University of Illinois), Carl Davidson (University of Illinois), Rachel Paul (University of Illinois)

Other Relevant Work Experience

2010 Summer Flux and Advance Modeling Course, July 19th – July 30th, Niwot Ridge Mountain Research Station, Colorado. **Course organizers:** Drs. Russell Monson & David Moore.

Software Development & Programming: Proficient in programming and scripting in bash, R, Matlab, Python, IDL, and Fortran languages, with experience programming in C and C++. Skilled in image analysis, processing and other GIS tools in the ENVI/IDL, ERDAS Imagine and ArcGIS software suites. Competent in the management and use of high performance computing (HPC) and multi-user server environments for scientific computing and process modeling. Scientific software development activities include a new toolbox for processing leaf gas exchange data (<https://github.com/R-GasExchange>), the PEcAn project (<http://www.pecanproject.org/>; <https://github.com/PecanProject/pecan>), open-source toolbox for processing field spectroscopy data (<https://github.com/serbinsh/R-FieldSpectra>) as well as an R implementation of the PROSPECT leaf radiative transfer model for research, training, and teaching purposes (<https://github.com/serbinsh/R-PROSPECT>).

Other experience: Skilled in ecosystem process modeling for global change research, including the management of driver and validation data as well as model-data synthesis techniques. Proficient in the collection of leaf-level gas exchange data as well as associated chlorophyll fluorescence techniques. Expert in the collection of spectroscopy data as well as associated analytical techniques, wet chemistry and laboratory analysis. Skilled in leaf- and image-scale radiative transfer modeling (RTM), image atmospheric correction algorithms, atmospheric correction algorithms, and associated image retrieval and data processing techniques. Experienced in data quality control and assessment, including automated error detection methods. Good familiarity with deploying, managing and troubleshooting data logger and environmental monitoring sensors.